$$
\begin{aligned}
&\lambda \to \frac{1}{4} c_{2\gamma}^2 (g_1^2+g_2^2) + \\
&\quad \frac{1}{16\pi^2} \Bigl(\frac{1}{16} \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) (2 m_{\Phi}^2 c_{2\gamma}^2 (g_1^2+3 g_2^2) + C_{H^2} s_{4\gamma}^2 (g_1^2+g_2^2)) + \frac{4}{9} C_{H^2} g_2^4 \mathrm{LF}_{3,0}[m_2] + \\
&\quad \frac{2}{3} C_{H^2} g_2^4 \mathrm{LF}_{4,-1}[m_2] - \frac{32}{45} C_{H^2} g_2^4 \mathrm{LF}_{5,-2}[m_2] + \\
&\quad \frac{1}{4} \sum_p s_{2\gamma} s_{4\gamma} g_1^2 \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\tilde{d}}^{p}] - \frac{1}{12} \sum_p g_1^4 c_{2\gamma}^2 \mathrm{LF}_{2,0}[m_{\tilde{d}}^{p}] + \\
&\quad \frac{3}{4} s_{2\gamma} s_{4\gamma} \frac{1}{m_{\Phi}^4} \overline{y_d}^{pr} y_d^{pr} (g_1^2+g_2^2) (-C_{H^2}+m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\tilde{d}}^{r}] + c_{2\gamma} g_1^2 c_{\gamma}^2 \overline{y_d}^{pr} y_d^{pr} \mathrm{LF}_{2,0}[m_{\tilde{d}}^{r}] + \\
&\quad \frac{1}{4} \sum_p s_{2\gamma} s_{4\gamma} g_1^2 \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\tilde{e}}^{p}] - \frac{1}{4} \sum_p g_1^4 c_{2\gamma}^2 \mathrm{LF}_{2,0}[m_{\tilde{e}}^{p}] + \\
&\quad \frac{1}{4} s_{2\gamma} s_{4\gamma} \frac{1}{m_{\Phi}^4} \overline{y_e}^{pr} y_e^{pr} (g_1^2+g_2^2) (-C_{H^2}+m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\tilde{e}}^{r}] + c_{2\gamma} g_1^2 c_{\gamma}^2 \overline{y_e}^{pr} y_e^{pr} \mathrm{LF}_{2,0}[m_{\tilde{e}}^{r}] + \\
&\quad \frac{1}{4} s_{2\gamma} s_{4\gamma} \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (-C_{H^2}+m_{\Phi}^2) (\overline{y_e}^{pr} y_e^{pr} + \textstyle\sum_p g_1^2) \mathrm{LF}_{1,0}[m_{\tilde{l}}^{p}] - \\
&\quad \frac{1}{8} c_{2\gamma} (4 c_{\gamma}^2 \overline{y_e}^{pr} y_e^{pr} (g_1^2-g_2^2) + \textstyle\sum_p c_{2\gamma} (g_1^4+g_2^4)) \mathrm{LF}_{2,0}[m_{\tilde{l}}^{p}] + \\
&\quad \frac{1}{18} C_{H^2} g_2^2 (36 c_{2\gamma} c_{\gamma}^2 \overline{y_e}^{pr} y_e^{pr} + \textstyle\sum_p g_2^2 (4-9 c_{2\gamma}^2)) \mathrm{LF}_{3,0}[m_{\tilde{l}}^{p}] + \frac{1}{12} C_{H^2} g_2^2 \\
&\qquad (-24 c_{2\gamma} c_{\gamma}^2 \overline{y_e}^{pr} y_e^{pr} + \textstyle\sum_p g_2^2 (-5+6 c_{2\gamma}^2)) \mathrm{LF}_{4,-1}[m_{\tilde{l}}^{p}] + \frac{8}{45} \sum_p C_{H^2} g_2^4 \mathrm{LF}_{5,-2}[m_{\tilde{l}}^{p}] + \\
&\quad \frac{1}{4} s_{2\gamma} s_{4\gamma} \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) (-3 \overline{y_d}^{pr} y_d^{pr} + 3 \overline{y_u}^{pr} y_u^{pr} + \textstyle\sum_p g_1^2) \mathrm{LF}_{1,0}[m_{\tilde{q}}^{p}] + \\
&\quad \frac{1}{24} c_{2\gamma} (12 c_{\gamma}^2 \overline{y_d}^{pr} y_d^{pr} (g_1^2+3 g_2^2) + 12 s_{\gamma}^2 \overline{y_u}^{pr} y_u^{pr} (g_1^2-3 g_2^2) - \textstyle\sum_p c_{2\gamma} (g_1^4+9 g_2^4)) \\
&\qquad \mathrm{LF}_{2,0}[m_{\tilde{q}}^{p}] + \frac{1}{6} C_{H^2} g_2^2 (36 c_{2\gamma} (c_{\gamma}^2 \overline{y_d}^{pr} y_d^{pr} - s_{\gamma}^2 \overline{y_u}^{pr} y_u^{pr}) + \textstyle\sum_p g_2^2 (4-9 c_{2\gamma}^2)) \mathrm{LF}_{3,0}[m_{\tilde{q}}^{p}] + \\
&\quad \frac{1}{4} C_{H^2} g_2^2 (24 c_{2\gamma} (-c_{\gamma}^2 \overline{y_d}^{pr} y_d^{pr} + s_{\gamma}^2 \overline{y_u}^{pr} y_u^{pr}) + \textstyle\sum_p g_2^2 (-5+6 c_{2\gamma}^2)) \mathrm{LF}_{4,-1}[m_{\tilde{q}}^{p}] + \\
&\quad \frac{8}{15} \sum_p C_{H^2} g_2^4 \mathrm{LF}_{5,-2}[m_{\tilde{q}}^{p}] + \frac{1}{2} \sum_p s_{2\gamma} s_{4\gamma} g_1^2 \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (-C_{H^2}+m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\tilde{u}}^{p}] - \\
&\quad \frac{1}{3} \sum_p g_1^4 c_{2\gamma}^2 \mathrm{LF}_{2,0}[m_{\tilde{u}}^{p}] + \frac{3}{4} s_{2\gamma} s_{4\gamma} \frac{1}{m_{\Phi}^4} \overline{y_u}^{pr} y_u^{pr} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\tilde{u}}^{r}] - \\
&\quad 2 c_{2\gamma} g_1^2 s_{\gamma}^2 \overline{y_u}^{pr} y_u^{pr} \mathrm{LF}_{2,0}[m_{\tilde{u}}^{r}] + \frac{3}{16} \frac{1}{m_{\Phi}^4} s_{4\gamma}^2 (C_{H^2}-m_{\Phi}^2) \mathrm{LF}_{1,0}[m_{\Phi}] (g_1^2+g_2^2)^2 - \\
&\quad \frac{3}{16} s_{4\gamma}^2 \mathrm{LF}_{1,1}[m_{\Phi}] (g_1^2+g_2^2)^2 + \frac{3}{16} C_{H^2} s_{4\gamma}^2 \mathrm{LF}_{1,2}[m_{\Phi}] (g_1^2+g_2^2)^2 + \\
&\quad \frac{1}{64} (2 g_1^2 g_2^2 (3 + c_{4\gamma} (2-5 c_{4\gamma}) - 4 s_{2\gamma}^4) - g_2^4 (9 + c_{4\gamma} (-6+5 c_{4\gamma}) + 4 s_{2\gamma}^4) - \\
&\qquad g_1^4 (1 + c_{4\gamma} (2+5 c_{4\gamma}) + 4 s_{2\gamma}^4)) \mathrm{LF}_{2,0}[m_{\Phi}] + \frac{1}{288} C_{H^2} (-9 g_1^4 ((-1+c_{4\gamma})^2 + 4 s_{2\gamma}^4) - \\
&\qquad 18 g_1^2 g_2^2 (-3 + c_{4\gamma} (2+c_{4\gamma}) + 4 s_{2\gamma}^4) - g_2^4 (17 + 9 c_{4\gamma} (6+c_{4\gamma}) + 36 s_{2\gamma}^4)) \mathrm{LF}_{3,0}[m_{\Phi}] + \\
&\quad \frac{1}{96} C_{H^2} (3 g_1^4 ((-1+c_{4\gamma})^2 + 4 s_{2\gamma}^4) + 6 g_1^2 g_2^2 (-3 + c_{4\gamma} (2+c_{4\gamma}) + 4 s_{2\gamma}^4) + \\
&\qquad g_2^4 (-13 + 3 c_{4\gamma} (6+c_{4\gamma}) + 12 s_{2\gamma}^4)) \mathrm{LF}_{4,-1}[m_{\Phi}] + \\
&\quad \frac{8}{45} C_{H^2} g_2^4 \mathrm{LF}_{5,-2}[m_{\Phi}] + \frac{2}{9} C_{H^2} g_2^4 \mathrm{LF}_{3,0}[\tilde{\mu}] + \frac{1}{3} C_{H^2} g_2^4 \mathrm{LF}_{4,-1}[\tilde{\mu}] - \frac{16}{45} C_{H^2} g_2^4 \mathrm{LF}_{5,-2}[\tilde{\mu}] + \\
&\quad \frac{1}{2} m_1 s_{4\gamma} \tilde{\mu} g_1^2 \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (-C_{H^2}+m_{\Phi}^2) (c_{\gamma}^2-s_{\gamma}^2) \mathrm{LF}_{1,1,0}[m_1, \tilde{\mu}] + \frac{1}{2} g_1^4 \mathrm{LF}_{2,2,-2}[m_1, \tilde{\mu}] + \\
&\quad \frac{1}{2} g_1^4 (m_1^2 + 8 m_1 s_{\gamma} \tilde{\mu} c_{\gamma} + 4 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{2,2,-1}[m_1, \tilde{\mu}] + 2 g_1^4 m_1^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{2,2,0}[m_1, \tilde{\mu}] + \\
&\quad \frac{3}{2} m_2 s_{4\gamma} \tilde{\mu} g_2^2 \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (-C_{H^2}+m_{\Phi}^2) (c_{\gamma}^2-s_{\gamma}^2) \mathrm{LF}_{1,1,0}[m_2, \tilde{\mu}] - \frac{8}{3} C_{H^2} g_2^4 \mathrm{LF}_{2,1,0}[m_2, \tilde{\mu}] + \\
&\quad \frac{1}{2} g_2^4 (5 c_{\gamma}^4 + 2 s_{\gamma}^2 c_{\gamma}^2 + 5 s_{\gamma}^4) \mathrm{LF}_{2,2,-2}[m_2, \tilde{\mu}] + \frac{1}{6} g_2^4 (3 m_2^2 (c_{\gamma}^4 + 10 s_{\gamma}^2 c_{\gamma}^2 + s_{\gamma}^4) - \\
&\qquad 2 C_{H^2} (9 c_{\gamma}^4 + 8 s_{\gamma}^2 + 9 s_{\gamma}^4 + c_{\gamma}^2 (8-24 s_{\gamma}^2)) + 72 m_2 s_{\gamma} \tilde{\mu} c_{\gamma} + 36 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{2,2,-1}[m_2, \tilde{\mu}] - \\
