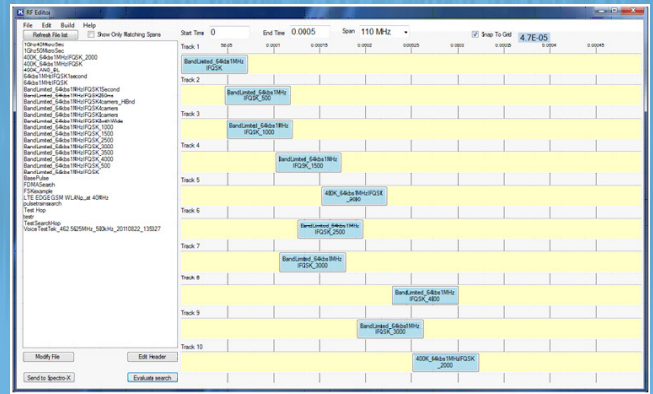




# Bird®

## RF Editor

### Graphical RF Signal Editor



The RF Experts

RF Editor is a drag-and drop graphical editing tool that lets you easily modify I&Q signals of any length or create entirely new ones. It's an invaluable tool for modifying and building signal waveforms in the time and frequency domains and is integrated with Spectro-X signal analysis software.

RF Editor's utility spans from defense applications such as creating simulated signal threat scenarios, to laboratory, production and field testing of communications, EW, radar systems, and emerging technologies such as 5G using custom stimulus signals.

#### Flexible, Versatile Editing

RF Editor lets you make a broad range of frequency domain signal modifications and move any signal or slice of spectrum anywhere among 10 time domain tracks in the recording, creating a new recording designed to accomplish specific goals. Snippets of recorded data can be dragged and dropped onto any of the tracks, and can be repeated, lengthened or delayed, filtered, and shifted in frequency before playback.

Once all waveform segments are in place, a new composite waveform file can be built with a single mouse click. Using the files in Spectro-X is as simple as selecting the waveform in the RF Editor file list, and with a single mouse click bringing the entire file or a portion of it into Spectro-X for viewing and analysis.

#### Designed for Efficiency and Versatility

The software's Advanced Modify window allows operations to be performed sequentially and automatically. Within this window, you can shift frequency, perform file decimation by any integer value, apply a filter with a bandwidth as narrow as 10% of the decimated signal span, and interpolate a new span to adjust occupied bandwidth. Along with the flexibility to align the frequency domain modified files on 10 different time tracks, RF Editor is unsurpassed in efficiency when creating custom waveforms for specific applications and needs.

RF Editor can work on files from either the IQC5000B or IQC91000A Spectrum Capture and Playback Systems, hardware from other manufacturers, or waveform segments created from MATLAB. Once modified in RF Editor and analyzed in Spectro-X, they are available to be sent to IQC5000B or IQC91000A Spectrum Capture and Playback Systems for direct playback or output to any vector signal generator.

#### APPLICATIONS

Electronic Warfare: Modify captured radar, jamming, and communications signals to create countermeasures.

Wireless Communications Testing: Evaluate satellite and terrestrial voice and data equipment and networks.

Radar Testing: Create waveforms to analyze system effectiveness.

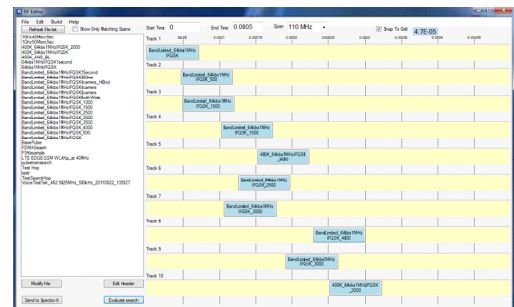
Spectrum Monitoring: In conjunction with Spectro-X, analyze and modify signals of interest such as interferers in unauthorized spectrum.

