$$C_{Hu}{}^{i1\_i2\_} \to \frac{1}{16\pi^2}\left(-\frac{1}{216}\frac{1}{m_\Phi^2}\right.$$
$$\left(18 s_\gamma^2 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{si1} y_u^{pi2} \left(6 c_\gamma^2 + s_\gamma^2\right) + c_\gamma^2 \overline{y_u}^{pi1} \left(7 g_1^2 y_u^{pi2} + 18 s_\gamma^2 \overline{y_u}^{rs} y_u^{ps} y_u^{ri2}\right)\right) +$$
$$\frac{4}{81}\sum_p g_1^4 LF_{3,0}[m_{\tilde d}^p]\,\delta_{i1i2} - \frac{5}{54}\sum_p g_1^4 LF_{4,-1}[m_{\tilde d}^p]\,\delta_{i1i2} + \frac{16}{405}\sum_p g_1^4 LF_{5,-2}[m_{\tilde d}^p]\,\delta_{i1i2} +$$
$$\frac{4}{27}\sum_p g_1^4 LF_{3,0}[m_{\tilde e}^p]\,\delta_{i1i2} - \frac{5}{18}\sum_p g_1^4 LF_{4,-1}[m_{\tilde e}^p]\,\delta_{i1i2} + \frac{16}{135}\sum_p g_1^4 LF_{5,-2}[m_{\tilde e}^p]\,\delta_{i1i2} +$$
$$\frac{2}{27}\sum_p g_1^4 LF_{3,0}[m_{\tilde l}^p]\,\delta_{i1i2} - \frac{5}{36}\sum_p g_1^4 LF_{4,-1}[m_{\tilde l}^p]\,\delta_{i1i2} + \frac{8}{135}\sum_p g_1^4 LF_{5,-2}[m_{\tilde l}^p]\,\delta_{i1i2} +$$
$$\frac{2}{81}\sum_p g_1^4 LF_{3,0}[m_{\tilde q}^p]\,\delta_{i1i2} - \frac{5}{108}\sum_p g_1^4 LF_{4,-1}[m_{\tilde q}^p]\,\delta_{i1i2} + \frac{8}{405}\sum_p g_1^4 LF_{5,-2}[m_{\tilde q}^p]\,\delta_{i1i2} +$$
$$\frac{16}{81}\sum_p g_1^4 LF_{3,0}[m_{\tilde u}^p]\,\delta_{i1i2} - \frac{10}{27}\sum_p g_1^4 LF_{4,-1}[m_{\tilde u}^p]\,\delta_{i1i2} + \frac{64}{405}\sum_p g_1^4 LF_{5,-2}[m_{\tilde u}^p]\,\delta_{i1i2} +$$
$$\frac{1}{18}\left(9 c_\gamma^4 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{si1} y_u^{pi2} - c_\gamma^2 \overline{y_u}^{pi1}\left(g_1^2 y_u^{pi2} + 9 s_\gamma^2 \overline{y_u}^{rs} y_u^{ps} y_u^{ri2}\right)\right) LF_{1,2}[m_\Phi] -$$
$$\frac{1}{12} g_1^2 c_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1}[m_\Phi] + \frac{1}{108} g_1^2\left(9 c_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} + 8 g_1^2 \delta_{i1i2}\right) LF_{3,0}[m_\Phi] -$$
$$\frac{5}{36} g_1^4 LF_{4,-1}[m_\Phi]\,\delta_{i1i2} + \frac{8}{135} g_1^4 LF_{5,-2}[m_\Phi]\,\delta_{i1i2} + \frac{2}{27} g_1^4 LF_{3,0}[\tilde\mu]\,\delta_{i1i2} +$$
$$\frac{1}{9} g_1^4 LF_{4,-1}[\tilde\mu]\,\delta_{i1i2} - \frac{16}{135} g_1^4 LF_{5,-2}[\tilde\mu]\,\delta_{i1i2} + \frac{1}{36} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,0}[m_1, m_{\tilde q}^p] -$$
$$\frac{1}{18} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,-1}[m_1, m_{\tilde q}^p] + \frac{1}{36} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{4,1,-2}[m_1, m_{\tilde q}^p] +$$
$$\frac{4}{81} g_1^4 LF_{2,1,0}[m_1, m_{\tilde u}^{i2}]\,\delta_{i1i2} + \frac{4}{81} g_1^4 LF_{2,2,-1}[m_1, m_{\tilde u}^{i2}]\,\delta_{i1i2} -$$
$$\frac{8}{81} g_1^4 LF_{3,1,-1}[m_1, m_{\tilde u}^{i2}]\,\delta_{i1i2} + \frac{4}{81} g_1^4 LF_{4,1,-2}[m_1, m_{\tilde u}^{i2}]\,\delta_{i1i2} +$$
$$\frac{3}{4} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,0}[m_2, m_{\tilde q}^p] - \frac{3}{2} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,-1}[m_2, m_{\tilde q}^p] +$$
