

Königswinkel 10
32825 Blomberg
Germany
Phone +49 5235 9500-0
Fax +49 5235 9500-10

TEST REPORT

Test Report Reference: R30763_FCC_Edition 1a

Equipment under Test: 5.8 GHz Video-Transmitter T-5800

Applicant: Electra Enterprises

Manufacturer: VTQ Videotronic GmbH

FCC ID: NIMT5800

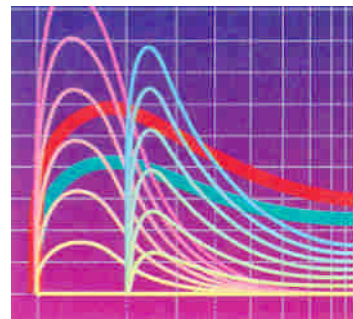
**Test Laboratory
(CAB)**

**accredited by
DATech e.V.**

**in compliance with DIN EN ISO/IEC 17025
under the**

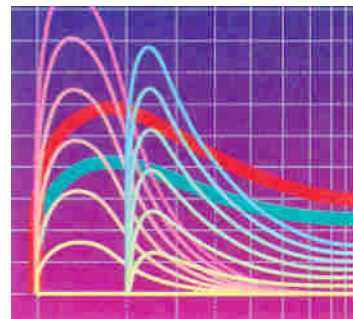
Reg. No. TTI-P-G071/94-11

**and listed by
FCC 31040/SIT1300F2**



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1 IDENTIFICATION

1.1 APPLICANT

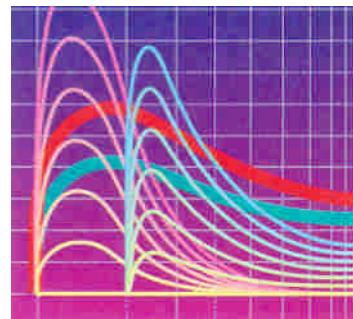
Name:	Electra Enterprises
Address:	390 Edgeley Blvd. Concord, Ontario L4K 3Z6
Country:	Canada
Name for contact purposes:	Mr. Eddy Stevens
Tel:	001-416-512-1919
Fax:	-
e-mail address:	-

1.2 MANUFACTURER

Name:	VTQ Videotronik GmbH
Address:	Grüne Straße 2 06268 Querfurt
Country:	Germany
Name for contact purposes:	Mr. Richter
Tel:	+49 (0) 34771 5189
Fax:	+49 (0) 34771 22044
e-mail address:	h.richter@vtq.de

1.3 DATES



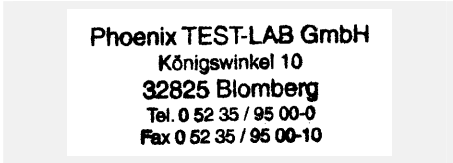
Date of receipt of test sample:	24 September 2003
Start of test:	24 September 2003
Finish of test:	25 September 2003



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1.4 TEST LABORATORY

The tests were carried out at: **PHOENIX TEST-LAB GmbH**
Königswinkel 10
D-32825 Blomberg Phone: **+49 (0) 52 35 / 95 00-0**
Germany Fax: **+49 (0) 52 35 / 95 00-10**

Test engineer:	Raimund Blask		24 March 2004
	name	signature	date
Test report checked:	Bernd Steiner		24 March 2004
	name	signature	date
	 stamp		

1.5 RESERVATION

This test report is only valid in its original form.

Any reproduction of its contents without written permission of the accredited test laboratory PHOENIX TEST-LAB GmbH is prohibited.

The test results herein refer only to the tested sample. PHOENIX TEST-LAB GmbH is not responsible for any generalisations or conclusions drawn from these test results concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page necessarily contains the PHOENIX TEST-LAB Logo and the TEST REPORT REFERENCE.

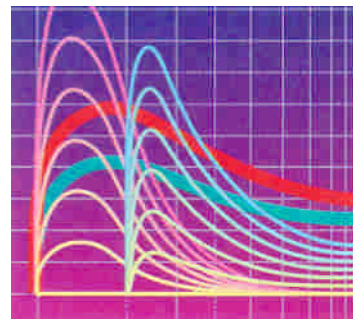
1.6 NORMATIVE REFERENCES

[1] **ANSI C63.4-2001** American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

[2] **FCC 47 CFR Part 15 (December 2003)** Radio Frequency Devices

1.7 TEST RESULTS

The requirements of this test document are fulfilled by the equipment under test. The complete test results are presented in the following.



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2 TECHNICAL DATA OF EQUIPMENT

2.1 DEVICE UNDER TEST

Type of equipment:	5.8 GHz video-transmitter
Type designation:	T-5800
Serial No.:	-
Highest operating frequency:	5860 MHz / Channel 16

* declared by the applicant

The following external I/O cables were used:

Cable	Length	Shielding	Connector
DC-power-supply	1.5 m	no	Not specified
Video-Signal-In	1.5 m	yes	BNC

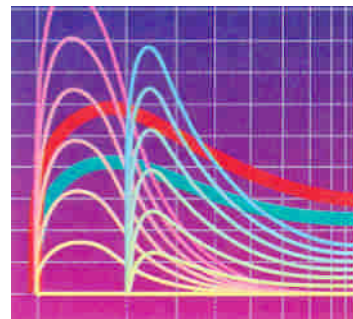
2.2 PERIPHERY DEVICES

The ancillary equipment mentioned below was in use:

The EUT (transmitter) was powered with an external DC-power supply.
 A colour TV pattern generator Type "Philips PM 5418" was used to generate a "normative colour bar" (according to NTSC-standard) to modulate the transmitter.

2.3 MODIFICATIONS

No modifications necessary to fulfil the requirements.

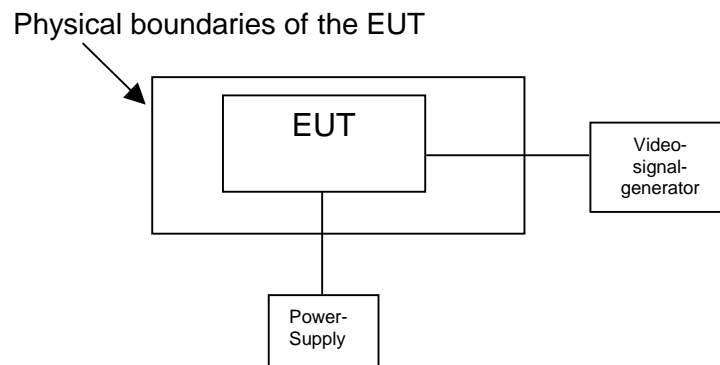


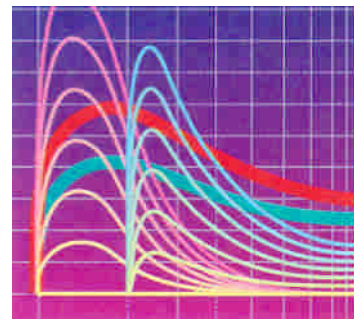
3 OPERATIONAL STATES AND PHYSICAL BOUNDARIES

The transmitter was tested in normal operation mode (modulated with a “colour bar signal”). A colour TV pattern generator Type “Philips PM 5418” was used to generate a “colour bar” (according to CCIR 405, 525 lines NTSC video) to modulate the transmitter. The modulation signal-amplitude to the EUT was 2 V (peak to peak). The transmitter was operating on the following frequencies:

Channel:	Transmit frequency:
1	5740 MHz
9	5804 MHz
16	5860 MHz

The physical boundaries of the Equipment Under Test are shown below.

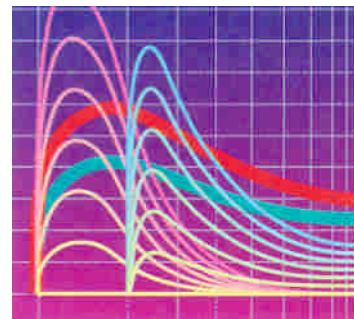




4 LIST OF TEST MODULES

4.1 EMISSION

Radiated emissions FCC 47 CFR Part 15 section 15.209 [2]						
No.	Application	Frequency range	Limits (microvolts/meter)	Reference standard	Remark	Status
1	Intentional radiator	0.490 to 1.705 MHz	24000/f(kHz) at 30 m	ANSI C63.4 (1992);	-	Passed
		1.705 to 30.0 MHz	30 dB μ V/m at 30 m			
		30 to 88 MHz	40.0 dB μ V/m at 3 m			
		88 to 216 MHz	43.5 dB μ V/m at 3 m			
		216 to 960 MHz	46.0 dB μ V/m at 3 m			
		above 960 MHz	54.0 dB μ V/m at 3 m			
		Field strength of harmonics	500 μ V/m at 3 m			Passed
Radiated emissions FCC 47 CFR Part 15 section 15.249 (a)[2]						
No.	Application	Frequency range	Limits (microvolts/meter)	Reference standard	Remark	Status
2	Operation with in the band 5725 MHz to 5875 MHz	5725 to 5875 MHz	50,000	ANSI C63.4 (1992);	-	Passed
Frequency tolerance over temperature and supply voltage FCC 47 CFR Part 15 section 15.249 (b3)[2]						
No.	Application		Limits	Reference standard	Remark	Status
3	Temperature range -20°C to +50°C and supply voltage 85 to 115 % or new battery		\pm 0.001 %	ANSI C63.4 (1992);	-	Passed
Conducted emissions FCC 47 CFR Part 15 section 15.207 [2]						
No.	Application	Frequency range	Limit QP	Limit AV	Remark	Status
4	Intentional radiator	0.15 to 0.5 MHz	66 to 56 dB μ V*	56 to 46 dB μ V*	-	Passed
		0.5 to 5 MHz	56 dB μ V	46 dB μ V		
		5 to 30 MHz	60 dB μ V	50 dB μ V		
* Decreases with the logarithm of the frequency						



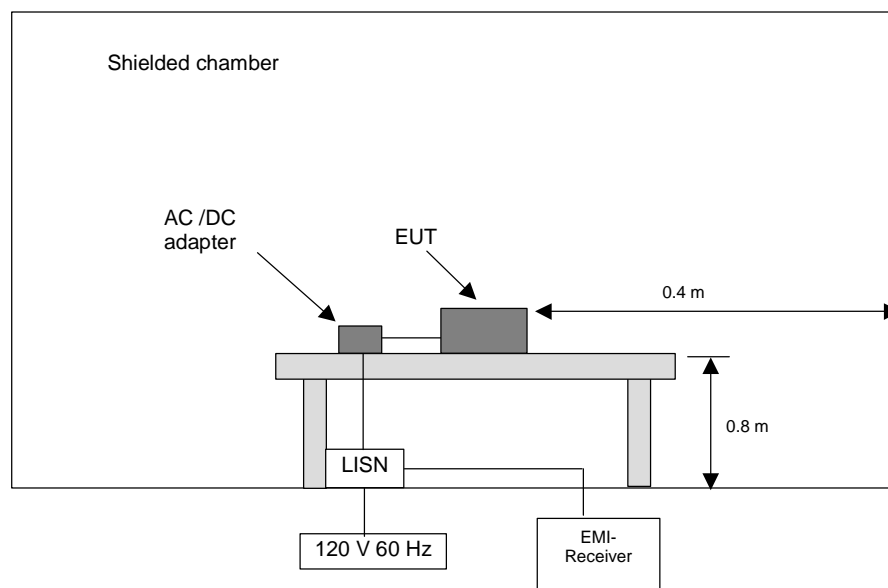
METHOD OF MEASUREMENT

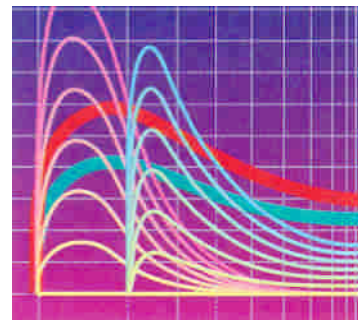
4.2 CONDUCTED EMISSIONS ON AC MAINS (150 kHz to 30 MHz)

This test will be carried out in a shielded chamber. Tabletop devices will set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm above the ground plane. Floor-standing devices will be placed directly on the ground plane. The set up of the Equipment under test will be in accordance to ANSI C63.4-2001 [1].

