SPECTRAN® NF (EMF) Spectrum Analyser

APPLICATION EXAMPLES: Traction power, power lines and cables incl. harmonics, transformer, switching power supplies, RFID, TFTs, DSL etc. Various appliances in home and office.

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Specifications base unit[1]	Entrance		Intermediate		Professional		Outdoor
	NF-1010	NF-1010E	NF-3010	NF-3020	NF-5010	NF-5030	NF-XFR
Frequency Range (min)	10Hz	10Hz	10Hz	10Hz	1Hz	1Hz	1Hz
Frequency Rance (max)	2kHz	10kHz	100kHz	400kHz	1MHz	30MHz[2]	30MHz[2]
Electric field [V/m] (min) (typical)	1V/m	1V/m	1V/m	1V/m	1V/m	0,1V/m[2]	see opt. PBS2
Electric field [V/m] (max) (typical)	2.000V/m	2.000V/m	5.000V/m	5.000V/m	5.000V/m	20kV/m	see opt. PBS2
Magnetic field [Tesla] (min (typical)	10nT	10nT	1nT	1nT	1nT	1pT[2]	see opt. PBS2
Magnetic field [Tesla] (max) typical	100µT	100µT	100µT	100µT	100µT	2mT[1]	see opt. PBS2
Magnetic field [Gauss] (min (typical)	100µG	100µG	10µG	10µG	10µG	10nG[2]	see opt. PBS2
Magnetic field [Gauss] (max) typical	1G	1G	1G	1G	1G	20G[1]	see opt. PBS2
Analog input [V] (min) typical	-	-	-	2µV	2µV	200nV[2]	200nV[2]
Analog input [V] (max) typical	-	-	-	200mV	200mV	2V[2]	2V[2]
RBW (resolution bandwidth) (min)	1Hz	1Hz	1Hz	1Hz	1Hz	0,3Hz	0,3Hz
RBW (resolution bandwidth) (max)	1kHz	3kHz	30kHz	100kHz	300kHz	1MHz	1MHz
Demodulator	-	-	AM	AM	AM/FM	AM/FM	AM/FM
Units (additional units via PC software)	V/m, T, G	V/m, T, G	V/m, T, G	V, V/m, T, G	V, V/m, T, G, A/m	V, V/m, T, G, A/m	V, dBV
Detector	RMS	RMS	RMS/MinMax	RMS/MinMax	RMS/MinMax	RMS/MinMax	RMS/MinMax
Internal Datalogger (size). Expandable to 1MB (option 001)	-	-	64K	64K	64K	64K	harddisk
FFT resolution (points)	64	64	64	64	1024	1024	1024
Lowest Sample Time	50mS	50mS	50mS	50mS	10mS	10mS	10mS
Accuracy (typical)	5%	5%	5%	5%	3%	3%	3%
Highlights							
Real-time remote control via USB	-	✓	✓	✓	✓	✓	internal
Integrated electric (E) & isotropic magnetic (H) sensor/antenna	✓	✓	✓	✓	✓	✓	-
3D, 2D or 1D mode switchable (only magnetic field sensor)	-	✓	✓	✓	✓	✓	✓
Calibration setup (selected antenna)	✓	✓	✓	✓	✓	✓	✓
Exposure limit calculation according to ICNIRP, BGV B11, BlmSchV etc.	-	✓	✓	✓	✓	✓	✓
Extended full ICNIRP range	-	-	-	-	-	✓	✓
Suitable for Pre-Compliance test	-	-	-	-	-	✓	✓
Real-time limit calculation with simultaneous percentage display	-	✓	✓	✓	✓	✓	Analyzer sw
Vector power measurement (I/Q) and True RMS	-	-	✓	✓	✓	✓	✓
Enhanced DFT spectrum analysis	-	✓	✓	✓	✓	✓	✓
Simultaneously displays frequency and signal strength	-	-	✓	✓	✓	✓	Analyzer sw
Up to 3 marker (showing both frequency and field strength)	-	✓	✓	✓	✓	✓	unlimited
Jog Dial controlled manual marker readout	-	-	✓	✓	✓	✓	key & touchpad
Linear or logarithmic spectrum display (log10, log100, log1000)	-	✓	✓	✓	✓	✓	unlimited
Automatic reference level adjustment (switchable)	-	✓	✓	✓	✓	✓	✓
Hold function	-	✓	✓	✓	✓	✓	unlimited
Free of charge firmware update (via Intenet)	-	✓	✓	✓	✓	✓	✓
Supports programming of custom P-Code & C++ based custom software	-	-	✓	✓	✓	✓	✓
High performance DSP (Digital Signal Processor)	✓	✓	✓	✓	✓	✓	✓
Large, high resolution multifunctional LCD (95mm)	✓	✓	✓	✓	✓	✓	14" TFT
Spectrum display (51x25 pixel)	✓	✓	✓	✓	✓	✓	Analyzer sw
High resolution 50 segment bargraph (trend display)	✓	✓	✓	✓	✓	✓	Analyzer sw
Enhanced, much sharper Aaronia LCD display (3d generation)	-	-	-	-	-	✓	14" TFT
Integrated battery charger (supports our optional LiPo battery)	✓	✓	✓	✓	✓	✓	XFR charger
Internal speaker	Piezo	Piezo	✓	✓	✓	✓	✓

