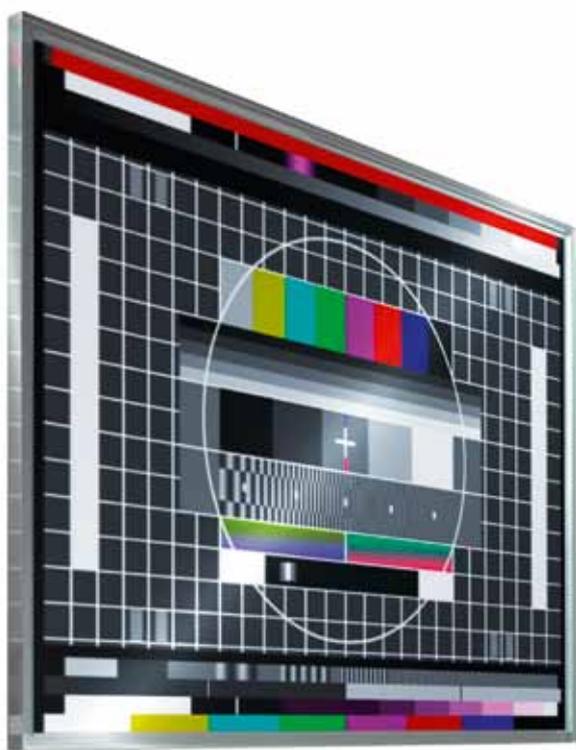


Stream Libraries

For broadcasting
T & M equipment from
Rohde & Schwarz



致力于电子测试、维护领域!

Stream Libraries

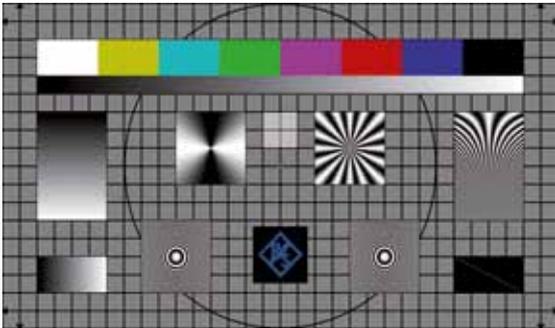
At a glance

Whenever the development, production and testing of TV components or devices is involved, suitable test signals are needed. To meet this need, Rohde & Schwarz offers not only the generators and modulators that are required but also an extensive collection of stream libraries.

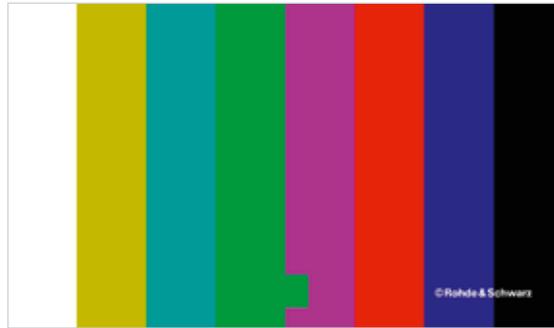
The R&S®DV-ASC advanced stream combiner software complements the stream library collection. This software provides an easy way to generate customized MPEG-2 transport streams for DVB, ATSC and ISDB-T. Alternatively, Rohde & Schwarz offers the generation of customized test signals as a service.

Key facts

- Support of numerous transmission standards
- High-quality video contents
- High-quality audio contents
- Efficient use



Test signal: "HDTV test pattern".



Test signal: "Moving color bars".



Live sequence: "Fireworks".



Live sequence: "Park".



Live sequence: "Shark".



Live sequence: "Flowers".

Stream Libraries

Benefits and key features

Extensive collection of libraries

- ▮ Basic stream library
- ▮ Extended SDTV library
- ▮ Extended HDTV library
- ▮ 3D TV library
- ▮ ISDB-T transport streams
- ▮ CMMB transport streams
- ▮ ATSC and ATSC Mobile DTV streams
- ▮ DVB-T2-MI streams
- ▮ T-DMB/DAB streams
- ▮ DAB+ streams
- ▮ French DMB streams
- ▮ Transport streams for EMC tests
- ▮ Analog TV test pattern

▷ [page 4](#)

Large variety of applications

- ▮ Testing of TV sets, set-top boxes and mobile TV handsets
- ▮ EMC testing of TV sets
- ▮ Testing of decoders and encoders
- ▮ Testing of analog and digital TV networks and transmitters
- ▮ Testing of radio receivers

▷ [page 6](#)

Baseband streams for special customer requirements

- ▮ Generation of customer-specific transport streams with the R&S®DV-ASC advanced stream combiner software
- ▮ Generation of customer-specific transport streams or analog CCVS signals as a service