The frequency range 150 kHz to 30 MHz will be measured with an EMI Receiver set to MAX Hold mode with peak and average detector and a resolution bandwidth of 9 kHz. A scan will be carried out on the phase of the AC mains network. If levels detected 10 dB below the appropriate limit, this emission will be measured with the average and quasi-peak detector on all lines.

Frequency range	Resolution bandwidth
150 kHz to 30 MHz	9 kHz





4.3 RADIATED EMISSIONS 150 kHz to 30 MHz

The radiated emission measurement is divided into two stages.

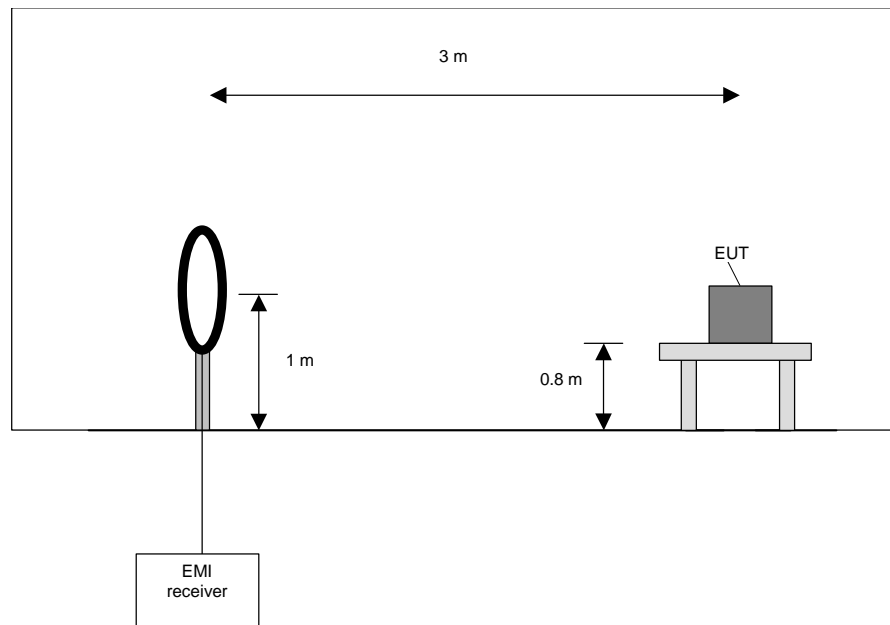
Preliminary measurement:

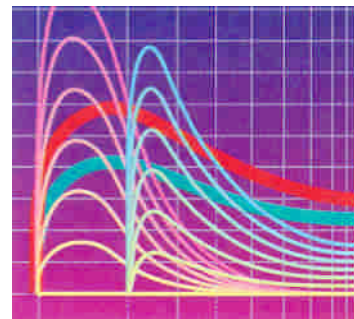
In the first stage a preliminary measurement will be performed in a shielded room with a measuring distance of 3 meters. Tabletop devices will set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices will be placed directly on the turntable/ground plane. The set up of the Equipment under test will be in accordance to ANSI C63.4-2001 [1].

The frequency range 150 kHz to 30 MHz will be monitored with a spectrum analyser while the system and its cables will be manipulated to find out the configuration with the maximum emission levels if applicable. The EMI Receiver will be set to MAX Hold mode. The EUT and the measuring antenna will be rotated around their vertical axis to found the maximum emissions.

The resolution bandwidth of the spectrum analyser will be set to the following values:

Frequency range	Resolution bandwidth
150 kHz to 30 MHz	10 kHz





Preliminary measurement procedure:

Prescans were performed in the frequency range 150 kHz to 30 MHz.

The following procedure will be used:

- 1) Monitor the frequency range at horizontal polarisation and a EUT azimuth of 0 °.
- 2) Manipulate the system cables within the range to produce the maximum level of emission.
- 3) Rotate the EUT by 360 ° to maximize the detected signals.
- 4) Make a hardcopy of the spectrum.
- 5) Measure the frequencies of highest detected emission with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
- 6) Repeat steps 1) to 4) with the other orthogonal axes of the EUT if applicable (handheld equipment).
- 7) Rotate the measuring antenna and repeat steps 1) to 5).

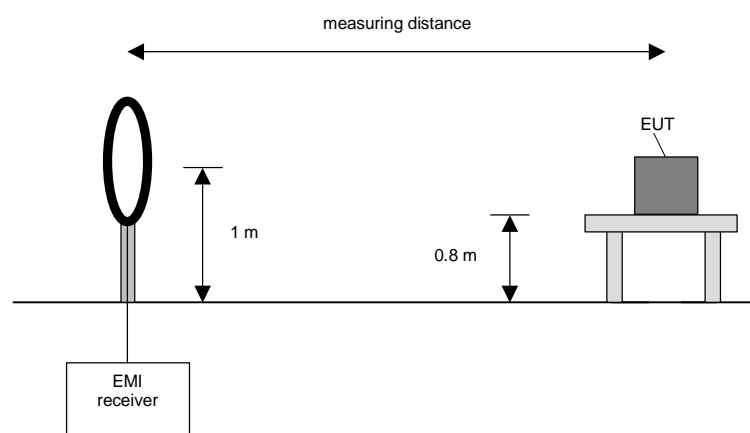
Final measurement:

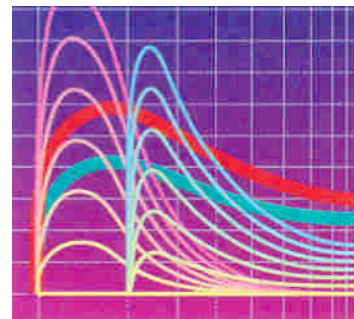
In the second stage a final measurement will be performed on an open area test site with no conducting ground plane in a measuring distances of 3 m, 10 m and 30 m. In the case where larger measuring distances are required the results will be extrapolated based on the values measured on the closer distances according to Section 15.31 (f) (2) [2]. The final measurement will be performed with a EMI Receiver set to Quasi Peak detector according Section 15.209 (d) [2].

On the during the preliminary measurement detected frequencies the final measurement will be performed while rotating the EUT and the measuring antenna in the range of 0 ° to 360 ° around their vertical axis until the maximum value is found.

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
150 kHz to 30 MHz	9 kHz





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Final measurement procedure:

The following procedure will be used:

- 1) Monitor the frequency range with the measuring antenna at vertical orientation parallel to the EUT at an azimuth of 0 °.
- 2) Rotate the EUT by 360 ° to maximize the detected signals and note the azimuth and orientation.
- 3) Rotate the measuring antenna to find the maximum and note the value.
- 4) Rotate the measuring antenna and repeat steps 1) to 3) until the maximum value is found.
- 5) Repeat steps 1) to 4) with the other orthogonal axes of the EUT if applicable (handheld equipment).

4.4 RADIATED EMISSIONS 30 MHz TO 40 GHz

The radiated emission measurement is divided into two stages.

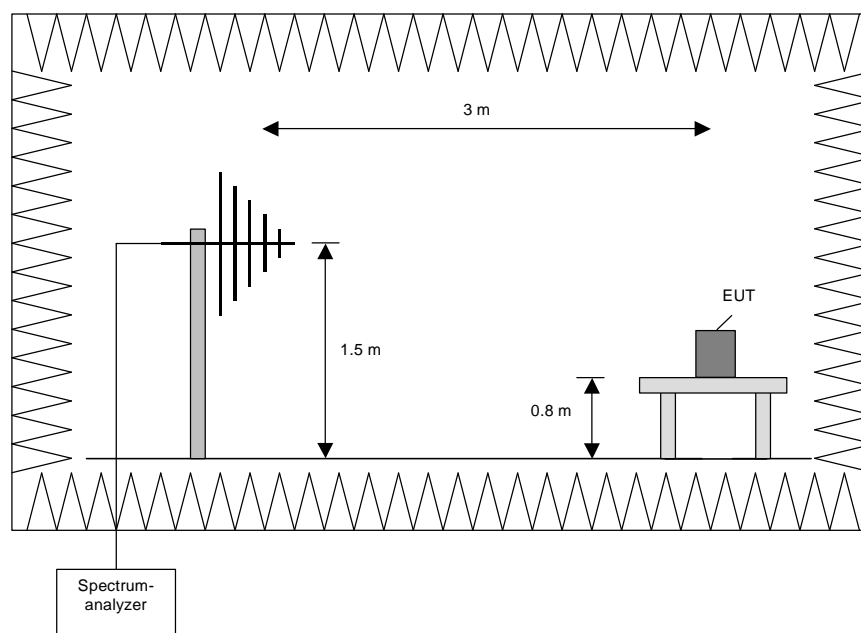
Preliminary measurement:

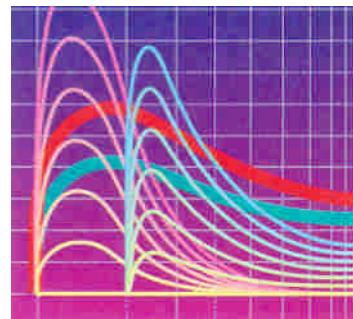
In the first stage a preliminary measurement will be performed in a fully anechoic chamber with a measuring distance of 3 meter. Tabletop devices will set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices will be placed directly on the turntable/ground plane. The set up of the Equipment under test will be in accordance to ANSI C63.4-2001 [1].

The frequency range 30 MHz to 40 GHz will be measured with an EMI Receiver set to MAX Hold mode. The measurement will be performed in horizontal and vertical polarisation of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 ° to 360 °.

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
30 MHz to 1 GHz	100 kHz
1 GHz to 40 GHz	1 MHz





Procedure preliminary measurement:

Prescans were performed in the frequency range 30 MHz to 230 MHz and 230 MHz to 1 GHz. The following procedure will be used:

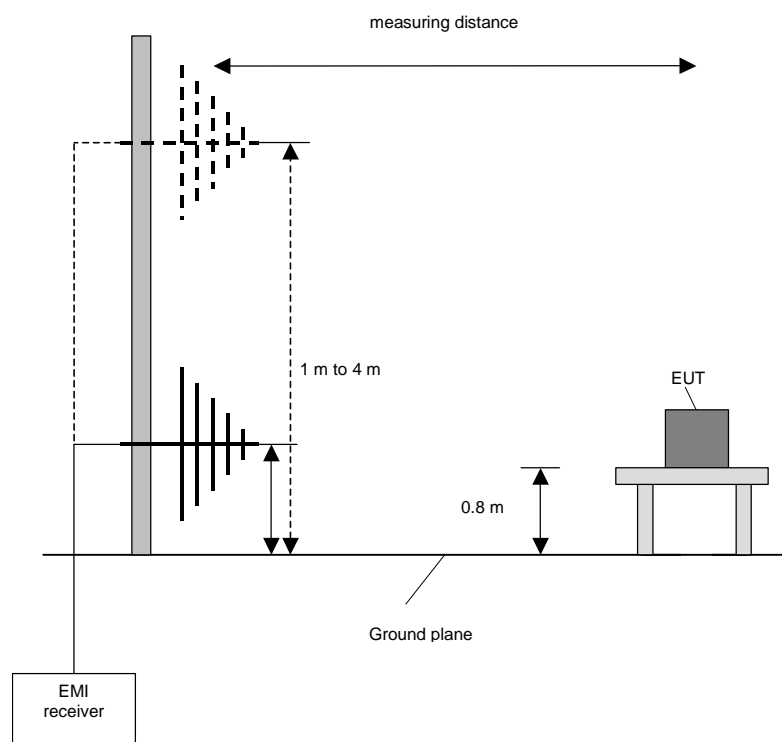
1. Monitor the frequency range at horizontal polarisation and a EUT azimuth of 0 °
2. Manipulate the system cables within the range to produce the maximum level of emission
3. Rotate the EUT by 360 ° to maximize the detected signals.
4. Make a hardcopy of the spectrum
5. Measure the frequency of 3 highest detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
6. Repeat steps 1) to 4) with the other orthogonal axes of the EUT if handheld equipment
7. Repeat steps 1) to 5) with the vertical polarisation of the measuring antenna.

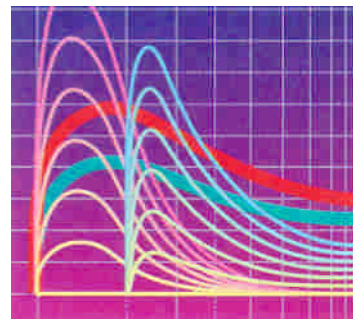
Final Measurement:

In the second stage a final measurement on an open area test site will be performed on selected frequencies found in the preliminary measurement. During this test the EUT will be rotated in the range of 0 ° to 360 °, the measuring antenna will be set to horizontal and vertical polarisation and raised and lowered in the range from 1 m to 4 m to find the maximum level of emissions.