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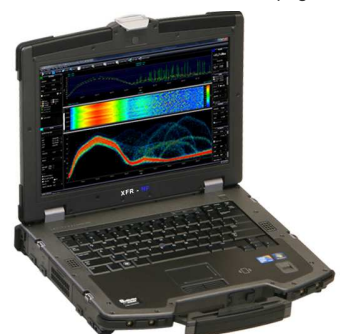NF-1010 NF-1010E NF-3010 NF-3020 NF-5010 NF-5030 NF-XFR

SPECTRAN® NF (EMF) Spectrum Analyser

APPLICATION EXAMPLES: Traction power, power lines and cables incl. harmonics, transformer, switching power supplies, RFID, TFTs, DSL etc. Various appliances in home and office.

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	Entrance		Intermediate		Professional		Outdoor
Connectors / Interface	NF-1010	NF-1010E	NF-3010	NF-3020	NF-5010	NF-5030	NF-XFR
SMA input (f) with high impedance	-	-	-	✓	✓	✓	✓
USB 1.1/2.0	-	✓	✓	✓	✓	✓	2x
Audio output (2,5mm jack)	✓	✓	✓	✓	✓	✓	3,5mm jack
Charger plug (max. 15V)	✓	✓	✓	✓	✓	✓	✓
Jog Dial (easy usage of menu, marker and volume control)	-	-	✓	✓	✓	✓	key & touchpad
1/4" tripod connector	✓	✓	✓	✓	✓	✓	in-Vehicle docking
Included In Delivery							
Integrated electric (E) & isotropic magnetic (H) sensor/antenna	✓	✓	✓	✓	✓	✓	-
SPECTRAN 1300mAh rechargable battery (integrated)	✓	✓	✓	✓	✓	✓	6 cell battery
Battery charger and power supply incl. international adapter set	✓	✓	✓	✓	✓	✓	no adapter set
Aluminum carrying case with foam protection	✓	✓	✓	✓	✓	✓	-
Detailed English manual (on CD)	✓	✓	✓	✓	✓	✓	installed
Analyzer Software for MAC-OS, Linux and Windows (on CD)	-	✓	✓	✓	✓	✓	installed
SMA tool	-	-	-	-	-	✓	✓
Available Options (extra charge)							
Option 001 (1MB memory expansion)	-	-	-	-	✓	✓	harddisk
Option 005 (12Bit DDC for ultra high sensitivity)	-	-	-	-	-	✓	installed
Option 006 (Isotropic static magnetic field sensor)[1]	-	-	-	-	-	✓	-
Option 008 (20MHz expansion. New range: 1Hz-20MHz)	-	-	-	-	-	✓	installed
Option 009 (24Bit resolution for Option 006)	-	-	-	-	-	✓	-
Option 010 (30MHz expansion. New range: 1KHz-30MHz)	-	-	-	-	-	✓	✓
Option UBBV2 (40dB external preamplifier DC-8GHz)	-	-	-	-	-	✓	✓
Optional Accessories							
USB Cable (Special 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	✓	✓	✓	✓	✓	✓	-
Aluminum Tripod (big version)	✓	✓	✓	✓	✓	✓	-
DC-Blocker (protects the input against DC voltage)	-	-	-	-	-	✓	✓
20dB Attenuator (offers a higher maximum voltage up to 2V)	-	-	-	-	-	✓	✓
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)	-	-	-	-	-	✓	✓
Calibration Certificate	✓	✓	✓	✓	✓	✓	✓
Heavy Plastic Carrying Case	✓	✓	✓	✓	✓	✓	-

