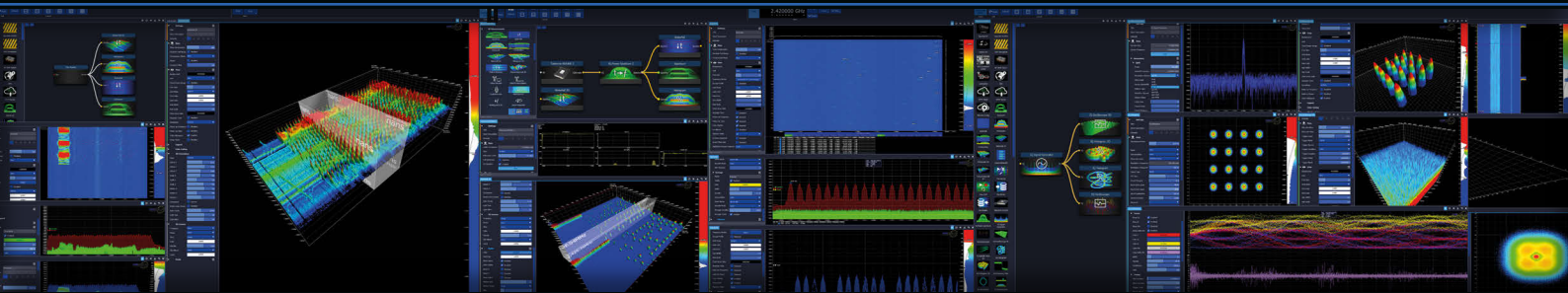


# SPECTRANV6<sup>®</sup>

— BEYOND REALTIME —



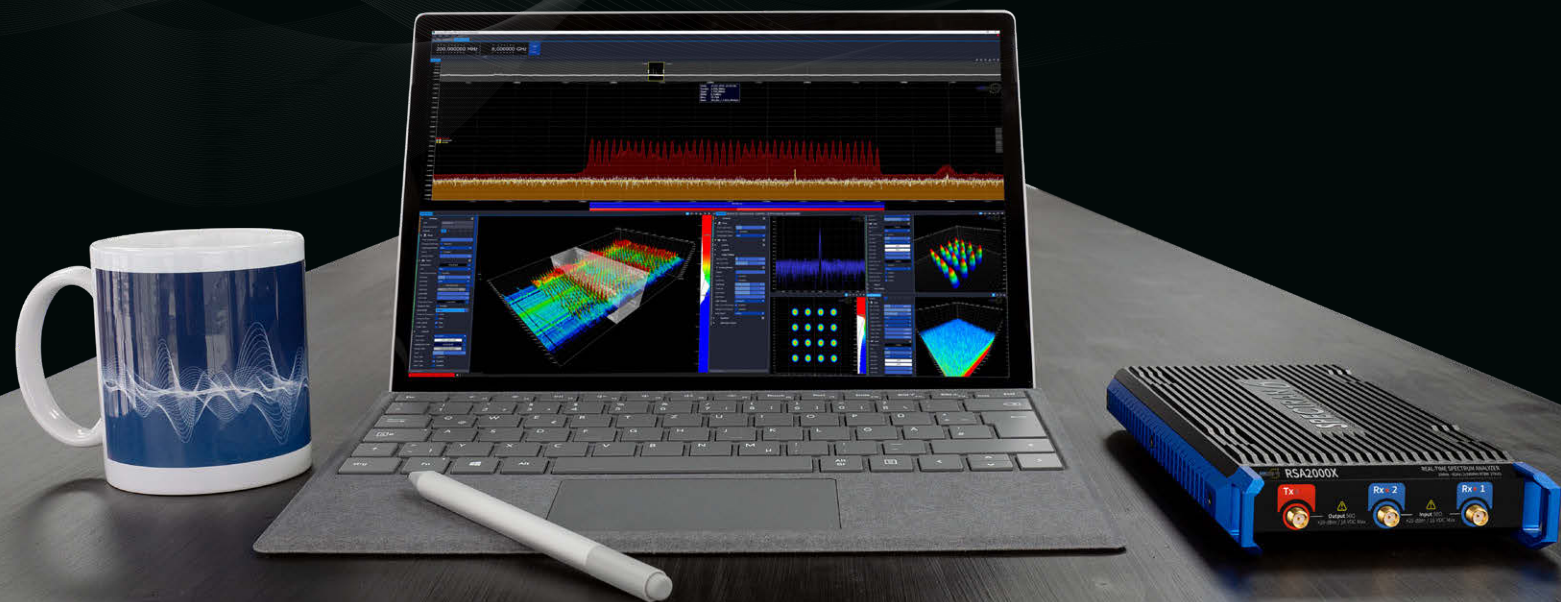
## 6 GHz USB Real-Time Spectrum Analyzer & Vector Signal Generator



