Digital Communications and Laboratory
Third Homework

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The following system was considered. A stream of QPSK symbols is upsampled with period T/4 and filtered with a filter q_c which output is $s_c\left(n\frac{T}{4}\right) = \alpha s_c\left((n-1)\frac{T}{4}\right) + \beta a'_{n-5}$.This signal is transmitted through the channel, which introduces the noise component $w_c\left(n\frac{T}{4}\right)$ with PSD $\mathcal{P}_{w_c}(f) = N_0$. Note that noise components are iid with $pmd \approx \mathcal{CN}(0, \sigma^2_{w_c})$