



## TEST REPORT

Test report no.: 1-1954-55-06/10



### Testing laboratory

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#### Accredited test laboratory:

The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025  
DAR registration number: DGA-PL-176/94-D1

Area of Testing: Radio/Satellite Communications

### Applicant

#### Sony Ericsson Mobile Communications AB

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### Manufacturer

#### Sony Ericsson Mobile Communications AB

Nya Vattentornet  
22188 Lund / Sweden

### Test standard/s

47 CFR Part 15

Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission  
subchapter A - general, Part 15-Radio frequency devices

RSS - 210 Issue 8

Spectrum Management and Telecommunications - Radio Standards Specification  
Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands):  
Category I Equipment

For further applied test standards please refer to section 3 of this test report.

### Test item

Kind of test item: Mobile Phone GSM/GPRS/EDGE 850/900/1800/1900/UMTS Band 1/UMTS Band 8/HSDPA/HSUPA/BT2.1+EDR/WLAN/A-GPS/FM-Receiver/ANT+

Model name: AAD-3880097-BV

FCC ID: PY7A3880097

IC: 4170B-A3880097

Frequency [MHz]: ISM band 2400 MHz to 2483.5 MHz  
(Lowest channel 2412 MHz; highest channel 2462 MHz)

Power supply: 3.7V DC by Li-polymer battery BA750 / DC power supply EP800

Temperature range: -20 °C to +55 °C

Test performed:

2011-01-28

Marco Bertolino

Test report authorised:

2011-01-28

Stefan Bös

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## 2 General information

### 2.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. 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 CETECOM ICT Services GmbH.

### 2.2 Application details

Date of receipt of order:	2010-11-29
Date of receipt of test item:	2011-01-13
Start of test:	2011-01-13
End of test:	2011-01-28
Person(s) present during the test:	-/-

## 3 Test standard/s

Test standard	Version	Test standard description
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 8	2010-12	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

## 4 Test environment

Temperature:	$T_{nom}$	+20 °C during room temperature tests
	$T_{max}$	+55 °C during high temperature test
	$T_{min}$	-20 °C during low temperature test
Relative humidity content:		48 %
Air pressure:		not relevant for this kind of testing
Power supply:	$V_{nom}$	3.7 V DC by Li-polymer battery BA750 / DC power supply EP800
	$V_{max}$	4.1 V
	$V_{min}$	3.3 V

## 5 Test item

Kind of test item	:	Mobile Phone GSM/GPRS/EDGE 850/900/1800/1900/UMTS Band 1 /UMTS Band 8/HSDPA/HSUPA/BT2.1+EDR/WLAN/A-GPS/FM-Receiver/ANT+
Type identification	:	AAD-3880097-BV
S/N serial number	:	Radiated units: CB5A1CG1M2; CB5A1CG1MJ Conducted units: CB5A1CG1LK; CB5A1CG1N6
HW hardware status	:	AP1
SW software status	:	1.2.A.0.193 ATP
Frequency band [MHz]	:	ISM band 2400 MHz – 2483.5 MHz (Lowest channel 2412 MHz; highest channel 2462 MHz)
Type of modulation	:	DSSS & OFDM technology with BPSK, QPSK, 16QAM & 64 QAM
Number of channels	:	11
Antenna	:	Integrated PCB antenna → for more information, please take a look at the annex C – internal photos of the EUT.
Power supply	:	3.7 V DC by Li-polymer battery BA750 / DC power supply EP800
Temperature range	:	-20 °C to +55 °C

## 6 Test laboratories sub-contracted

None



## 7 Summary of measurement results

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

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 7, Annex 8	Passed	2011-01-28	-/-

Test specification clause	Test case	Temperature conditions	Power source voltages	Mode	Pass	Fail	NA	NP	Results (max.)
§15.247(b)(4) RSS 210 / A8.4(2)	Antenna gain	Nominal	Nominal	DSSS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.247(e) RSS 210 / A8.2(b)	Power spectral density	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(a)(2) RSS 210 / A8.2(a)	Spectrum bandwidth of a FHSS system 6dB bandwidth	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(a)(2) RSS 210 / A8.2(a)	Spectrum bandwidth of a FHSS system 20dB bandwidth	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(b)(3) RSS-210 / A8.4(4)	Maximum output power	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(d) RSS-210 / A8.5	Band edge compliance conducted	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.205 RSS-210 / A8.5	Band edge compliance radiated	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions conducted	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions radiated	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.109 RSS-Gen.	RX spurious emissions radiated	Nominal	Nominal	-/-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.209(a) RSS-Gen	TX spurious emissions radiated < 30 MHz	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.107(a)	Conducted emissions < 30 MHz	Nominal	Nominal	DSSS OFDM	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies

**Note:** NA = Not Applicable; NP = Not Performed

## 8 RF measurement testing

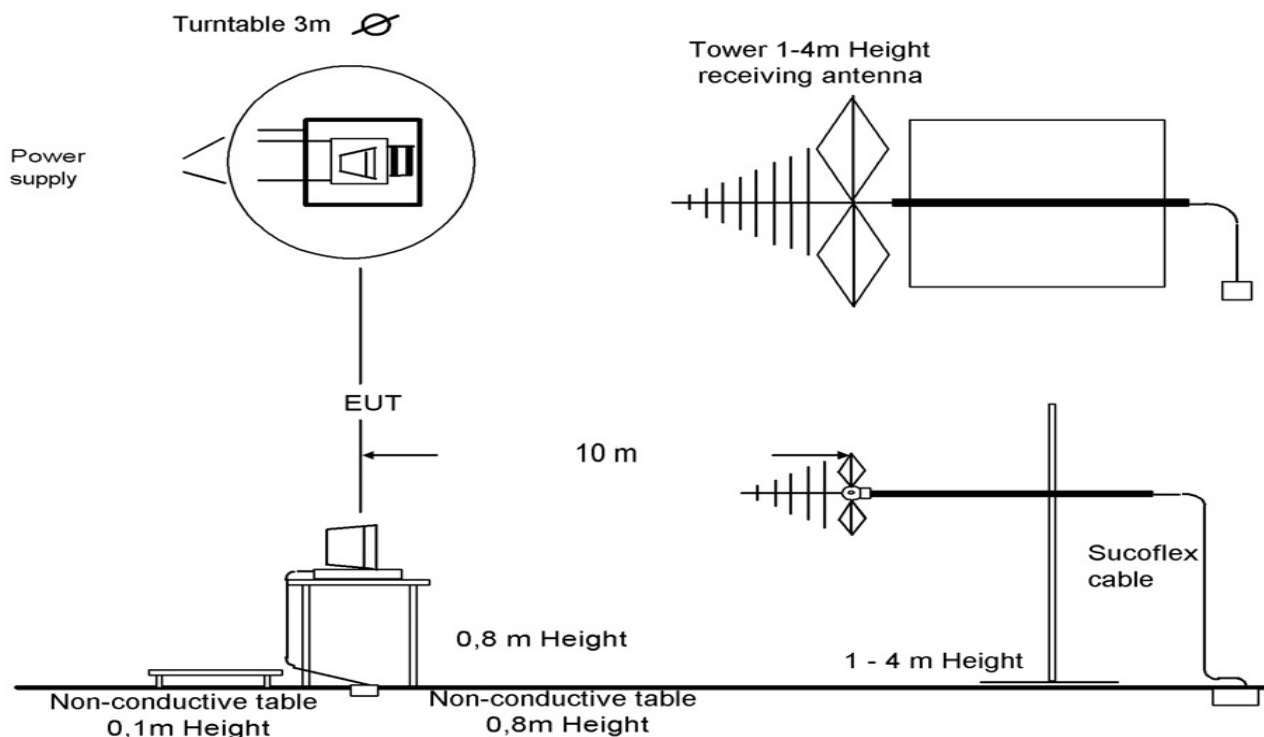
### 8.1 Description of test setup

#### 8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 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 C63.4-2009 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 setups 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 C63-4-2009 clause 4.2.

Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber



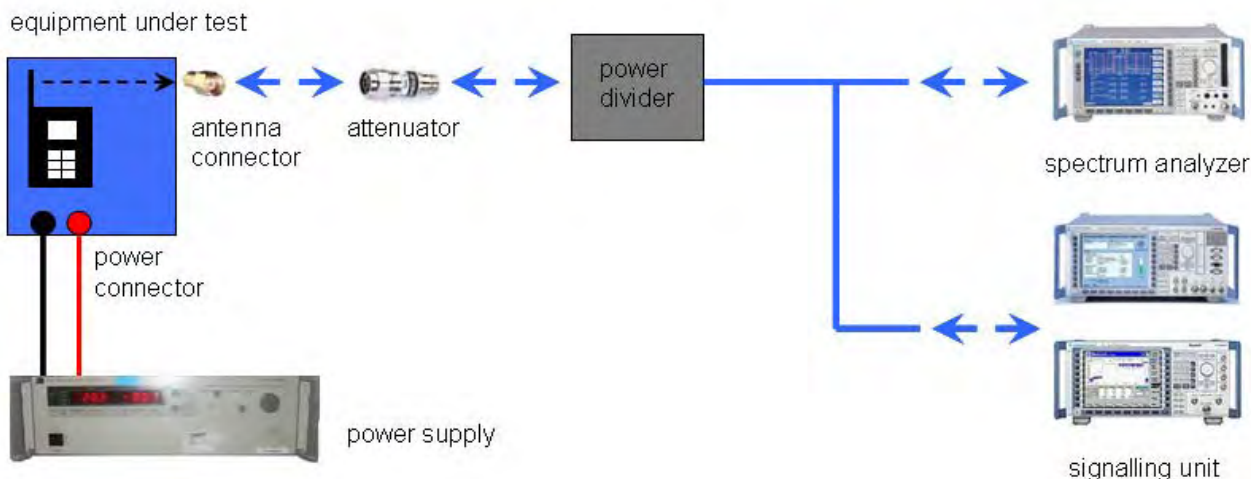
Picture 1: Diagram radiated measurements

9 kHz - 30 MHz:	active loop antenna
30 MHz – 1 GHz:	tri-log antenna
> 1 GHz:	horn antenna

The EUT is powered by an external power supply with nominal voltage. The signalling is performed from outside the chamber with a signalling unit (CMU200 or other) by air link using signalling antenna.

### 8.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is first 10dB attenuated before it is power divided (~6dB loss per branch). One of the signal paths is connected to the communication base Station (CMU200 or other), the other one is connected to the spectrum analyzer. The specific losses for both signal paths are first checked within a calibration. The measurement readings on the signalling unit/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.



Picture 2: Diagram conducted measurements

### 8.2 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

- Test mode:
- No test mode available.  
lperf was used to ping another device with the largest support packet size
  - Special software is used.  
EUT is transmitting pseudo random data by itself



### 8.3 RSP100 test report cover sheet / performance test data

Test report number	:	1-1954-55-06/10
Equipment model number	:	AAD-3880097-BV
Certification number	:	4170B-A3880097
Manufacturer (complete address)	:	Sony Ericsson Mobile Communications AB Nya Vattentorget 22188 Lund / Sweden
Tested to radio standards specification no.	:	RSS 210, Issue 8, Annex 8
Open area test site IC No.	:	IC 3462C-1
Frequency range	:	ISM band 2400 MHz – 2483.5 MHz (Lowest channel 2412 MHz; highest channel 2462 MHz)
RF-power [W] (max.)	:	<b>DSSS / b – mode:</b> cond.: 160.69 mW EIRP: 109.14 mW  <b>OFDM / g – mode:</b> cond.: 218.78 mW EIRP: 148.59 mW  <b>OFDM / n – mode:</b> cond.: 223.36 mW EIRP: 163.31 mW
Occupied bandwidth (99%-BW) [kHz]	:	<b>DSSS / b – mode:</b> 16.25 MHz <b>OFDM / g – mode:</b> 20.43 MHz <b>OFDM / n – mode:</b> 22.45 MHz
Type of modulation	:	DSSS & OFDM technology with BPSK, QPSK, 16QAM & 64 QAM
Emission designator (TRC-43)	:	16M3G1D (DSSS / b – mode) 20M4G7D (OFDM / g – mode) 22M6G7D (OFDM / n – mode)
Antenna information	:	Integrated PCB antenna → for more information, please take a look at the annex C – internal photos of the EUT
Transmitter spurious (worst case) [dBμV/m @ 3m]:		45.0 dBμV/m @ 12 GHz (noise floor)
Receiver spurious (worst case) [dBμV/m @ 3m]:		44.5 dBμV/m @ 12 GHz (noise floor)

#### ATTESTATION:

#### DECLARATION OF COMPLIANCE:

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

#### Laboratory manager:

2011-01-28  
Date

Marco Bertolino  
Name

  
Signature



## 9 Measurement results

### 9.1 Maximum output power / data rate

#### Description:

Measurement of the maximum output power conducted. This measurement is performed only at the middle channel in both modes and all data rates to determine the data rate per mode which results in the highest output power. This mode will be selected for all further measurements.

#### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	1s
Video bandwidth:	30 MHz
Resolution bandwidth:	50 MHz
Span:	30 MHz
Trace-Mode:	Max Hold

#### Results:

DSSS power index 21 Data Rate [MBit/s]	Maximum Output Power Conducted [dBm]			
	1	2	5.5	11
Ch 6 - 2437 MHz	<b>20.84</b>	20.83	20.65	20.73
Measurement uncertainty	± 0.5 dB			

**Results:**

OFDM g – mode power index 17	Maximum Output Power Conducted [dBm]							
	Data Rate [MBit/s]	6	9	12	18	24	36	48
Ch 6 - 2437 MHz	21.86	21.90	21.77	<b>21.92</b>	21.69	21.71	21.71	21.69
Measurement uncertainty	± 0.5 dB							

**Results:**

OFDM n – mode power index 17	Maximum Output Power Conducted [dBm]							
	Data Rate [MBit/s]	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6
Ch 6 - 2437 MHz	21.76	21.68	<b>21.81</b>	21.70	21.70	21.57	21.73	21.51
Measurement uncertainty	± 0.5 dB							

**Note:**

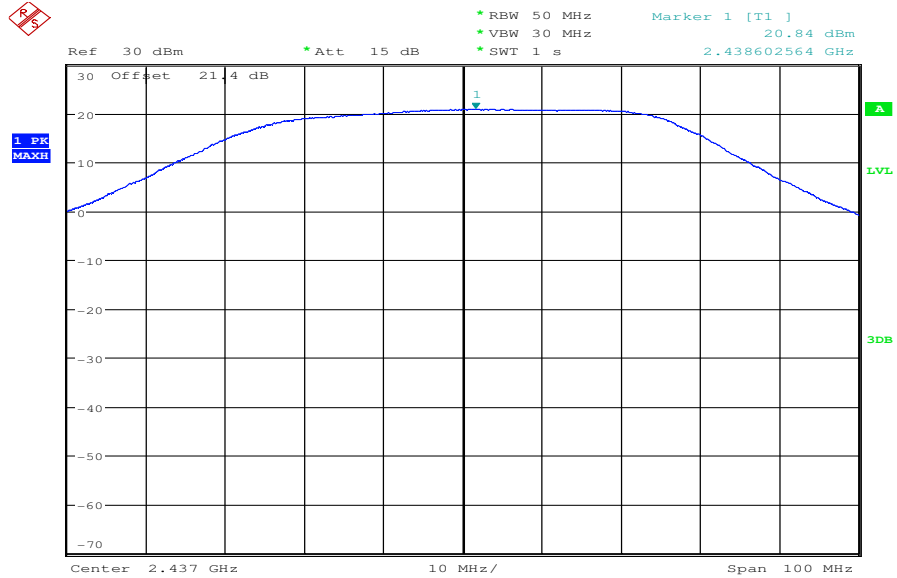
The measurement was performed in WLAN n mode long guard interval. The short guard interval mode shows the same behaviour as the long guard interval mode.

**Result:** Selected data rate for all measurements:

DSSS: 1 MBit/s  
 OFDM g – mode : 18 MBit/s  
 OFDM n – mode : MCS2

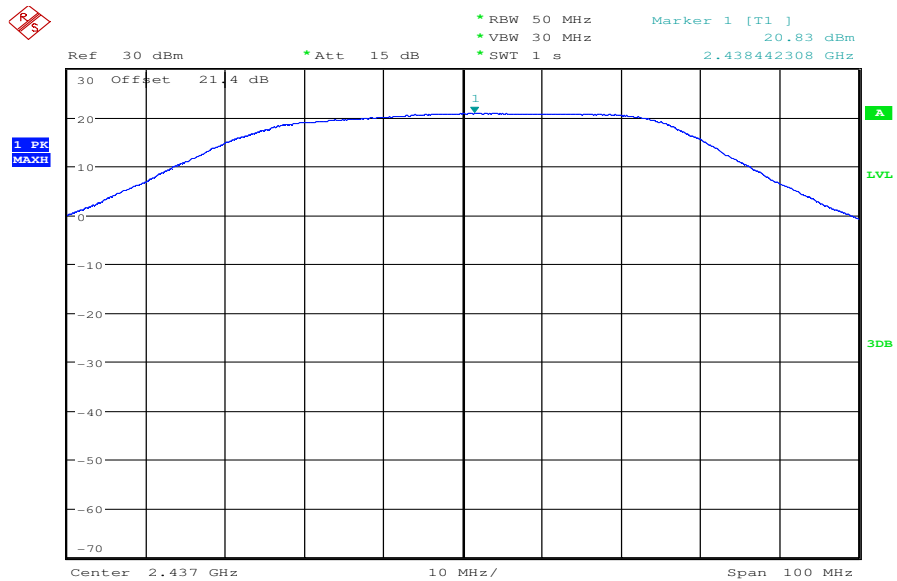
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21**



Date: 14.JAN.2011 06:59:00

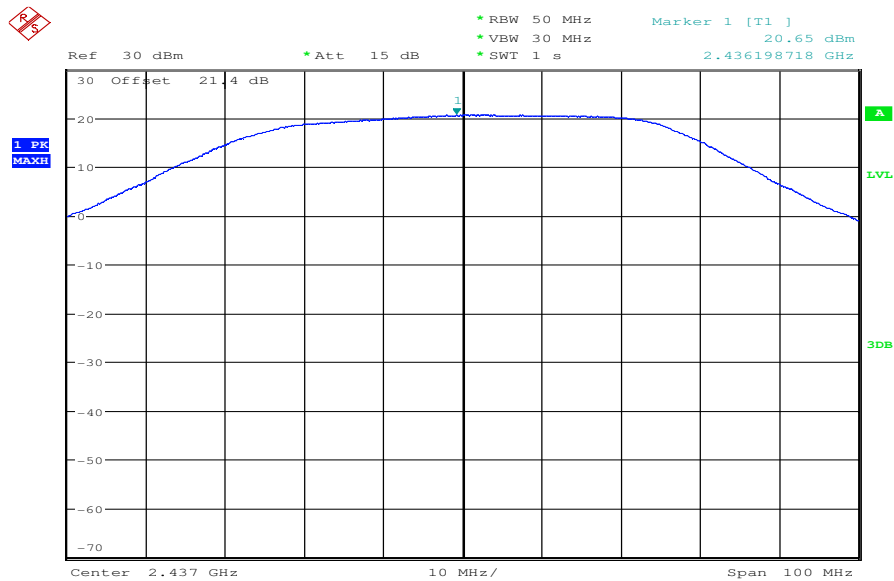
**Plot 2: TX mode, b – mode, 2 Mbit/s, power index 21**



Date: 14.JAN.2011 07:02:09

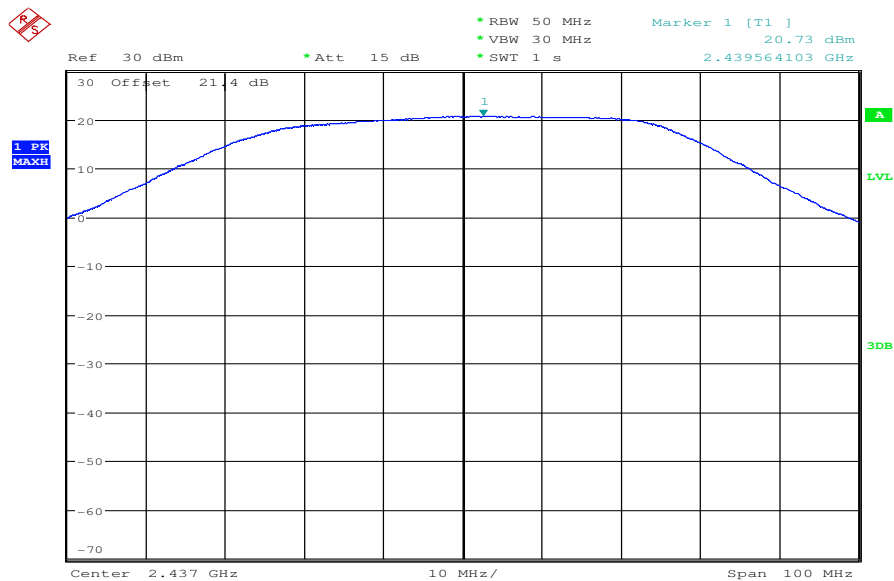


Plot 3: TX mode, b – mode, 5.5 Mbit/s, power index 21



Date: 14.JAN.2011 07:03:32

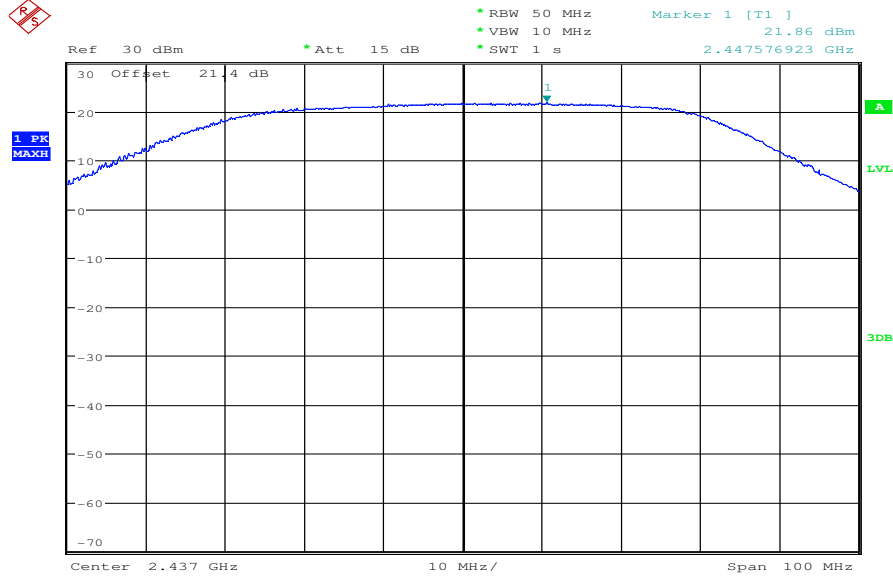
Plot 4: TX mode, b – mode, 11 Mbit/s, power index 21



Date: 14.JAN.2011 07:04:54

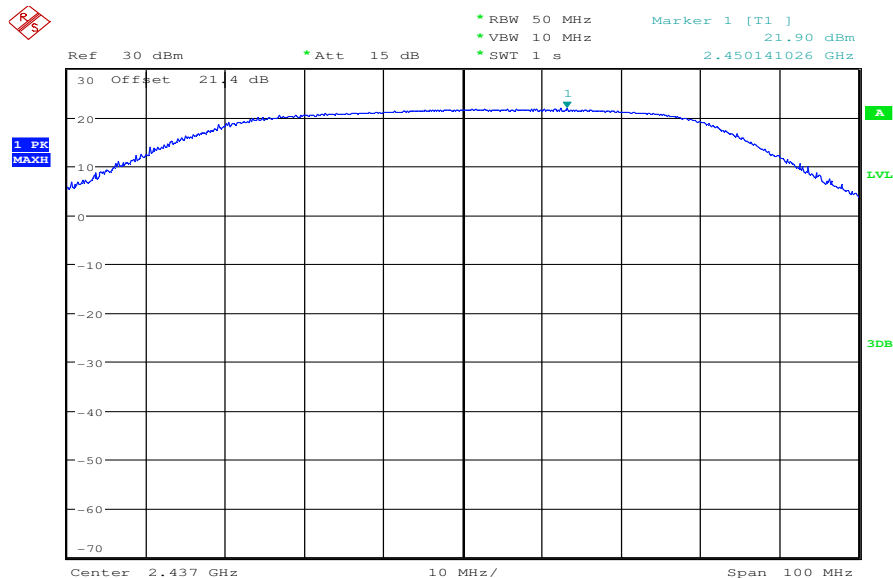
**Plots: OFDM / g – mode**

**Plot 1: TX mode, g – mode, 6 Mbit/s, power index 17**



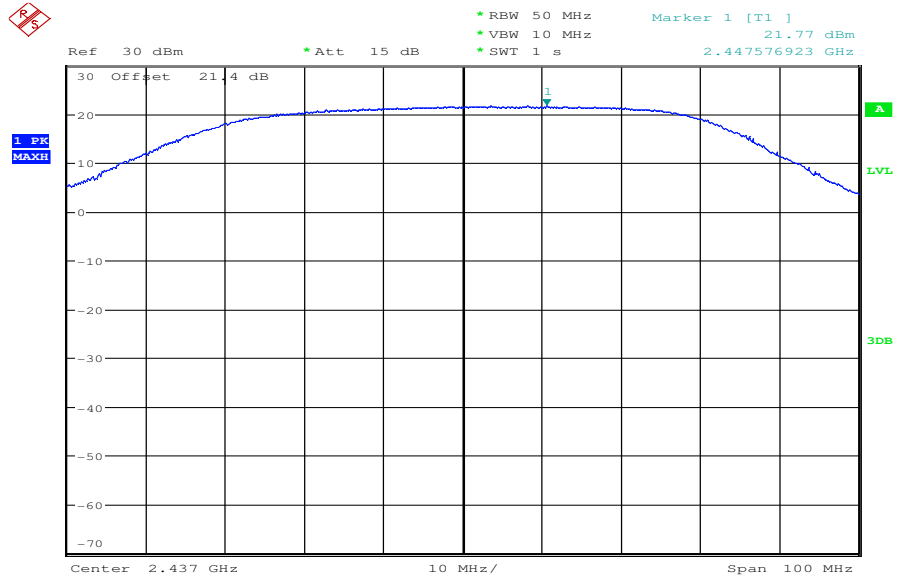
Date: 14.JAN.2011 07:15:32

**Plot 2: TX mode, g – mode, 9 Mbit/s, power index 17**



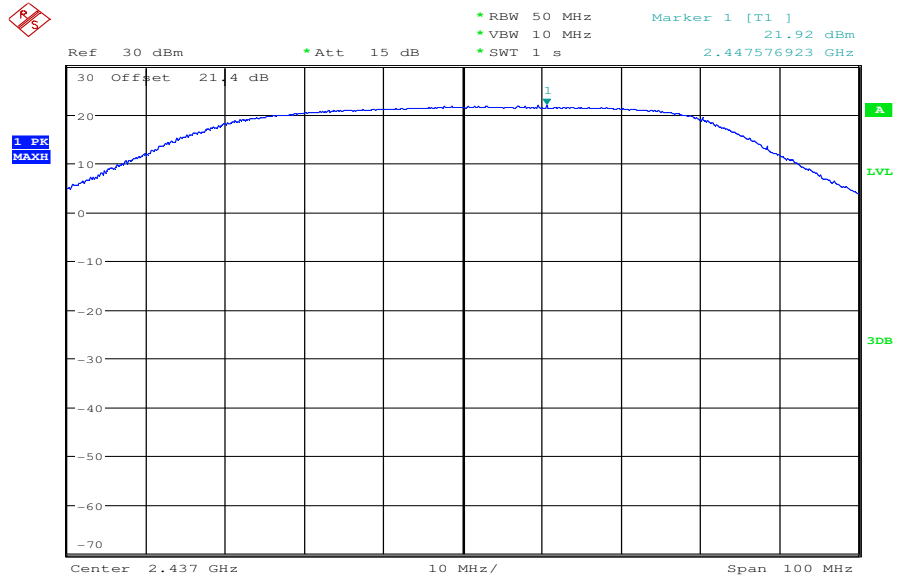
Date: 14.JAN.2011 07:16:56

Plot 3: TX mode, g – mode, 12 Mbit/s, power index 17



Date: 14.JAN.2011 07:18:25

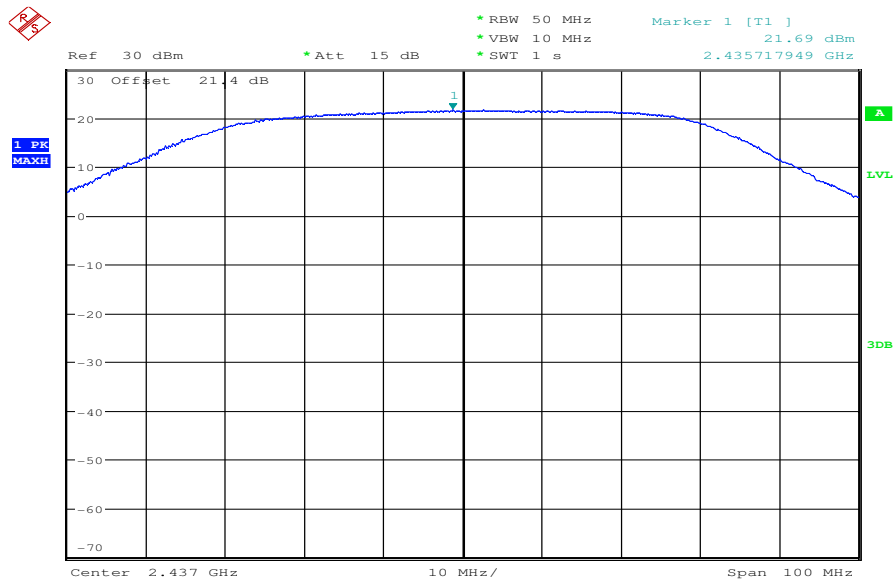
Plot 4: TX mode, g – mode, 18 Mbit/s, power index 17



Date: 14.JAN.2011 07:20:22

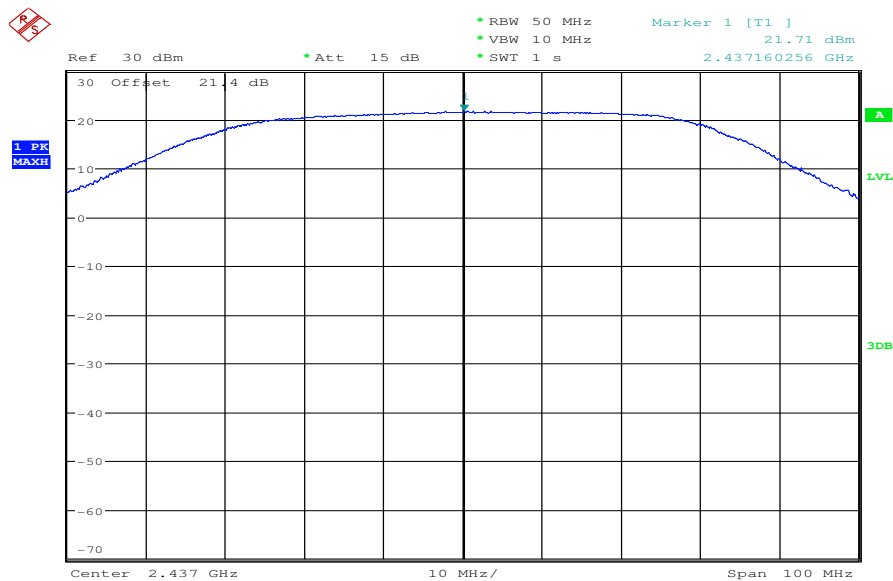


Plot 5: TX mode, g – mode, 24 Mbit/s, power index 17



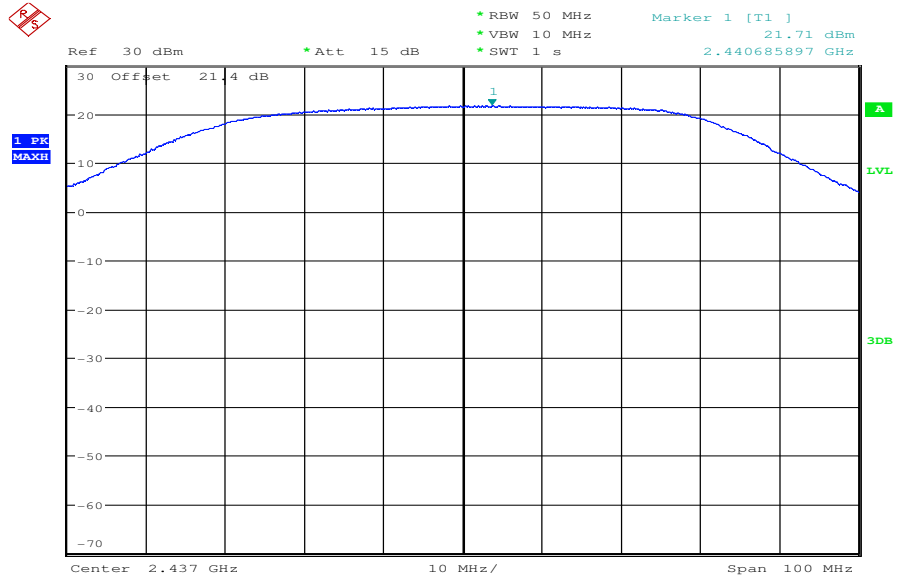
Date: 14.JAN.2011 07:23:20

Plot 6: TX mode, g – mode, 36 Mbit/s, power index 17



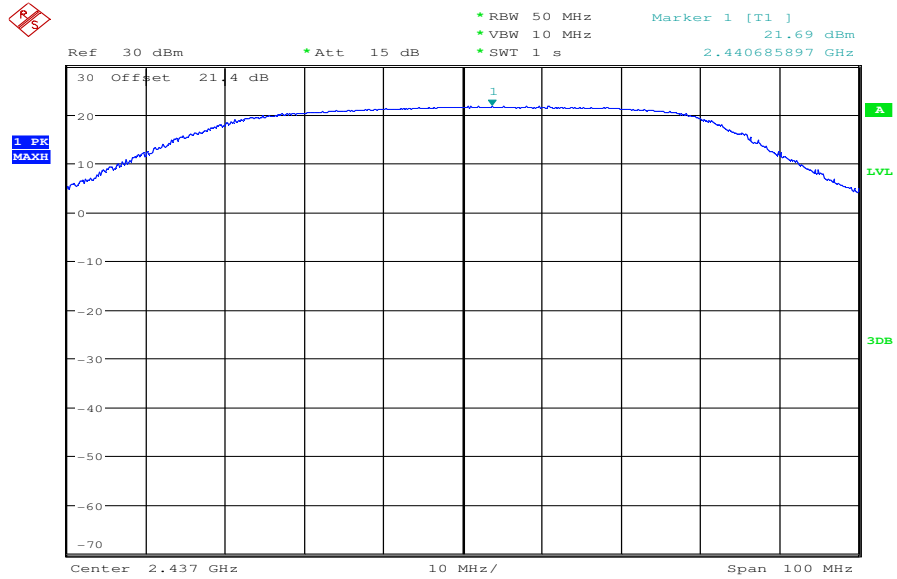
Date: 14.JAN.2011 07:25:35

Plot 7: TX mode, g – mode, 48 Mbit/s, power index 17



Date: 14.JAN.2011 07:27:58

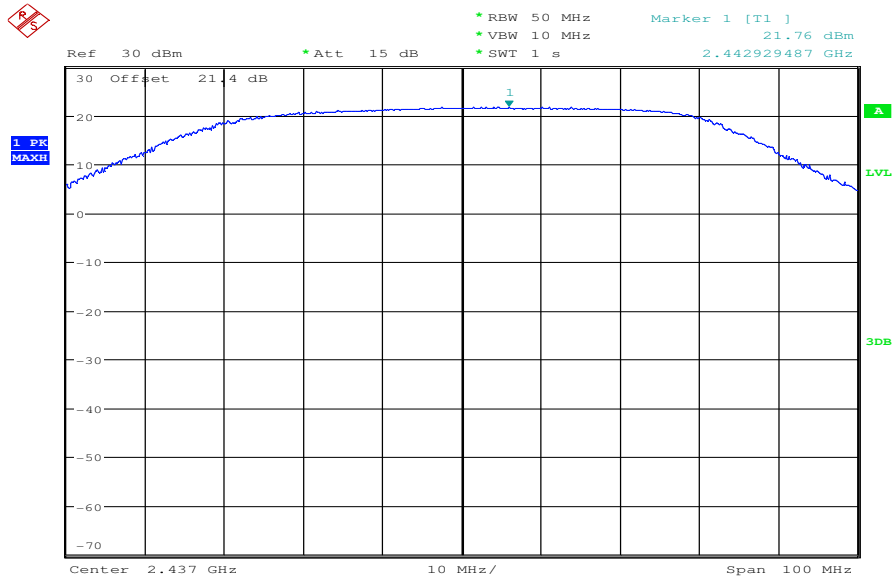
Plot 8: TX mode, g – mode, 54 Mbit/s, power index 17



Date: 14.JAN.2011 07:29:43

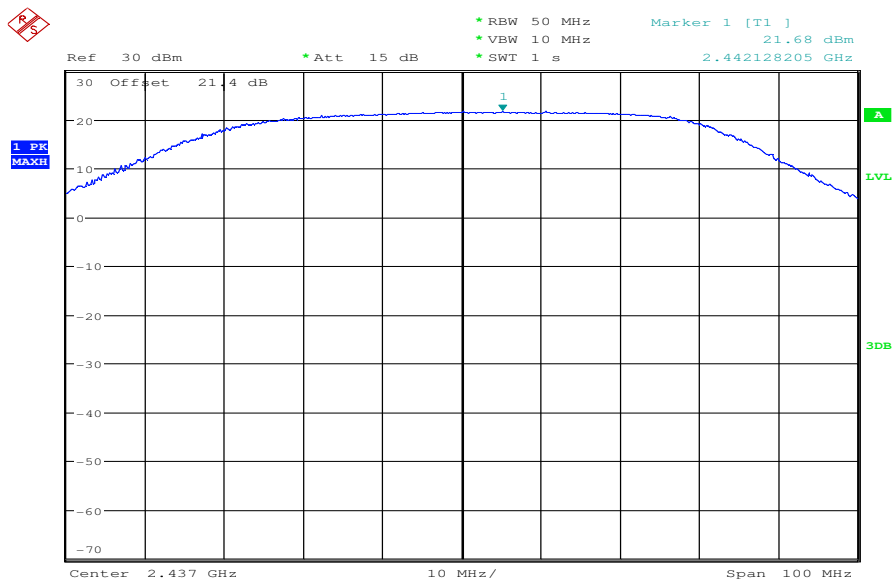
**Plots: OFDM / n – mode**

**Plot 1: TX mode, n – mode, MCS0, power index 17**



Date: 14.JAN.2011 07:40:34

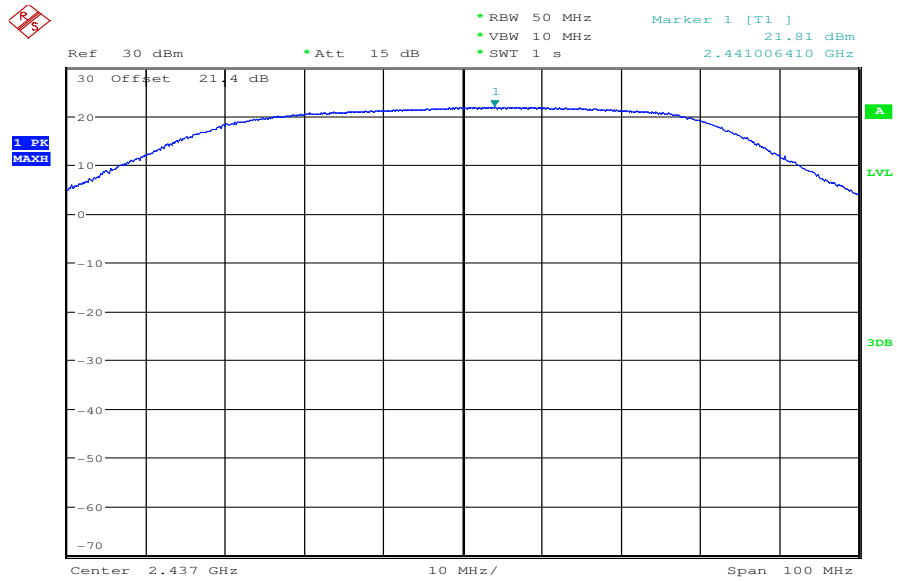
**Plot 2: TX mode, n – mode, MCS1, power index 17**



Date: 14.JAN.2011 07:41:58

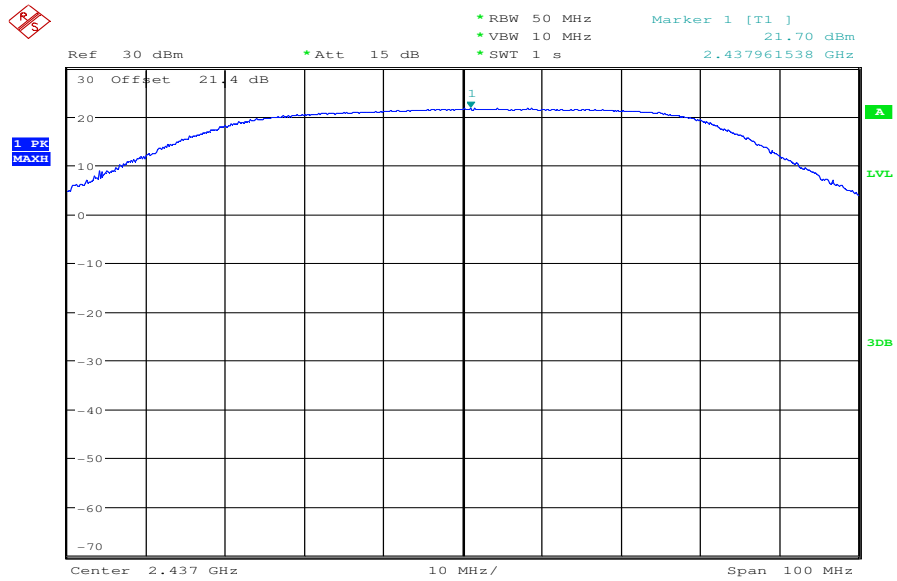


Plot 3: TX mode, n – mode, MCS2, power index 17



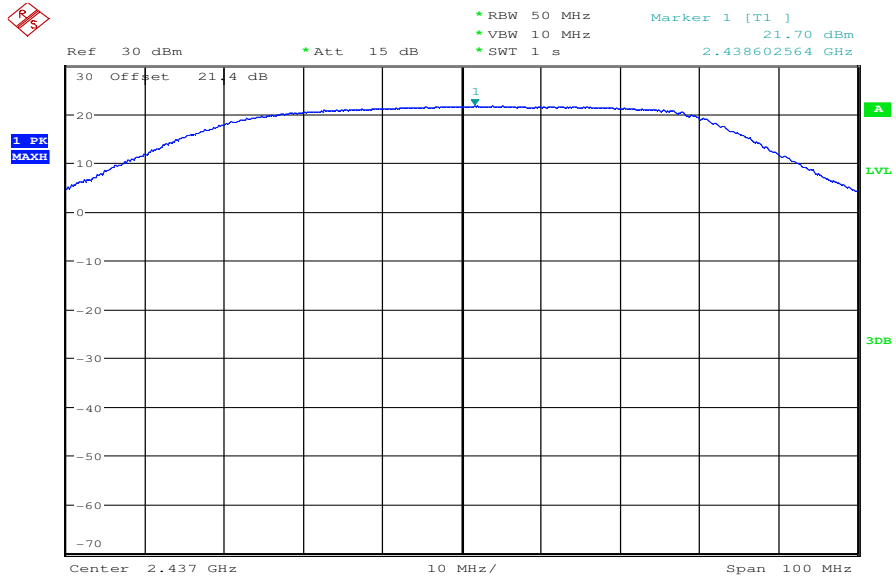
Date: 14.JAN.2011 07:43:03

Plot 4: TX mode, n – mode, MCS3, power index 17



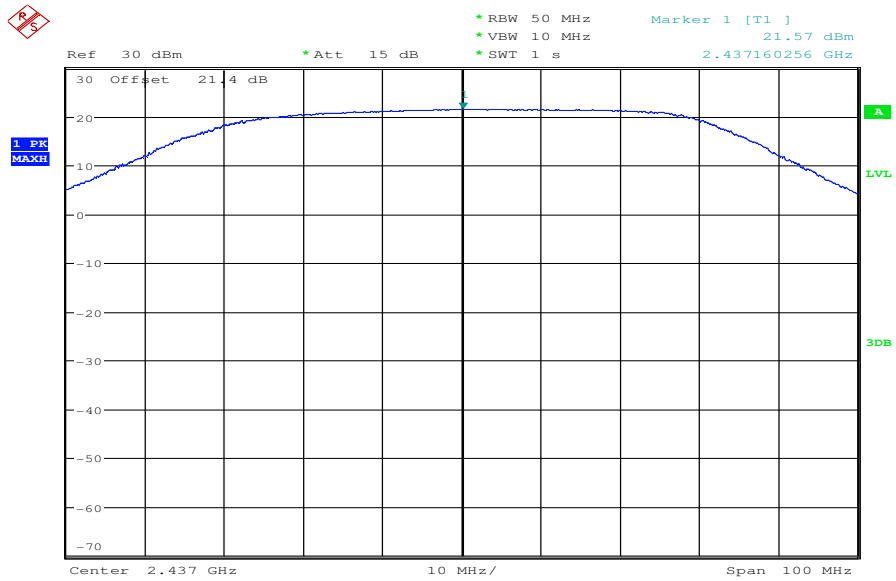
Date: 14.JAN.2011 07:44:09

Plot 5: TX mode, n – mode, MCS4, power index 17



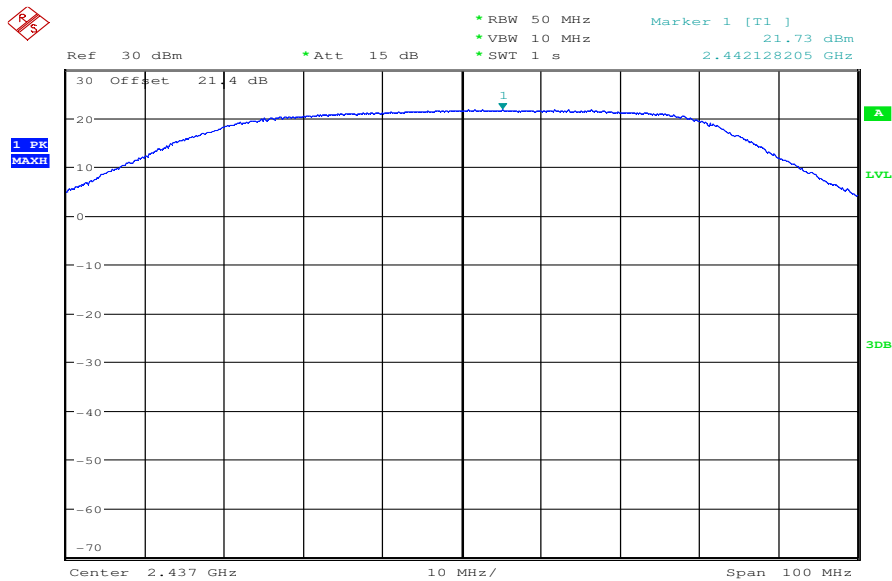
Date: 14.JAN.2011 07:45:20

Plot 6: TX mode, n – mode, MCS5, power index 17



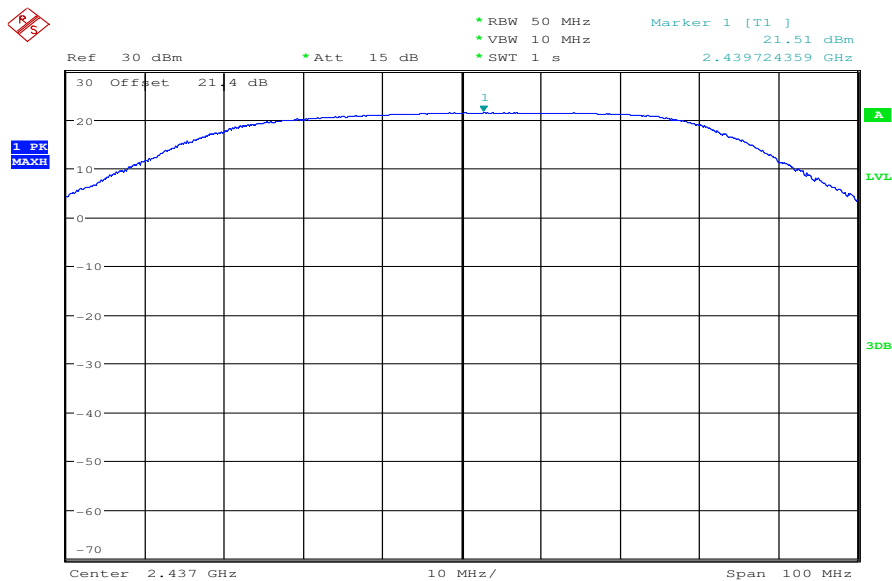
Date: 14.JAN.2011 07:46:42

Plot 7: TX mode, n – mode, MCS6, power index 17



Date: 14.JAN.2011 07:47:55

Plot 8: TX mode, n – mode, MCS7, power index 17



Date: 14.JAN.2011 07:49:00



## 9.2 Antenna gain

### Measurement:

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For normal WLAN devices, the DSSS mode is used.

