



MONITORING and ACQUISITION SYSTEM for TV / SATELLITE / RADIO / ASI SIGNALS

mod. EXA-PROBE-200



FRONT PANEL WITH PROTECTION COVER

- Integrated SAT & TV Receiver (up to 4 Receiver boards opt.)
- FM & DAB+ Monitoring (on request)
- Service Table & Picture streaming
- Round-Robin measurements
- ETR 101-290 Transport Stream Analysis & Recording
- Spectrum, Constellation, Echoes Analysis
- DVB-T / T2 MI Network Delay (opt.)
- HOT-SWAP Redundant power supply
- Integrated Acquisition System
- WEB Server with WEB Based GUI
- Remote control and SNMP alarms

**INNOVATIVE
PERFORMANCE**

for: SYSTEM INTEGRATOR,
TELEPORT BROADCASTER,
CABLE NETWORK, GOVERNMENT
& MILITARY COMMUNICATIONS



1972 > 2024 >>

52 YEARS OF TECHNOLOGY INNOVATION

DESCRIPTION

The EXA PROBE Series of products are an advance Monitoring System for digital Radio, TV and SAT signals. Its architecture includes an internal memory for direct acquisition of all alarms and measurements and the ability to interface Network Management Systems with the most modern protocols.

The EXA Probe 200 is a versatile quadruple RF receiver unit that can be programmed to analyze multiple RF signals, logging power, digital data, and where applicable, spectrums, constellations and echoes.

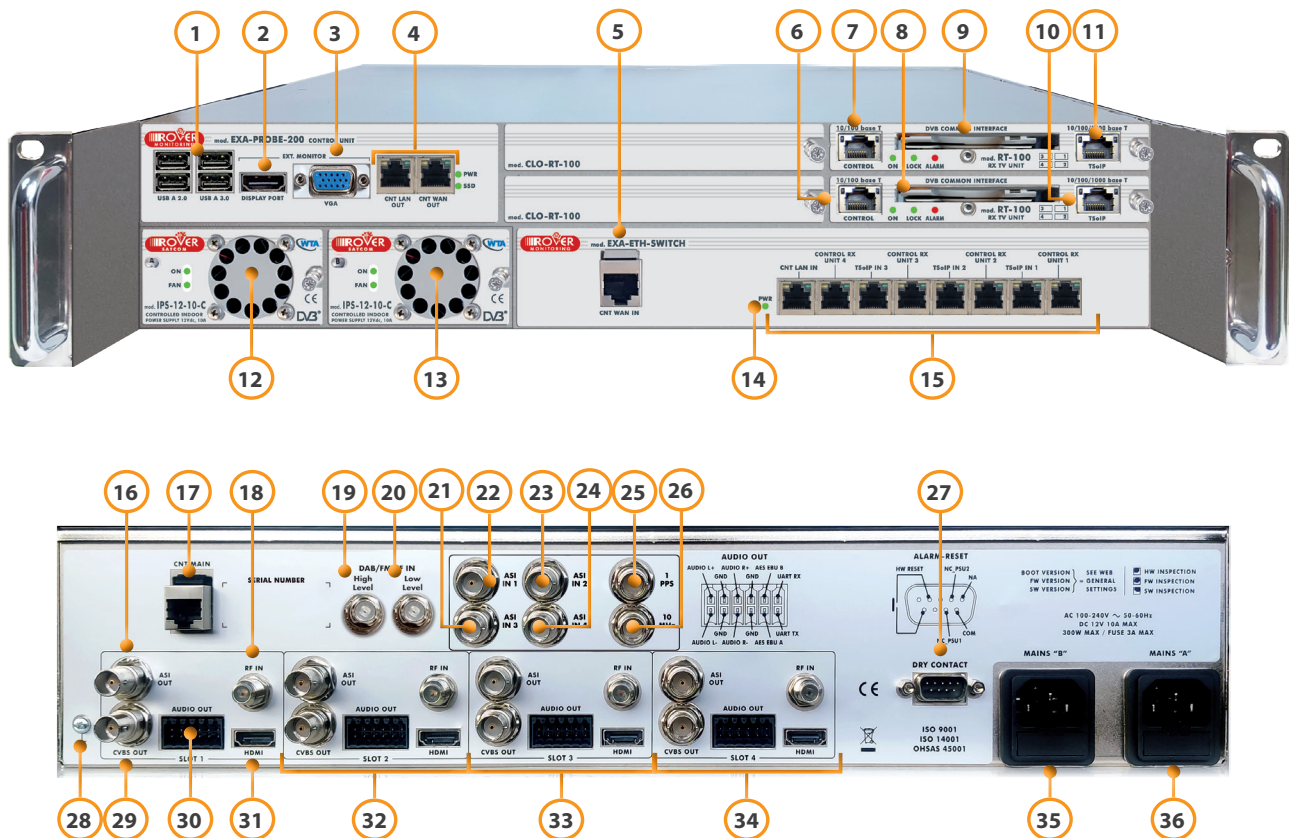
This for: DVBT & T2 (DTMB on request), DVB S & S2 & S2X, FM & DAB+ and ASI signals.

Transport Stream (TS) analysis with ETR 101-290, TS storage, display of MPEG program tables is also part of the EXA-PROBE 200 capabilities.

Its internal WEB SERVER will allow a user friendly remote access interface with any WEB BROWSER for measurements, graphs, TS analysis, spectrums analysis, playback of TS video clips and more!

The EXA-PROBE-200, supplied with N. 2 Hot Swap Redundant PSU, can be equipped with up to 4 RF Receiver Modules.

