$$
\begin{aligned}
\Psi_{227} &= C_1 \left(-|22du\rangle + |22ud\rangle + |2du2\rangle - |2ud2\rangle + |d22u\rangle - |du22\rangle - |u22d\rangle + |ud22\rangle\right) \\
&\quad + C_2 \left(-|2d2u\rangle + |2u2d\rangle + |d2u2\rangle - |u2d2\rangle\right)
\end{aligned}
$$

$$
C_1 = \frac{-i}{4}
$$

$$
C_2 = \frac{1}{2\sqrt{2}}
$$