&\quad \frac{2}{3} m_2 s_{\gamma} c_{\gamma} g_2^4 (-9 m_2 s_{\gamma} c_{\gamma} \tilde{\mu}^2 + C_{H^2} (6 m_2 s_{\gamma} c_{\gamma} + 8 \tilde{\mu})) \mathrm{LF}_{2,2,0}[m_2, \tilde{\mu}] + \\
&\quad \frac{4}{3} C_{H^2} g_2^4 \mathrm{LF}_{3,1,-1}[m_2, \tilde{\mu}] + \frac{4}{3} C_{H^2} g_2^4 (6 c_{\gamma}^4 + s_{\gamma}^2 + 6 s_{\gamma}^4 + c_{\gamma}^2 (1-12 s_{\gamma}^2)) \mathrm{LF}_{3,2,-2}[m_2, \tilde{\mu}] + \\
&\quad \frac{2}{3} m_2 C_{H^2} g_2^4 (-9 m_2 (c_{\gamma}^2-s_{\gamma}^2)^2 + 4 s_{\gamma} \tilde{\mu} c_{\gamma}) \mathrm{LF}_{3,2,-1}[m_2, \tilde{\mu}] - \\
&\quad 4 C_{H^2} g_2^4 \mathrm{LF}_{3,3,-3}[m_2, \tilde{\mu}] (c_{\gamma}^2-s_{\gamma}^2)^2 + 4 C_{H^2} g_2^4 m_2^2 \mathrm{LF}_{3,3,-2}[m_2, \tilde{\mu}] (c_{\gamma}^2-s_{\gamma}^2)^2 - \\
&\quad 4 C_{H^2} g_2^4 \mathrm{LF}_{4,2,-3}[m_2, \tilde{\mu}] (c_{\gamma}^2-s_{\gamma}^2)^2 + 4 C_{H^2} g_2^4 m_2^2 \mathrm{LF}_{4,2,-2}[m_2, \tilde{\mu}] (c_{\gamma}^2-s_{\gamma}^2)^2 - \\
&\quad 3 c_{\gamma}^4 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{pt} y_d^{sr} \mathrm{LF}_{1,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}] + \frac{3}{4} s_{4\gamma} \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) \\
&\qquad (\tilde{\mu} \overline{y_d}^{pr} (a_d^{pr} (-c_{\gamma}^2+s_{\gamma}^2) + 2 s_{\gamma} \tilde{\mu} c_{\gamma} y_d^{pr}) + \overline{a_d}^{pr} (-2 s_{\gamma} c_{\gamma} a_d^{pr} + \tilde{\mu} y_d^{pr} (-c_{\gamma}^2+s_{\gamma}^2))) \\
&\qquad \mathrm{LF}_{1,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}] + c_{2\gamma} g_1^2 (c_{\gamma} \overline{a_d}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) (c_{\gamma} a_d^{pr} - s_{\gamma} \tilde{\mu} y_d^{pr}) \mathrm{LF}_{2,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}] + \\
&\quad C_{H^2} c_{2\gamma} g_1^2 (c_{\gamma} \overline{a_d}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) (c_{\gamma} a_d^{pr} - s_{\gamma} \tilde{\mu} y_d^{pr}) \mathrm{LF}_{2,2,0}[m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}] - \\
&\quad c_{\gamma}^4 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{1,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}] + \frac{1}{4} s_{4\gamma} \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) \\
&\qquad (\tilde{\mu} \overline{y_e}^{pr} (a_e^{pr} (-c_{\gamma}^2+s_{\gamma}^2) + 2 s_{\gamma} \tilde{\mu} c_{\gamma} y_e^{pr}) + \overline{a_e}^{pr} (-2 s_{\gamma} c_{\gamma} a_e^{pr} + \tilde{\mu} y_e^{pr} (-c_{\gamma}^2+s_{\gamma}^2))) \\
&\qquad \mathrm{LF}_{1,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{l}}^{p}] + c_{2\gamma} g_1^2 (c_{\gamma} \overline{a_e}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_e}^{pr}) (c_{\gamma} a_e^{pr} - s_{\gamma} \tilde{\mu} y_e^{pr}) \mathrm{LF}_{2,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{l}}^{p}] + \\
&\quad C_{H^2} c_{2\gamma} g_1^2 (c_{\gamma} \overline{a_e}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_e}^{pr}) (c_{\gamma} a_e^{pr} - s_{\gamma} \tilde{\mu} y_e^{pr}) \mathrm{LF}_{2,2,0}[m_{\tilde{e}}^{r}, m_{\tilde{l}}^{p}] + \frac{1}{4} \frac{1}{m_{\Phi}^2} (\tilde{\mu} \overline{y_e}^{pr} \\
&\qquad (a_e^{pr} (-2 s_{\gamma} c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (-1+c_{2\gamma}) + g_2^2 (1+c_{2\gamma})) + s_{4\gamma} C_{H^2} (g_1^2+g_2^2) (c_{\gamma}^2-s_{\gamma}^2)) + \\
&\qquad 2 s_{\gamma} \tilde{\mu} y_e^{pr} (-s_{4\gamma} C_{H^2} c_{\gamma} (g_1^2+g_2^2) + s_{\gamma} c_{2\gamma} m_{\Phi}^2 (g_1^2 (-1+c_{2\gamma}) + g_2^2 (1+c_{2\gamma})))) + \\
&\qquad \overline{a_e}^{pr} (2 c_{\gamma} a_e^{pr} (c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (-1+c_{2\gamma}) + g_2^2 (1+c_{2\gamma})) + s_{4\gamma} s_{\gamma} C_{H^2} (g_1^2+g_2^2)) + \tilde{\mu} y_e^{pr} \\
&\qquad (-2 s_{\gamma} c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (-1+c_{2\gamma}) + g_2^2 (1+c_{2\gamma})) + s_{4\gamma} C_{H^2} (g_1^2+g_2^2) (c_{\gamma}^2-s_{\gamma}^2)))) \\
&\qquad \mathrm{LF}_{2,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}] + \frac{1}{4} \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) (-2 c_{\gamma} \overline{a_e}^{pr} a_e^{pr} (c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} s_{\gamma} C_{H^2}) - \\
&\qquad \tilde{\mu} (-2 s_{\gamma} c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} C_{H^2} (c_{\gamma}^2-s_{\gamma}^2)) (\overline{y_e}^{pr} a_e^{pr} + y_e^{pr} \overline{a_e}^{pr}) + \\
&\qquad 2 s_{\gamma} \tilde{\mu}^2 \overline{y_e}^{pr} y_e^{pr} (s_{4\gamma} C_{H^2} c_{\gamma} - s_{\gamma} m_{\Phi}^2 c_{2\gamma}^2)) \mathrm{LF}_{3,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}] + C_{H^2} c_{2\gamma} \\
&\qquad (g_1^2 (-1+c_{2\gamma}) + g_2^2 (1+c_{2\gamma})) (c_{\gamma} \overline{a_e}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_e}^{pr}) (c_{\gamma} a_e^{pr} - s_{\gamma} \tilde{\mu} y_e^{pr}) \mathrm{LF}_{3,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}] - \\
&\quad C_{H^2} c_{2\gamma} g_1^2 (c_{\gamma} \overline{a_e}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_e}^{pr}) (c_{\gamma} a_e^{pr} - s_{\gamma} \tilde{\mu} y_e^{pr}) \mathrm{LF}_{3,2,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}] - \frac{1}{2} C_{H^2} (-1+2 c_{2\gamma}) \\
&\qquad (2 g_2^2 + 3 c_{2\gamma} (g_1^2+g_2^2)) (c_{\gamma} \overline{a_e}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_e}^{pr}) (c_{\gamma} a_e^{pr} - s_{\gamma} \tilde{\mu} y_e^{pr}) \mathrm{LF}_{4,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}] + \\
&\quad \frac{2}{3} C_{H^2} (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) (c_{\gamma} \overline{a_e}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_e}^{pr}) (c_{\gamma} a_e^{pr} - s_{\gamma} \tilde{\mu} y_e^{pr}) \mathrm{LF}_{5,1,-2}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}] - \\
&\quad c_{\gamma}^4 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{1,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{l}}^{s}] - 2 C_{H^2} c_{\gamma}^4 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{2,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{l}}^{s}] + \\
&\quad 2 C_{H^2} c_{\gamma}^4 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{3,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{l}}^{s}] + \\
&\quad \frac{1}{4} \frac{1}{m_{\Phi}^2} (\tilde{\mu} \overline{y_d}^{pr} (a_d^{pr} (-2 s_{\gamma} c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (1+3 c_{2\gamma}) + 3 g_2^2 (1+c_{2\gamma})) + \\
