

Rev 1.7  
02.08.2011

# Handheld spectrum analyzer series SPECTRAN® HF-6060 V4, HF-6080 V4, HF-60100 V4

Portable Spectrum Analyser with world record in sensitivity (DANL)



HF-4040 Rev.3



HF-4040 Rev.3

"Unbeatable price.."

"Particularly Aaronia's very powerful (especially considering their price) SPECTRAN handheld spectrum analysers caused much excitement."  
(Markt&Technik 20/2005)

## References / examples of proof:

- ◆ EADS, Munich, Germany
- ◆ Mercedes Benz, Austria
- ◆ Deutsche Bahn, Berlin, Germany
- ◆ EnBW Kernkraft GmbH, Germany
- ◆ RTL Television, Cologne, Germany
- ◆ NDR, Hamburg, Germany



Made in Germany

# Specifications

## SPECTRAN® HF-6060 V4:

- ◆ Up to **100x faster SampleTime** as Rev.3
- ◆ Up to **60dB higher sensitivity** as Rev.3
- ◆ 14Bit Dual-ADC
- ◆ DDC Hardware-Filter
- ◆ 150 MIPS DSP (CPU)
- ◆ Frequency range: 10MHz to **6GHz**
- ◆ Max measurement range: -135dBm (1Hz)
- ◆ Max measurement range PreAmp: **-150dBm** (1Hz)
- ◆ AbsMax Level: +10dBm
- ◆ Lowest possible SampleTime: **1mS**
- ◆ Typ. accuracy: +/- 2dB\*\*
- ◆ Dimensions (L/W/D): (260x86x23) mm
- ◆ Weight: 420gr
- ◆ **Warranty: 10 years**

## SPECTRAN® HF-6080 V4:

- ◆ Up to **100x faster SampleTime** as Rev.3
- ◆ Up to **70dB higher sensitivity** as Rev.3
- ◆ 14Bit Dual-ADC
- ◆ DDC Hardware-Filter
- ◆ 150 MIPS DSP (CPU)
- ◆ Frequency range: 10MHz to **8GHz**
- ◆ Max measurement range: -145dBm (1Hz)
- ◆ Max measurement range PreAmp: **-160dBm** (1Hz)
- ◆ AbsMax Level: +10dBm
- ◆ Lowest possible SampleTime: **1mS**
- ◆ Typ. accuracy: +/- 2dB\*\*
- ◆ Dimensions (L/W/D): (260x86x23) mm
- ◆ Weight: 420gr
- ◆ **Warranty: 10 years**

## SPECTRAN® HF-60100 V4 (with Worldrecord in sensitivity!):

- ◆ Up to **100x faster SampleTime** as Rev.3
- ◆ Up to **80dB higher sensitivity** as Rev.3
- ◆ 14Bit Dual-ADC
- ◆ DDC Hardware-Filter
- ◆ 150 MIPS DSP (CPU)
- ◆ Frequency range: 1MHz to **9,4GHz**
- ◆ Max measurement range: -155dBm (1Hz)
- ◆ Max measurement range PreAmp: **-170dBm** (1Hz)
- ◆ AbsMax Level: +20dBm
- ◆ AbsMax Level: **+40dBm** (Option)<sup>3</sup>
- ◆ Lowest possible SampleTime: **1mS**
- ◆ Typ. accuracy: +/- 1dB\*\*
- ◆ Dimensions (L/W/D): (260x86x23) mm
- ◆ Weight: 420gr
- ◆ **Warranty: 10 years**



## Application examples Spectran HF-60xxx Spectrum Analyzer

### Analysis and measurement of:

- ◆ Wlan
- ◆ UMTS
- ◆ WiFi
- ◆ active Radar
- ◆ GSM
- ◆ Mobile phones
- ◆ Bluetooth
- ◆ Microwave ovens
- ◆ DECT phones
- ◆ TETRA
- ◆ radio stations
- ◆ TV stations

# Description



## Conforming to standards and exact

RF Measurement in this price range has never been this professional. Find radiation sources in your surroundings. Find their respective frequencies and signal strengths, including **direct display of exposure limits**. This used to be impossible in this price category, professional units often costing several thousand euros and being excessively complicated in handling.

