D3Q7 ADE,

a supplementary material for

Lattice Boltzmann Method Analysis Tool (LBMAT)

Radek Fučík[†], Pavel Eichler[†], Jakub Klinkovský[†], Robert Straka[‡,†], and Tomáš Oberhuber[†]

[†]Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Trojanova 13, 120 00 Prague, Czech Republic

[‡]AGH University of Science and Technology, al. Mickiewicza 30, 30-059 Krakow, Poland

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1 Global definitions

In $\mathbb{R}^3$, the position and velocity vectors are given by $\boldsymbol{x} = (x_1, x_2, x_3)^T$ and $\boldsymbol{v} = (v_1, v_2, v_3)^T$, respectively.

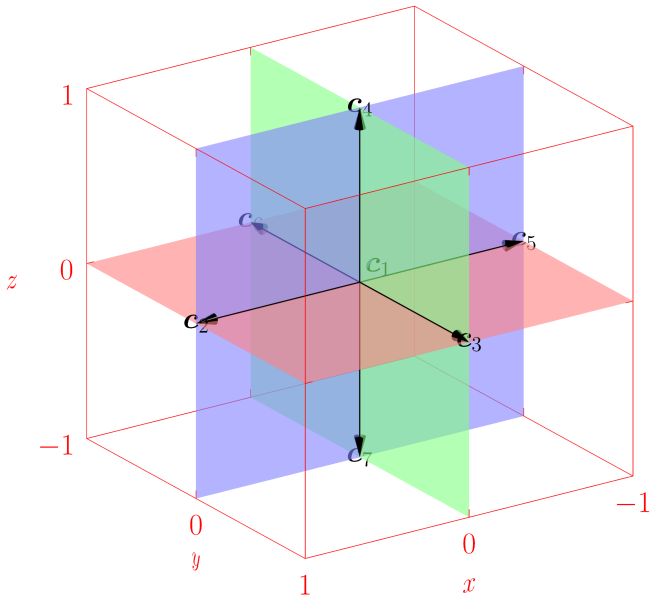
1.1 Discrete velocity vectors

Discrete velocity vectors and the lattice speed of sound are defined by

$$\{\boldsymbol{c}_i\}_{i=1}^{7} = \left(\begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix}, \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ -1 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ 0 \\ -1 \end{pmatrix} \right),$$

$$c_s = \frac{1}{2},$$

respectively [1].



1.2 Raw and central moments

The raw and central moments are defined by

$$m_{\boldsymbol{\alpha}} := \sum_{i=1}^{7} f_i \boldsymbol{c}_i^{\boldsymbol{\alpha}},$$

and

$$k_{\boldsymbol{\alpha}} := \sum_{i=1}^{7} f_i (\boldsymbol{c}_i - \boldsymbol{v})^{\boldsymbol{\alpha}},$$

respectively, where $\boldsymbol{\alpha} = (\alpha_1, \alpha_2, \alpha_3) \in \mathbb{Z}^3$ denotes a multi-index (as a row vector) and $\boldsymbol{c}_i^{\boldsymbol{\alpha}} := \prod_{j=1}^{3} [\boldsymbol{c}_i]_j^{\alpha_j}$.

1.3 Transformation matrix M

Matrix $\mathbf{M}$, that defines macroscopic quantities (moments) $\boldsymbol{\mu}$ by

$$\boldsymbol{\mu} = \mathbf{M}\boldsymbol{f},$$

with $\boldsymbol{f} = (f_1, f_2, \ldots, f_7)^T$, is selected such that

$$\boldsymbol{\mu} = \left(m_{(0,0,0)}, m_{(1,0,0)}, m_{(0,1,0)}, m_{(0,0,1)}, m_{(2,0,0)}, m_{(0,2,0)}, m_{(0,0,2)}\right)^T,$$

i.e., $\mathbf{M}$ is given by

$$\mathbf{M} = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 1 & 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & -1 \\ 0 & 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 \end{pmatrix}.$$

1.4 Equilibrium

The corresponding equilibrium raw moments are defined using the continuous Maxwell–Boltzmann distribution function [1]

$$f^{(eq)}(\boldsymbol{\xi}) = \frac{\rho}{(2\pi c_s^2)^{\frac{3}{2}}} \exp\left(-\frac{||\boldsymbol{\xi} - \boldsymbol{v}||^2}{2c_s^2}\right)$$

as

$$m_{\boldsymbol{\alpha}}^{(eq)} = \int_{\mathbb{R}^3} \boldsymbol{\xi}^{\boldsymbol{\alpha}} f^{(eq)}(\boldsymbol{\xi}) \mathrm{d}\boldsymbol{\xi},$$

where $\alpha_i \in \{0, 1, 2\}$, $i = 1, 2, 3$. Hence, the equilibrium moments $\boldsymbol{\mu}^{(eq)}$ satisfy

$$\boldsymbol{\mu}^{(eq)} = \begin{pmatrix} \rho \\ \rho v_1 \\ \rho v_2 \\ \rho v_3 \\ \rho(v_1^2 + c_s^2) \\ \rho(v_2^2 + c_s^2) \\ \rho(v_3^2 + c_s^2) \end{pmatrix}.$$

2 Spatial EPDEs

2.1 SRT

2.1.1 Definitions

Collision operator $\boldsymbol{C}$:

$$\boldsymbol{C}(\boldsymbol{f}) = \omega\left(\mathbf{M}^{-1}\boldsymbol{\mu}^{(eq)} - \boldsymbol{f}\right),$$

$\omega \in (0, 2)$.

2.1.2 Conservation of mass equation

$$\frac{\partial \rho}{\partial t} + \frac{v_1\delta_l}{\delta_t}\frac{\partial \rho}{\partial x_1} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_1}{\partial x_1} + \frac{v_2\delta_l}{\delta_t}\frac{\partial \rho}{\partial x_2} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_2}{\partial x_2} + \frac{v_3\delta_l}{\delta_t}\frac{\partial \rho}{\partial x_3} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_3}{\partial x_3} + (-2+\omega)\frac{\delta_l}{2\omega}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial t} + (-2+\omega)\frac{v_1\delta_l^2}{2\omega\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_1}$$
$$+ (-2+\omega)\frac{\delta_l^2\rho}{2\omega\delta_t}\left(\frac{\partial v_1}{\partial x_1}\right)^2 + (2-\omega)\frac{v_2\delta_l^2}{2\omega\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_2} + (2-\omega)\frac{v_1\delta_l^2}{\omega\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_2}{\partial x_2} + (2-\omega)\frac{\delta_l^2\rho}{\omega\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2} + (2-\omega)\frac{v_3\delta_l^2}{2\omega\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_3}$$

$$+ (2-\omega)\frac{v_1\delta_l^2}{\omega\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_3}{\partial x_3} + (2-\omega)\frac{\delta_l^2\rho}{\omega\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_3}{\partial x_3} + (-2+\omega)\frac{\delta_l}{2\omega}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial t} + (2-\omega)\frac{v_2\delta_l^2}{\omega\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_1}{\partial x_1} + (2-\omega)\frac{v_1\delta_l^2}{2\omega\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_1} +$$
$$(-2+\omega)\frac{v_2\delta_l^2}{2\omega\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_2} + (-2+\omega)\frac{\delta_l^2\rho}{2\omega\delta_t}\left(\frac{\partial v_2}{\partial x_2}\right)^2 + (2-\omega)\frac{v_3\delta_l^2}{2\omega\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_3} + (2-\omega)\frac{v_2\delta_l^2}{\omega\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_3}{\partial x_3} + (2-\omega)\frac{\delta_l^2\rho}{\omega\delta_t}\frac{\partial v_2}{\partial x_3}\frac{\partial v_3}{\partial x_3} +$$
$$(-2+\omega)\frac{\delta_l}{2\omega}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial t} + (2-\omega)\frac{v_3\delta_l^2}{\omega\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_1}{\partial x_1} + (2-\omega)\frac{v_1\delta_l^2}{2\omega\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_1} + (2-\omega)\frac{v_3\delta_l^2}{\omega\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_2}{\partial x_2} + (2-\omega)\frac{v_2\delta_l^2}{2\omega\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_2} +$$
$$(-2+\omega)\frac{v_3\delta_l^2}{2\omega\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_3} + (-2+\omega)\frac{\delta_l^2\rho}{2\omega\delta_t}\left(\frac{\partial v_3}{\partial x_3}\right)^2 + (-2+\omega)\frac{\delta_l\rho}{2\omega}\frac{\partial^2 v_1}{\partial t\partial x_1} + (-2+\omega)\frac{c_s^2\delta_l^2}{2\omega\delta_t}\frac{\partial^2\rho}{\partial x_1^2} + (-2+\omega)\frac{v_1\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_1}{\partial x_1^2} +$$
$$(-2+\omega)\frac{\delta_l\rho}{2\omega}\frac{\partial^2 v_2}{\partial t\partial x_2} + (2-\omega)\frac{v_2v_1\delta_l^2}{\omega\delta_t}\frac{\partial^2\rho}{\partial x_1\partial x_2} + (2-\omega)\frac{v_2\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_1}{\partial x_1\partial x_2} + (2-\omega)\frac{v_1\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_2}{\partial x_1\partial x_2} + (-2+\omega)\frac{c_s^2\delta_l^2}{2\omega\delta_t}\frac{\partial^2\rho}{\partial x_2^2} +$$
$$(-2+\omega)\frac{v_2\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_2}{\partial x_2^2} + (-2+\omega)\frac{\delta_l\rho}{2\omega}\frac{\partial^2 v_3}{\partial t\partial x_3} + (2-\omega)\frac{v_1v_3\delta_l^2}{\omega\delta_t}\frac{\partial^2\rho}{\partial x_1\partial x_3} + (2-\omega)\frac{v_3\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_1}{\partial x_1\partial x_3} + (2-\omega)\frac{v_1\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_3}{\partial x_1\partial x_3} +$$
$$(2-\omega)\frac{v_2v_3\delta_l^2}{\omega\delta_t}\frac{\partial^2\rho}{\partial x_2\partial x_3} + (2-\omega)\frac{v_3\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_2}{\partial x_2\partial x_3} + (2-\omega)\frac{v_2\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_3}{\partial x_2\partial x_3} + (-2+\omega)\frac{c_s^2\delta_l^2}{2\omega\delta_t}\frac{\partial^2\rho}{\partial x_3^2} + (-2+\omega)\frac{v_3\delta_l^2\rho}{2\omega\delta_t}\frac{\partial^2 v_3}{\partial x_3^2} +$$
$$(12-12\omega+\omega^2)\frac{\delta_l\delta_t\rho}{12\omega^2}\frac{\partial^3 v_1}{\partial t^2\partial x_1} + (12-12\omega+\omega^2)\frac{v_1\delta_l^2\rho}{6\omega^2}\frac{\partial^3 v_1}{\partial t\partial x_1^2} +$$
$$(6-6\omega-18c_s^2-v_1^2\omega^2+18c_s^2\omega-6v_1^2+6v_1^2\omega-3c_s^2\omega^2+\omega^2)\frac{v_1\delta_l^3}{6\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_1^3} +$$
$$(12-12\omega-24c_s^2-5v_1^2\omega^2+24c_s^2\omega-24v_1^2+24v_1^2\omega-3c_s^2\omega^2+2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^3} + (12-12\omega+\omega^2)\frac{\delta_l\delta_t\rho}{12\omega^2}\frac{\partial^3 v_2}{\partial t^2\partial x_2} +$$
$$(-6+6\omega-\omega^2)\frac{v_2\delta_l^2\rho}{3\omega^2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_2} + (-6+6\omega-\omega^2)\frac{v_1\delta_l^2\rho}{3\omega^2}\frac{\partial^3 v_2}{\partial t\partial x_1\partial x_2} +$$
$$(-6c_s^2+v_1^2\omega^2+6c_s^2\omega+6v_1^2-6v_1^2\omega-c_s^2\omega^2)\frac{v_2\delta_l^3}{2\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_2} + (12-12\omega+\omega^2)\frac{v_2v_1\delta_l^3\rho}{6\omega^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^2\partial x_2} +$$
$$(-24c_s^2+v_1^2\omega^2+24c_s^2\omega-3c_s^2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_2}{\partial x_1^2\partial x_2} + (12-12\omega+\omega^2)\frac{v_2\delta_l^2\rho}{6\omega^2}\frac{\partial^3 v_2}{\partial t\partial x_2^2} +$$
$$(-6c_s^2+6v_2^2-6v_2^2\omega+6c_s^2\omega+v_2^2\omega^2-c_s^2\omega^2)\frac{v_1\delta_l^3}{2\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2^2} + (-24c_s^2+24c_s^2\omega+v_2^2\omega^2-3c_s^2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_2^2} +$$
$$(12-12\omega+\omega^2)\frac{v_2v_1\delta_l^3\rho}{6\omega^2\delta_t}\frac{\partial^3 v_2}{\partial x_1\partial x_2^2} + (6-6\omega-18c_s^2-6v_2^2+6v_2^2\omega+18c_s^2\omega-v_2^2\omega^2-3c_s^2\omega^2+\omega^2)\frac{v_2\delta_l^3}{6\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_2^3} +$$
$$(12-12\omega-24c_s^2-24v_2^2+24v_2^2\omega+24c_s^2\omega-5v_2^2\omega^2-3c_s^2\omega^2+2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^3} + (12-12\omega+\omega^2)\frac{\delta_l\delta_t\rho}{12\omega^2}\frac{\partial^3 v_3}{\partial t^2\partial x_3} +$$
$$(-6+6\omega-\omega^2)\frac{v_3\delta_l^2\rho}{3\omega^2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_3} + (-6+6\omega-\omega^2)\frac{v_1\delta_l^2\rho}{3\omega^2}\frac{\partial^3 v_3}{\partial t\partial x_1\partial x_3} +$$
$$(-6c_s^2+v_1^2\omega^2+6c_s^2\omega+6v_1^2-6v_1^2\omega-c_s^2\omega^2)\frac{v_3\delta_l^3}{2\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_3} + (12-12\omega+\omega^2)\frac{v_1v_3\delta_l^3\rho}{6\omega^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^2\partial x_3} +$$
$$(-24c_s^2+v_1^2\omega^2+24c_s^2\omega-3c_s^2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_3}{\partial x_1^2\partial x_3} + (-6+6\omega-\omega^2)\frac{v_3\delta_l^2\rho}{3\omega^2}\frac{\partial^3 v_2}{\partial t\partial x_2\partial x_3} + (-6+6\omega-\omega^2)\frac{v_2\delta_l^2\rho}{3\omega^2}\frac{\partial^3 v_3}{\partial t\partial x_2\partial x_3} +$$
$$(6-6\omega+\omega^2)\frac{2v_2v_1v_3\delta_l^3}{\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2\partial x_3} + (6-6\omega+\omega^2)\frac{2v_2v_3\delta_l^3\rho}{3\omega^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_2\partial x_3} + (6-6\omega+\omega^2)\frac{2v_1v_3\delta_l^3\rho}{3\omega^2\delta_t}\frac{\partial^3 v_2}{\partial x_1\partial x_2\partial x_3} +$$
$$(6-6\omega+\omega^2)\frac{2v_2v_1\delta_l^3\rho}{3\omega^2\delta_t}\frac{\partial^3 v_3}{\partial x_1\partial x_2\partial x_3} + (-6c_s^2+6v_2^2-6v_2^2\omega+6c_s^2\omega+v_2^2\omega^2-c_s^2\omega^2)\frac{v_3\delta_l^3}{2\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_2^2\partial x_3} +$$
$$(12-12\omega+\omega^2)\frac{v_2v_3\delta_l^3\rho}{6\omega^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^2\partial x_3} + (-24c_s^2+24c_s^2\omega+v_2^2\omega^2-3c_s^2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_3}{\partial x_2^2\partial x_3} + (12-12\omega+\omega^2)\frac{v_3\delta_l^2\rho}{6\omega^2}\frac{\partial^3 v_3}{\partial t\partial x_2^2} +$$
$$(v_3^2\omega^2-6v_3^2\omega-6c_s^2+6c_s^2\omega-c_s^2\omega^2+6v_3^2)\frac{v_1\delta_l^3}{2\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_3^2} + (v_3^2\omega^2-24c_s^2+24c_s^2\omega-3c_s^2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_3^2} +$$
$$(12-12\omega+\omega^2)\frac{v_1v_3\delta_l^3\rho}{6\omega^2\delta_t}\frac{\partial^3 v_3}{\partial x_1\partial x_3^2} + (v_3^2\omega^2-6v_3^2\omega-6c_s^2+6c_s^2\omega-c_s^2\omega^2+6v_3^2)\frac{v_2\delta_l^3}{2\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_2\partial x_3^2} +$$
$$(v_3^2\omega^2-24c_s^2+24c_s^2\omega-3c_s^2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_2}{\partial x_2\partial x_3^2} + (12-12\omega+\omega^2)\frac{v_2v_3\delta_l^3\rho}{6\omega^2\delta_t}\frac{\partial^3 v_3}{\partial x_2\partial x_3^2} +$$
$$(6-v_3^2\omega^2-6\omega+6v_3^2\omega-18c_s^2+18c_s^2\omega-3c_s^2\omega^2-6v_3^2+\omega^2)\frac{v_3\delta_l^3}{6\omega^2\delta_t}\frac{\partial^3\rho}{\partial x_3^3} +$$
$$(12-5v_3^2\omega^2-12\omega+24v_3^2\omega-24c_s^2+24c_s^2\omega-3c_s^2\omega^2-24v_3^2+2\omega^2)\frac{\delta_l^3\rho}{12\omega^2\delta_t}\frac{\partial^3 v_3}{\partial x_3^3} + (-2+3\omega-\omega^2)\frac{\delta_l\delta_t^2\rho}{2\omega^3}\frac{\partial^4 v_1}{\partial t^3\partial x_1} +$$
$$(-2+3\omega-\omega^2)\frac{3v_1\delta_l^2\delta_t\rho}{2\omega^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1^2} + C_1\frac{\delta_l^3\rho}{12\omega^3}\frac{\partial^4 v_1}{\partial t\partial x_1^3} + C_2\frac{\delta_l^4}{24\omega^3\delta_t}\frac{\partial^4\rho}{\partial x_1^4} + C_3\frac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^4} + (-2+3\omega-\omega^2)\frac{\delta_l\delta_t^2\rho}{2\omega^3}\frac{\partial^4 v_2}{\partial t^3\partial x_2} +$$
$$(36-54\omega-\omega^3+20\omega^2)\frac{v_2\delta_l^2\delta_t\rho}{12\omega^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_2} + (36-54\omega-\omega^3+20\omega^2)\frac{v_1\delta_l^2\delta_t\rho}{12\omega^3}\frac{\partial^4 v_2}{\partial t^2\partial x_1\partial x_2} +$$
$$(-24+36\omega+\omega^3-14\omega^2)\frac{v_2v_1\delta_l^3\rho}{6\omega^3}\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_2} + (60c_s^2+v_1^2\omega^3-2v_1^2\omega^2-90c_s^2\omega+34c_s^2\omega^2-2c_s^2\omega^3)\frac{\delta_l^3\rho}{12\omega^3}\frac{\partial^4 v_2}{\partial t\partial x_1^2\partial x_2} +$$
$$(24-36\omega-120c_s^2+180c_s^2\omega-\omega^3-72c_s^2\omega^2+6c_s^2\omega^3+14\omega^2)\frac{v_2v_1\delta_l^4}{6\omega^3\delta_t}\frac{\partial^4\rho}{\partial x_1^3\partial x_2} + C_4\frac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^3\partial x_2} + C_5\frac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\frac{\partial^4 v_2}{\partial x_1^3\partial x_2}$$
$$+ (-2+3\omega-\omega^2)\frac{3v_2\delta_l^2\delta_t\rho}{2\omega^3}\frac{\partial^4 v_2}{\partial t^2\partial x_2^2} + (60c_s^2-90c_s^2\omega-2v_2^2\omega^2+34c_s^2\omega^2-2c_s^2\omega^3+v_2^2\omega^3)\frac{\delta_l^3\rho}{12\omega^3}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2} +$$

$$
\begin{aligned}
&(-24+36\omega+\omega^3-14\omega^2)\tfrac{v_2v_1\delta_l^3\rho}{6\omega^3}\tfrac{\partial^4 v_2}{\partial t\partial x_1\partial x_2^2} + C_6\tfrac{\delta_l^4}{4\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_2^2} + \\
&(-48c_s^2+84v_2^2-126v_2^2\omega+72c_s^2\omega+50v_2^2\omega^2-26c_s^2\omega^2+c_s^2\omega^3-4v_2^2\omega^3)\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_2^2} + \\
&(-48c_s^2-4v_1^2\omega^3+50v_1^2\omega^2+72c_s^2\omega+84v_1^2-126v_1^2\omega-26c_s^2\omega^2+c_s^2\omega^3)\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1^2\partial x_2^2} + C_7\tfrac{\delta_l^3\rho}{12\omega^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2^3} + \\
&(24-36\omega-120c_s^2+180c_s^2\omega-\omega^3-72c_s^2\omega^2+6c_s^2\omega^3+14\omega^2)\tfrac{v_2v_1\delta_l^4}{6\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1\partial x_2^3} + C_8\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2^3} + C_9\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2^3} \\
&+ C_{10}\tfrac{\delta_l^4}{24\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_2^4} + C_{11}\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_2^4} + (-2+3\omega-\omega^2)\tfrac{\delta_l\delta_t^2\rho}{2\omega^3}\tfrac{\partial^4 v_3}{\partial t^3\partial x_3} + (36-54\omega-\omega^3+20\omega^2)\tfrac{v_3\delta_l^2\delta_t\rho}{12\omega^3}\tfrac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_3} + \\
&(36-54\omega-\omega^3+20\omega^2)\tfrac{v_1\delta_l^2\delta_t\rho}{12\omega^3}\tfrac{\partial^4 v_3}{\partial t^2\partial x_1\partial x_3} + (-24+36\omega+\omega^3-14\omega^2)\tfrac{v_1v_3\delta_l^3\rho}{6\omega^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_3} + \\
&(60c_s^2+v_1^2\omega^3-2v_1^2\omega^2-90c_s^2\omega+34c_s^2\omega^2-2c_s^2\omega^3)\tfrac{\delta_l^3\rho}{12\omega^3}\tfrac{\partial^4 v_3}{\partial t\partial x_1^2\partial x_3} + \\
&(24-36\omega-120c_s^2+180c_s^2\omega-\omega^3-72c_s^2\omega^2+6c_s^2\omega^3+14\omega^2)\tfrac{v_1v_3\delta_l^4}{6\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^3\partial x_3} + C_{12}\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^3\partial x_3} + \\
&C_{13}\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1^3\partial x_3} + (36-54\omega-\omega^3+20\omega^2)\tfrac{v_3\delta_l^2\delta_t\rho}{12\omega^3}\tfrac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3} + (36-54\omega-\omega^3+20\omega^2)\tfrac{v_2\delta_l^2\delta_t\rho}{12\omega^3}\tfrac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3} + \\
&(-20+30\omega+\omega^3-12\omega^2)\tfrac{v_2v_3\delta_l^3\rho}{2\omega^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3} + (-20+30\omega+\omega^3-12\omega^2)\tfrac{v_1v_3\delta_l^3\rho}{2\omega^3}\tfrac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3} + \\
&(-20+30\omega+\omega^3-12\omega^2)\tfrac{v_2v_1\delta_l^3\rho}{2\omega^3}\tfrac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3} + \\
&(-20c_s^2-2v_1^2\omega^3+24v_1^2\omega^2+30c_s^2\omega+40v_1^2-60v_1^2\omega-12c_s^2\omega^2+c_s^2\omega^3)\tfrac{v_2v_3\delta_l^4}{\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_2\partial x_3} + \\
&(132-198\omega-5\omega^3+76\omega^2)\tfrac{v_2v_1v_3\delta_l^4\rho}{6\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3} + \\
&(-96c_s^2-5v_1^2\omega^3+52v_1^2\omega^2+144c_s^2\omega+84v_1^2-126v_1^2\omega-56c_s^2\omega^2+4c_s^2\omega^3)\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1^2\partial x_2\partial x_3} + \\
&(-96c_s^2-5v_1^2\omega^3+52v_1^2\omega^2+144c_s^2\omega+84v_1^2-126v_1^2\omega-56c_s^2\omega^2+4c_s^2\omega^3)\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1^2\partial x_2\partial x_3} + \\
&(-24+36\omega+\omega^3-14\omega^2)\tfrac{v_2v_3\delta_l^3\rho}{6\omega^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2^2\partial x_3} + (60c_s^2-90c_s^2\omega-2v_2^2\omega^2+34c_s^2\omega^2-2c_s^2\omega^3+v_2^2\omega^3)\tfrac{\delta_l^3\rho}{12\omega^3}\tfrac{\partial^4 v_3}{\partial t\partial x_2^2\partial x_3} + \\
&(-20c_s^2+40v_2^2-60v_2^2\omega+30c_s^2\omega+24v_2^2\omega^2-12c_s^2\omega^2+c_s^2\omega^3-2v_2^2\omega^3)\tfrac{v_1v_3\delta_l^4}{\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1\partial x_2^2\partial x_3} + \\
&(-96c_s^2+84v_2^2-126v_2^2\omega+144c_s^2\omega+52v_2^2\omega^2-56c_s^2\omega^2+4c_s^2\omega^3-5v_2^2\omega^3)\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2^2\partial x_3} + \\
&(132-198\omega-5\omega^3+76\omega^2)\tfrac{v_2v_1v_3\delta_l^4\rho}{6\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3} + \\
&(-96c_s^2+84v_2^2-126v_2^2\omega+144c_s^2\omega+52v_2^2\omega^2-56c_s^2\omega^2+4c_s^2\omega^3-5v_2^2\omega^3)\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3} + \\
&(24-36\omega-120c_s^2+180c_s^2\omega-\omega^3-72c_s^2\omega^2+6c_s^2\omega^3+14\omega^2)\tfrac{v_2v_3\delta_l^4}{6\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_2^3\partial x_3} + C_{14}\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_2^3\partial x_3} + \\
&C_{15}\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_2^3\partial x_3} + (-2+3\omega-\omega^2)\tfrac{3v_3\delta_l^2\delta_t\rho}{2\omega^3}\tfrac{\partial^4 v_3}{\partial t^2\partial x_3^2} + \\
&(-2v_3^2\omega^2+v_3^2\omega^3+60c_s^2-90c_s^2\omega+34c_s^2\omega^2-2c_s^2\omega^3)\tfrac{\delta_l^3\rho}{12\omega^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1\partial x_3^2} + (-24+36\omega+\omega^3-14\omega^2)\tfrac{v_1v_3\delta_l^3\rho}{6\omega^3}\tfrac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2} + \\
&C_{16}\tfrac{\delta_l^4}{4\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_3^2} + (50v_3^2\omega^2-4v_3^2\omega^3-126v_3^2\omega-48c_s^2+72c_s^2\omega-26c_s^2\omega^2+84v_3^2+c_s^2\omega^3)\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_3^2} + \\
&(-48c_s^2-4v_1^2\omega^3+50v_1^2\omega^2+72c_s^2\omega+84v_1^2-126v_1^2\omega-26c_s^2\omega^2+c_s^2\omega^3)\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1^2\partial x_3^2} + \\
&(-2v_3^2\omega^2+v_3^2\omega^3+60c_s^2-90c_s^2\omega+34c_s^2\omega^2-2c_s^2\omega^3)\tfrac{\delta_l^3\rho}{12\omega^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2\partial x_3^2} + (-24+36\omega+\omega^3-14\omega^2)\tfrac{v_2v_3\delta_l^3\rho}{6\omega^3}\tfrac{\partial^4 v_3}{\partial t\partial x_2\partial x_3^2} + \\
&(24v_3^2\omega^2-2v_3^2\omega^3-60v_3^2\omega-20c_s^2+30c_s^2\omega-12c_s^2\omega^2+40v_3^2+c_s^2\omega^3)\tfrac{v_2v_1\delta_l^4}{\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1\partial x_2\partial x_3^2} + \\
&(52v_3^2\omega^2-5v_3^2\omega^3-126v_3^2\omega-96c_s^2+144c_s^2\omega-56c_s^2\omega^2+84v_3^2+4c_s^2\omega^3)\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2} + \\
&(52v_3^2\omega^2-5v_3^2\omega^3-126v_3^2\omega-96c_s^2+144c_s^2\omega-56c_s^2\omega^2+84v_3^2+4c_s^2\omega^3)\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2} + \\
&(132-198\omega-5\omega^3+76\omega^2)\tfrac{v_2v_1v_3\delta_l^4\rho}{6\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1\partial x_2\partial x_3^2} + C_{17}\tfrac{\delta_l^4}{4\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_2^2\partial x_3^2} + \\
&(50v_3^2\omega^2-4v_3^2\omega^3-126v_3^2\omega-48c_s^2+72c_s^2\omega-26c_s^2\omega^2+84v_3^2+c_s^2\omega^3)\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_2^2\partial x_3^2} + \\
&(-48c_s^2+84v_2^2-126v_2^2\omega+72c_s^2\omega+50v_2^2\omega^2-26c_s^2\omega^2+c_s^2\omega^3-4v_2^2\omega^3)\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_2^2\partial x_3^2} + C_{18}\tfrac{\delta_l^3\rho}{12\omega^3}\tfrac{\partial^4 v_3}{\partial t\partial x_3^3} +
\end{aligned}
$$

$$(24-36\omega-120c_s^2+180c_s^2\omega-\omega^3-72c_s^2\omega^2+6c_s^2\omega^3+14\omega^2)\tfrac{v_1v_3\delta_l^4}{6\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1\partial x_3^3}+C_{19}\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4v_1}{\partial x_1\partial x_3^3}+C_{20}\tfrac{v_1\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4v_3}{\partial x_1\partial x_3^3}+(24-36\omega-120c_s^2+180c_s^2\omega-\omega^3-72c_s^2\omega^2+6c_s^2\omega^3+14\omega^2)\tfrac{v_2v_3\delta_l^4}{6\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_2\partial x_3^3}+C_{21}\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4v_2}{\partial x_2\partial x_3^3}+C_{22}\tfrac{v_2\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4v_3}{\partial x_2\partial x_3^3}+C_{23}\tfrac{\delta_l^4}{24\omega^3\delta_t}\tfrac{\partial^4\rho}{\partial x_3^4}+C_{24}\tfrac{v_3\delta_l^4\rho}{12\omega^3\delta_t}\tfrac{\partial^4v_3}{\partial x_3^4}=0,$$

where:

$C_1=-36+54\omega+60c_s^2-3v_1^2\omega^3+42v_1^2\omega^2-90c_s^2\omega+72v_1^2+\omega^3-108v_1^2\omega+34c_s^2\omega^2-2c_s^2\omega^3-20\omega^2$

$C_2=-42v_1^4\omega^2-72c_s^4\omega-84c_s^2v_1^2\omega^2+3v_1^4\omega^3+6c_s^2v_1^2\omega^3-3c_s^4\omega^3+48c_s^4+216c_s^2v_1^2\omega-72v_1^4+108v_1^4\omega+30c_s^4\omega^2-24c_s^2-3v_1^2\omega^3-144c_s^2v_1^2+42v_1^2\omega^2+36c_s^2\omega+72v_1^2-108v_1^2\omega-14c_s^2\omega^2+c_s^2\omega^3$

$C_3=24-36\omega-48c_s^2+2v_1^2\omega^3-22v_1^2\omega^2+72c_s^2\omega-36v_1^2-\omega^3+54v_1^2\omega-26c_s^2\omega^2+c_s^2\omega^3+14\omega^2$

$C_4=12-18\omega-96c_s^2+3v_1^2\omega^3-12v_1^2\omega^2+144c_s^2\omega-12v_1^2-\omega^3+18v_1^2\omega-56c_s^2\omega^2+4c_s^2\omega^3+8\omega^2$

$C_5=36-54\omega-96c_s^2+v_1^2\omega^3-20v_1^2\omega^2+144c_s^2\omega-36v_1^2-\omega^3+54v_1^2\omega-56c_s^2\omega^2+4c_s^2\omega^3+20\omega^2$

$C_6=-24c_s^4\omega-14c_s^2v_1^2\omega^2+34v_2^2v_1^2\omega^2+36v_2^2c_s^2\omega-3v_2^2v_1^2\omega^3+c_s^2v_1^2\omega^3+v_2^2c_s^2\omega^3-c_s^4\omega^3+16c_s^4-84v_2^2v_1^2\omega+36c_s^2v_1^2\omega-14v_2^2c_s^2\omega^2+10c_s^4\omega^2-24c_s^2v_1^2+56v_2^2v_1^2-24v_2^2c_s^2$

$C_7=-36+54\omega+60c_s^2+72v_2^2-108v_2^2\omega-90c_s^2\omega+\omega^3+42v_2^2\omega^2+34c_s^2\omega^2-2c_s^2\omega^3-3v_2^2\omega^3-20\omega^2$

$C_8=36-54\omega-96c_s^2-36v_2^2+54v_2^2\omega+144c_s^2\omega-\omega^3-20v_2^2\omega^2-56c_s^2\omega^2+4c_s^2\omega^3+v_2^2\omega^3+20\omega^2$

$C_9=12-18\omega-96c_s^2-12v_2^2+18v_2^2\omega+144c_s^2\omega-\omega^3-12v_2^2\omega^2-56c_s^2\omega^2+4c_s^2\omega^3+3v_2^2\omega^3+8\omega^2$

$C_{10}=-72c_s^4\omega+108v_2^4\omega+216v_2^2c_s^2\omega+6v_2^2c_s^2\omega^3+3v_2^4\omega^3-3c_s^4\omega^3-72v_2^4+48c_s^4-84v_2^2c_s^2\omega^2+30c_s^4\omega^2-42v_2^4\omega^2-24c_s^2+72v_2^2-144v_2^2c_s^2-108v_2^2\omega+36c_s^2\omega+42v_2^2\omega^2-14c_s^2\omega^2+c_s^2\omega^3-3v_2^2\omega^3$

$C_{11}=24-36\omega-48c_s^2-36v_2^2+54v_2^2\omega+72c_s^2\omega-\omega^3-22v_2^2\omega^2-26c_s^2\omega^2+c_s^2\omega^3+2v_2^2\omega^3+14\omega^2$

$C_{12}=12-18\omega-96c_s^2+3v_1^2\omega^3-12v_1^2\omega^2+144c_s^2\omega-12v_1^2-\omega^3+18v_1^2\omega-56c_s^2\omega^2+4c_s^2\omega^3+8\omega^2$

$C_{13}=36-54\omega-96c_s^2+v_1^2\omega^3-20v_1^2\omega^2+144c_s^2\omega-36v_1^2-\omega^3+54v_1^2\omega-56c_s^2\omega^2+4c_s^2\omega^3+20\omega^2$

$C_{14}=12-18\omega-96c_s^2-12v_2^2+18v_2^2\omega+144c_s^2\omega-\omega^3-12v_2^2\omega^2-56c_s^2\omega^2+4c_s^2\omega^3+3v_2^2\omega^3+8\omega^2$

$C_{15}=36-54\omega-96c_s^2-36v_2^2+54v_2^2\omega+144c_s^2\omega-\omega^3-20v_2^2\omega^2-56c_s^2\omega^2+4c_s^2\omega^3+v_2^2\omega^3+20\omega^2$

$C_{16}=-24c_s^4\omega-14c_s^2v_1^2\omega^2-84v_1^2v_3^2\omega+c_s^2v_1^2\omega^3-c_s^4\omega^3+34v_1^2v_3^2\omega^2+16c_s^4+36c_s^2v_1^2\omega-3v_1^2v_3^2\omega^3+10c_s^4\omega^2+c_s^2v_3^2\omega^3-24c_s^2v_1^2-14c_s^2v_3^2\omega^2+56v_1^2v_3^2-24c_s^2v_3^2+36c_s^2v_3^2\omega$

$C_{17}=-24c_s^4\omega+36v_2^2c_s^2\omega+v_2^2c_s^2\omega^3-c_s^4\omega^3+16c_s^4-14v_2^2c_s^2\omega^2+10c_s^4\omega^2-3v_2^2v_3^2\omega^3+c_s^2v_3^2\omega^3-14c_s^2v_3^2\omega^2-24v_2^2c_s^2+34v_2^2v_3^2\omega^2-24c_s^2v_3^2+56v_2^2v_3^2-84v_2^2v_3^2\omega+36c_s^2v_3^2\omega$

$C_{18}=-36+42v_3^2\omega^2-3v_3^2\omega^3+54\omega-108v_3^2\omega+60c_s^2-90c_s^2\omega+\omega^3+34c_s^2\omega^2+72v_3^2-2c_s^2\omega^3-20\omega^2$

$C_{19}=36-20v_3^2\omega^2+v_3^2\omega^3-54\omega+54v_3^2\omega-96c_s^2+144c_s^2\omega-\omega^3-56c_s^2\omega^2-36v_3^2+4c_s^2\omega^3+20\omega^2$

$C_{20}=12-12v_3^2\omega^2+3v_3^2\omega^3-18\omega+18v_3^2\omega-96c_s^2+144c_s^2\omega-\omega^3-56c_s^2\omega^2-12v_3^2+4c_s^2\omega^3+8\omega^2$

$C_{21}=36-20v_3^2\omega^2+v_3^2\omega^3-54\omega+54v_3^2\omega-96c_s^2+144c_s^2\omega-\omega^3-56c_s^2\omega^2-36v_3^2+4c_s^2\omega^3+20\omega^2$

$C_{22}=12-12v_3^2\omega^2+3v_3^2\omega^3-18\omega+18v_3^2\omega-96c_s^2+144c_s^2\omega-\omega^3-56c_s^2\omega^2-12v_3^2+4c_s^2\omega^3+8\omega^2$

$C_{23}=-72c_s^4\omega+42v_3^2\omega^2-72v_3^4-3v_3^2\omega^3-3c_s^4\omega^3+48c_s^4-108v_3^2\omega+30c_s^4\omega^2-24c_s^2+6c_s^2v_3^2\omega^3+3v_3^4\omega^3-84c_s^2v_3^2\omega^2+36c_s^2\omega-42v_3^4\omega^2-144c_s^2v_3^2+108v_3^4\omega+216c_s^2v_3^2\omega-14c_s^2\omega^2+72v_3^2+c_s^2\omega^3$

$C_{24}=24-22v_3^2\omega^2+2v_3^2\omega^3-36\omega+54v_3^2\omega-48c_s^2+72c_s^2\omega-\omega^3-26c_s^2\omega^2-36v_3^2+c_s^2\omega^3+14\omega^2$

2.2 MRT1

2.2.1 Definitions

Collision operator $\boldsymbol{C}$:

$$\boldsymbol{C}\left(\boldsymbol{f}\right)=\mathbf{M}^{-1}\mathbf{S}\left(\boldsymbol{\mu}^{(eq)}-\mathbf{M}\boldsymbol{f}\right),$$

where

$$\mathbf{S}=\mathrm{diag}(\omega_1,\omega_2,\omega_3,\omega_4,\omega_5,\omega_6,\omega_7),$$

$\omega_1,\omega_2,\ldots,\omega_7\in(0,2)$.

2.2.2 Conservation of mass equation

$$\frac{\partial\rho}{\partial t}+\frac{v_1\delta_l}{\delta_t}\frac{\partial\rho}{\partial x_1}+\frac{\rho\delta_l}{\delta_t}\frac{\partial v_1}{\partial x_1}+\frac{v_2\delta_l}{\delta_t}\frac{\partial\rho}{\partial x_2}+\frac{\rho\delta_l}{\delta_t}\frac{\partial v_2}{\partial x_2}+\frac{v_3\delta_l}{\delta_t}\frac{\partial\rho}{\partial x_3}+\frac{\rho\delta_l}{\delta_t}\frac{\partial v_3}{\partial x_3}+(-2+\omega_2)\frac{\delta_l}{2\omega_2}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial t}+$$
$$(-2+\omega_2)\frac{v_1\delta_l^2}{2\delta_t\omega_2}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_1}+(-2+\omega_2)\frac{\rho\delta_l^2}{2\delta_t\omega_2}\left(\frac{\partial v_1}{\partial x_1}\right)^2+(2-\omega_3)\frac{v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_2}+(\omega_3-\omega_3\omega_2+\omega_2)\frac{v_1\delta_l^2}{\omega_3\delta_t\omega_2}\frac{\partial\rho}{\partial x_1}\frac{\partial v_2}{\partial x_2}+$$
$$(\omega_3-\omega_3\omega_2+\omega_2)\frac{\rho\delta_l^2}{\omega_3\delta_t\omega_2}\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2}+(2-\omega_4)\frac{v_3\delta_l^2}{2\delta_t\omega_4}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_3}+(-\omega_4\omega_2+\omega_4+\omega_2)\frac{v_1\delta_l^2}{\delta_t\omega_4\omega_2}\frac{\partial\rho}{\partial x_1}\frac{\partial v_3}{\partial x_3}+$$
$$(-\omega_4\omega_2+\omega_4+\omega_2)\frac{\rho\delta_l^2}{\delta_t\omega_4\omega_2}\frac{\partial v_1}{\partial x_1}\frac{\partial v_3}{\partial x_3}+(-2+\omega_3)\frac{\delta_l}{2\omega_3}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial t}+(\omega_3-\omega_3\omega_2+\omega_2)\frac{v_2\delta_l^2}{\omega_3\delta_t\omega_2}\frac{\partial\rho}{\partial x_2}\frac{\partial v_1}{\partial x_1}+$$
$$(2-\omega_2)\frac{v_1\delta_l^2}{2\delta_t\omega_2}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_1}+(-2+\omega_3)\frac{v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_2}+(-2+\omega_3)\frac{\rho\delta_l^2}{2\omega_3\delta_t}\left(\frac{\partial v_2}{\partial x_2}\right)^2+(2-\omega_4)\frac{v_3\delta_l^2}{2\delta_t\omega_4}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_3}+$$
$$(-\omega_3\omega_4+\omega_3+\omega_4)\frac{v_2\delta_l^2}{\omega_3\delta_t\omega_4}\frac{\partial\rho}{\partial x_2}\frac{\partial v_3}{\partial x_3}+(-\omega_3\omega_4+\omega_3+\omega_4)\frac{\rho\delta_l^2}{\omega_3\delta_t\omega_4}\frac{\partial v_2}{\partial x_2}\frac{\partial v_3}{\partial x_3}+(-2+\omega_4)\frac{\delta_l}{2\omega_4}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial t}+$$
$$(-\omega_4\omega_2+\omega_4+\omega_2)\frac{v_3\delta_l^2}{\delta_t\omega_4\omega_2}\frac{\partial\rho}{\partial x_3}\frac{\partial v_1}{\partial x_1}+(2-\omega_2)\frac{v_1\delta_l^2}{2\delta_t\omega_2}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_1}+(-\omega_3\omega_4+\omega_3+\omega_4)\frac{v_3\delta_l^2}{\omega_3\delta_t\omega_4}\frac{\partial\rho}{\partial x_3}\frac{\partial v_2}{\partial x_2}+$$
$$(2-\omega_3)\frac{v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_2}+(-2+\omega_4)\frac{v_3\delta_l^2}{2\delta_t\omega_4}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_3}+(-2+\omega_4)\frac{\rho\delta_l^2}{2\delta_t\omega_4}\left(\frac{\partial v_3}{\partial x_3}\right)^2+(-2+\omega_2)\frac{\rho\delta_l}{2\omega_2}\frac{\partial^2 v_1}{\partial t\partial x_1}+$$
$$(-2+\omega_2)\frac{c_s^2\delta_l^2}{2\delta_t\omega_2}\frac{\partial^2\rho}{\partial x_1^2}+(-2+\omega_2)\frac{\rho v_1\delta_l^2}{2\delta_t\omega_2}\frac{\partial^2 v_1}{\partial x_1^2}+(-2+\omega_3)\frac{\rho\delta_l}{2\omega_3}\frac{\partial^2 v_2}{\partial t\partial x_2}+(\omega_3-\omega_3\omega_2+\omega_2)\frac{v_1v_2\delta_l^2}{\omega_3\delta_t\omega_2}\frac{\partial^2\rho}{\partial x_1\partial x_2}+$$
$$(2-\omega_3)\frac{\rho v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 v_1}{\partial x_1\partial x_2}+(2-\omega_2)\frac{\rho v_1\delta_l^2}{2\delta_t\omega_2}\frac{\partial^2 v_2}{\partial x_1\partial x_2}+(-2+\omega_3)\frac{c_s^2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2\rho}{\partial x_2^2}+(-2+\omega_3)\frac{\rho v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 v_2}{\partial x_2^2}+(-2+\omega_4)\frac{\rho\delta_l}{2\omega_4}\frac{\partial^2 v_3}{\partial t\partial x_3}$$
$$+(-\omega_4\omega_2+\omega_4+\omega_2)\frac{v_1v_3\delta_l^2}{\delta_t\omega_4\omega_2}\frac{\partial^2\rho}{\partial x_1\partial x_3}+(2-\omega_4)\frac{\rho v_3\delta_l^2}{2\delta_t\omega_4}\frac{\partial^2 v_1}{\partial x_1\partial x_3}+(2-\omega_2)\frac{\rho v_1\delta_l^2}{2\delta_t\omega_2}\frac{\partial^2 v_3}{\partial x_1\partial x_3}+$$
$$(-\omega_3\omega_4+\omega_3+\omega_4)\frac{v_2v_3\delta_l^2}{\omega_3\delta_t\omega_4}\frac{\partial^2\rho}{\partial x_2\partial x_3}+(2-\omega_4)\frac{\rho v_3\delta_l^2}{2\delta_t\omega_4}\frac{\partial^2 v_2}{\partial x_2\partial x_3}+(2-\omega_3)\frac{\rho v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 v_3}{\partial x_2\partial x_3}+(-2+\omega_4)\frac{c_s^2\delta_l^2}{2\delta_t\omega_4}\frac{\partial^2\rho}{\partial x_3^2}+$$
$$(-2+\omega_4)\frac{\rho v_3\delta_l^2}{2\delta_t\omega_4}\frac{\partial^2 v_3}{\partial x_3^2}+(12-12\omega_2+\omega_2^2)\frac{\delta_t\rho\delta_l}{12\omega_2^2}\frac{\partial^3 v_1}{\partial t^2\partial x_1}+(12+\omega_5\omega_2-6\omega_5-6\omega_2)\frac{\rho v_1\delta_l^2}{6\omega_5\omega_2}\frac{\partial^3 v_1}{\partial t\partial x_1^2}+C_1\frac{v_1\delta_l^3}{6\delta_t\omega_5\omega_2^2}\frac{\partial^3\rho}{\partial x_1^3}+$$
$$C_2\frac{\rho\delta_l^3}{12\delta_t\omega_5\omega_2^2}\frac{\partial^3 v_1}{\partial x_1^3}+(12+\omega_3^2-12\omega_3)\frac{\delta_t\rho\delta_l}{12\omega_3^2}\frac{\partial^3 v_2}{\partial t^2\partial x_2}+(3\omega_3^2-6\omega_3+9\omega_3\omega_2-2\omega_3^2\omega_2-6\omega_2)\frac{\rho v_2\delta_l^2}{6\omega_3^2\omega_2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_2}+$$
$$(-6\omega_3-2\omega_3\omega_2^2+9\omega_3\omega_2-6\omega_2+3\omega_2^2)\frac{\rho v_1\delta_l^2}{6\omega_3\omega_2^2}\frac{\partial^3 v_2}{\partial t\partial x_1\partial x_2}+C_3\frac{v_2\delta_l^3}{2\omega_3^2\delta_t\omega_5\omega_2^2}\frac{\partial^3\rho}{\partial x_1^2\partial x_2}+$$
$$(6\omega_3^2-6\omega_3\omega_2^2-6\omega_3^2\omega_2+\omega_3^2\omega_2^2+6\omega_2^2)\frac{\rho v_1v_2\delta_l^3}{6\omega_3^2\delta_t\omega_2^2}\frac{\partial^3 v_1}{\partial x_1^2\partial x_2}+$$
$$(-3c_s^2\omega_5\omega_2^2+12v_1^2\omega_5-12v_1^2\omega_2+6v_1^2\omega_2^2+18c_s^2\omega_5\omega_2-6v_1^2\omega_5\omega_2+6c_s^2\omega_2^2+v_1^2\omega_5\omega_2^2-12c_s^2\omega_2-12c_s^2\omega_5)\frac{\rho\delta_l^3}{12\delta_t\omega_5\omega_2^2}\frac{\partial^3 v_2}{\partial x_1^2\partial x_2}$$
$$+(12-6\omega_6-6\omega_3+\omega_6\omega_3)\frac{\rho v_2\delta_l^2}{6\omega_6\omega_3}\frac{\partial^3 v_2}{\partial t\partial x_2^2}+C_4\frac{v_1\delta_l^3}{2\omega_6\omega_3^2\delta_t\omega_2^2}\frac{\partial^3\rho}{\partial x_1\partial x_2^2}+$$
$$(-6\omega_6\omega_3v_2^2-12\omega_3v_2^2+18\omega_6\omega_3c_s^2-12\omega_3c_s^2+6\omega_3^2c_s^2-3\omega_6\omega_3^2c_s^2-12\omega_6c_s^2+6\omega_3^2v_2^2+12\omega_6v_2^2+\omega_6\omega_3^2v_2^2)\frac{\rho\delta_l^3}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_2^2}$$
$$+(6\omega_3^2-6\omega_3\omega_2^2-6\omega_3^2\omega_2+\omega_3^2\omega_2^2+6\omega_2^2)\frac{\rho v_1v_2\delta_l^3}{6\omega_3^2\delta_t\omega_2^2}\frac{\partial^3 v_2}{\partial x_1\partial x_2^2}+C_5\frac{v_2\delta_l^3}{6\omega_6\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_2^3}+C_6\frac{\rho\delta_l^3}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^3}+$$
$$(12-12\omega_4+\omega_4^2)\frac{\delta_t\rho\delta_l}{12\omega_4^2}\frac{\partial^3 v_3}{\partial t^2\partial x_3}+(9\omega_4\omega_2-6\omega_4+3\omega_4^2-6\omega_2-2\omega_4^2\omega_2)\frac{\rho v_3\delta_l^2}{6\omega_4^2\omega_2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_3}+$$
$$(9\omega_4\omega_2-2\omega_4\omega_2^2-6\omega_4-6\omega_2+3\omega_2^2)\frac{\rho v_1\delta_l^2}{6\omega_4\omega_2^2}\frac{\partial^3 v_3}{\partial t\partial x_1\partial x_3}+C_7\frac{v_3\delta_l^3}{2\delta_t\omega_4^2\omega_5\omega_2^2}\frac{\partial^3\rho}{\partial x_1^2\partial x_3}+$$
$$(-6\omega_4\omega_2^2+6\omega_4^2+\omega_4^2\omega_2^2+6\omega_2^2-6\omega_4^2\omega_2)\frac{\rho v_1v_3\delta_l^3}{6\delta_t\omega_4^2\omega_2^2}\frac{\partial^3 v_1}{\partial x_1^2\partial x_3}+$$
$$(-3c_s^2\omega_5\omega_2^2+12v_1^2\omega_5-12v_1^2\omega_2+6v_1^2\omega_2^2+18c_s^2\omega_5\omega_2-6v_1^2\omega_5\omega_2+6c_s^2\omega_2^2+v_1^2\omega_5\omega_2^2-12c_s^2\omega_2-12c_s^2\omega_5)\frac{\rho\delta_l^3}{12\delta_t\omega_5\omega_2^2}\frac{\partial^3 v_3}{\partial x_1^2\partial x_3}$$

$$+ (9\omega_3\omega_4 - 6\omega_3 - 2\omega_3\omega_4^2 - 6\omega_4 + 3\omega_4^2)\frac{\rho v_3\delta_l^2}{6\omega_3\omega_4^2}\frac{\partial^3 v_2}{\partial t\partial x_2\partial x_3} + (9\omega_3\omega_4 + 3\omega_3^2 - 6\omega_3 - 6\omega_4 - 2\omega_3^2\omega_4)\frac{\rho v_2\delta_l^2}{6\omega_3^2\omega_4}\frac{\partial^3 v_3}{\partial t\partial x_2\partial x_3} +$$
$$(-2\omega_3^2\omega_4\omega_2^2 - 2\omega_3\omega_4^2\omega_2^2 + \omega_3\omega_4^2\omega_2 + \omega_3^2\omega_4\omega_2 - 2\omega_3^2\omega_4^2\omega_2 + \omega_3^2\omega_4^2 + \omega_4^2\omega_2^2 + \omega_3^2\omega_2^2 + \omega_3\omega_4\omega_2^2 + \omega_3^2\omega_4^2\omega_2^2)\frac{2v_1v_2v_3\delta_l^3}{\omega_3^2\delta_t\omega_4^2\omega_2^2}\frac{\partial^3\rho}{\partial x_1\partial x_2\partial x_3}$$
$$+ (6\omega_3\omega_4 + 3\omega_3^2 - 6\omega_3\omega_4^2 + 3\omega_4^2 + 2\omega_3^2\omega_4^2 - 6\omega_3^2\omega_4)\frac{\rho v_2v_3\delta_l^3}{3\omega_3^2\delta_t\omega_4^2}\frac{\partial^3 v_1}{\partial x_1\partial x_2\partial x_3} +$$
$$(6\omega_4\omega_2 - 6\omega_4\omega_2^2 + 3\omega_4^2 + 2\omega_4^2\omega_2^2 + 3\omega_2^2 - 6\omega_4^2\omega_2)\frac{\rho v_1v_3\delta_l^3}{3\delta_t\omega_4^2\omega_2^2}\frac{\partial^3 v_2}{\partial x_1\partial x_2\partial x_3} +$$
$$(3\omega_3^2 - 6\omega_3\omega_2^2 + 6\omega_3\omega_2 - 6\omega_3^2\omega_2 + 2\omega_3^2\omega_2^2 + 3\omega_2^2)\frac{\rho v_1v_2\delta_l^3}{3\omega_3^2\delta_t\omega_2^2}\frac{\partial^3 v_3}{\partial x_1\partial x_2\partial x_3} + C_8\frac{v_3\delta_l^3}{2\omega_6\omega_3^2\delta_t\omega_4^2}\frac{\partial^3\rho}{\partial x_2^2\partial x_3} +$$
$$(6\omega_3^2 - 6\omega_3\omega_4^2 + 6\omega_4^2 + \omega_3^2\omega_4^2 - 6\omega_3^2\omega_4)\frac{\rho v_2v_3\delta_l^3}{6\omega_3^2\delta_t\omega_4^2}\frac{\partial^3 v_2}{\partial x_2^2\partial x_3} +$$
$$(-6\omega_6\omega_3v_2^2 - 12\omega_3v_2^2 + 18\omega_6\omega_3c_s^2 - 12\omega_3c_s^2 + 6\omega_3^2c_s^2 - 3\omega_6\omega_3^2c_s^2 - 12\omega_6c_s^2 + 6\omega_3^2v_2^2 + 12\omega_6v_2^2 + \omega_6\omega_3^2v_2^2)\frac{\rho\delta_l^3}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_3}{\partial x_2^2\partial x_3}$$
$$+ (12 + \omega_7\omega_4 - 6\omega_7 - 6\omega_4)\frac{\rho v_3\delta_l^2}{6\omega_7\omega_4}\frac{\partial^3 v_3}{\partial t\partial x_3^2} + C_9\frac{v_1\delta_l^3}{2\delta_t\omega_7\omega_4^2\omega_2^2}\frac{\partial^3\rho}{\partial x_1\partial x_3^2} +$$
$$(-12\omega_4v_3^2 - 12\omega_4c_s^2 + 12\omega_7v_3^2 + \omega_7\omega_4^2v_3^2 - 3\omega_7\omega_4^2c_s^2 - 12\omega_7c_s^2 + 18\omega_7\omega_4c_s^2 - 6\omega_7\omega_4v_3^2 + 6\omega_4^2c_s^2 + 6\omega_4^2v_3^2)\frac{\rho\delta_l^3}{12\delta_t\omega_7\omega_4^2}\frac{\partial^3 v_1}{\partial x_1\partial x_3^2}$$
$$+ (-6\omega_4\omega_2^2 + 6\omega_4^2 + \omega_4^2\omega_2^2 + 6\omega_2^2 - 6\omega_4^2\omega_2)\frac{\rho v_1v_3\delta_l^3}{6\delta_t\omega_4^2\omega_2^2}\frac{\partial^3 v_3}{\partial x_1\partial x_3^2} + C_{10}\frac{v_2\delta_l^3}{2\omega_3^2\delta_t\omega_7\omega_4^2}\frac{\partial^3\rho}{\partial x_2\partial x_3^2} +$$
$$(-12\omega_4v_3^2 - 12\omega_4c_s^2 + 12\omega_7v_3^2 + \omega_7\omega_4^2v_3^2 - 3\omega_7\omega_4^2c_s^2 - 12\omega_7c_s^2 + 18\omega_7\omega_4c_s^2 - 6\omega_7\omega_4v_3^2 + 6\omega_4^2c_s^2 + 6\omega_4^2v_3^2)\frac{\rho\delta_l^3}{12\delta_t\omega_7\omega_4^2}\frac{\partial^3 v_2}{\partial x_2\partial x_3^2}$$
$$+ (6\omega_3^2 - 6\omega_3\omega_4^2 + 6\omega_4^2 + \omega_3^2\omega_4^2 - 6\omega_3^2\omega_4)\frac{\rho v_2v_3\delta_l^3}{6\omega_3^2\delta_t\omega_4^2}\frac{\partial^3 v_3}{\partial x_2\partial x_3^2} + C_{11}\frac{v_3\delta_l^3}{6\delta_t\omega_7\omega_4^2}\frac{\partial^3\rho}{\partial x_3^3} + C_{12}\frac{\rho\delta_l^3}{12\delta_t\omega_7\omega_4^2}\frac{\partial^3 v_3}{\partial x_3^3} +$$
$$(-2 + 3\omega_2 - \omega_2^2)\frac{\delta_t^2\rho\delta_l}{2\omega_2^3}\frac{\partial^4 v_1}{\partial t^3\partial x_1} + (-\omega_5^2\omega_2 - \omega_5^2\omega_2^2 - 2\omega_5\omega_2^3 + 8\omega_5\omega_2^2 - 4\omega_5\omega_2 - 4\omega_2^2 + 2\omega_5^2 + 2\omega_2^3)\frac{\delta_t\rho v_1\delta_l^2}{2\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1^2} +$$
$$C_{13}\frac{\rho\delta_l^3}{12\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial t\partial x_1^3} + C_{14}\frac{\delta_l^4}{24\delta_t\omega_5^2\omega_2^3}\frac{\partial^4\rho}{\partial x_1^4} + C_{15}\frac{\rho v_1\delta_l^4}{12\delta_t\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial x_1^4} + (-2 - \omega_3^2 + 3\omega_3)\frac{\delta_t^2\rho\delta_l}{2\omega_3^3}\frac{\partial^4 v_2}{\partial t^3\partial x_2} +$$
$$(-6\omega_3^3 + 12\omega_3^2 - 24\omega_3\omega_2^2 + 12\omega_3\omega_2 - \omega_3^3\omega_2^2 - 24\omega_3^2\omega_2 + 13\omega_3^2\omega_2^2 + 12\omega_2^2 + 7\omega_3^3\omega_2)\frac{\delta_t\rho v_2\delta_l^2}{12\omega_3^3\omega_2^2}\frac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_2} +$$
$$(7\omega_3\omega_2^3 + 12\omega_3^2 - 24\omega_3\omega_2^2 + 12\omega_3\omega_2 - 24\omega_3^2\omega_2 + 13\omega_3^2\omega_2^2 + 12\omega_2^2 - 6\omega_2^3 - \omega_3^2\omega_2^3)\frac{\delta_t\rho v_1\delta_l^2}{12\omega_3^2\omega_2^3}\frac{\partial^4 v_2}{\partial t^2\partial x_1\partial x_2} +$$
$$C_{16}\frac{\rho v_1v_2\delta_l^3}{6\omega_3^3\omega_5\omega_2^3}\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_2} + C_{17}\frac{\rho\delta_l^3}{12\omega_3\omega_5^2\omega_2^3}\frac{\partial^4 v_2}{\partial t\partial x_1^2\partial x_2} + C_{18}\frac{v_1v_2\delta_l^4}{6\omega_3^3\delta_t\omega_5^2\omega_2^3}\frac{\partial^4\rho}{\partial x_1^3\partial x_2} + C_{19}\frac{\rho v_2\delta_l^4}{12\omega_3^3\delta_t\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial x_1^3\partial x_2} +$$
$$C_{20}\frac{\rho v_1\delta_l^4}{12\delta_t\omega_5^2\omega_2^3}\frac{\partial^4 v_2}{\partial x_1^3\partial x_2} + (8\omega_6\omega_3^2 + 2\omega_3^3 - 4\omega_3^2 - 2\omega_6\omega_3^3 + 2\omega_6^2 - 4\omega_6\omega_3 - \omega_6^2\omega_3 - \omega_6^2\omega_3^2)\frac{\delta_t\rho v_2\delta_l^2}{2\omega_6^2\omega_3^3}\frac{\partial^4 v_2}{\partial t^2\partial x_2^2} +$$
$$C_{21}\frac{\rho\delta_l^3}{12\omega_6^2\omega_3^3\omega_2}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2} + C_{22}\frac{\rho v_1v_2\delta_l^3}{6\omega_6\omega_3^3\omega_2^3}\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2^2} + C_{23}\frac{\delta_l^4}{4\omega_6^2\omega_3^3\delta_t\omega_5^2\omega_2^3}\frac{\partial^4\rho}{\partial x_1^2\partial x_2^2} + C_{24}\frac{\rho v_1\delta_l^4}{12\omega_6^2\omega_3^3\delta_t\omega_2^3}\frac{\partial^4 v_1}{\partial x_1^2\partial x_2^2} +$$
$$C_{25}\frac{\rho v_2\delta_l^4}{12\omega_3^3\delta_t\omega_5^2\omega_2^3}\frac{\partial^4 v_2}{\partial x_1^2\partial x_2^2} + C_{26}\frac{\rho\delta_l^3}{12\omega_6^2\omega_3^3}\frac{\partial^4 v_2}{\partial t\partial x_2^3} + C_{27}\frac{v_1v_2\delta_l^4}{6\omega_6^2\omega_3^3\delta_t\omega_2^3}\frac{\partial^4\rho}{\partial x_1\partial x_2^3} + C_{28}\frac{\rho v_2\delta_l^4}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_2^3} + C_{29}\frac{\rho v_1\delta_l^4}{12\omega_6^2\omega_3^3\delta_t\omega_2^3}\frac{\partial^4 v_2}{\partial x_1\partial x_2^3}$$
$$+ C_{30}\frac{\delta_l^4}{24\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_2^4} + C_{31}\frac{\rho v_2\delta_l^4}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_2^4} + (-2 + 3\omega_4 - \omega_4^2)\frac{\delta_t^2\rho\delta_l}{2\omega_4^3}\frac{\partial^4 v_3}{\partial t^3\partial x_3} +$$
$$(12\omega_4\omega_2 - 24\omega_4\omega_2^2 + 12\omega_4^2 + 13\omega_4^2\omega_2^2 - 6\omega_4^3 + 7\omega_4^3\omega_2 - \omega_4^3\omega_2^2 + 12\omega_2^2 - 24\omega_4^2\omega_2)\frac{\delta_t\rho v_3\delta_l^2}{12\omega_4^3\omega_2^2}\frac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_3} +$$
$$(12\omega_4\omega_2 + 7\omega_4\omega_2^3 - 24\omega_4\omega_2^2 + 12\omega_4^2 + 13\omega_4^2\omega_2^2 - \omega_4^2\omega_2^3 + 12\omega_2^2 - 24\omega_4^2\omega_2 - 6\omega_2^3)\frac{\delta_t\rho v_1\delta_l^2}{12\omega_4^2\omega_2^3}\frac{\partial^4 v_3}{\partial t^2\partial x_1\partial x_3} +$$
$$C_{32}\frac{\rho v_1v_3\delta_l^3}{6\omega_4^3\omega_5\omega_2^3}\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_3} + C_{33}\frac{\rho\delta_l^3}{12\omega_4\omega_5^2\omega_2^3}\frac{\partial^4 v_3}{\partial t\partial x_1^2\partial x_3} + C_{34}\frac{v_1v_3\delta_l^4}{6\delta_t\omega_4^3\omega_5^2\omega_2^3}\frac{\partial^4\rho}{\partial x_1^3\partial x_3} + C_{35}\frac{\rho v_3\delta_l^4}{12\delta_t\omega_4^3\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial x_1^3\partial x_3} +$$
$$C_{36}\frac{\rho v_1\delta_l^4}{12\delta_t\omega_5^2\omega_2^3}\frac{\partial^4 v_3}{\partial x_1^3\partial x_3} +$$
$$(12\omega_3\omega_4 + 12\omega_3^2 + 7\omega_3\omega_4^3 - 24\omega_3\omega_4^2 + 12\omega_4^2 + 13\omega_3^2\omega_4^2 - \omega_3^2\omega_4^3 - 6\omega_4^3 - 24\omega_3^2\omega_4)\frac{\delta_t\rho v_3\delta_l^2}{12\omega_3^2\omega_4^3}\frac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3} +$$
$$(-6\omega_3^3 + 12\omega_3\omega_4 + 12\omega_3^2 - 24\omega_3\omega_4^2 + 12\omega_4^2 + 13\omega_3^2\omega_4^2 + 7\omega_3^3\omega_4 - \omega_3^3\omega_4^2 - 24\omega_3^2\omega_4)\frac{\delta_t\rho v_2\delta_l^2}{12\omega_3^3\omega_4^2}\frac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3} +$$
$$C_{37}\frac{\rho v_2v_3\delta_l^3}{6\omega_3^3\omega_4^3\omega_2}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3} + C_{38}\frac{\rho v_1v_3\delta_l^3}{6\omega_3\omega_4^3\omega_2^3}\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3} + C_{39}\frac{\rho v_1v_2\delta_l^3}{6\omega_3^3\omega_4\omega_2^3}\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3} + C_{40}\frac{v_2v_3\delta_l^4}{\omega_3^3\delta_t\omega_4^3\omega_5^2\omega_2^3}\frac{\partial^4\rho}{\partial x_1^2\partial x_2\partial x_3} +$$
$$C_{41}\frac{\rho v_1v_2v_3\delta_l^4}{6\omega_3^3\delta_t\omega_4^3\omega_2^3}\frac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3} + C_{42}\frac{\rho v_3\delta_l^4}{12\delta_t\omega_4^3\omega_5^2\omega_2^3}\frac{\partial^4 v_2}{\partial x_1^2\partial x_2\partial x_3} + C_{43}\frac{\rho v_2\delta_l^4}{12\omega_3^3\delta_t\omega_5^2\omega_2^3}\frac{\partial^4 v_3}{\partial x_1^2\partial x_2\partial x_3} + C_{44}\frac{\rho v_2v_3\delta_l^3}{6\omega_6\omega_3^3\omega_4^3}\frac{\partial^4 v_2}{\partial t\partial x_2^2\partial x_3} +$$
$$C_{45}\frac{\rho\delta_l^3}{12\omega_6^2\omega_3^3\omega_4}\frac{\partial^4 v_3}{\partial t\partial x_2^2\partial x_3} + C_{46}\frac{v_1v_3\delta_l^4}{\omega_6^2\omega_3^3\delta_t\omega_4^3\omega_2^3}\frac{\partial^4\rho}{\partial x_1\partial x_2^2\partial x_3} + C_{47}\frac{\rho v_3\delta_l^4}{12\omega_6^2\omega_3^3\delta_t\omega_4^3}\frac{\partial^4 v_1}{\partial x_1\partial x_2^2\partial x_3} + C_{48}\frac{\rho v_1v_2v_3\delta_l^4}{6\omega_3^3\delta_t\omega_4^3\omega_2^3}\frac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3} +$$
$$C_{49}\frac{\rho v_1\delta_l^4}{12\omega_6^2\omega_3^3\delta_t\omega_2^3}\frac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3} + C_{50}\frac{v_2v_3\delta_l^4}{6\omega_6^2\omega_3^3\delta_t\omega_4^3}\frac{\partial^4\rho}{\partial x_2^3\partial x_3} + C_{51}\frac{\rho v_3\delta_l^4}{12\omega_6^2\omega_3^3\delta_t\omega_4^3}\frac{\partial^4 v_2}{\partial x_2^3\partial x_3} + C_{52}\frac{\rho v_2\delta_l^4}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_2^3\partial x_3} +$$
$$(-4\omega_7\omega_4 - 2\omega_7\omega_4^3 + 8\omega_7\omega_4^2 - \omega_7^2\omega_4^2 - 4\omega_4^2 + 2\omega_7^2 + 2\omega_4^3 - \omega_7^2\omega_4)\frac{\delta_t\rho v_3\delta_l^2}{2\omega_7^2\omega_4^3}\frac{\partial^4 v_3}{\partial t^2\partial x_3^2} + C_{53}\frac{\rho\delta_l^3}{12\omega_7^2\omega_4^3\omega_2}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_3^2} +$$

$$C_{54}\frac{\rho v_1 v_3 \delta_l^3}{6\omega_7\omega_4^3\omega_2^3}\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2} + C_{55}\frac{\delta_l^4}{4\delta_t\omega_7^2\omega_4^3\omega_5^2\omega_2^3}\frac{\partial^4 \rho}{\partial x_1^2\partial x_3^2} + C_{56}\frac{\rho v_1\delta_l^4}{12\delta_t\omega_7^2\omega_4^3\omega_2^3}\frac{\partial^4 v_1}{\partial x_1^2\partial x_3^2} + C_{57}\frac{\rho v_3\delta_l^4}{12\delta_t\omega_4^3\omega_5^2\omega_2^3}\frac{\partial^4 v_3}{\partial x_1^2\partial x_3^2} +$$
$$C_{58}\frac{\rho\delta_l^3}{12\omega_3\omega_7^2\omega_4^3}\frac{\partial^4 v_2}{\partial t\partial x_2\partial x_3^2} + C_{59}\frac{\rho v_2 v_3\delta_l^3}{6\omega_3^3\omega_7\omega_4^3}\frac{\partial^4 v_3}{\partial t\partial x_2\partial x_3^2} + C_{60}\frac{v_1 v_2\delta_l^4}{\omega_3^3\delta_t\omega_7^2\omega_4^3\omega_2^3}\frac{\partial^4 \rho}{\partial x_1\partial x_2\partial x_3^2} + C_{61}\frac{\rho v_2\delta_l^4}{12\omega_3^3\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2} +$$
$$C_{62}\frac{\rho v_1\delta_l^4}{12\delta_t\omega_7^2\omega_4^3\omega_2^3}\frac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2} + C_{63}\frac{\rho v_1 v_2 v_3\delta_l^4}{6\omega_3^3\delta_t\omega_4^3\omega_2^3}\frac{\partial^4 v_3}{\partial x_1\partial x_2\partial x_3^2} + C_{64}\frac{\delta_l^4}{4\omega_6^2\omega_3^3\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 \rho}{\partial x_2^2\partial x_3^2} + C_{65}\frac{\rho v_2\delta_l^4}{12\omega_3^3\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 v_2}{\partial x_2^2\partial x_3^2} +$$
$$C_{66}\frac{\rho v_3\delta_l^4}{12\omega_6^2\omega_3^3\delta_t\omega_4^3}\frac{\partial^4 v_3}{\partial x_2^2\partial x_3^2} + C_{67}\frac{\rho\delta_l^3}{12\omega_7^2\omega_4^3}\frac{\partial^4 v_3}{\partial t\partial x_3^3} + C_{68}\frac{v_1 v_3\delta_l^4}{6\delta_t\omega_7^2\omega_4^3\omega_2^3}\frac{\partial^4 \rho}{\partial x_1\partial x_3^3} + C_{69}\frac{\rho v_3\delta_l^4}{12\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 v_1}{\partial x_1\partial x_3^3} + C_{70}\frac{\rho v_1\delta_l^4}{12\delta_t\omega_7^2\omega_4^3\omega_2^3}\frac{\partial^4 v_3}{\partial x_1\partial x_3^3}$$
$$+ C_{71}\frac{v_2 v_3\delta_l^4}{6\omega_3^3\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 \rho}{\partial x_2\partial x_3^3} + C_{72}\frac{\rho v_3\delta_l^4}{12\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 v_2}{\partial x_2\partial x_3^3} + C_{73}\frac{\rho v_2\delta_l^4}{12\omega_3^3\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 v_3}{\partial x_2\partial x_3^3} + C_{74}\frac{\delta_l^4}{24\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 \rho}{\partial x_3^4} + C_{75}\frac{\rho v_3\delta_l^4}{12\delta_t\omega_7^2\omega_4^3}\frac{\partial^4 v_3}{\partial x_3^4}$$
$$= 0,$$

where:

$$C_1 = -3c_s^2\omega_5\omega_2^2 - 6v_1^2\omega_2 + 3v_1^2\omega_2^2 + 15c_s^2\omega_5\omega_2 + \omega_5\omega_2^2 + 3v_1^2\omega_5\omega_2 + 3c_s^2\omega_2^2 - v_1^2\omega_5\omega_2^2 - 3\omega_5\omega_2 - 6c_s^2\omega_2 + 6\omega_2 - 3\omega_2^2 - 12c_s^2\omega_5$$

$$C_2 = -3c_s^2\omega_5\omega_2^2 - 12v_1^2\omega_5 - 12v_1^2\omega_2 + 6v_1^2\omega_2^2 + 18c_s^2\omega_5\omega_2 + 2\omega_5\omega_2^2 + 18v_1^2\omega_5\omega_2 + 6c_s^2\omega_2^2 - 5v_1^2\omega_5\omega_2^2 - 6\omega_5\omega_2 - 12c_s^2\omega_2 + 12\omega_2 - 6\omega_2^2 - 12c_s^2\omega_5$$

$$C_3 = \omega_3^2v_1^2\omega_5\omega_2^2 - 2\omega_3c_s^2\omega_5\omega_2 + \omega_3^2v_1^2\omega_2^2 - 2\omega_3^2v_1^2\omega_2 + \omega_3c_s^2\omega_5\omega_2^2 - 4\omega_3^2v_1^2\omega_5\omega_2 + 4\omega_3^2v_1^2\omega_5 - 2\omega_3^2c_s^2\omega_5 - 3\omega_3v_1^2\omega_5\omega_2^2 - 2\omega_3^2c_s^2\omega_2 + 4\omega_3^2c_s^2\omega_5\omega_2 + 2v_1^2\omega_5\omega_2^2 - \omega_3^2c_s^2\omega_5\omega_2^2 + \omega_3^2c_s^2\omega_2^2 + 2\omega_3v_1^2\omega_5\omega_2$$

$$C_4 = \omega_6\omega_3^2v_2^2\omega_2^2 - 2\omega_3c_s^2\omega_2^2 - 2\omega_6\omega_3c_s^2\omega_2 + 4\omega_6v_2^2\omega_2^2 + 4\omega_6\omega_3c_s^2\omega_2^2 - 3\omega_6\omega_3^2v_2^2\omega_2 + \omega_3^2v_2^2\omega_2^2 - 2\omega_6c_s^2\omega_2^2 - \omega_6\omega_3^2c_s^2\omega_2^2 + 2\omega_6\omega_3v_2^2\omega_2 - 2\omega_3v_2^2\omega_2^2 - 4\omega_6\omega_3v_2^2\omega_2^2 + \omega_3^2c_s^2\omega_2^2 + \omega_6\omega_3^2c_s^2\omega_2 + 2\omega_6\omega_3^2v_2^2$$

$$C_5 = \omega_6\omega_3^2 + 3\omega_6\omega_3v_2^2 - 3\omega_3^2 + 6\omega_3 - 6\omega_3v_2^2 + 15\omega_6\omega_3c_s^2 - 3\omega_6\omega_3 - 6\omega_3c_s^2 + 3\omega_3^2c_s^2 - 3\omega_6\omega_3^2c_s^2 - 12\omega_6c_s^2 + 3\omega_3^2v_2^2 - \omega_6\omega_3^2v_2^2$$

$$C_6 = 2\omega_6\omega_3^2 + 18\omega_6\omega_3v_2^2 - 6\omega_3^2 + 12\omega_3 - 12\omega_3v_2^2 + 18\omega_6\omega_3c_s^2 - 6\omega_6\omega_3 - 12\omega_3c_s^2 + 6\omega_3^2c_s^2 - 3\omega_6\omega_3^2c_s^2 - 12\omega_6c_s^2 + 6\omega_3^2v_2^2 - 12\omega_6v_2^2 - 5\omega_6\omega_3^2v_2^2$$

$$C_7 = \omega_4^2v_1^2\omega_5\omega_2^2 - 2\omega_4^2c_s^2\omega_5 - 2\omega_4^2c_s^2\omega_2 - 2\omega_4c_s^2\omega_5\omega_2 + \omega_4^2c_s^2\omega_2^2 + \omega_4c_s^2\omega_5\omega_2^2 - 4\omega_4^2v_1^2\omega_5\omega_2 - 3\omega_4v_1^2\omega_5\omega_2^2 + 4\omega_4^2c_s^2\omega_5\omega_2 + \omega_4^2v_1^2\omega_2^2 + 2v_1^2\omega_5\omega_2^2 - \omega_4^2c_s^2\omega_5\omega_2^2 - 2\omega_4^2v_1^2\omega_2 + 2\omega_4v_1^2\omega_5\omega_2 + 4\omega_4^2v_1^2\omega_5$$

$$C_8 = 4\omega_6\omega_3\omega_4^2c_s^2 - 2\omega_3\omega_4^2v_2^2 + \omega_6\omega_3^2\omega_4c_s^2 - 4\omega_6\omega_3\omega_4^2v_2^2 - 2\omega_3\omega_4^2c_s^2 - 3\omega_6\omega_3^2\omega_4v_2^2 + \omega_6\omega_3^2\omega_4^2v_2^2 + 4\omega_6\omega_4^2v_2^2 + 2\omega_6\omega_3\omega_4v_2^2 + \omega_3^2\omega_4^2c_s^2 - \omega_6\omega_3^2\omega_4^2c_s^2 - 2\omega_6\omega_3\omega_4c_s^2 - 2\omega_6\omega_4^2c_s^2 + \omega_3^2\omega_4^2v_2^2 + 2\omega_6\omega_3^2v_2^2$$

$$C_9 = -2\omega_7c_s^2\omega_2^2 - 4\omega_7\omega_4\omega_2^2v_3^2 - \omega_7\omega_4^2c_s^2\omega_2^2 - 3\omega_7\omega_4^2\omega_2v_3^2 + \omega_7\omega_4^2c_s^2\omega_2 + 2\omega_7\omega_4^2v_3^2 + \omega_4^2c_s^2\omega_2^2 - 2\omega_4\omega_2^2v_3^2 - 2\omega_7\omega_4c_s^2\omega_2 - 2\omega_4c_s^2\omega_2^2 + \omega_4^2\omega_2^2v_3^2 + \omega_7\omega_4^2\omega_2^2v_3^2 + 4\omega_7\omega_2^2v_3^2 + 2\omega_7\omega_4\omega_2v_3^2 + 4\omega_7\omega_4c_s^2\omega_2^2$$

$$C_{10} = -3\omega_3\omega_7\omega_4^2v_3^2 - 2\omega_3^2\omega_7c_s^2 + 4\omega_3^2\omega_7v_3^2 + \omega_3\omega_7\omega_4^2c_s^2 + 4\omega_3^2\omega_7\omega_4c_s^2 + 2\omega_7\omega_4^2v_3^2 - 2\omega_3^2\omega_4c_s^2 - 2\omega_3^2\omega_4v_3^2 - 4\omega_3^2\omega_7\omega_4v_3^2 + \omega_3^2\omega_4^2v_3^2 + \omega_3^2\omega_7\omega_4^2v_3^2 - \omega_3^2\omega_7\omega_4^2c_s^2 + \omega_3^2\omega_4^2c_s^2 - 2\omega_3\omega_7\omega_4c_s^2 + 2\omega_3\omega_7\omega_4v_3^2$$

$$C_{11} = -6\omega_4v_3^2 - 3\omega_7\omega_4 - 6\omega_4c_s^2 - \omega_7\omega_4^2v_3^2 + \omega_7\omega_4^2 - 3\omega_7\omega_4^2c_s^2 - 12\omega_7c_s^2 + 6\omega_4 - 3\omega_4^2 + 15\omega_7\omega_4c_s^2 + 3\omega_7\omega_4v_3^2 + 3\omega_4^2c_s^2 + 3\omega_4^2v_3^2$$

$$C_{12} = -12\omega_4v_3^2 - 6\omega_7\omega_4 - 12\omega_4c_s^2 - 12\omega_7v_3^2 - 5\omega_7\omega_4^2v_3^2 + 2\omega_7\omega_4^2 - 3\omega_7\omega_4^2c_s^2 - 12\omega_7c_s^2 + 12\omega_4 - 6\omega_4^2 + 18\omega_7\omega_4c_s^2 + 18\omega_7\omega_4v_3^2 + 6\omega_4^2c_s^2 + 6\omega_4^2v_3^2$$

$$C_{13} = -3v_1^2\omega_5^2\omega_2^3 - 36c_s^2\omega_5\omega_2^2 + 27v_1^2\omega_5^2\omega_2^2 + 12\omega_5^2\omega_2 + 9c_s^2\omega_5\omega_2^3 - 11\omega_5^2\omega_2^2 - 42v_1^2\omega_5^2\omega_2 + 12v_1^2\omega_2^2 + 12v_1^2\omega_5^2 - 6v_1^2\omega_2^3 + 24c_s^2\omega_5\omega_2 + \omega_5^2\omega_2^3 + 24c_s^2\omega_5^2 - 6c_s^2\omega_2^3 - 9\omega_5\omega_2^3 - 48c_s^2\omega_5^2\omega_2 + 36\omega_5\omega_2^2 + 48v_1^2\omega_5\omega_2 + 12c_s^2\omega_2^2 - 2c_s^2\omega_5^2\omega_2^3 - 60v_1^2\omega_5\omega_2^2 - 24\omega_5\omega_2 - 12\omega_2^2 + 25c_s^2\omega_5^2\omega_2^2 + 15v_1^2\omega_5\omega_2^3 + 6\omega_2^3$$

$$C_{14} = -3v_1^2\omega_5^2\omega_2^3 + 24c_s^2\omega_5\omega_2^2 + 24v_1^4\omega_5^2\omega_2 + 156c_s^2v_1^2\omega_5^2\omega_2 + 24c_s^4\omega_5^2 + 24v_1^2\omega_5^2\omega_2^2 - 6c_s^2\omega_5\omega_2^3 + 24c_s^4\omega_5\omega_2 + 3v_1^4\omega_5^2\omega_2^3 - 24c_s^4\omega_5\omega_2^2 - 72c_s^2v_1^2\omega_5^2\omega_2^2 - 24v_1^2\omega_5^2\omega_2 + 24v_1^2\omega_2^2 - 24v_1^4\omega_5^2\omega_2^2 + 6c_s^4\omega_5\omega_2^3 - 12v_1^2\omega_2^3 - 24c_s^2\omega_5\omega_2 + 6c_s^2v_1^2\omega_5^2\omega_2^3 - 3c_s^4\omega_5^2\omega_2^3 + 72v_1^4\omega_5\omega_2^2 - 12c_s^2v_1^2\omega_5\omega_2^3 + 12c_s^2\omega_5^2\omega_2 + 24c_s^4\omega_5^2\omega_2^2 - 18v_1^4\omega_5\omega_2^3 + 48v_1^2\omega_5\omega_2 + 48c_s^2v_1^2\omega_5\omega_2^2 + c_s^2\omega_5^2\omega_2^3 - 72v_1^2\omega_5\omega_2^2 - 24c_s^2v_1^2\omega_5\omega_2 + 12c_s^2v_1^2\omega_2^3 + 12v_1^4\omega_2^3 - 48c_s^4\omega_5^2\omega_2 - 96c_s^2v_1^2\omega_5^2 - 24c_s^2v_1^2\omega_2^2 - 8c_s^2\omega_5^2\omega_2^2 + 18v_1^2\omega_5\omega_2^3 - 48v_1^4\omega_5\omega_2 - 24v_1^4\omega_2^2$$

$$C_{15} = 2v_1^2\omega_5^2\omega_2^3 + 24c_s^2\omega_5\omega_2^2 - 16v_1^2\omega_5^2\omega_2^2 - 6\omega_5^2\omega_2 - 6c_s^2\omega_5\omega_2^3 + 8\omega_5^2\omega_2^2 + 24v_1^2\omega_5^2\omega_2 - 12v_1^2\omega_2^2 - 12v_1^2\omega_5^2 + 6v_1^2\omega_2^3 - 12c_s^2\omega_5\omega_2 - \omega_5^2\omega_2^3 - 24c_s^2\omega_5^2 + 6c_s^2\omega_2^3 + 6\omega_5\omega_2^3 + 42c_s^2\omega_5^2\omega_2 - 24\omega_5\omega_2^2 - 12v_1^2\omega_5\omega_2 - 12c_s^2\omega_2^2 + c_s^2\omega_5^2\omega_2^3 + 24v_1^2\omega_5\omega_2^2 + 12\omega_5\omega_2 + 12\omega_2^2 - 20c_s^2\omega_5^2\omega_2^2 - 6v_1^2\omega_5\omega_2^3 - 6\omega_2^3$$

$$C_{16} = 24\omega_3^2\omega_5\omega_2 - 6\omega_3\omega_5\omega_2^2 + 12\omega_3\omega_5\omega_2^3 + \omega_3^2\omega_5\omega_2^3 - 10\omega_3^2\omega_5\omega_2^2 - 6\omega_3^2\omega_2^2 - 6\omega_5\omega_2^3 - 12\omega_3^2\omega_5\omega_2 + 3\omega_3^2\omega_2^3 - 12\omega_3^2\omega_5 + 12\omega_3^2\omega_2^2 + 12\omega_3^2\omega_5\omega_2^2 - 7\omega_3^2\omega_5\omega_2^3 - 6\omega_3^2\omega_2^3$$

$$C_{17} = -v_1^2\omega_5^2\omega_2^3 + 12c_s^2\omega_5\omega_2^2 + 36\omega_3v_1^2\omega_5^2\omega_2 + 12\omega_3c_s^2\omega_2^2 + 12\omega_3c_s^2\omega_5\omega_2 + 6v_1^2\omega_5^2\omega_2^2 - 6c_s^2\omega_5\omega_2^3 + 12\omega_3c_s^2\omega_5^2 - 6\omega_3c_s^2\omega_2^3 - 30\omega_3c_s^2\omega_5\omega_2^2 + \omega_3v_1^2\omega_5^2\omega_2^3 - 12v_1^2\omega_5^2\omega_2 + 9\omega_3c_s^2\omega_5\omega_2^3 - 10\omega_3v_1^2\omega_5^2\omega_2^2 - 30\omega_3v_1^2\omega_5\omega_2^2 - 2\omega_3c_s^2\omega_5^2\omega_2^3 + 12c_s^2\omega_5^2\omega_2 + 9\omega_3v_1^2\omega_5\omega_2^3 + 22\omega_3c_s^2\omega_5^2\omega_2^2 + 3c_s^2\omega_5^2\omega_2^3 + 12v_1^2\omega_5\omega_2^2 - 30\omega_3c_s^2\omega_5^2\omega_2 - 24\omega_3v_1^2\omega_5^2 - 6\omega_3v_1^2\omega_2^3 + 12\omega_3v_1^2\omega_5\omega_2 - 18c_s^2\omega_5^2\omega_2^2 - 6v_1^2\omega_5\omega_2^3 + 12\omega_3v_1^2\omega_2^2$$

$$C_{18} = -12\omega_3^2v_1^2\omega_5\omega_2^2 - 12\omega_3^2c_s^2\omega_5^2\omega_2^3 + 6v_1^2\omega_5^2\omega_2^3 + 12\omega_3^3\omega_5\omega_2 + \omega_3^2\omega_5^2\omega_2^3 - 24\omega_3^3v_1^2\omega_5\omega_2 + 6\omega_3^2v_1^2\omega_5\omega_2^3 + 42\omega_3^2c_s^2\omega_5^2\omega_2^2 + 78\omega_3^3c_s^2\omega_5^2\omega_2 - 3\omega_3^2\omega_5^2\omega_2^2 - 12\omega_3^3v_1^2\omega_5\omega_2^3 - 48\omega_3^3c_s^2\omega_5^2\omega_2^2 + 6\omega_3^3c_s^2\omega_2^3 + 6\omega_3^3\omega_5\omega_2^3 - 12\omega_3v_1^2\omega_5^2\omega_2^3 - 36\omega_3^3c_s^2\omega_5^2 - 24\omega_3^2c_s^2\omega_5^2\omega_2 - 21\omega_3^3\omega_5\omega_2^2 - 12\omega_3^3c_s^2\omega_2^2 + 42\omega_3^3v_1^2\omega_5\omega_2^2 + 6\omega_3^3c_s^2\omega_5^2\omega_2^3 + 6\omega_3v_1^2\omega_5^2\omega_2^2 + 7\omega_3^3\omega_5^2\omega_2^2 - 12\omega_3^3c_s^2\omega_5\omega_2^3 + 6\omega_3^3\omega_2^2 + 6\omega_3^3v_1^2\omega_5^2\omega_2^2 - 12\omega_3^3v_1^2\omega_2^2 + 12\omega_3^3v_1^2\omega_5^2\omega_2 + 6\omega_3c_s^2\omega_5^2\omega_2^3 + 6\omega_3^3v_1^2\omega_2^3 + 42\omega_3^3c_s^2\omega_5\omega_2^2 - 3\omega_3^3\omega_2^2 - \omega_3^3\omega_5^2\omega_2^3 + 24\omega_3^3v_1^2\omega_5^2 - 12\omega_3c_s^2\omega_5^2\omega_2^2 - 12\omega_3^2c_s^2\omega_5\omega_2^2 + 6\omega_3^3v_1^2\omega_5^2\omega_2^3 + 6\omega_3^2\omega_5\omega_2^2 - 24\omega_3^3c_s^2\omega_5\omega_2 + 6\omega_3^2c_s^2\omega_5\omega_2^3 - 12\omega_3^2v_1^2\omega_5^2\omega_2^2 - 6\omega_3^3\omega_5^2\omega_2 - 30\omega_3^3v_1^2\omega_5^2\omega_2 - 3\omega_3^2\omega_5\omega_2^3$$

$$C_{19} = -24\omega_3^2 v_1^2 \omega_5 \omega_2^2 - 12\omega_3^2 c_s^2 \omega_5^2 \omega_2^3 + 12 v_1^2 \omega_5^2 \omega_2^3 + 2\omega_3^2 \omega_5^2 \omega_2^3 - 12\omega_3^3 v_1^2 \omega_5 \omega_2 + 12\omega_3^2 v_1^2 \omega_5 \omega_2^3 + 48\omega_3^2 c_s^2 \omega_5^2 \omega_2^2 + 36\omega_3^3 c_s^2 \omega_5^2 \omega_2 - 6\omega_3^2 \omega_5^2 \omega_2^2 - 12\omega_3^3 v_1^2 \omega_5 \omega_2^3 - 32\omega_3^3 c_s^2 \omega_5^2 \omega_2^2 + 6\omega_3^3 c_s^2 \omega_2^3 + 3\omega_3^3 \omega_5 \omega_2^3 - 18\omega_3 v_1^2 \omega_5^2 \omega_2^3 - 12\omega_3^3 c_s^2 \omega_5^2 - 24\omega_3^2 c_s^2 \omega_5^2 \omega_2 - 6\omega_3^3 \omega_5 \omega_2^2 - 12\omega_3^3 c_s^2 \omega_2^2 + 36\omega_3^3 v_1^2 \omega_5 \omega_2^2 + 4\omega_3^3 c_s^2 \omega_5^2 \omega_2^3 + 3\omega_3^3 \omega_5^2 \omega_2^2 - 12\omega_3^3 c_s^2 \omega_5 \omega_2^3 - 12\omega_3^3 v_1^2 \omega_2^2 + 6\omega_3 c_s^2 \omega_5^2 \omega_2^3 + 6\omega_3^3 v_1^2 \omega_2^3 + 36\omega_3^3 c_s^2 \omega_5 \omega_2^2 + 3\omega_3^3 v_1^2 \omega_5^2 \omega_2^3 - \omega_3^3 \omega_5^2 \omega_2^3 + 24\omega_3^3 v_1^2 \omega_5^2 - 12\omega_3 c_s^2 \omega_5^2 \omega_2^2 - 24\omega_3^2 c_s^2 \omega_5 \omega_2^2 + 12\omega_3^2 \omega_5 \omega_2^2 - 12\omega_3^3 c_s^2 \omega_5 \omega_2 + 12\omega_3^2 c_s^2 \omega_5 \omega_2^3 + 12\omega_3^2 v_1^2 \omega_5^2 \omega_2^2 - 30\omega_3^3 v_1^2 \omega_5^2 \omega_2 - 6\omega_3^2 \omega_5 \omega_2^3$$

$$C_{20} = v_1^2 \omega_5^2 \omega_2^3 + 48 c_s^2 \omega_5 \omega_2^2 - 8 v_1^2 \omega_5^2 \omega_2^2 - 12\omega_5^2 \omega_2 - 12 c_s^2 \omega_5 \omega_2^3 + 11\omega_5^2 \omega_2^2 - 12 v_1^2 \omega_2^2 + 12 v_1^2 \omega_5^2 + 6 v_1^2 \omega_2^3 - 36 c_s^2 \omega_5 \omega_2 - \omega_5^2 \omega_2^3 - 48 c_s^2 \omega_5^2 + 6 c_s^2 \omega_2^3 + 9\omega_5 \omega_2^3 + 90 c_s^2 \omega_5^2 \omega_2 - 36\omega_5 \omega_2^2 - 36 v_1^2 \omega_5 \omega_2 - 12 c_s^2 \omega_2^2 + 4 c_s^2 \omega_5^2 \omega_2^3 + 48 v_1^2 \omega_5 \omega_2^2 + 24\omega_5 \omega_2 + 12\omega_2^2 - 44 c_s^2 \omega_5^2 \omega_2^2 - 12 v_1^2 \omega_5 \omega_2^3 - 6\omega_2^3$$

$$C_{21} = 12\omega_3^2 v_2^2 \omega_2 + 12\omega_6 \omega_3 c_s^2 \omega_2 - 6\omega_3^3 c_s^2 \omega_2 + 36\omega_6^2 \omega_3 v_2^2 \omega_2 + 3\omega_6^2 \omega_3^3 c_s^2 + 6\omega_6^2 \omega_3^2 v_2^2 + 12\omega_6^2 c_s^2 \omega_2 + 22\omega_6^2 \omega_3^2 c_s^2 \omega_2 + \omega_6^2 \omega_3^3 v_2^2 \omega_2 - \omega_6^2 \omega_3^3 v_2^2 + 9\omega_6 \omega_3^3 c_s^2 \omega_2 - 18\omega_6^2 \omega_3^2 c_s^2 - 30\omega_6 \omega_3^2 v_2^2 \omega_2 - 30\omega_6^2 \omega_3 c_s^2 \omega_2 + 12\omega_6^2 \omega_3 c_s^2 - 24\omega_6^2 v_2^2 \omega_2 + 12\omega_6 \omega_3^2 c_s^2 - 6\omega_6 \omega_3^3 v_2^2 + 12\omega_3^2 c_s^2 \omega_2 - 6\omega_3^3 v_2^2 \omega_2 + 12\omega_6 \omega_3 v_2^2 \omega_2 + 9\omega_6 \omega_3^3 v_2^2 \omega_2 - 12\omega_6^2 \omega_3 v_2^2 - 30\omega_6 \omega_3^2 c_s^2 \omega_2 - 10\omega_6^2 \omega_3^2 v_2^2 \omega_2 - 2\omega_6^2 \omega_3^2 c_s^2 \omega_2 + 12\omega_6 \omega_3^2 v_2^2 - 6\omega_6 \omega_3^3 c_s^2$$

$$C_{22} = -12\omega_6 \omega_3 \omega_2^2 + 24\omega_6 \omega_3 \omega_2^3 - 6\omega_6 \omega_3^3 - 6\omega_3^3 \omega_2^2 - 6\omega_6 \omega_3^2 \omega_2 + \omega_6 \omega_3^3 \omega_2^3 + 3\omega_3^3 \omega_2^3 - 7\omega_6 \omega_3^3 \omega_2^2 + 12\omega_6 \omega_3^3 \omega_2 - 10\omega_6 \omega_3^2 \omega_2^3 - 12\omega_6 \omega_2^3 + 12\omega_3^2 \omega_2^2 + 12\omega_6 \omega_3^2 \omega_2^2 - 6\omega_3^3 \omega_2^3$$

$$C_{23} = 2\omega_6 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2^2 - 4\omega_6^2 \omega_3^2 c_s^2 \omega_5^2 v_2^2 \omega_2^3 - 8\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2 - 4\omega_6 \omega_3 c_s^2 v_1^2 \omega_5^2 \omega_2^3 - 2\omega_6^2 \omega_3 c_s^4 \omega_5^2 \omega_2^3 - 4\omega_6 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^2 - 3\omega_6^2 \omega_3^3 c_s^2 \omega_5 v_2^2 \omega_2^3 - 38\omega_6^2 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2 + \omega_6^2 \omega_3^3 c_s^4 \omega_5 \omega_2^3 - 8\omega_6^2 \omega_3 c_s^2 \omega_5^2 v_2^2 \omega_2^2 - 4\omega_6^2 \omega_3^3 v_1^2 v_2^2 \omega_2^2 + 2\omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^3 + 4\omega_6^2 \omega_3 c_s^4 \omega_5^2 \omega_2^2 - 3\omega_6 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2^3 + 12\omega_6^2 \omega_3^2 c_s^2 \omega_5^2 v_2^2 \omega_2^2 + 4\omega_6^2 \omega_3 c_s^2 \omega_5^2 v_2^2 \omega_2^3 - 2\omega_6^2 \omega_3^3 c_s^4 \omega_5 \omega_2^2 + 2\omega_6^2 \omega_3^3 v_1^2 v_2^2 \omega_2^3 - 4\omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2^3 + 10\omega_6^2 \omega_3^3 c_s^2 \omega_5 v_2^2 \omega_2^2 + 10\omega_6 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^2 - 4\omega_6^2 \omega_3 c_s^2 v_1^2 \omega_5^2 \omega_2^2 + 20\omega_6^2 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2^2 - 3\omega_6^2 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2 - 8\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^3 + 4\omega_6^2 \omega_3^2 c_s^4 \omega_5 \omega_2^2 - 4\omega_6^2 \omega_3^2 c_s^2 \omega_5^2 v_2^2 \omega_2 + 2\omega_6^2 \omega_3^3 v_1^2 \omega_5 v_2^2 \omega_2^3 + 20\omega_6^2 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2^2 + 20\omega_6^2 v_1^2 \omega_5^2 v_2^2 \omega_2^3 - 2\omega_6 \omega_3^2 c_s^2 \omega_5^2 v_2^2 \omega_2^3 + \omega_6^2 \omega_3^3 c_s^2 v_1^2 \omega_5 \omega_2^3 + 10\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^3 - 2\omega_6^2 \omega_3^2 c_s^4 \omega_5 \omega_2^3 - 4\omega_6^2 \omega_3^3 v_1^2 \omega_5 v_2^2 \omega_2^2 + 12\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^2 + \omega_6^2 \omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^3 - 3\omega_6^2 \omega_3^3 v_1^2 \omega_5 v_2^2 \omega_2^3 + 10\omega_6^2 \omega_3^3 c_s^2 \omega_5^2 v_2^2 \omega_2 + 4\omega_6 \omega_3^2 c_s^4 \omega_5^2 \omega_2^2 + 20\omega_6^2 \omega_3 v_1^2 \omega_5^2 v_2^2 \omega_2^2 - 4\omega_6^2 \omega_3^3 c_s^2 \omega_5^2 v_2^2 \omega_2^2 - 2\omega_6 \omega_3^3 c_s^2 \omega_5^2 v_2^2 \omega_2^2 + 4\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5 \omega_2^2 + 20\omega_6^2 \omega_3^2 v_1^2 \omega_5^2 v_2^2 \omega_2^3 + 4\omega_6^2 \omega_3^2 c_s^4 \omega_5^2 \omega_2^3 - 38\omega_6^2 \omega_3 v_1^2 \omega_5^2 v_2^2 \omega_2^3 - 2\omega_6^2 \omega_3^3 c_s^4 \omega_5^2 \omega_2 - 2\omega_6 \omega_3^2 c_s^4 \omega_5^2 \omega_2^3 + 10\omega_6^2 \omega_3^3 v_1^2 \omega_5 v_2^2 \omega_2^2 - 4\omega_6^2 \omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^2 - 4\omega_6^2 c_s^2 v_1^2 \omega_5^2 \omega_2^3 - 12\omega_6^2 \omega_3^2 c_s^4 \omega_5^2 \omega_2^2 + \omega_6 \omega_3^3 c_s^2 \omega_5^2 v_2^2 \omega_2^3 - 2\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5 \omega_2^3 - 36\omega_6^2 \omega_3^2 v_1^2 \omega_5^2 v_2^2 \omega_2^2 - 4\omega_6 \omega_3 v_1^2 \omega_5^2 v_2^2 \omega_2^3 + \omega_6 \omega_3^3 c_s^2 \omega_5^2 \omega_2^3 + 4\omega_6^2 \omega_3^2 c_s^2 \omega_5^2 \omega_2 + 2\omega_6 \omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^2 + 20\omega_6^2 \omega_3^2 v_1^2 \omega_5^2 v_2^2 \omega_2 + 2\omega_6^2 \omega_3^2 c_s^2 \omega_5 v_2^2 \omega_2^2 - 2\omega_6^2 \omega_3^2 c_s^2 \omega_5^2 v_2^2 \omega_2^3 + \omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^2 + 4\omega_6^2 \omega_3^2 c_s^2 \omega_5^2 v_2^2 \omega_2 - 4\omega_6^2 \omega_3^2 c_s^2 v_1^2 \omega_5^2 \omega_2^2 - 4\omega_6^2 \omega_3^2 c_s^2 \omega_5 v_2^2 \omega_2^2 - 3\omega_6^2 \omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^3 - 2\omega_6^2 \omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^2 + 10\omega_6^2 \omega_3^3 v_1^2 \omega_5^2 v_2^2 \omega_2^2 + 2\omega_6^2 \omega_3^3 c_s^2 v_2^2 \omega_2^3 - \omega_6^2 \omega_3^3 c_s^4 \omega_5^2 \omega_2^3 - 4\omega_3^3 c_s^2 v_1^2 \omega_5^2 \omega_2^3$$

$$C_{24} = -4\omega_6^2 \omega_3^3 v_2^2 \omega_2^3 - 14\omega_6^2 \omega_3^2 c_s^2 \omega_2^3 + 22\omega_6^2 \omega_3^3 v_2^2 \omega_2^2 + 24\omega_6 \omega_3^3 v_2^2 \omega_2^3 + 12\omega_6^2 \omega_3^2 c_s^2 \omega_2^2 - 6\omega_6 \omega_3^3 c_s^2 \omega_2^2 - 12\omega_6^2 \omega_3^2 c_s^2 \omega_2 + 6\omega_3^3 c_s^2 \omega_2^3 - 12\omega_6 \omega_3 c_s^2 \omega_2^3 + 24\omega_6^2 \omega_3 v_2^2 \omega_2^2 - 30\omega_6^2 \omega_3^3 v_2^2 \omega_2 - 12\omega_3^2 v_2^2 \omega_2^3 + 12\omega_6^2 \omega_3^3 v_2^2 - 12\omega_6^2 c_s^2 \omega_2^3 - 78\omega_6^2 \omega_3 v_2^2 \omega_2^3 + 24\omega_6 \omega_3^2 c_s^2 \omega_2^3 - 6\omega_6^2 \omega_3^3 c_s^2 \omega_2^2 - 6\omega_6 \omega_3^3 v_2^2 \omega_2^3 - 48\omega_6^2 \omega_3^2 v_2^2 \omega_2^2 + \omega_6^2 \omega_3^3 c_s^2 \omega_2^3 + 34\omega_6^2 \omega_3^2 v_2^2 \omega_2^3 + 48\omega_6^2 v_2^2 \omega_2^3 + 24\omega_6^2 \omega_3 c_s^2 \omega_2^3 - 12\omega_6 \omega_3 v_2^2 \omega_2^3 + 24\omega_6^2 \omega_3^2 v_2^2 \omega_2 + 6\omega_3^3 v_2^2 \omega_2^3 + 6\omega_6^2 \omega_3^3 c_s^2 \omega_2 - 12\omega_3^2 c_s^2 \omega_2^3$$

$$C_{25} = -6\omega_3^2 c_s^2 \omega_5^2 \omega_2^3 + 12 v_1^2 \omega_5^2 \omega_2^3 - 12\omega_3^3 v_1^2 \omega_5 \omega_2 + 12\omega_3^2 c_s^2 \omega_5^2 \omega_2^2 + 24\omega_3^2 c_s^2 \omega_5^2 \omega_2 - 6\omega_3^3 v_1^2 \omega_5 \omega_2^3 - 14\omega_3^2 c_s^2 \omega_5^2 \omega_2^2 + 6\omega_3^3 c_s^2 \omega_2^3 - 30\omega_3 v_1^2 \omega_5^2 \omega_2^3 - 12\omega_3^3 c_s^2 \omega_5^2 - 12\omega_3^3 c_s^2 \omega_2^2 + 24\omega_3^3 v_1^2 \omega_5 \omega_2^2 + \omega_3^3 c_s^2 \omega_5^2 \omega_2^3 + 24\omega_3 v_1^2 \omega_5^2 \omega_2^2 - 6\omega_3^3 c_s^2 \omega_5 \omega_2^3 + 34\omega_3^3 v_1^2 \omega_5^2 \omega_2^2 - 12\omega_3^3 v_1^2 \omega_2^2 + 24\omega_3^2 v_1^2 \omega_5^2 \omega_2 + 6\omega_3 c_s^2 \omega_5^2 \omega_2^3 + 6\omega_3^3 v_1^2 \omega_2^3 + 24\omega_3^3 c_s^2 \omega_5 \omega_2^2 - 4\omega_3^3 v_1^2 \omega_5^2 \omega_2^3 + 48\omega_3^3 v_1^2 \omega_5^2 - 12\omega_3 c_s^2 \omega_5^2 \omega_2^2 + 22\omega_3^2 v_1^2 \omega_5^2 \omega_2^3 - 12\omega_3^3 c_s^2 \omega_5 \omega_2 - 48\omega_3^2 v_1^2 \omega_5^2 \omega_2^2 - 78\omega_3^3 v_1^2 \omega_5^2 \omega_2$$

$$C_{26} = 36\omega_6 \omega_3^2 + 12\omega_6^2 v_2^2 + 6\omega_3^3 + 48\omega_6 \omega_3 v_2^2 - 12\omega_3^2 - 9\omega_6 \omega_3^3 - 2\omega_6^2 \omega_3^3 c_s^2 + 27\omega_6^2 \omega_3^2 v_2^2 + 24\omega_6 \omega_3 c_s^2 + 24\omega_6^2 c_s^2 - 3\omega_6^2 \omega_3^3 v_2^2 + 25\omega_6^2 \omega_3^2 c_s^2 - 24\omega_6 \omega_3 - 48\omega_6^2 \omega_3 c_s^2 - 6\omega_3^3 v_2^2 + 12\omega_6^2 \omega_3 + 12\omega_3^2 c_s^2 - 36\omega_6 \omega_3^2 c_s^2 + 15\omega_6 \omega_3^3 v_2^2 - 6\omega_3^3 c_s^2 + \omega_6^2 \omega_3^3 + 12\omega_3^2 v_2^2 - 42\omega_6^2 \omega_3 v_2^2 - 11\omega_6^2 \omega_3^2 - 60\omega_6 \omega_3^2 v_2^2 + 9\omega_6 \omega_3^3 c_s^2$$

$$C_{27} = -12\omega_6 \omega_3^2 v_2^2 \omega_2^2 + 7\omega_6^2 \omega_3^2 \omega_2^3 - 48\omega_6^2 \omega_3^2 c_s^2 \omega_2^3 + 6\omega_6 \omega_3^3 c_s^2 \omega_2^2 + 12\omega_6 \omega_3 \omega_2^3 - 3\omega_6^2 \omega_3^2 \omega_2^2 + 6\omega_6^2 \omega_3^3 v_2^2 \omega_2^2 + 42\omega_6 \omega_3^2 v_2^2 \omega_2^3 + 42\omega_6^2 \omega_3^2 c_s^2 \omega_2^2 - 12\omega_6 \omega_3^3 c_s^2 \omega_2^3 - 12\omega_6^2 \omega_3^2 c_s^2 \omega_2 + 6\omega_3^3 c_s^2 \omega_2^3 - 24\omega_6 \omega_3 c_s^2 \omega_2^3 - \omega_6^2 \omega_3^3 \omega_2^3 + 12\omega_6^2 \omega_3 v_2^2 \omega_2^2 - 12\omega_6^2 \omega_3^3 v_2^2 \omega_2 - 12\omega_3^3 v_2^2 \omega_2^3 + 6\omega_6^2 \omega_3^3 v_2^2 - 36\omega_6^2 c_s^2 \omega_2^3 - 30\omega_6^2 \omega_3 v_2^2 \omega_2^3 + \omega_6^2 \omega_3^3 \omega_2^2 + 42\omega_6 \omega_3^2 c_s^2 \omega_2^3 - 12\omega_6^2 \omega_3^3 c_s^2 \omega_2^2 - 12\omega_6 \omega_3^3 v_2^2 \omega_2^3 - 12\omega_6^2 \omega_3^3 v_2^2 \omega_2^2 + 6\omega_6 \omega_3^3 \omega_2^3 - 3\omega_3^3 \omega_2^3 - 12\omega_6 \omega_3^2 c_s^2 \omega_2^2 + 6\omega_6^2 \omega_3^3 c_s^2 \omega_2^3 - 3\omega_6 \omega_3^3 \omega_2^2 + 6\omega_6 \omega_3^3 v_2^2 \omega_2^2 + 6\omega_6^2 \omega_3^3 v_2^2 \omega_2^3 - 21\omega_6 \omega_3^2 \omega_2^3 + 24\omega_6^2 v_2^2 \omega_2^3 + 78\omega_6^2 \omega_3 c_s^2 \omega_2^3 - 24\omega_6 \omega_3 v_2^2 \omega_2^3 + 6\omega_6^2 \omega_3^2 v_2^2 \omega_2 + 6\omega_3^3 v_2^2 \omega_2^3 + 6\omega_6 \omega_3^3 \omega_2^2 - 6\omega_6^2 \omega_3^3 \omega_2^3 + 6\omega_6^2 \omega_3^3 c_s^2 \omega_2 - 12\omega_3^2 c_s^2 \omega_2^3 - 24\omega_6^2 \omega_3 c_s^2 \omega_2^2 + 6\omega_3^3 \omega_2^3$$

$$C_{28} = -36\omega_6 \omega_3^2 + 12\omega_6^2 v_2^2 - 6\omega_3^3 - 36\omega_6 \omega_3 v_2^2 + 12\omega_3^2 + 9\omega_6 \omega_3^3 + 4\omega_6^2 \omega_3^3 c_s^2 - 8\omega_6^2 \omega_3^2 v_2^2 - 36\omega_6 \omega_3 c_s^2 - 48\omega_6^2 c_s^2 + \omega_6^2 \omega_3^3 v_2^2 - 44\omega_6^2 \omega_3^2 c_s^2 + 24\omega_6 \omega_3 + 90\omega_6^2 \omega_3 c_s^2 + 6\omega_3^3 v_2^2 - 12\omega_6^2 \omega_3 - 12\omega_3^2 c_s^2 + 48\omega_6 \omega_3^2 c_s^2 - 12\omega_6 \omega_3^3 v_2^2 + 6\omega_3^3 c_s^2 - \omega_6^2 \omega_3^3 - 12\omega_3^3 v_2^2 + 11\omega_6^2 \omega_3^2 + 48\omega_6 \omega_3^2 v_2^2 - 12\omega_6 \omega_3^3 c_s^2$$

$$C_{29} = 3\omega_6^2 \omega_3^3 v_2^2 \omega_2^3 - 24\omega_6 \omega_3^2 v_2^2 \omega_2^2 + 3\omega_6^2 \omega_3^2 \omega_2^3 - 32\omega_6^2 \omega_3^2 c_s^2 \omega_2^3 + 12\omega_6 \omega_3^3 c_s^2 \omega_2^2 - 6\omega_6^2 \omega_3^3 \omega_2^2 + 36\omega_6 \omega_3^2 v_2^2 \omega_2^3 + 48\omega_6^2 \omega_3^2 c_s^2 \omega_2^2 - 12\omega_6 \omega_3^3 c_s^2 \omega_2^3 - 12\omega_6^2 \omega_3^2 c_s^2 \omega_2 + 6\omega_3^3 c_s^2 \omega_2^3 - 12\omega_6 \omega_3^3 c_s^2 \omega_2^3 - \omega_6^2 \omega_3^3 \omega_2^3 - 18\omega_6^2 \omega_3^3 v_2^2 \omega_2 - 12\omega_3^2 v_2^2 \omega_2^3 + 12\omega_6^2 \omega_3^3 v_2^2 - 12\omega_6^2 c_s^2 \omega_2^3 - 30\omega_6^2 \omega_3 v_2^2 \omega_2^3 + 2\omega_6^2 \omega_3^3 \omega_2^2 + 36\omega_6 \omega_3^2 c_s^2 \omega_2^3 - 12\omega_6^2 \omega_3^3 c_s^2 \omega_2^2 - 12\omega_6 \omega_3^3 v_2^2 \omega_2^3 + 12\omega_6^2 \omega_3^2 v_2^2 \omega_2^2 + 3\omega_6 \omega_3^3 \omega_2^3 - 24\omega_6 \omega_3^2 c_s^2 \omega_2^2 + 4\omega_6^2 \omega_3^2 c_s^2 \omega_2^3 - 6\omega_6 \omega_3^3 \omega_2^2 + 12\omega_6 \omega_3^3 v_2^2 \omega_2^2 - 6\omega_6 \omega_3^2 \omega_2^3 + 24\omega_6^2 v_2^2 \omega_2^3 + 36\omega_6^2 \omega_3 c_s^2 \omega_2^3 - 12\omega_6 \omega_3 v_2^2 \omega_2^3 + 6\omega_3^3 v_2^2 \omega_2^3 + 12\omega_6^2 \omega_3^2 \omega_2^2 + 6\omega_6^2 \omega_3^3 c_s^2 \omega_2 - 12\omega_3^2 c_s^2 \omega_2^3 - 24\omega_6^2 \omega_3 c_s^2 \omega_2^2$$

$$C_{30} = -12\omega_6 \omega_3^3 c_s^2 v_2^2 + 24\omega_6^2 \omega_3 v_2^4 + 48\omega_6 \omega_3 v_2^2 - 24\omega_3^2 v_2^2 + 72\omega_6 \omega_3^2 v_2^2 - 72\omega_6^2 \omega_3^2 c_s^2 v_2^2 + 6\omega_6 \omega_3^3 c_s^4 + \omega_6^2 \omega_3^3 c_s^2 + 24\omega_6^2 \omega_3^2 v_2^2 + 12\omega_3^3 v_2^4 - 24\omega_6 \omega_3 c_s^2 - 96\omega_6^2 c_s^2 v_2^2 - 48\omega_6^2 \omega_3 c_s^4 - 3\omega_6^2 \omega_3^3 v_2^2 - 8\omega_6^2 \omega_3^2 c_s^2 - 24\omega_6 \omega_3^2 c_s^4 + 12\omega_3^3 c_s^2 v_2^2 - 18\omega_6 \omega_3^3 v_2^4 - 24\omega_6 \omega_3 c_s^2 v_2^2 + 24\omega_6^2 c_s^4 + 12\omega_6^2 \omega_3 c_s^2 - 12\omega_3^3 v_2^2 + 24\omega_6 \omega_3 c_s^4 + 6\omega_6^2 \omega_3^3 c_s^2 v_2^2 + 24\omega_6 \omega_3^2 c_s^2 + 18\omega_6 \omega_3^3 v_2^2 + 3\omega_6^2 \omega_3^3 v_2^4 + 48\omega_6 \omega_3^2 c_s^2 v_2^2 + 24\omega_6^2 \omega_3^2 c_s^4 - 48\omega_6 \omega_3 v_2^4 - 24\omega_3^2 c_s^2 v_2^2 + 24\omega_3^3 v_2^2 - 24\omega_6^2 \omega_3 v_2^2 + 156\omega_6^2 \omega_3 c_s^2 v_2^2 - 3\omega_6^2 \omega_3^3 c_s^4 - 24\omega_6^2 \omega_3^2 v_2^4 - 72\omega_6 \omega_3^2 v_2^2 - 6\omega_6 \omega_3^3 c_s^2$$

$$C_{31} = -24\omega_6 \omega_3^2 - 12\omega_6^2 v_2^2 - 6\omega_3^3 - 12\omega_6 \omega_3 v_2^2 + 12\omega_3^2 + 6\omega_6 \omega_3^3 + \omega_6^2 \omega_3^3 c_s^2 - 16\omega_6^2 \omega_3^2 v_2^2 - 12\omega_6 \omega_3 c_s^2 - 24\omega_6^2 c_s^2 + 2\omega_6^2 \omega_3^3 v_2^2 - 20\omega_6^2 \omega_3^2 c_s^2 + 12\omega_6 \omega_3 + 42\omega_6^2 \omega_3 c_s^2 + 6\omega_3^3 v_2^2 - 6\omega_6^2 \omega_3 - 12\omega_3^2 c_s^2 + 24\omega_6 \omega_3^2 c_s^2 - 6\omega_6 \omega_3^3 v_2^2 + 6\omega_3^3 c_s^2 - \omega_6^2 \omega_3^3 - 12\omega_3^2 v_2^2 + 24\omega_6^2 \omega_3 v_2^2 + 8\omega_6^2 \omega_3^2 + 24\omega_6 \omega_3^2 v_2^2 - 6\omega_6 \omega_3^3 c_s^2$$

$$C_{32} = -12\omega_4^2 \omega_5 \omega_2 + 12\omega_4^2 \omega_5 \omega_2^2 - 7\omega_4^2 \omega_5 \omega_2^3 - 12\omega_4^3 \omega_5 + 12\omega_4^2 \omega_2^2 + 24\omega_4^3 \omega_5 \omega_2 - 6\omega_4 \omega_5 \omega_2^2 - 6\omega_5 \omega_2^3 + 12\omega_4 \omega_5 \omega_2^3 - 6\omega_4^2 \omega_2^3 - 6\omega_4^3 \omega_2^2 + \omega_4^3 \omega_5 \omega_2^3 - 10\omega_4^3 \omega_5 \omega_2^2 + 3\omega_4^3 \omega_2^3$$

$$C_{33} = 36\omega_4 v_1^2 \omega_5^2 \omega_2 - v_1^2 \omega_5^2 \omega_2^3 + 12 c_s^2 \omega_5 \omega_2^2 + 6 v_1^2 \omega_5^2 \omega_2^2 - 6 c_s^2 \omega_5 \omega_2^3 + 12\omega_4 c_s^2 \omega_5 \omega_2 - 24\omega_4 v_1^2 \omega_5^2 - 12 v_1^2 \omega_5^2 \omega_2 + \omega_4 v_1^2 \omega_5^2 \omega_2^3 - 30\omega_4 c_s^2 \omega_5 \omega_2^2 - 6\omega_4 v_1^2 \omega_2^3 - 10\omega_4 v_1^2 \omega_5^2 \omega_2^2 + 12\omega_4 v_1^2 \omega_2^2 + 9\omega_4 c_s^2 \omega_5 \omega_2^3 - 2\omega_4 c_s^2 \omega_5^2 \omega_2^3 - 30\omega_4 v_1^2 \omega_5 \omega_2^2 + 12\omega_4 c_s^2 \omega_2^2 + 12 c_s^2 \omega_5^2 \omega_2 + 12\omega_4 c_s^2 \omega_5^2 + 22\omega_4 c_s^2 \omega_5^2 \omega_2^2 + 9\omega_4 v_1^2 \omega_5 \omega_2^3 - 6\omega_4 c_s^2 \omega_2^3 + 3 c_s^2 \omega_5^2 \omega_2^3 + 12 v_1^2 \omega_5 \omega_2^2 - 30\omega_4 c_s^2 \omega_5^2 \omega_2 + 12\omega_4 v_1^2 \omega_5 \omega_2 - 18 c_s^2 \omega_5^2 \omega_2^2 - 6 v_1^2 \omega_5 \omega_2^3$$

$$C_{34} = 7\omega_4^3\omega_5^2\omega_2^2 - 12\omega_4^3v_1^2\omega_2^2 + 6v_1^2\omega_5^2\omega_2^3 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 - 12\omega_4^2v_1^2\omega_5\omega_2^2 - 24\omega_4^3v_1^2\omega_5\omega_2 + 42\omega_4^2c_s^2\omega_5^2\omega_2^2 + 6\omega_4^2v_1^2\omega_5\omega_2^3 + 6\omega_4^3v_1^2\omega_2^3 - \omega_4^3\omega_5^2\omega_2^3 + 24\omega_4^3v_1^2\omega_5^2 + 78\omega_4^3c_s^2\omega_5^2\omega_2 - 48\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3v_1^2\omega_5\omega_2^3 - 24\omega_4^2c_s^2\omega_5^2\omega_2 + 6\omega_4^2\omega_5\omega_2^2 - 12\omega_4v_1^2\omega_5^2\omega_2^3 + 6\omega_4^3c_s^2\omega_5^2\omega_2^3 + 42\omega_4^3v_1^2\omega_5\omega_2^2 + 6\omega_4v_1^2\omega_5^2\omega_2^2 - 6\omega_4^3\omega_5^2\omega_2 - 3\omega_4^2\omega_5\omega_2^3 + 6\omega_4^3v_1^2\omega_5^2\omega_2^2 - 12\omega_4^3c_s^2\omega_5\omega_2^3 + 12\omega_4^3\omega_5\omega_2 + 6\omega_4c_s^2\omega_5^2\omega_2^3 + 12\omega_4^2v_1^2\omega_5^2\omega_2 + \omega_4^2\omega_5^2\omega_2^3 + 42\omega_4^3c_s^2\omega_5\omega_2^2 - 3\omega_4^2\omega_5^2\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3c_s^2\omega_2^3 + 6\omega_4^2v_1^2\omega_5^2\omega_2^3 - 12\omega_4^2c_s^2\omega_5\omega_2^2 + 6\omega_4^3\omega_2^2 + 6\omega_4^3\omega_5\omega_2^3 - 36\omega_4^3c_s^2\omega_5^2 - 24\omega_4^3c_s^2\omega_5\omega_2 - 21\omega_4^3\omega_5\omega_2^2 - 3\omega_4^3\omega_2^3 - 12\omega_4^2v_1^2\omega_5^2\omega_2^2 + 6\omega_4^2c_s^2\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_2^2 - 30\omega_4^3v_1^2\omega_5^2\omega_2$$