[1] Preliminary specifications dated 01.02.2011. The NF and 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. Option 006 offers a range of 100µG-6G (10nT-600µT). You can "zero" the static field sensor (Option 006) by using our "Zero Gauss" chamber.

[2] NF standard: 1MHz. Only with option 010 up to 30MHz. NF standard: 1nT. Only with option 005 down to 1pT. NF standard 2µV. Only with option 005 down to 200nV. NF standard: 200mV. Only with optional 20dB Attenuator up to 2V.

NF-1010   NF-1010E   NF-3010   NF-3020   NF-5010   NF-5030   NF-XFR

SPECTRAN® HF (RF) Spectrum Analyser

APPLICATION EXAMPLES: Measurement of (active) radar, mobile communications, mobile phones, UMTS, DECT phones, transmission towers, WLan, Wifi, Bluetooth, microwaves etc.

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Specifications base unit[1]	Entrance	Intermediate		Professional			Outdoor
	HF-2025E	HF-4040	HF-4060	HF-6060V4	HF-6080V4	HF-60100V4	HF-XFR
Frequency Range (min)	700MHz	100MHz	100MHz	10MHz	10MHz	1MHz	1MHz
Frequency Rance (max)	2,5GHz	4GHz	6GHz	6GHz	8GHz	9,4GHz	9,4GHz
Optional PEAK Power-Detector (Maximum usable frequency)[3]	2,5GHz	4GHz	6GHz	6GHz	8GHz	10GHz	10GHz
DANL (Displayed Average Noise Level)[2]	-80dBm	-90dBm	-90dBm	-135dBm(1Hz)	-145dBm(1Hz)	-155dBm(1Hz)	-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	0dBm	0dBm	0dBm	+10dBm	+10dBm	+40dBm[2]	+40dBm[2]
RBW (resolution bandwidth) (min)	1MHz	100kHz	100kHz	10kHz	3kHz	200Hz[2]	200Hz[2]
RBW (resolution bandwidth) (max)	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz
EMC-Filter 200Hz, 9kHz, 120kHz, 200kHz, 1,5MHz, 5MHz	-	-	-	-	-	✓	✓
Demodulator	AM	AM/FM	AM/FM	AM/FM	AM/FM/PM	AM/FM/FM/GSM	AM/FM/FM/GSM
Detector	RMS	RMS	RMS	RMS/MinMax	RMS/MinMax	RMS/MinMax	RMS/MinMax
Units dBm, dBµV, V/m, A/m, W/m² (dBµV/m etc. via PC software)	✓	✓	✓	✓	✓	✓	✓
Internal Datalogger (size). Expandable to 1MB (option 001)	-	64K	64K	64K	64K	64K	harddisk
Lowest SampleTime	100mS	100mS	100mS	10mS	10mS	5mS	5mS
Accuracy (typical)	+/-4dB	+/-3dB	+/-3dB	+/-2dB	+/-2dB	+/-1dB	+/-1dB
Highlights							
Real-time remote control via USB	✓	✓	✓	✓	✓	✓	internal
Calibration setup (antenna, cable, attenuator etc.)	✓	✓	✓	✓	✓	✓	✓
Exposure limit calculation according to ICNIRP, EN55011, EN55022 etc.	ICNIRP only	ICNIRP only	ICNIRP only	ICNIRP only	ICNIRP only	✓	✓
Extended full ICNIRP range	-	-	-	-	-	✓	✓
Suitable for pre-compliance test	-	-	-	-	-	✓	✓
Realtime limit calculation with simultaneous percentage display	-	✓	✓	✓	✓	✓	Analyzer sw
Time-Domain and fast Zero-Span sweep	-	-	-	✓	✓	✓	✓
Vector power measurement (I/Q) and True RMS	-	✓	✓	✓	✓	✓	✓
Simultaneously displays frequency and signal strength	✓	✓	✓	✓	✓	✓	Analyzer sw
Up to 3 marker (showing both frequency and field strength)	-	✓	✓	✓	✓	✓	unlimited
Jog Dial controlled manual marker readout	-	✓	✓	✓	✓	✓	key & touchpad
Write, AVG and Hold function	no AVG	no AVG	no AVG	✓	✓	✓	& Min, Max
DECT and TimeSlot Analyzer	✓	✓	✓	✓	✓	✓	✓
Audio Level Indicator (changes audio frequency vs power level)	-	-	-	✓	✓	✓	-
Free of charge firmware update (via Intenet)	✓	✓	✓	✓	✓	✓	✓
Supports programming of custom P-Code & C++ based custom software	-	✓	✓	✓	✓	✓	✓
14Bit Dual-ADC & DDC Hardware-Filter	-	-	-	✓	✓	✓	✓
150MIPS high performance DSP (Digital Signal Processor)	-	-	-	✓	✓	✓	✓
Large high resolution multifunctional LCD (95mm)	✓	✓	✓	✓	✓	✓	14" TFT
Spectrum display (51x25 pixel)	✓	✓	✓	✓	✓	✓	Analyzer sw
High resolution 50 segment bargraph (trend display)	✓	✓	✓	✓	✓	✓	Analyzer sw
Enhanced, much sharper Aaronia LCD display (3d generation)	-	-	-	✓	✓	✓	14" TFT
Integrated battery charger (supports our optional LiPo battery)	✓	✓	✓	✓	✓	✓	XFR charger
Internal speaker	Piezo	✓	✓	✓	✓	✓	✓