&\qquad 3 s_{4\gamma} C_{H^2} (g_1^2+g_2^2) (c_{\gamma}^2-s_{\gamma}^2)) + \\
&\qquad 2 s_{\gamma} \tilde{\mu} y_d^{pr} (-3 s_{4\gamma} C_{H^2} c_{\gamma} (g_1^2+g_2^2) + s_{\gamma} c_{2\gamma} m_{\Phi}^2 (g_1^2 (1+3 c_{2\gamma}) + 3 g_2^2 (1+c_{2\gamma})))) + \\
&\qquad \overline{a_d}^{pr} (2 c_{\gamma} a_d^{pr} (c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (1+3 c_{2\gamma}) + 3 g_2^2 (1+c_{2\gamma})) + 3 s_{4\gamma} s_{\gamma} C_{H^2} (g_1^2+g_2^2)) + \\
&\qquad \tilde{\mu} y_d^{pr} (-2 s_{\gamma} c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (1+3 c_{2\gamma}) + 3 g_2^2 (1+c_{2\gamma})) + \\
&\qquad 3 s_{4\gamma} C_{H^2} (g_1^2+g_2^2) (c_{\gamma}^2-s_{\gamma}^2)))) \mathrm{LF}_{2,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}] + \frac{3}{4} \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) \\
&\qquad (-2 c_{\gamma} \overline{a_d}^{pr} a_d^{pr} (c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} s_{\gamma} C_{H^2}) - \tilde{\mu} (-2 s_{\gamma} c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} C_{H^2} (c_{\gamma}^2-s_{\gamma}^2)) \\
&\qquad (\overline{y_d}^{pr} a_d^{pr} + y_d^{pr} \overline{a_d}^{pr}) + 2 s_{\gamma} \tilde{\mu}^2 \overline{y_d}^{pr} y_d^{pr} (s_{4\gamma} C_{H^2} c_{\gamma} - s_{\gamma} m_{\Phi}^2 c_{2\gamma}^2)) \mathrm{LF}_{3,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}] + \\
&\quad C_{H^2} c_{2\gamma} (g_1^2 (1+3 c_{2\gamma}) + 3 g_2^2 (1+c_{2\gamma})) (c_{\gamma} \overline{a_d}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) (c_{\gamma} a_d^{pr} - s_{\gamma} \tilde{\mu} y_d^{pr}) \\
&\qquad \mathrm{LF}_{3,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}] - C_{H^2} c_{2\gamma} g_1^2 (c_{\gamma} \overline{a_d}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) (c_{\gamma} a_d^{pr} - s_{\gamma} \tilde{\mu} y_d^{pr}) \mathrm{LF}_{3,2,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}] - \\
&\quad \frac{3}{2} C_{H^2} (-2 g_2^2 + c_{2\gamma} (1+6 c_{2\gamma}) (g_1^2+g_2^2)) (c_{\gamma} \overline{a_d}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) \\
&\qquad (c_{\gamma} a_d^{pr} - s_{\gamma} \tilde{\mu} y_d^{pr}) \mathrm{LF}_{4,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}] + \\
&\quad 2 C_{H^2} (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) (c_{\gamma} \overline{a_d}^{pr} - s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) (c_{\gamma} a_d^{pr} - s_{\gamma} \tilde{\mu} y_d^{pr}) \mathrm{LF}_{5,1,-2}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}] - \\
&\quad 3 (c_{\gamma}^4 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{pt} y_d^{sr} + s_{\gamma}^4 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr}) \mathrm{LF}_{1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] - \\
&\quad 6 C_{H^2} (c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} (c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} - s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) + s_{\gamma}^4 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr}) \mathrm{LF}_{2,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} (c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} (c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} - s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) + s_{\gamma}^4 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr}) \mathrm{LF}_{3,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad \frac{3}{4} s_{4\gamma} \frac{1}{m_{\Phi}^4} (g_1^2+g_2^2) (C_{H^2}-m_{\Phi}^2) (\tilde{\mu} \overline{y_u}^{pr} (a_u^{pr} (-c_{\gamma}^2+s_{\gamma}^2) - 2 s_{\gamma} \tilde{\mu} c_{\gamma} y_u^{pr}) + \\
&\qquad \overline{a_u}^{pr} (2 s_{\gamma} c_{\gamma} a_u^{pr} + \tilde{\mu} y_u^{pr} (-c_{\gamma}^2+s_{\gamma}^2))) \mathrm{LF}_{1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad \frac{1}{2} c_{2\gamma} (g_1^2-3 g_2^2) (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{2,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad \frac{1}{2} C_{H^2} (c_{2\gamma} g_1^2 + g_2^2 (4-3 c_{2\gamma})) (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{2,2,0}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] - \\
&\quad 6 C_{H^2} c_{2\gamma} g_2^2 (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{3,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad C_{H^2} g_2^2 (-1+3 c_{2\gamma}) (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{3,2,-1}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad 6 C_{H^2} c_{2\gamma} g_2^2 (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{4,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{st} y_u^{pt} \mathrm{LF}_{2,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}] - \\
&\quad 6 C_{H^2} s_{\gamma}^2 c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} \overline{y_u}^{st} y_u^{pt} \mathrm{LF}_{3,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}] + \frac{1}{4} \frac{1}{m_{\Phi}^2} (\tilde{\mu} \overline{y_u}^{pr} \\
&\qquad (a_u^{pr} (-2 s_{\gamma} c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (-4+3 c_{2\gamma}) + 3 c_{2\gamma} g_2^2) + 3 s_{4\gamma} C_{H^2} (g_1^2+g_2^2) (c_{\gamma}^2-s_{\gamma}^2)) + \\
&\qquad 2 \tilde{\mu} c_{\gamma} y_u^{pr} (c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (-4+3 c_{2\gamma}) + 3 c_{2\gamma} g_2^2) + 3 s_{4\gamma} s_{\gamma} C_{H^2} (g_1^2+g_2^2))) + \\
&\qquad \overline{a_u}^{pr} (2 s_{\gamma} a_u^{pr} (-3 s_{4\gamma} C_{H^2} c_{\gamma} (g_1^2+g_2^2) + s_{\gamma} c_{2\gamma} m_{\Phi}^2 (g_1^2 (-4+3 c_{2\gamma}) + 3 c_{2\gamma} g_2^2)) + \tilde{\mu} y_u^{pr} \\
&\qquad (-2 s_{\gamma} c_{2\gamma} c_{\gamma} m_{\Phi}^2 (g_1^2 (-4+3 c_{2\gamma}) + 3 c_{2\gamma} g_2^2) + 3 s_{4\gamma} C_{H^2} (g_1^2+g_2^2) (c_{\gamma}^2-s_{\gamma}^2)))) \\
&\qquad \mathrm{LF}_{2,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] + \frac{3}{4} \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) (2 s_{\gamma} \overline{a_u}^{pr} a_u^{pr} (s_{4\gamma} C_{H^2} c_{\gamma} - s_{\gamma} m_{\Phi}^2 c_{2\gamma}^2) + \\
&\qquad \tilde{\mu} (2 s_{\gamma} c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} C_{H^2} (-c_{\gamma}^2+s_{\gamma}^2)) (\overline{y_u}^{pr} a_u^{pr} + y_u^{pr} \overline{a_u}^{pr}) - \\
&\qquad 2 c_{\gamma} \tilde{\mu}^2 \overline{y_u}^{pr} y_u^{pr} (c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} s_{\gamma} C_{H^2})) \mathrm{LF}_{3,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] + \\
