

**EXHIBIT F**

**TEST REPORT VOA70004**

demonstrated compliance with 47CFR Part 2 and Part 27

Conducted by:

The Center for Quality Engineering  
Nokia Siemens Networks GmbH & Co. KG  
Munchen  
Federal Republic of Germany

FCC Measurement Facility Registration Number 90932

Testing conducted on:

Model:	SV7600V Transmitter
Stock Number:	2065.7731.08
Serial Number:	100001

**25 July 2K7**



**ROHDE & SCHWARZ**

## Center for Quality Engineering

### Test Report No.: V0A70004

<b>Order No.:</b> V0A7	<b>Pages:</b> 26	<b>Munich,</b>
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Client: Rohde & Schwarz GmbH & Co. KG

Equipment Under Test: SV7600E TV Transmitter 600W

Manufacturer: Rhode & Schwarz GmbH & Co. KG

Task: Conformance test according to test specifications mentioned below.

Test Specification(s):  
[covered by accreditation]

- FCC 47 CFR Ch.1, Part 2,

Result: All tests performed have been passed.see summary

The results relate only to the items tested as described in this test report.

**approved by:**

**Date**

**Signature**

Steinmüller  
Test Engineer

Bauer  
Director 'EMC'

This document was signed electronically.

The Center for Quality Engineering of Nokia Siemens Networks GmbH & Co. KG is accredited by DATech for  
COMPONENTS TESTING ENVIRONMENTAL ENGINEERING ELECTROMAGNETIC COMPATIBILITY PRODUCT SAFETY  
TELECOM CONFORMANCE TESTS

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## FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046

March 01, 2006

Test Firm Registration Number: 90932

Siemens AG  
Hofmannstrasse 50  
81359 Munich,  
Germany  
Attention: Josef Bauer

Re: Measurement facility located at Munich  
Anechoic chamber No. 1 (10 meters)  
Expiration Date: June 29, 2009

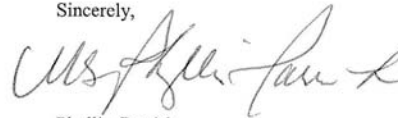
Section 2.948 of the Commission's Rules requires that measurement facility descriptions filed with the Commission pursuant to this section must be updated every three years. According to our records, almost three years have elapsed since the original filing or last update for the subject facility. If your 2.948 registered test site has been Accredited by an accrediting body recognized by the FCC, updating your 2.948 registration is not required.

In order to update your file, please submit a description of any changes made to your facility and recent site attenuation data. Facilities employing anechoic chambers need not perform the complete set of site attenuation measurements required for the original filing, but should submit data obtained with the transmit antenna located at the center of the turntable at a fixed height, such as one meter, for both horizontal and vertical polarization.

In addition to the test site registration number above, your update filing must include your organization's FCC Registration Number (FRN) and the current contact name, telephone and fax number and e-mail address. Failure to include this information will result in delays of the renewal and possible expiration of the registration of your measurement facility. If your organization does not have an FRN, you may obtain one by going to the FCC website [www.fcc.gov](http://www.fcc.gov) and clicking on Commission Registration System (CORES). It is recommended that you file your update electronically on the FCC website by clicking on E-Filing, then OET Equipment Authorization Electronic Filing, then Renew Test Firm/Add Exhibits.

If no reply is received by the expiration date, your file will be closed and the name of your organization removed from the Commission's list of those facilities from whom measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules.

Sincerely,



Phyllis Parrish  
Information Technician

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## Summary

A summary of the measurements results will be found in the following tables. The results refer solely to the EUT as described in chapter 4.

### 1.1 Tables of Results

#### 1.1.1 Enclosure Port

Radiated emission tests				
Chapter	Test	Specification	Limits	Result
5.1.2	Radiated 30 MHz-1 GHz Test Distance: 10 meters	FCC Part 2 §2.1053, §2.1057	Class B	passed
5.1.3	Radiated 1 GHz-10 GHz Test Distance: 3 meters	FCC Part 2 §2.1053, §2.1057	Class B	passed

#### 1.1.2 Antenna terminals

Conducted emission tests				
Chapter	Test	Specification	Limits	Result
5.2.1	Spurious Emissions	FCC Part 2 §2.1051 / 2.1057	-	passed
5.2.2	Occupied Bandwidth	FCC Part 2 §2.1047 / 2.1049	-	passed

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## References

### 1.2 Specifications

- 47 CFR Code of Federal Regulations Title 47 – Telecommunication
- FCC Part 2, § 2.1049,
- FCC Part 2, §2.1051, §2.1053, §2.1055, §2.1057 Field strength of spurious radiation, Frequency spectrum to be investigated