### Measurement parameters:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	3 MHz
Resolution bandwidth:	3 MHz
Span:	30 MHz
Trace-Mode:	Max hold

### Limits:

FCC	IC
CFR Part 15.247 (b)(4)	RSS 210, Issue 8, A 8.4(2)
Antenna Gain	
6 dBi	

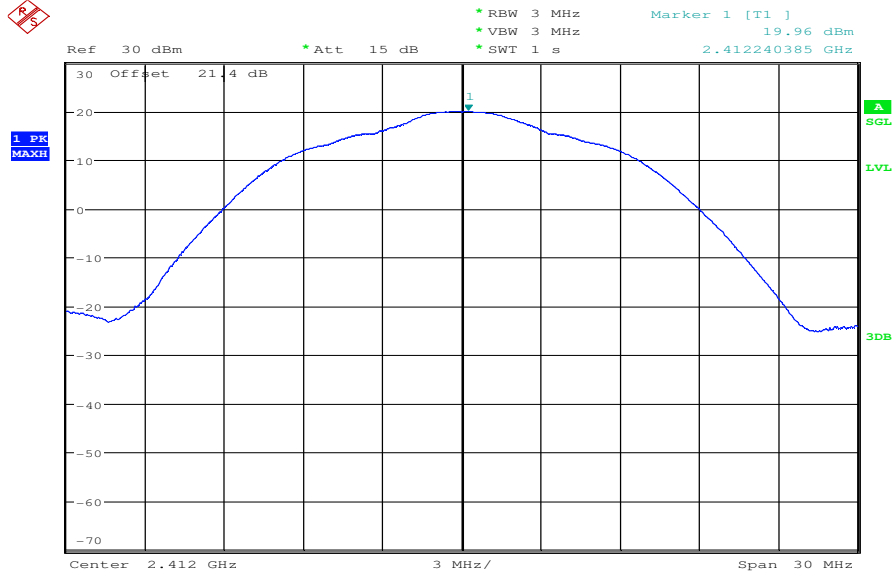
### Results:

T <sub>nom</sub>	V <sub>nom</sub>	lowest channel 2412 MHz	middle channel 2437 MHz	highest channel 2462 MHz
Conducted power [dBm] Measured with DSSS modulation		19.96	18.81	19.34
Radiated power [dBm] Measured with DSSS modulation		18.28	15.62	14.75
Gain [dBi] Calculated		-1.68	-3.19	-4.59

**Result: The result of the measurement is passed.**

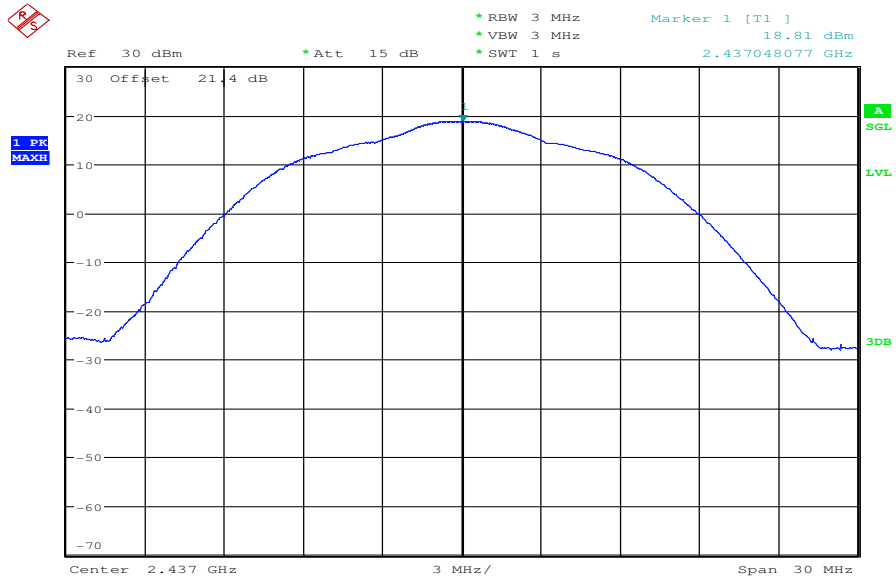
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel – 2412 MHz**



Date: 17.JAN.2011 08:01:01

**Plot 2: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel – 2437 MHz**



Date: 17.JAN.2011 08:03:39



### 9.3 Power spectral density

#### Description:

Measurement of the power spectral density of a digital modulated system. The measurement is repeated for both modulations at the lowest, middle and highest channel.

#### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	500 s
Video bandwidth:	3 kHz
Resolution bandwidth:	3 kHz
Span:	1.5 MHz
Trace-Mode:	Max Hold

#### Limits:

FCC	IC
CFR Part 15.247 (e)	RSS 210, Issue 8, A 8.2(b)
Power Spectral Density	
The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0-second duration.	

#### Results:

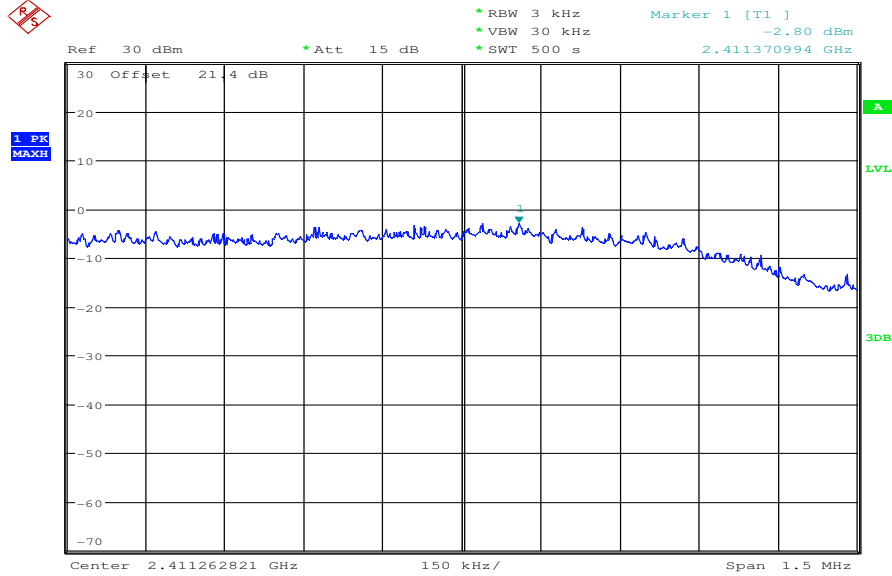
Modulation Frequency	Power Spectral density [dBm/3kHz]		
	2412 MHz	2437 MHz	2462 MHz
DSSS power index 21	-2.80	-3.78	-3.16
OFDM g – mode power index 17	-7.68	-7.82	-7.03
OFDM n – mode power index 17	-7.99	-8.96	-8.46
Measurement uncertainty	± 0.5 dB		

**Result: The result of the measurement is passed.**



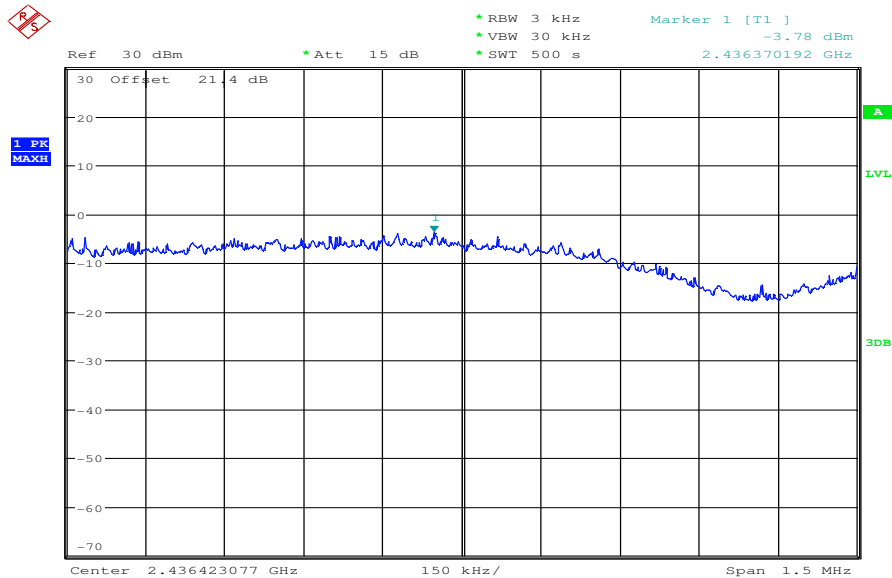
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel – 2412 MHz**



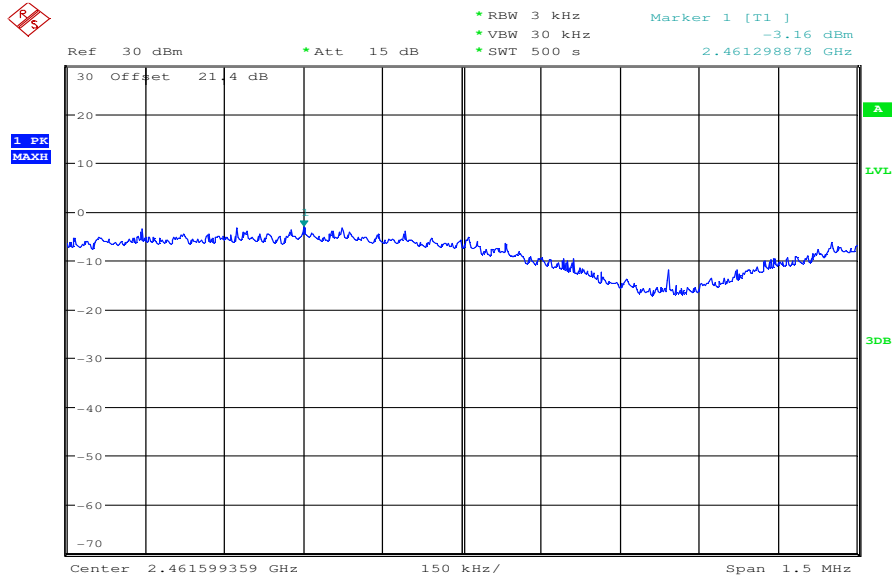
Date: 14.JAN.2011 08:55:07

**Plot 2: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel – 2437 MHz**



Date: 14.JAN.2011 09:15:42

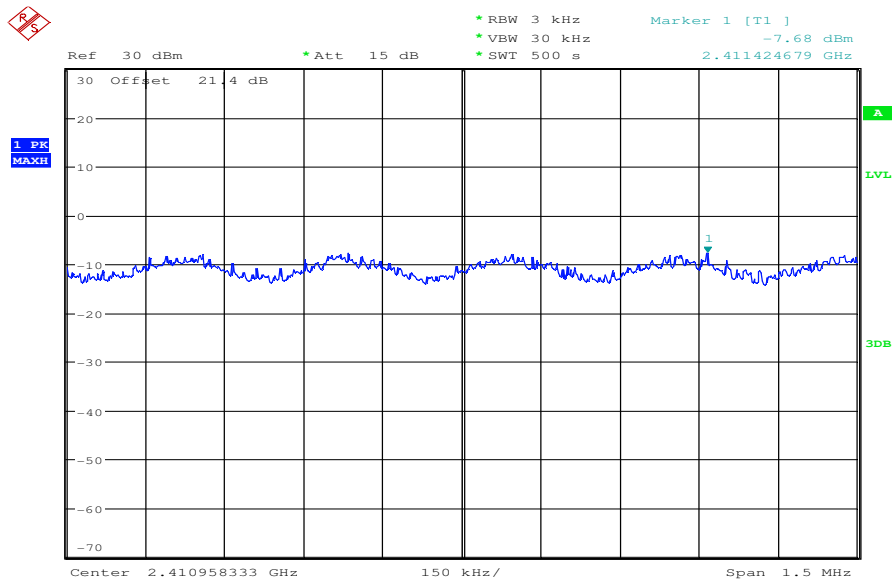
**Plot 3: TX mode, b – mode, 1 Mbit/s, power index 21, highest channel – 2462 MHz**



Date: 14.JAN.2011 11:11:12

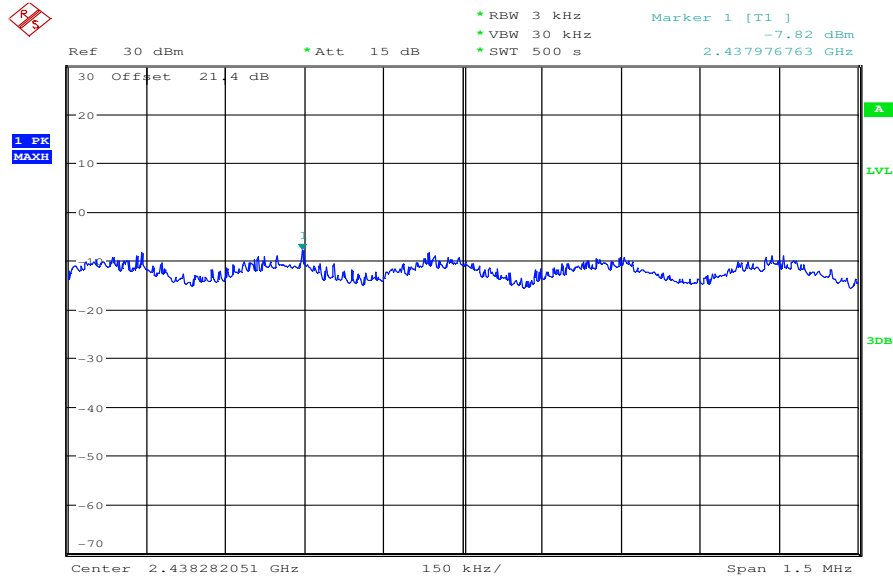
**Plots: OFDM / g – mode**

**Plot 1: TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel – 2412 MHz**



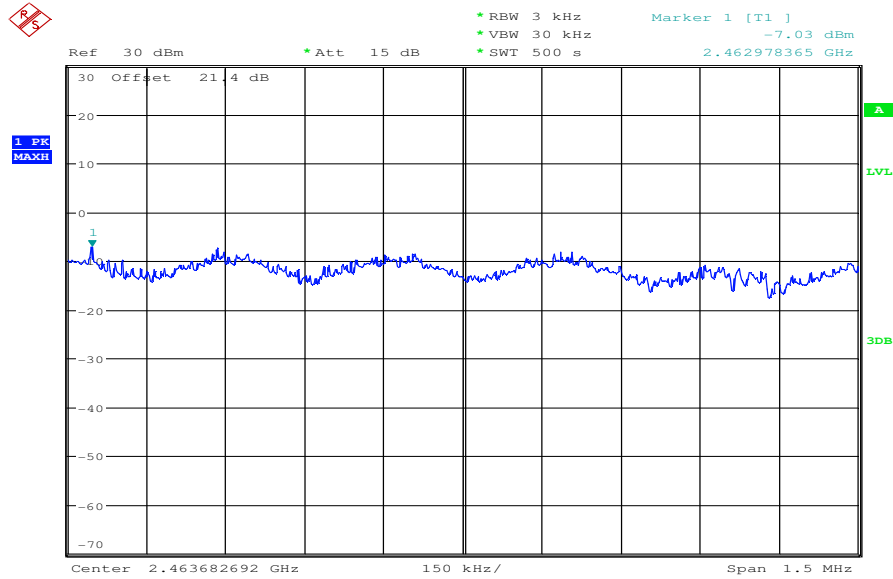
Date: 14.JAN.2011 11:31:16

Plot 2: TX mode, g – mode, 18 Mbit/s, power index 17, middle channel – 2437 MHz



Date: 14.JAN.2011 11:40:57

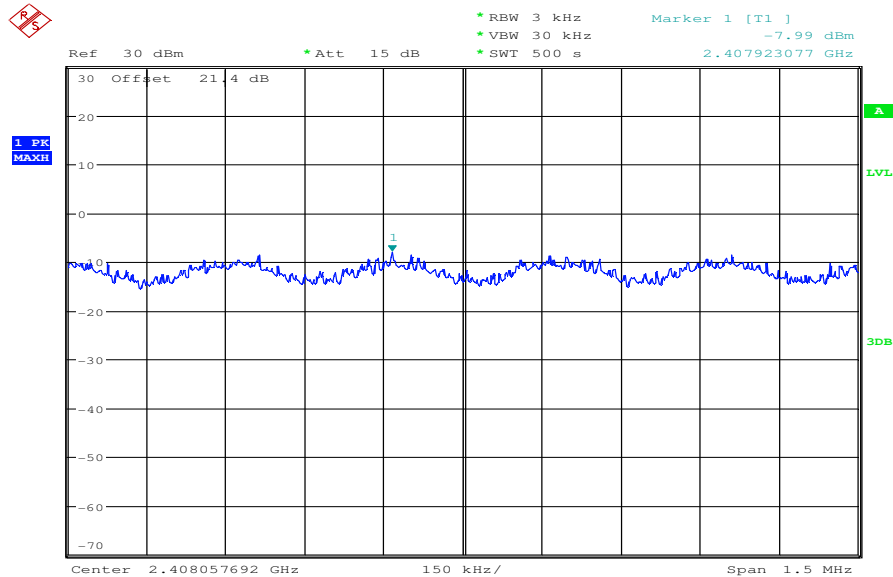
Plot 3: TX mode, g – mode, 18 Mbit/s, power index 17, highest channel – 2462 MHz



Date: 14.JAN.2011 11:50:23

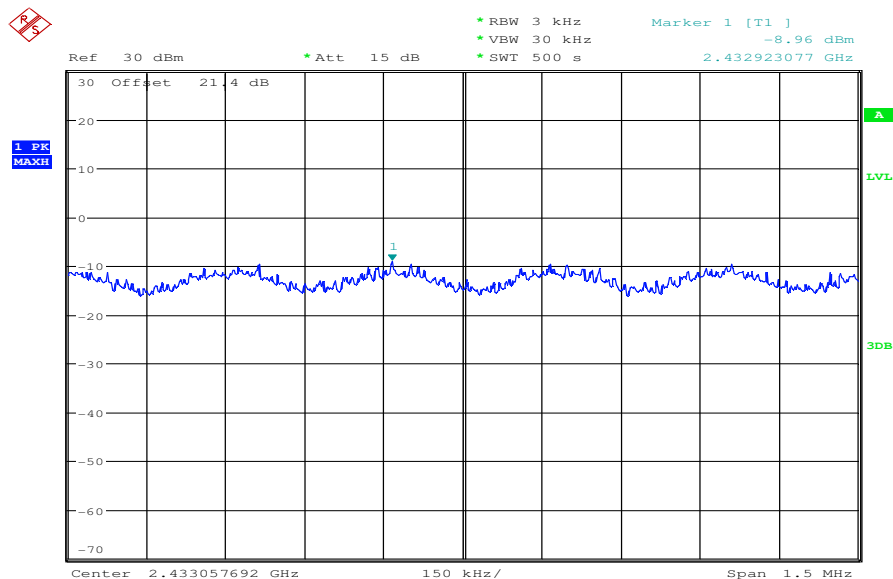
**Plots: OFDM / n – mode**

**Plot 1: TX mode, n – mode, MCS2, power index 17, lowest channel – 2412 MHz**



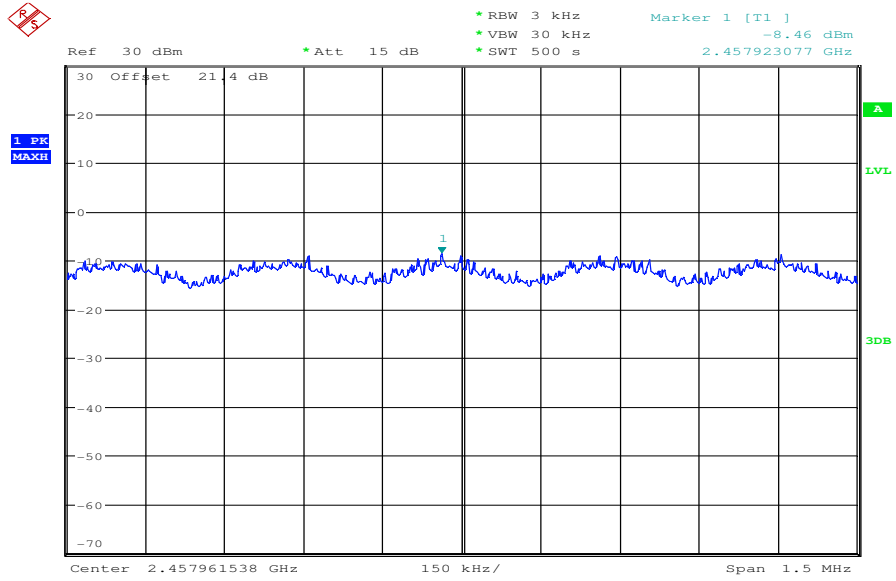
Date: 14.JAN.2011 11:59:39

**Plot 2: TX mode, n – mode, MCS2, power index 17, middle channel – 2437 MHz**



Date: 14.JAN.2011 12:50:55

Plot 3: TX mode, n – mode, MCS2, power index 17, highest channel – 2462 MHz



Date: 14.JAN.2011 13:00:16

## 9.4 Spectrum bandwidth of a FHSS system – 6 dB bandwidth

### Description:

Measurement of the 6 dB bandwidth of the modulated signal.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	1s
Video bandwidth:	300 kHz
Resolution bandwidth:	300 kHz
Span:	30 MHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
CFR Part 15.247 (a)(2)	RSS 210, Issue 8, A 8.2(a)
Spectrum Bandwidth of a FHSS System – 6 dB Bandwidth	
Systems using digital modulation techniques may operate in the 2400–2483.5 MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.	

### Results:

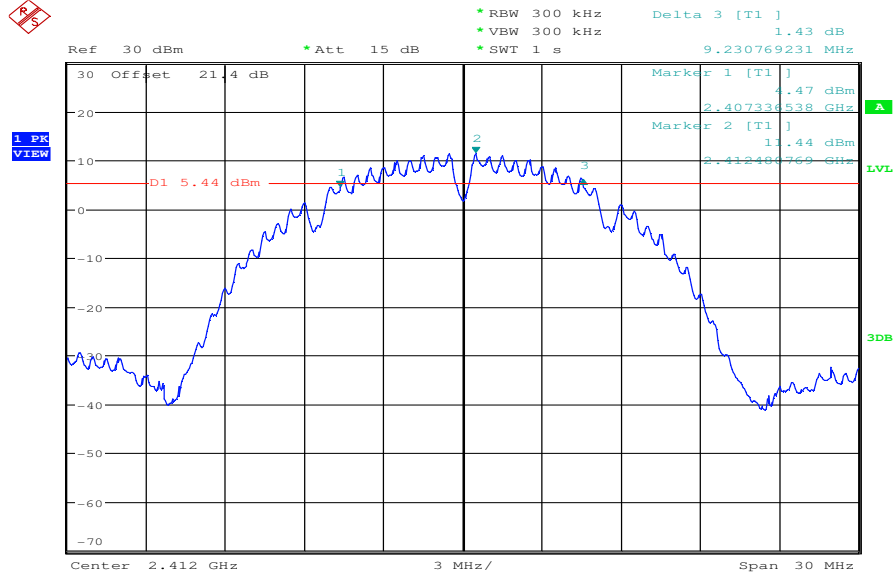
Modulation Frequency	6 dB BANDWIDTH [MHz]		
	2412 MHz	2437 MHz	2462 MHz
DSSS b – mode power index 21	9.23	9.23	9.28
OFDM g – mode power index 17	16.35	16.49	16.39
OFDM n– mode power index 17	17.64	17.60	17.64
Measurement uncertainty	± 300 kHz		

**Result:** The result of the measurement is passed.



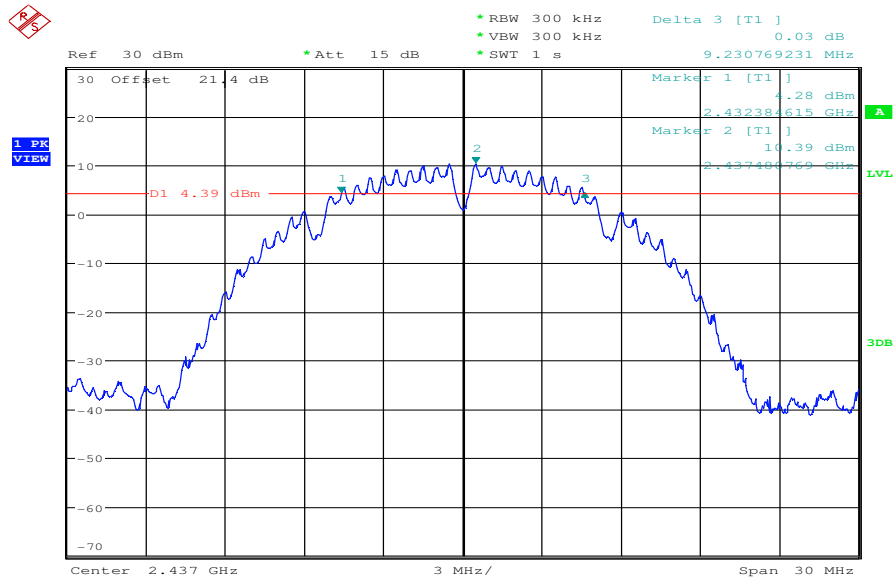
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel – 2412 MHz, 6 dB bandwidth**



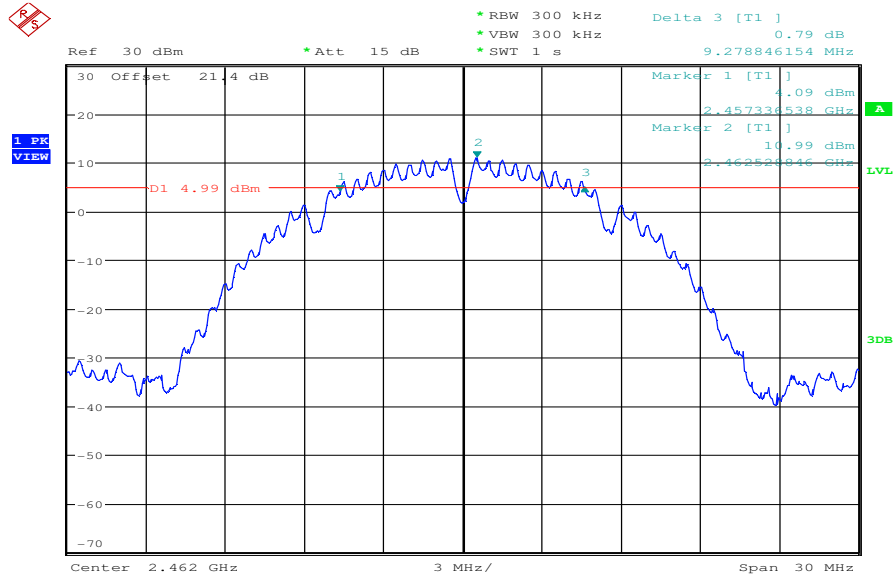
Date: 14.JAN.2011 13:05:27

**Plot 2: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel – 2437 MHz, 6 dB bandwidth**



Date: 14.JAN.2011 13:07:36

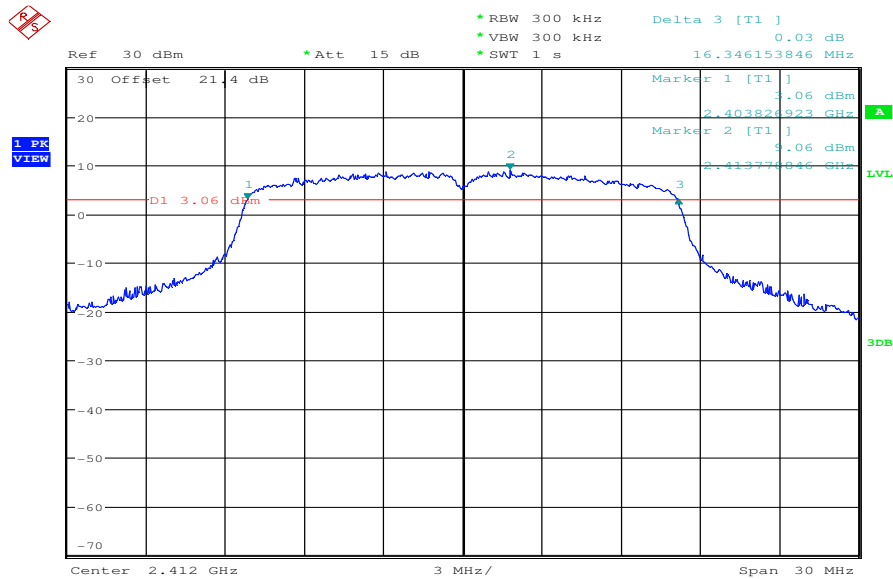
**Plot 3:** TX mode, b – mode, 1 Mbit/s, power index 21, highest channel – 2462 MHz, 6 dB bandwidth



Date: 14.JAN.2011 13:10:25

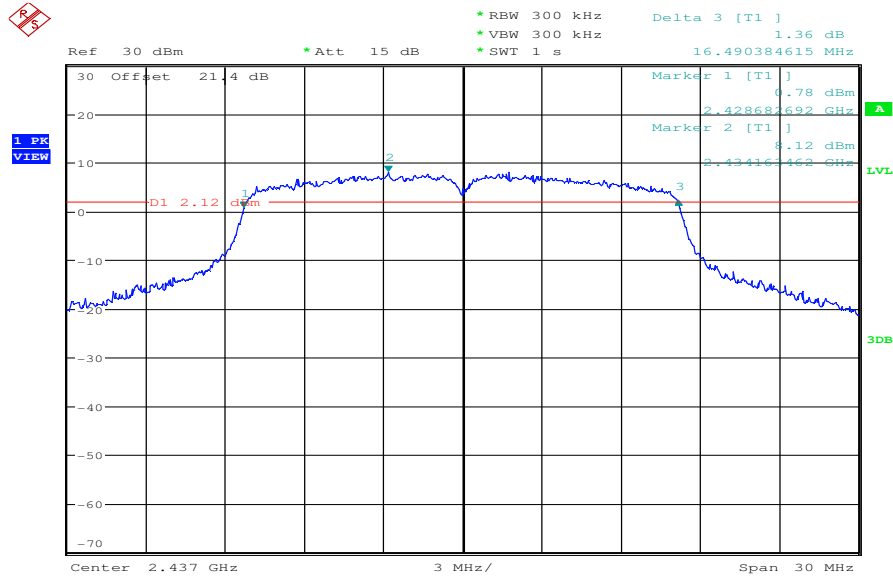
**Plots: OFDM / g – mode**

**Plot 1:** TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel – 2412 MHz, 6 dB bandwidth



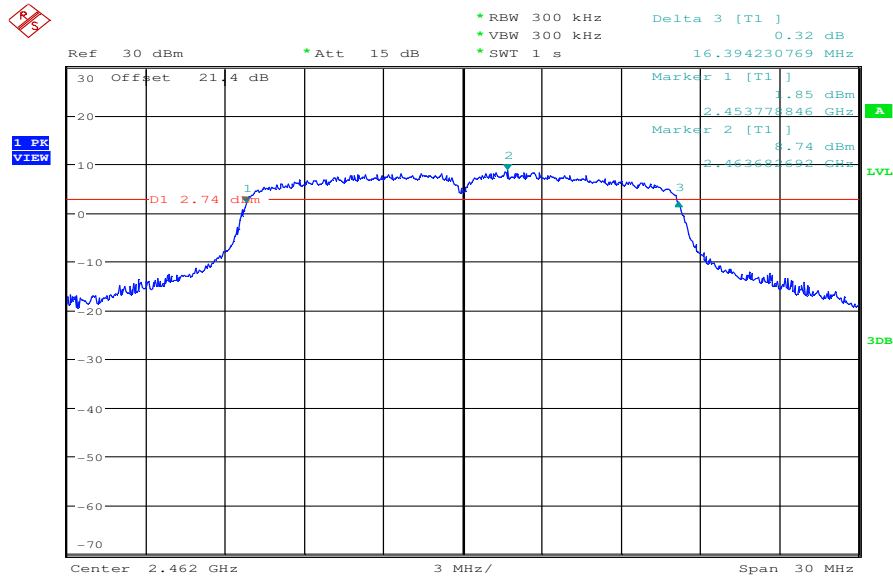
Date: 14.JAN.2011 13:13:15

**Plot 2:** TX mode, g – mode, 18 Mbit/s, power index 17, middle channel – 2437 MHz, 6 dB bandwidth



Date: 14.JAN.2011 13:16:05

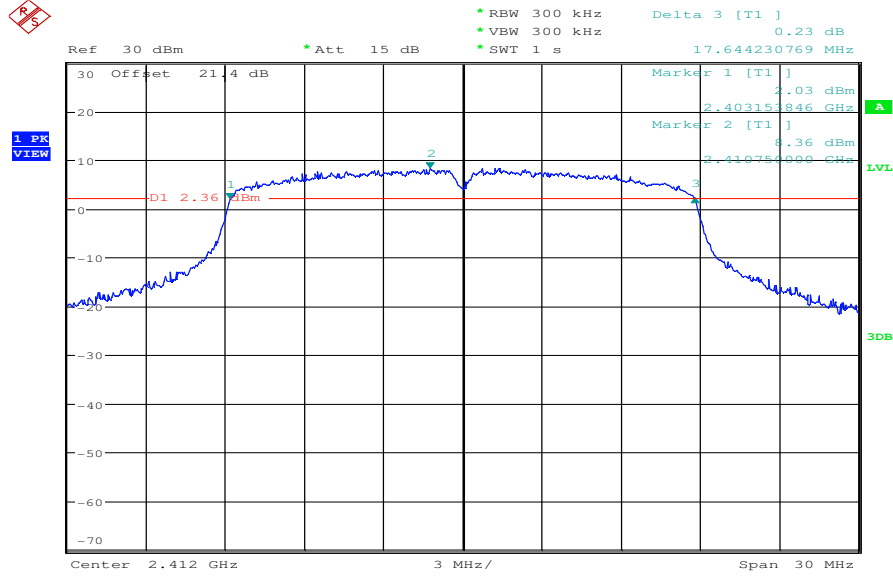
**Plot 3:** TX mode, g – mode, 18 Mbit/s, power index 17, highest channel – 2462 MHz, 6 dB bandwidth



Date: 14.JAN.2011 13:18:14

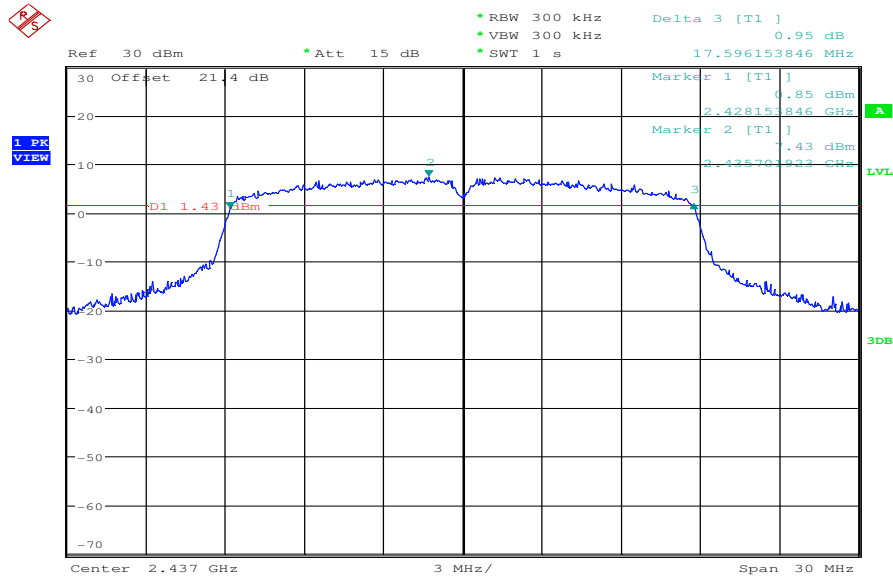
**Plots: OFDM / n – mode**

**Plot 1: TX mode, n – mode, MCS2, power index 17, lowest channel – 2412 MHz, 6 dB bandwidth**



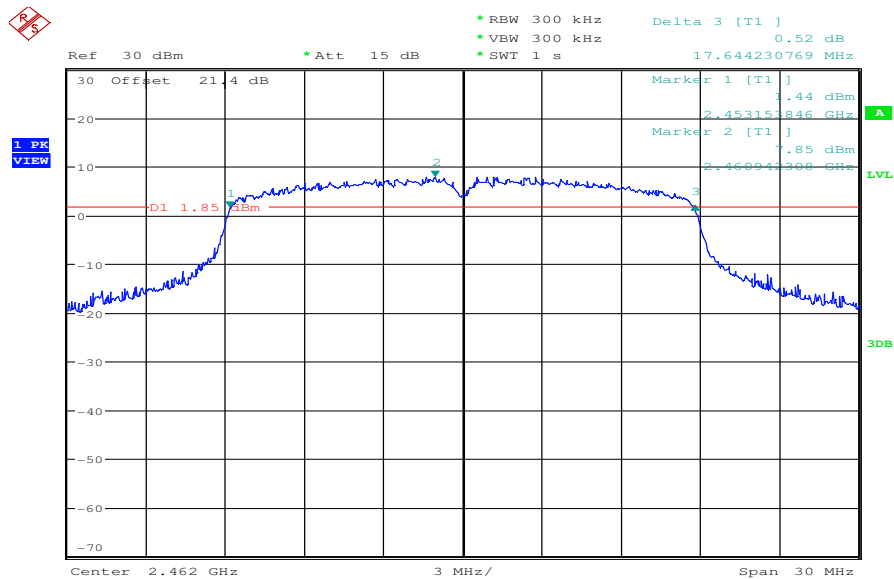
Date: 14.JAN.2011 13:20:49

**Plot 2: TX mode, n – mode, MCS2, power index 17, middle channel – 2437 MHz, 6 dB bandwidth**



Date: 14.JAN.2011 13:28:07

Plot 3: TX mode, n – mode, MCS2, power index 17, highest channel – 2462 MHz, 6 dB bandwidth



Date: 14.JAN.2011 13:30:44

## 9.5 Spectrum bandwidth of a FHSS system – 20 dB bandwidth

### Description:

Measurement of the 20 dB bandwidth of the modulated signal.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	1s
Video bandwidth:	300 kHz
Resolution bandwidth:	300 kHz
Span:	30 MHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
CFR Part 15.247 (a)(2)	RSS 210, Issue 8, A 8.2(a)
Spectrum Bandwidth of a FHSS System – 20 dB Bandwidth	
Systems using digital modulation techniques may operate in the 2400–2483.5 MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.	