&\quad C_{H^2} (c_{2\gamma} g_1^2 (-4+3 c_{2\gamma}) + g_2^2 (-2+3 c_{2\gamma}^2)) (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) \\
&\qquad (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{3,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] - \\
&\quad \frac{1}{2} C_{H^2} (c_{2\gamma} g_1^2 + g_2^2 (4-3 c_{2\gamma})) (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{3,2,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] - \\
&\quad 3 C_{H^2} (c_{2\gamma} g_1^2 (-2+3 c_{2\gamma}) + g_2^2 (-2+3 c_{2\gamma}^2)) \\
&\qquad (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{4,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] + \\
&\quad 2 C_{H^2} (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) (s_{\gamma} \overline{a_u}^{pr} - \tilde{\mu} c_{\gamma} \overline{y_u}^{pr}) (s_{\gamma} a_u^{pr} - \tilde{\mu} c_{\gamma} y_u^{pr}) \mathrm{LF}_{5,1,-2}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] - \\
&\quad 3 s_{\gamma}^4 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{1,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] - \frac{3}{4} g_1^2 c_{2\gamma}^2 (g_1^2+g_2^2) \mathrm{LF}_{2,1,-1}[\tilde{\mu}, m_1] + \\
&\quad \frac{1}{2} m_1 \tilde{\mu} g_1^2 \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) (-2 s_{\gamma} c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} C_{H^2} (c_{\gamma}^2-s_{\gamma}^2)) \mathrm{LF}_{2,1,0}[\tilde{\mu}, m_1] + \\
&\quad \frac{1}{2} g_1^2 c_{2\gamma}^2 (g_1^2+g_2^2) \mathrm{LF}_{3,1,-2}[\tilde{\mu}, m_1] + \frac{1}{2} g_1^2 \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) \\
&\qquad (m_1 s_{4\gamma} C_{H^2} \tilde{\mu} (-c_{\gamma}^2+s_{\gamma}^2) + 2 m_{\Phi}^2 c_{2\gamma}^2 (-2 C_{H^2} + m_1 s_{\gamma} \tilde{\mu} c_{\gamma})) \mathrm{LF}_{3,1,-1}[\tilde{\mu}, m_1] - \\
&\quad 2 m_1 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} g_1^2 c_{2\gamma}^2 (g_1^2+g_2^2) \mathrm{LF}_{3,1,0}[\tilde{\mu}, m_1] + \frac{3}{2} C_{H^2} g_1^4 \mathrm{LF}_{3,2,-2}[\tilde{\mu}, m_1] + \\
&\quad \frac{1}{2} C_{H^2} g_1^4 (3 m_1^2 + 20 m_1 s_{\gamma} \tilde{\mu} c_{\gamma} + 8 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{3,2,-1}[\tilde{\mu}, m_1] + \\
&\quad 4 C_{H^2} g_1^4 m_1^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{3,2,0}[\tilde{\mu}, m_1] + \\
&\quad \frac{1}{3} C_{H^2} g_1^2 (-5 g_2^2 + 12 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{4,1,-2}[\tilde{\mu}, m_1] + \\
&\quad 2 m_1 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} g_1^2 (-g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{4,1,-1}[\tilde{\mu}, m_1] - \\
&\quad C_{H^2} g_1^4 \mathrm{LF}_{4,2,-3}[\tilde{\mu}, m_1] + C_{H^2} g_1^4 (-m_1^2 - 8 m_1 s_{\gamma} \tilde{\mu} c_{\gamma} - 4 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{4,2,-2}[\tilde{\mu}, m_1] - \\
&\quad 4 C_{H^2} g_1^4 m_1^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{4,2,-1}[\tilde{\mu}, m_1] - \frac{2}{3} C_{H^2} g_1^2 (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{5,1,-3}[\tilde{\mu}, m_1] - \\
&\quad \frac{4}{3} m_1 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} g_1^2 (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{5,1,-2}[\tilde{\mu}, m_1] - \\
&\quad \frac{9}{4} g_2^2 c_{2\gamma}^2 (g_1^2+g_2^2) \mathrm{LF}_{2,1,-1}[\tilde{\mu}, m_2] + \\
&\quad \frac{3}{2} m_2 \tilde{\mu} g_2^2 \frac{1}{m_{\Phi}^2} (g_1^2+g_2^2) (-2 s_{\gamma} c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} C_{H^2} (c_{\gamma}^2-s_{\gamma}^2)) \mathrm{LF}_{2,1,0}[\tilde{\mu}, m_2] + \\
&\quad \frac{3}{2} g_2^2 c_{2\gamma}^2 (g_1^2+g_2^2) \mathrm{LF}_{3,1,-2}[\tilde{\mu}, m_2] + \frac{1}{6} g_2^2 \frac{1}{m_{\Phi}^2} (-4 C_{H^2} m_{\Phi}^2 (-8 g_2^2 + 9 c_{2\gamma}^2 (g_1^2+g_2^2)) + \\
&\qquad 9 m_2 \tilde{\mu} (g_1^2+g_2^2) (2 s_{\gamma} c_{\gamma} m_{\Phi}^2 c_{2\gamma}^2 + s_{4\gamma} C_{H^2} (-c_{\gamma}^2+s_{\gamma}^2))) \mathrm{LF}_{3,1,-1}[\tilde{\mu}, m_2] - \\
&\quad \frac{2}{3} m_2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} g_2^2 (-8 g_2^2 + 9 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{3,1,0}[\tilde{\mu}, m_2] + \\
&\quad \frac{1}{6} C_{H^2} g_2^4 (69 c_{\gamma}^4 + 16 s_{\gamma}^2 + 69 s_{\gamma}^4 + c_{\gamma}^2 (16-6 s_{\gamma}^2)) \mathrm{LF}_{3,2,-2}[\tilde{\mu}, m_2] + \\
&\quad \frac{1}{6} C_{H^2} g_2^4 (3 m_2^2 (3 c_{\gamma}^4 + 38 s_{\gamma}^2 c_{\gamma}^2 + 3 s_{\gamma}^4) + 4 m_2 s_{\gamma} \tilde{\mu} c_{\gamma} (8 + 51 c_{\gamma}^2 + 51 s_{\gamma}^2) + 72 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \\
&\qquad \mathrm{LF}_{3,2,-1}[\tilde{\mu}, m_2] + 12 C_{H^2} g_2^4 m_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{3,2,0}[\tilde{\mu}, m_2] + \\
&\quad 3 C_{H^2} g_2^2 (-3 g_2^2 + 4 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{4,1,-2}[\tilde{\mu}, m_2] + \\
&\quad 2 m_2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} g_2^2 (-7 g_2^2 + 9 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{4,1,-1}[\tilde{\mu}, m_2] - \\
&\quad C_{H^2} g_2^4 (7 c_{\gamma}^4 + 2 s_{\gamma}^2 c_{\gamma}^2 + 7 s_{\gamma}^4) \mathrm{LF}_{4,2,-3}[\tilde{\mu}, m_2] - \\
&\quad C_{H^2} g_2^4 (m_2^2 (c_{\gamma}^4 + 14 s_{\gamma}^2 c_{\gamma}^2 + s_{\gamma}^4) + 32 m_2 s_{\gamma} \tilde{\mu} c_{\gamma} + 16 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{4,2,-2}[\tilde{\mu}, m_2] - \\
&\quad 16 C_{H^2} g_2^4 m_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{4,2,-1}[\tilde{\mu}, m_2] - 2 C_{H^2} g_2^2 (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{5,1,-3}[\tilde{\mu}, m_2] - \\
&\quad 4 m_2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} g_2^2 (-2 g_2^2 + 3 c_{2\gamma}^2 (g_1^2+g_2^2)) \mathrm{LF}_{5,1,-2}[\tilde{\mu}, m_2] + \\
&\quad 8 C_{H^2} g_1^2 g_2^2 \mathrm{LF}_{2,2,1,-2}[m_2, \tilde{\mu}, m_1] + \\
&\quad 2 C_{H^2} g_1^2 g_2^2 (3 m_1 m_2 + 2 s_{\gamma} \tilde{\mu} c_{\gamma} (7 m_1 + 5 m_2) + 12 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{2,2,1,-1}[m_2, \tilde{\mu}, m_1] + \\
&\quad 16 m_1 m_2 C_{H^2} g_1^2 g_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{2,2,1,0}[m_2, \tilde{\mu}, m_1] - 4 C_{H^2} g_1^2 g_2^2 \mathrm{LF}_{3,2,1,-3}[m_2, \tilde{\mu}, m_1] - \\
&\quad 4 C_{H^2} g_1^2 g_2^2 (m_1 m_2 + 4 s_{\gamma} \tilde{\mu} c_{\gamma} (m_1+m_2) + 4 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{3,2,1,-2}[m_2, \tilde{\mu}, m_1] - \\
