

$$\begin{aligned}
& -\frac{2}{9}m_1^2(g_1^2+g_2^2)+\frac{1}{16}\left(\frac{1}{m_2^2}(g_1^2+g_2^2)-\frac{1}{m_2^2}m_4^2(g_1^2+g_2^2)+2m_2^2c_2^2(g_1^2+3g_2^2)(c_\gamma^2+s_\gamma^2)\right)- \\
& -\frac{c_2^2}{9}m_1^2g_2^4LF_{3,0}[m_2]-\frac{2}{3}m_1^2g_2^4LF_{4,-1}[m_2]+\frac{32}{45}m_1^2g_2^4LF_{5,-2}[m_2]- \\
& -\frac{1}{4}\sum\limits_{\gamma}S_2S_4S_\gamma g_1^2\frac{1}{m_4^2}(g_1^2+g_2^2)(m_4^2+m_5^2)LF_{1,0}[m_d^P]-\frac{1}{12}\sum\limits_{\gamma}B_1^4c_2\gamma^2LF_{2,0}[m_d^P]+ \\
& -\frac{3}{4}S_2\gamma S_4\gamma\frac{1}{m_4^4}\overline{Yd}^P Yd^P (g_1^2+g_2^2)(m_4^2+m_5^2)LF_{1,0}[m_d^P]+c_2\gamma B_1^4c_2\gamma^2\overline{Yd}^P Yd^P LF_{2,0}[m_d^P]- \\
& -\frac{1}{4}\sum\limits_{\gamma}S_2S_4S_\gamma g_1^2\frac{1}{m_4^2}(g_1^2+g_2^2)(m_4^2+m_5^2)LF_{1,0}[m_e^P]-\frac{1}{4}\sum\limits_{\gamma}B_1^4c_2\gamma^2LF_{2,0}[m_e^P]+ \\
& -\frac{1}{4}S_2\gamma S_4\gamma\frac{1}{m_4^4}\overline{Yd}^P Yd^P (g_1^2+g_2^2)(m_4^2+m_5^2)LF_{1,0}[m_e^P]+c_2\gamma B_1^4c_2\gamma^2\overline{Yd}^P Yd^P LF_{2,0}[m_e^P]+ \\
& -\frac{1}{4}S_2\gamma S_4\gamma\frac{1}{m_4^4}(g_1^2+g_2^2)(m_4^2+m_5^2)(\overline{Yd}^P Yd^P+\sum\limits_{\gamma}B_1^4)LF_{1,0}[m_l^P]- \\
& -\frac{1}{8}c_2\gamma(4c_\gamma\overline{Yd}^P Yd^P (g_1^2+g_2^2)+\sum\limits_{\gamma}c_2\gamma(g_1^2+g_2^2))LF_{2,0}[m_l^P]+ \\
& -\frac{1}{18}m_1^2g_2^2(-36c_2\gamma c_\gamma^2\overline{Yd}^P Yd^P+\sum\limits_{\gamma}c_2\gamma^2(-4+9c_2^2))LF_{3,0}[m_l^P]+ \\
& -\frac{1}{12}m_1^2g_2^2(24c_2\gamma c_\gamma^2\overline{Yd}^P Yd^P+\sum\limits_{\gamma}g_2^2(5-6c_2^2))LF_{4,-1}[m_l^P]-\frac{8}{45}\sum\limits_{\gamma}m_1^2g_2^4LF_{5,-2}[m_l^P]- \\
& -\frac{1}{4}S_2\gamma S_4\gamma\frac{1}{m_4^2}(g_1^2+g_2^2)(m_4^2+m_5^2)(-3\overline{Yd}^P Yd^P+3Yd^P Yd^P+\sum\limits_{\gamma}c_2\gamma)LF_{1,0}[m_l^P]+ \\
& -\frac{1}{24}c_2\gamma(12c_\gamma^2\overline{Yd}^P Yd^P (g_1^2+3g_2^2)+12S_\gamma^2\overline{Yd}^P Yd^P (g_1^2-3g_2^2)-\sum\limits_{\gamma}c_2\gamma(g_1^4+9g_2^4)) \\
& LF_{2,0}[m_l^P]+\frac{1}{6}m_1^2g_2^2(36c_2\gamma(-c_\gamma^2\overline{Yd}^P Yd^P+c_2\gamma\overline{Yd}^P Yd^P)+\sum\limits_{\gamma}c_2\gamma^2(-4+9c_2^2)) \\
& LF_{3,0}[m_l^P]+\frac{1}{4}m_1^2g_2^2(24c_2\gamma(c_\gamma^2\overline{Yd}^P Yd^P-S_\gamma^2\overline{Yd}^P Yd^P)+\sum\limits_{\gamma}B_2^4(5-6c_2\gamma^2))LF_{4,-1}[m_l^P]- \\
& -\frac{8}{15}\sum\limits_{\gamma}m_1^2g_2^4LF_{5,-2}[m_l^P]+\frac{1}{2}\sum\limits_{\gamma}S_2S_4S_\gamma g_1^2\frac{1}{m_4^2}(g_1^2+g_2^2)(m_4^2+m_5^2)LF_{1,0}[m_l^P]- \\