HF-2025E HF-4040 HF-4060[3] HF-6060 V4 HF-6080 V4 HF-60100 V4 HF-XFR

SPECTRAN® HF (RF) Spectrum Analyser

APPLICATION EXAMPLES: Measurement of (active) radar, mobile communications, mobile phones, UMTS, DECT phones, transmission towers, WLan, Wifi, Bluetooth, microwaves etc.

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	Entrance	Intermediate		Professional			Outdoor
Connectors / Interface	HF-2025E	HF-4040	HF-4060	HF-6060V4	HF-6080V4	HF-60100V4	HF-XFR
USB 1.1/2.0	✔	✔	✔	✔	✔	✔	2x
Audio output (2,5mm jack)	✔	✔	✔	✔	✔	✔	3,5mm jack
Charger plug (max. 12V)	✔	✔	✔	✔	✔	✔	✔
50Ohm SMA input (f)	✔	✔	✔	✔	✔	✔	✔
Jog Dial (easy usage of menu operation and volume control)	-	✔	✔	✔	✔	✔	key & touchpad
1/4" tripod connector	✔	✔	✔	✔	✔	✔	in-Vehicle docking
Included In Delivery							
Miniature SMA rod sniffer antenna	✔	✔	✔	-	-	-	OmniLOG 90200
HyperLOG EMC directional LogPer antenna (model)	7025	7040	7060	7060	6080	60100	60100 (black)
SPECTRAN 1300mAh rechargeable battery (integrated)	✔	✔	✔	✔	✔	✔	6 cell battery
Battery charger and power supply incl. international adapter sit	✔	✔	✔	✔	✔	✔	no adapter set
Aluminum carrying case with foam protection	✔	✔	✔	✔	✔	✔	-
Detailed English manual (on CD)	✔	✔	✔	✔	✔	✔	installed
Analyzer Software for MAC-OS, Linux and Windows (on CD)	✔	✔	✔	✔	✔	✔	installed
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)	✔	✔	✔	✔	✔	✔	✔
Option UBBV1 (40dB external preamplifier 1MHz-1GHz)	-	-	-	✔	✔	✔	✔
Option UBBV2 (40dB external preamplifier DC-8GHz)	-	-	-	✔	✔	✔	✔
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	✔	✔	✔	✔	✔	✔	-