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
30 MHz to 1 GHz	120 kHz





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Procedure final measurement:

The following procedure will be used:

- 1) Measure on the selected frequencies at an antenna height of 1 m and a EUT azimuth of 23 °
- 2) Move the antenna from 1 m to 4 m and note the maximum value at each frequency.
- 3) Rotate the EUT by 45 ° and repeat 2) until an azimuth of 337 ° is reached.
- 4) Repeat 1) to 3) for the other orthogonal antenna polarization.
- 5) Move the antenna and the turntable to the position where the maximum value is detected.
- 6) Measure while moving the antenna slowly +/- 1 m
- 7) Set the antenna to the position where the maximum value is found
- 8) Measure while moving the turntable +/- 45 °
- 9) Set the turntable to the azimuth where the maximum value is found
- 10) Measure with Final detector (QP or AV) and note the value
- 11) Repeat 5) to 10) for each frequency
- 12) Repeat 1) to 11) for each orthogonal axes of the EUT if handheld equipment

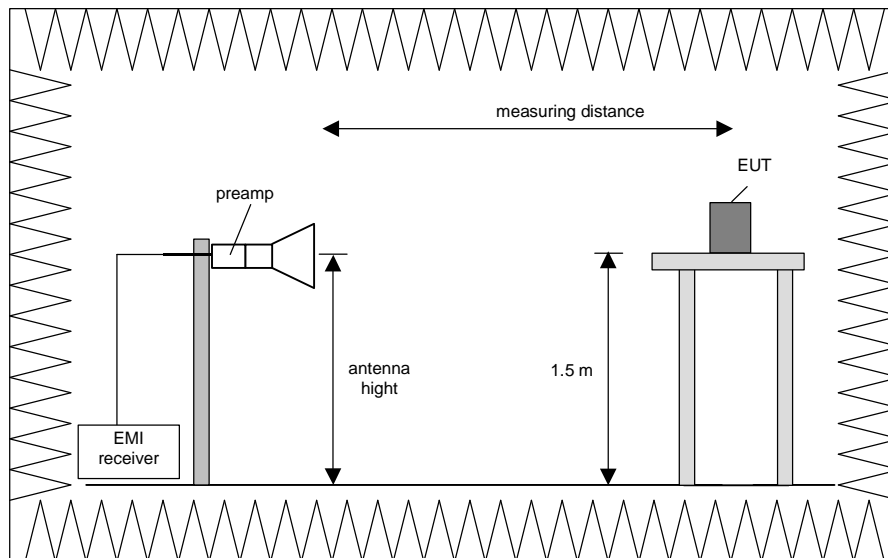
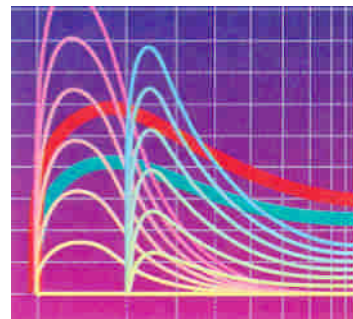
Final measurement (1 GHz to 40 GHz)

This measurement was done in a fully anechoic chamber with a measuring distance of 3 meter. The EUT was set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm.

The frequency range was divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver was set to MAX Hold mode and a resolution bandwidth of 1 MHz. The measurement was performed in horizontal and vertical polarisation of the measuring antenna. The frequencies of maximum emission were determined by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display.

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
1 GHz to 4 GHz	1 MHz
4 GHz to 12 GHz	1 MHz
12 GHz to 18 GHz	1 MHz
18 GHz to 25 GHz	1 MHz

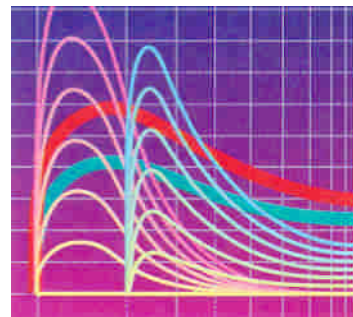


Procedure of measurement:

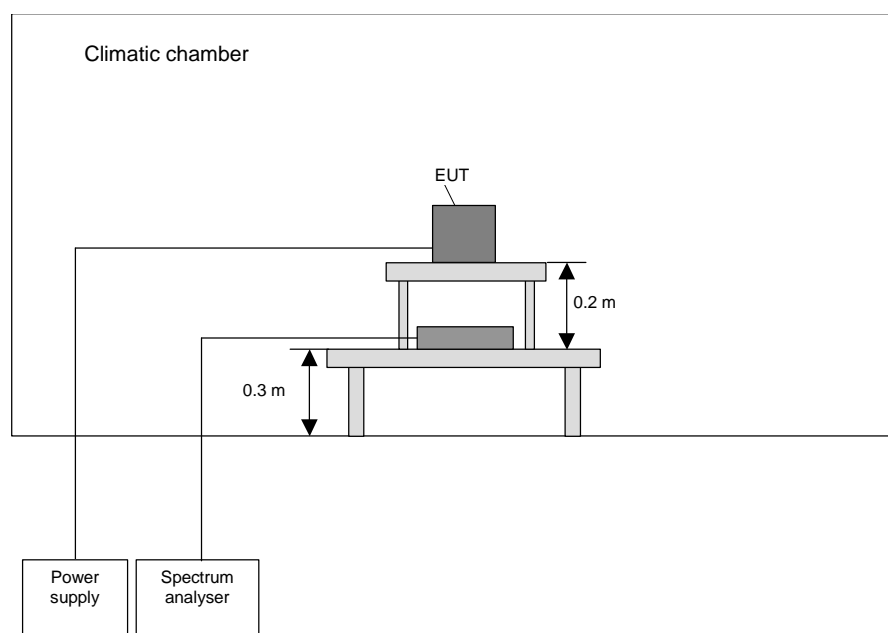
The measurements were performed in the frequency range 1 GHz to 4 GHz, 4 GHz to 12 GHz, 12 GHz to 18 GHz and 18 GHz to 40 GHz.

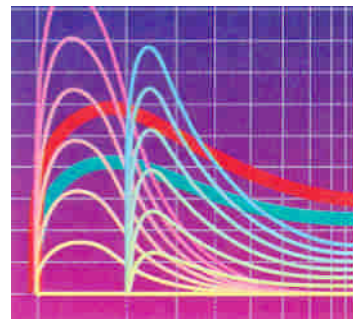
The following procedure will be used:

- 1) Monitor the frequency range at horizontal polarisation and a EUT azimuth of 0 °.
- 2) Rotate the EUT by 360 ° to maximize the detected signals.
- 3) Change the antenna polarisation.
- 4) Rotate the EUT by 360 ° to maximize the detected signals.
- 5) Make a hardcopy of the spectrum.
- 6) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
- 7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarisation and azimuth and the peak and average detector, which causes the maximum emission.
- 8) Repeat steps 1) to 7) with the other orthogonal axes of the EUT if handheld equipment.
- 9) Repeat steps 1) to 8) for the next antenna spot if the EUT is larger than the antenna beamwidth.



4.5 FREQUENCY STABILITY WITH RESPECT TO AMBIENT TEMPERATURE AND SUPPLY VOLTAGE

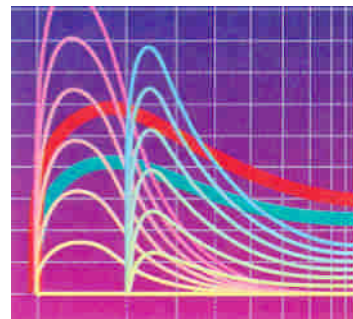




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The following procedure will be used:

- 1) Place the EUT in the climatic chamber
- 2) Switch on the EUT and check the correct function and the settings of the spectrum analyser
- 3) Switch off the EUT and tune the climatic chamber to a temperature of 20 °C. Wait until the thermal balance is obtained
- 4) Switch the EUT on and record the frequency at start-up and 2, 5 and 10 minutes after powering on.
- 5) Repeat 4) with 85 % and 115 % of the nominal supply voltage (AC only)
- 6) Switch off the EUT and tune the climatic chamber to a temperature of 50 °C. Wait until the thermal balance is obtained
- 7) Switch the EUT on and record the frequencies at start-up and 2, 5 and 10 minutes after powering on.
- 8) Repeat 7) with 85 % and 115 % of the nominal supply voltage (AC only)
- 9) Switch off the EUT and tune the climatic chamber to a temperature of -20 °C. Wait until the thermal balance is obtained
- 10) Switch the EUT on and record the frequencies at start-up and 2, 5 and 10 minutes after powering on.
- 11) Repeat 10) with 85 % and 115 % of the nominal supply voltage (AC only).



5 TEST RESULTS EMISSION TEST

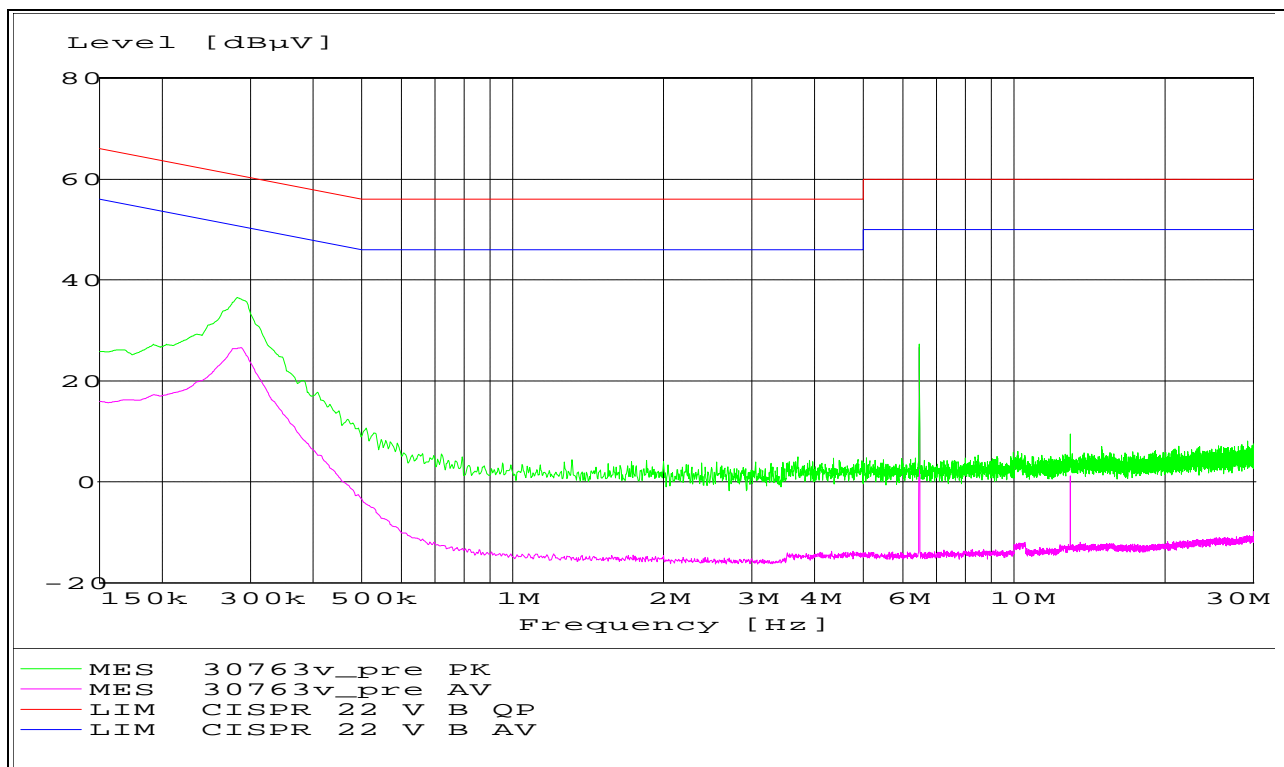
5.1 CONDUCTED EMISSION TEST (150 kHz TO 30 MHz)

Ambient temperature	20 °C	Relative humidity	50 %
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Position of EUT: The EUT was set-up on a wooden table of a height of 0.8 m.

