$$
\begin{aligned}
\Psi_{81} &= C_1\left(|0udd\rangle + |d0ud\rangle + |dd0u\rangle + |udd0\rangle\right) \\
&\quad + C_2\left(|0ddu\rangle + |ddu0\rangle + |du0d\rangle + |u0dd\rangle\right) \\
&\quad + C_3\left(|0dud\rangle + |d0du\rangle + |dud0\rangle + |ud0d\rangle\right) \\
&\quad + C_4\left(|002d\rangle + |02d0\rangle + |2d00\rangle + |d002\rangle\right) \\
&\quad + C_5\left(|00d2\rangle + |0d20\rangle + |200d\rangle + |d200\rangle\right) \\
&\quad + C_6\left(|020d\rangle + |0d02\rangle + |20d0\rangle + |d020\rangle\right)
\end{aligned}
$$

$$
C_1 = \frac{\frac{i}{24}\left(3\,i+\sqrt{3}\right)\left(2\,t+U-\sqrt{16\,t^2+4\,t\,U+U^2}\right)}{\sqrt{3}\,t}
$$

$$
C_2 = \frac{\left(3+i\,\sqrt{3}\right)\left(2\,t+U-\sqrt{16\,t^2+4\,t\,U+U^2}\right)}{24\,\sqrt{3}\,t}
$$

$$
C_3 = \frac{\frac{-i}{12}\left(2\,t+U-\sqrt{16\,t^2+4\,t\,U+U^2}\right)}{t}
$$

$$
C_4 = \frac{-3\,i+\sqrt{3}}{12}
$$

$$
C_5 = \frac{3\,i+\sqrt{3}}{12}
$$

$$
C_6 = \frac{1}{2\,\sqrt{3}}
$$