&\quad 16 m_1 m_2 C_{H^2} g_1^2 g_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{3,2,1,-1}[m_2, \tilde{\mu}, m_1] + \\
&\quad 6 c_{\gamma}^3 \overline{y_d}^{st} y_d^{sr} (s_{\gamma} \tilde{\mu} \overline{y_d}^{pr} a_d^{pt} + \overline{a_d}^{pr} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt})) \mathrm{LF}_{1,1,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}] - \\
&\quad 6 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{pt} y_d^{sr} \mathrm{LF}_{1,1,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{s}] - \\
&\quad 6 c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} y_d^{sr} + c_{\gamma} \overline{a_d}^{pr} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})) \mathrm{LF}_{1,1,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad 6 s_{\gamma} \tilde{\mu} c_{\gamma}^3 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} a_d^{pt} \mathrm{LF}_{1,1,1,0}[m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad 2 c_{\gamma}^3 \overline{y_e}^{st} y_e^{sr} (s_{\gamma} \tilde{\mu} \overline{y_e}^{pr} a_e^{pt} + \overline{a_e}^{pr} (-c_{\gamma} a_e^{pt} + s_{\gamma} \tilde{\mu} y_e^{pt})) \mathrm{LF}_{1,1,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}] - \\
&\quad 2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{1,1,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{s}] - \\
&\quad 2 c_{\gamma}^2 \overline{y_e}^{st} y_e^{pt} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} y_e^{sr} + c_{\gamma} \overline{a_e}^{pr} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})) \mathrm{LF}_{1,1,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{l}}^{p}, m_{\tilde{l}}^{s}] + \\
&\quad 2 s_{\gamma} \tilde{\mu} c_{\gamma}^3 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} a_e^{pt} \mathrm{LF}_{1,1,1,0}[m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}, m_{\tilde{l}}^{s}] + \\
&\quad 2 C_{H^2} c_{\gamma}^3 \overline{y_e}^{st} y_e^{sr} (s_{\gamma} \tilde{\mu} \overline{y_e}^{pr} a_e^{pt} + \overline{a_e}^{pr} (-c_{\gamma} a_e^{pt} + s_{\gamma} \tilde{\mu} y_e^{pt})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}] + \\
&\quad 2 C_{H^2} c_{\gamma}^3 \overline{y_e}^{st} y_e^{sr} (-s_{\gamma} \tilde{\mu} \overline{y_e}^{pr} a_e^{pt} + \overline{a_e}^{pr} (c_{\gamma} a_e^{pt} - s_{\gamma} \tilde{\mu} y_e^{pt})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}] - \\
&\quad 2 C_{H^2} c_{\gamma}^2 \overline{y_e}^{st} y_e^{pt} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} y_e^{sr} + c_{\gamma} \overline{a_e}^{pr} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}, m_{\tilde{l}}^{s}] + \\
&\quad 2 C_{H^2} c_{\gamma}^2 \overline{y_e}^{st} y_e^{pt} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} y_e^{sr} + c_{\gamma} \overline{a_e}^{pr} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}, m_{\tilde{l}}^{s}] + \\
&\quad 2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} (c_{\gamma} a_e^{pt} - s_{\gamma} \tilde{\mu} y_e^{pt}) \mathrm{LF}_{2,1,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{s}] + \\
&\quad 2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} (-c_{\gamma} a_e^{pt} + s_{\gamma} \tilde{\mu} y_e^{pt}) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{s}] - \\
&\quad 2 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{2,1,1,0}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}] + \\
&\quad 2 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{pt} y_e^{sr} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}] + \\
&\quad 2 C_{H^2} c_{\gamma}^3 \overline{y_e}^{st} y_e^{pt} \overline{a_e}^{pr} (-c_{\gamma} a_e^{sr} + s_{\gamma} \tilde{\mu} y_e^{sr}) \mathrm{LF}_{2,1,1,0}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{r}, m_{\tilde{l}}^{p}] + \\
&\quad 2 C_{H^2} c_{\gamma}^3 \overline{y_e}^{st} y_e^{pt} \overline{a_e}^{pr} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr}) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{r}, m_{\tilde{l}}^{p}] + \\
&\quad 2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^3 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} a_e^{pt} \mathrm{LF}_{2,1,1,0}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}] - \\
&\quad 2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^3 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} a_e^{pt} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}] + \\
&\quad 6 C_{H^2} c_{\gamma}^3 \overline{y_d}^{st} y_d^{sr} (s_{\gamma} \tilde{\mu} \overline{y_d}^{pr} a_d^{pt} + \overline{a_d}^{pr} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}] + \\
&\quad 6 C_{H^2} c_{\gamma}^3 \overline{y_d}^{st} y_d^{sr} (-s_{\gamma} \tilde{\mu} \overline{y_d}^{pr} a_d^{pt} + \overline{a_d}^{pr} (c_{\gamma} a_d^{pt} - s_{\gamma} \tilde{\mu} y_d^{pt})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}] - \\
&\quad 6 C_{H^2} c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} y_d^{sr} + c_{\gamma} \overline{a_d}^{pr} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} y_d^{sr} + c_{\gamma} \overline{a_d}^{pr} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}, m_{\tilde{q}}^{s}] + \\
&\quad 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} (c_{\gamma} a_d^{pt} - s_{\gamma} \tilde{\mu} y_d^{pt}) \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{s}] + \\
&\quad 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt}) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt} (-c_{\gamma} \overline{a_d}^{pr} + s_{\gamma} \tilde{\mu} \overline{y_d}^{pr}) (-c_{\gamma} a_d^{sr} + s_{\gamma} \tilde{\mu} y_d^{sr}) \mathrm{LF}_{2,2,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}] - \\
&\quad 6 s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} y_u^{sr} + s_{\gamma} \overline{a_u}^{pr} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) \mathrm{LF}_{1,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] - \\
&\quad 6 s_{\gamma} C_{H^2} (s_{\gamma} \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} + \overline{a_u}^{pr} (c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} - s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr})) \\
&\qquad \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] + \\
&\quad 6 s_{\gamma} C_{H^2} (s_{\gamma} \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} + \overline{a_u}^{pr} (c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} - s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr})) \\
