PROMAX

FIELD STRENGTH METERS & SPECTRUM ANALYZERS

BROADCAST, CABLE, SATELLITE, IPTV, OPTICAL AND WIFI

RANGER *Neo* ATSC

FULL FEATURED ANALYZER FOR **NORTH AMERICAN TELEVISION**

4K ULTRAHD FRAME GRABBER

EASY OPERATION

Hybrid user interface (touch + keyboard)

HEVC H.265

High Efficiency Video Codec

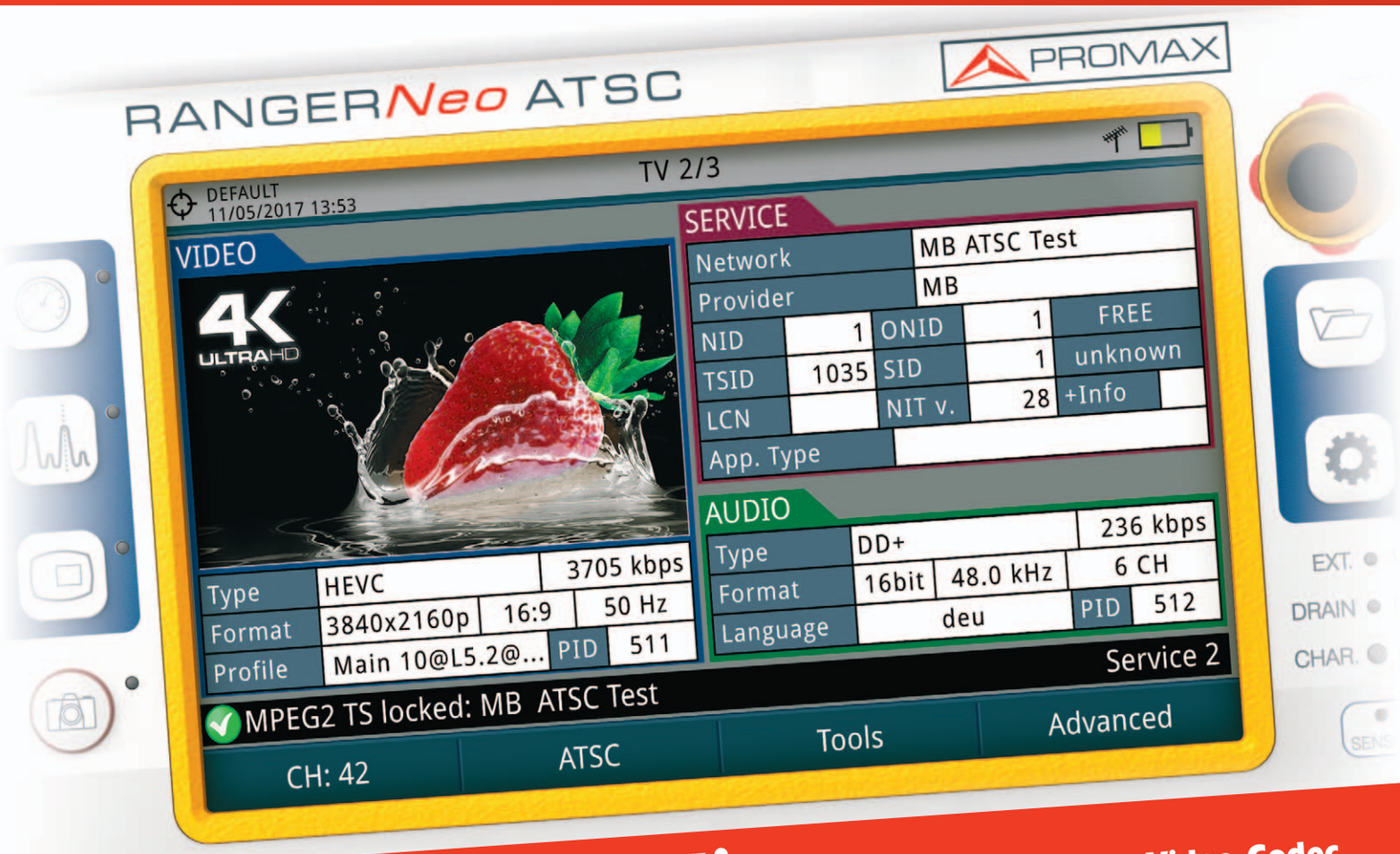
WIFI ANALYZER

Dual display: SPECTRUM and DATA

WIDEBAND LNB

Extended SAT band on a single SPAN

PROMAX



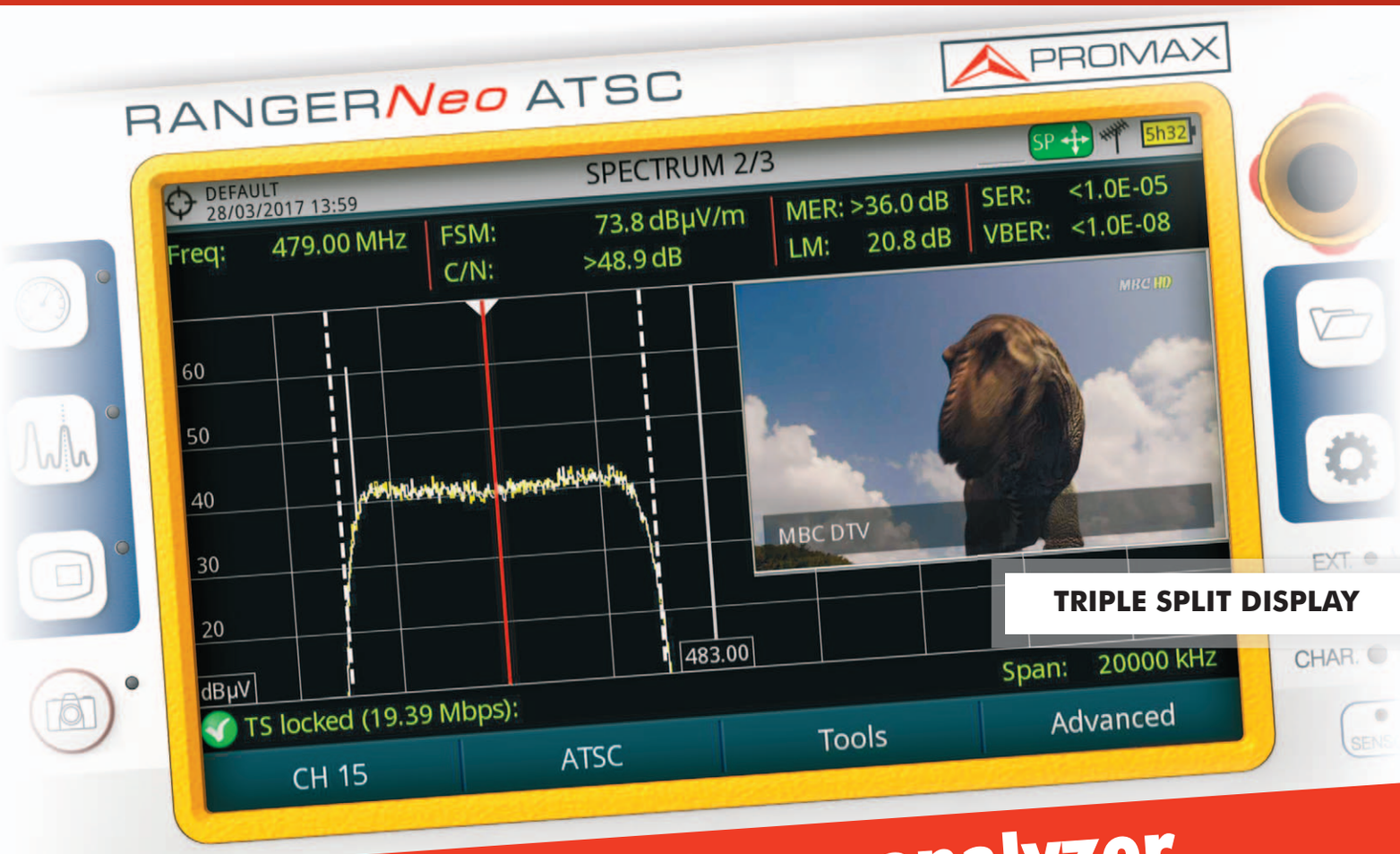
HEVC H.265 decoding

High efficiency Video Codec

RANGER*Neo* ATSC is the new industry standard in field strength meters, TV and spectrum analyzers. It covers from 5 to 2500 MHz and it includes HEVC decoding.

