Basis Warsaw mass (EFT SMEFT)

Variant of the Warsaw basis where all fermion fields are rotated such as to make their mass matrices diagonal. This rotation breaks $SU(2)_L$ invariance and is ambiguous for some operators. We adhere to the choice of arXiv:1704.03888 by Dedes, Materkowska, Paraskevas, Rosiek, and Suxho, which coincides with the "tilded" basis in arXiv:1512.02830 by Aebischer, Crivellin, Fael, and Greub.

Sectors

The effective Lagrangian is defined as

$$\mathcal{L}_{\text{eff}} = -\mathcal{H}_{\text{eff}} = \sum_{O_i = O_i^{\dagger}} C_i O_i + \sum_{O_i \neq O_i^{\dagger}} \left(C_i O_i + C_i^* O_i^{\dagger} \right).$$

dB=dL=0

| WC name | Operator | Type |
|------------|---|----------------------------|
| G | $f^{ABC}G^{A u}_{\mu}G^{B ho}_{ u}G^{C\mu}_{ ho}$ | R |
| Gtilde | $f^{ABC}\widetilde{G}^{A u}_{\mu}G^{B ho}_{ u}G^{C\mu}_{ u}$ | ${ m R}$ |
| W | $\epsilon^{IJK}W_{\mu}^{I u}W_{ u}^{J ho}W_{ ho}^{K\mu}$ | R |
| Wtilde | $\epsilon^{IJK}\widetilde{W}_{\mu}^{I u}W_{ u}^{J ho}W_{ ho}^{'K\mu}$ | R |
| phi | $\left(arphi^\daggerarphi ight)^3$ | R |
| phiBox | $\left(arphi^\daggerarphi ight)\square\left(arphi^\daggerarphi ight)$ | R |
| phiD | $\left(arphi^\dagger D^\mu arphi ight)^* \left(arphi^\dagger D_\mu arphi ight)$ | \mathbf{R} |
| phiG | $arphi^\dagger arphi G^A_{\mu u} G^{A\mu u}$ | \mathbf{R} |
| phiB | $arphi^\dagger arphi B_{\mu u} B^{\mu u}$ | R |
| phiW | $arphi^\dagger arphi W^I_{\mu u} W^{I\mu u}$ | R |
| phiWB | $arphi^\dagger 	au^I arphi W^I_{\mu u} B^{\mu u}$ | R |
| phiGtilde | $arphi^\dagger arphi \widetilde{G}^A_{\mu u} G^{A\mu u}$ | R |
| phiBtilde | $arphi^\dagger arphi \widetilde{B}_{\mu u} B^{\mu u}$ | R |
| phiWtilde | $arphi^\dagger arphi \widetilde{W}^I_{\mu u} W^{I\mu u}$ | R |
| phiWtildeB | $arphi^\dagger 	au^I arphi \widetilde{W}^I_{\mu u} B^{\mu u}$ | R |
| uphi_11 | $\left(arphi^\daggerarphi ight)\left(ar{q}_1^{}u_1\widetilde{arphi} ight)$ | \mathbf{C} |
| uphi_12 | $\left(arphi^\daggerarphi ight)\left(ar{q}_1u_2\widetilde{arphi} ight)$ | $^{\mathrm{C}}$ |
| uphi_13 | $\left(arphi^\daggerarphi ight)\left(ar{q}_1u_3\widetilde{arphi} ight)$ | \mathbf{C} |
| uphi_21 | $\left(arphi_{1}^{\dagger}arphi ight)\left(ar{q}_{2}u_{1}\widetilde{arphi} ight)$ | C |
| uphi_22 | $\left\langle arphi_{_{\perp}}^{\dagger}arphi ight angle \left(ar{q}_{2}u_{2}\widetilde{arphi} ight)$ | $\stackrel{	ext{C}}{\sim}$ |
| uphi_23 | $\left(arphi_{\downarrow}^{\dagger}arphi ight) \left(\overline{q}_{2}u_{3}\widetilde{arphi} ight)$ | C |
| uphi_31 | $\left(arphi^{\dagger} arphi ight) \left(ar{q}_{3} u_{1} \widetilde{arphi} ight) $ | C |
| uphi_32 | $\begin{pmatrix} \varphi^{\dagger} \varphi \end{pmatrix} \begin{pmatrix} \bar{q}_3 u_2 \widetilde{\varphi} \end{pmatrix}$ | C |
| uphi_33 | $\left(arphi^\daggerarphi ight)\left(ar{q}_3u_3\widetilde{arphi} ight)$ | C C |
| dphi_11 | $\left(\varphi^{\dagger} \varphi \right) \left(\bar{q}_1 d_1 \varphi \right)$ | C |
| dphi_12 | $\left(arphi^{}_{}arphi ight)\left(ar{q}_{1}d_{2}arphi ight)$ | C |

| WC name | Operator | Type |
|---------|---|-----------------|
| dphi_13 | $\left(arphi^\daggerarphi ight)\left(ar{q}_1d_3arphi ight)$ | С |
| dphi_21 | $\left(arphi^\daggerarphi ight)\left(ar{q}_2d_1arphi ight)$ | \mathbf{C} |
| dphi_22 | $\left(arphi^\daggerarphi ight)\left(ar{q}_2d_2arphi ight)$ | \mathbf{C} |
| dphi_23 | $\left(arphi^\daggerarphi ight)\left(ar{q}_2d_3arphi ight)$ | \mathbf{C} |
| dphi_31 | $\left(arphi^\daggerarphi ight)\left(ar{q}_3d_1arphi ight)$ | \mathbf{C} |
| dphi_32 | $\left(arphi^\daggerarphi ight)\left(ar{q}_3d_2arphi ight)$ | \mathbf{C} |
| dphi_33 | $\left(arphi^\daggerarphi ight)\left(ar{q}_3d_3arphi ight)$ | \mathbf{C} |
| ephi_11 | $\left(arphi^\daggerarphi ight)\left(ar\ell_1e_1arphi ight)$ | \mathbf{C} |
| ephi_12 | $\left(arphi^\daggerarphi ight)\left(ar\ell_1e_2arphi ight)$ | \mathbf{C} |
| ephi_13 | $\left(arphi^\daggerarphi ight)\left(ar\ell_1e_3arphi ight)$ | \mathbf{C} |
| ephi_21 | $\left(arphi^\daggerarphi ight)\left(arlho_2e_1arphi ight)$ | \mathbf{C} |
| ephi_22 | $\left(arphi^\daggerarphi ight)\left(ar\ell_2e_2arphi ight)$ | \mathbf{C} |
| ephi_23 | $\left(arphi^\daggerarphi ight)\left(ar{\ell}_2e_3arphi ight)$ | \mathbf{C} |
| ephi_31 | $\left(arphi^\daggerarphi ight)\left(ar\ell_3e_1arphi ight)$ | \mathbf{C} |
| ephi_32 | $\left(arphi^\daggerarphi ight)\left(ar\ell_3e_2arphi ight)$ | \mathbf{C} |
| ephi_33 | $\left(arphi^\daggerarphi ight)\left(ar\ell_3e_3arphi ight)$ | \mathbf{C} |
| eW_11 | $\left(\ell_1 \sigma^{\mu \nu} e_1\right) 	au^I \varphi W^I_{\mu u}$ | \mathbf{C} |
| eW_12 | $\left(ar{\ell}_1\sigma^{\mu u}e_2 ight)	au^I_{}arphi W^I_{\mu u}$ | C |
| eW_13 | $\left(ar{\ell}_1\sigma^{\mu u}e_3 ight)	au^I_{}arphi W^I_{\mu u}$ | \mathbf{C} |
| eW_21 | $\left(ar{\ell}_2\sigma^{\mu u}e_1 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| eW_22 | $\left(ar{\ell}_2\sigma^{\mu u}e_2 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| eW_23 | $\left(ar{\ell}_2\sigma^{\mu u}e_3 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| eW_31 | $\left(ar{\ell}_3\sigma^{\mu u}e_1 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| eW_32 | $\left(ar{\ell}_3\sigma^{\mu u}e_2 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| eW_33 | $\left(ar{\ell}_3\sigma^{\mu u}e_3 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| eB_11 | $\left(ar{\ell}_1\sigma^{\mu u}e_1 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_12 | $\left(ar{\ell}_1\sigma^{\mu u}e_2 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_13 | $(ar{\ell}_1\sigma^{\mu u}e_3)arphi B_{\mu u}$ | \mathbf{C} |
| eB_21 | $\left(ar{\ell}_2\sigma^{\mu u}e_1 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_22 | $\left(ar{\ell}_2\sigma^{\mu u}e_2 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_23 | $\left(ar{\ell}_2\sigma^{\mu u}e_3 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_31 | $\left(ar{\ell}_3\sigma^{\mu u}e_1 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_32 | $\left(ar{\ell}_3\sigma^{\mu u}e_2 ight)arphi B_{\mu u}$ | \mathbf{C} |
| eB_33 | $\left(ar{\ell}_3\sigma^{\mu u}e_3 ight)arphi B_{\mu u}$ | \mathbf{C} |
| uG_11 | $\left(ar{q}_1\sigma^{\mu u}T^Au_1 ight)\widetilde{arphi}G^A_{\mu u}$ | \mathbf{C} |
| uG_12 | $(\bar{q}_1 \sigma^{\mu\nu} T^A u_2) \widetilde{\varphi} G^A_{\mu\nu}$ | $^{\mathrm{C}}$ |
| uG_13 | $(\bar{q}_1 \sigma^{\mu\nu} T^A u_3) \widetilde{\varphi} G^A_{\mu\nu}$ | \mathbf{C} |
| uG_21 | $(\bar{q}_2\sigma^{\mu\nu}T^Au_1)\widetilde{\varphi}G^A_{\mu\nu}$ | С |
| uG_22 | $(\bar{q}_2\sigma^{\mu\nu}T^Au_2)\widetilde{\varphi}G^A_{\mu\nu}$ | C |
| uG_23 | $(\bar{q}_2 \sigma^{\mu\nu} T^A u_3) \widetilde{\varphi} G^A_{\mu\nu}$ | C |
| uG_31 | $\left(\bar{q}_3\sigma^{\mu\nu}T^Au_1\right)\widetilde{\varphi}G^A_{\mu\nu}$ | С |
| uG_32 | $\left(ar{q}_3\sigma^{\mu u}T^Au_2 ight)\widetilde{arphi}G^{\widetilde{A}}_{\mu u}$ | \mathbf{C} |

| WC name | Operator | Type |
|---------|--|----------------------------|
| uG_33 | $ \begin{array}{c} \left(\bar{q}_{3}\sigma^{\mu\nu}T^{A}u_{3}\right)\widetilde{\varphi}G_{\mu\nu}^{A} \\ \left(\bar{q}_{1}\sigma^{\mu\nu}u_{1}\right)\tau^{I}\widetilde{\varphi}W_{\mu\nu}^{I} \end{array} $ | С |
| uW_11 | $(\bar{q}_1 \sigma^{\mu\nu} u_1) \tau^I \widetilde{\varphi} W^{I^*}_{\mu\nu}$ | \mathbf{C} |
| uW_12 | $(ar{q}_1\sigma^{\mu u}u_2)	au^I\widetilde{arphi}W^I_{\mu u}$ | \mathbf{C} |
| uW_13 | $(\bar{q}_1\sigma^{\mu u}u_3)	au^I\widetilde{arphi}W^{\mu u}_{\mu u}$ | \mathbf{C} |
| uW_21 | $(ar{q}_2\sigma^{\mu u}u_1)	au^I\widetilde{arphi}W^{\mu u}_{\mu u}$ | \mathbf{C} |
| uW_22 | $(\bar{q}_2\sigma^{\mu\nu}u_2)	au^I\widetilde{arphi}W^{II}_{\mu u}$ | \mathbf{C} |
| uW_23 | $(\bar{q}_2\sigma^{\mu\nu}u_3)	au^I\widetilde{arphi}W^{\mu u}_{\mu u}$ | \mathbf{C} |
| uW_31 | $(\bar{q}_3\sigma^{\mu\nu}u_1)	au^I\widetilde{\varphi}W^{II}_{\mu u}$ | \mathbf{C} |
| uW_32 | $(\bar{q}_3\sigma^{\mu\nu}u_2)	au^I\widetilde{arphi}W^{II}_{\mu u}$ | \mathbf{C} |
| uW_33 | $(\bar{q}_3\sigma^{\mu u}u_3)	au^I\widetilde{arphi}W^{\mu u}_{\mu u}$ | \mathbf{C} |
| uB_11 | $(\bar{q}_1\sigma^{\mu\nu}u_1)\widetilde{\varphi}B_{\mu\nu}$ | \mathbf{C} |
| uB_12 | $(\bar{q}_1\sigma^{\mu\nu}u_2)\widetilde{\varphi}B_{\mu\nu}$ | \mathbf{C} |
| uB_13 | $(\bar{q}_1\sigma^{\mu u}u_3)\widetilde{\varphi}B_{\mu u}$ | \mathbf{C} |
| uB_21 | $(\bar{q}_2\sigma^{\mu u}u_1)\widetilde{arphi}B_{\mu u}$ | \mathbf{C} |
| uB_22 | $(\bar{q}_2\sigma^{\mu u}u_2)\widetilde{arphi}B_{\mu u}$ | \mathbf{C} |
| uB_23 | $(\bar{q}_2\sigma^{\mu\nu}u_3)\widetilde{\varphi}B_{\mu\nu}$ | \mathbf{C} |
| uB_31 | $(\bar{q}_3 \sigma^{\mu\nu} u_1) \widetilde{\varphi} B_{\mu\nu}$ | \mathbf{C} |
| uB_32 | $(\bar{q}_3 \sigma^{\mu\nu} u_2) \widetilde{\varphi} B_{\mu\nu}$ | \mathbf{C} |
| uB_33 | $(\bar{q}_3\sigma^{\mu u}u_3)\widetilde{\varphi}B_{\mu u}$ | \mathbf{C} |
| dG_11 | $\left(ar{q}_1\sigma^{\mu u}T^Ad_1 ight)arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_12 | $\left(ar{q}_1\sigma^{\mu u}T^Ad_2 ight)arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_13 | $\left(\bar{q}_1\sigma^{\mu u}T^Ad_3\right)arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_21 | $\left(ar{q}_2\sigma^{\mu u}T^Ad_1 ight)arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_22 | $\left(ar{q}_2 \sigma^{\mu u} T^A d_2 \right) arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_23 | $\left(ar{q}_2\sigma^{\mu u}T^Ad_3 ight)arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_31 | $\left(ar{q}_3 \sigma^{\mu u} T^A d_1 \right) arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_32 | $\left(\bar{q}_3\sigma^{\mu u}T^Ad_2\right)arphi G^A_{\mu u}$ | \mathbf{C} |
| dG_33 | $\left(ar{q}_3 \sigma^{\mu u} T^A d_3 \right) arphi G^A_{\mu u}$ | \mathbf{C} |
| dW_11 | $(\bar{q}_1\sigma^{\mu u}d_1)	au^Iarphi W^I_{\mu u}$ | $^{\mathrm{C}}$ |
| dW_12 | $(\bar{q}_1 \sigma^{\mu\nu} d_2) \tau^I \varphi W^I_{\mu\nu}$ | \mathbf{C} |
| dW_13 | $\left(ar{q}_1\sigma^{\mu u}d_3 ight)	au^Iarphi W^I_{\mu u}$ | $^{\mathrm{C}}$ |
| dW_21 | $\left(ar{q}_2\sigma^{\mu u}d_1 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| dW_22 | $\left(ar{q}_2\sigma^{\mu u}d_2 ight)	au^I_{\ \mu u}W^I_{\mu u}$ | \mathbf{C} |
| dW_23 | $\left(ar{q}_2\sigma^{\mu u}d_3 ight)	au^I_{\ \mu u}W^I_{\mu u}$ | \mathbf{C} |
| dW_31 | $(\bar{q}_3\sigma^{\mu\nu}d_1)	au^I\varphi W^I_{\mu\nu}$ | $^{\mathrm{C}}$ |
| dW_32 | $(ar{q}_3\sigma^{\mu u}d_2)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| dW_33 | $\left(ar{q}_3\sigma^{\mu u}d_3 ight)	au^Iarphi W^I_{\mu u}$ | \mathbf{C} |
| dB_11 | $(\bar{q}_1\sigma^{\mu u}d_1)arphi B_{\mu u}$ | \mathbf{C} |
| dB_12 | $\left(ar{q}_1\sigma^{\mu u}d_2 ight)arphi B_{\mu u}$ | C |
| dB_13 | $\left(ar{q}_1\sigma^{\mu u}d_3 ight)arphi B_{\mu u}$ | C |
| dB_21 | $(ar{q}_2\sigma^{\mu u}d_1)arphi B_{\mu u}$ | C |
| dB_22 | $(\bar{q}_2\sigma^{\mu\nu}d_2)\varphi B_{\mu\nu}$ | $\stackrel{	ext{C}}{\sim}$ |
| dB_23 | $(\bar{q}_2\sigma^{\mu u}d_3)arphi B_{\mu u}$ | \mathbf{C} |

| WC name | Operator | Type |
|-------------------------|--|--------------|
| dB_31 dB_32 dB_33 | $\begin{array}{l} (\bar{q}_3\sigma^{\mu\nu}d_1)\varphi B_{\mu\nu} \\ (\bar{q}_3\sigma^{\mu\nu}d_2)\varphi B_{\mu\nu} \\ (\bar{q}_3\sigma^{\mu\nu}d_3)\varphi B_{\mu\nu} \end{array}$ | C C C |
| phil1_11 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{\ell}_1 \gamma^\mu \ell_1 ight)$ | R |
| phil1_12 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{\ell}_{1}\gamma^{\mu}\ell_{2} ight)$ | \mathbf{C} |
| phil1_13 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{\ell}_1 \gamma^\mu \ell_3 ight)$ | C |
| phil1_22 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{\ell}_{2}\gamma^{\mu}\ell_{2} ight)$ | R |
| phil1_23 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{\ell}_{2}\gamma^{\mu}\ell_{3} ight)$ | \mathbf{C} |
| phil1_33 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{\ell}_{3}\gamma^{\mu}\ell_{3} ight)$ | R |
| phil3_11 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{\ell}_{1}	au^{I}\gamma^{\mu}\ell_{1} ight)$ | R |
| phil3_12 | $\left(arphi^{}_{D}\overset{\leftrightarrow}{_{\mu}}arphi ight)\left(ar{\ell}_{1}	au^{I}\gamma^{\mu}\ell_{2} ight)$ | \mathbf{C} |
| phi13_13 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{\ell}_{1}	au^{I}\gamma^{\mu}\ell_{3} ight)$ | \mathbf{C} |
| phi13_22 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{\ell}_{2}	au^{I}\gamma^{\mu}\ell_{2} ight)$ | R |
| phi13_23 | $\left(arphi^{}_{D}\overset{\leftrightarrow}{_{\mu}}arphi ight)\left(ar{\ell}_{2}	au^{I}\gamma^{\mu}\ell_{3} ight)$ | \mathbf{C} |
| phi13_33 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{\ell}_{3}	au^{I}\gamma^{\mu}\ell_{3} ight)$ | R |
| phie_11 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) (ar{e}_1 \gamma^\mu e_1)$ | R |
| phie_12 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{e}_{1}\gamma^{\mu}e_{2} ight)$ | \mathbf{C} |
| phie_13 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{e}_{1}\gamma^{\mu}e_{3} ight)$ | \mathbf{C} |
| phie_22 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{e}_{2}\gamma^{\mu}e_{2} ight)$ | R |
| phie_23 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{e}_{2}\gamma^{\mu}e_{3} ight)$ | \mathbf{C} |
| phie_33 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{e}_{3}\gamma^{\mu}e_{3} ight)$ | R |
| phiq1_11 | $\begin{pmatrix} \varphi^{\dagger} i \overset{\leftrightarrow}{D}_{\mu} \varphi \end{pmatrix} (\bar{e}_{2} \gamma^{\mu} e_{3}) \\ \begin{pmatrix} \varphi^{\dagger} i \overset{\leftrightarrow}{D}_{\mu} \varphi \end{pmatrix} (\bar{e}_{3} \gamma^{\mu} e_{3}) \\ \begin{pmatrix} \varphi^{\dagger} i \overset{\leftrightarrow}{D}_{\mu} \varphi \end{pmatrix} (\bar{q}_{1} \gamma^{\mu} q_{1}) \\ \begin{pmatrix} \varphi^{\dagger} i \overset{\leftrightarrow}{D}_{\mu} \varphi \end{pmatrix} (\bar{q}_{1} \gamma^{\mu} q_{2}) \end{pmatrix}$ | R |
| phiq1_12 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)\left(ar{q}_{1}\gamma^{\mu}q_{2} ight)$ | C |

| WC name | Operator | Ту |
|----------|---|--------------|
| phiq1_13 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) (ar{q}_1 \gamma^\mu q_3)$ | \mathbf{C} |
| phiq1_22 | $\left\langle arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight angle \left(ar{q}_{2}\gamma^{\mu}q_{2} ight)$ | R |
| phiq1_23 | $\left\langle arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight angle \left(ar{q}_{2}\gamma^{\mu}q_{3} ight)$ | \mathbf{C} |
| phiq1_33 | $\left\langle arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight angle \left(ar{q}_{3}\gamma^{\mu}q_{3} ight)$ | R |
| phiq3_11 | $\left(arphi^{\dagger}i\overset{ ightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{q}_{1}	au^{I}\gamma^{\mu}q_{1} ight)$ | \mathbf{R} |
| phiq3_12 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{q}_{1}	au^{I}\gamma^{\mu}q_{2} ight)$ | \mathbf{C} |
| phiq3_13 | $\left(arphi^{\dagger}i\overset{ ightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{q}_{1}	au^{I}\gamma^{\mu}q_{3} ight)$ | \mathbf{C} |
| phiq3_22 | $\left(arphi^\dagger i \overset{ ightarrow}{D}_\mu^I arphi ight) \left(ar{q}_2 	au^I \gamma^\mu q_2 ight)$ | R |
| phiq3_23 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{q}_{2}	au^{I}\gamma^{\mu}q_{3} ight)$ | \mathbf{C} |
| phiq3_33 | $\left(arphi^{\dagger}i\overset{ ightarrow}{D}_{\mu}^{I}arphi ight)\left(ar{q}_{3}	au^{I}\gamma^{\mu}q_{3} ight)$ | R |
| phiu_11 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)(ar{u}_{1}\gamma^{\mu}u_{1})$ | R |
| phiu_12 | $\left(arphi^{\dagger} i \overset{\leftrightarrow}{D}_{\mu} arphi ight) (ar{u}_1 \gamma^{\mu} u_2)$ | \mathbf{C} |
| phiu_13 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight) \left(ar{u}_{1}\gamma^{\mu}u_{3} ight)$ | \mathbf{C} |
| phiu_22 | $\left(arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight)(ar{u}_{2}\gamma^{\mu}u_{2})$ | R |
| phiu_23 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) (ar{u}_2 \gamma^\mu u_3)$ | \mathbf{C} |
| phiu_33 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) (ar{u}_3 \gamma^\mu u_3)$ | R |
| phid_11 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_1 \gamma^\mu d_1 ight)$ | R |
| phid_12 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_1 \gamma^\mu d_2 ight)$ | C |
| phid_13 | $\left\langle arphi^{\dagger}i\overset{\leftrightarrow}{D}_{\mu}arphi ight angle \left(ar{d}_{1}\gamma^{\mu}d_{3} ight)$ | \mathbf{C} |
| phid_22 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_2 \gamma^\mu d_2 ight)$ | R |
| phid_23 | $egin{pmatrix} \left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_2 \gamma^\mu d_2 ight) \ \left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_2 \gamma^\mu d_3 ight) \ \left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_3 \gamma^\mu d_3 ight) \end{cases}$ | \mathbf{C} |
| phid_33 | $\left(arphi^\dagger i \overset{\leftrightarrow}{D}_\mu arphi ight) \left(ar{d}_3 \gamma^\mu d_3 ight)$ | R |

| WC name | Operator | Type |
|----------------------|--|-----------------|
| phiud_11 | $\left(\widetilde{\varphi}^{\dagger}iD_{\mu}\varphi\right)\left(\bar{u}_{1}\gamma^{\mu}d_{1}\right)$ | С |
| phiud_12 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{1}\gamma^{\mu}d_{2} ight)$ | $^{\mathrm{C}}$ |
| phiud_13 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{1}\gamma^{\mu}d_{3} ight)$ | $^{\mathrm{C}}$ |
| phiud_21 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{2}\gamma^{\mu}d_{1} ight)$ | $^{\mathrm{C}}$ |
| phiud_22 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{2}\gamma^{\mu}d_{2} ight)$ | $^{\mathrm{C}}$ |
| phiud_23 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{2}\gamma^{\mu}d_{3} ight)$ | C |
| phiud_31 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{3}\gamma^{\mu}d_{1} ight)$ | C |
| phiud_32 | $\left(\widetilde{\varphi}^{\dagger}iD_{\mu}\varphi\right)\left(\bar{u}_{3}\gamma^{\mu}d_{2}\right)$ | C |
| phiud_33 | $\left(\widetilde{arphi}^{\dagger}iD_{\mu}arphi ight)\left(ar{u}_{3}\gamma^{\mu}d_{3} ight)$ | C |
| 11_1111 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{\ell}_1\gamma^\mu\ell_1 ight)$ | R |
| 11_1112 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{\ell}_1\gamma^\mu\ell_2 ight)$ | C |
| 11_1113 | $\left(\ell_1\gamma_\mu\ell_1 ight)\left(\ell_1\gamma^\mu\ell_3 ight)$ | \mathbf{C} |
| 11_1122 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{\ell}_2\gamma^\mu\ell_2 ight)$ | R |
| 11_1123 | $\left(ar{\ell}_1 \gamma_\mu \ell_1 ight) \left(ar{\ell}_2 \gamma^\mu \ell_3 ight)$ | \mathbf{C} |
| 11_1133 | $\left(\ell_1\gamma_\mu\ell_1 ight)\left(\ell_3\gamma^\mu\ell_3 ight)$ | R |
| 11_1212 | $\left(ar{\ell}_1 \gamma_\mu \ell_2 ight) \left(ar{\ell}_1 \gamma^\mu \ell_2 ight)$ | С |
| 11_1213 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{\ell}_1\gamma^\mu\ell_3 ight)$ | \mathbf{C} |
| 11_1221 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{\ell}_2\gamma^\mu\ell_1 ight)$ | R |
| 11_1222 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{\ell}_2\gamma^\mu\ell_2 ight)$ | C |
| 11_1223 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{\ell}_2\gamma^\mu\ell_3 ight)$ | C |
| 11_1231 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{\ell}_3\gamma^\mu\ell_1 ight)$ | C |
| 11_1232 | $\left(\ell_1\gamma_\mu\ell_2 ight)\left(\ell_3\gamma^\mu\ell_2 ight)$ | C |
| 11_1233 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{\ell}_3\gamma^\mu\ell_3 ight)$ | C |
| 11_1313 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{\ell}_1\gamma^\mu\ell_3 ight)$ | C |
| 11_1322 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{\ell}_2\gamma^\mu\ell_2 ight)$ | C |
| 11_1323 | $\left(\ell_1\gamma_\mu\ell_3\right)\left(\ell_2\gamma^\mu\ell_3\right)$ | C |
| 11_1331 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{\ell}_3\gamma^\mu\ell_1 ight)$ | R |
| 11_1332 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{\ell}_3\gamma^\mu\ell_2 ight)$ | C |
| 11_1333 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{\ell}_3\gamma^\mu\ell_3 ight)$ | C |
| 11_2222 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{\ell}_2\gamma^\mu\ell_2 ight)$ | R |
| 11_2223 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{\ell}_2\gamma^\mu\ell_3 ight)$ | C |
| 11_2233 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{\ell}_3\gamma^\mu\ell_3 ight)$ | R |
| 11_2323 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{\ell}_2\gamma^\mu\ell_3 ight)$ | C |
| 11_2332 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{\ell}_3\gamma^\mu\ell_2 ight)$ | R |
| 11_2333 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{\ell}_3\gamma^\mu\ell_3 ight)$ | C |
| 11_3333 | $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{\ell}_3\gamma^\mu\ell_3)$ | R |
| qq1_1111 | $\left(ar{q}_1\gamma_{\mu}q_1 ight)\left(ar{q}_1\gamma^{\mu}q_1 ight)$ | R |
| qq1_1112 | $(\bar{q}_1\gamma_\mu q_1)(\bar{q}_1\gamma^\mu q_2)$ | С |
| qq1_1113 | $(\bar{q}_1\gamma_\mu q_1)(\bar{q}_1\gamma^\mu q_3)$ | С |
| qq1_1122 | $(\bar{q}_1\gamma_\mu q_1)(\bar{q}_2\gamma^\mu q_2)$ | $ m _{C}^{R}$ |
| qq1_1123 qq1_1133 | $(\bar{q}_1\gamma_\mu q_1)(\bar{q}_2\gamma^\mu q_3)$ $(\bar{q}_1\gamma_\mu q_1)(\bar{q}_2\gamma^\mu q_2)$ | R |
| qq1_1133 qq1_1212 | $(\bar{q}_1\gamma_\mu q_1)(\bar{q}_3\gamma^\mu q_3)$ $(\bar{q}_1\gamma_\mu q_2)(\bar{q}_1\gamma^\mu q_2)$ | r C |
| 441-1515 | $\left(\bar{q}_1\gamma_{\mu}q_2\right)\left(\bar{q}_1\gamma^{\mu}q_2\right)$ | C |

