OFDM efficiency in IEEE 802.11a

- Assuming the highest error-correcting coding rate $\eta_C = 5/6,$ the total efficiency of OFDM is

$$\eta = \eta_C \eta_f \eta_t = \left(\frac{5}{6}\right)\left(\frac{48}{64}\right)\left(\frac{64}{80}\right) = \frac{5 \cdot 48}{6 \cdot 80} = \frac{1}{2}$$

where η_f and η_t denote the frequency (pilot tones) and time (cyclic prefix) efficiencies.

In the best case, only 50% of the resources are used for data transmission!!