

**CETECOM™**

**CETECOM ICT Services**  
consulting - testing - certification >>>

## TEST REPORT

Test report no.: 1-4254/12-19-08-C



Deutsche  
Akkreditierungsstelle  
D-PL-12076-01-01

### Testing laboratory

**CETECOM ICT Services GmbH**  
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#### Accredited Testing Laboratory:

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS). The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01  
Area of Testing: Radio/Satellite Communications

### Applicant

**Sony Mobile Communications AB**  
Nya Vattentomet  
22188 Lund / SWEDEN  
Phone: +46 46 19 30 00  
Fax: +46 46 19 32 95  
Contact: Håkan Sjöberg  
e-mail: [hakan.sjoberg@sonymobile.com](mailto:hakan.sjoberg@sonymobile.com)  
Phone: +46 46 19 35 59

### Manufacturer

**Sony Mobile Communications AB**  
Nya Vattentomet  
22188 Lund / SWEDEN

### Test standard/s

47 CFR Part 15 Title 47 of the Code of Federal Regulations; Chapter I  
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:** GSM Mobile Phone GPRS/EGPRS 850/900/1800/1900; UMTS FDDI/FDDV/FDDVI/FDDXIX; HSPA; LTE Band 1; BT3.1; WLAN a/b/g/n; AGPS; RFID, FM Rx  
**Model name:** PM-0000-BV  
**FCC ID:** PY7PM-0000  
**IC:** 4170B-PM-0000  
**Frequency:** ISM band 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz  
**Technology tested:** WLAN a, n HT20 and n HT40  
**Antenna:** Integrated antenna  
**Power Supply:** 3.7 V DC by Li-ion battery  
**Temperature Range:** -20°C to +55 °C

### Test report authorised:

  
2012-06-18 Stefan Bös  
Senior Testing Manager

### Test performed:

  
2012-06-18 Marco Bertolino  
Testing Manager

**1 Table of contents**

1 Table of contents ..... 2

2 General information ..... 3

    2.1 Notes and disclaimer ..... 3

    2.2 Application details ..... 3

3 Test standard/s ..... 3

4 Test environment ..... 4

5 Test item ..... 4

6 Test laboratories sub-contracted ..... 4

7 Summary of measurement results ..... 5

8 RF measurements ..... 6

    8.1 Description of test setup ..... 6

        8.1.1 Radiated measurements ..... 6

        8.1.2 Conducted measurements ..... 7

    8.2 Additional comments ..... 7

    8.3 RSP100 test report cover sheet / performance test data ..... 8

9 Measurement results ..... 9

    9.1 Output power verification (conducted) ..... 9

    9.2 Antenna Gain ..... 22

    9.3 Duty cycle ..... 28

    9.4 Maximum output power conducted and radiated ..... 30

    9.5 Power spectral density ..... 46

    9.6 Spectrum bandwidth – 26 dB bandwidth ..... 59

    9.7 Peak excursion measurements ..... 72

    9.8 Band edge compliance radiated ..... 85

    9.9 TX spurious emissions radiated ..... 89

    9.10 RX spurious emissions radiated ..... 112

    9.11 Spurious emissions radiated < 30 MHz ..... 116

    9.12 Spurious emissions conducted < 30 MHz ..... 118

10 Test equipment and ancillaries used for tests ..... 121

11 Observations ..... 122

Annex A Photographs of the test setup ..... 123

Annex B External photographs of the EUT ..... 126

Annex C Internal photographs of the EUT ..... 132

Annex D Document history ..... 140

Annex E Further information ..... 140

Annex F Accreditation Certificate ..... 141

## 2 General information

### 2.1 Notes and disclaimer

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 generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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In no case this test report can be considered as a Letter of Approval.

### 2.2 Application details

Date of receipt of order:	2012-03-27
Date of receipt of test item:	2012-04-25
Start of test:	2012-04-25
End of test:	2012-04-27
Person(s) present during the test:	-/-

## 3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 15	2010-10	Title 47 of the Code of Federal Regulations; Chapter I 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:	$T_{nom}$	+22 °C during room temperature tests
	$T_{max}$	+55 °C during high temperature tests
	$T_{min}$	-20 °C during low temperature tests
Relative humidity content:		48 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	$V_{nom}$	3.7 V DC by Li-ion battery
	$V_{max}$	4.1 V
	$V_{min}$	3.3 V

#### 5 Test item

Kind of test item	:	GSM Mobile Phone GPRS/EGPRS 850/900/1800/1900; UMTS FDDI/FDDV/FDDVI/FDDXIX; HSPA; LTE Band 1; BT3.1; WLAN a/b/g/n; AGPS; RFID, FM Rx
Type identification	:	PM-0000-BV
S/N serial number	:	Radiated units: CB5A1JYNK9; CB5A1JYNGV Conducted units: CB5A1JYNGR; CB5A1JYNK5
HW hardware status	:	AP1
SW software status	:	s_atp_hayabusa_0_0_37_0_b
Frequency band [MHz]	:	ISM band 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz
Type of radio transmission	:	OFDM
Use of frequency spectrum	:	
Channel access method	:	FDMA
Type of modulation	:	QPSK, 16 – QAM, 64 – QAM
Number of channels	:	19
Antenna	:	Integrated antenna
Power supply	:	3.7 V DC by Li-ion battery
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 8, Annex 8	Passed	2012-06-18	-/-

Test specification clause	Test case	Temperature conditions	Power source voltages	Pass	Fail	NA	NP	Results (max.)
-/-	Output power verification (conducted)	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No passed / fail criteria!
-/-	Gain	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No passed / fail criteria!
U-II Part 15	Duty cycle	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No passed / fail criteria!
§15.407(a) RSS-210	Maximum output power (conducted & radiated)	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a) RSS-210	Power spectral density	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a) RSS-210	Spectrum bandwidth 26dB bandwidth	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a) RSS-210	Peak excursion measurements	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.205 RSS-210	Band edge compliance radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(b) RSS-210	TX spurious emissions radiated	Nominal	Nominal	<input checked="" 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	Spurious emissions radiated < 30 MHz	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.107(a)	Spurious emissions conducted emissions < 30 MHz	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies

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

## 8 RF measurements

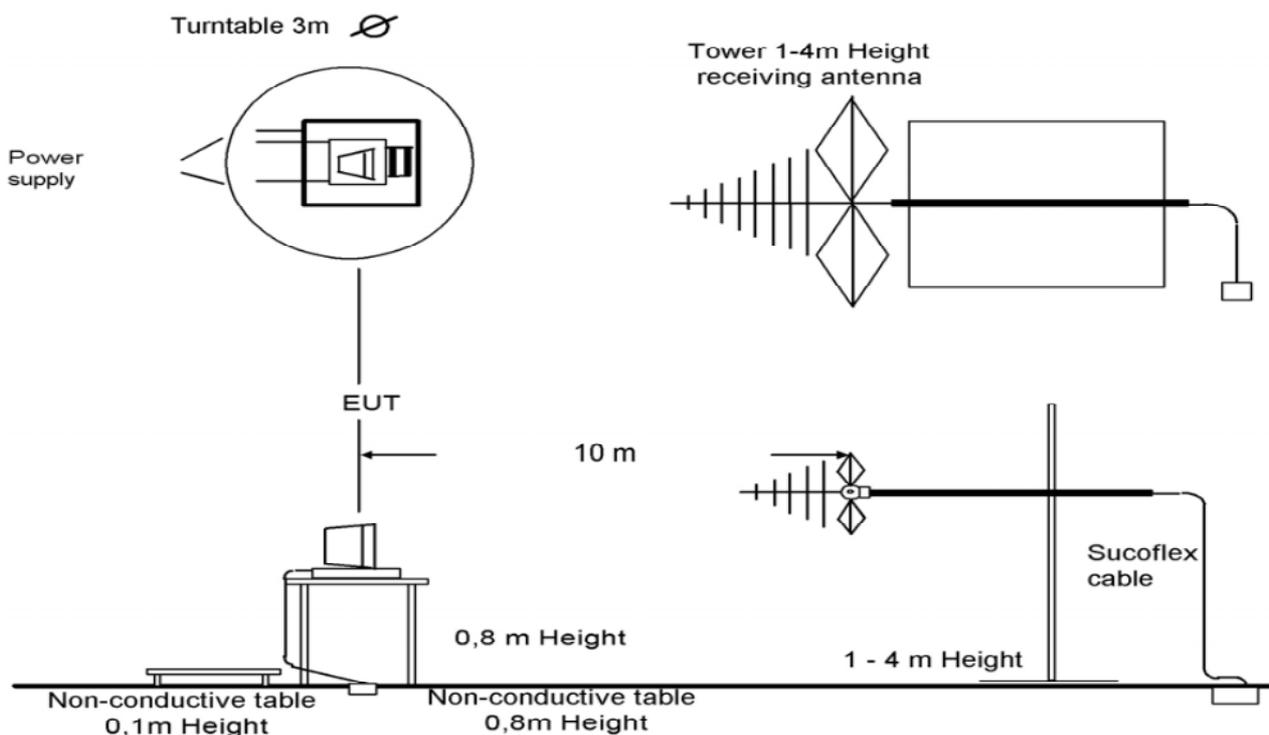
### 8.1 Description of test setup

#### 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



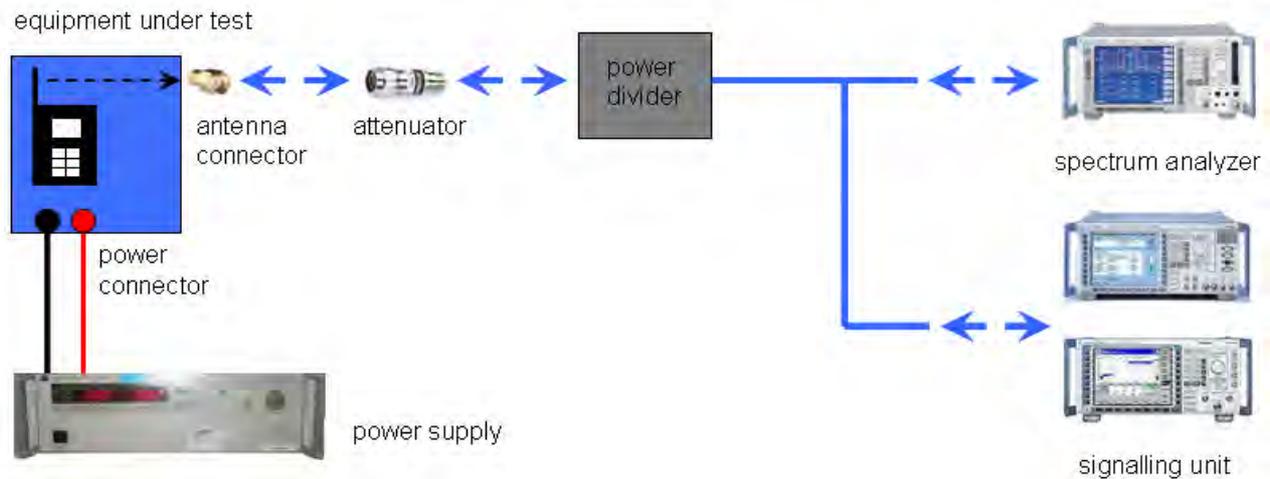
Picture 1: Diagram radiated measurements

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

### 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: Sony Mobile command list for WLAN

Special test descriptions:  
 OFDM / a – mode setting → channel, data rate, 2,1000,10,0,6  
 OFDM / n – mode HT20 setting → channel, data rate, 3,1000,10,0,6  
 OFDM / n – mode HT40 setting → channel, data rate, 3,1000,10,0,6,1