$$\frac{3}{4} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{4,1,-2}[m_2, m_{\tilde q}^p] + \frac{4}{3} g_3^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,0}[m_3, m_{\tilde q}^p] -$$
$$\frac{8}{3} g_3^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,-1}[m_3, m_{\tilde q}^p] + \frac{4}{3} g_3^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{4,1,-2}[m_3, m_{\tilde q}^p] +$$
$$\frac{4}{27} g_1^2 g_3^2 LF_{2,1,0}[m_3, m_{\tilde u}^{i2}]\,\delta_{i1i2} + \frac{4}{27} g_1^2 g_3^2 LF_{2,2,-1}[m_3, m_{\tilde u}^{i2}]\,\delta_{i1i2} -$$
$$\frac{8}{27} g_1^2 g_3^2 LF_{3,1,-1}[m_3, m_{\tilde u}^{i2}]\,\delta_{i1i2} + \frac{4}{27} g_1^2 g_3^2 LF_{4,1,-2}[m_3, m_{\tilde u}^{i2}]\,\delta_{i1i2} +$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{pr} - s_\gamma\tilde\mu\,y_d^{pr}\right) LF_{2,2,0}[m_{\tilde d}^r, m_{\tilde q}^p]\,\delta_{i1i2} -$$
$$\frac{1}{9} g_1^2\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{pr} - s_\gamma\tilde\mu\,y_d^{pr}\right) LF_{3,2,-1}[m_{\tilde d}^r, m_{\tilde q}^p]\,\delta_{i1i2} +$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_e}^{pr} - s_\gamma\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma a_e^{pr} - s_\gamma\tilde\mu\,y_e^{pr}\right) LF_{2,2,0}[m_{\tilde e}^r, m_{\tilde l}^p]\,\delta_{i1i2} -$$
$$\frac{1}{9} g_1^2\left(c_\gamma \overline{a_e}^{pr} - s_\gamma\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma a_e^{pr} - s_\gamma\tilde\mu\,y_e^{pr}\right) LF_{3,2,-1}[m_{\tilde e}^r, m_{\tilde l}^p]\,\delta_{i1i2} -$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_e}^{pr} - s_\gamma\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma a_e^{pr} - s_\gamma\tilde\mu\,y_e^{pr}\right) LF_{3,1,0}[m_{\tilde l}^p, m_{\tilde e}^r]\,\delta_{i1i2} -$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_e}^{pr} - s_\gamma\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma a_e^{pr} - s_\gamma\tilde\mu\,y_e^{pr}\right) LF_{3,2,-1}[m_{\tilde l}^p, m_{\tilde e}^r]\,\delta_{i1i2} +$$
$$\frac{1}{2} g_1^2\left(c_\gamma \overline{a_e}^{pr} - s_\gamma\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma a_e^{pr} - s_\gamma\tilde\mu\,y_e^{pr}\right) LF_{4,1,-1}[m_{\tilde l}^p, m_{\tilde e}^r]\,\delta_{i1i2} -$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_e}^{pr} - s_\gamma\tilde\mu\,\overline{y_e}^{pr}\right)\left(c_\gamma a_e^{pr} - s_\gamma\tilde\mu\,y_e^{pr}\right) LF_{5,1,-2}[m_{\tilde l}^p, m_{\tilde e}^r]\,\delta_{i1i2} -$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{pr} - s_\gamma\tilde\mu\,y_d^{pr}\right) LF_{3,1,0}[m_{\tilde q}^p, m_{\tilde d}^r]\,\delta_{i1i2} -$$
$$\frac{2}{9} g_1^2\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{pr} - s_\gamma\tilde\mu\,y_d^{pr}\right) LF_{3,2,-1}[m_{\tilde q}^p, m_{\tilde d}^r]\,\delta_{i1i2} +$$
$$\frac{5}{6} g_1^2\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{pr} - s_\gamma\tilde\mu\,y_d^{pr}\right) LF_{4,1,-1}[m_{\tilde q}^p, m_{\tilde d}^r]\,\delta_{i1i2} -$$
