FSx RecordPlay Software
Application Note

Products:

- R&S®FSP
- R&S®FSU
- R&S®FSQ
- R&S®FSIQ
- R&S®FSMR
- R&S®FSL
- R&S®FMU
- R&S®FSV
- R&S®FSH4
- R&S®FSH8
- R&S®ESCI
- R&S®ESU
- R&S®ESPI

FSxRecordPlay is a program for recording the trace data in frequency and time domain from R&S® Spectrum Analyzer FSx family and Test receiver ESx family via IEEE bus, LAN/Internet, or internal remote control connection. The stream waveform data can be played back and analyzed directly in this software.

ROHDE&SCHWARZ

Application Note

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1 Overview

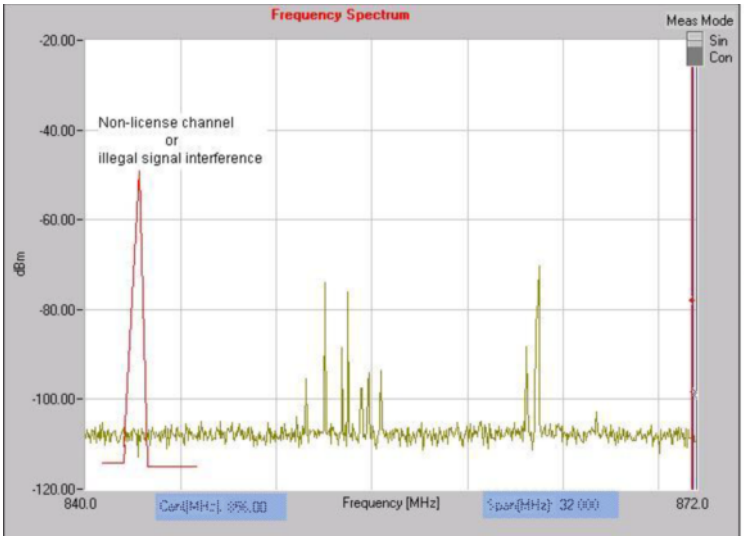
FSx_RecordPlay software is useful for checking RF hardware design faults when the fault signal to be measured occurs only occasionally (spark value). This is especially true when it involves measurement of RF signals that change over time, and often unpredictably.

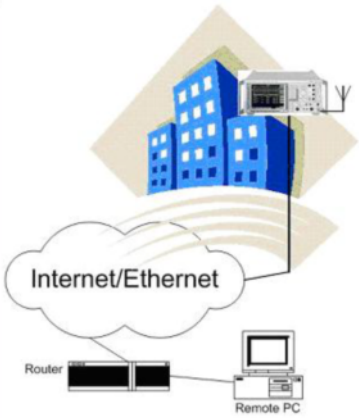
The software can find out on known or unpredictable events, capture the signals seamlessly to PC hard-disk, and analyze the behavior of frequency and amplitude parameters over time.

You can also trace & monitor non-licensed channels or interference signals in some test areas for a specified time via the “Spectrum History” diagram feature. i.e identify the frequency of interference with respect to neighboring transmitters.

The software allows for trace data capture in the time domain (zero span) and FFT mode (FMU36 and FSQ only) as well. This function is useful for capture the Pulse/Radar or RFID signal in time domain. It included the EMI 6dB filter 200Hz, 9kHz and 120kHz in the RBW selection.

In the latest version of 2.85, the software can also operate with the FSH4 and FSH8 spectrum analyzers.





2 Software Features

FSx_RecordPlay is a program for capturing the stream waveform data in frequency and time domain from the Rohde & Schwarz FSx spectrum instrument family and ESx test receiver family via the IEEE bus/LAN/Internal remote control connection. Waveform data can be played back directly on this software.

