



Rev 2.4  
29.12.2015

# Aaronia EMC Bundles

Measurement Kits for straightforward pinpointing and measurement of interference sources

## References / examples of proof:

- ◆ EADS Deutschland GmbH, Unterschleissheim
- ◆ EnBW Kernkraftwerk GmbH, Neckarwestheim
- ◆ Siemens Healthcare, Marburg
- ◆ Universität Bern, Schweiz
- ◆ Universität Erlangen, Erlangen
- ◆ Freie Universität Berlin, Berlin
- ◆ Saarschmiede GmbH, Völklingen
- ◆ PEARL Agency GmbH, Buggingen
- ◆ Deutsches Elektronen-Synchotron DESY, Hamburg

## Included in delivery:

- ◆ Spectran NF-5030 (incl. Option 005)
- ◆ Spectran HF-60100 V4 (incl. Option 002, 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



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

- ◆ 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 PreAmps: **-170dBm** (1Hz)
- ◆ AbsMax Level: +20dBm
- ◆ AbsMax Level: **+40dBm** (Option)
- ◆ Lowest possible SampleTime: **1mS**
- ◆ Typ. accuracy: +/- 1dB\*\*
- ◆ USB 2.0 Interface
- ◆ incl. HyperLOG 60100 EMC logper antenna

## 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 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

## 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

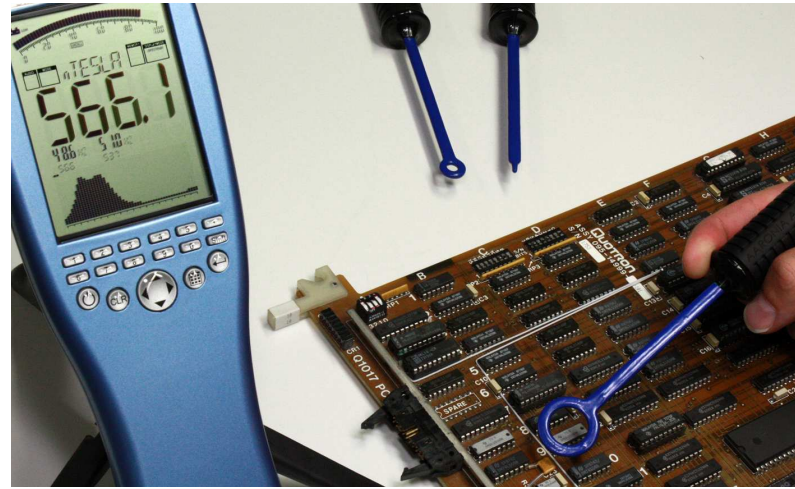
# Details

The MEASUREMENT KIT for the EMC-PRO.

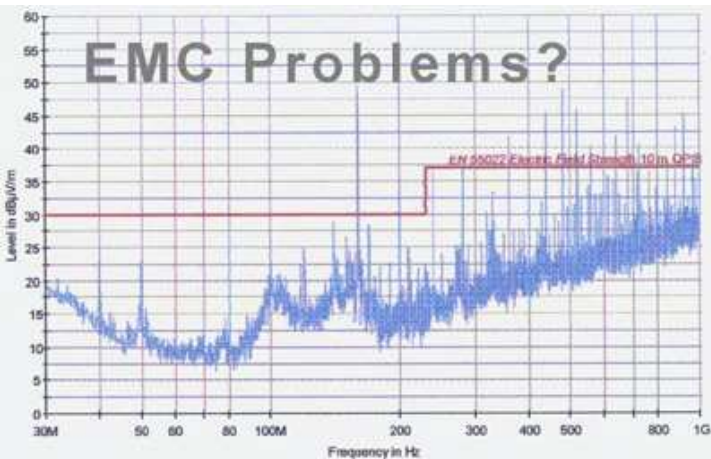
Aaronia's EMC kit allows for straightforward pinpointing and measurement of interference sources in electronic component groups as well as execution and monitoring of generic EMC measurement.