&\qquad \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] + 6 \tilde{\mu} c_{\gamma} s_{\gamma}^3 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} \mathrm{LF}_{1,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} \tilde{\mu} c_{\gamma} \overline{y_u}^{st} (c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} - s_{\gamma}^2 \overline{y_u}^{pr} y_u^{sr}) (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} \tilde{\mu} c_{\gamma} \overline{y_u}^{st} (c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} - s_{\gamma}^2 \overline{y_u}^{pr} y_u^{sr}) (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 3 s_{\gamma} C_{H^2} (s_{\gamma} \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} + \overline{a_u}^{pr} (c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} - s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr})) \\
&\qquad \mathrm{LF}_{2,2,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}, m_{\tilde{q}}^{s}] + \\
&\quad 6 s_{\gamma}^3 \overline{y_u}^{st} y_u^{sr} (\tilde{\mu} c_{\gamma} \overline{y_u}^{pr} a_u^{pt} + \overline{a_u}^{pr} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{1,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] + \\
&\quad 3 C_{H^2} \tilde{\mu} c_{\gamma} \overline{y_u}^{st} (c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} - s_{\gamma}^2 \overline{y_u}^{pr} y_u^{sr}) (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) \mathrm{LF}_{2,2,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}, m_{\tilde{q}}^{s}] - \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{pt} y_d^{sr} \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{pt} y_d^{sr} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}] + \\
&\quad 6 C_{H^2} c_{\gamma}^3 \overline{y_d}^{st} y_d^{pt} \overline{a_d}^{pr} (-c_{\gamma} a_d^{sr} + s_{\gamma} \tilde{\mu} y_d^{sr}) \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}] + \\
&\quad 6 C_{H^2} c_{\gamma}^3 \overline{y_d}^{st} y_d^{pt} \overline{a_d}^{pr} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr}) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}] + \\
&\quad 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^3 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} a_d^{pt} \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}] - \\
&\quad 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma}^3 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} a_d^{pt} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}] + \\
&\quad 6 s_{\gamma} C_{H^2} \overline{a_u}^{pr} (c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} - s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}) \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad 6 s_{\gamma} C_{H^2} \overline{a_u}^{pr} (-c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} + s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad 6 C_{H^2} \tilde{\mu} c_{\gamma} \overline{y_u}^{st} (s_{\gamma}^3 \overline{y_u}^{pr} y_u^{sr} a_u^{pt} + c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt})) \\
&\qquad \mathrm{LF}_{2,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}] - 6 C_{H^2} \tilde{\mu} c_{\gamma} \overline{y_u}^{st} \\
&\qquad (s_{\gamma}^3 \overline{y_u}^{pr} y_u^{sr} a_u^{pt} + c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}] + \\
&\quad 3 s_{\gamma} C_{H^2} \overline{a_u}^{pr} (-c_{\gamma}^2 \overline{y_d}^{st} y_d^{pt} + s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}) \mathrm{LF}_{2,2,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}] - \\
&\quad 6 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{1,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] - 3 C_{H^2} \tilde{\mu} c_{\gamma} \overline{y_u}^{st} \\
&\qquad (s_{\gamma}^3 \overline{y_u}^{pr} y_u^{sr} a_u^{pt} + c_{\gamma}^2 \overline{y_d}^{pr} y_d^{sr} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{2,2,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}] - \\
&\quad 6 C_{H^2} s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} y_u^{sr} + s_{\gamma} \overline{a_u}^{pr} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 \overline{y_u}^{st} y_u^{pt} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} y_u^{sr} + s_{\gamma} \overline{a_u}^{pr} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} s_{\gamma}^3 \overline{y_u}^{st} y_u^{sr} (\tilde{\mu} c_{\gamma} \overline{y_u}^{pr} a_u^{pt} + \overline{a_u}^{pr} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} s_{\gamma}^3 \overline{y_u}^{st} y_u^{sr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{pr} a_u^{pt} + \overline{a_u}^{pr} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}] - \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{2,1,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} s_{\gamma}^3 \overline{y_u}^{st} y_u^{sr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{pr} a_u^{pt} + \overline{a_u}^{pr} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{2,2,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{2,2,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} \tilde{\mu} c_{\gamma} s_{\gamma}^3 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} \mathrm{LF}_{2,1,1,0}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] - \\
&\quad 6 C_{H^2} \tilde{\mu} c_{\gamma} s_{\gamma}^3 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} s_{\gamma}^3 \overline{y_u}^{st} y_u^{sr} (\tilde{\mu} c_{\gamma} \overline{y_u}^{pr} a_u^{pt} + \overline{a_u}^{pr} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{2,1,1,0}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] + \\
&\quad 6 C_{H^2} s_{\gamma}^3 \overline{y_u}^{st} y_u^{sr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{pr} a_u^{pt} + \overline{a_u}^{pr} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt})) \mathrm{LF}_{3,1,1,-1}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] - \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{2,1,1,0}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] + \\
&\quad 6 C_{H^2} s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{pt} y_u^{sr} \mathrm{LF}_{3,1,1,-1}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] + \\
&\quad g_1^2 g_2^2 \mathrm{LF}_{2,1,1,-2}[\tilde{\mu}, m_1, m_2] + g_1^2 g_2^2 \\