### 1.3 Glossary of Terms

#### EMC specific Abbreviations

AC	Alternating Current
AM	Amplitude Modulation
CBN	Combined Bonding Network
CE	CE-Conformity
CM	Common Mode Coupling
CO+No.	Conditional Objective Requirement No. of GR-1089-CORE
CR	Customer requirement
DC	Direct Current
DM	Differential Mode coupling
DTAG	Deutsche Telekom AG
EFT	Electrical Fast Transient
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EN	European Standard
ES	ETSI Standard
ESD	Electro Static Discharge
ETS	European Telecommunication Standard
EUT	Equipment Under Test
FW	Firmware
HW	Hardware
IBN	Isolated Bonding Network
IEC	International Electrotechnical Commission
ITU-T	International Telecommunication Union- Telecommunications sector
L > XX m	Line Length > XX m (Test applicable for lines with length > XX m)
LFC	Loss of Function Customer reset (performance criterion)
LFO	Loss of Function Operator reset (performance criterion)
LFS	Loss of Function Self recovery (performance criterion)
LISN	Line Impedance Stabilization Network
Loc	Location of the EUT, can be TC or OTC
LtG	Line to Ground coupling
LtL	Line to Line coupling
LVDS	Low Voltage Differential Signal
NP	Normal Performance (performance criterion)
O+No.	Objective Requirement No. of GR-1089-CORE
OTC	Other than Telecommunication Center
PC	Power Contact
PF	Power Fault
PIL	Power Induction Long term
PIS	Power Induction Short term
PP	External Port to external Port test as defined in ITU-T K.44
propOJEC	proposed to publish in the Official Journal of the European Communities for CE Marking
R	Ring
R+No.	Requirement No. of GR-1089-CORE
RP	Reduced Performance (performance criterion)
SC	Short-Circuit
SW	Software
T	Tip
TC / ITC	Telecommunication Center
UL	Underwriter Laboratories
with p	with primary protection
without p	without primary protection

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## 2 General Information

### 2.1 Identification of Client

Rohde & Schwarz GmbH & Co. KG  
Mühldorfstraße 15  
81671 München  
Reinhard Scheide

### 2.2 Test Laboratory

Center for Quality Engineering  
Siemens Networks GmbH & Co. KG  
Hofmannstraße 51  
81359 München

### 2.3 Time Schedule

Delivery of EUT: Mar 08, 2007  
Start of test: Mar 08, 2007  
End of test: Mar 09, 2007

### 2.4 Participants

Name	Function	Phone	E-Mail
Michael Steinmüller	Accredited testing, Editor	+49 89 722 25262	michael.steinmueller@nsn.com

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### 3 Equipment Under Test

#### 3.1 Description of EUT

##### 3.1.1.1.1 Transmitter Family SV7002

Frequency range	470 to 862 MHz
Standards	EN 300 744 EN 302 304 (optional) 6, 7 or 8 MHz to TS 101 191
DVB band width	$s \leq 1,3$ (power reduction at $s > 1,5$ )
SFN function	LDMOS transistor
Permissible VSWR	by air
Output stage	2000 m above sea level (up to 3000 m on request)
Cooling	+5 to +45°C
Max. installation altitude	95% at +25° + 45°C cyclic
Operating temperature range in transmitter room	to ETS 300 447 / EN301489-1/-14 230 V $\pm$ 15% (110 V available on request for 12,5W to 120W transmitters)
Max. relative humidity	47 to 63 Hz
EMC	$\geq 0,95$ (compliant to EN 61000-3-2)
AC supply voltage	<63 dBA (except SV7300, SV7400, SV7600)
AC line frequency	
Power factor	
Total noise level	
<b>Frequency processing</b>	
Synthesiser	adjustable between 112,5 MHz and 900 MHz
Step width	1 Hz
Connection	internal OCXO (10 MHz), internal GPS receiver (optional) or external
<b>Transmission characteristics</b>	
Transmission parameters	to ETS 300 744
Input data rate	3 to 40 Mbit/s (dep. on operating mode)
Frequency response $f_0 \pm 3,805$ MHz	$\leq 1$ dB
Intermodulation suppression	
DVB band width 8 MHz	$\leq -36$ dB (with pre correction)
at $f_0 \pm 4,2$ MHz (without band pass filter)	
DVB band width 7 MHz	$\leq -36$ dB (with pre correction)
at $f_0 \pm 3,7$ MHz (without band pass filter)	
DVB band width 6 MHz	$\leq -36$ dB (with pre correction)
at $f_0 \pm 3,2$ MHz (without band pass filter)	
Parasitic emissions	not detectable
Compliance with spectrum mask	to ETS No. Pr 300 744 with output band pass filter (6 cavities for non-critical mask, 8 cavities for critical mask with fitting adjustment)
MER	$\geq 33$ dB at Tx output
Harmonics emissions	$\leq -60$ dB with output bandpass filter
Spurious emissions	$\leq -70$ dB with output bandpass filter
<b>Connectors</b>	
ASI A 1 / 2	MPEG2; ASI, BNC, 75 $\Omega$ ; input A
ASI B 1 / 2	MPEG2; ASI, BNC, 75 $\Omega$ ; input B
Reference frequency	1, 5 or 10 MHz, 0,1 to 5 V <sub>pp</sub> or TTL, BNC
Reference pulse	1 Hz, TTL, BNC, evaluating rising edge
GPS antenna	for integrated GPS receiver (option), active GPS antenna, SMA, 50 $\Omega$ , remote feed 5 V DC
RF test points	SMA
<b>Transmitter protection facilities</b>	
Reflection monitoring circuit	
Amplifier and power supply monitoring circuit	
Over temperature monitoring of power amplifier	
<b>Remote Control</b>	
For single transmitter without NetCCU:	
SV700 serial RS-232 interface	

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SV700 relay contacts SV700

For transmitter with NetCCU  
NetCCU serial interface Ethernet 10baseT  
Parallel interface (option)

Messages Tx/Exc.\_ON, RF\_ON, Local-Remote, Warning, Fault  
Commands: Tx/Exc\_ON, Reset\_Fault

WEB-server / SNMP agent as software option  
PCI card with 16 I/O

## Exciter R&S SV700

### DVB encoder

Input signal  
Coding / modulation

DVB band width  
Configuration of modulation parameters  
Input monitoring  
SFN function  
Delay correction

