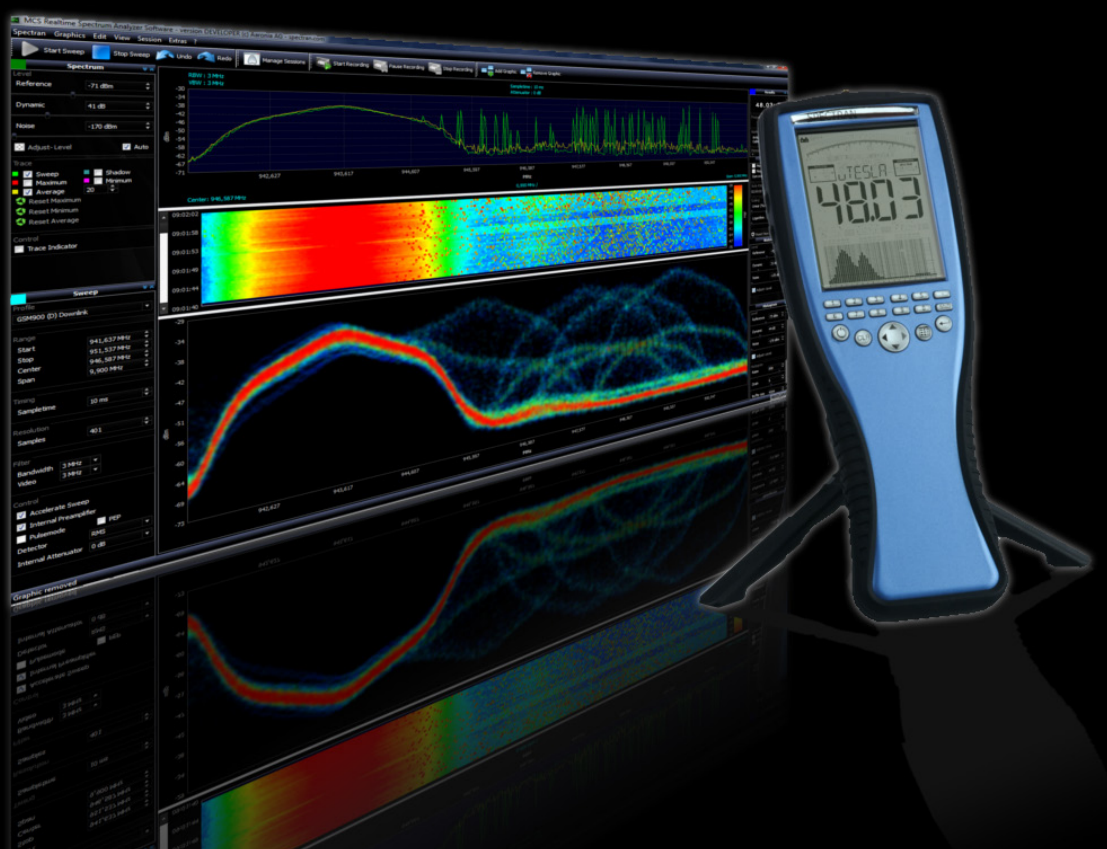


# AARONIA

# SPECTRAN NF HANDHELD

## 1 Hz to 1 MHz (30 MHz)

Affordable low-frequency Signal Analyzer



### Highlights:

- Frequency Range: 1 Hz up to 30 MHz
- Accuracy: 3%
- Weight only 420 g
- Incl. Spectrum Analysis Software

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**MADE IN GERMANY**

# Specifications

## SPECTRAN® NF-5030 (1 Hz to 1 MHz / 20 MHz / 30 MHz)

- ◆ Frequency range: 1 Hz to 1 MHz (30 MHz)
- ◆ Typ. level range E-Field: 0,1 V/m to 5.000 V/m @ 50 Hz
- ◆ Typ. level range H-Field: 1 pT to 500 µT @ 50Hz
- ◆ Typ. level range Analog in: 200 nV to 200 mV / -150 dBm (Hz)
- ◆ Typ. accuracy: 3%
- ◆ 65 MSPS
- ◆ Lots of options
- ◆ NEW: 30 MHz Option
- ◆ Superfast FFT spectrum analysis
- ◆ High-performance DSP (Digital Signal Processor)
- ◆ 3D magnetic field measurement
- ◆ Frequency and signal strength display
- ◆ High-resolution multi-function display
- ◆ DIN/VDE 0848 Exposure limit calculation
- ◆ Simultaneous M-Display X, Y, Z axes
- ◆ True RMS signal strength measurement
- ◆ Average (AVG) measurement
- ◆ Internal data logger
- ◆ Internet Flash Software-Updates
- ◆ USB 2.0 Interface
- ◆ Dimensions (L/W/D): (260 x 86 x 23) mm
- ◆ Weight: 420 gr