▷ [page 7](#)

Support of numerous transmission standards

- ▮ Digital TV
- ▮ Mobile TV
- ▮ Audio broadcasting
- ▮ Analog TV

High-quality video contents

- ▮ High-quality video sequences
- ▮ Precise test patterns
- ▮ Numerous resolutions, including full HD
- ▮ MPEG-2 and H.264 coding

High-quality audio contents

- ▮ Detailed audio signals
- ▮ Precise test tones
- ▮ Surround/multichannel sound
- ▮ Various coding methods, including MPEG-4 HE-AAC v2

Efficient use

- ▮ Standard-compliant, reliable operation worldwide
- ▮ Available at the push of a button
- ▮ Clear and simple property rights
- ▮ Comprehensive documentation

Extensive collection of libraries

Library	Basic stream library	Extended SDTV library	Extended HDTV library	3D TV library	ISDB-T streams	CMMB streams
Type	R&S®LIB-K70	R&S®LIB-K71	R&S®LIB-K72	R&S®LIB-K73	R&S®SFU-K224	R&S®SFU-K225
Standards	<ul style="list-style-type: none"> ▮ DVB ▮ ATSC ▮ ISDB-T 	<ul style="list-style-type: none"> ▮ DVB ▮ ATSC ▮ ISDB-T 	<ul style="list-style-type: none"> ▮ DVB ▮ ATSC ▮ ISDB-T 	DVB (phase 2a)	ISDB-TB	CMMB
TS format/ File format	MPEG-2	MPEG-2	MPEG-2	MPEG-2	MPEG-2	<ul style="list-style-type: none"> ▮ MFS ▮ PMS
Video formats	<ul style="list-style-type: none"> ▮ SDTV ▮ HDTV 	SDTV	HDTV	HDTV	<ul style="list-style-type: none"> ▮ SDTV ▮ HDTV ▮ QCIF 	<ul style="list-style-type: none"> ▮ QCIF ▮ QVGA
Video encoding	<ul style="list-style-type: none"> ▮ MPEG-2 ▮ H.264 	<ul style="list-style-type: none"> ▮ MPEG-2 ▮ H.264 	<ul style="list-style-type: none"> ▮ MPEG-2 ▮ H.264 	H.264-MVC	H.264	H.264
Audio encoding	<ul style="list-style-type: none"> ▮ MPEG-1 L2 ▮ AAC ▮ AC-3 	<ul style="list-style-type: none"> ▮ MPEG-1 L2 ▮ AAC ▮ AC-3 	<ul style="list-style-type: none"> ▮ MPEG-1 L2 ▮ AAC ▮ AC-3 	AAC	HE-AAC	HE-AAC
Order no.	2116.9558.02	2116.9564.02	2116.9570.02	2116.9587.02	2110.4777.02	2112.3649.02
Supported by the following instruments:						
R&S®SFU 	•	•	•	•	•	•
R&S®SFE 	•	•	•	•	•	•
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R&S®SFC 	•	•	•	•	•	•
R&S®SFC-U 	•	•	•	•	•	•
R&S®VTC 	•	•	•	•	•	•
R&S®VTE 	•	•	•	•	•	•
R&S®DVM400 					•	
R&S®DVSG 	•	•	•	•	•	•
R&S®ETL 	•	•	•	•	•	

Large variety of applications

This section presents a variety of possible applications. Each one has its own – sometimes difficult – requirements. All of these applications can be handled with the stream libraries from Rohde&Schwarz.

Testing of TV sets, set-top boxes and mobile TV handsets

A large number of digital TV standards can be found worldwide. They often implement the widely used MPEG-2 transport stream format, but also special formats. HDTV and 3D TV transmission and state-of-the-art data compression methods such as H.264 are also increasingly being used. To test the corresponding receivers, users need the appropriate test signals with various video and audio contents – ranging from the complex stress test during the development phase up to the simple functional test during production.

EMC testing of TV sets

Verifying EMC is an essential step in obtaining the approval of TV receivers. To ensure reproducible test conditions, the relevant EMC standards specify standardized test patterns for the certification tests. These patterns are used not only by the officially authorized agencies, but also in preparatory tests during instrument development.

Testing of decoders and encoders

Video and audio data is transmitted in compressed form. Therefore, encoders are required on the transmit end and decoders on the receive end. Continued development in this area is yielding stronger digital compression techniques and the support of higher video resolutions and additional audio channels. Suitable test signals are required in order to accommodate these developments as well as the subsequent device test.

Testing of analog and digital TV networks and transmitters

During the setup and maintenance of TV networks and transmitter systems, signals with specific predefined contents may be required for a functional test.

