



Accredited testing-laboratory

DAR registration number: DGA-PL-176/94-D1

**Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97**

Recognized by the Federal Communications Commission

Anechoic chamber registration no.: 90462 (FCC)

Anechoic chamber registration no.: 3462C-1 (IC)

Certification ID: DE 0001

Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

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Test report no. : 1-1954-11-06/10
Type identification : AAD-3880077-BV
Applicant : Sony Ericsson Mobile Communications AB
FCC ID : PY7A3880077
IC Certification No : 4170B-A3880077
Test standards : 47 CFR Part 15
RSS - 210 Issue 7

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1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

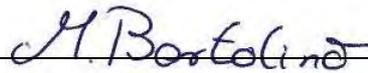
2010-03-29

Marco Bertolino

Date

Name

Signature



Technical responsibility for area of testing:

2010-03-29

Stefan Bös

Date

Name

Signature



1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10

66117 Saarbrücken

Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

e-mail: info@ICT.cetecom.de

Internet: http://www.cetecom-ict.de

State of accreditation:

The test laboratory (area of testing) is accredited according to

DIN EN ISO/IEC 17025

DAR registration number: DGA-PL-176/94-D1

Accredited by:

Federal Motor Transport Authority (KBA)

DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

Name:	Sony Ericsson Mobile Communications AB
Street:	Nya Vattentornet
Town:	22188 Lund
Country:	Sweden
Telephone:	+46-46-19-3000
Fax:	+46 (0) 46 19 32 95
Contact:	Johan Wedin
E-mail:	johan.wedin@sonyericsson.com
Telephone:	+46 (0) 707 19 57 36

1.4 Application details

Date of receipt of order:	2010-03-02
Date of receipt of test item:	2010-03-18
Date of start test:	2010-03-18
Date of end test:	2010-03-26
Persons(s) who have been present during the test:	-/-

2 Test standard/s

47 CFR Part 15	2009-10	Title 47 of the Code of Federal Regulations; Chapter I- Federal Communications Commission subchapter A - general, Part 15-Radio frequency devices
RSS - 210 Issue 7	2007-06	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

3 Technical tests

3.1 Details of manufacturer

Name:	Sony Ericsson Mobile Communications AB
Street:	Nya Vattentorget
Town:	22188 Lund
Country:	Sweden

3.1.1 Test item

Kind of test item :	Mobile Phone GSM 850/900/1800/1900, UMTS FDD1/FDD8 /HSDPA / HSUPA, BT2.0+EDR, GPS, FM-Rx, WLan
Type identification :	AAD-3880077-BV
S/N serial number :	Radiated: BX9019LXT2 BX9019PY7A Conducted: BX9019NETU BX9019PYD6
HW hardware status :	AP1
SW software status :	R2AA025V ATP
Frequency Band [MHz] :	ISM band 2.400 - 2.483,5 MHz (channel 01 – 2412 MHz; channel 11 – 2462 MHz)
Type of Modulation :	DSSS : BPSK, QPSK OFDM : QPSK, 16 / 64 QAM
Number of channels :	11
Antenna :	Integrated PCB antenna → for more information, please take a look at the sub-clause 8 – photos of the EUT
Power Supply :	4.0 V DC by power supply / battery + charger
Temperature Range :	-20 °C to +55 °C

Max. power radiated: 21.36 dBm (OFDM modulation)

Max. power conducted: 23.34 dBm (OFDM modulation)

FCC ID: PY7A3880077

IC: 4170B-A3880077

3.1.2 Additional EUT information For IC Canada (appendix 2)

IC Registration Number:	4170B-A3880077
Model Name:	AAD-3880077-BV
Manufacturer (complete Address):	Sony Ericsson Mobile Communications AB Nya Vattentorget 22188 Lund Sweden
Tested to Radio Standards Specification (RSS) No.:	RSS-210 Issue 7
Open Area Test Site Industry Canada Number:	IC 3462C-1
Frequency Range (or fixed frequency) [MHz]:	SM band 2.400 - 2.483,5 MHz (channel 01 – 2412 MHz; channel 11 – 2462 MHz)
RF: Power [W] (max):	<u>DSSS:</u> Rad. EIRP: 70.63 mW Conducted : 111.43 mW <u>OFDM:</u> Rad. EIRP: 136.77 mW Conducted : 215.77 mW
Antenna Type:	Integrated PCB antenna → for more information, please take a look at the sub-clause 8 – photos of the EUT
Occupied Bandwidth (99% BW) [MHz]:	DSSS: 16.1 OFDM: 17.8
Type of Modulation:	DSSS : BPSK, QPSK OFDM : QPSK, 16 / 64 QAM
Emission Designator (TRC-43):	16M1G1D (DSSS) 17M8G7D (OFDM)
Transmitter Spurious (worst case) [dBμV/m in 3m]:	53.20
Receiver Spurious (worst case) [dBμV/m in 3m]:	48.67

ATTESTATION:

I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:



Test engineer: Marco Bertolino Date: 2010-03-29

3.1.3 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature	T _{nom}	°C	20
Nominal Humidity	H _{nom}	%	40
Nominal Power Source	V _{nom}	V	4.0

Type of power source: **DC by power supply / battery + charger**

4 Summary of Measurement Results and list of all performed test cases

- No deviations from the technical specifications were ascertained
- There were deviations from the technical specifications ascertained

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 15 §15.247 - CANADA RSS-210	PASSED	2010-03-29	-/-

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
None	Antenna Gain	Yes			
§15.247 (e)	Peak power spectral density	Yes			
§15.247(a)(2)	Spectrum Bandwidth of a DSSS System / 6dB BW	Yes			
§15.247(a)(2)	Spectrum Bandwidth of a DSSS System / 20dB BW	Yes			
§ 15.247 (b)(3)	Maximum output power (conducted)	Yes			
§ 15.247 (b)(3)	Max. peak output power (radiated)	Yes			
§15.247 (d)	Band-edge compliance of conducted emissions	Yes			
§15.205	Band-edge compliance of radiated emissions	Yes			
§15.247 (d)	Spurious Emission - conducted (Transmitter)	Yes			
§ 15.209	Spurious Emission -radiated (Transmitter)	Yes			
§ 15.109	Spurious Emissions-radiated (Receiver)	Yes			
§ 15.209	Spurious Emissions-radiated <30 MHz	Yes			
§ 15.107/207	Conducted Emissions <30 MHz	Yes			

5 RF measurement testing

5.1 Description of test set-up

5.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber.

The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

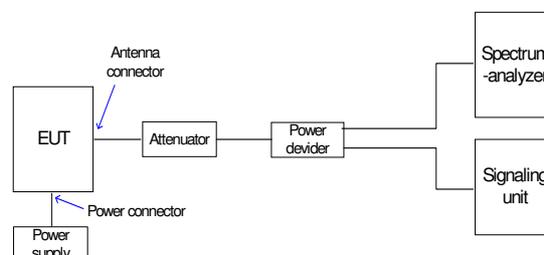
The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2003 clause 4.2. Antennas are confirmed with ANSI C63.2-1996 item 15.

- 9 kHz - 150 kHz: Quasi Peak measurement, 200 Hz Bandwidth, active loop antenna.
- 150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, active loop antenna.
- 30 MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, Tri-log antenna
- >1GHz: Average, RBW 1MHz, VBW 10 Hz, waveguide horn

All measurement settings are according to FCC 15.209 and 15.207

5.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is connected to the spectrum analyzer. The specific losses for signal path are first checked within a calibration. The measurement readings on the spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



5.2 Referenced Documents

None

5.3 Additional comments

The measurements are performed for the DSSS mode (low data rate 1 Mbit/s) with power setting 17 and for OFDM mode (high data rate 54 Mbit/s) with power setting 13.

5.4 Antenna gain

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.

Results: peak output power values (measured with R&S FSU 50 signal spectrum analyser)

OFDM mode	low channel 2412 MHz	mid channel 2437 MHz	high channel 2462 MHz
Conducted power [dBm] <i>(measured)</i>	22.82	23.34	23.05
Radiated power [dBm] <i>(measured)</i>	20.56	21.36	20.98
Gain [dBi] <i>(calculated)</i>	-2.26	-1.98	-2.07

Results: average output power values (measured with R&S NRP power meter)

DSSS mode	low channel 2412 MHz	mid channel 2437 MHz	high channel 2462 MHz
Conducted power [dBm] <i>(measured)</i>	17.57	18.24	17.91
Radiated power [dBm] <i>(measured)</i>	15.31	16.26	15.84

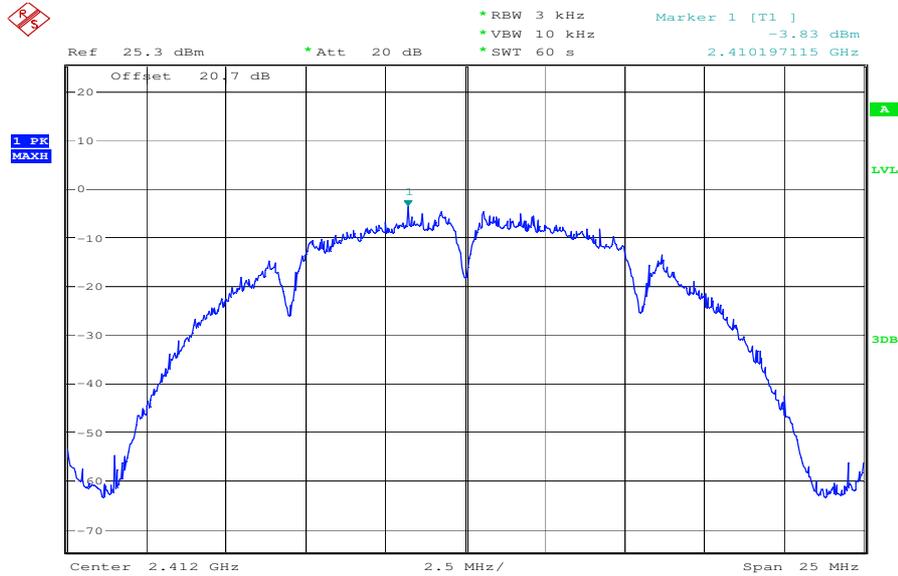
Results: average output power values (measured with R&S NRP power meter)

OFDM mode	low channel 2412 MHz	mid channel 2437 MHz	high channel 2462 MHz
Conducted power [dBm] <i>(measured)</i>	13.60	14.17	13.69
Radiated power [dBm] <i>(measured)</i>	11.34	12.19	11.62

5.5 Peak Power Spectral density (digitally modulated systems) §15.247(e)

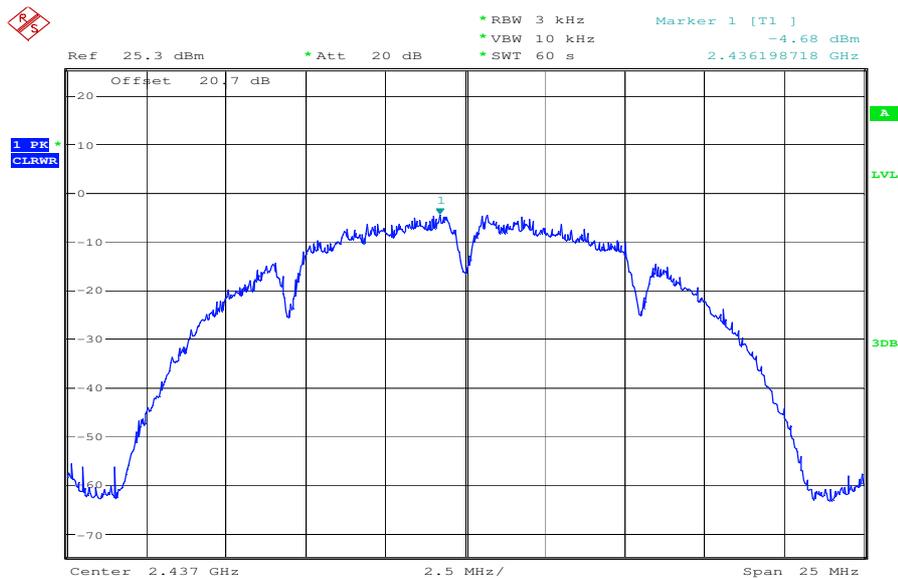
DSSS – mode:

Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz



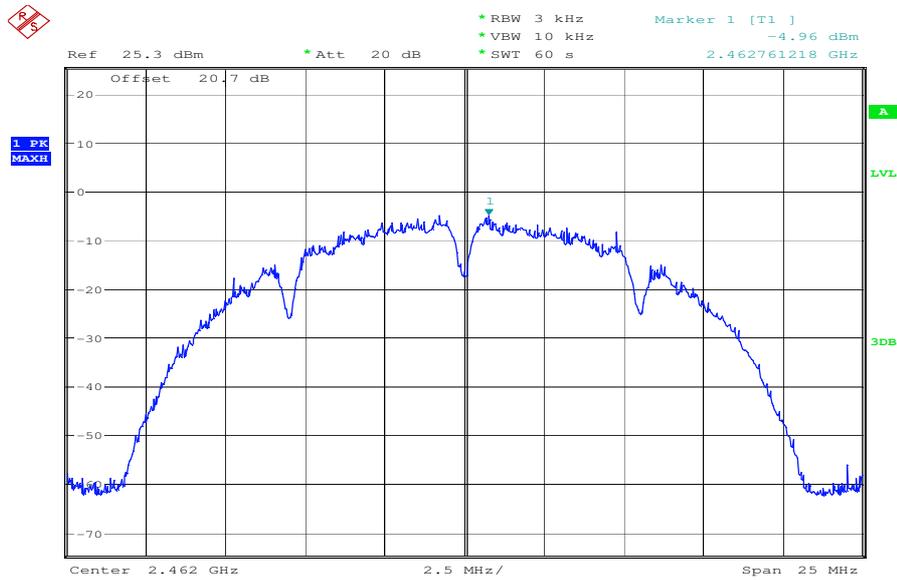
Date: 19.MAR.2010 09:05:58

Plot 2: TX mode, power setting 17, channel 6 – 2437 MHz



Date: 19.MAR.2010 09:07:28

Plot 3: TX mode, power setting 17, channel 11 – 2462 MHz



Date: 19.MAR.2010 09:09:21

Measurement settings: RBW: 3 kHz
 VBW: 10 kHz
 SWT: 60 s
 Detector: positive peak
 Trace: max hold

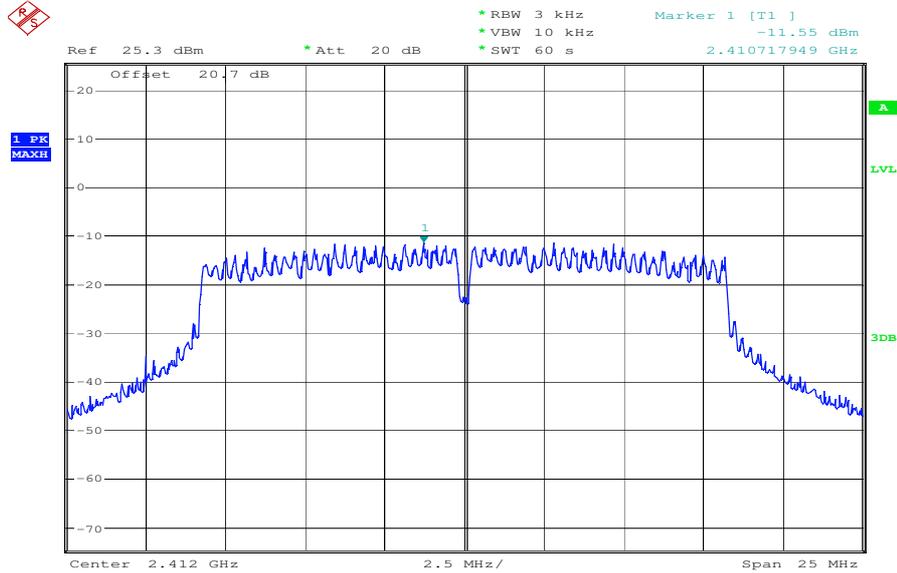
Results: Plot 1: Power density: -3.83 dBm / 3 kHz
 Plot 2: Power density: -4.68 dBm / 3 kHz
 Plot 3: Power density: -4.96 dBm / 3 kHz

Limits:

Under normal test conditions only	For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission
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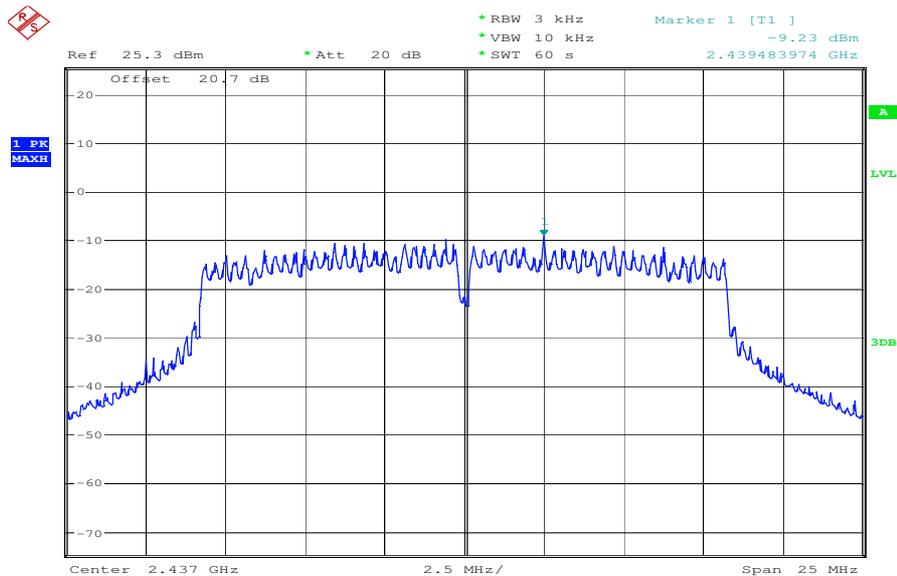
OFDM – mode:

Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz



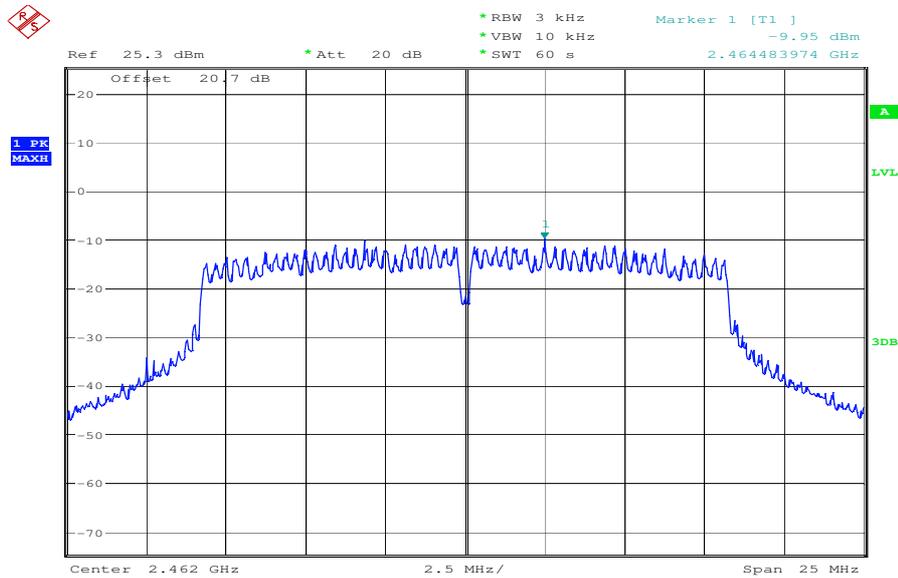
Date: 19.MAR.2010 09:23:00

Plot 2: TX mode, power setting 13, channel 6 – 2437 MHz



Date: 19.MAR.2010 09:21:27

Plot 3: TX mode, power setting 13, channel 11 – 2462 MHz



Date: 19.MAR.2010 09:18:40

Measurement settings: RBW: 3 kHz
 VBW: 10 kHz
 SWT: 60 s
 Detector: positive peak
 Trace: max hold

Results: Plot 1: Power density: -11.55 dBm / 3 kHz
 Plot 2: Power density: -9.23 dBm / 3 kHz
 Plot 3: Power density: -9.95 dBm / 3 kHz

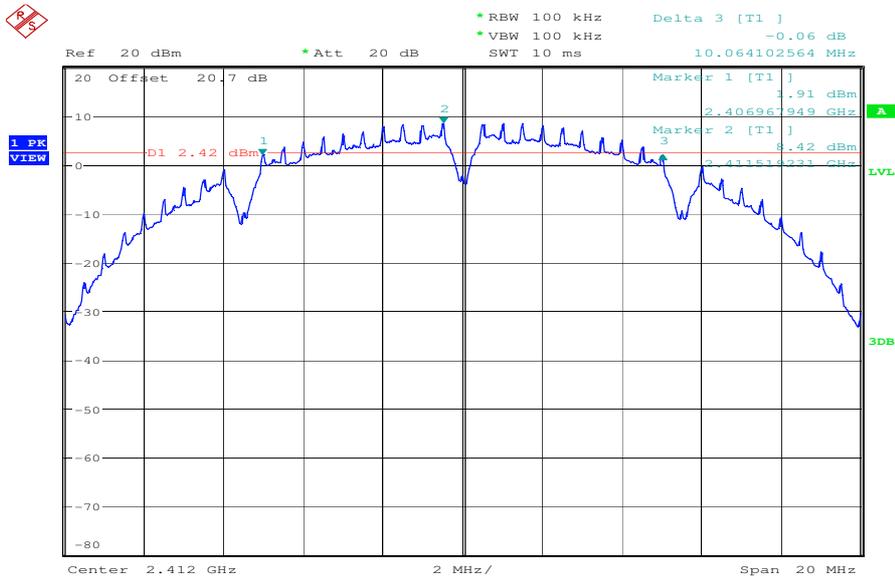
Limits:

Under normal test conditions only	For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission
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5.6 Spectrum Bandwidth of a DSSS System / 6 dB Bandwidth §15.247(a)(2)

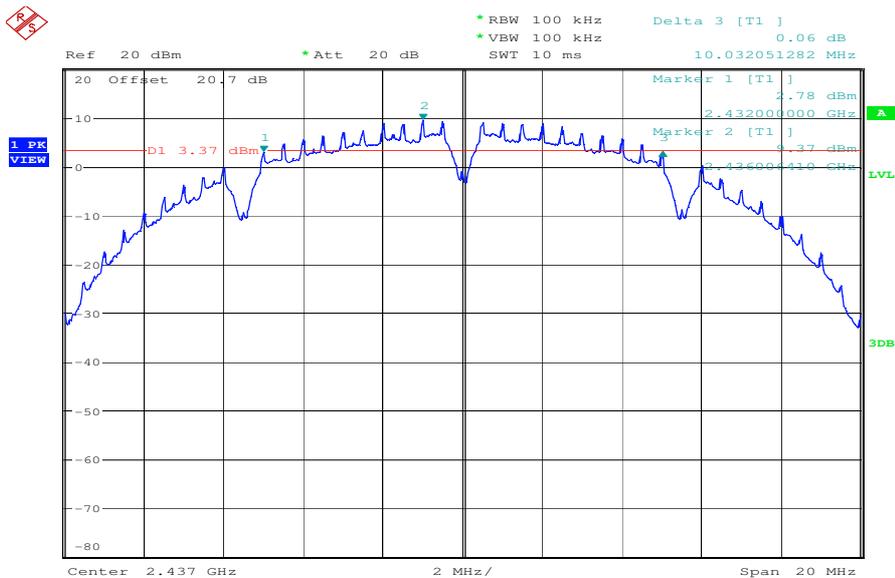
DSSS – mode:

Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz



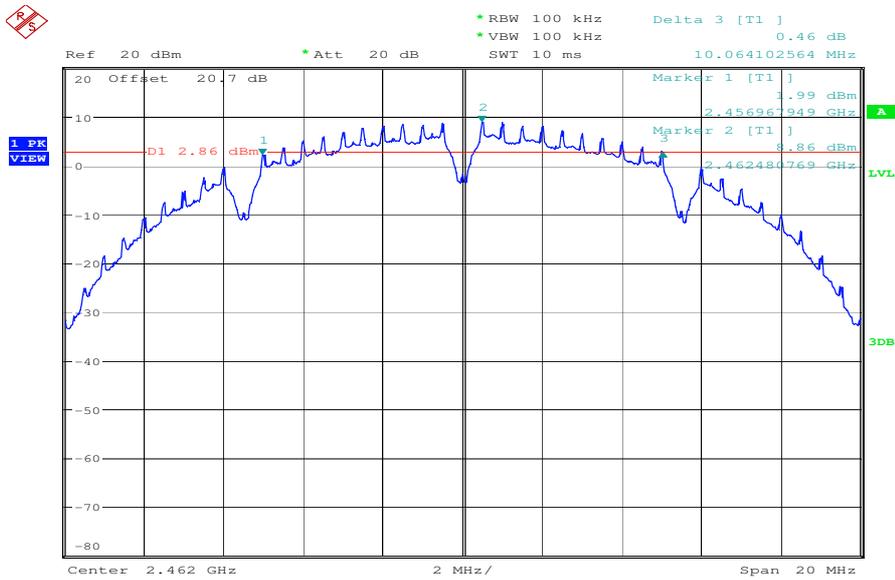
Date: 18.MAR.2010 11:30:12

Plot 2: TX mode, power setting 17, channel 6 – 2437 MHz



Date: 18.MAR.2010 11:33:07

Plot 3: TX mode, power setting 17, channel 11 – 2462 MHz



Date: 18.MAR.2010 11:35:59

Measurement settings: RBW: 100 kHz
 VBW: 100 kHz
 SWT: auto
 Detector: positive peak
 Trace: max hold → view
 Limit line: -6 dBc

Results:

