

R&S[®]SMCVB-KV16

ATSC 3.0 Waveforms

User Manual



1179281902
Version 03

ROHDE & SCHWARZ
Make ideas real



This document describes the following software option:

- R&S®SMCVB-KV16 ATSC 3.0 Waveforms (1434.5528.xx)

© 2023 Rohde & Schwarz GmbH & Co. KG
Muehldorfstr. 15, 81671 Muenchen, Germany
Phone: +49 89 41 29 - 0

Email: info@rohde-schwarz.com

Internet: www.rohde-schwarz.com

Subject to change – data without tolerance limits is not binding.

R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG.

All other trademarks are the properties of their respective owners.

1179.2819.02 | Version 03 | R&S®SMCVB-KV16

The following abbreviations are used throughout this manual: R&S®SMCV100B is abbreviated as R&S SMCV100B.

Contents

1	Welcome to the R&S SMCVB-KV16 option.....	5
1.1	Key features.....	5
1.2	Installation.....	5
1.3	What's new.....	9
1.4	Documentation overview.....	9
1.4.1	Getting started manual.....	9
1.4.2	User manuals and help.....	9
1.4.3	Service manual.....	9
1.4.4	Instrument security procedures.....	10
1.4.5	Printed safety instructions.....	10
1.4.6	Data sheets and brochures.....	10
1.4.7	Release notes and open source acknowledgment (OSA).....	10
1.4.8	Application notes, application cards, white papers, etc.....	10
1.4.9	Videos.....	10
2	Available ATSC 3.0 waveform files.....	11
2.1	File descriptions.....	11
	Index.....	12

1 Welcome to the R&S SMCVB-KV16 option

The R&S SMCVB-KV16 is a waveform library that provides waveform files in accordance with the ATSC 3.0 digital standard.

This user manual contains a reference description of the functionality that the waveform library provides. All functions not discussed in this manual are described in the R&S SMCV100B user manual. The latest version is available at:

www.rohde-schwarz.com/manual/SMCV100B

1.1 Key features

The R&S SMCVB-KV16 features:

- Numerous waveform files in accordance with ATSC 3.0 digital standard
- Efficient use with dedicated waveforms

1.2 Installation

Required options

The equipment layout for processing files of waveform libraries includes:

- R&S SMCV100B base unit, including arbitrary waveform generator (64 MSample ARB memory, 60 MHz RF bandwidth)
- Waveform library option (R&S SMCVB-KVxx)

For more information on ARB options, see chapter "Using the arbitrary waveform generator (ARB)" in the R&S SMCV100B user manual.

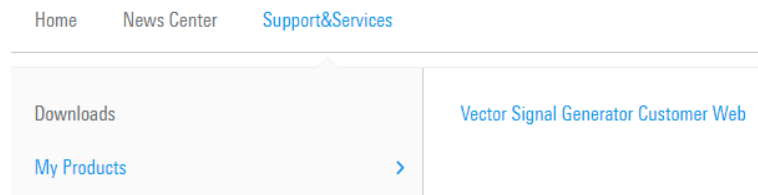
To access R&S SMCV100B libraries

R&S SMCV100B stream and waveform libraries are available for download for registered users on the "Vector Signal Generator Customer Web" at the global Rohde & Schwarz information system (GLORIS).

1. For access, register at <https://gloris.rohde-schwarz.com>:
In section "How to register", follow the instructions provided in the introduction video "How to register for GLORIS".
2. For access to the "Vector Signal Generator Customer Web", register the R&S SMCV100B:
 - a) In the menu "Support&Services", select "My Products" > "Register my product".
 - b) To register the R&S SMCV100B, click "Add Equipment".

- c) In the section "Information about your product", specify order number ("Material no.") and serial number ("Serial No.") of the R&S SMCV100B.

- After product registration, log in at GLORIS.
- In the menu bar, select "Support&Services > My Products > Vector Signal Generator Customer Web".



The "R&S SMCV100B Customer Web" page opens.

