$$C_{\mathrm{HD}} \to \hbar\ \Big(\frac{2}{27}\sum_p g_1{}^4\,\mathrm{LF}_{3,0}[m_d{}^p] - \frac{5}{36}\sum_p g_1{}^4\,\mathrm{LF}_{4,-1}[m_d{}^p] + \frac{8}{135}\sum_p g_1{}^4\,\mathrm{LF}_{5,-2}[m_d{}^p] +
\frac{2}{9}\sum_p g_1{}^4\,\mathrm{LF}_{3,0}[m_e{}^p] - \frac{5}{12}\sum_p g_1{}^4\,\mathrm{LF}_{4,-1}[m_e{}^p] + \frac{8}{45}\sum_p g_1{}^4\,\mathrm{LF}_{5,-2}[m_e{}^p] +
\Big(-c_{2\,\gamma}\,g_2{}^2\,c_\gamma{}^2\,\overline{\gamma_e}^{pr}\,\gamma_e{}^{pr} + \frac{1}{36}\sum_p\ (4\,g_1{}^4 + 9\,g_2{}^4\,c_{2\,\gamma}{}^2)\Big)\,\mathrm{LF}_{3,0}[m_t{}^p] +
\Big(c_{2\,\gamma}\,g_2{}^2\,c_\gamma{}^2\,\overline{\gamma_e}^{pr}\,\gamma_e{}^{pr} - \frac{1}{24}\sum_p\ (5\,g_1{}^4 + 6\,g_2{}^4\,c_{2\,\gamma}{}^2)\Big)\,\mathrm{LF}_{4,-1}[m_t{}^p] + \frac{4}{45}\sum_p g_1{}^4\,\mathrm{LF}_{5,-2}[m_t{}^p] +
\Big(\frac{1}{27}\sum_p g_1{}^4 + \frac{3}{4}\,c_{2\,\gamma}\,g_2{}^2\,\big(-4\,c_\gamma{}^2\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{pr} + 4\,s_\gamma{}^2\,\overline{\gamma_u}^{pr}\,\gamma_u{}^{pr} + \sum_p c_{2\,\gamma}\,g_2{}^2\big)\Big)\,\mathrm{LF}_{3,0}[m_q{}^p] +
\Big(3\,c_{2\,\gamma}\,g_2{}^2\,\big(c_\gamma{}^2\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{pr} - s_\gamma{}^2\,\overline{\gamma_u}^{pr}\,\gamma_u{}^{pr}\big) - \frac{1}{72}\sum_p\ (5\,g_1{}^4 + 54\,g_2{}^4\,c_{2\,\gamma}{}^2)\Big)\,\mathrm{LF}_{4,-1}[m_q{}^p] +
\frac{4}{135}\sum_p g_1{}^4\,\mathrm{LF}_{5,-2}[m_q{}^p] + \frac{8}{27}\sum_p g_1{}^4\,\mathrm{LF}_{3,0}[m_u{}^p] - \frac{5}{9}\sum_p g_1{}^4\,\mathrm{LF}_{4,-1}[m_u{}^p] + \frac{32}{135}\sum_p g_1{}^4\,\mathrm{LF}_{5,-2}[m_u{}^p] +
\frac{1}{576}\,\big(g_1{}^4\,\big(73 + 9\,c_{4\,\gamma}\,(-2 + c_{4\,\gamma}) - 36\,s_{2\,\gamma}{}^4\big) + 18\,g_1{}^2\,g_2{}^2\,\big(-3 + c_{4\,\gamma}\,(2 + c_{4\,\gamma}) - 4\,s_{2\,\gamma}{}^4\big) +
9\,g_2{}^4\,\big((3 + c_{4\,\gamma})^2 - 4\,s_{2\,\gamma}{}^4\big)\big)\,\mathrm{LF}_{3,0}[m_\oplus] + \frac{1}{192}\,\big(-6\,g_1{}^2\,g_2{}^2\,\big(-3 + c_{4\,\gamma}\,(2 + c_{4\,\gamma}) - 4\,s_{2\,\gamma}{}^4\big) +
3\,g_2{}^4\,\big(-(3 + c_{4\,\gamma})^2 + 4\,s_{2\,\gamma}{}^4\big) + g_1{}^4\,\big(-43 - 3\,c_{4\,\gamma}\,(-2 + c_{4\,\gamma}) + 12\,s_{2\,\gamma}{}^4\big)\big)\,\mathrm{LF}_{4,-1}[m_\oplus] +
\frac{4}{45}\,g_1{}^4\,\mathrm{LF}_{5,-2}[m_\oplus] + \frac{1}{9}\,g_1{}^4\,\mathrm{LF}_{3,0}[\tilde{\mu}] + \frac{1}{6}\,g_1{}^4\,\mathrm{LF}_{4,-1}[\tilde{\mu}] - \frac{8}{45}\,g_1{}^4\,\mathrm{LF}_{5,-2}[\tilde{\mu}] +
\frac{1}{8}\,g_1{}^4\,\mathrm{LF}_{2,2,-1}[m_1, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 + \frac{1}{4}\,g_1{}^4\,m_1{}^2\,\mathrm{LF}_{2,2,0}[m_1, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 +
\frac{17}{8}\,g_2{}^4\,\mathrm{LF}_{2,2,-1}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 + \frac{1}{4}\,g_2{}^4\,m_2{}^2\,\mathrm{LF}_{2,2,0}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 -
4\,g_2{}^4\,\mathrm{LF}_{3,2,-2}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 + 3\,g_2{}^4\,m_2{}^2\,\mathrm{LF}_{3,2,-1}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 +
