R&S®SMCVB-KS20
HEVC Streams
User Manual

1179274802
Version 01

ROHDE&SCHWARZ
Make ideas real

This document describes the following software options:

- R&S®SMCVB-KS20 HEVC Streams (1434.5292.xx)

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1179.2748.02 | Version 01 | R&S®SMCVB-KS20

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-KS20 Option

The R&S SMCVB-KS20 is a stream library contains test streams to support development and test of broadcast television equipment, consumer receivers and TV sets.

This user manual contains a reference description of the functionality that the stream 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-KS20 features:

- Numerous test stream files
- Streaming of high-quality video contents
- Streaming of high-quality audio contents
- Efficient use with dedicated streams

All streams with VUI parameters are compliant to ETSI TS 101154 V2.2.1 (2015-06).

For all UHDTV signals an open GOP (group of pictures) compressing structure is used for higher picture quality. The drawback of this structure is that a seamless switching (looping) is not possible. As a result, decoding errors and picture disturbances occur at the looping point.

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 later than FW 4.70.176.xx of the R&S SMCV100B.

1.3 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

1.3.1 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.

1.3.2 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.

1.3.3 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

1.3.4 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.

1.3.5 Printed Safety Instructions

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

1.3.6 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

1.3.7 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

1.3.8 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

2 Video Test Signals and Audio Test Sequences

2.1 Video

2.1.1 Compression Standard HEVC H.265

Recommendation ITU T H.265 (high efficiency video coding, HEVC) represents an evolution of the existing video coding standards ITU T H.262 (usually called MPEG 2) and ITU T H.264 (advanced video coding, AVC). Besides other needs for higher compression, the standard was developed to enable the transmission of 720p (HD), 1080p (full HD) and 4k (UHD) videos over broadcast channels.

2.1.2 Video Formats

2.1.2.1 UHDTV 3840x2160p

Profile **general_profile_idc**	Main 10 2
Compatibility	Main; Main 10
Level **general_level_idc**	5.1 153
Tier	Main
Bit_depth_luma_minus8	0
Bit_depth_chroma_minus8	0

2.1.2.2 FULL HDTV 1920x1080p

Profile **general_profile_idc**	Main 1
Compatibility	Main; Main 10
Level **general_level_idc**	4.1 123
Tier	Main

Bit_depth_luma_minus8	0
Bit_depth_chroma_minus8	0

2.1.2.3 HDTV 1280x720p

Profile **general_profile_idc**	Main 1
Compatibility	Main; Main 10
Level **general_level_idc**	4.1 120
Tier	Main
Bit_depth_luma_minus8	0
Bit_depth_chroma_minus8	0

2.1.2.4 VUI Parameters 50 Hz

Vui_timing_info_present_flag	1
Vui_num_units_tick	1
Vui_time_scale	50

2.1.2.5 VUI Parameters 59.94 Hz

Vui_timing_info_present_flag	1
Vui_num_units_tick	1001
Vui_time_scale	60000

2.1.3 Moving Video Scene

2.1.3.1 Anthill

This sequence shows 2 scenes repeated in loops. The first scene shows an anthill from a distance, the second scene goes into detail.

	
Scene 1	Scene 2

The scenes are very rich in detail to demonstrate the high resolution of UHDTV versus HDTV. The picture size is displayed in the left bottom corner of the frame.

2.1.3.2 Beehive

This sequence shows 2 scenes repeated in loops. The first scene shows some beehives from a distance, the second scene goes into detail.

	
Scene 1	Scene 2

The scenes show fast movement of the bees and also shadows of flying bees. The scenes are very rich in detail to demonstrate the high resolution of UHDTV versus HDTV. The picture size is displayed in the left bottom corner of the frame.

2.1.3.3 Waterfall

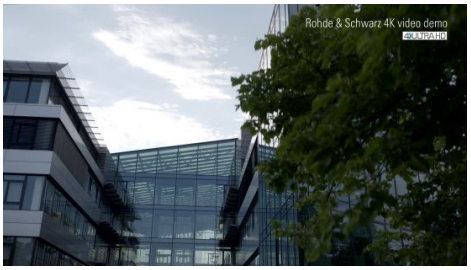
This sequence shows 2 scenes repeated in loops. The first scene shows a little waterfall from a distance, the second scene goes into detail.

	
Scene 1	Scene 2

The moving water generally challenges the compression algorithms, so that some kind of blocking is noticeable. You can see the effect in both resolutions, because the bit rate is adapted to the picture size. The picture size is displayed in the left bottom corner of the frame.

2.1.3.4 RS 4k Trailer

This video is a long sequence with several scenes. It shows a promotion video of the Rohde & Schwarz company to demonstrate 4k video. Due to limited editing tools it was composed as 25 frames per second video. Because broadcast transmission is planned with 50 frames per second only, every picture has to be doubled (transmitted twice).

