

Service Quality for Broadcast TV by 24/7 Monitoring

DVB-T/T2 ISDB-T/Tb DVB-S/S2

8000+
PROBES
DEPLOYED



STREAMPROBE

Video QoS & QoE
Studio, Encoding, Multiplexing
& Broadcast Gateway



EDGEPROBE

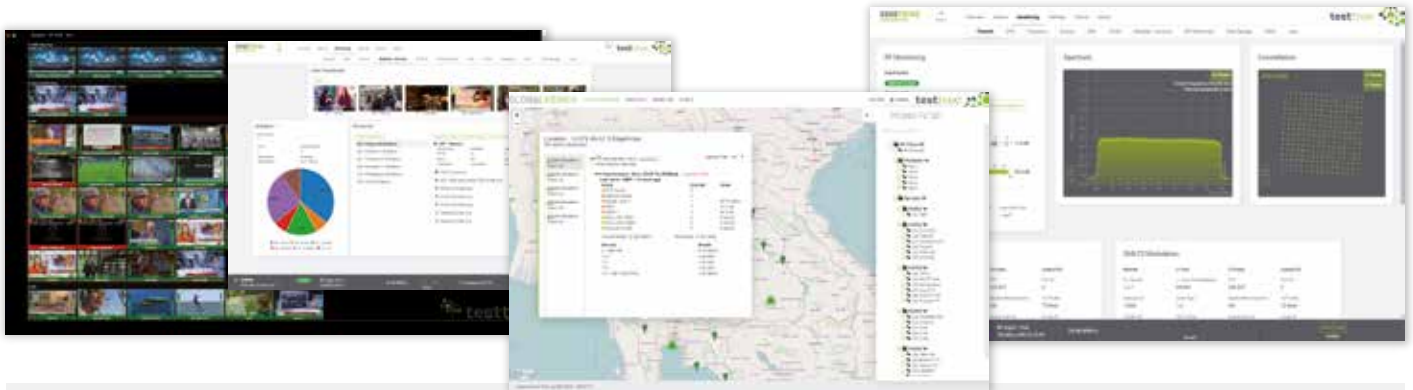
Transmission & Reception
RF Signal Stability
& Synchronization



GLOBALVIEWER

Overall View of the
Broadcast Network Quality
& Service Availability

TestTree provides a complete and comprehensive solution to ensure **Quality for all Terrestrial Broadcast TV Services by 24/7 monitoring** throughout all strategic stages of **media processing, transport distribution & transmission to End-User**. Ideal for all **TV Service Providers & Network Operators**, looking to **ensure the best End-User Quality of Experience** all while **optimizing OPEX**.



APPLICATIONS

- Overall Service Availability, Network & end-user Reception Quality assurance
- Increase uptime by detecting issues before your customers do
By 24/7 real-time supervision & alerting
- Optimize daily operation & maintenance
Drill down analysis, on-error proof recording
- Fine-tune & maintain your SFN planning
With precise & complete 24/7 synchronization measurements
- Quality Reports generation for SLA commitments
- Compliancy 24/7 recording
- Secure Ad Insertion revenues by 24/7 control of all SCTE-35 triggers

BENEFITS

- All Services Quality view at-a-glance:
Thumbnail Mosaic Wall or TX/RX Site Map
- Comprehensive, easy-to-use web GUI
Fast training of operational teams
- Ready for large deployments
Remotely accessible, powerful NBI for NMS integration, compatible with low bandwidth control networks (3G/4G), low power consumption 25W
- Pay as you grow with flexible licensing & deployment architecture
HighDensity full SW solution for Head-End (HE)
Embedded HW device for Transmission/Reception sites