# RF Editor

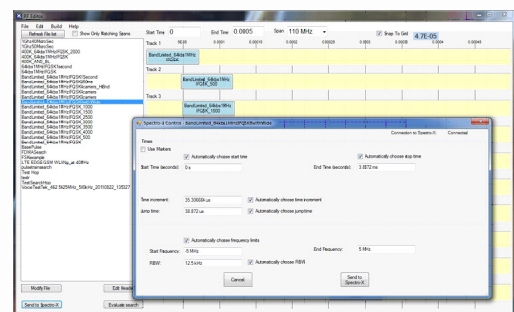
## Graphical RF Signal Editor

### RF EDITOR FEATURES AT A GLANCE

- Quickly build signal libraries using menu-driven filters, decimation and interpolation, and frequency-shifting functions.
- Build custom waveforms using search results from Spectro-X. Select non-contiguous waveform segments from search results and stitch them into a custom waveform.
- Change time duration and time track position of waveform segments with drag and drop mouse operation and simple menu inputs.
- Make a broad range of frequency domain signal modifications or move any signal or slice of spectrum anywhere among 10 time domain tracks to create a new file designed to accomplish specific goals.
- Use spectrum stored in the IQC5000B or IQC91000A Spectrum Capture and Playback Systems, hardware from other companies, or user-created waveform segments from MATLAB.
- Send digital signal files to the IQC5000B or IQC91000A Spectrum Capture and Playback Systems for conversion to analog form and then to a vector signal generator for output at any frequency.
- Presets allow quick frequency shifting and span adjustment.
- Adjust power levels of each signal with resolution greater than 0.1 dB.
- Reduce signal span with a simple decimation operation.
- Replicate and offset spectrum from the original by the amount of frequency shift you choose.
- Extend waveform segment duration by right-clicking the waveform on its track and modifying its end time.
- Fast drag-and-drop placement and alignment of signals in the time domain.
- Apply bandpass filters to waveform segments with a 3-dB passband as a percentage of the capture bandwidth of the signal.
- Advanced Modify window lets you perform multiple simultaneous operations, such as shifting frequency, performing file decimation by any integer value, applying a filter with a bandwidth as narrow as 10% of the decimated signal span, and interpolating a new span to adjust occupied bandwidth.
- Apply linear or file-driven time domain magnitude profiles to signals at the beginning and end of waveform segments or between consecutive signals to avoid frequency domain spreading.



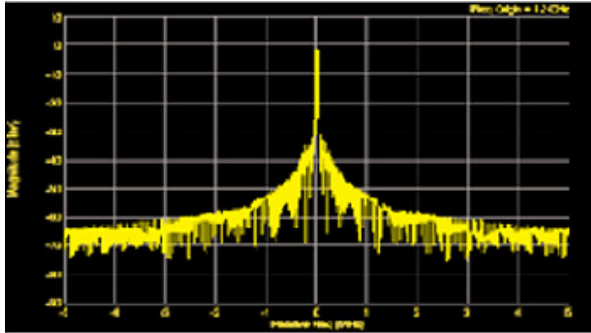
RF Editor's drag and drop simplicity streamlines complex tasks



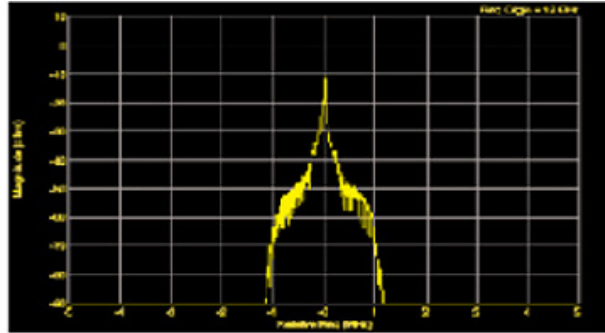
Seamless integration with Spectro-X lets you combine analysis and waveform file modification

# RF Editor

## Graphical RF Signal Editor

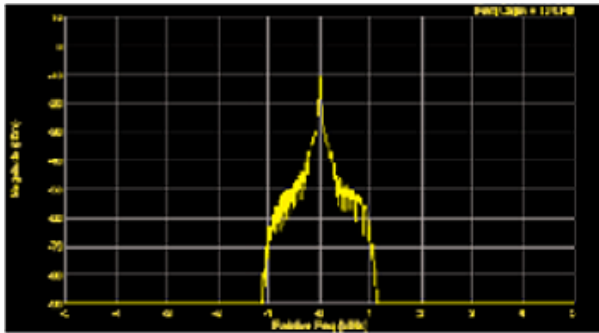


**Original**

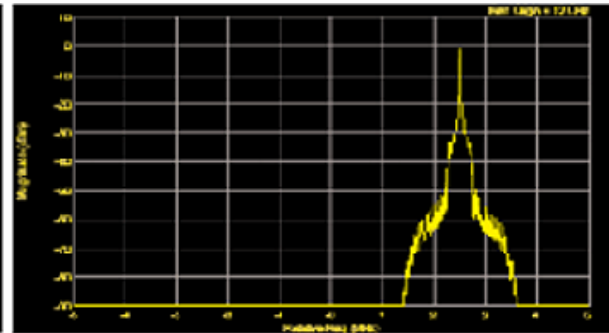


**Filtered**

Apply bandpass filters to waveform segments with a 3-dB passband that is a selected percentage of the file's capture bandwidth.

