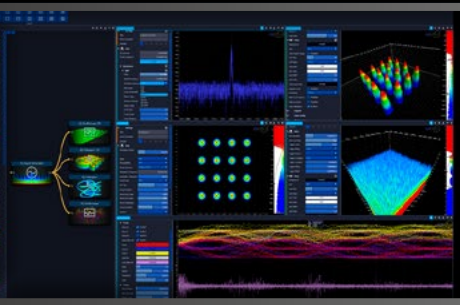
SPECTRAN® V6

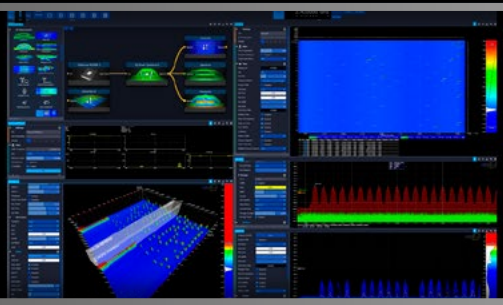
BEYOND REALTIME

Real-Time Spectrum Analyzer / Vector Signal Generator | 980 MHz RTBW

Command Center

- The ultimate "RF Battle Station" -
High-End SPECTRAN® V6 Command Center





- ✔ Sweep speed > 4 THz/s
- ✔ Up to four internal V6 RF-receivers
- ✔ Two 4K screens
- ✔ Frequency range of 75 MHz up to 7.2 GHz
- ✔ Virtually unlimited I/Q recording time
- ✔ Up to 24 TB SSD storage

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Highlights

- ✔ RF frequency range: 75 MHz up to 7.2 GHz
- ✔ Scans 6 GHz in less than 1 ms (4 THz/s)
- ✔ Real-time I/Q capture bandwidth of up to 980 MHz
- ✔ I/Q vector signal generator bandwidth of up to 480 MHz
- ✔ I/Q recording storage of up to 24 TB
- ✔ Virtually unlimited recording time
- ✔ Optional remote control via Ethernet
- ✔ Sample rate: up to 8 x 2GSPS 16 Bit I/Q-data
- ✔ FFT rate: up to 3840 million FFT-points/s
- ✔ FFT-based POI as short as 97 ns
- ✔ I/Q-based POI as short as 10 ns
- ✔ Two 4K widescreen displays with a combined resolution of 3840 x 4320
- ✔ Intel® Core™ i9-13900K (24 Core), up to 128 GB DDR5 RAM
- ✔ High-end NVIDIA graphics
- ✔ Integrated GPS
- ✔ Included **RTSA-Suite PRO** software
- ✔ Made in Germany

Introduction

Pure RF performance

The SPECTRAN® V6 Command Center is the culmination of Aaronia's efforts in building the epitome of a spectrum analyzer battleship: It scans 6 GHz in less than 1 millisecond, equaling an astonishing speed of 4THz per second.

This high-end spectrum analyzer offers all the RF performance you need, and provides every measurement detail necessary at the same time.

Perfect for any RF Problem

The setup is completely customizable, and – thanks to its cascadable system – can be combined with up to four independent analyzers.

Two 24" 4K widescreen displays capture and visualize a instantaneous bandwidth (complex I/Q) of up to 980 MHz (I/Q) , with a remarkable POI of 10ns (I/Q). Moreover, with up to 24 TB SSD drives, you have virtually unlimited recording time.

Hardware

Our Command Center has a wide measuring range of 75 MHz to 6 GHz and includes up to four receivers (8 x 2GSPS 16 Bit I/Q-data) and four vector signal generators (4 x 2GSPS 14-Bit I/Q).

In terms of hardware, the computer features the best components available. The SPECTRAN® V6 Command Center runs on the Intel® Core™ i9-13900K (24 Core) processor, with up to 128 GB DDR5 RAM and an NVIDIA Geforce 3060 RTX graphics card allowing for gapless streaming and playback.

Made in Germany

Last but certainly not least, our SPECTRAN® V6 Command Center is made in Germany, ensuring highest quality standards throughout the entire value chain.

Features and Hardware

The SPECTRAN V6® CC offers a multitude of helpful functions for spectrum analysis

Peak Performance Measuring

- Various trigger functions and unlimited number of markers
- Different views: Spectrum / Persistence Spectrum, Spectrogram / Waterfall, 3D Waterfall, Histogram, etc.
- Multi-window feature supports several simultaneous views, e.g. Spectrum & Waterfall & Histogram at the same time
- Virtually unlimited storage of measuring data (SSD can be expanded to up to 24 TB for gapless recording)
- Comfortable reference level and color settings
- Reporting and recording functions
- Storage of personal sessions
- And much more ...

