

of the accredited test laboratory

TÜV Nr.:M/FG-11/133

Applicant:

AKG Acoustics GmbH

Lemböckgasse 21-25

A - 1230 Wien

Tested Product:

Body-worn transmitter for wireless microphone set

FCC-ID:

V3TDPT70

Manufacturer:

AKG Acoustics GmbH

Lemböckgasse 21-25

A - 1230 Wien

Output power /

87,1 mW eirp

power supply:

3 VDC

field strength:

2 x 1,5V battery

Frequency range:

2412 - 2462 MHz Channel separation:

26 / 24 MHz

Standard:

FCC: 47 CFR Part 15 (October 1, 2010 edition)

RSS-210 Issue 8, December 2010

TUV Austria Services GmbH
Test laboratory for EMC

Supervisor of EMC-laboratory:

Rundsiegel &

Dipl -Ing Franz Feger

10.11.2011

Ing. Michael Emminger

checked by:

Copy Nbr.:

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The results of this test report only refer to the provided equipment.



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Division:Medical Technology/
Communication
Technology/ EMC

Department: Testing Body for Communication Technology/ EMC

TÜV®



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Company Register Court / - Number: Vienna / FN 288476 f

Banking Connections BA CA 52949 001 066 IBAN AT1312000529490010 BIC BKAUATWW RBI 001-04.093.282 IBAN AT1531000001040932 BIC RZBAATWW

UID ATU63240488 DVR 3002476

Relative humidity: 46%



LIST OF MEASUREMENTS

The complete list of measurements called for in 47 CFR 15 and RSS-210 is given below.

SUBCLAUSE	PARAMETER TO BE MEASURED	PAGE
	Intentional Radiators	
	Test object data	3
2.1033	Number of channels and channel spacing	4
15.247(a)(2) A8.2 (a)	6 dB Bandwidth	5-7
15.247(b)(3) A8.4 (4)	Maximum Peak RF Power Output (eirp)	8
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15.247(d) A8.5	Out-of-band Emissions	10-37
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Relative humidity: 46%



TEST OBJECT DATA

General EUT Description

This body-worn digital audio transmitter will be used as wireless microphone. It has no antenna connector, so all technical data were measured radiated.

- 2.1033 (c) Technical description
- 2.1033 (4) Type of emission: OFDM Channel bandwidth 16 MHz Channel spacing 26 / 24 MHz.
- 2.1033 (5) Frequency range: 2412; 2438 and 2462 MHz (channel center frequencies)
- 2.1033 (6) Power range and Controls: The maximum peak output power is 87,1 mW and there is no power regulation. There are two antennae used for MIMO and/or diversity operation.
- 2.1033 (7) Maximum output power rating: 87,1 mW eirp.
- 2.1033 (8) DC Voltage and Current: 3 V internal battery maximum current consumption: 270 mA
- RSS-135 This standard does not apply to:
 - 1.1.(a) a receiver that scans radio frequencies for the purpose of enabling its associated transmitter to avoid transmitting in an occupied frequency but which does not have the capability of decoding the message (e.g. converting it to audio voice) contained in the radio signal

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Relative humidity: 46%

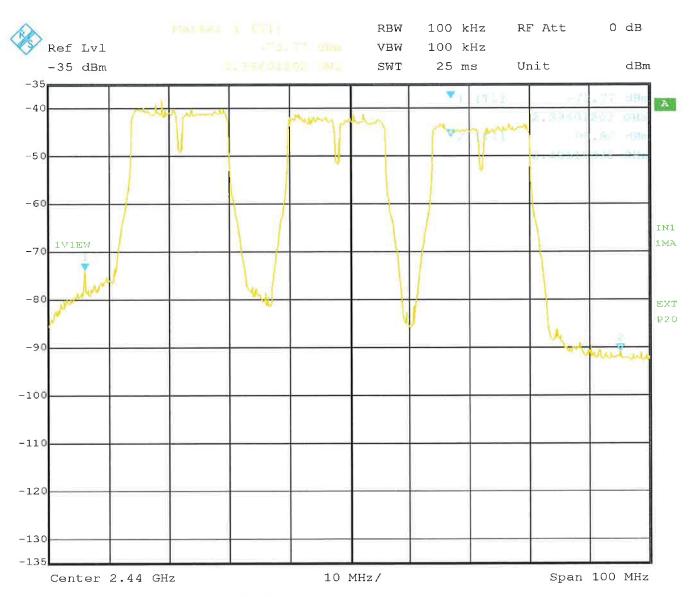


Number of channels and channel spacing

§ 2.1033

Radiated Measurement

Rated output power: 87,1 mW



Date:

9.AUG.2011 15:57:38

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Relative humidity: 46%

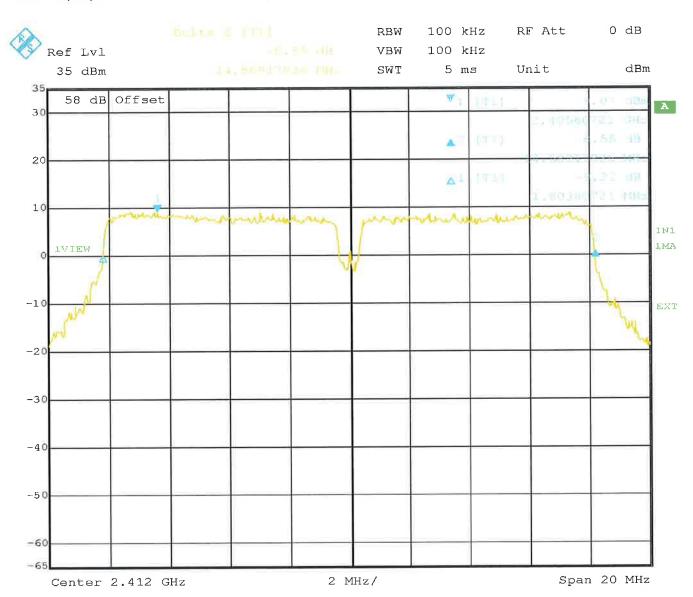


6dB Bandwidth

§ 15.247(a)(2) A8.2(a)

Radiated Measurement

Rated output power: 87,1 mW Channel 0 (2412 MHz)



Date:

18.AUG.2011 11:33:23

6dB Bandwidth:

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16,393 MHz

LIMIT

SUBCLAUSE 15.247(e) – A8.2(b)

Under normal test conditons	6 dB Bandwidth at least 500 kHz

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

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Relative humidity: 46%

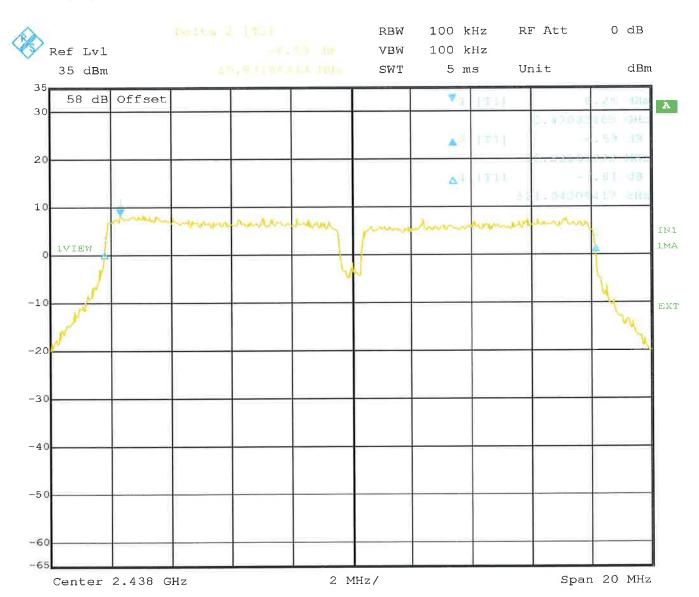


6dB Bandwidth

§ 15.247(a)(2) A8.2(a)

