PROMAX

A NEW STANDARD IN FIELD STRENGTH METERS

TV, CABLE, SATELLITE & WIFI ANALYSER

RANGER*Neo* 3

EASY OPERATION

Hybrid user interface
(touch + keyboard)

HEVC H.265

High Efficiency Video
Codec

WIFI ANALYSER

Dual display:
SPECTRUM and DATA

WIDEBAND LNB

The entire SAT band
on a single SPAN

HEVC H.265 DECODING
High Efficiency Video Codec

RANGER *Neo* 3 is the new industry-standard in field strength meters and TV analysers. It is capable to offer HEVC signal demodulation compatible with the new DVB-T2 broadcast signals.

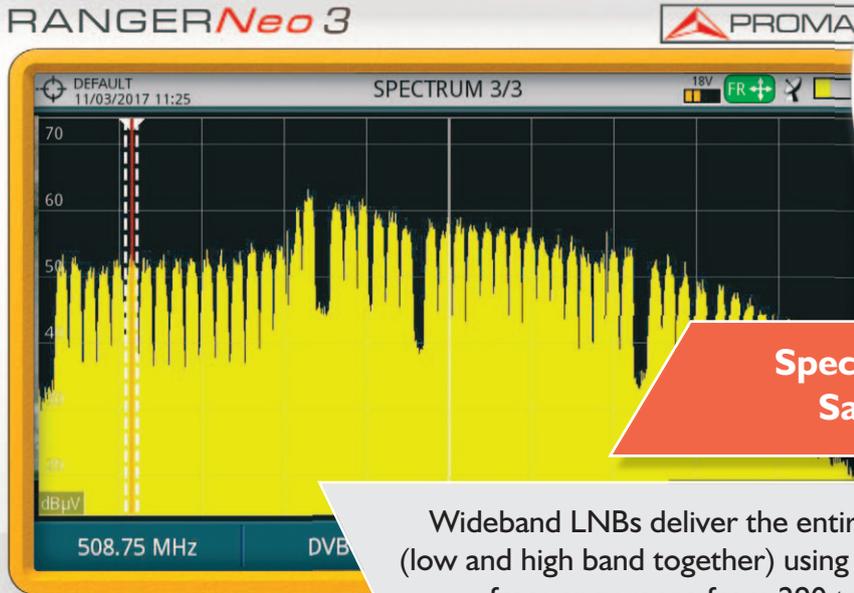**LIGHT WEIGHT 2.4 KG**

TRIPLE SPLIT DISPLAY

ULTRA FAST SPECTRUM

FREE FIRMWARE UPDATES

Field strength meter for the HDTV era

wbLNB COMPATIBLE

Spectrum analyser from 5 to 2500 MHz
**Satellite band** from 250 to 2350 MHz

Wideband LNBs deliver the entire Vertical and Horizontal satellite polarities (low and high band together) using two separate RF cables and an extended IF frequency range from 290 to 2,340 MHz. **Is your analyser prepared?**

DCSS LNBs Digital Channel Stacking Switch satellite LNB

Digital Channel Stacking Switch LNB can support several users on a single cable distribution system by allocating specific user bands for each of them. It is not possible to work with this type of LNB unless your field strength meter can communicate using EN50494 and EN50607 standard protocols.

