**SPECTRUM MONITORING AND RECORDING**

Crystal Spectrum, through virtual spectrum analyzers, controls RF Switches & Routers and Spectrum Analyzers to provide a hands-off method of continuous monitoring of multiple RF space segments.

Crystal’s **Virtual Spectrum Analyzer (VSA)** accomplishes RF monitoring by:

- Connecting to (and possibly sharing time on) a Real Spectrum Analyzer
- Comparing Trace Mask Limits
- Calculating Carrier Parameters
- Automating Recordings of Traces
- Generating Alarm Notifications
- Triggering Automated Actions

Crystal Spectrum controls RF Switches & Routers and Spectrum Analyzers to:

- Route RF to Real Spectrum Analyzers
- Tune and Configure the Real Analyzers
- Send data from the Real Analyzer to a VSA
- Enable a VSA to display up to 3 RF sources, simultaneously
- Manage Time Sharing of the Real Analyzers

Play back of **recorded** traces is accomplished through Crystal’s Web Interface using standard web browsers. This interface enables not only viewing and navigation of all recorded traces, but also the ability to download recordings as a video clip for further investigation.
CARRIER MONITORING

Crystal Spectrum makes it easy and economical to monitor multiple carriers. The carriers might be up full time, during schedule times of the day/week, or up only occasionally for extended periods of time. Crystal Spectrum is always watching for:

- Power Shifts
- Interference
- Compression
- Drift or Encroachment

This type of hands-off monitoring is well suited for Direct-To-Home Video, Carriers Distributing TV, Contribution Video links, many Narrow-Band Data or Audio SCPC Carriers (requires MC Option), and Wide-band data carriers.

Currently, Crystal Spectrum is not well suited for TDMA in-bound VSAT carriers or signal under carrier analysis.

SATELLITE ACCESS

If you work with SNG Trucks or OB Vans, then handling their access to your satellite capacity could help your operations be quicker and smoother. Since a Crystal Spectrum VSA can save/recall a number of spectrum analyzer configurations and display both polarities of a satellite, Crystal Spectrum can simplify the satellite access procedure. You’ll quickly know if a remote truck or van has their cross pol, frequency, and power level set properly.

*VSAs can display both polarities of a satellite at the same time.*
SPECIFICATIONS

Crystal Spectrum commands RF switches & routers, tunes spectrum analyzers, waits until a sweep can occur, reads the trace data from the spectrum analyzer, passes the trace data to the correct VSA, and the VSA handles limit calculations, alarm activation, and recording.

Measured parameters for detected carriers include:
- Average Power
- Power at the Center Frequency
- Carrier to Noise Level
- Noise Floor
- Carrier Start and Stop Frequencies
- Allocated and Occupied Bandwidths

Virtual Spectrum Analyzers provide:
- 100+ Preset Configurations
- 8 Trace Mask Limits
- 4 Deviation Limits for each Carrier Parameter
- Hundreds of hours of recordings
- Max/Min Hold
- 3 Simultaneous Trace Displays
- 2 Markers, with Delta Calculations
- Display of Carrier ID (when using an external CID detection system or device)
- MC Option provides for power detection of Multiple Carriers per space segment

Crystal Spectrum supports Spectrum Analyzers made by:
- Keysight®/Agilent®/HP®
- Rhode Schwarz®
- Tektronix®
- Avcom®
- LP Technologies®
- SED®
- DTI®
- Anritsu®
- Advantest®
- Others, as needed

Each Spectrum Analyzer can nominally support 12 VSAs.
The RF parameters are dictated by the chosen spectrum analyzer, as is the number of trace updates, however, 10 traces per second is typical.

Crystal Spectrum supports RF Switches & Routers made by:
- ETL®
- DEV®/Quintech®
- Specialty Microwave®
- Any Relay-Controlled Switch
- Others, as needed