Radiated Measurement

Rated output power: 87,1 mW Channel 1 (2438 MHz)



Date:

18.AUG.2011 11:35:21

6dB Bandwidth:

16,352 MHz

LIMIT

SUBCLAUSE 15.247(e) – A8.2(b)

Under normal test conditons	6 dB Bandwidth at least 500 kHz

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

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Relative humidity: 46%



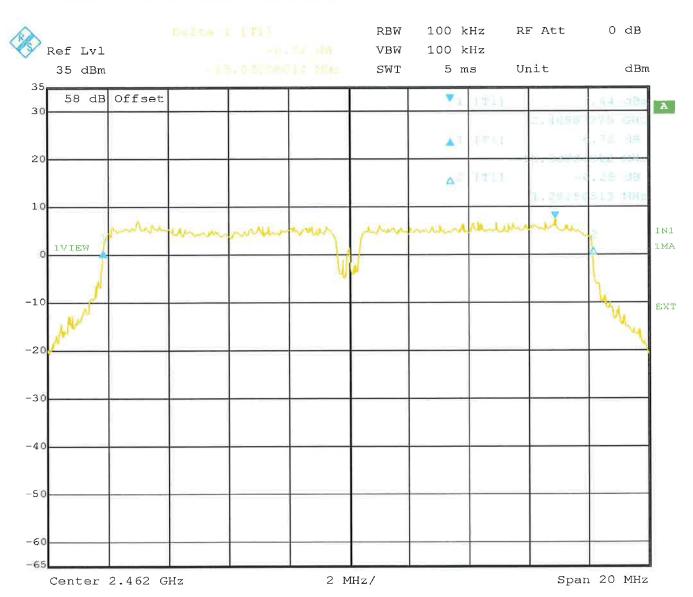
File: 11-133.doc/10.11.2011

6dB Bandwidth

§ 15.247(a)(2) A8.2(a)

Radiated Measurement

Rated output power: 87,1 mW Channel 2 (2462 MHz)



Date:

18.AUG.2011 11:46:05

6dB Bandwidth:

Form: FCC15.DOT/1. 1. 2002

16,313 MHz

LIMIT

SUBCLAUSE 15.247(e) - A8.2(b)

Under normal test conditons	6 dB Bandwidth at least 500 kHz

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

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Relative humidity: 46%



Maximum Peak RF Power Output (EIRP)

§ 15.247(b)(3) A8.4(4)

Radiated Measurement

Rated output power: 87,1 mW

Te	st conditions	Transmitter power (mW) (eirp)		
		2412 MHz	2438 MHz	2462 MHz
T _{nom} (26)°C	Antenna 0	87,1	56,2	46,8
	Antenna 1	60,3	87,1	53,7
Maximum deviation under normal test	on from rated output power conditions (dB)	-1,6	-1,9	-2,7
Measurement uncertainty			<u>+</u> 0,75 dB	

LIMIT

SUBCLAUSE 15.247(b)(3) - A8.4(4)

	4181 d
Under normal test conditions	1W conducted (4W eirp)

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

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Relative humidity: 46%



Power spectral density (EIRP)

§ 15.247(e) A8.2(b)

Radiated Measurement

Rated output power: 87,1 mW

Test conditions		Powe	Power spectral density (dBm) (eirp)		
		2412 MHz	2438 MHz	2462 MHz	
T _{nom} (26)°C	Antenna 0	-12,6	-14,1	-15,8	
	Antenna 1	-13,9	-12,5	-15,2	
Measurement uncertainty			<u>+</u> 0,75 dB		

LIMIT

SUBCLAUSE 15.247(e) - A8.2(b)

Under normal test conditons	+8dBm in any 3 kHz band

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Form: FCC15.DOT/1. 1. 2002 Page 9 of 44 File: 11-133.doc/10.11.2011

Test Report Reference: M/FG-11/133

Ambient temperature: 26°C

Relative humidity: 46%

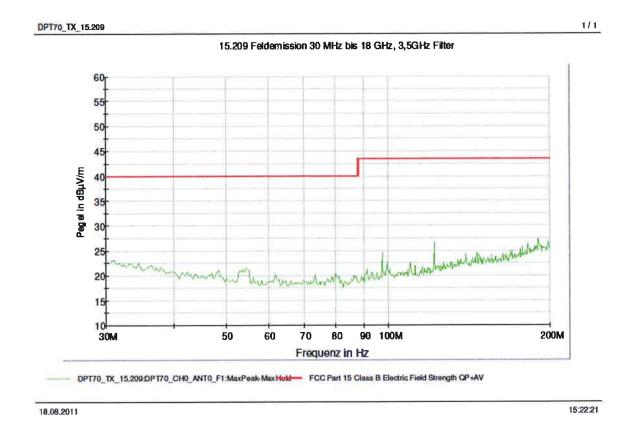


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Report Reference: M/FG-11/133

Ambient temperature: 26°C

Relative humidity: 46%

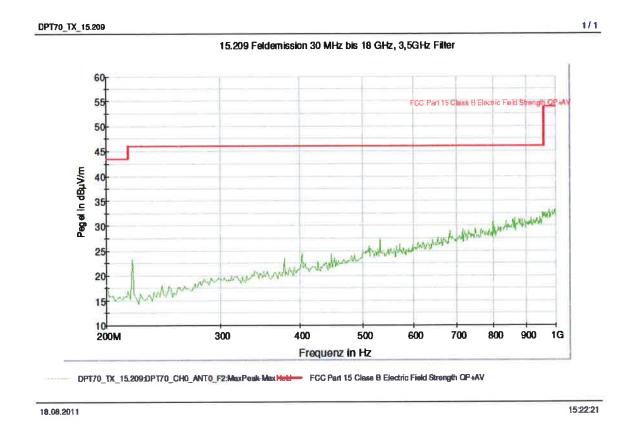


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Form: FCC15.DOT/1. 1. 2002 Page 11 of 44 File: 11-133.doc/10.11.2011

Relative humidity: 46%

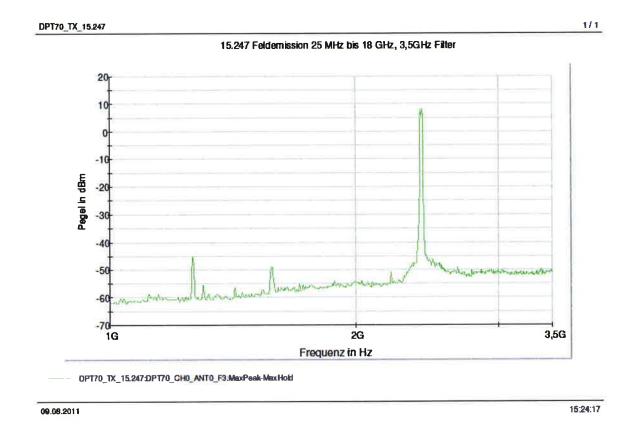


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

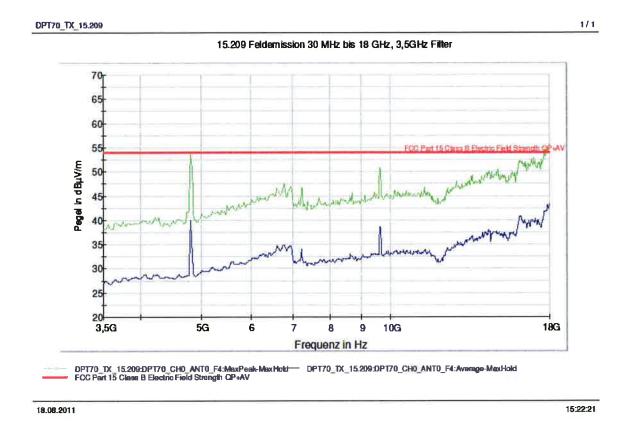


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector (green line):

Frequency: 2412 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emission above noise level were found.