EDGEPROBE

RF QoS – BROADCAST TRANSMISSION & RECEPTION QUALITY

HW 1RU or compact (14x13x3 cm) format devices for TX & RX sites

8000+ PROBES DEPLOYED



RF QoS DVB-T/T2 ISDB-T/Tb DVB-S/S2



Accurate RF Signal Quality metrics: Power, MER, SNR, BER
RF Spectrum & Constellation, multi-PLP support
Highly customizable alarming thresholds
Both Terrestrial transmission and **Satellite** distribution signals can be monitored **within the same 1RU device**

Complete SFN synchronization monitoring



UNIQUE TestTree FEATURE

On Transmission site for quick identification of which TX is out of sync:

- RF signal Time & Frequency synchronization
- Before modulation: Distribution Network Delay for MND tuning
- In SFN overlapping areas for actual Field Reception Quality by Channel Impulse Response monitoring with TestTree's Unique Echo Pattern monitoring mode for a more reliable Echo identification

TS QoS: integrity & STB decoding assurance



TS, T2-MI (PLP extraction), BTS support & dedicated monitoring
Full ETR 101 290 compliancy
PSI/SI decoding, Service Plan, Service & PID Bitrates, Video Thumbnails
RF input demodulation, ASI/IP inputs
IP jitter monitoring for Distribution links

And much more...

- 32GB internal storage for alarm log & RF trends (up to 6 months) per monitoring input
- Complete TS Recording for proof & investigation: manual, on-error, scheduled, automatic by external SNMP commands
- Video Stream forwarding (return path): RF in > ASI out, RF in > IP out
- Round-Robin sequential monitoring of several RF input channels within one single monitoring module
- Complete NBI (SNMP, FTP) for NMS integration (monitoring configuration, data retrieval, device management)
- Internal GNSS receiver & 1PPS in for SFN monitoring, Dual Power Supply (PSU) for robustness
- Easy-to-use web GUI, optimized for low bandwidth remote connections

ORDERING CODES

Features SW Pack

ACCESS

Full RF & SFN monitoring

- RF Signal Quality
- SFN on TX & Echoes
- Round-Robin
- Internal 32GB storage
- ETR 101 290
- PSI/SI & Service Plan
- Video Thumbnails
- T2-MI / BTS / OneBeam*
- IP link quality

PERFORMANCE

Content QoS monitoring

- RF Signal Quality
- SFN on TX & Echoes
- Round-Robin
- Internal 32GB storage
- ETR 101 290
- PSI/SI & Service Plan
- Video Thumbnails
- T2-MI / BTS / OneBeam*
- IP link quality

ULTIMATE**

Broadcast Gateway & Distribution link monitoring

- RF Signal Quality
- SFN on TX & Echoes
- Round-Robin
- Internal 32GB storage
- ETR 101 290
- PSI/SI & Service Plan
- Video Thumbnails
- T2-MI / BTS / OneBeam*
- IP link quality

HW products

EDGEPROBE ADVANCED DVB-T/T2 or ISDB-T/Tb or DVB-S/S2

Monitoring at TX sites | 1, 2 or 4 parallel monitoring modules in 1RU chassis
HW options: Internal GNSS receiver, Dual PSU

