RF Explorer®

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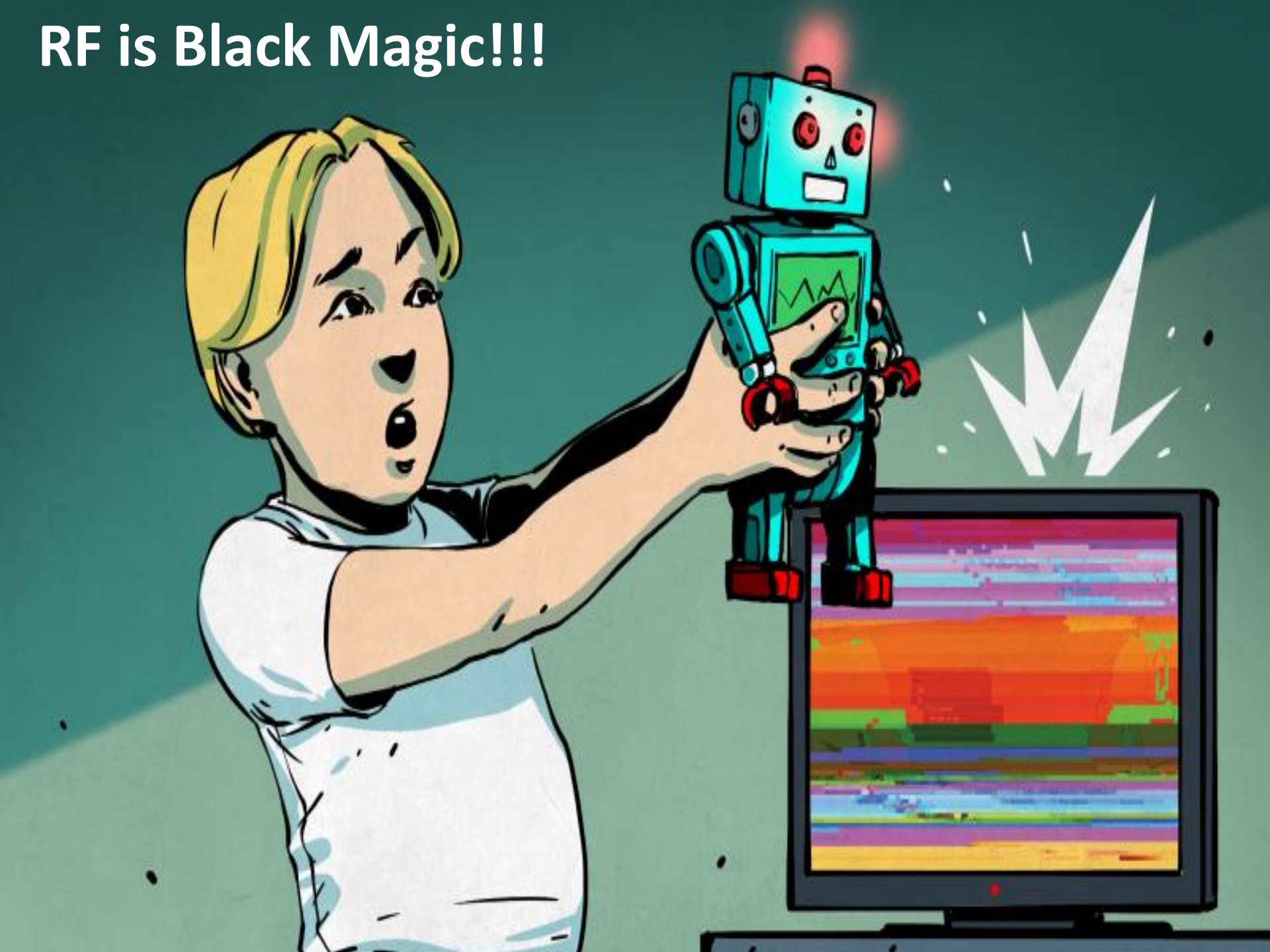
Ingeniero de Diseño y Desarrollo

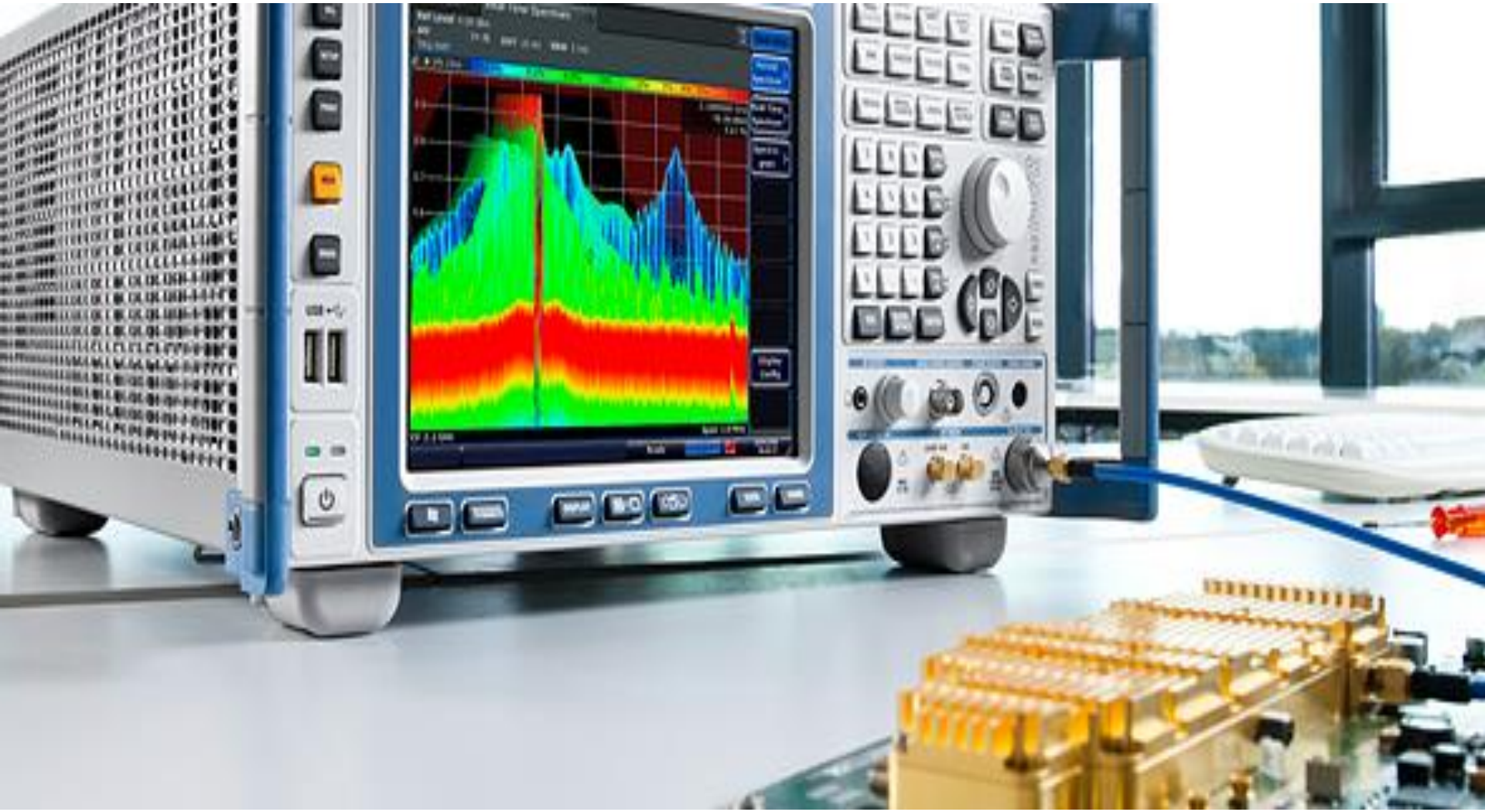
Congreso SWYP´17

Marzo 2017

RF is Black Magic!!!



Spectrum Analyzer



Take my money and shut up!!!

N9320B RF Spectrum Analyzer (BSA), 9 kHz to 3 GHz

US$ 9,123

Typical Price*

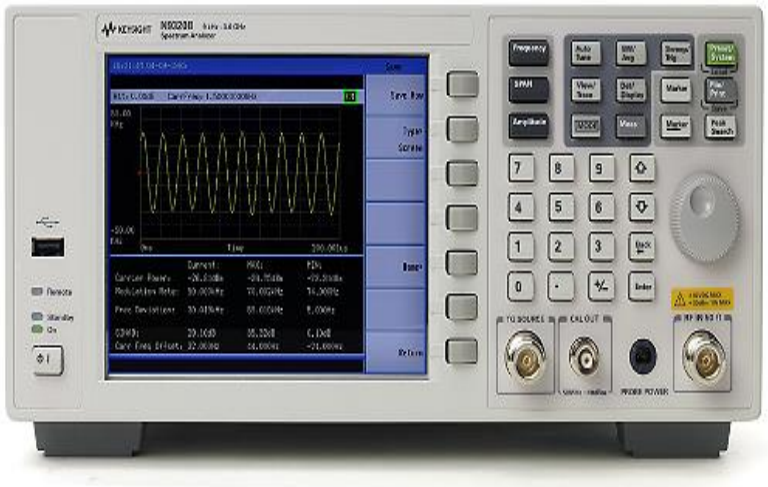
Add to My Watchlist

Get Quote

Configure

Sold By: Authorized Sales Partners - Check availability

Overview	Specifications	Options & Upgrades	Resource Center	Support



Key Features and Functions

- Fast spectrum analysis covering frequency 9 kHz to 3 GHz
- 0.5 dB overall amplitude accuracy
- Efficient AM/FM, ASK/FSK demodulation analysis suites for IoT transmitter characterization
- 3 GHz tracking generator provides stimulus response measurement for component characterization
- Automation and communication interface with industry standard SCPI language support and USB/GPIB/LAN connectivity choices
- Ideal for R&D, low cost manufacturing, and RF education

Ohhh… Wait!!

