TEST & MONITORING
TEST TOOLS FOR LAB & FIELD

RF Capture/Playback & Generate
70 MHz – 6 GHz frequency range with down conversion for Ku/C band

- RF-Catcher Starter Kit
- Application Suite for RF-Catcher Starter Kit
- ATSC 3.0 LabMod
- RF-LiveSim

Analyze RF & Baseband
Multi-standard [DVB-T/T2, DVB-C/C2, DVB-S/S2, ISDB-T/Tb] professional measurement receivers and pocket-size analyzers, recorders and players; connected via USB to a Windows PC running the DiviSuite analysis software

- DiviSuite™
  - DiviSuite Base
  - DiviSuite options: RF Scope, TS Analyzer, T2-MI Analyzer, Drive Test Coverage
- Hardware products used with the DiviSuite
  - ReFeree II
  - DiviCatch RF Series
  - DiviDual ASI + SPI (LVDS or TTL)
  - DiviDual ETI
- Pure software application using the DiviSuite
  - DiviSuite-IP

DIGITAL TV & RADIO MONITORING

GlobalViewer

IPTV & OTT Service Platforms
High-density and scalable solution for QoS & QoE monitoring of hundreds of streams in parallel: ETR 101 290, audio levels, video freeze/black screen, live thumbnail mosaic view and service streaming.

- StreamProbe IPTV & OTT

Digital TV Broadcast Network
Cost-effective and high quality monitoring probes for Head-End, Transmission and Reception sites – RF & SFN signal quality, Transport Stream QoS: ETR 101 290, DVB-T2-MI, OneBeam/Single Illumination (DVB-SIS), BTS, STLTP.

- EdgeProbe RF & Nano
- TRANSBOX confidence monitoring
- EdgeProbe Advanced
- EdgeProbe Advanced module for High Density chassis

Digital Radio Broadcast Network
Cost-effective and high quality monitoring probes: RF & SFN signal quality.

- EdgeProbe Advanced
TestTree history

TestTree is a proud member of the ENENSYS Technologies group, founded in 2004. ENENSYS designs and manufactures innovative professional equipment for Digital TV Broadcast industry. The company is the world leader for DVB-T2 technology, and covers other standards such as DVB-T, ATSC 3.0, DVB-S/S2, ISDB-T, DVB-C, DAB+, T-DMB, IP... more info at www.enensys.com. Since its early days, ENENSYS was offering Test & Monitoring equipment as part of its portfolio.

In 2010, the company decided to spin off the Test & Monitoring part to create TestSystems Business Unit, managed by a dedicated team including R&D, Support, Marketing and Sales. The objective was clear: develop the best products and give the best support to each and every Test & Monitoring customer.

Leveraging on the launch of successful products and on the acquisition of major references, the decision was made in 2016, to take the Business Unit to the next level by creating the TestTree brand.

To consolidate its position as major provider of Test & Monitoring solutions throughout the entire Digital Video Delivery chain, TestTree expanded in 2018 its product portfolio with a full software IPTV & OTT monitoring solution.

TestTree today


TestTree team is composed of highly experienced engineers, gathering a broad technology base such as hardware design, RF, signal processing and software.

Our corporate culture is rooted on strong human values such as anticipation, creativity, empathy and reactivity to be ahead of your needs and achieve customer care excellence. More info at www.test-tree.com.

TestTree in the world

Countries where TestTree equipment is deployed

- 5000+ probes deployed
- 90+ countries
- 500+ customers
SERIAL INVENTOR

TestTree culture is based on innovation. TestTree is working since its creation on novelty products and solutions based on latest technologies and standards. TestTree team participates to the major standardization working groups (DVB, ATSC, ...).

The company has more than 30 patents, all dedicated to the broadcast industry. Linked to this innovation work, TestTree is proud to be the first to introduce new test devices to support customers in their network improvements and deployments.

All products are fully developed and produced in France by TestTree: hardware, firmware, software... providing the complete knowledge and flexibility to our team to deliver new features according to customer requests and to imagine new solutions.

2 PRODUCT LINES

LAB & FIELD

MONITOR

OUR CUSTOMERS

R&D Labs
→ Chipset and Receivers manufacturers
→ Digital TV R&D centers
→ Broadcast equipment manufacturers
→ Network & Service Platform Operators
→ Automotive, Telecom, Defense

Factory testing
→ End of production equipment test and validation

Demos
→ Receivers Promotion, Trade Show...

FM & Digital Radio & Info Traffic
→ Field testing & recording
→ R&D Lab investigation

Video Content Providers
→ Service processing & delivery monitoring

IPTV & OTT Service Platform & Broadcast Network Operators
→ System Design and Operational teams for:
  • Design & installation
  • Field testing
  • Network monitoring
  • Maintenance and troubleshooting
→ Network Monitoring

Broadcast regulators
→ Field testing & recording
→ Network compliance monitoring
TEST TOOLS FOR LAB & FIELD

RF CAPTURE/PLAYBACK & GENERATE
70 MHz – 6 GHz frequency range with down conversion for Ku/C band

- **RF-Catcher Starter Kit** RF record, playback and spectrum analysis
- **Application Suite for RF-Catcher Starter Kit**
- **ATSC 3.0 LabMod** STL Gateway approved Modulator for Labs
- **RF-LiveSim** Real-time RF Channel Simulator

ANALYZE RF & BASEBAND
Multi-standard (DVB-T/T2, DVB-C/C2, DVB-S/S2, ISDB-T/Tb) professional measurement receivers and pocket-size analyzers, recorders and players; connected via USB to a Windows PC running the DiviSuite analysis software

- **DiviSuite™**
  - DiviSuite Base
  - DiviSuite options: RF Scope, TS Analyzer, T2-MI Analyzer, Drive Test Coverage

Hardware products used with the DiviSuite

- **ReFeree II**
- **DiviCatch RF Series**
- **DiviDual ASI + SPI (LVDS or TTL)**
- **DiviDual ETI**

Pure software application using the DiviSuite

- **DiviSuite-IP**
LAB & FIELD
RF-CATCHER STARTER KIT

The Most Compact RF Capture & Playback device!

Covering a frequency range from 70 MHz up to 6 GHz, RF-Catcher can record and play real-time RF bandwidth up to 55 MHz.

RF-Catcher allows experimentation of a wide range of signals including Radio (FM, DAB...), TV broadcast (DVB-T/T2, C/C2, ISDB-T, etc...), cellular, Wi-Fi, up to satellite signals (DVB-S/S2). The RF-Catcher is equipped with LNB control for frequency down conversion of Ku/C bands. The integrated GNSS receiver provides precise location information; KML file, metadata, NMEA compatible.