- **ULTRA FAST SPECTRUM**
- **TRIPLE SPLIT DISPLAY**
- **LIGHT WEIGHT (< 5 pounds)**
- **SMART BATTERY CONTROL**

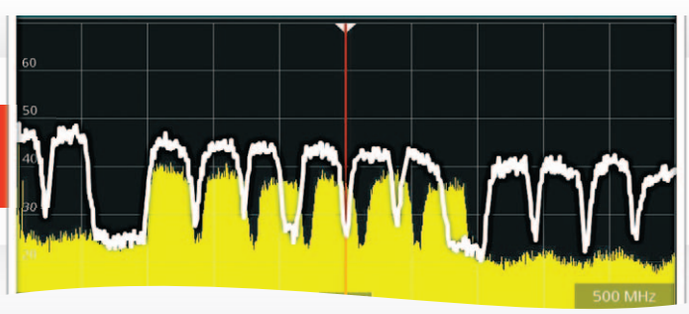
CHECK COMPARISON TABLE

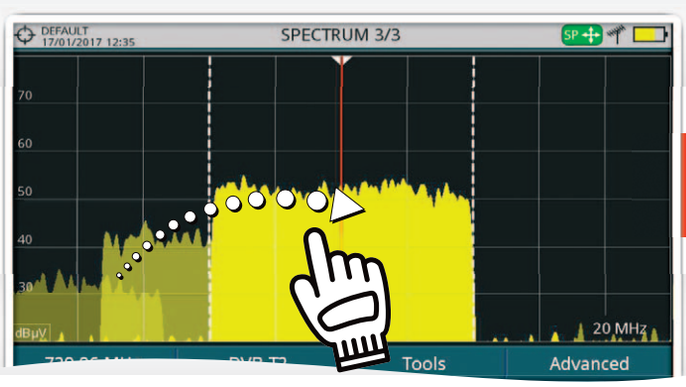


Professional spectrum analyzer

Reference traces

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



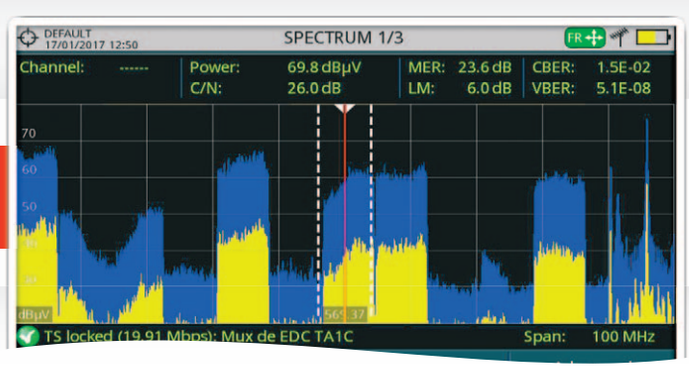


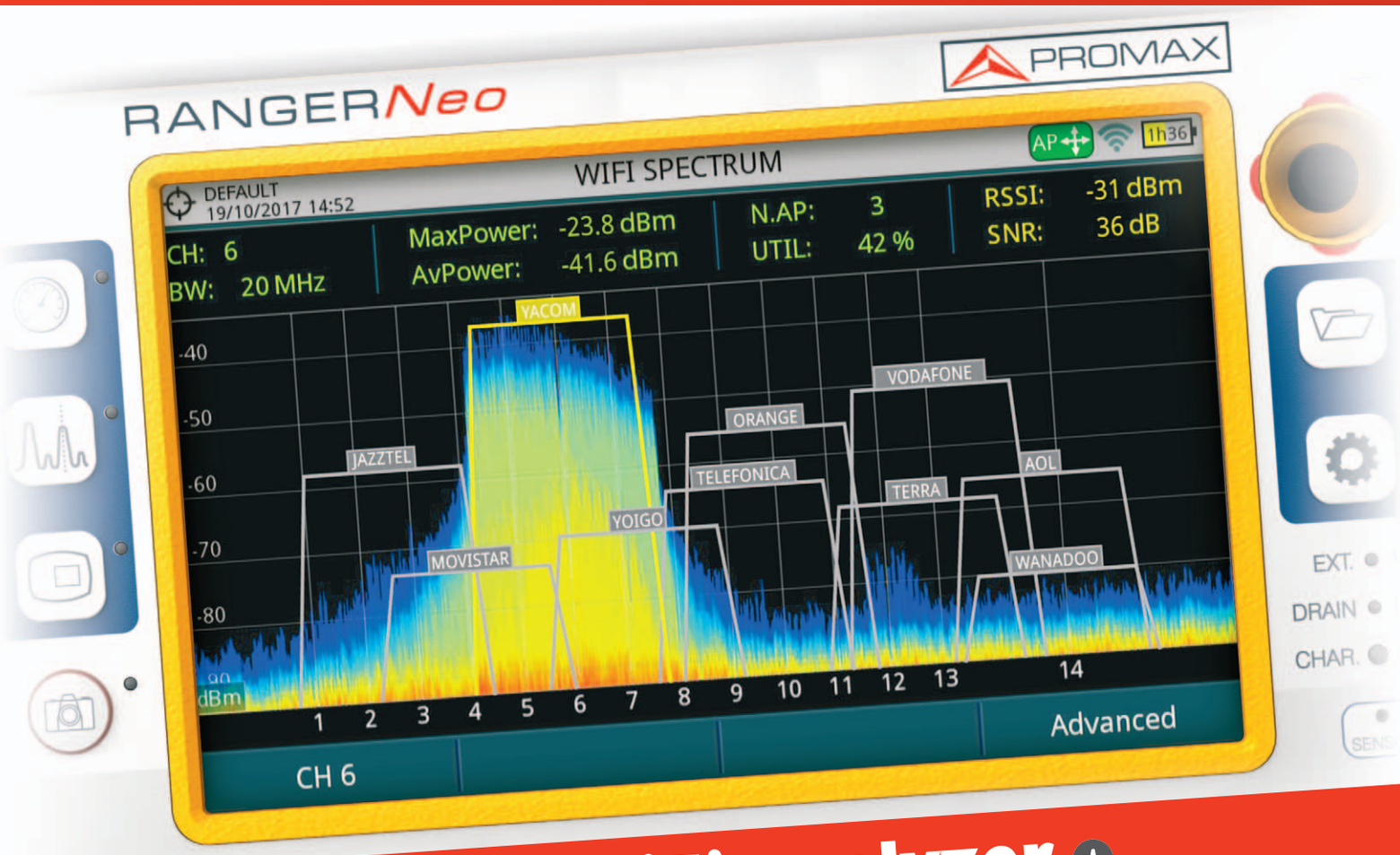
Touch screen

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.

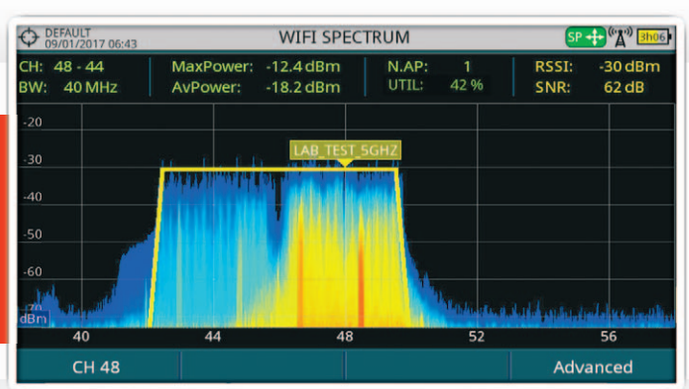


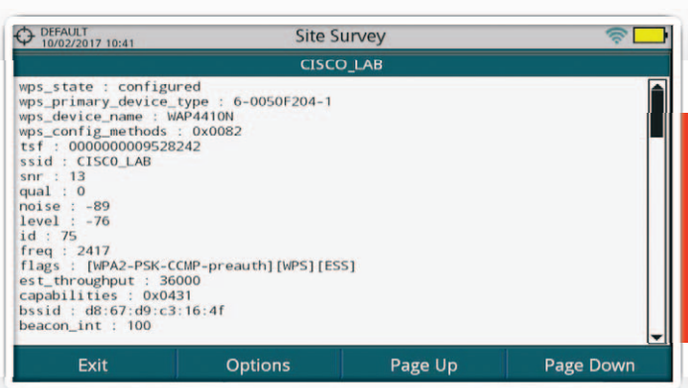


2.4 & 5.7 GHz WiFi analyzer ★

Simultaneous real spectrum analyzer 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 a microwave oven. **RANGER*Neo* ATSC** can display real spectrum analyzer information and access point data simultaneously.





Access point information

RANGER*Neo* ATSC 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 and offers you guidance regarding the level of occupancy of a specific channel.

★ CHECK COMPARISON TABLE


PROMAX
RANGERNeo
WIFI SPECTRUM
free

webControl and Video streaming

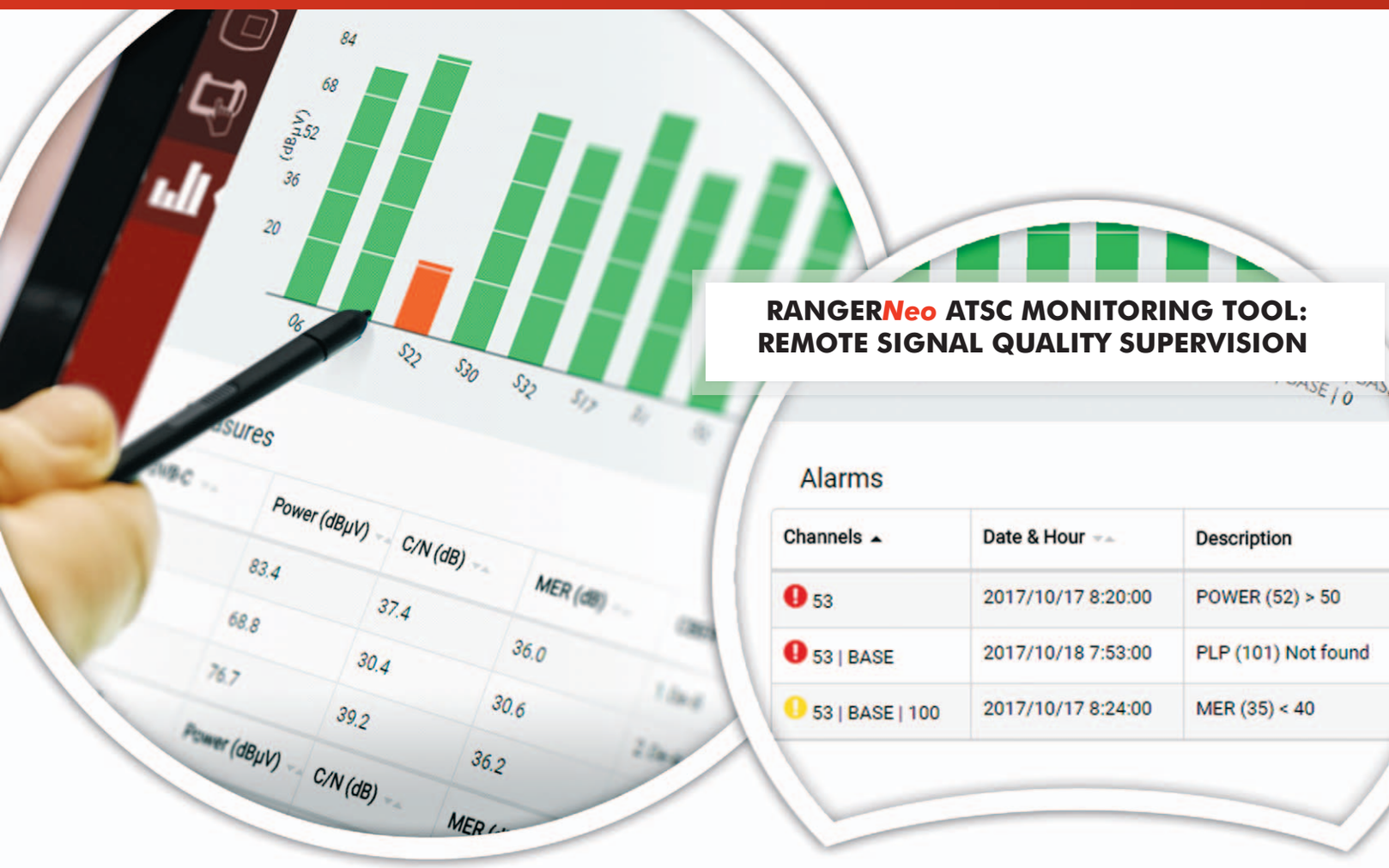
webControl

The **RANGER*Neo* ATSC** internal *webControl* offers four main areas: Spectrum analyzer, TV Parameters, Remote console and Monitoring mode.

The Spectrum analyzer area shows us the spectrum trace, and all measurements for the RF channel being tuned, while we can modify reference level, span, channel/frequency and channel plan used.

The TV parameter area offers relevant metadata identifying the network (NID), (ONID), TS, Service, LCN, etc. plus a continuous streaming of one of the services belonging to the channel selected.

CHECK COMPARISON TABLE



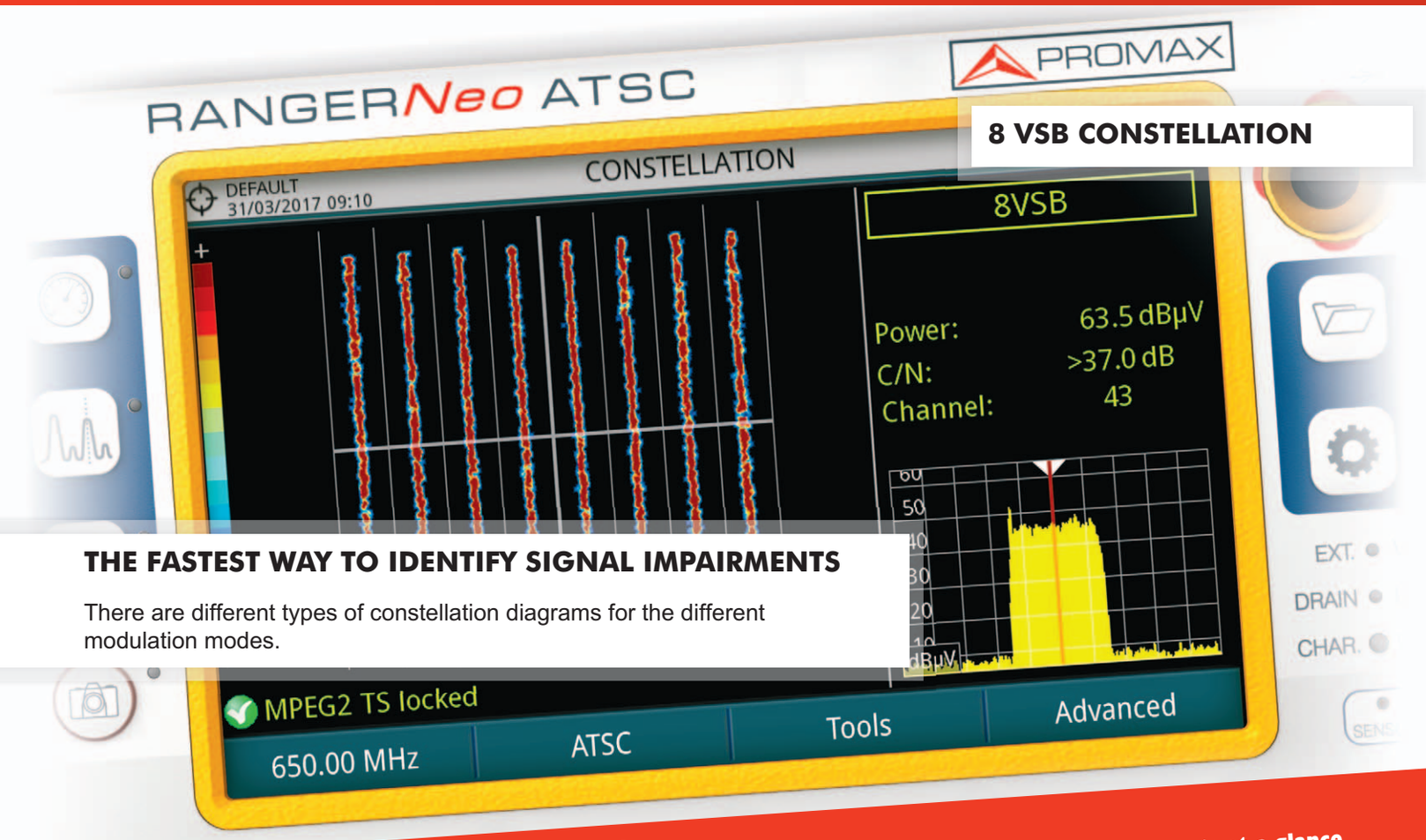
RANGER*Neo* Console

Complete control over your field strength meter from anywhere in the world and with no additional software installation required. A virtual platform that gives you access to all of the analyzer features.