| WC name | Operator | Type |
|----------|---|-----------------|
| qq1_1213 | $(\bar{q}_1\gamma_\mu q_2)(\bar{q}_1\gamma^\mu q_3)$ | С |
| qq1_1221 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{q}_2\gamma^{\mu}q_1 ight)$ | R |
| qq1_1222 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{q}_2\gamma^{\mu}q_2 ight)$ | \mathbf{C} |
| qq1_1223 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{q}_2\gamma^{\mu}q_3 ight)$ | $^{\mathrm{C}}$ |
| qq1_1231 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{q}_3\gamma^{\mu}q_1 ight)$ | $^{\mathrm{C}}$ |
| qq1_1232 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{q}_3\gamma^{\mu}q_2 ight)$ | $^{\mathrm{C}}$ |
| qq1_1233 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{q}_3\gamma^{\mu}q_3 ight)$ | $^{\mathrm{C}}$ |
| qq1_1313 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{q}_1\gamma^{\mu}q_3 ight)$ | \mathbf{C} |
| qq1_1322 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{q}_2\gamma^{\mu}q_2 ight)$ | \mathbf{C} |
| qq1_1323 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{q}_2\gamma^{\mu}q_3 ight)$ | $^{\mathrm{C}}$ |
| qq1_1331 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{q}_3\gamma^{\mu}q_1 ight)$ | R |
| qq1_1332 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{q}_3\gamma^{\mu}q_2 ight)$ | $^{\mathrm{C}}$ |
| qq1_1333 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{q}_3\gamma^{\mu}q_3 ight)$ | \mathbf{C} |
| qq1_2222 | $\left(ar{q}_2\gamma_{\mu}q_2 ight)\left(ar{q}_2\gamma^{\mu}q_2 ight)$ | R |
| qq1_2223 | $\left(ar{q}_2\gamma_{\mu}q_2 ight)\left(ar{q}_2\gamma^{\mu}q_3 ight)$ | \mathbf{C} |
| qq1_2233 | $\left(ar{q}_2\gamma_{\mu}q_2 ight)\left(ar{q}_3\gamma^{\mu}q_3 ight)$ | R |
| qq1_2323 | $\left(ar{q}_2\gamma_{\mu}q_3 ight)\left(ar{q}_2\gamma^{\mu}q_3 ight)$ | \mathbf{C} |
| qq1_2332 | $\left(ar{q}_2\gamma_{\mu}q_3 ight)\left(ar{q}_3\gamma^{\mu}q_2 ight)$ | R |
| qq1_2333 | $\left(ar{q}_2\gamma_{\mu}q_3 ight)\left(ar{q}_3\gamma^{\mu}q_3 ight)$ | $^{\mathrm{C}}$ |
| qq1_3333 | $\left(ar{q}_3\gamma_{\mu}q_3 ight)\left(ar{q}_3\gamma^{\mu}q_3 ight)$ | R |
| qq3_1111 | $\left(ar{q}_1\gamma_\mu	au^Iq_1 ight)\left(ar{q}_1\gamma^\mu	au^Iq_1 ight)$ | R |
| qq3_1112 | $\left(ar{q}_1\gamma_\mu	au^Iq_1 ight)\left(ar{q}_1\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| qq3_1113 | $(\bar{q}_1\gamma_\mu	au^Iq_1)(\bar{q}_1\gamma^\mu	au^Iq_3)$ | \mathbf{C} |
| qq3_1122 | $\left(ar{q}_1\gamma_\mu	au^Iq_1 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | R |
| qq3_1123 | $\left(ar{q}_1\gamma_\mu	au^Iq_1 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | $^{\mathrm{C}}$ |
| qq3_1133 | $\left(ar{q}_1\gamma_\mu	au^Iq_1 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | R |
| qq3_1212 | $\left(ar{q}_1\gamma_\mu	au^Iq_2 ight)\left(ar{q}_1\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| qq3_1213 | $\left(ar{q}_1\gamma_{\mu}	au^I_{}q_2 ight)\left(ar{q}_1\gamma^{\mu}	au^I_{}q_3 ight)$ | $^{\mathrm{C}}$ |
| qq3_1221 | $\left(ar{q}_1\gamma_{\mu}	au^Iq_2 ight)\left(ar{q}_2\gamma^{\mu}	au^Iq_1 ight)$ | R |
| qq3_1222 | $\left(ar{q}_1\gamma_\mu	au^Iq_2 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | $^{\mathrm{C}}$ |
| qq3_1223 | $\left(ar{q}_1\gamma_\mu	au^Iq_2 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | $^{\mathrm{C}}$ |
| qq3_1231 | $\left(ar{q}_1\gamma_\mu	au^Iq_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_1 ight)$ | $^{\mathrm{C}}$ |
| qq3_1232 | $\left(ar{q}_1\gamma_\mu	au^Iq_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_2 ight)$ | $^{\mathrm{C}}$ |
| qq3_1233 | $\left(ar{q}_1\gamma_\mu	au^Iq_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | $^{\mathrm{C}}$ |
| qq3_1313 | $\left(ar{q}_1\gamma_\mu	au^Iq_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_3 ight)$ | $^{\mathrm{C}}$ |
| qq3_1322 | $\left(ar{q}_1\gamma_\mu	au^Iq_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | $^{\mathrm{C}}$ |
| qq3_1323 | $(\bar{q}_1\gamma_\mu	au^Iq_3)(\bar{q}_2\gamma^\mu	au^Iq_3)$ | $^{\mathrm{C}}$ |
| qq3_1331 | $\left\langle ar{q}_{1}\gamma_{\mu}	au^{I}q_{3} ight angle \left\langle ar{q}_{3}\gamma^{\mu}	au^{I}q_{1} ight angle$ | R |
| qq3_1332 | $\left\langle ar{q}_1\gamma_\mu	au^Iq_3 ight angle \left\langle ar{q}_3\gamma^\mu	au^Iq_2 ight angle$ | $^{\mathrm{C}}$ |
| qq3_1333 | $\left\langle ar{q}_{1}\gamma_{\mu}	au^{I}q_{3} ight angle \left\langle ar{q}_{3}\gamma^{\mu}	au^{I}q_{3} ight angle$ | $^{\mathrm{C}}$ |
| qq3_2222 | $\left\langle ar{q}_2 \gamma_\mu 	au^I q_2 \right angle \left\langle ar{q}_2 \gamma^\mu 	au^I q_2 \right angle$ | ${ m R}$ |
| qq3_2223 | $\langle ar{q}_2 \gamma_\mu 	au^I q_2 \rangle \langle ar{q}_2 \gamma^\mu 	au^I q_3 \rangle$ | \mathbf{C} |
| qq3_2233 | $(\bar{q}_2\gamma_\mu	au^Iq_2)(\bar{q}_3\gamma^\mu	au^Iq_3)$ | ${ m R}$ |
| qq3_2323 | $(\bar{q}_2\gamma_\mu	au^Iq_3)(\bar{q}_2\gamma^\mu	au^Iq_3)$ | \mathbf{C} |
| | V | |

| WC name | Operator | Type |
|----------|---|--------------|
| qq3_2332 | $\left(ar{q}_2\gamma_\mu	au^Iq_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_2 ight)$ | R |
| qq3_2333 | $\left(ar{q}_{2}\gamma_{\mu}	au^{I}q_{3} ight) \left(ar{q}_{3}\gamma^{\mu}	au^{I}q_{3} ight)$ | \mathbf{C} |
| qq3_3333 | $\left(ar{q}_3\gamma_\mu	au^Iq_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | R |
| lq1_1111 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{q}_1\gamma^\mu q_1 ight)$ | \mathbf{R} |
| lq1_1112 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{q}_1\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1113 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{q}_1\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1122 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{q}_2\gamma^\mu q_2 ight)$ | R |
| lq1_1123 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{q}_2\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1133 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{q}_3\gamma^\mu q_3 ight)$ | \mathbf{R} |
| lq1_1211 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_1\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_1212 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_1\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1213 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_1\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1221 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_2\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_1222 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_2\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1223 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_2\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1231 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_3\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_1232 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_3\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1233 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{q}_3\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1311 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_1312 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1313 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1321 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_1322 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1323 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_1331 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_3\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_1332 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_3\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_1333 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{q}_3\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_2211 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{q}_1\gamma^\mu q_1 ight)$ | R |
| lq1_2212 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{q}_1\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_2213 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{q}_1\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_2222 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{q}_2\gamma^\mu q_2 ight)$ | R |
| lq1_2223 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{q}_2\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_2233 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{q}_3\gamma^\mu q_3 ight)$ | R |
| lq1_2311 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_2312 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_2313 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_2321 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_2322 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_2323 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_2331 | $\left(ar{\ell}_2\gamma_\mu\ell_3\right)\left(ar{q}_3\gamma^\mu q_1 ight)$ | \mathbf{C} |
| lq1_2332 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_3\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_2333 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{q}_3\gamma^\mu q_3 ight)$ | \mathbf{C} |

| WC name | Operator | Type |
|----------|--|-----------------|
| lq1_3311 | $\left(\bar{\ell}_3\gamma_\mu\ell_3\right)\left(\bar{q}_1\gamma^\mu q_1\right)$ | R |
| lq1_3312 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_2 ight)$ | \mathbf{C} |
| lq1_3313 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{q}_1\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_3322 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_2 ight)$ | R |
| lq1_3323 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{q}_2\gamma^\mu q_3 ight)$ | \mathbf{C} |
| lq1_3333 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{q}_3\gamma^\mu q_3 ight)$ | R |
| lq3_1111 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_1 ight)\left(ar{q}_1\gamma^\mu	au^Iq_1 ight)$ | R |
| lq3_1112 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_1 ight)\left(ar{q}_1\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_1113 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_1 ight)\left(ar{q}_1\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_1122 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_1 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | R |
| lq3_1123 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_1 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_1133 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_1 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | R |
| lq3_1211 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_1\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| lq3_1212 | $\left(ar{\ell}_1\gamma_{\mu}	au^I\ell_2 ight)\left(ar{q}_1\gamma^{\mu}	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_1213 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_1\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_1221 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_2\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| lq3_1222 | $\left(ar{\ell}_1\gamma_{\mu}	au^I\ell_2 ight)\left(ar{q}_2\gamma^{\mu}	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_1223 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_1231 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| lq3_1232 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_1233 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | С |
| lq3_1311 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| lq3_1312 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_1313 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_1321 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| 1q3_1322 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_1323 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_1331 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_1 ight)$ | С |
| lq3_1332 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_2 ight)$ | С |
| lq3_1333 | $\left(ar{\ell}_1\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_2211 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_1\gamma^\mu	au^Iq_1 ight)$ | R |
| 1q3_2212 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_1\gamma^\mu	au^Iq_2 ight)$ | С |
| 1q3_2213 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_1\gamma^\mu	au^Iq_3 ight)$ | С |
| 1q3_2222 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | R |
| 1q3_2223 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| 1q3_2233 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_2 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | R |
| lq3_2311 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| lq3_2312 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| lq3_2313 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_1\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| lq3_2321 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_1 ight)$ | \mathbf{C} |
| 1q3_2322 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| 1q3_2323 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_2\gamma^\mu	au^Iq_3 ight)$ | $^{\mathrm{C}}$ |
| | | |

| WC name | Operator | Type |
|--------------------|--|----------------------------|
| lq3_2331 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_1 ight)$ | C |
| 1q3_2332 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_2 ight)$ | \mathbf{C} |
| 1q3_2333 | $\left(ar{\ell}_2\gamma_\mu	au^I\ell_3 ight)\left(ar{q}_3\gamma^\mu	au^Iq_3 ight)$ | \mathbf{C} |
| 1q3_3311 | $(ar{\ell}_3\gamma_\mu	au^I\ell_3) (ar{q}_1\gamma^\mu	au^Iq_1)$ | R |
| 1q3_3312 | $(ar{\ell}_3 \gamma_\mu 	au^I \ell_3) (ar{q}_1 \gamma^\mu 	au^I q_2)$ | \mathbf{C} |
| 1q3_3313 | $(\bar{\ell}_3 \gamma_\mu \tau^I \ell_3) (\bar{q}_1 \gamma^\mu \tau^I q_3)$ | $^{\mathrm{C}}$ |
| 1q3_3322 | $(ar{\ell}_3\gamma_\mu	au^I\ell_3)(ar{q}_2\gamma^\mu	au^Iq_2)$ | R |
| 1q3_3323 | $(ar{\ell}_3\gamma_\mu	au^I\ell_3)(ar{q}_2\gamma^\mu	au^Iq_3)$ | $^{\mathrm{C}}$ |
| 1q3_3333 | $(\bar{\ell}_3 \gamma_\mu \tau^I \ell_3) (\bar{q}_3 \gamma^\mu \tau^I q_3)$ | R |
| ee_1111 | $(\bar{e}_1\gamma_\mu e_1)(\bar{e}_1\gamma^\mu e_1)$ | R |
| ee_1112 | $(\bar{e}_1\gamma_\mu e_1)(\bar{e}_1\gamma^\mu e_2)$ | $^{\mathrm{C}}$ |
| ee_1113 | $(ar{e}_1\gamma_\mu e_1)(ar{e}_1\gamma^\mu e_3)$ | \mathbf{C} |
| ee_1122 | $(ar{e}_1\gamma_{\mu}e_1)(ar{e}_2\gamma^{\mu}e_2)$ | R |
| ee_1123 | $\left(ar{e}_1\gamma_{\mu}e_1 ight)\left(ar{e}_2\gamma^{\mu}e_3 ight)$ | $^{\mathrm{C}}$ |
| ee_1133 | $\left(ar{e}_1\gamma_{\mu}e_1 ight)\left(ar{e}_3\gamma^{\mu}e_3 ight)$ | R |
| ee_1212 | $(ar{e}_1\gamma_\mu e_2)(ar{e}_1\gamma^\mu e_2)$ | $^{\mathrm{C}}$ |
| ee_1213 | $(ar{e}_1\gamma_\mu e_2)(ar{e}_1\gamma^\mu e_3)$ | $^{\mathrm{C}}$ |
| ee_1222 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{e}_2\gamma^{\mu}e_2 ight)$ | \mathbf{C} |
| ee_1223 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{e}_2\gamma^{\mu}e_3 ight)$ | \mathbf{C} |
| ee_1232 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{e}_3\gamma^{\mu}e_2 ight)$ | \mathbf{C} |
| ee_1233 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{e}_3\gamma^{\mu}e_3 ight)$ | \mathbf{C} |
| ee_1313 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{e}_1\gamma^{\mu}e_3 ight)$ | \mathbf{C} |
| ee_1323 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{e}_2\gamma^{\mu}e_3 ight)$ | $^{\mathrm{C}}$ |
| ee_1333 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{e}_3\gamma^{\mu}e_3 ight)$ | $^{\mathrm{C}}$ |
| ee_2222 | $\left(ar{e}_2\gamma_{\mu}e_2 ight)\left(ar{e}_2\gamma^{\mu}e_2 ight)$ | \mathbf{R} |
| ee_2223 | $\left(ar{e}_2\gamma_{\mu}e_2 ight)\left(ar{e}_2\gamma^{\mu}e_3 ight)$ | \mathbf{C} |
| ee_2233 | $(ar{e}_2\gamma_\mu e_2)(ar{e}_3\gamma^\mu e_3)$ | $\stackrel{	ext{R}}{\sim}$ |
| ee_2323 | $(ar{e}_2\gamma_\mu e_3)(ar{e}_2\gamma^\mu e_3)$ | C |
| ee_2333 | $(ar{e}_2\gamma_\mu e_3)(ar{e}_3\gamma^\mu e_3)$ | С |
| ee_3333 | $(ar{e}_3\gamma_\mu e_3)(ar{e}_3\gamma^\mu e_3)$ | R |
| uu_1111 | $(ar{u}_1\gamma_\mu u_1)(ar{u}_1\gamma^\mu u_1)$ | R |
| uu_1112 | $(ar{u}_1\gamma_\mu u_1)(ar{u}_1\gamma^\mu u_2)$ | С |
| uu_1113 | $(\bar{u}_1\gamma_\mu u_1)(\bar{u}_1\gamma^\mu u_3)$ | С |
| uu_1122 | $(\bar{u}_1\gamma_\mu u_1)(\bar{u}_2\gamma^\mu u_2)$ | R |
| uu_1123 | $(\bar{u}_1\gamma_\mu u_1)(\bar{u}_2\gamma^\mu u_3)$ | С |
| uu_1133 | $(\bar{u}_1\gamma_\mu u_1)(\bar{u}_3\gamma^\mu u_3)$ | $ m ^R$ $ m ^C$ |
| uu_1212 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_1\gamma^\mu u_2)$ | C |
| uu_1213 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_1\gamma^\mu u_3)$ | R |
| uu_1221 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_2\gamma^\mu u_1)$ | C |
| uu_1222 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_2\gamma^\mu u_2)$ $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_2\gamma^\mu u_2)$ | C |
| uu_1223 uu_1231 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_2\gamma^\mu u_3)$ $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_2\gamma^\mu u_3)$ | C |
| uu_1231 uu_1232 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_3\gamma^\mu u_1)$ $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_2\gamma^\mu u_2)$ | C |
| | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_3\gamma^\mu u_2)$ | C |
| uu_1233 | $(\bar{u}_1\gamma_\mu u_2)(\bar{u}_3\gamma^\mu u_3)$ | |

| WC name | Operator | Type |
|--------------------|---|--------------------------------|
| uu_1313 | $\left(\bar{u}_1\gamma_{\mu}u_3\right)\left(\bar{u}_1\gamma^{\mu}u_3\right)$ | C |
| uu_1322 | $\left(\bar{u}_1\gamma_{\mu}u_3\right)\left(\bar{u}_2\gamma^{\mu}u_2\right)$ | $^{\mathrm{C}}$ |
| uu_1323 | $\left(\bar{u}_1\gamma_{\mu}u_3\right)\left(\bar{u}_2\gamma^{\mu}u_3\right)$ | \mathbf{C} |
| uu_1331 | $\left(\bar{u}_1\gamma_{\mu}u_3\right)\left(\bar{u}_3\gamma^{\mu}u_1\right)$ | ${ m R}$ |
| uu_1332 | $\left(\bar{u}_1\gamma_{\mu}u_3\right)\left(\bar{u}_3\gamma^{\mu}u_2\right)$ | $^{\mathrm{C}}$ |
| uu_1333 | $\left(ar{u}_1\gamma_{\mu}u_3 ight)\left(ar{u}_3\gamma^{\mu}u_3 ight)$ | $^{\mathrm{C}}$ |
| uu_2222 | $\left(\bar{u}_2\gamma_{\mu}u_2\right)\left(\bar{u}_2\gamma^{\mu}u_2\right)$ | ${ m R}$ |
| uu_2223 | $\left(\bar{u}_2\gamma_{\mu}u_2\right)\left(\bar{u}_2\gamma^{\mu}u_3\right)$ | $^{\mathrm{C}}$ |
| uu_2233 | $\left(\bar{u}_2\gamma_{\mu}u_2\right)\left(\bar{u}_3\gamma^{\mu}u_3\right)$ | ${ m R}$ |
| uu_2323 | $\left(\bar{u}_2\gamma_{\mu}u_3\right)\left(\bar{u}_2\gamma^{\mu}u_3\right)$ | $^{\mathrm{C}}$ |
| uu_2332 | $\left(\bar{u}_2\gamma_{\mu}u_3\right)\left(\bar{u}_3\gamma^{\mu}u_2\right)$ | ${ m R}$ |
| uu_2333 | $\left(\bar{u}_2\gamma_{\mu}u_3\right)\left(\bar{u}_3\gamma^{\mu}u_3\right)$ | \mathbf{C} |
| uu_3333 | $\left(ar{u}_3\gamma_{\mu}u_3 ight)\left(ar{u}_3\gamma^{\mu}u_3 ight)$ | ${ m R}$ |
| dd_1111 | $\left(ar{d}_{1}\gamma_{\mu}d_{1} ight)\left(ar{d}_{1}\gamma^{\mu}d_{1} ight)$ | ${ m R}$ |
| dd_1112 | $\left(ar{d}_1\gamma_{\mu}d_1 ight)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| dd_1113 | $\left(ar{d}_1\gamma_{\mu}d_1 ight)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | $^{\mathrm{C}}$ |
| dd_1122 | $\left(ar{d}_1\gamma_{\mu}d_1 ight)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | R |
| dd_1123 | $\left(ar{d}_1\gamma_{\mu}d_1 ight)\left(ar{d}_2\gamma^{\mu}d_3 ight)$ | $^{\mathrm{C}}$ |
| dd_1133 | $(ar{d}_1\gamma_\mu d_1) (ar{d}_3\gamma^\mu d_3)$ | R |
| dd_1212 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_1\gamma^\mu d_2 ight)$ | \mathbf{C} |
| dd_1213 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_1\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| dd_1221 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_2\gamma^\mu d_1 ight)$ | R |
| dd_1222 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_2\gamma^\mu d_2 ight)$ | $^{\mathrm{C}}$ |
| _ dd_1223 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_2\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| _ dd_1231 | $(\bar{d}_1\gamma_\mu d_2)(\bar{d}_3\gamma^\mu d_1)$ | $^{\mathrm{C}}$ |
| _ dd_1232 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_3\gamma^\mu d_2 ight)$ | \mathbf{C} |
| _ dd_1233 | $\left(ar{d}_1\gamma_\mu d_2 ight)\left(ar{d}_3\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| dd_1313 | $egin{pmatrix} (ar{d}_1\gamma_\mu d_2) & (ar{d}_1\gamma^\mu d_3) \ (ar{d}_1\gamma^\mu d_3) & \end{pmatrix}$ | $\dot{	ext{C}}$ |
| dd_1322 | $(ar{d}_1\gamma_\mu d_3) (ar{d}_2\gamma^\mu d_2)$ | C |
| dd_1323 | $(ar{d}_1\gamma_\mu a_3) \left(ar{d}_2\gamma^\mu a_3 ight) \ (ar{d}_2\gamma^\mu d_3)$ | Č |
| dd_1331 | $(ar{d}_1\gamma_\mu a_3) \ (ar{d}_2\gamma^\mu a_3) \ (ar{d}_3\gamma^\mu d_1)$ | R |
| dd_1332 | $egin{pmatrix} (a_1^{\prime}{}_{\prime}\mu a_3^{\prime}) & (a_3^{\prime}{}_{\prime}{}^{\prime} a_1^{\prime}) \ (ar{d}_1\gamma_{\mu}d_3) & (ar{d}_3\gamma^{\mu}d_2) \end{pmatrix}$ | C |
| dd_1333 | $egin{pmatrix} (a_1 \gamma_\mu a_3) & (a_3 \gamma^\mu a_2) \ (ar{d}_1 \gamma_\mu d_3) & (ar{d}_3 \gamma^\mu d_3) \end{pmatrix}$ | $\stackrel{\circ}{\mathrm{C}}$ |
| dd_1333 dd_2222 | $egin{array}{l} (a_1 \gamma_\mu a_3) & (a_3 \gamma^\mu a_3) \ (ar{d}_2 \gamma_\mu d_2) & (ar{d}_2 \gamma^\mu d_2) \end{array}$ | m R |
| dd_2222 dd_2223 | | C |
| dd_2223 dd_2233 | $egin{aligned} \left(ar{d}_2\gamma_\mu d_2 ight)\left(ar{d}_2\gamma^\mu d_3 ight) \ \left(ar{d}_2\gamma_\mu d_2 ight)\left(ar{d}_3\gamma^\mu d_3 ight) \end{aligned}$ | R |
| | | C |
| dd_2323 | $egin{pmatrix} (ar{d}_2\gamma_\mu d_3) & (ar{d}_2\gamma^\mu d_3) \ (ar{d}_2\gamma^\mu d_3) & (ar{d}_2\gamma^\mu d_3) \end{pmatrix}$ | |
| dd_2332 | $(ar{d}_2\gamma_\mu d_3) \ (ar{d}_3\gamma^\mu d_2) \ (ar{d}_3\gamma^\mu d_3) \ (ar{d}_3\gamma^\mu d_3)$ | R |
| dd_2333 | $\left(ar{d}_2\gamma_\mu d_3\right)\left(ar{d}_3\gamma^\mu d_3\right)$ | С |
| dd_3333 | $(\bar{d}_3\gamma_\mu d_3)(\bar{d}_3\gamma^\mu d_3)$ | R |
| eu_1111 | $(\bar{e}_1\gamma_{\mu}e_1)(\bar{u}_1\gamma^{\mu}u_1)$ | R |
| eu_1112 | $(\bar{e}_1\gamma_\mu e_1)(\bar{u}_1\gamma^\mu u_2)$ | C |
| eu_1113 | $(\bar{e}_1\gamma_{\mu}e_1)(\bar{u}_1\gamma^{\mu}u_3)$ | С |

