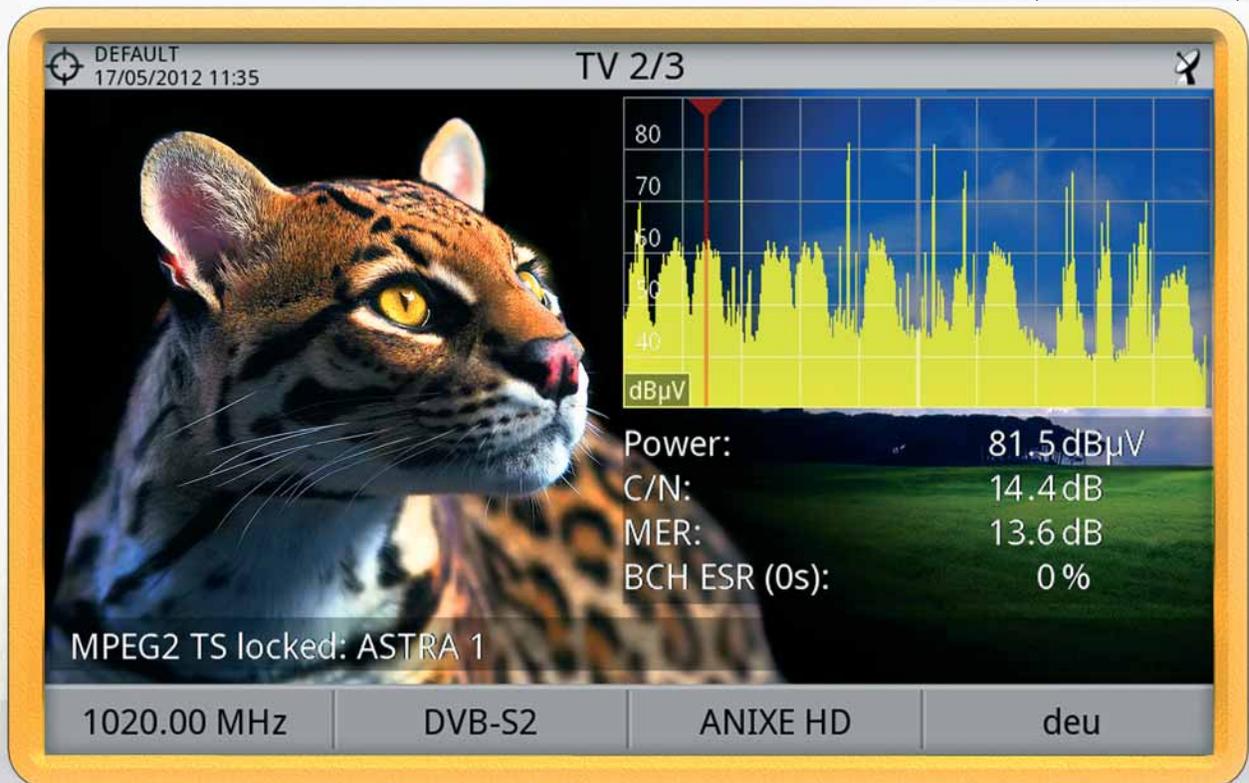


REVOLUTIONISING THE MARKET. AGAIN

ACTUAL SIZE - 7" SCREEN (APPROX. 155 x 93 mm)



DVB-T2/C2/S2

DVB-T/C/S

DOLBY DIGITAL PLUS

MPEG-4 HDTV

The largest and brightest display

HD RANGER+ 7" display is the brightest and largest used in any similar meter with excellent performance even under direct sun light.

This high resolution display allows functions such as the triple split display to be practically useful for all data and can be read clearly and easily.

New mechanical design

The ergonomic handle, tripod coupling and the special mix of plastics used for the chassis are just some of the mechanical innovations in the **HD RANGER+**.

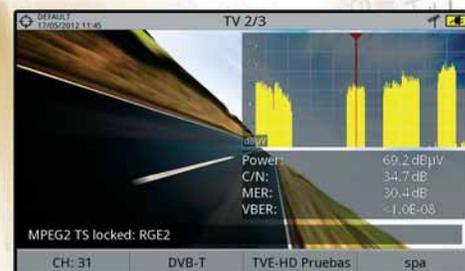
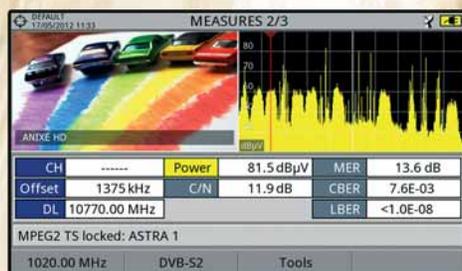
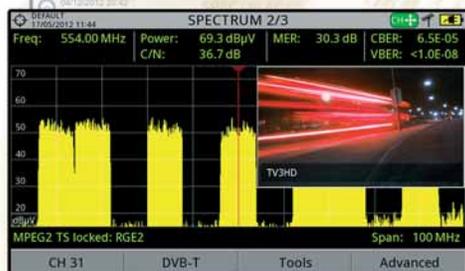
The tripod coupling for example opens the door to the use of various accessories that can be easily found in the market to use the meter in a static position or attached to an object for complete hands-free use.



