R&S®AFQ-K352, R&S®SMBV-K352, R&S®SMJ-K352, R&S®SMU-K352

HD Radio™ Test Waveforms

Manual

Test & Measurement

Manual

ROHDE&SCHWARZ

This document describes the following software options:

- R&S®AFQ-K352
  1401.6154.02
- R&S®SMBV-K352
  1415.8431.02
- R&S®SMJ-K352
  1409.2958.02
- R&S®SMU-K352
  1408.8069.02

The following abbreviations are used throughout this manual: R&S®SMBV100A is abbreviated as R&S SMBV, R&S®SMJ100A is abbreviated as R&S SMJ, R&S®SMU200A is abbreviated as R&S SMU, R&S®AFQ100A is abbreviated as R&S AFQ

Contents

1 Preface

1.1 Documentation Overview

This section provides an overview of the R&S SMx/AFQ user documentation. You find it on the product page at:

http://www.rohde-schwarz.com/product/SMBV100A.html > "Downloads"

Quick start guide

Introduces the R&S SMx/AFQ and describes how to set up and start working with the product. Includes basic operations, typical measurement examples, and general information, e.g. safety instructions, etc. A printed version is delivered with the instrument.

Online help

Offers quick, context-sensitive access to the complete information for the base unit and the software options directly on the instrument.

Operating manual

Separate manuals for the base unit and the software options are provided for download:

● Base unit manual
  Contains the description of all instrument modes and functions. It also provides an introduction to remote control, a complete description of the remote control commands with programming examples, and information on maintenance, instrument interfaces and error messages. Includes the contents of the quick start guide manual.
● Software option manual
  Contains the description of the specific functions of an option. Basic information on operating the R&S SMx/AFQ is not included.

The **online version** of the operating manual provides the complete contents for immediate display on the Internet.

Service manual

Describes the performance test for checking the rated specifications, module replacement and repair, firmware update, troubleshooting and fault elimination, and contains mechanical drawings and spare part lists.

The service manual is available for registered users on the global Rohde & Schwarz information system (GLORIS, https://gloris.rohde-schwarz.com).

Instrument security procedures manual

Deals with security issues when working with the R&S SMx/AFQ in secure areas.

Basic safety instructions

Contains safety instructions, operating conditions and further important information. The printed document is delivered with the instrument.

Data sheet and brochure

The data sheet contains the technical specifications of the software options, see "Digital Standards for Signal Generators - Data sheet" on the web site. It also lists the options and their order numbers.

The brochure provides an overview of the instrument and deals with the specific characteristics.

Release notes and open source acknowledgment (OSA)

The release notes of the base units list new features, improvements and known issues of the current firmware version, and describe the firmware installation.

The open source acknowledgment document provides verbatim license texts of the used open source software. See the product page of the base unit, e.g. at:

http://www.rohde-schwarz.com/product/SMBV100A.html > "Downloads" > "Firmware"

Application Notes, Application Cards, White Papers, etc.

These documents deal with special applications or background information on particular topics, see http://www.rohde-schwarz.com/appnotes.

1.2 Typographical Conventions

The following text markers are used throughout this documentation:

Convention	Description
"Graphical user interface elements"	All names of graphical user interface elements on the screen, such as dialog boxes, menus, options, buttons, and softkeys are enclosed by quotation marks.
KEYS	Key names are written in capital letters.
`File names, commands, program code`	File names, commands, coding samples and screen output are distinguished by their font.
Input	Input to be entered by the user is displayed in italics.
Links	Links that you can click are displayed in blue font.
"References"	References to other parts of the documentation are enclosed by quotation marks.

2 Getting Started

The HD Radio^{TM} test waveforms files (`*.wv`) are provided on a DVD set and can be played on the Arbitrary Waveform Generator (ARB) of the instruments listed under Chapter 2.3, "System Requirements", on page 16.

ⓘ Playing of HD Radio test waveforms on an R&S Signal Generator and R&S I/Q Modulation Generator requires a license form iBiquity Digital Corporation.

2.1 Contents of the Disk

Waveform files (`*.wv`) as listed in Chapter 3, "Available Waveform Files", on page 22.

2.2 Version History

ⓘ For information on the current firmware version refer to the release notes of the instrument.

