

## Product Datasheet - Technical Specifications



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### Your contact

Technical and commercial sales, price information,  
quotations, demo/test equipment, consulting:

Tel.: **+49 - (0)81 41 - 52 71-0**

FAX: **+49 - (0)81 41 - 52 71-129**

E-Mail: [sales@meilhaus.com](mailto:sales@meilhaus.com)

**Meilhaus Electronic GmbH**  
Am Sonnenlicht 2  
82239 Alling/Germany

Tel. **+49 - (0)81 41 - 52 71-0**  
Fax **+49 - (0)81 41 - 52 71-129**  
E-Mail [sales@meilhaus.com](mailto:sales@meilhaus.com)

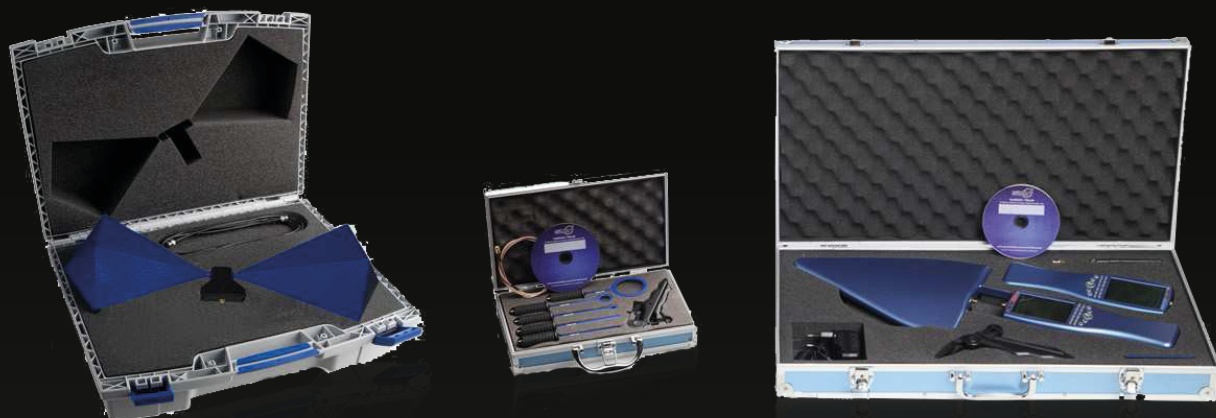
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# AARONIA

## EMC HIGH-PERFORMANCE BUNDLES

### 1 Hz to 9,4 GHz

Measurement Kits for straightforward pinpointing and measurement of interference sources



#### References (excerpt):

- EADS, München
- DLR, Wessling
- Mercedes Benz, Österreich
- Deutsche Bahn, Berlin

**AARONIA AG**  
WWW.AARONIA.DE



MADE IN GERMANY

# Specifications

## SPECTRAN® NF-5030

- ◆ Frequency range: 1Hz to 1MHz (optionally up to 30MHz)
- ◆ Measurement range up to DIN/VDE 0848
- ◆ 65 MSPS
- ◆ Typ. level range E-Field: 0,1V/m to 5kV/m
- ◆ Typ. level range H-Field: 1pT to 500µT
- ◆ Typ. level range Analog in: 200nV to 200mV
- ◆ Typ. accuracy: 3%
- ◆ Superfast FFT spectrum analysis
- ◆ High-performance DSP (Digital Signal Processor)
- ◆ 3D magnetic field measurement
- ◆ DIN/VDE 0848 Exposure limit calculation
- ◆ Simultaneous M-Display X, Y, Z axes
- ◆ True RMS signal strength measurement
- ◆ USB 2.0 Interface



## SPECTRAN® HF-60100 V4

- ◆ 14Bit Dual-ADC
- ◆ DDC Hardware-Filter
- ◆ 150 MIPS DSP (CPU)
- ◆ Frequency range: 1MHz to 9,4GHz
- ◆ Max measurement range: -155dBm (1Hz)
- ◆ Max measurement range PreAmps: -170dBm(1Hz)
- ◆ AbsMax Level: +20dBm
- ◆ AbsMax Level: +40dBm(Option)
- ◆ Lowest possible SampleTime: 1ms
- ◆ Typ. accuracy: +/- 1dB
- ◆ USB 2.0 Interface
- ◆ Up to 100x faster SampleTime as Rev.3
- ◆ Up to 80dB higher sensitivity as Rev.3
- ◆ incl. HyperLOG 60100 EMC logper antenna