ROHDE&SCHWARZ

FREE SHIPPING! PRINT PAGE

Our Price: $7,540.00

Rohde & Schwarz FSC3, FSC6 Series Spectrum Analyzers

Model: FSC3.03

See pricing for all models on this page »

Condition: New Test Equipment

- Frequency range 9 kHz to 3 GHz or 6 GHz
- Resolution bandwidths 10 Hz to 3 MHz
- High sensitivity <-141 dBm (1 Hz), with opt. preamplifier ≤161 dBm (1 Hz)
- High third order intercept (>10 dBm, typ. 15 dBm)
- Low measurement uncertainty (<1 dB)
- Internal tracking generator (FSC313, FSC316)
- Storage of measurement results on USB stick
- LAN and USB interface for remote control and transfer of data
- Low power consumption (12 W)

RF Explorer Spectrum Analyzer

RF Explorer - 3G Combo

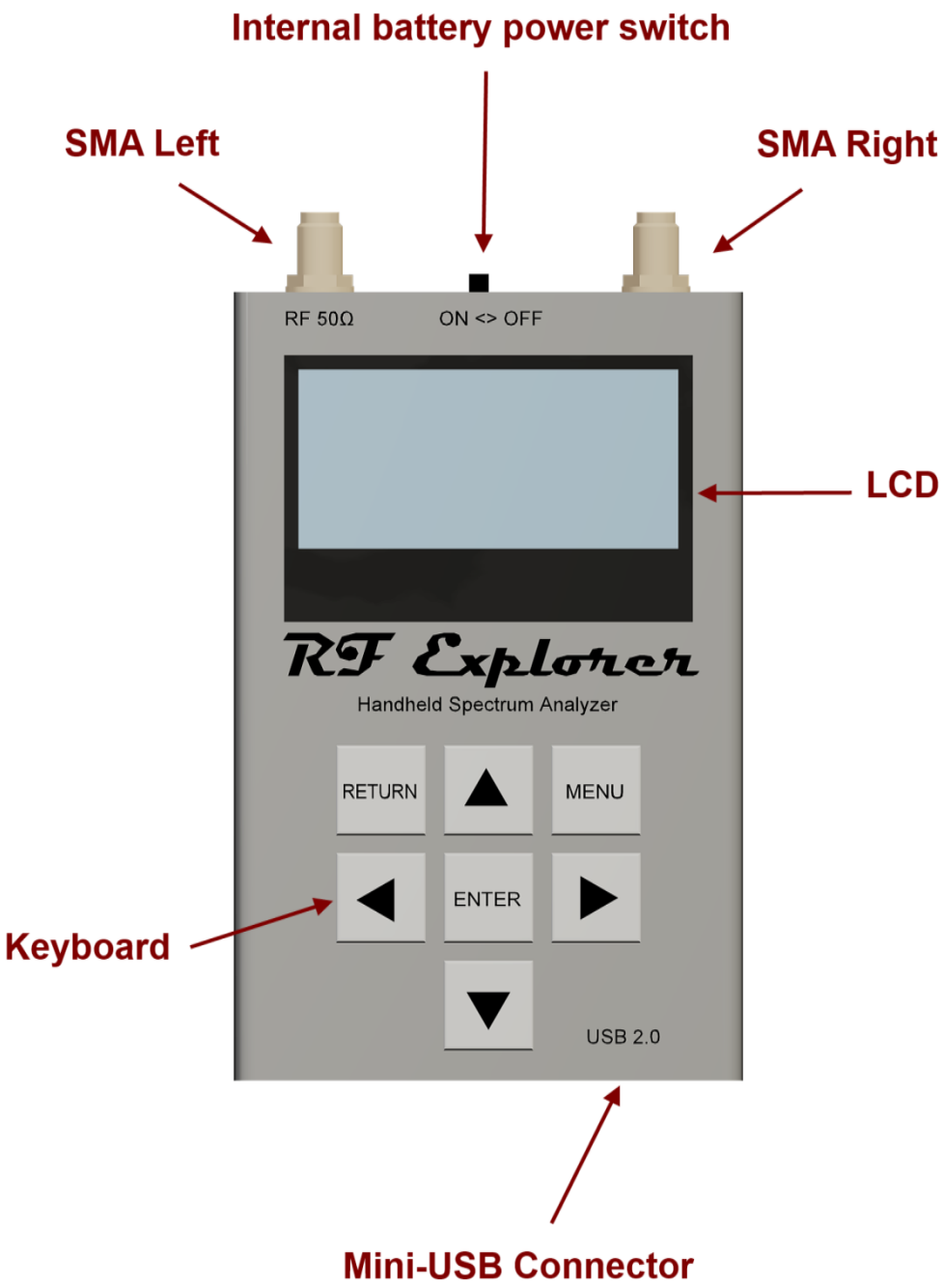
SKU 109990009

- Affordable digital spectrum analyzer
- Frequency band: 15-2700 MHz
- Spectrum Analyzer mode with Peak Max and Hold, Normal, Overwrite and Averaging modes
- Windows PC client extension