Configuration descriptions: None

Test mode:

- No test mode available.
- 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	:	1-4254/12-19-08-C
Equipment model number	:	PM-0000-BV
Certification number	:	4170B-PM-0000
Manufacturer (complete address)	:	Sony Mobile Communications AB Nya Vattentorget 22188 Lund / SWEDEN
Tested to radio standards specification no.	:	RSS 210, Issue 8
Open area test site IC No.	:	IC 3462C-1
Frequency range	:	ISM band 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz
RF-power [mW] (max.)	:	Conducted: OFDM / a – mode: 2.07 OFDM / n – mode HT20: 2.04 OFDM / n – mode HT40: 1.99  Radiated: OFDM / a – mode: 3.88 OFDM / n – mode HT20: 3.87 OFDM / n – mode HT40: 3.82
Occupied bandwidth (99%-BW) [MHz]	:	OFDM / a – mode: 21.41 OFDM / n – mode HT20: 20.90 OFDM / n – mode HT40: 41.28
Type of modulation	:	OFDM with QPSK, 16 – QAM, 64 – QAM
Emission designator (TRC-43)	:	OFDM / a – mode: 21M4G7D OFDM / n – mode HT20: 20M9G7D OFDM / n – mode HT40: 41M3G7D
Antenna information	:	Integrated antenna
Transmitter spurious (worst case)[dB $\mu$ V/m @ 3m]:	:	45 @ 12 GHz (noise floor)
Receiver spurious (worst case) [dB $\mu$ V/m @ 3m]:	:	45 @ 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:

2012-06-18

Date

Marco Bertolino

Name



Signature

## 9 Measurement results

### 9.1 Output power verification (conducted)

**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.

Used measurement option: 5.2.1.1 PK1

**Measurement:**

Measurement parameter	
Detector:	Peak
Sweep time:	5s
Resolution bandwidth:	> EBW
Video bandwidth:	≥ 3 x RBW (or the maximum of the analyzer)
Span:	Zero span
Trace-Mode:	Max hold (allow trace to fully stabilize)

**Results:**

OFDM / a – mode Data Rate [MBit/s]	Maximum Output Power Conducted [dBm]							
	6	9	12	18	24	36	48	54
Ch 48 - 5240 MHz	12.33	11.52	11.27	11.93	11.07	11.10	11.23	10.98
Measurement uncertainty	± 0.5 dB							

OFDM / n – mode HT 20 Data Rate [MBit/s]	Maximum Output Power Conducted [dBm]							
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Ch 48 - 5240 MHz	11.41	11.33	12.65	12.01	11.62	11.93	11.49	10.88
Measurement uncertainty	± 0.5 dB							

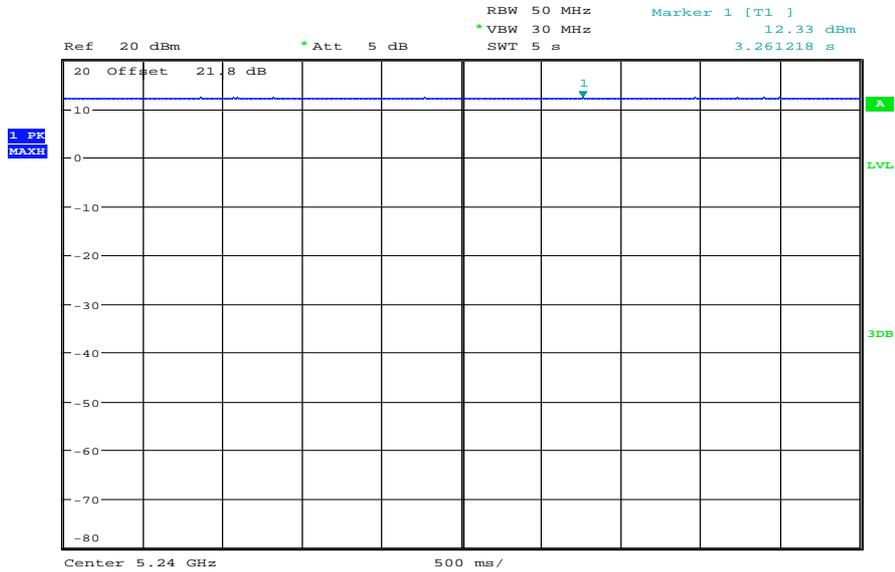
OFDM / n – mode HT40 Data Rate [MBit/s]	Maximum Output Power Conducted [dBm]							
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Ch 44 - 5230 MHz	12.11	11.25	11.45	10.89	10.88	10.85	11.87	10.41
Measurement uncertainty	± 0.5 dB							

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

OFDM / a – mode: 6 MBit/s  
 OFDM / n – mode HT20: MCS2  
 OFDM / n – mode HT40: MCS0

