

$$\begin{aligned}
\tilde{\omega}_{eqv}^2 = & \left(\pi \left(512 A^2 \pi \omega_0^2 - 1024 A \pi \gamma \omega_0^2 + \right. \right. \\
& \frac{1024 \pi \gamma^2 \omega_0^2}{-2 + \pi \alpha} + \frac{1024 A \gamma \omega_0^2 \sin[\pi^2 \alpha]}{2 + \pi \alpha} - \\
& \frac{1024 \gamma^2 \omega_0^2 \sin[\pi^2 \alpha]}{-2 + \pi \alpha} - \frac{1024 \gamma^2 \omega_0^2 \sin[\pi^2 \alpha]}{2 + \pi \alpha} + \frac{256 \gamma^2 \omega_0^2 \sin[2 \pi^2 \alpha]}{\pi \alpha} + \\
& \frac{256 \left(2 \pi^2 \alpha (A^2 - 2 A \gamma + 2 \gamma^2) + \frac{8 \pi^2 \alpha^2 (A - \gamma) \gamma \sin[\pi^2 \alpha]}{-4 + \pi^2 \alpha^2} + \gamma^2 \sin[2 \pi^2 \alpha] \right) \delta_1}{\pi \alpha} + \\
& \left(32 (-32 \pi^2 \alpha^2 (-4 + 9 \pi^2 \alpha^2) \gamma (-A + \gamma) (4 A^2 (-28 + \pi^2 \alpha^2) - 8 A (-28 + \pi^2 \alpha^2) \gamma + \right. \\
& (-220 + 7 \pi^2 \alpha^2) \gamma^2) \sin[\pi^2 \alpha] + (-36 + \pi^2 \alpha^2) (8 (-4 + 9 \pi^2 \alpha^2) \gamma^2 (6 A^2 \\
& (-2 + \pi^2 \alpha^2) - 12 A (-2 + \pi^2 \alpha^2) \gamma + (-16 + 7 \pi^2 \alpha^2) \gamma^2) \sin[2 \pi^2 \alpha] + \\
& (-4 + \pi^2 \alpha^2) (96 \pi^2 \alpha^2 (A - \gamma) \gamma^3 \sin[3 \pi^2 \alpha] + (-4 + 9 \pi^2 \alpha^2) (12 \pi^2 \alpha \\
& (A^4 - 4 A^3 \gamma + 10 A^2 \gamma^2 - 12 A \gamma^3 + 6 \gamma^4) + \gamma^4 \sin[4 \pi^2 \alpha])))) \delta_2) / \\
& (\pi \alpha (-6 + \pi \alpha) (-2 + \pi \alpha) (2 + \pi \alpha) (6 + \pi \alpha) (-2 + 3 \pi \alpha) (2 + 3 \pi \alpha)) + \\
& 320 A^6 \pi \delta_3 - 1920 A^5 \pi \gamma \delta_3 + 7680 A^4 \pi \gamma^2 \delta_3 - \\
& 17920 A^3 \pi \gamma^3 \delta_3 + 24960 A^2 \pi \gamma^4 \delta_3 - \\
& 19200 A \pi \gamma^5 \delta_3 + 6400 \pi \gamma^6 \delta_3 + \\
& \frac{192 A^5 \gamma \sin[\pi^2 \alpha] \delta_3}{-10 + \pi \alpha} + \frac{960 A^5 \gamma \sin[\pi^2 \alpha] \delta_3}{-6 + \pi \alpha} + \\
& \frac{1920 A^5 \gamma \sin[\pi^2 \alpha] \delta_3}{-2 + \pi \alpha} + \frac{1920 A^5 \gamma \sin[\pi^2 \alpha] \delta_3}{2 + \pi \alpha} + \\
& \frac{960 A^5 \gamma \sin[\pi^2 \alpha] \delta_3}{6 + \pi \alpha} + \frac{192 A^5 \gamma \sin[\pi^2 \alpha] \delta_3}{10 + \pi \alpha} - \\
& \frac{960 A^4 \gamma^2 \sin[\pi^2 \alpha] \delta_3}{-10 + \pi \alpha} - \frac{4800 A^4 \gamma^2 \sin[\pi^2 \alpha] \delta_3}{-6 + \pi \alpha} - \\
& \frac{9600 A^4 \gamma^2 \sin[\pi^2 \alpha] \delta_3}{-2 + \pi \alpha} - \frac{9600 A^4 \gamma^2 \sin[\pi^2 \alpha] \delta_3}{2 + \pi \alpha} - \\
& \frac{4800 A^4 \gamma^2 \sin[\pi^2 \alpha] \delta_3}{6 + \pi \alpha} - \frac{960 A^4 \gamma^2 \sin[\pi^2 \alpha] \delta_3}{10 + \pi \alpha} + \\
& \frac{1920 A^3 \gamma^3 \sin[\pi^2 \alpha] \delta_3}{-10 + \pi \alpha} + \frac{11520 A^3 \gamma^3 \sin[\pi^2 \alpha] \delta_3}{-6 + \pi \alpha} + \\
& \frac{24960 A^3 \gamma^3 \sin[\pi^2 \alpha] \delta_3}{-2 + \pi \alpha} + \frac{24960 A^3 \gamma^3 \sin[\pi^2 \alpha] \delta_3}{2 + \pi \alpha} +
\end{aligned}$$

$$\begin{aligned}
& \frac{11\,520\,A^3\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_3}{6+\pi\alpha} + \frac{1920\,A^3\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_3}{10+\pi\alpha} - \\
& \frac{1920\,A^2\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-10+\pi\alpha} - \frac{15\,360\,A^2\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-6+\pi\alpha} - \\
& \frac{36\,480\,A^2\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} - \frac{36\,480\,A^2\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_3}{2+\pi\alpha} - \\