Relative humidity: 46%

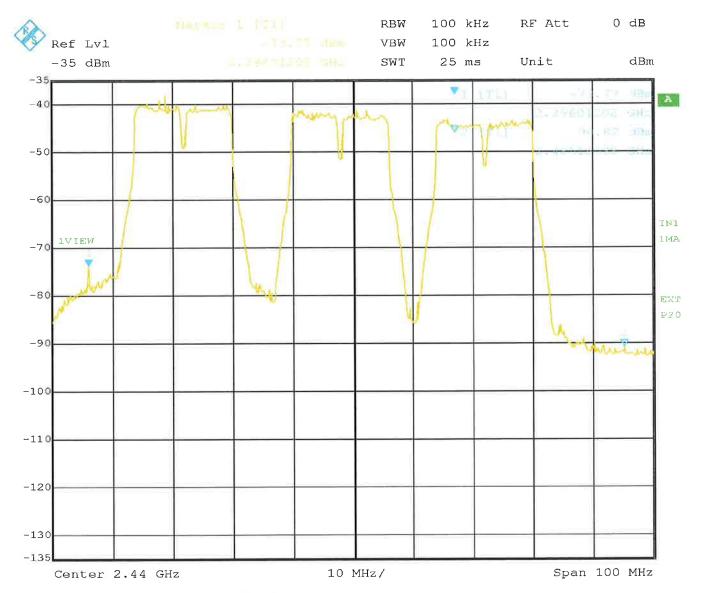


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Band Edge measurement



Date:

9.AUG.2011 15:57:38

LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

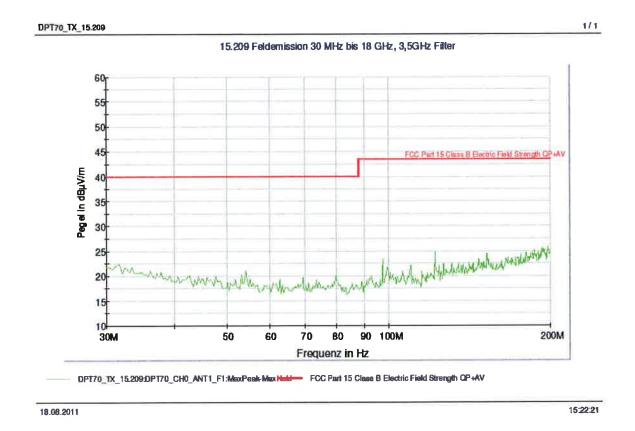


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

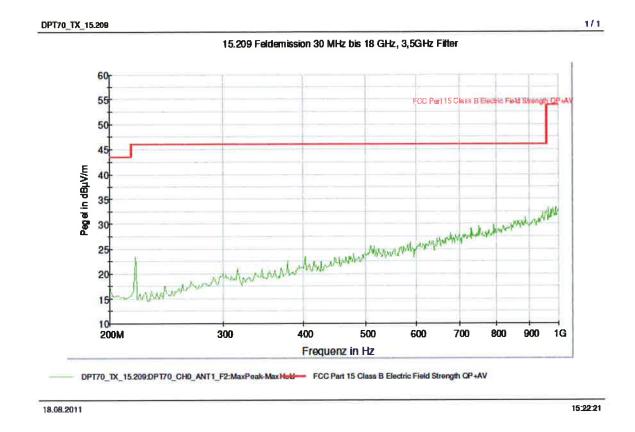


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

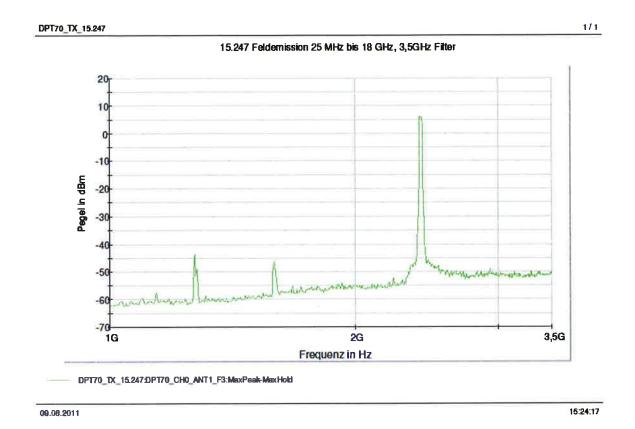


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

which the radio device is operating.

In any 100 kHz bandwidth outside the frequency band in At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

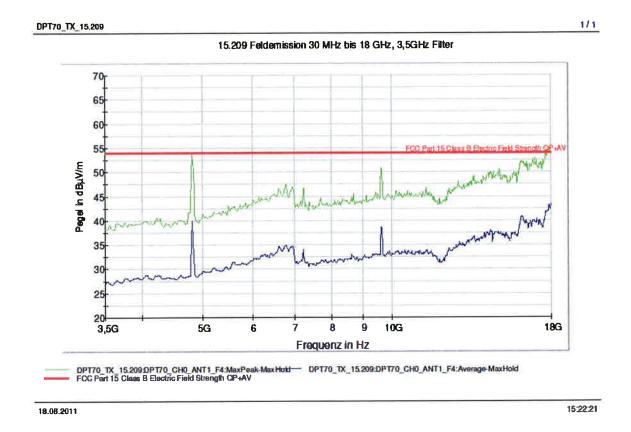


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector (green line):

Frequency: 2412 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emission above noise level were found.

Relative humidity: 46%

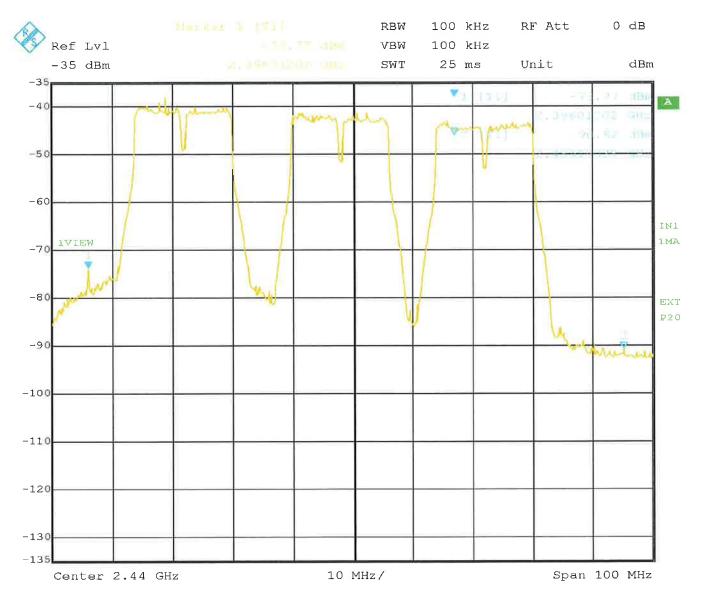


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2412 MHz - Band Edge measurement



Date:

9.AUG.2011 15:57:38

LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

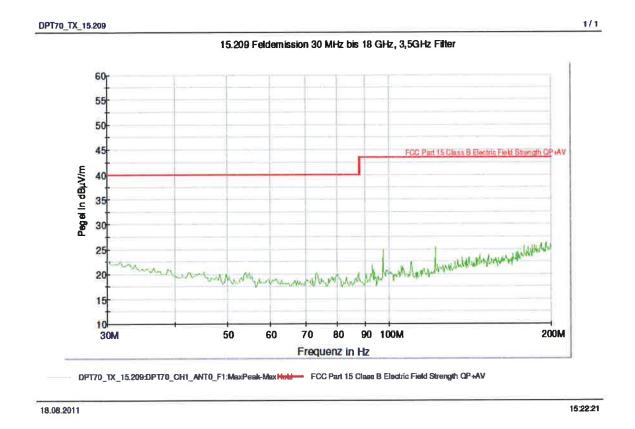


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2438 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

which the radio device is operating.