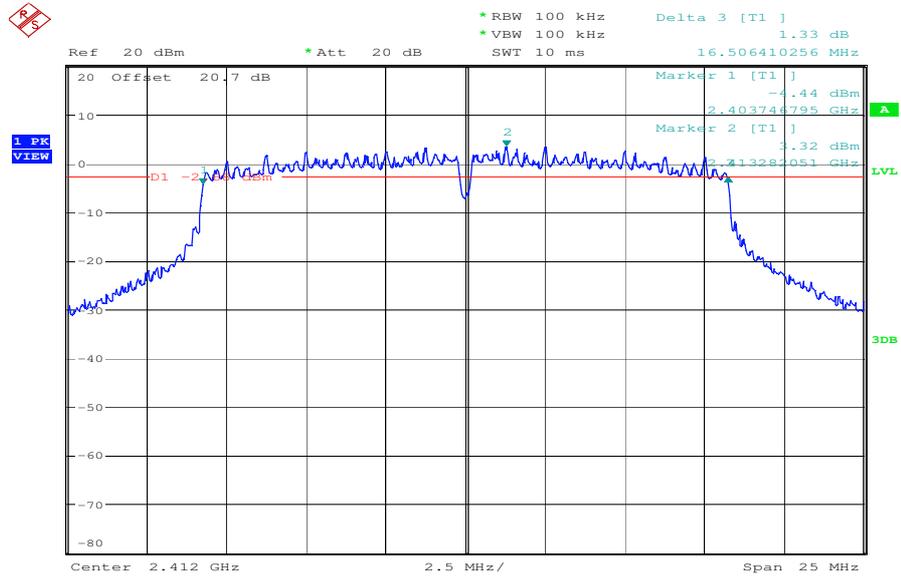
Test conditions		6 dB BANDWIDTH [MHz]		
		2412	2437	2462
Frequency [MHz]				
T _{nom}	V _{nom}	10.1	10.0	10.1
Measurement uncertainty		±100 kHz		

Limits:

Under normal test conditions only	> 500 kHz
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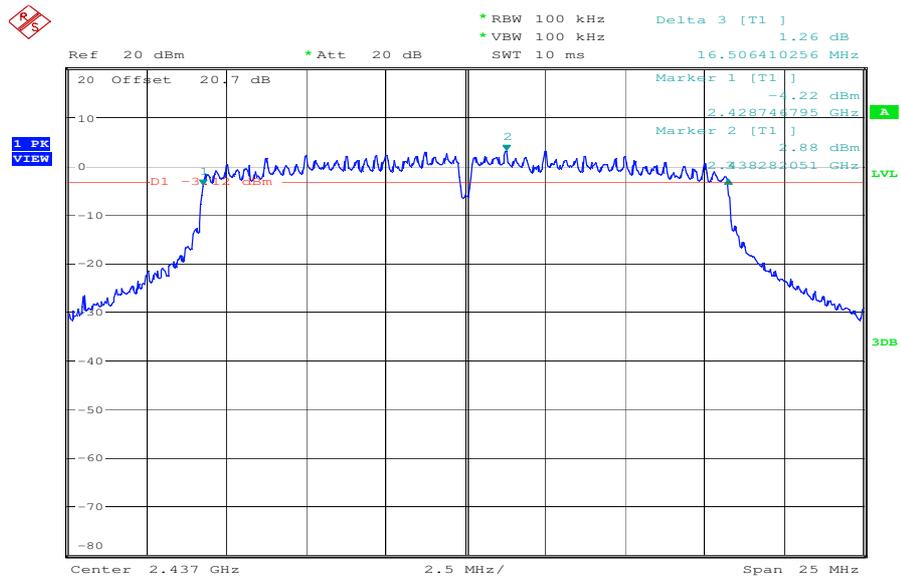
OFDM – mode:

Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz



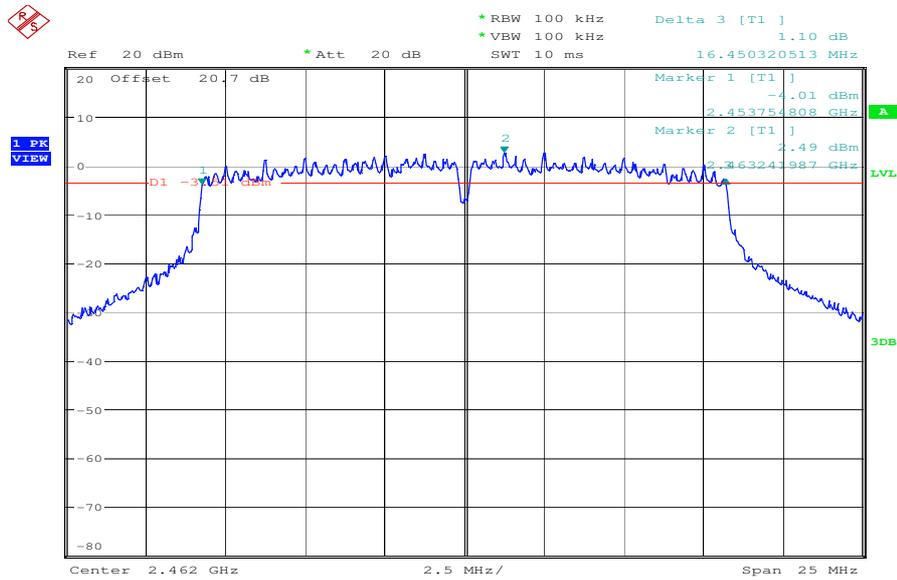
Date: 18.MAR.2010 11:58:34

Plot 2: TX mode, power setting 13, channel 6 – 2437 MHz



Date: 18.MAR.2010 11:47:18

Plot 3: TX mode, power setting 13, channel 11 – 2462 MHz



Date: 18.MAR.2010 11:44:15

Measurement settings: RBW: 100 kHz
 VBW: 100 kHz
 SWT: auto
 Detector: positive peak
 Trace: max hold → view
 Limit line: -6 dBc

Results:

Test conditions		6 dB BANDWIDTH [MHz]		
		2412	2437	2462
Frequency [MHz]				
T _{nom}	V _{nom}	16.5	16.5	16.5
Measurement uncertainty		±100 kHz		

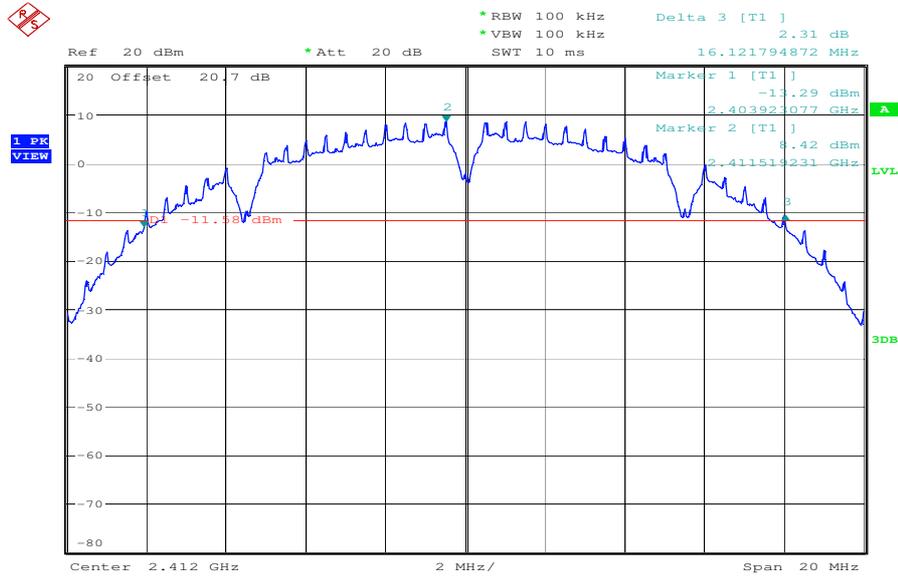
Limits:

Under normal test conditions only	> 500 kHz
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5.7 Spectrum Bandwidth of a DSSS System / 20 dB Bandwidth

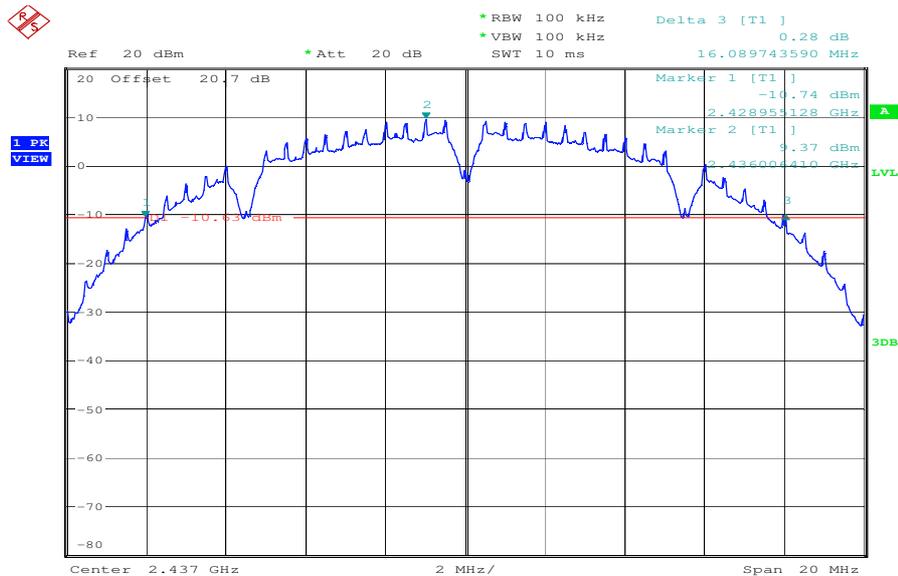
DSSS – mode:

Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz



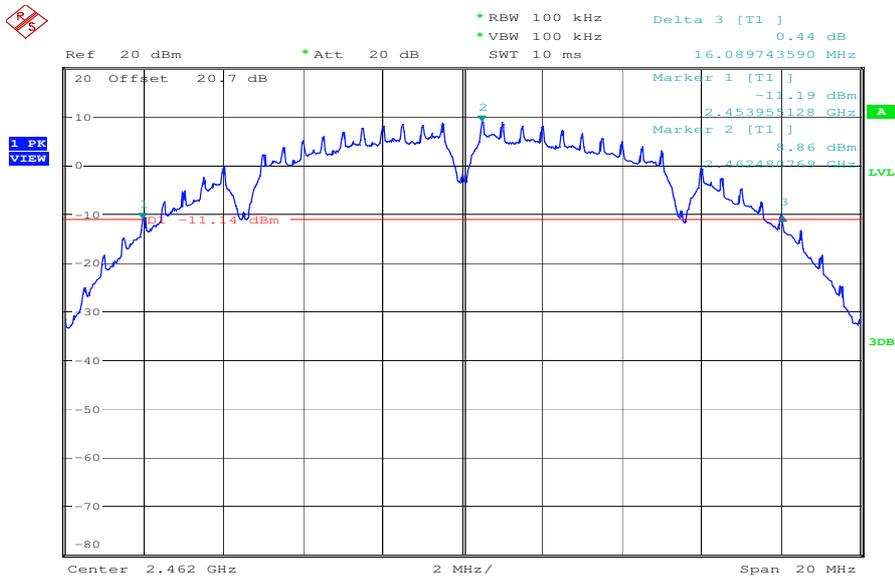
Date: 18.MAR.2010 11:30:55

Plot 2: TX mode, power setting 17, channel 6 – 2437 MHz



Date: 18.MAR.2010 11:33:39

Plot 3: TX mode, power setting 17, channel 11 – 2462 MHz



Date: 18.MAR.2010 11:36:34

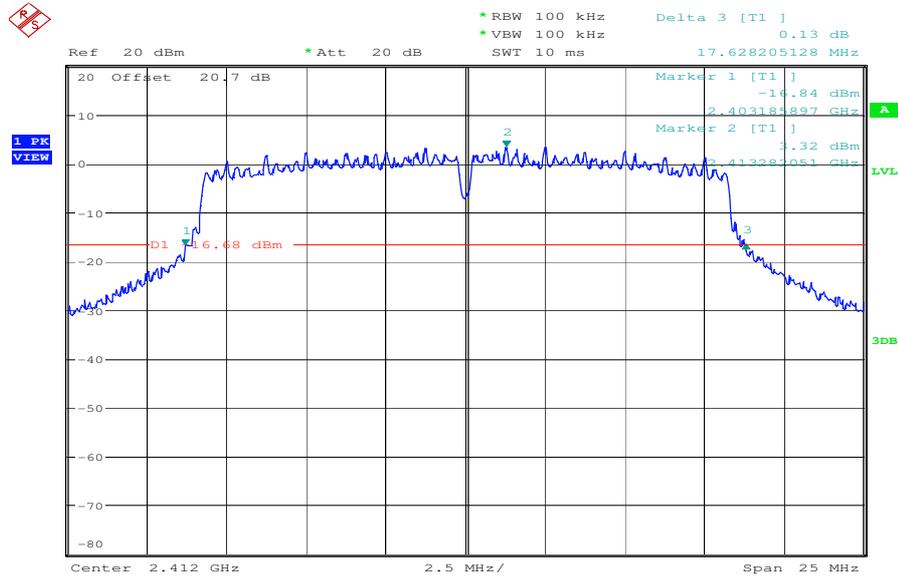
Measurement settings: RBW: 100 kHz
 VBW: 100 kHz
 SWT: auto
 Detector: positive peak
 Trace: max hold → view
 Limit line: -20 dBc

Results:

Test conditions		20 dB BANDWIDTH [MHz]		
		2412	2437	2462
Frequency [MHz]				
T _{nom}	V _{nom}	16.1	16.1	16.1
Measurement uncertainty		±100 kHz		

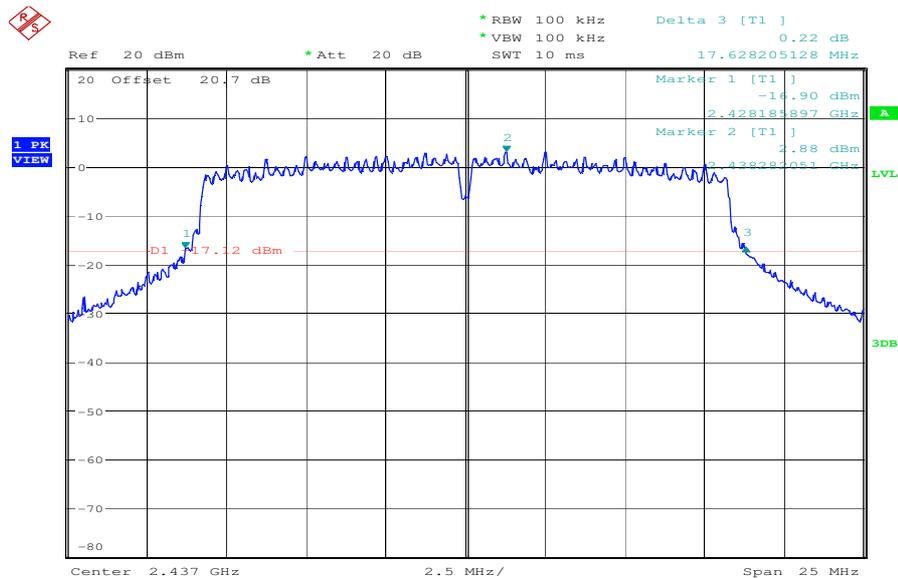
OFDM – mode:

Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz



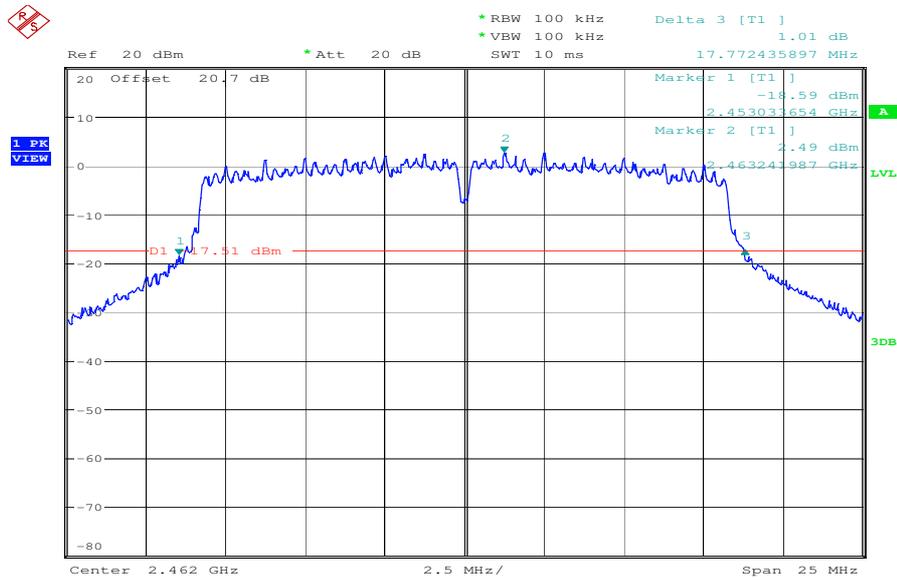
Date: 18.MAR.2010 11:59:07

Plot 2: TX mode, power setting 13, channel 6 – 2437 MHz



Date: 18.MAR.2010 11:47:55

Plot 3: TX mode, power setting 13, channel 11 – 2462 MHz



Date: 18.MAR.2010 11:45:14

Measurement settings: RBW: 100 kHz
 VBW: 100 kHz
 SWT: auto
 Detector: positive peak
 Trace: max hold → view
 Limit line: -20 dBc

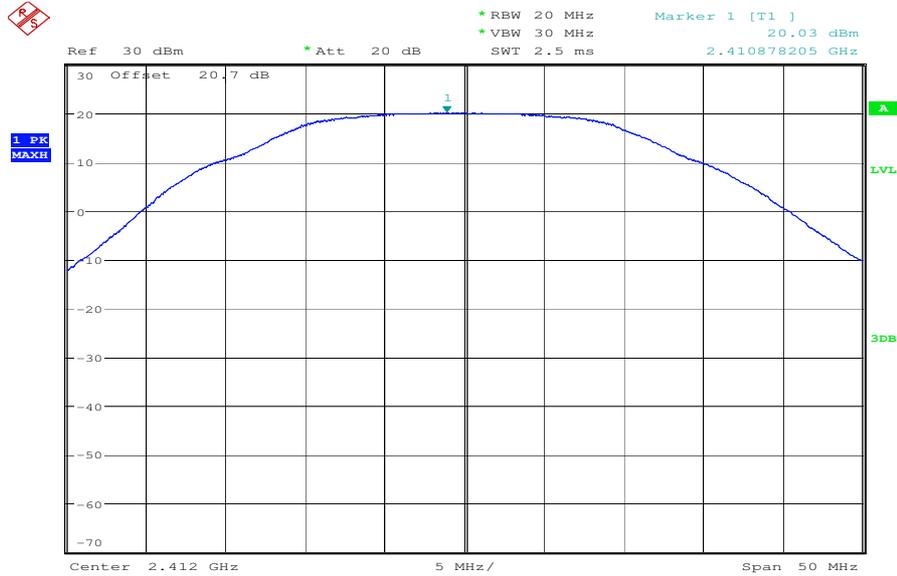
Results:

Test conditions		20 dB BANDWIDTH [MHz]		
		2412	2437	2462
Frequency [MHz]				
T _{nom}	V _{nom}	17.6	17.6	17.8
Measurement uncertainty		±100 kHz		

5.8 Maximum output power (conducted) §15.247 (b)(3)

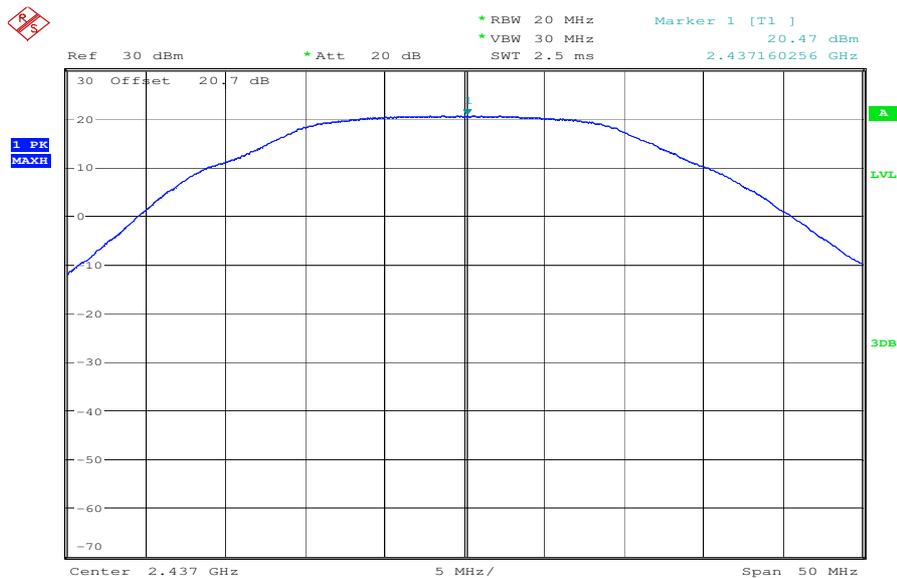
DSSS – mode:

Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz



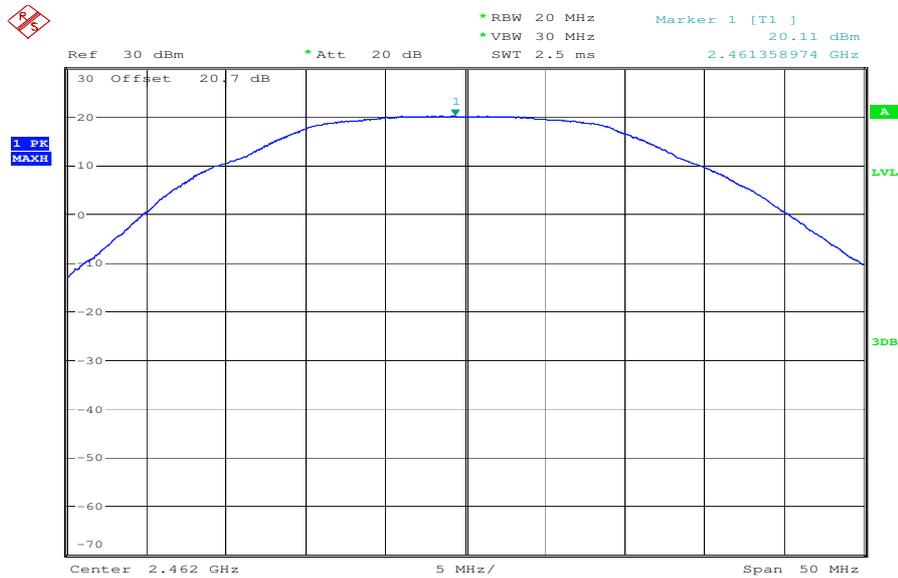
Date: 18.MAR.2010 12:08:13

Plot 2: TX mode, power setting 17, channel 6 – 2437 MHz



Date: 18.MAR.2010 12:09:35

Plot 3: TX mode, power setting 17, channel 11 – 2462 MHz



Date: 18.MAR.2010 12:10:43

Measurement settings: RBW: 20 MHz
 VBW: 30 MHz
 SWT: auto
 Detector: positive peak
 Trace: max hold

Results:

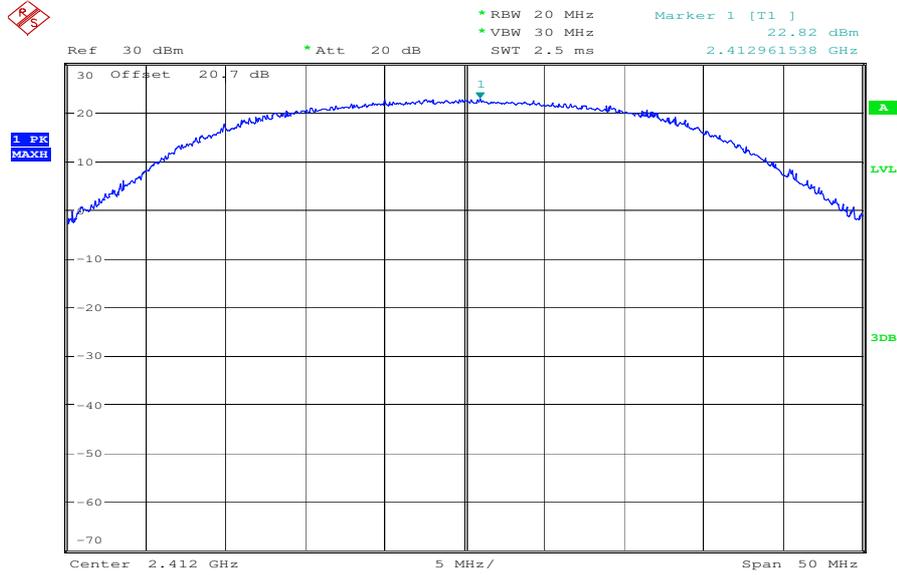
Test conditions		Max. peak output power [dBm]		
		2412	2437	2462
Frequency [MHz]				
T _{nom}	V _{nom}	20.03	20.47	20.11
Measurement uncertainty		±3dB		

Limits:

Under normal test conditions only, for frequency range 2400-2483.5 MHz	Max. 1.0 Watt / 30 dBm
--	------------------------

