



SUNRISE TELECOM®

realWORX® Web

Performance Verification System

Data Sheet



The realWORX Web Performance Verification System allows operators to monitor return ingress levels, analog signal performance, as well as QAM performance and statistics from many nodes using any browser interface. realWORX Web compares RF performance against user-set limits and generates an alarm when signal impairments are detected. The system sends alarm notifications by email, pager, or cell-phone, and can report to the NOC via an SNMP trap interface to ensure that the operator is notified promptly when an alarm occurs.

With Sunrise Telecom's high-performance AT2500HMQ broadband spectrum analyzer at its core, realWORX Web can detect transient and low level RF impairments invisible to competing systems.

realWORX Web also integrates both upstream and downstream RF quality measurements in one system, which results in decreased costs of software, training and support. With realWORX Web, tests that had once been complex and time-consuming can be performed routinely, automatically and consistently.

KEY FEATURES

- Comprehensive Digital, Analog and Return Path monitoring from 1 MHz to 1.0 GHz
- Ingress monitoring up to 200MHz provides visibility of entire optical return spectrum
- Automatic alarm notification by pager, cell phone, e-mail, SNMP traps
- Remote Ingress display viewing using realVIEW™
- Supports up to 256 switch ports per analyzer (scalable)
- Support multiple analyzer/switch groups
- Over one year historical storage of ingress and performance data metrics
- Modular and scalable distributed architecture

BENEFITS

- Automated Ingress, Analog and Digital performance verification testing saves money, increases productivity and improves quality of service
- Remote monitoring eliminates the need to send staff and equipment to remote sites for routine network monitoring
- High sensitivity (-65 dBmV) measurements detect impairments before services are affected

- Extended Ingress monitoring up to 200MHz provides visibility of laser compression and clipping, CPD, transient events and Gaussian noise floor degradation over the RF electrical diplex frequency that was previously not possible to view or inspect
- Automated Alarm Management functions ensure prompt response to alarms
- View historical Ingress level measurements for proactive maintenance planning and trend analysis
- Node Hardening just became a lot simpler with the realWORX Web Historical Ingress Viewer
- Modular and scalable cost-effective solution for your requirements and budget
- Leverage existing CM series meters to view return spectrum in field

APPLICATIONS

- Ingress monitoring for evaluation of the upstream bandwidth health. All return nodes can be monitored at headends and hubsites.
- RF downstream monitoring of all analog and digital measurements at headends and hubsites or VHO's and VSO's.

SPECIFICATIONS

The following table lists the specifications of the realWORX Web system as well as the availability of the options.

realWORX Server	
Analyzers (max)	20
Alarm + Statistical Records (ingress) (max)	Approx. 2,000,000 [†]
Switch ports per analyzer (AT160x) (max)	256
realWORX Client	
Concurrent Users (max)	10 per system
realVIEW System	
Concurrent Users (max)	20 per Controller
Client Connectivity	
WinRemote Client	Internet / IP
3010R Client	RF-FSK to 3010H

[†]Limited only by database engine, however high record counts can impact system performance.

realWORX Modular Options

RWORX-US: Return Path Performance Verification Option (Ingress / Spectral)

RWORX-DS: Analog and Digital Performance Verification / Measurement Module (CATV and QAM)

Performance Specifications

The following table lists some of realWORX Web's key performance specifications.

Item / Feature	Specification	Notes
Frequency Bandwidth [†]	1 MHz – 1 GHz	AT2500HM/HMQ
Raw Performance Verification Speed (Ingress)	60 ports/sec (max) (L-Series AT2500) 80 ports/sec (max) (MIPS-Series AT2500)	3msec sweep time, no alarms, no averaging, no interval logging, no custom port settings, switch = AT1600M 2msec sweep time, no alarms, no averaging, no interval
Live Trace Refresh Rate (Ingress)	11 frames per second (max)	
Analyzer Specifications [†] (Partial)	Sweep Time Settings (msec) 3 Resolution Bandwidths 10 kHz, 30 kHz, 300 kHz, 1 Video Bandwidth Sensitivity 10kHz, 100 kHz, 1 MHz Level Accuracy -65 dBmV to +65 dBmV Response Flatness ±0.75 dB @ 25°C Spurious Free Dynamic Range ±0.75 dB (1 – 1000 MHz) Input attenuator >70 dB Maximum Input 0 to 65 dB in 5 dB steps +68 dBmV	Please refer to the AT2500HM/HMQ datasheet for complete analyzer specifications.
Trace Resolution	500 data points per trace	Any spectral trace
Ingress Alarm Thresholds	3 (Minor, Major, Link Loss)	
Performance Alarm Thresholds	Minimum, Maximum, and Tolerance	

[†]AT2500HM Specification

Device Models Supported

The following table lists the hardware devices currently supported by realWORX.

Device Type	Make	Model
Spectrum Analyzers	Sunrise	AT2500HM, HMQ
Multiplexers	Sunrise	AT1600M Series (Provides peak performance)
	Cheetah	RPS
	Electroline	TPS
	Custom	(Contact Factory)

Testable Parameter

Measurement Parameters	Digital (DS)	Analog (DS)	Return (US)
Digital Channel Power	x	x	
Modulation Error Ratio	x		
Error Vector Magnitude	x		
Estimated Noise Margin	x		
Signal to Noise Ratio			
Carrier to Interference			
Frequency Response			
Echo Margin			
Compression			
Hum			
Phase Noise			
I/Q Gain Diff.			
I/Q Phase Diff.			
Carrier Frequency Error			
Symbol Rate Error			
Video Level		x	
Aural1 Level		x	
Delta V/A1 Level		x	
Video Frequency		x	
Aural1 Frequency		x	
Delta V/A1 Frequency		x	
Return Path Ingress			x
Spectral Monitoring (Fwd. and Ret.)			x
Pre-BER	x		
Post-BER	x		
Stream Lock	x		
Forward Error Lock	x		
Symbol Lock	x		
Depth of Modulation			
CCN			
CSO			
CTB			

*AT2500HMQ Specification

ORDERING INFORMATION

RWORX-BASE realWORX Web Performance Verification (Platform) realWORX performance verification software, must be ordered with at least 1 measurement module. includes: pre-configured Server Appliance, realVIEW function that includes 10 licenses for realVIEW client software, WinREMOTE II (1 installation license for each of the remote control packages), user manual, factory training.

Measurement Modules

RWORX-US realWORX Return Path Measurement Module, for Ingress/Spectral automated monitoring.
RWORX-DS realWORX Analog and Digital Measurement Module, for Downstream RF measurements and automated monitoring.

Licensing

Note: Included during the first year of service with the purchase of RWORX-BASE but required for each consecutive year. (A service contract is required)

RWORX-LIC **(Required)** realWORX Server Software Licensing. Annual Flat Rate Fee per network. (Includes all required server software licensing)

RWORX-MAINT **(Required)** realWORX Software Maintenance Agreement. Annual Flat Rate Fee per network. (Provides automated ALWAYS CURRENT updates for the duration of the subscription)

Units

AT2500HM 1.5 GHz Headend Rackmount CATV Spectrum Analyzer.
AT2500HMQ 1.5 GHz Headend Rackmount QAM/CATV Spectrum Analyzer.
AT1602M 1GHz 16 x 2 Headend Multiplexer.
AT1601M 1GHz 16 x 1 Headend Multiplexer.



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