Front panel Description EXA Probe 200



- | | | |
|---|--|--|
| 1. N. 4 USB sockets | 13. Hot Swap Redundant PSU B (opt.) with Fan | 25. 1 PPS Input for optional Network Delay |
| 2. HDMI Display Port | 14. Power switch LED | 26. 10 MHz Input for optional Network Delay |
| 3. VGA connector | 15. Ethernet Switch LAN Ports | 27. SUB D connector Alarms / HW reset |
| 4. Main LAN / WAN | 16. ASI Output Receiver 1 | 28. Ground screw |
| 5. General Control LAN fro | 17. Rear management control LAN | 29. Composite video Output Receiver 1 (opt.) |
| 6. Control LAN Receiver A | 18. RF input Receiver 1 | 30. Balanced stereo audio output Receiver 1 (opt.) |
| 7. Control LAN Receiver B | 19. High Level RF DAB/FM IN | 31. HDMI output Receiver 1 (opt.) |
| 8. Common Interface Receiver A | 20. Low Level RF DAB/FM IN | 32. Receiver 2 |
| 9. Common Interface Receiver B | 21. ASI Input 3 for optional Network Delay | 33. Receiver 3 |
| 10. TS over IP Output Receiver A | 22. ASI Input 1 for optional Network Delay | 34. Receiver 4 |
| 11. TS over IP Output Receiver B (opt.) | 23. ASI Input 2 for optional Network Delay | 35. PSU B 220 VAC receptacle (opt.) |
| 12. Hot Swap Redundant PSU A with Fan | 24. ASI Input 4 for optional Network Delay | 36. PSU A 220 VAC receptacle |

GENERAL SPECIFICATIONS

CONNECTIONS :

- RF IN : 4 x F75 ohm
- TS over IP : 3 x RJ45
- ASI OUT : 4 x BNC
- SDI OUT : (opt.) 4 x BNC
- A / V Digital OUT : (opt.) 4 x HDMI
- CVBS OUT : (opt.) 4 x BNC
- AUDIO OUT : (opt.) 4 x Stereo PIN Connector
- PC Monitor : 1 x HDMI Front
- USB : 4 x USB - A
- Embedded Memory : 128 G HD / 8 G RAM
- ASI Input : 4 x BNC (opt.)
- 10 MHz Input : 1 x BNC (opz)
- 1 PPS Input : 1 x BNC (opz.)

RECORDING :

- Logger file storage
- T.S. Recording
- File transfer

MAIN FRAME with Front panel protection cover :

- Size : 2RU - 483 x 432 x 89 mm
- Weight : 8 Kg
- Material : Nickel-plated sheet
- Power supply : Double PSU 110-240 VAC (PSU-B opt.)
- Operating Temp. : 0 - 45° C
- Humidity : Up to 95 % - Non condensing

CONTROL :

- Front Panel : TS over IP and ETHERNET connections
- Control Ports : RJ45 10/100 Base-T
- Control Protocols : SNMP, HTTP WEB SERVER for Alarms

SUPPORTED STANDARDS :

- RADIO : FM (opt.), DAB+ (opt.)
- TV : DVB-T, DVB-T2 Multi-PLP, DVB-C (opt.), DTMB (opt.), ISDBT (opt.)
- SAT : DVB-S, DVB-S2 Multistream, S2X (opt.)
- ASI : ASI IN (OUT opt.)
- LAN : TS over IP (opt.)

Audio decoding : MPEG-1 Layer I / II (ISO-IEC 13818-3), Dolby Digital Plus, Dolby AC-3, AAC & HE AAC

Video decoding : MPEG-2 MP@ML HDTV (ISO-IEC 13818-2), MPEG-4/AVC (ISO-IEC 14496-10) , ITU-T H.264, AVS

SATELLITE SPECIFICATIONS

PARAMETERS	SPECIFICATIONS
Supported Standards	
DVB-S, DVB-S2 Single Stream (DTH), DVB-S2 Multi stream (opt.) (for Broadcast Multiple Network, Transmitter feeding), DVB-S2X Single Stream (DTH), DVB-S2X Multi stream (for Broadcast Multiple Network, Transmitter feeding) (opt.)	
Demodulation (QPSK, 8PSK, 16APSK)	
Symbol Rate	1- 45 Msymb/s (DVB-S), 2- 45 Msymb/s (DVB-S2)
FEC	Auto, all ratios compliant with standards
FEC Block	Short and Normal
Roll-Off	Automatic selection
Controls	Pilots Presence, ISSY, ISI, CCM / AMC
DVB-S Block linear code (outer code)	R/S 204, 188
DVB-S2 Block linear code (outer code)	BCH, LDPC
Spectrum	Auto
RF Input	
Input connector	F -Type (75 Ω)
Frequency	L-band 930-2250 MHz
RF Input Level	40 - 100 dBuV
LNB Control	V (13 V) / H (18 V) polarization, 22 KHz tone, DiSeqC 1.0 and 2.0
Available measurements	
RF input level	40-100 dBμV (±2 dB - 0.05dB/°C)
SNR / MER (Eb/NO)	5-20 dB (±1dB)

PARAMETERS	SPECIFICATIONS
bBER	1x10 ⁻² to 1x10 ⁻⁵
aBER	1x10 ⁻² to <10 ⁻⁸
TS Analyzer	ETR 101-290
TS Bitrate/Stuffing	1-100 Mb/s
TPS information	FEC / Guard Interval / Hierarchy / Cell. Id. / Time Slicing / MPE FEC
Other available measurements	LDPC interactions, Pre-BCH BER, Pre-LDPC BER, PLP ID error, L1PRE & L1POST & PLP Structure
Frequency offset	10 to 500 KHz . OPTION >100 Hz
Alarms	
Board self-test	Good / Fail
Signal lock	Lock / Unlock
Power Level	Alarm on threshold
MER	Alarm on threshold
BER	Alarm on threshold

TV SPECIFICATIONS

PARAMETER	SPECIFICATIONS
Supported Standards	
DVB-T, DVB-T2 Multi-PLP, DVB-C, DTMB (opt.), ISDBT (opt.), ANALOG. TV (opt.)	
DVB Demodulation	
Constellation	QPSK, 16 QAM, 64 QAM, 256 QAM
Guard Interval	1/4, 1/8, 1/16, 1/32, 1/128, 19/256, 19/128
Carrier mode	1k, 2k, 4k, 8k, 16k, 32k
Hp/Lp code rate	1/2, 2/3, 3/4, 5/6, 7/8
Channel Bandwidth	5 MHz, 6 MHz, 7 MHz, 8 MHz
PLP	Single & Multi PLP Selection (DVB T2)
RF input	
Input connector	F-Type (75 Ω)
Frequency range	48 – 878 MHz
Frequency resolution	10 KHz
RF input level range	40 to 100 dBuV with attenuator
Available measurements	
RF input level	40-100 dBμV (±2 dB - 0.05dB/°C)
SNR / MER	8-38 dB (±1dB)
bBER	1x10 ⁻² to 1x10 ⁻⁵
aBER	1x10 ⁻² to <10 ⁻⁸
TS Analyzer	ETR 101-290
TS Bitrate/Stuffing	1-100 Mb/s
TPS information	FEC / Guard Interval / Hierarchy / Cell. Id. / Time Slicing / MPE FEC
Other available measurements	LDPC interactions, Pre-BCH BER, Pre-LDPC BER, PLP ID error, L1PRE & L1POST & PLP Structure
RF Spectrum	RF Spectrum with SPAN 10 MHz
Carrier Mode T	2 K, 8 K
Carrier Mode T2	1 K, 2 K, 4 K, 8 K, 16 K, 32 K
Modulation T	QPSK, 16 QAM, 64 QAM
Modulation T2	QPSK, 16 QAM, 64 QAM, 256 QAM
Guard interval T	1/4, 1/8, 1/16, 1/32, 1/2, 2/3, 3/4, 5/6, 7/8

