$$
\begin{aligned}
&Y_d^{i1\_i2\_} \to \\
&c_\gamma\, y_d^{i1i2} + \frac{1}{16\,\pi^2}\Big(\frac{1}{144}\,c_\gamma\,\frac{1}{m_\oplus^2}\Big(m_\oplus^2\, y_d^{i1i2}\left(96\,g_3^2 + 27\,g_2^2\left(1 + 2\,c_\gamma^2 + 2\,s_\gamma^2\right) + g_1^2\left(5 + 18\,c_\gamma^2 + 18\,s_\gamma^2\right)\right) + \\
&\quad 54\,\overline{y_d}^{pr}\left(m_\oplus^2\, y_d^{pi2}\, y_d^{i1r}\left(1 + s_\gamma^2\right) - 4\,C_{H^2}\, s_\gamma^2\, y_d^{pr}\, y_d^{i1i2}\right) + 18\, y_d^{pi2}\,\overline{y_u}^{pr}\, y_u^{i1r} \\
&\quad \left(m_\oplus^2\left(1 + c_\gamma^2\right) - 2\,C_{H^2}\, s_\gamma^2\right)\Big) + \frac{1}{2}\sum_p s_{2\gamma}\, s_\gamma\, g_1^2\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(C_{H^2} - m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde d}^{\,p}\right] + \\
&\frac{3}{2}\, s_{2\gamma}\, s_\gamma\,\frac{1}{m_\oplus^4}\,\overline{y_d}^{pr}\, y_d^{pr}\, y_d^{i1i2}\left(-C_{H^2} + m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde d}^{\,r}\right] + \frac{1}{2}\sum_p s_{2\gamma}\, s_\gamma\, g_1^2\,\frac{1}{m_\oplus^4}\, y_d^{i1i2} \\
&\left(C_{H^2} - m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde e}^{\,p}\right] + \frac{1}{2}\, s_{2\gamma}\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\,\overline{y_e}^{pr}\, y_e^{pr}\left(-C_{H^2} + m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde e}^{\,r}\right] + \\
&\frac{1}{2}\, s_{2\gamma}\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(-C_{H^2} + m_\oplus^2\right)\left(\overline{y_e}^{pr}\, y_e^{pr} + \sum_p g_1^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde l}^{\,p}\right] - \\
&\frac{1}{2}\, s_{2\gamma}\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(-C_{H^2} + m_\oplus^2\right)\left(-3\,\overline{y_d}^{pr}\, y_d^{pr} + 3\,\overline{y_u}^{pr}\, y_u^{pr} + \sum_p g_1^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde q}^{\,p}\right] + \\
&\sum_p s_{2\gamma}\, s_\gamma\, g_1^2\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(-C_{H^2} + m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde u}^{\,p}\right] + \\
&\frac{3}{2}\, s_{2\gamma}\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\,\overline{y_u}^{pr}\, y_u^{pr}\left(C_{H^2} - m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_{\tilde u}^{\,r}\right] + \\
&\frac{3}{8}\, s_{4\gamma}\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(g_1^2 + g_2^2\right)\left(C_{H^2} - m_\oplus^2\right)\mathrm{LF}_{1,0}\left[m_\oplus\right] - \\
&\frac{1}{4}\, c_\gamma\, y_d^{pi2}\left(3\,s_\gamma^2\,\overline{y_d}^{pr}\, y_d^{i1r} + \overline{y_u}^{pr}\, y_u^{i1r}\left(c_\gamma^2 + 4\,s_\gamma^2\right)\right)\mathrm{LF}_{1,1}\left[m_\oplus\right] - \\
&\frac{1}{2}\, C_{H^2}\, c_\gamma\, s_\gamma^2\, y_d^{pi2}\,\overline{y_u}^{pr}\, y_u^{i1r}\,\mathrm{LF}_{1,2}\left[m_\oplus\right] - \\
&\frac{1}{9}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,0}\left[m_1,\, m_{\tilde d}^{\,i2}\right] + \frac{1}{18}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[m_1,\, m_{\tilde d}^{\,i2}\right] - \\