& \frac{15\,360\,A^2\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_3}{6+\pi\alpha} - \frac{1920\,A^2\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_3}{10+\pi\alpha} + \\
& \frac{960\,A\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-10+\pi\alpha} + \frac{10\,560\,A\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-6+\pi\alpha} + \\
& \frac{28\,800\,A\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} + \frac{28\,800\,A\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_3}{2+\pi\alpha} + \\
& \frac{10\,560\,A\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_3}{6+\pi\alpha} + \frac{960\,A\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_3}{10+\pi\alpha} - \\
& \frac{192\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-10+\pi\alpha} - \frac{2880\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-6+\pi\alpha} - \frac{9600\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} - \\
& \frac{9600\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_3}{2+\pi\alpha} - \frac{2880\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_3}{6+\pi\alpha} - \frac{192\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_3}{10+\pi\alpha} + \\
& \frac{1440\,A^4\,\gamma^2\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{\pi\alpha} + \frac{240\,A^4\,\gamma^2\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-4+\pi\alpha} + \\
& \frac{960\,A^4\,\gamma^2\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} + \frac{960\,A^4\,\gamma^2\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{2+\pi\alpha} + \\
& \frac{240\,A^4\,\gamma^2\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{4+\pi\alpha} - \frac{5760\,A^3\,\gamma^3\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{\pi\alpha} - \\
& \frac{960\,A^3\,\gamma^3\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-4+\pi\alpha} - \frac{3840\,A^3\,\gamma^3\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} - \\
& \frac{3840\,A^3\,\gamma^3\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{2+\pi\alpha} - \frac{960\,A^3\,\gamma^3\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{4+\pi\alpha} + \\
& \frac{10\,560\,A^2\,\gamma^4\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{\pi\alpha} + \frac{1440\,A^2\,\gamma^4\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-4+\pi\alpha} + \\
& \frac{6720\,A^2\,\gamma^4\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} + \frac{6720\,A^2\,\gamma^4\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{2+\pi\alpha} + \\
& \frac{1440\,A^2\,\gamma^4\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{4+\pi\alpha} - \frac{9600\,A\,\gamma^5\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{\pi\alpha} - \\
& \frac{960\,A\,\gamma^5\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-4+\pi\alpha} - \frac{5760\,A\,\gamma^5\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{-2+\pi\alpha} - \frac{5760\,A\,\gamma^5\,\text{Sin}[2\pi^2\alpha]\,\delta_3}{2+\pi\alpha} -
\end{aligned}$$

$$\begin{aligned}
& \frac{960 A \gamma^5 \sin[2 \pi^2 \alpha] \delta_3}{4 + \pi \alpha} + \frac{3600 \gamma^6 \sin[2 \pi^2 \alpha] \delta_3}{\pi \alpha} + \frac{240 \gamma^6 \sin[2 \pi^2 \alpha] \delta_3}{-4 + \pi \alpha} + \\
& \frac{1920 \gamma^6 \sin[2 \pi^2 \alpha] \delta_3}{-2 + \pi \alpha} + \frac{1920 \gamma^6 \sin[2 \pi^2 \alpha] \delta_3}{2 + \pi \alpha} + \frac{240 \gamma^6 \sin[2 \pi^2 \alpha] \delta_3}{4 + \pi \alpha} + \\
