

# 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

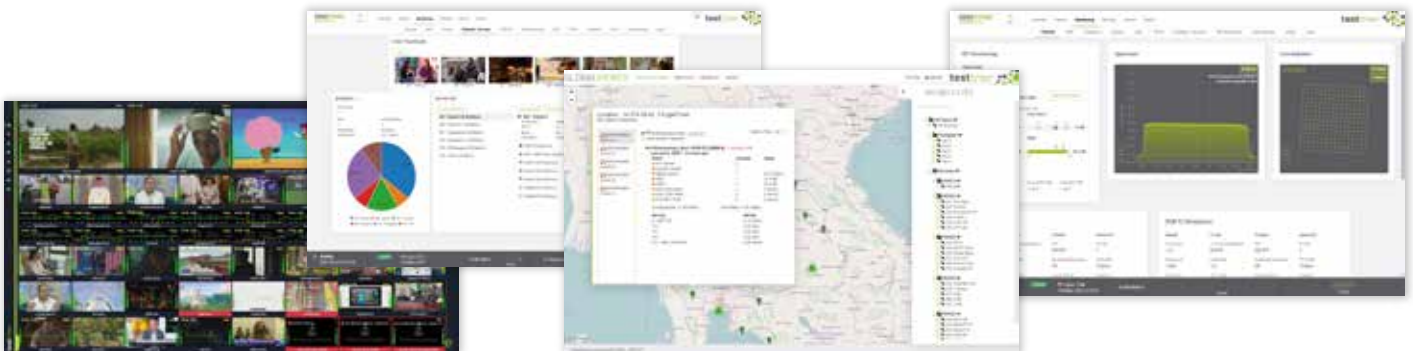
Transmission & Reception  
RF Signal Stability  
& Synchronization



## 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
- Compliance 24/7 recording
- Secure Ad Insertion revenues by 24/7 control of all SCTE-35 triggers

## BENEFITS

- Video QoS & QoE, for all services, at a glance: Thumbnail Mosaic Wall, TX/RX Site Map, End-to-End Macroservice View
- 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

8000+ PROBES DEPLOYED

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



## EDGEPROBE ADVANCED

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

DVB-T/T2 ISDB-T/Tb



## EDGEPROBE NANO

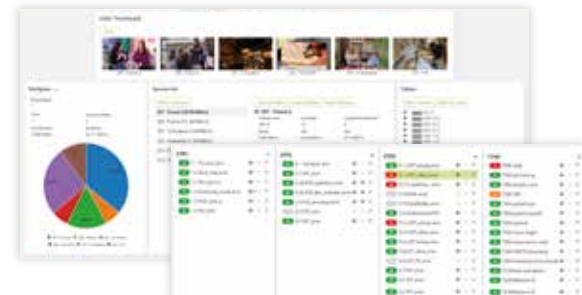
Monitoring at TX & RX sites  
1 monitoring module in compact format (14 x 13 x 3 cm)  
HW options: Internal GNSS receiver

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



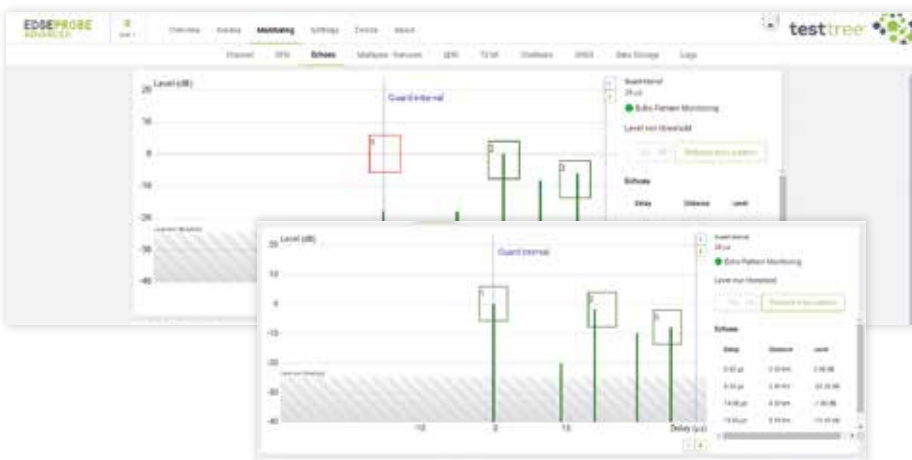
Accurate RF Signal Quality metrics: Power, MER, SNR, BER  
RF Spectrum & Constellation, multi-PLP support  
Highly customizable alarming thresholds  
**Both Terrestrial transmission and Satellite distribution signals can be monitored within the same 1RU device**

