Handheld RF Spectrum Analyzer
SPECTRAN HF-4040
Affordable Spectrum Analyzer from 100MHz - 4GHz

"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:
- BMW, München
- BASF, Schwarzheide
- Siemens AG, Nürnberg
- Vattenfall, Berlin
- Fedex, USA
- EnBW, Stuttgart
Specifications

SPECTRAN® HF-4040 Rev.3

- Frequency range: 100MHz to 4GHz*
- Typ. level range: -90dBm to 0dBm*
- Lowest possible SampleTime: 100mS
- Typ. accuracy: +/- 3dB*
- Filter bandwidth (RBW) Min: 100kHz
- Filter bandwidth (RBW) Max: 50MHz
- Vector (I/Q) / True RMS level measurement
- High performance DSP (Digital Signal Processor)
- USB 2.0 interface
- Direct RF spectrum display
- Frequency and signal strength display
- Enhanced triple multi-function display
- Advanced HOLD function
- Switchable PULS mode
- Exposure limit calculation according to DIN/VDE 0848
- AM / FM Demodulation
- DECT & TimeSlot Analyser
- Realtime PEAK power detector (option)
- Internal datalogger (64K)
- Internet software updates
- Incl. battery pack and charger
- Incl. HyperLOG 7040 EMC antenna
- Incl. aluminum carrycase
- Dimensions (L/W/D): (260x86x23) mm
- Weight: 420gr
- Warranty: 10 years

Application examples Spectran® HF-4040 Spectrum Analyzer

Analysis and measurement of:

- WLan
- UMTS
- WiFi
- active Radar
- GSM900
- GMS1800
- Bluetooth
- microwave ovens
- DECT-phones
- TETRA
- 70cm ham radio
- UWB (FB1-FB4)
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.
- **Up to 101 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, sweeptime 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!
- **Independant main display with SIMULTANEOUS display of dBm, dBµV, V/m, W/m² 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.**
The perfect analysis: Professional RF 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® 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.

