



Rev 2.4
19.09.2014

Military Outdoor Spectrum Analyzer SPECTRAN® NF-XFR

Worldwide first "military-standard" Spectrum Analyzer!

Highlights

- ◆ Highest performing fully rugged laptop and world's most sensitive Handheld Analyzer in one device
- ◆ Ready to go, MCS-Analyzer-Software already installed
- ◆ Ballistic Armor™ Protection System to meet or exceed real world and military standards (MIL-STD-810F)
- ◆ Built tough for tough environments



Made in Germany

Technical details

Spectrum Analyzer (based on Spectran NF-5030)

- ◆ Frequency range: 1Hz -20MHz*
- ◆ Typ. accuracy: 3%**
- ◆ **65 MSPS** (Option 005)
- ◆ Lots of options
- ◆ NEW: 30MHz Option
- ◆ Typ. level range DDC Analog in: **200nV** to 200mV / -150dBm (Hz)
- ◆ Superfast FFT/DFT spectrum analysis
- ◆ High-performance DSP (Digital Signal Processor)
- ◆ Resolution (RBW): 0,3Hz to 1MHz (1-3-10 step)
- ◆ Units: V, V/m
- ◆ Detectors: RMS, Min/Max
- ◆ Demodulator: AM, FM
- ◆ Input: High impedance SMA input (f)
- ◆ Exposure limit calculation according to DIN/VDE 0848

Notebook (based on Dell Latitude E6400XFR)

- ◆ Processor: Intel Core 2 Duo P8700 (2,53GHz, 1.066MB, 6MB)
- ◆ 14.1" WXGA (1280x800) wide-aspect transmissive display with DirectVue™ technology for outdoor readability and webcam
- ◆ Memory: 4096MB (2x2048) 800MHz DDR2 Dual Channel
- ◆ Primary Storage: 128GB Solid State Drive
- ◆ Battery: 6-cell primary battery
- ◆ Wireless: Intel WiFi Link 5100 (802.11 a/b/g/n 1X2) 1/2 MiniCard with Centrino label
- ◆ 10/100/1000 Gigabit Ethernet-network card
- ◆ Keypad: Internal English Qwertz
- ◆ Operating System: Windows 7
- ◆ Ports: IEEE - 1394, docking connector, USB 2.0 (x4), VGA, Display Port, RJ-11 (optional), RJ-45, eSATA, USB PowerShare, headphone/speaker out, mic (all protected behind sealed doors)
- ◆ Multi Media: 2 speakers
- ◆ Independently Tested to MIL-STD-810F for: 4ft Transit Drop, Aggravated Rain, Blowing Dust, Vibration, Functional Shock, Humidity, Salt Fog, Altitude, Explosive Atmosphere, Temperature Shock, and Temperature Extremes (Operating: -20°F to 145°F (-29°C to 63°C); Non-Operating: -58°F to 160°F (-50°C to 71°C))
- ◆ IP-65 Certified Protection – Dust-Tight and Protected against Pressurized Water Ingress
- ◆ UL1604 Certified for Hazardous Locations (Class 1, Division 2, Zones A, B, C, D)
- ◆ Weight: 8.5 lbs/3.9 kg
- ◆ Width: 13.9"/353.06 mm
- ◆ Depth: 10.1-11.5"/257.6-293.1 mm
- ◆ Height: 2.2"/55.88 mm

Application examples SPECTRAN® NF-XFR Spectrum Analyzer

Analysis and measurement of:

- ◆ traction power
- ◆ power lines
- ◆ power cables
- ◆ lamps
- ◆ power supplies
- ◆ transformer
- ◆ DSL
- ◆ ADSL
- ◆ VDSL
- ◆ various home appliances, industry and office up to 20/30MHz

Description



Real World Rugged

Built for tough environments, the SPECTRAN NF-XFR rises to the challenges you face every workday. The NF-XFR is built to be ready out of the box to withstand pounding rain, blowing dust and dirt, extreme temperatures, accidental drops and more.