&\frac{1}{36}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,0}\left[m_1,\, m_{\tilde q}^{\,i1}\right] + \frac{1}{72}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[m_1,\, m_{\tilde q}^{\,i1}\right] + \\
&m_1\, s_\gamma\,\tilde\mu\, g_1^2\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(C_{H^2} - m_\oplus^2\right)\left(-c_\gamma^2 + s_\gamma^2\right)\mathrm{LF}_{1,1,0}\left[m_1,\,\tilde\mu\right] - \\
&\frac{3}{4}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,0}\left[m_2,\, m_{\tilde q}^{\,i1}\right] + \frac{3}{8}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[m_2,\, m_{\tilde q}^{\,i1}\right] + \\
&3\, m_2\, s_\gamma\,\tilde\mu\, g_2^2\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(C_{H^2} - m_\oplus^2\right)\left(-c_\gamma^2 + s_\gamma^2\right)\mathrm{LF}_{1,1,0}\left[m_2,\,\tilde\mu\right] - \\
&\frac{4}{3}\, c_\gamma\, g_3^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,0}\left[m_3,\, m_{\tilde d}^{\,i2}\right] + \frac{2}{3}\, c_\gamma\, g_3^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[m_3,\, m_{\tilde d}^{\,i2}\right] - \\
&\frac{4}{3}\, c_\gamma\, g_3^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,0}\left[m_3,\, m_{\tilde q}^{\,i1}\right] + \frac{2}{3}\, c_\gamma\, g_3^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[m_3,\, m_{\tilde q}^{\,i1}\right] + \\
&3\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(C_{H^2} - m_\oplus^2\right)\left(s_\gamma\,\overline{a_d}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_d}^{pr}\right)\left(-c_\gamma\, a_d^{pr} + s_\gamma\,\tilde\mu\, y_d^{pr}\right)\mathrm{LF}_{1,1,0}\left[m_{\tilde d}^{\,r},\, m_{\tilde q}^{\,p}\right] - \\
&\frac{1}{2}\, c_\gamma\,\overline{y_d}^{pr}\, y_d^{pi2}\, y_d^{i1r}\,\mathrm{LF}_{1,1,0}\left[m_{\tilde d}^{\,r},\,\tilde\mu\right] + \\
&s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(C_{H^2} - m_\oplus^2\right)\left(s_\gamma\,\overline{a_e}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_e}^{pr}\right)\left(-c_\gamma\, a_e^{pr} + s_\gamma\,\tilde\mu\, y_e^{pr}\right)\mathrm{LF}_{1,1,0}\left[m_{\tilde e}^{\,r},\, m_{\tilde l}^{\,p}\right] + \\
&\frac{1}{2}\,\frac{1}{m_\oplus^2}\, y_d^{i1i2}\left(\overline{a_e}^{pr}\left(m_\oplus^2\, c_\gamma^2 + 2\,C_{H^2}\, s_\gamma^2\right) + s_\gamma\,\tilde\mu\, c_\gamma\,\overline{y_e}^{pr}\left(2\,C_{H^2} - m_\oplus^2\right)\right) \\
&\left(c_\gamma\, a_e^{pr} - s_\gamma\,\tilde\mu\, y_e^{pr}\right)\mathrm{LF}_{2,1,0}\left[m_{\tilde l}^{\,p},\, m_{\tilde e}^{\,r}\right] - \frac{1}{2}\,\frac{1}{m_\oplus^2}\, y_d^{i1i2} \\
&\left(\overline{a_e}^{pr}\left(m_\oplus^2\, c_\gamma^2 + 2\,C_{H^2}\, s_\gamma^2\right) + s_\gamma\,\tilde\mu\, c_\gamma\,\overline{y_e}^{pr}\left(2\,C_{H^2} - m_\oplus^2\right)\right)\left(c_\gamma\, a_e^{pr} - s_\gamma\,\tilde\mu\, y_e^{pr}\right)\mathrm{LF}_{3,1,-1}\left[m_{\tilde l}^{\,p},\, m_{\tilde e}^{\,r}\right] + \\
&C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma\, a_e^{pr} - s_\gamma\,\tilde\mu\, y_e^{pr}\right)\mathrm{LF}_{3,1,0}\left[m_{\tilde l}^{\,p},\, m_{\tilde e}^{\,r}\right] - \\
&3\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma\, a_e^{pr} - s_\gamma\,\tilde\mu\, y_e^{pr}\right)\mathrm{LF}_{4,1,-1}\left[m_{\tilde l}^{\,p},\, m_{\tilde e}^{\,r}\right] + \\
