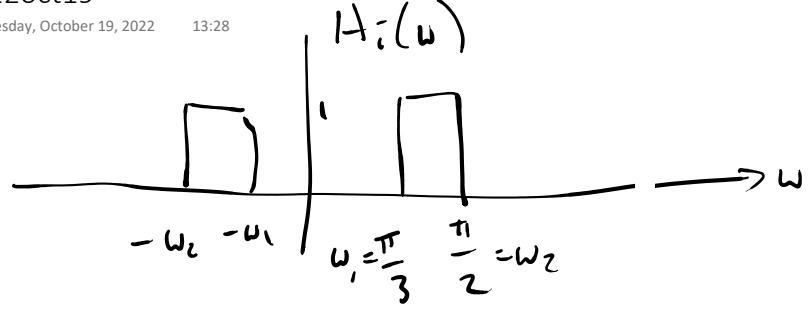
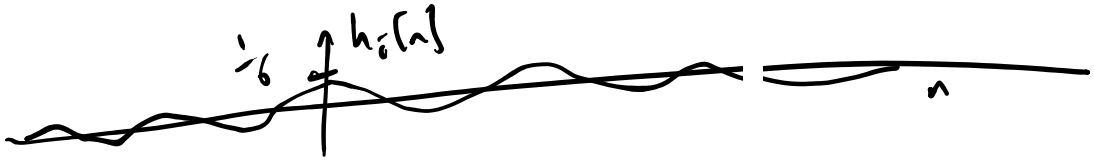
2022oct19

Wednesday, October 19, 2022 13:28




$$H_i(\omega) = H_{LPF}(\omega; \tfrac{\pi}{2}) - H_{LPF}(\omega; \tfrac{\pi}{3})$$

$$h_i[n] = \frac{1}{2}\,\mathrm{sinc}\left(\frac{\pi n}{2}\right) - \frac{1}{3}\,\mathrm{sinc}\left(\frac{\pi n}{6}\right)$$



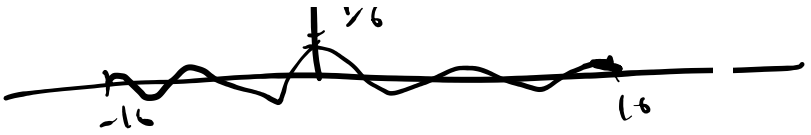

$2M+1 = 33$ samples

$M = 16$ samples

$$w[n] = 0.54 + 0.46\cos\left(\frac{2\pi n}{32}\right)$$

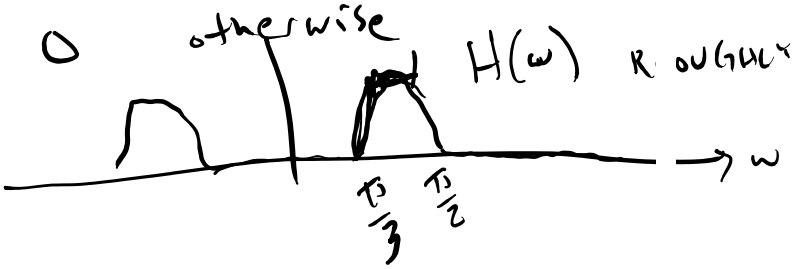
$\uparrow$ — $2M$

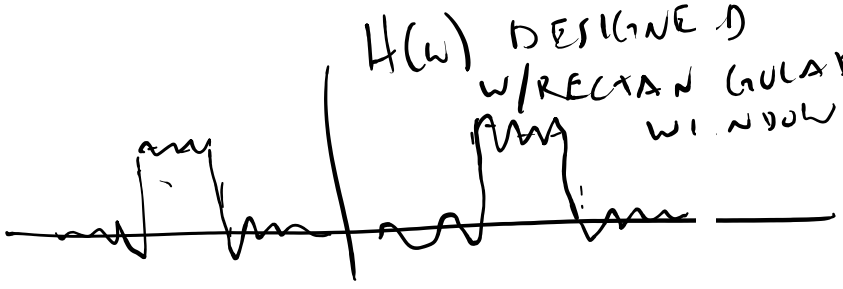
$$h[n] = h_i[n]\,w[n]$$




$$h[n] = h_i[n]\, w[n]$$

$$= \begin{cases} \left(0.54 + 0.46 \cos\left(\frac{2\pi n}{32}\right)\right) \times & -16 \le n \le 16 \\ \left(\frac{1}{2}\operatorname{sinc}\left(\frac{\pi n}{2}\right) - \frac{1}{3}\operatorname{sinc}\left(\frac{\pi n}{3}\right)\right) & \\ 0 \quad \text{otherwise} & \end{cases}$$




$$H(\omega) = \frac{1}{2\pi} H_i(\omega) * W(\omega)$$

1. STOP BAND RIPPLE
2. WIDTH OF TRANSITION BAND
3. PASS BAND RIPPLE