EDGEPROBE RF DVB-T/T2 or ISDB-T/Tb

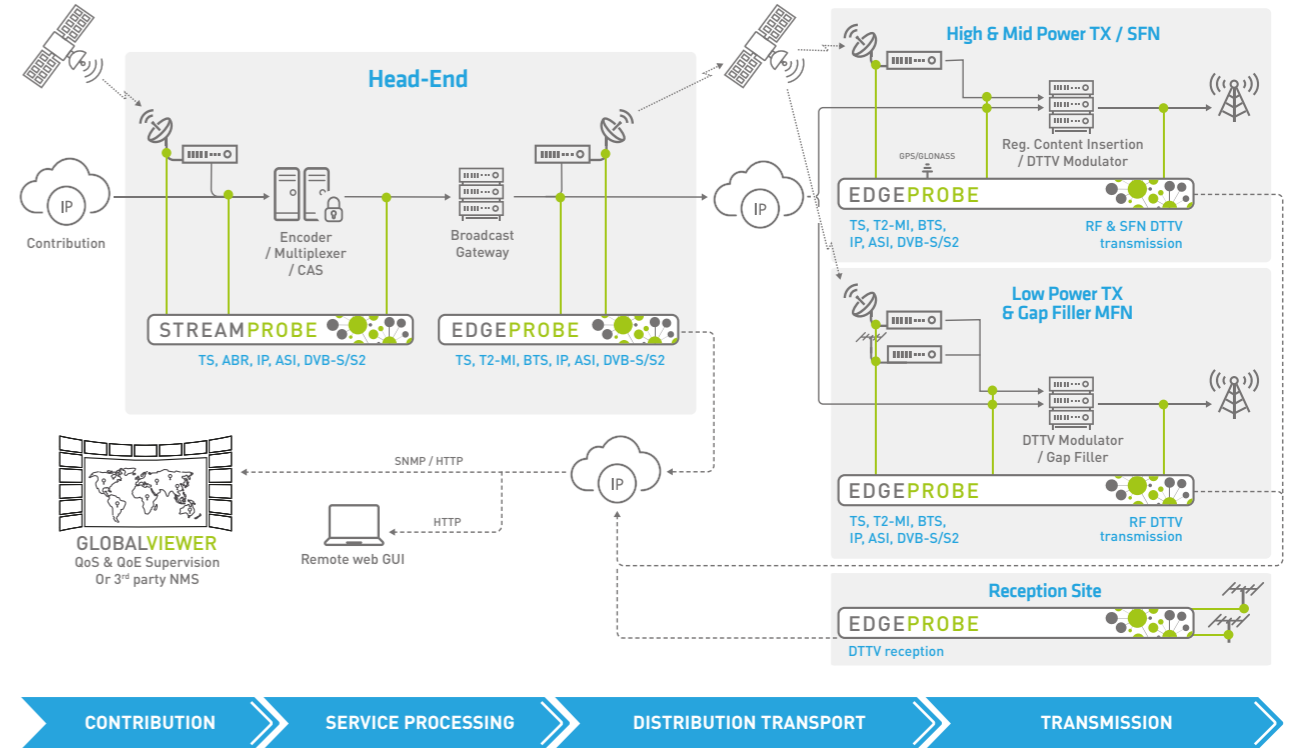
Monitoring at RX sites | 1 monitoring module in 1RU chassis

EDGEPROBE NANO DVB-T/T2 or ISDB-T/Tb

Monitoring at RX sites | 1 monitoring module in compact format (14 x 13 x 3 cm)

END TO END SERVICE AVAILABILITY & QUALITY

24/7 monitoring of the strategic Media Processing & Video Delivery Chain



Quality at the source

- SLA Agreements
- Issues Responsibility

Quality throughout the Processing Chain

- Control audio & video QoE degradations at HE, before the broadcast gateway processing
- Ensure QoS before distribution and propagation to the End-User transmission

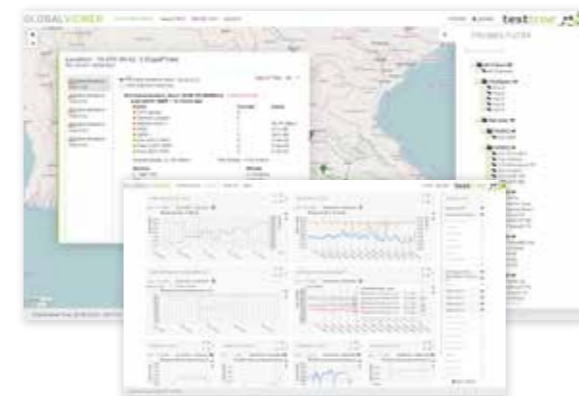
Broadcast Network Quality & End-User experience