$$\frac{2}{3} g_1^2\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{pr} - s_\gamma\tilde\mu\,y_d^{pr}\right) LF_{5,1,-2}[m_{\tilde q}^p, m_{\tilde d}^r]\,\delta_{i1i2} -$$
$$\frac{1}{9} g_1^2\left(s_\gamma \overline{a_u}^{pr} - \tilde\mu\,c_\gamma \overline{y_u}^{pr}\right)\left(s_\gamma a_u^{pr} - \tilde\mu\,c_\gamma y_u^{pr}\right) LF_{2,2,0}[m_{\tilde q}^p, m_{\tilde u}^r]\,\delta_{i1i2} +$$
$$\frac{1}{18} g_1^2\left(s_\gamma \overline{a_u}^{pr} - \tilde\mu\,c_\gamma \overline{y_u}^{pr}\right)\left(s_\gamma a_u^{pr} - \tilde\mu\,c_\gamma y_u^{pr}\right) LF_{3,2,-1}[m_{\tilde q}^p, m_{\tilde u}^r]\,\delta_{i1i2} -$$
$$\frac{1}{18} g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,0}[m_{\tilde q}^p, \tilde\mu] + \frac{1}{36} g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,2,-1}[m_{\tilde q}^p, \tilde\mu] + \frac{1}{36} g_1^2 \overline{y_u}^{pi1} y_u^{pi2}$$
$$LF_{3,1,-1}[m_{\tilde q}^p, \tilde\mu] + \frac{1}{9} g_1^2\left(s_\gamma \overline{a_u}^{pr} - \tilde\mu\,c_\gamma \overline{y_u}^{pr}\right)\left(s_\gamma a_u^{pr} - \tilde\mu\,c_\gamma y_u^{pr}\right) LF_{3,1,0}[m_{\tilde u}^r, m_{\tilde q}^p]\,\delta_{i1i2} +$$
$$\frac{1}{9} g_1^2\left(s_\gamma \overline{a_u}^{pr} - \tilde\mu\,c_\gamma \overline{y_u}^{pr}\right)\left(s_\gamma a_u^{pr} - \tilde\mu\,c_\gamma y_u^{pr}\right) LF_{3,2,-1}[m_{\tilde u}^r, m_{\tilde q}^p]\,\delta_{i1i2} +$$
$$\frac{1}{3} g_1^2\left(s_\gamma \overline{a_u}^{pr} - \tilde\mu\,c_\gamma \overline{y_u}^{pr}\right)\left(s_\gamma a_u^{pr} - \tilde\mu\,c_\gamma y_u^{pr}\right) LF_{4,1,-1}[m_{\tilde u}^r, m_{\tilde q}^p]\,\delta_{i1i2} -$$
$$\frac{2}{3} g_1^2\left(s_\gamma \overline{a_u}^{pr} - \tilde\mu\,c_\gamma \overline{y_u}^{pr}\right)\left(s_\gamma a_u^{pr} - \tilde\mu\,c_\gamma y_u^{pr}\right) LF_{5,1,-2}[m_{\tilde u}^r, m_{\tilde q}^p]\,\delta_{i1i2} -$$
$$\frac{8}{81} g_1^4 LF_{2,1,0}[m_{\tilde u}^{i2}, m_1]\,\delta_{i1i2} + \frac{4}{81} g_1^4 LF_{3,1,-1}[m_{\tilde u}^{i2}, m_1]\,\delta_{i1i2} -$$
$$\frac{8}{27} g_1^2 g_3^2 LF_{2,1,0}[m_{\tilde u}^{i2}, m_3]\,\delta_{i1i2} + \frac{4}{27} g_1^2 g_3^2 LF_{3,1,-1}[m_{\tilde u}^{i2}, m_3]\,\delta_{i1i2} -$$
$$\frac{5}{18} g_1^4 LF_{4,1,-2}[\tilde\mu, m_1]\,\delta_{i1i2} - \frac{1}{3} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^4 LF_{4,1,-1}[\tilde\mu, m_1]\,\delta_{i1i2} + \frac{2}{9} g_1^4 LF_{5,1,-3}[\tilde\mu, m_1]\,\delta_{i1i2} +$$
$$\frac{4}{9} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^4 LF_{5,1,-2}[\tilde\mu, m_1]\,\delta_{i1i2} - \frac{5}{6} g_1^2 g_2^2 LF_{4,1,-2}[\tilde\mu, m_2]\,\delta_{i1i2} -$$
$$m_2 s_\gamma\tilde\mu\,c_\gamma g_1^2 g_2^2 LF_{4,1,-1}[\tilde\mu, m_2]\,\delta_{i1i2} + \frac{2}{3} g_1^2 g_2^2 LF_{5,1,-3}[\tilde\mu, m_2]\,\delta_{i1i2} +$$
$$\frac{4}{3} m_2 s_\gamma\tilde\mu\,c_\gamma g_1^2 g_2^2 LF_{5,1,-2}[\tilde\mu, m_2]\,\delta_{i1i2} + \frac{1}{2} s_\gamma^2 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{si1} y_u^{pi2} LF_{2,1,0}[\tilde\mu, m_{\tilde d}^r] -$$
