



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*



The future today

## 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



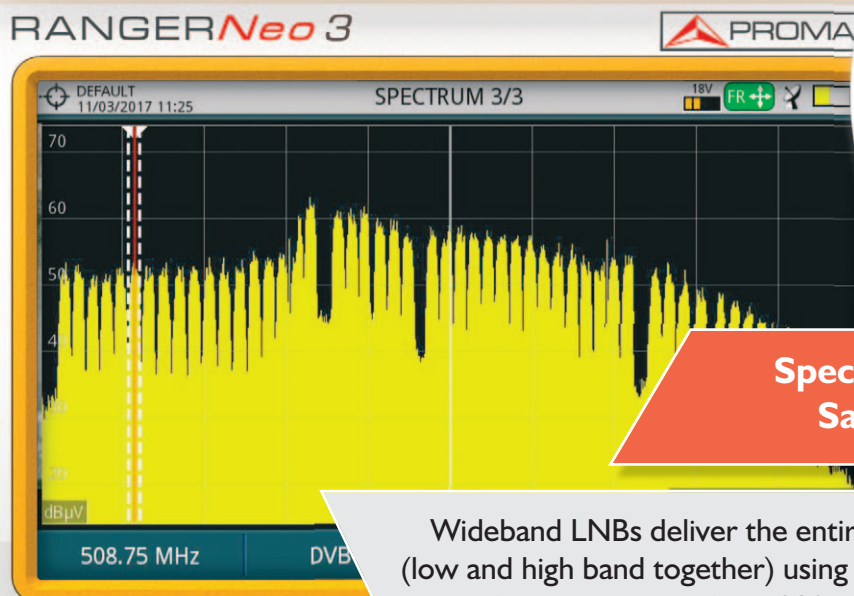
**ULTRA FAST**  
SPECTRUM



**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**

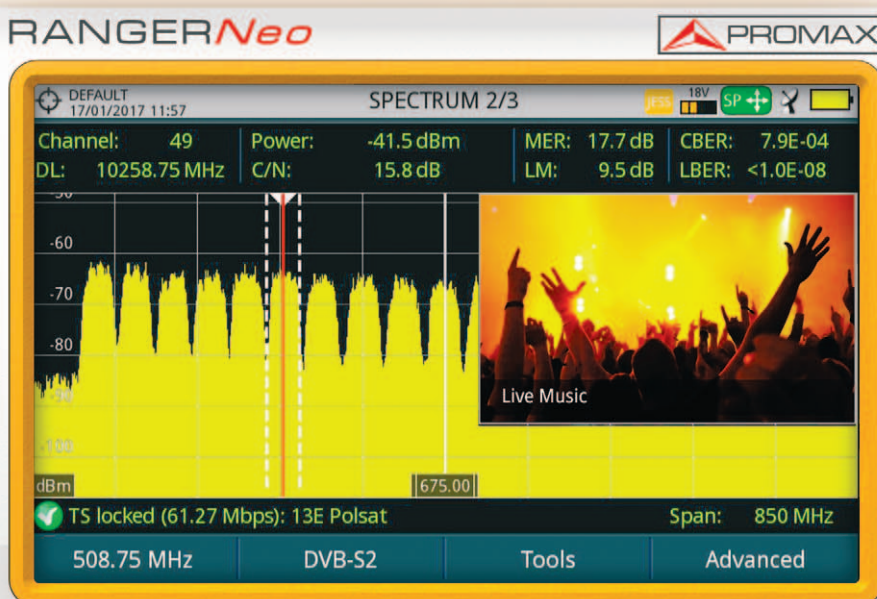
Wideband LNBs deliver the entire Vertical and Horizontal satellite polarities (low and high band together) using two separate RF cables and an extended IF frequency range from 290 to 2,340 MHz. **Is your analyser prepared?**