&\qquad (m_1 m_2 - C_{H^2} (3 c_{\gamma}^4 + 8 s_{\gamma}^2 c_{\gamma}^2 + 3 s_{\gamma}^4) + 4 s_{\gamma} \tilde{\mu} c_{\gamma} (m_1+m_2) + 4 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{2,1,1,-1}[\tilde{\mu}, m_1, m_2] - \\
&\quad 4 m_1 s_{\gamma} c_{\gamma} g_1^2 g_2^2 (-m_2 s_{\gamma} c_{\gamma} \tilde{\mu}^2 + C_{H^2} (m_2 s_{\gamma} c_{\gamma} + 2 \tilde{\mu})) \mathrm{LF}_{2,1,1,0}[\tilde{\mu}, m_1, m_2] + \\
&\quad C_{H^2} g_1^2 g_2^2 (7 c_{\gamma}^4 + 10 s_{\gamma}^2 c_{\gamma}^2 + 7 s_{\gamma}^4) \mathrm{LF}_{3,1,1,-2}[\tilde{\mu}, m_1, m_2] + \\
&\quad C_{H^2} g_1^2 g_2^2 (m_1 m_2 (3 c_{\gamma}^2 + s_{\gamma}^2) (c_{\gamma}^2 + 3 s_{\gamma}^2) + 4 s_{\gamma} \tilde{\mu} c_{\gamma} (5 m_1 + 3 m_2) + 16 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \\
&\qquad \mathrm{LF}_{3,1,1,-1}[\tilde{\mu}, m_1, m_2] + 8 m_1 m_2 C_{H^2} g_1^2 g_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{3,1,1,0}[\tilde{\mu}, m_1, m_2] - \\
&\quad 4 C_{H^2} g_1^2 g_2^2 (c_{\gamma}^4 + s_{\gamma}^2 c_{\gamma}^2 + s_{\gamma}^4) \mathrm{LF}_{4,1,1,-3}[\tilde{\mu}, m_1, m_2] - 2 C_{H^2} g_1^2 g_2^2 \\
&\qquad (m_1 m_2 (c_{\gamma}^4 + 4 s_{\gamma}^2 c_{\gamma}^2 + s_{\gamma}^4) + 6 s_{\gamma} \tilde{\mu} c_{\gamma} (m_1+m_2) + 6 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{4,1,1,-2}[\tilde{\mu}, m_1, m_2] - \\
&\quad 12 m_1 m_2 C_{H^2} g_1^2 g_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{4,1,1,-1}[\tilde{\mu}, m_1, m_2] - 4 C_{H^2} g_1^2 g_2^2 \mathrm{LF}_{3,2,1,-3}[\tilde{\mu}, m_2, m_1] - \\
&\quad 4 C_{H^2} g_1^2 g_2^2 (m_1 m_2 + 4 s_{\gamma} \tilde{\mu} c_{\gamma} (m_1+m_2) + 4 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2) \mathrm{LF}_{3,2,1,-2}[\tilde{\mu}, m_2, m_1] - \\
&\quad 16 m_1 m_2 C_{H^2} g_1^2 g_2^2 s_{\gamma}^2 \tilde{\mu}^2 c_{\gamma}^2 \mathrm{LF}_{3,2,1,-1}[\tilde{\mu}, m_2, m_1] - \\
&\quad 3 (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} \overline{y_d}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_d^{pt} y_d^{sr} + c_{\gamma} a_d^{pt} (c_{\gamma} a_d^{sr} - 2 s_{\gamma} \tilde{\mu} y_d^{sr})) + \\
&\qquad c_{\gamma} \overline{a_d}^{pr} (-2 s_{\gamma} \tilde{\mu} \overline{y_d}^{st} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt}) (-c_{\gamma} a_d^{sr} + s_{\gamma} \tilde{\mu} y_d^{sr}) + c_{\gamma} \overline{a_d}^{st} \\
&\qquad (s_{\gamma}^2 \tilde{\mu}^2 y_d^{pt} y_d^{sr} + c_{\gamma} a_d^{pt} (c_{\gamma} a_d^{sr} - 2 s_{\gamma} \tilde{\mu} y_d^{sr})))) \mathrm{LF}_{1,1,1,1,0}[m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + \\
&\quad (-s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} \overline{y_e}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_e^{pt} y_e^{sr} + c_{\gamma} a_e^{pt} (c_{\gamma} a_e^{sr} - 2 s_{\gamma} \tilde{\mu} y_e^{sr})) + \\
&\qquad c_{\gamma} \overline{a_e}^{pr} (2 s_{\gamma} \tilde{\mu} \overline{y_e}^{st} (-c_{\gamma} a_e^{pt} + s_{\gamma} \tilde{\mu} y_e^{pt}) (-c_{\gamma} a_e^{sr} + s_{\gamma} \tilde{\mu} y_e^{sr}) - c_{\gamma} \overline{a_e}^{st} \\
&\qquad (s_{\gamma}^2 \tilde{\mu}^2 y_e^{pt} y_e^{sr} + c_{\gamma} a_e^{pt} (c_{\gamma} a_e^{sr} - 2 s_{\gamma} \tilde{\mu} y_e^{sr})))) \mathrm{LF}_{1,1,1,1,0}[m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}, m_{\tilde{l}}^{s}] - \\
&\quad 2 C_{H^2} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} \overline{y_e}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_e^{pt} y_e^{sr} + c_{\gamma} a_e^{pt} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})) + \\
&\qquad c_{\gamma} \overline{a_e}^{pr} (-s_{\gamma} \tilde{\mu} \overline{y_e}^{st} (-c_{\gamma} a_e^{pt} + s_{\gamma} \tilde{\mu} y_e^{pt}) (-c_{\gamma} a_e^{sr} + s_{\gamma} \tilde{\mu} y_e^{sr}) + c_{\gamma} \overline{a_e}^{st} \\
&\qquad (s_{\gamma}^2 \tilde{\mu}^2 y_e^{pt} y_e^{sr} + c_{\gamma} a_e^{pt} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})))) \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{s}] + \\
&\quad 2 C_{H^2} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} \overline{y_e}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_e^{pt} y_e^{sr} + c_{\gamma} a_e^{pt} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})) + \\
&\qquad c_{\gamma} \overline{a_e}^{pr} (-s_{\gamma} \tilde{\mu} \overline{y_e}^{st} (-c_{\gamma} a_e^{pt} + s_{\gamma} \tilde{\mu} y_e^{pt}) (-c_{\gamma} a_e^{sr} + s_{\gamma} \tilde{\mu} y_e^{sr}) + \\
&\qquad c_{\gamma} \overline{a_e}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_e^{pt} y_e^{sr} + c_{\gamma} a_e^{pt} (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr})))) \\
&\qquad \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{l}}^{p}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{s}] + 2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} a_e^{pt} + \\
&\qquad \overline{a_e}^{pr} (c_{\gamma}^2 y_e^{sr} \overline{a_e}^{st} a_e^{pt} + \overline{y_e}^{st} (c_{\gamma} a_e^{pt} - s_{\gamma} \tilde{\mu} y_e^{pt}) (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr}))) \\
&\qquad \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{l}}^{s}, m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}] - 2 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_e}^{pr} \overline{y_e}^{st} y_e^{sr} a_e^{pt} + \\
&\qquad \overline{a_e}^{pr} (c_{\gamma}^2 y_e^{sr} \overline{a_e}^{st} a_e^{pt} + \overline{y_e}^{st} (c_{\gamma} a_e^{pt} - s_{\gamma} \tilde{\mu} y_e^{pt}) (c_{\gamma} a_e^{sr} - s_{\gamma} \tilde{\mu} y_e^{sr}))) \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{l}}^{s}, \\
&\qquad m_{\tilde{e}}^{r}, m_{\tilde{e}}^{t}, m_{\tilde{l}}^{p}] - 6 C_{H^2} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} \overline{y_d}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_d^{pt} y_d^{sr} + c_{\gamma} a_d^{pt} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})) + \\
&\qquad c_{\gamma} \overline{a_d}^{pr} (-s_{\gamma} \tilde{\mu} \overline{y_d}^{st} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt}) (-c_{\gamma} a_d^{sr} + s_{\gamma} \tilde{\mu} y_d^{sr}) + c_{\gamma} \overline{a_d}^{st} \\
&\qquad (s_{\gamma}^2 \tilde{\mu}^2 y_d^{pt} y_d^{sr} + c_{\gamma} a_d^{pt} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})))) \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{s}] + \\
&\quad 6 C_{H^2} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} \overline{y_d}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_d^{pt} y_d^{sr} + c_{\gamma} a_d^{pt} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})) + \\