| WC name | Operator | Type |
|---------|--|-------------------------------|
| eu_1122 | $\left(ar{e}_1\gamma_{\mu}e_1 ight)\left(ar{u}_2\gamma^{\mu}u_2 ight)$ | \mathbf{R} |
| eu_1123 | $\left(ar{e}_1\gamma_{\mu}e_1 ight)\left(ar{u}_2\gamma^{\mu}u_3 ight)$ | \mathbf{C} |
| eu_1133 | $\left(ar{e}_1\gamma_{\mu}e_1 ight)\left(ar{u}_3\gamma^{\mu}u_3 ight)$ | \mathbf{R} |
| eu_1211 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{u}_1\gamma^{\mu}u_1 ight)$ | $^{\mathrm{C}}$ |
| eu_1212 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{u}_1\gamma^{\mu}u_2 ight)$ | $^{\mathrm{C}}$ |
| eu_1213 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{u}_1\gamma^{\mu}u_3 ight)$ | $^{\mathrm{C}}$ |
| eu_1221 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{u}_2\gamma^{\mu}u_1 ight)$ | $^{\mathrm{C}}$ |
| eu_1222 | $\left(ar{e}_1\gamma_{\mu}e_2 ight)\left(ar{u}_2\gamma^{\mu}u_2 ight)$ | $^{\mathrm{C}}$ |
| eu_1223 | $\left(\bar{e}_1\gamma_{\mu}e_2\right)\left(\bar{u}_2\gamma^{\mu}u_3\right)$ | $^{\mathrm{C}}$ |
| eu_1231 | $\left(\bar{e}_1\gamma_{\mu}e_2\right)\left(\bar{u}_3\gamma^{\mu}u_1\right)$ | $^{\mathrm{C}}$ |
| eu_1232 | $\left(\bar{e}_1\gamma_{\mu}e_2\right)\left(\bar{u}_3\gamma^{\mu}u_2\right)$ | $^{\mathrm{C}}$ |
| eu_1233 | $\left(\bar{e}_1\gamma_{\mu}e_2\right)\left(\bar{u}_3\gamma^{\mu}u_3\right)$ | $^{\mathrm{C}}$ |
| eu_1311 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{u}_1\gamma^{\mu}u_1 ight)$ | $^{\mathrm{C}}$ |
| eu_1312 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{u}_1\gamma^{\mu}u_2 ight)$ | $^{\mathrm{C}}$ |
| eu_1313 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{u}_1\gamma^{\mu}u_3 ight)$ | \mathbf{C} |
| eu_1321 | $\left(\bar{e}_1\gamma_{\mu}e_3\right)\left(\bar{u}_2\gamma^{\mu}u_1\right)$ | $^{\mathrm{C}}$ |
| eu_1322 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{u}_2\gamma^{\mu}u_2 ight)$ | \mathbf{C} |
| eu_1323 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{u}_2\gamma^{\mu}u_3 ight)$ | \mathbf{C} |
| eu_1331 | $\left(ar{e}_1\gamma_{\mu}e_3 ight)\left(ar{u}_3\gamma^{\mu}u_1 ight)$ | \mathbf{C} |
| eu_1332 | $(\bar{e}_1\gamma_\mu e_3)(\bar{u}_3\gamma^\mu u_2)$ | \mathbf{C} |
| eu_1333 | $(\bar{e}_1\gamma_\mu e_3)(\bar{u}_3\gamma^\mu u_3)$ | \mathbf{C} |
| eu_2211 | $(\bar{e}_2\gamma_\mu e_2)(\bar{u}_1\gamma^\mu u_1)$ | R |
| eu_2212 | $(ar{e}_2\gamma_\mu e_2)(ar{u}_1\gamma^\mu u_2)$ | C |
| eu_2213 | $(\bar{e}_2\gamma_\mu e_2)(\bar{u}_1\gamma^\mu u_3)$ | $^{\rm C}$ |
| eu_2222 | $\left(ar{e}_2\gamma_{\mu}e_2 ight)\left(ar{u}_2\gamma^{\mu}u_2 ight)$ | R |
| eu_2223 | $(\bar{e}_2\gamma_\mu e_2)(\bar{u}_2\gamma^\mu u_3)$ | \mathbf{C} |
| eu_2233 | $\left(ar{e}_2\gamma_{\mu}e_2 ight)\left(ar{u}_3\gamma^{\mu}u_3 ight)$ | R |
| eu_2311 | $(\bar{e}_2\gamma_\mu e_3)(\bar{u}_1\gamma^\mu u_1)$ | C |
| eu_2312 | $(\bar{e}_2\gamma_\mu e_3)(\bar{u}_1\gamma^\mu u_2)$ | $\stackrel{	ext{C}}{\approx}$ |
| eu_2313 | $(\bar{e}_2\gamma_\mu e_3)(\bar{u}_1\gamma^\mu u_3)$ | $\stackrel{	ext{C}}{\approx}$ |
| eu_2321 | $(\bar{e}_2\gamma_\mu e_3)(\bar{u}_2\gamma^\mu u_1)$ | $\stackrel{	ext{C}}{\sim}$ |
| eu_2322 | $(ar{e}_2\gamma_\mu e_3)(ar{u}_2\gamma^\mu u_2)$ | $\stackrel{	ext{C}}{\sim}$ |
| eu_2323 | $(ar{e}_2\gamma_\mu e_3)(ar{u}_2\gamma^\mu u_3)$ | $\stackrel{	ext{C}}{\sim}$ |
| eu_2331 | $(\bar{e}_2\gamma_\mu e_3)(\bar{u}_3\gamma^\mu u_1)$ | С |
| eu_2332 | $(ar{e}_2\gamma_\mu e_3)(ar{u}_3\gamma^\mu u_2)$ | С |
| eu_2333 | $(\bar{e}_2\gamma_\mu e_3)(\bar{u}_3\gamma^\mu u_3)$ | \mathbf{C} |
| eu_3311 | $(ar{e}_3\gamma_\mu e_3)(ar{u}_1\gamma^\mu u_1)$ | R |
| eu_3312 | $(ar{e}_3\gamma_\mu e_3)(ar{u}_1\gamma^\mu u_2)$ | С |
| eu_3313 | $(ar{e}_3\gamma_\mu e_3)(ar{u}_1\gamma^\mu u_3)$ | С |
| eu_3322 | $(\bar{e}_3\gamma_\mu e_3)(\bar{u}_2\gamma^\mu u_2)$ | R |
| eu_3323 | $(\bar{e}_3\gamma_\mu e_3)(\bar{u}_2\gamma^\mu u_3)$ | С |
| eu_3333 | $(\bar{e}_3\gamma_\mu e_3)(\bar{u}_3\gamma^\mu u_3)$ | R |
| ed_1111 | $(\bar{e}_1\gamma_\mu e_1) \left(\bar{d}_1\gamma^\mu d_1\right)$ | \mathbf{R} |
| ed_1112 | $(ar{e}_1\gamma_{\mu}e_1)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | С |

| WC name | Operator | Type |
|---------|--|--------------|
| ed_1113 | $(ar{e}_1\gamma_\mu e_1)\left(ar{d}_1\gamma^\mu d_3 ight)$ | C |
| ed_1122 | $(ar{e}_1\gamma_{\mu}e_1)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | R |
| ed_1123 | $(ar{e}_1\gamma_{\mu}e_1)\left(ar{d}_2\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_1133 | $(ar{e}_1\gamma_{\mu}e_1)ig(ar{d}_3\gamma^{\mu}d_3ig)$ | R |
| ed_1211 | $(ar{e}_1\gamma_\mu e_2)\left(ar{d}_1\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ed_1212 | $(ar{e}_1\gamma_{\mu}e_2)(ar{d}_1\gamma^{\mu}d_2)$ | \mathbf{C} |
| ed_1213 | $(ar{e}_1\gamma_\mu e_2) \left(ar{d}_1\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ed_1221 | $(ar{e}_1\gamma_{\mu}e_2)\left(ar{d}_2\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ed_1222 | $(ar{e}_1\gamma_\mu e_2)\left(ar{d}_2\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ed_1223 | $(ar{e}_1\gamma_{\mu}e_2)ig(ar{d}_2\gamma^{\mu}d_3ig)$ | \mathbf{C} |
| ed_1231 | $(ar{e}_1\gamma_{\mu}e_2)\left(ar{d}_3\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ed_1232 | $(ar{e}_1\gamma_{\mu}e_2)\left(ar{d}_3\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_1233 | $(ar{e}_1\gamma_{\mu}e_2)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_1311 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_1\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ed_1312 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_1313 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_1321 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_2\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ed_1322 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_1323 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_2\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_1331 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_3\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ed_1332 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_3\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_1333 | $(ar{e}_1\gamma_{\mu}e_3)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_2211 | $\left(ar{e}_2\gamma_{\mu}e_2 ight)\left(ar{d}_1\gamma^{\mu}d_1 ight)$ | R |
| ed_2212 | $\left(ar{e}_2\gamma_{\mu}e_2 ight)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_2213 | $(ar{e}_2\gamma_{\mu}e_2)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_2222 | $(ar{e}_2\gamma_{\mu}e_2)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | R |
| ed_2223 | $(ar{e}_2\gamma_{\mu}e_2)\left(ar{d}_2\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_2233 | $(ar{e}_2\gamma_{\mu}e_2)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | R |
| ed_2311 | $(ar{e}_2\gamma_\mu e_3)\left(ar{d}_1\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ed_2312 | $\left(ar{e}_2\gamma_{\mu}e_3 ight)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_2313 | $(ar{e}_2\gamma_\mu e_3)\left(ar{d}_1\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ed_2321 | $(ar{e}_2\gamma_\mu e_3)\left(ar{d}_2\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ed_2322 | $(ar{e}_2\gamma_\mu e_3)\left(ar{d}_2\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ed_2323 | $(ar{e}_2\gamma_\mu e_3)\left(ar{d}_2\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ed_2331 | $(ar{e}_2\gamma_\mu e_3)\left(ar{d}_3\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ed_2332 | $(ar{e}_2\gamma_{\mu}e_3)\left(ar{d}_3\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_2333 | $(ar{e}_2\gamma_\mu e_3) \left(ar{d}_3\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ed_3311 | $(ar{e}_3\gamma_{\mu}e_3)\left(ar{d}_1\gamma^{\mu}d_1 ight)$ | R |
| ed_3312 | $(ar{e}_3\gamma_{\mu}e_3)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ed_3313 | $(ar{e}_3\gamma_{\mu}e_3)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ed_3322 | $(ar{e}_3\gamma_{\mu}e_3)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | R |
| ed_3323 | $\left(ar{e}_{3}\gamma_{\mu}e_{3} ight)\left(d_{2}\gamma^{\mu}d_{3} ight)$ | С |

| WC name | Operator | Type |
|----------|--|--------------|
| ed_3333 | $(\bar{e}_3\gamma_\mu e_3)(\bar{d}_3\gamma^\mu d_3)$ | R |
| ud1_1111 | $(ar{u}_1\gamma_\mu u_1)(ar{d}_1\gamma^\mu d_1)$ | R |
| ud1_1112 | $(ar{u}_1\gamma_\mu u_1)\left(ar{d}_1\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ud1_1113 | $(ar{u}_1\gamma_{\mu}u_1)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_1122 | $(ar{u}_1\gamma_\mu u_1)\left(ar{d}_2\gamma^\mu d_2 ight)$ | R |
| ud1_1123 | $(ar{u}_1\gamma_\mu u_1)\left(ar{d}_2\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ud1_1133 | $(ar{u}_1\gamma_\mu u_1)ig(ar{d}_3\gamma^\mu d_3ig)$ | R |
| ud1_1211 | $(ar{u}_1\gamma_{\mu}u_2)\left(ar{d}_1\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ud1_1212 | $(ar{u}_1\gamma_{\mu}u_2)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ud1_1213 | $(ar{u}_1\gamma_{\mu}u_2)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_1221 | $\left(ar{u}_1\gamma_{\mu}u_2 ight)\left(ar{d}_2\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ud1_1222 | $\left(ar{u}_1\gamma_{\mu}u_2 ight)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ud1_1223 | $\left(ar{u}_1\gamma_{\mu}u_2 ight)\left(ar{d}_2\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_1231 | $\left(ar{u}_1\gamma_{\mu}u_2 ight)\left(ar{d}_3\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ud1_1232 | $\left(ar{u}_1\gamma_{\mu}u_2 ight)\left(ar{d}_3\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ud1_1233 | $\left(ar{u}_1\gamma_{\mu}u_2 ight)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_1311 | $\left(ar{u}_1\gamma_{\mu}u_3 ight)\left(ar{d}_1\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ud1_1312 | $\left(ar{u}_1\gamma_{\mu}u_3 ight)\left(ar{d}_1\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ud1_1313 | $\left(ar{u}_1\gamma_{\mu}u_3 ight)\left(ar{d}_1\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_1321 | $(ar{u}_1\gamma_{\mu}u_3)ig(ar{d}_2\gamma^{\mu}d_1ig)$ | \mathbf{C} |
| ud1_1322 | $(ar{u}_1\gamma_{\mu}u_3)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ud1_1323 | $\left(ar{u}_1\gamma_{\mu}u_3 ight)\left(ar{d}_2\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_1331 | $(ar{u}_1\gamma_\mu u_3)ig(ar{d}_3\gamma^\mu d_1ig)$ | \mathbf{C} |
| ud1_1332 | $(ar{u}_1\gamma_{\mu}u_3)\left(ar{d}_3\gamma^{\mu}d_2 ight)$ | \mathbf{C} |
| ud1_1333 | $(ar{u}_1\gamma_{\mu}u_3)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | \mathbf{C} |
| ud1_2211 | $(ar{u}_2\gamma_\mu u_2)\left(ar{d}_1\gamma^\mu d_1 ight)$ | R |
| ud1_2212 | $(ar{u}_2\gamma_\mu u_2)ig(ar{d}_1\gamma^\mu d_2ig)$ | \mathbf{C} |
| ud1_2213 | $(ar{u}_2\gamma_\mu u_2)\left(ar{d}_1\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ud1_2222 | $(ar{u}_2\gamma_\mu u_2)\left(ar{d}_2\gamma^\mu d_2 ight)$ | \mathbf{R} |
| ud1_2223 | $(ar{u}_2\gamma_\mu u_2)ig(ar{d}_2\gamma^\mu d_3ig)$ | \mathbf{C} |
| ud1_2233 | $(ar{u}_2\gamma_\mu u_2)ig(ar{d}_3\gamma^\mu d_3ig)$ | R |
| ud1_2311 | $(ar{u}_2\gamma_\mu u_3)\left(ar{d}_1\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ud1_2312 | $(ar{u}_2\gamma_\mu u_3)ig(ar{d}_1\gamma^\mu d_2ig)$ | \mathbf{C} |
| ud1_2313 | $(ar{u}_2\gamma_\mu u_3) \left(ar{d}_1\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ud1_2321 | $(ar{u}_2\gamma_\mu u_3)\left(ar{d}_2\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ud1_2322 | $(ar{u}_2\gamma_\mu u_3)ig(ar{d}_2\gamma^\mu d_2ig)$ | \mathbf{C} |
| ud1_2323 | $(ar{u}_2\gamma_\mu u_3)ig(ar{d}_2\gamma^\mu d_3ig)$ | \mathbf{C} |
| ud1_2331 | $\left(ar{u}_2\gamma_{\mu}u_3 ight)\left(ar{d}_3\gamma^{\mu}d_1 ight)$ | \mathbf{C} |
| ud1_2332 | $(ar{u}_2\gamma_\mu u_3) \left(ar{d}_3\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ud1_2333 | $(ar{u}_2\gamma_\mu u_3)(ar{d}_3\gamma^\mu d_3)$ | \mathbf{C} |
| ud1_3311 | $(ar{u}_3\gamma_\mu u_3) \left(ar{d}_1\gamma^\mu d_1 ight)$ | R |
| ud1_3312 | $(ar{u}_3\gamma_\mu u_3)(ar{d}_1\gamma^\mu d_2)$ | \mathbf{C} |
| | , | |

| $\begin{array}{c} \mathrm{ud1}_3313 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_1\gamma^\mu d_3) & \mathrm{C} \\ \mathrm{ud1}_3322 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_2) & \mathrm{R} \\ \mathrm{ud1}_3323 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_3) & \mathrm{C} \\ \mathrm{ud1}_3323 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_3) & \mathrm{C} \\ \mathrm{ud1}_3323 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_1\gamma^\mu d_3) & \mathrm{R} \\ \mathrm{ud3}_1111 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_1) & \mathrm{R} \\ \mathrm{ud8}_1112 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) & \mathrm{C} \\ \mathrm{ud8}_1113 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1122 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1123 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1123 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) & \mathrm{R} \\ \mathrm{ud8}_1213 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) & \mathrm{R} \\ \mathrm{ud8}_1211 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) & \mathrm{R} \\ \mathrm{ud8}_1212 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1213 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1221 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1222 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1223 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1223 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1223 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_4) & \mathrm{C} \\ \mathrm{ud8}_1232 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_4) & \mathrm{C} \\ \mathrm{ud8}_1232 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_4) & \mathrm{C} \\ \mathrm{ud8}_1233 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1313 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1311 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1312 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1312 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1313 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1313 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1322 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1331 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_1332 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ \mathrm{ud8}_2321 & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) & \mathrm{C} \\ $ | WC name | Operator | Type |
|--|----------|--|-----------------|
| $\begin{array}{c} \mathrm{ud1}_3322 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_2) \\ \mathrm{ud1}_3323 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_3) \\ \mathrm{ud3}_3333 & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_3) \\ \mathrm{ud8}_1111 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_1) \\ \mathrm{ud8}_1112 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1112 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1112 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1122 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1123 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1123 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1211 & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1211 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1212 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1213 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1221 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1221 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1222 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1223 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1231 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1232 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1233 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1231 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1331 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1331 & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1331 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_1312 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1322 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1332 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1331 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1332 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_1331 & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_221 & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_2211 & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_2212 & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_2223 & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_2233 & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_2321 & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A$ | ud1_3313 | $(ar{u}_3\gamma_\mu u_3)ig(ar{d}_1\gamma^\mu d_3ig)$ | \mathbf{C} |
| $\begin{array}{c} \mathrm{ud1}_{3323} & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_2\gamma^\mu d_3) \\ \mathrm{ud1}_{3333} & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_3\gamma^\mu d_3) \\ \mathrm{ud8}_{1111} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_1) \\ \mathrm{ud8}_{1112} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1113} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1122} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1123} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1123} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1133} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1211} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1212} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1213} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1212} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1221} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_1) \\ \mathrm{ud8}_{1222} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1223} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1223} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1233} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1233} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_1) \\ \mathrm{ud8}_{1233} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1231} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1312} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1313} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \mathrm{ud8}_{1312} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1313} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1322} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1323} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1323} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1322} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{1323} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{2321} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{2321} & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{2222} & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{2223} & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \mathrm{ud8}_{2323} &$ | ud1_3322 | | R |
| $\begin{array}{c} {\rm ud1_3333} & (\bar{u}_3\gamma_\mu u_3) (\bar{d}_3\gamma^\mu d_3) & {\rm R} \\ {\rm ud8_1111} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_1) & {\rm R} \\ {\rm ud8_1112} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) & {\rm C} \\ {\rm ud8_1113} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) & {\rm C} \\ {\rm ud8_1112} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_2) & {\rm R} \\ {\rm ud8_1123} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1123} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm R} \\ {\rm ud8_1133} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm R} \\ {\rm ud8_1211} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_1) & {\rm C} \\ {\rm ud8_1212} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) & {\rm C} \\ {\rm ud8_1213} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) & {\rm C} \\ {\rm ud8_1221} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1222} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_2) & {\rm C} \\ {\rm ud8_1222} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_2) & {\rm C} \\ {\rm ud8_1223} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1231} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1231} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1232} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1331} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1331} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1311} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1321} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1322} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1332} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1332} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1333} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1333} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1333} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_1333} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_2213} & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) & {\rm C} \\ {\rm ud8_2213} & (\bar{u}_2\gamma_\mu T^A u_3) $ | ud1_3323 | | \mathbf{C} |
| $\begin{array}{c} \text{ud8_1111} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_1) \\ \text{ud8_1112} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1113} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1122} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1123} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1123} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1133} & (\bar{u}_1\gamma_\mu T^A u_1) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_1211} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1212} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1213} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1221} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1222} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1222} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1223} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1231} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1232} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_2) \\ \text{ud8_1232} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_2) \\ \text{ud8_1233} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_2) \\ \text{ud8_1311} & (\bar{u}_1\gamma_\mu T^A u_2) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_1311} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1312} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1313} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1321} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1321} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1322} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1331} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1332} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_2211} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_2212} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_2213} & (\bar{u}_1\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_2213} & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_3\gamma^\mu T^A d_3) \\ \text{ud8_2223} & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2223} & (\bar{u}_2\gamma_\mu T^A u_2) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2233} & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2233} & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2311} & (\bar{u}_2\gamma_\mu T^A u_3) (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2322} & (\bar{u}_2\gamma_$ | ud1_3333 | | R |
| $\begin{array}{c} \text{ud8_1112} & (\bar{u}_1\gamma_\mu T^A u_1) \ (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1113} & (\bar{u}_1\gamma_\mu T^A u_1) \ (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1122} & (\bar{u}_1\gamma_\mu T^A u_1) \ (\bar{d}_2\gamma^\mu T^A d_2) \\ \text{ud8_1123} & (\bar{u}_1\gamma_\mu T^A u_1) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1123} & (\bar{u}_1\gamma_\mu T^A u_1) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1211} & (\bar{u}_1\gamma_\mu T^A u_1) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1211} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1212} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1213} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1221} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_2\gamma^\mu T^A d_1) \\ \text{ud8_1222} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_2\gamma^\mu T^A d_1) \\ \text{ud8_1222} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_2\gamma^\mu T^A d_2) \\ \text{ud8_1223} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_2\gamma^\mu T^A d_2) \\ \text{ud8_1231} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_3\gamma^\mu T^A d_1) \\ \text{ud8_1232} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_3\gamma^\mu T^A d_2) \\ \text{ud8_1233} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_3\gamma^\mu T^A d_2) \\ \text{ud8_1311} & (\bar{u}_1\gamma_\mu T^A u_2) \ (\bar{d}_3\gamma^\mu T^A d_1) \\ \text{ud8_1312} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_2) \\ \text{ud8_1313} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1312} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1322} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_1323} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1322} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1333} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_1333} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_224} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_2211} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_2\gamma^\mu T^A d_3) \\ \text{ud8_2212} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2213} & (\bar{u}_1\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2223} & (\bar{u}_2\gamma_\mu T^A u_2) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2223} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2233} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2311} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2322} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ \text{ud8_2322} & (\bar{u}_2\gamma_\mu T^A u_3) \ (\bar{d}_1\gamma^\mu T^A d_3) \\ ud8_2323$ | ud8_1111 | $(ar{u}_1\gamma_\mu T^Au_1)~(ar{d}_1\gamma^\mu T^Ad_1)$ | R |
| $\begin{array}{c} \text{ud8}_1113 & \left(\bar{u}_1\gamma_\mu T^A u_1\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{R} \\ \text{ud8}_1122 & \left(\bar{u}_1\gamma_\mu T^A u_1\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{R} \\ \text{ud8}_1123 & \left(\bar{u}_1\gamma_\mu T^A u_1\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{R} \\ \text{ud8}_1133 & \left(\bar{u}_1\gamma_\mu T^A u_1\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_1133 & \left(\bar{u}_1\gamma_\mu T^A u_1\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8}_1211 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1212 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1213 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_1221 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_1222 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1223 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1231 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8}_1232 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1233 & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1331 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_1312 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_1312 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1312 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1322 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1322 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8}_1332 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1332 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1332 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1332 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1332 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_1332 & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_2212 & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8}_2212 & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_2213 & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_2222 & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8}_2312 & \left(\bar{u}_2\gamma_\mu T^A$ | ud8_1112 | | \mathbf{C} |
| $\begin{array}{c} \text{ud8_1122} & \left(\bar{u}_1\gamma_{\mu}T^Au_1\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{ud8_1123} & \left(\bar{u}_1\gamma_{\mu}T^Au_1\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1133} & \left(\bar{u}_1\gamma_{\mu}T^Au_1\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1211} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1212} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1213} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1221} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1222} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1223} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1231} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1312} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1322} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2211} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2212} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2223} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2311} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3$ | ud8_1113 | $(\bar{u}_1\gamma_\mu T^A u_1)(\bar{d}_1\gamma^\mu T^A d_3)$ | \mathbf{C} |
| $\begin{array}{c} \text{ud8_1123} & \left(\bar{u}_1\gamma_{\mu}T^Au_1\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1133} & \left(\bar{u}_1\gamma_{\mu}T^Au_1\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{R} \\ \text{ud8_1211} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1212} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1213} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1221} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1222} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1223} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & $ | ud8_1122 | $(\bar{u}_1\gamma_\mu T^A u_1)(\bar{d}_2\gamma^\mu T^A d_2)$ | R |
| $\begin{array}{c} \text{ud8_1211} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1212} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1213} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1221} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1222} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1223} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1321} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1332} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2311} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A$ | ud8_1123 | | \mathbf{C} |
| $\begin{array}{c} \text{ud8_1212} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) \\ \text{ud8_1213} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_1221} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) \\ \text{ud8_1222} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) \\ \text{ud8_1223} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_1\right) \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_1\right) \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1332} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2212} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\$ | ud8_1133 | $(\bar{u}_1\gamma_\mu T^A u_1)(\bar{d}_3\gamma^\mu T^A d_3)$ | R |
| $\begin{array}{c} \text{ud8_1212} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) \\ \text{ud8_1213} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_1221} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) \\ \text{ud8_1222} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) \\ \text{ud8_1223} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_1\right) \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_1\right) \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_1332} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2212} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) \\$ | ud8_1211 | $(\bar{u}_1\gamma_\mu T^A u_2)(\bar{d}_1\gamma^\mu T^A d_1)$ | \mathbf{C} |
| $\begin{array}{c} \text{ud8_1213} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1221} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1222} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1223} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_\mu T^A u_2\right) \left(\bar{d}_3\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1321} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_1332} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_1\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_\mu T^A u_3\right) \left(\bar{d}_3\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_1\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_\mu T^A u_2\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2311} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_1\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_3\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_\mu T^A u_3\right) \left(\bar{d}_2\gamma^\mu T^A d_2\right) & \text{C} \\ \text{ud8_2331} & \left(\bar{u}_2\gamma_\mu T^A$ | ud8_1212 | | \mathbf{C} |
| $\begin{array}{c} \text{ud8_1222} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1321} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1332} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2212} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2311} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & $ | ud8_1213 | | $^{\mathrm{C}}$ |
| $\begin{array}{c} \text{ud8_1222} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1231} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1311} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1312} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1321} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1322} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_1332} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2211} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2212} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2223} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2311} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2312} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) & $ | ud8_1221 | | $^{\mathrm{C}}$ |
| $\begin{array}{c} \text{ud8_1231} & \left(\overline{a_1} \gamma_\mu T^A u_2 \right) \left(\overline{d_3} \gamma^\mu T^A d_1 \right) \\ \text{ud8_1232} & \left(\overline{a_1} \gamma_\mu T^A u_2 \right) \left(\overline{d_3} \gamma^\mu T^A d_2 \right) \\ \text{ud8_1233} & \left(\overline{a_1} \gamma_\mu T^A u_2 \right) \left(\overline{d_3} \gamma^\mu T^A d_2 \right) \\ \text{ud8_1311} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_1 \right) \\ \text{ud8_1312} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_1 \right) \\ \text{ud8_1313} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_1313} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_3 \right) \\ \text{ud8_1321} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_1 \right) \\ \text{ud8_1322} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_1323} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_1323} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_3 \right) \\ \text{ud8_1331} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_3} \gamma^\mu T^A d_1 \right) \\ \text{ud8_1332} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_3} \gamma^\mu T^A d_2 \right) \\ \text{ud8_1333} & \left(\overline{a_1} \gamma_\mu T^A u_3 \right) \left(\overline{d_3} \gamma^\mu T^A d_3 \right) \\ \text{ud8_2211} & \left(\overline{a_2} \gamma_\mu T^A u_2 \right) \left(\overline{d_1} \gamma^\mu T^A d_3 \right) \\ \text{ud8_2212} & \left(\overline{a_2} \gamma_\mu T^A u_2 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2213} & \left(\overline{a_2} \gamma_\mu T^A u_2 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2223} & \left(\overline{a_2} \gamma_\mu T^A u_2 \right) \left(\overline{d_2} \gamma^\mu T^A d_3 \right) \\ \text{ud8_2233} & \left(\overline{a_2} \gamma_\mu T^A u_2 \right) \left(\overline{d_2} \gamma^\mu T^A d_3 \right) \\ \text{ud8_2311} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_3 \right) \\ \text{ud8_2312} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_3 \right) \\ \text{ud8_2313} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2322} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_1} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_2 \right) \\ \text{ud8_2323} & \left(\overline{a_2} \gamma_\mu T^A u_3 \right) \left(\overline{d_2} \gamma^\mu T^A d_$ | ud8_1222 | | $^{\mathrm{C}}$ |
| $\begin{array}{c} \text{ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1311} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1312} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1321} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1322} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1331} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1332} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2211} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_2212} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2222} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2311} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_2312} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2321} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3$ | ud8_1223 | $\left(ar{u}_1\gamma_\mu T^A u_2 ight)\left(ar{d}_2\gamma^\mu T^A d_3 ight)$ | $^{\mathrm{C}}$ |
| $\begin{array}{c} \text{ud8_1232} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{ud8_1233} & \left(\bar{u}_1\gamma_{\mu}T^Au_2\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1311} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1312} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1313} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1321} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1322} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1323} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_1331} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1332} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_1333} & \left(\bar{u}_1\gamma_{\mu}T^Au_3\right)\left(\bar{d}_3\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2211} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_2212} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2213} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2222} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2233} & \left(\bar{u}_2\gamma_{\mu}T^Au_2\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_3\right) \\ \text{Ud8_2311} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_2312} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2313} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2321} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_1\right) \\ \text{Ud8_2322} & \left(\bar{u}_2\gamma_{\mu}T^Au_3\right)\left(\bar{d}_2\gamma^{\mu}T^Ad_2\right) \\ \text{Ud8_2323} & \left(\bar{u}_2\gamma_{\mu}T^Au_3$ | ud8_1231 | $(\bar{u}_1\gamma_\mu T^A u_2)(\bar{d}_3\gamma^\mu T^A d_1)$ | $^{\mathrm{C}}$ |
| $\begin{array}{c} \text{ud8_1233} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{2}\right)\left(\bar{d}_{3}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_1311} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{1}\right) & \text{C} \\ \text{ud8_1312} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_1313} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_1321} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{1}\right) & \text{C} \\ \text{ud8_1322} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_1323} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_1331} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{3}\gamma^{\mu}T^{A}d_{1}\right) & \text{C} \\ \text{ud8_1332} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{3}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{3}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_1333} & \left(\bar{u}_{1}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{3}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_2211} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{2}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{1}\right) & \text{R} \\ \text{ud8_2212} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{2}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_2213} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{2}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{2}\right) & \text{R} \\ \text{ud8_2222} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{2}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_2233} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{2}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{3}\right) & \text{R} \\ \text{ud8_2311} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{3}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_2312} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_2313} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_2321} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{1}\gamma^{\mu}T^{A}d_{3}\right) & \text{C} \\ \text{ud8_2322} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_2323} & \left(\bar{u}_{2}\gamma_{\mu}T^{A}u_{3}\right)\left(\bar{d}_{2}\gamma^{\mu}T^{A}d_{2}\right) & \text{C} \\ \text{ud8_2323}$ | ud8_1232 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1233 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1311 | $(\bar{u}_1\gamma_\mu T^A u_3)(\bar{d}_1\gamma^\mu T^A d_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1312 | $(\bar{u}_1\gamma_\mu T^A u_3)(\bar{d}_1\gamma^\mu T^A d_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1313 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1321 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1322 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1323 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1331 | $(\bar{u}_1\gamma_\mu T^A u_3)(\bar{d}_3\gamma^\mu T^A d_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1332 | $(\bar{u}_1\gamma_\mu T^A u_3)(\bar{d}_3\gamma^\mu T^A d_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_1333 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2211 | | R |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2212 | $(\bar{u}_2\gamma_\mu T^A u_2)(\bar{d}_1\gamma^\mu T^A d_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2213 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2222 | | R |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2223 | $(\bar{u}_2\gamma_\mu T^A u_2)(\bar{d}_2\gamma^\mu T^A d_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2233 | $(\bar{u}_2\gamma_\mu T^A u_2)(\bar{d}_3\gamma^\mu T^A d_3)$ | R |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2312 | | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2313 | $(\bar{u}_2\gamma_\mu T^A u_3)(\bar{d}_1\gamma^\mu T^A d_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ud8_2321 | | $^{\mathrm{C}}$ |
| ud8_2323 $(\bar{u}_2\gamma_{\mu}T^Au_3)(\bar{d}_2\gamma^{\mu}T^Ad_3)$ C ud8_2331 $(\bar{u}_2\gamma_{\mu}T^Au_3)(\bar{d}_3\gamma^{\mu}T^Ad_1)$ C | ud8_2322 | | $^{\mathrm{C}}$ |
| ud8_2331 $\left(\bar{u}_2\gamma_\mu T^A u_3\right)\left(\bar{d}_3\gamma^\mu T^A d_1\right)$ C | ud8_2323 | $\left(\bar{u}_2\gamma_\mu T^A u_3\right)\left(\bar{d}_2\gamma^\mu T^A d_3\right)$ | \mathbf{C} |
| ud8_2332 $\left(\bar{u}_2\gamma_\mu T^A u_3\right)\left(\bar{d}_3\gamma^\mu T^A d_2\right)$ C | ud8_2331 | $\left(ar{u}_2\gamma_\mu T^A u_3 ight)\left(ar{d}_3\gamma^\mu T^A d_1 ight)$ | \mathbf{C} |
| | ud8_2332 | $\left(ar{u}_2\gamma_{\mu}T^Au_3 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_2 ight)$ | \mathbf{C} |