### 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.





Be ready for the future

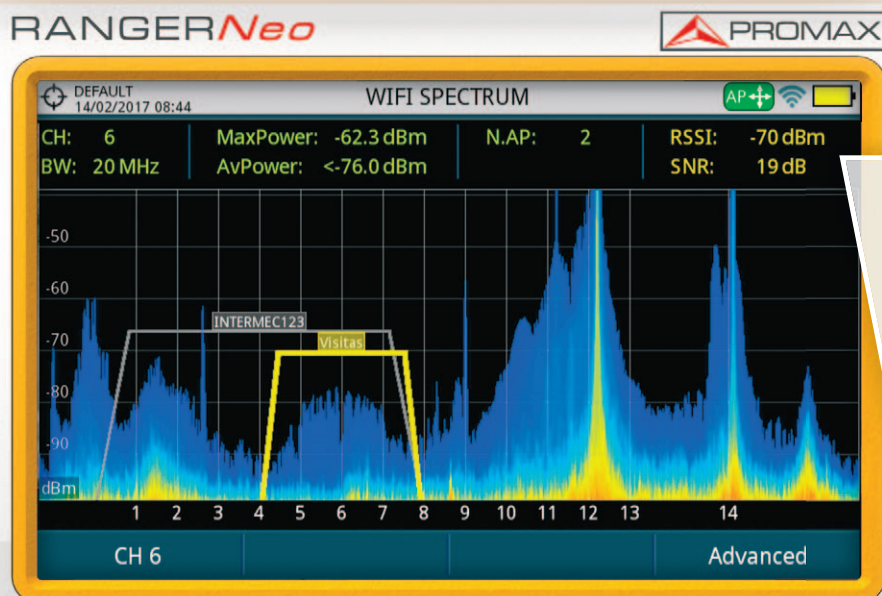
# 2.4 GHz WiFi ANALYSER

Improve your network performance



Your analyser for the new world

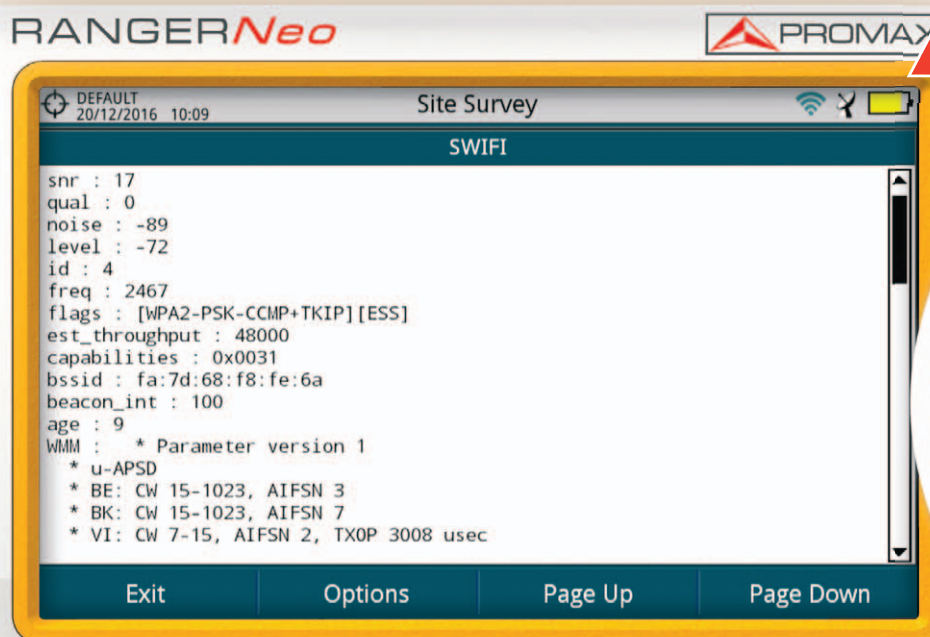
## 2.4 GHz WiFi ANALYSER Improve your network performance



