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**.

CHARACTERISTICS

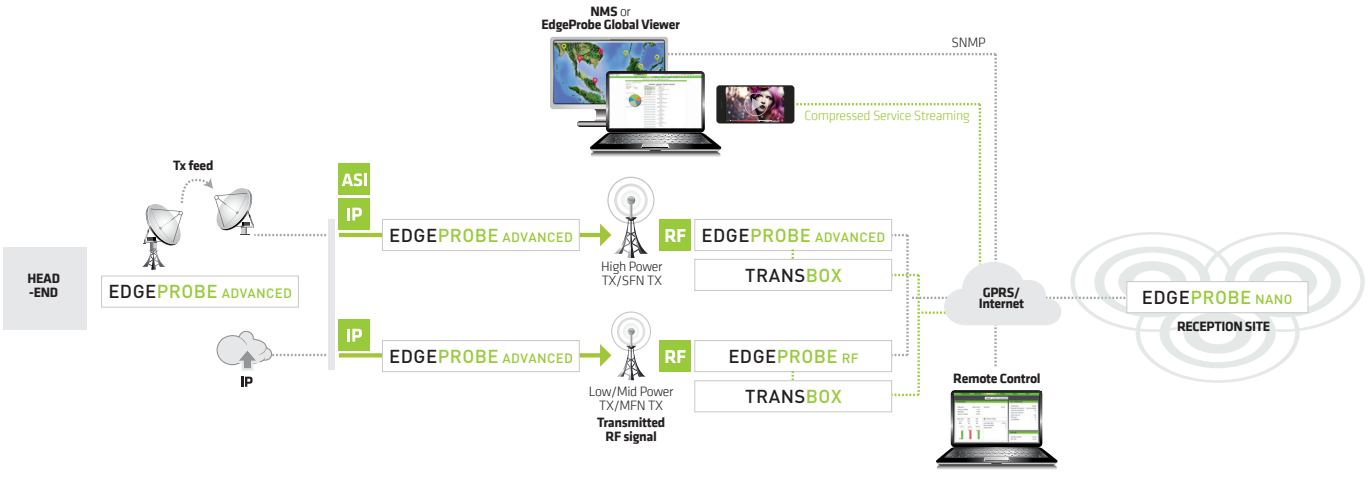
1, 2 or 4x [RF in, ASI in/out, IP Data in/out (VLAN support)] in 1 RU
1PPS (internal/external), 10MHz
1 or 2x IP Control for low bandwidth remote Web GUI
EdgeProbe Advanced models: DVB-T/T2/T2 Lite, DVB-C/C2, ISDB-T/Tb
RF accurate measurements: signal level, SNR, MER, BER
SFN Drift, Channel Impulse Response, 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

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

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

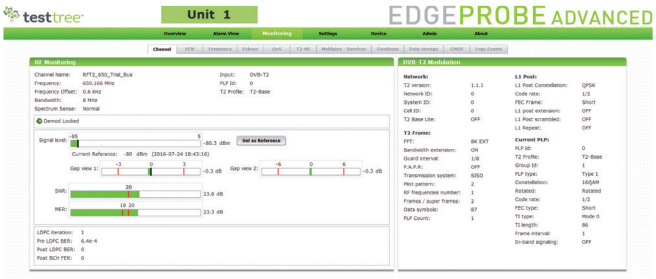


INTERFACES

Control	Up to 2x Gigabit Ethernet for Web GUI, SNMP-V2C
RF Standards Frequency range Sensitivity Channel bandwidth	Up to 4x RF inputs (N-type female - 50 Ω) DVB-T, DVB-T2 (including 1.3.1), DVB-T2 Lite 40 to 1000 MHz -80 to -5 dBm 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	Lock / Unlock
Signal level	-90 to -5 dBm ±1 dBm, typically ±0.5 dBm, resolution 0.2 dBm
MER	0 to 40 dB (0 to 36 dB: ±1 dB, 36 to 40 dB: ±2 dB)
SNR	0 to 40 dB ±1 dB
BER (DVB-T)	Pre/Post-Viterbi, Post-RS
BER (DVB-T2)	Pre/Post-LDPC, Post-BCH
Modulation parameters	L1 signaling in DVB-T2, TPS in DVB-T
Channel Impulse Response (CIR)	
SFN Synchronization Measured at RF level	
SFN Drift	Allows rapid identification of which TX site is causing SFN issues
Network Delay	Transmission time for the SFN signal
Frequency Offset & Drift	
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 Avability 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



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

ORDERING CODES

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

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