& -\frac{1}{3}\sum\limits_{\gamma}B_1^4c_2\gamma^2LF_{2,0}[m_l^P]-\frac{3}{4}S_2\gamma S_4\gamma\frac{1}{m_4^4}\overline{Yd}^P Yd^P (g_1^2+g_2^2)(m_4^2+m_5^2)LF_{1,0}[m_l^P]- \\
& 2c_2\gamma B_1^4S_\gamma^2\overline{Yd}^P Yd^P LF_{2,0}[m_l^P]-\frac{3}{16}\frac{1}{m_2^2}S_4\gamma^2(m_4^2+m_5^2)LF_{1,0}[m_0](g_1^2+g_2^2)^2- \\
& -\frac{3}{16}S_4\gamma^2LF_{1,1}[m_0](g_1^2+g_2^2)^2-\frac{3}{16}m_4^2S_4\gamma^2LF_{1,2}[m_0](g_1^2+g_2^2)^2+ \\
& -\frac{1}{64}(2g_1^2g_2^2(3+c_4\gamma(2-5c_4\gamma)-4S_4\gamma^2)-g_2^2(9+c_4\gamma(-6+5c_4\gamma)+4S_2\gamma^4)- \\
& -g_1^4(1+c_4\gamma(2+5c_4\gamma)+4S_2\gamma^4))LF_{2,0}[m_0]+\frac{1}{288}m_1^4(9g_1^4((-1+c_4\gamma)^2+4S_2\gamma^4)+ \\
& +18g_1^2g_2^2(-3+c_4\gamma(2+c_4\gamma)+4S_2\gamma^4)+g_2^4(17+9c_4\gamma(6+c_4\gamma)+36S_2\gamma^4))LF_{3,0}[m_0]+ \\
& -\frac{1}{96}m_1^4(-3g_1^4((-1+c_4\gamma)^2+4S_2\gamma^4)-6g_1^2g_2^2(-3+c_4\gamma(2+c_4\gamma)+4S_2\gamma^4)- \\
& -g_2^4(-13+3c_4\gamma(6+c_4\gamma)+12S_2\gamma^4))LF_{4,-1}[m_0]-\frac{8}{45}m_1^2g_2^4LF_{5,-2}[m_0]- \\
& -\frac{2}{9}m_1^2g_2^4LF_{3,0}[\tilde{\mu}]-\frac{1}{3}m_1^2g_2^4LF_{4,-1}[\tilde{\mu}]+\frac{145}{45}m_1^2g_2^4LF_{5,-2}[\tilde{\mu}]+\frac{1}{2}m_1S_4\gamma\tilde{\mu}g_1^2\frac{1}{m_4^2} \\
& (g_1^2+g_2^2)(m_4^2+m_5^2)(c_\gamma^2-s_\gamma^2)LF_{1,1,1,0}[m_1,\tilde{\mu}]+\frac{1}{2}g_1^4LF_{2,2,-2}[m_1,\tilde{\mu}](c_\gamma^2+s_\gamma^2)^2+ \\
& +\frac{1}{2}g_1^4(m_1^2(c_\gamma^2+s_\gamma^2)^2+8m_1S_\gamma\tilde{\mu}c_\gamma(c_\gamma^2+s_\gamma^2)+4S_\gamma^2\tilde{\mu}^2c_\gamma^2)LF_{2,2,-1}[m_1,\tilde{\mu}]+ \\
& 2g_1^4m_1^2S_\gamma^2\tilde{\mu}^2\frac{1}{m_4^2}LF_{2,2,0}[m_1,\tilde{\mu}]+ \\
& +\frac{2}{3}m_4S_4\gamma\tilde{\mu}g_2^2\frac{1}{m_4^4}(g_1^2+g_2^2)(m_4^2+m_5^2)(c_\gamma^2-s_\gamma^2)LF_{1,1,0}[m_2,\tilde{\mu}]+ \\
& +\frac{8}{3}m_1^2g_2^4(c_\gamma^2+s_\gamma^2)LF_{2,1,0}[m_2,\tilde{\mu}]+\frac{1}{2}g_2^4(5c_\gamma^4+2S_\gamma^2c_\gamma^2+5S_\gamma^4)LF_{2,2,-2}[m_2,\tilde{\mu}]+ \\
& +\frac{1}{6}g_2^4(3c_\gamma^4(m_2^2+6m_1^2)+16m_1^2S_\gamma^2+3S_\gamma^4(6m_2^2+6m_1^2)+72m_2S_\gamma\tilde{\mu}c_\gamma^3+ \\
& -72m_1^2\tilde{\mu}c_\gamma S_\gamma^2+c_\gamma^2(m_2^2(16-48c_\gamma^2)+6S_\gamma^2(5m_2^2+72m_2^2))LF_{2,2,-1}[m_2,\tilde{\mu}]+ \\
& +\frac{2}{3}m_2S_\gamma c_\gamma g_2^4(8m_1^2\tilde{\mu}+3m_2S_\gamma c_\gamma(2m_1^2+3\tilde{\mu}^2))LF_{2,2,0}[m_2,\tilde{\mu}]-\frac{4}{3}m_1^2g_2^4(c_\gamma^2+s_\gamma^2) \\