PARAMETER	SPECIFICATIONS
Guard interval T2	1/128, 19/256, 19/128, 1/4, 1/8, 1/16, 1/32, 1/2, 2/3, 3/4, 3/5, 5/5, 5/6, 7/8
Graphics	
Echoes / Impulse response, constellation, Spectrum	
Alarms	
Board self-test	Good / Fail
Signal lock	Lock / Unlock
Power Level	Alarm on preset threshold
MER	Alarm on preset threshold
BER	Alarm on preset threshold
DTMB (optional)	
Measures	Signal lock, Power, MER, SNR, BERs, Frequency offset, Constellation, FTT, Guard Interval, RF Spectrum 10 MHz (Echoes / Impulse Response, opt. for quantity)
ISDBT (optional)	
Measures	Signal lock, Power, MER, SNR, BERs, Frequency offset, FTT, Guard Interval, ISDBT status A, B, C, RF Spectrum 10 MHz

RADIO SPECIFICATIONS

PARAMETER	SPECIFICATIONS
FM (optional)	
Standard:	FM
RF input:	75 Ω "F" connector
Input level range:	25 to 100 dB μ V
RF power level accuracy:	± 2 dB max
Frequency range:	42MHz to 900 MHz
Frequency resolution:	1 KHz
Status:	Unlock, Power Too Low, Lock
RF level unit:	dB μ V, dBmV, dBm Selectable
MPX power:	-12 to +12dB
MPX Khz:	up to 120Khz
Stereo Pilot:	up to 15Khz
RDS Pilot:	up to 15Khz
Graphics:	MPX spectrum
Audio / Streaming via LAN:	L/R
RDS:	PS, PT, TP, Clock, Text and Alternatives Frequency

DAB/DAB+ (optional)	
Standard: ETSI EN 300 401	DAB DAB+
RF input:	75 Ω "F" connector
Input level range:	25 to 100 dB μ V
Frequency range:	42 MHz to 900 MHz
Frequency resolution:	1 KHz
Channel Bandwidth:	1.7 MHz
Status:	Unlock, Power Too Low, Lock
RF power level accuracy:	± 2 dB max
RF level unit:	dB μ V, dBmV, dBm Selectable
MER Range:	Up to 38 dB
MER Accuracy:	1 dB

FIC BER:	up to 1E-06
MSC BER:	up to 1E-06
Graphics:	Constellation, echoes, Mer per Carrier
TII	Up to 8
PAD	DLS, MOT
Service Data	Ensamble Label, Component List & ID, Service List & ID, Dynamic Label, PTY, Mode, Service Mode, Protection Info, Current CU & Address, Country, Language, Time & Date
ETI	Service Information (SI), ensamble service Plan, service list
Audio Streaming via LAN :	L/ R
Alarms via SNMP	Power, MER, BERs, Lock

