$$\Psi_{84} = C_1 \left(|0ddu\rangle + |0dud\rangle + |0udd\rangle + i\,|d0du\rangle + i\,|d0ud\rangle - |dd0u\rangle - i\,|ddu0\rangle - |du0d\rangle - i\,|dud0\rangle + i\,|u0dd\rangle - |ud0d\rangle - i\,|udd0\rangle\right)$$

$$C_1 = \frac{\frac{-i}{2}}{\sqrt{3}}$$