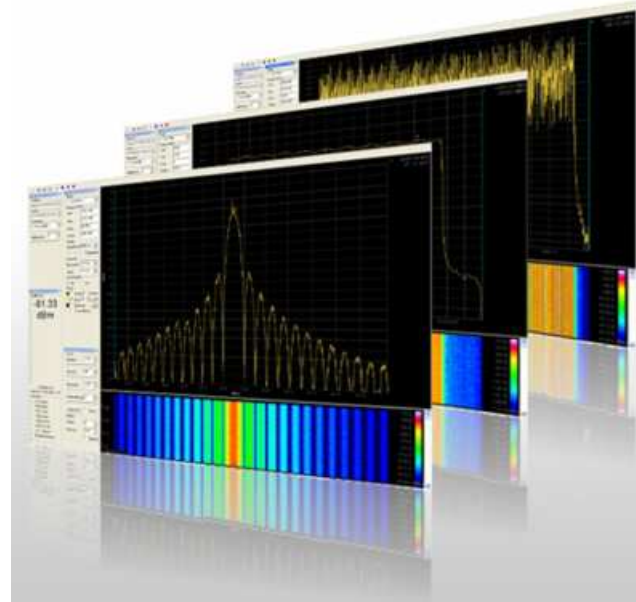
The highly complex calculations in spectrum analysis incl. exposure limit calculation is being performed, unnoticed in the background, by a high-performance DSP (digital signal processor). This ultra-fast processor even allows REAL-TIME display in all EMF (LF) versions of the SPECTRAN® series.

**Fast, handy, cost-effective, beautiful exterior and PRECISION - what more could you ask ?**

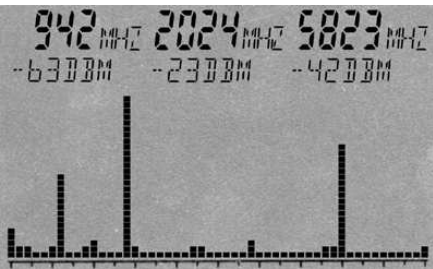
## Professional PC analysis software (free download)

The professional PC analysis software demonstrates SPECTRAN's vast capabilities. This software can be used in addition to SPECTRAN and offers an incredible amount of features. All this for FREE. Just download it from our homepage, and your PC turns into a real spectrum analyser with a huge display:

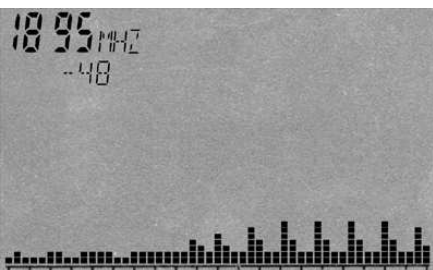
- ◆ **MULTI-device capability!** Remote control of several SPECTRAN units. These can be controlled and their data displayed at once on a single PC.
- ◆ **HIGH-RESOLUTION!**, freely scalable, coloured spectrum display with falloff function..
- ◆ **Display of channel identifiers!** for EXACT identification of providers. Channel numbers etc. freely programmable and extensible!
- ◆ Up to 10! markers with frequency and level display.
- ◆ Intuitive zoom control with very comfortable frequency adjustment.
- ◆ High quality "waterfall"-display with TIMECODE. Colour scale freely configurable. Size freely scalable. Optional display of data DIRECTLY ON TOP OF THE GRAPH by pointing with your mouse and CTRL-clicking!
- ◆ **High-resolution SLOT ANALYSER with 3D display!**
- ◆ **SUPER-LOGGER:** ALL data can be written to disk continuously. File format is readable by spreadsheet applications, for creating custom reports, etc.
- ◆ Freely positionable windows for comfortable entry of frequency, RBW, sweep time etc. etc.
- ◆ **Various pre-defined profiles** for DECT, UMTS, GSM, WLAN etc. etc. for instant recall. Incl. optimal parameters and extensive channel information! Freely programmable and extensible!
- ◆ Independent main display with SIMULTANEOUS display of dBm, dBµV, V/m, W/m<sup>2</sup> and A/m, each with AUTORANGE. Freely transposable and scalable.
- ◆ **SUPERB exposure limit display** with various profiles (ICNIRP, Salzburg precautionary values, ECOLOG, etc. etc.). Freely programmable with a virtually infinite amount of display options.
- ◆ Functionality to update SPECTRAN measurement device firmwares.
- ◆ Freely programmable key assignments and labels for SPECTRAN measurement devices.
- ◆ Filemanager and COMPILER for creation and management of YOUR OWN PROGRAMS for SPECTRAN measurement devices.
- ◆ "Rename" option for renaming any of your SPECTRAN units (for example, including location) for better identification
- ◆ etc. etc. etc.



