DAT-P-002/91-02

Center for Quality Engineering

Test Report No.: B0AK0001

Order No.: B0AK **Pages:** 33 **Munich,** May 15, 2008

Client:	Rohde & Schwarz GmbH & Co. KG
Equipment Under Test:	NV8306V1 TV Transmitter MediaFlo 1800W
Manufacturer:	Rohde & Schwarz GmbH & Co. KG
Task:	Customer selected tests for Identification of compliance with the requirements mentioned below:
Test Specifications: [covered by accreditation]	• FCC 47 CFR Ch.1, Part 15, Subpart B (informative) • FCC 47 CFR Ch.1, Part 2 • EN 301 489, Part 1 & 11
Result:	Requirements of the before mentioned Specifications are fulfilled. See summary

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

edited by:	**Date**	**Signature**
Steinmüller Qualification Engineer	May 15, 2008	

approved by:	**Date**	**Signature**
Bauer Manager EMC	May 16, 2008	

This document was signed electronically.

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FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

March 07, 2006

Registration Number: 97242

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

Re: Measurement facility located at Munich
Anechoic chamber No. 2 (3 meters)
Date of Renewal: March 07, 2006

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Phyllis Darrish
Information Technician

CONTENTS

1 Summary

A summary of the measurements results will be found in the following tables. The results refer only 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**
6.1.1	Radiated 30 MHz-1000 MHz Test Distance: 3 meters	FCC Part 15 § 15.109	Class A	**passed**
6.1.2	Radiated 30 MHz-1 GHz Test Distance: 3 meters	FCC Part 2 §2.1053, §2.1057	43+10log(P)	**passed**
6.1.3	Radiated 1 GHz-10 GHz Test Distance: 3 meters	FCC Part 2 §2.1053, §2.1057	43+10log(P)	**passed**

1.1.2 Antenna terminals

Conducted emission tests				
Chapter	**Test**	**Specification**	**Limits**	**Result**
6.2.1	Spurious Emissions	FCC Part 2 §2.1051 / 2.1057	43+10log(P)	**passed**
6.2.2	Occupied Bandwidth	FCC Part 2 §2.1047 / 2.1049	With limit of FCC Part 27.53, 6 MHz	**passed**

1.1.3 Power Port

Conducted emission tests				
Chapter	**Test**	**Specification**	**Limits**	**Result**
6.2.4	Conducted 230 V AC	EN 301 489 - 11	EN 301 489 - 11	**passed**[1]

[1] without auxiliary supply

2 References

2.1 Specifications

- 47 CFR Code of Federal Regulations Title 47 – Telecommunication
- FCC Part 15, § 15.109, Radiated Emission, Class A
- FCC Part 15, § 15.107, Conducted Emission
- 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
  Customer selected tests acc.
- EN 301 489, Part 1 & 11

2.2 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
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

3 General Information

3.1 Identification of Client

Rohde & Schwarz GmbH & Co. KG
Mühldorfstraße 15
81671 München
Uwe Dalisda

3.2 Test Laboratory

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

3.3 Time Schedule

Delivery of EUT: Apr 17, 2008
Start of test: Apr 23, 2008
End of test: Apr 25, 2008

3.4 Participants

Name	Function	Phone	E-Mail
Wolfgang Klein	Operating of EUT, Setup of EUT	+49 99 23 85 717 25	wolfgang.klein@rsdts.rohde-schwarz.com
Uwe Dalisda	Operating of EUT, Setup of EUT	089 4129 1 1665	uwe.dalisda@rohde-schwarz.com
Michael Steinmüller	Editor, accredited Testing	+49 89 722 25262	michael.steinmueller@nsn.com

4 Equipment Under Test

4.1 Transmitter - technical data type based

DVB-T/MediaFlo

	NV8301	NV8302	NV8303	NV8304	NV8305	NV8306
No. Of amplifiers	1	2	3	4	5	6
P_{nom}	275W	550W	825W	1100W	1375W	1650W
P_{outmax}	320W	640W	960W	1280W	1600W	1800W
Air flow	8m^3/min	12m^3/min	15m^3/min	17m^3/min	17m^3/min	17m^3/min
Power dissipation	2.5kW	4.2kW	6.0kW	7.7kW	9.5kW	10.2kW
Power dissipation into air	1.4kW	2.7kW	4.1kW	5.5kW	7.0kW	7.4kW
Power dissipation into the room	250W	300W	350W	400W	450W	500W
Fuse protection / NH gG	3 x 20A	3 x 20A	3 x 20A	3 x 20A	3 x 25A	3 x 25A
Supply cable (VDE)	2.5mm^2	2.5mm^2	2.5mm^2	2.5mm^2	4.0mm^2	4.0mm^2
Supply cable (UL/CSA)	AWG12	AWG12	AWG12	AWG10	AWG10	AWG10
Fuse protection / Automatic power cutout Siemenstyp: 3VL17	3 x 16A..20A 02-1DD33	3 x 16A..20A 02-1DD33	3 x 16A..20A 02-1DD33	3 x 16A..20A 02-1DD33	3 x 25A..32A 03-1DD33	3 x 25A..32A 03-1DD33
Overload trip setting	16A	16A	16A	20A	25A	25A
Short circuit trip setting	300A	300A	300A	300A	300A	300A
Supply cable (VDE)	2.5mm^2	2.5mm^2	2.5mm^2	2.5mm^2	4.0mm^2	4.0mm^2
Supply cable (UL/CSA)	AWG12	AWG12	AWG12	AWG10	AWG10	AWG10
Total weight(appr.)	235kg	270kg	300kg	325kg	355kg	385kg

4.2 Configuration of EUT

A listing of all hardware components including serial numbers and software release is shown in Table 4-1.

GG NV8306X1 DTV- Transmitter 1,8KW single phase		
Description	Code Nr.	Serial Nr.
GS ZR800Z4 TS - distributor	2099.3300.20	100012
GG NETCCU 800 CONTROL UNIT	2095.8007.02	101557
GS ZR800Z2 power socket	2099.3100.14	100367
GG KG830M1 rack	2096.2002.02	100344
GS SX800Z1 ADE	2099.4006.22	100063
GG VH8300A1 UHF-amplifier single phase	2095.6004.03	100009
GG VH8300A1 UHF-amplifier single phase	2095.6004.03	100012
GG VH8300A1 UHF-amplifier single phase	2095.6004.03	100013
GG VH8300A1 UHF-amplifier single phase	2095.6004.03	100014
GG VH8300A1 UHF-amplifier single phase	2095.6004.03	100021
GG VH8300A1 UHF-amplifier single phase	2095.6004.03	100022
GL KL830F1 air filter kit	2096.5901.06	100119
GS ZR800C1 power kit	2098.5009.66	100001
GS ZR800T1 exciter inst. Kit	2099.1007.03	100275
GS ZR800V1 exciter inst. Kit	2099.1507.05	100038
GG SX800 TV EXCITER DTV2 DTMB	2095.1502.81	100076
GG SX800 TV EXCITER DTV2 DTMB	2095.1502.81	100077