	
Scene example	Scene example

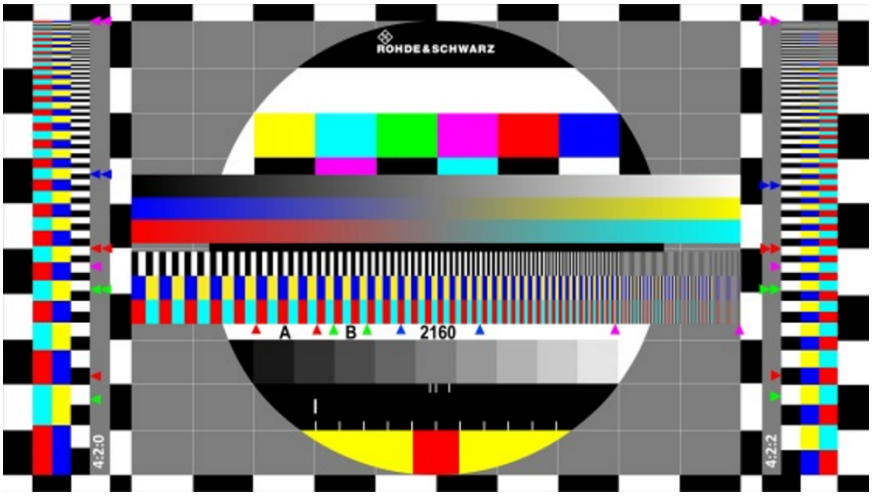
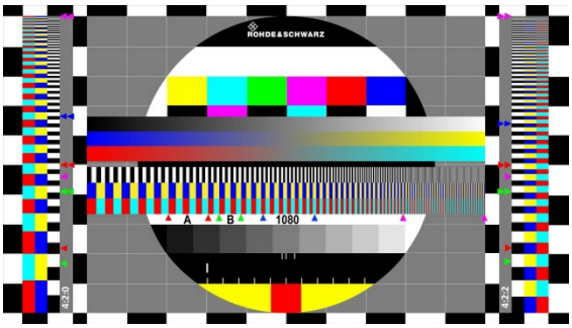
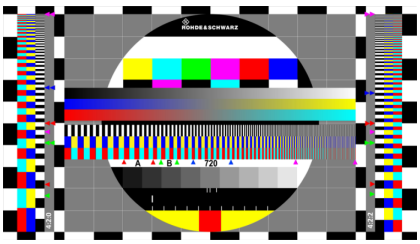
This video is available in UHDTV only.

2.1.4 Test Pattern

2.1.4.1 ITU-R BT1729

This video is composed on the basis of the definition of ITU R BT.1729, where 16:9 and 4:3 test patterns with moving element and associated audio are defined for the following purposes:

- Quality control of chrominance and luminance through the production chain
- Checking and adjusting the chrominance and luminance alignment of broadcast equipment, particularly video monitors
- General testing of equipment for video production, emission and presentation
- Establishing that video circuit is active and associated audio is available
- Checking for audio-video synchronization
- Checking for correct connection of audio channels
- Checking for correct audio levels

	2160p
	1080p
	720p

Deviant to the ITU-R BT.1729 definition, the test signals in this library include a 2160 lines version, but do not support real (analog bandwidth limited) frequency sweep zones. A digital representation is provided instead. Furthermore, a 1 kHz -6 dBFS audio is included for EMC purposes. This inhibits two of the original purposes listed above, namely checking for audio-video synchronization and checking for correct connection of audio channels.

2.2 Audio

2.2.1 Compression Standard MPEG-1 Layer 2

MPEG 1 audio layer 2 is an audio compression format defined by ISO/IEC 11172 3 for mono and stereo audio signals. It is mainly used for digital television transmission in DVB, although newer compression formats with more audio channels like Dolby AC 3 and AAC are becoming common.

2.2.2 Audio Parameters

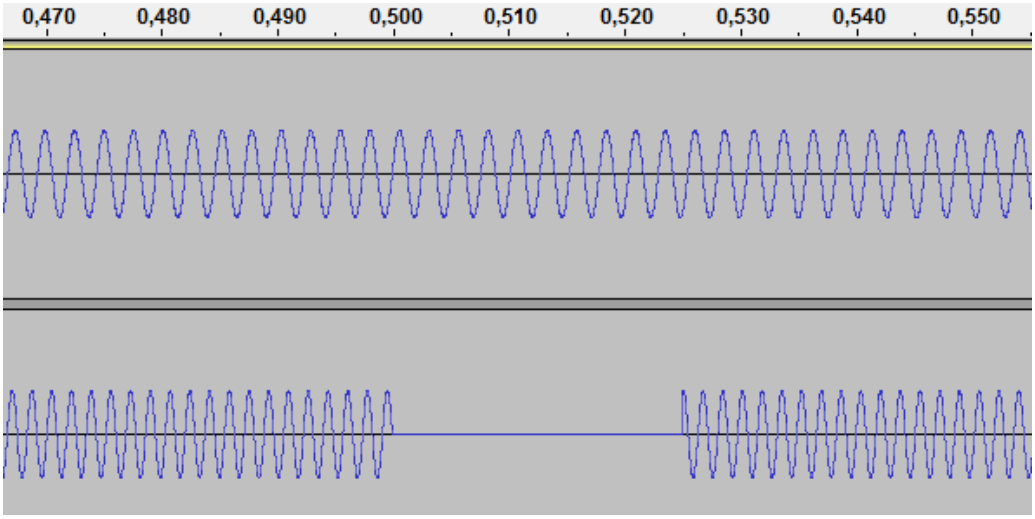
Compression	MPEG-1 layer 2
Sampling rate	48 ksample/s
Time per frame	24 ms
Bit rate	192 kbps
Channels	2 (stereo)