& LF_{3,1,-1}[m_2,\tilde{\mu}]-\frac{4}{3}m_1^2g_2^4(6c_\gamma^4+s_\gamma^2+6S_\gamma^4+c_\gamma^2(1-12S_\gamma^2))LF_{3,2,-2}[m_2,\tilde{\mu}]+ \\
& +\frac{2}{3}m_1^2m_2g_2^4(9m_2(c_\gamma^2-s_\gamma^2)^2-4S_\gamma\tilde{\mu}c_\gamma)LF_{3,2,-1}[m_2,\tilde{\mu}]+ \\
& +4m_1^2g_2^4LF_{3,3,-3}[m_2,\tilde{\mu}](c_\gamma^2-s_\gamma^2)^2-4m_1^2g_2^4m_2^2LF_{3,3,-2}[m_2,\tilde{\mu}](c_\gamma^2-s_\gamma^2)^2+ \\
& +4m_1^2g_2^4LF_{4,2,-3}[m_2,\tilde{\mu}](c_\gamma^2-s_\gamma^2)^2-4m_1^2g_2^4m_2^2LF_{4,2,-2}[m_2,\tilde{\mu}](c_\gamma^2-s_\gamma^2)^2- \\
& -3c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}} LF_{1,1,0}[m_0^P,m_d^P]+\frac{3}{4}S_4\gamma\frac{1}{m_4^4}(g_1^2+g_2^2)(m_4^2+m_5^2) \\
& (\tilde{\mu}\overline{Yd}^P(a_d^{\text{pr}}(c_\gamma^2-s_\gamma^2)-2S_\gamma\tilde{\mu}c_\gamma Yd^{\text{pr}})+\overline{a_d}^{\text{pr}}(2S_\gamma c_\gamma a_d^{\text{pr}}+\tilde{\mu}Yd^{\text{pr}}(c_\gamma^2-s_\gamma^2))) \\
& -m_1^2L_{1,1,0}[m_d^P,m_q^P]+c_2\gamma B_1^2(c_\gamma\overline{a_d}^{\text{pr}}(c_\gamma^2-s_\gamma^2)-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_d^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{2,1,0}[m_d^P,m_q^P]- \\
& -c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}} LF_{1,1,0}[m_e^P,m_e^{\text{t}}]+\frac{3}{4}S_4\gamma\frac{1}{m_4^4}(g_1^2+g_2^2)(m_4^2+m_5^2) \\
& (\tilde{\mu}\overline{Yd}^P(a_e^{\text{pr}}(c_\gamma^2-s_\gamma^2)-2S_\gamma\tilde{\mu}c_\gamma Yd^{\text{pr}})+\overline{a_e}^{\text{pr}}(2S_\gamma c_\gamma a_e^{\text{pr}}+\tilde{\mu}Yd^{\text{pr}}(c_\gamma^2-s_\gamma^2))) \\
& -L_{1,1,0}[m_e^P,m_l^P]+c_2\gamma B_1^2(c_\gamma\overline{a_e}^{\text{pr}}(c_\gamma^2-s_\gamma^2)-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_e^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{2,1,0}[m_e^P,m_l^P]- \\
& -m_1^2c_2\gamma g_1^2(c_\gamma\overline{a_e}^{\text{pr}}(c_\gamma^2-s_\gamma^2)-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_e^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{2,2,0}[m_e^P,m_l^P]+ \\
& +\frac{1}{4}\frac{1}{m_2^2}(\tilde{\mu}\overline{Yd}^P(a_e^{\text{pr}}(-m_1^2S_4\gamma c_\gamma^2(g_1^2+g_2^2)- \\
& -2S_\gamma c_2\gamma c_\gamma m_5^2(g_1^2(-1+c_2\gamma)+g_2^2(1+c_2\gamma))+m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))+ \\
& +2S_\gamma\tilde{\mu}Yd^{\text{pr}}(m_1^2S_4\gamma c_\gamma(g_1^2+g_2^2)+S_\gamma c_2\gamma m_5^2(g_1^2(-1+c_2\gamma)+g_2^2(1+c_2\gamma))+ \\