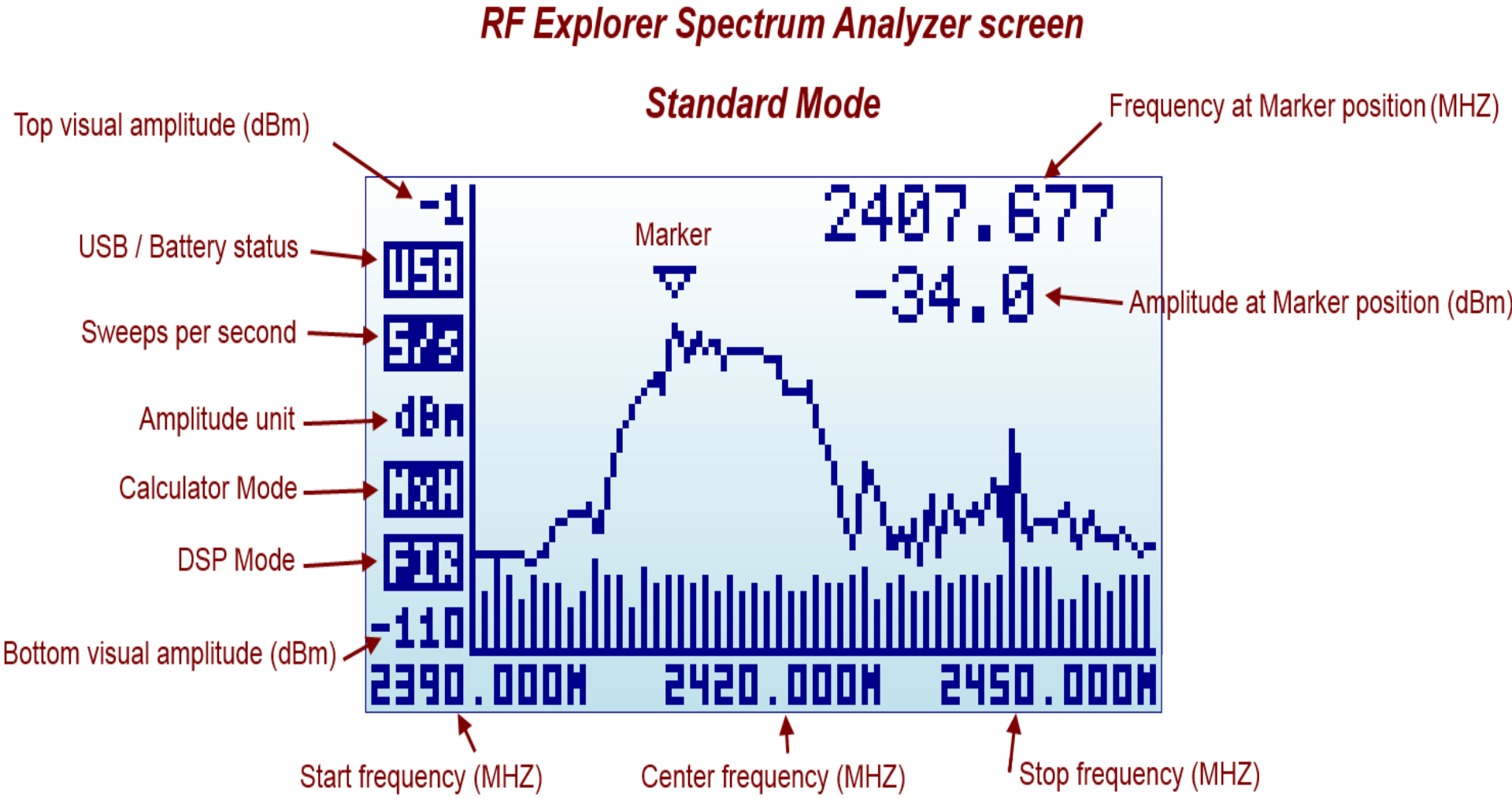
$269.00

IN STOCK 10 Available

Qty: − 1 +

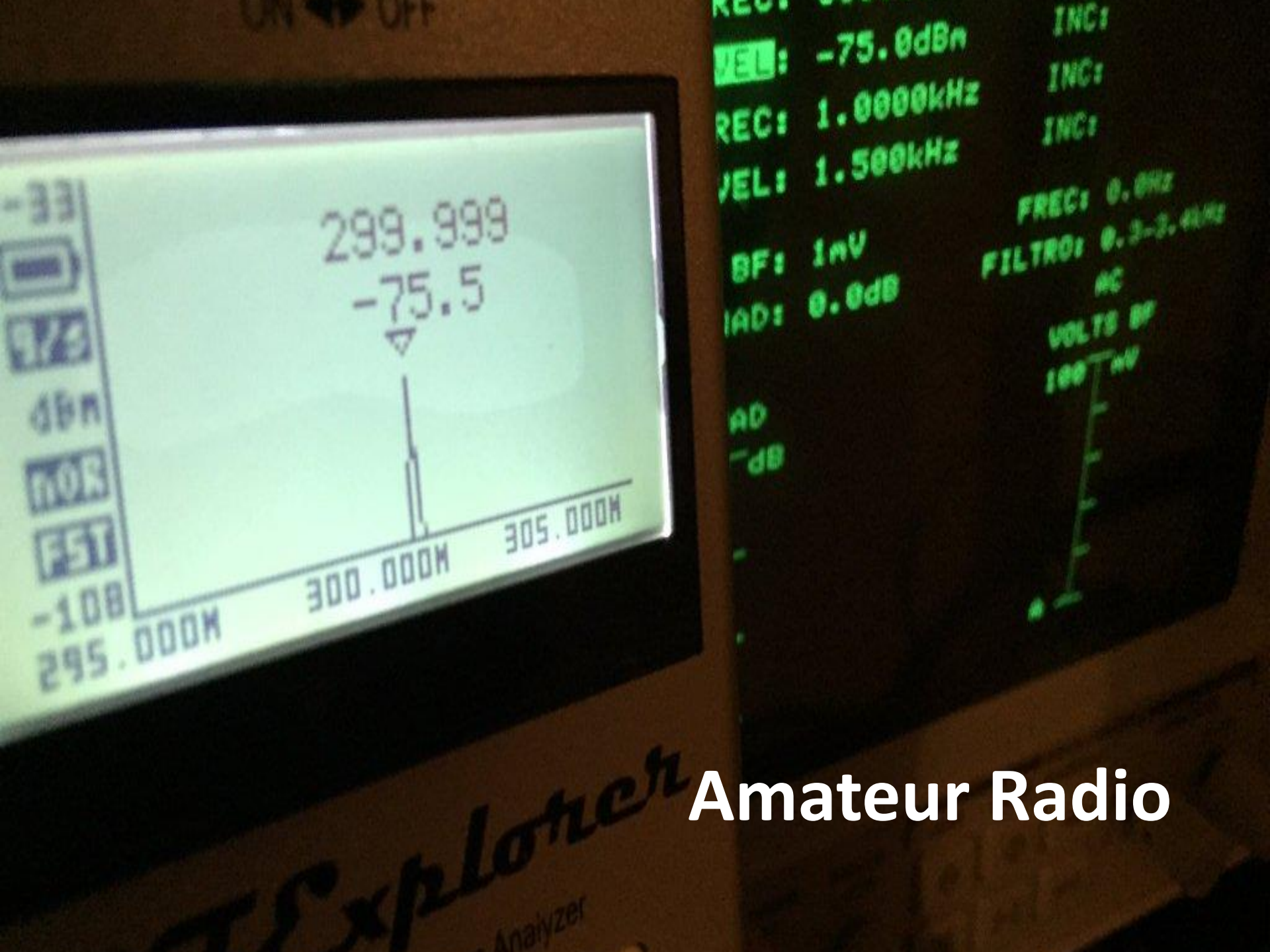

Internal battery power switch
SMA Left
SMA Right
RF 50Ω
ON <> OFF
LCD
RF Explorer
Handheld Spectrum Analyzer
RETURN
MENU
ENTER
Keyboard
USB 2.0
Mini-USB Connector

Spectrum Analyzer Screen



Fans of Radio Control

Audio Engineers



Amateur Radio

Hackers and Makers

Opinions

★★★★★ **If I had only had one of these 50 years ago, or even 20 years ago, if only...**

By T. Marshall on October 13, 2014

Verified Purchase

50 years in RF, and this device would have made so many things easier, if it had existed back then :) But it is in my toolkit now, and gets us
noise floor really is ac
now - very useful. Oh,
my HP 8569B for mak
newbies is buy it - just

★★★★★ **Best Spectrum Analyzer for the price**

By LuckOfTheIrish on December 10, 2016

Verified Purchase

Excellent Spectrum Analyzer for the price. Made rugged and should last for years.

self well. The latest (beta
leveloping those WiFi ar
nd a 50lb precision HP ir

★★★★★ **Wonderful RF Scanner! Perfect for working on Wireless Microphones and IEM's**