## BicoLOG 30100E (only EMC-Bundle 2)

- ◆ Design: Biconical Antenna
- ◆ Frequency range: 30MHz to 1GHz
- ◆ Max. transmission power: 1W (30dBm or 0dBW)
- ◆ Nominal impedance: 50 Ohms
- ◆ Gain: -31dBi to 1dBi
- ◆ Antenna factor: 17-31dB/m
- ◆ Calibration points: 194 (5MHz steps)
- ◆ RF connection: SMA (female)
- ◆ Tripod socket: 1/4"
- ◆ Dimensions (L/W/D) : (540x225x225)mm
- ◆ Weight: 1150gr

## PBS2 Sniffer Set (only EMC-Bundle 1 and 3)

- ◆ Frequency range: DC-6GHz
- ◆ 5 Probes (50 Ohm SMB Connector):
- ◆ 1x directional E-field probe, 4x magnetic field sniffer
- ◆ Pre-Amplifier noise (PBS2): 3.5dB typical
- ◆ PreAmplifier type/gain (PBS2):
- ◆ "linear" falloff. 1MHz: 40dB; 3GHz: 37.5dB; 6GHz: 35dB
- ◆ Dimensions of case (L/W/D): (300x190x70) mm
- ◆ Weight PBS2 (case incl. probes and pre-amplifier): 1500gr

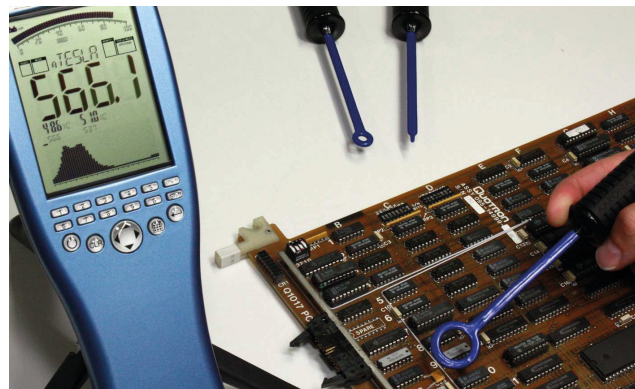
## BicoLOG 20100E (only EMC-Bundle 3)

- ◆ Design: Biconical Antenna
- ◆ Frequency range: 20MHz to 1GHz
- ◆ Max. transmission power: 1W (30dBm or 0dBW)
- ◆ Nominal impedance: 50 Ohms
- ◆ Gain: -38dBi to 1dBi
- ◆ Antenna factor: 17-34dB/m
- ◆ Calibration points: 196 (5MHz steps)
- ◆ RF connection: SMA (female)
- ◆ Tripod socket: 1/4"
- ◆ Dimensions (L/W/D) : (540x225x225)mm
- ◆ Weight: 1150gr

# Details

## The MEASUREMENT KIT for the EMC-PRO.

Aaronia's EMC kit allows for straightforward pinpointing and measurement of interference sources in electronic component groups as well as execution and monitoring of generic EMC measurement. It is perfect for locating interference sources which might have been found e.g. in an EN55011, EN55022 or EN50371 (Class A or Class B) survey. The EMC-Bundle 1 contains our highend spectrum analyzer models SPECTRAN NF-5030 (incl. Option 005), SPECTRAN HF-60100 V4, the HyperLOG 60100 antenna, our ProbeSet PBS2 (only EMC-Bundle 1&3) incl. PreAmp, BicoLOG 30100E (EMC-Bundle 2) or BicoLOG 20100E (EMCBundle 3) and lots of accessories and cables.

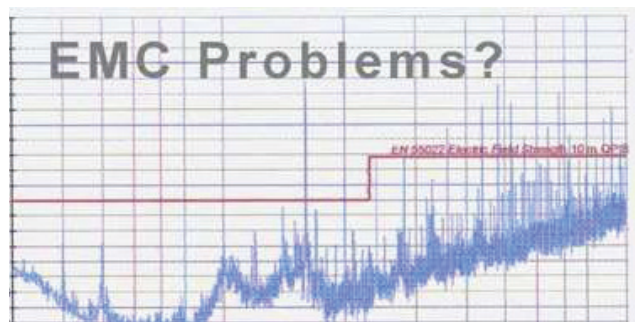


Magnetic field measurement on a group of components using the 60mm H-field probe.

The kit is especially suitable for:

- ◆ Pinpointing interference sources
- ◆ Estimation of interference field strength
- ◆ Verification of shielding and filtering measures
- ◆ Identifying faulty components
- ◆ Detecting circuitry overly sensitive to interference

Aaronia probes are covered with an insulating layer, thus allowing safe measurement of oscillators or mains lines. The kit contains a high-performance pre-amplifier, allowing measurement of significantly weaker interference sources, boosting the sensitivity by up to 40dB. After implementing appropriate changes in the circuit, their efficiency can easily and reliably be verified. That way, expensive and time-consuming re-assessments in an EMC laboratory can be skipped.