### 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.

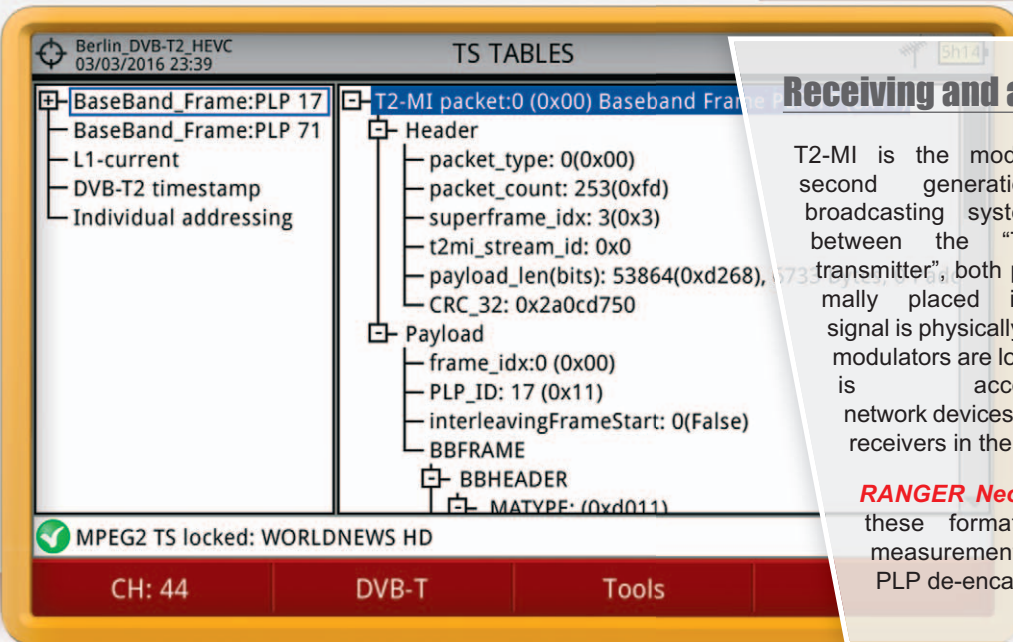




# T2-MI PACKET ANALYSIS

RANGER Neo

PROMAX



## 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.

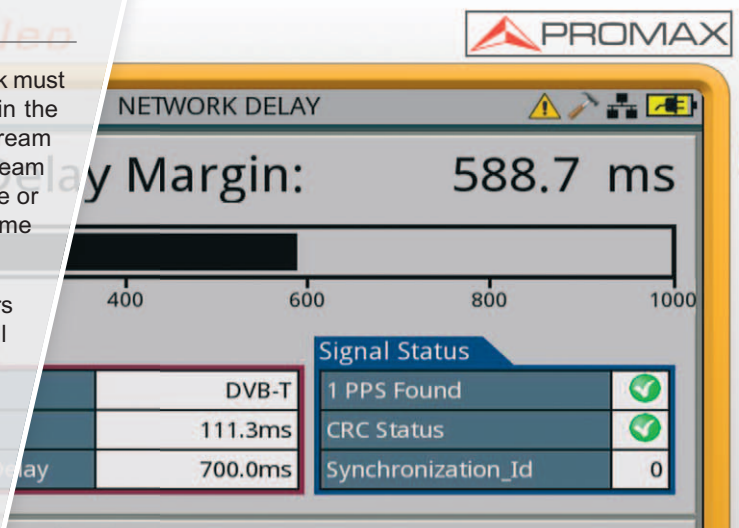
**RANGER Neo 3** can receive a T2-MI signal in both these formats, performing IP transport quality measurements, T2-MI packet analysis and PLP de-encapsulation.

# NETWORK DELAY MARGIN

## NETWORK DELAY MARGIN

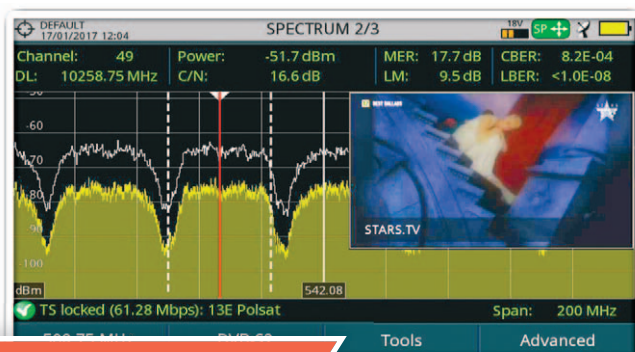
All transmitters in a SFN (Single Frequency Network) network must be synchronised. It is the responsibility of the modulators in the transmitters to ensure that every bit from the transport stream goes on air at exactly the same time. Because transport stream is sent to different transmitter locations, 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.