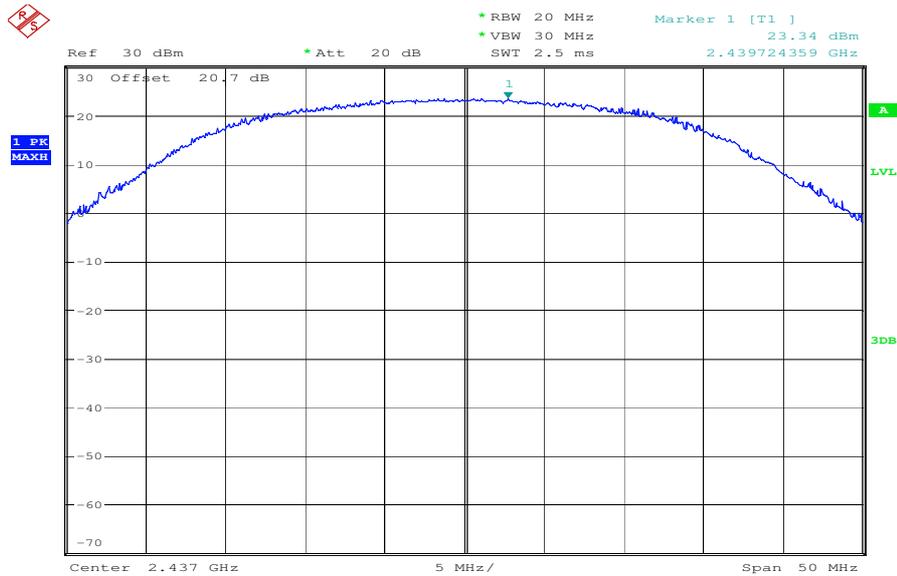
OFDM – mode:

Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz



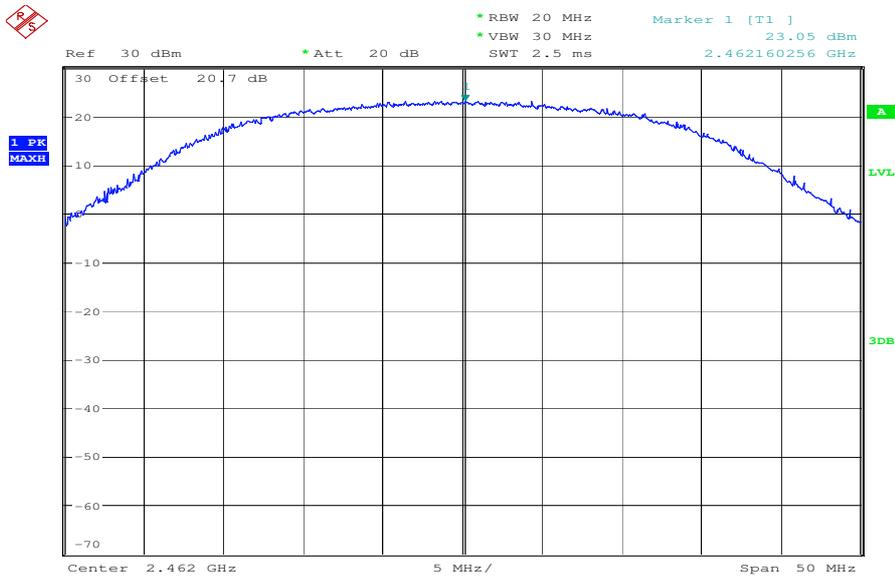
Date: 18.MAR.2010 12:14:57

Plot 2: TX mode, power setting 13, channel 6 – 2437 MHz



Date: 18.MAR.2010 12:14:01

Plot 3: TX mode, power setting 13, channel 11 – 2462 MHz



Date: 18.MAR.2010 12:12:52

Measurement settings: RBW: 20 MHz
 VBW: 30 MHz
 SWT: auto
 Detector: positive peak
 Trace: max hold

Results:

Test conditions		Max. peak output power [dBm]		
		2412	2437	2462
Frequency [MHz]				
T _{nom}	V _{nom}	22.82	23.34	23.05
Measurement uncertainty		±3dB		

Limits:

Under normal test conditions only, for frequency range 2400-2483.5 MHz	Max. 1.0 Watt / 30 dBm
--	------------------------

MPE calculation

These equations are generally accurate in the far field of an antenna but will over predict power density in the near field, where they could be used for making a “worst case” prediction.

$$S = PG/4\pi R^2$$

where S = power density (in appropriate units, e.g. mW/cm²)
P = power input to the antenna (in appropriate units e.g. mW)
G = power gain of the antenna in the direction of interest relative to the isotropic radiator
R = distance to the centre of radiation of the antenna (appropriate units e.g. cm)

Or

$$S = EIRP/4\pi R^2$$

where EIRP = equivalent isotropically radiated power

Calculation:

(Calculated for max. EIRP)

EIRP: 21.36 dBm (136.77 mW)

calculated at distance of 20 cm:

$$\text{power density} = 136.77 / 4 \pi 20^2 = 0.027 \text{ mW/cm}^2$$

Limit:

1mW/cm ² is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.
--

5.9 Max. peak output power (radiated) §15.247 (b)(3)

DSSS – mode:

Results:

Test conditions		Max. peak output power EIRP [dBm]		
		2412	2437	2462
Frequency [MHz]		2412	2437	2462
T _{nom}	V _{nom}	17.77	18.49	18.04
Measurement uncertainty		±3dB		

Measured at a distance of 3m

OFDM – mode:

Results:

Test conditions		Max. peak output power EIRP [dBm]		
		2412	2437	2462
Frequency [MHz]		2412	2437	2462
T _{nom}	V _{nom}	20.56	21.36	20.98
Measurement uncertainty		±3dB		

Measured at a distance of 3m

Measurement settings: RBW: 20 MHz
 VBW: 30 MHz
 SWT: auto
 Detector: positive peak
 Trace: max hold

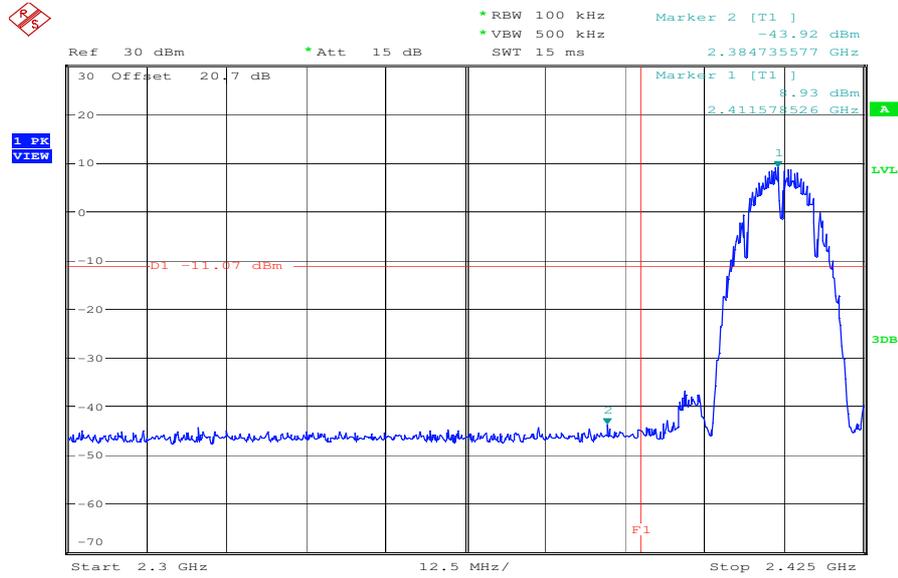
Limits:

Under normal test conditions only, for frequency range 2400-2483.5 MHz	Max. 1.0 Watt
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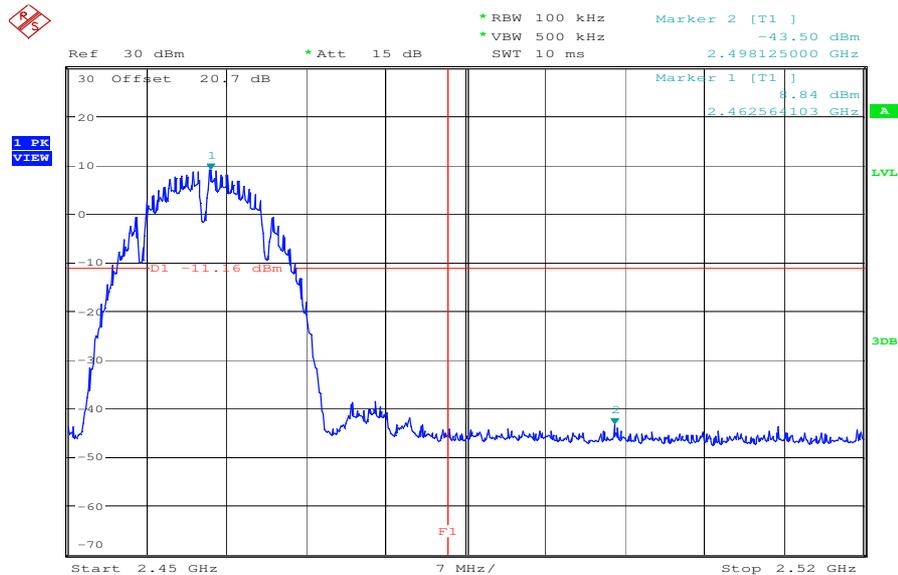
5.10 Band-edge compliance of conducted emissions §15.247 (d)

DSSS – mode:

Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz (lower band edge)



Plot 2: TX mode, power setting 17, channel 11 – 2462 MHz (upper band edge)



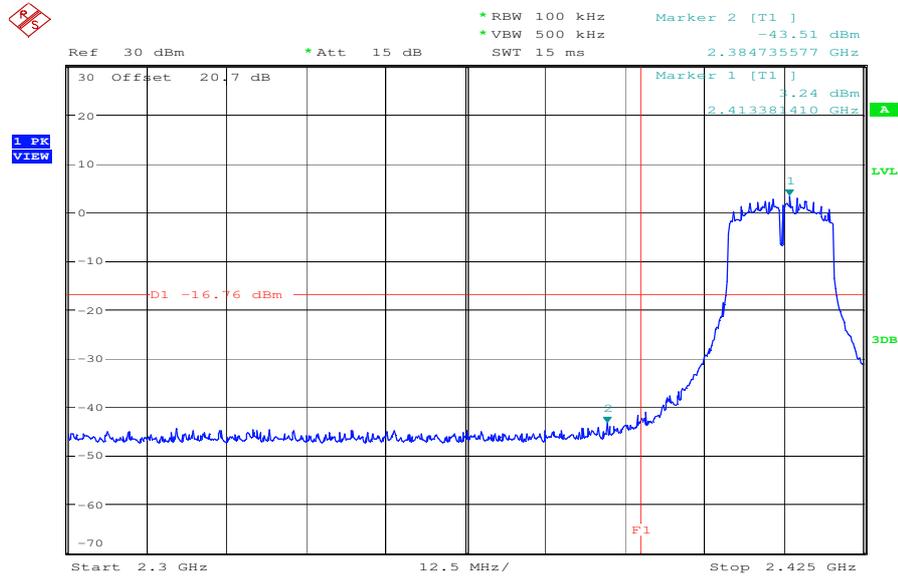
Measurement settings: RBW: 100 kHz
VBW: 500 kHz
SWT: auto
Detector: positive peak
Trace: max hold → view
Limit line: -20 dBc

Limits:

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).
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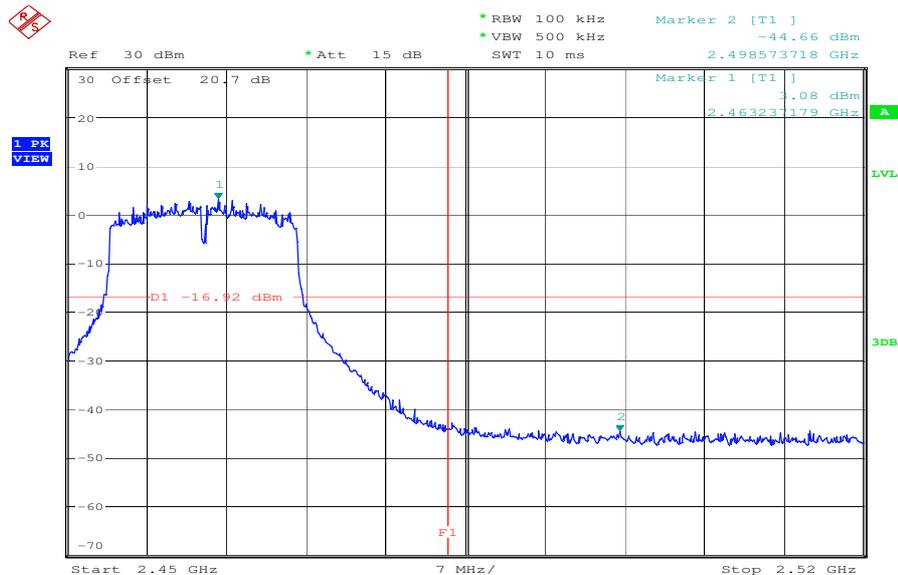
OFDM – mode:

Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz (lower band edge)



Date: 18.MAR.2010 13:33:38

Plot 2: TX mode, power setting 13, channel 11 – 2462 MHz (upper band edge)



Date: 18.MAR.2010 13:38:30

Measurement settings: RBW: 100 kHz
VBW: 500 kHz
SWT: auto
Detector: positive peak
Trace: max hold → view
Limit line: -20 dBc

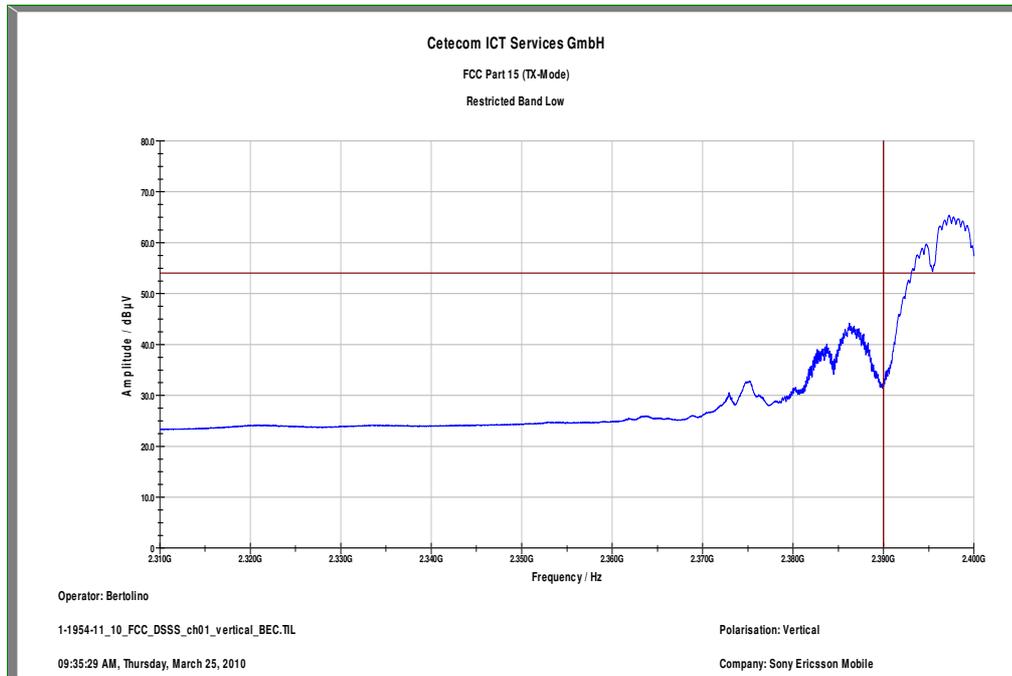
Limits:

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).
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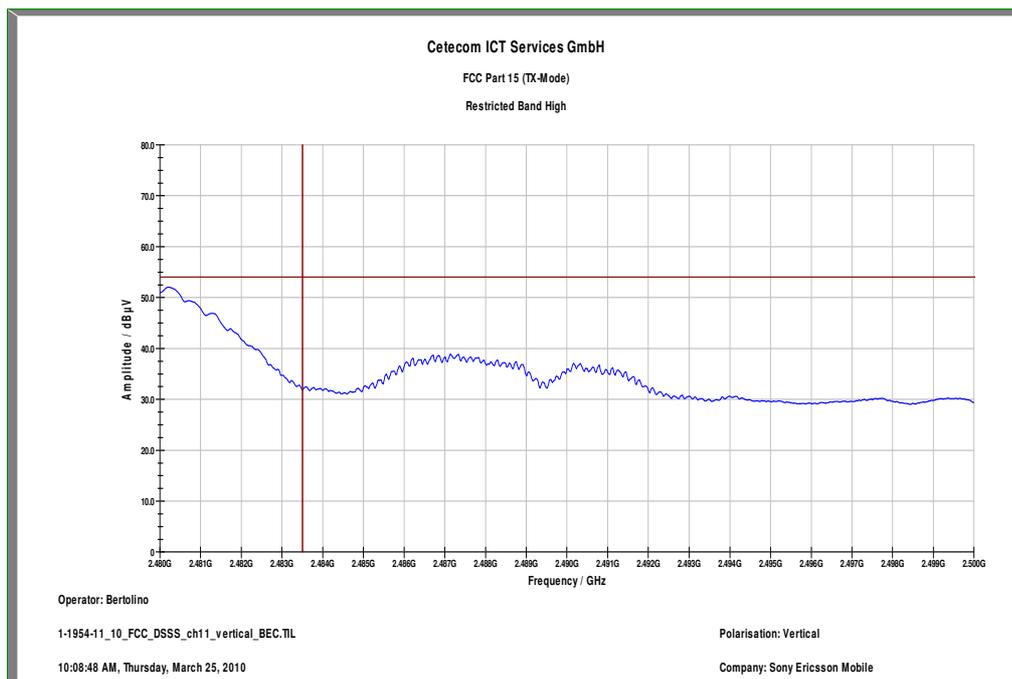
5.11 Band-edge compliance of radiated emissions §15.205

DSSS – mode:

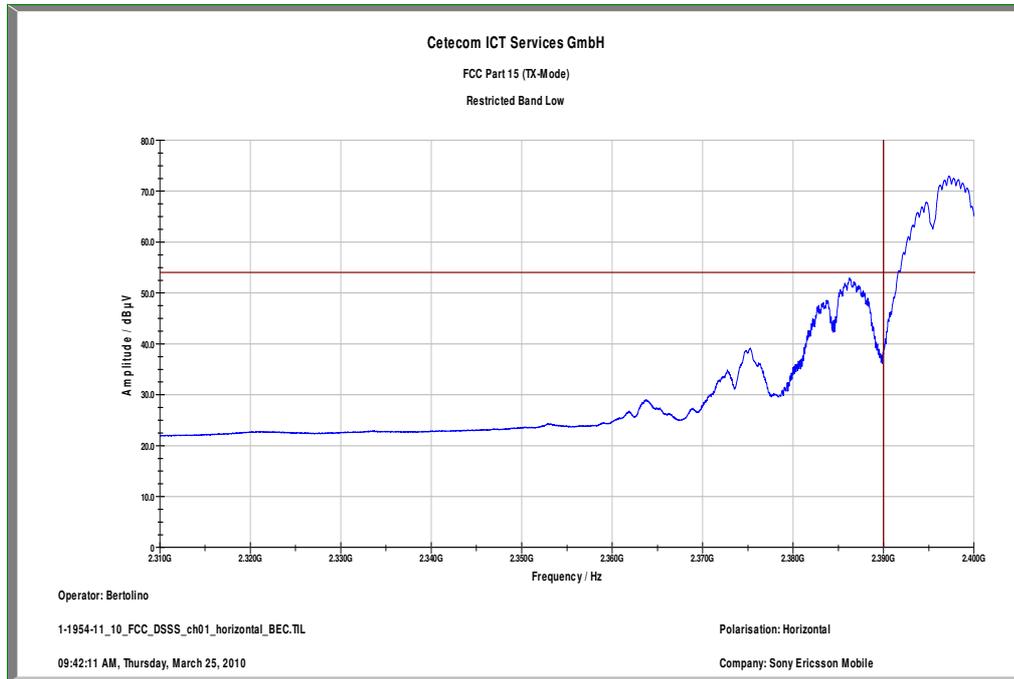
Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz (lower band edge), vertical polarization



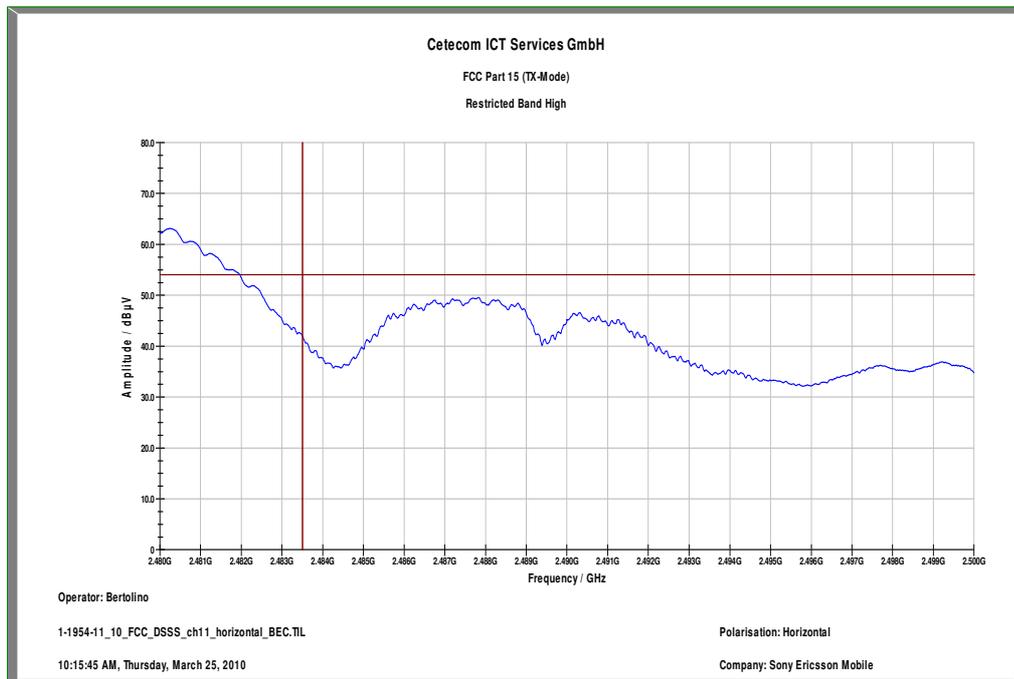
Plot 2: TX mode, power setting 17, channel 11 – 2462 MHz (upper band edge), vertical polarization



Plot 3: TX mode, power setting 17, channel 1 – 2412 MHz (lower band edge), horizontal polarization



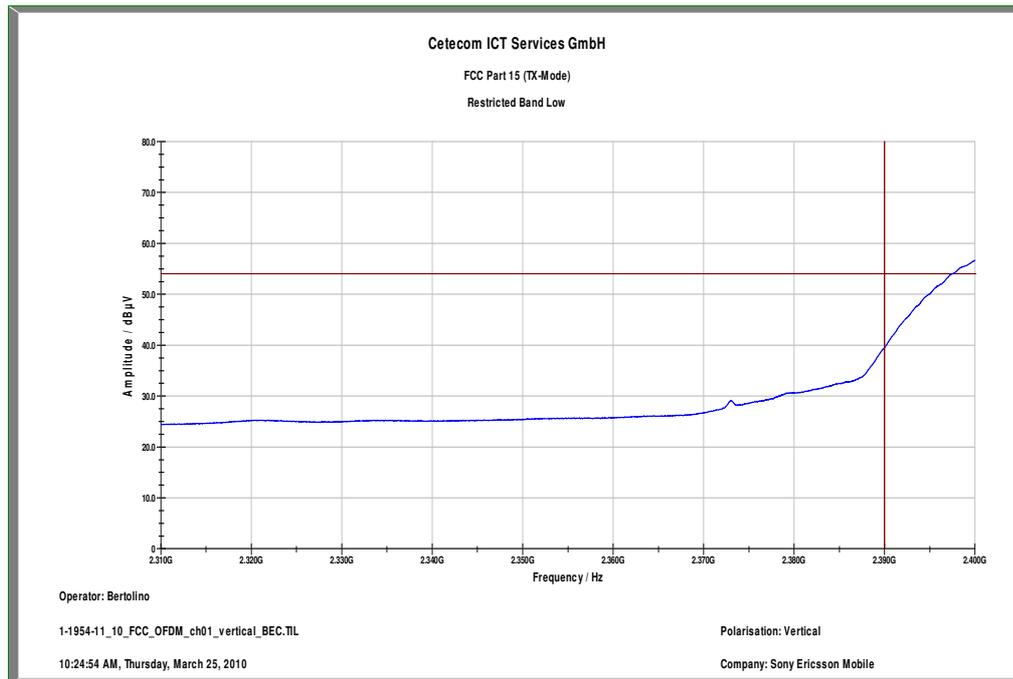
Plot 4: TX mode, power setting 17, channel 11 – 2462 MHz (upper band edge), horizontal polarization



