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Example with fading channel

Make a full transmission / reception, and plot signals on every step of the modulation

```
clc; clear; close all;
```

Parameters

```
mod_type = ModulationTypes.QAM;      % Modulation type.
M = 16;                               % Modulation order.
symbol_qtty = 1e4;                   % Amount of symbols to send.
L = 10;                               % Oversampling factor.
nTaps = 30;                           % Taps for pulse shaping FIR filters.
beta = 1;                             % Slope of the SRRC filter.
EsNo_dB = 20;                         % EsNo
```

Transmitter

```
d = randi([0, M-1], 1, symbol_qtty);
[u, constellation] = Modulator.modulate(d, mod_type, M);
v = Modulator.upsample(u, L);
[s, p, delay_tx] = Modulator.pulse_shaping_srcc(v, beta, L, nTaps);
```

Channel

```
[r, h_c] = Channel.add_awgn_noise(s, EsNo_dB, L);
```

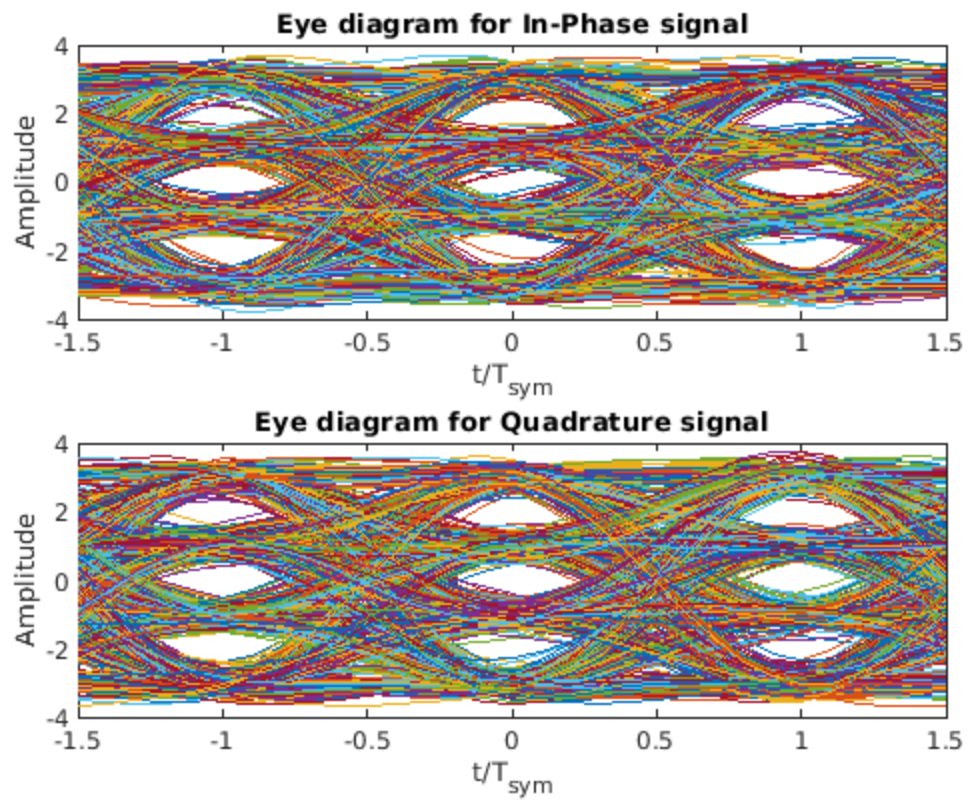
Receiver

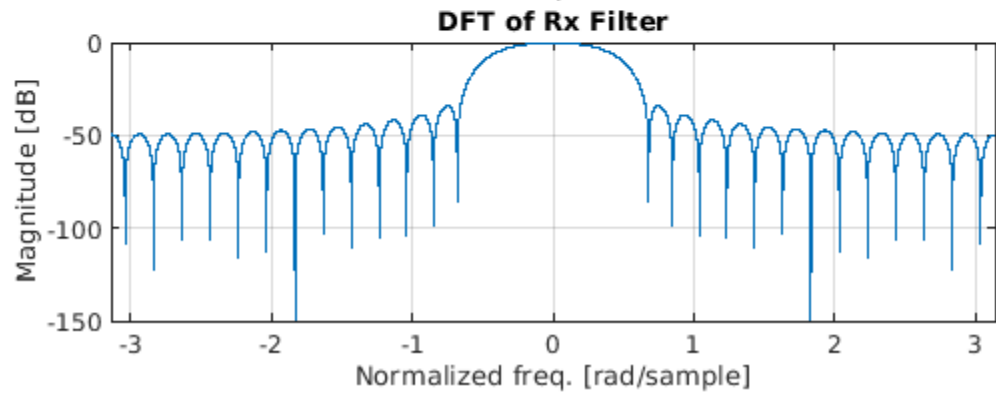
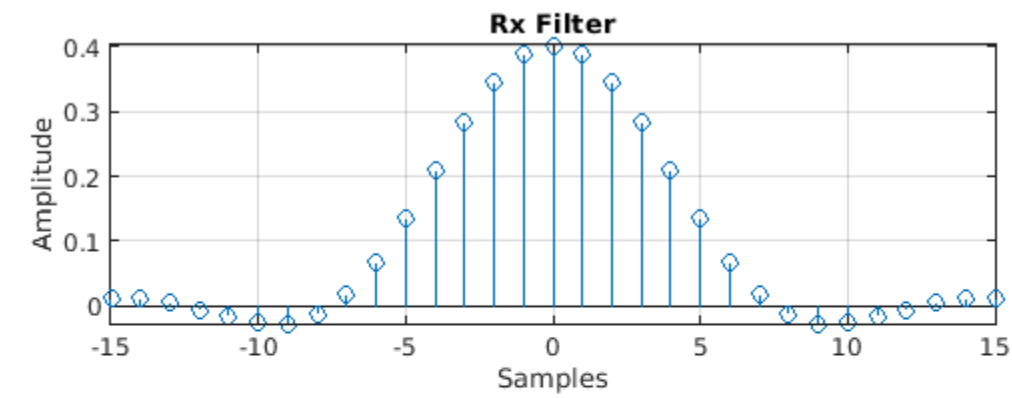
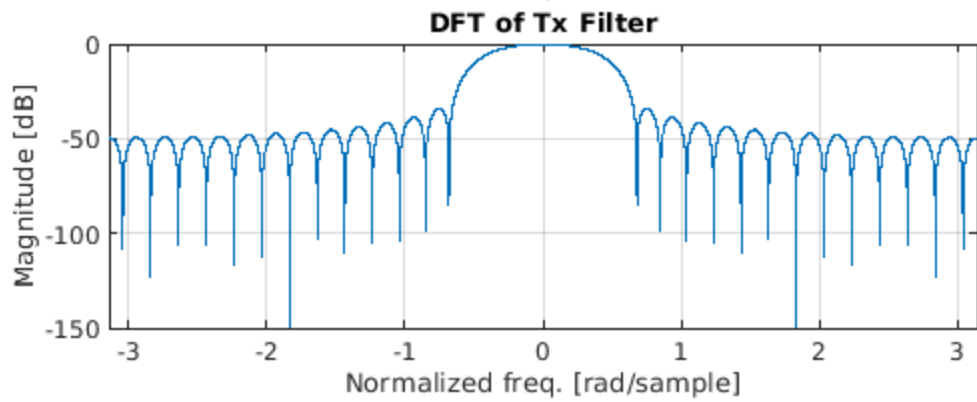
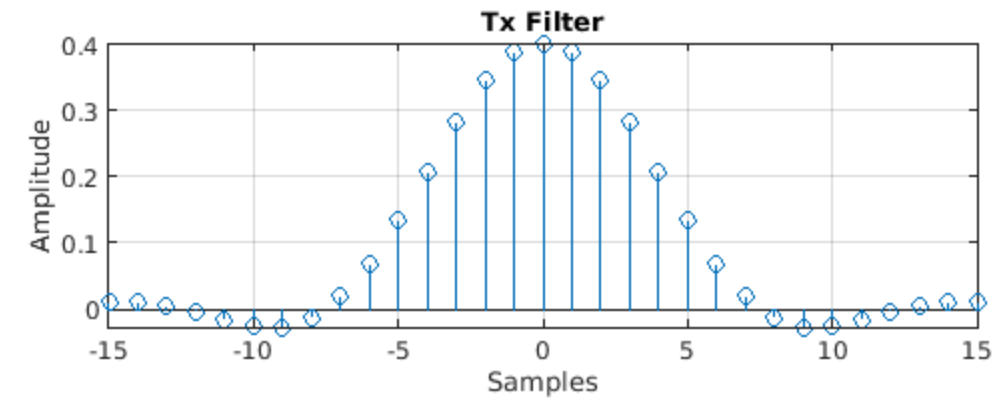
```
r = Demodulator.flat_fading_equalizer(r, h_c);
[v_r, g, delay_rx] = Demodulator.pulse_filter_srcc(r, beta, L, nTaps);
u_r = Demodulator.downsample(v_r, L, delay_tx + delay_rx);
d_r = Demodulator.demodulate(u_r, mod_type, M, constellation);
```