It features:

1. Recording of Frequency, Time Domian and FFT mode (FMU36 and FSQ only) stream waveform data from your FSx Spectrum Analyzer or ESx Test Receiver directly to your PC's disk drive or internal FSx/ESx disk drive.
2. Playback of recorded waveform.
   The stream waveform is saved as *.sft* format and the capture duration time can be set.
3. Spectrum History Diagram (waterfall diagram)
4. Marker value position in Absolute or relative

Note: The “AUTO” (Max and Min value) detector is not supported in this version.

3 Hardware and Software Requirements

3.1 PC Hardware Requirement

CPU: Pentium III 800MHz or better.

RAM: 256 MB or more

Monitor: VGA colour monitor

IEEE bus (optional): IEC/IEEE-bus interface

3.2 PC Software Requirement

Microsoft 32-bit operating system (Windows 2000/XP)

GPIB (optional) driver installed

CVI Run Time Engine

VISA runtime version 2.5 above

RSIB.DLL driver installed (Only need for LAN and internal remote control connection)

4 Connecting the Computer and the Instrument

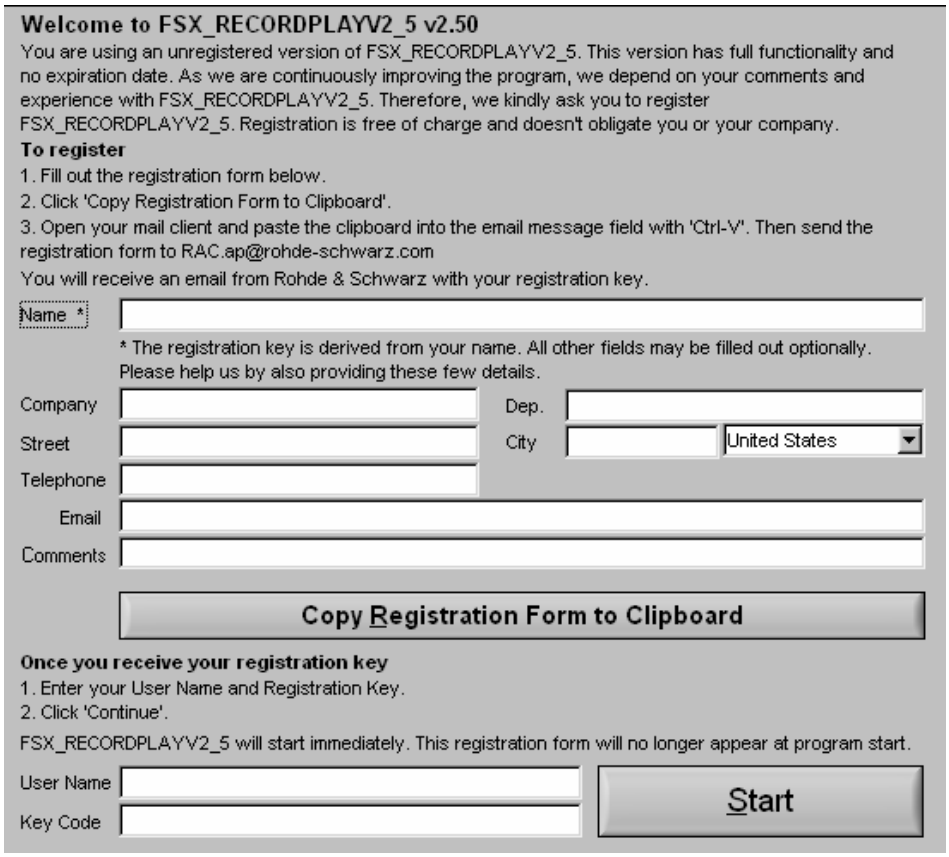
The setup of the instrument connection is done via IEC/IEEE-bus primary address or IP address. Ensure that the GPIB and IP addresses are not the same.

To use the LAN/Internal for remote control connection, please go to the website http://www.rohde-schwarz.com/ to download and install ***RSIB-PassportV1.4.zip***. The RSIB passport requires **NI-VISA V2.5** or higher to be installed. Note that NI-VISA has to be licensed separately.