Cable guide: The cables of the EUT were fixed on the wooden table. For further information of the cable guide refer to the pictures in annex of this test report.

Test record: The test was carried out in normal operation-mode.
All results are shown in the following.

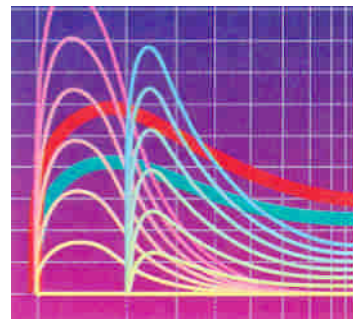


Data record name: 30763v

of 4 March 2004

TEST EQUIPMENT USED THE TEST:

1, 2, 3, 5, 6



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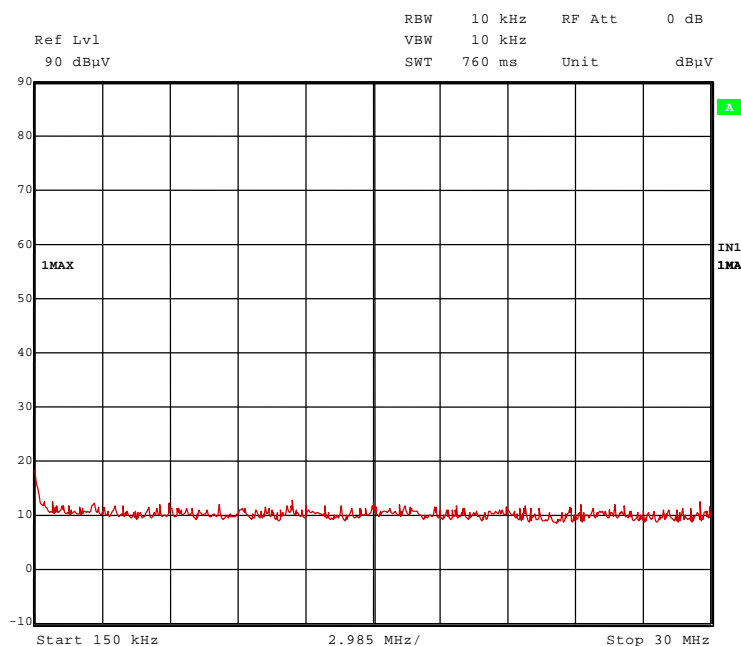
5.2 PRELIMINARY RADIATED EMISSION TEST (9 kHz TO 30 MHz)

Ambient temperature	20 °C	Relative humidity	45 %
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Position of EUT: The EUT was set-up on a wooden table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

Cable guide: The cable of the EUT was fixed on the wooden table. For further information of the cable guide refer to the pictures in annex A of this test report.

Test record: The test was carried out in normal operation mode of the EUT (transmit mode). All results are shown in the following.

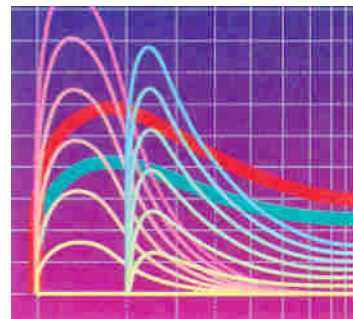


30763mag.wmf: 150 kHz to 30 MHz, transmit mode

No significant frequencies were found during the preliminary radiated emission test:
No frequencies were found inside the restricted bands.

TEST EQUIPMENT USED THE TEST:

29, 31 - 33, 41, 42



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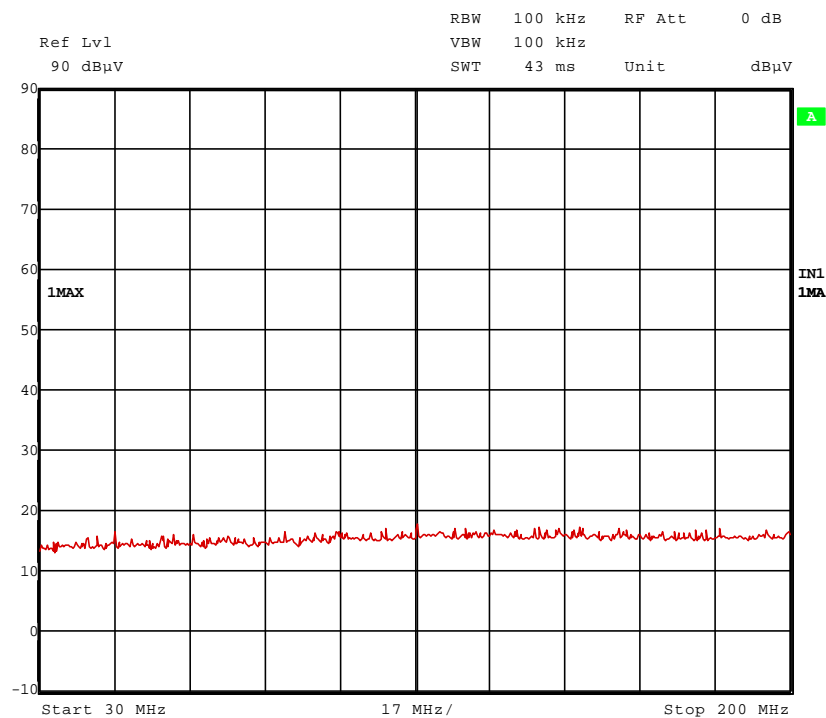
5.3 PRELIMINARY RADIATED EMISSION TEST (30 MHz to 1 GHz)

Ambient temperature	20 °C	Relative humidity	60 %
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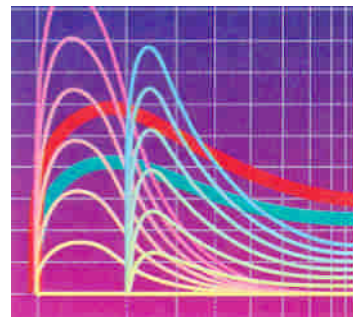
Position of EUT: The EUT was set-up on a wooden table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

Cable guide: The cable of the EUT was fixed on the wooden table. For further information of the cable guide refer to the pictures in annex A of this test report.

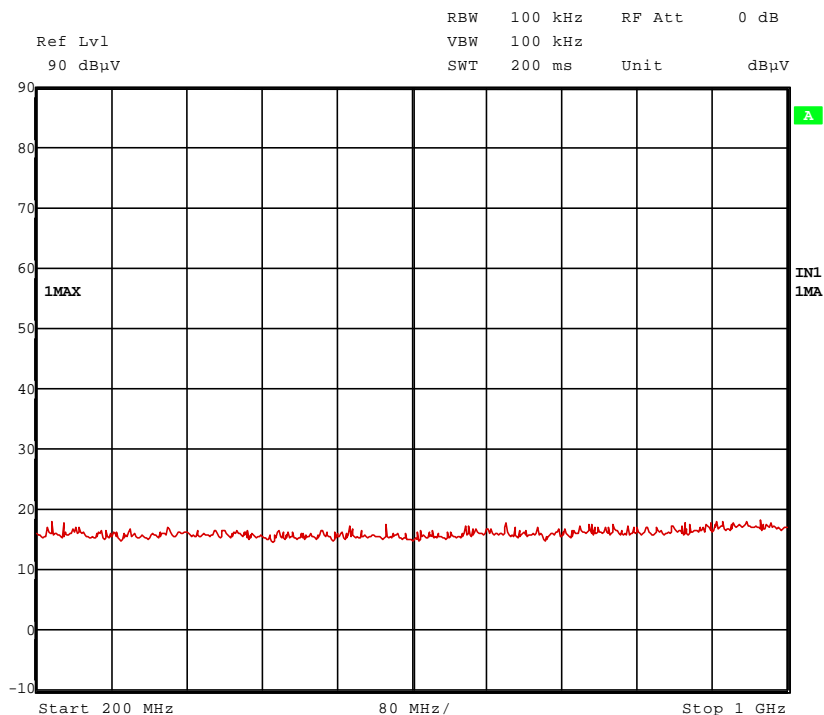
Test record: The test was carried out in normal operation mode of the EUT (transmit mode). All results are shown in the following.



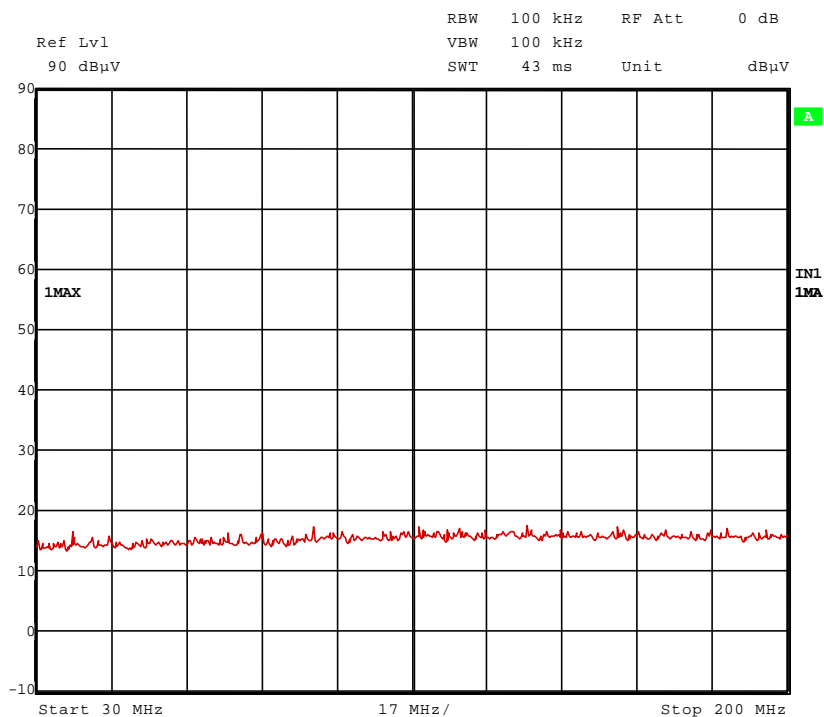
30763FCC_1_2.wmf: 30 MHz to 200 MHz, Transmit channel 1



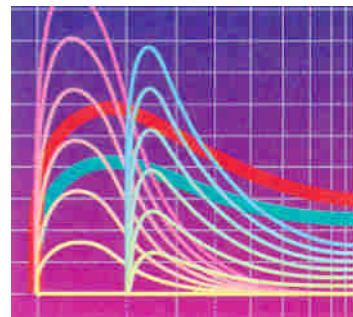
TEST REPORT REFERENCE: R30763_FCC_Edition 1a



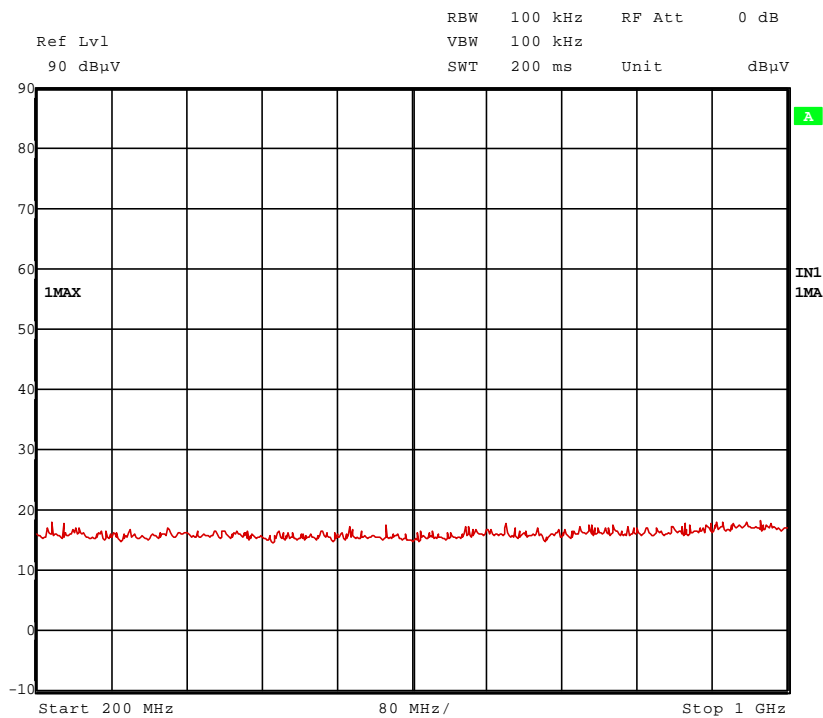
30763FCC_1_3.wmf: 200 MHz to 1000 MHz, Transmit channel 1