### Results:

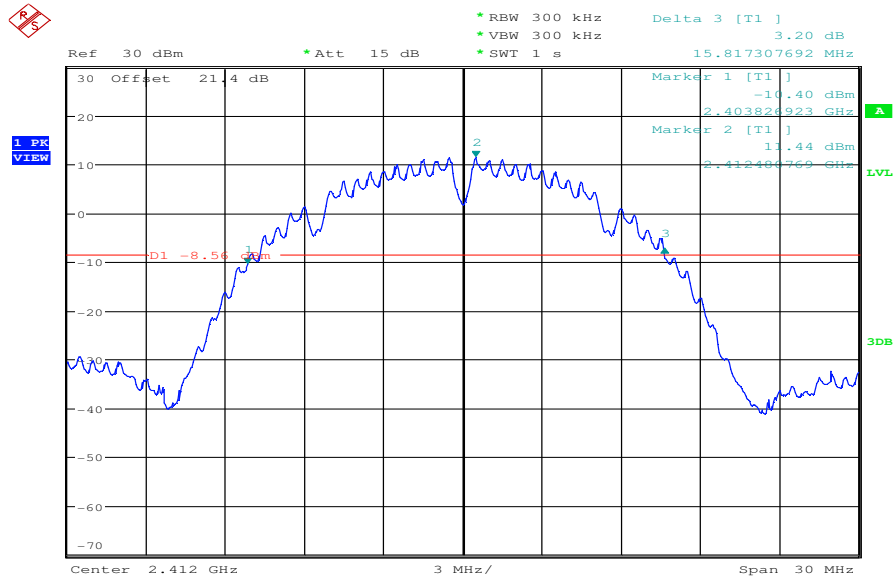
Modulation Frequency	20 dB BANDWIDTH [MHz]		
	2412 MHz	2437 MHz	2462 MHz
DSSS b – mode power index 21	15.82	16.25	16.25
OFDM g – mode power index 17	19.42	20.43	20.34
OFDM n– mode power index 17	20.58	20.96	22.45
Measurement uncertainty	± 300 kHz		

**Result:** The result of the measurement is passed.



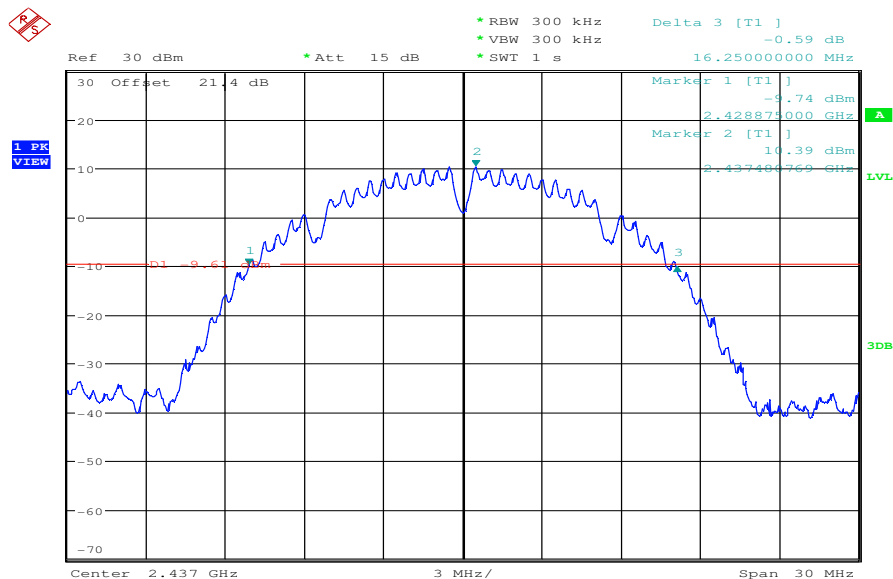
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel – 2412 MHz, 20 dB bandwidth**



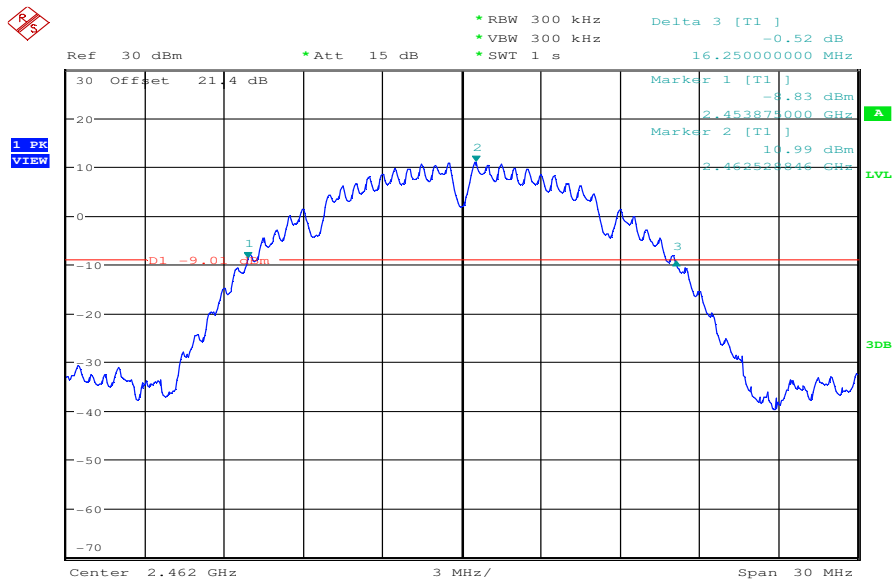
Date: 14.JAN.2011 13:06:05

**Plot 2: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel – 2437 MHz, 20 dB bandwidth**



Date: 14.JAN.2011 13:08:38

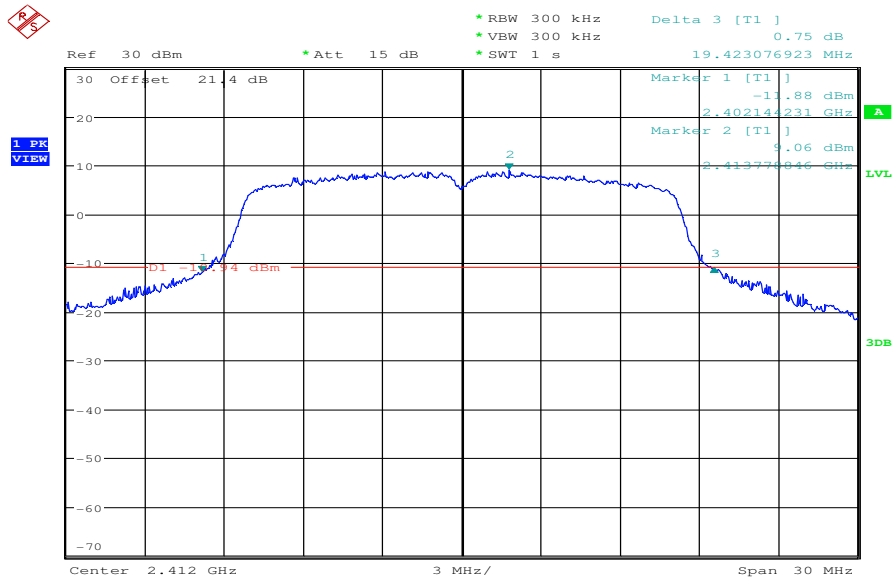
**Plot 3: TX mode, b – mode, 1 Mbit/s, power index 21, highest channel – 2462 MHz, 20 dB bandwidth**



Date: 14.JAN.2011 13:11:04

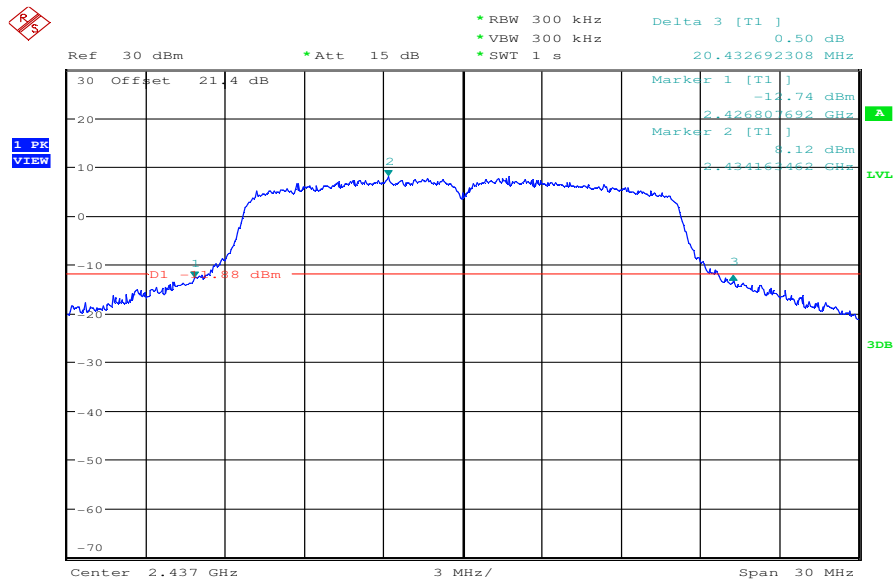
**Plots: OFDM / g – mode**

**Plot 1: TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel – 2412 MHz, 20 dB bandwidth**



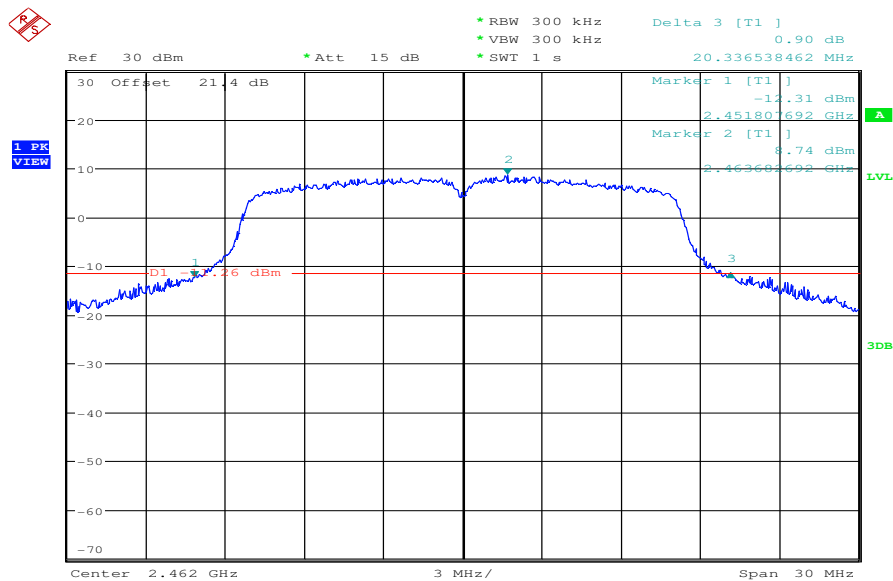
Date: 14.JAN.2011 13:14:04

**Plot 2:** TX mode, g – mode, 18 Mbit/s, power index 17, middle channel – 2437 MHz, 20 dB bandwidth



Date: 14.JAN.2011 13:16:37

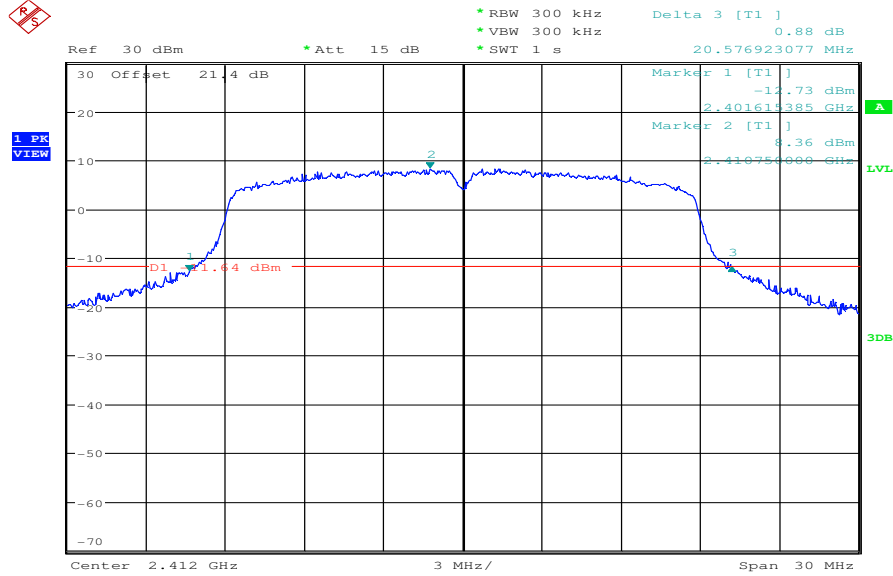
**Plot 3:** TX mode, g – mode, 18 Mbit/s, power index 17, highest channel – 2462 MHz, 20 dB bandwidth



Date: 14.JAN.2011 13:18:54

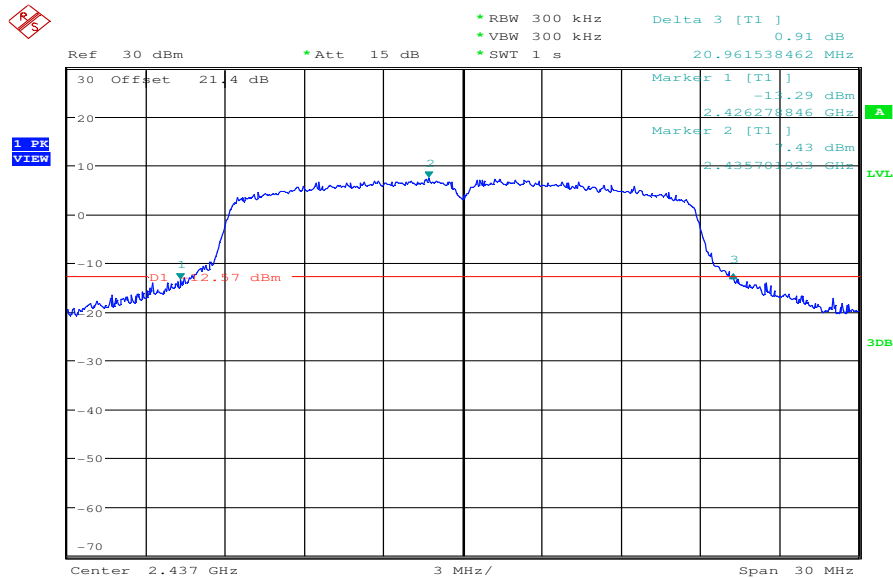
**Plots: OFDM / n – mode**

**Plot 1: TX mode, n – mode, MCS2, power index 17, lowest channel – 2412 MHz, 20 dB bandwidth**



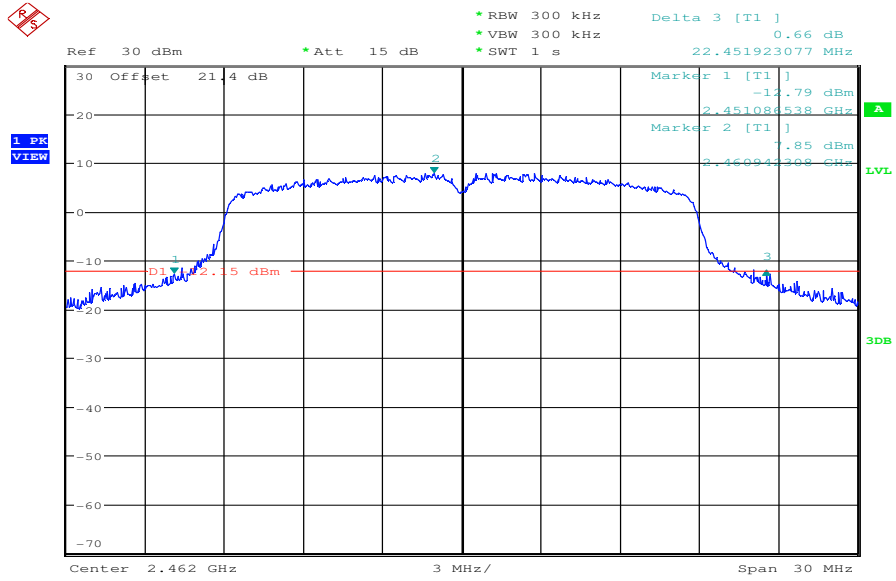
Date: 14.JAN.2011 13:25:23

**Plot 2: TX mode, n – mode, MCS2, power index 17, middle channel – 2437 MHz, 20 dB bandwidth**



Date: 14.JAN.2011 13:28:55

Plot 3: TX mode, n – mode, MCS2, power index 17, highest channel – 2462 MHz, 20 dB bandwidth



Date: 14.JAN.2011 13:31:46

## 9.6 Maximum output power

### Description:

Measurement of the maximum output power conducted and radiated. The measurements are performed using the data rate producing the highest conducted output power. The determination of these data rates was performed at the beginning of the tests. Additionally the average power is measured using a wideband power meter.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	1s
Video bandwidth:	30 MHz
Resolution bandwidth:	50 MHz
Span:	30 MHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
CFR Part 15.247 (b)(3)	RSS 210, Issue 8, A 8.4(4)
Maximum Output Power	
Conducted: 1.0 W – Antenna Gain max. 6 dBi	

### Results:

DSSS b – mode power index 21	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Frequency			
Peak Output Power Conducted	22.06	20.84	21.45
Output Power Radiated - EIRP	20.38	17.65	16.86
Measurement uncertainty	± 0.5 dB (cond.) / ± 2 dB (rad.)		

**Results:**

OFDM g – mode power index 17	Maximum Output Power [dBm]		
	Frequency	2412 MHz	2437 MHz
Peak Output Power Conducted	23.40	21.92	22.25
Output Power Radiated - EIRP	21.72	18.73	17.66
Measurement uncertainty	± 0.5 dB (cond.) / ± 2 dB (rad.)		

**Results:**

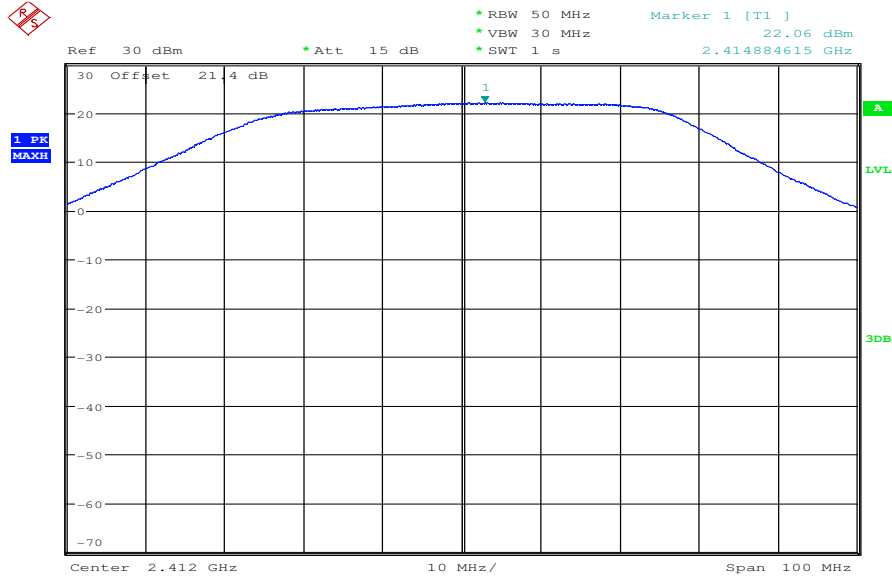
OFDM n – mode power index 17	Maximum Output Power [dBm]		
	Frequency	2412 MHz	2437 MHz
Peak Output Power Conducted	23.49	21.81	22.27
Output Power Radiated - EIRP	22.13	18.62	17.68
Measurement uncertainty	± 0.5 dB (cond.) / ± 2 dB (rad.)		

**Result:** [The result of the measurement is passed.](#)



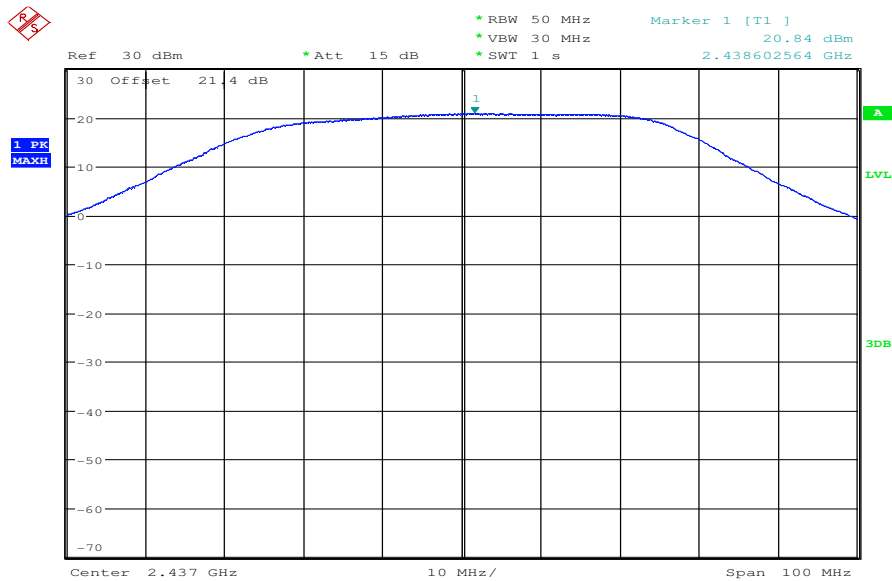
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel – 2412 MHz**



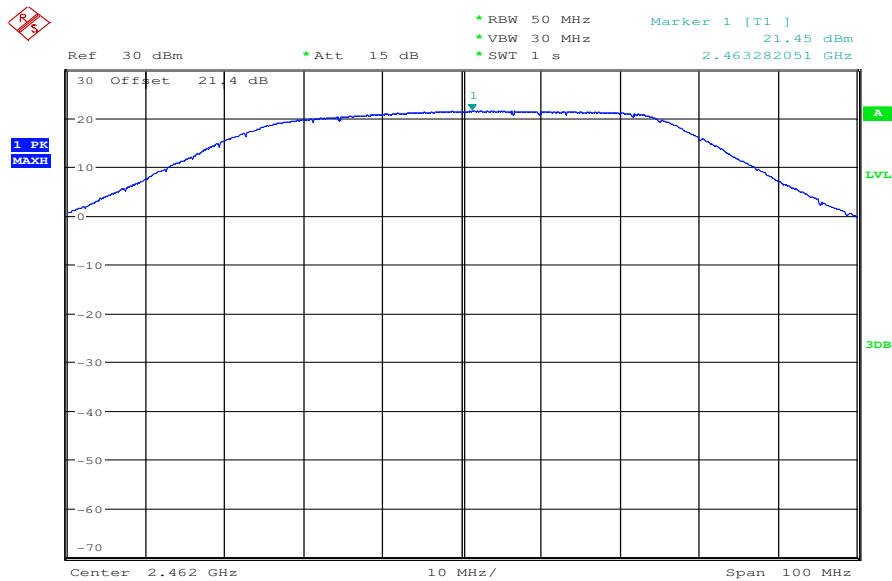
Date: 14.JAN.2011 07:07:12

**Plot 2: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel – 2437 MHz**



Date: 14.JAN.2011 06:59:00

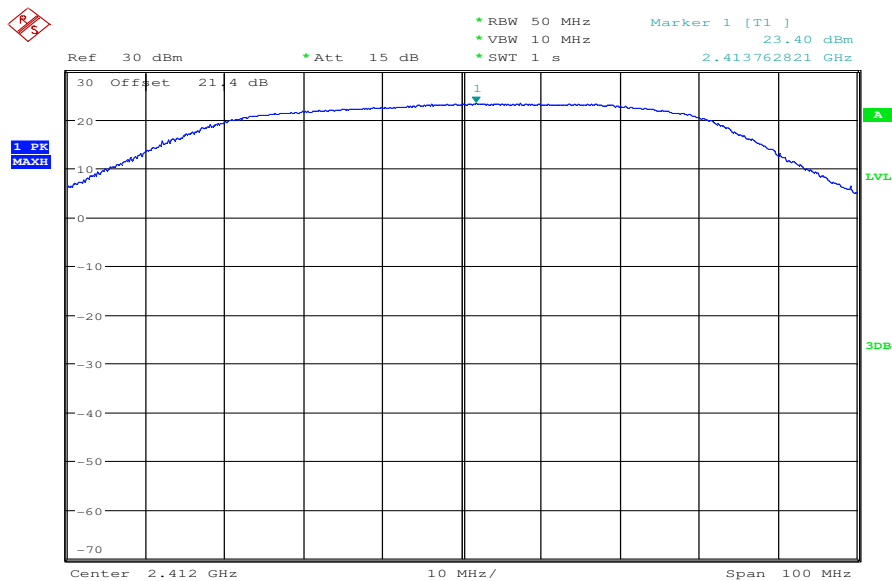
**Plot 3: TX mode, b – mode, 1 Mbit/s, power index 21, highest channel – 2462 MHz**



Date: 14.JAN.2011 07:10:38

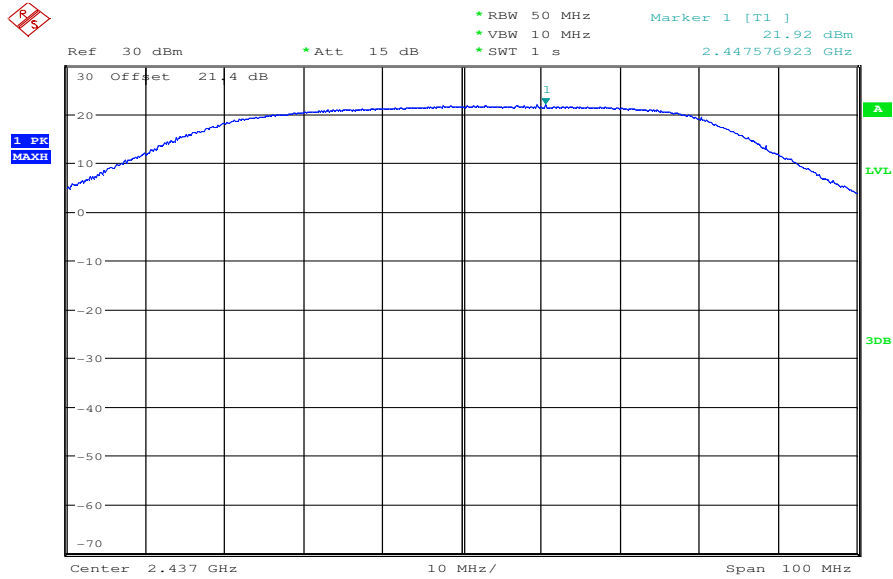
**Plots: OFDM / g – mode**

**Plot 1: TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel – 2412 MHz**



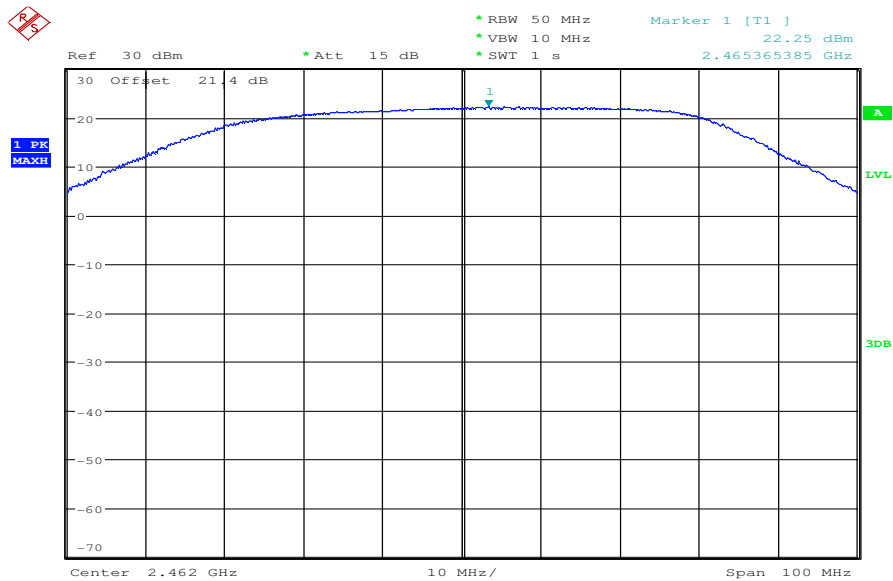
Date: 14.JAN.2011 07:32:32

Plot 2: TX mode, g – mode, 18 Mbit/s, power index 17, middle channel – 2437 MHz



Date: 14.JAN.2011 07:20:22

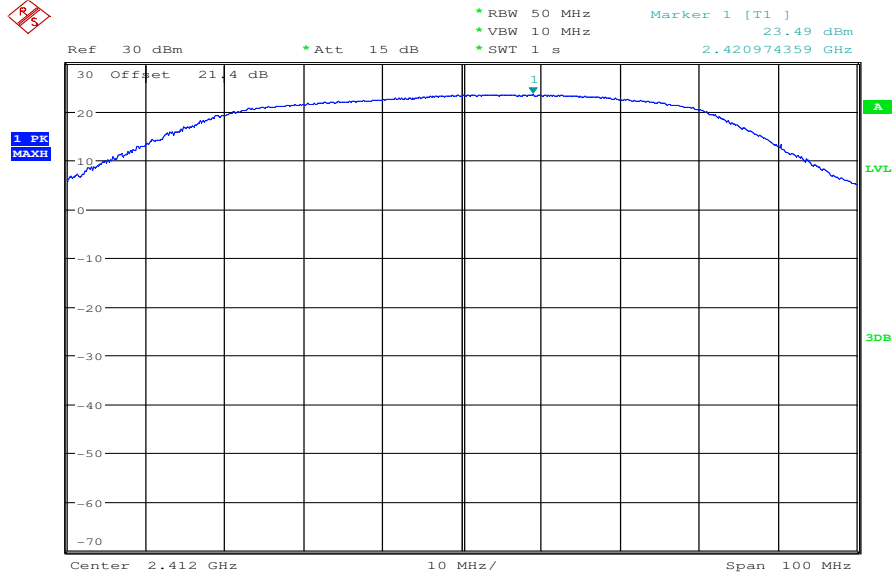
Plot 3: TX mode, g – mode, 18 Mbit/s, power index 17, highest channel – 2462 MHz



Date: 14.JAN.2011 07:35:05

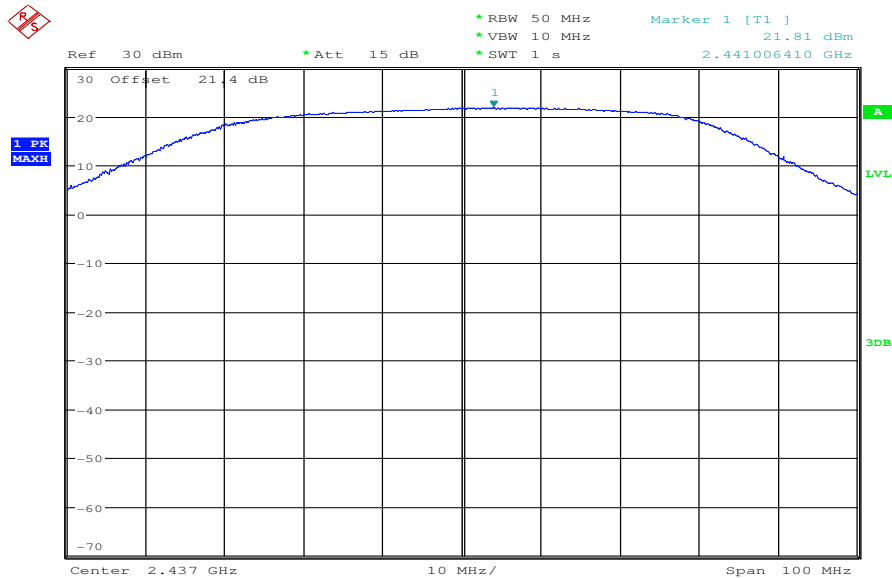
**Plots: OFDM / n – mode**

**Plot 1: TX mode, n – mode, MSC2, power index 17, lowest channel – 2412 MHz**



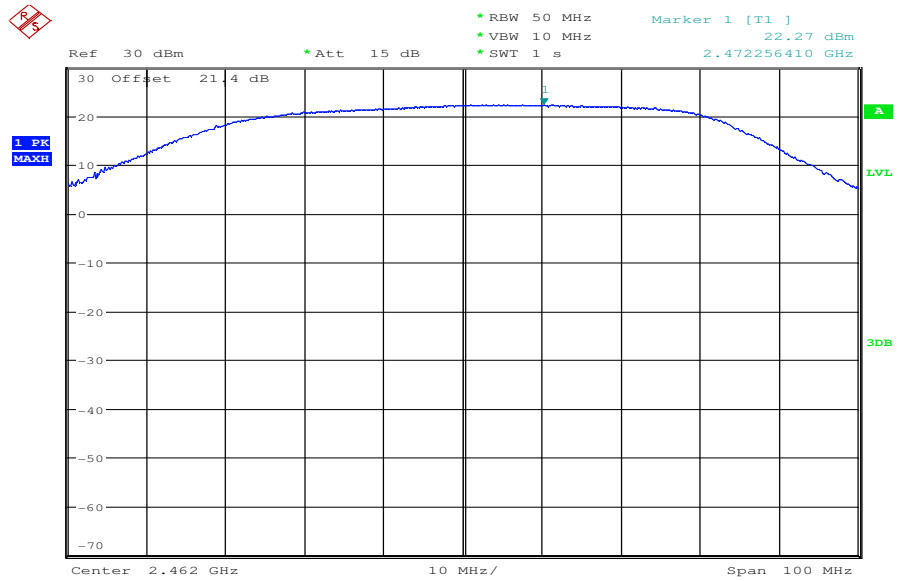
Date: 14.JAN.2011 07:50:55

**Plot 2: TX mode, n – mode, MSC2, power index 17, middle channel – 2437 MHz**



Date: 14.JAN.2011 07:43:03

Plot 3: TX mode, n – mode, MSC2, power index 17, highest channel – 2462 MHz



Date: 14.JAN.2011 07:53:28

## 9.7 Band edge compliance conducted

### Description:

Measurement of the conducted band edge compliance. EUT is measured at the lower and upper band edge in both modes.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	100 kHz
Resolution bandwidth:	500 kHz
Span:	Lower Band Edge: 2300 – 2425 MHz Upper Band Edge: 2450 – 2500 MHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
CFR Part 15.247 (d)	RSS 210, Issue 8, A 8.5
Band Edge Compliance Conducted	
<p>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.</p>	

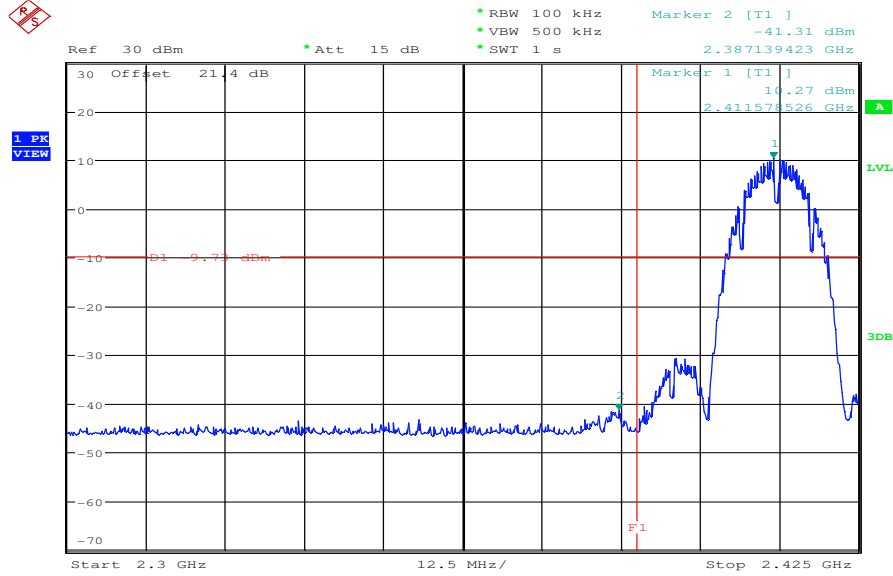
### Results:

Scenario	Band Edge Compliance Conducted [dB]	
	DSSS b – mode power index 21	OFDM g & n – mode power index 17
Lower Band Edge – Channel 1	> 20 dB (see plot 1)	> 20 dB (see plot 3)
Upper Band Edge – Channel 11	> 20 dB (see plot 2)	> 20 dB (see plot 4)
Measurement uncertainty	± 1.5 dB	

**Result:** The result of the measurement is passed.

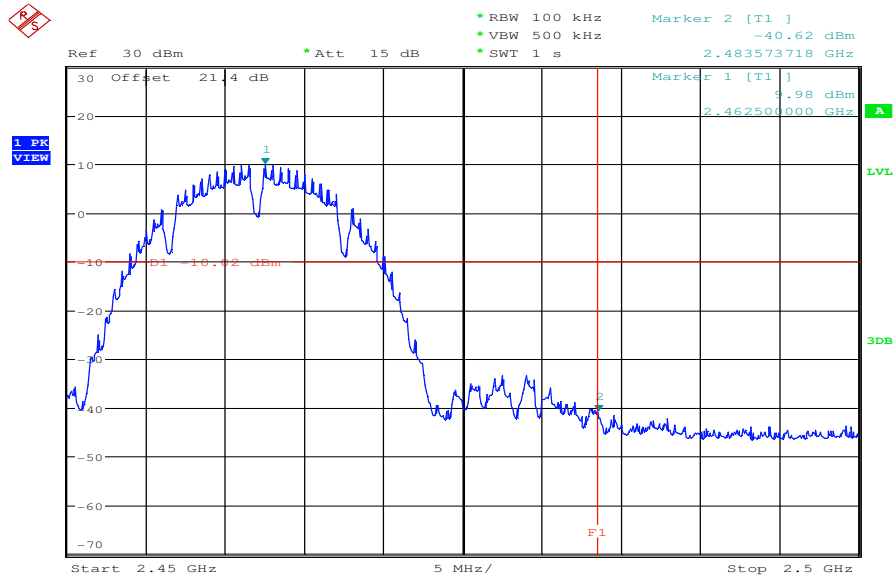
**Plots: DSSS / b – mode**

**Plot 1: TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel – 2412 MHz, lower band edge**



Date: 14.JAN.2011 13:51:27

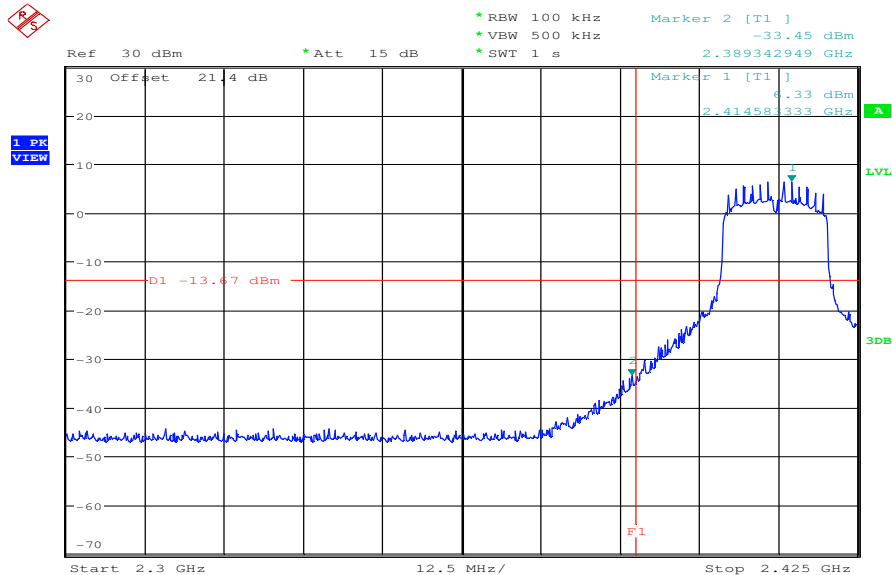
**Plot 2: TX mode, b – mode, 1 Mbit/s, power index 21, highest channel – 2462 MHz, higher band edge**



Date: 14.JAN.2011 13:55:45

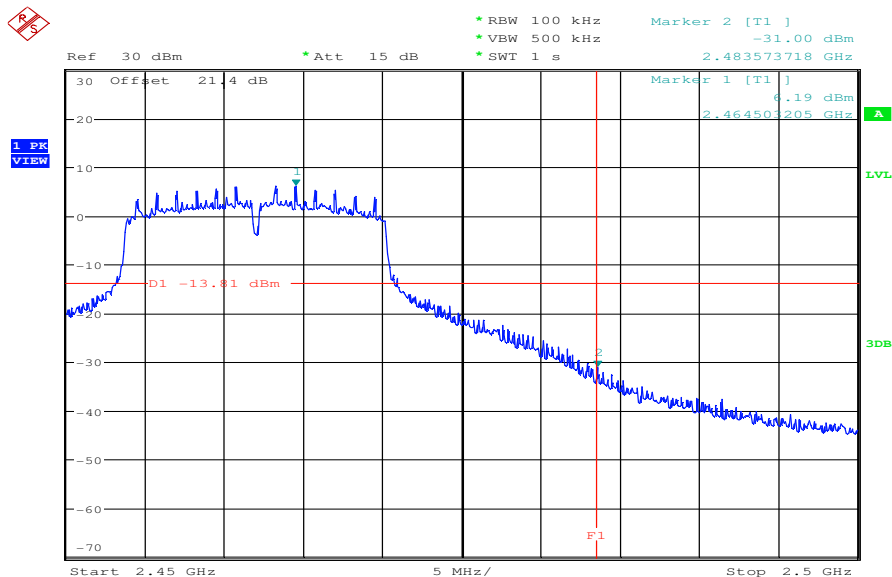
**Plots: OFDM / g – mode**

**Plot 1: TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel – 2412 MHz, lower band edge**



Date: 14.JAN.2011 13:52:50

**Plot 2: TX mode, g – mode, 18 Mbit/s, power index 17, highest channel – 2462 MHz, higher band edge**

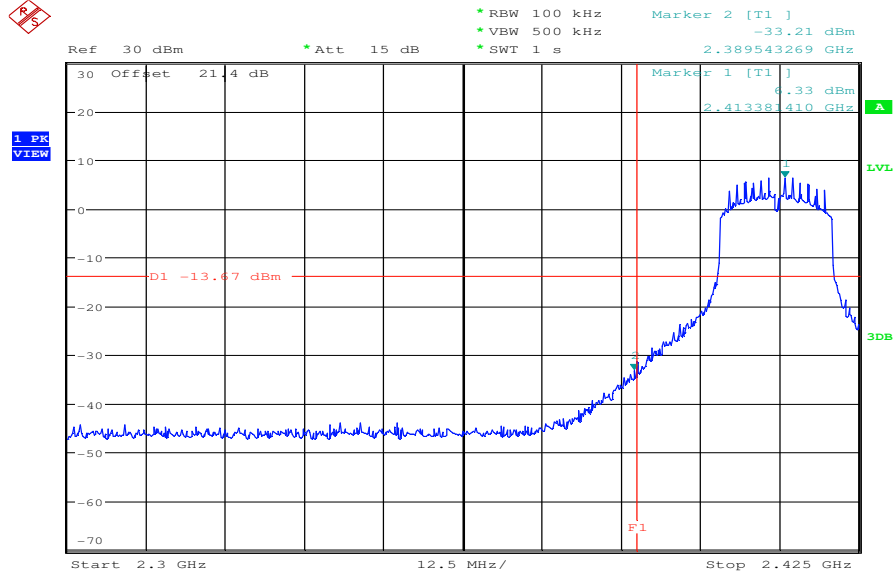


Date: 14.JAN.2011 13:57:23



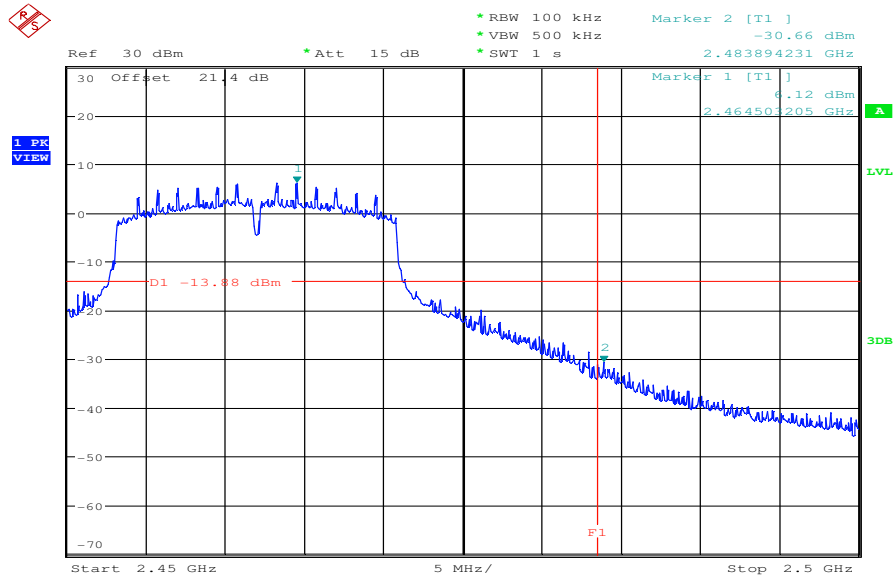
**Plots: OFDM / n – mode**

**Plot 1: TX mode, n – mode, MCS2, power index 17, lowest channel – 2412 MHz, lower band edge**



Date: 14.JAN.2011 13:53:57

**Plot 2: TX mode, n – mode, MCS2, power index 17, highest channel – 2462 MHz, higher band edge**



Date: 14.JAN.2011 13:59:14

## 9.8 Band edge compliance radiated

### Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to channel 1 for the lower restricted band and to channel 11 for the upper restricted band. The measurement is repeated for all modulations. Measurement distance is 3m.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	10 Hz
Resolution bandwidth:	1 MHz
Span:	Lower Band: 2300 – 2400 MHz higher Band: 2480 – 2500 MHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
CFR Part 15.205	RSS 210, Issue 8, A 8.5
Band Edge Compliance Radiated	
<p>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)).</p>	
54 dB $\mu$ V/m AVG	

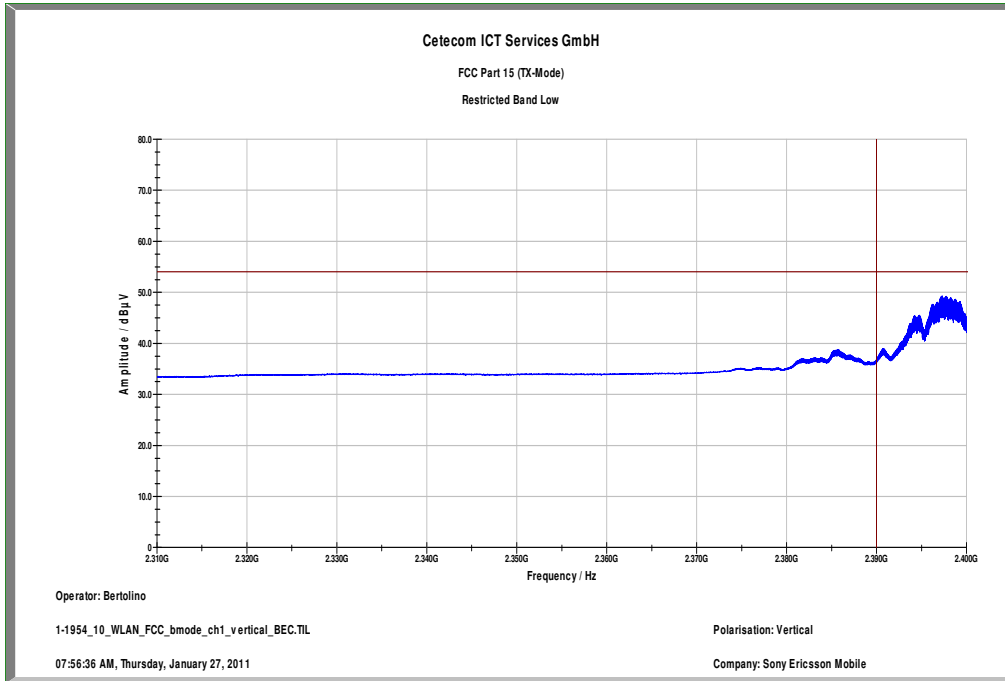
### Results:

Scenario	Band Edge Compliance Radiated [dB $\mu$ V/m]	
	DSSS b – mode power index 21	OFDM g & n – mode power index 17
Lower Band Edge – Channel 1	< 54 dB $\mu$ V/m (see plot 1)	< 54 dB $\mu$ V/m (see plot 3)
Upper Band Edge – Channel 11	< 54 dB $\mu$ V/m (see plot 2)	< 54 dB $\mu$ V/m (see plot 4)
Measurement uncertainty	$\pm$ 3 dB	

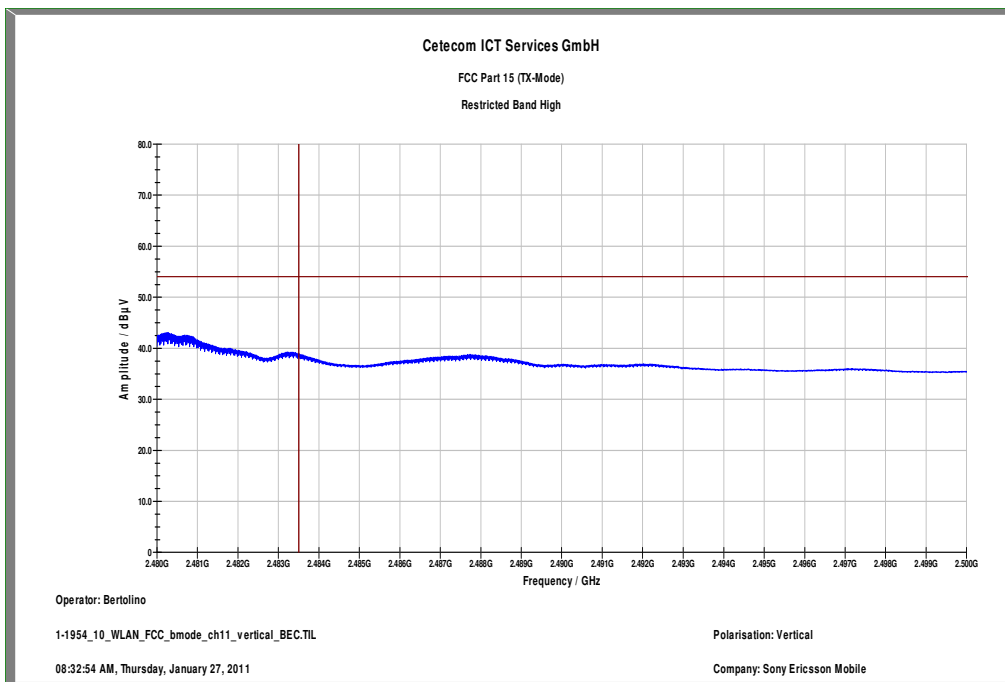
**Result:** The result of the measurement is passed.