2.2.3 Test Signal 1

Used with ITU-R BT 1729-1

Left 392 Hz / -6dB$_{fs}$

Right 493.9 Hz / -6dB$_{fs}$

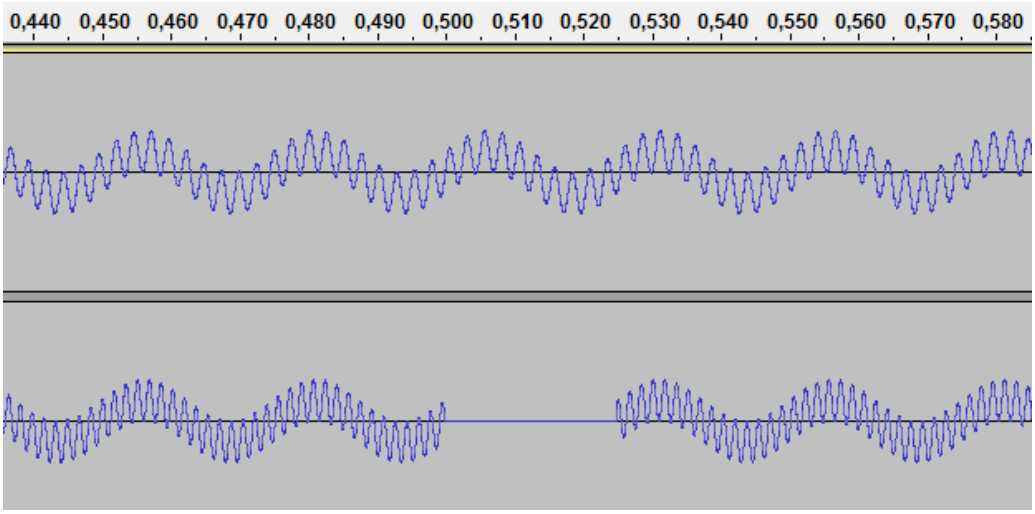


2.2.4 Test Signal 2

Used with ITU-R BT 1729-2

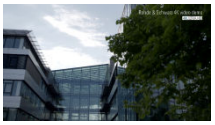
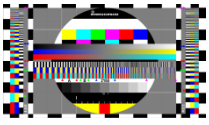
Left 392 Hz + 40 Hz / -6dB$_{fs}$

Right 493.9 Hz + 40 Hz / -6dB$_{fs}$



3 DVB Transport Streams

3.1 Overview

	UHDTV	Full HDTV	HDTV
Anthill 	See Chapter 3.3.1.2, "UHDTV HEVC Anthill", on page 21 (50 Hz) or Chapter 3.4.1.2, "UHDTV HEVC Anthill", on page 34 (59 Hz)	See Chapter 3.3.2.2, "Full HDTV HEVC Anthill", on page 26 (50 Hz) or Chapter 3.4.2.3, "Full HDTV HEVC Beehive", on page 40 (59 Hz)	See Chapter 3.3.3.2, "HDTV HEVC Anthill", on page 30 (50 Hz) or Chapter 3.4.3.2, "HDTV HEVC Anthill", on page 44 (59 Hz)
Beehive 	See Chapter 3.3.1.3, "UHDTV HEVC Beehive", on page 22(50 Hz) or Chapter 3.4.1.3, "UHDTV HEVC Beehive", on page 35 (59 Hz)	See Chapter 3.3.2.3, "Full HDTV HEVC Beehive", on page 27 (50 Hz) or Chapter 3.4.2.3, "Full HDTV HEVC Beehive", on page 40 (59 Hz)	See Chapter 3.3.3.3, "HDTV HEVC Beehive", on page 31 (50 Hz) or Chapter 3.4.3.3, "HDTV HEVC Beehive", on page 44 (59 Hz)
Waterfall 	See Chapter 3.3.1.4, "UHDTV HEVC Waterfall", on page 22(50 Hz) or Chapter 3.4.1.4, "UHDTV HEVC Waterfall", on page 36 (59 Hz)	See Chapter 3.3.2.4, "Full HDTV HEVC Waterfall", on page 27 (50 Hz) or Chapter 3.4.2.4, "Full HDTV HEVC Waterfall", on page 41 (59 Hz)	See Chapter 3.3.3.4, "HDTV HEVC Waterfall", on page 31 (50 Hz) or Chapter 3.4.3.4, "HDTV HEVC Waterfall", on page 45 (59 Hz)
RS 4k Trailer 	See Chapter 3.3.1.5, "UHDTV HEVC RS 4k Trailer", on page 23 (50 Hz) or Chapter 3.4.1.5, "UHDTV HEVC RS 4k Trailer", on page 36 (59 Hz)	-	-
ITU-R BT1729 	See Chapter 3.3.1.6, "UHDTV HEVC ITU-R BT1729", on page 24 (50 Hz) or Chapter 3.4.1.6, "UHDTV HEVC ITU-R BT1729", on page 37 (59 Hz)	See Chapter 3.3.2.5, "Full HDTV HEVC ITU-R BT1729", on page 28 (50 Hz) or Chapter 3.4.2.5, "Full HDTV HEVC ITU-R BT1729", on page 41 (59 Hz)	See Chapter 3.3.3.5, "HDTV HEVC ITU-R BT1729", on page 32 (50 Hz) or Chapter 3.4.3.5, "HDTV HEVC ITU-R BT1729", on page 45 (59 Hz)

3.2 DVB Transport Stream PSI/SI Details

3.2.1 Network Information Table

These parameters are valid for all transport streams of this library. All signals have identical IDs and transmission information, so that only one channel scan on the TV receiver is necessary to display all signals.