**INCLUDED WITH DELIVERY**

- RF spectrum analyzer SPECTRAN HF-4040
- HyperLOG 7040 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
<table>
<thead>
<tr>
<th>Specifications base unit(1)</th>
<th>HF-2025E</th>
<th>Intermediate</th>
<th>Professional</th>
<th>Outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range (min)</strong></td>
<td>700MHz</td>
<td>100MHz</td>
<td>10MHz</td>
<td>100MHz</td>
</tr>
<tr>
<td><strong>Frequency Range (max)</strong></td>
<td>2.5GHz</td>
<td>4GHz</td>
<td>6GHz</td>
<td>8GHz</td>
</tr>
<tr>
<td><strong>Optional PEAK Power-Detector (Maximum usable frequency)</strong>(2)</td>
<td>2.5GHz</td>
<td>4GHz</td>
<td>6GHz</td>
<td>8GHz</td>
</tr>
<tr>
<td><strong>DANL (Displayed Average Noise Level)</strong>(3)</td>
<td>-80dBm</td>
<td>-90dBm</td>
<td>-135dBm(1Hz)</td>
<td>-145dBm(1Hz)</td>
</tr>
<tr>
<td><strong>DANL (Displayed Average Noise Level) with Preamp (Option 020)</strong>(3)</td>
<td>-</td>
<td>-</td>
<td>-150dBm(1Hz)</td>
<td>-160dBm(1Hz)</td>
</tr>
<tr>
<td><strong>Max Power at RF input</strong></td>
<td>0dBm</td>
<td>0dBm</td>
<td>+10dBm</td>
<td>+10dBm</td>
</tr>
<tr>
<td><strong>RBW (resolution bandwidth) (min)</strong></td>
<td>1MHz</td>
<td>100kHz</td>
<td>1kHz</td>
<td>3kHz</td>
</tr>
<tr>
<td><strong>RBW (resolution bandwidth) (max)</strong></td>
<td>50MHz</td>
<td>50MHz</td>
<td>50MHz</td>
<td>50MHz</td>
</tr>
<tr>
<td><strong>EMC-Filter 200Hz, 9kHz, 120kHz, 200kHz, 1.5MHz, 5MHz</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Demodulator</strong></td>
<td>AM</td>
<td>AM/FM</td>
<td>AM/FM</td>
<td>AM/FM/FM/GSM</td>
</tr>
<tr>
<td><strong>Detector</strong></td>
<td>RMS</td>
<td>RMS</td>
<td>RMS/MinMax</td>
<td>RMS/MinMax</td>
</tr>
<tr>
<td><strong>Units dBm, dBpV, V/m, A/m, W/m² (dBpV/m etc. via PC software)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Internal Datalogger (size). Expandable to 1MB (option 001)</strong></td>
<td>-</td>
<td>64K</td>
<td>64K</td>
<td>64K</td>
</tr>
<tr>
<td><strong>Lowest SampleTime</strong></td>
<td>100mS</td>
<td>100mS</td>
<td>10mS</td>
<td>5mS</td>
</tr>
<tr>
<td><strong>Accuracy (typical)</strong></td>
<td>+/-4dB</td>
<td>+/-3dB</td>
<td>+/-2dB</td>
<td>+/-1dB</td>
</tr>
<tr>
<td><strong>Highlights</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Real-time remote control via USB</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Calibration setup (antenna, cable, attenuator etc.)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Exposure limit calculation according to ICNIRP, EN55011, EN55022 etc.</td>
<td>ICNIRP only</td>
<td>ICNIRP only</td>
<td>ICNIRP only</td>
<td>ICNIRP only</td>
</tr>
<tr>
<td>Extended full ICNIRP range</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Suitable for pre-compliance test</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Realtime limit calculation with simultaneous percentage display</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Time-Domain and fast Zero-Span sweep</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Vector power measurement (IQ) and True RMS</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Simultaneously displays frequency and signal strength</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Up to 3 marker (showing both frequency and field strength)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jog Dial controlled manual marker readout</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Write, AVG and Hold function</td>
<td>no AVG</td>
<td>no AVG</td>
<td>✓</td>
<td>&amp; Min, Max</td>
</tr>
<tr>
<td>DECT and TimeSlotAnalyzer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Audio Level Indicator (changes audio frequency vs power level)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Free of charge firmware update (via Internet)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Supports programming of custom P-Code &amp; C++ based custom software</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>14Bit Dual-ADC &amp; DDC Hardware-Filter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>150MIPS high performance DSP (Digital Signal Processor)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Large high resolution multifunctional LCD (95mm)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Spectrum display (51x25 pixel)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High resolution 50 segment bargraph (trend display)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Enhanced, much sharper Aaronia LCD display (3d generation)</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Integrated battery charger (supports our optional LiPo battery)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Internal speaker</td>
<td>Piezo</td>
<td>Piezo</td>
<td>Piezo</td>
<td>Piezo</td>
</tr>
</tbody>
</table>

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Specifications subject to change without further notice, errors excepted. Subject to our most current terms and conditions.
SPECTRAN® HF (RF) Spectrum Analyser

APPLICATION EXAMPLES: Measurement of (active) radar, mobile communications, mobile phones, UMTS, DECT phones, transmission towers, WLAN, Wi-Fi, Bluetooth, microwaves etc.

Connectors / Interface

<table>
<thead>
<tr>
<th>Entry</th>
<th>Intermediate</th>
<th>Professional</th>
<th>Outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB 1/1.2/0</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Audio output (2.5mm jack)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Charger plug (max. 12V)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>500Ohm SMA input (f)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Jog Dial (easy usage of menu operation and volume control)</td>
<td>-</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>&quot;1/4&quot; tripod connector</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Included In Delivery

- OmniLOG 90200 Antenna
- HyperLOG EMC directional LogPer antenna (model) 7025 7040 7060 6080 60100 60100 (black)
- SPECTRAN 1300mAh rechargeable battery (integrated)
- Battery charger and power supply incl. international adapter
- Aluminum carrying case with foam protection
- Detailed English manual (on CD)
- Analyzer Software for MAC-OS, Linux and Windows (on CD)
- SMA tool
- SMA adapter

Available Options (extra charge)

- Option 001 (1MB memory expansion) harddisk
- Option 002 (high accurate 0.5ppm TCXO timebase) installed
- Option 020 (15dB internal low noise preamplifier, switchable) installed
- Option 20x (Real-time Broadband Peak Power Meter) installed
- Option UBBV1 (40dB external preamplifier 1MHz-1GHz) installed
- Option UBBV2 (40dB external preamplifier DC-8GHz) installed