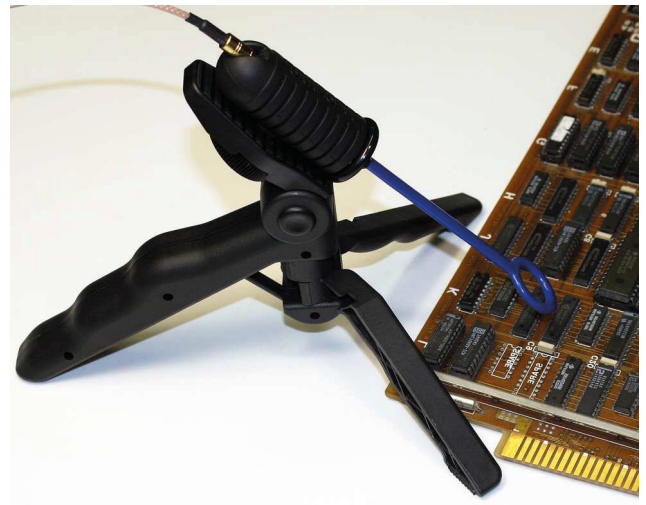
This EN 55022 B survey discloses a multitude of problematic sources of interference. With the help of our EMC bundle, these emitters can easily be pinpointed and eliminated.



# Details and delivery

Verification of official EMC limits:

For example, should an interference source exceed an official EMC limit by 10dB, our kit can easily verify if a certain countermeasure succeeds in making the circuitry conforming again. This is another situation where the EMC kit can eliminate the need for expensive and time-consuming measurements in EMC laboratories.



Pinpointing interference sources on a circuit board

## Scope of delivery

- ◆ Spectran NF-5030 (incl. Option 005)
- ◆ Spectran HF-60100 V4 (incl. Option 020)
- ◆ HyperLOG 60100 antenna
- ◆ EMC ProbeSet PBS2 incl. preamplifier (EMC-Bundle 1&3)
- ◆ BicoLOG 30100E (EMC Bundle 2)
- ◆ BicoLOG 20100E (EMC Bundle 3)
- ◆ 2x Transport cases
- ◆ Cable & accessories



# Options and accessories

## Included in delivery:

### Option 020: Internal, super low-noise 15dB preamplifier

It enables maximum performance, especially when measuring extremely weak signals and can even be coupled in via a REAL RF switch. Because of its very attractive price it should not be missing in any V4! The maximum measuring range of the V4 series, without option 020, is 15dB lower.

Order/Art.-No.: 177

### Option 022: Very low noise, external preamplifier (40dB)

External, super low-noise 40dB preamplifier. For best possible performance of an EN55011, EN55022 or EN50371 EMC measurement. This preamplifier is already considered and calibrated in our Spectrum Analyzer Software "MCS". It offers an optimal performance especially in the lower frequency range from 1MHz to 1GHz. For EMC measurement with our BicoLOG antennas or our PBS1 Probe Set, it is essential to order the preamplifier as well! Already included in the EMV package1.

Order/Art.-No.: 177-2

## Available at extra charge:

### Option 900: 9kHz Frequency extension

Extends the start frequency to 9kHz. The new usable frequency range when the 900 option is installed is 9kHz - 9.4GHz. Perfect e.g. for measuring conducted EMC standards such as EN55015, EN61800-3 etc.

Order/Art.-No.: 189-2

### Option 010: Frequency extension

Available for: NF-5030.

The 30MHz extension (option 010) increases the measuring range of the NF-5030 Spectrum Analyzer to the absolute maximum. The usable frequency range is now 1kHz - 30MHz. Among others, measurements up to VDSL2 are now possible. The higher clock rate of the DDC (option 005) is a MUST for measurement engineers and authorities who want to perform an accurate assessment of signal sources up to 30MHz. The maximum measuring range of the NF-5030 Analyser, without option 010, is 1MHz.

Order/Art.-No.: 179-1

## 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.: 778

## Calibration Resistor (DC-18GHz)

This calibration resistor is necessary for the best possible calibration of the noise floor of the Spectran V4-Analyzer.



Order/Art.-No.: 779

## 20dB SMA high-end Attenuator

Expands the measurement range to +40dBm.



Order/Art.-No.: 775

# 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
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