Testing of radio receivers

Digital sound broadcasting systems such as DAB and DAB+ use audio streams. During the development and production of digital radio receivers, digital audio streams with special test signals are required in order to test both the sound quality and the additional data and services.



TV transmitter testing with the R&S®ETL.



3D TV test system consisting of the R&S®DVSG and CS2000 from Konica Minolta.



EMC testing of a TV set using the R&S®SFE100.

Baseband streams for special customer requirements

Generation of customer-specific transport streams with the R&S®DV-ASC advanced stream combiner software

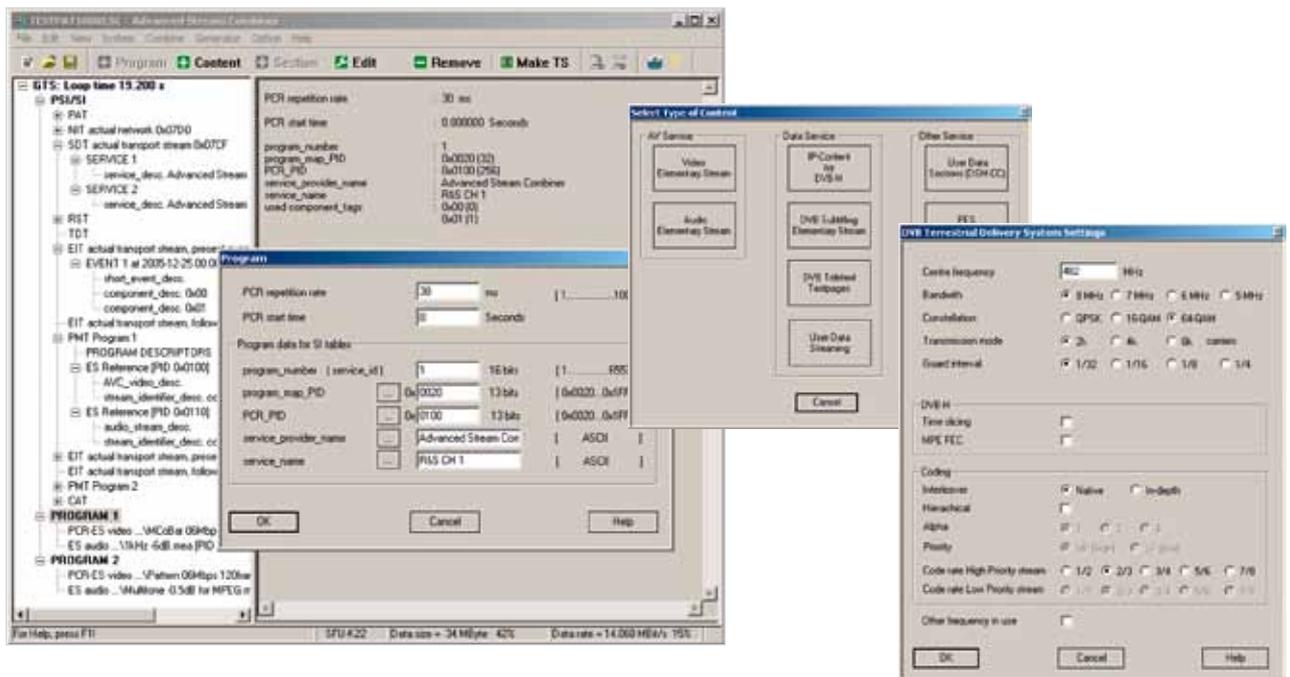
If signals not found in the libraries are needed, the R&S®DV-ASC advanced stream combiner software is the solution. This software enables the user to easily generate MPEG-2 transport streams for DVB (including time slicing for DVB-H), ATSC and ISDB-T. The user selects the desired video, audio and data contents. The software provides all additional data required to generate an error-free and standard-compliant MPEG-2 transport stream.

All data added by the software can be modified if needed. The R&S®DV-ASC advanced stream combiner software contains a selection of SDTV elementary streams. Alternatively, customers can use their own video, audio and data contents.

Generation of customer-specific transport streams or analog CCVS signals as a service

Rohde & Schwarz offers not only an extensive collection of baseband libraries but also the generation of customer-specific transport streams or analog CCVS signals as a service. The content of the streams is customer-chosen, and can be still images, video streams, and for transport streams in addition audio samples and sequences. The resulting transport streams can include system information for many different standards, including DVB, ATSC, ISDB and DTMB. The created baseband streams are delivered with documentation as well as option keys.

Creation of customer-specific transport streams with R&S®DV-ASC



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