| WC name | Operator | Type |
|----------|---|--------------|
| ud8_2333 | $\left(ar{u}_2\gamma_\mu T^A u_3\right)\left(ar{d}_3\gamma^\mu T^A d_3\right)$ | C |
| ud8_3311 | $\left(\bar{u}_3\gamma_{\mu}T^Au_3\right)\left(\bar{d}_1\gamma^{\mu}T^Ad_1\right)$ | R |
| ud8_3312 | $\left\langle ar{u}_3 \gamma_\mu T^A u_3 \right\rangle \left\langle ar{d}_1 \gamma^\mu T^A d_2 \right\rangle$ | \mathbf{C} |
| ud8_3313 | $(\bar{u}_3\gamma_\mu T^A u_3)(\bar{d}_1\gamma^\mu T^A d_3)$ | \mathbf{C} |
| ud8_3322 | $\left\langle ar{u}_3 \gamma_\mu T^A u_3 \right\rangle \left\langle ar{d}_2 \gamma^\mu T^A d_2 \right\rangle$ | R |
| ud8_3323 | $\left\langle ar{u}_3 \gamma_\mu T^A u_3 \right\rangle \left\langle ar{d}_2 \gamma^\mu T^A d_3 \right\rangle$ | \mathbf{C} |
| ud8_3333 | $\left(ar{u}_3 \gamma_\mu T^A u_3 \right) \left(ar{d}_3 \gamma^\mu T^A d_3 \right)$ | R |
| le_1111 | $(\bar{\ell}_1\gamma_\mu\ell_1)(\bar{e}_1\gamma^\mu e_1)$ | R |
| le_1112 | $(ar{\ell}_1\gamma_\mu\ell_1)(ar{e}_1\gamma^\mu e_2)$ | \mathbf{C} |
| le_1113 | $(ar{\ell}_1\gamma_\mu\ell_1)(ar{e}_1\gamma^\mu e_3)$ | \mathbf{C} |
| le_1122 | $(ar{\ell}_1\gamma_\mu\ell_1)(ar{e}_2\gamma^\mu e_2)$ | R |
| le_1123 | $(ar{\ell}_1\gamma_\mu\ell_1)(ar{e}_2\gamma^\mu e_3)$ | \mathbf{C} |
| le_1133 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{e}_3\gamma^\mu e_3 ight)$ | R |
| le_1211 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_1\gamma^\mu e_1)$ | \mathbf{C} |
| le_1212 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_1\gamma^\mu e_2)$ | \mathbf{C} |
| le_1213 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_1\gamma^\mu e_3)$ | \mathbf{C} |
| le_1221 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_2\gamma^\mu e_1)$ | \mathbf{C} |
| le_1222 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_2\gamma^\mu e_2)$ | \mathbf{C} |
| le_1223 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_2\gamma^\mu e_3)$ | \mathbf{C} |
| le_1231 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_3\gamma^\mu e_1)$ | \mathbf{C} |
| le_1232 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_3\gamma^\mu e_2)$ | \mathbf{C} |
| le_1233 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{e}_3\gamma^\mu e_3)$ | \mathbf{C} |
| le_1311 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{e}_1\gamma^\mu e_1)$ | \mathbf{C} |
| le_1312 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{e}_1\gamma^\mu e_2)$ | \mathbf{C} |
| le_1313 | $(\bar{\ell}_1\gamma_\mu\ell_3)(\bar{e}_1\gamma^\mu e_3)$ | \mathbf{C} |
| le_1321 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{e}_2\gamma^\mu e_1 ight)$ | \mathbf{C} |
| le_1322 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{e}_2\gamma^\mu e_2)$ | \mathbf{C} |
| le_1323 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{e}_2\gamma^\mu e_3)$ | \mathbf{C} |
| le_1331 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{e}_3\gamma^\mu e_1 ight)$ | \mathbf{C} |
| le_1332 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{e}_3\gamma^\mu e_2)$ | \mathbf{C} |
| le_1333 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{e}_3\gamma^\mu e_3)$ | \mathbf{C} |
| le_2211 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{e}_1\gamma^\mu e_1)$ | R |
| le_2212 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{e}_1\gamma^\mu e_2)$ | \mathbf{C} |
| le_2213 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{e}_1\gamma^\mu e_3)$ | \mathbf{C} |
| le_2222 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{e}_2\gamma^\mu e_2)$ | R |
| le_2223 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{e}_2\gamma^\mu e_3)$ | \mathbf{C} |
| le_2233 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{e}_3\gamma^\mu e_3)$ | R |
| le_2311 | $(ar{\ell}_2\gamma_\mu\ell_3)(ar{e}_1\gamma^\mu e_1)$ | \mathbf{C} |
| le_2312 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{e}_1\gamma^\mu e_2 ight)$ | \mathbf{C} |
| le_2313 | $(ar{\ell}_2\gamma_\mu\ell_3)(ar{e}_1\gamma^\mu e_3)$ | \mathbf{C} |
| le_2321 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{e}_2\gamma^\mu e_1 ight)$ | \mathbf{C} |
| le_2322 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{e}_2\gamma^\mu e_2 ight)$ | \mathbf{C} |
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| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| le_3313 $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{e}_1\gamma^\mu e_3)$ C le_3322 $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{e}_2\gamma^\mu e_2)$ R le_3323 $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{e}_2\gamma^\mu e_3)$ C |
| le_3322 $(\bar{\ell}_3 \gamma_\mu \ell_3) (\bar{e}_2 \gamma^\mu e_2)$ R le_3323 $(\bar{\ell}_3 \gamma_\mu \ell_3) (\bar{e}_2 \gamma^\mu e_3)$ C |
| le_3323 $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{e}_2\gamma^\mu e_3)$ C |
| |
| le_3333 $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{e}_3\gamma^\mu e_3)$ R |
| |
| lu_1111 $ (\bar{\ell}_1 \gamma_\mu \ell_1) (\bar{u}_1 \gamma^\mu u_1) $ R |
| lu_1112 $(\bar{\ell}_1 \gamma_\mu \ell_1) (\bar{u}_1 \gamma^\mu u_2)$ C |
| lu_1113 $ (\bar{\ell}_1 \gamma_\mu \ell_1) (\bar{u}_1 \gamma^\mu u_3) $ C |
| lu_1122 $(\bar{\ell}_1 \gamma_\mu \ell_1) (\bar{u}_2 \gamma^\mu u_2)$ R |
| lu_1123 $(\bar{\ell}_1 \gamma_\mu \ell_1) (\bar{u}_2 \gamma^\mu u_3)$ C |
| lu_1133 $(\bar{\ell}_1\gamma_\mu\ell_1)(\bar{u}_3\gamma^\mu u_3)$ R |
| lu_1211 $(\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_1 \gamma^\mu u_1)$ C |
| lu_1212 $(\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_1 \gamma^\mu u_2)$ C |
| lu_1213 $\left(\bar{\ell}_1\gamma_\mu\ell_2\right)\left(\bar{u}_1\gamma^\mu u_3\right)$ C |
| lu_1221 $(\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_2 \gamma^\mu u_1)$ C |
| lu_1222 $ (\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_2 \gamma^\mu u_2) $ C |
| lu_1223 $(\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_2 \gamma^\mu u_3)$ C |
| lu_1231 $(\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_3 \gamma^\mu u_1)$ C |
| lu_1232 $ (\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_3 \gamma^\mu u_2) $ C |
| lu_1233 $ (\bar{\ell}_1 \gamma_\mu \ell_2) (\bar{u}_3 \gamma^\mu u_3) $ C |
| lu_1311 $ (\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_1 \gamma^\mu u_1) $ C |
| lu_1312 $(\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_1 \gamma^\mu u_2)$ C |
| lu_1313 $(\bar{\ell}_1\gamma_\mu\ell_3)(\bar{u}_1\gamma^\mu u_3)$ C |
| lu_1321 $(\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_2 \gamma^\mu u_1)$ C |
| lu_1322 $ (\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_2 \gamma^\mu u_2) $ C |
| lu_1323 $(\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_2 \gamma^\mu u_3)$ C |
| lu_1331 $(\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_3 \gamma^\mu u_1)$ C |
| lu_1332 $(\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_3 \gamma^\mu u_2)$ C |
| lu_1333 $ (\bar{\ell}_1 \gamma_\mu \ell_3) (\bar{u}_3 \gamma^\mu u_3) $ C |
| lu_2211 $(\bar{\ell}_2 \gamma_\mu \ell_2) (\bar{u}_1 \gamma^\mu u_1)$ R |
| lu_2212 $(\bar{\ell}_2 \gamma_\mu \ell_2) (\bar{u}_1 \gamma^\mu u_2)$ C |
| lu_2213 $(\bar{\ell}_2\gamma_\mu\ell_2)(\bar{u}_1\gamma^\mu u_3)$ C |
| lu_2222 $(\bar{\ell}_2 \gamma_\mu \ell_2) (\bar{u}_2 \gamma^\mu u_2)$ R |
| lu_2223 $(\bar{\ell}_2 \gamma_\mu \ell_2) (\bar{u}_2 \gamma^\mu u_3)$ C |
| lu_2233 $(\bar{\ell}_2\gamma_\mu\ell_2)(\bar{u}_3\gamma^\mu u_3)$ R |
| lu_2311 $(\bar{\ell}_2 \gamma_\mu \ell_3) (\bar{u}_1 \gamma^\mu u_1)$ C |
| lu_2312 $ (\bar{\ell}_2 \gamma_\mu \ell_3) (\bar{u}_1 \gamma^\mu u_2) $ C |

| WC name | Operator | Type |
|---------|--|-----------------|
| lu_2313 | $(\bar{\ell}_2\gamma_\mu\ell_3)(\bar{u}_1\gamma^\mu u_3)$ | C |
| lu_2321 | $(ar{\ell}_2\gamma_\mu\ell_3)(ar{u}_2\gamma^\mu u_1)$ | \mathbf{C} |
| lu_2322 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{u}_2\gamma^\mu u_2 ight)$ | \mathbf{C} |
| lu_2323 | $(ar{\ell}_2\gamma_\mu\ell_3)(ar{u}_2\gamma^\mu u_3)$ | $^{\mathrm{C}}$ |
| lu_2331 | $(\bar{\ell}_2\gamma_\mu\ell_3)(\bar{u}_3\gamma^\mu u_1)$ | C |
| lu_2332 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{u}_3\gamma^\mu u_2 ight)$ | \mathbf{C} |
| lu_2333 | $(ar{\ell}_2\gamma_\mu\ell_3)(ar{u}_3\gamma^\mu u_3)$ | $^{\mathrm{C}}$ |
| lu_3311 | $(\bar{\ell}_3\gamma_\mu\ell_3)(\bar{u}_1\gamma^\mu u_1)$ | ${ m R}$ |
| lu_3312 | $(ar{\ell}_3\gamma_\mu\ell_3)(ar{u}_1\gamma^\mu u_2)$ | \mathbf{C} |
| lu_3313 | $(ar{\ell}_3\gamma_\mu\ell_3)(ar{u}_1\gamma^\mu u_3)$ | $^{\mathrm{C}}$ |
| lu_3322 | $(ar{\ell}_3\gamma_\mu\ell_3)(ar{u}_2\gamma^\mu u_2)$ | R |
| lu_3323 | $(ar{\ell}_3\gamma_\mu\ell_3)(ar{u}_2\gamma^\mu u_3)$ | C |
| lu_3333 | $(ar{\ell}_3\gamma_\mu\ell_3)(ar{u}_3\gamma^\mu u_3)$ | R |
| ld_1111 | $(ar{\ell}_1\gamma_\mu\ell_1)~(ar{d}_1\gamma^\mu d_1)$ | R |
| ld_1112 | $(ar{\ell}_1\gamma_\mu\ell_1)~(ar{d}_1\gamma^\mu d_2)$ | \mathbf{C} |
| ld_1113 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{d}_1\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ld_1122 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{d}_2\gamma^\mu d_2 ight)$ | ${ m R}$ |
| ld_1123 | $(ar{\ell}_1\gamma_\mu\ell_1)~(ar{d}_2\gamma^\mu d_3)$ | C |
| ld_1133 | $\left(ar{\ell}_1\gamma_\mu\ell_1 ight)\left(ar{d}_3\gamma^\mu d_3 ight)$ | R |
| ld_1211 | $(ar{\ell}_1\gamma_\mu\ell_2)~(ar{d}_1\gamma^\mu d_1)$ | $^{\mathrm{C}}$ |
| ld_1212 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{d}_1\gamma^\mu d_2)$ | $^{\mathrm{C}}$ |
| ld_1213 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{d}_1\gamma^\mu d_3)$ | C |
| ld_1221 | $(ar{\ell}_1\gamma_\mu\ell_2)~(ar{d}_2\gamma^\mu d_1)$ | \mathbf{C} |
| ld_1222 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{d}_2\gamma^\mu d_2 ight)$ | $^{\mathrm{C}}$ |
| ld_1223 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{d}_2\gamma^\mu d_3 ight)$ | C |
| ld_1231 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{d}_3\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ld_1232 | $\left(ar{\ell}_1\gamma_\mu\ell_2 ight)\left(ar{d}_3\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_1233 | $(ar{\ell}_1\gamma_\mu\ell_2)(ar{d}_3\gamma^\mu d_3)$ | \mathbf{C} |
| ld_1311 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ld_1312 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_1313 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ld_1321 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{d}_2\gamma^\mu d_1)$ | \mathbf{C} |
| ld_1322 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_1323 | $\left(ar{\ell}_1\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ld_1331 | $(ar{\ell}_1\gamma_\mu\ell_3)(ar{d}_3\gamma^\mu d_1)$ | \mathbf{C} |
| ld_1332 | $(ar{\ell}_1\gamma_\mu\ell_3)~(ar{d}_3\gamma^\mu d_2)$ | \mathbf{C} |
| ld_1333 | $(ar{\ell}_1\gamma_\mu\ell_3)~(ar{d}_3\gamma^\mu d_3)$ | \mathbf{C} |
| ld_2211 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{d}_1\gamma^\mu d_1 ight)$ | ${ m R}$ |
| ld_2212 | $\left(ar{\ell}_2\gamma_\mu\ell_2 ight)\left(ar{d}_1\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_2213 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{d}_1\gamma^\mu d_3)$ | \mathbf{C} |
| ld_2222 | $egin{pmatrix} ar{(ar{\ell}_2\gamma_\mu\ell_2)} & ar{(ar{d}_2\gamma^\mu d_2)} \end{pmatrix}$ | ${ m R}$ |
| ld_2223 | $(ar{\ell}_2\gamma_\mu\ell_2)(ar{d}_2\gamma^\mu d_3)$ | \mathbf{C} |

| WC name | Operator | Type |
|--------------------|--|-----------------|
| ld_2233 | $\left(ar{\ell}_2\gamma_{\mu}\ell_2 ight)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | R |
| ld_2311 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_1 ight)$ | $^{\mathrm{C}}$ |
| ld_2312 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_2 ight)$ | $^{\mathrm{C}}$ |
| ld_2313 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| ld_2321 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ld_2322 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_2323 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ld_2331 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_3\gamma^\mu d_1 ight)$ | \mathbf{C} |
| ld_2332 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_3\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_2333 | $\left(ar{\ell}_2\gamma_\mu\ell_3 ight)\left(ar{d}_3\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ld_3311 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_1 ight)$ | R |
| ld_3312 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{d}_1\gamma^\mu d_2 ight)$ | \mathbf{C} |
| ld_3313 | $(ar{\ell}_3\gamma_\mu\ell_3)~(ar{d}_1\gamma^\mu d_3)$ | \mathbf{C} |
| ld_3322 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_2 ight)$ | R |
| ld_3323 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{d}_2\gamma^\mu d_3 ight)$ | \mathbf{C} |
| ld_3333 | $\left(ar{\ell}_3\gamma_\mu\ell_3 ight)\left(ar{d}_3\gamma^\mu d_3 ight)$ | R |
| qe_1111 | $(ar{q}_1\gamma_\mu q_1)(ar{e}_1\gamma^\mu e_1)$ | ${ m R}$ |
| qe_1112 | $(ar{q}_1\gamma_{\mu}q_1)(ar{e}_1\gamma^{\mu}e_2)$ | \mathbf{C} |
| qe_1113 | $(ar{q}_1\gamma_\mu q_1)(ar{e}_1\gamma^\mu e_3)$ | $^{\mathrm{C}}$ |
| qe_1122 | $(ar{q}_1\gamma_\mu q_1)(ar{e}_2\gamma^\mu e_2)$ | R |
| qe_1123 | $\left(ar{q}_1\gamma_{\mu}q_1 ight)\left(ar{e}_2\gamma^{\mu}e_3 ight)$ | \mathbf{C} |
| qe_1133 | $\left(ar{q}_1\gamma_{\mu}q_1 ight)\left(ar{e}_3\gamma^{\mu}e_3 ight)$ | R |
| qe_1211 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{e}_1\gamma^{\mu}e_1 ight)$ | \mathbf{C} |
| qe_1212 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{e}_1\gamma^{\mu}e_2 ight)$ | \mathbf{C} |
| qe_1213 | $(ar{q}_1\gamma_\mu q_2)(ar{e}_1\gamma^\mu e_3)$ | C |
| qe_1221 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{e}_2\gamma^{\mu}e_1 ight)$ | C |
| qe_1222 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{e}_2\gamma^{\mu}e_2 ight)$ | C |
| qe_1223 | $(ar{q}_1\gamma_\mu q_2)(ar{e}_2\gamma^\mu e_3)$ | C |
| qe_1231 | $\left(ar{q}_1\gamma_{\mu}q_2 ight)\left(ar{e}_3\gamma^{\mu}e_1 ight)$ | C |
| qe_1232 | $(ar{q}_1\gamma_\mu q_2)(ar{e}_3\gamma^\mu e_2)$ | C |
| qe_1233 | $(ar{q}_1\gamma_\mu q_2)(ar{e}_3\gamma^\mu e_3)$ | C |
| qe_1311 | $(ar{q}_1\gamma_\mu q_3)(ar{e}_1\gamma^\mu e_1)$ | C |
| qe_1312 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_1\gamma^\mu e_2)$ | C |
| qe_1313 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_1\gamma^\mu e_3)$ | C |
| qe_1321 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_2\gamma^\mu e_1)$ | C |
| qe_1322 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_2\gamma^\mu e_2)$ | C C |
| qe_1323 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_2\gamma^\mu e_3)$ | C |
| qe_1331 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_3\gamma^\mu e_1)$ | C |
| qe_1332 qe_1333 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_3\gamma^\mu e_2)$ | C |
| qe_1333 qe_2211 | $(\bar{q}_1\gamma_\mu q_3)(\bar{e}_3\gamma^\mu e_3)$ | R |
| | $(\bar{q}_2\gamma_\mu q_2)(\bar{e}_1\gamma^\mu e_1)$ | C C |
| qe_2212 qe_2213 | $\left(ar{q}_2\gamma_\mu q_2\right)\left(ar{e}_1\gamma^\mu e_2\right)$ | C |
| 4e_2213 | $(\bar{q}_2\gamma_\mu q_2)(\bar{e}_1\gamma^\mu e_3)$ | C |

| $\begin{array}{c} \mathbf{q} \mathbf{e} = 2222 & (\bar{q}_2 \gamma_\mu q_2) (\bar{e}_2 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2223 & (\bar{q}_2 \gamma_\mu q_2) (\bar{e}_3 \gamma^\mu e_3) \\ \mathbf{q} \mathbf{e} = 2233 & (\bar{q}_2 \gamma_\mu q_2) (\bar{e}_3 \gamma^\mu e_3) \\ \mathbf{q} \mathbf{e} = 2311 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_1) \\ \mathbf{q} \mathbf{e} = 2312 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2313 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2321 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_2 \gamma^\mu e_1) \\ \mathbf{q} \mathbf{e} = 2322 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_2 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2323 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_2 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2331 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_2 \gamma^\mu e_3) \\ \mathbf{q} \mathbf{e} = 2332 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_3 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2333 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_3 \gamma^\mu e_1) \\ \mathbf{q} \mathbf{e} = 2332 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_3 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 2333 & (\bar{q}_2 \gamma_\mu q_3) (\bar{e}_3 \gamma^\mu e_3) \\ \mathbf{q} \mathbf{e} = 3311 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_1) \\ \mathbf{q} \mathbf{e} = 3312 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 3313 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 3322 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_2) \\ \mathbf{q} \mathbf{e} = 3323 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_2 \gamma^\mu e_3) \\ \mathbf{q} \mathbf{e} = 3323 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_2 \gamma^\mu e_3) \\ \mathbf{q} \mathbf{e} = 3333 & (\bar{q}_3 \gamma_\mu q_3) (\bar{e}_1 \gamma^\mu e_1) \\ \mathbf{q} 1 = 1112 & (\bar{q}_1 \gamma_\mu q_1) (\bar{u}_1 \gamma^\mu u_1) \\ \mathbf{q} \mathbf{u} 1 = 112 & (\bar{q}_1 \gamma_\mu q_1) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 113 & (\bar{q}_1 \gamma_\mu q_1) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1123 & (\bar{q}_1 \gamma_\mu q_1) (\bar{u}_2 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1123 & (\bar{q}_1 \gamma_\mu q_1) (\bar{u}_2 \gamma^\mu u_3) \\ \mathbf{q} \mathbf{u} 1 = 121 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_1) \\ \mathbf{q} \mathbf{u} 1 = 121 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 121 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 121 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1221 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1221 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1221 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1222 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1222 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_2) \\ \mathbf{q} \mathbf{u} 1 = 1222 & (\bar{q}_1 \gamma_\mu q_2) (\bar{u}_1 \gamma^\mu u_$ | ype |
|--|-----|
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ; |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | |
| qu1_1213 $(\bar{q}_1\gamma_{\mu}q_2)(\bar{u}_1\gamma^{\mu}u_3)$ Cqu1_1221 $(\bar{q}_1\gamma_{\mu}q_2)(\bar{u}_2\gamma^{\mu}u_1)$ C | |
| qu1_1221 $(\bar{q}_1 \gamma_\mu q_2) (\bar{u}_2 \gamma^\mu u_1)$ C | |
| | |
| and 1929 $(\bar{q}_1 \wedge q_2)(\bar{q}_2 \wedge^{\mu} q_2)$ | |
| | |
| qu1_1223 $(\bar{q}_1 \gamma_{\mu} q_2) (\bar{u}_2 \gamma^{\mu} u_3)$ C | |
| qu1_1231 $(\bar{q}_1 \gamma_{\mu} q_2) (\bar{u}_3 \gamma^{\mu} u_1)$ C | |
| qu1_1232 $(\bar{q}_1\gamma_{\mu}q_2)(\bar{u}_3\gamma^{\mu}u_2)$ C | |
| qu1_1233 $(\bar{q}_1 \gamma_{\mu} q_2) (\bar{u}_3 \gamma^{\mu} u_3)$ C | |
| qu1_1311 $(\bar{q}_1 \gamma_\mu q_3) (\bar{u}_1 \gamma^\mu u_1)$ C | |
| qu1_1312 $(\bar{q}_1 \gamma_{\mu} q_3) (\bar{u}_1 \gamma^{\mu} u_2)$ | |
| qu1_1313 $(\bar{q}_1 \gamma_\mu q_3) (\bar{u}_1 \gamma^\mu u_3)$ | |
| qu1_1321 $(\bar{q}_1 \gamma_\mu q_3) (\bar{u}_2 \gamma^\mu u_1)$ | |
| qu1_1322 $ (\bar{q}_1\gamma_\mu q_3)(\bar{u}_2\gamma^\mu u_2) $ C | |
| qu1_1323 $(\bar{q}_1 \gamma_{\mu} q_3) (\bar{u}_2 \gamma^{\mu} u_3)$ C | |
| qu1_1331 $(\bar{q}_1 \gamma_\mu q_3) (\bar{u}_3 \gamma^\mu u_1)$ C | |
| qu1_1332 $(\bar{q}_1\gamma_{\mu}q_3)(\bar{u}_3\gamma^{\mu}u_2)$ | |
| qu1_1333 $(\bar{q}_1\gamma_{\mu}q_3)(\bar{u}_3\gamma^{\mu}u_3)$ | |
| qu1_2211 $(\bar{q}_2\gamma_{\mu}q_2)(\bar{u}_1\gamma^{\mu}u_1)$ R | |
| qu1_2212 $(\bar{q}_2\gamma_{\mu}q_2)(\bar{u}_1\gamma^{\mu}u_2)$ | ; |

