

# R&S® SMCVB-KV18

## Cable Interferers Waveforms

### User Manual



1179283102  
Version 02

**ROHDE & SCHWARZ**  
Make ideas real



This document describes the following software options:

- R&S®SMCVB-KV18 Cable Interferers (1434.5586.xx)

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

# Contents

<b>1</b>	<b>Welcome to the R&amp;S SMCVB-KV18 option.....</b>	<b>5</b>
1.1	Key features.....	5
1.2	Installation.....	5
1.3	What's new.....	5
1.4	Documentation overview.....	5
1.4.1	Getting started manual.....	5
1.4.2	User manuals and help.....	6
1.4.3	Service manual.....	6
1.4.4	Instrument security procedures.....	6
1.4.5	Printed safety instructions.....	6
1.4.6	Data sheets and brochures.....	6
1.4.7	Release notes and open source acknowledgment (OSA).....	7
1.4.8	Application notes, application cards, white papers, etc.....	7
<b>2</b>	<b>Available waveform files.....</b>	<b>8</b>
2.1	Single channel.....	8
2.2	Dual channel.....	9
2.3	Multi channel.....	10
2.4	CW.....	11
	<b>Index.....</b>	<b>13</b>



# 1 Welcome to the R&S SMCVB-KV18 option

The R&S SMCVB-KV18 is a waveform library that provides waveform files in accordance with various cable standards.

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](http://www.rohde-schwarz.com/manual/SMCV100B)

## 1.1 Key features

The R&S SMCVB-KV18 features:

- Numerous waveform files in accordance with various cable standards
- Efficient use with dedicated waveforms as interferer signal

## 1.2 Installation

You can find detailed installation instructions in the supplement document of the R&S SMCV100B user manual and in the R&S SMCV100B user manual describing firmware versions FW 4.90.002.xx and later of the R&S SMCV100B.

## 1.3 What's new

Compared to the previous version there are editorial changes only.

## 1.4 Documentation overview

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

[www.rohde-schwarz.com/manual/smcv100b](http://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](http://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 open-source acknowledgment document provides verbatim license texts of the used open source software.

See [www.rohde-schwarz.com/firmware/smcv100b](http://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](http://www.rohde-schwarz.com/application/smcv100b)

## 2 Available waveform files

This chapter contains the description of the available waveform files sorted as on the disk.

### 2.1 Single channel

#### **DVB\_C2\_GI64\_8MHz.wv**

RF = 489.991 MHz, 8 MHz channel, GI = 1/64, 1 PLP, 1 data slice, 256QAM, 5 C2 frames

#### **DVB\_C2\_GI128\_6MHz.wv**

RF = 490.018 MHz, 6 MHz channel, GI = 1/128, 1 PLP, 1 data slice, 256QAM, 4 C2 frames

#### **16QAM\_DVB-C\_NORDIG\_CH1.wv**

Modulation: 16QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **64QAM\_DVB-C\_NORDIG\_CH1.wv**

Modulation: 64QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **128QAM\_DVB-C\_NORDIG\_CH1.wv**

Modulation: 128QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **256QAM\_DVB-C\_NORDIG\_CH1.wv**

Modulation: 256QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **DVB\_C\_64QAM.wv**

Modulation: 64QAM, symbol rate: 6.9 MSymb, Nyquist filter alpha = 15%

#### **DVB\_C\_256QAM.wv**

Modulation: 256QAM, symbol rate: 6.9 MSymb, Nyquist filter alpha = 15%

#### **M\_UDCP\_NTSC.wv**

Modulation: Analog Std M, NTSC SMPTE colorbars 100%, modulation depth: 87.5%, 400 Hz FM mono sound carrier/vision level: -13 dB.

