

EXHIBIT D

SV7000 TRANSMITTER FAMILY SPECIFICATIONS



ROHDE & SCHWARZ

Transmitter Family NV7000 General Specifications

Frequency Range470 to 862 MHz

Standard.....EN 300 744

DVB Bandwidth6, 7 or 8 MHz

SFN Functionto TS 101 191

Permissible VSWR..... $s \leq 1.3$

Output Stage TechnologyLDMOS transistor

Coolantair cooling

Max. Installation Altitude.....6,500 feet AMSL (>9,800 feet on request)
[2,000 meters AMSL (>3, 000 meters on request)]

Operating Temperature Range
 in Transmitter Room+34° to 113° F (+1° to +45° C)

Max. Relative Humidity95%, non condensing

EMCto ETS 300 447

AC Supply Voltage.....200 ... 240 V

AC Line Frequency50 or 60 Hz \pm 10 %

Power Factor.....min. 0.98

Total Noise Level< 65 dBA

Frequency Processing

Synthesizeradjustable between 112.5 MHz and 900 MHz

Step Width1 Hz

Connection..... internal OCXO (10 MHz), internal GPS receiver (optional) or external

Transfer Characteristics

Transmission Parametersto ETS 300 744

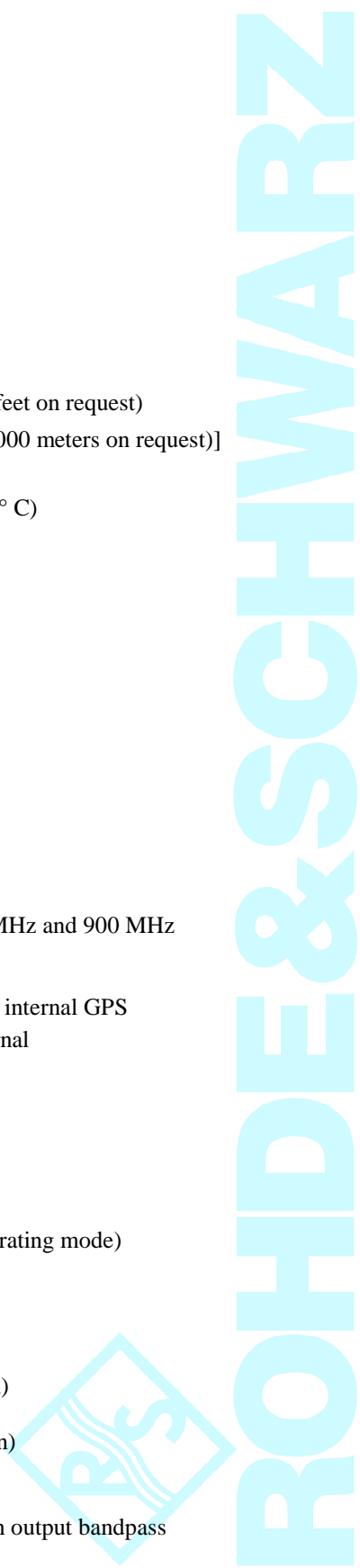
Input Data Rate.....5 to 40 Mbit/s (dep. on operating mode)

Frequency Response $f_0 \pm 3.805$ MHz ≤ 1 dB

Intermodulation suppression
 DVB Bandwidth 8 MHz
 at $f_0 \pm 4.2$ MHz (without output bandpass filter) ≤ -36 dB (with precorrection)
 DVB Bandwidth 7 MHz
 at $f_0 \pm 3.7$ MHz (without output bandpass filter) ≤ -36 dB (with precorrection)

Parasitic Emissionsnot detectable

Compliance with Spectrum Mask.....to ETS No. pr 300 744 with output bandpass



Transmitter Family NV7000 General Specifications (continued)

Spurious Emissions

Noise Power Density ≥ 130 dBc/Hz

Connectors (Inputs)

ASI A 1/2 (LP) MPEG2; ASI, BNC, 75 Ω; input A or main and standby path for low-priority data stream

ASI B 1/2 (LP) MPEG2; ASI, BNC, 75 Ω; input B or main and standby path for low-priority data stream

Reference Frequency 1, 5 or 10 MHz, 0.1 to 5 Vpp or TTL, BNC

Reference Pulse 1 Hz, TTL, BNC, evaluates rising edge

GPS Antenna for integrated GPS receiver (option), active GPS antenna, BNC, 50 Ω, remote feed 5 V DC

Transmitter Protection Facilities

ASI input signal monitoring circuit

Reflection monitoring circuit (amplifier output)

Amplifier and power supply monitoring circuit

Overtemperature monitoring of power amplifier

Smoke alarm (option)

Interfaces

RS-232 for data exchange with exciter (encoder front)

RS-232 flash-up and diagnosis interface for exciter (encoder front) RS-232 for data exchange with transmitter (CCU front)

Remote Control

Serial RS-232 interface

Serial RS-485 interface / BitBus to IEC/IEEE 864-1 (option) Serial interface: NetLink (Ethernet 10baseT) (option)

Parallel interface (option)



***Transmitter Family NV7000 General Specifications (continued)
SV700 Exciter***

DVB Encoder

Input Signal MPEG2 transport stream
 Coding / Modulation..... to EN 300744
 DVB Bandwidth 6, 7 or 8 MHz
 Configuration of
 Modulation Parameters manually, via RS-232 or MIP (automatic switching)
 Input Monitoring signal present, TS synchronization, data rate of TS with stuffing off
 SFN Function to TS 101 191
 Delay Correctionmax. 1000 ms, automatic and manual setting for high- and low-priority
 data stream
 Hierarchical Coding optional, on request