Accessory		
Bandpass Filter W/O-2916060	P/N-005A76501	S/N 3038

Table 4-1: Configuration of NV8306V1

Figure 1: GG VH8300A1 UHF-amplifier single phase

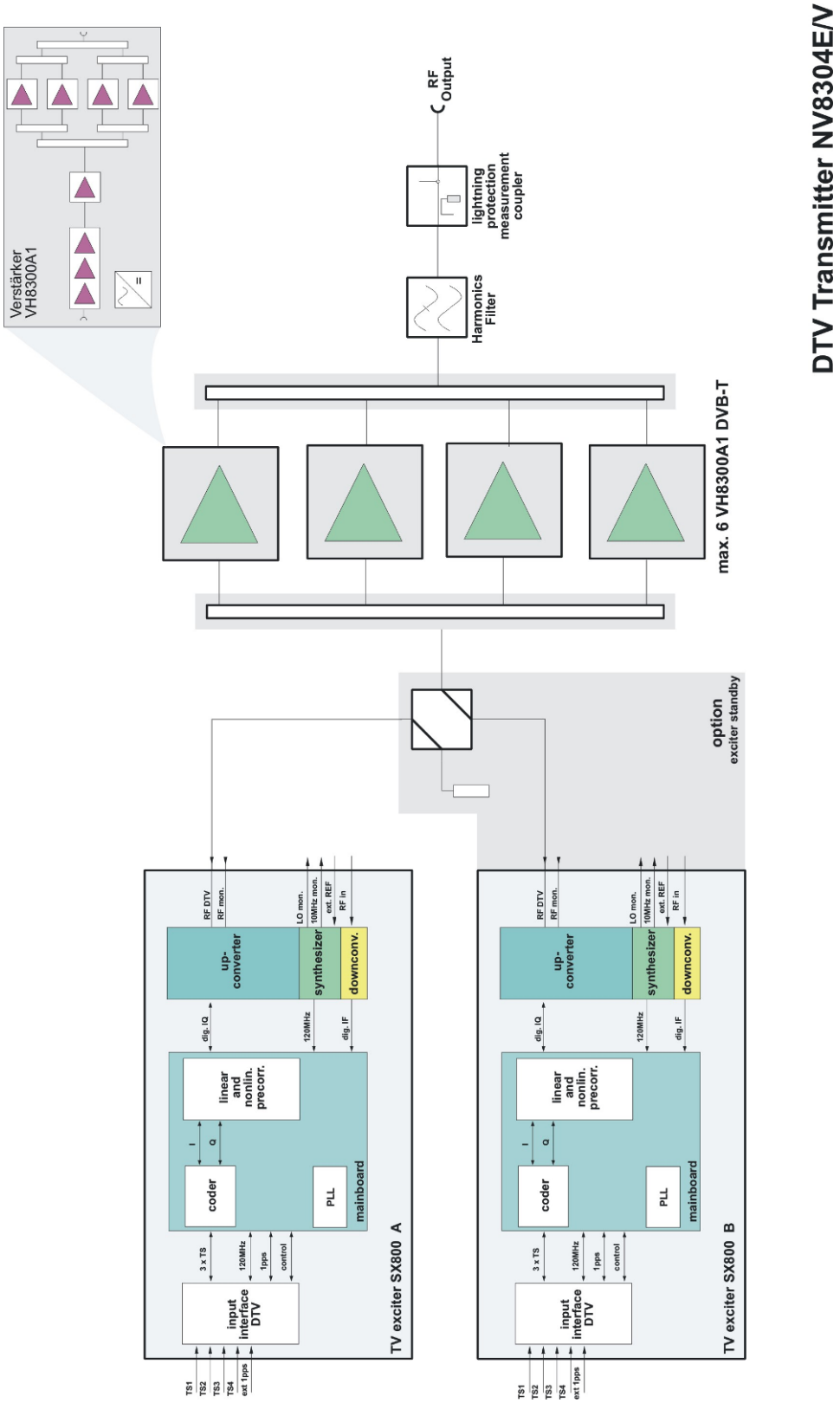

Figure 2: Block diagram of DTV transmitter: This example: R&S NV8304E/V

Figure 4-2: Label with Serial Nr. of EUT

Figure 4-3: NV8306V1 in the EMC chamber for Emission Tests

4.3 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 1x 230V AC and activated with it´s rated output power.

4.4 Failure Criteria

No entry, because only emission tests were performed.

5 Test Equipment

5.1 Test Facility

The EMC-tests were carried out in the shielded rooms of the Center for Quality Engineering, 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	• hybrid absorbers on walls and ceiling (TDK), length 1m	• hybrid absorbers on walls and ceiling (E+C), length 0.5m	• pyramid absorbers on walls and ceiling (E+C), length 0.76m	• without absorbers	• without absorbers
Floor	• metallic ground plane • floor load: 12 t/m²	• metallic ground plane • floor load: 1.5 t/m²	• metallic ground plane • floor load: 1 t/m²		
Specials	• measuring distance of max. 10m • turntable ∅ 4m/ 6t **Test chamber no. 1 complies with:** ***Emission*** (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 ***Immunity*** (field uniformity in the frequency range 27-1000MHz) - EN 61000-4-3:2002 + A1:2002	• measuring distance of 3m (max 5m) • turntable ∅ 3.2m/ 1.5t **Test chamber no. 2 complies with:** ***Emission*** (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 ***Immunity*** (field uniformity in the frequency range 27-1000MHz) - EN 61000-4-3:2002 + A1:2002	• measuring distance of max. 3m • turntable ∅ 2.0m / 1t **Test chamber no. 3 complies with:** ***Emission*** (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 - Site VSWR 1 – 18GHz acc. CISPR 16-1-4 (2007) - FCC-listed until March 2010, Reg. Nr.: 299569 ***Immunity*** (field uniformity in the frequency range 80-3000MHz) - EN 61000-4-3:2006		

Table 5-1: Anechoic chamber No. 1

5.2 Measuring Equipment

ID. No.	Equipment	Type	Manufacturer	Specification	Status	Last Cal.	Next Cal.
P0336	test chamber 1		Siemens	20.3 x 13.2 x 8.0 m; 1 m pyramid absorbers + ferrite tiles	chk	Jan 28, 2008	Jan 31, 2009
P1140	Controller	CO 2000	innco GmbH		cnn		
P1139	Mast	MA 4000	innco GmbH	1 - 4m, hor./vert.	cnn		
P1327	EMI receiver	ESU40	R&S	20Hz - 40GHz, FFT-Scan, Preamplifier 100kHz - 40GHz, 30dB	cal	Sep 04, 2007	Sep 30, 2009
P1352	antenna, Ultralog	HL562	R&S	30 MHz - 3000 MHz	cal	Jan 17, 2008	Jan 31, 2010
P0776	attenuator 30dB	46-30-34	Weinschel	30dB	chk	Apr 08, 2008	Apr 30, 2009
P1271	coax cable	FB311AF040005050	Rosenberger Micro-Coax	DC - 18 GHz, 2.61dB@18GHz	cnn		
P1063	coax cable	UFB293C	Rosenberger Micro-Coax	DC - 18 GHz, 1.7dB@18GHz	cnn		
P0920	LISN	NNB-4/200X	Heine	4 x 200 A; 700 V; 0 - 63 Hz	cal	Apr 03, 2008	Apr 30, 2010

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

Table 5-2: Measuring Equipment for EMC tests

5.3 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 CQE archives.

The measuring accuracy for all measuring devices is provided in their technical description. The measuring instruments, including any accessories, are calibrated correspondingly and 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 corresponding instrument.

The expanded measurement instrumentation uncertainty of our Test Laboratory meets the requirements of IEC CISPR 16-4-2 (2003-11) “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modeling – Uncertainty in EMC measurements” for all listed Tests.

6 Test Specifications and Results

6.1 Radiated Emission Tests

The test results in the report refer exclusively to the test object described in section 4 and the test period in section 3.3.