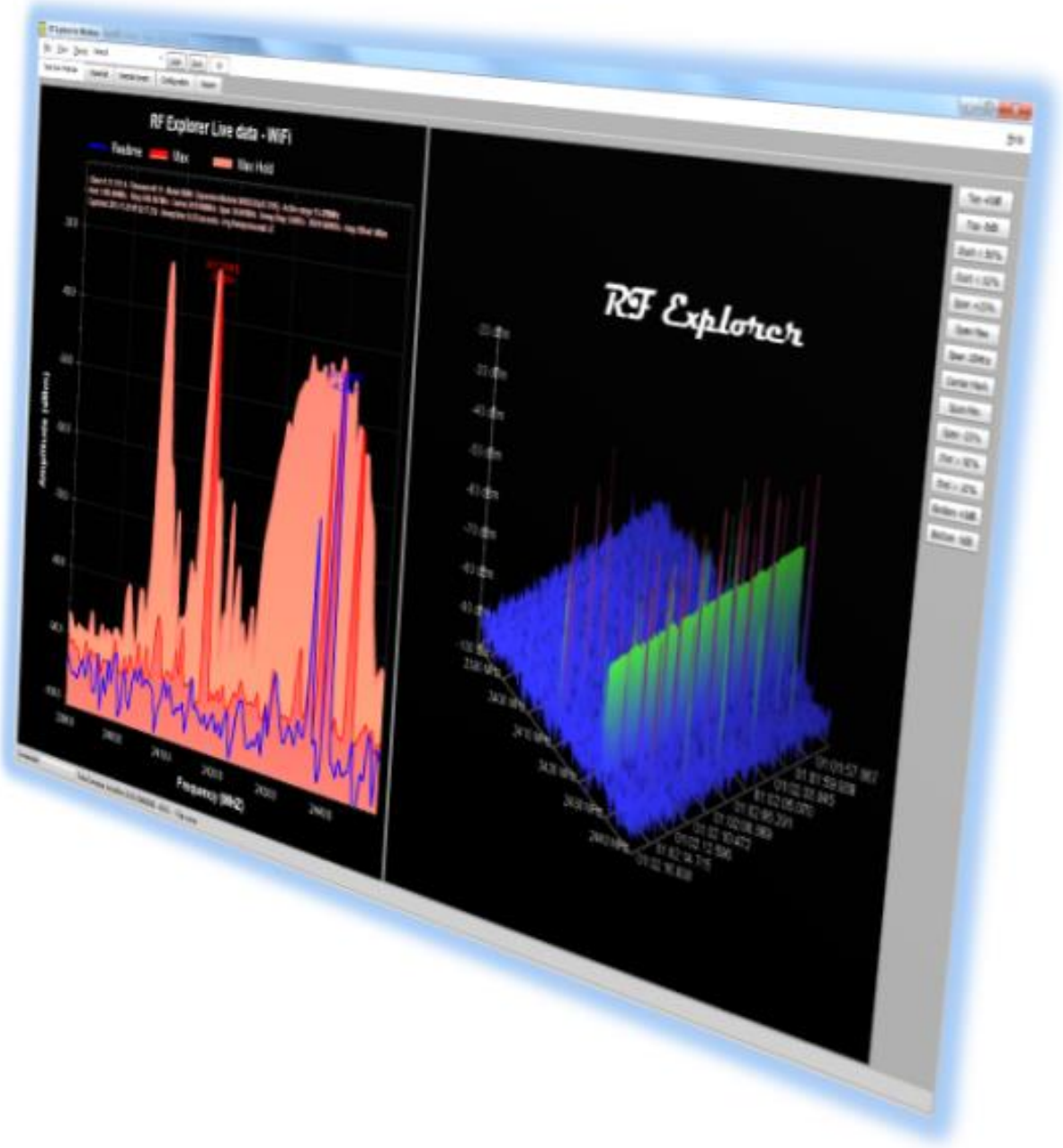
By R. Crisler on February 28, 2016

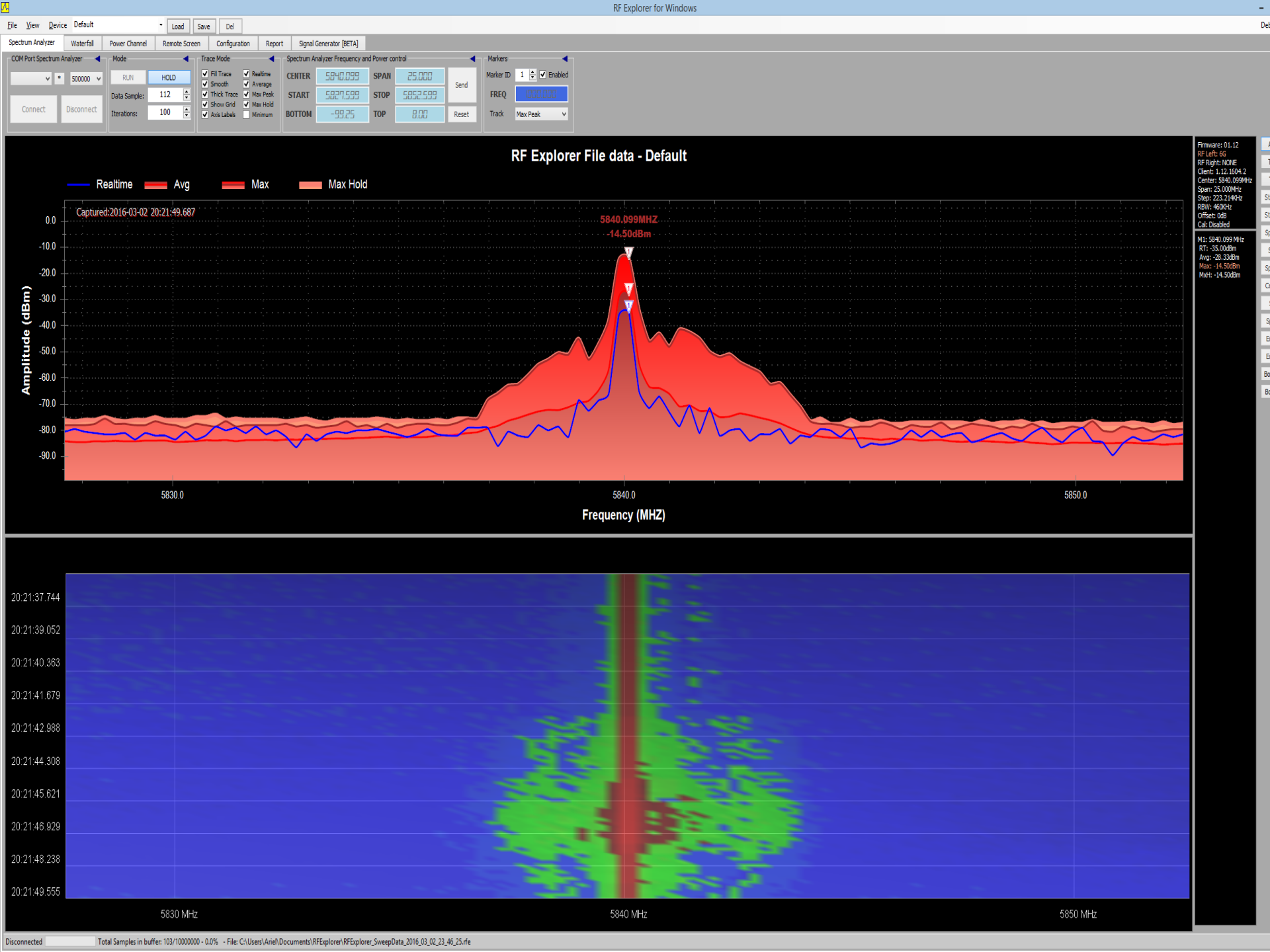
Verified Purchase

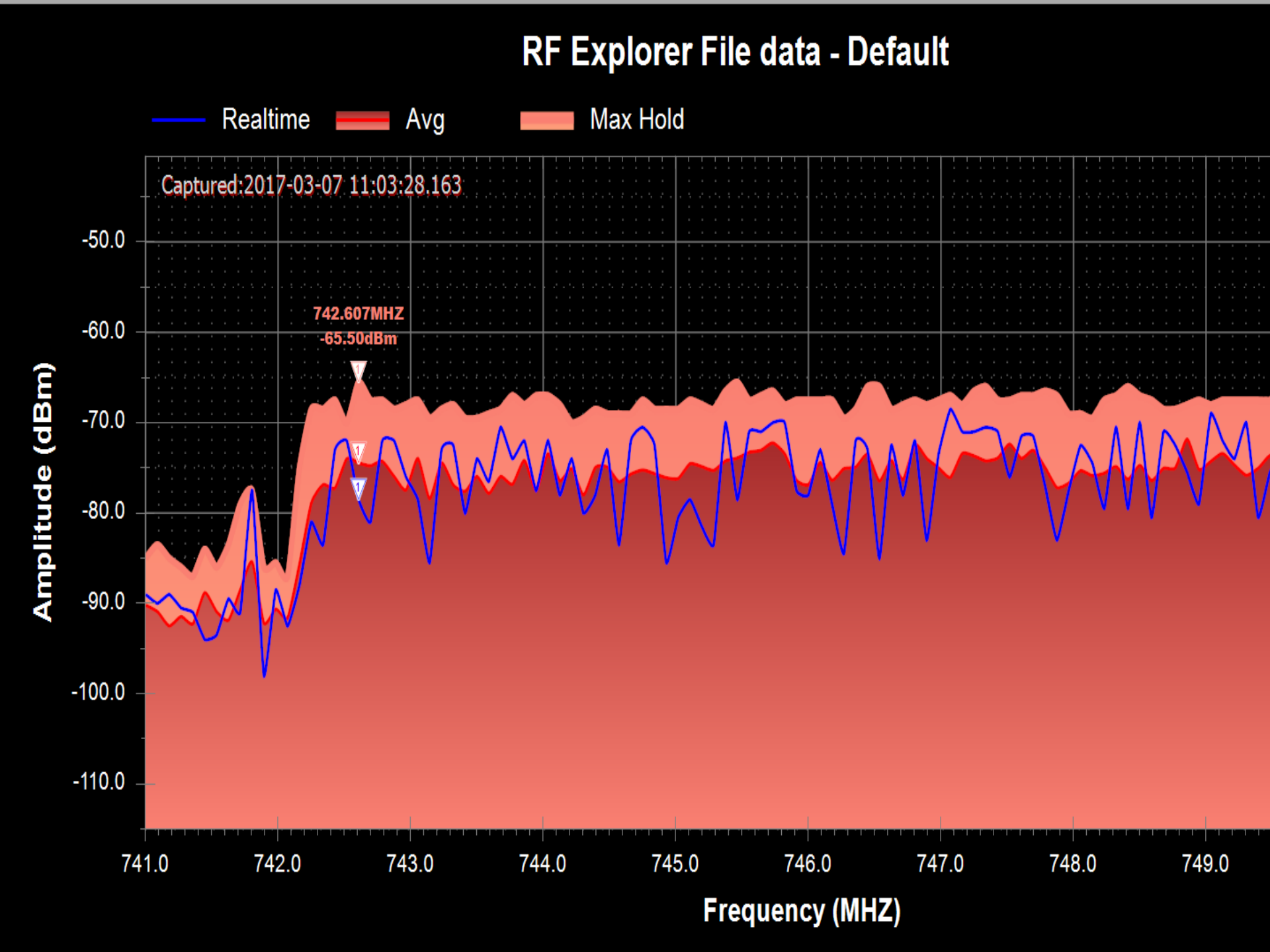
Works Perfectly! I use this as I travel around to different Church Venues to Coordinate their RF (Wireless
able to export the data using the included PC software or the optional 99$ Mac software into Shure's Wi