Hierarchical coding

MPEG2 transport stream  
to EN 300 744  
to EN 302 304 (optional)  
6, 7 or 8 MHz  
manually, via RS-232 or MIP (automatic switching)  
signal present, TS synchronisation, data rate of TS with stuffing off  
to TS 101 191  
max. 1000 ms, automatic and manual setting for high- and low-  
priority data stream  
optional, on request

### Digital equaliser

digital group delay equalisation (optional) in the base band  
digital linearity equalisation in the base band  
signal limiting to limit the Crest factor

### I/Q to RF Converter

Synthesiser Frequency  
Step width  
Connection  
Modulation

Band III, IV, V  
1 Hz  
internal OCXO (10 MHz), internal GPS receiver (option) or external  
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  
ASI B 1/2  
Reference frequency  
Reference pulse  
GPS antenna

MPEG2; ASI, BNC, 75  $\Omega$ ; input A  
MPEG2; ASI, BNC, 75  $\Omega$ ; input B  
1, 5 or 10 MHz, 0,1 to 5 V<sub>pp</sub> or TTL, BNC  
1 Hz, TTL, BNC, evaluating rising edge  
for integrated GPS receiver (option), active GPS antenna, SMA, 50  
 $\Omega$ , remote feed 5 V DC

### Outputs

RF

DVB, Bands III, IV or V, 13 dBm rms power, SMA

### Test outputs

RF (50  $\Omega$ )

DVB, Band III, IV or V, 10 dBm rms power, SMA 50  $\Omega$  to output  
amplifier  
SMA, 50  $\Omega$   
SMA, 50  $\Omega$

10 MHz OCXO

LO Monitoring

### Serial interfaces

RS-232 Service/PC

on front of SV700, transmitter control via GUI (PC), 9-contact sub-  
D, female

RS-232 Flash-up/Diag  
RS-485

on front of SV700, service interface,  
on rear side of SV700, connection to gateway or NetCCU, 9-contact  
sub-D, female

Auxillary RS-232  
GPS RS-232

on rear side of SV700, 9-contact sub-D, female  
on rear side of SV700, 9-contact sub-D, female (active when  
optional GPS-receiver is provided)

### Other interfaces

Protection loop and parallel interface  
Amplifier control  
Main connector

On rear side of SV700, 15-contact sub-D connector  
On rear side of SV700, 9-contact sub-D connector  
Standard european connector with 3A fusing

### Supported modulation parameters

Length of transport packet  
Coding and modulation  
IFFT mode  
Useful symbol period

188 or 204 bytes  
to EN 300 744 with the following parameters:  
2k and 8k  
224  $\mu$ s (2k) or 896  $\mu$ s (8k)

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Modulation	QPSK, 16QAM, or 64QAM
Guard period	1/4, 1/8, 1/16 or 1/32 of useful symbol period
Inner coding rate	1/2, 2/3, 3/4, 5/6 or 7/8
Hierarchical coding	optional, on request

## Quality data (exciter)

Amplitude error	< 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
10 kHz	> 103
100 kHz	> 118
1 MHz	> 130

Frequency stability	$10^{-7}$ / 3 months
Frequency response	< ±0,5 dB

## Applicable Standards for SV7002 Family

- ⇒ DIN EN 60215 (VDE 0866/IEC 215) Safety requirements for radio transmission equipment
- ⇒ DIN EN 60950 (VDE 0805/IEC 950) Safety of information technology equipment incl. electrical business equipment (as far as applicable)
- ⇒ DIN EN ISO 9001/2000 (quality system)

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### 3.2 Configuration of EUT

A listing of all hardware components including serial numbers and software release is shown in Table 3-1.

<i>Number of Colli</i>	<i>Type of package</i>	<i>Dimensions cm</i>	<i>Quantity of Equipm.</i>	<i>Type</i>	<i>Stock-No.</i>	<i>Designation</i>	<i>Contract Item</i>	<i>Serial-Nos.</i>
		199 x 80 x 58.5	1	SV7600E	2065.7731.07	TV Transmitter 600 W		100001
			2	SV700	2083.4501.97	Set of modules exciter DMQ-T		100216, 100218
			1	NETCCU700	2094.0002.02	NetCCU Basic Unit		101028
			6	VH620A2	2082.9000.02	TV Amplifier BD.4/5 Vision Amplifier		100840, 100882, 100755, 100847, 100849, 100880
				Spinner BN 61 64 50		Band Pass Filter		S 49584
				Spinner BN 53 12 96		Attenuator 2KW500		32644
			1	GD700-1	2090.9005.02	Directional coupler SP		100206
				GD700-1	2090.9005.03	Directional coupler SP		100055, 100054

**Table 3-1: Configuration of SV7600E**

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**Figure 3-1: NV7930E in the EMC chamber for Emission Tests**

### 3.3 Operating Conditions

The emission tests were executed in an anechoic test chamber equipped with RF absorbers. The measurement, simulation and control equipment was located outside of the chamber. The EUT was placed on a metallic turntable in order to test radiated emission automatically around 360°.

During the measurement the EUT was grounded to the groundplane via a 1-wire cable with a length of 3 m. The EUT was powered via a fixed installed powerline cable.

The EUT was operated with 230V AC.

### 3.4 Failure Criteria

No entry, because only emission tests were performed.

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## 4 Test Equipment

### Test Facility

The radiated tests are carried out in the shielded rooms of the Center for Quality Engineering of the Siemens Communications Group, SN CTO CQE, Hofmannstraße 51, 81359 München, Germany.