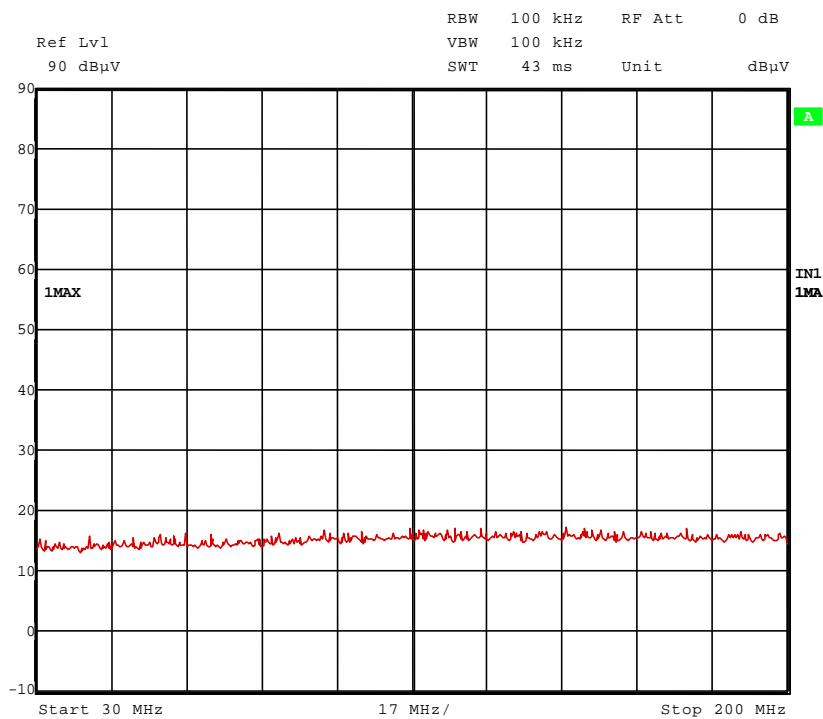
30763FCC_9_2.wmf: 30 MHz to 200 MHz, Transmit channel 9



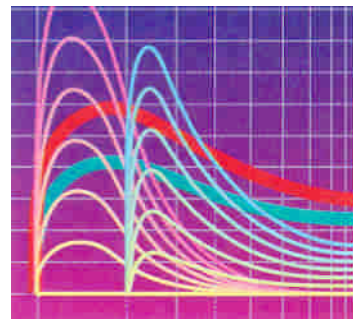
TEST REPORT REFERENCE: R30763_FCC_Edition 1a



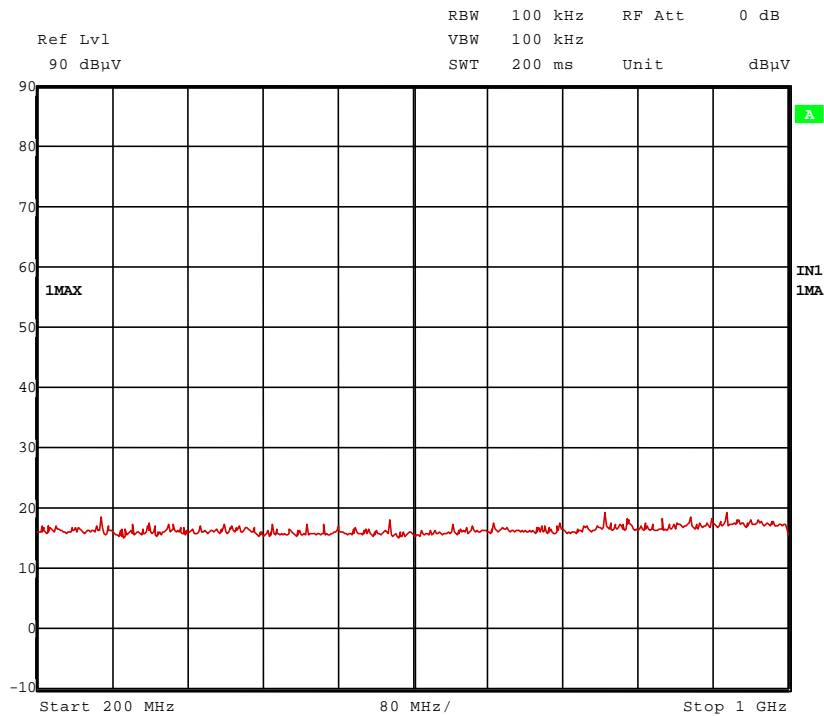
30763FCC_9_3.wmf: 200 MHz to 1000 MHz, Transmit channel 9



30763FCC_16_2.wmf: 30 MHz to 200 MHz, Transmit channel 16



TEST REPORT REFERENCE: R30763_FCC_Edition 1a

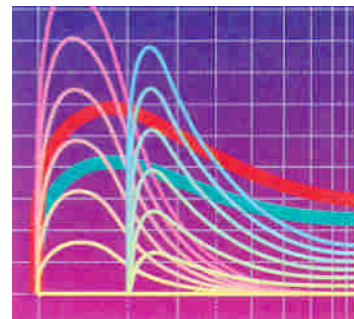


30763FCC_9_3.wmf: 200 MHz to 1000 MHz, Transmit channel 16

No significant frequencies were found during the preliminary radiated emission test:
No frequencies were found inside the restricted bands.

TEST EQUIPMENT USED THE TEST:

29, 31 - 33, 41, 42



TEST REPORT REFERENCE: R30763_FCC_Edition 1a

5.4 PRELIMINARY RADIATED EMISSION TEST (1 GHz to 40 GHz)

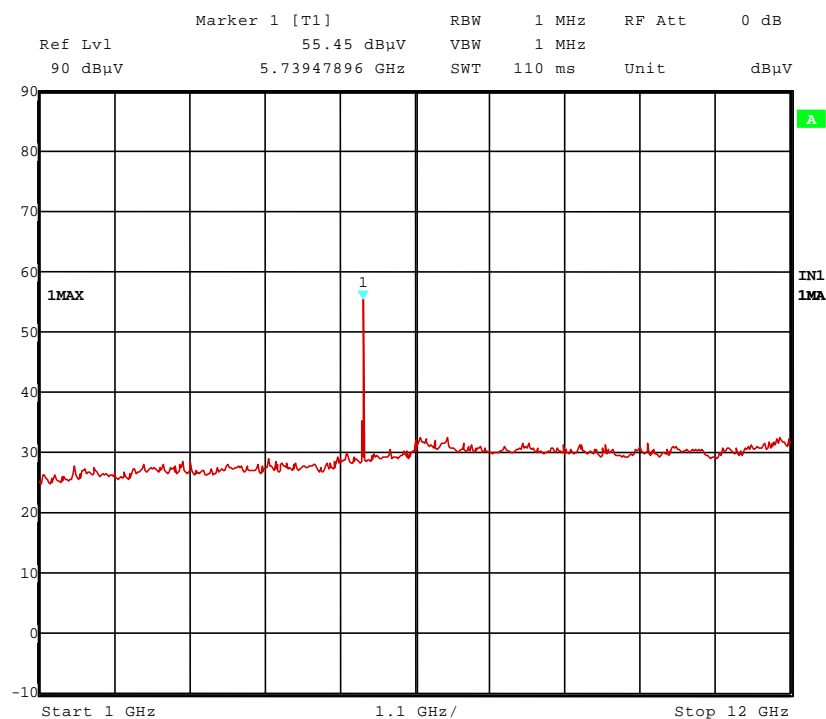
Ambient temperature	20 °C	Relative humidity	50 %
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Position of EUT: The EUT was set-up on a wooden table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

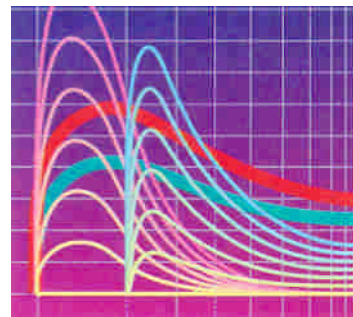
Cable guide: The cable of the EUT was fixed on the wooden table. For further information of the cable guide refer to the pictures in annex A of this test report.

Test record: The test was carried out in normal operation mode of the EUT (transmit mode). All results are shown in the following.

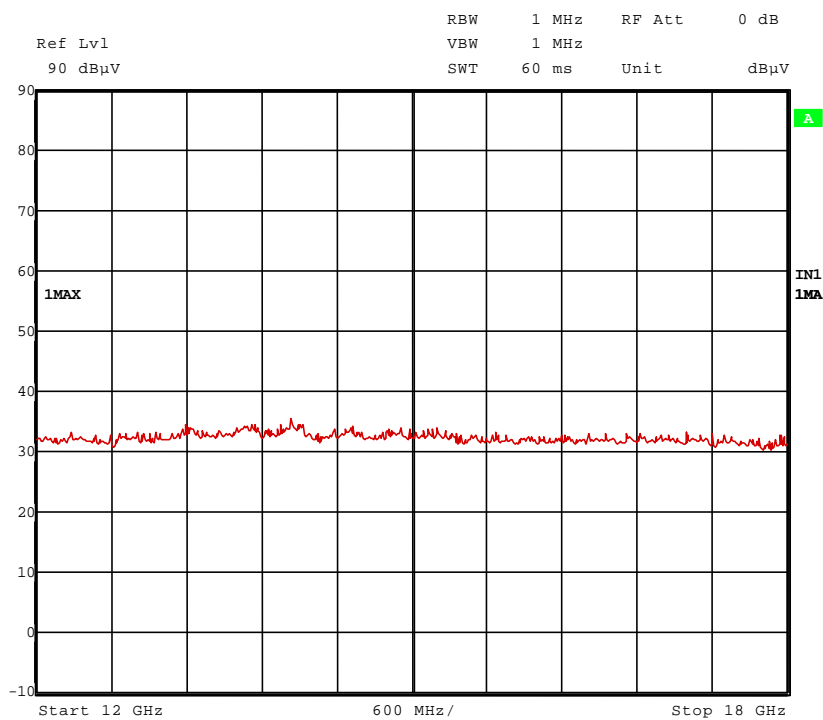
Transmit: Channel 1:



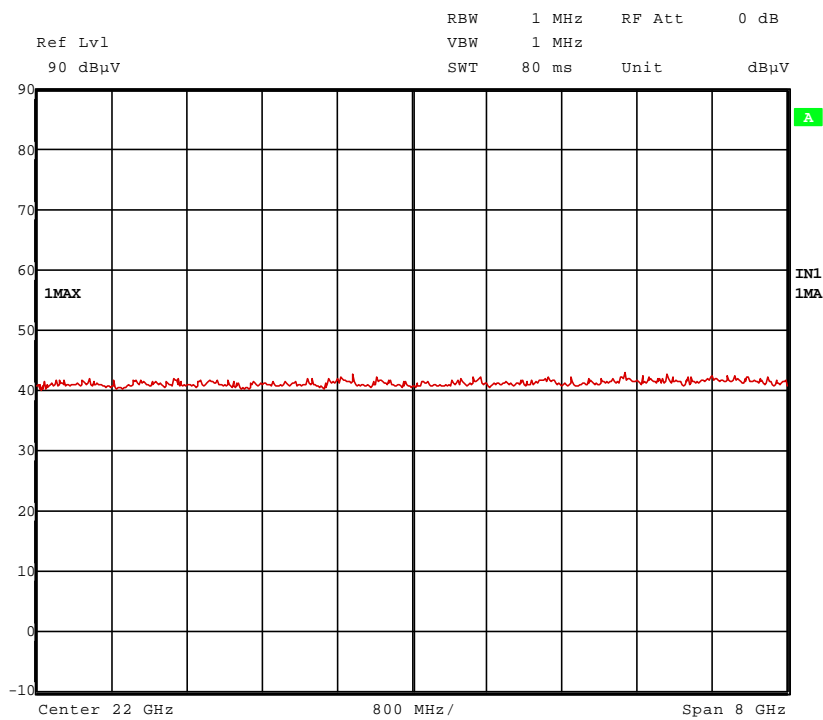
30763FCC_1_4.wmf: 1 GHz to 12 GHz, Transmit channel 1