In any 100 kHz bandwidth outside the frequency band in At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

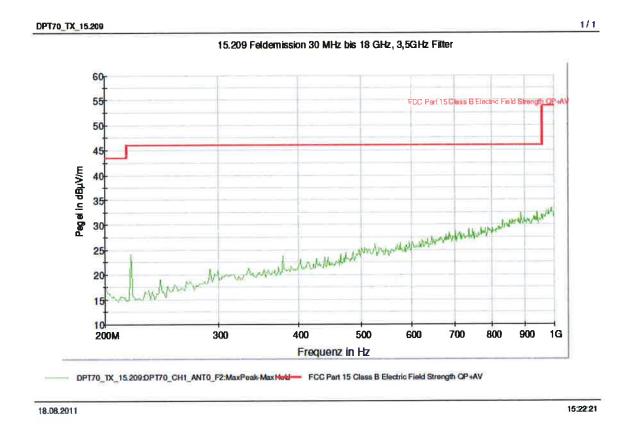


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2438 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

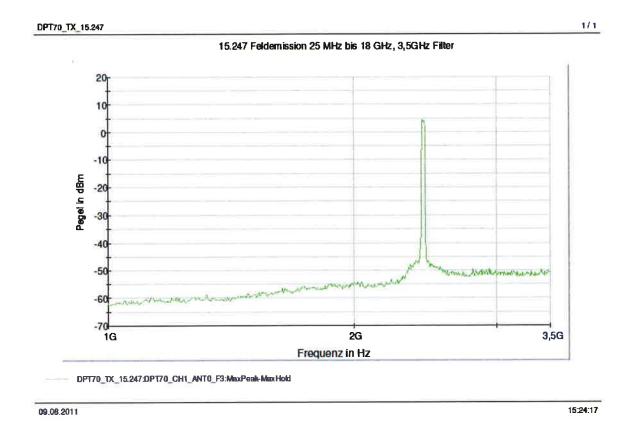


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2438 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

which the radio device is operating.

In any 100 kHz bandwidth outside the frequency band in At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

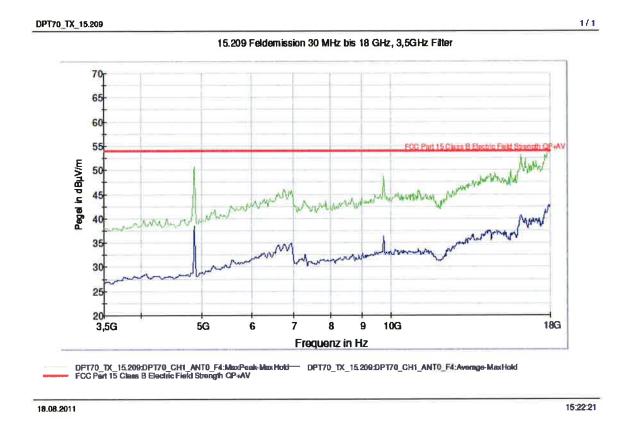


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector (green line):

Frequency: 2438 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emission above noise level were found.

Form: FCC15,DOT/1. 1. 2002 Page 23 of 44 File: 11-133.doc/10.11.2011

Relative humidity: 46%

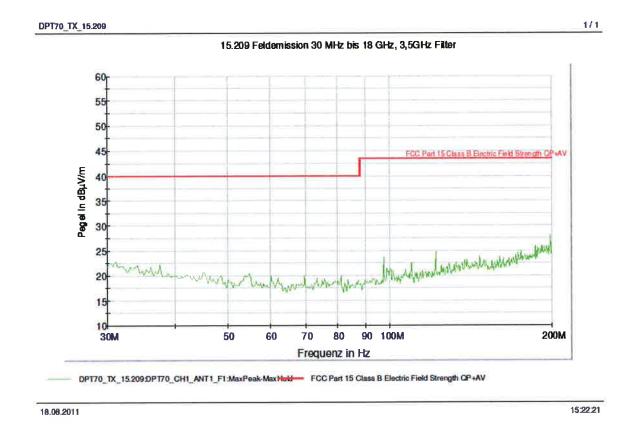


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2438 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

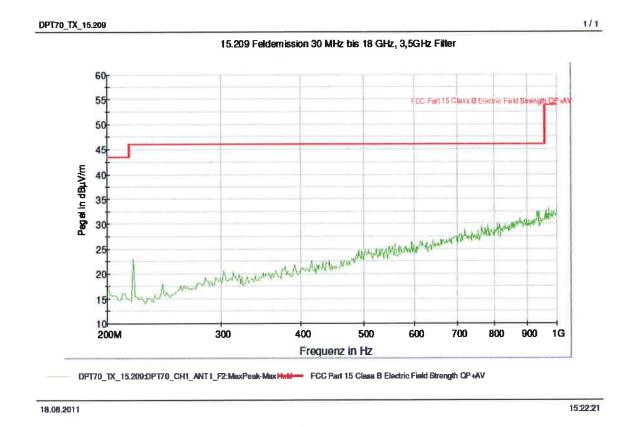


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2438 MHz - Antenna 1



LIMIT SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Report Reference: M/FG-11/133

Ambient temperature: 26°C

Relative humidity: 46%

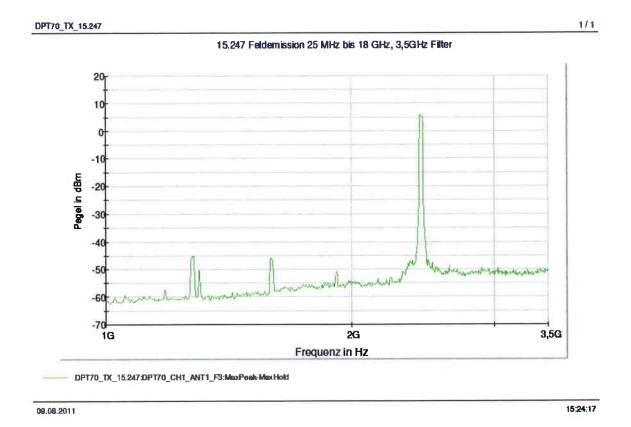


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2438 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

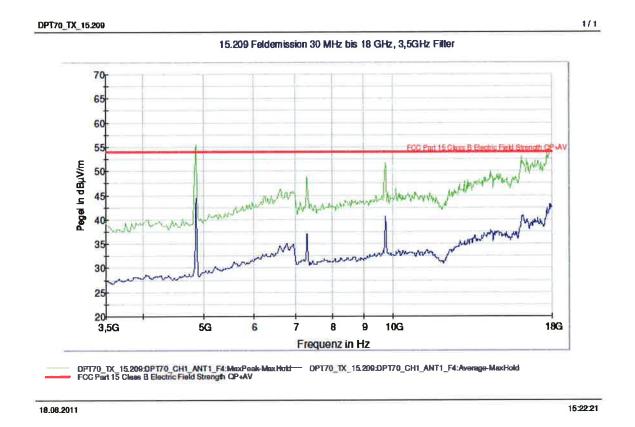


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector (green line):

Frequency: 2438 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emission above noise level were found.