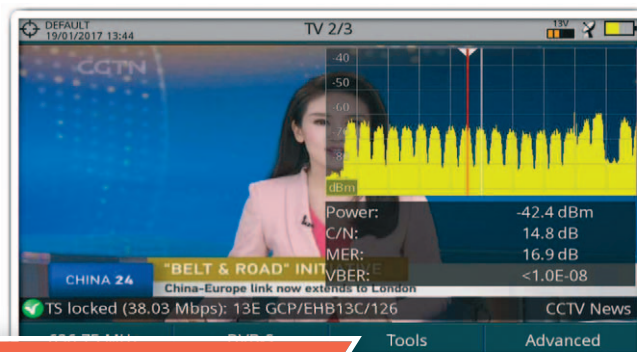
## Fast and accurate spectrum analyser

# PROFESSIONAL SPECTRUM ANALYSER



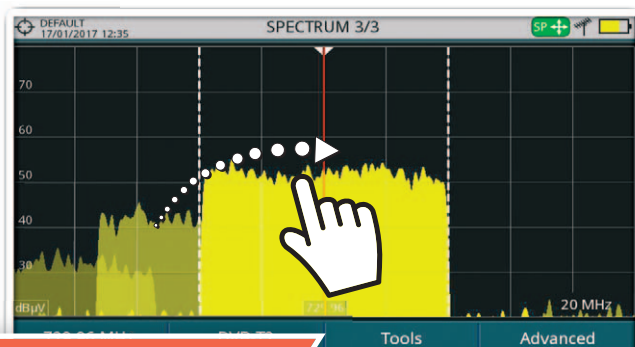
### Reference traces

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



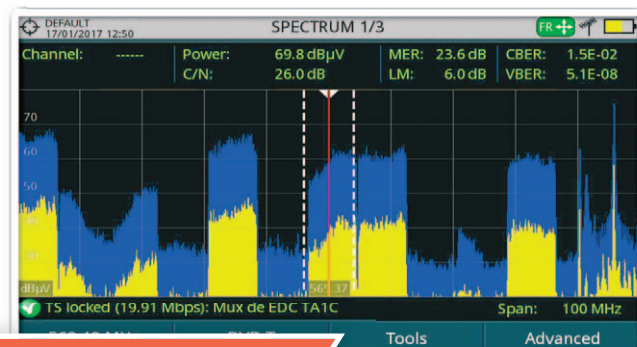
### Triple split display

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



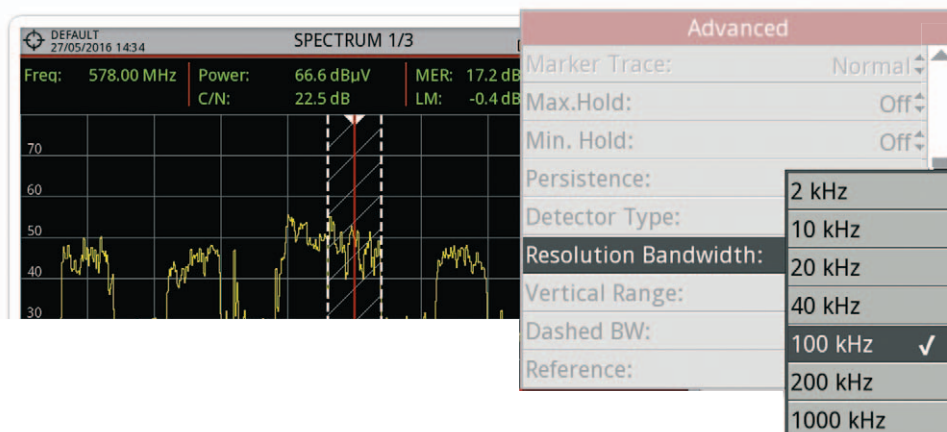
### Touch screen

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.