Video / Audio Streaming

It is now possible to stream the Transport Stream after channel demodulation either over a private LAN or over the Internet, as a unicast (UDP) stream. The service as seen on the analyzer screen can be streamed as a SPTS over IP, or as a full TS containing all services for the channel being tuned.

The same feature can be used for other streams received over IP or previously recorded, instead of coming from an RF source.



8 VSB CONSTELLATION

THE FASTEST WAY TO IDENTIFY SIGNAL IMPAIRMENTS

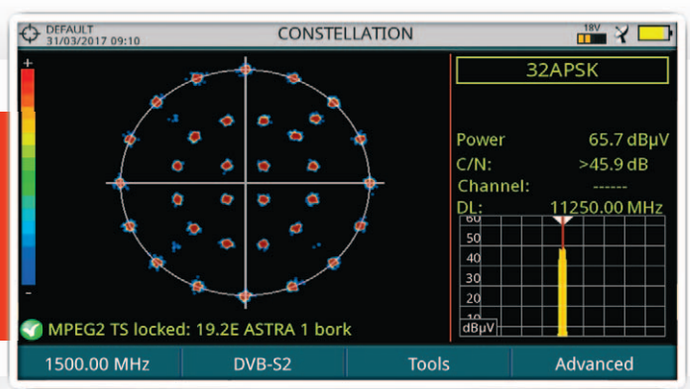
There are different types of constellation diagrams for the different modulation modes.

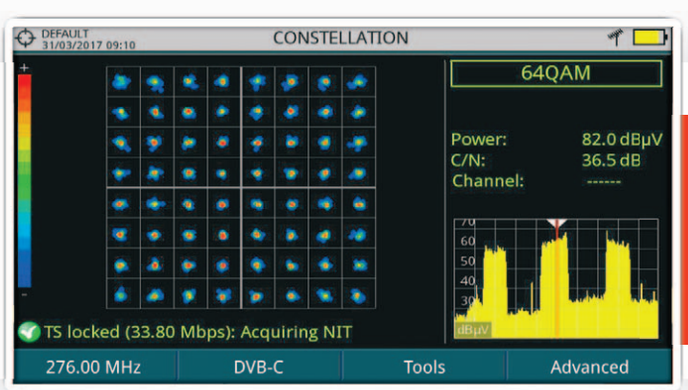
Constellation diagram

Detecting signal impairments at a glance

16/32 APSK, 8PSK and QPSK constellation

In the case of an ideal transmission channel, free of noise and interferences, all symbols are recognized by the demodulator without errors. In this case, they are represented in the constellation diagram as well defined points hitting in the same area and forming a clear dot.

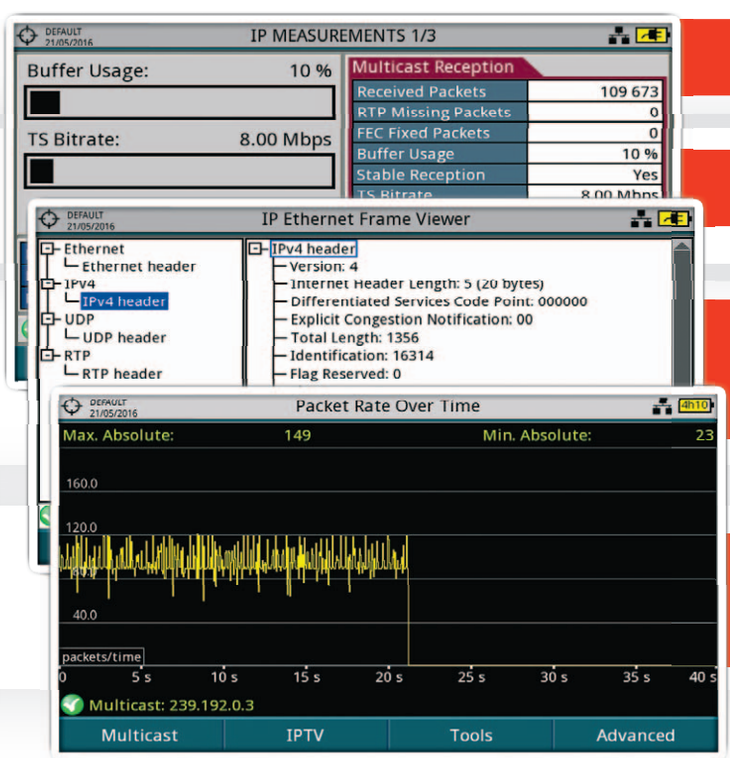




16, 32, 64, 128, 256 QAM

Every modulation type is represented differently. A ITU J.83 Annex B 16QAM signal is represented on the screen by a total of 16 different zones, and a DVB-C 64QAM is represented on the screen by a total of 64 different zones and so on.

IPTV functions



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.

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.

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.

CHECK COMPARISON TABLE

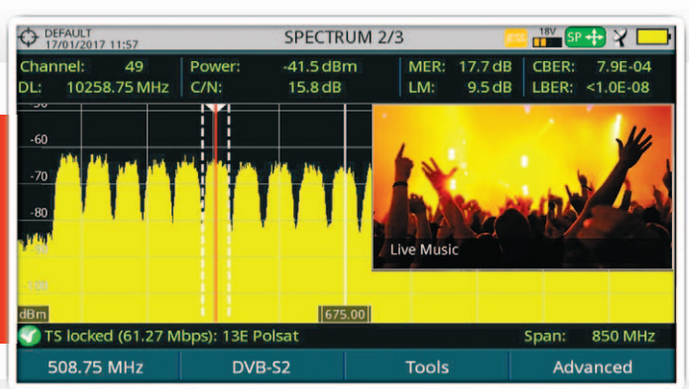
WIDEBAND LNB COMPATIBLE

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 analyzer ready?**

Advanced satellite technology

dCSS LNBs

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 communicate using EN50495 and EN50607 standard protocols. This is the case of **RANGER*Neo* ATSC** which also covers JESS and SATCR.



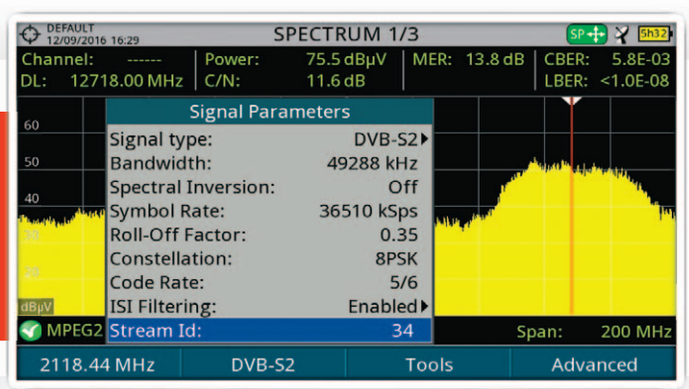
IRG descriptor identification

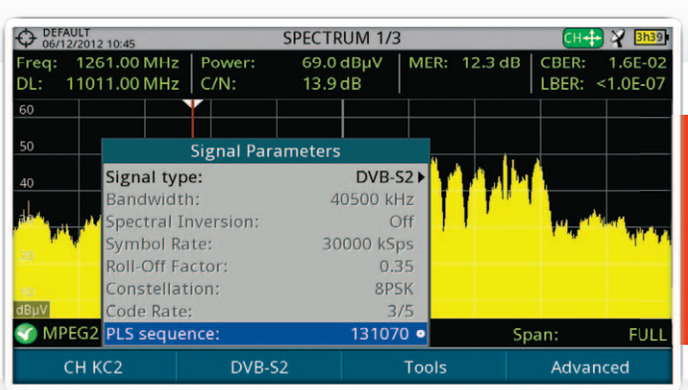
The IRG descriptor is an embedded code that is added to video links containing contact info, GPS coordinates, etc from the source signal to allow a quick troubleshoot of interferences in scenarios such as live transmissions of sports events.

Multistream and PLS

DVB-S2 multistream

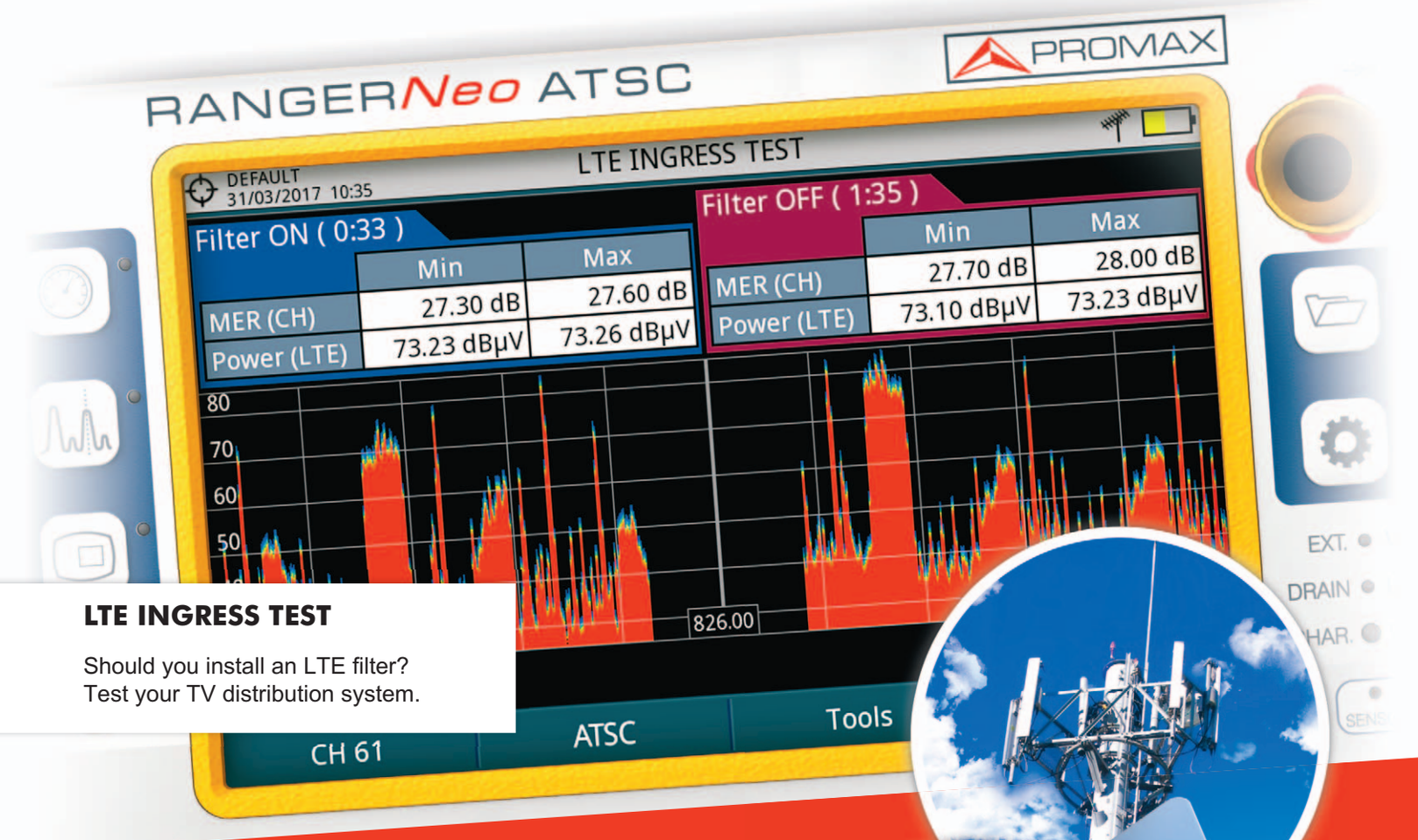
Advanced modulation techniques combine several independent transport streams into one single RF carrier. Selecting a specific TS is easy with your **RANGER*Neo* ATSC** using the ISI Filtering function.





PLS - Physical Layer Scrambling

The PLS index is a number generated by the broadcaster that must be properly decoded by the customer so that demodulation is possible. **RANGER*Neo* ATSC** can also work with this type of signals.



