

Rev 1.0
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Ultra Rugged Military Spectrum Analyzer SPECTRAN® NF-XFR PRO (1Hz - 20MHz)

Highlights

- ◆ Ultra robust Outdoor Spectrum Analyzer (IP65, up to -20°C) with integrated Notebook
- ◆ Extremely wide measuring range
- ◆ Extra large 15,6" Widescreen Display (Full HD, 1920x1080) with Multi-touch Screen, sunlight readable (800 Nits-QuadraClear)
- ◆ Especially suitable for use even under the most difficult conditions
- ◆ Ultra low noise level up to 200nV
- ◆ Intel i7 with 8GB RAM & integrated GPS



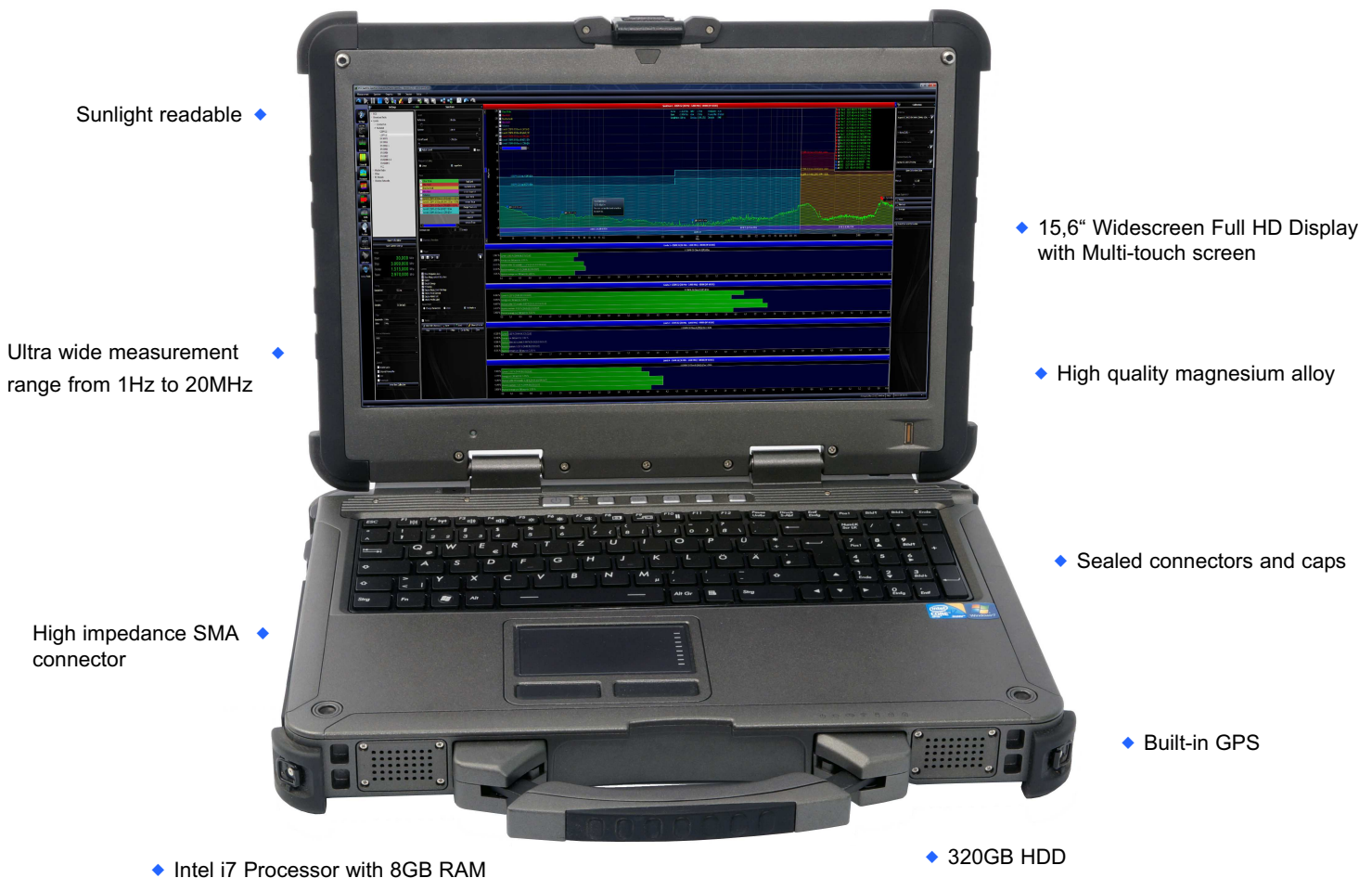
Made in Germany

BUILT TO SURVIVE

The SPECTRAN NF-XFR PRO has been specifically designed for use in harsh conditions such as for military use, aerospace, mining, construction, research and development, even in the pouring rain, extreme temperatures and extremely dusty and dirty environments.

With this Spectrum Analyzer you can master all the challenges. It provides a powerful, extremely impact resistant Outdoor notebook as well as a high-end spectrum analyzer in one compact device. The NF-XFR PRO has been independently tested in accordance with MIL-STD-810G, IP65 and MIL-STD-461F.