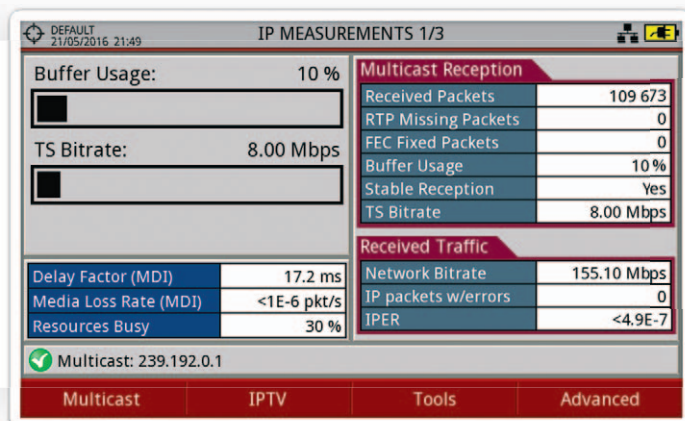


### High resolution filters

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

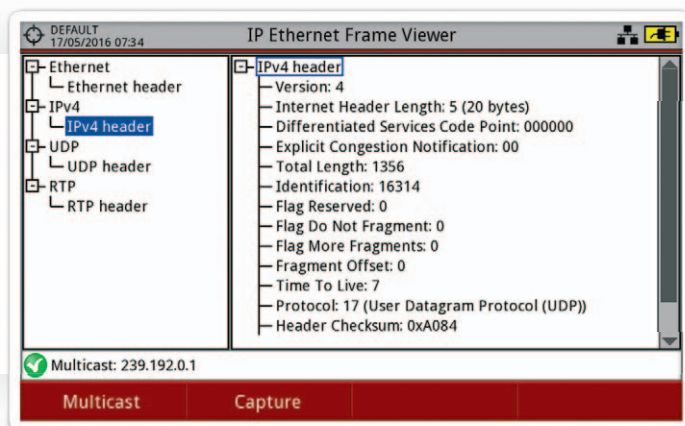
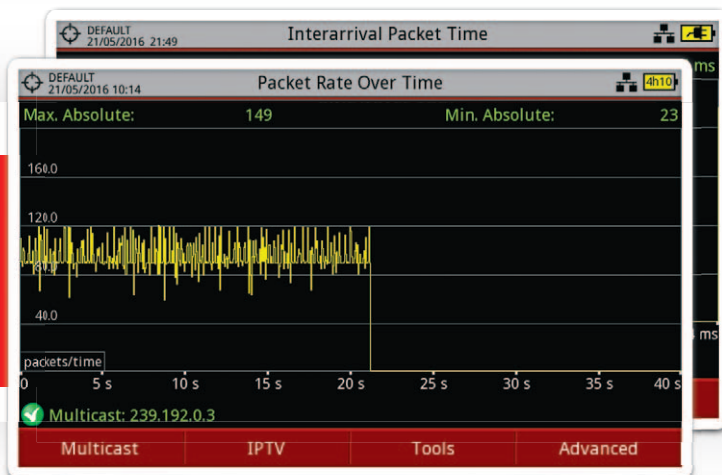
The network bitrate gives you an indication of the network load and possibility of overload.

### 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

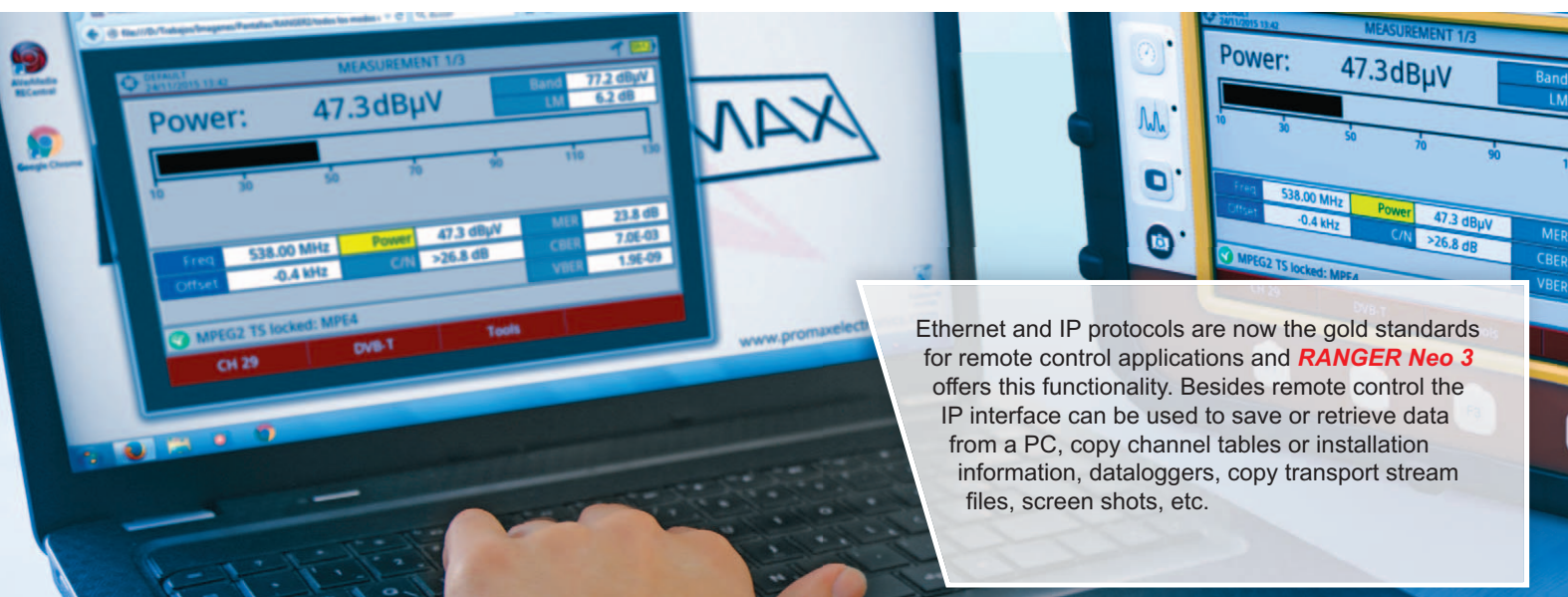
IP Ethernet frame viewer captures a multicast packet displaying all its frame details, for example Time-To-Live (TTL), all fields of RTP protocol, etc... It is very helpful to study IPTV signalisation problems.