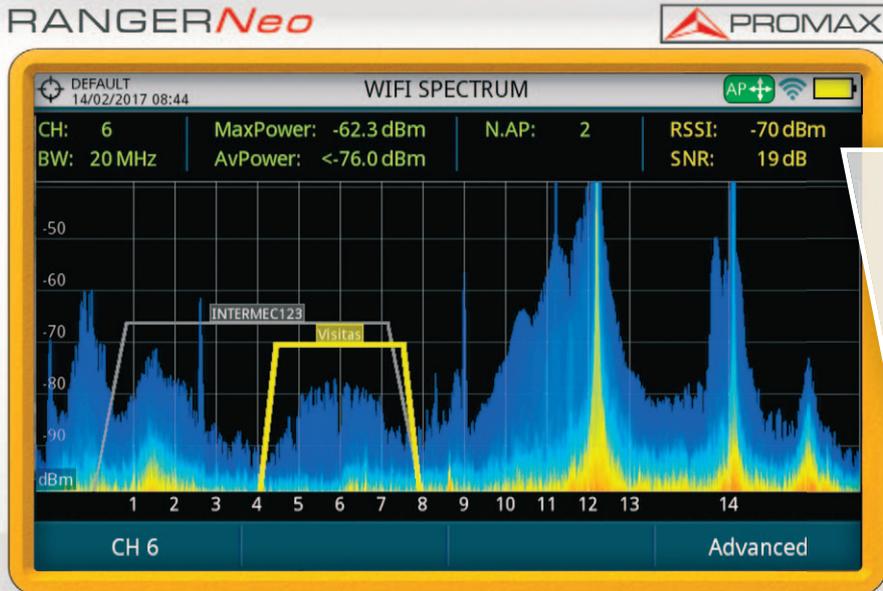This is the case of **RANGER *Neo* 3** which also covers JESS and SATCR.
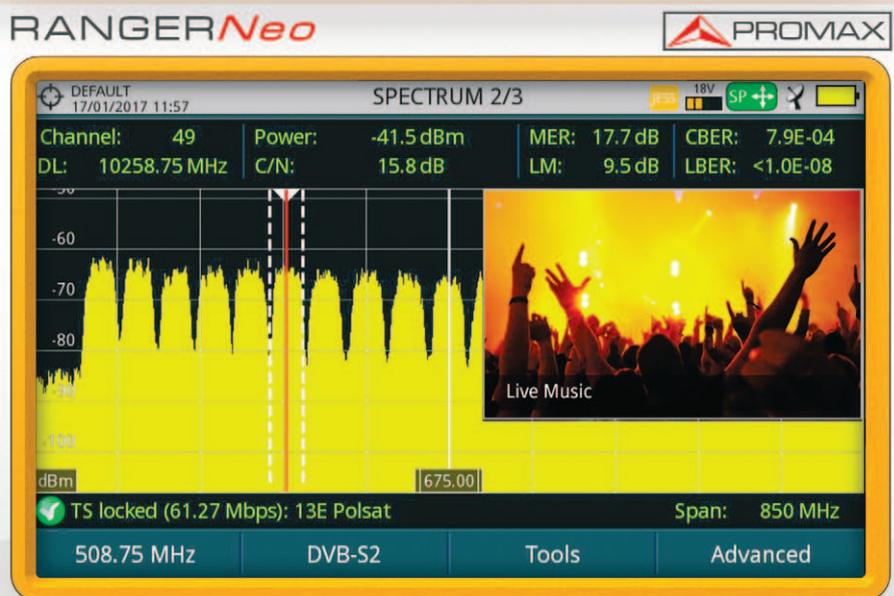
2.4 GHz WiFi ANALYSER

Improve your network performance

RANGER *Neo* 3

## Your analyser for the new world

2.4 GHz WiFi ANALYSER Improve your network performance

### Simultaneous real spectrum analyser information + WiFi access point data

WiFi signals can be disturbed by interference from other WIFI stations, for example other access points, but also from non-WIFI signals such as wireless CCTV cameras or, like in the picture, a microwave oven! **RANGER** *Neo* 3 can display both simultaneously.

RANGER *Neo* 3 shows convenient information from the access points such as SSID, RSSI, SNR, security information, etc.
It also indicates the number of access points per channel.