TECHNICAL CHARACTERISTICS

- 2x RF inputs, 2x RF outputs for RF Capture & Playback (SMA/F connectors)*
- Frequency range from 70 MHz up to 6 GHz, resolution 1kHz
- Variable bandwidth from 1 up to 55 MHz
- Automatic filtering: harmonic suppression for playback, out of band signal suppression for capture
- RF reception:
  - Status indicators: USB connection / IQ sample loss / In band saturation (ADC) / Out of band saturation (LNA)
  - FFT display: Spectrum measurements: FFT resolution, FFT markers insertion / Averaging functions: RMS, min/max hold / FFT window functions: rectangular, Hamming, Blackman, Hann...
  - Signal waterfall plot (three-dimensional spectrum)
  - Power in band measurement per frequency marker
- RF capture: variable gain, automatic gain setting (AGC), rolling buffer mode
- RF playback: variable attenuation
- Lightweight and compact 163 x 115 x 32 mm, 600 g, 3 W typical power consumption
- Connected to PC via USB3.0 connectivity (SuperSpeed) (USB2 backward compatible, but with lower performances due to limited USB2 bitrate)
- IQ files stored on the PC: 12 Msps sample rate, 170 min of record = 512GB
- Nonproprietary IQ file format, compatible by Matlab software
- Integrated GNSS (GPS, GLONASS) receiver: KML file, metadata, NMEA protocol
- Compatible MS Windows 7/8/10 (x64 versions only)

*Both input/output connectors cannot be used at the same time

APPLICATIONS

- Chipset, STB/TV field test debugging (a great tool to support your pre-sales team)
- Easy & simple usage: no need for RF experts to capture field RF signals (ex: DAB/FM, TV broadcast, Satellite broadcast, Wi-Fi,...), your sales force can do it for you anywhere in the world
- Handy demonstration setup: bring real RF sources into your laptop
- RF sources stored on a PC: easy to duplicate/transfer between head-quarter and regional sites
- Radio/TV Broadcast/Telecom RF troubleshooting
- Test automation (command line tools)
- Telecommunications Regulation Agencies validation tool
Easy to use & Responsive GUI
High degree of parameterization for measures

Rhombus

Auto-test control: evaluate the PC performance for RF capture/playback max bandwidth

AGC (Automatic Gain Control) for RF reception: static or dynamic

WATERFALL SECTION
Allows detection of bursts & transients (Wi-Fi, 4G, ...)

RSSI (Received Signal Strength Indication)

SPECTRUM ANALYSIS
• Power in band
• Averaging functions
• FFT windows functions

IQ max power
IQ average power

Status indicators
USB: connection (USB2 or USB3)
LOSS: IQ sample loss
IBS: in band saturation (ADC)
OOBS: out of band saturation (LNA)

Frequency setting
for capture RX / playback TX
Range 70 MHz to 6 GHz
1 kHz resolution

RF Capture & Playback controls
Autostop recording
Sample rate up to 61.44 Mps
Variable acquisition bandwidth from 1 up to 55 MHz
Gain setting for capture
Attenuation setting for playback

RX/TX connector setting: F or SMA

Load and Save configuration files

RF capture file stored on PC:
170 min of 12 Msp bandwidth record = 512GB
NONPROPRIETARY IQ FILE FORMAT

ORDERING CODE
RF-Catcher Starter Kit
RF Capture & Playback
Shipped bundled with HW device, software application for MS Windows 7/8/8.1/10 (x64)

Dedicated side panel for in-app options:
Event Trigger and RF TroubleMaker

LNB configuration for Satellite capture

Clock mode for 1PPS generation

Rolling Buffer mode for RF capture

RF-Catcher Starter Kit
APPLICATION SUITE FOR RF-CATCHER

One Global Launcher for all applications
Quickly access the applications without missing any information

SUBSCRIPTION
- Complete Suite and future applications
- Software updates & privileged support
- Licenses for the subscription duration

PURCHASE
- Choose the applications from the Suite
- Optional software updates & support
- Permanent licenses

ORDERING CODE

Application Suite for RF-Catcher Starter Kit
Software: IQ Converter, IQ Splitter, TaskScheduler, Event Trigger, RF TroubleMaker, ATSC 3.0 LabMod, DiviSuite-IP
Compatible MS Windows 7/8/8.1/10 (x64)

Licenses
- Subscription
- Life-time licenses

All applications including Advance Software Support for the subscription period
One or several of the above applications with optional Advance Software Support
## Application Suite Compatible for RF-Catcher Starter Kit

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capture &amp; Playback Application</strong></td>
<td>Capture, playback and analyze real-time RF spectrums from 70 MHz to 6 GHz with a bandwidth up to 55 MHz. Refer to Page 8 for details.</td>
</tr>
<tr>
<td><strong>IQ Converter</strong></td>
<td>IQ file conversion from/to RF-Catcher non proprietary IQ file format. Supported formats: Eiden, Lumantek, IZT, Adivic, A74, ARB...</td>
</tr>
<tr>
<td><strong>IQ Splitter</strong></td>
<td>IQ file time cut and resize. Optimize the IQ files network transfer by keeping only the most important part of an RF Capture!</td>
</tr>
<tr>
<td><strong>TaskScheduler</strong></td>
<td>Autonomous capture and playback scheduling. Generate report files containing RF power measurements for several frequency markers, and visualize the results in real-time.</td>
</tr>
<tr>
<td><strong>Event Trigger</strong></td>
<td>Automatic RF Capture triggering based on monitoring alarms, RF signal level, frequency markers or HW trigger. Perfect for FM/DAB switchover road tests! Refer to Page 40 for details.</td>
</tr>
<tr>
<td><strong>RF TroubleMaker</strong></td>
<td>A must-have laboratory tool! Noise generator (gaussian, impulsive...) and Channel Simulator (add up to 24 echoes on the generated RF signal).</td>
</tr>
<tr>
<td><strong>ATSC 3.0 LabMod Application</strong></td>
<td>STL Gateway approved ATSC 3.0 modulator for Lab. Generate live ATSC 3.0 RF Signals. Refer to Page 12 for details.</td>
</tr>
<tr>
<td><strong>DiviSuite-IP</strong></td>
<td>Complete analyzer software application for baseband TS/T2-MI/BTS streams (over IP or file-based). Refer to Page 24 for details.</td>
</tr>
</tbody>
</table>

**TaskScheduler**
- Control power levels and spread-spectrums
- Long-term campaigns
- Cut the costs and avoid external contractors

**Event Trigger**
- Monitor RF signals and TS content
- Analyze the RF Capture
- Rolling buffer

**RF TroubleMaker**
- Generate real RF conditions
- Test and analyze your RF robustness
- Simulate the Channel Impulse Response
ATSC 3.0 Lab Modulator is the perfect modulator for discovering ATSC 3.0 standard: generate live ATSC 3.0 RF signals or IQ pattern files, record live ATSC 3.0 transmission in different places over the world and playback them to test your receiver.

**APPLICATIONS**

- ATSC 3.0 RF record & playback
- ATSC 3.0 reception validation
- R&D or factory tests and measurements
- Chipset development
- TV / Set Top Box development
- Demonstrations and roadshows

**KEY BENEFITS**

- 1st ATSC 3.0 modulator
- Compact (600g), USB self-powered
- 3-in-1 product: RF Record + Playback + Generate
- ATSC 3.0 PlugFest proven
- Intuitive & easy to use GUI
- Easy to configure: real-time Frame configuration validation engine
- All modulation schemes supported (from QPSK to 4096 QAM, LDM support)

**TECHNICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Input interface</th>
<th>PRBS, IP STL, TS File 2x RF inputs [SMA-type female 50 Ω, F-type female 75 Ω] ATSC 3.0 live RF recording</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clock and synchronisation</td>
<td>10 MHz, 1 PPS, Built-in GNSS receiver 10 MHz 10 MHz</td>
</tr>
<tr>
<td>GUI</td>
<td>M5 Windows 7/8/8.1/10 (x64) application Easy to use, configuration validation engine Capability to save/load settings profiles</td>
</tr>
<tr>
<td>Output interface</td>
<td>2x RF outputs [SMA-type female 50 Ω, F-type female 75 Ω] ATSC 3.0 live RF playback and generate</td>
</tr>
<tr>
<td>Modulation</td>
<td>QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM Compatible with all L1 modes Yes</td>
</tr>
<tr>
<td>L1</td>
<td>6, 7 or 8 MHz 192, 384, 512, 768, 1024, 1536, 2048, 2432, 3072, 3648, 4096, 6864</td>
</tr>
<tr>
<td>LDM (Layered Division Multiplex)</td>
<td>SMTimer, TS File</td>
</tr>
<tr>
<td>Channel bandwidth</td>
<td>2/15 up to 13/15 Inner: LDPC 16k and 64k, mode A or B Outer: BCH, CRC or no outer</td>
</tr>
<tr>
<td>Guard Interval</td>
<td>SP3_2, SP3_4, SP4_2, SP4_4, SP6_2, SP6_4, SP8_2, SP8_4, SP12_2, SP12_4, SP16_2, SP16_4, SP24_2, SP24_4, SP32_2, SP32_4</td>
</tr>
<tr>
<td>FFT mode</td>
<td>SP3_2, SP3_4, SP4_2, SP4_4, SP6_2, SP6_4, SP8_2, SP8_4, SP12_2, SP12_4, SP16_2, SP16_4, SP24_2, SP24_4, SP32_2, SP32_4</td>
</tr>
<tr>
<td>Code rate</td>
<td>CTI up to 1448 depth, HTI Multiple subframes: single/multiple PLP</td>
</tr>
<tr>
<td>FEC</td>
<td>Transmitter identification</td>
</tr>
<tr>
<td>Pilot pattern</td>
<td>Contact us for availability</td>
</tr>
<tr>
<td>Subframes</td>
<td></td>
</tr>
<tr>
<td>TxDt</td>
<td></td>
</tr>
</tbody>
</table>