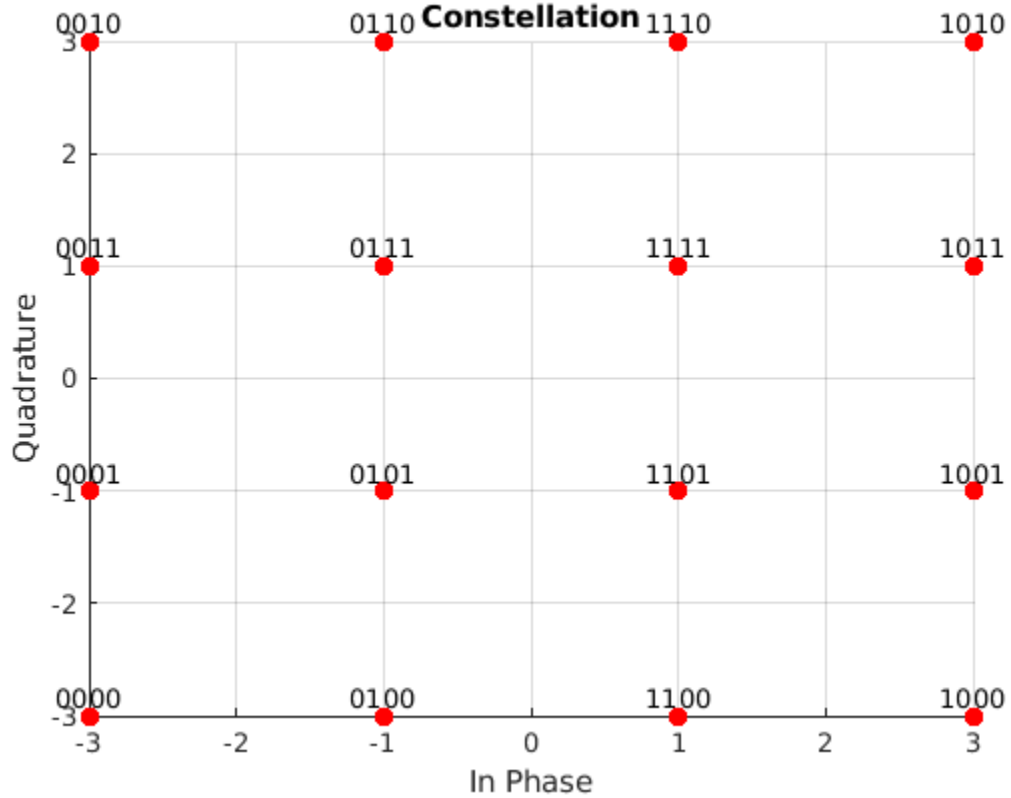
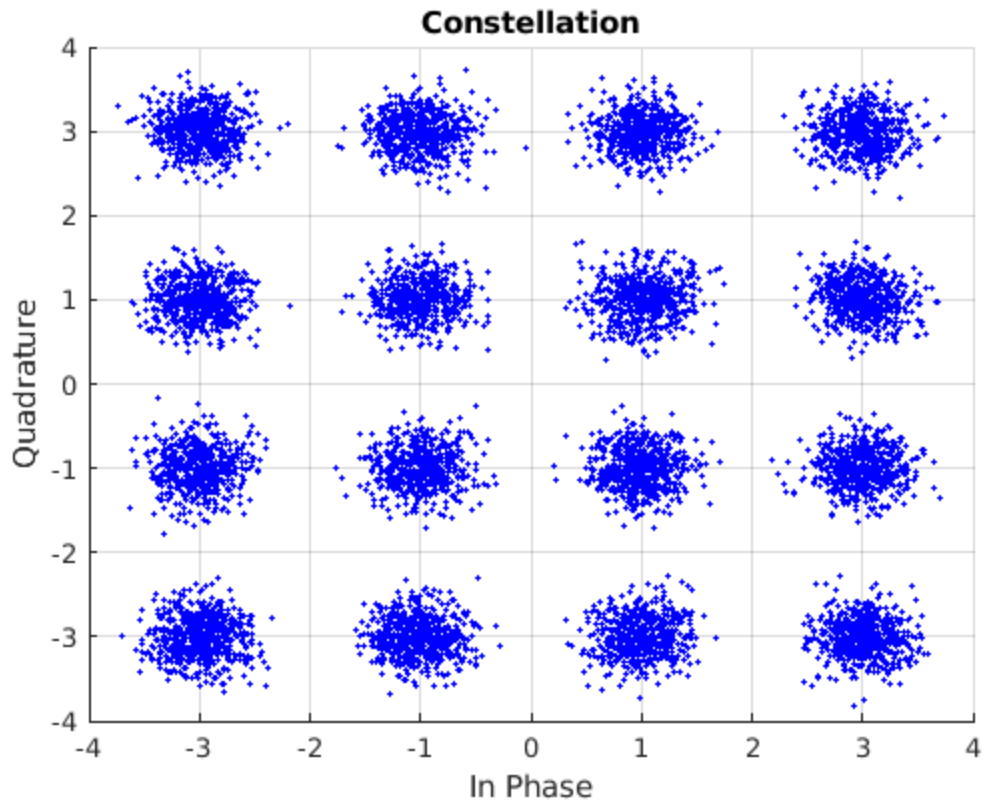
Plotting

```
Scope.plot_eye_diagram(v_r, L, delay_rx + delay_tx, 3, 1000);
```

```
Scope.plot_fir_filter(p, Title="Tx Filter");  
Scope.plot_fir_filter(g, Title="Rx Filter");  
Scope.plot_IQ(u_r);  
Scope.plot_constellation(constellation);
```







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