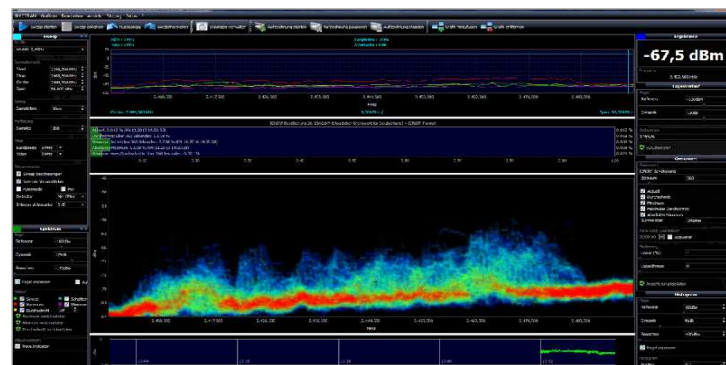
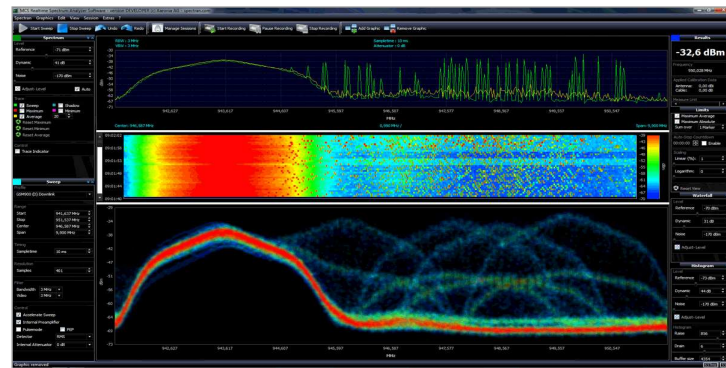
Key rugged features include:

- ◆ The exclusive Ballistic Armor Protection System featuring PR481™ chassis material provides twice the impact strength versus traditional magnesium alloy.
- ◆ The SPECTRAN NF-XFR with Ballistic Armor Protection enables excellent protection and is the first in its class to meet a 4ft drop specification.
- ◆ With PrimoSeal™ technology we provide the highest combined Ingress protection rating (IP65), for enhanced protection against blowing dust and liquid.

Software Highlights

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

- ◆ Works on all important operating systems like Windows, MAC OS and Linux
- ◆ Multi-Device capable, remote control function of several units which can be controlled simultaneously from the same PC
- ◆ Real-Time remote control with any Spectran Spectrum Analyzer
- ◆ Unlimited number of limits e.g. EN55011, EN55022, ICNIRP and more, inclusive limit lines and beam indicator as well as a special limit editor to create and save custom limits
- ◆ Multi window support
- ◆ Powerful Undo-Feature
- ◆ Customer-specific skins and color-settings
- ◆ Record and Replay function
- ◆ Advanced Trigger and alarm functions
- ◆ Unlimited number of markers
- ◆ Multiple views at the same time: Spectrum, Waterfall, Histogram, Limits, Chanelpower, Providerdisplay, Time Domain, Results...
- ◆ Personal sessions handling
- ◆ Simultaneous display of multiple units like Tesla, Gauss etc. with powerful autorange
- ◆ and many more features that are constantly evolving...



Inspired Design

SPECTRAN NF-XFR features securely sealed port covers and a wide range of key peripherals to work wherever you need it to.

- ◆ Work in direct sunlight with the large 14.1" wide-aspect LCD featuring DirectVue™ Technology LCD.
- ◆ Vehicle docking allows flexibility for police and field technicians to mount systems directly in their vehicles where they work.
- ◆ Secure, simple, locking doors with PrimoSeal™ for exceptional protection while working in wet or dusty conditions.



Uncompromising Performance

The SPECTRAN NF-XFR has brains as well as brawn.

- ◆ QuadCool™ Thermal Management System enables the XFR to meet the MIL-STD for temperature extremes and supports world-class performance, while running the latest Intel® Core™2 Duo Processors.
- ◆ Extended field use batteries equipped with ExpressCharge enables primary battery re-charge times up to 2 times faster than Panasonic CF-30.

Included in delivery

- ◆ SPECTRAN NF-XFR Outdoor Spectrum Analyzer
- ◆ SMA-Tool
- ◆ Battery
- ◆ Battery charger
- ◆ Detailed english manual



The SPECTRAN NF-XFR was built for tough environments

SPECTRAN® USB Spectrum Analyser

APPLICATION EXAMPLES: Pre-Compliance test, conductive EMC/EMI test, exposure limit measurement etc.