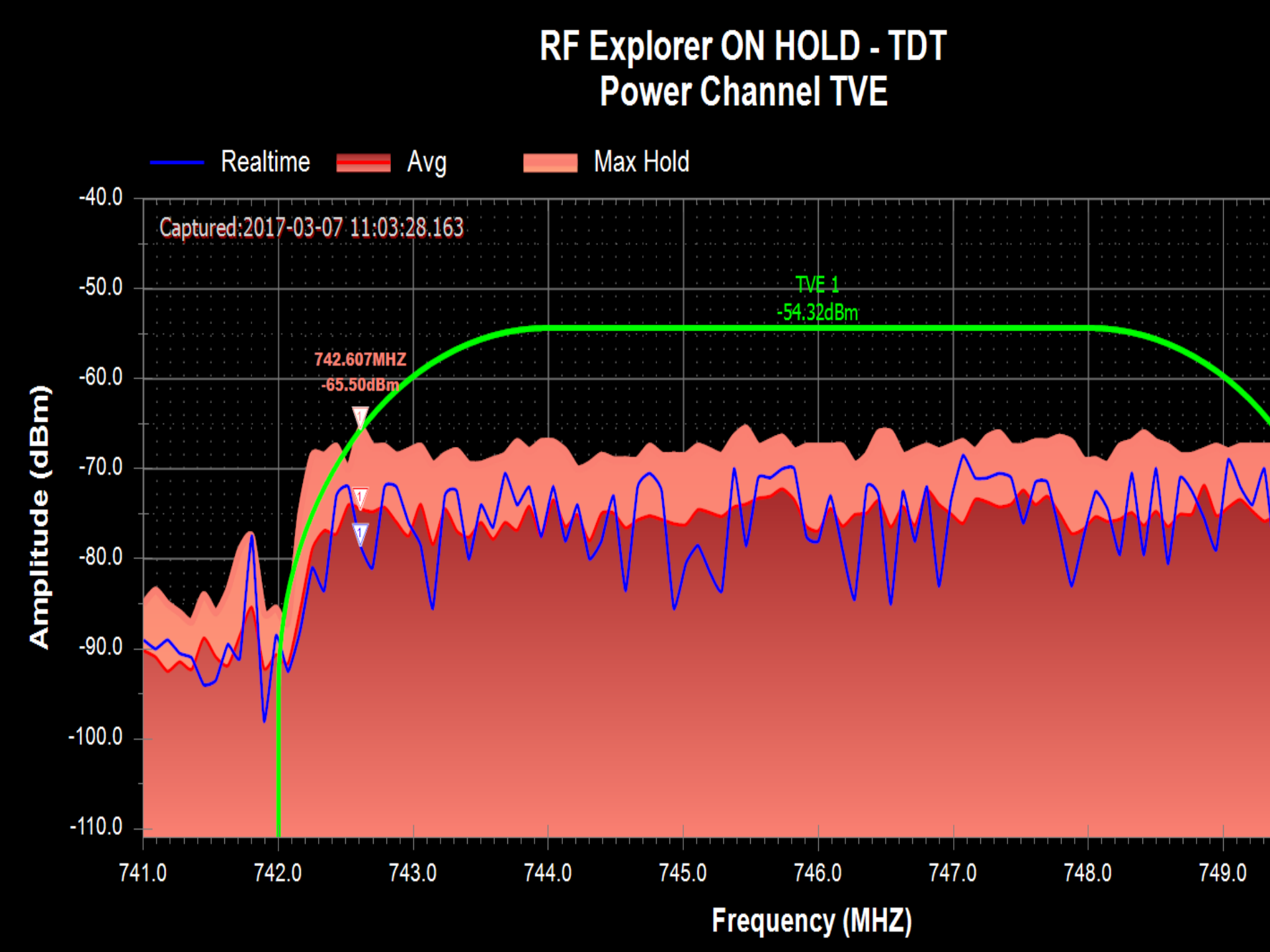
Works Great! Ive attached some screenshots of the imported scan in WWB using my Shure directionals