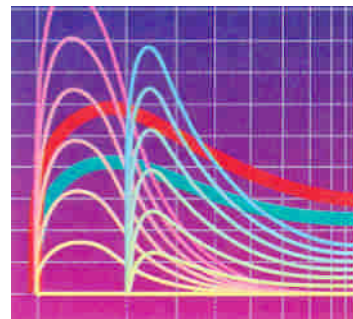
TEST REPORT REFERENCE: R30763_FCC_Edition 1a



30763FCC_1_5.wmf: 12 GHz to 18 GHz, Transmit channel 1

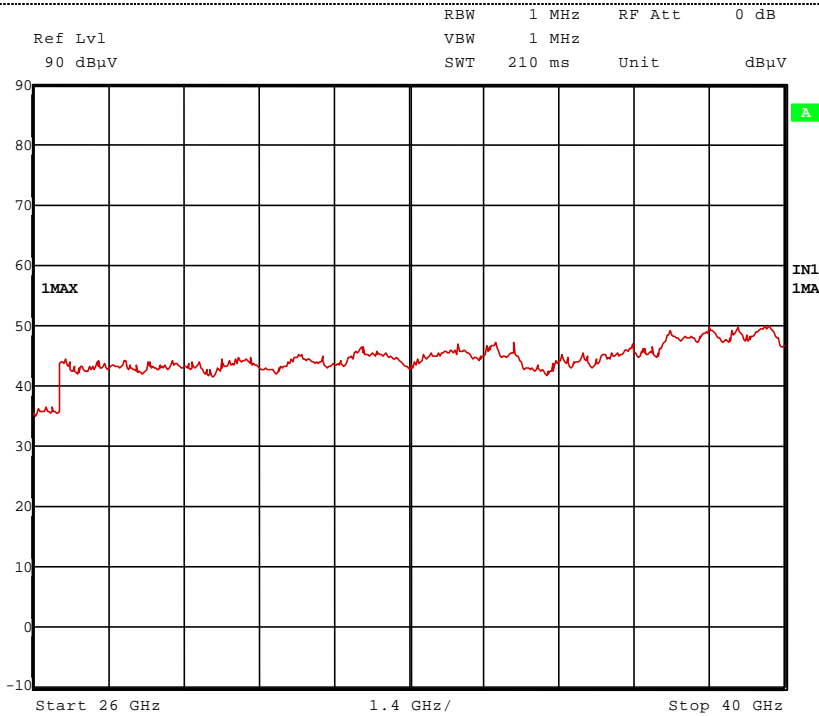


30763FCC_1_6.wmf: 18 GHz to 26 GHz, Transmit channel 1



**PHOENIX
TEST-LAB**

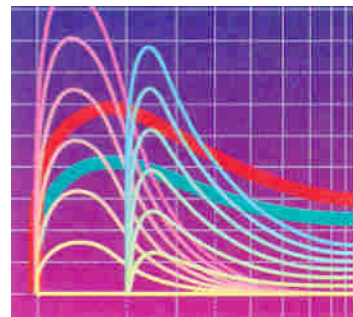
TEST REPORT REFERENCE: R30763_FCC_Edition 1a



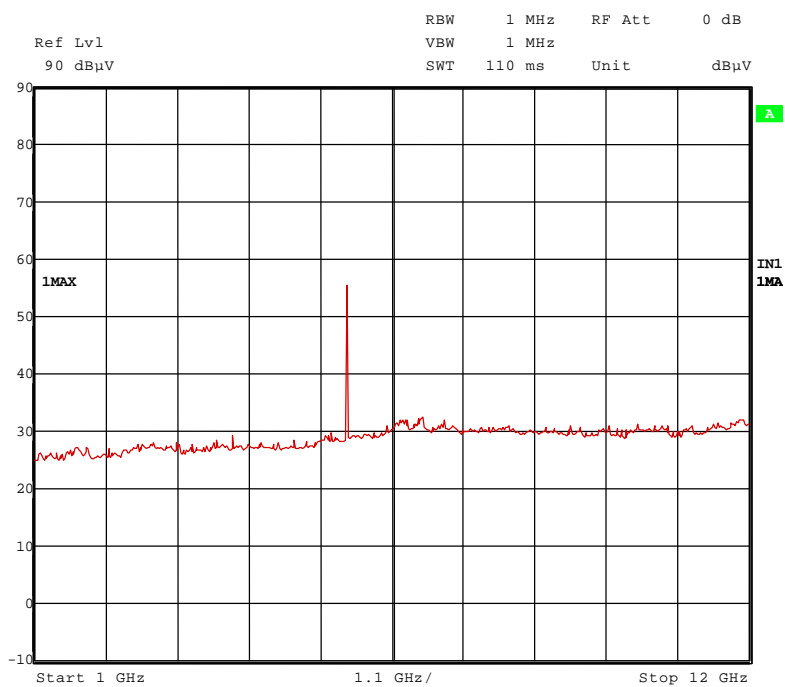
30763FCC_1_7.wmf: 26 GHz to 40 GHz, Transmit channel 1

Measurement results:

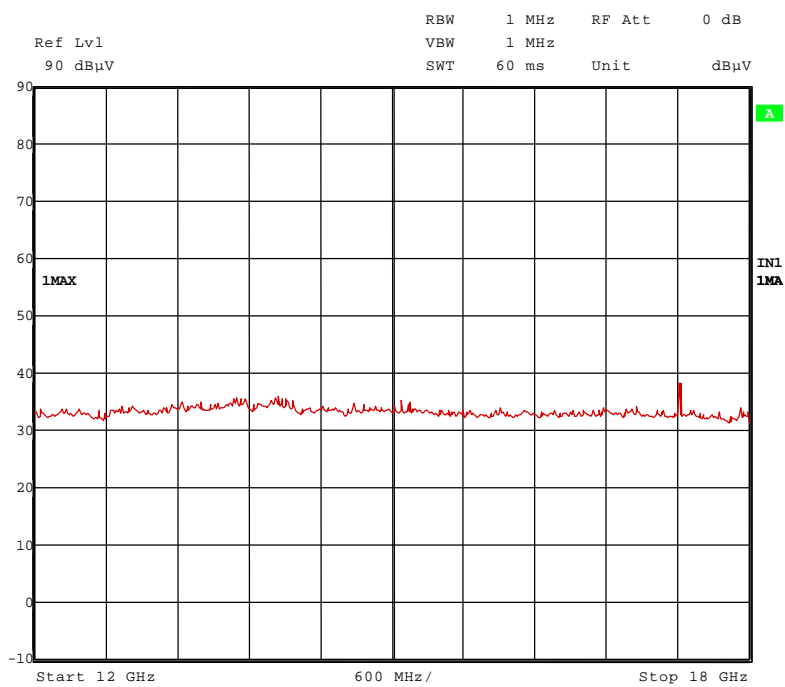
Frequency: MHz	Spectrum analyser level: dBµV	Antenna factor: dB/m	Cable loss: dB	Preamp. gain: dB	Measured field strength dBµV/m	Limit: dBµV/m	Margin: dB	Result:
5740	55.5	34.9	2.9	-	93.3	94.0	-0.7	Passed
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> All harmonics at least 10 dB below 54 dBµV/m (500 µV/m). No other spurious frequencies found. </div>								



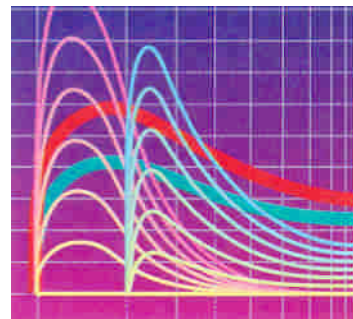
Transmit Channel 9:



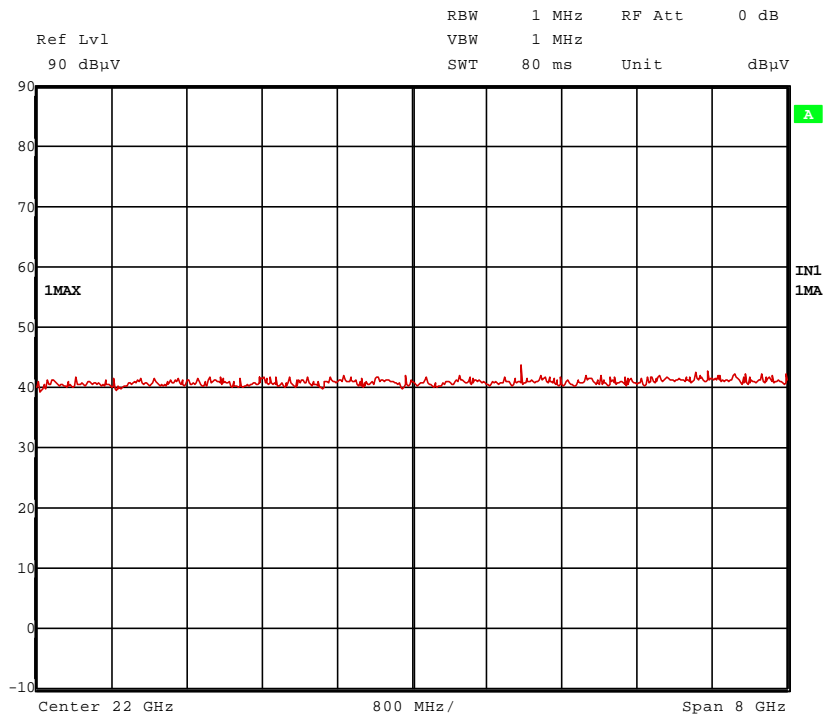
30763FCC_9_4.wmf: 1 GHz to 12 GHz, Transmit channel 9



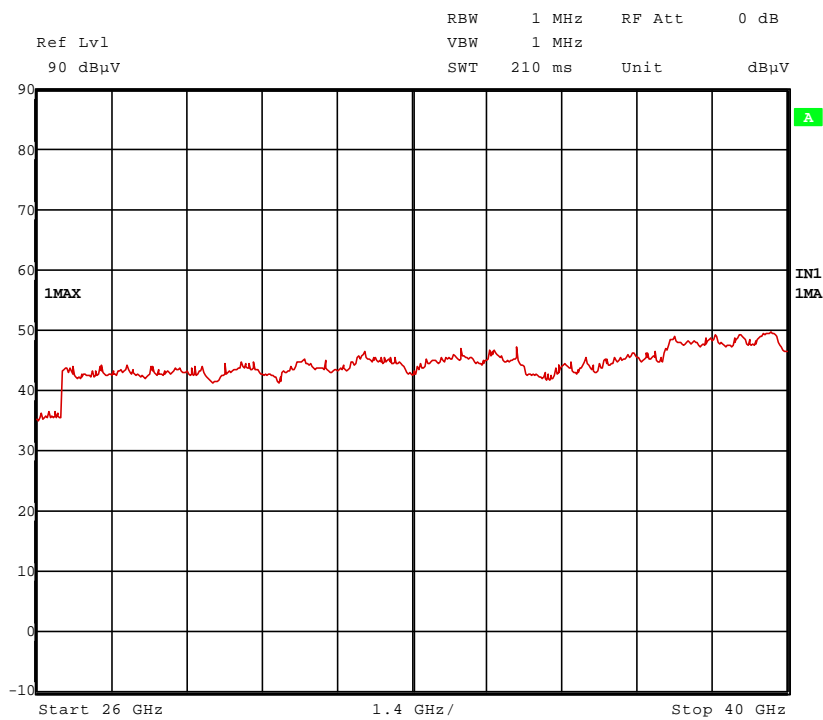
30763FCC_9_5.wmf: 12 GHz to 18 GHz, Transmit channel 9



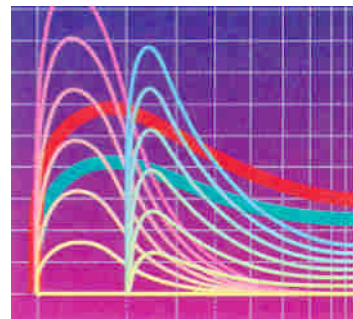
TEST REPORT REFERENCE: R30763_FCC_Edition 1a



