RF Spectrum Recording and Analysis

Agilent Technologies and X-COM Systems

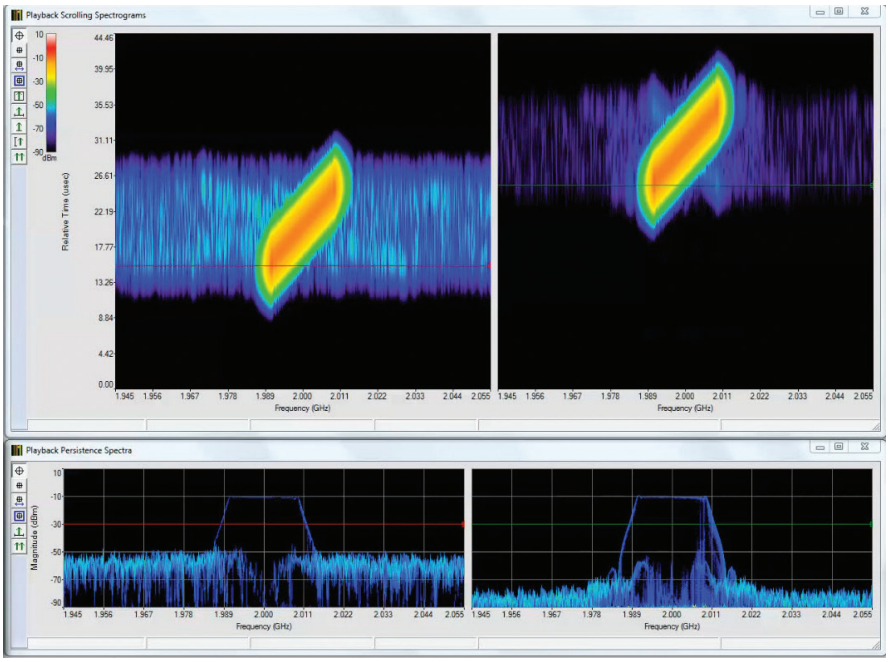
Troubleshoot elusive or intermittent events with advanced RF spectrum recording and analysis.

The ability to capture and store RF signals and then perform detailed spectrum analysis is critical for RF and microwave engineers who design electronic warfare, surveillance, radar or other wireless equipment and systems. Now, by combining RF recording solutions with advanced spectrum analysis software you can troubleshoot your RF signals in detail over an extended period of time.

Current generation signal analyzers create a high fidelity window through which the RF spectrum is viewed. They can digitize, in real time, input signals into digital I & Q samples and, through mathematical transforms, present spectrum views that capture a detailed time slice across a full 40 MHz of bandwidth.

However, due to processing loads and available memory, the time slice is relatively short, of the order of a few seconds or less. In addition, once the spectrum analyzer begins the transform and display processing, it cannot capture another time slice until it has completed the task. This means that long duration RF signal streams cannot be fully recorded and as a result critical but elusive or intermittent events may be missed.

The X-COM Systems IQC5000A spectrum capture & playback system allows the simultaneous recording of up to two RF signals over an extended period of time. Depending on the capture bandwidth, the recording can be many hours in length. The system is plug compatible with the



Agilent PXA, MXA or EXA signal analyzers that utilize the digital bus output option. Together they offer a high fidelity system to continuously record two channels of RF spectrum centered at independently tuneable frequencies by the signal analyzers, each with 40 MHz of bandwidth.

The time period over which the RF capture bandwidth is stored is only dependent on the amount of IQC5000A internal memory (2 TB max in steps of 0.5 TB) and size of the disk array connected to the IQC5000A. Using 2 TB of internal memory and a 16 TB disk array, 88 hours of capture

- ***Multi-channel RF capture of long duration signals, up to many hours***
- ***Advanced spectrum analysis software***
- ***Interfaces to Agilent PXA, MXA and EXA signal analyzers***
- ***Interfaces to Agilent 89600B signal analysis software***
- ***Troubleshoot elusive or intermittent spectrum events***

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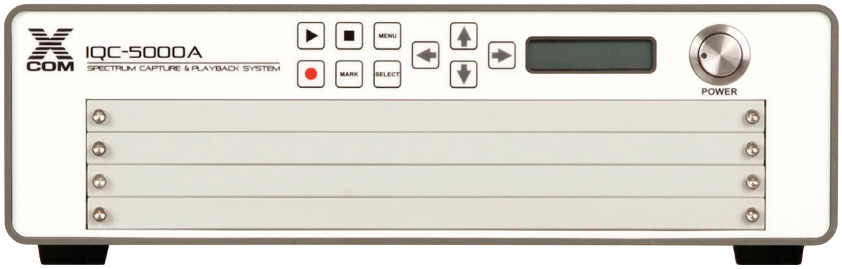

time is possible at a 10 MHz bandwidth and over 22 hours at the full 40 MHz capture bandwidth. If two channels are recorded simultaneously, each 40 MHz capture can be 11 hours in duration.

Once the RF signals are captured they can be investigated with X-COM's spectrum analysis software, Spectro-X multi-channel signal analysis toolkit. Spectro-X provides multi-domain, multi-channel, simultaneous visualization of the recorded spectrum, which can be played, re-played, paused or stopped. The software can present multiple views of the spectrum including two dimensional displays of amplitude vs. time and frequency vs. time; three dimensional displays of power frequency and time or magnitude, frequency and persistence; phase, real & imaginary and histograms. The user can place an unlimited number of data markers in the display windows which can then be used as references for time, frequency and power measurements.

With Spectro-X you can search for, clip and store the occurrences of modulated carriers, standardized wireless waveforms or user-defined, arbitrary waveforms of interest. Once found, the specific spectrum occurrences can be exported to the Agilent 89600B vector signal analysis software for further quantification, up to the level of digital demodulation and error vector measurements.

When used with the X-COM Systems IQC5000A spectrum capture and playback system and the Spectro-X multi-channel signal analysis toolkit, Agilent signal analyzers give you all the tools you need to troubleshoot elusive or intermittent events in devices and systems that operate in complex, and sometimes hostile communications environments.

System Components

Agilent Technologies

E8267D PSG vector signal generator,
or
N7182B MXG vector signal generator,
or
N5172B EXG vector signal generator

X-COM Systems

IQC5000A Spectrum capture and playback system

IQC5000A-042 Adds second channel recording and playback

Solid state, internal memory blade (2 TB max, 0.5 TB per blade), external data pack interface adapter and 8 or 16 TB external disk also available.

To learn how this solution can address your specific needs please contact Agilent's solutions partner, X-COM

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Agilent Solutions Partner Program
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X-COM Systems designs RF signal recording, analysis and playback solutions for system design, signal simulation and test applications.
www.xcomsystems.com

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