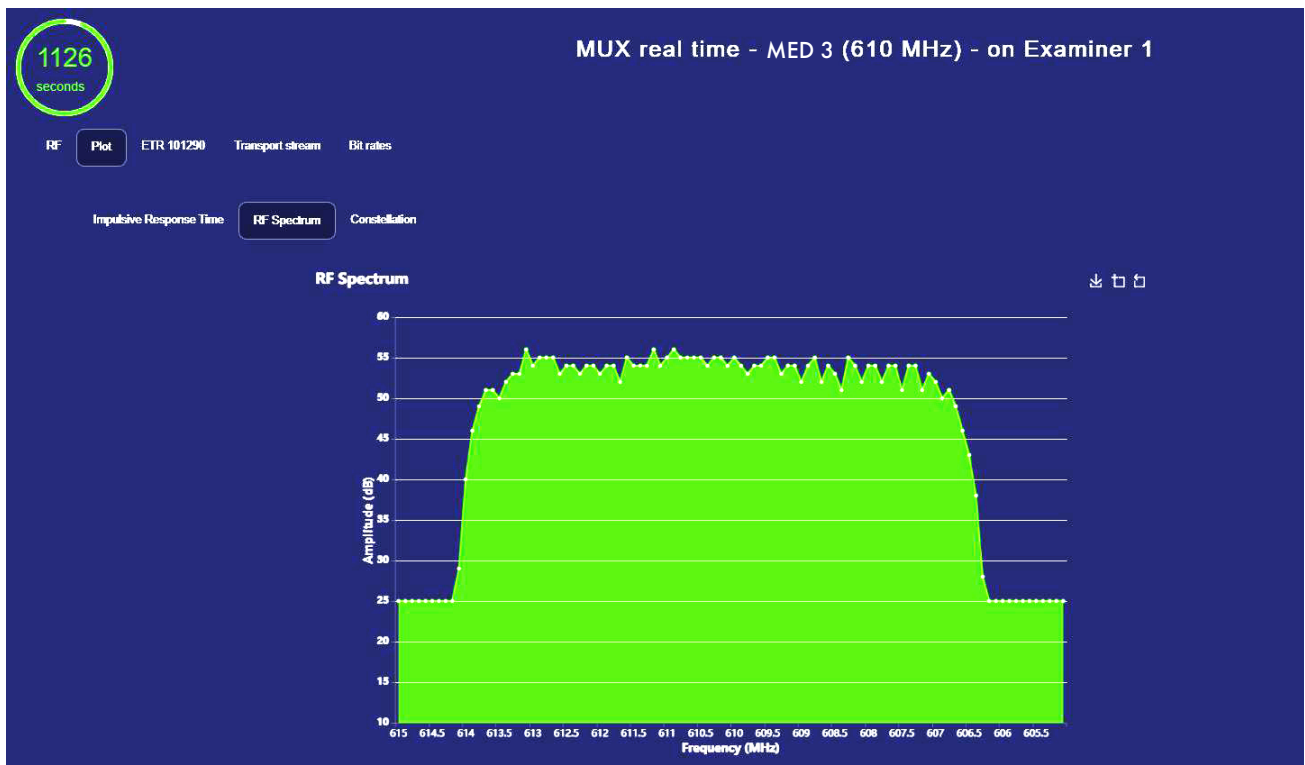
LAN IP / ASI / TS OVER IP

PARAMETER	SPECIFICATIONS
IP Interface (opt. for quantity)	
LAN:	1 Gb/s Ethernet interface
IP protocol:	UNICAST/MULTICAST RTP/UDP, EDI
IP measurement (opt. for quantity)	
Streaming status:	Present, Not Present, Stream type
Number of MPEG packet size:	1 - 7
TS packet size:	188, 204
Number of missing packets:	0 - ∞
IP Stream latency:	0 - 1000 ms
IAT:	MIN, MAX, LAST, AVERAGE
TS Bitrate:	0 - 216 Mb/s
Transport Stream Content:	TS and T2-MI, ETR 101-290, PSI/SI
ASI mode	
ASI Mode:	MPEG-TS on ASI packet length 188/204 bytes
ASI Status:	Lock 188, Lock 204, Unlock
ASI Bitrate:	0 - 216 Mb/s
Input / output:	75 Ω BNC connectors
Transport Stream Content:	TS and T2-MI, ETR 101-290, PSI/SI
Alarms	Lock

TRANSPORT STREAM ANALYZER

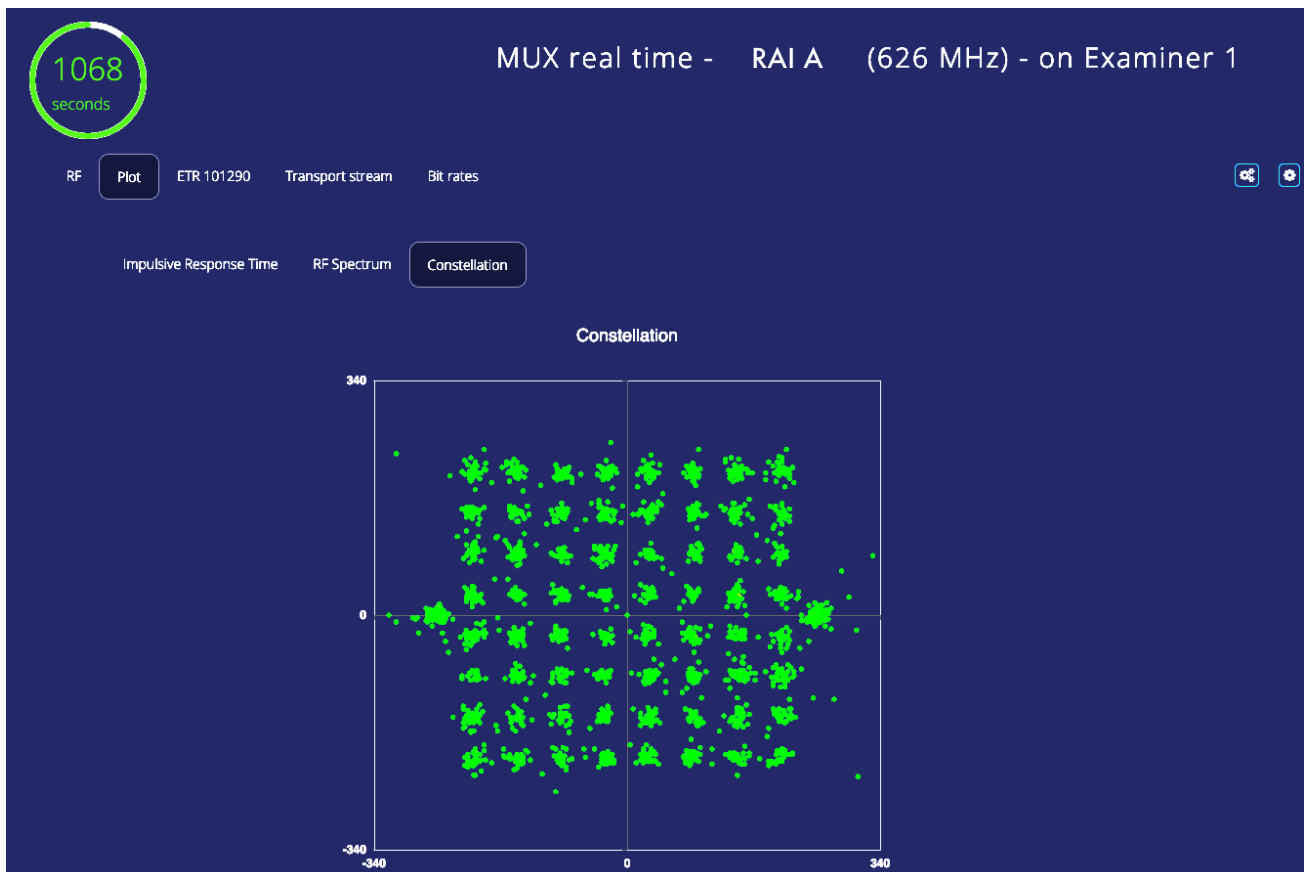
PARAMETER	SPECIFICATIONS
TS interface	
Transport Stream content:	TS and T2-MI
TR 101 290 v1.2.1 ANALYSIS	
1st priority monitoring:	1.1 Sync loss, 1.2 Sync byte, 1.3.1 PAT Int, 1.3.2 PAT PID, 1.3.3 PAT scr, 1.4.a Cont [Ord], 1.4 b, Cont. Rep. Err., 1.4c Count. Pack. Loss, 1.5a PMT Int. Err.
2nd priority monitoring:	2.1 Transport error, 2.2 CRC error, 2.3a PCR repetition error, 2.3b PCR discontinuity error, 2.4, PCR accur, 2.5 PTS Rep. Err., 2.6 a CAT SCR Err.
3rd priority monitoring:	3.1 PID error, 3.2 SI Rep, 3.3, 3.4 UNREF PIDS, 3.5 SDT, 3.7 RST Err., 3.8 TDT Err.
TS information monitoring	
PSI/SI tables decoding:	Visualization of service list, stream type
Network Delay (opz.)	
Network delay measure	DVB-T / T2 (TS & T2MI) Delay Measurement
TS Bit Rate	0 - 216 MB