& -\overline{a_e}^{\text{pr}}(2c_\gamma a_e^{\text{pr}}(c_2\gamma c_\gamma m_5^2(g_1^2+g_2^2)+2S_\gamma c_2\gamma c_\gamma(m_2^2+g_2^2)-m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))- \\
& -\tilde{\mu}Yd^{\text{pr}}(m_1^2S_4\gamma c_\gamma^2(g_1^2+g_2^2)+2S_\gamma c_2\gamma c_\gamma m_5^2(g_1^2(-1+c_2\gamma)+g_2^2(1+c_2\gamma))+ \\
& -m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))))LF_{2,1,0}[m_l^P,m_e^P]+\frac{1}{4}\frac{1}{m_2^2}(g_1^2+g_2^2) \\
& (2c_\gamma\overline{a_e}^{\text{pr}}a_e^{\text{pr}}(-c_\gamma m_5^2c_2\gamma^2+m_1^2S_4\gamma S_\gamma)+\tilde{\mu}(m_1^2S_4\gamma c_\gamma^2+2S_\gamma c_\gamma m_5^2c_2^2-m_1^2S_4\gamma S_\gamma^2) \\
& (\overline{Yd}^P a_e^{\text{pr}}+Yd^{\text{pr}}\overline{a_e}^{\text{pr}})-2S_\gamma\tilde{\mu}^2\overline{Yd}^P Yd^{\text{pr}}(m_1^2S_4\gamma c_\gamma+S_\gamma m_5^2c_2^2))LF_{3,1,-1}[m_l^P,m_e^P]- \\
& -m_1^2c_2\gamma(g_1^2(-1+c_2\gamma)+g_2^2(1+c_2\gamma))(c_\gamma\overline{a_e}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_e^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}}) \\
& -L_{1,1,0}[m_l^P,m_e^P]+m_1^2c_2\gamma g_1^2(c_\gamma\overline{a_e}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_e^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{3,2,-1}[m_l^P,m_e^P]+ \\
& +\frac{1}{2}m_1^2(-1+2c_2\gamma)(2g_2^2+3c_2\gamma(g_1^2+g_2^2))(c_\gamma\overline{a_e}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P) \\
& (c_\gamma a_e^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{4,1,-1}[m_l^P,m_e^P]- \\
& -\frac{2}{3}m_1^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))(c_\gamma\overline{a_e}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_e^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{5,1,-2}[m_l^P,m_e^P]- \\
& -c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}} LF_{1,1,0}[m_l^P,m_l^{\text{s}}]+2m_1^2c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}} LF_{2,1,0}[m_l^P,m_l^{\text{s}}]- \\
& -2m_1^2c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}} LF_{3,1,-1}[m_l^P,m_l^{\text{s}}]+\frac{1}{4}\frac{1}{m_2^2}(\tilde{\mu}\overline{Yd}^P(a_e^{\text{pr}}(-3m_1^2S_4\gamma c_\gamma^2(g_1^2+g_2^2)+ \\
& -2S_\gamma c_2\gamma c_\gamma m_5^2(g_1^2(1+c_2\gamma)+3g_2^2(1+c_2\gamma))+3m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))+ \\
& +2S_\gamma\tilde{\mu}Yd^{\text{pr}}(3m_1^2S_4\gamma c_\gamma(g_1^2+g_2^2)+S_\gamma c_2\gamma m_5^2(g_1^2(1+c_2\gamma)+3g_2^2(1+c_2\gamma))- \\