| WC name | Operator | Type |
|----------------------|--|-------------------------------|
| qu1_2213 | $\left(ar{q}_2\gamma_{\mu}q_2 ight)\left(ar{u}_1\gamma^{\mu}u_3 ight)$ | C |
| qu1_2222 | $\left(ar{q}_2\gamma_{\mu}q_2 ight)\left(ar{u}_2\gamma^{\mu}u_2 ight)$ | R |
| qu1_2223 | $(ar{q}_2\gamma_\mu q_2)(ar{u}_2\gamma^\mu u_3)$ | C |
| qu1_2233 | $(ar{q}_2\gamma_\mu q_2)(ar{u}_3\gamma^\mu u_3)$ | R |
| qu1_2311 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_1\gamma^\mu u_1)$ | C |
| qu1_2312 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_1\gamma^\mu u_2)$ | C |
| qu1_2313 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_1\gamma^\mu u_3)$ | C |
| qu1_2321 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_2\gamma^\mu u_1)$ | \mathbf{C} |
| qu1_2322 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_2\gamma^\mu u_2)$ | \mathbf{C} |
| qu1_2323 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_2\gamma^\mu u_3)$ | \mathbf{C} |
| qu1_2331 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_3\gamma^\mu u_1)$ | \mathbf{C} |
| qu1_2332 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_3\gamma^\mu u_2)$ | \mathbf{C} |
| qu1_2333 | $(ar{q}_2\gamma_\mu q_3)(ar{u}_3\gamma^\mu u_3)$ | \mathbf{C} |
| qu1_3311 | $(ar{q}_3\gamma_\mu q_3)(ar{u}_1\gamma^\mu u_1)$ | R |
| qu1_3312 | $(ar{q}_3\gamma_\mu q_3)(ar{u}_1\gamma^\mu u_2)$ | \mathbf{C} |
| qu1_3313 | $(ar{q}_3\gamma_\mu q_3)(ar{u}_1\gamma^\mu u_3)$ | \mathbf{C} |
| qu1_3322 | $(ar{q}_3\gamma_\mu q_3)(ar{u}_2\gamma^\mu u_2)$ | R |
| qu1_3323 | $(ar{q}_3\gamma_\mu q_3)(ar{u}_2\gamma^\mu u_3)$ | \mathbf{C} |
| qu1_3333 | $(ar{q}_3\gamma_\mu q_3)(ar{u}_3\gamma^\mu u_3)$ | R |
| qd1_1111 | $(ar{q}_1\gamma_\mu q_1)ig(ar{d}_1\gamma^\mu d_1ig)$ | R |
| qd1_1112 | $(ar{q}_1\gamma_\mu q_1) \left(ar{d}_1\gamma^\mu d_2 ight)$ | $^{\mathrm{C}}$ |
| qd1_1113 | $(\bar{q}_1\gamma_\mu q_1) \left(\bar{d}_1\gamma^\mu d_3\right)$ | C |
| qd1_1122 | $(ar{q}_1\gamma_\mu q_1) \left(ar{d}_2\gamma^\mu d_2 ight)$ | R |
| qd1_1123 | $(ar{q}_1\gamma_\mu q_1) \left(ar{d}_2\gamma^\mu d_3 ight)$ | C |
| qd1_1133 | $(ar{q}_1\gamma_\mu q_1) \left(ar{d}_3\gamma^\mu d_3 ight)$ | R |
| qd1_1211 | $(ar{q}_1\gamma_\mu q_2) \left(ar{d}_1\gamma^\mu d_1 ight)$ | $^{\mathrm{C}}$ |
| qd1_1212 | $(ar{q}_1\gamma_\mu q_2) \left(ar{d}_1\gamma^\mu d_2 ight)$ | C |
| qd1_1213 | $(ar{q}_1\gamma_\mu q_2) \left(ar{d}_1\gamma^\mu d_3 ight)$ | C |
| qd1_1221 | $(ar{q}_1\gamma_\mu q_2) \left(ar{d}_2\gamma^\mu d_1 ight)$ | $^{\mathrm{C}}$ |
| qd1_1222 | $(ar{q}_1\gamma_\mu q_2)ig(ar{d}_2\gamma^\mu d_2ig)$ | \mathbf{C} |
| qd1_1223 | $(ar{q}_1\gamma_\mu q_2)ig(ar{d}_2\gamma^\mu d_3ig)$ | $^{\mathrm{C}}$ |
| qd1_1231 | $(ar{q}_1\gamma_\mu q_2) \left(ar{d}_3\gamma^\mu d_1 ight)$ | C |
| qd1_1232 | $(ar{q}_1\gamma_\mu q_2) \left(ar{d}_3\gamma^\mu d_2 ight)$ | C |
| qd1_1233 | $(\bar{q}_1\gamma_\mu q_2) \left(\bar{d}_3\gamma^\mu d_3\right)$ | $^{ m C}$ |
| qd1_1311 | $egin{array}{c} (ar{q}_1\gamma_\mu q_2) & (ar{d}_1\gamma^\mu d_1) \ (ar{q}_1\gamma_\mu q_3) & (ar{d}_1\gamma^\mu d_1) \end{array}$ | Č |
| qd1_1312 | $(ar{q}_1\gamma_\mu q_3) egin{pmatrix} (ar{q}_1\gamma_\mu q_3) \ (ar{d}_1\gamma^\mu d_2) \end{pmatrix}$ | $\overset{\circ}{\mathrm{C}}$ |
| qd1_1313 | $(ar{q}_1\gamma_\mu q_3) (ar{d}_1\gamma^\mu d_3) \ (ar{q}_1\gamma_\mu q_3) (ar{d}_1\gamma^\mu d_3)$ | $\overset{\circ}{\mathrm{C}}$ |
| qd1_1321 | $(ar{q}_1\gamma_\mu q_3) (ar{d}_1\gamma^\mu d_3) \ (ar{q}_1\gamma_\mu q_3) \left(ar{d}_2\gamma^\mu d_1 ight)$ | C |
| qd1_1321 qd1_1322 | $(q_1/\mu q_3) (u_2/u_1)$ $(\bar{q}_1 \gamma_{\mu} q_3) (\bar{d}_2 \gamma^{\mu} d_3)$ | C |
| qd1_1323 | $(\bar{q}_1\gamma_\mu q_3) \left(\bar{d}_2\gamma^\mu d_2\right)$ | C |
| | $(\bar{q}_1\gamma_\mu q_3) (\bar{d}_2\gamma^\mu d_3)$ | C |
| qd1_1331 | $(\bar{q}_1\gamma_\mu q_3)(\bar{d}_3\gamma^\mu d_1)$ | |
| qd1_1332 | $(\bar{q}_1\gamma_\mu q_3) \left(\bar{d}_3\gamma^\mu d_2\right)$ | C |
| qd1_1333 | $\left(ar{q}_1\gamma_{\mu}q_3 ight)\left(ar{d}_3\gamma^{\mu}d_3 ight)$ | С |
| | | |

| WC name | Operator | Type |
|----------|---|--------------------------|
| qd1_2211 | $(ar{q}_2\gamma_\mu q_2)ig(ar{d}_1\gamma^\mu d_1ig)$ | R |
| qd1_2212 | $(ar{q}_2\gamma_\mu q_2) \left(ar{d}_1\gamma^\mu d_2 ight)$ | \mathbf{C} |
| qd1_2213 | $(ar{q}_2\gamma_\mu q_2) \left(ar{d}_1\gamma^\mu d_3 ight)$ | $^{ m C}$ |
| qd1_2222 | $(ar{q}_2\gamma_\mu q_2) \left(ar{d}_2\gamma^\mu d_2 ight)$ | R |
| qd1_2223 | $(ar{q}_2\gamma_\mu q_2) \left(ar{d}_2\gamma^\mu d_3 ight)$ | \mathbf{C} |
| qd1_2233 | $(ar{q}_2\gamma_\mu q_2) \left(ar{d}_3\gamma^\mu d_3 ight)$ | $\stackrel{\circ}{ m R}$ |
| qd1_2311 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_1\gamma^\mu d_1 ight)$ | C |
| qd1_2312 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_1\gamma^\mu d_2 ight)$ | $\dot{	ext{C}}$ |
| qd1_2313 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_1\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| qd1_2321 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_2\gamma^\mu d_1 ight)$ | $\dot{	ext{C}}$ |
| qd1_2322 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_2\gamma^\mu d_2 ight)$ | $\dot{	ext{C}}$ |
| qd1_2323 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_2\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| qd1_2331 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_3\gamma^\mu d_1 ight)$ | $^{ m C}$ |
| qd1_2332 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_3\gamma^\mu d_2 ight)$ | $^{\mathrm{C}}$ |
| qd1_2333 | $(ar{q}_2\gamma_\mu q_3) \left(ar{d}_3\gamma^\mu d_3\right)$ | $^{\mathrm{C}}$ |
| qd1_3311 | $(ar{q}_3\gamma_\mu q_3) \left(ar{d}_1\gamma^\mu d_1 ight)$ | R |
| qd1_3312 | $(ar{q}_3\gamma_{\mu}q_3)ig(ar{d}_1\gamma^{\mu}d_2ig)$ | $^{\mathrm{C}}$ |
| qd1_3313 | $(ar{q}_3\gamma_\mu q_3) \left(ar{d}_1\gamma^\mu d_3 ight)$ | $^{\mathrm{C}}$ |
| qd1_3322 | $(ar{q}_3\gamma_{\mu}q_3)\left(ar{d}_2\gamma^{\mu}d_2 ight)$ | R |
| qd1_3323 | $(ar{q}_3\gamma_{\mu}q_3)(ar{d}_2\gamma^{\mu}d_3)$ | $^{\mathrm{C}}$ |
| qd1_3333 | $(ar{q}_3\gamma_{\mu}q_3)(ar{d}_3\gamma^{\mu}d_3)$ | R |
| qu8_1111 | $\left(ar{q}_1\gamma_{\mu}T^Aq_1 ight)\left(ar{u}_1\gamma^{\mu}T^Au_1 ight)$ | R |
| qu8_1112 | $\left(ar{q}_1\gamma_{\mu}T^Aq_1 ight)\left(ar{u}_1\gamma^{\mu}T^Au_2 ight)$ | \mathbf{C} |
| qu8_1113 | $(ar{q}_1\gamma_\mu T^Aq_1)(ar{u}_1\gamma^\mu T^Au_3)$ | C |
| qu8_1122 | $\left(ar{q}_1\gamma_{\mu}T^Aq_1 ight)\left(ar{u}_2\gamma^{\mu}T^Au_2 ight)$ | R |
| qu8_1123 | $\left(ar{q}_1\gamma_{\mu}T^Aq_1 ight)\left(ar{u}_2\gamma^{\mu}T^Au_3 ight)$ | $^{\mathrm{C}}$ |
| qu8_1133 | $\left(ar{q}_1\gamma_{\mu}T^Aq_1 ight)\left(ar{u}_3\gamma^{\mu}T^Au_3 ight)$ | R |
| qu8_1211 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{u}_1\gamma^{\mu}T^Au_1 ight)$ | С |
| qu8_1212 | $\left(ar{q}_1\gamma_\mu T^Aq_2 ight)\left(ar{u}_1\gamma^\mu T^Au_2 ight)$ | С |
| qu8_1213 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{u}_1\gamma^{\mu}T^Au_3 ight)$ | С |
| qu8_1221 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{u}_2\gamma^{\mu}T^Au_1 ight)$ | С |
| qu8_1222 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{u}_2\gamma^{\mu}T^Au_2 ight)$ | С |
| qu8_1223 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{u}_2\gamma^{\mu}T^Au_3 ight)$ | С |
| qu8_1231 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{u}_3\gamma^{\mu}T^Au_1 ight)$ | \mathbf{C} |
| qu8_1232 | $\left(ar{q}_1\gamma_\mu T^Aq_2 ight)\left(ar{u}_3\gamma^\mu T^Au_2 ight)$ | С |
| qu8_1233 | $\left(ar{q}_1\gamma_\mu T^Aq_2 ight)\left(ar{u}_3\gamma^\mu T^Au_3 ight)$ | C |
| qu8_1311 | $\left\langle ar{q}_{1}\gamma_{\mu}T^{A}q_{3} ight angle \left\langle ar{u}_{1}\gamma^{\mu}T^{A}u_{1} ight angle$ | C |
| qu8_1312 | $\left(ar{q}_1 \gamma_\mu T^A q_3 \right) \left(ar{u}_1 \gamma^\mu T^A u_2 \right)$ | C |
| qu8_1313 | $\left(\bar{q}_1\gamma_\mu T^Aq_3\right)\left(\bar{u}_1\gamma^\mu T^Au_3\right)$ | C |
| qu8_1321 | $\left\langle \bar{q}_{1}\gamma_{\mu}T^{A}q_{3}\right\rangle \left\langle \bar{u}_{2}\gamma^{\mu}T^{A}u_{1}\right\rangle$ | C |
| qu8_1322 | $\left\langle ar{q}_1 \gamma_\mu T^A q_3 \right\rangle \left\langle ar{u}_2 \gamma^\mu T^A u_2 \right\rangle$ | C |
| qu8_1323 | $\left(\bar{q}_1\gamma_{\mu}T^Aq_3\right)\left(\bar{u}_2\gamma^{\mu}T^Au_3\right)$ | C |
| qu8_1331 | $\left(ar{q}_1\gamma_\mu T^Aq_3 ight)\left(ar{u}_3\gamma^\mu T^Au_1 ight)$ | \mathbf{C} |

| WC name | Operator | Type |
|----------|---|-----------------|
| qu8_1332 | $\left(\bar{q}_1\gamma_{\mu}T^Aq_3\right)\left(\bar{u}_3\gamma^{\mu}T^Au_2\right)$ | С |
| qu8_1333 | $(ar{q}_1\gamma_\mu T^Aq_3)~(ar{u}_3\gamma^\mu T^Au_3)$ | С |
| qu8_2211 | $(ar{q}_2\gamma_\mu T^Aq_2)(ar{u}_1\gamma^\mu T^Au_1)$ | R |
| qu8_2212 | $(ar{q}_2\gamma_\mu T^Aq_2)(ar{u}_1\gamma^\mu T^Au_2)$ | \mathbf{C} |
| qu8_2213 | $(ar{q}_2\gamma_\mu T^Aq_2)(ar{u}_1\gamma^\mu T^Au_3)$ | С |
| qu8_2222 | $(ar{q}_2\gamma_\mu T^Aq_2)(ar{u}_2\gamma^\mu T^Au_2)$ | R |
| qu8_2223 | $(ar{q}_2\gamma_\mu T^Aq_2)(ar{u}_2\gamma^\mu T^Au_3)$ | \mathbf{C} |
| qu8_2233 | $\left(ar{q}_2\gamma_\mu T^Aq_2 ight)\left(ar{u}_3\gamma^\mu T^Au_3 ight)$ | R |
| qu8_2311 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{u}_1\gamma^\mu T^Au_1 ight)$ | \mathbf{C} |
| qu8_2312 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{u}_1\gamma^\mu T^Au_2 ight)$ | С |
| qu8_2313 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{u}_1\gamma^\mu T^Au_3 ight)$ | С |
| qu8_2321 | $\left(ar{q}_2\gamma_{\mu}T^Aq_3 ight)\left(ar{u}_2\gamma^{\mu}T^Au_1 ight)$ | \mathbf{C} |
| qu8_2322 | $\left(ar{q}_2\gamma_{\mu}T^Aq_3 ight)\left(ar{u}_2\gamma^{\mu}T^Au_2 ight)$ | \mathbf{C} |
| qu8_2323 | $\left(ar{q}_2 \gamma_\mu T^A q_3 \right) \left(ar{u}_2 \gamma^\mu T^A u_3 \right)$ | C |
| qu8_2331 | $\left\langle ar{q}_2\gamma_\mu T^Aq_3 ight angle \left\langle ar{u}_3\gamma^\mu T^Au_1 ight angle$ | C |
| qu8_2332 | $\left\langle ar{q}_2\gamma_{\mu}T^Aq_3 ight angle \left\langle ar{u}_3\gamma^{\mu}T^Au_2 ight angle$ | $^{\mathrm{C}}$ |
| qu8_2333 | $\left(ar{q}_2\gamma_\mu T^A_{}q_3 ight)\left(ar{u}_3\gamma^\mu T^A_{}u_3 ight)$ | \mathbf{C} |
| qu8_3311 | $\left(ar{q}_3\gamma_{\mu}T^Aq_3 ight)\left(ar{u}_1\gamma^{\mu}T^Au_1 ight)$ | R |
| qu8_3312 | $\left\langle ar{q}_3 \gamma_\mu T^A q_3 \right\rangle \left\langle ar{u}_1 \gamma^\mu T^A u_2 \right\rangle$ | C |
| qu8_3313 | $(\bar{q}_3\gamma_\mu T^A q_3)(\bar{u}_1\gamma^\mu T^A u_3)$ | C |
| qu8_3322 | $\left\langle \bar{q}_{3}\gamma_{\mu}T^{A}q_{3} ight angle \left\langle \bar{u}_{2}\gamma^{\mu}T^{A}u_{2} ight angle$ | R |
| qu8_3323 | $\left\langle \bar{q}_{3}\gamma_{\mu}T^{A}q_{3}\right\rangle \left\langle \bar{u}_{2}\gamma^{\mu}T^{A}u_{3}\right\rangle$ | С |
| qu8_3333 | $(\bar{q}_3\gamma_\mu T^A q_3)(\bar{u}_3\gamma^\mu T^A u_3)$ | R |
| qd8_1111 | $\left(ar{q}_1 \gamma_\mu T^A q_1 \right) \left(ar{d}_1 \gamma^\mu T^A d_1 \right)$ | R |
| qd8_1112 | $\left(ar{q}_1 \gamma_\mu T^A q_1 \right) \left(ar{d}_1 \gamma^\mu T^A d_2 \right)$ | C |
| qd8_1113 | $\left(ar{q}_{1}\gamma_{\mu}T^{A}q_{1} ight)\left(ar{d}_{1}\gamma^{\mu}T^{A}d_{3} ight)$ | \mathbf{C} |
| qd8_1122 | $\left(ar{q}_1\gamma_\mu T^Aq_1 ight)\left(ar{d}_2\gamma^\mu T^Ad_2 ight)$ | R |
| qd8_1123 | $\left(ar{q}_1\gamma_\mu T^Aq_1 ight)\left(ar{d}_2\gamma^\mu T^Ad_3 ight)$ | \mathbf{C} |
| qd8_1133 | $\left(ar{q}_1\gamma_{\mu}T^Aq_1 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_3 ight)$ | R |
| qd8_1211 | $\left(ar{q}_{1}\gamma_{\mu}T^{A}q_{2} ight)\left(ar{d}_{1}\gamma^{\mu}T^{A}d_{1} ight)$ | \mathbf{C} |
| qd8_1212 | $\left(ar{q}_{1}\gamma_{\mu}T^{A}q_{2} ight)\left(ar{d}_{1}\gamma^{\mu}T^{A}d_{2} ight)$ | С |
| qd8_1213 | $\left(ar{q}_1\gamma_\mu T^Aq_2 ight)\left(ar{d}_1\gamma^\mu T^Ad_3 ight)$ | С |
| qd8_1221 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{d}_2\gamma^{\mu}T^Ad_1 ight)$ | С |
| qd8_1222 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{d}_2\gamma^{\mu}T^Ad_2 ight)$ | \mathbf{C} |
| qd8_1223 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{d}_2\gamma^{\mu}T^Ad_3 ight)$ | \mathbf{C} |
| qd8_1231 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(d_3\gamma^{\mu}T^Ad_1 ight)$ | С |
| qd8_1232 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_2 ight)$ | \mathbf{C} |
| qd8_1233 | $\left(ar{q}_1\gamma_{\mu}T^Aq_2 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_3 ight)$ | \mathbf{C} |
| qd8_1311 | $\left(ar{q}_1\gamma_\mu T^Aq_3 ight)\left(ar{d}_1\gamma^\mu T^Ad_1 ight)$ | \mathbf{C} |
| qd8_1312 | $\left(ar{q}_1\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_1\gamma^{\mu}T^Ad_2 ight)$ | $^{\mathrm{C}}$ |
| qd8_1313 | $\left(ar{q}_1\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_1\gamma^{\mu}T^Ad_3 ight)$ | \mathbf{C} |
| qd8_1321 | $\left(ar{q}_1\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_2\gamma^{\mu}T^Ad_1 ight)$ | \mathbf{C} |
| qd8_1322 | $\left\langle ar{q}_{1}\gamma_{\mu}T^{A}q_{3} ight angle \left\langle ar{d}_{2}\gamma^{\mu}T^{A}d_{2} ight angle$ | $^{\mathrm{C}}$ |
| | | |

| WC name | Operator | Type |
|-----------|---|-----------------|
| qd8_1323 | $\left(ar{q}_1\gamma_\mu T^Aq_3 ight)\left(ar{d}_2\gamma^\mu T^Ad_3 ight)$ | С |
| qd8_1331 | $\left(ar{q}_1\gamma_\mu T^Aq_3 ight)\left(ar{d}_3\gamma^\mu T^Ad_1 ight)$ | \mathbf{C} |
| qd8_1332 | $\left(ar{q}_1\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_2 ight)$ | \mathbf{C} |
| qd8_1333 | $\left(ar{q}_1\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_3 ight)$ | \mathbf{C} |
| qd8_2211 | $\left(ar{q}_2\gamma_{\mu}T^Aq_2 ight)\left(ar{d}_1\gamma^{\mu}T^Ad_1 ight)$ | R |
| qd8_2212 | $\left(ar{q}_2\gamma_\mu T^Aq_2 ight)\left(ar{d}_1\gamma^\mu T^Ad_2 ight)$ | \mathbf{C} |
| qd8_2213 | $\left(ar{q}_2\gamma_\mu T^Aq_2 ight)\left(ar{d}_1\gamma^\mu T^Ad_3 ight)$ | \mathbf{C} |
| qd8_2222 | $\left(ar{q}_2\gamma_\mu T^Aq_2 ight)\left(ar{d}_2\gamma^\mu T^Ad_2 ight)$ | ${ m R}$ |
| qd8_2223 | $\left\langle ar{q}_{2}\gamma_{\mu}T^{A}q_{2} ight angle \left\langle ar{d}_{2}\gamma^{\mu}T^{A}d_{3} ight angle$ | \mathbf{C} |
| qd8_2233 | $(ar{q}_2\gamma_\mu T^Aq_2)(ar{d}_3\gamma^\mu T^Ad_3)$ | ${ m R}$ |
| qd8_2311 | $\left\langle ar{q}_{2}\gamma_{\mu}T^{A}q_{3} ight angle \left\langle ar{d}_{1}\gamma^{\mu}T^{A}d_{1} ight angle$ | \mathbf{C} |
| qd8_2312 | $\left\langle ar{q}_{2}\gamma_{\mu}T^{A}q_{3} ight angle \left\langle ar{d}_{1}\gamma^{\mu}T^{A}d_{2} ight angle$ | \mathbf{C} |
| qd8_2313 | $\left(ar{q}_{2}\gamma_{\mu}T^{A}q_{3} ight)\left(ar{d}_{1}\gamma^{\mu}T^{A}d_{3} ight)$ | \mathbf{C} |
| qd8_2321 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{d}_2\gamma^\mu T^Ad_1 ight)$ | \mathbf{C} |
| qd8_2322 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{d}_2\gamma^\mu T^Ad_2 ight)$ | \mathbf{C} |
| qd8_2323 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{d}_2\gamma^\mu T^Ad_3 ight)$ | \mathbf{C} |
| qd8_2331 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{d}_3\gamma^\mu T^Ad_1 ight)$ | $^{\mathrm{C}}$ |
| qd8_2332 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{d}_3\gamma^\mu T^Ad_2 ight)$ | \mathbf{C} |
| qd8_2333 | $\left(ar{q}_2\gamma_\mu T^Aq_3 ight)\left(ar{d}_3\gamma^\mu T^Ad_3 ight)$ | $^{\mathrm{C}}$ |
| qd8_3311 | $\left(ar{q}_3\gamma_\mu T^Aq_3 ight)\left(ar{d}_1\gamma^\mu T^Ad_1 ight)$ | R |
| qd8_3312 | $\left(ar{q}_3\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_1\gamma^{\mu}T^Ad_2 ight)$ | $^{\mathrm{C}}$ |
| qd8_3313 | $\left(ar{q}_3\gamma_\mu T^Aq_3 ight)\left(ar{d}_1\gamma^\mu T^Ad_3 ight)$ | $^{\mathrm{C}}$ |
| qd8_3322 | $\left(ar{q}_3\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_2\gamma^{\mu}T^Ad_2 ight)$ | R |
| qd8_3323 | $\left(ar{q}_3\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_2\gamma^{\mu}T^Ad_3 ight)$ | $^{\mathrm{C}}$ |
| qd8_3333 | $\left(ar{q}_3\gamma_{\mu}T^Aq_3 ight)\left(ar{d}_3\gamma^{\mu}T^Ad_3 ight)$ | R |
| ledq_1111 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_1q_1 ight)$ | \mathbf{C} |
| ledq_1112 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_1q_2 ight)$ | \mathbf{C} |
| ledq_1113 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_1q_3 ight)$ | \mathbf{C} |
| ledq_1121 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_2q_1 ight)$ | \mathbf{C} |
| ledq_1122 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_2q_2 ight)$ | \mathbf{C} |
| ledq_1123 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_2q_3 ight)$ | \mathbf{C} |
| ledq_1131 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_3q_1 ight)$ | \mathbf{C} |
| ledq_1132 | $\left(\ell_1e_1 ight)\left(d_3q_2 ight)$ | \mathbf{C} |
| ledq_1133 | $\left(ar{\ell}_1e_1 ight)\left(ar{d}_3q_3 ight)$ | \mathbf{C} |
| ledq_1211 | $\left(ar{\ell}_1e_2 ight)\left(ar{d}_1q_1 ight)$ | \mathbf{C} |
| ledq_1212 | $(\ell_1e_2)\ (d_1q_2)$ | \mathbf{C} |
| ledq_1213 | $\left(ar{\ell}_1e_2 ight)\left(ar{d}_1q_3 ight)$ | \mathbf{C} |
| ledq_1221 | $\left(ar{\ell}_1e_2 ight)\left(ar{d}_2q_1 ight)$ | $^{\mathrm{C}}$ |
| ledq_1222 | $\left(ar{\ell}_1e_2 ight)\left(ar{d_2}q_2 ight)$ | $^{\mathrm{C}}$ |
| ledq_1223 | $\left(ar{\ell}_1e_2 ight)\left(ar{d_2}q_3 ight)$ | $^{\mathrm{C}}$ |
| ledq_1231 | $\left(ar{\ell}_1e_2 ight)\left(ar{d}_3q_1 ight)$ | $^{\mathrm{C}}$ |
| ledq_1232 | $ig(ar{\ell}_1 e_2ig) ig(ar{d}_3 q_2ig)$ | $^{\mathrm{C}}$ |