5 Installing the Software

1. Extract the ZIP file, FSxRecordPlay.zip, attached with this Application Note.

2. Start *SETUP.EXE* to install the program.
   Program files are copied to a directory of your choice during installation.



3. Complete the Registration form to receive a registration key.

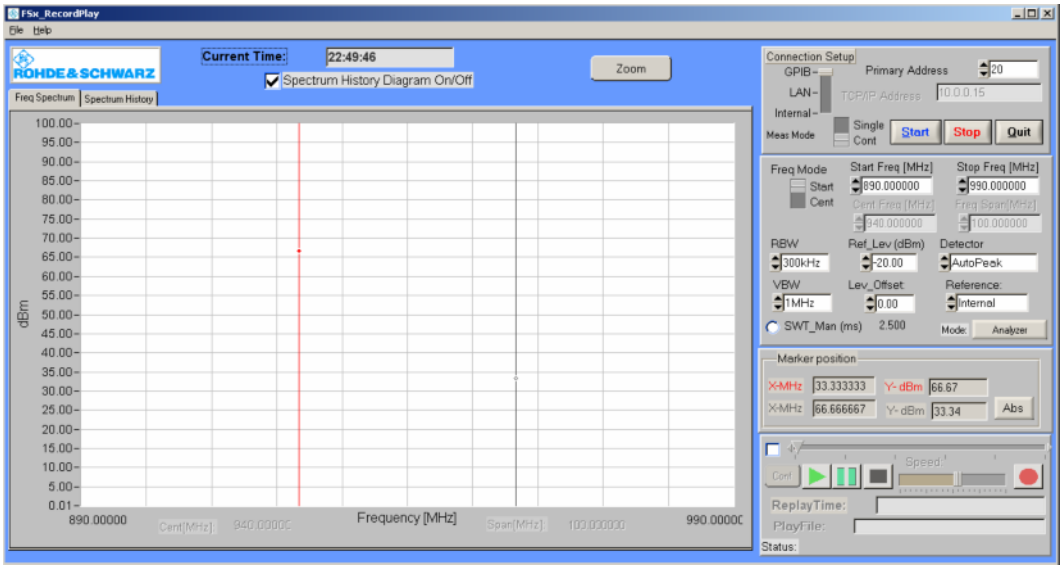
4. Enter the keycode into the registration form and click “Start”.
   The main window for *FSxRecordPlay* appears.

5. Once registered, the registration form will not appear for the subsequent times you run *FSxRecordPlay*.

NOTE: You can still start the program with full functionality by clicking the “Start” button, even if FSxRecordPlay has not been registered.

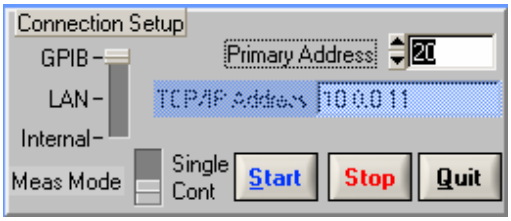
6 Operating FSx_RecordPlay Software

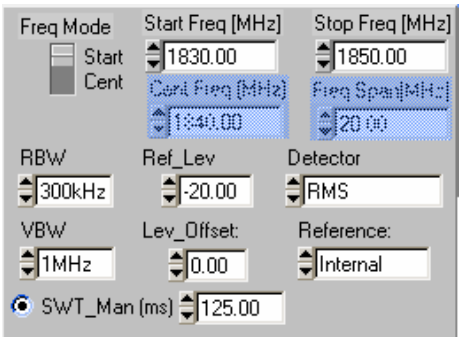
6.1 Start FSx_RecordPlay.Exe



6.2 Connection and instrument control setup

Configure the program to match the setup values shown below before connecting the instrument. In order to capture in time domain (zero span), please select the “Freq Span [MHz]” in 0.0 or set the start and stop Freq in same value.