[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 01.02.2011. The V4 and 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. V4 and XFR DANL @5,555GHz. Maximum sensitivity of Rev.3 units: -90dBm @2,2GHz.
[2] Standard: +20dBm. Only with optional 20dB attenuator +40dBm. Standard: 1kHz. Only with option 002 down to 200Hz.
[3] Depending on frequency the option 20x offers a sensetivity down to -50dBm and max. +10dBm, with optional 20dB attenuator +30dBm.
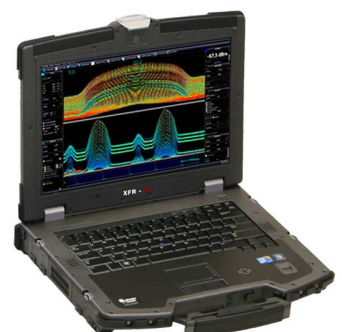
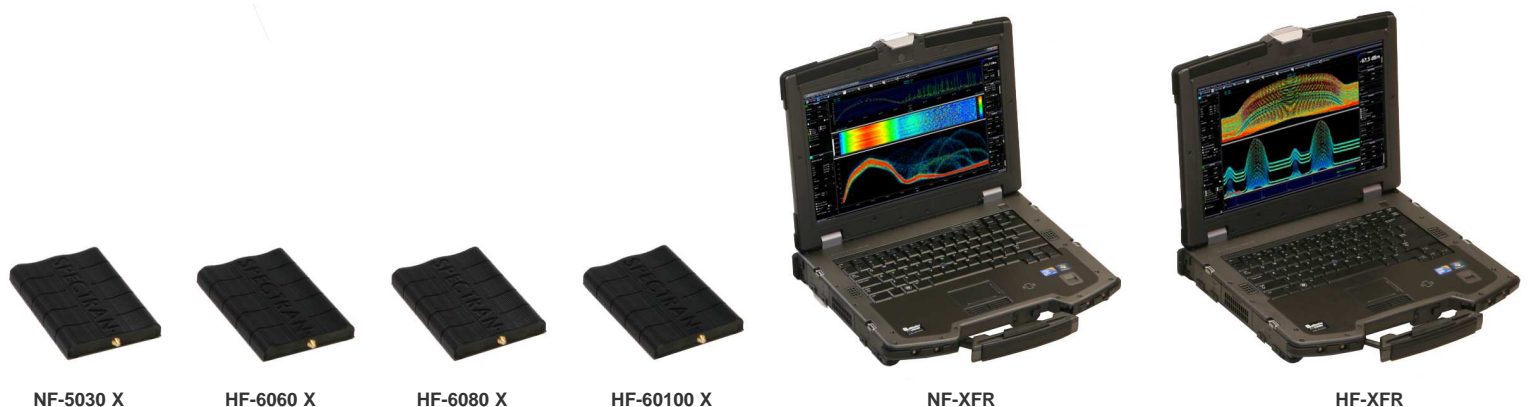HF-2025E HF-4040 HF-4060 HF-6060 V4 HF-6080 V4 HF-60100 V4 HF-XFR

SPECTRAN® USB Spectrum Analyser

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

		Professional			Outdoor	
Specifications basic unit[1]	**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, persistance 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 Intenet)	✓	✓	✓	✓	✓	✓
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 rechargable battery	-	-	-	-	✓	✓
Internal speaker	✓	✓	✓	✓	✓	✓