$$s_\gamma^2 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{si1} y_u^{pi2} LF_{3,1,-1}[\tilde\mu, m_{\tilde d}^r] + \frac{1}{2} s_\gamma^2 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{si1} y_u^{pi2} LF_{4,1,-2}[\tilde\mu, m_{\tilde d}^r] +$$
$$\frac{1}{36} g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,0}[\tilde\mu, m_{\tilde q}^p] - \frac{11}{36} g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,-1}[\tilde\mu, m_{\tilde q}^p] +$$
$$\frac{1}{9} g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{4,1,-2}[\tilde\mu, m_{\tilde q}^p] + \frac{1}{2} s_\gamma^2 \overline{y_u}^{pi1} \overline{y_u}^{rs} y_u^{ps} y_u^{ri2} LF_{2,1,0}[\tilde\mu, m_{\tilde u}^s] -$$
$$s_\gamma^2 \overline{y_u}^{pi1} \overline{y_u}^{rs} y_u^{ps} y_u^{ri2} LF_{3,1,-1}[\tilde\mu, m_{\tilde u}^s] + \frac{1}{2} s_\gamma^2 \overline{y_u}^{pi1} \overline{y_u}^{rs} y_u^{ps} y_u^{ri2} LF_{4,1,-2}[\tilde\mu, m_{\tilde u}^s] +$$
$$\frac{1}{18} m_1 s_\gamma g_1^2 y_u^{pi2}\left(-s_\gamma \overline{a_u}^{pi1} + \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,1,1,0}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\frac{1}{36} m_1 s_\gamma g_1^2 y_u^{pi2}\left(-s_\gamma \overline{a_u}^{pi1} + \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\frac{1}{18} m_1 s_\gamma g_1^2 y_u^{pi2}\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{3,1,1,-1}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\frac{1}{18} m_1 s_\gamma g_1^2 \overline{y_u}^{pi1}\left(-s_\gamma a_u^{pi2} + \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,0}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i2}] +$$
$$\frac{1}{36} m_1 s_\gamma g_1^2 \overline{y_u}^{pi1}\left(-s_\gamma a_u^{pi2} + \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,2,1,-1}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i2}] +$$
$$\frac{1}{18} m_1 s_\gamma g_1^2 \overline{y_u}^{pi1}\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{3,1,1,-1}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i2}] +$$
$$\frac{1}{4} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,-1}[m_1, m_{\tilde q}^p, \tilde\mu] + \frac{1}{6} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,0}[m_1, m_{\tilde q}^p, \tilde\mu] -$$
$$\frac{1}{6} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-2}[m_1, m_{\tilde q}^p, \tilde\mu] - \frac{1}{6} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-1}[m_1, m_{\tilde q}^p, \tilde\mu] +$$
$$\frac{1}{36} m_1 s_\gamma g_1^2 y_u^{pi2}\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_1, m_{\tilde u}^{i1}, m_{\tilde q}^p] +$$
$$\frac{1}{36} m_1 s_\gamma g_1^2 \overline{y_u}^{pi1}\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,2,1,-1}[m_1, m_{\tilde u}^{i2}, m_{\tilde q}^p] +$$
$$\frac{1}{9} g_1^4\left(-c_\gamma^2 + s_\gamma^2\right) LF_{2,1,1,-1}[m_1, m_{\tilde u}^{i2}, \tilde\mu]\,\delta_{i1i2} +$$