The analyzer is based on a novel and patented by Aaronia method of spectrum analysis. The locating of interference sources and their causes , the determination of frequency and signal strength measurement and evaluation conform to the most complex limits - all this allows the SPECTRAN NF-XFR PRO .



EMF measurement at the highest level

The XFR PRO offers a huge variety of helpful functions for spectrum analysis

- ◆ Various trigger function and unlimited number of markers
- ◆ Different views: Spectrum, Waterfall, Histogram, Limits, time domain results
- ◆ Unlimited number of limit views e.g. CISPR, EN55022, ICNIRP etc. including display of limit lines and limit bar indicators
- ◆ Multi Window Support
- ◆ Powerful undo function
- ◆ Channel and provider display
- ◆ Custom skins and color settings
- ◆ Reporting and recording function
- ◆ Storage of personal sessions

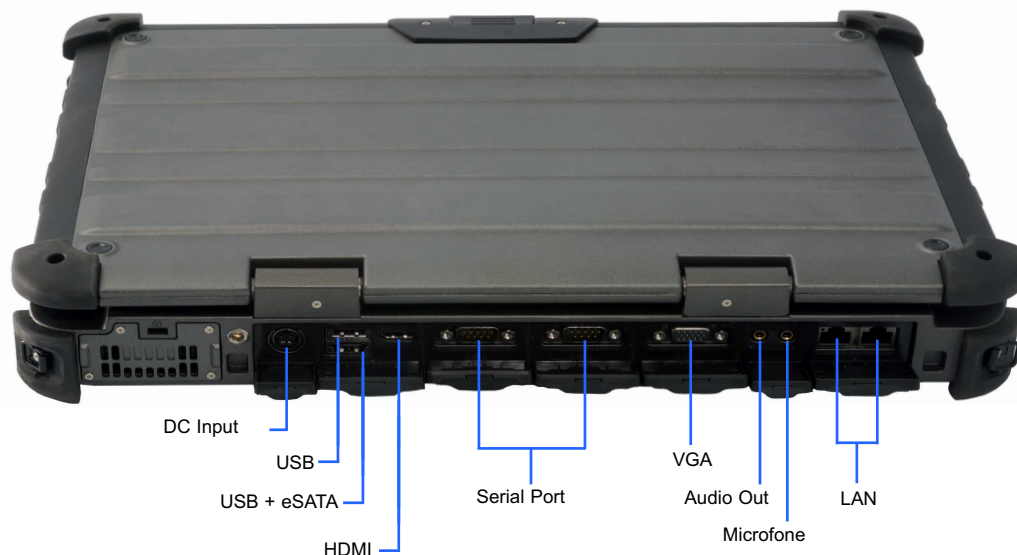
and much more ...