Network	ID	2000 (0x07D0)
	Name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
Transport stream	ID	1 (0x0001)
Original network	ID	2000 (0x07D0)
Satellite delivery system descriptor (DVB-S2)	Frequency	11.11100 GHz
	Orbital position	19.2 deg West
	Polarization	Circular-right
	Roll off	α = 0.20
	Modulation system	DVB-S2
	Modulation type	8PSK
	Symbol rate	22.0000 Msymbol/s
	FEC inner	8/9 conv. code rate
S2 satellite delivery system descriptor	Scrambling sequence selector	Sequence index n conveyed by scrambling_sequence_index field
	Multiple input stream flag	Single
	Backwards compatibility indicator	0

3.2.2 Service Description Table

These parameters are valid for all transport streams of this library. All signals have an identical service name and ID, so that only one channel scan on the TV receiver is necessary to display all signals.

Service	**ID**	**1 (0x0001)**
	Service type	31 (0x1F)
	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)

	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
PCR	PID	256 (0x0100)
Video	PID	256 (0x0100)
	Stream type	36 (0x24) HEVC
Audio	PID	272 (0x0110)
	Stream type	3 (0x03) MPEG1

3.2.3 Program Map Table

These parameters are not equal for all transport streams of this library. They are independent for each video format, because of different level and timing information.

See Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19, Chapter 3.3.2, "1920_1080p (Full HDTV)", on page 24 and Chapter 3.3.3, "1280_720p (HDTV)", on page 29.

3.2.4 Event Information Table

These parameters are not equal for all transport streams of this library. Each video format is named in an actual event for display on TV sets.

See Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19, Chapter 3.3.2, "1920_1080p (Full HDTV)", on page 24 and Chapter 3.3.3, "1280_720p (HDTV)", on page 29.

3.3 DVB 50 Hz

These streams have 50 video frames per second and are used in countries with 50 Hz electrical power supply.

3.3.1 3840x2160p (UHDTV)

3.3.1.1 PSI/SI Details

Program Map Table

These parameters are valid for all 50 Hz UHDTV transport streams.

Service	ID	1 (0x0001)
Video	Stream type	36 (0x24)
	HEVC descriptor	descriptor_tag : 0x38 (56) descriptor_length : 13 profile_space : 0 tier_flag : 0 profile_idc : 0x01 (Main profile) profile_compatibility_indication : 0x00000006 (6) progressive_source_flag : 1 interlaced_source_flag : 0 non_packed_constrainet_flag : 1 frame_only_constrainet_flag : 1 reserved_zero_44bits : 0x00000000000 level_idc : 0x96 (Level 5) temporal_layer_subset_flag : 0 HEVC_still_present_flag : 0 HEVC_24hr_picture_present_flag : 0 reserved : 0x1F (31)
	HEVC timing and HRD descriptor	descriptor_tag : 0x3F (63) descriptor_length : 7 extension_descriptor_tag : 0x03 (3) hrd_magement_valid_flag : 0 (leak method shall be used) reserved : 0x3F (63) picture_and_timing_info_present : 1 90kHz_flag : 1 (time base is 90 kHz) reserved : 0x7F (127) num_units_in_tick : 1
Audio	Stream type	4 (0x04)
	Audio stream descriptor	Descriptor tag 0x03 (3) Descriptor length 1 Free format flag 0 ID 1 Layer 2 Variable rate audio indicator 0 reserved 0x7

Event Information Table

These parameters are valid for all 50 Hz UHDTV transport streams.

Service	ID	1 (0x0001)
	Service type	31 (0x1F)
	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Event	ID	1 (0x0001)
	Name	2160p50 (Character set UTF-8 encoding of ISO/IEC 10646-1)

Video	Stream content	9 (0x09)
	Component type	4 (0x04)
	Text	HEVC video (Character set UTF-8 encoding of ISO/IEC 10646-1)
Audio	Stream content	2 (0x02)
	Component type	3 (0x03)
	Text	Audio, stereo (Character set UTF-8 encoding of ISO/IEC 10646-1)

3.3.1.2 UHDTV HEVC Anthill

Transport stream	Bit rate Payload only	36.4 Mbps 20.3 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	16 Mbps
	Bit rate max.	20 Mbps
	Loop time	9.600 s
	GOP size	24 (Open GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.1.3 UHDTV HEVC Beehive

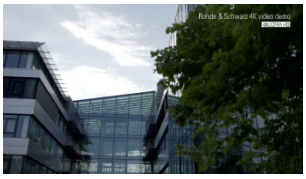
Transport stream	Bit rate Payload only	36.4 Mbps 20.0 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	16 Mbps
	Bit rate max.	20 Mbps
	Loop time	9.600 s
	GOP size	24 (Open GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.1.4 UHDTV HEVC Waterfall

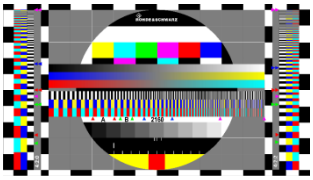
Transport stream	Bit rate Payload only	36.4 Mbps 20.3 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	16 Mbps
	Bit rate max.	20 Mbps
	Loop time	9.600 s

	GOP size	24 (Open GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.1.5 UHDTV HEVC RS 4k Trailer

Transport stream	Bit rate Payload only	36.4 Mbps 20.3 Mbps
	Loop time	216 s (1 video loop)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	16 Mbps
	Bit rate max.	20 Mbps
	Loop time	216.000 s
	GOP size	24 (Open GOP)
	Number of frames	10800
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	216 s
	Number of frames	8791