6.1.1 Radiated Emission Tests FCC Part 15 class A (informative measurement)

Test procedures see 6.1.2

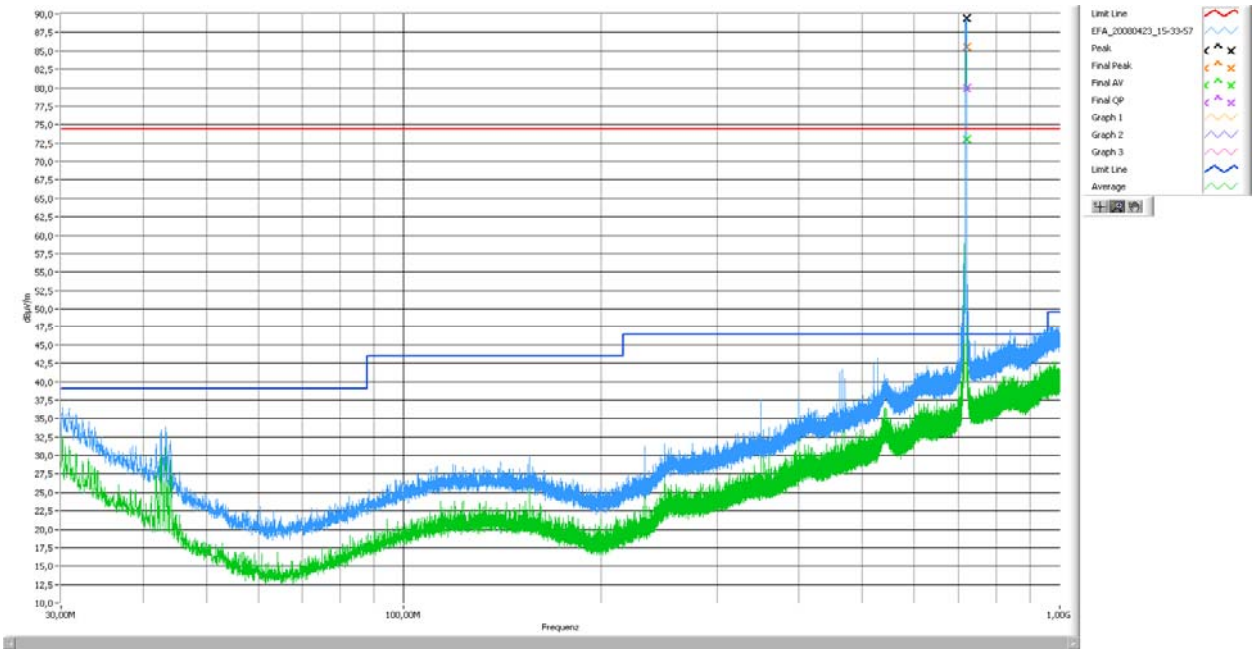

Figure 6-1: Radiated emission, 30 – 1000 MHz

f [MHz]	Pos. [°]	Height [cm]	Polarisation	Rec QP	Height Final	Limit	Margin QP
720.76935	291	199	horizontal	79.99	150	RF carrier MediaFlo	

Table 6-1: Highest values, Quasi peak detection

6.1.2 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 (continuous sweeps). 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 and average detection with variation of turntable angle, antenna height and polarisation. The measuring distance was 10 m. The test set-up of Figure 6-2 was used.

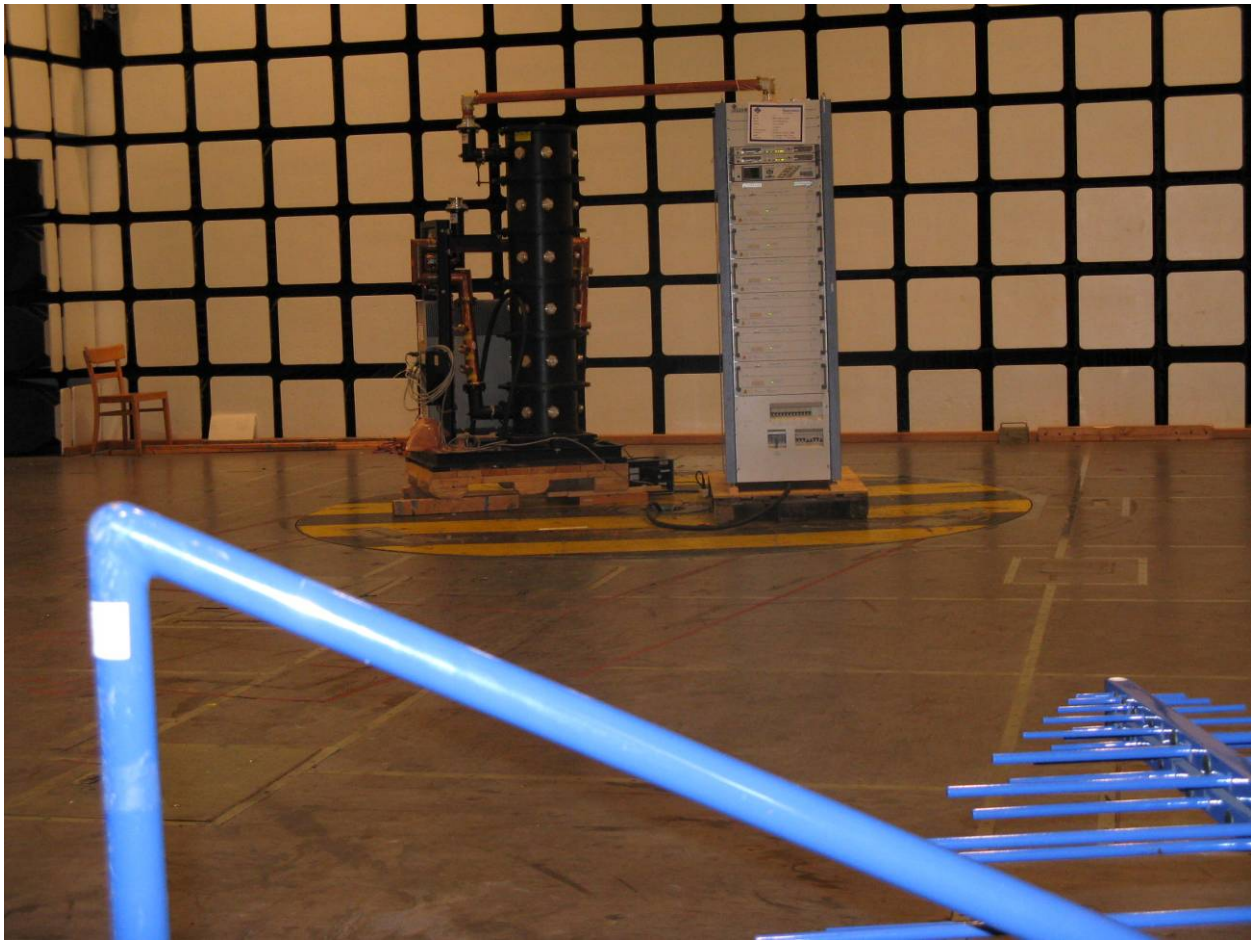

Figure 6-2: Test setup for radiated emissions measurement

Result for 30 - 1000 MHz:

Frequency Band	BW
30 MHz to 716 MHz	100 kHz
716 MHz to 722 MHz	licensee frequency block
722 MHz to 1000 MHz	100 kHz