Enjoy a wide variety of functions

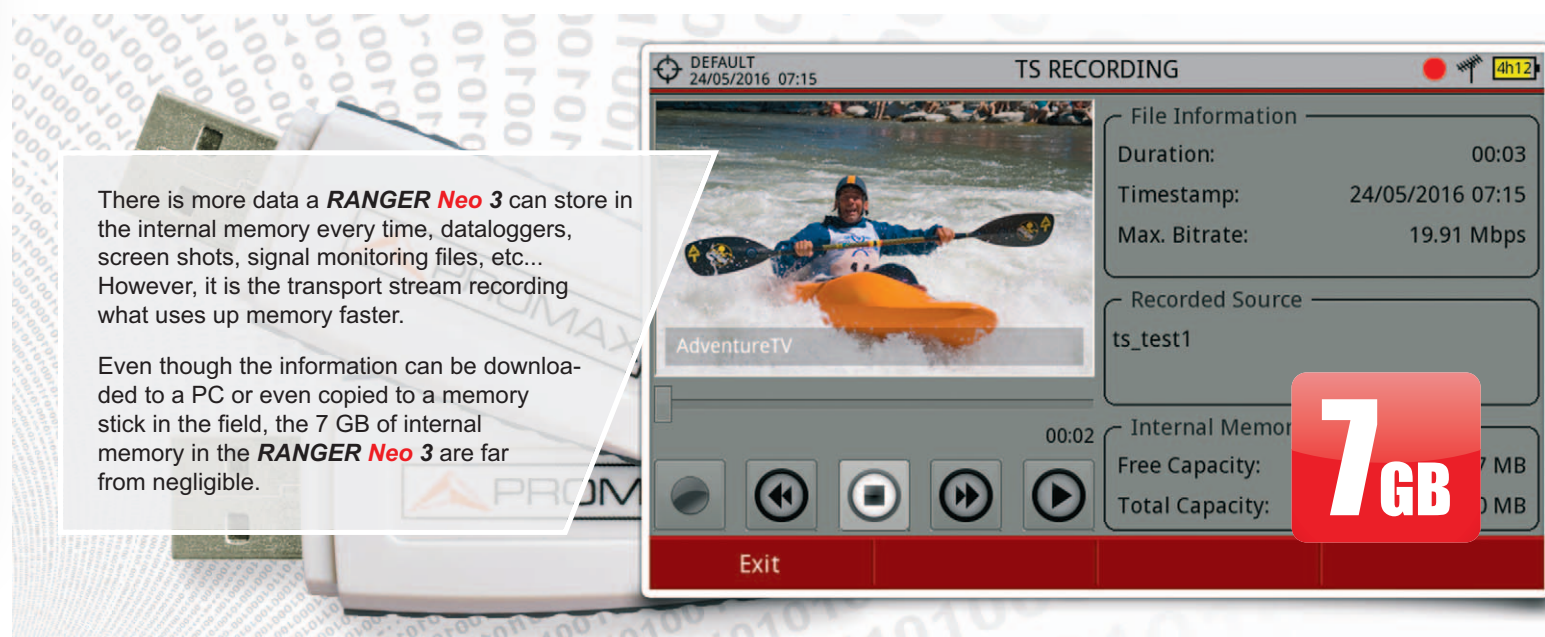
## ETHERNET CONNECTIVITY

remote control and web server



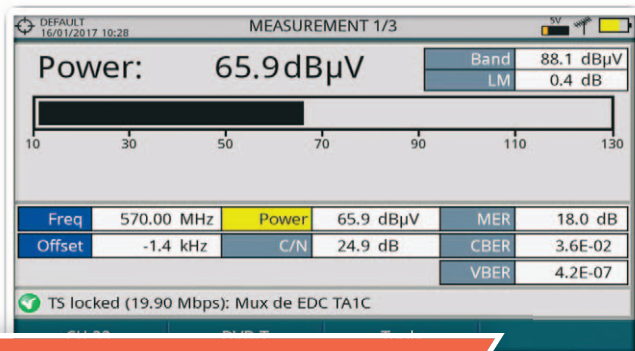
## MORE INTERNAL MEMORY

up 7 GB for user data



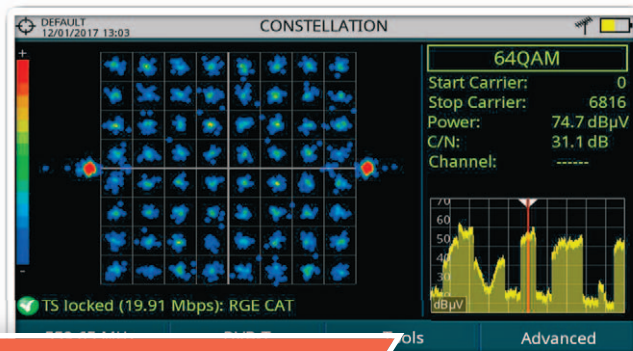
Enjoy a wide variety of functions

## MANY USEFUL FUNCTIONS



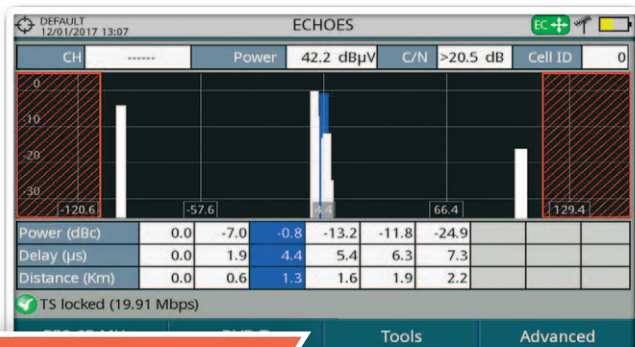
### Simultaneous measurements

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



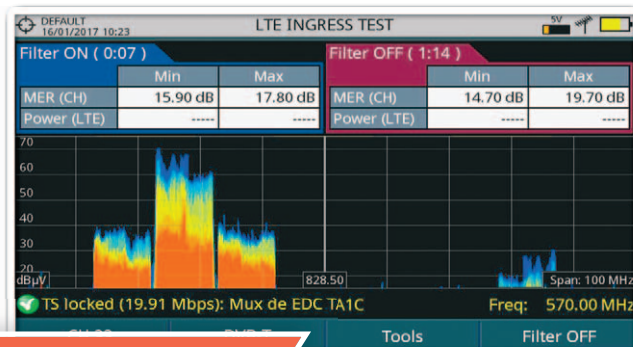