3.3.1.6 UHDTV HEVC ITU-R BT1729

Transport stream	Bit rate Payload only	36.4 Mbps 19.8 Mbps
	Loop time	48 s (48 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.3.1, "3840x2160p (UHDTV)", on page 19	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	18 Mbps
	Bit rate max.	19 Mbps
	Loop time	1.000 s
	GOP size	24 (Open GOP)
	Number of frames	50
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Test signal**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s
	Number of frames	2000

This stream is provided in 2 versions with different audio content:

- ITU-R BT1729-1: Left 392 Hz, right: 493.9 Hz muting once per second
- ITU-R BT1729-2: Left 392 Hz + 40 Hz, right: 493.9 Hz + 40 Hz muting once per second

3.3.2 1920_1080p (Full HDTV)

3.3.2.1 PSI/SI Details

Program Map Table

These parameters are valid for all 50 Hz full HDTV transport streams.

Service	ID	1 (0x0001)
Video	Stream type	36 (0x24)
	HEVC descriptor	descriptor_tag : 0x38 (56) descriptor_length : 13 profile_space : 0 tier_flag : 0 profile_idc : 0x01 (Main profile) profile_compatibility_indication : 0x00000006 (6) progressive_source_flag : 1 interlaced_source_flag : 0 non_packed_constrainet_flag : 1 frame_only_constrainet_flag : 1 reserved_zero_44bits : 0x00000000000 level_idc : 0x96 (Level 5) temporal_layer_subset_flag : 0 HEVC_still_present_flag : 0 HEVC_24hr_picture_present_flag : 0 reserved : 0x1F (31)
	HEVC timing and HRD descriptor	descriptor_tag : 0x3F (63) descriptor_length : 7 extension_descriptor_tag : 0x03 (3) hrd_magement_valid_flag : 0 (leak method shall be used) reserved : 0x3F (63) picture_and_timing_info_present : 1 90kHz_flag : 1 (time base is 90 kHz) reserved : 0x7F (127) num_units_in_tick : 1
Audio	Stream type	4 (0x04)
	Audio stream descriptor	Descriptor tag 0x03 (3) Descriptor length 1 Free format flag 0 ID 1 Layer 2 Variable rate audio indicator 0 reserved 0x7

Event Information Table

These parameters are valid for all 50 Hz full HDTV transport streams.

Service	ID	1 (0x0001)
	Service type	31 (0x1F)
	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Event	ID	1 (0x0001)
	Name	1080p50 (Character set UTF-8 encoding of ISO/IEC 10646-1)

Video	Stream content	9 (0x09)
	Component type	2 (0x02)
	Text	HEVC video (Character set UTF-8 encoding of ISO/IEC 10646-1)
Audio	Stream content	2 (0x02)
	Component type	3 (0x03)
	Text	audio, stereo (Character set UTF-8 encoding of ISO/IEC 10646-1)

3.3.2.2 Full HDTV HEVC Anthill

Transport stream	Bit rate Payload only	31.8 Mbps 9.4 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.3.2, "1920_1080p (Full HDTV)", on page 24	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	7 Mbps
	Bit rate max.	9 Mbps
	Loop time	9.600 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.2.3 Full HDTV HEVC Beehive

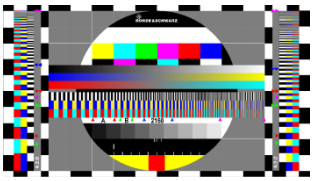
Transport stream	Bit rate Payload only	31.8 Mbps 9.5 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.3.2, "1920_1080p (Full HDTV)", on page 24	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	9.600 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG#1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.2.4 Full HDTV HEVC Waterfall

Transport stream	Bit rate Payload only	31.5 Mbps 9.5 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.3.2, "1920_1080p (Full HDTV)", on page 24	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	9.600 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive

	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.2.5 Full HDTV HEVC ITU-R BT1729

Transport stream	Bit rate Payload only	49.6 Mbps 10.3 Mbps
	Loop time	48 s (48 video loops)
PSI/SI	See Chapter 3.3.2, "1920_1080p (Full HDTV)", on page 24	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	8.5 Mbps
	Bit rate max.	9.5 Mbps
	Loop time	1.000 s
	GOP size	25 (Closed GOP)
	Number of frames	50
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Left + right 1 kHz â€‘6 dBFS**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s
	Number of frames	2000

This stream is provided in 2 versions with different audio content:

- ITU-R BT1729-1: Left 392 Hz, right: 493.9 Hz muting once per second
- ITU-R BT1729-2: Left 392 Hz + 40 Hz, right: 493.9 Hz + 40 Hz muting once per second

3.3.3 1280_720p (HDTV)

3.3.3.1 PSI/SI Details

Program Map Table

These parameters are valid for all 50 Hz HDTV transport streams.

Service	ID	1 (0x0001)
Video	Stream type	36 (0x24)
	HEVC descriptor	descriptor_tag : 0x38 (56) descriptor_length : 13 profile_space : 0 tier_flag : 0 profile_idc : 0x01 (Main profile) profile_compatibility_indication : 0x00000006 (6) progressive_source_flag : 1 interlaced_source_flag : 0 non_packed_constrainet_flag : 1 frame_only_constrainet_flag : 1 reserved_zero_44bits : 0x00000000000 level_idc : 0x96 (Level 5) temporal_layer_subset_flag : 0 HEVC_still_present_flag : 0 HEVC_24hr_picture_present_flag : 0 reserved : 0x1F (31)
	HEVC timing and HRD descriptor	descriptor_tag : 0x3F (63) descriptor_length : 7 extension_descriptor_tag : 0x03 (3) hrd_magement_valid_flag : 0 (leak method shall be used) reserved : 0x3F (63) picture_and_timing_info_present : 1 90kHz_flag : 1 (time base is 90 kHz) reserved : 0x7F (127) num_units_in_tick : 1
Audio	Stream type	4 (0x04)
	Audio stream descriptor	Descriptor tag 0x03 (3) Descriptor length 1 Free format flag 0 ID 1 Layer 2 Variable rate audio indicator 0 reserved 0x7

Event Information Table

These parameters are valid for all 50 Hz HDTV transport streams.