NF-5030 X   HF-6060 X   HF-6080 X[3]   HF-60100 X   NF-XFR   HF-XFR

SPECTRAN® USB Spectrum Analyser

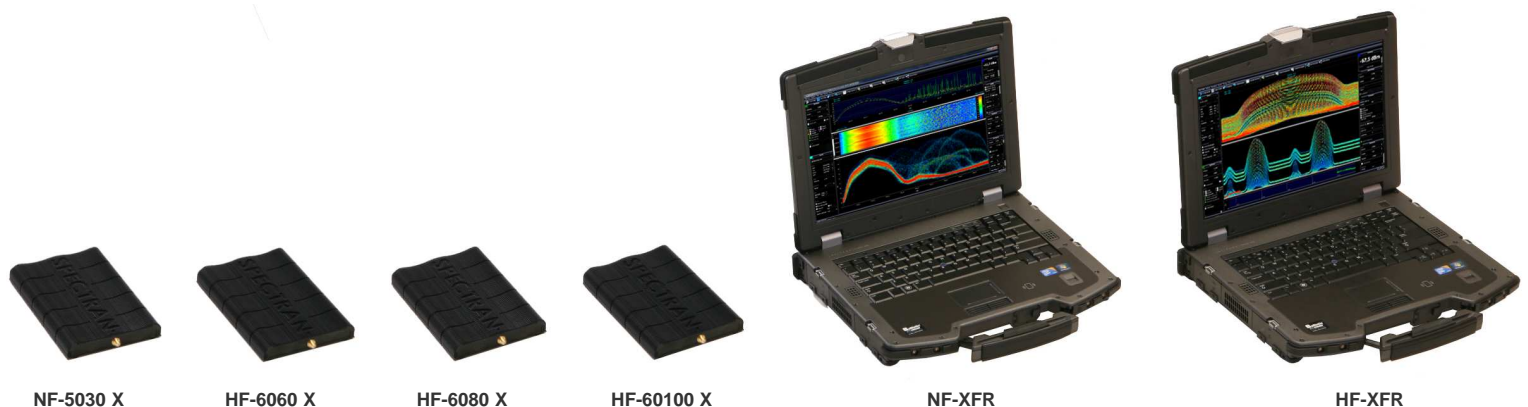APPLICATION EXAMPLES: Pre-Compliance test, conductive EMC/EMI test, exposure limit measurement etc.

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	NF-5030 X	HF-6060V4 X	HF-6080V4 X	HF-60100V4 X	NF-XFR	HF-XFR
Connectors / Interface		Professional			Outdoor	
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	-	✓	✓	✓	-	✓
Rechargable 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 01.02.2011. The NF, V4 and 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 @5,555GHz. 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 sensetivity 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 |

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

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

Aluminum tripod

Height adjustable, high stability. STRONGLY recommended for PC use! Max. height: 105cm.

Order/Art.-No.: 281

Calibration Certificate

Available for all SPECTRAN® units. With detailed calibration sheet.

Order/Art.-No.: 784

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

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).

2200mAh battery

Offers a MUCH higher runtime of your SPECTRAN (up to 50%). Strongly recommended for autonomic measurement! The 1300mAh standard-battery will be replaced.

Order/Art.-No.: 253

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

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

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 each Spectran V4-Analyzer.

Order/Art.-No.: 779

20dB SMA high-end Attenuator

Expands the measurement range to +40dBm. (ONLY SPECTRAN HF-60100 V4 and HF-XFR).

Order/Art.-No.: 775

Options for Spectran Spectrum Analyzers

OPTIONS HF (RF) SPECTRUM ANALYZER

Option 001: 1MB memory expansion *Order/Art.-No.: 180*

This memory expansion is a MUST-HAVE particularly when using the data logger, as the standard capacity can quickly become exhausted in this mode. The memory expansion provides space for more than 10,000 logs, while the standard memory will only accomodate approximately 100 of them.
Standard memory size is 64K.

Option 020: 15dB low-noise preamplifier *Order/Art.-No.: 177*

This option provides an internal, super low-noise 15dB preamplifier, enabling maximum performance particularly when measuring extremely weak signals. It is switched via a TRUE RF switch. There really is no excuse for not ordering this one, considering its very attractive price!