## SPECTRAN® NF-5030S (1Hz to 1MHz / 20MHz / 30MHz)

- ◆ Identical to NF-5030, in addition:
- ◆ Vastly expanded measurement range
- ◆ Measurement range up to DIN/VDE 0848
- ◆ Typ. level range E-Field: 1 V/m to 50 kV/m @ 50 Hz
- ◆ Typ. level range H-Field: 100 pT to 20 mT @ 50Hz



### Product of the year

Our 3D magnetic-field measurement coil with homogeneous centre won the first price of Europe's biggest electronic newspaper "Elektronik" in the category passive components.

**This coil is installed in each NF-SPECTRAN® unit.**

# The SPECTRAN® NF-5030

## Compact, affordable and sensitive

Measurement of electric and magnetic fields 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, depending on the settings, REAL-TIME display with a NF-5030 (could you ask for more?).



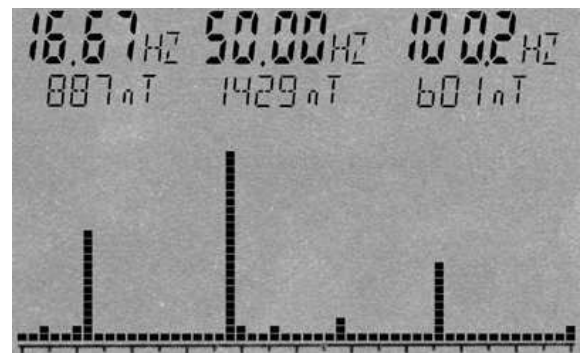
## Spectrum Analysis

Professional EMF measurement devices use a frequency dependant measurement approach, the so-called spectrum analysis. In a certain frequency range, the individual signals and their respective strengths are being broken down, for example into a "bargraph" display (see SPECTRAN® screenshot on the right). The height of the individual bars represents the corresponding signal strength. For the 3 strongest signal sources, SPECTRAN® can automatically displays the 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 EMF (LF) spectrum shown here, a frequency range of approx. 20 Hz to 60 Hz from left to right is being analysed. During analysis, the Auto Marker feature has determined - fully automatic - two main signal sources:

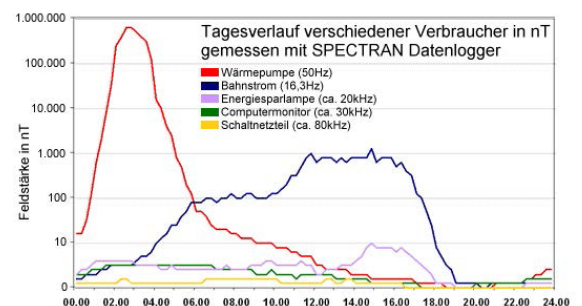
Signal#1=30Hz at 45 $\mu$ T

Signal#2=50 (mains power) at 75 $\mu$ T.



## 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 attached graphics). 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.

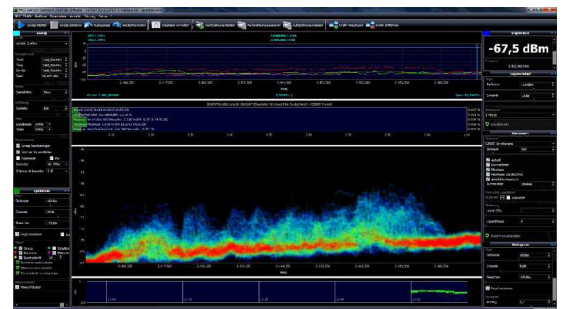
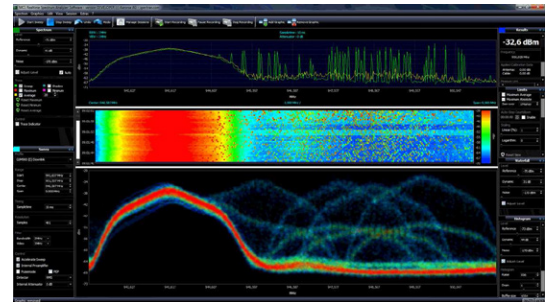