2\,g_2{}^4\,\mathrm{LF}_{3,3,-3}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 - 2\,g_2{}^4\,m_2{}^2\,\mathrm{LF}_{3,3,-2}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 +
2\,g_2{}^4\,\mathrm{LF}_{4,2,-3}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 - 2\,g_2{}^4\,m_2{}^2\,\mathrm{LF}_{4,2,-2}[m_2, \tilde{\mu}]\,\big(c_\gamma{}^2 - s_\gamma{}^2\big)^2 +
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{pr}\big)\,\big(c_\gamma\,a_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{sr}\big)\,\mathrm{LF}_{2,2,0}[m_d{}^r, m_q{}^p] +
\frac{1}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_d}^{pr}\big)\,\big(c_\gamma\,a_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{sr}\big)\,\mathrm{LF}_{3,2,-1}[m_d{}^r, m_q{}^p] +
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_e}^{pr}\big)\,\big(c_\gamma\,a_e{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_e{}^{sr}\big)\,\mathrm{LF}_{2,2,0}[m_e{}^r, m_t{}^p] +
\frac{1}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_e}^{pr}\big)\,\big(c_\gamma\,a_e{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_e{}^{sr}\big)\,\mathrm{LF}_{3,2,-2}[m_e{}^r, m_t{}^p] +
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_e}^{pr}\big)\,\big(c_\gamma\,a_e{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_e{}^{sr}\big)\,\mathrm{LF}_{3,1,0}[m_t{}^p, m_e{}^r] +
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_e}^{pr}\big)\,\big(c_\gamma\,a_e{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_e{}^{sr}\big)\,\mathrm{LF}_{3,2,-1}[m_t{}^p, m_e{}^r] +
\frac{1}{2}\,\big(3\,g_1{}^2 - c_{2\,\gamma}\,g_2{}^2\big)\,\big(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_e}^{pr}\big)\,\big(c_\gamma\,a_e{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_e{}^{sr}\big)\,\mathrm{LF}_{4,1,-1}[m_t{}^p, m_e{}^r] -
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_e}^{pr}\big)\,\big(c_\gamma\,a_e{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_e{}^{sr}\big)\,\mathrm{LF}_{5,1,-2}[m_t{}^p, m_e{}^r] +
c_\gamma{}^4\,\overline{\gamma_e}^{pr}\,\overline{\gamma_e}^{pt}\,\gamma_e{}^{pt}\,\gamma_e{}^{sr}\,\mathrm{LF}_{2,1,0}[m_t{}^p, m_t{}^s] - c_\gamma{}^4\,\overline{\gamma_e}^{pr}\,\overline{\gamma_e}^{pt}\,\gamma_e{}^{pt}\,\gamma_e{}^{sr}\,\mathrm{LF}_{3,1,-1}[m_t{}^p, m_t{}^s] -
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_d}^{pr}\big)\,\big(c_\gamma\,a_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{sr}\big)\,\mathrm{LF}_{3,1,0}[m_d{}^r, m_q{}^p] -
\frac{2}{3}\,g_1{}^2\,\big(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_d}^{pr}\big)\,\big(c_\gamma\,a_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{sr}\big)\,\mathrm{LF}_{3,2,-1}[m_d{}^r, m_q{}^p] +
\frac{1}{2}\,\big(5\,g_1{}^2 - 3\,c_{2\,\gamma}\,g_2{}^2\big)\,\big(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_d}^{pr}\big)\,\big(c_\gamma\,a_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{sr}\big)\,\mathrm{LF}_{4,1,-1}[m_d{}^r, m_q{}^p] -