| WC name | Operator | Type |
|-----------|---|-----------------|
| ledq_1233 | $\left(ar{\ell}_{1}e_{2} ight)\left(ar{d}_{3}q_{3} ight)$ | C |
| ledq_1311 | $\left(ar{\ell}_1 e_3 ight)\left(ar{d}_1 q_1 ight)$ | $^{\mathrm{C}}$ |
| ledq_1312 | $\left(ar{\ell}_1 e_3 ight)\left(ar{d}_1 q_2 ight)$ | $^{\mathrm{C}}$ |
| ledq_1313 | $(ar{\ell}_1e_3)\ (ar{d}_1q_3)$ | $^{\mathrm{C}}$ |
| ledq_1321 | $ig(ar{\ell}_1 e_3ig) ig(ar{d}_2 q_1ig)$ | \mathbf{C} |
| ledq_1322 | $ig(ar{\ell}_1 e_3ig) ig(ar{d}_2 q_2ig)$ | \mathbf{C} |
| ledq_1323 | $ig(ar{\ell}_1 e_3ig) ig(ar{d}_2 q_3ig)$ | \mathbf{C} |
| ledq_1331 | $ig(ar{\ell}_1e_3ig)ig(ar{d}_3q_1ig)$ | $^{\mathrm{C}}$ |
| ledq_1332 | $ig(ar{\ell}_1 e_3ig) ig(ar{d}_3 q_2ig)$ | \mathbf{C} |
| ledq_1333 | $(ar{\ell}_1e_3)\ (ar{d}_3q_3)$ | $^{\mathrm{C}}$ |
| ledq_2111 | $ig(ar{\ell}_2 e_1ig)ig(ar{d}_1 q_1ig)$ | $^{\mathrm{C}}$ |
| ledq_2112 | $(ar{\ell}_2 e_1) \ (ar{d}_1 q_2)$ | \mathbf{C} |
| ledq_2113 | $(ar{\ell}_2 e_1) \ (ar{d}_1 q_3)$ | \mathbf{C} |
| ledq_2121 | $ig(ar{\ell}_2 e_1ig)ig(ar{d}_2 q_1ig)$ | \mathbf{C} |
| ledq_2122 | $ig(ar{\ell}_2 e_1ig)ig(ar{d}_2 q_2ig)$ | \mathbf{C} |
| ledq_2123 | $ig(ar{\ell}_2 e_1ig)ig(ar{d}_2 q_3ig)$ | \mathbf{C} |
| ledq_2131 | $ig(ar{\ell}_2 e_1ig)ig(ar{d}_3 q_1ig)$ | $^{\mathrm{C}}$ |
| ledq_2132 | $(ar{\ell}_2 e_1) \ (ar{d}_3 q_2)$ | \mathbf{C} |
| ledq_2133 | $(ar{\ell}_2 e_1) \ (ar{d}_3 q_3)$ | \mathbf{C} |
| ledq_2211 | $ig(ar{\ell}_2 e_2ig)ig(ar{d}_1 q_1ig)$ | \mathbf{C} |
| ledq_2212 | $(ar{\ell}_2 e_2) \ (ar{d}_1 q_2)$ | $^{\mathrm{C}}$ |
| ledq_2213 | $(ar{\ell}_2 e_2) \ (ar{d}_1 q_3)$ | \mathbf{C} |
| ledq_2221 | $ig(ar{\ell}_2 e_2ig)ig(ar{d}_2 q_1ig)$ | \mathbf{C} |
| ledq_2222 | $(ar{\ell}_2 e_2) \ (ar{d}_2 q_2)$ | $^{\mathrm{C}}$ |
| ledq_2223 | $\left(ar{\ell}_2 e_2 ight)\left(ar{d}_2 q_3 ight)$ | $^{\mathrm{C}}$ |
| ledq_2231 | $(ar{\ell}_2 e_2) \ (ar{d}_3 q_1)$ | $^{\mathrm{C}}$ |
| ledq_2232 | $(ar{\ell}_2 e_2) \ (ar{d}_3 q_2)$ | $^{\mathrm{C}}$ |
| ledq_2233 | $\left(ar{\ell}_2 e_2 ight)\left(ar{d}_3 q_3 ight)$ | $^{\mathrm{C}}$ |
| ledq_2311 | $\left(ar{\ell}_2 e_3 ight)\left(ar{d}_1 q_1 ight)$ | $^{\mathrm{C}}$ |
| ledq_2312 | $ig(ar{\ell}_2 e_3ig)ig(ar{d}_1 q_2ig)$ | $^{\mathrm{C}}$ |
| ledq_2313 | $ig(ar{\ell}_2 e_3ig) ig(ar{d}_1 q_3ig)$ | $^{\mathrm{C}}$ |
| ledq_2321 | $\left(ar{\ell}_2 e_3 ight)\left(ar{d}_2 q_1 ight)$ | $^{\mathrm{C}}$ |
| ledq_2322 | $ig(ar{\ell}_2 e_3ig)ig(ar{d}_2 q_2ig)$ | $^{\mathrm{C}}$ |
| ledq_2323 | $\left(ar{\ell}_2 e_3 ight)\left(ar{d}_2 q_3 ight)$ | $^{\mathrm{C}}$ |
| ledq_2331 | $\left(ar{\ell}_2 e_3 ight)\left(ar{d}_3 q_1 ight)$ | \mathbf{C} |
| ledq_2332 | $(ar{\ell}_2 e_3) \ (ar{d}_3 q_2)$ | $^{\mathrm{C}}$ |
| ledq_2333 | $ig(ar{\ell}_2 e_3ig)ig(ar{d}_3 q_3ig)$ | $^{\mathrm{C}}$ |
| ledq_3111 | $ig(ar{\ell}_3 e_1ig)ig(ar{d}_1 q_1ig)$ | \mathbf{C} |
| ledq_3112 | $ig(ar{\ell}_3 e_1ig)ig(ar{d}_1 q_2ig)$ | \mathbf{C} |
| ledq_3113 | $ig(ar{\ell}_3 e_1ig)ig(ar{d}_1 q_3ig)$ | \mathbf{C} |
| ledq_3121 | $ig(ar{\ell}_3 e_1ig)ig(ar{d}_2 q_1ig)$ | \mathbf{C} |
| ledq_3122 | $ig(ar{\ell}_3 e_1ig) ig(ar{d}_2 q_2ig)$ | \mathbf{C} |

| WC name | Operator | Type |
|--------------------------|---|-------------------------------|
| ledq_3123 | $\left(ar{\ell}_3e_1 ight)\left(ar{d}_2q_3 ight)$ | С |
| ledq_3131 | $ig(ar{\ell}_3 e_1ig)ig(ar{d}_3 q_1ig)$ | \mathbf{C} |
| ledq_3132 | $\left(ar{\ell}_3 e_1\right)\left(ar{d}_3 q_2\right)$ | \mathbf{C} |
| ledq_3133 | $(\bar{\ell}_3 e_1)(\bar{d}_3 q_3)$ | $^{\mathrm{C}}$ |
| ledq_3211 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_1 q_1ig)$ | \mathbf{C} |
| ledq_3212 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_1 q_2ig)$ | \mathbf{C} |
| ledq_3213 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_1 q_3ig)$ | \mathbf{C} |
| ledq_3221 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_2 q_1ig)$ | \mathbf{C} |
| ledq_3222 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_2 q_2ig)$ | \mathbf{C} |
| ledq_3223 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_2 q_3ig)$ | \mathbf{C} |
| ledq_3231 | $ig(ar{\ell}_3 e_2ig)ig(ar{d}_3 q_1ig)$ | \mathbf{C} |
| ledq_3232 | $\left(ar{\ell}_3 e_2 ight)\left(ar{d}_3 q_2 ight)$ | \mathbf{C} |
| ledq_3233 | $\left(ar{\ell}_3 e_2 ight)\left(ar{d}_3 q_3 ight)$ | \mathbf{C} |
| ledq_3311 | $\left(ar{\ell}_3 e_3 ight)\left(ar{d}_1 q_1 ight)$ | \mathbf{C} |
| ledq_3312 | $\left(ar{\ell}_3e_3 ight)\left(ar{d}_1q_2 ight)$ | \mathbf{C} |
| ledq_3313 | $\left(ar{\ell}_3 e_3 ight)\left(ar{d}_1 q_3 ight)$ | \mathbf{C} |
| ledq_3321 | $\left(ar{\ell}_3 e_3 ight)\left(ar{d}_2 q_1 ight)$ | \mathbf{C} |
| ledq_3322 | $\left(ar{\ell}_3e_3 ight)\left(ar{d}_2q_2 ight)$ | \mathbf{C} |
| ledq_3323 | $\left(ar{\ell}_3 e_3 ight)\left(ar{d}_2 q_3 ight)$ | \mathbf{C} |
| ledq_3331 | $\left(ar{\ell}_3 e_3 ight)\left(ar{d}_3 q_1 ight)$ | $^{\mathrm{C}}$ |
| ledq_3332 | $\left(ar{\ell}_3e_3 ight)\left(ar{d}_3q_2 ight)$ | $^{\mathrm{C}}$ |
| ledq_3333 | $\left(ar{\ell}_3e_3 ight)\left(ar{d}_3q_3 ight)$ | $^{\mathrm{C}}$ |
| quqd1_1111 | $(ar{q}_1 u_1) \epsilon_{jk} (ar{q}_1 d_1)$ | \mathbf{C} |
| quqd1_1112 | $(ar{q}_1u_1)\epsilon_{jk}(ar{q}_1d_2)$ | \mathbf{C} |
| quqd1_1113 | $(ar{q}_1u_1)\epsilon_{jk}(ar{q}_1d_3)$ | C |
| quqd1_1121 | $(ar{q}_1u_1)\epsilon_{jk}(ar{q}_2d_1)$ | $\stackrel{	ext{C}}{\sim}$ |
| quqd1_1122 | $(ar{q}_1u_1)\epsilon_{jk}(ar{q}_2d_2)$ | $\stackrel{	ext{C}}{\sim}$ |
| quqd1_1123 | $(ar{q}_1u_1)\epsilon_{jk}(ar{q}_2d_3)$ | $^{\mathrm{C}}$ |
| quqd1_1131 | $(ar{q}_1u_1)\epsilon_{jk}(ar{q}_3d_1)$ | С |
| quqd1_1132 | $(\bar{q}_1u_1)\epsilon_{jk}(\bar{q}_3d_2)$ | С |
| quqd1_1133 | $(\bar{q}_1u_1)\epsilon_{jk}(\bar{q}_3d_3)$ | $_{\mathrm{C}}^{\mathrm{C}}$ |
| quqd1_1211 quqd1_1212 | $(\bar{q}_1 u_2) \epsilon_{jk} (\bar{q}_1 d_1)$ | C |
| ququ1_1212 quqd1_1213 | $(\bar{q}_1 u_2) \epsilon_{jk} (\bar{q}_1 d_2)$ $(\bar{q}_1 u_2) \epsilon_{ij} (\bar{q}_1 d_2)$ | C |
| quqd1_1213 quqd1_1221 | $egin{aligned} \left(ar{q}_1u_2 ight)\epsilon_{jk}\left(ar{q}_1d_3 ight) \ \left(ar{q}_1u_2 ight)\epsilon_{jk}\left(ar{q}_2d_1 ight) \end{aligned}$ | C |
| quqd1_1222 | $(q_1u_2)\epsilon_{jk}(q_2u_1) \ (ar q_1u_2)\epsilon_{jk}(ar q_2d_2)$ | C |
| quqd1_1223 | $(q_1u_2) \epsilon_{jk} (q_2u_2) $ $(\bar{q}_1u_2) \epsilon_{jk} (\bar{q}_2d_3)$ | $\overset{\circ}{\mathrm{C}}$ |
| quqd1_1231 | $(\bar{q}_1u_2) \epsilon_{jk} (\bar{q}_2u_3) (\bar{q}_1u_2) \epsilon_{jk} (\bar{q}_3d_1)$ | $\overset{\circ}{\mathrm{C}}$ |
| quqd1_1232 | $(ar{q}_1u_2)\epsilon_{jk}(ar{q}_3d_2)$ | $^{\mathrm{C}}$ |
| quqd1_1233 | $(ar{q}_1u_2)\epsilon_{jk}(ar{q}_3d_3)$ | C |
| quqd1_1311 | $(ar{q}_1u_3)\epsilon_{jk}(ar{q}_1d_1)$ | \mathbf{C} |
| quqd1_1312 | $(ar{q}_1u_3)\epsilon_{jk}(ar{q}_1d_2)$ | \mathbf{C} |
| quqd1_1313 | $(ar{q}_1u_3)\epsilon_{jk}(ar{q}_1d_3)$ | \mathbf{C} |
| | | |

| WC name | Operator | Type |
|------------|---|----------------------------|
| quqd1_1321 | $(\bar{q}_1 u_3) \epsilon_{jk} (\bar{q}_2 d_1)$ | С |
| quqd1_1322 | $\left(ar{q}_{1}u_{3} ight)\epsilon_{jk}\left(ar{q}_{2}d_{2} ight)$ | \mathbf{C} |
| quqd1_1323 | $\left(ar{q}_{1}u_{3} ight)\epsilon_{jk}\left(ar{q}_{2}d_{3} ight)$ | \mathbf{C} |
| quqd1_1331 | $\left(ar{q}_{1}u_{3} ight)\epsilon_{jk}\left(ar{q}_{3}d_{1} ight)$ | \mathbf{C} |
| quqd1_1332 | $\left(ar{q}_{1}u_{3} ight)\epsilon_{jk}\left(ar{q}_{3}d_{2} ight)$ | \mathbf{C} |
| quqd1_1333 | $\left(ar{q}_{1}u_{3} ight)\epsilon_{jk}\left(ar{q}_{3}d_{3} ight)$ | \mathbf{C} |
| quqd1_2111 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{1}d_{1} ight)$ | \mathbf{C} |
| quqd1_2112 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{1}d_{2} ight)$ | \mathbf{C} |
| quqd1_2113 | $(ar{q}_2 u_1) \epsilon_{jk} (ar{q}_1 d_3)$ | \mathbf{C} |
| quqd1_2121 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{2}d_{1} ight)$ | \mathbf{C} |
| quqd1_2122 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{2}d_{2} ight)$ | \mathbf{C} |
| quqd1_2123 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{2}d_{3} ight)$ | \mathbf{C} |
| quqd1_2131 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{3}d_{1} ight)$ | \mathbf{C} |
| quqd1_2132 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{3}d_{2} ight)$ | \mathbf{C} |
| quqd1_2133 | $\left(ar{q}_{2}u_{1} ight)\epsilon_{jk}\left(ar{q}_{3}d_{3} ight)$ | \mathbf{C} |
| quqd1_2211 | $\left(ar{q}_{2}u_{2} ight)\epsilon_{jk}\left(ar{q}_{1}d_{1} ight)$ | \mathbf{C} |
| quqd1_2212 | $\left(ar{q}_{2}u_{2} ight)\epsilon_{jk}\left(ar{q}_{1}d_{2} ight)$ | \mathbf{C} |
| quqd1_2213 | $\left(ar{q}_{2}u_{2} ight)\epsilon_{jk}\left(ar{q}_{1}d_{3} ight)$ | \mathbf{C} |
| quqd1_2221 | $\left(ar{q}_{2}u_{2} ight)\epsilon_{jk}\left(ar{q}_{2}d_{1} ight)$ | \mathbf{C} |
| quqd1_2222 | $\left(ar{q}_{2}u_{2} ight)\epsilon_{jk}\left(ar{q}_{2}d_{2} ight)$ | \mathbf{C} |
| quqd1_2223 | $\left(ar{q}_{2}u_{2} ight)\epsilon_{jk}\left(ar{q}_{2}d_{3} ight)$ | \mathbf{C} |
| quqd1_2231 | $\left(ar{q}_{2}u_{2} ight) \epsilon_{jk}\left(ar{q}_{3}d_{1} ight)$ | \mathbf{C} |
| quqd1_2232 | $(\bar{q}_2 u_2) \epsilon_{jk} (\bar{q}_3 d_2)$ | \mathbf{C} |
| quqd1_2233 | $\left(\bar{q}_{2}u_{2}\right)\epsilon_{jk}\left(\bar{q}_{3}d_{3}\right)$ | \mathbf{C} |
| quqd1_2311 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{1}d_{1} ight)$ | \mathbf{C} |
| quqd1_2312 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{1}d_{2} ight)$ | \mathbf{C} |
| quqd1_2313 | $(\bar{q}_2 u_3) \epsilon_{jk} (\bar{q}_1 d_3)$ | \mathbf{C} |
| quqd1_2321 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{2}d_{1} ight)$ | \mathbf{C} |
| quqd1_2322 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{2}d_{2} ight)$ | \mathbf{C} |
| quqd1_2323 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{2}d_{3} ight)$ | \mathbf{C} |
| quqd1_2331 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{3}d_{1} ight)$ | \mathbf{C} |
| quqd1_2332 | $\left(ar{q}_{2}u_{3} ight)\epsilon_{jk}\left(ar{q}_{3}d_{2} ight)$ | \mathbf{C} |
| quqd1_2333 | $(ar{q}_2u_3)\epsilon_{jk}(ar{q}_3d_3)$ | C |
| quqd1_3111 | $(ar{q}_3u_1)\epsilon_{jk}(ar{q}_1d_1)$ | \mathbf{C} |
| quqd1_3112 | $(\bar{q}_3u_1)\epsilon_{jk}(\bar{q}_1d_2)$ | C |
| quqd1_3113 | $(ar{q}_3u_1)\epsilon_{jk}(ar{q}_1d_3)$ | C |
| quqd1_3121 | $(ar{q}_3u_1)\epsilon_{jk}(ar{q}_2d_1)$ | $\stackrel{	ext{C}}{\sim}$ |
| quqd1_3122 | $(ar{q}_3u_1)\epsilon_{jk}(ar{q}_2d_2)$ | С |
| quqd1_3123 | $(ar{q}_3u_1)\epsilon_{jk}(ar{q}_2d_3)$ | С |
| quqd1_3131 | $(\bar{q}_3u_1)\epsilon_{jk}(\bar{q}_3d_1)$ | С |
| quqd1_3132 | $(\bar{q}_3u_1)\epsilon_{jk}(\bar{q}_3d_2)$ | С |
| quqd1_3133 | $(\bar{q}_3u_1)\epsilon_{jk}(\bar{q}_3d_3)$ | С |
| quqd1_3211 | $(\bar{q}_3u_2) \epsilon_{jk} (\bar{q}_1d_1)$ | С |
| quqd1_3212 | $(\bar{q}_3 u_2) \epsilon_{jk} (\bar{q}_1 d_2)$ | \mathbf{C} |

| WC name | Operator | Type |
|------------|--|-----------------|
| quqd1_3213 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_1d_3)$ | С |
| quqd1_3221 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_2d_1)$ | $^{\mathrm{C}}$ |
| quqd1_3222 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_2d_2)$ | \mathbf{C} |
| quqd1_3223 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_2d_3)$ | \mathbf{C} |
| quqd1_3231 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_3d_1)$ | \mathbf{C} |
| quqd1_3232 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_3d_2)$ | \mathbf{C} |
| quqd1_3233 | $(ar{q}_3u_2)\epsilon_{jk}(ar{q}_3d_3)$ | \mathbf{C} |
| quqd1_3311 | $(ar{q}_3u_3)\epsilon_{jk}(ar{q}_1d_1)$ | \mathbf{C} |
| quqd1_3312 | $(ar{q}_3u_3)\epsilon_{jk}(ar{q}_1d_2)$ | \mathbf{C} |
| quqd1_3313 | $(ar{q}_3u_3)\epsilon_{jk}(ar{q}_1d_3)$ | \mathbf{C} |
| quqd1_3321 | $\left(ar{q}_3 u_3 ight) \epsilon_{jk} \left(ar{q}_2 d_1 ight)$ | \mathbf{C} |
| quqd1_3322 | $\left(ar{q}_3u_3 ight)\epsilon_{jk}\left(ar{q}_2d_2 ight)$ | \mathbf{C} |
| quqd1_3323 | $\left(ar{q}_3 u_3 ight) \epsilon_{jk} \left(ar{q}_2 d_3 ight)$ | \mathbf{C} |
| quqd1_3331 | $\left(ar{q}_{3}u_{3} ight)\epsilon_{jk}\left(ar{q}_{3}d_{1} ight)$ | \mathbf{C} |
| quqd1_3332 | $\left(ar{q}_3 u_3 ight) \epsilon_{jk} \left(ar{q}_3 d_2 ight)$ | \mathbf{C} |
| quqd1_3333 | $\left(ar{q}_3 u_3 ight) \epsilon_{jk} \left(ar{q}_3 d_3 ight)$ | \mathbf{C} |
| quqd8_1111 | $\left(ar{q}_1 T^A u_1 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_1 ight)$ | \mathbf{C} |
| quqd8_1112 | $\left(ar{q}_1 T^A u_1 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_2 ight)$ | \mathbf{C} |
| quqd8_1113 | $\left(ar{q}_1 T^A u_1 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_3 ight)$ | \mathbf{C} |
| quqd8_1121 | $\left(ar{q}_1T^Au_1 ight)\epsilon_{jk}\left(ar{q}_2T^Ad_1 ight)$ | \mathbf{C} |
| quqd8_1122 | $\left(ar{q}_1 T^A u_1 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_2 ight)$ | \mathbf{C} |
| quqd8_1123 | $\left(ar{q}_1 T^A u_1 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_3 ight)$ | \mathbf{C} |
| quqd8_1131 | $\left(\bar{q}_1 T^A u_1\right) \epsilon_{jk} \left(\bar{q}_3 T^A d_1\right)$ | \mathbf{C} |
| quqd8_1132 | $\left(ar{q}_1 T^A u_1\right) \epsilon_{jk} \left(ar{q}_3 T^A d_2\right)$ | \mathbf{C} |
| quqd8_1133 | $\left\langle ar{q}_{1}T^{A}u_{1} ight angle \epsilon_{jk}\left\langle ar{q}_{3}T^{A}d_{3} ight angle$ | \mathbf{C} |
| quqd8_1211 | $\left(ar{q}_1 T^A u_2\right) \epsilon_{jk} \left(ar{q}_1 T^A d_1\right)$ | \mathbf{C} |
| quqd8_1212 | $\left(ar{q}_1 T^A u_2 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_2 ight)$ | \mathbf{C} |
| quqd8_1213 | $\left(ar{q}_1 T^A u_2 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_3 ight)$ | \mathbf{C} |
| quqd8_1221 | $\left(ar{q}_1 T^A u_2 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_1 ight)$ | \mathbf{C} |
| quqd8_1222 | $\left(ar{q}_1 T^A u_2 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_2 ight)$ | \mathbf{C} |
| quqd8_1223 | $\left\langle ar{q}_{1}T^{A}u_{2} ight angle \epsilon_{jk}\left\langle ar{q}_{2}T^{A}d_{3} ight angle$ | \mathbf{C} |
| quqd8_1231 | $\left\langle ar{q}_{1}T^{A}u_{2} ight angle \epsilon_{jk}\left\langle ar{q}_{3}T^{A}d_{1} ight angle$ | \mathbf{C} |
| quqd8_1232 | $\left(ar{q}_1 T^A u_2\right) \epsilon_{jk} \left(ar{q}_3 T^A d_2\right)$ | \mathbf{C} |
| quqd8_1233 | $\left(ar{q}_1 T^A u_2\right) \epsilon_{jk} \left(ar{q}_3 T^A d_3\right)$ | \mathbf{C} |
| quqd8_1311 | $\left(ar{q}_1 T^A u_3\right) \epsilon_{jk} \left(ar{q}_1 T^A d_1\right)$ | \mathbf{C} |
| quqd8_1312 | $\left(ar{q}_1 T^A u_3\right) \epsilon_{jk} \left(ar{q}_1 T^A d_2\right)$ | \mathbf{C} |
| quqd8_1313 | $\left(ar{q}_1 T^A u_3\right) \epsilon_{jk} \left(ar{q}_1 T^A d_3\right)$ | \mathbf{C} |
| quqd8_1321 | $\left(ar{q}_1 T^A u_3\right) \epsilon_{jk} \left(ar{q}_2 T^A d_1\right)$ | \mathbf{C} |
| quqd8_1322 | $\left(ar{q}_1 T^A u_3\right) \epsilon_{jk} \left(ar{q}_2 T^A d_2\right)$ | \mathbf{C} |
| quqd8_1323 | $\left(ar{q}_1 T^A_{} u_3 \right) \epsilon_{jk} \left(ar{q}_2 T^A_{} d_3 \right)$ | \mathbf{C} |
| quqd8_1331 | $\left(ar{q}_1 T^A_{} u_3 ight) \epsilon_{jk} \left(ar{q}_3 T^A_{} d_1 ight)$ | \mathbf{C} |
| quqd8_1332 | $\left(ar{q}_1 T^A_{} u_3\right) \epsilon_{jk} \left(ar{q}_3 T^A_{} d_2\right)$ | \mathbf{C} |
| quqd8_1333 | $\left(ar{q}_{1}T^{A}u_{3} ight) \epsilon_{jk}\left(ar{q}_{3}T^{A}d_{3} ight)$ | \mathbf{C} |
| quqd8_2111 | $\left(ar{q}_2 T^A u_1\right) \epsilon_{jk} \left(ar{q}_1 T^A d_1\right)$ | С |

| WC name | Operator | Type |
|------------|---|-------------------------------|
| quqd8_2112 | $(\bar{q}_2 T^A u_1) \epsilon_{jk} (\bar{q}_1 T^A d_2)$ | C |
| quqd8_2113 | $\left(\bar{q}_2 T^A u_1\right) \epsilon_{jk} \left(\bar{q}_1 T^A d_3\right)$ | \mathbf{C} |
| quqd8_2121 | $\left(ar{q}_2T^Au_1 ight)\epsilon_{jk}\left(ar{q}_2T^Ad_1 ight)$ | C |
| quqd8_2122 | $\left(ar{q}_2T^Au_1 ight)\epsilon_{jk}\left(ar{q}_2T^Ad_2 ight)$ | C |
| quqd8_2123 | $(\bar{q}_2 T^A u_1) \epsilon_{jk} (\bar{q}_2 T^A d_3)$ | Ċ |
| quqd8_2131 | $(\bar{q}_2 T^A u_1) \epsilon_{jk} (\bar{q}_3 T^A d_1)$ | Ċ |
| quqd8_2132 | $(\bar{q}_2 T^A u_1) \epsilon_{jk} (\bar{q}_3 T^A d_2)$ | Ċ |
| quqd8_2133 | $(\bar{q}_2 T^A u_1) \epsilon_{jk} (\bar{q}_3 T^A d_3)$ | Ċ |
| quqd8_2211 | $(\bar{q}_2 T^A u_2) \epsilon_{jk} (\bar{q}_1 T^A d_1)$ | Ċ |
| quqd8_2212 | $\left(ar{q}_2T^Au_2 ight)\epsilon_{jk}\left(ar{q}_1T^Ad_2 ight)$ | C |
| quqd8_2213 | $egin{pmatrix} ar{(ar{q}_2}T^Au_2ig) \epsilon_{jk} ig(ar{q}_1T^Ad_3ig) \end{pmatrix}$ | C |
| quqd8_2221 | $(\bar{q}_2 T^A u_2) \epsilon_{jk} (\bar{q}_2 T^A d_1)$ | Ċ |
| quqd8_2222 | $egin{pmatrix} \langle q_2 & \omega_2 \rangle \epsilon_{jk} \langle q_2 & \omega_1 \rangle \ \langle ar{q}_2 T^A u_2 \rangle \epsilon_{jk} \langle ar{q}_2 T^A d_2 \rangle \end{pmatrix}$ | $\overset{\circ}{\mathrm{C}}$ |
| quqd8_2223 | $egin{array}{c} (q_2 T^A u_2) \epsilon_{jk} (q_2 T^A d_3) \ \end{array}$ | $\overset{\circ}{\mathrm{C}}$ |
| quqd8_2231 | $(\bar{q}_2 T^A u_2) \epsilon_{jk} (\bar{q}_3 T^A d_1)$ | Ċ |
| quqd8_2232 | $(\bar{q}_2 T^A u_2) \epsilon_{jk} (\bar{q}_3 T^A d_2)$ | Ċ |
| quqd8_2233 | $(\bar{q}_2 T^A u_2) \epsilon_{jk} (\bar{q}_3 T^A d_3)$ | Ċ |
| quqd8_2311 | $(\bar{q}_2 T^A u_3) \epsilon_{jk} (\bar{q}_1 T^A d_1)$ | $\overset{\circ}{\mathrm{C}}$ |
| quqd8_2312 | $(\bar{q}_2 T^A u_3) \epsilon_{jk} (\bar{q}_1 T^A d_2)$ | Ċ |
| quqd8_2313 | $(\bar{q}_2 T^A u_3) \epsilon_{jk} (\bar{q}_1 T^A d_3)$ | Ċ |
| quqd8_2321 | $(\bar{q}_2 T^A u_3) \epsilon_{jk} (\bar{q}_2 T^A d_1)$ | \mathbf{C} |
| quqd8_2322 | $\left(\bar{q}_2 T^A u_3\right) \epsilon_{jk} \left(\bar{q}_2 T^A d_2\right)$ | \mathbf{C} |
| quqd8_2323 | $\left(\bar{q}_2 T^A u_3\right) \epsilon_{jk} \left(\bar{q}_2 T^A d_3\right)$ | \mathbf{C} |
| quqd8_2331 | $\left\langle \bar{q}_{2}T^{A}u_{3}\right angle \epsilon_{jk}\left\langle \bar{q}_{3}T^{A}d_{1}\right\rangle$ | \mathbf{C} |
| quqd8_2332 | $\left\langle \bar{q}_{2}T^{A}u_{3}\right\rangle \epsilon_{jk}\left\langle \bar{q}_{3}T^{A}d_{2}\right\rangle$ | \mathbf{C} |
| quqd8_2333 | $\left\langle \bar{q}_{2}T^{A}u_{3}\right\rangle \epsilon_{jk}\left\langle \bar{q}_{3}T^{A}d_{3}\right\rangle$ | \mathbf{C} |
| quqd8_3111 | $\left\langle \bar{q}_{3}T^{A}u_{1}\right\rangle \epsilon_{jk}\left\langle \bar{q}_{1}T^{A}d_{1}\right\rangle$ | \mathbf{C} |
| quqd8_3112 | $(\bar{q}_3 T^A u_1) \epsilon_{jk} (\bar{q}_1 T^A d_2)$ | \mathbf{C} |
| quqd8_3113 | $\left\langle \bar{q}_{3}T^{A}u_{1}\right angle \epsilon_{jk}\left\langle \bar{q}_{1}T^{A}d_{3} ight angle$ | \mathbf{C} |
| quqd8_3121 | $\left\langle \bar{q}_{3}T^{A}u_{1}\right angle \epsilon_{jk}\left\langle \bar{q}_{2}T^{A}d_{1}\right angle$ | \mathbf{C} |
| quqd8_3122 | $\left\langle \bar{q}_{3}T^{A}u_{1}\right angle \epsilon_{jk}\left\langle \bar{q}_{2}T^{A}d_{2}\right\rangle$ | \mathbf{C} |
| quqd8_3123 | $(\bar{q}_3 T^A u_1) \epsilon_{jk} (\bar{q}_2 T^A d_3)$ | \mathbf{C} |
| quqd8_3131 | $\left(\bar{q}_3 T^A u_1\right) \epsilon_{jk} \left(\bar{q}_3 T^A d_1\right)$ | \mathbf{C} |
| quqd8_3132 | $\left(ar{q}_3 T^A u_1\right) \epsilon_{jk} \left(ar{q}_3 T^A d_2\right)$ | \mathbf{C} |
| quqd8_3133 | $\left(ar{q}_3 T^A u_1\right) \epsilon_{jk} \left(ar{q}_3 T^A d_3\right)$ | \mathbf{C} |
| quqd8_3211 | $\left(ar{q}_3 T^A u_2 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_1 ight)$ | $^{\mathrm{C}}$ |
| quqd8_3212 | $\left(\bar{q}_3 T^A u_2\right) \epsilon_{jk} \left(\bar{q}_1 T^A d_2\right)$ | С |
| quqd8_3213 | $\left(ar{q}_{3}T^{A}u_{2} ight) \epsilon_{jk}\left(ar{q}_{1}T^{A}d_{3} ight)$ | \mathbf{C} |
| quqd8_3221 | $\left(ar{q}_3 T^A u_2\right) \epsilon_{jk} \left(ar{q}_2 T^A d_1\right)$ | С |
| quqd8_3222 | $\left(ar{q}_{3}T^{A}u_{2} ight) \epsilon_{jk}\left(ar{q}_{2}T^{A}d_{2} ight)$ | С |
| quqd8_3223 | $\left(ar{q}_3 T^A u_2 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_3 ight)$ | \mathbf{C} |
| quqd8_3231 | $\left(ar{q}_{3}T^{A}u_{2} ight) \epsilon_{jk}\left(ar{q}_{3}T^{A}d_{1} ight)$ | \mathbf{C} |
| quqd8_3232 | $\left(\bar{q}_3 T^A u_2\right) \epsilon_{jk} \left(\bar{q}_3 T^A d_2\right)$ | C |
| quqd8_3233 | $\left(ar{q}_3 T^A u_2\right) \epsilon_{jk} \left(ar{q}_3 T^A d_3\right)$ | \mathbf{C} |