& -\overline{a_d}^{\text{pr}}(2c_\gamma a_d^{\text{pr}}(c_2\gamma c_\gamma m_5^2(g_1^2(1+c_2\gamma)+3g_2^2(1+c_2\gamma))-3m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))- \\
& -\tilde{\mu}Yd^{\text{pr}}(3m_1^2S_4\gamma c_\gamma^2(g_1^2+g_2^2)+2S_\gamma c_2\gamma c_\gamma m_5^2(g_1^2(1+c_2\gamma)+3g_2^2(1+c_2\gamma))- \\
& -3m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))))LF_{2,1,0}[m_q^P,m_d^P]+\frac{3}{4}\frac{1}{m_2^2}(g_1^2+g_2^2) \\
& (2c_\gamma\overline{a_d}^{\text{pr}}a_d^{\text{pr}}(-c_\gamma m_5^2c_2\gamma^2+m_1^2S_4\gamma S_\gamma)+\tilde{\mu}(m_1^2S_4\gamma c_\gamma^2+2S_\gamma c_\gamma m_5^2c_2^2-m_1^2S_4\gamma S_\gamma^2) \\
& (\overline{Yd}^P a_d^{\text{pr}}+Yd^{\text{pr}}\overline{a_d}^{\text{pr}})-2S_\gamma\tilde{\mu}^2\overline{Yd}^P Yd^{\text{pr}}(m_1^2S_4\gamma c_\gamma+S_\gamma m_5^2c_2^2))LF_{3,1,-1}[m_q^P,m_d^P]- \\
& -m_1^2c_2\gamma(g_1^2(1+c_2\gamma)+3g_2^2(1+c_2\gamma))(c_\gamma\overline{a_d}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_d^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}}) \\
& -L_{1,1,0}[m_q^P,m_d^P]+m_1^2c_2\gamma g_1^2(c_\gamma\overline{a_d}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_d^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{3,2,-1}[m_q^P,m_d^P]+ \\
& +\frac{3}{2}m_1^2(-2g_2^2+c_2\gamma(1+6c_2\gamma)(g_1^2+g_2^2))(c_\gamma\overline{a_d}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P) \\
& (c_\gamma a_d^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{4,1,-1}[m_q^P,m_d^P]- \\
& -2m_1^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))(c_\gamma\overline{a_d}^{\text{pr}}-S_\gamma\tilde{\mu}\overline{Yd}^P)(c_\gamma a_d^{\text{pr}}-S_\gamma\tilde{\mu}Yd^{\text{pr}})LF_{5,1,-2}[m_q^P,m_d^P]- \\
& -3(c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}}+S_4^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}})LF_{1,1,0}[m_0^P,m_0^{\text{s}}]+ \\
& +6m_1^2(c_\gamma^2Yd^{\text{pr}}Yd^{\text{sr}}(c_\gamma^2Yd^{\text{st}}Yd^{\text{pt}}-S_\gamma^2Yd^{\text{st}}Yd^{\text{pt}})+S_4^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}})LF_{2,1,0}[m_0^P,m_0^{\text{s}}]- \\
& -6m_1^2(c_\gamma^2Yd^{\text{pr}}Yd^{\text{sr}}(c_\gamma^2Yd^{\text{st}}Yd^{\text{pt}}-S_\gamma^2Yd^{\text{st}}Yd^{\text{pt}})+S_4^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}})LF_{3,1,-1}[m_0^P,m_0^{\text{s}}]+ \\
& +\frac{3}{4}S_4\gamma\frac{1}{m_5^2}(g_1^2+g_2^2)(m_4^2+m_5^2)(\tilde{\mu}\overline{Yd}^P(a_d^{\text{pr}}(c_\gamma^2-s_\gamma^2)+2S_\gamma\tilde{\mu}c_\gamma Yd^{\text{pr}})+ \\