Chamber	1	2	3	4 / 5	6
Dimensions (net)	17.70*10.85*6.84m	9.63*8.49*5.28m	6.59*5.81*4.78m	4.1*3.53*3.5m	6.4*4.3*4.35m
Max. Door Exit	5.0*3.86m	3.9*4.0m	1.4*2.23m	0.9*2.25m	1.8*3.0mm
Shielding material	Sheet steel (Thickness:1.5mm on floor, 1.0mm on walls and ceiling)	Sheet steel	Sheet steel	Sheet steel	Sheet steel
Absorbers	<ul style="list-style-type: none"> <li>hybrid absorbers on walls and ceiling (TDK), length 1m</li> </ul>	<ul style="list-style-type: none"> <li>hybrid absorbers on walls and ceiling (E+C), length 0.5m</li> </ul>	<ul style="list-style-type: none"> <li>pyramid absorbers on walls and ceiling (E+C), length 0.76m</li> </ul>	<ul style="list-style-type: none"> <li>without absorbers</li> </ul>	<ul style="list-style-type: none"> <li>without absorbers</li> </ul>
Floor	<ul style="list-style-type: none"> <li>metallic ground plane</li> <li>floor load: 12 t/m²</li> </ul>	<ul style="list-style-type: none"> <li>metallic ground plane</li> <li>floor load: 1.5 t/m²</li> </ul>	<ul style="list-style-type: none"> <li>metallic ground plane</li> <li>floor load: 1 t/m²</li> </ul>		
Specials	<ul style="list-style-type: none"> <li>measuring distance of max. 10m</li> <li>turntable Ø 4m/ 6t</li> </ul> <p><b>Test chamber no. 1 complies with:</b>  <b>Emission</b> (10m distance and frequency range 30-1000MHz)            - DIN EN 55022 / 2003-09            - CISPR 16-1-4, Ed. 1.1 / 2004-05            - ANSI C63.4 / 2003            - FCC-listed until June 2009, Reg. Nr.: 90932  <b>Immunity</b> (field uniformity in the frequency range 27-1000MHz)            - EN 61000-4-3:2002 + A1:2002</p>	<ul style="list-style-type: none"> <li>measuring distance of 3m (max 5m)</li> <li>turntable Ø 3.2m/ 1.5t</li> </ul> <p><b>Test chamber no. 2 complies with:</b>  <b>Emission</b> (3m distance and frequency range 30-1000MHz)            - DIN EN 55022 / 2003-09            - CISPR 16-1-4, Ed. 1.1 / 2004-05            - ANSI C63.4 / 2003            - FCC-listed until March 2009, Reg. Nr.: 97242  <b>Immunity</b> (field uniformity in the frequency range 27-1000MHz)            - EN 61000-4-3:2002 + A1:2002</p>	<ul style="list-style-type: none"> <li>measuring distance of max. 3m</li> <li>turntable Ø 1.20m/ 0.5t</li> </ul> <p><b>Test chamber no. 3 complies with:</b>  <b>Emission</b> (3m distance and frequency range 80-1000MHz)            - DIN EN 55022 / 2003-09            - CISPR 16-1-4, Ed. 1.1 / 2004-05            - ANSI C63.4 / 2003  <b>Immunity</b> (field uniformity in the frequency range 27-1000MHz)            - EN 61000-4-3:2002 + A1:2002</p>		

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#### 4.1 Measuring Equipment

ID No.	Equipment	Type	Manufacturer	Specification	Status	Last Cal.	Next Cal.
P1192	EMI receiver	ESIB26	R&S	20 Hz - 26.5 GHz	cal	Sep 14, 2005	Sep 2007
P0492	relais-matrix	RSU 17	R&S		cnn		
P0993	pulse limiter	ESH3-Z2	R&S	10 dB	cal	Mar 15, 2006	Mar 2008
P0263	power meter	NRVS	R&S	true RMS	cal	Mar 15, 2006	Mar 2008
P0289	power sensor	NRV-Z51	R&S	DC - 18 GHz			
P0423	LISN	ESH2-Z5	R&S	4 x 32 A	cal	Mar 08, 2006	Mar 2008
P1272	coax cable	FB311AF0400050	Rosenberger Micro-Coax	DC - 18 GHz, 2.61dB@18GHz	cnn		
P0940	antenna (MZ1)	3115	Emco	1 - 18 GHz	cal	May 12, 2006	May 2008
P0014	antenna	CBL6111	Chase	30 - 1000 MHz E	chk	Feb 26, 2007	Feb 2008
P1139	Mast	MA 4000	innco GmbH	1 - 4m, hor./vert.	cnn		
P0336	test chamber 1		Siemens	20.3 x 13.2 x 8.0 m; 1 m pyramid absorbers + ferrite tiles	chk	Jan 24, 2007	Jan 2008

cal = Calibration, car = Calibration restricted use, chk = Check, chr = Check restricted use, cpu = Check prior to use, cnn = Calibration not necessary, ind = for indication only

#### 4.2 Measurement Uncertainty

As far as the underlying standards include requirements concerning the uncertainty of measuring instruments or measuring methods, they are met.

The expanded measurement uncertainty of the measuring chain was calculated for all tests according to the "ISO Guide to the expression of uncertainty in measurement (GUM)". The results are documented in an "internal controlled document" at Com CTO CQE archives.

The measuring accuracy for all measuring devices is given in their technical description. The measuring instruments, including any accessories, are calibrated respectively verified to ensure the necessary accuracy. Depending on the kind of measuring equipment it is checked within regular intervals or directly before the measurement is performed. Adjustments are made and correction factors applied to measured data in accordance with the specifications of the specific instrument.