Real Time TV Spectrum Measure



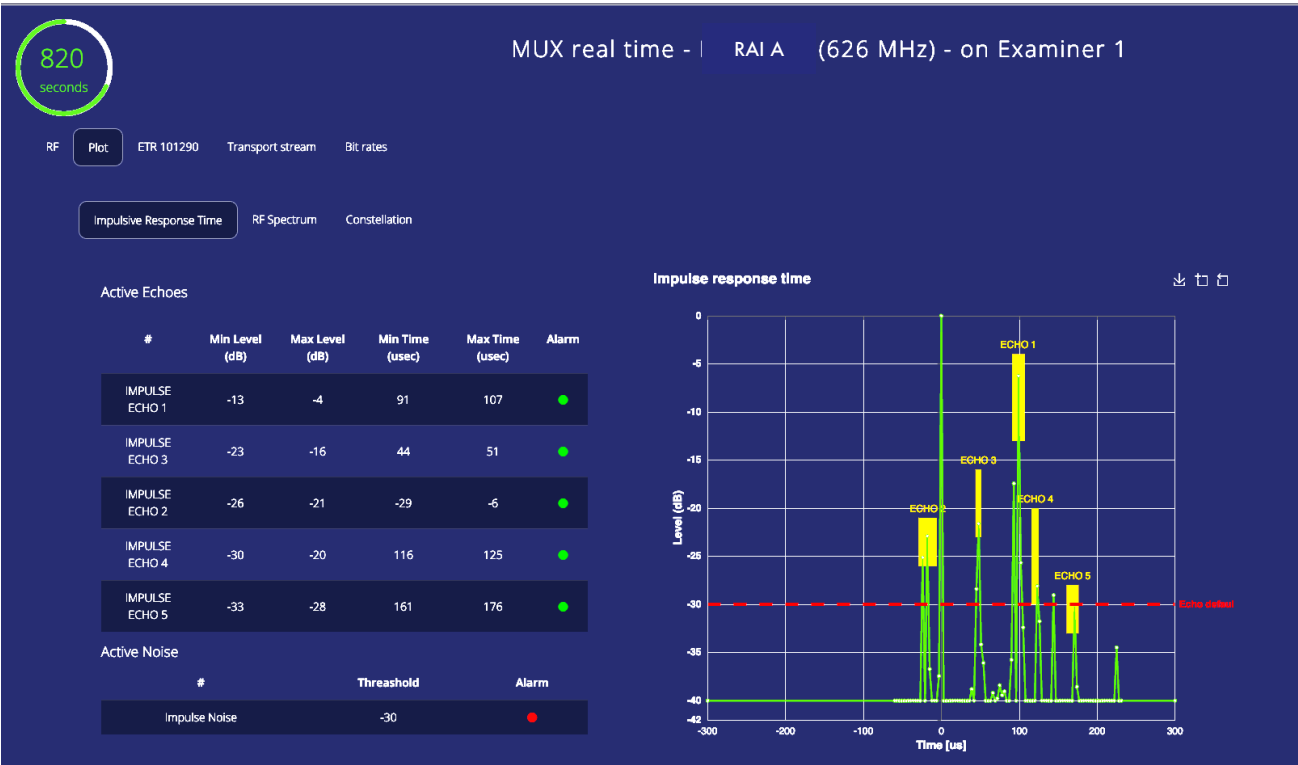
Real Time Spectrum visualization of the selected TV Multiplex.

Real Time Constellation Measure



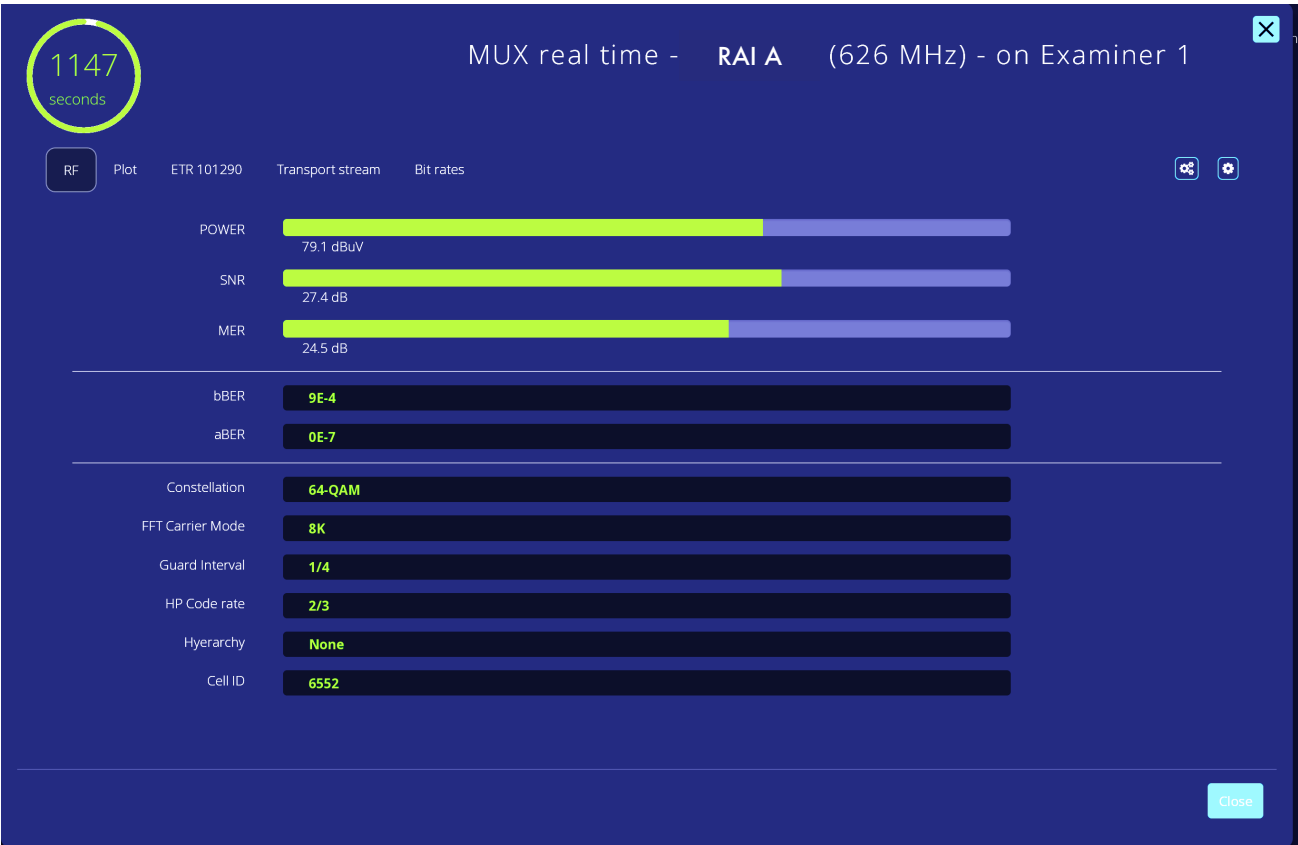
Real Time Constellation available for all Terrestrial supported Modulations.