| WC name | Operator | Type |
|------------|---|-----------------|
| quqd8_3311 | $\left(\bar{q}_3 T^A u_3\right) \epsilon_{jk} \left(\bar{q}_1 T^A d_1\right)$ | С |
| quqd8_3312 | $\left(ar{q}_3 T^A u_3\right) \epsilon_{jk} \left(ar{q}_1 T^A d_2\right)$ | \mathbf{C} |
| quqd8_3313 | $\left(ar{q}_3 T^A u_3 ight) \epsilon_{jk} \left(ar{q}_1 T^A d_3 ight)$ | \mathbf{C} |
| quqd8_3321 | $\left(ar{q}_3 T^A u_3 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_1 ight)$ | \mathbf{C} |
| quqd8_3322 | $\left(ar{q}_3 T^A u_3 ight) \epsilon_{jk} \left(ar{q}_2 T^A d_2 ight)$ | \mathbf{C} |
| quqd8_3323 | $\left(ar{q}_3T^Au_3 ight)\epsilon_{jk}\left(ar{q}_2T^Ad_3 ight)$ | $^{\mathrm{C}}$ |
| quqd8_3331 | $\left(ar{q}_{3}T^{A}u_{3} ight) \epsilon_{jk}\left(ar{q}_{3}T^{A}d_{1} ight)$ | C |
| quqd8_3332 | $\left(\bar{q}_3T^Au_3\right)\epsilon_{jk}\left(\bar{q}_3T^Ad_2\right)$ | C |
| quqd8_3333 | $\left(ar{q}_3T^Au_3 ight)\epsilon_{jk}\left(ar{q}_3T^Ad_3 ight)$ | C |
| lequ1_1111 | $\left(\underline{\ell}_{1}e_{1}\right)\epsilon_{jk}\left(\bar{q}_{1}u_{1}\right)$ | $^{\mathrm{C}}$ |
| lequ1_1112 | $\left(ar{\ell}_1 e_1 \right) \epsilon_{jk} \left(ar{q}_1 u_2 ight)$ | $^{\mathrm{C}}$ |
| lequ1_1113 | $\left(\ell_{1}e_{1} ight) \epsilon_{jk}\left(ar{q}_{1}u_{3} ight)$ | $^{\mathrm{C}}$ |
| lequ1_1121 | $\left(\underline{\ell}_1 e_1\right) \epsilon_{jk} \left(\bar{q}_2 u_1\right)$ | \mathbf{C} |
| lequ1_1122 | $\left(\ell_{1}e_{1} ight) \epsilon_{jk}\left(ar{q}_{2}u_{2} ight)$ | \mathbf{C} |
| lequ1_1123 | $\left(\ell_{1}e_{1}\right) \epsilon_{jk}\left(ar{q}_{2}u_{3} ight)$ | $^{\mathrm{C}}$ |
| lequ1_1131 | $\left(\underline{\ell}_1 e_1\right) \epsilon_{jk} \left(\overline{q}_3 u_1\right)$ | \mathbf{C} |
| lequ1_1132 | $\left(ar{\ell}_{1}e_{1} ight) \epsilon_{jk}\left(ar{q}_{3}u_{2} ight)$ | \mathbf{C} |
| lequ1_1133 | $\left(ar{\ell}_{1}e_{1} ight) \epsilon_{jk}\left(ar{q}_{3}u_{3} ight)$ | \mathbf{C} |
| lequ1_1211 | $\left(\ell_{1}e_{2}\right)\epsilon_{jk}\left(ar{q}_{1}u_{1}\right)$ | \mathbf{C} |
| lequ1_1212 | $\left(ar{\ell}_{1}e_{2} ight)\epsilon_{jk}\left(ar{q}_{1}u_{2} ight)$ | \mathbf{C} |
| lequ1_1213 | $\left(ar{\ell}_{1}e_{2} ight)\epsilon_{jk}\left(ar{q}_{1}u_{3} ight)$ | \mathbf{C} |
| lequ1_1221 | $\left(ar{\ell}_1 e_2 ight)\epsilon_{jk}\left(ar{q}_2 u_1 ight)$ | \mathbf{C} |
| lequ1_1222 | $\left(ar{\ell}_{1}e_{2} ight)\epsilon_{jk}\left(ar{q}_{2}u_{2} ight)$ | $^{\mathrm{C}}$ |
| lequ1_1223 | $\left(ar{\ell}_{1}e_{2} ight)\epsilon_{jk}\left(ar{q}_{2}u_{3} ight)$ | $^{\mathrm{C}}$ |
| lequ1_1231 | $\left(ar{\ell}_1 e_2 ight)\epsilon_{jk}\left(ar{q}_3 u_1 ight)$ | $^{\mathrm{C}}$ |
| lequ1_1232 | $\left(ar{\ell}_{1}e_{2} ight)\epsilon_{jk}\left(ar{q}_{3}u_{2} ight)$ | $^{\mathrm{C}}$ |
| lequ1_1233 | $\left(ar{\ell}_{1}e_{2} ight)\epsilon_{jk}\left(ar{q}_{3}u_{3} ight)$ | $^{\mathrm{C}}$ |
| lequ1_1311 | $(\bar{\ell}_1 e_3) \epsilon_{jk} (\bar{q}_1 u_1)$ | \mathbf{C} |
| lequ1_1312 | $\left(ar{\ell}_1 e_3 ight)\epsilon_{jk}\left(ar{q}_1 u_2 ight)$ | \mathbf{C} |
| lequ1_1313 | $\left(ar{\ell}_{1}e_{3} ight)\epsilon_{jk}\left(ar{q}_{1}u_{3} ight)$ | \mathbf{C} |
| lequ1_1321 | $\left(ar{\ell}_{1}e_{3} ight)\epsilon_{jk}\left(ar{q}_{2}u_{1} ight)$ | \mathbf{C} |
| lequ1_1322 | $\left(ar{\ell}_{1}e_{3} ight)\epsilon_{jk}\left(ar{q}_{2}u_{2} ight)$ | \mathbf{C} |
| lequ1_1323 | $\left(ar{\ell}_{1}e_{3} ight)\epsilon_{jk}\left(ar{q}_{2}u_{3} ight)$ | \mathbf{C} |
| lequ1_1331 | $(ar{\ell}_1 e_3) \epsilon_{jk} (ar{q}_3 u_1)$ | \mathbf{C} |
| lequ1_1332 | $(ar{\ell}_1 e_3) \stackrel{\circ}{\epsilon_{jk}} (ar{q}_3 u_2)$ | \mathbf{C} |
| lequ1_1333 | $(ar{\ell}_1 e_3) \epsilon_{jk} (ar{q}_3 u_3)$ | \mathbf{C} |
| lequ1_2111 | $(ar{\ell}_2 e_1) \epsilon_{jk} (ar{q}_1 u_1)$ | $^{\mathrm{C}}$ |
| lequ1_2112 | $(ar{\ell}_2 e_1) \epsilon_{jk} (ar{q}_1 u_2)$ | \mathbf{C} |
| lequ1_2113 | $\left(ar{\ell}_2 e_1 ight)\epsilon_{jk}\left(ar{q}_1 u_3 ight)$ | \mathbf{C} |
| lequ1_2121 | $(ar{\ell}_2 e_1) \epsilon_{jk} (ar{q}_2 u_1)$ | \mathbf{C} |
| lequ1_2122 | $(ar{\ell}_2 e_1)^{\epsilon_{jk}} (ar{q}_2 u_2)$ | $^{\mathrm{C}}$ |
| lequ1_2123 | $(ar{\ell}_2 e_1) \epsilon_{jk} (ar{q}_2 u_3)$ | $^{\mathrm{C}}$ |
| <u> </u> | (= 1) J. (1= 0) | |

| WC name | Operator | Type |
|------------|--|----------------------------|
| lequ1_2131 | $\left(ar{\ell}_{2}e_{1} ight)\epsilon_{jk}\left(ar{q}_{3}u_{1} ight)$ | \mathbf{C} |
| lequ1_2132 | $\left(ar{\ell}_2 e_1 ight)\epsilon_{jk}\left(ar{q}_3 u_2 ight)$ | \mathbf{C} |
| lequ1_2133 | $\left(ar{\ell}_{2}e_{1} ight)\epsilon_{jk}\left(ar{q}_{3}u_{3} ight)$ | \mathbf{C} |
| lequ1_2211 | $(ar{\ell}_2 e_2) \epsilon_{jk} (ar{q}_1 u_1)$ | \mathbf{C} |
| lequ1_2212 | $(ar{\ell}_2 e_2) \epsilon_{jk} (ar{q}_1 u_2)$ | \mathbf{C} |
| lequ1_2213 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{1}u_{3} ight)$ | \mathbf{C} |
| lequ1_2221 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{2}u_{1} ight)$ | \mathbf{C} |
| lequ1_2222 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{2}u_{2} ight)$ | \mathbf{C} |
| lequ1_2223 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{2}u_{3} ight)$ | \mathbf{C} |
| lequ1_2231 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{3}u_{1} ight)$ | \mathbf{C} |
| lequ1_2232 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{3}u_{2} ight)$ | \mathbf{C} |
| lequ1_2233 | $\left(ar{\ell}_{2}e_{2} ight)\epsilon_{jk}\left(ar{q}_{3}u_{3} ight)$ | \mathbf{C} |
| lequ1_2311 | $\left(ar{\ell}_{2}e_{3} ight)\epsilon_{jk}\left(ar{q}_{1}u_{1} ight)$ | \mathbf{C} |
| lequ1_2312 | $\left(ar{\ell}_{2}e_{3} ight)\epsilon_{jk}\left(ar{q}_{1}u_{2} ight)$ | \mathbf{C} |
| lequ1_2313 | $\left(ar{\ell}_{2}e_{3} ight)\epsilon_{jk}\left(ar{q}_{1}u_{3} ight)$ | \mathbf{C} |
| lequ1_2321 | $\left(ar{\ell}_{2}e_{3} ight)\epsilon_{jk}\left(ar{q}_{2}u_{1} ight)$ | \mathbf{C} |
| lequ1_2322 | $\left(ar{\ell}_{2}e_{3} ight)\epsilon_{jk}\left(ar{q}_{2}u_{2} ight)$ | \mathbf{C} |
| lequ1_2323 | $\left(\ell_{2}e_{3} ight) \epsilon_{jk}\left(ar{q}_{2}u_{3} ight)$ | \mathbf{C} |
| lequ1_2331 | $\left(ar{\ell}_{2}e_{3} ight)\epsilon_{jk}\left(ar{q}_{3}u_{1} ight)$ | \mathbf{C} |
| lequ1_2332 | $\left(\underline{\ell}_{2}e_{3}\right)\epsilon_{jk}\left(ar{q}_{3}u_{2}\right)$ | \mathbf{C} |
| lequ1_2333 | $\left(\ell_{2}e_{3}\right)\epsilon_{jk}\left(ar{q}_{3}u_{3} ight)$ | \mathbf{C} |
| lequ1_3111 | $\left(\underline{\ell}_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{1}u_{1}\right)$ | \mathbf{C} |
| lequ1_3112 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{1}u_{2}\right)$ | \mathbf{C} |
| lequ1_3113 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{1}u_{3}\right)$ | \mathbf{C} |
| lequ1_3121 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{2}u_{1}\right)$ | \mathbf{C} |
| lequ1_3122 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{2}u_{2}\right)$ | \mathbf{C} |
| lequ1_3123 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{2}u_{3}\right)$ | \mathbf{C} |
| lequ1_3131 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{3}u_{1}\right)$ | \mathbf{C} |
| lequ1_3132 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{3}u_{2}\right)$ | \mathbf{C} |
| lequ1_3133 | $\left(\ell_{3}e_{1}\right)\epsilon_{jk}\left(ar{q}_{3}u_{3}\right)$ | \mathbf{C} |
| lequ1_3211 | $\left(\ell_{3}e_{2}\right)\epsilon_{jk}\left(ar{q}_{1}u_{1}\right)$ | \mathbf{C} |
| lequ1_3212 | $\left(\underline{\ell}_{3}e_{2}\right)\epsilon_{jk}\left(ar{q}_{1}u_{2}\right)$ | \mathbf{C} |
| lequ1_3213 | $\left(\underline{\ell}_{3}e_{2}\right)\epsilon_{jk}\left(ar{q}_{1}u_{3}\right)$ | \mathbf{C} |
| lequ1_3221 | $\left(\ell_{3}e_{2}\right)\epsilon_{jk}\left(ar{q}_{2}u_{1}\right)$ | С |
| lequ1_3222 | $\left(\ell_{3}e_{2}\right)\epsilon_{jk}\left(ar{q}_{2}u_{2}\right)$ | С |
| lequ1_3223 | $\left(\ell_{3}e_{2}\right)\epsilon_{jk}\left(ar{q}_{2}u_{3}\right)$ | С |
| lequ1_3231 | $\begin{pmatrix} \ell_3 e_2 \end{pmatrix} \epsilon_{jk} \begin{pmatrix} \bar{q}_3 u_1 \end{pmatrix}$ | С |
| lequ1_3232 | $\begin{pmatrix} \ell_3 e_2 \end{pmatrix} \epsilon_{jk} \begin{pmatrix} \bar{q}_3 u_2 \end{pmatrix}$ | $\stackrel{	ext{C}}{\sim}$ |
| lequ1_3233 | $\begin{pmatrix} \ell_3 e_2 \end{pmatrix} \epsilon_{jk} \begin{pmatrix} \bar{q}_3 u_3 \end{pmatrix}$ | С |
| lequ1_3311 | $\begin{pmatrix} \ell_3 e_3 \end{pmatrix} \epsilon_{jk} \begin{pmatrix} \bar{q}_1 u_1 \end{pmatrix}$ | С |
| lequ1_3312 | $\begin{pmatrix} \ell_3 e_3 \end{pmatrix} \epsilon_{jk} \begin{pmatrix} ar{q}_1 u_2 \end{pmatrix}$ | С |
| lequ1_3313 | $\left(\ell_3 e_3\right) \epsilon_{jk} \left(\bar{q}_1 u_3\right)$ | \mathbf{C} |

| WC name | Operator | Type |
|------------|--|--------------|
| lequ1_3321 | $\left(ar{\ell}_3e_3 ight)\epsilon_{jk}\left(ar{q}_2u_1 ight)$ | C |
| lequ1_3322 | $(ar{\ell}_3 e_3) \epsilon_{jk} (ar{q}_2 u_2)$ | \mathbf{C} |
| lequ1_3323 | $(ar{\ell}_3 e_3) \epsilon_{jk} (ar{q}_2 u_3)$ | \mathbf{C} |
| lequ1_3331 | $(\bar{\ell}_3 e_3) \epsilon_{jk} (\bar{q}_3 u_1)$ | \mathbf{C} |
| lequ1_3332 | $(\bar{\ell}_3 e_3) \epsilon_{jk} (\bar{q}_3 u_2)$ | \mathbf{C} |
| lequ1_3333 | $(\bar{\ell}_3 e_3) \epsilon_{jk} (\bar{q}_3 u_3)$ | \mathbf{C} |
| lequ3_1111 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1112 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1113 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_1121 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1122 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1123 | $\left(\bar{\ell}_1\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_3\right)$ | \mathbf{C} |
| lequ3_1131 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1132 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1133 | $\left(ar{\ell}_1\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_1211 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1212 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1213 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_1221 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1222 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1223 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_1231 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1232 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1233 | $\left(ar{\ell}_1\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_1311 | $\left(ar{\ell}_1\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1312 | $\left(ar{\ell}_1\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1313 | $\left(ar{\ell}_1\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_1321 | $\left(ar{\ell}_1\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_1322 | $\left(ar{\ell}_1\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1323 | $\left(\bar{\ell}_1 \sigma_{\mu\nu} e_3\right) \epsilon_{jk} \left(\bar{q}_2 \sigma^{\mu\nu} u_3\right)$ | \mathbf{C} |
| lequ3_1331 | $\left(\bar{\ell}_1 \sigma_{\mu\nu} e_3\right) \epsilon_{jk} \left(\bar{q}_3 \sigma^{\mu\nu} u_1\right)$ | \mathbf{C} |
| lequ3_1332 | $\left(\bar{\ell}_1\sigma_{\mu u}e_3\right)\epsilon_{jk}\left(\bar{q}_3\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_1333 | $\left(\bar{\ell}_1 \sigma_{\mu\nu} e_3\right) \epsilon_{jk} \left(\bar{q}_3 \sigma^{\mu\nu} u_3\right)$ | \mathbf{C} |
| lequ3_2111 | $\left(\bar{\ell}_2 \sigma_{\mu u} e_1\right) \epsilon_{jk} \left(\bar{q}_1 \sigma^{\mu u} u_1\right)$ | \mathbf{C} |
| lequ3_2112 | $\left(\bar{\ell}_2\sigma_{\mu u}e_1\right)\epsilon_{jk}\left(\bar{q}_1\sigma^{\mu u}u_2\right)$ | \mathbf{C} |
| lequ3_2113 | $\left(\bar{\ell}_2 \sigma_{\mu\nu} e_1\right) \epsilon_{jk} \left(\bar{q}_1 \sigma^{\mu\nu} u_3\right)$ | \mathbf{C} |
| lequ3_2121 | $\left(ar{\ell}_2\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_2122 | $\left(\bar{\ell}_2 \sigma_{\mu u} e_1\right) \epsilon_{jk} \left(\bar{q}_2 \sigma^{\mu u} u_2\right)$ | \mathbf{C} |
| lequ3_2123 | $\left(ar{\ell}_2\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |
| lequ3_2131 | $\left(ar{\ell}_2\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| lequ3_2132 | $\left(ar{\ell}_2\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| lequ3_2133 | $\left(ar{\ell}_2\sigma_{\mu u}e_1 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_3 ight)$ | \mathbf{C} |

| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | WC name | Operator | Type |
|--|------------|--|-----------------|
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | |
| $\begin{array}{c} \operatorname{lequ3}.2213 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2221 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2222 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2223 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2231 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2232 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2232 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2233 & \left(\ell_2\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2233 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2311 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2312 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2313 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2321 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2322 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2323 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2333 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2332 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2333 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2333 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2333 & \left(\ell_2\sigma_{\mu\nu}e_3\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2331 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2311 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_3\right) & C \\ \operatorname{lequ3}.2312 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2312 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_1\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2312 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_2\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2312 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2313 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2312 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_2\right) & C \\ \operatorname{lequ3}.2321 & \left(\ell_3\sigma_{\mu\nu}e_1\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_1\right) & C \\ \operatorname{lequ3}.2322 & \left(\ell_3\sigma_{\mu\nu}e_2\right) \epsilon_{jk} \left(\bar{q}_3\sigma^{\mu\nu}u_1\right) & C \\$ | lequ3_2212 | $\left(ar{\ell}_2\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_2 ight)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2213 | $\left(\ell_2 \sigma_{\mu u} e_2\right) \epsilon_{jk} \left(ar{q}_1 \sigma^{\mu u} u_3\right)$ | |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2221 | $\left(\ell_2 \sigma_{\mu u} e_2\right) \epsilon_{jk} \left(\bar{q}_2 \sigma^{\mu u} u_1 \right)$ | |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | lequ3_2222 | $\left(ar{\ell}_2\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_2 ight)$ | |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | lequ3_2223 | $\left(\ell_2 \sigma_{\mu \nu} e_2\right) \epsilon_{jk} \left(\bar{q}_2 \sigma^{\mu \nu} u_3\right)$ | |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | lequ3_2231 | $\left(ar{\ell}_2\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2232 | $\left(\ell_2\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_2 ight)$ | |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $\left(ar{\ell}_2\sigma_{\mu u}e_2 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_3 ight)$ | |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | lequ3_2311 | $\left(\ell_2\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_1 ight)$ | |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2312 | $\left(ar{\ell}_2\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_1\sigma^{\mu u}u_2 ight)$ | $^{\mathrm{C}}$ |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | lequ3_2313 | $(\bar{\ell}_2 \sigma_{\mu u} e_3) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu u} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2321 | $\left(ar{\ell}_2\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_1 ight)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2322 | $\left(ar{\ell}_2\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_2\sigma^{\mu u}u_2 ight)$ | $^{\mathrm{C}}$ |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2323 | $(\bar{\ell}_2 \sigma_{\mu u} e_3) \epsilon_{jk} (\bar{q}_2 \sigma^{\mu u} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2331 | $(\bar{\ell}_2 \sigma_{\mu u} e_3) \epsilon_{jk} (\bar{q}_3 \sigma^{\mu u} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2332 | $(ar{\ell}_2\sigma_{\mu u}e_3)\epsilon_{jk}(ar{q}_3\sigma^{\mu u}u_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_2333 | $(\bar{\ell}_2\sigma_{\mu\nu}e_3)\epsilon_{jk}(\bar{q}_3\sigma^{\mu\nu}u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3111 | $(\bar{\ell}_3 \sigma_{\mu\nu} e_1) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu\nu} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3112 | $(\bar{\ell}_3 \sigma_{\mu u} e_1) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu u} u_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3113 | $(\bar{\ell}_3 \sigma_{\mu u} e_1) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu u} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3121 | $(\bar{\ell}_3 \sigma_{\mu\nu} e_1) \epsilon_{jk} (\bar{q}_2 \sigma^{\mu\nu} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(ar{\ell}_3 \sigma_{\mu u} e_1) \epsilon_{jk} (ar{q}_2 \sigma^{\mu u} u_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3123 | $(\bar{\ell}_3 \sigma_{\mu u} e_1) \epsilon_{jk} (\bar{q}_2 \sigma^{\mu u} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3131 | $(\bar{\ell}_3 \sigma_{\mu\nu} e_1) \epsilon_{jk} (\bar{q}_3 \sigma^{\mu\nu} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu \nu} e_1) \epsilon_{jk} (\bar{q}_3 \sigma^{\mu \nu} u_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu \nu} e_1) \epsilon_{jk} (\bar{q}_3 \sigma^{\mu \nu} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3211 | $(\bar{\ell}_3 \sigma_{\mu\nu} e_2) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu\nu} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | lequ3_3212 | $(\bar{\ell}_3 \sigma_{\mu \nu} e_2) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu \nu} u_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu \nu} e_2) \epsilon_{jk} (\bar{q}_1 \sigma^{\mu \nu} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu \nu} e_2) \epsilon_{ik} (\bar{q}_2 \sigma^{\mu \nu} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu \nu} e_2) \epsilon_{ik} (\bar{q}_2 \sigma^{\mu \nu} u_2)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu \nu} e_2) \epsilon_{ik} (\bar{q}_2 \sigma^{\mu \nu} u_3)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | $(\bar{\ell}_3 \sigma_{\mu\nu} e_2) \epsilon_{ik} (\bar{q}_3 \sigma^{\mu\nu} u_1)$ | \mathbf{C} |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | $^{\mathrm{C}}$ |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | | $(\bar{\ell}_3 \sigma_{\mu\nu} e_2) \epsilon_{ik} (\bar{q}_3 \sigma^{\mu\nu} u_3)$ | |
| lequ3_3312 $ \begin{array}{ccc} \left(\bar{\ell}_3\sigma_{\mu\nu}e_3\right)\epsilon_{jk}\left(\bar{q}_1\sigma^{\mu\nu}u_2\right) & \mathrm{C} \\ \mathrm{lequ3_3313} & \left(\bar{\ell}_3\sigma_{\mu\nu}e_3\right)\epsilon_{jk}\left(\bar{q}_1\sigma^{\mu\nu}u_3\right) & \mathrm{C} \end{array} $ | | $(\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{ik} (\bar{q}_1 \sigma^{\mu\nu} u_1)$ | $^{\mathrm{C}}$ |
| lequ3_3313 $ \left(\underline{\ell_3}\sigma_{\mu\nu}e_3\right)\epsilon_{jk}\left(\bar{q}_1\sigma^{\mu\nu}u_3\right) $ C | | $(\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{ik} (\bar{q}_1 \sigma^{\mu\nu} u_2)$ | $^{\mathrm{C}}$ |
| 1 = \(\(\)_\(\) | | $(\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{ik} (\bar{q}_1 \sigma^{\mu\nu} u_3)$ | |
| lequ3_3321 $(\ell_3 \sigma_{\mu\nu} e_3) \epsilon_{ik} (\bar{q}_2 \sigma^{\mu\nu} u_1)$ C | lequ3_3321 | $(ar{\ell}_3\sigma_{\mu u}e_3)\epsilon_{jk}(ar{q}_2\sigma^{\mu u}u_1)$ | $^{\mathrm{C}}$ |
| lequ3_3322 $ (\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{jk} (\bar{q}_2 \sigma^{\mu\nu} u_2) $ C | = | $(\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{ik} (\bar{q}_2 \sigma^{\mu\nu} u_2)$ | |
| lequ3_3323 $\left(\bar{\ell}_3\sigma_{\mu\nu}e_3\right)\epsilon_{jk}\left(\bar{q}_2\sigma^{\mu\nu}u_3\right)$ C | _ | $(\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{jk} (\bar{q}_2 \sigma^{\mu\nu} u_3)$ | |

| WC name | Operator | Type |
|------------|--|-----------------|
| lequ3_3331 | $\left(ar{\ell}_{3}\sigma_{\mu u}e_{3} ight)\epsilon_{jk}\left(ar{q}_{3}\sigma^{\mu u}u_{1} ight)$ | C |
| lequ3_3332 | $\left(ar{\ell}_3\sigma_{\mu u}e_3 ight)\epsilon_{jk}\left(ar{q}_3\sigma^{\mu u}u_2 ight)$ | $^{\mathrm{C}}$ |
| lequ3_3333 | $(\bar{\ell}_3 \sigma_{\mu\nu} e_3) \epsilon_{jk} (\bar{q}_3 \sigma^{\mu\nu} u_3)$ | $^{\mathrm{C}}$ |