30763FCC_9_6.wmf: 18 GHz to 26 GHz, Transmit channel 9



30763FCC_9_7.wmf: 26 GHz to 40 GHz, Transmit channel 9

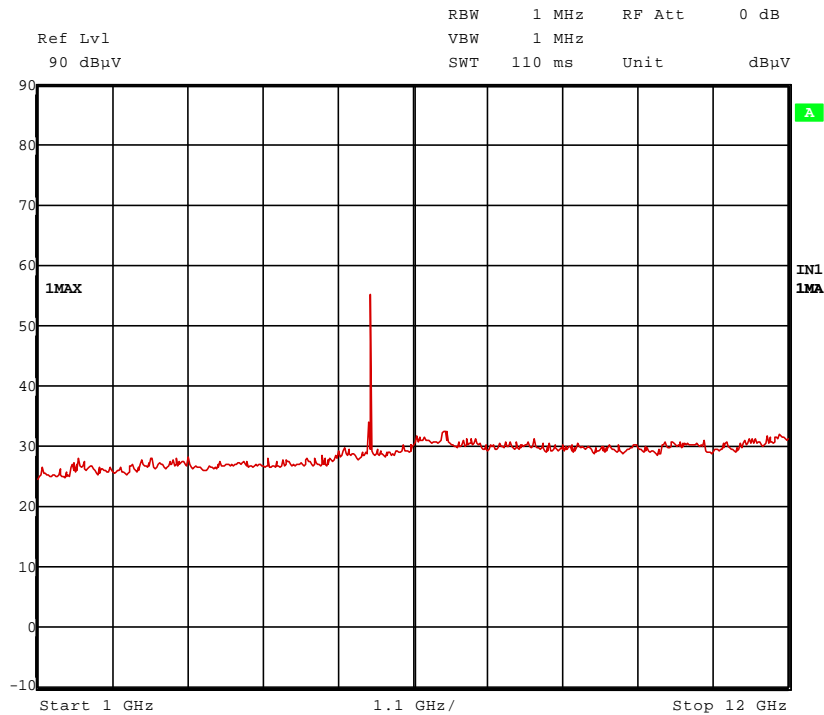


TEST REPORT REFERENCE: R30763_FCC_Edition 1a

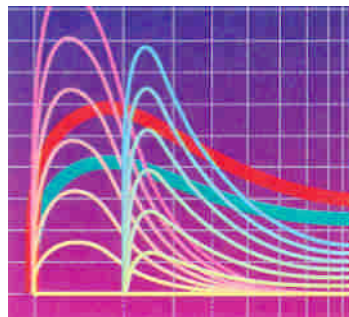
Measurement results:

Frequency: MHz	Spectrum analyser level: dB μ V	Antenna factor: dB/m	Cable loss: dB	Preamp. gain: dB	Measured field strength dB μ V/m	Limit: dB μ V/m	Margin: dB	Result:
5804	56.0	34.9	2.9	-	93.8	94.0	-0.2	Passed
17412	38.0	35.1	1.9	27.5	47.5	54.0	-6.5	Passed
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> All harmonics at least 10 dB below 54 dBμV/m (500 μV/m). No other spurious frequencies found. </div>								

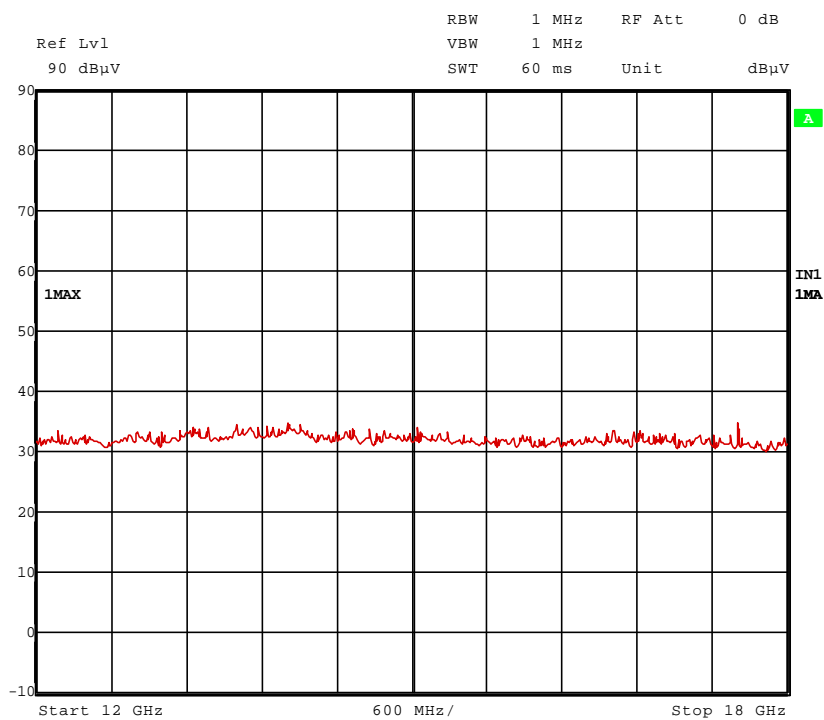
Channel16:



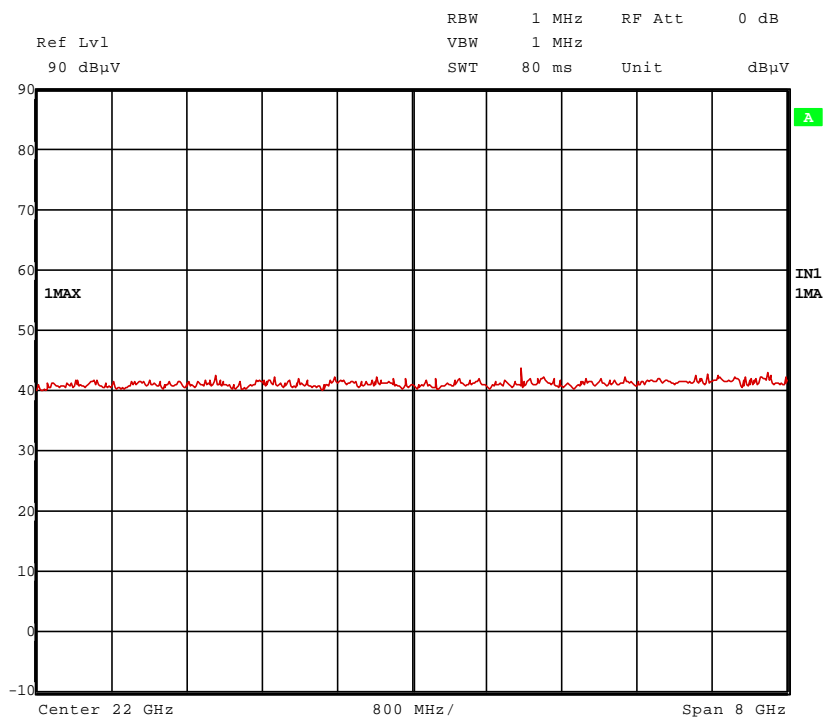
30763FCC_16_4.wmf: 1 GHz to 12 GHz, Transmit channel 16



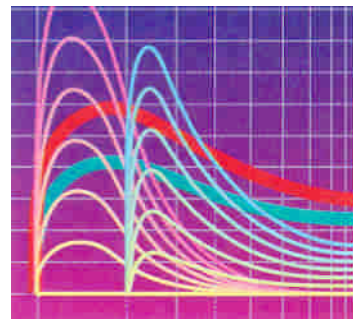
TEST REPORT REFERENCE: R30763_FCC_Edition 1a



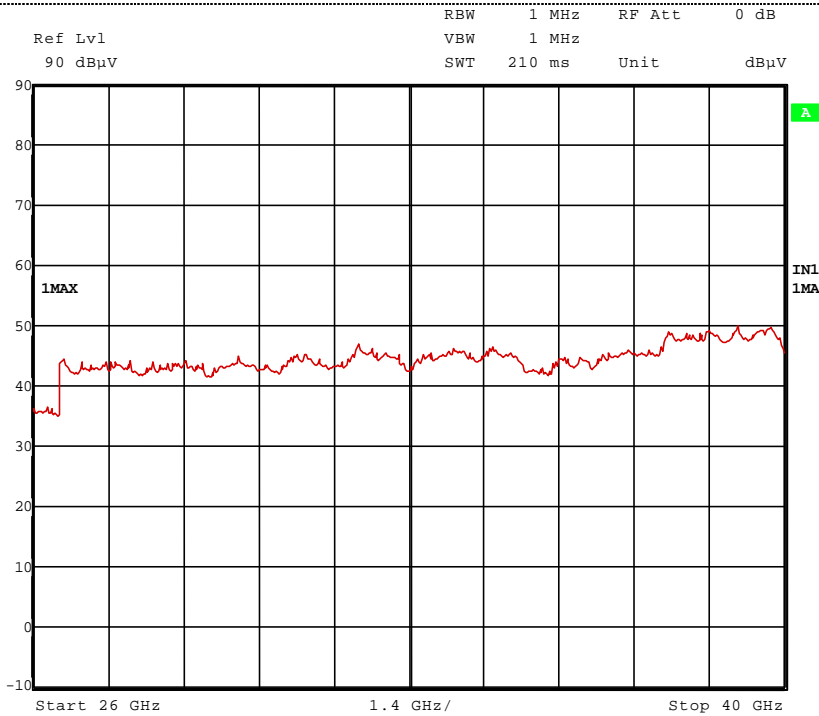
30763FCC_16_5.wmf: 12 GHz to 18 GHz, Transmit channel 16



30763FCC_16_6.wmf: 18 GHz to 26 GHz, Transmit channel 16



TEST REPORT REFERENCE: R30763_FCC_Edition 1a



30763FCC_16_7.wmf: 26 GHz to 40 GHz, Transmit channel 16

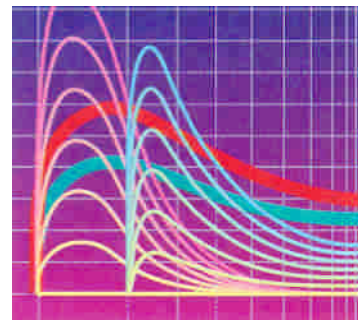
Measurement results:

Frequency:	Spectrum analyser level:	Antenna factor:	Cable loss:	Preamp. gain:	Measured field strength	Limit:	Margin:	Result:
MHz	DB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
5860	55.0	34.9	2.9	-	92.8	94.0	-1.2	Passed
All harmonics at least 10 dB below 54 dB μ V/m (500 μ V/m). No other spurious frequencies found.								

Test: Passed

TEST EQUIPMENT USED FOR THE TEST:

14 – 20, 42 – 44, 47



TEST REPORT REFERENCE: R30763_FCC_Edition 1a

5.5 FREQUENCY STABILITY WITH RESPECT TO AMBIENT TEMPERATURE AND SUPPLY VOLTAGE

Ambient temperature	20 °C	Relative humidity	55 %
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Transmit unmodulated, channel 9: Nominal frequency 5804 MHz
Supply voltage: 5.5 V DC

Temperature:	Minutes after switch on	Frequency:	Allowed tolerance:	Measured tolerance:	Result:
20 ° C	10	5804.427 MHz	-	-	Reference
50 ° C	0	5804.430 MHz	± 0.5804 MHz	+0.003 MHz	Passed
	2	5804.431 MHz	± 0.5804 MHz	+0.004 MHz	Passed
	5	5804.430 MHz	± 0.5804 MHz	+0.003 MHz	Passed
	10	5804.430 MHz	± 0.5804 MHz	+0.003 MHz	Passed
- 30 ° C	0	5804.436 MHz	± 0.5804 MHz	+0.009 MHz	Passed
	2	5804.435 MHz	± 0.5804 MHz	+0.008 MHz	Passed
	5	5804.433 MHz	± 0.5804 MHz	+0.006 MHz	Passed
	10	5804.432 MHz	± 0.5804 MHz	+0.005 MHz	Passed