Specifications basic unit ⁽¹⁾	Professional				Outdoor	
	NF-5030 X	HF-6060V4 X	HF-6080V4 X	HF-60100V4 X	NF-XFR	HF-XFR
Frequency Range (min)	1Hz	10MHz	10MHz	1MHz	1Hz	1MHz
Frequency Range (max)	30MHz	6GHz	8GHz	9,4GHz	30MHz ⁽²⁾	9,4GHz
Optional PEAK Power-Detector (Maximum usable frequency) ⁽³⁾	-	6GHz	8GHz	10GHz	-	10GHz
DANL (Displayed Average Noise Level) ⁽²⁾	200nV	-135dBm(1Hz)	-145dBm(1Hz)	-155dBm(1Hz)	200nV	-155dBm(1Hz)
DANL (Displayed Average Noise Level) with Preamp (Option 020) ⁽²⁾	-	-150dBm(1Hz)	-160dBm(1Hz)	-170dBm(1Hz)	-	-170dBm(1Hz)
Max. Power at RF input	2V ⁽²⁾	+10dBm	+10dBm	+40dBm ⁽²⁾	2V ⁽²⁾	+40dBm ⁽²⁾
RBW (Resolution bandwidth) (min)	0,3Hz	10kHz	3kHz	200Hz ⁽²⁾	0,3Hz	200Hz
RBW (Resolution bandwidth) (max)	1MHz	50MHz	50MHz	50MHz	1MHz	50MHz
EMC Filter 200Hz, 9kHz, 120kHz, 200kHz, 1,5MHz, 5MHz	-	-	-	✓	-	✓
Demodulator	AM/FM	AM/FM	AM/FM/PM	AM/FM/PM/GSM	AM/FM	AM/FM/PM/GSM
Detector	RMS/MinMax	RMS/MinMax	RMS/MinMax	RMS/MinMax	RMS/MinMax	RMS/MinMax
Units dBm, dBµV, V/m, A/m, W/m² (dBµV/m, W/cm² etc. via PC software)	V, dBV	✓	✓	✓	V, dBV	✓
Lowest Sample Time	10mS	10mS	10mS	5mS	10mS	5mS
Accuracy (typical)	+/-3%	+/-2dB	+/-2dB	+/-1dB	+/-3%	+/-1dB
Highlights						
Real-time remote control via USB	✓	✓	✓	✓	internal	internal
Calibration setup (antenna, cable, attenuator etc.)	✓	✓	✓	✓	✓	✓
Exposure limit calculation according to ICNIRP, EN55011, EN55022 etc.	✓	ICNIRP only	ICNIRP only	✓	✓	✓
Extended full ICNIRP range	-	-	-	✓	-	✓
Suitable for Pre-Compliance test	✓	-	-	✓	✓	✓
Suitable for conductive EMC/EMI test	✓	-	-	✓	✓	✓
Real-time limit calculation, limit line display and limit percentage bar display	✓	✓	✓	✓	✓	✓
Time Domain and fast Zero Span sweep incl. DECT and Time Slot Analyzer	-	✓	✓	✓	-	✓
Unlimited longtime recording and playback feature	✓	✓	✓	✓	✓	✓
Simultaneously displays frequency and signal strength	✓	✓	✓	✓	✓	✓
Multiple unit handling and unlimited multiple window handling	✓	✓	✓	✓	✓	✓
Number of marker (showing frequency and field strength simultaneously)	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited
Spectrum, waterfall, persistence and level vs time display	✓	✓	✓	✓	✓	✓
Sweep, AVG, Max, Min and Hold function	✓	✓	✓	✓	✓	✓
Unlimited number of sweep points, resolution and display size	✓	✓	✓	✓	14" TFT	14" TFT
Supports programming of custom P-Code, C++ based custom software support	✓	✓	✓	✓	✓	✓
Free of charge firmware update (via Internet)	✓	✓	✓	✓	✓	✓
14Bit Dual-ADC & DDC hardware filter	-	✓	✓	✓	-	✓
150MIPS high performance DSP (Digital Signal Processor)	-	✓	✓	✓	-	✓
Vector power measurement (I/Q) and True RMS	✓	✓	✓	✓	✓	✓
Solid 3mm aluminum housing with excellent shielding performance	✓	✓	✓	✓	-	-
Integrated rechargeable battery	-	-	-	-	✓	✓
Internal speaker	✓	✓	✓	✓	✓	✓

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SPECTRAN® USB Spectrum Analyser

APPLICATION EXAMPLES: Pre-Compliance test, conductive EMC/EMI test, exposure limit measurement etc.