Real Time Echoes Measure



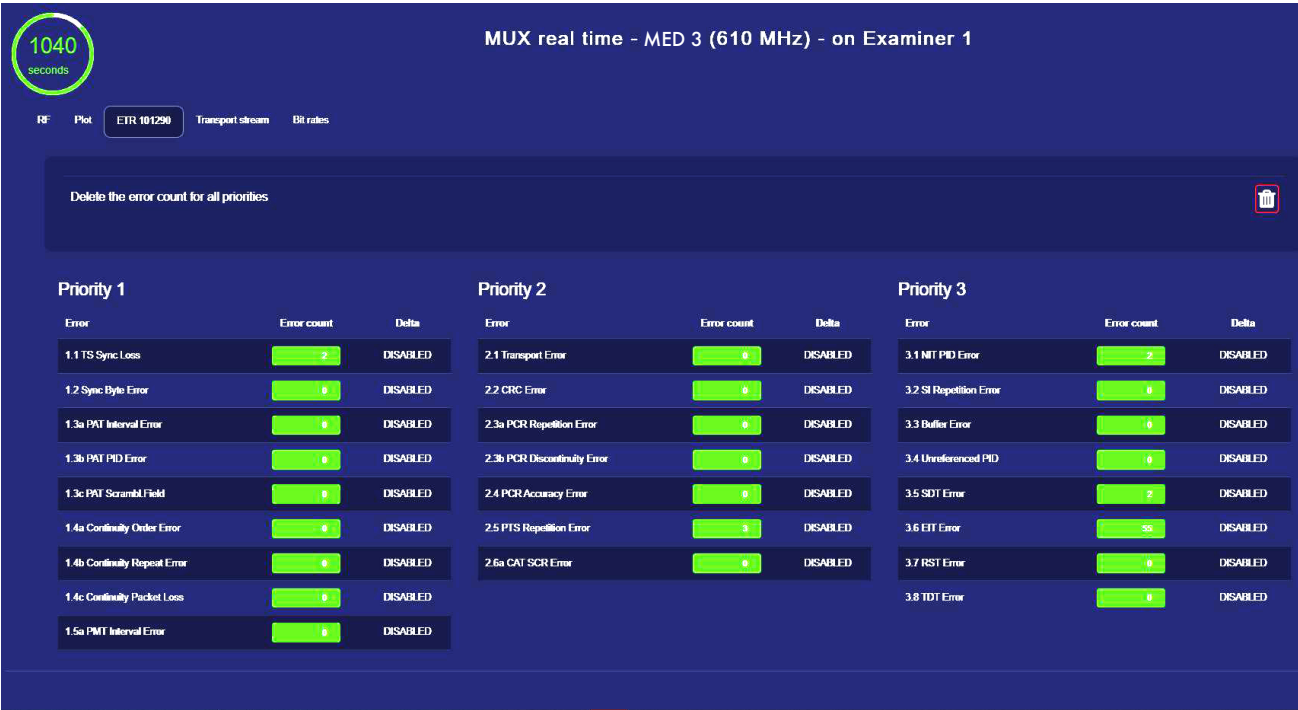
Impulse Response visualization up to 8 simultaneous Echoes. Selectable Level and Time Treshold Alarms. Noise floor Alarms.

Real Time RF Measure



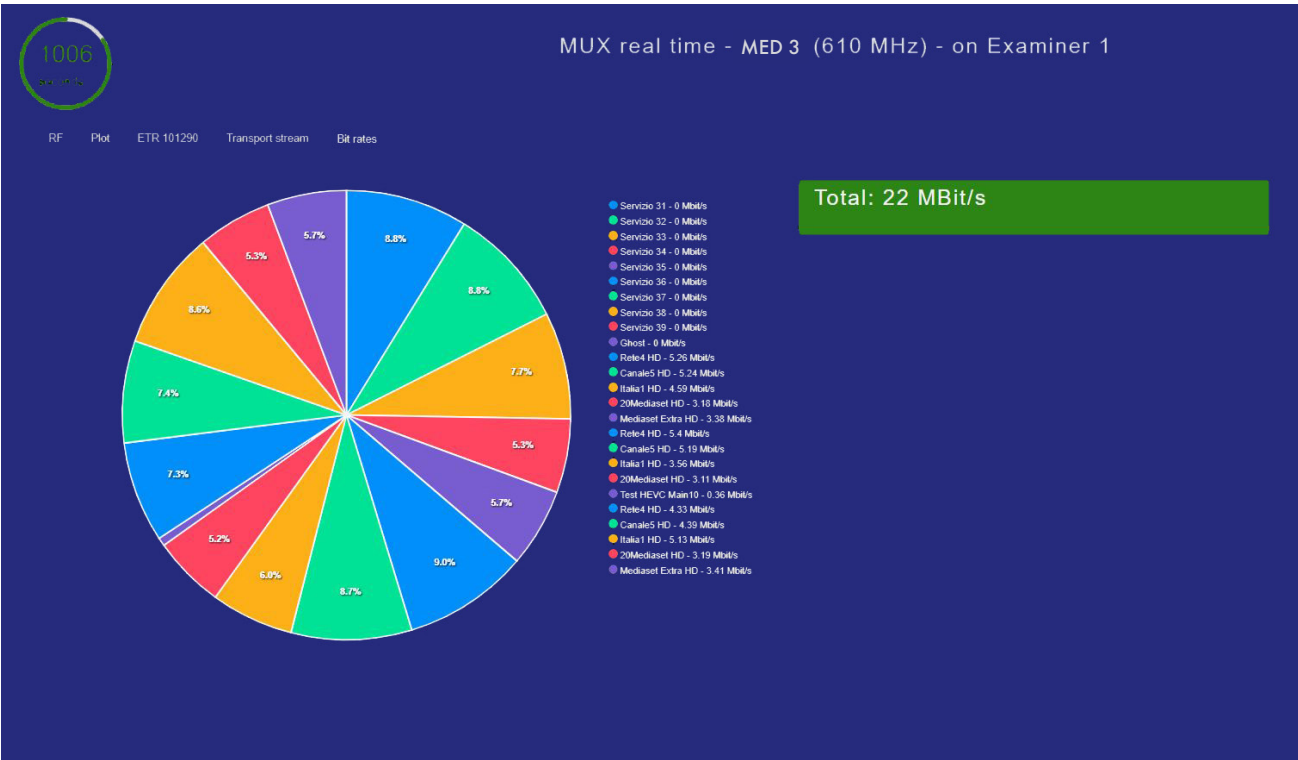
Real Time RF Measurements and Modulation Parameters Visualization.