### Constellation diagram

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



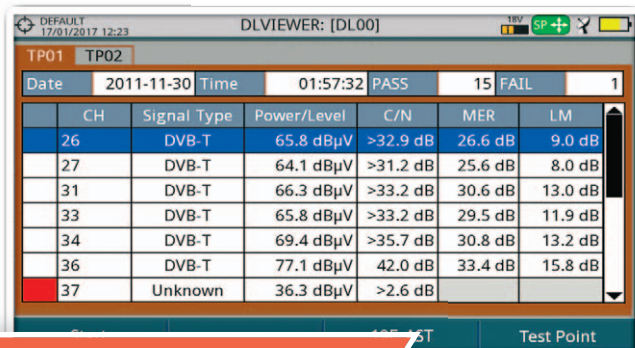
### Dynamic echoes

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



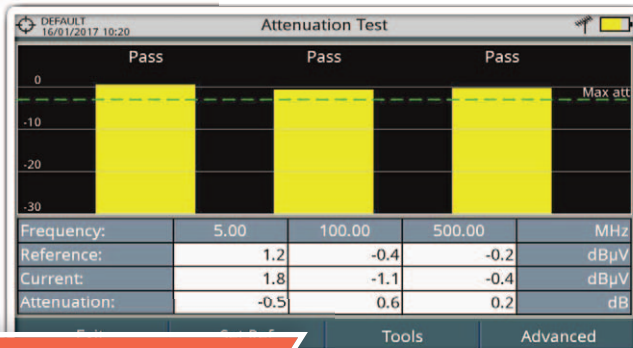
### LTE ingress test

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**

H.265 HEVC analyser and decoder

**7GB**

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+**

DAB and DAB+ digital radio



Digital Channel Stacking Switch LNB (dCSS)

