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EDGEPROBE ADVANCED ATSC 3.0/1.0 Monitoring Probe

RF & SFN Monitoring Receiver

THE IDEAL TOOL FOR ACCURATE & COST-EFFECTIVE MONITORING OF THE QUALITY ACTUALLY DELIVERED TO ALL POINTS OF ATSC 3.0/1.0 NETWORKS.

Combined with a NMS or TestTree's GlobalViewer, the EdgeProbe Advanced provides a powerful network alert & diagnosis tool allowing DTV network operators to monitor global trends and anticipate potential failures. EdgeProbe Advanced provides monitoring of the signal at different levels:

- RF transmission: accurate RF signal quality measures (Power Level, out of band shoulders, MER, SNR, BER) and the SFN synchronization at both TX site and off-air Reception Areas
- Distribution link: checks the IP network quality and the STLTP integrity

APPLICATIONS

- 24/7 Network Quality Monitoring:
  - Head-End: STLTP distribution (over IP, Satellite)
  - TX sites: RF transmission quality & stability, SFN synchronization
  - Reception area (SFN overlapping): RF signal quality & Echoes (w/ TX ID)
- Generation of Service Availability reports for SLA & channel bitrate allocation stats for Lighthouse scenario
- Plan and improve the network configuration by identifying global trends

BENEFITS

- Standalone, easy to use and configure, fast deployment, SNMP compatible
- Reduce TX sites maintenance cost by anticipating and identifying issues
- Increase customer satisfaction by detecting & preventing DTV network degradations before your customers do
- Remotely accessible, compatible with low bandwidth control networks (GPRS/3G/4G)
- Low power consumption (25W)

Accurate RF & SFN measures at TX output or Reception area

RF spectrum display and Shoulders (out-of-band) monitoring

Signal Level, SNR, MER (L1-Basic, L1-Detail, PLP), BER LDPC iteration

TX SFN measure: RF frame drift

Reception area SFN measure: Channel Impulse Response (Echoes) with TX ID decoding and echo association

Compatible ATSC 1.0

Up to 4 RF inputs in 1RU

Distribution link STLTP monitoring

IP network quality: jitter, FEC support (Packet Loss & Recovery)

SFN synchronization: STLTP Network Delay

STLTP integrity

At Head-End and/or TX site

ATSC 3.0 content monitoring for Lighthouse scenario

PLP and Services list decoding

Bitrate & Channel usage monitoring

ATSC 1.0 TS monitoring

ETSI TR 101 290 priority 1, 2, 3

Multiplex Service structure: service/PID list, bitrate, scrambling/PCR presence

RF measures & channel bitrate history storage

Alarm logs, RF parameter trends and channel bitrates stored up to 4 months

CSV format files, available for download via web GUI or FTP connection (automation scripts)

Demodulated TS recording (.ts) for ATSC 1.0

32 GB of internal storage per monitoring unit (up to 4 in 1RU)

Highly customizable alarming

User-defined alarm thresholds (min, max, hysteresis) & severity (critical, warning, info)

Alarming templates (profiles) defined per RF channel

SNMP trapping configurable per alarm

Internal GNSS receiver (HW option)

Generates an internal 1PPS reference signal for SFN synchronization measurements – which is independent from the modulator's reference signal

Dual Power Supply (HW option)

One additional Power Supply can be installed on the equipment in order to ensure the power redundancy

ORDERING CODES

EdgeProbe Advanced ATSC 3.0/1.0	ATSC 3.0/1.0 Monitoring Probe
Options	**SW ACCESS** : RF Monitoring, Round-Robin, ATSC 1.0: ETSI TR 101 290 Monitoring (Priorities 1, 2, 3) **SW PERFORMANCE** : RF Monitoring, Round-Robin, ATSC 1.0: ETSI TR 101 290 Monitoring (Priorities 1, 2, 3), Service Plan & Multiplex View **SW ULTIMATE** : RF Monitoring, Round-Robin, ATSC 1.0: ETSI TR 101 290 Monitoring (Priorities 1, 2, 3), Service Plan & Multiplex View, IP Monitoring (Jittering, RTP FEC...), ATSC 3.0: STLTP Monitoring **EPA3-In200VRedundant** : Add 1x redundant 220V AC input in the EPA3 chassis (hardware) **EPA3-GNSS** : Add GNSS support on the module (hardware)

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EDGEPROBE ADVANCED ATSC 3.0/1.0 Monitoring Probe