$$C_{35} = 3\omega_4^3\omega_5^2\omega_2^2 - 12\omega_4^3v_1^2\omega_2^2 + 12v_1^2\omega_5^2\omega_2^3 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 - 24\omega_4^2v_1^2\omega_5\omega_2^2 - 12\omega_4^3v_1^2\omega_5\omega_2 + 48\omega_4^2c_s^2\omega_5^2\omega_2^2 + 12\omega_4^2v_1^2\omega_5\omega_2^3 + 6\omega_4^3v_1^2\omega_2^3 - \omega_4^3\omega_5^2\omega_2^3 + 24\omega_4^3v_1^2\omega_5^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 - 32\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3v_1^2\omega_5\omega_2^3 - 24\omega_4^2c_s^2\omega_5^2\omega_2 + 12\omega_4^2\omega_5\omega_2^2 - 18\omega_4v_1^2\omega_5^2\omega_2^3 + 4\omega_4^3c_s^2\omega_5^2\omega_2^3 + 36\omega_4^3v_1^2\omega_5\omega_2^2 - 6\omega_4^2\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_5\omega_2^3 + 6\omega_4c_s^2\omega_5^2\omega_2^3 + 2\omega_4^2\omega_5^2\omega_2^3 + 3\omega_4^3v_1^2\omega_5^2\omega_2^3 + 36\omega_4^3c_s^2\omega_5\omega_2^2 - 6\omega_4^2\omega_5^2\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3c_s^2\omega_2^3 - 24\omega_4^2c_s^2\omega_5\omega_2^2 + 3\omega_4^3\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5\omega_2 - 6\omega_4^3\omega_5\omega_2^2 + 12\omega_4^2v_1^2\omega_5^2\omega_2^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_2^2 - 30\omega_4^3v_1^2\omega_5^2\omega_2$$

$$C_{36} = v_1^2\omega_5^2\omega_2^3 + 48c_s^2\omega_5\omega_2^2 - 8v_1^2\omega_5^2\omega_2^2 - 12\omega_5^2\omega_2 - 12c_s^2\omega_5\omega_2^3 + 11\omega_5^2\omega_2^2 - 12v_1^2\omega_2^2 + 12v_1^2\omega_5^2 + 6v_1^2\omega_2^3 - 36c_s^2\omega_5\omega_2 - \omega_5^2\omega_2^3 - 48c_s^2\omega_5^2 + 6c_s^2\omega_2^3 + 9\omega_5\omega_2^3 + 90c_s^2\omega_5^2\omega_2 - 36\omega_5\omega_2^2 - 36v_1^2\omega_5\omega_2 - 12c_s^2\omega_2^2 + 4c_s^2\omega_5^2\omega_2^3 + 48v_1^2\omega_5\omega_2^2 + 24\omega_5\omega_2 + 12\omega_2^2 - 44c_s^2\omega_5^2\omega_2^2 - 12v_1^2\omega_5\omega_2^3 - 6\omega_2^3$$

$$C_{37} = 18\omega_3\omega_4^3\omega_2 - 16\omega_3^3\omega_4^2\omega_2 - 6\omega_3\omega_4^3 - 12\omega_3\omega_4^2\omega_2 - 12\omega_3^2\omega_4\omega_2 + 3\omega_3^3\omega_4^3\omega_2 + 30\omega_3^2\omega_4^2\omega_2 - 12\omega_3^2\omega_4^2 + 12\omega_3^2\omega_4^3 - 6\omega_3^3\omega_4 - 6\omega_4^3\omega_2 + 18\omega_3^3\omega_4\omega_2 + 12\omega_3^3\omega_4^2 - 16\omega_3^2\omega_4^3\omega_2 - 4\omega_3^3\omega_4^3 - 6\omega_3^3\omega_2$$

$$C_{38} = -16\omega_3\omega_4^2\omega_2^3 + 18\omega_3\omega_4^3\omega_2 - 6\omega_3\omega_2^3 + 30\omega_3\omega_4^2\omega_2^2 - 6\omega_3\omega_4^3 + 3\omega_3\omega_4^3\omega_2^3 - 12\omega_3\omega_4^2\omega_2 - 6\omega_4\omega_2^3 - 16\omega_3\omega_4^3\omega_2^2 - 12\omega_4^2\omega_2^2 - 6\omega_4^3\omega_2 + 12\omega_4^2\omega_2^3 + 12\omega_4^3\omega_2^2 - 12\omega_3\omega_4\omega_2^2 - 4\omega_4^3\omega_2^3 + 18\omega_3\omega_4\omega_2^3$$

$$C_{39} = 30\omega_3^2\omega_4\omega_2^2 - 6\omega_3\omega_2^3 - 16\omega_3^2\omega_4\omega_2^3 - 6\omega_4\omega_2^3 - 12\omega_3^2\omega_4\omega_2 + 12\omega_3^3\omega_2^2 + 3\omega_3^3\omega_4\omega_2^3 - 16\omega_3^3\omega_4\omega_2^2 - 6\omega_3^3\omega_4 - 4\omega_3^3\omega_2^3 + 18\omega_3^3\omega_4\omega_2 - 12\omega_3^2\omega_2^2 - 12\omega_3\omega_4\omega_2^2 + 18\omega_3\omega_4\omega_2^3 - 6\omega_3^3\omega_2 + 12\omega_3^2\omega_2^3$$

$$C_{40} = -8\omega_3^3\omega_4v_1^2\omega_5^2\omega_2^3 + \omega_3^2\omega_4^3c_s^2\omega_5\omega_2^3 - 12\omega_3^2\omega_4^3v_1^2\omega_5^2\omega_2^2 - 2\omega_3^3\omega_4^2c_s^2\omega_5^2\omega_2 - 6\omega_3^3\omega_4^3c_s^2\omega_5^2\omega_2^2 - 2\omega_3^3\omega_4^3v_1^2\omega_5\omega_2^3 - 8\omega_3\omega_4^3v_1^2\omega_5^2\omega_2^3 - 2\omega_3^2\omega_4^3c_s^2\omega_5\omega_2^2 + 4\omega_3^3\omega_4v_1^2\omega_5^2\omega_2^2 + 7\omega_3^2\omega_4^3v_1^2\omega_5^2\omega_2^3 + 4\omega_3\omega_4^3v_1^2\omega_5^2\omega_2^2 + \omega_3^3\omega_4^3c_s^2\omega_5^2\omega_2^3 + 6\omega_3^3\omega_4^3v_1^2\omega_5\omega_2^2 - 2\omega_3^3\omega_4^3c_s^2\omega_2^2 - 8\omega_3^2\omega_4^2v_1^2\omega_5^2\omega_2^3 - 2\omega_3^3\omega_4^3v_1^2\omega_5\omega_2 - 2\omega_3^3\omega_4^2c_s^2\omega_5^2\omega_2^3 - 2\omega_3^3\omega_4^2v_1^2\omega_5\omega_2^2 + 6\omega_3^3\omega_4^3c_s^2\omega_5^2\omega_2 + \omega_3^3\omega_4^3c_s^2\omega_2^3 + 4\omega_3^2\omega_4^2v_1^2\omega_5^2\omega_2^2 + 3\omega_3\omega_4^2v_1^2\omega_5^2\omega_2^3 + 7\omega_3^2\omega_4^3v_1^2\omega_5^2\omega_2 + 6\omega_3^3\omega_4^2c_s^2\omega_5^2\omega_2^2 - 2\omega_3^3\omega_4^3c_s^2\omega_5^2 + \omega_3^3\omega_4^2v_1^2\omega_5\omega_2^3 - 2\omega_3^3\omega_4^3c_s^2\omega_5\omega_2 + \omega_3^2\omega_4^2c_s^2\omega_5^2\omega_2^3 + \omega_3^3\omega_4^3v_1^2\omega_2^3 + 7\omega_3^3\omega_4^2v_1^2\omega_5^2\omega_2^3 - 2\omega_3^3\omega_4^2c_s^2\omega_5\omega_2^2 + 10\omega_3^3\omega_4^3v_1^2\omega_5^2 - 2\omega_3^3\omega_4^3v_1^2\omega_2^2 + 3\omega_3^3v_1^2\omega_5^2\omega_2^3 - 2\omega_3^2\omega_4^2c_s^2\omega_5^2\omega_2^2 + 3\omega_4^3v_1^2\omega_5^2\omega_2^3 - 21\omega_3^3\omega_4^3v_1^2\omega_5^2\omega_2 - 12\omega_3^3\omega_4^2v_1^2\omega_5^2\omega_2^2 + \omega_3^3\omega_4^2c_s^2\omega_5\omega_2^3 - 2\omega_3^2\omega_4^3c_s^2\omega_5^2\omega_2 + 7\omega_3^3\omega_4^2v_1^2\omega_5^2\omega_2 + \omega_3^3\omega_4c_s^2\omega_5^2\omega_2^3 + \omega_3^2\omega_4^3v_1^2\omega_5\omega_2^3 + 6\omega_3^2\omega_4^3c_s^2\omega_5^2\omega_2^2 + \omega_3\omega_4^3c_s^2\omega_5^2\omega_2^3 + 12\omega_3^3\omega_4^3v_1^2\omega_5^2\omega_2^2 - 2\omega_3^3\omega_4^3c_s^2\omega_5\omega_2^3 + 3\omega_3^2\omega_4v_1^2\omega_5^2\omega_2^3 - 2\omega_3^2\omega_4^3v_1^2\omega_5\omega_2^2 - 2\omega_3^3\omega_4c_s^2\omega_5^2\omega_2^2 - 2\omega_3^2\omega_4^3c_s^2\omega_5^2\omega_2^3 - 2\omega_3^3\omega_4^3v_1^2\omega_5^2\omega_2^3 + 6\omega_3^3\omega_4^3c_s^2\omega_5\omega_2^2 - 2\omega_3\omega_4^3c_s^2\omega_5^2\omega_2^2$$

$$C_{41} = 18\omega_3\omega_4^2\omega_2^3 + 28\omega_3^3\omega_4^3\omega_2^2 - 5\omega_3^3\omega_4^3\omega_2^3 + 18\omega_3^3\omega_4^2\omega_2 + 18\omega_3^2\omega_4\omega_2^3 - 30\omega_3^3\omega_4^2\omega_2^2 - 30\omega_3\omega_4^3\omega_2^3 + 6\omega_3\omega_4^3\omega_2^2 + 24\omega_3^3\omega_4^2\omega_2^3 - 36\omega_3^3\omega_4^3\omega_2 + 24\omega_3^2\omega_4^3\omega_2^3 - 30\omega_3^3\omega_4\omega_2^3 + 6\omega_3^3\omega_4\omega_2^2 + 12\omega_3^3\omega_2^3 - 30\omega_3^2\omega_4^3\omega_2^2 + 18\omega_3^2\omega_4^3\omega_2 - 42\omega_3^2\omega_4^2\omega_2^3 + 12\omega_4^3\omega_2^3 + 12\omega_3^2\omega_4^2\omega_2^2 + 12\omega_3^3\omega_4^3$$

$$C_{42} = -12\omega_4^3v_1^2\omega_2^2 + 12v_1^2\omega_5^2\omega_2^3 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 - 24\omega_4^2v_1^2\omega_5\omega_2^2 - 12\omega_4^3v_1^2\omega_5\omega_2 + 48\omega_4^2c_s^2\omega_5^2\omega_2^2 + 12\omega_4^2v_1^2\omega_5\omega_2^3 + 6\omega_4^3v_1^2\omega_2^3 + 48\omega_4^3v_1^2\omega_5^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 - 32\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3v_1^2\omega_5\omega_2^3 - 24\omega_4^2c_s^2\omega_5^2\omega_2 - 30\omega_4v_1^2\omega_5^2\omega_2^3 + 4\omega_4^3c_s^2\omega_5^2\omega_2^3 + 36\omega_4^3v_1^2\omega_5\omega_2^2 + 24\omega_4v_1^2\omega_5^2\omega_2^2 + 40\omega_4^3v_1^2\omega_5^2\omega_2^2 - 12\omega_4^3c_s^2\omega_5\omega_2^3 + 6\omega_4c_s^2\omega_5^2\omega_2^3 + 48\omega_4^2v_1^2\omega_5^2\omega_2 - 5\omega_4^3v_1^2\omega_5^2\omega_2^3 + 36\omega_4^3c_s^2\omega_5\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3c_s^2\omega_2^3 + 24\omega_4^2v_1^2\omega_5^2\omega_2^3 - 24\omega_4^2c_s^2\omega_5\omega_2^2 - 12\omega_4^3c_s^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5\omega_2 - 60\omega_4^2v_1^2\omega_5^2\omega_2^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_2^2 - 90\omega_4^3v_1^2\omega_5^2\omega_2$$

$$C_{43} = -24\omega_3^2v_1^2\omega_5\omega_2^2 - 12\omega_3^2c_s^2\omega_5^2\omega_2^3 + 12v_1^2\omega_5^2\omega_2^3 - 12\omega_3^3v_1^2\omega_5\omega_2 + 12\omega_3^2v_1^2\omega_5\omega_2^3 + 48\omega_3^2c_s^2\omega_5^2\omega_2^2 + 36\omega_3^3c_s^2\omega_5^2\omega_2 - 12\omega_3^3v_1^2\omega_5\omega_2^3 - 32\omega_3^3c_s^2\omega_5^2\omega_2^2 + 6\omega_3^3c_s^2\omega_2^3 - 30\omega_3v_1^2\omega_5^2\omega_2^3 - 12\omega_3^3c_s^2\omega_5^2 - 24\omega_3^2c_s^2\omega_5^2\omega_2 - 12\omega_3^3c_s^2\omega_2^2 + 36\omega_3^3v_1^2\omega_5\omega_2^2 + 4\omega_3^3c_s^2\omega_5^2\omega_2^3 + 24\omega_3v_1^2\omega_5^2\omega_2^2 - 12\omega_3^3c_s^2\omega_5\omega_2^3 + 40\omega_3^3v_1^2\omega_5^2\omega_2^2 - 12\omega_3^3v_1^2\omega_2^2 + 48\omega_3^2v_1^2\omega_5^2\omega_2 + 6\omega_3c_s^2\omega_5^2\omega_2^3 + 6\omega_3^3v_1^2\omega_2^3 + 36\omega_3^3c_s^2\omega_5\omega_2^2 - 5\omega_3^3v_1^2\omega_5^2\omega_2^3 + 48\omega_3^3v_1^2\omega_5^2 - 12\omega_3c_s^2\omega_5^2\omega_2^2 - 24\omega_3^2c_s^2\omega_5\omega_2^2 + 24\omega_3^2v_1^2\omega_5^2\omega_2^3 - 12\omega_3^3c_s^2\omega_5\omega_2 + 12\omega_3^2c_s^2\omega_5\omega_2^3 - 60\omega_3^2v_1^2\omega_5^2\omega_2^2 - 90\omega_3^3v_1^2\omega_5^2\omega_2$$

$$C_{44} = -6\omega_6\omega_3^3 - 12\omega_6\omega_3\omega_4^2 + 24\omega_6\omega_3\omega_4^3 + 12\omega_3^2\omega_4^2 - 12\omega_6\omega_4^3 - 10\omega_6\omega_3^2\omega_4^3 + 12\omega_6\omega_3^3\omega_4 - 6\omega_3^2\omega_4^3 + 12\omega_6\omega_3^2\omega_4^2 + \omega_6\omega_3^3\omega_4^3 - 6\omega_6\omega_3^2\omega_4 - 6\omega_3^3\omega_4^2 - 7\omega_6\omega_3^3\omega_4^2 + 3\omega_3^3\omega_4^3$$

$$C_{45} = -2\omega_6^2\omega_3^3\omega_4c_s^2 + 12\omega_3^2\omega_4v_2^2 - 30\omega_6\omega_3^2\omega_4c_s^2 + 36\omega_6^2\omega_3\omega_4v_2^2 + 3\omega_6^2\omega_3^3c_s^2 + 6\omega_6^2\omega_3^2v_2^2 + \omega_6^2\omega_3^3\omega_4v_2^2 + 12\omega_3^2\omega_4c_s^2 - \omega_6^2\omega_3^3v_2^2 - 18\omega_6^2\omega_3^2c_s^2 - 30\omega_6^2\omega_3\omega_4c_s^2 - 30\omega_6\omega_3^2\omega_4v_2^2 + 12\omega_6^2\omega_3c_s^2 + 9\omega_6\omega_3^3\omega_4c_s^2 - 24\omega_6^2\omega_4v_2^2 + 12\omega_6\omega_3^2c_s^2 - 6\omega_6\omega_3^3v_2^2 + 22\omega_6^2\omega_3^2\omega_4c_s^2 + 12\omega_6\omega_3\omega_4v_2^2 - 6\omega_3^3\omega_4v_2^2 + 12\omega_6^2\omega_4c_s^2 + 9\omega_6\omega_3^3\omega_4v_2^2 - 12\omega_6^2\omega_3v_2^2 + 12\omega_6\omega_3\omega_4c_s^2 - 10\omega_6^2\omega_3^2\omega_4v_2^2 - 6\omega_3^3\omega_4c_s^2 + 12\omega_6\omega_3^2v_2^2 - 6\omega_6\omega_3^3c_s^2$$

$$C_{46} = 3\omega_6^2\omega_3^3v_2^2\omega_2^3 - 2\omega_3^2\omega_4^3c_s^2\omega_2^3 + 4\omega_6^2\omega_3^2\omega_4v_2^2\omega_2^3 - 2\omega_6^2\omega_3^3\omega_4^2c_s^2\omega_2^3 + \omega_6\omega_3^3\omega_4^3v_2^2\omega_2^2 - 2\omega_6^2\omega_3^3\omega_4^3v_2^2\omega_2^3 - 2\omega_6\omega_3^3\omega_4^3v_2^2\omega_2^3 + 4\omega_6^2\omega_3^2\omega_4^3v_2^2\omega_2 + \omega_6^2\omega_3^3\omega_4^2c_s^2\omega_2^2 - 2\omega_6^2\omega_4^3c_s^2\omega_2^3 + \omega_6\omega_3^3\omega_4^2c_s^2\omega_2^3 + 7\omega_6^2\omega_3^3\omega_4^3v_2^2\omega_2^2 + 3\omega_6^2\omega_3^3\omega_4v_2^2\omega_2^2 - 2\omega_6^2\omega_3^2\omega_4^2c_s^2\omega_2^2 + 6\omega_6^2\omega_3\omega_4^3c_s^2\omega_2^3 - 8\omega_6^2\omega_3^3\omega_4^3v_2^2\omega_2 + 6\omega_6\omega_3^2\omega_4^3v_2^2\omega_2^3 - 12\omega_6^2\omega_3^2\omega_4^3v_2^2\omega_2^2 + 7\omega_6^2\omega_3\omega_4^2v_2^2\omega_2^3 - 2\omega_6\omega_3^2\omega_4^2c_s^2\omega_2^3 - 2\omega_6\omega_3^2\omega_4^3v_2^2\omega_2^2 + 6\omega_6^2\omega_3^2\omega_4^2c_s^2\omega_2^3 - 2\omega_6^2\omega_3\omega_4^3c_s^2\omega_2^2 - 8\omega_6^2\omega_3^3\omega_4v_2^2\omega_2^3 + \omega_3^3\omega_4^3c_s^2\omega_2^3 - 2\omega_6\omega_3\omega_4^3c_s^2\omega_2^3 + 12\omega_6^2\omega_3^2\omega_4^3v_2^2\omega_2^3 + 10\omega_6^2\omega_4^3v_2^2\omega_2^3 - 8\omega_6^2\omega_3^3\omega_4^2v_2^2\omega_2^2 - 2\omega_6^2\omega_3^2\omega_4^3c_s^2\omega_2 - 2\omega_6\omega_3^3\omega_4^3c_s^2\omega_2^3 - 2\omega_6^2\omega_3^3\omega_4^3c_s^2\omega_2^2 + \omega_6\omega_3^3\omega_4^2v_2^2\omega_2^3 + \omega_6\omega_3^3\omega_4^3c_s^2\omega_2^2 + 7\omega_6^2\omega_3^3\omega_4^2v_2^2\omega_2^3 - 2\omega_6^2\omega_3^2\omega_4c_s^2\omega_2^3 - 2\omega_3^2\omega_4^3v_2^2\omega_2^3 + \omega_6^2\omega_3^3\omega_4^3c_s^2\omega_2^3 + \omega_3^3\omega_4^3v_2^2\omega_2^3 + \omega_6^2\omega_3^3\omega_4c_s^2\omega_2^3 + 7\omega_6^2\omega_3\omega_4^3v_2^2\omega_2^2 - 12\omega_6^2\omega_3^2\omega_4^2v_2^2\omega_2^3 - 2\omega_6\omega_3^2\omega_4^3c_s^2\omega_2^2 - 6\omega_6^2\omega_3^2\omega_4^3c_s^2\omega_2^3 - 2\omega_6\omega_3\omega_4^3v_2^2\omega_2^3 + 6\omega_6\omega_3^2\omega_4^3c_s^2\omega_2^3 + \omega_6^2\omega_3^3\omega_4^3c_s^2\omega_2 - 21\omega_6^2\omega_3\omega_4^3v_2^2\omega_2^3 + 4\omega_6^2\omega_3^2\omega_4^2v_2^2\omega_2^2 + 3\omega_6^2\omega_3^3\omega_4^3v_2^2 + 3\omega_6^2\omega_3^3\omega_4^2v_2^2\omega_2 - 2\omega_6\omega_3^2\omega_4^2v_2^2\omega_2^3 - 2\omega_6^2\omega_3\omega_4^2c_s^2\omega_2^3 + 6\omega_6^2\omega_3^2\omega_4^3c_s^2\omega_2^2$$

$$C_{47} = 6\omega_3^3\omega_4^3v_2^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 - 60\omega_6^2\omega_3^2\omega_4^2v_2^2 - 32\omega_6^2\omega_3^2\omega_4^3c_s^2 - 12\omega_6\omega_3\omega_4^3v_2^2 + 48\omega_6^2\omega_4^3v_2^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 + 12\omega_6\omega_3^3\omega_4^2v_2^2 + 48\omega_6^2\omega_3^2\omega_4^2c_s^2 - 30\omega_6^2\omega_3^3\omega_4v_2^2 + 6\omega_3^3\omega_4^3c_s^2 - 12\omega_6\omega_3\omega_4^3c_s^2 + 40\omega_6^2\omega_3^2\omega_4^3v_2^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3^3\omega_4^3v_2^2 - 12\omega_6^2\omega_4^3c_s^2 + 12\omega_6\omega_3^3\omega_4^2c_s^2 + 36\omega_6\omega_3^2\omega_4^3c_s^2 - 90\omega_6^2\omega_3\omega_4^3v_2^2 - 24\omega_6\omega_3^2\omega_4^2v_2^2 - 24\omega_6^2\omega_3\omega_4^2c_s^2 + 24\omega_6^2\omega_3^3\omega_4^2v_2^2 - 12\omega_6^2\omega_3^2\omega_4c_s^2 - 12\omega_3^2\omega_4^3v_2^2 + 4\omega_6^2\omega_3^3\omega_4^3c_s^2 + 36\omega_6^2\omega_3\omega_4^3c_s^2 + 36\omega_6\omega_3^2\omega_4^3v_2^2 + 48\omega_6^2\omega_3\omega_4^2v_2^2 - 24\omega_6\omega_3^2\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 24\omega_6^2\omega_3^2\omega_4v_2^2 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 5\omega_6^2\omega_3^3\omega_4^3v_2^2$$

$$C_{48} = 18\omega_3\omega_4^2\omega_2^3 + 24\omega_3^3\omega_4^3\omega_2^2 - 5\omega_3^3\omega_4^3\omega_2^3 + 18\omega_3^3\omega_4^2\omega_2 + 6\omega_3^2\omega_4\omega_2^3 - 42\omega_3^3\omega_4^2\omega_2^2 - 36\omega_3\omega_4^3\omega_2^3 + 18\omega_3\omega_4^3\omega_2^2 + 24\omega_3^3\omega_4^2\omega_2^3 - 30\omega_3^3\omega_4^3\omega_2 + 28\omega_3^2\omega_4^3\omega_2^3 - 30\omega_3^3\omega_4\omega_2^3 + 18\omega_3^3\omega_4\omega_2^2 + 12\omega_3^3\omega_2^3 - 30\omega_3^2\omega_4^3\omega_2^2 + 6\omega_3^2\omega_4^3\omega_2 - 30\omega_3^2\omega_4^2\omega_2^3 + 12\omega_4^3\omega_2^3 + 12\omega_3^2\omega_4^2\omega_2^2 + 12\omega_3^3\omega_4^3$$

$$C_{49} = -5\omega_6^2\omega_3^3v_2^2\omega_2^3 - 24\omega_6\omega_3^2v_2^2\omega_2^2 - 32\omega_6^2\omega_3^2c_s^2\omega_2^3 + 12\omega_6\omega_3^3c_s^2\omega_2^2 + 24\omega_6^2\omega_3^3v_2^2\omega_2^2 + 36\omega_6\omega_3^2v_2^2\omega_2^3 + 48\omega_6^2\omega_3^2c_s^2\omega_2^2 - 12\omega_6\omega_3^3c_s^2\omega_2^3 - 12\omega_6^2\omega_3^2c_s^2\omega_2 + 6\omega_3^3c_s^2\omega_2^3 - 12\omega_6\omega_3c_s^2\omega_2^3 + 48\omega_6^2\omega_3v_2^2\omega_2^2 - 30\omega_6^2\omega_3^3v_2^2\omega_2 - 12\omega_3^2v_2^2\omega_2^3 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6^2c_s^2\omega_2^3 - 90\omega_6^2\omega_3v_2^2\omega_2^3 + 36\omega_6\omega_3^2c_s^2\omega_2^3 - 12\omega_6^2\omega_3^3c_s^2\omega_2^2 - 12\omega_6\omega_3^3v_2^2\omega_2^3 - 60\omega_6^2\omega_3^2v_2^2\omega_2^2 - 24\omega_6\omega_3^2c_s^2\omega_2^2 + 4\omega_6^2\omega_3^3c_s^2\omega_2^3 + 12\omega_6\omega_3^3v_2^2\omega_2^2 + 40\omega_6^2\omega_3^2v_2^2\omega_2^3 + 48\omega_6^2v_2^2\omega_2^3 + 36\omega_6^2\omega_3c_s^2\omega_2^3 - 12\omega_6\omega_3v_2^2\omega_2^3 + 24\omega_6^2\omega_3^2v_2^2\omega_2 + 6\omega_3^3v_2^2\omega_2^3 + 6\omega_6^2\omega_3^3c_s^2\omega_2 - 12\omega_3^2c_s^2\omega_2^3 - 24\omega_6^2\omega_3c_s^2\omega_2^2$$

$$C_{50} = 6\omega_3^3\omega_4^3v_2^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 - 12\omega_6^2\omega_3^2\omega_4^2v_2^2 - 48\omega_6^2\omega_3^2\omega_4^3c_s^2 - 24\omega_6\omega_3\omega_4^3v_2^2 - \omega_6^2\omega_3^3\omega_4^3 + \omega_6^2\omega_3^3\omega_4^2 + 24\omega_6^2\omega_4^3v_2^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 + 6\omega_6\omega_3^3\omega_4^2v_2^2 + 42\omega_6^2\omega_3^2\omega_4^2c_s^2 - 12\omega_6^2\omega_3^3\omega_4v_2^2 + 6\omega_3^3\omega_4^3c_s^2 + 7\omega_6^2\omega_3^2\omega_4^3 - 24\omega_6\omega_3\omega_4^3c_s^2 + 6\omega_6^2\omega_3^2\omega_4^3v_2^2 + 6\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3^3\omega_4^3v_2^2 - 36\omega_6^2\omega_4^3c_s^2 - 3\omega_6^2\omega_3^2\omega_4^2 + 6\omega_6\omega_3^3\omega_4^2c_s^2 + 12\omega_6\omega_3\omega_4^3 + 42\omega_6\omega_3^2\omega_4^3c_s^2 - 30\omega_6^2\omega_3\omega_4^3v_2^2 - 21\omega_6\omega_3^2\omega_4^3 - 12\omega_6\omega_3^2\omega_4^2v_2^2 - 24\omega_6^2\omega_3\omega_4^2c_s^2 + 6\omega_3^2\omega_4^3 - 6\omega_6^2\omega_3\omega_4^3 + 6\omega_6^2\omega_3^3\omega_4^2v_2^2 - 12\omega_6^2\omega_3^2\omega_4c_s^2 + 6\omega_6\omega_3^2\omega_4^2 - 12\omega_3^2\omega_4^3v_2^2 + 6\omega_6^2\omega_3^3\omega_4^3c_s^2 + 6\omega_6\omega_3^3\omega_4^3 + 78\omega_6^2\omega_3\omega_4^3c_s^2 + 42\omega_6\omega_3^2\omega_4^3v_2^2 + 12\omega_6^2\omega_3\omega_4^2v_2^2 - 12\omega_6\omega_3^2\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^2\omega_4v_2^2 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 3\omega_6\omega_3^3\omega_4^2 - 3\omega_3^3\omega_4^3$$

$$C_{51} = 6\omega_3^3\omega_4^3v_2^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 + 12\omega_6^2\omega_3^2\omega_4^2v_2^2 - 32\omega_6^2\omega_3^2\omega_4^3c_s^2 - 12\omega_6\omega_3\omega_4^3v_2^2 - \omega_6^2\omega_3^3\omega_4^3 + 2\omega_6^2\omega_3^3\omega_4^2 + 24\omega_6^2\omega_4^3v_2^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 + 12\omega_6\omega_3^3\omega_4^2v_2^2 + 48\omega_6^2\omega_3^2\omega_4^2c_s^2 - 18\omega_6^2\omega_3^3\omega_4v_2^2 + 6\omega_3^3\omega_4^3c_s^2 + 3\omega_6^2\omega_3^2\omega_4^3 - 12\omega_6\omega_3\omega_4^3c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3^3\omega_4^3v_2^2 - 12\omega_6^2\omega_4^3c_s^2 - 6\omega_6^2\omega_3^2\omega_4^2 + 12\omega_6\omega_3^3\omega_4^2c_s^2 + 36\omega_6\omega_3^2\omega_4^3c_s^2 - 30\omega_6^2\omega_3\omega_4^3v_2^2 - 6\omega_6\omega_3^2\omega_4^3 - 24\omega_6\omega_3^2\omega_4^2v_2^2 - 24\omega_6^2\omega_3\omega_4^2c_s^2 - 12\omega_6^2\omega_3^2\omega_4c_s^2 + 12\omega_6\omega_3^2\omega_4^2 - 12\omega_3^2\omega_4^3v_2^2 + 4\omega_6^2\omega_3^3\omega_4^3c_s^2 + 3\omega_6\omega_3^3\omega_4^3 + 36\omega_6^2\omega_3\omega_4^3c_s^2 + 36\omega_6\omega_3^2\omega_4^3v_2^2 - 24\omega_6\omega_3^2\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 + 3\omega_6^2\omega_3^3\omega_4^3v_2^2 - 6\omega_6\omega_3^3\omega_4^2$$

$$C_{52} = -36\omega_6\omega_3^2 + 12\omega_6^2v_2^2 - 6\omega_3^3 - 36\omega_6\omega_3v_2^2 + 12\omega_3^2 + 9\omega_6\omega_3^3 + 4\omega_6^2\omega_3^3c_s^2 - 8\omega_6^2\omega_3^2v_2^2 - 36\omega_6\omega_3c_s^2 - 48\omega_6^2c_s^2 + \omega_6^2\omega_3^3v_2^2 - 44\omega_6^2\omega_3^2c_s^2 + 24\omega_6\omega_3 + 90\omega_6^2\omega_3c_s^2 + 6\omega_3^3v_2^2 - 12\omega_6^2\omega_3 - 12\omega_3^2c_s^2 + 48\omega_6\omega_3^2c_s^2 - 12\omega_6\omega_3^3v_2^2 + 6\omega_3^3c_s^2 - \omega_6^2\omega_3^3 - 12\omega_3^2v_2^2 + 11\omega_6^2\omega_3^2 + 48\omega_6\omega_3^2v_2^2 - 12\omega_6\omega_3^3c_s^2$$

$$C_{53} = -6\omega_7\omega_4^3v_3^2 + \omega_7^2\omega_4^3\omega_2v_3^2 - 30\omega_7^2\omega_4c_s^2\omega_2 + 12\omega_4^2c_s^2\omega_2 - 6\omega_7\omega_4^3c_s^2 - 30\omega_7\omega_4^2\omega_2v_3^2 + 12\omega_7^2\omega_4c_s^2 - 30\omega_7\omega_4^2c_s^2\omega_2 + 12\omega_7\omega_4^2v_3^2 + 12\omega_4^2\omega_2v_3^2 - 2\omega_7^2\omega_4^3c_s^2\omega_2 + 36\omega_7^2\omega_4\omega_2v_3^2 + 12\omega_7\omega_4^2c_s^2 - 12\omega_7^2\omega_4v_3^2 + 12\omega_7\omega_4c_s^2\omega_2 + 9\omega_7\omega_4^3\omega_2v_3^2 + 6\omega_7^2\omega_4^2v_3^2 - 6\omega_4^3c_s^2\omega_2 - 10\omega_7^2\omega_4^2\omega_2v_3^2 - 18\omega_7^2\omega_4^2c_s^2 + 12\omega_7^2c_s^2\omega_2 - 24\omega_7^2\omega_2v_3^2 - \omega_7^2\omega_4^3v_3^2 + 22\omega_7^2\omega_4^2c_s^2\omega_2 - 6\omega_4^3\omega_2v_3^2 + 12\omega_7\omega_4\omega_2v_3^2 + 3\omega_7^2\omega_4^3c_s^2 + 9\omega_7\omega_4^3c_s^2\omega_2$$

$$C_{54} = 12\omega_7\omega_4^3\omega_2 - 10\omega_7\omega_4^2\omega_2^3 - 12\omega_7\omega_2^3 + 12\omega_7\omega_4^2\omega_2^2 - 6\omega_7\omega_4^3 - 6\omega_7\omega_4^2\omega_2 + \omega_7\omega_4^3\omega_2^3 - 7\omega_7\omega_4^3\omega_2^2 + 12\omega_4^2\omega_2^2 - 6\omega_4^2\omega_2^3 - 12\omega_7\omega_4\omega_2^2 - 6\omega_4^3\omega_2^2 + 3\omega_4^3\omega_2^3 + 24\omega_7\omega_4\omega_2^3$$

$$C_{55} = 20\omega_7^2\omega_4^3v_1^2\omega_5^2v_3^2 - 8\omega_7^2\omega_4c_s^2\omega_5^2\omega_2^2v_3^2 - 2\omega_7\omega_4^2c_s^2\omega_5^2\omega_2^3v_3^2 + 4\omega_7^2\omega_4c_s^4\omega_5^2\omega_2^2 + 10\omega_7^2\omega_4^3c_s^2\omega_5^2\omega_2v_3^2 - 8\omega_7^2\omega_4^2c_s^2v_1^2\omega_5^2\omega_2^3 - 4\omega_7^2\omega_4c_s^2v_1^2\omega_5^2\omega_2^2 - 4\omega_4^2v_1^2\omega_5^2\omega_2^3v_3^2 + 2\omega_7\omega_4^3v_1^2\omega_5^2\omega_2^2v_3^2 - 2\omega_7^2\omega_4^3c_s^4\omega_5\omega_2^2 - 2\omega_7^2\omega_4^3c_s^2v_1^2\omega_5\omega_2^2 + 10\omega_7^2\omega_4^3c_s^2\omega_5\omega_2^2v_3^2 + 12\omega_7^2\omega_4^2c_s^2v_1^2\omega_5^2\omega_2^2 + 2\omega_7^2\omega_4^3v_1^2\omega_2^3v_3^2 - 2\omega_7^2\omega_4c_s^4\omega_5^2\omega_2^3 - 3\omega_7^2\omega_4^3v_1^2\omega_5^2\omega_2^3v_3^2 + 2\omega_7^2\omega_4^2v_1^2\omega_5\omega_2^3v_3^2 + \omega_7^2\omega_4^3c_s^2v_1^2\omega_5\omega_2^3 + \omega_7^2\omega_4^3c_s^4\omega_5\omega_2^3 + 12\omega_7^2\omega_4^2c_s^2\omega_5^2\omega_2^2v_3^2 + 10\omega_7^2\omega_4c_s^2v_1^2\omega_5^2\omega_2^3 + 2\omega_4^3c_s^2v_1^2\omega_5^2\omega_2^3 + 20\omega_7^2\omega_4^2v_1^2\omega_5^2\omega_2v_3^2 - 3\omega_7\omega_4^3v_1^2\omega_5^2\omega_2^3v_3^2 - 4\omega_7\omega_4^2c_s^2v_1^2\omega_5^2\omega_2^2 - 8\omega_7^2\omega_4^2c_s^2v_1^2\omega_5^2\omega_2 + 4\omega_7\omega_4^2c_s^2\omega_5^2\omega_2^2v_3^2 - 4\omega_7^2\omega_4^3v_1^2\omega_5\omega_2v_3^2 - 4\omega_7\omega_4c_s^2v_1^2\omega_5^2\omega_2^3 - 2\omega_7^2\omega_4^2c_s^4\omega_5\omega_2^3 + 4\omega_7^2\omega_4c_s^2\omega_5^2\omega_2^3v_3^2 - 4\omega_7^2\omega_4^2v_1^2\omega_5\omega_2^2v_3^2 + 10\omega_7\omega_4^2c_s^2v_1^2\omega_5^2\omega_2^3 - 4\omega_7^2\omega_4^2c_s^2\omega_5^2\omega_2^3v_3^2 + 4\omega_7^2\omega_4^2c_s^4\omega_5\omega_2^2 - 4\omega_7^2\omega_4^3v_1^2\omega_2^2v_3^2 - 3\omega_7^2\omega_4^3c_s^2\omega_5\omega_2^3v_3^2 + 20\omega_7^2v_1^2\omega_5^2\omega_2^3v_3^2 + 20\omega_7^2\omega_4^3v_1^2\omega_5^2\omega_2^2v_3^2 - 2\omega_7\omega_4^3c_s^2\omega_5^2\omega_2^2v_3^2 - 4\omega_7^2c_s^2v_1^2\omega_5^2\omega_2^3 + 4\omega_7^2\omega_4^3c_s^2v_1^2\omega_5^2\omega_2 - 2\omega_7^2\omega_4^3c_s^4\omega_5^2\omega_2 - 2\omega_7\omega_4^2c_s^4\omega_5^2\omega_2^3 - 12\omega_7^2\omega_4^2c_s^4\omega_5^2\omega_2^2 + 20\omega_7^2\omega_4v_1^2\omega_5^2\omega_2^2v_3^2 + 10\omega_7\omega_4^2v_1^2\omega_5^2\omega_2^3v_3^2 - 38\omega_7^2\omega_4^3v_1^2\omega_5^2\omega_2v_3^2 + 2\omega_7\omega_4^3c_s^2v_1^2\omega_5^2\omega_2^2 + 2\omega_7^2\omega_4^2c_s^2\omega_5\omega_2^3v_3^2 + 4\omega_7\omega_4^2c_s^4\omega_5^2\omega_2^2 - 36\omega_7^2\omega_4^2v_1^2\omega_5^2\omega_2^2v_3^2 - 4\omega_7\omega_4v_1^2\omega_5^2\omega_2^3v_3^2 - 4\omega_7^2\omega_4^3c_s^2\omega_2^2v_3^2 - 3\omega_7\omega_4^3c_s^2v_1^2\omega_5^2\omega_2^3 + 10\omega_7^2\omega_4^3v_1^2\omega_5\omega_2^2v_3^2 + \omega_7^2\omega_4^3c_s^2\omega_5^2\omega_2^3v_3^2 + 4\omega_7^2\omega_4^2c_s^4\omega_5^2\omega_2^3 - 4\omega_7\omega_4^2v_1^2\omega_5^2\omega_2^2v_3^2 + 4\omega_7^2\omega_4^2c_s^2v_1^2\omega_5\omega_2^2 - 4\omega_7^2\omega_4^3c_s^2\omega_5\omega_2v_3^2 - 4\omega_7^2\omega_4^3c_s^2\omega_5^2v_3^2 + 2\omega_4^3v_1^2\omega_5^2\omega_2^3v_3^2 - 38\omega_7^2\omega_4v_1^2\omega_5^2\omega_2^3v_3^2 - 2\omega_7\omega_4^3c_s^4\omega_5^2\omega_2^2 - \omega_7^2\omega_4^3c_s^4\omega_5^2\omega_2^3 - 4\omega_7^2\omega_4^2c_s^2\omega_5^2\omega_2v_3^2 + \omega_7\omega_4^3c_s^2\omega_5^2\omega_2^3v_3^2 + \omega_7^2\omega_4^3c_s^2v_1^2\omega_5^2\omega_2^3 + \omega_7\omega_4^3c_s^4\omega_5^2\omega_2^3 + 4\omega_7^2\omega_4^2c_s^4\omega_5^2\omega_2 - 4\omega_4^2c_s^2v_1^2\omega_5^2\omega_2^3 - 2\omega_7^2\omega_4^2c_s^2v_1^2\omega_5\omega_2^3 - 3\omega_7^2\omega_4^3v_1^2\omega_5\omega_2^3v_3^2 + 2\omega_7^2\omega_4^3c_s^2\omega_2^3v_3^2 - 8\omega_7^2\omega_4^3c_s^2\omega_5^2\omega_2^2v_3^2 - 4\omega_7^2\omega_4^3c_s^2v_1^2\omega_5^2\omega_2^2 - 4\omega_7^2\omega_4^2c_s^2\omega_5\omega_2^2v_3^2 + 4\omega_7^2\omega_4^3c_s^4\omega_5^2\omega_2^2 + 20\omega_7^2\omega_4^2v_1^2\omega_5^2\omega_2^3v_3^2$$

$$C_{56} = -30\omega_7^2\omega_4^3\omega_2v_3^2 + 24\omega_7\omega_4^2c_s^2\omega_2^3 - 6\omega_7^2\omega_4^3c_s^2\omega_2^2 + 34\omega_7^2\omega_4^2\omega_2^3v_3^2 - 6\omega_7\omega_4^3\omega_2^3v_3^2 + \omega_7^2\omega_4^3c_s^2\omega_2^3 + 24\omega_7^2\omega_4c_s^2\omega_2^3 - 48\omega_7^2\omega_4^2\omega_2^2v_3^2 - 12\omega_7\omega_4\omega_2^3v_3^2 + 6\omega_4^3\omega_2^3v_3^2 + 6\omega_7^2\omega_4^3c_s^2\omega_2 - 12\omega_4^2c_s^2\omega_2^3 + 48\omega_7^2\omega_2^3v_3^2 + 24\omega_7\omega_4^2\omega_2^3v_3^2 - 14\omega_7^2\omega_4^2c_s^2\omega_2^3 + 24\omega_7^2\omega_4\omega_2^2v_3^2 + 12\omega_7^2\omega_4^2c_s^2\omega_2^2 - 6\omega_7\omega_4^3c_s^2\omega_2^3 + 24\omega_7^2\omega_4^2\omega_2v_3^2 - 4\omega_7^2\omega_4^3\omega_2^3v_3^2 + 6\omega_4^3c_s^2\omega_2^3 + 12\omega_7^2\omega_4^3v_3^2 - 12\omega_7^2\omega_4^2c_s^2\omega_2 - 78\omega_7^2\omega_4\omega_2^3v_3^2 - 12\omega_7\omega_4c_s^2\omega_2^3 - 12\omega_4^2\omega_2^3v_3^2 - 12\omega_7^2c_s^2\omega_2^3 + 22\omega_7^2\omega_4^3\omega_2^2v_3^2$$

$$C_{57} = -12\omega_4^3v_1^2\omega_2^2 + 12v_1^2\omega_5^2\omega_2^3 - 6\omega_4^2c_s^2\omega_5^2\omega_2^3 - 12\omega_4^3v_1^2\omega_5\omega_2 + 12\omega_4^2c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3v_1^2\omega_2^3 + 48\omega_4^3v_1^2\omega_5^2 + 24\omega_4^3c_s^2\omega_5^2\omega_2 - 14\omega_4^3c_s^2\omega_5^2\omega_2^2 - 6\omega_4^3v_1^2\omega_5\omega_2^3 - 30\omega_4v_1^2\omega_5^2\omega_2^3 + \omega_4^3c_s^2\omega_5^2\omega_2^3 + 24\omega_4^3v_1^2\omega_5\omega_2^2 + 24\omega_4v_1^2\omega_5^2\omega_2^2 + 34\omega_4^3v_1^2\omega_5^2\omega_2^2 - 6\omega_4^3c_s^2\omega_5\omega_2^3 + 6\omega_4c_s^2\omega_5^2\omega_2^3 + 24\omega_4^2v_1^2\omega_5^2\omega_2 - 4\omega_4^3v_1^2\omega_5^2\omega_2^3 + 24\omega_4^3c_s^2\omega_5\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3c_s^2\omega_2^3 + 22\omega_4^2v_1^2\omega_5^2\omega_2^3 - 12\omega_4^3c_s^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5\omega_2 - 48\omega_4^2v_1^2\omega_5^2\omega_2^2 - 12\omega_4^3c_s^2\omega_2^2 - 78\omega_4^3v_1^2\omega_5^2\omega_2$$

$$C_{58} = -24\omega_3\omega_7^2v_3^2 - 30\omega_3\omega_7\omega_4^2v_3^2 - 6\omega_7\omega_4^3v_3^2 - 6\omega_3\omega_4^3v_3^2 - 30\omega_3\omega_7^2\omega_4c_s^2 + 36\omega_3\omega_7^2\omega_4v_3^2 - 6\omega_3\omega_4^3c_s^2 - 6\omega_7\omega_4^3c_s^2 - 30\omega_3\omega_7\omega_4^2c_s^2 + 12\omega_3\omega_7^2c_s^2 + 12\omega_7^2\omega_4c_s^2 + 12\omega_3\omega_4^2v_3^2 + 12\omega_7\omega_4^2v_3^2 + 9\omega_3\omega_7\omega_4^3v_3^2 + 9\omega_3\omega_7\omega_4^3c_s^2 + 12\omega_7\omega_4^2c_s^2 + 12\omega_3\omega_4^2c_s^2 - 12\omega_7^2\omega_4v_3^2 + 6\omega_7^2\omega_4^2v_3^2 + \omega_3\omega_7^2\omega_4^3v_3^2 - 2\omega_3\omega_7^2\omega_4^3c_s^2 - 18\omega_7^2\omega_4^2c_s^2 - 10\omega_3\omega_7^2\omega_4^2v_3^2 - \omega_7^2\omega_4^3v_3^2 + 12\omega_3\omega_7\omega_4c_s^2 + 12\omega_3\omega_7\omega_4v_3^2 + 3\omega_7^2\omega_4^3c_s^2 + 22\omega_3\omega_7^2\omega_4^2c_s^2$$

$$C_{59} = 12\omega_3^2\omega_7\omega_4^2 - 7\omega_3^2\omega_7\omega_4^3 - 6\omega_7\omega_4^3 - 12\omega_3^2\omega_7\omega_4 - 12\omega_3^3\omega_7 + 12\omega_3^2\omega_4^2 + \omega_3^3\omega_7\omega_4^3 - 6\omega_3^2\omega_4^3 - 10\omega_3^3\omega_7\omega_4^2 + 24\omega_3^3\omega_7\omega_4 - 6\omega_3\omega_7\omega_4^2 - 6\omega_3^3\omega_4^2 + 12\omega_3\omega_7\omega_4^3 + 3\omega_3^3\omega_4^3$$

$$C_{60} = -2\omega_3^2\omega_7\omega_4^2\omega_2^3v_3^2 + 6\omega_3^2\omega_7^2\omega_4^2c_s^2\omega_2^3 - 2\omega_3^3\omega_7\omega_4\omega_2^3v_3^2 - 8\omega_3\omega_7^2\omega_4^3\omega_2^3v_3^2 + 6\omega_3^3\omega_7^2\omega_4c_s^2\omega_2^3 - 12\omega_3^3\omega_7^2\omega_4^2\omega_2^2v_3^2 + \omega_3^2\omega_7\omega_4^3c_s^2\omega_2^3 - 2\omega_3^2\omega_7^2\omega_4^2c_s^2\omega_2^2 + 7\omega_3^2\omega_7^2\omega_4^3\omega_2^3v_3^2 + \omega_3^3\omega_7\omega_4^3\omega_2^2v_3^2 - 2\omega_3^3\omega_7^2\omega_4c_s^2\omega_2^2 + \omega_3^3\omega_7^2\omega_4^3c_s^2\omega_2 - 2\omega_3\omega_7^2\omega_4^2c_s^2\omega_2^3 + 3\omega_3\omega_7^2\omega_4^3\omega_2^2v_3^2 - 2\omega_3^3\omega_7^2c_s^2\omega_2^3 + 12\omega_3^3\omega_7^2\omega_4^2\omega_2^3v_3^2 + 6\omega_3^3\omega_7\omega_4^2c_s^2\omega_2^3 - 2\omega_3^3\omega_7^2\omega_4^3c_s^2\omega_2^2 - 2\omega_3^3\omega_4^2\omega_2^3v_3^2 - 8\omega_3^3\omega_7^2\omega_4^3\omega_2v_3^2 + 7\omega_3^2\omega_7^2\omega_4\omega_2^3v_3^2 - 2\omega_3^3\omega_7\omega_4^2c_s^2\omega_2^2 + \omega_3^3\omega_7^2\omega_4^3c_s^2\omega_2^3 + 3\omega_3^3\omega_7^2\omega_4^3v_3^2 - 2\omega_3^3\omega_7\omega_4^3\omega_2^3v_3^2 + \omega_3^3\omega_4^3c_s^2\omega_2^3 - 8\omega_3^2\omega_7^2\omega_4^3\omega_2^2v_3^2 - 2\omega_3^3\omega_7\omega_4c_s^2\omega_2^3 - 2\omega_3^3\omega_7\omega_4^2\omega_2^2v_3^2 - 21\omega_3^3\omega_7^2\omega_4\omega_2^3v_3^2 - 2\omega_3^3\omega_7^2\omega_4^2c_s^2\omega_2 + \omega_3\omega_7^2\omega_4^3c_s^2\omega_2^3 + \omega_3^2\omega_7^2\omega_4^3c_s^2\omega_2^2 - 2\omega_3^2\omega_7\omega_4^2c_s^2\omega_2^3 + 3\omega_3^2\omega_7^2\omega_4^3\omega_2v_3^2 - 12\omega_3^2\omega_7^2\omega_4^2\omega_2^3v_3^2 + 7\omega_3^3\omega_7^2\omega_4^3\omega_2^2v_3^2 + 4\omega_3\omega_7^2\omega_4^2\omega_2^3v_3^2 + 3\omega_7^2\omega_4^3\omega_2^3v_3^2 + \omega_3^2\omega_7\omega_4^3\omega_2^3v_3^2 - 2\omega_3^2\omega_7^2\omega_4^3c_s^2\omega_2^3 + 4\omega_3^2\omega_7^2\omega_4^2\omega_2^2v_3^2 - 2\omega_3^2\omega_7^2\omega_4c_s^2\omega_2^3 - 6\omega_3^3\omega_7^2\omega_4^2c_s^2\omega_2^3 + \omega_3^3\omega_7\omega_4^3c_s^2\omega_2^2 + 7\omega_3^3\omega_7^2\omega_4\omega_2^2v_3^2 + 10\omega_3^3\omega_7^2\omega_2^3v_3^2 - 2\omega_3^3\omega_4^2c_s^2\omega_2^3 + 6\omega_3^3\omega_7\omega_4^2\omega_2^3v_3^2 - 2\omega_3^3\omega_7^2\omega_4^3\omega_2^3v_3^2 + 4\omega_3^3\omega_7^2\omega_4^2\omega_2v_3^2 + \omega_3^3\omega_4^3\omega_2^3v_3^2 + 6\omega_3^3\omega_7^2\omega_4^2c_s^2\omega_2^2 - 2\omega_3^3\omega_7\omega_4^3c_s^2\omega_2^3$$

$$C_{61} = 24\omega_3^2\omega_7^2\omega_4^3v_3^2 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 12\omega_3^3\omega_7\omega_4v_3^2 - 12\omega_3^3\omega_7\omega_4c_s^2 + 40\omega_3^3\omega_7^2\omega_4^2v_3^2 - 12\omega_3^3\omega_4^2v_3^2 - 12\omega_3^2\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3\omega_7^2c_s^2 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 60\omega_3^2\omega_7^2\omega_4^2v_3^2 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 - 5\omega_3^3\omega_7^2\omega_4^3v_3^2 + 6\omega_3^3\omega_4^3v_3^2 + 48\omega_3^3\omega_7^2v_3^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 24\omega_3^2\omega_7\omega_4^2v_3^2 - 30\omega_3\omega_7^2\omega_4^3v_3^2 - 12\omega_3^3\omega_7\omega_4^3c_s^2 - 12\omega_3^3\omega_7\omega_4^3v_3^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 48\omega_3^2\omega_7^2\omega_4v_3^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2 + 24\omega_3\omega_7^2\omega_4^2v_3^2 + 12\omega_7^2\omega_4^3v_3^2 + 12\omega_3^2\omega_7\omega_4^3v_3^2 - 90\omega_3^3\omega_7^2\omega_4v_3^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 12\omega_3^2\omega_7\omega_4^3c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 36\omega_3^3\omega_7\omega_4^2v_3^2$$

$$C_{62} = -30\omega_7^2\omega_4^3\omega_2\nu_2^2 + 36\omega_7\omega_4^2c_s^2\omega_2^3 - 12\omega_7^2\omega_4^3c_s^2\omega_2^2 + 40\omega_7^2\omega_4^2\omega_2^3\nu_2^2 - 12\omega_7\omega_4^3\omega_2^3\nu_2^2 - 24\omega_7\omega_4^2c_s^2\omega_2^2 + 4\omega_7^2\omega_4^3c_s^2\omega_2^3 + 36\omega_7^2\omega_4c_s^2\omega_2^3 - 60\omega_7^2\omega_4^2\omega_2^2\nu_2^2 - 12\omega_7\omega_4\omega_2^3\nu_2^2 + 6\omega_4^3\omega_2^3\nu_2^2 + 6\omega_7^2\omega_4^3c_s^2\omega_2 - 24\omega_7^2\omega_4c_s^2\omega_2^2 + 12\omega_7\omega_4^3\omega_2^2\nu_2^2 - 12\omega_4^2c_s^2\omega_2^3 + 48\omega_7^2\omega_2^3\nu_2^2 + 36\omega_7\omega_4^2\omega_2^3\nu_2^2 - 32\omega_7^2\omega_4^2c_s^2\omega_2^3 + 48\omega_7^2\omega_4\omega_2^2\nu_2^2 + 12\omega_7\omega_4^3c_s^2\omega_2^2 + 48\omega_7^2\omega_4^2c_s^2\omega_2^2 - 12\omega_7\omega_4^3c_s^2\omega_2^3 + 24\omega_7^2\omega_4^2\omega_2\nu_2^2 - 5\omega_7^2\omega_4^3\omega_2^2\nu_2^3 + 6\omega_4^3c_s^2\omega_2^3 + 12\omega_7^2\omega_4^3\nu_2^3 - 12\omega_7^2\omega_4^2c_s^2\omega_2 - 90\omega_7^2\omega_4\omega_2^3\nu_2^2 - 12\omega_7\omega_4c_s^2\omega_2^3 - 24\omega_7^2\omega_4^2\omega_2^2\nu_2^3 - 12\omega_4^2\omega_2^3\nu_2^3 - 12\omega_7^2c_s^2\omega_2^3 + 24\omega_7^2\omega_4^3\omega_2^2\nu_2^3$$

$$C_{63} = 6\omega_3\omega_4^2\omega_2^3 + 24\omega_3^3\omega_4^3\omega_2^2 - 5\omega_3^3\omega_4^3\omega_2^3 + 6\omega_3^3\omega_4^2\omega_2 + 18\omega_3^2\omega_4\omega_2^3 - 30\omega_3^3\omega_4^2\omega_2^2 - 30\omega_3\omega_4^3\omega_2^3 + 18\omega_3\omega_4^3\omega_2^2 + 28\omega_3^3\omega_4^2\omega_2^3 - 30\omega_3^3\omega_4^3\omega_2 + 24\omega_3^2\omega_4^3\omega_2^3 - 36\omega_3^3\omega_4\omega_2^3 + 18\omega_3^3\omega_4\omega_2^2 + 12\omega_3^3\omega_2^3 - 42\omega_3^2\omega_4^3\omega_2^2 + 18\omega_3^2\omega_4^3\omega_2 - 30\omega_3^2\omega_4^2\omega_2^3 + 12\omega_4^3\omega_2^3 + 12\omega_3^2\omega_4^2\omega_2^2 + 12\omega_3^3\omega_4^3$$

$$C_{64} = \omega_6^2\omega_3^3\omega_7\omega_4^3c_s^2\nu_2^3 - 4\omega_6^2\omega_3^2\omega_7\omega_4^2c_s^2\nu_2^2 + 4\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^4 - 2\omega_6\omega_3^2\omega_7^2\omega_4^3c_s^4 - 4\omega_6\omega_3\omega_7^2\omega_4^3c_s^2\nu_2^3 - 4\omega_6^2\omega_3^3\omega_7\omega_4c_s^2\nu_2^2 + 10\omega_6^2\omega_3^3\omega_7\omega_4^2\nu_2^2\nu_3^2 + 20\omega_6^2\omega_7^2\omega_4^3\nu_2^2\nu_3^2 + 4\omega_6^2\omega_3\omega_7^2\omega_4^3c_s^2\nu_2^2 - 2\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_2^2 + 10\omega_6\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_2^3 - 4\omega_6^2\omega_3^2\omega_7^2\omega_4^3c_s^2\nu_2^2 - 4\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_3^2 - 3\omega_6^2\omega_3^3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 - 8\omega_6^2\omega_3^2\omega_7^2\omega_4c_s^2\nu_3^2 + 2\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_3^2 - 2\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^4 - 4\omega_6^2\omega_3^3\omega_4^2c_s^2\nu_2^2 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4^3c_s^4 - 4\omega_6\omega_3^2\omega_7^2\omega_4^2\nu_2^2\nu_3^2 - 8\omega_6^2\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_2^2 - 8\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_2^2 + 2\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_3^2 - 2\omega_6\omega_3^2\omega_7^2\omega_4^3c_s^2\nu_2^2 - 38\omega_6^2\omega_3^3\omega_7^2\omega_4\nu_2^2\nu_3^2 - 4\omega_3^3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 + 2\omega_6^2\omega_3^3\omega_4^3\nu_2^2\nu_3^2 - \omega_6^2\omega_3^3\omega_7^2\omega_4^3c_s^4 - 3\omega_6\omega_3^3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 - 4\omega_6^2\omega_3^2\omega_7^2\omega_4c_s^2\nu_2^2 + 4\omega_6\omega_3^2\omega_7^2\omega_4^2c_s^4 - 36\omega_6^2\omega_3^2\omega_7^2\omega_4^2\nu_2^2\nu_3^2 + \omega_6\omega_3^3\omega_7^2\omega_4^3c_s^4 + 20\omega_6^2\omega_3^3\omega_7^2\nu_2^2\nu_3^2 - 12\omega_6^2\omega_3^2\omega_7^2\omega_4^2c_s^4 + 20\omega_6^2\omega_3\omega_7^2\omega_4^2\nu_2^2\nu_3^2 - 3\omega_6^2\omega_3^3\omega_7\omega_4^3c_s^2\nu_2^2 + 4\omega_6^2\omega_3^2\omega_7\omega_4^2c_s^2\nu_3^2 + 10\omega_6^2\omega_3\omega_7^2\omega_4^3c_s^2\nu_3^2 + 2\omega_6^2\omega_3^2\omega_7\omega_4^3\nu_2^2\nu_3^2 + 20\omega_6^2\omega_3^3\omega_7^2\omega_4^2\nu_2^2\nu_3^2 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4c_s^4 + 10\omega_6\omega_3^3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 + 2\omega_6^2\omega_3^3\omega_4^3c_s^2\nu_2^2 + 10\omega_6^2\omega_3^3\omega_7^2\omega_4c_s^2\nu_2^2 + \omega_6\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_2^2 - 4\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_3^2 + 20\omega_6^2\omega_3^3\omega_4\nu_2^2\nu_3^2 + 2\omega_3^3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 + 12\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_2^2 + \omega_6^2\omega_3^3\omega_7\omega_4^2c_s^2\nu_3^2 + \omega_6^2\omega_3^3\omega_7\omega_4^3c_s^4 - 4\omega_6^2\omega_3^3\omega_7^2c_s^2\nu_2^2 - 2\omega_6^2\omega_3\omega_7^2\omega_4^3c_s^4 + 4\omega_6^2\omega_3^3\omega_7\omega_4^2c_s^4 - 8\omega_6^2\omega_3\omega_7^2\omega_4^2c_s^2\nu_2^2 - 3\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^2\nu_3^2 - 4\omega_6^2\omega_7^2\omega_4^3c_s^2\nu_3^2 - 2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^2\nu_2^2 + 2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^2\nu_2^2 - 4\omega_6\omega_3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 - 4\omega_6^2\omega_3^2\omega_7\omega_4^2\nu_2^2\nu_3^2 - 2\omega_6^2\omega_3^3\omega_7\omega_4^2c_s^4 - 4\omega_6^2\omega_3\omega_7^2\omega_4^2c_s^2\nu_3^2 - 4\omega_6^2\omega_3^3\omega_7\omega_4\nu_2^2\nu_3^2 + 10\omega_6^2\omega_3^3\omega_7\omega_4^2c_s^2\nu_2^2 - 2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^2\nu_3^2 - 38\omega_6^2\omega_3\omega_7^2\omega_4^3\nu_2^2\nu_3^2 + 4\omega_6^2\omega_3^3\omega_7^2\omega_4c_s^2\nu_3^2 - 4\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_3^2 + 2\omega_6\omega_3^3\omega_7^2\omega_4^2\nu_2^2\nu_3^2 + 20\omega_6^2\omega_3^2\omega_7^2\omega_4^3\nu_2^2\nu_3^2 - 2\omega_6^2\omega_3^3\omega_7^2\omega_4c_s^4 - 2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^4 + 12\omega_6^2\omega_3^2\omega_7^2\omega_4^2c_s^2\nu_3^2 + \omega_6^2\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_2^2 - 4\omega_6^2\omega_3^3\omega_4^2\nu_2^2\nu_3^2 + 4\omega_6^2\omega_3\omega_7^2\omega_4^2c_s^4 - 3\omega_6\omega_3^3\omega_7^2\omega_4^3c_s^2\nu_3^2 + 4\omega_6\omega_3^2\omega_7^2\omega_4^2c_s^2\nu_2^2$$

$$C_{65} = 22\omega_3^2\omega_7^2\omega_4^3\nu_3^2 - 14\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 12\omega_3^3\omega_7\omega_4\nu_3^2 - 12\omega_3^3\omega_7\omega_4c_s^2 + 34\omega_3^3\omega_7^2\omega_4^2\nu_3^2 - 12\omega_3^3\omega_4^2\nu_3^2 - 6\omega_3^2\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3\omega_7^2c_s^2 + \omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 48\omega_3^3\omega_7^2\omega_4^2\nu_3^2 + 12\omega_3^2\omega_7^2\omega_4^2c_s^2 - 4\omega_3^3\omega_7^2\omega_4^3\nu_3^2 + 6\omega_3^3\omega_4^3\nu_3^2 + 48\omega_3^3\omega_7^2\nu_3^2 - 30\omega_3\omega_7^2\omega_4^3\nu_3^2 - 6\omega_3^3\omega_7\omega_4^3c_s^2 - 6\omega_3^3\omega_7\omega_4^2\nu_3^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 24\omega_3^2\omega_7^2\omega_4\nu_3^2 + 24\omega_3^3\omega_7\omega_4^2c_s^2 + 24\omega_3\omega_7^2\omega_4^2\nu_3^2 + 12\omega_7^2\omega_4^3\nu_3^2 - 78\omega_3^3\omega_7^2\omega_4\nu_3^2 + 24\omega_3^3\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 24\omega_3^3\omega_7^2\omega_4^2\nu_3^2$$

$$C_{66} = 6\omega_3^3\omega_4^3\nu_2^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 - 48\omega_6^2\omega_3^2\omega_4^2\nu_2^2 - 14\omega_6^2\omega_3^2\omega_4^3c_s^2 - 12\omega_6\omega_3\omega_4^3\nu_2^2 + 48\omega_6^2\omega_4^3\nu_2^2 - 6\omega_6\omega_3^3\omega_4^3c_s^2 + 12\omega_6^2\omega_3^2\omega_4^2c_s^2 - 30\omega_6^2\omega_3^3\omega_4\nu_2^2 + 6\omega_3^3\omega_4^3c_s^2 - 12\omega_6\omega_3\omega_4^3c_s^2 + 34\omega_6^2\omega_3^2\omega_4^3\nu_2^2 + 12\omega_6^2\omega_3^3\nu_2^2 - 6\omega_6\omega_3^3\omega_4^3\nu_2^2 - 12\omega_6^2\omega_4^3c_s^2 + 24\omega_6\omega_3^2\omega_4^3c_s^2 - 78\omega_6^2\omega_3\omega_4^3\nu_2^2 + 22\omega_6^2\omega_3^3\omega_4^2\nu_2^2 - 12\omega_6^2\omega_3^2\omega_4c_s^2 - 12\omega_3^2\omega_4^3\nu_2^2 + \omega_6^2\omega_3^3\omega_4^3c_s^2 + 24\omega_6^2\omega_3\omega_4^3c_s^2 + 24\omega_6\omega_3^2\omega_4^3\nu_2^2 + 24\omega_6^2\omega_3\omega_4^2\nu_2^2 - 12\omega_3^2\omega_4^3c_s^2 + 24\omega_6^2\omega_3^2\omega_4\nu_2^2 - 6\omega_6^2\omega_3^3\omega_4^2c_s^2 - 4\omega_6^2\omega_3^3\omega_4^2\nu_2^2$$

$$C_{67} = 15\omega_7\omega_4^3\nu_3^2 - 24\omega_7\omega_4 + 9\omega_7\omega_4^3c_s^2 - 48\omega_7^2\omega_4c_s^2 - 9\omega_7\omega_4^3 - 60\omega_7\omega_4^2\nu_3^2 + 36\omega_7\omega_4^2 - 36\omega_7^2\omega_4^2c_s^2 - 42\omega_7^2\omega_4\nu_3^2 - 11\omega_7^2\omega_4^2 - 6\omega_4^3c_s^2 - 12\omega_4^2 + 24\omega_7\omega_4c_s^2 + 24\omega_7^2c_s^2 + 27\omega_7^2\omega_4^2\nu_3^2 + 25\omega_7^2\omega_4^2c_s^2 + 12\omega_7^2\nu_3^2 + \omega_7^2\omega_4^3 + 6\omega_4^3 + 48\omega_7\omega_4\nu_3^2 - 6\omega_4^3\nu_3^2 - 3\omega_7^2\omega_4^3\nu_3^2 + 12\omega_4^2c_s^2 + 12\omega_4^2\nu_3^2 + 12\omega_7^2\omega_4 - 2\omega_7^2\omega_4^2c_s^2$$

$$C_{68} = -21\omega_7\omega_4^2\omega_2^3 - 12\omega_7^2\omega_4^3\omega_2\nu_2^2 + 42\omega_7\omega_4^2c_s^2\omega_2^3 - 12\omega_7^2\omega_4^3c_s^2\omega_2^2 + 6\omega_7^2\omega_4^2\omega_2^3\nu_2^2 + 6\omega_7\omega_4^2\omega_2^2 - 6\omega_7^2\omega_4\omega_2^3 - 12\omega_7\omega_4^3\omega_2^3\nu_2^2 - 12\omega_7\omega_4^2c_s^2\omega_2^2 + 6\omega_7^2\omega_4^3c_s^2\omega_2^3 + 78\omega_7^2\omega_4c_s^2\omega_2^3 - 12\omega_7^2\omega_4^2\omega_2^2\nu_2^2 - 24\omega_7\omega_4\omega_2^3\nu_2^2 + 6\omega_4^3\omega_2^3\nu_2^2 + 6\omega_7\omega_4^3\omega_2^3 + 6\omega_7^2\omega_4^3c_s^2\omega_2 - 24\omega_7^2\omega_4c_s^2\omega_2^2 + 6\omega_7\omega_4^3\omega_2^2\nu_2^2 - 12\omega_4^2c_s^2\omega_2^3 - 3\omega_7\omega_4^3\omega_2^2 + 24\omega_7^2\omega_2^3\nu_2^2 + 42\omega_7\omega_4^2\omega_2^3\nu_2^2 - 48\omega_7^2\omega_4^2c_s^2\omega_2^3 + 12\omega_7^2\omega_4\omega_2^2\nu_2^2 + 6\omega_7\omega_4^3c_s^2\omega_2^2 - \omega_7^2\omega_4^3\omega_2^2 + 42\omega_7^2\omega_4^2c_s^2\omega_2^2 - 12\omega_7\omega_4^3c_s^2\omega_2^3 + 6\omega_7^2\omega_4^2\omega_2\nu_2^2 + \omega_7^2\omega_4^3\omega_2^2 + 6\omega_4^2\omega_2^3 + 6\omega_4^3c_s^2\omega_2^3 + 7\omega_7^2\omega_4^2\omega_2^3 + 6\omega_7^2\omega_4^3\nu_2^2 - 12\omega_7^2\omega_4^2c_s^2\omega_2 - 30\omega_7^2\omega_4\omega_2^3\nu_2^2 - 24\omega_7\omega_4c_s^2\omega_2^3 - 12\omega_7\omega_4^2\omega_2^2\nu_2^2 - 12\omega_4^2\omega_2^3\nu_2^2 - 3\omega_4^3\omega_2^2 + 12\omega_7\omega_4\omega_2^3 - 36\omega_7^2c_s^2\omega_2^3 - 3\omega_7^2\omega_4^2\omega_2^2 + 6\omega_7^2\omega_4^3\omega_2^2\nu_2^2$$

$$C_{69} = -12\omega_7\omega_4^3\nu_3^2 + 24\omega_7\omega_4 - 12\omega_7\omega_4^3c_s^2 + 90\omega_7^2\omega_4c_s^2 + 9\omega_7\omega_4^3 + 48\omega_7\omega_4^2\nu_3^2 - 36\omega_7\omega_4^2 + 48\omega_7^2\omega_4^2c_s^2 + 11\omega_7^2\omega_4^2 + 6\omega_4^3c_s^2 + 12\omega_4^2 - 36\omega_7\omega_4c_s^2 - 48\omega_7^2c_s^2 - 8\omega_7^2\omega_4^2\nu_3^2 - 44\omega_7^2\omega_4^2c_s^2 + 12\omega_7^2\nu_3^2 - \omega_7^2\omega_4^3 - 6\omega_4^3 - 36\omega_7\omega_4\nu_3^2 + 6\omega_4^3\nu_3^2 + \omega_7^2\omega_4^3\nu_3^2 - 12\omega_4^2c_s^2 - 12\omega_4^2\nu_3^2 - 12\omega_7^2\omega_4 + 4\omega_7^2\omega_4^3c_s^2$$

$$C_{70} = -6\omega_7\omega_4^2\omega_2^3 - 18\omega_7^2\omega_4^3\omega_2\nu_2^3 + 36\omega_7\omega_4^2c_s^2\omega_2^3 - 12\omega_7^2\omega_4^3c_s^2\omega_2^2 + 12\omega_7\omega_4^2\omega_2^2 - 12\omega_7\omega_4^3\omega_2^3\nu_2^2 - 24\omega_7\omega_4^2c_s^2\omega_2^2 + 4\omega_7^2\omega_4^3c_s^2\omega_2^3 + 36\omega_7^2\omega_4c_s^2\omega_2^3 + 12\omega_7^2\omega_4^2\omega_2^2\nu_2^2 - 12\omega_7\omega_4\omega_2^3\nu_2^2 + 6\omega_4^3\omega_2^3\nu_2^2 + 3\omega_7\omega_4^3\omega_2^3 + 6\omega_7^2\omega_4^3c_s^2\omega_2 - 24\omega_7^2\omega_4c_s^2\omega_2^2 + 12\omega_7\omega_4^3\omega_2^2\nu_2^2 - 12\omega_4^2c_s^2\omega_2^3 - 6\omega_7\omega_4^3\omega_2^2 + 24\omega_7^2\omega_2^3\nu_2^2 + 36\omega_7\omega_4^2\omega_2^3\nu_2^2 - 32\omega_7^2\omega_4^2c_s^2\omega_2^3 + 12\omega_7\omega_4^3c_s^2\omega_2^2 - \omega_7^2\omega_4^3\omega_2^3 + 48\omega_7^2\omega_4^2c_s^2\omega_2^2 - 12\omega_7\omega_4^3c_s^2\omega_2^3 + 3\omega_7^2\omega_4^3\omega_2^3\nu_2^2 + 2\omega_7^2\omega_4^3\omega_2^2 + 6\omega_4^3c_s^2\omega_2^3 + 3\omega_7^2\omega_4^2\omega_2^3 + 12\omega_7^2\omega_4^3\nu_2^2 - 12\omega_7^2\omega_4^2c_s^2\omega_2 - 30\omega_7^2\omega_4\omega_2^3\nu_2^2 - 12\omega_7\omega_4c_s^2\omega_2^3 - 24\omega_7\omega_4^2\omega_2^2\nu_2^2 - 12\omega_4^2\omega_2^3\nu_2^2 - 12\omega_7^2c_s^2\omega_2^3 - 6\omega_7^2\omega_4^2\omega_2^2$$

$$C_{71} = 6\omega_3^2\omega_7^2\omega_4^3\nu_3^2 + 6\omega_3^2\omega_7\omega_4^2 - 48\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 24\omega_3^3\omega_7\omega_4\nu_3^2 - 24\omega_3^3\omega_7\omega_4c_s^2 - 6\omega_3^3\omega_7^2\omega_4 - 3\omega_3^2\omega_7\omega_4^3 + 6\omega_3^3\omega_7^2\omega_4^2\nu_3^2 - 12\omega_3^3\omega_4^2\nu_3^2 - 12\omega_3^2\omega_7^2\omega_4^3c_s^2 - 36\omega_3^3\omega_7^2c_s^2 + 6\omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 + 7\omega_3^3\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2\omega_4^2\nu_3^2 + 42\omega_3^2\omega_7^2\omega_4^2c_s^2 + 6\omega_3^3\omega_4^3\nu_3^2 - \omega_3^3\omega_7^2\omega_4^3 + 24\omega_3^3\omega_7^2\nu_3^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3^3\omega_7\omega_4^2\nu_3^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 12\omega_3^2\omega_7^2\omega_4^2c_s^2 - 21\omega_3^3\omega_7\omega_4^2 + 12\omega_3^2\omega_7^2\omega_4\nu_3^2 + 12\omega_3^3\omega_7\omega_4 + 42\omega_3^3\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^2\nu_3^2 + 6\omega_7^2\omega_4^3\nu_3^2 + 6\omega_3^2\omega_7\omega_4^3\nu_3^2 + \omega_3^2\omega_7^2\omega_4^3 - 30\omega_3^3\omega_7^2\omega_4\nu_3^2 + 6\omega_3^3\omega_4^2 - 3\omega_3^2\omega_7^2\omega_4^2 + 78\omega_3^3\omega_7^2\omega_4c_s^2 + 6\omega_3^2\omega_7\omega_4^3c_s^2 - 3\omega_3^3\omega_4^3 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 42\omega_3^3\omega_7\omega_4^2\nu_3^2$$

$$C_{72} = -12\omega_7\omega_4^3\nu_3^2 + 24\omega_7\omega_4 - 12\omega_7\omega_4^3c_s^2 + 90\omega_7^2\omega_4c_s^2 + 9\omega_7\omega_4^3 + 48\omega_7\omega_4^2\nu_3^2 - 36\omega_7\omega_4^2 + 48\omega_7^2\omega_4^2c_s^2 + 11\omega_7^2\omega_4^2 + 6\omega_4^3c_s^2 + 12\omega_4^2 - 36\omega_7\omega_4c_s^2 - 48\omega_7^2c_s^2 - 8\omega_7^2\omega_4^2\nu_3^2 - 44\omega_7^2\omega_4^2c_s^2 + 12\omega_7^2\nu_3^2 - \omega_7^2\omega_4^3 - 6\omega_4^3 - 36\omega_7\omega_4\nu_3^2 + 6\omega_4^3\nu_3^2 + \omega_7^2\omega_4^3\nu_3^2 - 12\omega_4^2c_s^2 - 12\omega_4^2\nu_3^2 - 12\omega_7^2\omega_4 + 4\omega_7^2\omega_4^3c_s^2$$

$$C_{73} = 12\omega_3^2\omega_7\omega_4^2 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 12\omega_3^3\omega_7\omega_4\nu_3^2 - 12\omega_3^3\omega_7\omega_4c_s^2 - 6\omega_3^2\omega_7\omega_4^3 - 12\omega_3^3\omega_4^2\nu_3^2 - 12\omega_3^2\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3\omega_7^2c_s^2 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 + 3\omega_3^3\omega_7^2\omega_4^2 + 12\omega_3^2\omega_7^2\omega_4^2\nu_3^2 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 + 3\omega_3^3\omega_7^2\omega_4^3\nu_3^2 + 6\omega_3^3\omega_4^3\nu_3^2 - \omega_3^3\omega_7^2\omega_4^3 + 24\omega_3^3\omega_7^2\nu_3^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 24\omega_3^2\omega_7\omega_4^2\nu_3^2 + 3\omega_3^3\omega_7\omega_4^3 - 18\omega_3\omega_7^2\omega_4^3\nu_3^2 - 12\omega_3^3\omega_7\omega_4^2c_s^2 - 12\omega_3^3\omega_7\omega_4^2\nu_3^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^2\omega_7\omega_4^2c_s^2 - 6\omega_3^3\omega_7\omega_4^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2 + 12\omega_7^2\omega_4^3\nu_3^2 + 12\omega_3^2\omega_7\omega_4^3\nu_3^2 + 2\omega_3^2\omega_7^2\omega_4^3 - 30\omega_3^3\omega_7^2\omega_4\nu_3^2 - 6\omega_3^2\omega_7^2\omega_4^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 12\omega_3^2\omega_7\omega_4^3c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 36\omega_3^3\omega_7\omega_4^2\nu_3^2$$

$$C_{74} = 18\omega_7\omega_4^3\nu_3^2 + 3\omega_7^2\omega_4^3\nu_3^4 + 156\omega_7^2\omega_4c_s^2\nu_3^2 - 24\omega_4^2c_s^2\nu_3^2 - 3\omega_7^2\omega_4^3c_s^4 - 24\omega_4^2\nu_3^4 - 6\omega_7\omega_4^3c_s^2 + 12\omega_7^2\omega_4c_s^2 + 24\omega_7^2c_s^4 + 48\omega_7\omega_4^2c_s^2\nu_3^2 - 24\omega_7^2\omega_4^2\nu_3^4 - 72\omega_7\omega_4^2\nu_3^2 + 24\omega_7\omega_4c_s^4 + 6\omega_7^2\omega_4^3c_s^2\nu_3^2 - 48\omega_7\omega_4\nu_3^4 + 12\omega_4^3\nu_3^4 + 24\omega_7\omega_4^2c_s^2 + 24\omega_7^2\omega_4^2c_s^4 - 24\omega_7^2\omega_4\nu_3^2 + 72\omega_7\omega_4^2\nu_3^4 - 24\omega_7\omega_4c_s^2\nu_3^2 - 24\omega_7\omega_4c_s^2 - 48\omega_7^2\omega_4c_s^4 + 24\omega_7^2\omega_4^2\nu_3^2 + 12\omega_4^3c_s^2\nu_3^2 - 8\omega_7^2\omega_4^2c_s^2 + 24\omega_7^2\omega_4\nu_3^4 - 96\omega_7^2c_s^2\nu_3^2 + 48\omega_7\omega_4\nu_3^2 - 12\omega_4^3\nu_3^2 - 24\omega_7\omega_4^2c_s^4 - 3\omega_7^2\omega_4^3\nu_3^2 - 72\omega_7^2\omega_4^2c_s^2\nu_3^2 - 18\omega_7\omega_4^3\nu_3^4 + 24\omega_4^2\nu_3^2 + 6\omega_7\omega_4^3c_s^4 + \omega_7^2\omega_4^3c_s^2 - 12\omega_7\omega_4^3c_s^2\nu_3^2$$

$$C_{75} = -6\omega_7\omega_4^3\nu_3^2 + 12\omega_7\omega_4 - 6\omega_7\omega_4^3c_s^2 + 42\omega_7^2\omega_4c_s^2 + 6\omega_7\omega_4^3 + 24\omega_7\omega_4^2\nu_3^2 - 24\omega_7\omega_4^2 + 24\omega_7^2\omega_4c_s^2 + 24\omega_7^2\omega_4\nu_3^2 + 8\omega_7^2\omega_4^2 + 6\omega_4^3c_s^2 + 12\omega_4^2 - 12\omega_7\omega_4c_s^2 - 24\omega_7^2c_s^2 - 16\omega_7^2\omega_4^2\nu_3^2 - 20\omega_7^2\omega_4^2c_s^2 - 12\omega_7^2\nu_3^2 - \omega_7^2\omega_4^3 - 6\omega_4^3 - 12\omega_7\omega_4\nu_3^2 + 6\omega_4^3\nu_3^2 + 2\omega_7^2\omega_4^3\nu_3^2 - 12\omega_4^2c_s^2 - 12\omega_4^2\nu_3^2 - 6\omega_7^2\omega_4 + \omega_7^2\omega_4^3c_s^2$$

2.3 MRT2

2.3.1 Definitions

Collision operator $\boldsymbol{C}$:

$$\boldsymbol{C}\left(\boldsymbol{f}\right) = \mathbf{M}_2^{-1}\mathbf{S}\left(\boldsymbol{\mu}_2^{(eq)} - \mathbf{M}_2\boldsymbol{f}\right),$$

where

$$\mathbf{S} = \mathrm{diag}(\omega_1, \omega_2, \omega_3, \omega_4, \omega_5, \omega_6, \omega_7),$$

$\omega_1, \omega_2, \ldots, \omega_7 \in (0, 2)$.
Matrix $\mathbf{M}_2$ corresponds to the transformation matrix to the raw moment basis defined by

$$\boldsymbol{\mu}_2 = \begin{pmatrix} m_{(0,0,0)} \\ m_{(1,0,0)} \\ m_{(0,1,0)} \\ m_{(0,0,1)} \\ m_{(2,0,0)} + m_{(0,2,0)} + m_{(0,0,2)} \\ m_{(2,0,0)} - m_{(0,2,0)} \\ m_{(2,0,0)} - m_{(0,0,2)} \end{pmatrix},$$

and is given by

$$\mathbf{M}_2 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 1 & 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & -1 \\ 0 & 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 1 & -1 & 0 & 1 & -1 & 0 \\ 0 & 1 & 0 & -1 & 1 & 0 & -1 \end{pmatrix}.$$

The equilibrium moments $\boldsymbol{\mu}_2^{(eq)}$ are defined by

$$\boldsymbol{\mu}_2^{(eq)} = \mathbf{M}_2\mathbf{M}^{-1}\boldsymbol{\mu}^{(eq)},$$

i.e.,

$$\boldsymbol{\mu}_2^{(eq)} = \begin{pmatrix} \rho \\ \rho v_1 \\ \rho v_2 \\ \rho v_3 \\ \rho(v_3^2 + v_2^2 + v_1^2 + 3c_s^2) \\ \rho(v_1^2 - v_2^2) \\ \rho(v_1^2 - v_3^2) \end{pmatrix}.$$

2.3.2 Conservation of mass equation

$$\frac{\partial \rho}{\partial t} + \frac{\delta_l v_1}{\delta_t}\frac{\partial \rho}{\partial x_1} + \frac{\rho\delta_l}{\delta_t}\frac{\partial v_1}{\partial x_1} + \frac{v_2\delta_l}{\delta_t}\frac{\partial \rho}{\partial x_2} + \frac{\rho\delta_l}{\delta_t}\frac{\partial v_2}{\partial x_2} + \frac{v_3\delta_l}{\delta_t}\frac{\partial \rho}{\partial x_3} + \frac{\rho\delta_l}{\delta_t}\frac{\partial v_3}{\partial x_3} + (-2+\omega_2)\frac{\delta_l}{2\omega_2}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial t} +$$
$$(-2+\omega_2)\frac{\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_1} + (-2+\omega_2)\frac{\rho\delta_l^2}{2\omega_2\delta_t}\left(\frac{\partial v_1}{\partial x_1}\right)^2 + (2-\omega_3)\frac{v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_2} + (-\omega_2\omega_3+\omega_2+\omega_3)\frac{\delta_l^2 v_1}{\omega_2\omega_3\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_2}{\partial x_2} +$$
$$(-\omega_2\omega_3+\omega_2+\omega_3)\frac{\rho\delta_l^2}{\omega_2\omega_3\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2} + (2-\omega_4)\frac{v_3\delta_l^2}{2\omega_4\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_3} + (\omega_4-\omega_4\omega_2+\omega_2)\frac{\delta_l^2 v_1}{\omega_4\omega_2\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_3}{\partial x_3} +$$
$$(\omega_4-\omega_4\omega_2+\omega_2)\frac{\rho\delta_l^2}{\omega_4\omega_2\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_3}{\partial x_3} + (-2+\omega_3)\frac{\delta_l}{2\omega_3}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial t} + (-\omega_2\omega_3+\omega_2+\omega_3)\frac{v_2\delta_l^2}{\omega_2\omega_3\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_1}{\partial x_1} +$$

$$(2-\omega_2)\frac{\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_1}+(-2+\omega_3)\frac{v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_2}+(-2+\omega_3)\frac{\rho\delta_l^2}{2\omega_3\delta_t}\left(\frac{\partial v_2}{\partial x_2}\right)^2+(2-\omega_4)\frac{v_3\delta_l^2}{2\omega_4\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_3}+$$
$$(\omega_4+\omega_3-\omega_4\omega_3)\frac{v_2\delta_l^2}{\omega_4\omega_3\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_3}{\partial x_3}+(\omega_4+\omega_3-\omega_4\omega_3)\frac{\rho\delta_l^2}{\omega_4\omega_3\delta_t}\frac{\partial v_2}{\partial x_2}\frac{\partial v_3}{\partial x_3}+(-2+\omega_4)\frac{\delta_l}{2\omega_4}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial t}+$$
$$(\omega_4-\omega_4\omega_2+\omega_2)\frac{v_3\delta_l^2}{\omega_4\omega_2\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_1}{\partial x_1}+(2-\omega_2)\frac{\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_1}+(\omega_4+\omega_3-\omega_4\omega_3)\frac{v_3\delta_l^2}{\omega_4\omega_3\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_2}{\partial x_2}+(2-\omega_3)\frac{v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_2}$$
$$+(-2+\omega_4)\frac{v_3\delta_l^2}{2\omega_4\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_3}+(-2+\omega_4)\frac{\rho\delta_l^2}{2\omega_4\delta_t}\left(\frac{\partial v_3}{\partial x_3}\right)^2+(-2+\omega_2)\frac{\rho\delta_l}{2\omega_2}\frac{\partial^2 v_1}{\partial t\partial x_1}+(-2+\omega_2)\frac{c_s^2\delta_l^2}{2\omega_2\delta_t}\frac{\partial^2\rho}{\partial x_1^2}+$$
$$(-2+\omega_2)\frac{\rho\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial^2 v_1}{\partial x_1^2}+(-2+\omega_3)\frac{\rho\delta_l}{2\omega_3}\frac{\partial^2 v_2}{\partial t\partial x_2}+(-\omega_2\omega_3+\omega_2+\omega_3)\frac{v_2\delta_l^2 v_1}{\omega_2\omega_3\delta_t}\frac{\partial^2\rho}{\partial x_1\partial x_2}+(2-\omega_3)\frac{\rho v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 v_1}{\partial x_1\partial x_2}+$$
$$(2-\omega_2)\frac{\rho\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial^2 v_2}{\partial x_1\partial x_2}+(-2+\omega_3)\frac{c_s^2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2\rho}{\partial x_2^2}+(-2+\omega_3)\frac{\rho v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 v_2}{\partial x_2^2}+(-2+\omega_4)\frac{\rho\delta_l}{2\omega_4}\frac{\partial^2 v_3}{\partial t\partial x_3}+$$
$$(\omega_4-\omega_4\omega_2+\omega_2)\frac{v_3\delta_l^2 v_1}{\omega_4\omega_2\delta_t}\frac{\partial^2\rho}{\partial x_1\partial x_3}+(2-\omega_4)\frac{\rho v_3\delta_l^2}{2\omega_4\delta_t}\frac{\partial^2 v_1}{\partial x_1\partial x_3}+(2-\omega_2)\frac{\rho\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial^2 v_3}{\partial x_1\partial x_3}+(\omega_4+\omega_3-\omega_4\omega_3)\frac{v_3 v_2\delta_l^2}{\omega_4\omega_3\delta_t}\frac{\partial^2\rho}{\partial x_2\partial x_3}$$
$$+(2-\omega_4)\frac{\rho v_3\delta_l^2}{2\omega_4\delta_t}\frac{\partial^2 v_2}{\partial x_2\partial x_3}+(2-\omega_3)\frac{\rho v_2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 v_3}{\partial x_2\partial x_3}+(-2+\omega_4)\frac{c_s^2\delta_l^2}{2\omega_4\delta_t}\frac{\partial^2\rho}{\partial x_3^2}+(-2+\omega_4)\frac{\rho v_3\delta_l^2}{2\omega_4\delta_t}\frac{\partial^2 v_3}{\partial x_3^2}+$$
$$(12-12\omega_2+\omega_2^2)\frac{\rho\delta_l\delta_t}{12\omega_2^2}\frac{\partial^3 v_1}{\partial t^2\partial x_1}+(12+\omega_5\omega_2-6\omega_5-6\omega_2)\frac{\rho\delta_l^2 v_1}{6\omega_5\omega_2}\frac{\partial^3 v_1}{\partial t\partial x_1^2}+C_1\frac{\delta_l^3 v_1}{6\omega_5\omega_2^2\delta_t}\frac{\partial^3\rho}{\partial x_1^3}+C_2\frac{\rho\delta_l^3}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^3}+$$
$$(12+\omega_3^2-12\omega_3)\frac{\rho\delta_l\delta_t}{12\omega_3^2}\frac{\partial^3 v_2}{\partial t^2\partial x_2}+(-2\omega_2\omega_3^2+3\omega_3^2+9\omega_2\omega_3-6\omega_2-6\omega_3)\frac{\rho v_2\delta_l^2}{6\omega_2\omega_3^2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_2}+$$
$$(9\omega_2\omega_3-6\omega_2-2\omega_2^2\omega_3-6\omega_3+3\omega_2^2)\frac{\rho\delta_l^2 v_1}{6\omega_2^2\omega_3}\frac{\partial^3 v_2}{\partial t\partial x_1\partial x_2}+C_3\frac{v_2\delta_l^3}{2\omega_5\omega_2^2\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_2}+$$
$$(-6\omega_2\omega_3^2+6\omega_3^2-6\omega_2^2\omega_3+\omega_2^2\omega_3^2+6\omega_2^2)\frac{\rho v_2\delta_l^3 v_1}{6\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^2\partial x_2}+$$
$$(\omega_5\omega_2^2v_1^2-3c_s^2\omega_5\omega_2^2+18c_s^2\omega_5\omega_2+6\omega_2^2v_1^2+12\omega_5v_1^2-12\omega_2v_1^2-12c_s^2\omega_2-12c_s^2\omega_5+6c_s^2\omega_2^2-6\omega_5\omega_2v_1^2)\frac{\rho\delta_l^3}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_2}{\partial x_1^2\partial x_2}$$
$$+(12+\omega_6\omega_3-6\omega_6-6\omega_3)\frac{\rho v_2\delta_l^2}{6\omega_6\omega_3}\frac{\partial^3 v_2}{\partial t\partial x_2^2}+C_4\frac{\delta_l^3 v_1}{2\omega_2^2\omega_6\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2^2}+$$
$$(-12c_s^2\omega_3-6v_2^2\omega_6\omega_3+18c_s^2\omega_6\omega_3-12c_s^2\omega_6+v_2^2\omega_6\omega_3^2-3c_s^2\omega_6\omega_3^2+6c_s^2\omega_3^2-12v_2^2\omega_3+12v_2^2\omega_6+6v_2^2\omega_3^2)\frac{\rho\delta_l^3}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_2^2}$$
$$+(-6\omega_2\omega_3^2+6\omega_3^2-6\omega_2^2\omega_3+\omega_2^2\omega_3^2+6\omega_2^2)\frac{\rho v_2\delta_l^3 v_1}{6\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_1\partial x_2^2}+C_5\frac{v_2\delta_l^3}{6\omega_6\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_2^3}+C_6\frac{\rho\delta_l^3}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^3}+$$
$$(12-12\omega_4+\omega_4^2)\frac{\rho\delta_l\delta_t}{12\omega_4^2}\frac{\partial^3 v_3}{\partial t^2\partial x_3}+(-6\omega_4+3\omega_4^2+9\omega_4\omega_2-6\omega_2-2\omega_4^2\omega_2)\frac{\rho v_3\delta_l^2}{6\omega_4^2\omega_2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_3}+$$
$$(-6\omega_4-2\omega_4\omega_2^2+9\omega_4\omega_2-6\omega_2+3\omega_2^2)\frac{\rho\delta_l^2 v_1}{6\omega_4\omega_2^2}\frac{\partial^3 v_3}{\partial t\partial x_1\partial x_3}+C_7\frac{v_3\delta_l^3}{2\omega_4^2\omega_5\omega_2^2\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_3}+$$
$$(-6\omega_4\omega_2^2+6\omega_4^2-6\omega_4^2\omega_2+\omega_4^2\omega_2^2+6\omega_2^2)\frac{\rho v_3\delta_l^3 v_1}{6\omega_4^2\omega_2^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^2\partial x_3}+$$
$$(\omega_5\omega_2^2v_1^2-3c_s^2\omega_5\omega_2^2+18c_s^2\omega_5\omega_2+6\omega_2^2v_1^2+12\omega_5v_1^2-12\omega_2v_1^2-12c_s^2\omega_2-12c_s^2\omega_5+6c_s^2\omega_2^2-6\omega_5\omega_2v_1^2)\frac{\rho\delta_l^3}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_3}{\partial x_1^2\partial x_3}$$
$$+(-6\omega_4+3\omega_4^2-2\omega_4^2\omega_3-6\omega_3+9\omega_4\omega_3)\frac{\rho v_3\delta_l^2}{6\omega_4^2\omega_3}\frac{\partial^3 v_2}{\partial t\partial x_2\partial x_3}+(-6\omega_4+3\omega_3^2-2\omega_4\omega_3^2-6\omega_3+9\omega_4\omega_3)\frac{\rho v_2\delta_l^2}{6\omega_4\omega_3^2}\frac{\partial^3 v_3}{\partial t\partial x_2\partial x_3}+$$
$$(-2\omega_4\omega_2^2\omega_3^2-2\omega_4^2\omega_2\omega_3^2+\omega_4^2\omega_2\omega_3+\omega_4^2\omega_3^2+\omega_4\omega_2^2\omega_3-2\omega_4^2\omega_2^2\omega_3+\omega_4^2\omega_2^2\omega_3^2+\omega_2^2\omega_3^2+\omega_4^2\omega_2^2+\omega_4\omega_2\omega_3^2)\frac{2v_3v_2\delta_l^3v_1}{\omega_4^2\omega_2^2\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2\partial x_3}$$
$$+(3\omega_4^2-6\omega_4^2\omega_3+3\omega_3^2+2\omega_4^2\omega_3^2-6\omega_4\omega_3^2+6\omega_4\omega_3)\frac{\rho v_3v_2\delta_l^3}{3\omega_4^2\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_2\partial x_3}+$$
$$(-6\omega_4\omega_2^2+3\omega_4^2+6\omega_4\omega_2-6\omega_4^2\omega_2+2\omega_4^2\omega_2^2+3\omega_2^2)\frac{\rho v_3\delta_l^3 v_1}{3\omega_4^2\omega_2^2\delta_t}\frac{\partial^3 v_2}{\partial x_1\partial x_2\partial x_3}+$$
$$(-6\omega_2\omega_3^2+3\omega_3^2+6\omega_2\omega_3-6\omega_2^2\omega_3+2\omega_2^2\omega_3^2+3\omega_2^2)\frac{\rho v_2\delta_l^3 v_1}{3\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_3}{\partial x_1\partial x_2\partial x_3}+C_8\frac{v_3\delta_l^3}{2\omega_4^2\omega_6\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_2^2\partial x_3}+$$
$$(6\omega_4^2-6\omega_4^2\omega_3+6\omega_3^2+\omega_4^2\omega_3^2-6\omega_4\omega_3^2)\frac{\rho v_3v_2\delta_l^3}{6\omega_4^2\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^2\partial x_3}+$$
$$(-12c_s^2\omega_3-6v_2^2\omega_6\omega_3+18c_s^2\omega_6\omega_3-12c_s^2\omega_6+v_2^2\omega_6\omega_3^2-3c_s^2\omega_6\omega_3^2+6c_s^2\omega_3^2-12v_2^2\omega_3+12v_2^2\omega_6+6v_2^2\omega_3^2)\frac{\rho\delta_l^3}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_3}{\partial x_2^2\partial x_3}$$
$$+(12-6\omega_4+\omega_4\omega_7-6\omega_7)\frac{\rho v_3\delta_l^2}{6\omega_4\omega_7}\frac{\partial^3 v_3}{\partial t\partial x_3^2}+C_9\frac{\delta_l^3 v_1}{2\omega_4^2\omega_2^2\delta_t\omega_7}\frac{\partial^3\rho}{\partial x_1\partial x_3^2}+$$
$$(-6\omega_4v_3^2\omega_7+6\omega_4^2c_s^2+18\omega_4c_s^2\omega_7-12\omega_4v_3^2-12c_s^2\omega_7+6\omega_4^2v_3^2-3\omega_4^2c_s^2\omega_7+12v_3^2\omega_7-12\omega_4c_s^2+\omega_4^2v_3^2\omega_7)\frac{\rho\delta_l^3}{12\omega_4^2\delta_t\omega_7}\frac{\partial^3 v_1}{\partial x_1\partial x_3^2}$$
$$+(-6\omega_4\omega_2^2+6\omega_4^2-6\omega_4^2\omega_2+\omega_4^2\omega_2^2+6\omega_2^2)\frac{\rho v_3\delta_l^3 v_1}{6\omega_4^2\omega_2^2\delta_t}\frac{\partial^3 v_3}{\partial x_1\partial x_3^2}+C_{10}\frac{v_2\delta_l^3}{2\omega_4^2\omega_3^2\delta_t\omega_7}\frac{\partial^3\rho}{\partial x_2\partial x_3^2}+$$
$$(-6\omega_4v_3^2\omega_7+6\omega_4^2c_s^2+18\omega_4c_s^2\omega_7-12\omega_4v_3^2-12c_s^2\omega_7+6\omega_4^2v_3^2-3\omega_4^2c_s^2\omega_7+12v_3^2\omega_7-12\omega_4c_s^2+\omega_4^2v_3^2\omega_7)\frac{\rho\delta_l^3}{12\omega_4^2\delta_t\omega_7}\frac{\partial^3 v_2}{\partial x_2\partial x_3^2}$$
$$+(6\omega_4^2-6\omega_4^2\omega_3+6\omega_3^2+\omega_4^2\omega_3^2-6\omega_4\omega_3^2)\frac{\rho v_3v_2\delta_l^3}{6\omega_4^2\omega_3^2\delta_t}\frac{\partial^3 v_3}{\partial x_2\partial x_3^2}+C_{11}\frac{v_3\delta_l^3}{6\omega_4^2\delta_t\omega_7}\frac{\partial^3\rho}{\partial x_3^3}+C_{12}\frac{\rho\delta_l^3}{12\omega_4^2\delta_t\omega_7}\frac{\partial^3 v_3}{\partial x_3^3}+$$

$$(-2+3\omega_2-\omega_2^2)\frac{\rho\delta_l\delta_t^2}{2\omega_2^3}\frac{\partial^4 v_1}{\partial t^3\partial x_1}+(-4\omega_5\omega_2+8\omega_5\omega_2^2-2\omega_5\omega_2^3+2\omega_5^2-\omega_5^2\omega_2^2-\omega_5^2\omega_2+2\omega_2^3-4\omega_2^2)\frac{\rho\delta_l^2 v_1\delta_t}{2\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1^2}+$$
$$C_{13}\frac{\rho\delta_l^3}{12\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial t\partial x_1^3}+C_{14}\frac{\delta_l^4}{24\omega_5^2\omega_2^3\delta_t}\frac{\partial^4\rho}{\partial x_1^4}+C_{15}\frac{\rho\delta_l^4 v_1}{12\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^4}+(-2-\omega_3^2+3\omega_3)\frac{\rho\delta_l\delta_t^2}{2\omega_3^3}\frac{\partial^4 v_2}{\partial t^3\partial x_2}+$$
$$(-24\omega_2\omega_3^2+7\omega_2\omega_3^3+12\omega_3^2+12\omega_2\omega_3-6\omega_3^3-24\omega_2^2\omega_3-\omega_2^2\omega_3^3+13\omega_2^2\omega_3^2+12\omega_2^2)\frac{\rho v_2\delta_l^2\delta_t}{12\omega_2^2\omega_3^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_2}+$$
$$(-24\omega_2\omega_3^2+12\omega_3^2+12\omega_2\omega_3-24\omega_2^2\omega_3-\omega_2^3\omega_3^2-6\omega_2^3+7\omega_2^2\omega_3+13\omega_2^2\omega_3^2+12\omega_2^2)\frac{\rho\delta_l^2 v_1\delta_t}{12\omega_2^3\omega_3^2}\frac{\partial^4 v_2}{\partial t^2\partial x_1\partial x_2}+$$
$$C_{16}\frac{\rho v_2\delta_l^3 v_1}{6\omega_5\omega_2^3\omega_3^3}\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_2}+C_{17}\frac{\rho\delta_l^3}{12\omega_5^2\omega_2^3\omega_3}\frac{\partial^4 v_2}{\partial t\partial x_1^2\partial x_2}+C_{18}\frac{v_2\delta_l^4 v_1}{6\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1^3\partial x_2}+C_{19}\frac{\rho v_2\delta_l^4}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^3\partial x_2}+$$
$$C_{20}\frac{\rho\delta_l^4 v_1}{12\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_2}{\partial x_1^3\partial x_2}+(-2\omega_6\omega_3^3+8\omega_6\omega_3^2-4\omega_3^2-4\omega_6\omega_3+2\omega_6^2+2\omega_3^3-\omega_6^2\omega_3-\omega_6^2\omega_3^2)\frac{\rho v_2\delta_l^2\delta_t}{2\omega_6^2\omega_3^3}\frac{\partial^4 v_2}{\partial t^2\partial x_2^2}+$$
$$C_{21}\frac{\rho\delta_l^3}{12\omega_2\omega_6^2\omega_3^3}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2}+C_{22}\frac{\rho v_2\delta_l^3 v_1}{6\omega_2^3\omega_6\omega_3^3}\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2^2}+C_{23}\frac{\delta_l^4}{4\omega_5^2\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1^2\partial x_2^2}+C_{24}\frac{\rho\delta_l^4 v_1}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^2\partial x_2^2}+$$
$$C_{25}\frac{\rho v_2\delta_l^4}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_1^2\partial x_2^2}+C_{26}\frac{\rho\delta_l^3}{12\omega_6^2\omega_3^3}\frac{\partial^4 v_2}{\partial t\partial x_2^3}+C_{27}\frac{v_2\delta_l^4 v_1}{6\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_2^3}+C_{28}\frac{\rho v_2\delta_l^4}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_2^3}+C_{29}\frac{\rho\delta_l^4 v_1}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_1\partial x_2^3}$$
$$+C_{30}\frac{\delta_l^4}{24\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_2^4}+C_{31}\frac{\rho v_2\delta_l^4}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_2^4}+(-2+3\omega_4-\omega_4^2)\frac{\rho\delta_l\delta_t^2}{2\omega_4^3}\frac{\partial^4 v_3}{\partial t^3\partial x_3}+$$
$$(-6\omega_4^3-24\omega_4\omega_2^2+12\omega_4^2+12\omega_4\omega_2-24\omega_4^2\omega_2-\omega_4^3\omega_2^2+7\omega_4^3\omega_2+13\omega_4^2\omega_2^2+12\omega_2^2)\frac{\rho v_3\delta_l^2\delta_t}{12\omega_4^3\omega_2^2}\frac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_3}+$$
$$(-24\omega_4\omega_2^2+12\omega_4^2+7\omega_4\omega_2^3+12\omega_4\omega_2-24\omega_4^2\omega_2-6\omega_2^3-\omega_4^2\omega_2^3+13\omega_4^2\omega_2^2+12\omega_2^2)\frac{\rho\delta_l^2 v_1\delta_t}{12\omega_4^2\omega_2^3}\frac{\partial^4 v_3}{\partial t^2\partial x_1\partial x_3}+$$
$$C_{32}\frac{\rho v_3\delta_l^3 v_1}{6\omega_4^3\omega_5\omega_2^2}\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_3}+C_{33}\frac{\rho\delta_l^3}{12\omega_4\omega_5^2\omega_2^2}\frac{\partial^4 v_3}{\partial t\partial x_1^2\partial x_3}+C_{34}\frac{v_3\delta_l^4 v_1}{6\omega_4^3\omega_5^2\omega_2^2\delta_t}\frac{\partial^4\rho}{\partial x_1^3\partial x_3}+C_{35}\frac{\rho v_3\delta_l^4}{12\omega_4^3\omega_5^2\omega_2^2\delta_t}\frac{\partial^4 v_1}{\partial x_1^3\partial x_3}+$$
$$C_{36}\frac{\rho\delta_l^4 v_1}{12\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_3}{\partial x_1^3\partial x_3}+$$
$$(-6\omega_4^3-\omega_4^3\omega_3^2+12\omega_4^2-24\omega_4^2\omega_3+12\omega_3^2+13\omega_4^2\omega_3^2+7\omega_4^3\omega_3-24\omega_4\omega_3^2+12\omega_4\omega_3)\frac{\rho v_3\delta_l^2\delta_t}{12\omega_4^3\omega_3^2}\frac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3}+$$
$$(12\omega_4^2-24\omega_4^2\omega_3+12\omega_3^2+13\omega_4^2\omega_3^2-\omega_4^2\omega_3^3-6\omega_3^3+7\omega_4\omega_3^3-24\omega_4\omega_3^2+12\omega_4\omega_3)\frac{\rho v_2\delta_l^2\delta_t}{12\omega_4^2\omega_3^3}\frac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3}+$$
$$C_{37}\frac{\rho v_3 v_2\delta_l^3}{6\omega_4^3\omega_2\omega_3^3}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3}+C_{38}\frac{\rho v_3\delta_l^3 v_1}{6\omega_4^3\omega_2^3\omega_3}\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3}+C_{39}\frac{\rho v_2\delta_l^3 v_1}{6\omega_4\omega_2^3\omega_3^3}\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3}+C_{40}\frac{v_3 v_2\delta_l^4}{\omega_4^3\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1^2\partial x_2\partial x_3}+$$
$$C_{41}\frac{\rho v_3 v_2\delta_l^4 v_1}{6\omega_4^3\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3}+C_{42}\frac{\rho v_3\delta_l^4}{12\omega_4^3\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_2}{\partial x_1^2\partial x_2\partial x_3}+C_{43}\frac{\rho v_2\delta_l^4}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1^2\partial x_2\partial x_3}+C_{44}\frac{\rho v_3 v_2\delta_l^3}{6\omega_4^3\omega_6\omega_3^3}\frac{\partial^4 v_2}{\partial t\partial x_2^2\partial x_3}+$$
$$C_{45}\frac{\rho\delta_l^3}{12\omega_4\omega_6^2\omega_3^3}\frac{\partial^4 v_3}{\partial t\partial x_2^2\partial x_3}+C_{46}\frac{v_3\delta_l^4 v_1}{\omega_4^3\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_2^2\partial x_3}+C_{47}\frac{\rho v_3\delta_l^4}{12\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_2^2\partial x_3}+C_{48}\frac{\rho v_3 v_2\delta_l^4 v_1}{6\omega_4^3\omega_3^3\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3}+$$
$$C_{49}\frac{\rho\delta_l^4 v_1}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3}+C_{50}\frac{v_3 v_2\delta_l^4}{6\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_2^3\partial x_3}+C_{51}\frac{\rho v_3\delta_l^4}{12\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_2^3\partial x_3}+C_{52}\frac{\rho v_2\delta_l^4}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_2^3\partial x_3}+$$
$$(2\omega_4^3-4\omega_4^2-\omega_4\omega_7^2-4\omega_4\omega_7+8\omega_4^2\omega_7+2\omega_7^2-\omega_4^2\omega_7^2-2\omega_4^3\omega_7)\frac{\rho v_3\delta_l^2\delta_t}{2\omega_4^3\omega_7^2}\frac{\partial^4 v_3}{\partial t^2\partial x_3^2}+C_{53}\frac{\rho\delta_l^3}{12\omega_4^3\omega_2\omega_7^2}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_3^2}+$$
$$C_{54}\frac{\rho v_3\delta_l^3 v_1}{6\omega_4^3\omega_2^3\omega_7}\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2}+C_{55}\frac{\delta_l^4}{4\omega_4^3\omega_5^2\omega_2^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_1^2\partial x_3^2}+C_{56}\frac{\rho\delta_l^4 v_1}{12\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4 v_1}{\partial x_1^2\partial x_3^2}+C_{57}\frac{\rho v_3\delta_l^4}{12\omega_4^3\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_3}{\partial x_1^2\partial x_3^2}+$$
$$C_{58}\frac{\rho\delta_l^3}{12\omega_4^3\omega_3\omega_7^2}\frac{\partial^4 v_2}{\partial t\partial x_2\partial x_3^2}+C_{59}\frac{\rho v_3 v_2\delta_l^3}{6\omega_4^3\omega_3^3\omega_7}\frac{\partial^4 v_3}{\partial t\partial x_2\partial x_3^2}+C_{60}\frac{v_2\delta_l^4 v_1}{\omega_4^3\omega_2^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_1\partial x_2\partial x_3^2}+C_{61}\frac{\rho v_2\delta_l^4}{12\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2}+$$
$$C_{62}\frac{\rho\delta_l^4 v_1}{12\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2}+C_{63}\frac{\rho v_3 v_2\delta_l^4 v_1}{6\omega_4^3\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_2\partial x_3^2}+C_{64}\frac{\delta_l^4}{4\omega_4^3\omega_6^2\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_2^2\partial x_3^2}+C_{65}\frac{\rho v_2\delta_l^4}{12\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4 v_2}{\partial x_2^2\partial x_3^2}+$$
$$C_{66}\frac{\rho v_3\delta_l^4}{12\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_2^2\partial x_3^2}+C_{67}\frac{\rho\delta_l^3}{12\omega_4^3\omega_7^2}\frac{\partial^4 v_3}{\partial t\partial x_3^3}+C_{68}\frac{v_3\delta_l^4 v_1}{6\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_1\partial x_3^3}+C_{69}\frac{\rho v_3\delta_l^4}{12\omega_4^3\delta_t\omega_7^2}\frac{\partial^4 v_1}{\partial x_1\partial x_3^3}+C_{70}\frac{\rho\delta_l^4 v_1}{12\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4 v_3}{\partial x_1\partial x_3^3}$$
$$+C_{71}\frac{v_3 v_2\delta_l^4}{6\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_2\partial x_3^3}+C_{72}\frac{\rho v_3\delta_l^4}{12\omega_4^3\delta_t\omega_7^2}\frac{\partial^4 v_2}{\partial x_2\partial x_3^3}+C_{73}\frac{\rho v_2\delta_l^4}{12\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4 v_3}{\partial x_2\partial x_3^3}+C_{74}\frac{\delta_l^4}{24\omega_4^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_3^4}+C_{75}\frac{\rho v_3\delta_l^4}{12\omega_4^3\delta_t\omega_7^2}\frac{\partial^4 v_3}{\partial x_3^4}$$
$$=0,$$

where:

$$C_1=-\omega_5\omega_2^2v_1^2-3c_s^2\omega_5\omega_2^2-3\omega_5\omega_2+15c_s^2\omega_5\omega_2+\omega_5\omega_2^2+3\omega_2^2v_1^2+6\omega_2-6\omega_2v_1^2-6c_s^2\omega_2-12c_s^2\omega_5+3c_s^2\omega_2^2-3\omega_2^2+3\omega_5\omega_2v_1^2$$

$$C_2=-5\omega_5\omega_2^2v_1^2-3c_s^2\omega_5\omega_2^2-6\omega_5\omega_2+18c_s^2\omega_5\omega_2+2\omega_5\omega_2^2+6\omega_2^2v_1^2+12\omega_2-12\omega_5v_1^2-12\omega_2v_1^2-12c_s^2\omega_2-12c_s^2\omega_5+6c_s^2\omega_2^2-6\omega_2^2+18\omega_5\omega_2v_1^2$$

$$C_3=\omega_5\omega_2^2v_1^2\omega_3^2+c_s^2\omega_5\omega_2^2\omega_3+2\omega_5\omega_2^2v_1^2-2\omega_2v_1^2\omega_3^2-2c_s^2\omega_2\omega_3^2-3\omega_5\omega_2^2v_1^2\omega_3-c_s^2\omega_5\omega_2^2\omega_3^2+c_s^2\omega_2^2\omega_3^2-2c_s^2\omega_5\omega_3^2+4c_s^2\omega_5\omega_2\omega_3^2+2\omega_5\omega_2v_1^2\omega_3-4\omega_5\omega_2v_1^2\omega_3^2+4\omega_5v_1^2\omega_3^2-2c_s^2\omega_5\omega_2\omega_3+\omega_2^2v_1^2\omega_3^2$$

$$C_4=2\omega_2v_2^2\omega_6\omega_3-2c_s^2\omega_2\omega_6\omega_3+c_s^2\omega_2\omega_6\omega_3^2+2v_2^2\omega_6\omega_3^2-3\omega_2v_2^2\omega_6\omega_3^2+c_s^2\omega_2^2\omega_3^2-c_s^2\omega_2^2\omega_6\omega_3^2-4\omega_2^2v_2^2\omega_6\omega_3+\omega_2^2v_2^2\omega_3^2-2\omega_2^2v_2^2\omega_3-2c_s^2\omega_2^2\omega_6+\omega_2^2v_2^2\omega_6\omega_3^2+4\omega_2^2v_2^2\omega_6-2c_s^2\omega_2^2\omega_3+4c_s^2\omega_2^2\omega_6\omega_3$$

$$C_5=-6c_s^2\omega_3+3v_2^2\omega_6\omega_3+\omega_6\omega_3^2+15c_s^2\omega_6\omega_3-12c_s^2\omega_6-3\omega_3^2-3\omega_6\omega_3-v_2^2\omega_6\omega_3^2-3c_s^2\omega_6\omega_3^2+3c_s^2\omega_3^2-6v_2^2\omega_3+6\omega_3+3v_2^2\omega_3^2$$

$$C_6 = -12c_s^2\omega_3 + 18v_2^2\omega_6\omega_3 + 2\omega_6\omega_3^2 + 18c_s^2\omega_6\omega_3 - 12c_s^2\omega_6 - 6\omega_3^2 - 6\omega_6\omega_3 - 5v_2^2\omega_6\omega_3^2 - 3c_s^2\omega_6\omega_3^2 + 6c_s^2\omega_3^2 - 12v_2^2\omega_3 - 12v_2^2\omega_6 + 12\omega_3 + 6v_2^2\omega_3^2$$

$$C_7 = 4\omega_4^2c_s^2\omega_5\omega_2 + 2\omega_5\omega_2^2v_1^2 + 2\omega_4\omega_5\omega_2v_1^2 + \omega_4^2\omega_5\omega_2^2v_1^2 + \omega_4^2\omega_2^2v_1^2 + 4\omega_4^2\omega_5v_1^2 - \omega_4^2c_s^2\omega_5\omega_2^2 - 2\omega_4^2c_s^2\omega_2 - 2\omega_4c_s^2\omega_5\omega_2 - 4\omega_4^2\omega_5\omega_2v_1^2 - 2\omega_4^2\omega_2v_1^2 - 3\omega_4\omega_5\omega_2^2v_1^2 + \omega_4c_s^2\omega_5\omega_2^2 + \omega_4^2c_s^2\omega_2^2 - 2\omega_4^2c_s^2\omega_5$$

$$C_8 = -\omega_4^2c_s^2\omega_6\omega_3^2 + \omega_4^2v_2^2\omega_6\omega_3^2 - 2\omega_4^2c_s^2\omega_6 - 2\omega_4^2c_s^2\omega_3 + \omega_4^2c_s^2\omega_3^2 + 2v_2^2\omega_6\omega_3^2 + 4\omega_4^2c_s^2\omega_6\omega_3 - 4\omega_4^2v_2^2\omega_6\omega_3 - 3\omega_4v_2^2\omega_6\omega_3^2 + \omega_4c_s^2\omega_6\omega_3^2 + 4\omega_4^2v_2^2\omega_6 - 2\omega_4^2v_2^2\omega_3 + \omega_4^2v_2^2\omega_3^2 + 2\omega_4v_2^2\omega_6\omega_3 - 2\omega_4c_s^2\omega_6\omega_3$$

$$C_9 = -\omega_4^2c_s^2\omega_2^2\omega_7 - 4\omega_4v_3^2\omega_2^2\omega_7 - 2\omega_4c_s^2\omega_3^2 - 3\omega_4^2v_3^2\omega_2\omega_7 - 2\omega_4c_s^2\omega_2\omega_7 - 2c_s^2\omega_2^2\omega_7 - 2\omega_4v_3^2\omega_2^2 + \omega_4^2v_3^2\omega_2^2\omega_7 + \omega_4^2v_3^2\omega_2^2 + 4\omega_4c_s^2\omega_2^2\omega_7 + \omega_4^2c_s^2\omega_2\omega_7 + 2\omega_4v_3^2\omega_2\omega_7 + \omega_4^2c_s^2\omega_2^2 + 2\omega_4^2v_3^2\omega_7 + 4v_3^2\omega_2^2\omega_7$$

$$C_{10} = -2c_s^2\omega_3^2\omega_7 + \omega_4^2v_3^2\omega_3^2 - 2\omega_4c_s^2\omega_3\omega_7 - 3\omega_4^2v_3^2\omega_3\omega_7 - 4\omega_4v_3^2\omega_3^2\omega_7 + \omega_4^2c_s^2\omega_3^2 - \omega_4^2c_s^2\omega_3^2\omega_7 - 2\omega_4c_s^2\omega_3^2 + 4v_3^2\omega_3^2\omega_7 + 2\omega_4v_3^2\omega_3\omega_7 + \omega_4^2c_s^2\omega_3\omega_7 - 2\omega_4v_3^2\omega_3^2 + 4\omega_4c_s^2\omega_3^2\omega_7 + \omega_4^2v_3^2\omega_3^2\omega_7 + 2\omega_4^2v_3^2\omega_7$$

$$C_{11} = 6\omega_4 - 3\omega_4^2 + 3\omega_4v_3^2\omega_7 + 3\omega_4^2c_s^2 - 3\omega_4\omega_7 + 15\omega_4c_s^2\omega_7 - 6\omega_4v_3^2 - 12c_s^2\omega_7 + 3\omega_4^2v_3^2 - 3\omega_4^2c_s^2\omega_7 + \omega_4^2\omega_7 - 6\omega_4c_s^2 - \omega_4^2v_3^2\omega_7$$

$$C_{12} = 12\omega_4 - 6\omega_4^2 + 18\omega_4v_3^2\omega_7 + 6\omega_4^2c_s^2 - 6\omega_4\omega_7 + 18\omega_4c_s^2\omega_7 - 12\omega_4v_3^2 - 12c_s^2\omega_7 + 6\omega_4^2v_3^2 - 3\omega_4^2c_s^2\omega_7 + 2\omega_4^2\omega_7 - 12v_3^2\omega_7 - 12\omega_4c_s^2 - 5\omega_4^2v_3^2\omega_7$$

$$C_{13} = 9c_s^2\omega_5\omega_2^3 - 60\omega_5\omega_2^2v_1^2 - 36c_s^2\omega_5\omega_2^2 - 24\omega_5\omega_2 - 42\omega_5^2\omega_2v_1^2 - 6\omega_2^3v_1^2 + 15\omega_5\omega_2^3v_1^2 + 24c_s^2\omega_5\omega_2 + 36\omega_5\omega_2^2 + 12\omega_2^2v_1^2 - 9\omega_5\omega_2^3 - 3\omega_5^2\omega_2^3v_1^2 + 12\omega_5^2v_1^2 + \omega_5^2\omega_2^2 + 24c_s^2\omega_5^2 - 48c_s^2\omega_5^2\omega_2 - 11\omega_5^2\omega_2^2 + 25c_s^2\omega_5^2\omega_2^2 + 12\omega_5^2\omega_2 + 6\omega_2^2 + 27\omega_5^2\omega_2^2v_1^2 + 12c_s^2\omega_2^2 - 2c_s^2\omega_5^2\omega_2^3 - 6c_s^2\omega_2^3 - 12\omega_2^2 + 48\omega_5\omega_2v_1^2$$