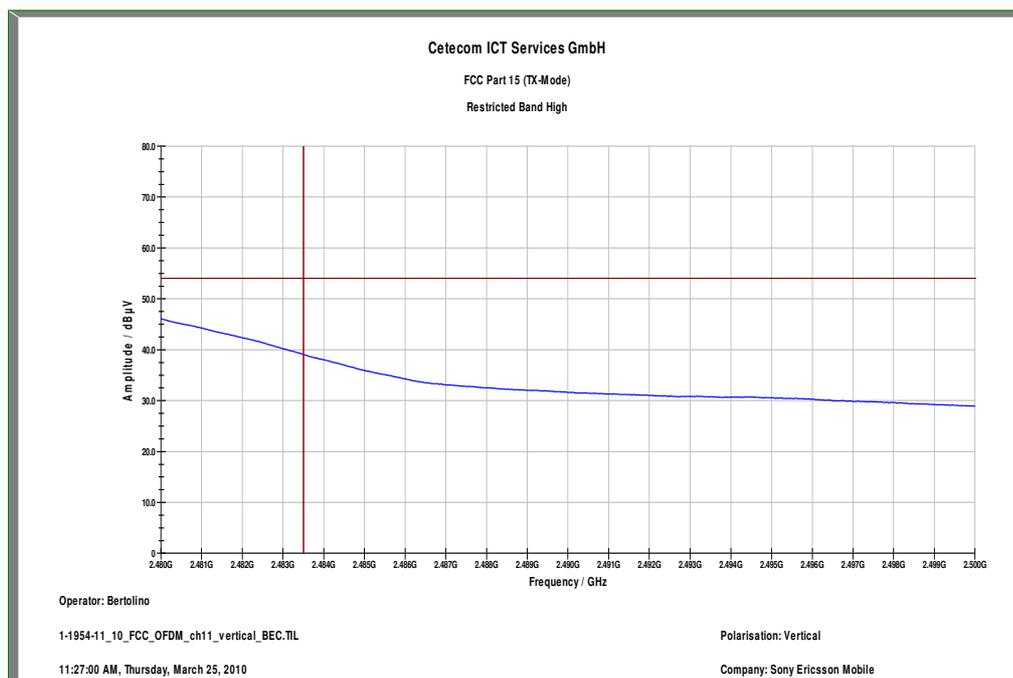
Measurement settings: RBW: 1 MHz
 VBW: 10 Hz
 SWT: auto
 Detector: positive peak
 Limit line: 54 dBµV/m @ 3m

OFDM – mode:

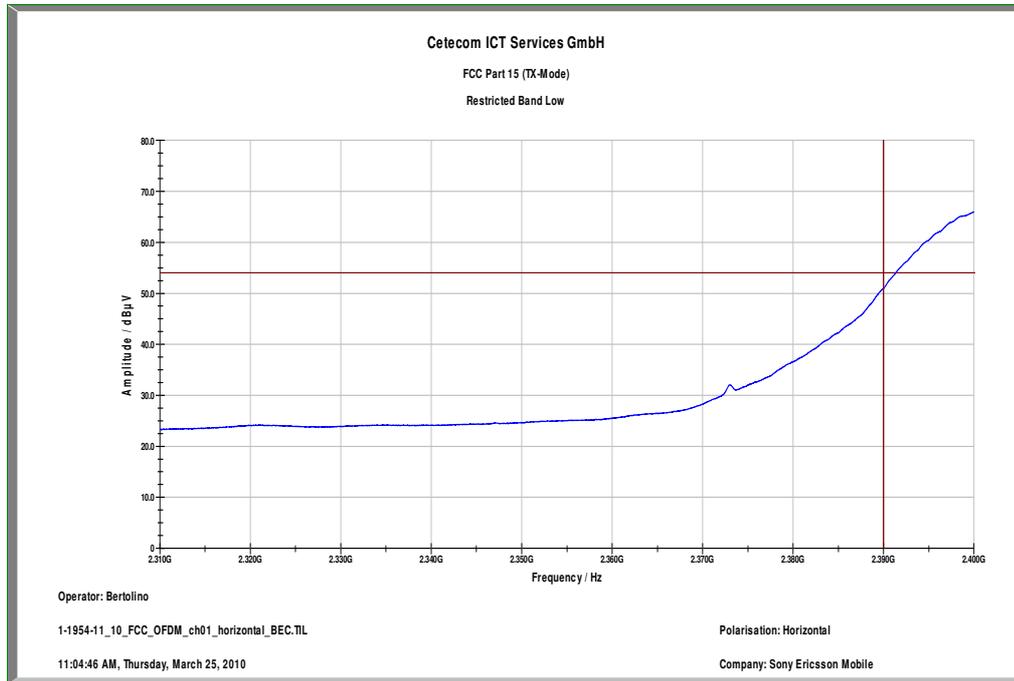
Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz (lower band edge), vertical polarization



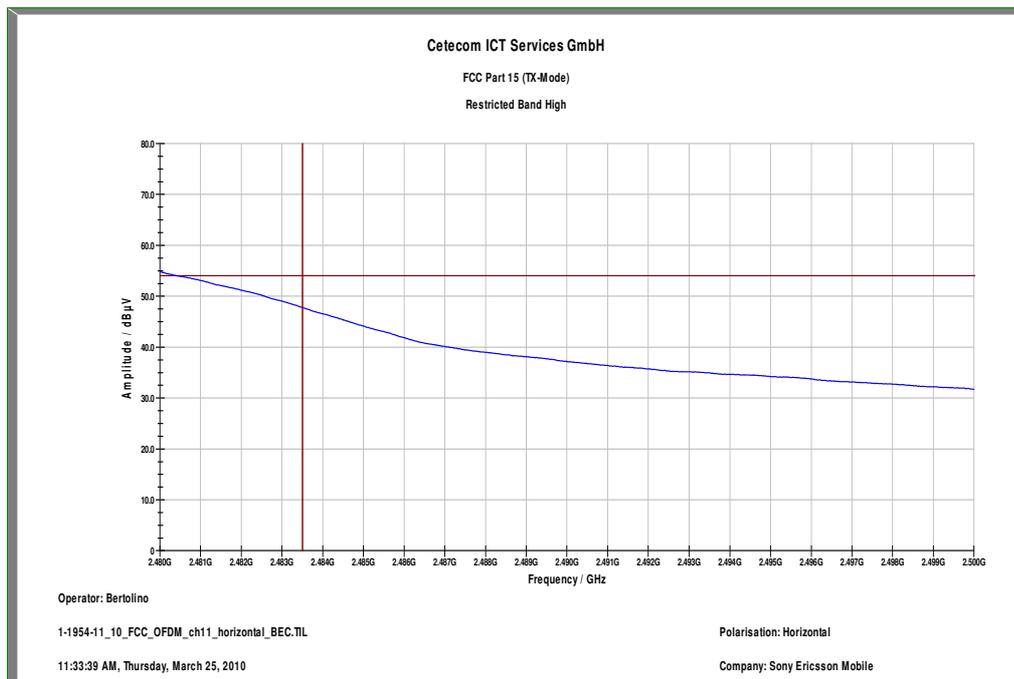
Plot 2: TX mode, power setting 13, channel 11 – 2462 MHz (upper band edge), vertical polarization



Plot 3: TX mode, power setting 13, channel 1 – 2412 MHz (lower band edge), horizontal polarization



Plot 4: TX mode, power setting 13, channel 11 – 2462 MHz (upper band edge), horizontal polarization

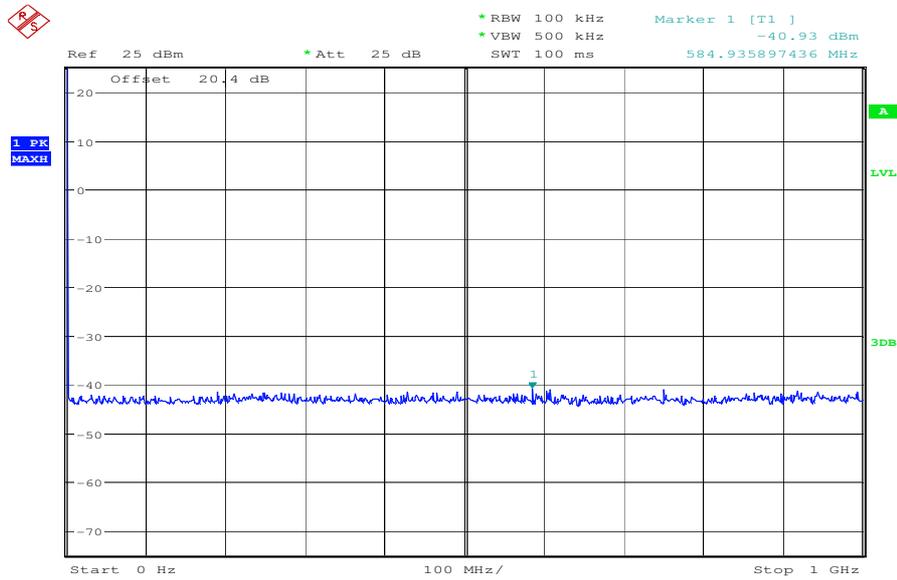


Measurement settings: RBW: 1 MHz
 VBW: 10 Hz
 SWT: auto
 Detector: positive peak
 Limit line: 54 dBµV/m @ 3m

5.12 Spurious Emissions - conducted (Transmitter) §15.247 (c)

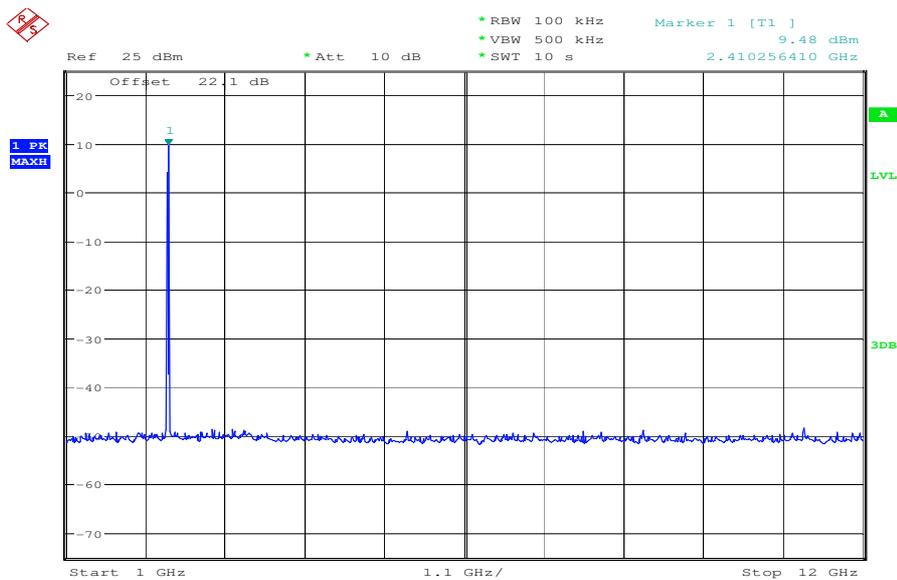
DSSS – mode:

Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz, 0 Hz – 1 GHz



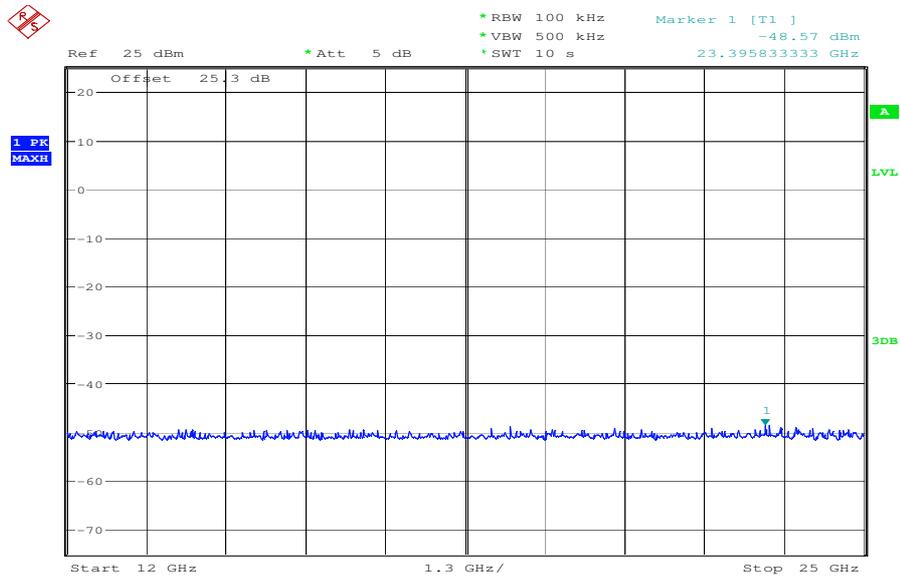
Date: 18.MAR.2010 13:41:51

Plot 2: TX mode, power setting 17, channel 1 – 2412 MHz, 1 GHz – 12 GHz



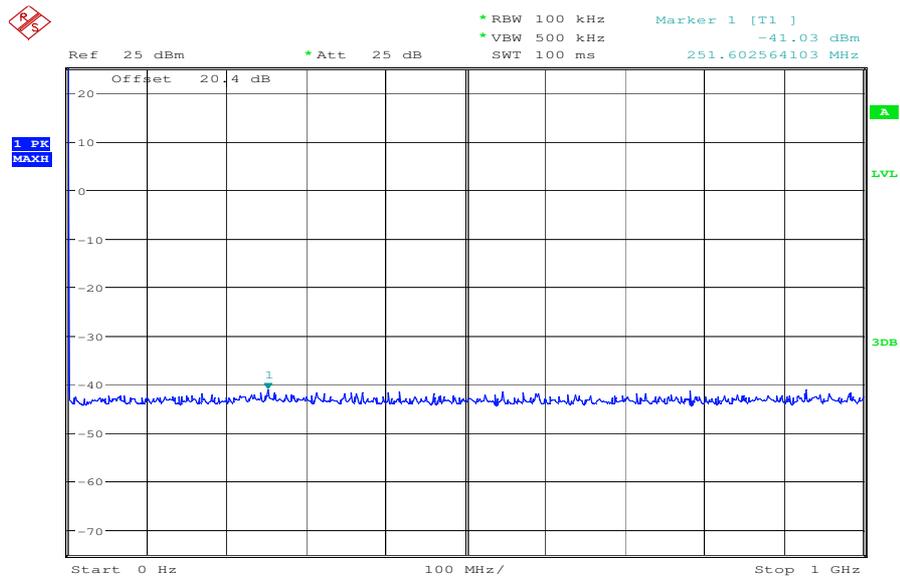
Date: 18.MAR.2010 13:52:28

Plot 3: TX mode, power setting 17, channel 1 – 2412 MHz, 12 GHz – 25 GHz



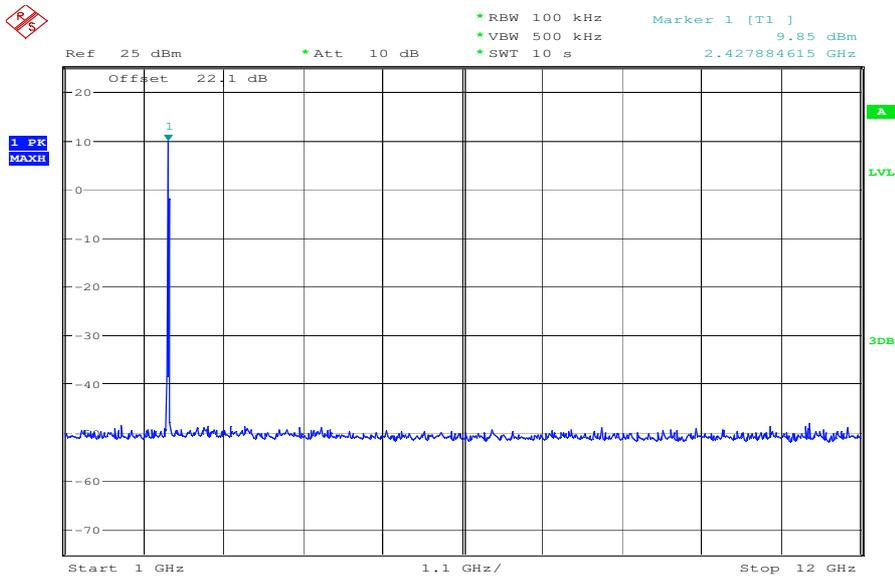
Date: 18.MAR.2010 14:03:44

Plot 4: TX mode, power setting 17, channel 6 – 2437 MHz, 0 Hz – 1 GHz



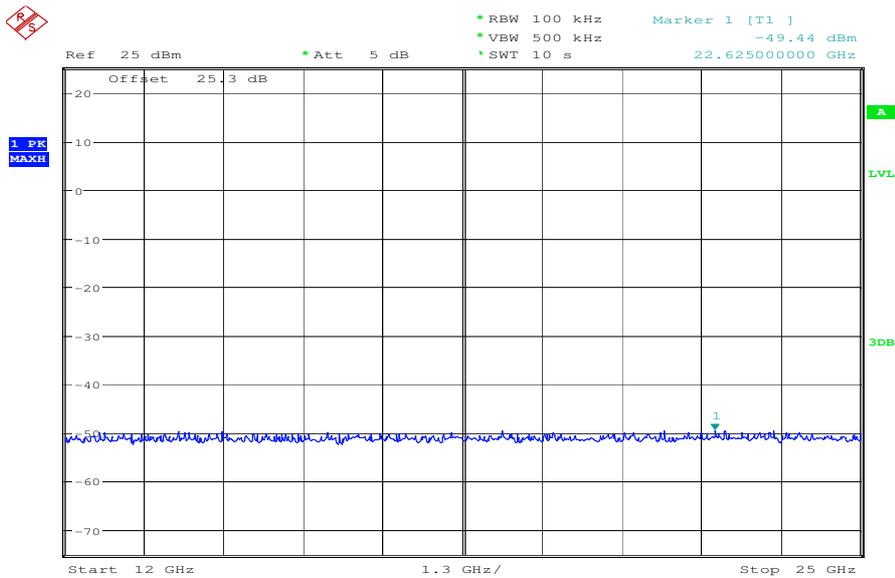
Date: 18.MAR.2010 13:42:41

Plot 5: TX mode, power setting 17, channel 6 – 2437 MHz, 1 GHz – 12 GHz



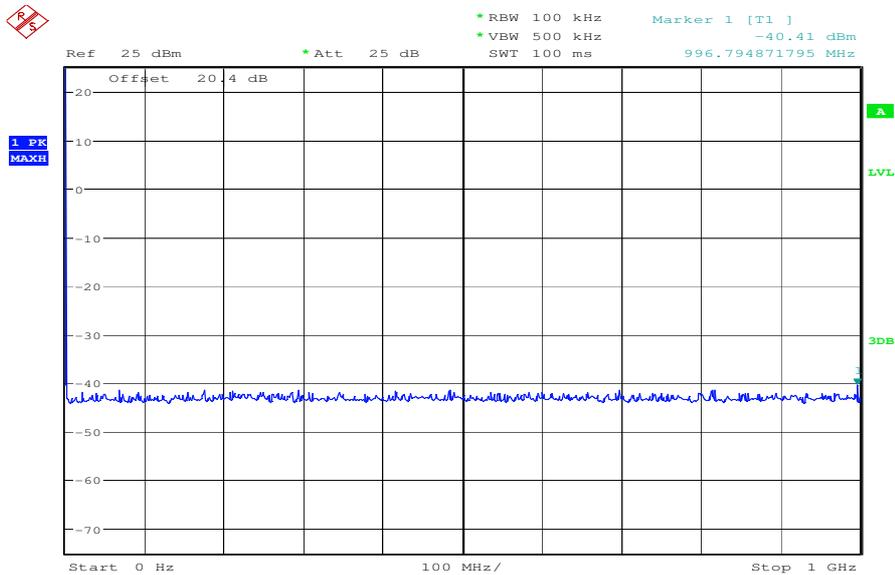
Date: 18.MAR.2010 13:53:28

Plot 6: TX mode, power setting 17, channel 6 – 2437 MHz, 12 GHz – 25 GHz



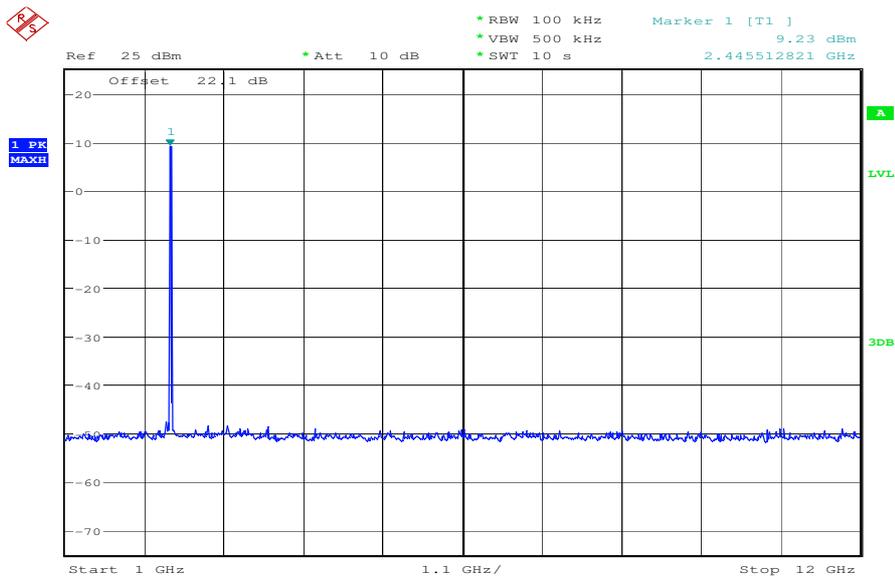
Date: 18.MAR.2010 14:04:53

Plot 7: TX mode, power setting 17, channel 11 – 2462 MHz, 0 Hz – 1 GHz



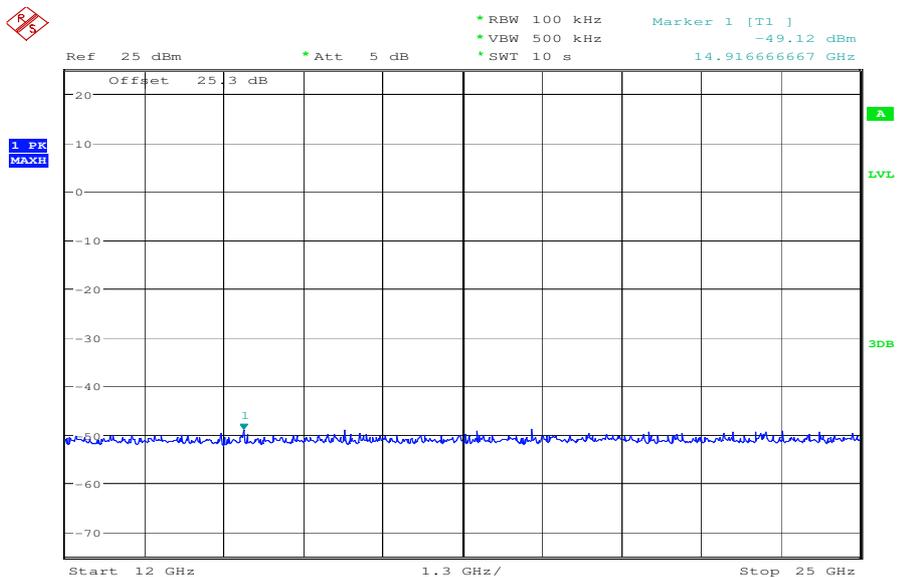
Date: 18.MAR.2010 13:43:32

Plot 8: TX mode, power setting 17, channel 11 – 2462 MHz, 1 GHz – 12 GHz



Date: 18.MAR.2010 13:56:03

Plot 9: TX mode, power setting 17, channel 11 – 2462 MHz, 12 GHz – 25 GHz



Date: 18.MAR.2010 14:05:57

Measurement settings: RBW: 100 kHz
 VBW: 500 kHz
 SWT: auto / 10s
 Detector: positive peak
 Trace: max hold

Result & Limits:

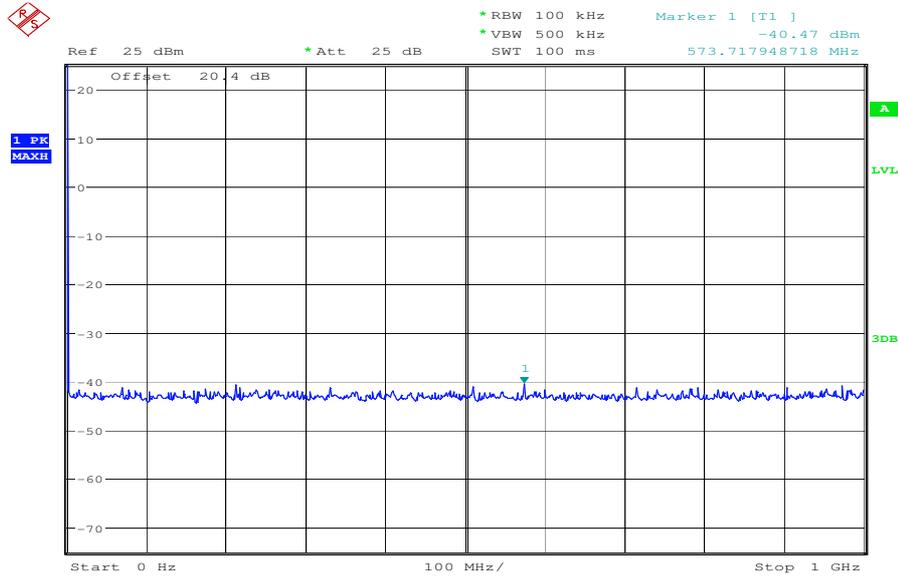
Emission Limitations					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		9.48	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		Passed
2437		9.85	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		Passed
2462		9.23	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		Passed
Measurement uncertainty		± 3dB			

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
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Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

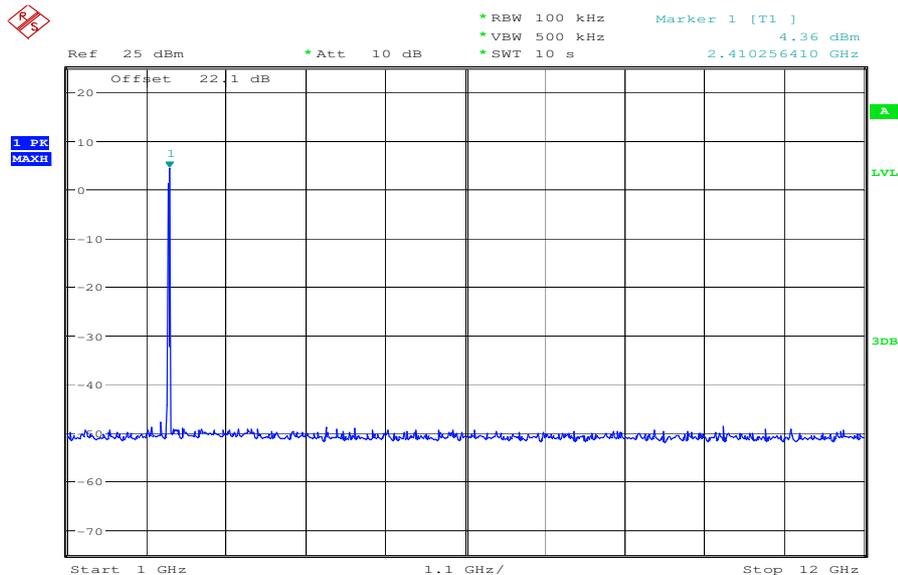
OFDM – mode:

Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz, 0 Hz – 1 GHz



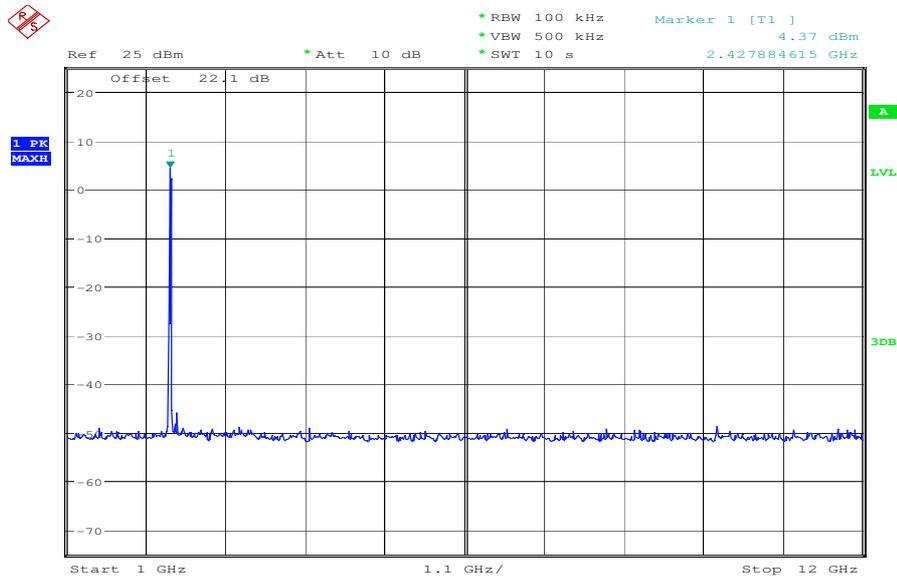
Date: 18.MAR.2010 13:44:36

Plot 2: TX mode, power setting 13, channel 1 – 2412 MHz, 1 GHz – 12 GHz



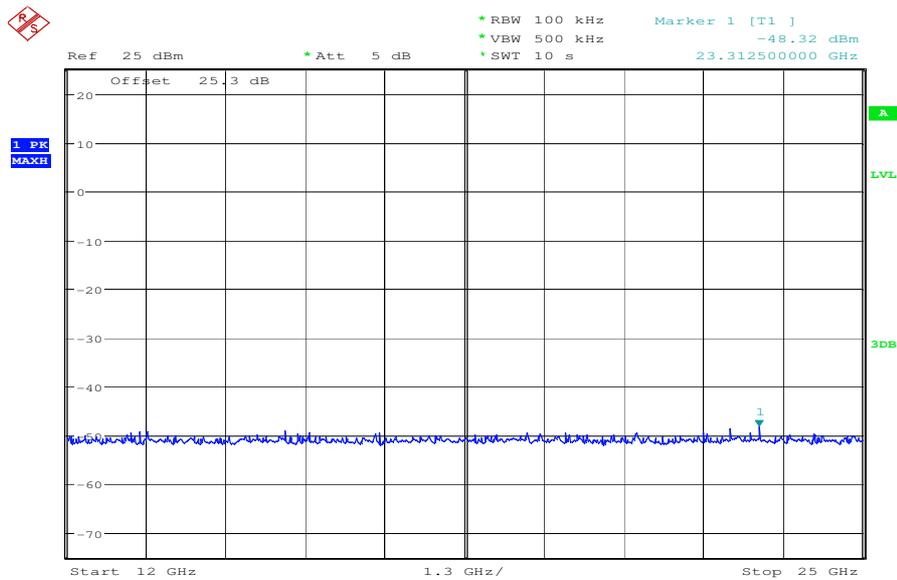
Date: 18.MAR.2010 13:51:05

Plot 5: TX mode, power setting 13, channel 6 – 2437 MHz, 1 GHz – 12 GHz



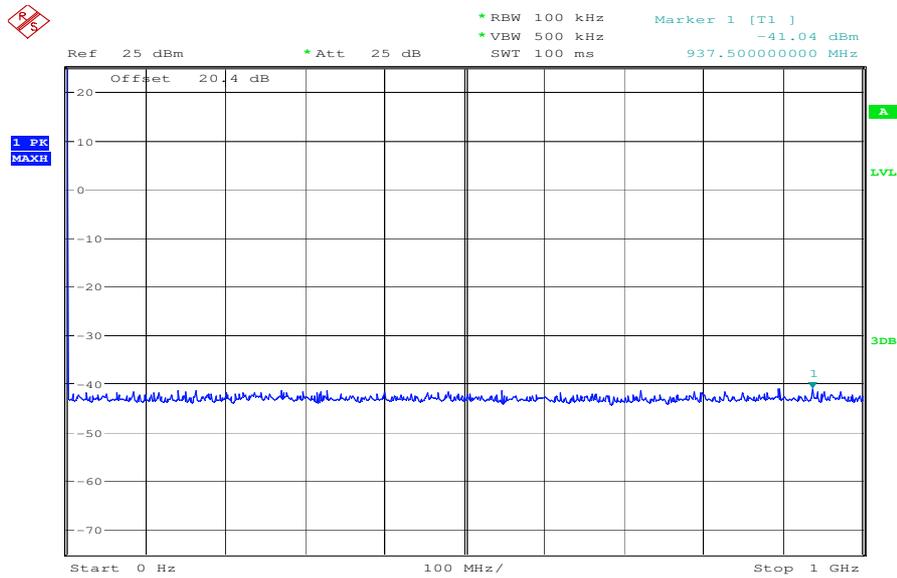
Date: 18.MAR.2010 13:50:07

Plot 6: TX mode, power setting 13, channel 6 – 2437 MHz, 12 GHz – 25 GHz



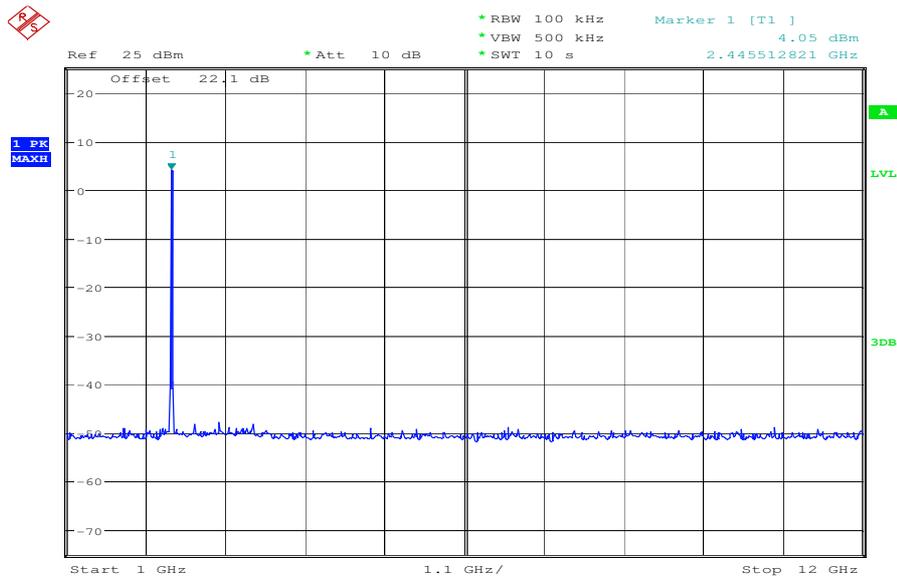
Date: 18.MAR.2010 14:08:07

Plot 7: TX mode, power setting 13, channel 11 – 2462 MHz, 0 Hz – 1 GHz



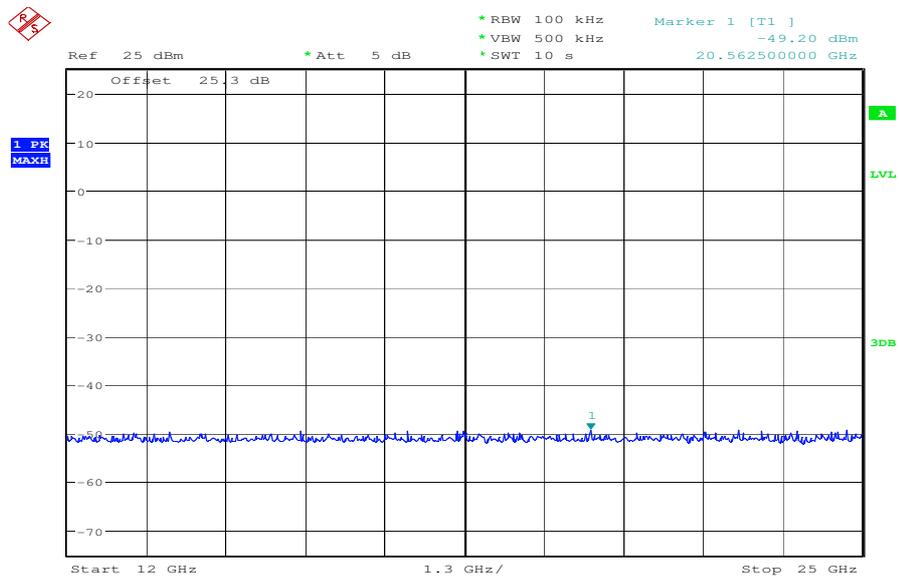
Date: 18.MAR.2010 13:46:25

Plot 8: TX mode, power setting 13, channel 11 – 2462 MHz, 1 GHz – 12 GHz



Date: 18.MAR.2010 13:49:16

Plot 9: TX mode, power setting 13, channel 11 – 2462 MHz, 12 GHz – 25 GHz



Date: 18.MAR.2010 14:09:16

Measurement settings: RBW: 100 kHz
 VBW: 500 kHz
 SWT: auto / 10s
 Detector: positive peak
 Trace: max hold

Result & Limits:

Emission Limitations					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		4.36	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		Passed
2437		4.37	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		Passed
2462		4.05	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		Passed
Measurement uncertainty		± 3dB			

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
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Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

5.13 Spurious Emissions - radiated (Transmitter) §15.209

DSSS – mode:

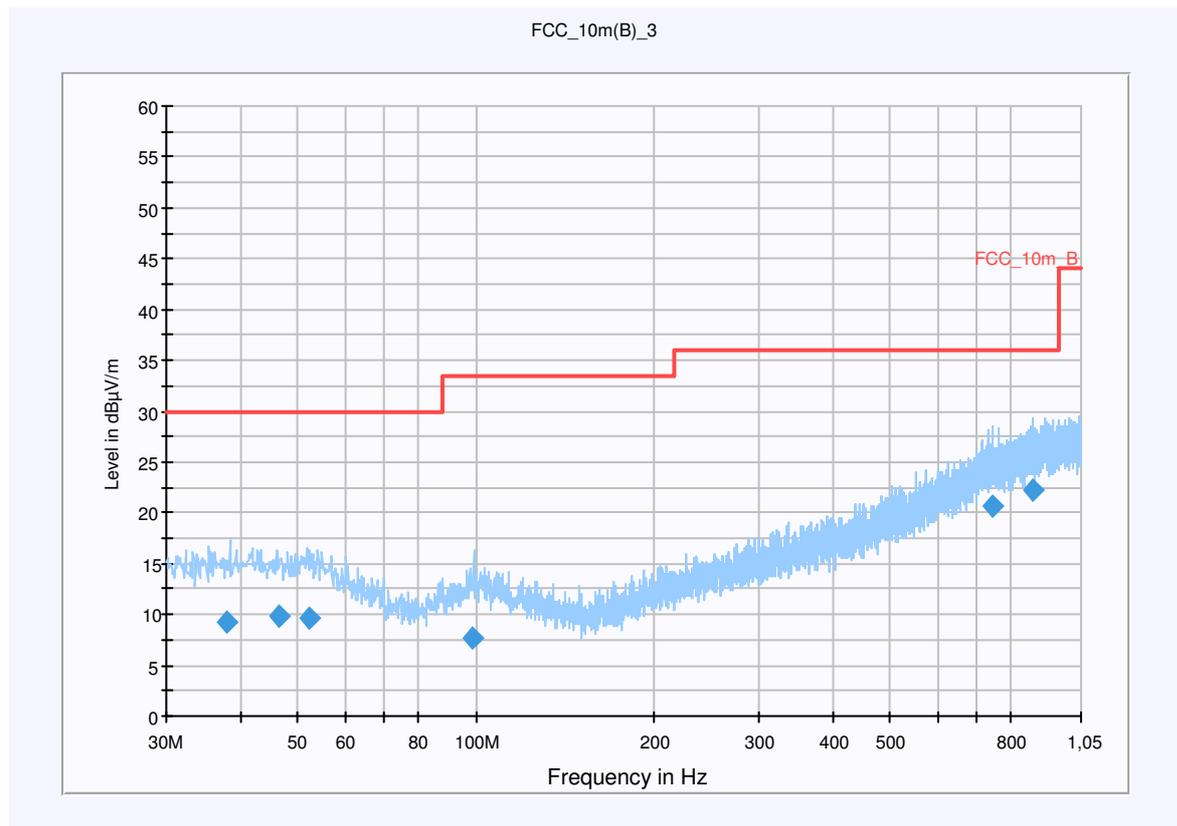
Plot 1: TX mode, power setting 17, channel 1 – 2412 MHz, 0.03 - 1 GHz, vertical & horizontal polarization

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN DSSS TX Ch 1 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

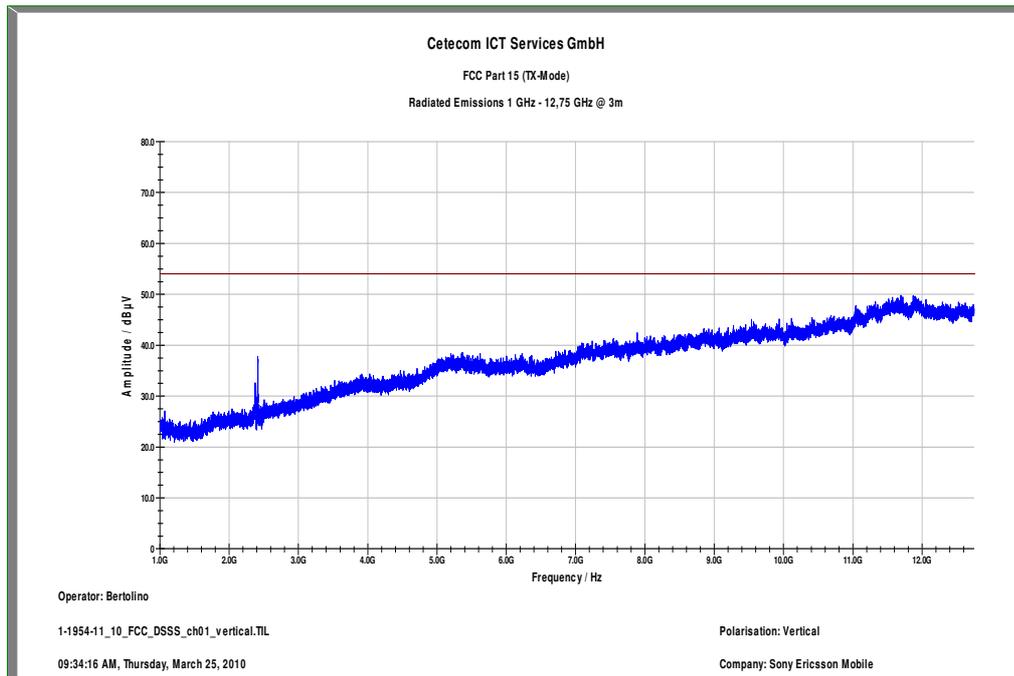
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
37.850250	9.2	15000.000	120.000	120.0	V	36.0	13.3	20.8	30.0	
46.360350	9.8	15000.000	120.000	98.0	V	21.0	13.3	20.2	30.0	
52.240500	9.7	15000.000	120.000	98.0	V	126.0	13.2	20.3	30.0	
98.843250	7.8	15000.000	120.000	104.0	H	-4.0	11.7	25.7	33.5	
742.924200	20.6	15000.000	120.000	112.0	V	18.0	23.4	15.4	36.0	
872.310900	22.2	15000.000	120.000	98.0	V	240.0	24.8	13.8	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113
Antenna Tower:	Correction Table: Cable_EN_1GHz (0909) Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

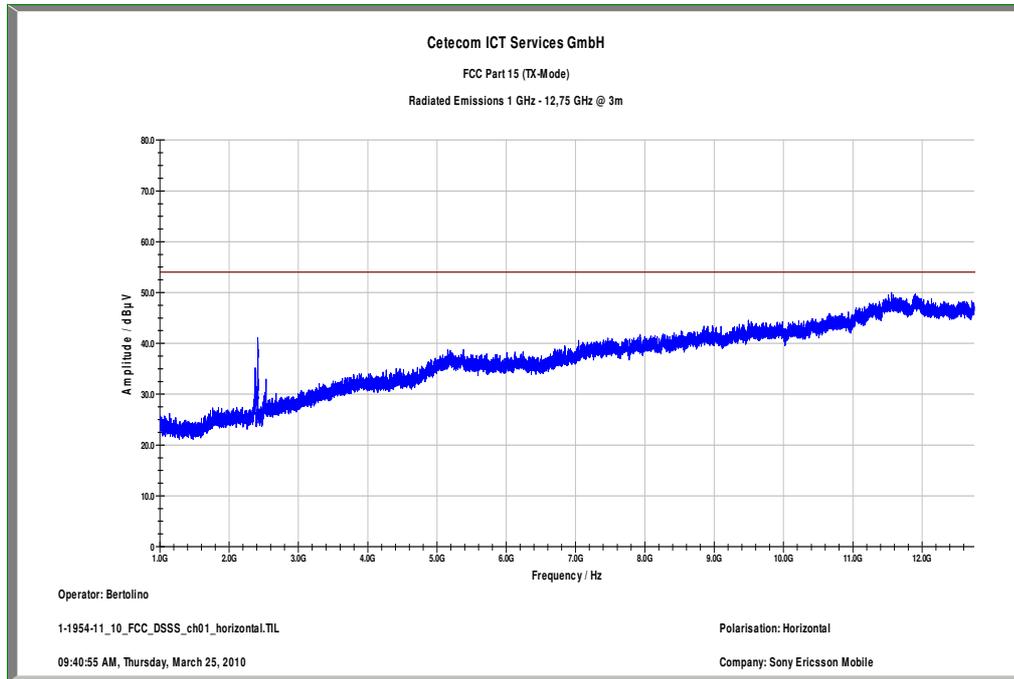
EMC 32 Version 8.10.00

Plot 2: TX mode, power setting 17, channel 1 – 2412 MHz, 1GHz – 12.75 GHz, vertical polarization



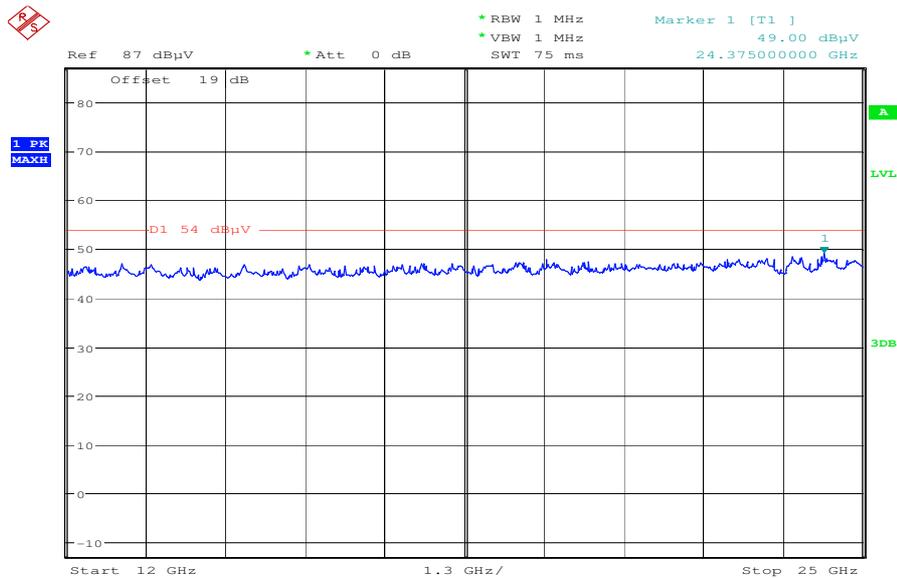
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 3: TX mode, power setting 17, channel 1 – 2412 MHz, 1GHz – 12.75 GHz, horizontal polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 4: TX mode, power setting 17, channel 1 – 2412 MHz, 12 GHz – 25 GHz, vertical & horizontal polarization (Valid for all channels)



Date: 24.MAR.2010 10:45:09

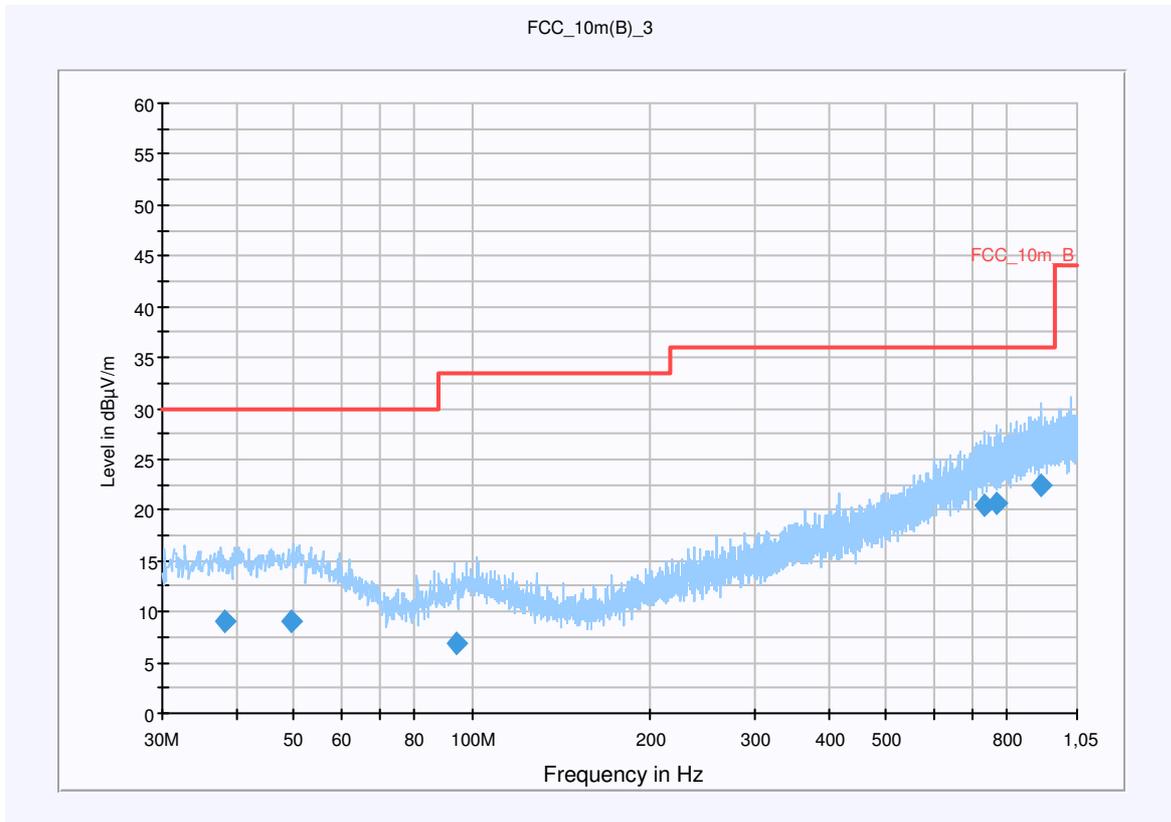
Plot 5: TX mode, power setting 17, channel 6 – 2437 MHz, 0.03 - 1 GHz, vertical & horizontal polarization

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN DSSS TX Ch 6 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