2.2.1 Version 1.40

119 new waveform files

CC_FMr440_e1wfr015_HighDataRate.wv

CC_FMr440d_e1wfr011.wv

CC_FMr440d_e1wfr012.wv

CC_FMr440d_e1wfr013.wv

CC_FMr440d_e1wfr014.wv

CC_TTN_FMr440a_e1wfr001.wv

CC_TTN_FMr440a_e1wfr002.wv

CC_TTN_FMr440a_e1wfr003.wv

CC_TTN_FMr440a_e1wfr004.wv

CC_TTN_FMr440a_e1wfr005.wv

CC_TTN_FMr440a_e1wfr006.wv

CC_TTN_FMr440a_e1wfr007.wv

CC_TTN_FMr440a_e1wfr008.wv

CC_TTN_FMr440a_e1wfr009.wv

CC_TTN_FMr440a_e1wfr010.wv

CC_TTN_FMr440a_e1wfr011.wv

CC_TTN_FMr440a_e1wfr012.wv

CC_TTN_FMr440a_e1wfr013.wv

CC_TTN_FMr440a_e1wfr014.wv

CC_TTN_FMr440a_e1wfr015.wv

CC_TTN_FMr440a_e1wfr016.wv

CC_TTN_FMr440a_e1wfr017.wv

CC_TTN_FMr440a_e1wfr018.wv

CC_TTN_FMr440a_e1wfr019.wv

CC_TTN_FMr440a_e1wfr019b.wv

CC_TTN_FMr440a_e1wfr020.wv

CC_TTN_FMr440a_e1wfr020b.wv

CC_TTN_FMr440a_e1wfr021.wv

CC_TTN_FMr440a_e1wfr022.wv

CC_TTN_FMr440a_e1wfr023.wv

CC_TTN_FMr440a_e1wfr024.wv

CC_TTN_FMr440a_e1wfr025.wv

CC_TTN_FMr440a_e1wfr026.wv

CC_TTN_FMr440a_e1wfr027.wv

CC_TTN_FMr440a_e1wfr028.wv

CC_TTN_FMr440a_e1wfr029.wv

CC_TTN_FMr440a_e1wfr030.wv

CC_TTN_FMr440a_e1wfr031.wv

CC_TTN_FMr440a_e1wfr032.wv

CC_TTN_FMr440a_e1wfr033.wv

CC_TTN_FMr440a_e1wfr034.wv

CC_TTN_FMr440a_e1wfr035.wv

CC_TTN_FMr440a_e1wfr036.wv

CC_TTN_FMr440a_e1wfr037.wv

CC_TTN_FMr440a_e1wfr038.wv

CC_TTN_FMr440a_e1wfr039.wv

CC_TTN_FMr440a_e1wfr040.wv

CC_TTN_FMr440a_e1wfr041.wv

CC_TTN_FMr440a_e1wfr042.wv

CC_TTN_FMr440a_e1wfr043.wv

CC_TTN_FMr440a_e1wfr044.wv

CC_TTN_FMr440a_e1wfr045.wv

CC_TTN_FMr440a_e1wfr046.wv

CC_TTN_FMr440a_e1wfr047.wv

CC_TTN_FMr440a_e1wfr048.wv

CC_TTN_FMr440a_e1wfr049.wv

CC_TTN_FMr440a_e1wfr049b.wv

CC_TTN_FMr440a_e1wfr050.wv

CC_TTN_FMr440a_e1wfr050b.wv

CC_TTN_FMr440a_e1wfr051.wv

CC_TTN_FMr440a_e1wfr051b.wv

CC_TTN_FMr440a_e1wfr052.wv

CC_TTN_FMr440a_e1wfr053.wv

CC_TTN_FMr440a_e1wfr054.wv

CC_TTN_FMr440a_e1wfr055.wv

CC_TTN_FMr440a_e1wfr056.wv

CC_TTN_FMr440a_e1wfr057.wv

CC_TTN_FMr440a_e1wfr058.wv

CC_TTN_FMr440a_e1wfr065.wv

CC_TTN_FMr440a_e1wfr070.wv

CC_TTN_FMr440a_e1wfr071.wv

CC_TTN_FMr440a_e1wfr072.wv

IB_AMr201_e1awfr1190.wv

IB_AMr208_e1awfr1221.wv

IB_AMr208_e1awfr1249.wv

IB_AMr208_e1awfr1260.wv

IB_AMr208b_e1awf1123.wv

IB_AMr208c_e1awf1124.wv

IB_AMr230_e1awfr1187.wv

IB_AMr230_e1awfr1261.wv

IB_AMr430_e1wfr1028.wv

IB_AMr440_e1wfr1116.wv

IB_AMr440_e1wfr1117.wv

IB_FMr201_e1wfr1189.wv

IB_FMr208_e1wfr1122.wv

IB_FMr208_e1wfr1185.wv

IB_FMr208_e1wfr1246.wv

IB_FMr208_e1wfr1247.wv

IB_FMr208_e1wfr1248.wv

IB_FMr208c_e1wfc546.wv

IB_FMr220_e1wfa108.wv

IB_FMr220b_e1wfr1119.wv

IB_FMr220c_e1wfr1191.wv

IB_FMr430_e1wfr1090.wv

IB_FMr430_e1wfr1091.wv

IB_FMr430_e1wfr1092.wv

IB_FMr430_e1wfr1093.wv

IB_FMr430_e1wfr1094.wv

IB_FMr430_e1wfr1095.wv

IB_FMr430_e1wfr1096.wv

IB_FMr430_e1wfr1097.wv

IB_FMr430_e1wfr1098.wv

IB_FMr430_e1wfr1099.wv

IB_FMr430_e1wfr1100.wv

IB_FMr430_e1wfr1101.wv

IB_FMr430_e1wfr1102.wv

IB_FMr430_e1wfr1152.wv

IB_FMr430a_e1wfr1085.wv

IB_FMr440_e1wfr1111.wv

IB_FMr440_e1wfr1112.wv

IB_FMr440_e1wfr1113.wv

IB_FMr440_e1wfr1114.wv

IB_FMr440_e1wfr1115.wv

IB_FMr440_e1wfr1243.wv

IB_FMr440_e1wfr1251.wv

IB_FMr440_e1wfr1252.wv

IB_FMr440_e1wfr1253.wv

IB_FMr440_e1wfr1254.wv