&2\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(c_\gamma\,\overline{a_e}^{pr} - s_\gamma\,\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma\, a_e^{pr} - s_\gamma\,\tilde\mu\, y_e^{pr}\right)\mathrm{LF}_{5,1,-2}\left[m_{\tilde l}^{\,p},\, m_{\tilde e}^{\,r}\right] + \\
&\frac{3}{2}\,\frac{1}{m_\oplus^2}\, y_d^{i1i2}\left(\overline{a_d}^{pr}\left(m_\oplus^2\, c_\gamma^2 + 2\,C_{H^2}\, s_\gamma^2\right) + s_\gamma\,\tilde\mu\, c_\gamma\,\overline{y_d}^{pr}\left(2\,C_{H^2} - m_\oplus^2\right)\right) \\
&\left(c_\gamma\, a_d^{pr} - s_\gamma\,\tilde\mu\, y_d^{pr}\right)\mathrm{LF}_{2,1,0}\left[m_{\tilde q}^{\,p},\, m_{\tilde d}^{\,r}\right] - \frac{3}{2}\,\frac{1}{m_\oplus^2}\, y_d^{i1i2} \\
&\left(\overline{a_d}^{pr}\left(m_\oplus^2\, c_\gamma^2 + 2\,C_{H^2}\, s_\gamma^2\right) + s_\gamma\,\tilde\mu\, c_\gamma\,\overline{y_d}^{pr}\left(2\,C_{H^2} - m_\oplus^2\right)\right)\left(c_\gamma\, a_d^{pr} - s_\gamma\,\tilde\mu\, y_d^{pr}\right)\mathrm{LF}_{3,1,-1}\left[m_{\tilde q}^{\,p},\, m_{\tilde d}^{\,r}\right] + \\
&3\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma\, a_d^{pr} - s_\gamma\,\tilde\mu\, y_d^{pr}\right)\mathrm{LF}_{3,1,0}\left[m_{\tilde q}^{\,p},\, m_{\tilde d}^{\,r}\right] - \\
&9\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma\, a_d^{pr} - s_\gamma\,\tilde\mu\, y_d^{pr}\right)\mathrm{LF}_{4,1,-1}\left[m_{\tilde q}^{\,p},\, m_{\tilde d}^{\,r}\right] + \\
&6\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(c_\gamma\,\overline{a_d}^{pr} - s_\gamma\,\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma\, a_d^{pr} - s_\gamma\,\tilde\mu\, y_d^{pr}\right)\mathrm{LF}_{5,1,-2}\left[m_{\tilde q}^{\,p},\, m_{\tilde d}^{\,r}\right] + \\
&3\, s_\gamma\,\frac{1}{m_\oplus^4}\, y_d^{i1i2}\left(C_{H^2} - m_\oplus^2\right)\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\left(c_\gamma\, a_u^{pr} + s_\gamma\,\tilde\mu\, y_u^{pr}\right)\mathrm{LF}_{1,1,0}\left[m_{\tilde q}^{\,p},\, m_{\tilde u}^{\,r}\right] - \\
&c_\gamma\,\overline{y_d}^{pr}\, y_d^{pi2}\, y_d^{i1r}\,\mathrm{LF}_{1,1,0}\left[m_{\tilde q}^{\,p},\,\tilde\mu\right] - \frac{3}{2}\,\frac{1}{m_\oplus^2}\, y_d^{i1i2}\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right) \\
&\left(s_\gamma\, c_\gamma\, a_u^{pr}\left(2\,C_{H^2} - m_\oplus^2\right) + \tilde\mu\, y_u^{pr}\left(m_\oplus^2\, c_\gamma^2 + 2\,C_{H^2}\, s_\gamma^2\right)\right)\mathrm{LF}_{2,1,0}\left[m_{\tilde u}^{\,r},\, m_{\tilde q}^{\,p}\right] + \frac{3}{2}\,\frac{1}{m_\oplus^2}\, y_d^{i1i2} \\
&\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\left(s_\gamma\, c_\gamma\, a_u^{pr}\left(2\,C_{H^2} - m_\oplus^2\right) + \tilde\mu\, y_u^{pr}\left(m_\oplus^2\, c_\gamma^2 + 2\,C_{H^2}\, s_\gamma^2\right)\right)\mathrm{LF}_{3,1,-1}\left[m_{\tilde u}^{\,r},\, m_{\tilde q}^{\,p}\right] + \\
&3\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(-s_\gamma\,\overline{a_u}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\left(-s_\gamma\, a_u^{pr} + \tilde\mu\, c_\gamma\, y_u^{pr}\right)\mathrm{LF}_{3,1,0}\left[m_{\tilde u}^{\,r},\, m_{\tilde q}^{\,p}\right] - \\