Option 002: 0.5ppm TCXO timebase *Order/Art.-No.: 181*

This highly precise TCXO timebase, which has been especially developed for the SPECTRAN, offers significantly reduced phase noise (jitter). This will allow the use of far narrower filters (in development), which will in turn vastly enhance sensitivity. To fully exploit the maximum sensitivity of the HF-60100 V4, this option is indispensable! Furthermore, the TXCO timebase allows far more accurate frequency measurement and display and is therefore a MUST-HAVE for future applications like time-domain measurements or code-selective measurement of UMTS, all already in development.
The standard accuracy WITHOUT option 002 is 50ppm.

Option 20x 2,5GHz / 4GHz / 6GHz / 8GHz / 10GHz Peak Power-Meter *Order/Art.-No.: 182-x*

A 2.5 to 10GHz peak power meter (5 versions depending on the SPECTRAN model, see price list). This option augments your SPECTRAN® with a power meter with up to 10GHz of bandwidth. Furthermore, it allows exact measurement of signal peaks with high crest factor like those occuring in WLAN technology, or extremely short signals, like RADAR bursts. What's more, measurement is performed in REAL TIME and BROADBAND, while at the same time being temperature-compensated. It is also an ideal solution for measurement of cable attenuation or receiver output. Depending on the actual frequency, the power meter provides a sensitivity of up to approx. -50dBm, while the maximum permissible level is +10dBm. By adding our 20dB attenuator (see price list), the maximum measurable signal level can be enhanced to +30dBm or +50dBm!

Option 022: 40dB low-noise preamplifier DC-1GHz *Order/Art.-No.: 177-2*

This option provides an external, super low-noise 40dB preamplifier, enabling maximum performance particularly when measuring extremely weak signals at a EN55011, EN55022 or EN50371 EMC-test. If you use our BicoLOG antenna or our PBS1 Probeset and EMC-Sniffer this amplifier is a MUST HAVE to get the best performance!

OPTIONS NF (EMF) SPECTRUM ANALYZER

Option 001: 1MB memory expansion *Order/Art.-No.: 180*

Available for: NF-5010, NF-5030.
This memory expansion is a MUST-HAVE particularly when using the data logger, as the standard capacity can quickly become exhausted in this mode. The memory expansion provides space for more than 10,000 logs, while the standard memory will only accomodate approximately 100 of them.
Standard memory size is 64K.

Option 005: 12Bit Dual DDC frequency filter *Order/Art.-No.: 186*

Available for: NF-5030 (integrated in the NF-XFR).
This cutting edge 12Bit DDC frequency filter allows extremely fast, crisp and accurate frequency filtering, while at the same time drastically enhancing the sensitivity. As an example, magnetic fields can (depending on their frequency) still be measured down to 1pT (0.001nT), compared to 0.1nT without the option. Option 005 is therefore a MUST-HAVE for professional measurement, especially considering its attractive price.

Option 006: 3D sensor for static magnetic fields *Order/Art.-No.: 188*

Available for: NF-5030.
This top-grade geomagnetic field sensor provides the ability to conduct geophysical assessments and measurement of geomagnetic field anomalies. However, it can also be used to turn the instrument into a Gaussmeter, measuring the difference between field strengths (static fields) of permanent magnets. Thanks to its ISOTROPIC (3D) construction, measurements can be performed in all three spacial dimensions AT ONCE (or seperately).
Sensitivity is about 10nT-600µT.

Option 009: 24Bit resolution for 3D static magnetic field sensor *Order/Art.-No.: 178*

Available for: NF-5030.
Option 009 provides a significantly higher resolution for the optional 3D magnetic field sensor for measurement of static magnetic fields (option 006); it is ABSOLUTELY mandatory for geomagnetic surveys. The standard resolution of the NF-5030 WITHOUT option 009 is 14Bit.