$$\frac{2}{9} g_1^4 m_1^2\left(-c_\gamma^2 + s_\gamma^2\right) LF_{2,1,1,0}[m_1, m_{\tilde u}^{i2}, \tilde\mu]\,\delta_{i1i2} + \frac{1}{24} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,2,1,-2}[m_1, \tilde\mu, m_{\tilde q}^p] +$$
$$\frac{1}{24}\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2}\left(4 m_1 s_\gamma + 3\tilde\mu\,c_\gamma\right) LF_{2,2,1,-1}[m_1, \tilde\mu, m_{\tilde q}^p] + \frac{1}{6} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2}$$
$$LF_{2,2,1,-2}[m_1, \tilde\mu, m_{\tilde u}^{i1}] + \frac{1}{6} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,2,1,-1}[m_1, \tilde\mu, m_{\tilde u}^{i1}] +$$
$$\left(\frac{1}{6} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} + \frac{1}{9} g_1^4\left(-c_\gamma^2 + s_\gamma^2\right)\delta_{i1i2}\right) LF_{2,2,1,-2}[m_1, \tilde\mu, m_{\tilde u}^{i2}] +$$
$$\frac{1}{18} m_1 g_1^2\left(3 s_\gamma\tilde\mu\,c_\gamma \overline{y_u}^{pi1} y_u^{pi2} + 2 m_1 g_1^2\left(c_\gamma^2 - s_\gamma^2\right)\delta_{i1i2}\right) LF_{2,2,1,-1}[m_1, \tilde\mu, m_{\tilde u}^{i2}] -$$
$$\frac{9}{4} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,-1}[m_2, m_{\tilde q}^p, \tilde\mu] -$$
$$\frac{3}{2} m_2 s_\gamma\tilde\mu\,c_\gamma g_2^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,0}[m_2, m_{\tilde q}^p, \tilde\mu] + \frac{3}{2} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-2}[m_2, m_{\tilde q}^p, \tilde\mu] +$$
$$\frac{3}{2} m_2 s_\gamma\tilde\mu\,c_\gamma g_2^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-1}[m_2, m_{\tilde q}^p, \tilde\mu] + \frac{9}{8} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,2,1,-2}[m_2, \tilde\mu, m_{\tilde q}^p] +$$
$$\frac{3}{8}\tilde\mu\,c_\gamma g_2^2 \overline{y_u}^{pi1} y_u^{pi2}\left(4 m_2 s_\gamma + \tilde\mu\,c_\gamma\right) LF_{2,2,1,-1}[m_2, \tilde\mu, m_{\tilde q}^p] +$$
$$\frac{2}{3} m_3 s_\gamma g_3^2 y_u^{pi2}\left(-s_\gamma \overline{a_u}^{pi1} + \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,1,1,0}[m_3, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\frac{1}{3} m_3 s_\gamma g_3^2 y_u^{pi2}\left(-s_\gamma \overline{a_u}^{pi1} + \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_3, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\frac{2}{3} m_3 s_\gamma g_3^2 y_u^{pi2}\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{3,1,1,-1}[m_3, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\frac{2}{3} m_3 s_\gamma g_3^2 \overline{y_u}^{pi1}\left(-s_\gamma a_u^{pi2} + \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,0}[m_3, m_{\tilde q}^p, m_{\tilde u}^{i2}] +$$
$$\frac{1}{3} m_3 s_\gamma g_3^2 \overline{y_u}^{pi1}\left(-s_\gamma a_u^{pi2} + \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,2,1,-1}[m_3, m_{\tilde q}^p, m_{\tilde u}^{i2}] +$$
$$\frac{2}{3} m_3 s_\gamma g_3^2 \overline{y_u}^{pi1}\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{3,1,1,-1}[m_3, m_{\tilde q}^p, m_{\tilde u}^{i2}] +$$
$$\frac{1}{3} m_3 s_\gamma g_3^2 y_u^{pi2}\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_3, m_{\tilde u}^{i1}, m_{\tilde q}^p] +$$
