Test Card M Sequences R&S DV-TCM

Special transport stream collection for testing DTV receivers and decoders

◆ Large variety of DVB- and ATSC-specific transport streams
◆ Immediately ready for replay by MPEG-2 players R&S DVRG and R&S DVG

◆ Endless replay
◆ Comprehensive PSI, SI and PSIP data
◆ SDTV and HDTV test sequences
◆ MPEG-1 Layer II and AC-3 audio formats

◆ Testing of DVB- and ATSC-specific functions
◆ Testing of audio/video synchronism
◆ Powered by SNELL & WILCOX

ROHDE & SCHWARZ

This option from Rohde & Schwarz enhances the wide choice of already available transport streams by a large number of special streams particularly designed for testing and development of DTV decoders and receivers. The transport streams provided by this option have been derived from the Test Card M libraries of Snell & Wilcox. They have been adapted for endless[1], continuous and error-free replay by the Rohde & Schwarz generators R&S DVRG (Digital Video Recorder Generator) and R&S DVG (MPEG-2 Measurement Generator), and allow simple and effective testing of standard as well as special DTV receiver and decoder functions without the need of any additional measuring equipment.

Applications

This collection contains several transport streams in line with the DVB as well as with the ATSC standard and allows a large variety of tests to both standards.

Tests on elementary video stream:
◆ Use of active format descriptor AFD[2]
  – Correct aspect ratio (4:3, 16:9, ¾ subsample, ½ subsample, shoot & protect)
  – Dynamic format selection
  – Placing the AFD in sequence header, GOP header or picture header
◆ Decoding sequence of the group of pictures
  – I-frame only
  – Long GOP

◆ Decoding of various coding formats[2]
  – SDTV – HDTV
  – interlaced – progressive
◆ D/A converter tests and tests for analog signal processing
  – Colour display
  – Linearity
  – Interlacing
  – Two-dimensional frequency response
  – Picture geometry

Tests on elementary audio stream
◆ Decoding of various coding formats[2]
  – MPEG-1 Layer II
  – AC-3 5.1 surround
◆ Left-right identification
◆ Synchronism with video

Tests on elementary data stream
◆ DVB subtitling
  – Decoding
  – Synchronism with video

DVB-specific tests (SI)
◆ Identification of transport stream syntax
  – Virtual programs (multiply used PIDs)
  – Dynamic variation of composition (adding and/or eliminating transport streams)
  – Use of linkage descriptor

ATSC-specific tests (PSIP)
◆ Identification of transport stream syntax:
  – Identification of audio channel language
◆ Extended text table (ETT)
  – Use of table (linkage to event information table EIT)
  – Huffman decoding

Examples from transport stream collection

[1] Realtime calculation of all time-relevant parameters ensures error-free replay even at the transition from the start to the end of the stored sequence. This refers to the transport stream syntax as well as to the elementary streams.

[2] The associated transport streams partly contain tables of one standard only (DVB or ATSC); the video and audio formats are selected according to the standard (see below).

Installation

The installation is device-dependent. On the R&S DVRG, the transport streams can be replayed directly from the CD-ROM via the CD-ROM drive or the option R&S DVRG-B5 (CD burner). For greater convenience, the transport streams can also be copied to the hard disk and started from there.

On the R&S DVG, the option is installed via a PC. The transport streams are replayed to the R&S DVG with a special cable, which is supplied with Stream Combiner™. If Stream Combiner™ is not available, the cable can be ordered as an accessory with the R&S DVG-Z1 option.

A device-specific key code is used as a copying protection. This key code is supplied with the option.

Documentation

Comprehensive documentation describes the characteristics of each transport stream.

The documentation in HTML format is included on the CD-ROM. Links take you from an overview to more detailed information. This allows fast and effective working with the transport stream collection.

Supported video and audio formats

All elementary video streams are encoded in 4:2:0 format.

DVB

Frequency[1]	Sampling	Number of columns	Number of lines
25	interlaced	720	576

Audio: MPEG-1 Layer II

ATSC

Frequency[1]	Sampling	Number of columns	Number of lines
29.97	interlaced	1920	1080
59.94	progressive	1280	720
29.97	interlaced	720	480
59.94	progressive	720	480

Audio: AC-3

[1] The repetition frequency refers to frames. In interlaced display mode, the field repetition frequency is twice the specified frame rate.

Abbreviations

AFD	Active Format Descriptor
ATSC	Advanced Television Systems Committee
DTV	Digital Television
DVB	Digital Video Broadcasting
EIT	Event Information Table
ETT	Extended Text Table
GOP	Group Of Pictures
HDTV	High Definition TeleVision
HTML	HyperText Markup Language
MPEG	Motion Pictures Experts Group
PSI	Program Specific Information
PSIP	Program and System Information Protocol
SDTV	Standard Definition TeleVision
SI	Service Information

Ordering information

Test Card M Sequences[2]	R&S DV-TCM	2085.7708.02
Transport Stream Update on CD	R&S DVG-Z1	2069.0419.00
with special parallel cable for installation on R&S DVG		
MPEG-2 Measurement Generator	R&S DVG	2068.8600.03
Digital Video Recorder Generator	R&S DVRG	2083.1302.02

[2] If you order the option for MPEG players already supplied, please specify Serial No. and Type of the instrument (DVG/DVRG) on which the option is to be installed.

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