Connectors / Interface	Professional				Outdoor	
	NF-5030 X	HF-6060V4 X	HF-6080V4 X	HF-60100V4 X	NF-XFR	HF-XFR
50Ohm SMA input (f)	high impedance	✓	✓	✓	high impedance	✓
USB 1.1/2.0	✓	✓	✓	✓	2x	2x
Audio output (2,5mm jack)	✓	✓	✓	✓	3,5mm jack	3,5mm jack
Charger plug (max. 12V)	✓	✓	✓	✓	✓	✓
Included In Delivery						
HyperLOG EMC directional LogPer antenna (model)	-	-	-	-	-	60100 (black)
OmniLOG 90200 radial isotropic antenna	-	✓	✓	✓	-	✓
Rechargeable Battery	-	-	-	-	✓	✓
Battery charger and/or power supply incl. international adapter set	✓	✓	✓	✓	no adapter set	no adapter set
Aluminum carrying case with foam protection	✓	✓	✓	✓	-	-
Detailed English manual (on CD)	✓	✓	✓	✓	installed	installed
Analyzer Software for MAC-OS, Linux and Windows (on CD)	✓	✓	✓	✓	installed	installed
1m SMA Cable	-	-	-	-	-	✓
SMA Tool	✓	✓	✓	✓	✓	✓
USB Cable (special EMC screened version)	✓	✓	✓	✓	installed	installed
Available Options (extra charge)						
Option 002 (high accurate 0,5ppm TCXO timebase)	-	-	-	✓	-	installed
Option 005 (12Bit DDC for ultra high sensitivity)	✓	-	-	-	installed	-
Option 008 (20MHz frequency expansion. New range: 1Hz-20MHz)	✓	-	-	-	installed	-
Option 010 (30MHz frequency expansion. New range: 1kHz-30MHz)	✓	-	-	-	✓	-
Option 020 (15dB internal low noise preamplifier, switchable)	-	✓	✓	✓	-	installed
Option 20x (Real-time Broadband Peak Power Meter)	-	✓	✓	✓	-	✓
Option UBBV1 (40dB external preamplifier 1MHz-1GHz)	-	✓	✓	✓	-	✓
Option UBBV2 (40dB external preamplifier DC-8GHz)	✓	✓	✓	✓	✓	✓
Optional Accessories						
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)	✓	-	-	✓	✓	✓
GEO10 Vibrationsensor (4Hz-1kHz)	✓	-	-	-	✓	-
GEO14 Vibrationsensor (10Hz-1kHz)	✓	-	-	-	✓	-
5m or 10m low loss SMA cable	-	✓	✓	✓	-	✓
Calibration Resistor (for noise floor calibration, SMA)	-	✓	✓	✓	-	✓
Calibration Certificate	-	✓	✓	✓	-	✓

