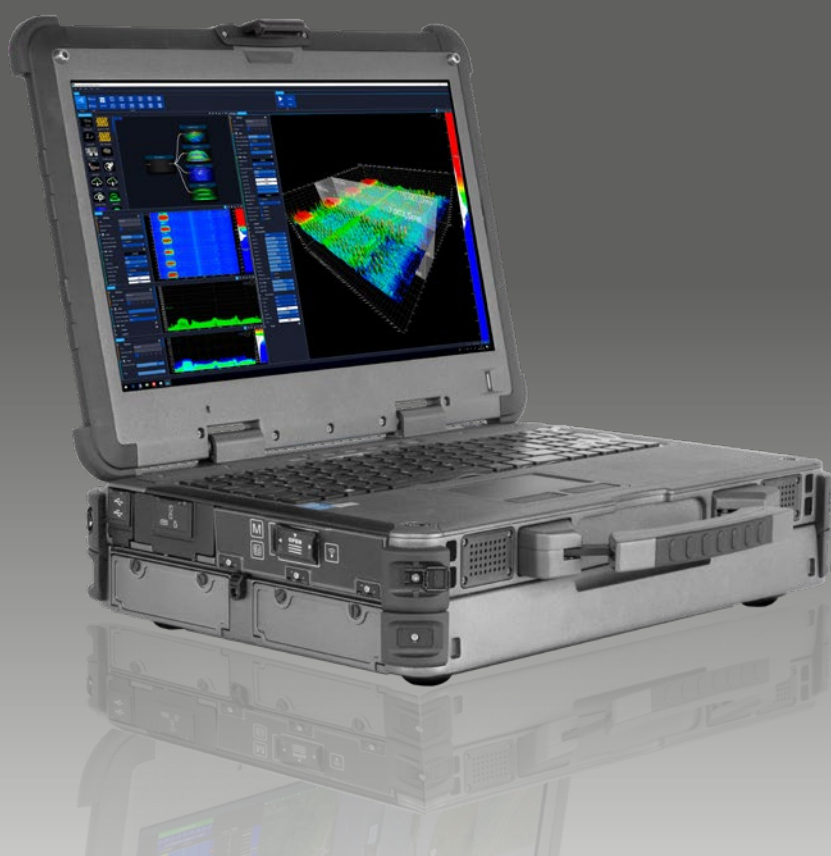


AARONIA

SPECTRAN V5 XFR PRO

9 KHz TO 20 GHz

World's fastest technical surveillance counter-measures receiver



Highlights:

- Rugged Outdoor Spectrum Analyzer
- Real-time bandwidth of up to 175 MHz
- MIL-STD-810G and IP65 certified

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Highlights

- ✓ Scans 20 GHz in less than 20 mS (1000 GHz / sec.)
- ✓ Wide measuring range up to 20 GHz
- ✓ Ultra robust Outdoor Spectrum Analyzer (IP65, - 20°C to + 60°C)
- ✓ > 100.000 data points for 20 GHz sweep, even in lowest resolution mode
- ✓ Real-time capture bandwidth up to 175 MHz
- ✓ POI below 1 µS
- ✓ Unlimited recording time (needs 1 GB / min. at max. datarate)
- ✓ Sample rate/second: > 50 million
- ✓ 500 MSPS (14 Bit Dual 256 MSPS I/Q)
- ✓ Up to 4 TB ultra-fast SSD recording storage
- ✓ Super bright, sunlight readable 15.6" Widescreen Display (Full HD, 1920 x 1080)
- ✓ Intel i7 with 8 GB RAM and nVidia Graphics
- ✓ Integrated GPS
- ✓ Includes Spectrum Analysis Software RTSA Suite Pro
- ✓ Made in Germany

Applications

- ✓ Technical surveillance counter-measures (TSCM)
- ✓ Security surveys for eavesdropping detection
- ✓ Interference hunting
- ✓ Radio monitoring and enforcement
- ✓ Maintenance, installation and repair in the factory / field
- ✓ VIP monitoring
- ✓ Conference monitoring
- ✓ EMC/EMI testing
- ✓ Seeing weak signals masked by stronger ones
- ✓ Discovery of rare, short duration events
- ✓ Capturing spread-spectrum and frequency-hopping signals
- ✓ Investigating misuse of the crowded RF spectrum



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Introduction

Built to detect

The SPECTRAN XFR V5 PRO is a portable Real-Time Spectrum Analyzer, designed to capture even shortest signal transmissions. Its scanning speed and recording time is without competition, the Analyzer scans 20 GHz in less than 20 mS making it the world's fastest counter-surveillance receiver.