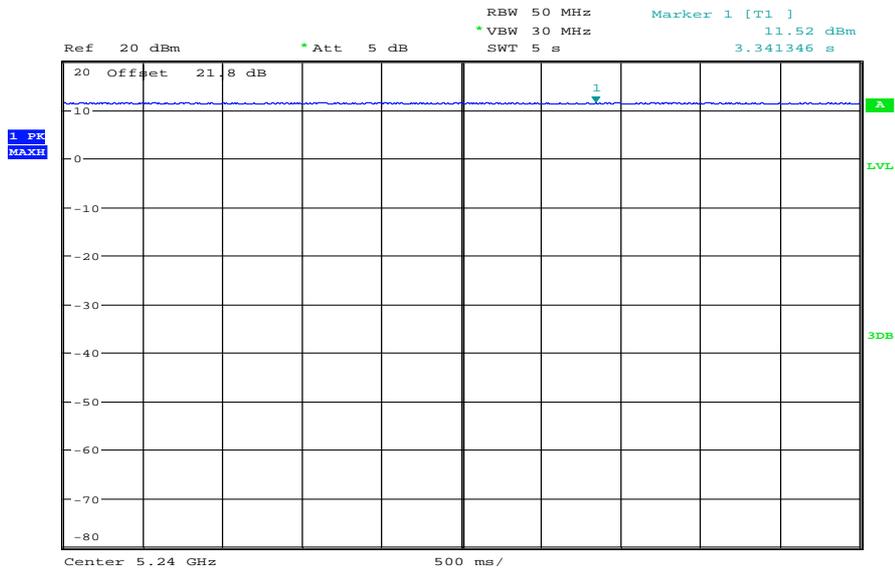
**Plots: OFDM / a – mode**

Plot 1: 6 Mbit/s



Date: 25.APR.2012 09:19:58

Plot 2: 9 Mbit/s



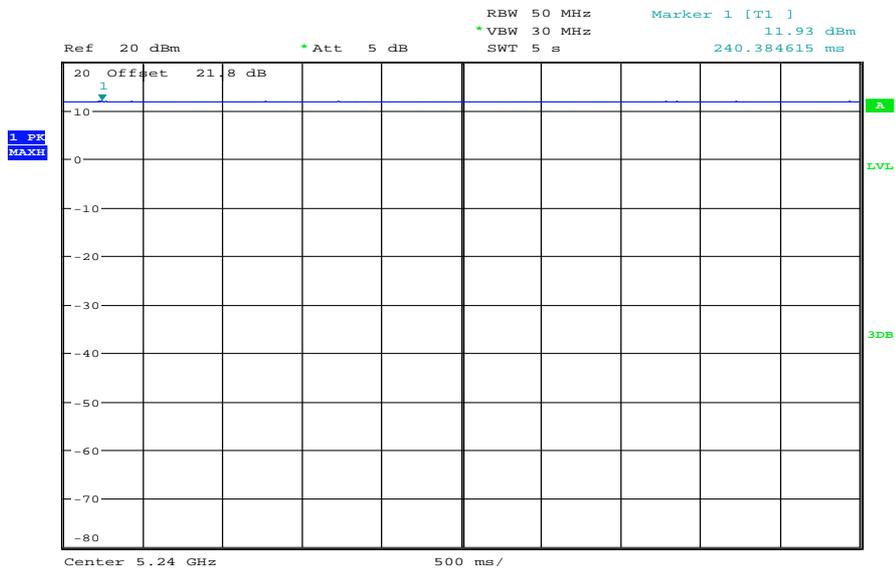
Date: 25.APR.2012 09:21:45

Plot 3: 12 Mbit/s



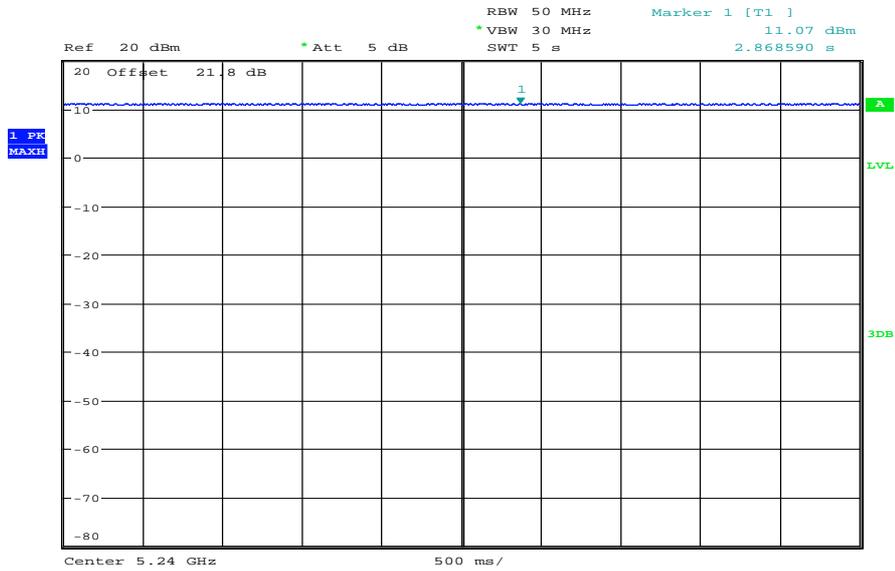
Date: 25.APR.2012 09:22:29

Plot 4: 18 Mbit/s



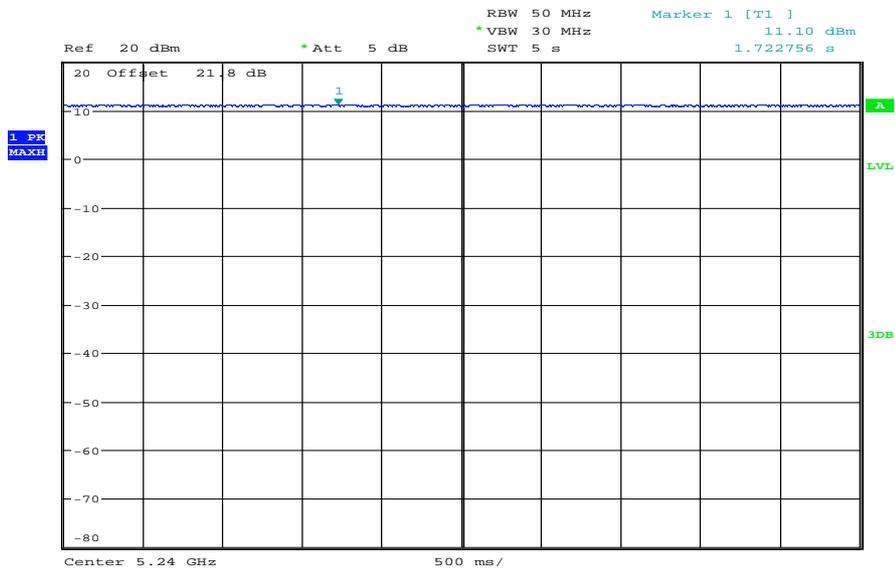
Date: 25.APR.2012 09:23:26

Plot 5: 24 Mbit/s