IB_FMr440_e1wfr1255.wv

2 removed waveform files

IB_FMr208c_e10wfc546

IB_FMr208k_e1wfa104

2.2.2   Version 1.30

29 new waveform files

IB_AMr001_e1_cw_0_m10.wv

IB_AMr001_e1_cw_2_6.wv

IB_AMr001_e1_cw_m1_m2.wv

IB_AMr001_e1_cw_m30_0_30.wv

IB_AMr001_e1_cw_m7p5_10.wv

IB_AMr430_e1wfr1016.wv

IB_AMr430_e1wfr1017.wv

IB_AMr430_e1wfr1018.wv

IB_AMr430_e1wfr1019.wv

IB_AMr430_e1wfr1020.wv

IB_AMr430_e1wfr1021.wv

IB_AMr430_e1wfr1022.wv

IB_AMr430_e1wfr1023.wv

IB_AMr430_e1wfr1024.wv

IB_AMr430_e1wfr1025.wv

IB_AMr430_e1wfr1026.wv

IB_AMr430_e1wfr1027.wv

IB_FMr001_e1_cw_0_100.wv

IB_FMr001_e1_cw_0_m100.wv

IB_FMr001_e1_cw_m275_0_275.wv

IB_FMr001_e1_cw_m50_0.wv

IB_FMr230a_e1wfa153.wv

IB_FMr430_e1wfr1080.wv

IB_FMr430_e1wfr1082.wv

IB_FMr430_e1wfr1083.wv

IB_FMr430_e1wfr1086.wv

IB_FMr430_e1wfr1087.wv

IB_FMr430_e1wfr1088.wv

IB_FMr430_e1wfr1089.wv

4 removed waveform files

IB_AMr208_e0wfc33.wv

IB_AMr208_e0wfc34.wv

IB_FMr208j_e0wfa12.wv

IB_FMr420c_e1wfr1080.wv

66 updated waveform files

Old file name	Name of replacement
IB_AM_e0_CW_dc.wv	IB_AM_e1a_CW_dc.wv
IB_AMr201_e0wfc52.wv	IB_AMr201_e1awfc52.wv
IB_AMr208_e0wfa05.wv	IB_AMr208_e1awfa05.wv
IB_AMr208_e0wfa07.wv	IB_AMr208_e1awfa07.wv
IB_AMr208_e0wfa10.wv	IB_AMr208_e1awfa10.wv
IB_AMr208_e0wfb01.wv	IB_AMr208_e1awfb01.wv
IB_AMr208_e0wfb02.wv	IB_AMr208_e1awfb02.wv
IB_AMr208_e0wfb03.wv	IB_AMr208_e1awfb03.wv
IB_AMr208_e0wfb04.wv	IB_AMr208_e1awfb04.wv
IB_AMr208_e0wfb05.wv	IB_AMr208_e1awfb05.wv
IB_AMr208_e0wfb102.wv	IB_AMr208_e1awfb102.wv
IB_AMr208_e0wfb104.wv	IB_AMr208_e1awfb104.wv
IB_AMr208_e0wfb111.wv	IB_AMr208_e1awfb111.wv
IB_AMr208_e0wfb113.wv	IB_AMr208_e1awfb113.wv
IB_AMr208_e0wfb119.wv	IB_AMr208_e1awfb119.wv

Old file name	Name of replacement
IB_AMr208_e0wfb121.wv	IB_AMr208_e1awfb121.wv
IB_AMr208_e0wfb124.wv	IB_AMr208_e1awfb124.wv
IB_AMr208_e0wfb126.wv	IB_AMr208_e1awfb126.wv
IB_AMr208_e0wfb128.wv	IB_AMr208_e1awfb128.wv
IB_AMr208_e0wfb130.wv	IB_AMr208_e1awfb130.wv
IB_AMr208_e0wfb131.wv	IB_AMr208_e1awfb131.wv
IB_AMr208_e0wfb132.wv	IB_AMr208_e1awfb132.wv
IB_AMr208_e0wfb134.wv	IB_AMr208_e1awfb134.wv
IB_AMr208_e0wfb135.wv	IB_AMr208_e1awfb135.wv
IB_AMr208_e0wfb145.wv	IB_AMr208_e1awfb145.wv
IB_AMr208_e0wfb243.wv	IB_AMr208_e1awfb243.wv
IB_AMr208_e0wfc00.wv	IB_AMr208_e1awfc00.wv
IB_AMr208_e0wfc04.wv	IB_AMr208_e1awfc04.wv
IB_AMr208_e0wfc06.wv	IB_AMr208_e1awfc06.wv
IB_AMr208_e0wfc08.wv	IB_AMr208_e1awfc08.wv
IB_AMr208_e0wfc10.wv	IB_AMr208_e1awfc10.wv
IB_AMr208_e0wfc11.wv	IB_AMr208_e1awfc11.wv
IB_AMr208_e0wfc19.wv	IB_AMr208_e1awfc19.wv
IB_AMr208_e0wfc20.wv	IB_AMr208_e1awfc20.wv
IB_AMr208_e0wfc23.wv	IB_AMr208_e1awfc23.wv
IB_AMr208_e0wfc24.wv	IB_AMr208_e1awfc24.wv
IB_AMr208_e0wfc26.wv	IB_AMr208_e1awfc26.wv
IB_AMr208_e0wfc27.wv	IB_AMr208_e1awfc27.wv
IB_AMr208_e0wfc29.wv	IB_AMr208_e1awfc29.wv
IB_AMr208_e0wfc30.wv	IB_AMr208_e1awfc30.wv
IB_AMr208_e0wfc31.wv	IB_AMr208_e1awfc31.wv
IB_AMr208_e0wfc32.wv	IB_AMr208_e1awfc32.wv
IB_AMr208a_e0wfb00.wv	IB_AMr208a_e1awfb00.wv
IB_AMr208a_e0wfb138.wv	IB_AMr208a_e1awfb138.wv
IB_AMr208a_e0wfc33.wv	IB_AMr208a_e1awfc33.wv
IB_AMr208a_e0wfc34.wv	IB_AMr208a_e1awfc34.wv
IB_AMr208c_e0wfa11.wv	IB_AMr208c_e1awfa11.wv
IB_AMr220_e0wfc28.wv	IB_AMr220_e1awfc28.wv