UNPRECEDENTED COMPUTING POWER



Triple split display
three functions in a single screen



Triple split display

Because of the latest processing speeds available, which allow higher processing capability, the **HD RANGER+** can display information on several screens at any single time. These screens can be either overlapped or shown in a split screen format.

Spectrum analyser

We present a new ultra fast spectrum analyser function with higher dynamic range, better accuracy and improved resolution.

	HD RANGER+	HD RANGER
DVB-T2/C2 DVB-S2	✓ ✓	✓
DOLBY DIGITAL PLUS	✓	
Optical measurements	○	○
3 GHz band extender	○	○

✓ Included

○ Optional

ULTRA FAST SPECTRUM ANALYSER

90 ms sweep time in ALL SPANS

The **HD RANGER+** spectrum analyser sweep time is 90 ms per scan regardless of the frequency band or span select. That's all we can tell on printed paper but we encourage you to check the **video in our website** to see how fast that is or even better to go and find a real **HD RANGER+** as soon as you can.

In addition it comes with special functions such as markers or max hold.

StealthID

There is a general consensus that the TV EXPLORER AutoID has been an outstanding function and extremely useful in a number of applications.

The **HD RANGER+** takes it to the next level by **not requiring the user to press the green button!** The **HD RANGER+** instantly identifies the required parameters while you are tuning the signal.



Span: 100 MHz

Ultra FAST spectrum
90 ms sweep time

Fibre optics option

Measurements of fibre optics systems are also possible with **HD RANGER+** as an option. This option adds several optical functionalities: selective optical power meter and Optical-To-RF converter.

- **Optical LNBS**
Work with optical LNBS just like conventional ones.
- **Selective OPM**
Optical networks certification together with a light source.
- **Optical-To-RF conversion**
For optical CATV or DTT links up to 1 GHz.



Evolution? No. Revolu



A yellow DV3 Digital Video Broadcasting receiver is shown in the foreground on the left. In the background, an axe with a wooden handle and a black head is embedded in a tree stump. The scene is set in a field of tall green grass. The word "tion!" is written in large, white, bold letters across the middle of the image.

tion!

Unprecedented computing power ■

Three function split display

Dramatically fast spectrum analyser ■

90 milliseconds sweep time in ALL spans

Largest and brightest display on the market ■

7" 16/9 high resolution display

Intelligent data management ■

Screens, measurements and data single file integration

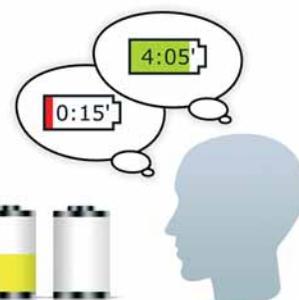
AMAZING FEATURES

LTE Long Term Evolution

When a TV distribution system is interfered by a mobile phone cell the use of an LTE filter is recommended. The **HD RANGER+** has a variety of tools that allow you 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.

There are a large number of frequency bands allocated to LTE some of which are near or inside television bands. For instance band 5 (uplink 824-849 MHz; downlink 869-894 MHz) or band 3 (uplink 1710-1785 MHz; downlink 1805-1880 MHz).

The **HD RANGER+** has special functions to help installers determine the level of activity in those frequency bands and therefore be able to anticipate potential interference problems.



Intelligent data management

Create a container file for each installation and associate with it all the measurements, screen captures, channel tables, etc.

This information can be shared among various **HD RANGER+**, which can be interesting for companies operating large work crews.

All this data can be downloaded on a PC at a later stage to be included in printed reports or for signal analysis purposes.



Smart battery control

The **HD RANGER+** uses a high quality, long operating time Li+ battery and a special control system that shows the remaining battery time. This is also useful to know at any instant what the exact battery charge situation is before we go out for our next work.

VALUABLE ADVANCED MEASUREMENTS

Constellation diagram

The **constellation diagram** is a graphic representation (called I-Q) of the digital symbols received over a period of time.