TS QoS: integrity & STB decoding assurance



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

Complete SFN synchronization monitoring

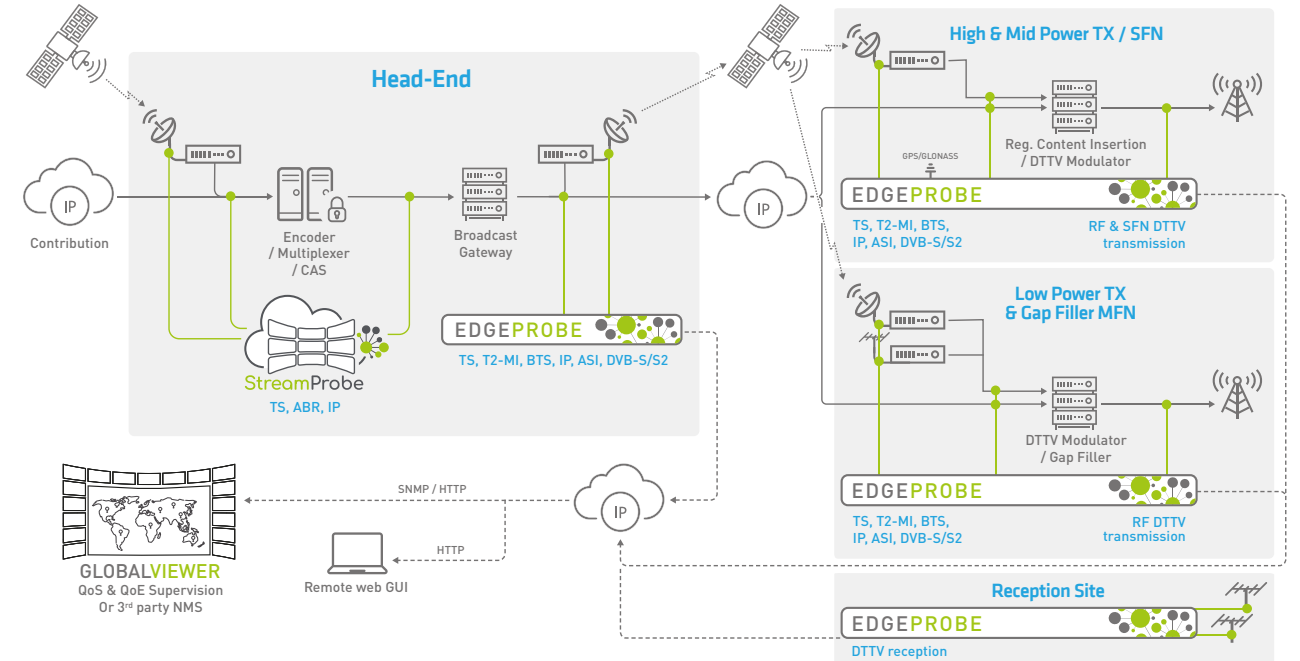


UNIQUE TestTree FEATURE

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

## END TO END SERVICE AVAILABILITY & QUALITY

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



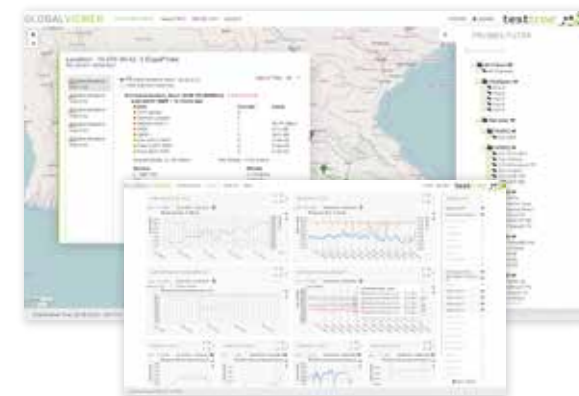
CONTRIBUTION → SERVICE PROCESSING → DISTRIBUTION TRANSPORT → TRANSMISSION

- 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

## GLOBALVIEWER

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 QOS & 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  
AD insertion monitoring  
Mosaic Thumbnail view, Map View, Macroservice view for end-to-end monitoring, Advanced QoE with VMAF  
Complete NBI/API for 3rd party NMS integration: management, orchestration, service dashboards

# TECHNICAL SPECIFICATIONS

## EDGEPROBE

### MONITORING FEATURES

#### RF Signal Monitoring

#### SFN Synchronisation Monitoring (DVB-T/T2, ISDB-T/Tb)

- Transmission site SFN monitor: quick identification of which TX site is causing SFN issues!
- SFN overlapping Reception Area monitor: Channel Impulse Response (Echo Delay and Level alarming thresholds) – with TestTree's Unique Echo Pattern monitor

#### TS Monitoring

- ETSI TR 101 290 Priority 1, 2, 3
- Verify Regionalization: Service Plan view, PID/Service presence, Scrambling
- Service & components bitrates
- BTS monitor: IP packet and TMCC alarms (ISDB-T/Tb)