- Control the actual signals provided to and received by End-Users

GLOVALVIEWER

CENTRALIZED BROADCAST NETWORK QUALITY VIEW

EdgeProbe monitoring information aggregation at NOC/HE



Live Network Quality status display on a Map
Service Availability & RF Network Quality statistics
Highly customizable Dashboards
Real-time Notifications (SMS/email) and automatic Reports generation for: SLA commitments, internal reporting, maintenance & operation

STREAMPROBE

CENTRALIZED VIDEO QUALITY QoE

Contribution, encoding/mux & packaging monitoring at the NOC/HE



Uncompressed ST2110 & ST2022-6, TS, OTT Live & VOD streams support
Service Integrity ETR 101 290
Manifest & all Layers integrity for ABR streams
Audio & Video content defect monitoring [silence, freeze, black]
DRM decryption Widevine, FairPlay, PlayReady
Compliance 24/7 or on-error proof Recording
Live Service playback for confidence monitoring
Complete NBI/API for 3rd party NMS integration: management, orchestration, service dashboards

12000+ IPTV/OTT SERVICES MONITORED 24/7

* Depending on applicable RF Standard: DVB-T/T2 & DVB-S/S2: T2-MI, OneBeam, ISDB-T: BTS
** ULTIMATE SW Pack for EdgeProbe Advanced only

TECHNICAL SPECIFICATIONS

EDGEPROBE

MONITORING FEATURES

RF Monitor for EdgeProbe DVBT/T2

Spectrum* & Constellation* display, modulation parameters
Signal level: -90 to -5 dBm ± 1 dBm, typically ± 0.5 dBm, resolution 0.2 dBm; dBm or dB μ V
MER: 0 to 40 dB (0 to 36 dB: ± 1 dB, 36 to 40 dB: ± 2 dB)
SNR: 0 to 40 dB (± 1 dB)
Pre/Post-Viterbi, Post-RS, Pre/Post-LDPC, Post-BCH, LDPC Iteration

RF Monitor for EdgeProbe ISDB-T/Tb

Spectrum* & Constellation* display (Shoulders measure), modulation parameters
Signal level: -90 to -5 dBm, dBm or dB μ V
MER: 0 to 40 dB
SNR: 0 to 40 dB
Post-Viterbi, Post-RS per Layer A/B/C

RF Monitor for EdgeProbe DVBS/S2

Constellation* display, modulation parameters
Signal level: -95 to -5 dBm (0.1 dBm resolution, ± 2 dBm accuracy), dBm or dB μ V
MER: 0 to 40 dB (0 to 36 dB: ± 1 dB, 36 to 40 dB: ± 2 dB)
CNR: -3 to 40 dB (0.1 dB resolution, ± 0.3 dB accuracy)
Eb/N0, link margin, Pre/Post-Viterbi, Pre/Post-LDPC, PER
MultiStream support, PLS support

SFN Monitor at Transmitter (TX)*

RF signal time & frequency synchronization for EdgeProbe ISDB-T/Tb
T2-MI distribution Network Delay for EdgeProbe DVBT/T2

SFN Monitor in Reception area (RX) for EdgeProbe DVBT/T2 ISDB-T/Tb

Channel Impulse Response – Echoes alarming (delay & power shifts)
TestTree's unique Echo Pattern monitor: more reliable echo in error identification even if the main (strongest) echo suffers changes

Transport Stream Monitor

MPEG-2 TS Monitor, ETSI TR 101 290 Priority 1, 2, 3
Service Plan: Service & PID bitrates, presence, Scrambling, PSI/SI
Video Thumbnails display

IP Link Monitor*

IP jitter, FEC, Packets lost/recovered

T2-MI Monitor for EdgeProbe Advanced DVBT/T2 DVBS/S2

ETR 101 290, Network Delay, PLP extraction

DVB-SIS/OneBeam Monitor for EdgeProbe Advanced DVBT/T2 DVBS/S2

Specific DTH PIDs monitoring (F&T, DSACI), used to recover the T2-MI distribution on TX site