Applications

- Technical surveillance countermeasures (TSCM)
- Security surveys for detecting and preventing eavesdropping
- Interference hunting
- Spectrum monitoring and enforcement
- Maintenance, installation and repair both in the factory and in the field
- VIP monitoring
- Conference monitoring
- EMC / EMI testing
- Detection of weak signals masked by stronger ones
- Detection of rare, short-duration events
- Capturing spread-spectrum and frequency-hopping signals
- Investigating abuse of crowded RF spectrums

Scope of delivery

- SPECTRAN® V6 Command Center
- Padded rolling case to move SPECTRAN V6® Command Center with ease
- Pre-installed spectrum analysis software RTSA-Suite PRO

The SPECTRAN® V6 Command Center comes with an extensive scope of options from which to choose. Catering to individual user needs, the delivery can be extended to include various additional products.

Options

Option 0002: 5 ppb (0,005 ppm) OCXO Time Base

Our highly precise OCXO time base, especially developed for and adjusted to the SPECTRAN® series, offers significantly reduced phase noise (jitter). This allows for the use of far narrower filters, which in turn vastly enhances sensitivity. In order to use maximum sensitivity, then, this is an indispensable option. Furthermore, the OCXO time base allows far more accurate frequency measurements and displays.

Option 0020: Ultra Low Noise Pre-Amp

Additional 20 dB of gain

Option: RF over Fiber

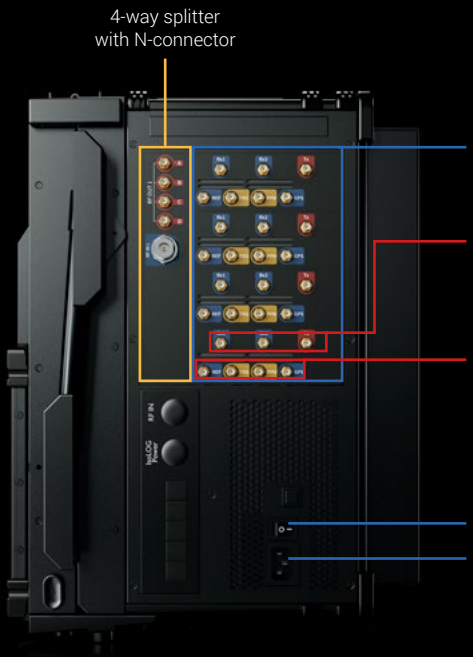
Aaronia's RF over Fiber solution impresses with its extremely high dynamics and linear frequency response. This makes it possible for the first time to transmit or receive RF signals 1:1 via fiber optics offering ultra-low cable damping of 0,1 dB per km (single mode required).

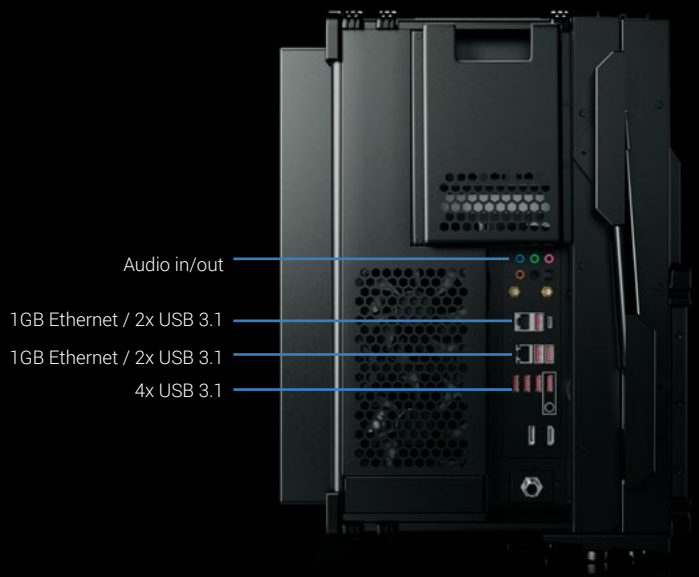
Hardware

Slots and connectors overview

- Ultra-wide measurement range from 75 MHz up to 7.2 GHz
- 24" widescreen 4K displays (sunlight readable)
- Expandable SSD hard disk 4 TB to 24 TB SSD (Recording)