Wi Fi™
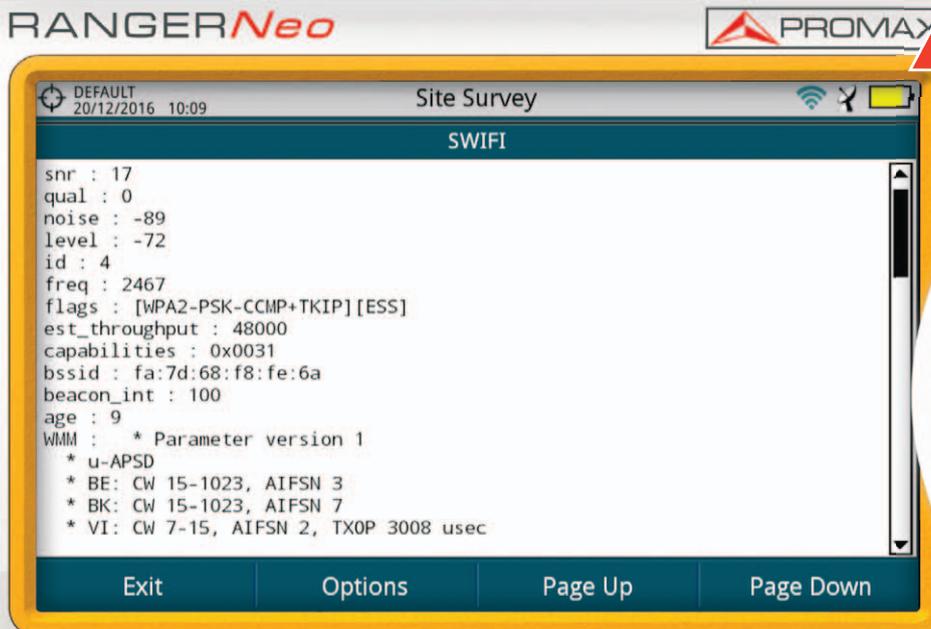
T2-MI PACKET ANALYSIS
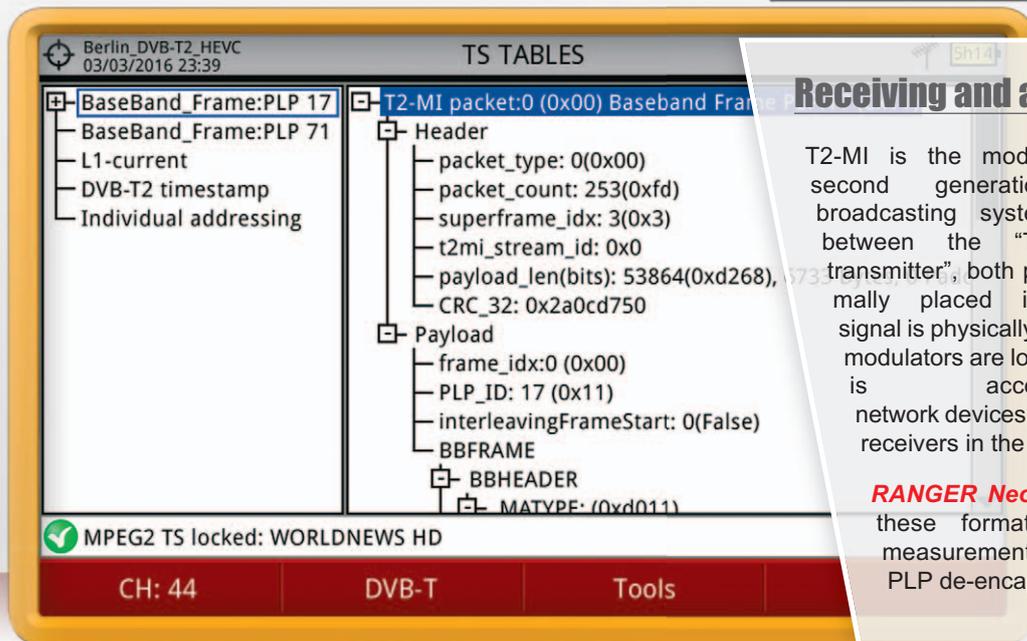
Receiving and analysing T2-MI signals

T2-MI is the modulator interface signal used in the second generation digital terrestrial television broadcasting system. It is used in the connection between the "T2 Gateway" and the "DVB-T2 transmitter", both parts of the TV transmitter network normally placed in different locations. The T2-MI signal is physically transported to the TV towers, where the modulators are located, using IP or RF transport means. It is accessible via different network devices, switches, routers, microwave or satellite receivers in the form of ASI or IP signals.

RANGER Neo 3 can receive a T2-MI signal in both these formats, performing IP transport quality measurements, T2-MI packet analysis and PLP de-encapsulation.

NETWORK DELAY MARGIN

NETWORK DELAY MARGIN

All transmitters in a SFN (Single Frequency Network) network must be synchronised. It is the responsibility of the modulators in the transmitters to ensure that every bit from the transport stream goes on air at exactly the same time. Because transport stream is sent to different transmitter locations, normally via satellite or IP links, it will arrive to every destination with a different time delay. This delay is called the 'network delay'.