& -c_2\gamma(-2S_\gamma c_\gamma a_d^{\text{pr}}+\tilde{\mu}Yd^{\text{pr}}(c_\gamma^2-s_\gamma^2)))LF_{1,1,0}[m_0^P,m_0^{\text{s}}]+ \\
& +\frac{1}{2}c_2\gamma(g_1^2-3g_2^2)(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{2,1,0}[m_0^P,m_0^{\text{s}}]- \\
& +\frac{1}{2}m_1^2(c_2\gamma g_1^2+g_2^2(4-3c_2\gamma))(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{2,2,0}[m_0^P,m_0^{\text{s}}]+ \\
& +6m_1^2c_2\gamma g_2^2(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{3,1,0}[m_0^P,m_0^{\text{s}}]- \\
& -m_1^2g_2^2(-1+3c_2\gamma)(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{3,2,-1}[m_0^P,m_0^{\text{s}}]- \\
& -6m_1^2c_2\gamma g_2^2(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{4,1,-1}[m_0^P,m_0^{\text{s}}]- \\
& +6m_1^2S_\gamma^2c_\gamma^2\overline{Yd}^P Yd^{\text{sr}}Yd^{\text{st}}Yd^{\text{pt}}LF_{2,1,0}[m_0^{\text{s}},m_q^P]+ \\
& +6m_1^2S_\gamma^2c_\gamma^2\overline{Yd}^P Yd^{\text{sr}}Yd^{\text{st}}Yd^{\text{pt}}LF_{3,1,-1}[m_0^{\text{s}},m_q^P]+ \\
& +\frac{1}{4}\frac{1}{m_2^2}(\tilde{\mu}\overline{Yd}^P(a_d^{\text{pr}}(-3m_1^2S_4\gamma c_\gamma^2(g_1^2+g_2^2)- \\
& -2S_\gamma c_2\gamma c_\gamma m_5^2(g_1^2(-4+3c_2\gamma)+3c_2\gamma g_2^2)+3m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))+ \\
& +2\tilde{\mu}c_\gamma Yd^{\text{pr}}(3m_1^2S_4\gamma c_\gamma(g_1^2(-4+3c_2\gamma)+3c_2\gamma g_2^2)-3m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))+ \\
& +\overline{a_d}^{\text{pr}}(2c_\gamma a_d^{\text{pr}}(c_2\gamma c_\gamma m_5^2(g_1^2+g_2^2)+2S_\gamma c_2\gamma c_\gamma(m_2^2+g_2^2)-m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))- \\
& -\tilde{\mu}Yd^{\text{pr}}(3m_1^2S_4\gamma c_\gamma^2(g_1^2+g_2^2)+2S_\gamma c_2\gamma c_\gamma m_5^2(g_1^2(-4+3c_2\gamma)+3c_2\gamma g_2^2)+ \\
& -3m_1^2S_4\gamma S_\gamma^2(g_1^2+g_2^2))))LF_{2,1,0}[m_0^{\text{s}},m_q^P]+\frac{3}{4}\frac{1}{m_2^2}(g_1^2+g_2^2) \\
& (-2S_\gamma\overline{a_d}^{\text{pr}}a_d^{\text{pr}}(m_1^2S_4\gamma c_\gamma+S_\gamma m_5^2c_2^2)+\tilde{\mu}(m_1^2S_4\gamma c_\gamma^2+2S_\gamma c_\gamma m_5^2c_2^2-m_1^2S_4\gamma S_\gamma^2) \\
& (\overline{Yd}^P a_d^{\text{pr}}+Yd^{\text{pr}}\overline{a_d}^{\text{pr}})+2c_\gamma\tilde{\mu}^2\overline{Yd}^P Yd^{\text{pr}}(-c_\gamma m_5^2c_2^2+m_1^2S_4\gamma S_\gamma^2))LF_{3,1,-1}[m_0^{\text{s}},m_q^P]- \\
& -m_1^2(c_2\gamma g_1^2(-4+3c_2\gamma)+g_2^2(-2+3c_2^2))(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P) \\