LTE INGRESS TEST

Should you install an LTE filter?
Test your TV distribution system.

LTE interference

LTE interference on SMATV systems

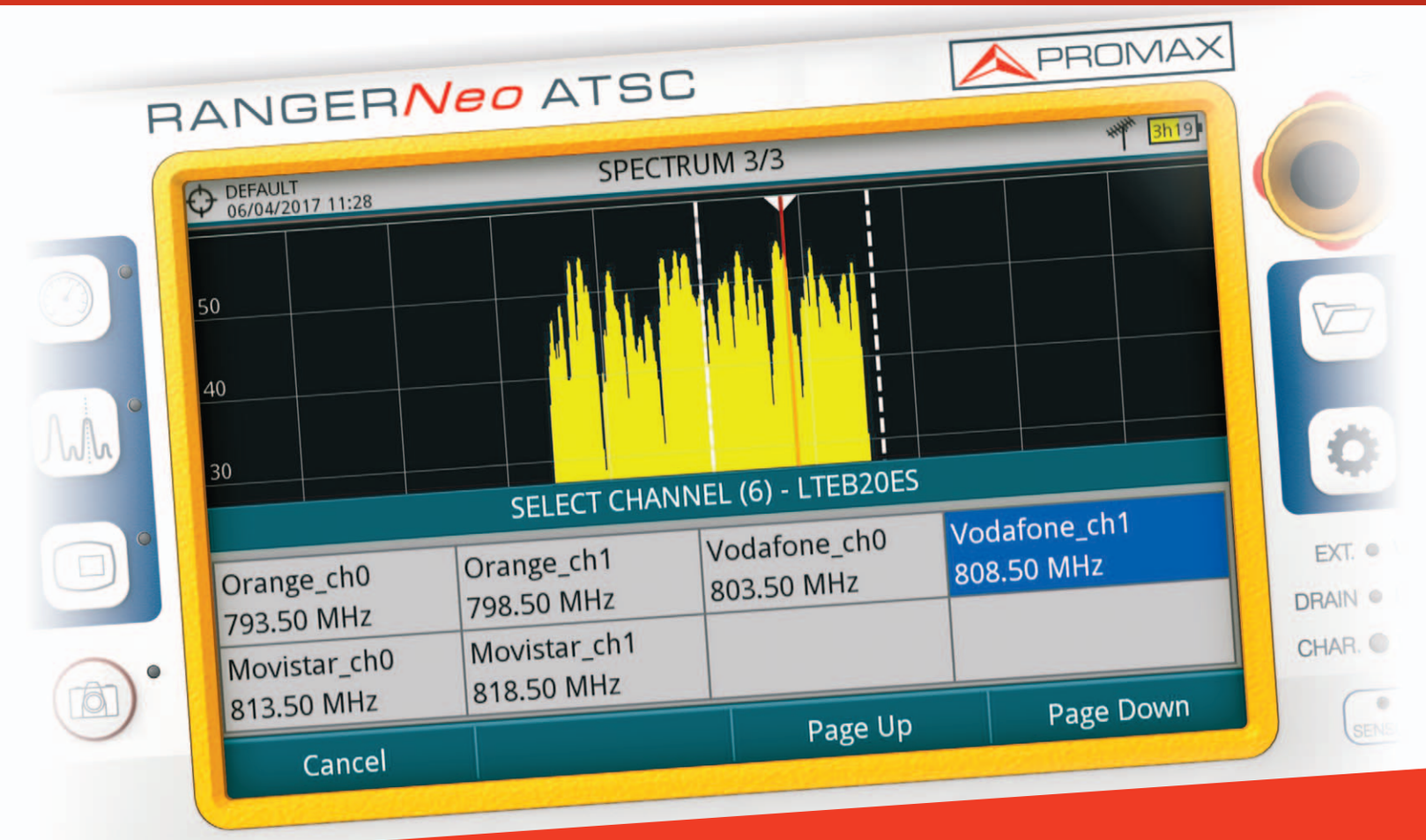
The **RANGER*Neo* ATSC** has a variery of tools to compare the signal reception quality measurements on digital TV channels with and without the LTE filter. This is very helpful to anticipate the performance improvement you should expect on your TV distribution system well before you physically make changes to the cabling to insert the LTE filter.

LTE interference on CATV networks

Some of the bands allocated to LTE are near or inside former television bands. For example band 5 (uplink 824-849 MHz; downlink 869-894 MHz). The **RANGER*Neo* ATSC** has special functions to help installers determine the level of activity in those bands and therefore anticipate potential interference problems.

Downlink and Uplink interference

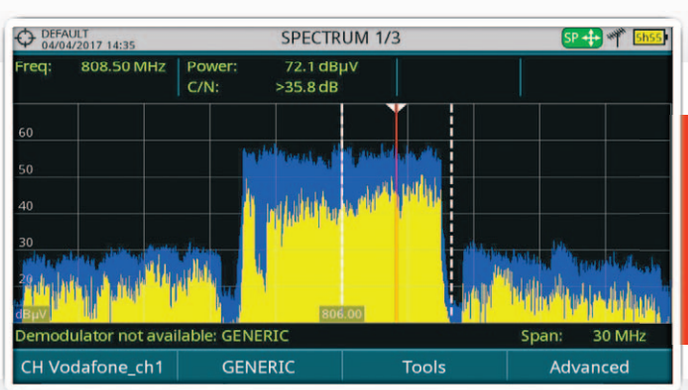
Downlink interference comes from the mobile phone base stations which are placed at fixed locations and are always on. This is not the case of Uplink interference which comes from the handheld devices and therefore it can be a lot more difficult to locate and mitigate.



LTE Signals

LTE signals and channel repack

The use of Smartphones is widely spread all over the world. In order to meet user demand for bandwidth, mobile phone operators need to expand their networks, use more efficient transmission standards (LTE) and use part of the bandwidth historically assigned to TV broadcast services (channel repack in the US or digital dividend in Europe).



M2M Machine to Machine applications

Besides LTE interference measurements there is also an increasing need to look at the LTE signals themselves. This function can also be useful for Machine to Machine applications (electric car charging station, vending machine, wireless credit card reader...). One of the first problems you encounter is to make sure there is good signal coverage from the operator the system is working with.

RANGER*Neo* TV ANALYZERS

HD RANGER *Eco*

DVB-T2, DVB-C2, DVB-S2, DSS

Super spectrum analyzer

Triple split display

Dolby Digital Plus

Dynamic echoes analysis

DVB version

HD RANGER *UltraLite*

Tablet size

The lightest in the range

DVB version

RANGER *Neo* Lite

Touch screen

HEVC H.265 decoding

Wide band LNB Compatibility

Wi-Fi analyzer

DVB ATSC ISDB-T Versions

RANGER *Neo* +

Web Server remote control

Merogram and Spectrogram

Fibre optics and GPS options

More than 4 hours battery time

DVB ATSC ISDB-T Versions

Please note ***HD*** **RANGER** ***Eco*** and ***HD*** **RANGER** ***UltraLite*** do not belong to **RANGER*Neo*** series.

H.265 H-265 HEVC analyzer and decoder

4K ULTRAHD

WiFi analyzer

PSIP analysis and CC closed caption

Transport stream recorder and analyzer

webControl via Ethernet port

Optional DAB and DAB+ digital radio

Optional optical power meter and RF converter

CAM Common Interface slot for encrypted channels

Digital Channel Stacking Switch LNB (dCSS)

Optional GPS for signal coverage analysis

ip.tv Extended IPTV functions

6GHz Optional 6 GHz RF input

RANGER *Neo* 2

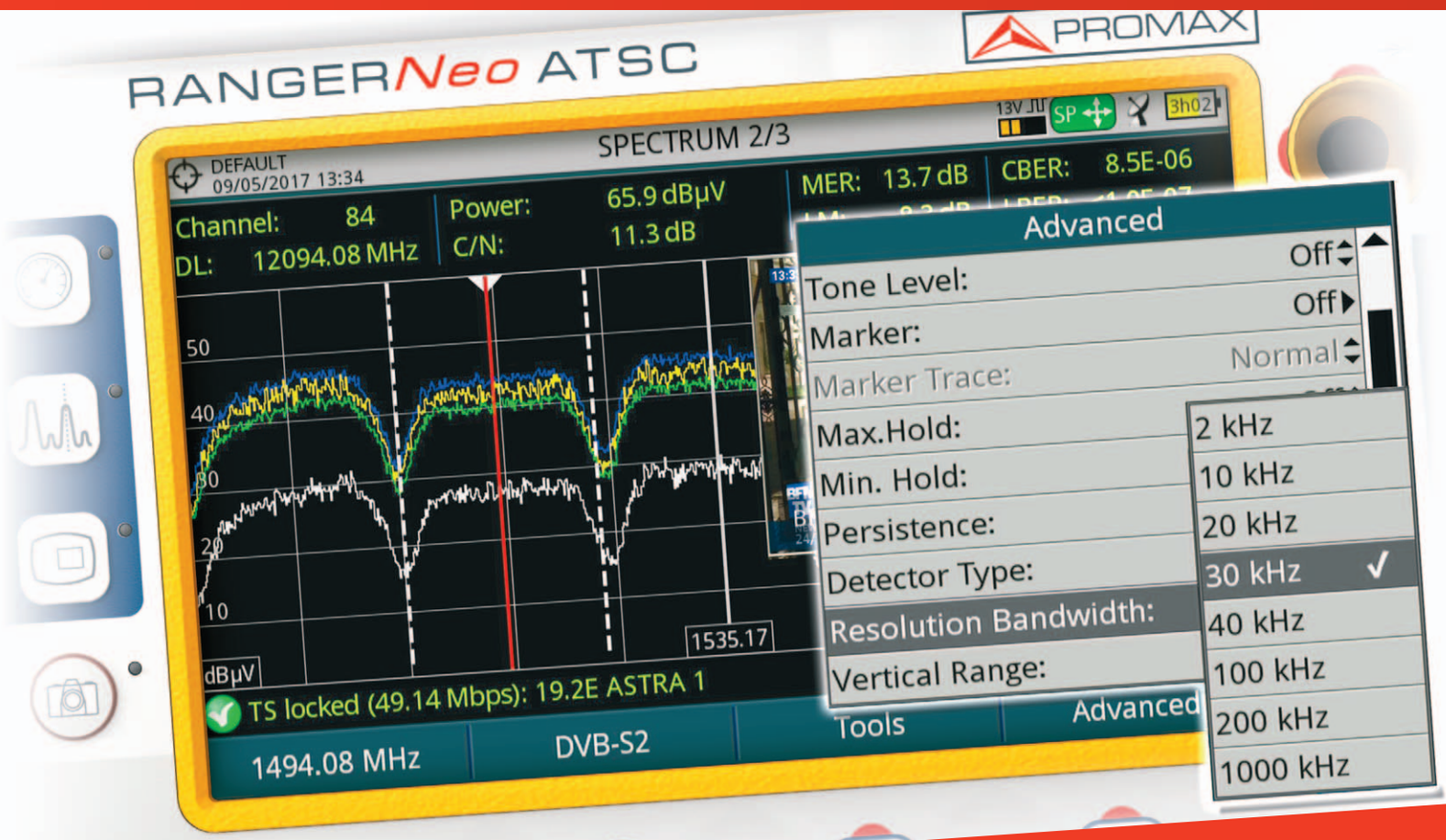
- IPTV analyzer
- High resolution filters
- TS-ASI input and output
- Common Interface slot
- Transport Stream recorder and player
- Transport Stream analyzer
- DVB ATSC ISDB-T versions

RANGER *Neo* 3

- Network Delay Margin
- T2-MI analysis
- GPS for drive test measurements
- DAB/DAB+ digital radio
- DVB version

RANGER *Neo* 4

- 4K decoder
- DVB version

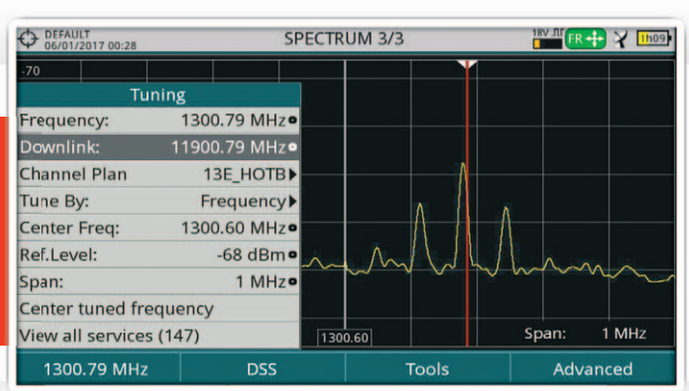


High resolution filters ★

Beacon-flyaways, SNG and VSAT ★

Satellite BEACON signals can be clearly seen thanks to the 1 MHz SPAN and 10 kHz resolution filters.