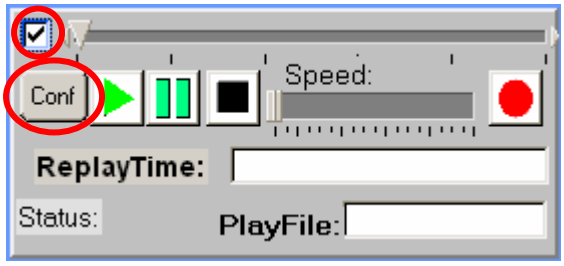


6.3 Capture your stream waveform

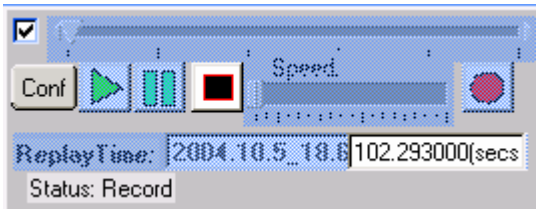
Before you capturing stream waveform data, you need to configure:

1. Path Filename
2. Capture Time
3. Capture Interval time

Select the check box for access to the record and play functions.
Click on the ***"Conf"*** button as shown circled in blue to bring up the *Rcord&Play* configuration window.

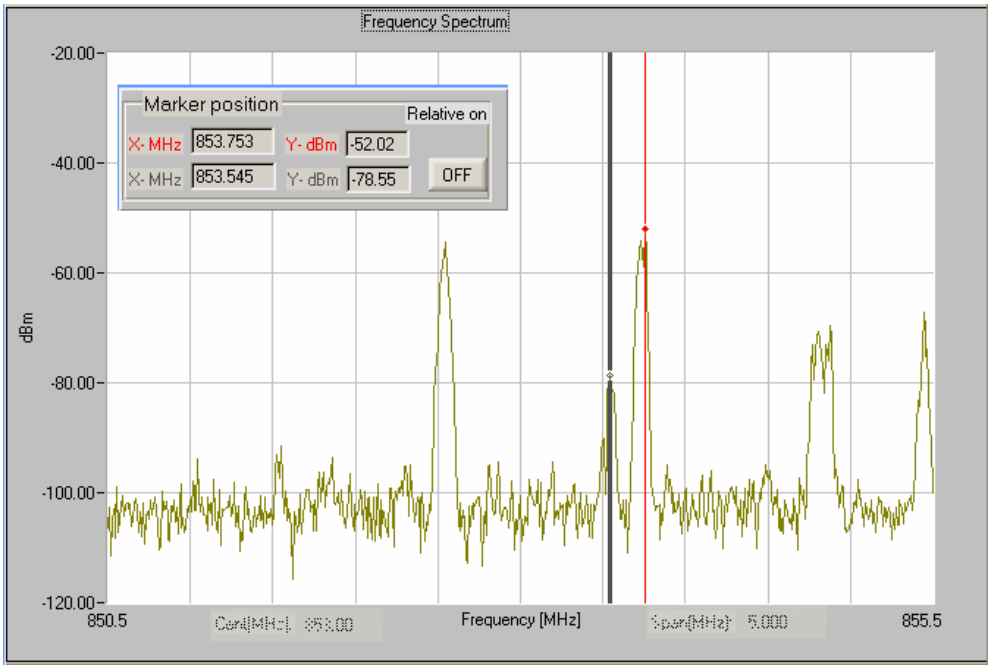


Click on the *Record* button to begin the capture process.
The software displays the remaining recording time in seconds before capturing stops.
Click the *Stop* button to end the capturing process.



