

EDGEPROBE ADVANCED

DVB-T/T2

RF, ASI, IP Monitoring!

EDGEPROBE ADVANCED IS THE IDEAL TOOL TO ACHIEVE ACCURATE & COST-EFFECTIVE MONITORING OF THE QUALITY ACTUALLY DELIVERED TO ALL POINTS OF DVB-T AND DVB-T2 NETWORKS.

Combined with a **Network Monitoring System** or not, the EdgeProbe Advanced provides a powerful network alert & diagnosis tool allowing DTV network operators to monitor global trends and anticipate potential failures.

EdgeProbe Advanced is able to monitor **DVB-T** and **DVB-T2** signals at transmitter outputs, through its **RF inputs (up to 4 in 1 U)**, as well as at modulator input and at Head-End/distribution links, through its **ASI and IP inputs**.

EdgeProbe Advanced can continuously log all events & measurement values in an archive file, and can send **SNMP** traps if selected parameters' values exceed defined thresholds. For troubleshooting, a low bandwidth remote Web GUI gives access to all monitored parameters, from RF to baseband.

EdgeProbe Advanced provides monitoring of the signal at different levels:

- **RF transmission**: measures key RF signal parameters (Level, MER, SNR, BER), the **Frequency Offset**, the **SFN Drift** and indicates the modulation parameters as well as the **Channel Impulse Response (CIR)**.

- **T2-MI**: checks the distribution link at L1 pre & post signaling level.

- **MPEG-2 TS**: checks the ETSI TR 101 290 (Priority 1, 2 & 3) conformance and provides optional Quality of Service indicators (Service Availability, Service Degradation).

The **Service Plan** provides the means to check the **description of your multiplexes** and verify your **regional services**.

The EdgeProbe Advanced is equipped with an internal **GNSS receiver (GPS/GLONASS)** enabling the generation of an **internal 1PPS** signal used for the synchronization measurements (SFN, Frequency Offset).

Also, an **additional Power Supply** can be installed on the equipment in order to ensure the power redundancy.

NEW Coupled with a **TRANSBOX** device, EdgeProbe Advanced provides **service compression** (transcoding) and **streaming** to third-party analysis systems for **confidence monitoring**.

APPLICATIONS

- 24/7 Monitoring and Maintenance of both Head-End and TX sites (SFN/MFN, RF/Baseband)
- Generation of Service Availability reports for Service Level Agreements
- Rebroadcasting receiver: RF to ASI or IP
- Live transmission recorder

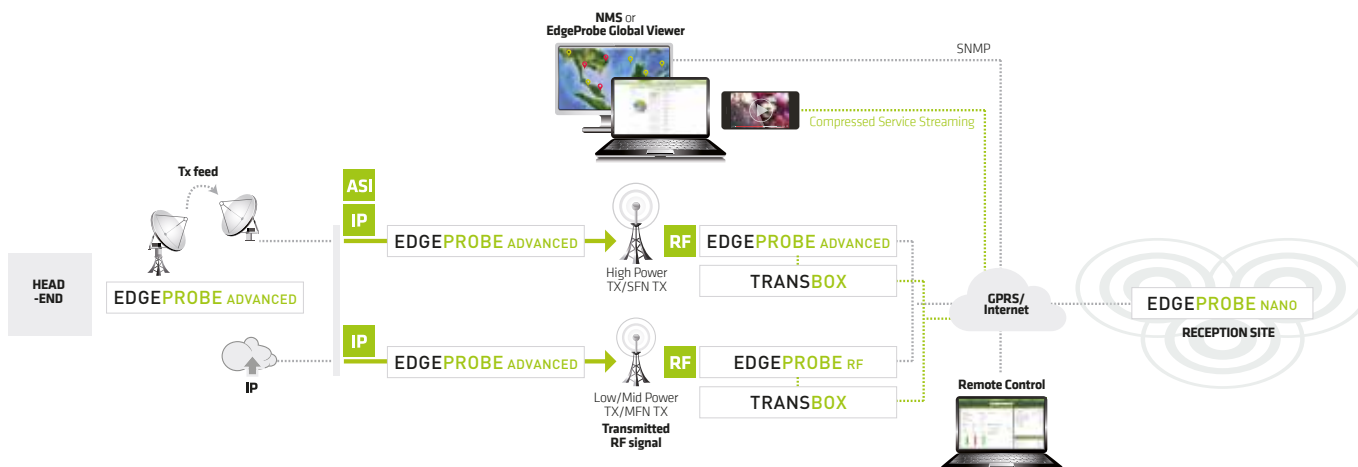


CHARACTERISTICS

1, 2 or 4x [RF in, ASI in/out, IP Data in/out (VLAN support)] in 1 RU
1PPS (internal/external), 10MHz
1 or 2x IP Control for low bandwidth remote Web GUI
EdgeProbe Advanced models: DVB-T/T2/T2 Lite, DVB-C/C2, ISDB-T/Tb
RF accurate measurements: signal level, SNR, MER, BER
SFN Drift, Channel Impulse Response, Frequency Offset monitoring
Multiplex & Service Plan check
ETSI TS 101 290 validation: Priority 1, 2, 3 and QoS SAE/SDE
MPEG-2 TS, T2-MI (PLP extraction) Support
OneBeam/Single Illumination T2-MI markers monitoring
TS over ASI out or IP forward for video QoE monitoring
1, 2 or 4x 32 GB storage for TS record and 6 months logs & trends
Service Compression and Streaming via TRANSBOX
Internal GNSS receiver (GPS, GLONASS), dual Power Supply