Having the proper resolution filters is critical in some applications, **RANGER*Neo* ATSC** includes a very narrow 2 kHz filter available in terrestrial TV band.

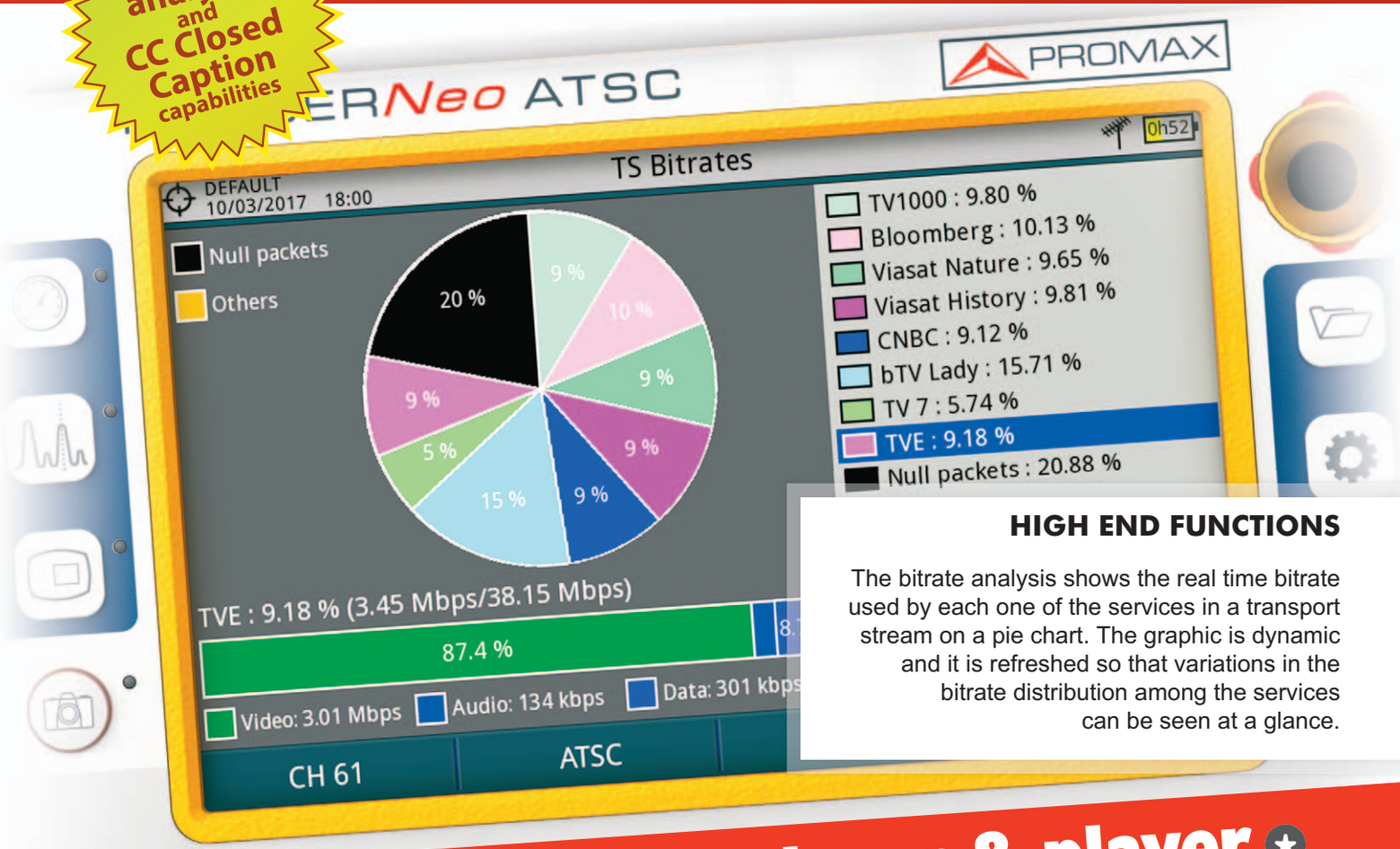


Helping live broadcast in remote areas

The **RANGER*Neo* ATSC** spectrum analyzer function makes it easy for VSAT technicians to set up their satellite transmission-reception systems.

★ CHECK COMPARISON TABLE

PSIP analysis and CC Closed Caption capabilities



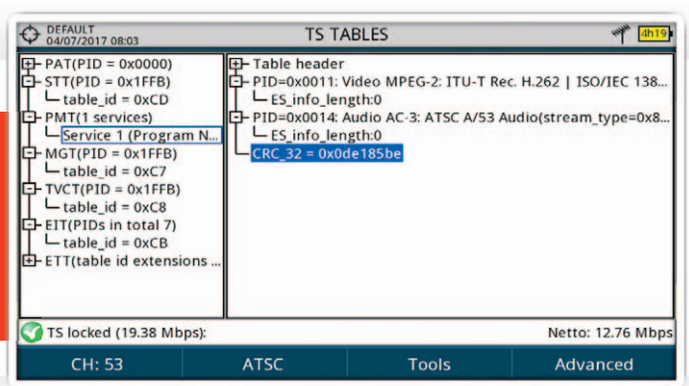
HIGH END FUNCTIONS

The bitrate analysis shows the real time bitrate used by each one of the services in a transport stream on a pie chart. The graphic is dynamic and it is refreshed so that variations in the bitrate distribution among the services can be seen at a glance.

Transport stream analyzer & player ✪

Table analysis ✪

This function shows every detail of the transport stream tables in real time on a tree diagram. This is an outstanding function which is normally only available in more expensive equipment. It is possible to navigate through the tree branches using the joystick or the touch screen functionality.

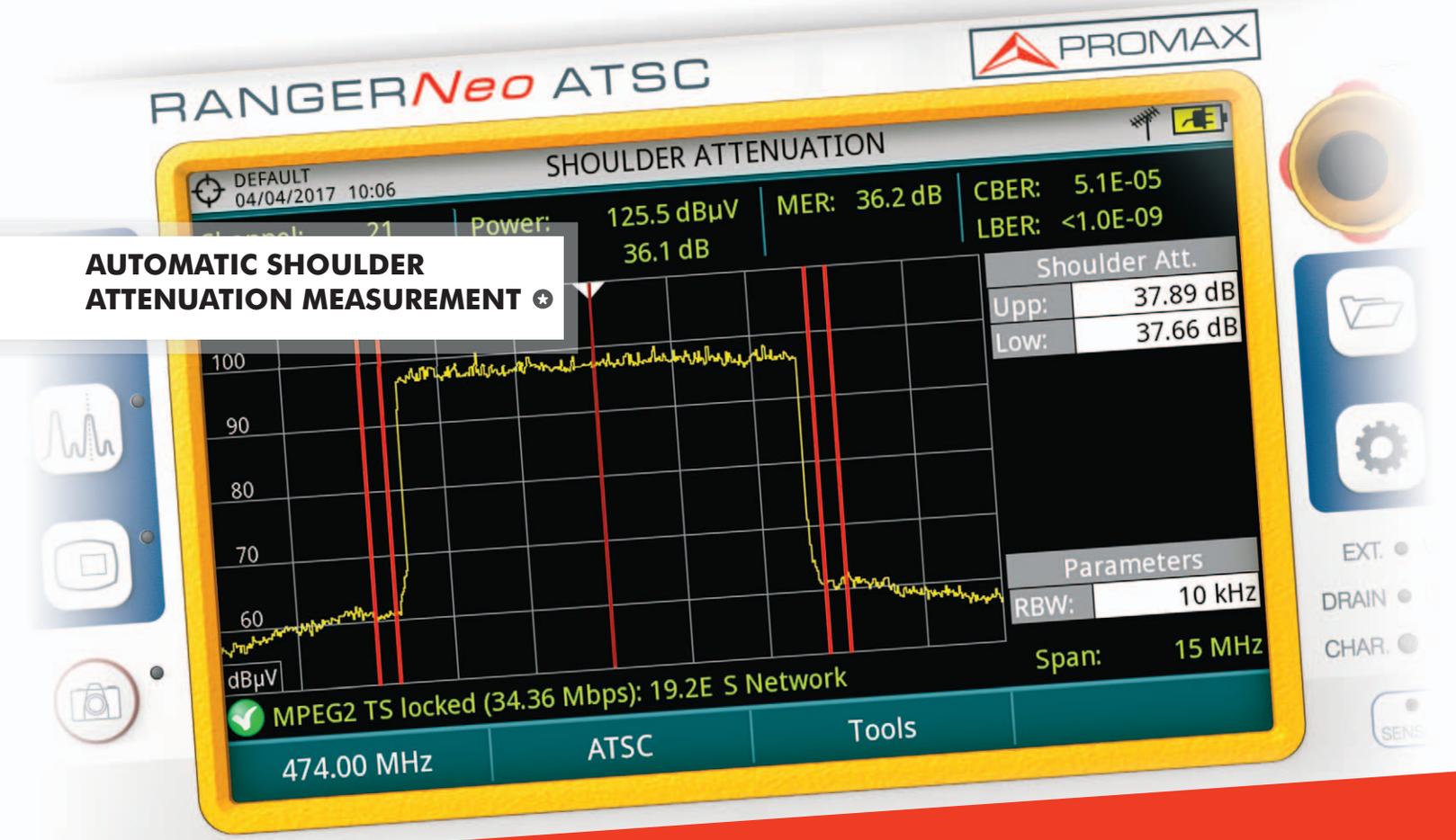


Record, analyze, decode and copy a Transport stream ✪

A function available for **RANGER*Neo* ATSC** that enables the instrument to capture the received TS in real time into its internal memory. The recorded TS can then be decoded, analyzed or copied to a USB *pendrive* directly connected to the instrument.

✪ CHECK COMPARISON TABLE

PROMAX

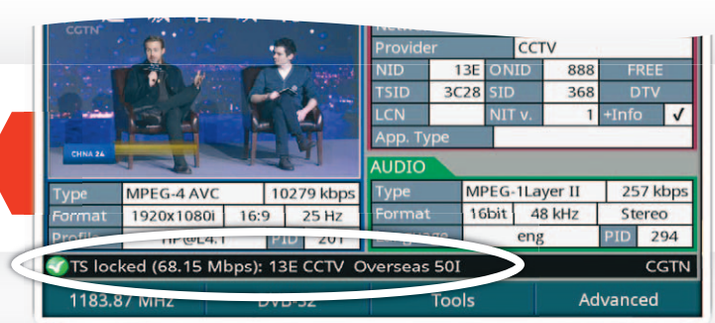


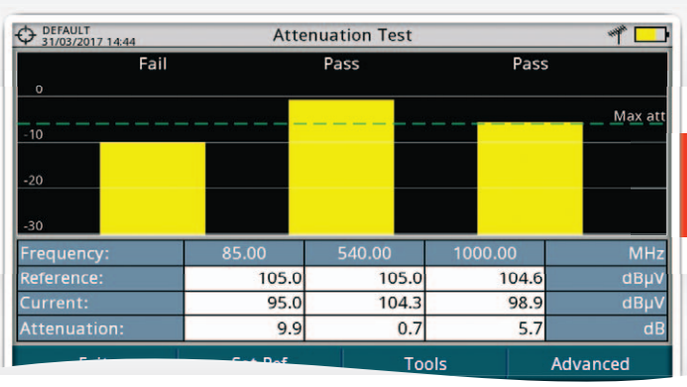
AUTOMATIC SHOULDER ATTENUATION MEASUREMENT

Productivity tools

StealthID

The **RANGER*Neo* 2 ATSC** StealthID function automatically identifies the required demodulation settings while tuning so that you don't need any previous information about the signal.



