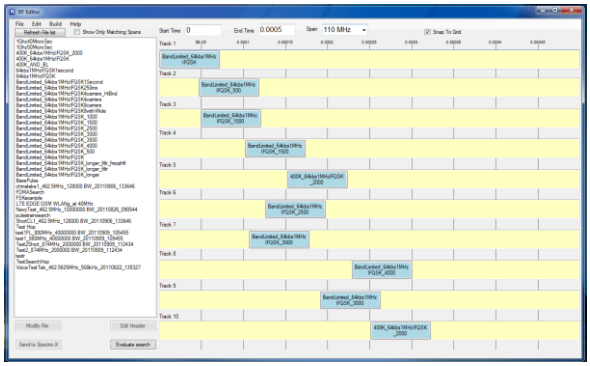
Spectrum Editing and Playback Solutions

X-COM Systems

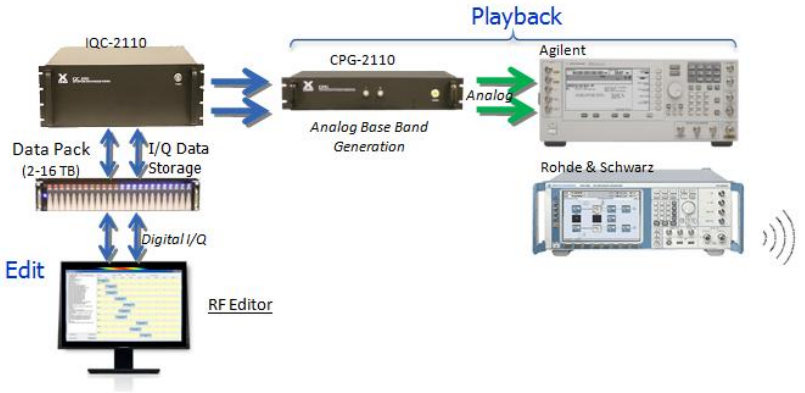
Signal Analyzers from leading suppliers such as Agilent, Rohde & Schwarz and Tektronix are plug-compatible with the X-COM IQC-2110 and, together, enable long time duration, gap-free, high fidelity recordings of RF Spectrum. Equally important to microwave engineers who design electronic warfare, surveillance, radar or other wireless equipment and systems is the ability to modify, and then playback the recorded spectrum. This enables stress testing communications systems under design or the quantification of equipment performance in the presence of non-ideal channel conditions.

Often, waveforms or spectrums that cause interference or intentional jamming are transient in time. A spectrum recording taken in-situ can provide an exact replica of the communications environment in which a system is designed to operate. However, the recording may not necessarily contain an interfering waveform which is transmitted only under specific circumstances, nor may it contain channel anomalies that are caused by dynamic multipath conditions or storms. The engineer may have other pieces of the complete spectral picture; other files that contain recordings of a jammer or waveforms created in MATLAB® that replicate an errant channel user. Or, the engineer may wish to add together phase shifted copies of an information frame with synchronization header to simulate a multipath environment.

The X-COM software program, RF Editor, through a highly intuitive, graphical user interface, gives the engineer powerful tools to edit and build RF spectrum. Recorded or created spectrum and waveforms are available to the user by name in a file list for manipulation in the frequency and time domains.



Once a file is selected, the user can filter, increase or decrease span, or shift the spectrum center frequency within the file span. Ten time tracks are used to position each spectrum in the time domain before, with a single mouse command, the individual spectrum are combined in to a new one. Using X-COM's SPECTRO-X, the result can be viewed and then exported in the XIQ, .bin, .mat, or .txt formats.



The newly created waveform is ready for playback at any center frequency within the capability of a Vector Signal Generator. As shown above, the file created in RF Editor is uploaded from the PC back to the Data Pack where it is stored for routing to the X-COM CPG-2110 Continuous Playback Generator. Analog I & Q waveforms are the output of the CPG-2110 and these are directly connected as inputs to the Vector Signal Generator for Over-The-Air playback. Once the file is stored on the Data Pack, the user has the option to playback all or a portion of the file with start and stop time resolution at the sample level. The CPG-2110 is directly compatible with VSGs from Agilent and Rohde & Schwarz.

The X-COM CPG-2110 and VSGs from industry leading vendors provide RF engineers a flexible tool to playback RF spectrum that are combinations of created and recorded waveform. Both provide intuitive user interfaces for rapid test configuration setup. The result is a better understanding of how a device or system under design will function in the actual channel environment before deployment.