Date: 25.APR.2012 09:24:58

Plot 6: 36 Mbit/s



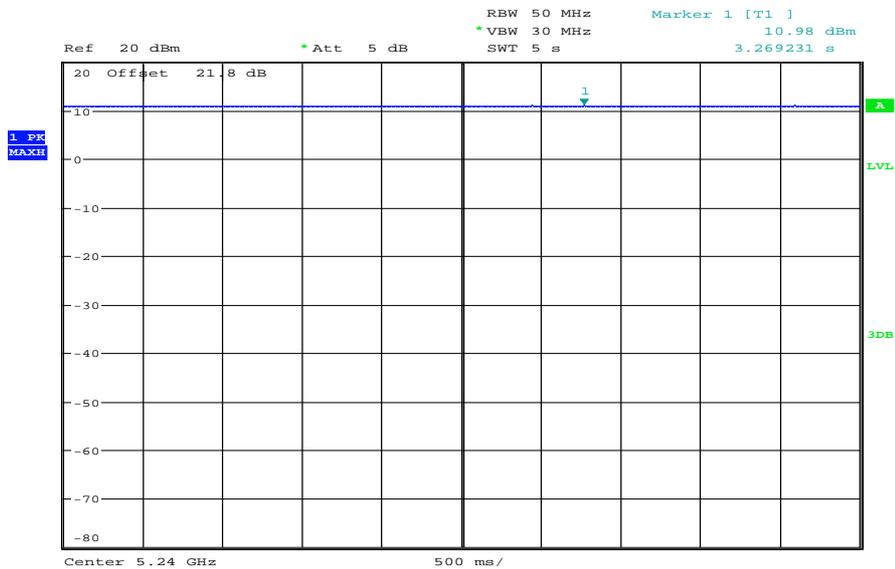
Date: 25.APR.2012 09:26:12

Plot 7: 48 Mbit/s



Date: 25.APR.2012 09:27:14

Plot 8: 54 Mbit/s



Date: 25.APR.2012 09:28:03

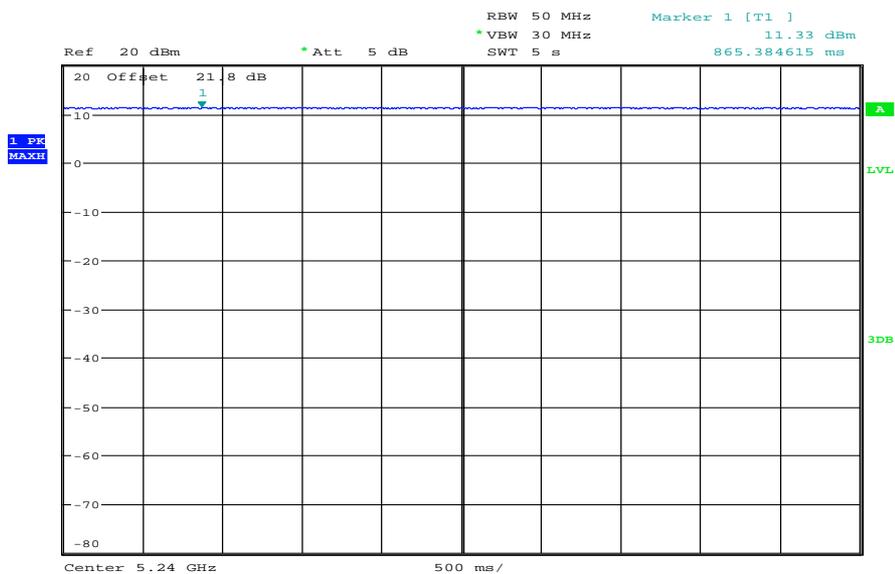
**Plots: OFDM / n – mode HT20**

Plot 1: MCS0



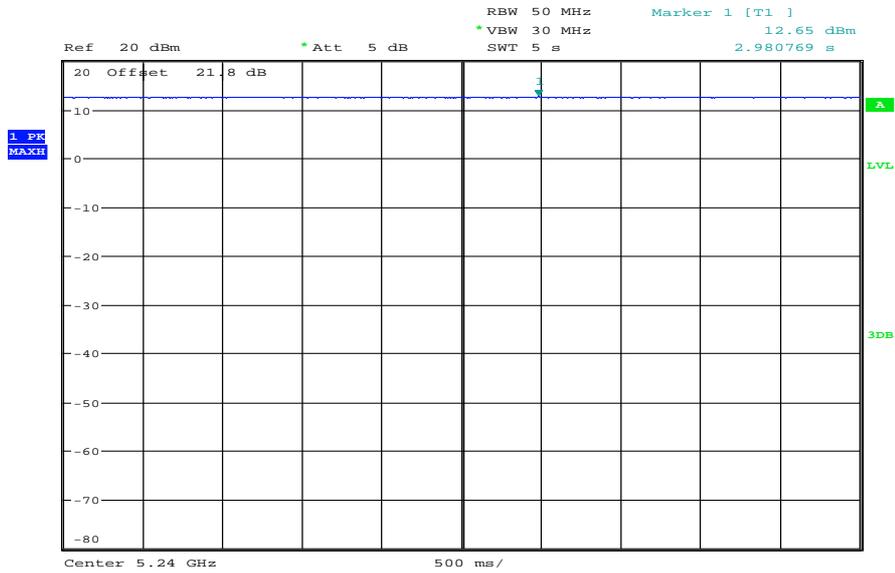
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Plot 2: MCS1