#### T2-MI Monitoring (DVB-T2, DVB-S/S2)

- ETSI TR 101 290 T2-MI packet, T2 L1 pre/post signaling
- PLP extraction and TS PLP analysis

#### 32 GB of internal storage (up to 4 in 1RU)

- Alarm logs and RF parameter trends : up to 6 months
- TS/T2-MI recording (trigger: manual or automatic by SNMP)

#### IP Monitoring (Jittering, RTP FEC,...)

#### Round Robin

#### User-friendly interface

#### Compatible SNMP v2c and v2c INFORM for alarming and device configuration

#### Internal GNSS receiver (Hardware option)

#### Dual Power Supply (Hardware option)

### ORDERING CODES

#### EdgeProbe Nano

DVB-T/T2 ISDB-T/Tb

#### Compact & silent Monitoring probe.

#### RF Monitoring Software Pack split on different packages:

- **ACCESS:** RF Monitoring, SFN Monitoring (DVB-T/T2, ISDB-T/Tb), Round-Robin, ETSI TR 101 290 - Priorities 1, 2, 3
- **PERFORMANCE:** ACCESS + Service Plan & Multiplex View
- **ULTIMATE:** PERFORMANCE + IP Monitoring, T2-MI Monitoring (DVB-T2, DVB-S/S2), BTS Monitoring (ISDB-T/Tb), OneBeam Monitoring (DVB-T/T2, DVB-S/S2)

#### Hardware Options:

- EPA3-GNSS : Add GNSS support on the module (hardware)

#### EdgeProbe Advanced 3

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

#### 19" 1RU hardware rack unit supporting 1, 2 or 4 monitoring units

#### RF Monitoring Software Pack split on different packages:

- **ACCESS:** RF Monitoring, SFN Monitoring (DVB-T/T2, ISDB-T/Tb), Round-Robin, ETSI TR 101 290 - Priorities 1, 2, 3
- **PERFORMANCE:** ACCESS + Service Plan & Multiplex View
- **ULTIMATE:** PERFORMANCE + IP Monitoring, T2-MI Monitoring (DVB-T2, DVB-S/S2), BTS Monitoring (ISDB-T/Tb), OneBeam Monitoring (DVB-T/T2, DVB-S/S2)

#### Hardware Options:

- EPA3-In220VRedundant : Add 1x redundant 220V AC input in the EPA3 chassis (hardware)
- EPA3-GNSS : Add GNSS support on the module (hardware)

## STREAMPROBE

### QoS - LINEAR SERVICE AVAILABILITY & INTEGRITY

#### QoS - Linear Service Availability & Integrity

#### QoS - ABR Service Availability & Integrity

#### Monitoring Campaigns for VOD Services

#### QoE - Service Audio/Video Quality

- ABR streams DRM decryption
- Uncompressed formats: ST 2110-20/30 PCM, ST 2022-6 video, SD, HD, 3G, UHD
- Compressed formats: SD & HD MPEG-4 AVC/H264, 4K HEVC/H265, MPEG-2 audio/video, MPEG-1 audio, AAC, HE-AAC, HE-AACv2, AC3 Dolby Digital, EAC-3 Dolby Digital Plus
- Thumbnail Mosaic view, MacroService view, Map View
- Advanced Video Quality with VMAF
- Thumbnail History view for OTT & VOD monitoring

#### Recording

#### AD Insertion Monitoring

#### Video Live streaming

#### Reporting & NBI NMS Integration

### TECHNICAL CHARACTERISTICS

- SW Appliance solution: custom Linux based for OS
- Bare-metal, VM (ESXi >v6.0, KVM), AWS Cloud
- PCIe modules can be recommended for RF signal demodulation: DVB-T/T2, DVB-S/S2, DVB-C (J.83 A,B,C)
- Maximum Appliance monitoring capacity: 100Gbps uncompressed, 10Gbps TS, 16bps OTT, 100 VOD assets
- Performance CPU, RAM, HDD depending on the bitrate capacity to monitor

### ORDERING CODES

#### StreamProbe

#### 1. What type of Services to monitor ?

**StreamProbe 2110, StreamProbe IPTV, StreamProbe OTT, StreamProbe VOD**

#### 2. Bitrate capacity to monitor simultaneously: Mbps, Gbps, #VODassets

#### 3. Feature SW Pack:

**ACCESS:** Full QoS & QoE (Mosaic overview)

**PERFORMANCE:** ACCESS + Operational Add-ons (Video Streaming, Recording, Thumbnail History)

**ULTIMATE:** PERFORMANCE + Additional Services (4K, HEVC, Ad Insertion monitoring, CAS, Round-Robin, VMAF)

## 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)



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