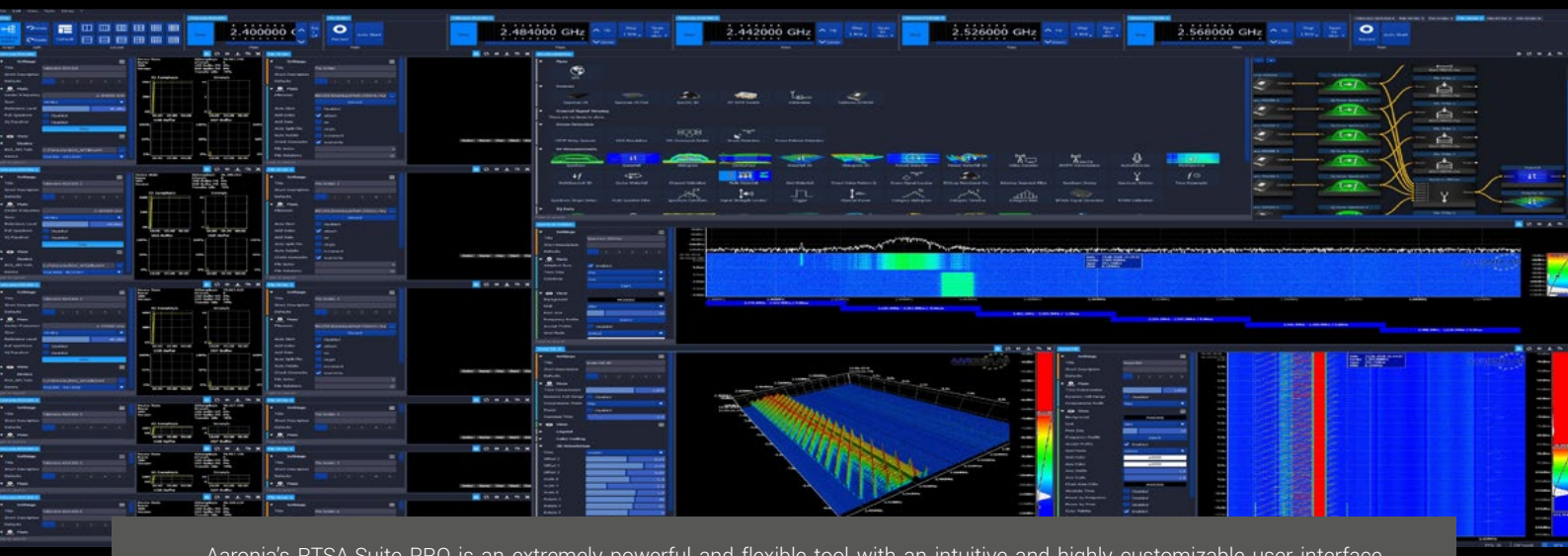
- Rolling rack case included
- All-in-one solution: Fully featured PC and spectrum analyzer
- 50 Ohm RF input
- Intel® Core™ i9-13900K, up to 128 GB DDR5 RAM, 1 TB SSD (OS)





RTSA-Suite PRO Software

World's most powerful RTSA software with endless possibilities!



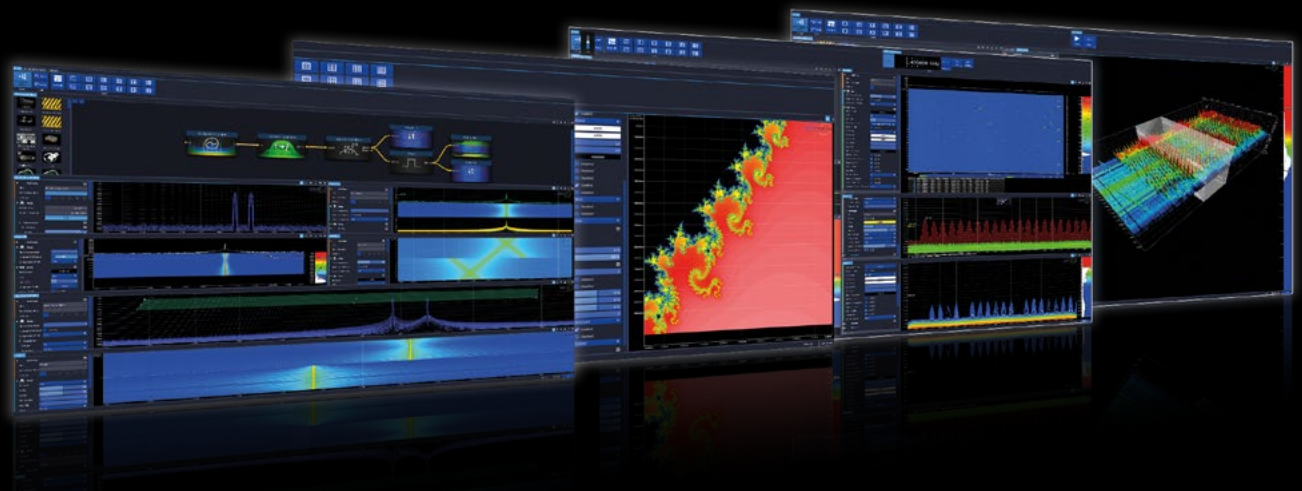
Aaronia's RTSA-Suite PRO is an extremely powerful and flexible tool with an intuitive and highly customizable user interface. Our node-based software enables users to identify, capture, demodulate and track any signal, and offers a multitude of ways to graphically display the signal detection.