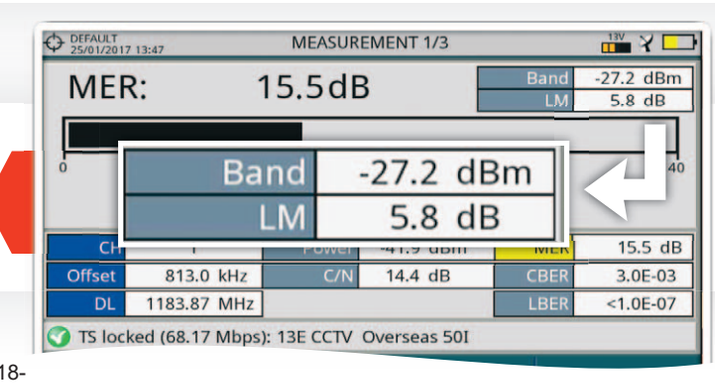


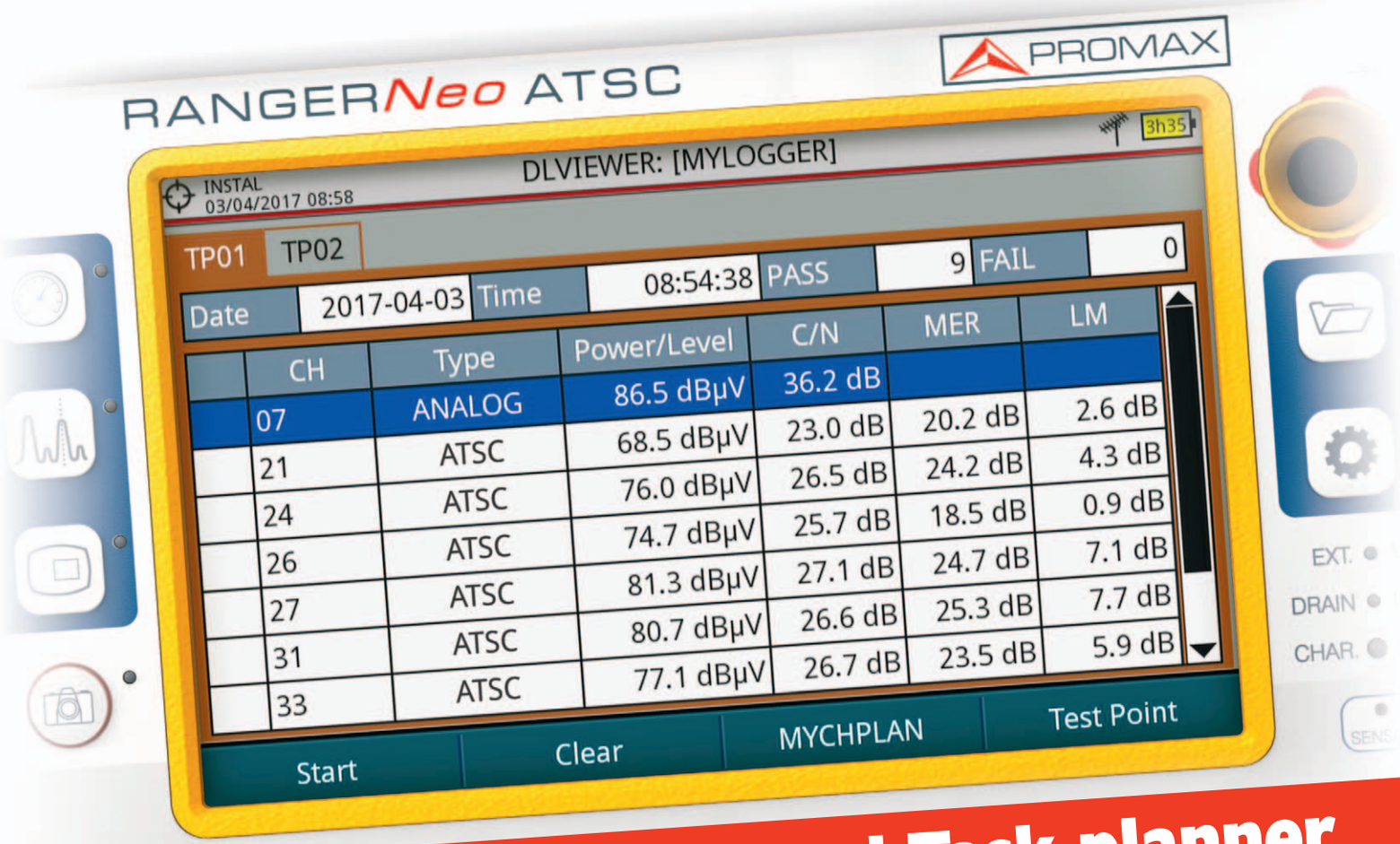
Attenuation test

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

Full band power

The measurement of full band power is very useful to understand how much energy is available in total at the test point.

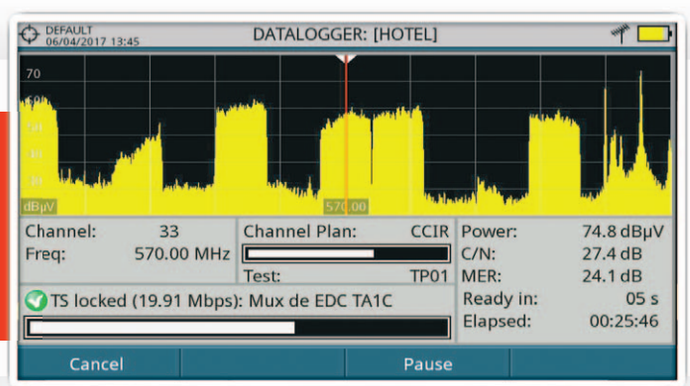


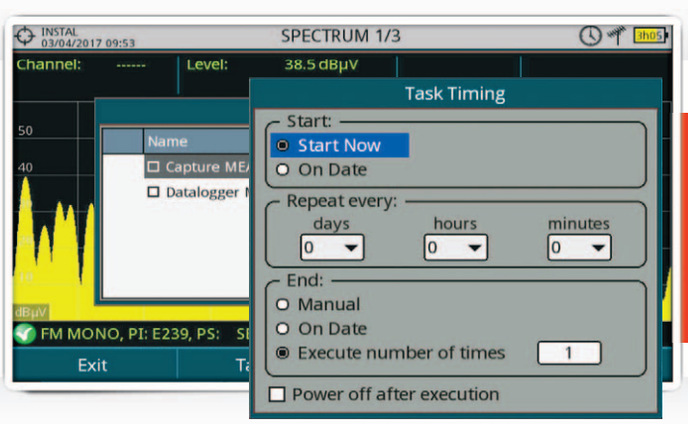


Powerful datalogger and Task planner

Datalogger and Test&Go

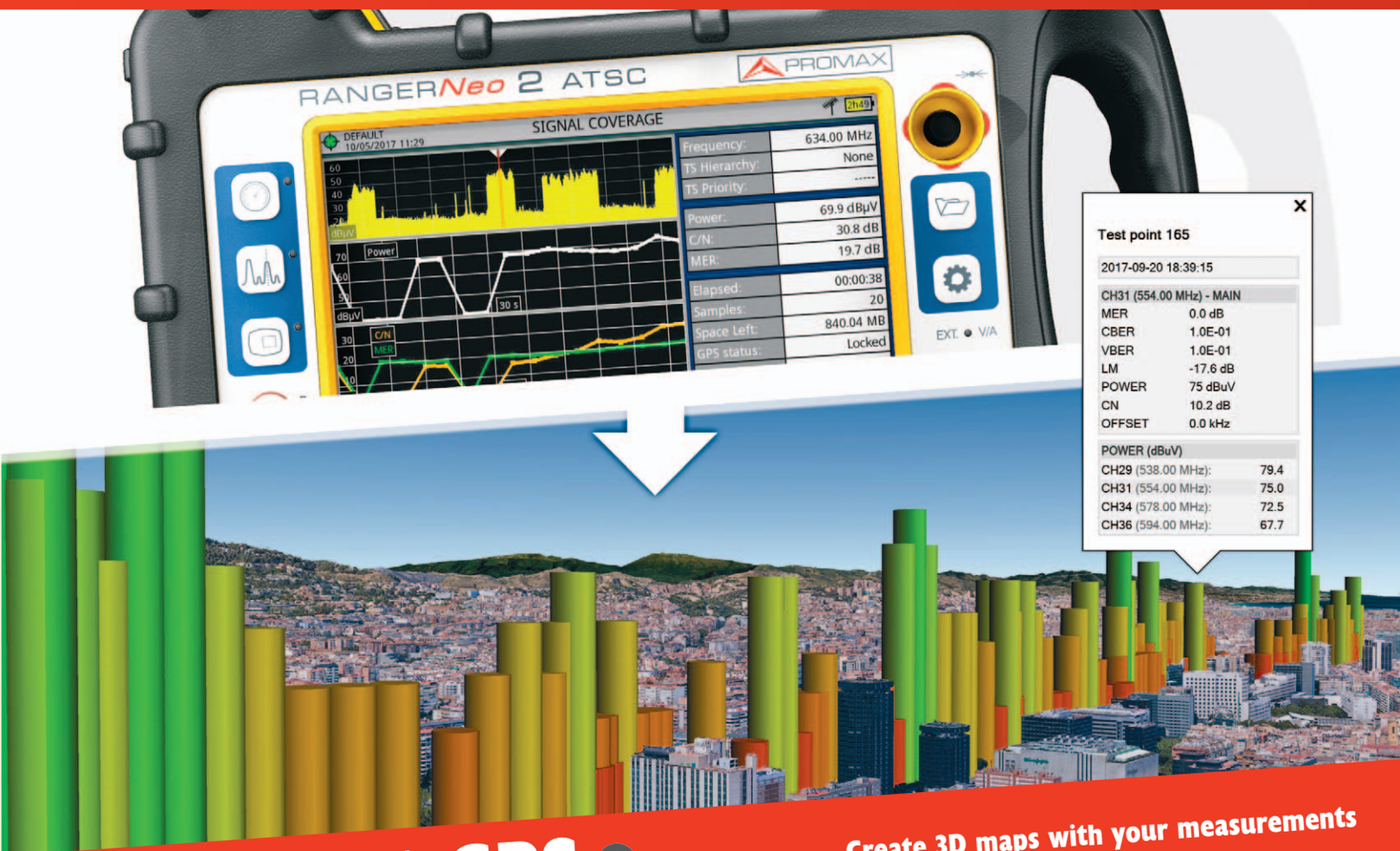
The datalogger can perform channel power, carrier/noise, BER, MER... measurements automatically. It can also save information from the NIT table such as the network name or even the SID and names of the services in the mux under test. All this information is saved inside the meter and it can be downloaded to a USB memory or to a PC for further processing later on.





Task planner

This function allows to set a set-up task list, both for screen capture or Datalogger acquisition, selecting when to start, a repetition rate and the number of times the selected task must be performed. The equipment can be switched off after setting all parameters and will itself wake-up, at the required time, to perform the planned tasks.

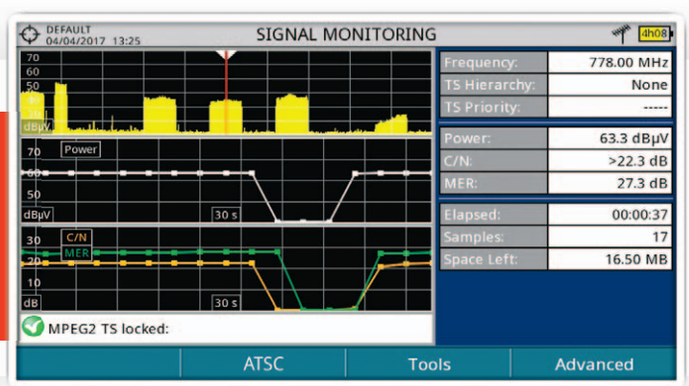


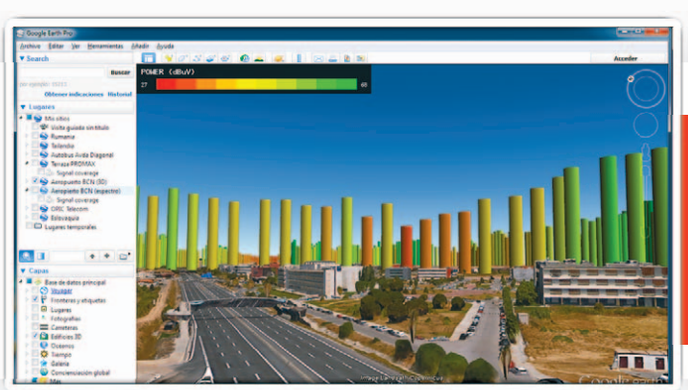
Drive test GPS ★

Create 3D maps with your measurements

Coverage analysis and GPS

This option turns the **RANGER*Neo* ATSC** into the perfect tool to perform signal cogerage “drive test” analysis functions. It can capture different kind of measurements embedding time/date and geographic coordinates information.