Table 6-2: Resolution bandwidth in the range 30 MHz to 1 GHz

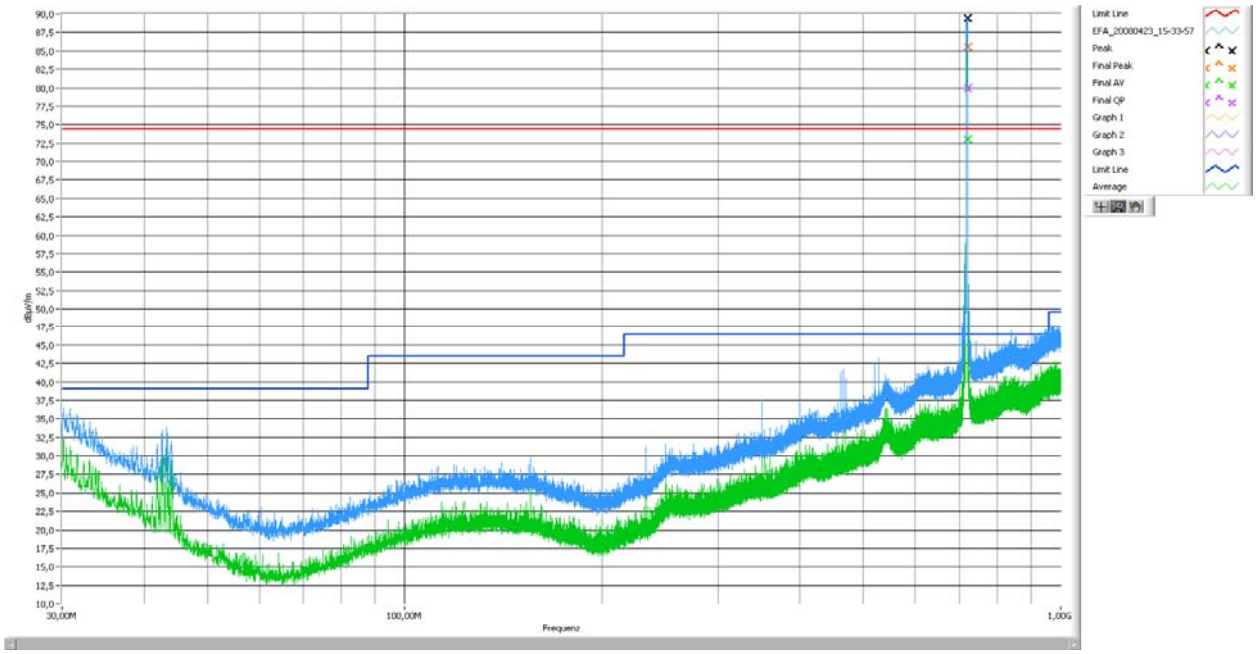

Figure 6-3: Radiated emission, 30 MHz - 1 GHz

f [MHz]	Pos. [°]	Polarisation	Rec Peak	Height Final	Limit FCC Part 2	Margin PK
720.76935	291	horizontal	85.57	150	**RF carrier MediaFlo**	

Table 6-3: Highest values, Pk detection

6.1.3 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.

Figure 6-4: Test setup for radiated emission measurement, 1 - 10GHz

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 6-4: Resolution bandwidth in the range 1 GHz to 10 GHz

Result for 1 - 10 GHz:

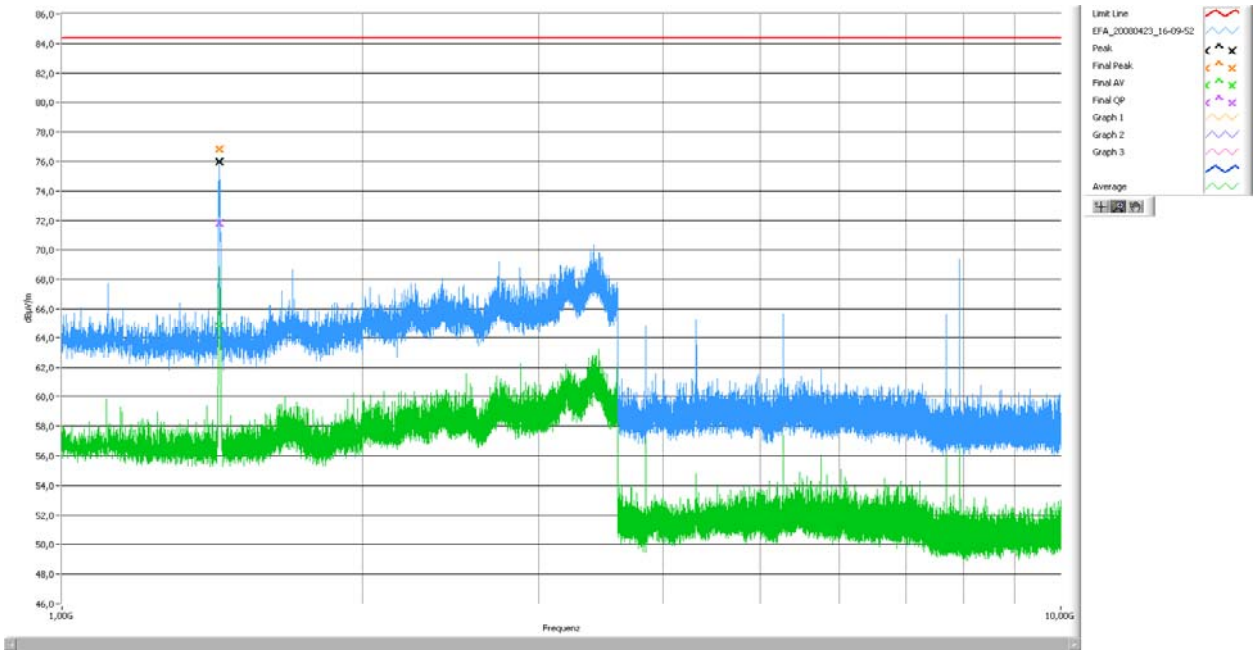

Figure 6-5: Radiated emission, 1 GHz - 10 GHz

f [MHz]	Pos. [°]	Height [cm]	Polarisation	Rec Peak	Limit FCC Part 2	Margin PK
1437.69995	60	100	horizontal	76.82	**RF carrier MediaFlo**	

Table 6-5: 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.

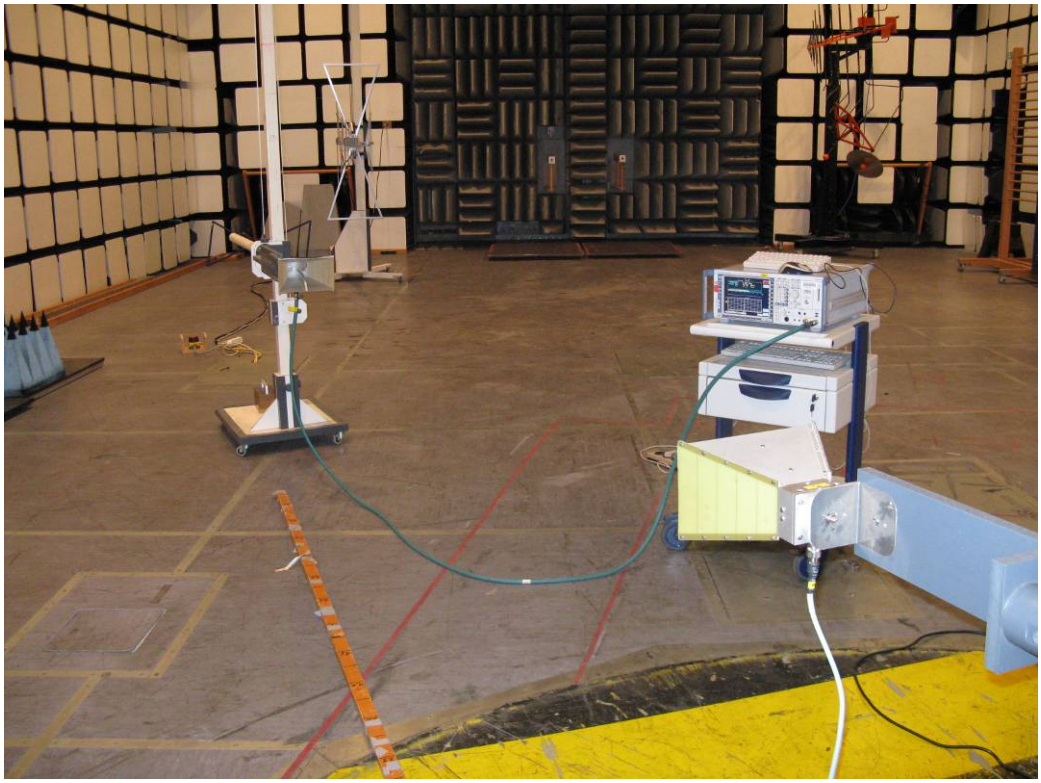

Figure 6-6: Test set-up for the Dipole substitution

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

P_d(dBm) = P_g(dBm) - cable loss (dB) + 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 Generator Output	Cable loss	Antenna Gain	Calc. Result	Limit	Result
[MHz]	[dBµV/m]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	
1438	77	-27.2	1.81	5.6	**-23.41**	-13	passed
2157	70, Noise level	-34.1	2.07	6.54	**-29.64**	-13	passed
2876	70, Noise level	-32.3	2.48	7.26	**-27.52**	-13	passed
3595	70, Noise level	-30.7	2.69	7.17	**-26.22**	-13	passed
4314	70, Noise level	-36.6	3.03	7.84	**-31.79**	-13	passed
5033	70, Noise level	-34.4	3.31	7.15	**-30.56**	-13	passed
6471	70, Noise level	-37.3	3.73	9.09	**-31.94**	-13	passed
7190	70, Noise level	-35.1	3.93	8.32	**-30.71**	-13	passed

Table 6-6: Results for the dipole substitution

According to FCC Part 2 §2.1053, §2.1057 Class B this measurement is **passed**.