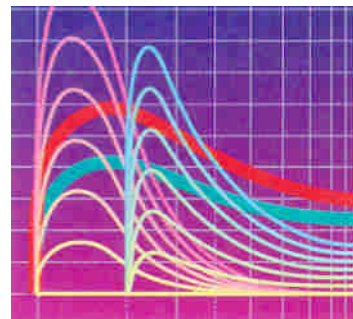
Supply voltage: 7.5 V DC

Temperature:	Minutes after switch on	Frequency:	Allowed tolerance:	Measured tolerance:	Result:
20 ° C	10	5804.427 MHz	-	-	Reference
50 ° C	0	5804.430 MHz	± 0.5804 MHz	+0.003 MHz	Passed
	2	5804.431 MHz	± 0.5804 MHz	+0.004 MHz	Passed
	5	5804.430 MHz	± 0.5804 MHz	+0.003 MHz	Passed
	10	5804.430 MHz	± 0.5804 MHz	+0.003 MHz	Passed
- 30 ° C	0	5804.436 MHz	± 0.5804 MHz	+0.009 MHz	Passed
	2	5804.435 MHz	± 0.5804 MHz	+0.008 MHz	Passed
	5	5804.433 MHz	± 0.5804 MHz	+0.006 MHz	Passed
	10	5804.432 MHz	± 0.5804 MHz	+0.005 MHz	Passed

Test result: Passed

TEST EQUIPMENT USED FOR THE TEST:

31, 42, 45 – 47

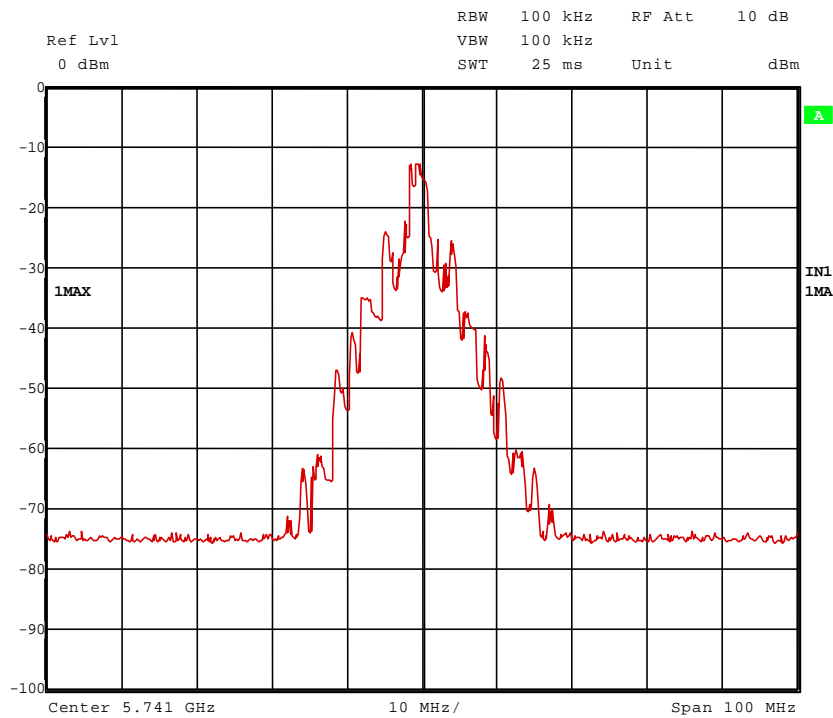


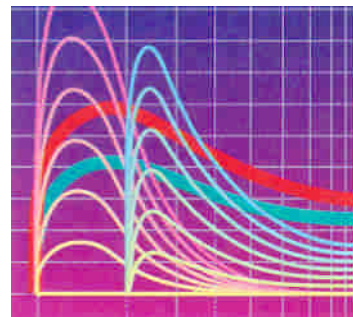
TEST REPORT REFERENCE: R30763_FCC_Edition 1a

5.6 BAND EDGE COMPLIANCE

Ambient temperature	20 °C	Relative humidity	55 %
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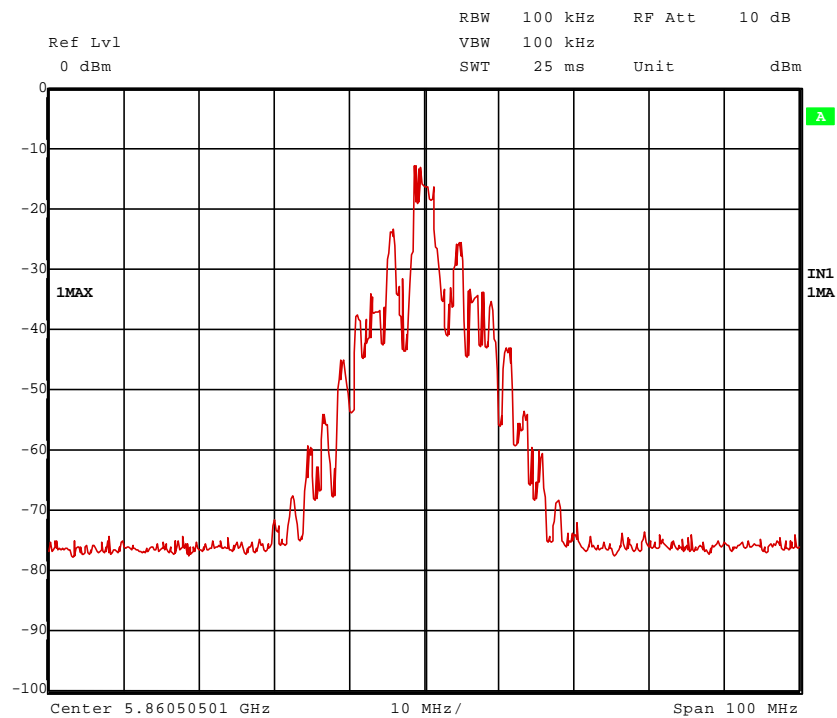
Transmit modulated, channel 1: Nominal frequency 5740 MHz





TEST REPORT REFERENCE: R30763_FCC_Edition 1a

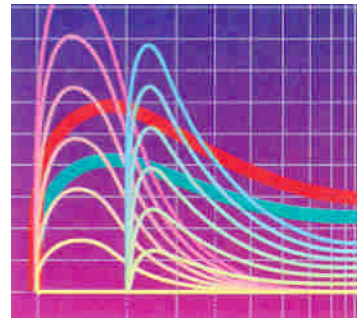
Transmit modulated, channel 16: Nominal frequency 5860 MHz



Test result: Passed

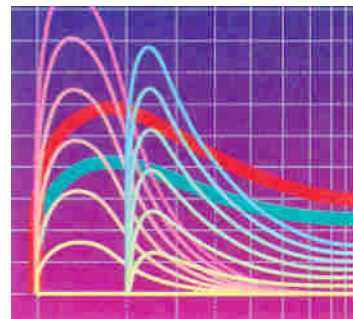
TEST EQUIPMENT USED FOR THE TEST:

31, 42



TEST REPORT REFERENCE: R30763_FCC_Edition 1a

6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS



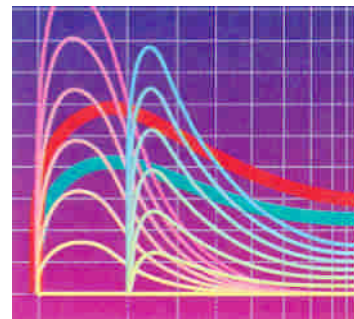
TEST REPORT REFERENCE: R30763_FCC_Edition 1a

Emission measurement at AC mains and DC in / out ports at M4					
No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
1	Shielded chamber M4	-	Siemens	B83117S1-X158	480088
2	Measuring receiver	ESAI	Rohde & Schwarz	831953/001 833181/018	480025 480026
3	LISN	NSLK8128	Schwarzbeck	8128155	480058
4	DC-filter	B84266-A21-E13	Siemens	940164525	480099
5	AC-filter	B84299-D87-E3	Siemens	930262292	480097
6	EMI-Software	ES-K1	Rohde & Schwarz	-	480111

Radiated emission measurement at M5					
No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
7	Fully anechoic chamber M5	-	Siemens	B83177-S1-X156	480073
8	Measuring receiver	ESVS30	Rohde & Schwarz	829673/012	480024
9	Controller	HD100	Deisel	100/324	480067
10	Antenna support	MA240	Deisel	228/314	480069
11	Turntable	DS412	Deisel	412/317	480070
12	Antenna	CBL6112C	Chase	2689	480327
13	EMI Software	ES-K1	Rohde & Schwarz	-	480111

Radiated emission measurement at M6					
No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
14	Open area test site	-	Phoenix Test-Lab	-	480085
15	Measuring receiver	ESVS30	Rohde & Schwarz	829673/012	480024
16	Controller	HD100	Deisel	100/670	480139
17	Turntable	DS420HE	Deisel	420/620/80	480087
18	Antenna support	AS615P	Deisel	615/310	480086
19	Antenna	CBL6111 A	Chase	1643	480147
20	EMI Software	ES-K1	Rohde & Schwarz	-	480111

Radiated emission measurement at M8					
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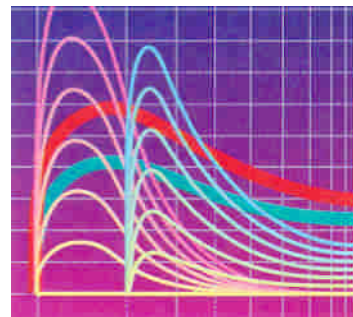


TEST REPORT REFERENCE: R30763_FCC_Edition 1a

No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
21	Fully anechoic chamber M8	-	Siemens	B83117-E7019-T231	480190
22	Measuring receiver	ESMI	Rohde & Schwarz	843977/001 843530/018	480179 480180
23	Measuring receiver	ESCS 30	Rohde & Schwarz	828985/014	480270
24	Controller	HD100	Deisel	100/427	480181
25	Turntable	DS420	Deisel	420/435/97	480186
26	Antenna support	AS615P	Deisel	615/310	480187
27	Antenna	CBL6112 A	Chase	2034	480185
28	EMI Software	ES-K1	Rohde & Schwarz	-	480111

Radiated emission measurement at M20					
No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
29	Fully anechoic chamber M20	-	Albatross Projects	B83107-E2439-T232	480303
30	Measuring receiver	ESMI	Rohde & Schwarz	843977/001 843530/018	480179 480180
31	Measuring receiver	ESI 40	Rohde & Schwarz	100064	480355
32	Controller	HD100	Deisel	100/670	480326
33	Turntable	DS420HE	Deisel	420/620/80	480315
34	Antenna support	AS615P	Deisel	615/310	480187
35	Antenna	CBL6112 B	Chase	2688	480328
36	Antenna	3115 A	EMCO	9609-4918	480183
37	RF-cable No. 30	RTK 081	Rosenberger	-	410141
38	EMI Software	ES-K1	Rohde & Schwarz	-	480111
39	RF-cable No. 5	RTK 081	Rosenberger		410097

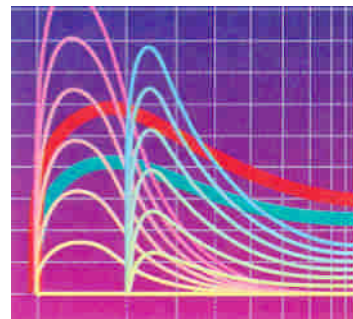
Ancillary equipment used for testing					
No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
40	Outdoor test site	-	Phoenix Test-Lab	-	480293
41	Loop antenna	HFH2-Z2	Rohde & Schwarz	832609/014	480059
No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
42	Power supply	TOE 8852	Toellner	51712	480233



TEST REPORT REFERENCE: R30763_FCC_Edition 1a

43	EMI test receiver	ESPC	Rohde & Schwarz	843756/006	480150
44	Signal generator	SMHU	Rohde & Schwarz	844170/017	480266
45	Climatic chamber	GTS500.40	GTS	1660	490073
46	Loop Antenna $\varnothing = 225$ mm	-	Phoenix Test-Lab	-	410085
47	RF-cable No. 11	RG223	Phoenix-Test-Lab	-	410103
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

All used measurement equipment was calibrated (if necessary). The calibration intervals and the calibration history will be given out on request.



TEST REPORT REFERENCE: R30763_FCC_Edition 1a

7 LIST OF ANNEXES

ANNEX A	INTERNAL PHOTOGRAPHS OF THE TEST SAMPLE:	1 page
	PCB (transmitter) internal view	30763TX_PCB2.jpg
ANNEX B	EXTERNAL PHOTOGRAPHS OF THE TEST SAMPLE:	2 pages
	EUT front view	30763eut1.jpg
	EUT rear view	30763eut2.jpg
ANNEX C	PHOTOGRAPHS OF THE TEST SET-UPS:	2 pages
	Test set-up fully anechoic chamber	30763emi7.jpg
	Test set-up fully anechoic chamber	30763emi17.jpg