Operation and Software

The easy to use software is suited for detecting unknown or illegal transmissions across a wide frequency range. With an unlimited recording time (needs approx. 1 GB hard disk space per minute) the XFR V5 PRO allows to store several hours of real-time data. Once recorded, the entire measurement data can be re-loaded into the software.

Perfect for Signal Analysis

Several helpful features allow a deep investigation of the real-time measurement or recorded data, e.g. a 3D-Spectrogram view which displays a signal in a way never seen before.

Military Grade

With this Spectrum Analyzer you can master any challenge. It provides a powerful, extremely impact resistant outdoor notebook and a high-end spectrum analyzer in one compact device. The V5 XFR Pro has been independently tested in accordance to MIL-STD-810G, IP65 and MIL-STD-461F.

Ultra wide measurement range from 9 kHz to 20 GHz

Sunlight readable (800 nits)

Sealed connectors and caps

Fully featured Laptop and Spectrum Analyzer in one

Intel i7 processor, 8 GB RAM and 500 GB HDD (8 TB SSD Optional)



Hot swap battery

15.6" Widescreen Full HD Display with Multi-Touch

Internal GPS

High quality magnesium alloy

50 Ohm RF input

Features and Hardware

The V5 XFR Pro offers a huge variety of helpful functions for spectrum analysis.

Measurement at the highest level

- Various trigger functions and unlimited number of markers
 - Different views: Spectrum / persistence Spectrum, Spectrogram / Waterfall, 3D Waterfall, Histogram
 - Multi Window feature supports several views at the same time, e.g. Spectrum & Waterfall & Histogram
 - Unlimited storage of measurements, HDD can be expanded up to 8 TB for gapless recording of up to 100 hours
 - Comfortable reference level 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 8 GB RAM, full HD multi touch-screen, integrated GPS and ultra-low noise level up to - 170 dBm (Hz) DANL (with pre-amps). The XFR V5 PRO is rugged and powerful at the same time.

- The **thermal management system** enables compliance with military standards for extreme temperatures. Simultaneously, the XFR V5 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.
- With two **USB 3.0 super-speed ports**, two USB 2.0, a USB2.0/eSATA-combi-connector, two serial ports, two Ethernet ports and a VGA port - among other connectors - offers the XFR V5 a variety of interfaces to connect to the desired peripheral.

Scope of delivery

The SPECTRAN V5 XFR comes with an extensive scope of delivery, depending on the special needs of users, the delivery can be extended to various additional products.

- SPECTRAN XFR V5 PRO incl. Option 020 (internal 20 dB preamp)
- OmniLOG 70600 antenna (700 MHz to 6 GHz)
- Pre-installed RTSA Suite Pro Software
- Rechargeable 8700 mAh battery (installed, a second hot-swap battery is optionally available)
- Battery charger / power supply (optional car charger available)
- English manual (on CD)

