



CRYSTAL™
Wherever Content Flows...



PHASE®

SPECTRUM MONITORING AND RECORDING

➤ **EXAMINE. MONITOR. LEVERAGE.**

Crystal Spectrum Monitoring & Recording (SMR) is an affordable, easy-to-use spectrum monitoring system ideally suited for the Satellite Industry.

Crystal Spectrum Monitoring & Recording uses a single spectrum analyzer to monitor multiple RF sources. It can work as a stand-alone solution or, when easily integrated with Crystal Solutions' leading Network Management System plus automation (NMS+), SMR can react to detected anomalies and automatically route affected signals to advanced analysis devices for further investigation or even reconfigure earth station equipment to activate an alternate path to restore services.

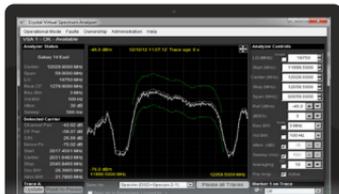
 **CRYSTAL**
SPECTRUM



➤ SPECTRUM MONITORING & RECORDING

Crystal Solutions SMR works with virtually all-commercial spectrum analyzers to provide:

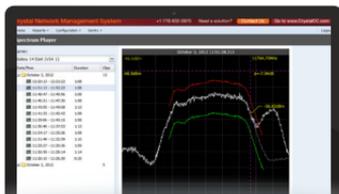
- Auto-anomaly detection and notification (audible, visual, via email) for immediate attention and resolution of serious problems.
- A common interface overlay to multiple spectrum analyzer types (the user sees the same easy-to-use interface regardless of the specific type of spectrum analyzer under control).
- SMR offers a flexible, affordable approach to spectrum monitoring while still providing the user a full set of monitoring tools. In addition, SMR is vendor agnostic: Advantest®, Agilent®, Anritsu®, AVCOM®, Dominion Test Instruments® (“DTI”), LP Technologies®, Narda®, Rohde and Schwarz®, and Tektronix® are all supported.



➤ Spectrum Analyzer



➤ Channel Power Limits



➤ Network Management System

➤ KEY FEATURES

Interactive Spectrum Analyzer control – one or more users may view, monitor and control local or remote spectrum analyzers. Users working with a common spectrum analyzer can simultaneously view different measurements on different segments of a spectrum or different switch ports.

Background Monitoring – measures transponders and carriers behind the scenes.

- Monitoring for alarm conditions, logging and trending for later analysis takes place, even when the monitored spectrum is not being viewed.

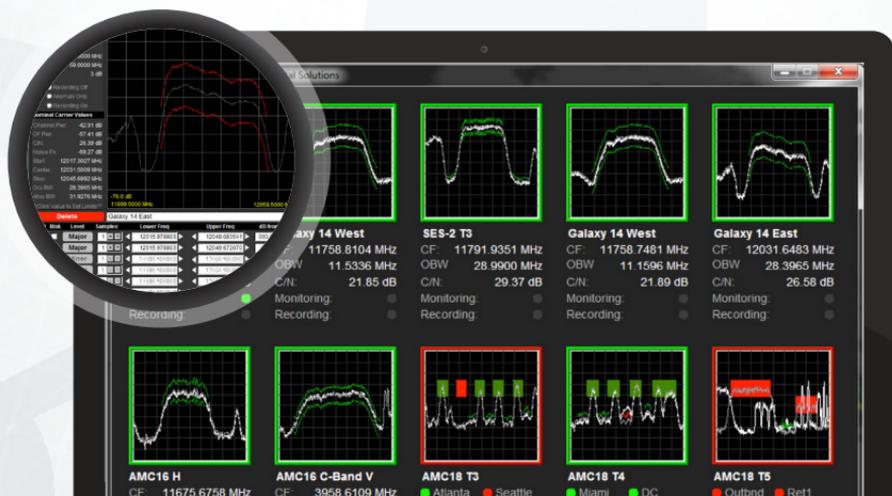
Historical trending and spectral playback – users can graph and view historical measurements for a transponder/carrier. Users can also play back recorded spectrum traces to view them as they changed. The recorded spectrum traces can also be exported to AVI files—capturing irrefutable evidence of interference.

User Configurable Spectrum Cache – allows the user to define the number of traces to cache in memory ensuring that all necessary pre-anomaly traces are recorded.

- **Spectrum Recording** – records the spectral trace for transponders and/or carriers fulltime or “On Anomaly”. When “On Anomaly”, SMR caches a User configurable number of spectrum snapshots for each record.
- **Event Alarms and Notifications** – upon breach of a user defined limit, SMR can generate multiple notifications in any combination of audible, visual or email messages.
- **User Configurable Limits** – a set of 8 distinct limits’ can be adjusted in frequency and power to detect anomalous conditions relative to a user-captured spectral baseline or reference trace.

For example, a user may define a upper limit of 6 dB and a lower power limit of 3 dB and SMR will generate an alarm when a limit is breached.

In addition, conventional limits such as frequency, power, bandwidth and noise floor may be configured for each monitored carrier.



Crystal architects solutions for optimization and creates delivery mechanisms that ensure quality control. Crystal know-how and technology is the solution to connect complex, mission-critical environments on a global scale.



> CONTRIBUTION

Everyone's a content creator now—and effectively managing a myriad of incoming feeds is imperative for competitive success. From media companies and sports leagues to enterprises and individuals, contributors produce a flood of content that demands rapid and precise configuration, analysis, tagging, routing, storage, and access.



> PLAY OUT

Crystal takes the time to understand your unique needs and create an IT-based play out solution that seamlessly integrates the workflow across your network. This approach allows you to take advantage of the industry evolution towards delivering both linear and non-linear content to consumers.



> DISTRIBUTION

In a world of steadily growing content complexity, content distribution needs to remain agile, dependable, and flexible. Crystal is the leader in simplifying the flow of content across your network.



> OPERATIONAL RESILIENCY

The more complex multi-format content distribution evolves, the more opportunities for transmission interruptions. Crystal works with you to create a plan and build systems that anticipate and prepare for these eventualities before they happen.



> BUSINESS INTELLIGENCE

Building on knowledge of how your network is constructed and architected to run, Crystal puts all the information you care about in one place. This knowledge helps you understand how content is flowing across your network and determine how to maximize your investment.



Founded in 1986, Crystal designs and delivers network monitoring and management solutions that improve operational efficiency, analyze errors, and enhance system resiliency, particularly for businesses that deal with complex and dispersed distribution pathways. Every day, program and advertising content worth billions of dollars flows through equipment managed by Crystal for leading media, enterprise, and satellite customers – including Fox, CNN, Disney, and Intelsat. Crystal, a privately held company, is headquartered in Greater Atlanta, GA. For more information, please visit crystalcc.com.