Unmatched Performance

The powerful and ultra-stable Spectrum Analyzer is the first outdoor Spectrum Analyser with an Intel® i7 processor with 8GB RAM, full HD multi touch-screen, integrated GPS and ultra-low noise level up to 200nV. The NF-XFR PRO is rugged and powerful at the same time.

- ◆ The thermal management system enables compliance with military standards for extreme temperatures. Simultaneously, the NF-XFR PRO offers industry-leading performance, thanks to the very latest Intel® i7 processors.
- ◆ The Turbo Boost feature increases the processor frequency to the active cores dynamically up to 3.33 GHz, and thus, the performance increase required for timely reaction to critical measurement data.
- ◆ With three USB 2.0 ports, a USB2.0/eSATA-combi-connector, two serial ports, two Ethernet ports and a VGA port - among other connections - offers the XFR a variety of interfaces to connect to the desired peripheral.





Scope of delivery

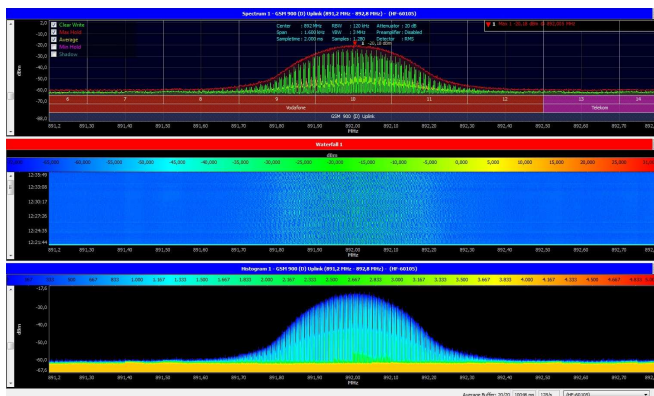
- ◆ SPECTRAN NF-XFR PRO Outdoor Spectrum Analyzer incl. Option 005 (DDC frequency filter) & 008 (20MHz frequency range)
- ◆ Rechargeable battery (installed)
- ◆ Battery charger / power supply
- ◆ English manual (on CD)

The NF-XFR PRO comes inclusive an extensive scope of delivery, depending on the necessity of the user the delivery can be extended to various additional products (see "Accessories").

Functional Overview

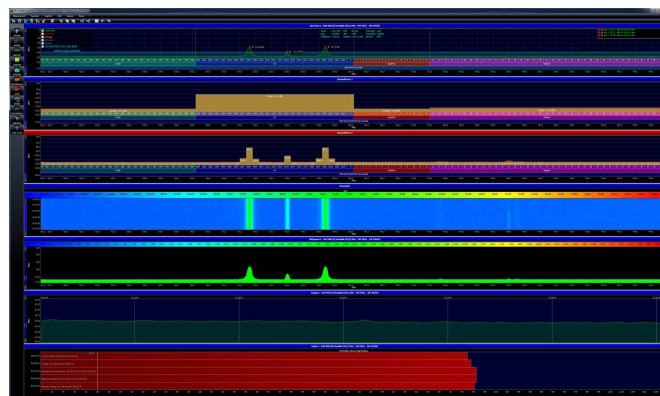
Below you will find an overview of the most important functions of the NF-XFR PRO. The software is constantly evolving, future updates are free of cost for all users.