Network planners determine what time instant all transmitters should use to broadcast those transport stream bits. They all have to do it at a precise given time, i.e 700 ms in the picture. The difference between the network delay and the required transmission time (700 ms in the example) is called the 'network delay margin' and it will be different depending on the specific transmitter location. The lower the 'network delay margin' the higher the chances of that particular transmitter missing the assigned transmission time.
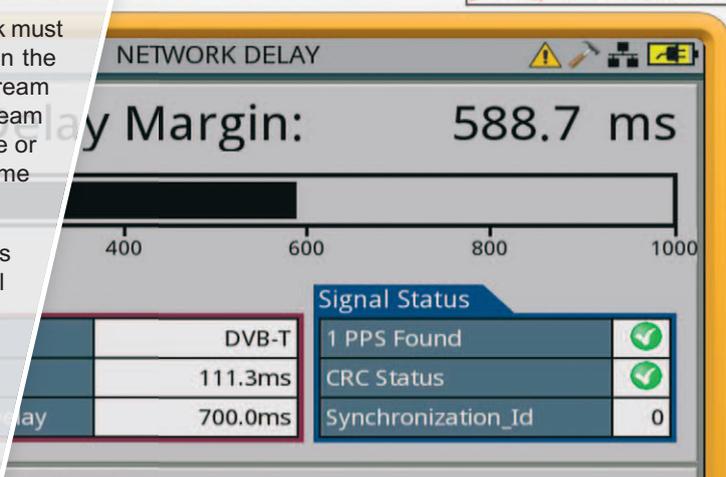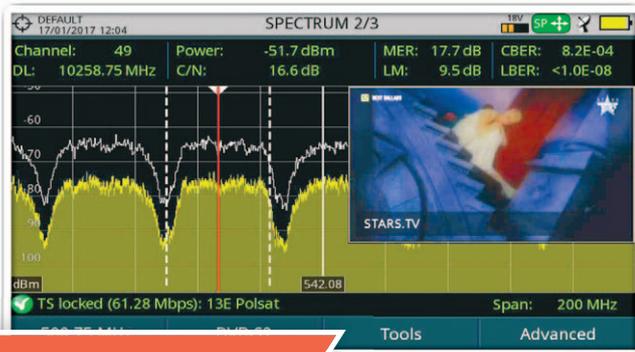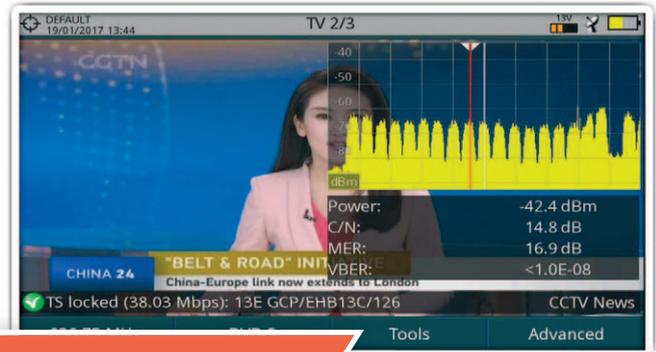
![PROMAX]

Fast and accurate spectrum analyser

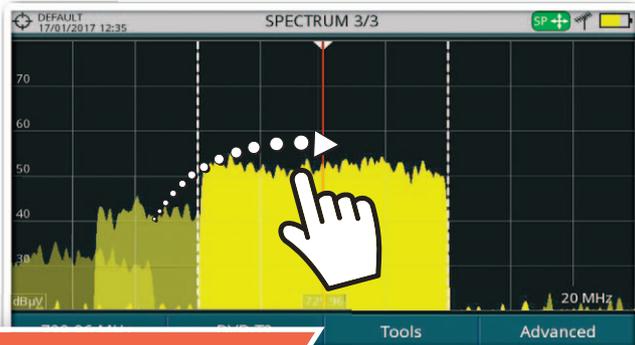# PROFESSIONAL SPECTRUM ANALYSER

Reference traces

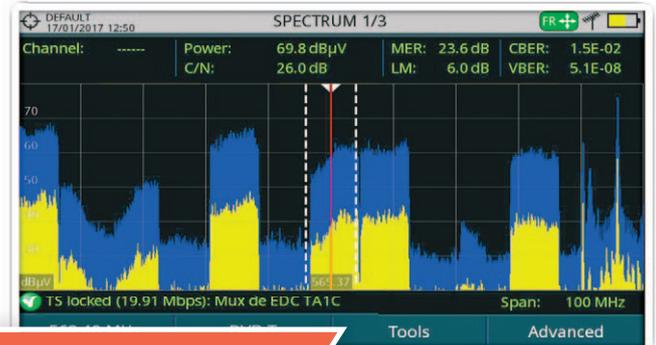Freeze the spectrum graph and compare it with the running trace.

Triple split display

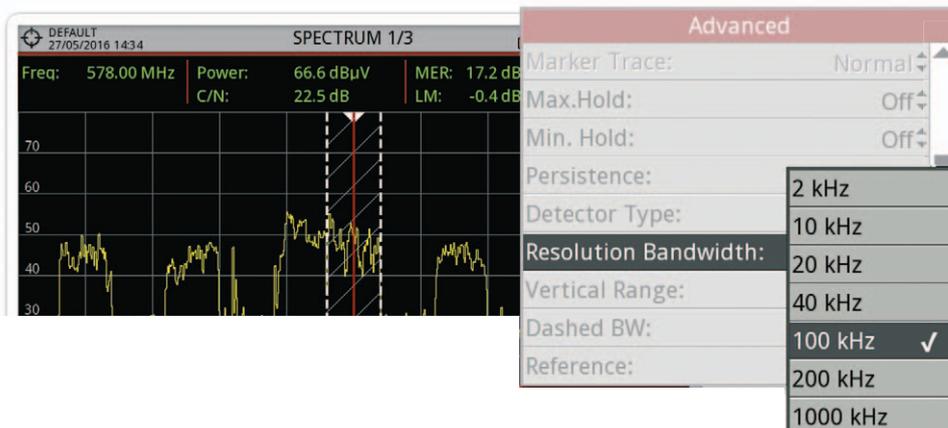Say goodbye to switching between TV, measurements and spectrum modes.