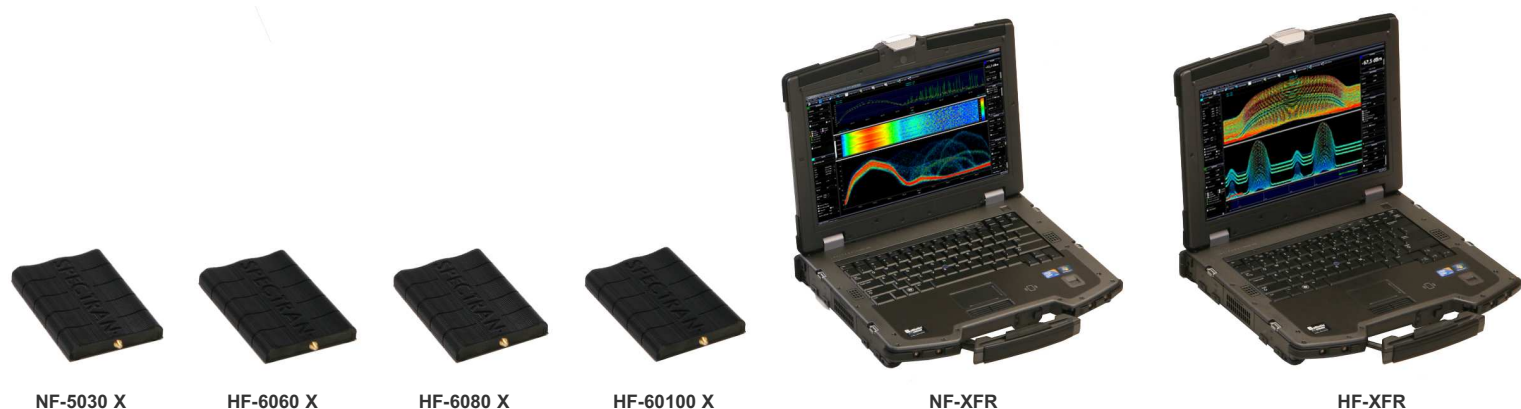
⁽¹⁾ The new V5 real-time spectrum analyser generation up to 80GHz is already in development. Please contact us for further details!

Preliminary specifications dated 15.03.2013. The V4 and HF-XFR series are available with latest Beta firmware. The Beta firmware is constantly in development. Some functionality may still be limited and not fully to specifications (Beta status). By regularly checking our homepage for updates, you can always keep your measurement device up-to-date. As soon as V1.0 of the firmware is released, all functionality and features will be fully available. Range, sensitivity and accuracy can change depending on frequency, setup, antenna and used parameters. Precision datas are based on Aaronias calibration-reference under specific test conditions. Unless otherwise stated, these specifications are according to the following reference conditions: Ambient temperature 22±3°C, relative air humidity 40% to 60%, continuous wave signal (CW), RMS detection.

⁽²⁾ V4 DANL @3,6009GHz. V4 internal: +20dBm. V4 external (with optional 20dB attenuator): +40dBm. V4 standard: 1kHz. Only with option 002 down to 200Hz.

NF standard: 1MHz. Only with option 010 up to 30MHz. NF standard: 200mV. Only with optional 20dB Attenuator up to 2V.

⁽³⁾ Depending on frequency the option 20x offers a sensitivity down to -50dBm and max. +10dBm, with optional 20dB attenuator +30dBm.