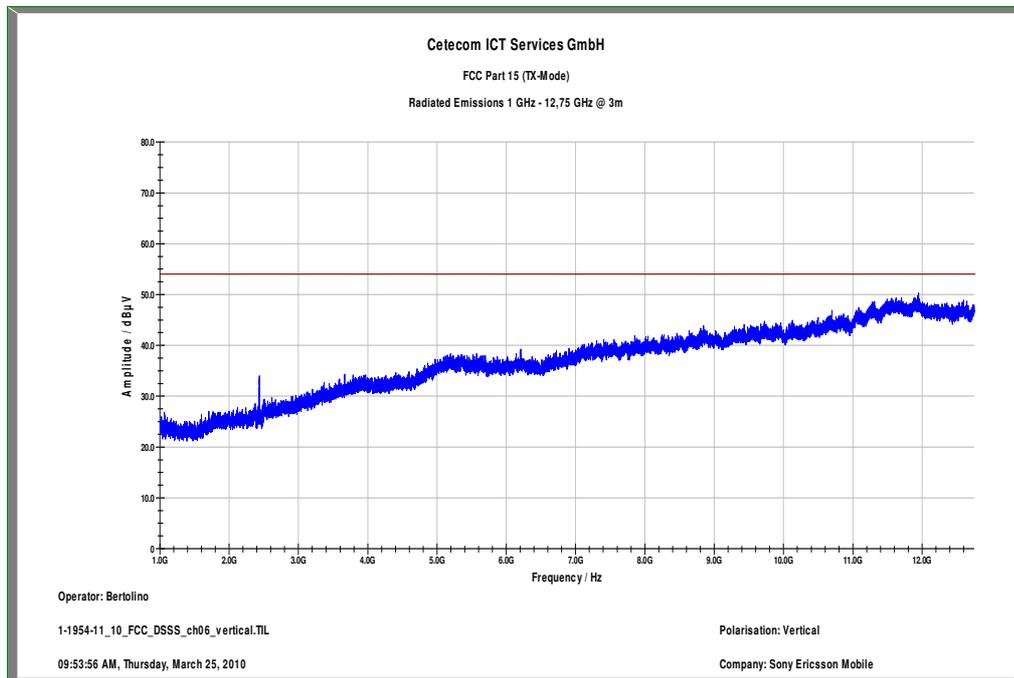
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
38.144700	9.1	15000.000	120.000	129.0	V	233.0	13.3	20.9	30.0	
49.700100	9.0	15000.000	120.000	112.0	V	35.0	13.4	21.0	30.0	
94.018950	6.9	15000.000	120.000	98.0	V	154.0	11.1	26.6	33.5	
733.997550	20.5	15000.000	120.000	154.0	V	217.0	23.2	15.5	36.0	
769.414200	20.7	15000.000	120.000	220.0	V	18.0	23.7	15.3	36.0	
908.416650	22.4	15000.000	120.000	191.0	V	241.0	25.2	13.6	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

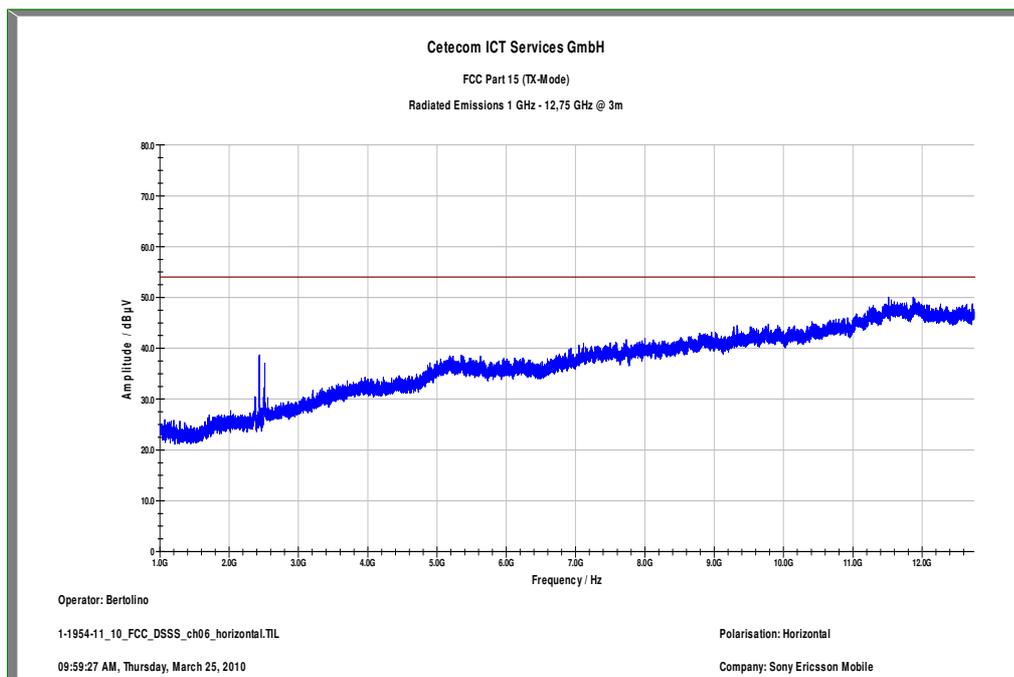
EMC 32 Version 8.10.00

Plot 6: TX mode, power setting 17, channel 6 – 2437 MHz, 1GHz – 12.75 GHz, vertical polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 7: TX mode, power setting 17, channel 6 – 2437 MHz, 1GHz – 12.75 GHz, horizontal polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

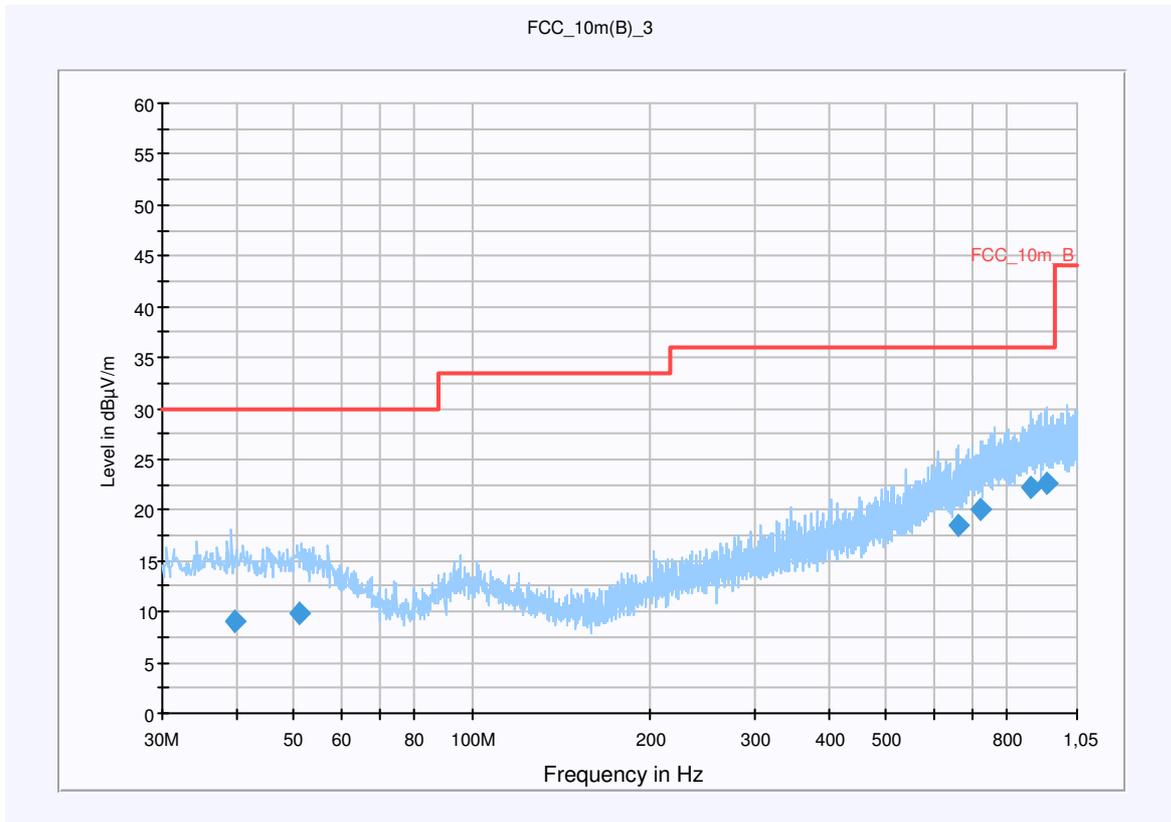
Plot 8: TX mode, power setting 17, channel 11 – 2462 MHz, 0.03 - 1 GHz, vertical & horizontal polarization

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN DSSS TX Ch 11 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

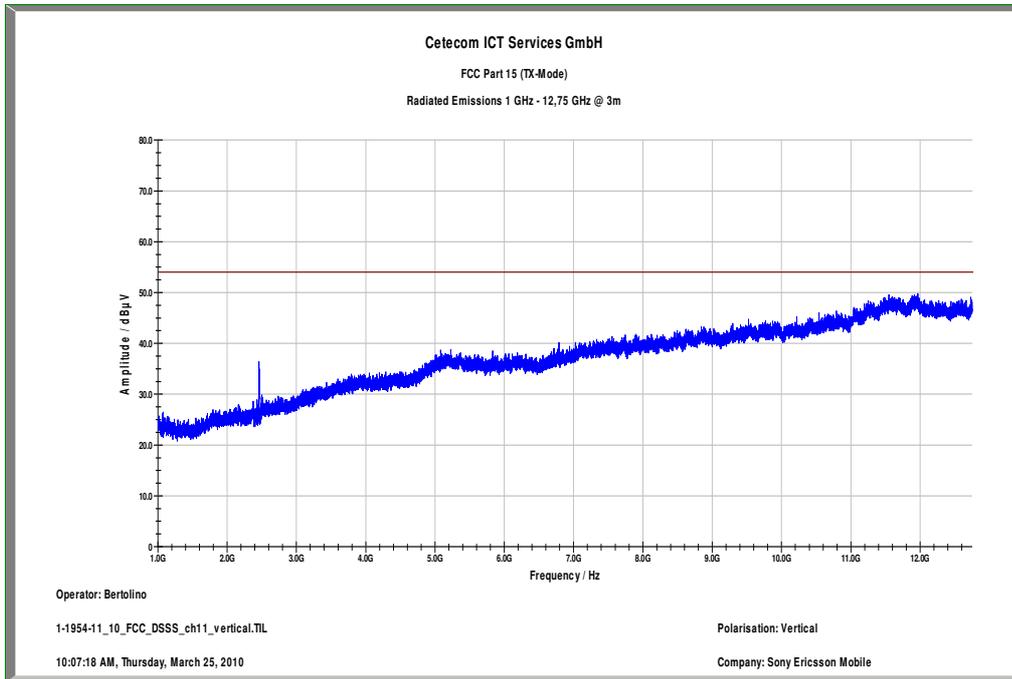
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
39.663300	9.1	15000.000	120.000	220.0	H	231.0	13.4	20.9	30.0	
51.127950	9.8	15000.000	120.000	142.0	V	181.0	13.3	20.2	30.0	
660.805800	18.6	15000.000	120.000	189.0	V	122.0	21.4	17.4	36.0	
719.777400	20.2	15000.000	120.000	220.0	H	15.0	22.9	15.8	36.0	
877.993800	22.3	15000.000	120.000	220.0	V	40.0	24.9	13.7	36.0	
934.177050	22.5	15000.000	120.000	220.0	V	161.0	25.3	13.5	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

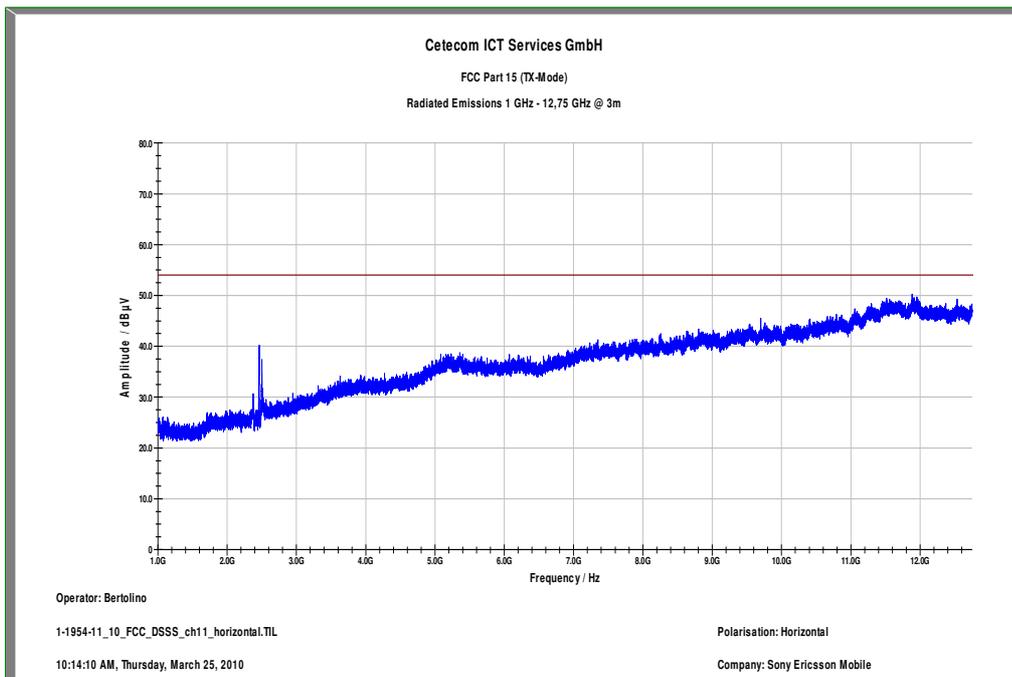
EMC 32 Version 8.10.00

Plot 9: TX mode, power setting 17, channel 11 – 2462 MHz, 1GHz – 12.75 GHz, vertical polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 10: TX mode, power setting 17, channel 11 – 2462 MHz, 1GHz – 12.75 GHz, horizontal polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Results:

SPURIOUS EMISSIONS LEVEL §15.209								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No critical peaks detected. All detected emissions are below the limit.			No critical peaks detected. All detected emissions are below the limit.			No critical peaks detected. All detected emissions are below the limit.		
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW/VBW: 1 MHz

Limits: § 15.247 (c)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits: § 15.109

Frequency (MHz)	Field strength (dBµV/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

OFDM – mode:

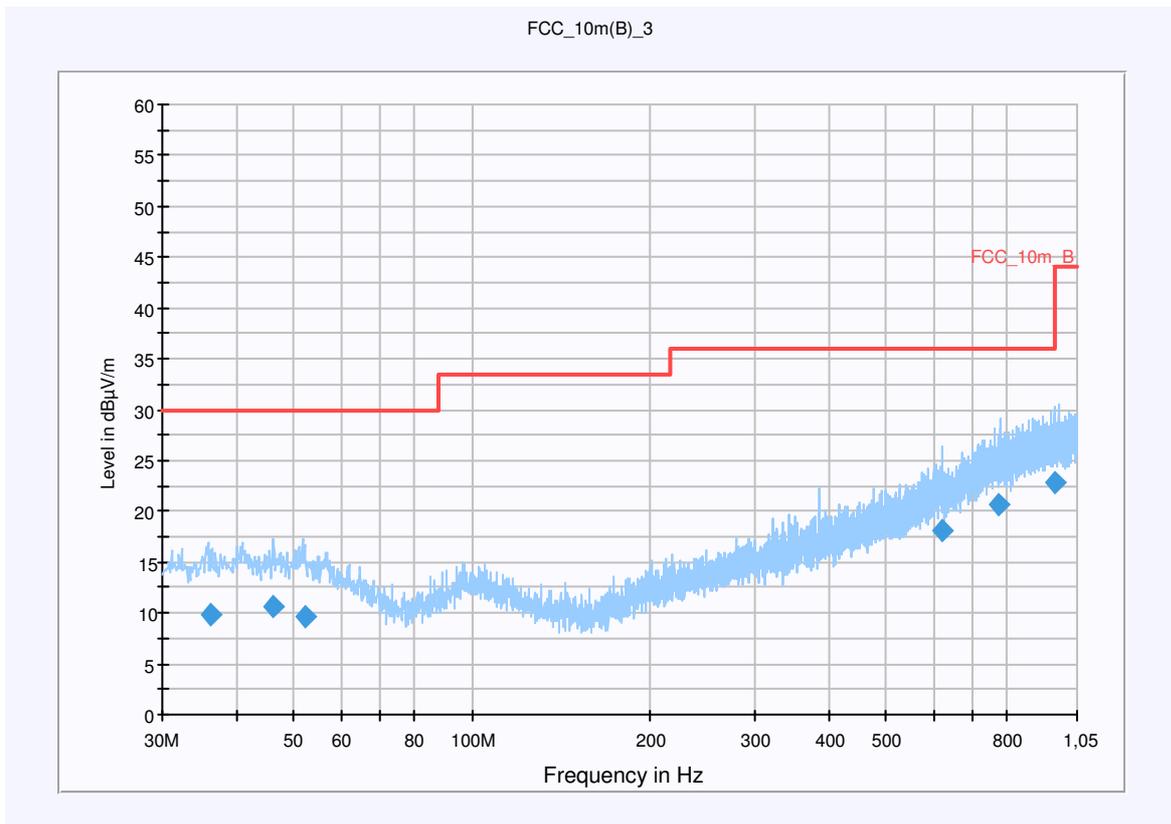
Plot 1: TX mode, power setting 13, channel 1 – 2412 MHz, 0.03 - 1 GHz, vertical & horizontal polarization

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN OFDM TX Ch 1 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

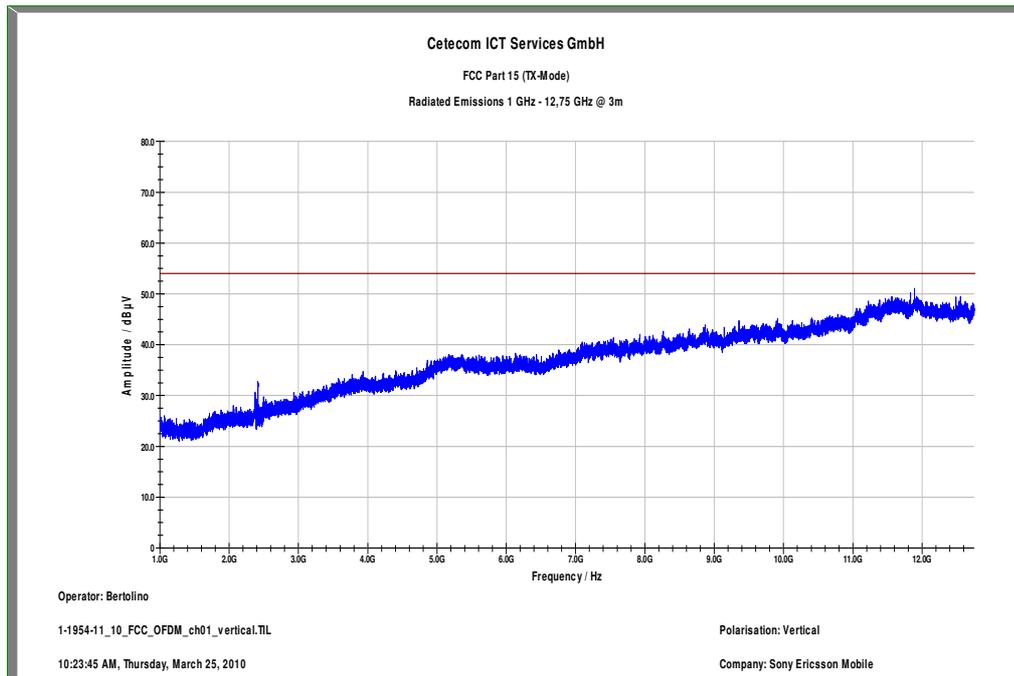
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.136050	9.8	15000.000	120.000	220.0	H	289.0	13.1	20.2	30.0	
46.110750	10.6	15000.000	120.000	140.0	V	49.0	13.3	19.4	30.0	
52.268100	9.5	15000.000	120.000	120.0	V	136.0	13.1	20.5	30.0	
621.441750	18.2	15000.000	120.000	166.0	H	21.0	20.9	17.8	36.0	
776.572950	20.7	15000.000	120.000	135.0	V	145.0	23.7	15.3	36.0	
959.652750	22.8	15000.000	120.000	175.0	V	11.0	25.4	13.2	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113
Antenna Tower:	Correction Table: Cable_EN_1GHz (0909) Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

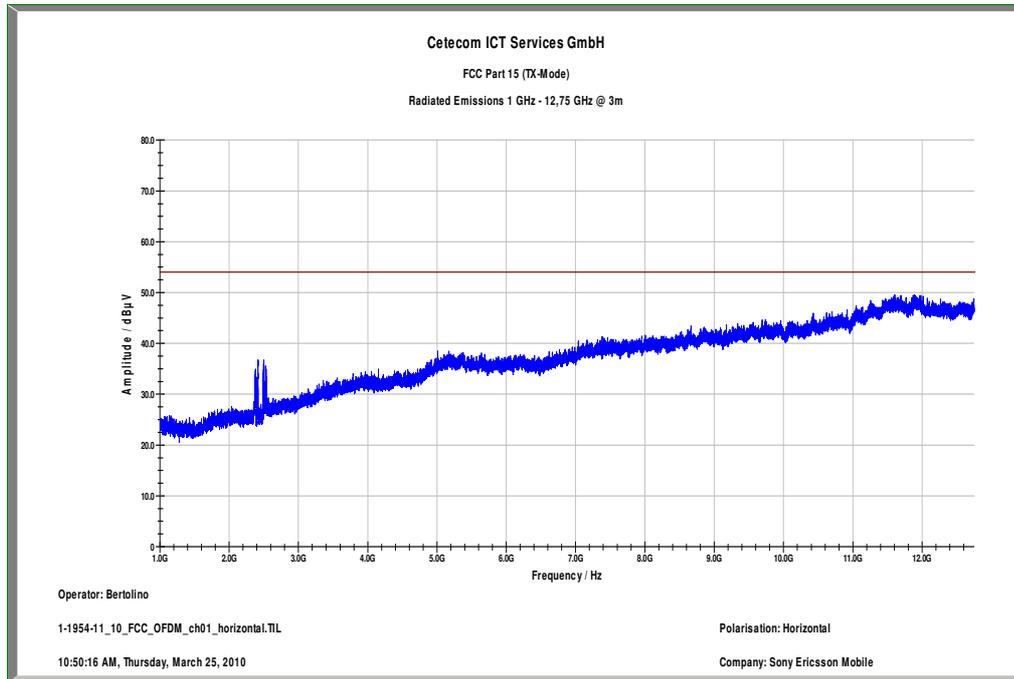
EMC 32 Version 8.10.00

Plot 2: TX mode, power setting 13, channel 1 – 2412 MHz, 1GHz – 12.75 GHz, vertical polarization



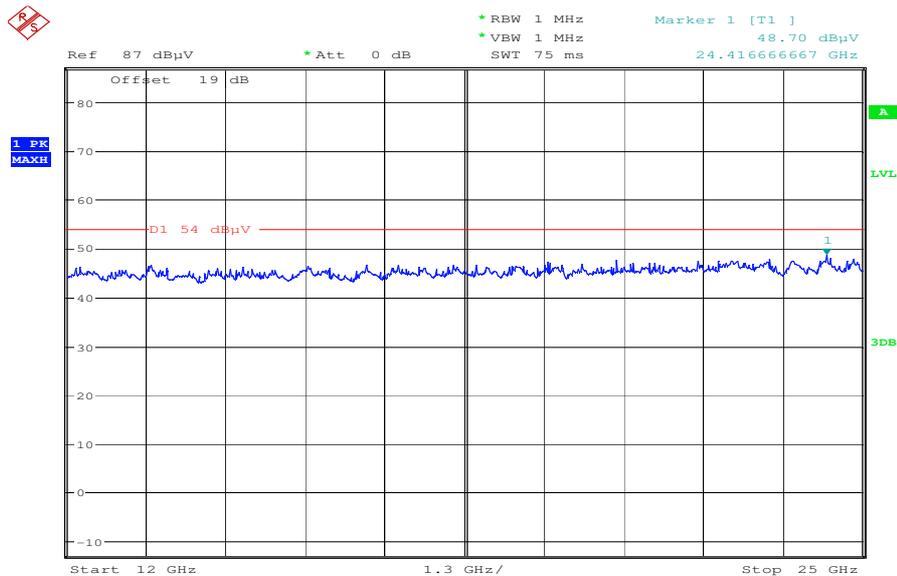
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 3: TX mode, power setting 13, channel 1 – 2412 MHz, 1GHz – 12.75 GHz, horizontal polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 4: TX mode, power setting 13, channel 1 – 2412 MHz, 12 GHz – 25 GHz, vertical & horizontal polarization (Valid for all channels)



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Plot 5: TX mode, power setting 13, channel 6 – 2437 MHz, 0.03 - 1 GHz, vertical & horizontal polarization

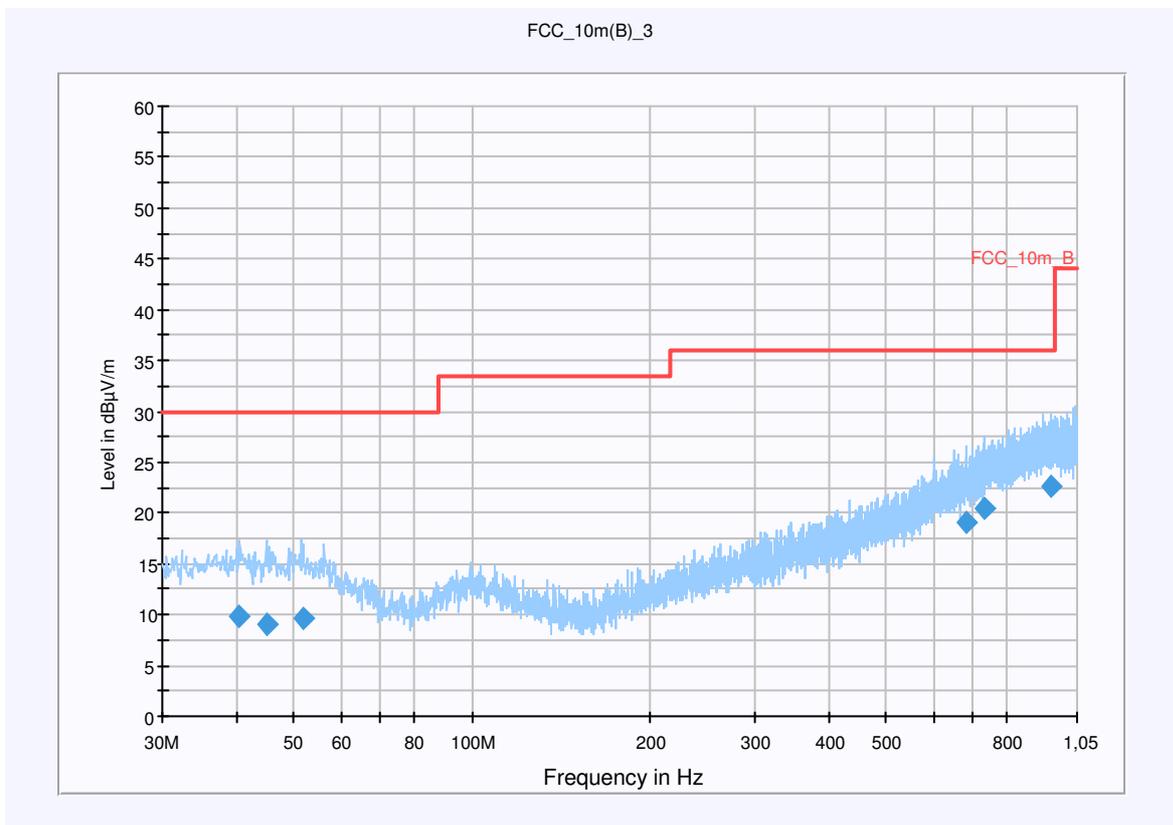
Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN OFDM TX Ch 6 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