Touch screen

Place the marker on any channel and move the trace using your finger.

MIN and MAX hold

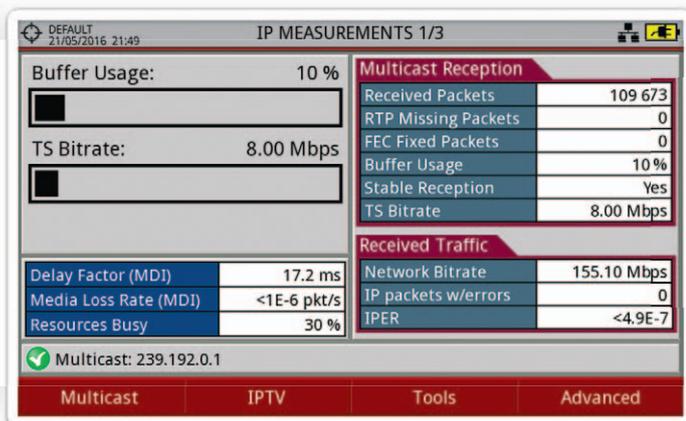Display them separately or simultaneously along with the current spectrum trace.

High resolution filters

Having the proper resolution filters is critical in some applications. *RANGER Neo 3* includes a very narrow 2 kHz filter.

Enjoy a wide variety of functions

EXTENDED IP FUNCTIONS the future of content delivering

Network bitrate

The network bitrate gives you an indication of the network load and possibility of overload.

Media Delivery Index

A key quality measurement formed by the Delay Factor and the Media Loss Rate.