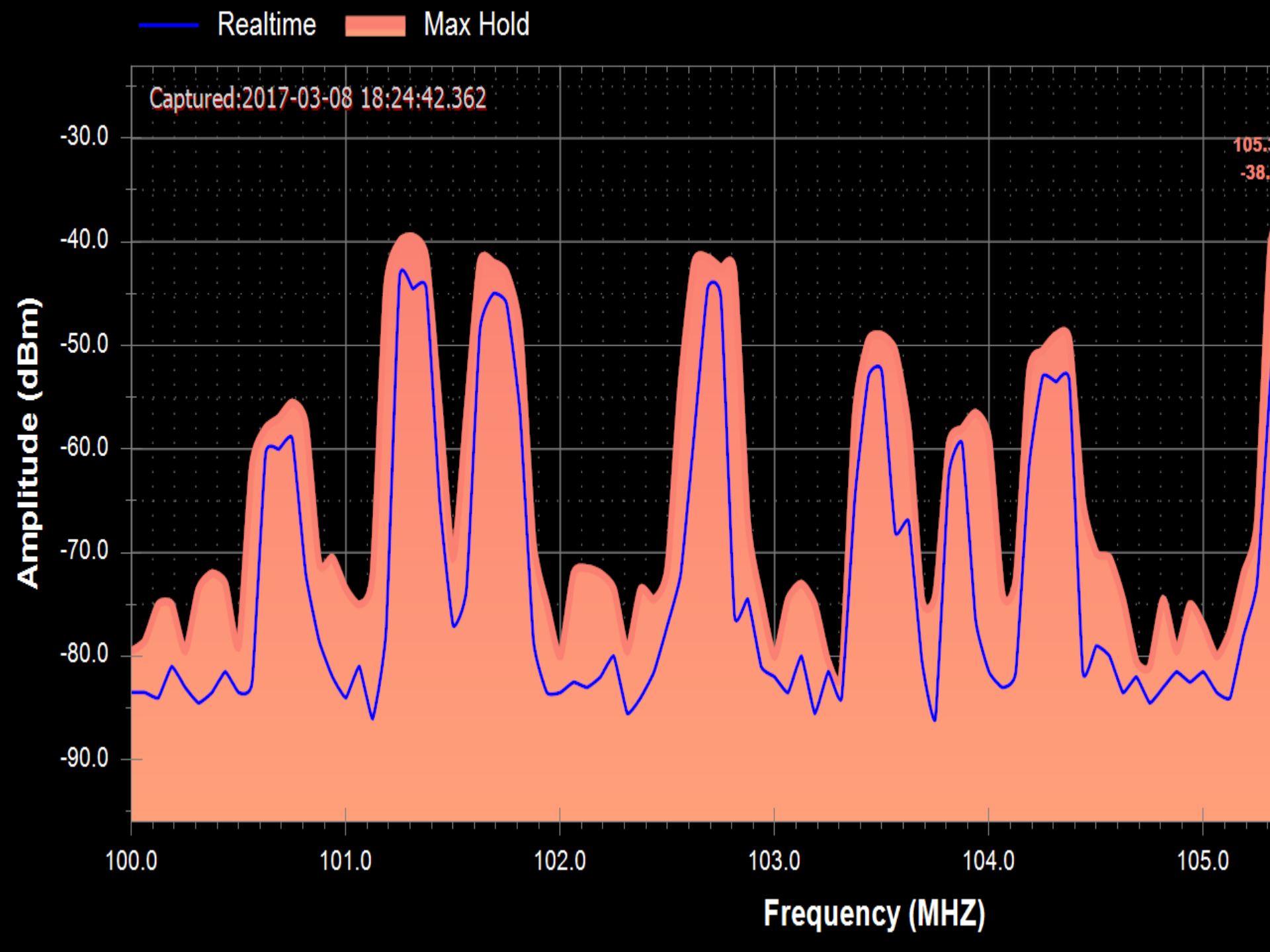
Software

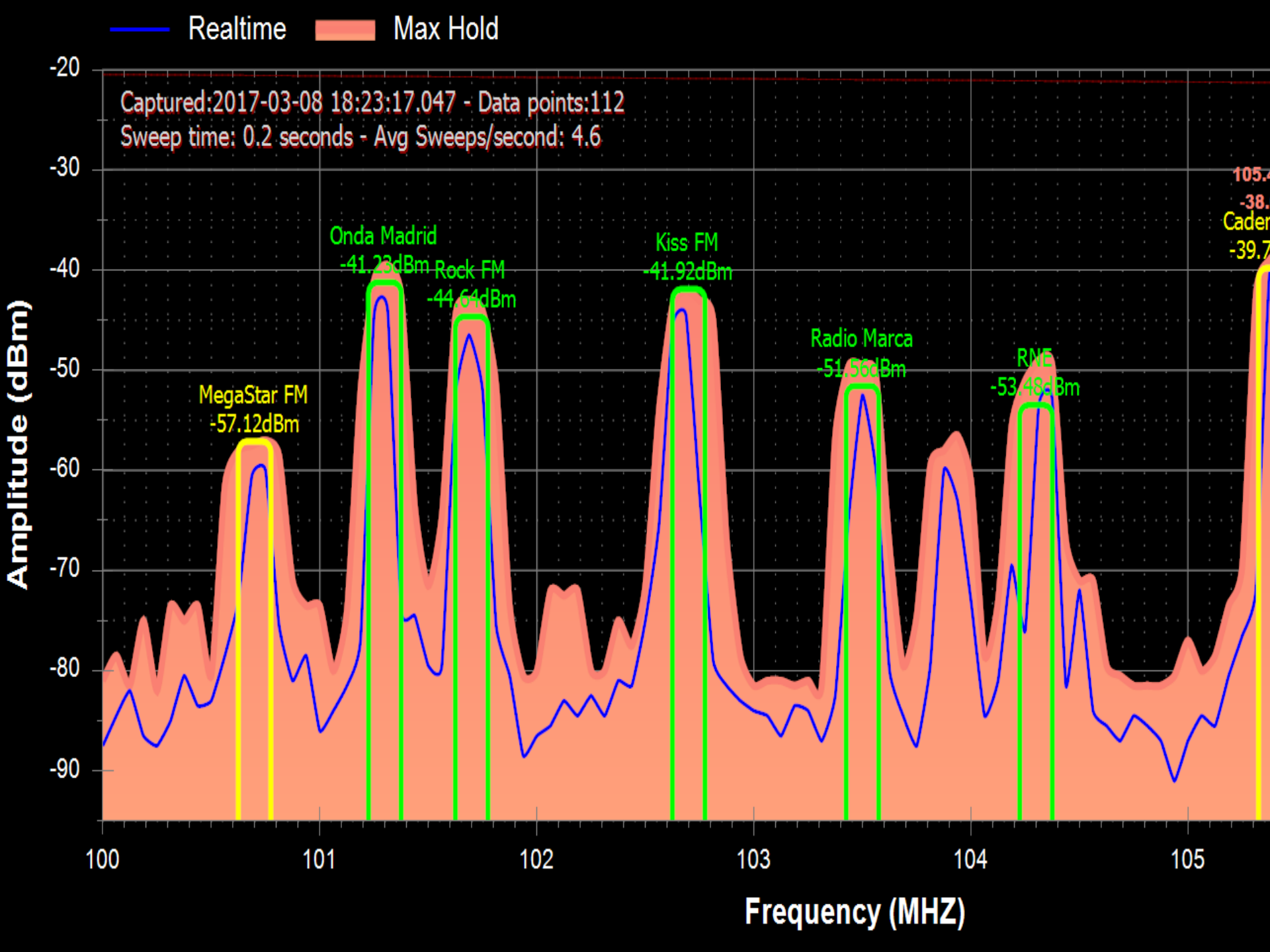


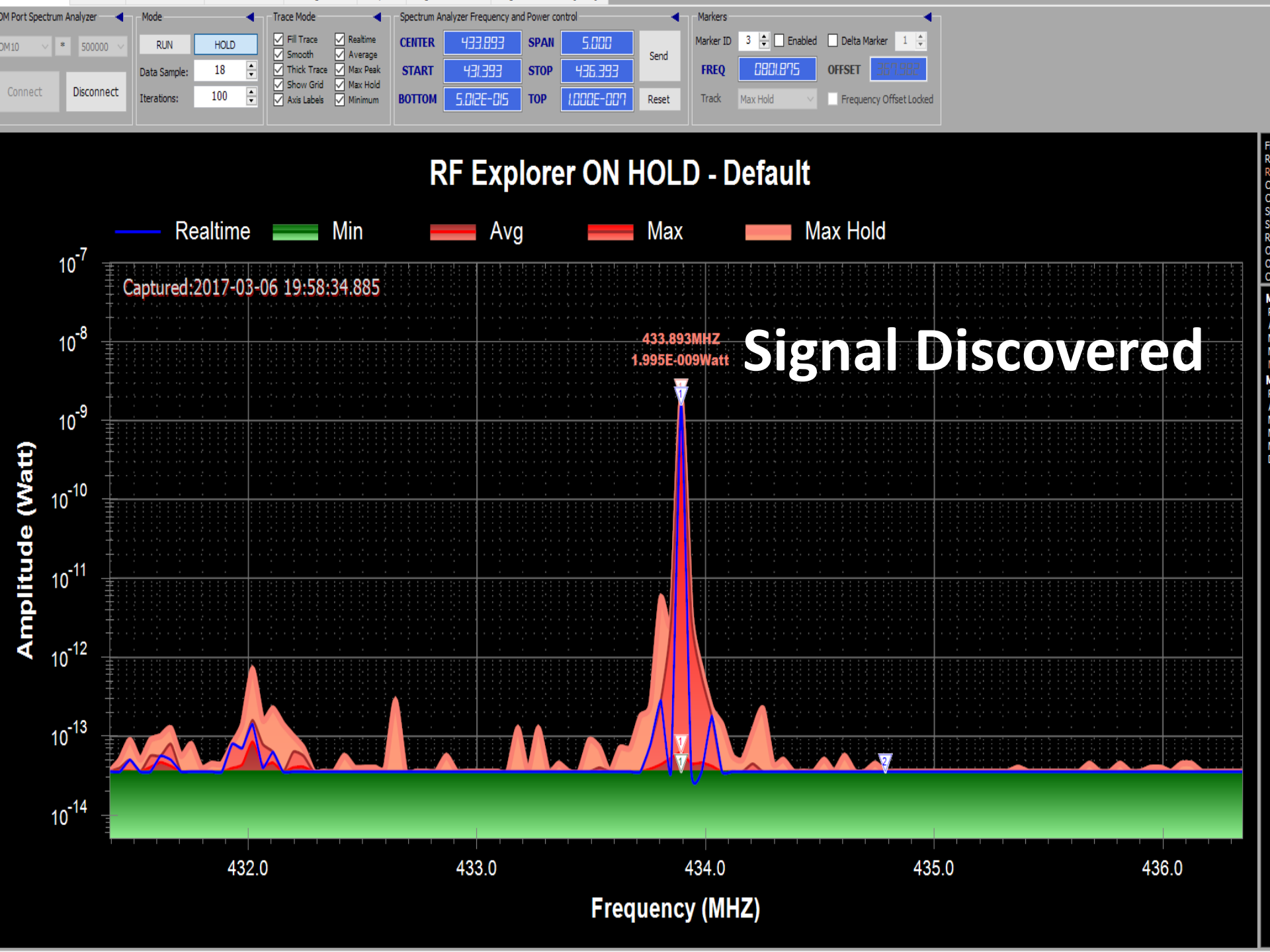

RF Explorer for Windows
File View Device Default
Load Save Del
Spectrum Analyzer Waterfall Power Channel Remote Screen Configuration Report Signal Generator [BETA]
COM Port Spectrum Analyzer
500000
Connect Disconnect
Mode
RUN HOLD
Data Sample: 112
Iterations: 100
Trace Mode
Fill Trace Realtime
Smooth Average
Thick Trace Max Peak
Show Grid Max Hold
Axis Labels Minimum
Spectrum Analyzer Frequency and Power control
CENTER 5840.099 SPAN 25.000
START 5827.599 STOP 5852.599
BOTTOM -99.25 TOP 8.00
Send
Reset
Markers
Marker ID 1 Enabled
FREQ
Track Max Peak
RF Explorer File data - Default
Realtime Avg Max Max Hold
Captured:2016-03-02 20:21:49.687
5840.099MHZ
-14.50dBm
Amplitude (dBm)
0.0 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0 -80.0 -90.0
5830.0 5840.0 5850.0
Frequency (MHZ)
Firmware: 01.12
RF Left: 6G
RF Right: NONE
Client: 1.12.1604.2
Center: 5840.099MHz
Span: 25.000MHz
Step: 223.214KHz
RBW: 460KHz
Offset: 0dB
Cal: Disabled
M1: 5840.099 MHz
RT: -35.00dBm
Avg: -28.33dBm
Max: -14.50dBm
MxH: -14.50dBm
20:21:37.744
20:21:39.052
20:21:40.363
20:21:41.679
20:21:42.988
20:21:44.308
20:21:45.621
20:21:46.929
20:21:48.238
20:21:49.555
5830 MHz 5840 MHz 5850 MHz
Disconnected
Total Samples in buffer: 103/10000000 - 0.0% - File: C:\Users\Ariel\Documents\RFExplorer\RFExplorer_SweepData_2016_03_02_23_46_25.rfe


RF Explorer File data - Default
Realtime
Avg
Max Hold
Captured:2017-03-07 11:03:28.163
742.607MHZ
-65.50dBm
-50.0
-60.0
-70.0
-80.0
-90.0
-100.0
-110.0
Amplitude (dBm)
741.0
742.0
743.0
744.0
745.0
746.0
747.0
748.0
749.0
Frequency (MHZ)