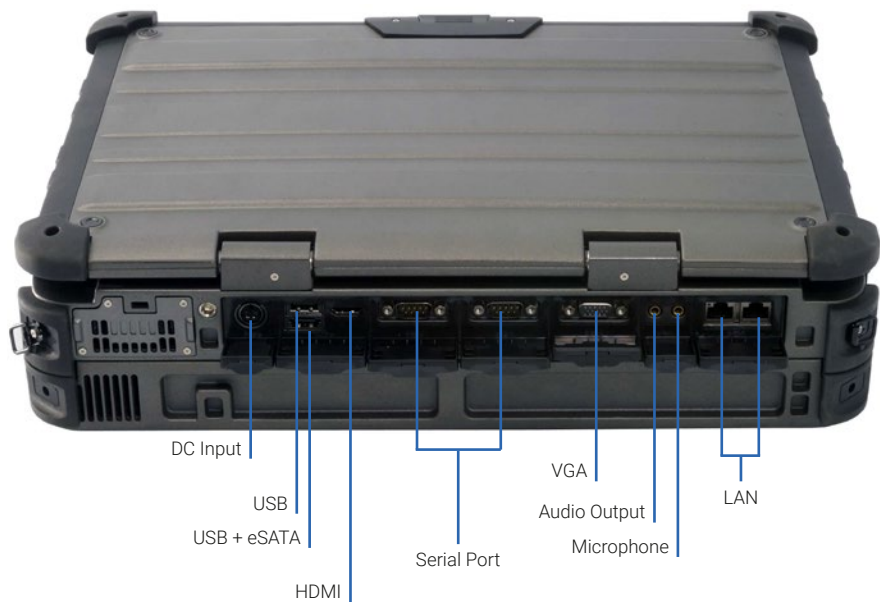
Options

Optional modifications to the V5 XFR Pro:

Option 002: 5 ppb (0,005 ppm) OCXO Timebase
This highly precise OCXO timebase, which has been especially developed for the SPECTRAN®, offers significantly reduced phase noise (jitter). This will allow the use of far narrower filters, which will in turn vastly enhance sensitivity. To fully exploit the maximum sensitivity this option is indispensable! Furthermore, the OCXO timebase allows far more accurate frequency measurement and display.

Option 160: Expands the real-time Bandwidth from 88 MHz to 160 MHz or 175 MHz.

Hardware



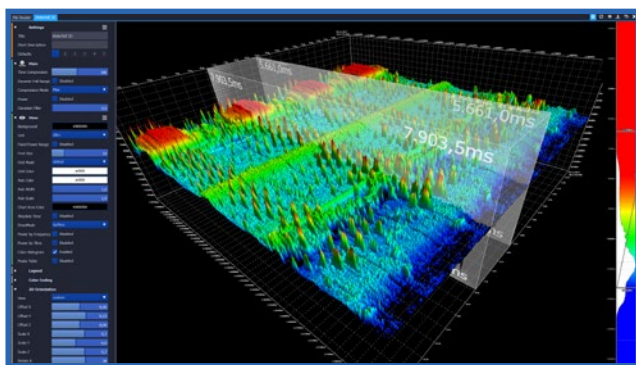
RTSA Suite Pro

The world's fastest real-time analyzer software.

Aaronia's "RTSA Suite Pro" is an extremely powerful and flexible software, with an intuitive and highly customizable user interface. The node-based software allows the user to identify, capture, demodulate and track any signal, and offers a multitude of ways to graphically display the signal detection.

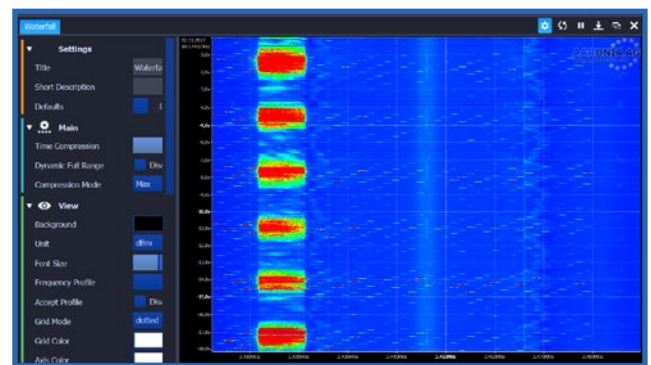


3D View and Histogramm View



- ◆ The V5 XFR Pro can display several views at once (Spectrum, 3D Waterfall, Histogram and more)
- ◆ The different views are fully customizable and can be easily arranged with the drag-and-drop system