PING, Trace, Average packet delay and IPDV

They are very useful to identify the reasons for communication problems, anything from complete service interruptions to uncontrolled delays which can be as important in terms of service performance.
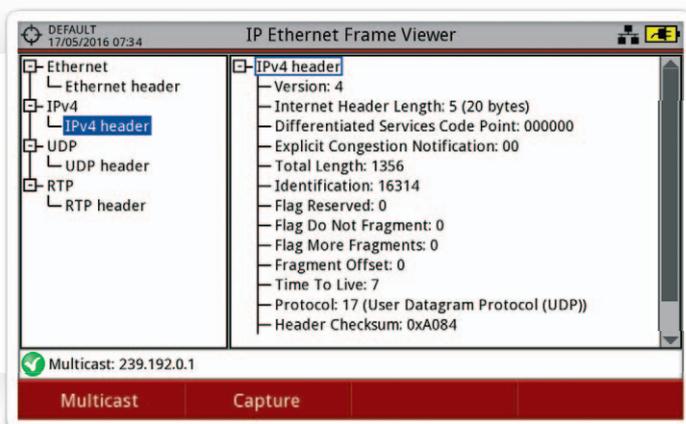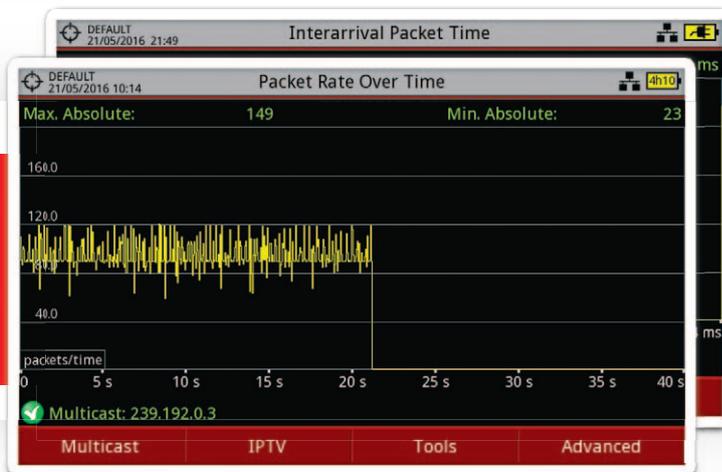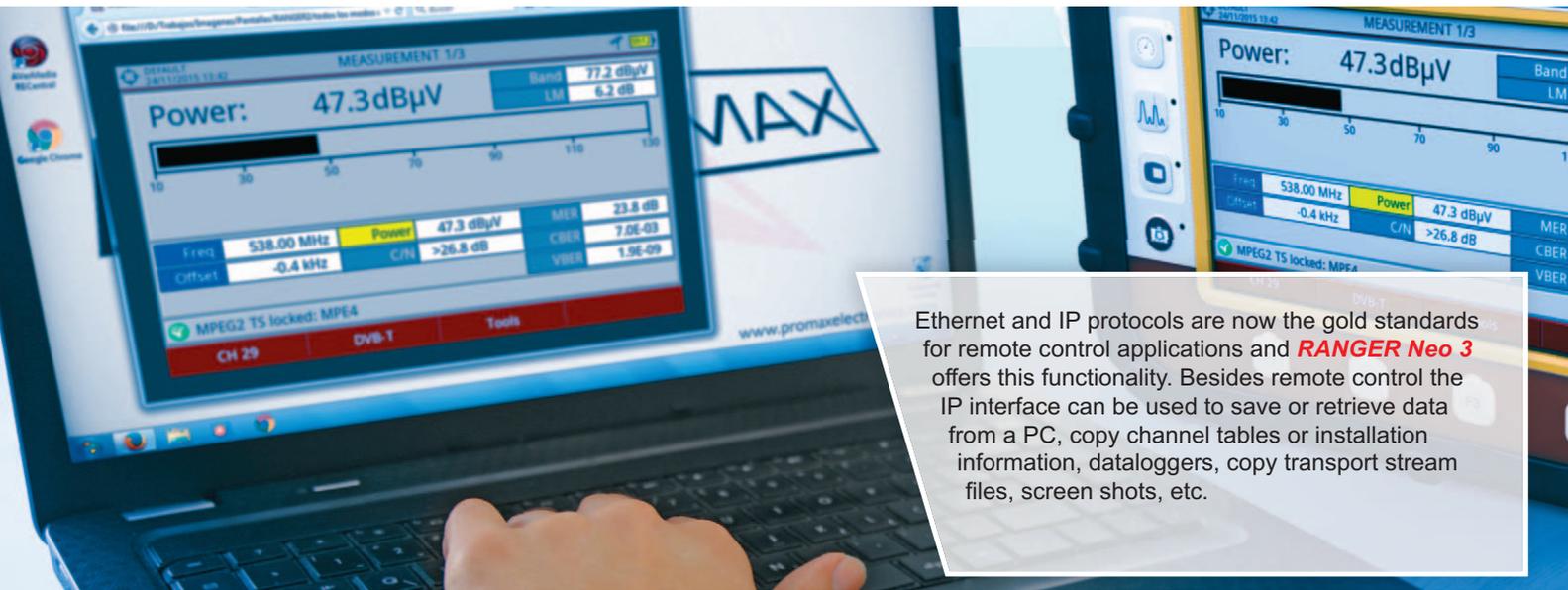
IP Ethernet frame viewer

IP Ethernet frame viewer captures a multicast packet displaying all its frame details, for example Time-To-Live (TTL), all fields of RTP protocol, etc... It is very helpful to study IPTV signalisation problems.

Enjoy a wide variety of functions

ETHERNET CONNECTIVITY remote control and web server

Ethernet and IP protocols are now the gold standards for remote control applications and *RANGER Neo 3* offers this functionality. Besides remote control the IP interface can be used to save or retrieve data from a PC, copy channel tables or installation information, dataloggers, copy transport stream files, screen shots, etc.

MORE INTERNAL MEMORY up 7 GB for user data

There is more data a **RANGER Neo 3** can store in the internal memory every time, dataloggers, screen shots, signal monitoring files, etc... However, it is the transport stream recording what uses up memory faster.

Even though the information can be downloaded to a PC or even copied to a memory stick in the field, the 7 GB of internal memory in the **RANGER Neo 3** are far from negligible.

MANY USEFUL FUNCTIONS
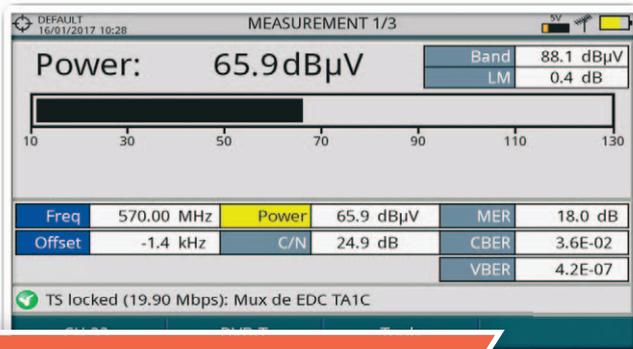
Simultaneous measurements