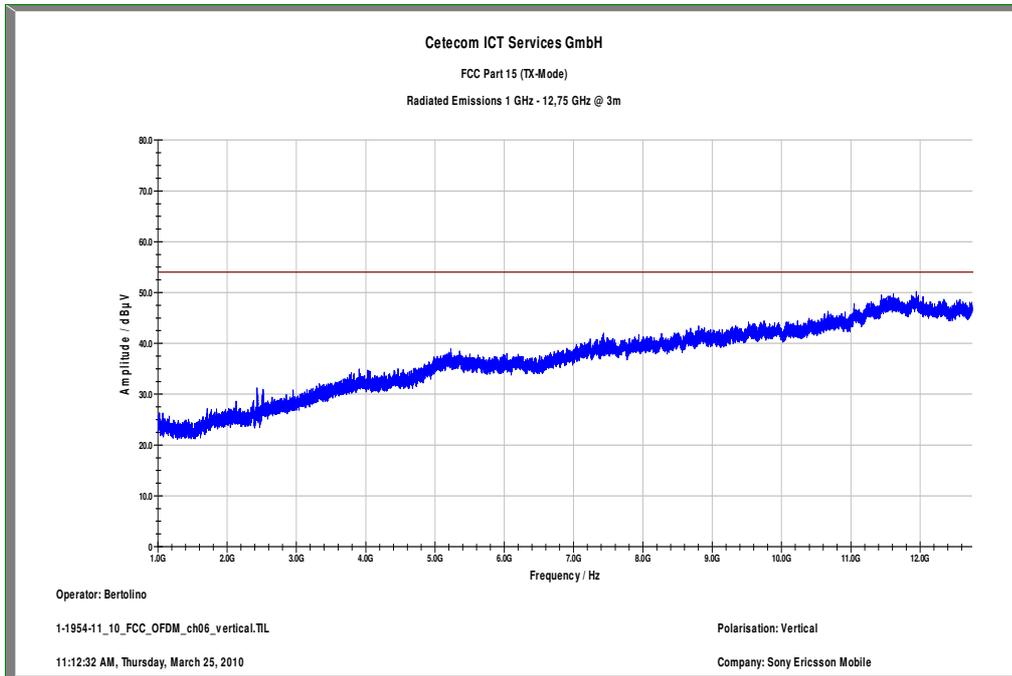
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.269300	9.7	15000.000	120.000	220.0	H	220.0	13.4	20.3	30.0	
44.932500	9.1	15000.000	120.000	220.0	H	233.0	13.3	20.9	30.0	
51.937500	9.7	15000.000	120.000	220.0	H	95.0	13.2	20.3	30.0	
684.353400	19.1	15000.000	120.000	220.0	V	15.0	22.0	16.9	36.0	
731.560800	20.4	15000.000	120.000	113.0	H	132.0	23.2	15.6	36.0	
945.515550	22.6	15000.000	120.000	220.0	H	209.0	25.3	13.4	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

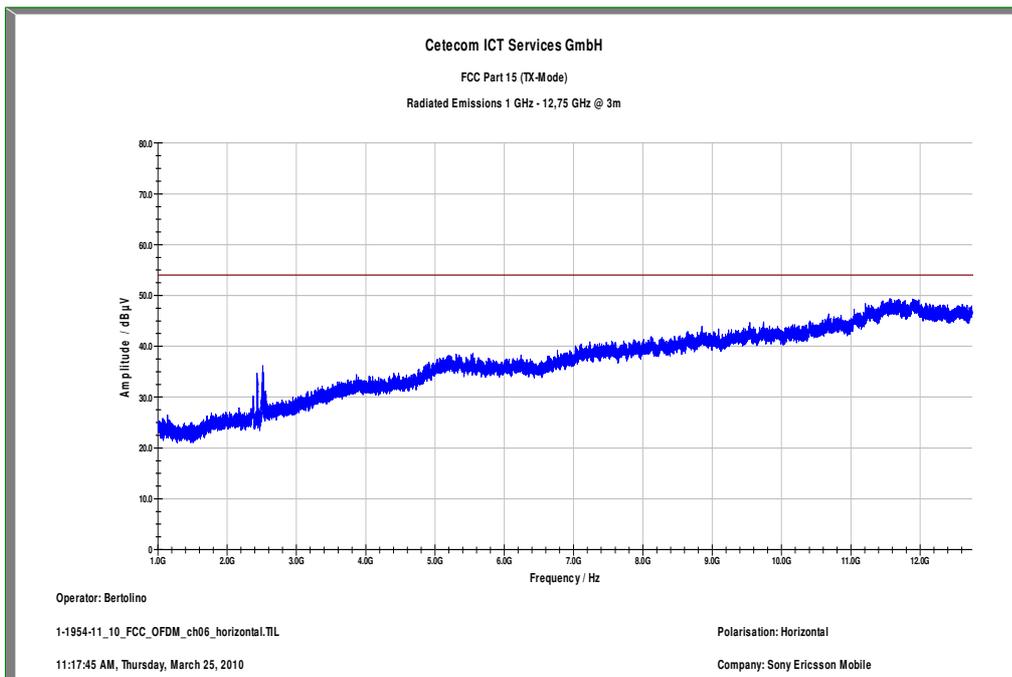
EMC 32 Version 8.10.00

Plot 6: TX mode, power setting 13, channel 6 – 2437 MHz, 1GHz – 12.75 GHz, vertical polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 7: TX mode, power setting 13, channel 6 – 2437 MHz, 1GHz – 12.75 GHz, horizontal polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

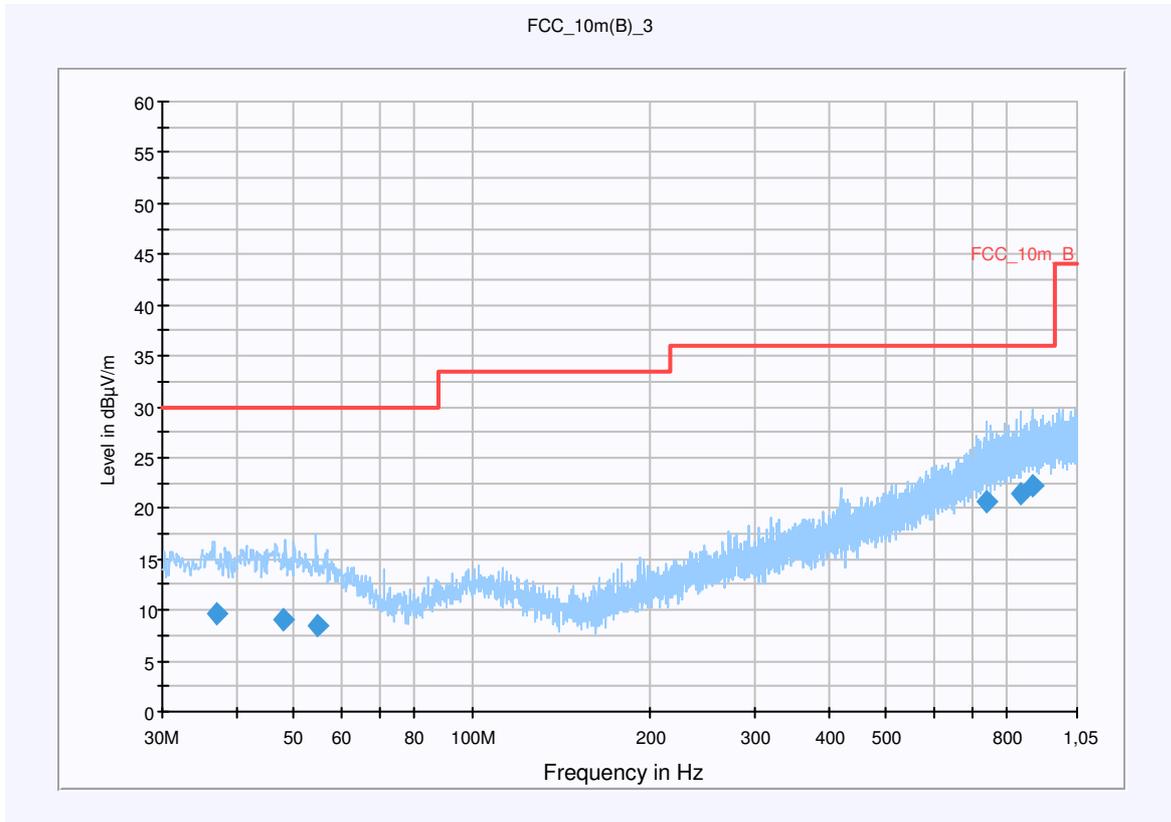
Plot 8: TX mode, power setting 13, channel 11 – 2462 MHz, 0.03 - 1 GHz, vertical & horizontal polarization

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN OFDM TX Ch 11 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dB μ V/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

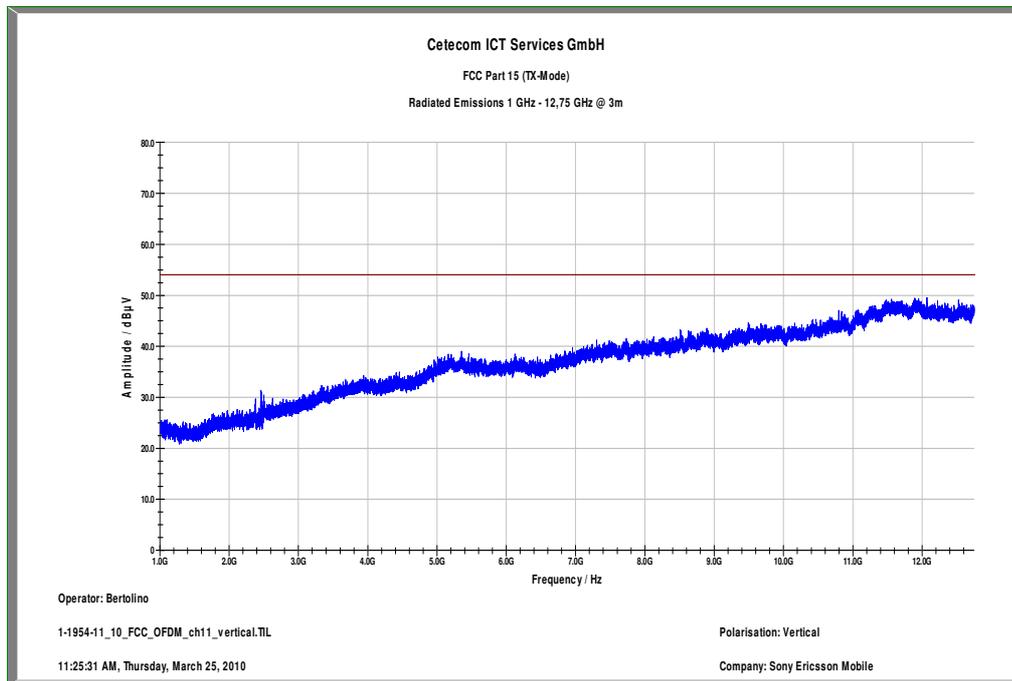
Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
37.048350	9.7	15000.000	120.000	120.0	V	258.0	13.2	20.3	30.0	
47.844150	9.0	15000.000	120.000	213.0	V	313.0	13.3	21.0	30.0	
54.676950	8.5	15000.000	120.000	149.0	H	138.0	12.9	21.5	30.0	
739.992150	20.7	15000.000	120.000	220.0	H	285.0	23.4	15.3	36.0	
841.359300	21.5	15000.000	120.000	156.0	V	272.0	24.4	14.5	36.0	
880.774050	22.3	15000.000	120.000	220.0	V	220.0	25.0	13.7	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

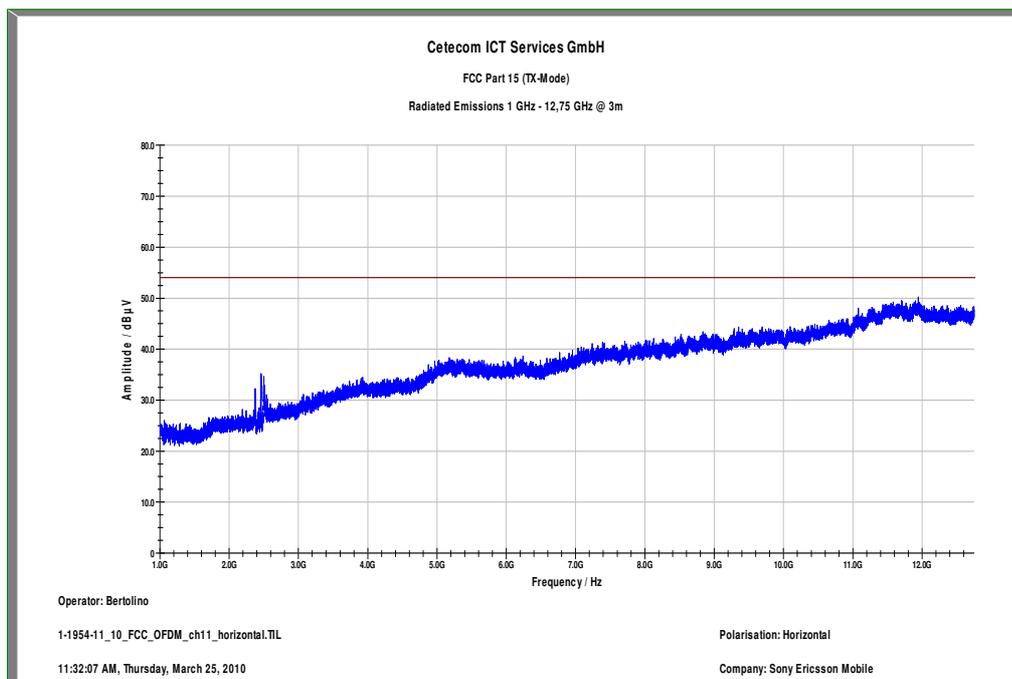
EMC 32 Version 8.10.00

Plot 9: TX mode, power setting 13, channel 11 – 2462 MHz, 1GHz – 12.75 GHz, vertical polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 10: TX mode, power setting 13, channel 11 – 2462 MHz, 1GHz – 12.75 GHz, horizontal polarization



The carrier signal is notched with a 2.4 GHz band rejection filter.

Results:

SPURIOUS EMISSIONS LEVEL §15.209								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No critical peaks detected. All detected emissions are below the limit.			No critical peaks detected. All detected emissions are below the limit.			No critical peaks detected. All detected emissions are below the limit.		
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW/VBW: 1 MHz

Limits: § 15.247 (c)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits: § 15.109

Frequency (MHz)	Field strength (dBµV/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

5.14 Spurious Emissions - radiated (Receiver) §15.109 / 209

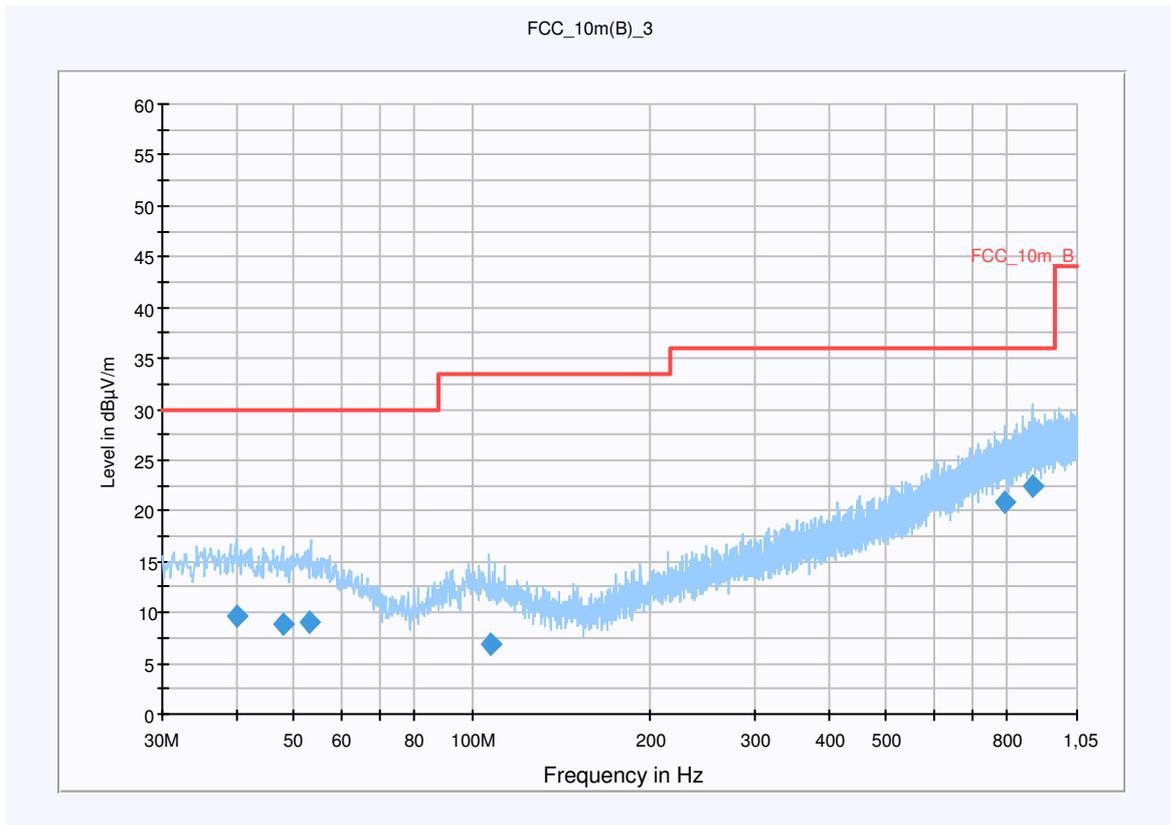
Plot 1: RX mode, 0.03 - 1 GHz, vertical & horizontal polarization

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019LXT2 / IMEI: 00440214-012761-8 + 09220D210002494 + 5908W4 9308170
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: WLAN RX + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBμV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

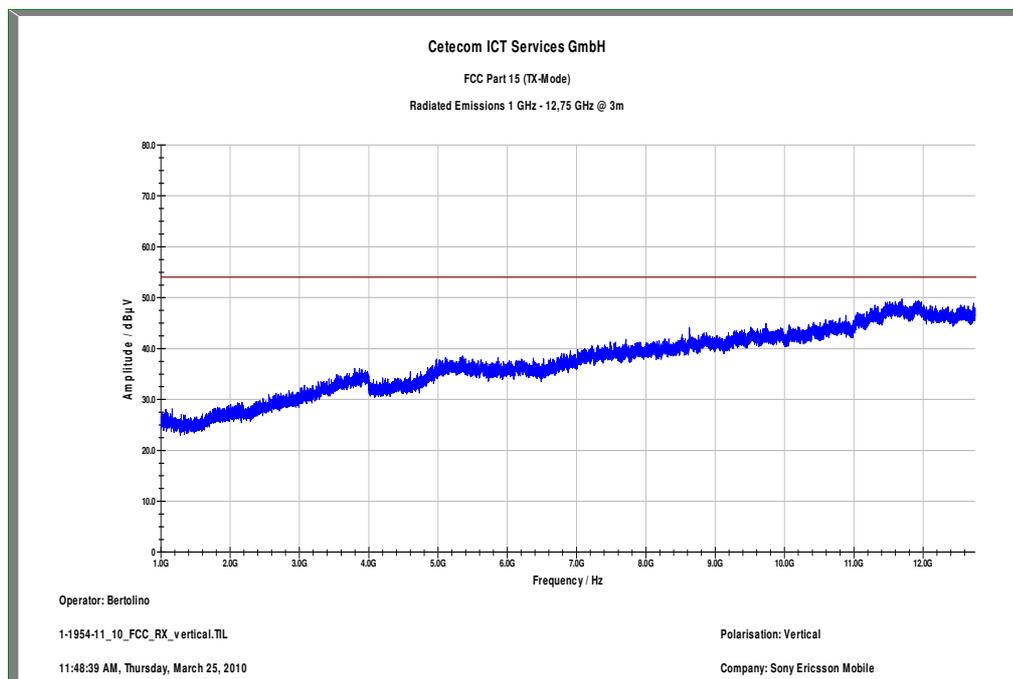
Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
40.042050	9.6	15000.000	120.000	167.0	H	49.0	13.4	20.4	30.0	
48.006300	8.9	15000.000	120.000	120.0	H	49.0	13.3	21.1	30.0	
53.058000	9.1	15000.000	120.000	214.0	V	143.0	13.1	20.9	30.0	
107.244600	7.0	15000.000	120.000	166.0	V	234.0	11.3	26.5	33.5	
792.073500	20.9	15000.000	120.000	220.0	V	86.0	23.8	15.1	36.0	
882.657600	22.3	15000.000	120.000	220.0	V	49.0	25.0	13.7	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

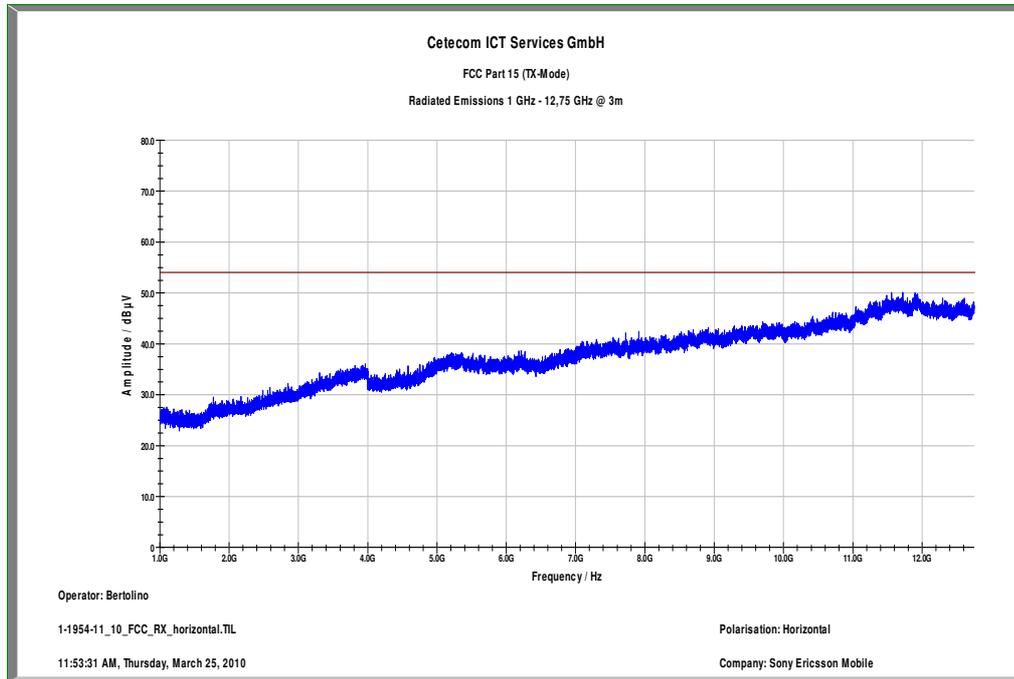
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113
Antenna Tower:	Correction Table: Cable_EN_1GHz (0909) Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

EMC 32 Version 8.10.00

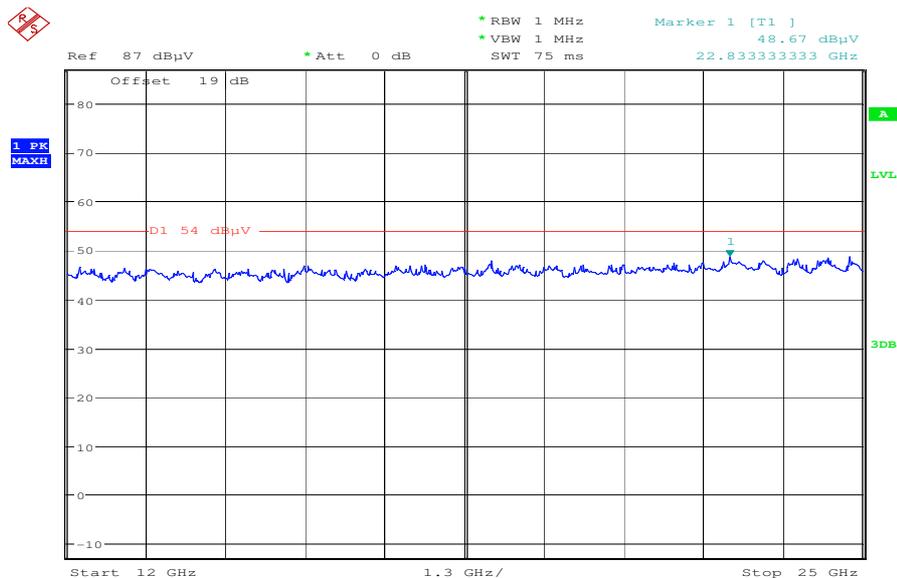
Plot 2: RX mode, 1GHz – 12.75 GHz, vertical polarization



