Playback of XM Radio Waveforms
R&S® SMBV-K256, R&S® SMJ-K256,
R&S® SMU-K256, R&S® SMW-K256,
R&S® AFQ-K256
Operating Manual
This document describes the following software options:

- R&S®SMBV-K256
  1415.8402.02
- R&S®SMJ-K256
  1409.2606.02
- R&S®SMU-K256
  1161.1240.02
- R&S®SMW-K256
  1413.9824.02, 1413.9824.03
- R&S®AFQ-K256
  1401.6002.02

Customer Information Regarding Recording in the Sirius XM Band

Sirius XM does not support recording of Sirius XM broadcast. If a customer purchases equipment from Rohde & Schwarz with the intention of recording the Sirius XM broadcast, this customer does so at its own risk. Sirius XM will not provide any support or assistance to this customer. Rohde & Schwarz decline to assist customers in recording the Sirius XM broadcast.
## Contents

1 Getting Started........................................................................................................................................ 5  
1.1 Version History.................................................................................................................................. 5  
1.2 System Requirements.................................................................................................................... 5  
1.3 Installation Instructions.................................................................................................................. 6  
1.4 Enabling the Instrument to Playback XM Radio Waveforms......................................................... 7  
2 Available XM Radio Waveform Files.............................................................................................. 10  

Index.......................................................................................................................................................... 11
1 Getting Started

The XM Radio waveforms files (*.wv) are provided from Sirius XM and can be played on the Arbitrary Waveform Generator (ARB) of the instruments listed under Chapter 1.2, "System Requirements", on page 5.

Playing of XM Radio waveforms on an Rohde&Schwarz signal generator requires a license and the waveforms form Sirius XM.

1.1 Version History

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

1.2 System Requirements

The XM Radio waveforms can be playback on the instruments listed below. The instrument must be equipped with the options listed in Table 1-1.

Supported Instruments

- R&S SMW200A Vector Signal Generator

- R&S SMU200A Vector Signal Generator

- R&S SMBV100A Vector Signal Generator
• R&S SMJ100A Vector Signal Generator

![Image of R&S SMJ100A Vector Signal Generator]

• R&S AFQ100A I/Q Modulation Generator

![Image of R&S AFQ100A I/Q Modulation Generator]

### Table 1-1: Required options

<table>
<thead>
<tr>
<th>Option name</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>R&amp;S SMJ-B9/B10</td>
<td>Baseband Generator</td>
</tr>
<tr>
<td>R&amp;S SMU-B9/B10</td>
<td>Baseband Generator with Memory Extension</td>
</tr>
<tr>
<td>R&amp;S SMBV-B10/51 with R&amp;S SMBV-K511 and R&amp;S SMBV-K512</td>
<td>Baseband generator with realtime coder and ARB (64 Msample), 120 MHz RF bandwidth with Memory Extension</td>
</tr>
<tr>
<td>R&amp;S SMW-B10 with R&amp;S SMW-K511/-K512</td>
<td>Baseband Hardware</td>
</tr>
<tr>
<td>R&amp;S AFQ-B10/B11/B12</td>
<td>Playback of XM Radio Waveforms</td>
</tr>
<tr>
<td>R&amp;S SMBV-K256</td>
<td></td>
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<tr>
<td>R&amp;S SMJ-K256</td>
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<td>R&amp;S SMU-K256</td>
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<td>R&amp;S SMW-K256</td>
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<tr>
<td>R&amp;S AFQ-K256</td>
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</tbody>
</table>

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

### 1.3 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 this option is supplied together with a new instrument, the license key is already installed. To install the license key on your instrument, proceed as described in the “Installation Instructions for Options” included in the delivery.
To install the XM radio waveforms on your instrument
Proceed as described below.
1. Copy the waveforms files received from Sirius XM to USB stick or an external USB HDD.
2. Connect the USB stick or USB HDD to USB connector of the instrument.
3. Copy the waveforms files to the instrument target directory, e.g. _transfer.
4. Alternatively, store the files to a network drive and connect the instrument to the LAN.
5. Enable the instrument to playback the encrypted files, see Chapter 1.4, "Enabling the Instrument to Playback XM Radio Waveforms", on page 7.

1.4 Enabling the Instrument to Playback XM Radio Waveforms

To play the XM Radio waveforms files on your instrument, proceed as described below.
1. Press the [PRESET] key. 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 XM Radio waveforms files (for instance "D:/_transfer") and select a file from the list. Only files with extension *.wv are displayed.
When the file is loaded, the name of the selected file and the clock frequency are displayed in the "ARB" dialog.

4. Set "ARB > State > On" to enable ARB modulation.
The instrument processes the selected waveform file.

5. Press the [FREQ] key and enter the corresponding carrier frequency. The file in this example contains one terrestrial channel that can be used for both ensembles A and B. To generate the signal of the TerrA channel, set the carrier frequency "Freq = 2337.490 MHz".

**Note:**
For an overview of the file contents and the required carrier frequency, refer to the description provided with the delivery of the waveform files or contact Sirius XM.

6. Set "RF > On" to enable signal generation.

The instrument modulates the selected waveform file on the configured frequency.
2 Available XM Radio Waveform Files

The playback of XM Radio waveforms requires licence and waveforms from Sirius XM. Rohde & Schwarz does not provide the XM radio waveform files themselves, but rather the functionality to playback these files. Provided that the required options are fitted (see Chapter 1.2, "System Requirements", on page 5), you can playback XM Radio waveform files.
Index

A
ARB ..................................................................................... 7

C
Carrier frequency
   see description from Sirius XM ................................. 9

I
Installation instructions ..................................................... 6

O
Option xxx-K256
   XM Radio waveforms ............................................. 6

P
Preset .................................................................................. 7

R
Required options ............................................................. 6

S
System requirements ........................................................ 5

W
Waveforms files
   Playback ........................................................................ 7

X
XM Radio
   System requirements .................................................. 5