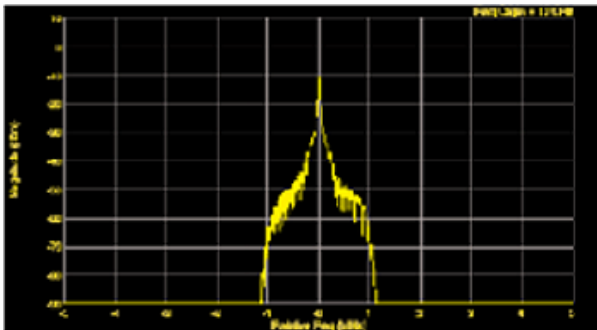


**Original**

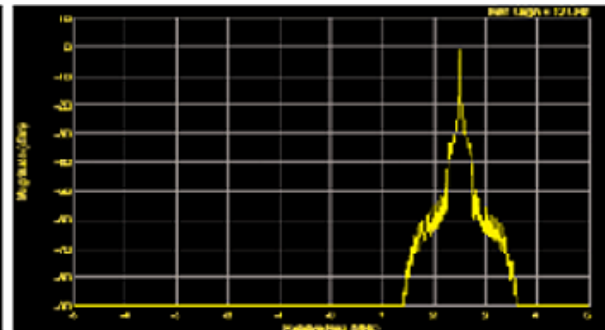


**Shifted**

Spectrum can be replicated and offset from the original by an amount you specify.

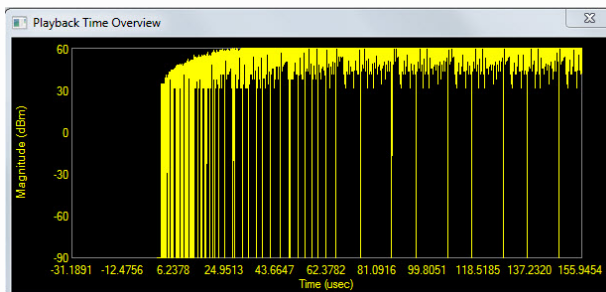


**Original**

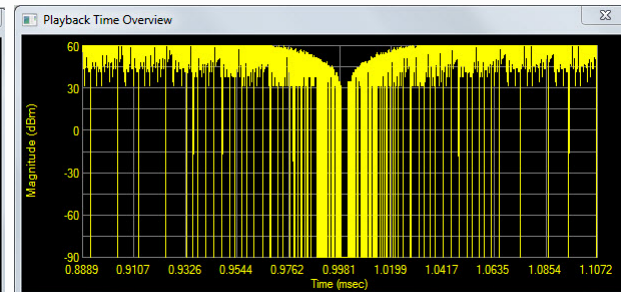


**Attenuated**

Power levels of each signal can be adjusted with resolution finer than 0.1 dB.



**Beginning ramp**



**Repeating ramp**

Apply ramp functions to beginning and end of waveform segments to minimize frequency splatter

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### RF EDITOR SPECIFICATIONS

<b>Input and output file formats</b>	XDAT, XIQ, TIQ, MATLAB
<b>Filtering</b>	Bandpass: Ripple less than 0.001 dB Bandstop: Rejection greater than 80 dB
<b>Filter parameters and characteristics</b>	Filter type, start frequency (Hz), stop frequency (Hz)
<p>RF Editor Band Pass Filter Characteristics (Invert for Band Stop)</p> <p>a = Filter percentage * file sample rate (Hz)</p>	
<b>Waveform editing</b>	<p>Interpolation/decimation: User specified span change; integer ratio required between initial and final spans.</p> <p>Frequency shifting: Replication and offset from original frequency by user specified amount (1Hz resolution).</p> <p>Signal duration: Length and duration of sample file; single sample time resolution.</p> <p>Signal level adjustment: Scalar multiplier on I&amp;Q magnitudes. If resulting magnitude &gt; 32,767, all sample files are scaled by a fixed amount to maintain relative levels.</p> <p>Multiplier is then applied to selected file</p> <p>Time tracks: Up to 10</p>
<b>Magnitude ramping</b>	Straight line slope over user-specified number of samples or user-created functions stored in file (single precision, float). Apply to spectrum segment beginning and end or in between repeated segments.
<b>Computer requirements</b>	Windows 7 (32 bit minimum, 64-bit recommended), 10 Mbytes free space on OS drive, USB 3.0 or eSATA, mouse or trackball, 1 GByte RAM (required, 2 GBytes or more recommended)

**ПРОМТИМ**  
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Graphical-RF-Signal-Editor-RF-Editor-02282018