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Test Report Reference: M/FG-11/133

Ambient temperature: 26°C

Relative humidity: 46%

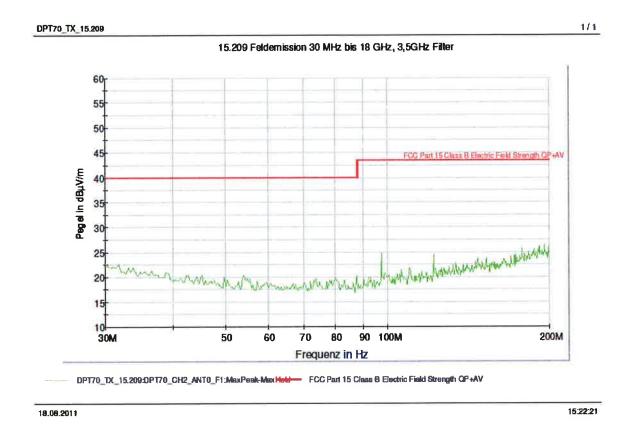
TUV

Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

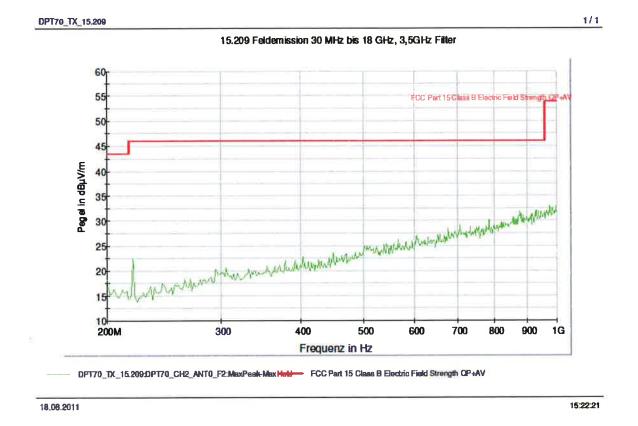


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

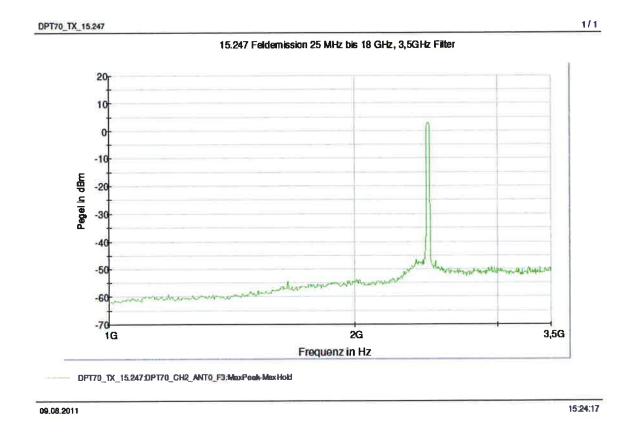


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

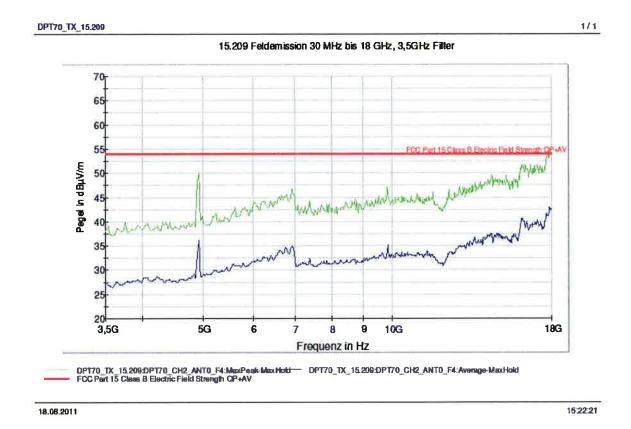


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector (green line):

Frequency: 2462 MHz - Antenna 0



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emission above noise level were found.

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Relative humidity:

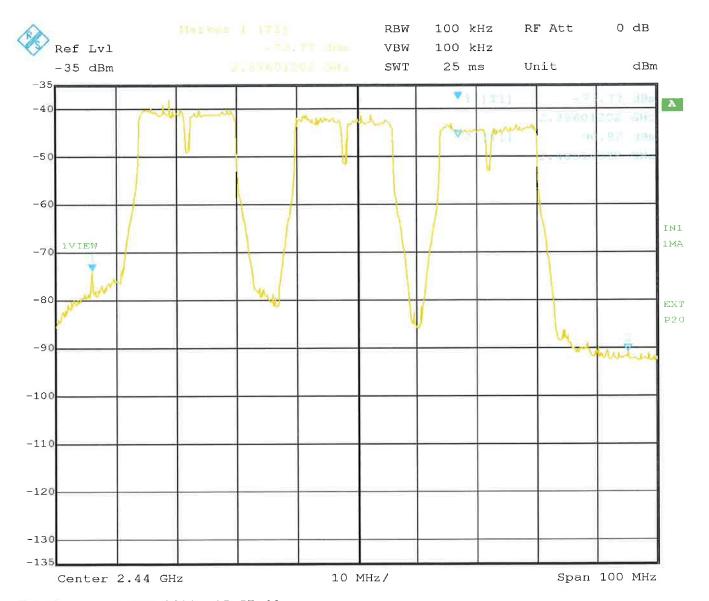


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Band Edge measurement



Date:

9.AUG.2011 15:57:38

LIMIT

SUBCLAUSE 15.247(d) - A8.5

which the radio device is operating.

In any 100 kHz bandwidth outside the frequency band in At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

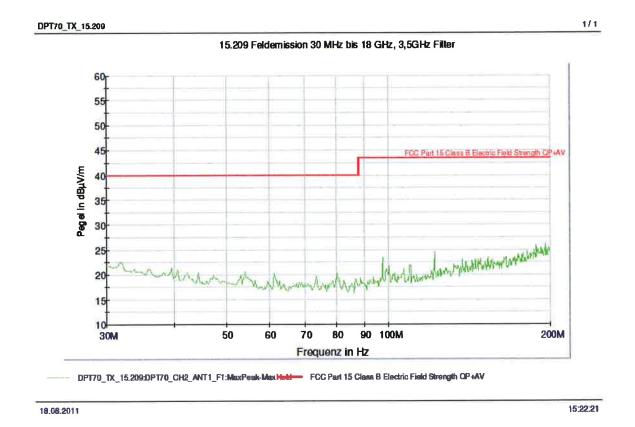


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Relative humidity: 46%

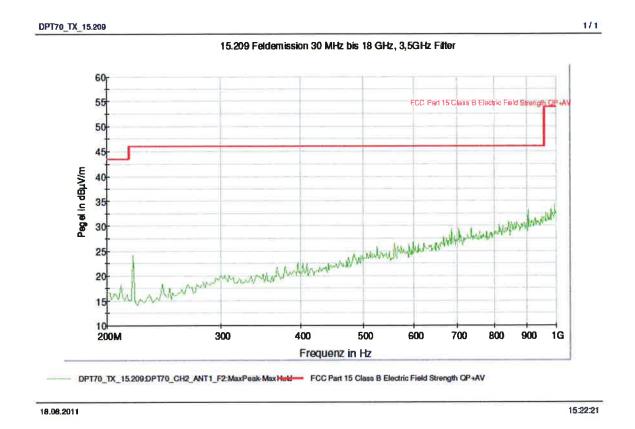


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Form: FCC15.DOT/1. 1. 2002 Page 34 of 44 File: 11-133.doc/10.11.2011