NF-5030 X

HF-6060 X

HF-6080 X

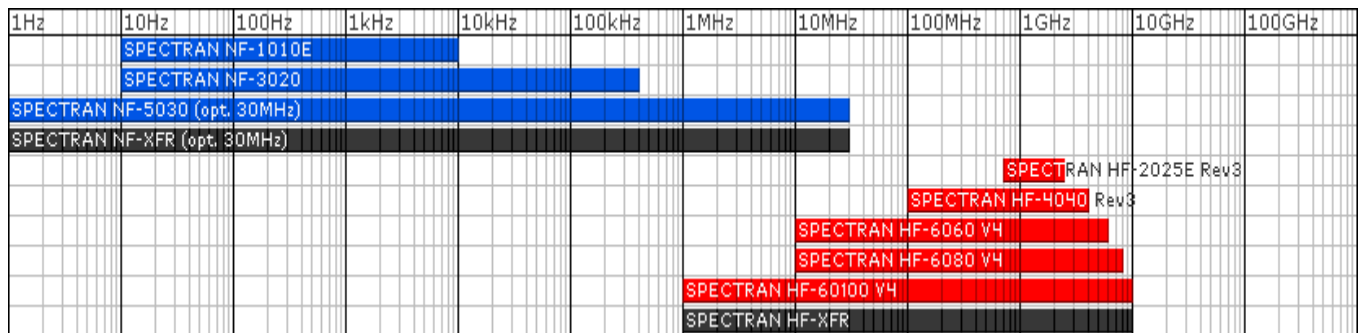
HF-60100 X

NF-XFR

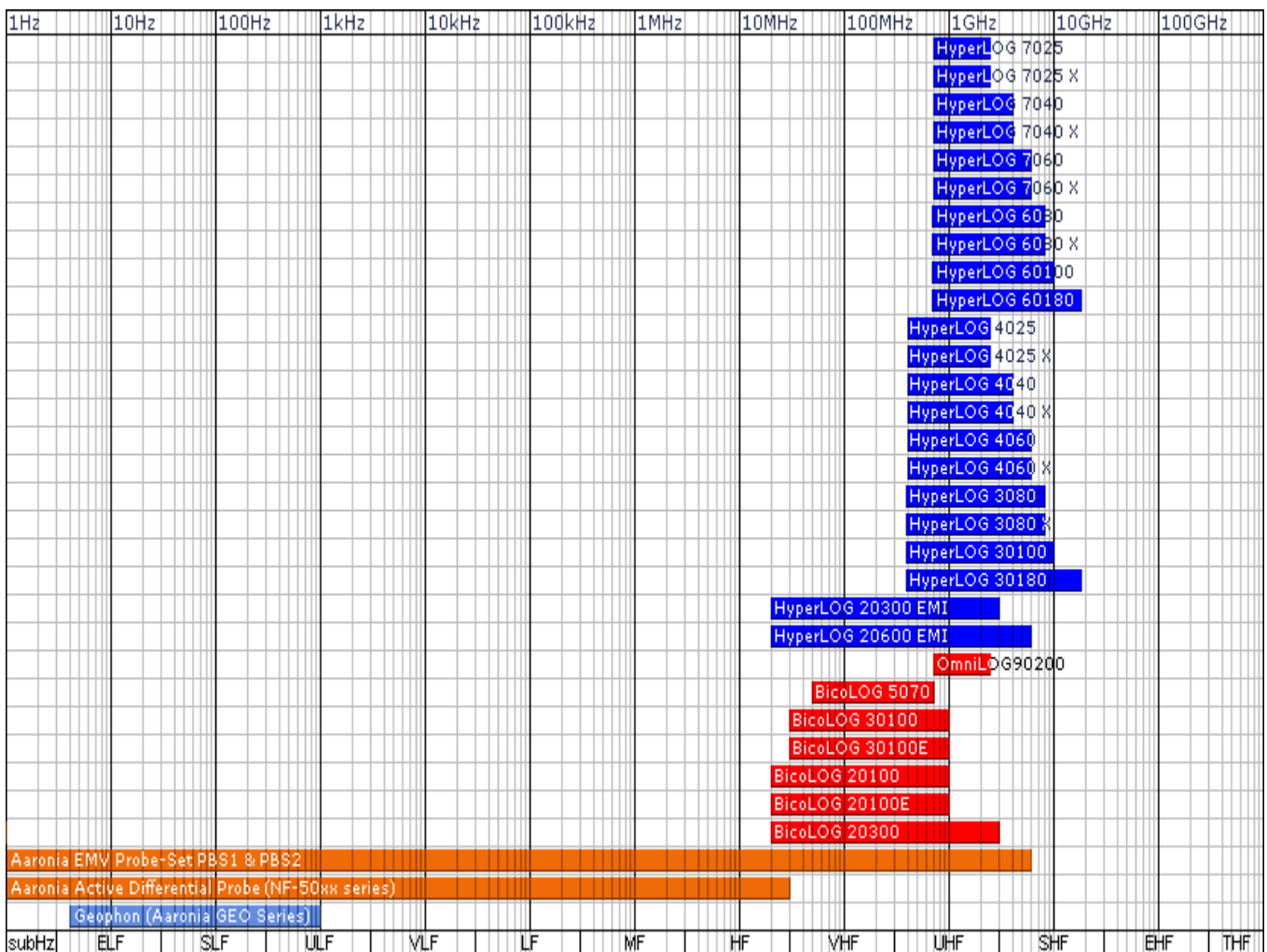
HF-XFR

Frequency overview Analyzer & Antennas

Frequency Overview SPECTRAN Spectrum Analyzer



Frequency Overview HyperLOG and BicoLOG Antennas and Probes



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 Universitys

- ♦ Deutsches Forschungszentrum für Künstliche Intelligenz, Germany
- ♦ University Freiburg, Germany
- ♦ Indonesien Institute of Sience, Indonesia
- ♦ Max-Planck-Institut für Polymerforschung, Germany
- ♦ Los Alamos National Labratory, 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
- ♦ 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
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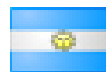
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