**5GHz**

5 GHz RF input (optional)



Optional optical power meter and RF converter



GPS for signal coverage analysis

**USB**

2x USB ports



A NEW STANDARD IN FIELD STRENGTH METERS

# TV, CABLE, SATELLITE & WIFI ANALYSER

<b>SPECIFICATIONS</b>	<b>RANGER Neo 3</b>		
<b>DIGITAL STANDARDS</b>	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+		
<b>AUDIO CODECS</b>	MPEG-1, MPEG-2, HE-AAC, Dolby Digital, Dolby Digital Plus		
<b>VIDEO CODECS</b>	MPEG-2, MPEG-4 / H.264, HEVC / H.265		
<b>INPUTS AND OUTPUTS</b>	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 transferring and GPS module (Type A)		
<b>FUNCTIONS</b>	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
<b>MEASUREMENT MODE</b> 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		
<b>SPECTRUM ANALYZER</b> 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		
<b>OPTIONS</b> 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		
<b>TS-Analysis</b>	Real-time Transport Stream analyser with TS tables display, bitrate analysis & TR 101290 alarms monitoring		
<b>INTERNAL STORAGE</b>	7 GB for measurement protocols, screenshots and transport stream recordings		
<b>PC CONNECTION (via ethernet interface)</b>	NetUpdate 4 (free software) Free and automatic firmware updates Remote control (webserver) User customised channel plans Measurement reports and screenshots		
<b>GENERAL</b>	Hybrid operation: Touch screen (7") or conventional keyboard Battery >4 h. in continuous mode DiSEqC 1.2 SATCR / SCD (EN50494) DCSS / SCD2 (EN50607)		



## A new breed of analyzers for a new world



RANGER Neo 4   RANGER Neo 3   RANGER Neo 2   RANGER Neo +   RANGER Neo Lite   HD RANGER UltraLite   HD RANGER Eco

- ✓ Included  
● Optional

- ALL VERSIONS  
■ DVB MODELS ONLY  
■ ISDB-T MODELS ONLY  
■ ATSC MODELS ONLY

4K decoder	✓						
HEVC H.265 decod. + 4K Frame Grabber	✓	✓	✓	✓	✓		
MPEG-2 and MPEG-4 H.264 decoder	✓	✓	✓	✓	✓	✓	✓
Touch screen	✓	✓	✓	✓	✓		
Wide band LNB Compatibility (wbLNB)	✓	✓	✓	✓	✓		
2.4 GHz Wi-Fi analyzer	✓	✓	✓	✓	✓		
1.8 GHz LTE	✓	✓	✓	✓	✓		
OTT	✓	✓	✓	✓	✓		
Service recording	✓	✓	✓	✓	✓	✓	
HDMI output	✓	✓	✓	✓	✓		
Video/Audio input	✓	✓	✓	✓	✓	✓	✓
USB interface	2x Type A	2x Type A	2x Type A	2x Type A	2x Type A	1x Mini USB	1x Mini USB
Battery time	> 4 hours	> 4 hours	> 4 hours	> 4 hours	> 2 hours	> 2 hours	> 2 hours
Resolution filter 100 kHz	✓	✓	✓	✓	✓	✓	✓
Resolution filters 200 kHz, 1 MHz	✓	✓	✓	✓		✓	
Resolution filters 2, 10, 20, 30, 40 kHz	✓	✓	✓				
Echoes analysis	✓	✓	✓	✓	✓	✓	✓
Constellation diagram	✓	✓	✓	✓	✓	✓	✓
Web server and Video/Audio Streaming	✓	✓	✓	✓			
Spectrogram and Merogram	✓	✓	✓	✓			
MER by carrier	✓	✓	✓	✓			
SCAN + TILT	✓	✓	✓	✓			
IPTV analyzer	✓	✓	✓				
TS-ASI input and output	✓	✓	✓				
TS analysis and recording	✓	✓	✓				
Common Interface (encrypted channels)	✓	✓	✓				
Shoulder attenuation measurement	✓	✓	✓				
T2-MI	✓	✓					
Network delay Margin	✓	✓					
GPS for drive test	✓	✓	●	●			
DAB/DAB+ digital radio	✓	✓	●	●			
5 GHz WiFi + 2.6 GHz LTE + 6 GHz RF in	●	●	●	●			
Optical measurements							
and optical to RF converter	●	●	●	●			
ATSC standard			✓	✓	✓		
ISDB-T standard			✓	✓	✓		
DVB-T/T2 standard	✓	✓	✓	✓	✓	✓	✓
DVB-S/S2, DSS and ACM/VCM standards	✓	✓	✓	✓	✓	✓	✓
DVB-C standard	✓	✓	✓	✓	✓	✓	✓
DVB-C2 standard	✓	✓	✓	✓	✓	✓	✓
QAM annex B standard			✓	✓	✓		
PSIP analysis			✓				
Closed Caption			✓				