- ✓ RF Frequency range of 10 MHz to 6 GHz
- ✓ Continuous 245 MHz true I/Q streaming
- ✓ Simultaneous measurement of multiple bands
- ✓ Dual USB 3.0 streaming
- ✓ RTSA-Suite PRO software
- ✓ 120 MHz Vector Signal Generator

# Highlights

- ✓ World's first and only dual USB true I/Q streaming – up to **784 MBytes/s**
- ✓ Scans 6 GHz in less than 5 ms (1 THz/s)
- ✓ Dual instantaneous receiver bandwidth of 200 MHz each (2x200 MHz)
- ✓ I/Q vector signal generator bandwidth of up to 120 MHz (gapless streaming)
- ✓ FFT-based POI as short as 97ns
- ✓ I/Q-based POI as short as 10ns
- ✓ Unlimited continuously I/Q streaming up to 2 x USB 3.0
- ✓ Extraordinary dynamic range from a 16-bit ADC at 2GSPS
- ✓ Radio Frequency range of 10 MHz to 6 GHz
- ✓ Sample rate: 500 MSPS (16 Bit Dual 256 MSPS I/Q-Data)
- ✓ FPGA: 930GMAC/s
- ✓ FFT rate: 960 Million FFT-points/s (120 Million FFTs/s)
- ✓ Stackable accessories
- ✓ Extremely compact and lightweight
- ✓ Including worlds leading “RTSA-Suite PRO” spectrum analysis software
- ✓ Made in Germany





# Introduction

Fast, compact and powerful

Aaronia presents the SPECTRAN® V6 X, a real-time high-performance spectrum analyzer and monitoring receiver designed to capture even shortest signal transmissions. Its scanning speed and recording time are unrivalled. The analyzer scans 6 GHz in less than 5 ms, making it world's fastest USB spectrum analyzer.

## Perfect for any RF problem

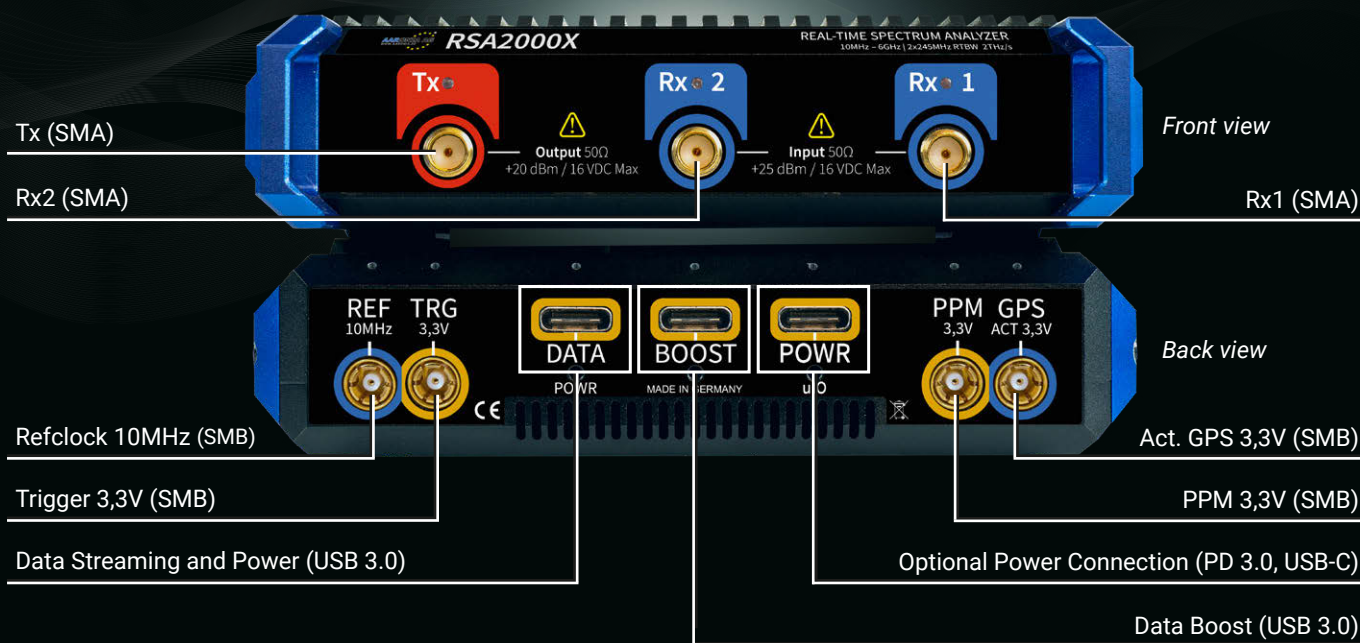
This spectrum analyzer enables you to master any challenge. Whether it is for spectrum monitoring, RF and microwave measurements, Interference hunting, EMC testing or Wi-Fi and wireless network measurements, the SPECTRAN® V6 X is the ideal spectrum analyzer for making reliable and fast measurements.