& \frac{640 A^3 \gamma^3 \sin[3 \pi^2 \alpha] \delta_3}{-6 + 3 \pi \alpha} + \frac{1920 A^3 \gamma^3 \sin[3 \pi^2 \alpha] \delta_3}{-2 + 3 \pi \alpha} + \\
& \frac{1920 A^3 \gamma^3 \sin[3 \pi^2 \alpha] \delta_3}{2 + 3 \pi \alpha} + \frac{640 A^3 \gamma^3 \sin[3 \pi^2 \alpha] \delta_3}{6 + 3 \pi \alpha} - \\
& \frac{640 A^2 \gamma^4 \sin[3 \pi^2 \alpha] \delta_3}{-2 + \pi \alpha} - \frac{640 A^2 \gamma^4 \sin[3 \pi^2 \alpha] \delta_3}{2 + \pi \alpha} - \frac{5760 A^2 \gamma^4 \sin[3 \pi^2 \alpha] \delta_3}{-2 + 3 \pi \alpha} - \\
& \frac{5760 A^2 \gamma^4 \sin[3 \pi^2 \alpha] \delta_3}{2 + 3 \pi \alpha} + \frac{640 A \gamma^5 \sin[3 \pi^2 \alpha] \delta_3}{-2 + \pi \alpha} + \frac{640 A \gamma^5 \sin[3 \pi^2 \alpha] \delta_3}{2 + \pi \alpha} + \\
& \frac{6720 A \gamma^5 \sin[3 \pi^2 \alpha] \delta_3}{-2 + 3 \pi \alpha} + \frac{6720 A \gamma^5 \sin[3 \pi^2 \alpha] \delta_3}{2 + 3 \pi \alpha} - \frac{640 \gamma^6 \sin[3 \pi^2 \alpha] \delta_3}{-6 + 3 \pi \alpha} - \\
& \frac{2880 \gamma^6 \sin[3 \pi^2 \alpha] \delta_3}{-2 + 3 \pi \alpha} - \frac{2880 \gamma^6 \sin[3 \pi^2 \alpha] \delta_3}{2 + 3 \pi \alpha} - \frac{640 \gamma^6 \sin[3 \pi^2 \alpha] \delta_3}{6 + 3 \pi \alpha} + \\
& \frac{240 A^2 \gamma^4 \sin[4 \pi^2 \alpha] \delta_3}{\pi \alpha} + \frac{120 A^2 \gamma^4 \sin[4 \pi^2 \alpha] \delta_3}{-1 + \pi \alpha} + \frac{120 A^2 \gamma^4 \sin[4 \pi^2 \alpha] \delta_3}{1 + \pi \alpha} - \\
& \frac{480 A \gamma^5 \sin[4 \pi^2 \alpha] \delta_3}{\pi \alpha} - \frac{240 A \gamma^5 \sin[4 \pi^2 \alpha] \delta_3}{-1 + \pi \alpha} - \frac{240 A \gamma^5 \sin[4 \pi^2 \alpha] \delta_3}{1 + \pi \alpha} + \\
& \frac{288 \gamma^6 \sin[4 \pi^2 \alpha] \delta_3}{\pi \alpha} + \frac{120 \gamma^6 \sin[4 \pi^2 \alpha] \delta_3}{-1 + \pi \alpha} + \frac{120 \gamma^6 \sin[4 \pi^2 \alpha] \delta_3}{1 + \pi \alpha} + \\
& \frac{192 A \gamma^5 \sin[5 \pi^2 \alpha] \delta_3}{-2 + 5 \pi \alpha} + \frac{192 A \gamma^5 \sin[5 \pi^2 \alpha] \delta_3}{2 + 5 \pi \alpha} - \frac{192 \gamma^6 \sin[5 \pi^2 \alpha] \delta_3}{-2 + 5 \pi \alpha} - \\
& \frac{192 \gamma^6 \sin[5 \pi^2 \alpha] \delta_3}{2 + 5 \pi \alpha} + \frac{16 \gamma^6 \sin[6 \pi^2 \alpha] \delta_3}{3 \pi \alpha} + 280 A^8 \pi \delta_4 - \\
& 2240 A^7 \pi \gamma \delta_4 + 12320 A^6 \pi \gamma^2 \delta_4 - 42560 A^5 \pi \gamma^3 \delta_4 + 96880 A^4 \pi \gamma^4 \delta_4 - \\
& 145600 A^3 \pi \gamma^5 \delta_4 + 140000 A^2 \pi \gamma^6 \delta_4 - 78400 A \pi \gamma^7 \delta_4 + 19600 \pi \gamma^8 \delta_4 + \\
& \frac{64 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{-14 + \pi \alpha} + \frac{448 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{-10 + \pi \alpha} + \frac{1344 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{-6 + \pi \alpha} + \\
& \frac{2240 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \frac{2240 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \frac{1344 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{6 + \pi \alpha} + \\
& \frac{448 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{10 + \pi \alpha} + \frac{64 A^7 \gamma \sin[\pi^2 \alpha] \delta_4}{14 + \pi \alpha} - \frac{448 A^6 \gamma^2 \sin[\pi^2 \alpha] \delta_4}{-14 + \pi \alpha} - \\
& \frac{3136 A^6 \gamma^2 \sin[\pi^2 \alpha] \delta_4}{-10 + \pi \alpha} - \frac{9408 A^6 \gamma^2 \sin[\pi^2 \alpha] \delta_4}{-6 + \pi \alpha} - \frac{15680 A^6 \gamma^2 \sin[\pi^2 \alpha] \delta_4}{-2 + \pi \alpha} -
\end{aligned}$$

$$\begin{aligned}