&\qquad c_{\gamma} \overline{a_d}^{pr} (-s_{\gamma} \tilde{\mu} \overline{y_d}^{st} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt}) (-c_{\gamma} a_d^{sr} + s_{\gamma} \tilde{\mu} y_d^{sr}) + \\
&\qquad c_{\gamma} \overline{a_d}^{st} (s_{\gamma}^2 \tilde{\mu}^2 y_d^{pt} y_d^{sr} + c_{\gamma} a_d^{pt} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr})))) \\
&\qquad \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{s}] + 6 C_{H^2} c_{\gamma} (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr}) (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) \\
&\qquad (s_{\gamma} \tilde{\mu}^2 \overline{y_d}^{pr} \overline{y_u}^{st} + \overline{a_d}^{pr} (s_{\gamma} \overline{a_u}^{st} - \tilde{\mu} c_{\gamma} \overline{y_u}^{st})) \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} \tilde{\mu} s_{\gamma}^2 \overline{y_d}^{st} \overline{a_u}^{pr} (-c_{\gamma} a_d^{pt} + s_{\gamma} \tilde{\mu} y_d^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}) \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{d}}^{t}, m_{\tilde{u}}^{r}] - \\
&\quad 3 (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - 2 \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-2 \tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + s_{\gamma} \overline{a_u}^{st} \\
&\qquad (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - 2 \tilde{\mu} c_{\gamma} y_u^{sr})))) \mathrm{LF}_{1,1,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] - \\
&\quad 6 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + s_{\gamma} \overline{a_u}^{st} \\
&\qquad (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})))) \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + s_{\gamma} \overline{a_u}^{st} \\
&\qquad (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})))) \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] + \\
&\quad 3 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + s_{\gamma} \overline{a_u}^{st} \\
&\qquad (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})))) \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 3 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + \\
&\qquad s_{\gamma} \overline{a_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})))) \\
&\qquad \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] + 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} a_d^{pt} + \\
&\qquad \overline{a_d}^{pr} (c_{\gamma}^2 y_d^{sr} \overline{a_d}^{st} a_d^{pt} + \overline{y_d}^{st} (c_{\gamma} a_d^{pt} - s_{\gamma} \tilde{\mu} y_d^{pt}) (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr}))) \\
&\qquad \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}] - 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (s_{\gamma}^2 \tilde{\mu}^2 \overline{y_d}^{pr} \overline{y_d}^{st} y_d^{sr} a_d^{pt} + \\
&\qquad \overline{a_d}^{pr} (c_{\gamma}^2 y_d^{sr} \overline{a_d}^{st} a_d^{pt} + \overline{y_d}^{st} (c_{\gamma} a_d^{pt} - s_{\gamma} \tilde{\mu} y_d^{pt}) (c_{\gamma} a_d^{sr} - s_{\gamma} \tilde{\mu} y_d^{sr}))) \\
&\qquad \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{d}}^{r}, m_{\tilde{d}}^{t}, m_{\tilde{q}}^{p}] + 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} + \\
&\qquad \overline{a_u}^{pr} (s_{\gamma}^2 y_u^{sr} \overline{a_u}^{st} a_u^{pt} + \overline{y_u}^{st} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}))) \\
&\qquad \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] - 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} + \\
&\qquad \overline{a_u}^{pr} (s_{\gamma}^2 y_u^{sr} \overline{a_u}^{st} a_u^{pt} + \overline{y_u}^{st} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}))) \\
&\qquad \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}] - 3 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} + \\
&\qquad \overline{a_u}^{pr} (s_{\gamma}^2 y_u^{sr} \overline{a_u}^{st} a_u^{pt} + \overline{y_u}^{st} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}))) \\
&\qquad \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{t}] - 3 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} + \\
&\qquad \overline{a_u}^{pr} (s_{\gamma}^2 y_u^{sr} \overline{a_u}^{st} a_u^{pt} + \overline{y_u}^{st} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}))) \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{q}}^{s}, \\
&\qquad m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{u}}^{r}] - 6 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + s_{\gamma} \overline{a_u}^{st} \\
&\qquad (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})))) \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 6 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-\tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + s_{\gamma} \overline{a_u}^{st} \\
&\qquad (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr})))) \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{t}] + \\
&\quad 3 C_{H^2} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - 2 \tilde{\mu} c_{\gamma} y_u^{sr})) + \\
&\qquad s_{\gamma} \overline{a_u}^{pr} (-2 \tilde{\mu} c_{\gamma} \overline{y_u}^{st} (-s_{\gamma} a_u^{pt} + \tilde{\mu} c_{\gamma} y_u^{pt}) (-s_{\gamma} a_u^{sr} + \tilde{\mu} c_{\gamma} y_u^{sr}) + \\
&\qquad s_{\gamma} \overline{a_u}^{st} (\tilde{\mu}^2 c_{\gamma}^2 y_u^{pt} y_u^{sr} + s_{\gamma} a_u^{pt} (s_{\gamma} a_u^{sr} - 2 \tilde{\mu} c_{\gamma} y_u^{sr})))) \\
&\qquad \mathrm{LF}_{2,2,1,1,-1}[m_{\tilde{u}}^{r}, m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}] + 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} + \\
&\qquad \overline{a_u}^{pr} (s_{\gamma}^2 y_u^{sr} \overline{a_u}^{st} a_u^{pt} + \overline{y_u}^{st} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}))) \\
&\qquad \mathrm{LF}_{2,1,1,1,0}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] - 6 s_{\gamma} C_{H^2} \tilde{\mu} c_{\gamma} (\tilde{\mu}^2 c_{\gamma}^2 \overline{y_u}^{pr} \overline{y_u}^{st} y_u^{sr} a_u^{pt} + \\
&\qquad \overline{a_u}^{pr} (s_{\gamma}^2 y_u^{sr} \overline{a_u}^{st} a_u^{pt} + \overline{y_u}^{st} (s_{\gamma} a_u^{pt} - \tilde{\mu} c_{\gamma} y_u^{pt}) (s_{\gamma} a_u^{sr} - \tilde{\mu} c_{\gamma} y_u^{sr}))) \\
&\qquad \mathrm{LF}_{3,1,1,1,-1}[m_{\tilde{u}}^{t}, m_{\tilde{q}}^{p}, m_{\tilde{q}}^{s}, m_{\tilde{u}}^{r}] \Bigr)
\end{aligned}
$$