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 (incl. Option 002, 020), the HyperLOG 60100 antenna, our ProbeSet PBS2 (only EMC-Bundle 1&3) incl. PreAmp, BicoLOG 30100E (EMC-Bundle 2) or BicoLOG 20100E (EMC-Bundle 3) and lots of accessories and cables.



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



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.

Verification of official EMC limits:

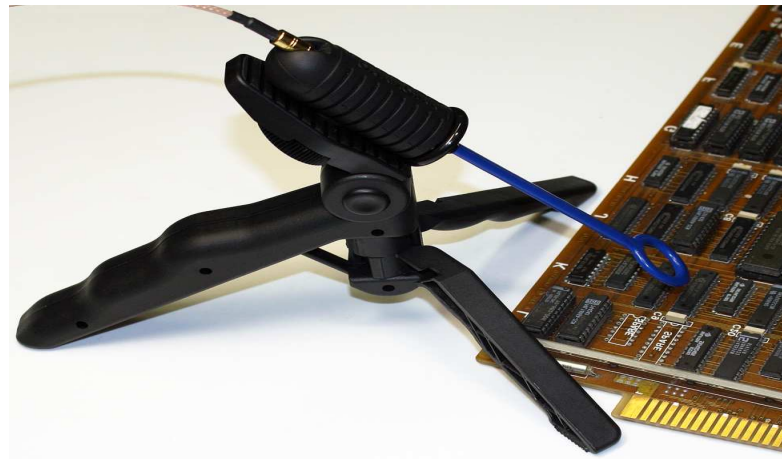
For example, should an interference source exceed an official EMC limit by 10dB, our kit can easily verify if a certain countermeasure succeeds in making the circuitry conforming again. This is another situation where the EMC kit can eliminate the need for expensive and time-consuming measurements in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

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.



Pinpointing interference sources on a circuit board

# References

## Cross-Section of Aaronia Clients

### Government, Military, Aeronautic, Astronautic

- ◆ NATO, Belgium
- ◆ Department of Defense, USA
- ◆ Department of Defense, Australia
- ◆ Airbus, Germany
- ◆ Boeing, USA
- ◆ Bundeswehr, Germany
- ◆ NASA, USA
- ◆ Lockheed Martin, USA
- ◆ Lufthansa, Germany
- ◆ DLR, Germany
- ◆ Eurocontrol, Belgium
- ◆ EADS, Germany
- ◆ DEA, USA
- ◆ FBI, USA
- ◆ BKA, Germany
- ◆ Federal Police, Germany
- ◆ Ministry of Defense, Netherlands

### Research/Development, Science and Universities

- ◆ MIT - Physics Department, USA
- ◆ California State University, USA
- ◆ Indonesien Institute of Science, Indonesia
- ◆ Los Alamos National Laboratory, 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 Institute for Radio Astronomy, Germany
- ◆ Max-Planck Institute for Quantum Optics, Germany
- ◆ Max-Planck-Institute for Nuclear Physics, Germany
- ◆ Max-Planck-Institute for Iron Research, Germany
- ◆ Research Centre Karlsruhe, Germany

### Industry

- ◆ APPLE, USA
- ◆ 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, Germany
- ◆ RTL Television, Germany
- ◆ Pro Sieben – SAT 1, Germany
- ◆ Channel 6, United Kingdom
- ◆ CNN, USA
- ◆ Duracell, USA
- ◆ German Telekom, Germany
- ◆ Bank of Canada, Canada
- ◆ NBC News, USA
- ◆ Sony, Germany
- ◆ Anritsu, Germany
- ◆ Hewlett Packard, Germany
- ◆ Robert Bosch, Germany
- ◆ Mercedes Benz, Austria
- ◆ Osram, Germany
- ◆ DEKRA, Germany
- ◆ AMD, Germany
- ◆ Keysight, China
- ◆ Infineon Technologies, Germany
- ◆ Philips Semiconductors, Germany
- ◆ Hyundai Europe, Germany
- ◆ JDSU, Korea
- ◆ Wilkinson Sword, Germany
- ◆ IBM Deutschland, Germany
- ◆ Nokia-Siemens Networks, Germany