**PHYSICAL**

- Dimensions: 163 x 115 x 32 mm 6.4 x 4.5 x 1.2 in
- Weight: 600 g
- Power supply: USB self-powered
- Power consumption: 3 W

**ENVIRONMENT**

- Operating temperature: -20°C to +55°C
- Storage temperature: -20°C to +70°C

**PC MINIMUM REQUIREMENTS**

- Core i5/i7 processor
- 4 GB of RAM
- USB 3.0 connectors
- SSD for storage (Solid State Drive)
Easy to use & Responsive GUI
Real-time configuration validation engine

Frame structure section
Create Frame structure: subframe, PLP

Settings section
Configure all Frame elements

Real-time configuration validation engine
Detailed message indicating non valid parameters

Monitoring section
Real-time overview of the Frame structure
Detailed characteristics depending on the current configuration

ORDERING CODES

<table>
<thead>
<tr>
<th>ATSC 3.0 LabMod</th>
<th>ATSC 3.0 Modulator for Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped bundled with HW device and ATSC 3.0 LabMod Application for MS Windows 7/8/8.1/10 (x64)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATSC 3.0 LabMod Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS Windows 7/8/8.1/10 (x64) software application for RF-Catcher Starter Kit</td>
</tr>
</tbody>
</table>

Software Option
RF Capture & Playback
Software Application for RF transmission captures, playbacks and spectrum analysis
Covering a frequency range from 50 to 900 MHz, RF Live Simulator can emulate RF channels propagation modes for a signal bandwidth from 20 kHz to 20 MHz (gaussian noise, multipath, Doppler and frequency drift tools).

RF-LiveSim is a cost effective solution for intense automatic non regression tests at the physical layer level.

**TECHNICAL CHARACTERISTICS**

- Standalone unit with PS/2 & VGA interfaces for screen-keyboard-mouse control
- 1x RF in, 1x RF out (isofrequency)
- 1x Ethernet port for remote control
- Full remote control via SCPI (Standard Commands for Programmable Instruments) protocol
- Signal level: output from -110 to -20 dBm without any interruption
- Frequency range from 50 to 900 MHz, resolution 1 Hz
- Variable bandwidth from 20 kHz to 20 MHz, resolution 1 kHz
- Channel Propagation Profile: 20 independent paths adjustable (amplitude, delay, phase, Doppler)
- Doppler profiles: -70 000 to +70 000 Hz (step 1 Hz), Amplitude distributions (Pure, Flat, Gaussian, Rayleigh, Rice)
- Frequency drift & hopping without loosing receiver synchronization
- Preset configurations: terrestrial broadcast profiles such as TU6, rural, indoor/outdoor for fixed/portable devices as well as profiles for physical layers for WiMAX / LTE
- AWGN Generator: Signal+Noise, Burst noise, Impulsive noise, Noise only
- 1x TRIG, 1x 10MHz in & 1x 10MHz out
- 1U rack form (450x500x44)

**APPLICATIONS**

- Chipset designers: complete modulator/demodulator testing
- Receivers manufacturers: operating limit testing and robustness
- R&D Laboratories: intensive non-regression testing, design/product verification

**KEY BENEFITS**

- Real-time channel profile simulations
- Up to 20 adjustable independent terrestrial paths
- Several preset configurations available
- Remotely accessible
- Easy to use and configure
- Test automation (SCPI compliant)

**ORDERING CODE**

RF-LiveSim  RF Live Channel Simulator - 50-900 MHz input/output - 1U rack
## ANALYZE RF & BASEBAND

### LIGHTWEIGHT DEVICES
- USB SELF-POWERED

### DIVISUITE

#### Measurement Receivers
- **REFEREE II**
  - Standards: DVB-T, DVB-T2 Lite, DVB-C, DVB-C2, ISDB-T/Th, DAB+ (ATSC 3.0/1.0*)
  - Characteristics:
    - RF input
    - ASI input/output
    - IP input/output
    - SPI input/output
    - 1 PPS & 10 MHz input
    - GNS input
    - GAV output
    - Recorder
    - Player

#### Professional Receivers
- **DIVICATCH RF-S/S2**
  - Standards: DVB-S, DVB-S2
- **DIVICATCH RF-ISDB-T/TB**
  - Standards: ISDB-T/Th
- **DIVICATCH RF-T/C T2/C2**
- **DIVICATCH RF-C**
  - Standards: ITU-J83 Annexes A, B, C

#### Baseband Adapters
- **DIVIDUAL ASI**
  - Standards: DVB-T, DVB-T2 Lite, DVB-C, DVB-C2, DVB-S, DVB-S2
- **DIVIDUAL ASI+SPI LVDS OR TTL**
  - Standards: ISDB-T/Th, ATSC, DTMB
- **DIVIDUAL ETI**
  - Standards: Baseband DAB, DAB+, T-DMB

### CHARACTERISTICS
- RF input
- ASI input/output
- IP input/output
- SPI input/output
- 1 PPS & 10 MHz input
- GNS input
- GAV output
- Recorder
- Player

### SOFTWARE OPTIONS
- RF Scope
- TS Analyzer
- T2-MI Analyzer
- Drive Test Coverage

### In their «all options» package, our test devices can be shipped in max 48h

### DIVISUITE-IP
- Pure Software Application
  - (Fixed PC license, Floating server license)

### Professional Receivers:
- **DIVICATCH RF-S/S2**
  - Standards: DVB-S, DVB-S2
- **DIVICATCH RF-ISDB-T/TB**
  - Standards: ISDB-T/Th
- **DIVICATCH RF-T/C T2/C2**
- **DIVICATCH RF-C**
  - Standards: ITU-J83 Annexes A, B, C

### Baseband Adapters
- **DIVIDUAL ASI**
  - Standards: DVB-T, DVB-T2 Lite, DVB-C, DVB-C2, DVB-S, DVB-S2
- **DIVIDUAL ASI+SPI LVDS OR TTL**
  - Standards: ISDB-T/Th, ATSC, DTMB
- **DIVIDUAL ETI**
  - Standards: Baseband DAB, DAB+, T-DMB

### 48H MAX SHIPMENT

### Contact us for availability

---

- IP through the PC’s Ethernet interface
- A/V Output: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-1/2, AAC, MP3...
DIVISUITE BASE

Common Features coming as a default package!

- **Stream Overview**
- **Bitrate graphs**
  - Drag & Drop PID or Service
- **Bitrate Alarms**

- **DiviSuite Base**
  - Bitrate, Log Files
  - H.265/HEVC, H.264/MPEG-4 AVC, MPEG-1/2, AAC, MP3...

- **TS Recorder**
- **TS Player over ASI**
- **TS Player over IP**
- **A/V Output**
- **RF Scan**

- **Live Audio/Video decoding**
  - H.265/HEVC, H.264/MPEG-4 AVC, MPEG-1/2, AAC, MP3...

