$$
\begin{aligned}
\Psi_{77} &= C_1\left(i\left|0dud\right\rangle - \left|d0du\right\rangle + \left|dud0\right\rangle - i\left|ud0d\right\rangle\right) \\
&\quad + C_2\left(-\left|0udd\right\rangle - i\left|d0ud\right\rangle + \left|dd0u\right\rangle + i\left|udd0\right\rangle\right) \\
&\quad + C_3\left(i\left|0ddu\right\rangle + \left|ddu0\right\rangle - i\left|du0d\right\rangle - \left|u0dd\right\rangle\right) \\
&\quad + C_4\left(-i\left|002d\right\rangle - \left|02d0\right\rangle + i\left|2d00\right\rangle + \left|d002\right\rangle\right) \\
&\quad + C_5\left(-i\left|020d\right\rangle + i\left|0d02\right\rangle - \left|20d0\right\rangle + \left|d020\right\rangle\right) \\
&\quad + C_6\left(\left|00d2\right\rangle - i\left|0d20\right\rangle + i\left|200d\right\rangle - \left|d200\right\rangle\right)
\end{aligned}
$$

$$
C_1 = \frac{-\left(-8+\frac{\left(U-\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)^2\left(U+\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}{t^2\left(U+2\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}\right)}{24\,\sqrt{2}}
$$

$$
C_2 = \frac{48\,t^3+i\,\sqrt{64\,t^4+3\,t^2\,U^2}\,\left(U-\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)+2\,i\,t^2\,\left(-5\,U+2\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)-3\,t\,\left(-U^2+2\,\sqrt{64\,t^4+3\,t^2\,U^2}+U\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}{12\,\sqrt{2}\,t^2\,\left(U+2\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}
$$

$$
C_3 = \frac{48\,i\,t^3+\sqrt{64\,t^4+3\,t^2\,U^2}\,\left(U-\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)+2\,t^2\,\left(-5\,U+2\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)-3\,i\,t\,\left(-U^2+2\,\sqrt{64\,t^4+3\,t^2\,U^2}+U\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}{12\,\sqrt{2}\,t^2\,\left(U+2\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}
$$

$$
C_4 = \frac{i+\frac{-8\,t^2+\sqrt{64\,t^4+3\,t^2\,U^2}}{t\,U+2\,t\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}}}{2\,\sqrt{2}}
$$

$$
C_5 = \frac{-8\,t^2+\sqrt{64\,t^4+3\,t^2\,U^2}}{\sqrt{2}\,\left(t\,U+2\,t\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}\right)}
$$

$$
C_6 = \frac{i+\frac{8\,t^2-\sqrt{64\,t^4+3\,t^2\,U^2}}{t\,U+2\,t\,\sqrt{32\,t^2+U^2-4\,\sqrt{64\,t^4+3\,t^2\,U^2}}}}{2\,\sqrt{2}}
$$