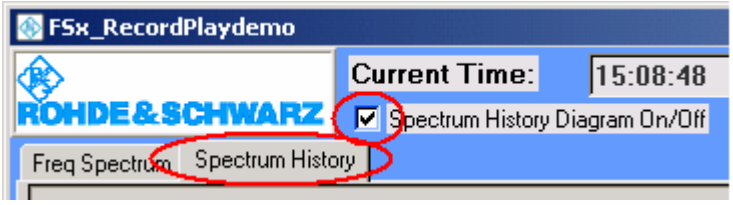
6.4 Playback the stream waveform data

Double click the PlayFile enty field to display a list of recorded files.
Select the recorded waveform file (xxx.sft) and click the *Play* button to begin playback.
The software allows you to select different playback speeds, jog forwards/backwards, and pause.
Another feature is the ability to zoom and view marker information.



6.5 Spectrum History Diagram Features

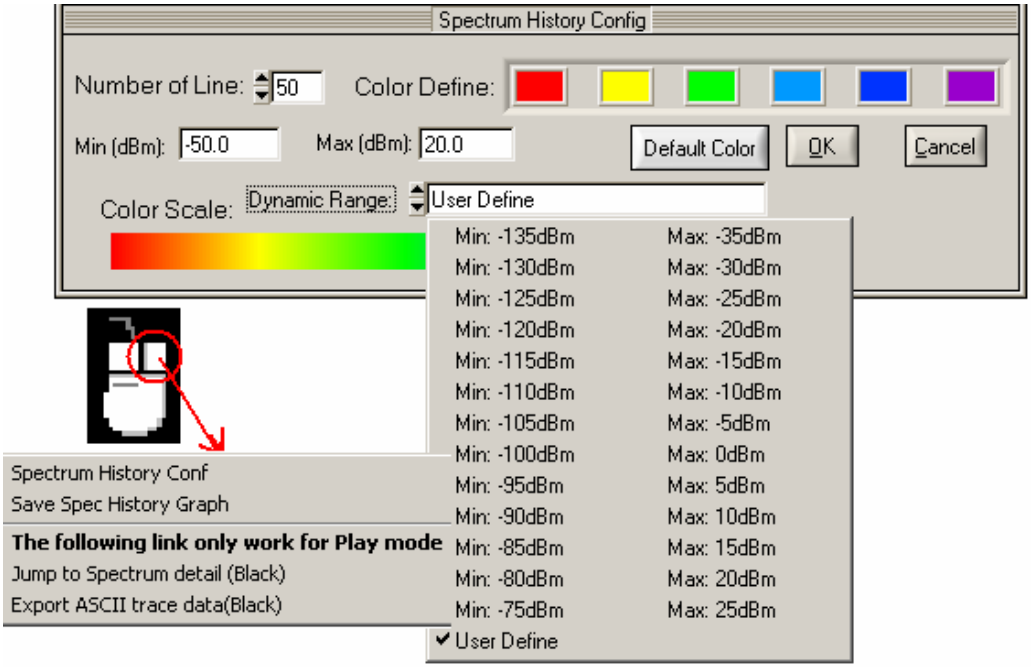
In “Play” mode, check the **“Spectrum History Diagram On/Off”** checkbox (as shown below) to view the spectrum history diagram. Note that when program is in “Record” mode, it is better to disable **“Spectrum History Diagram On/Off”** checkbox to save PC resources and get more trace data per second.



Right-click the mouse on the diagram for options to change the configuration of the Spectrum History Diagram, and save the Graph image.