- **Schedule the analyzed TS recording to file format**
- **Forward the analyzed TS over the PC’s IP interface to unicast/multicast**
- **Offline Analysis**
  - Report & Log files
- **Command Line Mode**
  - Automate your tests
  - RF Scan
    - Scan for available frequencies and import them for analysis (DVB-T/T2, DVB-C/C2)
  - RF Scan
    - Forward the analyzed TS over the ASI output (188/204 framing, null packets removal, raw player mode)
  - Counters management at file analysis loop: no false alarm (CC, PCR, PTS, DTS)

- **TS Recorder**
- **TS Player over ASI**
- **TS Player over IP**
- **A/V Output**
- **RF Scan**
**DIVISUITE SOFTWARE OPTION**

- Signal Quality: level, SNR, MER, BER
- Constellation
- Graphs, Report Files
- Channel Impulse Response
- Modulation Parameters
- SFN Synchronisation

**RF Scope**

**Modulator/TX endurance tests**
**Log & Report files**
**Save events and trend measurements**

**Validate the Modulator/TX RF Quality**
Signal Quality measurement: level, SNR, MER, BER
Modulation parameters
Constellation
DVB-T2 L1 signaling

**Test the field RF Quality**
TX Echoes diagram

**Validate SFN synchronization**
SFN Drift
1 PPS & 10 MHz inputs

**DIVISUITE SOFTWARE**

Test the field RF Quality
TX Echoes diagram

**Modulation Parameters**

**Graphs, Report Files**

**Signal Quality**: level, SNR, MER, BER

**Constellation**

**Channel Impulse Response**

**SFN Synchronisation**

**Modulator/TX endurance tests**

**Log & Report files**

**Save events and trend measurements**
DIVISUITE SOFTWARE OPTION

TS Analyzer

Transport Stream complete Analysis!

- Check PCR
  - Drag & Drop PID containing PCR
  - PCR accuracy graphs

- Advanced Service Analysis
  - Component type & structure
  - Component bitrates

- Validate PSI/SI Tables
  - Supported TS: MPEG, DVB, ATSC 1.0, ISDB-T/Tb
  - Add your own table analysis specification

- Validate ETSI TR 101 290 measurements
  - ETSI TR 101 290 Priority 1, 2, 3
  - Customized alarm thresholds
  - Log files

- TS Standard: MPEG, DVB, ATSC 1.0, ISDB-T/Tb (BTS)
- PSI/SI Tables Decoding
- ETSI TR 101 290
- PCR Graphs
- ASI Network Delay
DIVISUITE SOFTWARE OPTION

Validate your DVB-T2 Gateway!

- T2 L1 pre/post signaling, PLP allocation [BB frame, TS, padding/overflow]
- T2 timestamp, BB frame header, ISSY field
- Single & Multi-PLP, PLP extraction
- T2-MI Network Delay

PLP extraction/filter

Check T2-MI streams
- T2 L1 pre/post signaling
- ETSI TR 101 290 T2-MI alarms

Check T2 Frames
- BB frame header
- ISSY field
- T2 timestamp
DIVI SUITE SOFTWARE OPTION

Drive Test Coverage

- GNSS Receiver (GPS/GLONASS)
- Test Reports (Google Earth compliant)
- Internal 1PPS source

Test the field coverage!

Display results in Google Earth or Google Fusion Tables applications

* Option delivered with a magnet mount GNSS L1 Antenna

Generate Google Earth compliant files (KML)
Customize measured parameters
ReFeree II is a high performance, compact and portable measurement receiver for Terrestrial and Cable TV, cumulating single and multi-PLP live reception with real-time MPEG-2 TS analysis and recording.

**TECHNICAL CHARACTERISTICS**

1x RF input for DVB-T/DVB-T2 (T2 Lite supported) & DVB-C/DVB-C2
ITU-J83 Annexes A, C [roll-off 0.15] supported
1x ASI input and 1x ASI output
1x IP Data input/output
1x 1PPS & 1x 10MHz inputs for SFN delay measurement
1x GPS/GLONASS connector for coverage tests
RF Scanning (DVB-T/T2, DVB-C/C2)
RF measurements: signal level, SNR, MER, BER, graphical constellation
SFN Drift, Network Delay, Channel Impulse Response display
Single and multi-PLP support
T2-MI analysis: L1 pre & post signaling, T2 frame statistics, BB frame header, ISSY field, T2 timestamp
DVB-C2 specific analysis: L1, C2 frame, BB frame, Data Slice...
PSI/SI and PIDs parsing, PCR graphs
ETSI TR 101 290 validation (priority 1, 2, 3)
Services decoding: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-1/2, AAC, MP3...
MPEG-2 TS record scheduling (PLP extraction)
MPEG-2 TS playback over ASI (loop counters management: CC, PCR, PTS/DTS)
MPEG-2 TS over IP forward (PC's Ethernet interface selection)
Command Line mode
Compatible Windows 7, 8/8.1, 10
USB self-powered, 660 g

**APPLICATIONS**

- R&D Test & Measurement
- Baseband Signal Generation
- RF Reception Quality Measurement
- Terrestrial & Cable Network Troubleshoot
- Head-End/TX site/air measurements
- Installation & Maintenance Test Tool
- Test automation (command line mode)
- Coverage & Drive Tests for DVB-T & DVB-T2

**KEY BENEFITS**

- Easy to use and configure
- Compact (660 g), USB self-powered
- Complete product: RF + baseband (ASI, IP, File) analysis, baseband record & playback
- All modulation schemes supported (from QPSK to 256 QAM, Normal & Rotated for Terrestrial, from 16 QAM to 4096 QAM for Cable)
- Lock on 256 QAM at 120 km/h
- Adapted format for Drive Tests

**ORDERING CODES**

<table>
<thead>
<tr>
<th>ReFeree II</th>
<th>DVB-T/T2/T2 Lite &amp; DVB-C/C2 Measurement Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Options</td>
<td>RF Analysis, MPEG-2 TS Analysis, T2-MI Analysis, GPS/GLONASS location information</td>
</tr>
<tr>
<td>RF Scope</td>
<td>RF Analysis Bundle</td>
</tr>
<tr>
<td>TS Analyzer</td>
<td></td>
</tr>
<tr>
<td>T2-MI Analyzer</td>
<td></td>
</tr>
<tr>
<td>Drive Test Coverage</td>
<td></td>
</tr>
</tbody>
</table>

* Contact us for availability

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**48HMAX SHIPMENT**

All Options Bundle (RF + TS + T2-MI + Drive Test Coverage)
DIVICATCH RF Series

The DiviCatch RF devices are pocket analyzers cumulating RF live reception with Transport Stream real-time analysis, recording and stream playing.