Creating reports

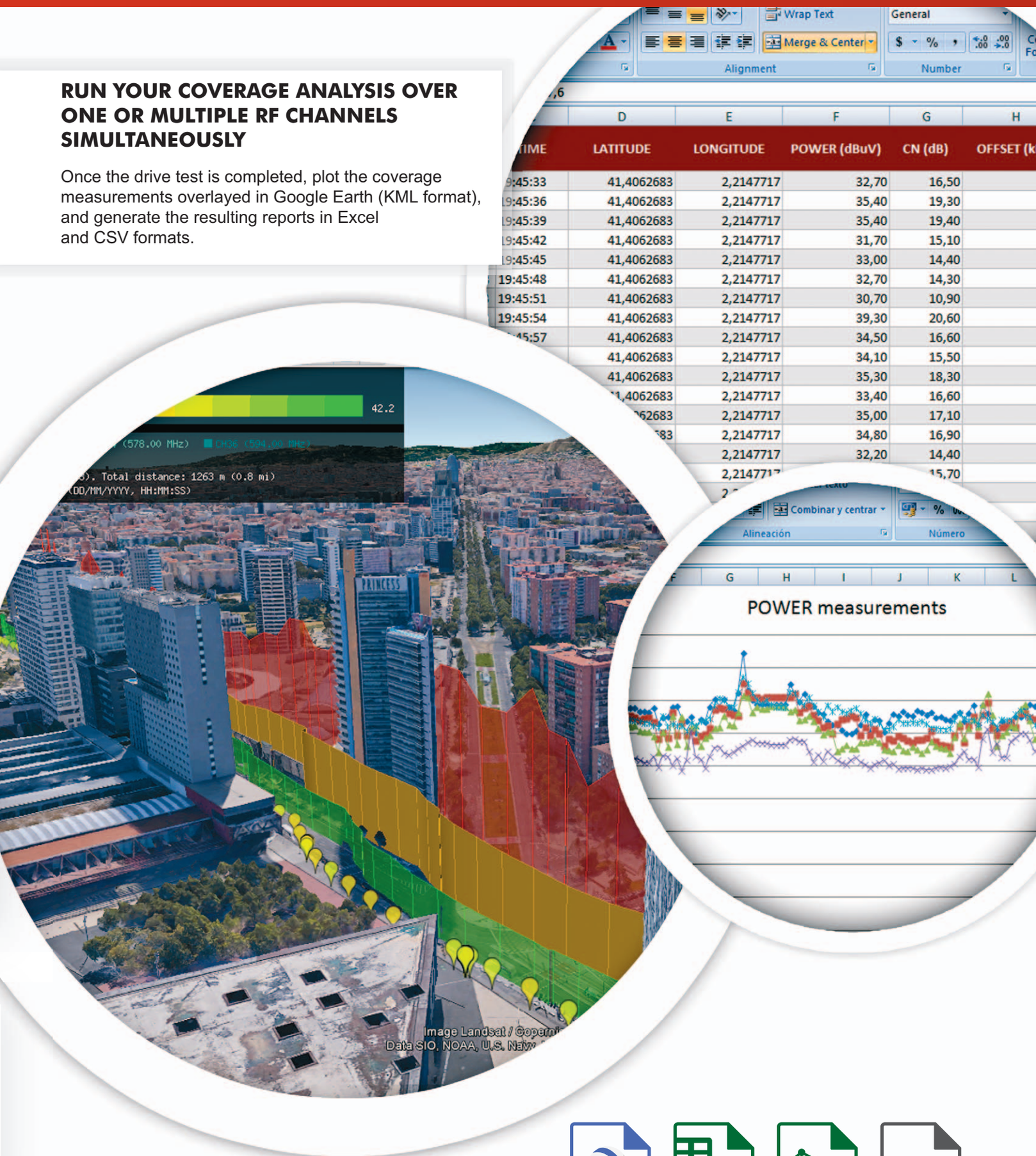
All this information is saved automatically to either the internal meter’s memory or to an external USB memory and can be transferred to a PC computer using an universal XML format. Once on the PC the data can be processed and presented in different ways among which overlaying the values on a map is the most interesting.

Google Earth

★ CHECK COMPARISON TABLE

RUN YOUR COVERAGE ANALYSIS OVER ONE OR MULTIPLE RF CHANNELS SIMULTANEOUSLY

Once the drive test is completed, plot the coverage measurements overlayed in Google Earth (KML format), and generate the resulting reports in Excel and CSV formats.



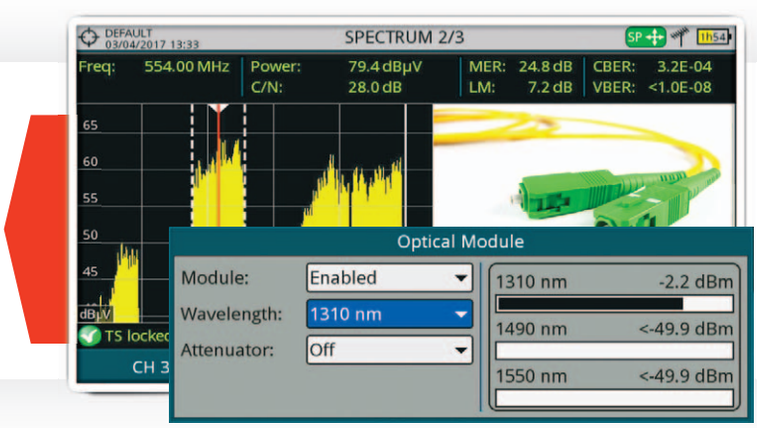
KML EXCEL EXCEL CSV

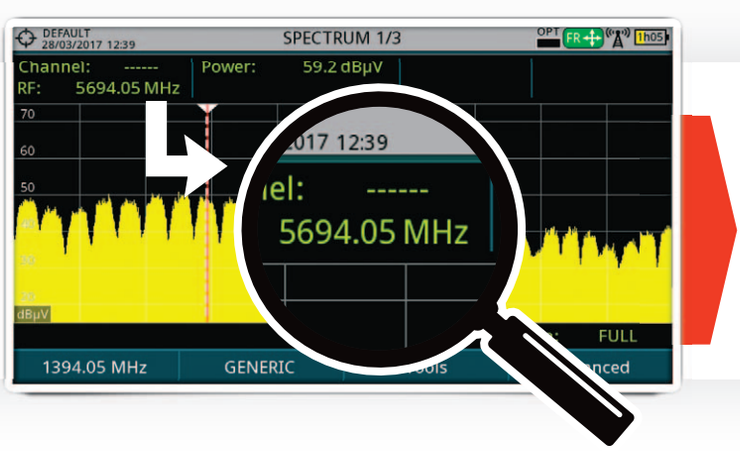
Optical measurements option ★

... plus 6 GHz RF input

Selective optical-to-RF converter

RFoG (Radiofrequency-over-Glass), as well as optical TV&SAT distribution, is used more and more by operators because it allows them to benefit from the advantages of fibre optics to compete with FTTH service providers. The RF signal at the converter output can be analyzed, measured and decoded by the meter as one would usually do with any signal over copper wires.



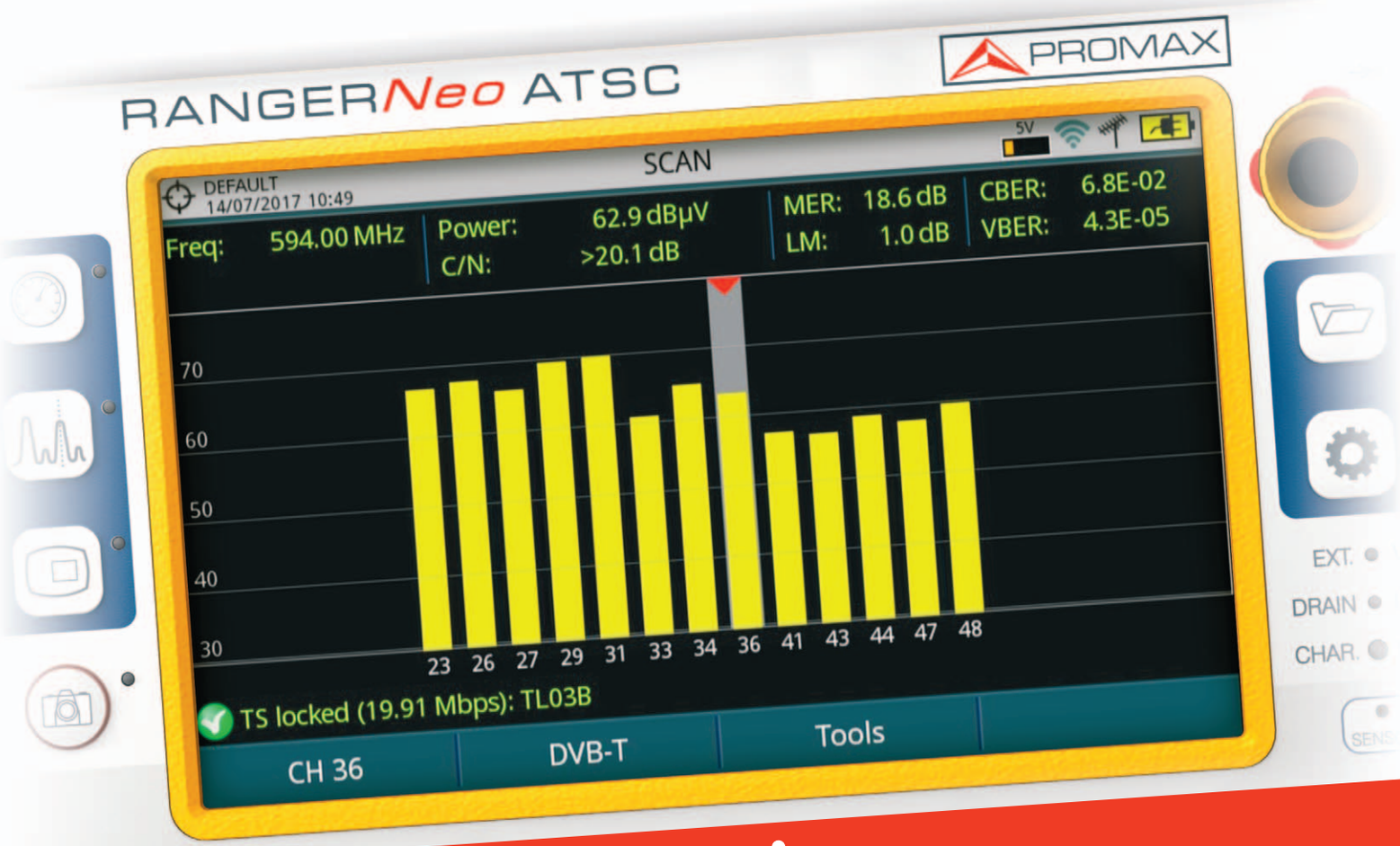


6 GHz RF auxiliary input

The **RANGER*Neo* ATSC** optical fibre option comes along with 6 GHz RF auxiliary input which can be used among other applications for direct connection to wholeband LNB's with 5.45 GHz RF output. This auxiliary input covers three bands:

Band I	From 2150 MHz to 3000 MHz
Band II	From 3400 MHz to 4400 MHz
Band III	From 4400 MHz to 6000 MHz