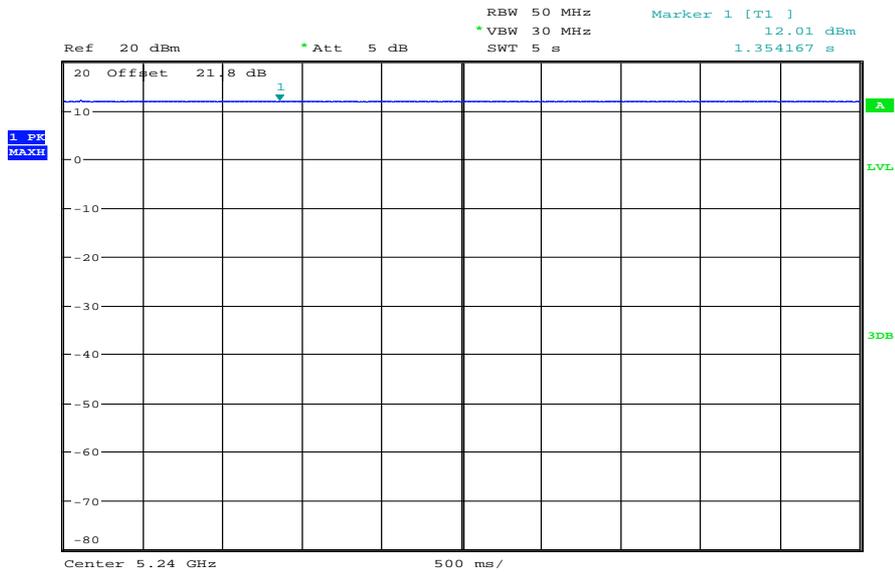
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Plot 3: MCS2



