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FIG 1 DTV Exciter R&S SV702.

DTV Exciter R&S SV702

Compact exciter for digital terrestrial TV

The new DTV Exciter R&S SV702 was developed specially for use in low-power transmitters. It is notable for its compact design and integrated control function.

Transmitter concepts – easy to implement

Digital terrestrial networks are being set up all over the world. Basic coverage is ensured by means of high-power and medium-power transmitters. Complete coverage throughout the network can be achieved economically with the aid of 10 W to 200 W low-power transmitters.

Due to its compact design, the new DTV Exciter R&S SV702 (FIG 1) is ideal for use in low-power transmitters. The integrated control interface for low-power amplifiers from Rohde & Schwarz makes external components superfluous and permits flexible transmitter concepts to be easily implemented.

Compact design

The DTV Exciter R&S SV702 meets the DVB-T (ETS300744) standard. It comes as a compact 19-inch rackmount of two height units and consists of an encoder, a precorrector and a synthesizer/modulator.

The DVB encoder has two ASI (asynchronous serial interface) inputs with flexible clock processing and data buffering (FIFOs) so that network operators can use standard feed paths such as directional radio links or satellite links. Automatic input switchover allows the implementation of redundant feed paths.

For operation in single-frequency networks (SFNs), an SFN adapter integrated

in the encoder accepts time reference pulses from an external or, optionally, from an integrated GPS receiver. Continuous tracking of the processing clock compensates for inconsistent time patterns of the reference signals without impairing the signal quality so that an especially high availability of the output signal in the SFN can be ensured.

The encoder transfers the digital baseband signals to the precorrector which optimally corrects linear (group delay) errors of a power filter that may be used and nonlinear distortions of the power amplifier. Since digital signals are processed in the two stages, the results of precorrection can be accurately reproduced. The precorrected baseband signals are then D/A converted. The subsequent modulator generates the RF signal by direct quadrature modulation. A fast-settling modulator chip of excellent stability, developed and produced especially for Rohde & Schwarz, is used in this case. The mixer frequency required for modulation is supplied by a synthesizer that can be synchronized to external references or to the internal GPS receiver (option). Since a high-quality reference oscillator is used, operation in SFNs can be continued for up to 24 hours if the reference frequency or GPS reception fails.

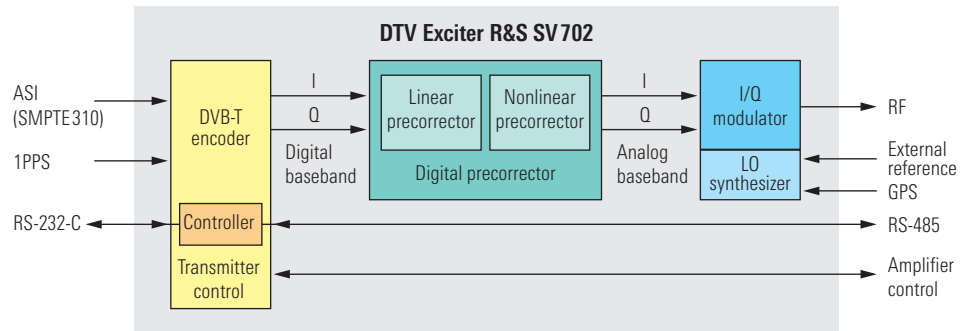


FIG 2 Block diagram of the DTV Exciter R&S SV702.

Integrated transmitter control

The control function integrated in the encoder generates all signals required for operating a Rohde & Schwarz low-power amplifier up to the variable setting of the output power. The voltage at the RF rectifier in the amplifier is evaluated and the output power is monitored so that a complete transmitter can be set up without any external components being required.

In transmitter systems with standby configuration, the new R&S NetCCU takes over transmitter control. In this case, the integrated control function is deactivated.

Operation from PC, display or Internet

All setting parameters of the R&S SV702 and of the integrated transmitter control function can be accessed from a PC via a graphical user interface. Alternatively, the exciter can be operated from the graphics display of the R&S NetCCU, which also permits remote-control and monitoring via the Internet (TCP/IP) or SNMP networks.

Cornelius Heinemann

More information and data sheets
for all transmitters and exciters from
Rohde & Schwarz at
www.rohde-schwarz.com

Condensed data of the R&S SV702

Frequency ranges	170 MHz to 240 MHz 470 MHz to 860 MHz
RF output power	13 dBm
TV standard	DVB-T ETS300744
Channel bandwidths	6 / 7 / 8 MHz, selectable
Interfaces	RS-232-C, RS-485
Dimensions (W × H × D)	465 mm × 93 mm × 494 mm
Weight	approx. 9 kg



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