Spectrum Monitoring

iDirect Government's spectrum monitoring tools perform automatic and operator directed spectrum monitoring to detect interferences and unauthorized users, measure carrier and transponder performance and generate out-of-tolerance alarms. These tools allow the user to effectively measure and analyze the transponder spectrum.

Our spectrum monitoring products can be used as stand-alone appliances or as part of a larger spectrum monitoring network to include our Geolocation capabilities as well. The flexible architecture allows for plug and play operation locally and/or remotely via a standard LAN/WAN.

Access to all spectrum monitoring operations is through an easy-to-use Windows application that can run on one or multiple workstations. Easily accessible through our webserver, spectrum monitoring measurements can be accessed anywhere via a standard web browser.

Signal Under Carrier (SunCar™)

SunCar is used to detect, measure and characterize noise and interference within a satellite band to another signal. SunCar provides the user with an effective tool for the troubleshooting and identification of in-band interference including cross-pol or adjacent satellite interference while the traffic-bearing carrier remains in service.

Transponder Compression Measurement (TOP™)

TOP is an accurate, non-intrusive robust measurement to detect transponder compression and saturation. It is used to closely monitor transponder compression, in turn helping to prevent transponder power overload in addition to detecting other anomalies such as High Power Amplifier (HPA) or upconverter saturation.

Paired Carrier Monitoring

By performing standard spectral measurements such as carrier power, bandwidth and signal characterization measurements including modulation recognition and symbol rate measurements, the paired carrier monitor detects and monitors each paired carrier independently.

In Phase and Quadrature (IQ) Constellation Display

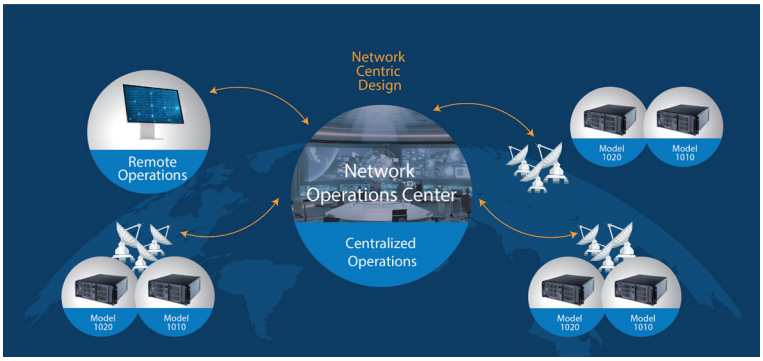
The IQ Constellation Display provides operators a graphical tool to view and diagnose carrier performance problems. The display offers an immediate visual feedback that reduces time spent troubleshooting carrier performance degradation.

SimulView™

SimulView provides a graphical representation of up to nine transponders and/or carriers in any combination of the two in a single display. Operators can use the built-in "view-n-view" function to quickly zoom in on a detailed view of the carrier measurement results.

Reporting Tools

Our spectrum monitoring tools have a built in suite of reporting capability for tabular and graphical reports including; waterfall spectra display, carrier performance and transponder performance. Reports can be generated in both a PDF format or video format.



Glowlink Spectrum Monitoring Model 1010

Model 1010 (pictured)

Characterization, Capabilities and Features

Modulation Type	Identifies PSK, APSK, QAM and other modulation
Symbol Rate	Measured symbol rate of digital carrier
Carrier Frequency	Carrier frequency or digital carrier
Transmission Rate	Carrier bit rate
Es/No	Measured from carrier
Eb/No	Referenced to demodulator
FEC	Convolutional (IESS-308, 309, 310, DVB-S), LDPC (DVB-S2) and others

Measurement Activity

Carrier Power	+/- 0.2 dB[1]
Center Frequency	+/- 0.75% of BW[2]
Carrier Frequency	+/- 0.05% of BW + 100 Hz[1]
Carrier Bandwidth	+/- 0.5%[1]
C/N, C/kT	+/- 0.25 dB[1]

RF Characteristics

Connector	SMA, 950-2150 MHz, 50Ω		
Resolution Bandwidth	97.66 kHz to 12 Hz		
Dynamic Range	115 dB nominal		
Minimum Carrier Level	1 kHz Carrier Bandwidth: -85 dBM, 10 kHz Carrier Bandwidth: -75 dBM, 100 kHz Carrier Bandwidth: -65 dBM, 1 MHz Carrier Bandwidth: -55 dBM, 10 MHz Carrier Bandwidth: -45 dBM		
Model	Model 1010 & 1010x2	Model 1020	Model 1030
Instantaneous Bandwidth	100 MHz[3]	200 MHz	300 MHz
Full Bandwidth Input Power	-55 to -5 dBm	-52 to -2 dBm	-50 to 0 dBm
Max Input Level	0 dBm	+3 dBm	+3 dBm

Data Interface

Network	Ethernet (RJ-45)
I/O	USB, Serial

Mechanical/Environmental

Size	W 19.00 in x D 21.00 in x H 7.00 in (W 48.26 cm x D 53.34 cm x H 17.78 cm)[4]
Weight	39.00 lbs (17.69 kg)
Temperature	Operational 57.2° to 107.6°F (14° to 42°C)
Humidity	30 to 90%, at 95°F (35°C) non-condensing
Input Voltage	100–240 VAC, 50–60Hz

Model 1010 Options

Monitoring	Transponder Operating Point (TOP™), Signal Under Carrier (SunCar™), Signal Characterization, Audible and Visual Alarm, 16APSK/32APSK Recognition and Characterization, Narrow Resolution Bandwidth, Background Interference Detection
System Functionality	User Account Manager, SNMP
Hardware Solutions	L-Band Converter, Database Server, GL950 8-Port RF Switch, Removable System Drive, Hot Swappable Power Supply, Workstation with Spectrum Monitoring Client

[1] Accuracy measured with C/N = 10 dB
[2] Typical for C/N = 14 dB
[3] 100 MHz per channel on Model 1010x2
[4] Model 1010 height is 3.50" (8.89 cm)

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