Old file name	Name of replacement
IB_AMr230_e0wfr1005.wv	IB_AMr230_e1awfr1005.wv
IB_AMr230a_e0wfr1001.wv	IB_AMr230a_e1awfr1001.wv
IB_AMr230a_e0wfr1002.wv	IB_AMr230a_e1awfr1002.wv
IB_AMr230b_e0wfc102.wv	IB_AMr230b_e1awfc102.wv
IB_AMr230d_e0wfr12.wv	IB_AMr230d_e1awfr12.wv
IB_FMr230a_e0wfr1002.wv	IB_FMr230a_e1wfr1003.wv
IB_FMr230a_e0wfr1003.wv	IB_FMr230a_e1wfr1004.wv
IB_FMr230a_e0wfr1004.wv	IB_FMr230a_e1wfr1005.wv
IB_FMr230a_e0wfr1005.wv	IB_FMr230a_e1wfr1006.wv
IB_FMr230a_e0wfr1006.wv	IB_FMr230a_e1wfr1007.wv
IB_FMr230a_e0wfr1007.wv	IB_FMr230a_e1wfr1008.wv
IB_FMr230a_e0wfr1008.wv	IB_FMr230a_e1wfr1009.wv
IB_FMr230a_e0wfr1009.wv	IB_FMr230a_e1wfr1011.wv
IB_FMr230a_e0wfr1011.wv	IB_FMr230a_e1wfr1012.wv
IB_FMr230a_e0wfr1012.wv	IB_FMr230a_e1wfr1013.wv
IB_FMr230a_e0wfr1013.wv	IB_FMr230a_e1wfr1037.wv
IB_FMr230a_e0wfr1037.wv	IB_FMr230b_e1wfr1002.wv
IB_FMr430_e1wfr1081.wv	IB_FMr430a_e1wfr1081.wv

2.2.3   Version 1.20

25 new waveform files

IB_AMr208_e0wfc20.wv

IB_AMr230_e0wfr1005.wv

IB_FMr001_e1_cw_0_m200.wv

IB_FMr001_e1_cw_10_20.wv

IB_FMr001_e1_cw_50_100.wv

IB_FMr001_e1_cw_m80_m90.wv

IB_FMr208c_e0wfc210.wv

IB_FMr208c_e0wfc90.wv

IB_FMr230_e0wfc14.wv

IB_FMr230_e0wfr1061.wv

IB_FMr230a_e0wfr1037.wv

IB_FMr230b_e0wfr1024.wv

IB_FMr230c_e0wfd204.wv

IB_FMr230c_e0wfr1022.wv

IB_FMr230c_e0wfr1032.wv

IB_FMr230d_e0wfa78.wv

IB_FMr230f_e0wfr1023.wv

IB_FMr420c_e1wfr1080.wv

IB_FMr430_e1wfr1070.wv

IB_FMr430_e1wfr1071.wv

IB_FMr430_e1wfr1072.wv

IB_FMr430_e1wfr1073.wv

IB_FMr430_e1wfr1074.wv

IB_FMr430_e1wfr1075.wv

IB_FMr430_e1wfr1081.wv

11 updated waveform files

Old file name	Name of replacement
IB_AMr208_e0wfb01.wv	IB_AMr208_e0wfc20.wv
IB_AMr230a_e0wfr1001.wv	IB_AMr230_e0wfr1001.wv
IB_AMr230a_e0wfr1002.wv	IB_AMr230_e0wfr1002.wv
IB_AMr230b_e0wfc102.wv	IB_AMr230a_e0wfc102.wv
IB_AMr230d_e0wfr12.wv	IB_AMr208a_e0wfa12.wv
IB_FMr208d_e0wfa141.wv	IB_FMr208c_e0wfa141.wv
IB_FMr208j_e0wfa12.wv	IB_FMr220a_e0wfa12.wv
IB_FMr230_e0wfr143.wv	IB_FMr208d_e0wfa143.wv
IB_FMr230a_e0wfc102.wv	IB_FMr230_e0wfc102.wv
IB_FMr230b_e0wfr1010.wv	IB_FMr230a_e0wfr1010.wv
IB_FMr230d_e0wfr1025.wv	IB_FMr230c_e0wfr1025.wv

2.2.4   Version 1.00

Initial release.

2.3 System Requirements

The waveforms files can be played on the instruments listed below. The instrument must be equipped with the options listed in the Table 2-1.

- R&S SMU200A Vector Signal Generator

- R&S SMBV100A Vector Signal Generator

- R&S SMJ100A Vector Signal Generator

Table 2-1: Required options

Option name	Description
• R&S SMU/SMJ-B9/B10 • R&S SMBV-B10/51 and -K511	• Baseband Generator • Baseband Generator with Memory Extension
R&S SMx/AFQ-K352	HD RadioTM test waveforms

x = U for R&S SMU, J for R&S SMJ, BV for R&S SMBV

For information on the order number of an option refer to the data sheet.