APPLICATIONS
- R&D Streams or Signal Analysis
- RF Broadcast Troubleshoot
- Installation & Maintenance Test Tools
- Test automation (command line mode)
- Portable Demonstration Setup

KEY BENEFITS
- 4-in-1 products: RF + Baseband + Recorders + Players
- Compact (pocket size, 160 g) and USB self-powered
- Analyze/Validate TS/T2-MI/BTS Layer in real-time
- All modulation schemes supported
- Must-have Lab Tools

PRODUCTS HIGHLIGHTS

**DVB S/S2**
Receive DTH streams and all modes of satellite distribution links
All modulation schemes supported (from QPSK to 32APSK)
Allows antenna LNB powering & configuration

**ISDB-T/Tb**
All modulation schemes supported (DQPSK, from QPSK to 64QAM)
Complete BTS analysis: IIP packet parsing, TMCC alarms and information

**DVB T2**
All modulation schemes supported (from QPSK to 256QAM, 4096QAM for DVB-C2)
ITU-J83 Annexes A, C (roll-off 0.15) supported

**DVB C/C2**
All modulation schemes supported (from QPSK to 256QAM)
ITU-J83 Annexes A, B, C supported
## TECHNICAL CHARACTERISTICS

| DIVICATCH RF-S/S2 | 1x RF input for DVB-S/S2  
|                  | RF measurements: signal level, SNR, BER, PER, CNR, Eb/No, link margin  
|                  | Stream ID selection  
|                  | LNB powering & configuration  
| DIVICATCH RF-ISDB-T/Tb | 1x RF input for ISDB-T/Tb  
|                       | RF measurements: signal level, SNR, MER, BER per Layer A/B/C  
|                       | Stream ID selection  
|                       | LNB powering & configuration  
| DIVICATCH RF-T/C T2/C2 | 1x RF input for DVB-T/T2/T2 Lite & DVB-C/C2  
|                        | ITU-J83 Annexes A, C (roll-off 0.15) supported  
|                        | RF Scanning (DVB-T/T2, DVB-C/C2)  
|                        | RF measurements: signal level, SNR, MER, BER  
| DIVICATCH RF-C | 1x RF input for Digital Cable  
|               | 1x RF loop output  
|               | ITU-J83 Annexes A, B, C supported  
|               | RF measurements: signal level, SNR, MER, BER, EVM  

1x ASI input/output  
IP source analysis (from PC)  
Graphical constellation, Channel Impulse Response display  
PID and PSI/SI parsing, PCR graphs  
ETSI TR 101 290 validation (priority 1, 2, 3)  
Audio/Video player (H.265/HEVC, H.264/MPEG-4 AVC, MPEG-1/2, AAC, MP3...)  
MPEG-2 TS record scheduling (PLP extraction)  
MPEG-2 TS playback over ASI (loop counters management: CC, PCR, PTS/DTS)  
MPEG-2 TS over IP forward (PC’s Ethernet interface selection)  
Command Line mode  
Compatible Windows 7, 8/8.1, 10  
USB self-powered, 160 g

## ORDERING CODES

| DiviCatch RF-S/S2 | DVB-S/S2 Pocket Analyzer  
| DiviCatch RF-ISDB-T/Tb | ISDB-T/Tb Pocket Analyzer  
| DiviCatch RF-T/C T2/C2 | DVB-T/T2/T2 Lite & DVB-C/C2 Pocket Analyzer  
| DiviCatch RF-C | DVB-C Pocket Analyzer  

Shipped bundled with DiviSuite Base software for Windows 7, 8/8.1, 10 and RF Scope option

| Software Options | RF Scope (included)  
|                  | TS Analyzer  
|                  | T2-MI Analyzer  
|                  | RF Analysis  
|                  | Transport Stream Analysis  
|                  | T2-MI Analysis (for DiviCatch RF-S/S2 and DiviCatch RF-T/C T2/C2 only)  

| 48HMAX SHIPMENT | All Options Bundle (RF + TS + T2-MI)  

The DiviDual ASI + SPI is a pocket analyzer providing Transport Stream (MPEG-2 TS, T2-MI, BTS) real-time analysis, recording and stream playing, on both DVB-ASI and DVB-SPI (LVDS or TTL) connectors.

**TECHNICAL CHARACTERISTICS**

1x ASI input and 1x ASI output
1x SPI input/output (LVDS or TTL, optional)
IP source analysis (from PC)
PID and PSI/SI parsing, PCR graphs
T2-MI analysis: L1 pre & post signaling, T2 frame statistics, BB frame header, ISSY field, T2 timestamp
BTS analysis: IIP Packet parsing, TMCC alarms, TMCC next information
ETSI TR 101 290 validation (priority 1, 2, 3)
Audio/Video player (H.265/HEVC, H.264/MPEG-4 AVC, MPEG-1/2, AAC, MP3...)
TS record scheduling (PLP extraction)
TS playback over ASI (loop counters management: CC, PCR, PTS/DTS) & Raw player
TS over IP forward (IP’s Ethernet interface selection)
Command Line mode
Compatible Windows 7, 8/8.1, 10
USB self-powered, 140 g

**ORDERING CODES**

<table>
<thead>
<tr>
<th>DiviDual ASI + SPI</th>
<th>TS over DVB-ASI and DVB-SPI (LVDS or TTL) Analyzer, Recorder, Player</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Options</td>
<td>TS Analyzer/TS Analysis/T2-MI Analyzer/T2-MI Analysis</td>
</tr>
</tbody>
</table>

**DIVIDUAL ETI**

The DiviDual ETI is a real-time ETI Stream recorder and player in a pocket-sized and robust device.

**TECHNICAL CHARACTERISTICS**

1x ASI input and 1x ASI output for DAB/DAB+/T-DMB
ETI NI (G703) supported
ETI NA5592 & NA5376 (G704) supported
Playlist/segment/loop play mode
Scheduled recording
Player/Recorder command line software
Compatible MS Windows XP/Vista/7
USB self-powered, 140 g

**ORDERING CODE**

<table>
<thead>
<tr>
<th>DiviDual ETI</th>
<th>DAB, DAB+, T-DMB Recorder, Player</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Options</td>
<td>DAB, DAB+, T-DMB Analyzer/Player</td>
</tr>
</tbody>
</table>

Shipped bundled with DiviSuite ETI software for Windows XP/Vista/7
DIVISUITE-IP

Pure Software Application

The most complete analyzer software application for baseband TS/T2-MI/BTS streams. No need to plug HW device (ReFeree, DiviDual, DiviCatch) to the PC: DiviSuite-IP can analyze TS over IP or file-based input streams.

Two licensing models: Fixed PC License or Floating Server License.

Fixed PC License Model
Install & use the DiviSuite-IP on N independent PCs. One license key attached to one physical machine.

Floating Server License Model
Enables N PCs (connected in the same LAN) to use the DiviSuite-IP simultaneously. The floating license token distribution is handled by one PC in the LAN, assigned with the Server role.

ORDERING CODES

<table>
<thead>
<tr>
<th>DiviSuite-IP</th>
<th>DiviSuite-IP software for MS Windows XP/Vista/7/8.1/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included</td>
<td>DiviSuite Base, TS Analyzer</td>
</tr>
<tr>
<td>Software Option</td>
<td>T2-MI Analyzer</td>
</tr>
<tr>
<td>License</td>
<td><strong>PC Fixed</strong>: Choose the number of PCs → one license key delivered per PC <strong>Floating Server</strong>: Choose the number of simultaneous use for the default package (DS Base + TS Analyzer) and for the software option (T2-MI Analyzer) → one unique license key delivered, to be activated on one PC in the LAN (Server role)</td>
</tr>
</tbody>
</table>
DIGITAL TV & RADIO MONITORING

GLOBALVIEWER
Centralized Service Availability & Network Quality views

IPTV & OTT SERVICE PLATFORMS
High-density and scalable solution for QoS & QoE monitoring of hundreds of streams in parallel: ETR 101 290, audio levels, video freeze/black screen, live thumbnail mosaic view and service streaming.

StreamProbe IPTV & OTT

DIGITAL TV BROADCAST NETWORK
Cost-effective and high quality monitoring probes for Head-End, Transmission and Reception sites – RF & SFN signal quality, Transport Stream QoS: ETR 101 290, DVB-T2-MI, OneBeam/Single Illumination (DVB-SIS), BTS, STLTP.

EdgeProbe Nano & RF
TRANSBOX confidence monitoring
EdgeProbe Advanced
EdgeProbe Advanced for High Density chassis

DIGITAL RADIO BROADCAST NETWORK
Cost-effective and high quality monitoring probes: RF & SFN signal quality.