**Plots: DSSS / b – mode**

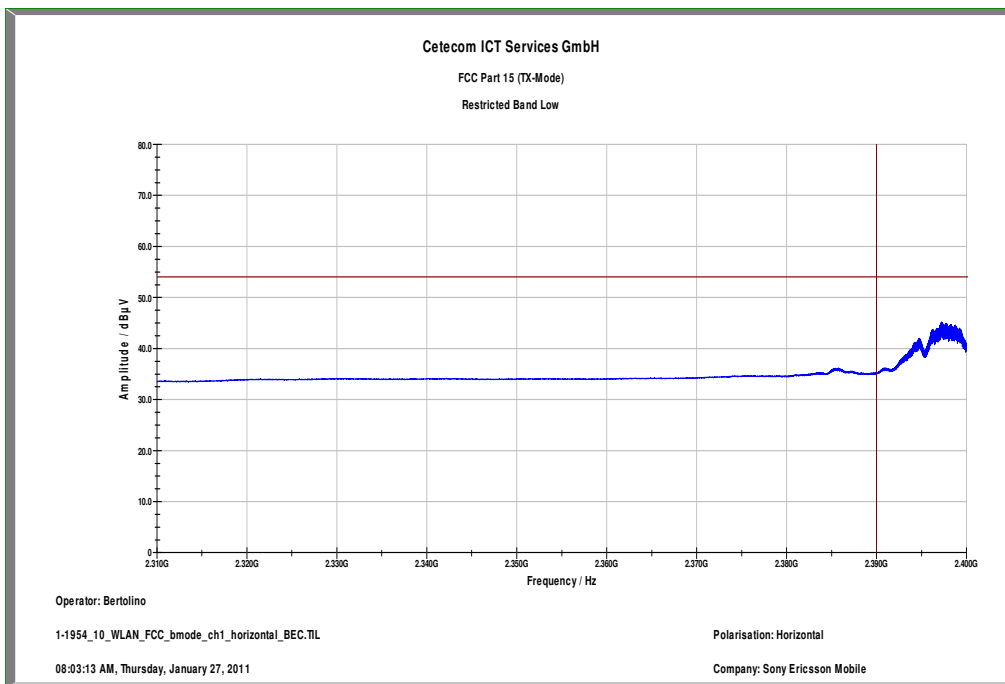
**Plot 1:** TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel, lower band edge, vertical



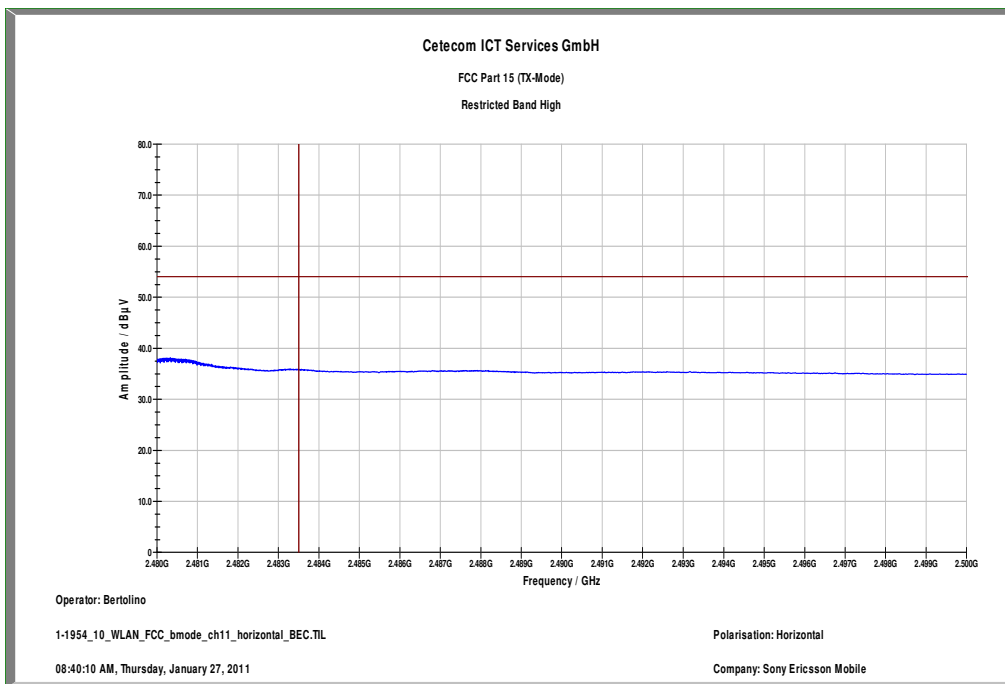
**Plot 2:** TX mode, b – mode, 1 Mbit/s, power index 21, highest channel, higher band edge, vertical



**Plot 3:** TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel, lower band edge, horizontal

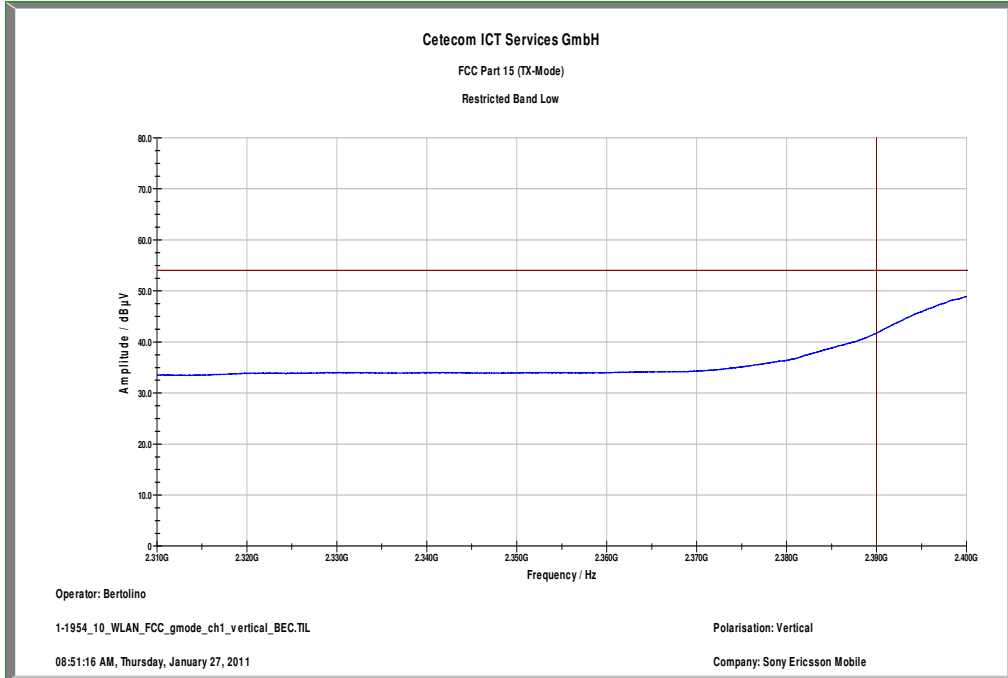


**Plot 4:** TX mode, b – mode, 1 Mbit/s, power index 21, highest channel, higher band edge, horizontal

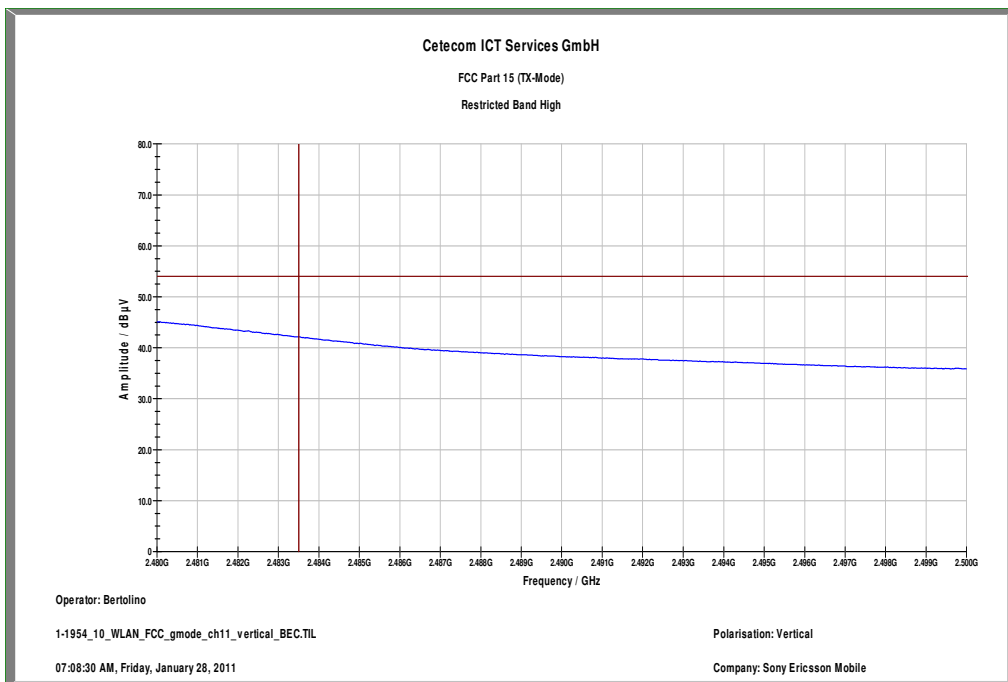


**Plots: OFDM / g – mode**

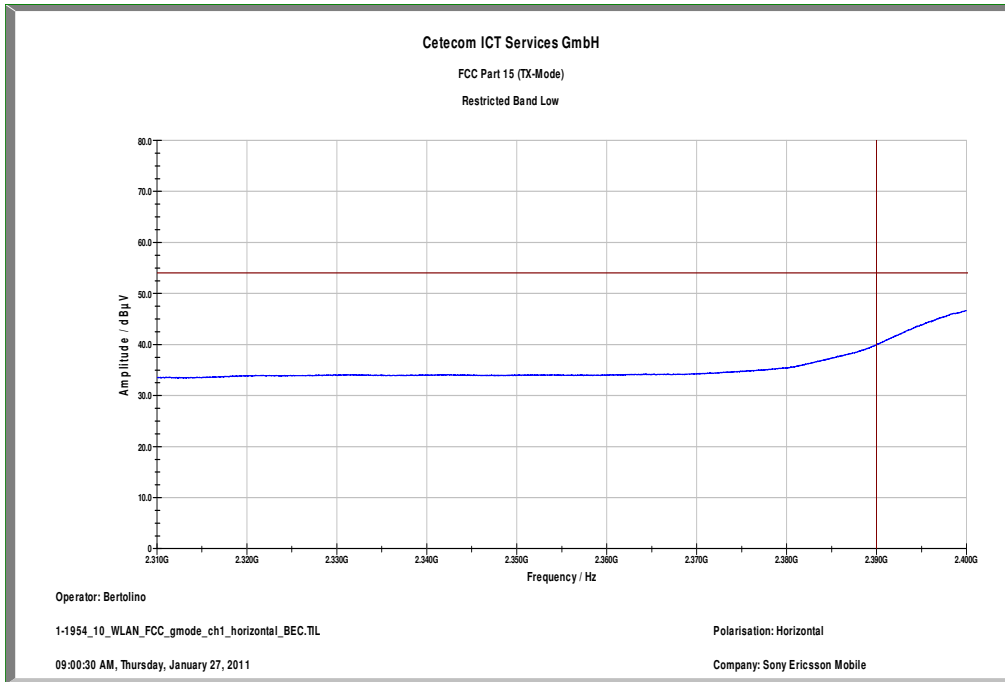
**Plot 1:** TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel, lower band edge, vertical



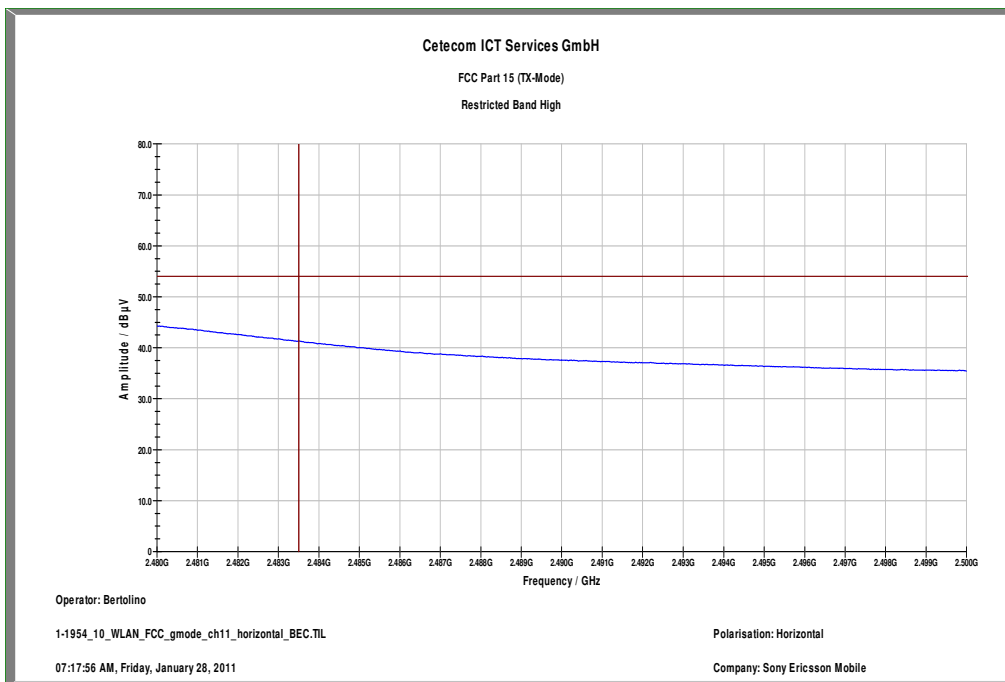
**Plot 2:** TX mode, g – mode, 18 Mbit/s, power index 17, highest channel, higher band edge, vertical



**Plot 3:** TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel, lower band edge, horizontal

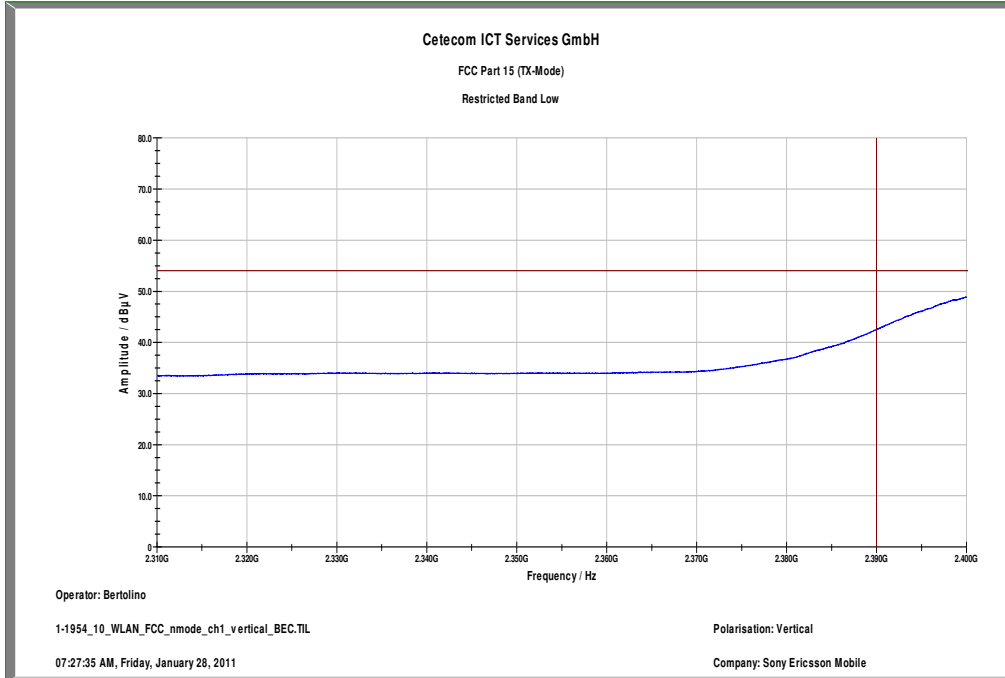


**Plot 4:** TX mode, g – mode, 18 Mbit/s, power index 17, highest channel, higher band edge, horizontal

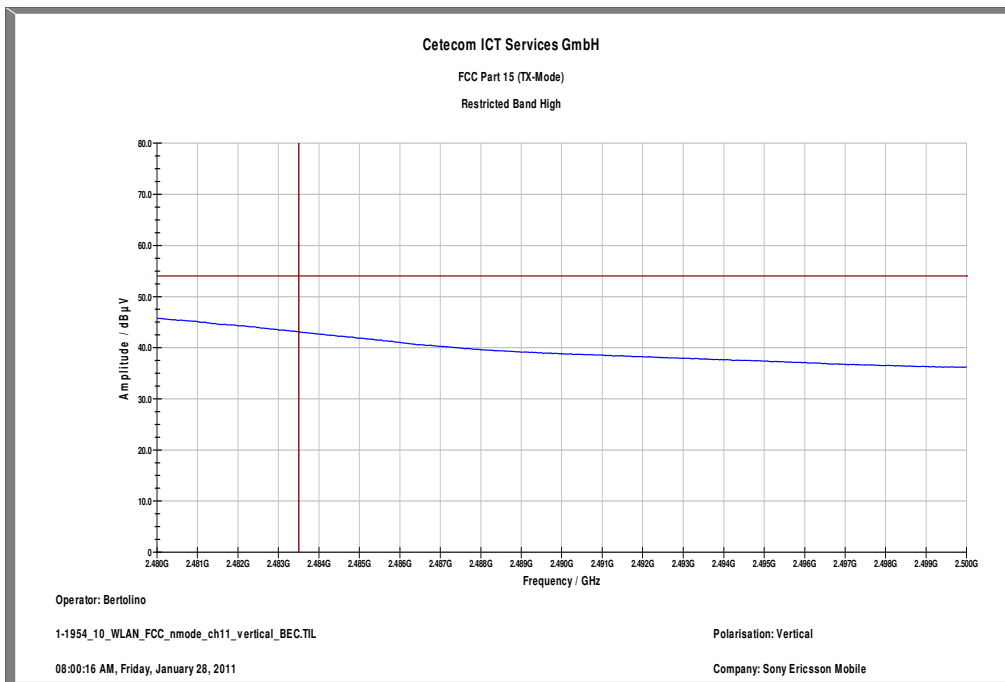


**Plots: OFDM / n – mode**

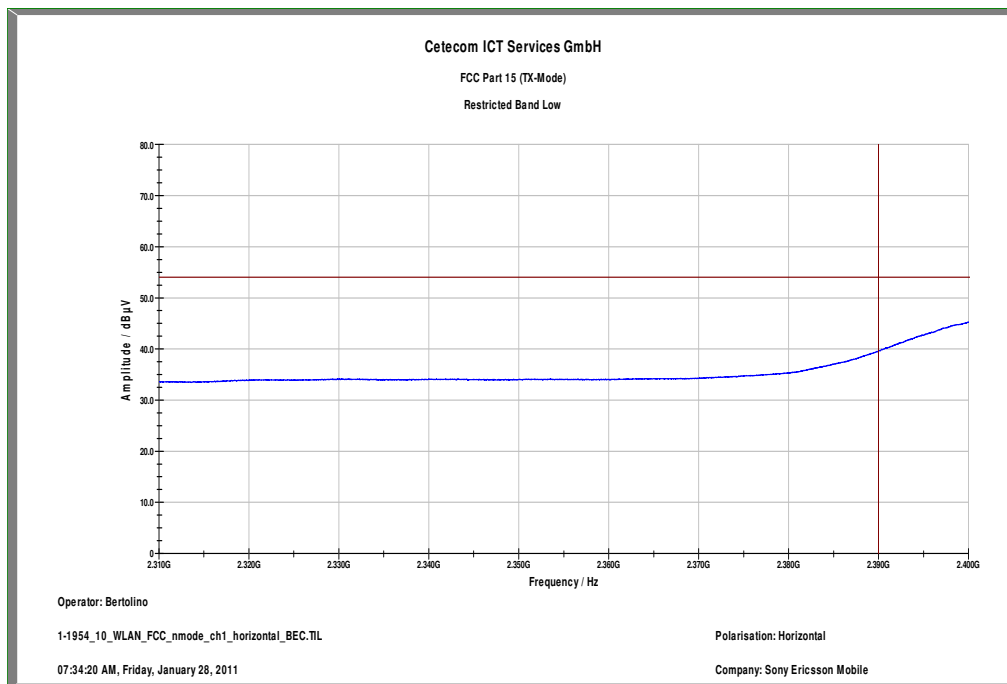
**Plot 1:** TX mode, n – mode, MCS2, power index 17, lowest channel, lower band edge, vertical



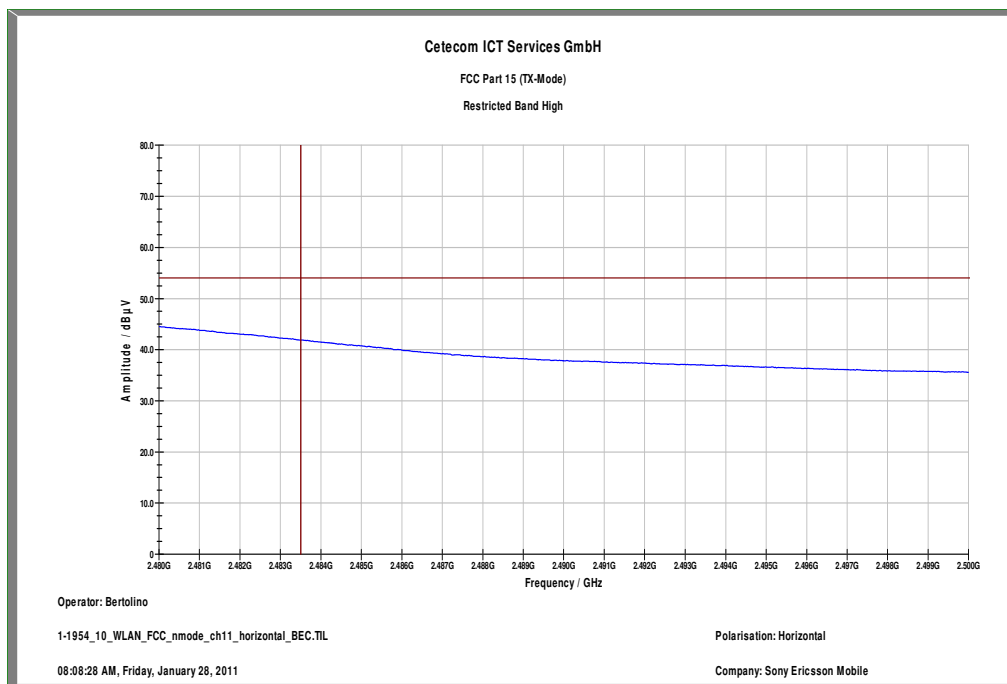
**Plot 2:** TX mode, n – mode, MCS2, power index 17, highest channel, higher band edge, vertical



**Plot 3:** TX mode, n – mode, MCS2, power index 17, lowest channel, lower band edge, horizontal



**Plot 4:** TX mode, n – mode, MCS2, power index 17, highest channel, higher band edge, horizontal





## 9.9 TX spurious emissions conducted

### Description:

Measurement of the conducted spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	1s / 1 GHz
Video bandwidth:	F < 1 GHz: 500 kHz F > 1 GHz: 500 kHz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 100 kHz
Span:	9 kHz to 26 GHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
CFR Part 15.247(d)	RSS 210, Issue 8, A 8.5
TX Spurious Emissions Conducted	
<p>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</p>	

**Results:**

TX Spurious Emissions Conducted					
DSSS / b – mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		10.07	30 dBm		Operating frequency
		<i>No peaks found.</i>			complies
			-20 dBc		
2437		9.35	30 dBm		Operating frequency
		<i>No peaks found.</i>			complies
			-20 dBc		
2462		10.15	30 dBm		Operating frequency
		<i>No peaks found.</i>			complies
			-20 dBc		
Measurement uncertainty			± 3 dB		

**Result:** The result of the measurement is passed.

**Results:**

TX Spurious Emissions Conducted					
OFDM / g – mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		7.63	30 dBm		Operating frequency
		<i>No peaks found.</i>			complies
			-20 dBc		
2437		6.55	30 dBm		Operating frequency
		<i>No peaks found.</i>			complies
			-20 dBc		
2462		7.55	30 dBm		Operating frequency
		<i>No peaks found.</i>			complies
			-20 dBc		
Measurement uncertainty			± 3 dB		

**Result:** The result of the measurement is passed.

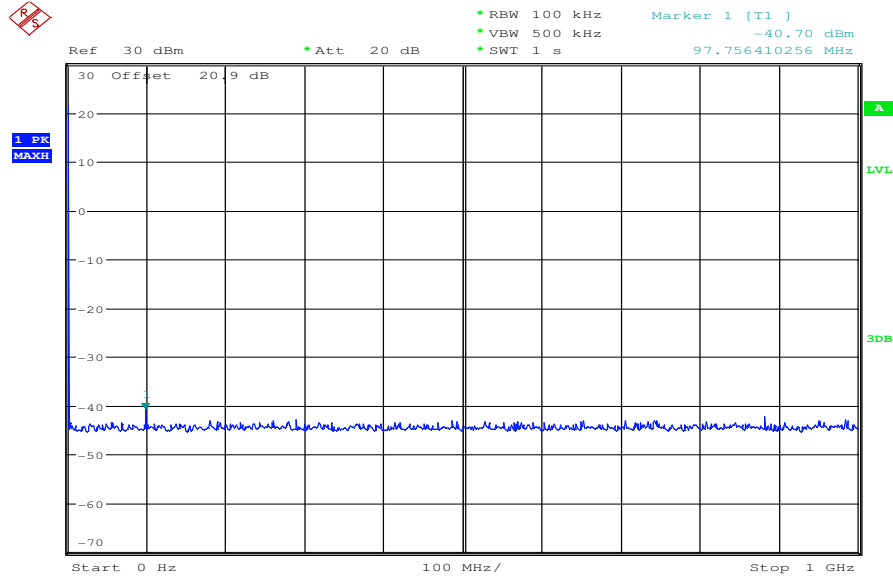
**Results:**

TX Spurious Emissions Conducted					
OFDM / n – mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		7.87	30 dBm		Operating frequency
<i>No peaks found.</i>			-20 dBc		complies
2437		6.49	30 dBm		Operating frequency
<i>No peaks found.</i>			-20 dBc		complies
2462		7.16	30 dBm		Operating frequency
<i>No peaks found.</i>			-20 dBc		complies
Measurement uncertainty		± 3 dB			

**Result:** The result of the measurement is passed.

**Plots: DSSS / b – mode**

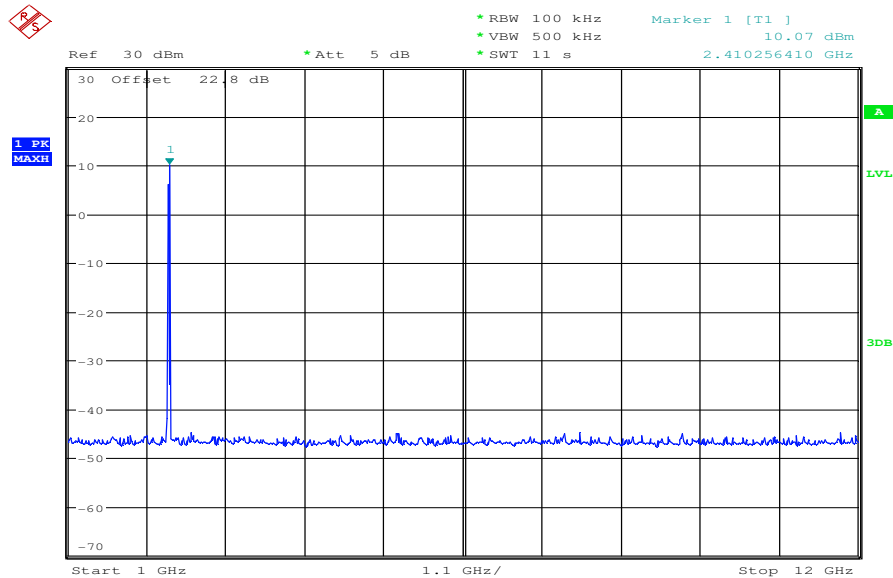
**Plot 1:** TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:15:50

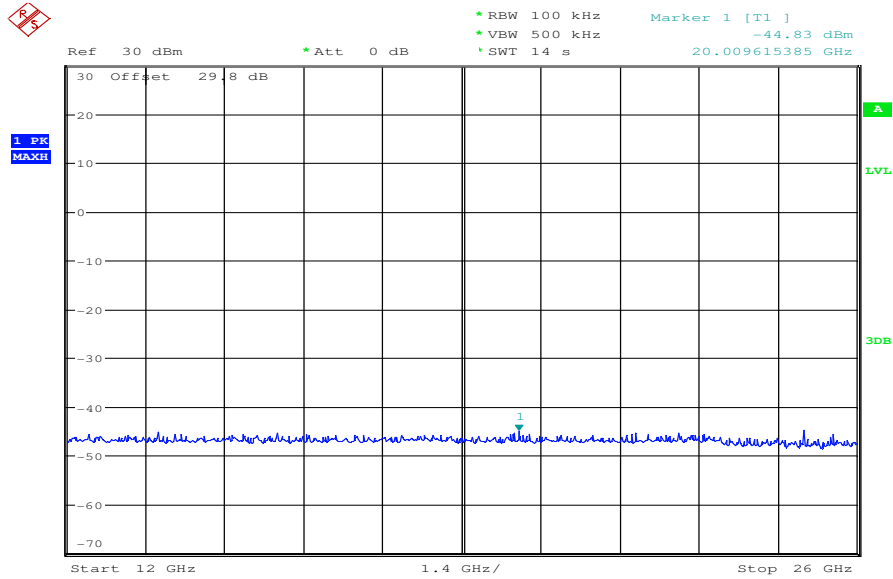
The peak at the beginning of the plot is the LO from the SA!

**Plot 2:** TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel, 1 GHz – 12 GHz



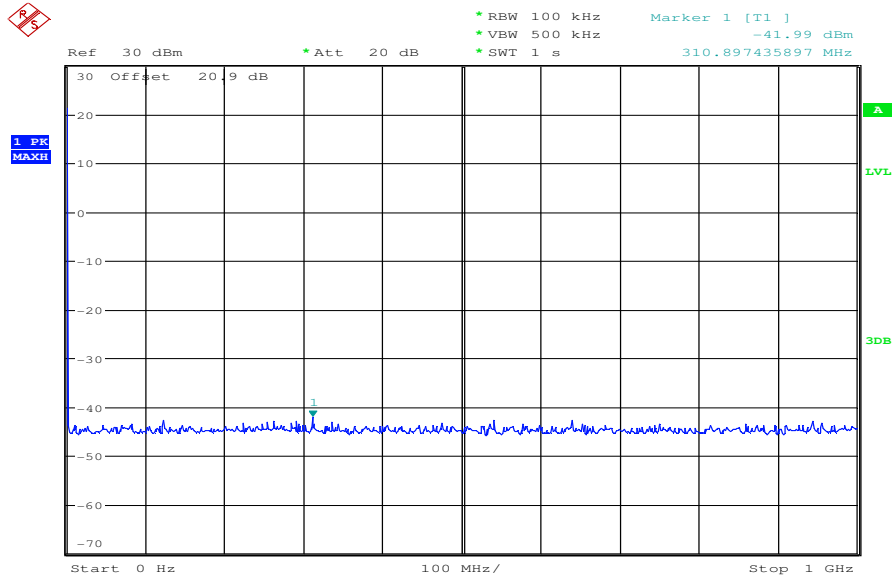
Date: 17.JAN.2011 09:33:27

**Plot 3:** TX mode, b – mode, 1 Mbit/s, power index 21, lowest channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:05:46

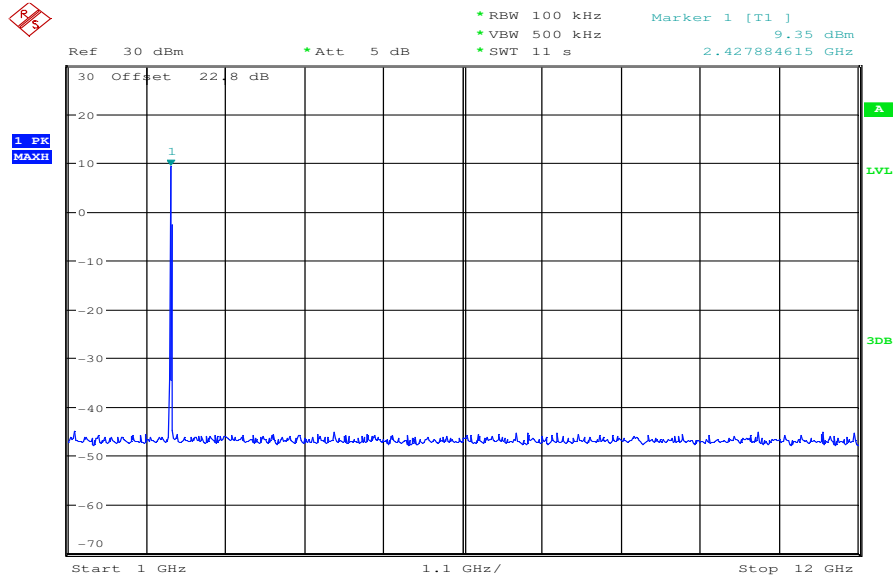
**Plot 4:** TX mode, b – mode, 1 Mbit/s, power index 21, middle channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:16:48

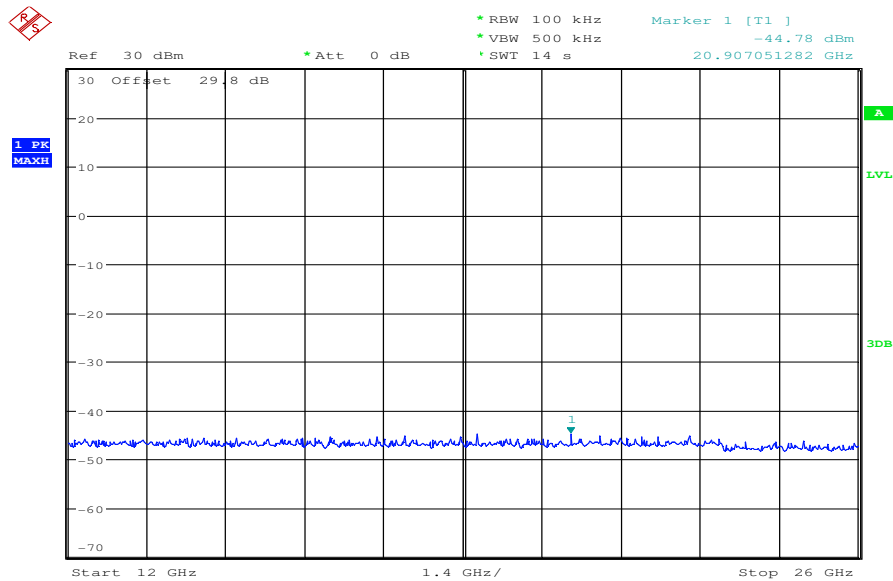
The peak at the beginning of the plot is the LO from the SA!

Plot 5: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel, 1 GHz – 12 GHz



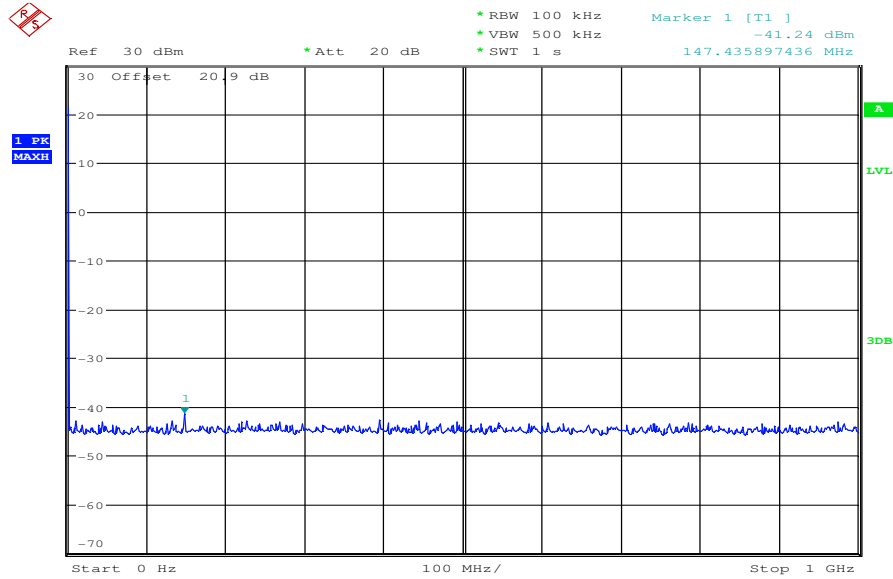
Date: 17.JAN.2011 09:34:48

Plot 6: TX mode, b – mode, 1 Mbit/s, power index 21, middle channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:07:19

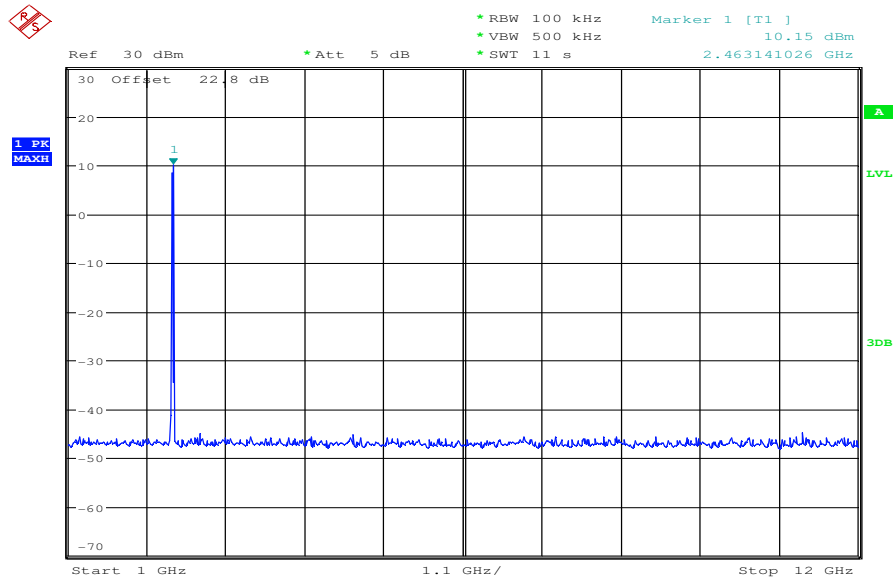
**Plot 7:** TX mode, b – mode, 1 Mbit/s, power index 21, highest channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:17:44

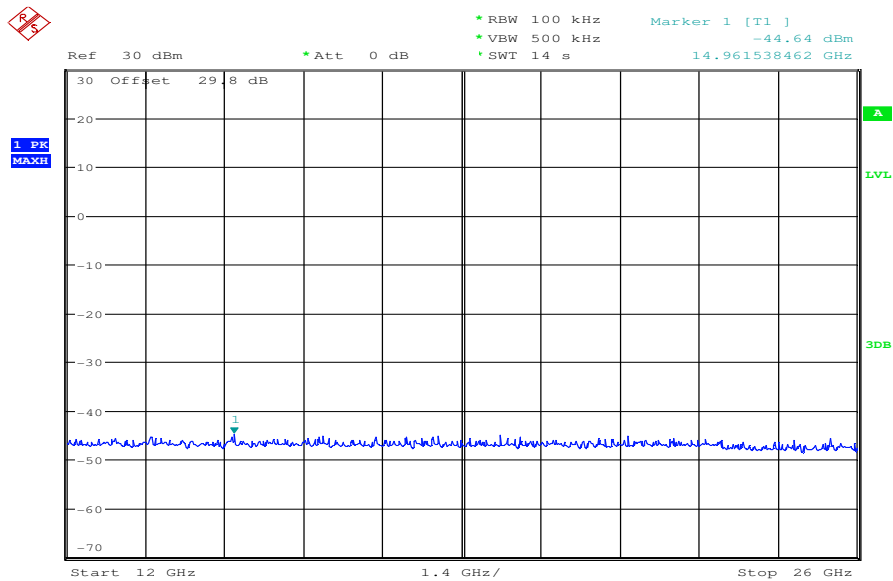
The peak at the beginning of the plot is the LO from the SA!

**Plot 8:** TX mode, b – mode, 1 Mbit/s, power index 21, highest channel, 1 GHz – 12 GHz



Date: 17.JAN.2011 09:38:01

Plot 9: TX mode, b – mode, 1 Mbit/s, power index 21, highest channel, 12 GHz – 26 GHz

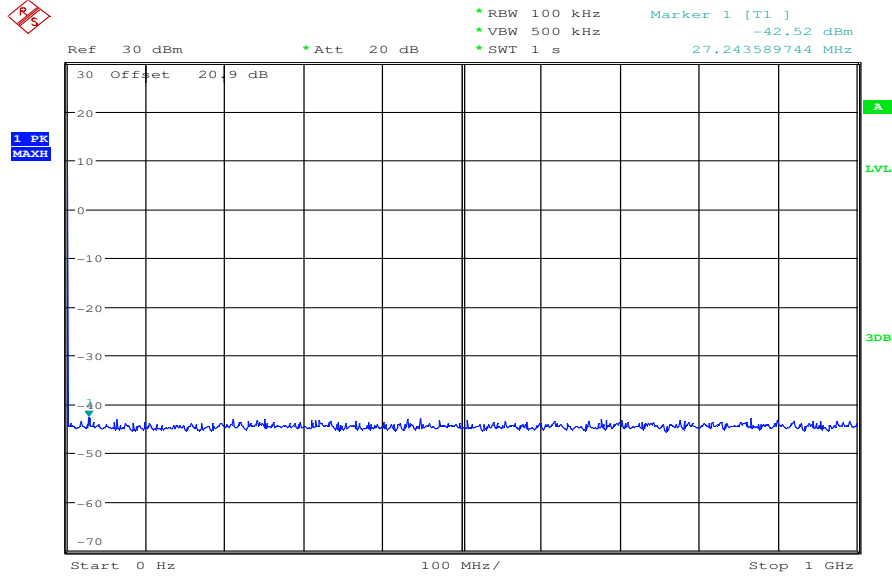


Date: 17.JAN.2011 10:08:43



**Plots: OFDM / g – mode**

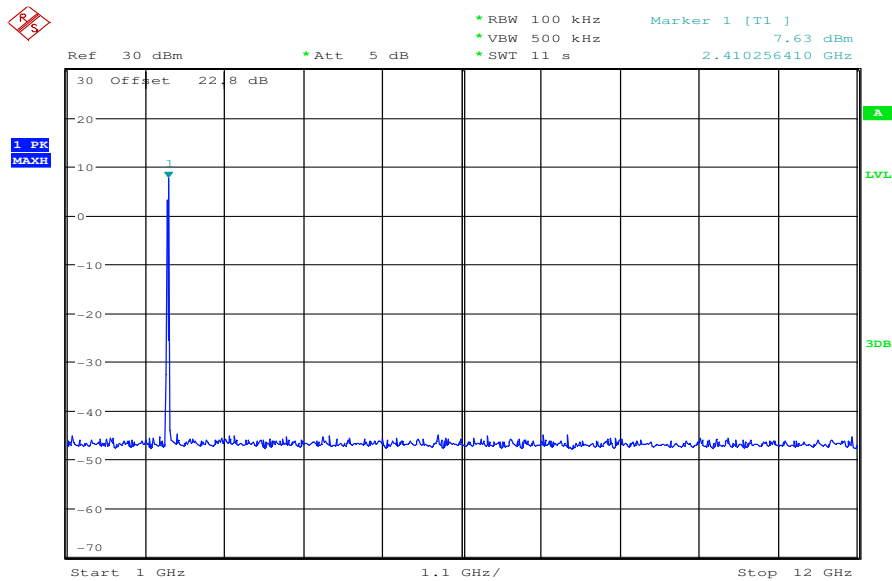
**Plot 1:** TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:19:22

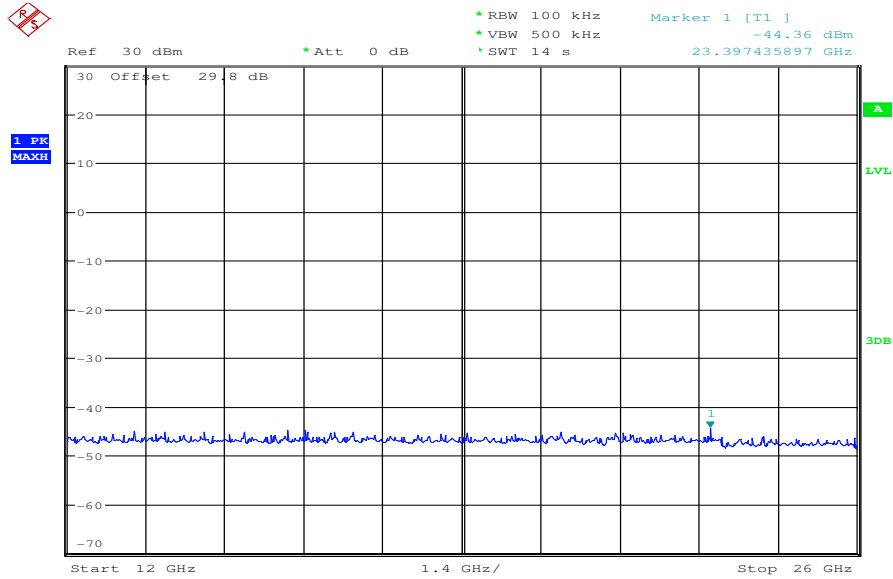
The peak at the beginning of the plot is the LO from the SA!

**Plot 2:** TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel, 1 GHz – 12 GHz



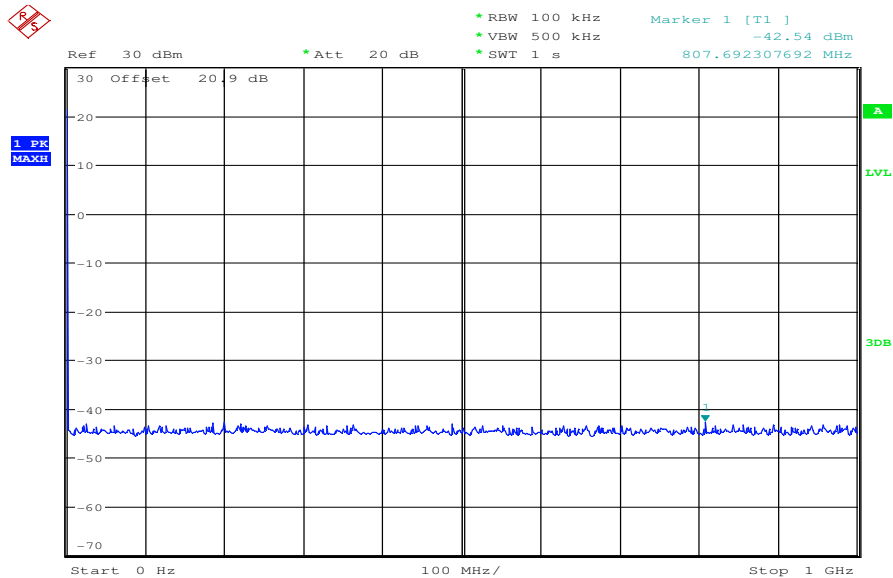
Date: 17.JAN.2011 09:39:38

**Plot 3:** TX mode, g – mode, 18 Mbit/s, power index 17, lowest channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:10:22

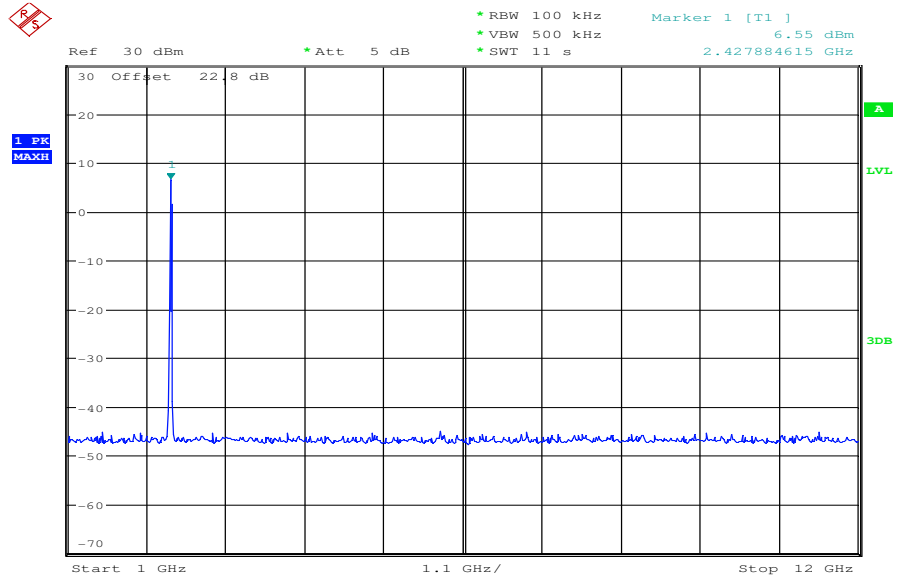
**Plot 4:** TX mode, g – mode, 18 Mbit/s, power index 17, middle channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:20:27

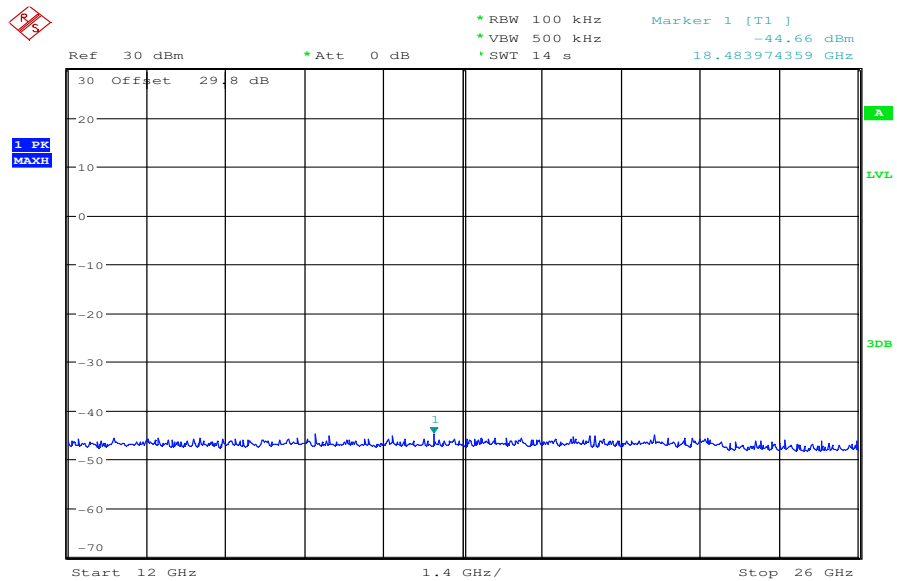
The peak at the beginning of the plot is the LO from the SA!

