$$\Psi_{25} = C_1 \left(|00du\rangle + |00ud\rangle - |0du0\rangle - |0ud0\rangle + |d00u\rangle + |du00\rangle + |u00d\rangle + |ud00\rangle \right)$$

$$C_1 = \frac{1}{2\sqrt{2}}$$