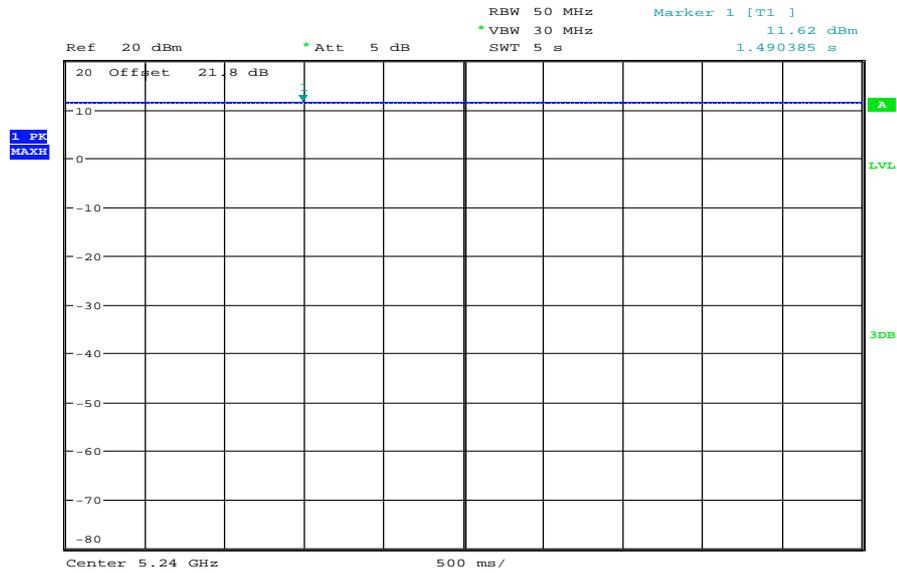
Date: 25.APR.2012 09:33:41

Plot 4: MCS3



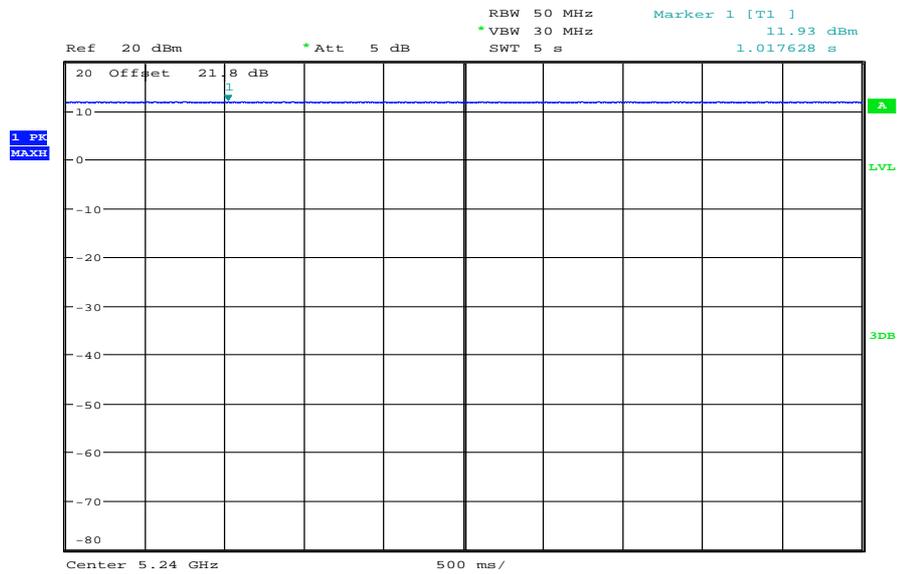
Date: 25.APR.2012 09:34:44

Plot 5: MCS4



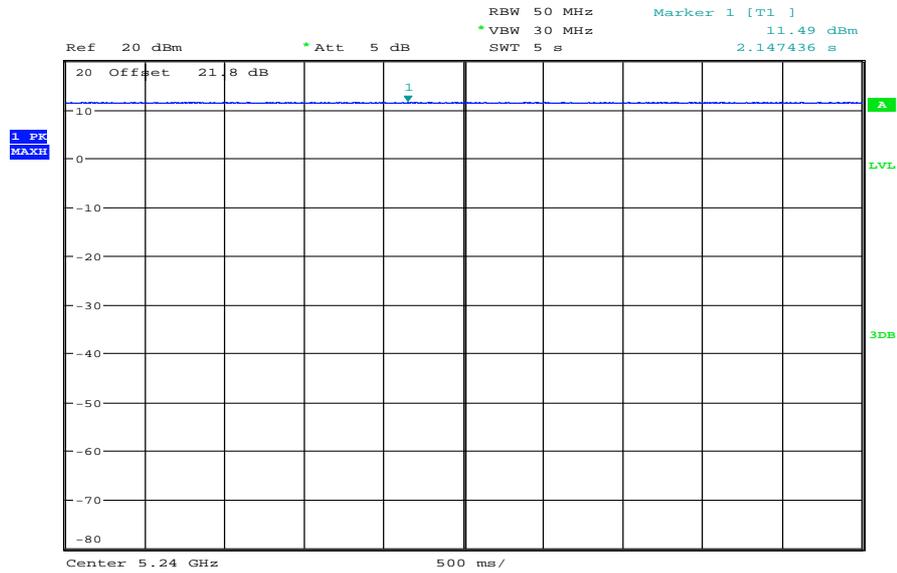
Date: 25.APR.2012 09:35:29

Plot 6: MCS5



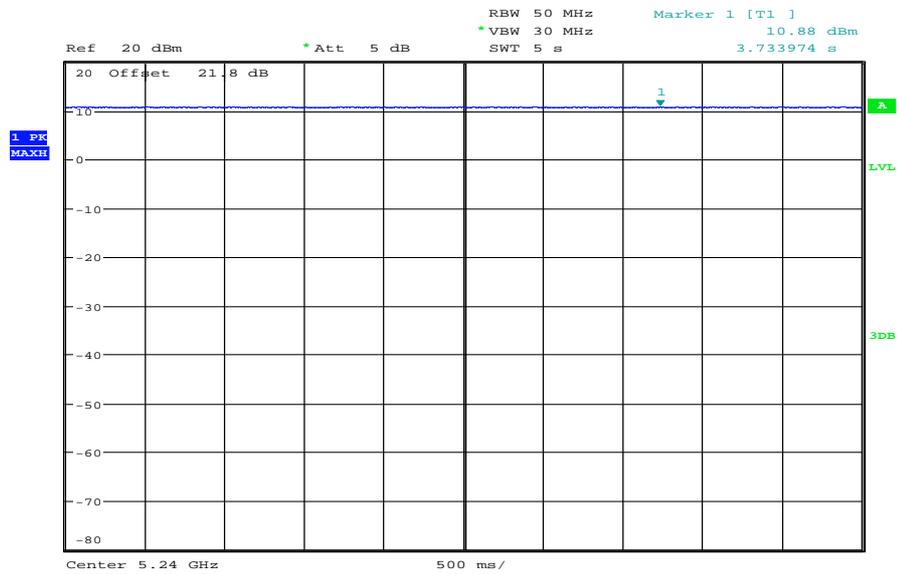
Date: 25.APR.2012 09:36:12

Plot 7: MCS6



Date: 25.APR.2012 09:37:11

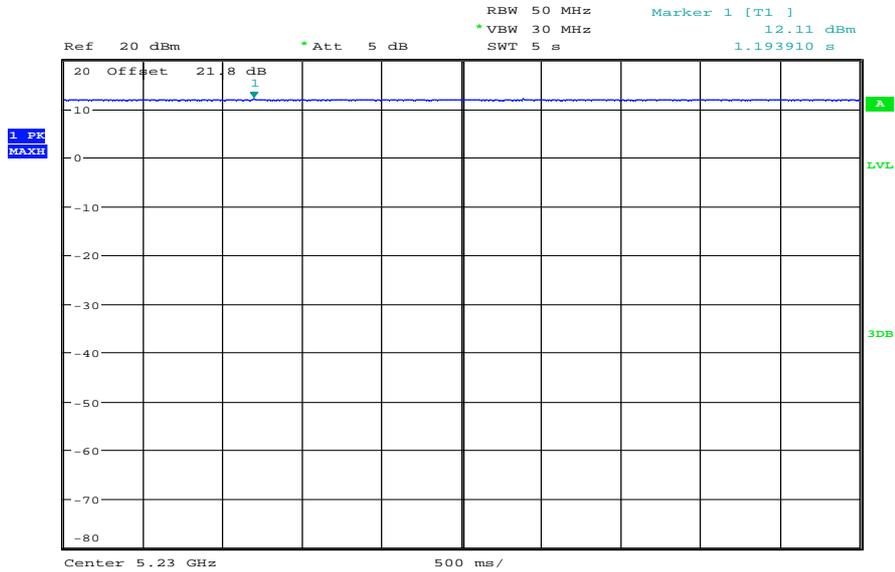