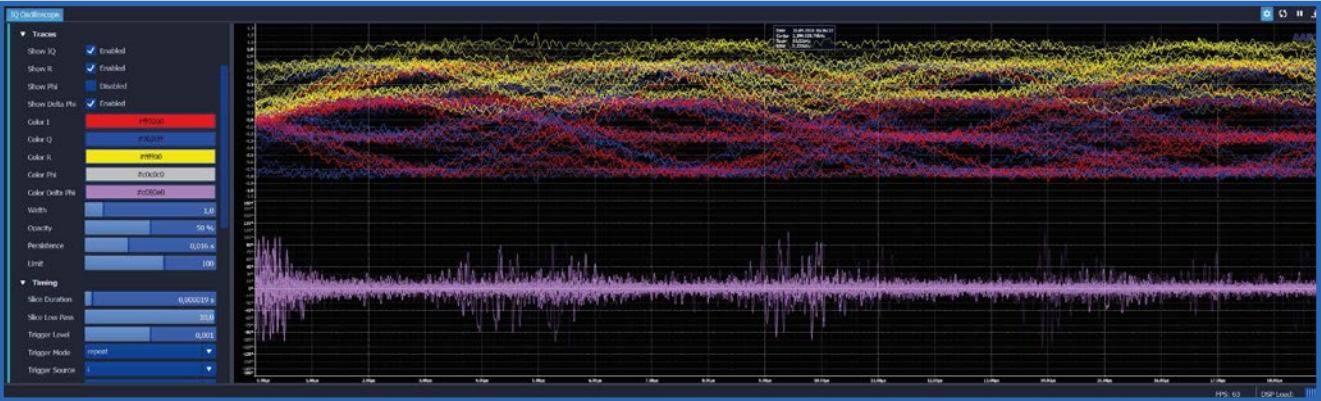
Waterfall View



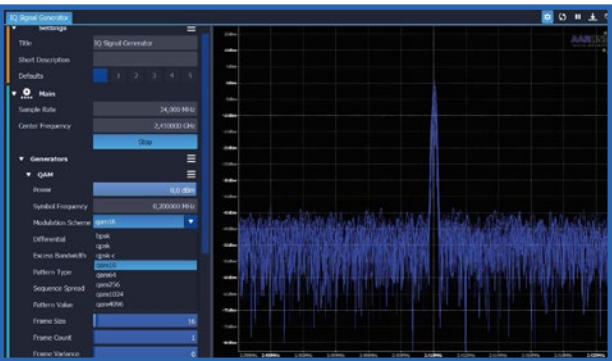
- ◆ Spectrogram / Waterfall View for the identification of frequency hops, measurements of pulse rate, analysis of time variant spectra and the tuning of a VCO