EdgeProbe Advanced

5000+ PROBES DEPLOYED
24/7
MONITOR
QoS & QoE MONITORING SOLUTIONS
FOR THE DIGITAL VIDEO DELIVERY CHAIN
**DTTV Broadcast Network Operators**

**High & Mid Power TX / SFN**

- Rep. Content Insertion / DTTV Modulator
- TS, T2-MI, BTS, STLTP*
- IP, ASI, DVB-S/S2

**Low Power TX & Gap Filler MFN**

- DTTV Modulator / Gap Filler
- TS, T2-MI, BTS, STLTP*
- IP, ASI, DVB-S/S2

**RF DTTV transmission**

**GLOBAL VIEWER**

- QoS & QoE Supervision
- Or 3rd party NMS
- Remote web GUI
- SNMP / HTTP

**STREAMPROBE**

- TS, ABR, ROUTE/MMTP* IP, ASI, DVB-S/S2

**EDGEPROBE**

- TS, T2-MI, BTS, STLTP* IP, ASI, DVB-S/S2

---

**CATV Broadcast Network Operators**

**Head-End**

- Encoder / Multiplexer / Broadcast Packager / CAS

**Regional Head-End**

- Modulator
- Fiber xDSL

**STREAMEPROBE**

- TS over IP, DVB-S/S2, QAM

**EDGEPROBE**

- TS over IP/QAM

**GLOBALVIEWER**

- QoS & QoE Supervision
- Or 3rd party NMS
- Remote web GUI
- SNMP / HTTP

---

*Contact us for availability*
BROADCAST NETWORK MONITORING

Global View

· HW/SW* Option for EdgeProbe Confidence Monitoring
· Streaming of multiplex services(s) over low bandwidth network links (compression down to 500 Kbps)

Global View

RF Monitor:
- Signal Quality, Channel Impulse Response (Echoes)

TS Monitor:
- MPEG-2 TS, BTS
- ETSI TR 101 290 Priority 1, 2 & 3 and QoS SAE/SDE

Multiplex Service Plan description

Extended Storage:
- Logs & Trends up to 6 months, TS recording

Easy integration for NMS supervision:
- Low bitrate Web GUI [GPRS/3G/VSAT/4G]
- SNMPv2 Support + v2c INFORM [no trap loss]

EdgeProbe Nano

RF Monitor:
- Signal Quality, Channel Impulse Response (Echoes)

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Global View

* Contact us for availability

24/7 MONITOR PRODUCT RANGE
EDGE\textsuperscript{PROBE} ADVANCED

**STANDALONE UNIT:**
- 1 RU 19” format: multi-standard support in 1 RU
- Up to 4x RF inputs: N-type 50 Ω or F-type 75 Ω
- Up to 4x ASI in/out
- Up to 4x IP Data in/out [VLAN support]
- Up to 2x IP Control
- Up to 4x 32 GB internal storage
- 1x 1PPS, 1x 10MHz inputs
- 1x GNSS input [GPS, GLONASS]
- 1x ETH in/out [alarm dry contact]*
- 2x DVB-Cl+ slots [decrypt up to two CA systems in parallel]*
- Up to 4x HDMI outputs*
- Dual Power Supply

**SOFTWARE SOLUTION:**
- Linux OX, VM for hypervisor type 1 (ESXi >6.0)
- Off the shelf server, 1RU or 2RU (for large number of RF receivers)
- CPU, RAM, HDD: depending on number of streams to monitor
- One or Multiple RF Data: 1Gbps, 10Gbps support
- One or Multiple RF input(s) F-type 75 Ω: DVB-T/T2, DVB-S/S2, DVB-C (J.83 A,B,C); demodulation for TS extraction
- One or Multiple ASI input(s): TS extraction

**TSolIP ABR**

- **TS Monitor:**
  - ETSI TR 101 290 Priority 1, 2, 3
  - MDI: Delay Factor, Media Loss Rate
- **ABR Monitor:**
  - HLS, MPEG-DASH
  - Playlist integrity & network performance
- **QoE Monitor:**
  - Audio levels, silence detection
  - Video freeze, black screen, missing Intra detection
  - MPEG-2, H264, 4K, HEVC
- **Live Thumbnail Mosaic:**
  - Audio levels, subtitles, penalty box
- **CA processing:**
  - EMM/ECM presence & repetition
  - FTA <-> scrambled transition timing
- **Video processing:**
  - Live streaming over low bandwidth links
  - TS recording on error or manual/scheduled

**STREAM\textsuperscript{PROBE} IPTV/OTT NEW**

**APPLICATIONS:**
- Server Application for a Centralized Network Quality & Service Availability view
- Supervision: live monitoring status on a world map
- Analytics: measurement data storage for customizable dashboard and automatic* reports

**LIMITED EDITION:**
- Special offer for EdgeProbe Confidence Monitoring
- Multiplex services(s) over low bandwidth network links down to 500 Kbps
APPLICATIONS

- **Live Supervision** of your Network’s QoS
- **Centralized** monitoring data with a real-time Dashboard
- **Report generation** for SLA commitements

BENEFITS

- **Centralized** management of your deployed EdgeProbe & StreamProbe
- **Easy to use and configure**
- **Compatible with low bandwidth control network** (GPRS/3G/4G)
- **Virtualized SW based solution**

TECHNICAL CHARACTERISTICS

**VM** for hypervisor type 1 (ESXi >6.0)

Minimum server requirement: 4 cores CPU, 16GB RAM, 100GB HDD; depending on the number of Probes to centralize

ORDERING CODES

<table>
<thead>
<tr>
<th>GlobalViewer</th>
<th>Perpetual Software License for server application: centralized EdgeProbe and StreamProbe monitoring</th>
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<tbody>
<tr>
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</tr>
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<td>Analytics</td>
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<tr>
<td></td>
<td>10 Probes</td>
</tr>
<tr>
<td>SW Options</td>
<td>Additional Probes</td>
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**APPLICATIONS**

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</table>
Centralize your Service Availability & Network Quality views!
StreamProbe is a high density & scalable software solution for content QoS & QoE monitoring throughout the video service processing chain.

**APPLICATIONS**

- Monitoring of the content QoS & QoE: received from contribution, prior & after encoding/packaging as well as from an end user point of view
- Generation of Service Availability reports for SLA commitments
- Live TS Recording for legal obligation and conflict/litigation proof
- All services view at-a-glance: Live Thumbnail Mosaic

**BENEFITS**

- High density: hundreds of services monitored in real-time & in parallel in a single 1RU server; 10Gb interfaces supported
- Scalable: from an all-in-one system to a fully distributed architecture
- Software only: Linux OS, VM for virtualized environments
- Remotely accessible: compatible with low bandwidth control networks (GPRS/3G/4G)

**KEY FEATURES IPTV**

- QoS MPEG-2 TS monitoring:
  - MDI: Delay Factor, Media Loss Rate, Delta (min, max, average), Drift & Period Drift
  - FEC support [packets recovered/lost], IP jitter
  - ETSI TR 101 290 Priority 1, 2, 3
  - PSI/SI repetition rates, scrambling
  - Bitrates: TS, service & service components, PSI/SI
- QoS monitoring:
  - Video monitoring: freeze, black screen, missing Intra detection
    - PID codec information: type, pixel format, profile, level, GOP structure and size, image count and weight, width, height, aspect ration, frame rate and type, VB delay
  - Audio monitoring: levels, silence detection
    - PID codec information: type, channel number and layout, sample rate and format
  - Subtitles DVB and Teletext: decoding and display
    - Formats: MPEG-1 audio, MPEG-2 audio/video, H264 SD & HD, 4K, HEVC
- Live Thumbnail Mosaic: all services or group filtering, audio levels, subtitles, penalty box
- Live service(s) streaming over low bandwidth links (service compression)
- TS recording: on error or manually scheduled
- CA processing:
  - EMM/ECM: presence, repetition, bitrates
  - FTA ↔ scrambled: transition timing detailed display
- Configurable alarming thresholds: general and daily alarm profiles
- NMS integration: SNMPv2 support for alarm traps
- Monitoring information available via an open API (HTTP/JSON API)

