

Pq. superamos f_{nr} ?

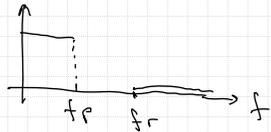
No ADC, facilita o filtro anti-aliasing

Exemplo: CD

$f_m = 20 \text{ kHz}$

$f_s = 4 \times 44100 = 176400 \text{ Hz}$

Problema: Determine f_p e f_r do filtro anti-aliasing mais simples possível



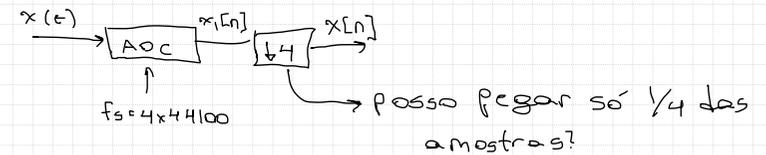
a) $f_p = 20000$
 $f_r = 88200$

b) $f_p = f_r = 20000$

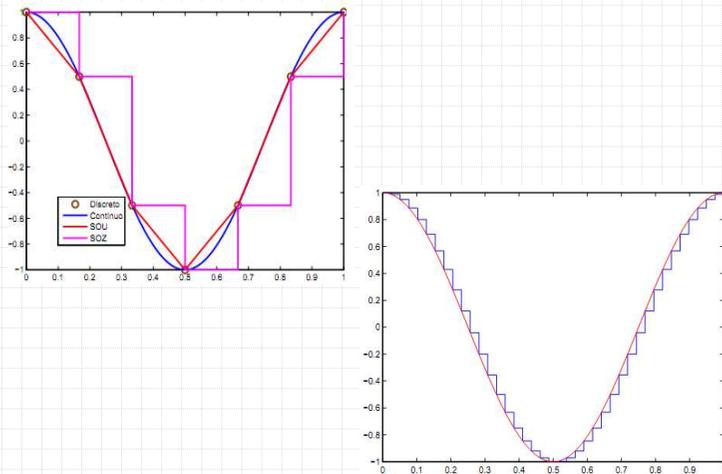
c) $f_p = 20000$
 $f_r = 176400$

d) $f_p = 20000$
 $f_r = 156400$

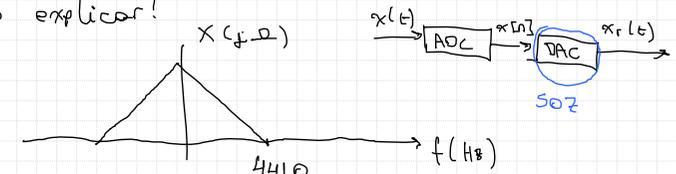
Conclusão: filtro mais simples do que é necessário com $f_s = 44100$, mas tenho 4 vezes mais amostras



Superamostragem simplifica DAC

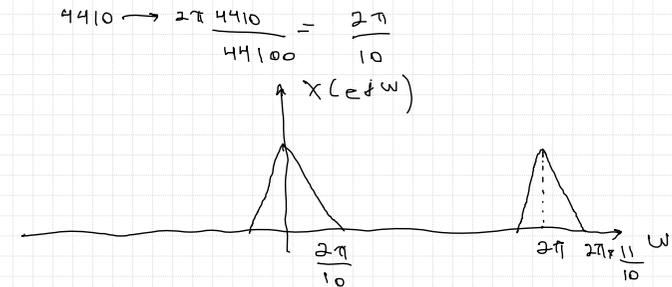


Como explicar?

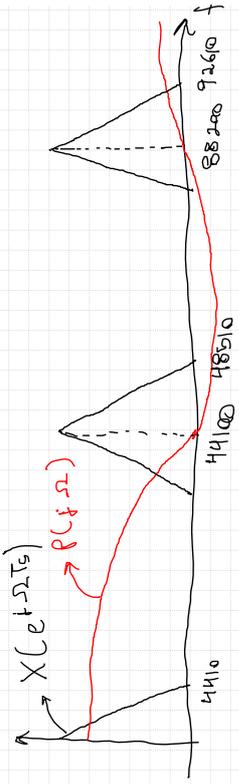


f) $f_s = 44100$

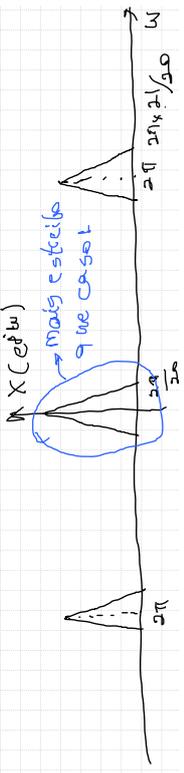
No futuro, colocar alternativa com P(f) cruzando em 4410.



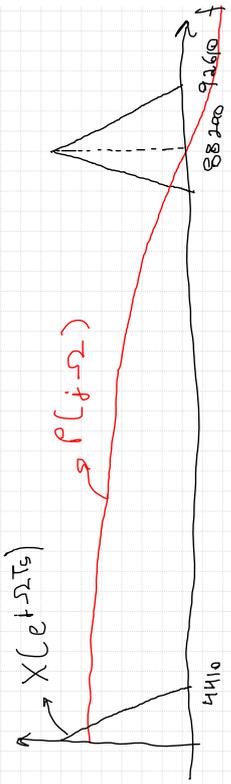
No reconstrução, 2π vira $f_0 = 44100$



Caso 2: $f_0 = 2 \times 44100 = 88200 \Rightarrow 44100 \rightarrow \frac{2\pi}{2T}$



No reconstrução, 2π vira $f_0 = 44100 \times 2 = 88200$



Menos distorção nas freqs. de interesse.
Freqs. em 44100 sumiram.