& \frac{15\,680\,A^6\,\gamma^2\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} - \frac{9408\,A^6\,\gamma^2\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} - \frac{3136\,A^6\,\gamma^2\,\text{Sin}[\pi^2\alpha]\,\delta_4}{10+\pi\alpha} - \\
& \frac{448\,A^6\,\gamma^2\,\text{Sin}[\pi^2\alpha]\,\delta_4}{14+\pi\alpha} + \frac{1344\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-14+\pi\alpha} + \frac{10\,752\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-10+\pi\alpha} + \\
& \frac{34\,944\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-6+\pi\alpha} + \frac{60\,480\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-2+\pi\alpha} + \frac{60\,480\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} + \\
& \frac{34\,944\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} + \frac{10\,752\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{10+\pi\alpha} + \frac{1344\,A^5\,\gamma^3\,\text{Sin}[\pi^2\alpha]\,\delta_4}{14+\pi\alpha} - \\
& \frac{2240\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-14+\pi\alpha} - \frac{22\,400\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-10+\pi\alpha} - \frac{80\,640\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-6+\pi\alpha} - \\
& \frac{145\,600\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-2+\pi\alpha} - \frac{145\,600\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} - \\
& \frac{80\,640\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} - \frac{22\,400\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{10+\pi\alpha} - \frac{2240\,A^4\,\gamma^4\,\text{Sin}[\pi^2\alpha]\,\delta_4}{14+\pi\alpha} + \\
& \frac{2240\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-14+\pi\alpha} + \frac{29\,120\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-10+\pi\alpha} + \frac{118\,720\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-6+\pi\alpha} + \\
& \frac{226\,240\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-2+\pi\alpha} + \frac{226\,240\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} + \\
& \frac{118\,720\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} + \frac{29\,120\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{10+\pi\alpha} + \frac{2240\,A^3\,\gamma^5\,\text{Sin}[\pi^2\alpha]\,\delta_4}{14+\pi\alpha} - \\
& \frac{1344\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-14+\pi\alpha} - \frac{22\,848\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-10+\pi\alpha} - \frac{108\,864\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-6+\pi\alpha} - \\
& \frac{221\,760\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-2+\pi\alpha} - \frac{221\,760\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} - \\
& \frac{108\,864\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} - \frac{22\,848\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{10+\pi\alpha} - \\
& \frac{1344\,A^2\,\gamma^6\,\text{Sin}[\pi^2\alpha]\,\delta_4}{14+\pi\alpha} + \frac{448\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-14+\pi\alpha} + \frac{9856\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-10+\pi\alpha} + \\
& \frac{56\,448\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-6+\pi\alpha} + \frac{125\,440\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-2+\pi\alpha} + \frac{125\,440\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} + \\
& \frac{56\,448\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} + \frac{9856\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{10+\pi\alpha} + \frac{448\,A\,\gamma^7\,\text{Sin}[\pi^2\alpha]\,\delta_4}{14+\pi\alpha} - \\