dB=dL=1

| WC name | Operator | Type |
|-----------|---|----------------------------|
| duql_1111 | $(d_1Cu_1)(q_1C\ell_1)$ | C |
| duql_1112 | $(d_1Cu_1)(q_1C\ell_2)$ | \mathbf{C} |
| duql_1113 | $(d_1Cu_1)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_1121 | $(d_1Cu_1)(q_2C\ell_1)$ | \mathbf{C} |
| duql_1122 | $(d_1Cu_1)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_1123 | $(d_1Cu_1)(q_2C\ell_3)$ | \mathbf{C} |
| duq1_1131 | $(d_1Cu_1)(q_3C\ell_1)$ | \mathbf{C} |
| duql_1132 | $(d_1Cu_1)(q_3C\ell_2)$ | \mathbf{C} |
| duql_1133 | $(d_1Cu_1)(q_3C\ell_3)$ | \mathbf{C} |
| duql_1211 | $(d_1Cu_2)(q_1C\ell_1)$ | \mathbf{C} |
| duql_1212 | $\left(d_{1}Cu_{2}\right)\left(q_{1}C\ell_{2}\right)$ | \mathbf{C} |
| duq1_1213 | $(d_1Cu_2)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_1221 | $\left(d_{1}Cu_{2}\right)\left(q_{2}C\ell_{1}\right)$ | \mathbf{C} |
| duq1_1222 | $\left(d_{1}Cu_{2}\right)\left(q_{2}C\ell_{2}\right)$ | \mathbf{C} |
| duql_1223 | $(d_1 C u_2) (q_2 C \ell_3)$ | \mathbf{C} |
| duql_1231 | $\left(d_{1}Cu_{2} ight)\left(q_{3}C\ell_{1} ight)$ | \mathbf{C} |
| duql_1232 | $\left(d_{1}Cu_{2}\right)\left(q_{3}C\ell_{2}\right)$ | \mathbf{C} |
| duql_1233 | $(d_1 C u_2) (q_3 C \ell_3)$ | \mathbf{C} |
| duql_1311 | $(d_1 C u_3) \left(q_1 C \ell_1\right)$ | \mathbf{C} |
| duql_1312 | $(d_1 C u_3) (q_1 C \ell_2)$ | \mathbf{C} |
| duql_1313 | $(d_1Cu_3)(q_1C\ell_3)$ | \mathbf{C} |
| duql_1321 | $(d_1 C u_3) \left(q_2 C \ell_1\right)$ | \mathbf{C} |
| duql_1322 | $(d_1Cu_3)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_1323 | $(d_1Cu_3)(q_2C\ell_3)$ | \mathbf{C} |
| duql_1331 | $(d_1Cu_3)(q_3C\ell_1)$ | \mathbf{C} |
| duq1_1332 | $(d_1Cu_3)(q_3C\ell_2)$ | \mathbf{C} |
| duq1_1333 | $(d_1Cu_3)(q_3C\ell_3)$ | \mathbf{C} |
| duq1_2111 | $\left(d_2Cu_1\right)\left(q_1C\ell_1\right)$ | \mathbf{C} |
| duq1_2112 | $\left(d_2Cu_1\right)\left(q_1C\ell_2\right)$ | \mathbf{C} |
| duq1_2113 | $(d_2Cu_1)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_2121 | $\left(d_{2}Cu_{1}\right)\left(q_{2}C\ell_{1}\right)$ | C |
| duq1_2122 | $(d_2Cu_1)(q_2C\ell_2)$ | C |
| duq1_2123 | $(d_2Cu_1)(q_2C\ell_3)$ | $\stackrel{	ext{C}}{\sim}$ |
| duq1_2131 | $(d_2Cu_1)(q_3C\ell_1)$ | $\stackrel{	ext{C}}{\sim}$ |
| duq1_2132 | $(d_2Cu_1)(q_3C\ell_2)$ | \mathbf{C} |

| WC name | Operator | Type |
|-----------|-------------------------|--------------|
| duq1_2133 | $(d_2Cu_1)(q_3C\ell_3)$ | С |
| duq1_2211 | $(d_2Cu_2)(q_1C\ell_1)$ | \mathbf{C} |
| duq1_2212 | $(d_2Cu_2)(q_1C\ell_2)$ | \mathbf{C} |
| duq1_2213 | $(d_2Cu_2)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_2221 | $(d_2Cu_2)(q_2C\ell_1)$ | \mathbf{C} |
| duq1_2222 | $(d_2Cu_2)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_2223 | $(d_2Cu_2)(q_2C\ell_3)$ | \mathbf{C} |
| duq1_2231 | $(d_2Cu_2)(q_3C\ell_1)$ | \mathbf{C} |
| duq1_2232 | $(d_2Cu_2)(q_3C\ell_2)$ | \mathbf{C} |
| duq1_2233 | $(d_2Cu_2)(q_3C\ell_3)$ | \mathbf{C} |
| duq1_2311 | $(d_2Cu_3)(q_1C\ell_1)$ | \mathbf{C} |
| duq1_2312 | $(d_2Cu_3)(q_1C\ell_2)$ | \mathbf{C} |
| duq1_2313 | $(d_2Cu_3)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_2321 | $(d_2Cu_3)(q_2C\ell_1)$ | \mathbf{C} |
| duq1_2322 | $(d_2Cu_3)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_2323 | $(d_2Cu_3)(q_2C\ell_3)$ | \mathbf{C} |
| duq1_2331 | $(d_2Cu_3)(q_3C\ell_1)$ | \mathbf{C} |
| duq1_2332 | $(d_2Cu_3)(q_3C\ell_2)$ | \mathbf{C} |
| duq1_2333 | $(d_2Cu_3)(q_3C\ell_3)$ | \mathbf{C} |
| duq1_3111 | $(d_3Cu_1)(q_1C\ell_1)$ | \mathbf{C} |
| duq1_3112 | $(d_3Cu_1)(q_1C\ell_2)$ | \mathbf{C} |
| duq1_3113 | $(d_3Cu_1)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_3121 | $(d_3Cu_1)(q_2C\ell_1)$ | \mathbf{C} |
| duq1_3122 | $(d_3Cu_1)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_3123 | $(d_3Cu_1)(q_2C\ell_3)$ | \mathbf{C} |
| duq1_3131 | $(d_3Cu_1)(q_3C\ell_1)$ | \mathbf{C} |
| duq1_3132 | $(d_3Cu_1)(q_3C\ell_2)$ | \mathbf{C} |
| duq1_3133 | $(d_3Cu_1)(q_3C\ell_3)$ | \mathbf{C} |
| duq1_3211 | $(d_3Cu_2)(q_1C\ell_1)$ | \mathbf{C} |
| duq1_3212 | $(d_3Cu_2)(q_1C\ell_2)$ | \mathbf{C} |
| duq1_3213 | $(d_3Cu_2)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_3221 | $(d_3Cu_2)(q_2C\ell_1)$ | \mathbf{C} |
| duq1_3222 | $(d_3Cu_2)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_3223 | $(d_3Cu_2)(q_2C\ell_3)$ | \mathbf{C} |
| duq1_3231 | $(d_3Cu_2)(q_3C\ell_1)$ | \mathbf{C} |
| duq1_3232 | $(d_3Cu_2)(q_3C\ell_2)$ | \mathbf{C} |
| duq1_3233 | $(d_3Cu_2)(q_3C\ell_3)$ | \mathbf{C} |
| duq1_3311 | $(d_3Cu_3)(q_1C\ell_1)$ | \mathbf{C} |
| duq1_3312 | $(d_3Cu_3)(q_1C\ell_2)$ | \mathbf{C} |
| duq1_3313 | $(d_3Cu_3)(q_1C\ell_3)$ | \mathbf{C} |
| duq1_3321 | $(d_3Cu_3)(q_2C\ell_1)$ | \mathbf{C} |
| duq1_3322 | $(d_3Cu_3)(q_2C\ell_2)$ | \mathbf{C} |
| duq1_3323 | $(d_3Cu_3)(q_2C\ell_3)$ | \mathbf{C} |
| duq1_3331 | $(d_3Cu_3)(q_3C\ell_1)$ | \mathbf{C} |
| | | |

| WC name | Operator | Type |
|-----------|--|----------------------------|
| duq1_3332 | $(d_3Cu_3)(q_3C\ell_2)$ | С |
| duq1_3333 | $(d_3Cu_3)(q_3C\ell_3)$ | \mathbf{C} |
| qque_1111 | $(q_1Cq_1)(u_1Ce_1)$ | \mathbf{C} |
| qque_1112 | $(q_1Cq_1)(u_1Ce_2)$ | \mathbf{C} |
| qque_1113 | $(q_1Cq_1)(u_1Ce_3)$ | \mathbf{C} |
| qque_1121 | $(q_1Cq_1)(u_2Ce_1)$ | \mathbf{C} |
| qque_1122 | $(q_1Cq_1)(u_2Ce_2)$ | \mathbf{C} |
| qque_1123 | $(q_1Cq_1)(u_2Ce_3)$ | \mathbf{C} |
| qque_1131 | $\left(q_{1}Cq_{1}\right)\left(u_{3}Ce_{1}\right)$ | \mathbf{C} |
| qque_1132 | $\left(q_{1}Cq_{1}\right)\left(u_{3}Ce_{2}\right)$ | \mathbf{C} |
| qque_1133 | $\left(q_{1}Cq_{1}\right)\left(u_{3}Ce_{3}\right)$ | \mathbf{C} |
| qque_1211 | $(q_1Cq_2)(u_1Ce_1)$ | \mathbf{C} |
| qque_1212 | $(q_1Cq_2)(u_1Ce_2)$ | \mathbf{C} |
| qque_1213 | $(q_1Cq_2)(u_1Ce_3)$ | \mathbf{C} |
| qque_1221 | $\left(q_1 C q_2\right) \left(u_2 C e_1\right)$ | \mathbf{C} |
| qque_1222 | $\left(q_1 C q_2\right) \left(u_2 C e_2\right)$ | \mathbf{C} |
| qque_1223 | $(q_1Cq_2)(u_2Ce_3)$ | \mathbf{C} |
| qque_1231 | $\left(q_{1}Cq_{2}\right)\left(u_{3}Ce_{1}\right)$ | $^{\mathrm{C}}$ |
| qque_1232 | $\left(q_{1}Cq_{2}\right)\left(u_{3}Ce_{2}\right)$ | \mathbf{C} |
| qque_1233 | $\left(q_{1}Cq_{2}\right)\left(u_{3}Ce_{3}\right)$ | \mathbf{C} |
| qque_1311 | $\left(q_{1}Cq_{3}\right)\left(u_{1}Ce_{1}\right)$ | \mathbf{C} |
| qque_1312 | $(q_1Cq_3)(u_1Ce_2)$ | \mathbf{C} |
| qque_1313 | $(q_1Cq_3)(u_1Ce_3)$ | \mathbf{C} |
| qque_1321 | $(q_1Cq_3)(u_2Ce_1)$ | \mathbf{C} |
| qque_1322 | $(q_1Cq_3)(u_2Ce_2)$ | \mathbf{C} |
| qque_1323 | $(q_1Cq_3)(u_2Ce_3)$ | \mathbf{C} |
| qque_1331 | $(q_1Cq_3)(u_3Ce_1)$ | \mathbf{C} |
| qque_1332 | $(q_1Cq_3)(u_3Ce_2)$ | \mathbf{C} |
| qque_1333 | $(q_1Cq_3)(u_3Ce_3)$ | \mathbf{C} |
| qque_2211 | $(q_2Cq_2)(u_1Ce_1)$ | \mathbf{C} |
| qque_2212 | $(q_2Cq_2)(u_1Ce_2)$ | \mathbf{C} |
| qque_2213 | $(q_2Cq_2)(u_1Ce_3)$ | \mathbf{C} |
| qque_2221 | $(q_2Cq_2)(u_2Ce_1)$ | \mathbf{C} |
| qque_2222 | $(q_2Cq_2)(u_2Ce_2)$ | \mathbf{C} |
| qque_2223 | $(q_2Cq_2)(u_2Ce_3)$ | \mathbf{C} |
| qque_2231 | $(q_2Cq_2)(u_3Ce_1)$ | C |
| qque_2232 | $(q_2Cq_2)(u_3Ce_2)$ | \mathbf{C} |
| qque_2233 | $(q_2Cq_2)(u_3Ce_3)$ | C |
| qque_2311 | $(q_2Cq_3)(u_1Ce_1)$ | C |
| qque_2312 | $(q_2Cq_3)(u_1Ce_2)$ | $\stackrel{	ext{C}}{\sim}$ |
| qque_2313 | $(q_2Cq_3)(u_1Ce_3)$ | $\stackrel{	ext{C}}{\sim}$ |
| qque_2321 | $(q_2Cq_3)(u_2Ce_1)$ | $\stackrel{	ext{C}}{\sim}$ |
| qque_2322 | $(q_2Cq_3)(u_2Ce_2)$ | С |
| qque_2323 | $(q_2Cq_3)(u_2Ce_3)$ | \mathbf{C} |

| WC name | Operator | Type |
|-----------|---|----------------------------|
| qque_2331 | $\left(q_{2}Cq_{3}\right)\left(u_{3}Ce_{1}\right)$ | \mathbf{C} |
| qque_2332 | $(q_2Cq_3)(u_3Ce_2)$ | \mathbf{C} |
| qque_2333 | $(q_2Cq_3)(u_3Ce_3)$ | \mathbf{C} |
| qque_3311 | $(q_3Cq_3)(u_1Ce_1)$ | \mathbf{C} |
| qque_3312 | $(q_3Cq_3)(u_1Ce_2)$ | \mathbf{C} |
| qque_3313 | $(q_3Cq_3)(u_1Ce_3)$ | \mathbf{C} |
| qque_3321 | $(q_3Cq_3)(u_2Ce_1)$ | \mathbf{C} |
| qque_3322 | $(q_3Cq_3)(u_2Ce_2)$ | \mathbf{C} |
| qque_3323 | $(q_3Cq_3)(u_2Ce_3)$ | \mathbf{C} |
| qque_3331 | $(q_3Cq_3)(u_3Ce_1)$ | \mathbf{C} |
| qque_3332 | $(q_3Cq_3)(u_3Ce_2)$ | \mathbf{C} |
| qque_3333 | $(q_3Cq_3)(u_3Ce_3)$ | \mathbf{C} |
| qqql_1111 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{1}C\ell_{1}\right)$ | \mathbf{C} |
| qqql_1112 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{1}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1113 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{1}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1121 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{2}C\ell_{1}\right)$ | \mathbf{C} |
| qqql_1122 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{2}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1123 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{2}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1131 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{3}C\ell_{1}\right)$ | \mathbf{C} |
| qqql_1132 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{3}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1133 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{1}\right)\left(q_{3}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1211 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2} ight)\left(q_{1}C\ell_{1} ight)$ | \mathbf{C} |
| qqql_1212 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{1}C\ell_{2}\right)$ | \mathbf{C} |
| qqq1_1213 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{1}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1221 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{2}C\ell_{1}\right)$ | \mathbf{C} |
| qqql_1222 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{2}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1223 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{2}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1231 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{3}C\ell_{1}\right)$ | \mathbf{C} |
| qqql_1232 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{3}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1233 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{2}\right)\left(q_{3}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1311 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3} ight)\left(q_{1}C\ell_{1} ight)$ | \mathbf{C} |
| qqql_1312 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{1}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1313 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{1}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_1321 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{2}C\ell_{1}\right)$ | \mathbf{C} |
| qqql_1322 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{2}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1323 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{2}C\ell_{3}\right)$ | \mathbf{C} |
| qqq1_1331 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{3}C\ell_{1}\right)$ | C |
| qqql_1332 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{3}C\ell_{2}\right)$ | \mathbf{C} |
| qqql_1333 | $\epsilon_{il}\epsilon_{jk}\left(q_{1}Cq_{3}\right)\left(q_{3}C\ell_{3}\right)$ | \mathbf{C} |
| qqql_2121 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{1}\right)\left(q_{2}C\ell_{1}\right)$ | C |
| qqql_2122 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{1}\right)\left(q_{2}C\ell_{2}\right)$ | C |
| qqq1_2123 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{1}\right)\left(q_{2}C\ell_{3}\right)$ | $\stackrel{	ext{C}}{\sim}$ |
| qqq1_2131 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{1}\right)\left(q_{3}C\ell_{1}\right)$ | С |
| qqq1_2132 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{1}\right)\left(q_{3}C\ell_{2}\right)$ | \mathbf{C} |

| WC name | Operator | Type |
|------------------------|---|----------------------------|
| qqq1_2133 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{1}\right)\left(q_{3}C\ell_{3}\right)$ | С |
| qqq1_2221 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{2} ight)\left(q_{2}C\ell_{1} ight)$ | $^{\mathrm{C}}$ |
| qqq1_2222 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{2} ight)\left(q_{2}C\ell_{2} ight)$ | $^{\mathrm{C}}$ |
| qqq1_2223 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{2} ight)\left(q_{2}C\ell_{3} ight)$ | \mathbf{C} |
| qqq1_2231 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{2} ight)\left(q_{3}C\ell_{1} ight)$ | $^{\mathrm{C}}$ |
| qqq1_2232 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{2}\right)\left(q_{3}C\ell_{2}\right)$ | $^{\mathrm{C}}$ |
| qqq1_2233 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{2}\right)\left(q_{3}C\ell_{3}\right)$ | $^{\mathrm{C}}$ |
| qqq1_2311 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{1}C\ell_{1}\right)$ | $^{\mathrm{C}}$ |
| qqq1_2312 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{1}C\ell_{2}\right)$ | \mathbf{C} |
| qqq1_2313 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{1}C\ell_{3}\right)$ | \mathbf{C} |
| qqq1_2321 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3} ight)\left(q_{2}C\ell_{1} ight)$ | \mathbf{C} |
| qqq1_2322 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{2}C\ell_{2}\right)$ | C |
| qqq1_2323 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{2}C\ell_{3}\right)$ | C |
| qqq1_2331 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{3}C\ell_{1}\right)$ | C |
| qqq1_2332 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{3}C\ell_{2}\right)$ | C |
| qqq1_2333 | $\epsilon_{il}\epsilon_{jk}\left(q_{2}Cq_{3}\right)\left(q_{3}C\ell_{3}\right)$ | C |
| qqq1_3131 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{1}\right)\left(q_{3}C\ell_{1}\right)$ | C |
| qqq1_3132 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{1}\right)\left(q_{3}C\ell_{2}\right)$ | C |
| qqq1_3133 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{1}\right)\left(q_{3}C\ell_{3}\right)$ | $\stackrel{	ext{C}}{\sim}$ |
| qqq1_3231 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{2}\right)\left(q_{3}C\ell_{1}\right)$ | $\stackrel{	ext{C}}{\sim}$ |
| qqq1_3232 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{2}\right)\left(q_{3}C\ell_{2}\right)$ | С |
| qqq1_3233 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{2}\right)\left(q_{3}C\ell_{3}\right)$ | С |
| qqq1_3331 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{3}\right)\left(q_{3}C\ell_{1}\right)$ | С |
| qqq1_3332 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{3}\right)\left(q_{3}C\ell_{2}\right)$ | С |
| qqq1_3333 | $\epsilon_{il}\epsilon_{jk}\left(q_{3}Cq_{3}\right)\left(q_{3}C\ell_{3}\right)$ | С |
| duue_1111 | $(d_1Cu_1)(u_1Ce_1)$ | С |
| duue_1112 | $(d_1Cu_1)(u_1Ce_2)$ | С |
| duue_1113 | $(d_1Cu_1)(u_1Ce_3)$ | С |
| duue_1121 | $(d_1Cu_1)(u_2Ce_1)$ | С |
| duue_1122 | $(d_1Cu_1)(u_2Ce_2)$ | С |
| duue_1123 | $(d_1Cu_1)(u_2Ce_3)$ | C C |
| duue_1131 | $(d_1Cu_1)(u_3Ce_1)$ | C |
| duue_1132 | $(d_1Cu_1)(u_3Ce_2)$ | C |
| duue_1133 | $(d_1Cu_1)(u_3Ce_3)$ | C |
| duue_1211 | $(d_1Cu_2)(u_1Ce_1)$ | C |
| duue_1212 | $(d_1Cu_2)(u_1Ce_2) (d_1Cu_2)(u_1Ce_3)$ | C |
| duue_1213 duue_1221 | $(a_1Cu_2)(u_1Ce_3) (d_1Cu_2)(u_2Ce_1)$ | C |
| duue_1221 duue_1222 | $(a_1Cu_2)(u_2Ce_1) (d_1Cu_2)(u_2Ce_2)$ | C |
| duue_1223 | $(a_1Cu_2)(u_2Cu_2) (d_1Cu_2)(u_2Cu_3)$ | C |
| duue_1231 | $(a_1Cu_2)(u_2Ce_3) (d_1Cu_2)(u_3Ce_1)$ | C |
| duue_1231 duue_1232 | $(a_1Cu_2)(a_3Ce_1) (d_1Cu_2)(u_3Ce_2)$ | C |
| duue_1232 duue_1233 | $(a_1Cu_2)(a_3Ce_2) (d_1Cu_2)(u_3Ce_3)$ | C |
| duue_1233 duue_1311 | $(a_1Cu_2)(u_3Ce_3) (d_1Cu_3)(u_1Ce_1)$ | C |
| aaae_1011 | $(a_1 \bigcirc a_3) (a_1 \bigcirc c_1)$ | O |

| WC name | Operator | Type |
|-----------|--|--------------|
| duue_1312 | $(d_1Cu_3)(u_1Ce_2)$ | С |
| duue_1313 | $(d_1Cu_3)(u_1Ce_3)$ | \mathbf{C} |
| duue_1321 | $(d_1Cu_3)(u_2Ce_1)$ | \mathbf{C} |
| duue_1322 | $(d_1Cu_3)(u_2Ce_2)$ | \mathbf{C} |
| duue_1323 | $(d_1Cu_3)(u_2Ce_3)$ | \mathbf{C} |
| duue_1331 | $(d_1Cu_3)(u_3Ce_1)$ | \mathbf{C} |
| duue_1332 | $(d_1Cu_3)(u_3Ce_2)$ | \mathbf{C} |
| duue_1333 | $(d_1Cu_3)(u_3Ce_3)$ | \mathbf{C} |
| duue_2111 | $\left(d_{2}Cu_{1}\right)\left(u_{1}Ce_{1}\right)$ | \mathbf{C} |
| duue_2112 | $\left(d_{2}Cu_{1}\right)\left(u_{1}Ce_{2}\right)$ | \mathbf{C} |
| duue_2113 | $\left(d_{2}Cu_{1}\right)\left(u_{1}Ce_{3}\right)$ | \mathbf{C} |
| duue_2121 | $(d_2Cu_1)(u_2Ce_1)$ | \mathbf{C} |
| duue_2122 | $(d_2Cu_1)(u_2Ce_2)$ | \mathbf{C} |
| duue_2123 | $(d_2Cu_1)(u_2Ce_3)$ | \mathbf{C} |
| duue_2131 | $(d_2Cu_1)(u_3Ce_1)$ | \mathbf{C} |
| duue_2132 | $(d_2Cu_1)(u_3Ce_2)$ | \mathbf{C} |
| duue_2133 | $(d_2Cu_1)(u_3Ce_3)$ | \mathbf{C} |
| duue_2211 | $(d_2Cu_2)(u_1Ce_1)$ | \mathbf{C} |
| duue_2212 | $\left(d_{2}Cu_{2}\right)\left(u_{1}Ce_{2}\right)$ | \mathbf{C} |
| duue_2213 | $(d_2Cu_2)(u_1Ce_3)$ | \mathbf{C} |
| duue_2221 | $(d_2Cu_2)(u_2Ce_1)$ | \mathbf{C} |
| duue_2222 | $(d_2Cu_2)(u_2Ce_2)$ | \mathbf{C} |
| duue_2223 | $(d_2Cu_2)(u_2Ce_3)$ | \mathbf{C} |
| duue_2231 | $\left(d_{2}Cu_{2}\right)\left(u_{3}Ce_{1}\right)$ | \mathbf{C} |
| duue_2232 | $(d_2Cu_2)(u_3Ce_2)$ | \mathbf{C} |
| duue_2233 | $(d_2Cu_2)(u_3Ce_3)$ | \mathbf{C} |
| duue_2311 | $\left(d_{2}Cu_{3}\right)\left(u_{1}Ce_{1}\right)$ | \mathbf{C} |
| duue_2312 | $(d_2Cu_3)(u_1Ce_2)$ | \mathbf{C} |
| duue_2313 | $(d_2Cu_3)(u_1Ce_3)$ | \mathbf{C} |
| duue_2321 | $(d_2Cu_3)(u_2Ce_1)$ | \mathbf{C} |
| duue_2322 | $(d_2Cu_3)(u_2Ce_2)$ | \mathbf{C} |
| duue_2323 | $(d_2Cu_3)(u_2Ce_3)$ | \mathbf{C} |
| duue_2331 | $(d_2Cu_3)(u_3Ce_1)$ | \mathbf{C} |
| duue_2332 | $(d_2Cu_3)(u_3Ce_2)$ | \mathbf{C} |
| duue_2333 | $(d_2Cu_3)(u_3Ce_3)$ | \mathbf{C} |
| duue_3111 | $\left(d_3Cu_1\right)\left(u_1Ce_1\right)$ | \mathbf{C} |
| duue_3112 | $\left(d_3Cu_1\right)\left(u_1Ce_2\right)$ | \mathbf{C} |
| duue_3113 | $(d_3Cu_1)(u_1Ce_3)$ | \mathbf{C} |
| duue_3121 | $\left(d_3Cu_1\right)\left(u_2Ce_1\right)$ | \mathbf{C} |
| duue_3122 | $(d_3Cu_1)(u_2Ce_2)$ | \mathbf{C} |
| duue_3123 | $(d_3Cu_1)(u_2Ce_3)$ | \mathbf{C} |
| duue_3131 | $(d_3Cu_1)(u_3Ce_1)$ | \mathbf{C} |
| duue_3132 | $(d_3Cu_1)(u_3Ce_2)$ | \mathbf{C} |
| duue_3133 | $(d_3Cu_1)(u_3Ce_3)$ | С |
| | | |

| WC name | Operator | Type |
|-----------|--|--------------|
| duue_3211 | $(d_3Cu_2)(u_1Ce_1)$ | C |
| duue_3212 | $(d_3Cu_2)(u_1Ce_2)$ | C |
| duue_3213 | $(d_3Cu_2)(u_1Ce_3)$ | \mathbf{C} |
| duue_3221 | $(d_3Cu_2)(u_2Ce_1)$ | \mathbf{C} |
| duue_3222 | $(d_3Cu_2)(u_2Ce_2)$ | \mathbf{C} |
| duue_3223 | $\left(d_3Cu_2\right)\left(u_2Ce_3\right)$ | \mathbf{C} |
| duue_3231 | $\left(d_3Cu_2\right)\left(u_3Ce_1\right)$ | \mathbf{C} |
| duue_3232 | $(d_3Cu_2)(u_3Ce_2)$ | \mathbf{C} |
| duue_3233 | $\left(d_3Cu_2\right)\left(u_3Ce_3\right)$ | \mathbf{C} |
| duue_3311 | $(d_3Cu_3)(u_1Ce_1)$ | \mathbf{C} |
| duue_3312 | $(d_3Cu_3)(u_1Ce_2)$ | \mathbf{C} |
| duue_3313 | $(d_3Cu_3)(u_1Ce_3)$ | \mathbf{C} |
| duue_3321 | $(d_3Cu_3)(u_2Ce_1)$ | \mathbf{C} |
| duue_3322 | $(d_3Cu_3)(u_2Ce_2)$ | \mathbf{C} |
| duue_3323 | $(d_3Cu_3)(u_2Ce_3)$ | \mathbf{C} |
| duue_3331 | $(d_3Cu_3)(u_3Ce_1)$ | \mathbf{C} |
| duue_3332 | $(d_3Cu_3)(u_3Ce_2)$ | \mathbf{C} |
| duue_3333 | $(d_3Cu_3)(u_3Ce_3)$ | \mathbf{C} |

dL=2

| WC name | Operator | Type |
|-------------|---|--------------|
| llphiphi_11 | $\left(\widetilde{arphi}^{\dagger}\ell_{1} ight)^{T}C\left(\widetilde{arphi}^{\dagger}\ell_{1} ight)$ | C |
| llphiphi_22 | $(\widetilde{arphi}^{\dagger}\ell_{2})_{-}^{T}C(\widetilde{arphi}^{\dagger}\ell_{2})$ | \mathbf{C} |
| llphiphi_33 | $\left(\widetilde{\varphi}^{\dagger}\ell_{3}\right)^{T}C\left(\widetilde{\varphi}^{\dagger}\ell_{3}\right)$ | \mathbf{C} |