The expanded measurement instrumentation uncertainty of our Test Laboratory meets the requirements of IEC CISPR 16-4 Ed. 1.0 "Specification for radio disturbance and immunity measuring apparatus and methods - Part 4: Uncertainty in EMC Measurements" for all listed Tests.

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## 5 Test Specifications and Results

### 5.1 Radiated Emission Tests

The test results in the report refer exclusively to the test object described in section 3 and the test period in section 2.3.

#### 5.1.1 Radiated Emission FCC Part 2, Range 30 – 1000 MHz

The purpose of this test is to evaluate the electrical component of the electromagnetic field radiated by the EUT between 30MHz and 1000MHz.

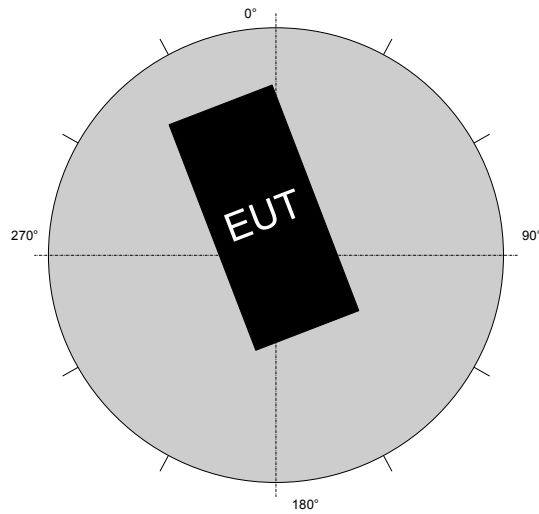
The EUT was placed on a turntable in order to determine the direction of maximum field strength for each predominant emission around 360 degrees (step = 45 degrees). At each azimuth step, the antenna was raised from the height of 1 to 4m (step = 1m) with both, horizontal and vertical planes of polarisation. This measurement was made with an automatic test set. Pre-Scans were made with peak-detection with variation of turntable angle, antenna height and polarisation. The measuring distance was 10 m. The test set-up of Figure 5-4 was used.



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**Figure 5-1: Test setup for radiated emissions measurement**



**Figure 5-2: EUT-Placement on the table**



**Figure 5-3: Test setup for radiated emission measurement, 30 MHz to 1000 MHz**

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Result for 30 - 1000 MHz:

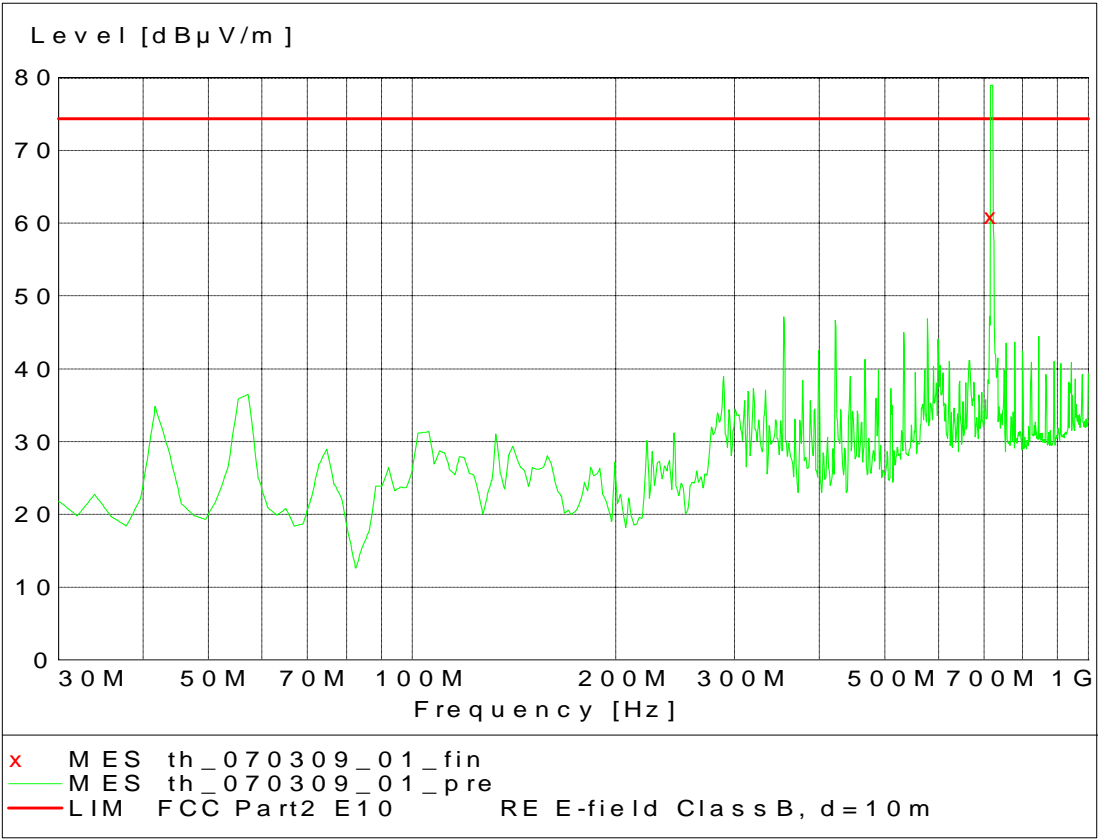


Figure 5-4: Radiated emission, 30 MHz - 1 GHz

Frequency Band	BW
30 MHz to 715 MHz	100 kHz
715 MHz to 723 MHz	licensee frequency block
723 MHz to 1000 MHz	100 kHz

Table 5-1: Resolution bandwidth in the range 30 MHz to 1 GHz

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## 5.1.2 Radiated Emission FCC Part 2, Range 1 GHz – 10 GHz

The electric field strength was measured in the frequency range 1 GHz to 10 GHz using a horn antenna and a test receiver. The test was performed using a computer-controlled testset, controlling the test receivers, the turntable (0-360°) and the polarization (hor/vert) of the antenna (h=1-4m). The measuring distance was 3 m. The amplifier modules were modified to actual series standard.