Service	ID	1 (0x0001)
	Service type	31 (0x1F)

	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Event	ID	1 (0x0001)
	Name	720p50 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Video	Stream content	9 (0x09)
	Component type	2 (0x02)
	Text	HEVC video (Character set UTF-8 encoding of ISO/IEC 10646-1)
Audio	Stream content	2 (0x02)
	Component type	3 (0x03)
	Text	audio, stereo (Character set UTF-8 encoding of ISO/IEC 10646-1)

3.3.3.2 HDTV HEVC Anthill

Transport stream	Bit rate Payload only	31.8 Mbps 7.4 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.3.3, "1280_720p (HDTV)", on page 29	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	6 Mbps
	Bit rate max.	7 Mbps
	Loop time	9.600 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio	Compression	MPEG-1 layer 2

Background music	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.3.3 HDTV HEVC Beehive

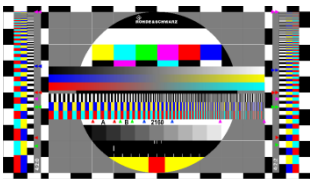
Transport stream	Bit rate Payload only	31.5 Mbps 7.2 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.3.3, "1280_720p (HDTV)", on page 29	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	6 Mbps
	Bit rate max.	7 Mbps
	Loop time	9.600 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.3.4 HDTV HEVC Waterfall

Transport stream	Bit rate Payload only	31.7 Mbps 7.3 Mbps
	Loop time	48 s (5 video loops)
PSI/SI	See Chapter 3.3.3, "1280_720p (HDTV)", on page 29	
Video	Compression	H.265 (HEVC)
	Bit rate min.	6 Mbps
	Bit rate max.	7 Mbps

	Loop time	9.600 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s * 5
	Number of frames	2000

3.3.3.5 HDTV HEVC ITU-R BT1729

Transport stream	Bit rate Payload only	49.6 Mbps 8.3 Mbps
	Loop time	48 s (48 video loops)
PSI/SI	See Chapter 3.3.3, "1280_720p (HDTV)", on page 29	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	1.000 s
	GOP size	25 (Closed GOP)
	Number of frames	50
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Left + right 1 kHz â€‘6 dBFS**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	9.600 s
	Number of frames	2000

This stream is provided in 2 versions with different audio content:

- ITU-R BT1729-1: Left 392 Hz, right: 493.9 Hz muting once per second

- ITU-R BT1729-2: Left 392 Hz + 40 Hz, right: 493.9 Hz + 40 Hz muting once per second

3.4 DVB 59 Hz

These streams have 59.94 video frames per second and are used in countries with 60 Hz electrical power supply.

3.4.1 3840x2160p (UHDTV)

3.4.1.1 PSI/SI Details

Program Map Table

These parameters are valid for all 59 Hz UHDTV transport streams.

Service	ID	1 (0x0001)
Video	Stream type	36 (0x24)
	HEVC descriptor	descriptor_tag : 0x38 (56) descriptor_length : 13 profile_space : 0 tier_flag : 0 profile_idc : 0x01 (Main profile) profile_compatibility_indication : 0x00000006 (6) progressive_source_flag : 1 interlaced_source_flag : 0 non_packed_constrainet_flag : 1 frame_only_constrainet_flag : 1 reserved_zero_44bits : 0x00000000000 level_idc : 0x96 (Level 5) temporal_layer_subset_flag : 0 HEVC_still_present_flag : 0 HEVC_24hr_picture_present_flag : 0 reserved : 0x1F (31)
	HEVC timing and HRD descriptor	descriptor_tag : 0x3F (63) descriptor_length : 7 extension_descriptor_tag : 0x03 (3) hrd_magement_valid_flag : 0 (leak method shall be used) reserved : 0x3F (63) picture_and_timing_info_present : 1 90kHz_flag : 1 (time base is 90 kHz) reserved : 0x7F (127) num_units_in_tick : 1

Audio	Stream type	4 (0x04)
	Audio stream descriptor	Descriptor tag 0x03 (3) Descriptor length 1 Free format flag 0 ID 1 Layer 2 Variable rate audio indicator 0 reserved 0x7

Event Information Table

These parameters are valid for all 59 Hz UHDTV transport streams.