Optional Accessories

- USB Cable (special EMC screened version) installed
- 3000mAh Lithium Polymer (LiPo) Power-Battery
- Car Power Adapter (operate or charge via cigarette lighter)
- Outdoor Rubber Protection (perfect for outdoor usage)
- Pistol Grip / Miniature Tripod
- Heavy Multifunctional Pistol Grip
- Aluminum Tripod (big version)
- DC-Blocker (protects the input against DC voltage)
- 20dB Attenuator (expands the measurement range by 20dB)
- PBS1 Near Field Probe Set (passive)
- PBS2 Near Field Probe Set (active, incl. UBBV2 preamplifier)
- ADP1 Active Differential Probe (conductive measurement)
- 5m or 10m low loss SMA Cable
- Calibration Resistor (needed for noise floor calibration, SMA)
- Calibration Certificate
- Heavy Plastic Carrying Case

Available Options (extra charge)

- Option 001 (1MB memory expansion) harddisk
- Option 002 (high accurate 0.5ppm TCXO timebase) installed
- Option 020 (15dB internal low noise preamplifier, switchable) installed
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**Recommended accessories for Aaronia Spectrum Analyzer**

**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.: 243*

![Heavy Plastic Carrycase PRO](image1)

**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 (esp. for directional measurement) and even fixed installation of the unit. STRONGLY recommended for PC use!
*Order/Art.-No.: 280*

![Pistol grip / miniature tripod](image2)

**Aluminum tripod**
Height adjustable, high stability. STRONGLY recommended for PC use! Max. height: 105cm.
*Order/Art.-No.: 281*

![Aluminum tripod](image3)

**Calibration Certificate**
Available for all SPECTRAN® units. With detailed calibration sheet.
*Order/Art.-No.: 784*

![Calibration Certificate](image4)

**3000mAh LiPo Power-Battery**
Offers a MUCH higher runtime of your SPECTRAN (up to 400%). Strongly recommended for autonomic measurement! The 1300mAh standard-battery will be replaced.
*Order/Art.-No.: 254*

![3000mAh LiPo Power-Battery](image5)

**USB Cable (Special Version)**
To connect your Spectran to the PC. Special version with high performance EMC-ferrite. STRONGLY recommended for PC use!
*Order/Art.-No.: 774*

![USB Cable (Special Version)](image6)

**1m / 5m / 10m SMA-Cable**
High quality special SMA cable for connecting any HyperLOG®-Antenna or BicoLOG®-Antenna with our RF Spectrum Analyzer. Available as 1m, 5m and 10m Cable. All versions: SMA plug (male) / SMA plug (male).

![1m / 5m / 10m SMA-Cable](image7)

**Car power adapter for mobile use**
With power-LED. For charging batteries or operating our units in your car, including special plug.
*Order/Art.-No.: 260*

![Car power adapter for mobile use](image8)

**Protection rubber**
Protect and personalize your SPECTRAN with a sturdy rubber case and keep it scratch-n-dent free. Allows full access to all functions.
*Order/Art.-No.: 290*

![Protection rubber](image9)

**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*

![DC-Blocker (SMA)](image10)

**Calibration Resistor (DC-18GHz)**
This calibration resistor is necessary for the best possible calibration of the noise-floor of each Spectran V4-Analyzer.
*Order/Art.-No.: 779*

![Calibration Resistor (DC-18GHz)](image11)

**20dB SMA high-end Attenuator**
Expands the measurement range to +40dBm. (ONLY SPECTRAN HF-60100 V4 and HF-XFR).
*Order/Art.-No.: 775*

![20dB SMA high-end Attenuator](image12)
### Frequency Overview SPECTRAN Spectrum Analyzer

<table>
<thead>
<tr>
<th>Hz</th>
<th>10Hz</th>
<th>100Hz</th>
<th>kHz</th>
<th>MHz</th>
<th>GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECTRAN NF-1010E</td>
<td></td>
<td></td>
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<tr>
<td>SPECTRAN NF-9020</td>
<td></td>
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<tr>
<td>SPECTRAN NF 5000 (opt. 30MHz)</td>
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<td></td>
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<tr>
<td>SPECTRAN NF 5000 (opt. 300MHz)</td>
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</tr>
</tbody>
</table>