Real Time ETR-101 290 Measure



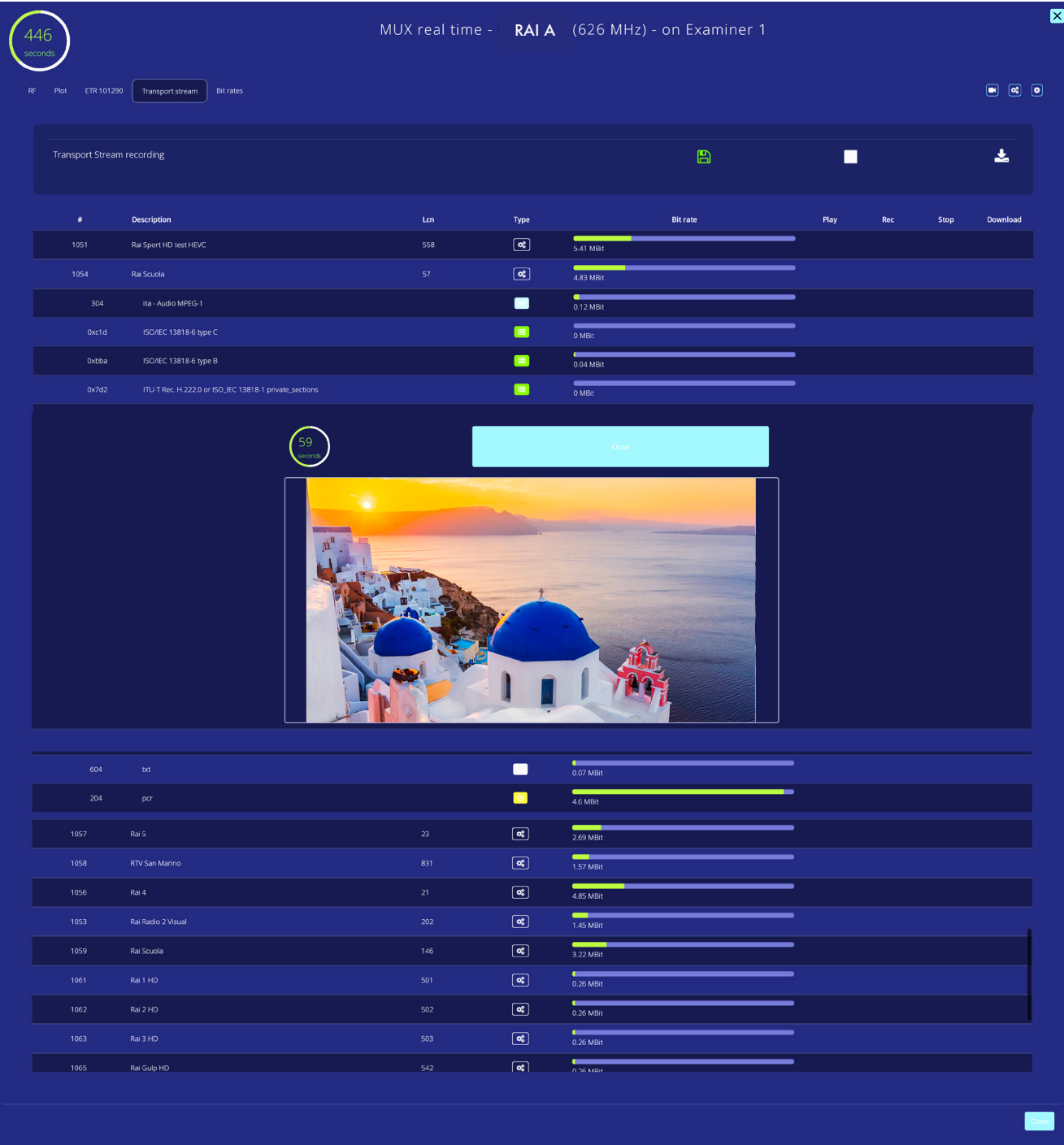
Real Time Transport Stream Monitoring, Priority 1 / 2 / 3 Errors counter.