In the configuration of spectrum history diagram, you can define:

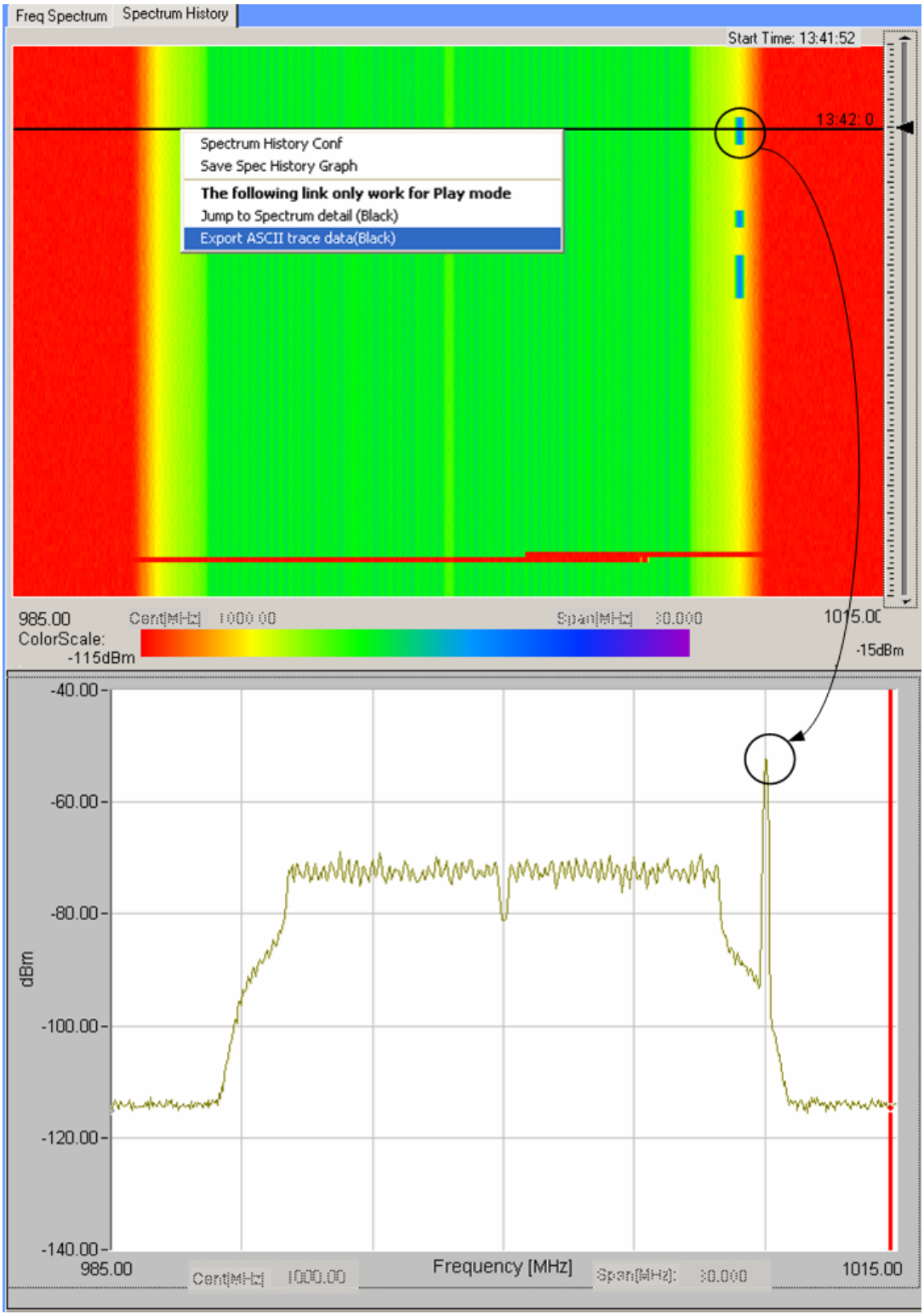
1. Number of lines (It's better to select < 100)
2. Colors
3. Dynamic Range
4. User defined minimum and maximum display range.