Plot 3: RX mode, 1GHz – 12.75 GHz, horizontal polarization



Plot 4: RX mode, 2 GHz – 25 GHz, vertical & horizontal polarization (Valid for all channels)



Date: 24.MAR.2010 10:47:14

Results:

Spurious Emissions level [dB μ V/m]		
f[MHz]	Detector	Level [dB μ V/m]
No critical peaks detected. All detected emissions are below the limit.		
Measurement uncertainty		±3 dB

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW/VBW: 1 MHz

See above plots

Measurement distance see table

Limits: § 15.109

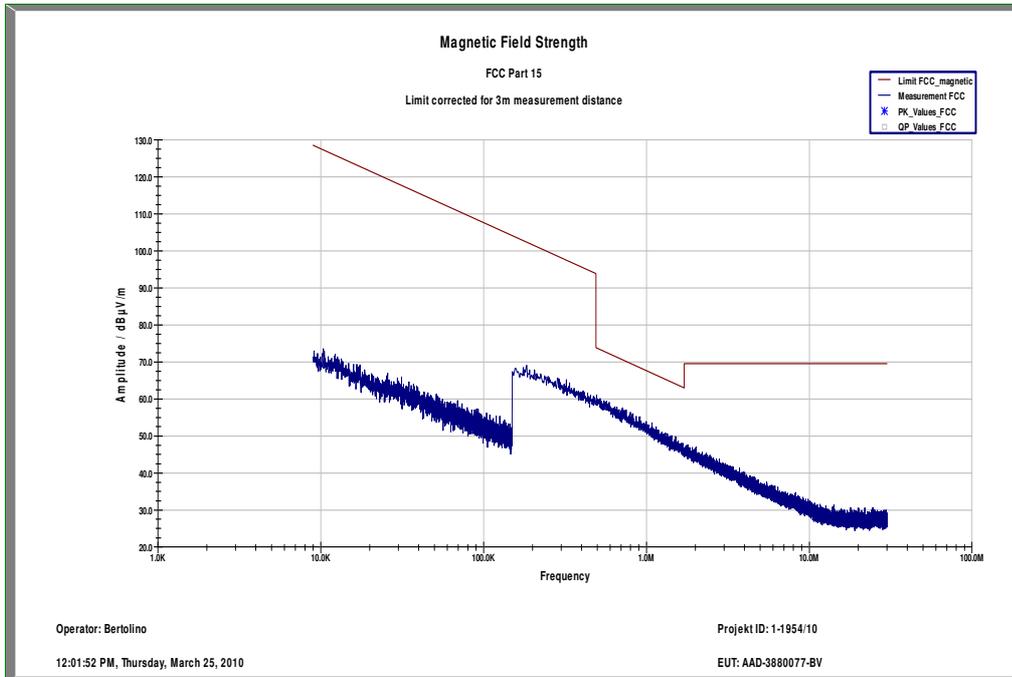
Frequency (MHz)	Field strength (dB μ V/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

5.15 Spurious Emissions - radiated <30 MHz §15.209

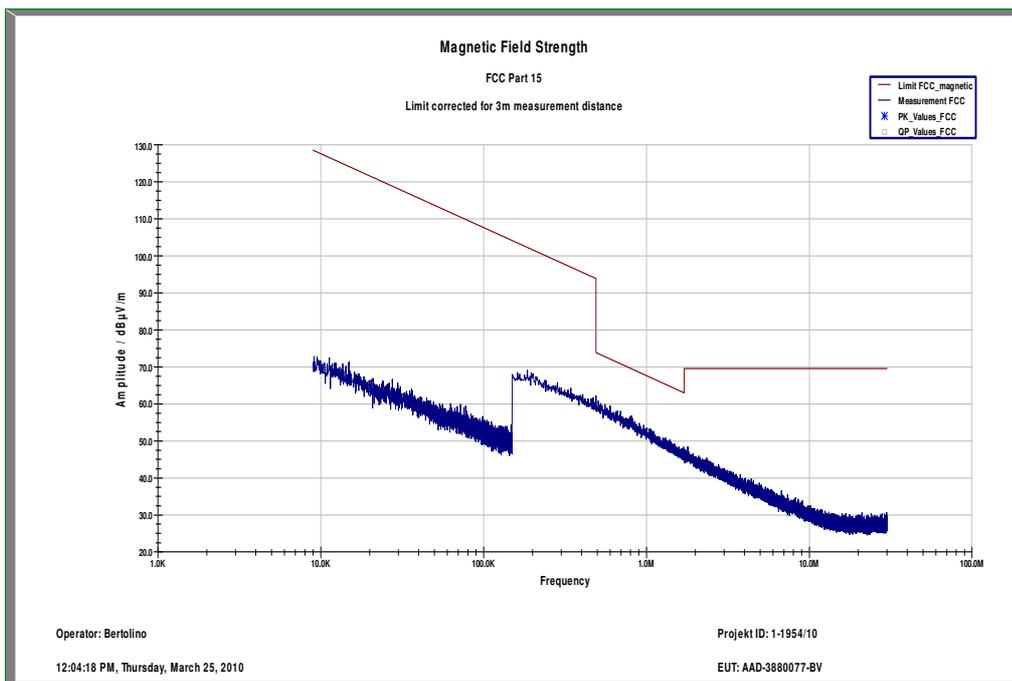
Measured at 3 m distance.

Values recalculated with 40 dB/decade according to FCC rules.

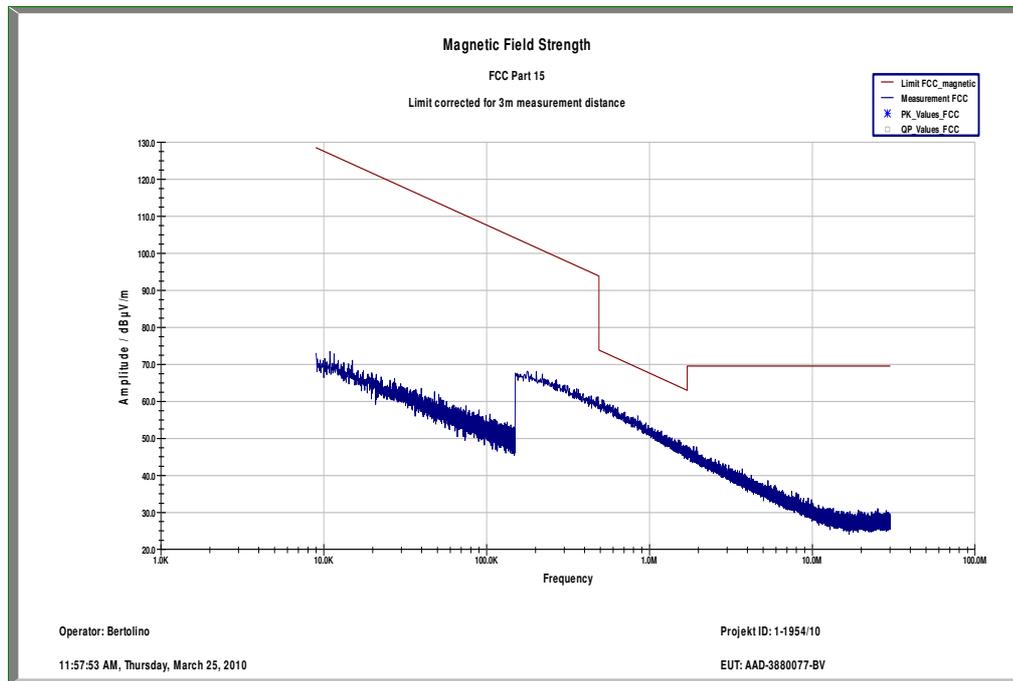
Plot 1: TX mode, DSSS – mode, power setting 17



Plot 2: TX mode, OFDM – mode, power setting 13



Plot 3: RX mode

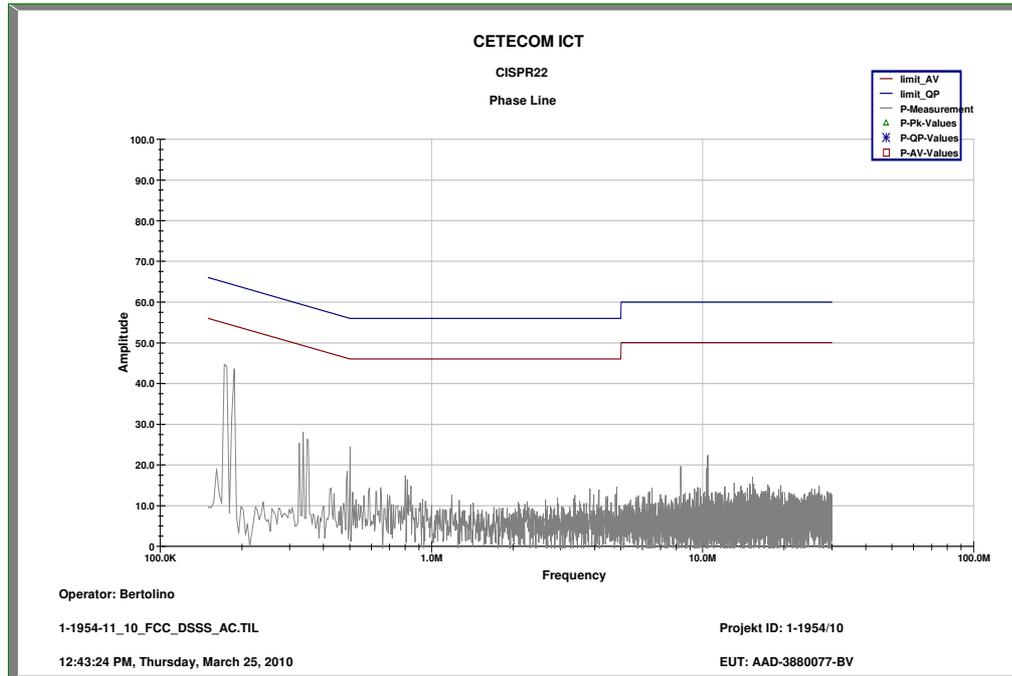


Limits:

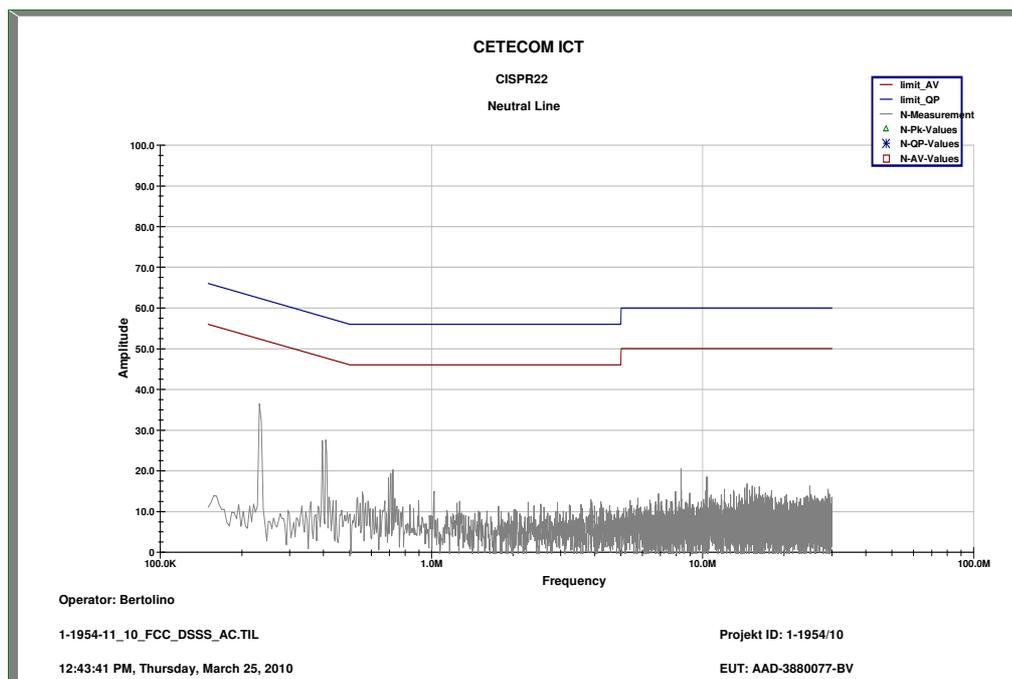
Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dBµV/m	30
30 - 88	100 / 40 dBµV/m	3
88 - 216	150 / 43.5 dBµV/m	3
216 - 960	200 / 46 dBµV/m	3
above 960	54 dBµV/m	3

5.16 Conducted Emissions <30 MHz §15.107/207

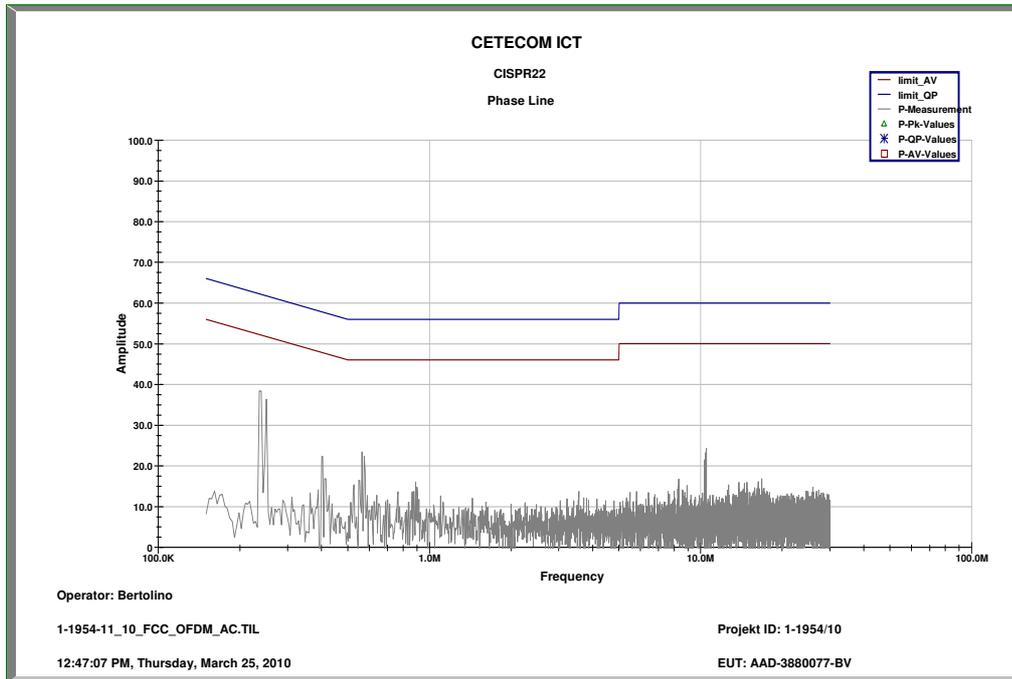
Plot 1: TX mode, DSSS – mode, power setting 17, phase line



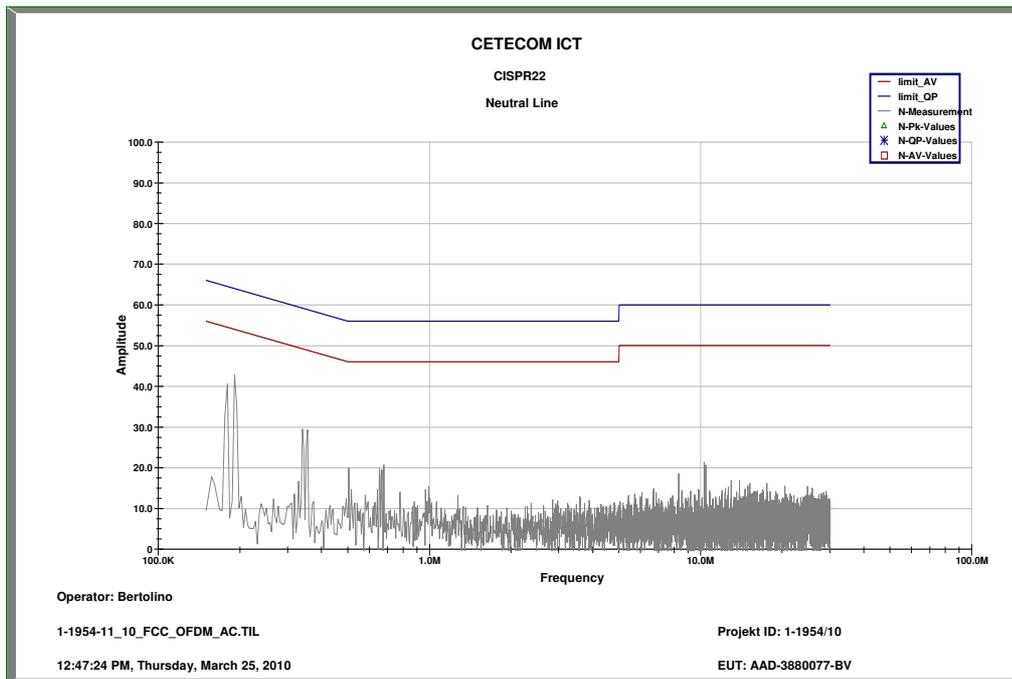
Plot 2: TX mode, DSSS – mode, power setting 17, neutral line



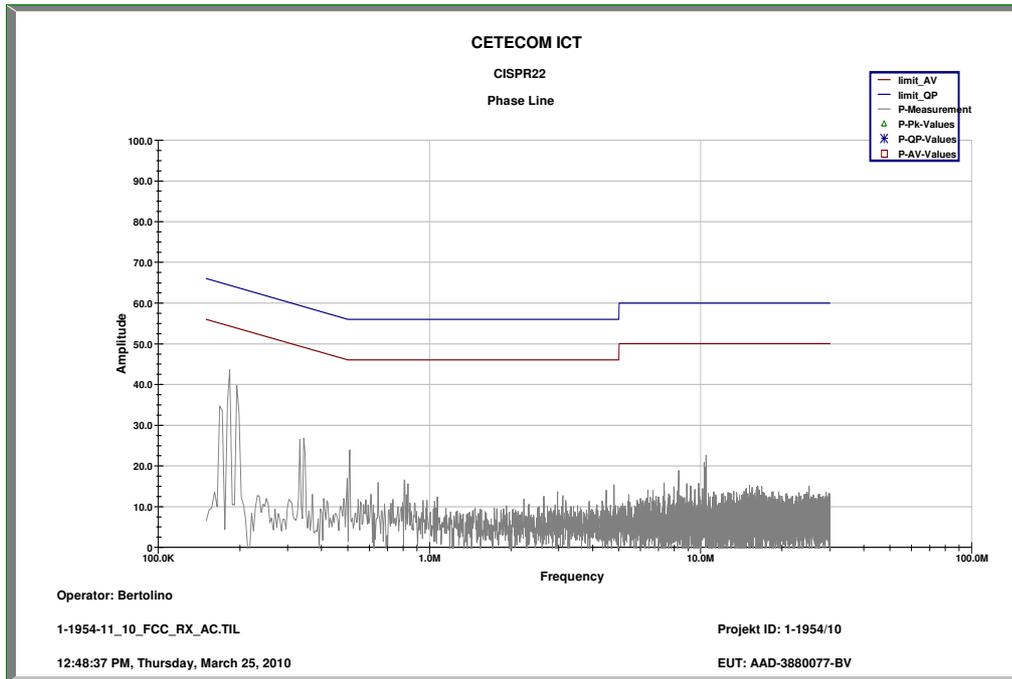
Plot 3: TX mode, OFDM – mode, power setting 13, phase line



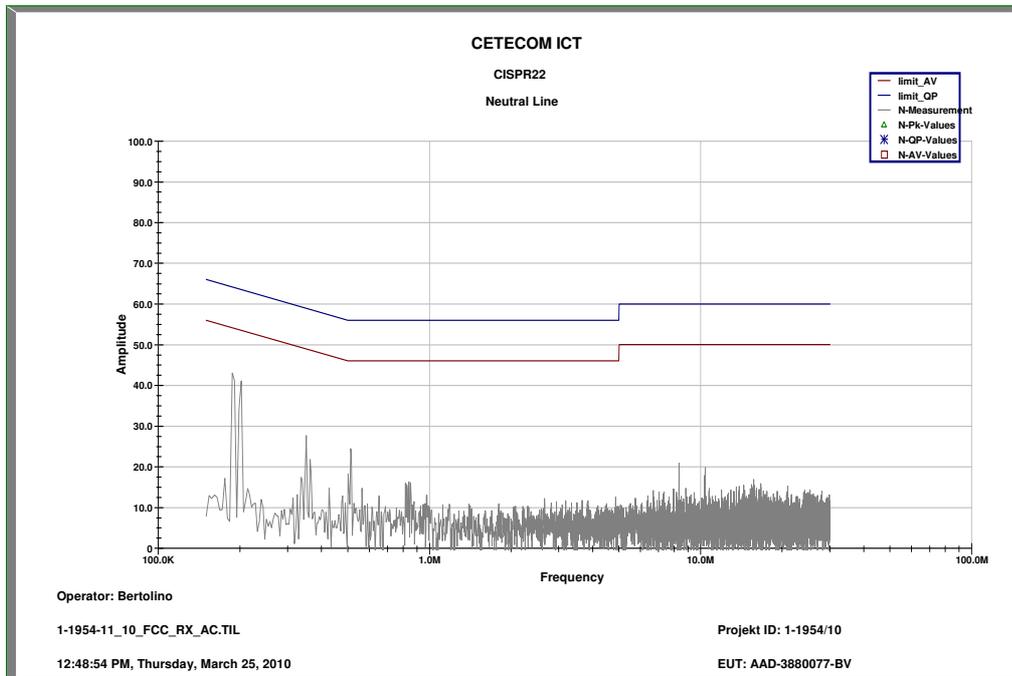
Plot 4: TX mode, OFDM – mode, power setting 13, neutral line



Plot 5: RX mode



Plot 6: RX mode



We measured in TX and RX mode, L1 and N floating and grounded, max value was hold.

Limits:

Under normal test conditions only	See plots
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6 Test equipment and ancillaries used for tests

In order to simplify the identification of the equipment used at each specific test, each item of test equipment and ancillaries are provided with an identifier or number in the equipment list below.

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

No.	Lab Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kal. Art	Last Calibration	Next Calibration
1	n. a.	Temperature Test Chamber	VT 4002	Heraeus Voetsch	521/83761	300002326	Ve	28.05.2009	28.05.2011
2	n. a.	Power Supply DC	NGPE 40/40	R&S	388	400000078	vIKI!	27.08.2008	27.08.2010
3	n. a.	Spektrumanalysator 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve	05.06.2008	05.06.2010
4	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
5	50	Netzgerät	6032A	HP Meßtechnik	2920A04466	300000580	k	06.01.2009	06.01.2011
6	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B5979	300000210	k	03.09.2001	03.09.2003
7	n. a.	EMI-Messempfänger	ESCI 1166.5950.03	R&S	100083	300003312	k	08.01.2010	08.01.2012
8	n. a.	Analysator-Referenz-System (Harmonics u. Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	06.06.2007	06.06.2009
9	n. a.	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379	ev		
10	n. a.	Antennenmast	Model 2175	ETS-LINDGREN	64762	300003745	izw		
11	n. a.	Steuergerät	Model 2090	ETS-LINDGREN	64672	300003746	izw		
12	n. a.	Interface-Box für Drehtisch	Model 105637	ETS-LINDGREN	44583	300003747	izw		
13	n. a.	Breitbandantenne	VULB9163	Schwarzbeck	295	300003787	k	01.04.2008	01.04.2010
14	n. a.	Spectrum-Analyzer System	FSU26	R&S	200809	300003874	k	08.01.2010	08.01.2012
15	n. a.	Autoranging DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
16	n. a.	PowerAttenuator	8325	Byrd	1530	300001595			
17	n. a.	Double-Ridged Waveguide Horn Antenna 1-26.5GHz	3115	EMCO	8812-3088	300001032	vIKI!	05.03.2009	05.03.2011
18	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
19	n. a.	Anechoic chamber		MWB	87400/02	300000996			
20	Spec. A. 2_2e	System-Rack	85900	HP I.V.	*	300000222	ne		

21	9	Artificial Mains 9 kHz to 30 MHz, 4 x 25 Ampere	ESH3-Z5	R&S	828576/020	300001 210	Ve	06.01.2 010	06.01.2 012
22	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001 156	ne		
23	n. a.	Relais Matrix	PSU	R&S	890167/024	300001 168	ne		
24	n. a.	Isolating Transformer Three-Way	RT5A	Grundig	9242	300001 263	ne		
25	n. a.	Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000 997	ne		
26	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001 443	ne		
27	n. a.	Band Reject filter	WRCG1855/191 0-1835/1925- 40/8SS	Wainwright	7	300003 350	ev		
28	n. a.	Band Reject filter	WRCG2400/248 3-2375/2505- 50/10SS	Wainwright	11	300003 351	ev		
29	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003 451	ne		
30	n. a.	Highpass Filter	WHKX2.9/18G- 12SS	Wainwright	1	300003 492	ev		
31	n. a.	Highpass Filter	WHK1.1/15G- 10SS	Wainwright	3	300003 255	ev		
32	n. a.	Highpass Filter	WHKX7.0/18G- 8SS	Wainwright	18	300003 789	ne		
33	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Vertr. Bad Hom	MY48250080	300003 812	k	05.08.2 008	05.08.2 010
34	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Vertr. Bad Hom	MY48260003	300003 825	vKI!	19.08.2 008	19.08.2 010
35	n. a.	TRILOG Super Breitband Antenne	VULB9163	Schwarzbeck	371	300003 854	vKI!	17.12.2 008	17.12.2 010
36	n. a.	NRP Power meter Display and control unit AC sup	NRP + NRP-Z81	R&S	100212 + 100010	300003 780	vKI!	08.01.2 010	08.01.2 012