BTS Monitor for EdgeProbe ISDB-T/Tb

IIP, TMCC packets monitoring

Round-Robin Monitor Mode

Monitor sequentially (round-robin) multiple frequencies over 1 RF input
Monitoring status & context is kept between two successive monitoring rounds

Internal Memory: up to 4x 32GB per 1RU

32GB per monitoring unit: alarm logs, RF trends, service bitrates up to 4 months
CSV format files, download via web GUI or FTP connection
Demodulated TS recoding (*.ts) files

Automatic on-error, scheduled TS recording for proof & investigation

Complete NBI (SNMP based) for alarm notifications & monitoring info retrieval

Video Stream forwarding (return path) to HE

* EdgeProbe Advanced only

INTERFACES

RF Connector In

Up to 4x RF inputs (N-type female 50 Ω)
F-type 75 Ω for EdgeProbe Advanced DVBS/S2 and EdgeProbe Nano

EdgeProbe DVBT/T2

Frequency range: 40 to 1000 MHz
RF Sensitivity (RF lock): -80 to -5 dBm
Channel bandwidth: 1.7, 5, 6, 7, 8 MHz

EdgeProbe ISDB-T/Tb

Frequency range: 40 to 1000 MHz
RF Sensitivity (RF lock): -80 to -5 dBm
Channel bandwidth: 6, 7 & 8 MHz

EdgeProbe DVBS/S2

Frequency range: 950 to 2150 MHz (after LNB down conversion)

BaseBand

Up to 4x Gigabit Ethernet for IP 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)

PHYSICAL

EDGEPROBE ADVANCED

Format: 1 RU, width 19" (Height: 45 mm / 1.7 in, Width: 440 mm / 17.3 in,
Depth: 300 mm / 11.8 in)
Power supply: 100-240 VAC +/-10%
Power consumption: 25W, Redundant Power Supply (HW option)

EDGEPROBE RF

Format: 1 RU, width 19" (Height: 45 mm / 1.7 in, Width: 440 mm / 17.3 in,
Depth: 130 mm / 5.1 in)
Power supply: 100-240 VAC +/-10%
Power consumption: 8W

EDGEPROBE NANO

Format: 1 RU, width 19" (Height: 45 mm / 1.7 in, Width: 440 mm / 17.3 in,
Depth: 130 mm / 5.1 in)
Power supply: 100-240 VAC +/-10%
Power consumption: 8W

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 1 monitoring unit, 1 input (RF, ASI or IP)

GLOBALVIEWER

MONITORING FEATURES

Live Supervision

Map display of the deployed monitoring Probe
Critical alarming status, service list & bitrates
Direct access to the Probes for detailed monitoring information
Display filtering & restricted user access via customizable Probe groups: region, site, SFN cell, multiplex, service, client...

Reporting

Automatic Report generation (PDF) with raw data (CSV) included in ZIP file
Highly customizable: structure sections, metric graphs, add comments

Analytics

Service Availability & Transmission Quality Trends; based on the Probes monitoring data
Highly customizable dashboard graphs & views

Alerting

Automatic Email / SMS notifications based on the monitoring Probes alarming, with filtering capabilities

Restricted User Overview

User management rights: administrator, manager, operator
Possibility to restrict the views per Service/Multiplex, Operator, Location...

TECHNICAL CHARACTERISTICS

SW solution deployed in virtualized environment (ESXi > v6.0)
HTTP/HTTPS support
Performance CPU, RAM, HDD depending on the number of EdgeProbe monitoring units to supervise

ORDERING CODES

GlobalViewer

Perpetual Software License including:
- 20x TestTree Probe licenses (EdgeProbe monitoring units)
- 10x User access

SW options:
- Additional Probes (per Probe)
- Additional User access (per user login)

STREAMPROBE cf. TestTree StreamProbe datasheet



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