$$C_{14} = 24c_s^4\omega_5^2 - 24\omega_5^2\omega_2^2v_1^4 - 24c_s^2\omega_5\omega_2v_1^2 - 6c_s^2\omega_5\omega_2^3 + 24c_s^4\omega_5\omega_2 - 72\omega_5\omega_2^2v_1^2 - 24c_s^2\omega_2^2v_1^2 - 72c_s^2\omega_5^2\omega_2^2v_1^2 + 24c_s^2\omega_5\omega_2^2 - 48\omega_5\omega_2v_1^4 - 24\omega_5^2\omega_2v_1^2 - 12\omega_2^3v_1^2 + 12c_s^2\omega_2^3v_1^2 + 18\omega_5\omega_2^3v_1^2 + 6c_s^4\omega_5\omega_2^3 - 24c_s^2\omega_5\omega_2 + 3\omega_5^2\omega_2^3v_1^4 + 24\omega_2^2v_1^2 - 24c_s^4\omega_5\omega_2^2 + 6c_s^2\omega_5^2\omega_2^3v_1^2 + 24c_s^4\omega_5^2\omega_2^2 - 3\omega_5^2\omega_2^3v_1^2 - 18\omega_5\omega_2^3v_1^4 - 3c_s^4\omega_5^2\omega_2^3 - 24\omega_2^2v_1^4 + 12c_s^2\omega_5^2\omega_2 - 12c_s^2\omega_5\omega_2^3v_1^2 - 8c_s^2\omega_5^2\omega_2^2 + 156c_s^2\omega_5^2\omega_2v_1^2 + 72\omega_5\omega_2^2v_1^4 + 24\omega_5^2\omega_2^2v_1^2 + 24\omega_5^2\omega_2v_1^4 + 12\omega_2^3v_1^4 + c_s^2\omega_5^2\omega_2^3 - 96c_s^2\omega_5^2v_1^2 + 48c_s^2\omega_5\omega_2^2v_1^2 - 48c_s^4\omega_5^2\omega_2 + 48\omega_5\omega_2v_1^2$$

$$C_{15} = -6c_s^2\omega_5\omega_2^3 + 24\omega_5\omega_2^2v_1^2 + 24c_s^2\omega_5\omega_2^2 + 12\omega_5\omega_2 + 24\omega_5^2\omega_2v_1^2 + 6\omega_2^3v_1^2 - 6\omega_5\omega_2^3v_1^2 - 12c_s^2\omega_5\omega_2 - 24\omega_5\omega_2^2 - 12\omega_2^2v_1^2 + 6\omega_5\omega_2^3 + 2\omega_5^2\omega_2^3v_1^2 - 12\omega_5^2v_1^2 - \omega_5^2\omega_2^3 - 24c_s^2\omega_5^2 + 42c_s^2\omega_5^2\omega_2 + 8\omega_5^2\omega_2^2 - 20c_s^2\omega_5^2\omega_2^2 - 6\omega_5^2\omega_2 - 6\omega_2^3 - 16\omega_5^2\omega_2^2v_1^2 - 12c_s^2\omega_2^2 + c_s^2\omega_5^2\omega_2^3 + 6c_s^2\omega_2^3 + 12\omega_2^2 - 12\omega_5\omega_2v_1^2$$

$$C_{16} = 24\omega_5\omega_2\omega_3^3 - 12\omega_5\omega_2\omega_3^2 - 6\omega_5\omega_2^3 + 3\omega_2^3\omega_3^3 + 12\omega_5\omega_2^2\omega_3^2 + 12\omega_5\omega_2^3\omega_3 - 10\omega_5\omega_2^2\omega_3^3 - 6\omega_2^3\omega_3^2 - 12\omega_5\omega_3^3 - 7\omega_5\omega_2^3\omega_3^2 - 6\omega_2^2\omega_3^3 + 12\omega_2^2\omega_3^2 - 6\omega_5\omega_2^2\omega_3 + \omega_5\omega_2^3\omega_3^3$$

$$C_{17} = -6c_s^2\omega_5\omega_2^3 - 30c_s^2\omega_5\omega_2^2\omega_3 + 12c_s^2\omega_5^2\omega_3 + 12\omega_5\omega_2^2v_1^2 - 30c_s^2\omega_5^2\omega_2\omega_3 + 36\omega_5^2\omega_2v_1^2\omega_3 + 12c_s^2\omega_5\omega_2^2 - 12\omega_5^2\omega_2v_1^2 - 6\omega_2^3v_1^2\omega_3 - 6\omega_5\omega_2^3v_1^2 + 9c_s^2\omega_5\omega_3^2\omega_3 + \omega_5^2\omega_2^3v_1^2\omega_3 - 24\omega_5^2v_1^2\omega_3 - 30\omega_5\omega_2^2v_1^2\omega_3 + 12\omega_2^2v_1^2\omega_3 - \omega_5^2\omega_2^3v_1^2 - 2c_s^2\omega_5^2\omega_2^3\omega_3 - 6c_s^2\omega_3^2\omega_3 + 12c_s^2\omega_5^2\omega_2 + 12\omega_5\omega_2v_1^2\omega_3 + 22c_s^2\omega_5^2\omega_2^2\omega_3 - 18c_s^2\omega_5^2\omega_2^2 + 9\omega_5\omega_2^3v_1^2\omega_3 + 6\omega_5^2\omega_2^2v_1^2 - 10\omega_5^2\omega_2^2v_1^2\omega_3 + 12c_s^2\omega_5\omega_2\omega_3 + 3c_s^2\omega_5^2\omega_2^2 + 12c_s^2\omega_2^2\omega_3$$

$$C_{18} = -12\omega_5\omega_2^2v_1^2\omega_3^2 - 12c_s^2\omega_5\omega_2^3\omega_3^3 + \omega_5^2\omega_2^3\omega_3^2 + 6c_s^2\omega_5\omega_2^3\omega_3^2 + 42\omega_5\omega_2^2v_1^2\omega_3^3 + 6\omega_5^2\omega_2^3v_1^2\omega_3^2 - \omega_5^2\omega_2^3\omega_3^3 + 24\omega_5^2v_1^2\omega_3^3 + 12\omega_5\omega_2\omega_3^3 - 3\omega_5^2\omega_2^2\omega_3^2 + 42c_s^2\omega_5\omega_2^2\omega_3^3 - 36c_s^2\omega_5^2\omega_3^3 - 24c_s^2\omega_5^2\omega_2\omega_3^2 + 12\omega_5^2\omega_2v_1^2\omega_3^2 - 12\omega_5^2\omega_2^3v_1^2\omega_3 + 7\omega_5^2\omega_2^2\omega_3^3 + 6\omega_2^3v_1^2\omega_3^3 - 30\omega_5^2\omega_2v_1^2\omega_3^3 + 78c_s^2\omega_5^2\omega_2\omega_3^3 - 12c_s^2\omega_5\omega_2^2\omega_3^3 - 3\omega_5^2\omega_2^3\omega_3^3 + 6\omega_5\omega_2^2\omega_3^3 - 6\omega_5^2\omega_2\omega_3^3 + 6\omega_5^2\omega_2^3v_1^2 - 12\omega_5^2\omega_2^2v_1^2\omega_3^2 - 12\omega_5\omega_2^3v_1^2\omega_3^3 + 6c_s^2\omega_5^2\omega_3^3\omega_3 - 48c_s^2\omega_5^2\omega_2^2\omega_3^2 - 21\omega_5\omega_2^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^2\omega_3^3 + 42c_s^2\omega_5^2\omega_2^2\omega_3^2 - 24c_s^2\omega_5\omega_2\omega_3^3 + 6\omega_5^2\omega_2^2v_1^2\omega_3^3 + 6\omega_5\omega_2^3v_1^2\omega_3^2 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + 6c_s^2\omega_5^2\omega_2^2\omega_3^3 - 3\omega_5\omega_2^3\omega_3^2 + 6\omega_2^2\omega_3^3 - 12\omega_2^2v_1^2\omega_3^3 - 24\omega_5\omega_2v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^3\omega_3^2 + 6\omega_5^2\omega_2^2v_1^2\omega_3 + 6c_s^2\omega_2^3\omega_3^3 + 6\omega_5\omega_2^3\omega_3^3$$

$$C_{19} = -24\omega_5\omega_2^2v_1^2\omega_3^2 + 3\omega_5^2\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_5\omega_3^3\omega_3^3 + 2\omega_2^3\omega_3^2\omega_3^2 + 12c_s^2\omega_5\omega_2^3\omega_3^2 + 36\omega_5\omega_2^2v_1^2\omega_3^3 - \omega_5^2\omega_2^3\omega_3^3 + 24\omega_5^2v_1^2\omega_3^3 - 6\omega_5^2\omega_2^2\omega_3^2 + 36c_s^2\omega_5\omega_2^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 - 24c_s^2\omega_5^2\omega_2\omega_3^2 - 18\omega_5^2\omega_2^3v_1^2\omega_3 + 3\omega_5^2\omega_2^2\omega_3^3 + 6\omega_2^3v_1^2\omega_3^3 - 30\omega_5^2\omega_2v_1^2\omega_3^3 + 36c_s^2\omega_5^2\omega_2\omega_3^3 - 24c_s^2\omega_5\omega_2^2\omega_3^3 + 12\omega_5\omega_2^2\omega_3^2 + 12\omega_5^2\omega_2^2v_1^2\omega_3^2 - 12\omega_5\omega_2^3v_1^2\omega_3^3 + 6c_s^2\omega_5^2\omega_2^3\omega_3 - 32c_s^2\omega_5^2\omega_2^2\omega_3^3 - 6\omega_5\omega_2^2\omega_3^3 - 12c_s^2\omega_2^2\omega_3^3 + 48c_s^2\omega_5^2\omega_2^2\omega_3^2 - 12c_s^2\omega_5\omega_2\omega_3^3 + 12\omega_5\omega_2^3v_1^2\omega_3^2 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + 4c_s^2\omega_5^2\omega_2^3\omega_3^3 - 6\omega_5\omega_2^3\omega_3^2 - 12\omega_2^2v_1^2\omega_3^3 - 12\omega_5\omega_2v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^3\omega_3^2 + 6c_s^2\omega_2^3\omega_3^3 + 3\omega_5\omega_2^3\omega_3^3$$

$$C_{20} = -12c_s^2\omega_5\omega_2^3 + 48\omega_5\omega_2^2v_1^2 + 48c_s^2\omega_5\omega_2^2 + 24\omega_5\omega_2 + 6\omega_2^3v_1^2 - 12\omega_5\omega_2^3v_1^2 - 36c_s^2\omega_5\omega_2 - 36\omega_5\omega_2^2 - 12\omega_2^2v_1^2 + 9\omega_5\omega_2^3 + \omega_5^2\omega_2^3v_1^2 + 12\omega_5^2v_1^2 - \omega_5^2\omega_2^3 - 48c_s^2\omega_5^2 + 90c_s^2\omega_5^2\omega_2 + 11\omega_5^2\omega_2^2 - 44c_s^2\omega_5^2\omega_2^2 - 12\omega_5^2\omega_2 - 6\omega_2^3 - 8\omega_5^2\omega_2^2v_1^2 - 12c_s^2\omega_2^2 + 4c_s^2\omega_5^2\omega_2^3 + 6c_s^2\omega_2^3 + 12\omega_2^2 - 36\omega_5\omega_2v_1^2$$

$$C_{21} = 12\omega_2v_2^2\omega_6\omega_3 + 12c_s^2\omega_2\omega_6\omega_3 - 6c_s^2\omega_2\omega_3^3 - 30c_s^2\omega_2\omega_6\omega_3^2 + 12c_s^2\omega_2\omega_6^2 - 24\omega_2v_2^2\omega_6^2 + 12v_2^2\omega_6\omega_3^2 - 6\omega_2v_2^2\omega_3^3 + 12c_s^2\omega_6\omega_3^2 + 9\omega_2v_2^2\omega_6\omega_3^3 + 12c_s^2\omega_2\omega_3^2 + 9c_s^2\omega_2\omega_6\omega_3^3 - 6c_s^2\omega_6\omega_3^3 - 30\omega_2v_2^2\omega_6\omega_3^2 + 12\omega_2v_2^2\omega_3^2 - 6v_2^2\omega_6\omega_3^3 - 2c_s^2\omega_2\omega_6^2\omega_3^3 - 10\omega_2v_2^2\omega_6^2\omega_3^2 + 3c_s^2\omega_6^2\omega_3^3 - v_2^2\omega_6^2\omega_3^3 + 22c_s^2\omega_2\omega_6^2\omega_3^2 + 6v_2^2\omega_6^2\omega_3^2 + \omega_2v_2^2\omega_6^2\omega_3^3 - 18c_s^2\omega_6^2\omega_3^2 - 12v_2^2\omega_6^2\omega_3 + 12c_s^2\omega_6^2\omega_3 - 30c_s^2\omega_2\omega_6^2\omega_3 + 36\omega_2v_2^2\omega_6^2\omega_3$$

$$C_{22} = -6\omega_6\omega_3^3 - 12\omega_2^2\omega_6\omega_3 - 7\omega_2^2\omega_6\omega_3^3 + 12\omega_2^2\omega_6\omega_3^2 + 3\omega_2^3\omega_3^3 + 12\omega_2\omega_6\omega_3^3 - 6\omega_2^3\omega_3^2 - 6\omega_2\omega_6\omega_3^2 + 24\omega_2^3\omega_6\omega_3 - 10\omega_2^3\omega_6\omega_3^2 - 6\omega_2^2\omega_3^3 + \omega_2^3\omega_6\omega_3^3 + 12\omega_2^2\omega_3^2 - 12\omega_2^3\omega_6$$

$$C_{23} = 12c_s^2\omega_2^2\omega_2^2v_2^2\omega_6^2\omega_3^2 - 38\omega_5^2\omega_2v_2^2v_1^2\omega_6^2\omega_3^3 - 3\omega_5^2\omega_3^2v_2^2v_1^2\omega_6\omega_3^3 - 12c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3^2 - 8c_s^2\omega_5^2\omega_2v_1^2\omega_6^2\omega_3^2 + c_s^2\omega_5\omega_2^3\omega_6^2\omega_3^3 - 36\omega_5^2\omega_2^2v_2^2v_1^2\omega_6^2\omega_3^2 - 4c_s^2\omega_5^2v_2^2\omega_6^2\omega_3^3 + 4c_s^2\omega_5^2\omega_2^3v_2^2\omega_6^2\omega_3 + 10c_s^2\omega_5\omega_2^2v_2^2\omega_6^2\omega_3^3 + 10c_s^2\omega_5^2\omega_2^3v_1^2\omega_6\omega_3^2 + 4c_s^2\omega_5^2\omega_2v_1^2\omega_6^2\omega_3^3 + 4c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 - 2c_s^4\omega_5\omega_2^3\omega_6^2\omega_3^3 + 10\omega_5^2\omega_2^3v_2^2v_1^2\omega_6\omega_3^2 + 20\omega_5^2\omega_2v_2^2v_1^2\omega_6^2\omega_3^2 - 8c_s^2\omega_5^2\omega_2^2v_2^2\omega_6^2\omega_3^3 - 3c_s^2\omega_5^2\omega_2^3v_1^2\omega_6\omega_3^3 - 4c_s^2\omega_5\omega_2^2v_2^2\omega_6^2\omega_3^3 + 20\omega_5^2\omega_2^2v_2^2v_1^2\omega_6^2\omega_3^3 + 20\omega_5^2v_2^2v_1^2\omega_6^2\omega_3^3 + c_s^2\omega_5^2\omega_2^3v_2^2\omega_6^2\omega_3^3 + 2\omega_5^3v_2^2v_1^2\omega_6^2\omega_3^3 + 10\omega_5\omega_2^2v_2^2v_1^2\omega_6^2\omega_3^3 - 4\omega_5^2\omega_2^3v_2^2v_1^2\omega_6\omega_3 + 2c_s^2\omega_5\omega_2^3v_2^2\omega_6^2\omega_3^3 - 2c_s^4\omega_5^2\omega_2^3v_2^2\omega_6^2\omega_3^3 + 2c_s^2\omega_5^2\omega_2^2v_1^2\omega_6^2\omega_3^3 + 4\omega_5^2\omega_2^2v_2^2v_1^2\omega_6^2\omega_3^3 - 4c_s^2\omega_5^2\omega_2^3v_2^2v_1^2\omega_6^2\omega_3^2 + 20\omega_5^2\omega_2^3v_2^2v_1^2\omega_6^2\omega_3^2 - 2c_s^4\omega_5^2\omega_2^2\omega_6\omega_3^3 - 2c_s^4\omega_5^2\omega_2^3\omega_6^2\omega_3 - 2c_s^2\omega_5\omega_2^3v_1^2\omega_6^2\omega_3^2 - 4c_s^2\omega_5^2v_2^2\omega_6^2\omega_3^3 - 2c_s^2\omega_5^2\omega_2^2v_2^2\omega_6\omega_3^3 + 2\omega_5^2\omega_2^2v_2^2v_1^2\omega_6\omega_3^3 + c_s^2\omega_5^2\omega_2^3v_1^2\omega_6^2\omega_3^3 - 4\omega_5^2\omega_2^3v_2^2v_1^2\omega_6^2\omega_3^2 + 4c_s^2\omega_5^2\omega_2^2v_2^2v_1^2\omega_6\omega_3^3 - 4c_s^2\omega_5^2\omega_2^3v_2^2v_1^2\omega_6^2\omega_3 + 4c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 - 3\omega_5^2\omega_2^3v_2^2v_1^2\omega_6^2\omega_3^3 + 2c_s^2\omega_5^2\omega_2^3v_2^2v_1^2\omega_6^2\omega_3^3$$

$$C_{24} = -48\omega_2^2v_2^2\omega_6^2\omega_3^2 - 12\omega_2^3v_2^2\omega_3^2 - 78\omega_2^3v_2^2\omega_6^2\omega_3 - 6c_s^2\omega_2^3\omega_6\omega_3^3 + 22\omega_2^2v_2^2\omega_6^2\omega_3^3 + 6\omega_2^3v_2^2\omega_3^3 + 48\omega_2^3v_2^2\omega_6^2 + 24c_s^2\omega_2^3\omega_6\omega_3^2 - 6c_s^2\omega_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_6\omega_3 - 4\omega_2^3v_2^2\omega_6^2\omega_3^3 + 34\omega_2^3v_2^2\omega_6^2\omega_3^2 + 12c_s^2\omega_2^2\omega_6^2\omega_3^2 + 24\omega_2^2v_2^2\omega_6^2\omega_3 + 24\omega_2^3v_2^2\omega_6\omega_3^2 + 6c_s^2\omega_2\omega_6^2\omega_3^3 + 24\omega_2v_2^2\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2\omega_6^2\omega_3^2 - 6\omega_2^3v_2^2\omega_6\omega_3^3 + 24c_s^2\omega_2^3\omega_6^2\omega_3 - 30\omega_2v_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_3^2 - 14c_s^2\omega_2^3\omega_6^2\omega_3^2 + c_s^2\omega_2^3\omega_6^2\omega_3^3 - 12\omega_2^3v_2^2\omega_6\omega_3 - 12c_s^2\omega_2^3\omega_6^2 + 6c_s^2\omega_2^3\omega_3^3$$

$$C_{25} = -4\omega_5^2\omega_2^3v_1^2\omega_3^3 - 6c_s^2\omega_5\omega_2^3\omega_3^3 + 24\omega_5\omega_2^2v_1^2\omega_3^3 + 22\omega_5^2\omega_2^3v_1^2\omega_3^2 + 48\omega_5^2v_1^2\omega_3^3 + 24c_s^2\omega_5\omega_2^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 + 24\omega_5^2\omega_2v_1^2\omega_3^2 - 30\omega_5^2\omega_2^3v_1^2\omega_3 + 6\omega_2^3v_1^2\omega_3^3 - 78\omega_5^2\omega_2v_1^2\omega_3^3 + 24c_s^2\omega_5^2\omega_2\omega_3^3 + 12\omega_5^2\omega_2^3v_1^2 - 48\omega_5^2\omega_2^2v_1^2\omega_3^2 - 6\omega_5\omega_2^3v_1^2\omega_3^3 + 6c_s^2\omega_5^2\omega_2^3\omega_3 - 14c_s^2\omega_5^2\omega_2^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^3\omega_3^2 + 12c_s^2\omega_5^2\omega_2^2\omega_3^2 - 12c_s^2\omega_5\omega_2\omega_3^3 + 34\omega_5^2\omega_2^2v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + c_s^2\omega_5^2\omega_2^3\omega_3^3 - 12\omega_2^2v_1^2\omega_3^3 - 12\omega_5\omega_2v_1^2\omega_3^3 - 6c_s^2\omega_5^2\omega_2^3\omega_3^2 + 24\omega_5^2\omega_2^2v_1^2\omega_3 + 6c_s^2\omega_2^3\omega_3^3$$

$$C_{26} = -9\omega_6\omega_3^3 + 48v_2^2\omega_6\omega_3 + 36\omega_6\omega_3^2 + 24c_s^2\omega_6\omega_3 - 12\omega_3^2 + 24c_s^2\omega_6^2 - 6c_s^2\omega_3^3 - 24\omega_6\omega_3 - 60v_2^2\omega_6\omega_3^2 - 36c_s^2\omega_6\omega_3^2 + 12c_s^2\omega_3^2 + 6\omega_3^3 + 9c_s^2\omega_6\omega_3^3 + 15v_2^2\omega_6\omega_3^3 - 2c_s^2\omega_6^2\omega_3^3 - 3v_2^2\omega_6^2\omega_3^3 + 27v_2^2\omega_6^2\omega_3^2 + 12\omega_6^2\omega_3 + 25c_s^2\omega_6^2\omega_3^2 - 11\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2 - 42v_2^2\omega_6^2\omega_3 - 48c_s^2\omega_6^2\omega_3 - 6v_2^2\omega_3^3 + 12v_2^2\omega_3^2 + \omega_6^2\omega_3^3$$

$$C_{27} = -\omega_2^3\omega_6^2\omega_3^3 - 12\omega_2^2v_2^2\omega_6^2\omega_3^2 - 12\omega_2^3v_2^2\omega_3^2 - 30\omega_2^3v_2^2\omega_6^2\omega_3 - 12c_s^2\omega_2^3\omega_6\omega_3^3 - 24c_s^2\omega_2^2\omega_6^2\omega_3 + 6\omega_2^2v_2^2\omega_6^2\omega_3^3 + 6\omega_2^3v_2^2\omega_3^3 + 24\omega_2^3v_2^2\omega_6^2 + 7\omega_2^3\omega_6^2\omega_3^2 + 42c_s^2\omega_2^3\omega_6\omega_3^2 - 12c_s^2\omega_2^2\omega_6^2\omega_3^3 - 24c_s^2\omega_2^3\omega_6\omega_3 - 3\omega_2^2\omega_6\omega_3^3 - 6\omega_2^3\omega_6^2\omega_3 + 6\omega_2^3v_2^2\omega_6^2\omega_3^2 + 42c_s^2\omega_2^2\omega_6^2\omega_3^2 + 6\omega_2^2\omega_6\omega_3^2 + 12\omega_2^2v_2^2\omega_6^2\omega_3 + 42\omega_2^3v_2^2\omega_6\omega_3^2 - 3\omega_2^3\omega_3^3 + 6c_s^2\omega_2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^2\omega_6\omega_3^2 + 6\omega_2v_2^2\omega_6^2\omega_3^2 + 6v_2^2\omega_6^2\omega_3^3 - 3\omega_2^2\omega_6^2\omega_3^2 + 6c_s^2\omega_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2\omega_6^2\omega_3^2 + 6\omega_2^2\omega_3^2 - 12\omega_2^3v_2^2\omega_6\omega_3^3 + 78c_s^2\omega_2^3\omega_6^2\omega_3 + \omega_2^2\omega_6^2\omega_3^3 - 12\omega_2v_2^2\omega_6^2\omega_3^3 + 12\omega_2^3\omega_6\omega_3 + 6\omega_2^2v_2^2\omega_6\omega_3^3 - 21\omega_2^3\omega_6\omega_3^2 - 12c_s^2\omega_2^3\omega_3^2 - 48c_s^2\omega_2^3\omega_6^2\omega_3^2 + 6\omega_2^3\omega_6\omega_3^3 - 12\omega_2^2v_2^2\omega_6\omega_3^2 + 6c_s^2\omega_2^3\omega_6^2\omega_3^3 - 24\omega_2^3v_2^2\omega_6\omega_3 - 36c_s^2\omega_2^3\omega_6^2 + 6c_s^2\omega_2^3\omega_3^3$$

$$C_{28} = 9\omega_6\omega_3^3 - 36v_2^2\omega_6\omega_3 - 36\omega_6\omega_3^2 - 36c_s^2\omega_6\omega_3 + 12\omega_3^2 - 48c_s^2\omega_6^2 + 6c_s^2\omega_3^3 + 24\omega_6\omega_3 + 48v_2^2\omega_6\omega_3^2 + 48c_s^2\omega_6\omega_3^2 - 12c_s^2\omega_3^2 - 6\omega_3^3 - 12c_s^2\omega_6\omega_3^3 - 12v_2^2\omega_6\omega_3^3 + 4c_s^2\omega_6^2\omega_3^3 + v_2^2\omega_6^2\omega_3^3 - 8v_2^2\omega_6^2\omega_3^2 - 12\omega_6^2\omega_3 - 44c_s^2\omega_6^2\omega_3^2 + 11\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2 + 90c_s^2\omega_6^2\omega_3 + 6v_2^2\omega_3^3 - 12v_2^2\omega_3^2 - \omega_6^2\omega_3^3$$

$$C_{29} = -\omega_2^3\omega_6^2\omega_3^3 + 12\omega_2^2v_2^2\omega_6^2\omega_3^2 - 12\omega_2^3v_2^2\omega_3^2 - 30\omega_2^3v_2^2\omega_6^2\omega_3 - 12c_s^2\omega_2^3\omega_6\omega_3^3 - 24c_s^2\omega_2^2\omega_6^2\omega_3 + 6\omega_2^3v_2^2\omega_3^3 + 24\omega_2^3v_2^2\omega_6^2 + 3\omega_2^3\omega_6^2\omega_3^2 + 36c_s^2\omega_2^3\omega_6\omega_3^2 - 12c_s^2\omega_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_6\omega_3 + 3\omega_2^3v_2^2\omega_6^2\omega_3^3 - 6\omega_2^2\omega_6\omega_3^3 + 48c_s^2\omega_2^2\omega_6^2\omega_3^2 + 12\omega_2^2\omega_6\omega_3^2 + 36\omega_2^3v_2^2\omega_6\omega_3^2 + 6c_s^2\omega_2\omega_6^2\omega_3^3 - 24c_s^2\omega_2^2\omega_6\omega_3^2 + 12v_2^2\omega_6^2\omega_3^3 - 6\omega_2^2\omega_6^2\omega_3^2 + 12c_s^2\omega_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2\omega_6^2\omega_3^3 - 12\omega_2^3v_2^2\omega_6\omega_3^3 + 36c_s^2\omega_2^3\omega_6^2\omega_3 + 2\omega_2^2\omega_6^2\omega_3^3 - 18\omega_2v_2^2\omega_6^2\omega_3^3 + 12\omega_2^2v_2^2\omega_6\omega_3^3 - 6\omega_2^3\omega_6\omega_3^2 - 12c_s^2\omega_2^3\omega_3^2 - 32c_s^2\omega_2^3\omega_6^2\omega_3^2 + 3\omega_2^3\omega_6\omega_3^3 - 24\omega_2^2v_2^2\omega_6\omega_3^2 + 4c_s^2\omega_2^3\omega_6^2\omega_3^3 - 12\omega_2^3v_2^2\omega_6\omega_3 - 12c_s^2\omega_2^3\omega_6^2 + 6c_s^2\omega_2^3\omega_3^3$$

$$C_{30} = 72v_2^4\omega_6\omega_3^2 - 24c_s^4\omega_6\omega_3^2 + 48v_2^2\omega_6\omega_3 - 24c_s^2\omega_6\omega_3 + 156c_s^2v_2^2\omega_6^2\omega_3 + 6c_s^4\omega_6\omega_3^3 - 18v_2^4\omega_6\omega_3^3 - 24v_2^4\omega_3^2 - 72c_s^2v_2^2\omega_6^2\omega_3^2 - 72v_2^2\omega_6\omega_3^2 + 24c_s^2\omega_6\omega_3^2 - 48v_2^4\omega_6\omega_3 + 12v_2^4\omega_3^3 + 24c_s^4\omega_6\omega_3 + 6c_s^2v_2^2\omega_6^2\omega_3^3 - 6c_s^2\omega_6\omega_3^3 + 18v_2^2\omega_6\omega_3^3 + 24v_2^4\omega_6^2\omega_3 - 12c_s^2v_2^2\omega_6\omega_3^3 - 48c_s^4\omega_6^2\omega_3 + c_s^2\omega_6^2\omega_3^3 - 3v_2^2\omega_6^2\omega_3^3 - 24c_s^2v_2^2\omega_3^3 + 48c_s^2v_2^2\omega_6\omega_3^2 + 12c_s^2v_2^2\omega_3^3 + 24v_2^2\omega_6^2\omega_3^2 - 96c_s^2v_2^2\omega_6^2 - 8c_s^2\omega_6^2\omega_3^2 - 24v_2^2\omega_6^2\omega_3 + 12c_s^2\omega_6^2\omega_3 - 12v_2^2\omega_3^3 - 3c_s^4\omega_6^2\omega_3^3 - 24c_s^2v_2^2\omega_6\omega_3 + 3v_2^4\omega_6^2\omega_3^3 + 24v_2^2\omega_3^2 + 24c_s^4\omega_6^2 - 24v_2^4\omega_6^2\omega_3^2 + 24c_s^4\omega_6^2\omega_3^2$$

$$C_{31} = 6\omega_6\omega_3^3 - 12v_2^2\omega_6\omega_3 - 24\omega_6\omega_3^2 - 12c_s^2\omega_6\omega_3 + 12\omega_3^2 - 24c_s^2\omega_6^2 + 6c_s^2\omega_3^3 + 12\omega_6\omega_3 + 24v_2^2\omega_6\omega_3^2 + 24c_s^2\omega_6\omega_3^2 - 12c_s^2\omega_3^2 - 6\omega_3^3 - 6c_s^2\omega_6\omega_3^3 - 6v_2^2\omega_6\omega_3^3 + c_s^2\omega_6^2\omega_3^3 + 2v_2^2\omega_6^2\omega_3^3 - 16v_2^2\omega_6^2\omega_3^2 - 6\omega_6^2\omega_3 - 20c_s^2\omega_6^2\omega_3^2 + 8\omega_6^2\omega_3^2 - 12v_2^2\omega_6^2 + 24v_2^2\omega_6^2\omega_3 + 42c_s^2\omega_6^2\omega_3 + 6v_2^2\omega_3^3 - 12v_2^2\omega_3^2 - \omega_6^2\omega_3^3$$

$$C_{32} = -12\omega_4^2\omega_5\omega_2 - 7\omega_4^2\omega_5\omega_2^2 + 12\omega_4^2\omega_5\omega_2^2 - 6\omega_5\omega_2^3 + 3\omega_4^3\omega_2^2 + 12\omega_4\omega_5\omega_2^3 - 12\omega_4^3\omega_5 - 6\omega_4^3\omega_2^2 + 24\omega_4^3\omega_5\omega_2 - 6\omega_4\omega_5\omega_2^2 - 10\omega_4^3\omega_5\omega_2^2 - 6\omega_4^2\omega_2^2 + \omega_4^3\omega_5\omega_2^3 + 12\omega_4^2\omega_2^2$$

$$C_{33} = 22\omega_4c_s^2\omega_5^2\omega_2^2 - 6c_s^2\omega_5\omega_2^3 - 6\omega_4c_s^2\omega_2^3 - 10\omega_4\omega_5^2\omega_2^2v_1^2 + 12\omega_5\omega_2^2v_1^2 + 12c_s^2\omega_5\omega_2^2 - 2\omega_4c_s^2\omega_5^2\omega_2^3 - 12\omega_5^2\omega_2v_1^2 + 12\omega_4c_s^2\omega_2^2 + 12\omega_4\omega_5\omega_2v_1^2 - 6\omega_5\omega_2^3v_1^2 + 12\omega_4c_s^2\omega_5^2 + \omega_4\omega_5^2\omega_2^3v_1^2 - 30\omega_4c_s^2\omega_5^2\omega_2 - 24\omega_4\omega_5^2v_1^2 + 12\omega_4\omega_2^2v_1^2 + 9\omega_4\omega_5\omega_2^3v_1^2 - \omega_5^2\omega_2^3v_1^2 + 12\omega_4c_s^2\omega_5\omega_2 + 12c_s^2\omega_5^2\omega_2 - 18c_s^2\omega_5^2\omega_2^2 + 9\omega_4c_s^2\omega_5\omega_2^3 + 6\omega_5^2\omega_2^2v_1^2 - 30\omega_4\omega_5\omega_2^2v_1^2 - 6\omega_4\omega_2^3v_1^2 - 30\omega_4c_s^2\omega_5\omega_2^2 + 3c_s^2\omega_5^2\omega_2^3 + 36\omega_4\omega_5^2\omega_2v_1^2$$

$$C_{34} = -12\omega_4c_s^2\omega_5^2\omega_2^2 - 30\omega_4^3\omega_5^2\omega_2v_1^2 - \omega_4^3\omega_5^2\omega_2^3 + 24\omega_4^3\omega_5^2v_1^2 + 42\omega_4^3c_s^2\omega_5\omega_2^2 + 6\omega_4\omega_5^2\omega_2^2v_1^2 + 6\omega_4^2\omega_5\omega_2^3v_1^2 + 7\omega_4^3\omega_5^2\omega_2^2 + 42\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_2^2 - 36\omega_4^3c_s^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5\omega_2^3 - 12\omega_4^2\omega_5\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_2^2 - 12\omega_4\omega_5^2\omega_2^3v_1^2 - 6\omega_4^3\omega_5^2\omega_2 + 6\omega_4^2c_s^2\omega_5\omega_2^3 - 3\omega_4^2\omega_5\omega_2^3 - 24\omega_4^3c_s^2\omega_5\omega_2 + 6\omega_4^3c_s^2\omega_2^3 + 12\omega_4^2\omega_5^2\omega_2v_1^2 + 6\omega_4^2\omega_5\omega_2^2 - 12\omega_4^3\omega_5\omega_2^3v_1^2 - 12\omega_4^2c_s^2\omega_5\omega_2^2 - 3\omega_4^3\omega_2^3 + 78\omega_4^3c_s^2\omega_5^2\omega_2 - 12\omega_4^2\omega_5^2\omega_2^2v_1^2 + 6\omega_5^2\omega_2^3v_1^2 - 3\omega_4^2\omega_5^2\omega_2^2 + 42\omega_4^2c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3\omega_2^3v_1^2 + 6\omega_4^3\omega_2^2 + 12\omega_4^3\omega_5\omega_2 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 + \omega_4^2\omega_5^2\omega_2^3 - 21\omega_4^3\omega_5\omega_2^2 - 24\omega_4^3\omega_5\omega_2v_1^2 + 6\omega_4^2\omega_5^2\omega_2^2v_1^2 + 6\omega_4^3c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3\omega_5^2\omega_2^2v_1^2 + 6\omega_4^3\omega_5\omega_2^3 - 24\omega_4^2c_s^2\omega_5^2\omega_2 - 48\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3\omega_2^2v_1^2$$

$$C_{35} = -12\omega_4c_s^2\omega_5^2\omega_2^2 - 30\omega_4^3\omega_5^2\omega_2v_1^2 - \omega_4^3\omega_5^2\omega_2^3 + 24\omega_4^3\omega_5^2v_1^2 + 36\omega_4^3c_s^2\omega_5\omega_2^2 + 12\omega_4^2\omega_5\omega_2^2v_1^2 + 3\omega_4^3\omega_5^2\omega_2^2 + 36\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_2^3 - 12\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3c_s^2\omega_5\omega_2^3 - 24\omega_4^2\omega_5\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_2^2 - 18\omega_4\omega_5^2\omega_2^3v_1^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 - 6\omega_4^2\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_5\omega_2 + 6\omega_4^3c_s^2\omega_2^3 + 12\omega_4^2\omega_5\omega_2^2 - 12\omega_4^3\omega_5\omega_2^3v_1^2 - 24\omega_4^2c_s^2\omega_5\omega_2^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 + 12\omega_4^2\omega_5^2\omega_2^2v_1^2 + 12\omega_5^2\omega_2^3v_1^2 - 6\omega_4^2\omega_5^2\omega_2^2 + 48\omega_4^2c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3\omega_2^3v_1^2 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 + 3\omega_4^3\omega_5^2\omega_2^3v_1^2 + 2\omega_4^2\omega_5^2\omega_2^3 - 6\omega_4^3\omega_5\omega_2^2 - 12\omega_4^3\omega_5\omega_2v_1^2 + 4\omega_4^3c_s^2\omega_5^2\omega_2^3 + 3\omega_4^3\omega_5\omega_2^3 - 24\omega_4^2c_s^2\omega_5^2\omega_2 - 32\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3\omega_2^2v_1^2$$

$$C_{36} = -12c_s^2\omega_5\omega_2^3 + 48\omega_5\omega_2^2v_1^2 + 48c_s^2\omega_5\omega_2^2 + 24\omega_5\omega_2 + 6\omega_2^3v_1^2 - 12\omega_5\omega_2^3v_1^2 - 36c_s^2\omega_5\omega_2 - 36\omega_5\omega_2^2 - 12\omega_2^2v_1^2 + 9\omega_5\omega_2^3 + \omega_5^2\omega_2^3v_1^2 + 12\omega_5^2v_1^2 - \omega_5^2\omega_2^3 - 48c_s^2\omega_5^2 + 90c_s^2\omega_5^2\omega_2 + 11\omega_5^2\omega_2^2 - 44c_s^2\omega_5^2\omega_2^2 - 12\omega_5^2\omega_2 - 6\omega_2^3 - 8\omega_5^2\omega_2^2v_1^2 - 12c_s^2\omega_2^2 + 4c_s^2\omega_5^2\omega_2^3 + 6c_s^2\omega_2^3 + 12\omega_2^2 - 36\omega_5\omega_2v_1^2$$

$$C_{37} = 12\omega_4^3\omega_3^2 - 16\omega_4^2\omega_2\omega_3^3 - 6\omega_2\omega_3^3 + 30\omega_4^2\omega_2\omega_3^2 - 4\omega_4^3\omega_3^3 - 12\omega_4^2\omega_2\omega_3 - 12\omega_4^2\omega_3^2 - 6\omega_4^3\omega_3 + 12\omega_4^2\omega_3^2 - 6\omega_4\omega_3^3 - 16\omega_4^3\omega_2\omega_3^2 + 3\omega_4^3\omega_2\omega_3^3 + 18\omega_4\omega_2\omega_3^3 - 6\omega_4^3\omega_2 - 12\omega_4\omega_2\omega_3^2 + 18\omega_4^3\omega_2\omega_3$$

$$C_{38} = -16\omega_4^3\omega_2^2\omega_3 + 18\omega_4\omega_2^3\omega_3 - 6\omega_4\omega_2^3 + 3\omega_4^3\omega_2^3\omega_3 - 12\omega_4^2\omega_2\omega_3 - 6\omega_4^3\omega_3 - 12\omega_4\omega_2^2\omega_3 - 4\omega_4^3\omega_2^3 + 12\omega_4^3\omega_2^2 + 30\omega_4^2\omega_2^2\omega_3 - 6\omega_2^3\omega_3 + 12\omega_4^2\omega_2^3 - 6\omega_4^3\omega_2 - 16\omega_4^2\omega_2^3\omega_3 - 12\omega_4^2\omega_2^2 + 18\omega_4^3\omega_2\omega_3$$

$$C_{39} = 30\omega_4\omega_2^2\omega_3^2 + 18\omega_4\omega_2^3\omega_3 - 6\omega_2\omega_3^3 - 16\omega_4\omega_2^2\omega_3^3 - 6\omega_4\omega_2^3 - 16\omega_4\omega_2^3\omega_3^2 - 12\omega_4\omega_2^2\omega_3 + 3\omega_4\omega_2^3\omega_3^3 - 6\omega_4\omega_3^3 - 4\omega_2^3\omega_3^3 + 12\omega_2^2\omega_3^2 - 6\omega_2^3\omega_3 + 18\omega_4\omega_2\omega_3^3 + 12\omega_2^2\omega_3^3 - 12\omega_2^2\omega_3^2 - 12\omega_4\omega_2\omega_3^2$$

$$C_{40} = -2\omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^2 + 3\omega_5^2\omega_2^3v_1^2\omega_3^3 + 10\omega_4^3\omega_5^2v_1^2\omega_3^3 - 12\omega_4^2\omega_5^2\omega_2^2v_1^2\omega_3^3 + 6\omega_4^3c_s^2\omega_5^2\omega_2\omega_3^3 - 21\omega_4^3\omega_5^2\omega_2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5\omega_2^2\omega_3^3 - 2\omega_4c_s^2\omega_5^2\omega_2^2\omega_3^3 + \omega_4^2\omega_5\omega_2^3v_1^2\omega_3^3 + 4\omega_4^2\omega_5^2\omega_2^2v_1^2\omega_3^3 + 6\omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^3 - 8\omega_4^3\omega_5^2\omega_2^3v_1^2\omega_3 + 4\omega_4\omega_5^2\omega_2^2v_1^2\omega_3^3 + 6\omega_4^3c_s^2\omega_5\omega_2^2\omega_3^3 + 7\omega_4^3\omega_5^2\omega_2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_2\omega_3^3 + \omega_4c_s^2\omega_5^2\omega_2^3\omega_3^3 + 6\omega_4^3\omega_5\omega_2^2v_1^2\omega_3^3 + 7\omega_4^3\omega_5^2\omega_2^3v_1^2\omega_3^3 + \omega_4^3c_s^2\omega_5\omega_2^3\omega_3^3 + \omega_4^2c_s^2\omega_5^2\omega_2^3\omega_3^3 + \omega_4^3\omega_2^3v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5\omega_2^3\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_2^3\omega_3^3 - 2\omega_4^3\omega_5\omega_2^2v_1^2\omega_3^3 - 2\omega_4^3\omega_5^2\omega_2^3v_1^2\omega_3^3 - 2\omega_4^2c_s^2\omega_5^2\omega_2^3\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_2^3\omega_3^3 + 4\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3 - 8\omega_4\omega_5^2\omega_2^3v_1^2\omega_3^3 - 2\omega_4^3\omega_5\omega_2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_2^2\omega_3^3 - 8\omega_4^2\omega_5^2\omega_2^3v_1^2\omega_3^2 -$$

$$2\omega_4^2\omega_5\omega_2^2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3 + \omega_4^3c_s^2\omega_5^2\omega_2^3\omega_3^3 + 3\omega_4\omega_5^2\omega_2^3v_1^2\omega_3^3 + 7\omega_4^2\omega_5^2\omega_2^3v_1^2\omega_3^3 + \omega_4^2c_s^2\omega_5\omega_2^3\omega_3^3 + 3\omega_4^3\omega_5^2\omega_2^3v_1^2 + \omega_4^3c_s^2\omega_2^3\omega_3^3 + 7\omega_4^2\omega_5^2\omega_2v_1^2\omega_3^3 - 2\omega_4^2c_s^2\omega_5^2\omega_2\omega_3^3 + 6\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3^2 + 12\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5\omega_2\omega_3^3 + \omega_4^3\omega_5\omega_2^3v_1^2\omega_3^2 - 2\omega_4^2c_s^2\omega_5\omega_2^2\omega_3^3 - 2\omega_4^3\omega_2^2v_1^2\omega_3^3 + 3\omega_4^2\omega_5^2\omega_2^3v_1^2\omega_3 - 12\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3^2 + \omega_4^3c_s^2\omega_5^2\omega_2^3\omega_3 - 2\omega_4^3\omega_5\omega_2^3v_1^2\omega_3^3 - 6\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3^3$$

$$C_{41} = 18\omega_4^2\omega_2\omega_3^3 + 6\omega_4^3\omega_2^2\omega_3 - 5\omega_4^3\omega_2^3\omega_3^3 + 24\omega_4^3\omega_2^3\omega_3^2 + 6\omega_4\omega_2^2\omega_3^3 + 12\omega_4^3\omega_3^3 - 30\omega_4^3\omega_2^3\omega_3 + 28\omega_4^3\omega_2^2\omega_3^3 + 18\omega_4\omega_2^3\omega_3^2 - 30\omega_4\omega_2^3\omega_3^3 - 30\omega_4^3\omega_2^2\omega_3^3 + 12\omega_4^3\omega_2^3 - 42\omega_4^2\omega_2^3\omega_3^2 + 12\omega_2^3\omega_3^3 + 18\omega_4^3\omega_2\omega_3^2 - 36\omega_4^3\omega_2\omega_3^3 + 24\omega_4^2\omega_2^2\omega_3^3 + 12\omega_4^2\omega_2^2\omega_3^2 - 30\omega_4^2\omega_2^2\omega_3^3 + 18\omega_4^2\omega_2^3\omega_3$$

$$C_{42} = -12\omega_4c_s^2\omega_5^2\omega_2^2 - 90\omega_4^3\omega_5^2\omega_2v_1^2 + 48\omega_4^3\omega_5^2v_1^2 + 36\omega_4^3c_s^2\omega_5\omega_2^2 + 24\omega_4\omega_5^2\omega_2^2v_1^2 + 12\omega_4^2\omega_5\omega_2^3v_1^2 + 36\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3c_s^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5\omega_2^3 - 24\omega_4^2\omega_5\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_2^3 - 30\omega_4\omega_5^2\omega_2^3v_1^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 - 12\omega_4^3c_s^2\omega_5\omega_2 + 6\omega_4^3c_s^2\omega_2^3 + 48\omega_4^2\omega_5^2\omega_2v_1^2 - 12\omega_4^3\omega_5\omega_2^3v_1^2 - 24\omega_4^2c_s^2\omega_5\omega_2^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 - 60\omega_4^2\omega_5^2\omega_2^2v_1^2 + 12\omega_5^2\omega_2^3v_1^2 + 48\omega_4^2c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3\omega_2^3v_1^2 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 - 5\omega_4^3\omega_5^2\omega_2^3v_1^2 - 12\omega_4^3\omega_5\omega_2v_1^2 + 24\omega_4^2\omega_5^2\omega_2^3v_1^2 + 4\omega_4^3c_s^2\omega_5^2\omega_2^3 + 40\omega_4^3\omega_5^2\omega_2^2v_1^2 - 24\omega_4^2c_s^2\omega_5^2\omega_2 - 32\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3\omega_2^2v_1^2$$

$$C_{43} = -24\omega_5\omega_2^2v_1^2\omega_3^2 - 5\omega_5^2\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_5\omega_2^3\omega_3^3 + 12c_s^2\omega_5\omega_2^3\omega_3^2 + 36\omega_5\omega_2^2v_1^2\omega_3^3 + 24\omega_5^2\omega_2^3v_1^2\omega_3^2 + 48\omega_5^2v_1^2\omega_3^3 + 36c_s^2\omega_5\omega_2^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 - 24c_s^2\omega_5^2\omega_2\omega_3^3 + 48\omega_5^2\omega_2v_1^2\omega_3^2 - 30\omega_5^2\omega_2^3v_1^2\omega_3 + 6\omega_5^2v_1^2\omega_3^3 - 90\omega_5^2\omega_2v_1^2\omega_3^3 + 36c_s^2\omega_5^2\omega_2\omega_3^3 - 24c_s^2\omega_5\omega_2^2\omega_3^3 + 12\omega_5^2\omega_2^3v_1^2 - 60\omega_5^2\omega_2^2v_1^2\omega_3^2 - 12\omega_5\omega_2^3v_1^2\omega_3^3 + 6c_s^2\omega_5^2\omega_2^3\omega_3 - 32c_s^2\omega_5^2\omega_2^2\omega_3^3 - 12c_s^2\omega_2^2\omega_3^3 + 48c_s^2\omega_5^2\omega_2^2\omega_3^2 - 12c_s^2\omega_5\omega_2\omega_3^3 + 40\omega_5^2\omega_2^2v_1^2\omega_3^3 + 12\omega_5\omega_2^3v_1^2\omega_3^2 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + 4c_s^2\omega_5^2\omega_2^3\omega_3^3 - 12\omega_2^2v_1^2\omega_3^3 - 12\omega_5\omega_2v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^3\omega_3^2 + 24\omega_5^2\omega_2^2v_1^2\omega_3 + 6c_s^2\omega_2^3\omega_3^3$$

$$C_{44} = 12\omega_4^2\omega_6\omega_3^2 - 6\omega_6\omega_3^3 - 6\omega_4^3\omega_3^2 - 7\omega_4^2\omega_6\omega_3^3 + 3\omega_4^3\omega_3^3 - 12\omega_4^3\omega_6 + 12\omega_4^2\omega_3^2 - 6\omega_4^2\omega_3^3 - 12\omega_4^2\omega_6\omega_3 + \omega_4^3\omega_6\omega_3^3 - 10\omega_4^3\omega_6\omega_3^2 - 6\omega_4\omega_6\omega_3^2 + 24\omega_4^3\omega_6\omega_3 + 12\omega_4\omega_6\omega_3^3$$

$$C_{45} = 36\omega_4v_2^2\omega_6^2\omega_3 + 12\omega_4v_2^2\omega_3^2 - 30\omega_4c_s^2\omega_6^2\omega_3 - 24\omega_4v_2^2\omega_6^2 - 6\omega_4v_2^2\omega_3^2 - 2\omega_4c_s^2\omega_6^2\omega_3^2 + 12v_2^2\omega_6\omega_3^2 + 12c_s^2\omega_6\omega_3^2 + \omega_4v_2^2\omega_6^2\omega_3^2 - 10\omega_4v_2^2\omega_6^2\omega_3^2 - 6c_s^2\omega_6\omega_3^3 - 6v_2^2\omega_6\omega_3^2 + 22\omega_4c_s^2\omega_6^2\omega_3^2 + 12\omega_4c_s^2\omega_3^2 - 30\omega_4v_2^2\omega_6\omega_3^2 + 3c_s^2\omega_6^2\omega_3^2 - v_2^2\omega_6^2\omega_3^2 - 30\omega_4c_s^2\omega_6\omega_3^2 + 12\omega_4c_s^2\omega_6^2 - 6\omega_4c_s^2\omega_3^2 + 9\omega_4c_s^2\omega_6\omega_3^2 + 6v_2^2\omega_6^2\omega_3^2 - 18c_s^2\omega_6^2\omega_3^2 + 9\omega_4v_2^2\omega_6\omega_3^2 - 12v_2^2\omega_6^2\omega_3 + 12c_s^2\omega_6^2\omega_3 + 12\omega_4v_2^2\omega_6\omega_3 + 12\omega_4c_s^2\omega_6\omega_3$$

$$C_{46} = 6\omega_4^3c_s^2\omega_2^2\omega_6^2\omega_3^2 + 12\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3^2 + 3\omega_4^2\omega_2v_2^2\omega_6^2\omega_3^3 + 7\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3 + \omega_4^3\omega_2^3v_2^2\omega_3^3 + \omega_4^2\omega_2^3v_2^2\omega_6\omega_3^3 + 10\omega_4^3\omega_2^3v_2^2\omega_6^2 - 2\omega_4^2c_s^2\omega_2^3\omega_6^2\omega_3 - 2\omega_4^3c_s^2\omega_2^3\omega_6\omega_3 - 2\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3^2 - 2\omega_4^3c_s^2\omega_2^2\omega_6^2\omega_3^2 - 2\omega_4^2\omega_2^3v_2^2\omega_6\omega_3^2 - 2\omega_4^3\omega_2^3v_2^2\omega_3^2 - 2\omega_4^2c_s^2\omega_2^3\omega_6^2\omega_3^2 + 7\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3^2 + 3\omega_2^3v_2^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_2^3\omega_6\omega_3^2 - 2\omega_4c_s^2\omega_2^3\omega_6^2\omega_3^2 - 12\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3^2 + 6\omega_4^2c_s^2\omega_2^3\omega_6^2\omega_3^2 + \omega_4c_s^2\omega_2^3\omega_6^2\omega_3^2 - 2\omega_4^3c_s^2\omega_2^2\omega_6^2\omega_3 - 21\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3 - 2\omega_4^3c_s^2\omega_2^3\omega_6\omega_3^2 - 2\omega_4^3\omega_2^2v_2^2\omega_6\omega_3^2 - 2\omega_4^2c_s^2\omega_2^3\omega_6\omega_3^2 - 8\omega_4^2\omega_2^2v_2^2\omega_6^2\omega_3^2 + \omega_4^3c_s^2\omega_2^3\omega_6^2\omega_3^2 - 2\omega_4^3\omega_2^3v_2^2\omega_6\omega_3 + 7\omega_4^2\omega_2^3v_2^2\omega_6^2\omega_3 + 3\omega_4\omega_2^2v_2^2\omega_6^2\omega_3^2 + \omega_4^2c_s^2\omega_2^3\omega_6\omega_3^2 + 3\omega_4^3v_2^2\omega_6^2\omega_3^2 + \omega_4^3\omega_2^2v_2^2\omega_6\omega_3^2 - 6\omega_4^3c_s^2\omega_2^3\omega_6^2\omega_3^2 + 4\omega_4^2\omega_2^2v_2^2\omega_6^2\omega_3^2 - 2\omega_4^3\omega_2^3v_2^2\omega_6\omega_3^2 - 2\omega_4^3c_s^2\omega_2^3\omega_6^2 + 6\omega_4^3c_s^2\omega_2^3\omega_6^2\omega_3 + \omega_4^3c_s^2\omega_2^3\omega_3^3 + \omega_4^3c_s^2\omega_2^3\omega_6\omega_3^2 - 8\omega_4\omega_2^3v_2^2\omega_6^2\omega_3^2 - 2\omega_4^3c_s^2\omega_2\omega_6^2\omega_3^2 - 8\omega_4^3\omega_2v_2^2\omega_6^2\omega_3^2 - 12\omega_4^2\omega_2^3v_2^2\omega_6^2\omega_3^2 - 2\omega_4^2c_s^2\omega_2^2\omega_6^2\omega_3^2 + \omega_4^3c_s^2\omega_2\omega_6^2\omega_3^2 + 4\omega_4\omega_2^3v_2^2\omega_6^2\omega_3^2 - 2\omega_4^3c_s^2\omega_2^3\omega_3^2 - 2\omega_4^3c_s^2\omega_2^2\omega_6\omega_3^2 + 6\omega_4^3\omega_2^3v_2^2\omega_6\omega_3^2 + \omega_4^2c_s^2\omega_2^2\omega_6^2\omega_3^2 + 4\omega_4^3\omega_2v_2^2\omega_6^2\omega_3^2 + 7\omega_4^2\omega_2^3v_2^2\omega_6^2\omega_3^2$$

$$C_{47} = -24\omega_4^2c_s^2\omega_6\omega_3^2 - 24\omega_4^2v_2^2\omega_6\omega_3^2 - 12\omega_4^3v_2^2\omega_6\omega_3 - 12\omega_4^3c_s^2\omega_6\omega_3 + 12\omega_4^2v_2^2\omega_6\omega_3^2 + 12\omega_4^2c_s^2\omega_6\omega_3^2 - 12\omega_4^3c_s^2\omega_6\omega_3^2 - 12\omega_4^3v_2^2\omega_6\omega_3^2 + 6\omega_4^3v_2^2\omega_3^2 + 6\omega_4c_s^2\omega_6^2\omega_3^2 + 48\omega_4^3v_2^2\omega_6^2 - 30\omega_4v_2^2\omega_6^2\omega_3^2 + 36\omega_4^3v_2^2\omega_6\omega_3^2 + 36\omega_4^3c_s^2\omega_6\omega_3^2 + 24\omega_4v_2^2\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 - 12\omega_4^3v_2^2\omega_3^2 + 40\omega_4^3v_2^2\omega_6^2\omega_3^2 - 32\omega_4^3c_s^2\omega_6^2\omega_3^2 - 24\omega_4^2c_s^2\omega_6^2\omega_3 + 48\omega_4^2v_2^2\omega_6^2\omega_3 + 12v_2^2\omega_6^2\omega_3^2 + 4\omega_4^3c_s^2\omega_6^2\omega_3^2 - 5\omega_4^3v_2^2\omega_6^2\omega_3^2 + 24\omega_4^2v_2^2\omega_6^2\omega_3^2 - 12\omega_4^2c_s^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_3^2 - 12\omega_4^3c_s^2\omega_6^2 + 48\omega_4^2c_s^2\omega_6^2\omega_3^2 - 60\omega_4^2v_2^2\omega_6^2\omega_3^2 - 90\omega_4^3v_2^2\omega_6^2\omega_3 - 12\omega_4^3c_s^2\omega_3^2 + 36\omega_4^3c_s^2\omega_6^2\omega_3$$

$$C_{48} = 18\omega_4^2\omega_2\omega_3^3 + 18\omega_4^3\omega_2^2\omega_3 - 5\omega_4^3\omega_2^3\omega_3^3 + 28\omega_4^3\omega_2^3\omega_3^2 + 18\omega_4\omega_2^2\omega_3^3 + 12\omega_4^3\omega_3^3 - 36\omega_4^3\omega_2^3\omega_3 + 24\omega_4^3\omega_2^2\omega_3^3 + 6\omega_4\omega_2^3\omega_3^2 - 30\omega_4\omega_2^3\omega_3^3 - 30\omega_4^3\omega_2^2\omega_3^3 + 12\omega_4^3\omega_2^3 - 30\omega_4^2\omega_2^3\omega_3^2 + 12\omega_2^3\omega_3^3 + 6\omega_4^3\omega_2\omega_3^2 - 30\omega_4^3\omega_2\omega_3^3 + 24\omega_4^2\omega_2^2\omega_3^3 + 12\omega_4^2\omega_2^2\omega_3^2 - 42\omega_4^2\omega_2^2\omega_3^3 + 18\omega_4^2\omega_2^3\omega_3$$

$$C_{49} = -60\omega_2^2v_2^2\omega_6^2\omega_3^2 - 12\omega_2^3v_2^2\omega_3^2 - 90\omega_2^3v_2^2\omega_6^2\omega_3 - 12c_s^2\omega_2^3\omega_6\omega_3^3 - 24c_s^2\omega_2^2\omega_6^2\omega_3 + 24\omega_2^2v_2^2\omega_6^2\omega_3^2 + 6\omega_2^3v_2^2\omega_3^3 + 48\omega_2^3v_2^2\omega_6^2 + 36c_s^2\omega_2^3\omega_6\omega_3^2 - 12c_s^2\omega_2^2\omega_6^2\omega_3^2 - 12c_s^2\omega_2^3\omega_6\omega_3 - 5\omega_2^3v_2^2\omega_6^2\omega_3^2 + 40\omega_2^3v_2^2\omega_6^2\omega_3^2 + 48c_s^2\omega_2^2\omega_6^2\omega_3^2 + 48\omega_2^2v_2^2\omega_6^2\omega_3 + 36\omega_2^3v_2^2\omega_6\omega_3^2 + 6c_s^2\omega_2\omega_6^2\omega_3^2 - 24c_s^2\omega_2^3\omega_6\omega_3^2 + 24\omega_2v_2^2\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2\omega_3^2 + 12c_s^2\omega_2^2\omega_6\omega_3^2 - 12c_s^2\omega_2\omega_6^2\omega_3^2 - 12\omega_2^3v_2^2\omega_6\omega_3^2 + 36c_s^2\omega_2^3\omega_6^2\omega_3 - 30\omega_2v_2^2\omega_6^2\omega_3^2 + 12\omega_2^2v_2^2\omega_6\omega_3^2 - 12c_s^2\omega_2^3\omega_3^2 - 32c_s^2\omega_2^3\omega_6^2\omega_3^2 - 24\omega_2^2v_2^2\omega_6\omega_3^2 + 4c_s^2\omega_2^3\omega_6^2\omega_3^2 - 12\omega_2^3v_2^2\omega_6\omega_3 - 12c_s^2\omega_2^3\omega_6^2 + 6c_s^2\omega_2^3\omega_3^3$$

$$C_{50} = -12\omega_4^2c_s^2\omega_6\omega_3^2 + 6\omega_4^2\omega_6\omega_3^2 - 12\omega_4^2v_2^2\omega_6\omega_3^2 - 24\omega_4^3v_2^2\omega_6\omega_3 + 6\omega_4^3\omega_3^2 - 24\omega_4^3c_s^2\omega_6\omega_3 + 6\omega_4^2v_2^2\omega_6\omega_3^2 - 3\omega_4^2\omega_6\omega_3^2 - 6\omega_4^3\omega_6^2\omega_3 + 6\omega_4^2c_s^2\omega_6\omega_3^2 - 3\omega_4^3\omega_3^2 - 12\omega_4^3c_s^2\omega_6\omega_3^2 - 12\omega_4^3v_2^2\omega_6\omega_3^2 + 6\omega_4^3v_2^2\omega_3^2 + 6\omega_4c_s^2\omega_6^2\omega_3^2 + 7\omega_4^3\omega_6^2\omega_3^2 + 24\omega_4^3v_2^2\omega_6^2 - 12\omega_4\omega_2^2v_2^2\omega_6^2\omega_3^2 + 42\omega_4^3v_2^2\omega_6\omega_3^2 + 42\omega_4^3c_s^2\omega_6\omega_3^2 + 6\omega_4v_2^2\omega_6^2\omega_3^2 - \omega_4^3\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 - 12\omega_4^3v_2^2\omega_3^2 + 6\omega_4^3v_2^2\omega_6^2\omega_3^2 - 48\omega_4^3c_s^2\omega_6^2\omega_3^2 + 6\omega_4^3\omega_6\omega_3^2 - 24\omega_4^2c_s^2\omega_6^2\omega_3 + 12\omega_4^2v_2^2\omega_6^2\omega_3 + 6v_2^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_6^2\omega_3^2 - 21\omega_4^3\omega_6\omega_3^2 + \omega_4^2\omega_6^2\omega_3^2 + 6\omega_4^2v_2^2\omega_6^2\omega_3^2 + 12\omega_4^3\omega_6\omega_3 - 12\omega_4^2c_s^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_3^2 - 36\omega_4^3c_s^2\omega_6^2 + 42\omega_4^2c_s^2\omega_6^2\omega_3^2 - 12\omega_4^2v_2^2\omega_6^2\omega_3^2 - 3\omega_4^2\omega_6^2\omega_3^2 - 30\omega_4^3v_2^2\omega_6^2\omega_3 - 12\omega_4^3c_s^2\omega_3^2 + 78\omega_4^3c_s^2\omega_6^2\omega_3$$

$$C_{51} = -24\omega_4^2c_s^2\omega_6\omega_3^2 + 12\omega_4^2\omega_6\omega_3^2 - 24\omega_4^2v_2^2\omega_6\omega_3^2 - 12\omega_4^3v_2^2\omega_6\omega_3 - 12\omega_4^3c_s^2\omega_6\omega_3 + 12\omega_4^2v_2^2\omega_6\omega_3^2 - 6\omega_4^2\omega_6\omega_3^2 + 12\omega_4^2c_s^2\omega_6\omega_3^2 - 12\omega_4^3c_s^2\omega_6\omega_3^2 - 12\omega_4^3v_2^2\omega_6\omega_3^2 + 6\omega_4^3v_2^2\omega_3^2 + 6\omega_4c_s^2\omega_6^2\omega_3^2 + 3\omega_4^3\omega_6^2\omega_3^2 + 24\omega_4^3v_2^2\omega_6^2 - 18\omega_4v_2^2\omega_6^2\omega_3^2 + 36\omega_4^3v_2^2\omega_6\omega_3^2 + 36\omega_4^3c_s^2\omega_6\omega_3^2 - \omega_4^3\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 - 12\omega_4^3v_2^2\omega_3^2 - 32\omega_4^3c_s^2\omega_6^2\omega_3^2 + 3\omega_4^3\omega_6\omega_3^2 - 24\omega_4^2c_s^2\omega_6^2\omega_3 + 12v_2^2\omega_6^2\omega_3^2 + 4\omega_4^3c_s^2\omega_6^2\omega_3^2 + 3\omega_4^3v_2^2\omega_6^2\omega_3^2 - 6\omega_4^3\omega_6\omega_3^2 + 2\omega_4^2\omega_6^2\omega_3^2 - 12\omega_4^2c_s^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_3^2 - 12\omega_4^3c_s^2\omega_6^2 + 48\omega_4^2c_s^2\omega_6^2\omega_3^2 + 12\omega_4^2v_2^2\omega_6^2\omega_3^2 - 6\omega_4^2\omega_6^2\omega_3^2 - 30\omega_4^3v_2^2\omega_6^2\omega_3 - 12\omega_4^3c_s^2\omega_3^2 + 36\omega_4^3c_s^2\omega_6^2\omega_3$$

$$C_{52} = 9\omega_6\omega_3^3 - 36v_2^2\omega_6\omega_3 - 36\omega_6\omega_3^2 - 36c_s^2\omega_6\omega_3 + 12\omega_3^2 - 48c_s^2\omega_6^2 + 6c_s^2\omega_3^3 + 24\omega_6\omega_3 + 48v_2^2\omega_6\omega_3^2 + 48c_s^2\omega_6\omega_3^2 - 12c_s^2\omega_3^2 - 6\omega_3^3 - 12c_s^2\omega_6\omega_3^3 - 12v_2^2\omega_6\omega_3^3 + 4c_s^2\omega_6^2\omega_3^3 + v_2^2\omega_6^2\omega_3^3 - 8v_2^2\omega_6^2\omega_3^2 - 12\omega_6^2\omega_3 - 44c_s^2\omega_6^2\omega_3^2 + 11\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2 + 90c_s^2\omega_6^2\omega_3 + 6v_2^2\omega_3^3 - 12v_2^2\omega_3^2 - \omega_6^2\omega_3^3$$

$$C_{53} = 12\omega_4c_s^2\omega_7^2 - 6\omega_4^3c_s^2\omega_7 + 9\omega_4^3v_3^2\omega_2\omega_7 - 30\omega_4c_s^2\omega_2\omega_7^2 - 6\omega_4^3c_s^2\omega_2 - 10\omega_4^2v_3^2\omega_2\omega_7^2 - \omega_4^3v_3^2\omega_7^2 - 30\omega_4^2v_3^2\omega_2\omega_7 - 12\omega_4v_3^2\omega_7^2 - 6\omega_4^3v_3^2\omega_7 + 12\omega_4c_s^2\omega_2\omega_7 + \omega_4^3v_3^2\omega_2\omega_7^2 - 24v_3^2\omega_2\omega_7^2 - 6\omega_4^3v_3^2\omega_2 + 3\omega_4^3c_s^2\omega_7^2 + 12\omega_4^2c_s^2\omega_2 + 6\omega_4^2v_3^2\omega_7^2 + 9\omega_4^3c_s^2\omega_2\omega_7 + 36\omega_4v_3^2\omega_2\omega_7^2 + 22\omega_4^2c_s^2\omega_2\omega_7^2 + 12\omega_4^2c_s^2\omega_7 + 12\omega_4^2v_3^2\omega_2 - 30\omega_4^2c_s^2\omega_2\omega_7 - 18\omega_4^2c_s^2\omega_7^2 + 12\omega_4v_3^2\omega_2\omega_7 - 2\omega_4^3c_s^2\omega_2\omega_7^2 + 12c_s^2\omega_2\omega_7^2 + 12\omega_4^2v_3^2\omega_7$$

$$C_{54} = 12\omega_4^2\omega_2^2\omega_7 - 12\omega_3^2\omega_7 - 10\omega_4^2\omega_3^2\omega_7 + 12\omega_4^3\omega_2\omega_7 + 3\omega_4^3\omega_3^2 - 7\omega_4^3\omega_2^2\omega_7 - 6\omega_4^3\omega_2^2 + 24\omega_4\omega_3^2\omega_7 + \omega_4^3\omega_3^2\omega_7 - 6\omega_4^2\omega_2\omega_7 - 6\omega_4^2\omega_3^2 - 12\omega_4\omega_2^2\omega_7^2 - 6\omega_4^3\omega_7^2 + 12\omega_4^2\omega_2^2$$

$$C_{55} = -12\omega_4^2c_s^4\omega_5^2\omega_2^2\omega_7^2 + 4\omega_4^2c_s^2\omega_5\omega_2^2v_1^2\omega_7^2 + \omega_4^3c_s^2\omega_5\omega_3^2v_1^2\omega_7^2 - 3\omega_4^3\omega_5v_3^2\omega_2^3v_1^2\omega_7^2 - 8\omega_4c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 - 4\omega_4^2\omega_5v_3^2\omega_2^2v_1^2\omega_7^2 + 2\omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2 - 4\omega_4^3c_s^2v_3^2\omega_2^2\omega_7^2 + 4\omega_4^2c_s^2\omega_5^2v_3^2\omega_2^2\omega_7 - 2\omega_4^3c_s^4\omega_5\omega_2^2\omega_7^2 - 4\omega_4^2\omega_5^2v_3^2\omega_3^2v_1^2 - 3\omega_4^3c_s^2\omega_5v_3^2\omega_2^3\omega_7^2 - 4\omega_4^3c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 - 8\omega_4^2c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 - 2\omega_4^2c_s^4\omega_5^2\omega_3^2\omega_7 - 4\omega_4^2c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 - 2\omega_4^3c_s^4\omega_5^2\omega_2\omega_7^2 - 4\omega_4c_s^2\omega_5^2\omega_2^3v_1^2\omega_7 + 10\omega_4^3c_s^2\omega_5^2v_3^2\omega_2\omega_7^2 - 3\omega_4^3\omega_5^2v_3^2\omega_2^3v_1^2\omega_7^2 - 36\omega_4^2\omega_5^2v_3^2\omega_2^2v_1^2\omega_7^2 + 4\omega_4c_s^4\omega_5^2\omega_2^2\omega_7^2 + \omega_4^3c_s^4\omega_5\omega_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_5^2v_3^2\omega_2^2\omega_7 + 10\omega_4^3c_s^2\omega_5v_3^2\omega_2^2\omega_7^2 - 4c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 + 10\omega_4c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 - 38\omega_4^3\omega_5^2v_3^2\omega_2v_1^2\omega_7^2 + 2\omega_4^3c_s^2v_3^2\omega_2^2\omega_7^2 - 4\omega_4^2\omega_5^2v_3^2\omega_2^2v_1^2\omega_7 - 3\omega_4^3\omega_5^2v_3^2\omega_2^3v_1^2\omega_7 + 10\omega_4^2c_s^2\omega_5^2\omega_3^2v_1^2\omega_7 + 2\omega_4^3c_s^2\omega_5^2\omega_2^2v_1^2\omega_7 + 4\omega_4c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 + 2\omega_4^3v_3^2\omega_2^3v_1^2\omega_7^2 + 4\omega_4^2c_s^4\omega_5^2\omega_2^2\omega_7^2 + 20\omega_4\omega_5^2v_3^2\omega_2^2v_1^2\omega_7^2 - 8\omega_4^2c_s^2\omega_5^2\omega_2v_1^2\omega_7^2 - 2\omega_4c_s^4\omega_5^2\omega_3^2\omega_7^2 + 12\omega_4^2c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 - 4\omega_4^3\omega_5v_3^2\omega_2v_1^2\omega_7^2 + 4\omega_4^2c_s^4\omega_5^2\omega_2^2\omega_7 + \omega_4^3c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 + 20\omega_4^3\omega_5^2v_3^2\omega_2^2v_1^2\omega_7^2 + 20\omega_4^2\omega_5^2v_3^2\omega_2^3v_1^2\omega_7^2 - 4\omega_4^3c_s^2\omega_5^2v_3^2\omega_7^2 - \omega_4^3c_s^4\omega_5^2\omega_3^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5^2v_3^2\omega_2\omega_7^2 + \omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 + 12\omega_4^2c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 - 2\omega_4^2c_s^4\omega_5\omega_3^2\omega_7^2 - 4\omega_4\omega_5^2v_3^2\omega_3^2v_1^2\omega_7 - 4\omega_4^3c_s^2\omega_5v_3^2\omega_2\omega_7^2 - 2\omega_4^3c_s^4\omega_5^2\omega_2^2\omega_7 + 2\omega_4^2c_s^2\omega_5v_3^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^2\omega_5\omega_2^2v_1^2\omega_7^2 + 4\omega_4^2c_s^4\omega_5\omega_2^2\omega_7^2 + 2\omega_4^3\omega_5^2v_3^2\omega_3^2v_1^2 - 4\omega_4^2c_s^2\omega_5^2\omega_3^2v_1^2 + 20\omega_4^3\omega_5^2v_3^2v_1^2\omega_7^2 + 4\omega_4^3c_s^4\omega_5^2\omega_2^2\omega_7^2 - 8\omega_4^3c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 - 4\omega_4^3v_3^2\omega_2^2v_1^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 - 3\omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2\omega_7 + 4\omega_4^2c_s^4\omega_5^2\omega_2^2\omega_7^2 + 20\omega_4^2\omega_5^2v_3^2\omega_2^2v_1^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5v_3^2\omega_2\omega_7^2 + \omega_4^3c_s^2\omega_5^2v_3^2\omega_2^2\omega_7^2 + 10\omega_4^2\omega_5^2v_3^2\omega_2^3v_1^2\omega_7 + 2\omega_4^3\omega_5^2v_3^2\omega_2^2v_1^2\omega_7 + \omega_4^3c_s^4\omega_5^2\omega_3^2\omega_7$$

$$C_{56} = -14\omega_4^2c_s^2\omega_3^2\omega_7^2 - 6\omega_4^3c_s^2\omega_3^3\omega_7 - 78\omega_4v_3^2\omega_3^3\omega_7^2 + 6\omega_4^3v_3^2\omega_3^2 + 24\omega_4^2v_3^2\omega_2\omega_7^2 - 6\omega_4^3c_s^2\omega_2^2\omega_7^2 + 12\omega_4^3v_3^2\omega_7^2 + 24\omega_4v_3^2\omega_2^2\omega_7^2 + 12\omega_4^2c_s^2\omega_2^2\omega_7^2 - 12c_s^2\omega_3^2\omega_7^2 - 30\omega_4^2v_3^2\omega_2\omega_7^2 - 12\omega_4v_3^2\omega_3^2\omega_7 + \omega_4^3c_s^2\omega_2^3\omega_7^2 + 6\omega_4^3c_s^2\omega_3^2 + 24\omega_4^2c_s^2\omega_3^2\omega_7 + 34\omega_4^2v_3^2\omega_3^2\omega_7^2 - 6\omega_4^3v_3^2\omega_3^2\omega_7 + 24\omega_4c_s^2\omega_3^2\omega_7^2 - 12\omega_4^2v_3^2\omega_3^2 - 12\omega_4^2c_s^2\omega_2\omega_7^2 + 22\omega_4^3v_3^2\omega_2^2\omega_7^2 - 48\omega_4^2v_3^2\omega_2^2\omega_7^2 + 48v_3^2\omega_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_3^2 + 6\omega_4^3c_s^2\omega_2\omega_7^2 - 12\omega_4c_s^2\omega_3^2\omega_7 - 4\omega_4^3v_3^2\omega_3^2\omega_7^2 + 24\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7$$

$$C_{57} = -12\omega_4c_s^2\omega_5^2\omega_2^2 - 78\omega_4^3\omega_2^2\omega_2v_1^2 + 48\omega_4^3\omega_5^2v_1^2 + 24\omega_4^3c_s^2\omega_5\omega_2^2 + 24\omega_4\omega_5^2\omega_2^2v_1^2 + 24\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_3^2 - 12\omega_4^3c_s^2\omega_5^2 - 6\omega_4^3c_s^2\omega_5\omega_3^2 - 12\omega_4^3c_s^2\omega_2^2 - 30\omega_4\omega_5^2\omega_3^2v_1^2 - 12\omega_4^3c_s^2\omega_5\omega_2 + 6\omega_4^3c_s^2\omega_3^2 + 24\omega_4^2\omega_5^2\omega_2v_1^2 - 6\omega_4^3\omega_5\omega_3^2v_1^2 + 24\omega_4^3c_s^2\omega_5^2\omega_2 - 48\omega_4^2\omega_5^2\omega_2^2v_1^2 + 12\omega_5^2\omega_3^2v_1^2 + 12\omega_4^2c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3\omega_3^2v_1^2 - 6\omega_4^2c_s^2\omega_5^2\omega_3^2 - 4\omega_4^3\omega_5^2\omega_3^2v_1^2 - 12\omega_4^3\omega_5\omega_2v_1^2 + 22\omega_4^2\omega_5^2\omega_3^2v_1^2 + \omega_4^3c_s^2\omega_5^2\omega_3^2 + 34\omega_4^3\omega_5^2\omega_2^2v_1^2 - 14\omega_4^3c_s^2\omega_5^2\omega_2^2 - 12\omega_4^3\omega_2^2v_1^2$$

$$C_{58} = 12\omega_4c_s^2\omega_7^2 - 6\omega_4^3c_s^2\omega_7 - 24v_3^2\omega_3\omega_7^2 + 12\omega_4c_s^2\omega_3\omega_7 + \omega_4^3v_3^2\omega_3\omega_7^2 - 30\omega_4^2v_3^2\omega_3\omega_7 - \omega_4^3v_3^2\omega_7^2 + 12\omega_4^2c_s^2\omega_3 - 12\omega_4v_3^2\omega_7^2 - 10\omega_4^2v_3^2\omega_3\omega_7^2 - 6\omega_4^3v_3^2\omega_7 + 9\omega_4^3v_3^2\omega_3\omega_7 - 30\omega_4c_s^2\omega_3\omega_7^2 + 12\omega_4^2v_3^2\omega_3 + 3\omega_4^3c_s^2\omega_7^2 - 6\omega_4^3c_s^2\omega_3 + 6\omega_4^2v_3^2\omega_7^2 + 12c_s^2\omega_3\omega_7^2 + 12\omega_4v_3^2\omega_3\omega_7 - 2\omega_4^3c_s^2\omega_3\omega_7^2 + 12\omega_4^2c_s^2\omega_7 - 30\omega_4^2c_s^2\omega_3\omega_7 - 18\omega_4^2c_s^2\omega_7^2 - 6\omega_4^3v_3^2\omega_3 + 22\omega_4^2c_s^2\omega_3\omega_7^2 + 9\omega_4^3c_s^2\omega_3\omega_7 + 36\omega_4v_3^2\omega_3\omega_7^2 + 12\omega_4^2v_3^2\omega_7$$

$$C_{59} = 12\omega_4^3\omega_3\omega_7 - 10\omega_4^2\omega_3^3\omega_7 - 6\omega_4^3\omega_3^2 - 12\omega_3^3\omega_7 + 3\omega_4^3\omega_3^3 + 12\omega_4^2\omega_3^2 + 12\omega_4^2\omega_3^2\omega_7 - 6\omega_4^2\omega_3^3 - 12\omega_4\omega_3^2\omega_7 - 6\omega_4^2\omega_3\omega_7 + \omega_4^3\omega_3^3\omega_7 + 24\omega_4\omega_3^3\omega_7 - 7\omega_4^3\omega_3^2\omega_7 - 6\omega_4^3\omega_7$$

$$C_{60} = \omega_4^3v_3^2\omega_3^2\omega_3^2\omega_7 + 3\omega_4^3v_3^2\omega_2\omega_3^2\omega_7^2 + \omega_4^3c_s^2\omega_3^2\omega_2^2\omega_7 - 2\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7^2 + 4\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7^2 - 2\omega_4^2v_3^2\omega_2^2\omega_3^3 + \omega_4^3c_s^2\omega_3^3\omega_3^2\omega_7^2 + 3\omega_4^3v_3^2\omega_2^2\omega_3^2\omega_7^2 - 2\omega_4^3v_3^2\omega_2^2\omega_3^3\omega_7^2 - 2\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7 - 2\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7 - 12\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_3^2\omega_3\omega_7^2 + 10v_3^2\omega_3^2\omega_3^2\omega_7^2 + 6\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7^2 + 4\omega_4^2v_3^2\omega_3^2\omega_3\omega_7^2 + \omega_4^3v_3^2\omega_3^2\omega_3^3 - 2c_s^2\omega_3^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^2\omega_3^2\omega_3^2\omega_7 - 8\omega_4^3v_3^2\omega_2\omega_3^2\omega_7^2 + \omega_4^3c_s^2\omega_2\omega_3^2\omega_7^2 - 2\omega_4^3v_3^2\omega_3^2\omega_3^2\omega_7 + 7\omega_4v_3^2\omega_2^2\omega_3^2\omega_7^2 + 7\omega_4^3v_3^2\omega_3^2\omega_3^2\omega_7^2 - 2\omega_4c_s^2\omega_2^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^2\omega_2^2\omega_3^3\omega_7^2 + 6\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7 - 2\omega_4^2c_s^2\omega_2\omega_3^2\omega_7^2 + 4\omega_4^2v_3^2\omega_2\omega_3^2\omega_7^2 + 6\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7 - 8\omega_4^3v_3^2\omega_2^2\omega_3\omega_7^2 - 2\omega_4^3c_s^2\omega_2^2\omega_3^2\omega_7^2 - 2\omega_4c_s^2\omega_3^2\omega_3^2\omega_7^2 + \omega_4^3c_s^2\omega_2^2\omega_3\omega_7^2 + 7\omega_4^3v_3^2\omega_2^2\omega_3^2\omega_7^2 + 3\omega_4^3v_3^2\omega_3^3\omega_7^2 + 7\omega_4v_3^2\omega_3^2\omega_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_3^2\omega_3^3 + 6\omega_4^2c_s^2\omega_3^2\omega_3^2\omega_7^2 - 12\omega_4^2v_3^2\omega_3^2\omega_3^2\omega_7^2 - 2\omega_4v_3^2\omega_3^2\omega_3^2\omega_7 - 2\omega_4c_s^2\omega_3^2\omega_3^3\omega_7 - 8\omega_4^3v_3^2\omega_2^2\omega_3^2\omega_7^2 - 21\omega_4v_3^2\omega_3^2\omega_3^2\omega_7^2 + \omega_4^3c_s^2\omega_2^2\omega_3^3 + \omega_4^3c_s^2\omega_2^2\omega_3^2\omega_7^2 + 6\omega_4c_s^2\omega_2^2\omega_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7 - 2\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7 + \omega_4^3c_s^2\omega_2^2\omega_3^2\omega_7 + 3\omega_4^3v_3^2\omega_2^2\omega_3^2\omega_7^2 + \omega_4^3v_3^2\omega_2^2\omega_3^2\omega_7 + 12\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7^2 - 6\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7^2$$

$$C_{61} = 36\omega_4^2c_s^2\omega_3^3\omega_7 - 12\omega_4v_3^2\omega_3^3\omega_7 + 4\omega_4^3c_s^2\omega_3^3\omega_7^2 - 12\omega_4^2v_3^2\omega_3^3 - 30\omega_4^3v_3^2\omega_3\omega_7^2 + 48\omega_4^2c_s^2\omega_3^2\omega_7^2 - 12c_s^2\omega_3^3\omega_7^2 + 48\omega_4v_3^2\omega_3^2\omega_7^2 + 12\omega_4^3c_s^2\omega_3^2\omega_7 + 12\omega_4^3v_3^2\omega_7^2 - 12\omega_4^3c_s^2\omega_3^2\omega_7^2 + 24\omega_4^2v_3^2\omega_3\omega_7^2 - 24\omega_4^2c_s^2\omega_3^2\omega_7 - 12\omega_4^2c_s^2\omega_3^3 - 12\omega_4^3c_s^2\omega_3^3\omega_7 - 90\omega_4v_3^2\omega_3^3\omega_7^2 - 32\omega_4^2c_s^2\omega_3^3\omega_7^2 + 36\omega_4^2v_3^2\omega_3^3\omega_7 + 6\omega_4^3v_3^2\omega_3^3 - 12\omega_4c_s^2\omega_3^3\omega_7 - 5\omega_4^3v_3^2\omega_3^3\omega_7^2 + 6\omega_4^3c_s^2\omega_3\omega_7^2 - 60\omega_4^2v_3^2\omega_3^2\omega_7^2 + 48v_3^2\omega_3^3\omega_7^2 - 24\omega_4c_s^2\omega_3^2\omega_7^2 + 12\omega_4^3v_3^2\omega_3^2\omega_7 + 24\omega_4^3v_3^2\omega_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_3\omega_7^2 + 6\omega_4^3c_s^2\omega_3^3 - 24\omega_4^2v_3^2\omega_3^2\omega_7 - 12\omega_4^3v_3^2\omega_3^3\omega_7 + 36\omega_4c_s^2\omega_3^3\omega_7^2 + 40\omega_4^2v_3^2\omega_3^3\omega_7^2$$

$$C_{62} = -32\omega_4^2c_s^2\omega_3^2\omega_7^2 - 12\omega_4^3c_s^2\omega_3^2\omega_7 - 90\omega_4v_3^2\omega_3^2\omega_7^2 - 24\omega_4^2c_s^2\omega_2^2\omega_7 + 6\omega_4^3v_3^2\omega_3^2 + 24\omega_4^2v_3^2\omega_2\omega_7^2 - 12\omega_4^3c_s^2\omega_2^2\omega_7^2 + 12\omega_4^3v_3^2\omega_7^2 + 48\omega_4v_3^2\omega_3^2\omega_7^2 + 12\omega_4^3c_s^2\omega_2^2\omega_7 + 48\omega_4^2c_s^2\omega_2^2\omega_7^2 - 12c_s^2\omega_3^2\omega_7^2 - 30\omega_4^3v_3^2\omega_2\omega_7^2 - 12\omega_4v_3^2\omega_3^2\omega_7 + 4\omega_4^3c_s^2\omega_3^2\omega_7^2 + 6\omega_4^3c_s^2\omega_3^2 + 36\omega_4^2c_s^2\omega_3^2\omega_7 + 40\omega_4^2v_3^2\omega_3^2\omega_7^2 - 12\omega_4^3v_3^2\omega_3^3\omega_7 + 36\omega_4c_s^2\omega_3^2\omega_7^2 - 12\omega_4^2v_3^2\omega_3^2 - 24\omega_4^2v_3^2\omega_2^2\omega_7 - 12\omega_4^2c_s^2\omega_2\omega_7^2 + 24\omega_3^2v_3^2\omega_2^2\omega_7^2 - 24\omega_4c_s^2\omega_2^2\omega_7^2 + 12\omega_4^3v_3^2\omega_2^2\omega_7 - 60\omega_4^2v_3^2\omega_2^2\omega_7^2 + 48v_3^2\omega_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_2^2 + 6\omega_4^3c_s^2\omega_2\omega_7^2 - 12\omega_4c_s^2\omega_3^2\omega_7 - 5\omega_4^3v_3^2\omega_3^2\omega_7^2 + 36\omega_4^2v_3^2\omega_3^2\omega_7$$

$$C_{63} = 6\omega_4^2\omega_2\omega_3^3 + 18\omega_4^3\omega_2^2\omega_3 - 5\omega_4^3\omega_2^3\omega_3^3 + 24\omega_4^3\omega_2^3\omega_3^2 + 18\omega_4\omega_2^2\omega_3^3 + 12\omega_4^3\omega_3^3 - 30\omega_4^3\omega_2^2\omega_3 + 24\omega_4^3\omega_2^2\omega_3^3 + 18\omega_4\omega_2^3\omega_3^2 - 36\omega_4\omega_3^3\omega_3^3 - 42\omega_4^3\omega_2^2\omega_3^2 + 12\omega_4^3\omega_2^3 - 30\omega_4^2\omega_3^3\omega_3^2 + 12\omega_2^2\omega_3^3 + 18\omega_4^3\omega_2\omega_3^2 - 30\omega_4^3\omega_2\omega_3^3 + 28\omega_4^2\omega_2^2\omega_3^3 + 12\omega_4^2\omega_2^2\omega_3^2 - 30\omega_4^2\omega_2^2\omega_3^3 + 6\omega_4^2\omega_2^3\omega_3$$

$$C_{64} = 2\omega_4^3c_s^2v_2^2\omega_6^2\omega_3^3 - 8\omega_4^2c_s^2v_2^2\omega_6^2\omega_3^3\omega_7^2 - 4\omega_4v_3^2v_2^2\omega_6^2\omega_3^3\omega_7 + 2\omega_4^3v_3^2v_2^2\omega_6^2\omega_3^3 + \omega_4^3c_s^4\omega_6^2\omega_3^3\omega_7 + 4\omega_4^3c_s^2v_2^2\omega_6^2\omega_3\omega_7^2 - 4\omega_4c_s^2v_2^2\omega_6^2\omega_3^3\omega_7 + 20\omega_4^2v_3^2v_2^2\omega_6^2\omega_3^3\omega_7^2 + 10\omega_4^3c_s^2v_3^2\omega_6^2\omega_3\omega_7^2 - 38\omega_4^3v_3^2v_2^2\omega_6^2\omega_3\omega_7^2 - 4\omega_4^2c_s^2v_3^2\omega_6^2\omega_3^3\omega_7^2 + 4\omega_4^2c_s^4\omega_6^2\omega_3\omega_7^2 + 4\omega_4^3c_s^4\omega_6^2\omega_3^2\omega_7^2 - 8\omega_4c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^2v_2^2\omega_6\omega_3^2\omega_7^2 - 4\omega_4^3c_s^2v_3^2\omega_6^2\omega_7^2 + 20\omega_4v_3^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - 4\omega_4^2c_s^2v_2^2\omega_6^2\omega_3^2\omega_7 + 10\omega_4^3v_3^2v_2^2\omega_6\omega_3^2\omega_7^2 + 2\omega_4^3c_s^2v_3^2\omega_3^2\omega_7^2 + 4\omega_4^2c_s^2v_3^2\omega_6^2\omega_3^2\omega_7 + 4\omega_4^2c_s^2\omega_6\omega_3^2\omega_7^2 - 4\omega_4^2v_3^2v_2^2\omega_6^2\omega_3^2\omega_7 - 4\omega_4c_s^2v_2^2\omega_6^2\omega_3^2\omega_7^2 + 10\omega_4^3c_s^2v_3^2\omega_6\omega_3^2\omega_7^2 + 12\omega_4^2c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 36\omega_4^2v_2^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^4\omega_6^2\omega_3^2\omega_7 + 12\omega_4^2c_s^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - 4c_s^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - 3\omega_4^3c_s^2v_3^2\omega_6\omega_3^2\omega_7^2 + 10\omega_4^3v_3^2v_2^2\omega_6^2\omega_3^2\omega_7 + 10\omega_4c_s^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - 2\omega_4^2c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 4\omega_4^3c_s^2v_3^2\omega_3^2\omega_7^2 - 3\omega_4^3v_3^2v_2^2\omega_6\omega_3^2\omega_7^2 - 2\omega_4^2c_s^4\omega_6\omega_3^2\omega_7^2 - 38\omega_4v_3^2v_2^2\omega_6^2\omega_3^2\omega_7^2 + 10\omega_4^2c_s^2v_2^2\omega_6^2\omega_3^2\omega_7 + 20v_3^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - \omega_4^3c_s^4\omega_6^2\omega_3^2\omega_7^2 + \omega_4^3c_s^2v_2^2\omega_6\omega_3^2\omega_7^2 + 4\omega_4c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^2v_3^2\omega_6^2\omega_3^2\omega_7 - 4\omega_4^2v_3^2v_2^2\omega_6\omega_3^2\omega_7^2 + 4\omega_4^2c_s^4\omega_6^2\omega_3^2\omega_7 - 4\omega_4^2c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 + 4\omega_4^2c_s^2v_2^2\omega_6\omega_3^2\omega_7^2 + 2\omega_4^3c_s^2v_2^2\omega_6^2\omega_3^2\omega_7 + 20\omega_4^2v_3^2v_2^2\omega_6^2\omega_3^2\omega_7^2 + 4\omega_4^2c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 3\omega_4^3v_3^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - 4\omega_4^2c_s^2v_3^2\omega_6^2\omega_3\omega_7^2 + 20\omega_4^2v_3^2v_2^2\omega_6^2\omega_3\omega_7^2 + \omega_4^3c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 + \omega_4^3c_s^2v_2^2\omega_6^2\omega_3^2\omega_7^2 + 2\omega_4^3v_3^2v_2^2\omega_3^2\omega_7^2 + \omega_4^3c_s^4\omega_6\omega_3^2\omega_7^2 - 8\omega_4^2c_s^2v_2^2\omega_6^2\omega_3\omega_7^2 - 3\omega_4^3c_s^2v_2^2\omega_6^2\omega_3^2\omega_7 - 2\omega_4^3c_s^4\omega_6^2\omega_3\omega_7^2 + 4\omega_4c_s^4\omega_6^2\omega_3^2\omega_7^2 - 2\omega_4^2c_s^4\omega_6^2\omega_3^3\omega_7 - 4\omega_4^2v_3^2v_2^2\omega_6^2\omega_3^3 - 3\omega_4^3v_3^2v_2^2\omega_6^2\omega_3^2\omega_7 + 2\omega_4^2c_s^2v_3^2\omega_6\omega_3^2\omega_7^2 - 4\omega_4^3v_3^2v_2^2\omega_6\omega_3\omega_7^2 - 4\omega_4^2c_s^2v_2^2\omega_6^2\omega_3^3 - 4\omega_4^3c_s^2v_3^2\omega_6\omega_3\omega_7^2 + 2\omega_4^2v_3^2v_2^2\omega_6\omega_3^2\omega_7^2 + \omega_4^3c_s^2v_3^2\omega_6^2\omega_3^2\omega_7 - 4\omega_4^3c_s^2v_2^2\omega_6^2\omega_3^2\omega_7^2 - 2\omega_4^3c_s^4\omega_6\omega_3^2\omega_7^2 - 4\omega_4^3v_3^2v_2^2\omega_3^2\omega_7^2 - 8\omega_4^3c_s^2v_3^2\omega_6^2\omega_3^2\omega_7^2 - 12\omega_4^2c_s^4\omega_6^2\omega_3^2\omega_7^2 + 20\omega_4^3v_3^2v_2^2\omega_6^2\omega_3^2\omega_7^2$$

$$C_{65} = 24\omega_4^2c_s^2\omega_3^3\omega_7 - 12\omega_4v_3^2\omega_3^3\omega_7 + \omega_4^3c_s^2\omega_3^3\omega_7^2 - 12\omega_4^2v_3^2\omega_3^3 - 30\omega_4^3v_3^2\omega_3\omega_7^2 + 12\omega_4^2c_s^2\omega_3^2\omega_7^2 - 12c_s^2\omega_3^3\omega_7^2 + 24\omega_4v_3^2\omega_3^2\omega_7^2 + 12\omega_4^3v_3^2\omega_7^2 - 6\omega_4^3c_s^2\omega_3^3\omega_7^2 + 24\omega_4^2v_3^2\omega_3\omega_7^2 - 12\omega_4^2c_s^2\omega_3^3 - 6\omega_4^3c_s^2\omega_3^3\omega_7 - 78\omega_4v_3^2\omega_3^3\omega_7^2 - 14\omega_4^2c_s^2\omega_3^3\omega_7^2 + 24\omega_4^2v_3^2\omega_3^3\omega_7 + 6\omega_4^3v_3^2\omega_3^3 - 12\omega_4c_s^2\omega_3^3\omega_7 - 4\omega_4^3v_3^2\omega_3^3\omega_7^2 + 6\omega_4^3c_s^2\omega_3\omega_7^2 - 48\omega_4^2v_3^2\omega_3^2\omega_7^2 + 48v_3^2\omega_3^3\omega_7^2 + 22\omega_4^3v_3^2\omega_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_3\omega_7^2 + 6\omega_4^3c_s^2\omega_3^3 - 6\omega_4^3v_3^2\omega_3^3\omega_7 + 24\omega_4c_s^2\omega_3^3\omega_7^2 + 34\omega_4^2v_3^2\omega_3^3\omega_7^2$$

$$C_{66} = -12\omega_4^3v_2^2\omega_6\omega_3 - 12\omega_4^3c_s^2\omega_6\omega_3 - 6\omega_4^3c_s^2\omega_6\omega_3^3 - 6\omega_4^3v_2^2\omega_6\omega_3^3 + 6\omega_4^3v_2^2\omega_3^3 + 6\omega_4c_s^2\omega_6^2\omega_3^3 + 48\omega_4^3v_2^2\omega_6^2 - 30\omega_4v_2^2\omega_6^2\omega_3^3 + 24\omega_4^3v_2^2\omega_6\omega_3^2 + 24\omega_4^3c_s^2\omega_6\omega_3^2 + 24\omega_4v_2^2\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 - 12\omega_4^3v_2^2\omega_3^2 + 34\omega_4^3v_2^2\omega_6^2\omega_3^2 - 14\omega_4^3c_s^2\omega_6^2\omega_3^2 + 24\omega_4^2v_2^2\omega_6^2\omega_3 + 12v_2^2\omega_6^2\omega_3^3 + \omega_4^3c_s^2\omega_6^2\omega_3^3 -$$

$4\omega_4^3v_2^2\omega_6^2\omega_3^3+22\omega_4^2v_2^2\omega_6^2\omega_3^3-6\omega_4^2c_s^2\omega_6^2\omega_3^3+6\omega_4^3c_s^2\omega_3^3-12\omega_4^3c_s^2\omega_6^2+12\omega_4^2c_s^2\omega_6^2\omega_3^2-48\omega_4^2v_2^2\omega_6^2\omega_3^2-78\omega_4^3v_2^2\omega_6^2\omega_3-12\omega_4^3c_s^2\omega_3^2+24\omega_4^3c_s^2\omega_6^2\omega_3$

$C_{67}=-48\omega_4c_s^2\omega_7^2+9\omega_4^3c_s^2\omega_7+6\omega_4^3-12\omega_4^2+12\omega_4\omega_7^2+48\omega_4v_3^2\omega_7-3\omega_4^3v_3^2\omega_7^2+12\omega_4^2c_s^2-42\omega_4v_3^2\omega_7^2+15\omega_4^3v_3^2\omega_7-24\omega_4\omega_7-6\omega_4^3c_s^2+24\omega_4c_s^2\omega_7-2\omega_4^3c_s^2\omega_7^2+27\omega_4^2v_3^2\omega_7^2+\omega_4^3\omega_7^2+12\omega_4^2v_3^2+12v_3^2\omega_7^2-36\omega_4^2c_s^2\omega_7+36\omega_4^2\omega_7-6\omega_4^3v_3^2+25\omega_4^2c_s^2\omega_7^2-11\omega_4^2\omega_7^2+24c_s^2\omega_7^2-9\omega_4^3\omega_7-60\omega_4^2v_3^2\omega_7$

$C_{68}=7\omega_4^2\omega_3^2\omega_7^2-48\omega_4^2c_s^2\omega_3^2\omega_7^2-12\omega_4^3c_s^2\omega_3^2\omega_7-30\omega_4v_3^2\omega_3^2\omega_7^2-12\omega_4^2c_s^2\omega_2^2\omega_7+6\omega_4^3v_3^2\omega_2^3+6\omega_4^2\omega_2^2\omega_7+6\omega_4^2v_3^2\omega_2\omega_7^2-12\omega_4^3c_s^2\omega_2^2\omega_7^2+6\omega_4^3v_3^2\omega_7^2+12\omega_4v_3^2\omega_2^2\omega_7^2+6\omega_4^3c_s^2\omega_2^2\omega_7+42\omega_4^2c_s^2\omega_2^2\omega_7^2-36c_s^2\omega_3^2\omega_7^2-12\omega_4^3v_3^2\omega_2\omega_7^2-3\omega_4^2\omega_2^2\omega_7^2-24\omega_4v_3^2\omega_3^2\omega_7+6\omega_4^3c_s^2\omega_2^2\omega_7^2+6\omega_4^3c_s^2\omega_3^2-21\omega_4^2\omega_2^2\omega_3^2\omega_7+42\omega_4^2c_s^2\omega_2^2\omega_3^2\omega_7-3\omega_4^3\omega_2^3+6\omega_4^2v_3^2\omega_3^2\omega_7^2-12\omega_4^3v_3^2\omega_3^2\omega_7+78\omega_4c_s^2\omega_3^2\omega_2^2\omega_7^2-12\omega_4^2v_3^2\omega_3^2-3\omega_4^3\omega_2^2\omega_7-12\omega_4^2v_3^2\omega_2^2\omega_7-12\omega_4^2c_s^2\omega_2\omega_7^2-\omega_4^3\omega_2^2\omega_7^2+6\omega_4^3v_3^2\omega_2^2\omega_7^2+12\omega_4\omega_2^3\omega_7+6\omega_4^3\omega_2^2\omega_7-24\omega_4c_s^2\omega_2^2\omega_7^2-6\omega_4\omega_2^3\omega_7^2+6\omega_4^3v_3^2\omega_2^2\omega_7-12\omega_4^2v_3^2\omega_2^2\omega_7^2+24v_3^2\omega_2^3\omega_7^2+6\omega_4^2\omega_2^3-12\omega_4^2c_s^2\omega_2^3+6\omega_4^3c_s^2\omega_2\omega_7^2-24\omega_4c_s^2\omega_2^3\omega_7+\omega_4^3\omega_2^2\omega_7^2+42\omega_4^2v_3^2\omega_2^3\omega_7$

$C_{69}=90\omega_4c_s^2\omega_7^2-12\omega_4^3c_s^2\omega_7-6\omega_4^3+12\omega_4^2-12\omega_4\omega_7^2-36\omega_4v_3^2\omega_7+\omega_4^3v_3^2\omega_7^2-12\omega_4^2c_s^2-12\omega_4^3v_3^2\omega_7+24\omega_4\omega_7+6\omega_4^3c_s^2-36\omega_4c_s^2\omega_7+4\omega_4^3c_s^2\omega_7^2-8\omega_4^2v_3^2\omega_7^2-\omega_4^3\omega_7^2-12\omega_4^2v_3^2+12v_3^2\omega_7^2+48\omega_4^2c_s^2\omega_7-36\omega_4^2\omega_7+6\omega_4^3v_3^2-44\omega_4^2c_s^2\omega_7^2+11\omega_4^2\omega_7^2-48c_s^2\omega_7^2+9\omega_4^3\omega_7+48\omega_4^2v_3^2\omega_7$

$C_{70}=3\omega_4^2\omega_3^2\omega_7^2-32\omega_4^2c_s^2\omega_3^2\omega_7^2-12\omega_4^3c_s^2\omega_3^2\omega_7-30\omega_4v_3^2\omega_3^2\omega_7^2-24\omega_4^2c_s^2\omega_2^2\omega_7+6\omega_4^3v_3^2\omega_2^3+12\omega_4^2\omega_2^2\omega_7-12\omega_4^3c_s^2\omega_2^2\omega_7^2+12\omega_4^3v_3^2\omega_7^2+12\omega_4^3c_s^2\omega_2^2\omega_7+48\omega_4^2c_s^2\omega_2^2\omega_7^2-12c_s^2\omega_3^2\omega_7^2-18\omega_4^3v_3^2\omega_2\omega_7^2-6\omega_4^2\omega_2^2\omega_7^2-12\omega_4v_3^2\omega_2^3\omega_7+4\omega_4^3c_s^2\omega_2^2\omega_7^2+6\omega_4^3c_s^2\omega_3^2-6\omega_4^2\omega_2^3\omega_7+36\omega_4^2c_s^2\omega_2^3\omega_7-12\omega_4^3v_3^2\omega_3^2\omega_7+36\omega_4c_s^2\omega_3^2\omega_7^2-12\omega_4^2v_3^2\omega_2^3-6\omega_4^3\omega_2^2\omega_7-24\omega_4^2v_3^2\omega_2^2\omega_7-12\omega_4^2c_s^2\omega_2\omega_7^2-\omega_4^3\omega_2^2\omega_7^2+3\omega_4^3\omega_2^2\omega_7-24\omega_4c_s^2\omega_2^2\omega_7^2+12\omega_4^3v_3^2\omega_2^2\omega_7^2+24v_3^2\omega_2^2\omega_3^2\omega_7^2-12\omega_4^2c_s^2\omega_2^3+6\omega_4^3c_s^2\omega_2\omega_7^2-12\omega_4c_s^2\omega_2^2\omega_7+3\omega_4^3v_3^2\omega_2^2\omega_7^2+2\omega_4^3\omega_2^2\omega_7^2+36\omega_4^2v_3^2\omega_2^2\omega_3^2\omega_7$

$C_{71}=42\omega_4^2c_s^2\omega_3^2\omega_7-21\omega_4^2\omega_3^3\omega_7-24\omega_4v_3^2\omega_3^3\omega_7+6\omega_4^3c_s^2\omega_3^2\omega_7^2-12\omega_4^2v_3^2\omega_3^3-3\omega_4^2\omega_3^2\omega_7^2-12\omega_4^3v_3^2\omega_3\omega_7^2+42\omega_4^2c_s^2\omega_3^2\omega_7^2-36c_s^2\omega_3^3\omega_7^2+12\omega_4v_3^2\omega_3^2\omega_7^2+6\omega_4^3c_s^2\omega_3^2\omega_7+6\omega_4^3v_3^2\omega_7^2-3\omega_4^3\omega_3^3-12\omega_4^3c_s^2\omega_3^2\omega_7^2+6\omega_4^2v_3^2\omega_3\omega_7^2+6\omega_4^2\omega_3^2\omega_7-12\omega_4^2c_s^2\omega_3^2\omega_7-12\omega_4^2c_s^2\omega_3^3+6\omega_4^2\omega_3^3-12\omega_4^3c_s^2\omega_3^3\omega_7-30\omega_4v_3^2\omega_3^3\omega_7^2-48\omega_4^2c_s^2\omega_3^3\omega_7^2+7\omega_4^2\omega_3^3\omega_7^2+42\omega_4^2v_3^2\omega_3^3\omega_7+\omega_4^3\omega_3^3\omega_7^2+6\omega_4^3v_3^2\omega_3^3-24\omega_4c_s^2\omega_3^3\omega_7+6\omega_4^3c_s^2\omega_3\omega_7^2-12\omega_4^2v_3^2\omega_3^2\omega_7^2+24v_3^2\omega_3^3\omega_7^2-6\omega_4\omega_3^3\omega_7^2-24\omega_4c_s^2\omega_3^3\omega_7^2+6\omega_4^3v_3^2\omega_3^2\omega_7+6\omega_4^3\omega_3^3\omega_7+6\omega_4^3v_3^2\omega_3^2\omega_7^2+12\omega_4\omega_3^3\omega_7-\omega_4^3\omega_3^3\omega_7^2-12\omega_4^2c_s^2\omega_3\omega_7^2+6\omega_4^3c_s^2\omega_3^3-12\omega_4^2v_3^2\omega_3^2\omega_7-3\omega_4^3\omega_3^2\omega_7-12\omega_4^3v_3^2\omega_3^3\omega_7+78\omega_4c_s^2\omega_3^3\omega_7^2+6\omega_4^2v_3^2\omega_3^3\omega_7^2$

$C_{72}=90\omega_4c_s^2\omega_7^2-12\omega_4^3c_s^2\omega_7-6\omega_4^3+12\omega_4^2-12\omega_4\omega_7^2-36\omega_4v_3^2\omega_7+\omega_4^3v_3^2\omega_7^2-12\omega_4^2c_s^2-12\omega_4^3v_3^2\omega_7+24\omega_4\omega_7+6\omega_4^3c_s^2-36\omega_4c_s^2\omega_7+4\omega_4^3c_s^2\omega_7^2-8\omega_4^2v_3^2\omega_7^2-\omega_4^3\omega_7^2-12\omega_4^2v_3^2+12v_3^2\omega_7^2+48\omega_4^2c_s^2\omega_7-36\omega_4^2\omega_7+6\omega_4^3v_3^2-44\omega_4^2c_s^2\omega_7^2+11\omega_4^2\omega_7^2-48c_s^2\omega_7^2+9\omega_4^3\omega_7+48\omega_4^2v_3^2\omega_7$

$C_{73}=36\omega_4^2c_s^2\omega_3^2\omega_7-6\omega_4^2\omega_3^2\omega_7-12\omega_4v_3^2\omega_3^2\omega_7+4\omega_4^3c_s^2\omega_3^2\omega_7^2-12\omega_4^2v_3^2\omega_3^3-6\omega_4^2\omega_3^2\omega_7^2-18\omega_4^3v_3^2\omega_3\omega_7^2+48\omega_4^2c_s^2\omega_3^2\omega_7^2-12c_s^2\omega_3^3\omega_7^2+12\omega_4^3c_s^2\omega_3^2\omega_7+12\omega_4^3v_3^2\omega_7^2-12\omega_4^3c_s^2\omega_3^2\omega_7^2+12\omega_4^2\omega_3^2\omega_7-24\omega_4^2c_s^2\omega_3^2\omega_7-12\omega_4^2c_s^2\omega_3^3-12\omega_4^3c_s^2\omega_3^3\omega_7-30\omega_4v_3^2\omega_3^3\omega_7^2-32\omega_4^2c_s^2\omega_3^3\omega_7^2+3\omega_4^2\omega_3^3\omega_7^2+36\omega_4^2v_3^2\omega_3^3\omega_7+2\omega_4^3\omega_3^2\omega_7^2+6\omega_4^3v_3^2\omega_3^3-12\omega_4c_s^2\omega_3^3\omega_7+3\omega_4^3v_3^2\omega_3^3\omega_7^2+6\omega_4^3c_s^2\omega_3\omega_7^2+12\omega_4^2v_3^2\omega_3^2\omega_7^2+24v_3^2\omega_3^3\omega_7^2-24\omega_4c_s^2\omega_3^2\omega_7^2+12\omega_4^3v_3^2\omega_3^2\omega_7+3\omega_4^3\omega_3^3\omega_7-\omega_4^3\omega_3^3\omega_7^2-12\omega_4^2c_s^2\omega_3\omega_7^2+6\omega_4^3c_s^2\omega_3^3-24\omega_4^2v_3^2\omega_3^2\omega_7-6\omega_4^3\omega_3^2\omega_7-12\omega_4^3v_3^2\omega_3^3\omega_7+36\omega_4c_s^2\omega_3^3\omega_7^2$

$C_{74}=12\omega_4c_s^2\omega_7^2-6\omega_4^3c_s^2\omega_7+12\omega_4^3v_3^4-24\omega_4^2c_s^4\omega_7+156\omega_4c_s^2v_3^2\omega_7^2-24\omega_4^2v_3^4\omega_7^2+12\omega_4^3c_s^2v_3^2+48\omega_4v_3^2\omega_7-3\omega_4^3v_3^2\omega_7^2+24c_s^4\omega_7^2-24\omega_4v_3^2\omega_7^2+18\omega_4^3v_3^2\omega_7-24\omega_4^2v_3^4+72\omega_4^2v_3^4\omega_7+24\omega_4^2c_s^4\omega_7^2-24\omega_4c_s^2v_3^2\omega_7-24\omega_4c_s^2\omega_7+\omega_4^3c_s^2\omega_7^2-72\omega_4^2c_s^2v_3^2\omega_7^2+24\omega_4^2v_3^2\omega_7^2-48\omega_4v_3^4\omega_7-24\omega_4^2c_s^2v_3^2-12\omega_4^3c_s^2v_3^2\omega_7+3\omega_4^3v_3^4\omega_7^2+24\omega_4^2v_3^2-48\omega_4c_s^4\omega_7^2+6\omega_4^3c_s^4\omega_7+24\omega_4^2c_s^2\omega_7-12\omega_4^3v_3^2-8\omega_4^2c_s^2\omega_7^2+24\omega_4c_s^4\omega_7-3\omega_4^3c_s^4\omega_7^2-96c_s^2v_3^2\omega_7^2+24\omega_4v_3^4\omega_7^2+6\omega_4^3c_s^2v_3^2\omega_7^2-18\omega_4^3v_3^4\omega_7+48\omega_4^2c_s^2v_3^2\omega_7-72\omega_4^2v_3^2\omega_7$

$C_{75}=42\omega_4c_s^2\omega_7^2-6\omega_4^3c_s^2\omega_7-6\omega_4^3+12\omega_4^2-6\omega_4\omega_7^2-12\omega_4v_3^2\omega_7+2\omega_4^3v_3^2\omega_7^2-12\omega_4^2c_s^2+24\omega_4v_3^2\omega_7^2-6\omega_4^3v_3^2\omega_7+12\omega_4\omega_7+6\omega_4^3c_s^2-12\omega_4c_s^2\omega_7+\omega_4^3c_s^2\omega_7^2-16\omega_4^2v_3^2\omega_7^2-\omega_4^3\omega_7^2-12\omega_4^2v_3^2-12v_3^2\omega_7^2+24\omega_4^2c_s^2\omega_7-24\omega_4^2\omega_7+6\omega_4^3v_3^2-20\omega_4^2c_s^2\omega_7^2+8\omega_4^2\omega_7^2-24c_s^2\omega_7^2+6\omega_4^3\omega_7+24\omega_4^2v_3^2\omega_7$

2.4 CLBM1

2.4.1 Definitions

Collision operator $\boldsymbol{C}$:

$$\boldsymbol{C}\left(\boldsymbol{f}\right)=\mathbf{K}^{-1}\mathbf{S}\left(\boldsymbol{\kappa}^{(eq)}-\mathbf{K}\boldsymbol{f}\right),$$

where

$$\mathbf{S}=\mathrm{diag}(\omega_1,\omega_2,\omega_3,\omega_4,\omega_5,\omega_6,\omega_7),$$

$\omega_1,\omega_2,\ldots,\omega_7\in(0,2)$.
Matrix $\mathbf{K}$ corresponds to the transformation matrix to the central moment basis defined as

$$\boldsymbol{\kappa}=\left(k_{(0,0,0)},k_{(1,0,0)},k_{(0,1,0)},k_{(0,0,1)},k_{(2,0,0)},k_{(0,2,0)},k_{(0,0,2)}\right)^T,$$

and is given by

$$\mathbf{K} = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ -v_1 & 1-v_1 & -v_1 & -v_1 & -v_1-1 & -v_1 & -v_1 \\ -v_2 & -v_2 & 1-v_2 & -v_2 & -v_2 & -v_2-1 & -v_2 \\ -v_3 & -v_3 & -v_3 & 1-v_3 & -v_3 & -v_3 & -v_3-1 \\ v_1^2 & (1-v_1)^2 & v_1^2 & v_1^2 & (v_1+1)^2 & v_1^2 & v_1^2 \\ v_2^2 & v_2^2 & (1-v_2)^2 & v_2^2 & v_2^2 & (v_2+1)^2 & v_2^2 \\ v_3^2 & v_3^2 & v_3^2 & (1-v_3)^2 & v_3^2 & v_3^2 & (v_3+1)^2 \end{pmatrix}.$$

The equilibrium central moments are defined by

$$\boldsymbol{\kappa}^{(eq)} = \mathbf{K}\mathbf{M}^{-1}\boldsymbol{\mu}^{(eq)},$$

i.e.,

$$\boldsymbol{\kappa}^{(eq)} = \left(\rho, 0, 0, 0, \rho c_s^2, \rho c_s^2, \rho c_s^2\right)^T.$$