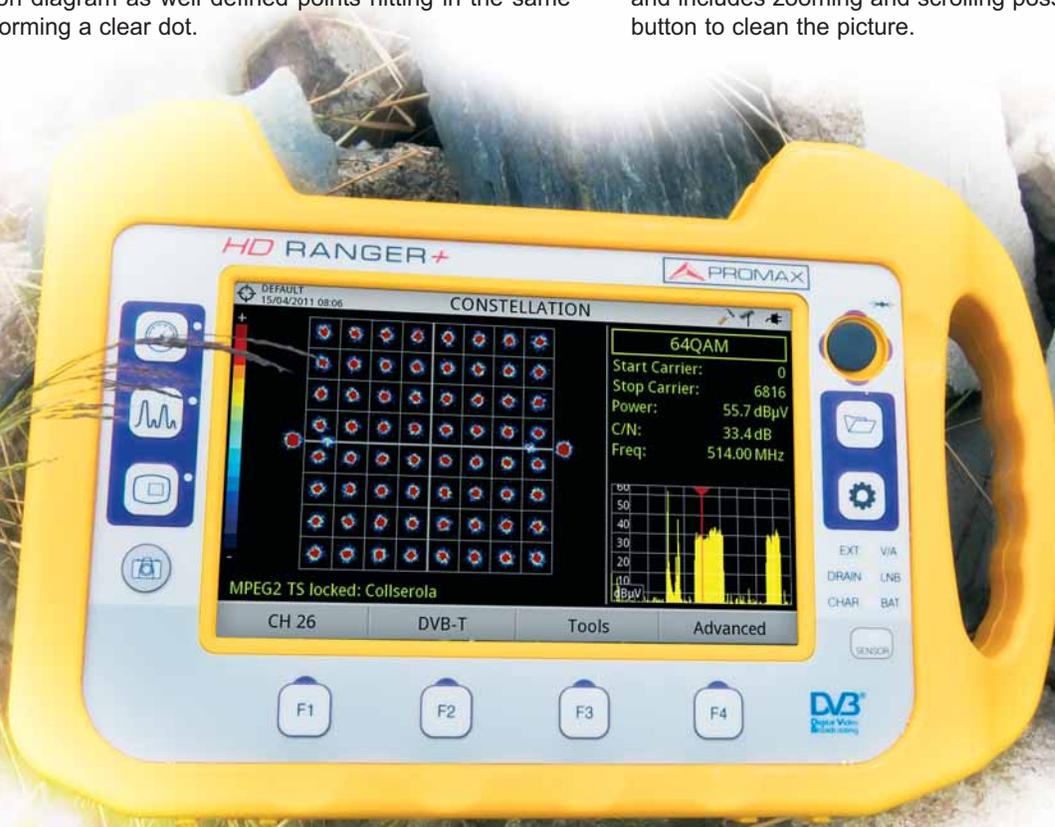
There are different types of constellation diagrams for the different modulation modes. With the **HD RANGER+** it is possible to display constellations for DVB-T/T2, DVB-C/C2, and DVB-S/S2.

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

Noise and impairments cause the demodulator to not always read the symbols correctly. In this case the hits disperse and create different shapes that at the end will allow to determine at a glance the type of noise in the signal.

Every modulation type is represented differently. A DVB-C 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.

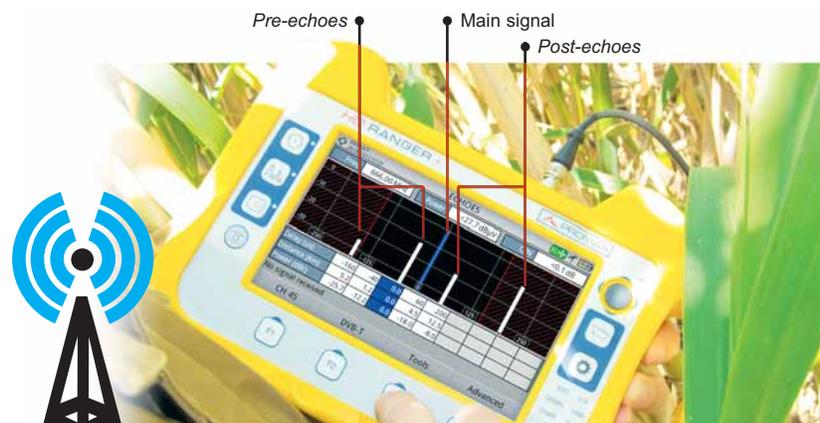
The constellation shows in different colours the density of hits and includes zooming and scrolling possibilities and also a clear button to clean the picture.



Dynamic echoes analysis

There are many situations in which the presence of echoes can degrade or severely affect reception of DTT. The **dynamic analysis** of echoes in MFN, SFN and **micro-echoes**, made in the way the **HD RANGER+** does, happens to be nowadays an **essential function**.