- In the selection field "Product Selection for VSG", select "R&S®SMCV100B".
A webpage opens and displays search results for products related to the R&S SMCV100B.

Product Related Documents



To download a library file

This procedure describes how to download library files. It provides a step-by-step description for download of a stream library file. The download of waveform library files is analogous.

1. Access the "Product Related Documents" web page as described in "[To access R&S SMCV100B libraries](#)" on page 5.

2. In the search navigation bar, select "Firm-/Software" > "Waveform & Streams".

The search lists all information related to stream and waveform libraries of the R&S SMCV100B:

- R&S SMCVB-KSxx results relate to stream libraries.
- R&S SMCVB-KVxx results relate to waveform libraries.

You are searching for: Product: **R&S®SMCV100B**


*

All Product Documents **Firm-/Software**



[Firmware](#) [Software](#) [Driver](#) [Waveform & Streams](#) [Archive](#)

2452 Results available Sort by date ▼

Show options

 **SMCVB-KS10 DAB / T-DMB STREAMS**

Attachments

 [SMCVB-KS10 DAB / T-DMB STREAMS](#)  [SMCVB-KS10 DAB / T-DMB STREAMS User Manual \(download version\)](#)

3. Optionally, deactivate the filtering to display all waveform and stream library content.

- a) On the left menu, select "Show options".
- b) Click "Filtering on. Reset all filters."

Filtering on. Reset all filters.

4. Optionally, to filter for stream library content enter *KS in the search input field.

You are searching for: Product: **R&S®SMCV100B**


*KS

All Product Documents **Firm-/Software**



[Firmware](#) [Software](#) [Driver](#) [Waveform & Streams](#) [Archive](#)

142 Results available Sort by date ▼

Show options

 **SMCVB-KS10 DAB / T-DMB STREAMS**

Attachments

 [SMCVB-KS10 DAB / T-DMB STREAMS](#)  [SMCVB-KS10 DAB / T-DMB STREAMS User Manual \(download version\)](#)

5. In the search result list, navigate to the required library.
6. To download required library files, click the download link in the "Attachments" section of library product page.

For example, for DAB/T-DMB streams, click the download link "R&S SMCVB-KS10 DAB / T-DMB STREAMS".

A download dialog opens to select and save files of the stream library.

To save a library file

You can save the library file to several storage locations:

- External storage device (HDD, memory stick): Use external USB storage device to save large files or complete libraries. Connect the storage device to one of the USB 3.0 connectors on the rear panel of the R&S SMCV100B. If detected correctly, you can access the files on the R&S SMCV100B in the `/usb/` directory in file-select dialogs.
The R&S SMCV100B supports the following storage formats: ext2/ext3/ext4, FAT16/FAT32, NTFS (read-only), ISO9660, UDF
- Internal memory (SSD): Use the internal memory to save single files to the user directory `/var/user/` of the R&S SMCV100B, for example, using FTP via a LAN connection.

To load and play a waveform library file

1. Load the waveform file from its storage location:

- External storage device (HDD, memory stick): Load the file from the `/usb/` directory.
- Internal memory (SSD): Load the file from the user directory `/var/user/`

Note: Library files are encrypted files. Loading the library file at the R&S SMCV100B requires installation of the corresponding library option. See "[Required options](#)" on page 5.

2. To load the file at the R&S SMCV100B, select the file in the dialog "Baseband" > "ARB" > "Load Waveform".

3. To select the file, navigate to the storage location (1).

4. Select "ARB" > "State" > "On".

The R&S SMCV100B processes the waveform file.

5. In the block diagram, select "RF" > "On"

The waveform file is modulated onto the RF carrier and output at the RF 50 Ω connector.

For more information on loading waveform files, see chapter "How to create, generate and play waveform files" in the R&S SMCV100B user manual.

1.3 What's new

Compared to the previous version the documentation provides updated installation instructions to access, download and play waveform library files, see [Chapter 1.2, "Installation"](#), on page 5.