& (S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{3,1,0}[m_0^{\text{s}},m_q^P]+ \\
& +\frac{1}{2}m_1^2(c_2\gamma g_1^2+g_2^2(4-3c_2\gamma))(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{3,2,-1}[m_0^{\text{s}},m_q^P]+ \\
& +3m_1^2(c_2\gamma g_2^2(-2+3c_2\gamma)+g_2^2(-2-3c_2\gamma^2)) \\
& (S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{4,1,-1}[m_0^{\text{s}},m_q^P]- \\
& -2m_1^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))(S_\gamma\overline{a_d}^{\text{pr}}-\tilde{\mu}c_\gamma\overline{Yd}^P)(S_\gamma a_d^{\text{pr}}-\tilde{\mu}c_\gamma Yd^{\text{pr}})LF_{5,1,-2}[m_0^{\text{s}},m_q^P]- \\
& -3c_\gamma^4\overline{Yd}^P Yd^{\text{st}} Yd^{\text{pt}} Yd^{\text{sr}} LF_{1,1,0}[m_0^{\text{s}},m_0^{\text{t}}]- \\
& -\frac{3}{4}g_1^2c_2^2(g_1^2+g_2^2)(c_\gamma^2+s_\gamma^2)LF_{2,1,-1}[\tilde{\mu},m_1]- \\
& -\frac{1}{2}m_1\tilde{\mu}g_1^2\frac{1}{m_2^2}(g_1^2+g_2^2)(m_4^2S_4\gamma c_\gamma^2+2S_\gamma c_\gamma m_5^2c_2^2-m_1^2S_4\gamma S_\gamma^2)LF_{2,1,0}[\tilde{\mu},m_1]+ \\
& +\frac{1}{2}g_1^2c_2^2(g_1^2+g_2^2)(c_\gamma^2+s_\gamma^2)LF_{3,1,-2}[\tilde{\mu},m_1]+\frac{1}{2}g_1^2\frac{1}{m_2^2}(g_1^2+g_2^2) \\
& (m_1^2m_4S_4\gamma\tilde{\mu}(c_\gamma^2-s_\gamma^2)+2m_5^2c_2^2(2m_1^2(c_\gamma^2+s_\gamma^2)+m_1S_\gamma\tilde{\mu}c_\gamma))LF_{3,1,-1}[\tilde{\mu},m_1]+ \\
& +2m_1m_1^2S_\gamma\tilde{\mu}c_\gamma g_1^2c_2^2(g_1^2+g_2^2)LF_{3,1,0}[\tilde{\mu},m_1]-\frac{3}{2}m_1^2g_1^4LF_{3,2,-2}[\tilde{\mu},m_1](c_\gamma^2+s_\gamma^2)^2+ \\
& +\frac{1}{2}m_1^4g_1^4(-3m_1^2(c_\gamma^2+s_\gamma^2)^2-20m_1S_\gamma\tilde{\mu}c_\gamma(c_\gamma^2+s_\gamma^2)-8S_\gamma^2\tilde{\mu}^2c_\gamma^2)LF_{3,2,-1}[\tilde{\mu},m_1]- \\
& -4m_1^2g_1^4m_1^2S_\gamma^2\tilde{\mu}^2c_2^2LF_{3,2,0}[\tilde{\mu},m_1]- \\
& -\frac{1}{3}m_1^2g_1^2(-5g_2^2+12c_2^2(g_1^2+g_2^2))(c_\gamma^2+s_\gamma^2)LF_{4,1,-2}[\tilde{\mu},m_1]+ \\
& +2m_1m_1^2S_\gamma\tilde{\mu}c_\gamma g_1^2(g_2^2-3c_2\gamma^2(g_1^2+g_2^2))LF_{4,1,-1}[\tilde{\mu},m_1]+ \\
& +m_1^2g_1^4LF_{4,2,-3}[\tilde{\mu},m_1](c_\gamma^2+s_\gamma^2)^2+ \\
& +m_1^2g_1^4(m_1^2(c_\gamma^2+s_\gamma^2)^2+8m_1S_\gamma\tilde{\mu}c_\gamma(c_\gamma^2+s_\gamma^2)+4S_\gamma^2\tilde{\mu}^2c_\gamma^2)LF_{4,2,-2}[\tilde{\mu},m_1]+ \\
& +4m_1^2g_1^4m_1^2S_\gamma^2\tilde{\mu}^2c_2^2LF_{4,2,-1}[\tilde{\mu},m_1]+ \\
& +\frac{1}{2}m_1^2g_1^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))(c_\gamma^2+s_\gamma^2)LF_{5,1,-3}[\tilde{\mu},m_1]+ \\