The **main signal** is represented as a vertical line, with 0 dB level. The **echoes** will be represented in the same way by vertical lines drawn at a certain distance of the main echo depending on the relative delay and attenuation they are received with.



HIGH DEFINITION TV ANALYSER

SPECIFICATIONS	HD RANGER+
GENERAL Digital frequency synthesis Tuning modes Channel plan Resolution Analogue and digital signal identification	From 5 to 1000 MHz (terrestrial) and from 950 to 2150 MHz (satellite) Channel or frequency (IF or downlink at satellite band) Configurable on demand 10 kHz Automatic, with no user intervention
VIDEO Digital modulations Resolutions Video formats SI/PSI data Colour system TV standard Aspect ratio	DVB-T2, DVB-S2, DVB-C2, DVB-T, DVB-S, DVB-C 1080, 720, 576. Progressive or interlaced MPEG-2 (MP@HL), MPEG-4 AVC H.264 Service list and main PIDs PAL, NTSC, SECAM M, N, B, G, I, D, K and L 16:9, 4:3
DIGITAL AUDIO CODECS	MPEG-1, MPEG-2, HE-AAC, Dolby Digital, Dolby Digital Plus
RF INPUT Maximum signal Maximum input voltage DC to 100 Hz 5 MHz to 2150 MHz	Universal connector with BNC or F adapter, 75 Ω 130 dBμV 50 V rms (powered by the AL-103 power charger) 30 V rms (not powered by the AL-103 power charger) 140 dBμV (protected at least for 30 seconds)
DIGITAL MEASUREMENTS DVB-T2 (COFDM) DVB-S2 (QPSK/8PSK) DVB-C2 (COFDM) DVB-T (COFDM) DVB-S (QPSK) DVB-C (QAM)	Numeric and level bar indication Channel power, CBER, MER (up to 35 dB), C/N ratio, LBER, BCH ESR, LDPC iterations, Wrong packets Channel power, CBER, LBER, MER (up to 30 dB), C/N ratio, BCH ESR, Wrong packets, Link margin Channel power, CBER, MER (up to 35 dB), C/N ratio, LBER, BCH ESR, LDPC iterations, Wrong packets Channel power, CBER, VBER, MER (up to 35 dB), C/N ratio, Link margin Channel power, CBER, VBER, MER (up to 30 dB), C/N ratio, Link margin Channel power, BER, MER (up to 35 db), C/N ratio, Link margin
ANALOGUE MEASUREMENTS	Level, V/A ratio, C/N ratio (terrestrial bands) / Level, C/N ratio (satellite bands)
SPECTRUM ANALYSER MODE Measurement range and bandwidth Selectable SPAN Markers Reference level Measurements Analogue channels Digital channels Spectrum range	From 10 dBμV to 130 dBμV. Bandwidth 100 kHz <i>Full span</i> (full band) - 500 - 200 - 100 - 50 - 20 - 10 MHz 1, with frequency and level indication From 65 dBuV to 135 dBuV (5 dB steps) V/A ratio (terrestrial only), Level, C/N ratio Channel power, C/N ratio, MER, BER (according to modulation type) SPAN, Dynamic range and Reference level (available by means of arrow cursors)
TOOLS & ADVANCED FUNCTIONS	Constellation diagram for DVB-T2/S2/C2 and DVB-T/S/C Echoes analyser mode for DVB-T2/C2 and DVB-T Datalogger (automatic measurement acquisition and storage) ⁽¹⁾ LTE ingress for DVB-T2 and DVB-T SAT IF test (IF distribution network response for satellite band) ⁽²⁾ Attenuation test function (signal distribution network response for terrestrial band) ⁽³⁾ DiSEqC™ 1.2 generator ⁽⁴⁾ . External units supply: 5/12/13/15/18/24V + 22 kHz signal (depending on band) Screenshot key USB interface: flash drive mass storage, serial port emulation, CDC "Comunicaciones Device Class"
CONNECTIONS	USB, Input and output Video/Audio multipole jacks
INCLUDED ACCESSORIES	RCA to multipole jack adaptor cable for Video and Left/Right audio USB Cable (A) Female to Mini USB (A) Male, Car lighter charger, External DC charger, Mains cord, Case, Transport belt and small accessory bag, Transport suitcase, F adapters: F/H to BNC/H, F/H to DIN/H, F/H to F/H
MECHANICAL FEATURES Dimensions Weight	290 (W.) x 185 (H.) x 65 (D.) mm. Total size: 3,487 cm ³ 1.9 kg

(1) Using NetUpdate software application under Windows PC platform.

(2) SAT IF Test function designed to be used with **RP-050** IF multiple pilot generator.

(3) Attenuation Test function designed to be used with **RP-080** multiple pilot generator.

(4) DiSEqC™ is a trademark of EUTELSAT.