&9\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(-s_\gamma\,\overline{a_u}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\left(-s_\gamma\, a_u^{pr} + \tilde\mu\, c_\gamma\, y_u^{pr}\right)\mathrm{LF}_{4,1,-1}\left[m_{\tilde u}^{\,r},\, m_{\tilde q}^{\,p}\right] + \\
&6\, C_{H^2}\, c_\gamma\, y_d^{i1i2}\left(-s_\gamma\,\overline{a_u}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\left(-s_\gamma\, a_u^{pr} + \tilde\mu\, c_\gamma\, y_u^{pr}\right)\mathrm{LF}_{5,1,-2}\left[m_{\tilde u}^{\,r},\, m_{\tilde q}^{\,p}\right] - \\
&\frac{1}{2}\, c_\gamma\, y_d^{pi2}\,\overline{y_u}^{pr}\, y_u^{i1r}\,\mathrm{LF}_{1,1,0}\left[m_{\tilde u}^{\,r},\,\tilde\mu\right] - \frac{3}{4}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[\tilde\mu,\, m_1\right] - m_1\, s_\gamma\,\tilde\mu\, g_1^2\,\frac{1}{m_\oplus^2} \\
&y_d^{i1i2}\left(c_\gamma^2\left(-C_{H^2} + m_\oplus^2\right) + C_{H^2}\, s_\gamma^2\right)\mathrm{LF}_{2,1,0}\left[\tilde\mu,\, m_1\right] + \frac{1}{2}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{3,1,-2}\left[\tilde\mu,\, m_1\right] + \\
&g_1^2\,\frac{1}{m_\oplus^2}\, y_d^{i1i2}\left(-2\,C_{H^2}\, c_\gamma\, m_\oplus^2 + m_1\, s_\gamma\,\tilde\mu\left(c_\gamma^2\left(-C_{H^2} + m_\oplus^2\right) + C_{H^2}\, s_\gamma^2\right)\right)\mathrm{LF}_{3,1,-1}\left[\tilde\mu,\, m_1\right] - \\
&2\, m_1\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_1^2\, c_\gamma^2\, y_d^{i1i2}\,\mathrm{LF}_{3,1,0}\left[\tilde\mu,\, m_1\right] + 4\, C_{H^2}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{4,1,-2}\left[\tilde\mu,\, m_1\right] + \\
&6\, m_1\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_1^2\, c_\gamma^2\, y_d^{i1i2}\,\mathrm{LF}_{4,1,-1}\left[\tilde\mu,\, m_1\right] - 2\, C_{H^2}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{5,1,-3}\left[\tilde\mu,\, m_1\right] - \\
&4\, m_1\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_1^2\, c_\gamma^2\, y_d^{i1i2}\,\mathrm{LF}_{5,1,-2}\left[\tilde\mu,\, m_1\right] - \frac{9}{4}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{2,1,-1}\left[\tilde\mu,\, m_2\right] - 3\, m_2\, s_\gamma\,\tilde\mu\, g_2^2 \\
&\frac{1}{m_\oplus^2}\, y_d^{i1i2}\left(c_\gamma^2\left(-C_{H^2} + m_\oplus^2\right) + C_{H^2}\, s_\gamma^2\right)\mathrm{LF}_{2,1,0}\left[\tilde\mu,\, m_2\right] + \frac{3}{2}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{3,1,-2}\left[\tilde\mu,\, m_2\right] + \\
&3\, g_2^2\,\frac{1}{m_\oplus^2}\, y_d^{i1i2}\left(-2\,C_{H^2}\, c_\gamma\, m_\oplus^2 + m_2\, s_\gamma\,\tilde\mu\left(c_\gamma^2\left(-C_{H^2} + m_\oplus^2\right) + C_{H^2}\, s_\gamma^2\right)\right)\mathrm{LF}_{3,1,-1}\left[\tilde\mu,\, m_2\right] - \\
&6\, m_2\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_2^2\, c_\gamma^2\, y_d^{i1i2}\,\mathrm{LF}_{3,1,0}\left[\tilde\mu,\, m_2\right] + 12\, C_{H^2}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{4,1,-2}\left[\tilde\mu,\, m_2\right] + \\