### Frequency Overview HyperLOG and BicoLOG Antennas and Probes

<table>
<thead>
<tr>
<th>Hz</th>
<th>10Hz</th>
<th>100Hz</th>
<th>kHz</th>
<th>MHz</th>
<th>GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>HyperLOG 7025</td>
<td></td>
<td></td>
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<tr>
<td>HyperLOG 7025 X</td>
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<tr>
<td>HyperLOG 7045</td>
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<tr>
<td>HyperLOG 7045 X</td>
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<tr>
<td>HyperLOG 7065</td>
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<td>HyperLOG 6525</td>
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<td>HyperLOG 6525 X</td>
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<td>HyperLOG 6545</td>
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<td>HyperLOG 6545 X</td>
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<td>HyperLOG 6565</td>
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<tr>
<td>HyperLOG 6565 X</td>
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<tr>
<td>HyperLOG 6585</td>
<td></td>
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<tr>
<td>HyperLOG 6585 X</td>
<td></td>
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</tr>
</tbody>
</table>

### Additional Antenna Models
- Aarray EMV Brakes (555, 955)
- Aarray Active Differential Brakes (555, 955 series)

### Bandwidths
- LF, SLF, ULF, VLF, LF, MF, HF, VHF, UHF, SHF, EHF, THF
References

User of Aaronia Antennas and Spectrum Analyzers (Examples)

**Government, Military, Aeronautic, Astronautic**
- NATO, Belgium
- Boeing, USA
- Airbus, Germany
- Bund (Bundeswehr), Germany
- Bundeswehr (Technische Aufklärung), Germany
- Lufthansa, Germany
- DLR (Deutsches Zentrum für Luft- und Raumfahrt), Germany
- Eurocontrol (Flugüberwachung), Belgium
- Australian Government Department of Defence, Australia
- EADS (European Aeronautic Defence & Space Company) GmbH, Germany
- Institut für Luft- und Raumfahrtmedizin, Germany
- Deutscher Wetterdienst, Germany
- Polizeipräsidium, Germany
- Landesamt für Umweltschutz Sachsen-Anhalt, Germany
- Zentrale Polizeitechnische Dienste, Germany
- Bundesamt für Verfassungsschutz, Germany
- BEV (Bundesamt für Eich- und Vermessungswesen)

**Industry**
- Shell Oil Company, USA
- ATI, USA
- Fedex, USA
- Walt Disney, Kalifornien, USA
- Agilent Technologies Co. Ltd., China
- Motorola, Brazil
- IBM, Switzerland
- Audi AG, Germany
- BMW, Germany
- Daimler Chrysler AG, Germany
- BASF, Germany
- Deutsche Bahn, Germany
- Deutsche Telekom, Germany
- Siemens AG, Germany
- Rohde & Schwarz, Germany
- Infineon, Austria
- Philips Technologie GmbH, Germany
- ThyssenKrupp, Germany
- EnBW, Germany
- RTL Television, Germany
- Pro Sieben – SAT 1, Germany
- Channel 6, United Kingdom
- WDR, Germany
- NDR, Germany
- SWR, Germany
- Bayerischer Rundfunk, Germany
- Carl-Zeiss-Jena GmbH, Germany
- Anritsu GmbH, Germany
- Hewlett Packard, Germany
- Robert Bosch GmbH, Germany
- Mercedes Benz, Austria
- EnBW Kernkraftwerk GmbH, Germany
- AMD, Germany
- Infineon Technologies, Germany
- Intel GmbH, Germany
- Philips Semiconductors, Germany
- Hyundai Europe, Germany
- Saarschmiede GmbH, Germany
- Wilkinson Sword, Germany
- IBM Deutschland, Germany
- Vattenfall, Germany
- Fraport, Germany

**Research/Development, Science and Universities**
- Deutsches Forschungszentrum für Künstliche Intelligenz, Germany
- University Freiburg, Germany
- Indonesien Institute of Silence, Indonesia
- Max-Planck-Institut für Polymerforschung, Germany
- Los Alamos National Laboratory, USA
- University of Bahrain, Bahrain
- University of Florida, USA
- University Erlangen, Germany
- University Hannover, Germany
- University of Newcastle, United Kingdom
- University Strasbourg, France
- Universität Frankfurt, Germany
- University Munich, Germany
- Technical University Hamburg, Germany
- Max-Planck-Institut für Radioastronomie, Germany
- Max-Planck-Institut für Quantenoptik, Germany
- Max-Planck-Institut für Kernphysik, Germany
- Max-Planck-Institut für Eisenforschung, Germany
- Forschungszentrum Karlsruhe, Germany