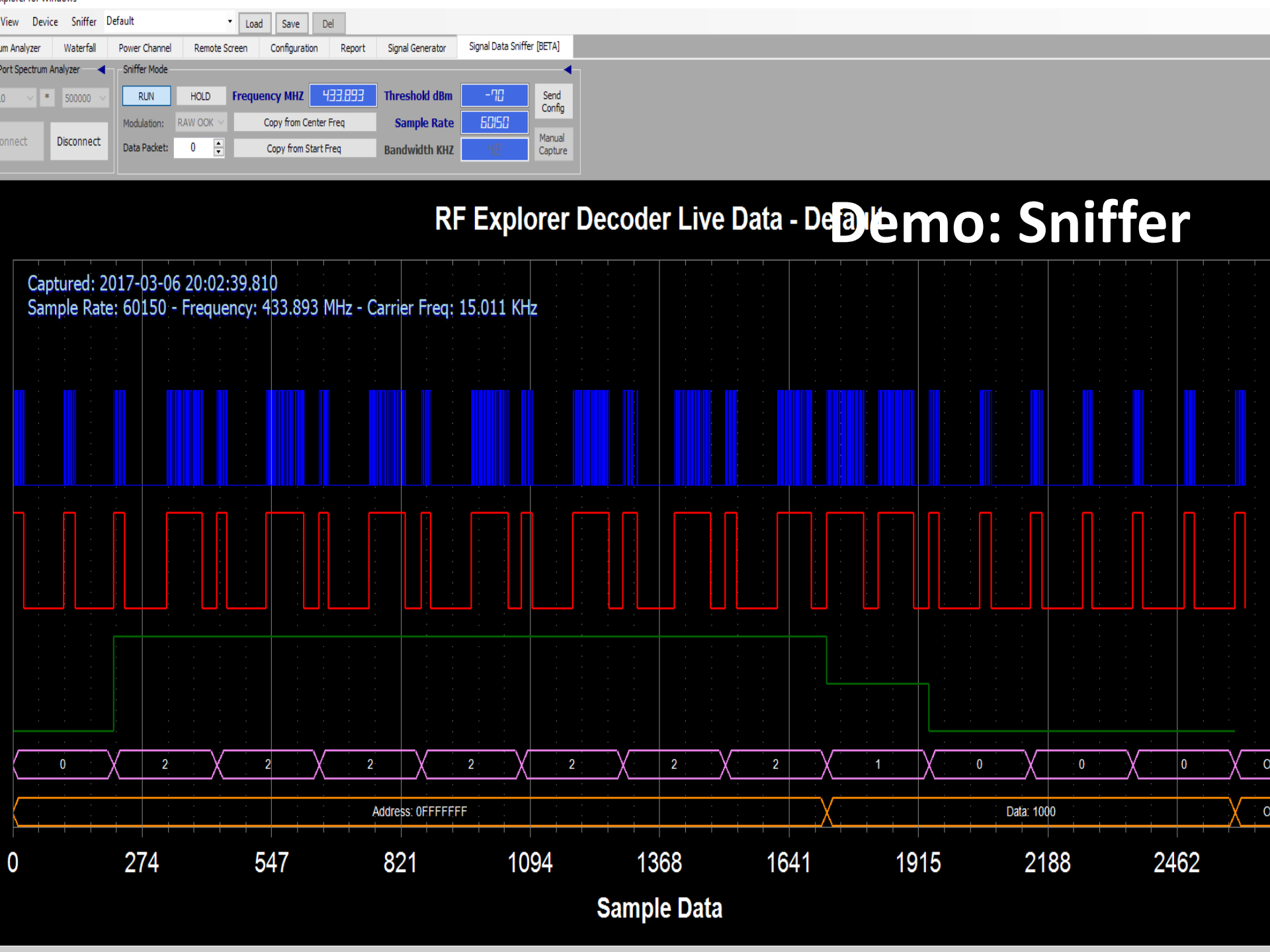

RF Explorer ON HOLD - TDT
Power Channel TVE
Realtime
Avg
Max Hold
Captured:2017-03-07 11:03:28.163
TVE 1
-54.32dBm
742.607MHZ
-65.50dBm
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100.0
-110.0
Amplitude (dBm)
741.0
742.0
743.0
744.0
745.0
746.0
747.0
748.0
749.0
Frequency (MHZ)


Realtime
Max Hold
Captured:2017-03-08 18:24:42.362
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Amplitude (dBm)
100.0
101.0
102.0
103.0
104.0
105.0
Frequency (MHZ)


Realtime
Max Hold
Captured:2017-03-08 18:23:17.047 - Data points:112
Sweep time: 0.2 seconds - Avg Sweeps/second: 4.6
MegaStar FM
-57.12dBm
Onda Madrid
-41.23dBm
Rock FM
-44.64dBm
Kiss FM
-41.92dBm
Radio Marca
-51.56dBm
RNE
-53.48dBm
Amplitude (dBm)
-20
-30
-40
-50
-60
-70
-80
-90
100
101
102
103
104
105
Frequency (MHZ)

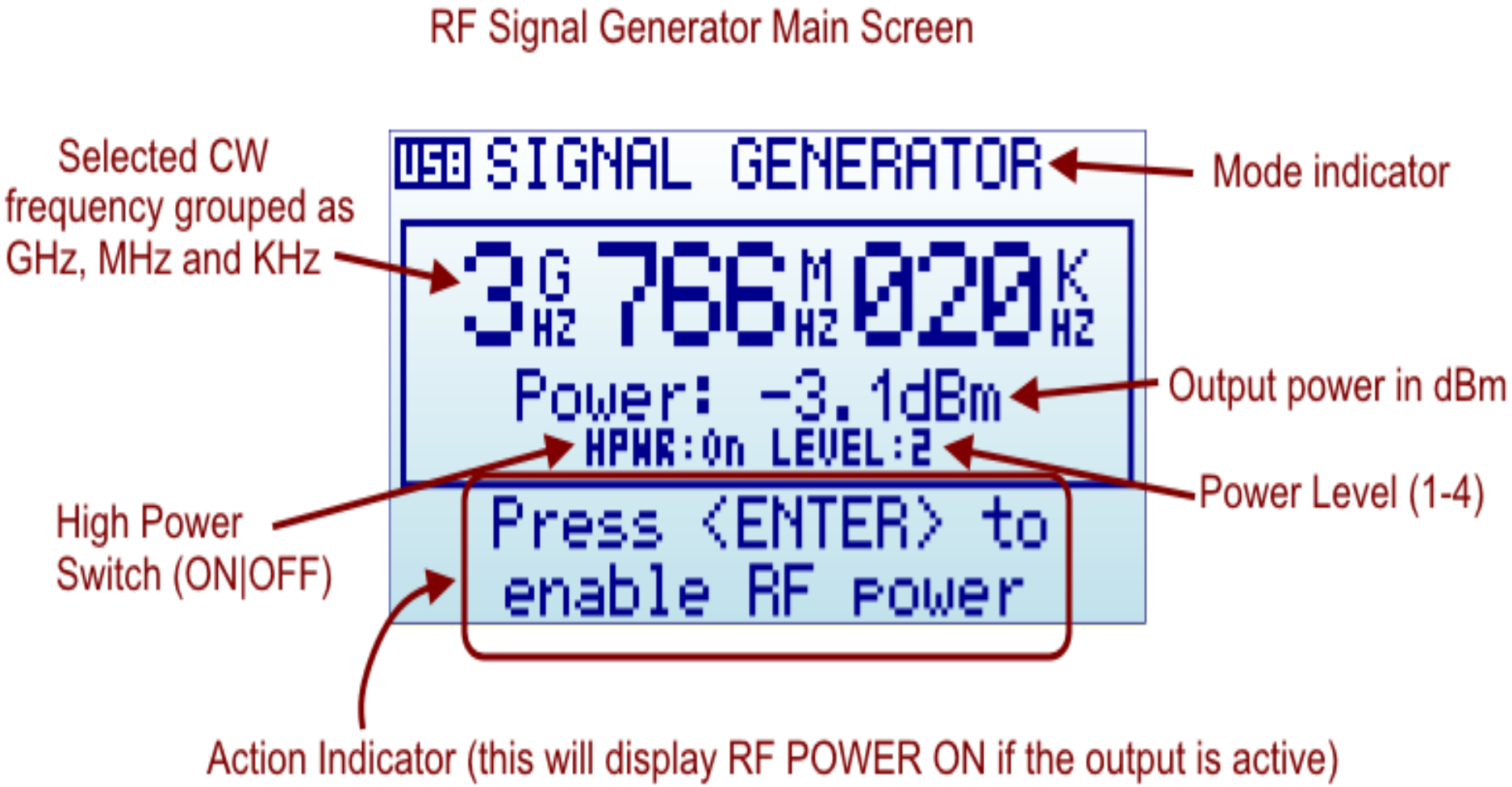

Mode
RUN
HOLD
Data Sample: 18
Iterations: 100
Trace Mode
Fill Trace
Smooth
Thick Trace
Show Grid
Axis Labels
Realtime
Average
Max Peak
Max Hold
Minimum
Spectrum Analyzer Frequency and Power control
CENTER 433.893
SPAN 5.000
START 431.393
STOP 436.393
BOTTOM 5.012E-015
TOP 1.000E-007
Send
Reset
Markers
Marker ID 3
Enabled
Delta Marker
FREQ 0001.875
OFFSET
Track Max Hold
Frequency Offset Locked
RF Explorer ON HOLD - Default
Realtime
Min
Avg
Max
Max Hold
Captured:2017-03-06 19:58:34.885
433.893MHZ
1.995E-009Watt
Signal Discovered
Amplitude (Watt)
10-7
10-8
10-9
10-10
10-11
10-12
10-13
10-14
432.0
433.0
434.0
435.0
436.0
Frequency (MHZ)

Demo: Sniffer



RF Explorer
Signal Generator

Signal Generator



Coaxial

Low Pass Filter

SLP-550+
SLP-550

50Ω DC to 520 MHz

CASE STYLE: FF99

Connectors	Model	Price	Qty.
SMA	SLP-550(+)	$34.95 ea.	(1-9)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W max.