INTERFACES

RF Connector In	Up to 4x RF inputs (N-type female 50 Ω)
Standards	ATSC 3.0 (NEXTGEN TV), ATSC 1.0
Frequency range	40 to 1000 MHz
RF Sensitivity	-80 to -5 dBm / 28 to 104 dBµV
BaseBand	Up to 4x Gigabit Ethernet for DATA in/out (VLAN support) Up to 4x ASI in/out (BNC-type female 75 Ω)
GNSS & Time Reference HW option	1x GNSS antenna input (SMA-type 50 Ω) (GPS/GLONASS), 3.3V antenna power up 1x 1PPS input (BNC-type female 50 Ω) 1x 10MHz input (BNC-type female 50 Ω)

MONITORING FEATURES

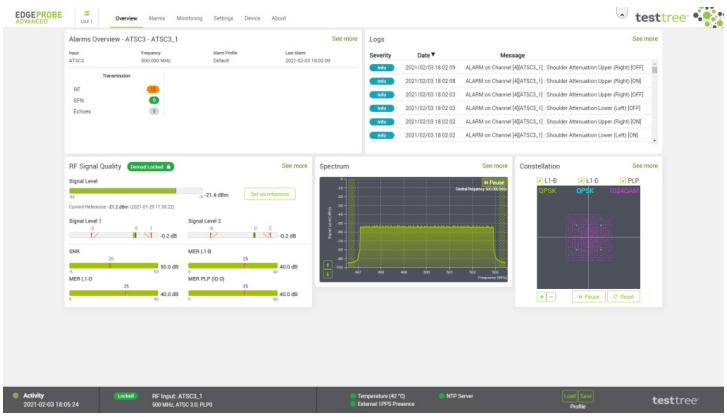
ATSC 3.0 RF Monitor	Demodulation status: Lock / Unlock Spectrum, Constellation display Shoulders measurement: Lower (Left), Upper (Right) Signal level: -100 to -5 dBm SNR: 0 to 50 dB MER: 0 to 40 dB (L1-Basic, L1-Detail, PLP) Pre-LDPC BER, Pre-BCH BER, Post-BCH FER, Packet Error Number, LDPC Iteration
ATSC 1.0 RF Monitor	Demodulation status: Lock / Unlock Spectrum display Shoulders measurement: Lower (Left), Upper (Right) Signal level: -100 to -5 dBm SNR: 0 to 50 dB Post-Viterbi BER
Reception area SFN Monitor	Channel Impulse Response – Echoes: Delay/Level alarm mask per echo With TX ID detection and echo association
TX SFN Monitor	SFN Drift measured at RF level Fast identification of which TX site is causing SFN issues
ATSC 1.0 Transport Stream - ETR 290 Monitor	MPEG-2 TS Monitor, ETSI TR 101 290 Priority 1, 2, 3
ATSC 1.0 Service Plan	Verify regional services, Service & PID bitrates, Scrambling, Service & PID presence
ATSC 3.0 Content Monitor - Service Plan	PLP list & Services list with Bitrates and Channel Usage (ideal for channel-sharing scenarios – "Lighthouse") Modulation parameters with complete decoding of L1 information (Subframes, PLP structure)
ATSC 3.0 STLTP Monitor	Up to 4x Gigabit Ethernet STLTP stream input IP link monitoring (IP jitter, FEC, Packets lost/recovered) STLTP integrity (Inner, Outer, L1)
Round-Robin Monitor Mode	Monitor sequentially (round-robin) multiple frequencies over 1 RF input Monitoring status & context is kept between two successive monitoring rounds
32GB Internal Memory	Up to 4x 32 GB of internal storage (per monitoring unit): alarm logs, RF trends, service bitrates up to 4 months. CSV format files. Available for download via web GUI or FTP connection. Demodulated TS recoding (*.ts) files.

PHYSICAL

Height (1 or 2 monitoring units) : 45 mm / 1.7 in, Width: 440 mm / 17.3 in, Depth: 145 mm / 5.7 in
Height (4 monitoring units) : 45 mm / 1.7 in, Width: 440 mm / 17.3 in, Depth: 300 mm / 11.8 in
Format: 1 RU, width 19", Power supply: 100-240 VAC +/-10%
Power consumption: 10 W per active monitoring unit
Redundant Power Supply (HW option)

ENVIRONMENT

Operating temperature	-20 to 55 °C / -4 to 131 °F
Storage temperature	-20 to 70 °C / -4 to 158 °F
Humidity	0 to 95%, non condensing



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