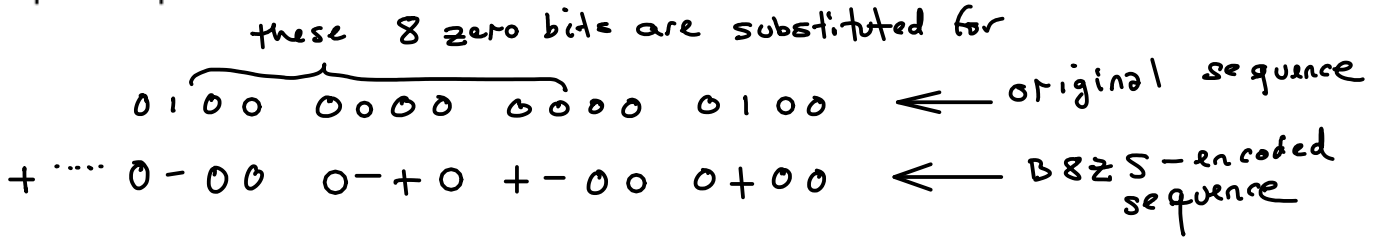
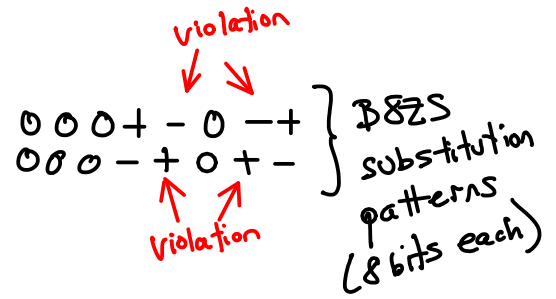


Lecture 11

Exercise 1: Convert the sequence 0100 0000 0000 0100 to a B8ZS waveform assuming the previous mark was transmitted as a positive pulse.



Exercise 2: How often do frame slips happen for an error of 10^{-11} ?

1ppm = 10^{-6}

frequency
 $24 \times 8 + 1 = \text{bits/frame}$
 $N = 193$

one clock 10^{-11} higher
 one clock 10^{-11} lower
 ΔR bit rate

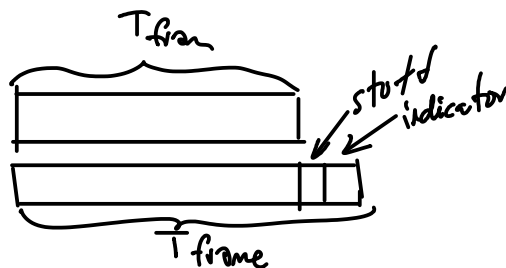
$$\Delta T = \frac{N}{\Delta R}$$

$$\Delta R = 2 \times 10^{-11} \times 1544 \times 10^6$$

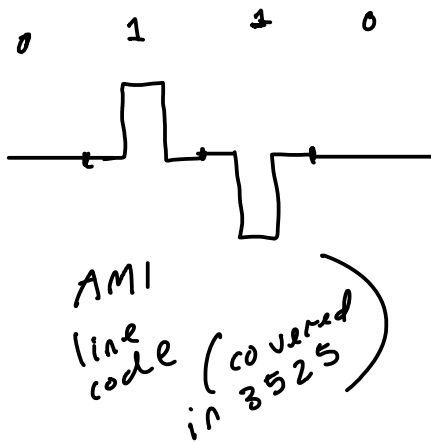
$$\Delta T \approx \frac{200}{3 \times 10^{-5}} \approx 70 \times 10^5 \text{ s.}$$

1 hr = 3600 s.
 1 day $\approx 8.6 \times 10^3$ s.

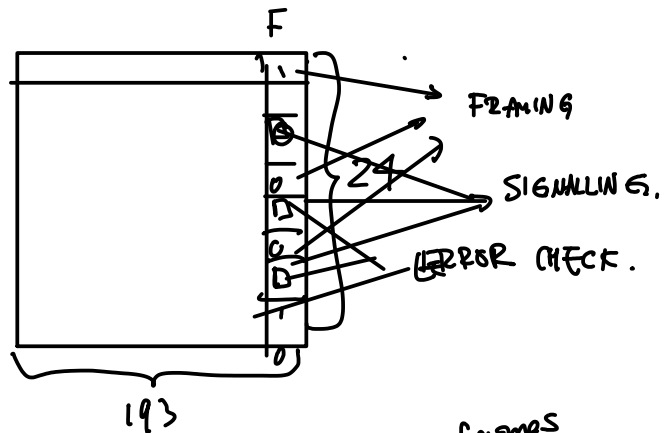
≈ 3 months,



T3 Method
 Optionally - used
 "stuff" bit



ESF
Extended
Super
Frame
format



24 TI frames
per ESF