AVQ1020ATSC (2nd gen.) RF LAYER MONITORING RECEIVER FOR ATSC 1.0/ATSC 3.0

FEATURES:

- ► **In-Band interference detection and visualization**
- ► **A comprehensive set of analyzed parameters and plots**
- ► **A rich selection of tools for remote monitoring**

Description

Based on ActiveCore® Platform, **AVQ1020ATSC (2nd Gen)** is an embedded RF layer monitoring receiver and signal analyzer for **ATSC 1.0 (A/53 and A/153)** and **ATSC 3.0 (A/322)** digital television standards. It has been designed as an easy-to-use and cost-effective solution for remote monitoring digital transmitter system performance and transmitted signal quality and, therefore, ensuring consistent Quality of Service (QoS) of the network. **AVQ1020ATSC (2nd Gen)** features a comprehensive alarm system that can be accessed via multiple interfaces and be set up to control the main components of the transmitter system in case of an emergency. Additionally, with its extensive set of tools for monitoring and analyzing RF and COFDM, the receiver is versatile for use as a stand-alone unit during production tests at a transmitter manufacturing facility.

Technical Specification

Supported standards(1):	ATSC 1.0 (A/53, A/153), ATSC 3.0 (A/322)
Main signal input "RF in":	
Connectors:	50Ω, N-type
Reported power range:	-35 ... +5 dBm
Working power range:	-50 ... 0 dBm, -20 dBm optimum
Frequency range:	100 ... 1000 MHz
Frequency tuning step:	1kHz

10MHz Reference:	50Ω, BNC, 1Vp-p, sine
Control and Monitor Ports:	
Ethernet:	RJ45 10/100/1000
Form factor:	1U: 48.3cm x 33cm x 4.3cm (19" x 13" x 1.7")
Operating temperature:	0 .. 50, °C
Power Supply:	110 - 250V, 50/60Hz AC

(1) Additional standards can be supported. Subject to licensing. Software switchable.

Monitored Parameters

General parameters:	- MER/SNR; - Signal PAPR; - Bandwidth; - Frequency and Sampling rate shifts; - Shoulder attenuation; - Emission/Spectral mask compliance; - Group Delay across bandwidth.
General plots:	- Spectrum of the main lobe and in-band interference; - Channel Amplitude/Phase and Impulse responses; - CCDF; - Constellation; - Channel Impulse Response / Echo profile; - Group Delay.
ATSC 1.0 specific:	- ATSC pilot Amplitude and Phase errors; - Signal Amplitude/Phase errors; - AM-AM/ AM-PM curves; - Constellation and Eye diagram.
ATSC 3.0 specific:	- MER for Bootstrap, L1, and selected PLP; - ATSC 3.0 frame structure; - Bootstrap, L1D, and L1B signaling info; - LDPC BER for L1 and selected PLP; - Bootstrap, L1, and selected PLP constellation.
Default set of alarms:	- Input Signal level; - Spectrum shoulder levels; - Signal MER; - CIR / Echo profile variation; - Frequency shift, etc.
Data logging and reporting:	- Detailed report with data and plots; - Event and alarm log; - Main parameters internal log.
Software interfaces:	- Web GUI; - SNMP agent; - Email; - MqTT.
Additional Tools:	- Network tools for connection verification and troubleshooting

AVQ1020ATSC (2nd Gen) ActiveCore®
RF Layer Monitoring Receiver for ATSC 1.0 and ATSC 3.0

DATASHEET

Measurements and Metrics

- A comprehensive set of tools for remote monitoring of RF at a transmitter site;
- Frequency spectrum, shoulder attenuation;
- In-band interference power spectral density;
- Central frequency shift;
- Signal statistics: MER, signal RMS, PAPR, signal CCDF;
- Effects of the transmission system non-linearity measured on the broadcasted signal;
- Numerical estimation for the signal Amplitude and Phase errors;
- Linear distortions found in the output RF signal - signal-group delay and frequency response.