1.4 Documentation overview

This section provides an overview of the R&S SMCV100B user documentation. Unless specified otherwise, you find the documents at:

www.rohde-schwarz.com/manual/smcv100b

1.4.1 Getting started manual

Introduces the R&S SMCV100B 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.

1.4.2 User manuals and help

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 getting started manual.
- **Software option manual**
Contains the description of the specific functions of an option. Basic information on operating the R&S SMCV100B is not included.

The contents of the user manuals are available as help in the R&S SMCV100B. The help offers quick, context-sensitive access to the complete information for the base unit and the software options.

All user manuals are also available for download or for immediate display on the Internet.

1.4.3 Service manual

Describes the performance test for checking compliance with rated specifications, firmware update, troubleshooting, adjustments, installing options and maintenance.

The service manual is available for registered users on the global Rohde & Schwarz information system (GLORIS):

<https://gloris.rohde-schwarz.com>

1.4.4 Instrument security procedures

Deals with security issues when working with the R&S SMCV100B in secure areas. It is available for download on the internet.

1.4.5 Printed safety instructions

Provides safety information in many languages. The printed document is delivered with the product.

1.4.6 Data sheets and brochures

The data sheet contains the technical specifications of the R&S SMCV100B. It also lists the options and their order numbers and optional accessories.

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

See www.rohde-schwarz.com/brochure-datasheet/smcv100b

1.4.7 Release notes and open source acknowledgment (OSA)

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

The software makes use of several valuable open source software packages. An open-source acknowledgment document provides verbatim license texts of the used open source software.

See www.rohde-schwarz.com/firmware/smcv100b

1.4.8 Application notes, application cards, white papers, etc.

These documents deal with special applications or background information on particular topics.

See www.rohde-schwarz.com/application/smcv100b

1.4.9 Videos

Find various videos on Rohde & Schwarz products and test and measurement topics on YouTube: <https://www.youtube.com/@RohdeundSchwarz>

2 Available ATSC 3.0 waveform files

The files are stored on the disk.

The set of files is available twice:

- One set is generated with ALP encapsulated test IP packets as PLP content with payload acc. to ITU.O PRBS of sequence 2²³-1.
- The other set is generated with ALP encapsulated test TS packets as PLP content with payload acc. to ITU.O PRBS of sequence 2²³-1.

Each file has a duration of approx. 30 seconds to ensure proper locking of a receiver for e.g. BER before LDPC measurement.

The files are composed together in subdirectories acc. to the ATSC 3.0 V&V test case definition in phases (P) and steps (S):

Subdirectory	Related test case *
P1S1	VV001 - VV033
P1S2	VV034 - VV061
P1S3	VV062 - VV065
P1S4	VV066 - VV069
P1S5	VV100 - VV167
P1S6	VV170 - VV181 (except VV168, VV169, VV177, VV178, VV182 to VV187)
P1S7	VV190 - VV192 (except VV193, VV194, VV195)
P1S8	VV196 - VV199
P2S1	VV200 - VV223
P2S2	VV224 - VV244
P2S3	VV245 - VV280
P6S1	VV600 - VV605 (except VV601 and VV602)
* All file names contain the related test case of the ATSC.org A/322 Verification & Validation group, e.g. "VV001".	

2.1 File descriptions

The available waveform files are described in the WV-K818_Content_Overview_<version>.xlsx Excel file.

Index

A

Application cards	10
Application notes	10

B

Brochures	10
-----------------	----

D

Data sheets	10
Documentation overview	9

G

Getting started	9
-----------------------	---

H

Help	9
------------	---

I

Installation	5
Instrument help	9
Instrument security procedures	10

K

Key features	5
--------------------	---

L

Libraries	
Access	5
Download file	7
Load file	8
Play file	8
Required options	5
Save file	8

O

Open source acknowledgment (OSA)	10
--	----

R

Release notes	10
---------------------	----

S

Safety instructions	10
Security procedures	10
Service manual	9

U

User manual	9
-------------------	---

V

Videos	10
--------------	----

W

Waveform files	11
Welcome	5
What's new	9
White papers	10