AMAZING: The PROFESSIONAL PC software for SPECTRAN. Get to know SPECTRAN's real capabilities!



RF spectrum display and automatic triple multi-marker display on the digital screen of SPECTRAN® (Screenshot)



Well visible: "Frequency hopping" of a DECT portable phone between 1890 and 1900 MHz (Screenshot)

## Spectrum ANALYSIS

### The perfect analysis:

Professional RF measurement devices use a **frequency dependant measurement approach**, the so-called **spectrum analysis**. In a certain frequency range, the individuals signals and their respective strengths are being broken down, for example into a "bargraph" display (see SPECTRAN® screenshots on the left). The height of the individual bars represents the corresponding signal strength. For the 3 strongest signal sources, SPECTRAN® automatically displays the exact frequency and signal level, thanks to its "Auto Marker" feature. Of course, you can also setup the filter width and the frequency range to be analysed as you like.

In the RF spectrum shown, a frequency range of approx. 100MHz to 7GHz from left to right is being analysed (full sweep). During analysis, the Auto Marker feature has determined - fully automatic - three main signal sources:

Signal#1=942MHz (GSM communications) at -63dBm

Signal#2=2024MHz (UMTS) at -23dBm

Signal#3=5832MHz (802.11a WLAN) at -42dBm

Thanks to its DIRECT frequency display of the individual signal sources, a doubtless mapping of measurement results to the corresponding radiation sources is possible.

## Long-term measurement (data logging feature)

SPECTRAN® measurement devices with data logger allow **long-term recordings of measurement results** over a **freely adjustable** period of time. This is particularly indispensable for serious evaluation of exposure by appliances and machinery which have a changing power consumption or radiation strength over time. Examples for these include railroads, power lines and plants, but also home appliances and their respective power cables, and various high-frequency transmission facilities like mobile phone transmission towers, mobile phones, radar etc. Depending on the time of day, considerable variation of exposure can occur (see graphics on the right). Without long-term recordings, massive misinterpretation of total exposure can occur. With long-term data logging using SPECTRAN®, the daily variation of exposure can be recorded and analysed. Thus, the actual total exposure can be evaluated precisely.

With this functionality, you can even discover sporadic EMC problems which would otherwise be very hard to detect. Even though SPECTRAN® units "only" last 2 to 3 (depending on model) hours with one battery charge, the intelligent "Powerdown mode" enables much longer data logging and measurement timespans. Finally, if this is not enough, the external power supply can be used to extend the recording timespan infinitely.



Daily variation of this RF transmitter discloses EXTREME variation in time



Included in delivery of Spectran HF-60xx Spectrum Analyzer

## INCLUDED WITH DELIVERY

- ◆ RF spectrum analyzer SPECTRAN HF-6060 V4, HF-6080 V4 or HF-60100 V4
- ◆ HyperLOG 7060, 6080 or 60100 EMC/directional antenna
- ◆ 1300mAh power battery with charger
- ◆ Pistol grip with miniature tripod mode
- ◆ SMA toolset
- ◆ SMA adapter
- ◆ 1m SMA cable
- ◆ Sturdy aluminum-design carrycase (with custom padding!)
- ◆ Exhaustive manual with lots of basic information, hints and exposure limit tables