Service	ID	1 (0x0001)
	Service type	31 (0x1F)
	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Event	ID	1 (0x0001)
	Name	2160p59 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Video	Stream content	9 (0x09)
	Component type	4 (0x04)
	Text	HEVC video (Character set UTF-8 encoding of ISO/IEC 10646-1)
Audio	Stream content	2 (0x02)
	Component type	3 (0x03)
	Text	Audio, stereo (Character set UTF-8 encoding of ISO/IEC 10646-1)

3.4.1.2 UHDTV HEVC Anthill

Transport stream	Bit rate Payload only	36.4 Mbps 20.5 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.4.1, "3840x2160p (UHDTV)", on page 33	

Video 	Compression	H.265 (HEVC)
	Bit rate min.	17 Mbps
	Bit rate max.	20 Mbps
	Loop time	8.008 s
	GOP size	24 (Open GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.1.3 UHDTV HEVC Beehive

Transport stream	Bit rate Payload only	36.4 Mbps 20.5 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.4.1, "3840x2160p (UHDTV)", on page 33	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	17 Mbps
	Bit rate max.	20 Mbps
	Loop time	8.008 s
	GOP size	24 (Open GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps

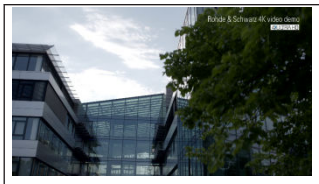
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.1.4 UHDTV HEVC Waterfall

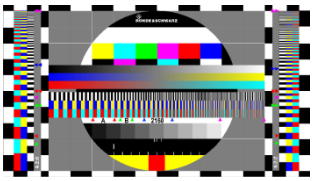
Transport stream	Bit rate Payload only	36.4 Mbps 20.5 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.4.1, "3840x2160p (UHDTV)", on page 33	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	17 Mbps
	Bit rate max.	21 Mbps
	Loop time	8.008 s
	GOP size	24 (Open GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.1.5 UHDTV HEVC RS 4k Trailer

Transport stream	Bit rate Payload only	36.4 Mbps 20.2 Mbps
	Loop time	360.360 s (2 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.4.1, "3840x2160p (UHDTV)", on page 33	
Video	Compression	H.265 (HEVC)

	Bit rate min.	16 Mbps
	Bit rate max.	20 Mbps
	Loop time	180.180 s
	GOP size	24 (Open GOP)
	Number of frames	10800
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	180.180 s * 2
	Number of frames	15015

3.4.1.6 UHDTV HEVC ITU-R BT1729

Transport stream	Bit rate Payload only	36.4 Mbps 19.6 Mbps
	Loop time	48.048 s (48 video loops)
PSI/SI	See Chapter 3.2, "DVB Transport Stream PSI/SI Details", on page 18 and Chapter 3.4.1, "3840x2160p (UHDTV)", on page 33	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	17 Mbps
	Bit rate max.	20 Mbps
	Loop time	1.000 s
	GOP size	24 (Open GOP)
	Number of frames	60
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Test signal**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps

	Loop time	1.001 s * 48
	Number of frames	2002

This stream is provided in 2 versions with different audio content:

- ITU-R BT1729-1: Left 392 Hz, right: 493.9 Hz muting once per second
- ITU-R BT1729-2: Left 392 Hz + 40 Hz, right: 493.9 Hz + 40 Hz muting once per second

3.4.2 1920_1080p (Full HDTV)

3.4.2.1 PSI/SI Details

Program Map Table

These parameters are valid for all 59 Hz full HDTV transport streams.

Service	ID	1 (0x0001)
Video	Stream type	36 (0x24)
	HEVC descriptor	descriptor_tag : 0x38 (56) descriptor_length : 13 profile_space : 0 tier_flag : 0 profile_idc : 0x01 (Main profile) profile_compatibility_indication : 0x00000006 (6) progressive_source_flag : 1 interlaced_source_flag : 0 non_packed_constrainet_flag : 1 frame_only_constrainet_flag : 1 reserved_zero_44bits : 0x00000000000 level_idc : 0x96 (Level 5) temporal_layer_subset_flag : 0 HEVC_still_present_flag : 0 HEVC_24hr_picture_present_flag : 0 reserved : 0x1F (31)
	HEVC timing and HRD descriptor	descriptor_tag : 0x3F (63) descriptor_length : 7 extension_descriptor_tag : 0x03 (3) hrd_magement_valid_flag : 0 (leak method shall be used) reserved : 0x3F (63) picture_and_timing_info_present : 1 90kHz_flag : 1 (time base is 90 kHz) reserved : 0x7F (127) num_units_in_tick : 1

Audio	Stream type	4 (0x04)
	Audio stream descriptor	Descriptor tag 0x03 (3) Descriptor length 1 Free format flag 0 ID 1 Layer 2 Variable rate audio indicator 0 reserved 0x7

Event Information Table

These parameters are valid for all 59 Hz full HDTV transport streams.

Service	ID	1 (0x0001)
	Service type	31 (0x1F)
	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Event	ID	1 (0x0001)
	Name	2160p59 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Video	Stream content	9 (0x09)
	Component type	4 (0x04)
	Text	HEVC video (Character set UTF-8 encoding of ISO/IEC 10646-1)
Audio	Stream content	2 (0x02)
	Component type	3 (0x03)
	Text	Audio, stereo (Character set UTF-8 encoding of ISO/IEC 10646-1)

3.4.2.2 Full HDTV HEVC Anthill

Transport stream	Bit rate Payload only	31.8 Mbps 9.2 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.4.2, "1920_1080p (Full HDTV)", on page 38	
Video	Compression	H.265 (HEVC)

	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	8.008 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	50 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

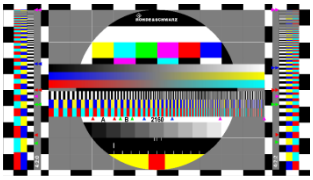
3.4.2.3 Full HDTV HEVC Beehive

Transport stream	Bit rate Payload only	31.8 Mbps 9.2 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.4.2, "1920_1080p (Full HDTV)", on page 38	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	8.008 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.2.4 Full HDTV HEVC Waterfall