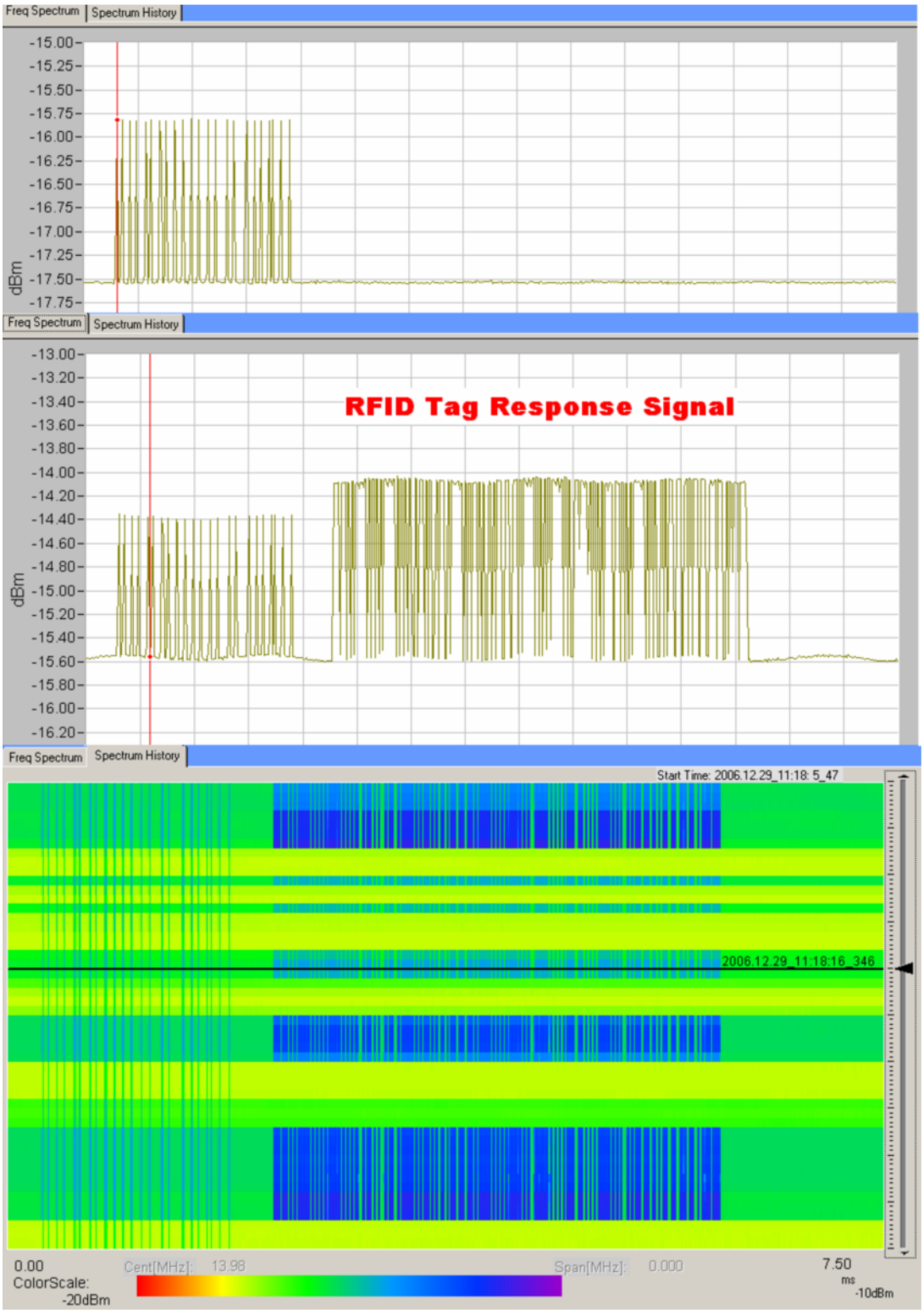
Changing the dynamic range for spectrum history configuration will also extended to the frequency spectrum level range.

The following is an example diagram with an interference signal present near a WLAN operating signal.

Right-click the diagram and select "Jump to Spect detail (Black)" (or double left click the black horizontal line) to see details of the interference signal or save it as file in ASCII data format.