Spectrum Analysis



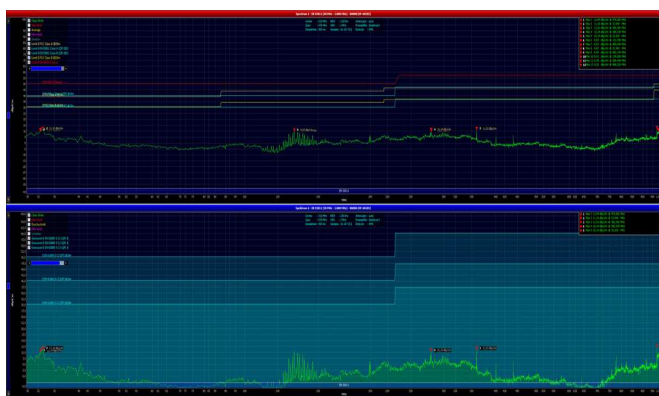
- ◆ High-resolution spectrum display of the current sweep, Average, Min / Max, Shadow, peak, RMS, etc.
- ◆ Provider display with many prestored providers, as well as an editor to edit or add Providers
- ◆ Marker function with unlimited number of different markers (min, max, delta, AVG, OBW..)
- ◆ Support of Styles and Skins, surface appearance can be adapted
- ◆ Intuitive drag and drop zoom, shortcuts etc.

Multi Window



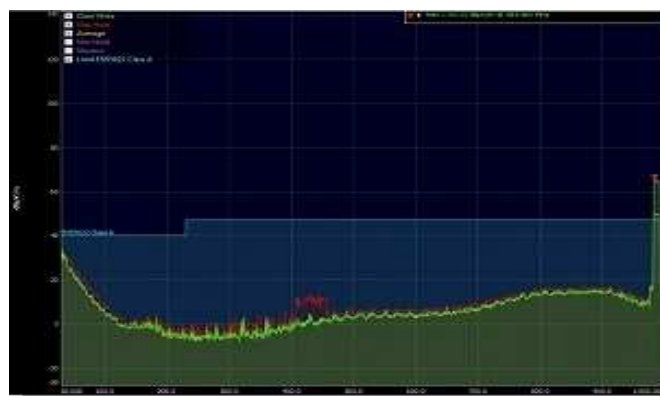
- ◆ The NF-XFR PRO supports an unlimited number of graphics (Spectrum, Waterfall, Histogram, etc.)
- ◆ The window size can be adjusted freely, therefore a full utilization of the FULL HD display is possible
- ◆ Simulate with only one NF-XFR PRO further measuring instruments to different measuring ranges

Recording & Replay Mode



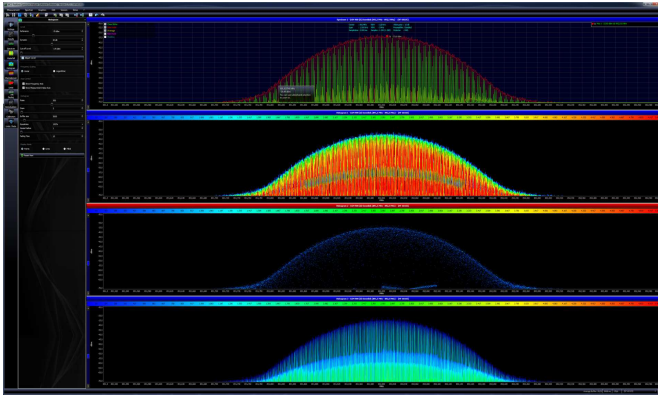
- ◆ Save your settings and complete measurements in Sessions
- ◆ Play recorded measurements in full length as often as needed with the convenient Replay function
- ◆ Print your measurement as PDF
- ◆ Export the data for further processing, eg in Excel
- ◆ Unlimited recording length allows 24/7 recordings without any "measurement gap"

Limits



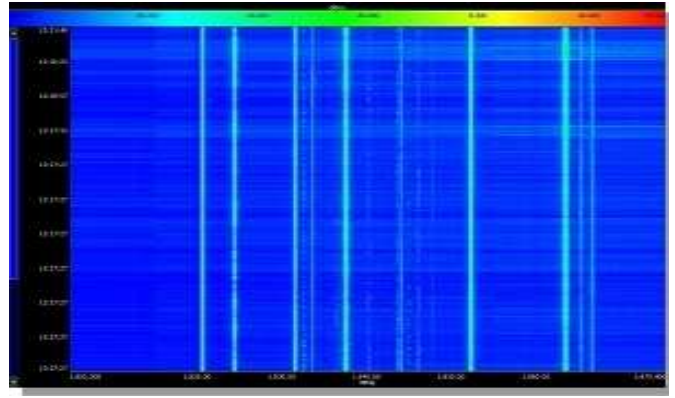
- ◆ Variety of pre-stored limits (eg EN55011, EN55022, ICNIRP...)
- ◆ Average, maximum calculation freely adjustable
- ◆ Limit editor for creating your own limits
- ◆ Trigger function, freely configurable alarm or messages when limits are exceeded
- ◆ Image suppression mode - suppression of external interference sources to perform EMC measurements without anechoic chamber