RTSA-Suite PRO – Layout

An amazing block solution offers a convenient configuration to match any requirement!

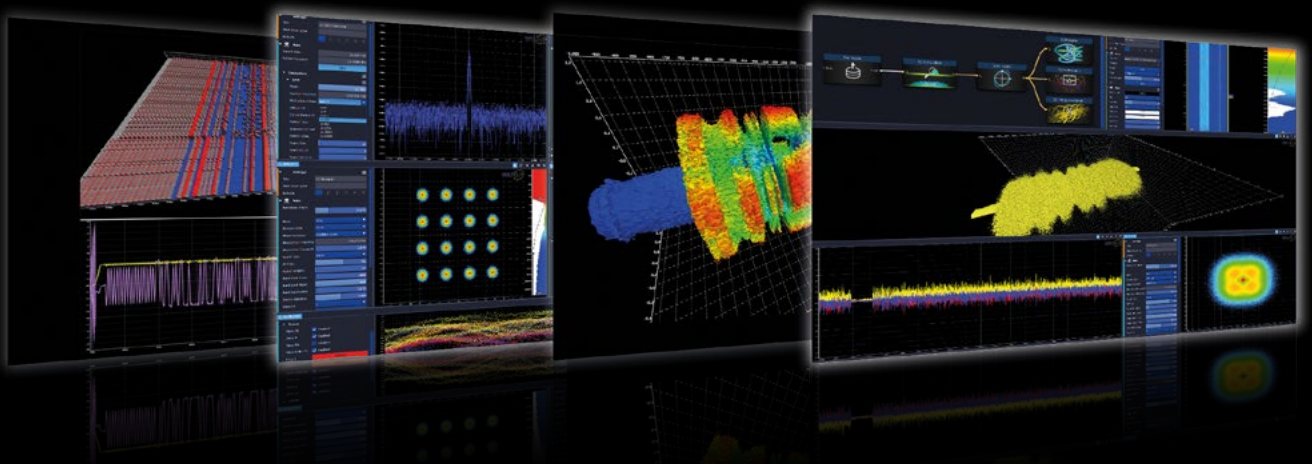
Multiple 2D/3D Spectrum Analysis

Trigger Block *Powerful Script Block* *Various Demodulations* *3D/4D Waterfall*



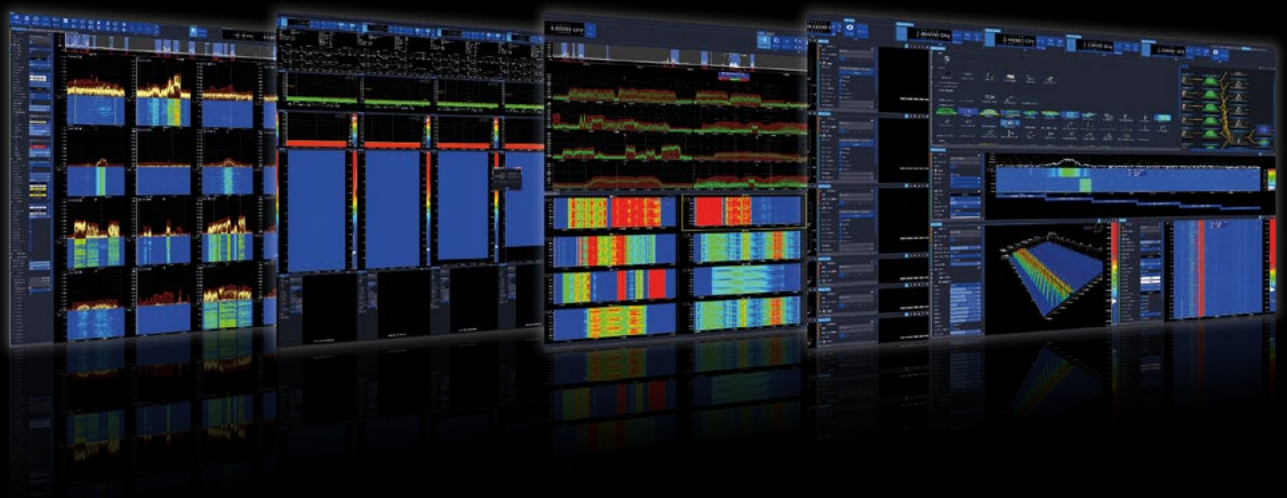
2D/3D IQ Streaming & Decoding

DECT Decoding *Software IQ Generator* *3D IQ Display* *DAB IQ Demodulation*



Multi Unit Stitching / Multi Frequency Monitoring

Multi Frequency Monitoring *Multi Waterfall* *V6 full Frequency Monitoring* *Multi-Unit Stitching*