$$\frac{1}{3} m_3 s_\gamma g_3^2 \overline{y_u}^{pi1}\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,2,1,-1}[m_3, m_{\tilde u}^{i2}, m_{\tilde q}^p] +$$
$$\frac{1}{8} s_\gamma\tilde\mu\,y_d^{sr} \overline{y_u}^{si1} y_u^{pi2}\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right) LF_{2,2,1,-1}[m_{\tilde d}^r, \tilde\mu, m_{\tilde q}^p] +$$
$$\frac{1}{8} s_\gamma\tilde\mu\,\overline{y_d}^{pr} \overline{y_u}^{si1} y_u^{pi2}\left(c_\gamma a_d^{sr} - s_\gamma\tilde\mu\,y_d^{sr}\right) LF_{2,2,1,-1}[m_{\tilde d}^r, \tilde\mu, m_{\tilde q}^s] +$$
$$\frac{1}{8} s_\gamma\tilde\mu\,y_d^{sr} \overline{y_u}^{si1} y_u^{pi2}\left(-c_\gamma \overline{a_d}^{pr} + s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right) LF_{2,2,1,-1}[m_{\tilde q}^p, \tilde\mu, m_{\tilde d}^r] +$$
$$\frac{1}{8} s_\gamma\tilde\mu\,\overline{y_d}^{pr} \overline{y_u}^{si1} y_u^{pi2}\left(-c_\gamma a_d^{sr} + s_\gamma\tilde\mu\,y_d^{sr}\right) LF_{2,2,1,-1}[m_{\tilde q}^s, \tilde\mu, m_{\tilde d}^r] +$$
$$\frac{1}{8} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,-1}[\tilde\mu, m_1, m_{\tilde q}^p] - \frac{1}{4} g_1^2\tilde\mu^2 c_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,0}[\tilde\mu, m_1, m_{\tilde q}^p] -$$
$$\frac{1}{2} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,-1}[\tilde\mu, m_1, m_{\tilde u}^{i1}] - \frac{1}{3} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,0}[\tilde\mu, m_1, m_{\tilde u}^{i1}] +$$
$$\frac{1}{3} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-2}[\tilde\mu, m_1, m_{\tilde u}^{i1}] + \frac{1}{3} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-1}[\tilde\mu, m_1, m_{\tilde u}^{i1}] -$$
$$\frac{1}{2} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,-1}[\tilde\mu, m_1, m_{\tilde u}^{i2}] - \frac{1}{3} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,0}[\tilde\mu, m_1, m_{\tilde u}^{i2}] +$$
$$\frac{1}{3} g_1^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-2}[\tilde\mu, m_1, m_{\tilde u}^{i2}] + \frac{1}{3} m_1 s_\gamma\tilde\mu\,c_\gamma g_1^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{3,1,1,-1}[\tilde\mu, m_1, m_{\tilde u}^{i2}] +$$
$$\frac{3}{8} g_2^2 s_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,-1}[\tilde\mu, m_2, m_{\tilde q}^p] - \frac{3}{4} g_2^2\tilde\mu^2 c_\gamma^2 \overline{y_u}^{pi1} y_u^{pi2} LF_{2,1,1,0}[\tilde\mu, m_2, m_{\tilde q}^p] +$$
$$\frac{1}{4} s_\gamma\tilde\mu\,y_d^{sr} \overline{y_u}^{si1} y_u^{pi2}\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right) LF_{2,1,1,0}[\tilde\mu, m_{\tilde d}^r, m_{\tilde q}^p] +$$
$$\frac{1}{4} s_\gamma\tilde\mu\,y_d^{sr} \overline{y_u}^{si1} y_u^{pi2}\left(-c_\gamma \overline{a_d}^{pr} + s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right) LF_{3,1,1,-1}[\tilde\mu, m_{\tilde d}^r, m_{\tilde q}^p] +$$
$$\frac{1}{4} s_\gamma\tilde\mu\,\overline{y_d}^{pr} \overline{y_u}^{si1} y_u^{pi2}\left(c_\gamma a_d^{sr} - s_\gamma\tilde\mu\,y_d^{sr}\right) LF_{2,1,1,0}[\tilde\mu, m_{\tilde d}^r, m_{\tilde q}^s] +$$