Histogram (dot, line and fill)



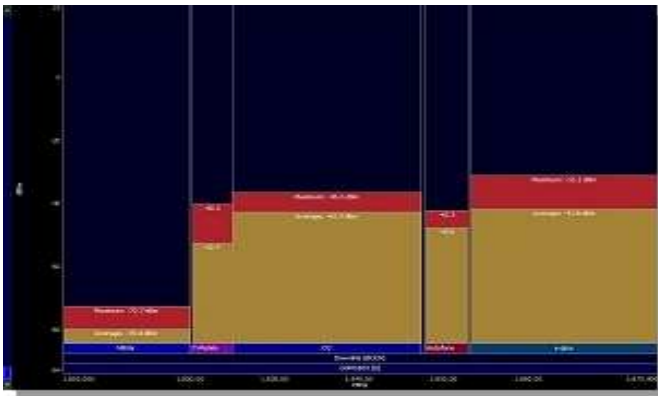
- ◆ Statistical view
- ◆ Perfect for identification and characterization of sporadically occurring events (bursts)
- ◆ Freely scalable and adaptable
- ◆ Represented as points, lines, or filled

Waterfall



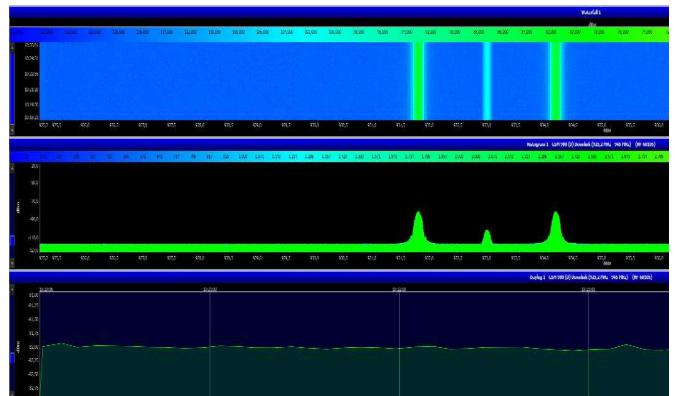
- ◆ Measurement data in the form of a "heat map" based on the frequency (X axis) and the time (Y-axis)
- ◆ Easier analysis of time-dependent signals, suitable for long-term recording
- ◆ Ongoing storage of the data to be able to recall past events by scrolling in the waterfall
- ◆ Freely scalable and adaptable

Channel Power



- ◆ Allows the measurement of the signal strength in a frequency range - a channel bandwidth
- ◆ Perfect for the analysis of Wi-Fi, 3G, LTE or ZigBee channels
- ◆ Ideal for the determination of the strongest existing provider including Provider display
- ◆ AVG & Max display
- ◆ Freely scalable and adaptable

Daylog



- ◆ Graphical trend / curve of the peak value over the entire measurement period
- ◆ Perfect for the measurement of systems in which the signal strength varies with time
- ◆ Time interval can be set freely
- ◆ Freely scalable and adaptable

