RF Signal Recording and Analysis

Keysight Technologies and X-COM Systems

Troubleshoot elusive or intermittent events with RF signal recording and analysis.

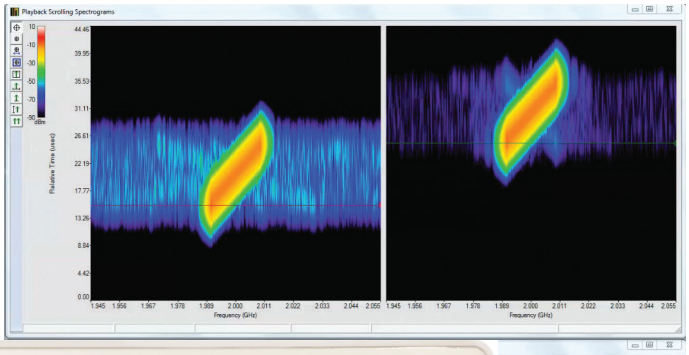
The ability to capture and store RF signals and then perform detailed spectrum analysis is critical for RF and microwave engineers who design electronic warfare, surveillance, radar or other wireless equipment and systems. Now, by combining RF recording solutions with advanced spectrum analysis software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

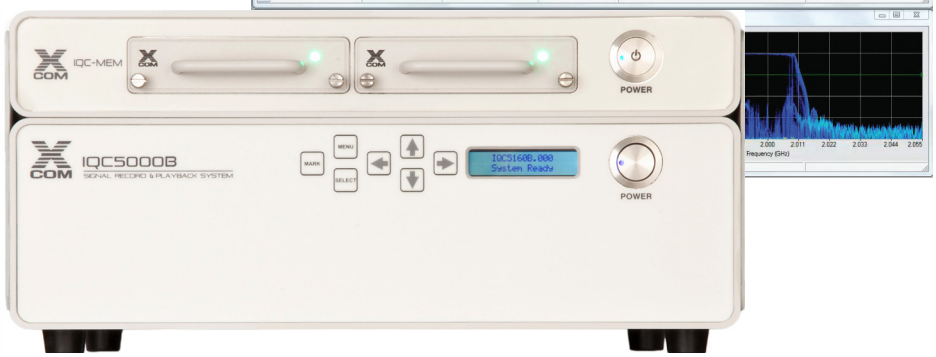
Current generation signal analyzers create a high fidelity window through which the RF spectrum is viewed. They can digitize, in real time, input signals into digital I & Q samples and, through mathematical transforms, present spectrum views that capture a detailed time slice across a full 255 MHz of 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 IQC5000B Signal Record & 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 Keysight UXA, 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 independent frequencies with up to 160 MHz of bandwidth per channel.

- Multi-channel RF capture of long duration signals, up to many hours
- Advanced spectrum analysis software
- Interfaces to Keysight X-series signal analyzers
- Interfaces to Keysight 89600B signal analysis software
- Troubleshoot elusive or intermittent spectrum events





KEYSIGHT TECHNOLOGIES

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The time period over which the RF capture bandwidth is stored is only dependent on the amount of IQC5000B internal memory (4 TB max) and size of the disk array connected to the IQC5000B. Using a 15 TB disk array, 80 hours of record time is possible at a 10 MHz bandwidth and over 3 hours at the full 255 MHz capture bandwidth. If two channels are recorded simultaneously, each 160 MHz capture can be 2.5 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, multichannel, 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 spectrum occurrences can be exported to the Keysight 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 IQC5000B signal record and playback system and the Spectro-X multichannel signal analysis toolkit, Keysight 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

Keysight Technologies

N9040B	UXA signal analyzer, o
N9030B	PXA signal analyzer, or
N9020B	MXA signal analyzer, or
N9010B	EXA signal analyzer

X-COM Systems

IQC5255B	Signal record and playback system
IQC5000B-ME2	Internal RAID0 SSD disk storage: 2 TB.
IQC5000B-S15	External RAID0 SSD external disk storage: 15 TB.

To learn how this solution can address your specific needs please contact Keysight's solutions partner, X-COM
www.keysight.com/find/xcom

Keysight & Solutions Partners
Extending our solutions to meet your needs

Keysight and its Solutions Partners work together to help customers meet their unique challenges, in design, manufacturing, installation or support. To learn more about the program, our partners and solutions go to
www.keysight.com/find/solutionspartner

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

For information on Keysight Technologies' products, applications and services, go to
www.keysight.com

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