IEE1711 Applied signal processing

Exercise 3

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Matlab
Communication models: **Passband Modulation with Adjacent Channel Interference**

- Baseband and Passband models

- Passband Model in Matlab

Simulink Example:

https://www.mathworks.com/help/comm/examples/passband-modulation.html

Matlab example:

https://www.mathworks.com/help/comm/examples/passband-modulation-with-adjacent-channel-interference.html

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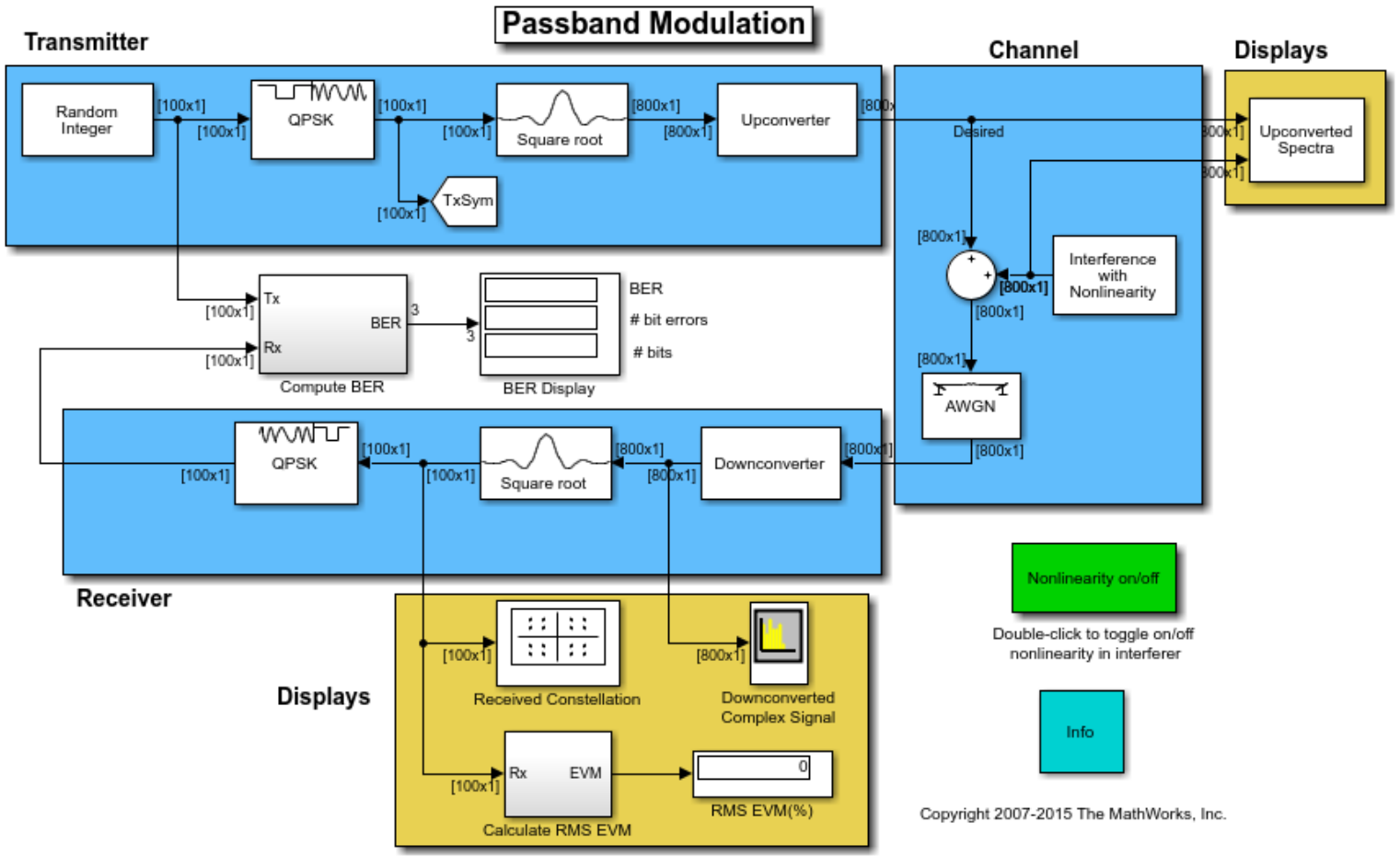
Task 1: Simulink Model:

Run: commpassbandmod



https://www.mathworks.com/help/comm/examples/passband-modulation.html

Task 2: Matlab script model (1)

- Open new script
- Read the manual

https://www.mathworks.com/help/comm/examples/passband-modulation-with-adjacent-channel-interference.html

- Generate random data
- Read the manual for qam16Mod(), find the output data format
- Read the Raised Cosine Filter manual https://en.wikipedia.org/wiki/Raised-cosine_filter

https://www.mathworks.com/help/comm/ref/comm.raisedcosinetransmitfilter-system-object.html

- Filter the baseband signal
- Plot the pulse shaped signal
- Do the frequency upconversion to the passband, plot the spectrum

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Task 2: Matlab script model (2)

- Model the passband transmitter , receiver and AWGN channel

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