2.4.2 Conservation of mass equation

$$\frac{\partial \rho}{\partial t} + \frac{\delta_l v_1}{\delta_t}\frac{\partial \rho}{\partial x_1} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_1}{\partial x_1} + \frac{\delta_l v_2}{\delta_t}\frac{\partial \rho}{\partial x_2} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_2}{\partial x_2} + \frac{\delta_l v_3}{\delta_t}\frac{\partial \rho}{\partial x_3} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_3}{\partial x_3} + (-2+\omega_2)\frac{\delta_l}{2\omega_2}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial t} +$$
$$(-2+\omega_2)\frac{\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_1} + (-2+\omega_2)\frac{\delta_l^2 \rho}{2\omega_2\delta_t}\left(\frac{\partial v_1}{\partial x_1}\right)^2 + (2-\omega_3)\frac{\delta_l^2 v_2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_2} + (\omega_2+\omega_3-\omega_2\omega_3)\frac{\delta_l^2 v_1}{\omega_2\omega_3\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_2}{\partial x_2} +$$
$$(\omega_2+\omega_3-\omega_2\omega_3)\frac{\delta_l^2 \rho}{\omega_2\omega_3\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2} + (2-\omega_4)\frac{\delta_l^2 v_3}{2\omega_4\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_3} + (\omega_4-\omega_4\omega_2+\omega_2)\frac{\delta_l^2 v_1}{\omega_4\omega_2\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_3}{\partial x_3} +$$
$$(\omega_4-\omega_4\omega_2+\omega_2)\frac{\delta_l^2 \rho}{\omega_4\omega_2\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_3}{\partial x_3} + (-2+\omega_3)\frac{\delta_l}{2\omega_3}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial t} + (\omega_2+\omega_3-\omega_2\omega_3)\frac{\delta_l^2 v_2}{\omega_2\omega_3\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_1}{\partial x_1} + (2-\omega_2)\frac{\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_1}$$
$$+ (-2+\omega_3)\frac{\delta_l^2 v_2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_2} + (-2+\omega_3)\frac{\delta_l^2 \rho}{2\omega_3\delta_t}\left(\frac{\partial v_2}{\partial x_2}\right)^2 + (2-\omega_4)\frac{\delta_l^2 v_3}{2\omega_4\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_3} + (\omega_4-\omega_4\omega_3+\omega_3)\frac{\delta_l^2 v_2}{\omega_4\omega_3\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_3}{\partial x_3} +$$
$$(\omega_4-\omega_4\omega_3+\omega_3)\frac{\delta_l^2 \rho}{\omega_4\omega_3\delta_t}\frac{\partial v_2}{\partial x_2}\frac{\partial v_3}{\partial x_3} + (-2+\omega_4)\frac{\delta_l}{2\omega_4}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial t} + (\omega_4-\omega_4\omega_2+\omega_2)\frac{\delta_l^2 v_3}{\omega_4\omega_2\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_1}{\partial x_1} + (2-\omega_2)\frac{\delta_l^2 v_1}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_1}$$
$$+ (\omega_4-\omega_4\omega_3+\omega_3)\frac{\delta_l^2 v_3}{\omega_4\omega_3\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_2}{\partial x_2} + (2-\omega_3)\frac{\delta_l^2 v_2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_2} + (-2+\omega_4)\frac{\delta_l^2 v_3}{2\omega_4\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_3} + (-2+\omega_4)\frac{\delta_l^2 \rho}{2\omega_4\delta_t}\left(\frac{\partial v_3}{\partial x_3}\right)^2 +$$
$$(-2+\omega_2)\frac{\delta_l \rho}{2\omega_2}\frac{\partial^2 v_1}{\partial t \partial x_1} + (-2+\omega_2)\frac{c_s^2\delta_l^2}{2\omega_2\delta_t}\frac{\partial^2 \rho}{\partial x_1^2} + (-2+\omega_2)\frac{\delta_l^2 \rho v_1}{2\omega_2\delta_t}\frac{\partial^2 v_1}{\partial x_1^2} + (-2+\omega_3)\frac{\delta_l \rho}{2\omega_3}\frac{\partial^2 v_2}{\partial t \partial x_2} +$$
$$(\omega_2+\omega_3-\omega_2\omega_3)\frac{\delta_l^2 v_2 v_1}{\omega_2\omega_3\delta_t}\frac{\partial^2 \rho}{\partial x_1 \partial x_2} + (2-\omega_3)\frac{\delta_l^2 \rho v_2}{2\omega_3\delta_t}\frac{\partial^2 v_1}{\partial x_1 \partial x_2} + (2-\omega_2)\frac{\delta_l^2 \rho v_1}{2\omega_2\delta_t}\frac{\partial^2 v_2}{\partial x_1 \partial x_2} + (-2+\omega_3)\frac{c_s^2\delta_l^2}{2\omega_3\delta_t}\frac{\partial^2 \rho}{\partial x_2^2} +$$
$$(-2+\omega_3)\frac{\delta_l^2 \rho v_2}{2\omega_3\delta_t}\frac{\partial^2 v_2}{\partial x_2^2} + (-2+\omega_4)\frac{\delta_l \rho}{2\omega_4}\frac{\partial^2 v_3}{\partial t \partial x_3} + (\omega_4-\omega_4\omega_2+\omega_2)\frac{\delta_l^2 v_1 v_3}{\omega_4\omega_2\delta_t}\frac{\partial^2 \rho}{\partial x_1 \partial x_3} + (2-\omega_4)\frac{\delta_l^2 \rho v_3}{2\omega_4\delta_t}\frac{\partial^2 v_1}{\partial x_1 \partial x_3} +$$
$$(2-\omega_2)\frac{\delta_l^2 \rho v_1}{2\omega_2\delta_t}\frac{\partial^2 v_3}{\partial x_1 \partial x_3} + (\omega_4-\omega_4\omega_3+\omega_3)\frac{\delta_l^2 v_2 v_3}{\omega_4\omega_3\delta_t}\frac{\partial^2 \rho}{\partial x_2 \partial x_3} + (2-\omega_4)\frac{\delta_l^2 \rho v_3}{2\omega_4\delta_t}\frac{\partial^2 v_2}{\partial x_2 \partial x_3} + (2-\omega_3)\frac{\delta_l^2 \rho v_2}{2\omega_3\delta_t}\frac{\partial^2 v_3}{\partial x_2 \partial x_3} +$$
$$(-2+\omega_4)\frac{c_s^2\delta_l^2}{2\omega_4\delta_t}\frac{\partial^2 \rho}{\partial x_3^2} + (-2+\omega_4)\frac{\delta_l^2 \rho v_3}{2\omega_4\delta_t}\frac{\partial^2 v_3}{\partial x_3^2} + (12-12\omega_2+\omega_2^2)\frac{\delta_l \rho \delta_t}{12\omega_2^2}\frac{\partial^3 v_1}{\partial t^2 \partial x_1} + (12-12\omega_2+\omega_2^2)\frac{\delta_l^2 \rho v_1}{6\omega_2^2}\frac{\partial^3 v_1}{\partial t \partial x_1^2} +$$
$$C_1\frac{\delta_l^3 v_1}{6\omega_5\omega_2\delta_t}\frac{\partial^3 \rho}{\partial x_1^3} + C_2\frac{\delta_l^3 \rho}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^3} + (12+\omega_3^2-12\omega_3)\frac{\delta_l \rho \delta_t}{12\omega_3^2}\frac{\partial^3 v_2}{\partial t^2 \partial x_2} +$$
$$(-6\omega_2-2\omega_2\omega_3^2+3\omega_3^2-6\omega_3+9\omega_2\omega_3)\frac{\delta_l^2 \rho v_2}{6\omega_2\omega_3^2}\frac{\partial^3 v_1}{\partial t \partial x_1 \partial x_2} + (-2\omega_2^2\omega_3-6\omega_2-6\omega_3+3\omega_2^2+9\omega_2\omega_3)\frac{\delta_l^2 \rho v_1}{6\omega_2^2\omega_3}\frac{\partial^3 v_2}{\partial t \partial x_1 \partial x_2} +$$
$$C_3\frac{\delta_l^3 v_2}{2\omega_5\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 \rho}{\partial x_1^2 \partial x_2} + (-6\omega_2^2\omega_3+\omega_2^2\omega_3^2-6\omega_2\omega_3^2+6\omega_3^2+6\omega_2^2)\frac{\delta_l^3 \rho v_2 v_1}{6\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^2 \partial x_2} +$$
$$(6\omega_5\omega_2v_1^2+12\omega_2v_1^2+\omega_5\omega_2^2v_1^2-6\omega_2^2v_1^2+6c_s^2\omega_2^2+18c_s^2\omega_5\omega_2-12c_s^2\omega_5-12\omega_5v_1^2-3c_s^2\omega_5\omega_2^2-12c_s^2\omega_2)\frac{\delta_l^3 \rho}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_2}{\partial x_1^2 \partial x_2}$$
$$+ (12+\omega_3^2-12\omega_3)\frac{\delta_l^2 \rho v_2}{6\omega_3^2}\frac{\partial^3 v_2}{\partial t \partial x_2^2} + C_4\frac{\delta_l^3 v_1}{2\omega_2^2\omega_6\omega_3^2\delta_t}\frac{\partial^3 \rho}{\partial x_1 \partial x_2^2} +$$
$$(-6v_2^2\omega_3^2+18c_s^2\omega_6\omega_3-12c_s^2\omega_6-3c_s^2\omega_6\omega_3^2+12v_2^2\omega_3-12c_s^2\omega_3+v_2^2\omega_6\omega_3^2-12v_2^2\omega_6+6c_s^2\omega_3^2+6v_2^2\omega_6\omega_3)\frac{\delta_l^3 \rho}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1 \partial x_2^2}$$
$$+ (-6\omega_2^2\omega_3+\omega_2^2\omega_3^2-6\omega_2\omega_3^2+6\omega_3^2+6\omega_2^2)\frac{\delta_l^3 \rho v_2 v_1}{6\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_1 \partial x_2^2} + C_5\frac{\delta_l^3 v_2}{6\omega_6\omega_3\delta_t}\frac{\partial^3 \rho}{\partial x_2^3} + C_6\frac{\delta_l^3 \rho}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^3} +$$

$$(12-12\omega_4+\omega_4^2)\tfrac{\delta_l\rho\delta_t}{12\omega_4^2}\tfrac{\partial^3 v_3}{\partial t^2\partial x_3}+(-6\omega_4+3\omega_4^2+9\omega_4\omega_2-6\omega_2-2\omega_4^2\omega_2)\tfrac{\delta_l^2\rho v_3}{6\omega_4^2\omega_2}\tfrac{\partial^3 v_1}{\partial t\partial x_1\partial x_3}+$$
$$(-6\omega_4+9\omega_4\omega_2-2\omega_4\omega_2^2-6\omega_2+3\omega_2^2)\tfrac{\delta_l^2\rho v_1}{6\omega_4\omega_2^2}\tfrac{\partial^3 v_3}{\partial t\partial x_1\partial x_3}+C_7\tfrac{\delta_l^3 v_3}{2\omega_4^2\omega_5\omega_2^2\delta_t}\tfrac{\partial^3\rho}{\partial x_1^2\partial x_3}+$$
$$(6\omega_4^2-6\omega_4\omega_2^2+\omega_4^2\omega_2^2+6\omega_2^2-6\omega_4^2\omega_2)\tfrac{\delta_l^3\rho v_1 v_3}{6\omega_4^2\omega_2^2\delta_t}\tfrac{\partial^3 v_1}{\partial x_1^2\partial x_3}+$$
$$(6\omega_5\omega_2v_1^2+12\omega_2v_1^2+\omega_5\omega_2^2v_1^2-6\omega_2^2v_1^2+6c_s^2\omega_2^2+18c_s^2\omega_5\omega_2-12c_s^2\omega_5-12\omega_5v_1^2-3c_s^2\omega_5\omega_2^2-12c_s^2\omega_2)\tfrac{\delta_l^3\rho}{12\omega_5\omega_2^2\delta_t}\tfrac{\partial^3 v_3}{\partial x_1^2\partial x_3}$$
$$+(-6\omega_4+3\omega_4^2+9\omega_4\omega_3-2\omega_4^2\omega_3-6\omega_3)\tfrac{\delta_l^2\rho v_3}{6\omega_4^2\omega_3}\tfrac{\partial^3 v_2}{\partial t\partial x_2\partial x_3}+(-2\omega_4\omega_3^2-6\omega_4+9\omega_4\omega_3+3\omega_3^2-6\omega_3)\tfrac{\delta_l^2\rho v_2}{6\omega_4\omega_3^2}\tfrac{\partial^3 v_3}{\partial t\partial x_2\partial x_3}+$$
$$(-2\omega_4\omega_2^2\omega_3^2-2\omega_4^2\omega_2\omega_3^2+\omega_4^2\omega_2\omega_3+\omega_2^2\omega_3^2+\omega_4\omega_2^2\omega_3+\omega_4^2\omega_2^2-2\omega_4^2\omega_2^2\omega_3+\omega_4^2\omega_2^2\omega_3^2+\omega_4^2\omega_3^2+\omega_4\omega_2\omega_3^2)\tfrac{2\delta_l^3 v_2v_1v_3}{\omega_4^2\omega_2^2\omega_3^2\delta_t}\tfrac{\partial^3\rho}{\partial x_1\partial x_2\partial x_3}$$
$$+(-6\omega_4\omega_3^2+3\omega_4^2+6\omega_4\omega_3-6\omega_4^2\omega_3+3\omega_3^2+2\omega_4^2\omega_3^2)\tfrac{\delta_l^3\rho v_2v_3}{3\omega_4^2\omega_3^2\delta_t}\tfrac{\partial^3 v_1}{\partial x_1\partial x_2\partial x_3}+$$
$$(3\omega_4^2+6\omega_4\omega_2-6\omega_4\omega_2^2+2\omega_4^2\omega_2^2+3\omega_2^2-6\omega_4^2\omega_2)\tfrac{\delta_l^3\rho v_1v_3}{3\omega_4^2\omega_2^2\delta_t}\tfrac{\partial^3 v_2}{\partial x_1\partial x_2\partial x_3}+$$
$$(-6\omega_2^2\omega_3+2\omega_2^2\omega_3^2-6\omega_2\omega_3^2+3\omega_3^2+3\omega_2^2+6\omega_2\omega_3)\tfrac{\delta_l^3\rho v_2v_1}{3\omega_2^2\omega_3^2\delta_t}\tfrac{\partial^3 v_3}{\partial x_1\partial x_2\partial x_3}+C_8\tfrac{\delta_l^3 v_3}{2\omega_4^2\omega_6\omega_3^2\delta_t}\tfrac{\partial^3\rho}{\partial x_2^2\partial x_3}+$$
$$(-6\omega_4\omega_3^2+6\omega_4^2-6\omega_4^2\omega_3+6\omega_3^2+\omega_4^2\omega_3^2)\tfrac{\delta_l^3\rho v_2v_3}{6\omega_4^2\omega_3^2\delta_t}\tfrac{\partial^3 v_2}{\partial x_2^2\partial x_3}+$$
$$(-6v_2^2\omega_3^2+18c_s^2\omega_6\omega_3-12c_s^2\omega_6-3c_s^2\omega_6\omega_3^2+12v_2^2\omega_3-12c_s^2\omega_3+v_2^2\omega_6\omega_3^2-12v_2^2\omega_6+6c_s^2\omega_3^2+6v_2^2\omega_6\omega_3)\tfrac{\delta_l^3\rho}{12\omega_6\omega_3^2\delta_t}\tfrac{\partial^3 v_3}{\partial x_2^2\partial x_3}$$
$$+(12-12\omega_4+\omega_4^2)\tfrac{\delta_l^2\rho v_3}{6\omega_4^2}\tfrac{\partial^3 v_3}{\partial t\partial x_3^2}+C_9\tfrac{\delta_l^3 v_1}{2\omega_4^2\omega_2^2\delta_t\omega_7}\tfrac{\partial^3\rho}{\partial x_1\partial x_3^2}+$$
$$(12\omega_4v_3^2+6\omega_4^2c_s^2+\omega_4^2v_3^2\omega_7-3\omega_4^2c_s^2\omega_7+18\omega_4c_s^2\omega_7+6\omega_4v_3^2\omega_7-12\omega_4c_s^2-6\omega_4^2v_3^2-12v_3^2\omega_7-12c_s^2\omega_7)\tfrac{\delta_l^3\rho}{12\omega_4^2\delta_t\omega_7}\tfrac{\partial^3 v_1}{\partial x_1\partial x_3^2}$$
$$+(6\omega_4^2-6\omega_4\omega_2^2+\omega_4^2\omega_2^2+6\omega_2^2-6\omega_4^2\omega_2)\tfrac{\delta_l^3\rho v_1v_3}{6\omega_4^2\omega_2^2\delta_t}\tfrac{\partial^3 v_3}{\partial x_1\partial x_3^2}+C_{10}\tfrac{\delta_l^3 v_2}{2\omega_4^2\omega_3^2\delta_t\omega_7}\tfrac{\partial^3\rho}{\partial x_2\partial x_3^2}+$$
$$(12\omega_4v_3^2+6\omega_4^2c_s^2+\omega_4^2v_3^2\omega_7-3\omega_4^2c_s^2\omega_7+18\omega_4c_s^2\omega_7+6\omega_4v_3^2\omega_7-12\omega_4c_s^2-6\omega_4^2v_3^2-12v_3^2\omega_7-12c_s^2\omega_7)\tfrac{\delta_l^3\rho}{12\omega_4^2\delta_t\omega_7}\tfrac{\partial^3 v_2}{\partial x_2\partial x_3^2}$$
$$+(-6\omega_4\omega_3^2+6\omega_4^2-6\omega_4^2\omega_3+6\omega_3^2+\omega_4^2\omega_3^2)\tfrac{\delta_l^3\rho v_2v_3}{6\omega_4^2\omega_3^2\delta_t}\tfrac{\partial^3 v_3}{\partial x_2\partial x_3^2}+C_{11}\tfrac{\delta_l^3 v_3}{6\omega_4\delta_t\omega_7}\tfrac{\partial^3\rho}{\partial x_3^3}+C_{12}\tfrac{\delta_l^3\rho}{12\omega_4^2\delta_t\omega_7}\tfrac{\partial^3 v_3}{\partial x_3^3}+$$
$$(-2+3\omega_2-\omega_2^2)\tfrac{\delta_l\rho\delta_t^2}{2\omega_2^3}\tfrac{\partial^4 v_1}{\partial t^3\partial x_1}+(-2+3\omega_2-\omega_2^2)\tfrac{3\delta_l^2\rho v_1\delta_t}{2\omega_2^3}\tfrac{\partial^4 v_1}{\partial t^2\partial x_1^2}+C_{13}\tfrac{\delta_l^3\rho}{12\omega_5^2\omega_2^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1^3}+C_{14}\tfrac{\delta_l^4}{24\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^4}+$$
$$C_{15}\tfrac{\delta_l^4\rho v_1}{12\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^4}+(-2-\omega_3^2+3\omega_3)\tfrac{\delta_l\rho\delta_t^2}{2\omega_3^3}\tfrac{\partial^4 v_2}{\partial t^3\partial x_2}+$$
$$(-24\omega_2^2\omega_3-\omega_2^2\omega_3^3+13\omega_2^2\omega_3^2-24\omega_2\omega_3^2-6\omega_3^3+7\omega_2\omega_3^3+12\omega_3^2+12\omega_2^2+12\omega_2\omega_3)\tfrac{\delta_l^2\rho v_2\delta_t}{12\omega_2^2\omega_3^3}\tfrac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_2}+$$
$$(-24\omega_2^2\omega_3-\omega_2^3\omega_3^2+7\omega_2^3\omega_3+13\omega_2^2\omega_3^2-24\omega_2\omega_3^2+12\omega_3^2+12\omega_2^2+12\omega_2\omega_3-6\omega_2^3)\tfrac{\delta_l^2\rho v_1\delta_t}{12\omega_2^3\omega_3^2}\tfrac{\partial^4 v_2}{\partial t^2\partial x_1\partial x_2}+$$
$$(-6\omega_2^2\omega_3+\omega_2^3\omega_3^3-7\omega_2^3\omega_3^2+12\omega_2^3\omega_3-7\omega_2^2\omega_3^3+6\omega_2^2\omega_3^2-12\omega_3^3+18\omega_2\omega_3^3-6\omega_2^3)\tfrac{\delta_l^3\rho v_2v_1}{6\omega_2^3\omega_3^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_2}+$$
$$C_{16}\tfrac{\delta_l^3\rho}{12\omega_5^2\omega_2^3\omega_3}\tfrac{\partial^4 v_2}{\partial t\partial x_1^2\partial x_2}+C_{17}\tfrac{\delta_l^4v_2v_1}{6\omega_5^2\omega_2^3\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^3\partial x_2}+C_{18}\tfrac{\delta_l^4\rho v_2}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^3\partial x_2}+C_{19}\tfrac{\delta_l^4\rho v_1}{12\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1^3\partial x_2}+$$
$$(-2-\omega_3^2+3\omega_3)\tfrac{3\delta_l^2\rho v_2\delta_t}{2\omega_3^3}\tfrac{\partial^4 v_2}{\partial t^2\partial x_2^2}+C_{20}\tfrac{\delta_l^3\rho}{12\omega_2\omega_6^2\omega_3^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2}+$$
$$(\omega_2^3\omega_3^3-7\omega_2^3\omega_3^2+18\omega_2^3\omega_3-7\omega_2^2\omega_3^3+6\omega_2^2\omega_3^2-6\omega_2\omega_3^2-6\omega_3^3+12\omega_2\omega_3^3-12\omega_2^3)\tfrac{\delta_l^3\rho v_2v_1}{6\omega_2^3\omega_3^3}\tfrac{\partial^4 v_2}{\partial t\partial x_1\partial x_2^2}+$$
$$C_{21}\tfrac{\delta_l^4}{4\omega_5^2\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_2^2}+C_{22}\tfrac{\delta_l^4\rho v_1}{12\omega_5^2\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_2^2}+C_{23}\tfrac{\delta_l^4\rho v_2}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1^2\partial x_2^2}+C_{24}\tfrac{\delta_l^3\rho}{12\omega_6^2\omega_3^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2^3}+$$
$$C_{25}\tfrac{\delta_l^4v_2v_1}{6\omega_5^2\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1\partial x_2^3}+C_{26}\tfrac{\delta_l^4\rho v_2}{12\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2^3}+C_{27}\tfrac{\delta_l^4\rho v_1}{12\omega_5^2\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2^3}+C_{28}\tfrac{\delta_l^4}{24\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_2^4}+C_{29}\tfrac{\delta_l^4\rho v_2}{12\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_2^4}+$$
$$(-2+3\omega_4-\omega_4^2)\tfrac{\delta_l\rho\delta_t^2}{2\omega_4^3}\tfrac{\partial^4 v_3}{\partial t^3\partial x_3}+$$
$$(12\omega_4^2+12\omega_4\omega_2-6\omega_4^3-24\omega_4\omega_2^2+13\omega_4^2\omega_2^2+7\omega_4^3\omega_2+12\omega_2^2-\omega_4^3\omega_2^2-24\omega_4^2\omega_2)\tfrac{\delta_l^2\rho\delta_t v_3}{12\omega_4^3\omega_2^2}\tfrac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_3}+$$
$$(12\omega_4^2+12\omega_4\omega_2+7\omega_4\omega_2^3-24\omega_4\omega_2^2+13\omega_4^2\omega_2^2-\omega_4^2\omega_2^3+12\omega_2^2-6\omega_2^3-24\omega_4^2\omega_2)\tfrac{\delta_l^2\rho v_1\delta_t}{12\omega_4^2\omega_2^3}\tfrac{\partial^4 v_3}{\partial t^2\partial x_1\partial x_3}+$$
$$(-12\omega_4^3+12\omega_4\omega_2^3-6\omega_4\omega_2^2+6\omega_4^2\omega_2^2-7\omega_4^2\omega_2^3+18\omega_4^3\omega_2-7\omega_4^3\omega_2^2-6\omega_2^3+\omega_4^3\omega_2^3)\tfrac{\delta_l^3\rho v_1v_3}{6\omega_4^3\omega_2^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_3}+$$
$$C_{30}\tfrac{\delta_l^3\rho}{12\omega_4\omega_5^2\omega_2^3}\tfrac{\partial^4 v_3}{\partial t\partial x_1^2\partial x_3}+C_{31}\tfrac{\delta_l^4v_1v_3}{6\omega_4^3\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^3\partial x_3}+C_{32}\tfrac{\delta_l^4\rho v_3}{12\omega_4^3\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^3\partial x_3}+C_{33}\tfrac{\delta_l^4\rho v_1}{12\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1^3\partial x_3}+$$
$$(-24\omega_4\omega_3^2+12\omega_4^2-6\omega_4^3+12\omega_4\omega_3-24\omega_4^2\omega_3-\omega_4^3\omega_3^2+12\omega_3^2+7\omega_4^3\omega_3+13\omega_4^2\omega_3^2)\tfrac{\delta_l^2\rho\delta_t v_3}{12\omega_4^3\omega_3^2}\tfrac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3}+$$

$$(-24\omega_4\omega_3^2+12\omega_4^2+7\omega_4\omega_3^3+12\omega_4\omega_3-24\omega_4^2\omega_3-6\omega_3^3+12\omega_3^2-\omega_4^2\omega_3^3+13\omega_4^2\omega_3^2)\frac{\delta_l^2\rho v_2\delta_t}{12\omega_4^2\omega_3^3}\frac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3}+$$
$$C_{34}\frac{\delta_l^3\rho v_2 v_3}{6\omega_4^3\omega_2\omega_3^3}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3}+C_{35}\frac{\delta_l^3\rho v_1 v_3}{6\omega_4^3\omega_2^3\omega_3}\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3}+C_{36}\frac{\delta_l^3\rho v_2 v_1}{6\omega_4\omega_2^3\omega_3^3}\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3}+C_{37}\frac{\delta_l^4 v_2 v_3}{\omega_4^3\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1^2\partial x_2\partial x_3}+$$
$$C_{38}\frac{\delta_l^4\rho v_2 v_1 v_3}{6\omega_4^3\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3}+C_{39}\frac{\delta_l^4\rho v_3}{12\omega_4^3\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_2}{\partial x_1^2\partial x_2\partial x_3}+C_{40}\frac{\delta_l^4\rho v_2}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1^2\partial x_2\partial x_3}+$$
$$(-6\omega_4\omega_3^2+12\omega_4\omega_3^3-12\omega_4^3+\omega_4^3\omega_3^3-6\omega_3^3-7\omega_4^3\omega_3^2+18\omega_4^3\omega_3-7\omega_4^2\omega_3^3+6\omega_4^2\omega_3^2)\frac{\delta_l^3\rho v_2 v_3}{6\omega_4^3\omega_3^3}\frac{\partial^4 v_2}{\partial t\partial x_2^2\partial x_3}+$$
$$C_{41}\frac{\delta_l^3\rho}{12\omega_4\omega_6^2\omega_3^3}\frac{\partial^4 v_3}{\partial t\partial x_2^2\partial x_3}+C_{42}\frac{\delta_l^4 v_1 v_3}{\omega_4^3\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_2^2\partial x_3}+C_{43}\frac{\delta_l^4\rho v_3}{12\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_2^2\partial x_3}+C_{44}\frac{\delta_l^4\rho v_2 v_1 v_3}{6\omega_4^3\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3}+$$
$$C_{45}\frac{\delta_l^4\rho v_1}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3}+C_{46}\frac{\delta_l^4 v_2 v_3}{6\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_2^3\partial x_3}+C_{47}\frac{\delta_l^4\rho v_3}{12\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_2}{\partial x_2^3\partial x_3}+C_{48}\frac{\delta_l^4\rho v_2}{12\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_2^3\partial x_3}+$$
$$(-2+3\omega_4-\omega_4^2)\frac{3\delta_l^2\rho\delta_t v_3}{2\omega_4^3}\frac{\partial^4 v_3}{\partial t^2\partial x_3^2}+C_{49}\frac{\delta_l^3\rho}{12\omega_4^3\omega_2\omega_7^2}\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_3^2}+$$
$$(-6\omega_4^3+18\omega_4\omega_2^2+6\omega_4^2\omega_2^2-7\omega_4^2\omega_2^3+12\omega_4^3\omega_2-7\omega_4^3\omega_2^2-12\omega_2^3+\omega_4^3\omega_2^3-6\omega_4^2\omega_2)\frac{\delta_l^3\rho v_1 v_3}{6\omega_4^3\omega_2^3}\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2}+$$
$$C_{50}\frac{\delta_l^4}{4\omega_4^3\omega_2^2\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_1^2\partial x_3^2}+C_{51}\frac{\delta_l^4\rho v_1}{12\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4 v_1}{\partial x_1^2\partial x_3^2}+C_{52}\frac{\delta_l^4\rho v_3}{12\omega_4^3\omega_2^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1^2\partial x_3^2}+C_{53}\frac{\delta_l^3\rho}{12\omega_4^3\omega_3\omega_7^2}\frac{\partial^4 v_2}{\partial t\partial x_2\partial x_3^2}+$$
$$(18\omega_4\omega_3^3-6\omega_4^3-6\omega_4^2\omega_3+\omega_4^3\omega_3^3-12\omega_3^3-7\omega_4^3\omega_3^2+12\omega_4^3\omega_3-7\omega_4^2\omega_3^3+6\omega_4^2\omega_3^2)\frac{\delta_l^3\rho v_2 v_3}{6\omega_4^3\omega_3^3}\frac{\partial^4 v_3}{\partial t\partial x_2\partial x_3^2}+$$
$$C_{54}\frac{\delta_l^4 v_2 v_1}{\omega_4^3\omega_2^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_1\partial x_2\partial x_3^2}+C_{55}\frac{\delta_l^4\rho v_2}{12\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2}+C_{56}\frac{\delta_l^4\rho v_1}{12\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2}+C_{57}\frac{\delta_l^4\rho v_2 v_1 v_3}{6\omega_4^3\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_2\partial x_3^2}+$$
$$C_{58}\frac{\delta_l^4}{4\omega_4^3\omega_6^2\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_2^2\partial x_3^2}+C_{59}\frac{\delta_l^4\rho v_2}{12\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4 v_2}{\partial x_2^2\partial x_3^2}+C_{60}\frac{\delta_l^4\rho v_3}{12\omega_4^3\omega_6^2\omega_3^3\delta_t}\frac{\partial^4 v_3}{\partial x_2^2\partial x_3^2}+C_{61}\frac{\delta_l^3\rho}{12\omega_4^3\omega_7^2}\frac{\partial^4 v_3}{\partial t\partial x_3^3}+$$
$$C_{62}\frac{\delta_l^4 v_1 v_3}{6\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_1\partial x_3^3}+C_{63}\frac{\delta_l^4\rho v_3}{12\omega_4^3\delta_t\omega_7^2}\frac{\partial^4 v_1}{\partial x_1\partial x_3^3}+C_{64}\frac{\delta_l^4\rho v_1}{12\omega_4^3\omega_2^3\delta_t\omega_7^2}\frac{\partial^4 v_3}{\partial x_1\partial x_3^3}+C_{65}\frac{\delta_l^4 v_2 v_3}{6\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_2\partial x_3^3}+$$
$$C_{66}\frac{\delta_l^4\rho v_3}{12\omega_4^3\delta_t\omega_7^2}\frac{\partial^4 v_2}{\partial x_2\partial x_3^3}+C_{67}\frac{\delta_l^4\rho v_2}{12\omega_4^3\omega_3^3\delta_t\omega_7^2}\frac{\partial^4 v_3}{\partial x_2\partial x_3^3}+C_{68}\frac{\delta_l^4}{24\omega_4^3\delta_t\omega_7^2}\frac{\partial^4\rho}{\partial x_3^4}+C_{69}\frac{\delta_l^4\rho v_3}{12\omega_4^3\delta_t\omega_7^2}\frac{\partial^4 v_3}{\partial x_3^4}=0,$$

where:

$$C_1=6-18c_s^2+\omega_5\omega_2-6v_1^2-3\omega_5-\omega_5\omega_2v_1^2-3\omega_2+3\omega_2v_1^2-3c_s^2\omega_5\omega_2+9c_s^2\omega_5+3\omega_5v_1^2+9c_s^2\omega_2$$

$$C_2=-6\omega_5\omega_2+2\omega_5\omega_2^2+6\omega_5\omega_2v_1^2+12\omega_2-36\omega_2v_1^2-5\omega_5\omega_2^2v_1^2+18\omega_2^2v_1^2+6c_s^2\omega_2^2+18c_s^2\omega_5\omega_2-12c_s^2\omega_5+12\omega_5v_1^2-3c_s^2\omega_5\omega_2^2-6\omega_2^2-12c_s^2\omega_2$$

$$C_3=-2c_s^2\omega_2\omega_3^2-2\omega_5\omega_2v_1^2\omega_3^2+c_s^2\omega_5\omega_2^2\omega_3+2\omega_2v_1^2\omega_3^2-c_s^2\omega_5\omega_2^2\omega_3^2+2\omega_5\omega_2v_1^2\omega_3+2\omega_5\omega_2^2v_1^2-2c_s^2\omega_5\omega_3^2-3\omega_5\omega_2^2v_1^2\omega_3+4c_s^2\omega_5\omega_2\omega_3^2-2c_s^2\omega_5\omega_2\omega_3+\omega_5\omega_2^2v_1^2\omega_3^2+c_s^2\omega_2^2\omega_3^2-\omega_2^2v_1^2\omega_3^2$$

$$C_4=2\omega_2v_2^2\omega_6\omega_3+4c_s^2\omega_2^2\omega_6\omega_3-2c_s^2\omega_2^2\omega_6-c_s^2\omega_2^2\omega_6\omega_3^2-3\omega_2v_2^2\omega_6\omega_3^2-2c_s^2\omega_2^2\omega_3+2v_2^2\omega_6\omega_3^2-2\omega_2^2v_2^2\omega_6\omega_3+c_s^2\omega_2\omega_6\omega_3^2-\omega_2^2v_2^2\omega_3^2+2\omega_2^2v_2^2\omega_3-2c_s^2\omega_2\omega_6\omega_3+\omega_2^2v_2^2\omega_6\omega_3^2+c_s^2\omega_2^2\omega_3^2$$

$$C_5=6-3c_s^2\omega_6\omega_3-18c_s^2+9c_s^2\omega_6-6v_2^2+3v_2^2\omega_3+\omega_6\omega_3+9c_s^2\omega_3+3v_2^2\omega_6-3\omega_6-3\omega_3-v_2^2\omega_6\omega_3$$

$$C_6=18v_2^2\omega_3^2+18c_s^2\omega_6\omega_3-12c_s^2\omega_6-3c_s^2\omega_6\omega_3^2-36v_2^2\omega_3-6\omega_6\omega_3-12c_s^2\omega_3-5v_2^2\omega_6\omega_3^2+12v_2^2\omega_6-6\omega_3^2+12\omega_3+6c_s^2\omega_3^2+2\omega_6\omega_3^2+6v_2^2\omega_6\omega_3$$

$$C_7=\omega_4c_s^2\omega_5\omega_2^2-2\omega_4^2c_s^2\omega_5-2\omega_4^2\omega_5\omega_2v_1^2+\omega_4^2c_s^2\omega_2^2-\omega_4^2\omega_2^2v_1^2-2\omega_4^2c_s^2\omega_2-3\omega_4\omega_5\omega_2^2v_1^2-2\omega_4c_s^2\omega_5\omega_2+2\omega_5\omega_2^2v_1^2-\omega_4^2c_s^2\omega_5\omega_2^2+2\omega_4\omega_5\omega_2v_1^2+\omega_4^2\omega_5\omega_2^2v_1^2+2\omega_4^2\omega_2v_1^2+4\omega_4^2c_s^2\omega_5\omega_2$$

$$C_8=-2\omega_4^2c_s^2\omega_3-\omega_4^2c_s^2\omega_6\omega_3^2+2\omega_4v_2^2\omega_6\omega_3+\omega_4^2c_s^2\omega_3^2-3\omega_4v_2^2\omega_6\omega_3^2+4\omega_4^2c_s^2\omega_6\omega_3+2v_2^2\omega_6\omega_3^2-\omega_4^2v_2^2\omega_3^2+\omega_4c_s^2\omega_6\omega_3^2-2\omega_4^2v_2^2\omega_6\omega_3+\omega_4^2v_2^2\omega_6\omega_3^2-2\omega_4c_s^2\omega_6\omega_3+2\omega_4^2v_2^2\omega_3-2\omega_4^2c_s^2\omega_6$$

$$C_9=\omega_4^2\omega_2^2v_3^2\omega_7+2\omega_4\omega_2^2v_3^2+4\omega_4c_s^2\omega_2^2\omega_7+\omega_4^2c_s^2\omega_2^2+\omega_4^2c_s^2\omega_2\omega_7+2\omega_4^2v_3^2\omega_7+2\omega_4\omega_2v_3^2\omega_7-2\omega_4\omega_2^2v_3^2\omega_7-\omega_4^2c_s^2\omega_2^2\omega_7-3\omega_4^2\omega_2v_3^2\omega_7-2\omega_4c_s^2\omega_2\omega_7-\omega_4^2\omega_2^2v_3^2-2\omega_4c_s^2\omega_2^2-2c_s^2\omega_2^2\omega_7$$

$$C_{10}=-2\omega_4c_s^2\omega_3\omega_7-2\omega_4\omega_3^2v_3^2\omega_7-\omega_4^2\omega_3^2v_3^2-2c_s^2\omega_3^2\omega_7+\omega_4^2c_s^2\omega_3^2+2\omega_4^2v_3^2\omega_7-3\omega_4^2\omega_3v_3^2\omega_7-\omega_4^2c_s^2\omega_3^2\omega_7+\omega_4^2\omega_3^2v_3^2\omega_7-2\omega_4c_s^2\omega_3^2+\omega_4^2c_s^2\omega_3\omega_7+2\omega_4\omega_3v_3^2\omega_7+4\omega_4c_s^2\omega_3^2\omega_7+2\omega_4\omega_3^2v_3^2$$

$$C_{11}=6+\omega_4\omega_7-3\omega_4-18c_s^2+3\omega_4v_3^2-3\omega_4c_s^2\omega_7-\omega_4v_3^2\omega_7-6v_3^2+9\omega_4c_s^2+3v_3^2\omega_7+9c_s^2\omega_7-3\omega_7$$

$$C_{12}=-6\omega_4\omega_7+12\omega_4-6\omega_4^2-36\omega_4v_3^2+6\omega_4^2c_s^2-5\omega_4^2v_3^2\omega_7-3\omega_4^2c_s^2\omega_7+18\omega_4c_s^2\omega_7+6\omega_4v_3^2\omega_7-12\omega_4c_s^2+18\omega_4^2v_3^2+2\omega_4^2\omega_7+12v_3^2\omega_7-12c_s^2\omega_7$$

$$C_{13}=-2c_s^2\omega_5^2\omega_2^3-3\omega_5^2\omega_2^3v_1^2+25c_s^2\omega_5^2\omega_2^2-24\omega_5\omega_2-36\omega_5^2v_1^2+15\omega_5^2\omega_2^2v_1^2-48c_s^2\omega_5^2\omega_2+36\omega_5\omega_2^2+72\omega_5\omega_2v_1^2-9\omega_5\omega_2^3-108\omega_5\omega_2^2v_1^2+36\omega_2^2v_1^2+12c_s^2\omega_2^2+\omega_5^2\omega_2^3+18\omega_5^2\omega_2v_1^2-11\omega_5^2\omega_2^2+24c_s^2\omega_5\omega_2-6c_s^2\omega_2^3+12\omega_5^2\omega_2-36c_s^2\omega_5\omega_2^2-18\omega_2^3v_1^2+24c_s^2\omega_2^2-12\omega_2^2+27\omega_5\omega_2^3v_1^2+9c_s^2\omega_5\omega_2^3+6\omega_2^3$$

$$C_{14}=-216c_s^2\omega_2^2v_1^2-30\omega_5\omega_2^3v_1^4+c_s^2\omega_5^2\omega_2^3-3\omega_5^2\omega_2^3v_1^2-48c_s^4\omega_5^2\omega_2+36\omega_2^3v_1^4-8c_s^2\omega_5^2\omega_2^2+6c_s^2\omega_5^2\omega_2^3v_1^2-72\omega_2^2v_1^4+72c_s^2\omega_5\omega_2v_1^2-3c_s^4\omega_5^2\omega_2^3+12\omega_5^2\omega_2^2v_1^2+72\omega_5\omega_2^2v_1^4+12c_s^2\omega_5^2\omega_2+108c_s^2\omega_2^3v_1^2+24c_s^4\omega_5^2\omega_2^2-12c_s^2\omega_5^2\omega_2^2v_1^2+24c_s^4\omega_5^2-24c_s^4\omega_5\omega_2^2-72\omega_5\omega_2^2v_1^2-36c_s^2\omega_5^2\omega_2v_1^2+72\omega_2^2v_1^2-12\omega_5^2\omega_2^2v_1^4+144c_s^2\omega_5\omega_2^2v_1^2+6c_s^4\omega_5\omega_2^3-24c_s^2\omega_5\omega_2+3\omega_5^2\omega_2^3v_1^4+24c_s^2\omega_5\omega_2^2-36\omega_2^3v_1^2+30\omega_5\omega_2^3v_1^2-6c_s^2\omega_5\omega_2^3+24c_s^4\omega_5\omega_2-72c_s^2\omega_5\omega_2^3v_1^2$$

$$C_{15} = c_s^2\omega_5^2\omega_2^3 + 2\omega_5^2\omega_2^3v_1^2 - 2c_s^2\omega_5^2\omega_2^2 - 12\omega_5\omega_2 - 12\omega_5^2v_1^2 + 2\omega_5^2\omega_2^2v_1^2 - 30c_s^2\omega_5^2\omega_2 - 24\omega_5\omega_2^2 + 60\omega_5\omega_2v_1^2 + 12\omega_5\omega_2^3 + 24\omega_5\omega_2^2v_1^2 - 84\omega_2^2v_1^2 - 60c_s^2\omega_2^2 - \omega_5^2\omega_2^3 - 12\omega_5^2\omega_2v_1^2 + 2\omega_5^2\omega_2^2 - 12c_s^2\omega_5\omega_2 + 30c_s^2\omega_2^3 + 6\omega_5^2\omega_2 + 72c_s^2\omega_5\omega_2^2 + 42\omega_2^3v_1^2 + 24c_s^2\omega_5^2 + 36\omega_2^2 - 24\omega_5\omega_2^3v_1^2 - 24c_s^2\omega_5\omega_2^3 - 18\omega_2^3$$

$$C_{16} = -30c_s^2\omega_5^2\omega_2\omega_3 + 3c_s^2\omega_5^2\omega_2^3 - \omega_5^2\omega_2^3v_1^2 - 9\omega_5\omega_2^3v_1^2\omega_3 - 18c_s^2\omega_5^2\omega_2^2 - 30c_s^2\omega_5\omega_2^2\omega_3 + 8\omega_5^2\omega_2^2v_1^2\omega_3 + 12c_s^2\omega_5^2\omega_3 + 6\omega_5^3v_1^2\omega_3 - 6\omega_5^2\omega_2^2v_1^2 + 12c_s^2\omega_5^2\omega_2 - 12\omega_5\omega_2v_1^2\omega_3 + 9c_s^2\omega_5\omega_2^3\omega_3 + 12c_s^2\omega_2^2\omega_3 - 12\omega_5\omega_2^2v_1^2 + \omega_5^2\omega_2^3v_1^2\omega_3 - 12\omega_2^2v_1^2\omega_3 + 30\omega_5\omega_2^2v_1^2\omega_3 + 12\omega_5^2\omega_2v_1^2 - 2c_s^2\omega_5^2\omega_2^3\omega_3 + 12c_s^2\omega_5\omega_2\omega_3 + 12c_s^2\omega_5\omega_2^2 + 6\omega_5\omega_2^3v_1^2 - 6c_s^2\omega_2^3\omega_3 + 24\omega_5^2v_1^2\omega_3 - 6c_s^2\omega_5\omega_2^2 + 22c_s^2\omega_5^2\omega_2^2\omega_3 - 36\omega_5^2\omega_2v_1^2\omega_3$$

$$C_{17} = 6\omega_5\omega_2^3\omega_3^3 + 12c_s^2\omega_5\omega_2^3\omega_3^2 + 6\omega_5^2\omega_2^3v_1^2 - 3\omega_2^3\omega_3^3 - 24c_s^2\omega_5\omega_2^3\omega_3^3 - 3\omega_5\omega_2^3\omega_3^2 + 6\omega_5^2\omega_2^2v_1^2\omega_3 - 24\omega_5\omega_2v_1^2\omega_3^3 - 6\omega_5^2\omega_2^2v_1^2\omega_3^2 + 6\omega_2^2\omega_3^3 - 24c_s^2\omega_5\omega_2^2\omega_3^2 + 36c_s^2\omega_5^2\omega_2\omega_3^3 - 21\omega_5\omega_2^2\omega_3^3 - 6\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 - 6\omega_5^2\omega_2^2v_1^2\omega_3^3 + 6\omega_5\omega_2^2\omega_3^2 - 6\omega_5^2\omega_2\omega_3^3 - 12c_s^2\omega_5^2\omega_2\omega_3^2 + 72c_s^2\omega_5\omega_2^2\omega_3^3 + 18c_s^2\omega_2^3\omega_3^3 - 12\omega_5^2\omega_2^3v_1^2\omega_3 + 7\omega_5^2\omega_2^2\omega_3^3 - 24c_s^2\omega_5\omega_2\omega_3^3 + 36c_s^2\omega_5^2\omega_2^2\omega_3^2 + 12\omega_5^2\omega_2v_1^2\omega_3^3 - 36c_s^2\omega_5^2\omega_2^2\omega_3^3 + 6c_s^2\omega_5^2\omega_2^3\omega_3 + 12\omega_5\omega_2\omega_3^3 - 3\omega_5^2\omega_2^2\omega_3^2 - 12c_s^2\omega_5^2\omega_2^3\omega_3^2 - \omega_5^2\omega_2^3\omega_3^3 + 12\omega_2^2v_1^2\omega_3^3 - 36c_s^2\omega_2^2\omega_3^3 + \omega_5^2\omega_2^3\omega_3^2 + 6c_s^2\omega_5^2\omega_2^3\omega_3^3 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + 6\omega_5^2\omega_2^3v_1^2\omega_3^2 + 12\omega_5\omega_2^2v_1^2\omega_3^3$$

$$C_{18} = 3\omega_5\omega_2^3\omega_3^3 + 12c_s^2\omega_5\omega_2^3\omega_3^2 + 12\omega_5^2\omega_2^3v_1^2 - 12c_s^2\omega_5\omega_2^3\omega_3^3 - 6\omega_5\omega_2^3\omega_3^2 + 12\omega_5\omega_2v_1^2\omega_3^3 + 12\omega_5^2\omega_2^3v_1^2\omega_3^2 - 24c_s^2\omega_5\omega_2^2\omega_3^2 + 36c_s^2\omega_5^2\omega_2\omega_3^3 - 6\omega_5\omega_2^2\omega_3^3 - 6\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 + 12\omega_5\omega_2^3v_1^2\omega_3^2 - 12\omega_5^2\omega_2^2v_1^2\omega_3^3 + 12\omega_5\omega_2^2\omega_3^2 - 24c_s^2\omega_5^2\omega_2\omega_3^2 + 36c_s^2\omega_5\omega_2^2\omega_3^3 + 6c_s^2\omega_5^2\omega_3^3 - 18\omega_5^2\omega_2^2v_1^2\omega_3 + 3\omega_5^2\omega_2^2\omega_3^3 - 12c_s^2\omega_5\omega_2\omega_3^3 + 48c_s^2\omega_5^2\omega_2^2\omega_3^2 + 30\omega_5^2\omega_2v_1^2\omega_3^3 - 32c_s^2\omega_5^2\omega_2^2\omega_3^3 + 6c_s^2\omega_5^2\omega_3^3\omega_3 - 24\omega_5^2v_1^2\omega_3^3 - 6\omega_5^2\omega_2^2\omega_3^2 - 12c_s^2\omega_5^2\omega_3^2\omega_3^2 - \omega_5^2\omega_2^3\omega_3^3 + 12\omega_2^2v_1^2\omega_3^3 + 3\omega_5^2\omega_2^3v_1^2\omega_3^3 - 24\omega_5\omega_2^2v_1^2\omega_3^2 - 12c_s^2\omega_2^2\omega_3^3 + 2\omega_5^2\omega_2^3\omega_3^2 + 4c_s^2\omega_5^2\omega_2^3\omega_3^3 - 12c_s^2\omega_5^2\omega_2^2\omega_3 - 12\omega_5\omega_2^2v_1^2\omega_3^3$$

$$C_{19} = 4c_s^2\omega_5^2\omega_2^3 + \omega_5^2\omega_2^3v_1^2 - 26c_s^2\omega_5^2\omega_2^2 + 24\omega_5\omega_2 + 12\omega_5^2v_1^2 - 14\omega_5^2\omega_2^2v_1^2 + 18c_s^2\omega_5^2\omega_2 - 36\omega_5\omega_2^2 - 60\omega_5\omega_2v_1^2 + 9\omega_5\omega_2^3 + 48\omega_5\omega_2^2v_1^2 + 12\omega_2^2v_1^2 - 60c_s^2\omega_2^2 - \omega_5^2\omega_2^3 + 12\omega_5^2\omega_2v_1^2 + 11\omega_5^2\omega_2^2 - 36c_s^2\omega_5\omega_2 + 30c_s^2\omega_2^3 - 12\omega_5^2\omega_2 + 96c_s^2\omega_5\omega_2^2 - 6\omega_2^3v_1^2 + 12\omega_2^2 - 6\omega_5\omega_2^3v_1^2 - 30c_s^2\omega_5\omega_2^3 - 6\omega_2^3$$

$$C_{20} = -12\omega_2v_2^2\omega_6\omega_3 + 12c_s^2\omega_2\omega_3^2 + 12v_2^2\omega_6^2\omega_3 - 6c_s^2\omega_2\omega_3^3 - 30c_s^2\omega_2\omega_6^2\omega_3 - v_2^2\omega_6^2\omega_3^3 + 22c_s^2\omega_2\omega_6^2\omega_3^2 - 6c_s^2\omega_6\omega_3^3 + 6\omega_2v_2^2\omega_3^3 - 9\omega_2v_2^2\omega_6\omega_3^3 - 2c_s^2\omega_2\omega_6^2\omega_3^3 + 12c_s^2\omega_6\omega_3^3 - 6v_2^2\omega_6^2\omega_3^2 + 30\omega_2v_2^2\omega_6\omega_3^2 - 12\omega_2v_2^2\omega_3^2 - 18c_s^2\omega_6^2\omega_3^2 + 9c_s^2\omega_2\omega_6\omega_3^2 - 12v_2^2\omega_6\omega_3^2 + 8\omega_2v_2^2\omega_6^2\omega_3^2 + 24\omega_2v_2^2\omega_6^2 + 6v_2^2\omega_6\omega_3^3 + 3c_s^2\omega_6^2\omega_3^3 - 30c_s^2\omega_2\omega_6\omega_3^2 + \omega_2v_2^2\omega_6^2\omega_3^3 + 12c_s^2\omega_2\omega_6^2 + 12c_s^2\omega_2\omega_6\omega_3 - 36\omega_2v_2^2\omega_6^2\omega_3 + 12c_s^2\omega_6^2\omega_3$$

$$C_{21} =$$
$$2c_s^2\omega_2^3v_2^2\omega_6^2\omega_3^3 + 14\omega_5^2\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^3 - 3c_s^2\omega_5^2\omega_2^3\omega_6v_1^2\omega_3^3 + 4\omega_5^2\omega_2^2v_2^2\omega_6v_1^2\omega_3^3 + 4\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^3 - 2c_s^4\omega_5^2\omega_2^3\omega_6\omega_3^3 - 4c_s^2\omega_5^2\omega_2^2v_2^2\omega_6\omega_3^3 - 4c_s^2\omega_5^2\omega_2^3\omega_6^2v_1^2 + 10c_s^2\omega_5^2\omega_2^3\omega_6v_1^2\omega_3^3 - 3\omega_5^2\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^3 + 2c_s^2\omega_5^2\omega_2^2v_2^2\omega_6\omega_3^3 + c_s^4\omega_5^2\omega_2^3\omega_6\omega_3^3 + 4c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3 - 2\omega_5^2\omega_2^2v_2^2\omega_6v_1^2\omega_3^3 + 4\omega_5^2\omega_2^3v_2^2v_1^2\omega_3^3 + c_s^4\omega_5\omega_2^3\omega_6^2\omega_3^3 + 10c_s^2\omega_5^2\omega_2^2v_2^2\omega_6^2\omega_3^3 - 12c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3^2 - 4c_s^2\omega_5^2\omega_2^2\omega_6v_1^2\omega_3^3 + 3\omega_5\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^3 - 4c_s^2\omega_5^2\omega_2^3\omega_6v_1^2\omega_3 - c_s^2\omega_5^2\omega_2^3v_2^2\omega_6\omega_3^3 - 2\omega_5\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^2 - 4c_s^2\omega_5^2\omega_2v_2^2\omega_6^2\omega_3^2 - 2c_s^4\omega_5\omega_3^3\omega_6^2\omega_3^2 + 2c_s^2\omega_5^2\omega_2^3\omega_6v_1^2\omega_3^3 + 4c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 - 2\omega_5^2\omega_2^3v_2^2v_1^2\omega_3^3 - 4c_s^2\omega_5^2v_2^2\omega_6^2\omega_3^3 - 14\omega_5^2\omega_2^3v_2^2\omega_6^2v_1^2\omega_3 + 2c_s^2\omega_5^2\omega_2^3v_2^2\omega_6\omega_3^2 - 4c_s^2\omega_5\omega_3v_2^2\omega_6^2\omega_3^3 - 2c_s^4\omega_5^2\omega_2^3\omega_6\omega_3^3 + 4c_s^4\omega_5^2\omega_2\omega_6^2\omega_3^2 + 8c_s^2\omega_5^2\omega_2^2\omega_6^2v_1^2\omega_3^3 - 2c_s^4\omega_5^2\omega_2^3\omega_6^2\omega_3 - 3c_s^2\omega_5\omega_2^3v_2^2\omega_6^2\omega_3^3 - 2c_s^2\omega_5^2\omega_2^3v_2^2\omega_6^2\omega_3^2 - 10\omega_5\omega_2^2v_2^2\omega_6^2v_1^2\omega_3^3 + 2c_s^2\omega_5\omega_2^2\omega_6^2v_1^2\omega_3^3 + 10c_s^2\omega_5^2\omega_2^3\omega_6^2v_1^2\omega_3 + 2c_s^2\omega_5^2\omega_2^3v_1^2\omega_3^3 + 2c_s^2\omega_5\omega_2^3v_2^2\omega_6^2\omega_3^3 + 4\omega_5\omega_2v_2^2\omega_6^2v_1^2\omega_3^3 - 2c_s^2\omega_5^2\omega_2^3\omega_6^2v_1^2\omega_3^3 - 2c_s^4\omega_5^2\omega_2\omega_6^2\omega_3^3 + 4c_s^4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 + 12\omega_5^2\omega_2^2v_2^2\omega_6^2v_1^2\omega_3 - 4c_s^2\omega_5^2\omega_2^3v_2^2v_1^2\omega_3^3 - 4c_s^2\omega_5^2\omega_2^2v_2^2\omega_6^2\omega_3^3 + 4\omega_5^2\omega_2^3v_2^2\omega_6v_1^2\omega_3^3 + 4\omega_5^2v_2^2\omega_6^2v_1^2\omega_3^3 + 4\omega_5\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^3 + c_s^2\omega_5^2\omega_2^3v_2^2\omega_6^2\omega_3^3 - 4c_s^2\omega_5^2v_2^2\omega_6^2\omega_3^3 - 14\omega_5^2\omega_2v_2^2\omega_6^2v_1^2\omega_3^3 + c_s^2\omega_5^2\omega_2^3\omega_6^2v_1^2\omega_3^3 - 2\omega_2^3v_2^2\omega_6^2v_1^2\omega_3^3 - 10\omega_5^2\omega_2^3v_2^2\omega_6v_1^2\omega_3^2 - 4c_s^2\omega_5\omega_2^2v_2^2\omega_6^2\omega_3^2 - 8c_s^2\omega_5^2\omega_2^3v_2^2\omega_6^2\omega_3^3 - c_s^4\omega_5^2\omega_2^3\omega_6^2\omega_3^3 + 4c_s^4\omega_5\omega_2^2\omega_6^2\omega_3^2 + 2c_s^2\omega_5\omega_2^3\omega_6^2v_1^2\omega_3^3 - 28\omega_5^2\omega_2^2v_2^2\omega_6^2v_1^2\omega_3^3 + 10c_s^2\omega_5\omega_2^3v_2^2\omega_6^2\omega_3^3 + 3\omega_5^2\omega_2^3v_2^2\omega_6v_1^2\omega_3^3 - 8c_s^2\omega_5^2\omega_2^3\omega_6^2v_1^2\omega_3^3 + 4\omega_5^2\omega_2^3v_2^2\omega_6^2v_1^2 + 12\omega_5^2\omega_2v_2^2\omega_6^2v_1^2\omega_3^3 + 14\omega_5^2\omega_2^2v_2^2\omega_6^2v_1^2\omega_3^3 - 4c_s^2\omega_5^2\omega_2^2\omega_6^2v_1^2\omega_3 - c_s^2\omega_5\omega_2^3\omega_6^2v_1^2\omega_3^3 + 4c_s^4\omega_5^2\omega_2^3\omega_6^2\omega_3^3 + 8c_s^2\omega_5^2\omega_2^2v_2^2\omega_6^2\omega_3^3 - 2c_s^4\omega_5\omega_2^2\omega_6^2\omega_3^3$$

$$C_{22} = -48\omega_2^2v_2^2\omega_6^2\omega_3^3 + 12\omega_2^3v_2^2\omega_3^2 + c_s^2\omega_2^3\omega_6^2\omega_3^3 - 18\omega_2^3v_2^2\omega_6^2\omega_3 - 6\omega_2^3v_2^2\omega_3^3 + 22\omega_2^2v_2^2\omega_6^2\omega_3^3 - 14c_s^2\omega_2^3\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2\omega_3^3 - 4\omega_2^3v_2^2\omega_6^2\omega_3^3 + 24c_s^2\omega_2^3\omega_6^2\omega_3 - 12c_s^2\omega_2\omega_6^2\omega_3^2 + 6c_s^2\omega_2\omega_6^2\omega_3^3 + 22\omega_2^3v_2^2\omega_6^2\omega_3^2 + 24\omega_2^2v_2^2\omega_6^2\omega_3 - 12c_s^2\omega_2^3\omega_6^2 + 12c_s^2\omega_2^2\omega_6^2\omega_3^2 + 6c_s^2\omega_2^3\omega_3^3 - 24\omega_2^3v_2^2\omega_6^2\omega_3^2 + 24\omega_2v_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_6\omega_3 + 6\omega_2^3v_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2^3\omega_3^3 - 6c_s^2\omega_2^2\omega_6^2\omega_3^3 - 30\omega_2v_2^2\omega_6^2\omega_3^3 + 24c_s^2\omega_2^3\omega_6\omega_3^2 + 12\omega_2^3v_2^2\omega_6\omega_3 - 6c_s^2\omega_2^3\omega_6\omega_3^3$$

$$C_{23} = 12\omega_5^2\omega_2^3v_1^2 - 6c_s^2\omega_5\omega_2^3\omega_3^3 + 24\omega_5^2\omega_2^2v_1^2\omega_3 + 12\omega_5\omega_2v_1^2\omega_3^3 + 6\omega_5\omega_2^3v_1^2\omega_3^3 - 48\omega_5^2\omega_2^2v_1^2\omega_3^2 + 24c_s^2\omega_5^2\omega_2\omega_3^3 - 6\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 + 22\omega_5^2\omega_2^2v_1^2\omega_3^3 + 24c_s^2\omega_5\omega_2^2\omega_3^3 + 6c_s^2\omega_2^3\omega_3^3 - 30\omega_5^2\omega_2^3v_1^2\omega_3 + 24\omega_5^2\omega_2v_1^2\omega_3^3 - 12c_s^2\omega_5\omega_2\omega_3^3 + 12c_s^2\omega_5^2\omega_2^2\omega_3^2 - 18\omega_5^2\omega_2v_1^2\omega_3^3 - 14c_s^2\omega_5^2\omega_2^2\omega_3^3 + 6c_s^2\omega_5^2\omega_2^3\omega_3 - 6c_s^2\omega_5^2\omega_2^3\omega_3^2 + 12\omega_2^2v_1^2\omega_3^3 - 4\omega_5^2\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_2^2\omega_3^3 + c_s^2\omega_5^2\omega_2^3\omega_3^3 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + 22\omega_5^2\omega_2^3v_1^2\omega_3^2 - 24\omega_5\omega_2^2v_1^2\omega_3^3$$

$$C_{24} = 36v_2^2\omega_3^2 + 24c_s^2\omega_6\omega_3 - 11\omega_6^2\omega_3^2 + 18v_2^2\omega_6^2\omega_3 - 18v_2^2\omega_3^3 + 24c_s^2\omega_6^2 + \omega_6^2\omega_3^3 - 3v_2^2\omega_6^2\omega_3^3 + 9c_s^2\omega_6\omega_3^3 - 36c_s^2\omega_6\omega_3^2 + 12\omega_6^2\omega_3 + 15v_2^2\omega_6^2\omega_3^2 - 24\omega_6\omega_3 + 25c_s^2\omega_6^2\omega_3^2 - 108v_2^2\omega_6\omega_3^2 + 6\omega_3^3 + 27v_2^2\omega_6\omega_3^3 - 2c_s^2\omega_6^2\omega_3^3 - 12\omega_3^2 - 36v_2^2\omega_6^2 - 6c_s^2\omega_3^3 - 9\omega_6\omega_3^3 + 12c_s^2\omega_3^2 + 36\omega_6\omega_3^2 - 48c_s^2\omega_6^2\omega_3 + 72v_2^2\omega_6\omega_3$$

$$C_{25} = -6\omega_2^2v_2^2\omega_6^2\omega_3^2 + 12\omega_2^3v_2^2\omega_3^2 - 3\omega_2^3\omega_3^3 + 7\omega_2^3\omega_6^2\omega_3^2 + 6c_s^2\omega_2^3\omega_6^2\omega_3^3 + 12\omega_2^3v_2^2\omega_6^2\omega_3 - 6\omega_2^3v_2^2\omega_3^3 + 6\omega_2^2v_2^2\omega_6^2\omega_3^3 - 36c_s^2\omega_2^3\omega_6^2\omega_3^2 - \omega_2^3\omega_6^2\omega_3^3 + 6\omega_2^3\omega_3^2 + 6v_2^2\omega_6^2\omega_3^3 + 6\omega_2^2\omega_6\omega_3^2 + 36c_s^2\omega_2^3\omega_6^2\omega_3 + 12c_s^2\omega_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2\omega_6^2\omega_3^3 + 6c_s^2\omega_2\omega_6^2\omega_3^3 - 24c_s^2\omega_2^2\omega_6\omega_3^2 - 6\omega_2^3\omega_6^2\omega_3 - 3\omega_2^2\omega_6\omega_3^3 - 6\omega_2^3v_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_6^2 + 36c_s^2\omega_2^2\omega_6^2\omega_3^2 + 12\omega_2^3\omega_6\omega_3 + 18c_s^2\omega_2^3\omega_3^3 + 12\omega_2^3v_2^2\omega_6\omega_3^3 + \omega_2^2\omega_6^2\omega_3^3 + 6\omega_2v_2^2\omega_6^2\omega_3^3 - 3\omega_2^2\omega_6^2\omega_3^2 - 24c_s^2\omega_2^3\omega_6\omega_3 - 36c_s^2\omega_2^3\omega_3^2 - 12c_s^2\omega_2^2\omega_6^2\omega_3^3 - 12\omega_2v_2^2\omega_6^2\omega_3^3 + 72c_s^2\omega_2^3\omega_6\omega_3^2 + 6\omega_2^3\omega_6\omega_3^3 - 12c_s^2\omega_2^2\omega_6^2\omega_3 - 21\omega_2^3\omega_6\omega_3^2 - 24\omega_2^3v_2^2\omega_6\omega_3 - 24c_s^2\omega_2^3\omega_6\omega_3^3$$

$$C_{26} = 12v_2^2\omega_3^2 - 36c_s^2\omega_6\omega_3 + 11\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2\omega_3 - 6v_2^2\omega_3^3 - \omega_6^2\omega_3^3 + v_2^2\omega_6^2\omega_3^3 - 30c_s^2\omega_6\omega_3^3 + 96c_s^2\omega_6\omega_3^2 - 12\omega_6^2\omega_3 - 14v_2^2\omega_6^2\omega_3^2 + 24\omega_6\omega_3 - 26c_s^2\omega_6^2\omega_3^2 + 48v_2^2\omega_6\omega_3^2 - 6\omega_3^3 - 6v_2^2\omega_6\omega_3^3 + 4c_s^2\omega_6^2\omega_3^3 + 12\omega_3^2 + 12v_2^2\omega_6^2 + 30c_s^2\omega_3^3 + 9\omega_6\omega_3^3 - 60c_s^2\omega_3^2 - 36\omega_6\omega_3^2 + 18c_s^2\omega_6^2\omega_3 - 60v_2^2\omega_6\omega_3$$

$$C_{27} = 12\omega_2^2v_2^2\omega_6^2\omega_3^2 + 12\omega_2^3v_2^2\omega_3^2 + 3\omega_2^3\omega_6^2\omega_3^2 + 4c_s^2\omega_2^3\omega_6^2\omega_3^3 + 30\omega_2^3v_2^2\omega_6^2\omega_3 - 6\omega_2^3v_2^2\omega_3^3 - 32c_s^2\omega_2^3\omega_6^2\omega_3^2 - \omega_2^3\omega_6^2\omega_3^3 + 12v_2^2\omega_6^2\omega_3^3 + 3\omega_2^3v_2^2\omega_6^2\omega_3^3 + 12\omega_2^2\omega_6\omega_3^2 + 36c_s^2\omega_2^3\omega_6^2\omega_3 + 12c_s^2\omega_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2\omega_6^2\omega_3^3 + 6c_s^2\omega_2\omega_6^2\omega_3^3 - 24c_s^2\omega_2^2\omega_6\omega_3^2 - 6\omega_2^3\omega_6\omega_3^2 - 12\omega_2^3v_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_6^2 + 48c_s^2\omega_2^2\omega_6^2\omega_3^2 + 6c_s^2\omega_2^3\omega_3^3 - 12\omega_2^3v_2^2\omega_6\omega_3^2 + 2\omega_2^3\omega_6^2\omega_3^3 - 6\omega_2^2\omega_6^2\omega_3^3 - 12c_s^2\omega_2^3\omega_6\omega_3 - 12c_s^2\omega_2^3\omega_3^2 - 12c_s^2\omega_2^2\omega_6^2\omega_3^3 - 18\omega_2v_2^2\omega_6^2\omega_3^3 + 12\omega_2^2v_2^2\omega_6\omega_3^3 + 36c_s^2\omega_2^3\omega_6\omega_3^2 - 24\omega_2^3v_2^2\omega_6^2 + 3\omega_2^3\omega_6\omega_3^3 - 24\omega_2^2v_2^2\omega_6\omega_3^2 - 24c_s^2\omega_2^2\omega_6^2\omega_3 - 6\omega_2^3\omega_6\omega_3^2 + 12\omega_2^3v_2^2\omega_6\omega_3 - 12c_s^2\omega_2^3\omega_6\omega_3^3$$

$$C_{28} = 3v_2^4\omega_6^2\omega_3^3 + 72v_2^2\omega_3^2 + 6c_s^4\omega_6\omega_3^3 - 24c_s^2\omega_6\omega_3 - 24c_s^4\omega_6\omega_3^2 - 36v_2^2\omega_3^3 - 12v_2^4\omega_6^2\omega_3^2 - 36c_s^2v_2^2\omega_6^2\omega_3 - 3v_2^2\omega_6^2\omega_3^3 - 12c_s^2v_2^2\omega_6^2\omega_3^2 - 6c_s^2\omega_6\omega_3^3 + 24c_s^4\omega_6\omega_3 + 6c_s^2v_2^2\omega_6^2\omega_3^3 + 24c_s^2\omega_6\omega_3^2 + 12v_2^2\omega_6^2\omega_3^2 - 8c_s^2\omega_6^2\omega_3^2 - 72c_s^2v_2^2\omega_6\omega_3^3 + 36v_2^4\omega_3^3 - 72v_2^2\omega_6\omega_3^2 + 24c_s^4\omega_6^2 - 216c_s^2v_2^2\omega_3^2 + 30v_2^2\omega_6\omega_3^3 - 72v_2^4\omega_3^2 + c_s^2\omega_6^2\omega_3^3 + 144c_s^2v_2^2\omega_6\omega_3^2 - 48c_s^4\omega_6^2\omega_3 + 108c_s^2v_2^2\omega_3^3 + 24c_s^4\omega_6^2\omega_3^2 + 72v_2^4\omega_6\omega_3^2 + 72c_s^2v_2^2\omega_6\omega_3 - 30v_2^4\omega_6\omega_3^3 - 3c_s^4\omega_6^2\omega_3^3 + 12c_s^2\omega_6^2\omega_3$$

$$C_{29} = -84v_2^2\omega_3^2 - 12c_s^2\omega_6\omega_3 + 2\omega_6^2\omega_3^2 - 12v_2^2\omega_6^2\omega_3 + 42v_2^2\omega_3^3 + 24c_s^2\omega_6^2 - \omega_6^2\omega_3^3 + 2v_2^2\omega_6^2\omega_3^3 - 24c_s^2\omega_6\omega_3^3 + 72c_s^2\omega_6\omega_3^2 + 6\omega_6^2\omega_3 + 2v_2^2\omega_6^2\omega_3^2 - 12\omega_6\omega_3 - 2c_s^2\omega_6^2\omega_3^2 + 24v_2^2\omega_6\omega_3^2 - 18\omega_3^3 - 24v_2^2\omega_6\omega_3^3 + c_s^2\omega_6^2\omega_3^3 + 36\omega_3^2 - 12v_2^2\omega_6^2 + 30c_s^2\omega_3^3 + 12\omega_6\omega_3^3 - 60c_s^2\omega_3^2 - 24\omega_6\omega_3^2 - 30c_s^2\omega_6^2\omega_3 + 60v_2^2\omega_6\omega_3$$

$$C_{30} = -9\omega_4\omega_5\omega_2^3v_1^2 + 3c_s^2\omega_2^5\omega_2^3 - \omega_5^2\omega_2^3v_1^2 - 30\omega_4c_s^2\omega_5\omega_2^2 - 18c_s^2\omega_5^2\omega_2^2 + 9\omega_4c_s^2\omega_5\omega_2^3 - 6\omega_5^2\omega_2^2v_1^2 + 24\omega_4\omega_5^2v_1^2 + 30\omega_4\omega_5\omega_2^2v_1^2 + 12c_s^2\omega_5^2\omega_2 + 12\omega_4c_s^2\omega_5\omega_2 - 36\omega_4\omega_5^2\omega_2v_1^2 - 30\omega_4c_s^2\omega_5^2\omega_2 - 12\omega_5\omega_2^2v_1^2 + 8\omega_4\omega_5^2\omega_2^2v_1^2 + 6\omega_4\omega_2^3v_1^2 + 12\omega_4c_s^2\omega_5^2 + 12\omega_5^2\omega_2v_1^2 - 12\omega_4\omega_5\omega_2v_1^2 + 12c_s^2\omega_5\omega_2^2 + \omega_4\omega_5^2\omega_2^3v_1^2 - 6\omega_4c_s^2\omega_2^3 + 6\omega_5\omega_2^3v_1^2 - 2\omega_4c_s^2\omega_5^2\omega_2^3 - 6c_s^2\omega_5\omega_2^3 + 22\omega_4c_s^2\omega_5^2\omega_2^2 - 12\omega_4\omega_2^2v_1^2 + 12\omega_4c_s^2\omega_2^2$$

$$C_{31} = -6\omega_4^2\omega_5^2\omega_2^2v_1^2 - 36\omega_4^3c_s^2\omega_5^2\omega_2^2 - 3\omega_4^2\omega_5^2\omega_2^2 + 6\omega_5^2\omega_2^3v_1^2 - 12\omega_4^2c_s^2\omega_5^2\omega_2 + 6\omega_4^3c_s^2\omega_5^2\omega_2^3 + 12\omega_4^3\omega_5\omega_2 + \omega_4^2\omega_5^2\omega_2^3 - 24\omega_4^3\omega_5\omega_2v_1^2 - 21\omega_4^3\omega_5\omega_2^2 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 + 6\omega_4^2\omega_5^2\omega_2^3v_1^2 - 6\omega_4^3\omega_5^2\omega_2^2v_1^2 + 6\omega_4^3\omega_5\omega_2^3 + 36\omega_4^2c_s^2\omega_5^2\omega_2^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 + 12\omega_4^3\omega_2^2v_1^2 - 36\omega_4^3c_s^2\omega_2^2 - 24\omega_4^2c_s^2\omega_5\omega_2^2 + 12\omega_4^3\omega_5^2\omega_2v_1^2 - \omega_4^3\omega_5^2\omega_2^3 - 24\omega_4^3c_s^2\omega_5\omega_2 + 6\omega_4\omega_5^2\omega_2^2v_1^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 + 7\omega_4^3\omega_5^2\omega_2^2 + 12\omega_4^3\omega_5\omega_2^2v_1^2 + 18\omega_4^3c_s^2\omega_2^3 - 12\omega_4\omega_5^2\omega_2^3v_1^2 - 24\omega_4^3c_s^2\omega_5\omega_2^3 - 6\omega_4^3\omega_5^2\omega_2 + 6\omega_4^3\omega_2^2 - 6\omega_4^3\omega_2^3v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_2^3 - 12\omega_4^3c_s^2\omega_5^2 - 3\omega_4^2\omega_5\omega_2^3 + 72\omega_4^3c_s^2\omega_5\omega_2^2 + 6\omega_4^2\omega_5\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 - 3\omega_4^3\omega_2^3$$

$$C_{32} = 12\omega_4^2\omega_5^2\omega_2^2v_1^2 - 32\omega_4^3c_s^2\omega_5^2\omega_2^2 - 6\omega_4^2\omega_5^2\omega_2^2 + 12\omega_5^2\omega_2^3v_1^2 - 24\omega_4^2c_s^2\omega_5^2\omega_2 + 4\omega_4^3c_s^2\omega_5^2\omega_2^3 + 3\omega_4^3\omega_5^2\omega_2^3v_1^2 - 24\omega_4^3\omega_5^2v_1^2 + 2\omega_4^2\omega_5^2\omega_2^3 + 12\omega_4^3\omega_5\omega_2v_1^2 - 6\omega_4^3\omega_5\omega_2^2 - 12\omega_4^2c_s^2\omega_5^2\omega_2^3 - 12\omega_4^3\omega_5^2\omega_2^2v_1^2 + 3\omega_4^3\omega_5\omega_2^3 + 48\omega_4^2c_s^2\omega_5^2\omega_2^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 + 12\omega_4^3\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_2^2 - 24\omega_4^2c_s^2\omega_5\omega_2^2 + 30\omega_4^3\omega_5^2\omega_2v_1^2 - \omega_4^3\omega_5^2\omega_2^3 - 12\omega_4^3c_s^2\omega_5\omega_2 + 12\omega_4^2\omega_5\omega_2^3v_1^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 + 3\omega_4^3\omega_5^2\omega_2^2 - 12\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4^3c_s^2\omega_2^3 - 18\omega_4\omega_5^2\omega_2^3v_1^2 - 24\omega_4^2\omega_5\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_5\omega_2^3 - 6\omega_4^3\omega_2^3v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_2^3 - 12\omega_4^3c_s^2\omega_5^2 - 6\omega_4^2\omega_5\omega_2^3 + 36\omega_4^3c_s^2\omega_5\omega_2^2 + 12\omega_4^2\omega_5\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2$$

$$C_{33} = 4c_s^2\omega_5^2\omega_2^3 + \omega_5^2\omega_2^3v_1^2 - 26c_s^2\omega_5^2\omega_2^2 + 24\omega_5\omega_2 + 12\omega_5^2v_1^2 - 14\omega_5^2\omega_2^2v_1^2 + 18c_s^2\omega_5^2\omega_2 - 36\omega_5\omega_2^2 - 60\omega_5\omega_2v_1^2 + 9\omega_5\omega_2^3 + 48\omega_5\omega_2^2v_1^2 + 12\omega_2^2v_1^2 - 60c_s^2\omega_2^2 - \omega_5^2\omega_2^3 + 12\omega_5^2\omega_2v_1^2 + 11\omega_2^2\omega_2^2 - 36c_s^2\omega_5\omega_2 + 30c_s^2\omega_2^3 - 12\omega_5^2\omega_2 + 96c_s^2\omega_5\omega_2^2 - 6\omega_2^3v_1^2 + 12\omega_2^2 - 6\omega_5\omega_2^3v_1^2 - 30c_s^2\omega_5\omega_2^3 - 6\omega_2^3$$

$$C_{34} = -16\omega_4^2\omega_2\omega_3^3 - 6\omega_4\omega_3^3 + 30\omega_4^2\omega_2\omega_3^2 - 12\omega_4^2\omega_2\omega_3 - 16\omega_4^3\omega_2\omega_3^2 - 4\omega_4^3\omega_3^3 - 6\omega_4^3\omega_2 - 6\omega_2\omega_3^3 + 12\omega_4^3\omega_3^2 + 3\omega_4^3\omega_2\omega_3^3 + 18\omega_4\omega_2\omega_3^3 - 6\omega_4^3\omega_3 + 12\omega_4^2\omega_3^3 + 18\omega_4^3\omega_2\omega_3 - 12\omega_4^2\omega_3^2 - 12\omega_4\omega_2\omega_3^2$$

$$C_{35} = -16\omega_4^3\omega_2^2\omega_3 + 18\omega_4\omega_2^3\omega_3 - 6\omega_4\omega_2^2 - 6\omega_2^3\omega_3 - 12\omega_4^2\omega_2\omega_3 + 3\omega_4^3\omega_2^3\omega_3 - 12\omega_4\omega_2^2\omega_3 - 12\omega_4^2\omega_2^2 + 12\omega_4^2\omega_2^2 - 6\omega_4^3\omega_2 + 30\omega_4^2\omega_2^2\omega_3 - 6\omega_4^3\omega_3 + 12\omega_4^3\omega_2^2 + 18\omega_4^3\omega_2\omega_3 - 16\omega_4^2\omega_2^3\omega_3 - 4\omega_4^3\omega_2^3$$

$$C_{36} = 30\omega_4\omega_2^2\omega_3^2 - 4\omega_2^3\omega_3^3 - 6\omega_4\omega_3^3 + 18\omega_4\omega_2^3\omega_3 - 16\omega_4\omega_2^2\omega_3^3 + 12\omega_2^3\omega_3^2 - 6\omega_4\omega_2^3 - 6\omega_2^3\omega_3 + 12\omega_2^2\omega_3^3 - 16\omega_4\omega_2^3\omega_3^2 - 12\omega_2^2\omega_3^2 - 12\omega_4\omega_2^2\omega_3 + 3\omega_4\omega_2^3\omega_3^3 - 6\omega_2\omega_3^3 + 18\omega_4\omega_2\omega_3^3 - 12\omega_4\omega_2\omega_3^2$$

$$C_{37} = -2\omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^2 - 10\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3^2 + 2\omega_4^3\omega_5\omega_2^3v_1^2\omega_3^3 + 3\omega_4^2\omega_5^2\omega_2^3v_1^2\omega_3 - 2\omega_4c_s^2\omega_5^2\omega_2^2\omega_3^3 + 6\omega_4^3c_s^2\omega_5^2\omega_2\omega_3^3 - 2\omega_4^3c_s^2\omega_5\omega_2^2\omega_3^2 + 8\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3^3 - \omega_4^3\omega_5\omega_2^3v_1^2\omega_3^2 + 6\omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^3 + 6\omega_4^3c_s^2\omega_5\omega_2^2\omega_3^3 + 3\omega_4^3\omega_5^2\omega_2^3v_1^2 - 2\omega_4^3c_s^2\omega_5^2\omega_2\omega_3^2 + 3\omega_4^2\omega_5^2\omega_2v_1^2\omega_3^3 + \omega_4^3c_s^2\omega_5\omega_2^3\omega_3^2 - \omega_4^3\omega_2^3v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_3^3 + 7\omega_4^2\omega_5^2\omega_2^3v_1^2\omega_3^3 + \omega_4c_s^2\omega_5^2\omega_2^3\omega_3^3 + 3\omega_4\omega_5^2\omega_2^3v_1^2\omega_3^2 + \omega_4^2c_s^2\omega_5^2\omega_2^3\omega_3^2 - 8\omega_4^2\omega_5^2\omega_2^3v_1^2\omega_3^2 + 2\omega_4^2\omega_5\omega_2^2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5\omega_2^3\omega_3^3 + 2\omega_4^3\omega_5\omega_2v_1^2\omega_3^3 + 4\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3 - 2\omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^3 - 8\omega_4\omega_5^2\omega_2^3v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3^3 + 2\omega_4^3\omega_5\omega_2^2v_1^2\omega_3^2 - 2\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3^2 + 2\omega_4^3\omega_5^2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3 + \omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3^3 + \omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^3 + \omega_4^2c_s^2\omega_5^2\omega_2^2\omega_3^3 - 6\omega_4^3\omega_5\omega_2^2v_1^2\omega_3^3 + 7\omega_4^3\omega_5^2\omega_2^3v_1^2\omega_3^2 + 3\omega_4^3\omega_5^2\omega_2v_1^2\omega_3^2 - 2\omega_4^2c_s^2\omega_5^2\omega_2\omega_3^3 - 8\omega_4^3\omega_5^2\omega_2^2v_1^2\omega_3^3 + 4\omega_4\omega_5^2\omega_2^2v_1^2\omega_3^3 + 6\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3^2 - \omega_4^2\omega_5\omega_2^3v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_5\omega_2\omega_3^3 + 4\omega_4^2\omega_5^2\omega_2^2v_1^2\omega_3^2 + 3\omega_5^2\omega_2^3v_1^2\omega_3^2 - 2\omega_4^2c_s^2\omega_5\omega_2^2\omega_3^3 - 7\omega_4^3\omega_5^2\omega_2v_1^2\omega_3^3 + 2\omega_4^3\omega_2^2v_1^2\omega_3^3 - 2\omega_4^3c_s^2\omega_2^2\omega_3^3 + \omega_4^3c_s^2\omega_5^2\omega_2^3\omega_3 - 10\omega_4^2\omega_5^2\omega_2^2v_1^2\omega_3^3 - 6\omega_4^3c_s^2\omega_5^2\omega_2^2\omega_3^3$$

$$C_{38} = 6\omega_4^3\omega_2^2\omega_3 - 5\omega_4^3\omega_2^3\omega_3^3 + 18\omega_4^2\omega_2\omega_3^3 + 12\omega_2^3\omega_3^3 + 6\omega_4\omega_2^2\omega_3^3 + 24\omega_4^3\omega_2^3\omega_3^2 + 18\omega_4\omega_2^3\omega_3^2 - 30\omega_4^3\omega_2^3\omega_3 + 28\omega_4^3\omega_2^2\omega_3^3 - 30\omega_4^3\omega_2^2\omega_3^2 - 30\omega_4\omega_2^3\omega_3^3 + 18\omega_4^3\omega_2\omega_3^2 - 42\omega_4^2\omega_2^3\omega_3^2 + 12\omega_4^3\omega_3^3 + 24\omega_4^2\omega_2^3\omega_3^3 - 36\omega_4^3\omega_2\omega_3^3 + 12\omega_4^2\omega_2^2\omega_3^2 - 30\omega_4^2\omega_2^2\omega_3^3 + 18\omega_4^2\omega_2^3\omega_3 + 12\omega_4^3\omega_2^3$$

$$C_{39} = -36\omega_4^2\omega_5^2\omega_2^2v_1^2 - 32\omega_4^3c_s^2\omega_5^2\omega_2^2 + 12\omega_5^2\omega_2^3v_1^2 - 24\omega_4^2c_s^2\omega_5^2\omega_2 + 4\omega_4^3c_s^2\omega_5^2\omega_2^3 - 5\omega_4^3\omega_5^2\omega_2^3v_1^2 + 12\omega_4^3\omega_5\omega_2v_1^2 - 12\omega_4^2c_s^2\omega_5^2\omega_2^2 + 24\omega_4^2\omega_5^2\omega_2^3v_1^2 + 16\omega_4^3\omega_5^2\omega_2^2v_1^2 + 48\omega_4^2c_s^2\omega_5^2\omega_2^2 + 36\omega_4^3c_s^2\omega_5^2\omega_2 + 12\omega_4^3\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_2^2 - 24\omega_4^2c_s^2\omega_5\omega_2^2 - 6\omega_4^3\omega_5^2\omega_2v_1^2 - 12\omega_4^3c_s^2\omega_5\omega_2 - 12\omega_4^2\omega_5\omega_2^3v_1^2 + 24\omega_4\omega_5^2\omega_2^2v_1^2 + 12\omega_4^2c_s^2\omega_5\omega_2^3 - 36\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4^3c_s^2\omega_2^3 - 30\omega_4\omega_5^2\omega_2^3v_1^2 + 24\omega_4^2\omega_5\omega_2^2v_1^2 - 12\omega_4^2c_s^2\omega_5\omega_2^3 - 6\omega_4^3\omega_2^3v_1^2 + 6\omega_4^2c_s^2\omega_5^2\omega_2^3 - 12\omega_4^3c_s^2\omega_5^2 + 36\omega_4^3c_s^2\omega_5\omega_2^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 + 12\omega_4^3\omega_5\omega_2^3v_1^2$$

$$C_{40} = 12c_s^2\omega_5\omega_2^3\omega_3^2 + 12\omega_5^2\omega_2^3v_1^2 - 12c_s^2\omega_5\omega_2^3\omega_3^3 + 24\omega_5^2\omega_2^2v_1^2\omega_3 + 12\omega_5\omega_2v_1^2\omega_3^3 + 12\omega_5\omega_2^3v_1^2\omega_3^3 - 36\omega_5^2\omega_2^2v_1^2\omega_3^2 - 24c_s^2\omega_5\omega_2^2\omega_3^2 + 36c_s^2\omega_5^2\omega_2\omega_3^3 - 6\omega_2^3v_1^2\omega_3^3 - 12c_s^2\omega_5^2\omega_3^3 - 12\omega_5\omega_2^3v_1^2\omega_3^2 + 16\omega_5^2\omega_2^2v_1^2\omega_3^3 - 24c_s^2\omega_5^2\omega_2\omega_3^3 + 36c_s^2\omega_5\omega_2^2\omega_3^3 + 6c_s^2\omega_2^3\omega_3^3 - 30\omega_5^2\omega_2^3v_1^2\omega_3 - 12c_s^2\omega_5\omega_2\omega_3^3 + 48c_s^2\omega_5^2\omega_2^2\omega_3^2 - 6\omega_5^2\omega_2v_1^2\omega_3^3 - 32c_s^2\omega_5^2\omega_2^2\omega_3^3 + 6c_s^2\omega_5^2\omega_2^3\omega_3 - 12c_s^2\omega_5^2\omega_2^3\omega_3^2 + 12\omega_2^2v_1^2\omega_3^3 - 5\omega_5^2\omega_2^3v_1^2\omega_3^3 + 24\omega_5\omega_2^2v_1^2\omega_3^2 - 12c_s^2\omega_2^2\omega_3^3 + 4c_s^2\omega_5^2\omega_2^2\omega_3^3 - 12c_s^2\omega_5^2\omega_2^2\omega_3 + 24\omega_5^2\omega_2^3v_1^2\omega_3^3 - 36\omega_5\omega_2^2v_1^2\omega_3^3$$

$$C_{41} = 12v_2^2\omega_6^2\omega_3 - 30\omega_4c_s^2\omega_6^2\omega_3 - 12\omega_4v_2^2\omega_6\omega_3 - v_2^2\omega_6^2\omega_3^3 + 6\omega_4v_2^2\omega_3^3 + 12\omega_4c_s^2\omega_6^2 - 6c_s^2\omega_6\omega_3^3 + 22\omega_4c_s^2\omega_6^2\omega_3^2 + 30\omega_4v_2^2\omega_6\omega_3^2 + 12c_s^2\omega_6\omega_3^2 - 12\omega_4v_2^2\omega_3^2 - 6v_2^2\omega_6^2\omega_3^2 - 9\omega_4v_2^2\omega_6\omega_3^3 - 2\omega_4c_s^2\omega_6^2\omega_3^3 - 18c_s^2\omega_6^2\omega_3^2 - 12v_2^2\omega_6\omega_3^2 + \omega_4v_2^2\omega_6^2\omega_3^3 + 12\omega_4c_s^2\omega_3^2 + 9\omega_4c_s^2\omega_6\omega_3^3 + 6v_2^2\omega_6\omega_3^3 + 3c_s^2\omega_6^2\omega_3^3 - 30\omega_4c_s^2\omega_6\omega_3^2 + 24\omega_4v_2^2\omega_6^2 - 6\omega_4c_s^2\omega_3^2 + 8\omega_4v_2^2\omega_6^2\omega_3^2 + 12\omega_4c_s^2\omega_6\omega_3 - 36\omega_4v_2^2\omega_6^2\omega_3 + 12c_s^2\omega_6^2\omega_3$$

$$C_{42} = -2\omega_4^3c_s^2\omega_2\omega_6^2\omega_3^2 + \omega_4^3c_s^2\omega_2^2\omega_6\omega_3^3 + 6\omega_4^3c_s^2\omega_3^2\omega_6^2\omega_3 - 2\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3^3 - \omega_4^3\omega_3^3v_2^2\omega_3^3 - 2\omega_4^2c_s^2\omega_2^2\omega_6^2\omega_3^2 + 2\omega_4^2\omega_2^3v_2^2\omega_6\omega_3^2 + 3\omega_4^2\omega_2v_2^2\omega_6^2\omega_3^3 + 2\omega_4^3\omega_2^3v_2^2\omega_3^2 + 8\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3^2 - 2\omega_4^3c_s^2\omega_2^2\omega_6\omega_3^2 + \omega_4^3c_s^2\omega_2\omega_6^2\omega_3^3 - \omega_4^2\omega_2^3v_2^2\omega_6\omega_3^3 + \omega_4^2c_s^2\omega_2^2\omega_6^2\omega_3^3 + 3\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3 + 3\omega_2^3v_2^2\omega_6^2\omega_3^3 - 2\omega_4^2c_s^2\omega_2^3\omega_6\omega_3^2 - 10\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3^2 - 7\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3 - 2\omega_4^3c_s^2\omega_2^3\omega_6^2 + \omega_4^3c_s^2\omega_2^3\omega_6^2\omega_3^3 + 7\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3^3 + 3\omega_4^3v_2^2\omega_6^2\omega_3^3 + \omega_4^2c_s^2\omega_2^3\omega_6\omega_3^3 - 6\omega_4^3c_s^2\omega_2^3\omega_6^2\omega_3^2 - \omega_4^3\omega_2^3v_2^2\omega_6\omega_3^3 + 3\omega_4^3\omega_2^3v_2^2\omega_6^2\omega_3 + \omega_4^3c_s^2\omega_2^3\omega_3^3 + 6\omega_4^2c_s^2\omega_2^3\omega_6^2\omega_3^2 + 2\omega_4^3\omega_2^2v_2^2\omega_6\omega_3^3 - 2\omega_4^3c_s^2\omega_2^3\omega_6\omega_3^3 + 2\omega_4^3\omega_2^3v_2^2\omega_6\omega_3 - 8\omega_4^2\omega_2^2v_2^2\omega_6^2\omega_3^3 + \omega_4c_s^2\omega_2^3\omega_6^2\omega_3^3 - 2\omega_4^3c_s^2\omega_2^3\omega_6^2\omega_3 - 6\omega_4^3\omega_2^3v_2^2\omega_6\omega_3^2 + 4\omega_4\omega_2^3v_2^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_2^2\omega_6^2\omega_3^2 - 2\omega_4^2c_s^2\omega_2^3\omega_6^2\omega_3 + 7\omega_4^2\omega_2^3v_2^2\omega_6^2\omega_3^3 + 4\omega_4^3\omega_2v_2^2\omega_6^2\omega_3^2 - 2\omega_4^3c_s^2\omega_2^2\omega_6^2\omega_3^3 - 8\omega_4^3\omega_2^2v_2^2\omega_6^2\omega_3^3 + 2\omega_4^3\omega_2^3v_2^2\omega_6\omega_3^3 - 2\omega_4^3c_s^2\omega_2^3\omega_6\omega_3 - 10\omega_4^2\omega_2^3v_2^2\omega_6^2\omega_3^2 - 8\omega_4^3\omega_2v_2^2\omega_6^2\omega_3^3 + 2\omega_4^3\omega_2^3v_2^2\omega_6^2$$

$$C_{43} = 12\omega_4^2c_s^2\omega_6\omega_3^3 + 24\omega_4^2v_2^2\omega_6^2\omega_3^3 + 12\omega_4^3v_2^2\omega_3^2 - 36\omega_4^2v_2^2\omega_6^2\omega_3^2 - 24\omega_4^2c_s^2\omega_6\omega_3^2 - 12\omega_4^3c_s^2\omega_6\omega_3 - 6\omega_4^3v_2^2\omega_6^2\omega_3 - 6\omega_4^3v_2^2\omega_3^3 - 12\omega_4^3c_s^2\omega_6^2 + 12v_2^2\omega_6^2\omega_3^3 + 36\omega_4^3c_s^2\omega_6\omega_3^3 + 16\omega_4^3v_2^2\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 - 5\omega_4^3v_2^2\omega_6^2\omega_3^3 - 12\omega_4^3c_s^2\omega_6\omega_3^3 + 6\omega_4c_s^2\omega_6^2\omega_3^3 + 12\omega_4^3v_2^2\omega_6\omega_3^3 + 4\omega_4^3c_s^2\omega_6^2\omega_3^3 - 30\omega_4v_2^2\omega_6^2\omega_3^3 - 32\omega_4^3c_s^2\omega_6^2\omega_3^3 - 36\omega_4^3v_2^2\omega_6\omega_3^2 - 24\omega_4^2c_s^2\omega_6^2\omega_3 + 24\omega_4v_2^2\omega_6^2\omega_3^2 + 24\omega_4^2v_2^2\omega_6\omega_3^2 + 48\omega_4^2c_s^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_3^3 + 36\omega_4^3c_s^2\omega_6^2\omega_3 + 12\omega_4^3v_2^2\omega_6\omega_3 - 12\omega_4^3c_s^2\omega_3^2 - 12\omega_4^2c_s^2\omega_6^2\omega_3^3 - 12\omega_4^2v_2^2\omega_6\omega_3^3$$

$$C_{44} = 18\omega_4^3\omega_2^2\omega_3 - 5\omega_4^3\omega_2^3\omega_3^3 + 18\omega_4^2\omega_2\omega_3^3 + 12\omega_2^3\omega_3^3 + 18\omega_4\omega_2^2\omega_3^3 + 28\omega_4^3\omega_2^3\omega_3^2 + 6\omega_4\omega_2^3\omega_3^2 - 36\omega_4^3\omega_2^3\omega_3 + 24\omega_4^3\omega_2^2\omega_3^3 - 30\omega_4^3\omega_2^2\omega_3^2 - 30\omega_4\omega_2^3\omega_3^3 + 6\omega_4^3\omega_2\omega_3^2 - 30\omega_4^2\omega_2^3\omega_3^2 + 12\omega_4^3\omega_3^3 + 24\omega_4^2\omega_2^3\omega_3^3 - 30\omega_4^3\omega_2\omega_3^3 + 12\omega_4^2\omega_2^2\omega_3^2 - 42\omega_4^2\omega_2^2\omega_3^3 + 18\omega_4^2\omega_2^3\omega_3 + 12\omega_4^3\omega_2^3$$

$$C_{45} = -36\omega_2^2v_2^2\omega_6^2\omega_3^2 + 12\omega_2^3v_2^2\omega_3^2 + 4c_s^2\omega_2^3\omega_6^2\omega_3^3 - 6\omega_2^3v_2^2\omega_6^2\omega_3 - 6\omega_2^3v_2^2\omega_3^3 + 24\omega_2^2v_2^2\omega_6^2\omega_3^3 - 32c_s^2\omega_2^3v_2^2\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2\omega_3^3 - 5\omega_2^3v_2^2\omega_6^2\omega_3^3 + 36c_s^2\omega_2^3\omega_6^2\omega_3 + 12c_s^2\omega_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2\omega_6^2\omega_3^3 + 6c_s^2\omega_2\omega_6^2\omega_3^3 - 24c_s^2\omega_2^2\omega_6\omega_3^3 + 16\omega_2^3v_2^2\omega_6^2\omega_3^2 - 12c_s^2\omega_2^3\omega_6^2 + 48c_s^2\omega_2^2\omega_6^2\omega_3^2 + 6c_s^2\omega_2^3\omega_3^3 - 36\omega_2^3v_2^2\omega_6\omega_3^2 + 24\omega_2v_2^2\omega_6^2\omega_3^2 - 12c_s^2\omega_2^3\omega_6\omega_3 + 12\omega_2^3v_2^2\omega_6\omega_3^2 - 12c_s^2\omega_2^3\omega_3^3 - 12c_s^2\omega_2^2\omega_6^2\omega_3^3 - 30\omega_2v_2^2\omega_6^2\omega_3^3 - 12\omega_2^2v_2^2\omega_6\omega_3^3 + 36c_s^2\omega_2^3\omega_6\omega_3^2 + 24\omega_2^2v_2^2\omega_6\omega_3^2 - 24c_s^2\omega_2^2\omega_6^2\omega_3 + 12\omega_2^3v_2^2\omega_6\omega_3^3 - 12c_s^2\omega_2^3\omega_6\omega_3^3$$

$$C_{46} = 12\omega_4^2c_s^2\omega_6\omega_3^3 + 7\omega_4^3\omega_6^2\omega_3^2 + 6\omega_4^2v_2^2\omega_6^2\omega_3^3 + 12\omega_4^3v_2^2\omega_3^2 - 6\omega_4^2v_2^2\omega_6^2\omega_3^2 - 24\omega_4^2c_s^2\omega_6\omega_3^2 - \omega_4^3\omega_6^2\omega_3^3 - 24\omega_4^3c_s^2\omega_6\omega_3 + 12\omega_4^3v_2^2\omega_6^2\omega_3 - 6\omega_4^3v_2^2\omega_3^3 - 12\omega_4^3c_s^2\omega_6^2 + 6v_2^2\omega_6^2\omega_3^3 + 72\omega_4^3c_s^2\omega_6\omega_3^2 - 6\omega_4^3v_2^2\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 + 6\omega_4^2\omega_6\omega_3^2 - 24\omega_4^3c_s^2\omega_6\omega_3^3 - 6\omega_4^3\omega_6^2\omega_3 - 3\omega_4^2\omega_6\omega_3^3 + 6\omega_4c_s^2\omega_6^2\omega_3^3 + 6\omega_4^3c_s^2\omega_6^2\omega_3^3 + 12\omega_4^3\omega_6\omega_3 - 12\omega_4v_2^2\omega_6^2\omega_3^3 + \omega_4^2\omega_6^2\omega_3^3 - 3\omega_4^3\omega_3^3 - 36\omega_4^3c_s^2\omega_6^2\omega_3^2 + 12\omega_4^3v_2^2\omega_6\omega_3^2 + 6\omega_4^3\omega_3^2 - 3\omega_4^2\omega_6^2\omega_3^2 - 12\omega_4^2c_s^2\omega_6^2\omega_3 + 6\omega_4v_2^2\omega_6^2\omega_3^2 + 6\omega_4^3\omega_6\omega_3^2 + 36\omega_4^2c_s^2\omega_6^2\omega_3^2 + 18\omega_4^3c_s^2\omega_3^3 + 36\omega_4^2c_s^2\omega_6^2\omega_3 - 24\omega_4^3v_2^2\omega_6\omega_3 - 21\omega_4^3\omega_6\omega_3^2 - 36\omega_4^3c_s^2\omega_3^2 - 12\omega_4^2c_s^2\omega_6^2\omega_3^3$$

$$C_{47} = 12\omega_4^2c_s^2\omega_6\omega_3^3 + 3\omega_4^3\omega_6^2\omega_3^2 + 12\omega_4^3v_2^2\omega_3^2 + 12\omega_4^2v_2^2\omega_6^2\omega_3^2 - 24\omega_4^2c_s^2\omega_6\omega_3^2 - \omega_4^3\omega_6^2\omega_3^3 - 12\omega_4^3c_s^2\omega_6\omega_3 + 30\omega_4^3v_2^2\omega_6^2\omega_3 - 6\omega_4^3v_2^2\omega_3^3 - 12\omega_4^3c_s^2\omega_6^2 + 12v_2^2\omega_6^2\omega_3^3 + 36\omega_4^3c_s^2\omega_6\omega_3^2 - 12\omega_4^3v_2^2\omega_6^2\omega_3^2 - 12\omega_4c_s^2\omega_6^2\omega_3^2 + 12\omega_4^2\omega_6\omega_3^2 + 3\omega_4^3v_2^2\omega_6^2\omega_3^3 - 12\omega_4^3c_s^2\omega_6\omega_3^3 - 6\omega_4^2\omega_6\omega_3^3 + 6\omega_4c_s^2\omega_6^2\omega_3^3 + 4\omega_4^3c_s^2\omega_6^2\omega_3^3 - 18\omega_4v_2^2\omega_6^2\omega_3^3 + 2\omega_4^2\omega_6^2\omega_3^3 - 32\omega_4^3c_s^2\omega_6^2\omega_3^2 - 12\omega_4^3v_2^2\omega_6\omega_3^2 - 6\omega_4^2\omega_6^2\omega_3^2 - 24\omega_4^2c_s^2\omega_6^2\omega_3 - 24\omega_4^2v_2^2\omega_6\omega_3^2 - 24\omega_4^3v_2^2\omega_6^2 + 3\omega_4^3\omega_6\omega_3^3 + 48\omega_4^2c_s^2\omega_6^2\omega_3^2 + 6\omega_4^3c_s^2\omega_3^3 + 36\omega_4^2c_s^2\omega_6^2\omega_3 + 12\omega_4^3v_2^2\omega_6\omega_3 - 6\omega_4^3\omega_6\omega_3^2 - 12\omega_4^3c_s^2\omega_3^2 - 12\omega_4^2c_s^2\omega_6^2\omega_3^3 + 12\omega_4^2v_2^2\omega_6\omega_3^3$$

$$C_{48} = 12v_2^2\omega_3^2 - 36c_s^2\omega_6\omega_3 + 11\omega_6^2\omega_3^2 + 12v_2^2\omega_6^2\omega_3 - 6v_2^2\omega_3^3 - \omega_6^2\omega_3^3 + v_2^2\omega_6^2\omega_3^3 - 30c_s^2\omega_6\omega_3^3 + 96c_s^2\omega_6\omega_3^2 - 12\omega_6^2\omega_3 - 14v_2^2\omega_6^2\omega_3^2 + 24\omega_6\omega_3 - 26c_s^2\omega_6^2\omega_3^2 + 48v_2^2\omega_6\omega_3^2 - 6\omega_3^3 - 6v_2^2\omega_6\omega_3^3 + 4c_s^2\omega_6^2\omega_3^3 + 12\omega_3^2 + 12v_2^2\omega_6^2 + 30c_s^2\omega_3^3 + 9\omega_6\omega_3^3 - 60c_s^2\omega_3^2 - 36\omega_6\omega_3^2 + 18c_s^2\omega_6^2\omega_3 - 60v_2^2\omega_6\omega_3$$

$$C_{49} = -12\omega_4^2\omega_2v_3^2 + 22\omega_4^2c_s^2\omega_2\omega_7^2 - 6\omega_4^2v_3^2\omega_7^2 - 36\omega_4\omega_2v_3^2\omega_7^2 - 18\omega_4^2c_s^2\omega_7^2 + 9\omega_4^3c_s^2\omega_2\omega_7 + 12\omega_4^2c_s^2\omega_2 - 2\omega_4^3c_s^2\omega_2\omega_7^2 - 30\omega_4^2c_s^2\omega_2\omega_7 - 12\omega_4^2v_3^2\omega_7 + 12\omega_4^2c_s^2\omega_7 - 12\omega_4\omega_2v_3^2\omega_7 + 12c_s^2\omega_2\omega_7^2 - \omega_4^3v_3^2\omega_7^2 + 3\omega_4^3c_s^2\omega_7^2 - 9\omega_4^3\omega_2v_3^2\omega_7 + 8\omega_4^2\omega_2v_3^2\omega_7^2 - 30\omega_4c_s^2\omega_2\omega_7^2 + 6\omega_4^3\omega_2v_3^2 + 30\omega_4^2\omega_2v_3^2\omega_7 + 12\omega_4c_s^2\omega_2\omega_7 + \omega_4^3\omega_2v_3^2\omega_7^2 + 6\omega_4^3v_3^2\omega_7 + 12\omega_4c_s^2\omega_7^2 + 12\omega_4v_3^2\omega_7^2 - 6\omega_4^3c_s^2\omega_7 - 6\omega_4^3c_s^2\omega_2 + 24\omega_2v_3^2\omega_7^2$$

$$C_{50} = -2\omega_4^2\omega_5\omega_3^2v_1^2v_3^2\omega_7^2 - 4\omega_4^3c_s^2\omega_5\omega_2v_3^2\omega_7^2 + \omega_4^3c_s^4\omega_5^2\omega_3^2\omega_7 + 4\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2 + 4\omega_4^2c_s^4\omega_5^2\omega_2\omega_7^2 - 3\omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2\omega_7 - 4\omega_4^2c_s^2\omega_5^2\omega_2^2v_1^2\omega_7 + 4\omega_4\omega_5^2\omega_3^2v_1^2v_3^2\omega_7 + 2\omega_4^3c_s^2\omega_5^2\omega_3^2v_3^2\omega_7 + 2\omega_4^2c_s^2\omega_5^2\omega_3^2v_3^2\omega_7 - 2\omega_4^3\omega_3^2v_1^2v_3^2\omega_7^2 + 4\omega_4^3c_s^4\omega_5^2\omega_2^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5^2\omega_2v_3^2\omega_7^2 + 4\omega_4^2\omega_5^2\omega_2^2v_1^2v_3^2\omega_7 + 4\omega_4^2c_s^4\omega_5\omega_2^2\omega_7^2 - 4\omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 + 14\omega_4^2\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2 - 4\omega_4c_s^2\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2 + 12\omega_4\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2 - 10\omega_4^2\omega_5^2\omega_3^2v_1^2v_3^2\omega_7 + 4\omega_4^3\omega_5\omega_2v_1^2v_3^2\omega_7^2 + 4\omega_4^3\omega_2^2v_1^2v_3^2\omega_7^2 + 4\omega_4^2\omega_5^2\omega_3^2v_1^2v_3^2 + 8\omega_4^2c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 + \omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 - 2\omega_4^3c_s^4\omega_5^2\omega_2^2\omega_7 - 2\omega_4^2c_s^2\omega_5^2\omega_3^2v_3^2\omega_7^2 - 14\omega_4\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2 - 8\omega_4^3c_s^2\omega_5^2\omega_2^2v_3^2\omega_7^2 - 4\omega_4^3c_s^2\omega_5^2\omega_3^2v_3^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5^2\omega_2^2v_3^2\omega_7^2 - 4\omega_4^3c_s^2\omega_2^2v_3^2\omega_7^2 - 28\omega_4^2\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2 - 2\omega_4^2c_s^4\omega_5\omega_2^2\omega_7^2 + 4\omega_4^2\omega_5\omega_2^2v_1^2v_3^2\omega_7^2 - 14\omega_4^3\omega_5^2\omega_2v_1^2v_3^2\omega_7^2 + 2\omega_4^3c_s^2\omega_5^2\omega_2^2v_1^2 - 3\omega_4^3c_s^2\omega_5\omega_3^2v_3^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5\omega_2^2v_3^2\omega_7^2 + 2\omega_4^3c_s^2\omega_5\omega_2^2v_1^2\omega_7^2 + 2\omega_4^2c_s^2\omega_5\omega_3^2v_1^2\omega_7^2 - \omega_4^3c_s^4\omega_5^2\omega_3^2\omega_7^2 + 10\omega_4c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 - 3\omega_4^3\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2 + 4\omega_4^2c_s^4\omega_5^2\omega_2^2\omega_7 - \omega_4^3c_s^2\omega_5^2\omega_3^2v_3^2\omega_7 - 2\omega_4^3\omega_5^2\omega_2^2v_1^2v_3^2 - 4\omega_4^2c_s^2\omega_5^2\omega_2^2v_3^2\omega_7 - 2\omega_4c_s^4\omega_5^2\omega_3^2\omega_7^2 + 2\omega_4^3c_s^2\omega_5^2\omega_2^2v_1^2\omega_7 + 10\omega_4^2c_s^2\omega_5^2\omega_3^2v_1^2\omega_7 + 10\omega_4^3c_s^2\omega_5^2\omega_2v_3^2\omega_7^2 - 2\omega_4^3\omega_5^2\omega_2^2v_1^2v_3^2\omega_7 + 4\omega_4^3\omega_5^2v_1^2v_3^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5^2\omega_3^2v_1^2 + 4\omega_4^2c_s^4\omega_5^2\omega_3^2\omega_7^2 + \omega_4^3c_s^4\omega_5\omega_3^2\omega_7^2 + 3\omega_4^3\omega_5\omega_3^2v_1^2v_3^2\omega_7^2 - 2\omega_4^3c_s^4\omega_5^2\omega_2\omega_7^2 + 12\omega_4^2\omega_5^2\omega_2v_1^2v_3^2\omega_7^2 - \omega_4^3c_s^2\omega_5\omega_3^2v_1^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5\omega_2^2v_1^2\omega_7^2 - 4c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 + 10\omega_4^3c_s^2\omega_5\omega_2^2v_3^2\omega_7^2 + 2\omega_4^2c_s^2\omega_5\omega_3^2v_3^2\omega_7^2 + 4\omega_4c_s^4\omega_5^2\omega_2^2\omega_7^2 - 2\omega_4^2c_s^4\omega_5^2\omega_3^2\omega_7 - 10\omega_4^3\omega_5\omega_2^2v_1^2v_3^2\omega_7^2 + 8\omega_4^2c_s^2\omega_5^2\omega_2^2v_3^2\omega_7^2 + \omega_4^3c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 - 4\omega_4^2c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 - 8\omega_4^2c_s^2\omega_5^2\omega_3^2v_1^2\omega_7^2 - 2\omega_4^3c_s^2\omega_5^2\omega_2^2v_1^2\omega_7^2 + 14\omega_4^3\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2 - 2\omega_4^3c_s^4\omega_5\omega_2^2\omega_7^2 + 2\omega_4^3c_s^2\omega_5^2\omega_3^2v_3^2\omega_7^2 - 4\omega_4c_s^2\omega_5^2\omega_3^2v_1^2\omega_7 + 3\omega_4^3\omega_5^2\omega_3^2v_1^2v_3^2\omega_7 - 12\omega_4^2c_s^4\omega_5^2\omega_2^2\omega_7^2$$

$$C_{51} = -6\omega_4^3\omega_2^2v_3^2 + 24\omega_4c_s^2\omega_3^2\omega_7^2 + 22\omega_4^3\omega_2^2v_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_3^2 - 12\omega_4^2c_s^2\omega_2\omega_7^2 + 12\omega_4\omega_3^2v_3^2\omega_7 + 6\omega_4^3c_s^2\omega_2\omega_7^2 - 18\omega_4\omega_3^2v_3^2\omega_7^2 - 12\omega_4c_s^2\omega_3^2\omega_7 - 48\omega_4^2\omega_2^2v_3^2\omega_7^2 - 6\omega_4^3c_s^2\omega_3^2\omega_7 + 12\omega_4^3v_3^2\omega_7^2 - 14\omega_4^2c_s^2\omega_3^2\omega_7^2 - 4\omega_4^3\omega_3^2v_3^2\omega_7^2 + 6\omega_4^3c_s^2\omega_3^2 - 6\omega_4^3c_s^2\omega_2^2\omega_7^2 + 24\omega_4^2\omega_2v_3^2\omega_7^2 + 12\omega_4^2\omega_3^2v_3^2 - 24\omega_4^2\omega_3^2v_3^2\omega_7 + 12\omega_4^2c_s^2\omega_2^2\omega_7^2 + 22\omega_4^2\omega_3^2v_3^2\omega_7^2 + 6\omega_4^3\omega_3^2v_3^2\omega_7 - 12c_s^2\omega_3^2\omega_7^2 - 30\omega_4^3\omega_2v_3^2\omega_7^2 + 24\omega_4\omega_2^2v_3^2\omega_7^2 + 24\omega_4^2c_s^2\omega_3^2\omega_7 + \omega_4^3c_s^2\omega_3^2\omega_7^2$$

$$C_{52} = -48\omega_4^2\omega_5^2\omega_2^2v_1^2 - 14\omega_4^3c_s^2\omega_5^2\omega_2^2 + 12\omega_5^2\omega_3^2v_1^2 + \omega_4^3c_s^2\omega_5^2\omega_3^2 - 4\omega_4^3\omega_5^2\omega_3^2v_1^2 + 12\omega_4^3\omega_5\omega_2v_1^2 - 6\omega_4^2c_s^2\omega_5^2\omega_3^2 + 22\omega_4^2\omega_5^2\omega_3^2v_1^2 + 22\omega_4^3\omega_5^2\omega_2^2v_1^2 + 12\omega_4^2c_s^2\omega_5^2\omega_2^2 + 24\omega_4^3c_s^2\omega_5^2\omega_2 + 12\omega_4^3\omega_2^2v_1^2 - 12\omega_4^3c_s^2\omega_2^2 - 18\omega_4^3\omega_5^2\omega_2v_1^2 - 12\omega_4^3c_s^2\omega_5\omega_2 + 24\omega_4\omega_5^2\omega_3^2v_1^2 - 24\omega_4^3\omega_5\omega_2^2v_1^2 + 6\omega_4^3c_s^2\omega_3^2 - 30\omega_4\omega_5^2\omega_3^2v_1^2 - 6\omega_4^3c_s^2\omega_5\omega_3^2 - 6\omega_4^3\omega_3^2v_1^2 + 6\omega_4c_s^2\omega_5^2\omega_3^2 - 12\omega_4^3c_s^2\omega_5^2 + 24\omega_4^3c_s^2\omega_5\omega_2^2 + 24\omega_4^2\omega_5^2\omega_2v_1^2 - 12\omega_4c_s^2\omega_5^2\omega_2^2 + 6\omega_4^3\omega_5\omega_3^2v_1^2$$

$$C_{53} = 12\omega_4c_s^2\omega_3\omega_7 - 6\omega_4^2v_3^2\omega_7^2 + 12\omega_4^2c_s^2\omega_3 + 8\omega_4^2\omega_3v_3^2\omega_7^2 - 18\omega_4^2c_s^2\omega_7^2 - 9\omega_4^3\omega_3v_3^2\omega_7 + \omega_4^3\omega_3v_3^2\omega_7^2 - 12\omega_4^2v_3^2\omega_7 + 12\omega_4^2c_s^2\omega_7 + 30\omega_4^2\omega_3v_3^2\omega_7 + 24\omega_3v_3^2\omega_7^2 + 6\omega_4^3\omega_3v_3^2 - 30\omega_4c_s^2\omega_3\omega_7^2 - 2\omega_4^3c_s^2\omega_3\omega_7^2 - 6\omega_4^3c_s^2\omega_3 - \omega_4^3v_3^2\omega_7^2 + 3\omega_4^3c_s^2\omega_7^2 - 30\omega_4^2c_s^2\omega_3\omega_7 + 12c_s^2\omega_3\omega_7^2 - 36\omega_4\omega_3v_3^2\omega_7^2 - 12\omega_4\omega_3\omega_3^2v_3^2\omega_7 - 12\omega_4^2\omega_3v_3^2 + 6\omega_4^3v_3^2\omega_7 + 12\omega_4c_s^2\omega_7^2 + 12\omega_4v_3^2\omega_7^2 + 22\omega_4^2c_s^2\omega_3\omega_7^2 - 6\omega_4^3c_s^2\omega_7 + 9\omega_4^3c_s^2\omega_3\omega_7$$

$$C_{54} = 3\omega_4\omega_3^2\omega_2^2v_3^2\omega_7^2 + \omega_4^3c_s^2\omega_2^2\omega_3^2\omega_7^2 + 6\omega_4c_s^2\omega_3^2\omega_3^3\omega_7^2 + 3\omega_4^3\omega_2\omega_3^2v_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_3^3\omega_3^2\omega_7 + 2\omega_3^2\omega_3^3v_3^2\omega_7^2 + \omega_4^3c_s^2\omega_2^2\omega_3^3\omega_7 + 2\omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7 - 8\omega_4^3\omega_2^2\omega_3v_3^2\omega_7^2 - 10\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7^2 + 7\omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7^2 - 6\omega_4^2c_s^2\omega_3^3\omega_3^3\omega_7^2 + 3\omega_4^3\omega_3^3v_3^2\omega_7^2 + 3\omega_4^3\omega_2^2\omega_3v_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_2\omega_3^3\omega_7^2 + 2\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7 - \omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7 + 6\omega_4^2c_s^2\omega_2^2\omega_3^3\omega_7^2 - 2\omega_4^3c_s^2\omega_2^2\omega_3^3\omega_7^2 - 2\omega_4c_s^2\omega_2^2\omega_3^3\omega_7^2 - 2\omega_4^3\omega_3^3\omega_3^3v_3^2\omega_7^2 + 4\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7^2 + \omega_4^3c_s^2\omega_3^3\omega_3\omega_7^2 + 6\omega_4^2c_s^2\omega_3^3\omega_3^2\omega_7^2 + 4\omega_4^2\omega_2\omega_3^3v_3^2\omega_7^2 - 2\omega_4^2c_s^2\omega_3^3\omega_3^3\omega_7^2 + 6\omega_4^2c_s^2\omega_2^2\omega_3^3\omega_7^2 - 8\omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7^2 + 8\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7^2 + 2\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7 - \omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7 - 2\omega_4^3c_s^2\omega_3^3\omega_3^3\omega_7^2 + 2\omega_4^2\omega_2^2\omega_3^3v_3^2 + \omega_4^3c_s^2\omega_2\omega_3^3\omega_7^2 + \omega_4^3c_s^2\omega_2^2\omega_3^3\omega_7^2 - 8\omega_4^3\omega_2\omega_3^3v_3^2\omega_7^2 + 3\omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7^2 - 2c_s^2\omega_3^3\omega_3^3\omega_7^2 - 2\omega_4c_s^2\omega_2^2\omega_3^3\omega_7^2 - 2\omega_4^3c_s^2\omega_3^3\omega_3^2\omega_7^2 - 7\omega_4\omega_2^2\omega_3^3v_3^2\omega_7^2 + 2\omega_4\omega_2^2\omega_3^3v_3^2\omega_7 + \omega_4^3c_s^2\omega_2^2\omega_3^3\omega_7^2 - 2\omega_4^2c_s^2\omega_2^2\omega_3^3\omega_7^3 - 2\omega_4^2c_s^2\omega_2^2\omega_3^3\omega_7^2 + 3\omega_4\omega_2^2\omega_3^3v_3^2\omega_7^2 - 10\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7^2 + 7\omega_4^3\omega_2^2\omega_3^3v_3^2\omega_7^2 + \omega_4^3c_s^2\omega_2^2\omega_3^3\omega_3^3\omega_7^2 + 4\omega_4^2\omega_2^2\omega_3^3v_3^3\omega_7^2 - 2\omega_4^2c_s^2\omega_2^2\omega_3^3\omega_7 - 6\omega_4^2\omega_2^2\omega_3^3v_3^2\omega_7^2$$

$$C_{55} = 48\omega_4^2c_s^2\omega_3^2\omega_7^2 + 12\omega_4^3c_s^2\omega_3^2\omega_7 - 12c_s^2\omega_3^3\omega_7^2 - 36\omega_4^2\omega_3^3v_3^2\omega_7 + 36\omega_4^2c_s^2\omega_3^3\omega_7 + 24\omega_4^2\omega_3v_3^2\omega_7^2 + 4\omega_4^3c_s^2\omega_3^3\omega_7^2 - 5\omega_4^3\omega_3^3v_3^2\omega_7^2 - 30\omega_4^3\omega_3v_3^2\omega_7^2 + 12\omega_4^3\omega_3^3v_3^2\omega_7 - 12\omega_4^3c_s^2\omega_3^3\omega_7 - 32\omega_4^2c_s^2\omega_3^3\omega_7^2 + 16\omega_4^2\omega_3^3v_3^2\omega_7^2 - 12\omega_4^3c_s^2\omega_3^3\omega_7^2 + 12\omega_4^2\omega_3^3v_3^2 - 12\omega_4^2c_s^2\omega_3^3 - 24\omega_4^2c_s^2\omega_3^2\omega_7 + 6\omega_4^3c_s^2\omega_3\omega_7^2 + 24\omega_4^3\omega_3^2v_3^2\omega_7^2 + 12\omega_4^3v_3^2\omega_7^2 - 24\omega_4c_s^2\omega_3^3\omega_7^2 + 24\omega_4^2\omega_3^2v_3^2\omega_7 + 12\omega_4\omega_3^3v_3^2\omega_7 - 12\omega_4c_s^2\omega_3^3\omega_7 + 36\omega_4c_s^2\omega_3^3\omega_7^2 - 6\omega_4\omega_3^3v_3^2\omega_7^2 - 6\omega_4^3\omega_3^3v_3^2 + 6\omega_4^3c_s^2\omega_3^3 - 36\omega_4^2\omega_3^2v_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_3\omega_7^2 - 12\omega_4^3\omega_3^2v_3^2\omega_7$$

$$C_{56} = -6\omega_4^3\omega_2^2v_3^2 + 36\omega_4c_s^2\omega_3^2\omega_7^2 + 24\omega_4^2\omega_2^2v_3^2\omega_7 + 24\omega_4^3\omega_2^2v_3^2\omega_7^2 - 12\omega_4^2c_s^2\omega_3^2 - 12\omega_4^2c_s^2\omega_2\omega_7^2 + 12\omega_4\omega_3^2v_3^2\omega_7 + 6\omega_4^3c_s^2\omega_2\omega_7^2 - 6\omega_4\omega_3^2v_3^2\omega_7^2 - 24\omega_4c_s^2\omega_2^2\omega_7^2 - 12\omega_4^3\omega_2^2v_3^2\omega_7 - 12\omega_4c_s^2\omega_3^2\omega_7 - 36\omega_4^2\omega_2^2v_3^2\omega_7^2 - 12\omega_4^3c_s^2\omega_3^2\omega_7 + 12\omega_4^3v_3^2\omega_7^2 - 32\omega_4^2c_s^2\omega_3^2\omega_7^2 - 5\omega_4^3\omega_2^2v_3^2\omega_7^2 + 6\omega_4^3c_s^2\omega_3^2 - 12\omega_4^3c_s^2\omega_2^2\omega_7^2 + 24\omega_4^2\omega_2v_3^2\omega_7^2 + 12\omega_4^2\omega_3^2v_3^2 - 24\omega_4^2c_s^2\omega_3^2\omega_7 + 30\omega_4^3\omega_2v_3^2\omega_7^2 + 36\omega_4^2c_s^2\omega_3^2\omega_7^2 + 4\omega_4^3c_s^2\omega_3^3\omega_7^2$$

$$C_{57} = 18\omega_4^3\omega_2^2\omega_3 - 5\omega_4^3\omega_2^3\omega_3^3 + 6\omega_4^2\omega_2\omega_3^3 + 12\omega_2^3\omega_3^3 + 18\omega_4\omega_2^2\omega_3^3 + 24\omega_4^3\omega_2^3\omega_3^2 + 18\omega_4\omega_3^2\omega_2^3 - 30\omega_4^3\omega_2^3\omega_3 + 24\omega_4^3\omega_2^2\omega_3^3 - 42\omega_4^3\omega_2^2\omega_3^2 - 36\omega_4\omega_2^3\omega_3^3 + 18\omega_4^3\omega_2\omega_3^2 - 30\omega_4^2\omega_2^3\omega_3^2 + 12\omega_4^3\omega_3^3 + 28\omega_4^2\omega_2^3\omega_3^3 - 30\omega_4^3\omega_2\omega_3^3 + 12\omega_4^2\omega_2^2\omega_3^3 - 30\omega_4^2\omega_2^2\omega_3^3 + 6\omega_4^2\omega_2^3\omega_3 + 12\omega_4^3\omega_2^3$$

$$C_{58} = -\omega_4^3 c_s^2 \omega_6^2 \omega_3^3 v_2^2 \omega_7 - 4\omega_4^2 c_s^2 \omega_6^2 \omega_3^2 v_2^3 \omega_7 - 14\omega_4 v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7^2 + 10\omega_4^3 c_s^2 \omega_6^2 \omega_3 v_3^2 \omega_7^2 - 2\omega_4^3 v_2^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7 - 10\omega_4^2 v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7 + 4\omega_4^3 v_2^2 \omega_3^2 v_3^2 \omega_7^2 + 8\omega_4^2 c_s^2 v_2^2 \omega_6^2 \omega_3^2 \omega_7^2 + 12\omega_4^2 v_2^2 \omega_6^2 \omega_3 v_3^2 \omega_7^2 - 2\omega_4^3 c_s^4 \omega_6^2 \omega_3^2 \omega_7 - 2\omega_4^2 c_s^4 \omega_6 \omega_3^3 \omega_7^2 + 10\omega_4 c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7^2 + 2\omega_4^3 c_s^2 v_2^2 \omega_6^2 \omega_3^3 - \omega_4^3 c_s^4 \omega_6^2 \omega_3^3 \omega_7^2 + 4\omega_4^3 v_2^2 \omega_6 \omega_3 v_2^2 \omega_7^2 - \omega_4^3 c_s^2 v_2^2 \omega_6 \omega_3^3 \omega_7^2 - 2\omega_4^3 v_2^2 \omega_6^2 \omega_3^3 v_3^2 + 10\omega_4^2 c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7 + \omega_4^3 c_s^4 \omega_6^2 \omega_3^3 \omega_7 + 4v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7^2 - 8\omega_4^2 c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7^2 + 3\omega_4^3 v_2^2 \omega_6 \omega_3^3 v_3^2 \omega_7^2 + 4\omega_4^2 v_2^2 \omega_6 \omega_3^2 v_3^2 \omega_7^2 + 4\omega_4^2 c_s^4 \omega_6^2 \omega_3 \omega_7^2 + 10\omega_4^3 c_s^2 \omega_6 \omega_3^3 v_3^2 \omega_7^2 + 2\omega_4^2 c_s^2 \omega_6 \omega_3^3 v_3^2 \omega_7^2 - 4\omega_4 c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7 + 14\omega_4^2 v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7^2 + 14\omega_4^3 v_2^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7^2 - 4\omega_4^2 c_s^2 v_2^2 \omega_6^2 \omega_3^2 \omega_7 - 4c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7^2 + 4\omega_4^3 v_2^2 \omega_6^2 v_3^2 \omega_7^2 + 2\omega_4^3 c_s^2 v_2^2 \omega_6 \omega_3^2 \omega_7^2 + 4\omega_4^3 c_s^4 \omega_6^2 \omega_3^2 \omega_7^2 - 4\omega_4 c_s^2 v_2^2 \omega_6^2 \omega_3^2 \omega_7^2 + 4\omega_4 v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7 + 2\omega_4^3 c_s^2 \omega_3^3 v_3^2 \omega_7^2 + 8\omega_4^2 c_s^2 v_2^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7^2 + \omega_4^3 c_s^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7^2 + 4\omega_4^2 c_s^4 \omega_6 \omega_3^2 \omega_7^2 + 2\omega_4^2 c_s^2 v_2^2 \omega_6 \omega_3^2 \omega_7^2 + 4\omega_4 c_s^4 \omega_6^2 \omega_3^2 \omega_7^2 - 3\omega_4^3 c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7 - 2\omega_4^3 c_s^4 \omega_6^2 \omega_3 \omega_7^2 - 4\omega_4^3 c_s^2 \omega_6 \omega_3 v_3^2 \omega_7^2 - 2\omega_4^2 c_s^4 \omega_6^2 \omega_3^3 \omega_7 - 2\omega_4^3 c_s^2 v_2^2 \omega_6^2 \omega_3^2 \omega_7^2 - 2\omega_4^3 c_s^4 \omega_6 \omega_3^2 \omega_7^2 - 2\omega_4^3 v_2^2 \omega_3^3 v_3^2 \omega_7^2 + 3\omega_4^3 v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7 + 4\omega_4^2 v_2^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7 - 14\omega_4^3 v_2^2 \omega_6^2 \omega_3 v_3^2 \omega_7^2 + 12\omega_4 v_2^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7^2 + 2\omega_4^3 c_s^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7 + 2\omega_4^2 c_s^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7 - 4\omega_4^3 c_s^2 \omega_6^2 v_3^2 \omega_7^2 - 12\omega_4^2 c_s^4 \omega_6^2 \omega_3^2 \omega_7^2 - 4\omega_4^2 c_s^2 \omega_6^2 \omega_3 v_3^2 \omega_7^2 - 2\omega_4^2 c_s^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7^2 - 8\omega_4^3 c_s^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7^2 - 4\omega_4^3 c_s^2 \omega_3^3 v_3^2 \omega_7^2 + 4\omega_4^2 c_s^4 \omega_6^2 \omega_3^2 \omega_7 + 2\omega_4^3 c_s^2 v_2^2 \omega_6^2 \omega_3^2 \omega_7 - 28\omega_4^2 v_2^2 \omega_6^2 \omega_3^2 v_3^2 \omega_7^2 - 3\omega_4^3 v_2^2 \omega_6^2 \omega_3^3 v_3^2 \omega_7^2 - 4\omega_4^2 c_s^2 v_2^2 \omega_6 \omega_3^2 \omega_7^2 - 2\omega_4 c_s^4 \omega_6^2 \omega_3^3 \omega_7^2 + 4\omega_4^2 v_2^2 \omega_6^2 \omega_3^3 v_3^2 + 4\omega_4^2 c_s^4 \omega_6^2 \omega_3^3 \omega_7^2 - 3\omega_4^3 c_s^2 \omega_6 \omega_3^3 v_3^2 \omega_7^2 - 4\omega_4^2 c_s^2 v_2^2 \omega_6^2 \omega_3^3 - 10\omega_4^3 v_2^2 \omega_6 \omega_3^2 v_3^2 \omega_7^2 + \omega_4^3 c_s^4 \omega_6 \omega_3^3 \omega_7^2 + \omega_4^3 c_s^2 v_2^2 \omega_6^2 \omega_3^3 \omega_7^2 - 2\omega_4^2 v_2^2 \omega_6 \omega_3^3 v_3^2 \omega_7^2$$