RTSA Suite Pro

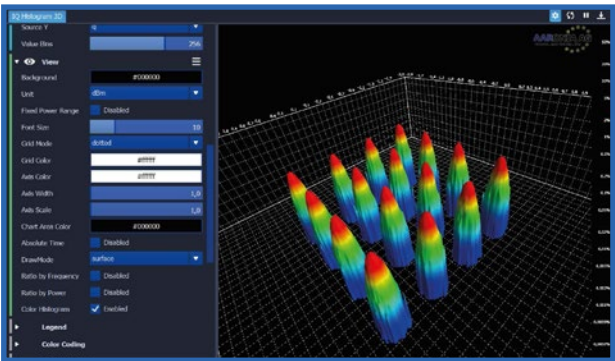
IQ Oscilloscope



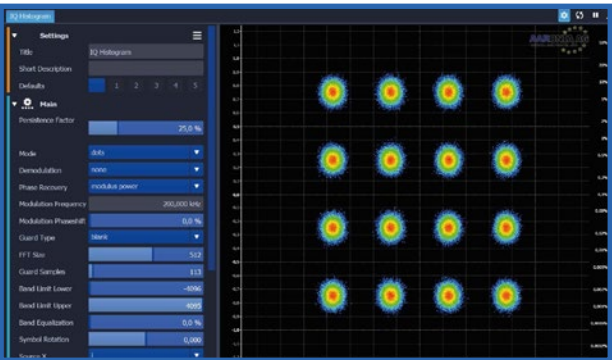
IQ Signal Generator



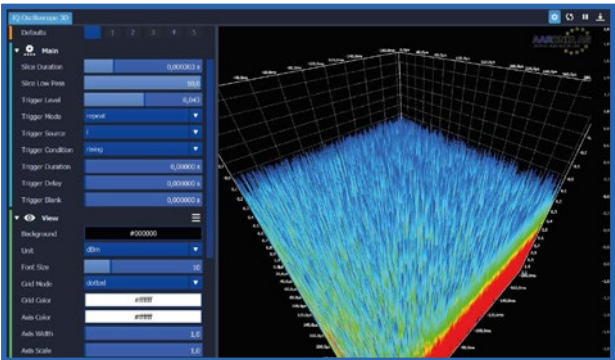
IQ Histogram 3D



IQ Histogram



IQ Oscilloscope 3D



Specifications (Analyzer)

Main specifications	
Frequency range	9 kHz to 20 GHz
Real-time bandwidth	88 MHz (optional: 160 / 175 MHz)
Min. event duration	<1 μ S
Max. power at RF input	+20 dBm (+33 dBm*)
Displayed average noise level (internal pre-amp on)	typ. -150 dBm/Hz
Displayed average noise level (with external pre-amp)	max. -170 dBm/Hz
Amplitude accuracy (typ.)	typ. +/- 1.5 dB
RF input	50 Ohm (SMA-connector)
Frequency reference accuracy	50 Ohm (SMA-connector)
RBW (resolution bandwidth)	1 Hz to 3 MHz
VBW (video bandwidth)	1 Hz to 3 MHz
Demodulator	AM, FM, PM, I/Q
Measurement units	dBm, dB μ V, V/m, A/m, W/m ² , dB μ V/m, W/cm ²
Detector	45 dB (0,5 dB steps)
Traces	ACT, AVG, MAX, MIN
Reference range	-200 dBm to 100 dBm
Measurement modes	I/Q, Power/Frequency Data
ADC	500 MSPS 14 Bit
GPS	Inbuilt GPS
FPGA	240 K ECP3
DSP	600 MHz

Specifications (V5 XFR Pro)

Main specifications	
CPU	Intel Haswell i7-4600M
RAM	8 GB
HDD	500 GB, 7200RPM (optional SSD up to 8 TB)
Operation system	Windows 10 PRO
Display	15.6" Full-HD 1080 p with Multi-touch screen, sunlight readable (800 Nits Quadra-Clear)
Graphics card	nVidia Geforce GT 745M DDR3
Battery	Intelligent lithium ion battery with 8700mAh (optional second battery, hot swap system)
Keypad	Membrane keyboard with integrated numeric keypad and LED backlight
Connectors	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, 2x USB 3.0, 2x USB 2.0, 1x USB 2.0 / eSATA combo, 2x LAN (RJ45), 1x HDMI, 1x docking connector (80 - pin)
Interfaces	10/100/1000 BASE -T Ethernet Intel Centrino Advanced-N 6200, 802.11 a/b/g/n, GPS module + Tri - Passthrough
Safety features	fingerprint scanner, smart card reader, Kensington Lock
Certification	MIL -STD- 810G, IP65, MIL -STD- 461F
Temperature (operation)	-20 °C to +60 °C
Temperature (storage)	-40 °C to +71 °C
Dimensions	410 x 315 x 120 mm
Weight	7.5 kg
Relative humidity	95% relative humidity, non-condensing
Power supply	AC input: 100 - 240 V, 50 - 60 Hz DC output: 19 V, 4.74 A max.
Power consumption	typ. < 90 W
Country of origin	Germany
Recommended calibration interval	2 Years

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 Sience, Indonesia
- Los Alamos National Labratory, 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 Inst. for Radio Astronomy, Germany
- Max-Planck-Inst. for Nuclear Physics, Germany
- Research Centre Karlsruhe, Germany

Industry

- 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
- CNN, USA
- Duracell, USA
- German Telekom, Germany
- Bank of Canada, Canada
- NBC News, USA
- Sony, Germany
- Anritsu, Germany
- Hewlett Packard, Germany
- Robert Bosch, Germany
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- VIAVI, Korea
- Wilkinson Sword, Germany
- IBM Deutschland, Germany
- Nokia-Siemens Networks, Germany


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