KEY BENEFITS

- **Standalone, easy to use and configure**, fast deployment, SNMP compatible
- Increase customer satisfaction by **detecting & preventing DTV network degradations** before your customers do
- **Reduce TX sites maintenance cost** by anticipating and identifying issues
- Remotely accessible, compatible with **low bandwidth control networks** (GPRS/3G)
- Low power consumption 20W



INTERFACES

Control	Up to 2x Gigabit Ethernet for Web GUI, SNMP-V2C
RF Standards	Up to 4x RF inputs (N-type female - 50 Ω) DVB-T, DVB-T2 (including 1.3.1), DVB-T2 Lite
Frequency range	40 to 1000 MHz
Sensitivity	-80 to -5 dBm
Channel bandwidth	1.7, 5, 6, 7 & 8 MHz
TS	Up to 4x ASI in/out (BNC-type female - 75 Ω) Up to 4x Gigabit Ethernet for Data in/out (VLAN support)
GNSS Time Reference	1x GNSS antenna input (SMA-type - 50 Ω) HW option 1x 1PPS input (BNC-type female - 50 Ω) 1x 10MHz input (BNC-type female - 50 Ω)

MONITORING FEATURES

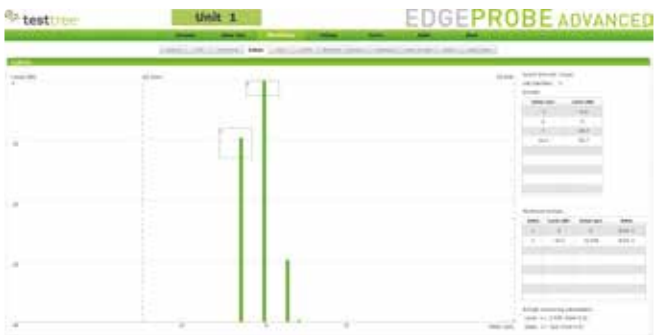
RF Monitor	Demodulation status Signal level MER SNR BER (DVB-T) BER (DVB-T2) Modulation parameters Channel Impulse Response (CIR)	Lock / Unlock -90 to -5 dBm ±1 dBm, typically ±0.5 dBm, resolution 0.2 dBm 0 to 40 dB (0 to 36 dB: ±1 dB, 36 to 40 dB: ±2 dB) 0 to 40 dB ±1 dB Pre/Post-Viterbi, Post-RS Pre/Post-LDPC, Post-BCH L1 signaling in DVB-T2, TPS in DVB-T
SFN Synchronization Measured at RF level	SFN Drift Network Delay Frequency Offset & Drift	Allows rapid identification of which TX site is causing SFN issues Transmission time for the SFN signal
T2-MI		ETSI TR 101 290 T2-MI packet L1 pre/post signaling PLP extraction and TS PLP analysis
OneBeam/Single Illumination		Monitoring of specific PIDS from the DTH stream, used to recover the T2-MI distribution on TX Site
TS Monitor Base		ETSI TR 101 290 Priority 1 and 2
TS Monitor Advanced		ETSI TR 101 290 Priority 3
QoS Monitor		SAE (Service Availability Error) SDE (Service Degradation Error)
Service Plan		Verify regional services Service & PID bitrates, Scrambling, Service & PID presence
Scanning		Monitor sequentially multiple channel frequencies or PLPs over 1RF input
Extended Memory		Up to 4x 32 GB of internal storage: event logs up to 6 months, trends up to 6 months, TS recording
TRANSBOX		Combined with a TRANSBOX device, EdgeProbe Advanced provides service compression (transcoding) and streaming to third-party analysis systems

ORDERING CODES

EdgeProbe Advanced	DVB-T/T2 Advanced Monitoring Probe
<i>Included</i>	RF to ASI, RF/ASI to IP, RF + CIR + SFN monitoring, VLAN
<i>SW options</i>	Scanning TS Monitor Base TS Monitor Advanced QoS Monitor Service Plan T2MI Monitor Extended Memory Dual ADV OneBeam/Single Illumination
<i>HW options</i>	Quad ADV Dual Power Supply Internal GNSS TRANSBOX Tropicalization
	Multiple RF channels sequential monitoring over 1 RF input ETR290 Priority 1, 2 monitoring ETR290 Priority 3 monitoring SAE, SDE monitoring Multiplex Service/PID monitoring T2-MI monitoring Up to 4x 32 GB storage: trends, logs, TS record Two units: 2x (RF + ASI + IP Data) in 1 RU T2-MI markers monitoring Four units: 4x (RF + ASI + IP Data) in 1 RU 100-240 VAC redundant power supply Internal GNSS receiver (GPS, GLONASS) for internal 1PPS generation Stream 1 or 2 compressed service(s) Preserve the HW from corrosion



DVB-T2 RF Channel monitoring view



Channel Impulse Response monitoring view

PHYSICAL

Height: 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: 20W, 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