

qBeam Comm Module for Altair Embed®

The Comm add-on module by *qBeam* extends Altair's Embed capabilities with a comprehensive block library for the design and simulation of analog and digital end-to-end communication systems at the signal or physical layer. Embed/Comm includes 200+ functional blocks in all the key categories for modelling communication systems, including modulators, demodulators, channel models, filters, distortion-true RF blocks, encoding and decoding blocks, and many others.

Embed/Comm meets my criteria for functionality, performance, price and easy learning curve. When I first started using Embed/Comm I was up and running on the project within 2-3 days. People thought I was a guru by the second week. The software pays for itself many times over by allowing me to perform tasks quicker and easier, leading us to get new consulting work. The BER simulations run fast.

Mark Tigerman
Advanced R&D
Technical Engineer

Features

- Support for analog, digital, and mixed-mode communication system design
- Extensive filter design support, including FIR, IIR, pulse-shaping, raised cosine, root-raised cosine, and arbitrary magnitude and phase filters
- Distortion-true RF elements
- Extensive phase-locked loops for receiver design
- Automated Bit Error Rate (BER) curve generation
- Estimation functions for signal power, mean, BER, variance, correlation, and time delay
- Visualization features include time domain plots, spectral plots, phase scatter plots, eye plots, BER curves, and filter response graphs
- Encoding and decoding blocks for implementing forward error correction to include convolutional codes, turbo codes, Reed-Solomon codes, and trellis codes among others
- Support for 802.11 a/b/g (Wi-Fi) and Bluetooth wireless standards
- Complex envelope notation for fast and efficient simulation runs

Content

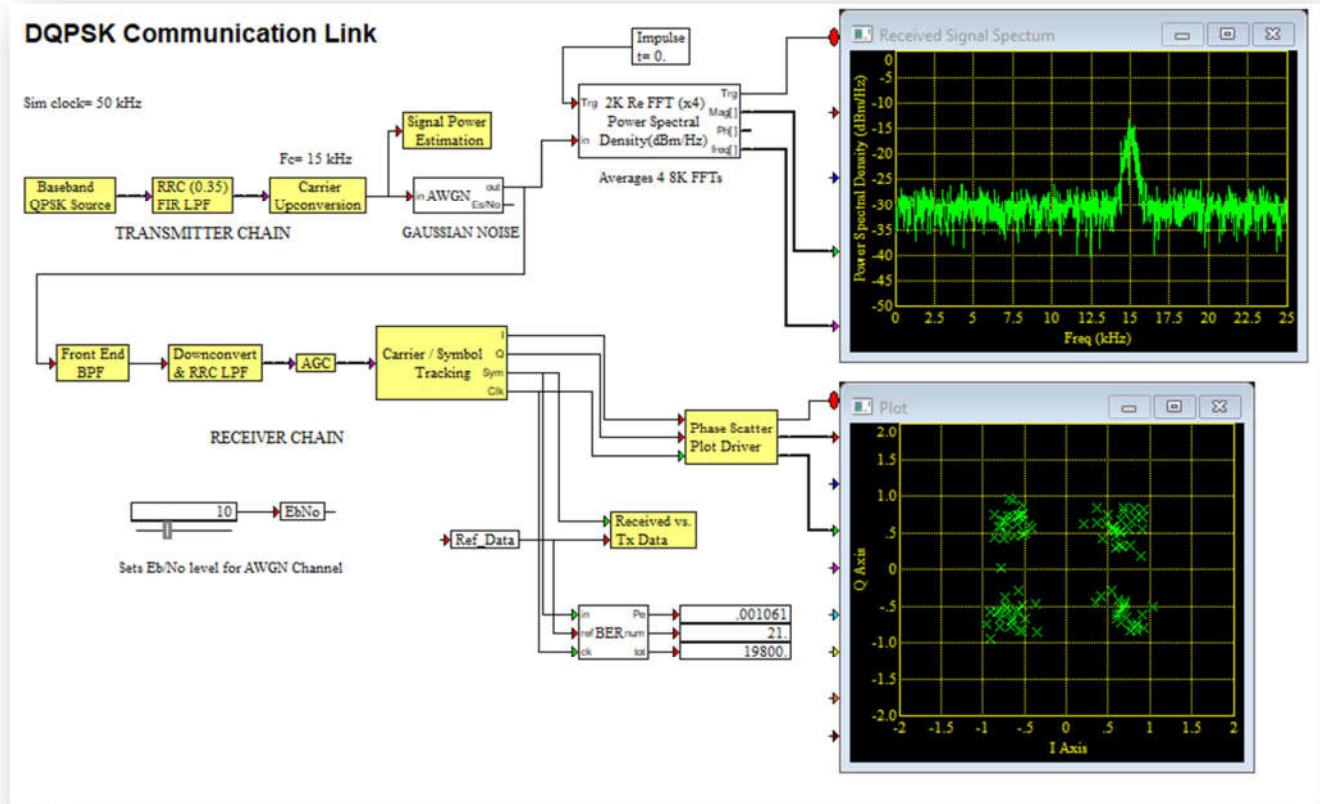
Embed/Comm provides a powerful rapid-prototyping environment for high tech industries where there is a need to simulate a variety of communication systems concepts, allowing you to efficiently perform "what if" scenarios before building any hardware.

Embed/Comm allows you to seamlessly move among the simulation, optimization, and validation stages of model construction. This means you can simulate and view signal waveforms at any phase of the communication system chain and generate accurate test waveforms.

Embed/Comm is equally suited for academic use by providing an excellent platform for visualizing the key aspects of communication systems and their associated signal processing concepts.

Application Areas

- Aerospace
- Automotive
- Digital Signal Processing
- Home automation
- Internet of Things
- Phase Locked Loops
- RF systems
- Satellite communications



EXAMPLE DIAGRAM: DQPSK Communication Link