& +\frac{1}{3}m_1^2m_1^2S_\gamma\tilde{\mu}c_\gamma g_1^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))LF_{5,1,-2}[\tilde{\mu},m_1]- \\
& -\frac{9}{4}g_2^2c_2^2\gamma^2(g_1^2+g_2^2)(c_\gamma^2+s_\gamma^2)LF_{2,1,-2}[\tilde{\mu},m_2]- \\
& +\frac{3}{2}m_2\tilde{\mu}g_2^2\frac{1}{m_2^2}(g_1^2+g_2^2)(m_4^2S_4\gamma c_\gamma^2+2S_\gamma c_\gamma m_5^2c_2^2-m_1^2S_4\gamma S_\gamma^2)LF_{2,1,0}[\tilde{\mu},m_2]+ \\
& +\frac{3}{2}g_2^2c_2^2\gamma^2(g_1^2+g_2^2)(c_\gamma^2+s_\gamma^2)LF_{3,1,-2}[\tilde{\mu},m_2]+ \\
& +\frac{1}{6}g_2^2\frac{1}{m_2^2}(4m_1^2m_5^2(-8g_2^2+9c_2\gamma^2(g_1^2+g_2^2))(c_\gamma^2+s_\gamma^2)+ \\
& +9m_2^2\tilde{\mu}(g_1^2+g_2^2)(m_4^2S_4\gamma c_\gamma^2+2S_\gamma c_\gamma m_5^2c_2^2-m_1^2S_4\gamma S_\gamma^2))LF_{3,1,-1}[\tilde{\mu},m_2]+ \\
& -\frac{2}{3}m_1^2m_2S_\gamma\tilde{\mu}c_\gamma g_2^2(-8g_2^2+9c_2\gamma^2(g_1^2+g_2^2))LF_{3,1,0}[\tilde{\mu},m_2]- \\
& +\frac{1}{6}m_1^2g_2^4(69c_\gamma^4+16S_\gamma^2+69S_\gamma^4+c_\gamma^2(16-6S_\gamma^2))LF_{3,2,-2}[\tilde{\mu},m_2]+ \\
& +\frac{1}{6}m_1^2g_2^4(-3m_2^2(3c_\gamma^4+38S_\gamma^2c_\gamma^2+3S_\gamma^4)-4m_2S_\gamma\tilde{\mu}c_\gamma(8+51c_\gamma^2+51S_\gamma^2)-72S_\gamma^2\tilde{\mu}^2c_\gamma^2) \\
& LF_{3,2,-1}[\tilde{\mu},m_2]-12m_1^2g_2^4m_2^2S_\gamma^2\tilde{\mu}^2c_2^2LF_{3,2,0}[\tilde{\mu},m_2]- \\
& -2m_1^2g_2^2(-3g_2^2+4c_2\gamma^2(g_1^2+g_2^2))(c_\gamma^2+s_\gamma^2)LF_{4,1,-2}[\tilde{\mu},m_2]- \\
& -2m_1^2m_2S_\gamma\tilde{\mu}c_\gamma g_2^2(-7g_2^2+9c_2\gamma^2(g_1^2+g_2^2))LF_{4,1,-1}[\tilde{\mu},m_2]+ \\
& +m_1^2g_2^4(7c_\gamma^4+2S_\gamma^2c_\gamma^2+7S_\gamma^4)LF_{4,2,-3}[\tilde{\mu},m_2]+ \\
& +m_1^2g_2^4(m_2^2(c_\gamma^4+14S_\gamma^2c_\gamma^2+S_\gamma^4)+32m_2S_\gamma\tilde{\mu}c_\gamma(c_\gamma^2+s_\gamma^2)+16S_\gamma^2\tilde{\mu}^2c_\gamma^2)LF_{4,2,-2}[\tilde{\mu},m_2]+ \\
& +16m_1^2m_2^2m_2^2S_\gamma^2\tilde{\mu}^2c_2^2LF_{4,2,-1}[\tilde{\mu},m_2]+ \\
& +2m_1^2g_2^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))(c_\gamma^2+s_\gamma^2)LF_{5,1,-3}[\tilde{\mu},m_2]+ \\
& +2m_1^2m_1^2S_\gamma\tilde{\mu}c_\gamma g_2^2(-2g_2^2+3c_2\gamma^2(g_1^2+g_2^2))LF_{5,1,-2}[\tilde{\mu},m_2]- \\
& -8m_1^2m_1^2g_2^2LF_{2,2,1,-2}[m_2,\tilde{\mu},m_1](c_\gamma^2+s_\gamma^2)^2+ \\
& +2m_1^2m_1^2g_2^2(-3m_1m_2(c_\gamma^2+s_\gamma^2)^2-2S_\gamma\tilde{\mu}c_\gamma(7m_1+5m_2)(c_\gamma^2+s_\gamma^2)-12S_\gamma^2\tilde{\mu}^2c_\gamma^2) \\
& LF_{2,2,1,-1}[m_2,\tilde{\mu},m_1]-16m_1m_$$