# The SPECTRAN® NF-5030

## Free PC Analysis Software “MCS”

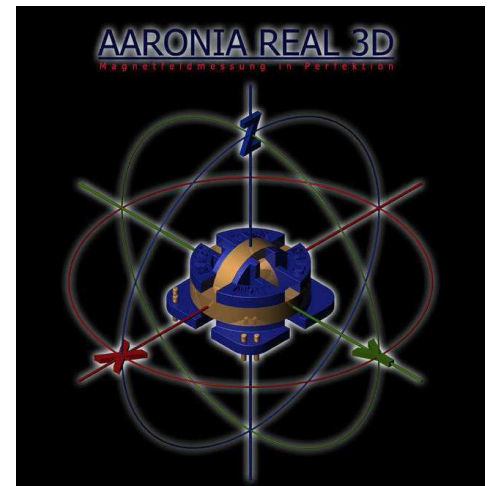
The cross-platform Spectrum Analyzer Software MCS for Windows, Linux and MAC OS shows the full potential of the SPECTRAN® units. The measurement results and controls work in realtime, which means without any delay between the reception and the display of the signal on a monitor.

- ◆ Multi-device capability, remote control of several SPECTRAN®.
- ◆ These can be controlled on a single PC.
- ◆ Works on all major operating systems like Mac OS, Linux and Windows
- ◆ Real-time remote control function with all SPECTRAN® spectrum analyzer via the integrated USB port
- ◆ Unlimited number of limit displays e.g. EN55011, EN55022, etc. including display of ICNIRP limit lines and limit-bar graphs
- ◆ Multi Window Support
- ◆ Powerful undo feature
- ◆ Channel and provider display
- ◆ Custom skins and color settings
- ◆ Reporting and recording function
- ◆ and much more



## The new standard: 3D Measurement

Mismeasurement caused by wrongly adjusting the measurement device in space or troublesome and complex 3D calculations with a calculator are a problem of the past from now on, thanks to SPECTRAN® EMF (LF) measurement devices. All SPECTRAN® EMF measurement devices can measure magnetic fields directly in 3D! The SPECTRAN® NF-5030, field strengths of the individual X, Y and Z axes can even be shown separately. This has become possible thanks to the newest development from the Aaronia laboratories: Our high-tech REAL 3D miniature sensor coil. Consisting of a specially crafted nylon base with 3 independent windings made of ultra-thin, 0,05 mm! wire, it impresses with its extremely high sensitivity. It allows measurement of magnetic fields in all 3 spacial dimensions. The signal processor (DSP) of the SPECTRAN® performs the resulting highly complex calculations. You receive 3D measurement results which can otherwise only be achieved by using highly professional equipment.



## Scope of delivery

- ◆ LF spectrum analyzer SPECTRAN® NF-5030
- ◆ 3000mAh power battery with charger
- ◆ Sturdy aluminum-design carrycase
- ◆ PC Software MCS (Download)
- ◆ USB-cable
- ◆ Protection Rubber
- ◆ Exhaustive manual



# Options for SPECTRAN® NF-5030 (S)

**Optional modifications to the SPECTRAN® NF-5030 include:**

## **Option 001: 1 MB memory expansion**

This internal memory expansion is a MUST-HAVE particularly when using the data logger, as the standard capacity can quickly become exhausted in this mode. The memory expansion provides space for more than 10,000 logs, while the standard memory will only accommodate approximately 100 of them. Standard memory size is 64K.

*Order/Art.-No.: 111/003*

## **Option 005: 12 Bit Dual DDC frequency filter**

**Already installed in: NF-5030 and NF-5030S**

This cutting edge 12 Bit DDC frequency filter allows extremely fast, crisp and accurate frequency filtering, while at the same time drastically enhancing the sensitivity. As an example, magnetic fields can (depending on their frequency) still be measured down to 1 pT (0.001 nT), compared to 0.1 nT without the option.

## **Option 008: 20 MHz frequency extension**

This 20 MHz frequency extension option vastly enhances the frequency range of the NF-5030. Amongst others, it brings the ADSL and 13.56 MHz RFID frequency bands in range. What's more, we are already developing a PC-based analysis software for decoding RFID.

The maximum frequency range of the NF-5030 without option 008 is 1MHz.

*Order/Art.-No.: 111/001*

## **Option 010: 30 MHz frequency extension**

Our 30 MHz frequency extension extends the frequency range to the absolute maximum. The new frequency range is 1 kHz - 30 MHz. Amongst others, it even allows measurement of VDSL2. The higher clock frequency of the DDC provided by this option is a MUST HAVE for technicians and authorities needing ACCURATE assessment of signal sources of up to 30 MHz.