Relative humidity: 46%

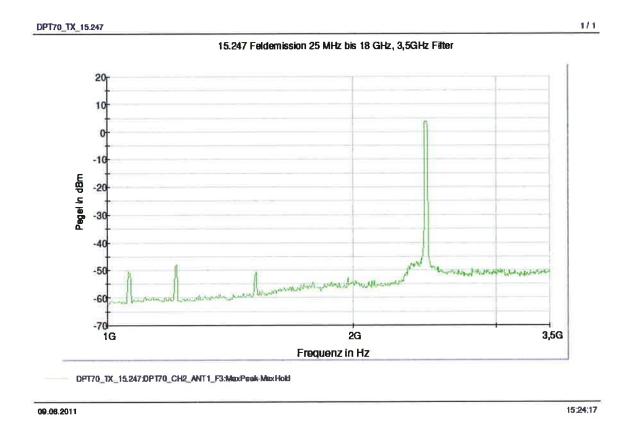


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%

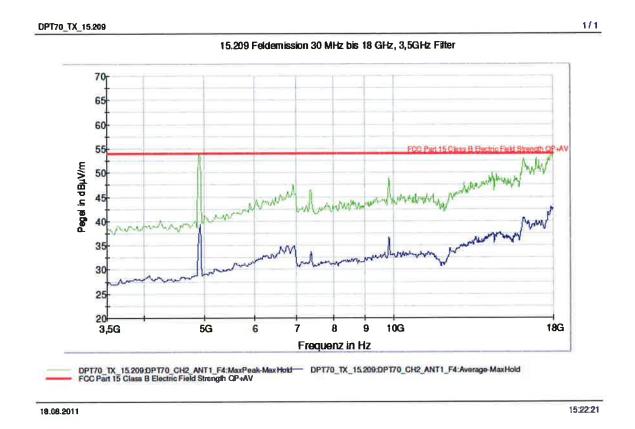


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector (green line):

Frequency: 2462 MHz - Antenna 1



LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emission above noise level were found.

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Relative humidity: 46%

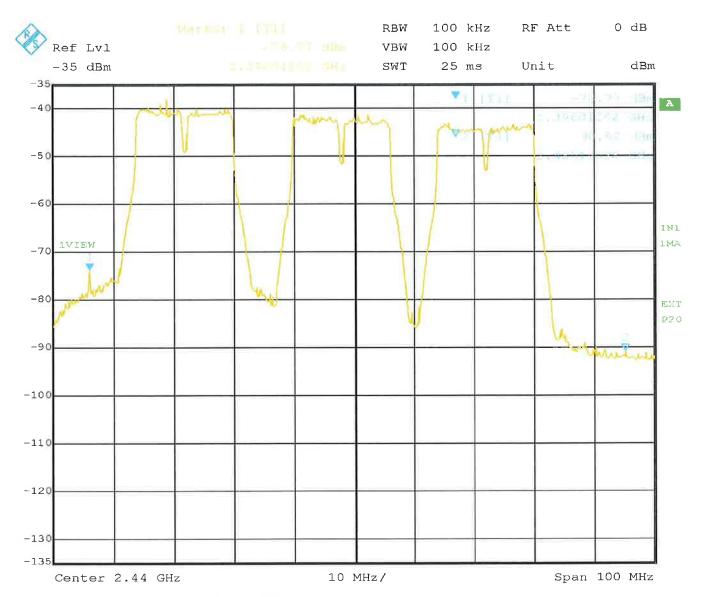


Out-of-band Emission

§ 15.247(d) A8.5

Measurement with Peak-Detector:

Frequency: 2462 MHz - Band Edge measurement



Date:

9.AUG.2011 15:57:38

LIMIT

SUBCLAUSE 15.247(d) - A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

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Relative humidity: 46%



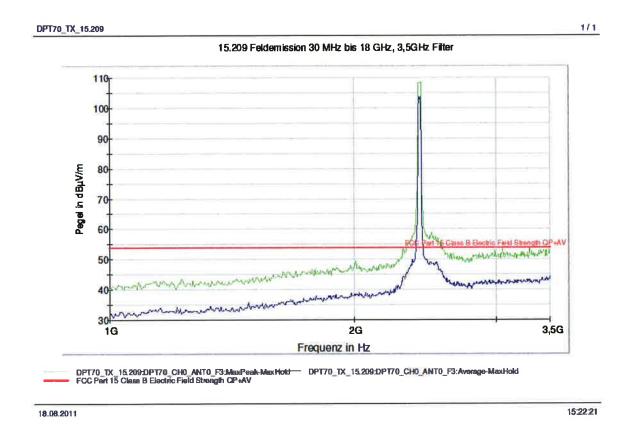
Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements for frequencies below 1 GHz and also above 3,5 GHz, only the frequency range between 1 GHz and 3,5 GHz was checked.

Measurement with Average-Detector (violet line):

Frequency: 2412 MHz - Antenna 0



LIMIT	SUBCLAUSE 15.209	
	≥ 1GHz	54 dBμV/m average

Relative humidity: 46%



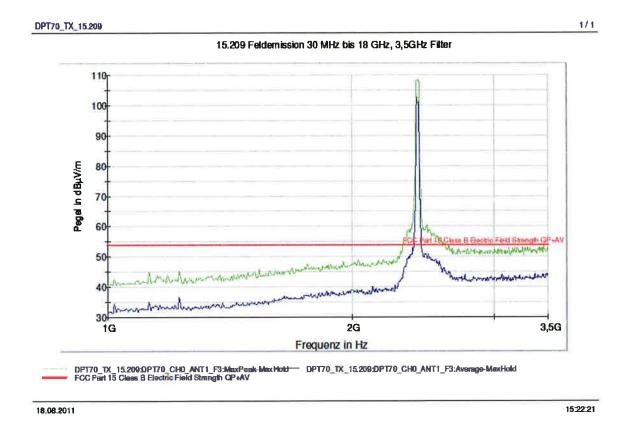
Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements for frequencies below 1 GHz and also above 3,5 GHz, only the frequency range between 1 GHz and 3,5 GHz was checked.

Measurement with Average-Detector (violet line):

Frequency: 2412 MHz - Antenna 1



LIMIT	SUBCLAUSE 15.209		
	≥ 1GHz	54 dBµV/m average	

Relative humidity: 46%



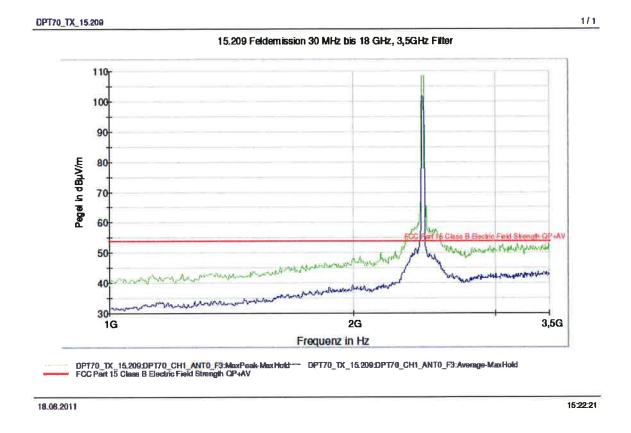
Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements for frequencies below 1 GHz and also above 3,5 GHz, only the frequency range between 1 GHz and 3,5 GHz was checked.