More computing power for real-time measurements displayed on a single screen.
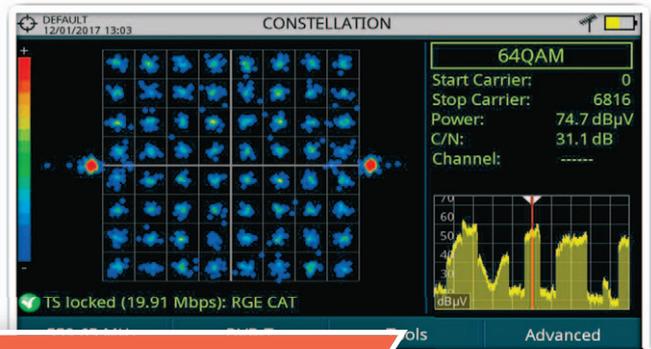
Constellation diagram

Detect signal impairments at a glance. The more disperse the points are, the worse.
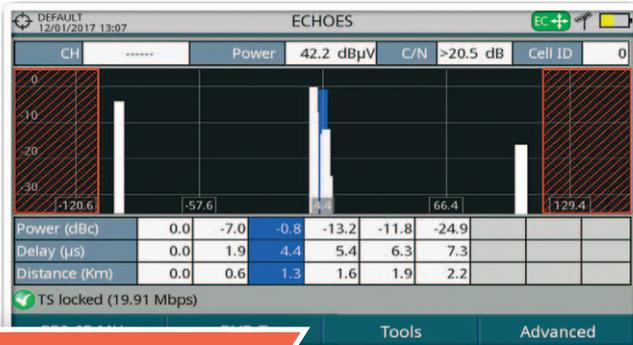
Dynamic echoes

A must-have utility for testing DVB-T, DVB-T2 and DVB-C2 networks.
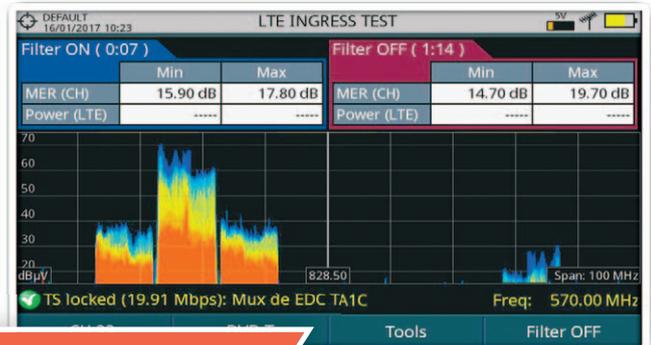
LTE ingress test

Should you install an LTE filter? Test your TV distribution system.
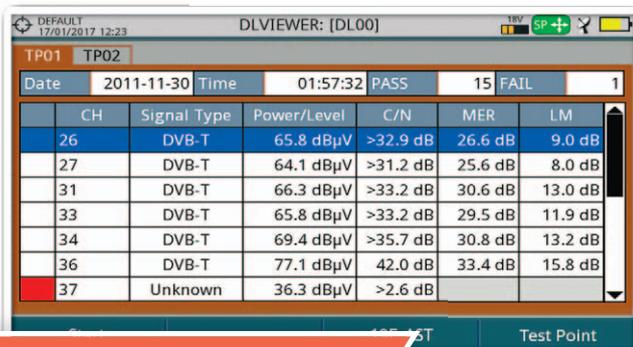
Datalogger and Test&Go

Collect data for your reports faster and easier using the auto-setup Test&Go.
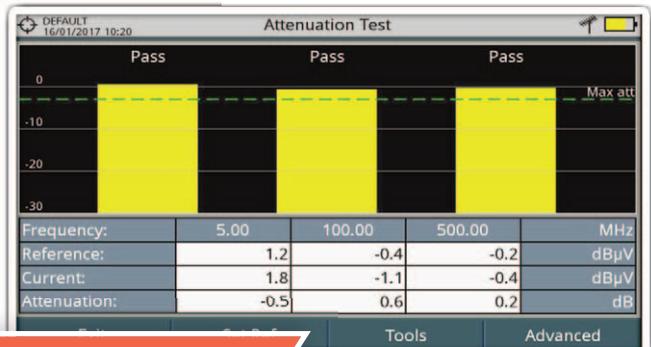
Attenuation test

Test the frequency response of your installation using RP-050, RP-080, RP-110B signal generators.