**KEY FEATURES TSoIP**

- QoS ABR monitoring: playlist integrity & network performance check
  - HLS, MPEG-DASH
  - Manifest integrity check, content display & download
  - Profile information: availability, type, bitrate statistics, codec, resolution, base and relative URL, playlist content/format, chunk number, media sequence...
  - Chunk HTTP information: availability, length, bitrate statistics, playlist format
  - HTTP connection time statistics: connection, DNS redirection, upload, download
- QoS monitoring:
  - Video monitoring: freeze, black screen, missing Intra detection
    - PID codec information: type, pixel format, profile, level, GOP structure and size, image count and weight, width, height, aspect ration, frame rate and type, VB delay
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- Configurable alarming thresholds: general and daily alarm profiles
- NMS integration: SNMPv2 support for alarm traps
- Monitoring information available via an open API (HTTP/JSON API)

**KEY FEATURES OTT**

- QoS ABR monitoring: playlist integrity & network performance check
  - HLS, MPEG-DASH
  - Manifest integrity check, content display & download
  - Profile information: availability, type, bitrate statistics, codec, resolution, base and relative URL, playlist content/format, chunk number, media sequence...
  - Chunk HTTP information: availability, length, bitrate statistics, playlist format
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  - Video monitoring: freeze, black screen, missing Intra detection
    - PID codec information: type, pixel format, profile, level, GOP structure and size, image count and weight, width, height, aspect ration, frame rate and type, VB delay
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  - Subtitles DVB and Teletext: decoding and display
    - Formats: MPEG-1 audio, MPEG-2 audio/video, H264 SD & HD, 4K, HEVC
- Configurable alarming thresholds: general and daily alarm profiles
- NMS integration: SNMPv2 support for alarm traps
- Monitoring information available via an open API (HTTP/JSON API)
**TECHNICAL CHARACTERISTICS**

**SW solution:** Linux OX, VM for hypervisor type 1 (ESXi >6.0)

Off-the-shelf server, 1RU or 2RU (for large number of RF receivers)

CPU, RAM, HDD: depending on number of streams to monitor

One or Multiple IP Data: 1Gbps, 10Gbps support

One or Multiple RF input(s): F-type 75Ω: DVB-T/T2, DVB-S/S2, DVB-C (J.83 A,B,C) receiver – demodulation for TS extraction

• RF front end module: up to 4x RF inputs (8x RF channels tuning)

One or Multiple ASI input(s): TS extraction

---

**ORDERING CODES**

### StreamProbe IPTV

**Perpetual software license for TS monitoring probe**

<table>
<thead>
<tr>
<th>Bitrate</th>
<th>Capacity bitrate to monitor per probe: 100Mbps, 300Mbps, 600Mbps, 1Gbps, 1.5Gbps, 2Gbps, 4Gbps, 7Gbps or custom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included</td>
<td>QoE Monitor</td>
</tr>
<tr>
<td>SW Options</td>
<td>Audio, Video monitoring and decoding, Live Thumbnail Mosaic; Formats: MPEG-2, H264</td>
</tr>
<tr>
<td></td>
<td>4K format support for QoE Monitor</td>
</tr>
<tr>
<td></td>
<td>H265 format support for QoE Monitor</td>
</tr>
<tr>
<td></td>
<td>Video Module</td>
</tr>
<tr>
<td></td>
<td>Live TS service(s) streaming</td>
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<tr>
<td></td>
<td>Record Module</td>
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<tr>
<td></td>
<td>TS recording</td>
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<td></td>
<td>CA Module</td>
</tr>
<tr>
<td></td>
<td>CA processing</td>
</tr>
<tr>
<td>HW Options</td>
<td>RF Module</td>
</tr>
<tr>
<td></td>
<td>DVB-T/T2 or DVB-S/S2 or DVB-C (J.83 A,B,C) RF front end receiver</td>
</tr>
</tbody>
</table>

### StreamProbe OTT

**Perpetual software license for ABR monitoring probe**

<table>
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<tr>
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<td>4K format support for QoE Monitor</td>
</tr>
<tr>
<td></td>
<td>H265 format support for QoE Monitor</td>
</tr>
</tbody>
</table>
EDGE PROBE WEB GUI

Synthetic Monitoring Overview – monitored channel information, alarm status per category, RF signal quality measures, multiplex service list & bitrates

High precision RF Signal Quality measures – power level, SNR, MER, BER, RF spectrum, modulation parameters
SFN Synchronization monitoring on Transmission site (TX) – Time, Frequency, Network Delay

RF signal time synchronization: measure the RF frame transmission time drift/delay

RF signal frequency synchronization: measure the Carrier Frequency drift

Before modulation: measure the TS Network Delay between HE and TX site

---

SFN Synchronization and signal interference monitoring on Reception site (RX) – Echo monitoring with Echo Pattern mode: more precise echo in error identification, even if the main echo suffers changes! Provided by TestTree only!
EdgeProbe RF is the ideal & most cost-effective high-quality solution for controlling remotely the signal transmission of your low/mid power TX & relay sites that are sometimes difficult to reach.

Applications RF
- 24/7 Monitoring and Maintenance of DTV live transmission
- Cost-effective Monitoring of transmitters and relay sites
- Generation of Service Availability reports for Service Level Agreements
- Rebroadcasting receiver: RF to ASI or IP (including MUTE feature)
- Live transmission recorder

Applications Nano
- Network operators:
  - automate the tests of new transmitters
  - temporary monitoring/investigation tool
  - rebroadcasting receiver: RF to ASI or IP
- Broadcasters: off-air monitoring probe to validate the on-air content
- TV/STB producers: automated tests against a professional receiver
- Labs: easy & simple access to live DTV sources via RF

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 band width control networks (GPRS/3G/4G)
- Low power consumption 8W
- Enables SNMP test automation

Key Features
- RF accurate measurements: signal level, SNR, MER, BER
- Channel Impulse Response monitoring with unique Echo Pattern mode: reliable echo in error identification when main echo suffers changes
- MPEG-2 TS ETSI TR 101 290 validation: Priority 1, 2, 3 and optional QoS SAE/SDE
- BTS monitoring: IIP, TMCC packets
- Service Plan monitoring: multiplex structure, bitrate and regionalization check
- Service Streaming over low bandwidth links (compression down to 500Kbps) (See page 41)
- Demodulated TS streaming over control IP out, or retransmission over ASI out
- Smart Retransmission Receiver (DVB-T/T2): mute the TS retransmission over ASI out upon RF input signal degradation
- Automated & Secure Deployment for small to large networks:
  - SNMPv2 support: alarm traps, monitoring information polling, monitoring settings control
  - FTP connection: log file retrieval, automatic firmware and configuration update
- Trigger RF signal capture on RF-Catcher (See Page 11)

Technical Characteristics
EdgeProbe RF & Nano models: DVB-T/T2/T2 Lite, ISDB-T/Tb, DVB-C (J.83 A,B,C)
1x RF in, 1x ASI out, 1x IP Control/Data in/out (VLAN support)
32 GB storage for TS record and 6 months logs & trends
ORDERING CODES

<table>
<thead>
<tr>
<th>EdgeProbe Nano</th>
<th>EdgeProbe RF</th>
<th>DTV RF Monitoring Probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included</td>
<td>RF + CIR monitoring, TS over IP input support, VLAN, RF to ASI/IP TS retransmission</td>
<td></td>
</tr>
<tr>
<td>Select your standard</td>
<td>DVB-T/T2/T2 Lite or DVB-C/C2 or ISDB-T/Tb</td>
<td></td>
</tr>
<tr>
<td>SW Options</td>
<td>Scanning Multiple RF channels sequential monitoring over 1 RF input</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TS Monitor Base ETR290 Priority 1, 2 monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TS Monitor Advanced ETR290 Priority 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QoS Monitor SAE, SDE monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service Plan Multiplex Service/PID monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BTS Monitor IIP &amp; TMCC packet monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extended Memory 32 GB storage: trends, logs, TS record</td>
<td></td>
</tr>
<tr>
<td>HW Options</td>
<td>TRANSBOX Stream 1 or 2 compressed service(s) (See below)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tropicalization Preserve the HW from corrosion</td>
<td></td>
</tr>
</tbody>
</table>

TRANSBOX

Confidence monitoring: live service streaming over low bandwidth network links!