6.2 Conducted Emission

6.2.1 Spurious Emission to FCC Part 2 on the antenna terminals

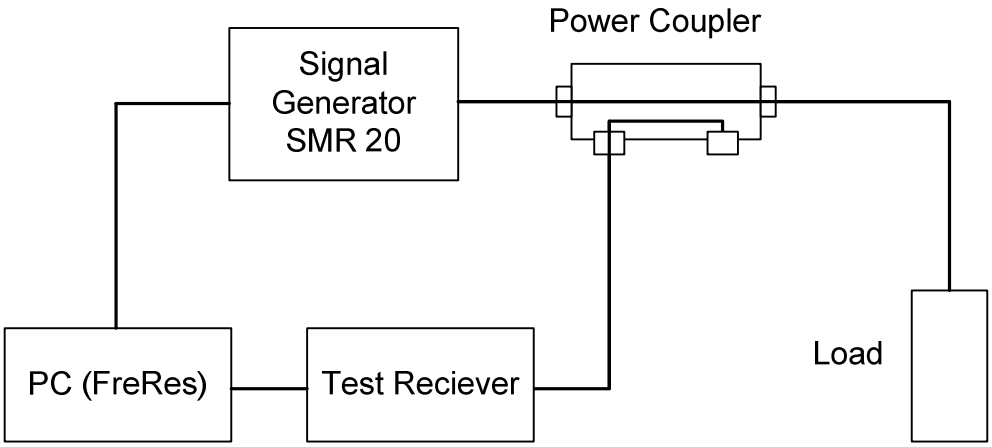

Figure 6-7: Test setup for conducted emissions measurement

Figure 6-8: Picture of Power Coupler

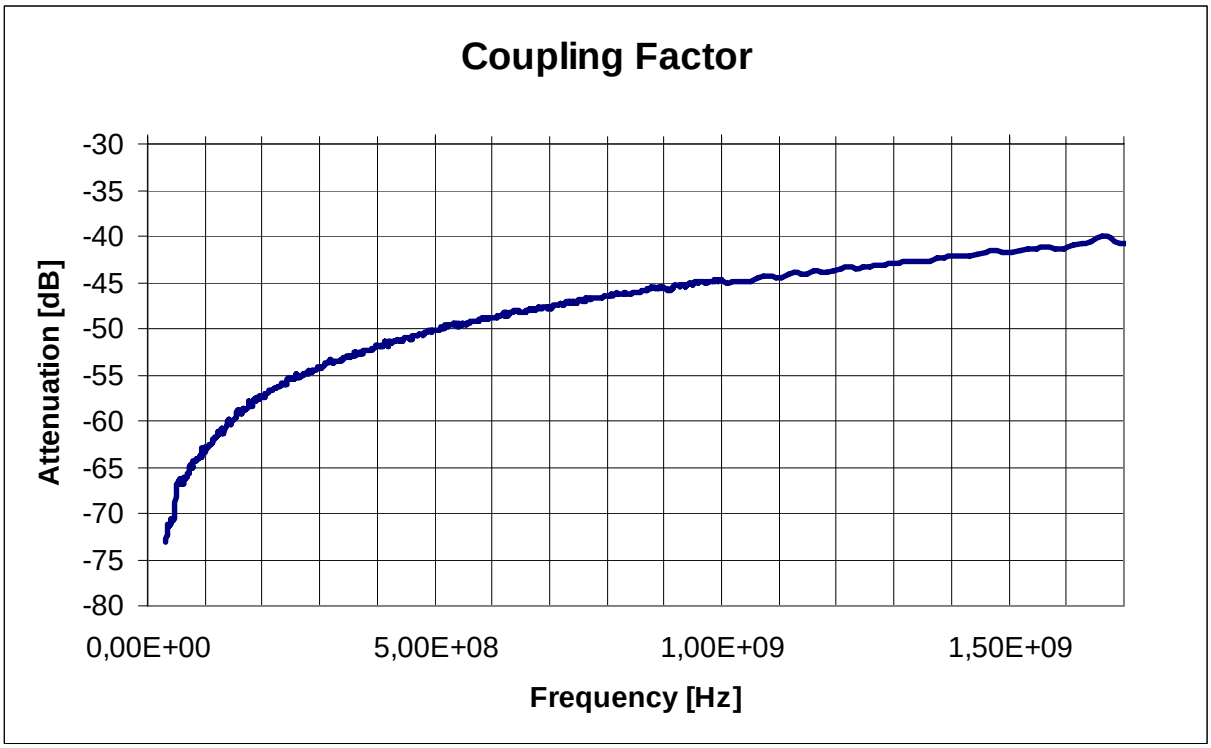

Figure 6-9: Coupling Factor of the Power Coupler 30MHz – 1.438 GHz

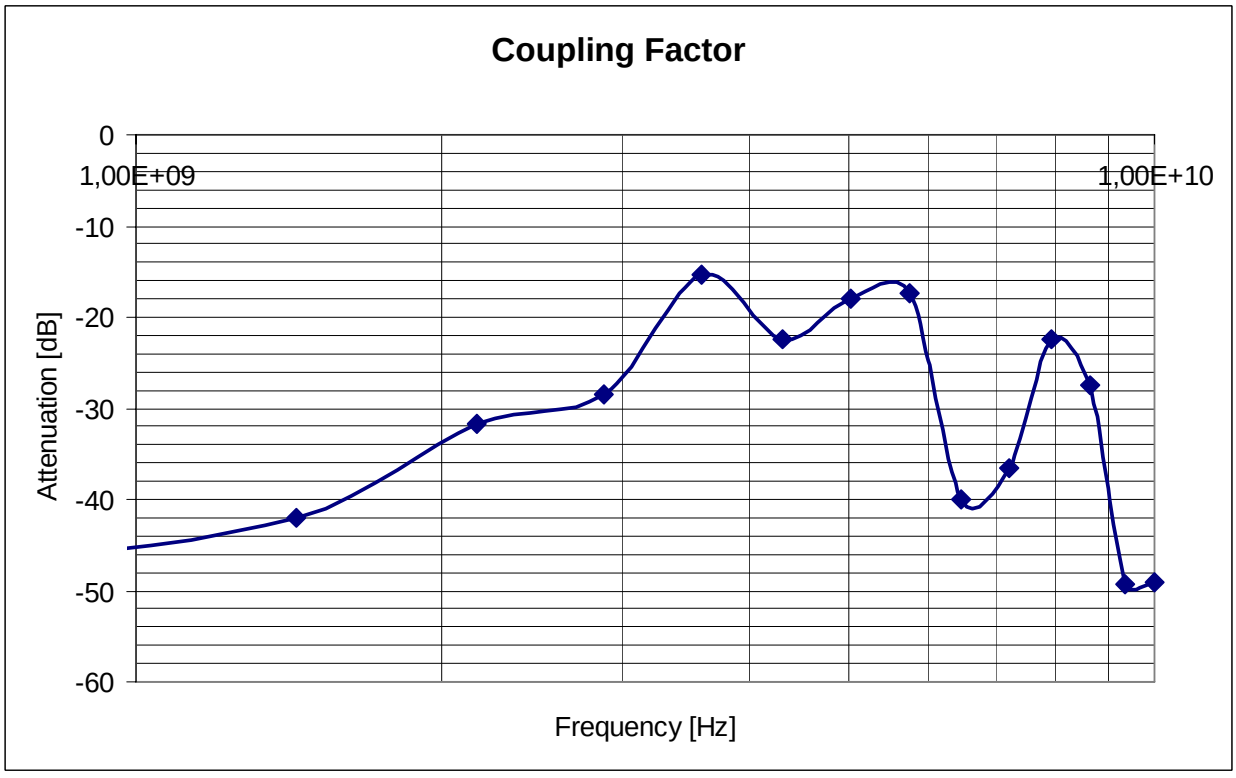

Figure 6-10: Coupling Factor of the Power Coupler 1.438 GHz – 10 GHz

Result for the conducted spurious emission:

Limit: 43+10log(P) = 43+10log(1800W) ≈ 76 dB

Harmonics	Frequency	Relative Level	Margin	Result
Order	MHz	dBµV	dBc	
Carrier (reference)	719	81.83	0	passed
1st Harmonic	1438	3.4	> 76 dB	passed
2nd Harmonic	2157	4.37	> 76 dB	passed
3rd Harmonic	2876	5.13	> 76 dB	passed
4th Harmonic	3595	6.0	> 76 dB	passed
5th Harmonic	4314	Below the Noise-Sensitivity Level of the Spectrum Analyzer	> 76 dB	passed
6th Harmonic	5033	Below the Noise-Sensitivity Level of the Spectrum Analyzer	> 76 dB	passed
7th Harmonic	5752	Below the Noise-Sensitivity Level of the Spectrum Analyzer	> 76 dB	passed
8th Harmonic	6471	Below the Noise-Sensitivity Level of the Spectrum Analyzer	> 76 dB	passed
9th Harmonic	7190	Below the Noise-Sensitivity Level of the Spectrum Analyzer	> 76 dB	passed

Table 6-7: Spurious Emissions

According to FCC Part 2 §2.1051 / 2.1057 this measurement is **passed**.

6.2.2 Occupied bandwidth

Transmitter Frequency:	719 MHz
Receiver Setting:	RSB 10 kHz, detector RMS
Result:	5.46 MHz
Limit:	6.0 MHz

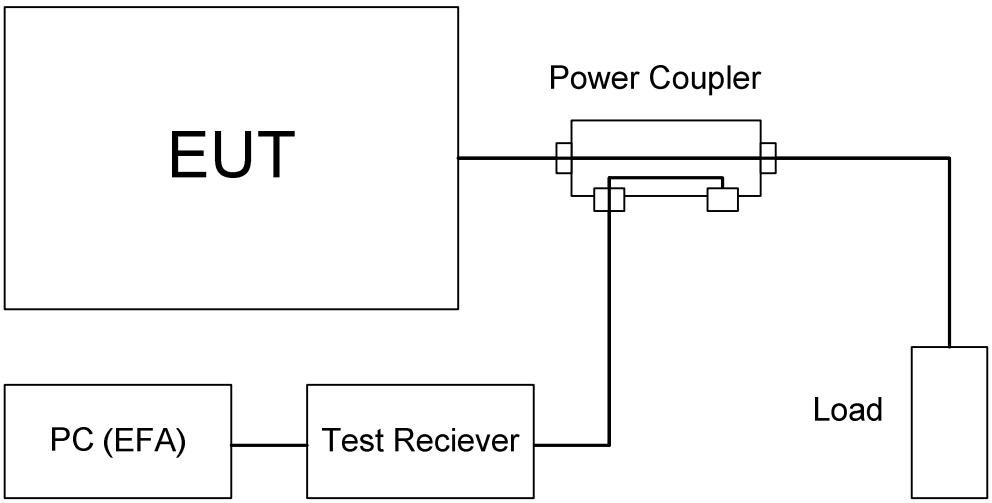

Figure 6-11: Test setup for occupied bandwidth measurement

Result for the Occupied bandwidth:

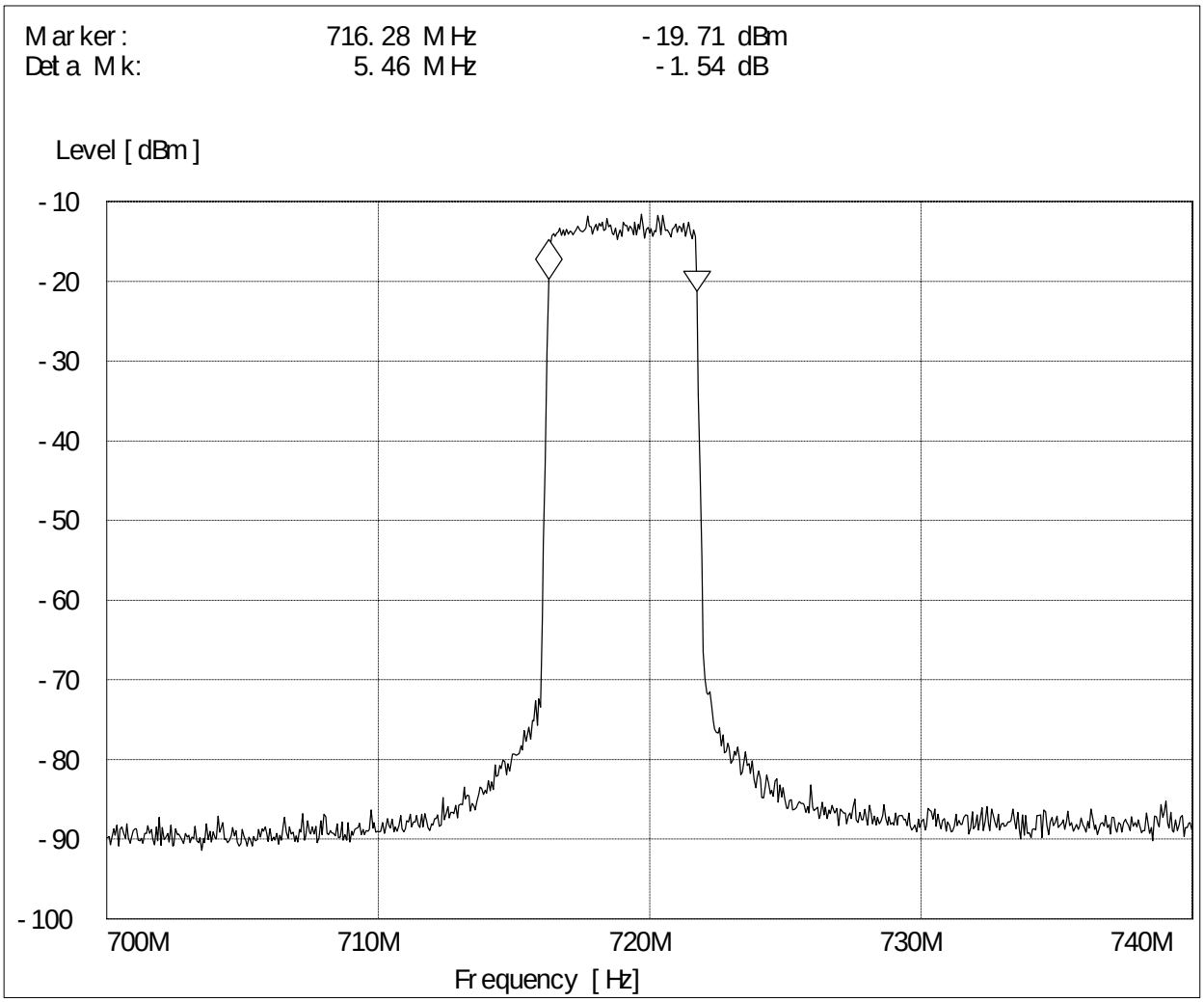

Figure 6-12 Bandwidth of the MediaFlo transmitter

Occupied Bandwith: 5.46MHz
Measured with 10kHz RBW, 47.3dB transducer for the coupler and 30dB attenuator

According to FCC Part 2 §2.1049 / 2.1047 this measurement is **passed**.