Plot 5: TX mode, g – mode, 18 Mbit/s, power index 17, middle channel, 1 GHz – 12 GHz



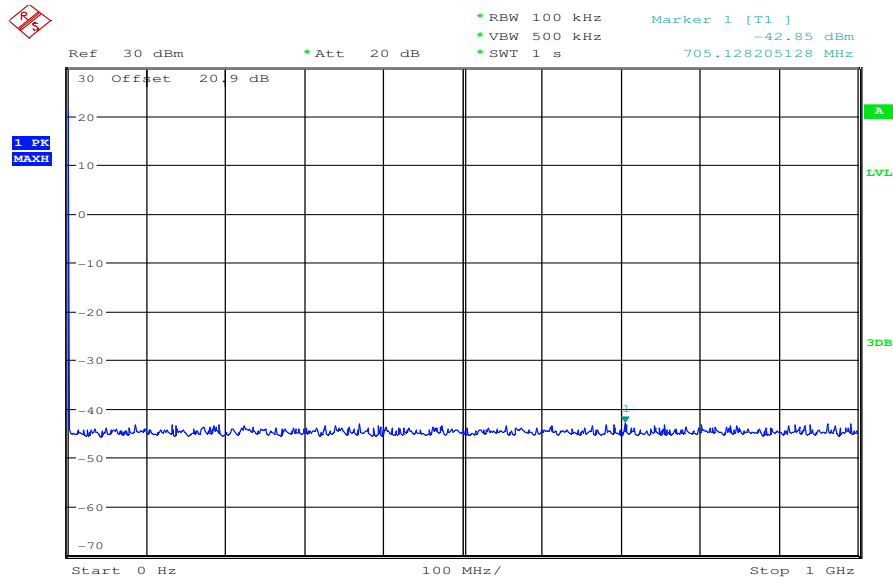
Date: 17.JAN.2011 09:41:19

Plot 6: TX mode, g – mode, 18 Mbit/s, power index 17, middle channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:11:57

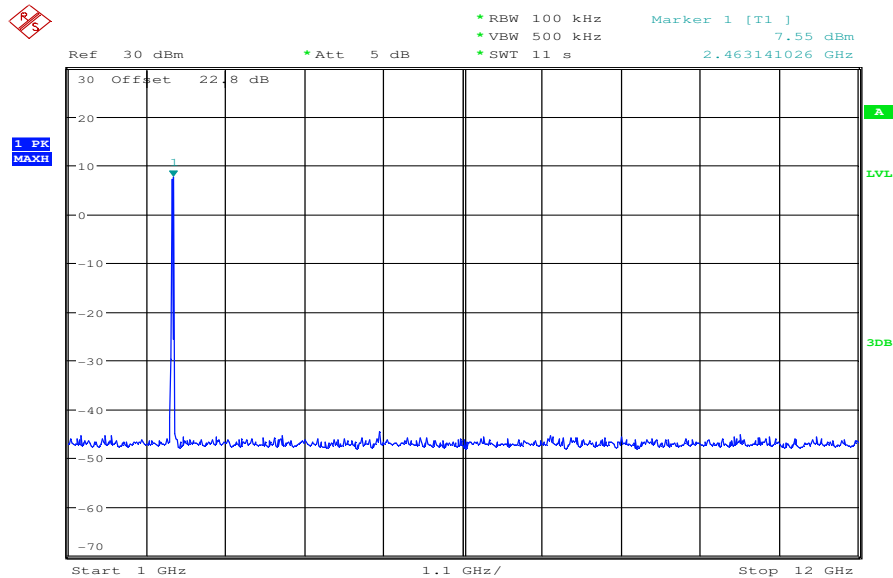
**Plot 7:** TX mode, g – mode, 18 Mbit/s, power index 17, highest channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:21:25

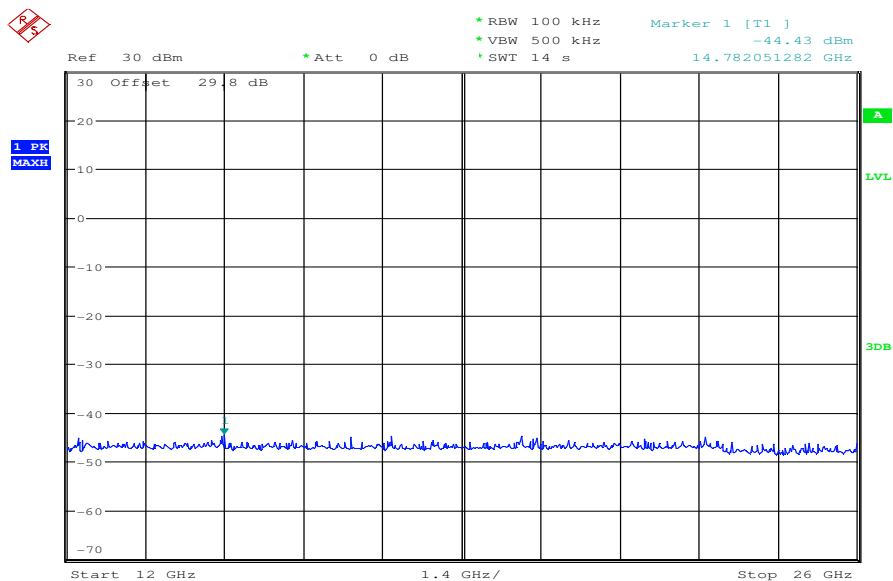
The peak at the beginning of the plot is the LO from the SA!

**Plot 8:** TX mode, g – mode, 18 Mbit/s, power index 17, highest channel, 1 GHz – 12 GHz



Date: 17.JAN.2011 09:42:19

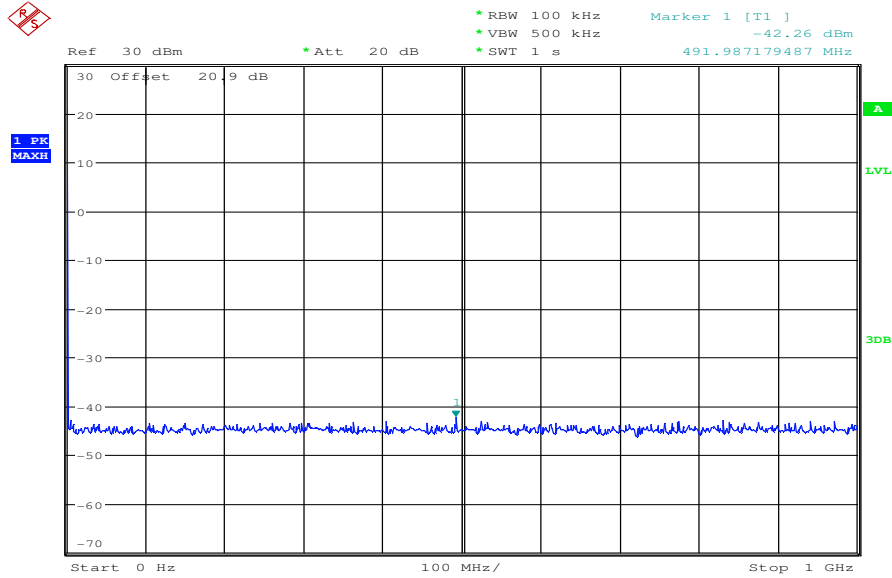
Plot 9: TX mode, g – mode, 18 Mbit/s, power index 17, highest channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:13:07

**Plots: OFDM / n – mode**

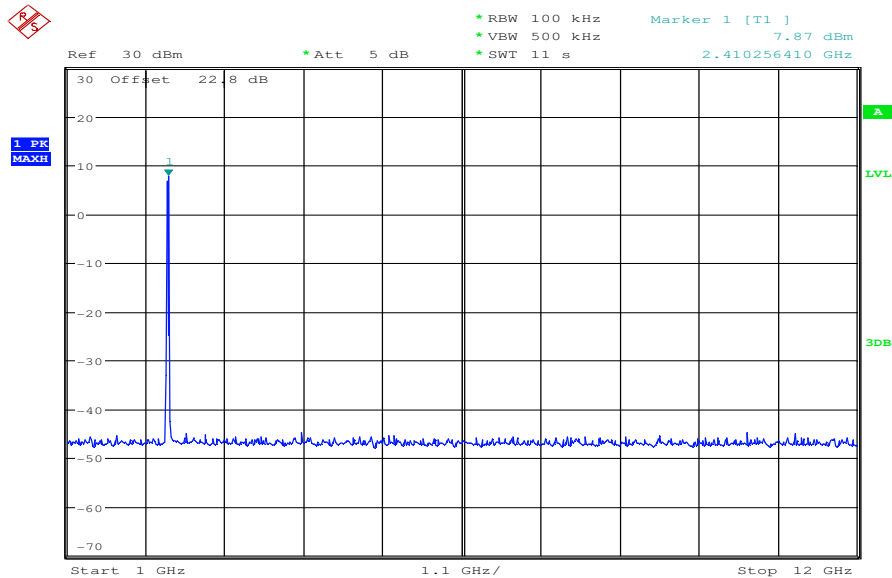
**Plot 1:** TX mode, n – mode, MCS2, power index 17, lowest channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:22:21

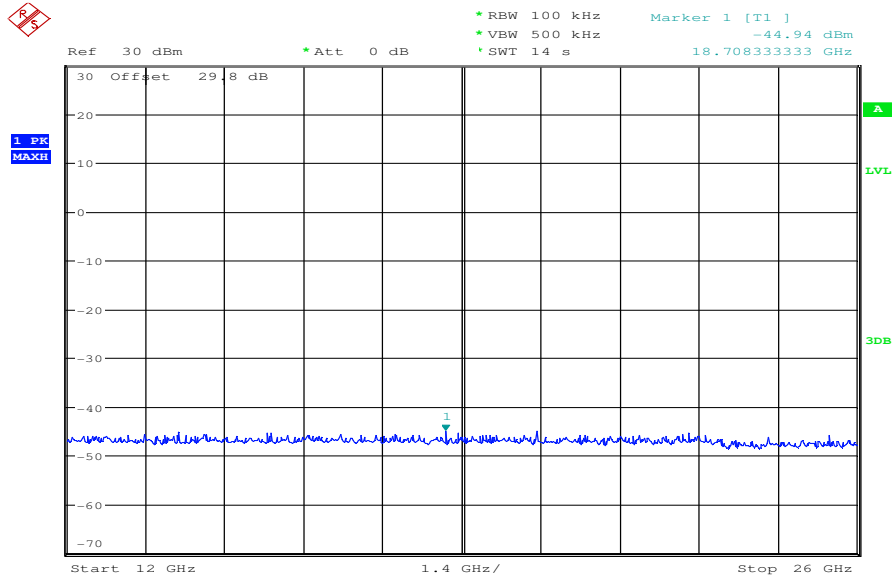
The peak at the beginning of the plot is the LO from the SA!

**Plot 2:** TX mode, n – mode, MCS2, power index 17, lowest channel, 1 GHz – 12 GHz



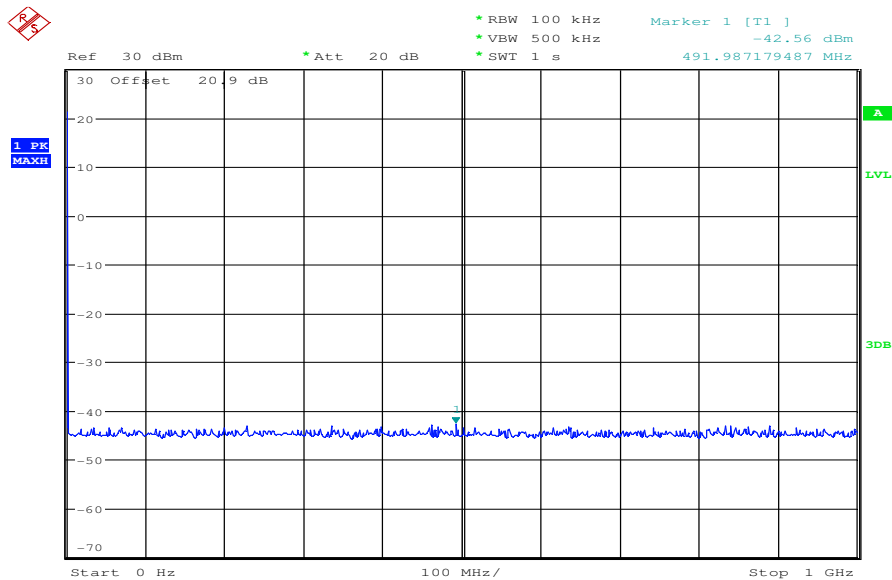
Date: 17.JAN.2011 09:44:03

**Plot 3:** TX mode, n – mode, MCS2, power index 17, lowest channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:14:47

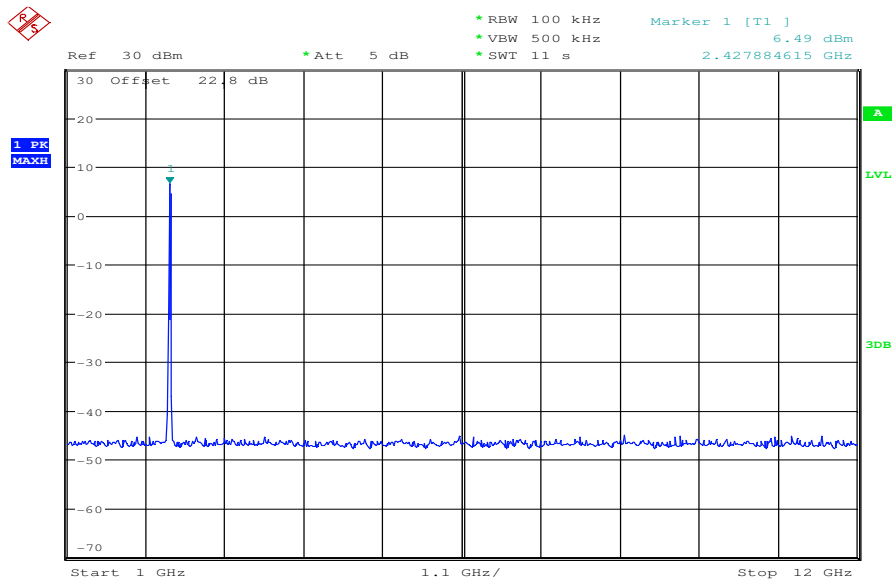
**Plot 4:** TX mode, n – mode, MCS2, power index 17, middle channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:23:21

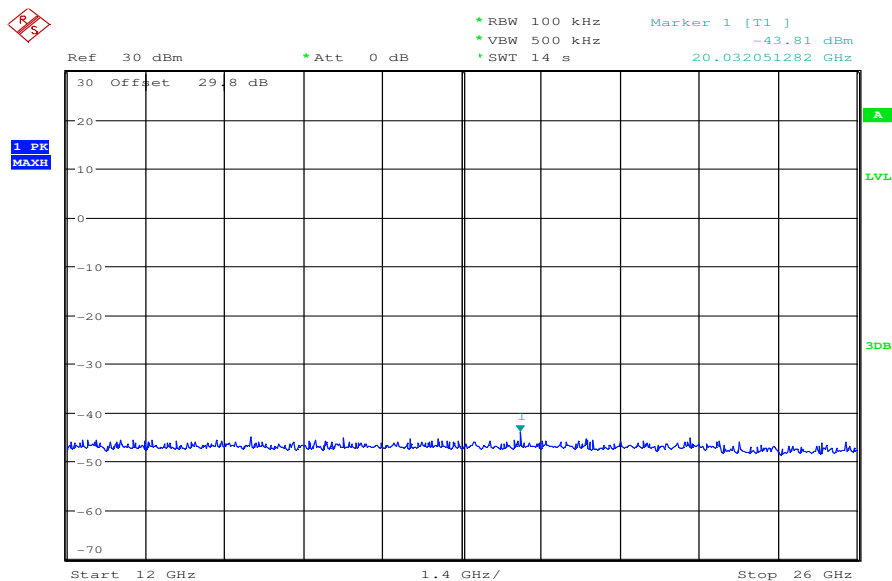
The peak at the beginning of the plot is the LO from the SA!

Plot 5: TX mode, n – mode, MCS2, power index 17, middle channel, 1 GHz – 12 GHz



Date: 17.JAN.2011 09:45:50

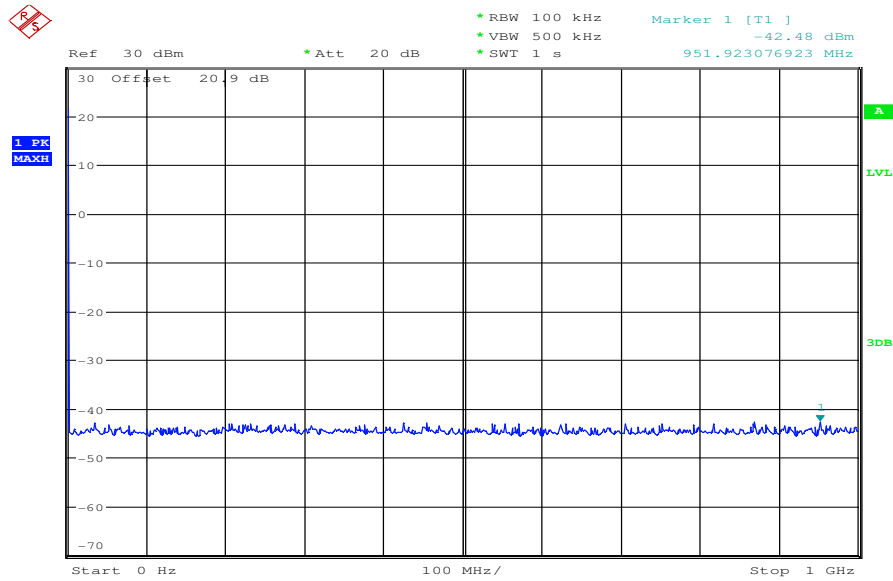
Plot 6: TX mode, n – mode, MCS2, power index 17, middle channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:16:08



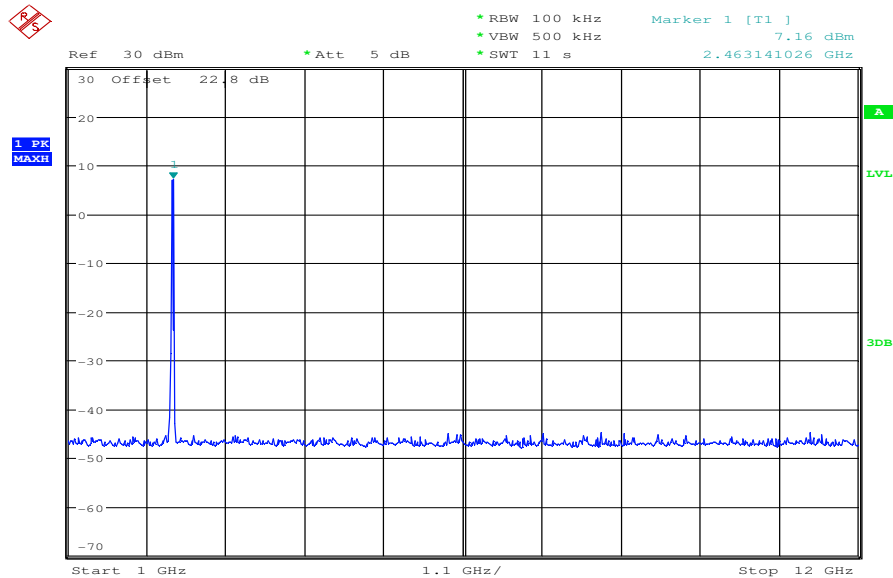
**Plot 7:** TX mode, n – mode, MCS2, power index 17, highest channel, 0 Hz – 1 GHz



Date: 17.JAN.2011 09:24:34

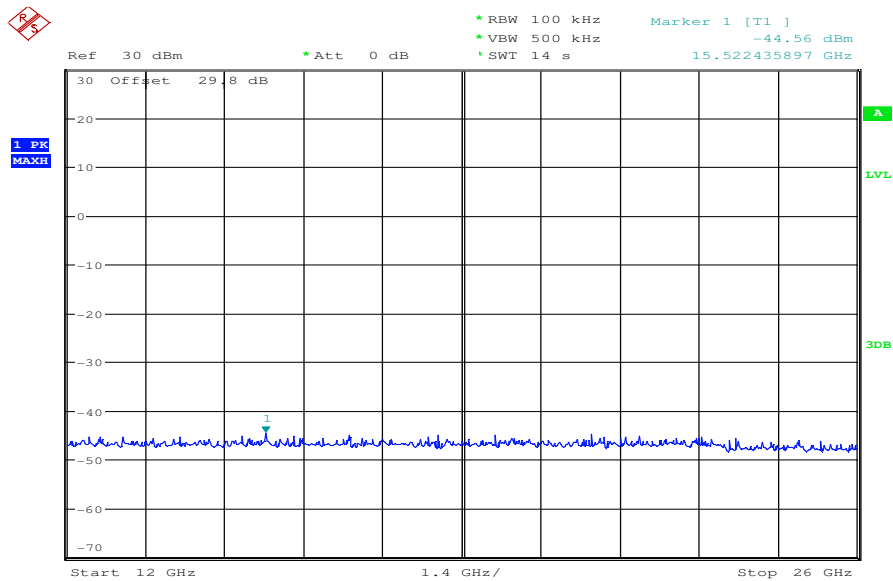
The peak at the beginning of the plot is the LO from the SA!

**Plot 8:** TX mode, n – mode, MCS2, power index 17, highest channel, 1 GHz – 12 GHz



Date: 17.JAN.2011 09:47:12

Plot 9: TX mode, n – mode, MCS2, power index 17, highest channel, 12 GHz – 26 GHz



Date: 17.JAN.2011 10:17:49

## 9.10 TX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold
Measured technology	<input checked="" type="checkbox"/> DSSS <input checked="" type="checkbox"/> OFDM (g & n)

The modulation with the highest output power was used to perform the transmitter spurious emissions. If spurious were detected a re-measurement was performed on the detected frequency with each modulation.

### Limits:

FCC		IC	
CFR Part 15.247(d)		RSS 210, Issue 8, A 8.5	
TX Spurious Emissions Radiated			
<p>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 §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).</p>			
§15.209			
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance	
30 - 88	30.0	10	
88 – 216	33.5	10	
216 – 960	36.0	10	
Above 960	54.0	3	

**Results:**

TX Spurious Emissions Radiated [dB $\mu$ V/m]								
DSSS / b – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.			For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.			For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.		
No peaks detected.			No peaks detected.			No peaks detected.		
Measurement uncertainty			± 3 dB					

**Result:** The result of the measurement is passed.

**Results:**

TX Spurious Emissions Radiated [dB $\mu$ V/m]								
OFDM / g – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.			For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.			For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.		
No peaks detected.			No peaks detected.			No peaks detected.		
Measurement uncertainty			± 3 dB					

**Result:** The result of the measurement is passed.

**Results:**

TX Spurious Emissions Radiated [dB $\mu$ V/m]								
OFDM / n – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.			For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.			For the measurements below 1 GHz - please take a look at the table below the 1 GHz plot.		
No peaks detected.			No peaks detected.			No peaks detected.		
Measurement uncertainty			$\pm 3$ dB					

**Result:** The result of the measurement is passed.

**Plots: DSSS / b – mode (power index 21)**

**Plot 1:** 30 MHz to 1 GHz, lowest channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

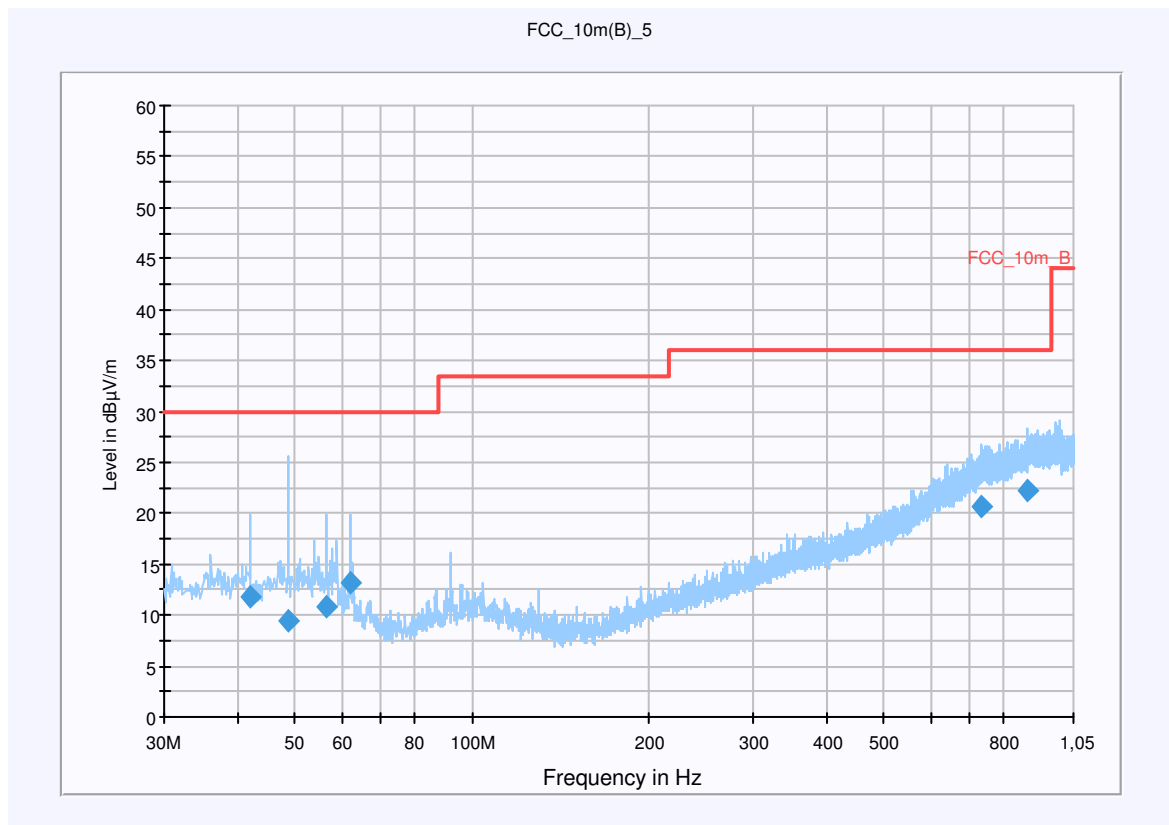
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN/1Mbps/ch1  
 Operator Name: HNA  
 Comment: AC 110 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**

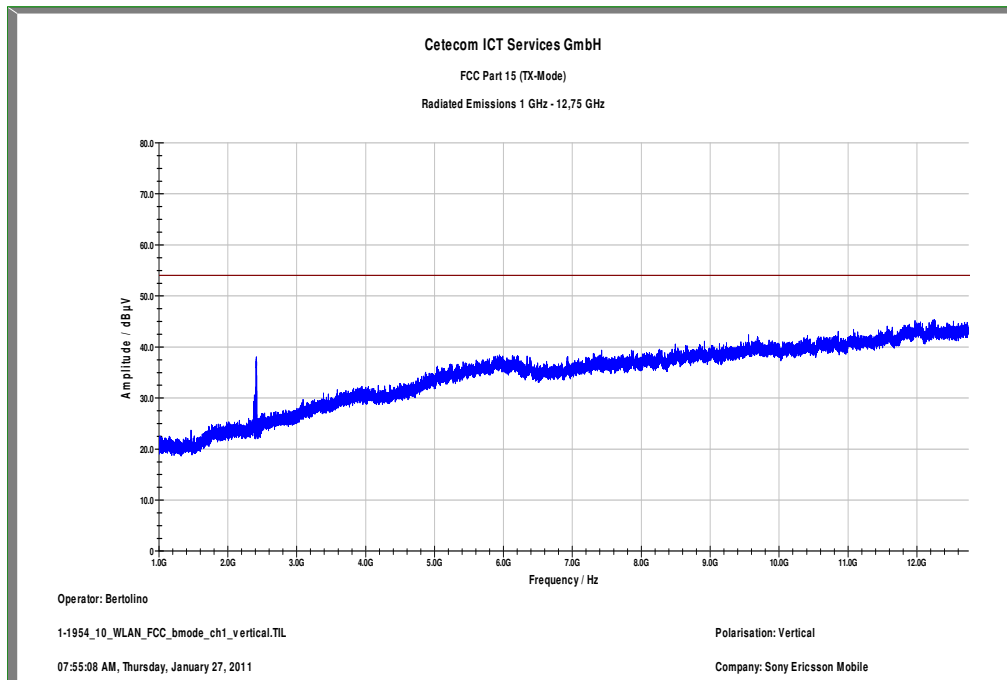
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
42.000000	11.8	15000.000	120.000	147.0	V	245.0	13.4	18.2	30.0	
48.720000	9.5	15000.000	120.000	127.0	V	-2.0	13.3	20.5	30.0	
56.640000	10.8	15000.000	120.000	105.0	V	-2.0	12.5	19.2	30.0	
62.040000	13.3	15000.000	120.000	125.0	V	74.0	11.1	16.7	30.0	
734.880000	20.7	15000.000	120.000	270.0	V	245.0	23.3	15.3	36.0	
879.120000	22.3	15000.000	120.000	270.0	V	356.0	24.9	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

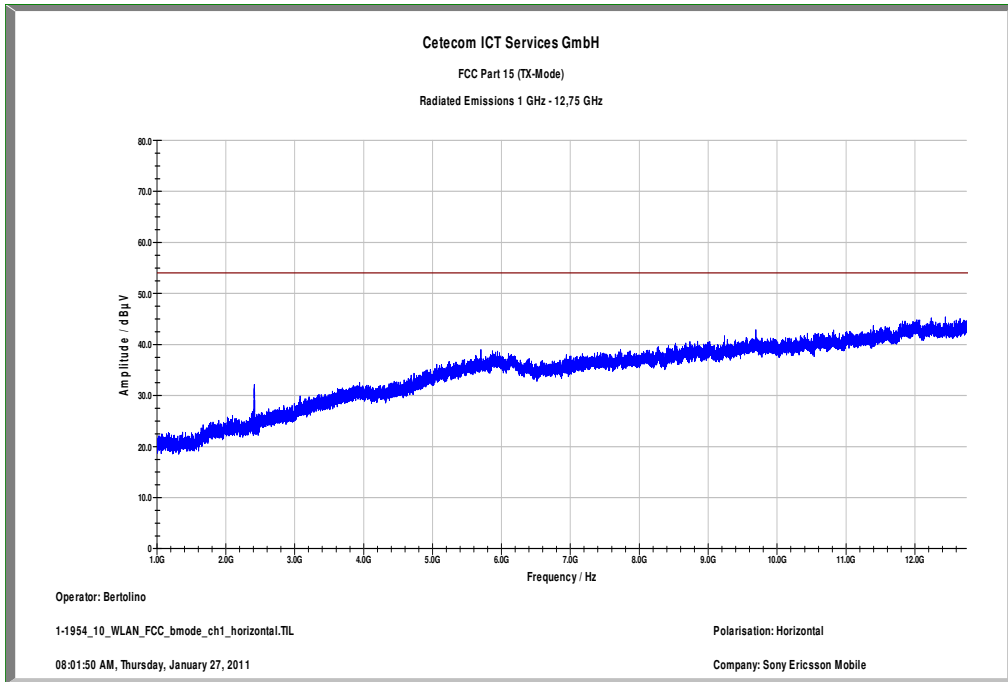
EMC 32 Version 8.10.00

**Plot 2:** 1 GHz to 12.75 GHz, lowest channel, vertical polarization



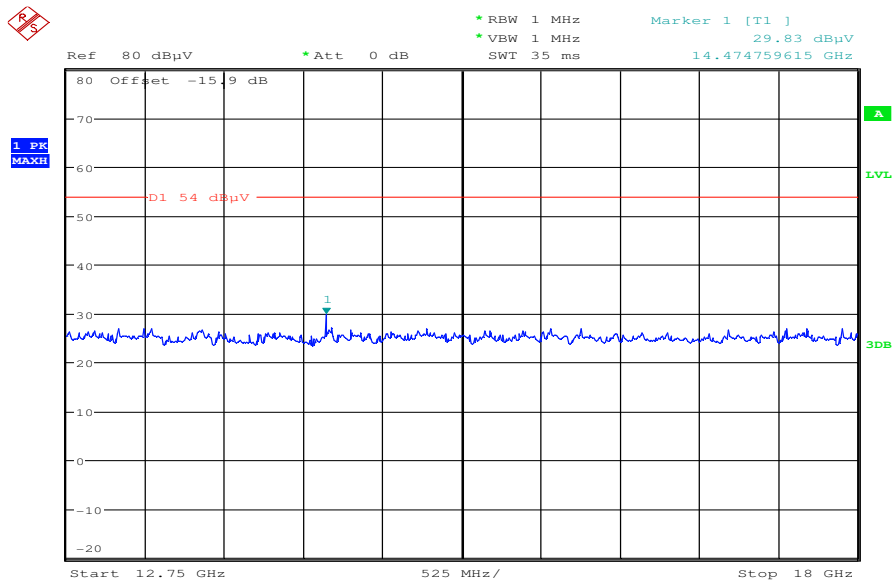
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 3:** 1 GHz to 12.75 GHz, lowest channel, horizontal polarization



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

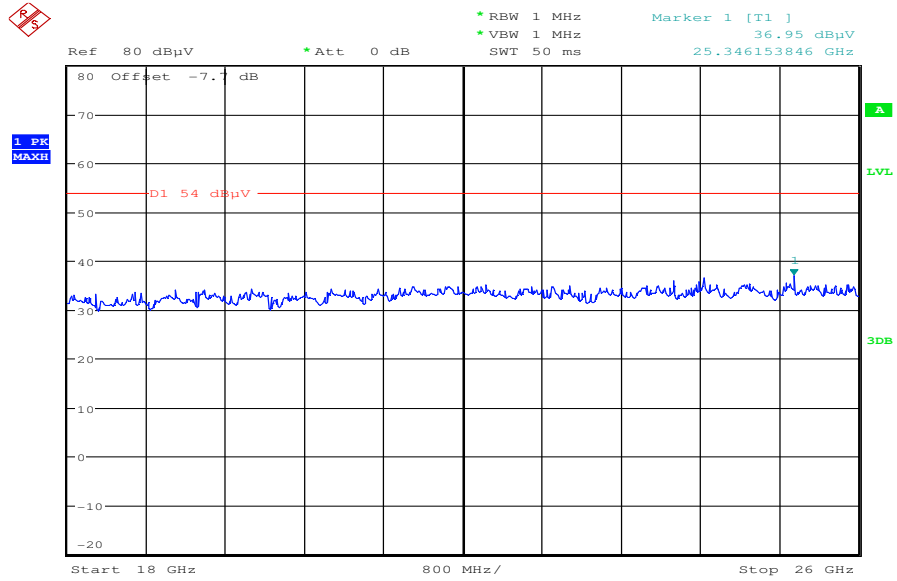
**Plot 4:** 12.75 GHz to 18 GHz, lowest channel, vertical & horizontal polarization



Date: 27.JAN.2011 09:53:06



Plot 5: 18 GHz to 26 GHz, lowest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:11:32

Plot 6: 30 MHz to 1 GHz, middle channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

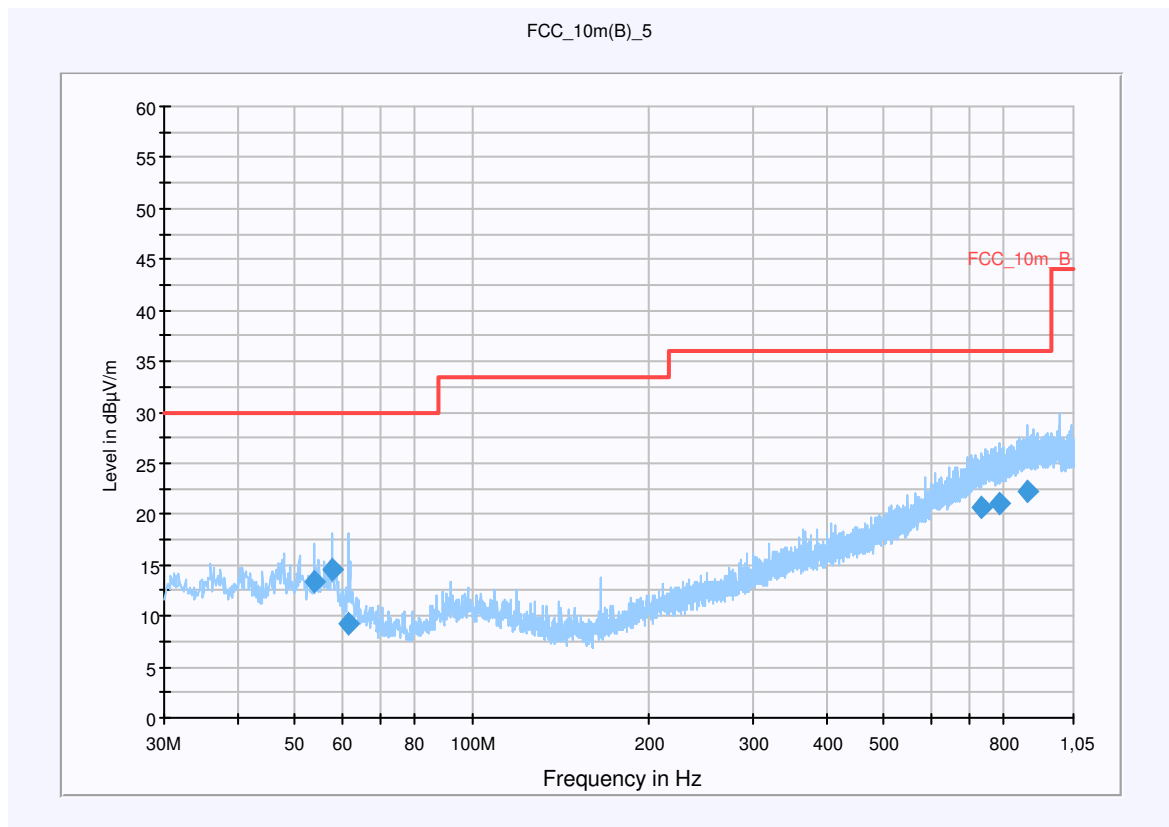
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN/1Mbps/ch6  
 Operator Name: HNA  
 Comment: AC 110 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**

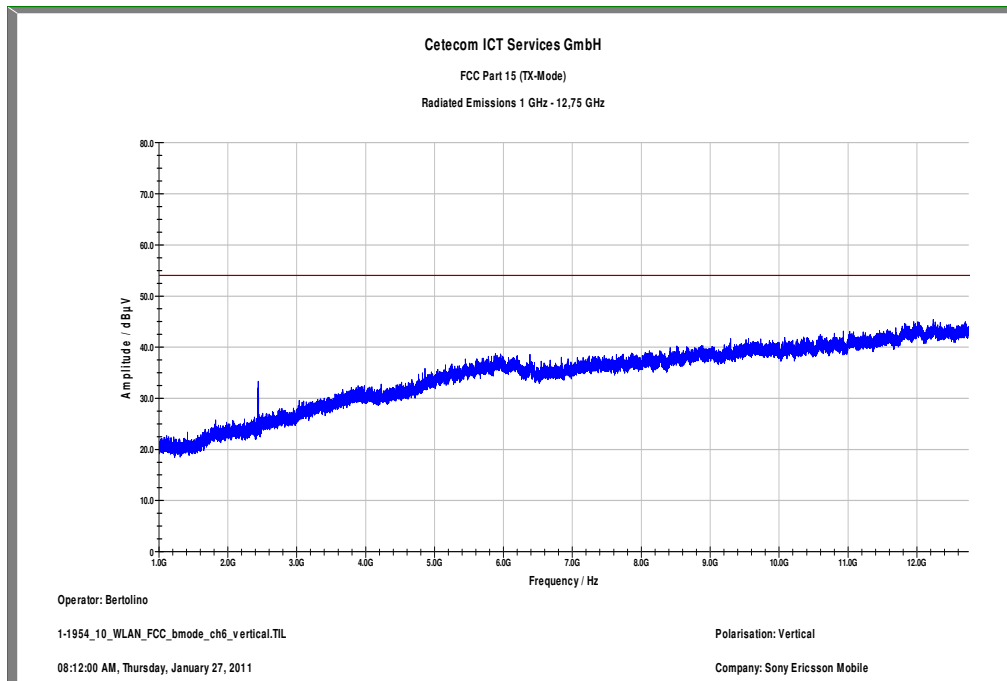
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
54.000000	13.3	15000.000	120.000	105.0	V	309.0	13.0	16.7	30.0	
57.960000	14.6	15000.000	120.000	270.0	V	34.0	12.1	15.4	30.0	
61.680000	9.2	15000.000	120.000	98.0	V	88.0	11.2	20.8	30.0	
733.560000	20.7	15000.000	120.000	189.0	H	351.0	23.3	15.3	36.0	
787.200000	21.0	15000.000	120.000	270.0	V	10.0	23.8	15.0	36.0	
877.800000	22.3	15000.000	120.000	98.0	H	333.0	24.9	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

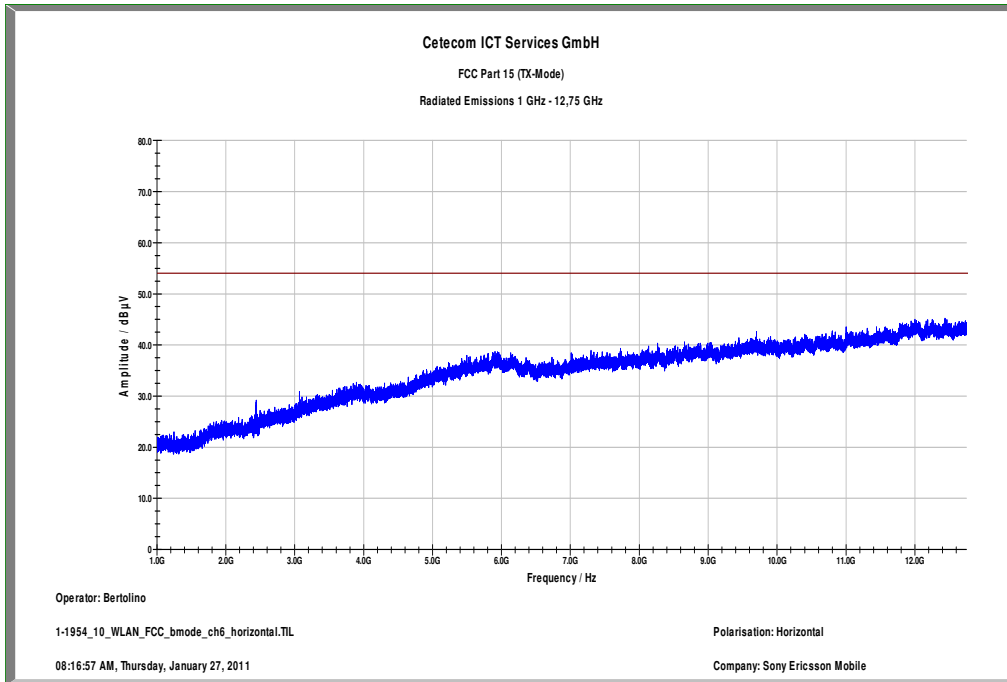
EMC 32 Version 8.10.00

**Plot 7:** 1 GHz to 12.75 GHz, middle channel, vertical polarization



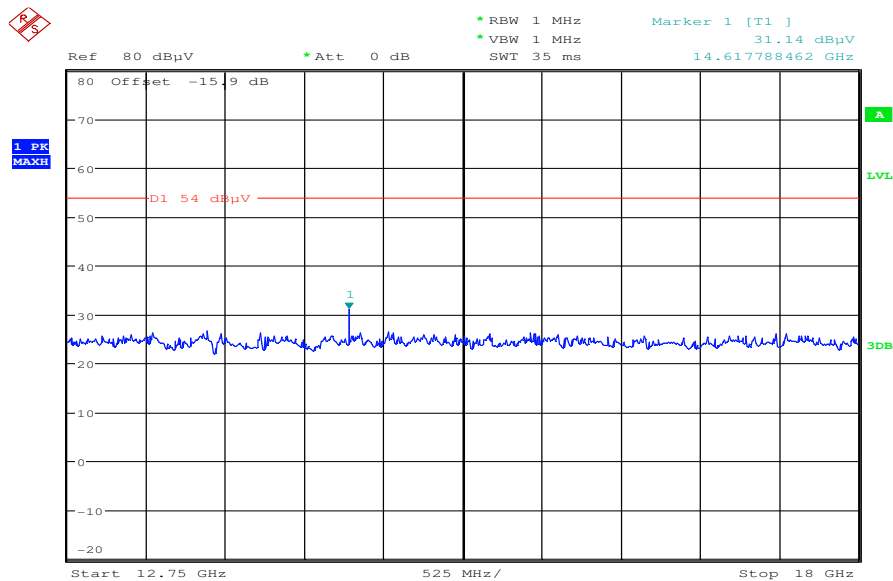
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 8:** 1 GHz to 12.75 GHz, middle channel, horizontal polarization