Specification

Spectrum Analysis

- ◆ Frequency range: 1Hz to 20MHz (optional 30MHz)
- ◆ Typ. accuracy: 3%
- ◆ 65 MSPS
- ◆ RBW: 0,3Hz (min) to 1MHz (max)
- ◆ Demodulation: AM, FM
- ◆ Typ. range: 200nV to 200mV* / -150dBm (Hz)
- ◆ Fast FFT Spectrum Display
- ◆ Fastest Sampletime: 10ms
- ◆ High Power DSP (Signal processor)
- ◆ True RMS Measurement
- ◆ Average (AVG) Measurement
- ◆ Free Software-Updates
- ◆ Extended measurement range, full ICNIRP
- ◆ Accurate limit calculation (ICNIRP, BGV B11, BImSchV, etc.)
- ◆ Fast ZERO-SPAN Sweep
- ◆ HOLD Mode

Hardware

- ◆ Intel i7-620M (4M Cache, 2,66GHz, max. 3,33GHz with Intel Turbo Boost Technology)
- ◆ 15,6" TFT-LCD (Full-HD 1080p) with Multi-touch screen, sun-light readable (800 Nits Quadra-Clear)
- ◆ Windows 7 64 Bit Professional
- ◆ 8GB RAM
- ◆ nVidia GT 330M 1GB DDR3 graphic card
- ◆ 320GB SATA HDD
- ◆ Intelligent lithium ion battery (8700mAh)
- ◆ Membrane keyboard with integrated numeric keypad and LED backlight
- ◆ Expansion slots: 2x PCMCIA Type II, 1x ExpressCard/54, 1 x Smart Card Reader I/O interface: 2x Serial port (9-pin, D - Sub), 1x External VGA port (15-pin, D -Sub), 1x microphone, 1x audio output (mini-jack), 1x DC input, 3x USB 2.0 (4 pin), 1x USB 2.0 / eSATA combo, 2x LAN (RJ45), 1x HDMI, 1x docking connector (80 - pin)
- ◆ Communication interfaces: 10/100/1000 BASE -T Ethernet Intel Centrino Advanced-N 6200, 802.11 a/b/g/n, GPS module + Tri - Passthrough
- ◆ Safety Features: Intel vPro technology, TPM1.2, fingerprint scanner, smart card reader, Kensington Lock
- ◆ Certification robustness: MIL -STD- 810G, IP65, MIL -STD- 461F, magnesium alloy casing, shock-proof removable hard drive, protection against vibration and shocks
- ◆ Dimension & weight: 410x290x65mm, 5,5kg
- ◆ Temperature range: Operating -20 °C to +55 °C, Storage : - 40 °C to +71 °C
- ◆ Humidity: 95% relative humidity, non-condensing
- ◆ 2 years warranty

Accessories

Near field probe set (DC to 9GHz)

Passive or active Near-Field Probeset PBS1 or PBS2. Consisting of 5 Probes (4xH-Field, 1xE-Field), 40dB Preamplifier (only PBS2). Incl. Cable and transport case. Perfect for EMC near field tests.

Order/Art.-No.: 720 / 721



Active Differential Probe (DC - 30MHz)

Differential Probe for potential free measurements. Perfect for conducted tests of e.g. DSL/VDSL/ADSL lines.

Order/Art.-No.: 730



Vibration Sensor (4Hz-1kHz)

Geophone or Vibration Sensor for measurements of Vibrations of machines or boards between 4Hz to 1kHz.

Also available as spike version.

Order/Art.-No.: 710(E), 711



Vorverstärker (1Hz - 60MHz)

External low noise pre-amplifier. Available as 25dB or 35dB version with linear gain factor. Can be used via power supply or installed battery.

Order/Art.-No.: 322 / 323



1m / 5m / 10m SMA-Kabel

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



DC-Blocker (SMA)

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

Order/Art.-No.: 778



20dB Attenuator (DC -18GHz)

Expands the measurement range by 20dB.

Order/Art.-No.: 775



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)

Research/Development, Science and Universities

- ♦ Deutsches Forschungszentrum für Künstliche Intelligenz, Germany
- ♦ University Freiburg, Germany
- ♦ Indonesien Institute of Science, 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

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
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- ♦ Hyundai Europe, Germany
- ♦ Saarschmiede GmbH, Germany
- ♦ Wilkinson Sword, Germany
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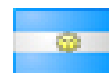
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