A new breed of analysers for a new world

TRANSPORT STREAM ANALYZER

Transport stream recording and analysis	Home network, commercial, point to point	Network delay margin
H.265 HEVC analyser and decoder	Fast-storage 7 GB capacity for user data	T2-MI de-encapsulation and analysis
Webserver control via Ethernet port	Common Interface slot for encrypted channels	Extended IPTV functions
DAB and DAB+digital radio	Digital Channel Stacking Switch LNB (dCSS)	5 GHz RF input (optional)
Optional optical power meter and RF converter	GPS for signal coverage analysis	2x USB ports

SPECIFICATIONS	RANGER *Neo* 3		
DIGITAL STANDARDS	DVB-T, DVB-T2, DVB-T2 lite, DVB-T2-MI (Gateway to Modulator), TS DVB-C, DVB-C2 DVB-S, DVB-S2, DVB-S2 Multistream, DSS, ACM / VCM DAB, DAB+		
AUDIO CODECS	MPEG-1, MPEG-2, HE-AAC, Dolby Digital, Dolby Digital Plus		
VIDEO CODECS	MPEG-2, MPEG-4 / H.264, HEVC / H.265		
INPUTS AND OUTPUTS	Universal RF connector 75 Ω ASI-TS input and output (BNC Female, 75 Ω) IPTV Input for Measurements and Decoding, UDP / RTP, RJ45 Ethernet 10 / 100 / 1000 Mbps HDMI output IP input for remote control Analogue Video/Audio input Common Interface module for slot for CA-modules 2 USB connectors for data tranferring and GPS module (Type A)		
FUNCTIONS	Merogram and Spectrogram Constellation diagram for all DVB standards LTE Dynamic echoes analysis StealthID (instant identification of tuning parameters) PLS (Physical Layer Scrambling) Ultra fast spectrum analyser (70 ms sweeping time) with max. and min. hold FM RDS radio measurements and decoding Screenshots and Datalogger for measurement reports	Wideband LNB WiFi 2.4 GHz LTE 1.8 GHz OTT Service Recording DVB-S2 multistream Signal monitoring Field strength Meas. Task planner TS Recording	TS Analysis Resolution Bandwidth: 2, 10, 20, 40, 100, 200 kHz, 1 MHz Web server MER by Carrier IPTV Multicast Shoulder Attenuation Network Delay GPS Coverage Analysis Beacon-Flyaways SNG & VSAT

MEASUREMENT MODE
  Frequency Margin
 	
  DVB-T COFDM
  DVB-T2 Base and Lite COFDM
  DVB-C QAM
  DVB-C2 COFDM
  PAL, SECAM and NTSC analogue TV
  FM radio
  DVB-S QPSK
  DVB-S2 QPSK, 8PSK, 16APSK, 32APSK
  DSS QPSK
	From 5 - 1000 MHz (Terrestrial)
	From 250 - 2350 MHz (Satellite)
	Power (35 to 115 dBμV), CBER, VBER, MER, C/N, Link margin.
	Power (35 to 115 dBμV), CBER, C/N, LBER, MER, Link Margin, BCH ESR, LDP iterations, wrong packets
	Power (45 to 115 dBμV), BER, MER, C/N and Link margin
	Power (45 to 115 dBμV), CBER, MER, C/N, LBER, BCH ESR, LDP iterations and wrong packets
	M, N, B, G, I, D, K and L
	Level measurement
	Power (35 to 115 dBμV), CBER, MER, C/N and Link Margin
	Power (35 to 115 dBμV), CBER, LBER, MER, C/N, BCH ESR, wrong packets and Link Margin
	Power (35 to 115 dBμV), CBER, VBER, MER, C/N and Noise margin		

SPECTRUM ANALYZER
  Frequency Margin
 	
  Measurement range
  Span
	From 5 - 1000 MHz (Terrestrial)
	From 250 - 2500 MHz (Satellite)
	From 10 - 130 dBμV
	Full / 500 / 200 / 100 / 50 / 20 / 10 MHz		

OPTIONS
  OP-003-PS
  OP-003-WL
	OPM & OPT to RF conv & WiFi 5 GHz & LTE 2.6 GHz
	WiFi 5 GHz & LTE 2.6 GHz		

TS-Analysis	Real-time Transport Stream analyser with TS tables display, bitrate analysis & TR 101290 alarms monitoring		
INTERNAL STORAGE	7 GB for measurement protocols, screenshots and transport stream recordings		
PC CONNECTION (via ethernet interface)	NetUpdate 4 (free software) Free and automatic firmware updates Remote control (webserver) User customised channel plans Measurement reports and screenshots		
GENERAL	Hybrid operation: Touch screen (7") or conventional keyboard Battery >4 h. in continuous mode DiSEqC 1.2 SATCR / SCD (EN50494) DCSS / SCD2 (EN50607)		

DESIGN AND SPECIFICATIONS SUBJECT TO CHANGES WITHOUT PRIOR NOTICE 03-17