Figure 5-5: Test setup for radiated emission measurement, 1 - 10GHz

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The detector function was set to peak, the measuring bandwidth was selected according to the following table:

Frequency Band	BW required
1000 MHz to 10000 MHz	100 kHz

Table 5-2: Resolution bandwidth in the range 1 GHz to 10 GHz

**Result for 1 - 10 GHz:**

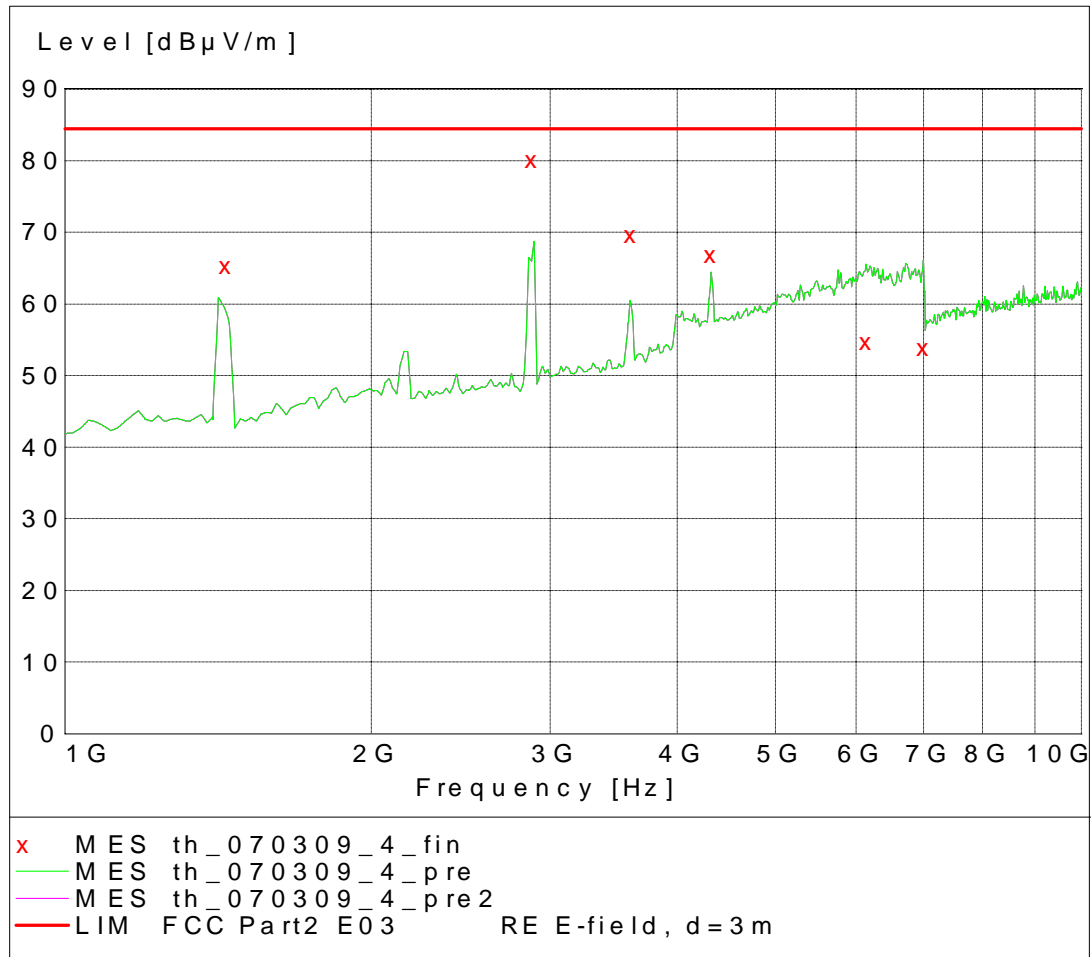


Figure 5-6: Radiated emission, 1 GHz - 10 GHz

Frequency	Level	Transd	Limit	Margin	Det.	Height	Azimuth	Polarization
MHz	dBμV/m	dB	dBμV/m	dB		cm	deg	
1438.500000	65.30	26.00	84.40	19.10	PK	100.0	51.00	VERTICAL
2876.000000	80.10	30.60	84.40	4.30	PK	100.0	177.00	VERTICAL
3597.500000	69.70	32.60	84.40	14.70	PK	100.0	0.00	VERTICAL
4312.500000	66.90	33.50	84.40	17.50	PK	107.0	44.00	VERTICAL
6141.000000	54.70	36.40	84.40	29.70	PK	275.0	204.00	HORIZONTAL
6991.500000	53.90	37.10	84.40	30.50	PK	332.0	300.00	HORIZONTAL

Table 5-3: Highest values, PK detection

## Dipole substitution

Specification:

- ANSI / TIA / EIA-603-A-2001 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

The EUT was removed, and replaced by a horn antenna. Afterwards the performance at the antenna was increased with a signal generator, until the same field strength was achieved, as with the preceding measurements. The measuring distance was 3 m.