Real Time Bit Rate pie Measure



Real Time Bit Rate value of all Services contained in the Transport Stream

Transport Stream Contents

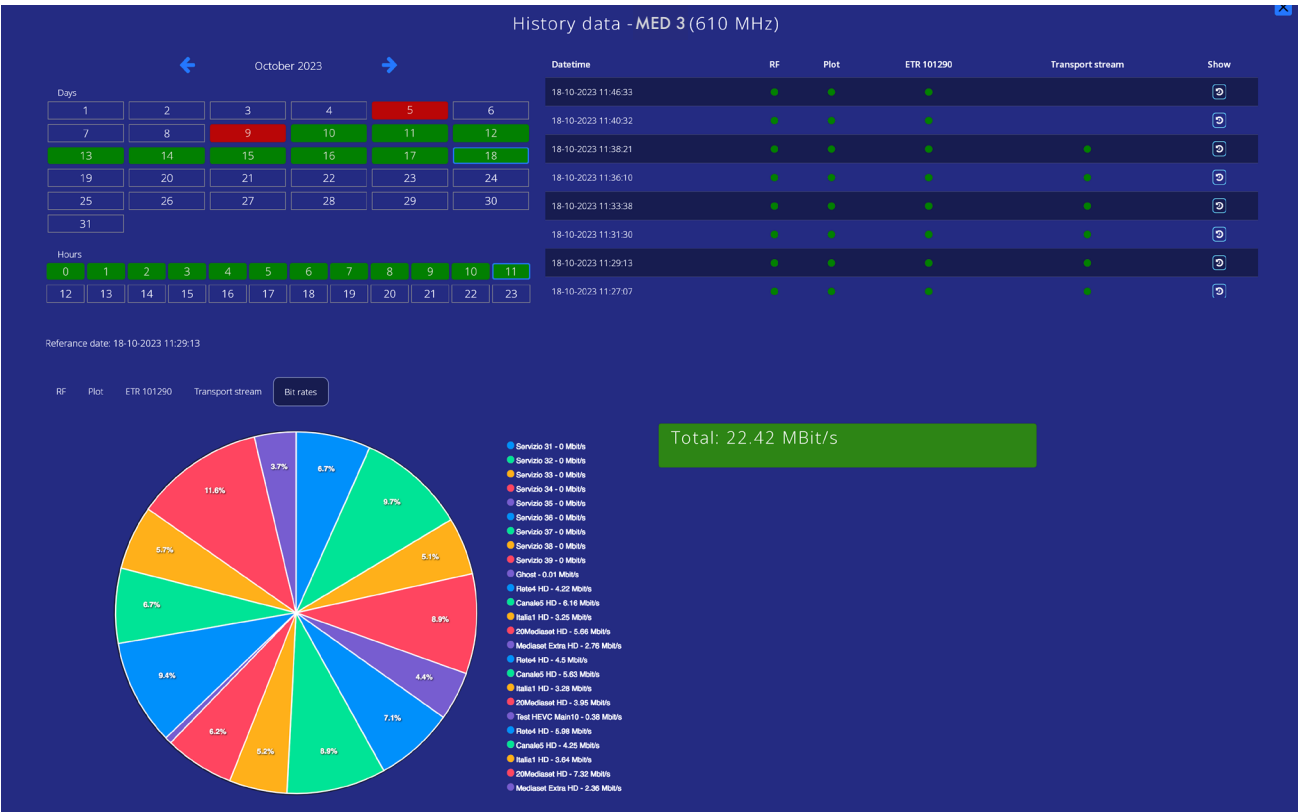


Service List and table visualization, Real time picture streaming and Transport Stream Recording.

History Data Calendar



Data Logger Alarms and related RF Measurements.



Data Logger Alarms of BIT RATE Services.

HOW TO FIND US

Situated in one of the most beautiful tourist locations in Italy, on Lake Garda, ROVER can be easily reached from Milan, Bergamo, Verona and Venice airports.

Lake Garda is in the north of Italy, near the borders of Austria, Switzerland and Germany and is in the foothills of the Alps. Lake Garda has a micro-climate, tropical in summer and temperate in winter, and where palms, olives, lemons, oranges, bouganville and even banana trees can grow.

Exploited by the Romans as long ago as 350 a.C., it is now one of the most important lakeside, spa and tourist resorts in Europe. Please find below photographs of some of the most important tourist attractions in the area.

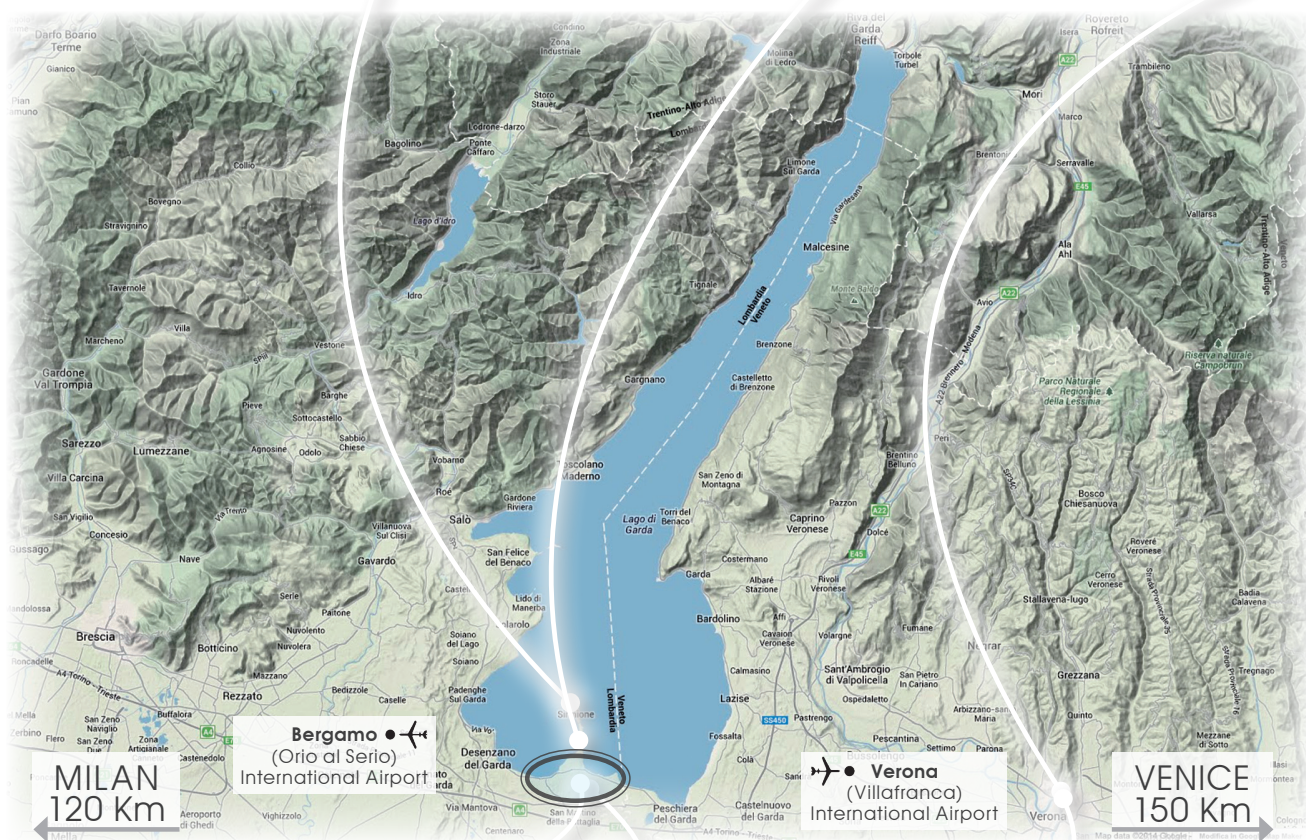
Catullus roman ruins, 350 b.C.



Sirmione Castle, 1.500 a.C.



Verona, Romeo & Juliet's balcony



GPS COORDINATES:
45° 27' 47" N, 10° 36' 24" E



ROVER Goods entrance & production



ROVER Laboratories and offices



Verona, roman Arena 120 b.C.

V 3,2 30-1-24

CERTIFICATES N°
1263 ISO 9001
1264 ISO 14001
1265 ISO 45001



Product
made in Italy by
RoverLaboratories.com



*Specifications and features
are subject to change without notice.*

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