Digital Equalizer digital group-delay equalization (optional) in the baseband
 digital linearity equalization in the baseband
 signal limiting to limit the crest factor

Synthesizer

Frequency Band III, IV, V
 Step Width 1 Hz
 Connection..... internal OCXO (10 MHz), internal GPS receiver (option) or external

I/Q Modulator..... Direct modulation to obtain the output frequency (band III / IV / V),
 Band filter for band III / tracking filter for band IV / V ,
 monitoring and control of rms output power

Inputs

ASI A 1/2 (LP) MPEG2, ASI, BNC, 75 Ω, input A or main and standby path for low
 priority data stream
 ASI B 1/2 (HP)..... MPEG2, ASI, BNC, 75 Ω, input B or main and standby
 path for high priority data stream
 Reference Frequency 1, 5 or 10 MHz, 0.1 to 5 Vpp or TTL, BNC
 Reference Pulse 1 Hz, TTL, BNC, evaluates rising edges



Transmitter Family NV7000 General Specifications (continued)
SV700 Exciter

GPS Antenna for integrated GPS receiver (option), active GPS antenna BNC, 50 Ω,
 remote feed 5 V DC Outputs

Output

RF DVB, bands III, IV or V, 13 dBm rms power, SMA, 50 Ω
 to output amplifier

Test Outputs

RF (50 Ω).....DVB, band IV/V, 10 dBm rms power, SMA, 50 Ω to output amplifier
 10 MHz OCXO 10 MHz, 0 dBm, SMA, 50 Ω
 I, Q..... complex, analog baseband signals (real and imaginary components)
 0 dBm, SMA, 50 Ω

Serial Interfaces

RS-232..... on front of CCU, transmitter control via GUI (PC)
 9-contact sub-D, female
 RS-232..... on front of DVB encoder, service interface,
 modulator control via GUI (PC)
 9-contact sub-D, female
 RS-232..... on front of DVB encoder, service interface for software download
 to the exciter
 9-contact sub-D, female
 RS-232..... on front of synthesizer, service interface for PC control of
 GPS receiver
 9-contact sub-D, female
 RS-485..... remote transmitter control, 9-contact sub-D, female,
 on transmitter top
 RS-232..... remote transmitter control , 9-contact sub-D, female,
 located on transmitter top
 Parallel Interface (option)..... floating interface for messages and commands

Supported Modulation Parameters

Length of Transport packet..... 188 or 204 bytes
 Coding and Modulation to EN 300744 with the following parameters:
 IFFT Mode 2k and 8k



Transmitter Family NV7000 General Specifications (continued)
SV700 Exciter

Supported Modulation Parameters (continued from previous page)

Useful Symbol Period..... 224 μ s (2k) or 896 μ s (8k)
 Modulation QPSK, 16QAM or 64QAM
 Guard Period..... 1/4, 1/8, 1/16 or 1/32 of useful symbol period

Inner Code Rate 1/2, 2/3, 3/4, 5/6 or 7/8

Quality Data

Amplitude Error (I/Q) < 0.1%
 Quadrature Error..... < 0.1°
 Carrier Suppression > 60 dB referred to CW
 SNR > 39 dB
 MER > 39 dB
 Phase Jitter..... < 0.1°
 Phase Noise:
 Frequency / Carrier Offset dBc/Hz
 10 Hz > 70
 100 Hz > 90
 1 kHz > 93
 10kHz > 103
 100kHz > 118
 1 MHz > 130

 Frequency Stability..... 10 E-7 / 3 months
 Frequency Response < \pm 0.5 dB



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Transmitter Family NV7000 Model Specific Information

| General Data | Model | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|------------------------------|
| Type: | SV7100 | SV7200 | SV7300 | SV7400 | SV7600 | Units |
| No. of Amplifiers (model VH620A2) | 1 | 2 | 3 | 4 | 6 | quantity |
| Output Power for DMQ-T (MediaFLO) | 120 | 210 | 310 | 420 | 600 | watts |
| Maximum Power Consumption (230 or 240-volt, single phase mains) | 1,020 | 1,860 | 2,700 | 3,540 | 5,300 | volt amperes |
| Recommended Mains Circuit Rating (USA) | 20 | 20 | 20 | 20 | 40 | amperes |
| Heat Dissipation into Room (maximum expected) | 0.9 | 1.7 | 2.4 | 3.1 | 4.7 | kilowatts |
| Air Volume | 88 | 177 | 265 | 354 | 530 | feet ³ / minute |
| | 2.5 | 5 | 7.5 | 10 | 15 | meters ³ / minute |
| RF output Connector (Other types AOR) | type "N" | 7/16 DIN | 7/16 DIN | 7/16 DIN | 7/16 DIN | |
| Approximate Weight (without packaging) | 232 | 267 | 300 | 337 | 410 | pounds |
| | 105 | 121 | 137 | 153 | 185 | kilograms |
| Cabinet (42-unit Rack) Dimensions | (Height) | | (Depth) | | (Width) | |
| | 78 3/8 | x | 31 1/2 | x | 23 | inches |
| | 1990 | x | 800 | x | 585 | millimeters |
| Space (rack unit) Requirements | | | | | | |
| NetCCU 700 Control Interface Unit (2 RU) | 2 | 2 | 2 | 2 | 2 | rack units |
| SV 700 Exciter (7 RU) | 7 | 7 | 7 | 7 | 7 | rack units |
| VH620A2 Power Amplifier (3 RU) | 3 | 6 | 9 | 12 | 18 | rack units |
| Total | 12 | 15 | 18 | 21 | 27 | rack units |
| Weight of the Amplifier VH620A2 | | | | | 35 | pounds |
| | | | | | 16 | kilograms |

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