Freq Spectrum
Spectrum History
Start Time: 13:41:52
13:42: 0
Spectrum History Conf
Save Spec History Graph
The following link only work for Play mode
Jump to Spectrum detail (Black)
Export ASCII trace data(Black)
985.00
ColorScale:
-115dBm
-15dBm
-40.00
-60.00
-80.00
-100.00
-120.00
-140.00
dBm
985.00
Frequency [MHz]
1015.00

The following is another example diagram with monitoring the RFID tag response signal present in zero span (time domain).



7 Additional Information

Please contact your nearest Rohde-Schwarz office or customersupport.asia@rohde-schwarz.com for additional information or further suggestions.

8 Ordering Information

Signal Analyzer, Spectrum Analyzer, Measuring Receiver, Test Receiver		
R&S FSP3	9 kHz … 3 GHz	1164.4391.03
R&S FSP7	9 kHz ... 7 GHz	1164.4391.07
R&S FSP13	9 kHz ... 13.6 GHz	1164.4391.13
R&S FSP30	9 kHz ... 30 GHz	1164.4391.30
R&S FSP40	9 kHz ... 40 GHz	1164.4391.40
R&S FSU3	20 Hz ... 3.6 GHz	1166.1660.03
R&S FSU8	20 Hz ... 8 GHz	1166.1660.08
R&S FSU26	20 Hz ... 26.5 GHz	1166.1660.26
R&S FSU46	20 Hz ... 46.5 GHz	1166.1660.46
R&S FSU50	20 Hz ... 50 GHz	1166.1660.50
R&S FSQ3	20 Hz ... 3.6 GHz	1155.5001.03
R&S FSQ8	20 Hz ... 8 GHz	1155.5001.08
R&S FSQ26	20 Hz ... 3.6 GHz	1155.5001.26
R&S FSMR3	20 Hz ... 3.6 GHz	1166.3311.03
R&S FSMR26	20 Hz ... 26.5 GHz	1166.3311.26
R&S FSMR50	20 Hz ... 50 GHz	1166.3311.03
R&S FSL3	9 kHz ... 3 GHz	1300.2502.03
R&S FSL3 with tracking gen	9 kHz ... 3 GHz	1300.2502.13
R&S FSL6	9 kHz ... 6 GHz	1300.2502.06
R&S FSL6 with tracking gen	9 kHz ... 6 GHz	1300.2502.16
R&S ESPI3	9 kHz …3 GHz	1164.6407.03
R&S ESPI7	9 kHz …7 GHz	1164.6407.07
R&S ESU8	20Hz … 8GHz	1302.6005.08
R&S ESU26	20Hz …26.5 GHz	1302.6005.26
R&S ESU40	20Hz …40GHz	1302.6005.40
R&S FMU36	DC … 36MHz	1303.3500.02
R&S FSV3	9 kHz … 3.6 GHz	1307.9002K03
R&S FSV7	9 kHz …7 GHz	1307.9002K07
R&S FSV13	9 kHz …13.6 GHz	1307.9002K13
R&S FSV30	9 kHz …30 GHz	1307.9002K30
R&S FSV40	9 kHz …40 GHz	1307.9002K40
R&S FSH4 with pre-amp	9 kHz …3.6 GHz	1309.6000.04
R&S FSH4 with pre-amp & tracking gen	9 kHz …3.6 GHz	1309.6000.14
R&S FSH4 with pre-amp & tracking gen & VSWR brige	9 kHz …3.6 GHz	1309.6000.20
R&S FSH8 with pre-amp	9 kHz …8 GHz	1309.6000.08
R&S FSH8 with pre-amp & tracking gen	9 kHz …8 GHz	1309.6000.18
R&S FSH8 with pre-amp & tracking gen & VSWR bridge	9 kHz …8 GHz	1309.6000.28

About Rohde & Schwarz
Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment
- Energy-efficient products
- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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