Measurement with Average-Detector (violet line):

Frequency: 2438 MHz - Antenna 0



LIMIT	SUBCLAUSE 15.209	
	> 1GHz	54 dBμV/m average

Relative humidity: 46%



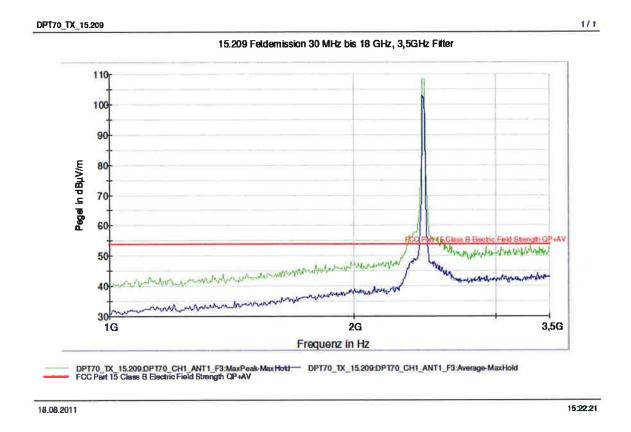
Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements for frequencies below 1 GHz and also above 3,5 GHz, only the frequency range between 1 GHz and 3,5 GHz was checked.

Measurement with Average-Detector (violet line):

Frequency: 2438 MHz - Antenna 1



LIMIT	SUBCLAUSE 15.209		
	≥ 1GHz	54 dBµV/m average	

Relative humidity: 46%



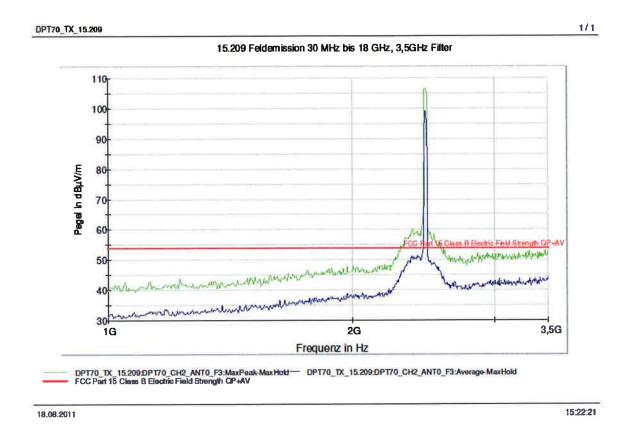
Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements for frequencies below 1 GHz and also above 3,5 GHz, only the frequency range between 1 GHz and 3,5 GHz was checked.

Measurement with Average-Detector (violet line):

Frequency: 2462 MHz - Antenna 0



LIMIT SUBCLAUSE 15.209 ≥ 1GHz 54 dBμV/m average

Relative humidity: 46%



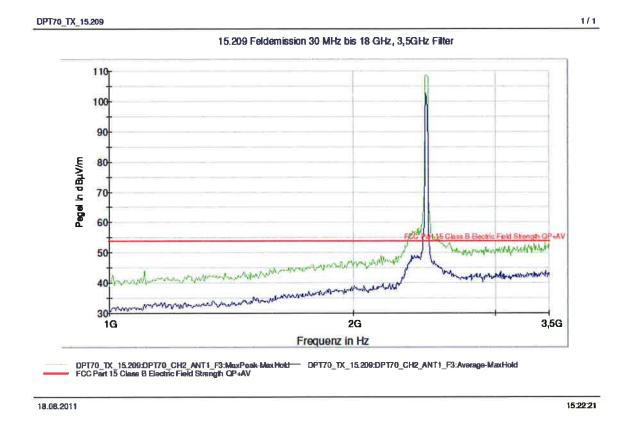
Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements for frequencies below 1 GHz and also above 3,5 GHz, only the frequency range between 1 GHz and 3,5 GHz was checked.

Measurement with Average-Detector (violet line):

Frequency: 2462 MHz - Antenna 1



LIMII	SUBCLAUSE 15.209			
	≥ 1GHz	54 dBμV/m average		

Test Report Reference: M/FG-11/133

Ambient temperature: 26°C

Relative humidity: 46%



Maximum permissible Exposure

§ 15.247(i)

This kind of radio equipment is categorically excluded from routine environmental evaluation.

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Appendix 1 Test equipment used



Anechoic Chamber with 3m measurement distance	NT-100	Spectrumanalyzer – FSP7 9 kHz – 7 GHz	NT-200
Stripline according to ISO 11452-5	NT-108	ESVP - Test receiver 20 - 1000 MHz	NT-201
MA 240 - Antenna mast 1 - 4 m height	NT-110	ESCI - Test receiver 9 kHz - 7 GHz	NT-203/1
DS 412 - Turntable 0 - 400 ° Azimuth	NT-111	ESI26 – Test receiver 20 Hz – 26,5 GHz	NT-207
HD 100 Controller Mast+Turntable	NT-112	Digital Radio Tester CTS55	NT-208
HUF-Z2 - Bicon. Antennna 20 - 300 MHz	NT-120	Noise-gen., ITU-R 559-2 20 Hz – 20 kHz	NT-209
HUF-Z3 - Log. Per. Antenna 200 - 1000 MHz	NT-121	CMTA - Radiocommunication analyzer; 0,1 - 1000 MHz	NT-210
HFH-Z2 - Loop Antenna 9 kHz - 30 MHz	NT-122	3271 - Spectrum analyzer 100 Hz - 26,5 GHz	NT-211
HFH-Z6 - Rod Antenna 9 kHz - 30 MHz	NT-123	Digital Radio Tester Aeroflex 3920	NT-212/1
3121C - Dipole Antenna 28 - 1000 MHz	NT-124	2855S - Communication analyzer	NT-213
3115 - Horn Antenna 1 - 18 GHz (immunity)	NT-125	Mixer M28HW 26,5 GHz - 40 GHz	NT-214
3116 - Horn Antenna 18 - 40 GHz	NT-126	Diode Detector 0,01 GHz - 26,5 GHz	NT-215
SAS-200/543 - Bicon. Antenna 20 MHz - 300 MHz	NT-127	RubiSource T&M Timing reference	NT-216
AT-1080 - Log. Per. Antenna 80 - 1000 MHz	NT-128	Radiocommunicationanalyzer SWR 1180 MD	NT-217
HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-129	Mixer M19HWD 40 GHz – 60 GHz	NT-218
HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-130	Mixer M12HWD 60 GHz – 90 GHz	NT-219
3146 - Log. Per. Antenna 200 – 1000 MHz	NT-131	DSO9104 Digital scope	NT-220/1
Loop Antenna H-Field	NT-132	TPS 2014 Digital scope	NT-222
Horn Antenna 500 MHz - 2900 MHz	NT-133	Artificial Ear according to IEC 60318	NT-224
Horn Antenna 500 MHz - 6000 MHz	NT-133/1	1 kHz Sound calibrator	NT-225
Log. per. Antenna 800 MHz - 2500 MHz	NT-134	B10 - Harmonics and flicker analyzer	NT-232
Log. per. Antenna 800 MHz - 2500 MHz	NT-135	SRM-3000 Spectrumanalyzer	NT-233
BiConiLog Antenna 26 MHz – 2000 MHz	NT-137	SRM-3006 Spectrumanalyzer	NT-233/1a
Conical Dipol Antenna PCD8250	NT-138	E-field probe SRM 75 MHz – 3 GHz	NT-234
HF 906 - Horn Antenna 1 - 18 GHz (emission)	NT-139	Field Meter NBM-500 incl. E- and H-Field probes	NT-240a-d
HZ-1 Antenna tripod	NT-150	Hall-Teslameter ETM-1	NT-241
BN 1500 Antenna tripod	NT-151	EFA-3 H-field- / E-field probe	NT-243
Ant. tripod for EN61000-4-3 Model TP1000A	NT-156	Field Meter EMR-200 100 kHz – 3 GHz	NT-244
Power quality analyzer Fluke 1760 (complete set)	NT-160 - NT-172	E-field probe 100 kHz – 3 GHz	NT-245

Division Medical Technology/ Communication Technology/ EMC

Department: FG

Test report number: M/FG-11/133

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Date: 10.11.2011

Checked by:

Appendix 1 (continued) Test equipment used



Division Medical Technology/ Communication Technology/ EMC

Department: FG

Page: 2 of 3

Test report number: M/FG-11/133

Date: 10.11.2011
Checked by: _____

U.S. Ida and a	NIT 040	BOLIDOE 4.4	NT 204
H-field probe 300 kHz – 30 MHz	NT-246	PSURGE 4.1 Surge generator	NT-324
E-field probe 3 MHz – 18 GHz	NT-247	TRANSIENT 1000 Immunity test system	NT-325
H-field probe 27 MHz – 1 GHz	NT-248	VCS 500-M6 Surge-Generator	NT-326
ELT-400 1 Hz – 400 kHz	NT-249	BTA-250 - RF-Amplifier 9 kHz - 220 MHz / 250 W	NT-330
MDS 21 - Absorbing clamp 30 - 1000 MHz	NT-250	T82-50 RF-Amplifier 2 GHz – 8 GHz	NT-331
FCC-203l EM Injection clamp	NT-251	500W1000M7 - RF-Amplifier 80 - 1000 MHz / 500 W	NT-332
FCC-203I-DCN Ferrite decoupling network	NT-252	AS0102-65R - RF-Amplifier 1 GHz - 2 GHz	NT-333
PR50 Current Probe	NT-253	APA01 – RF-Amplifier 0,5 GHz – 2,5 GHz	NT-334
PR630 Current Probe	NT-254	Preamplifier 1 GHz - 4 GHz	NT-335
Fluke 87 V True RMS Multimeter	NT-260	Preamplifier for GPS MKU 152 A	NT-336
Model 2000 Digital Multimeter	NT-261	Preamplifier 100 MHz – 23 GHz	NT-337
Fluke 87 V Digital Multimeter	NT-262/1	DC Block 10 MHz – 18 GHz Model 8048	NT-338
ESH2-Z5-U1 Artificial mains network 4x25A	NT-300	2-97201 Electronic load	NT-341
ESH3-Z5-U1 Artificial mains network 2x10A	NT-301	TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-344
ESH3-Z6-U1 Artificial mains network 1x100A	NT-302	TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-345
ESH3-Z4 T-Artificial network	NT-303	VDS 200 Mobil-impuls-generator	NT-350
PHE 4500/B Power amplifier	NT-304	LD 200 Mobil-impuls-generator	NT-351
EZ10 T-Artificial Network	NT-305	MPG 200 Mobil-Impuls-Generators	NT-352
ENY22 Artificial Network	NT-308	EFT 200 Mobil-impuls-generator	NT-353
ENY41 Artificial Network	NT-309	AN 200 S1 Artificial Network	NT-354
SMG - Signal generator 0,1 - 1000 MHz	NT-310	FP-EFT 32M 3 ph. Coupling filter (Burst)	NT-400/1
SMA100A - Signal generator 9 kHz - 6 GHz	NT-310/1	PHE 4500 - Mains impedance network	NT-401
PM 5518 TXVPS Video generator	NT-311	IP 6.2 Coupling filter for data lines (Surge)	NT-403
RefRad Reference generator	NT-312	TK 9421 High Power Volt. Probe 150 kHz - 30 MHz	NT-409
SMP 02 Signal generator 10 MHz - 20 GHz	NT-313	ESH2-Z3 - Probe 9 kHz - 30 MHz	NT-410
40 MHz Arbitrary Generator TGA1241	NT-315	IP 4 - Capacitive clamp (Burst)	NT-411
Artificial mains network NSLK 8127-PLC	NT-316	Highpass-Filter 100 MHz – 3 GHz	NT-412
PEFT - Burst generator up to 4 kV	NT-320	Highpass-Filter 600 MHz – 4 GHz	NT-413
ESD 30 System up to 25 kV	NT-321	Highpass-Filter 1250 MHz – 4 GHz	NT-414
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Appendix 1 (continued) Test equipment used



Highpass-Filter 1800 MHz – 16 GHz	NT-415	FCC-801-AF10 Coupling decoupling network	NT-461	Division Medical Technology/ Communication
Highpass-Filter 3500 MHz – 18 GHz	NT-416	FCC-801-S25 Coupling decoupling network	NT-462	Technology/ EMC Department: FG
RF-Attenuator 10 dB DC 18 GHz / 50 W	NT-417	FCC-801-T4 Coupling decoupling network	NT-463	Test report number:
RF-Attenuator 6 dB DC – 18 GHz / 50 W	NT-418	FCC-801-C1 Coupling decoupling network	NT-464	M/FG-11/133 Page: 3 of 3
RF-Attenuator 3 dB DC – 18 GHz / 50 W	NT-419	F-16A - Current probe 1kHz - 70MHz	NT-465	Date: 10.11.2011
RF-Attenuator 20 dB DC - 1000 MHz / 25 W	NT-421	95242-1 – Current probe 1 MHz – 400 MHz	NT-468	Checked by:
RF-Attenuator 30 dB DC - 1000 MHz / 1 W	NT-423	94106-1L-1 – Current probe 100 kHz – 450 MHz	NT-471	
RF-Attenuator 30 dB	NT-424	GA 1240 Power amplifier according to EN 61000-4-16	NT-480	
RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-425	Coupling networks according to EN 61000-4-16	NT-481 - NT-483	
RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-426	Van der Hoofden Test Head	NT-484	
RF-Attenuator 6 dB	NT-428	PC P4 3 GHz Test computer	NT-500	
RF-Attenuator 0 dB - 81 dB	NT-429	PC P4 1700 MHz Notebook	NT-505	
WRU 27 - Band blocking 27 MHz	NT-430	Monitoring camera with Monitor	NT-511	
WHJ450C9 AA - High pass 450 MHz	NT-431	ES-K1 Version 1.71 SP2 Test software	NT-520	
WHJ250C9 AA - High pass 250 MHz	NT-432	EMC32 Version 8.52 Test software	NT-520/1	
RF-Load 150 W	NT-433	SRM-TS Version 1.3 software for SRM-3000	NT-522	
Impedance transducer 1:4; 1:9; 1:16	NT-435	SPS-PHE Test software V2.5 voltage fluctuations/harmonics	NT-525	
RF-Attenuator DC – 18 GHz 6 dB	NT-436	SPS-EM Test software V4.0 EN61000-4-11	NT-527	
RF-Attenuator DC – 18 GHz 6 dB	NT-437	Noise power test apparatus according to EN 55014	NT-530	
RF-Attenuator DC – 18 GHz 10 dB	NT-438	Vertical coupling plane (ESD)	NT-531	
RF-Attenuator DC – 18 GHz 20 dB	NT-439	Test cable #4 for EN 61000-4-6	NT-553	
I+P 7780 Directional coupler 100 - 2000 MHz	NT-440	Test cable #3 for conducted emission	NT-554	
ESH3-Z2 - Pulse limiter 9 kHz - 30 MHz	NT-441	Test cable #5+#6 ESD-cable (2x470k)	NT-555 + NT-556	
Power Divider 6 dB/1 W/50 Ohm	NT-443	Test cable #8 Sucoflex 104EA	NT-559	
Directional coupler 0,1 MHz – 70 MHz	NT-444	Test cable #9 (for outdoor measurements)	NT-580	
Directional coupler 0,1 MHz – 70 MHz	NT-445	Test cable #10 (for outdoor measurements)	NT-581	
Tube imitations according to EN 55015	NT-450	Test cable #13 Sucoflex 104PE	NT-584	
FCC-801-M3-16A Coupling decoupling network	NT-458	Test cable #21 for SRM-3000	NT-592	
FCC-801-M2-50A Coupling decoupling network	NT-459	Shield chamber	NT-600	
FCC-801-M5-25 Coupling decoupling network	NT-460	Climatic chamber	M-1200	