6.2.3 Average Output Power

Average Output Power: 1660 W

Transmitter Frequency: 719 MHz

Receiver Setting: RSB 10 kHz, detector peak

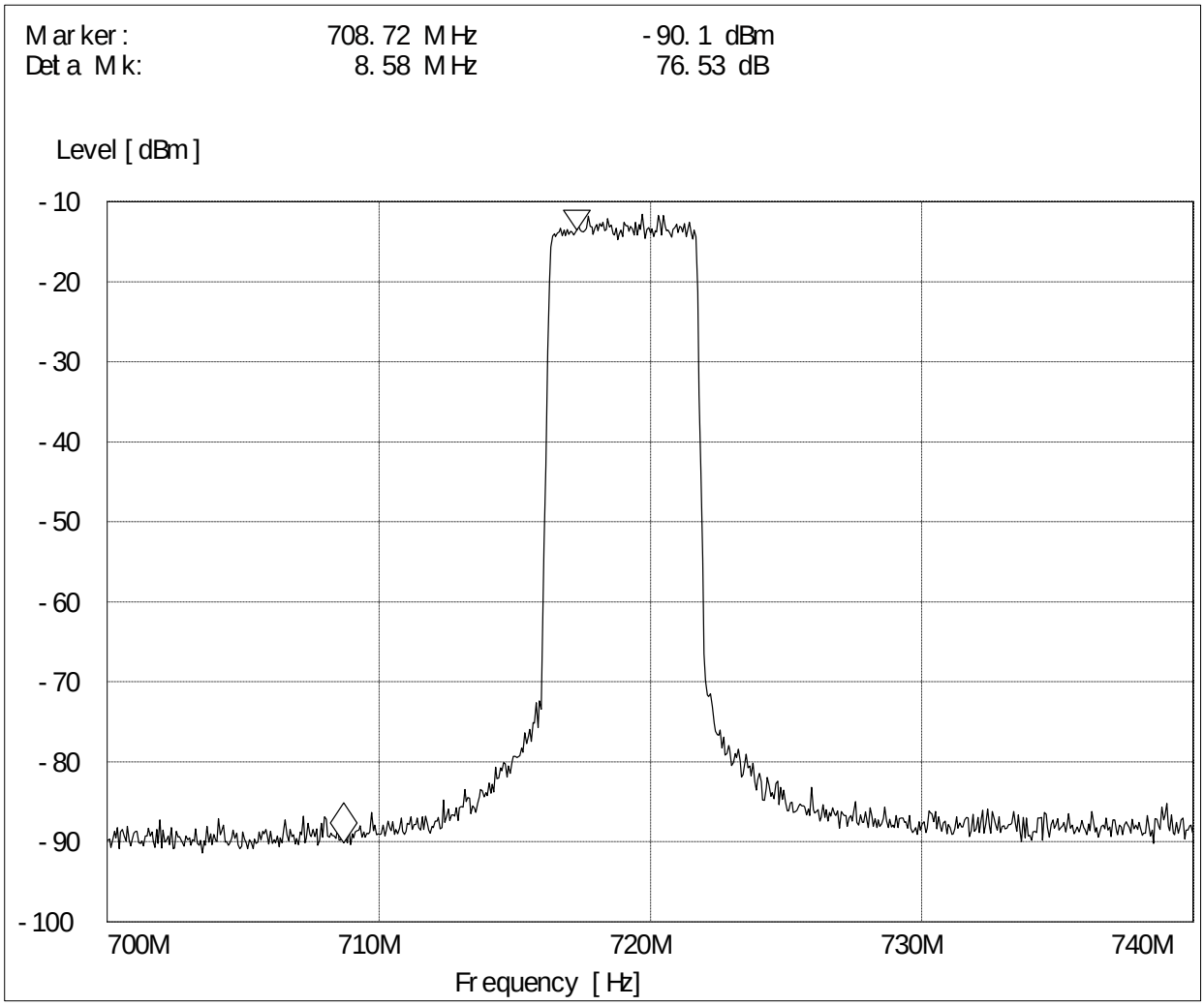

Figure 6-13: Power of the MediaFlo transmitter

The power of any emission outside the occupied bandwidth is below the noisefloor. The level is more than 76 dB below the carrier power. So the limit of 47CFR27.53 f is fulfilled.

Result of the output power calculation:

$$P_{Messure} = -13.57dBm$$

$$powercoupler = 47.3dB$$

$$cable = 1.1dB$$

$$P_{Messure} = -13.57dBm + 1.1dB(cable) + 47.3dB(powercoupler)$$

$$P_{Messure} = 34.83.0dBm$$

$$A_{BW} = 10 * \log(\frac{P_{BW}}{P_{RBW}}) \hat{=} 10 * \log(\frac{BW}{RBW})$$

$$A_{BW} = 10 * \log(\frac{5460kHz}{10kHz}) = 27.37dB$$

$$P = A_{BW} + P_{Messure}$$

$P = 27,37dB + 34.83Bm = 62.2dBm \approx 1.66kW$ (output power after bandpass filter)

6.2.4 Conducted Emission to FCC Part 15 on the AC Power port

Specification:
- FCC Part 15 § 15.107
- EN 301489-11

The test is designed to evaluate the RF signals conducted on the AC power interface of the EUT and to confirm that there is no major spurious signal feedback between items of the equipment. The measurement method was as described in FCC Part 15.
The EUT was connected to the mains power supply inside the test chamber via a LISN. The interference voltage on the AC power interface was measured separately on each power phase (L1, N) with PE grounded. The measurement results were combined to one test sheet by a peak hold function and the highest values were taken for examination with AV- and QP-detection. The resulting plot shows a worst case envelope of the measured spectrum. The test set-up of the following figures was used.