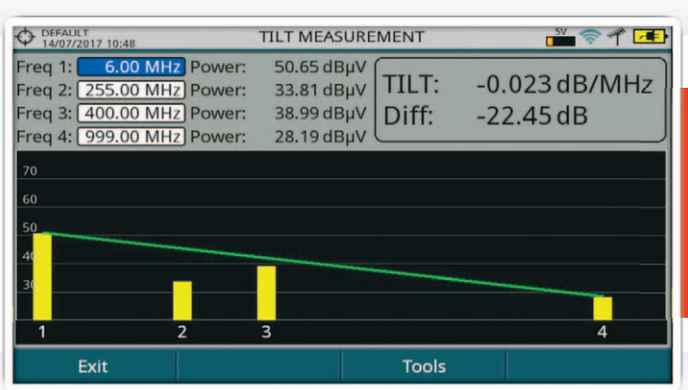
★ VER TABLA COMPARATIVA



CATV network analysis

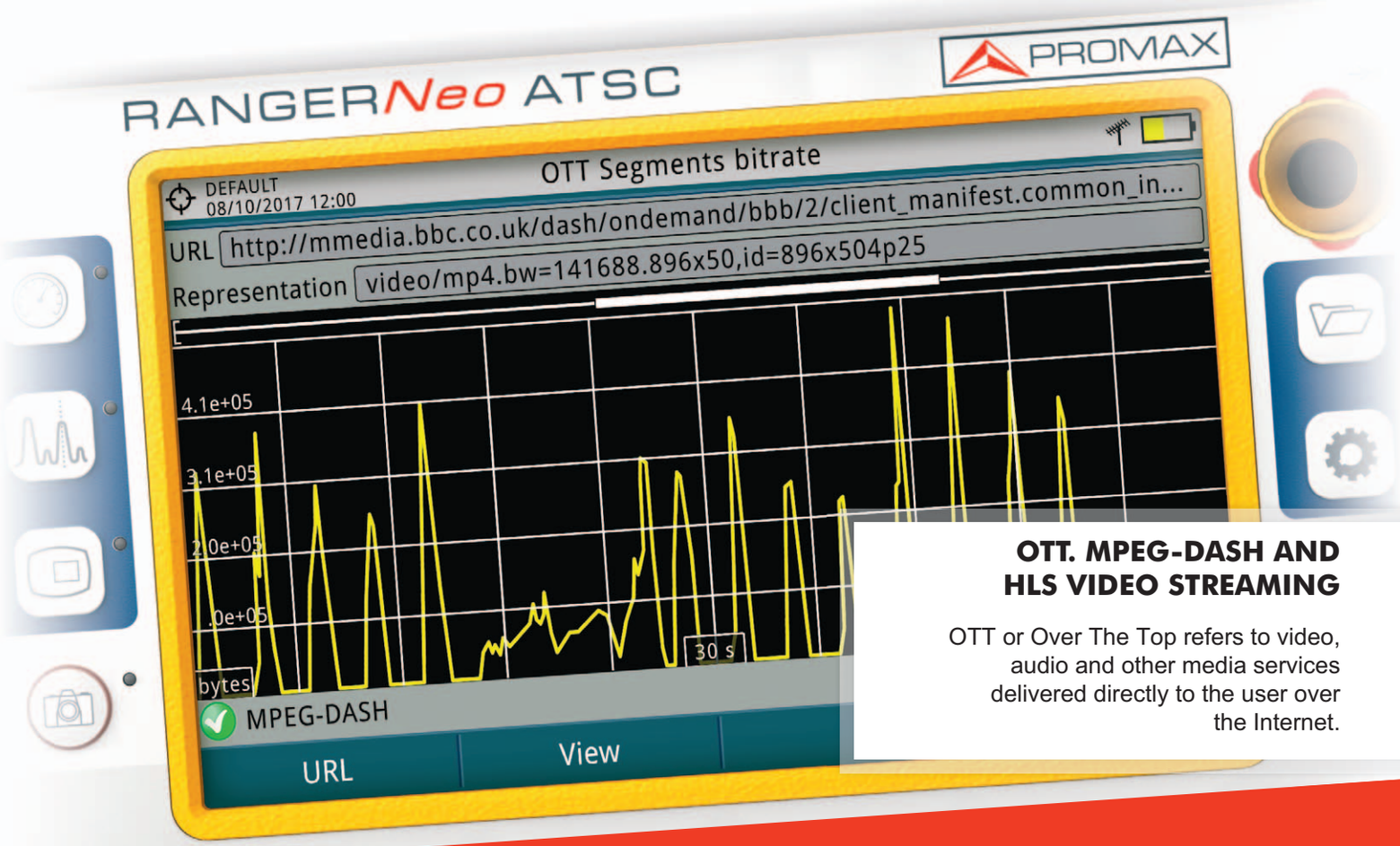
SCAN

CATV installers appreciate very much having a SCAN function on their analyzer for it allows them to check all the channel levels in a graphical way.



TILT

Using pilot generators as a reference, the TILT feature helps us to equalize the CATV network. We can detect as many as 4 pilots along the band from 6 – 999 MHz. The meter will calculate the level difference between the two most distant pilots and the tilt measurement (dB/MHz).



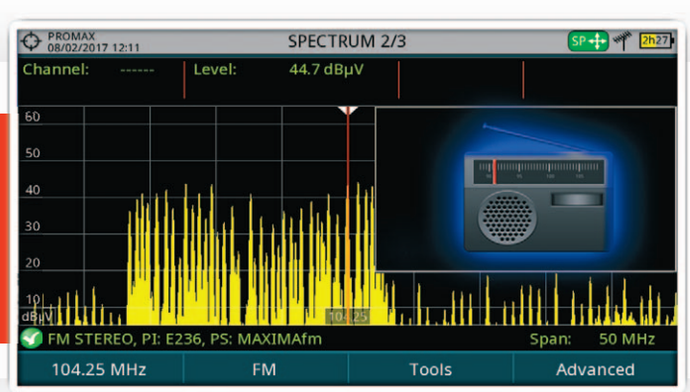
OTT. MPEG-DASH AND HLS VIDEO STREAMING

OTT or Over The Top refers to video, audio and other media services delivered directly to the user over the Internet.

Many useful functions

FM RDS radio receiver and analyzer

FM-RDS radio signals can be scanned, measured and demodulated, and any RDS data that is present can be decoded and shown in a dedicated results screen. The Drive test GPS option can also work in FM mode, and provide valuable field strength measurements for your radio station.



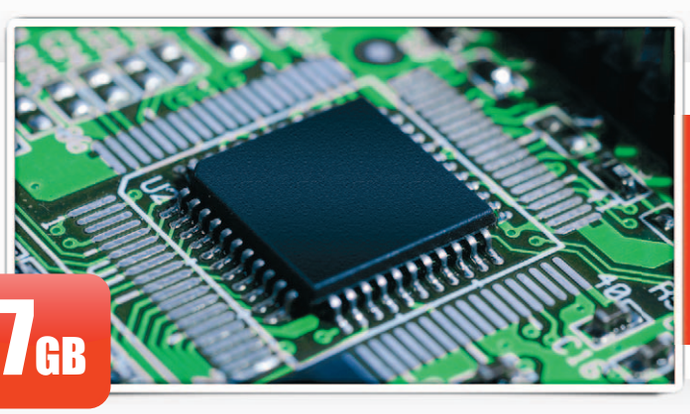
Field strength measurements

The **RANGER*Neo* ATSC** can do FSM Field Strength Measurements. The antenna K factor can be entered manually or in the form of a file.

Create, save and transfer data

Ethernet connectivity

Ethernet and IP protocols are now the gold standards for remote control applications and **RANGER*Neo* ATSC** 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, screenshots, etc.



More internal memory: Up to 7 GB

There is more data a **RANGER*Neo* ATSC** 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 *pendrive* in the field, the 7 GB of internal memory in the **RANGER*Neo* ATSC** are far from negligible.

Extended connectivity features

Transport stream input and output

RANGER*Neo* ATSC can monitor and analyze streams coming out from satellite receivers, transport stream players, multiplexers, etc. Received transport stream signals can also be output to other devices.

Common Interface

The **RANGER*Neo* ATSC** includes a CI slot to interface with CAM modules available in the market and decode encrypted channels. The use of encryption is widely spread among television operators so this function is very useful.

HDMI interface

The **RANGER*Neo* ATSC** includes an HDMI output to interface with other High Definition equipment. It can also be very useful to check proper operation of the client's TV while on a service call. Everything that can be seen on the meter's screen is available through the HDMI.

USB and Ethernet connections

RANGER*Neo* ATSC includes USB and Ethernet interfaces. The USB can be used to copy files to memory sticks for example. Remote control and web server functionality are available through the Ethernet port.

CHECK COMPARISON TABLE

PROMAX

FIELD STRENGTH METERS & SPECTRUM ANALYZERS

BROADCAST, CABLE, SATELLITE, IPTV, OPTICAL AND WIFI

RANGER *Neo* ATSC

FULL FEATURED ANALYZER FOR **NORTH AMERICAN TELEVISION**

4K ULTRAHD FRAME GRABBER

TOUCH SCREEN

EASY OPERATION

Hybrid user interface (touch + keyboard)

H.265

HEVC H.265

High Efficiency Video Codec

Wi Fi

WIFI ANALYZER

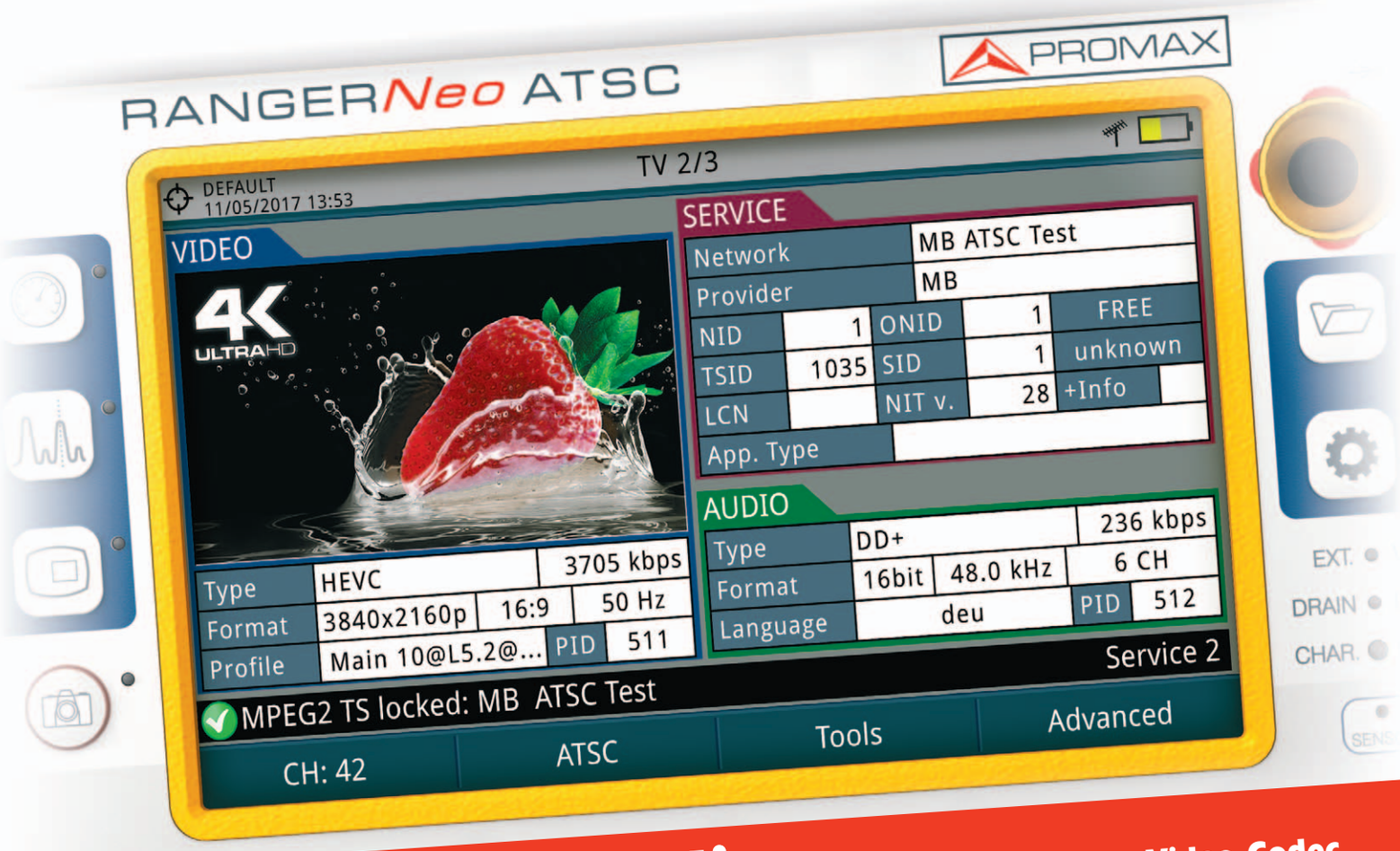
Dual display: SPECTRUM and DATA

wb LNB

WIDEBAND LNB

Extended SAT band on a single SPAN

PROMAX



HEVC H.265 decoding

High efficiency Video Codec

RANGER*Neo* ATSC is the new industry standard in field strength meters, TV and spectrum analyzers. It covers from 5 to 2500 MHz and it includes HEVC decoding.

- **ULTRA FAST SPECTRUM**
- **TRIPLE SPLIT DISPLAY**
- **LIGHT WEIGHT (< 5 pounds)**
- **SMART BATTERY CONTROL**

CHECK COMPARISON TABLE