## Compact and lightweight

A weight of just 850 g makes the V6 X ideal for measurements in the field, yet it can also be used in the lab. The included PC analysis software RTSA-Suite PRO transforms the V6 X into a fully-featured benchtop spectrum analyzer. The V6 X offers a solution for almost every application.

## Made in Germany

The SPECTRAN® V6 X spectrum analyzer and vector signal generator is developed and assembled in Germany, guaranteeing the highest quality standard.

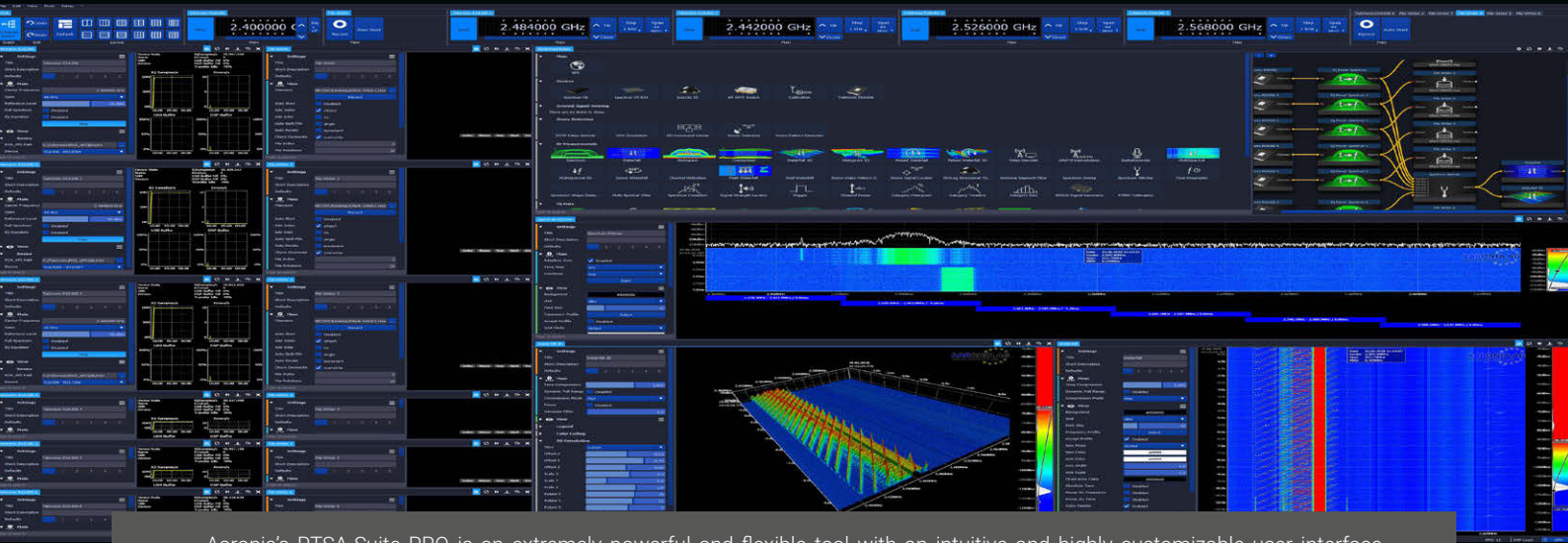


- ✓ Real-Time USB IQ-streaming
- ✓ Ultrawide frequency range from 10 MHz up to 6 GHz
- ✓ Compact size: 210 x 115 x 30 mm
- ✓ Weighs only 850 g
- ✓ Included PC software
- ✓ Tough, high quality aluminum case
- ✓ 50 Ohm RF input and output (SMA)
- ✓ Stackable



# RTSA-Suite PRO

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!