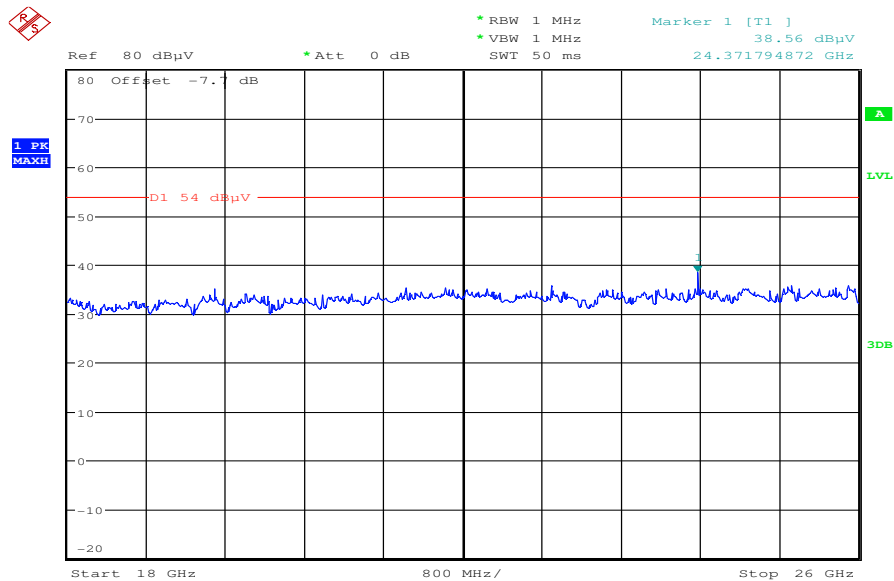
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 9:** 12.75 GHz to 18 GHz, middle channel, vertical & horizontal polarization



Date: 27.JAN.2011 09:54:11

Plot 10: 18 GHz to 26 GHz, middle channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:12:40

Plot 11: 30 MHz to 1 GHz, highest channel, vertical & horizontal polarization

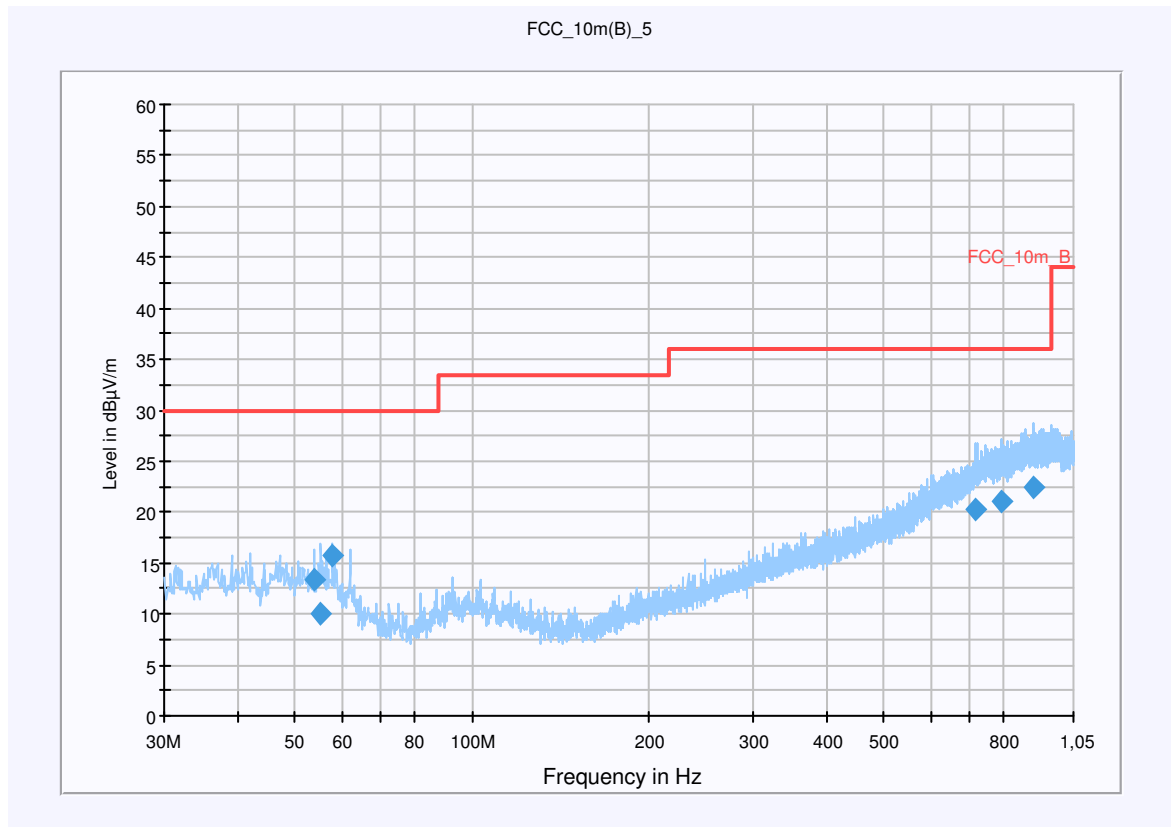
**CETECOM ICT Services GmbH**

**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN/1Mbps/ch11  
 Operator Name: HNA  
 Comment: AC 110 V / 60 Hz

**Scan Setup: STAN\_Fin [EMI radiated]**

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



**Final Result 1**

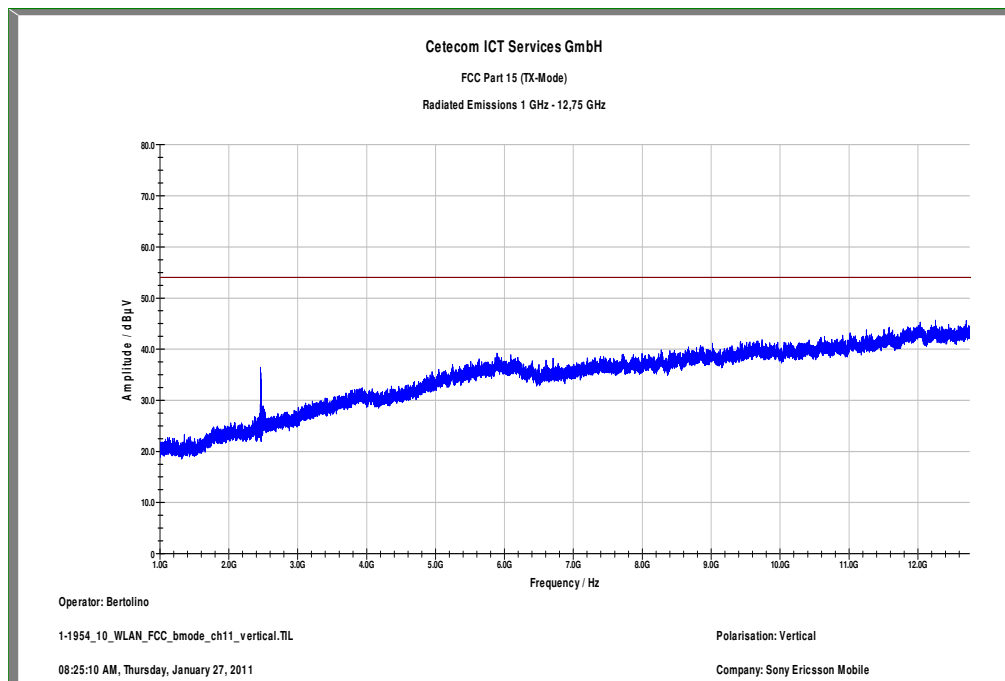
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)	Comment
54.000000	13.4	15000.000	120.000	147.0	V	58.0	13.0	16.6	30.0	
55.440000	10.1	15000.000	120.000	98.0	V	209.0	12.8	19.9	30.0	
57.960000	15.6	15000.000	120.000	98.0	V	289.0	12.1	14.4	30.0	
714.720000	20.2	15000.000	120.000	98.0	V	156.0	22.8	15.8	36.0	
791.640000	21.0	15000.000	120.000	120.0	V	348.0	23.8	15.0	36.0	
895.200000	22.4	15000.000	120.000	106.0	V	170.0	25.1	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

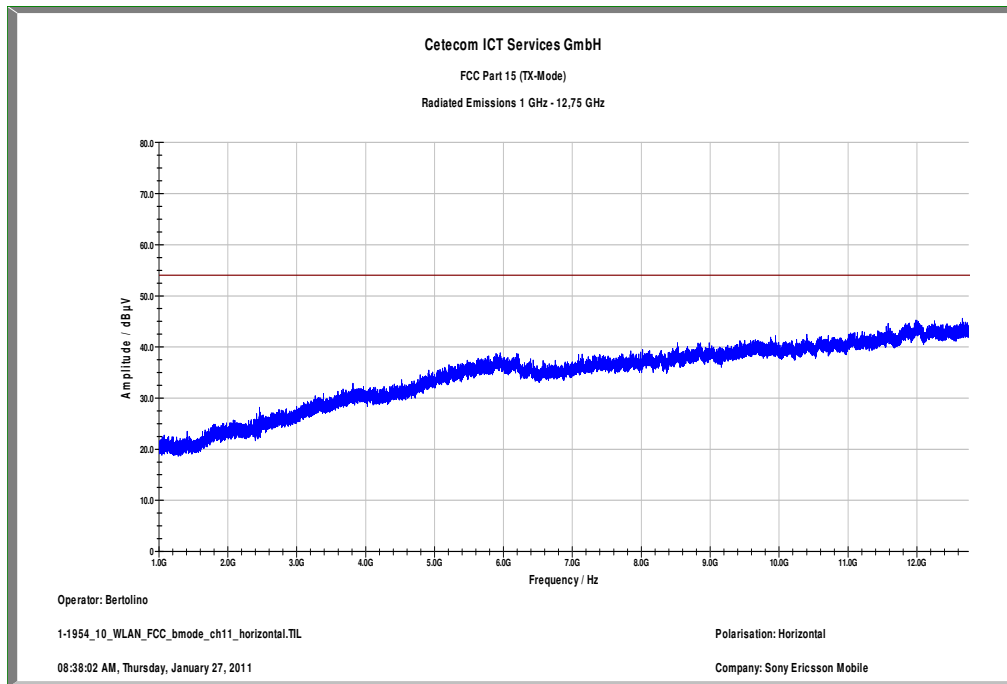
EMC 32 Version 8.10.00

**Plot 12:** 1 GHz to 12.75 GHz, highest channel, vertical polarization



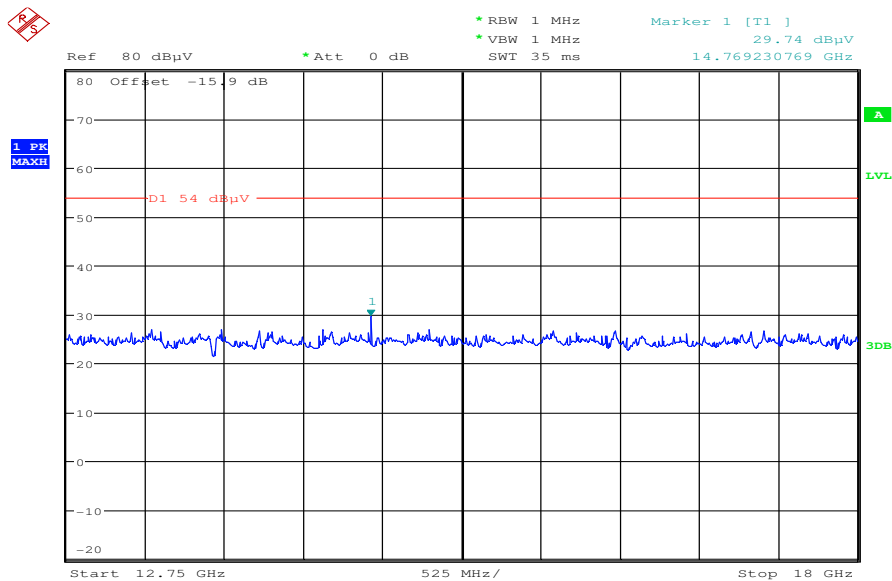
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 13: 1 GHz to 12.75 GHz, highest channel, horizontal polarization



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

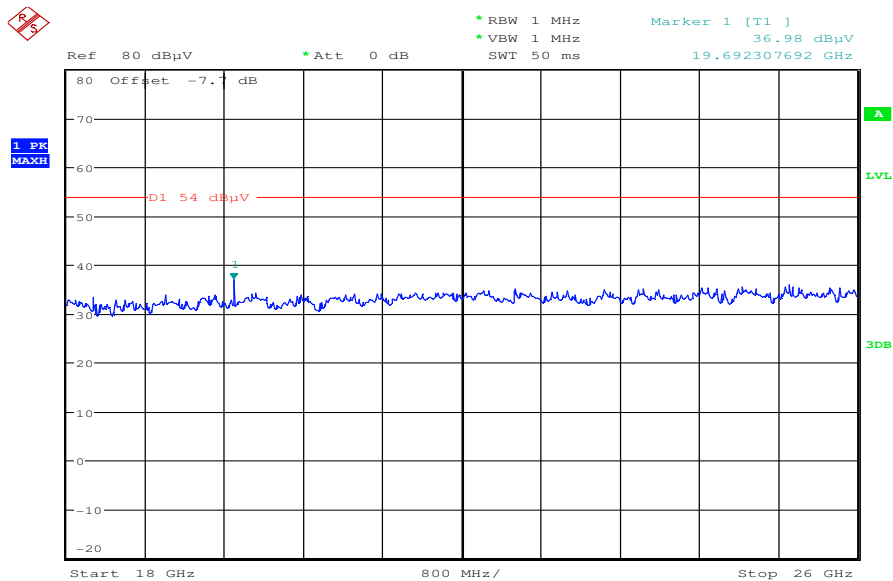
Plot 14: 12.75 GHz to 18 GHz, highest channel, vertical & horizontal polarization



Date: 27.JAN.2011 09:55:16



Plot 15: 18 GHz to 26 GHz, highest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:13:41

**Plots: OFDM / g – mode (power index 17)**

**Plot 1:** 30 MHz to 1 GHz, lowest channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

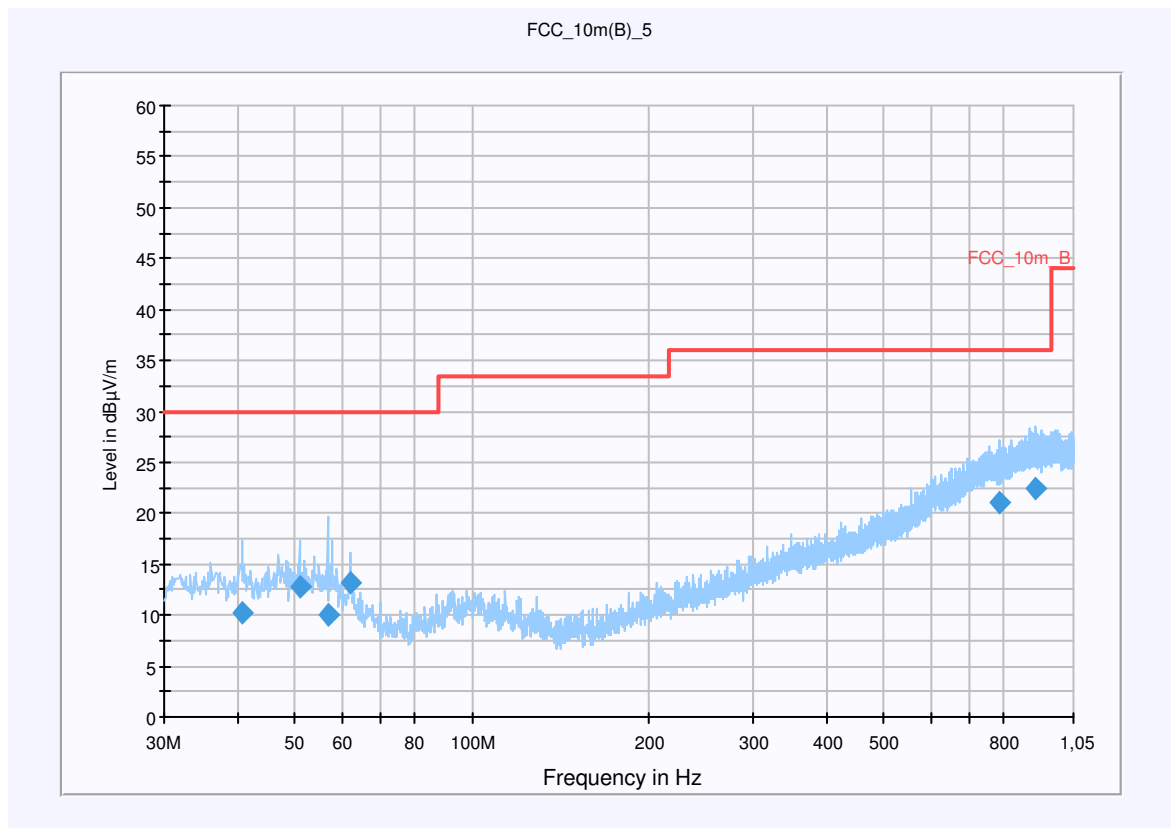
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN/18Mbps/ch1  
 Operator Name: HNA  
 Comment: AC 110 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**

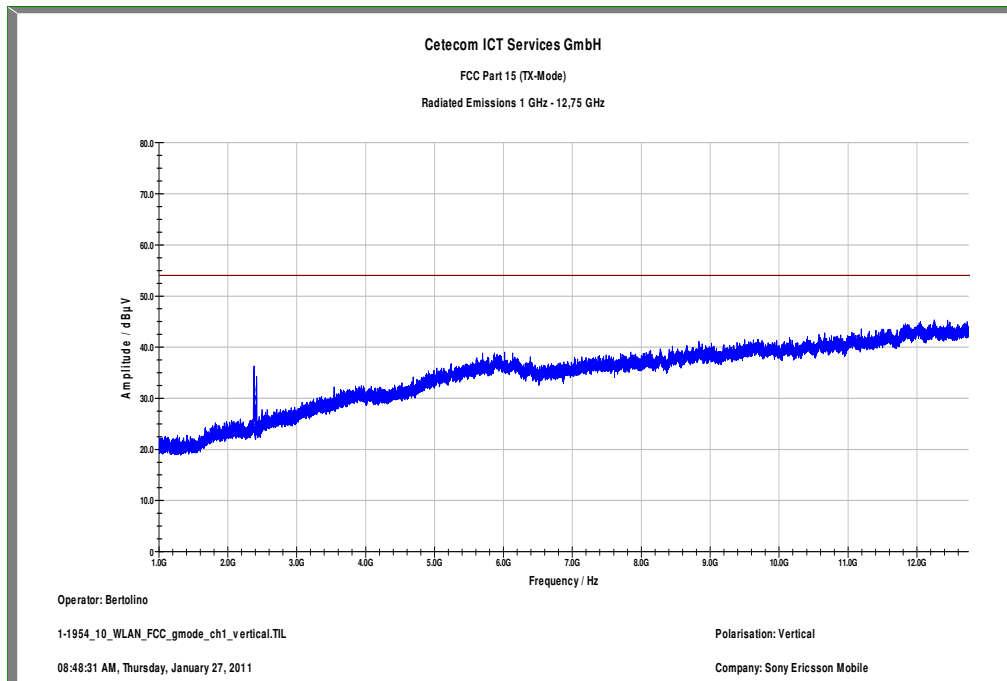
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.680000	10.3	15000.000	120.000	106.0	V	229.0	13.4	19.7	30.0	
51.000000	12.8	15000.000	120.000	270.0	V	-2.0	13.3	17.2	30.0	
56.880000	10.0	15000.000	120.000	264.0	V	9.0	12.4	20.0	30.0	
62.040000	13.2	15000.000	120.000	270.0	V	65.0	11.1	16.8	30.0	
786.240000	21.0	15000.000	120.000	126.0	H	334.0	23.8	15.0	36.0	
908.280000	22.4	15000.000	120.000	270.0	H	31.0	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

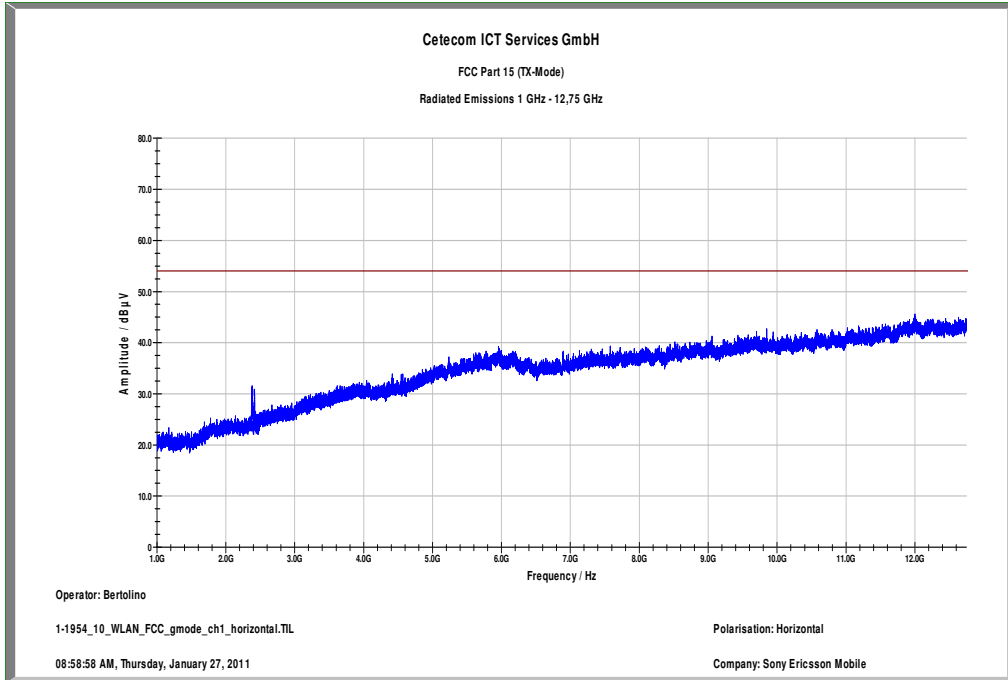
EMC 32 Version 8.10.00

**Plot 2:** 1 GHz to 12.75 GHz, lowest channel, vertical polarization



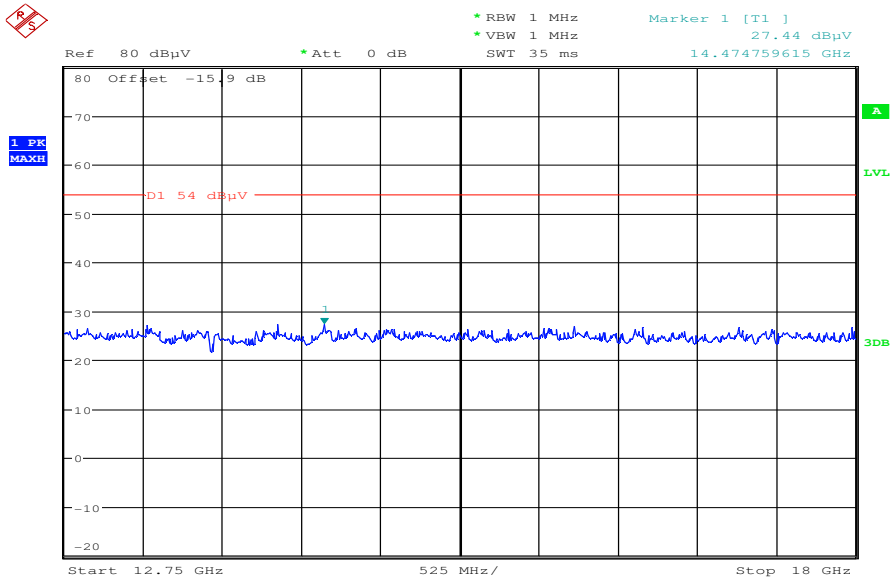
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 3:** 1 GHz to 12.75 GHz, lowest channel, horizontal polarization



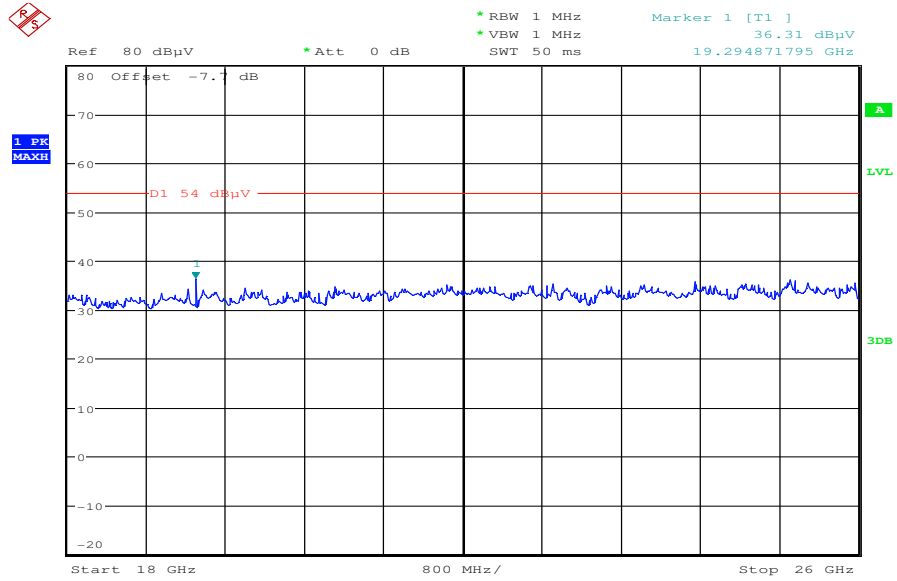
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 4:** 12.75 GHz to 18 GHz, lowest channel, vertical & horizontal polarization



Date: 27.JAN.2011 09:56:46

Plot 5: 18 GHz to 26 GHz, lowest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:14:49

Plot 6: 30 MHz to 1 GHz, middle channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

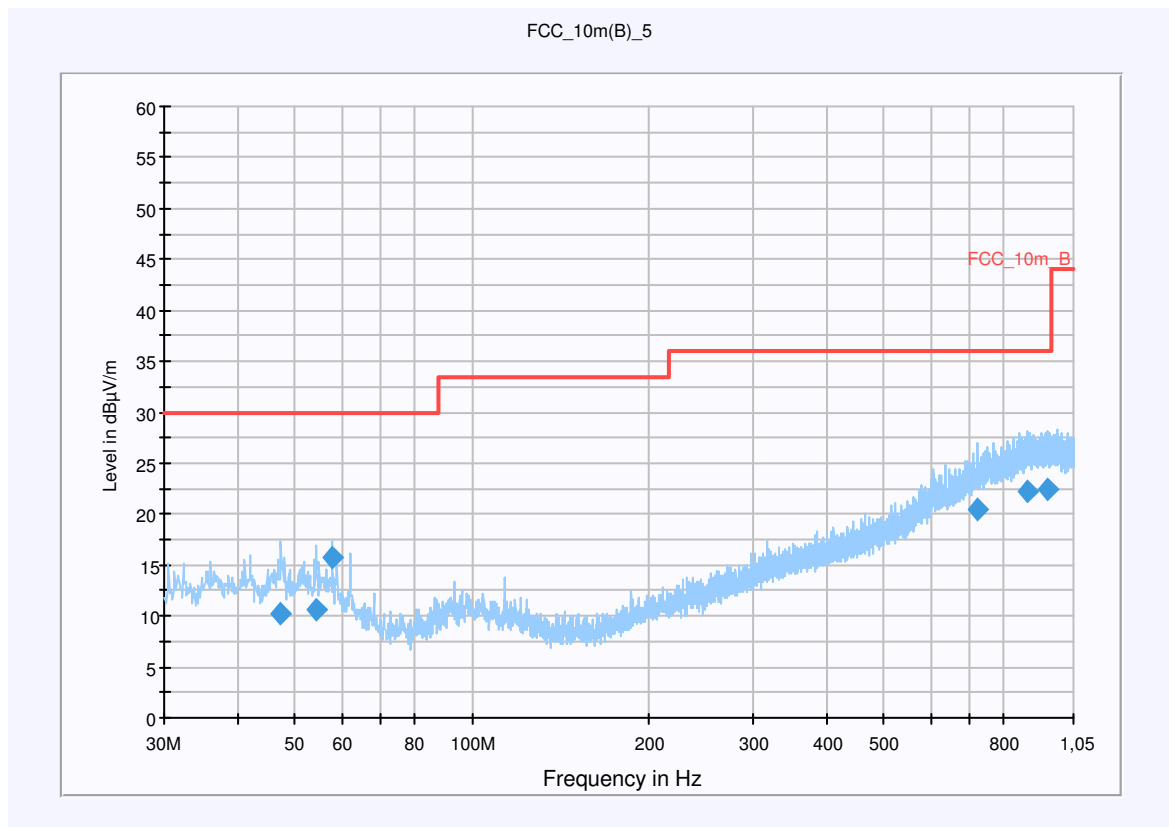
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN/18Mbps/ch6  
 Operator Name: HNA  
 Comment: AC 110 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**

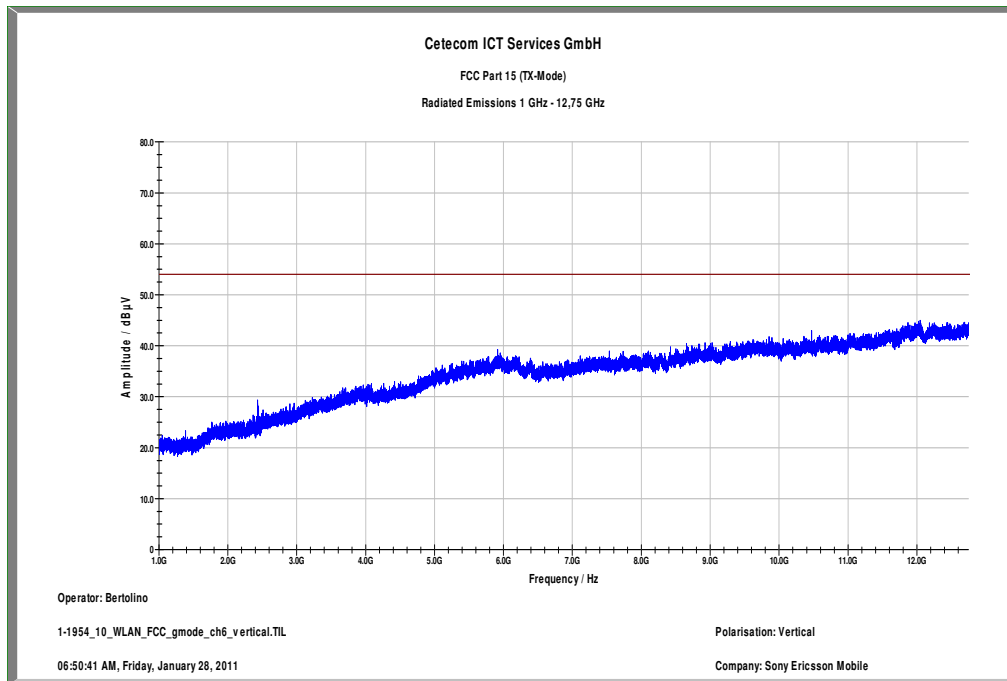
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
47.400000	10.2	15000.000	120.000	104.0	V	233.0	13.3	19.8	30.0	
54.480000	10.7	15000.000	120.000	142.0	V	295.0	12.9	19.3	30.0	
57.960000	15.7	15000.000	120.000	98.0	V	95.0	12.1	14.3	30.0	
721.680000	20.4	15000.000	120.000	136.0	V	233.0	23.0	15.6	36.0	
874.200000	22.3	15000.000	120.000	270.0	H	-2.0	24.9	13.7	36.0	
948.600000	22.4	15000.000	120.000	98.0	H	312.0	25.3	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

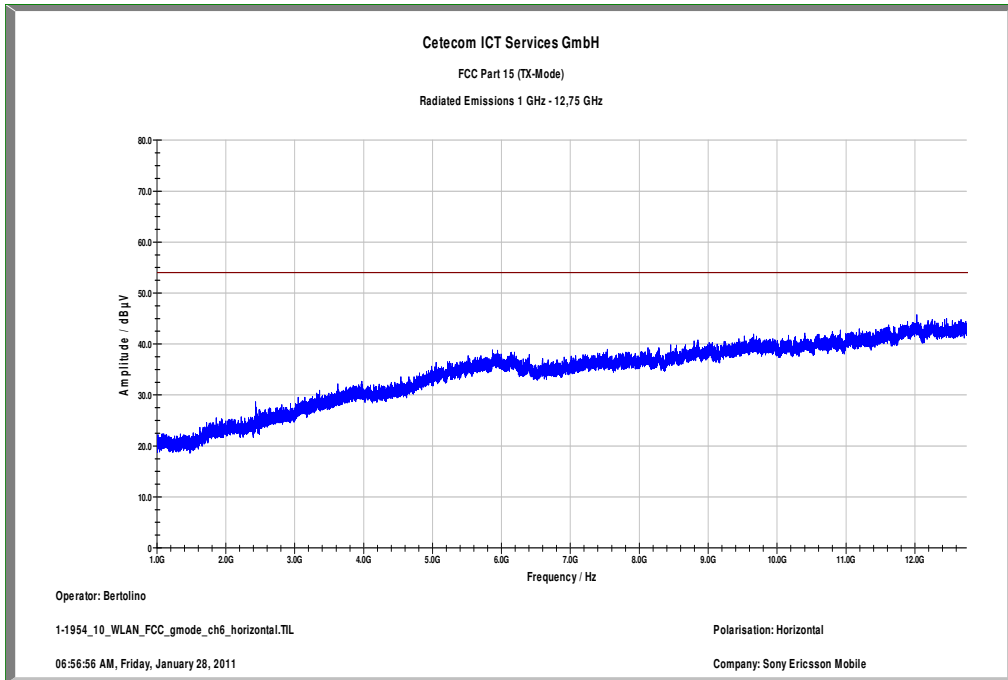
EMC 32 Version 8.10.00

**Plot 7:** 1 GHz to 12.75 GHz, middle channel, vertical polarization



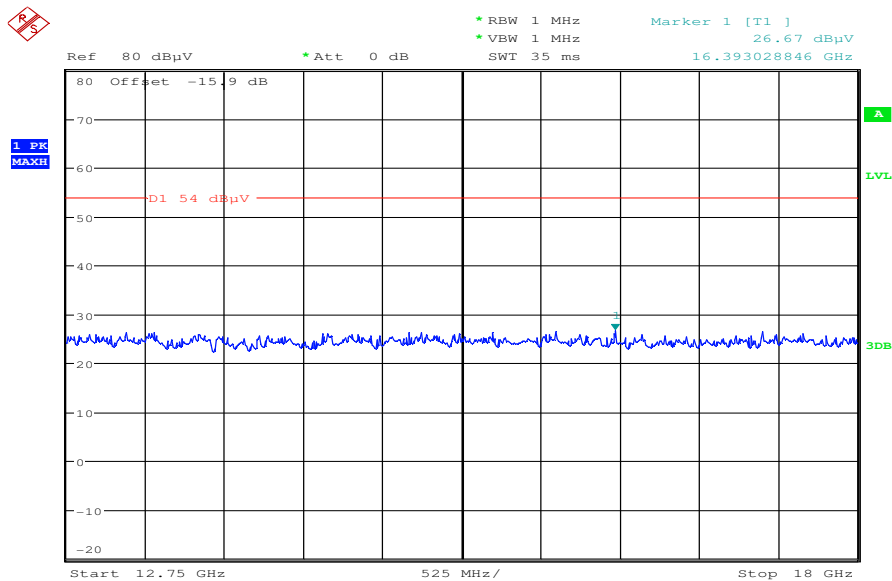
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 8:** 1 GHz to 12.75 GHz, middle channel, horizontal polarization



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

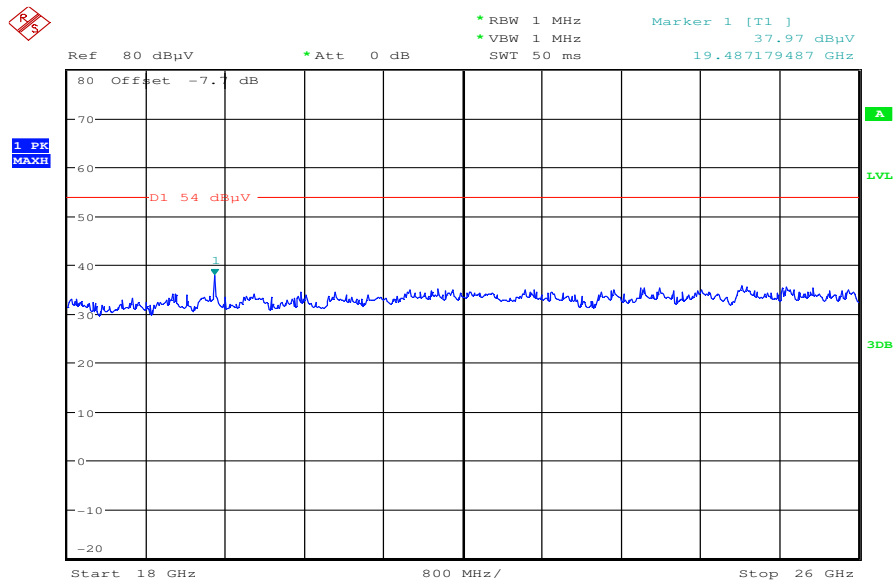
**Plot 9:** 12.75 GHz to 18 GHz, middle channel, vertical & horizontal polarization



Date: 27.JAN.2011 09:58:05



Plot 10: 18 GHz to 26 GHz, middle channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:15:59

Plot 11: 30 MHz to 1 GHz, highest channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

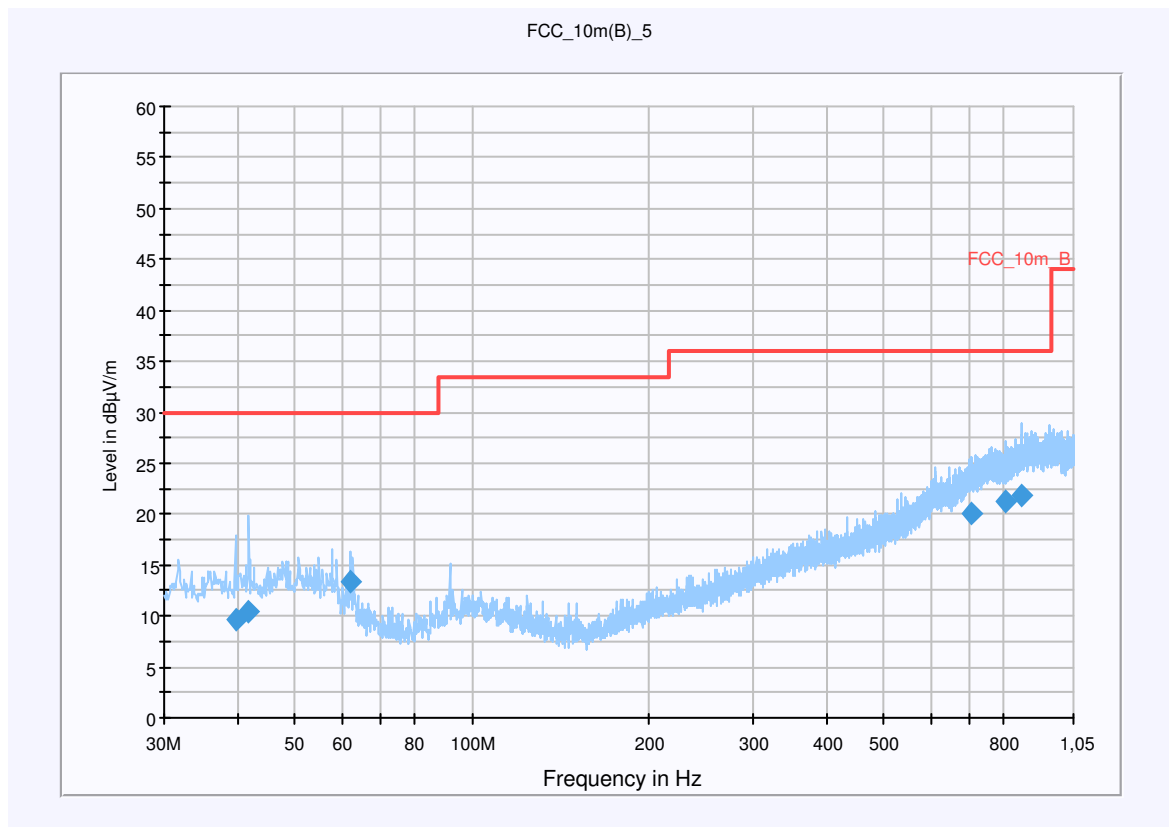
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN/18Mbps/ch11  
 Operator Name: HNA  
 Comment: AC 110 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**

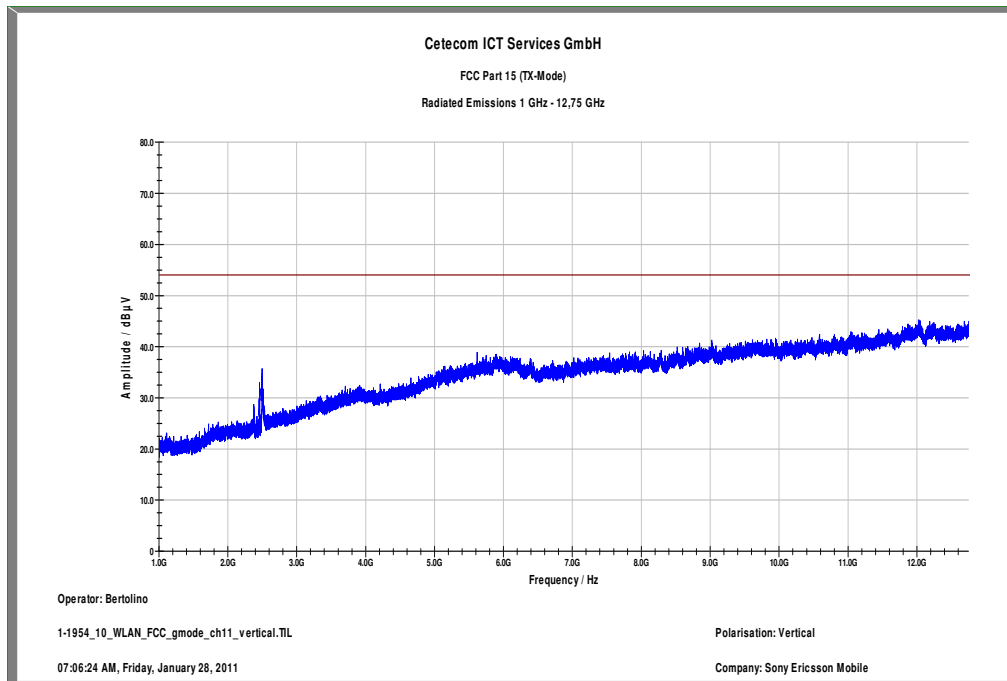
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
39.720000	9.6	15000.000	120.000	116.0	V	46.0	13.4	20.4	30.0	
41.760000	10.3	15000.000	120.000	204.0	V	326.0	13.4	19.7	30.0	
62.040000	13.3	15000.000	120.000	270.0	V	312.0	11.1	16.7	30.0	
704.880000	20.0	15000.000	120.000	270.0	V	273.0	22.6	16.0	36.0	
804.600000	21.2	15000.000	120.000	270.0	V	242.0	23.9	14.8	36.0	
855.240000	21.9	15000.000	120.000	264.0	H	312.0	24.6	14.1	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

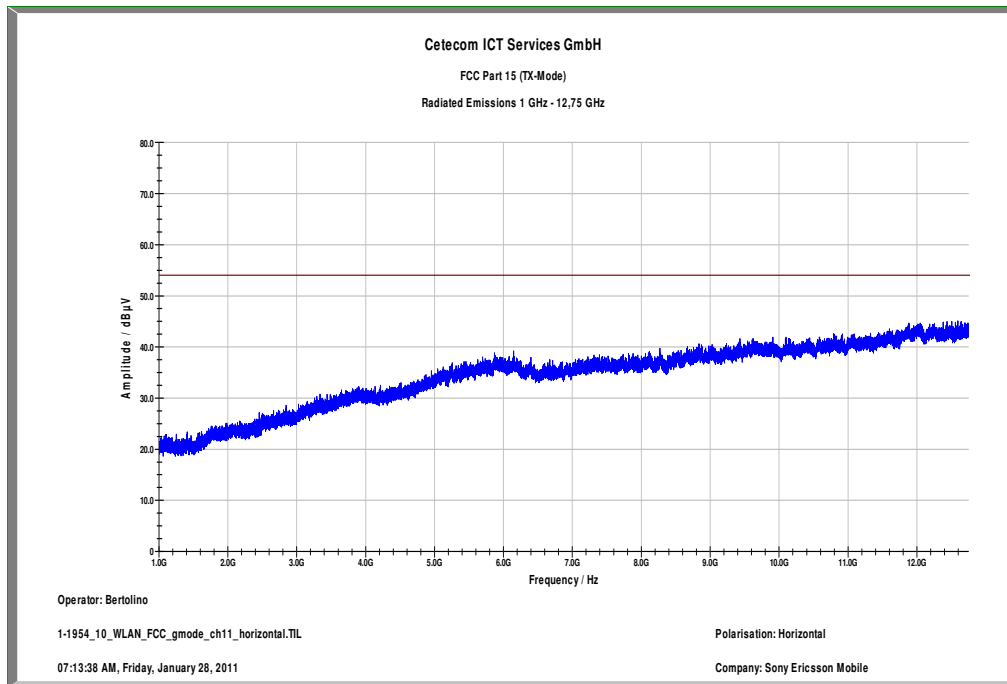
EMC 32 Version 8.10.00

**Plot 12:** 1 GHz to 12.75 GHz, highest channel, vertical polarization



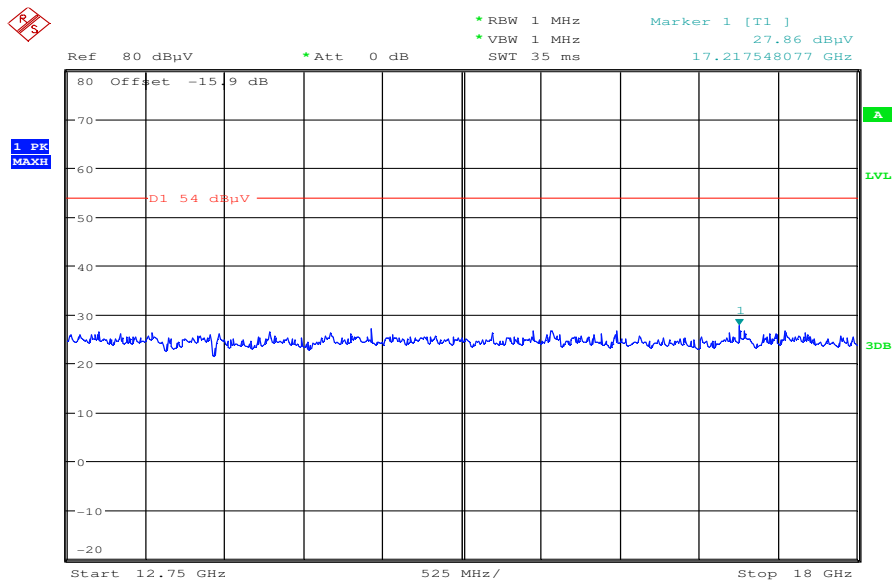
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 13:** 1 GHz to 12.75 GHz, highest channel, horizontal polarization