$$C_{59} = 12\omega_4^2 c_s^2 \omega_3^2 \omega_7^2 - 12c_s^2 \omega_3^3 \omega_7^2 - 24\omega_4^2 \omega_3^3 v_3^2 \omega_7 + 24\omega_4^2 c_s^2 \omega_3^3 \omega_7 + 24\omega_4^2 \omega_3 v_3^2 \omega_7^2 + \omega_4^3 c_s^2 \omega_3^3 \omega_7^2 - 4\omega_4^3 \omega_3^3 v_3^2 \omega_7^2 - 30\omega_4^3 \omega_3 v_3^2 \omega_7^2 + 6\omega_4^3 \omega_3^3 v_3^2 \omega_7 - 6\omega_4^3 c_s^2 \omega_3^3 \omega_7 - 14\omega_4^2 c_s^2 \omega_3^3 \omega_7^2 + 22\omega_4^2 \omega_3^3 v_3^2 \omega_7^2 - 6\omega_4^3 c_s^2 \omega_3^2 \omega_7^2 + 12\omega_4^2 \omega_3^3 v_3^3 - 12\omega_4^2 c_s^2 \omega_3^3 + 24\omega_4 \omega_3^2 v_3^2 \omega_7^2 + 6\omega_4^3 c_s^2 \omega_3 \omega_7^2 + 22\omega_4^3 \omega_3^2 v_3^2 \omega_7^2 + 12\omega_4^3 v_3^2 \omega_7^2 + 12\omega_4 \omega_3^3 v_3^2 \omega_7 - 12\omega_4 c_s^2 \omega_3^3 \omega_7 + 24\omega_4 c_s^2 \omega_3^3 \omega_7^2 - 18\omega_4 \omega_3^3 v_3^2 \omega_7^2 - 6\omega_4^3 \omega_3^3 v_3^2 + 6\omega_4^3 c_s^2 \omega_3^3 - 48\omega_4^2 \omega_3^2 v_3^2 \omega_7^2 - 12\omega_4^2 c_s^2 \omega_3 \omega_7^2$$

$$C_{60} = 22\omega_4^2 v_2^2 \omega_6^2 \omega_3^3 + 12\omega_4^3 v_2^2 \omega_3^2 - 48\omega_4^2 v_2^2 \omega_6^2 \omega_3^2 - 12\omega_4^3 c_s^2 \omega_6 \omega_3 - 18\omega_4^3 v_2^2 \omega_6^2 \omega_3 - 6\omega_4^3 v_2^2 \omega_3^3 - 12\omega_4^3 c_s^2 \omega_6^2 + 12v_2^2 \omega_6^2 \omega_3^3 + 24\omega_4^3 c_s^2 \omega_6 \omega_3^2 + 22\omega_4^3 v_2^2 \omega_6^2 \omega_3^2 + 24\omega_4^2 v_2^2 \omega_6^2 \omega_3 - 12\omega_4 c_s^2 \omega_6^2 \omega_3^2 - 4\omega_4^3 v_2^2 \omega_6^2 \omega_3^3 - 6\omega_4^3 c_s^2 \omega_6 \omega_3^3 + 6\omega_4 c_s^2 \omega_6^2 \omega_3^3 + 6\omega_4^3 v_2^2 \omega_6 \omega_3^3 + \omega_4^3 c_s^2 \omega_6^2 \omega_3^3 - 30\omega_4 v_2^2 \omega_6^2 \omega_3^3 - 14\omega_4^3 c_s^2 \omega_6^2 \omega_3^2 - 24\omega_4^3 v_2^2 \omega_6 \omega_3^2 + 24\omega_4 v_2^2 \omega_6^2 \omega_3^2 + 12\omega_4^2 c_s^2 \omega_6^2 \omega_3^2 + 6\omega_4^3 c_s^2 \omega_3^3 + 24\omega_4^3 c_s^2 \omega_6^2 \omega_3 + 12\omega_4^3 v_2^2 \omega_6 \omega_3 - 12\omega_4^3 c_s^2 \omega_3^2 - 6\omega_4^2 c_s^2 \omega_6^2 \omega_3^3$$

$$C_{61} = -24\omega_4 \omega_7 - 12\omega_4^2 - 6\omega_4^3 c_s^2 + 15\omega_4^2 v_3^2 \omega_7^2 + 25\omega_4^2 c_s^2 \omega_7^2 + 6\omega_4^3 + 12\omega_4^2 c_s^2 - 108\omega_4^2 v_3^2 \omega_7 - 36\omega_4^2 c_s^2 \omega_7 + 12\omega_4 \omega_7^2 - 36v_3^2 \omega_7^2 + 24c_s^2 \omega_7^2 - 3\omega_4^3 v_3^2 \omega_7^2 + 24\omega_4 c_s^2 \omega_7 - 11\omega_4^2 \omega_7^2 - 18\omega_4^3 v_3^2 + 72\omega_4 v_3^2 \omega_7 - 2\omega_4^3 c_s^2 \omega_7^2 - 9\omega_4^3 \omega_7 + 36\omega_4^2 v_3^2 + \omega_4^3 \omega_7^2 + 27\omega_4^3 v_3^2 \omega_7 - 48\omega_4 c_s^2 \omega_7^2 + 36\omega_4^2 \omega_7 + 18\omega_4 v_3^2 \omega_7^2 + 9\omega_4^3 c_s^2 \omega_7$$

$$C_{62} = -6\omega_4^3 \omega_2^2 v_3^2 + 36\omega_4 c_s^2 \omega_2^3 \omega_7^2 + \omega_4^3 \omega_2^2 \omega_7^2 + 6\omega_4^3 \omega_2^2 v_3^2 \omega_7^2 - 36\omega_4^2 c_s^2 \omega_2^3 - 12\omega_4^2 c_s^2 \omega_2 \omega_7^2 - 24\omega_4 \omega_2^3 v_3^2 \omega_7 + 6\omega_4^3 \omega_2^3 \omega_7 - 6\omega_4 \omega_2^3 \omega_7^2 + 6\omega_4^3 c_s^2 \omega_2 \omega_7^2 + 12\omega_4 \omega_2^3 v_3^2 \omega_7^2 - \omega_4^3 \omega_2^3 \omega_7^2 + 12\omega_4 \omega_2^3 \omega_7 - 12\omega_4 c_s^2 \omega_2^3 \omega_7^2 - 24\omega_4 c_s^2 \omega_2^3 \omega_7 - 6\omega_4^2 \omega_2^2 v_3^2 \omega_7^2 - 3\omega_4^3 \omega_2^2 \omega_7 - 24\omega_4^3 c_s^2 \omega_2^3 \omega_7 - 21\omega_4^2 \omega_2^3 \omega_7 + 6\omega_4^3 v_3^2 \omega_7^2 - 36\omega_4^2 c_s^2 \omega_2^3 \omega_7^2 + 6\omega_4^2 \omega_2^3 + 18\omega_4^3 c_s^2 \omega_2^3 - 12\omega_4^3 c_s^2 \omega_2^2 \omega_7^2 + 6\omega_4^2 \omega_2 v_3^2 \omega_7^2 + 12\omega_4^2 \omega_2^3 v_3^3 - 24\omega_4^2 c_s^2 \omega_2^2 \omega_7 - 3\omega_4^2 \omega_2^2 \omega_7^2 + 12\omega_4^2 \omega_2^3 v_3^2 \omega_7 + 36\omega_4^2 c_s^2 \omega_2^2 \omega_7^2 + 6\omega_4^2 \omega_2^2 \omega_7 - 6\omega_4^2 \omega_2^3 v_3^2 \omega_7^2 - 12c_s^2 \omega_2^3 \omega_7^2 + 12\omega_4^3 c_s^2 \omega_2^2 \omega_7 - 12\omega_4^3 \omega_2 v_3^2 \omega_7^2 + 7\omega_4^2 \omega_2^3 \omega_7^2 + 72\omega_4^2 c_s^2 \omega_2^3 \omega_7 + 6\omega_4^3 c_s^2 \omega_2^3 \omega_7^2 - 3\omega_4^3 \omega_2^3$$

$$C_{63} = 24\omega_4 \omega_7 + 12\omega_4^2 + 30\omega_4^3 c_s^2 - 14\omega_4^2 v_3^2 \omega_7^2 - 26\omega_4^2 c_s^2 \omega_7^2 - 6\omega_4^3 - 60\omega_4^2 c_s^2 + 48\omega_4^2 v_3^2 \omega_7 + 96\omega_4^2 c_s^2 \omega_7 - 12\omega_4 \omega_7^2 + 12v_3^2 \omega_7^2 + \omega_4^3 v_3^2 \omega_7^2 - 36\omega_4 c_s^2 \omega_7 + 11\omega_4^2 \omega_7^2 - 6\omega_4^3 v_3^2 - 60\omega_4 v_3^2 \omega_7 + 4\omega_4^3 c_s^2 \omega_7^2 + 9\omega_4^3 \omega_7 + 12\omega_4^2 v_3^2 - \omega_4^3 \omega_7^2 - 6\omega_4^3 v_3^2 \omega_7 + 18\omega_4 c_s^2 \omega_7^2 - 36\omega_4^2 \omega_7 + 12\omega_4 v_3^2 \omega_7^2 - 30\omega_4^3 c_s^2 \omega_7$$

$$C_{64} = -6\omega_4^3 \omega_2^2 v_3^2 + 36\omega_4 c_s^2 \omega_2^3 \omega_7^2 - 24\omega_4^2 \omega_2^2 v_3^2 \omega_7 + 2\omega_4^3 \omega_2^2 \omega_7^2 - 12\omega_4^2 c_s^2 \omega_2^3 - 12\omega_4^2 c_s^2 \omega_2 \omega_7^2 + 12\omega_4 \omega_2^3 v_3^2 \omega_7 + 3\omega_4^3 \omega_2^3 \omega_7 + 6\omega_4^3 c_s^2 \omega_2 \omega_7^2 + 30\omega_4 \omega_2^3 v_3^2 \omega_7^2 - \omega_4^3 \omega_2^3 \omega_7^2 - 24\omega_4 c_s^2 \omega_2^3 \omega_7^2 + 12\omega_4^2 \omega_2^2 v_3^2 \omega_7 - 12\omega_4 c_s^2 \omega_2^3 \omega_7 + 12\omega_4^2 \omega_2^2 v_3^2 \omega_7^2 - 6\omega_4^3 \omega_2^2 \omega_7 - 24\omega_4^3 v_3^2 \omega_7^2 - 12\omega_4^3 c_s^2 \omega_2^2 \omega_7 - 6\omega_4^2 \omega_2^3 \omega_7 + 12\omega_4^3 v_3^2 \omega_7^2 - 32\omega_4^2 c_s^2 \omega_2^3 \omega_7^2 + 3\omega_4^3 \omega_2^3 v_3^2 \omega_7^2 + 6\omega_4^3 c_s^2 \omega_2^3 - 12\omega_4^3 c_s^2 \omega_2^2 \omega_7^2 + 12\omega_4^2 \omega_2^3 v_3^2 - 24\omega_4^2 c_s^2 \omega_2^2 \omega_7 - 6\omega_4^2 \omega_2^2 \omega_7^2 - 12\omega_4^2 \omega_2^3 v_3^2 \omega_7 + 48\omega_4^2 c_s^2 \omega_2^2 \omega_7^2 + 12\omega_4^2 \omega_2^2 \omega_7 - 12\omega_4^2 \omega_2^3 v_3^2 \omega_7^2 - 12c_s^2 \omega_2^3 \omega_7^2 + 12\omega_4^3 c_s^2 \omega_2^2 \omega_7 - 18\omega_4^3 \omega_2 v_3^2 \omega_7^2 + 3\omega_4^2 \omega_2^3 \omega_7^2 + 36\omega_4^2 c_s^2 \omega_2^3 \omega_7 + 4\omega_4^3 c_s^2 \omega_2^3 \omega_7^2$$

$$C_{65} = 6\omega_4^2 \omega_3^2 \omega_7 + 36\omega_4^2 c_s^2 \omega_3^2 \omega_7^2 + 12\omega_4^3 c_s^2 \omega_3^2 \omega_7 - 12c_s^2 \omega_3^3 \omega_7^2 + 12\omega_4^2 \omega_3^3 v_3^2 \omega_7 + 72\omega_4^2 c_s^2 \omega_3^3 \omega_7 + 6\omega_4^2 \omega_3 v_3^2 \omega_7^2 + 7\omega_4^2 \omega_3^3 \omega_7^2 + 6\omega_4^3 c_s^2 \omega_3^3 \omega_7^2 - 12\omega_4^3 \omega_3 v_3^2 \omega_7^2 - 24\omega_4^3 c_s^2 \omega_3^3 \omega_7 - 36\omega_4^2 c_s^2 \omega_3^3 \omega_7^2 - 6\omega_4^2 \omega_3^3 v_3^2 \omega_7^2 - 21\omega_4^2 \omega_3^3 \omega_7 - 12\omega_4^3 c_s^2 \omega_3^3 \omega_7^2 - 3\omega_4^2 \omega_3^3 \omega_7^2 + 12\omega_4^2 \omega_3^3 v_3^2 - 36\omega_4^2 c_s^2 \omega_3^3 - 24\omega_4^2 c_s^2 \omega_3^2 \omega_7 + 6\omega_4^3 c_s^2 \omega_3 \omega_7^2 + 6\omega_4^3 \omega_3^2 v_3^2 \omega_7^2 + 12\omega_4 \omega_3^3 \omega_7 + 6\omega_4^3 v_3^2 \omega_7^2 - 12\omega_4 c_s^2 \omega_3^3 \omega_7^2 - \omega_4^3 \omega_3^3 \omega_7^2 - 3\omega_4^3 \omega_3^3 - 3\omega_4^3 \omega_3^2 \omega_7 - 24\omega_4 \omega_3^3 v_3^2 \omega_7 - 24\omega_4 c_s^2 \omega_3^3 \omega_7 + \omega_4^3 \omega_3^2 \omega_7^2 + 6\omega_4^2 \omega_3^3 + 36\omega_4 c_s^2 \omega_3^3 \omega_7^2 + 12\omega_4 \omega_3^3 v_3^2 \omega_7^2 - 6\omega_4^3 \omega_3^3 v_3^2 + 18\omega_4^3 c_s^2 \omega_3^3 - 6\omega_4 \omega_3^3 \omega_7^2 - 6\omega_4^2 \omega_3^2 v_3^2 \omega_7^2 + 6\omega_4^3 \omega_3^3 \omega_7 - 12\omega_4^2 c_s^2 \omega_3 \omega_7^2$$

$$C_{66} = 24\omega_4 \omega_7 + 12\omega_4^2 + 30\omega_4^3 c_s^2 - 14\omega_4^2 v_3^2 \omega_7^2 - 26\omega_4^2 c_s^2 \omega_7^2 - 6\omega_4^3 - 60\omega_4^2 c_s^2 + 48\omega_4^2 v_3^2 \omega_7 + 96\omega_4^2 c_s^2 \omega_7 - 12\omega_4 \omega_7^2 + 12v_3^2 \omega_7^2 + \omega_4^3 v_3^2 \omega_7^2 - 36\omega_4 c_s^2 \omega_7 + 11\omega_4^2 \omega_7^2 - 6\omega_4^3 v_3^2 - 60\omega_4 v_3^2 \omega_7 + 4\omega_4^3 c_s^2 \omega_7^2 + 9\omega_4^3 \omega_7 + 12\omega_4^2 v_3^2 - \omega_4^3 \omega_7^2 - 6\omega_4^3 v_3^2 \omega_7 + 18\omega_4 c_s^2 \omega_7^2 - 36\omega_4^2 \omega_7 + 12\omega_4 v_3^2 \omega_7^2 - 30\omega_4^3 c_s^2 \omega_7$$

$$C_{67} = 12\omega_4^2 \omega_3^2 \omega_7 + 48\omega_4^2 c_s^2 \omega_3^2 \omega_7^2 + 12\omega_4^3 c_s^2 \omega_3^2 \omega_7 - 24\omega_4^3 v_3^2 \omega_7^2 - 12c_s^2 \omega_3^3 \omega_7^2 - 12\omega_4^2 \omega_3^3 v_3^2 \omega_7 + 36\omega_4^2 c_s^2 \omega_3^3 \omega_7 + 3\omega_4^2 \omega_3^3 \omega_7^2 + 4\omega_4^3 c_s^2 \omega_3^3 \omega_7^2 + 3\omega_4^3 \omega_3^3 v_3^2 \omega_7^2 - 18\omega_4^3 \omega_3 v_3^2 \omega_7^2 - 12\omega_4^3 c_s^2 \omega_3^3 \omega_7 - 32\omega_4^2 c_s^2 \omega_3^3 \omega_7^2 - 12\omega_4^2 \omega_3^3 v_3^2 \omega_7^2 - 6\omega_4^2 \omega_3^3 \omega_7 - 12\omega_4^3 c_s^2 \omega_3^2 \omega_7^2 - 6\omega_4^2 \omega_3^2 \omega_7^2 + 12\omega_4^2 \omega_3^3 v_3^2 - 12\omega_4^2 c_s^2 \omega_3^3 - 24\omega_4^2 c_s^2 \omega_3^2 \omega_7 + 6\omega_4^3 c_s^2 \omega_3 \omega_7^2 + 12\omega_4^3 v_3^2 \omega_7^2 - 24\omega_4 c_s^2 \omega_3^3 \omega_7^2 - 24\omega_4^2 \omega_3^3 v_3^2 \omega_7 - \omega_4^3 \omega_3^3 \omega_7^2 - 6\omega_4^3 \omega_3^2 \omega_7 + 12\omega_4 \omega_3^3 v_3^2 \omega_7 - 12\omega_4 c_s^2 \omega_3^3 \omega_7 + 2\omega_4^3 \omega_3^2 \omega_7^2 + 36\omega_4 c_s^2 \omega_3^3 \omega_7^2 + 30\omega_4 \omega_3^3 v_3^2 \omega_7^2 - 6\omega_4^3 \omega_3^3 v_3^2 + 6\omega_4^3 c_s^2 \omega_3^3 + 12\omega_4^2 \omega_3^3 v_3^2 \omega_7^2 + 3\omega_4^2 \omega_3^3 \omega_7 - 12\omega_4^2 c_s^2 \omega_3 \omega_7^2 + 12\omega_4^3 \omega_3^3 v_3^2 \omega_7$$

$$C_{68} = -72\omega_4^2 v_3^4 + 12\omega_4^2 v_3^2 \omega_7^2 + 144\omega_4^2 c_s^2 v_3^2 \omega_7 - 8\omega_4^2 c_s^2 \omega_7^2 + 24c_s^4 \omega_7^2 + 3\omega_4^3 v_3^4 \omega_7^2 + 24\omega_4 c_s^4 \omega_7 + 6\omega_4^3 c_s^2 v_3^2 \omega_7^2 - 3\omega_4^3 c_s^4 \omega_7^2 - 30\omega_4^3 v_3^4 \omega_7 - 72\omega_4^3 c_s^2 v_3^2 \omega_7 - 48\omega_4 c_s^4 \omega_7^2 + 36\omega_4^3 v_3^4 + 6\omega_4^3 c_s^4 \omega_7 - 72\omega_4^2 v_3^2 \omega_7 + 24\omega_4^2 c_s^2 \omega_7 - 12\omega_4^2 c_s^2 v_3^2 \omega_7^2 - 216\omega_4^2 c_s^2 v_3^2 - 12\omega_4^2 v_3^4 \omega_7^2 + 24\omega_4^2 c_s^4 \omega_7^2 - 3\omega_4^3 v_3^2 \omega_7^2 - 24\omega_4 c_s^2 \omega_7 - 36\omega_4^3 v_3^2 + \omega_4^3 c_s^2 \omega_7^2 + 72\omega_4 c_s^2 v_3^2 \omega_7 - 36\omega_4 c_s^2 v_3^2 \omega_7^2 + 72\omega_4^2 v_3^2 + 108\omega_4^3 c_s^2 v_3^2 + 30\omega_4^3 v_3^2 \omega_7 + 12\omega_4 c_s^2 \omega_7^2 - 6\omega_4^3 c_s^2 \omega_7 + 72\omega_4^2 v_3^4 \omega_7 - 24\omega_4^2 c_s^4 \omega_7$$

$$C_{69} = -12\omega_4 \omega_7 + 36\omega_4^2 + 30\omega_4^3 c_s^2 + 2\omega_4^2 v_3^2 \omega_7^2 - 2\omega_4^2 c_s^2 \omega_7^2 - 18\omega_4^3 - 60\omega_4^2 c_s^2 + 24\omega_4^2 v_3^2 \omega_7 + 72\omega_4^2 c_s^2 \omega_7 + 6\omega_4 \omega_7^2 - 12v_3^2 \omega_7^2 + 24c_s^2 \omega_7^2 + 2\omega_4^3 v_3^2 \omega_7^2 - 12\omega_4 c_s^2 \omega_7 + 2\omega_4^2 \omega_7^2 + 42\omega_4^3 v_3^2 + 60\omega_4 v_3^2 \omega_7 + \omega_4^3 c_s^2 \omega_7^2 + 12\omega_4^3 \omega_7 - 84\omega_4^2 v_3^2 - \omega_4^3 \omega_7^2 - 24\omega_4^3 v_3^2 \omega_7 - 30\omega_4 c_s^2 \omega_7^2 - 24\omega_4^2 \omega_7 - 12\omega_4 v_3^2 \omega_7^2 - 24\omega_4^3 c_s^2 \omega_7$$

2.5 CLBM2

2.5.1 Definitions

Collision operator $\boldsymbol{C}$:

$$\boldsymbol{C}(\boldsymbol{f}) = \mathbf{K}^{-1}\mathbf{S}\left(\boldsymbol{\kappa}^{(eq)} - \mathbf{K}\boldsymbol{f}\right),$$

where

$$\mathbf{S} = \mathrm{diag}(\omega_1, \omega_2, \omega_3, \omega_4, \omega_5, \omega_6, \omega_7),$$

$\omega_1, \omega_2, \ldots, \omega_7 \in (0,2)$.
Matrix $\mathbf{K}$ corresponds to the transformation matrix to the central moment basis defined by

$$\boldsymbol{\kappa} = \begin{pmatrix} k_{(0,0,0)} \\ k_{(1,0,0)} \\ k_{(0,1,0)} \\ k_{(0,0,1)} \\ k_{(2,0,0)} + k_{(0,2,0)} + k_{(0,0,2)} \\ k_{(2,0,0)} - k_{(0,2,0)} \\ k_{(2,0,0)} - k_{(0,0,2)} \end{pmatrix},$$

Thus, the transformation matrix $\mathbf{K}$ satisfies

$$\begin{aligned}
\mathbf{K}_{1,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(0,0,0)}, \\
\mathbf{K}_{2,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(1,0,0)}, \\
\mathbf{K}_{3,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(0,1,0)}, \\
\mathbf{K}_{4,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(0,0,1)}, \\
\mathbf{K}_{5,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(2,0,0)} + (\boldsymbol{c}_i - \boldsymbol{v})^{(0,2,0)} + (\boldsymbol{c}_i - \boldsymbol{v})^{(0,0,2)}, \\
\mathbf{K}_{6,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(2,0,0)} - (\boldsymbol{c}_i - \boldsymbol{v})^{(0,2,0)}, \\
\mathbf{K}_{7,i} &= (\boldsymbol{c}_i - \boldsymbol{v})^{(2,0,0)} - (\boldsymbol{c}_i - \boldsymbol{v})^{(0,0,2)},
\end{aligned}$$

$\forall i \in \{1, 2, \cdots, 7\}$.
The equilibrium central moments are defined by

$$\boldsymbol{\kappa}^{(eq)} = \mathbf{K}\mathbf{M}^{-1}\boldsymbol{\mu}^{(eq)},$$

i.e.,

$$\boldsymbol{\kappa}^{(eq)} = \left(\rho, 0, 0, 0, 3\rho c_s^2, 0, 0\right)^T.$$

2.5.2 Conservation of mass equation

$$\begin{aligned}
&\frac{\partial \rho}{\partial t} + \frac{v_1\delta_l}{\delta_t}\frac{\partial \rho}{\partial x_1} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_1}{\partial x_1} + \frac{\delta_l v_2}{\delta_t}\frac{\partial \rho}{\partial x_2} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_2}{\partial x_2} + \frac{\delta_l v_3}{\delta_t}\frac{\partial \rho}{\partial x_3} + \frac{\delta_l \rho}{\delta_t}\frac{\partial v_3}{\partial x_3} + (-2+\omega_2)\frac{\delta_l}{2\omega_2}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial t} + \\
&(-2+\omega_2)\frac{v_1\delta_l^2}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_1} + (-2+\omega_2)\frac{\delta_l^2\rho}{2\omega_2\delta_t}\left(\frac{\partial v_1}{\partial x_1}\right)^2 + (2-\omega_3)\frac{\delta_l^2 v_2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_2} + (\omega_2+\omega_3-\omega_2\omega_3)\frac{v_1\delta_l^2}{\omega_2\omega_3\delta_t}\frac{\partial \rho}{\partial x_1}\frac{\partial v_2}{\partial x_2} + \\
&(\omega_2+\omega_3-\omega_2\omega_3)\frac{\delta_l^2\rho}{\omega_2\omega_3\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2} + (2-\omega_4)\frac{\delta_l^2 v_3}{2\delta_t\omega_4}\frac{\partial \rho}{\partial x_1}\frac{\partial v_1}{\partial x_3} + (-\omega_2\omega_4+\omega_2+\omega_4)\frac{v_1\delta_l^2}{\omega_2\delta_t\omega_4}\frac{\partial \rho}{\partial x_1}\frac{\partial v_3}{\partial x_3} + \\
&(-\omega_2\omega_4+\omega_2+\omega_4)\frac{\delta_l^2\rho}{\omega_2\delta_t\omega_4}\frac{\partial v_1}{\partial x_1}\frac{\partial v_3}{\partial x_3} + (-2+\omega_3)\frac{\delta_l}{2\omega_3}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial t} + (\omega_2+\omega_3-\omega_2\omega_3)\frac{\delta_l^2 v_2}{\omega_2\omega_3\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_1}{\partial x_1} + \\
&(2-\omega_2)\frac{v_1\delta_l^2}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_1} + (-2+\omega_3)\frac{\delta_l^2 v_2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_2} + (-2+\omega_3)\frac{\delta_l^2\rho}{2\omega_3\delta_t}\left(\frac{\partial v_2}{\partial x_2}\right)^2 + (2-\omega_4)\frac{\delta_l^2 v_3}{2\delta_t\omega_4}\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_3} + \\
&(-\omega_3\omega_4+\omega_3+\omega_4)\frac{\delta_l^2 v_2}{\omega_3\delta_t\omega_4}\frac{\partial \rho}{\partial x_2}\frac{\partial v_3}{\partial x_3} + (-\omega_3\omega_4+\omega_3+\omega_4)\frac{\delta_l^2\rho}{\omega_3\delta_t\omega_4}\frac{\partial v_2}{\partial x_2}\frac{\partial v_3}{\partial x_3} + (-2+\omega_4)\frac{\delta_l}{2\omega_4}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial t} + \\
&(-\omega_2\omega_4+\omega_2+\omega_4)\frac{\delta_l^2 v_3}{\omega_2\delta_t\omega_4}\frac{\partial \rho}{\partial x_3}\frac{\partial v_1}{\partial x_1} + (2-\omega_2)\frac{v_1\delta_l^2}{2\omega_2\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_1} + (-\omega_3\omega_4+\omega_3+\omega_4)\frac{\delta_l^2 v_3}{\omega_3\delta_t\omega_4}\frac{\partial \rho}{\partial x_3}\frac{\partial v_2}{\partial x_2} + \\
&(2-\omega_3)\frac{\delta_l^2 v_2}{2\omega_3\delta_t}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_2} + (-2+\omega_4)\frac{\delta_l^2 v_3}{2\delta_t\omega_4}\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_3} + (-2+\omega_4)\frac{\delta_l^2\rho}{2\delta_t\omega_4}\left(\frac{\partial v_3}{\partial x_3}\right)^2 + (-2+\omega_2)\frac{\delta_l\rho}{2\omega_2}\frac{\partial^2 v_1}{\partial t\partial x_1} + \\
&(-2+\omega_2)\frac{\delta_l^2 c_s^2}{2\omega_2\delta_t}\frac{\partial^2 \rho}{\partial x_1^2} + (-2+\omega_2)\frac{v_1\delta_l^2\rho}{2\omega_2\delta_t}\frac{\partial^2 v_1}{\partial x_1^2} + (-2+\omega_3)\frac{\delta_l\rho}{2\omega_3}\frac{\partial^2 v_2}{\partial t\partial x_2} + (\omega_2+\omega_3-\omega_2\omega_3)\frac{v_1\delta_l^2 v_2}{\omega_2\omega_3\delta_t}\frac{\partial^2 \rho}{\partial x_1\partial x_2} + \\
&(2-\omega_3)\frac{\delta_l^2\rho v_2}{2\omega_3\delta_t}\frac{\partial^2 v_1}{\partial x_1\partial x_2} + (2-\omega_2)\frac{v_1\delta_l^2\rho}{2\omega_2\delta_t}\frac{\partial^2 v_2}{\partial x_1\partial x_2} + (-2+\omega_3)\frac{\delta_l^2 c_s^2}{2\omega_3\delta_t}\frac{\partial^2 \rho}{\partial x_2^2} + (-2+\omega_3)\frac{\delta_l^2\rho v_2}{2\omega_3\delta_t}\frac{\partial^2 v_2}{\partial x_2^2} + (-2+\omega_4)\frac{\delta_l\rho}{2\omega_4}\frac{\partial^2 v_3}{\partial t\partial x_3}
\end{aligned}$$

$$+ (-\omega_2\omega_4+\omega_2+\omega_4)\frac{v_1\delta_l^2 v_3}{\omega_2\delta_t\omega_4}\frac{\partial^2\rho}{\partial x_1\partial x_3} + (2-\omega_4)\frac{\delta_l^2\rho v_3}{2\delta_t\omega_4}\frac{\partial^2 v_1}{\partial x_1\partial x_3} + (2-\omega_2)\frac{v_1\delta_l^2\rho}{2\omega_2\delta_t}\frac{\partial^2 v_3}{\partial x_1\partial x_3} +$$
$$(-\omega_3\omega_4+\omega_3+\omega_4)\frac{\delta_l^2 v_3 v_2}{\omega_3\delta_t\omega_4}\frac{\partial^2\rho}{\partial x_2\partial x_3} + (2-\omega_4)\frac{\delta_l^2\rho v_3}{2\delta_t\omega_4}\frac{\partial^2 v_2}{\partial x_2\partial x_3} + (2-\omega_3)\frac{\delta_l^2\rho v_2}{2\omega_3\delta_t}\frac{\partial^2 v_3}{\partial x_2\partial x_3} + (-2+\omega_4)\frac{\delta_l^2 c_s^2}{2\delta_t\omega_4}\frac{\partial^2\rho}{\partial x_3^2} +$$
$$(-2+\omega_4)\frac{\delta_l^2\rho v_3}{2\delta_t\omega_4}\frac{\partial^2 v_3}{\partial x_3^2} + (12-12\omega_2+\omega_2^2)\frac{\delta_l\rho\delta_t}{12\omega_2^2}\frac{\partial^3 v_1}{\partial t^2\partial x_1} + (12-12\omega_2+\omega_2^2)\frac{v_1\delta_l^2\rho}{6\omega_2^2}\frac{\partial^3 v_1}{\partial t\partial x_1^2} + C_1\frac{v_1\delta_l^3}{6\omega_5\omega_2\delta_t}\frac{\partial^3\rho}{\partial x_1^3} +$$
$$C_2\frac{\delta_l^3\rho}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^3} + (12-12\omega_3+\omega_3^2)\frac{\delta_l\rho\delta_t}{12\omega_3^2}\frac{\partial^3 v_2}{\partial t^2\partial x_2} + (-6\omega_2-6\omega_3+9\omega_2\omega_3+3\omega_3^2-2\omega_2\omega_3^2)\frac{\delta_l^2\rho v_2}{6\omega_2\omega_3^2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_2} +$$
$$(-6\omega_2-2\omega_2^2\omega_3+3\omega_2^2-6\omega_3+9\omega_2\omega_3)\frac{v_1\delta_l^2\rho}{6\omega_2^2\omega_3}\frac{\partial^3 v_2}{\partial t\partial x_1\partial x_2} + C_3\frac{\delta_l^3 v_2}{2\omega_5\omega_2^2\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_2} +$$
$$(\omega_2^2\omega_3^2-6\omega_2^2\omega_3+6\omega_2^2+6\omega_3^2-6\omega_2\omega_3^2)\frac{v_1\delta_l^3\rho v_2}{6\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1^2\partial x_2} +$$
$$(18\omega_5\omega_2c_s^2-12\omega_2c_s^2+6\omega_5\omega_2v_1^2+12\omega_2v_1^2-6\omega_2^2v_1^2+\omega_5\omega_2^2v_1^2-12\omega_5v_1^2+6\omega_2^2c_s^2-3\omega_5\omega_2^2c_s^2-12\omega_5c_s^2)\frac{\delta_l^3\rho}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_2}{\partial x_1^2\partial x_2}$$
$$+ (12-12\omega_3+\omega_3^2)\frac{\delta_l^2\rho v_2}{6\omega_3^2}\frac{\partial^3 v_2}{\partial t\partial x_2^2} + C_4\frac{v_1\delta_l^3}{2\omega_2^2\omega_6\omega_3^2\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2^2} +$$
$$(-3\omega_6\omega_3^2c_s^2-6\omega_3^2v_2^2-12\omega_6c_s^2+6\omega_6\omega_3v_2^2-12\omega_3c_s^2+6\omega_3^2c_s^2-12\omega_6v_2^2+\omega_6\omega_3^2v_2^2+12\omega_3v_2^2+18\omega_6\omega_3c_s^2)\frac{\delta_l^3\rho}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_1}{\partial x_1\partial x_2^2}$$
$$+ (\omega_2^2\omega_3^2-6\omega_2^2\omega_3+6\omega_2^2+6\omega_3^2-6\omega_2\omega_3^2)\frac{v_1\delta_l^3\rho v_2}{6\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_1\partial x_2^2} + C_5\frac{\delta_l^3 v_2}{6\omega_6\omega_3\delta_t}\frac{\partial^3\rho}{\partial x_2^3} + C_6\frac{\delta_l^3\rho}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_2}{\partial x_2^3} +$$
$$(12+\omega_4^2-12\omega_4)\frac{\delta_l\rho\delta_t}{12\omega_4^2}\frac{\partial^3 v_3}{\partial t^2\partial x_3} + (3\omega_4^2-2\omega_2\omega_4^2+9\omega_2\omega_4-6\omega_2-6\omega_4)\frac{\delta_l^2\rho v_3}{6\omega_2\omega_4^2}\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_3} +$$
$$(9\omega_2\omega_4-6\omega_2+3\omega_2^2-2\omega_2^2\omega_4-6\omega_4)\frac{v_1\delta_l^2\rho}{6\omega_2^2\omega_4}\frac{\partial^3 v_3}{\partial t\partial x_1\partial x_3} + C_7\frac{\delta_l^3 v_3}{2\omega_5\omega_2^2\delta_t\omega_4^2}\frac{\partial^3\rho}{\partial x_1^2\partial x_3} +$$
$$(6\omega_4^2-6\omega_2\omega_4^2+6\omega_2^2-6\omega_2^2\omega_4+\omega_2^2\omega_4^2)\frac{v_1\delta_l^3\rho v_3}{6\omega_2^2\delta_t\omega_4^2}\frac{\partial^3 v_1}{\partial x_1^2\partial x_3} +$$
$$(18\omega_5\omega_2c_s^2-12\omega_2c_s^2+6\omega_5\omega_2v_1^2+12\omega_2v_1^2-6\omega_2^2v_1^2+\omega_5\omega_2^2v_1^2-12\omega_5v_1^2+6\omega_2^2c_s^2-3\omega_5\omega_2^2c_s^2-12\omega_5c_s^2)\frac{\delta_l^3\rho}{12\omega_5\omega_2^2\delta_t}\frac{\partial^3 v_3}{\partial x_1^2\partial x_3}$$
$$+ (9\omega_3\omega_4+3\omega_4^2-2\omega_3\omega_4^2-6\omega_3-6\omega_4)\frac{\delta_l^2\rho v_3}{6\omega_3\omega_4^2}\frac{\partial^3 v_2}{\partial t\partial x_2\partial x_3} + (9\omega_3\omega_4-6\omega_3+3\omega_3^2-6\omega_4-2\omega_3^2\omega_4)\frac{\delta_l^2\rho v_2}{6\omega_3^2\omega_4}\frac{\partial^3 v_3}{\partial t\partial x_2\partial x_3} +$$
$$(-2\omega_2^2\omega_3\omega_4^2-2\omega_2\omega_3^2\omega_4^2+\omega_2^2\omega_3^2+\omega_2\omega_3^2\omega_4+\omega_2^2\omega_3\omega_4-2\omega_2^2\omega_3^2\omega_4+\omega_3^2\omega_4^2+\omega_2\omega_3\omega_4^2+\omega_2^2\omega_4^2+\omega_2^2\omega_3^2\omega_4^2)\frac{2v_1\delta_l^3 v_3 v_2}{\omega_2^2\omega_3^2\delta_t\omega_4^2}\frac{\partial^3\rho}{\partial x_1\partial x_2\partial x_3}$$
$$+ (6\omega_3\omega_4+3\omega_4^2-6\omega_3\omega_4^2+2\omega_3^2\omega_4^2+3\omega_3^2-6\omega_3^2\omega_4)\frac{\delta_l^3\rho v_3 v_2}{3\omega_3^2\delta_t\omega_4^2}\frac{\partial^3 v_1}{\partial x_1\partial x_2\partial x_3} +$$
$$(3\omega_4^2-6\omega_2\omega_4^2+6\omega_2\omega_4+3\omega_2^2-6\omega_2^2\omega_4+2\omega_2^2\omega_4^2)\frac{v_1\delta_l^3\rho v_3}{3\omega_2^2\delta_t\omega_4^2}\frac{\partial^3 v_2}{\partial x_1\partial x_2\partial x_3} +$$
$$(2\omega_2^2\omega_3^2-6\omega_2^2\omega_3+3\omega_2^2+6\omega_2\omega_3+3\omega_3^2-6\omega_2\omega_3^2)\frac{v_1\delta_l^3\rho v_2}{3\omega_2^2\omega_3^2\delta_t}\frac{\partial^3 v_3}{\partial x_1\partial x_2\partial x_3} + C_8\frac{\delta_l^3 v_3}{2\omega_6\omega_3^2\delta_t\omega_4^2}\frac{\partial^3\rho}{\partial x_2^2\partial x_3} +$$
$$(6\omega_4^2-6\omega_3\omega_4^2+\omega_3^2\omega_4^2+6\omega_3^2-6\omega_3^2\omega_4)\frac{\delta_l^3\rho v_3 v_2}{6\omega_3^2\delta_t\omega_4^2}\frac{\partial^3 v_2}{\partial x_2^2\partial x_3} +$$
$$(-3\omega_6\omega_3^2c_s^2-6\omega_3^2v_2^2-12\omega_6c_s^2+6\omega_6\omega_3v_2^2-12\omega_3c_s^2+6\omega_3^2c_s^2-12\omega_6v_2^2+\omega_6\omega_3^2v_2^2+12\omega_3v_2^2+18\omega_6\omega_3c_s^2)\frac{\delta_l^3\rho}{12\omega_6\omega_3^2\delta_t}\frac{\partial^3 v_3}{\partial x_2^2\partial x_3}$$
$$+ (12+\omega_4^2-12\omega_4)\frac{\delta_l^2\rho v_3}{6\omega_4^2}\frac{\partial^3 v_3}{\partial t\partial x_3^2} + C_9\frac{v_1\delta_l^3}{2\omega_2^2\delta_t\omega_7\omega_4^2}\frac{\partial^3\rho}{\partial x_1\partial x_3^2} +$$
$$(-6v_3^2\omega_4^2-12v_3^2\omega_7+6\omega_4^2c_s^2-3\omega_7\omega_4^2c_s^2-12\omega_7c_s^2+12v_3^2\omega_4-12\omega_4c_s^2+v_3^2\omega_7\omega_4^2+18\omega_7\omega_4c_s^2+6v_3^2\omega_7\omega_4)\frac{\delta_l^3\rho}{12\delta_t\omega_7\omega_4^2}\frac{\partial^3 v_1}{\partial x_1\partial x_3^2}$$
$$+ (6\omega_4^2-6\omega_2\omega_4^2+6\omega_2^2-6\omega_2^2\omega_4+\omega_2^2\omega_4^2)\frac{v_1\delta_l^3\rho v_3}{6\omega_2^2\delta_t\omega_4^2}\frac{\partial^3 v_3}{\partial x_1\partial x_3^2} + C_{10}\frac{\delta_l^3 v_2}{2\omega_2^2\delta_t\omega_7\omega_4^2}\frac{\partial^3\rho}{\partial x_2\partial x_3^2} +$$
$$(-6v_3^2\omega_4^2-12v_3^2\omega_7+6\omega_4^2c_s^2-3\omega_7\omega_4^2c_s^2-12\omega_7c_s^2+12v_3^2\omega_4-12\omega_4c_s^2+v_3^2\omega_7\omega_4^2+18\omega_7\omega_4c_s^2+6v_3^2\omega_7\omega_4)\frac{\delta_l^3\rho}{12\delta_t\omega_7\omega_4^2}\frac{\partial^3 v_2}{\partial x_2\partial x_3^2}$$
$$+ (6\omega_4^2-6\omega_3\omega_4^2+\omega_3^2\omega_4^2+6\omega_3^2-6\omega_3^2\omega_4)\frac{\delta_l^3\rho v_3 v_2}{6\omega_3^2\delta_t\omega_4^2}\frac{\partial^3 v_3}{\partial x_2\partial x_3^2} + C_{11}\frac{\delta_l^3 v_3}{6\delta_t\omega_7\omega_4}\frac{\partial^3\rho}{\partial x_3^3} + C_{12}\frac{\delta_l^3\rho}{12\delta_t\omega_7\omega_4^2}\frac{\partial^3 v_3}{\partial x_3^3} +$$
$$(-2+3\omega_2-\omega_2^2)\frac{\delta_l\rho\delta_t^2}{2\omega_2^3}\frac{\partial^4 v_1}{\partial t^3\partial x_1} + (-2+3\omega_2-\omega_2^2)\frac{3v_1\delta_l^2\rho\delta_t}{2\omega_2^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1^2} + C_{13}\frac{\delta_l^3\rho}{12\omega_5^2\omega_2^3}\frac{\partial^4 v_1}{\partial t\partial x_1^3} + C_{14}\frac{\delta_l^4}{24\omega_5^2\omega_2^3\delta_t}\frac{\partial^4\rho}{\partial x_1^4} +$$
$$C_{15}\frac{v_1\delta_l^4\rho}{12\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^4} + (-2+3\omega_3-\omega_3^2)\frac{\delta_l\rho\delta_t^2}{2\omega_3^3}\frac{\partial^4 v_2}{\partial t^3\partial x_2} +$$
$$(-\omega_2^2\omega_3^3+13\omega_2^2\omega_3^2-24\omega_2^2\omega_3+12\omega_2^2+12\omega_2\omega_3+12\omega_3^2-24\omega_2\omega_3^2-6\omega_3^3+7\omega_2\omega_3^3)\frac{\delta_l^2\rho\delta_t v_2}{12\omega_2^2\omega_3^3}\frac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_2} +$$
$$(7\omega_2^3\omega_3+13\omega_2^2\omega_3^2-6\omega_2^3-24\omega_2^2\omega_3+12\omega_2^2-\omega_2^3\omega_3^2+12\omega_2\omega_3+12\omega_3^2-24\omega_2\omega_3^2)\frac{v_1\delta_l^2\rho\delta_t}{12\omega_2^3\omega_3^2}\frac{\partial^4 v_2}{\partial t^2\partial x_1\partial x_2} +$$
$$(-7\omega_2^2\omega_3^3+12\omega_2^3\omega_3+6\omega_2^2\omega_3^2+\omega_2^3\omega_3^3-6\omega_2^3-6\omega_2^2\omega_3-7\omega_2^3\omega_3^2-12\omega_3^3+18\omega_2\omega_3^3)\frac{v_1\delta_l^3\rho v_2}{6\omega_2^3\omega_3^3}\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_2} +$$
$$C_{16}\frac{\delta_l^3\rho}{12\omega_5^2\omega_2^3\omega_3}\frac{\partial^4 v_2}{\partial t\partial x_1^2\partial x_2} + C_{17}\frac{v_1\delta_l^4 v_2}{6\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4\rho}{\partial x_1^3\partial x_2} + C_{18}\frac{\delta_l^4\rho v_2}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\frac{\partial^4 v_1}{\partial x_1^3\partial x_2} + C_{19}\frac{v_1\delta_l^4\rho}{12\omega_5^2\omega_2^3\delta_t}\frac{\partial^4 v_2}{\partial x_1^3\partial x_2} +$$

$$
\begin{aligned}
&(-2+3\omega_3-\omega_3^2)\tfrac{3\delta_l^2\rho\delta_t v_2}{2\omega_3^3}\tfrac{\partial^4 v_2}{\partial t^2\partial x_2^2} + C_{20}\tfrac{\delta_l^3\rho}{12\omega_2\omega_6^2\omega_3^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2} + \\
&(-7\omega_2^2\omega_3^3+18\omega_2^3\omega_3+6\omega_2^2\omega_3^2+\omega_2^3\omega_3^3-12\omega_2^3-7\omega_2^3\omega_3^2-6\omega_2\omega_3^2-6\omega_3^3+12\omega_2\omega_3^3)\tfrac{v_1\delta_l^3\rho v_2}{6\omega_2^3\omega_3^3}\tfrac{\partial^4 v_2}{\partial t\partial x_1\partial x_2^2} + \\
&C_{21}\tfrac{\delta_l^4}{4\omega_5^2\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_2^2} + C_{22}\tfrac{v_1\delta_l^4\rho}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_2^2} + C_{23}\tfrac{\delta_l^4\rho v_2}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1^2\partial x_2^2} + C_{24}\tfrac{\delta_l^3\rho}{12\omega_6^2\omega_3^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2^3} + \\
&C_{25}\tfrac{v_1\delta_l^4 v_2}{6\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_1\partial x_2^3} + C_{26}\tfrac{\delta_l^4\rho v_2}{12\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2^3} + C_{27}\tfrac{v_1\delta_l^4\rho}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2^3} + C_{28}\tfrac{\delta_l^4}{24\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4\rho}{\partial x_2^4} + C_{29}\tfrac{\delta_l^4\rho v_2}{12\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_2}{\partial x_2^4} + \\
&(-2-\omega_4^2+3\omega_4)\tfrac{\delta_l\rho\delta_t^2}{2\omega_4^3}\tfrac{\partial^4 v_3}{\partial t^3\partial x_3} + \\
&(-6\omega_4^3+7\omega_2\omega_4^3+12\omega_4^2-24\omega_2\omega_4^2+12\omega_2\omega_4+12\omega_2^2-24\omega_2^2\omega_4+13\omega_2^2\omega_4^2-\omega_2^2\omega_4^3)\tfrac{\delta_l^2\rho\delta_t v_3}{12\omega_2^2\omega_4^3}\tfrac{\partial^4 v_1}{\partial t^2\partial x_1\partial x_3} + \\
&(12\omega_4^2-24\omega_2\omega_4^2+12\omega_2\omega_4-6\omega_2^3+12\omega_2^2-\omega_2^3\omega_4^2-24\omega_2^2\omega_4+13\omega_2^2\omega_4^2+7\omega_2^3\omega_4)\tfrac{v_1\delta_l^2\rho\delta_t}{12\omega_2^3\omega_4^2}\tfrac{\partial^4 v_3}{\partial t^2\partial x_1\partial x_3} + \\
&(-12\omega_4^3+18\omega_2\omega_4^3-6\omega_2^3-7\omega_2^3\omega_4^2+\omega_2^3\omega_4^3-6\omega_2^2\omega_4+6\omega_2^2\omega_4^2-7\omega_2^2\omega_4^3+12\omega_2^3\omega_4)\tfrac{v_1\delta_l^3\rho v_3}{6\omega_2^3\omega_4^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_3} + \\
&C_{30}\tfrac{\delta_l^3\rho}{12\omega_5^2\omega_2^3\omega_4}\tfrac{\partial^4 v_3}{\partial t\partial x_1^2\partial x_3} + C_{31}\tfrac{v_1\delta_l^4 v_3}{6\omega_5^2\omega_2^3\delta_t\omega_4^3}\tfrac{\partial^4\rho}{\partial x_1^3\partial x_3} + C_{32}\tfrac{\delta_l^4\rho v_3}{12\omega_5^2\omega_2^3\delta_t\omega_4^3}\tfrac{\partial^4 v_1}{\partial x_1^3\partial x_3} + C_{33}\tfrac{v_1\delta_l^4\rho}{12\omega_5^2\omega_2^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1^3\partial x_3} + \\
&(-6\omega_4^3+12\omega_3\omega_4+12\omega_4^2+7\omega_3\omega_4^3-24\omega_3\omega_4^2+13\omega_3^2\omega_4^2-\omega_3^2\omega_4^3+12\omega_3^2-24\omega_3^2\omega_4)\tfrac{\delta_l^2\rho\delta_t v_3}{12\omega_3^2\omega_4^3}\tfrac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3} + \\
&(12\omega_3\omega_4+12\omega_4^2-24\omega_3\omega_4^2+13\omega_3^2\omega_4^2+7\omega_3^3\omega_4-\omega_3^3\omega_4^2+12\omega_3^2-6\omega_3^3-24\omega_3^2\omega_4)\tfrac{\delta_l^2\rho\delta_t v_2}{12\omega_3^3\omega_4^2}\tfrac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3} + \\
&C_{34}\tfrac{\delta_l^3\rho v_3 v_2}{6\omega_2\omega_3^3\omega_4^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3} + C_{35}\tfrac{v_1\delta_l^3\rho v_3}{6\omega_2^3\omega_3\omega_4^3}\tfrac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3} + C_{36}\tfrac{v_1\delta_l^3\rho v_2}{6\omega_2^3\omega_3^3\omega_4}\tfrac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3} + C_{37}\tfrac{\delta_l^4 v_3 v_2}{\omega_5^2\omega_2^3\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_2\partial x_3} + \\
&C_{38}\tfrac{v_1\delta_l^4\rho v_3 v_2}{6\omega_2^3\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3} + C_{39}\tfrac{\delta_l^4\rho v_3}{12\omega_5^2\omega_2^3\delta_t\omega_4^3}\tfrac{\partial^4 v_2}{\partial x_1^2\partial x_2\partial x_3} + C_{40}\tfrac{\delta_l^4\rho v_2}{12\omega_5^2\omega_2^3\omega_3^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1^2\partial x_2\partial x_3} + \\
&(-12\omega_4^3+18\omega_3\omega_4^3+6\omega_3^2\omega_4^2+12\omega_3^3\omega_4-7\omega_3^2\omega_4^3-7\omega_3^3\omega_4^2-6\omega_3^3-6\omega_3^2\omega_4+\omega_3^3\omega_4^3)\tfrac{\delta_l^3\rho v_3 v_2}{6\omega_3^3\omega_4^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2^2\partial x_3} + \\
&C_{41}\tfrac{\delta_l^3\rho}{12\omega_6^2\omega_3^3\omega_4}\tfrac{\partial^4 v_3}{\partial t\partial x_2^2\partial x_3} + C_{42}\tfrac{v_1\delta_l^4 v_3}{\omega_2^3\omega_6^2\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4\rho}{\partial x_1\partial x_2^2\partial x_3} + C_{43}\tfrac{\delta_l^4\rho v_3}{12\omega_6^2\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2^2\partial x_3} + C_{44}\tfrac{v_1\delta_l^4\rho v_3 v_2}{6\omega_2^3\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3} + \\
&C_{45}\tfrac{v_1\delta_l^4\rho}{12\omega_2^3\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3} + C_{46}\tfrac{\delta_l^4 v_3 v_2}{6\omega_6^2\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4\rho}{\partial x_2^3\partial x_3} + C_{47}\tfrac{\delta_l^4\rho v_3}{12\omega_6^2\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4 v_2}{\partial x_2^3\partial x_3} + C_{48}\tfrac{\delta_l^4\rho v_2}{12\omega_6^2\omega_3^3\delta_t}\tfrac{\partial^4 v_3}{\partial x_2^3\partial x_3} + \\
&(-2-\omega_4^2+3\omega_4)\tfrac{3\delta_l^2\rho\delta_t v_3}{2\omega_4^3}\tfrac{\partial^4 v_3}{\partial t^2\partial x_2^2} + C_{49}\tfrac{\delta_l^3\rho}{12\omega_2\omega_7^2\omega_4^3}\tfrac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2} + \\
&(-6\omega_4^3+12\omega_2\omega_4^3-6\omega_2\omega_4^2-12\omega_2^3-7\omega_2^3\omega_4^2+\omega_2^3\omega_4^3+6\omega_2^2\omega_4^2-7\omega_2^2\omega_4^3+18\omega_2^3\omega_4)\tfrac{v_1\delta_l^3\rho v_3}{6\omega_2^3\omega_4^3}\tfrac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2} + \\
&C_{50}\tfrac{\delta_l^4}{4\omega_5^2\omega_2^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4\rho}{\partial x_1^2\partial x_3^2} + C_{51}\tfrac{v_1\delta_l^4\rho}{12\omega_2^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_1}{\partial x_1^2\partial x_3^2} + C_{52}\tfrac{\delta_l^4\rho v_3}{12\omega_5^2\omega_2^3\delta_t\omega_4^3}\tfrac{\partial^4 v_3}{\partial x_1^2\partial x_3^2} + C_{53}\tfrac{\delta_l^3\rho}{12\omega_3\omega_7^2\omega_4^3}\tfrac{\partial^4 v_2}{\partial t\partial x_2\partial x_3^2} + \\
&(-6\omega_4^3+12\omega_3\omega_4^3-6\omega_3\omega_4^2+6\omega_3^2\omega_4^2+18\omega_3^3\omega_4-7\omega_3^2\omega_4^3-7\omega_3^3\omega_4^2-12\omega_3^3+\omega_3^3\omega_4^3)\tfrac{\delta_l^3\rho v_3 v_2}{6\omega_3^3\omega_4^3}\tfrac{\partial^4 v_3}{\partial t\partial x_2\partial x_3^2} + \\
&C_{54}\tfrac{v_1\delta_l^4 v_2}{\omega_2^3\omega_3^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4\rho}{\partial x_1\partial x_2\partial x_3^2} + C_{55}\tfrac{\delta_l^4\rho v_2}{12\omega_3^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2} + C_{56}\tfrac{v_1\delta_l^4\rho}{12\omega_2^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2} + C_{57}\tfrac{v_1\delta_l^4\rho v_3 v_2}{6\omega_2^3\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4 v_3}{\partial x_1\partial x_2\partial x_3^2} + \\
&C_{58}\tfrac{\delta_l^4}{4\omega_6^2\omega_3^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4\rho}{\partial x_2^2\partial x_3^2} + C_{59}\tfrac{\delta_l^4\rho v_2}{12\omega_3^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_2}{\partial x_2^2\partial x_3^2} + C_{60}\tfrac{\delta_l^4\rho v_3}{12\omega_6^2\omega_3^3\delta_t\omega_4^3}\tfrac{\partial^4 v_3}{\partial x_2^2\partial x_3^2} + C_{61}\tfrac{\delta_l^3\rho}{12\omega_7^2\omega_4^3}\tfrac{\partial^4 v_3}{\partial t\partial x_3^3} + \\
&C_{62}\tfrac{v_1\delta_l^4 v_3}{6\omega_2^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4\rho}{\partial x_1\partial x_3^3} + C_{63}\tfrac{\delta_l^4\rho v_3}{12\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_1}{\partial x_1\partial x_3^3} + C_{64}\tfrac{v_1\delta_l^4\rho}{12\omega_2^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_3}{\partial x_1\partial x_3^3} + C_{65}\tfrac{\delta_l^4 v_3 v_2}{6\omega_3^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4\rho}{\partial x_2\partial x_3^3} + \\
&C_{66}\tfrac{\delta_l^4\rho v_3}{12\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_2}{\partial x_2\partial x_3^3} + C_{67}\tfrac{\delta_l^4\rho v_2}{12\omega_3^3\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_3}{\partial x_2\partial x_3^3} + C_{68}\tfrac{\delta_l^4}{24\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4\rho}{\partial x_3^4} + C_{69}\tfrac{\delta_l^4\rho v_3}{12\delta_t\omega_7^2\omega_4^3}\tfrac{\partial^4 v_3}{\partial x_3^4} = 0,
\end{aligned}
$$

where:

$$C_1 = 6 - 3\omega_5\omega_2c_s^2 + 9\omega_2c_s^2 - 3\omega_5 - 18c_s^2 - 3\omega_2 - \omega_5\omega_2v_1^2 + 3\omega_2v_1^2 - 6v_1^2 + 3\omega_5v_1^2 + \omega_5\omega_2 + 9\omega_5c_s^2$$

$$C_2 = 18\omega_5\omega_2c_s^2 - 12\omega_2c_s^2 + 12\omega_2 + 6\omega_5\omega_2v_1^2 - 36\omega_2v_1^2 - 6\omega_2^2 + 18\omega_2^2v_1^2 - 5\omega_5\omega_2^2v_1^2 + 2\omega_5\omega_2^2 + 12\omega_5v_1^2 + 6\omega_2^2c_s^2 - 3\omega_5\omega_2^2c_s^2 - 6\omega_5\omega_2 - 12\omega_5c_s^2$$

$$C_3 = -3\omega_5\omega_2^2v_1^2\omega_3 + \omega_5\omega_2^2\omega_3c_s^2 - 2\omega_2\omega_3^2c_s^2 + 4\omega_5\omega_2\omega_3^2c_s^2 + \omega_5\omega_2^2v_1^2\omega_3^2 - \omega_2^2v_1^2\omega_3^2 - 2\omega_5\omega_3^2c_s^2 + 2\omega_5\omega_2^2v_1^2 + 2\omega_2v_1^2\omega_3^2 - 2\omega_5\omega_2v_1^2\omega_3^2 - 2\omega_5\omega_2\omega_3c_s^2 + 2\omega_5\omega_2v_1^2\omega_3 - \omega_5\omega_2^2\omega_3^2c_s^2 + \omega_2^2\omega_3^2c_s^2$$

$$C_4 = -2\omega_2^2\omega_3c_s^2 + 2\omega_2\omega_6\omega_3v_2^2 + 4\omega_2^2\omega_6\omega_3c_s^2 - \omega_2^2\omega_3^2v_2^2 + \omega_2\omega_6\omega_3^2c_s^2 - 2\omega_2^2\omega_6c_s^2 + \omega_2^2\omega_6\omega_3^2v_2^2 - 2\omega_2^2\omega_6\omega_3v_2^2 + 2\omega_6\omega_3^2v_2^2 + 2\omega_2^2\omega_3v_2^2 - 2\omega_2\omega_6\omega_3c_s^2 - \omega_2^2\omega_6\omega_3^2c_s^2 + \omega_2^2\omega_3^2c_s^2 - 3\omega_2\omega_6\omega_3^2v_2^2$$

$$C_5 = 6 - 18c_s^2 + 9\omega_6c_s^2 - \omega_6\omega_3v_2^2 + 9\omega_3c_s^2 - 3\omega_6 + 3\omega_6v_2^2 - 3\omega_3 - 6v_2^2 + \omega_6\omega_3 + 3\omega_3v_2^2 - 3\omega_6\omega_3c_s^2$$

$$C_6 = -3\omega_6\omega_3^2c_s^2 + 18\omega_3^2v_2^2 - 12\omega_6c_s^2 + 6\omega_6\omega_3v_2^2 - 12\omega_3c_s^2 + 6\omega_3^2c_s^2 + 12\omega_6v_2^2 + 12\omega_3 - 5\omega_6\omega_3^2v_2^2 - 6\omega_6\omega_3 + 2\omega_6\omega_3^2 - 6\omega_3^2 - 36\omega_3v_2^2 + 18\omega_6\omega_3c_s^2$$

$$C_7 = -2\omega_5\omega_2\omega_4 c_s^2 + \omega_2^2\omega_4^2 c_s^2 - \omega_5\omega_2^2\omega_4^2 c_s^2 + 2\omega_5\omega_2 v_1^2\omega_4 - 2\omega_5\omega_4^2 c_s^2 + 2\omega_2 v_1^2\omega_4^2 - 2\omega_5\omega_2 v_1^2\omega_4^2 + 2\omega_5\omega_2^2 v_1^2 + \omega_5\omega_2^2 v_1^2\omega_4^2 - \omega_2^2 v_1^2\omega_4^2 + \omega_5\omega_2^2\omega_4 c_s^2 - 3\omega_5\omega_2^2 v_1^2\omega_4 + 4\omega_5\omega_2\omega_4^2 c_s^2 - 2\omega_2\omega_4^2 c_s^2$$

$$C_8 = 2\omega_3 v_2^2\omega_4^2 - 2\omega_6\omega_3 v_2^2\omega_4^2 + \omega_6\omega_3^2\omega_4 c_s^2 + 2\omega_6\omega_3 v_2^2\omega_4 + 4\omega_6\omega_3\omega_4^2 c_s^2 - 2\omega_3\omega_4^2 c_s^2 - 2\omega_6\omega_3\omega_4 c_s^2 - \omega_6\omega_3^2\omega_4^2 c_s^2 + 2\omega_6\omega_3^2 v_2^2 - 3\omega_6\omega_3^2 v_2^2\omega_4 + \omega_3^2\omega_4^2 c_s^2 - \omega_3^2 v_2^2\omega_4^2 - 2\omega_6\omega_4^2 c_s^2 + \omega_6\omega_3^2 v_2^2\omega_4^2$$

$$C_9 = \omega_2\omega_7\omega_4^2 c_s^2 - 2\omega_2^2\omega_7 c_s^2 + 2\omega_2^2 v_3^2\omega_4 - 2\omega_2^2 v_3^2\omega_7\omega_4 + \omega_2^2\omega_4^2 c_s^2 - \omega_2^2 v_3^2\omega_4^2 + \omega_2^2 v_3^2\omega_7\omega_4^2 + 4\omega_2^2\omega_7\omega_4 c_s^2 + 2\omega_2 v_3^2\omega_7\omega_4 - \omega_2^2\omega_7\omega_4^2 c_s^2 + 2v_3^2\omega_7\omega_4^2 - 2\omega_2^2\omega_4 c_s^2 - 2\omega_2\omega_7\omega_4 c_s^2 - 3\omega_2 v_3^2\omega_7\omega_4^2$$

$$C_{10} = -2\omega_3^2 v_3^2\omega_7\omega_4 + \omega_3\omega_7\omega_4^2 c_s^2 + 4\omega_3^2\omega_7\omega_4 c_s^2 + \omega_3^2 v_3^2\omega_7\omega_4^2 - 2\omega_3^2\omega_4 c_s^2 - 2\omega_3^2\omega_7 c_s^2 + 2\omega_3^2 v_3^2\omega_4 - \omega_3^2\omega_7\omega_4^2 c_s^2 + 2v_3^2\omega_7\omega_4^2 + \omega_3^2\omega_4^2 c_s^2 + 2\omega_3 v_3^2\omega_7\omega_4 - 3\omega_3 v_3^2\omega_7\omega_4^2 - 2\omega_3\omega_7\omega_4 c_s^2 - \omega_3^2 v_3^2\omega_4^2$$

$$C_{11} = 6 + 3v_3^2\omega_7 + \omega_7\omega_4 - 18c_s^2 + 9\omega_7 c_s^2 + 3v_3^2\omega_4 - 6v_3^2 + 9\omega_4 c_s^2 - 3\omega_7\omega_4 c_s^2 - 3\omega_7 - v_3^2\omega_7\omega_4 - 3\omega_4$$

$$C_{12} = 18v_3^2\omega_4^2 + 12v_3^2\omega_7 - 6\omega_7\omega_4 - 6\omega_4^2 + 6\omega_4^2 c_s^2 - 3\omega_7\omega_4^2 c_s^2 + 2\omega_7\omega_4^2 - 12\omega_7 c_s^2 - 36v_3^2\omega_4 - 12\omega_4 c_s^2 - 5v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4 c_s^2 + 6v_3^2\omega_7\omega_4 + 12\omega_4$$

$$C_{13} = 25\omega_5^2\omega_2^2 c_s^2 - 3\omega_5^2\omega_2^3 v_1^2 + 24\omega_5^2 c_s^2 + 24\omega_5\omega_2 c_s^2 + 12\omega_5^2\omega_2 + 6\omega_2^3 - 11\omega_5^2\omega_2^2 + 15\omega_5^2\omega_2^2 v_1^2 - 36\omega_5^2 v_1^2 - 2\omega_5^2\omega_2^3 c_s^2 + 72\omega_5\omega_2 v_1^2 + \omega_5^2\omega_2^3 - 12\omega_2^2 + 36\omega_2^2 v_1^2 - 108\omega_5\omega_2^2 v_1^2 - 9\omega_5\omega_2^3 + 9\omega_5\omega_2^3 c_s^2 - 6\omega_2^3 c_s^2 + 36\omega_5\omega_2^2 + 18\omega_5^2\omega_2 v_1^2 + 12\omega_2^2 c_s^2 - 36\omega_5\omega_2^2 c_s^2 - 24\omega_5\omega_2 + 27\omega_5\omega_2^3 v_1^2 - 18\omega_2^3 v_1^2 - 48\omega_5^2\omega_2 c_s^2$$

$$C_{14} = -8\omega_5^2\omega_2^2 c_s^2 - 30\omega_5\omega_2^3 v_1^4 + 36\omega_2^3 v_1^4 - 12\omega_5^2\omega_2^2 v_1^2 c_s^2 - 3\omega_5^2\omega_2^3 v_1^2 - 24\omega_5\omega_2^2 c_s^4 - 24\omega_5\omega_2 c_s^2 - 48\omega_5^2\omega_2 c_s^4 + 108\omega_2^3 v_1^2 c_s^2 - 72\omega_5\omega_2^3 v_1^2 c_s^2 + 6\omega_5\omega_2^3 c_s^4 + 72\omega_5\omega_2 v_1^2 c_s^2 + 12\omega_5^2\omega_2^2 v_1^2 - 72\omega_2^2 v_1^4 + 72\omega_5\omega_2^2 v_1^4 + \omega_5^2\omega_2^3 c_s^2 + 72\omega_2^2 v_1^2 - 72\omega_5\omega_2^2 v_1^2 - 3\omega_5^2\omega_2^3 c_s^4 + 144\omega_5\omega_2^2 v_1^2 c_s^2 - 216\omega_2^2 v_1^2 c_s^2 - 6\omega_5\omega_2^3 c_s^2 - 12\omega_5^2\omega_2^2 v_1^4 + 6\omega_5^2\omega_2^3 v_1^2 c_s^2 + 3\omega_5^2\omega_2^3 v_1^4 + 24\omega_5^2 c_s^4 + 24\omega_5\omega_2^2 c_s^2 + 24\omega_5^2\omega_2^2 c_s^4 + 30\omega_5\omega_2^3 v_1^2 - 36\omega_2^3 v_1^2 - 36\omega_5^2\omega_2 v_1^2 c_s^2 + 12\omega_5^2\omega_2 c_s^2 + 24\omega_5\omega_2 c_s^4$$

$$C_{15} = -2\omega_5^2\omega_2^2 c_s^2 + 2\omega_5^2\omega_2^3 v_1^2 + 24\omega_5^2 c_s^2 - 12\omega_5\omega_2 c_s^2 + 6\omega_5^2\omega_2 - 18\omega_2^3 + 2\omega_5^2\omega_2^2 + 2\omega_5^2\omega_2^2 v_1^2 - 12\omega_5^2 v_1^2 + \omega_5^2\omega_2^3 c_s^2 + 60\omega_5\omega_2 v_1^2 - \omega_5^2\omega_2^3 + 36\omega_2^2 - 84\omega_2^2 v_1^2 + 24\omega_5\omega_2^2 v_1^2 + 12\omega_5\omega_2^3 - 24\omega_5\omega_2^3 c_s^2 + 30\omega_2^3 c_s^2 - 24\omega_5\omega_2^2 - 12\omega_5^2\omega_2 v_1^2 - 60\omega_2^2 c_s^2 + 72\omega_5\omega_2^2 c_s^2 - 12\omega_5\omega_2 - 24\omega_5\omega_2^3 v_1^2 + 42\omega_2^3 v_1^2 - 30\omega_5^2\omega_2 c_s^2$$

$$C_{16} = 30\omega_5\omega_2^2 v_1^2\omega_3 - 18\omega_5^2\omega_2^2 c_s^2 + 12\omega_2^2\omega_3 c_s^2 - 30\omega_5\omega_2^2\omega_3 c_s^2 - 12\omega_2^2 v_1^2\omega_3 - \omega_5^2\omega_2^3 v_1^2 - 2\omega_5^2\omega_2^3\omega_3 c_s^2 + \omega_5^2\omega_2^3 v_1^2\omega_3 - 6\omega_5^2\omega_2^2 v_1^2 - 30\omega_5^2\omega_2\omega_3 c_s^2 - 36\omega_5^2\omega_2 v_1^2\omega_3 + 3\omega_5^2\omega_2^3 c_s^2 - 12\omega_5\omega_2^2 v_1^2 - 6\omega_5\omega_2^3 c_s^2 + 8\omega_5^2\omega_2^2 v_1^2\omega_3 + 22\omega_5^2\omega_2^2\omega_3 c_s^2 + 12\omega_5^2\omega_3 c_s^2 + 12\omega_5^2\omega_2 v_1^2 + 24\omega_5^2 v_1^2\omega_3 + 6\omega_2^3 v_1^2\omega_3 + 9\omega_5\omega_2^3\omega_3 c_s^2 - 6\omega_2^3\omega_3 c_s^2 - 9\omega_5\omega_2^3 v_1^2\omega_3 + 12\omega_5\omega_2\omega_3 c_s^2 - 12\omega_5\omega_2 v_1^2\omega_3 + 12\omega_5\omega_2^2 c_s^2 + 6\omega_5\omega_2^3 v_1^2 + 12\omega_5^2\omega_2 c_s^2$$

$$C_{17} = 18\omega_2^3\omega_3^3 c_s^2 + 12\omega_5^2\omega_2 v_1^2\omega_3^3 - 24\omega_5\omega_2^3\omega_3^3 c_s^2 + 6\omega_5^2\omega_2^3 v_1^2 - 12\omega_5^2\omega_3^3 c_s^2 + 6\omega_2^2\omega_3^3 - 21\omega_5\omega_2^2\omega_3^3 - 36\omega_5^2\omega_2^2\omega_3^3 c_s^2 + 6\omega_5^2\omega_2^3\omega_3 c_s^2 - 12\omega_5^2\omega_2^3 v_1^2\omega_3 - 6\omega_5^2\omega_2\omega_3^3 + 6\omega_5\omega_2^2\omega_3^3 + 6\omega_5\omega_2^3\omega_3^3 - 3\omega_2^3\omega_3^3 + 12\omega_5\omega_2^3\omega_3^3 c_s^2 + 12\omega_2^2 v_1^2\omega_3^3 + 6\omega_5^2\omega_2^2 v_1^2\omega_3^2 + 12\omega_5\omega_2^2 v_1^2\omega_3^3 - 3\omega_5\omega_2^3\omega_3^3 - 24\omega_5\omega_2\omega_3^3 c_s^2 + 36\omega_5^2\omega_2^2\omega_3^3 c_s^2 - \omega_5^2\omega_2^3\omega_3^3 - 24\omega_5\omega_2 v_1^2\omega_3^3 + 6\omega_5^2\omega_2^3\omega_3^3 c_s^2 + 6\omega_5^2\omega_2^2 v_1^2\omega_3 - 12\omega_5^2\omega_2^2\omega_3^3 c_s^2 + \omega_5^2\omega_2^3\omega_3^3 - 12\omega_5^2\omega_2\omega_3^3 c_s^2 + 72\omega_5\omega_2^2\omega_3^3 c_s^2 - 36\omega_2^2\omega_3^3 c_s^2 - 6\omega_5^2\omega_2^2 v_1^2\omega_3^3 - 12\omega_5^2\omega_2^3\omega_3^3 c_s^2 + 7\omega_5^2\omega_2^2\omega_3^3 - 24\omega_5\omega_2^2\omega_3^3 c_s^2 - 6\omega_5^2\omega_2^2 v_1^2\omega_3^2 + 36\omega_5^2\omega_2\omega_3^3 c_s^2 - 6\omega_2^3 v_1^2\omega_3^3 - 3\omega_5^2\omega_2^2\omega_3^3 + 12\omega_5\omega_2\omega_3^3$$

$$C_{18} = 6\omega_2^3\omega_3^3 c_s^2 + 30\omega_5^2\omega_2 v_1^2\omega_3^3 - 12\omega_5\omega_2^3\omega_3^3 c_s^2 + 12\omega_5^2\omega_2^3 v_1^2 - 12\omega_5^2\omega_3^3 c_s^2 - 6\omega_5\omega_2^2\omega_3^3 - 32\omega_5^2\omega_2^2\omega_3^3 c_s^2 + 6\omega_5^2\omega_2^3\omega_3 c_s^2 - 18\omega_5^2\omega_2^3 v_1^2\omega_3 + 12\omega_5\omega_2^2\omega_3^2 + 3\omega_5\omega_2^3\omega_3^3 + 12\omega_5\omega_2^3\omega_3^3 c_s^2 + 12\omega_2^2 v_1^2\omega_3^3 - 12\omega_5\omega_2^2 v_1^2\omega_3^3 - 6\omega_5\omega_2^3\omega_3^2 + 3\omega_5^2\omega_2^3 v_1^2\omega_3^3 - 24\omega_5\omega_2^2 v_1^2\omega_3^2 - 12\omega_5\omega_2\omega_3^3 c_s^2 + 48\omega_5^2\omega_2^2\omega_3^2 c_s^2 - \omega_5^2\omega_2^3\omega_3^3 + 12\omega_5\omega_2 v_1^2\omega_3^3 + 4\omega_5^2\omega_2^3\omega_3^3 c_s^2 - 12\omega_5^2\omega_2^2\omega_3 c_s^2 + 2\omega_5^2\omega_2^3\omega_3^2 - 24\omega_5^2\omega_2\omega_3^2 c_s^2 + 36\omega_5\omega_2^2\omega_3^3 c_s^2 - 12\omega_2^2\omega_3^3 c_s^2 + 12\omega_5\omega_2^3 v_1^2\omega_3^2 - 12\omega_5^2\omega_2^2 v_1^2\omega_3^3 - 12\omega_5^2\omega_2^3\omega_3^2 c_s^2 + 3\omega_5^2\omega_2^3\omega_3^2 - 24\omega_5\omega_2^2\omega_3^2 c_s^2 + 12\omega_5^2\omega_2^2 v_1^2\omega_3^2 + 36\omega_5^2\omega_2\omega_3^2 c_s^2 - 6\omega_2^3 v_1^2\omega_3^3 - 24\omega_5^2 v_1^2\omega_3^3 - 6\omega_5^2\omega_2^2\omega_3^2$$

$$C_{19} = -26\omega_5^2\omega_2^2 c_s^2 + \omega_5^2\omega_2^3 v_1^2 - 36\omega_5\omega_2 c_s^2 - 12\omega_5^2\omega_2 - 6\omega_2^3 + 11\omega_5^2\omega_2^2 - 14\omega_5^2\omega_2^2 v_1^2 + 12\omega_5^2 v_1^2 + 4\omega_5^2\omega_2^2 c_s^2 - 60\omega_5\omega_2 v_1^2 - \omega_5^2\omega_2^3 + 12\omega_2^2 + 12\omega_2^2 v_1^2 + 48\omega_5\omega_2^2 v_1^2 + 9\omega_5\omega_2^3 - 30\omega_5\omega_2^3 c_s^2 + 30\omega_2^3 c_s^2 - 36\omega_5\omega_2^2 + 12\omega_5^2\omega_2 v_1^2 - 60\omega_2^2 c_s^2 + 96\omega_5\omega_2^2 c_s^2 + 24\omega_5\omega_2 - 6\omega_5\omega_2^3 v_1^2 - 6\omega_2^3 v_1^2 + 18\omega_5^2\omega_2 c_s^2$$

$$C_{20} = 9\omega_2\omega_6\omega_3^3 c_s^2 + 12\omega_6\omega_3^2 c_s^2 - 12\omega_2\omega_6\omega_3 v_2^2 + 12\omega_6^2\omega_3 c_s^2 + 12\omega_2\omega_3^2 c_s^2 - \omega_6^2\omega_3^3 v_2^2 + 8\omega_2\omega_6^2\omega_3^2 v_2^2 - 6\omega_6\omega_3^2 c_s^2 - 30\omega_2\omega_6\omega_3^2 c_s^2 + \omega_2\omega_6^2\omega_3^3 v_2^2 - 6\omega_6^2\omega_3^2 v_2^2 - 6\omega_2\omega_3^2 c_s^2 + 12\omega_2\omega_6^2 c_s^2 - 30\omega_2\omega_6^2\omega_3 c_s^2 - 12\omega_2\omega_3^2 v_2^2 + 12\omega_6^2\omega_3 v_2^2 + 22\omega_2\omega_6^2\omega_3^2 c_s^2 + 3\omega_6^2\omega_3^3 c_s^2 - 12\omega_6\omega_3^2 v_2^2 - 9\omega_2\omega_6\omega_3^3 v_2^2 + 12\omega_2\omega_6\omega_3 c_s^2 - 18\omega_6^2\omega_3^2 c_s^2 - 2\omega_2\omega_6^2\omega_3^3 c_s^2 + 6\omega_2\omega_3^3 v_2^2 + 24\omega_2\omega_6^2 v_2^2 - 36\omega_2\omega_6^2\omega_3 v_2^2 + 30\omega_2\omega_6\omega_3^2 v_2^2 + 6\omega_6\omega_3^3 v_2^2$$

$$C_{21} = 4\omega_5^2\omega_2^2\omega_6^2\omega_3 c_s^4 - 8\omega_5^2\omega_2^2\omega_6^2\omega_3^3 v_2^2 c_s^2 + 14\omega_5^2\omega_2^3 v_1^2\omega_6^2\omega_3^3 v_2^2 + 2\omega_5\omega_2^3\omega_6^2\omega_3^3 v_2^2 c_s^2 - 4\omega_5\omega_2^2 v_1^2\omega_6^2\omega_3^2 c_s^2 + 4\omega_5^2\omega_2^2 v_1^2\omega_6\omega_3^2 v_2^2 + \omega_5^2\omega_2^3\omega_6\omega_3^3 c_s^4 - 2\omega_2^3 v_1^2\omega_6^2\omega_3^3 v_2^2 - 2\omega_5^2\omega_2\omega_6^2\omega_3^3 c_s^4 + 4\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3 v_2^2 - 2\omega_5^2\omega_2^2 v_1^2\omega_6^2\omega_3^3 c_s^2 - 4\omega_5^2\omega_2^2\omega_6\omega_3^2 v_2^2 c_s^2 + 10\omega_5^2\omega_2\omega_6^2\omega_3^3 v_2^2 c_s^2 - 4\omega_5^2\omega_2^3 v_1^2\omega_3^2 c_s^2 + 3\omega_5\omega_2^3 v_1^2\omega_6^2\omega_3^3 v_2^2 - 3\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3^3 c_s^2 + 12\omega_5^2\omega_2^2 v_1^2\omega_6^2\omega_3^3 v_2^2 - \omega_5^2\omega_2^3\omega_6\omega_3^3 v_2^2 c_s^2 - 2\omega_5^2\omega_2^3\omega_6^2\omega_3^3 c_s^4 + 10\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3 c_s^2 + 2\omega_5\omega_2^2 v_1^2\omega_6^2\omega_3^3 c_s^2 - 2\omega_5^2\omega_2^2 v_1^2\omega_6\omega_3^3 v_2^2 - 4\omega_5\omega_2\omega_6^2\omega_3^3 v_2^2 c_s^2 + 4\omega_5^2 v_1^2\omega_6^2\omega_3^3 v_2^2 - 3\omega_5^2\omega_2^3 v_1^2\omega_6^2\omega_3^3 v_2^2 - 2\omega_5\omega_2^3 v_1^2\omega_6^2\omega_3^3 v_2^2 + 10\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3^3 c_s^2 + 10\omega_5\omega_2^2\omega_6^2\omega_3^3 v_2^2 c_s^2 - 4\omega_5^2\omega_2^3 v_1^2\omega_6^2 c_s^2 - 2\omega_5^2\omega_2^3\omega_6^2\omega_3^3 v_2^2 c_s^2 + 2\omega_5^2\omega_2^3 v_1^2\omega_3^3 c_s^2 - 2\omega_5^2\omega_2^3\omega_6^2\omega_3 c_s^4 + 8\omega_5^2\omega_2^2 v_1^2\omega_6^2\omega_3^3 c_s^2 - 2\omega_5^2\omega_2^2\omega_6\omega_3^3 c_s^4 - 4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 v_2^2 c_s^2 + 4\omega_5^2\omega_2\omega_6^2\omega_3^3 c_s^4 - 4\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3 c_s^2 + 14\omega_5^2\omega_2^2 v_1^2\omega_6^2\omega_3^3 v_2^2 - 4\omega_5^2\omega_2\omega_6^2\omega_3^3 v_2^2 c_s^2 + 4\omega_5^2\omega_2^3\omega_6^2\omega_3^3 c_s^4 - 2\omega_5\omega_2^2\omega_6^2\omega_3^3 c_s^4 + 3\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3^3 v_2^2 - \omega_5\omega_2^3 v_1^2\omega_6^2\omega_3^3 c_s^2 - 4\omega_5^2\omega_2^2 v_1^2\omega_6^2\omega_3 c_s^2 + 2\omega_5^2\omega_2^2\omega_6\omega_3^3 v_2^2 c_s^2 + 4\omega_5^2\omega_2^3 v_1^2\omega_3^3 v_2^2 + 2\omega_5^2\omega_2^3\omega_6^2\omega_3^3 v_2^2 c_s^2 - 8\omega_5^2\omega_2^3 v_1^2\omega_6^2\omega_3^3 c_s^2 - 14\omega_5^2\omega_2\omega_2 v_1^2\omega_6^2\omega_3^3 v_2^2 + 8\omega_5^2\omega_2^2\omega_6^2\omega_3^3 v_2^2 c_s^2 - 2\omega_5\omega_2^3\omega_6^2\omega_3^3 c_s^4 - 3\omega_5\omega_2^3\omega_6^2\omega_3^3 v_2^2 c_s^2 - 4\omega_5^2\omega_2^2 v_1^2\omega_6\omega_3^3 c_s^2 + 4\omega_5\omega_2^2 v_1^2\omega_6^2\omega_3^3 v_2^2 + 4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 c_s^4 + 4\omega_5^2\omega_2^3 v_1^2\omega_6^2 v_2^2 - 2\omega_5^2\omega_2^3 v_1^2\omega_3^3 v_2^2 - 10\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3^3 v_2^2 + 2\omega_5\omega_2^3 v_1^2\omega_6^2\omega_3^3 c_s^2 - 4\omega_5\omega_2^2\omega_6^2\omega_3^3 v_2^2 c_s^2 - \omega_5^2\omega_2^3\omega_6^2\omega_3^3 c_s^4 + 4\omega_5\omega_2\omega_1^2\omega_6^2\omega_3^3 v_2^2 - 4\omega_5^2\omega_2^2\omega_6^2\omega_3^3 v_2^2 c_s^2 + 4\omega_5\omega_2^2\omega_1^2\omega_6^2\omega_3^2 c_s^2 - 28\omega_5^2\omega_2^2 v_1^2\omega_6^2\omega_3^2 v_2^2 + \omega_5^2\omega_2^3\omega_6^2\omega_3^3 v_2^2 c_s^2 + \omega_5\omega_2^3\omega_6^2\omega_3^3 c_s^4 - 12\omega_5^2\omega_2^2\omega_6^2\omega_3^2 c_s^4 - 14\omega_5^2\omega_2^3 v_1^2\omega_6^2\omega_3 v_2^2 + 2\omega_5^2\omega_2^3 v_1^2\omega_6\omega_3^3 c_s^2 - 10\omega_5\omega_2^2 v_1^2\omega_6^2\omega_3^3 v_2^2 + 12\omega_5^2\omega_2 v_1^2\omega_6^2\omega_3^3 v_2^2 + \omega_5^2\omega_2^3 v_1^2\omega_6^2\omega_3^3 c_s^2 + 2\omega_5^2\omega_2^3\omega_6\omega_3^3 v_2^2 c_s^2 + 4\omega_2^2 v_1^2\omega_6^2\omega_3^3 v_2^2$$

$$C_{22} = -24\omega_2^3\omega_6\omega_3^3 v_2^2 + 12\omega_2^2\omega_6^2\omega_3^2 c_s^2 + 6\omega_2^3\omega_3^3 c_s^2 - 12\omega_2^3\omega_6^2 c_s^2 - 18\omega_2^3\omega_6^2\omega_3 v_2^2 + 12\omega_6^2\omega_3^3 v_2^2 + 24\omega_2\omega_6^2\omega_3^3 v_2^2 + \omega_2^3\omega_6^2\omega_3^3 c_s^2 + 24\omega_2^2\omega_6^2\omega_3 v_2^2 - 12\omega_2^3\omega_6\omega_3 c_s^2 - 6\omega_2^2\omega_6^2\omega_3^3 c_s^2 - 12\omega_2^3\omega_3^3 c_s^2 + 6\omega_2^3\omega_6\omega_3^3 v_2^2 - 30\omega_2\omega_6^2\omega_3^3 v_2^2 - 14\omega_2^3\omega_6^2\omega_3^2 c_s^2 + 24\omega_2^3\omega_6^2\omega_3 c_s^2 - 12\omega_2\omega_6^2\omega_3^2 c_s^2 - 4\omega_2^3\omega_6^2\omega_3^3 v_2^2 - 48\omega_2^2\omega_6^2\omega_3^3 v_2^2 - 6\omega_2^3\omega_3^3 v_2^2 + 24\omega_2^3\omega_6\omega_3^2 c_s^2 + 6\omega_2\omega_6^2\omega_3^3 c_s^2 + 22\omega_2^3\omega_6^2\omega_3^3 v_2^2 + 12\omega_2^3\omega_6\omega_3 v_2^2 - 6\omega_2^3\omega_6\omega_3^3 c_s^2 + 22\omega_2^2\omega_6^2\omega_3^3 v_2^2 + 12\omega_2^3\omega_3^3 v_2^2$$

$$C_{23} = 6\omega_2^3\omega_3^3 c_s^2 - 18\omega_5^2\omega_2 v_1^2\omega_3^3 - 6\omega_5\omega_2^3\omega_3^3 c_s^2 + 12\omega_5^2\omega_2^3 v_1^2 - 12\omega_5^2\omega_3^3 c_s^2 - 14\omega_5^2\omega_2^2\omega_3^3 c_s^2 + 24\omega_5^2\omega_2 v_1^2\omega_3^3 + 6\omega_5^2\omega_2^3\omega_3 c_s^2 - 30\omega_5^2\omega_2^3 v_1^2\omega_3 + 12\omega_2^2 v_1^2\omega_3^3 + 22\omega_5^2\omega_2^3 v_1^2\omega_3^2 - 24\omega_5\omega_2^2 v_1^2\omega_3^3 - 4\omega_5^2\omega_2^3 v_1^2\omega_3^3 - 12\omega_5\omega_2\omega_3^3 c_s^2 + 12\omega_5^2\omega_2^2\omega_3^3 c_s^2 + 12\omega_5\omega_2 v_1^2\omega_3^3 + \omega_5^2\omega_2^3\omega_3^3 c_s^2 + 24\omega_5^2\omega_2^2 v_1^2\omega_3 - 12\omega_5^2\omega_2^2\omega_3 c_s^2 + 24\omega_5\omega_2^2\omega_3^3 c_s^2 - 12\omega_2^2\omega_3^3 c_s^2 + 22\omega_5^2\omega_2^2 v_1^2\omega_3^3 - 6\omega_5^2\omega_2^3\omega_3^3 c_s^2 + 6\omega_5\omega_2^3 v_1^2\omega_3^3 - 48\omega_5^2\omega_2^2 v_1^2\omega_3^2 + 24\omega_5^2\omega_2\omega_3^3 c_s^2 - 6\omega_2^3 v_1^2\omega_3^3$$

$$C_{24} = \omega_6^2\omega_3^3 - 36\omega_6\omega_3^2c_s^2 - 11\omega_6^2\omega_3^2 - 48\omega_6^2\omega_3c_s^2 + 36\omega_3^2v_2^2 - 3\omega_6^2\omega_3^3v_2^2 + 72\omega_6\omega_3v_2^2 + 12\omega_6^2\omega_3 + 9\omega_6\omega_3^3c_s^2 + 15\omega_6^2\omega_3^2v_2^2 - 18\omega_3^3v_2^2 - 36\omega_6^2v_2^2 + 12\omega_3^2c_s^2 + 18\omega_6^2\omega_3v_2^2 - 2\omega_6^2\omega_3^3c_s^2 - 108\omega_6\omega_3^2v_2^2 - 24\omega_6\omega_3 + 36\omega_6\omega_3^2 + 25\omega_6^2\omega_3^2c_s^2 - 12\omega_3^2 - 6\omega_3^3c_s^2 + 24\omega_6^2c_s^2 + 6\omega_3^3 + 24\omega_6\omega_3c_s^2 - 9\omega_6\omega_3^3 + 27\omega_6\omega_3^2v_2^2$$

$$C_{25} = 12\omega_2^3\omega_6\omega_3^2v_2^2 + 36\omega_2^2\omega_6^2\omega_3^2c_s^2 + 18\omega_2^3\omega_3^3c_s^2 - 12\omega_2^3\omega_6^2c_s^2 - 21\omega_2^3\omega_6\omega_3^2 + 12\omega_2^3\omega_6^2\omega_3v_2^2 + 6\omega_6^2\omega_3^3v_2^2 + 6\omega_2\omega_6^2\omega_3^2v_2^2 + 6\omega_2^3\omega_6^2\omega_3^3c_s^2 + 6\omega_2^3\omega_6\omega_3^3 - 3\omega_2^3\omega_3^3 - 3\omega_2^2\omega_6^2\omega_3^2 - 24\omega_2^3\omega_6\omega_3c_s^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 - 36\omega_2^3\omega_3^2c_s^2 + 12\omega_2^3\omega_6\omega_3 - 12\omega_2\omega_6^2\omega_3^3v_2^2 - 36\omega_2^3\omega_6^2\omega_3^2c_s^2 + 6\omega_2^3\omega_3^2 + \omega_2^2\omega_6^2\omega_3^2 + 36\omega_2^3\omega_6^2\omega_3c_s^2 - 6\omega_2^3\omega_6^2\omega_3 - 3\omega_2^2\omega_6\omega_3^3 - 12\omega_2\omega_6^2\omega_3^2c_s^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 - 6\omega_2^2\omega_6^2\omega_3^2v_2^2 - 6\omega_2^3\omega_3^3v_2^2 + 6\omega_2^2\omega_6\omega_3^2 + 72\omega_2^3\omega_6\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2c_s^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 6\omega_2^3\omega_6^2\omega_3^2v_2^2 - \omega_2^3\omega_6^2\omega_3^3 - 24\omega_2^3\omega_6\omega_3v_2^2 - 12\omega_2^2\omega_6^2\omega_3c_s^2 - 24\omega_2^3\omega_6\omega_3^3c_s^2 + 7\omega_2^3\omega_6^2\omega_3^2 + 6\omega_2^2\omega_6^2\omega_3^3v_2^2 + 12\omega_2^3\omega_3^2v_2^2$$

$$C_{26} = -\omega_6^2\omega_3^3 + 96\omega_6\omega_3^2c_s^2 + 11\omega_6^2\omega_3^2 + 18\omega_6^2\omega_3c_s^2 + 12\omega_3^2v_2^2 + \omega_6^2\omega_3^3v_2^2 - 60\omega_6\omega_3v_2^2 - 12\omega_6^2\omega_3 - 30\omega_6\omega_3^3c_s^2 - 14\omega_6^2\omega_3^2v_2^2 - 6\omega_3^3v_2^2 + 12\omega_6^2v_2^2 - 60\omega_3^2c_s^2 + 12\omega_6^2\omega_3v_2^2 + 4\omega_6^2\omega_3^3c_s^2 + 48\omega_6\omega_3^2v_2^2 + 24\omega_6\omega_3 - 36\omega_6\omega_3^2 - 26\omega_6^2\omega_3^2c_s^2 + 12\omega_3^2 + 30\omega_3^3c_s^2 - 6\omega_3^3 - 36\omega_6\omega_3c_s^2 + 9\omega_6\omega_3^3 - 6\omega_6\omega_3^3v_2^2$$

$$C_{27} = -12\omega_2^3\omega_6\omega_3^2v_2^2 + 48\omega_2^2\omega_6^2\omega_3^2c_s^2 + 6\omega_2^3\omega_3^3c_s^2 - 12\omega_2^3\omega_6^2c_s^2 - 6\omega_2^3\omega_6\omega_3^2 + 30\omega_2^3\omega_6^2\omega_3v_2^2 + 12\omega_6^2\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^3v_2^2 + 4\omega_2^3\omega_6^2\omega_3^3c_s^2 + 3\omega_2^3\omega_6\omega_3^3 - 6\omega_2^2\omega_6^2\omega_3^3 - 12\omega_2^3\omega_6\omega_3c_s^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^2c_s^2 - 18\omega_2\omega_6^2\omega_3^3v_2^2 - 32\omega_2^3\omega_6^2\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2v_2^2 + 2\omega_2^2\omega_6^2\omega_3^3 + 36\omega_2^3\omega_6^2\omega_3c_s^2 - 6\omega_2^2\omega_6\omega_3^3 - 12\omega_2\omega_6^2\omega_3^2c_s^2 + 3\omega_2^3\omega_6^2\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 + 12\omega_2^2\omega_6^2\omega_3^2v_2^2 - 6\omega_2^3\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^2 - 24\omega_2^3\omega_6^2v_2^2 + 36\omega_2^3\omega_6\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2c_s^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_6^2\omega_3^2v_2^2 - \omega_2^3\omega_6^2\omega_3^3 + 12\omega_2^3\omega_6\omega_3v_2^2 - 24\omega_2^2\omega_6^2\omega_3c_s^2 - 12\omega_2^3\omega_6\omega_3^3c_s^2 + 3\omega_2^3\omega_6^2\omega_3^2 + 12\omega_2^3\omega_3^3v_2^2$$

$$C_{28} = 72\omega_6\omega_3v_2^2c_s^2 + 24\omega_6\omega_3^2c_s^2 + 24\omega_6^2c_s^4 + 24\omega_6^2\omega_3^2c_s^4 + 12\omega_6^2\omega_3c_s^2 + 72\omega_3^2v_2^2 - 30\omega_6\omega_3^3v_2^4 - 3\omega_6^2\omega_3^3v_2^2 + 24\omega_6\omega_3c_s^4 - 3\omega_6^2\omega_3^3c_s^4 - 6\omega_6\omega_3^3c_s^2 - 12\omega_6^2\omega_3^2v_2^2c_s^2 + 12\omega_6^2\omega_3^2v_2^2 + 108\omega_3^3v_2^2c_s^2 - 72\omega_6\omega_3^3v_2^2c_s^2 - 36\omega_3^3v_2^2 + 72\omega_6\omega_3^2v_2^4 + 6\omega_6\omega_3^3c_s^4 - 36\omega_6^2\omega_3v_2^2c_s^2 + \omega_6^2\omega_3^3c_s^2 + 36\omega_3^3v_2^4 - 72\omega_6\omega_3^2v_2^2 - 12\omega_6^2\omega_3^2v_2^4 - 8\omega_6^2\omega_3^2c_s^2 + 144\omega_6\omega_3^2v_2^2c_s^2 - 24\omega_6\omega_3^2c_s^4 - 216\omega_3^2v_2^2c_s^2 + 3\omega_6^2\omega_3^3v_2^4 - 24\omega_6\omega_3c_s^2 + 6\omega_6^2\omega_3^2v_2^2c_s^2 - 48\omega_6^2\omega_3c_s^4 - 72\omega_3^2v_2^4 + 30\omega_6\omega_3^3v_2^2$$

$$C_{29} = -\omega_6^2\omega_3^3 + 72\omega_6\omega_3^2c_s^2 + 2\omega_6^2\omega_3^3 - 30\omega_6^2\omega_3c_s^2 - 84\omega_3^2v_2^2 + 2\omega_6^2\omega_3^3v_2^2 + 60\omega_6\omega_3v_2^2 + 6\omega_6^2\omega_3 - 24\omega_6\omega_3^3c_s^2 + 2\omega_6^2\omega_3^2v_2^2 + 42\omega_3^3v_2^2 - 12\omega_6^2v_2^2 - 60\omega_3^2c_s^2 - 12\omega_6^2\omega_3v_2^2 + \omega_6^2\omega_3^3c_s^2 + 24\omega_6\omega_3^2v_2^2 - 12\omega_6\omega_3 - 24\omega_6\omega_3^2 - 2\omega_6^2\omega_3^2c_s^2 + 36\omega_3^2 + 30\omega_3^3c_s^2 + 24\omega_6^2c_s^2 - 18\omega_3^3 - 12\omega_6\omega_3c_s^2 + 12\omega_6\omega_3^3 - 24\omega_6\omega_3^3v_2^2$$

$$C_{30} = -18\omega_5^2\omega_2^2c_s^2 + 12\omega_5\omega_2\omega_4c_s^2 - \omega_5^2\omega_2^3v_1^2 - 12\omega_5\omega_2v_1^2\omega_4 + 24\omega_5^2v_1^2\omega_4 - 6\omega_5^2\omega_2^2v_1^2 + 6\omega_5^3v_1^2\omega_4 - 9\omega_5\omega_2^3v_1^2\omega_4 + 22\omega_5^2\omega_2^2\omega_4c_s^2 + 3\omega_5^2\omega_2^3c_s^2 + 12\omega_5^2\omega_4c_s^2 - 6\omega_2^3\omega_4c_s^2 + 9\omega_5\omega_2^3\omega_4c_s^2 + 8\omega_5^2\omega_2^2v_1^2\omega_4 - 12\omega_5\omega_2^3v_1^2 - 30\omega_5^2\omega_2\omega_4c_s^2 - 6\omega_5\omega_2^3c_s^2 + 12\omega_5^2\omega_2v_1^2 - 36\omega_5^2\omega_2v_1^2\omega_4 - 30\omega_5\omega_2^2\omega_4c_s^2 + 12\omega_2^2\omega_4c_s^2 + \omega_5^2\omega_2^3v_1^2\omega_4 + 12\omega_5\omega_2^2c_s^2 + 6\omega_5\omega_2^3v_1^2 + 30\omega_5\omega_2^2v_1^2\omega_4 + 12\omega_5^2\omega_2c_s^2 - 12\omega_2^2v_1^2\omega_4 - 2\omega_5^2\omega_2^3\omega_4c_s^2$$

$$C_{31} = -6\omega_5^2\omega_2^2v_1^2\omega_4^2 - 12\omega_5^2\omega_2^3\omega_4^2c_s^2 - 6\omega_2^3v_1^2\omega_4^3 + 6\omega_5^2\omega_2^3v_1^2 - 3\omega_5^2\omega_2^2\omega_4^2 + 12\omega_5\omega_2\omega_4^3 - 6\omega_5^2\omega_2^2v_1^2\omega_4^3 - 24\omega_5\omega_2^2\omega_4^2c_s^2 + 36\omega_5^2\omega_2\omega_4^3c_s^2 + 7\omega_5^2\omega_2^2\omega_4^3 + \omega_5^2\omega_2^3\omega_4^2 + 6\omega_5^2\omega_2^3\omega_4^3c_s^2 - 12\omega_5^2\omega_2^2\omega_4c_s^2 - \omega_5^2\omega_2^3\omega_4^3 - 24\omega_5\omega_2v_1^2\omega_4^3 - 12\omega_5^2\omega_2\omega_4^2c_s^2 + 6\omega_5^2\omega_2^2v_1^2\omega_4 - 36\omega_5^2\omega_2^2\omega_4^3c_s^2 + 72\omega_5\omega_2^2\omega_4^3c_s^2 - 3\omega_5\omega_2^2\omega_4^2 + 12\omega_5\omega_2^3\omega_4^2c_s^2 - 3\omega_2^3\omega_4^3 + 6\omega_5\omega_2^2\omega_4^3 - 24\omega_5\omega_2\omega_4^3c_s^2 + 12\omega_2^2v_1^2\omega_4^3 + 12\omega_5\omega_2^2v_1^2\omega_4^3 + 36\omega_5^2\omega_2^2\omega_4^2c_s^2 + 6\omega_5^2\omega_2^3v_1^2\omega_4^2 - 24\omega_5\omega_2^3\omega_4^3c_s^2 + 18\omega_2^3\omega_4^3c_s^2 - 12\omega_5^2\omega_2^3v_1^2\omega_4 - 12\omega_5^2\omega_2^3\omega_4^2c_s^2 - 6\omega_5^2\omega_2\omega_4^3 + 6\omega_5\omega_2^2\omega_4^3 - 36\omega_5^2\omega_2^2\omega_4^3c_s^2 + 12\omega_5^2\omega_2v_1^2\omega_4^3 + 6\omega_5^2\omega_2^3\omega_4c_s^2 - 21\omega_5\omega_2^2\omega_4^3 + 6\omega_2^2\omega_4^3$$

$$C_{32} = 12\omega_5^2\omega_2^2v_1^2\omega_4^2 - 12\omega_5^2\omega_2^3\omega_4^2c_s^2 - 6\omega_2^3v_1^2\omega_4^3 - 24\omega_5^2v_1^2\omega_4^3 + 12\omega_5^2\omega_2^3v_1^2 - 6\omega_5^2\omega_2^2\omega_4^2 - 12\omega_5^2\omega_2^2v_1^2\omega_4^3 - 24\omega_5\omega_2^2\omega_4^2c_s^2 + 12\omega_5\omega_2^3v_1^2\omega_4^2 + 36\omega_5^2\omega_2\omega_4^3c_s^2 + 3\omega_5^2\omega_2^2\omega_4^3 + 2\omega_5^2\omega_2^3\omega_4^2 + 4\omega_5^2\omega_2^3\omega_4^3c_s^2 - 12\omega_5^2\omega_2^2\omega_4c_s^2 - \omega_5^2\omega_2^3\omega_4^3 + 12\omega_5\omega_2v_1^2\omega_4^3 - 24\omega_5^2\omega_2\omega_4^2c_s^2 - 12\omega_5^2\omega_2^3\omega_4^3c_s^2 + 36\omega_5\omega_2^2\omega_4^3c_s^2 - 6\omega_5\omega_2^3\omega_4^2 - 24\omega_5\omega_2^2v_1^2\omega_4^2 + 12\omega_5\omega_2^3\omega_4^2c_s^2 + 3\omega_5^2\omega_2^3v_1^2\omega_4^3 + 3\omega_5\omega_2^3\omega_4^3 - 12\omega_5\omega_2\omega_4^3c_s^2 + 12\omega_2^2v_1^2\omega_4^3 - 12\omega_5\omega_2^2v_1^2\omega_4^3 + 48\omega_5^2\omega_2^2\omega_4^2c_s^2 - 12\omega_5\omega_2^3\omega_4^3c_s^2 + 6\omega_2^3\omega_4^3c_s^2 - 18\omega_5^2\omega_2^3v_1^2\omega_4 - 12\omega_5^2\omega_4^3c_s^2 + 12\omega_5\omega_2^2\omega_4^2 - 32\omega_5^2\omega_2^2\omega_4^3c_s^2 + 30\omega_5^2\omega_2v_1^2\omega_4^3 + 6\omega_5^2\omega_2^3\omega_4c_s^2 - 6\omega_5\omega_2^2\omega_4^3$$

$$C_{33} = -26\omega_5^2\omega_2^2c_s^2 + \omega_5^2\omega_2^3v_1^2 - 36\omega_5\omega_2c_s^2 - 12\omega_5^2\omega_2 - 6\omega_2^3 + 11\omega_5^2\omega_2^2 - 14\omega_5^2\omega_2^2v_1^2 + 12\omega_5^2v_1^2 + 4\omega_5^2\omega_2^2c_s^2 - 60\omega_5\omega_2v_1^2 - \omega_5^2\omega_2^3 + 12\omega_2^2 + 12\omega_2^2v_1^2 + 48\omega_5\omega_2^2v_1^2 + 9\omega_5\omega_2^3 - 30\omega_5\omega_2^3c_s^2 + 30\omega_2^3c_s^2 - 36\omega_5\omega_2^2 + 12\omega_5^2\omega_2v_1^2 - 60\omega_2^2c_s^2 + 96\omega_5\omega_2^2c_s^2 + 24\omega_5\omega_2 - 6\omega_5\omega_2^3v_1^2 - 6\omega_2^3v_1^2 + 18\omega_5^2\omega_2c_s^2$$

$$C_{34} = 18\omega_2\omega_3^3\omega_4 - 6\omega_2\omega_4^3 - 16\omega_2\omega_3^2\omega_4^3 + 30\omega_2\omega_3^2\omega_4^2 - 12\omega_2\omega_3^2\omega_4 + 3\omega_2\omega_3^3\omega_4^3 - 6\omega_3\omega_4^3 - 16\omega_2\omega_3^3\omega_4^2 - 12\omega_3^2\omega_4^2 - 6\omega_3^3\omega_4 + 12\omega_3^2\omega_4^3 + 12\omega_3^3\omega_4^2 - 12\omega_2\omega_3\omega_4^2 - 4\omega_3^3\omega_4^3 + 18\omega_2\omega_3\omega_4^3 - 6\omega_2\omega_3^3$$

$$C_{35} = 30\omega_2^2\omega_3\omega_4^2 - 6\omega_3^2\omega_3 - 6\omega_2\omega_4^3 - 16\omega_2^2\omega_3\omega_4^3 - 6\omega_3\omega_4^3 - 12\omega_2^2\omega_3\omega_4 + 3\omega_2^3\omega_3\omega_4^3 + 12\omega_2^2\omega_4^2 - 4\omega_2^2\omega_4^3 - 16\omega_3^2\omega_3\omega_4^2 - 12\omega_2\omega_3\omega_4^2 - 12\omega_2^2\omega_4^2 + 18\omega_3^2\omega_3\omega_4 + 18\omega_2\omega_3\omega_4^3 + 12\omega_2^2\omega_4^3 - 6\omega_2^3\omega_4$$

$$C_{36} = 12\omega_2^2\omega_3^3 + 18\omega_2\omega_3^3\omega_4 - 6\omega_2^3\omega_3 - 12\omega_2^2\omega_3^2 - 16\omega_2^3\omega_3^2\omega_4 - 12\omega_2\omega_3^2\omega_4 - 4\omega_2^3\omega_3^3 + 3\omega_2^3\omega_3^3\omega_4 - 12\omega_2^2\omega_3\omega_4 + 12\omega_2^3\omega_3^2 + 30\omega_2^2\omega_3^2\omega_4 - 6\omega_3^3\omega_4 + 16\omega_2^2\omega_3^3\omega_4 + 18\omega_2^3\omega_3\omega_4 - 6\omega_2^3\omega_4 - 6\omega_2\omega_3^3$$

$$C_{37} = 7\omega_5^2\omega_3^3v_1^2\omega_3^2\omega_4^3 - 6\omega_5\omega_2^2v_1^2\omega_3^3\omega_4^3 - 8\omega_5^2\omega_2^3v_1^2\omega_3^3\omega_4 + 2\omega_2^2v_1^2\omega_3^3\omega_4^3 - 2\omega_5\omega_2\omega_3^3\omega_4^3c_s^2 + 6\omega_5^2\omega_2^2\omega_3^3\omega_4^3c_s^2 - 10\omega_5^2\omega_2^2v_1^2\omega_3^3\omega_4^2 - 2\omega_5^2\omega_2^2\omega_3^3\omega_4c_s^2 + \omega_5^2\omega_3^3\omega_4^3c_s^2 - 2\omega_5\omega_2^2\omega_3^3\omega_4^3c_s^2 + 2\omega_5\omega_2^2v_1^2\omega_3^3\omega_4^2 - 8\omega_5^2\omega_2^3v_1^2\omega_3^2\omega_4^2 - \omega_5\omega_2^3v_1^2\omega_3^3\omega_4^3 + 8\omega_5^2\omega_2^2v_1^2\omega_3^3\omega_4^3 + 6\omega_5^2\omega_2\omega_3^3\omega_4^3c_s^2 + 4\omega_5^2\omega_2^2v_1^2\omega_3^2\omega_4^2 - \omega_5\omega_2^3v_1^2\omega_3^3\omega_4^2 + \omega_5\omega_3^3\omega_4^3c_s^2 - 2\omega_5^2\omega_2^2\omega_3^3\omega_4^3c_s^2 - 2\omega_5^2\omega_2^3v_1^2\omega_3^3\omega_4^3 + 3\omega_5^2\omega_2^3v_1^2\omega_3^2\omega_4 + 2\omega_5\omega_2^2v_1^2\omega_3^2\omega_4^3 + 2\omega_5^2v_1^2\omega_3^3\omega_4^3 - 2\omega_5^2\omega_2\omega_3^3\omega_4^3c_s^2 - \omega_5^2v_1^2\omega_3^3\omega_4^3 + 4\omega_5^2\omega_2^2v_1^2\omega_3^2\omega_4 + 2\omega_5\omega_2^3v_1^2\omega_3^3\omega_4^3 - 10\omega_5^2\omega_2^2v_1^2\omega_3^3\omega_4^3 + \omega_5^2\omega_2^3\omega_3^3\omega_4c_s^2 + 3\omega_5^2\omega_2^3v_1^2\omega_3^3 + 7\omega_5^2\omega_2^3v_1^2\omega_3^2\omega_4^2 - 2\omega_5^2\omega_2^3\omega_3^3\omega_4^3c_s^2 + 3\omega_5^2\omega_2v_1^2\omega_3^3\omega_4^3 + 4\omega_5^2\omega_2^2v_1^2\omega_3\omega_4^3 - 2\omega_5^2\omega_2\omega_3^2\omega_4^3c_s^2 + 6\omega_5\omega_2^2\omega_3^3\omega_4^3c_s^2 + 3\omega_5^2\omega_2^3v_1^2\omega_4^3 - 2\omega_5^2\omega_2^3\omega_3^3\omega_4^2c_s^2 - 2\omega_5^2\omega_2^3\omega_3^3\omega_4^3c_s^2 + 2\omega_5\omega_2v_1^2\omega_3^3\omega_4^3 - 6\omega_5^2\omega_2^2\omega_3^3\omega_4^3c_s^2 + \omega_5\omega_2^3\omega_3^3\omega_4^2c_s^2 - 7\omega_5^2\omega_2v_1^2\omega_3^3\omega_4^3 + \omega_5^2\omega_2^3\omega_3\omega_4^3c_s^2 - 2\omega_5\omega_2^2\omega_3^3\omega_4^2c_s^2 + 3\omega_5^2\omega_2^3v_1^2\omega_3\omega_4^2 - 2\omega_5^2\omega_3^3\omega_4^3c_s^2 + \omega_5^2\omega_2^3\omega_3^3\omega_4^3c_s^2 - 2\omega_5^2\omega_2^2\omega_3\omega_4^3c_s^2 - 8\omega_5^2\omega_2^3v_1^2\omega_3\omega_4^3 + \omega_2^3\omega_3^3\omega_4^3c_s^2 + 3\omega_5^2\omega_2v_1^2\omega_3^3\omega_4^3 + 6\omega_5^2\omega_2^2\omega_3^3\omega_4^2c_s^2 - 2\omega_5\omega_2^3\omega_3^3\omega_4^3c_s^2$$

$$C_{38} = 24\omega_2^3\omega_3^3\omega_4^2 + 18\omega_2\omega_3^2\omega_4^3 + 6\omega_2^2\omega_3\omega_4^3 + 18\omega_2^3\omega_3^2\omega_4 - 5\omega_3^3\omega_3^3\omega_4^3 + 12\omega_2^3\omega_3^3 - 36\omega_2\omega_3^3\omega_4^3 - 42\omega_2^3\omega_3^2\omega_4^2 - 30\omega_2^3\omega_3^3\omega_4 + 24\omega_2^3\omega_3^2\omega_4^3 + 18\omega_2\omega_3^3\omega_4^2 - 30\omega_2^3\omega_3\omega_4^3 + 28\omega_2^2\omega_3^3\omega_4^3 + 12\omega_2^3\omega_4^3 - 30\omega_2^2\omega_3^3\omega_4^2 + 18\omega_2^3\omega_3\omega_4^2 - 30\omega_2^2\omega_3^3\omega_4^3 + 6\omega_2^2\omega_3^3\omega_4 + 12\omega_3^3\omega_4^3 + 12\omega_2^2\omega_3^2\omega_4^2$$

$$C_{39} = -36\omega_5^2\omega_2^2v_1^2\omega_4^2 - 12\omega_5^2\omega_2^3\omega_4^2c_s^2 + 12\omega_5\omega_2^3v_1^2\omega_4^3 - 6\omega_2^3v_1^2\omega_4^3 + 12\omega_5^2\omega_2^3v_1^2 + 16\omega_5^2\omega_2^2v_1^2\omega_4^3 - 24\omega_5\omega_2^2\omega_4^2c_s^2 - 12\omega_5\omega_2^3v_1^2\omega_4^2 + 36\omega_5^2\omega_2\omega_4^3c_s^2 + 4\omega_5^2\omega_2^3\omega_4^2c_s^2 - 12\omega_5^2\omega_2^2\omega_4c_s^2 + 12\omega_5\omega_2v_1^2\omega_4^3 - 24\omega_5^2\omega_2^2\omega_4^3c_s^2 + 24\omega_5^2\omega_2^2v_1^2\omega_4 - 12\omega_2^2\omega_4^3c_s^2 + 36\omega_5\omega_2^2\omega_4^3c_s^2 + 24\omega_5\omega_2^2v_1^2\omega_4^2 + 12\omega_5\omega_2^3\omega_4^2c_s^2 - 5\omega_5^2\omega_2^3v_1^2\omega_4^3 - 12\omega_5\omega_2\omega_4^3c_s^2 + 12\omega_2^2v_1^2\omega_4^3 - 36\omega_5\omega_2^2v_1^2\omega_4^3 + 48\omega_5^2\omega_2^2\omega_4^2c_s^2 + 24\omega_5^2\omega_2^3v_1^2\omega_4^2 - 12\omega_5\omega_2^3\omega_4^3c_s^2 + 6\omega_2^3\omega_4^3c_s^2 - 30\omega_5^2\omega_2^3v_1^2\omega_4 - 12\omega_5^2\omega_4^3c_s^2 - 32\omega_5^2\omega_2^2\omega_4^3c_s^2 - 6\omega_5^2\omega_2v_1^2\omega_4^3 + 6\omega_5^2\omega_2^3\omega_4c_s^2$$

$$C_{40} = 6\omega_2^3\omega_3^3c_s^2 - 6\omega_5^2\omega_2v_1^2\omega_3^3 - 12\omega_5\omega_2^3\omega_3^3c_s^2 + 12\omega_5^2\omega_2^3v_1^2 - 12\omega_5^2\omega_3^3c_s^2 - 32\omega_5^2\omega_2^2\omega_3^3c_s^2 + 6\omega_5^2\omega_2^3\omega_3c_s^2 - 30\omega_5^2\omega_2^3v_1^2\omega_3 + 12\omega_5\omega_2^3\omega_3^2c_s^2 + 12\omega_2^2v_1^2\omega_3^3 + 24\omega_5^2\omega_2^3v_1^2\omega_3^2 - 36\omega_5\omega_2^2v_1^2\omega_3^3 - 5\omega_5^2\omega_2^3v_1^2\omega_3^3 + 24\omega_5\omega_2^2v_1^2\omega_3^2 - 12\omega_5\omega_2\omega_3^3c_s^2 + 48\omega_5^2\omega_2^2\omega_3^2c_s^2 + 12\omega_5\omega_2v_1^2\omega_3^3 + 4\omega_5^2\omega_2^3\omega_3^3c_s^2 +$$

$$24\omega_5^2\omega_2^2v_1^2\omega_3 - 12\omega_5^2\omega_2^2\omega_3c_s^2 - 24\omega_5^2\omega_2\omega_3^2c_s^2 + 36\omega_5\omega_2^2\omega_3^2c_s^2 - 12\omega_2^2\omega_3^2c_s^2 - 12\omega_5\omega_2^3v_1^2\omega_3^2 + 16\omega_5^2\omega_2^2v_1^2\omega_3^2 - 12\omega_5^2\omega_3^2\omega_3^2c_s^2 - 24\omega_5\omega_2^2\omega_3^2c_s^2 + 12\omega_5\omega_2^3v_1^2\omega_3^2 - 36\omega_5^2\omega_2^2v_1^2\omega_3^2 + 36\omega_5^2\omega_2\omega_3^2c_s^2 - 6\omega_2^3v_1^2\omega_3^2$$

$$C_{41} = 6\omega_3^3v_2^2\omega_4 + 24\omega_6^2v_2^2\omega_4 + 12\omega_6\omega_3^2c_s^2 - 30\omega_6^2\omega_3\omega_4c_s^2 - 9\omega_6\omega_3^3v_2^2\omega_4 + 12\omega_6^2\omega_3c_s^2 - \omega_6^2\omega_3^3v_2^2 + 8\omega_6^2\omega_3^2v_2^2\omega_4 - 30\omega_6\omega_3^2\omega_4c_s^2 - 6\omega_6\omega_3^3c_s^2 + 12\omega_3^2\omega_4c_s^2 - 12\omega_6\omega_3v_2^2\omega_4 - 6\omega_6^2\omega_3^2v_2^2 - 2\omega_6^2\omega_3^3\omega_4c_s^2 + \omega_6^2\omega_3^3v_2^2\omega_4 + 12\omega_6\omega_3\omega_4c_s^2 + 12\omega_6^2\omega_3v_2^2 + 3\omega_6^2\omega_3^3c_s^2 - 12\omega_6\omega_3^2v_2^2 + 30\omega_6\omega_3^2v_2^2\omega_4 - 12\omega_3^2v_2^2\omega_4 - 18\omega_6^2\omega_3^2c_s^2 + 22\omega_6^2\omega_3^2\omega_4c_s^2 + 12\omega_6^2\omega_4c_s^2 - 6\omega_3^3\omega_4c_s^2 + 9\omega_6\omega_3^3\omega_4c_s^2 - 36\omega_6^2\omega_3v_2^2\omega_4 + 6\omega_6\omega_3^3v_2^2$$

$$C_{42} = -2\omega_2^3\omega_6\omega_3^3\omega_4^3c_s^2 + 2\omega_2^3\omega_6\omega_3^3v_2^2\omega_4^3 - 10\omega_2^3\omega_6^2\omega_3^2v_2^2\omega_4^2 + 3\omega_2^2\omega_6^2\omega_3^3v_2^2\omega_4 + \omega_2^2\omega_6^2\omega_3^3\omega_4^2c_s^2 - \omega_2^3\omega_6\omega_3^3v_2^2\omega_4^2 + \omega_2^3\omega_6^2\omega_3^3\omega_4c_s^2 + 8\omega_2^3\omega_6^2\omega_3^2v_2^2\omega_4^3 - 6\omega_2^3\omega_6^2\omega_3^3\omega_4^3c_s^2 + 3\omega_2^2\omega_6^2\omega_3\omega_4^3c_s^2 - 2\omega_2^2\omega_6^2\omega_3\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3\omega_4^3c_s^2 - 2\omega_2^2\omega_6^2\omega_3^3\omega_4^3c_s^2 + 7\omega_2^2\omega_6^2\omega_3^3v_2^2\omega_4^3 + 2\omega_2^3\omega_3^3v_2^2\omega_4^3 + 3\omega_2\omega_6^2\omega_3^3v_2^2\omega_4^2 + \omega_2^3\omega_6\omega_3^3\omega_4^2c_s^2 + 2\omega_2^2\omega_6\omega_3^3v_2^2\omega_4^3 - 8\omega_2^2\omega_6^2\omega_3^3v_2^2\omega_4^2 - 2\omega_2^2\omega_6\omega_3^3\omega_4^3c_s^2 + 6\omega_2^3\omega_6^2\omega_3^2\omega_4^2c_s^2 + \omega_2\omega_6^2\omega_3^3\omega_4^3c_s^2 + 2\omega_2^3\omega_6\omega_3v_2^2\omega_4^3 - 8\omega_2\omega_6^2\omega_3^3v_2^2\omega_4^3 + 4\omega_2^3\omega_6^2\omega_3^2v_2^2\omega_4 - 2\omega_2^3\omega_6\omega_3\omega_4^3c_s^2 - 2\omega_2^3\omega_6^2\omega_3^3v_2^2\omega_4^3 - 2\omega_2^3\omega_6^2\omega_3^2\omega_4c_s^2 + 2\omega_2^3\omega_6\omega_3^2v_2^2\omega_4^3 + 3\omega_2^3\omega_6^2\omega_3^3v_2^2 + \omega_2^3\omega_6^2\omega_3^3\omega_4^2c_s^2 - 2\omega_2^2\omega_6^2\omega_3^2\omega_4^2c_s^2 + 6\omega_2^3\omega_6\omega_3^3\omega_4^2c_s^2 + 7\omega_2^3\omega_6^2\omega_3^3v_2^2\omega_4^2 - 6\omega_2^3\omega_6\omega_3^3v_2^2\omega_4^3 - 2\omega_2^3\omega_6^2\omega_3\omega_4^2c_s^2 + 3\omega_2^3\omega_6^2\omega_3v_2^2\omega_4^2 - 2\omega_2\omega_6^2\omega_3^2\omega_4^2c_s^2 - 2\omega_2^3\omega_6^2\omega_3^3\omega_4^2c_s^2 + 4\omega_2\omega_6^2\omega_3^2v_2^2\omega_4^3 - 8\omega_2^3\omega_6^2\omega_3^3v_2^2\omega_4 + 4\omega_2^2\omega_6^2\omega_3^2v_2^2\omega_4^2 - \omega_2^2\omega_6\omega_3^3v_2^2\omega_4^3 + 3\omega_6^2\omega_3^3v_2^2\omega_4^2 + \omega_2^2\omega_6\omega_3^3\omega_4^2c_s^2 + 6\omega_6^3\omega_6^2\omega_3\omega_4^2c_s^2 - 2\omega_2^3\omega_6\omega_3^2\omega_4^2c_s^2 - 7\omega_2^3\omega_6^2\omega_3v_2^2\omega_4^3 + \omega_2^3\omega_3^3\omega_4^3c_s^2 + 6\omega_2^2\omega_6^2\omega_3^2\omega_4^3c_s^2 + 2\omega_2^3\omega_6^2v_2^2\omega_4^3 - 10\omega_2^2\omega_6^2\omega_3^2v_2^2\omega_4^3 - \omega_2^3\omega_3^3v_2^2\omega_4^3 - 2\omega_2^3\omega_6^2\omega_3^3c_s^2$$