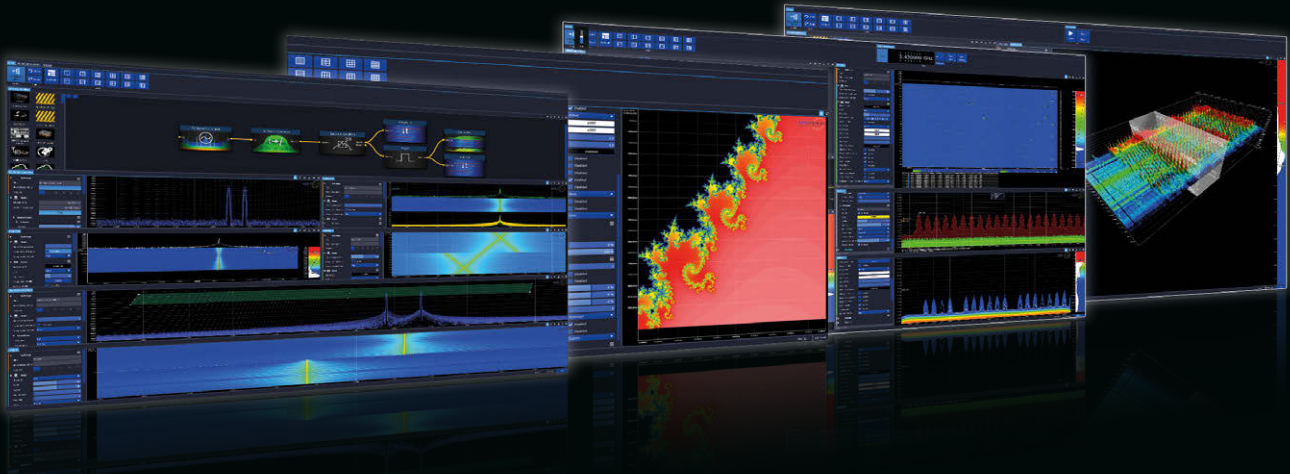
# Multiple 2D/3D Spectrum Analysis

Trigger Block

Powerful Script Block

Various Demodulations

3D/4D Waterfall



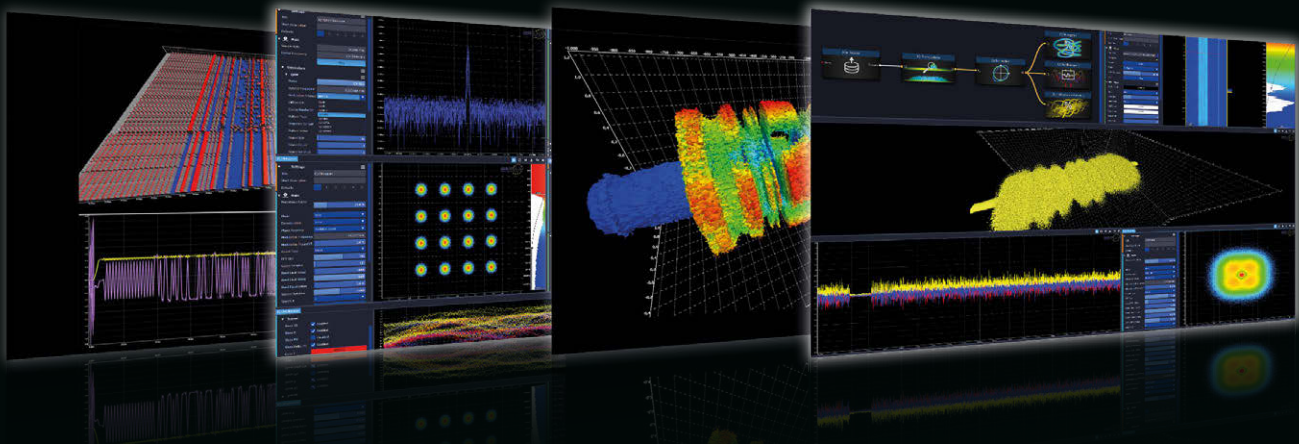
# 2D/3D IQ Streaming & Decoding

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



# WORLD of SPECTRAN® V6 X

Model	RTBW	Speed	I/Os
V6-RSA250X	80 MHz/ opt. 120 MHz I/Q	250 GHz/s	1 Rx
V6-RSA500X	80 MHz/ opt. 120 MHz/245 MHz I/Q	500 GHz/s	1 Rx & 1 Tx
V6-RSA2000X	160 MHz/ opt. 2x245 MHz I/Q*	2 THz/s	2 Rx & 1 Tx