& \frac{64\,\gamma^8\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-14+\pi\alpha} - \frac{1792\,\gamma^8\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-10+\pi\alpha} - \frac{12\,544\,\gamma^8\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-6+\pi\alpha} - \\
& \frac{31\,360\,\gamma^8\,\text{Sin}[\pi^2\alpha]\,\delta_4}{-2+\pi\alpha} - \frac{31\,360\,\gamma^8\,\text{Sin}[\pi^2\alpha]\,\delta_4}{2+\pi\alpha} - \frac{12\,544\,\gamma^8\,\text{Sin}[\pi^2\alpha]\,\delta_4}{6+\pi\alpha} -
\end{aligned}$$

$$\begin{aligned}
& \frac{1792 \gamma^8 \sin[\pi^2 \alpha] \delta_4}{10 + \pi \alpha} - \frac{64 \gamma^8 \sin[\pi^2 \alpha] \delta_4}{14 + \pi \alpha} + \frac{2240 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} + \\
& \frac{112 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} + \frac{672 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} + \frac{1680 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \\
& \frac{1680 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \frac{672 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} + \frac{112 A^6 \gamma^2 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} - \\
& \frac{13440 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} - \frac{672 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} - \frac{4032 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} - \\
& \frac{10080 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} - \frac{10080 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} - \\
& \frac{4032 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} - \frac{672 A^5 \gamma^3 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} + \frac{40320 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} + \\
& \frac{1680 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} + \frac{11200 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} + \\
& \frac{29680 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \frac{29680 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \\
& \frac{11200 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} + \frac{1680 A^4 \gamma^4 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} - \\
& \frac{71680 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} - \frac{2240 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} - \\
& \frac{17920 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} - \frac{51520 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} - \\
& \frac{51520 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} - \frac{17920 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} - \\
& \frac{2240 A^3 \gamma^5 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} + \frac{77280 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} + \\
& \frac{1680 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} + \frac{16800 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} + \\
& \frac{53760 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \frac{53760 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \\
& \frac{16800 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} + \frac{1680 A^2 \gamma^6 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} - \\
& \frac{47040 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} - \frac{672 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} - \frac{8512 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} - \\