&18\, m_2\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_2^2\, c_\gamma^2\, y_d^{i1i2}\,\mathrm{LF}_{4,1,-1}\left[\tilde\mu,\, m_2\right] - 6\, C_{H^2}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{5,1,-3}\left[\tilde\mu,\, m_2\right] - \\
&12\, m_2\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_2^2\, c_\gamma^2\, y_d^{i1i2}\,\mathrm{LF}_{5,1,-2}\left[\tilde\mu,\, m_2\right] + \frac{1}{4}\, c_\gamma\,\overline{y_d}^{pr}\, y_d^{pi2}\, y_d^{i1r}\,\mathrm{LF}_{2,1,-1}\left[\tilde\mu,\, m_{\tilde d}^{\,r}\right] + \\
&\frac{1}{2}\, c_\gamma\,\overline{y_d}^{pr}\, y_d^{pi2}\, y_d^{i1r}\,\mathrm{LF}_{2,1,-1}\left[\tilde\mu,\, m_{\tilde q}^{\,p}\right] + \frac{1}{4}\, c_\gamma\, y_d^{pi2}\,\overline{y_u}^{pr}\, y_u^{i1r}\,\mathrm{LF}_{2,1,-1}\left[\tilde\mu,\, m_{\tilde u}^{\,r}\right] + \\
&\frac{1}{9}\, m_1\, g_1^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{1,1,1,0}\left[m_1,\, m_{\tilde d}^{\,i2},\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{1}{36}\, m_1\, C_{H^2}\, g_1^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,2,1,-1}\left[m_1,\, m_{\tilde d}^{\,i2},\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{1}{3}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,1,-1}\left[m_1,\, m_{\tilde d}^{\,i2},\,\tilde\mu\right] + \frac{1}{3}\, m_1\, s_\gamma\,\tilde\mu\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,1,0}\left[m_1,\, m_{\tilde d}^{\,i2},\,\tilde\mu\right] + \\
&\frac{1}{36}\, m_1\, C_{H^2}\, g_1^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,2,1,-1}\left[m_1,\, m_{\tilde q}^{\,i1},\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{1}{6}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,1,-1}\left[m_1,\, m_{\tilde q}^{\,i1},\,\tilde\mu\right] + \frac{1}{6}\, m_1\, s_\gamma\,\tilde\mu\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,1,0}\left[m_1,\, m_{\tilde q}^{\,i1},\,\tilde\mu\right] + \\
&\frac{1}{6}\, C_{H^2}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,2,1,-2}\left[m_1,\,\tilde\mu,\, m_{\tilde d}^{\,i2}\right] + \frac{1}{6}\, m_1\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,2,1,-1}\left[m_1,\,\tilde\mu,\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{1}{12}\, C_{H^2}\, c_\gamma\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,2,1,-2}\left[m_1,\,\tilde\mu,\, m_{\tilde q}^{\,i1}\right] + \frac{1}{12}\, m_1\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_1^2\, y_d^{i1i2}\,\mathrm{LF}_{2,2,1,-1}\left[m_1,\,\tilde\mu,\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{3}{2}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,1,-1}\left[m_2,\, m_{\tilde q}^{\,i1},\,\tilde\mu\right] + \frac{3}{2}\, m_2\, s_\gamma\,\tilde\mu\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{1,1,1,0}\left[m_2,\, m_{\tilde q}^{\,i1},\,\tilde\mu\right] + \\