Features

- good attenuation rate, 1.35 typ. 20dB/ 3dB BW ratio
- rugged shielded case
- other SLP models available with wide selection of cut-off frequencies

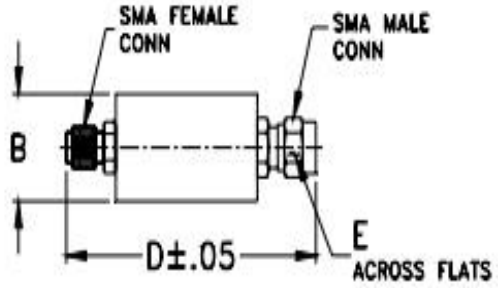
Applications

- lab use
- test equipment
- video equipment

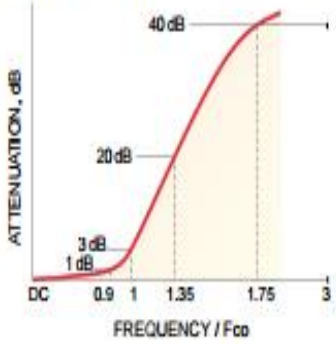
Low Pass Filter Electrical Specifications

PASSBAND (MHz) (loss < 1 dB)	fco (MHz) Nom. (loss 3 dB)	STOPBAND (MHz) (loss > 20 dB)	STOPBAND (MHz) (loss > 40 dB)	VSWR (:1) Passband Typ.	VSWR (:1) Stopband Typ.
DC-520	570	750-920	920-2000	1.7	18

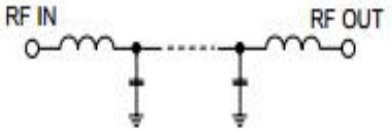
Outline Drawing



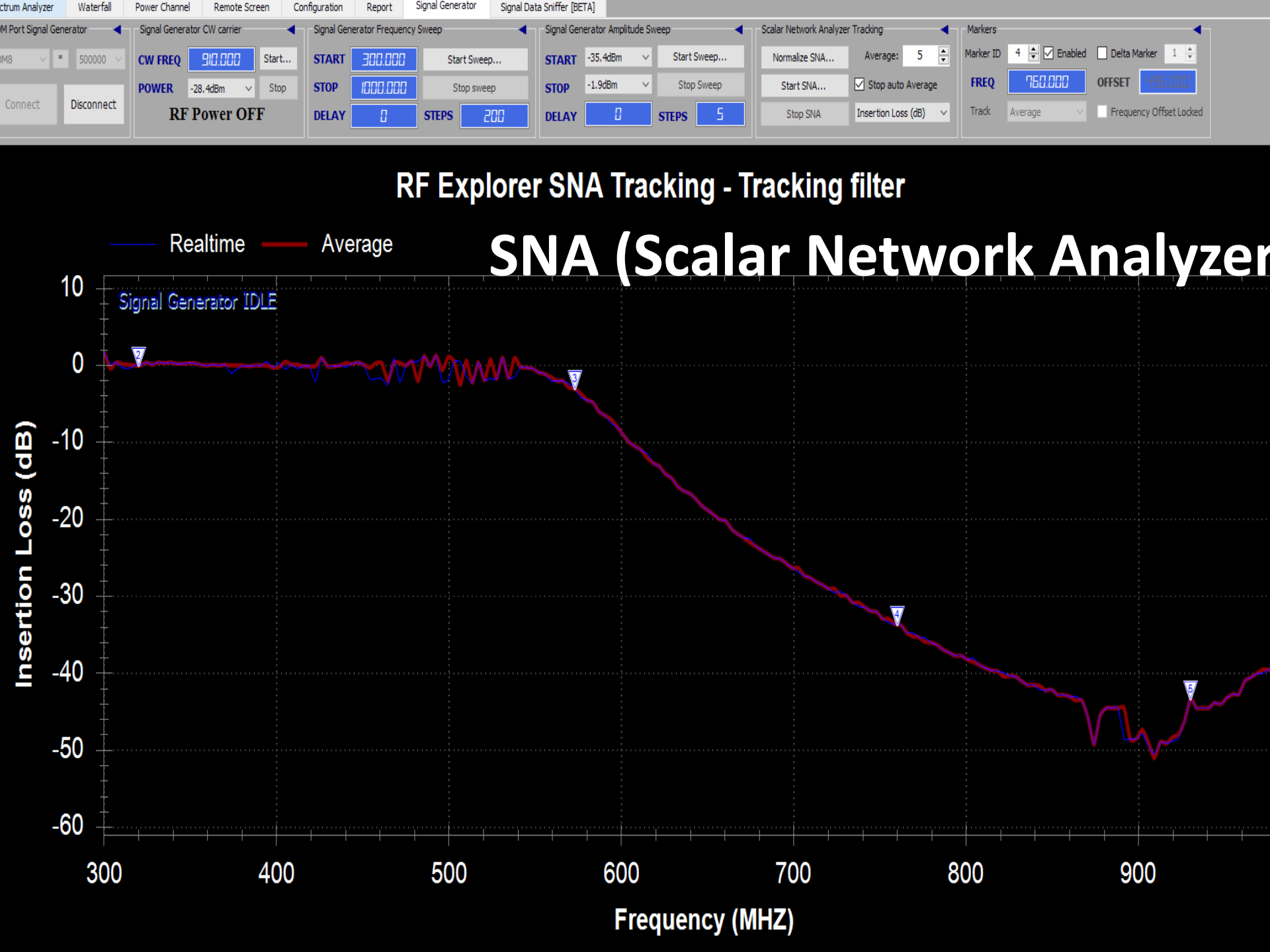
typical frequency response



electrical schematic



SNA
(Scalar Network Analyzer)
SMA Male/Male
quality Semi-rigid
RF cable
SMA Female/Male
quality Semi-rigid
RF cable
LORCH
Device Under Test
SMA Wrench
RFExplorer
Handheld Spectrum Analyzer
RETURN
MENU
ENTER
Spectrum Analyzer
RFExplorer
Handheld RF Signal Generator
RETURN
MENU
ENTER
Signal Generator


Waterfall
Power Channel
Remote Screen
Configuration
Report
Signal Generator
Signal Data Sniffer [BETA]
Signal Generator CW carrier
CW FREQ
910.000
Start...
POWER
-28.4dBm
Stop
RF Power OFF
Signal Generator Frequency Sweep
START
300.000
Start Sweep...
STOP
1000.000
Stop sweep
DELAY
0
STEPS
200
Signal Generator Amplitude Sweep
START
-35.4dBm
Start Sweep...
STOP
-1.9dBm
Stop Sweep
DELAY
0
STEPS
5
Scalar Network Analyzer Tracking
Normalize SNA...
Average:
5
Start SNA...
Stop auto Average
Stop SNA
Insertion Loss (dB)
Markers
Marker ID
4
Enabled
Delta Marker
1
FREQ
760.000
OFFSET
Track
Average
Frequency Offset Locked
RF Explorer SNA Tracking - Tracking filter
Realtime
Average
SNA (Scalar Network Analyzer
Signal Generator IDLE
10
0
-10
-20
-30
-40
-50
-60
Insertion Loss (dB)
300
400
500
600
700
800
900
Frequency (MHZ)

Mithbuster

video equipment

Low Pass Filter Electrical Specifications

PASSBAND (MHz) (loss < 1 dB)	fco (MHz) Nom. (loss 3 dB)	STOPBAND (MHz) (loss > 20 dB)	STOPBAND (MHz) (loss > 40 dB)	VSWR
DC-520	570	750-920	920-2000	

M2: 0320.000 MHz
RT: 0.00dB
Avg: 0.00dB
M3: 0573.000 MHz
RT: -3.00dB
Avg: -3.00dB
M4: 0760.000 MHz
RT: -33.64dB
Avg: -33.64dB
M5: 0930.000 MHz
RT: -43.30dB
Avg: -43.30dB

Confirmed!

RF Explorer®

Showroom

RF Explorer 3G+ IoT for Raspberry Pi
SKU 114990814

$100 ~~$125~~

EVA carrying case for 3G Combo
SKU 328050001

$4.95

RF Explorer Signal Generator (RFE6GEN)
SKU 114990081

$189

RF Explorer 6G Combo
SKU 109990063

$365

RF Explorer Protection Boot (Yellow)
SKU 322100012

$9.95

Rubber Duck UHF 400-900MHz SMA Articulated Antenna
SKU 109990205

$9.5

SMA Termination Male
SKU 320160014

$8.5

RF Explorer model WSUB1G
SKU 109990010

$129

Conclusions

- RF is not Black Magic
- RF Explorer makes instrumentation economical and user- friendly
- Discover Signals on Environment – Spectrum Analyzer
- Inyect Signal in a circuit/ Measures Network Parameter – Signal Generator
- Manuel is the best

ASOCIACIÓN DE ELECTRÓNICA
SNZ4LS
UPM SUR
IEEE SB

IEEE

youngprofessionals

Podéis encontrarme en:

- **Contacto -> mballesteros@rf-explorer.com**
- **Más Info -> www.rf-explorer.com**