Option 010: 30MHz frequency extension *Order/Art.-No.: 179-1*

Available for: NF-5030.
Our 30MHz frequency extension extends the frequency range of the NF-5030 to the absolute maximum. The new frequency range is 1kHz - 30MHz. Amongst others, it even allows measurement of VDSL2. The higher clock frequency of the DDC provided by this option is a MUST HAVE for technicians and authorities needing ACCURATE assessment of signal sources of up to 30MHz.
The maximum frequency of the NF-5030 WITHOUT option 010 is 1MHz.

References

User of Aaronia Antennas and Spectrum Analyzers (Examples)

Government, Military, aeronautic, astronautic

- NATO, Belgien
- Boeing, USA
- Airbus, Hamburg
- Bund (Bundeswehr), Leer
- Bundeswehr (Technische Aufklärung), Hof
- Lufthansa, Hamburg
- DLR (Deutsches Zentrum für Luft- und Raumfahrt, Stuttgart
- Eurocontrol (Flugüberwachung), Belgien
- Australian Government Department of Defence, Australien
- EADS (European Aeronautic Defence & Space Company) GmbH, Ulm
- Institut für Luft- und Raumfahrtmedizin, Köln
- Deutscher Wetterdienst, Tauche
- Polizeipräsidium, Bonn
- Landesamt für Umweltschutz Sachsen-Anhalt, Halle
- Zentrale Polizeitechnische Dienste, NRW
- Bundesamt für Verfassungsschutz, Köln
- BEV (Bundesamt für Eich- und Vermessungswesen)

Research/Development, Science and Universitys

- Deutsches Forschungszentrum für Künstliche Intelligenz, Kaiserslautern
- Universität Freiburg
- Indonesien Institute of Sience, Indonesien
- Max-Planck-Institut für Polymerforschung, Mainz
- Los Alamos National Labratory, USA
- University of Bahrain, Bahrain
- University of Florida, USA
- Universität Erlangen, Erlangen
- Universität Hannover, Hannover
- University of Newcastle, Großbritannien
- Universität Strasbourg, Frankreich
- Universität Frankfurt, Frankfurt
- Uni München – Fakultät für Physik, Garching
- Technische Universität Hamburg, Hamburg
- Max-Planck Institut für Radioastronomie, Bad Münstereifel
- Max-Planck-Institut für Quantenoptik, Garching
- Max-Planck-Institut für Kernphysik, Heidelberg
- Max-Planck-Institut für Eisenforschung, Düsseldorf
- Forschungszentrum Karlsruhe, Karlsruhe

Industry

- Shell Oil Company, USA
- ATI, USA
- Fedex, USA
- Walt Disney, Kalifornien, USA
- Agilent Technologies Co. Ltd., China
- Motorola, Brasilien
- IBM, Schweiz
- Audi AG, Neckarsulm
- BMW, München
- Daimler Chrysler AG, Bremen
- BASF, Ludwigshafen
- Deutsche Bahn, Berlin
- Deutsche Telekom, Weiden
- Siemens AG, Erlangen
- Rohde & Schwarz, München
- Infineon, Österreich
- Philips Technologie GmbH, Aachen
- ThyssenKrupp, Stuttgart
- EnBW, Stuttgart
- RTL Television, Köln
- Pro Sieben – SAT 1, Unterföhring
- Channel 6, Großbritannien
- WDR, Köln
- NDR, Hamburg
- SWR, Baden-Baden
- Bayerischer Rundfunk, München
- Carl-Zeiss-Jena GmbH, Jena
- Anritsu GmbH, Düsseldorf
- Hewlett Packard, Dornach
- Robert Bosch GmbH, Plochingen
- Mercedes Benz, Österreich
- EnBW Kernkraftwerk GmbH, Neckarwestheim
- AMD, Dresden
- Infineon Technologies, Regensburg
- Intel GmbH, Feldkirchen
- Philips Semiconductors, Nürnberg
- Hyundai Europe, Rüsselsheim
- Saarschmiede GmbH, Völklingen
- Wilkinson Sword, Solingen
- IBM Deutschland, Stuttgart
- Vattenfall, Berlin
- Fraport, Frankfurt

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