& \frac{31360 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} - \frac{31360 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} - \frac{8512 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} -
\end{aligned}$$

$$\begin{aligned}
& \frac{672 A \gamma^7 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} + \frac{12544 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{\pi \alpha} + \frac{112 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{-6 + \pi \alpha} + \\
& \frac{1792 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{-4 + \pi \alpha} + \frac{7840 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \frac{7840 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \\
& \frac{1792 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{4 + \pi \alpha} + \frac{112 \gamma^8 \sin[2 \pi^2 \alpha] \delta_4}{6 + \pi \alpha} + \frac{448 A^5 \gamma^3 \sin[3 \pi^2 \alpha] \delta_4}{-10 + 3 \pi \alpha} + \\
& \frac{2240 A^5 \gamma^3 \sin[3 \pi^2 \alpha] \delta_4}{-6 + 3 \pi \alpha} + \frac{4480 A^5 \gamma^3 \sin[3 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} + \frac{4480 A^5 \gamma^3 \sin[3 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} + \\
& \frac{2240 A^5 \gamma^3 \sin[3 \pi^2 \alpha] \delta_4}{6 + 3 \pi \alpha} + \frac{448 A^5 \gamma^3 \sin[3 \pi^2 \alpha] \delta_4}{10 + 3 \pi \alpha} - \frac{2240 A^4 \gamma^4 \sin[3 \pi^2 \alpha] \delta_4}{-10 + 3 \pi \alpha} - \\
& \frac{11200 A^4 \gamma^4 \sin[3 \pi^2 \alpha] \delta_4}{-6 + 3 \pi \alpha} - \frac{22400 A^4 \gamma^4 \sin[3 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} - \\
& \frac{22400 A^4 \gamma^4 \sin[3 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} - \frac{11200 A^4 \gamma^4 \sin[3 \pi^2 \alpha] \delta_4}{6 + 3 \pi \alpha} - \\
& \frac{2240 A^4 \gamma^4 \sin[3 \pi^2 \alpha] \delta_4}{10 + 3 \pi \alpha} + \frac{4480 A^3 \gamma^5 \sin[3 \pi^2 \alpha] \delta_4}{-10 + 3 \pi \alpha} + \\
& \frac{24640 A^3 \gamma^5 \sin[3 \pi^2 \alpha] \delta_4}{-6 + 3 \pi \alpha} + \frac{51520 A^3 \gamma^5 \sin[3 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} + \\
& \frac{51520 A^3 \gamma^5 \sin[3 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} + \frac{24640 A^3 \gamma^5 \sin[3 \pi^2 \alpha] \delta_4}{6 + 3 \pi \alpha} + \\
& \frac{4480 A^3 \gamma^5 \sin[3 \pi^2 \alpha] \delta_4}{10 + 3 \pi \alpha} - \frac{4480 A^2 \gamma^6 \sin[3 \pi^2 \alpha] \delta_4}{-10 + 3 \pi \alpha} - \\
& \frac{29120 A^2 \gamma^6 \sin[3 \pi^2 \alpha] \delta_4}{-6 + 3 \pi \alpha} - \frac{64960 A^2 \gamma^6 \sin[3 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} - \\
& \frac{64960 A^2 \gamma^6 \sin[3 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} - \frac{29120 A^2 \gamma^6 \sin[3 \pi^2 \alpha] \delta_4}{6 + 3 \pi \alpha} - \\
& \frac{4480 A^2 \gamma^6 \sin[3 \pi^2 \alpha] \delta_4}{10 + 3 \pi \alpha} + \frac{2240 A \gamma^7 \sin[3 \pi^2 \alpha] \delta_4}{-10 + 3 \pi \alpha} + \frac{17920 A \gamma^7 \sin[3 \pi^2 \alpha] \delta_4}{-6 + 3 \pi \alpha} + \\
& \frac{43904 A \gamma^7 \sin[3 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} + \frac{43904 A \gamma^7 \sin[3 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} + \\
& \frac{17920 A \gamma^7 \sin[3 \pi^2 \alpha] \delta_4}{6 + 3 \pi \alpha} + \frac{2240 A \gamma^7 \sin[3 \pi^2 \alpha] \delta_4}{10 + 3 \pi \alpha} - \frac{448 \gamma^8 \sin[3 \pi^2 \alpha] \delta_4}{-10 + 3 \pi \alpha} - \\