Applications

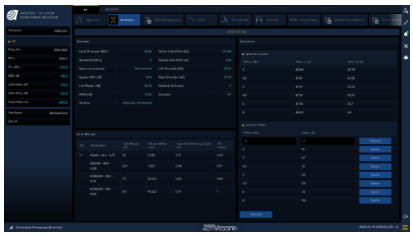
- ATSC1.0/3.0 transmitter performance and 24/7 QoS monitoring;
- Remote monitoring for broadcasting repeater system network;
- Test and design verification equipment;
- Research and development;
- In-field and production testing.

Plot tools and accessories

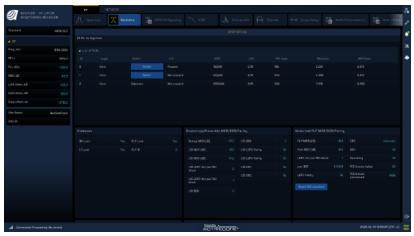
- Normal and Delta markers;
- Min/Max hold;
- Manual scale adjustment;
- Cross bar;
- Thresholds for CIR profile and in-band interference level.

Samples of Reported Parameters and Plots

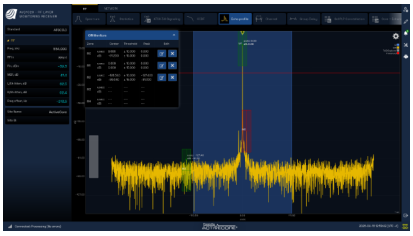
ATSC 3.0 Spectrum with In-Band



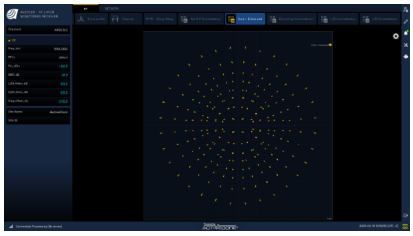
ATSC 3.0 Statistics with Link Margin



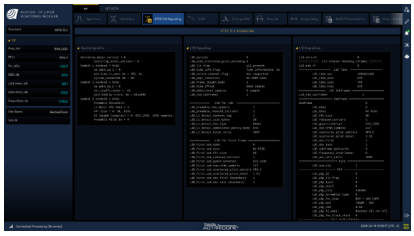
ATSC 3.0 PLP Statistics



CIR profile

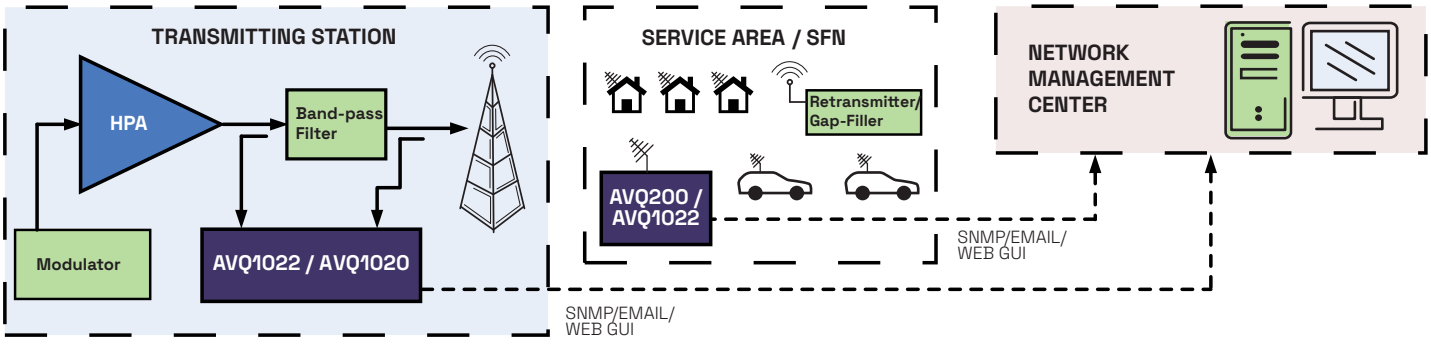


ATSC 3.0 256QAM Constellation



ATSC 3.0 Signaling Information

Application Block-Diagram



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