The maximum frequency of the NF-5030 without option 010 is 1 MHz.

*Order/Art.-No.: 111/002*

# Recommended accessories

## Heavy Plastic Carrycase PRO

Shock resistant, heavy version with padding. Offers spaces for 2 SPECTRAN units with all accessories and a HyperLOG 70xx or 60xx antenna. A MUST for the professional user or outdoor usage!



Order/Art.-No.: 504/001

## Pistol Grip / miniature tripod

Detachable handle with super-practical miniature tripod mode: this handle is attachable to the backside of the unit and allows optimal handling and even fixed installation of the unit. STRONGLY recommended for PC use!



Order/Art.-No.: 503/012

## Aluminium tripod

Height adjustable, high stability. STRONGLY recommended for PC use! Max. height: 105cm.



Order/Art.-No.: 503/011

## Calibration Certificate

Available for all SPECTRAN® units. With detailed calibration sheet.



Order/Art.-No.: 505/002

## Car power adapter

With power-LED. For charging batteries or operating our units in your car, including special plug.



Order/Art.-No.: 501/002

## DC-Blocker (SMA)

It prevents the RF-input of the SPECTRAN to be destroyed by the DC-voltages of f.e DSL/ISDN lines.



Order/Art.-No.: 502/002

## 3000mAh LiPo Power-Battery

Included in delivery!



Order/Art.-No.: 503/007

## USB Cable (Special Version)

Included in delivery!



Order/Art.-No.: 501/001

## Protection rubber

Included in delivery!



Order/Art.-No.: 503/018 (black), 503/019 (yellow)

# REFERENCES



## Selected Aaronia Clients

### Government, Military, Aeronautic, Astronautic

- **NATO**, Belgium
- **Department of Defense (DoD)**, USA
- **Department of Defence**, Australia
- **Airbus**, Germany
- **Boeing**, USA
- **German Armed Forces**, Germany
- **NASA**, USA
- **Lockheed Martin**, USA
- **Lufthansa**, Germany
- **German Aerospace Center (DLR)**, Germany
- **Eurocontrol**, Belgium
- **EADS**, Germany
- **Drug Enforcement Administration (DEA)**, USA
- **Federal Bureau of Investigation (FBI)**, USA
- **Federal Criminal Police Office (BKA)**, Germany
- **Federal Police**, Germany
- **Ministry of Defence**, Netherlands

### Research/Development, Science and Universities

- **MIT - Physics Department**, USA
- **California State University**, USA
- **Indonesian Institute of Science (LIPI)**, Indonesia
- **Los Alamos National Laboratory (LANL)**, USA
- **University of Bahrain**, Bahrain
- **University of Florida**, USA
- **University of Victoria**, Canada
- **University of Newcastle**, United Kingdom
- **University of Durham**, United Kingdom
- **University Strasbourg**, France
- **University of Sydney**, Australia
- **University of Athen**, Greece
- **University of Munich**, Germany
- **Technical University of Hamburg**, Germany
- **Max-Planck Inst. for Radio Astronomy**, Germany
- **Max-Planck Inst. for Nuclear Physics**, Germany
- **Research Centre Karlsruhe**, Germany

### Industry

- **IBM**, Switzerland
- **Intel**, Germany
- **Shell Oil Company**, USA
- **ATI**, USA
- **Microsoft**, USA
- **Motorola**, Brazil
- **Audi**, Germany
- **BMW**, Germany
- **Daimler**, Germany
- **Volkswagen**, Germany
- **BASF**, Germany
- **Siemens AG**, Germany
- **Rohde & Schwarz**, Germany
- **Infineon**, Austria
- **Philips**, Germany
- **ThyssenKrupp**, Germany
- **EnBW (Energie Baden-Württemberg)**, Germany
- **CNN**, USA
- **Duracell**, USA
- **German Telekom**, Germany
- **Bank of Canada**, Canada
- **NBC News**, USA
- **Sony**, Germany
- **Anritsu**, Germany
- **Hewlett-Packard**, Germany
- **Bosch**, Germany
- **Mercedes-Benz**, Austria
- **Osram**, Germany
- **DEKRA**, Germany
- **AMD**, Germany
- **Keysight**, China
- **Infineon Technologies**, Germany
- **Philips Semiconductors**, Germany
- **Hyundai Europe**, Germany
- **VIAVI**, Korea
- **Wilkinson Sword**, Germany
- **IBM Deutschland**, Germany
- **Nokia-Siemens Networks**, Germany



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