$$C_{43} = 12\omega_6\omega_3^3\omega_4^2c_s^2 + 12\omega_6^2\omega_3^3v_2^2 + 24\omega_6^2\omega_3^2v_2^2\omega_4 - 12\omega_6\omega_3\omega_4^3c_s^2 + 48\omega_6^2\omega_3^2\omega_4^2c_s^2 + 12\omega_6\omega_3v_2^2\omega_4^3 + 12\omega_6\omega_3^3v_2^2\omega_4^3 - 36\omega_6^2\omega_3^2v_2^2\omega_4^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 6\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_3^3c_s^2 - 32\omega_6^2\omega_3^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 - 12\omega_6\omega_3^3v_2^2\omega_4^2 + 16\omega_6^2\omega_3^2v_2^2\omega_4^3 - 30\omega_6^2\omega_3^3v_2^2\omega_4 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 24\omega_6\omega_3^2\omega_4^2c_s^2 - 6\omega_6^2\omega_3v_2^2\omega_4^3 + 36\omega_6^2\omega_3\omega_4^3c_s^2 + 4\omega_6^2\omega_3^3\omega_4^3c_s^2 - 5\omega_6^2\omega_3^3v_2^2\omega_4^3 + 24\omega_6\omega_3^2v_2^2\omega_4^2 - 12\omega_6^2\omega_3^2\omega_4c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 12\omega_3^2v_2^2\omega_4^3 + 24\omega_6^2\omega_3^3v_2^2\omega_4^2 - 36\omega_6\omega_3^2v_2^2\omega_4^3 - 24\omega_6^2\omega_3\omega_4^2c_s^2 + 36\omega_6\omega_3^2\omega_4^3c_s^2$$

$$C_{44} = 24\omega_2^3\omega_3^3\omega_4^2 + 6\omega_2\omega_3^3\omega_4^3 + 18\omega_2^2\omega_3\omega_4^3 + 6\omega_3^2\omega_4^2\omega_4 - 5\omega_3^2\omega_3^3\omega_4^3 + 12\omega_3^2\omega_3^3 - 30\omega_2\omega_3^3\omega_4^3 - 30\omega_3^2\omega_4^2\omega_4^2 - 30\omega_3^2\omega_3^3\omega_4 + 28\omega_3^2\omega_4^2\omega_4^3 + 18\omega_2\omega_3^3\omega_4^2 - 36\omega_3^2\omega_3\omega_4^3 + 24\omega_2^2\omega_3^3\omega_4^3 + 12\omega_3^2\omega_4^3 - 42\omega_2^2\omega_3^2\omega_4^2 + 18\omega_3^2\omega_3\omega_4^2 - 30\omega_2^2\omega_4^2\omega_4^3 + 18\omega_2^2\omega_3^2\omega_4 + 12\omega_3^2\omega_4^3 + 12\omega_2^2\omega_3^2\omega_4^2$$

$$C_{45} = -36\omega_2^3\omega_6\omega_3^2v_2^2 + 48\omega_2^2\omega_6^2\omega_3^2c_s^2 + 6\omega_2^3\omega_3^3c_s^2 - 12\omega_2^3\omega_6^2c_s^2 - 6\omega_2^3\omega_6^2\omega_3v_2^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_2^2\omega_6\omega_3^3v_2^2 + 24\omega_2\omega_6^2\omega_3^3v_2^2 + 4\omega_2^3\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_6\omega_3c_s^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^3c_s^2 + 12\omega_2^3\omega_6\omega_3^3v_2^2 - 30\omega_2\omega_6^2\omega_3^3v_2^2 - 32\omega_2^3\omega_6^2\omega_3^2c_s^2 + 24\omega_2^2\omega_6\omega_3^2v_2^2 + 36\omega_2^3\omega_6^2\omega_3c_s^2 - 12\omega_2\omega_6^2\omega_3^2c_s^2 - 5\omega_2^3\omega_6^2\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 - 36\omega_2^2\omega_6^2\omega_3^2v_2^2 - 6\omega_2^3\omega_3^3v_2^2 + 36\omega_2^3\omega_6\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2c_s^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 + 16\omega_2^3\omega_6^2\omega_3^2v_2^2 + 12\omega_2^3\omega_6\omega_3v_2^2 - 24\omega_2^2\omega_6^2\omega_3c_s^2 - 12\omega_2^3\omega_6\omega_3^3c_s^2 + 24\omega_2^2\omega_6^2\omega_3^3v_2^2 + 12\omega_2^3\omega_3^3v_2^2$$

$$C_{46} = -6\omega_6^2\omega_3\omega_4^3 + 12\omega_6\omega_3^3\omega_4^2c_s^2 + 6\omega_6\omega_3^2\omega_4^2 + 6\omega_6^2\omega_3^3v_2^2 + 6\omega_6^2\omega_3^2v_2^2\omega_4 - 24\omega_6\omega_3\omega_4^3c_s^2 + 36\omega_6^2\omega_3^2\omega_4^2c_s^2 - 21\omega_6\omega_3^2\omega_4^3 - 24\omega_6\omega_3v_2^2\omega_4^3 - 6\omega_6^2\omega_3^2v_2^2\omega_4^2 - 3\omega_6\omega_3^3\omega_4^2 - 24\omega_6\omega_3^3\omega_4^3c_s^2 + 18\omega_3^3\omega_4^3c_s^2 - 6\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_4^3c_s^2 + 6\omega_6\omega_3^3\omega_4^3 - 36\omega_6^2\omega_3^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 - 6\omega_6^2\omega_3^2v_2^2\omega_4^3 + \omega_6^2\omega_3^3\omega_4^2 - 12\omega_6^2\omega_3^3v_2^2\omega_4 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 24\omega_6\omega_3^2\omega_4^2c_s^2 + 12\omega_6^2\omega_3v_2^2\omega_4^3 - \omega_6^2\omega_3^3\omega_4^3 + 36\omega_6^2\omega_3\omega_4^3c_s^2 + 6\omega_3^2\omega_4^3 + 6\omega_6^2\omega_3^3\omega_4^3c_s^2 - 3\omega_6^2\omega_3^2\omega_4^2 + 12\omega_6\omega_3\omega_4^3 - 12\omega_6^2\omega_3^2\omega_4c_s^2 - 36\omega_3^2\omega_4^3c_s^2 + 12\omega_3^2v_2^2\omega_4^3 - 3\omega_3^3\omega_4^3 + 6\omega_6^2\omega_3^3v_2^2\omega_4^2 + 12\omega_6\omega_3^2v_2^2\omega_4^3 - 12\omega_6^2\omega_3\omega_4^2c_s^2 + 7\omega_6^2\omega_3^2\omega_4^3 + 72\omega_6\omega_3^2\omega_4^3c_s^2$$

$$C_{47} = 12\omega_6\omega_3^3\omega_4^2c_s^2 + 12\omega_6\omega_3^2\omega_4^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3\omega_4^3c_s^2 + 48\omega_6^2\omega_3^2\omega_4^2c_s^2 - 6\omega_6\omega_3^3\omega_4^3 + 12\omega_6\omega_3v_2^2\omega_4^3 + 12\omega_6^2\omega_3^3v_2^2\omega_4^2 - 6\omega_6\omega_3^3\omega_4^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 24\omega_6^2v_2^2\omega_4^3 - 6\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_4^3c_s^2 + 3\omega_6\omega_3^3\omega_4^3 - 32\omega_6^2\omega_3^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 + 12\omega_6\omega_3^3v_2^2\omega_4^2 - 12\omega_6^2\omega_3^3v_2^2\omega_4^3 + 2\omega_6^2\omega_3^3\omega_4^2 - 18\omega_6^2\omega_3^3v_2^2\omega_4 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 24\omega_6\omega_3^2\omega_4^2c_s^2 + 30\omega_6^2\omega_3v_2^2\omega_4^3 - \omega_6^2\omega_3^3\omega_4^3 + 36\omega_6^2\omega_3\omega_4^3c_s^2 + 4\omega_6^2\omega_3^3\omega_4^3c_s^2 - 6\omega_6^2\omega_3^2\omega_4^2 + 3\omega_6^2\omega_3^3v_2^2\omega_4^3 - 24\omega_6\omega_3^2v_2^2\omega_4^2 - 12\omega_6^2\omega_3^2\omega_4c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 12\omega_3^2v_2^2\omega_4^3 - 12\omega_6\omega_3^2v_2^2\omega_4^3 - 24\omega_6^2\omega_3\omega_4^2c_s^2 + 36\omega_3^2\omega_4^3c_s^2$$

$$C_{48} = -\omega_6^2\omega_3^3 + 96\omega_6\omega_3^2c_s^2 + 11\omega_6^2\omega_3^2 + 18\omega_6^2\omega_3c_s^2 + 12\omega_3^2v_2^2 + \omega_6^2\omega_3^3v_2^2 - 60\omega_6\omega_3v_2^2 - 12\omega_6^2\omega_3 - 30\omega_6\omega_3^3c_s^2 - 14\omega_6^2\omega_3^2v_2^2 - 6\omega_3^3v_2^2 + 12\omega_6^2v_2^2 - 60\omega_3^2c_s^2 + 12\omega_6^2\omega_3v_2^2 + 4\omega_6^2\omega_3^3c_s^2 + 48\omega_6\omega_3^2v_2^2 + 24\omega_6\omega_3 - 36\omega_6\omega_3^2 - 26\omega_6^2\omega_3^2c_s^2 + 12\omega_3^2 + 30\omega_3^3c_s^2 - 6\omega_3^3 - 36\omega_6\omega_3c_s^2 + 9\omega_6\omega_3^3 - 6\omega_6\omega_3^3v_2^2$$

$$C_{49} = -30\omega_2\omega_7\omega_4^2c_s^2 - 6\omega_7\omega_4^3c_s^2 + 8\omega_2v_3^2\omega_7^2\omega_4^2 - 30\omega_2\omega_7^2\omega_4c_s^2 + \omega_2v_3^2\omega_7^2\omega_4^3 + 12v_3^2\omega_7^2\omega_4 + 12\omega_2\omega_7^2c_s^2 - 6v_3^2\omega_7^2\omega_4^2 + 12\omega_7\omega_4^2c_s^2 + 9\omega_2\omega_7\omega_4^3c_s^2 - v_3^2\omega_7^2\omega_4^3 - 36\omega_2v_3^2\omega_7^2\omega_4 + 12\omega_7^2\omega_4c_s^2 + 6\omega_2v_3^2\omega_4^3 + 6v_3^2\omega_7\omega_4^3 - 12\omega_2v_3^2\omega_7\omega_4 - 2\omega_2\omega_7^2\omega_4^3c_s^2 - 18\omega_7^2\omega_4^2c_s^2 - 12v_3^2\omega_7\omega_4^2 - 12\omega_2v_3^2\omega_4^2 - 6\omega_2\omega_4^3c_s^2 + 24\omega_2v_3^2\omega_7^2 + 3\omega_7^2\omega_4^3c_s^2 + 22\omega_2\omega_7^2\omega_4^2c_s^2 - 9\omega_2v_3^2\omega_7\omega_4^3 + 12\omega_2\omega_7\omega_4c_s^2 + 12\omega_2\omega_4^2c_s^2 + 30\omega_2v_3^2\omega_7\omega_4^2$$

$$C_{50} = 4\omega_5^2v_1^2v_3^2\omega_7^2\omega_4^3 + 2\omega_5^2v_3^2\omega_7^2\omega_4^3c_s^2 - 3\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2\omega_4^3 + 10\omega_5^2\omega_3^2v_1^2\omega_7^2\omega_4c_s^2 + 2\omega_5\omega_3^2v_1^2\omega_7^2\omega_4^3c_s^2 - 3\omega_5\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_5^2\omega_3^2\omega_7\omega_4^2c_s^4 + 4\omega_5^2\omega_2^2v_1^2v_3^2\omega_7\omega_4^2 + 14\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2\omega_4^2 + 4\omega_5^2\omega_2\omega_7^2\omega_4^2c_s^4 - 4\omega_5^2\omega_3^2v_1^2\omega_7^2c_s^2 - 2\omega_5^2\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 + 8\omega_5^2\omega_2^2v_1^2\omega_7^2\omega_4^2c_s^2 - 2\omega_5^2\omega_2^2\omega_7\omega_4^3c_s^4 - 2\omega_5^2\omega_2^2v_1^2v_3^2\omega_7\omega_4^3 - 2\omega_5^2\omega_3^2\omega_7^2\omega_4c_s^4 + 10\omega_5^2\omega_3^2v_1^2\omega_7\omega_4^2c_s^2 - 4\omega_5^2\omega_2^2v_3^2\omega_7\omega_4^2c_s^2 + \omega_5^2\omega_3^2\omega_7\omega_4^3c_s^4 - 2\omega_5\omega_3^2v_1^2v_3^2\omega_7^2\omega_4^2 - 4\omega_5\omega_2^2v_1^2\omega_7^2\omega_4^2c_s^2 + 2\omega_5\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 - 14\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2\omega_4 + 4\omega_5^2\omega_2^2\omega_7^2\omega_4c_s^4 - 3\omega_5^2\omega_3^2v_1^2\omega_7\omega_4^3c_s^2 + 2\omega_5^2\omega_2^2v_3^2\omega_7\omega_4^3c_s^2 + 3\omega_5\omega_3^2v_1^2v_3^2\omega_7^2\omega_4^3 + \omega_5^2\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_5^2\omega_2^2\omega_7\omega_4^2c_s^4 - 2\omega_5^2\omega_2^2v_1^2\omega_7^2\omega_4^3c_s^2 - 2\omega_5^2v_1^2v_3^2\omega_7^2\omega_4^3 + 4\omega_5\omega_2^2v_1^2v_3^2\omega_7^2\omega_4^3 + 12\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2\omega_4 + 4\omega_5\omega_2^2\omega_7^2\omega_4^2c_s^4 - \omega_5^2\omega_3^2\omega_7^2\omega_4^3c_s^4 + 2\omega_5\omega_2^2v_1^2\omega_7^2\omega_4^2c_s^2 - 4\omega_5\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2 + 10\omega_5^2\omega_2\omega_7^2\omega_4^3c_s^2 - 2\omega_5^2\omega_3^2v_1^2v_3^2\omega_4^3 + 4\omega_5\omega_2^2v_1^2v_3^2\omega_7^2\omega_4^2 - 8\omega_5^2\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2 + 2\omega_5^2\omega_3^2v_1^2\omega_4^3c_s^2 + 4\omega_5^2v_1^2v_3^2\omega_7^2\omega_4^3 + \omega_5^2\omega_3^2v_1^2\omega_7^2\omega_4^3c_s^2 + 4\omega_5^2\omega_3^2v_1^2v_3^2\omega_4^2 - 10\omega_5\omega_2^2v_1^2v_3^2\omega_7^2\omega_4^3 + 4\omega_5^2\omega_3^2v_1^2v_3^2\omega_7\omega_4 - 12\omega_5^2\omega_2^2\omega_7^2\omega_4^2c_s^4 + 2\omega_5^2\omega_2^2v_1^2\omega_7\omega_4^3c_s^2 + \omega_5\omega_3^2\omega_7^2\omega_4^3c_s^4 - \omega_5^2\omega_3^2v_3^2\omega_7\omega_4^3c_s^2 - 4\omega_5^2\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2 - 10\omega_5^2\omega_3^2v_1^2v_3^2\omega_7\omega_4^2 - \omega_5\omega_3^2v_1^2\omega_7^2\omega_4^3c_s^2 + 12\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2\omega_4^2 - 4\omega_5^2\omega_2^2v_1^2\omega_7\omega_4c_s^2 + 10\omega_5\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_5\omega_2^2\omega_7^2\omega_4^3c_s^4 - 4\omega_5^2v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_5^2\omega_3^2\omega_7^2\omega_4^2c_s^4 + 14\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2\omega_4^3 + 4\omega_5^2\omega_3^2v_1^2v_3^2\omega_7^2 - 4\omega_5^2\omega_3^2v_1^2\omega_7\omega_4c_s^2 - 4\omega_5^2\omega_2^2v_1^2\omega_7\omega_4^2c_s^2 + 4\omega_5^2\omega_2^2\omega_7^2\omega_4^3c_s^4 - 14\omega_5^2\omega_2v_1^2v_3^2\omega_7^2\omega_4^3 + 2\omega_5^2\omega_3^2v_3^2\omega_7\omega_4^2c_s^2 - 2\omega_5\omega_3^2\omega_7^2\omega_4^2c_s^4 + 3\omega_5^2\omega_3^2v_1^2v_3^2\omega_7\omega_4^3 - 4\omega_5^2\omega_3^2v_1^2\omega_4^2c_s^2 + 8\omega_5^2\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2 - 8\omega_5^2\omega_3^2v_1^2\omega_7^2\omega_4^2c_s^2 - 28\omega_5^2\omega_2^2v_1^2v_3^2\omega_7^2\omega_4^2 - 4\omega_5\omega_2v_3^2\omega_7^2\omega_4^3c_s^2$$

$$C_{51} = -24\omega_2^3v_3^2\omega_7\omega_4^2 - 6\omega_2^2\omega_7^2\omega_4^3c_s^2 - 12\omega_2^3\omega_7\omega_4c_s^2 + 24\omega_2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3v_3^2\omega_7\omega_4^3 - 30\omega_2v_3^2\omega_7^2\omega_4^3 - 14\omega_2^3\omega_7^2\omega_4^2c_s^2 - 12\omega_2^3\omega_7^2c_s^2 + 12\omega_2^2\omega_7^2\omega_4^2c_s^2 + \omega_2^3\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 + 12\omega_2^3v_3^2\omega_7\omega_4 - 48\omega_2^2v_3^2\omega_7^2\omega_4^2 - 12\omega_2^3\omega_4^2c_s^2 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 18\omega_2^3v_3^2\omega_7^2\omega_4 - 6\omega_2^3\omega_7\omega_4^3c_s^2 + 22\omega_2^2v_3^2\omega_7^2\omega_4^3 - 4\omega_2^3v_3^2\omega_7^2\omega_4^3 + 6\omega_2^3\omega_4^3c_s^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 12\omega_2^3v_3^2\omega_4^3 + 24\omega_2^3\omega_7^2\omega_4c_s^2 + 22\omega_2^3v_3^2\omega_7^2\omega_4^2 + 24\omega_2^2v_3^2\omega_7^2\omega_4 + 24\omega_2^3\omega_7\omega_4^2c_s^2 - 6\omega_2^3v_3^2\omega_4^3$$

$$C_{52} = -48\omega_5^2\omega_2^2v_1^2\omega_4^2 - 6\omega_5^2\omega_2^3\omega_4^2c_s^2 + 6\omega_5\omega_2^3v_1^2\omega_4^3 - 6\omega_2^3v_1^2\omega_4^3 + 12\omega_5^2\omega_2^3v_1^2 + 22\omega_5^2\omega_2^2v_1^2\omega_4^3 + 24\omega_5^2\omega_2\omega_4^3c_s^2 + \omega_5^2\omega_2^3\omega_4^3c_s^2 - 12\omega_5^2\omega_2^2\omega_4c_s^2 + 12\omega_5\omega_2v_1^2\omega_4^3 + 24\omega_5^2\omega_2^2v_1^2\omega_4 - 12\omega_2^2\omega_4^3c_s^2 + 24\omega_5\omega_2^2\omega_4^3c_s^2 - 4\omega_5^2\omega_2^3v_1^2\omega_4^3 - 12\omega_5\omega_2\omega_4^3c_s^2 + 12\omega_2^2v_1^2\omega_4^3 - 24\omega_5\omega_2^2v_1^2\omega_4^3 + 12\omega_5^2\omega_2^2\omega_4^2c_s^2 + 22\omega_5^2\omega_2^3v_1^2\omega_4^2 + 24\omega_5^2\omega_2v_1^2\omega_4^2 - 6\omega_5\omega_2^3\omega_4^3c_s^2 + 6\omega_2^3\omega_4^3c_s^2 - 30\omega_5^2\omega_2^3v_1^2\omega_4 - 12\omega_5^2\omega_4^3c_s^2 - 14\omega_5^2\omega_2^2\omega_4^3c_s^2 - 18\omega_5^2\omega_2v_1^2\omega_4^3 + 6\omega_5^2\omega_2^3\omega_4c_s^2$$

$$C_{53} = \omega_3v_3^2\omega_7^2\omega_4^3 - 6\omega_7\omega_4^3c_s^2 - 30\omega_3\omega_7^2\omega_4c_s^2 + 6\omega_3v_3^2\omega_4^3 + 8\omega_3v_3^2\omega_7^2\omega_4^2 - 6\omega_3\omega_4^3c_s^2 - 30\omega_3\omega_7\omega_4^2c_s^2 - 12\omega_3v_3^2\omega_4^2 + 12v_3^2\omega_7^2\omega_4 - 6v_3^2\omega_7^2\omega_4^2 + 12\omega_7\omega_4^2c_s^2 - 36\omega_3v_3^2\omega_7^2\omega_4 + 24\omega_3v_3^2\omega_7^2 - v_3^2\omega_7^2\omega_4^3 + 9\omega_3\omega_7\omega_4^3c_s^2 + 12\omega_3\omega_4^2c_s^2 + 12\omega_7^2\omega_4c_s^2 + 6v_3^2\omega_7\omega_4^3 - 18\omega_7^2\omega_4^2c_s^2 + 12\omega_3\omega_7^2c_s^2 - 2\omega_3\omega_7^2\omega_4^3c_s^2 - 12v_3^2\omega_7\omega_4^2 - 12\omega_3v_3^2\omega_7\omega_4 + 3\omega_7^2\omega_4^3c_s^2 + 30\omega_3v_3^2\omega_7\omega_4^2 + 12\omega_3\omega_7\omega_4c_s^2 - 9\omega_3v_3^2\omega_7\omega_4^3 + 22\omega_3\omega_7^2\omega_4^2c_s^2$$

$$
C_{54} = 2\omega_2^3\omega_3^3v_3^2\omega_7\omega_4 - 8\omega_2^2\omega_3^2v_3^2\omega_7^2\omega_4^3 + \omega_2^2\omega_3^3\omega_7\omega_4^3c_s^2 + \omega_2^3\omega_3^3\omega_7^2\omega_4^3c_s^2 + 2\omega_2^3\omega_3^2v_3^2\omega_7\omega_4^2 + 4\omega_2^2\omega_3^2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3\omega_3^2\omega_7^2\omega_4^2c_s^2 - \omega_2^3\omega_3^2v_3^2\omega_7\omega_4^3 +
3\omega_2\omega_3^2v_3^2\omega_7^2\omega_4^3 + 3\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4 - 6\omega_2^3\omega_3^3\omega_7^2\omega_4^2c_s^2 - 8\omega_2^3\omega_3v_3^2\omega_7^2\omega_4^3 - 10\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 8\omega_2\omega_3^3v_3^2\omega_7^2\omega_4^3 - 2\omega_2^2\omega_3^3\omega_7\omega_4^2c_s^2 + 2\omega_2^3\omega_3^3v_3^2\omega_7\omega_4^3 +
4\omega_2^3\omega_3v_3^2\omega_7^2\omega_4^2 + 7\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^3 - 2\omega_2^3\omega_3^3\omega_7\omega_4c_s^2 - 6\omega_2^3\omega_3^3v_3^2\omega_7\omega_4^2 - 2\omega_2^3\omega_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 2\omega_2^3\omega_3^3\omega_7^2c_s^2 - 2\omega_2^2\omega_3^3\omega_7^2\omega_4c_s^2 +
2\omega_2^3\omega_3^3v_3^2\omega_7^2 - \omega_2^2\omega_3^3v_3^2\omega_7\omega_4^3 + 3\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4 + 6\omega_2^2\omega_3^3\omega_7\omega_4^2c_s^2 + 8\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^2 + 3\omega_2^2\omega_3v_3^2\omega_7^2\omega_4^3 + 6\omega_2^2\omega_3^3\omega_7^2\omega_4^2c_s^2 + 6\omega_2^3\omega_3^3\omega_7^2\omega_4c_s^2 +
2\omega_2^2\omega_3^3v_3^2\omega_7\omega_4^2 - 2\omega_2\omega_3^3\omega_7^2\omega_4^2c_s^2 - 2\omega_2^3\omega_3^3\omega_4^2c_s^2 + \omega_2^2\omega_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_2^3\omega_3\omega_7^2\omega_4^2c_s^2 - 2\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^3 + \omega_2^3\omega_3^2\omega_7\omega_4^3c_s^2 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3 -
2\omega_2^2\omega_3^3\omega_7^2\omega_4^3c_s^2 - \omega_2^3\omega_3^3v_3^2\omega_4^3 - 2\omega_2^3\omega_3^2\omega_7^2\omega_4c_s^2 - 2\omega_2^3\omega_3^3\omega_7\omega_4^3c_s^2 + 7\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4^3 - 2\omega_2^3\omega_3^2\omega_7\omega_4^2c_s^2 - 7\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4 + 2\omega_2^3\omega_3^3v_3^2\omega_4^2 +
\omega_2^3\omega_3\omega_7^2\omega_4^3c_s^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2 + 3\omega_3^3v_3^2\omega_7^2\omega_4^3 + \omega_2\omega_3^3\omega_7^2\omega_4^3c_s^2 - 2\omega_2^2\omega_3^2\omega_7^2\omega_4^2c_s^2 - 10\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4^2
$$

$$
C_{55} = -30\omega_3v_3^2\omega_7^2\omega_4^3 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 + 12\omega_3^3v_3^2\omega_7\omega_4^3 - 12\omega_3^3\omega_7\omega_4c_s^2 + 24\omega_3v_3^2\omega_7^2\omega_4^2 - 36\omega_3^3v_3^2\omega_7\omega_4^2 - 12\omega_3^2\omega_7^2\omega_4^3c_s^2 +
12\omega_3^3v_3^2\omega_7\omega_4 + 12\omega_3^3v_3^2\omega_4^2 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 + 24\omega_3^2v_3^2\omega_7\omega_4^2 - 6\omega_3^3v_3^2\omega_4^3 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 + 12v_3^2\omega_7^2\omega_4^3 - 12\omega_3^2v_3^2\omega_7\omega_4^3 - 24\omega_3^2\omega_7^2\omega_4c_s^2 -
12\omega_3^3\omega_7\omega_4^3c_s^2 + 24\omega_3^2v_3^2\omega_7^2\omega_4^3 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^2\omega_7\omega_4^2c_s^2 - 6\omega_3^3v_3^2\omega_7^2\omega_4 - 36\omega_3^2v_3^2\omega_7^2\omega_4^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2 - 12\omega_3^3\omega_7^2c_s^2 + 16\omega_3^3v_3^2\omega_7^2\omega_4^2 +
36\omega_3^3\omega_7^2\omega_4c_s^2 - 5\omega_3^3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2
$$

$$
C_{56} = -36\omega_2^3v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 - 12\omega_2^3\omega_7\omega_4c_s^2 + 24\omega_2v_3^2\omega_7^2\omega_4^2 + 12\omega_2^3v_3^2\omega_7\omega_4^3 - 30\omega_2v_3^2\omega_7^2\omega_4^3 - 32\omega_2^3\omega_7^2\omega_4^2c_s^2 - 12\omega_2^3\omega_7^2c_s^2 -
12\omega_2^2v_3^2\omega_7\omega_4^3 + 48\omega_2^2\omega_7^2\omega_4^2c_s^2 + 4\omega_2^3\omega_7^2\omega_4^3c_s^2 + 24\omega_2^2v_3^2\omega_7\omega_4^2 + 12v_3^2\omega_7^2\omega_4^3 + 12\omega_2^3v_3^2\omega_7\omega_4 - 36\omega_2^2v_3^2\omega_7^2\omega_4^2 - 12\omega_2^3\omega_4^2c_s^2 + 6\omega_2\omega_7^2\omega_4^3c_s^2 -
24\omega_2^2\omega_7\omega_4^2c_s^2 - 6\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7\omega_4^3c_s^2 + 24\omega_2^2v_3^2\omega_7^2\omega_4^3 - 24\omega_2^2\omega_7^2\omega_4c_s^2 - 5\omega_2^3v_3^2\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7\omega_4^3c_s^2 + 6\omega_2^3\omega_4^3c_s^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 +
12\omega_2^3v_3^2\omega_4^2 + 36\omega_2^3\omega_7^2\omega_4c_s^2 + 16\omega_2^3v_3^2\omega_7^2\omega_4^2 + 36\omega_2^3\omega_7\omega_4^2c_s^2 - 6\omega_2^3v_3^2\omega_4^3
$$

$$
C_{57} = 28\omega_2^3\omega_3^3\omega_4^2 + 18\omega_2\omega_3^2\omega_4^3 + 18\omega_2^2\omega_3\omega_4^3 + 18\omega_2^3\omega_3^2\omega_4 - 5\omega_2^3\omega_3^3\omega_4^3 + 12\omega_2^3\omega_3^3 - 30\omega_2\omega_3^3\omega_4^3 - 30\omega_2^3\omega_3^2\omega_4^2 - 36\omega_2^3\omega_3^3\omega_4 + 24\omega_2^3\omega_3^2\omega_4^3 +
6\omega_2\omega_3^3\omega_4^2 - 30\omega_2^3\omega_3\omega_4^3 + 24\omega_2^2\omega_3^3\omega_4^3 + 12\omega_2^3\omega_4^3 - 30\omega_2^2\omega_3^3\omega_4^2 + 6\omega_2^3\omega_3\omega_4^2 - 42\omega_2^2\omega_3^2\omega_4^3 + 18\omega_2^2\omega_3^3\omega_4 + 12\omega_3^3\omega_4^3 + 12\omega_2^2\omega_3^2\omega_4^2
$$

$$
C_{58} = 10\omega_6^2\omega_3^3v_2^2\omega_7\omega_4^2c_s^2 + 4\omega_6^2\omega_3^3v_3^2v_2^2\omega_7^2 - 3\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_6^2\omega_3^3v_3^2v_2^2\omega_7\omega_4 - 10\omega_6\omega_3^2v_3^2v_2^2\omega_7^2\omega_4^3 - 2\omega_6^2\omega_3^3\omega_7\omega_4^2c_s^4 + 8\omega_6^2\omega_3^2v_2^2\omega_7^2\omega_4^2c_s^2 -
2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^4 - 4\omega_6^2\omega_3^2v_3^2\omega_7\omega_4^2c_s^2 + 4\omega_6\omega_3^3v_3^2v_2^2\omega_7^2\omega_4^2 + 2\omega_6\omega_3^3v_2^2\omega_7^2\omega_4^3c_s^2 + 10\omega_6^2\omega_3^3v_2^2\omega_7^2\omega_4c_s^2 + 4\omega_6^2\omega_3\omega_7^2\omega_4^2c_s^4 + 12\omega_6^2\omega_3^2v_3^2v_2^2\omega_7^2\omega_4 -
2\omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 + 2\omega_6^2\omega_3^3v_2^2\omega_4^3c_s^2 + 4\omega_6\omega_3v_3^2v_2^2\omega_7^2\omega_4^3 - 2\omega_6^2\omega_3^3\omega_7^2\omega_4c_s^4 - 4\omega_6^2v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_6^2\omega_3^3v_3^2v_2^2\omega_4^3 - 28\omega_6^2\omega_3^2v_3^2v_2^2\omega_7^2\omega_4^2 + \omega_6^2\omega_3^3\omega_7\omega_4^3c_s^4 -
2\omega_6^2\omega_3^2v_2^2\omega_7^2\omega_4^3c_s^2 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4c_s^4 + 2\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 + 3\omega_6^2\omega_3^3v_3^2v_2^2\omega_7\omega_4^3 - 14\omega_6^2\omega_3v_3^2v_2^2\omega_7^2\omega_4^3 - 3\omega_6^2\omega_3^3v_2^2\omega_7\omega_4^3c_s^2 + 4\omega_3^2v_3^2v_2^2\omega_7^2\omega_4^3 +
14\omega_6^2\omega_3^2v_3^2v_2^2\omega_7^2\omega_4^3 - 4\omega_6^2\omega_3^3v_2^2\omega_4^2c_s^2 + 2\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 + \omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_6^2\omega_3^3v_3^2v_2^2\omega_4^2 - 4\omega_6\omega_3^2v_2^2\omega_7^2\omega_4^2c_s^2 + 12\omega_6^2\omega_3v_3^2v_2^2\omega_7^2\omega_4^2 - 2\omega_6^2\omega_3\omega_7^2\omega_4^3c_s^4 +
2\omega_6^2\omega_3^2v_3^2\omega_7\omega_4^3c_s^2 - 10\omega_6^2\omega_3^3v_3^2v_2^2\omega_7\omega_4^2 + 4\omega_6^2\omega_3^2\omega_7\omega_4^2c_s^4 + 2\omega_6^2\omega_3^3v_2^2\omega_7\omega_4^3c_s^2 - \omega_6^2\omega_3^3\omega_7^2\omega_4^3c_s^4 + 10\omega_6^2\omega_3v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^4 - 4\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 -
2\omega_6^2\omega_3^2v_3^2v_2^2\omega_7\omega_4^3 + \omega_6^2\omega_3^3v_2^2\omega_7^2\omega_4^3c_s^2 + 4\omega_6^2v_3^2v_2^2\omega_7^2\omega_4^3 + 14\omega_6^2\omega_3^3v_3^2v_2^2\omega_7^2\omega_4^2 + 4\omega_6^2\omega_3^2v_3^2v_2^2\omega_7\omega_4^2 - \omega_6^2\omega_3^3v_3^2\omega_7\omega_4^3c_s^2 + 2\omega_6\omega_3^3v_2^2\omega_7^2\omega_4^2c_s^2 - 2\omega_3^3v_3^2v_2^2\omega_7^2\omega_4^3 -
3\omega_6^2\omega_3^3v_3^2v_2^2\omega_7^2\omega_4^3 + \omega_6\omega_3^3\omega_7^2\omega_4^3c_s^4 - 4\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 8\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 12\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^4 - 4\omega_6^2\omega_3^3v_2^2\omega_7^2c_s^2 - 8\omega_6^2\omega_3^3v_2^2\omega_7^2\omega_4^2c_s^2 + 10\omega_6\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 +
3\omega_6\omega_3^3v_3^2v_2^2\omega_7^2\omega_4^3 - 4\omega_6^2\omega_3^2v_2^2\omega_7\omega_4^2c_s^2 + 4\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^4 - 2\omega_6\omega_3^2\omega_7^2\omega_4^3c_s^4 - 4\omega_6^2\omega_3v_3^2\omega_7^2\omega_4^2c_s^2 - 4\omega_6\omega_3v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_6^2\omega_3^3v_2^2\omega_7\omega_4c_s^2 - 2\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^4 +
4\omega_6^2\omega_3^2\omega_7^2\omega_4^3c_s^4 + 8\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 - 14\omega_6^2\omega_3^3v_3^2v_2^2\omega_7^2\omega_4 - 4\omega_6^2\omega_3^2v_2^2\omega_7^2\omega_4c_s^2 - \omega_6\omega_3^3v_2^2\omega_7^2\omega_4^3c_s^2 - 2\omega_6\omega_3^3v_3^2v_2^2\omega_7^2\omega_4^2 + 2\omega_6^2\omega_3^3v_3^2\omega_7\omega_4^2c_s^2
$$

$$
C_{59} = -30\omega_3v_3^2\omega_7^2\omega_4^3 - 14\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 + 6\omega_3^3v_3^2\omega_7\omega_4^3 - 12\omega_3^3\omega_7\omega_4c_s^2 + 24\omega_3v_3^2\omega_7^2\omega_4^2 - 24\omega_3^3v_3^2\omega_7\omega_4^2 - 6\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12\omega_3^3v_3^2\omega_7\omega_4 +
12\omega_3^3v_3^2\omega_4^2 + \omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 6\omega_3^3v_3^2\omega_4^3 + 12\omega_3^2\omega_7^2\omega_4^2c_s^2 + 12v_3^2\omega_7^2\omega_4^3 - 6\omega_3^3\omega_7\omega_4^3c_s^2 + 22\omega_3^2v_3^2\omega_7^2\omega_4^3 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 18\omega_3^3v_3^2\omega_7^2\omega_4 -
48\omega_3^2v_3^2\omega_7^2\omega_4^2 + 24\omega_3^2v_3^2\omega_7\omega_4 + 24\omega_3^3\omega_7\omega_4^2c_s^2 - 12\omega_3^3\omega_7^2c_s^2 + 22\omega_3^3v_3^2\omega_7^2\omega_4^2 + 24\omega_3^3\omega_7^2\omega_4c_s^2 - 4\omega_3^3v_3^2\omega_7^2\omega_4^3 - 12\omega_3\omega_7^2\omega_4^2c_s^2
$$

$$
C_{60} = 12\omega_6^2\omega_3^3v_2^2 + 24\omega_6^2\omega_3^2v_2^2\omega_4 - 12\omega_6\omega_3\omega_4^3c_s^2 + 12\omega_6^2\omega_3^2\omega_4^2c_s^2 + 12\omega_6\omega_3v_2^2\omega_4^3 + 6\omega_6\omega_3^3v_2^2\omega_4^3 - 48\omega_6^2\omega_3^2v_2^2\omega_4^2 - 6\omega_6\omega_3^3\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 -
6\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_4^3c_s^2 - 14\omega_6^2\omega_3^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 + 22\omega_6^2\omega_3^3v_2^2\omega_4^3 - 30\omega_6^2\omega_3^3v_2^2\omega_4 + 24\omega_6^2\omega_3v_2^2\omega_4^2 - 6\omega_6^2\omega_3^3\omega_4^2c_s^2 - 18\omega_6^2\omega_3v_2^2\omega_4^3 +
24\omega_6^2\omega_3\omega_4^3c_s^2 + \omega_6^2\omega_3^3\omega_4^3c_s^2 - 4\omega_6^2\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_3^3\omega_4c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 12\omega_3^2v_2^2\omega_4^3 + 22\omega_6^2\omega_3^3v_2^2\omega_4^2 - 24\omega_6\omega_3^2v_2^2\omega_4^3 + 24\omega_6\omega_3^2\omega_4^3c_s^2
$$

$$
C_{61} = 6\omega_4^3 + 36v_3^2\omega_4^2 + 9\omega_7\omega_4^3c_s^2 - 24\omega_7\omega_4 - 6\omega_4^3c_s^2 - 18v_3^2\omega_4^3 - 12\omega_4^2 + 18v_3^2\omega_7^2\omega_4 - 9\omega_7\omega_4^3 + 12\omega_4^2c_s^2 + 15v_3^2\omega_7^2\omega_4^2 - 36\omega_7\omega_4^2c_s^2 - 3v_3^2\omega_7^2\omega_4^3 -
36v_3^2\omega_7^2 + 36\omega_7\omega_4^2 - 48\omega_7^2\omega_4c_s^2 + 27v_3^2\omega_7\omega_4^3 - 11\omega_7^2\omega_4^2 + 24\omega_7^2c_s^2 + 25\omega_7^2\omega_4^2c_s^2 + \omega_7^2\omega_4^3 - 108v_3^2\omega_7\omega_4^2 + 24\omega_7\omega_4c_s^2 - 2\omega_7^2\omega_4^3c_s^2 + 72v_3^2\omega_7\omega_4 + 12\omega_7^2\omega_4
$$

$$
C_{62} = 12\omega_2^3v_3^2\omega_7\omega_4^2 + 6\omega_2^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 - 24\omega_2^3\omega_7\omega_4c_s^2 + 6\omega_2v_3^2\omega_7^2\omega_4^2 - 3\omega_2^2\omega_7\omega_4^3 - 6\omega_2^3\omega_7^2\omega_4 - 12\omega_2v_3^2\omega_7^2\omega_4^3 - 36\omega_2^3\omega_7^2\omega_4^2c_s^2 -
12\omega_2^3\omega_7^2c_s^2 + 36\omega_2^2\omega_7^2\omega_4^2c_s^2 + 7\omega_2^3\omega_7^2\omega_4^2 + 6\omega_2^3\omega_7^2\omega_4^3c_s^2 + 6v_3^2\omega_7^2\omega_4^3 - \omega_2^3\omega_7^2\omega_4^3 - 24\omega_2^3v_3^2\omega_7\omega_4 - 6\omega_2^2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3\omega_4^2 + 6\omega_2^3\omega_7\omega_4^3 - 36\omega_2^3\omega_4^2c_s^2 +
6\omega_2\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2\omega_7\omega_4^2c_s^2 + 12\omega_2^3v_3^2\omega_7^2\omega_4 - 3\omega_2^3\omega_4^3 - 24\omega_2^3\omega_7\omega_4^3c_s^2 + 6\omega_2^2v_3^2\omega_7^2\omega_4^3 - 12\omega_2^2\omega_7^2\omega_4c_s^2 - 21\omega_2^3\omega_7\omega_4^2 + \omega_2^2\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7\omega_4^3c_s^2 +
18\omega_2^3\omega_4^3c_s^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 12\omega_2^3\omega_7\omega_4 + 12\omega_2^3v_3^2\omega_4^2 + 36\omega_2^3\omega_7^2\omega_4c_s^2 - 3\omega_2^2\omega_7^2\omega_4^2 - 6\omega_2^3v_3^2\omega_7^2\omega_4^2 + 72\omega_2^3\omega_7\omega_4^2c_s^2 - 6\omega_2^3v_3^2\omega_4^3
$$

$$
C_{63} = -6\omega_4^3 + 12v_3^2\omega_4^2 - 30\omega_7\omega_4^3c_s^2 + 24\omega_7\omega_4 + 30\omega_4^3c_s^2 - 6v_3^2\omega_4^3 + 12\omega_4^2 + 12v_3^2\omega_7^2\omega_4 + 9\omega_7\omega_4^3 - 60\omega_4^2c_s^2 - 14v_3^2\omega_7^2\omega_4^2 + 96\omega_7\omega_4^2c_s^2 + v_3^2\omega_7^2\omega_4^3 +
12v_3^2\omega_7^2 - 36\omega_7\omega_4^2 + 18\omega_7^2\omega_4c_s^2 - 6v_3^2\omega_7\omega_4^3 + 11\omega_7^2\omega_4^2 - 26\omega_7^2\omega_4^2c_s^2 - \omega_7^2\omega_4^3 + 48v_3^2\omega_7\omega_4^2 - 36\omega_7\omega_4c_s^2 + 4\omega_7^2\omega_4^3c_s^2 - 60v_3^2\omega_7\omega_4 - 12\omega_7^2\omega_4
$$

$$
C_{64} = -12\omega_2^3v_3^2\omega_7\omega_4^2 + 12\omega_2^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 - 12\omega_2^3\omega_7\omega_4c_s^2 - 6\omega_2^2\omega_7\omega_4^3 - 18\omega_2v_3^2\omega_7^2\omega_4^3 - 32\omega_2^3\omega_7^2\omega_4^2c_s^2 - 12\omega_2^3\omega_7^2c_s^2 + 12\omega_2^2v_3^2\omega_7\omega_4^3 +
48\omega_2^2\omega_7^2\omega_4^2c_s^2 + 3\omega_2^3\omega_7^2\omega_4^2 + 4\omega_2^3\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2v_3^2\omega_7\omega_4^2 + 12v_3^2\omega_7^2\omega_4^3 - \omega_2^3\omega_7^2\omega_4^3 + 12\omega_2^3v_3^2\omega_7\omega_4 + 12\omega_2^2v_3^2\omega_7^2\omega_4^2 + 3\omega_2^3\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2c_s^2 +
6\omega_2\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2\omega_7\omega_4^2c_s^2 + 30\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7\omega_4^3c_s^2 - 24\omega_2^2\omega_7^2\omega_4c_s^2 - 24\omega_2^3v_3^2\omega_7^2 - 6\omega_2^3\omega_7\omega_4^2 + 2\omega_2^2\omega_7^2\omega_4^3 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7\omega_4^3c_s^2 +
6\omega_2^3\omega_4^3c_s^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 12\omega_2^3v_3^2\omega_4^2 + 36\omega_2^3\omega_7^2\omega_4c_s^2 - 6\omega_2^2\omega_7^2\omega_4^2 - 12\omega_2^3v_3^2\omega_7^2\omega_4^2 + 36\omega_2^3\omega_7\omega_4^2c_s^2 - 6\omega_2^3v_3^2\omega_4^3
$$

$$
C_{65} = -12\omega_3v_3^2\omega_7^2\omega_4^3 + 6\omega_3^3\omega_7\omega_4^3 - 36\omega_3^3\omega_7^2\omega_4^2c_s^2 - 36\omega_3^3\omega_4^2c_s^2 - 24\omega_3^3\omega_7\omega_4c_s^2 - 21\omega_3^3\omega_7\omega_4^2 + 6\omega_3v_3^2\omega_7^2\omega_4^2 + 12\omega_3^3v_3^2\omega_7\omega_4^2 - 12\omega_3^2\omega_7^2\omega_4^3c_s^2 -
24\omega_3^3v_3^2\omega_7\omega_4 + 12\omega_3^3v_3^2\omega_4^2 + 6\omega_3^3\omega_7^2\omega_4^3c_s^2 + 18\omega_3^3\omega_4^3c_s^2 + 12\omega_3^3\omega_7\omega_4 + \omega_3^2\omega_7^2\omega_4^3 - 6\omega_3^3v_3^2\omega_4^3 + 36\omega_3^2\omega_7^2\omega_4^2c_s^2 + 6v_3^2\omega_7^2\omega_4^3 - 3\omega_3^2\omega_7^2\omega_4^2 -
12\omega_3^2\omega_7^2\omega_4c_s^2 + 6\omega_3^2\omega_7\omega_4^2 - 24\omega_3^3\omega_7\omega_4^3c_s^2 + 6\omega_3^2v_3^2\omega_7^2\omega_4^3 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 12\omega_3^3v_3^2\omega_7^2\omega_4 - 6\omega_3^3\omega_7^2\omega_4 - 6\omega_3^2v_3^2\omega_7^2\omega_4^2 - 3\omega_3^2\omega_7\omega_4^3 +
6\omega_3^3\omega_4^2 + 7\omega_3^3\omega_7^2\omega_4^2 + 72\omega_3^3\omega_7\omega_4^2c_s^2 - 12\omega_3^3\omega_7^2c_s^2 - 6\omega_3^3v_3^2\omega_7^2\omega_4^2 - 3\omega_3^3\omega_4^3 + 36\omega_3^3\omega_7^2\omega_4c_s^2 - \omega_3^3\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2
$$

$$
C_{66} = -6\omega_4^3 + 12v_3^2\omega_4^2 - 30\omega_7\omega_4^3c_s^2 + 24\omega_7\omega_4 + 30\omega_4^3c_s^2 - 6v_3^2\omega_4^3 + 12\omega_4^2 + 12v_3^2\omega_7^2\omega_4 + 9\omega_7\omega_4^3 - 60\omega_4^2c_s^2 - 14v_3^2\omega_7^2\omega_4^2 + 96\omega_7\omega_4^2c_s^2 + v_3^2\omega_7^2\omega_4^3 +
12v_3^2\omega_7^2 - 36\omega_7\omega_4^2 + 18\omega_7^2\omega_4c_s^2 - 6v_3^2\omega_7\omega_4^3 + 11\omega_7^2\omega_4^2 - 26\omega_7^2\omega_4^2c_s^2 - \omega_7^2\omega_4^3 + 48v_3^2\omega_7\omega_4^2 - 36\omega_7\omega_4c_s^2 + 4\omega_7^2\omega_4^3c_s^2 - 60v_3^2\omega_7\omega_4 - 12\omega_7^2\omega_4
$$

$$
C_{67} = -18\omega_3v_3^2\omega_7^2\omega_4^3 + 3\omega_3^3\omega_7\omega_4^3 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 - 24\omega_3^3v_3^2\omega_7^2 - 6\omega_3^3\omega_7\omega_4^2 - 12\omega_3^3v_3^2\omega_7\omega_4^2 - 12\omega_3^2\omega_7^2\omega_4^3c_s^2 +
12\omega_3^3v_3^2\omega_7\omega_4 + 12\omega_3^3v_3^2\omega_4^2 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 24\omega_3^2v_3^2\omega_7\omega_4^2 + 2\omega_3^2\omega_7^2\omega_4^3 - 6\omega_3^3v_3^2\omega_4^3 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 + 12v_3^2\omega_7^2\omega_4^3 - 6\omega_3^3\omega_7^2\omega_4^2 +
$$

$12\omega_3^2v_3^2\omega_7\omega_4^3 - 24\omega_3^2\omega_7^2\omega_4c_s^2 + 12\omega_3^2\omega_7\omega_4^2 - 12\omega_3^3\omega_7\omega_4^3c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 30\omega_3^3v_3^2\omega_7^2\omega_4 + 12\omega_3^2v_3^2\omega_7^2\omega_4^2 - 6\omega_3^2\omega_7\omega_4^3 + 3\omega_3^3\omega_7^2\omega_4^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3v_3^2\omega_7^2\omega_4^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 - \omega_3^3\omega_7^2\omega_4^3 + 3\omega_3^3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2$

$C_{68} = 72v_3^2\omega_4^2 - 6\omega_7\omega_4^3c_s^2 - 12v_3^4\omega_7^2\omega_4^2 - 3\omega_7^2\omega_4^3c_s^4 - 12v_3^2\omega_7^2\omega_4^2c_s^2 + 3v_3^4\omega_7^2\omega_4^3 - 36v_3^2\omega_4^3 + 72v_3^2\omega_7\omega_4c_s^2 + 6v_3^2\omega_7^2\omega_4^3c_s^2 + 24\omega_7^2c_s^4 + 12v_3^2\omega_7^2\omega_4^2 + 24\omega_7^2\omega_4^2c_s^4 + 24\omega_7\omega_4^2c_s^2 - 3v_3^2\omega_7^2\omega_4^3 + 24\omega_7\omega_4c_s^4 + 12\omega_7^2\omega_4c_s^2 + 30v_3^2\omega_7\omega_4^3 - 24\omega_7^2\omega_4^2c_s^4 - 216v_3^2\omega_4^2c_s^2 + 36v_3^4\omega_4^3 - 72v_3^2\omega_7\omega_4^3c_s^2 - 8\omega_7^2\omega_4^2c_s^2 - 72v_3^4\omega_4^2 - 48\omega_7^2\omega_4c_s^4 - 72v_3^2\omega_7\omega_4^2 - 24\omega_7\omega_4c_s^2 - 30v_3^4\omega_7\omega_4^3 + \omega_7^2\omega_4^3c_s^2 + 144v_3^2\omega_7^2\omega_4^2c_s^2 + 6\omega_7\omega_4^3c_s^4 + 108v_3^2\omega_4^3c_s^2 + 72v_3^4\omega_7\omega_4^2 - 36v_3^2\omega_7^2\omega_4c_s^2$

$C_{69} = -18\omega_4^3 - 84v_3^2\omega_4^2 - 24\omega_7\omega_4^3c_s^2 - 12\omega_7\omega_4 + 30\omega_4^3c_s^2 + 42v_3^2\omega_4^3 + 36\omega_4^2 - 12v_3^2\omega_7^2\omega_4 + 12\omega_7\omega_4^3 - 60\omega_4^2c_s^2 + 2v_3^2\omega_7^2\omega_4^2 + 72\omega_7\omega_4^2c_s^2 + 2v_3^2\omega_7^2\omega_4^3 - 12v_3^2\omega_7^2 - 24\omega_7\omega_4^2 - 30\omega_7^2\omega_4c_s^2 - 24v_3^2\omega_7\omega_4^3 + 2\omega_7^2\omega_4^2 + 24\omega_7^2c_s^2 - 2\omega_7^2\omega_4^2c_s^2 - \omega_7^2\omega_4^3 + 24v_3^2\omega_7\omega_4^2 - 12\omega_7\omega_4c_s^2 + \omega_7^2\omega_4^3c_s^2 + 60v_3^2\omega_7\omega_4 + 6\omega_7^2\omega_4$

3 Comparison of SRT, MRT, and CLBM

3.1 Conservation of mass equation

$$\frac{\partial\rho}{\partial t} + v_1\frac{\delta_l}{\delta_t}\frac{\partial\rho}{\partial x_1} + \rho\frac{\delta_l}{\delta_t}\frac{\partial v_1}{\partial x_1} + v_2\frac{\delta_l}{\delta_t}\frac{\partial\rho}{\partial x_2} + \rho\frac{\delta_l}{\delta_t}\frac{\partial v_2}{\partial x_2} + v_3\frac{\delta_l}{\delta_t}\frac{\partial\rho}{\partial x_3} + \rho\frac{\delta_l}{\delta_t}\frac{\partial v_3}{\partial x_3} + C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_tv_1}\delta_l\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial t} + C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_xv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_1}$$
$$+ C^{(0)}_{\mathrm{D}_xv_1,\mathrm{D}_xv_1}\frac{\delta_l^2}{\delta_t}\left(\frac{\partial v_1}{\partial x_1}\right)^2 + C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_yv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_2} + C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_yv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_2}{\partial x_2} + C^{(0)}_{\mathrm{D}_xv_1,\mathrm{D}_yv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2} +$$
$$C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_zv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_3} + C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_1}\frac{\partial v_3}{\partial x_3} + C^{(0)}_{\mathrm{D}_xv_1,\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial v_1}{\partial x_1}\frac{\partial v_3}{\partial x_3} + C^{(0)}_{\mathrm{D}_y\rho,\mathrm{D}_tv_2}\delta_l\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial t} +$$
$$C^{(0)}_{\mathrm{D}_y\rho,\mathrm{D}_xv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_1}{\partial x_1} + C^{(0)}_{\mathrm{D}_y\rho,\mathrm{D}_xv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_1} + C^{(0)}_{\mathrm{D}_y\rho,\mathrm{D}_yv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_2} + C^{(0)}_{\mathrm{D}_yv_2,\mathrm{D}_yv_2}\frac{\delta_l^2}{\delta_t}\left(\frac{\partial v_2}{\partial x_2}\right)^2 +$$
$$C^{(0)}_{\mathrm{D}_y\rho,\mathrm{D}_zv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_2}{\partial x_3} + C^{(0)}_{\mathrm{D}_y\rho,\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_2}\frac{\partial v_3}{\partial x_3} + C^{(0)}_{\mathrm{D}_yv_2,\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial v_2}{\partial x_2}\frac{\partial v_3}{\partial x_3} + C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_tv_3}\delta_l\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial t} +$$
$$C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_xv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_1}{\partial x_1} + C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_xv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_1} + C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_yv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_2}{\partial x_2} + C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_yv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_2} +$$
$$C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial\rho}{\partial x_3}\frac{\partial v_3}{\partial x_3} + C^{(0)}_{\mathrm{D}_zv_3,\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\left(\frac{\partial v_3}{\partial x_3}\right)^2 + C^{(0)}_{\mathrm{D}_t\mathrm{D}_xv_1}\delta_l\frac{\partial^2v_1}{\partial t\partial x_1} + C^{(0)}_{\mathrm{D}_x^2\rho}\frac{\delta_l^2}{\delta_t}\frac{\partial^2\rho}{\partial x_1^2} + C^{(0)}_{\mathrm{D}_x^2v_1}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_1}{\partial x_1^2} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_yv_2}\delta_l\frac{\partial^2v_2}{\partial t\partial x_2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\rho}\frac{\delta_l^2}{\delta_t}\frac{\partial^2\rho}{\partial x_1\partial x_2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_yv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_1}{\partial x_1\partial x_2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_yv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_2}{\partial x_1\partial x_2} + C^{(0)}_{\mathrm{D}_y^2\rho}\frac{\delta_l^2}{\delta_t}\frac{\partial^2\rho}{\partial x_2^2} + C^{(0)}_{\mathrm{D}_y^2v_2}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_2}{\partial x_2^2}$$
$$+ C^{(0)}_{\mathrm{D}_t\mathrm{D}_zv_3}\delta_l\frac{\partial^2v_3}{\partial t\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_z\rho}\frac{\delta_l^2}{\delta_t}\frac{\partial^2\rho}{\partial x_1\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_zv_1}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_1}{\partial x_1\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_3}{\partial x_1\partial x_3} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_z\rho}\frac{\delta_l^2}{\delta_t}\frac{\partial^2\rho}{\partial x_2\partial x_3} +$$
$$C^{(0)}_{\mathrm{D}_y\mathrm{D}_zv_2}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_2}{\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_zv_3}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_3}{\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_z^2\rho}\frac{\delta_l^2}{\delta_t}\frac{\partial^2\rho}{\partial x_3^2} + C^{(0)}_{\mathrm{D}_z^2v_3}\frac{\delta_l^2}{\delta_t}\frac{\partial^2v_3}{\partial x_3^2} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_xv_1}\delta_l\delta_t\frac{\partial^3v_1}{\partial t^2\partial x_1} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2v_1}\delta_l^2\frac{\partial^3v_1}{\partial t\partial x_1^2} + C^{(0)}_{\mathrm{D}_x^3\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_1^3} + C^{(0)}_{\mathrm{D}_x^3v_1}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_1}{\partial x_1^3} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_yv_2}\delta_l\delta_t\frac{\partial^3v_2}{\partial t^2\partial x_2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_yv_1}\delta_l^2\frac{\partial^3v_1}{\partial t\partial x_1\partial x_2} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_yv_2}\delta_l^2\frac{\partial^3v_2}{\partial t\partial x_1\partial x_2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_yv_1}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_1}{\partial x_1^2\partial x_2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_yv_2}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_2}{\partial x_1^2\partial x_2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^2v_2}\delta_l^2\frac{\partial^3v_2}{\partial t\partial x_2^2} +$$
$$C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2v_1}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_1}{\partial x_1\partial x_2^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2v_2}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_2}{\partial x_1\partial x_2^2} + C^{(0)}_{\mathrm{D}_y^3\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_2^3} + C^{(0)}_{\mathrm{D}_y^3v_2}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_2}{\partial x_2^3} +$$
$$C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_zv_3}\delta_l\delta_t\frac{\partial^3v_3}{\partial t^2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_zv_1}\delta_l^2\frac{\partial^3v_1}{\partial t\partial x_1\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_zv_3}\delta_l^2\frac{\partial^3v_3}{\partial t\partial x_1\partial x_3} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_1^2\partial x_3} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_zv_1}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_1}{\partial x_1^2\partial x_3}$$
$$+ C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_zv_3}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_3}{\partial x_1^2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_zv_2}\delta_l^2\frac{\partial^3v_2}{\partial t\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_zv_3}\delta_l^2\frac{\partial^3v_3}{\partial t\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_2\partial x_3} +$$
$$C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_zv_1}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_1}{\partial x_1\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_zv_2}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_2}{\partial x_1\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_zv_3}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_3}{\partial x_1\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_2^2\partial x_3} +$$
$$C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_zv_2}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_2}{\partial x_2^2\partial x_3} + C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_zv_3}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_3}{\partial x_2^2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_z^2v_3}\delta_l^2\frac{\partial^3v_3}{\partial t\partial x_3^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^2\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_1\partial x_3^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^2v_1}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_1}{\partial x_1\partial x_3^2} +$$
$$C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^2v_3}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_3}{\partial x_1\partial x_3^2} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^2\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^2v_2}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_2}{\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^2v_3}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_3}{\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_z^3\rho}\frac{\delta_l^3}{\delta_t}\frac{\partial^3\rho}{\partial x_3^3} +$$
$$C^{(0)}_{\mathrm{D}_z^3v_3}\frac{\delta_l^3}{\delta_t}\frac{\partial^3v_3}{\partial x_3^3} + C^{(0)}_{\mathrm{D}_t^3\mathrm{D}_xv_1}\delta_l\delta_t^2\frac{\partial^4v_1}{\partial t^3\partial x_1} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x^2v_1}\delta_l^2\delta_t\frac{\partial^4v_1}{\partial t^2\partial x_1^2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^3v_1}\delta_l^3\frac{\partial^4v_1}{\partial t\partial x_1^3} + C^{(0)}_{\mathrm{D}_x^4\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1^4} + C^{(0)}_{\mathrm{D}_x^4v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_1}{\partial x_1^4}$$
$$+ C^{(0)}_{\mathrm{D}_t^3\mathrm{D}_yv_2}\delta_l\delta_t^2\frac{\partial^4v_2}{\partial t^3\partial x_2} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}\delta_l^2\delta_t\frac{\partial^4v_1}{\partial t^2\partial x_1\partial x_2} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}\delta_l^2\delta_t\frac{\partial^4v_2}{\partial t^2\partial x_1\partial x_2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_yv_1}\delta_l^3\frac{\partial^4v_1}{\partial t\partial x_1^2\partial x_2} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_yv_2}\delta_l^3\frac{\partial^4v_2}{\partial t\partial x_1^2\partial x_2} + C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_y\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1^3\partial x_2} + C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_yv_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_1}{\partial x_1^3\partial x_2} + C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_yv_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_2}{\partial x_1^3\partial x_2} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y^2v_2}\delta_l^2\delta_t\frac{\partial^4v_2}{\partial t^2\partial x_2^2} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2v_1}\delta_l^3\frac{\partial^4v_1}{\partial t\partial x_1\partial x_2^2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2v_2}\delta_l^3\frac{\partial^4v_2}{\partial t\partial x_1\partial x_2^2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y^2\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1^2\partial x_2^2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y^2v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_1}{\partial x_1^2\partial x_2^2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y^2v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_2}{\partial x_1^2\partial x_2^2}$$
$$+ C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^3v_2}\delta_l^3\frac{\partial^4v_2}{\partial t\partial x_2^3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^3\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_2^3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^3v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_1}{\partial x_1\partial x_2^3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^3v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_2}{\partial x_1\partial x_2^3} + C^{(0)}_{\mathrm{D}_y^4\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_2^4} +$$
$$C^{(0)}_{\mathrm{D}_y^4v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4v_2}{\partial x_2^4} + C^{(0)}_{\mathrm{D}_t^3\mathrm{D}_zv_3}\delta_l\delta_t^2\frac{\partial^4v_3}{\partial t^3\partial x_3} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_zv_1}\delta_l^2\delta_t\frac{\partial^4v_1}{\partial t^2\partial x_1\partial x_3} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_zv_3}\delta_l^2\delta_t\frac{\partial^4v_3}{\partial t^2\partial x_1\partial x_3} +$$

$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1}\delta_l^3\frac{\partial^4 v_1}{\partial t\partial x_1^2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3}\delta_l^3\frac{\partial^4 v_3}{\partial t\partial x_1^2\partial x_3} + C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_z\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1^3\partial x_3} + C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_z v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_1}{\partial x_1^3\partial x_3} + C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_z v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_1^3\partial x_3}$$
$$+ C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2}\delta_l^2\delta_t\frac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3}\delta_l^2\delta_t\frac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}\delta_l^3\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}\delta_l^3\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}\delta_l^3\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1^2\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3}$$
$$+ C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_2}{\partial x_1^2\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_1^2\partial x_2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2}\delta_l^3\frac{\partial^4 v_2}{\partial t\partial x_2^2\partial x_3} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3}\delta_l^3\frac{\partial^4 v_3}{\partial t\partial x_2^2\partial x_3} +$$
$$C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_2^2\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_2^2\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3} +$$
$$C^{(0)}_{\mathrm{D}_y^3\mathrm{D}_z\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_2^3\partial x_3} + C^{(0)}_{\mathrm{D}_y^3\mathrm{D}_z v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_2}{\partial x_2^3\partial x_3} + C^{(0)}_{\mathrm{D}_y^3\mathrm{D}_z v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_2^3\partial x_3} + C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_z^2 v_3}\delta_l^2\delta_t\frac{\partial^4 v_3}{\partial t^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1}\delta_l^3\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_3^2} +$$
$$C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3}\delta_l^3\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z^2\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_1}{\partial x_1^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_1^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2}\delta_l^3\frac{\partial^4 v_2}{\partial t\partial x_2\partial x_3^2}$$
$$+ C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3}\delta_l^3\frac{\partial^4 v_3}{\partial t\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2} +$$
$$C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_2\partial x_3^2} + C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z^2\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_2^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_2}{\partial x_2^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_2^2\partial x_3^2} + C^{(0)}_{\mathrm{D}_t\mathrm{D}_z^3 v_3}\delta_l^3\frac{\partial^4 v_3}{\partial t\partial x_3^3} +$$
$$C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^3\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_1\partial x_3^3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^3 v_1}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_1}{\partial x_1\partial x_3^3} + C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^3 v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_1\partial x_3^3} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^3\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_2\partial x_3^3} + C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^3 v_2}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_2}{\partial x_2\partial x_3^3} +$$
$$C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^3 v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_2\partial x_3^3} + C^{(0)}_{\mathrm{D}_z^4\rho}\frac{\delta_l^4}{\delta_t}\frac{\partial^4\rho}{\partial x_3^4} + C^{(0)}_{\mathrm{D}_z^4 v_3}\frac{\delta_l^4}{\delta_t}\frac{\partial^4 v_3}{\partial x_3^4} = 0,$$

where:

coefficient $C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1}$ **at** $\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial t}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1} = (-2+\omega)\frac{1}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1} = (-2+\omega_2)\frac{1}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_t v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1}$ **at** $\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1} = (-2+\omega)\frac{v_1}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1} = (-2+\omega_2)\frac{v_1}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1}$ **at** $\left(\frac{\partial v_1}{\partial x_1}\right)^2$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1} = (-2+\omega)\frac{\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1} = (-2+\omega_2)\frac{\rho}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1}$ **at** $\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1} = (2-\omega)\frac{v_2}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1} = (2-\omega_3)\frac{v_2}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2}$ **at** $\frac{\partial\rho}{\partial x_1}\frac{\partial v_2}{\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2} = (2-\omega)\frac{v_1}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2} = (\omega_2+\omega_3-\omega_2\omega_3)\frac{v_1}{\omega_2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2}$ **at** $\frac{\partial v_1}{\partial x_1}\frac{\partial v_2}{\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2} = (2-\omega)\frac{\rho}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2} = (\omega_2+\omega_3-\omega_2\omega_3)\frac{\rho}{\omega_2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1,\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1}$ **at** $\frac{\partial\rho}{\partial x_1}\frac{\partial v_1}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1} = (2-\omega)\frac{v_3}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1} = (2-\omega_4)\frac{v_3}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3}$ **at** $\frac{\partial\rho}{\partial x_1}\frac{\partial v_3}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3} = (2-\omega)\frac{v_1}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3} = (\omega_2-\omega_2\omega_4+\omega_4)\frac{v_1}{\omega_2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\rho,\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3}$ **at** $\frac{\partial v_1}{\partial x_1} \frac{\partial v_3}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3} = (2-\omega)\frac{\rho}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3} = (\omega_2 - \omega_2\omega_4 + \omega_4)\frac{\rho}{\omega_2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x v_1, \mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2}$ **at** $\frac{\partial \rho}{\partial x_2} \frac{\partial v_2}{\partial t}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2} = (-2+\omega)\frac{1}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2} = (-2+\omega_3)\frac{1}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_t v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1}$ **at** $\frac{\partial \rho}{\partial x_2} \frac{\partial v_1}{\partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1} = (2-\omega)\frac{v_2}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1} = (\omega_2 + \omega_3 - \omega_2\omega_3)\frac{v_2}{\omega_2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2}$ **at** $\frac{\partial \rho}{\partial x_2} \frac{\partial v_2}{\partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2} = (2-\omega)\frac{v_1}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2} = (2-\omega_2)\frac{v_1}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_x v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2}$ **at** $\frac{\partial \rho}{\partial x_2} \frac{\partial v_2}{\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2} = (-2+\omega)\frac{v_2}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2} = (-2+\omega_3)\frac{v_2}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2}$ **at** $\left(\frac{\partial v_2}{\partial x_2}\right)^2$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2} = (-2+\omega)\frac{\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2} = (-2+\omega_3)\frac{\rho}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2}$ **at** $\frac{\partial \rho}{\partial x_2}\frac{\partial v_2}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2} = (2-\omega)\frac{v_3}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2} = (2-\omega_4)\frac{v_3}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3}$ **at** $\frac{\partial \rho}{\partial x_2}\frac{\partial v_3}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3} = (2-\omega)\frac{v_2}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3} = (-\omega_3\omega_4+\omega_3+\omega_4)\frac{v_2}{\omega_3\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \rho, \mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3}$ **at** $\frac{\partial v_2}{\partial x_2}\frac{\partial v_3}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3} = (2-\omega)\frac{\rho}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3} = (-\omega_3\omega_4+\omega_3+\omega_4)\frac{\rho}{\omega_3\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y v_2, \mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3}$ **at** $\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial t}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3} = (-2+\omega)\frac{1}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3} = (-2+\omega_4)\frac{1}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z \rho, \mathrm{D}_t v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1}$ **at** $\frac{\partial \rho}{\partial x_3}\frac{\partial v_1}{\partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1} = (2-\omega)\frac{v_3}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1} = (\omega_2 - \omega_2\omega_4 + \omega_4)\frac{v_3}{\omega_2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3}$ **at** $\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3} = (2-\omega)\frac{v_1}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3} = (2-\omega_2)\frac{v_1}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_x v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2}$ **at** $\frac{\partial \rho}{\partial x_3}\frac{\partial v_2}{\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2} = (2-\omega)\frac{v_3}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2} = (-\omega_3\omega_4 + \omega_3 + \omega_4)\frac{v_3}{\omega_3\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3}$ **at** $\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3} = (2-\omega)\frac{v_2}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3} = (2-\omega_3)\frac{v_2}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_y v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3}$ **at** $\frac{\partial \rho}{\partial x_3}\frac{\partial v_3}{\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3} = (-2+\omega)\frac{v_3}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3} = (-2+\omega_4)\frac{v_3}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z\rho,\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3}$ **at** $\left(\frac{\partial v_3}{\partial x_3}\right)^2$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3} = (-2+\omega)\frac{\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3} = (-2+\omega_4)\frac{\rho}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z v_3, \mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t \mathrm{D}_x v_1}$ **at** $\frac{\partial^2 v_1}{\partial t \partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t \mathrm{D}_x v_1} = (-2+\omega)\frac{\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_x v_1} = (-2+\omega_2)\frac{\rho}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t \mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t \mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t \mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^2 \rho}$ **at** $\frac{\partial^2 \rho}{\partial x_1^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2 \rho} = (-2+\omega)\frac{c_s^2}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 \rho} = (-2+\omega_2)\frac{c_s^2}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 \rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 \rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^2 v_1}$ **at** $\frac{\partial^2 v_1}{\partial x_1^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2 v_1} = (-2+\omega)\frac{v_1 \rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 v_1} = (-2+\omega_2)\frac{v_1 \rho}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t \mathrm{D}_y v_2}$ **at** $\frac{\partial^2 v_2}{\partial t \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t \mathrm{D}_y v_2} = (-2+\omega)\frac{\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_y v_2} = (-2+\omega_3)\frac{\rho}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t \mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y \rho}$ **at** $\frac{\partial^2 \rho}{\partial x_1 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y \rho} = (2-\omega)\frac{v_2 v_1}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y \rho} = (\omega_2 + \omega_3 - \omega_2\omega_3)\frac{v_2 v_1}{\omega_2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y \rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y \rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y v_1}$ **at** $\frac{\partial^2 v_1}{\partial x_1 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y v_1} = (2-\omega)\frac{v_2 \rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_1} = (2-\omega_3)\frac{v_2 \rho}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y v_2}$ **at** $\frac{\partial^2 v_2}{\partial x_1 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y v_2} = (2-\omega)\frac{v_1 \rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_2} = (2-\omega_2)\frac{v_1 \rho}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y^2 \rho}$ **at** $\frac{\partial^2 \rho}{\partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2 \rho} = (-2+\omega)\frac{c_s^2}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2 \rho} = (-2+\omega_3)\frac{c_s^2}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2 \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2 \rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2 \rho}$

coefficient $C^{(0)}_{\mathrm{D}_y^2 v_2}$ **at** $\frac{\partial^2 v_2}{\partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2 v_2} = (-2+\omega)\frac{v_2 \rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2 v_2} = (-2+\omega_3)\frac{v_2 \rho}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}^2_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}^2_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^2_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}^2_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}^2_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}^2_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t \mathrm{D}_z v_3}$ **at** $\frac{\partial^2 v_3}{\partial t \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t \mathrm{D}_z v_3} = (-2+\omega)\frac{\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_z v_3} = (-2+\omega_4)\frac{\rho}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t \mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x \mathrm{D}_z \rho}$ **at** $\frac{\partial^2 \rho}{\partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x \mathrm{D}_z \rho} = (2-\omega)\frac{v_3 v_1}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z \rho} = (\omega_2 - \omega_2\omega_4 + \omega_4)\frac{v_3 v_1}{\omega_2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x \mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x \mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z \rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x \mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z \rho}$

coefficient $C^{(0)}_{\mathrm{D}_x \mathrm{D}_z v_1}$ **at** $\frac{\partial^2 v_1}{\partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x \mathrm{D}_z v_1} = (2-\omega)\frac{v_3 \rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_1} = (2-\omega_4)\frac{v_3 \rho}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x \mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x \mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x \mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x \mathrm{D}_z v_3}$ **at** $\frac{\partial^2 v_3}{\partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x \mathrm{D}_z v_3} = (2-\omega)\frac{v_1 \rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_3} = (2-\omega_2)\frac{v_1 \rho}{2\omega_2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x \mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x \mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y \mathrm{D}_z \rho}$ **at** $\frac{\partial^2 \rho}{\partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y \mathrm{D}_z \rho} = (2-\omega)\frac{v_3 v_2}{\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y \mathrm{D}_z \rho} = (-\omega_3\omega_4 + \omega_3 + \omega_4)\frac{v_3 v_2}{\omega_3\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z\rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z\rho}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z v_2}$ **at** $\frac{\partial^2 v_2}{\partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z v_2} = (2-\omega)\frac{v_3\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_2} = (2-\omega_4)\frac{v_3\rho}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z v_3}$ **at** $\frac{\partial^2 v_3}{\partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z v_3} = (2-\omega)\frac{v_2\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_3} = (2-\omega_3)\frac{v_2\rho}{2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z^2\rho}$ **at** $\frac{\partial^2 \rho}{\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z^2\rho} = (-2+\omega)\frac{c_s^2}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2\rho} = (-2+\omega_4)\frac{c_s^2}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2\rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^2 v_3}{\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z^2 v_3} = (-2+\omega)\frac{v_3\rho}{2\omega}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2 v_3} = (-2+\omega_4)\frac{v_3\rho}{2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x v_1}$ **at** $\frac{\partial^3 v_1}{\partial t^2 \partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_x v_1} = (12+\omega^2-12\omega)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x v_1} = (12-12\omega_2+\omega_2^2)\frac{\rho}{12\omega_2^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2 v_1}$ **at** $\frac{\partial^3 v_1}{\partial t\partial x_1^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1} = (12+\omega^2-12\omega)\frac{v_1\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1} = (12-6\omega_2-6\omega_5+\omega_2\omega_5)\frac{v_1\rho}{6\omega_2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1} = (12-12\omega_2+\omega_2^2)\frac{v_1\rho}{6\omega_2^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\rho}$ **at** $\frac{\partial^3\rho}{\partial x_1^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\rho} = (6+\omega^2+18c_s^2\omega+6v_1^2\omega-6v_1^2-18c_s^2-3c_s^2\omega^2-v_1^2\omega^2-6\omega)\frac{v_1}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\rho} = (6\omega_2+\omega_2^2\omega_5-6\omega_2v_1^2-6\omega_2c_s^2-\omega_2^2v_1^2\omega_5-3\omega_2^2c_s^2\omega_5-12c_s^2\omega_5+15\omega_2c_s^2\omega_5-3\omega_2^2+3\omega_2v_1^2\omega_5+3\omega_2^2c_s^2+3\omega_2^2v_1^2-3\omega_2\omega_5)\frac{v_1}{6\omega_2^2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\rho} = (6-3\omega_2+3\omega_2v_1^2+9\omega_2c_s^2+9c_s^2\omega_5+3v_1^2\omega_5-3\omega_2c_s^2\omega_5-\omega_2v_1^2\omega_5-6v_1^2-18c_s^2-3\omega_5+\omega_2\omega_5)\frac{v_1}{6\omega_2\omega_5}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^3 v_1}$ **at** $\frac{\partial^3 v_1}{\partial x_1^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3 v_1} = (12+2\omega^2+24c_s^2\omega+24v_1^2\omega-24v_1^2-24c_s^2-3c_s^2\omega^2-5v_1^2\omega^2-12\omega)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3 v_1} =$
$(12\omega_2+2\omega_2^2\omega_5-12\omega_2v_1^2-12\omega_2c_s^2-5\omega_2^2v_1^2\omega_5-3\omega_2^2c_s^2\omega_5-12c_s^2\omega_5-12v_1^2\omega_5+18\omega_2c_s^2\omega_5-6\omega_2^2+18\omega_2v_1^2\omega_5+6\omega_2^2c_s^2+6\omega_2^2v_1^2-6\omega_2\omega_5)\frac{\rho}{12\omega_2^2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3 v_1} =$
$(12\omega_2+2\omega_2^2\omega_5-36\omega_2v_1^2-12\omega_2c_s^2-5\omega_2^2v_1^2\omega_5-3\omega_2^2c_s^2\omega_5-12c_s^2\omega_5+12v_1^2\omega_5+18\omega_2c_s^2\omega_5-6\omega_2^2+6\omega_2v_1^2\omega_5+6\omega_2^2c_s^2+18\omega_2^2v_1^2-6\omega_2\omega_5)\frac{\rho}{12\omega_2^2\omega_5}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y v_2}$ **at** $\frac{\partial^3 v_2}{\partial t^2\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_y v_2} = (12+\omega^2-12\omega)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y v_2} = (12+\omega_3^2-12\omega_3)\frac{\rho}{12\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1}$ **at** $\frac{\partial^3 v_1}{\partial t\partial x_1\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1} = (-6-\omega^2+6\omega)\frac{v_2\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1} = (-6\omega_2+3\omega_3^2-6\omega_3+9\omega_2\omega_3-2\omega_2\omega_3^2)\frac{v_2\rho}{6\omega_2\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2}$ **at** $\frac{\partial^3 v_2}{\partial t\partial x_1\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2} = (-6-\omega^2+6\omega)\frac{v_1\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2} = (-6\omega_2-6\omega_3-2\omega_2^2\omega_3+3\omega_2^2+9\omega_2\omega_3)\frac{v_1\rho}{6\omega_2^2\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\rho}$ **at** $\frac{\partial^3\rho}{\partial x_1^2\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y\rho} = (6c_s^2\omega-6v_1^2\omega+6v_1^2-6c_s^2-c_s^2\omega^2+v_1^2\omega^2)\frac{v_2}{2\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\rho} = (2\omega_2\omega_3v_1^2\omega_5-2\omega_2\omega_3c_s^2\omega_5+2\omega_2^2v_1^2\omega_5+\omega_2^2\omega_3^2v_1^2+\omega_2^2\omega_3^2c_s^2-\omega_2^2\omega_3^2c_s^2\omega_5+\omega_2^2\omega_3^2v_1^2\omega_5-2\omega_2\omega_3^2v_1^2-2\omega_2\omega_3^2c_s^2-3\omega_2^2\omega_3v_1^2\omega_5+\omega_2^2\omega_3c_s^2\omega_5-2\omega_3^2c_s^2\omega_5+4\omega_3^2v_1^2\omega_5+4\omega_2\omega_3^2c_s^2\omega_5-4\omega_2\omega_3^2v_1^2\omega_5)\frac{v_2}{2\omega_2^2\omega_3^2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\rho} = (2\omega_2\omega_3v_1^2\omega_5-2\omega_2\omega_3c_s^2\omega_5+2\omega_2^2v_1^2\omega_5-\omega_2^2\omega_3^2v_1^2+\omega_2^2\omega_3^2c_s^2-\omega_2^2\omega_3^2c_s^2\omega_5+\omega_2^2\omega_3^2v_1^2\omega_5+2\omega_2\omega_3^2v_1^2-2\omega_2\omega_3^2c_s^2-3\omega_2^2\omega_3v_1^2\omega_5+\omega_2^2\omega_3c_s^2\omega_5-2\omega_3^2c_s^2\omega_5+4\omega_2\omega_3^2c_s^2\omega_5-2\omega_2\omega_3^2v_1^2\omega_5)\frac{v_2}{2\omega_2^2\omega_3^2\omega_5}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y v_1}$ **at** $\frac{\partial^3 v_1}{\partial x_1^2\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y v_1} = (12+\omega^2-12\omega)\frac{v_2v_1\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y v_1} = (\omega_2^2\omega_3^2+6\omega_3^2-6\omega_2^2\omega_3+6\omega_2^2-6\omega_2\omega_3^2)\frac{v_2v_1\rho}{6\omega_2^2\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y v_2}$ **at** $\frac{\partial^3 v_2}{\partial x_1^2 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y v_2} = (24c_s^2\omega - 24c_s^2 - 3c_s^2\omega^2 + v_1^2\omega^2)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y v_2} = (-12\omega_2 v_1^2 - 12\omega_2 c_s^2 + \omega_2^2 v_1^2\omega_5 - 3\omega_2^2 c_s^2\omega_5 - 12c_s^2\omega_5 + 12v_1^2\omega_5 + 18\omega_2 c_s^2\omega_5 - 6\omega_2 v_1^2\omega_5 + 6\omega_2^2 c_s^2 + 6\omega_2^2 v_1^2)\frac{\rho}{12\omega_2^2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y v_2} = (12\omega_2 v_1^2 - 12\omega_2 c_s^2 + \omega_2^2 v_1^2\omega_5 - 3\omega_2^2 c_s^2\omega_5 - 12c_s^2\omega_5 - 12v_1^2\omega_5 + 18\omega_2 c_s^2\omega_5 + 6\omega_2 v_1^2\omega_5 + 6\omega_2^2 c_s^2 - 6\omega_2^2 v_1^2)\frac{\rho}{12\omega_2^2\omega_5}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^2 v_2}$ **at** $\frac{\partial^3 v_2}{\partial t \partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2} = (12 + \omega^2 - 12\omega)\frac{v_2\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2} = (12 - 6\omega_6 - 6\omega_3 + \omega_6\omega_3)\frac{v_2\rho}{6\omega_6\omega_3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2} = (12 + \omega_3^2 - 12\omega_3)\frac{v_2\rho}{6\omega_3^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^2 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\rho}$ **at** $\frac{\partial^3 \rho}{\partial x_1 \partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2\rho} = (v_2^2\omega^2 - 6v_2^2\omega + 6c_s^2\omega + 6v_2^2 - 6c_s^2 - c_s^2\omega^2)\frac{v_1}{2\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\rho} = (-\omega_2^2\omega_6\omega_3^2 c_s^2 + 2\omega_2\omega_6\omega_3 v_2^2 + \omega_2^2\omega_3^2 v_2^2 + \omega_2^2\omega_6\omega_3^2 v_2^2 + \omega_2^2\omega_3^2 c_s^2 - 2\omega_2\omega_6\omega_3 c_s^2 + 4\omega_2^2\omega_6 v_2^2 - 4\omega_2^2\omega_6\omega_3 v_2^2 + \omega_2\omega_6\omega_3^2 c_s^2 - 2\omega_2^2\omega_3 c_s^2 + 4\omega_2^2\omega_6\omega_3 c_s^2 - 2\omega_2^2\omega_3 v_2^2 - 3\omega_2\omega_6\omega_3^2 v_2^2 + 2\omega_6\omega_3^2 v_2^2 - 2\omega_2^2\omega_6 c_s^2)\frac{v_1}{2\omega_2^2\omega_6\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\rho} = (-\omega_2^2\omega_6\omega_3^2 c_s^2 + 2\omega_2\omega_6\omega_3 v_2^2 - \omega_2^2\omega_3^2 v_2^2 + \omega_2^2\omega_6\omega_3^2 v_2^2 + \omega_2^2\omega_3^2 c_s^2 - 2\omega_2\omega_6\omega_3 c_s^2 - 2\omega_2^2\omega_6\omega_3 v_2^2 + \omega_2\omega_6\omega_3^2 c_s^2 - 2\omega_2^2\omega_3 c_s^2 + 4\omega_2^2\omega_6\omega_3 c_s^2 + 2\omega_2^2\omega_3 v_2^2 - 3\omega_2\omega_6\omega_3^2 v_2^2 + 2\omega_6\omega_3^2 v_2^2 - 2\omega_2^2\omega_6 c_s^2)\frac{v_1}{2\omega_2^2\omega_6\omega_3^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2 v_1}$ **at** $\frac{\partial^3 v_1}{\partial x_1 \partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1} = (v_2^2\omega^2 + 24c_s^2\omega - 24c_s^2 - 3c_s^2\omega^2)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1} = (-6\omega_6\omega_3 v_2^2 - 12\omega_3 v_2^2 - 12\omega_6 c_s^2 + 12\omega_6 v_2^2 - 12\omega_3 c_s^2 + 18\omega_6\omega_3 c_s^2 - 3\omega_6\omega_3^2 c_s^2 + 6\omega_3^2 c_s^2 + 6\omega_3^2 v_2^2 + \omega_6\omega_3^2 v_2^2)\frac{\rho}{12\omega_6\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1} = (6\omega_6\omega_3 v_2^2 + 12\omega_3 v_2^2 - 12\omega_6 c_s^2 - 12\omega_6 v_2^2 - 12\omega_3 c_s^2 + 18\omega_6\omega_3 c_s^2 - 3\omega_6\omega_3^2 c_s^2 + 6\omega_3^2 c_s^2 - 6\omega_3^2 v_2^2 + \omega_6\omega_3^2 v_2^2)\frac{\rho}{12\omega_6\omega_3^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2 v_2}$ **at** $\frac{\partial^3 v_2}{\partial x_1 \partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2} = (12 + \omega^2 - 12\omega)\frac{v_2 v_1\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2} = (\omega_2^2\omega_3^2 + 6\omega_3^2 - 6\omega_2^2\omega_3 + 6\omega_2^2 - 6\omega_2\omega_3^2)\frac{v_2 v_1 \rho}{6\omega_2^2\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y^3 \rho}$ **at** $\frac{\partial^3 \rho}{\partial x_2^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^3 \rho} = (6 - v_2^2\omega^2 + \omega^2 + 6v_2^2\omega + 18c_s^2\omega - 6v_2^2 - 18c_s^2 - 3c_s^2\omega^2 - 6\omega)\frac{v_2}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3 \rho} = (3\omega_6\omega_3 v_2^2 - 6\omega_3 v_2^2 - 12\omega_6 c_s^2 - 3\omega_3^2 + 6\omega_3 - 6\omega_3 c_s^2 + 15\omega_6\omega_3 c_s^2 - 3\omega_6\omega_3^2 c_s^2 + 3\omega_3^2 c_s^2 - 3\omega_6\omega_3 + \omega_6\omega_3^2 + 3\omega_3^2 v_2^2 - \omega_6\omega_3^2 v_2^2)\frac{v_2}{6\omega_6\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^3 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3 \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3 \rho} = (6 - \omega_6\omega_3 v_2^2 + 3\omega_3 v_2^2 + 9\omega_6 c_s^2 - 3\omega_6 + 3\omega_6 v_2^2 - 3\omega_3 + 9\omega_3 c_s^2 - 3\omega_6\omega_3 c_s^2 - 6v_2^2 + \omega_6\omega_3 - 18c_s^2)\frac{v_2}{6\omega_6\omega_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^3 \rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3 \rho}$

coefficient $C^{(0)}_{\mathrm{D}_y^3 v_2}$ **at** $\frac{\partial^3 v_2}{\partial x_2^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^3 v_2} = (12 - 5v_2^2\omega^2 + 2\omega^2 + 24v_2^2\omega + 24c_s^2\omega - 24v_2^2 - 24c_s^2 - 3c_s^2\omega^2 - 12\omega)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3 v_2} =$
$(18\omega_6\omega_3 v_2^2 - 12\omega_3 v_2^2 - 12\omega_6 c_s^2 - 6\omega_3^2 - 12\omega_6 v_2^2 + 12\omega_3 - 12\omega_3 c_s^2 + 18\omega_6\omega_3 c_s^2 - 3\omega_6\omega_3^2 c_s^2 + 6\omega_3^2 c_s^2 - 6\omega_6\omega_3 + 2\omega_6\omega_3^2 + 6\omega_3^2 v_2^2 - 5\omega_6\omega_3^2 v_2^2)\frac{\rho}{12\omega_6\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^3 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3 v_2} =$
$(6\omega_6\omega_3 v_2^2 - 36\omega_3 v_2^2 - 12\omega_6 c_s^2 - 6\omega_3^2 + 12\omega_6 v_2^2 + 12\omega_3 - 12\omega_3 c_s^2 + 18\omega_6\omega_3 c_s^2 - 3\omega_6\omega_3^2 c_s^2 + 6\omega_3^2 c_s^2 - 6\omega_6\omega_3 + 2\omega_6\omega_3^2 + 18\omega_3^2 v_2^2 - 5\omega_6\omega_3^2 v_2^2)\frac{\rho}{12\omega_6\omega_3^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^3 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_z v_3}$ **at** $\frac{\partial^3 v_3}{\partial t^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_z v_3} = (12 + \omega^2 - 12\omega)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_z v_3} = (12 - 12\omega_4 + \omega_4^2)\frac{\rho}{12\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1}$ **at** $\frac{\partial^3 v_1}{\partial t \partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1} = (-6 - \omega^2 + 6\omega)\frac{v_3\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1} = (-6\omega_2 - 2\omega_2\omega_4^2 + 9\omega_2\omega_4 - 6\omega_4 + 3\omega_4^2)\frac{v_3\rho}{6\omega_2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3}$ **at** $\frac{\partial^3 v_3}{\partial t \partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3} = (-6-\omega^2+6\omega)\frac{v_1\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3} = (-6\omega_2+9\omega_2\omega_4+3\omega_2^2-6\omega_4-2\omega_2^2\omega_4)\frac{v_1\rho}{6\omega_2^2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z\rho}$ **at** $\frac{\partial^3 \rho}{\partial x_1^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_z\rho} = (6c_s^2\omega-6v_1^2\omega+6v_1^2-6c_s^2-c_s^2\omega^2+v_1^2\omega^2)\frac{v_3}{2\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z\rho} = (-3\omega_2^2\omega_4 v_1^2\omega_5+\omega_2^2\omega_4 c_s^2\omega_5+2\omega_2^2 v_1^2\omega_5-2\omega_2\omega_4^2 v_1^2-2\omega_2\omega_4^2 c_s^2-2\omega_4^2 c_s^2\omega_5+4\omega_4^2 v_1^2\omega_5+4\omega_2\omega_4^2 c_s^2\omega_5-4\omega_2\omega_4^2 v_1^2\omega_5+\omega_2^2\omega_4^2 v_1^2+\omega_2^2\omega_4^2 c_s^2+2\omega_2\omega_4 v_1^2\omega_5-2\omega_2\omega_4 c_s^2\omega_5-\omega_2^2\omega_4^2 c_s^2\omega_5+\omega_2^2\omega_4^2 v_1^2\omega_5)\frac{v_3}{2\omega_2^2\omega_4^2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z\rho} = (-3\omega_2^2\omega_4 v_1^2\omega_5+\omega_2^2\omega_4 c_s^2\omega_5+2\omega_2^2 v_1^2\omega_5+2\omega_2\omega_4^2 v_1^2-2\omega_2\omega_4^2 c_s^2-2\omega_4^2 c_s^2\omega_5+4\omega_2\omega_4^2 c_s^2\omega_5-2\omega_2\omega_4^2 v_1^2\omega_5-\omega_2^2\omega_4^2 v_1^2+\omega_2^2\omega_4^2 c_s^2+2\omega_2\omega_4 v_1^2\omega_5-2\omega_2\omega_4 c_s^2\omega_5-\omega_2^2\omega_4^2 c_s^2\omega_5+\omega_2^2\omega_4^2 v_1^2\omega_5)\frac{v_3}{2\omega_2^2\omega_4^2\omega_5}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_z\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z v_1}$ **at** $\frac{\partial^3 v_1}{\partial x_1^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_z v_1} = (12+\omega^2-12\omega)\frac{v_3 v_1\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z v_1} = (-6\omega_2\omega_4^2+6\omega_2^2-6\omega_2^2\omega_4+\omega_2^2\omega_4^2+6\omega_4^2)\frac{v_3 v_1\rho}{6\omega_2^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z v_3}$ **at** $\frac{\partial^3 v_3}{\partial x_1^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_z v_3} = (24c_s^2\omega-24c_s^2-3c_s^2\omega^2+v_1^2\omega^2)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z v_3} = (-12\omega_2 v_1^2-12\omega_2 c_s^2+\omega_2^2 v_1^2\omega_5-3\omega_2^2 c_s^2\omega_5-12c_s^2\omega_5+12v_1^2\omega_5+18\omega_2 c_s^2\omega_5-6\omega_2 v_1^2\omega_5+6\omega_2^2 c_s^2+6\omega_2^2 v_1^2)\frac{\rho}{12\omega_2^2\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z v_3} = (12\omega_2 v_1^2-12\omega_2 c_s^2+\omega_2^2 v_1^2\omega_5-3\omega_2^2 c_s^2\omega_5-12c_s^2\omega_5-12v_1^2\omega_5+18\omega_2 c_s^2\omega_5+6\omega_2 v_1^2\omega_5+6\omega_2^2 c_s^2-6\omega_2^2 v_1^2)\frac{\rho}{12\omega_2^2\omega_5}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2}$ **at** $\frac{\partial^3 v_2}{\partial t \partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2} = (-6-\omega^2+6\omega)\frac{v_3\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2} = (9\omega_3\omega_4-6\omega_3-2\omega_3\omega_4^2-6\omega_4+3\omega_4^2)\frac{v_3\rho}{6\omega_3\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3}$ **at** $\frac{\partial^3 v_3}{\partial t\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3} = (-6-\omega^2+6\omega)\frac{v_2\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3} = (9\omega_3\omega_4+3\omega_3^2-6\omega_3-6\omega_4-2\omega_3^2\omega_4)\frac{v_2\rho}{6\omega_3^2\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho}$ **at** $\frac{\partial^3 \rho}{\partial x_1\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho} = (6+\omega^2-6\omega)\frac{2v_3v_2v_1}{\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho} = (-2\omega_2^2\omega_3^2\omega_4+\omega_2^2\omega_3^2+\omega_2^2\omega_3^2\omega_4^2+\omega_2\omega_3\omega_4^2+\omega_3^2\omega_4^2-2\omega_2\omega_3^2\omega_4^2-2\omega_2^2\omega_3\omega_4^2+\omega_2^2\omega_3\omega_4+\omega_2^2\omega_4^2+\omega_2\omega_3^2\omega_4)\frac{2v_3v_2v_1}{\omega_2^2\omega_3^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z \rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$ **at** $\frac{\partial^3 v_1}{\partial x_1\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = (6+\omega^2-6\omega)\frac{2v_3v_2\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = (6\omega_3\omega_4+3\omega_3^2-6\omega_3\omega_4^2+2\omega_3^2\omega_4^2+3\omega_4^2-6\omega_3^2\omega_4)\frac{v_3v_2\rho}{3\omega_3^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$ **at** $\frac{\partial^3 v_2}{\partial x_1\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = (6+\omega^2-6\omega)\frac{2v_3v_1\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = (-6\omega_2\omega_4^2+6\omega_2\omega_4+3\omega_2^2-6\omega_2^2\omega_4+2\omega_2^2\omega_4^2+3\omega_4^2)\frac{v_3v_1\rho}{3\omega_2^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$ **at** $\frac{\partial^3 v_3}{\partial x_1 \partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = (6+\omega^2-6\omega)\frac{2v_2v_1\rho}{3\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = (2\omega_2^2\omega_3^2+3\omega_3^2-6\omega_2^2\omega_3+3\omega_2^2+6\omega_2\omega_3-6\omega_2\omega_3^2)\frac{v_2v_1\rho}{3\omega_2^2\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z\rho}$ **at** $\frac{\partial^3 \rho}{\partial x_2^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2\mathrm{D}_z\rho} = (v_2^2\omega^2-6v_2^2\omega+6c_s^2\omega+6v_2^2-6c_s^2-c_s^2\omega^2)\frac{v_3}{2\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z\rho} = (-\omega_6\omega_3^2\omega_4^2c_s^2-2\omega_3v_2^2\omega_4^2+\omega_3^2\omega_4^2c_s^2-4\omega_6\omega_3v_2^2\omega_4^2-2\omega_6\omega_3\omega_4c_s^2-2\omega_6\omega_4^2c_s^2+2\omega_6\omega_3v_2^2\omega_4+4\omega_6v_2^2\omega_4^2-3\omega_6\omega_3^2v_2^2\omega_4+\omega_6\omega_3^2v_2^2\omega_4^2-2\omega_3\omega_4^2c_s^2+\omega_3^2v_2^2\omega_4^2+4\omega_6\omega_3\omega_4^2c_s^2+2\omega_6\omega_3^2v_2^2+\omega_6\omega_3^2\omega_4c_s^2)\frac{v_3}{2\omega_6\omega_3^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z\rho} = (-\omega_6\omega_3^2\omega_4^2c_s^2+2\omega_3v_2^2\omega_4^2+\omega_3^2\omega_4^2c_s^2-2\omega_6\omega_3v_2^2\omega_4^2-2\omega_6\omega_3\omega_4c_s^2-2\omega_6\omega_4^2c_s^2+2\omega_6\omega_3v_2^2\omega_4-3\omega_6\omega_3^2v_2^2\omega_4+\omega_6\omega_3^2v_2^2\omega_4^2-2\omega_3\omega_4^2c_s^2-\omega_3^2v_2^2\omega_4^2+4\omega_6\omega_3\omega_4^2c_s^2+2\omega_6\omega_3^2v_2^2+\omega_6\omega_3^2\omega_4c_s^2)\frac{v_3}{2\omega_6\omega_3^2\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2\mathrm{D}_z\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z\rho}$

coefficient $C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z v_2}$ **at** $\frac{\partial^3 v_2}{\partial x_2^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2\mathrm{D}_z v_2} = (12+\omega^2-12\omega)\frac{v_3v_2\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z v_2} = (6\omega_3^2-6\omega_3\omega_4^2+\omega_3^2\omega_4^2+6\omega_4^2-6\omega_3^2\omega_4)\frac{v_3v_2\rho}{6\omega_3^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z v_3}$ **at** $\frac{\partial^3 v_3}{\partial x_2^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2\mathrm{D}_z v_3} = (v_2^2\omega^2+24c_s^2\omega-24c_s^2-3c_s^2\omega^2)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z v_3} = (-6\omega_6\omega_3v_2^2-12\omega_3v_2^2-12\omega_6c_s^2+12\omega_6v_2^2-12\omega_3c_s^2+18\omega_6\omega_3c_s^2-3\omega_6\omega_3^2c_s^2+6\omega_3^2c_s^2+6\omega_3^2v_2^2+\omega_6\omega_3^2v_2^2)\frac{\rho}{12\omega_6\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z v_3} = (6\omega_6\omega_3v_2^2+12\omega_3v_2^2-12\omega_6c_s^2-12\omega_6v_2^2-12\omega_3c_s^2+18\omega_6\omega_3c_s^2-3\omega_6\omega_3^2c_s^2+6\omega_3^2c_s^2-6\omega_3^2v_2^2+\omega_6\omega_3^2v_2^2)\frac{\rho}{12\omega_6\omega_3^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^3 v_3}{\partial t \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3} = (12+\omega^2-12\omega)\frac{v_3\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3} = (12 + \omega_7\omega_4 - 6\omega_7 - 6\omega_4)\frac{v_3\rho}{6\omega_7\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3} = (12 - 12\omega_4 + \omega_4^2)\frac{v_3\rho}{6\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^2\rho}$ **at** $\frac{\partial^3\rho}{\partial x_1\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_z^2\rho} = (-6v_3^2\omega + v_3^2\omega^2 + 6v_3^2 + 6c_s^2\omega - 6c_s^2 - c_s^2\omega^2)\frac{v_1}{2\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2\rho} = (\omega_2\omega_7\omega_4^2c_s^2 - 4\omega_2^2v_3^2\omega_7\omega_4 + \omega_2^2v_3^2\omega_4^2 + 4\omega_2^2v_3^2\omega_7 - 2\omega_2^2v_3^2\omega_4 + \omega_2^2v_3^2\omega_7\omega_4^2 - 2\omega_2^2\omega_4c_s^2 + 4\omega_2^2\omega_7\omega_4c_s^2 + 2\omega_2v_3^2\omega_7\omega_4 - \omega_2^2\omega_7\omega_4^2c_s^2 + \omega_2^2\omega_4^2c_s^2 - 2\omega_2^2\omega_7c_s^2 + 2v_3^2\omega_7\omega_4^2 - 2\omega_2\omega_7\omega_4c_s^2 - 3\omega_2v_3^2\omega_7\omega_4^2)\frac{v_1}{2\omega_2^2\omega_7\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_z^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^2\rho} = (\omega_2\omega_7\omega_4^2c_s^2 - 2\omega_2^2v_3^2\omega_7\omega_4 - \omega_2^2v_3^2\omega_4^2 + 2\omega_2^2v_3^2\omega_4 + \omega_2^2v_3^2\omega_7\omega_4^2 - 2\omega_2^2\omega_4c_s^2 + 4\omega_2^2\omega_7\omega_4c_s^2 + 2\omega_2v_3^2\omega_7\omega_4 - \omega_2^2\omega_7\omega_4^2c_s^2 + \omega_2^2\omega_4^2c_s^2 - 2\omega_2^2\omega_7c_s^2 + 2v_3^2\omega_7\omega_4^2 - 2\omega_2\omega_7\omega_4c_s^2 - 3\omega_2v_3^2\omega_7\omega_4^2)\frac{v_1}{2\omega_2^2\omega_7\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_z^2\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^2 v_1}$ **at** $\frac{\partial^3 v_1}{\partial x_1\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1} = (v_3^2\omega^2 + 24c_s^2\omega - 24c_s^2 - 3c_s^2\omega^2)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1} = (-12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 6\omega_4^2c_s^2 - 12\omega_4c_s^2 - 12v_3^2\omega_4 - 6v_3^2\omega_7\omega_4 + 6v_3^2\omega_4^2 + v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4c_s^2 + 12v_3^2\omega_7)\frac{\rho}{12\omega_7\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1} = (-12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 6\omega_4^2c_s^2 - 12\omega_4c_s^2 + 12v_3^2\omega_4 + 6v_3^2\omega_7\omega_4 - 6v_3^2\omega_4^2 + v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4c_s^2 - 12v_3^2\omega_7)\frac{\rho}{12\omega_7\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^3 v_3}{\partial x_1\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3} = (12 + \omega^2 - 12\omega)\frac{v_3v_1\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3} = (-6\omega_2\omega_4^2 + 6\omega_2^2 - 6\omega_2^2\omega_4 + \omega_2^2\omega_4^2 + 6\omega_4^2)\frac{v_3v_1\rho}{6\omega_2^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^2\rho}$ **at** $\frac{\partial^3\rho}{\partial x_2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z^2\rho} = (-6v_3^2\omega + v_3^2\omega^2 + 6v_3^2 + 6c_s^2\omega - 6c_s^2 - c_s^2\omega^2)\frac{v_2}{2\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2\rho} = (\omega_3\omega_7\omega_4^2c_s^2 - 4\omega_3^2v_3^2\omega_7\omega_4 + \omega_3^2\omega_4^2c_s^2 - 2\omega_3^2\omega_7c_s^2 + \omega_3^2v_3^2\omega_7\omega_4^2 + 4\omega_3^2\omega_7\omega_4c_s^2 + 2\omega_3v_3^2\omega_7\omega_4 + \omega_3^2v_3^2\omega_4^2 - \omega_3^2\omega_7\omega_4^2c_s^2 + 4\omega_3^2v_3^2\omega_7 + 2v_3^2\omega_7\omega_4^2 - 2\omega_3^2v_3^2\omega_4 - 2\omega_3\omega_7\omega_4c_s^2 - 3\omega_3v_3^2\omega_7\omega_4^2 - 2\omega_3^2\omega_4c_s^2)\frac{v_2}{2\omega_3^2\omega_7\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^2\rho} = (\omega_3\omega_7\omega_4^2c_s^2 - 2\omega_3^2v_3^2\omega_7\omega_4 + \omega_3^2\omega_4^2c_s^2 - 2\omega_3^2\omega_7c_s^2 + \omega_3^2v_3^2\omega_7\omega_4^2 + 4\omega_3^2\omega_7\omega_4c_s^2 + 2\omega_3v_3^2\omega_7\omega_4 - \omega_3^2v_3^2\omega_4^2 - \omega_3^2\omega_7\omega_4^2c_s^2 + 2v_3^2\omega_7\omega_4^2 + 2\omega_3^2v_3^2\omega_4 - 2\omega_3\omega_7\omega_4c_s^2 - 3\omega_3v_3^2\omega_7\omega_4^2 - 2\omega_3^2\omega_4c_s^2)\frac{v_2}{2\omega_3^2\omega_7\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z^2\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^2v_2}$ **at** $\frac{\partial^3v_2}{\partial x_2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z^2v_2} = (v_3^2\omega^2 + 24c_s^2\omega - 24c_s^2 - 3c_s^2\omega^2)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2v_2} = (-12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 6\omega_4^2c_s^2 - 12\omega_4c_s^2 - 12v_3^2\omega_4 - 6v_3^2\omega_7\omega_4 + 6v_3^2\omega_4^2 + v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4c_s^2 + 12v_3^2\omega_7)\frac{\rho}{12\omega_7\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z^2v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^2v_2} = (-12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 6\omega_4^2c_s^2 - 12\omega_4c_s^2 + 12v_3^2\omega_4 + 6v_3^2\omega_7\omega_4 - 6v_3^2\omega_4^2 + v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4c_s^2 - 12v_3^2\omega_7)\frac{\rho}{12\omega_7\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z^2v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^2v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^2v_3}$ **at** $\frac{\partial^3v_3}{\partial x_2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z^2v_3} = (12 + \omega^2 - 12\omega)\frac{v_3v_2\rho}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2v_3} = (6\omega_3^2 - 6\omega_3\omega_4^2 + \omega_3^2\omega_4^2 + 6\omega_4^2 - 6\omega_3^2\omega_4)\frac{v_3v_2\rho}{6\omega_3^2\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z^2v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^2v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z^2v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^2v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z^3\rho}$ **at** $\frac{\partial^3\rho}{\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z^3\rho} = (6 + 6v_3^2\omega - v_3^2\omega^2 + \omega^2 - 6v_3^2 + 18c_s^2\omega - 18c_s^2 - 3c_s^2\omega^2 - 6\omega)\frac{v_3}{6\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^3\rho} = (\omega_7\omega_4^2 - 12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 3\omega_4^2c_s^2 - 3\omega_7\omega_4 + 6\omega_4 - 6\omega_4c_s^2 - 6v_3^2\omega_4 + 3v_3^2\omega_7\omega_4 + 3v_3^2\omega_4^2 - v_3^2\omega_7\omega_4^2 + 15\omega_7\omega_4c_s^2 - 3\omega_4^2)\frac{v_3}{6\omega_7\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z^3\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^3\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z^3\rho} = (6 + 9\omega_7c_s^2 + \omega_7\omega_4 - 3\omega_7 - 6v_3^2 - 3\omega_4 + 9\omega_4c_s^2 + 3v_3^2\omega_4 - v_3^2\omega_7\omega_4 - 18c_s^2 - 3\omega_7\omega_4c_s^2 + 3v_3^2\omega_7)\frac{v_3}{6\omega_7\omega_4}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z^3\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z^3\rho}$

coefficient $C^{(0)}_{\mathrm{D}_z^3v_3}$ **at** $\frac{\partial^3v_3}{\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z^3v_3} = (12 + 24v_3^2\omega - 5v_3^2\omega^2 + 2\omega^2 - 24v_3^2 + 24c_s^2\omega - 24c_s^2 - 3c_s^2\omega^2 - 12\omega)\frac{\rho}{12\omega^2}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^3v_3} =$
$(2\omega_7\omega_4^2 - 12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 6\omega_4^2c_s^2 - 6\omega_7\omega_4 + 12\omega_4 - 12\omega_4c_s^2 - 12v_3^2\omega_4 + 18v_3^2\omega_7\omega_4 + 6v_3^2\omega_4^2 - 5v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4c_s^2 - 6\omega_4^2 - 12v_3^2\omega_7)\frac{\rho}{12\omega_7\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z^3v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^3v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z^3v_3} =$
$(2\omega_7\omega_4^2 - 12\omega_7c_s^2 - 3\omega_7\omega_4^2c_s^2 + 6\omega_4^2c_s^2 - 6\omega_7\omega_4 + 12\omega_4 - 12\omega_4c_s^2 - 36v_3^2\omega_4 + 6v_3^2\omega_7\omega_4 + 18v_3^2\omega_4^2 - 5v_3^2\omega_7\omega_4^2 + 18\omega_7\omega_4c_s^2 - 6\omega_4^2 + 12v_3^2\omega_7)\frac{\rho}{12\omega_7\omega_4^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_z^3v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_z^3v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t^3\mathrm{D}_x v_1}$ **at** $\frac{\partial^4 v_1}{\partial t^3 \partial x_1}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^3\mathrm{D}_x v_1} = (-2-\omega^2+3\omega)\frac{\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_x v_1} = (-2+3\omega_2-\omega_2^2)\frac{\rho}{2\omega_2^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^3\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^3\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_x v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^3\mathrm{D}_x v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_x v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1}$ **at** $\frac{\partial^4 v_1}{\partial t^2 \partial x_1^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1} = (-2-\omega^2+3\omega)\frac{3v_1\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1} = (8\omega_2^2\omega_5 - 2\omega_2^3\omega_5 - \omega_2^2\omega_5^2 + 2\omega_5^2 - \omega_2\omega_5^2 - 4\omega_2^2 + 2\omega_2^3 - 4\omega_2\omega_5)\frac{v_1\rho}{2\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1} = (-2+3\omega_2-\omega_2^2)\frac{3v_1\rho}{2\omega_2^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^3 v_1}$ **at** $\frac{\partial^4 v_1}{\partial t \partial x_1^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1} = (-36-20\omega^2+\omega^3-90c_s^2\omega-108v_1^2\omega+72v_1^2+60c_s^2+34c_s^2\omega^2+42v_1^2\omega^2+54\omega-3v_1^2\omega^3-2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1} =$
$(36\omega_2^2\omega_5 + 27\omega_2^2v_1^2\omega_5^2 + 25\omega_2^2c_s^2\omega_5^2 + \omega_2^3\omega_5^2 - 9\omega_2^3\omega_5 - 60\omega_2^2v_1^2\omega_5 - 36\omega_2^2c_s^2\omega_5 - 11\omega_2^2\omega_5^2 + 12\omega_2\omega_5^2 - 2\omega_2^3c_s^2\omega_5^2 - 6\omega_2^3v_1^2 - 3\omega_2^3v_1^2\omega_5^2 - 6\omega_2^3c_s^2 + 24\omega_2c_s^2\omega_5 - 12\omega_2^2 + 48\omega_2v_1^2\omega_5 + 6\omega_2^3 + 12\omega_2^2c_s^2 + 12\omega_2^2v_1^2 + 9\omega_2^3c_s^2\omega_5 + 15\omega_2^3v_1^2\omega_5 - 48\omega_2c_s^2\omega_5^2 - 42\omega_2v_1^2\omega_5^2 + 24c_s^2\omega_5^2 - 24\omega_2\omega_5 + 12v_1^2\omega_5^2)\frac{\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1} =$
$(36\omega_2^2\omega_5 + 15\omega_2^2v_1^2\omega_5^2 + 25\omega_2^2c_s^2\omega_5^2 + \omega_2^3\omega_5^2 - 9\omega_2^3\omega_5 - 108\omega_2^2v_1^2\omega_5 - 36\omega_2^2c_s^2\omega_5 - 11\omega_2^2\omega_5^2 + 12\omega_2\omega_5^2 - 2\omega_2^3c_s^2\omega_5^2 - 18\omega_2^3v_1^2 - 3\omega_2^3v_1^2\omega_5^2 - 6\omega_2^3c_s^2 + 24\omega_2c_s^2\omega_5 - 12\omega_2^2 + 72\omega_2v_1^2\omega_5 + 6\omega_2^3 + 12\omega_2^2c_s^2 + 36\omega_2^2v_1^2 + 9\omega_2^3c_s^2\omega_5 + 27\omega_2^3v_1^2\omega_5 - 48\omega_2c_s^2\omega_5^2 + 18\omega_2v_1^2\omega_5^2 + 24c_s^2\omega_5^2 - 24\omega_2\omega_5 - 36v_1^2\omega_5^2)\frac{\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^3 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^4\rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1^4}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^4\rho} = (-72v_1^4+48c_s^4-72c_s^4\omega+6v_1^2c_s^2\omega^3+108v_1^4\omega-84v_1^2c_s^2\omega^2+216v_1^2c_s^2\omega+3v_1^4\omega^3-3c_s^4\omega^3-144v_1^2c_s^2+30c_s^4\omega^2-42v_1^4\omega^2+36c_s^2\omega-108v_1^2\omega+72v_1^2-24c_s^2-14c_s^2\omega^2+42v_1^2\omega^2-3v_1^2\omega^3+c_s^2\omega^3)\frac{1}{24\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^4\rho} = (-96v_1^2c_s^2\omega_5^2 - 24\omega_2^2v_1^4 + 24\omega_2^2v_1^2\omega_5^2 - 8\omega_2^2c_s^2\omega_5^2 - 3\omega_2^3c_s^4\omega_5^2 + 3\omega_2^3v_1^4\omega_5^2 + 12\omega_2^3v_1^2c_s^2 + 24\omega_2c_s^4\omega_5 + 156\omega_2v_1^2c_s^2\omega_5^2 - 48\omega_2v_1^4\omega_5 + 6\omega_2^3c_s^4\omega_5 - 18\omega_2^3v_1^4\omega_5 + 12\omega_2^3v_1^4 - 24\omega_2v_1^2c_s^2\omega_5 - 48\omega_2c_s^4\omega_5^2 + 24\omega_2v_1^4\omega_5^2 - 72\omega_2^2v_1^2\omega_5 + 24c_s^4\omega_5^2 + 24\omega_2^2c_s^2\omega_5 - 24\omega_2^2v_1^4\omega_5^2 + 24\omega_2^2c_s^4\omega_5^2 - 24\omega_2^2v_1^2c_s^2 + \omega_2^3c_s^2\omega_5^2 - 12\omega_2^3v_1^2 - 3\omega_2^3v_1^2\omega_5^2 - 24\omega_2c_s^2\omega_5 + 48\omega_2v_1^2\omega_5 - 72\omega_2^2v_1^2c_s^2\omega_5^2 - 12\omega_2^3v_1^2c_s^2\omega_5 + 6\omega_2^3v_1^2c_s^2\omega_5^2 + 24\omega_2^2v_1^2 + 48\omega_2^2v_1^2c_s^2\omega_5 - 6\omega_2^3c_s^2\omega_5 + 18\omega_2^3v_1^2\omega_5 + 12\omega_2c_s^2\omega_5^2 - 24\omega_2v_1^2\omega_5^2 + 72\omega_2^2v_1^4\omega_5 - 24\omega_2^2c_s^4\omega_5)\frac{1}{24\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^4\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^4\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^4\rho} = (-72\omega_2^2v_1^4+12\omega_2^2v_1^2\omega_5^2-8\omega_2^2c_s^2\omega_5^2-3\omega_2^3c_s^4\omega_5^2+3\omega_2^3v_1^4\omega_5^2+108\omega_2^3v_1^2c_s^2+24\omega_2c_s^4\omega_5-36\omega_2v_1^2c_s^2\omega_5^2+6\omega_2^3c_s^4\omega_5-30\omega_2^3v_1^4\omega_5+36\omega_2^3v_1^4+72\omega_2v_1^2c_s^2\omega_5-48\omega_2c_s^4\omega_5^2-72\omega_2^2v_1^2\omega_5+24c_s^4\omega_5^2+24\omega_2^2c_s^2\omega_5-12\omega_2^2v_1^4\omega_5^2+24\omega_2^2c_s^4\omega_5^2-216\omega_2^2v_1^2c_s^2+\omega_2^3c_s^2\omega_5^2-36\omega_2^3v_1^2-3\omega_2^3v_1^2\omega_5^2-24\omega_2c_s^2\omega_5-$

