$$
\begin{aligned}
\Psi_{119} &= C_1\left(|0022\rangle + |0220\rangle + |2002\rangle + |2200\rangle\right) \\
&\quad + C_2\left(|0202\rangle + |2020\rangle\right) \\
&\quad + C_3\left(-|02du\rangle + |02ud\rangle - |0du2\rangle + |0ud2\rangle - |20du\rangle + |20ud\rangle - |2du0\rangle + |2ud0\rangle - |d02u\rangle - |d20u\rangle - |du02\rangle - |du20\rangle + |u02d\rangle + |u20d\rangle + |ud02\rangle + |ud20\rangle\right) \\
&\quad + C_4\left(|dduu\rangle - |duud\rangle - |uddu\rangle + |uudd\rangle\right)
\end{aligned}
$$

$$
C_1 = \frac{48\,\left(1+i\,\sqrt{3}\right)\,t^2+\left(3+3\,i\,\sqrt{3}\right)\,U^2-6\,3^{\frac{1}{3}}\,U\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{1}{3}}+3^{\frac{1}{6}}\,\left(-3\,i+\sqrt{3}\right)\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{2}{3}}}{2\,\left(48\,\left(1+i\,\sqrt{3}\right)\,t^2+\left(3+3\,i\,\sqrt{3}\right)\,U^2+6\,3^{\frac{1}{3}}\,U\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{1}{3}}+3^{\frac{1}{6}}\,\left(-3\,i+\sqrt{3}\right)\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{2}{3}}\right)}
$$

$$
C_2 = \frac{48\,\left(1+i\,\sqrt{3}\right)\,t^2+\left(3+3\,i\,\sqrt{3}\right)\,U^2-6\,3^{\frac{1}{3}}\,U\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{1}{3}}+3^{\frac{1}{6}}\,\left(-3\,i+\sqrt{3}\right)\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{2}{3}}}{48\,\left(1+i\,\sqrt{3}\right)\,t^2+\left(3+3\,i\,\sqrt{3}\right)\,U^2+6\,3^{\frac{1}{3}}\,U\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{1}{3}}+3^{\frac{1}{6}}\,\left(-3\,i+\sqrt{3}\right)\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{2}{3}}}
$$

$$
C_3 = \frac{-96\,i\,2^{\frac{1}{3}}\,\left(-i+\sqrt{3}\right)\,t^2-6\,i\,2^{\frac{1}{3}}\,\left(-i+\sqrt{3}\right)\,U^2+6\,i\,2^{\frac{1}{3}}\,3^{\frac{1}{6}}\,\left(36\,t^2\,U+\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{2}{3}}+12\,U\,\left(216\,t^2\,U+6\,\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{1}{3}}-2^{\frac{2}{3}}\,\left(216\,t^2\,U+6\,\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{2}{3}}}{96\,t\,\left(216\,t^2\,U+6\,\sqrt{3}\,\sqrt{-4096\,t^6-336\,t^4\,U^2-48\,t^2\,U^4-U^6}\right)^{\frac{1}{3}}}
$$

$$
C_4 = \frac{1}{2}
$$