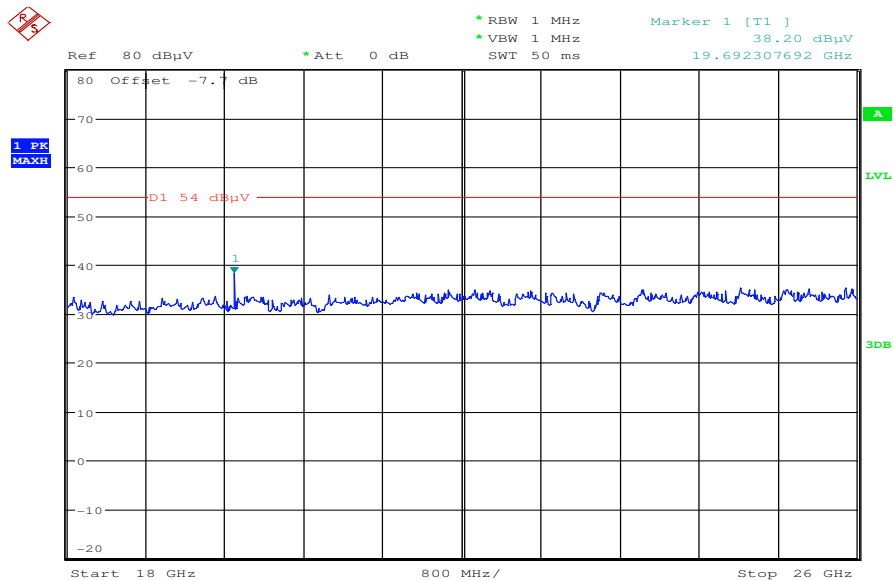
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 14:** 12.75 GHz to 18 GHz, highest channel, vertical & horizontal polarization



Date: 27.JAN.2011 09:59:08

Plot 15: 18 GHz to 26 GHz, highest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:16:40

**Plots: OFDM / n – mode (power index 17)**

Plot 1: 30 MHz to 1 GHz, lowest channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

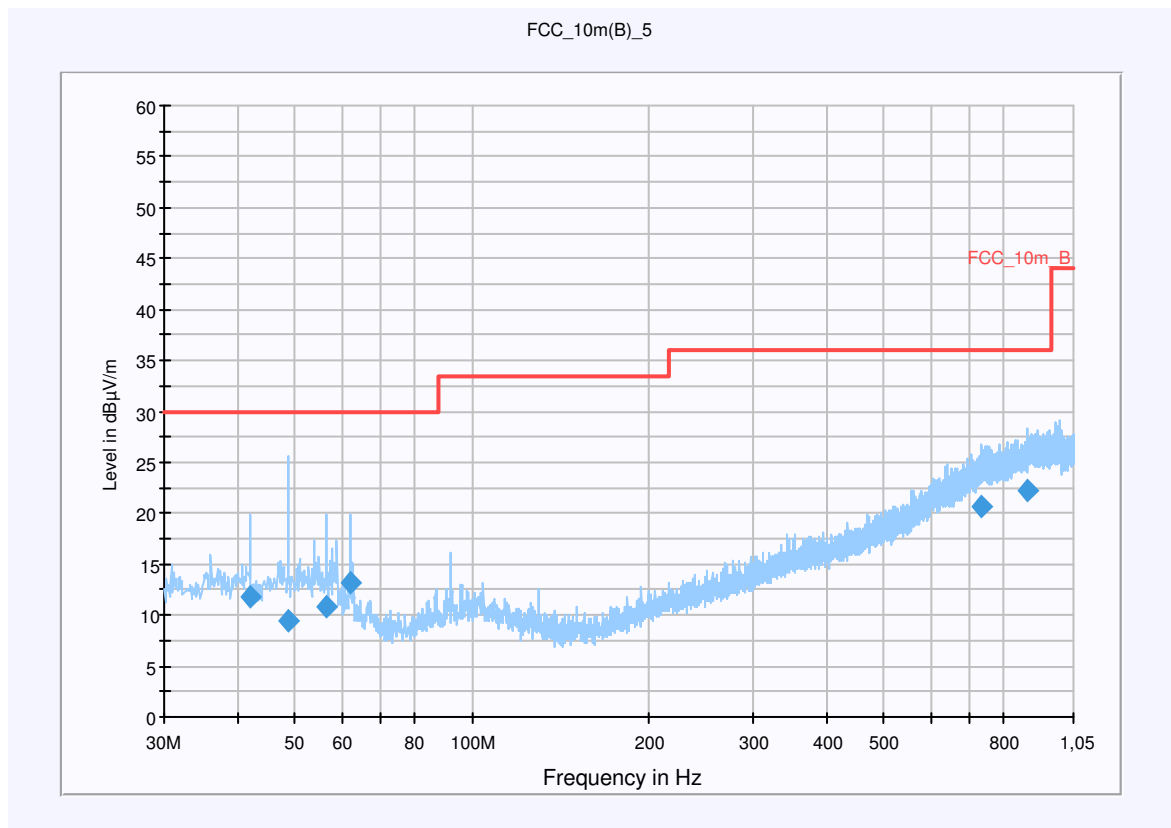
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN n Mode channel 1  
 Operator Name: HNA  
 Comment: AC 110 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**

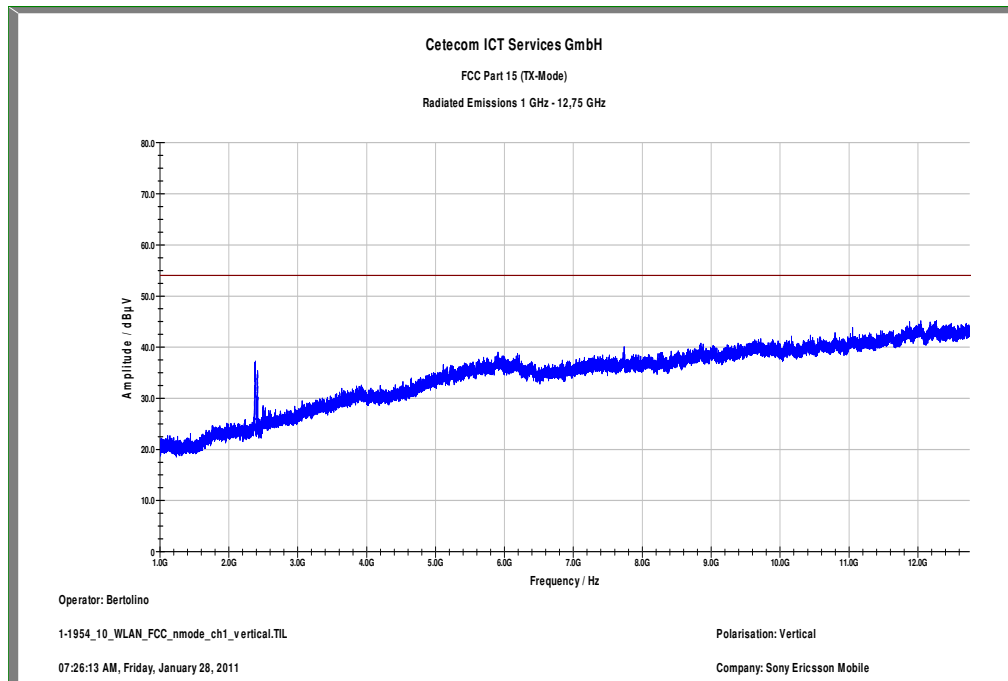
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
43.50000	12.1	15000.000	120.000	151.0	V	245.0	13.4	17.9	30.0	
48.85000	9.8	15000.000	120.000	130.0	V	-2.0	13.3	20.2	30.0	
56.71000	10.5	15000.000	120.000	109.0	V	-2.0	12.5	19.5	30.0	
62.01000	12.9	15000.000	120.000	128.0	V	74.0	11.1	17.1	30.0	
735.11000	21.2	15000.000	120.000	267.0	V	245.0	23.3	14.8	36.0	
880.10000	23.0	15000.000	120.000	267.0	V	356.0	24.9	13.0	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

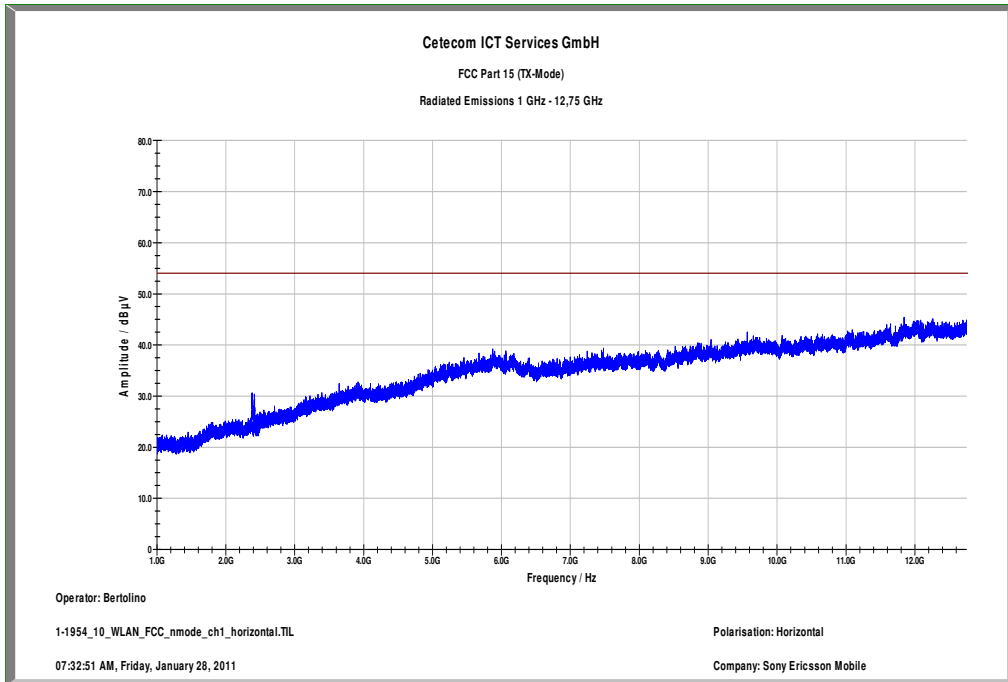
EMC 32 Version 8.10.00

**Plot 2:** 1 GHz to 12.75 GHz, lowest channel, vertical polarization



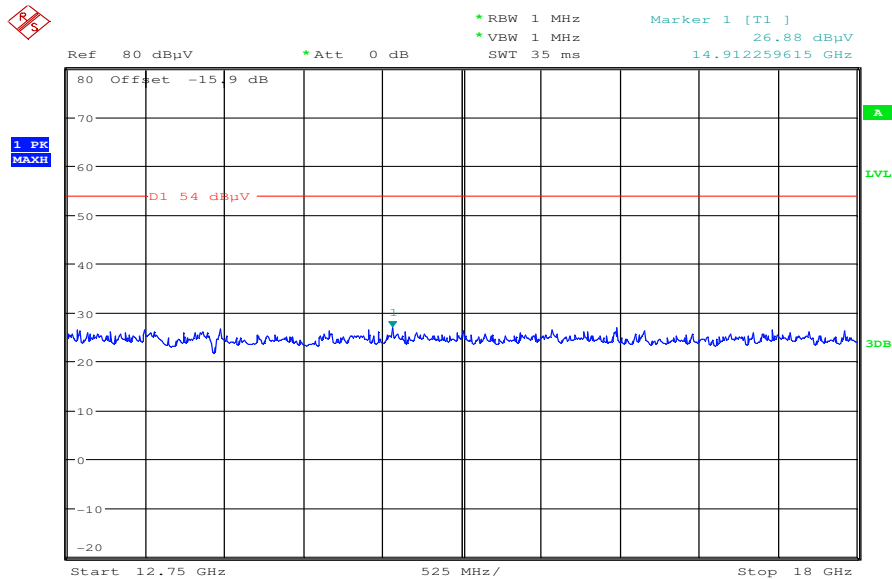
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 3:** 1 GHz to 12.75 GHz, lowest channel, horizontal polarization



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

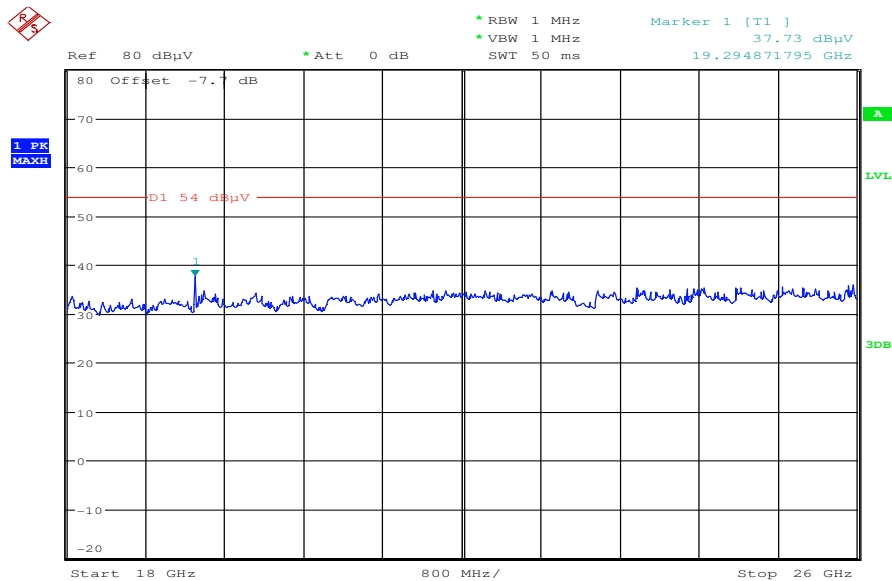
**Plot 4:** 12.75 GHz to 18 GHz, lowest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:00:16



Plot 5: 18 GHz to 26 GHz, lowest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:17:34

Plot 6: 30 MHz to 1 GHz, middle channel, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

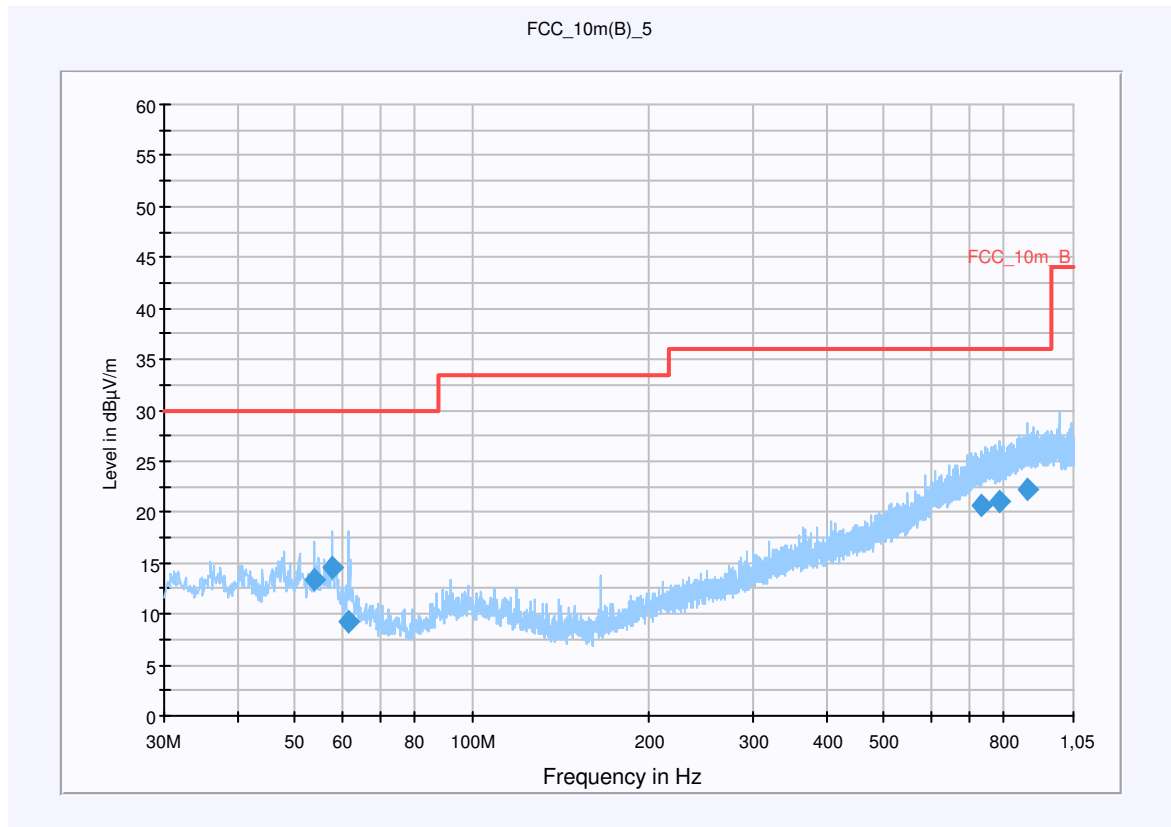
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN n Mode channel 6  
 Operator Name: HNA  
 Comment: AC 110 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**

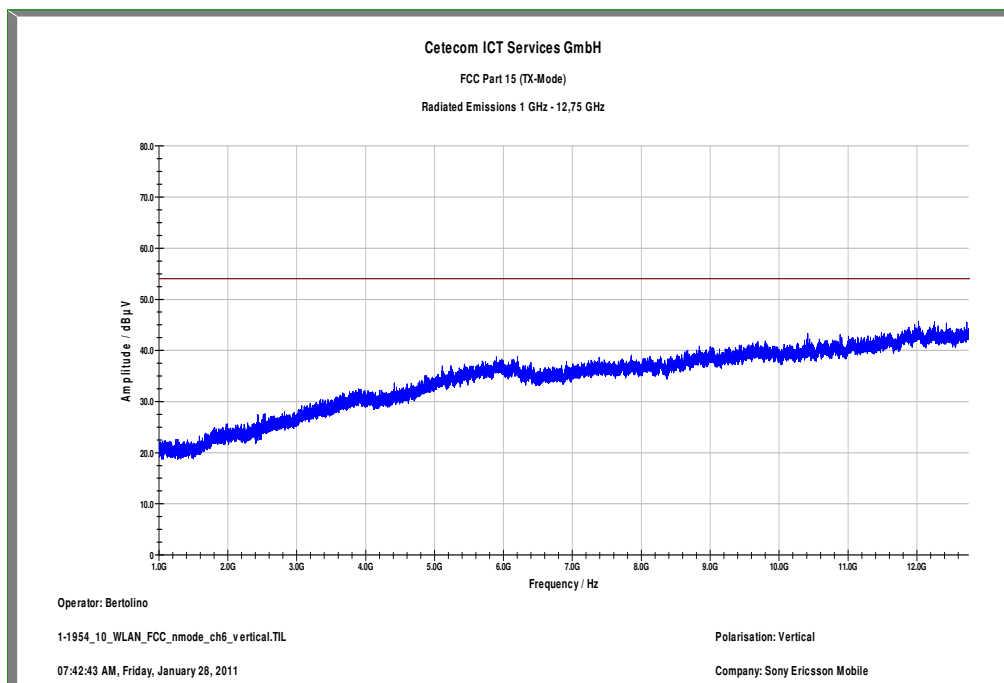
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
55.000000	13.1	15000.000	120.000	110.0	V	310.0	13.0	16.9	30.0	
58.100000	14.9	15000.000	120.000	275.0	V	35.0	12.1	15.1	30.0	
61.980000	9.0	15000.000	120.000	94.0	V	89.0	11.2	21.0	30.0	
733.450000	20.1	15000.000	120.000	186.0	H	353.0	23.3	15.9	36.0	
787.150000	20.5	15000.000	120.000	2687.0	V	12.0	23.8	15.5	36.0	
877.950000	21.9	15000.000	120.000	100.0	H	335.0	24.9	14.1	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

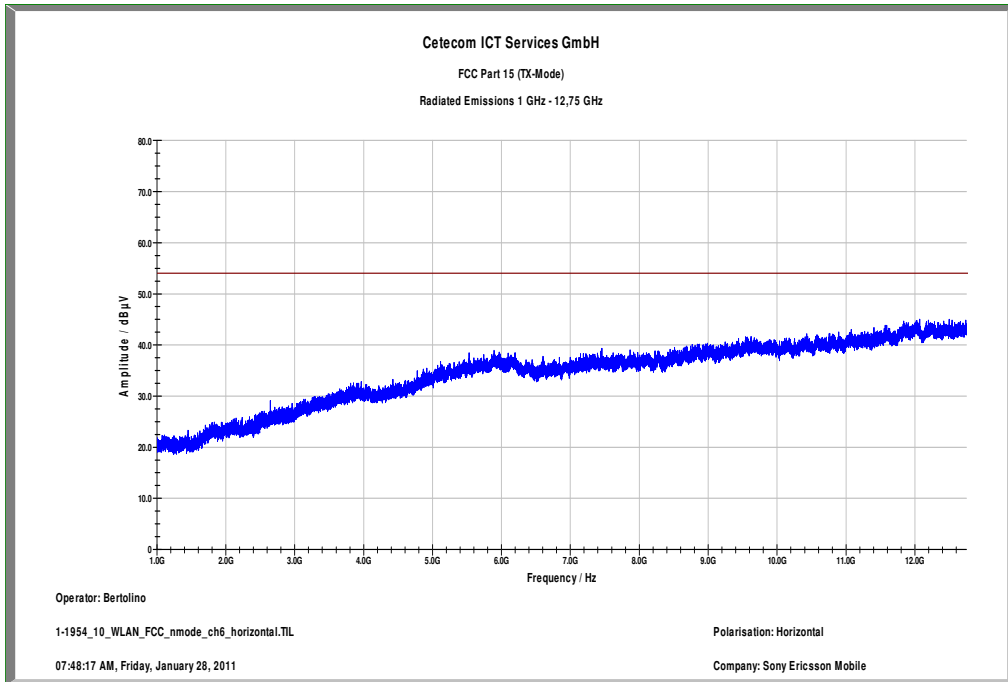
EMC 32 Version 8.10.00

**Plot 7:** 1 GHz to 12.75 GHz, middle channel, vertical polarization



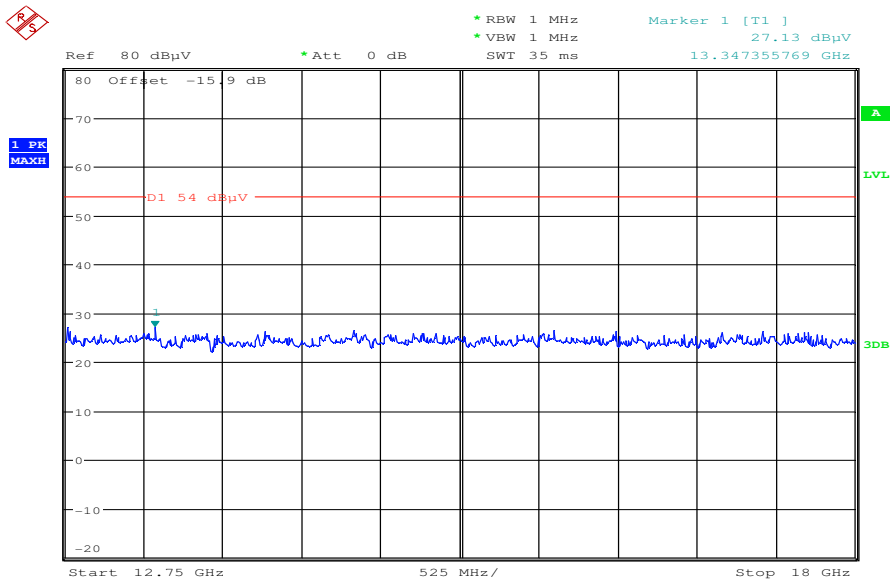
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 8:** 1 GHz to 12.75 GHz, middle channel, horizontal polarization



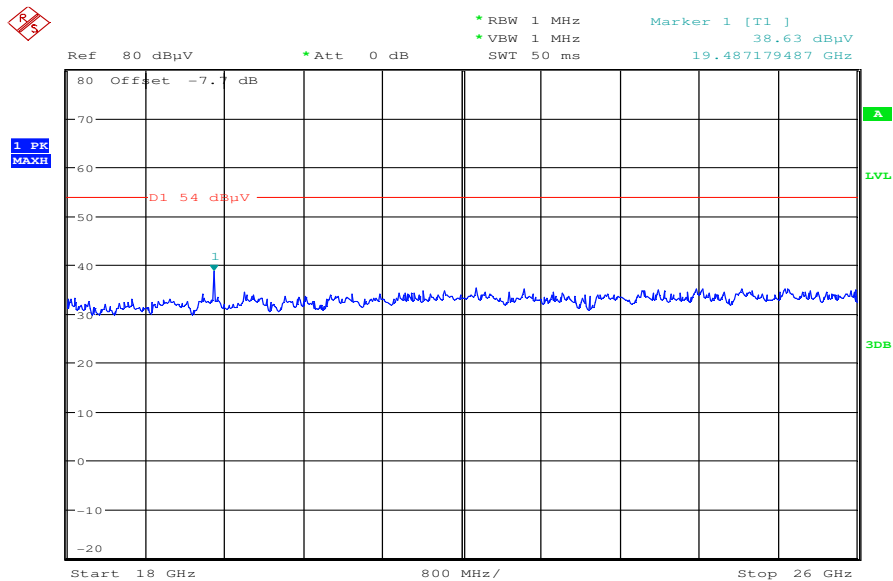
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 9:** 12.75 GHz to 18 GHz, middle channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:01:08

Plot 10: 18 GHz to 26 GHz, middle channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:19:10

Plot 11: 30 MHz to 1 GHz, highest channel, vertical & horizontal polarization

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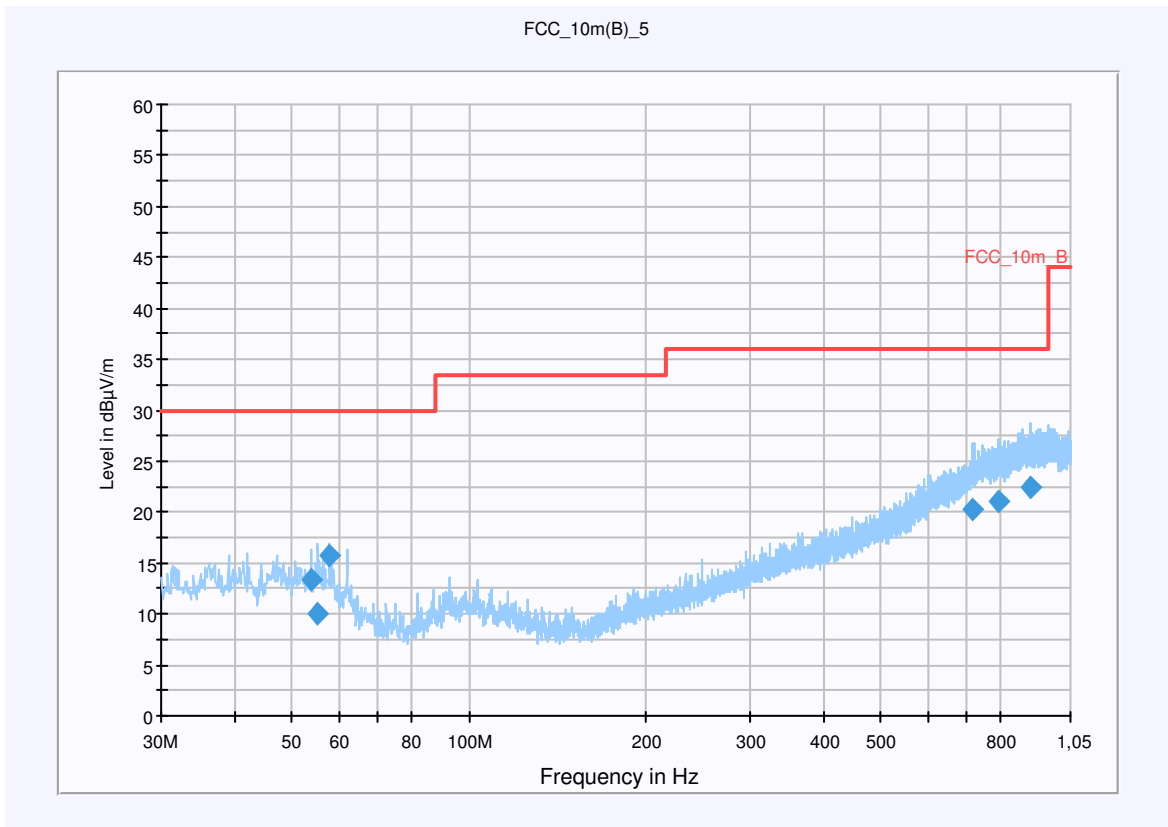
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: TX WLAN n Mode channel 11  
 Operator Name: HNA  
 Comment: AC 110 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**

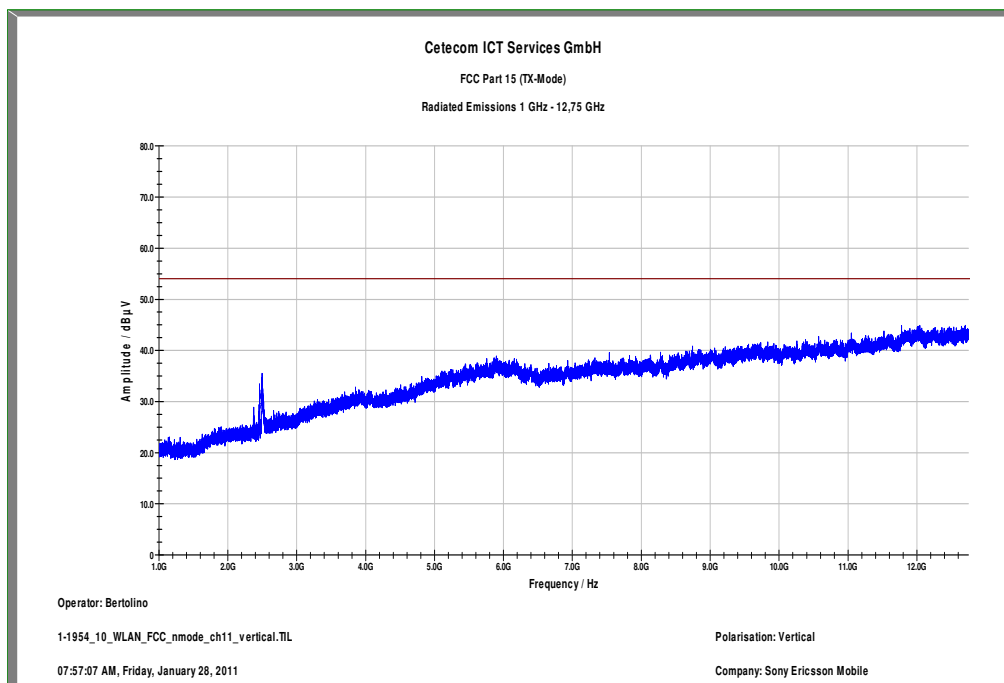
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
55.500000	13.9	15000.000	120.000	145.0	V	56.0	13.0	16.1	30.0	
56.150000	9.5	15000.000	120.000	96.0	V	27.0	12.8	20.5	30.0	
58.000000	14.3	15000.000	120.000	94.0	V	287.0	12.1	15.7	30.0	
714.850000	19.7	15000.000	120.000	95.0	V	150.0	22.8	16.3	36.0	
791.960000	21.9	15000.000	120.000	115.0	V	345.0	23.8	14.1	36.0	
896.320000	22.1	15000.000	120.000	102.0	V	168.0	25.1	13.9	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

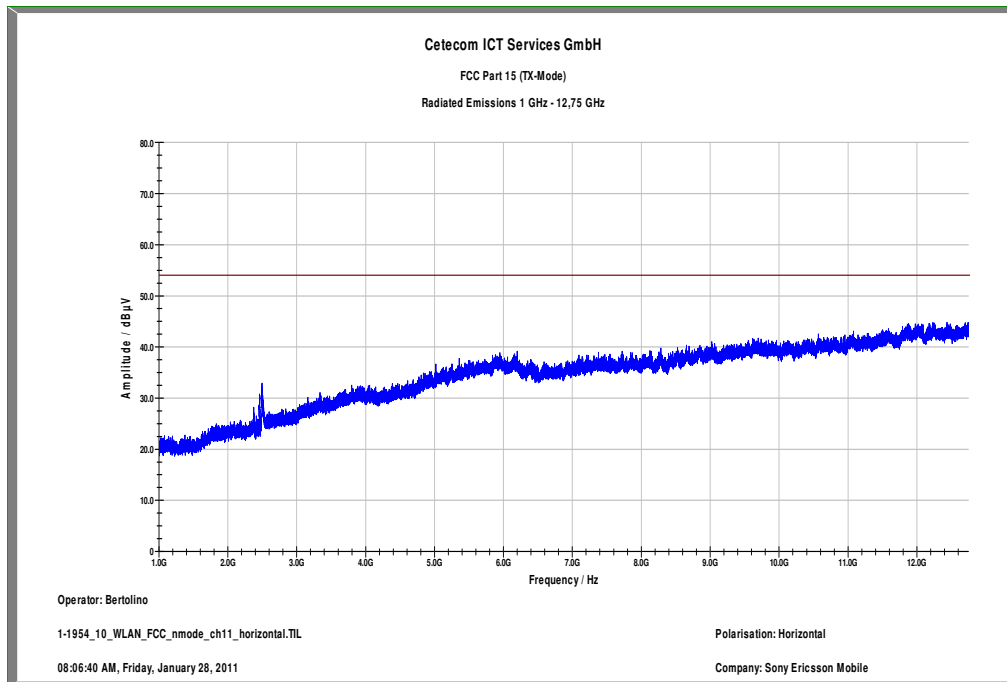
EMC 32 Version 8.10.00

**Plot 12:** 1 GHz to 12.75 GHz, highest channel, vertical polarization



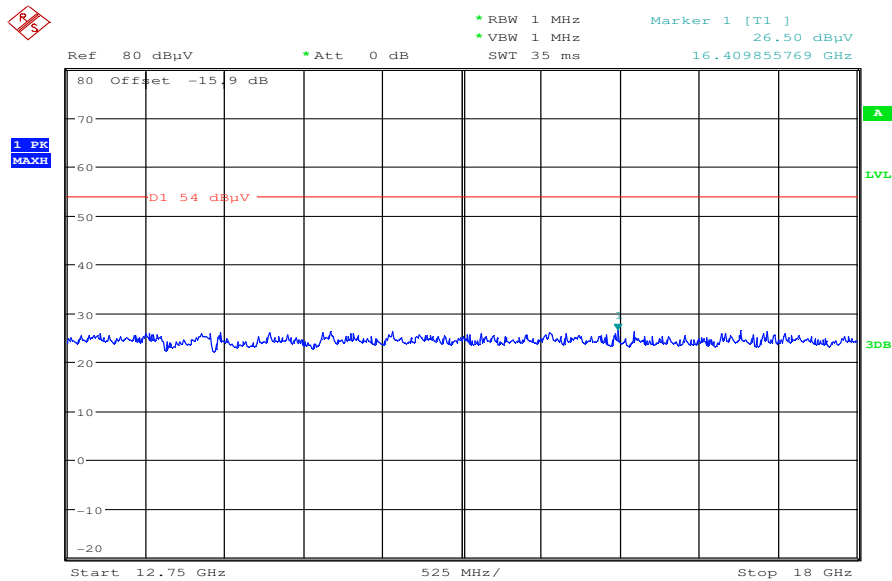
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 13:** 1 GHz to 12.75 GHz, highest channel, horizontal polarization



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

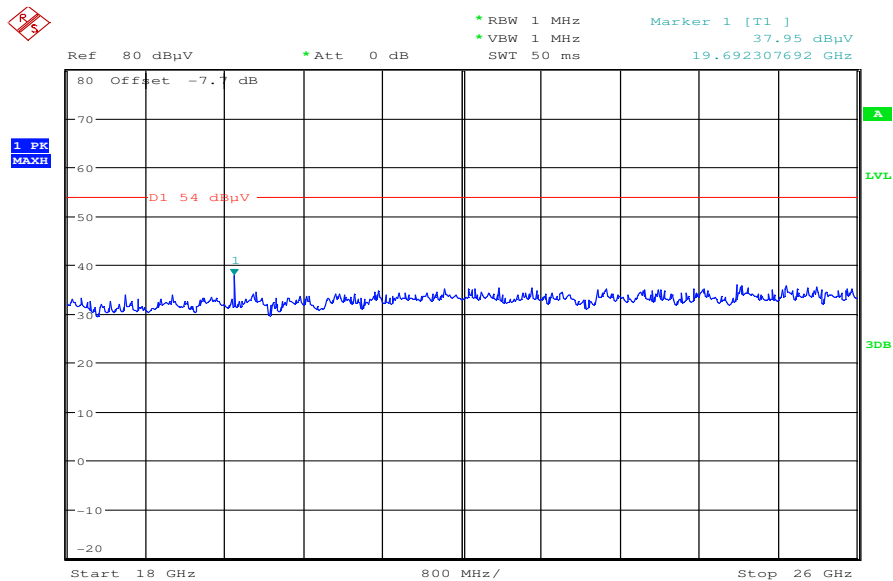
**Plot 14:** 12.75 GHz to 18 GHz, highest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:02:10



Plot 15: 18 GHz to 26 GHz, highest channel, vertical & horizontal polarization



Date: 27.JAN.2011 10:20:01

## 9.11 RX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in idle/receive mode. The results are valid for both modes.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold

### Limits:

FCC		IC	
CFR Part 15.109		RSS Gen, Issue 2, 4.10	
RX Spurious Emissions Radiated			
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance	
30 - 88	30.0	10	
88 - 216	33.5	10	
216 - 960	36.0	10	
Above 960	54.0	3	



Plot 1: 30 MHz to 1 GHz, vertical & horizontal polarization

**CETECOM ICT Services GmbH**

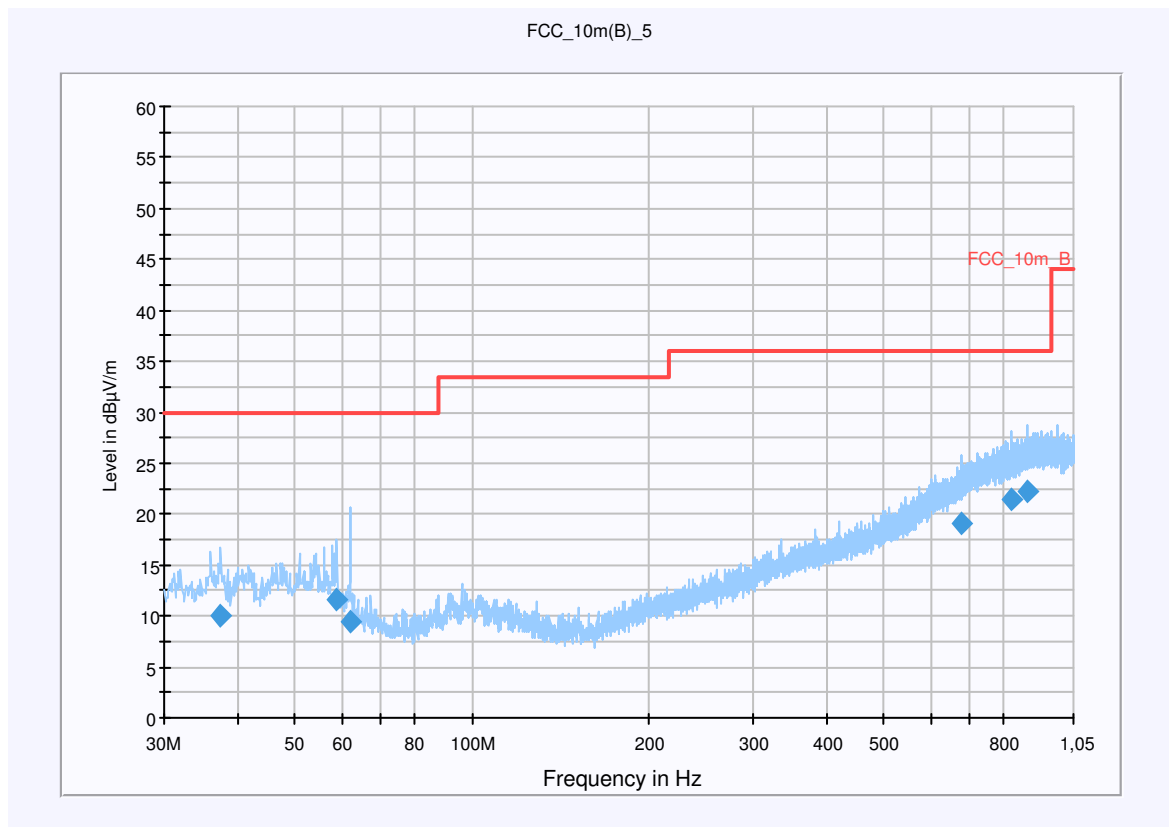
**Common Information**

EUT: Sony Ericsson AAD-3880097-BV  
 Serial Number: CB5A1CG1MJ  
 Test Description: FCC Part 15 @ 10 m  
 Operating Conditions: Idle WLAN  
 Operator Name: HNA  
 Comment: AC 110 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**

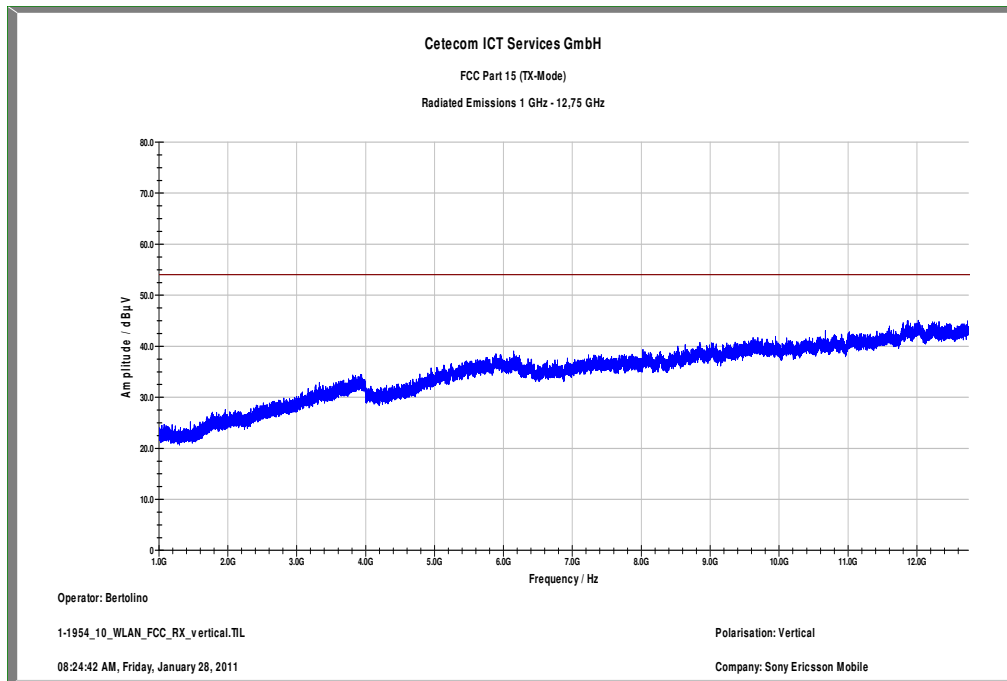
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
37.440000	10.0	15000.000	120.000	117.0	V	55.0	13.2	20.0	30.0	
59.040000	11.7	15000.000	120.000	192.0	V	104.0	11.9	18.3	30.0	
62.160000	9.5	15000.000	120.000	270.0	V	201.0	11.1	20.5	30.0	
677.880000	19.2	15000.000	120.000	270.0	V	215.0	21.9	16.8	36.0	
825.360000	21.5	15000.000	120.000	270.0	V	-2.0	24.2	14.5	36.0	
874.800000	22.3	15000.000	120.000	270.0	V	104.0	24.9	13.7	36.0	

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

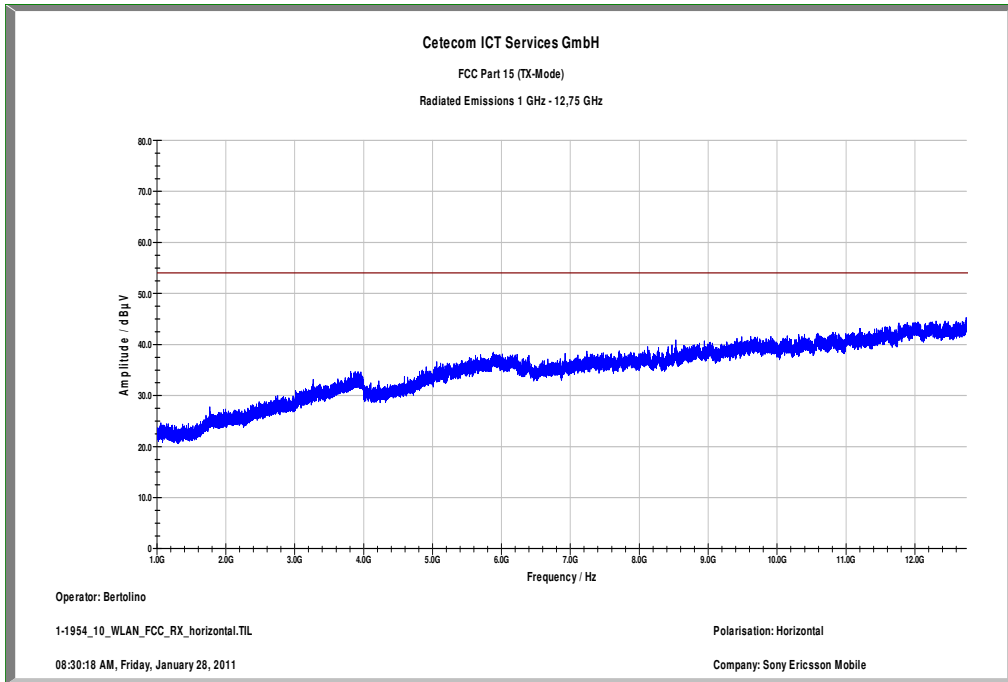
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)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