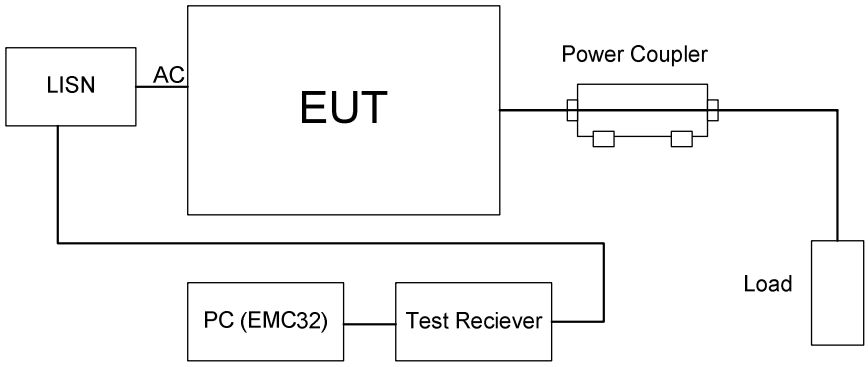

Figure 6-14: Test setup for conducted emissions measurement

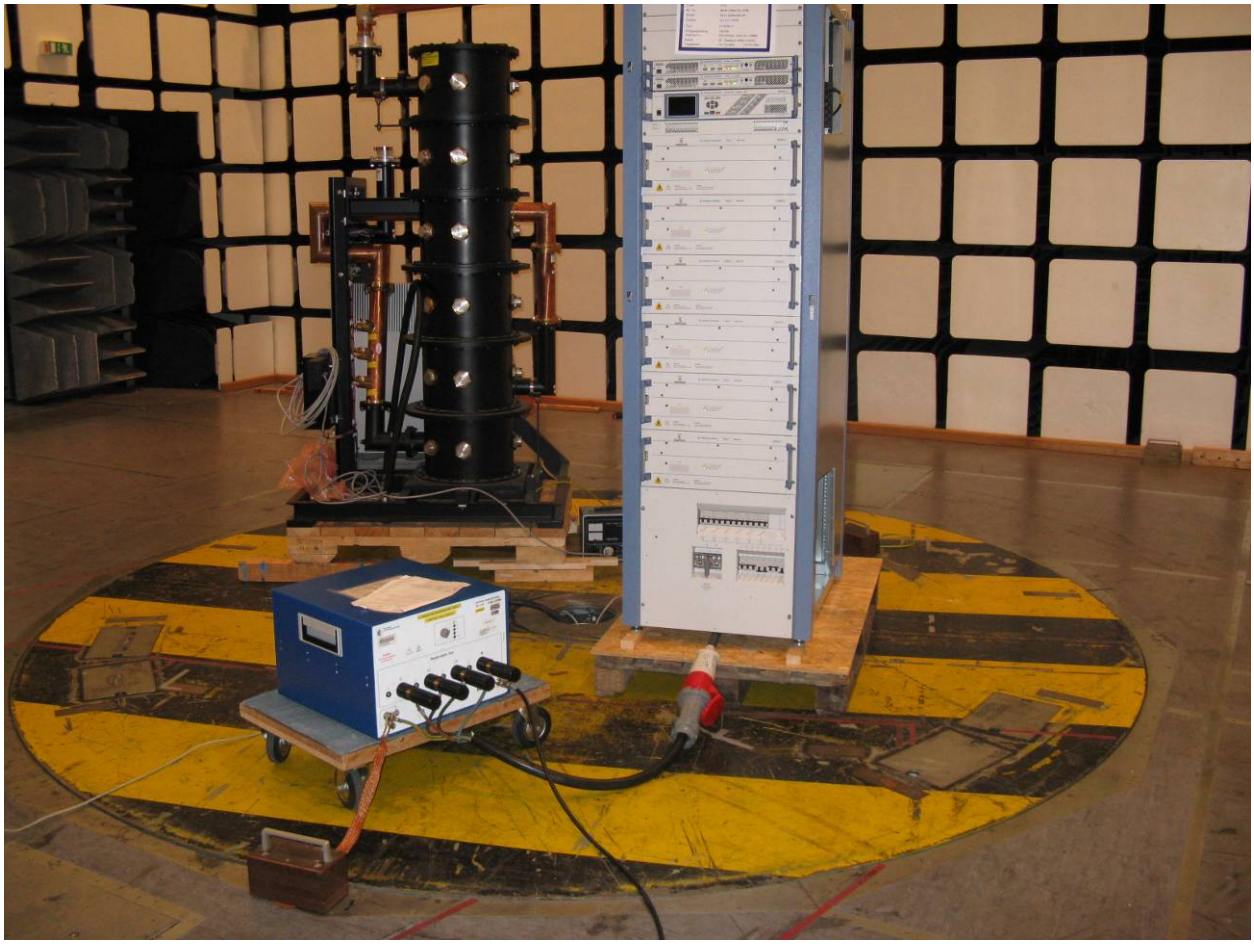

Figure 6-15: Test setup for conducted emissions measurement

Results in detail:

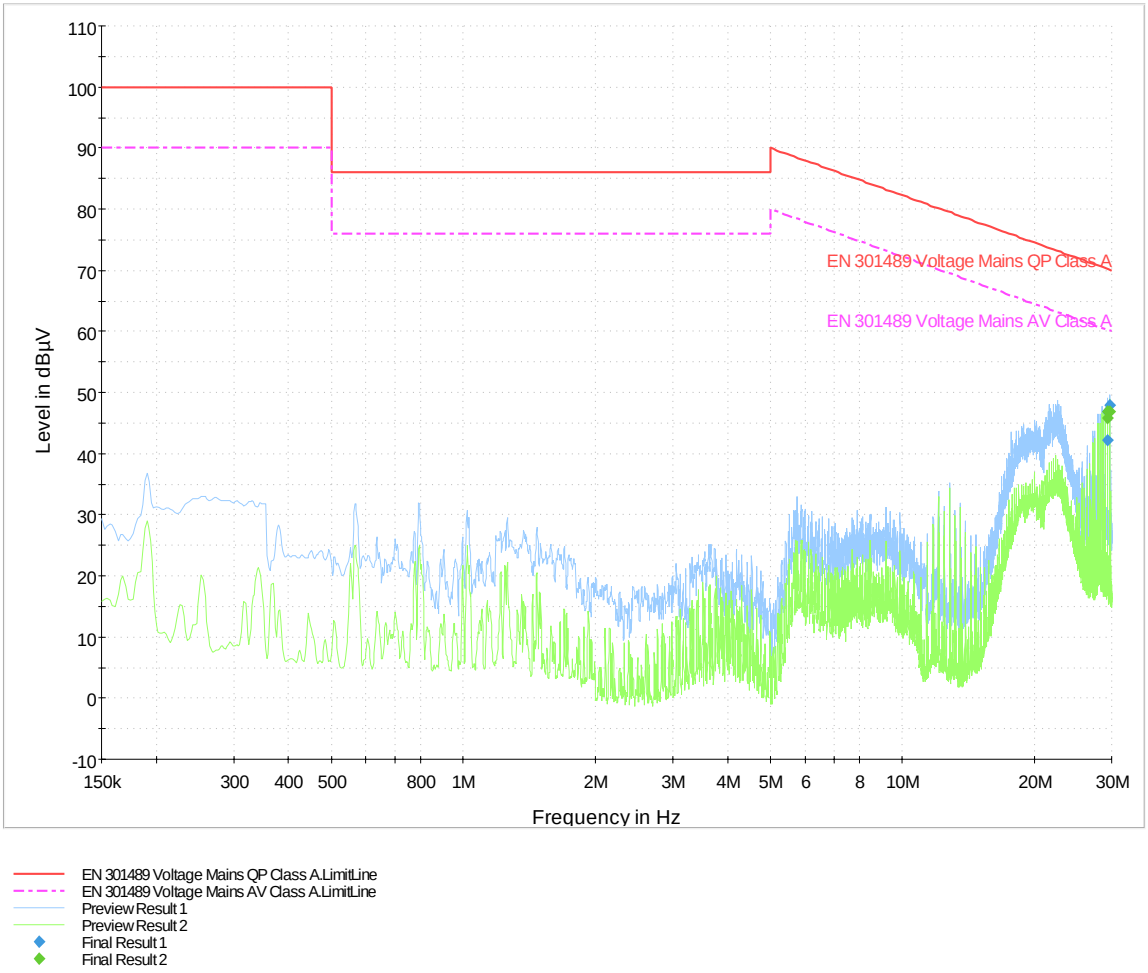

Figure 6-16: Conducted Emission, 0.15 – 30 MHz

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
29.310000	42.2	1000.000	9.000	GND	L1	9.5	28.1	70.3
29.391000	46.9	1000.000	9.000	GND	N	9.5	23.3	70.2
29.679000	47.9	1000.000	9.000	GND	N	9.4	22.2	70.1

Table 6-8: Highest values, QP detection

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
29.312250	**45.9**	**1000.000**	**9.000**	**GND**	**N**	**9.5**	**14.4**	**60.3**
29.391000	**46.9**	**1000.000**	**9.000**	**GND**	**N**	**9.5**	**13.3**	**60.2**
29.679000	**46.9**	**1000.000**	**9.000**	**GND**	**N**	**9.4**	**13.2**	**60.1**

Table 6-9: Highest values, AV detection

According to EN 301489-11, Class A this measurement is **passed.**