& \frac{4480 \gamma^8 \sin[3 \pi^2 \alpha] \delta_4}{-6 + 3 \pi \alpha} - \frac{12544 \gamma^8 \sin[3 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} - \frac{12544 \gamma^8 \sin[3 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} - \\
& \frac{4480 \gamma^8 \sin[3 \pi^2 \alpha] \delta_4}{6 + 3 \pi \alpha} - \frac{448 \gamma^8 \sin[3 \pi^2 \alpha] \delta_4}{10 + 3 \pi \alpha} + \frac{840 A^4 \gamma^4 \sin[4 \pi^2 \alpha] \delta_4}{\pi \alpha} +
\end{aligned}$$

$$\begin{aligned}
& \frac{140 A^4 \gamma^4 \sin[4 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \frac{560 A^4 \gamma^4 \sin[4 \pi^2 \alpha] \delta_4}{-1 + \pi \alpha} + \frac{560 A^4 \gamma^4 \sin[4 \pi^2 \alpha] \delta_4}{1 + \pi \alpha} + \\
& \frac{140 A^4 \gamma^4 \sin[4 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} - \frac{3360 A^3 \gamma^5 \sin[4 \pi^2 \alpha] \delta_4}{\pi \alpha} - \frac{560 A^3 \gamma^5 \sin[4 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} - \\
& \frac{2240 A^3 \gamma^5 \sin[4 \pi^2 \alpha] \delta_4}{-1 + \pi \alpha} - \frac{2240 A^3 \gamma^5 \sin[4 \pi^2 \alpha] \delta_4}{1 + \pi \alpha} - \frac{560 A^3 \gamma^5 \sin[4 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \\
& \frac{5712 A^2 \gamma^6 \sin[4 \pi^2 \alpha] \delta_4}{\pi \alpha} + \frac{840 A^2 \gamma^6 \sin[4 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \frac{3696 A^2 \gamma^6 \sin[4 \pi^2 \alpha] \delta_4}{-1 + \pi \alpha} + \\
& \frac{3696 A^2 \gamma^6 \sin[4 \pi^2 \alpha] \delta_4}{1 + \pi \alpha} + \frac{840 A^2 \gamma^6 \sin[4 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} - \frac{4704 A \gamma^7 \sin[4 \pi^2 \alpha] \delta_4}{\pi \alpha} - \\
& \frac{560 A \gamma^7 \sin[4 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} - \frac{2912 A \gamma^7 \sin[4 \pi^2 \alpha] \delta_4}{-1 + \pi \alpha} - \frac{2912 A \gamma^7 \sin[4 \pi^2 \alpha] \delta_4}{1 + \pi \alpha} - \\
& \frac{560 A \gamma^7 \sin[4 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \frac{1568 \gamma^8 \sin[4 \pi^2 \alpha] \delta_4}{\pi \alpha} + \frac{140 \gamma^8 \sin[4 \pi^2 \alpha] \delta_4}{-2 + \pi \alpha} + \\
& \frac{896 \gamma^8 \sin[4 \pi^2 \alpha] \delta_4}{-1 + \pi \alpha} + \frac{896 \gamma^8 \sin[4 \pi^2 \alpha] \delta_4}{1 + \pi \alpha} + \frac{140 \gamma^8 \sin[4 \pi^2 \alpha] \delta_4}{2 + \pi \alpha} + \\
& \frac{448 A^3 \gamma^5 \sin[5 \pi^2 \alpha] \delta_4}{-6 + 5 \pi \alpha} + \frac{1344 A^3 \gamma^5 \sin[5 \pi^2 \alpha] \delta_4}{-2 + 5 \pi \alpha} + \frac{1344 A^3 \gamma^5 \sin[5 \pi^2 \alpha] \delta_4}{2 + 5 \pi \alpha} + \\
& \frac{448 A^3 \gamma^5 \sin[5 \pi^2 \alpha] \delta_4}{6 + 5 \pi \alpha} - \frac{1344 A^2 \gamma^6 \sin[5 \pi^2 \alpha] \delta_4}{-6 + 5 \pi \alpha} - \frac{4032 A^2 \gamma^6 \sin[5 \pi^2 \alpha] \delta_4}{-2 + 5 \pi \alpha} - \\
& \frac{4032 A^2 \gamma^6 \sin[5 \pi^2 \alpha] \delta_4}{2 + 5 \pi \alpha} - \frac{1344 A^2 \gamma^6 \sin[5 \pi^2 \alpha] \delta_4}{6 + 5 \pi \alpha} + \frac{1344 A \gamma^7 \sin[5 \pi^2 \alpha] \delta_4}{-6 + 5 \pi \alpha} + \\
& \frac{4480 A \gamma^7 \sin[5 \pi^2 \alpha] \delta_4}{-2 + 5 \pi \alpha} + \frac{4480 A \gamma^7 \sin[5 \pi^2 \alpha] \delta_4}{2 + 5 \pi \alpha} + \frac{1344 A \gamma^7 \sin[5 \pi^2 \alpha] \delta_4}{6 + 5 \pi \alpha} - \\
& \frac{448 \gamma^8 \sin[5 \pi^2 \alpha] \delta_4}{-6 + 5 \pi \alpha} - \frac{1792 \gamma^8 \sin[5 \pi^2 \alpha] \delta_4}{-2 + 5 \pi \alpha} - \frac{1792 \gamma^8 \sin[5 \pi^2 \alpha] \delta_4}{2 + 5 \pi \alpha} - \\