&\frac{3}{4}\, C_{H^2}\, c_\gamma\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{2,2,1,-2}\left[m_2,\,\tilde\mu,\, m_{\tilde q}^{\,i1}\right] + \frac{3}{4}\, m_2\, s_\gamma\, C_{H^2}\,\tilde\mu\, g_2^2\, y_d^{i1i2}\,\mathrm{LF}_{2,2,1,-1}\left[m_2,\,\tilde\mu,\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{8}{3}\, m_3\, g_3^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{1,1,1,0}\left[m_3,\, m_{\tilde d}^{\,i2},\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{2}{3}\, m_3\, C_{H^2}\, g_3^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,2,1,-1}\left[m_3,\, m_{\tilde d}^{\,i2},\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{2}{3}\, m_3\, C_{H^2}\, g_3^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,2,1,-1}\left[m_3,\, m_{\tilde q}^{\,i1},\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{1}{18}\, m_1\, C_{H^2}\, g_1^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,1,1,0}\left[m_{\tilde d}^{\,i2},\, m_1,\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{1}{18}\, m_1\, C_{H^2}\, g_1^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{3,1,1,-1}\left[m_{\tilde d}^{\,i2},\, m_1,\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,1,1,0}\left[m_{\tilde d}^{\,i2},\, m_3,\, m_{\tilde q}^{\,i1}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{3,1,1,-1}\left[m_{\tilde d}^{\,i2},\, m_3,\, m_{\tilde q}^{\,i1}\right] + \\
&\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(-s_\gamma\,\overline{a_u}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{1,1,1,0}\left[m_{\tilde q}^{\,p},\, m_{\tilde u}^{\,r},\,\tilde\mu\right] + \\
&\frac{1}{2}\, C_{H^2}\,\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(-s_\gamma\,\overline{a_u}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{2,1,1,0}\left[m_{\tilde q}^{\,p},\, m_{\tilde u}^{\,r},\,\tilde\mu\right] + \\
&\frac{1}{2}\, C_{H^2}\,\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{3,1,1,-1}\left[m_{\tilde q}^{\,p},\, m_{\tilde u}^{\,r},\,\tilde\mu\right] + \\
&\frac{1}{4}\, C_{H^2}\,\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{2,2,1,-1}\left[m_{\tilde q}^{\,p},\,\tilde\mu,\, m_{\tilde u}^{\,r}\right] + \\
&\frac{1}{18}\, m_1\, C_{H^2}\, g_1^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,1,1,0}\left[m_{\tilde q}^{\,i1},\, m_1,\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{1}{18}\, m_1\, C_{H^2}\, g_1^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{3,1,1,-1}\left[m_{\tilde q}^{\,i1},\, m_1,\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(c_\gamma\, a_d^{i1i2} - s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{2,1,1,0}\left[m_{\tilde q}^{\,i1},\, m_3,\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(-c_\gamma\, a_d^{i1i2} + s_\gamma\,\tilde\mu\, y_d^{i1i2}\right)\mathrm{LF}_{3,1,1,-1}\left[m_{\tilde q}^{\,i1},\, m_3,\, m_{\tilde d}^{\,i2}\right] + \\
&\frac{1}{2}\, C_{H^2}\,\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(-s_\gamma\,\overline{a_u}^{pr} + \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{2,1,1,0}\left[m_{\tilde q}^{\,p},\, m_{\tilde u}^{\,r},\,\tilde\mu\right] + \\
&\frac{1}{2}\, C_{H^2}\,\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{3,1,1,-1}\left[m_{\tilde u}^{\,r},\, m_{\tilde q}^{\,p},\,\tilde\mu\right] + \\
&\frac{1}{4}\, C_{H^2}\,\tilde\mu\, y_d^{pi2}\, y_u^{i1r}\left(s_\gamma\,\overline{a_u}^{pr} - \tilde\mu\, c_\gamma\,\overline{y_u}^{pr}\right)\mathrm{LF}_{2,2,1,-1}\left[m_{\tilde u}^{\,r},\,\tilde\mu,\, m_{\tilde q}^{\,p}\right]\Big)
\end{aligned}
$$