#### **QPSK\_FDC\_A.wv**

Modulation: QPSK, symbol rate: 0.772 MSymb, Nyquist filter alpha = 30%

#### **QPSK\_FDC\_B.wv**

Modulation: QPSK, symbol rate: 1.544 MSymb, Nyquist filter alpha = 30%

#### **SCTE\_64QAM.wv**

Modulation: 64QAM, symbol rate: 5.056941 MSymb, Nyquist filter alpha = 18%

#### **SCTE\_256QAM.wv**



Modulation: 256QAM, symbol rate: 5.360537 MSymb, Nyquist filter alpha = 12%

#### **SCTE\_NTSC.wv**

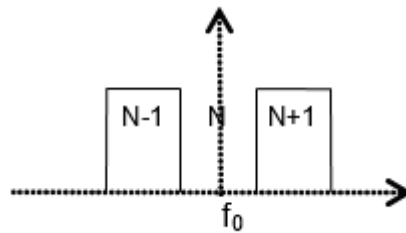
Modulation: Analog Std M, NTSC, modulation depth: 87.5%, 400 Hz FM mono sound carrier/vision level: -7 dB; spectrum centered, i.e. vision carrier 1.75 MHz below RF frequency ( $f_0$ )

#### **SCTE\_NTSC\_10dB.wv**

Modulation: Analog Std M, NTSC, modulation depth: 87.5%, 400 Hz FM mono sound carrier/vision level: -10 dB; spectrum centered, i.e. vision carrier 1.75 MHz below RF frequency ( $f_0$ )

## 2.2 Dual channel

Two signals are grouped around the RF frequency with a spacing of one channel (see [Figure 2-1](#)).



*Figure 2-1: Two channel signal*

#### **16QAM\_DVB-C\_NORDIG\_CH101.wv**

N-1 and N+1 interferer; modulation: 16QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **64QAM\_DVB-C\_NORDIG\_CH101.wv**

N-1 and N+1 interferer; modulation: 64QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **128QAM\_DVB-C\_NORDIG\_CH101.wv**

N-1 and N+1 interferer; modulation: 128QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **256QAM\_DVB-C\_NORDIG\_CH101.wv**

N-1 and N+1 interferer; modulation: 256QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **16QAM\_DVB-C\_NORDIG\_CH10001.wv**

N-2 and N+2 interferer; modulation: 16QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **64QAM\_DVB-C\_NORDIG\_CH10001.wv**

N-2 and N+2 interferer; modulation: 64QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

**128QAM\_DVB-C\_NORDIG\_CH10001.wv**

N-2 and N+2 interferer; modulation: 128QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

**256QAM\_DVB-C\_NORDIG\_CH10001.wv**

N-2 and N+2 interferer; modulation: 256QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

**DVB\_C\_2CH\_64QAM\_8MHz.wv**

N-1 and N+1 interferer; modulation: 64QAM, symbol rate: 6.9 MSymb, Nyquist filter alpha = 15%

**DVB\_C\_2CH\_256QAM\_8MHz.wv**

N-1 and N+1 interferer; modulation: 256QAM, symbol rate: 6.9 MSymb, Nyquist filter alpha = 15%

**SCTE\_2CH\_64QAM.wv**

N-1 and N+1 interferer; modulation: 64QAM, symbol rate: 5.056941 MSymb, Nyquist filter alpha = 18%

**SCTE\_2CH\_256QAM.wv**

N-1 and N+1 interferer; modulation: 256QAM, symbol rate: 5.360537 MSymb, Nyquist filter alpha = 12%

**SCTE\_2CH\_NTSC.wv**

N-1 and N+1 interferer; modulation: Analog Std M, NTSC, modulation depth: 87.5%, 400 Hz FM mono sound carrier/vision level: -7 dB

**SCTE\_2CH\_NTSC\_10dB.wv**

N-1 and N+1 interferer; modulation: Analog Std M, NTSC, modulation depth: 87.5%, 400 Hz FM mono sound carrier/vision level: -10 dB

## 2.3 Multi channel

**MULTI\_13CH\_[index of empty channels \_MT]\_[modulation type].wv**

The directory contains 81 files. All files are named in the same fashion.

For example, the file name "MULTI\_13CH\_2\_3\_4MT\_64QAM.wv" reads as follows:

[index of empty channels \_MT]  
 MULTI\_13CH\_2\_3\_4MT\_64QAM.wv  
 [modulation type]

Each file supports a 13-channel signal.