Controlled by one EdgeProbe unit (Advanced, RF, Nano), the TRANSBOX provides real-time:
- Service extraction from the input MPEG-2 TS (SPTS or MPTS received from the EdgeProbe)
- Service compression [audio/video transcoding, including subtitles]: down to 500 Kbps
- Streaming the compressed SPTS over low bandwidth IP Data to third party systems

APPLICATIONS
- Confidence monitoring: live transmission check
- Validate regional service and/or ad insertion
- Service [audio/video] compression & streaming

KEY BENEFITS
- Easy to use and configure: transcoding controlled via the master EdgeProbe unit, SNMP compatible
- Compatible with low bandwidth data networks: down to 500 Kbps compressed streams
- Low power consumption 5W

TECHNICAL CHARACTERISTICS
- 1 or 2 Transcoding Units (TU) in 1 RU (1 or 2 services transcoded simultaneously: up to 10 min)
- 1 TU is controlled by with 1 EdgeProbe Unit
- 1x IP Data in/out (GbE) and 1x IP Control [100 Mbps] per TU
- Unicast, VLAN support for IP Data in/out
- 40 Mbps maximum input bitrate
- 500 Kbps to 10 Mbps output bitrate
- Audio/Video input/output formats [Contact us for details]
- Output video resolution: CIF, DCIF, 2CIF, 4CIF
- Output audio bitrate: 32 kbps to 192 kbps
- HbbTV, subtitles, private data supported

ORDERING CODES

<table>
<thead>
<tr>
<th>TRANSBOX</th>
<th>Transcoding Unit for EdgeProbe</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW Option</td>
<td>Dual</td>
</tr>
</tbody>
</table>
EdgeProbe Advanced is the ideal tool to achieve accurate & cost-effective monitoring of the quality actually delivered to all points of a DTV broadcast network.
EDGEPROBE ADVANCED for HDc

DVB-T/T2 model of EdgeProbe Advanced comes in the form of an independent module (HDmE), for High Density chassis (HDc) 19” 1RU, which provides:

**HIGH DENSITY**
Up to 6 products in the same chassis

**MODULARITY**
Combine DVB-T/T2 EdgeProbe Advanced with different type of ENENSYS products (T2Edge, T2Edge-DTH, ASIIPGuard, NetMod) in the same chassis

**HOT PLUG**
All products are hot swappable and may be automatically configured

**SCALABILITY**
Start with one product and upgrade with additional products later

**RELIABILITY**
Hot plug and independent products with redundant power supply in 220V or 48V

**ORDERING CODES**

| HDc-Multi-220V | High Density chassis with 220V input |
| HDc-Multi-48V | High Density chassis with 48V input |

| CHASSIS HW options | HDcMulti-In220VRedundant | 110V/220V redundant power supply |
| HDcMulti-In48VRedundant | 48V DC redundant power supply |

| Up to x6 monitoring modules | HDmE | High Density module EdgeProbe Advanced for DVB-T/T2 |
| HDmE SW Options | See Page 42 for DVB-T/T2 EdgeProbe Advanced SW options |
EDGEPROBE FOR DIGITAL RADIO NETWORKS

DIGITAL TV & RADIO MONITORING

DIGITAL RADIO BROADCAST NETWORK

HEAD-END

Contribution
Service Encoders
Ensemble Multiplexer / Gateway

HIGH & MID POWER TX / SFN

Switch / Reg. Content Insertion / Modulator
RF & SFN DTTV transmission

GLOBALVIEWER
QoS & QoE Supervision
Or 3rd party NMS

* Contact us for availability

* ETI*, EDI* IP, ETI, DVB-S/S2

REMOTE WEB GUI

HTTP

SNMP / HTTP

[Diagram of EDGEPROBE for Digital Radio Networks]

[Image of EDGEPROBE device]
EdgeProbe Advanced DAB/DAB+ is the ideal tool to achieve accurate & cost-effective monitoring of the quality actually delivered to all points of a Digital Radio network.

**APPLICATIONS**
- 24/7 Monitoring and Maintenance of both Head-End and TX sites: RF transmission (SFN/MFN), Satellite RF distribution, ETI/EDI Baseband distribution
- Generation of Service Availability reports for Service Level Agreements
- Live transmission recorder

**KEY BENEFITS**
- Standalone, easy to use and configure, fast deployment, SNMP compatible
- Reduce TX sites maintenance cost by anticipating and identifying issues
- Increase customer satisfaction by detecting & preventing network degradations before your customers do
- Remotely accessible, compatible with low bandwidth control networks (GPRS/3G/4G)
- Low power consumption 25W

**TECHNICAL CHARACTERISTICS**
EdgeProbe Advanced models: DAB/DAB+, DVB-S/S2, DVB-T/T2, DVB-C/C2, ISDB-T/Tb, ATSC 3.0/1.0 or any combination of two of these standards
(See Page 42 for DVB-T/T2, DVB-C/C2, ISDB-T/Tb, DVB-S/S2, ATSC 3.0/1.0)

Up to 4x [RF in, ETI in/out (NI, NA), IP Data in/out (VLAN support)] in 1 RU
Up to 2x IP Control for low bandwidth remote Web GUI
Up to 4x 32 GB storage for 6 months logs & trends
1PPS: external or internal from GNSS receiver (GPS, GLONASS), 10MHz
Up to 4 analog audio output TRS 3.5mm
1x ETH in/out (alarm dry contact)¹
Dual Power Supply

**KEY FEATURES**
- DAB/DAB+ support, compatible Band III VHF (168 to 240 MHz)
- Mode I, II support: automatic detection
- RF accurate measurements: signal level, SNR, MER, FIB BER, MSC BER (per subchannel)
- RF spectrum, shoulder monitoring, constellation
- SFN Time Drift monitoring
- Channel Impulse Response:
  - Echoes delay & level alarms
  - Echo Pattern monitor: reliable echo in error identification when main echo suffers changes
  - TII decoding and presence detection

DAB transport monitoring: FIC, CU occupation, sub-channel structure
Ensemble Service Plan: check ensemble structure
Service information (SI), PAD [DLS, MOT/SLS]
Audio processing: silence detection, audio recording and streaming
ETI, EDI input analysis

**ORDERING CODES**
EdgeProbe Advanced CHASSIS is composed of 2 BOARDS, each board supporting 2 parallel MONITORING UNITS

Select your standard BOARD 1
Select your standard BOARD 2
CHASSIS HW Options

Select your options per Digital Radio BOARD (See Page 42 for DTV EdgeProbe Advanced model)

Included
- Dual Monitoring Units 2x RF + ETI + IP Data, 32 GB internal storage per Unit, sequential round-robin monitoring, analog audio output
- Dual Power Supply 100-240 VAC redundant power supply
- Internal GNSS Internal GNSS receiver [GPS, GLONASS] for internal 1PPS generation

SW Options
- RF DAB Monitor
- Transport Ensemble Service
- ETI/EDI Monitor

HW Options
- RF N-type connector

* Contact us for availability
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