Specifications (Analyzer)

Specifications	V6 Command Center 2000CA-6	V6 Command Center 4000CA-6	V6 Command Center 8000CA-6
Real-time bandwidth Rx	160 MHz RTBW	320 MHz RTBW (opt. 490 MHz)	640 MHz RTBW (opt. 980 MHz)
Real-time bandwidth Tx	-	320 MHz RTBW (opt. 490 MHz)	640 MHz RTBW (opt. 980 MHz)
DSP processing	930 GMACs	1860 GMACs	3720 GMACs
FFT-rate	480 million	1920 million	3840 million
ADC	1 x 2GSPS 16 Bit	4 x 2GSPS 16 Bit	8 x 2GSPS 16 Bit
DAC	1 x 2GSPS 14-Bit	2 x 2GSPS 14-Bit	4 x 2GSPS 14-Bit
RF connectors	1x Rx (SMA)	4x Rx, 2x Tx (SMA)	8x Rx, 4x Tx (SMA)

Specifications	
Frequency range	75 MHz to 6 GHz (7.2 GHz opt.)
POI	97 ns (FFT-based), 10 ns (direct I/Q-based)
Max. power Rx	+23 dBm
Max. power Tx	+20 dBm
DANL (internal pre-amp on)	Typ. -170 dBm/Hz
Amplitude accuracy (typ.)	Typ. +/- 0,5 dB (compensated by FIR filter)
Frequency reference accuracy	0,5 ppm (5 ppb via OCXO option)
RBW (resolution bw)	62 mHz to 57 MHz
Measurement units	Over 20 (e.g. dBm, dBµV, V/m, A/m, W/m², dBµV/m, W/cm²)
Detector	Min, Max, AVG, Peak, QPeak
Attenuator range	50 dB / 70 dB (0,5 dB steps)
Traces	Over 20 (e.g. ACT, AVG, MAX, MIN, QPEAK)
Measurement modes	True IQ and/or Power/Frequency data
Trigger	Cursor, Measurement, Density
External Frequency Reference Input	Typ. 10MHz,max. 3,3VRMS into 50 Ohm (SMB-connector)
FPGA	Up to 4 x XC7A200T-2
Recommended calibration interval	2 years

Specifications (PC)

Specifications	
CPU	Intel® Core™ i9-13900K (24 Core)
RAM	up to 128 GB DDR5
SSD	1 GB NVMe (OS), optionally expandable up to 24 TB
Operation system	Windows 10 PRO
Display	2x 4K (2x 3840 x 2160 px) sunlight readable, anti reflection tempered strengthen glass
Graphics card	NVIDIA Geforce 3060 RTX
Keypad	104-key industrial keyboard with integrated numeric keypad and touchpad
Connectors	1x USB-C Gen 2x2 (20 Gbit/s) 1x USB-C Gen 2 (10 Gbit/s) 2x USB-A Gen 2 (10 Gbit/s) 4x USB-A Gen 1 (5 Gbit/s) 1x RJ45 2,5 GbE (opt. 2x 10 GbE, opt. 2x 100 GbE) 1x HDMI
Mainboard	Name-Brand ATX Mainboard
Operating Temperature	0° to +50° C
Storage temperature	-20° to +60° C
Dimensions	620 x 270 x 400 mm
Weight	30 kg
Relative humidity	10% - 90%
Power supply	850 W, 100 - 240 V, 50 - 60 Hz
Power consumption	typ. < 250 W
Country of Origin	Germany

References

Selected Aaronia Clients

AARONIA AG
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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
- Indonesian Institute of Sciences, Indonesia
- Los Alamos National Laboratory, 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 Athens, 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
- Mercedes Benz, Austria
- Osram, Germany
- DEKRA, Germany
- AMD, Germany
- Keysight, China
- Infineon Technologies, Germany
- Philips Semiconductors, Germany
- Hyundai Europe, Germany
- VIAVI, Korea
- Wilkinson Sword, Germany
- IBM Deutschland, Germany
- Nokia Siemens Networks, Germany

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