Transport stream	Bit rate Payload only	31.8 Mbps 9.2 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.4.2, "1920_1080p (Full HDTV)", on page 38	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	8.008 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.2.5 Full HDTV HEVC ITU-R BT1729

Transport stream	Bit rate Payload only	31.8 Mbps 9.2 Mbps
	Loop time	48.048 s (48 video loops)
PSI/SI	See Chapter 3.4.2, "1920_1080p (Full HDTV)", on page 38	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	1.001 s
	GOP size	25 (Closed GOP)
	Number of frames	60
	Frame rate	59.94 Hz
	Scanning	Progressive

	Columns	3840
	Lines	2160
Audio **Test signal**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s
	Number of frames	2002

This stream is provided in 2 versions with different audio content:

- ITU-R BT1729-1: Left 392 Hz, right: 493.9 Hz muting once per second
- ITU-R BT1729-2: Left 392 Hz + 40 Hz, right: 493.9 Hz + 40 Hz muting once per second

3.4.3 1280_720p (HDTV)

3.4.3.1 PSI/SI Details

Program Map Table

These parameters are valid for all 59 Hz HDTV transport streams.

Service	ID	1 (0x0001)
Video	Stream type	36 (0x24)
	HEVC descriptor	descriptor_tag : 0x38 (56) descriptor_length : 13 profile_space : 0 tier_flag : 0 profile_idc : 0x01 (Main profile) profile_compatibility_indication : 0x00000006 (6) progressive_source_flag : 1 interlaced_source_flag : 0 non_packed_constrainet_flag : 1 frame_only_constrainet_flag : 1 reserved_zero_44bits : 0x00000000000 level_idc : 0x96 (Level 5) temporal_layer_subset_flag : 0 HEVC_still_present_flag : 0 HEVC_24hr_picture_present_flag : 0 reserved : 0x1F (31)

	HEVC timing and HRD descriptor	descriptor_tag : 0x3F (63) descriptor_length : 7 extension_descriptor_tag : 0x03 (3) hrd_magement_valid_flag : 0 (leak method shall be used) reserved : 0x3F (63) picture_and_timing_info_present : 1 90kHz_flag : 1 (time base is 90 kHz) reserved : 0x7F (127) num_units_in_tick : 1
Audio	Stream type	4 (0x04)
	Audio stream descriptor	Descriptor tag 0x03 (3) Descriptor length 1 Free format flag 0 ID 1 Layer 2 Variable rate audio indicator 0 reserved 0x7

Event Information Table

These parameters are valid for all 59 Hz HDTV transport streams.

Service	ID	1 (0x0001)
	Service type	31 (0x1F)
	Provider name	Rohde & Schwarz (Character set UTF-8 encoding of ISO/IEC 10646-1)
	Name	R&S CH 1 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Event	ID	1 (0x0001)
	Name	720p59 (Character set UTF-8 encoding of ISO/IEC 10646-1)
Video	Stream content	9 (0x09)
	Component type	4 (0x04)
	Text	HEVC video (Character set UTF-8 encoding of ISO/IEC 10646-1)
Audio	Stream content	2 (0x02)
	Component type	3 (0x03)
	Text	Audio, stereo (Character set UTF-8 encoding of ISO/IEC 10646-1)

3.4.3.2 HDTV HEVC Anthill

Transport stream	Bit rate Payload only	31.8 Mbps 7.2 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.4.3, "1280_720p (HDTV)", on page 42	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	8.008 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio Background music	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.3.3 HDTV HEVC Beehive

Transport stream	Bit rate Payload only	31.7 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.4.3, "1280_720p (HDTV)", on page 42	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	8.008 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive

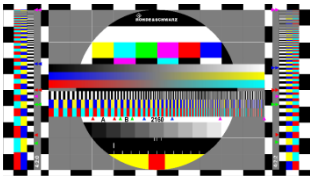
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.3.4 HDTV HEVC Waterfall

Transport stream	Bit rate Payload only	31.8 Mbps 7.2 Mbps
	Loop time	120.120 s (15 video loops)
PSI/SI	See Chapter 3.4.3, "1280_720p (HDTV)", on page 42	
Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	8.008 s
	GOP size	25 (Closed GOP)
	Number of frames	480
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	1920
	Lines	1080
Audio **Background music**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	8.008 s * 15
	Number of frames	5005

3.4.3.5 HDTV HEVC ITU-R BT1729

Transport stream	Bit rate Payload only	49.6 Mbps 8.2 Mbps
	Loop time	48.048 s (48 video loops)
PSI/SI	See Chapter 3.4.3, "1280_720p (HDTV)", on page 42	

Video 	Compression	H.265 (HEVC)
	Bit rate min.	5 Mbps
	Bit rate max.	7 Mbps
	Loop time	1.001 s
	GOP size	25 (Closed GOP)
	Number of frames	60
	Frame rate	59.94 Hz
	Scanning	Progressive
	Columns	3840
	Lines	2160
Audio **Test signal**	Compression	MPEG-1 layer 2
	Bit rate	192 kbps
	Loop time	1.001 s * 48
	Number of frames	2002

This stream is provided in 2 versions with different audio content:

- ITU-R BT1729-1: Left 392 Hz, right: 493.9 Hz muting once per second
- ITU-R BT1729-2: Left 392 Hz + 40 Hz, right: 493.9 Hz + 40 Hz muting once per second

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