**Figure 5-7:** Test set-up for the Dipole substitution

For ideal half wave dipole the power can be calculated by:

$$P_d(\text{dBm}) = P_g(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

$P_d$  is the dipole equivalent power

$P_g$  is the generator output power into the substitution antenna

**Result for the dipole substitution:**

Spurious Emission Frequency	Spurious Emission Reference Field Strength	Signal Generation or Output	Cable loss	Antenna Gain	Calc. Result	Limit	Result
[MHz]	[dBμV/m]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	
1438.500000	65.30	-40	1.81	5.6	<b>-36.21</b>	-13	<b>passed</b>
2876.000000	80.10	-24.9	2.48	7.26	<b>-20.17</b>	-13	<b>passed</b>
3597.500000	69.70	-35	2.69	7.17	<b>-30.52</b>	-13	<b>passed</b>
4312.500000	66.90	41	3.03	7.84	<b>-36.19</b>	-13	<b>passed</b>

**Table 5-4: Results**

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## 5.2 Conducted Emission

### 5.2.1 Conducted Emission to FCC Part 2 on the antenna terminals

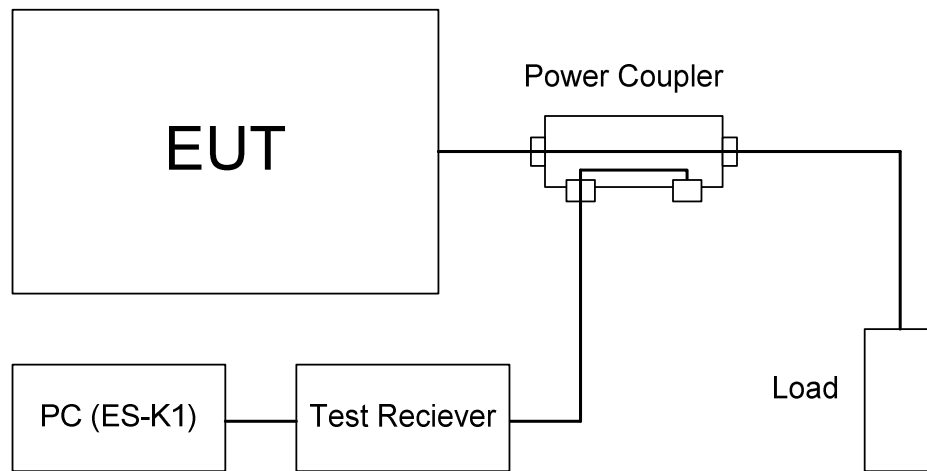


Figure 5-8: Test setup for conducted emissions measurement

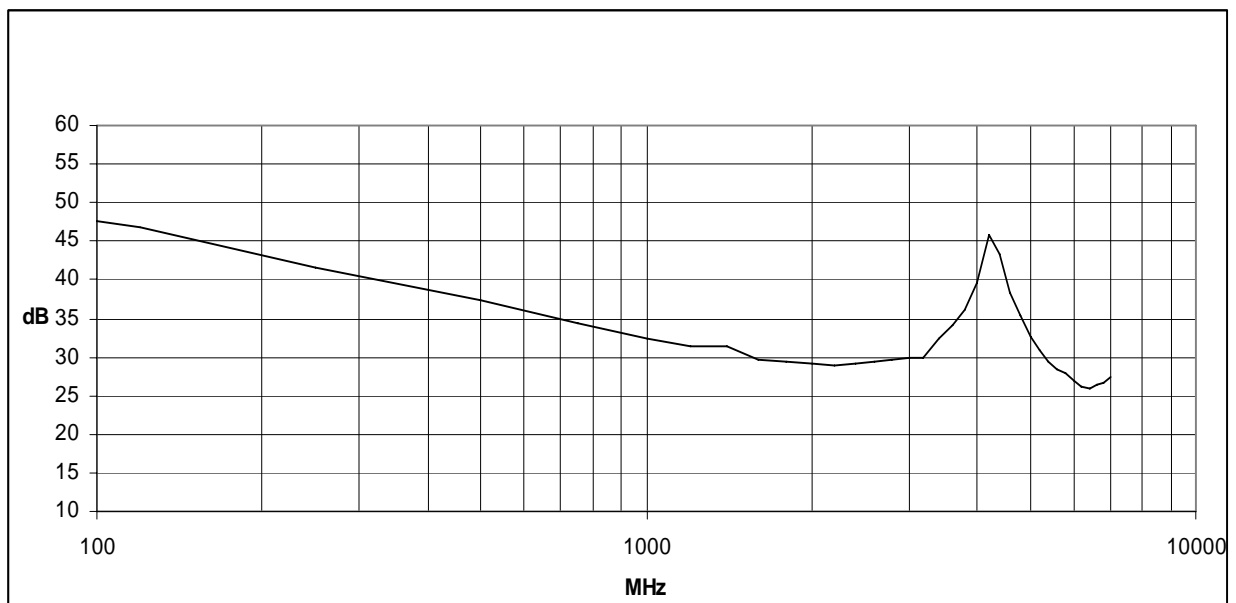


Figure 5-9: Coupling Factor of the Power Coupler

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Frequency MHz	Level dBc	Spurious emissions
719.000000	0	0 Carrier Reference
1438.000000	>- 104	Below the Noise-Sensitivity Level of the Spectrum Analysator
2157.000000	-104.7	<-70 dB 2nd Harmonic
2876.000000	--102.7	<-70 dB 3rd Harmonic
3595.000000	>-99.5	Below the Noise-Sensitivity Level of the Spectrum Analysator
4314.000000	>-89	Below the Noise-Sensitivity Level of the Spectrum Analysator
5033.000000	>-99.8	Below the Noise-Sensitivity Level of the Spectrum Analysator
5752.000000	>-102.5	Below the Noise-Sensitivity Level of the Spectrum Analysator
6471.000000	>-104.5	Below the Noise-Sensitivity Level of the Spectrum Analysator