2.4 Installation Instructions

The files are encrypted for reasons of protection. Copying or recording the waveforms files with the intention of using them on another playback device is prohibited!

If the waveforms files are supplied together with a new instrument, the waveforms files and the license key are already installed.

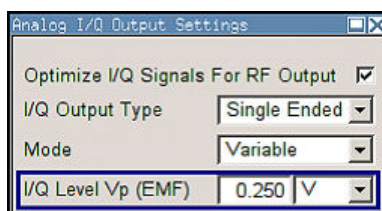To install the HD Radio™ waveforms files on your instrument, proceed as described below.

1. Copy the waveforms files from the DVDs to USB stick, external USB HDD, or use the DVD with an external USB DVD drive.

2. Connect the USB stick, USB HDD or the external USB DVD drive to USB connector of the instrument.

3. Copy the waveforms files to the instrument target directory.

4. Enable the HD Radio™ option to play the encrypted files.
    At your instrument, select "Setup > Install SW Options > Option Key" and enter the key code.

2.5 Enabling the R&S SMBV to play the HD Radio™ waveforms files

To play the HD Radio™ waveforms files on your instrument, proceed as described below.

1. Press the PRESET key.
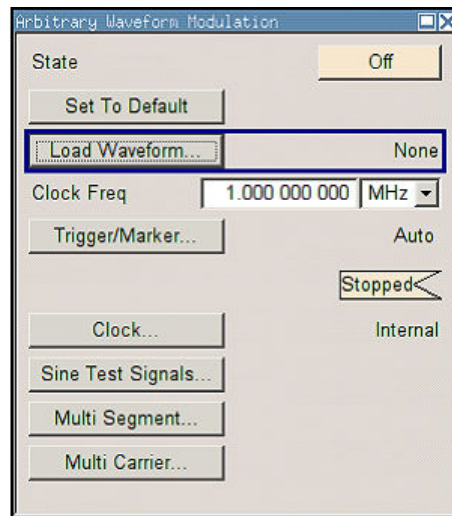   SCPI command: `*RST`

    The instrument's settings will be adjust to a standard set of operating conditions.

2. Select "AWGN/IMP > Analog I/Q Out Settings" and set the parameter "I/Q Level Vp (EMF)" to 0.25 V to meet the RF requirements for this option.
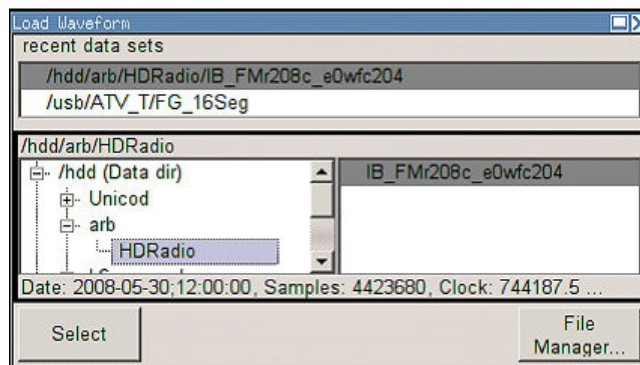

    SCPI command: `SOUR:IQ:OUTP:LEV 0.25`
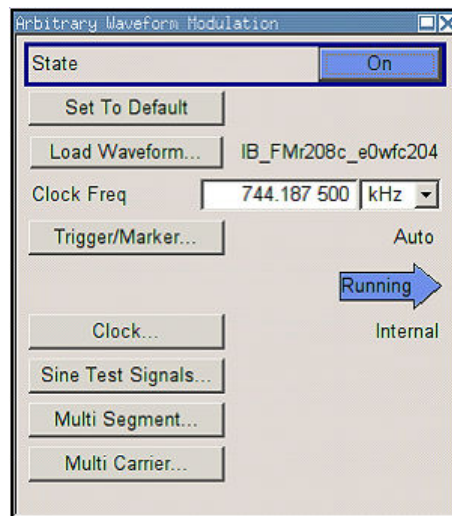
3. Select "Baseband block > ARB".

4. Select "Load Waveform" button, navigate to the directory with the HD Radio™ waveforms files (for instance "`hdd/ARB/HDRadio`") and select a file from the list. Only files with extension `*.wv` are displayed.

SCPI command: `SOUR:BB:ARB:WAV:SEL`
`'hdd/ARB/HDRadio/IB_FMr208c_e0wfc204.wv'`

The name of the selected file and the clock frequency are displayed in the "ARB" dialog.

5. Set the "State" to ON to enable ARB modulation.
   SCPI command: `SOUR:BB:ARB:STAT ON`

   The R&S SMBV process the selected waveform file.

2.6 Enabling the R&S SMU/SMJ to play the HD Radio™ waveforms files

To play the HD Radio™ waveforms files on your instrument, proceed as described below.
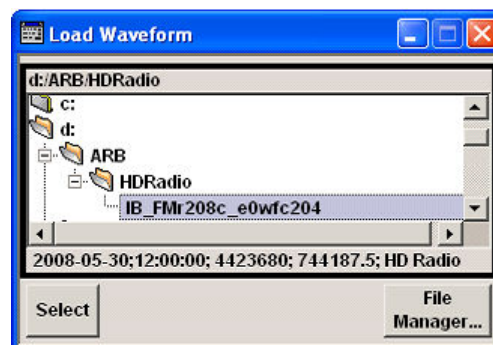
1. Press the PRESET key.
   SCPI command: `*RST`

   The instrument's settings will be adjust to a standard set of operating conditions.