Modulations:

- Analog Std M, NTSC, modulation depth: 87.5%, 400 Hz FM mono sound carrier/ vision level: -7 dB; spectrum centered, i.e. vision carrier 1.75 MHz below RF frequency (f0)
- 64QAM, symbol rate: 5.056941 MSymb, Nyquist filter alpha = 18%
- 256QAM, symbol rate: 5.360537 MSymb, Nyquist filter alpha = 12%

#### **16QAM\_DVB-C\_NORDIG\_CH11011.wv**

N-2, N+2 interferer at +5 dB relative to carrier level and N-1, N+1 interferer at +0 dB relative to carrier level; modulation: 16QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **64QAM\_DVB-C\_NORDIG\_CH11011.wv**

N-2, N+2 interferer at +5 dB relative to carrier level and N-1, N+1 interferer at +0 dB relative to carrier level; modulation: 64QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

#### **128QAM\_DVB-C\_NORDIG\_CH11011.wv**

N-2, N+2 interferer at +5 dB relative to carrier level and N-1, N+1 interferer at +0 dB relative to carrier level; modulation: 128QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

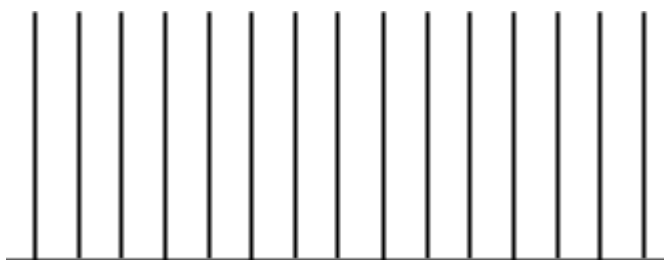
#### **256QAM\_DVB-C\_NORDIG\_CH11011.wv**

N-2, N+2 interferer at +5 dB relative to carrier level and N-1, N+1 interferer at +0 dB relative to carrier level; modulation: 256QAM, symbol rate: 6.952 MSymb, Nyquist filter alpha = 15%

## 2.4 CW

#### **FullCWLoad\_6MHz.wv**

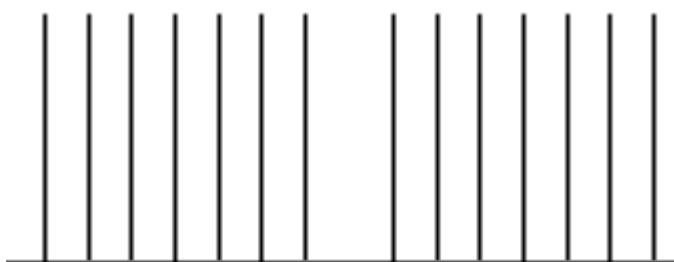
15 CW signals in 6 MHz spacing



*Figure 2-2: CW signals*

**FullCWLoad\_6\_MHz\_NoCenter.wv**

14 CW signals in 6 MHz spacing; center channel empty.



*Figure 2-3: CW signals, center empty*

**FullCWLoad\_7MHz.wv**

13 CW signals in 7 MHz spacing

**FullCWLoad\_7\_MHz\_NoCenter.wv**

12 CW signals in 7 MHz spacing; center channel empty.

**FullCWLoad\_8MHz.wv**

11 CW signals in 8 MHz spacing

**FullCWLoad\_8\_MHz\_NoCenter.wv**

10 CW signals in 8 MHz spacing; center channel empty.

# Index

## A

Application cards .....	7
Application notes .....	7

## B

Brochures .....	6
-----------------	---

## D

Data sheets .....	6
Documentation overview .....	5

## G

Getting started .....	5
-----------------------	---

## H

Help .....	6
------------	---

## I

Installation .....	5
Instrument help .....	6
Instrument security procedures .....	6

## K

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

## O

Open source acknowledgment (OSA) .....	7
--	---

## R

Release notes .....	7
---------------------	---

## S

Safety instructions .....	6
Security procedures .....	6
Service manual .....	6

## U

User manual .....	6
-------------------	---

## W

Waveform files .....	8
Welcome .....	5
What's new .....	5
White papers .....	7