

# HIGH PERFORMANCE DTV MONITORING



Equipment for real-time monitoring of DVB-T / DVB-T2 / ISDB-Tb and transmitter RF performance.

Simultaneous monitoring of the ASI input or IP input Transport Stream to the transmitter and the Transport Stream demodulated by the transmitted RF signal.

Analysis of Transport Streams according to international standards.

Real-time analysis of "Black & Freeze" events on individual programs of the Transport Stream flow. Possibility to set event duration interval and percentage of the frame to be analyzed.

BER, MER and Carrier Offset measurements

SFN Network Delay

Graphical representation of Spectrum, Constellation and MER vs Carrier

Graphical representation of PCR Jitter Accuracy and PCR Overall Jitter

Remote viewing and real-time video (of both TS ASI stream and demodulated RF stream) via UDP

Log alarms and measures

Local visualization and settings via front display

Local visualization and settings via Web interface and SNMP

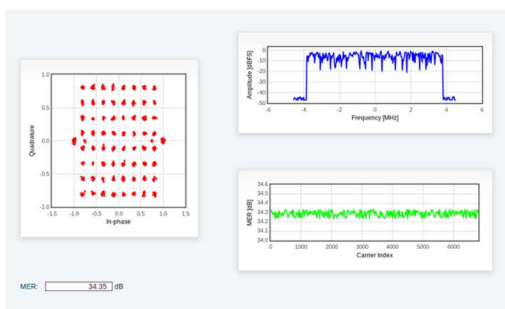
Manual recording of video streams with settable recording time

Automatic recording triggered by specific events

Multi-probe system with HDD for storing recording logs

SFN Check and PPS CrossCheck:  
SFN DVB-T transmitters and GPS operativity check

RF Polling: monitoring of multi-channel systems using a single probe. The probe carries out measurements on all channels (up to 16) with a settable polling time



Real Time Constellation, Spectrum and MER vs. Carrier

Black Errors				
PID	Num. Frames	Status	Count	Message
431	6800	●	0	
432	6800	●	0	
433	6800	●	0	
434	6800	●	0	
435	6800	●	0	

Freeze Errors				
PID	Num. Frames	Status	Count	Message
431	6800	●	0	
432	6800	●	0	
433	6800	●	1	Freeze(Stream 0, Frame 6805 RunLen 3) 1: 22102014_142829
434	6800	●	0	
435	6800	●	1	Freeze(Stream 2, Frame 6796 RunLen 3) 1: 22102014_142828

Black&Freeze Analysis

# HIGH PERFORMANCE DTV MONITORING

**GENERAL**

Frontend	DVB-T2 (ETSI EN 302 755), DVB-T (ETSI EN 300 744), ISDB-T/Tb (ABNT NBR 15606-2)
Frequency	Bands III, IV, V
Transport Stream	ASI interface on back panel Input BNC connector IP Input (UDP Protocol)
MPEG2 TS output	ASI @ 270Mb/s
RF Measurement	MER, BER, Carrier offset
MPEG Analysis	ETSI TR 101 290
Management	Local display, Web, SNMP
Software Upgrade	Local, Remote
Alarm Thresholds	Configurable for each measurement parameter

**AC MAINS**

AC Line Voltage	2-phase 50/60 Hz, 100V to 240V
AC Line Variation	10% to -15%
Power Factor	>0.90
Consumption	50W

**PERFORMANCES**

Adjacent channel rejection	> 50dB
MER measurement (RF)	> 41dB

STANDARD	DVB-T	DVB-T2	ISDB-T/Tb
Bandwidth (MHz)	6MHz, 7MHz, 8MHz	1.7MHz, 5MHz, 6MHz, 7MHz, 8MHz	6MHz, 7MHz, 8MHz
OFDM Carriers	2k, 8k	1k, 2k, 4k, 8k, 16k, 32k	2K(Model), 4K(Mode2), 8K(Mode3)
Constellation	QPSK, 16-QAM, 64-QAM	BPSK (LIPRE only), QPSK, 16-QAM, 64-QAM, 256-QAM, rotated constellations	DQPSK, QPSK, 16-QAM, 64-QAM
FEC Encoding	1/2, 2/3, 3/4, 5/6, 7/8	1/4 (LIPRE only), 1/2, 3/5, 2/3, 3/4, 4/5 or 5/6	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32	1/128, 1/32, 1/16, 19/256, 1/8, 19/128, and 1/4 (For 32k mode, the maximum is 1/8)	1/4, 1/8, 1/16, 1/32
Network Mode	MFN/SFN	MFN/SFN	MFN/SFN

**MEASUREMENTS AND GRAPHICAL REPRESENTATIONS**

Constellation	BER
Spectrum	SFN Network Delay
Signal Level	Frequency Offset
MER	TPS(DVB-T), LI (DVB-T2) Decoding
MER vs Carrier	Spectral Inversion

**ENVIRONMENTAL**

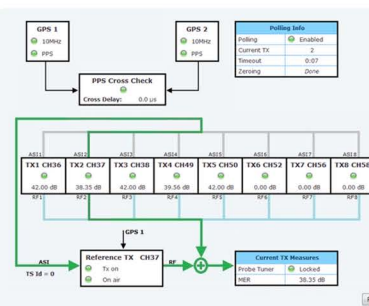
Altitude	Up to 4.000m above sea level
Guaranteed specifications	+5°C to +45°C
Operation Temperature	0 to +50°C
Humidity	Up to 95% non-condensing
Cooling Method	Forced Air
Acoustic Noise	< 65 dBA (measured 1m in front of cabinet)

**RF**

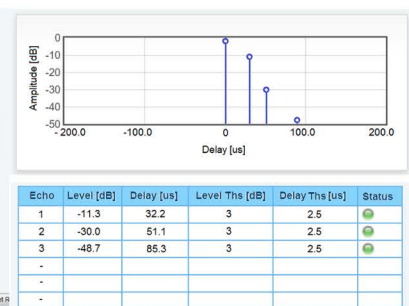
Input Connector	Type N	
Return Loss	> 20dB	
Specification	Compliant DVB-T2 (ETSI EN 302 755) and DVB-T (ETSI EN 300 744)	
Signal Level	-80 dBm to -25 dBm or -0 dBm to +10 dBm	
Frequency Bands	UHF IV, V – VHF III	
Offset (Mhz)	0, ± 1/6, ± 2/6, ± 3/6	
Dual RF input	Optional	
<b>MECHANICAL</b>	<b>Dimensions (WxHxD)</b>	<b>Weight (approx.)</b>
<b>DTV Monitoring</b>	1U – mm 483x45x540	Kg 4



Real Time PCR



SFN Check, RF Polling, PPS CrossCheck



Echo Pattern Diagram