All models are available in OEM versions with e.g. reduced size and weight

Hardware Options	Comment
120 MHz I/Q RTBW	V6-RSA250X & V6-RSA500X only
245 MHz I/Q RTBW	V6-RSA500X & V6-RSA2000X only
Ultra Low Noise Preamp	<b>Additional 20 dB of gain</b> (Add 2 for V6-RSA2000X*)
OCXO Timebase	<b>5 ppb</b> , ultra high vibration resistance ( $\pm 0.1$ ppb/g)
Internal GPS	Incl. spoofing detection and active GPS antenna with SMB cable

\* V6-RSA2000X requires option 245 MHz and preamp twice

## Accessories

### RF over Fiber (Rx/Tx)

Converts an RF signal into a laser signal for lossless streaming of data over long distances through a fiber optic cable.



### HyperLOG Antennas

Directional, ultra broadband LPDA antennas with wide frequency range from 380 MHz to 6 GHz. High and constant gain of typ. 5 dBi (active up to 45 dBi).



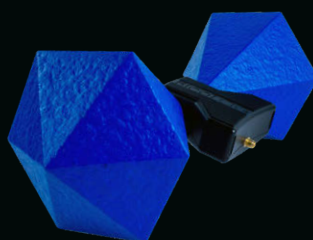
### 4-way Splitter/Combiner

External 4-way low-loss splitter/combiner (e.g. stitch multiple V6 units to expand the real-time bandwidth), stackable.



### BicoLOG Antennas (20MHz - 3GHz)

Broadband Biconical Antennas for EMC Pre-compliance Tests. Perfect for in-house compliance testing of various EMC standards. High bandwidth and gain up to 41dBi (active).



### 26800 mAh Power Pack

External Power Pack with 26800 mAh capacity. Extends the battery runtime by up to 4-5 hours. Strongly recommended for outdoor operation. Stackable.



### IsoLOG 3D Mobile (9 kHz - 6 GHz)

Very light and small isotropic antenna. Compact form factor. Battery-powered multiple amplifier stages. Remote USB or manual control.



# Analyzer Specifications

Specifications	SPECTRAN® V6 X
Frequency range	10 MHz to 6 GHz (1 Hz to 26 GHz in development)
Real-time bandwidth Rx	200 MHz (245 MHz I/Q rate)
Real-time bandwidth Tx	120 MHz I/Q gapless streaming
POI	97 ns (FFT-based), 10ns (direct I/Q-based)
Max. power Rx	+23 dBm
Max. power Tx	3 dBm
DANL (internal pre-amp on)	Typ. -170 dBm/Hz
Amplitude accuracy (typ.)	Typ. +/- 0,5 dB (compensated by FIR filter)
USB streaming connection	One or two USB 3.0 (USB 3.1 Gen1; USB 3.2 Gen1)
USB bandwidth	Up to 784 MBytes/s sustained throughput to PC (dual USB 3.0)
Frequency reference accuracy	0,5 ppm (5 ppb via OCXO option)
RBW (resolution bandwidth)	62 mHz to 200 MHz
Measurement units	Over 20 (e.g. dBm, dBμV, V/m, A/m, W/m <sup>2</sup> , dBμV/m, W/cm <sup>2</sup> )
Detector	Min, Max, AVG, Peak, QPeak (in development)
Attenuator range	36 dB (0,5 dB steps)
Traces	Over 20 (e.g. ACT, AVG, MAX, MIN, QPEAK)
Measurement modes	True IQ or Power/Frequency data
Trigger	Cursor, Measurement, Density
ADC	Dual 2GSPS 16 Bit
DAC	2GSPS 14-Bit
GPS	GPS/QZSS, GLONASS, BeiDou and Galileo (concurrent reception)
GPS synchronisation	+/- 10ns timestamping in each data packet
External Frequency Reference Input	typ. 10MHz, 3,5VRMS into 50 Ohm (SMB-connector)
FPGA	XC7A200T-2
DSP processing	930 GMACs
SDRAM	2 GB
RF connectors	SMA (Rx,Tx), SMB (Trigger, Refclock, GPS, PPM). All 50 Ohms.
Temperature range (operation)	-40 °C to +60 °C
Dimensions	210 x 115 x 30 mm
Weight	850 g
Power	USB 3.2 Gen 1 Type-C PD 3.0
Power consumption	Typical 15 W
Country of origin	Germany
Recommended calibration interval	2 years





# REFERENCES



## Selected 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
- 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