$12\omega_2^2v_1^2c_s^2\omega_5^2-72\omega_2^3v_1^2c_s^2\omega_5+6\omega_2^3v_1^2c_s^2\omega_5^2+72\omega_2^2v_1^2+144\omega_2^2v_1^2c_s^2\omega_5-6\omega_2^3c_s^2\omega_5+30\omega_2^3v_1^2\omega_5+12\omega_2c_s^2\omega_5^2+72\omega_2^2v_1^4\omega_5-24\omega_2^2c_s^4\omega_5)\frac{1}{24\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^4\rho}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^4\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^4v_1}$ **at** $\frac{\partial^4v_1}{\partial x_1^4}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^4v_1}=(24+14\omega^2-\omega^3+72c_s^2\omega+54v_1^2\omega-36v_1^2-48c_s^2-26c_s^2\omega^2-22v_1^2\omega^2-36\omega+2v_1^2\omega^3+c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^4v_1}=(-24\omega_2^2\omega_5-16\omega_2^2v_1^2\omega_5^2-20\omega_2^2c_s^2\omega_5^2-\omega_2^3\omega_5^2+6\omega_2^3\omega_5+24\omega_2^2v_1^2\omega_5+24\omega_2^2c_s^2\omega_5+8\omega_2^2\omega_5^2-6\omega_2\omega_5^2+\omega_2^3c_s^2\omega_5^2+6\omega_2^3v_1^2+2\omega_2^3v_1^2\omega_5^2+6\omega_2^3c_s^2-12\omega_2c_s^2\omega_5+12\omega_2^2-12\omega_2v_1^2\omega_5-6\omega_2^3-12\omega_2^2c_s^2-12\omega_2^2v_1^2-6\omega_2^3c_s^2\omega_5-6\omega_2^3v_1^2\omega_5+42\omega_2c_s^2\omega_5^2+24\omega_2v_1^2\omega_5^2-24c_s^2\omega_5^2+12\omega_2\omega_5-12v_1^2\omega_5^2)\frac{v_1\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^4v_1}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^4v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^4v_1}=$
$(-24\omega_2^2\omega_5+2\omega_2^2v_1^2\omega_5^2-2\omega_2^2c_s^2\omega_5^2-\omega_2^3\omega_5^2+12\omega_2^3\omega_5+24\omega_2^2v_1^2\omega_5+72\omega_2^2c_s^2\omega_5+2\omega_2^2\omega_5^2+6\omega_2\omega_5^2+\omega_2^3c_s^2\omega_5^2+42\omega_2^3v_1^2+2\omega_2^3v_1^2\omega_5^2+30\omega_2^3c_s^2-12\omega_2c_s^2\omega_5+36\omega_2^2+60\omega_2v_1^2\omega_5-18\omega_2^3-60\omega_2^2c_s^2-84\omega_2^2v_1^2-24\omega_2^3c_s^2\omega_5-24\omega_2^3v_1^2\omega_5-30\omega_2c_s^2\omega_5^2-12\omega_2v_1^2\omega_5^2+24c_s^2\omega_5^2-12\omega_2\omega_5-12v_1^2\omega_5^2)\frac{v_1\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^4v_1}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^4v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t^3\mathrm{D}_yv_2}$ **at** $\frac{\partial^4v_2}{\partial t^3\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}=(-2-\omega^2+3\omega)\frac{\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}=(-2-\omega_3^2+3\omega_3)\frac{\rho}{2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_yv_2}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}$ **at** $\frac{\partial^4v_1}{\partial t^2\partial x_1\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}=(36+20\omega^2-\omega^3-54\omega)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}=(-\omega_2^2\omega_3^3-6\omega_3^3+13\omega_2^2\omega_3^2+12\omega_3^2-24\omega_2^2\omega_3+12\omega_2^2+12\omega_2\omega_3-24\omega_2\omega_3^2+7\omega_2\omega_3^3)\frac{v_2\rho}{12\omega_2^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_1}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}$ **at** $\frac{\partial^4v_2}{\partial t^2\partial x_1\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}=(36+20\omega^2-\omega^3-54\omega)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}=(7\omega_2^3\omega_3+13\omega_2^2\omega_3^2+12\omega_3^2-24\omega_2^2\omega_3-\omega_2^3\omega_3^2+12\omega_2^2+12\omega_2\omega_3-6\omega_2^3-24\omega_2\omega_3^2)\frac{v_1\rho}{12\omega_2^3\omega_3^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_yv_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1}$ **at** $\frac{\partial^4 v_1}{\partial t \partial x_1^2 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1} = (-24 - 14\omega^2 + \omega^3 + 36\omega)\frac{v_2 v_1 \rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1} = (-6\omega_2^2\omega_3^3 - 12\omega_3^3\omega_5 + 24\omega_2\omega_3^3\omega_5 + 12\omega_2^2\omega_3^2 - 7\omega_2^3\omega_3^2\omega_5 - 12\omega_2\omega_3^2\omega_5 - 6\omega_2^3\omega_5 + 3\omega_2^3\omega_3^3 - 6\omega_2^2\omega_3\omega_5 + \omega_2^3\omega_3^3\omega_5 - 6\omega_2^3\omega_3^2 + 12\omega_2^2\omega_3^2\omega_5 + 12\omega_2^3\omega_3\omega_5 - 10\omega_2^2\omega_3^3\omega_5)\frac{v_2 v_1 \rho}{6\omega_2^3\omega_3^3\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1} = (-7\omega_2^2\omega_3^3 + 12\omega_2^3\omega_3 - 12\omega_3^3 + 6\omega_2^2\omega_3^2 + \omega_2^3\omega_3^3 - 6\omega_2^2\omega_3 - 7\omega_2^3\omega_3^2 - 6\omega_2^3 + 18\omega_2\omega_3^3)\frac{v_2 v_1 \rho}{6\omega_2^3\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2}$ **at** $\frac{\partial^4 v_2}{\partial t \partial x_1^2 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2} = (-90c_s^2\omega + 60c_s^2 + 34c_s^2\omega^2 - 2v_1^2\omega^2 + v_1^2\omega^3 - 2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2} = (-6\omega_2^3\omega_3 v_1^2 - 6\omega_2^3\omega_3 c_s^2 + 6\omega_2^2 v_1^2\omega_5^2 - 18\omega_2^2 c_s^2\omega_5^2 + 12\omega_2\omega_3 v_1^2\omega_5 + 12\omega_2\omega_3 c_s^2\omega_5 + 12\omega_2^2 v_1^2\omega_5 + 12\omega_2^2 c_s^2\omega_5 + 36\omega_2\omega_3 v_1^2\omega_5^2 - 30\omega_2\omega_3 c_s^2\omega_5^2 - 24\omega_3 v_1^2\omega_5^2 + 12\omega_3 c_s^2\omega_5^2 + 3\omega_2^2 c_s^2\omega_5^2 - \omega_2^3 v_1^2\omega_5^2 - 2\omega_2^3\omega_3 c_s^2\omega_5^2 + \omega_2^3\omega_3 v_1^2\omega_5^2 - 30\omega_2^2\omega_3 v_1^2\omega_5 - 30\omega_2^2\omega_3 c_s^2\omega_5 + 12\omega_2^2\omega_3 c_s^2 + 12\omega_2^2\omega_3 v_1^2 - 10\omega_2^2\omega_3 v_1^2\omega_5^2 + 22\omega_2^2\omega_3 c_s^2\omega_5^2 + 9\omega_2^3\omega_3 c_s^2\omega_5 + 9\omega_2^3\omega_3 v_1^2\omega_5 - 6\omega_2^3 c_s^2\omega_5 - 6\omega_2^3 v_1^2\omega_5 + 12\omega_2 c_s^2\omega_5^2 - 12\omega_2 v_1^2\omega_5^2)\frac{\rho}{12\omega_2^3\omega_3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2} = (6\omega_2^3\omega_3 v_1^2 - 6\omega_2^3\omega_3 c_s^2 - 6\omega_2^2 v_1^2\omega_5^2 - 18\omega_2^2 c_s^2\omega_5^2 - 12\omega_2\omega_3 v_1^2\omega_5 + 12\omega_2\omega_3 c_s^2\omega_5 - 12\omega_2^2 v_1^2\omega_5 + 12\omega_2^2 c_s^2\omega_5 - 36\omega_2\omega_3 v_1^2\omega_5^2 - 30\omega_2\omega_3 c_s^2\omega_5^2 + 24\omega_3 v_1^2\omega_5^2 + 12\omega_3 c_s^2\omega_5^2 + 3\omega_2^2 c_s^2\omega_5^2 - \omega_2^3 v_1^2\omega_5^2 - 2\omega_2^3\omega_3 c_s^2\omega_5^2 + \omega_2^3\omega_3 v_1^2\omega_5^2 + 30\omega_2^2\omega_3 v_1^2\omega_5 - 30\omega_2^2\omega_3 c_s^2\omega_5 + 12\omega_2^2\omega_3 c_s^2 - 12\omega_2^2\omega_3 v_1^2 + 8\omega_2^2\omega_3 v_1^2\omega_5^2 + 22\omega_2^2\omega_3 c_s^2\omega_5^2 + 9\omega_2^3\omega_3 c_s^2\omega_5 - 9\omega_2^3\omega_3 v_1^2\omega_5 - 6\omega_2^3 c_s^2\omega_5 + 6\omega_2^3 v_1^2\omega_5 + 12\omega_2 c_s^2\omega_5^2 + 12\omega_2 v_1^2\omega_5^2)\frac{\rho}{12\omega_2^3\omega_3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_y \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1^3 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\mathrm{D}_y \rho} = (24 + 14\omega^2 - \omega^3 + 180c_s^2\omega - 120c_s^2 - 72c_s^2\omega^2 - 36\omega + 6c_s^2\omega^3)\frac{v_2 v_1}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_y \rho} = (-12\omega_2^2\omega_3^3 c_s^2 - 12\omega_2^2\omega_3^3 v_1^2 + 6\omega_2^2\omega_3^3 + 42\omega_2^2\omega_3^2 c_s^2\omega_5^2 - 12\omega_2^2\omega_3^2 v_1^2\omega_5^2 + 6\omega_2^3\omega_3^2 v_1^2\omega_5 + 24\omega_3^3 v_1^2\omega_5^2 + 12\omega_2\omega_3^3\omega_5 - 36\omega_3^3 c_s^2\omega_5^2 + 6\omega_2^3\omega_3^2 c_s^2\omega_5 - \omega_2^3\omega_3^3\omega_5^2 - 30\omega_2\omega_3^3 v_1^2\omega_5^2 + 78\omega_2\omega_3^3 c_s^2\omega_5^2 - 3\omega_2^3\omega_3^2\omega_5 + \omega_2^3\omega_3^2\omega_5^2 - 24\omega_2\omega_3^3 v_1^2\omega_5 - 3\omega_2^3\omega_3^3 - 24\omega_2\omega_3^3 c_s^2\omega_5 - 6\omega_2\omega_3^3\omega_5^2 + 6\omega_2^3\omega_3^2 v_1^2\omega_5^2 - 12\omega_2^3\omega_3^2 c_s^2\omega_5^2 + 6\omega_2^3\omega_3^2\omega_5 - 12\omega_2^2\omega_3^2 c_s^2\omega_5 - 12\omega_2^2\omega_3^2 v_1^2\omega_5 + 6\omega_2^2\omega_3^2\omega_5 - 24\omega_2\omega_3^2 c_s^2\omega_5^2 + 6\omega_2^3 v_1^2\omega_5^2 + 12\omega_2\omega_3^2 v_1^2\omega_5^2 - 12\omega_2^3\omega_3^3 c_s^2\omega_5 - 12\omega_2^3\omega_3^3 v_1^2\omega_5 + 6\omega_2^3\omega_3 c_s^2\omega_5^2 + 7\omega_2^2\omega_3^3\omega_5^2 - 12\omega_2^3\omega_3 v_1^2\omega_5^2 + 6\omega_2^3\omega_3^3 v_1^2 + 6\omega_2^3\omega_3^3 c_s^2 + 6\omega_2^2\omega_3^3 v_1^2\omega_5^2 - 48\omega_2^2\omega_3^3 c_s^2\omega_5^2 + 6\omega_2^2\omega_3 v_1^2\omega_5^2 - 12\omega_2^2\omega_3 c_s^2\omega_5^2 + 42\omega_2^2\omega_3^3 v_1^2\omega_5 + 42\omega_2^2\omega_3^3 c_s^2\omega_5 + 6\omega_2^3\omega_3^3 c_s^2\omega_5^2 - 21\omega_2^2\omega_3^3\omega_5 - 3\omega_2^3\omega_3^2\omega_5^2)\frac{v_2 v_1}{6\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\mathrm{D}_y \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_y \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_y \rho} = (-36\omega_2^2\omega_3^3 c_s^2 + 12\omega_2^2\omega_3^3 v_1^2 + 6\omega_2^2\omega_3^3 + 36\omega_2^2\omega_3^2 c_s^2\omega_5^2 - 6\omega_2^2\omega_3^2 v_1^2\omega_5^2 + 12\omega_2\omega_3^3\omega_5 - 12\omega_3^3 c_s^2\omega_5^2 + 12\omega_2^3\omega_3^2 c_s^2\omega_5 - \omega_2^3\omega_3^3\omega_5^2 + 12\omega_2\omega_3^3 v_1^2\omega_5^2 + 36\omega_2\omega_3^3 c_s^2\omega_5^2 - 3\omega_2^3\omega_3^2\omega_5 + \omega_2^3\omega_3^2\omega_5^2 - 24\omega_2\omega_3^3 v_1^2\omega_5 - 3\omega_2^3\omega_3^3 - 24\omega_2\omega_3^3 c_s^2\omega_5 - 6\omega_2\omega_3^3\omega_5^2 + 6\omega_2^3\omega_3^2 v_1^2\omega_5^2 - 12\omega_2^3\omega_3^2 c_s^2\omega_5^2 + 6\omega_2^3\omega_3^3\omega_5 - 24\omega_2^2\omega_3^2 c_s^2\omega_5 + 6\omega_2^3 v_1^2\omega_5^2 - 24\omega_2^3\omega_3^3 c_s^2\omega_5 + 6\omega_2^3\omega_3 c_s^2\omega_5^2 + 7\omega_2^2\omega_3^3\omega_5^2 - 12\omega_2^3\omega_3 v_1^2\omega_5^2 - 6\omega_2^3\omega_3^3 v_1^2 + 18\omega_2^3\omega_3^3 c_s^2 - 6\omega_2^3\omega_3^3 v_1^2\omega_5^2 - 36\omega_2^2\omega_3^3 c_s^2\omega_5^2 + 6\omega_2^2\omega_3 v_1^2\omega_5^2 - 12\omega_2^2\omega_3 c_s^2\omega_5^2 + 12\omega_2^2\omega_3^3 v_1^2\omega_5 + 72\omega_2^2\omega_3^3 c_s^2\omega_5 + 6\omega_2^3\omega_3^3 c_s^2\omega_5^2 - 21\omega_2^2\omega_3^3\omega_5 - 3\omega_2^2\omega_3^3\omega_5^2)\frac{v_2 v_1}{6\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\mathrm{D}_y \rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_y \rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_y v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1^3 \partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\mathrm{D}_y v_1} = (12 + 8\omega^2 - \omega^3 + 144c_s^2\omega + 18v_1^2\omega - 12v_1^2 - 96c_s^2 - 56c_s^2\omega^2 - 12v_1^2\omega^2 - 18\omega + 3v_1^2\omega^3 + 4c_s^2\omega^3)\frac{v_2 \rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_y v_1} = (-12\omega_2^2\omega_3^3 c_s^2 - 12\omega_2^2\omega_3^3 v_1^2 + 48\omega_2^2\omega_3^2 c_s^2\omega_5^2 + 12\omega_2^2\omega_3^2 v_1^2\omega_5^2 + 12\omega_2^3\omega_3^2 v_1^2\omega_5 + 24\omega_3^3 v_1^2\omega_5^2 - 12\omega_3^3 c_s^2\omega_5^2 + 12\omega_2^3\omega_3^2 c_s^2\omega_5 - \omega_2^3\omega_3^3\omega_5^2 - 30\omega_2\omega_3^3 v_1^2\omega_5^2 + 36\omega_2\omega_3^3 c_s^2\omega_5^2 - 6\omega_2^3\omega_3^2\omega_5 + 2\omega_2^3\omega_3^2\omega_5^2 - 12\omega_2\omega_3^3 v_1^2\omega_5 - 12\omega_2\omega_3^3 c_s^2\omega_5 - 12\omega_2^3\omega_3^2 c_s^2\omega_5^2 + 3\omega_2^3\omega_3^3\omega_5 - 24\omega_2^2\omega_3^2 c_s^2\omega_5 -$

$24\omega_2^2\omega_3^2v_1^2\omega_5+12\omega_2^2\omega_3^2\omega_5-24\omega_2\omega_3^2c_s^2\omega_5^2+12\omega_2^3v_1^2\omega_5^2-12\omega_2^3\omega_3^3c_s^2\omega_5-12\omega_2^3\omega_3^3v_1^2\omega_5+6\omega_2^3\omega_3c_s^2\omega_5^2+3\omega_2^2\omega_3^3\omega_5^2-18\omega_2^3\omega_3v_1^2\omega_5^2+6\omega_2^2\omega_3^3v_1^2+6\omega_2^3\omega_3^3c_s^2-32\omega_2^2\omega_3^3c_s^2\omega_5^2-12\omega_2^2\omega_3c_s^2\omega_5^2+36\omega_2^2\omega_3^3v_1^2\omega_5+36\omega_2^2\omega_3^3c_s^2\omega_5+4\omega_2^3\omega_3^3c_s^2\omega_5^2+3\omega_2^3\omega_3^3v_1^2\omega_5^2-6\omega_2^2\omega_3^3\omega_5-6\omega_2^3\omega_3^3\omega_5^2)\frac{v_2\rho}{12\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\mathrm{D}_y v_1}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_y v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_y v_1}=(-12\omega_2^2\omega_3^3c_s^2+12\omega_2^2\omega_3^3v_1^2+48\omega_2^2\omega_3^2c_s^2\omega_5^2+12\omega_2^2\omega_3^2v_1^2\omega_5^2+12\omega_2^3\omega_3^2v_1^2\omega_5-24\omega_3^3v_1^2\omega_5^2-12\omega_3^3c_s^2\omega_5^2+12\omega_2^3\omega_3^2c_s^2\omega_5-\omega_2^3\omega_3^3\omega_5^2+30\omega_2\omega_3^3v_1^2\omega_5^2+36\omega_2\omega_3^3c_s^2\omega_5^2-6\omega_2^3\omega_3^2\omega_5+2\omega_2^3\omega_3^3\omega_5^2+12\omega_2\omega_3^3v_1^2\omega_5-12\omega_2\omega_3^3c_s^2\omega_5-12\omega_2^3\omega_3^2c_s^2\omega_5^2+3\omega_2^3\omega_3^3\omega_5-24\omega_2^2\omega_3^2c_s^2\omega_5-24\omega_2^2\omega_3^2v_1^2\omega_5+12\omega_2^2\omega_3^2\omega_5-24\omega_2\omega_3^2c_s^2\omega_5^2+12\omega_2^3v_1^2\omega_5^2-12\omega_2^3\omega_3^3c_s^2\omega_5+6\omega_2^3\omega_3c_s^2\omega_5^2+3\omega_2^2\omega_3^3\omega_5^2-18\omega_2^3\omega_3v_1^2\omega_5^2-6\omega_2^3\omega_3^3v_1^2+6\omega_2^2\omega_3^3c_s^2-12\omega_2^2\omega_3^3v_1^2\omega_5^2-32\omega_2^2\omega_3^3c_s^2\omega_5^2-12\omega_2^2\omega_3c_s^2\omega_5^2-12\omega_2^2\omega_3^3v_1^2\omega_5+36\omega_2^2\omega_3^3c_s^2\omega_5+4\omega_2^3\omega_3^3c_s^2\omega_5^2+3\omega_2^3\omega_3^3v_1^2\omega_5^2-6\omega_2^2\omega_3^3\omega_5-6\omega_2^3\omega_3^3\omega_5^2)\frac{v_2\rho}{12\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\mathrm{D}_y v_1}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_y v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_y v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_1^3\partial x_2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}=(36+20\omega^2-\omega^3+144c_s^2\omega+54v_1^2\omega-36v_1^2-96c_s^2-56c_s^2\omega^2-20v_1^2\omega^2-54\omega+v_1^2\omega^3+4c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}=(-36\omega_2^2\omega_5-8\omega_2^2v_1^2\omega_5^2-44\omega_2^2c_s^2\omega_5^2-\omega_2^3\omega_5^2+9\omega_2^3\omega_5+48\omega_2^2v_1^2\omega_5+48\omega_2^2c_s^2\omega_5+11\omega_2^2\omega_5^2-12\omega_2\omega_5^2+4\omega_2^3c_s^2\omega_5^2+6\omega_2^3v_1^2+\omega_2^3v_1^2\omega_5^2+6\omega_2^3c_s^2-36\omega_2c_s^2\omega_5+12\omega_2^2-36\omega_2v_1^2\omega_5-6\omega_2^3-12\omega_2^2c_s^2-12\omega_2^2v_1^2-12\omega_2^3c_s^2\omega_5-12\omega_2^3v_1^2\omega_5+90\omega_2c_s^2\omega_5^2-48c_s^2\omega_5^2+24\omega_2\omega_5+12v_1^2\omega_5^2)\frac{v_1\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}=(-36\omega_2^2\omega_5-14\omega_2^2v_1^2\omega_5^2-26\omega_2^2c_s^2\omega_5^2-\omega_2^3\omega_5^2+9\omega_2^3\omega_5+48\omega_2^2v_1^2\omega_5+96\omega_2^2c_s^2\omega_5+11\omega_2^2\omega_5^2-12\omega_2\omega_5^2+4\omega_2^3c_s^2\omega_5^2-6\omega_2^3v_1^2+\omega_2^3v_1^2\omega_5^2+30\omega_2^3c_s^2-36\omega_2c_s^2\omega_5+12\omega_2^2-60\omega_2v_1^2\omega_5-6\omega_2^3-60\omega_2^2c_s^2+12\omega_2^2v_1^2-30\omega_2^3c_s^2\omega_5-6\omega_2^3v_1^2\omega_5+18\omega_2c_s^2\omega_5^2+12\omega_2v_1^2\omega_5^2+24\omega_2\omega_5+12v_1^2\omega_5^2)\frac{v_1\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}$ **at** $\frac{\partial^4 v_2}{\partial t^2\partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}=(-2-\omega^2+3\omega)\frac{3v_2\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}=(2\omega_3^3+2\omega_6^2-\omega_6^2\omega_3^2-4\omega_3^2-\omega_6^2\omega_3-4\omega_6\omega_3+8\omega_6\omega_3^2-2\omega_6\omega_3^3)\frac{v_2\rho}{2\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}=(-2-\omega_3^2+3\omega_3)\frac{3v_2\rho}{2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_y^2 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}$ **at** $\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}=(-2v_2^2\omega^2+v_2^2\omega^3-90c_s^2\omega+60c_s^2+34c_s^2\omega^2-2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}=(-10\omega_2\omega_6^2\omega_3^2v_2^2+3\omega_6^2\omega_3^3c_s^2+6\omega_6^2\omega_3^2v_2^2-2\omega_2\omega_6^2\omega_3^3c_s^2+12\omega_2\omega_6\omega_3v_2^2+\omega_2\omega_6^2\omega_3^3v_2^2-18\omega_6^2\omega_3^2c_s^2+12\omega_2\omega_6\omega_3c_s^2-\omega_6^2\omega_3^3v_2^2+22\omega_2\omega_6^2\omega_3^2c_s^2+12\omega_6\omega_3^2c_s^2+9\omega_2\omega_6\omega_3^3v_2^2-30\omega_2\omega_6^2\omega_3c_s^2+12\omega_2\omega_3^2c_s^2+12\omega_6^2\omega_3c_s^2-6\omega_2\omega_3^3v_2^2-24\omega_2\omega_6^2v_2^2-30\omega_2\omega_6\omega_3^2c_s^2-6\omega_6\omega_3^3v_2^2-6\omega_2\omega_3^3c_s^2-12\omega_6^2\omega_3v_2^2-6\omega_6\omega_3^3c_s^2-30\omega_2\omega_6\omega_3^2v_2^2+12\omega_2\omega_6^2c_s^2+9\omega_2\omega_6\omega_3^2c_s^2+12\omega_6\omega_3^2v_2^2+12\omega_2\omega_3^2v_2^2+36\omega_2\omega_6^2\omega_3v_2^2)\frac{\rho}{12\omega_2\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}=(8\omega_2\omega_6^2\omega_3^2v_2^2+3\omega_6^2\omega_3^3c_s^2-6\omega_6^2\omega_3^2v_2^2-2\omega_2\omega_6^2\omega_3^3c_s^2-12\omega_2\omega_6\omega_3v_2^2+\omega_2\omega_6^2\omega_3^3v_2^2-18\omega_6^2\omega_3^2c_s^2+12\omega_2\omega_6\omega_3c_s^2-\omega_6^2\omega_3^3v_2^2+22\omega_2\omega_6^2\omega_3^2c_s^2+12\omega_6\omega_3^2c_s^2-9\omega_2\omega_6\omega_3^3v_2^2-30\omega_2\omega_6^2\omega_3c_s^2+12\omega_2\omega_3^2c_s^2+12\omega_6^2\omega_3c_s^2+6\omega_2\omega_3^3v_2^2+24\omega_2\omega_6^2v_2^2-30\omega_2\omega_6\omega_3^2c_s^2+6\omega_6\omega_3^3v_2^2-6\omega_2\omega_3^3c_s^2+12\omega_6^2\omega_3v_2^2-6\omega_6\omega_3^3c_s^2+30\omega_2\omega_6\omega_3^2v_2^2+12\omega_2\omega_6^2c_s^2+9\omega_2\omega_6\omega_3^2c_s^2-12\omega_6\omega_3^2v_2^2-12\omega_2\omega_3^2v_2^2-36\omega_2\omega_6^2\omega_3v_2^2)\frac{\rho}{12\omega_2\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2}$ **at** $\frac{\partial^4 v_2}{\partial t \partial x_1 \partial x_2^2}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2} = (-24 - 14\omega^2 + \omega^3 + 36\omega)\frac{v_2 v_1 \rho}{6\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2} = (-6\omega_2^2\omega_3^3 + 12\omega_2^2\omega_6\omega_3^2 + 12\omega_2^2\omega_3^2 - 12\omega_2^3\omega_6 - 7\omega_2^2\omega_6\omega_3^3 + 3\omega_2^3\omega_3^3 - 12\omega_2^2\omega_6\omega_3 - 6\omega_2^3\omega_3^2 + \omega_2^3\omega_6\omega_3^3 - 10\omega_2^3\omega_6\omega_3^2 - 6\omega_2\omega_6\omega_3^2 + 24\omega_2^3\omega_6\omega_3 - 6\omega_6\omega_3^3 + 12\omega_2\omega_6\omega_3^3)\frac{v_2 v_1 \rho}{6\omega_2^3\omega_6\omega_3^3}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2} = (-7\omega_2^2\omega_3^3 + 18\omega_2^3\omega_3 - 6\omega_3^3 + 6\omega_2^2\omega_3^2 + \omega_2^3\omega_3^3 - 7\omega_2^3\omega_3^2 - 12\omega_2^3 - 6\omega_2\omega_3^2 + 12\omega_2\omega_3^3)\frac{v_2 v_1 \rho}{6\omega_2^3\omega_3^3}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y^2 v_2}$$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1^2 \partial x_2^2}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho} = (16c_s^4 - 24c_s^4\omega + v_1^2c_s^2\omega^3 - 14v_1^2c_s^2\omega^2 + 36v_1^2c_s^2\omega - c_s^4\omega^3 - 24v_1^2c_s^2 + 10c_s^4\omega^2 - 24v_2^2c_s^2 + 56v_2^2v_1^2 + 34v_2^2v_1^2\omega^2 - 14v_2^2c_s^2\omega^2 + v_2^2c_s^2\omega^3 - 3v_2^2v_1^2\omega^3 - 84v_2^2v_1^2\omega + 36v_2^2c_s^2\omega)\frac{1}{4\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho} = (-2\omega_2^2\omega_6^2\omega_3^3c_s^4\omega_5 + 20\omega_2^2\omega_6^2\omega_3v_2^2v_1^2\omega_5^2 + 4\omega_2^2\omega_6^2\omega_3c_s^4\omega_5^2 - 8\omega_2^2\omega_6^2\omega_3v_2^2c_s^2\omega_5^2 + 10\omega_2^3\omega_6^2\omega_3v_1^2c_s^2\omega_5^2 - 4\omega_2^2\omega_6\omega_3^2v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_6\omega_3^2v_2^2c_s^2\omega_5^2 + 10\omega_2^3\omega_6\omega_3^2v_2^2v_1^2\omega_5^2 - 4\omega_2^3\omega_6^2v_1^2c_s^2\omega_5^2 + 4\omega_2^3\omega_6^2\omega_3^2c_s^4\omega_5^2 - 4\omega_2^3\omega_3^2v_1^2c_s^2\omega_5^2 - 4\omega_2^3\omega_6^2\omega_3^2v_2^2c_s^2\omega_5^2 + 12\omega_2^2\omega_6^2\omega_3^2v_1^2c_s^2\omega_5^2 + 20\omega_2^3\omega_6^2\omega_3^2v_2^2v_1^2\omega_5^2 + 4\omega_2\omega_6^2\omega_3^3v_1^2c_s^2\omega_5^2 + \omega_2^3\omega_6\omega_3^3c_s^4\omega_5^2 - 3\omega_2^3\omega_6^2\omega_3^3v_2^2v_1^2\omega_5 - 4\omega_2^3\omega_6\omega_3v_1^2c_s^2\omega_5^2 - 2\omega_2^2\omega_6^2\omega_3^3v_1^2c_s^2\omega_5 - 3\omega_2^3\omega_6^2\omega_3^3v_2^2c_s^2\omega_5 - 2\omega_2\omega_6^2\omega_3^3c_s^4\omega_5^2 - 8\omega_2\omega_6^2\omega_3^2v_1^2c_s^2\omega_5^2 - 3\omega_2^3\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 - 4\omega_2^2\omega_6^2\omega_3^3v_1^2c_s^2\omega_5^2 + 2\omega_2^3\omega_3^3v_1^2c_s^2\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 2\omega_2^3\omega_6^2\omega_3^2v_2^2c_s^2\omega_5 + 4\omega_2^2\omega_6^2\omega_3^2v_1^2c_s^2\omega_5 - 4\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 20\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 + 2\omega_2^3\omega_6^2\omega_3^2v_2^2v_1^2\omega_5 + 4\omega_2^2\omega_6\omega_3^2c_s^4\omega_5^2 - 2\omega_2^3\omega_6^2\omega_3^2c_s^4\omega_5 + 4\omega_2^2\omega_6^2\omega_3^3c_s^4\omega_5^2 - 3\omega_2^3\omega_6\omega_3^3v_2^2v_1^2\omega_5^2 + 2\omega_2^3\omega_6^2\omega_3^3v_2^2c_s^2 + 2\omega_2^3\omega_6^2\omega_3^3v_2^2v_1^2 + \omega_2^3\omega_6\omega_3^3v_2^2c_s^2\omega_5^2 + 2\omega_2^2\omega_6\omega_3^3v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_6\omega_3^2c_s^4\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3v_1^2c_s^2\omega_5 + 10\omega_2^2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5 - 4\omega_2^3\omega_6\omega_3v_2^2v_1^2\omega_5^2 + 10\omega_2^2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5 - 4\omega_2^3\omega_3^2v_2^2v_1^2\omega_5^2 - 36\omega_2^2\omega_6^2\omega_3^2v_2^2v_1^2\omega_5^2 + 12\omega_2^2\omega_6^2\omega_3^2v_2^2c_s^2\omega_5^2 - 8\omega_2^3\omega_6^2\omega_3^2v_1^2c_s^2\omega_5^2 - 38\omega_2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 + 10\omega_2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 - 4\omega_2^2\omega_6^2\omega_3^3v_2^2v_1^2 - 4\omega_2^2\omega_6\omega_3^2v_2^2v_1^2\omega_5^2 - 4\omega_2^2\omega_6^2\omega_3^3v_2^2c_s^2 + 10\omega_2^3\omega_6\omega_3^2v_1^2c_s^2\omega_5^2 + 4\omega_2^2\omega_6\omega_3^2v_2^2c_s^2\omega_5^2 + 20\omega_2^3\omega_6^2v_2^2v_1^2\omega_5^2 - \omega_2^3\omega_6^2\omega_3^3c_s^4\omega_5^2 + 4\omega_2^2\omega_6^2\omega_3^2c_s^4\omega_5 + 4\omega_2^3\omega_6^2\omega_3v_2^2c_s^2\omega_5^2 - 4\omega_2^2\omega_6^2\omega_3v_1^2c_s^2\omega_5^2 - 38\omega_2^3\omega_6^2\omega_3v_2^2v_1^2\omega_5^2 - 12\omega_2^2\omega_6^2\omega_3^2c_s^4\omega_5^2 - 2\omega_2^2\omega_6\omega_3^3v_2^2c_s^2\omega_5^2 - 3\omega_2^3\omega_6\omega_3^3v_1^2c_s^2\omega_5^2 + 2\omega_2^2\omega_6\omega_3^3v_2^2v_1^2\omega_5^2 - 2\omega_2^3\omega_6^2\omega_3c_s^4\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3c_s^4\omega_5 - 4\omega_2^2\omega_6^2\omega_3^2v_2^2v_1^2\omega_5 - 4\omega_2^2\omega_6^2\omega_3^2v_2^2c_s^2\omega_5 - 2\omega_2^3\omega_6^2\omega_3^2v_1^2c_s^2\omega_5 - 2\omega_2^2\omega_6\omega_3^3c_s^4\omega_5^2 - 4\omega_2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5 - 4\omega_2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5 - 4\omega_2\omega_6^2\omega_3^2v_2^2c_s^2\omega_5^2 + 20\omega_2\omega_6^2\omega_3^2v_2^2v_1^2\omega_5^2 + 4\omega_2\omega_6^2\omega_3^2c_s^4\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3v_1^2c_s^2\omega_5^2 - 8\omega_2^2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 20\omega_2^2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 + 2\omega_2^3\omega_3^3v_2^2v_1^2\omega_5^2)\frac{1}{4\omega_2^3\omega_6^2\omega_3^3\omega_5^2}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho} = (-2\omega_2^2\omega_6^2\omega_3^3c_s^4\omega_5 + 12\omega_2^2\omega_6^2\omega_3v_2^2v_1^2\omega_5^2 + 4\omega_2^2\omega_6^2\omega_3c_s^4\omega_5^2 + 10\omega_2^3\omega_6^2\omega_3v_1^2c_s^2\omega_5^2 - 4\omega_2^2\omega_6\omega_3^2v_1^2c_s^2\omega_5^2 + 2\omega_2^3\omega_6\omega_3^2v_2^2c_s^2\omega_5^2 - 10\omega_2^3\omega_6\omega_3^2v_2^2v_1^2\omega_5^2 - 4\omega_2^3\omega_6^2v_1^2c_s^2\omega_5^2 + 4\omega_2^3\omega_6^2\omega_3^2c_s^4\omega_5^2 - 4\omega_2^3\omega_3^2v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_6^2\omega_3^2v_2^2c_s^2\omega_5^2 + 8\omega_2^2\omega_6^2\omega_3^2v_1^2c_s^2\omega_5^2 + 14\omega_2^3\omega_6^2\omega_3^2v_2^2v_1^2\omega_5^2 + \omega_2^3\omega_6\omega_3^3c_s^4\omega_5^2 + 3\omega_2^3\omega_6^2\omega_3^3v_2^2v_1^2\omega_5 - 4\omega_2^3\omega_6\omega_3v_1^2c_s^2\omega_5^2 + 2\omega_2^2\omega_6^2\omega_3^3v_1^2c_s^2\omega_5 - 3\omega_2^3\omega_6^2\omega_3^3v_2^2c_s^2\omega_5 - 2\omega_2\omega_6^2\omega_3^3c_s^4\omega_5^2 - 3\omega_2^3\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 - 2\omega_2^2\omega_6^2\omega_3^3v_1^2c_s^2\omega_5^2 + 2\omega_2^3\omega_3^3v_1^2c_s^2\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 2\omega_2^3\omega_6^2\omega_3^2v_2^2c_s^2\omega_5 - 4\omega_2^2\omega_6^2\omega_3^2v_1^2c_s^2\omega_5 - 4\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 4\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 - 2\omega_2^3\omega_6^2\omega_3^2v_2^2v_1^2\omega_5 + 4\omega_2^2\omega_6\omega_3^2c_s^4\omega_5^2 - 2\omega_2^3\omega_6^2\omega_3^2c_s^4\omega_5 + 4\omega_2^2\omega_6^2\omega_3^3c_s^4\omega_5^2 + 3\omega_2^3\omega_6\omega_3^3v_2^2v_1^2\omega_5^2 + 2\omega_2^3\omega_6^2\omega_3^3v_2^2c_s^2 - 2\omega_2^3\omega_6^2\omega_3^3v_2^2v_1^2 - \omega_2^3\omega_6\omega_3^3v_2^2c_s^2\omega_5^2 + 2\omega_2^2\omega_6\omega_3^3v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_6\omega_3^2c_s^4\omega_5^2 - \omega_2^3\omega_6^2\omega_3^3v_1^2c_s^2\omega_5 + 10\omega_2^2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5 + 4\omega_2^3\omega_6\omega_3v_2^2v_1^2\omega_5^2 - 10\omega_2^2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5 + 4\omega_2^3\omega_3^2v_2^2v_1^2\omega_5^2 - 28\omega_2^2\omega_6^2\omega_3^2v_2^2v_1^2\omega_5^2 + 8\omega_2^2\omega_6^2\omega_3^2v_2^2c_s^2\omega_5^2 - 8\omega_2^3\omega_6^2\omega_3^2v_1^2c_s^2\omega_5^2 - 14\omega_2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 + 10\omega_2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 4\omega_2^2\omega_6^2\omega_3^3v_2^2v_1^2 + 4\omega_2^2\omega_6\omega_3^2v_2^2v_1^2\omega_5^2 - 4\omega_2^2\omega_6^2\omega_3^3v_2^2c_s^2 + 10\omega_2^3\omega_6\omega_3^2v_1^2c_s^2\omega_5^2 - 4\omega_2^2\omega_6\omega_3^2v_2^2c_s^2\omega_5^2 + 4\omega_2^3\omega_6^2v_2^2v_1^2\omega_5^2 - \omega_2^3\omega_6^2\omega_3^3c_s^4\omega_5^2 + 4\omega_2^2\omega_6^2\omega_3^2c_s^4\omega_5 - 4\omega_2^2\omega_6^2\omega_3v_1^2c_s^2\omega_5^2 - 14\omega_2^3\omega_6^2\omega_3v_2^2v_1^2\omega_5^2 - 12\omega_2^2\omega_6^2\omega_3^2c_s^4\omega_5^2 + 2\omega_2^2\omega_6\omega_3^3v_2^2c_s^2\omega_5^2 - 3\omega_2^3\omega_6\omega_3^3v_1^2c_s^2\omega_5^2 - 2\omega_2^2\omega_6\omega_3^3v_2^2v_1^2\omega_5^2 - 2\omega_2^3\omega_6^2\omega_3c_s^4\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3c_s^4\omega_5 + 4\omega_2^2\omega_6^2\omega_3^2v_2^2v_1^2\omega_5 - 4\omega_2^2\omega_6^2\omega_3^2v_2^2c_s^2\omega_5 + 2\omega_2^3\omega_6^2\omega_3^2v_1^2c_s^2\omega_5 - 2\omega_2^2\omega_6\omega_3^3c_s^4\omega_5^2 + 4\omega_2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5 - 4\omega_2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5 - 4\omega_2\omega_6^2\omega_3^2v_2^2c_s^2\omega_5^2 + 12\omega_2\omega_6^2\omega_3^2v_2^2v_1^2\omega_5^2 + 4\omega_2\omega_6^2\omega_3^2c_s^4\omega_5^2 + \omega_2^3\omega_6^2\omega_3^3v_1^2c_s^2\omega_5^2 - 8\omega_2^2\omega_6^2\omega_3^3v_2^2c_s^2\omega_5^2 + 14\omega_2^2\omega_6^2\omega_3^3v_2^2v_1^2\omega_5^2 - 2\omega_2^3\omega_3^3v_2^2v_1^2\omega_5^2)\frac{1}{4\omega_2^3\omega_6^2\omega_3^3\omega_5^2}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 \rho}$$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1^2 \partial x_2^2}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1} = (50v_2^2\omega^2 - 4v_2^2\omega^3 - 126v_2^2\omega + 72c_s^2\omega + 84v_2^2 - 48c_s^2 - 26c_s^2\omega^2 + c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1} = (-78\omega_2^3\omega_6^2\omega_3v_2^2 - 6\omega_2^3\omega_6\omega_3^3c_s^2 + 24\omega_2\omega_6^2\omega_3^2v_2^2 + 24\omega_2^3\omega_6\omega_3^2v_2^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 30\omega_2\omega_6^2\omega_3^3v_2^2 + 24\omega_2^3\omega_6\omega_3^2c_s^2 + 24\omega_2^2\omega_6^2\omega_3v_2^2 + 24\omega_2^3\omega_6^2\omega_3c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_2\omega_6^2\omega_3^2c_s^2 - 6\omega_2^3\omega_6\omega_3^3v_2^2 - 14\omega_2^3\omega_6^2\omega_3^2c_s^2 - 48\omega_2^2\omega_6^2\omega_3^2v_2^2 - 12\omega_2^3\omega_3^2v_2^2 - 12\omega_2^3\omega_6^2c_s^2 - 12\omega_2^3\omega_6\omega_3c_s^2 - 4\omega_2^3\omega_6^2\omega_3^3v_2^2 - 6\omega_2^2\omega_6^2\omega_3^3c_s^2 + 6\omega_2^3\omega_3^3c_s^2 - 12\omega_2^3\omega_6\omega_3v_2^2 + 48\omega_2^3\omega_6^2v_2^2 + 6\omega_2^3\omega_3^3v_2^2 + 22\omega_2^2\omega_6^2\omega_3^3v_2^2 + \omega_2^3\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^2c_s^2 + 12\omega_2^2\omega_6^2\omega_3^2c_s^2 + 34\omega_2^3\omega_6^2\omega_3^2v_2^2)\frac{v_1\rho}{12\omega_2^3\omega_6^2\omega_3^3}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1}$$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1} = (-18\omega_2^3\omega_6^2\omega_3 v_2^2 - 6\omega_2^3\omega_6\omega_3^3 c_s^2 + 24\omega_2\omega_6^2\omega_3^2 v_2^2 - 24\omega_2^3\omega_6\omega_3^2 v_2^2 + 6\omega_2\omega_6^2\omega_3^3 c_s^2 - 30\omega_2\omega_6^2\omega_3^3 v_2^2 + 24\omega_2^3\omega_6\omega_3^2 c_s^2 + 24\omega_2^2\omega_6^2\omega_3 v_2^2 + 24\omega_2^3\omega_6^2\omega_3 c_s^2 + 12\omega_6^2\omega_3^3 v_2^2 - 12\omega_2\omega_6^2\omega_3^2 c_s^2 + 6\omega_2^3\omega_6\omega_3^3 v_2^2 - 14\omega_2^3\omega_6^2\omega_3^2 c_s^2 - 48\omega_2^2\omega_6^2\omega_3^2 v_2^2 + 12\omega_2^3\omega_3^2 v_2^2 - 12\omega_2^3\omega_6^2 c_s^2 - 12\omega_2^3\omega_6\omega_3 c_s^2 - 4\omega_2^3\omega_6^2\omega_3^3 v_2^2 - 6\omega_2^2\omega_6^2\omega_3^3 c_s^2 + 6\omega_2^3\omega_3^3 c_s^2 + 12\omega_2^3\omega_6\omega_3 v_2^2 - 6\omega_2^3\omega_3^3 v_2^2 + 22\omega_2^2\omega_6^2\omega_3^3 v_2^2 + \omega_2^3\omega_6^2\omega_3^3 c_s^2 - 12\omega_2^3\omega_3^2 c_s^2 + 12\omega_2^2\omega_6^2\omega_3^2 c_s^2 + 22\omega_2^3\omega_6^2\omega_3^2 v_2^2)\frac{v_1\rho}{12\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_1^2 \partial x_2^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2} = (72c_s^2\omega - 126v_1^2\omega + 84v_1^2 - 48c_s^2 - 26c_s^2\omega^2 + 50v_1^2\omega^2 - 4v_1^2\omega^3 + c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2} = (-12\omega_2^2\omega_3^3 c_s^2 - 12\omega_2^2\omega_3^3 v_1^2 + 12\omega_2^2\omega_3^2 c_s^2\omega_5^2 - 48\omega_2^2\omega_3^2 v_1^2\omega_5^2 + 48\omega_3^3 v_1^2\omega_5^2 - 12\omega_3^3 c_s^2\omega_5^2 - 78\omega_2\omega_3^3 v_1^2\omega_5^2 + 24\omega_2\omega_3^3 c_s^2\omega_5^2 - 12\omega_2\omega_3^3 v_1^2\omega_5 - 12\omega_2\omega_3^3 c_s^2\omega_5 + 22\omega_2^3\omega_3^2 v_1^2\omega_5^2 - 6\omega_2^3\omega_3^2 c_s^2\omega_5^2 + 12\omega_2^3 v_1^2\omega_5^2 + 24\omega_2\omega_3^2 v_1^2\omega_5^2 - 6\omega_2^3\omega_3^3 c_s^2\omega_5 - 6\omega_2^3\omega_3^3 v_1^2\omega_5 + 6\omega_2^3\omega_3 c_s^2\omega_5^2 - 30\omega_2^3\omega_3 v_1^2\omega_5^2 + 6\omega_2^3\omega_3^3 v_1^2 + 6\omega_2^3\omega_3^3 c_s^2 + 34\omega_2^2\omega_3^3 v_1^2\omega_5^2 - 14\omega_2^2\omega_3^3 c_s^2\omega_5^2 + 24\omega_2^2\omega_3 v_1^2\omega_5^2 - 12\omega_2^2\omega_3 c_s^2\omega_5^2 + 24\omega_2^2\omega_3^3 v_1^2\omega_5 + 24\omega_2^2\omega_3^3 c_s^2\omega_5 + \omega_2^3\omega_3^3 c_s^2\omega_5^2 - 4\omega_2^3\omega_3^3 v_1^2\omega_5^2)\frac{v_2\rho}{12\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2} = (-12\omega_2^2\omega_3^3 c_s^2 + 12\omega_2^2\omega_3^3 v_1^2 + 12\omega_2^2\omega_3^2 c_s^2\omega_5^2 - 48\omega_2^2\omega_3^2 v_1^2\omega_5^2 - 12\omega_3^3 c_s^2\omega_5^2 - 18\omega_2\omega_3^3 v_1^2\omega_5^2 + 24\omega_2\omega_3^3 c_s^2\omega_5^2 + 12\omega_2\omega_3^3 v_1^2\omega_5 - 12\omega_2\omega_3^3 c_s^2\omega_5 + 22\omega_2^3\omega_3^2 v_1^2\omega_5^2 - 6\omega_2^3\omega_3^2 c_s^2\omega_5^2 + 12\omega_2^3 v_1^2\omega_5^2 + 24\omega_2\omega_3^2 v_1^2\omega_5^2 - 6\omega_2^3\omega_3^3 c_s^2\omega_5 + 6\omega_2^3\omega_3^3 v_1^2\omega_5 + 6\omega_2^3\omega_3 c_s^2\omega_5^2 - 30\omega_2^3\omega_3 v_1^2\omega_5^2 - 6\omega_2^3\omega_3^3 v_1^2 + 6\omega_2^3\omega_3^3 c_s^2 + 22\omega_2^2\omega_3^3 v_1^2\omega_5^2 - 14\omega_2^2\omega_3^3 c_s^2\omega_5^2 + 24\omega_2^2\omega_3 v_1^2\omega_5^2 - 12\omega_2^2\omega_3 c_s^2\omega_5^2 - 24\omega_2^2\omega_3^3 v_1^2\omega_5 + 24\omega_2^2\omega_3^3 c_s^2\omega_5 + \omega_2^3\omega_3^3 c_s^2\omega_5^2 - 4\omega_2^3\omega_3^3 v_1^2\omega_5^2)\frac{v_2\rho}{12\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y^2 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^3 v_2}$ **at** $\frac{\partial^4 v_2}{\partial t \partial x_2^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2} = (-36 + 42v_2^2\omega^2 - 3v_2^2\omega^3 - 20\omega^2 - 108v_2^2\omega + \omega^3 - 90c_s^2\omega + 72v_2^2 + 60c_s^2 + 34c_s^2\omega^2 + 54\omega - 2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2} =$
$(48\omega_6\omega_3 v_2^2 + \omega_6^2\omega_3^3 + 6\omega_3^3 - 2\omega_6^2\omega_3^3 c_s^2 + 27\omega_6^2\omega_3^2 v_2^2 - 11\omega_6^2\omega_3^2 - 12\omega_3^2 + 25\omega_6^2\omega_3^2 c_s^2 + 12\omega_6^2\omega_3 + 24\omega_6\omega_3 c_s^2 - 3\omega_6^2\omega_3^3 v_2^2 - 36\omega_6\omega_3^2 c_s^2 + 12\omega_3^2 c_s^2 - 48\omega_6^2\omega_3 c_s^2 + 12\omega_6^2 v_2^2 - 6\omega_3^3 v_2^2 - 24\omega_6\omega_3 + 15\omega_6\omega_3^3 v_2^2 + 24\omega_6^2 c_s^2 + 36\omega_6\omega_3^2 - 42\omega_6^2\omega_3 v_2^2 + 9\omega_6\omega_3^3 c_s^2 - 6\omega_3^3 c_s^2 - 9\omega_6\omega_3^3 + 12\omega_3^3 v_2^2 - 60\omega_6\omega_3^2 v_2^2)\frac{\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2} =$
$(72\omega_6\omega_3 v_2^2 + \omega_6^2\omega_3^3 + 6\omega_3^3 - 2\omega_6^2\omega_3^3 c_s^2 + 15\omega_6^2\omega_3^2 v_2^2 - 11\omega_6^2\omega_3^2 - 12\omega_3^2 + 25\omega_6^2\omega_3^2 c_s^2 + 12\omega_6^2\omega_3 + 24\omega_6\omega_3 c_s^2 - 3\omega_6^2\omega_3^3 v_2^2 - 36\omega_6\omega_3^2 c_s^2 + 12\omega_3^2 c_s^2 - 48\omega_6^2\omega_3 c_s^2 - 36\omega_6^2 v_2^2 - 18\omega_3^3 v_2^2 - 24\omega_6\omega_3 + 27\omega_6\omega_3^3 v_2^2 + 24\omega_6^2 c_s^2 + 36\omega_6\omega_3^2 + 18\omega_6^2\omega_3 v_2^2 + 9\omega_6\omega_3^3 c_s^2 - 6\omega_3^3 c_s^2 - 9\omega_6\omega_3^3 + 36\omega_3^3 v_2^2 - 108\omega_6\omega_3^2 v_2^2)\frac{\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^3 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^3 \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1 \partial x_2^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^3 \rho} = (24 + 14\omega^2 - \omega^3 + 180c_s^2\omega - 120c_s^2 - 72c_s^2\omega^2 - 36\omega + 6c_s^2\omega^3)\frac{v_2 v_1}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^3 \rho} = (-30\omega_2^3\omega_6^2\omega_3 v_2^2 - 24\omega_2^2\omega_6^2\omega_3 c_s^2 + 6\omega_2^2\omega_6\omega_3^3 v_2^2 - 12\omega_2^3\omega_6\omega_3^3 c_s^2 + 6\omega_2^2\omega_6\omega_3^3 + 6\omega_2\omega_6^2\omega_3^3 v_2^2 - 12\omega_2^2\omega_6\omega_3^2 c_s^2 + 42\omega_2^3\omega_6\omega_3^2 v_2^2 + 6\omega_2\omega_6^2\omega_3^3 c_s^2 - 3\omega_2^2\omega_6\omega_3^3 - 6\omega_2^3\omega_6^2\omega_3 - 12\omega_2\omega_6^2\omega_3^3 v_2^2 + 7\omega_2^3\omega_6^2\omega_3^2 + 42\omega_2^3\omega_6\omega_3^2 c_s^2 - 12\omega_2^2\omega_6\omega_3^2 v_2^2 - 3\omega_2^3\omega_3^3 + 12\omega_2^2\omega_6^2\omega_3 v_2^2 - \omega_2^3\omega_6^2\omega_3^3 + 78\omega_2^3\omega_6^2\omega_3 c_s^2 + 6\omega_6^2\omega_3^3 v_2^2 - 12\omega_2\omega_6^2\omega_3^2 c_s^2 - 12\omega_2^3\omega_6\omega_3^3 v_2^2 + 6\omega_2^2\omega_6\omega_3^3 c_s^2 + 6\omega_2^3\omega_3^2 - 48\omega_2^3\omega_6^2\omega_3^2 c_s^2 - 12\omega_2^2\omega_6^2\omega_3^2 v_2^2 - 12\omega_2^3\omega_3^2 v_2^2 + 6\omega_2^3\omega_6\omega_3^3 - 36\omega_2^3\omega_6^2 c_s^2 - 24\omega_2^3\omega_6\omega_3 c_s^2 - 21\omega_2^3\omega_6\omega_3^2 - 12\omega_2^2\omega_6^2\omega_3^3 c_s^2 + 6\omega_2^3\omega_3^3 c_s^2 - 24\omega_2^3\omega_6\omega_3 v_2^2 + 24\omega_2^3\omega_6^2 v_2^2 + \omega_2^2\omega_6^2\omega_3^3 + 6\omega_2^3\omega_3^3 v_2^2 + 6\omega_2^2\omega_6^2\omega_3^3 v_2^2 + 6\omega_2^3\omega_6^2\omega_3^3 c_s^2 + 12\omega_2^3\omega_6\omega_3 - 12\omega_2^3\omega_3^2 c_s^2 + 42\omega_2^2\omega_6^2\omega_3^2 c_s^2 + 6\omega_2^3\omega_6^2\omega_3^2 v_2^2 - 3\omega_2^2\omega_6^2\omega_3^2)\frac{v_2 v_1}{6\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^3 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^3 \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^3 \rho} = (12\omega_2^3\omega_6^2\omega_3 v_2^2 - 12\omega_2^2\omega_6^2\omega_3 c_s^2 - 24\omega_2^3\omega_6\omega_3^2 c_s^2 + 6\omega_2^2\omega_6\omega_3^2 + 6\omega_2\omega_6^2\omega_3^2 v_2^2 - 24\omega_2^2\omega_6\omega_3^2 c_s^2 + 12\omega_2^3\omega_6\omega_3^2 v_2^2 + 6\omega_2\omega_6^2\omega_3^2 c_s^2 - 3\omega_2^2\omega_6\omega_3^2 - 6\omega_2^3\omega_6^2\omega_3 - 12\omega_2\omega_6^2\omega_3^2 v_2^2 + 7\omega_2^3\omega_6^2\omega_3^2 + 72\omega_2^3\omega_6\omega_3^2 c_s^2 - 3\omega_2^3\omega_3^3 - \omega_2^3\omega_6^2\omega_3^3 + 36\omega_2^3\omega_6^2\omega_3 c_s^2 + 6\omega_6^2\omega_3^3 v_2^2 - 12\omega_2\omega_6^2\omega_3^2 c_s^2 + 12\omega_2^2\omega_6\omega_3^2 c_s^2 +$

$6\omega_2^3\omega_3^2 - 36\omega_2^3\omega_6^2\omega_3^2c_s^2 - 6\omega_2^2\omega_6^2\omega_3^2v_2^2 + 12\omega_2^3\omega_3^2v_2^2 + 6\omega_2^3\omega_6\omega_3^3 - 12\omega_2^3\omega_6^2c_s^2 - 24\omega_2^3\omega_6\omega_3c_s^2 - 21\omega_2^3\omega_6\omega_3^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 + 18\omega_2^3\omega_3^3c_s^2 - 24\omega_2^3\omega_6\omega_3v_2^2 + \omega_2^2\omega_6^2\omega_3^3 - 6\omega_2^3\omega_3^3v_2^2 + 6\omega_2^2\omega_6^2\omega_3^3v_2^2 + 6\omega_2^3\omega_6^2\omega_3^3c_s^2 + 12\omega_2^3\omega_6\omega_3 - 36\omega_2^3\omega_3^2c_s^2 + 36\omega_2^2\omega_6^2\omega_3^2c_s^2 - 6\omega_2^3\omega_6^2\omega_3^2v_2^2 - 3\omega_2^2\omega_6^2\omega_3^2)\frac{v_2v_1}{6\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^3\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^3\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^3v_1}$ **at** $\frac{\partial^4v_1}{\partial x_1\partial x_2^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^3v_1} = (36 - 20v_2^2\omega^2 + v_2^2\omega^3 + 20\omega^2 + 54v_2^2\omega - \omega^3 + 144c_s^2\omega - 36v_2^2 - 96c_s^2 - 56c_s^2\omega^2 - 54\omega + 4c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^3v_1} = (-36\omega_6\omega_3v_2^2 - \omega_6^2\omega_3^3 - 6\omega_3^3 + 4\omega_6^2\omega_3^3c_s^2 - 8\omega_6^2\omega_3^2v_2^2 + 11\omega_6^2\omega_3^2 + 12\omega_3^2 - 44\omega_6^2\omega_3^2c_s^2 - 12\omega_6^2\omega_3 - 36\omega_6\omega_3c_s^2 + \omega_6^2\omega_3^3v_2^2 + 48\omega_6\omega_3^2c_s^2 - 12\omega_3^2c_s^2 + 90\omega_6^2\omega_3c_s^2 + 12\omega_6^2v_2^2 + 6\omega_3^3v_2^2 + 24\omega_6\omega_3 - 12\omega_6\omega_3^3v_2^2 - 48\omega_6^2c_s^2 - 36\omega_6\omega_3^2 - 12\omega_6\omega_3^3c_s^2 + 6\omega_3^3c_s^2 + 9\omega_6\omega_3^3 - 12\omega_3^2v_2^2 + 48\omega_6\omega_3^2v_2^2)\frac{v_2\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^3v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^3v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^3v_1} = (-60\omega_6\omega_3v_2^2 - \omega_6^2\omega_3^3 - 6\omega_3^3 + 4\omega_6^2\omega_3^3c_s^2 - 14\omega_6^2\omega_3^2v_2^2 + 11\omega_6^2\omega_3^2 + 12\omega_3^2 - 26\omega_6^2\omega_3^2c_s^2 - 12\omega_6^2\omega_3 - 36\omega_6\omega_3c_s^2 + \omega_6^2\omega_3^3v_2^2 + 96\omega_6\omega_3^2c_s^2 - 60\omega_3^2c_s^2 + 18\omega_6^2\omega_3c_s^2 + 12\omega_6^2v_2^2 - 6\omega_3^3v_2^2 + 24\omega_6\omega_3 - 6\omega_6\omega_3^3v_2^2 - 36\omega_6\omega_3^2 + 12\omega_6^2\omega_3v_2^2 - 30\omega_6\omega_3^3c_s^2 + 30\omega_3^3c_s^2 + 9\omega_6\omega_3^3 + 12\omega_3^2v_2^2 + 48\omega_6\omega_3^2v_2^2)\frac{v_2\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^3v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^3v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^3v_2}$ **at** $\frac{\partial^4v_2}{\partial x_1\partial x_2^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^3v_2} = (12 - 12v_2^2\omega^2 + 3v_2^2\omega^3 + 8\omega^2 + 18v_2^2\omega - \omega^3 + 144c_s^2\omega - 12v_2^2 - 96c_s^2 - 56c_s^2\omega^2 - 18\omega + 4c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^3v_2} = (-30\omega_2^3\omega_6^2\omega_3v_2^2 - 24\omega_2^2\omega_6^2\omega_3c_s^2 + 12\omega_2^2\omega_6\omega_3^3v_2^2 - 12\omega_2^3\omega_6\omega_3^3c_s^2 + 12\omega_2^2\omega_6\omega_3^2 - 24\omega_2^2\omega_6\omega_3^2c_s^2 + 36\omega_2^3\omega_6\omega_3^2v_2^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 6\omega_2^2\omega_6\omega_3^3 - 18\omega_2\omega_6^2\omega_3^3v_2^2 + 3\omega_2^3\omega_6^2\omega_3^2 + 36\omega_2^3\omega_6\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2v_2^2 - \omega_2^3\omega_6^2\omega_3^3 + 36\omega_2^3\omega_6^2\omega_3c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_2\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_6\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 - 32\omega_2^3\omega_6^2\omega_3^2c_s^2 + 12\omega_2^2\omega_6^2\omega_3^2v_2^2 - 12\omega_2^3\omega_3^3v_2^2 + 3\omega_2^3\omega_6\omega_3^3 - 12\omega_2^3\omega_6^2c_s^2 - 12\omega_2^3\omega_6\omega_3c_s^2 - 6\omega_2^3\omega_6\omega_3^2 + 3\omega_2^3\omega_6^2\omega_3^3v_2^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 + 6\omega_2^3\omega_3^3c_s^2 - 12\omega_2^3\omega_6\omega_3v_2^2 + 24\omega_2^3\omega_6^2v_2^2 + 2\omega_2^2\omega_6^2\omega_3^3 + 6\omega_2^3\omega_3^3v_2^2 + 4\omega_2^3\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^3c_s^2 + 48\omega_2^2\omega_6^2\omega_3^2c_s^2 - 6\omega_2^2\omega_6^2\omega_3^2)\frac{v_1\rho}{12\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^3v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^3v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^3v_2} = (30\omega_2^3\omega_6^2\omega_3v_2^2 - 24\omega_2^2\omega_6^2\omega_3c_s^2 + 12\omega_2^2\omega_6\omega_3^3v_2^2 - 12\omega_2^3\omega_6\omega_3^3c_s^2 + 12\omega_2^2\omega_6\omega_3^2 - 24\omega_2^2\omega_6\omega_3^2c_s^2 - 12\omega_2^3\omega_6\omega_3^3v_2^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 6\omega_2^2\omega_6\omega_3^3 - 18\omega_2\omega_6^2\omega_3^3v_2^2 + 3\omega_2^3\omega_6^2\omega_3^2 + 36\omega_2^3\omega_6\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2v_2^2 - \omega_2^3\omega_6^2\omega_3^3 + 36\omega_2^3\omega_6^2\omega_3c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_2\omega_6^2\omega_3^3c_s^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 - 32\omega_2^3\omega_6^2\omega_3^2c_s^2 + 12\omega_2^2\omega_6^2\omega_3^2v_2^2 + 12\omega_2^3\omega_3^3v_2^2 + 3\omega_2^3\omega_6\omega_3^3 - 12\omega_2^3\omega_6^2c_s^2 - 12\omega_2^3\omega_6\omega_3c_s^2 - 6\omega_2^3\omega_6\omega_3^2 + 3\omega_2^3\omega_6^2\omega_3^3v_2^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 + 6\omega_2^3\omega_3^3c_s^2 + 12\omega_2^3\omega_6\omega_3v_2^2 - 24\omega_2^3\omega_6^2v_2^2 + 2\omega_2^2\omega_6^2\omega_3^3 - 6\omega_2^3\omega_3^3v_2^2 + 4\omega_2^3\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^3c_s^2 + 48\omega_2^2\omega_6^2\omega_3^2c_s^2 - 12\omega_2^3\omega_6^2\omega_3^2v_2^2 - 6\omega_2^2\omega_6^2\omega_3^2)\frac{v_1\rho}{12\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^3v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^3v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y^4\rho}$ **at** $\frac{\partial^4\rho}{\partial x_2^4}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^4\rho} = (48c_s^4 + 42v_2^2\omega^2 - 72c_s^4\omega - 3v_2^2\omega^3 - 3c_s^4\omega^3 - 72v_2^4 - 108v_2^2\omega + 30c_s^4\omega^2 - 144v_2^2c_s^2 + 3v_2^4\omega^3 - 84v_2^2c_s^2\omega^2 - 42v_2^4\omega^2 + 36c_s^2\omega + 6v_2^2c_s^2\omega^3 + 72v_2^2 - 24c_s^2 + 108v_2^4\omega - 14c_s^2\omega^2 + 216v_2^2c_s^2\omega + c_s^2\omega^3)\frac{1}{24\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^4\rho} = (6\omega_6\omega_3^3c_s^4 + 48\omega_6\omega_3v_2^2 + 24\omega_6^2c_s^4 - 24\omega_6\omega_3v_2^2c_s^2 + \omega_6^2\omega_3^3c_s^2 + 24\omega_6^2\omega_3v_2^4 + 24\omega_6^2\omega_3^2v_2^2 - 24\omega_3^2v_2^4 + 72\omega_6\omega_3^2v_2^4 - 72\omega_6^2\omega_3^2v_2^2c_s^2 - 8\omega_6^2\omega_3^2c_s^2 - 96\omega_6^2v_2^2c_s^2 - 24\omega_6\omega_3^2c_s^4 + 12\omega_3^3v_2^2c_s^2 + 12\omega_3^3v_2^4 - 24\omega_6\omega_3c_s^2 - 18\omega_6\omega_3^3v_2^4 - 12\omega_6\omega_3^3v_2^2c_s^2 - 48\omega_6^2\omega_3c_s^4 - 3\omega_6^2\omega_3^3v_2^2 + 24\omega_6\omega_3^2c_s^2 + 156\omega_6^2\omega_3v_2^2c_s^2 + 24\omega_6^2\omega_3^2c_s^4 + 12\omega_6^2\omega_3c_s^2 + 3\omega_6^2\omega_3^3v_2^4 - 12\omega_3^3v_2^2 + 24\omega_6\omega_3c_s^4 + 18\omega_6\omega_3^3v_2^2 - 3\omega_6^2\omega_3^3c_s^4 - 24\omega_6^2\omega_3v_2^2 - 6\omega_6\omega_3^3c_s^2 - 24\omega_3^2v_2^2c_s^2 - 48\omega_6\omega_3v_2^4 + 48\omega_6\omega_3^2v_2^2c_s^2 + 24\omega_3^2v_2^2 - 72\omega_6\omega_3^2v_2^2 + 6\omega_6^2\omega_3^3v_2^2c_s^2 - 24\omega_6^2\omega_3^2v_2^4)\frac{1}{24\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^4\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^4\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^4\rho} = (6\omega_6\omega_3^3c_s^4 + 24\omega_6^2c_s^4 + 72\omega_6\omega_3v_2^2c_s^2 + \omega_6^2\omega_3^3c_s^2 + 12\omega_6^2\omega_3^2v_2^2 - 72\omega_3^2v_2^4 + 72\omega_6\omega_3^2v_2^4 - 12\omega_6^2\omega_3^2v_2^2c_s^2 - 8\omega_6^2\omega_3^2c_s^2 - 24\omega_6\omega_3^2c_s^4 + 108\omega_3^3v_2^2c_s^2 + 36\omega_3^3v_2^4 - 24\omega_6\omega_3c_s^2 - 30\omega_6\omega_3^3v_2^4 - 72\omega_6\omega_3^3v_2^2c_s^2 - 48\omega_6^2\omega_3c_s^4 - 3\omega_6^2\omega_3^3v_2^2 + 24\omega_6\omega_3^2c_s^2 - 36\omega_6^2\omega_3v_2^2c_s^2 + 24\omega_6^2\omega_3^2c_s^4 + 12\omega_6^2\omega_3c_s^2 + 3\omega_6^2\omega_3^3v_2^4 - 36\omega_3^3v_2^2 + 24\omega_6\omega_3c_s^4 + 30\omega_6\omega_3^3v_2^2 - 3\omega_6^2\omega_3^3c_s^4 - 6\omega_6\omega_3^3c_s^2 - 216\omega_3^2v_2^2c_s^2 + 144\omega_6\omega_3^2v_2^2c_s^2 + 72\omega_3^2v_2^2 - 72\omega_6\omega_3^2v_2^2 + 6\omega_6^2\omega_3^3v_2^2c_s^2 - 12\omega_6^2\omega_3^2v_2^4)\frac{1}{24\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}^4_y\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_y\rho}$

coefficient $C^{(0)}_{\mathrm{D}^4_y v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_2^4}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}^4_y v_2} = (24 - 22v_2^2\omega^2 + 2v_2^2\omega^3 + 14\omega^2 + 54v_2^2\omega - \omega^3 + 72c_s^2\omega - 36v_2^2 - 48c_s^2 - 26c_s^2\omega^2 - 36\omega + c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}^4_y v_2} = (-12\omega_6\omega_3 v_2^2 - \omega_6^2\omega_3^3 - 6\omega_3^3 + \omega_6^2\omega_3^3 c_s^2 - 16\omega_6^2\omega_3^2 v_2^2 + 8\omega_6^2\omega_3^2 + 12\omega_3^2 - 20\omega_6^2\omega_3^2 c_s^2 - 6\omega_6^2\omega_3 - 12\omega_6\omega_3 c_s^2 + 2\omega_6^2\omega_3^3 v_2^2 + 24\omega_6\omega_3^2 c_s^2 - 12\omega_3^2 c_s^2 + 42\omega_6^2\omega_3 c_s^2 - 12\omega_6^2 v_2^2 + 6\omega_3^3 v_2^2 + 12\omega_6\omega_3 - 6\omega_6\omega_3^3 v_2^2 - 24\omega_6^2 c_s^2 - 24\omega_6\omega_3^2 + 24\omega_6^2\omega_3 v_2^2 - 6\omega_6\omega_3^3 c_s^2 + 6\omega_3^3 c_s^2 + 6\omega_6\omega_3^3 - 12\omega_3^2 v_2^2 + 24\omega_6\omega_3^2 v_2^2)\frac{v_2\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}^4_y v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}^4_y v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_y v_2} = (60\omega_6\omega_3 v_2^2 - \omega_6^2\omega_3^3 - 18\omega_3^3 + \omega_6^2\omega_3^3 c_s^2 + 2\omega_6^2\omega_3^2 v_2^2 + 2\omega_6^2\omega_3^2 + 36\omega_3^2 - 2\omega_6^2\omega_3^2 c_s^2 + 6\omega_6^2\omega_3 - 12\omega_6\omega_3 c_s^2 + 2\omega_6^2\omega_3^3 v_2^2 + 72\omega_6\omega_3^2 c_s^2 - 60\omega_3^2 c_s^2 - 30\omega_6^2\omega_3 c_s^2 - 12\omega_6^2 v_2^2 + 42\omega_3^3 v_2^2 - 12\omega_6\omega_3 - 24\omega_6\omega_3^3 v_2^2 + 24\omega_6^2 c_s^2 - 24\omega_6\omega_3^2 - 12\omega_6^2\omega_3 v_2^2 - 24\omega_6\omega_3^3 c_s^2 + 30\omega_3^3 c_s^2 + 12\omega_6\omega_3^3 - 84\omega_3^2 v_2^2 + 24\omega_6\omega_3^2 v_2^2)\frac{v_2\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}^4_y v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_y v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t^3\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial t^3 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^3\mathrm{D}_z v_3} = (-2 - \omega^2 + 3\omega)\frac{\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_z v_3} = (-2 + 3\omega_4 - \omega_4^2)\frac{\rho}{2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^3\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^3\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^3\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^3\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1}$ **at** $\frac{\partial^4 v_1}{\partial t^2 \partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1} = (36 + 20\omega^2 - \omega^3 - 54\omega)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1} = (7\omega_2\omega_4^3 - 24\omega_2\omega_4^2 + 12\omega_2\omega_4 + 12\omega_2^2 - 24\omega_2^2\omega_4 + 13\omega_2^2\omega_4^2 + 12\omega_4^2 - \omega_2^2\omega_4^3 - 6\omega_4^3)\frac{v_3\rho}{12\omega_2^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial t^2 \partial x_1 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3} = (36 + 20\omega^2 - \omega^3 - 54\omega)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3} = (-24\omega_2\omega_4^2 + 12\omega_2\omega_4 + 12\omega_2^2 - \omega_2^3\omega_4^2 - 24\omega_2^2\omega_4 - 6\omega_2^3 + 13\omega_2^2\omega_4^2 + 12\omega_4^2 + 7\omega_2^3\omega_4)\frac{v_1\rho}{12\omega_2^3\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_x\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1}$ **at** $\frac{\partial^4 v_1}{\partial t \partial x_1^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1} = (-24 - 14\omega^2 + \omega^3 + 36\omega)\frac{v_3 v_1 \rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1} = (12\omega_2^3\omega_4\omega_5 - 10\omega_2^2\omega_4^3\omega_5 + 12\omega_2^2\omega_4^2\omega_5 - 6\omega_2^3\omega_5 - 12\omega_2\omega_4^2\omega_5 - 6\omega_2^3\omega_4^2 - 6\omega_2^2\omega_4\omega_5 + \omega_2^3\omega_4^3\omega_5 + 3\omega_2^3\omega_4^3 + 12\omega_2^2\omega_4^2 - 12\omega_4^3\omega_5 + 24\omega_2\omega_4^3\omega_5 - 6\omega_2^2\omega_4^3 - 7\omega_2^3\omega_4^2\omega_5)\frac{v_3 v_1 \rho}{6\omega_2^3\omega_4^3\omega_5}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1} = (18\omega_2\omega_4^3 - 7\omega_2^3\omega_4^2 + \omega_2^3\omega_4^3 - 6\omega_2^2\omega_4 - 6\omega_2^3 + 6\omega_2^2\omega_4^2 - 7\omega_2^2\omega_4^3 + 12\omega_2^3\omega_4 - 12\omega_4^3)\frac{v_3 v_1 \rho}{6\omega_2^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial t \partial x_1^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3} = (-90c_s^2\omega + 60c_s^2 + 34c_s^2\omega^2 - 2v_1^2\omega^2 + v_1^2\omega^3 - 2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3} = (-2\omega_2^3\omega_4 c_s^2\omega_5^2 + 6\omega_2^2 v_1^2\omega_5^2 - 18\omega_2^2 c_s^2\omega_5^2 + \omega_2^3\omega_4 v_1^2\omega_5^2 - 30\omega_2^2\omega_4 v_1^2\omega_5 - 30\omega_2^2\omega_4 c_s^2\omega_5 - 10\omega_2^2\omega_4 v_1^2\omega_5^2 + 22\omega_2^2\omega_4 c_s^2\omega_5^2 + 12\omega_2^2 v_1^2\omega_5 + 9\omega_2^3\omega_4 c_s^2\omega_5 + 9\omega_2^3\omega_4 v_1^2\omega_5 + 12\omega_2^2 c_s^2\omega_5 + 12\omega_2^2\omega_4 c_s^2 + 12\omega_2^2\omega_4 v_1^2 + 3\omega_2^3 c_s^2\omega_5^2 - \omega_2^3 v_1^2\omega_5^2 + 12\omega_2\omega_4 v_1^2\omega_5 + 12\omega_2\omega_4 c_s^2\omega_5 - 6\omega_2^3\omega_4 v_1^2 - 6\omega_2^3\omega_4 c_s^2 + 36\omega_2\omega_4 v_1^2\omega_5^2 - 30\omega_2\omega_4 c_s^2\omega_5^2 - 6\omega_2^3 c_s^2\omega_5 - 24\omega_4 v_1^2\omega_5^2 - 6\omega_2^3 v_1^2\omega_5 + 12\omega_4 c_s^2\omega_5^2 + 12\omega_2 c_s^2\omega_5^2 - 12\omega_2 v_1^2\omega_5^2)\frac{\rho}{12\omega_2^3\omega_4\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3} = (-2\omega_2^3\omega_4 c_s^2\omega_5^2 - 6\omega_2^2 v_1^2\omega_5^2 - 18\omega_2^2 c_s^2\omega_5^2 + \omega_2^3\omega_4 v_1^2\omega_5^2 + 30\omega_2^2\omega_4 v_1^2\omega_5 - 30\omega_2^2\omega_4 c_s^2\omega_5 + 8\omega_2^2\omega_4 v_1^2\omega_5^2 + 22\omega_2^2\omega_4 c_s^2\omega_5^2 - 12\omega_2^2 v_1^2\omega_5 + 9\omega_2^3\omega_4 c_s^2\omega_5 - 9\omega_2^3\omega_4 v_1^2\omega_5 + 12\omega_2^2 c_s^2\omega_5 + 12\omega_2^2\omega_4 c_s^2 - 12\omega_2^2\omega_4 v_1^2 + 3\omega_2^3 c_s^2\omega_5^2 - \omega_2^3 v_1^2\omega_5^2 - 12\omega_2\omega_4 v_1^2\omega_5 + 12\omega_2\omega_4 c_s^2\omega_5 + 6\omega_2^3\omega_4 v_1^2 - 6\omega_2^3\omega_4 c_s^2 - 36\omega_2\omega_4 v_1^2\omega_5^2 - 30\omega_2\omega_4 c_s^2\omega_5^2 - 6\omega_2^3 c_s^2\omega_5 + 24\omega_4 v_1^2\omega_5^2 + 6\omega_2^3 v_1^2\omega_5 + 12\omega_4 c_s^2\omega_5^2 + 12\omega_2 c_s^2\omega_5^2 + 12\omega_2 v_1^2\omega_5^2)\frac{\rho}{12\omega_2^3\omega_4\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x^2\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_z \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1^3 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\mathrm{D}_z \rho} = (24 + 14\omega^2 - \omega^3 + 180c_s^2\omega - 120c_s^2 - 72c_s^2\omega^2 - 36\omega + 6c_s^2\omega^3)\frac{v_3 v_1}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_z \rho} = (-24\omega_2\omega_4^2 c_s^2\omega_5^2 - 21\omega_2^2\omega_4^3\omega_5 + 12\omega_2\omega_4^2 v_1^2\omega_5^2 + 6\omega_2^3\omega_4 c_s^2\omega_5^2 - 12\omega_2^3\omega_4 v_1^2\omega_5^2 - 12\omega_2^3\omega_4^3 c_s^2\omega_5 - 12\omega_2^3\omega_4^3 v_1^2\omega_5 + 6\omega_2^2\omega_4^3 v_1^2\omega_5^2 - 3\omega_2^2\omega_4^4\omega_5^2 - 48\omega_2^2\omega_4^3 c_s^2\omega_5^2 + 6\omega_2^2\omega_4^4\omega_5 + 42\omega_2^2\omega_4^3 v_1^2\omega_5 + 42\omega_2^2\omega_4^3 c_s^2\omega_5 + 6\omega_2^2\omega_4 v_1^2\omega_5^2 - 12\omega_2^2\omega_4 c_s^2\omega_5^2 + 6\omega_2^3\omega_4^3 c_s^2\omega_5^2 + 7\omega_2^2\omega_4^3\omega_5^2 + 6\omega_2^3\omega_4^4 v_1^2 + 6\omega_2^3\omega_4^3 c_s^2 + 42\omega_2^2\omega_4^2 c_s^2\omega_5^2 + \omega_2^3\omega_4^2\omega_5^2 - 12\omega_2^2\omega_4^2 v_1^2\omega_5^2 + 6\omega_2^3 v_1^2\omega_5^2 + 6\omega_2^3\omega_4^2 v_1^2\omega_5 + 24\omega_4^3 v_1^2\omega_5^2 - 36\omega_4^3 c_s^2\omega_5^2 + 6\omega_2^3\omega_4^2 c_s^2\omega_5 - 6\omega_2\omega_4^3\omega_5^2 - 30\omega_2\omega_4^3 v_1^2\omega_5^2 + 6\omega_2^3\omega_4^3\omega_5 + 78\omega_2\omega_4^3 c_s^2\omega_5^2 - 3\omega_2^3\omega_4^3 - 12\omega_2^2\omega_4^3 c_s^2 - 12\omega_2^2\omega_4^3 v_1^2 + 12\omega_2\omega_4^3\omega_5 - 24\omega_2\omega_4^3 v_1^2\omega_5 - 24\omega_2\omega_4^3 c_s^2\omega_5 - \omega_2^3\omega_4^3\omega_5^2 + 6\omega_2^2\omega_4^3 + 6\omega_2^3\omega_4^2 v_1^2\omega_5^2 - 12\omega_2^3\omega_4^2 c_s^2\omega_5^2 - 12\omega_2^2\omega_4^2 c_s^2\omega_5 - 12\omega_2^2\omega_4^2 v_1^2\omega_5 - 3\omega_2^3\omega_4^2\omega_5)\frac{v_3 v_1}{6\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_z \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_z \rho} = (-12\omega_2\omega_4^2 c_s^2\omega_5^2 - 21\omega_2^2\omega_4^3\omega_5 + 6\omega_2^3\omega_4 c_s^2\omega_5^2 - 12\omega_2^3\omega_4 v_1^2\omega_5^2 - 24\omega_2^3\omega_4^3 c_s^2\omega_5 - 6\omega_2^2\omega_4^3 v_1^2\omega_5^2 - 3\omega_2^2\omega_4^4\omega_5^2 - 36\omega_2^2\omega_4^3 c_s^2\omega_5^2 + 6\omega_2^2\omega_4^4\omega_5 + 12\omega_2^2\omega_4^3 v_1^2\omega_5 + 72\omega_2^2\omega_4^3 c_s^2\omega_5 + 6\omega_2^2\omega_4 v_1^2\omega_5^2 - 12\omega_2^2\omega_4 c_s^2\omega_5^2 + 6\omega_2^3\omega_4^3 c_s^2\omega_5^2 + 7\omega_2^2\omega_4^3\omega_5^2 - 6\omega_2^3\omega_4^3 v_1^2 + 18\omega_2^3\omega_4^3 c_s^2 + 36\omega_2^2\omega_4^2 c_s^2\omega_5^2 + \omega_2^3\omega_4^2\omega_5^2 - 6\omega_2^2\omega_4^2 v_1^2\omega_5^2 + 6\omega_2^3 v_1^2\omega_5^2 - 12\omega_4^3 c_s^2\omega_5^2 + 12\omega_2^3\omega_4^2 c_s^2\omega_5 - 6\omega_2\omega_4^3\omega_5^2 + 12\omega_2\omega_4^3 v_1^2\omega_5^2 + 6\omega_2^3\omega_4^3\omega_5 + 36\omega_2\omega_4^3 c_s^2\omega_5^2 - 3\omega_2^3\omega_4^3 - 36\omega_2^2\omega_4^3 c_s^2 + 12\omega_2^2\omega_4^3 v_1^2 + 12\omega_2\omega_4^3\omega_5 - 24\omega_2\omega_4^3 v_1^2\omega_5 - 24\omega_2\omega_4^3 c_s^2\omega_5 - \omega_2^3\omega_4^3\omega_5^2 + 6\omega_2^2\omega_4^3 + 6\omega_2^3\omega_4^2 v_1^2\omega_5^2 - 12\omega_2^3\omega_4^2 c_s^2\omega_5^2 - 24\omega_2^2\omega_4^2 c_s^2\omega_5 - 3\omega_2^3\omega_4^2\omega_5)\frac{v_3 v_1}{6\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\mathrm{D}_z \rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_z \rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_z v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1^3 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\mathrm{D}_z v_1} = (12 + 8\omega^2 - \omega^3 + 144c_s^2\omega + 18v_1^2\omega - 12v_1^2 - 96c_s^2 - 56c_s^2\omega^2 - 12v_1^2\omega^2 - 18\omega + 3v_1^2\omega^3 + 4c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_z v_1} = (-24\omega_2\omega_4^2 c_s^2\omega_5^2 - 6\omega_2^2\omega_4^3\omega_5 + 6\omega_2^3\omega_4 c_s^2\omega_5^2 - 18\omega_2^3\omega_4 v_1^2\omega_5^2 - 12\omega_2^3\omega_4^3 c_s^2\omega_5 - 12\omega_2^3\omega_4^3 v_1^2\omega_5 - 6\omega_2^2\omega_4^4\omega_5^2 - 32\omega_2^2\omega_4^3 c_s^2\omega_5^2 + 12\omega_2^2\omega_4^4\omega_5 + 36\omega_2^2\omega_4^3 v_1^2\omega_5 + 36\omega_2^2\omega_4^3 c_s^2\omega_5 - 12\omega_2^2\omega_4 c_s^2\omega_5^2 + 4\omega_2^3\omega_4^3 c_s^2\omega_5^2 + 3\omega_2^3\omega_4^3 v_1^2\omega_5^2 + 3\omega_2^3\omega_4^4\omega_5^2 + 6\omega_2^3\omega_4^3 v_1^2 + 6\omega_2^3\omega_4^3 c_s^2 + 48\omega_2^2\omega_4^2 c_s^2\omega_5^2 + 2\omega_2^3\omega_4^2\omega_5^2 + 12\omega_2^2\omega_4^2 v_1^2\omega_5^2 + 12\omega_2^3 v_1^2\omega_5^2 + 12\omega_2^3\omega_4^2 v_1^2\omega_5 + 24\omega_4^3 v_1^2\omega_5^2 - 12\omega_4^3 c_s^2\omega_5^2 + 12\omega_2^3\omega_4^2 c_s^2\omega_5 - 30\omega_2\omega_4^3 v_1^2\omega_5^2 + 3\omega_2^3\omega_4^3\omega_5 + 36\omega_2\omega_4^3 c_s^2\omega_5^2 - 12\omega_2^2\omega_4^3 c_s^2 - 12\omega_2^2\omega_4^3 v_1^2 - 12\omega_2\omega_4^3 v_1^2\omega_5 - 12\omega_2\omega_4^3 c_s^2\omega_5 - \omega_2^3\omega_4^3\omega_5^2 - 12\omega_2^3\omega_4^2 c_s^2\omega_5^2 - 24\omega_2^2\omega_4^2 c_s^2\omega_5 - 24\omega_2^2\omega_4^2 v_1^2\omega_5 - 6\omega_2^3\omega_4^2\omega_5)\frac{v_3\rho}{12\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_z v_1} = (-24\omega_2\omega_4^2c_s^2\omega_5^2 - 6\omega_2^2\omega_4^3\omega_5 + 6\omega_2^3\omega_4c_s^2\omega_5^2 - 18\omega_2^3\omega_4v_1^2\omega_5^2 - 12\omega_2^3\omega_4^3c_s^2\omega_5 - 12\omega_2^2\omega_4^3v_1^2\omega_5^2 - 6\omega_2^2\omega_4^2\omega_5^2 - 32\omega_2^2\omega_4^3c_s^2\omega_5^2 + 12\omega_2^2\omega_4^2\omega_5 - 12\omega_2^2\omega_4^3v_1^2\omega_5 + 36\omega_2^2\omega_4^3c_s^2\omega_5 - 12\omega_2^2\omega_4c_s^2\omega_5^2 + 4\omega_2^3\omega_4^3c_s^2\omega_5^2 + 3\omega_2^3\omega_4^3v_1^2\omega_5^2 + 3\omega_2^2\omega_4^3\omega_5^2 - 6\omega_2^3\omega_4^3v_1^2 + 6\omega_2^3\omega_4^3c_s^2 + 48\omega_2^2\omega_4^2c_s^2\omega_5^2 + 2\omega_2^3\omega_4^2\omega_5^2 + 12\omega_2^2\omega_4^2v_1^2\omega_5^2 + 12\omega_2^3v_1^2\omega_5^2 + 12\omega_2^3\omega_4^2v_1^2\omega_5 - 24\omega_4^3v_1^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5^2 + 12\omega_2^3\omega_4^2c_s^2\omega_5 + 30\omega_2\omega_4^3v_1^2\omega_5^2 + 3\omega_2^3\omega_4^3\omega_5 + 36\omega_2\omega_4^3c_s^2\omega_5^2 - 12\omega_2^2\omega_4^3c_s^2 + 12\omega_2^2\omega_4^3v_1^2 + 12\omega_2\omega_4^3v_1^2\omega_5 - 12\omega_2\omega_4^3c_s^2\omega_5 - \omega_2^3\omega_4^3\omega_5^2 - 12\omega_2^3\omega_4^2c_s^2\omega_5^2 - 24\omega_2^2\omega_4^2c_s^2\omega_5 - 24\omega_2^2\omega_4^2v_1^2\omega_5 - 6\omega_2^3\omega_4^2\omega_5)\frac{v_3\rho}{12\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\mathrm{D}_z v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^3\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_1^3\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^3\mathrm{D}_z v_3} = (36 + 20\omega^2 - \omega^3 + 144c_s^2\omega + 54v_1^2\omega - 36v_1^2 - 96c_s^2 - 56c_s^2\omega^2 - 20v_1^2\omega^2 - 54\omega + v_1^2\omega^3 + 4c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_z v_3} = (-36\omega_2^2\omega_5 - 8\omega_2^2v_1^2\omega_5^2 - 44\omega_2^2c_s^2\omega_5^2 - \omega_2^3\omega_5^2 + 9\omega_2^3\omega_5 + 48\omega_2^2v_1^2\omega_5 + 48\omega_2^2c_s^2\omega_5 + 11\omega_2^2\omega_5^2 - 12\omega_2\omega_5^2 + 4\omega_2^3c_s^2\omega_5^2 + 6\omega_2^3v_1^2 + \omega_2^3v_1^2\omega_5^2 + 6\omega_2^3c_s^2 - 36\omega_2c_s^2\omega_5 + 12\omega_2^2 - 36\omega_2v_1^2\omega_5 - 6\omega_2^3 - 12\omega_2^2c_s^2 - 12\omega_2^2v_1^2 - 12\omega_2^3c_s^2\omega_5 - 12\omega_2^3v_1^2\omega_5 + 90\omega_2c_s^2\omega_5^2 - 48c_s^2\omega_5^2 + 24\omega_2\omega_5 + 12v_1^2\omega_5^2)\frac{v_1\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^3\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^3\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_z v_3} = (-36\omega_2^2\omega_5 - 14\omega_2^2v_1^2\omega_5^2 - 26\omega_2^2c_s^2\omega_5^2 - \omega_2^3\omega_5^2 + 9\omega_2^3\omega_5 + 48\omega_2^2v_1^2\omega_5 + 96\omega_2^2c_s^2\omega_5 + 11\omega_2^2\omega_5^2 - 12\omega_2\omega_5^2 + 4\omega_2^3c_s^2\omega_5^2 - 6\omega_2^3v_1^2 + \omega_2^3v_1^2\omega_5^2 + 30\omega_2^3c_s^2 - 36\omega_2c_s^2\omega_5 + 12\omega_2^2 - 60\omega_2v_1^2\omega_5 - 6\omega_2^3 - 60\omega_2^2c_s^2 + 12\omega_2^2v_1^2 - 30\omega_2^3c_s^2\omega_5 - 6\omega_2^3v_1^2\omega_5 + 18\omega_2c_s^2\omega_5^2 + 12\omega_2v_1^2\omega_5^2 + 24\omega_2\omega_5 + 12v_1^2\omega_5^2)\frac{v_1\rho}{12\omega_2^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^3\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^3\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2}$ **at** $\frac{\partial^4 v_2}{\partial t^2\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2} = (36 + 20\omega^2 - \omega^3 - 54\omega)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2} = (12\omega_3\omega_4 + 12\omega_3^2 + 7\omega_3\omega_4^3 - 24\omega_3\omega_4^2 + 13\omega_3^2\omega_4^2 - \omega_3^2\omega_4^3 + 12\omega_4^2 - 6\omega_4^3 - 24\omega_3^2\omega_4)\frac{v_3\rho}{12\omega_3^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial t^2\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3} = (36 + 20\omega^2 - \omega^3 - 54\omega)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3} = (12\omega_3\omega_4 - 6\omega_3^3 + 12\omega_3^2 - 24\omega_3\omega_4^2 + 13\omega_3^2\omega_4^2 + 7\omega_3^3\omega_4 + 12\omega_4^2 - \omega_3^3\omega_4^2 - 24\omega_3^2\omega_4)\frac{v_2\rho}{12\omega_3^3\omega_4^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_y\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$ **at** $\frac{\partial^4 v_1}{\partial t\partial x_1\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = (-20 - 12\omega^2 + \omega^3 + 30\omega)\frac{v_3v_2\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = (-6\omega_2\omega_4^3 - 6\omega_3\omega_4^3 + 18\omega_2\omega_3\omega_4^3 - 12\omega_2\omega_3\omega_4^2 - 12\omega_3^2\omega_4^2 + 30\omega_2\omega_3^2\omega_4^2 + 12\omega_3^2\omega_4^3 - 6\omega_3^3\omega_4 - 16\omega_2\omega_3^2\omega_4^3 + 18\omega_2\omega_3^3\omega_4 - 16\omega_2\omega_3^3\omega_4^2 + 12\omega_3^3\omega_4^2 + 3\omega_2\omega_3^3\omega_4^3 - 12\omega_2\omega_3^2\omega_4 - 6\omega_2\omega_3^3 - 4\omega_3^3\omega_4^3)\frac{v_3v_2\rho}{6\omega_2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$ **at** $\frac{\partial^4 v_2}{\partial t\partial x_1\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = (-20 - 12\omega^2 + \omega^3 + 30\omega)\frac{v_3 v_1 \rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = (-16\omega_2^3\omega_3\omega_4^2 - 6\omega_2\omega_4^3 - 6\omega_2^3\omega_3 + 3\omega_2^3\omega_3\omega_4^3 - 6\omega_3\omega_4^3 + 18\omega_2\omega_3\omega_4^3 + 18\omega_3^3\omega_3\omega_4 - 12\omega_2\omega_3\omega_4^2 - 16\omega_2^2\omega_3\omega_4^3 + 12\omega_2^3\omega_4^2 - 4\omega_2^3\omega_4^3 + 30\omega_2^2\omega_3\omega_4^2 - 12\omega_2^2\omega_3\omega_4 - 12\omega_2^2\omega_4^2 + 12\omega_2^2\omega_4^3 - 6\omega_2^3\omega_4)\frac{v_3 v_1 \rho}{6\omega_2^3\omega_3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = (-20 - 12\omega^2 + \omega^3 + 30\omega)\frac{v_2 v_1 \rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = (12\omega_2^2\omega_3^3 - 6\omega_2^3\omega_3 + 30\omega_2^2\omega_3^2\omega_4 - 12\omega_2^2\omega_3^2 - 4\omega_2^3\omega_3^3 + 18\omega_2^3\omega_3\omega_4 - 16\omega_2^2\omega_3^3\omega_4 + 12\omega_2^3\omega_3^2 - 16\omega_2^3\omega_3^2\omega_4 - 6\omega_3^3\omega_4 + 18\omega_2\omega_3^3\omega_4 - 12\omega_2^2\omega_3\omega_4 + 3\omega_2^3\omega_3^3\omega_4 - 12\omega_2\omega_3^2\omega_4 - 6\omega_2\omega_3^3 - 6\omega_2^3\omega_4)\frac{v_2 v_1 \rho}{6\omega_2^3\omega_3^3\omega_4}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1^2\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho} = (30c_s^2\omega - 60v_1^2\omega + 40v_1^2 - 20c_s^2 - 12c_s^2\omega^2 + 24v_1^2\omega^2 - 2v_1^2\omega^3 + c_s^2\omega^3)\frac{v_3 v_2}{\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho} = (-6\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_3^2\omega_4^2c_s^2\omega_5^2 - 8\omega_2^3\omega_3^2\omega_4^2v_1^2\omega_5^2 + 12\omega_2^2\omega_3^3\omega_4^3v_1^2\omega_5^2 - 2\omega_2^2\omega_3^2\omega_4^3v_1^2\omega_5 + \omega_2^3\omega_3^3\omega_4^2v_1^2\omega_5 + \omega_2^3\omega_3^3\omega_4^2c_s^2\omega_5 - 2\omega_2^2\omega_3^2\omega_4^3c_s^2\omega_5 - 8\omega_2^3\omega_3\omega_4^3v_1^2\omega_5^2 + \omega_2^3\omega_3\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_3^3\omega_4^3v_1^2 + 6\omega_2\omega_3^3\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2 - 21\omega_2\omega_3^3\omega_4^3v_1^2\omega_5^2 - 2\omega_2\omega_3^3\omega_4^3c_s^2\omega_5 - 2\omega_2\omega_3^3\omega_4^3v_1^2\omega_5 + 10\omega_3^3\omega_4^3v_1^2\omega_5^2 - 2\omega_3^3\omega_4^3c_s^2\omega_5^2 + 7\omega_2\omega_3^2\omega_4^3v_1^2\omega_5^2 + 3\omega_2^3\omega_4^3v_1^2\omega_5^2 - 2\omega_2^2\omega_3^3\omega_4^3v_1^2 - 2\omega_2^2\omega_3^3\omega_4^3c_s^2 - 2\omega_2\omega_3^2\omega_4^3c_s^2\omega_5^2 - 12\omega_2^2\omega_3^2\omega_4^3v_1^2\omega_5^2 + 7\omega_2^3\omega_3^3\omega_4^2v_1^2\omega_5^2 - 2\omega_3^3\omega_3^3\omega_4^2c_s^2\omega_5^2 + 6\omega_2^2\omega_3^3\omega_4^2c_s^2\omega_5^2 + 6\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5 + 6\omega_2^2\omega_3^3\omega_4^3v_1^2\omega_5 - 2\omega_2^2\omega_3^3\omega_4c_s^2\omega_5^2 + 4\omega_2^2\omega_3^3\omega_4v_1^2\omega_5^2 + 7\omega_2\omega_3^3\omega_4^2v_1^2\omega_5^2 - 2\omega_2\omega_3^3\omega_4^2c_s^2\omega_5^2 + 3\omega_2^3\omega_3\omega_4^2v_1^2\omega_5^2 + \omega_2^3\omega_3\omega_4^2c_s^2\omega_5^2 - 8\omega_2^3\omega_3^3\omega_4v_1^2\omega_5^2 - 2\omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5 - 2\omega_2^2\omega_3^3\omega_4^3v_1^2\omega_5 - 12\omega_2^2\omega_3^3\omega_4^2v_1^2\omega_5^2 + 7\omega_2^3\omega_3^2\omega_4^3v_1^2\omega_5^2 - 2\omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5^2 + 6\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5^2 - 2\omega_2^2\omega_3^3\omega_4v_1^2\omega_5 + \omega_2^3\omega_3^3\omega_4^3v_1^2\omega_5 + \omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5 - 2\omega_2^2\omega_3^3\omega_4^2c_s^2\omega_5 + 3\omega_2^3\omega_3^3\omega_4v_1^2\omega_5^2 + 3\omega_2^3\omega_3^3v_1^2\omega_5^2 - 2\omega_2^2\omega_3^2\omega_4^2c_s^2\omega_5^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5^2 - 2\omega_2^3\omega_3^3\omega_4^3v_1^2\omega_5^2 + 4\omega_2^2\omega_3^3\omega_4^2v_1^2\omega_5^2 + 4\omega_2^2\omega_3\omega_4^3v_1^2\omega_5^2 - 2\omega_2^2\omega_3\omega_4^3c_s^2\omega_5^2)\frac{v_3 v_2}{\omega_2^3\omega_3^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho} = (-6\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_3^2\omega_4^2c_s^2\omega_5^2 - 8\omega_2^3\omega_3^2\omega_4^2v_1^2\omega_5^2 + 8\omega_2^2\omega_3^3\omega_4^3v_1^2\omega_5^2 + 2\omega_2^2\omega_3^2\omega_4^3v_1^2\omega_5 - \omega_2^3\omega_3^3\omega_4^2v_1^2\omega_5 + \omega_2^3\omega_3^3\omega_4^2c_s^2\omega_5 - 2\omega_2^2\omega_3^2\omega_4^3c_s^2\omega_5 - 8\omega_2^3\omega_3\omega_4^3v_1^2\omega_5^2 + \omega_2^3\omega_3\omega_4^3c_s^2\omega_5^2 - \omega_2^3\omega_3^3\omega_4^3v_1^2 + 6\omega_2\omega_3^3\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2 - 7\omega_2\omega_3^3\omega_4^3v_1^2\omega_5^2 - 2\omega_2\omega_3^3\omega_4^3c_s^2\omega_5 + 2\omega_2\omega_3^3\omega_4^3v_1^2\omega_5 + 2\omega_3^3\omega_4^3v_1^2\omega_5^2 - 2\omega_3^3\omega_4^3c_s^2\omega_5^2 + 3\omega_2\omega_3^2\omega_4^3v_1^2\omega_5^2 + 3\omega_2^3\omega_4^3v_1^2\omega_5^2 + 2\omega_2^2\omega_3^3\omega_4^3v_1^2 - 2\omega_2^2\omega_3^3\omega_4^3c_s^2 - 2\omega_2\omega_3^2\omega_4^3c_s^2\omega_5^2 - 10\omega_2^2\omega_3^2\omega_4^3v_1^2\omega_5^2 + 7\omega_2^3\omega_3^3\omega_4^2v_1^2\omega_5^2 - 2\omega_3^3\omega_3^3\omega_4^2c_s^2\omega_5^2 + 6\omega_2^2\omega_3^3\omega_4^2c_s^2\omega_5^2 + 6\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5 - 6\omega_2^2\omega_3^3\omega_4^3v_1^2\omega_5 - 2\omega_2^2\omega_3^3\omega_4c_s^2\omega_5^2 + 4\omega_2^2\omega_3^3\omega_4v_1^2\omega_5^2 + 3\omega_2\omega_3^3\omega_4^2v_1^2\omega_5^2 - 2\omega_2\omega_3^3\omega_4^2c_s^2\omega_5^2 + 3\omega_2^3\omega_3\omega_4^2v_1^2\omega_5^2 + \omega_2^3\omega_3\omega_4^2c_s^2\omega_5^2 - 8\omega_2^3\omega_3^3\omega_4v_1^2\omega_5^2 - 2\omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5 + 2\omega_2^3\omega_3^3\omega_4^3v_1^2\omega_5 - 10\omega_2^2\omega_3^3\omega_4^2v_1^2\omega_5^2 + 7\omega_2^3\omega_3^2\omega_4^3v_1^2\omega_5^2 - 2\omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5^2 + 6\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5^2 + 2\omega_2^2\omega_3^3\omega_4^2v_1^2\omega_5 - \omega_2^3\omega_3^2\omega_4^3v_1^2\omega_5 + \omega_2^3\omega_3^2\omega_4^3c_s^2\omega_5 - 2\omega_2^2\omega_3^3\omega_4^3c_s^2\omega_5 + 3\omega_2^3\omega_3^3\omega_4v_1^2\omega_5^2 + 3\omega_2^3\omega_3^3v_1^2\omega_5^2 - 2\omega_2^2\omega_3^3\omega_4^2c_s^2\omega_5^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2\omega_5^2 - 2\omega_2^3\omega_3^3\omega_4^3v_1^2\omega_5^2 + 4\omega_2^2\omega_3^3\omega_4^2v_1^2\omega_5^2 + 4\omega_2^2\omega_3\omega_4^3v_1^2\omega_5^2 - 2\omega_2^2\omega_3\omega_4^3c_s^2\omega_5^2)\frac{v_3 v_2}{\omega_2^3\omega_3^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1^2\partial x_2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1} = (132 + 76\omega^2 - 5\omega^3 - 198\omega)\frac{v_3 v_2 v_1 \rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1} = (18\omega_2^3\omega_3\omega_4^2 - 30\omega_2^2\omega_3^3\omega_4^2 + 28\omega_2^2\omega_3^3\omega_4^3 - 30\omega_2^3\omega_3\omega_4^3 + 12\omega_2^2\omega_3^2\omega_4^2 + 12\omega_2^3\omega_3^3 + 6\omega_2^2\omega_3^3\omega_4 - 30\omega_2^2\omega_3^2\omega_4^3 - 5\omega_2^3\omega_3^3\omega_4^3 + 18\omega_2^3\omega_3^2\omega_4 + 6\omega_2^2\omega_3\omega_4^3 + 18\omega_2\omega_3^2\omega_4^3 + 12\omega_2^3\omega_4^3 + 24\omega_2^3\omega_3^3\omega_4^2 + 18\omega_2\omega_3^3\omega_4^2 + 24\omega_2^3\omega_3^2\omega_4^3 - 30\omega_2^3\omega_3^3\omega_4 - 42\omega_2^3\omega_3^2\omega_4^2 - 36\omega_2\omega_3^3\omega_4^3 + 12\omega_3^3\omega_4^3)\frac{v_3 v_2 v_1 \rho}{6\omega_2^3\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_1^2 \partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2} = (144c_s^2\omega - 126v_1^2\omega + 84v_1^2 - 96c_s^2 - 56c_s^2\omega^2 + 52v_1^2\omega^2 - 5v_1^2\omega^3 + 4c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2} = (-24\omega_2\omega_4^2c_s^2\omega_5^2 + 48\omega_2\omega_4^2v_1^2\omega_5^2 + 6\omega_2^3\omega_4c_s^2\omega_5^2 - 30\omega_2^3\omega_4v_1^2\omega_5^2 - 12\omega_2^3\omega_4^3c_s^2\omega_5 - 12\omega_2^3\omega_4^3v_1^2\omega_5 + 40\omega_2^2\omega_4^3v_1^2\omega_5^2 - 32\omega_2^2\omega_4^3c_s^2\omega_5^2 + 36\omega_2^2\omega_4^3v_1^2\omega_5 + 36\omega_2^2\omega_4^3c_s^2\omega_5 + 24\omega_2^2\omega_4v_1^2\omega_5^2 - 12\omega_2^2\omega_4c_s^2\omega_5^2 + 4\omega_2^3\omega_4^3c_s^2\omega_5^2 - 5\omega_2^3\omega_4^3v_1^2\omega_5^2 + 6\omega_2^3\omega_4^3v_1^2 + 6\omega_2^3\omega_4^3c_s^2 + 48\omega_2^2\omega_4^2c_s^2\omega_5^2 - 60\omega_2^2\omega_4^2v_1^2\omega_5^2 + 12\omega_2^3v_1^2\omega_5^2 + 12\omega_2^3\omega_4^2v_1^2\omega_5 + 48\omega_4^3v_1^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5^2 + 12\omega_2^3\omega_4^2c_s^2\omega_5 - 90\omega_2\omega_4^3v_1^2\omega_5^2 + 36\omega_2\omega_4^3c_s^2\omega_5^2 - 12\omega_2^2\omega_4^3c_s^2 - 12\omega_2^2\omega_4^3v_1^2 - 12\omega_2\omega_4^3v_1^2\omega_5 - 12\omega_2\omega_4^3c_s^2\omega_5 + 24\omega_2^3\omega_4^2v_1^2\omega_5^2 - 12\omega_2^3\omega_4^2c_s^2\omega_5^2 - 24\omega_2^2\omega_4^2c_s^2\omega_5 - 24\omega_2^2\omega_4^2v_1^2\omega_5)\frac{v_3\rho}{12\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2} = (-24\omega_2\omega_4^2c_s^2\omega_5^2 + 6\omega_2^3\omega_4c_s^2\omega_5^2 - 30\omega_2^3\omega_4v_1^2\omega_5^2 - 12\omega_2^3\omega_4^3c_s^2\omega_5 + 12\omega_2^3\omega_4^3v_1^2\omega_5 + 16\omega_2^2\omega_4^3v_1^2\omega_5^2 - 32\omega_2^2\omega_4^3c_s^2\omega_5^2 - 36\omega_2^2\omega_4^3v_1^2\omega_5 + 36\omega_2^2\omega_4^3c_s^2\omega_5 + 24\omega_2^2\omega_4v_1^2\omega_5^2 - 12\omega_2^2\omega_4c_s^2\omega_5^2 + 4\omega_2^3\omega_4^3c_s^2\omega_5^2 - 5\omega_2^3\omega_4^3v_1^2\omega_5^2 - 6\omega_2^3\omega_4^3v_1^2 + 6\omega_2^3\omega_4^3c_s^2 + 48\omega_2^2\omega_4^2c_s^2\omega_5^2 - 36\omega_2^2\omega_4^2v_1^2\omega_5^2 + 12\omega_2^3v_1^2\omega_5^2 - 12\omega_2^3\omega_4^2v_1^2\omega_5 - 12\omega_4^3c_s^2\omega_5^2 + 12\omega_2^3\omega_4^2c_s^2\omega_5 - 6\omega_2\omega_4^3v_1^2\omega_5^2 + 36\omega_2\omega_4^3c_s^2\omega_5^2 - 12\omega_2^2\omega_4^3c_s^2 + 12\omega_2^2\omega_4^3v_1^2 + 12\omega_2\omega_4^3v_1^2\omega_5 - 12\omega_2\omega_4^3c_s^2\omega_5 + 24\omega_2^3\omega_4^2v_1^2\omega_5^2 - 12\omega_2^3\omega_4^2c_s^2\omega_5^2 - 24\omega_2^2\omega_4^2c_s^2\omega_5 + 24\omega_2^2\omega_4^2v_1^2\omega_5)\frac{v_3\rho}{12\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_1^2 \partial x_2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3} = (144c_s^2\omega - 126v_1^2\omega + 84v_1^2 - 96c_s^2 - 56c_s^2\omega^2 + 52v_1^2\omega^2 - 5v_1^2\omega^3 + 4c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3} = (-12\omega_2^2\omega_3^3c_s^2 - 12\omega_2^2\omega_3^3v_1^2 + 48\omega_2^2\omega_3^2c_s^2\omega_5^2 - 60\omega_2^2\omega_3^2v_1^2\omega_5^2 + 12\omega_2^3\omega_3^2v_1^2\omega_5 + 48\omega_3^3v_1^2\omega_5^2 - 12\omega_3^3c_s^2\omega_5^2 + 12\omega_2^3\omega_3^2c_s^2\omega_5 - 90\omega_2\omega_3^3v_1^2\omega_5^2 + 36\omega_2\omega_3^3c_s^2\omega_5^2 - 12\omega_2^3\omega_3^2c_s^2\omega_5^2 - 24\omega_2^2\omega_3^3c_s^2\omega_5 - 24\omega_2^2\omega_3^3v_1^2\omega_5 - 24\omega_2\omega_3^3c_s^2\omega_5^2 + 12\omega_2^3v_1^2\omega_5^2 + 48\omega_2\omega_3^3v_1^2\omega_5^2 - 12\omega_2^3\omega_3^3c_s^2\omega_5 - 12\omega_2^3\omega_3^3v_1^2\omega_5 + 6\omega_2^3\omega_3c_s^2\omega_5^2 - 30\omega_2^3\omega_3v_1^2\omega_5^2 + 6\omega_2^3\omega_3^3v_1^2 + 6\omega_2^3\omega_3^3c_s^2 + 40\omega_2^2\omega_3^3v_1^2\omega_5^2 - 32\omega_2^2\omega_3^3c_s^2\omega_5^2 + 24\omega_2^2\omega_3v_1^2\omega_5^2 - 12\omega_2^2\omega_3c_s^2\omega_5^2 + 36\omega_2^2\omega_3^3v_1^2\omega_5 + 36\omega_2^2\omega_3^3c_s^2\omega_5 + 4\omega_2^3\omega_3^3c_s^2\omega_5^2 - 5\omega_2^3\omega_3^3v_1^2\omega_5^2)\frac{v_2\rho}{12\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3} = (-12\omega_2^2\omega_3^3c_s^2 + 12\omega_2^2\omega_3^3v_1^2 + 48\omega_2^2\omega_3^2c_s^2\omega_5^2 - 36\omega_2^2\omega_3^2v_1^2\omega_5^2 - 12\omega_2^3\omega_3^2v_1^2\omega_5 - 12\omega_3^3c_s^2\omega_5^2 + 12\omega_2^3\omega_3^2c_s^2\omega_5 - 6\omega_2\omega_3^3v_1^2\omega_5^2 + 36\omega_2\omega_3^3c_s^2\omega_5^2 + 12\omega_2\omega_3^3v_1^2\omega_5 - 12\omega_2\omega_3^3c_s^2\omega_5 + 24\omega_2^3\omega_3^2v_1^2\omega_5^2 - 12\omega_2^3\omega_3^2c_s^2\omega_5^2 - 24\omega_2^2\omega_3^3c_s^2\omega_5 + 24\omega_2^2\omega_3^3v_1^2\omega_5 - 24\omega_2\omega_3^3c_s^2\omega_5^2 + 12\omega_2^2v_1^2\omega_5^2 - 12\omega_2^3\omega_3^3c_s^2\omega_5 + 12\omega_2^3\omega_3^3v_1^2\omega_5 + 6\omega_2^3\omega_3c_s^2\omega_5^2 - 30\omega_2^3\omega_3v_1^2\omega_5^2 - 6\omega_2^3\omega_3^3v_1^2 + 6\omega_2^3\omega_3^3c_s^2 + 16\omega_2^2\omega_3^3v_1^2\omega_5^2 - 32\omega_2^2\omega_3^3c_s^2\omega_5^2 + 24\omega_2^2\omega_3v_1^2\omega_5^2 - 12\omega_2^2\omega_3c_s^2\omega_5^2 - 36\omega_2^2\omega_3^3v_1^2\omega_5 + 36\omega_2^2\omega_3^3c_s^2\omega_5 + 4\omega_2^3\omega_3^3c_s^2\omega_5^2 - 5\omega_2^3\omega_3^3v_1^2\omega_5^2)\frac{v_2\rho}{12\omega_2^3\omega_3^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_y\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2}$ **at** $\frac{\partial^4 v_2}{\partial t \partial x_2^2 \partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2} = (-24 - 14\omega^2 + \omega^3 + 36\omega)\frac{v_3 v_2 \rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2} = (-12\omega_6\omega_4^3 + 24\omega_6\omega_3\omega_4^3 - 12\omega_6\omega_3\omega_4^2 + 12\omega_6\omega_3^2\omega_4^2 + 12\omega_3^2\omega_4^2 - 6\omega_3^2\omega_4^3 + 12\omega_6\omega_3^3\omega_4 - 10\omega_6\omega_3^2\omega_4^3 - 7\omega_6\omega_3^3\omega_4^2 - 6\omega_3^3\omega_4^2 - 6\omega_6\omega_3^3 + 3\omega_3^3\omega_4^3 - 6\omega_6\omega_3^2\omega_4 + \omega_6\omega_3^3\omega_4^3)\frac{v_3 v_2 \rho}{6\omega_6\omega_3^3\omega_4^3}$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2} = (-6\omega_3^3 + 18\omega_3\omega_4^3 + 6\omega_3^2\omega_4^2 - 7\omega_3^2\omega_4^3 + 12\omega_3^3\omega_4 - 7\omega_3^3\omega_4^2 + \omega_3^3\omega_4^3 - 12\omega_4^3 - 6\omega_3^2\omega_4)\frac{v_3 v_2 \rho}{6\omega_3^3\omega_4^3}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_2}$$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial t \partial x_2^2 \partial x_3}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3} = (-2v_2^2\omega^2 + v_2^2\omega^3 - 90c_s^2\omega + 60c_s^2 + 34c_s^2\omega^2 - 2c_s^2\omega^3)\frac{\rho}{12\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3} = (9\omega_6\omega_3^3 v_2^2\omega_4 - 6\omega_3^3 v_2^2\omega_4 + 3\omega_6^2\omega_3^3 c_s^2 + 6\omega_6^2\omega_3^2 v_2^2 - 24\omega_6^2 v_2^2\omega_4 - 10\omega_6^2\omega_3^2 v_2^2\omega_4 + 12\omega_6\omega_3\omega_4 c_s^2 + 9\omega_6\omega_3^3\omega_4 c_s^2 - 18\omega_6^2\omega_3^2 c_s^2 - 6\omega_3^3\omega_4 c_s^2 + 12\omega_6^2\omega_4 c_s^2 + 22\omega_6^2\omega_3^2\omega_4 c_s^2 + 12\omega_6\omega_3 v_2^2\omega_4 - \omega_6^2\omega_3^3 v_2^2 + 12\omega_6\omega_3^2 c_s^2 + \omega_6^2\omega_3^3 v_2^2\omega_4 - 30\omega_6\omega_3^2 v_2^2\omega_4 + 12\omega_6^2\omega_3 c_s^2 - 30\omega_6^2\omega_3\omega_4 c_s^2 + 12\omega_3^2 v_2^2\omega_4 - 6\omega_6\omega_3^3 v_2^2 - 12\omega_6^2\omega_3 v_2^2 - 6\omega_6\omega_3^3 c_s^2 - 2\omega_6^2\omega_3^3\omega_4 c_s^2 + 12\omega_6\omega_3^3 v_2^2 - 30\omega_6\omega_3^3\omega_4 c_s^2 + 36\omega_6^2\omega_3 v_2^2\omega_4 + 12\omega_3^3\omega_4 c_s^2)\frac{\rho}{12\omega_6^2\omega_3^3\omega_4}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3} = (-9\omega_6\omega_3^3 v_2^2\omega_4 + 6\omega_3^3 v_2^2\omega_4 + 3\omega_6^2\omega_3^3 c_s^2 - 6\omega_6^2\omega_3^2 v_2^2 + 24\omega_6^2 v_2^2\omega_4 + 8\omega_6^2\omega_3^2 v_2^2\omega_4 + 12\omega_6\omega_3\omega_4 c_s^2 + 9\omega_6\omega_3^3\omega_4 c_s^2 - 18\omega_6^2\omega_3^2 c_s^2 - 6\omega_3^3\omega_4 c_s^2 + 12\omega_6^2\omega_4 c_s^2 + 22\omega_6^2\omega_3^2\omega_4 c_s^2 - 12\omega_6\omega_3 v_2^2\omega_4 - \omega_6^2\omega_3^3 v_2^2 + 12\omega_6\omega_3^2 c_s^2 + \omega_6^2\omega_3^3 v_2^2\omega_4 + 30\omega_6\omega_3^2 v_2^2\omega_4 + 12\omega_6^2\omega_3 c_s^2 - 30\omega_6^2\omega_3\omega_4 c_s^2 - 12\omega_3^2 v_2^2\omega_4 + 6\omega_6\omega_3^3 v_2^2 + 12\omega_6^2\omega_3 v_2^2 - 6\omega_6\omega_3^3 c_s^2 - 2\omega_6^2\omega_3^3\omega_4 c_s^2 - 12\omega_6\omega_3^3 v_2^2 - 30\omega_6\omega_3^3\omega_4 c_s^2 - 36\omega_6^2\omega_3 v_2^2\omega_4 + 12\omega_3^3\omega_4 c_s^2)\frac{\rho}{12\omega_6^2\omega_3^3\omega_4}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y^2\mathrm{D}_z v_3}$$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1 \partial x_2^2 \partial x_3}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho} = (24v_2^2\omega^2 - 2v_2^2\omega^3 - 60v_2^2\omega + 30c_s^2\omega + 40v_2^2 - 20c_s^2 - 12c_s^2\omega^2 + c_s^2\omega^3)\frac{v_3 v_1}{\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho} = (-8\omega_2^3\omega_6^2\omega_3^3 v_2^2\omega_4 + 4\omega_2\omega_6^2\omega_3^2 v_2^2\omega_4^3 + \omega_2\omega_6^2\omega_3^3\omega_4^3 c_s^2 + 6\omega_2^2\omega_6^2\omega_3^2\omega_4^2 c_s^2 + 7\omega_2^3\omega_6^2\omega_3 v_2^2\omega_4^2 - 2\omega_2^3\omega_6\omega_3\omega_4^3 c_s^2 - 2\omega_2^2\omega_6\omega_3^2\omega_4^3 c_s^2 + \omega_2^2\omega_6\omega_3^3 v_2^2\omega_4^2 - 2\omega_2^3\omega_6^2\omega_4^3 c_s^2 + 4\omega_2^2\omega_6^2\omega_3^2 v_2^2\omega_4^2 - 21\omega_2^3\omega_6^2\omega_3 v_2^2\omega_4^3 + \omega_2^3\omega_6\omega_3^3\omega_4^2 c_s^2 - 2\omega_2^3\omega_3^2 v_2^2\omega_4^3 + \omega_2^3\omega_3^3\omega_4^3 c_s^2 - 2\omega_2^2\omega_6^2\omega_3^3\omega_4^3 c_s^2 - 12\omega_2^2\omega_6^2\omega_3^2 v_2^2\omega_4^3 - 2\omega_2^2\omega_6^2\omega_3\omega_4^3 c_s^2 + \omega_2^3\omega_6^2\omega_3^3\omega_4 c_s^2 - 2\omega_2^3\omega_6\omega_3^2 v_2^2\omega_4^3 - 2\omega_2^3\omega_6^2\omega_3^3 v_2^2\omega_4^2 - 6\omega_2^3\omega_6^2\omega_3^2\omega_4^2 c_s^2 + \omega_2^2\omega_6^2\omega_3^3\omega_4^2 c_s^2 + 6\omega_2^2\omega_6\omega_3^2 v_2^2\omega_4^3 - 2\omega_2^3\omega_6\omega_3^3\omega_4^2 c_s^2 + 7\omega_2^3\omega_6^2\omega_3^3 v_2^2\omega_4^2 + 6\omega_2^2\omega_6^2\omega_3^2\omega_4^2 c_s^2 + 7\omega_2^2\omega_6^2\omega_3^3 v_2^2\omega_4^3 + \omega_2^3\omega_3^3 v_2^2\omega_4^3 - 2\omega_2^3\omega_3^3\omega_4^3 c_s^2 + 6\omega_2^3\omega_6^2\omega_3\omega_4^3 c_s^2 + 3\omega_2\omega_6^2\omega_3^3 v_2^2\omega_4^2 - 2\omega_2^3\omega_6\omega_3^2\omega_4^3 c_s^2 - 8\omega_2^2\omega_6^2\omega_3^3 v_2^2\omega_4^2 + 10\omega_2^3\omega_6^2 v_2^2\omega_4^3 + \omega_2^2\omega_6\omega_3^3\omega_4^3 c_s^2 - 2\omega_2^2\omega_6\omega_3^3 v_2^2\omega_4^3 - 2\omega_2^3\omega_6^2\omega_3^3\omega_4^2 c_s^2 + 3\omega_2^3\omega_6^2\omega_3^3 v_2^2 + 4\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4 - 8\omega_2\omega_6^2\omega_3^3 v_2^2\omega_4^3 - 2\omega_2\omega_6^2\omega_3^2\omega_4^3 c_s^2 - 2\omega_2^3\omega_6\omega_3 v_2^2\omega_4^3 - 12\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4^2 - 2\omega_2^3\omega_6\omega_3^3 v_2^2\omega_4^3 + 6\omega_2^3\omega_6\omega_3^2\omega_4^3 c_s^2 - 2\omega_2^3\omega_6^2\omega_3\omega_4^2 c_s^2 + 3\omega_6^2\omega_3^3 v_2^2\omega_4^3 + 3\omega_2^2\omega_6^2\omega_3^3 v_2^2\omega_4 - 2\omega_2^2\omega_6^2\omega_3^2\omega_4^2 c_s^2 - 2\omega_2^3\omega_6^2\omega_3^2\omega_4 c_s^2 + 12\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4^3 + \omega_2^2\omega_6^2\omega_3^3\omega_4^3 c_s^2 + \omega_2^3\omega_6\omega_3^3 v_2^2\omega_4^2 + 7\omega_2^2\omega_6^2\omega_3 v_2^2\omega_4^3)\frac{v_3 v_1}{\omega_2^3\omega_6^2\omega_3^3\omega_4^3}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho} = (-8\omega_2^3\omega_6^2\omega_3^3 v_2^2\omega_4 + 4\omega_2\omega_6^2\omega_3^2 v_2^2\omega_4^3 + \omega_2\omega_6^2\omega_3^3\omega_4^3 c_s^2 + 6\omega_2^2\omega_6^2\omega_3^2\omega_4^2 c_s^2 + 3\omega_2^3\omega_6^2\omega_3 v_2^2\omega_4^2 - 2\omega_2^3\omega_6\omega_3\omega_4^3 c_s^2 - 2\omega_2^2\omega_6\omega_3^2\omega_4^3 c_s^2 - \omega_2^2\omega_6\omega_3^3 v_2^2\omega_4^2 - 2\omega_2^3\omega_6^2\omega_4^3 c_s^2 + 4\omega_2^2\omega_6^2\omega_3^2 v_2^2\omega_4^2 - 7\omega_2^3\omega_6^2\omega_3 v_2^2\omega_4^3 + \omega_2^3\omega_6\omega_3^3\omega_4^2 c_s^2 + 2\omega_2^3\omega_3^2 v_2^2\omega_4^3 + \omega_2^3\omega_3^3\omega_4^3 c_s^2 - 2\omega_2^2\omega_6^2\omega_3^3\omega_4^3 c_s^2 - 10\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4^3 - 2\omega_2^2\omega_6^2\omega_3\omega_4^3 c_s^2 + \omega_2^3\omega_6^2\omega_3^3\omega_4 c_s^2 + 2\omega_2^3\omega_6\omega_3^2 v_2^2\omega_4^2 - 2\omega_2^3\omega_6^2\omega_3^3 v_2^2\omega_4^3 - 6\omega_2^3\omega_6^2\omega_3^2\omega_4^2 c_s^2 + \omega_2^2\omega_6^2\omega_3^3\omega_4^2 c_s^2 - 6\omega_2^3\omega_6\omega_3^2 v_2^2\omega_4^3 - 2\omega_2^3\omega_6\omega_3^3\omega_4^2 c_s^2 + 7\omega_2^3\omega_6^2\omega_3^3 v_2^2\omega_4^2 + 6\omega_2^2\omega_6^2\omega_3^2\omega_4^2 c_s^2 + 7\omega_2^2\omega_6^2\omega_3^3 v_2^2\omega_4^3 - \omega_2^3\omega_3^3 v_2^2\omega_4^3 - 2\omega_2^3\omega_3^3\omega_4^3 c_s^2 + 6\omega_2^3\omega_6^2\omega_3\omega_4^3 c_s^2 + 3\omega_2\omega_6^2\omega_3^3 v_2^2\omega_4^2 - 2\omega_2^3\omega_6\omega_3^2\omega_4^3 c_s^2 - 8\omega_2^2\omega_6^2\omega_3^3 v_2^2\omega_4^2 + 2\omega_2^3\omega_6^2 v_2^2\omega_4^3 + \omega_2^2\omega_6\omega_3^3\omega_4^3 c_s^2 + 2\omega_2^2\omega_6\omega_3^2 v_2^2\omega_4^3 - 2\omega_2^3\omega_6^2\omega_3^3\omega_4^2 c_s^2 + 3\omega_2^3\omega_6^2\omega_3^3 v_2^2 + 4\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4 - 8\omega_2\omega_6^2\omega_3^3 v_2^2\omega_4^3 - 2\omega_2\omega_6^2\omega_3^2\omega_4^3 c_s^2 + 2\omega_2^3\omega_6\omega_3 v_2^2\omega_4^3 - 10\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4^2 + 2\omega_2^3\omega_6\omega_3^3 v_2^2\omega_4^3 + 6\omega_2^3\omega_6\omega_3^2\omega_4^2 c_s^2 - 2\omega_2^3\omega_6^2\omega_3\omega_4^2 c_s^2 + 3\omega_6^2\omega_3^3 v_2^2\omega_4^3 + 3\omega_2^2\omega_6^2\omega_3^3 v_2^2\omega_4 - 2\omega_2^2\omega_6^2\omega_3^2\omega_4^2 c_s^2 - 2\omega_2^3\omega_6^2\omega_3^2\omega_4 c_s^2 + 8\omega_2^3\omega_6^2\omega_3^2 v_2^2\omega_4^3 + \omega_2^3\omega_6^2\omega_3^3\omega_4^2 c_s^2 - \omega_2^3\omega_6\omega_3^3 v_2^2\omega_4^2 + 3\omega_2^2\omega_6^2\omega_3 v_2^2\omega_4^3)\frac{v_3 v_1}{\omega_2^3\omega_6^2\omega_3^3\omega_4^3}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z \rho}$$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1 \partial x_2^2 \partial x_3}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1} = (52v_2^2\omega^2 - 5v_2^2\omega^3 - 126v_2^2\omega + 144c_s^2\omega + 84v_2^2 - 96c_s^2 - 56c_s^2\omega^2 + 4c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1} = (-24\omega_6\omega_3^2\omega_4^2 c_s^2 + 36\omega_6^2\omega_3\omega_4^3 c_s^2 - 12\omega_6\omega_3 v_2^2\omega_4^3 + 24\omega_6^2\omega_3^2 v_2^2\omega_4 - 12\omega_6^2\omega_3^3\omega_4^2 c_s^2 - 12\omega_3^2\omega_4^3 c_s^2 + 6\omega_3^3 v_2^2\omega_4^3 - 24\omega_6^2\omega_3\omega_4^2 c_s^2 + 36\omega_6\omega_3^2\omega_4^3 c_s^2 - 12\omega_6\omega_3^3 v_2^2\omega_4^3 - 60\omega_6^2\omega_3^2 v_2^2\omega_4^2 + 12\omega_6\omega_3^3 v_2^2\omega_4^2 + 4\omega_6^2\omega_3^3\omega_4^2 c_s^2 + 40\omega_6^2\omega_3^2 v_2^2\omega_4^3 - 12\omega_6^2\omega_3^2\omega_4 c_s^2 + 48\omega_6^2 v_2^2\omega_4^3 + 12\omega_6^2\omega_3^3 v_2^2 - 12\omega_6\omega_3\omega_4^3 c_s^2 + 48\omega_6^2\omega_3 v_2^2\omega_4^2 + 48\omega_6^2\omega_3^2\omega_4^2 c_s^2 - 30\omega_6^2\omega_3^3 v_2^2\omega_4 + 12\omega_6\omega_3^3\omega_4^2 c_s^2 - 90\omega_6^2\omega_3 v_2^2\omega_4^3 - 32\omega_6^2\omega_3^2\omega_4^3 c_s^2 - 5\omega_6^2\omega_3^3 v_2^2\omega_4^3 - 24\omega_6\omega_3^3 v_2^2\omega_4^2 - 12\omega_6^2\omega_4^3 c_s^2 + 6\omega_6^2\omega_3^3\omega_4 c_s^2 + 6\omega_3^3\omega_4^3 c_s^2 - 12\omega_3^3 v_2^2\omega_4^3 + 24\omega_6^2\omega_3^3 v_2^2\omega_4^2 - 12\omega_6\omega_3^3\omega_4^3 c_s^2 + 36\omega_6\omega_3^3 v_2^2\omega_4^3)\frac{v_3\rho}{12\omega_6^2\omega_3^3\omega_4^3}$$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1} = (-24\omega_6\omega_3^2\omega_4^2c_s^2 + 36\omega_6^2\omega_3\omega_4^3c_s^2 + 12\omega_6\omega_3v_2^2\omega_4^3 + 24\omega_6^2\omega_3^2v_2^2\omega_4 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 - 6\omega_3^3v_2^2\omega_4^3 - 24\omega_6^2\omega_3\omega_4^2c_s^2 + 36\omega_6\omega_3^2\omega_4^3c_s^2 + 12\omega_6\omega_3^3v_2^2\omega_4^3 - 36\omega_6^2\omega_3^2v_2^2\omega_4^2 - 12\omega_6\omega_3^3v_2^2\omega_4^2 + 4\omega_6^2\omega_3^3\omega_4^3c_s^2 + 16\omega_6^2\omega_3^2v_2^2\omega_4^3 - 12\omega_6^2\omega_3^2\omega_4c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3\omega_4^3c_s^2 + 48\omega_6^2\omega_3^2\omega_4^2c_s^2 - 30\omega_6^2\omega_3^3v_2^2\omega_4 + 12\omega_6\omega_3^3\omega_4^2c_s^2 - 6\omega_6^2\omega_3v_2^2\omega_4^3 - 32\omega_6^2\omega_3^2\omega_4^3c_s^2 - 5\omega_6^2\omega_3^3v_2^2\omega_4^3 + 24\omega_6\omega_3^2v_2^2\omega_4^2 - 12\omega_6^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 + 6\omega_3^3\omega_4^3c_s^2 + 12\omega_3^2v_2^2\omega_4^3 + 24\omega_6^2\omega_3^3v_2^2\omega_4^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 - 36\omega_6\omega_3^2v_2^2\omega_4^3)\frac{v_3\rho}{12\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_1\partial x_2^2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2} = (132 + 76\omega^2 - 5\omega^3 - 198\omega)\frac{v_3v_2v_1\rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2} = (18\omega_2^3\omega_3\omega_4^2 - 42\omega_2^2\omega_3^2\omega_4^2 + 24\omega_2^2\omega_3^3\omega_4^3 - 36\omega_2^3\omega_3\omega_4^3 + 12\omega_2^2\omega_3^2\omega_4^2 + 12\omega_2^3\omega_3^3 + 18\omega_2^2\omega_3^3\omega_4 - 30\omega_2^2\omega_3^2\omega_4^3 - 5\omega_2^3\omega_3^3\omega_4^3 + 6\omega_2^3\omega_3^2\omega_4 + 18\omega_2^2\omega_3\omega_4^3 + 6\omega_2\omega_3^2\omega_4^3 + 12\omega_2^3\omega_4^3 + 24\omega_2^3\omega_3^3\omega_4^2 + 18\omega_2\omega_3^3\omega_4^2 + 28\omega_2^3\omega_3^2\omega_4^3 - 30\omega_2^3\omega_3^3\omega_4 - 30\omega_2^3\omega_3^2\omega_4^2 - 30\omega_2\omega_3^3\omega_4^3 + 12\omega_3^3\omega_4^3)\frac{v_3v_2v_1\rho}{6\omega_2^3\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_2}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_1\partial x_2^2\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3} = (52v_2^2\omega^2 - 5v_2^2\omega^3 - 126v_2^2\omega + 144c_s^2\omega + 84v_2^2 - 96c_s^2 - 56c_s^2\omega^2 + 4c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3} = (-90\omega_2^3\omega_6^2\omega_3v_2^2 - 24\omega_2^2\omega_6^2\omega_3c_s^2 + 12\omega_2^2\omega_6\omega_3^3v_2^2 - 12\omega_2^3\omega_6\omega_3^3c_s^2 + 24\omega_2\omega_6^2\omega_3^2v_2^2 - 24\omega_2^2\omega_6\omega_3^2c_s^2 + 36\omega_2^3\omega_6\omega_3^2v_2^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 30\omega_2\omega_6^2\omega_3^3v_2^2 + 36\omega_2^3\omega_6\omega_3^2c_s^2 - 24\omega_2^2\omega_6\omega_3^2v_2^2 + 48\omega_2^2\omega_6^2\omega_3v_2^2 + 36\omega_2^3\omega_6^2\omega_3c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_2\omega_6^2\omega_3^2c_s^2 - 12\omega_2^3\omega_6\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 - 32\omega_2^3\omega_6^2\omega_3^2c_s^2 - 60\omega_2^2\omega_6^2\omega_3^2v_2^2 - 12\omega_2^3\omega_3^2v_2^2 - 12\omega_2^3\omega_6^2c_s^2 - 12\omega_2^3\omega_6\omega_3c_s^2 - 5\omega_2^3\omega_6^2\omega_3^3v_2^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 + 6\omega_2^3\omega_3^3c_s^2 - 12\omega_2^3\omega_6\omega_3v_2^2 + 48\omega_2^3\omega_6^2v_2^2 + 6\omega_2^3\omega_3^3v_2^2 + 24\omega_2^2\omega_6^2\omega_3^3v_2^2 + 4\omega_2^3\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^3c_s^2 + 48\omega_2^2\omega_6^2\omega_3^3c_s^2 + 40\omega_2^3\omega_6^2\omega_3^3v_2^2)\frac{v_1\rho}{12\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3} = (-6\omega_2^3\omega_6^2\omega_3v_2^2 - 24\omega_2^2\omega_6^2\omega_3c_s^2 - 12\omega_2^2\omega_6\omega_3^3v_2^2 - 12\omega_2^3\omega_6\omega_3^3c_s^2 + 24\omega_2\omega_6^2\omega_3^3v_2^2 - 24\omega_2^2\omega_6\omega_3^3c_s^2 - 36\omega_2^3\omega_6\omega_3^3v_2^2 + 6\omega_2\omega_6^2\omega_3^3c_s^2 - 30\omega_2\omega_6^2\omega_3^3v_2^2 + 36\omega_2^3\omega_6\omega_3^3c_s^2 + 24\omega_2^2\omega_6\omega_3^3v_2^2 + 36\omega_2^3\omega_6^2\omega_3c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_2\omega_6^2\omega_3^2c_s^2 + 12\omega_2^3\omega_6\omega_3^3v_2^2 + 12\omega_2^2\omega_6\omega_3^3c_s^2 - 32\omega_2^3\omega_6^2\omega_3^2c_s^2 - 36\omega_2^2\omega_6^2\omega_3^2v_2^2 + 12\omega_2^3\omega_3^2v_2^2 - 12\omega_2^3\omega_6^2c_s^2 - 12\omega_2^3\omega_6\omega_3c_s^2 - 5\omega_2^3\omega_6^2\omega_3^3v_2^2 - 12\omega_2^2\omega_6^2\omega_3^3c_s^2 + 6\omega_2^3\omega_3^3c_s^2 + 12\omega_2^3\omega_6\omega_3v_2^2 - 6\omega_2^3\omega_3^3v_2^2 + 24\omega_2^2\omega_6^2\omega_3^3v_2^2 + 4\omega_2^3\omega_6^2\omega_3^3c_s^2 - 12\omega_2^3\omega_3^3c_s^2 + 48\omega_2^2\omega_6^2\omega_3^3c_s^2 + 16\omega_2^3\omega_6^2\omega_3^3v_2^2)\frac{v_1\rho}{12\omega_2^3\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y^2\mathrm{D}_z v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y^3\mathrm{D}_z\rho}$ **at** $\frac{\partial^4\rho}{\partial x_2^3\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^3\mathrm{D}_z\rho} = (24 + 14\omega^2 - \omega^3 + 180c_s^2\omega - 120c_s^2 - 72c_s^2\omega^2 - 36\omega + 6c_s^2\omega^3)\frac{v_3v_2}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3\mathrm{D}_z\rho} = (-12\omega_6\omega_3^2\omega_4^2c_s^2 + \omega_6^2\omega_3^3\omega_4^2 + 78\omega_6^2\omega_3\omega_4^3c_s^2 - 24\omega_6\omega_3v_2^2\omega_4^3 + 6\omega_6^2\omega_3^2v_2^2\omega_4 - \omega_6^2\omega_3^3\omega_4^2 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 6\omega_3^3v_2^2\omega_4^3 - 24\omega_6^2\omega_3\omega_4^2c_s^2 + 42\omega_6\omega_3^2\omega_4^3c_s^2 - 12\omega_6\omega_3^3v_2^2\omega_4^3 + 12\omega_6\omega_3\omega_4^3 - 12\omega_6^2\omega_3^2v_2^2\omega_4^2 - 3\omega_6^2\omega_3^2\omega_4^2 + 7\omega_6^2\omega_3^2\omega_4^3 + 6\omega_6\omega_3^3v_2^2\omega_4^2 + 6\omega_6^2\omega_3^3\omega_4^3c_s^2 + 6\omega_6^2\omega_3^2v_2^2\omega_4^3 - 12\omega_6^2\omega_3^2\omega_4c_s^2 + 24\omega_6^2v_2^2\omega_4^3 + 6\omega_6^2\omega_3^3v_2^2 + 6\omega_6\omega_3^2\omega_4^2 - 24\omega_6\omega_3\omega_4^3c_s^2 + 12\omega_6^2\omega_3v_2^2\omega_4^2 - 6\omega_6^2\omega_3\omega_4^3 + 42\omega_6^2\omega_3^2\omega_4^2c_s^2 - 12\omega_6^2\omega_3^3v_2^2\omega_4 + 6\omega_6\omega_3^3\omega_4^2c_s^2 + 6\omega_3^2\omega_4^3 - 30\omega_6^2\omega_3v_2^2\omega_4^3 - 21\omega_6\omega_3^2\omega_4^3 - 48\omega_6^2\omega_3^2\omega_4^2c_s^2 - 12\omega_6\omega_3^2v_2^2\omega_4^2 - 36\omega_6^2\omega_4^3c_s^2 - 3\omega_6\omega_3^3\omega_4^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 - 3\omega_3^3\omega_4^3 + 6\omega_3^3\omega_4^3c_s^2 - 12\omega_3^2v_2^2\omega_4^3 + 6\omega_6\omega_3^3\omega_4^3 + 6\omega_6^2\omega_3^3v_2^2\omega_4^2 - 12\omega_6\omega_3^3\omega_4^3c_s^2 + 42\omega_6\omega_3^2v_2^2\omega_4^3)\frac{v_3v_2}{6\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^3\mathrm{D}_z\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3\mathrm{D}_z\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3\mathrm{D}_z\rho} = (-24\omega_6\omega_3^2\omega_4^2c_s^2 + \omega_6^2\omega_3^3\omega_4^2 + 36\omega_6^2\omega_3\omega_4^3c_s^2 - 24\omega_6\omega_3v_2^2\omega_4^3 + 6\omega_6^2\omega_3^2v_2^2\omega_4 - \omega_6^2\omega_3^3\omega_4^2 - 12\omega_6^2\omega_3^3\omega_4^2c_s^2 - 36\omega_3^2\omega_4^3c_s^2 - 6\omega_3^3v_2^2\omega_4^3 -$