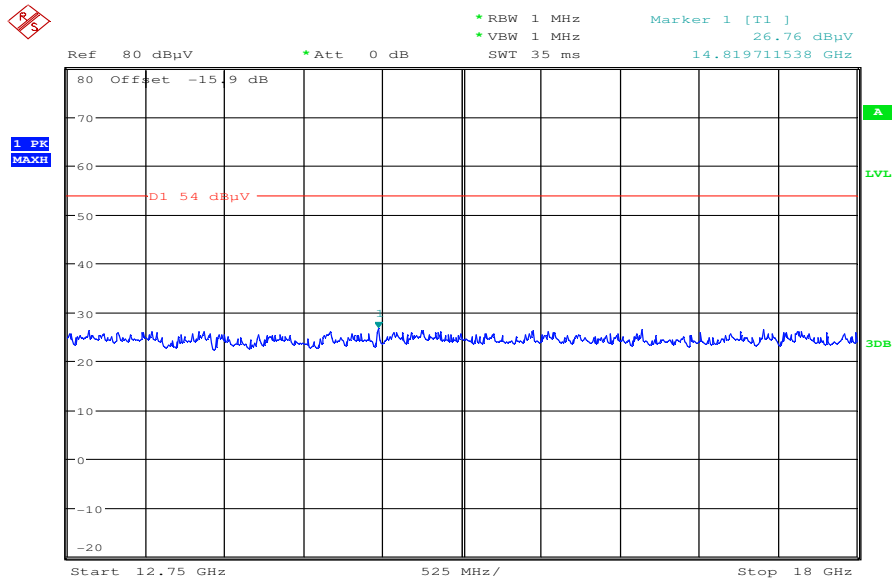
**Plot 2: 1 GHz to 12.75 GHz, vertical polarization**



Plot 3: 1 GHz to 12.75 GHz, horizontal polarization

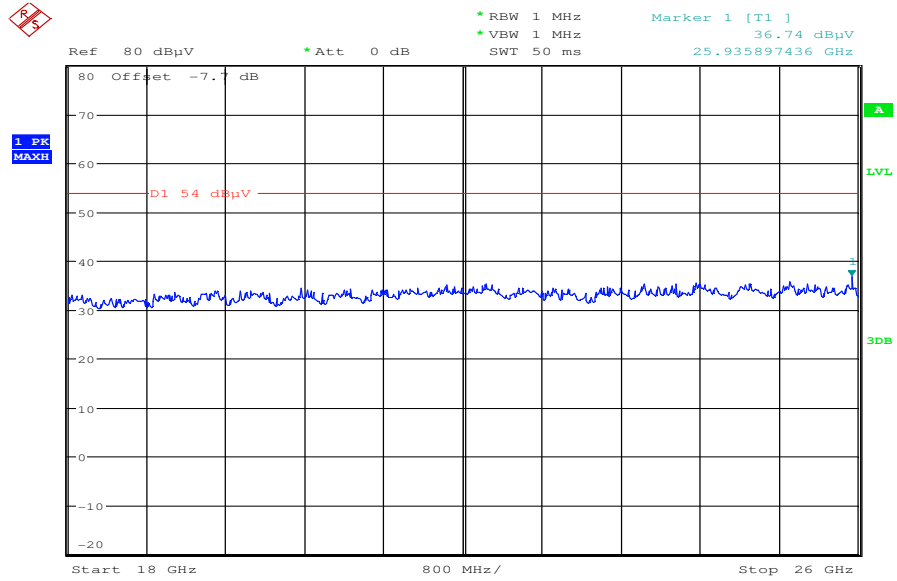


Plot 4: 12.75 GHz to 18 GHz, vertical & horizontal polarization



Date: 27.JAN.2011 10:02:50

Plot 5: 18 GHz to 26 GHz, vertical & horizontal polarization



Date: 27.JAN.2011 10:10:25

## 9.12 TX spurious emissions radiated < 30 MHz

### Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is representative for all channels and modes. If critical peaks are found channel 1 and channel 11 will be measured too. The measurement is performed with the data rate producing the highest output power. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

### Limits:

FCC		IC	
CFR Part 15.209(a)		RSS –Gen	
TX Spurious Emissions Radiated < 30 MHz			
Frequency (MHz)	Field Strength (dBμV/m)	Measurement distance	
0.009 – 0.490	2400/F(kHz)	300	
0.490 – 1.705	24000/F(kHz)	30	
1.705 – 30.0	30	30	



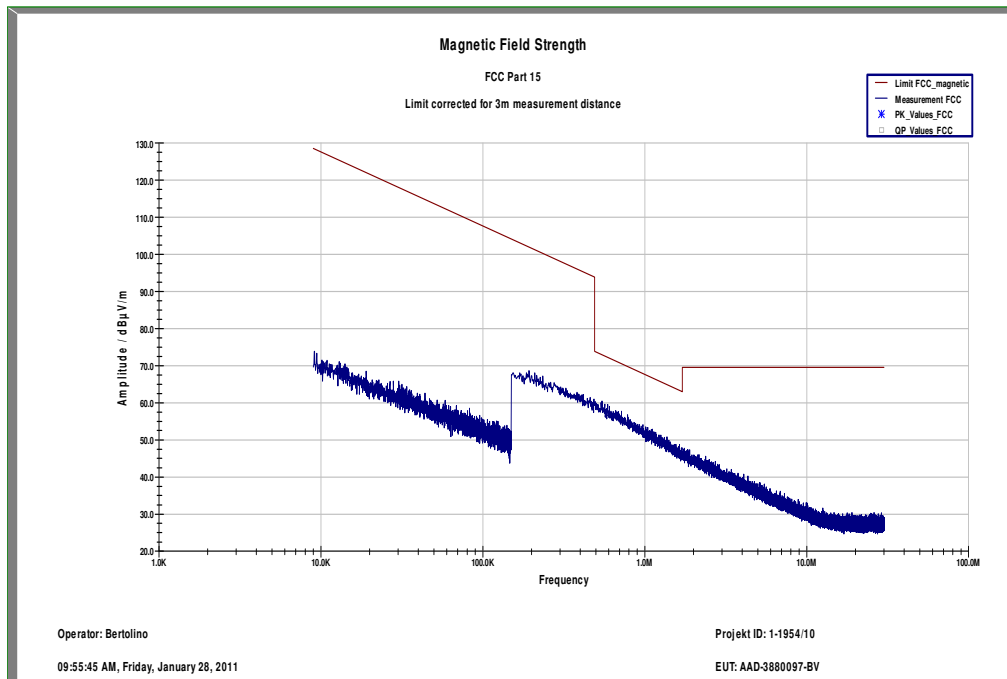
**Result:** Also see plots

TX Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No critical peaks found.		
Measurement uncertainty	± 3 dB	

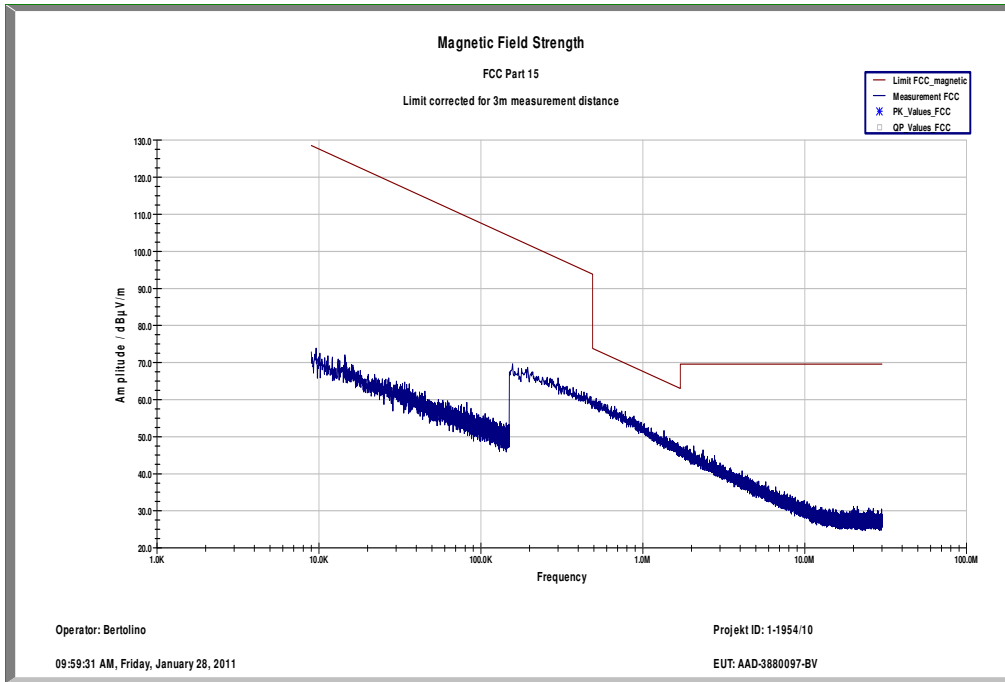
**Result:** The result of the measurement is passed.

**Plots:** DSSS / b – mode (power index 21)

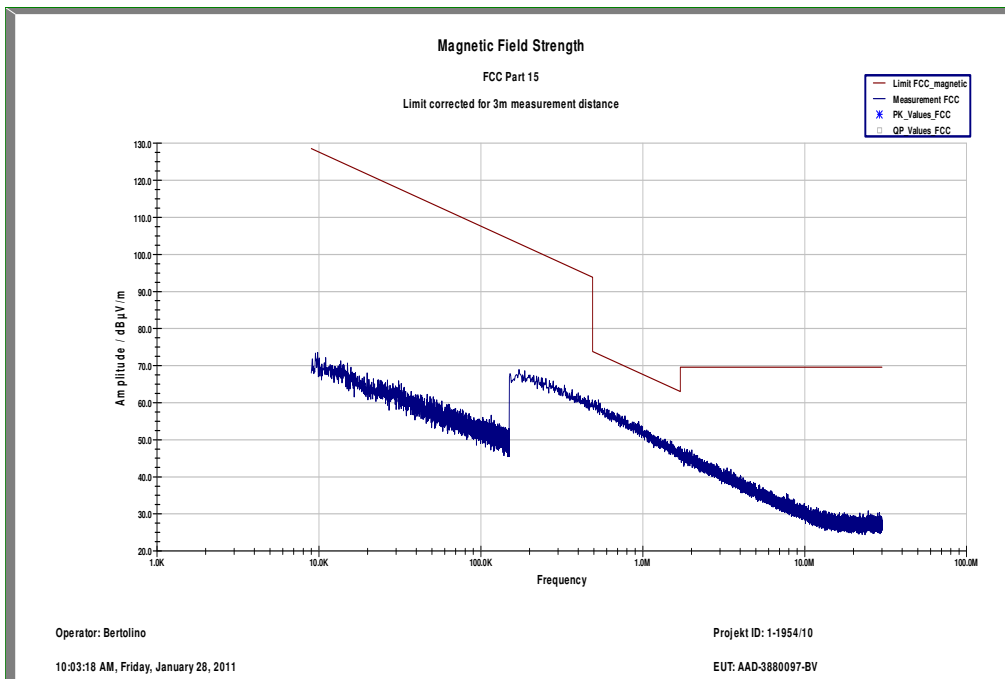
**Plot 1:** lowest channel



Plot 2: middle channel

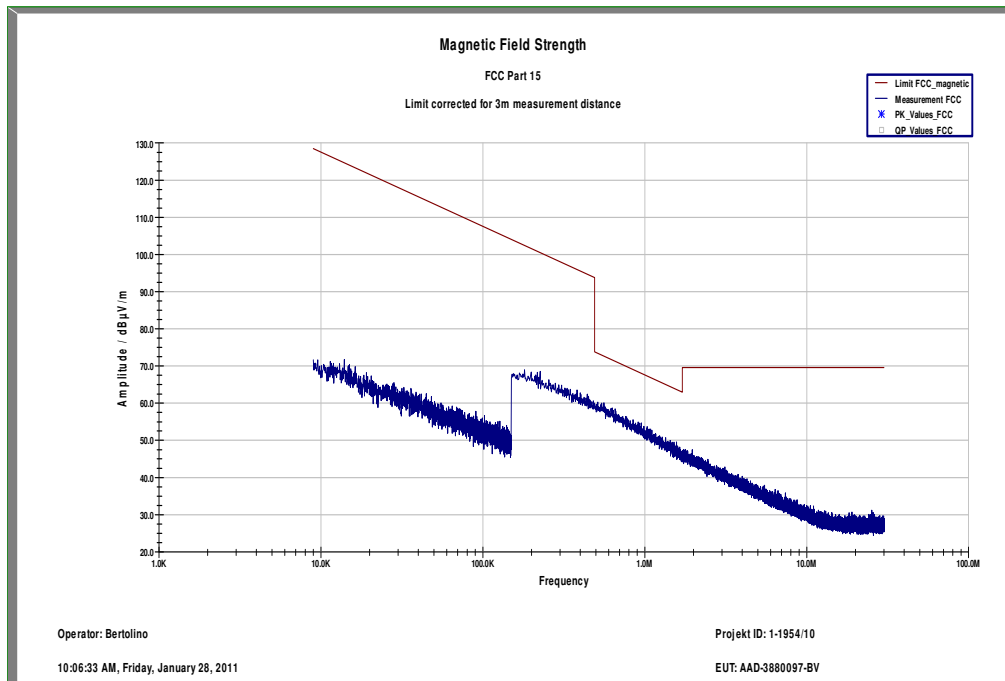


Plot 3: highest channel

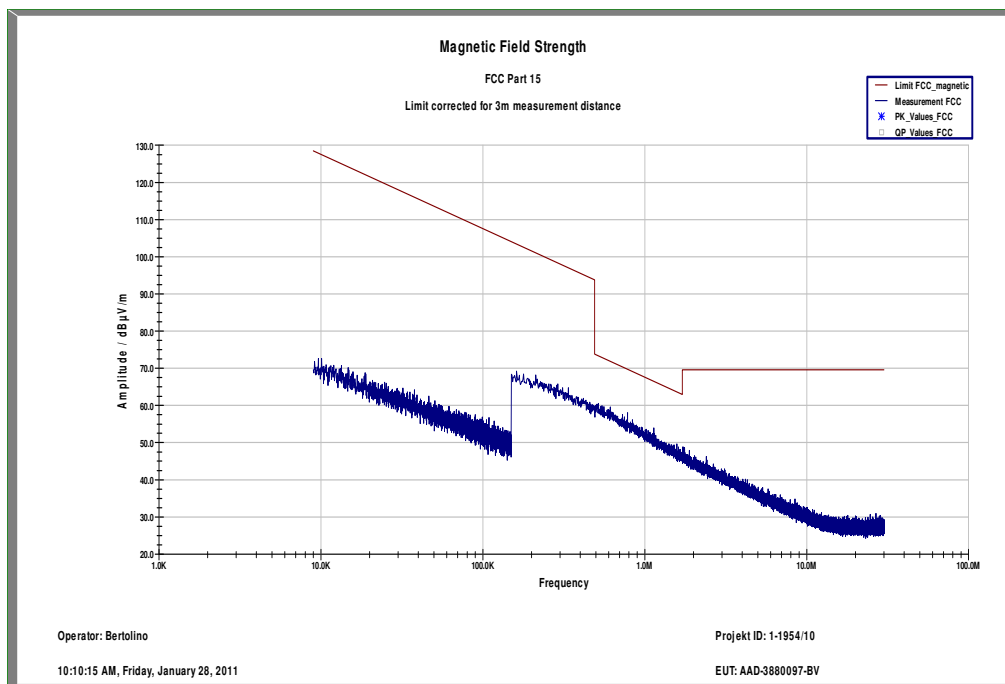


**Plots: OFDM / g – mode (power index 17)**

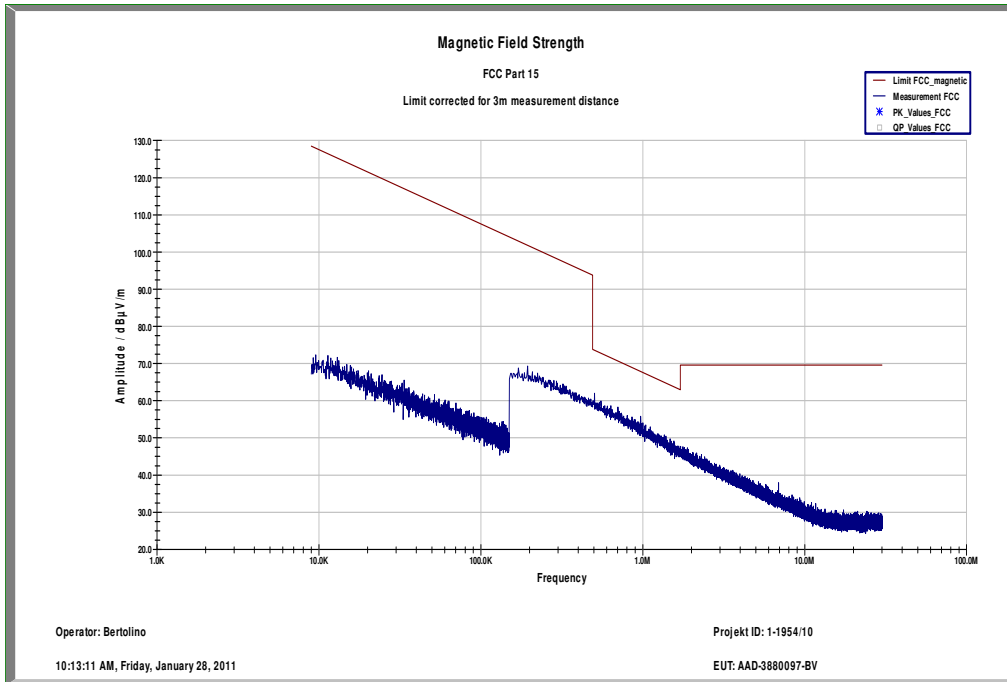
**Plot 1: lowest channel**



**Plot 2: middle channel**

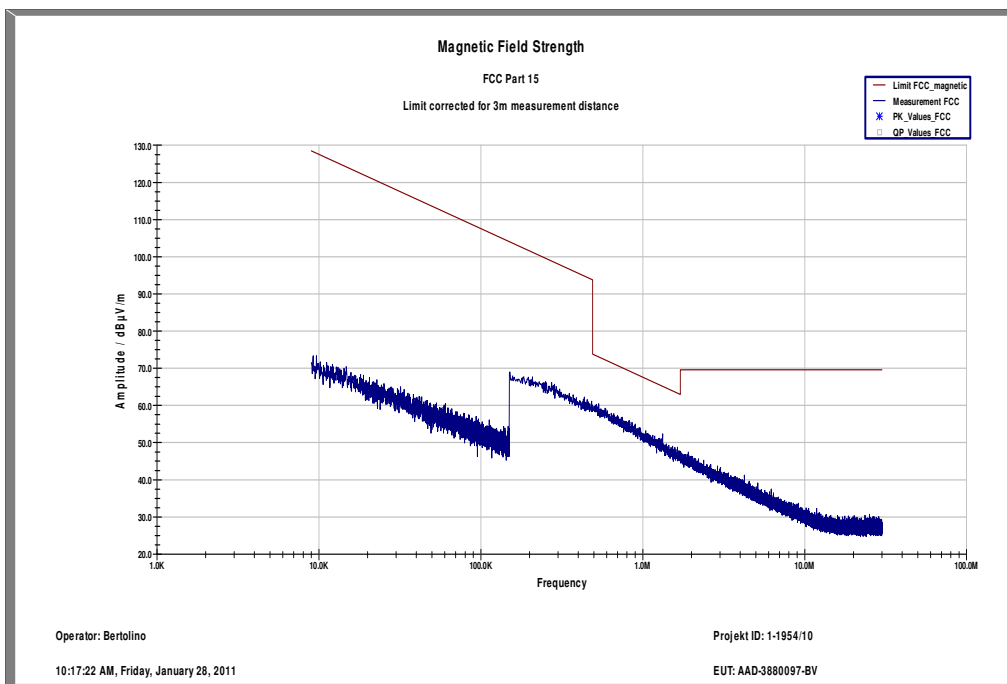


Plot 3: highest channel

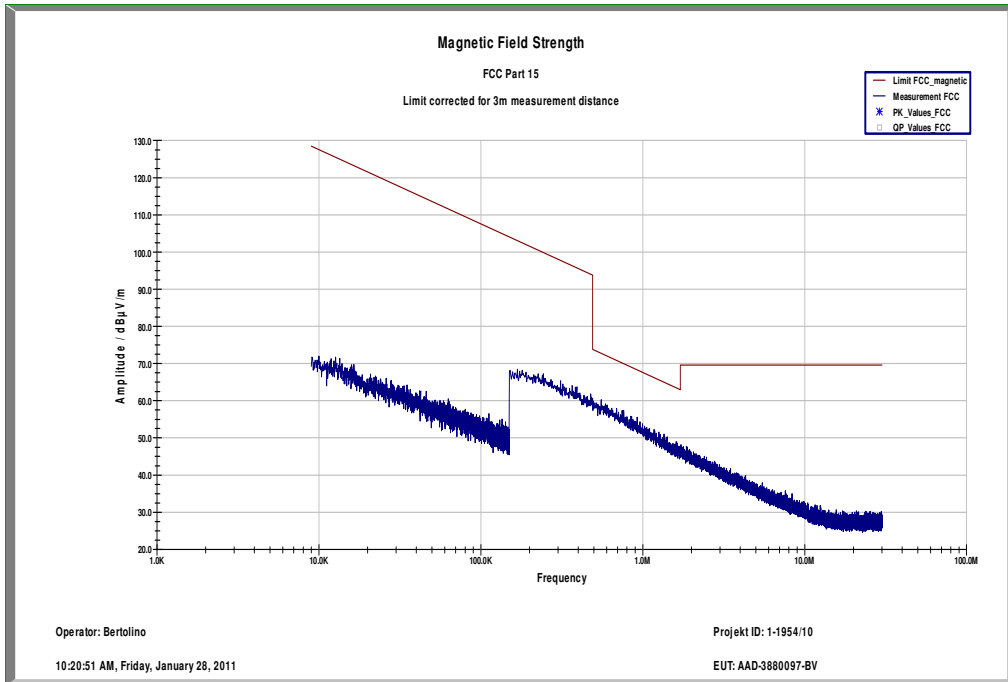


**Plots: OFDM / n – mode (power index 17)**

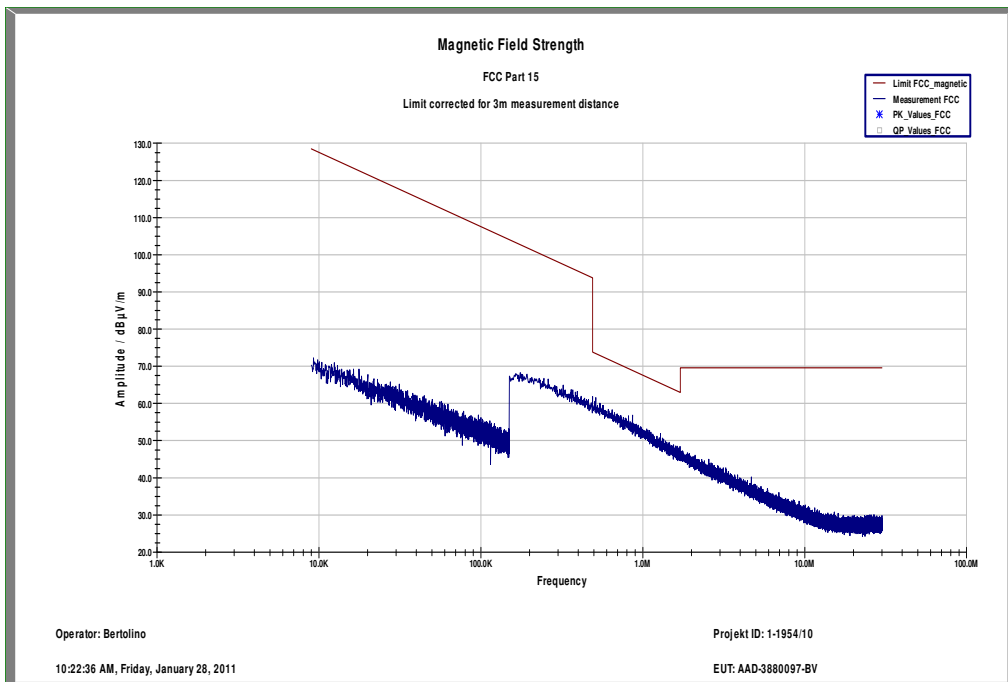
Plot 1: lowest channel



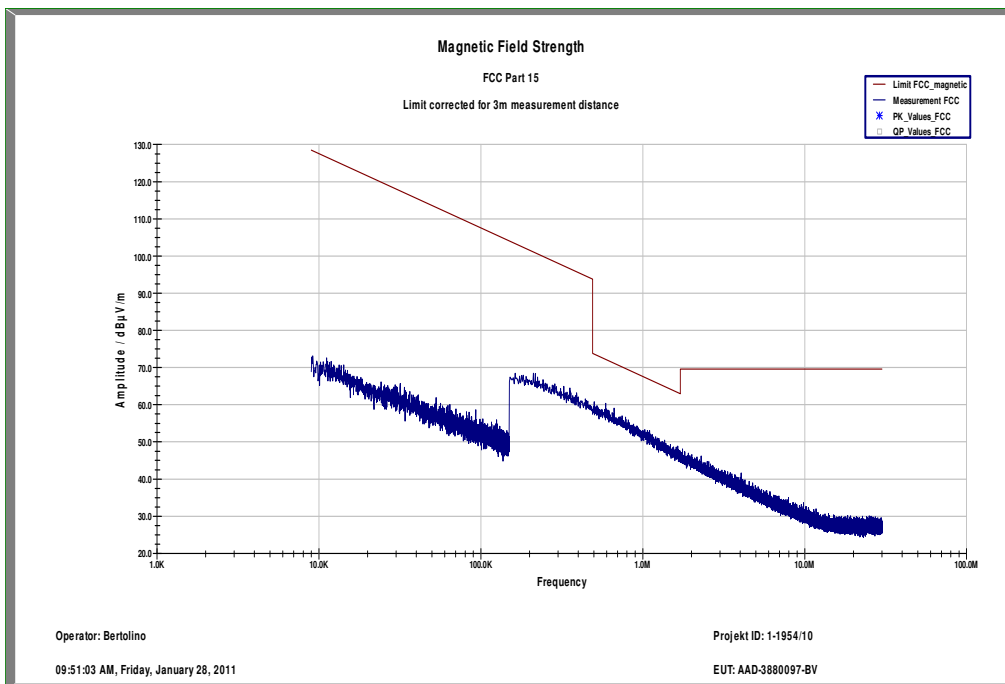
Plot 2: middle channel



Plot 3: highest channel



Plot 1: Idle / RX mode



### 9.13 TX spurious emissions conducted < 30 MHz

**Description:**

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is repeated for DSSS and OFDM modulation. If critical peaks are found channel 1 and channel 11 will be measured too. The measurement is performed with the data rate producing the highest output power. Both power lines, phase and neutral line, are measured. Found peaks are remeasured with average and quasi peak detection to show compliance to the limits.

**Measurement:**

Measurement parameter	
Detector:	Peak - Quasi Peak / Average
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

**Limits:**

FCC		IC	
CFR Part 15.107(a)		ICES-003, Issue 4	
TX Spurious Emissions Conducted < 30 MHz			
Frequency (MHz)	Quasi-Peak (dBµV/m)	Average (dBµV/m)	
0.15 – 0.5	66 to 56*	56 to 46*	
0.5 – 5	56	46	
5 – 30.0	60	50	

\*Decreases with the logarithm of the frequency

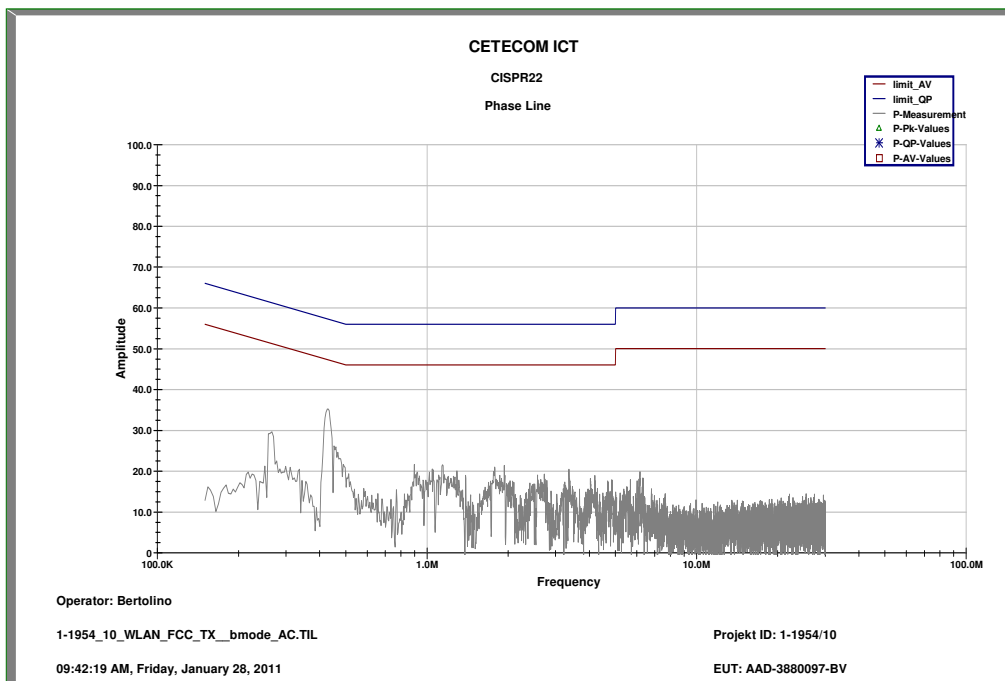
**Result:** Also see plots

TX Spurious Emissions Conducted < 30 MHz [dBμV/m]		
F [MHz]	Detector	Level [dBμV/m]
No critical peaks found.		
Measurement uncertainty	± 3 dB	

**Result:** The result of the measurement is passed.

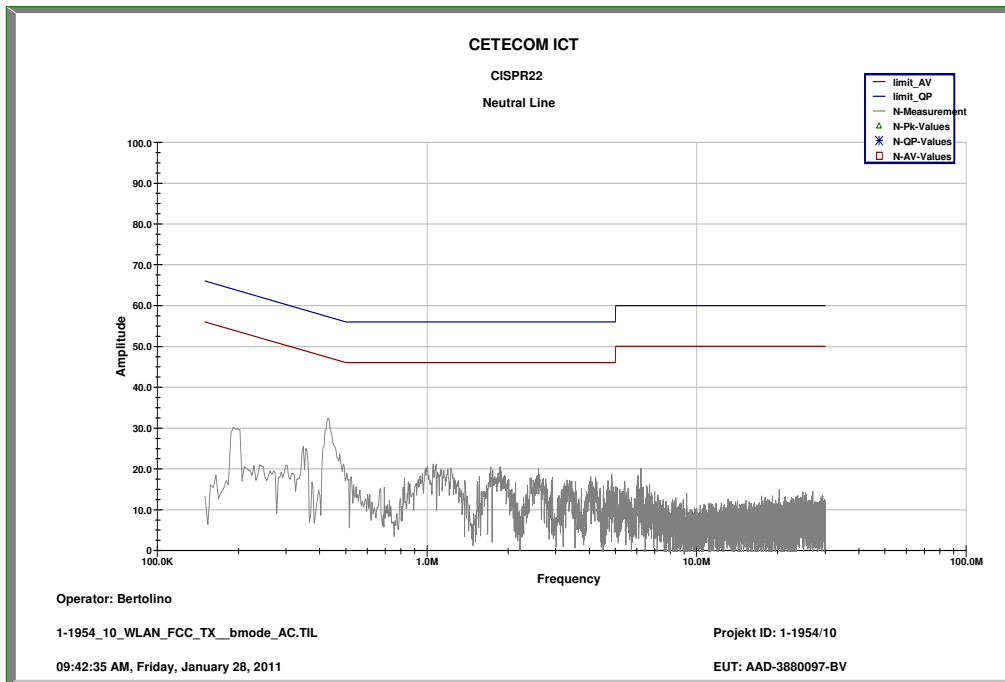
**Plots:** DSSS / b – mode (power index 21)

**Plot 1:** 9 kHz to 30 MHz, middle channel, phase line



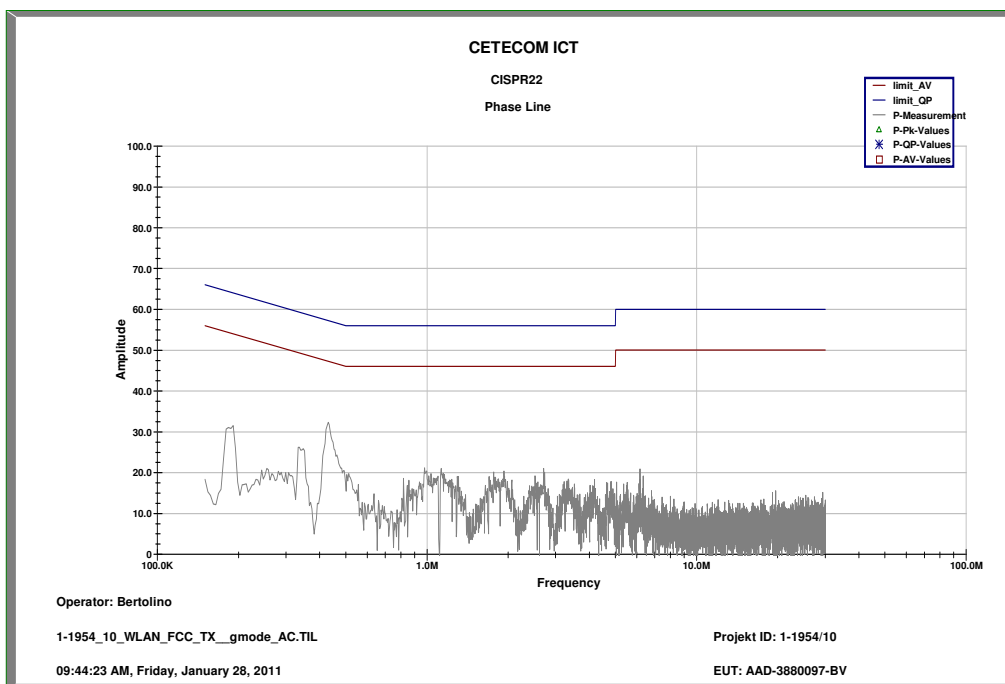


**Plot 2:** 9 kHz to 30 MHz, middle channel, neutral line

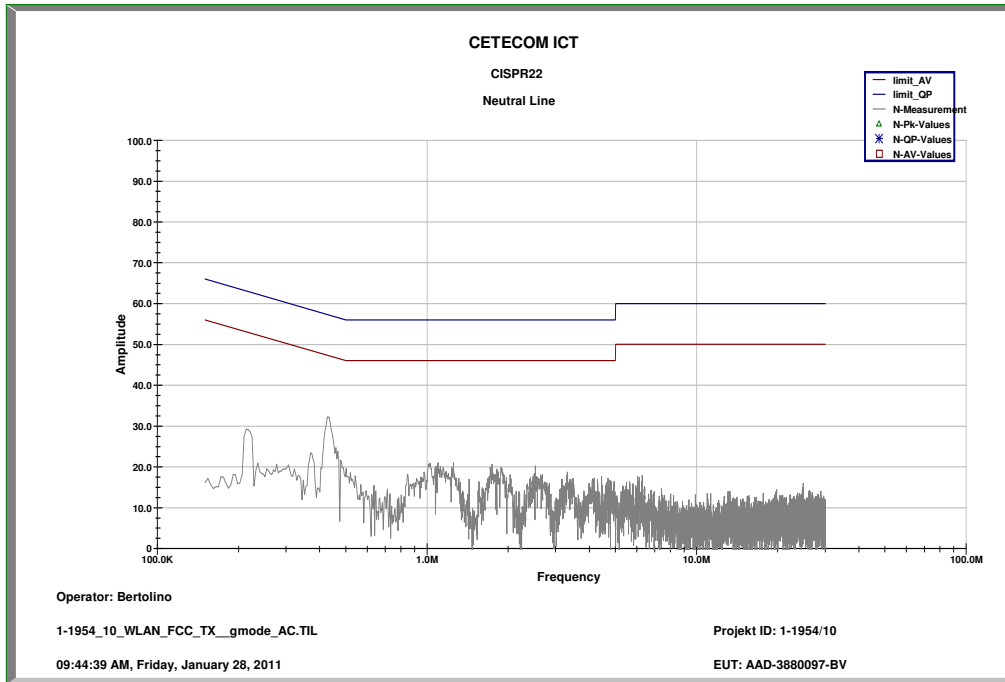


**Plots: OFDM / g – mode (power index 17)**

**Plot 1:** 9 kHz to 30 MHz, middle channel, phase line

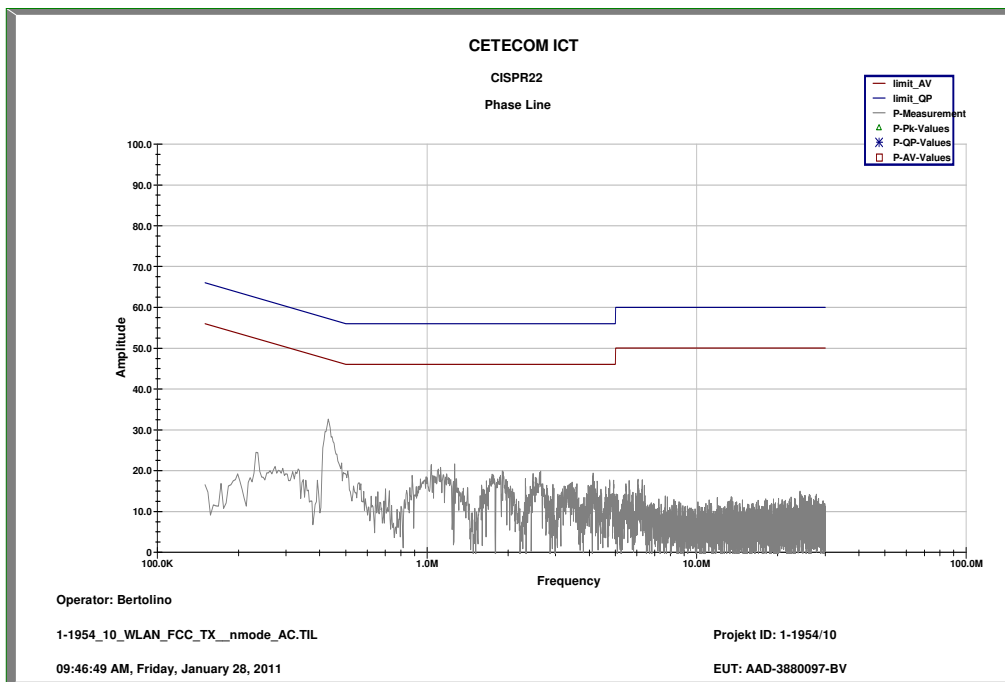


**Plot 2: 9 kHz to 30 MHz, middle channel, neutral line**

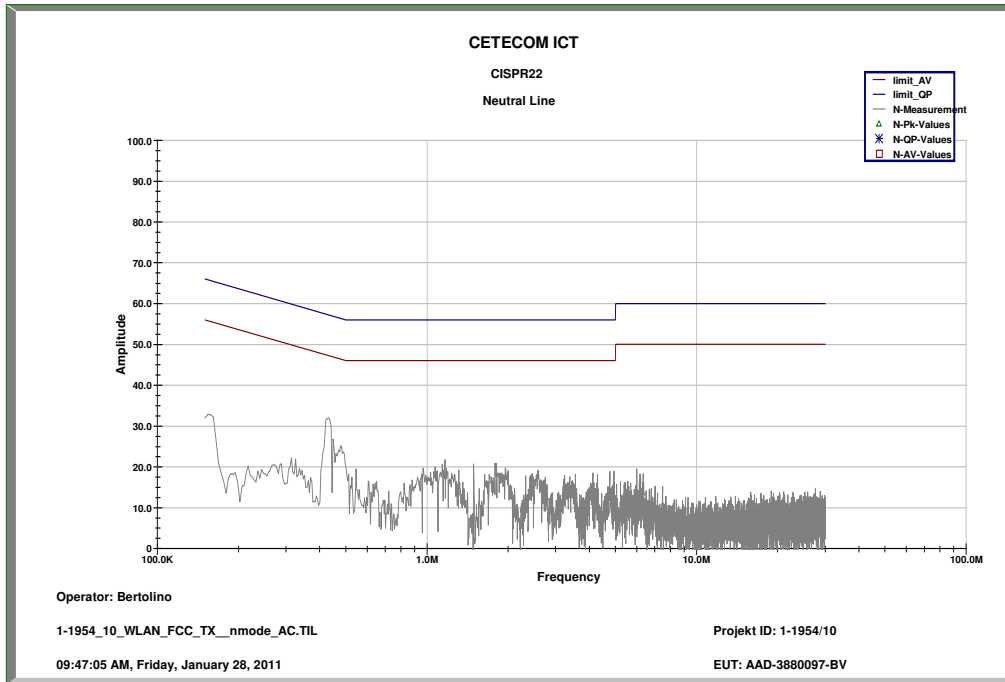


**Plots: OFDM / n – mode (power index 17)**

**Plot 1: 9 kHz to 30 MHz, middle channel, phase line**

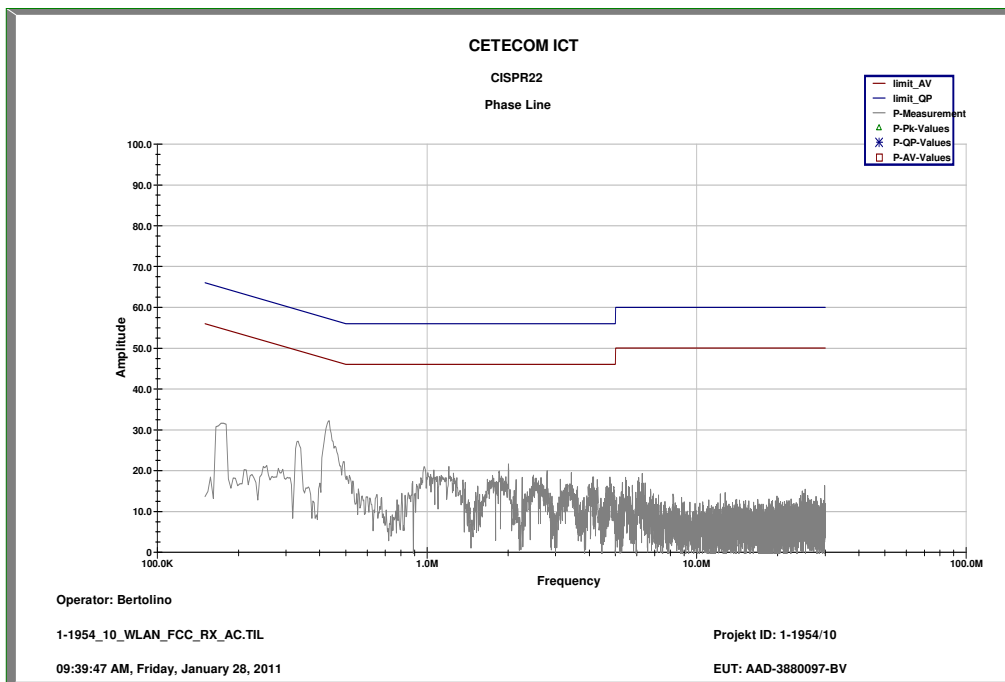


Plot 2: 9 kHz to 30 MHz, middle channel, neutral line

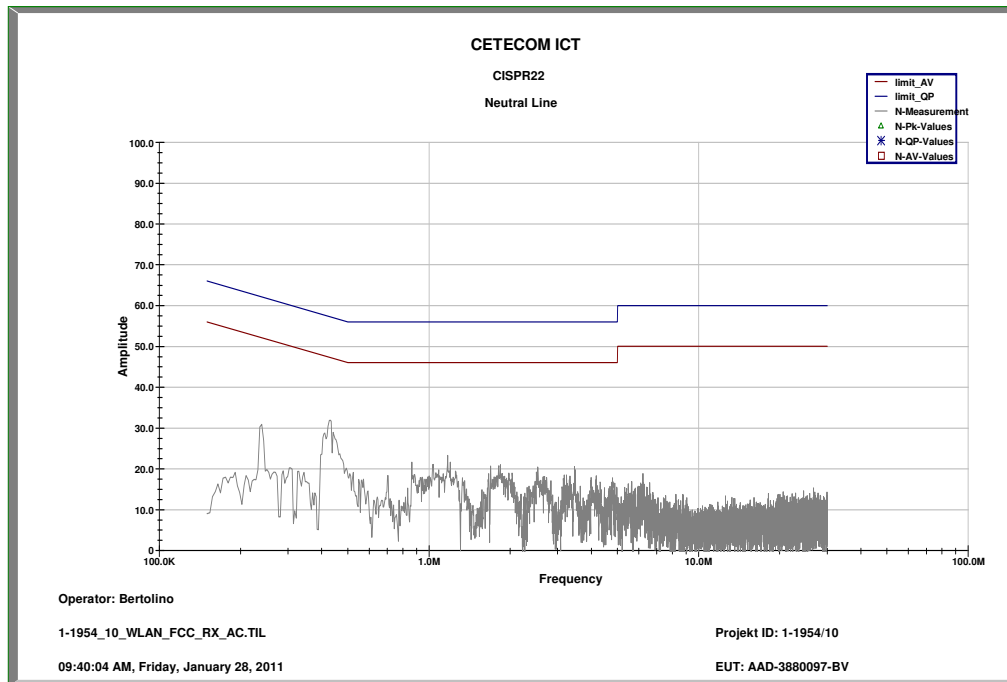


**Plots: Idle / RX mode**

Plot 1: 9 kHz to 30 MHz, Idle / RX mode, phase line



Plot 2: 9 kHz to 30 MHz, Idle / RX mode, neutral line



## 10 Test equipment and ancillaries used for tests

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).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Labor/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
2	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580	k	06.01.2009	06.01.2011
3	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B5979	300000210	ne		
4	n. a.	EMI Test Receiver	ESCI 1166.5950.03	R&S	100083	300003312	k	08.01.2010	08.01.2012
5	n. a.	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	01.06.2009	01.06.2011
6	n. a.	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379	ev		
7	n. a.	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
8	n. a.	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
9	n. a.	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747	izw		
10	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	01.04.2010	01.04.2012
11	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	08.01.2010	08.01.2012
12	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
13	n. a.	PowerAttenuator	8325	Byrd	1530	300001595	ev		
14	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	viKI!	05.03.2009	05.03.2011
15	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
16	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996		23.03.2009	
17	9	Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	Ve	06.01.2010	06.01.2012
18	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
19	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
20	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
21	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
22	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
23	n. a.	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
24	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
25	n. a.	Highpass Filter	WHKX7.0/18G-	Wainwright	18	300003789	ne		

			8SS						
26	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k	08.09.2010	08.09.2012
27	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vlKI!	08.09.2010	08.09.2012
28	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vlKI!	17.12.2008	17.12.2011
29	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000787	ne		
30	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300002442	ne		
31	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve	01.07.2010	01.07.2012
32	11b	Microwave System Amplifier, 0.5-26.5 GHz; 25 dB gain	83017A	HP Meßtechnik	3123A00105	300002268	ev		

**Agenda:** Kind of Calibration

k calibration / calibrated  
 ne not required (k, ev, izw, zw not required)  
 ev periodic self verification  
 Ve long-term stability recognized  
 vlKI! Attention: extended calibration interval  
 NK! Attention: not calibrated

EK limited calibration  
 zw cyclical maintenance (external cyclical maintenance)  
 izw internal cyclical maintenance  
 g blocked for accredited testing  
 \*) next calibration ordered / currently in progress