2. Select "Baseband block > ARB".

3. Select "Load Waveform" button, navigate to the directory with the HD Radio™ waveforms files (for instance "`d:/ARB/HDRadio`") and select a file from the list. Only files with extension `*.wv` are displayed.
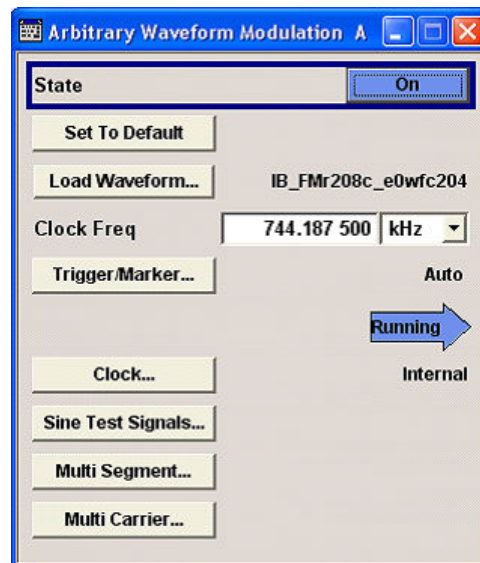
SCPI command:

`SOUR:BB:ARB:WAV:SEL 'd:/ARB/HDRadio/IB_FMr208c_e0wfc204.wv'`

The name of the selected file and the clock frequency are displayed in the "ARB" dialog.

4. Set the "State" to ON to enable ARB modulation.
   SCPI command: `SOUR:BB:ARB:STAT ON`

   The R&S Signal Generator process the selected waveform file.

3 Available Waveform Files

The disk contains 3 folders with the available waveform files. For details on the waveform files contact the iBiquity Digital Corporation.

3.1 AM Folder

Contains the following waveform files, listed in alphabetical order:

IB_AM_e1_awgn.wv

IB_AM_e1a_CW_dc.wv

IB_AMr001_e1_cw_0_m10.wv

IB_AMr001_e1_cw_2_6.wv

IB_AMr001_e1_cw_m1_m2.wv

IB_AMr001_e1_cw_m30_0_30.wv

IB_AMr001_e1_cw_m7p5_10.wv

IB_AMr201_e1awfc52.wv

IB_AMr201_e1awfr1190.wv

IB_AMr208_e1awfa05.wv

IB_AMr208_e1awfa07.wv

IB_AMr208_e1awfa10.wv

IB_AMr208_e1awfb01.wv

IB_AMr208_e1awfb02.wv

IB_AMr208_e1awfb03.wv

IB_AMr208_e1awfb04.wv

IB_AMr208_e1awfb05.wv

IB_AMr208_e1awfb102.wv

IB_AMr208_e1awfb104.wv

IB_AMr208_e1awfb111.wv

IB_AMr208_e1awfb113.wv

IB_AMr208_e1awfb119.wv

IB_AMr208_e1awfb121.wv

IB_AMr208_e1awfb124.wv

IB_AMr208_e1awfb126.wv

IB_AMr208_e1awfb128.wv

IB_AMr208_e1awfb130.wv

IB_AMr208_e1awfb131.wv

IB_AMr208_e1awfb132.wv

IB_AMr208_e1awfb134.wv

IB_AMr208_e1awfb135.wv

IB_AMr208_e1awfb145.wv

IB_AMr208_e1awfb243.wv

IB_AMr208_e1awfc00.wv

IB_AMr208_e1awfc04.wv

IB_AMr208_e1awfc06.wv

IB_AMr208_e1awfc08.wv

IB_AMr208_e1awfc10.wv

IB_AMr208_e1awfc11.wv

IB_AMr208_e1awfc19.wv

IB_AMr208_e1awfc20.wv

IB_AMr208_e1awfc23.wv

IB_AMr208_e1awfc24.wv

IB_AMr208_e1awfc26.wv

IB_AMr208_e1awfc27.wv

IB_AMr208_e1awfc29.wv

IB_AMr208_e1awfc30.wv

IB_AMr208_e1awfc31.wv

IB_AMr208_e1awfc32.wv

IB_AMr208_e1awfr1221.wv

IB_AMr208_e1awfr1249.wv

IB_AMr208_e1awfr1260.wv

IB_AMr208a_e1awfb00.wv

IB_AMr208a_e1awfb138.wv

IB_AMr208a_e1awfc33.wv

IB_AMr208a_e1awfc34.wv

IB_AMr208b_e1awf1123.wv

IB_AMr208c_e1awf1124.wv

IB_AMr208c_e1awfa11.wv

IB_AMr220_e1awfc28.wv

IB_AMr230_e1awfr1005.wv

IB_AMr230_e1awfr1187.wv

IB_AMr230_e1awfr1261.wv

IB_AMr230a_e1awfr1001.wv

IB_AMr230a_e1awfr1002.wv

IB_AMr230b_e1awfc102.wv

IB_AMr230d_e1awfr12.wv

IB_AMr430_e1wfr1016.wv

IB_AMr430_e1wfr1017.wv

IB_AMr430_e1wfr1018.wv

IB_AMr430_e1wfr1019.wv

IB_AMr430_e1wfr1020.wv

IB_AMr430_e1wfr1021.wv

IB_AMr430_e1wfr1022.wv

IB_AMr430_e1wfr1023.wv

IB_AMr430_e1wfr1024.wv

IB_AMr430_e1wfr1025.wv

IB_AMr430_e1wfr1026.wv

IB_AMr430_e1wfr1027.wv

IB_AMr430_e1wfr1028.wv

IB_AMr440_e1wfr1116.wv

IB_AMr440_e1wfr1117.wv

3.2 CC Folder

Contains the following waveform files, listed in alphabetical order:

CC_TTN_FMr440a_e1wfr001.wv

CC_TTN_FMr440a_e1wfr002.wv

CC_TTN_FMr440a_e1wfr003.wv

CC_TTN_FMr440a_e1wfr004.wv

CC_TTN_FMr440a_e1wfr005.wv

CC_TTN_FMr440a_e1wfr006.wv

CC_TTN_FMr440a_e1wfr007.wv

CC_TTN_FMr440a_e1wfr008.wv

CC_TTN_FMr440a_e1wfr009.wv

CC_TTN_FMr440a_e1wfr010.wv

CC_TTN_FMr440a_e1wfr011.wv

CC_TTN_FMr440a_e1wfr012.wv

CC_TTN_FMr440a_e1wfr013.wv

CC_TTN_FMr440a_e1wfr014.wv

CC_TTN_FMr440a_e1wfr015.wv

CC_TTN_FMr440a_e1wfr016.wv

CC_TTN_FMr440a_e1wfr017.wv

CC_TTN_FMr440a_e1wfr018.wv

CC_TTN_FMr440a_e1wfr019.wv

CC_TTN_FMr440a_e1wfr019b.wv

CC_TTN_FMr440a_e1wfr020.wv

CC_TTN_FMr440a_e1wfr020b.wv

CC_TTN_FMr440a_e1wfr021.wv

CC_TTN_FMr440a_e1wfr022.wv

CC_TTN_FMr440a_e1wfr023.wv

CC_TTN_FMr440a_e1wfr024.wv

CC_TTN_FMr440a_e1wfr025.wv

CC_TTN_FMr440a_e1wfr026.wv

CC_TTN_FMr440a_e1wfr027.wv

CC_TTN_FMr440a_e1wfr028.wv

CC_TTN_FMr440a_e1wfr029.wv

CC_TTN_FMr440a_e1wfr030.wv

CC_TTN_FMr440a_e1wfr031.wv

CC_TTN_FMr440a_e1wfr032.wv

CC_TTN_FMr440a_e1wfr033.wv

CC_TTN_FMr440a_e1wfr034.wv

CC_TTN_FMr440a_e1wfr035.wv

CC_TTN_FMr440a_e1wfr036.wv

CC_TTN_FMr440a_e1wfr037.wv

CC_TTN_FMr440a_e1wfr038.wv

CC_TTN_FMr440a_e1wfr039.wv

CC_TTN_FMr440a_e1wfr040.wv

CC_TTN_FMr440a_e1wfr041.wv

CC_TTN_FMr440a_e1wfr042.wv

CC_TTN_FMr440a_e1wfr043.wv

CC_TTN_FMr440a_e1wfr044.wv

CC_TTN_FMr440a_e1wfr045.wv

CC_TTN_FMr440a_e1wfr046.wv

CC_TTN_FMr440a_e1wfr047.wv

CC_TTN_FMr440a_e1wfr048.wv

CC_TTN_FMr440a_e1wfr049.wv

CC_TTN_FMr440a_e1wfr049b.wv

CC_TTN_FMr440a_e1wfr050.wv

CC_TTN_FMr440a_e1wfr050b.wv

CC_TTN_FMr440a_e1wfr051.wv

CC_TTN_FMr440a_e1wfr051b.wv

CC_TTN_FMr440a_e1wfr052.wv

CC_TTN_FMr440a_e1wfr053.wv

CC_TTN_FMr440a_e1wfr054.wv

CC_TTN_FMr440a_e1wfr055.wv

CC_TTN_FMr440a_e1wfr056.wv

CC_TTN_FMr440a_e1wfr057.wv

CC_TTN_FMr440a_e1wfr058.wv

CC_TTN_FMr440a_e1wfr065.wv

CC_TTN_FMr440a_e1wfr070.wv

CC_TTN_FMr440a_e1wfr071.wv

CC_TTN_FMr440a_e1wfr072.wv

3.3 FM Folder

Contains the following waveform files, listed in alphabetical order:

CC_FMr440_e1wfr015_HighDataRate.wv

CC_FMr440d_e1wfr011.wv

CC_FMr440d_e1wfr012.wv

CC_FMr440d_e1wfr013.wv

CC_FMr440d_e1wfr014.wv

IB_FM_e1_awgn.wv

IB_FM_e1_CW_dc.wv

IB_FMr001_e1_cw_0_100.wv

IB_FMr001_e1_cw_0_m100.wv

IB_FMr001_e1_cw_0_m200.wv

IB_FMr001_e1_cw_10_20.wv

IB_FMr001_e1_cw_50_100.wv

IB_FMr001_e1_cw_m275_0_275.wv

IB_FMr001_e1_cw_m50_0.wv

IB_FMr001_e1_cw_m80_m90.wv

IB_FMr201_e1wfc52.wv

IB_FMr201_e1wfr1189.wv

IB_FMr208_e1wfr1122.wv

IB_FMr208_e1wfr1185.wv

IB_FMr208_e1wfr1246.wv

IB_FMr208_e1wfr1247.wv

IB_FMr208_e1wfr1248.wv

IB_FMr208c_e1wfa05.wv

IB_FMr208c_e1wfa25.wv

IB_FMr208c_e1wfa98.wv

IB_FMr208c_e1wfa99.wv

IB_FMr208c_e1wfc00.wv

IB_FMr208c_e1wfc03.wv

IB_FMr208c_e1wfc08.wv

IB_FMr208c_e1wfc09.wv

IB_FMr208c_e1wfc10.wv

IB_FMr208c_e1wfc201.wv

IB_FMr208c_e1wfc203.wv

IB_FMr208c_e1wfc204.wv

IB_FMr208c_e1wfc206.wv

IB_FMr208c_e1wfc209.wv

IB_FMr208c_e1wfc210.wv

IB_FMr208c_e1wfc211.wv

IB_FMr208c_e1wfc227.wv

IB_FMr208c_e1wfc230.wv

IB_FMr208c_e1wfc27.wv

IB_FMr208c_e1wfc28.wv

IB_FMr208c_e1wfc30.wv

IB_FMr208c_e1wfc46.wv

IB_FMr208c_e1wfc546.wv

IB_FMr208c_e1wfc547.wv

IB_FMr208c_e1wfc548.wv

IB_FMr208c_e1wfc90.wv

IB_FMr208d_e1wfa141.wv

IB_FMr208d_e1wfc208.wv

IB_FMr208d_e1wfc538.wv

IB_FMr208d_e1wfc540.wv

IB_FMr208d_e1wfc542.wv

IB_FMr208d_e1wfc549.wv

IB_FMr208e_e1wfc12.wv

IB_FMr208e_e1wfc13.wv

IB_FMr208g_e1wfc94.wv

IB_FMr208i_e1wfa58.wv

IB_FMr208j_e1wfa105.wv

IB_FMr208j_e1wfa106.wv

IB_FMr208j_e1wfa107.wv

IB_FMr208j_e1wfa109.wv

IB_FMr208j_e1wfa11.wv

IB_FMr208j_e1wfc31.wv

IB_FMr208j_e1wfc89.wv

IB_FMr220_e1wfa108.wv

IB_FMr220a_e1wfc100.wv

IB_FMr220a_e1wfc101.wv

IB_FMr220a_e1wfc553.wv

IB_FMr220a_e1wfc555.wv

IB_FMr220b_e1wfr1119.wv

IB_FMr220c_e1wfr1191.wv

IB_FMr230_e1wfc14.wv

IB_FMr230_e1wfr1061.wv

IB_FMr230_e1wfr143.wv

IB_FMr230a_e1wfa153.wv

IB_FMr230a_e1wfc102.wv

IB_FMr230a_e1wfr1000.wv

IB_FMr230a_e1wfr1001.wv

IB_FMr230a_e1wfr1003.wv

IB_FMr230a_e1wfr1004.wv

IB_FMr230a_e1wfr1005.wv

IB_FMr230a_e1wfr1006.wv

IB_FMr230a_e1wfr1007.wv

IB_FMr230a_e1wfr1008.wv

IB_FMr230a_e1wfr1009.wv

IB_FMr230a_e1wfr1011.wv

IB_FMr230a_e1wfr1012.wv

IB_FMr230a_e1wfr1013.wv

IB_FMr230a_e1wfr1037.wv

IB_FMr230b_e1wfr1002.wv

IB_FMr230b_e1wfr1010.wv

IB_FMr230b_e1wfr1024.wv

IB_FMr230c_e1wfd204.wv

IB_FMr230c_e1wfr1022.wv

IB_FMr230c_e1wfr1032.wv

IB_FMr230d_e1wfa78.wv

IB_FMr230d_e1wfr1025.wv

IB_FMr230f_e1wfr1023.wv

IB_FMr430_e1wfr1070.wv

IB_FMr430_e1wfr1071.wv

IB_FMr430_e1wfr1072.wv

IB_FMr430_e1wfr1073.wv

IB_FMr430_e1wfr1074.wv

IB_FMr430_e1wfr1075.wv

IB_FMr430_e1wfr1080.wv

IB_FMr430_e1wfr1082.wv

IB_FMr430_e1wfr1083.wv

IB_FMr430_e1wfr1086.wv

IB_FMr430_e1wfr1087.wv

IB_FMr430_e1wfr1088.wv

IB_FMr430_e1wfr1089.wv

IB_FMr430_e1wfr1090.wv

IB_FMr430_e1wfr1091.wv

IB_FMr430_e1wfr1092.wv

IB_FMr430_e1wfr1093.wv

IB_FMr430_e1wfr1094.wv

IB_FMr430_e1wfr1095.wv

IB_FMr430_e1wfr1096.wv

IB_FMr430_e1wfr1097.wv

IB_FMr430_e1wfr1098.wv

IB_FMr430_e1wfr1099.wv

IB_FMr430_e1wfr1100.wv

IB_FMr430_e1wfr1101.wv

IB_FMr430_e1wfr1102.wv

IB_FMr430_e1wfr1152.wv

IB_FMr430a_e1wfr1081.wv

IB_FMr430a_e1wfr1085.wv

IB_FMr440_e1wfr1111.wv

IB_FMr440_e1wfr1112.wv

IB_FMr440_e1wfr1113.wv

IB_FMr440_e1wfr1114.wv

IB_FMr440_e1wfr1115.wv

IB_FMr440_e1wfr1243.wv

IB_FMr440_e1wfr1251.wv

IB_FMr440_e1wfr1252.wv

IB_FMr440_e1wfr1253.wv

IB_FMr440_e1wfr1254.wv

IB_FMr440_e1wfr1255.wv

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