$$\frac{1}{4} s_\gamma\tilde\mu\,\overline{y_d}^{pr} \overline{y_u}^{si1} y_u^{pi2}\left(-c_\gamma a_d^{sr} + s_\gamma\tilde\mu\,y_d^{sr}\right) LF_{3,1,1,-1}[\tilde\mu, m_{\tilde d}^r, m_{\tilde q}^s] -$$
$$\frac{1}{6} g_1^2 y_u^{pi2}\left(m_1 s_\gamma - \tilde\mu\,c_\gamma\right)\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{1,1,1,1,0}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i1}, \tilde\mu] -$$
$$\frac{1}{12} g_1^2 y_u^{pi2}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i1}, \tilde\mu] -$$
$$\frac{1}{6} g_1^2 \overline{y_u}^{pi1}\left(m_1 s_\gamma - \tilde\mu\,c_\gamma\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{1,1,1,1,0}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i2}, \tilde\mu] -$$
$$\frac{1}{12} g_1^2 \overline{y_u}^{pi1}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,1,-1}[m_1, m_{\tilde q}^p, m_{\tilde u}^{i2}, \tilde\mu] -$$
$$\frac{1}{4} \overline{y_u}^{si1} y_u^{pi2}\left(c_\gamma \overline{a_d}^{pr} - s_\gamma\tilde\mu\,\overline{y_d}^{pr}\right)\left(c_\gamma a_d^{sr} - s_\gamma\tilde\mu\,y_d^{sr}\right) LF_{2,1,1,1,-1}[m_{\tilde d}^r, m_{\tilde q}^p, m_{\tilde q}^s, \tilde\mu] +$$
$$\frac{1}{12} g_1^2 y_u^{pi2}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[m_{\tilde q}^p, m_1, m_{\tilde u}^{i1}, \tilde\mu] -$$
$$\frac{2}{9} g_1^2\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde q}^p, m_1, m_{\tilde u}^{i2}, m_{\tilde u}^{i1}] +$$
$$\frac{1}{12} g_1^2 \overline{y_u}^{pi1}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde q}^p, m_1, m_{\tilde u}^{i2}, \tilde\mu] -$$
$$\frac{2}{3} g_3^2\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde q}^p, m_3, m_{\tilde u}^{i2}, m_{\tilde u}^{i1}] +$$
$$\frac{1}{4} s_\gamma \overline{y_u}^{si1} y_u^{pi2} \overline{a_u}^{pr}\left(s_\gamma a_u^{sr} - \tilde\mu\,c_\gamma y_u^{sr}\right) LF_{2,1,1,1,-1}[m_{\tilde u}^r, m_{\tilde q}^p, m_{\tilde q}^s, \tilde\mu] +$$
$$\frac{1}{4}\tilde\mu\,c_\gamma \overline{y_u}^{pi1} \overline{y_u}^{rs} y_u^{ri2}\left(-s_\gamma a_u^{ps} + \tilde\mu\,c_\gamma y_u^{ps}\right) LF_{2,1,1,1,-1}[m_{\tilde u}^s, m_{\tilde q}^p, m_{\tilde q}^r, \tilde\mu] -$$
$$\frac{1}{12} g_1^2 y_u^{pi2}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[m_{\tilde u}^{i1}, m_1, m_{\tilde q}^p, \tilde\mu] -$$
$$\frac{1}{12} g_1^2 \overline{y_u}^{pi1}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde u}^{i2}, m_1, m_{\tilde q}^p, \tilde\mu] +$$
$$\frac{1}{12} g_1^2 y_u^{pi2}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma \overline{a_u}^{pi1} - \tilde\mu\,c_\gamma \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[\tilde\mu, m_1, m_{\tilde q}^p, m_{\tilde u}^{i1}] +$$
$$\left.\frac{1}{12} g_1^2 \overline{y_u}^{pi1}\left(m_1 s_\gamma + \tilde\mu\,c_\gamma\right)\left(s_\gamma a_u^{pi2} - \tilde\mu\,c_\gamma y_u^{pi2}\right) LF_{2,1,1,1,-1}[\tilde\mu, m_1, m_{\tilde q}^p, m_{\tilde u}^{i2}]\right)\Bigg)$$