**Table 5-5: Spurious Emissions**

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### 5.2.2 Occupied bandwidth

Average Output Power: 600 W

Type of Modulation:

Transmitter Frequency: 719MHz

Receiver Setting: RSB 10 kHz, detector RMS

Result: 5.340 MHz

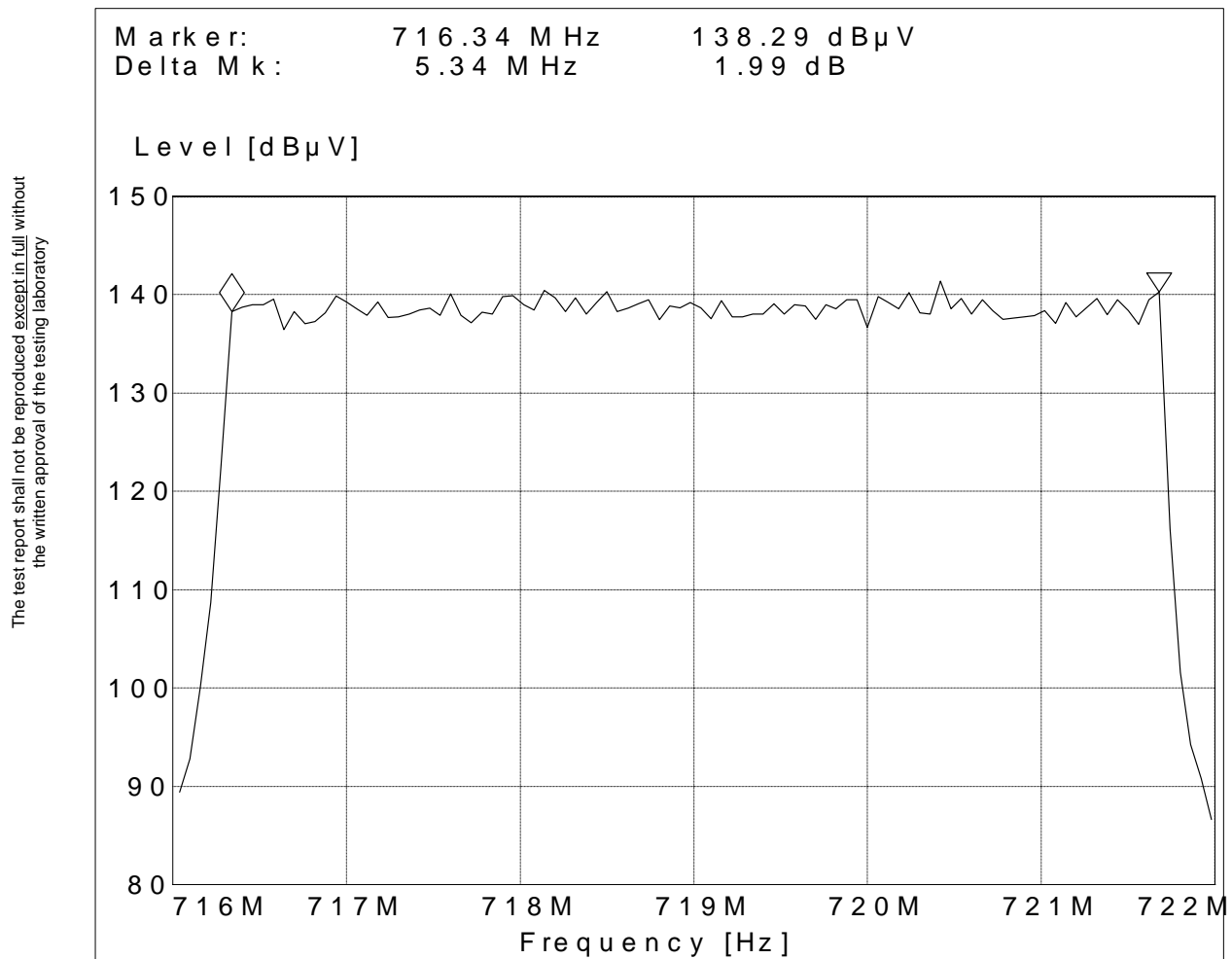


Figure 5-10 Bandwidth of the DVB-H transmitter

Measured with Power meter before the band pass: 55.7 dBm

Measured with Power meter after the band pass: 52.7 dBm

Measurement equipment:

P0263	power meter	NRVS	R&S	true RMS	cal	Mar 15, 2006	Mar 2008
P0289	power sensor	NRV-Z51	R&S	DC - 18 GHz			

cal = Calibration, car = Calibration restricted use, chk = Check, chr = Check restricted use, cpu = Check prior to use, cnn = Calibration not necessary, ind = for indication only

### **Power of emission outside the licensed frequency band**

The power of any emission outside the occupied bandwidth is below the noise floor. The level is more than 90 dB below the carrier power.

So the FCC Part 2§2.2.1047/ 2.1049 with limit of part 27.53 is **passed**.

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## Enclosures

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