$12\omega_6^2\omega_3\omega_4^2c_s^2+72\omega_6\omega_3^2\omega_4^2c_s^2+12\omega_6\omega_3\omega_4^3-6\omega_6^2\omega_3^2v_2^2\omega_4^2-3\omega_6^2\omega_3^2\omega_4^2+7\omega_6^2\omega_3^2\omega_4^3+6\omega_6^2\omega_3^3\omega_4^2c_s^2-6\omega_6^2\omega_3^2v_2^2\omega_4^3-12\omega_6^2\omega_3^2\omega_4c_s^2+6\omega_6^2\omega_3^3v_2^2+6\omega_6\omega_3^2\omega_4^2-24\omega_6\omega_3\omega_4^3c_s^2-6\omega_6^2\omega_3\omega_4^3+36\omega_6^2\omega_3^2\omega_4^2c_s^2-12\omega_6^2\omega_3^3v_2^2\omega_4+12\omega_6\omega_3^3\omega_4^2c_s^2+6\omega_3^2\omega_4^3+12\omega_6^2\omega_3v_2^2\omega_4^3-21\omega_6\omega_3^2\omega_4^3-36\omega_6^2\omega_3^2\omega_4^2c_s^2-12\omega_6^2\omega_4^3c_s^2-3\omega_6\omega_3^3\omega_4^2+6\omega_6^2\omega_3^3\omega_4c_s^2-3\omega_3^3\omega_4^3+18\omega_3^3\omega_4^2c_s^2+12\omega_3^2v_2^2\omega_4^3+6\omega_6\omega_3^3\omega_4^3+6\omega_6^2\omega_3^3v_2^2\omega_4^2-24\omega_6\omega_3^3\omega_4^2c_s^2+12\omega_6\omega_3^2v_2^2\omega_4^3)\frac{v_3v_2}{6\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^3\mathrm{D}_z\rho}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3\mathrm{D}_z\rho}$

coefficient $C^{(0)}_{\mathrm{D}_y^3\mathrm{D}_zv_2}$ **at** $\frac{\partial^4v_2}{\partial x_2^3\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}=(12-12v_2^2\omega^2+3v_2^2\omega^3+8\omega^2+18v_2^2\omega-\omega^3+144c_s^2\omega-12v_2^2-96c_s^2-56c_s^2\omega^2-18\omega+4c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}=(-24\omega_6\omega_3^2\omega_4^2c_s^2+2\omega_6^2\omega_3^3\omega_4^2+36\omega_6^2\omega_3\omega_4^3c_s^2-12\omega_6\omega_3v_2^2\omega_4^3-\omega_6^2\omega_3^3\omega_4^3-12\omega_6^2\omega_3^3\omega_4^2c_s^2-12\omega_3^2\omega_4^3c_s^2+6\omega_3^3v_2^2\omega_4^3-24\omega_6^2\omega_3\omega_4^2c_s^2+36\omega_6\omega_3^2\omega_4^3c_s^2-12\omega_6\omega_3^3v_2^2\omega_4^3+12\omega_6^2\omega_3^2v_2^2\omega_4^2-6\omega_6^2\omega_3^2\omega_4^2+3\omega_6^2\omega_3^2\omega_4^3+12\omega_6\omega_3^3v_2^2\omega_4^2+4\omega_6^2\omega_3^3\omega_4^2c_s^2-12\omega_6^2\omega_3^2\omega_4c_s^2+24\omega_6^2v_2^2\omega_4^3+12\omega_6^2\omega_3^3v_2^2+12\omega_6\omega_3^2\omega_4^2-12\omega_6\omega_3\omega_4^3c_s^2+48\omega_6^2\omega_3^2\omega_4^2c_s^2-18\omega_6^2\omega_3^3v_2^2\omega_4+12\omega_6\omega_3^3\omega_4^2c_s^2-30\omega_6^2\omega_3v_2^2\omega_4^3-6\omega_6\omega_3^2\omega_4^3-32\omega_6^2\omega_3^2\omega_4^3c_s^2+3\omega_6^2\omega_3^3v_2^2\omega_4^3-24\omega_6\omega_3^2v_2^2\omega_4^2-12\omega_6^2\omega_4^3c_s^2-6\omega_6\omega_3^3\omega_4^2+6\omega_6^2\omega_3^3\omega_4c_s^2+6\omega_3^3\omega_4^3c_s^2-12\omega_3^3v_2^2\omega_4^3+3\omega_6\omega_3^3\omega_4^3-12\omega_6\omega_3^3\omega_4^3c_s^2+36\omega_6\omega_3^2v_2^2\omega_4^3)\frac{v_3\rho}{12\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}=(-24\omega_6\omega_3^2\omega_4^2c_s^2+2\omega_6^2\omega_3^3\omega_4^2+36\omega_6^2\omega_3\omega_4^3c_s^2+12\omega_6\omega_3v_2^2\omega_4^3-\omega_6^2\omega_3^3\omega_4^3-12\omega_6^2\omega_3^3\omega_4^2c_s^2-12\omega_3^2\omega_4^3c_s^2-6\omega_3^3v_2^2\omega_4^3-24\omega_6^2\omega_3\omega_4^2c_s^2+36\omega_6\omega_3^2\omega_4^3c_s^2+12\omega_6^2\omega_3^2v_2^2\omega_4^2-6\omega_6^2\omega_3^2\omega_4^2+3\omega_6^2\omega_3^2\omega_4^3+12\omega_6\omega_3^3v_2^2\omega_4^2+4\omega_6^2\omega_3^3\omega_4^2c_s^2-12\omega_6^2\omega_3^2v_2^2\omega_4^3-12\omega_6^2\omega_3^2\omega_4c_s^2-24\omega_6^2v_2^2\omega_4^3+12\omega_6^2\omega_3^3v_2^2+12\omega_6\omega_3^2\omega_4^2-12\omega_6\omega_3\omega_4^3c_s^2+48\omega_6^2\omega_3^2\omega_4^2c_s^2-18\omega_6^2\omega_3^3v_2^2\omega_4+12\omega_6\omega_3^3\omega_4^2c_s^2+30\omega_6^2\omega_3v_2^2\omega_4^3-6\omega_6\omega_3^2\omega_4^3-32\omega_6^2\omega_3^2\omega_4^3c_s^2+3\omega_6^2\omega_3^3v_2^2\omega_4^3-24\omega_6\omega_3^2v_2^2\omega_4^2-12\omega_6^2\omega_4^3c_s^2-6\omega_6\omega_3^3\omega_4^2+6\omega_6^2\omega_3^3\omega_4c_s^2+6\omega_3^3\omega_4^3c_s^2+12\omega_3^3v_2^2\omega_4^3+3\omega_6\omega_3^3\omega_4^3-12\omega_6\omega_3^3\omega_4^3c_s^2-12\omega_6\omega_3^3v_2^2\omega_4^3)\frac{v_3\rho}{12\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3\mathrm{D}_zv_2}$

coefficient $C^{(0)}_{\mathrm{D}_y^3\mathrm{D}_zv_3}$ **at** $\frac{\partial^4v_3}{\partial x_2^3\partial x_3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}=(36-20v_2^2\omega^2+v_2^2\omega^3+20\omega^2+54v_2^2\omega-\omega^3+144c_s^2\omega-36v_2^2-96c_s^2-56c_s^2\omega^2-54\omega+4c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}=(-36\omega_6\omega_3v_2^2-\omega_6^2\omega_3^3-6\omega_3^3+4\omega_6^2\omega_3^3c_s^2-8\omega_6^2\omega_3^2v_2^2+11\omega_6^2\omega_3^2+12\omega_3^2-44\omega_6^2\omega_3^2c_s^2-12\omega_6^2\omega_3-36\omega_6\omega_3c_s^2+\omega_6^2\omega_3^3v_2^2+48\omega_6\omega_3^2c_s^2-12\omega_3^2c_s^2+90\omega_6^2\omega_3c_s^2+12\omega_6^2v_2^2+6\omega_3^3v_2^2+24\omega_6\omega_3-12\omega_6\omega_3^3v_2^2-48\omega_6^2c_s^2-36\omega_6\omega_3^2-12\omega_6\omega_3^3c_s^2+6\omega_3^3c_s^2+9\omega_6\omega_3^3-12\omega_3^3v_2^2+48\omega_6\omega_3^2v_2^2)\frac{v_2\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}=(-60\omega_6\omega_3v_2^2-\omega_6^2\omega_3^3-6\omega_3^3+4\omega_6^2\omega_3^3c_s^2-14\omega_6^2\omega_3^2v_2^2+11\omega_6^2\omega_3^2+12\omega_3^2-26\omega_6^2\omega_3^2c_s^2-12\omega_6^2\omega_3-36\omega_6\omega_3c_s^2+\omega_6^2\omega_3^3v_2^2+96\omega_6\omega_3^2c_s^2-60\omega_3^2c_s^2+18\omega_6^2\omega_3c_s^2+12\omega_6^2v_2^2-6\omega_3^3v_2^2+24\omega_6\omega_3-6\omega_6\omega_3^3v_2^2-36\omega_6\omega_3^2+12\omega_6^2\omega_3v_2^2-30\omega_6\omega_3^3c_s^2+30\omega_3^3c_s^2+9\omega_6\omega_3^3+12\omega_3^3v_2^2+48\omega_6\omega_3^2v_2^2)\frac{v_2\rho}{12\omega_6^2\omega_3^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^3\mathrm{D}_zv_3}$

coefficient $C^{(0)}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}$ **at** $\frac{\partial^4v_3}{\partial t^2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}=(-2-\omega^2+3\omega)\frac{3v_3\rho}{2\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}=(8\omega_7\omega_4^2-2\omega_7\omega_4^3-4\omega_7\omega_4+2\omega_7^2-\omega_7^2\omega_4-4\omega_4^2+2\omega_4^3-\omega_7^2\omega_4^2)\frac{v_3\rho}{2\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}=C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}=(-2+3\omega_4-\omega_4^2)\frac{3v_3\rho}{2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}=C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t^2\mathrm{D}_z^2v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2v_1}$ **at** $\frac{\partial^4v_1}{\partial t\partial x_1\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2v_1}=(-2v_3^2\omega^2+v_3^2\omega^3-90c_s^2\omega+60c_s^2+34c_s^2\omega^2-2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1} = (-30\omega_2\omega_7\omega_4^2c_s^2 - v_3^2\omega_7^2\omega_4^3 - 6\omega_2\omega_4^3c_s^2 - 10\omega_2v_3^2\omega_7^2\omega_4^2 + 12\omega_7^2\omega_4c_s^2 - 30\omega_2\omega_7^2\omega_4c_s^2 + 6v_3^2\omega_7^2\omega_4^2 + 12\omega_7\omega_4^2c_s^2 + \omega_2v_3^2\omega_7^2\omega_4^3 + 12\omega_2\omega_4^2c_s^2 + 9\omega_2\omega_7\omega_4^3c_s^2 - 12v_3^2\omega_7^2\omega_4 + 36\omega_2v_3^2\omega_7^2\omega_4 - 6\omega_7\omega_4^3c_s^2 - 24\omega_2v_3^2\omega_7^2 + 12\omega_2v_3^2\omega_7\omega_4 - 2\omega_2\omega_7^2\omega_4^3c_s^2 + 3\omega_7^2\omega_4^3c_s^2 + 22\omega_2\omega_7^2\omega_4^2c_s^2 + 12v_3^2\omega_7\omega_4^2 + 9\omega_2v_3^2\omega_7\omega_4^3 + 12\omega_2v_3^2\omega_4^2 - 6v_3^2\omega_7\omega_4^3 + 12\omega_2\omega_7^2c_s^2 + 12\omega_2\omega_7\omega_4c_s^2 - 6\omega_2v_3^2\omega_4^3 - 30\omega_2v_3^2\omega_7\omega_4^2 - 18\omega_7^2\omega_4^2c_s^2)\frac{\rho}{12\omega_2\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1} = (-30\omega_2\omega_7\omega_4^2c_s^2 - v_3^2\omega_7^2\omega_4^3 - 6\omega_2\omega_4^3c_s^2 + 8\omega_2v_3^2\omega_7^2\omega_4^2 + 12\omega_7^2\omega_4c_s^2 - 30\omega_2\omega_7^2\omega_4c_s^2 - 6v_3^2\omega_7^2\omega_4^2 + 12\omega_7\omega_4^2c_s^2 + \omega_2v_3^2\omega_7^2\omega_4^3 + 12\omega_2\omega_4^2c_s^2 + 9\omega_2\omega_7\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4 - 36\omega_2v_3^2\omega_7^2\omega_4 - 6\omega_7\omega_4^3c_s^2 + 24\omega_2v_3^2\omega_7^2 - 12\omega_2v_3^2\omega_7\omega_4 - 2\omega_2\omega_7^2\omega_4^3c_s^2 + 3\omega_7^2\omega_4^3c_s^2 + 22\omega_2\omega_7^2\omega_4^2c_s^2 - 12v_3^2\omega_7\omega_4^2 - 9\omega_2v_3^2\omega_7\omega_4^3 - 12\omega_2v_3^2\omega_4^2 + 6v_3^2\omega_7\omega_4^3 + 12\omega_2\omega_7^2c_s^2 + 12\omega_2\omega_7\omega_4c_s^2 + 6\omega_2v_3^2\omega_4^3 + 30\omega_2v_3^2\omega_7\omega_4^2 - 18\omega_7^2\omega_4^2c_s^2)\frac{\rho}{12\omega_2\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^4 v_3}{\partial t\partial x_1\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3} = (-24 - 14\omega^2 + \omega^3 + 36\omega)\frac{v_3v_1\rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3} = (24\omega_2^3\omega_7\omega_4 - 6\omega_2\omega_7\omega_4^2 + 12\omega_2\omega_7\omega_4^3 - 6\omega_7\omega_4^3 + \omega_2^3\omega_7\omega_4^3 - 10\omega_2^3\omega_7\omega_4^2 - 6\omega_2^3\omega_4^2 + 3\omega_2^3\omega_4^3 - 12\omega_2^3\omega_7 - 12\omega_2^2\omega_7\omega_4 + 12\omega_2^2\omega_7\omega_4^2 + 12\omega_2^2\omega_4^2 - 7\omega_2^2\omega_7\omega_4^3 - 6\omega_2^2\omega_4^3)\frac{v_3v_1\rho}{6\omega_2^3\omega_7\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3} = (12\omega_2\omega_4^3 - 6\omega_2\omega_4^2 - 7\omega_2^3\omega_4^2 + \omega_2^3\omega_4^3 - 12\omega_2^3 + 6\omega_2^2\omega_4^2 - 7\omega_2^2\omega_4^3 + 18\omega_2^3\omega_4 - 6\omega_4^3)\frac{v_3v_1\rho}{6\omega_2^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_x\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z^2 \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1^2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_z^2 \rho} = (16c_s^4 + 34v_3^2v_1^2\omega^2 - 14v_3^2c_s^2\omega^2 - 24c_s^4\omega + v_1^2c_s^2\omega^3 - 14v_1^2c_s^2\omega^2 + v_3^2c_s^2\omega^3 - 3v_3^2v_1^2\omega^3 + 36v_1^2c_s^2\omega - c_s^4\omega^3 - 24v_1^2c_s^2 - 84v_3^2v_1^2\omega + 36v_3^2c_s^2\omega + 10c_s^4\omega^2 - 24v_3^2c_s^2 + 56v_3^2v_1^2)\frac{1}{4\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 \rho} = (4\omega_2^2\omega_7^2\omega_4^3c_s^4\omega_5^2 + \omega_2^3v_3^2\omega_7\omega_4^3c_s^2\omega_5^2 + 4\omega_2^2v_3^2\omega_7\omega_4^2c_s^2\omega_5^2 - 2\omega_2^3\omega_7^2\omega_4^2v_1^2c_s^2\omega_5 - 3\omega_2^3v_3^2\omega_7\omega_4^3v_1^2\omega_5^2 - 4\omega_2^2v_3^2\omega_7\omega_4^2v_1^2\omega_5^2 + \omega_2^3\omega_7^2\omega_4^3v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_7^2\omega_4^2c_s^4\omega_5 - 4\omega_2^3v_3^2\omega_4^2v_1^2\omega_5^2 + 20\omega_2^2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 + 20\omega_2^3v_3^2\omega_7^2\omega_4^2v_1^2\omega_5^2 - 8\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 - 4\omega_2^3v_3^2\omega_7^2\omega_4^2c_s^2\omega_5^2 - 3\omega_2^3\omega_7\omega_4^3v_1^2c_s^2\omega_5^2 + 4\omega_2^2\omega_7\omega_4^2c_s^4\omega_5^2 - 4\omega_2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5 - 4\omega_2^3\omega_4^2v_1^2c_s^2\omega_5^2 - 2\omega_2\omega_7^2\omega_4^3c_s^4\omega_5^2 - 4\omega_2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5 + 10\omega_2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_7\omega_4^3c_s^4\omega_5^2 - 38\omega_2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 + 10\omega_2^3\omega_7\omega_4^2v_1^2c_s^2\omega_5^2 - 4\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_2^2v_3^2\omega_7^2\omega_4^3v_1^2 + 2\omega_2^3v_3^2\omega_7^2\omega_4^2v_1^2\omega_5 + 10\omega_2^2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5 + 2\omega_2^3v_3^2\omega_7^2\omega_4^2c_s^2\omega_5 - 4\omega_2^2\omega_7^2\omega_4v_1^2c_s^2\omega_5^2 + 10\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5 + 20\omega_2^2v_3^2\omega_7^2\omega_4v_1^2\omega_5^2 + 2\omega_2^3\omega_4^3v_1^2c_s^2\omega_5^2 - 8\omega_2^2v_3^2\omega_7^2\omega_4c_s^2\omega_5^2 + \omega_2^3\omega_7^2\omega_4^3v_1^2c_s^2\omega_5 + 4\omega_2^3\omega_7^2\omega_4^2c_s^4\omega_5^2 + 20\omega_2^3v_3^2\omega_7^2v_1^2\omega_5^2 - 2\omega_2^2\omega_7^2\omega_4^3c_s^4\omega_5 - 4\omega_2^3v_3^2\omega_7\omega_4v_1^2\omega_5^2 - 8\omega_2^3\omega_7^2\omega_4^2v_1^2c_s^2\omega_5^2 + 4\omega_2^2\omega_7^2\omega_4c_s^4\omega_5^2 + 4\omega_2\omega_7^2\omega_4^2c_s^4\omega_5^2 + 20v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 - 4v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 + 2\omega_2^2\omega_7\omega_4^3v_1^2c_s^2\omega_5^2 + 12\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2\omega_5^2 + \omega_2^3v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 + 2\omega_2^3v_3^2\omega_7^2\omega_4^3v_1^2 - 36\omega_2^2v_3^2\omega_7^2\omega_4^2v_1^2\omega_5^2 - 3\omega_2^3v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 + 2\omega_2^3v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_2^2\omega_7\omega_4^3c_s^4\omega_5^2 - 4\omega_2^2\omega_7^2\omega_4^3v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_7^2\omega_4c_s^4\omega_5^2 - 8\omega_2\omega_7^2\omega_4^2v_1^2c_s^2\omega_5^2 + 2\omega_2^3v_3^2\omega_4^3v_1^2\omega_5^2 + \omega_2^3\omega_7^2\omega_4^3c_s^4\omega_5 - 12\omega_2^2\omega_7^2\omega_4^2c_s^4\omega_5^2 + 10\omega_2^3v_3^2\omega_7\omega_4^2v_1^2\omega_5^2 + 2\omega_2^2v_3^2\omega_7\omega_4^3v_1^2\omega_5^2 - 2\omega_2^3v_3^2\omega_7\omega_4^2c_s^2\omega_5^2 + 4\omega_2^2\omega_7^2\omega_4^2v_1^2c_s^2\omega_5 - 2\omega_2^2v_3^2\omega_7\omega_4^3c_s^2\omega_5^2 + 4\omega_2^2\omega_7^2\omega_4^2c_s^4\omega_5 + 4\omega_2\omega_7^2\omega_4^3v_1^2c_s^2\omega_5^2 + 12\omega_2^2\omega_7^2\omega_4^2v_1^2c_s^2\omega_5^2 - 2\omega_2^2\omega_7^2\omega_4^3v_1^2c_s^2\omega_5 - 4\omega_2^3\omega_7\omega_4v_1^2c_s^2\omega_5^2 - \omega_2^3\omega_7^2\omega_4^3c_s^4\omega_5^2 - 3\omega_2^3v_3^2\omega_7^2\omega_4^3c_s^2\omega_5 - 4\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2\omega_5 + 10\omega_2^3\omega_7^2\omega_4v_1^2c_s^2\omega_5^2 - 3\omega_2^3v_3^2\omega_7^2\omega_4^3v_1^2\omega_5 - 4\omega_2^2v_3^2\omega_7^2\omega_4^2v_1^2\omega_5 - 4\omega_2^3\omega_7^2v_1^2c_s^2\omega_5^2 + 4\omega_2^3v_3^2\omega_7^2\omega_4c_s^2\omega_5^2 - 38\omega_2^3v_3^2\omega_7^2\omega_4v_1^2\omega_5^2 + 20\omega_2v_3^2\omega_7^2\omega_4^2v_1^2\omega_5^2 - 2\omega_2^3\omega_7\omega_4^2c_s^4\omega_5^2 - 4\omega_2v_3^2\omega_7^2\omega_4^2c_s^2\omega_5^2 - 4\omega_2^2\omega_7\omega_4^2v_1^2c_s^2\omega_5^2)\frac{1}{4\omega_2^3\omega_7^2\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_z^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 \rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 \rho} = (4\omega_2^2\omega_7^2\omega_4^3c_s^4\omega_5^2 - \omega_2^3v_3^2\omega_7\omega_4^3c_s^2\omega_5^2 - 4\omega_2^2v_3^2\omega_7\omega_4^2c_s^2\omega_5^2 + 2\omega_2^3\omega_7^2\omega_4^2v_1^2c_s^2\omega_5 + 3\omega_2^3v_3^2\omega_7\omega_4^3v_1^2\omega_5^2 + 4\omega_2^2v_3^2\omega_7\omega_4^2v_1^2\omega_5^2 + \omega_2^3\omega_7^2\omega_4^3v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_7^2\omega_4^2c_s^4\omega_5 + 4\omega_2^3v_3^2\omega_4^2v_1^2\omega_5^2 + 14\omega_2^2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 + 14\omega_2^3v_3^2\omega_7^2\omega_4^2v_1^2\omega_5^2 - 8\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 - 2\omega_2^3v_3^2\omega_7^2\omega_4^2c_s^2\omega_5^2 - 3\omega_2^3\omega_7\omega_4^3v_1^2c_s^2\omega_5^2 + 4\omega_2^2\omega_7\omega_4^2c_s^4\omega_5^2 - 4\omega_2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5 - 4\omega_2^3\omega_4^2v_1^2c_s^2\omega_5^2 - 2\omega_2\omega_7^2\omega_4^3c_s^4\omega_5^2 + 4\omega_2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5 + 10\omega_2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 + \omega_2^3\omega_7\omega_4^3c_s^4\omega_5^2 - 14\omega_2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 + 10\omega_2^3\omega_7\omega_4^2v_1^2c_s^2\omega_5^2 - 4\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_2^2v_3^2\omega_7^2\omega_4^3v_1^2 - 2\omega_2^3v_3^2\omega_7^2\omega_4^2v_1^2\omega_5 - 10\omega_2^2v_3^2\omega_7^2\omega_4^3v_1^2\omega_5 + 2\omega_2^3v_3^2\omega_7^2\omega_4^2c_s^2\omega_5 - 4\omega_2^2\omega_7^2\omega_4v_1^2c_s^2\omega_5^2 + 10\omega_2^2v_3^2\omega_7^2\omega_4^3c_s^2\omega_5 + 12\omega_2^2v_3^2\omega_7^2\omega_4v_1^2\omega_5^2 + 2\omega_2^3\omega_4^3v_1^2c_s^2\omega_5^2 - \omega_2^3\omega_7^2\omega_4^3v_1^2c_s^2\omega_5 + 4\omega_2^3\omega_7^2\omega_4^2c_s^4\omega_5^2 + 4\omega_2^3v_3^2\omega_7^2v_1^2\omega_5^2 - 2\omega_2^2\omega_7^2\omega_4^3c_s^4\omega_5 + 4\omega_2^3v_3^2\omega_7\omega_4v_1^2\omega_5^2 - 8\omega_2^3\omega_7^2\omega_4^2v_1^2c_s^2\omega_5^2 + 4\omega_2^2\omega_7^2\omega_4c_s^4\omega_5^2 + 4\omega_2\omega_7^2\omega_4^2c_s^4\omega_5^2 + 4v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 - 4v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 + 2\omega_2^2\omega_7\omega_4^3v_1^2c_s^2\omega_5^2 + 8\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2\omega_5^2 + \omega_2^3v_3^2\omega_7^2\omega_4^3c_s^2\omega_5^2 - 2\omega_2^3v_3^2\omega_7^2\omega_4^3v_1^2 - 28\omega_2^2v_3^2\omega_7^2\omega_4^2v_1^2\omega_5^2 - 3\omega_2^3v_3^2\omega_7^2\omega_4^3v_1^2\omega_5^2 + 2\omega_2^3v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_2^2\omega_7\omega_4^3c_s^4\omega_5^2 - 2\omega_2^2\omega_7^2\omega_4^3v_1^2c_s^2\omega_5^2 - 2\omega_2^3\omega_7^2\omega_4c_s^4\omega_5^2 - 2\omega_2^3v_3^2\omega_4^3v_1^2\omega_5^2 + \omega_2^3\omega_7^2\omega_4^3c_s^4\omega_5 - 12\omega_2^2\omega_7^2\omega_4^2c_s^4\omega_5^2 - 10\omega_2^3v_3^2\omega_7\omega_4^2v_1^2\omega_5^2 - 2\omega_2^2v_3^2\omega_7\omega_4^3v_1^2\omega_5^2 + 2\omega_2^3v_3^2\omega_7\omega_4^2c_s^2\omega_5^2 - 4\omega_2^2\omega_7^2\omega_4^2v_1^2c_s^2\omega_5 + 2\omega_2^2v_3^2\omega_7\omega_4^3c_s^2\omega_5^2 + 4\omega_2^2\omega_7^2\omega_4^2c_s^4\omega_5 + 8\omega_2^2\omega_7^2\omega_4^2v_1^2c_s^2\omega_5^2 + 2\omega_2^2\omega_7^2\omega_4^3v_1^2c_s^2\omega_5 - 4\omega_2^3\omega_7\omega_4v_1^2c_s^2\omega_5^2 - \omega_2^3\omega_7^2\omega_4^3c_s^4\omega_5^2 - 3\omega_2^3v_3^2\omega_7^2\omega_4^3c_s^2\omega_5 - 4\omega_2^2v_3^2\omega_7^2\omega_4^2c_s^2\omega_5 + 10\omega_2^3\omega_7^2\omega_4v_1^2c_s^2\omega_5^2 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3v_1^2\omega_5 + 4\omega_2^2v_3^2\omega_7^2\omega_4^2v_1^2\omega_5 - 4\omega_2^3\omega_7^2v_1^2c_s^2\omega_5^2 - 14\omega_2^3v_3^2\omega_7^2\omega_4v_1^2\omega_5^2 + 12\omega_2v_3^2\omega_7^2\omega_4^2v_1^2\omega_5^2 - 2\omega_2^3\omega_7\omega_4^2c_s^4\omega_5^2 - 4\omega_2v_3^2\omega_7^2\omega_4^2c_s^2\omega_5^2 - 4\omega_2^2\omega_7\omega_4^2v_1^2c_s^2\omega_5^2)\frac{1}{4\omega_2^3\omega_7^2\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_z^2\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1^2 \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1} = (-126v_3^2\omega + 50v_3^2\omega^2 - 4v_3^2\omega^3 + 84v_3^2 + 72c_s^2\omega - 48c_s^2 - 26c_s^2\omega^2 + c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1} = (12v_3^2\omega_7^2\omega_4^3 + 24\omega_2^3v_3^2\omega_7\omega_4^2 - 6\omega_2^2\omega_7^2\omega_4^3c_s^2 - 12\omega_2^3\omega_7\omega_4c_s^2 + 24\omega_2v_3^2\omega_7^2\omega_4^2 - 6\omega_2^3v_3^2\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2c_s^2 - 30\omega_2v_3^2\omega_7^2\omega_4^3 - 14\omega_2^3\omega_7^2\omega_4^2c_s^2 + 12\omega_2^2\omega_7^2\omega_4^2c_s^2 + \omega_2^3\omega_7^2\omega_4^3c_s^2 + 6\omega_2^3\omega_4^3c_s^2 - 12\omega_2^3v_3^2\omega_7\omega_4 - 48\omega_2^2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3v_3^2\omega_4^3 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 78\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2c_s^2 - 12\omega_2^3v_3^2\omega_4^2 - 6\omega_2^3\omega_7\omega_4^3c_s^2 + 22\omega_2^2v_3^2\omega_7^2\omega_4^3 - 4\omega_2^3v_3^2\omega_7^2\omega_4^3 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 24\omega_2^3\omega_7^2\omega_4c_s^2 + 34\omega_2^3v_3^2\omega_7^2\omega_4^2 + 24\omega_2^2v_3^2\omega_7^2\omega_4 + 24\omega_2^3\omega_7\omega_4^2c_s^2 + 48\omega_2^3v_3^2\omega_7^2)\frac{v_1\rho}{12\omega_2^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1} = (12v_3^2\omega_7^2\omega_4^3 - 24\omega_2^3v_3^2\omega_7\omega_4^2 - 6\omega_2^2\omega_7^2\omega_4^3c_s^2 - 12\omega_2^3\omega_7\omega_4c_s^2 + 24\omega_2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3v_3^2\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2c_s^2 - 30\omega_2v_3^2\omega_7^2\omega_4^3 - 14\omega_2^3\omega_7^2\omega_4^2c_s^2 + 12\omega_2^2\omega_7^2\omega_4^2c_s^2 + \omega_2^3\omega_7^2\omega_4^3c_s^2 + 6\omega_2^3\omega_4^3c_s^2 + 12\omega_2^3v_3^2\omega_7\omega_4 - 48\omega_2^2v_3^2\omega_7^2\omega_4^2 - 6\omega_2^3v_3^2\omega_4^3 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 18\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2c_s^2 + 12\omega_2^3v_3^2\omega_4^2 - 6\omega_2^3\omega_7\omega_4^3c_s^2 + 22\omega_2^2v_3^2\omega_7^2\omega_4^3 - 4\omega_2^3v_3^2\omega_7^2\omega_4^3 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 24\omega_2^3\omega_7^2\omega_4c_s^2 + 22\omega_2^3v_3^2\omega_7^2\omega_4^2 + 24\omega_2^2v_3^2\omega_7^2\omega_4 + 24\omega_2^3\omega_7\omega_4^2c_s^2)\frac{v_1\rho}{12\omega_2^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_1^2 \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3} = (72c_s^2\omega - 126v_1^2\omega + 84v_1^2 - 48c_s^2 - 26c_s^2\omega^2 + 50v_1^2\omega^2 - 4v_1^2\omega^3 + c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3} = (24\omega_2\omega_4^2v_1^2\omega_5^2 + 6\omega_2^3\omega_4c_s^2\omega_5^2 - 30\omega_2^3\omega_4v_1^2\omega_5^2 - 6\omega_2^3\omega_4^3c_s^2\omega_5 - 6\omega_2^3\omega_4^3v_1^2\omega_5 + 34\omega_2^2\omega_4^3v_1^2\omega_5^2 - 14\omega_2^2\omega_4^3c_s^2\omega_5^2 + 24\omega_2^2\omega_4^3v_1^2\omega_5 + 24\omega_2^2\omega_4^3c_s^2\omega_5 + 24\omega_2^2\omega_4v_1^2\omega_5^2 - 12\omega_2^2\omega_4c_s^2\omega_5^2 + \omega_2^3\omega_4^3c_s^2\omega_5^2 - 4\omega_2^3\omega_4^3v_1^2\omega_5^2 + 6\omega_2^3\omega_4^3v_1^2 + 6\omega_2^3\omega_4^3c_s^2 + 12\omega_2^2\omega_4^2c_s^2\omega_5^2 - 48\omega_2^2\omega_4^2v_1^2\omega_5^2 + 12\omega_2^3v_1^2\omega_5^2 + 48\omega_4^3v_1^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5^2 - 78\omega_2\omega_4^3v_1^2\omega_5^2 + 24\omega_2\omega_4^3c_s^2\omega_5^2 - 12\omega_2^2\omega_4^3c_s^2 - 12\omega_2^2\omega_4^3v_1^2 - 12\omega_2\omega_4^3v_1^2\omega_5 - 12\omega_2\omega_4^3c_s^2\omega_5 + 22\omega_2^2\omega_4^3v_1^2\omega_5^2 - 6\omega_2^3\omega_4^2c_s^2\omega_5^2)\frac{v_3\rho}{12\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3} = (24\omega_2\omega_4^2v_1^2\omega_5^2 + 6\omega_2^3\omega_4c_s^2\omega_5^2 - 30\omega_2^3\omega_4v_1^2\omega_5^2 - 6\omega_2^3\omega_4^3c_s^2\omega_5 + 6\omega_2^3\omega_4^3v_1^2\omega_5 + 22\omega_2^2\omega_4^3v_1^2\omega_5^2 - 14\omega_2^2\omega_4^3c_s^2\omega_5^2 - 24\omega_2^2\omega_4^3v_1^2\omega_5 + 24\omega_2^2\omega_4^3c_s^2\omega_5 + 24\omega_2^2\omega_4v_1^2\omega_5^2 - 12\omega_2^2\omega_4c_s^2\omega_5^2 + \omega_2^3\omega_4^3c_s^2\omega_5^2 - 4\omega_2^3\omega_4^3v_1^2\omega_5^2 - 6\omega_2^3\omega_4^3v_1^2 + 6\omega_2^3\omega_4^3c_s^2 + 12\omega_2^2\omega_4^2c_s^2\omega_5^2 - 48\omega_2^2\omega_4^2v_1^2\omega_5^2 + 12\omega_2^3v_1^2\omega_5^2 + 48\omega_4^3v_1^2\omega_5^2 - 12\omega_4^3c_s^2\omega_5^2 - 18\omega_2\omega_4^3v_1^2\omega_5^2 + 24\omega_2\omega_4^3c_s^2\omega_5^2 - 12\omega_2^2\omega_4^3c_s^2 + 12\omega_2^2\omega_4^3v_1^2 + 12\omega_2\omega_4^3v_1^2\omega_5 - 12\omega_2\omega_4^3c_s^2\omega_5 + 22\omega_2^2\omega_4^3v_1^2\omega_5^2 - 6\omega_2^3\omega_4^2c_s^2\omega_5^2)\frac{v_3\rho}{12\omega_2^3\omega_4^3\omega_5^2}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x^2\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2}$ **at** $\frac{\partial^4 v_2}{\partial t \partial x_2 \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2} = (-2v_3^2\omega^2 + v_3^2\omega^3 - 90c_s^2\omega + 60c_s^2 + 34c_s^2\omega^2 - 2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2} = (-v_3^2\omega_7^2\omega_4^3 - 24\omega_3v_3^2\omega_7^2 - 30\omega_3\omega_7\omega_4^2c_s^2 - 10\omega_3v_3^2\omega_7^2\omega_4^2 + 12\omega_7^2\omega_4c_s^2 - 30\omega_3\omega_7^2\omega_4c_s^2 + 6v_3^2\omega_7^2\omega_4^2 + 12\omega_7\omega_4^2c_s^2 + \omega_3v_3^2\omega_7^2\omega_4^3 + 9\omega_3\omega_7\omega_4^3c_s^2 - 12v_3^2\omega_7^2\omega_4 + 12\omega_3v_3^2\omega_4^2 + 12\omega_3\omega_7^2c_s^2 + 36\omega_3v_3^2\omega_7^2\omega_4 - 6\omega_7\omega_4^3c_s^2 - 6\omega_3v_3^2\omega_4^3 + 12\omega_3v_3^2\omega_7\omega_4 - 6\omega_3\omega_4^3c_s^2 - 2\omega_3\omega_7^2\omega_4^3c_s^2 + 3\omega_7^2\omega_4^3c_s^2 + 22\omega_3\omega_7^2\omega_4^2c_s^2 + 12v_3^2\omega_7\omega_4^2 + 12\omega_3\omega_4^2c_s^2 + 9\omega_3v_3^2\omega_7\omega_4^3 - 6v_3^2\omega_7\omega_4^3 + 12\omega_3\omega_7\omega_4c_s^2 - 30\omega_3v_3^2\omega_7\omega_4^2 - 18\omega_7^2\omega_4^2c_s^2)\frac{\rho}{12\omega_3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2} = (-v_3^2\omega_7^2\omega_4^3 + 24\omega_3v_3^2\omega_7^2 - 30\omega_3\omega_7\omega_4^2c_s^2 + 8\omega_3v_3^2\omega_7^2\omega_4^2 + 12\omega_7^2\omega_4c_s^2 - 30\omega_3\omega_7^2\omega_4c_s^2 - 6v_3^2\omega_7^2\omega_4^2 + 12\omega_7\omega_4^2c_s^2 + \omega_3v_3^2\omega_7^2\omega_4^3 + 9\omega_3\omega_7\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4 - 12\omega_3v_3^2\omega_4^2 + 12\omega_3\omega_7^2c_s^2 - 36\omega_3v_3^2\omega_7^2\omega_4 - 6\omega_7\omega_4^3c_s^2 + 6\omega_3v_3^2\omega_4^3 - 12\omega_3v_3^2\omega_7\omega_4 - 6\omega_3\omega_4^3c_s^2 - 2\omega_3\omega_7^2\omega_4^3c_s^2 + 3\omega_7^2\omega_4^3c_s^2 + 22\omega_3\omega_7^2\omega_4^2c_s^2 - 12v_3^2\omega_7\omega_4^2 + 12\omega_3\omega_4^2c_s^2 - 9\omega_3v_3^2\omega_7\omega_4^3 + 6v_3^2\omega_7\omega_4^3 + 12\omega_3\omega_7\omega_4c_s^2 + 30\omega_3v_3^2\omega_7\omega_4^2 - 18\omega_7^2\omega_4^2c_s^2)\frac{\rho}{12\omega_3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^4 v_3}{\partial t \partial x_2 \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3} = (-24 - 14\omega^2 + \omega^3 + 36\omega)\frac{v_3 v_2\rho}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3} = (-12\omega_3^2\omega_7\omega_4 - 6\omega_7\omega_4^3 + 12\omega_3^2\omega_7\omega_4^2 - 7\omega_3^2\omega_7\omega_4^3 + 12\omega_3^2\omega_4^2 + 24\omega_3^3\omega_7\omega_4 - 6\omega_3\omega_7\omega_4^2 + 12\omega_3\omega_7\omega_4^3 - 6\omega_3^2\omega_4^3 + \omega_3^3\omega_7\omega_4^3 - 6\omega_3^3\omega_4^2 + 3\omega_3^3\omega_4^3 - 10\omega_3^3\omega_7\omega_4^2 - 12\omega_3^3\omega_7)\frac{v_3 v_2 \rho}{6\omega_3^3\omega_7\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3} = (-12\omega_3^3 + 12\omega_3\omega_4^3 - 6\omega_3\omega_4^2 + 6\omega_3^2\omega_4^2 - 7\omega_3^2\omega_4^3 + 18\omega_3^3\omega_4 - 7\omega_3^3\omega_4^2 + \omega_3^3\omega_4^3 - 6\omega_4^3)\frac{v_3 v_2 \rho}{6\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_y\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho}$ **at** $\frac{\partial^4\rho}{\partial x_1\partial x_2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho} = (-60v_3^2\omega + 24v_3^2\omega^2 - 2v_3^2\omega^3 + 40v_3^2 + 30c_s^2\omega - 20c_s^2 - 12c_s^2\omega^2 + c_s^2\omega^3)\frac{v_2 v_1}{\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho} = (-12\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^2 + \omega_2\omega_3^3\omega_7^2\omega_4^3c_s^2 - 2\omega_2^2\omega_3^2\omega_7^2\omega_4^2c_s^2 + \omega_2^3\omega_3\omega_7^2\omega_4^3c_s^2 - 2\omega_2^3\omega_3^2\omega_7\omega_4^2c_s^2 - 21\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4 - 2\omega_2^3\omega_3^3\omega_7\omega_4^3c_s^2 + 7\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4^3 - 2\omega_2^3\omega_3^2\omega_7^2\omega_4c_s^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2 - 2\omega_2^2\omega_3^3\omega_7^2\omega_4^3c_s^2 + \omega_2^3\omega_3^2\omega_7\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^3 - 2\omega_2^3\omega_3\omega_7^2\omega_4^2c_s^2 - 2\omega_2\omega_3^3\omega_7^2\omega_4^2c_s^2 - 2\omega_2^2\omega_3^3v_3^2\omega_7\omega_4^2 + \omega_2^2\omega_3^2\omega_7^2\omega_4^3c_s^2 + 6\omega_2^3\omega_3^3\omega_7^2\omega_4c_s^2 + 6\omega_2^2\omega_3^3\omega_7^2\omega_4^2c_s^2 - 2\omega_2^3\omega_3^3\omega_4^2c_s^2 + 3\omega_2^2\omega_3v_3^2\omega_7^2\omega_4^3 + 12\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^2 + 7\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4 + 6\omega_2^3\omega_3^3\omega_7\omega_4^2c_s^2 + \omega_2^2\omega_3^3v_3^2\omega_7\omega_4^3 + 4\omega_2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 2\omega_2^2\omega_3^3\omega_7^2\omega_4c_s^2 + 6\omega_2^3\omega_3^3v_3^2\omega_7\omega_4^2 - 2\omega_2^3\omega_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3\omega_7\omega_4c_s^2 + 7\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^3 + 4\omega_2^3\omega_3v_3^2\omega_7^2\omega_4^2 - 2\omega_2^3\omega_3^3v_3^2\omega_7\omega_4^3 - 8\omega_2\omega_3^3v_3^2\omega_7^2\omega_4^3 - 2\omega_2^2\omega_3^3\omega_7\omega_4^2c_s^2 - 12\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 8\omega_2^3\omega_3v_3^2\omega_7^2\omega_4^3 + 10\omega_2^3\omega_3^3v_3^2\omega_7^2 - 6\omega_2^2\omega_3^3\omega_7^2\omega_4^2c_s^2 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3 + 3\omega_2\omega_3^3v_3^2\omega_7^2\omega_4 + 7\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4 + \omega_2^3\omega_3^2v_3^2\omega_7\omega_4^3 + \omega_2^3\omega_3^3v_3^2\omega_4^3 + 3\omega_3^3v_3^2\omega_7^2\omega_4^3 + 6\omega_2^3\omega_3^2\omega_7^2\omega_4^2c_s^2 + 4\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 2\omega_2^3\omega_3^3\omega_7^2c_s^2 + \omega_2^3\omega_3^3\omega_7^2\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3v_3^2\omega_4^2 - 2\omega_2^3\omega_3^2v_3^2\omega_7\omega_4^2 - 8\omega_2^2\omega_3^2v_3^2\omega_7^2\omega_4^3 + \omega_2^2\omega_3^3\omega_7\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3v_3^2\omega_7\omega_4)\frac{v_2 v_1}{\omega_2^3\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho} = (-10\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4^2 + \omega_2\omega_3^3\omega_7^2\omega_4^3c_s^2 - 2\omega_2^2\omega_3^2\omega_7^2\omega_4^2c_s^2 + \omega_2^3\omega_3\omega_7^2\omega_4^3c_s^2 - 2\omega_2^3\omega_3^2\omega_7\omega_4^2c_s^2 - 7\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4 - 2\omega_2^3\omega_3^3\omega_7\omega_4^3c_s^2 + 7\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4^3 - 2\omega_2^3\omega_3^2\omega_7^2\omega_4c_s^2 + \omega_2^3\omega_3^3\omega_4^3c_s^2 - 2\omega_2^2\omega_3^3\omega_7^2\omega_4^3c_s^2 + \omega_2^3\omega_3^2\omega_7\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^3 - 2\omega_2^3\omega_3\omega_7^2\omega_4^2c_s^2 - 2\omega_2\omega_3^3\omega_7^2\omega_4^2c_s^2 + 2\omega_2^2\omega_3^3v_3^2\omega_7\omega_4^2 + \omega_2^2\omega_3^2\omega_7^2\omega_4^3c_s^2 + 6\omega_2^3\omega_3^3\omega_7^2\omega_4c_s^2 + 6\omega_2^2\omega_3^3\omega_7^2\omega_4^2c_s^2 - 2\omega_2^3\omega_3^3\omega_4^2c_s^2 + 3\omega_2^2\omega_3v_3^2\omega_7^2\omega_4^3 + 8\omega_2^3\omega_3^3v_3^2\omega_7^2\omega_4^2 + 3\omega_2^3\omega_3^2v_3^2\omega_7^2\omega_4 + 6\omega_2^3\omega_3^3\omega_7\omega_4^2c_s^2 - \omega_2^2\omega_3^3v_3^2\omega_7\omega_4^3 + 4\omega_2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 2\omega_2^2\omega_3^3\omega_7^2\omega_4c_s^2 - 6\omega_2^3\omega_3^3v_3^2\omega_7\omega_4^2 - 2\omega_2^3\omega_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_2^3\omega_3^3\omega_7\omega_4c_s^2 + 7\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^3 + 4\omega_2^3\omega_3v_3^2\omega_7^2\omega_4^2 + 2\omega_2^3\omega_3^3v_3^2\omega_7\omega_4^3 - 8\omega_2\omega_3^3v_3^2\omega_7^2\omega_4^3 - 2\omega_2^2\omega_3^3\omega_7\omega_4^2c_s^2 - 10\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 8\omega_2^3\omega_3v_3^2\omega_7^2\omega_4^3 + 2\omega_2^3\omega_3^3v_3^2\omega_7^2 - 6\omega_2^3\omega_3^3\omega_7^2\omega_4^2c_s^2 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3 + 3\omega_2\omega_3^3v_3^2\omega_7^2\omega_4 - \omega_2^3\omega_3^2v_3^2\omega_7\omega_4^3 - \omega_2^3\omega_3^3v_3^2\omega_4^3 + 3\omega_3^3v_3^2\omega_7^2\omega_4^3 + 6\omega_2^3\omega_3^2\omega_7^2\omega_4^2c_s^2 + 4\omega_2^2\omega_3^3v_3^2\omega_7^2\omega_4^2 - 2\omega_2^3\omega_3^3\omega_7^2c_s^2 + \omega_2^3\omega_3^3\omega_7^2\omega_4^3c_s^2 + 2\omega_2^3\omega_3^3v_3^2\omega_4^2 + 2\omega_2^3\omega_3^2v_3^2\omega_7\omega_4^2 - 8\omega_2^2\omega_3^2v_3^2\omega_7^2\omega_4^3 + \omega_2^2\omega_3^3\omega_7\omega_4^3c_s^2 + 2\omega_2^3\omega_3^3v_3^2\omega_7\omega_4)\frac{v_2 v_1}{\omega_2^3\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1}$ **at** $\frac{\partial^4 v_1}{\partial x_1\partial x_2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1} = (-126v_3^2\omega + 52v_3^2\omega^2 - 5v_3^2\omega^3 + 84v_3^2 + 144c_s^2\omega - 96c_s^2 - 56c_s^2\omega^2 + 4c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1} = (-12\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 + 36\omega_3^3v_3^2\omega_7\omega_4^2 + 6\omega_3^3v_3^2\omega_4^3 + 24\omega_3v_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 - 12\omega_3^3v_3^2\omega_4^2 - 12\omega_3^3v_3^2\omega_7\omega_4^3 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 30\omega_3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2v_3^2\omega_7\omega_4^3 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 - 24\omega_3^2v_3^2\omega_7\omega_4^2 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3v_3^2\omega_7\omega_4 + 48\omega_3^3v_3^2\omega_7^2 - 60\omega_3^2v_3^2\omega_7^2\omega_4^2 - 90\omega_3^3v_3^2\omega_7^2\omega_4 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 24\omega_3^2v_3^2\omega_7^2\omega_4^3 - 12\omega_3^3\omega_7\omega_4^3c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 - 5\omega_3^3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 40\omega_3^3v_3^2\omega_7^2\omega_4^2 + 6\omega_3^3\omega_4^2c_s^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2 + 48\omega_3^2v_3^2\omega_7^2\omega_4)\frac{v_2\rho}{12\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1} = (-12\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 - 36\omega_3^3v_3^2\omega_7\omega_4^2 - 6\omega_3^3v_3^2\omega_4^3 + 24\omega_3v_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 + 12\omega_3^3v_3^2\omega_4^2 + 12\omega_3^3v_3^2\omega_7\omega_4^3 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 30\omega_3v_3^2\omega_7^2\omega_4^3 - 12\omega_3^2v_3^2\omega_7\omega_4^3 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 + 24\omega_3^2v_3^2\omega_7\omega_4^2 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 + 12\omega_3^3v_3^2\omega_7\omega_4 - 36\omega_3^2v_3^2\omega_7^2\omega_4^2 - 6\omega_3^3v_3^2\omega_7^2\omega_4 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 24\omega_3^2v_3^2\omega_7^2\omega_4^3 - 12\omega_3^3\omega_7\omega_4^3c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 - 5\omega_3^3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 16\omega_3^3v_3^2\omega_7^2\omega_4^2 + 6\omega_3^3\omega_4^2c_s^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2)\frac{v_2\rho}{12\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_1\partial x_2\partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2} = (-126v_3^2\omega + 52v_3^2\omega^2 - 5v_3^2\omega^3 + 84v_3^2 + 144c_s^2\omega - 96c_s^2 - 56c_s^2\omega^2 + 4c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2} = (12v_3^2\omega_7^2\omega_4^3 + 36\omega_2^3 v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3 c_s^2 - 12\omega_2^3\omega_7\omega_4 c_s^2 + 24\omega_2 v_3^2\omega_7^2\omega_4^2 - 12\omega_2^3 v_3^2\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2 c_s^2 - 30\omega_2 v_3^2\omega_7^2\omega_4^3 - 32\omega_2^3\omega_7^2\omega_4^2 c_s^2 + 12\omega_2^2 v_3^2\omega_7\omega_4^3 + 48\omega_2^2\omega_7^2\omega_4^2 c_s^2 + 4\omega_2^3\omega_7^2\omega_4^3 c_s^2 - 24\omega_2^2 v_3^2\omega_7\omega_4^2 + 6\omega_2^3\omega_4^3 c_s^2 - 12\omega_2^3 v_3^2\omega_7\omega_4 - 60\omega_2^2 v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3 v_3^2\omega_4^3 + 6\omega_2\omega_7^2\omega_4^3 c_s^2 - 24\omega_2^2\omega_7\omega_4^2 c_s^2 - 90\omega_2^3 v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2 c_s^2 - 12\omega_2^3 v_3^2\omega_4^2 - 12\omega_2^3\omega_7\omega_4^3 c_s^2 + 24\omega_2^2 v_3^2\omega_7^2\omega_4^3 - 24\omega_2^2\omega_7^2\omega_4 c_s^2 + 12\omega_2^2\omega_7\omega_4^3 c_s^2 - 5\omega_2^3 v_3^2\omega_7^2\omega_4^3 - 12\omega_2\omega_7^2\omega_4^2 c_s^2 + 36\omega_2^3\omega_7^2\omega_4 c_s^2 + 40\omega_2^3 v_3^2\omega_7^2\omega_4^2 + 48\omega_2^2 v_3^2\omega_7^2\omega_4 + 36\omega_2^3\omega_7\omega_4^2 c_s^2 + 48\omega_2^3 v_3^2\omega_7^2)\frac{v_1\rho}{12\omega_2^3\omega_7^2\omega_4^3}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2} = (12v_3^2\omega_7^2\omega_4^3 - 36\omega_2^3 v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3 c_s^2 - 12\omega_2^3\omega_7\omega_4 c_s^2 + 24\omega_2 v_3^2\omega_7^2\omega_4^2 + 12\omega_2^3 v_3^2\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2 c_s^2 - 30\omega_2 v_3^2\omega_7^2\omega_4^3 - 32\omega_2^3\omega_7^2\omega_4^2 c_s^2 - 12\omega_2^2 v_3^2\omega_7\omega_4^3 + 48\omega_2^2\omega_7^2\omega_4^2 c_s^2 + 4\omega_2^3\omega_7^2\omega_4^3 c_s^2 + 24\omega_2^2 v_3^2\omega_7\omega_4^2 + 6\omega_2^3\omega_4^3 c_s^2 + 12\omega_2^3 v_3^2\omega_7\omega_4 - 36\omega_2^2 v_3^2\omega_7^2\omega_4^2 - 6\omega_2^3 v_3^2\omega_4^3 + 6\omega_2\omega_7^2\omega_4^3 c_s^2 - 24\omega_2^2\omega_7\omega_4^2 c_s^2 - 6\omega_2^3 v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2 c_s^2 + 12\omega_2^3 v_3^2\omega_4^2 - 12\omega_2^3\omega_7\omega_4^3 c_s^2 + 24\omega_2^2 v_3^2\omega_7^2\omega_4^3 - 24\omega_2^2\omega_7^2\omega_4 c_s^2 + 12\omega_2^2\omega_7\omega_4^3 c_s^2 - 5\omega_2^3 v_3^2\omega_7^2\omega_4^3 - 12\omega_2\omega_7^2\omega_4^2 c_s^2 + 36\omega_2^3\omega_7^2\omega_4 c_s^2 + 16\omega_2^3 v_3^2\omega_7^2\omega_4^2 + 36\omega_2^3\omega_7\omega_4^2 c_s^2)\frac{v_1\rho}{12\omega_2^3\omega_7^2\omega_4^3}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_2}$$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_1 \partial x_2 \partial x_3^2}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3} = (132 + 76\omega^2 - 5\omega^3 - 198\omega)\frac{v_3 v_2 v_1 \rho}{6\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3} = (6\omega_2^3\omega_3\omega_4^2 - 30\omega_2^2\omega_3^3\omega_4^2 + 24\omega_2^2\omega_3^3\omega_4^3 - 30\omega_2^3\omega_3\omega_4^3 + 12\omega_2^2\omega_3^2\omega_4^2 + 12\omega_2^3\omega_3^3 + 18\omega_2^2\omega_3^3\omega_4 - 42\omega_2^2\omega_3^2\omega_4^3 - 5\omega_2^3\omega_3^3\omega_4^3 + 18\omega_2^3\omega_3^2\omega_4 + 18\omega_2^2\omega_3\omega_4^3 + 18\omega_2\omega_3^2\omega_4^3 + 12\omega_2^3\omega_4^3 + 28\omega_2^3\omega_3^3\omega_4^2 + 6\omega_2\omega_3^3\omega_4^2 + 24\omega_2^3\omega_3^2\omega_4^3 - 36\omega_2^3\omega_3^3\omega_4 - 30\omega_2^3\omega_3^2\omega_4^2 - 30\omega_2\omega_3^3\omega_4^3 + 12\omega_3^3\omega_4^3)\frac{v_3 v_2 v_1 \rho}{6\omega_2^3\omega_3^3\omega_4^3}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3}$$

$$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_y\mathrm{D}_z^2 v_3}$$

coefficient $C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z^2 \rho}$ **at** $\frac{\partial^4 \rho}{\partial x_2^2 \partial x_3^2}$**:**

$$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2\mathrm{D}_z^2 \rho} = (16c_s^4 - 14v_3^2c_s^2\omega^2 - 24c_s^4\omega + v_3^2c_s^2\omega^3 - c_s^4\omega^3 + 36v_3^2c_s^2\omega + 10c_s^4\omega^2 - 24v_2^2c_s^2 - 14v_2^2c_s^2\omega^2 + 56v_3^2v_2^2 - 84v_3^2v_2^2\omega + v_2^2c_s^2\omega^3 - 24v_3^2c_s^2 + 34v_3^2v_2^2\omega^2 + 36v_2^2c_s^2\omega - 3v_3^2v_2^2\omega^3)\frac{1}{4\omega^3}$$

$$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 \rho} = (4\omega_6^2\omega_3\omega_7^2v_2^2\omega_4^3c_s^2 + \omega_6^2\omega_3^3v_3^2\omega_7\omega_4^3c_s^2 + 4\omega_6\omega_3^2\omega_7^2v_2^2\omega_4^2c_s^2 - 2\omega_6^2\omega_3^3\omega_7\omega_4^2c_s^4 - 3\omega_6\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^3 - 8\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_6\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 - 2\omega_6^2\omega_3^3\omega_7^2\omega_4c_s^4 + 10\omega_6^2\omega_3^3\omega_7v_2^2\omega_4^2c_s^2 - 38\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4 + 10\omega_6^2\omega_3v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_6^2\omega_3^2\omega_7^2v_2^2\omega_4^3c_s^2 + 4\omega_6^2\omega_3\omega_7^2\omega_4^2c_s^4 + 2\omega_6\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^2 - 2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^4 + 2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2v_3^2\omega_7^2\omega_4^3c_s^2 + 12\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4c_s^4 - 4\omega_6^2\omega_3^2v_3^2\omega_7v_2^2\omega_4^2 - 4\omega_6\omega_3v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_6\omega_3^2\omega_7^2v_2^2\omega_4^3c_s^2 - 2\omega_6^2\omega_3^3v_3^2\omega_7\omega_4^2c_s^2 + 10\omega_6^2\omega_3^3\omega_7^2v_2^2\omega_4c_s^2 + \omega_6^2\omega_3^3\omega_7\omega_4^3c_s^4 - 8\omega_6^2\omega_3\omega_7^2v_2^2\omega_4^2c_s^2 + 20\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^2 + 4\omega_6^2\omega_3^2\omega_7\omega_4^2c_s^4 + 2\omega_6^2\omega_3^2v_3^2\omega_7v_2^2\omega_4^3 - 2\omega_6^2\omega_3\omega_7^2\omega_4^3c_s^4 + 12\omega_6^2\omega_3^2\omega_7^2v_2^2\omega_4^2c_s^2 - 3\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2\omega_3v_3^2\omega_7^2\omega_4^2c_s^2 - 3\omega_6^2\omega_3^3\omega_7v_2^2\omega_4^3c_s^2 + 10\omega_6\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 + 4\omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4c_s^2 - 36\omega_6^2\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^2 + 20\omega_6^2v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2\omega_3^2\omega_7^2v_2^2\omega_4c_s^2 + 4\omega_6^2\omega_3^2v_3^2\omega_7\omega_4^2c_s^2 + 2\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 + \omega_6\omega_3^3\omega_7^2v_2^2\omega_4^3c_s^2 + 10\omega_6^2\omega_3^3v_3^2\omega_7v_2^2\omega_4^2 + 2\omega_6^2\omega_3^3v_3^2v_2^2\omega_4^3 - \omega_6^2\omega_3^3\omega_7^2\omega_4^3c_s^4 - 38\omega_6^2\omega_3v_3^2\omega_7^2v_2^2\omega_4^3 + 4\omega_6\omega_3^2\omega_7^2\omega_4^2c_s^4 - 4\omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 - 8\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4c_s^2 + 20\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2 - 3\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 + \omega_6\omega_3^3\omega_7^2\omega_4^3c_s^4 + 20\omega_6^2\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^3 + 2\omega_6^2\omega_3^2\omega_7v_2^2\omega_4^3c_s^2 - 12\omega_6^2\omega_3^2\omega_7^2\omega_4^2c_s^4 + 2\omega_6^2\omega_3^3v_2^2\omega_4^3c_s^2 + 20\omega_6^2\omega_3v_3^2\omega_7^2v_2^2\omega_4^2 - 8\omega_6^2\omega_3^3\omega_7^2v_2^2\omega_4^2c_s^2 - 4\omega_6^2\omega_3^3v_3^2v_2^2\omega_4^2 - 3\omega_6^2\omega_3^3v_3^2\omega_7v_2^2\omega_4^3 + 4\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^4 + \omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_6\omega_3^2\omega_7^2\omega_4^3c_s^4 - 4\omega_6^2\omega_3^3\omega_7v_2^2\omega_4c_s^2 + 10\omega_6\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^3 - 2\omega_6\omega_3^3\omega_7^2v_2^2\omega_4^2c_s^2 - 2\omega_6^2\omega_3^3v_3^2\omega_7\omega_4^3c_s^2 - 4\omega_6^2\omega_3^3\omega_7^2v_2^2c_s^2 - 4\omega_6^2\omega_3^3v_3^2\omega_7v_2^2\omega_4 - 4\omega_6\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^2 - 4\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2\omega_3^3v_2^2\omega_4^2c_s^2 + \omega_6^2\omega_3^3\omega_7^2v_2^2\omega_4^3c_s^2 - 2\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^4 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4^3c_s^4 + 20\omega_6^2\omega_3^2v_3^2\omega_7^2v_2^2\omega_4 - 4\omega_6^2\omega_3^2\omega_7v_2^2\omega_4^2c_s^2 + 2\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 - 4\omega_6\omega_3v_3^2\omega_7^2v_2^2\omega_4^3)\frac{1}{4\omega_6^2\omega_3^3\omega_7^2\omega_4^3}$$

$$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2\mathrm{D}_z^2 \rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 \rho}$$

$$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 \rho} = (-\omega_6^2\omega_3^3v_3^2\omega_7\omega_4^3c_s^2 - 4\omega_6\omega_3^2\omega_7^2v_2^2\omega_4^2c_s^2 - 2\omega_6^2\omega_3^3\omega_7\omega_4^2c_s^4 + 3\omega_6\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^3 - 8\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_6\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 - 2\omega_6^2\omega_3^3\omega_7^2\omega_4c_s^4 + 10\omega_6^2\omega_3^3\omega_7v_2^2\omega_4^2c_s^2 - 14\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4 + 10\omega_6^2\omega_3v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_6^2\omega_3^2\omega_7^2v_2^2\omega_4^3c_s^2 + 4\omega_6^2\omega_3\omega_7^2\omega_4^2c_s^4 - 2\omega_6\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^2 - 2\omega_6^2\omega_3^2\omega_7\omega_4^3c_s^4 - 2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2v_3^2\omega_7^2\omega_4^3c_s^2 + 8\omega_6^2\omega_3^2v_3^2\omega_7^2\omega_4^2c_s^2 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4c_s^4 + 4\omega_6^2\omega_3^2v_3^2\omega_7v_2^2\omega_4^2 - 4\omega_6\omega_3v_3^2\omega_7^2\omega_4^3c_s^2 - 4\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 + 2\omega_6\omega_3^2\omega_7^2v_2^2\omega_4^3c_s^2 + 2\omega_6^2\omega_3^3v_3^2\omega_7\omega_4^2c_s^2 + 10\omega_6^2\omega_3^3\omega_7^2v_2^2\omega_4c_s^2 + \omega_6^2\omega_3^3\omega_7\omega_4^3c_s^4 + 14\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^2 + 4\omega_6^2\omega_3^2\omega_7\omega_4^2c_s^4 - 2\omega_6^2\omega_3^2v_3^2\omega_7v_2^2\omega_4^3 - 2\omega_6^2\omega_3\omega_7^2\omega_4^3c_s^4 + 8\omega_6^2\omega_3^2\omega_7^2v_2^2\omega_4^2c_s^2 - 3\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2\omega_3v_3^2\omega_7^2\omega_4^2c_s^2 - 3\omega_6^2\omega_3^3\omega_7v_2^2\omega_4^3c_s^2 + 10\omega_6\omega_3^2v_3^2\omega_7^2\omega_4^3c_s^2 - 28\omega_6^2\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^2 + 4\omega_6^2v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2\omega_3^2\omega_7^2v_2^2\omega_4c_s^2 - 4\omega_6^2\omega_3^2v_3^2\omega_7\omega_4^2c_s^2 + 2\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 - \omega_6\omega_3^3\omega_7^2v_2^2\omega_4^3c_s^2 - 10\omega_6^2\omega_3^3v_3^2\omega_7v_2^2\omega_4^2 - 2\omega_6^2\omega_3^3v_3^2v_2^2\omega_4^3 - \omega_6^2\omega_3^3\omega_7^2\omega_4^3c_s^4 - 14\omega_6^2\omega_3v_3^2\omega_7^2v_2^2\omega_4^3 + 4\omega_6\omega_3^2\omega_7^2\omega_4^2c_s^4 - 2\omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 + 4\omega_6^2\omega_3^3v_3^2\omega_7^2v_2^2 - 3\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 + \omega_6\omega_3^3\omega_7^2\omega_4^3c_s^4 + 14\omega_6^2\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^3 + 2\omega_6^2\omega_3^2\omega_7v_2^2\omega_4^3c_s^2 - 12\omega_6^2\omega_3^2\omega_7^2\omega_4^2c_s^4 + 2\omega_6^2\omega_3^3v_2^2\omega_4^3c_s^2 + 12\omega_6^2\omega_3v_3^2\omega_7^2v_2^2\omega_4^2 - 8\omega_6^2\omega_3^3\omega_7^2v_2^2\omega_4^2c_s^2 + 4\omega_6^2\omega_3^3v_3^2v_2^2\omega_4^2 + 3\omega_6^2\omega_3^3v_3^2\omega_7v_2^2\omega_4^3 + 4\omega_6^2\omega_3^3\omega_7^2\omega_4^2c_s^4 + \omega_6^2\omega_3^3v_3^2\omega_7^2\omega_4^3c_s^2 - 2\omega_6\omega_3^2\omega_7^2\omega_4^3c_s^4 - 4\omega_6^2\omega_3^3\omega_7v_2^2\omega_4c_s^2 - 10\omega_6\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^3 + 2\omega_6\omega_3^3\omega_7^2v_2^2\omega_4^2c_s^2 + 2\omega_6^2\omega_3^2v_3^2\omega_7\omega_4^3c_s^2 - 4\omega_6^2\omega_3^3\omega_7^2v_2^2c_s^2 + 4\omega_6^2\omega_3^3v_3^2\omega_7v_2^2\omega_4 + 4\omega_6\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^2 + 4\omega_3^2v_3^2\omega_7^2v_2^2\omega_4^3 - 4\omega_6^2\omega_3^3v_2^2\omega_4^2c_s^2 + \omega_6^2\omega_3^3\omega_7^2v_2^2\omega_4^3c_s^2 - 2\omega_6\omega_3^3\omega_7^2\omega_4^2c_s^4 + 4\omega_6^2\omega_3^2\omega_7^2\omega_4^3c_s^4 + 12\omega_6^2\omega_3^2v_3^2\omega_7^2v_2^2\omega_4 - 4\omega_6^2\omega_3^2\omega_7v_2^2\omega_4^2c_s^2 + 2\omega_6\omega_3^3v_3^2\omega_7^2\omega_4^2c_s^2 + 4\omega_6\omega_3v_3^2\omega_7^2v_2^2\omega_4^3)\frac{1}{4\omega_6^2\omega_3^3\omega_7^2\omega_4^3}$$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2\mathrm{D}_z^2\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z^2\rho}$

coefficient $C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2}$ **at** $\frac{\partial^4 v_2}{\partial x_2^2 \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2} = (-126v_3^2\omega + 50v_3^2\omega^2 - 4v_3^2\omega^3 + 84v_3^2 + 72c_s^2\omega - 48c_s^2 - 26c_s^2\omega^2 + c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2} = (-6\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 + 24\omega_3^3v_3^2\omega_7\omega_4^2 + 6\omega_3^3v_3^2\omega_4^3 + 24\omega_3v_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 - 12\omega_3^3v_3^2\omega_4^2 - 6\omega_3^3v_3^2\omega_7\omega_4^3 - 14\omega_3^3\omega_7^2\omega_4^2c_s^2 - 30\omega_3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7^2\omega_4^2c_s^2 + \omega_3^3\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3v_3^2\omega_7\omega_4 + 48\omega_3^3v_3^2\omega_7^2 - 48\omega_3^2v_3^2\omega_7^2\omega_4^2 - 78\omega_3^3v_3^2\omega_7^2\omega_4 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 22\omega_3^2v_3^2\omega_7^2\omega_4^3 - 6\omega_3^3\omega_7\omega_4^3c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 - 4\omega_3^3v_3^2\omega_7^2\omega_4^3 + 24\omega_3^3\omega_7^2\omega_4c_s^2 + 34\omega_3^3v_3^2\omega_7^2\omega_4^2 + 6\omega_3^3\omega_4^3c_s^2 + 24\omega_3^3\omega_7\omega_4^2c_s^2 + 24\omega_3^2v_3^2\omega_7^2\omega_4)\frac{v_2\rho}{12\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2} = (-6\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 - 24\omega_3^3v_3^2\omega_7\omega_4^2 - 6\omega_3^3v_3^2\omega_4^3 + 24\omega_3v_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 + 12\omega_3^3v_3^2\omega_4^2 + 6\omega_3^3v_3^2\omega_7\omega_4^3 - 14\omega_3^3\omega_7^2\omega_4^2c_s^2 - 30\omega_3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7^2\omega_4^2c_s^2 + \omega_3^3\omega_7^2\omega_4^3c_s^2 + 12\omega_3^3v_3^2\omega_7\omega_4 - 48\omega_3^3v_3^2\omega_7^2\omega_4^2 - 18\omega_3^3v_3^2\omega_7^2\omega_4 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 22\omega_3^2v_3^2\omega_7^2\omega_4^3 - 6\omega_3^3\omega_7\omega_4^3c_s^2 - 12\omega_3^3\omega_4^2c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 - 4\omega_3^3v_3^2\omega_7^2\omega_4^3 + 24\omega_3^3\omega_7^2\omega_4c_s^2 + 22\omega_3^3v_3^2\omega_7^2\omega_4^2 + 6\omega_3^3\omega_4^3c_s^2 + 24\omega_3^3\omega_7\omega_4^2c_s^2 + 24\omega_3^2v_3^2\omega_7^2\omega_4)\frac{v_2\rho}{12\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_2^2 \partial x_3^2}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3} = (50v_2^2\omega^2 - 4v_2^2\omega^3 - 126v_2^2\omega + 72c_s^2\omega + 84v_2^2 - 48c_s^2 - 26c_s^2\omega^2 + c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3} = (24\omega_6^2\omega_3\omega_4^3c_s^2 - 12\omega_6\omega_3v_2^2\omega_4^3 + 24\omega_6^2\omega_3^2v_2^2\omega_4 - 6\omega_6^2\omega_3^3\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 + 6\omega_3^3v_2^2\omega_4^3 + 24\omega_6\omega_3^2\omega_4^3c_s^2 - 6\omega_6\omega_3^3v_2^2\omega_4^3 - 48\omega_6^2\omega_3^2v_2^2\omega_4^2 + \omega_6^2\omega_3^3\omega_4^3c_s^2 + 34\omega_6^2\omega_3^2v_2^2\omega_4^3 - 12\omega_6^2\omega_3^2\omega_4c_s^2 + 48\omega_6^2v_2^2\omega_4^3 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3\omega_4^3c_s^2 + 24\omega_6^2\omega_3v_2^2\omega_4^2 + 12\omega_6^2\omega_3^2\omega_4^2c_s^2 - 30\omega_6^2\omega_3^3v_2^2\omega_4 - 78\omega_6^2\omega_3v_2^2\omega_4^3 - 14\omega_6^2\omega_3^2\omega_4^3c_s^2 - 4\omega_6^2\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 + 6\omega_3^3\omega_4^3c_s^2 - 12\omega_3^3v_2^2\omega_4^3 + 22\omega_6^2\omega_3^3v_2^2\omega_4^2 - 6\omega_6\omega_3^3\omega_4^3c_s^2 + 24\omega_6\omega_3^3v_2^2\omega_4^3)\frac{v_3\rho}{12\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3} = (24\omega_6^2\omega_3\omega_4^3c_s^2 + 12\omega_6\omega_3v_2^2\omega_4^3 + 24\omega_6^2\omega_3^2v_2^2\omega_4 - 6\omega_6^2\omega_3^3\omega_4^2c_s^2 - 12\omega_3^2\omega_4^3c_s^2 - 6\omega_3^3v_2^2\omega_4^3 + 24\omega_6\omega_3^2\omega_4^3c_s^2 + 6\omega_6\omega_3^3v_2^2\omega_4^3 - 48\omega_6^2\omega_3^2v_2^2\omega_4^2 + \omega_6^2\omega_3^3\omega_4^3c_s^2 + 22\omega_6^2\omega_3^2v_2^2\omega_4^3 - 12\omega_6^2\omega_3^2\omega_4c_s^2 + 12\omega_6^2\omega_3^3v_2^2 - 12\omega_6\omega_3\omega_4^3c_s^2 + 24\omega_6^2\omega_3v_2^2\omega_4^2 + 12\omega_6^2\omega_3^2\omega_4^2c_s^2 - 30\omega_6^2\omega_3^3v_2^2\omega_4 - 18\omega_6^2\omega_3v_2^2\omega_4^3 - 14\omega_6^2\omega_3^2\omega_4^3c_s^2 - 4\omega_6^2\omega_3^3v_2^2\omega_4^3 - 12\omega_6^2\omega_4^3c_s^2 + 6\omega_6^2\omega_3^3\omega_4c_s^2 + 6\omega_3^3\omega_4^3c_s^2 + 12\omega_3^3v_2^2\omega_4^3 + 22\omega_6^2\omega_3^3v_2^2\omega_4^2 - 6\omega_6\omega_3^3\omega_4^3c_s^2 - 24\omega_6\omega_3^3v_2^2\omega_4^3)\frac{v_3\rho}{12\omega_6^2\omega_3^3\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y^2\mathrm{D}_z^2 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_t\mathrm{D}_z^3 v_3}$ **at** $\frac{\partial^4 v_3}{\partial t \partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3} = (-36 - 108v_3^2\omega + 42v_3^2\omega^2 - 20\omega^2 - 3v_3^2\omega^3 + \omega^3 + 72v_3^2 - 90c_s^2\omega + 60c_s^2 + 34c_s^2\omega^2 + 54\omega - 2c_s^2\omega^3)\frac{\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3} = (-3v_3^2\omega_7^2\omega_4^3 - 6\omega_4^3c_s^2 + 36\omega_7\omega_4^2 - 48\omega_7^2\omega_4c_s^2 + 27v_3^2\omega_7^2\omega_4^2 - 36\omega_7\omega_4^2c_s^2 - 9\omega_7\omega_4^3 + 12\omega_4^2c_s^2 - 42v_3^2\omega_7^2\omega_4 - 24\omega_7\omega_4 + 9\omega_7\omega_4^3c_s^2 + 12\omega_7^2\omega_4 + 12v_3^2\omega_7^2 - 2\omega_7^2\omega_4^3c_s^2 + 48v_3^2\omega_7\omega_4 + 12v_3^2\omega_4^2 - 60v_3^2\omega_7\omega_4^2 + 24\omega_7\omega_4c_s^2 - 12\omega_4^2 + \omega_7^2\omega_4^3 + 15v_3^2\omega_7\omega_4^3 - 6v_3^2\omega_4^3 + 6\omega_4^3 - 11\omega_7^2\omega_4^2 + 25\omega_7^2\omega_4^2c_s^2 + 24\omega_7^2c_s^2)\frac{\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3} =$
$(-3v_3^2\omega_7^2\omega_4^3 - 6\omega_4^3c_s^2 + 36\omega_7\omega_4^2 - 48\omega_7^2\omega_4c_s^2 + 15v_3^2\omega_7^2\omega_4^2 - 36\omega_7\omega_4^2c_s^2 - 9\omega_7\omega_4^3 + 12\omega_4^2c_s^2 + 18v_3^2\omega_7^2\omega_4 - 24\omega_7\omega_4 + 9\omega_7\omega_4^3c_s^2 + 12\omega_7^2\omega_4 - 36v_3^2\omega_7^2 - 2\omega_7^2\omega_4^3c_s^2 + 72v_3^2\omega_7\omega_4 + 36v_3^2\omega_4^2 - 108v_3^2\omega_7\omega_4^2 + 24\omega_7\omega_4c_s^2 - 12\omega_4^2 + \omega_7^2\omega_4^3 + 27v_3^2\omega_7\omega_4^3 - 18v_3^2\omega_4^3 + 6\omega_4^3 - 11\omega_7^2\omega_4^2 + 25\omega_7^2\omega_4^2c_s^2 + 24\omega_7^2c_s^2)\frac{\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_t\mathrm{D}_z^3 v_3}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^3\rho}$ **at** $\frac{\partial^4 \rho}{\partial x_1 \partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_z^3\rho} = (24 + 14\omega^2 - \omega^3 + 180c_s^2\omega - 120c_s^2 - 72c_s^2\omega^2 - 36\omega + 6c_s^2\omega^3)\frac{v_3v_1}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^3\rho} = (12\omega_2^3\omega_7\omega_4 + 6v_3^2\omega_7^2\omega_4^3 + 42\omega_2^3v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 + \omega_2^2\omega_7^2\omega_4^3 - 24\omega_2^3\omega_7\omega_4c_s^2 + 6\omega_2v_3^2\omega_7^2\omega_4^2 - 3\omega_2^2\omega_7^2\omega_4^2 - 12\omega_2^3v_3^2\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2c_s^2 - 12\omega_2v_3^2\omega_7^2\omega_4^3 - 48\omega_2^3\omega_7^2\omega_4^2c_s^2 + 6\omega_2^2v_3^2\omega_7\omega_4^3 + 42\omega_2^2\omega_7^2\omega_4^2c_s^2 + 6\omega_2^3\omega_7\omega_4^3 + 6\omega_2^3\omega_7^2\omega_4^3c_s^2 - 12\omega_2^2v_3^2\omega_7\omega_4^2 - 21\omega_2^3\omega_7\omega_4^2 + 6\omega_2^3\omega_4^3c_s^2 - 24\omega_2^3v_3^2\omega_7\omega_4 - 12\omega_2^2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3v_3^2\omega_4^3 + 7\omega_2^3\omega_7^2\omega_4^2 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 12\omega_2^2\omega_7\omega_4^2c_s^2 + 6\omega_2^3\omega_4^2 - 30\omega_2^3v_3^2\omega_7\omega_4 - 36\omega_2^3\omega_7^2c_s^2 - 12\omega_2^3v_3^2\omega_4^2 - 12\omega_2^3\omega_7\omega_4^3c_s^2 + 6\omega_2^2v_3^2\omega_7^2\omega_4^3 - 24\omega_2^2\omega_7^2\omega_4c_s^2 - 3\omega_2^3\omega_4^3 - \omega_2^3\omega_7^2\omega_4^3 + 6\omega_2^2\omega_7\omega_4^3c_s^2 + 6\omega_2^2\omega_7\omega_4^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 78\omega_2^2\omega_7^2\omega_4c_s^2 - 6\omega_2^3\omega_7^2\omega_4 - 3\omega_2^2\omega_7\omega_4^3 + 6\omega_2^3v_3^2\omega_7^2\omega_4^2 + 12\omega_2^2v_3^2\omega_7^2\omega_4 + 42\omega_2^3\omega_7\omega_4^2c_s^2 + 24\omega_2^3v_3^2\omega_7^2)\frac{v_3v_1}{6\omega_2^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_z^3\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^3\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^3\rho} = (12\omega_2^3\omega_7\omega_4 + 6v_3^2\omega_7^2\omega_4^3 + 12\omega_2^3v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 + \omega_2^2\omega_7^2\omega_4^3 - 24\omega_2^3\omega_7\omega_4c_s^2 + 6\omega_2v_3^2\omega_7^2\omega_4^2 - 3\omega_2^2\omega_7^2\omega_4^2 - 36\omega_2^3\omega_4^2c_s^2 - 12\omega_2v_3^2\omega_7^2\omega_4^3 - 36\omega_2^3\omega_7^2\omega_4^2c_s^2 + 36\omega_2^2\omega_7^2\omega_4^2c_s^2 + 6\omega_2^3\omega_7\omega_4^3 + 6\omega_2^3\omega_7^2\omega_4^3c_s^2 - 21\omega_2^3\omega_7\omega_4^2 + 18\omega_2^3\omega_4^3c_s^2 - 24\omega_2^3v_3^2\omega_7\omega_4 - 6\omega_2^2v_3^2\omega_7^2\omega_4^2 - 6\omega_2^3v_3^2\omega_4^3 + 7\omega_2^3\omega_7^2\omega_4^2 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2\omega_7^2\omega_4^2c_s^2 + 6\omega_2^3\omega_4^2 + 12\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2c_s^2 + 12\omega_2^3v_3^2\omega_4^2 - 24\omega_2^3\omega_7\omega_4^3c_s^2 + 6\omega_2^2v_3^2\omega_7^2\omega_4^3 - 12\omega_2^2\omega_7^2\omega_4c_s^2 - 3\omega_2^3\omega_4^3 - \omega_2^3\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7\omega_4^3c_s^2 + 6\omega_2^2\omega_7\omega_4^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 36\omega_2^3\omega_7^2\omega_4c_s^2 - 6\omega_2^3\omega_7^2\omega_4 - 3\omega_2^2\omega_7\omega_4^3 - 6\omega_2^3v_3^2\omega_7^2\omega_4^2 + 72\omega_2^3\omega_7\omega_4^2c_s^2)\frac{v_3v_1}{6\omega_2^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_z^3\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^3\rho}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^3v_1}$ **at** $\frac{\partial^4v_1}{\partial x_1\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_z^3v_1} = (36 + 54v_3^2\omega - 20v_3^2\omega^2 + 20\omega^2 + v_3^2\omega^3 - \omega^3 - 36v_3^2 + 144c_s^2\omega - 96c_s^2 - 56c_s^2\omega^2 - 54\omega + 4c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^3v_1} = (v_3^2\omega_7^2\omega_4^3 + 6\omega_4^3c_s^2 - 36\omega_7\omega_4^2 + 90\omega_7^2\omega_4c_s^2 - 8v_3^2\omega_7^2\omega_4^2 + 48\omega_7\omega_4^2c_s^2 + 9\omega_7\omega_4^3 - 12\omega_4^2c_s^2 + 24\omega_7\omega_4 - 12\omega_7\omega_4^3c_s^2 - 12\omega_7^2\omega_4 + 12v_3^2\omega_7^2 + 4\omega_7^2\omega_4^3c_s^2 - 36v_3^2\omega_7\omega_4 - 12v_3^2\omega_4^2 + 48v_3^2\omega_7\omega_4^2 - 36\omega_7\omega_4c_s^2 + 12\omega_4^2 - \omega_7^2\omega_4^3 - 12v_3^2\omega_7\omega_4^3 + 6v_3^2\omega_4^3 - 6\omega_4^3 + 11\omega_7^2\omega_4^2 - 44\omega_7^2\omega_4^2c_s^2 - 48\omega_7^2c_s^2)\frac{v_3\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_z^3v_1} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^3v_1}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^3v_1} = (v_3^2\omega_7^2\omega_4^3 + 30\omega_4^3c_s^2 - 36\omega_7\omega_4^2 + 18\omega_7^2\omega_4c_s^2 - 14v_3^2\omega_7^2\omega_4^2 + 96\omega_7\omega_4^2c_s^2 + 9\omega_7\omega_4^3 - 60\omega_4^2c_s^2 + 12v_3^2\omega_7^2\omega_4 + 24\omega_7\omega_4 - 30\omega_7\omega_4^3c_s^2 - 12\omega_7^2\omega_4 + 12v_3^2\omega_7^2 + 4\omega_7^2\omega_4^3c_s^2 - 60v_3^2\omega_7\omega_4 + 12v_3^2\omega_4^2 + 48v_3^2\omega_7\omega_4^2 - 36\omega_7\omega_4c_s^2 + 12\omega_4^2 - \omega_7^2\omega_4^3 - 6v_3^2\omega_7\omega_4^3 - 6v_3^2\omega_4^3 - 6\omega_4^3 + 11\omega_7^2\omega_4^2 - 26\omega_7^2\omega_4^2c_s^2)\frac{v_3\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_z^3v_1} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^3v_1}$

coefficient $C^{(0)}_{\mathrm{D}_x\mathrm{D}_z^3v_3}$ **at** $\frac{\partial^4v_3}{\partial x_1\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_x\mathrm{D}_z^3v_3} = (12 + 18v_3^2\omega - 12v_3^2\omega^2 + 8\omega^2 + 3v_3^2\omega^3 - \omega^3 - 12v_3^2 + 144c_s^2\omega - 96c_s^2 - 56c_s^2\omega^2 - 18\omega + 4c_s^2\omega^3)\frac{v_1\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^3v_3} = (12v_3^2\omega_7^2\omega_4^3 + 36\omega_2^3v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 + 2\omega_2^2\omega_7^2\omega_4^3 - 12\omega_2^3\omega_7\omega_4c_s^2 - 6\omega_2^2\omega_7^2\omega_4^2 - 12\omega_2^3v_3^2\omega_7\omega_4^3 - 12\omega_2^3\omega_4^2c_s^2 - 18\omega_2v_3^2\omega_7^2\omega_4^3 - 32\omega_2^3\omega_7^2\omega_4^2c_s^2 + 12\omega_2^2v_3^2\omega_7\omega_4^3 + 48\omega_2^2\omega_7^2\omega_4^2c_s^2 + 3\omega_2^3\omega_7\omega_4^3 + 4\omega_2^3\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2v_3^2\omega_7\omega_4^2 - 6\omega_2^3\omega_7\omega_4^2 + 6\omega_2^3\omega_4^3c_s^2 - 12\omega_2^2v_3^2\omega_7\omega_4 + 12\omega_2^2v_3^2\omega_7^2\omega_4^2 + 6\omega_2^3v_3^2\omega_4^3 + 3\omega_2^3\omega_7^2\omega_4^2 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2\omega_7\omega_4^2c_s^2 - 30\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2c_s^2 - 12\omega_2^3v_3^2\omega_4^2 - 12\omega_2^3\omega_7\omega_4^3c_s^2 - 24\omega_2^2\omega_7^2\omega_4c_s^2 - \omega_2^3\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7\omega_4^3c_s^2 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7^2\omega_4^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 36\omega_2^3\omega_7^2\omega_4c_s^2 - 6\omega_2^2\omega_7\omega_4^3 + 36\omega_2^3\omega_7\omega_4^2c_s^2 + 24\omega_2^3v_3^2\omega_7^2)\frac{v_1\rho}{12\omega_2^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_x\mathrm{D}_z^3v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_x\mathrm{D}_z^3v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^3v_3} = (12v_3^2\omega_7^2\omega_4^3 - 12\omega_2^3v_3^2\omega_7\omega_4^2 - 12\omega_2^2\omega_7^2\omega_4^3c_s^2 + 2\omega_2^2\omega_7^2\omega_4^3 - 12\omega_2^3\omega_7\omega_4c_s^2 - 6\omega_2^2\omega_7^2\omega_4^2 - 12\omega_2^3\omega_4^2c_s^2 - 18\omega_2v_3^2\omega_7^2\omega_4^3 - 32\omega_2^3\omega_7^2\omega_4^2c_s^2 + 12\omega_2^2v_3^2\omega_7\omega_4^3 + 48\omega_2^2\omega_7^2\omega_4^2c_s^2 + 3\omega_2^3\omega_7\omega_4^3 + 4\omega_2^3\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2v_3^2\omega_7\omega_4^2 - 6\omega_2^3\omega_7\omega_4^2 + 6\omega_2^3\omega_4^3c_s^2 + 12\omega_2^2v_3^2\omega_7\omega_4 + 12\omega_2^2v_3^2\omega_7^2\omega_4^2 - 6\omega_2^3v_3^2\omega_4^3 + 3\omega_2^3\omega_7^2\omega_4^2 + 6\omega_2\omega_7^2\omega_4^3c_s^2 - 24\omega_2^2\omega_7^2\omega_4^2c_s^2 + 30\omega_2^3v_3^2\omega_7^2\omega_4 - 12\omega_2^3\omega_7^2c_s^2 + 12\omega_2^3v_3^2\omega_4^2 - 12\omega_2^3\omega_7\omega_4^3c_s^2 - 24\omega_2^2\omega_7^2\omega_4^2c_s^2 - \omega_2^3\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7\omega_4^3c_s^2 + 3\omega_2^3v_3^2\omega_7^2\omega_4^3 + 12\omega_2^2\omega_7^2\omega_4^2 - 12\omega_2\omega_7^2\omega_4^2c_s^2 + 36\omega_2^3\omega_7^2\omega_4c_s^2 - 6\omega_2^2\omega_7\omega_4^3 - 12\omega_2^3v_3^2\omega_7^2\omega_4^2 + 36\omega_2^3\omega_7\omega_4^2c_s^2 - 24\omega_2^3v_3^2\omega_7^2)\frac{v_1\rho}{12\omega_2^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_x\mathrm{D}_z^3v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_x\mathrm{D}_z^3v_3}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^3\rho}$ **at** $\frac{\partial^4\rho}{\partial x_2\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z^3\rho} = (24 + 14\omega^2 - \omega^3 + 180c_s^2\omega - 120c_s^2 - 72c_s^2\omega^2 - 36\omega + 6c_s^2\omega^3)\frac{v_3v_2}{6\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^3\rho} = (-12\omega_3^2\omega_7^2\omega_4^3c_s^2 + 6v_3^2\omega_7^2\omega_4^3 + 42\omega_3^3v_3^2\omega_7\omega_4^2 + 6\omega_3^3v_3^2\omega_4^3 + 7\omega_3^3\omega_7^2\omega_4^2 + 6\omega_3v_3^2\omega_7^2\omega_4^2 - 36\omega_3^3\omega_7^2c_s^2 - 24\omega_3^3\omega_7\omega_4c_s^2 - 12\omega_3^3v_3^2\omega_4^2 - 12\omega_3^3v_3^2\omega_7\omega_4^3 - 48\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3v_3^2\omega_7^2\omega_4^3 - \omega_3^3\omega_7^2\omega_4^3 + 6\omega_3^3\omega_7\omega_4^2 + 6\omega_3^3v_3^2\omega_7\omega_4^3 + 42\omega_3^3\omega_7^2\omega_4^2c_s^2 - 6\omega_3^3\omega_7^2\omega_4 - 12\omega_3^3v_3^2\omega_7\omega_4^2 - 3\omega_3^3\omega_7\omega_4^3 + 6\omega_3^3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^3v_3^2\omega_7\omega_4 + 24\omega_3^3v_3^2\omega_7^2 + 12\omega_3^3\omega_7\omega_4 + \omega_3^3\omega_7^2\omega_4^3 - 12\omega_3^3v_3^2\omega_7^2\omega_4^2 - 30\omega_3^3v_3^2\omega_7^2\omega_4 - 12\omega_3^3\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^3v_3^2\omega_7^2\omega_4^3 -$

$12\omega_3^3\omega_7\omega_4^3c_s^2 - 3\omega_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_4^2c_s^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 6\omega_3^2\omega_7\omega_4^3c_s^2 + 78\omega_3^3\omega_7^2\omega_4c_s^2 + 6\omega_3^3\omega_7\omega_4^3 + 6\omega_3^3\omega_4^2 + 6\omega_3^3v_3^2\omega_7^2\omega_4^2 - 3\omega_3^3\omega_4^3 - 21\omega_3^3\omega_7\omega_4^2 + 6\omega_3^3\omega_4^3c_s^2 + 42\omega_3^3\omega_7\omega_4^2c_s^2 + 12\omega_3^2v_3^2\omega_7^2\omega_4)\frac{v_3v_2}{6\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z^3\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^3\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^3\rho} = (-12\omega_3^2\omega_7^2\omega_4^3c_s^2 + 6v_3^2\omega_7^2\omega_4^3 + 12\omega_3^3v_3^2\omega_7\omega_4^2 - 6\omega_3^3v_3^2\omega_4^3 + 7\omega_3^3\omega_7^2\omega_4^2 + 6\omega_3v_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 24\omega_3^3\omega_7\omega_4c_s^2 + 12\omega_3^3v_3^2\omega_4^2 - 36\omega_3^3\omega_7^2\omega_4^2c_s^2 - 12\omega_3v_3^2\omega_7^2\omega_4^3 - \omega_3^3\omega_7^2\omega_4^3 + 6\omega_3^2\omega_7\omega_4^2 + 36\omega_3^2\omega_7^2\omega_4^2c_s^2 - 6\omega_3^3\omega_7^2\omega_4 - 3\omega_3^2\omega_7\omega_4^3 + 6\omega_3^3\omega_7^2\omega_4^3c_s^2 - 24\omega_3^3v_3^2\omega_7\omega_4 + 12\omega_3^3\omega_7\omega_4 + \omega_3^2\omega_7^2\omega_4^3 - 6\omega_3^2v_3^2\omega_7^2\omega_4^2 + 12\omega_3^3v_3^2\omega_7^2\omega_4 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 + 6\omega_3^2v_3^2\omega_7^2\omega_4^3 - 24\omega_3^3\omega_7\omega_4^3c_s^2 - 3\omega_3^2\omega_7^2\omega_4^2 - 36\omega_3^3\omega_4^2c_s^2 - 12\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 12\omega_3^2\omega_7\omega_4^3c_s^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 6\omega_3^3\omega_7\omega_4^3 + 6\omega_3^3\omega_4^2 - 6\omega_3^3v_3^2\omega_7^2\omega_4^2 - 3\omega_3^3\omega_4^3 - 21\omega_3^3\omega_7\omega_4^2 + 18\omega_3^3\omega_4^2c_s^2 + 72\omega_3^3\omega_7\omega_4^2c_s^2)\frac{v_3v_2}{6\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z^3\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^3\rho}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^3v_2}$ **at** $\frac{\partial^4v_2}{\partial x_2\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z^3v_2} = (36 + 54v_3^2\omega - 20v_3^2\omega^2 + 20\omega^2 + v_3^2\omega^3 - \omega^3 - 36v_3^2 + 144c_s^2\omega - 96c_s^2 - 56c_s^2\omega^2 - 54\omega + 4c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^3v_2} = (v_3^2\omega_7^2\omega_4^3 + 6\omega_4^3c_s^2 - 36\omega_7\omega_4^2 + 90\omega_7^2\omega_4c_s^2 - 8v_3^2\omega_7^2\omega_4^2 + 48\omega_7\omega_4^2c_s^2 + 9\omega_7\omega_4^3 - 12\omega_4^2c_s^2 + 24\omega_7\omega_4 - 12\omega_7\omega_4^3c_s^2 - 12\omega_7^2\omega_4 + 12v_3^2\omega_7^2 + 4\omega_7^2\omega_4^3c_s^2 - 36v_3^2\omega_7\omega_4 - 12v_3^2\omega_4^2 + 48v_3^2\omega_7\omega_4^2 - 36\omega_7\omega_4c_s^2 + 12\omega_4^2 - \omega_7^2\omega_4^3 - 12v_3^2\omega_7\omega_4^3 + 6v_3^2\omega_4^3 - 6\omega_4^3 + 11\omega_7^2\omega_4^2 - 44\omega_7^2\omega_4^2c_s^2 - 48\omega_7^2c_s^2)\frac{v_3\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z^3v_2} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^3v_2}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^3v_2} = (v_3^2\omega_7^2\omega_4^3 + 30\omega_4^3c_s^2 - 36\omega_7\omega_4^2 + 18\omega_7^2\omega_4c_s^2 - 14v_3^2\omega_7^2\omega_4^2 + 96\omega_7\omega_4^2c_s^2 + 9\omega_7\omega_4^3 - 60\omega_4^2c_s^2 + 12v_3^2\omega_7^2\omega_4 + 24\omega_7\omega_4 - 30\omega_7\omega_4^3c_s^2 - 12\omega_7^2\omega_4 + 12v_3^2\omega_7^2 + 4\omega_7^2\omega_4^3c_s^2 - 60v_3^2\omega_7\omega_4 + 12v_3^2\omega_4^2 + 48v_3^2\omega_7\omega_4^2 - 36\omega_7\omega_4c_s^2 + 12\omega_4^2 - \omega_7^2\omega_4^3 - 6v_3^2\omega_7\omega_4^3 - 6v_3^2\omega_4^3 - 6\omega_4^3 + 11\omega_7^2\omega_4^2 - 26\omega_7^2\omega_4^2c_s^2)\frac{v_3\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z^3v_2} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^3v_2}$

coefficient $C^{(0)}_{\mathrm{D}_y\mathrm{D}_z^3v_3}$ **at** $\frac{\partial^4v_3}{\partial x_2\partial x_3^3}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_y\mathrm{D}_z^3v_3} = (12 + 18v_3^2\omega - 12v_3^2\omega^2 + 8\omega^2 + 3v_3^2\omega^3 - \omega^3 - 12v_3^2 + 144c_s^2\omega - 96c_s^2 - 56c_s^2\omega^2 - 18\omega + 4c_s^2\omega^3)\frac{v_2\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^3v_3} = (-12\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 + 36\omega_3^3v_3^2\omega_7\omega_4^2 + 6\omega_3^3v_3^2\omega_4^3 + 3\omega_3^3\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 - 12\omega_3^3v_3^2\omega_4^2 - 12\omega_3^3v_3^2\omega_7\omega_4^3 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 18\omega_3v_3^2\omega_7^2\omega_4^3 - \omega_3^3\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^2 + 12\omega_3^2v_3^2\omega_7\omega_4^3 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 - 24\omega_3^2v_3^2\omega_7\omega_4^2 - 6\omega_3^2\omega_7\omega_4^3 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3v_3^2\omega_7\omega_4 + 24\omega_3^3v_3^2\omega_7^2 + 2\omega_3^2\omega_7^2\omega_4^3 + 12\omega_3^2v_3^2\omega_7^2\omega_4^2 - 30\omega_3^3v_3^2\omega_7^2\omega_4 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3\omega_7\omega_4^3c_s^2 - 6\omega_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_4^2c_s^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 3\omega_3^3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 3\omega_3^3\omega_7\omega_4^3 - 6\omega_3^3\omega_7\omega_4^2 + 6\omega_3^3\omega_4^2c_s^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2)\frac{v_2\rho}{12\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_y\mathrm{D}_z^3v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_y\mathrm{D}_z^3v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^3v_3} = (-12\omega_3^2\omega_7^2\omega_4^3c_s^2 + 12v_3^2\omega_7^2\omega_4^3 - 12\omega_3^3v_3^2\omega_7\omega_4^2 - 6\omega_3^3v_3^2\omega_4^3 + 3\omega_3^3\omega_7^2\omega_4^2 - 12\omega_3^3\omega_7^2c_s^2 - 12\omega_3^3\omega_7\omega_4c_s^2 + 12\omega_3^3v_3^2\omega_4^2 - 32\omega_3^3\omega_7^2\omega_4^2c_s^2 - 18\omega_3v_3^2\omega_7^2\omega_4^3 - \omega_3^3\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^2 + 12\omega_3^2v_3^2\omega_7\omega_4^3 + 48\omega_3^2\omega_7^2\omega_4^2c_s^2 - 24\omega_3^2v_3^2\omega_7\omega_4^2 - 6\omega_3^2\omega_7\omega_4^3 + 4\omega_3^3\omega_7^2\omega_4^3c_s^2 + 12\omega_3^3v_3^2\omega_7\omega_4 - 24\omega_3^3v_3^2\omega_7^2 + 2\omega_3^2\omega_7^2\omega_4^3 + 12\omega_3^2v_3^2\omega_7^2\omega_4^2 + 30\omega_3^3v_3^2\omega_7^2\omega_4 - 24\omega_3^2\omega_7\omega_4^2c_s^2 + 6\omega_3\omega_7^2\omega_4^3c_s^2 - 12\omega_3^3\omega_7\omega_4^3c_s^2 - 6\omega_3^2\omega_7^2\omega_4^2 - 12\omega_3^3\omega_4^2c_s^2 - 24\omega_3^2\omega_7^2\omega_4c_s^2 - 12\omega_3\omega_7^2\omega_4^2c_s^2 + 3\omega_3^3v_3^2\omega_7^2\omega_4^3 + 12\omega_3^2\omega_7\omega_4^3c_s^2 + 36\omega_3^3\omega_7^2\omega_4c_s^2 + 3\omega_3^3\omega_7\omega_4^3 - 12\omega_3^3v_3^2\omega_7^2\omega_4^2 - 6\omega_3^3\omega_7\omega_4^2 + 6\omega_3^3\omega_4^2c_s^2 + 36\omega_3^3\omega_7\omega_4^2c_s^2)\frac{v_2\rho}{12\omega_3^3\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}_y\mathrm{D}_z^3v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}_y\mathrm{D}_z^3v_3}$

coefficient $C^{(0)}_{\mathrm{D}_z^4\rho}$ **at** $\frac{\partial^4\rho}{\partial x_3^4}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}_z^4\rho} = (48c_s^4 - 84v_3^2c_s^2\omega^2 - 72c_s^4\omega + 6v_3^2c_s^2\omega^3 - 108v_3^2\omega - 72v_3^4 + 42v_3^2\omega^2 - 3c_s^4\omega^3 - 3v_3^2\omega^3 + 216v_3^2c_s^2\omega + 30c_s^4\omega^2 + 72v_3^2 + 108v_3^4\omega + 36c_s^2\omega + 3v_3^4\omega^3 - 144v_3^2c_s^2 - 24c_s^2 - 14c_s^2\omega^2 - 42v_3^4\omega^2 + c_s^2\omega^3)\frac{1}{24\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^4\rho} = (-3v_3^2\omega_7^2\omega_4^3 + 24\omega_7\omega_4c_s^4 + 6v_3^2\omega_7^2\omega_4^3c_s^2 + 12\omega_7^2\omega_4c_s^2 + 24v_3^4\omega_7^2\omega_4 - 96v_3^2\omega_7^2c_s^2 + 24v_3^2\omega_7^2\omega_4^2 + 24\omega_7^2c_s^4 + 24\omega_7^2\omega_4^2c_s^4 + 24\omega_7\omega_4^2c_s^2 + 3v_3^4\omega_7^2\omega_4^3 - 72v_3^2\omega_7^2\omega_4^2c_s^2 + 12v_3^4\omega_4^3 - 24v_3^2\omega_7^2\omega_4 - 24v_3^4\omega_4^2 - 24v_3^2\omega_7\omega_4c_s^2 - 6\omega_7\omega_4^3c_s^2 - 24v_3^4\omega_7^2\omega_4^2 - 3\omega_7^2\omega_4^3c_s^4 + 72v_3^4\omega_7\omega_4^2 + 48v_3^2\omega_7\omega_4^2c_s^2 - 24v_3^2\omega_4^2c_s^2 + 156v_3^2\omega_7^2\omega_4c_s^2 + \omega_7^2\omega_4^3c_s^2 - 18v_3^4\omega_7\omega_4^3 + 6\omega_7\omega_4^3c_s^4 + 48v_3^2\omega_7\omega_4 + 24v_3^2\omega_4^2 - 48\omega_7^2\omega_4c_s^4 + 12v_3^2\omega_4^3c_s^2 - 72v_3^2\omega_7\omega_4^2 - 12v_3^2\omega_7\omega_4^3c_s^2 - 24\omega_7\omega_4c_s^2 - 24\omega_7\omega_4^2c_s^4 + 18v_3^2\omega_7\omega_4^3 - 12v_3^2\omega_4^3 - 48v_3^4\omega_7\omega_4 - 8\omega_7^2\omega_4^2c_s^2)\frac{1}{24\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}_z^4\rho} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}_z^4\rho}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_z\rho} = (-3v_3^2\omega_7^2\omega_4^3 + 24\omega_7\omega_4c_s^4 + 6v_3^2\omega_7^2\omega_4^3c_s^2 + 12\omega_7^2\omega_4c_s^2 + 12v_3^2\omega_7^2\omega_4^2 + 24\omega_7^2c_s^4 + 24\omega_7^2\omega_4^2c_s^4 + 24\omega_7\omega_4^2c_s^2 + 3v_3^4\omega_7^2\omega_4^3 - 12v_3^2\omega_7^2\omega_4^2c_s^2 + 36v_3^4\omega_4^3 - 72v_3^4\omega_4^2 + 72v_3^2\omega_7\omega_4c_s^2 - 6\omega_7\omega_4^3c_s^2 - 12v_3^4\omega_7^2\omega_4^2 - 3\omega_7^2\omega_4^3c_s^4 + 72v_3^4\omega_7\omega_4^2 + 144v_3^2\omega_7\omega_4^2c_s^2 - 216v_3^2\omega_4^2c_s^2 - 36v_3^2\omega_7^2\omega_4c_s^2 + \omega_7^2\omega_4^3c_s^2 - 30v_3^4\omega_7\omega_4^3 + 6\omega_7\omega_4^3c_s^4 + 72v_3^2\omega_4^2 - 48\omega_7^2\omega_4c_s^4 + 108v_3^2\omega_4^3c_s^2 - 72v_3^2\omega_7\omega_4^2 - 72v_3^2\omega_7\omega_4^3c_s^2 - 24\omega_7\omega_4c_s^2 - 24\omega_7\omega_4^2c_s^4 + 30v_3^2\omega_7\omega_4^3 - 36v_3^2\omega_4^3 - 8\omega_7^2\omega_4^2c_s^2)\frac{1}{24\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}^4_z\rho} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_z\rho}$

coefficient $C^{(0)}_{\mathrm{D}^4_z v_3}$ **at** $\frac{\partial^4 v_3}{\partial x_3^4}$**:**

$C^{(0),\mathrm{SRT}}_{\mathrm{D}^4_z v_3} = (24 + 54v_3^2\omega - 22v_3^2\omega^2 + 14\omega^2 + 2v_3^2\omega^3 - \omega^3 - 36v_3^2 + 72c_s^2\omega - 48c_s^2 - 26c_s^2\omega^2 - 36\omega + c_s^2\omega^3)\frac{v_3\rho}{12\omega^3}$

$C^{(0),\mathrm{MRT1}}_{\mathrm{D}^4_z v_3} = (2v_3^2\omega_7^2\omega_4^3 + 6\omega_4^3c_s^2 - 24\omega_7\omega_4^2 + 42\omega_7^2\omega_4c_s^2 - 16v_3^2\omega_7^2\omega_4^2 + 24\omega_7\omega_4^2c_s^2 + 6\omega_7\omega_4^3 - 12\omega_4^2c_s^2 + 24v_3^2\omega_7^2\omega_4 + 12\omega_7\omega_4 - 6\omega_7\omega_4^3c_s^2 - 6\omega_7^2\omega_4 - 12v_3^2\omega_7^2 + \omega_7^2\omega_4^3c_s^2 - 12v_3^2\omega_7\omega_4 - 12v_3^2\omega_4^2 + 24v_3^2\omega_7\omega_4^2 - 12\omega_7\omega_4c_s^2 + 12\omega_4^2 - \omega_7^2\omega_4^3 - 6v_3^2\omega_7\omega_4^3 + 6v_3^2\omega_4^3 - 6\omega_4^3 + 8\omega_7^2\omega_4^2 - 20\omega_7^2\omega_4^2c_s^2 - 24\omega_7^2c_s^2)\frac{v_3\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{MRT2}}_{\mathrm{D}^4_z v_3} = C^{(0),\mathrm{MRT1}}_{\mathrm{D}^4_z v_3}$

$C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_z v_3} = (2v_3^2\omega_7^2\omega_4^3 + 30\omega_4^3c_s^2 - 24\omega_7\omega_4^2 - 30\omega_7^2\omega_4c_s^2 + 2v_3^2\omega_7^2\omega_4^2 + 72\omega_7\omega_4^2c_s^2 + 12\omega_7\omega_4^3 - 60\omega_4^2c_s^2 - 12v_3^2\omega_7^2\omega_4 - 12\omega_7\omega_4 - 24\omega_7\omega_4^3c_s^2 + 6\omega_7^2\omega_4 - 12v_3^2\omega_7^2 + \omega_7^2\omega_4^3c_s^2 + 60v_3^2\omega_7\omega_4 - 84v_3^2\omega_4^2 + 24v_3^2\omega_7\omega_4^2 - 12\omega_7\omega_4c_s^2 + 36\omega_4^2 - \omega_7^2\omega_4^3 - 24v_3^2\omega_7\omega_4^3 + 42v_3^2\omega_4^3 - 18\omega_4^3 + 2\omega_7^2\omega_4^2 - 2\omega_7^2\omega_4^2c_s^2 + 24\omega_7^2c_s^2)\frac{v_3\rho}{12\omega_7^2\omega_4^3}$

$C^{(0),\mathrm{CLBM2}}_{\mathrm{D}^4_z v_3} = C^{(0),\mathrm{CLBM1}}_{\mathrm{D}^4_z v_3}$

References

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