& \frac{448 \gamma^8 \sin[5 \pi^2 \alpha] \delta_4}{6 + 5 \pi \alpha} + \frac{224 A^2 \gamma^6 \sin[6 \pi^2 \alpha] \delta_4}{3 \pi \alpha} + \frac{112 A^2 \gamma^6 \sin[6 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} + \\
& \frac{112 A^2 \gamma^6 \sin[6 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} - \frac{448 A \gamma^7 \sin[6 \pi^2 \alpha] \delta_4}{3 \pi \alpha} - \frac{224 A \gamma^7 \sin[6 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} - \\
& \frac{224 A \gamma^7 \sin[6 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} + \frac{256 \gamma^8 \sin[6 \pi^2 \alpha] \delta_4}{3 \pi \alpha} + \frac{112 \gamma^8 \sin[6 \pi^2 \alpha] \delta_4}{-2 + 3 \pi \alpha} + \\
& \frac{112 \gamma^8 \sin[6 \pi^2 \alpha] \delta_4}{2 + 3 \pi \alpha} + \frac{64 A \gamma^7 \sin[7 \pi^2 \alpha] \delta_4}{-2 + 7 \pi \alpha} + \frac{64 A \gamma^7 \sin[7 \pi^2 \alpha] \delta_4}{2 + 7 \pi \alpha} - \\
& \frac{64 \gamma^8 \sin[7 \pi^2 \alpha] \delta_4}{-2 + 7 \pi \alpha} - \frac{64 \gamma^8 \sin[7 \pi^2 \alpha] \delta_4}{2 + 7 \pi \alpha} + \frac{\gamma^8 \sin[8 \pi^2 \alpha] \delta_4}{\pi \alpha} \Bigg) /
\end{aligned}$$

$$\left(256 \left(2 \pi^2 (A^2 - 2 A \gamma + 2 \gamma^2) + \frac{8 \pi^2 \alpha (A - \gamma) \gamma \sin[\pi^2 \alpha]}{-4 + \pi^2 \alpha^2} + \frac{\gamma^2 \sin[2 \pi^2 \alpha]}{\alpha} \right) \right)$$

$$\begin{aligned} \tilde{\mu}_{eq} = & \left(64 \pi^2 \alpha (144 - 328 \pi^2 \alpha^2 + 9 \pi^4 \alpha^4) \mu (32 \alpha (A - \gamma) \gamma \sin[\pi^2 \alpha] + \right. \\ & \left. (-4 + \pi^2 \alpha^2) (8 A^2 - 16 A \gamma + 2 (4 + \pi^2 \alpha^2) \gamma^2 - \alpha \gamma^2 \sin[2 \pi^2 \alpha]) \right) + \\ & \pi^2 \alpha^2 (-576 + 1456 \pi^2 \alpha^2 - 364 \pi^4 \alpha^4 + 9 \pi^6 \alpha^6) \gamma^4 \sin[4 \pi^2 \alpha] (-4 \gamma^1 + \pi^2 \alpha^2 \psi^2 \gamma^2) - \\ & 64 \pi^2 \alpha^2 (144 - 40 \pi^2 \alpha^2 + \pi^4 \alpha^4) (A - \gamma) \gamma^3 \sin[3 \pi^2 \alpha] \\ & \left((-4 + 3 \pi^2 \alpha^2) \gamma^1 + 2 \pi^2 \alpha^2 \psi^2 \gamma^2 \right) + 64 \pi^2 \alpha^2 (-4 + 9 \pi^2 \alpha^2) (A - \gamma) \gamma \sin[\pi^2 \alpha] \\ & \left((16 A^2 (-20 + \pi^2 \alpha^2) - 32 A (-20 + \pi^2 \alpha^2) \gamma + (-464 - 16 \pi^2 \alpha^2 + \pi^4 \alpha^4) \gamma^2) \gamma^1 + \right. \\ & \left. 6 (-128 A^2 + 256 A \gamma + (-128 - 36 \pi^2 \alpha^2 + \pi^4 \alpha^4) \gamma^2) \psi^2 \gamma^2 \right) - \\ & 8 (144 - 328 \pi^2 \alpha^2 + 9 \pi^4 \alpha^4) \gamma^2 \sin[2 \pi^2 \alpha] (4 (8 - 10 \pi^2 \alpha^2 + \pi^4 \alpha^4) (A - \gamma)^2 \gamma^1 + \\ & \pi^2 \alpha^2 (-48 A^2 + 96 A \gamma + (-48 - 4 \pi^2 \alpha^2 + \pi^4 \alpha^4) \gamma^2) \psi^2 \gamma^2) + \\ & 4 \pi^2 \alpha (-576 + 1456 \pi^2 \alpha^2 - 364 \pi^4 \alpha^4 + 9 \pi^6 \alpha^6) \\ & \left(4 (4 A^4 - 16 A^3 \gamma + 2 A^2 (16 + \pi^2 \alpha^2) \gamma^2 - 4 A (8 + \pi^2 \alpha^2) \gamma^3 + 3 (4 + \pi^2 \alpha^2) \gamma^4) \gamma^1 + \right. \\ & \left. 3 (16 A^4 - 64 A^3 \gamma + 16 A^2 (6 + \pi^2 \alpha^2) \gamma^2 - \right. \\ & \left. 32 A (2 + \pi^2 \alpha^2) \gamma^3 + (16 + 16 \pi^2 \alpha^2 + \pi^4 \alpha^4) \gamma^4) \psi^2 \gamma^2 \right) / \\ & (32 \pi^2 \alpha (-6 + \pi \alpha) (6 + \pi \alpha) (-2 + 3 \pi \alpha) (2 + 3 \pi \alpha) (32 \alpha (A - \gamma) \gamma \sin[\pi^2 \alpha] + \\ & (-4 + \pi^2 \alpha^2) (8 A^2 - 16 A \gamma + 2 (4 + \pi^2 \alpha^2) \gamma^2 - \alpha \gamma^2 \sin[2 \pi^2 \alpha]))) \end{aligned}$$