01QZD
Laboratorio di Internet e Comunicazioni

Comunicazioni

LAB #2

1. Simulate a 2-PAM systems with antipodal symbols and based on NRZ pulses.
   Consider the transmission in an AWGN channel.

   Evaluate the performance in terms of BER as a function of E_b/N_0 when operating at the optimum sampling instant for the case of:
   - Matched filter (optimum);
   - Single pole (RC) filter: $H(f) = \frac{1}{1+j\frac{f}{f_p}}$ where f_p is the pole frequency.
     - Consider three values for the pole frequency: $f_p = 0.5*R_S$, $f_p = 1.0*R_S$ and $f_p = 1.5*R_S$.

   BER must be evaluated through error counting.

Il diagramma ad occhio va fatto senza rumore

Plot the spectrum (PSD) of the signal at transmitter.

Plot eye diagram of the signals both at the transmitter and at the receiver.

Plot BER vs. E_b/N_0 obtained by simulation and compare it with theory.

2. Redo everything for the case of RZ pulses with DC=50%.