2\,g_1{}^2\,\big(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde{\mu}\,\overline{\gamma_d}^{pr}\big)\,\big(c_\gamma\,a_d{}^{pr} - s_\gamma\,\tilde{\mu}\,\gamma_d{}^{sr}\big)\,\mathrm{LF}_{5,1,-2}[m_d{}^r, m_q{}^p] +
3\,s_\gamma\,\overline{a_u}^{pr}\,\big(c_\gamma\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{sr} - s_\gamma{}^2\,\overline{\gamma_u}^{pr}\,\gamma_u{}^{sr}\big)\,\big(-s_\gamma\,a_u{}^{pt} + \tilde{\mu}\,c_\gamma\,\gamma_u{}^{pt}\big)\,\mathrm{LF}_{2,2,-1}[m_q{}^p, m_u{}^t, m_q{}^s] +
\frac{3}{2}\,\tilde{\mu}\,c_\gamma\,\overline{\gamma_u}^{st}\,\big(c_\gamma{}^2\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{sr} - s_\gamma{}^2\,\overline{\gamma_u}^{pr}\,\gamma_u{}^{sr}\big)\,\big(-s_\gamma\,a_u{}^{pt} + \tilde{\mu}\,c_\gamma\,\gamma_u{}^{pt}\big)\,\mathrm{LF}_{2,2,-1}[m_q{}^p, m_u{}^t, m_q{}^s] +
3\,s_\gamma\,\overline{a_u}^{pr}\,\big(c_\gamma{}^2\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{sr} - s_\gamma{}^2\,\overline{\gamma_u}^{pr}\,\gamma_u{}^{sr}\big)\,\big(s_\gamma\,a_u{}^{sr} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{sr}\big)\,\mathrm{LF}_{2,1,0}[m_q{}^p, m_u{}^r] +
3\,\big(c_\gamma{}^2\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{sr} - s_\gamma{}^2\,\overline{\gamma_u}^{pr}\,\gamma_u{}^{sr}\big)\,\big(s_\gamma\,a_u{}^{sr} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{sr}\big)\,\mathrm{LF}_{3,1,-1}[m_q{}^p, m_u{}^r, m_q{}^s] -
\frac{1}{3}\,g_1{}^2\,\big(s_\gamma\,\overline{a_u}^{pr} - \tilde{\mu}\,c_\gamma\,\overline{\gamma_u}^{pr}\big)\,\big(s_\gamma\,a_u{}^{pt} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{pt}\big)\,\mathrm{LF}_{2,2,0}[m_q{}^p, m_u{}^r] +
3\,c_{2\,\gamma}\,g_2{}^2\,\big(s_\gamma\,\overline{a_u}^{pr} - \tilde{\mu}\,c_\gamma\,\overline{\gamma_u}^{pr}\big)\,\big(s_\gamma\,a_u{}^{sr} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{sr}\big)\,\mathrm{LF}_{3,1,0}[m_q{}^p, m_u{}^r] -
\frac{1}{6}\,\big(g_1{}^2 - 9\,c_{2\,\gamma}\,g_2{}^2\big)\,\big(s_\gamma\,\overline{a_u}^{pr} - \tilde{\mu}\,c_\gamma\,\overline{\gamma_u}^{pr}\big)\,\big(s_\gamma\,a_u{}^{sr} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{sr}\big)\,\mathrm{LF}_{3,2,-1}[m_q{}^p, m_u{}^r] -
3\,c_{2\,\gamma}\,g_2{}^2\,\big(s_\gamma\,\overline{a_u}^{pr} - \tilde{\mu}\,c_\gamma\,\overline{\gamma_u}^{pr}\big)\,\big(s_\gamma\,a_u{}^{sr} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{sr}\big)\,\mathrm{LF}_{4,1,-1}[m_q{}^p, m_u{}^r] -
3\,s_\gamma{}^2\,c_\gamma{}^2\,\overline{\gamma_d}^{pr}\,\gamma_d{}^{pr}\,\big(-s_\gamma\,a_u{}^{pt} + \tilde{\mu}\,c_\gamma\,\gamma_u{}^{pt}\big)\,\mathrm{LF}_{2,2,-1}[m_q{}^s, m_q{}^p] +
\frac{7}{4}\,g_1{}^2\,g_2{}^2\,\mathrm{LF}_{2,1,-1}[\tilde{\mu}, m_1, m_2]\,\big(c_\gamma{}^2 + s_\gamma{}^2\big)^2 +
$$

$$
\overline{\gamma_u}^{st}\,\big(s_\gamma\,a_u{}^{pt} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{pt}\big)\,\big(s_\gamma\,a_u{}^{sr} - \tilde{\mu}\,c_\gamma\,\gamma_u{}^{sr}\big)\big)\,\mathrm{LF}_{2,2,1,1,-1}[m_q{}^s, m_u{}^t, m_q{}^p, m_u{}^r]\big)
$$