Plot 8: MCS7



Date: 25.APR.2012 09:38:30

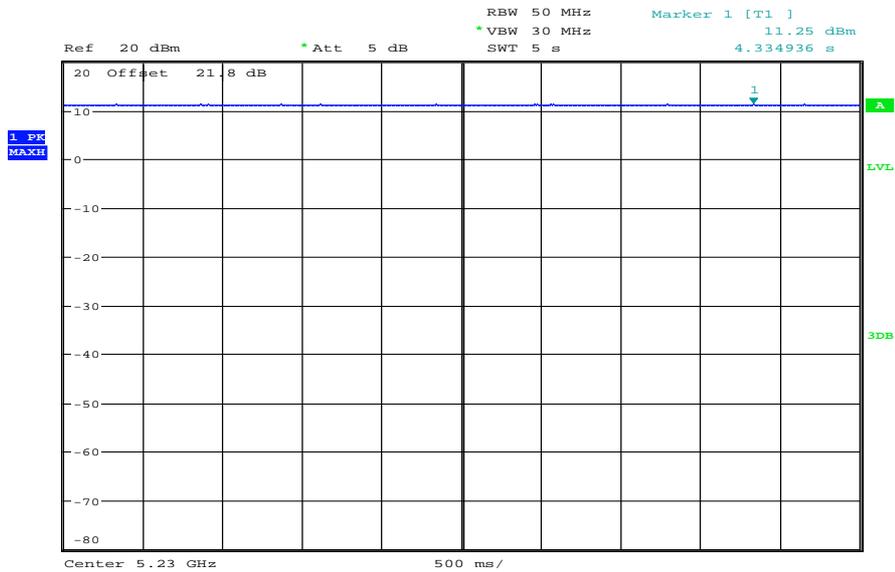
**Plots: OFDM / n – mode HT40**

Plot 1: MCS0



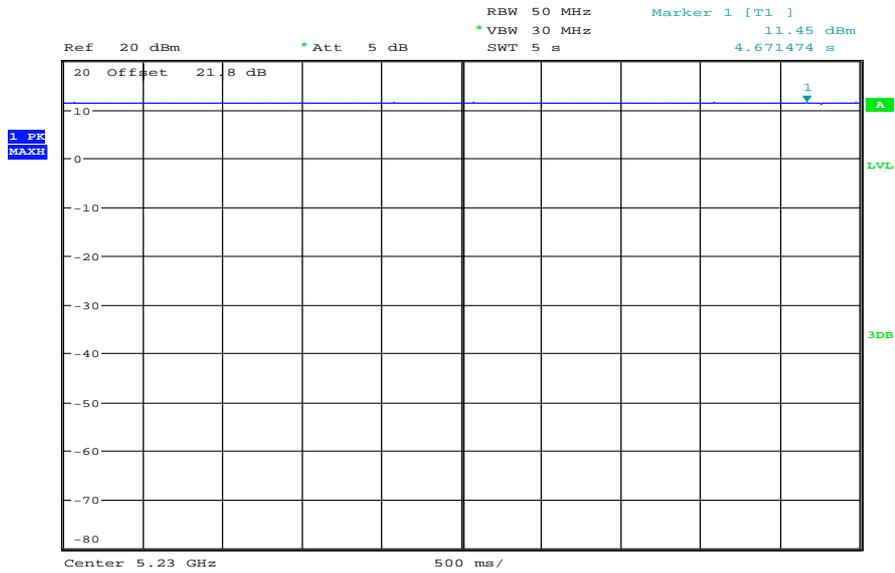
Date: 25.APR.2012 09:48:10

Plot 2: MCS1



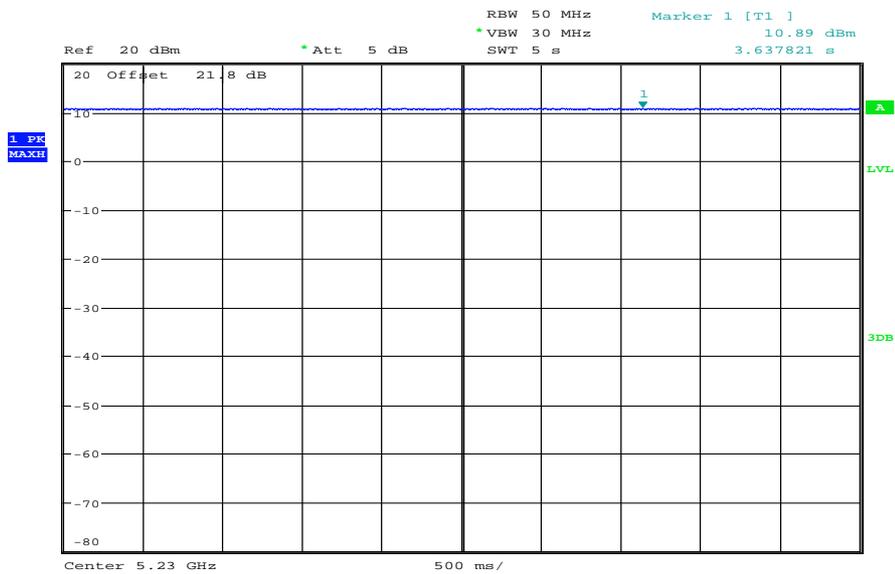
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Plot 3: MCS2



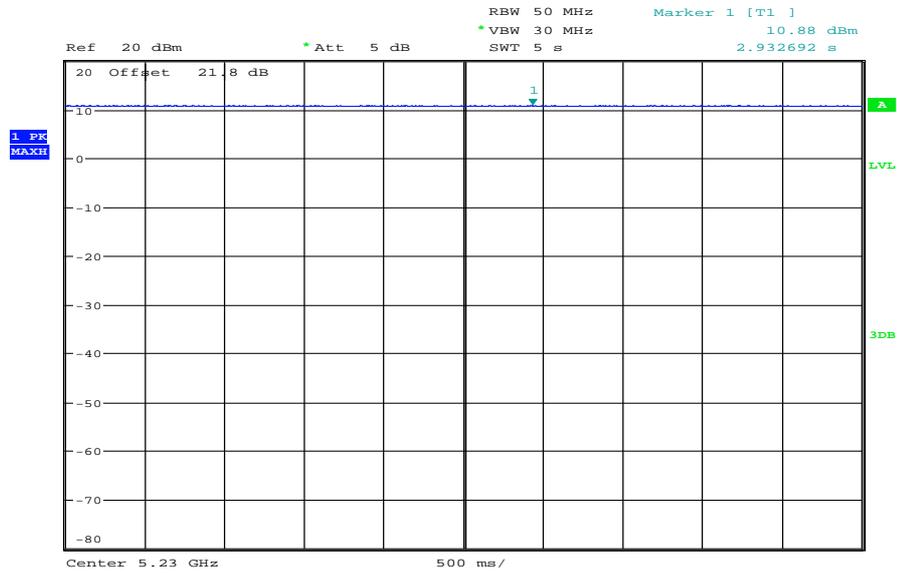
Date: 25.APR.2012 09:51:03

Plot 4: MCS3



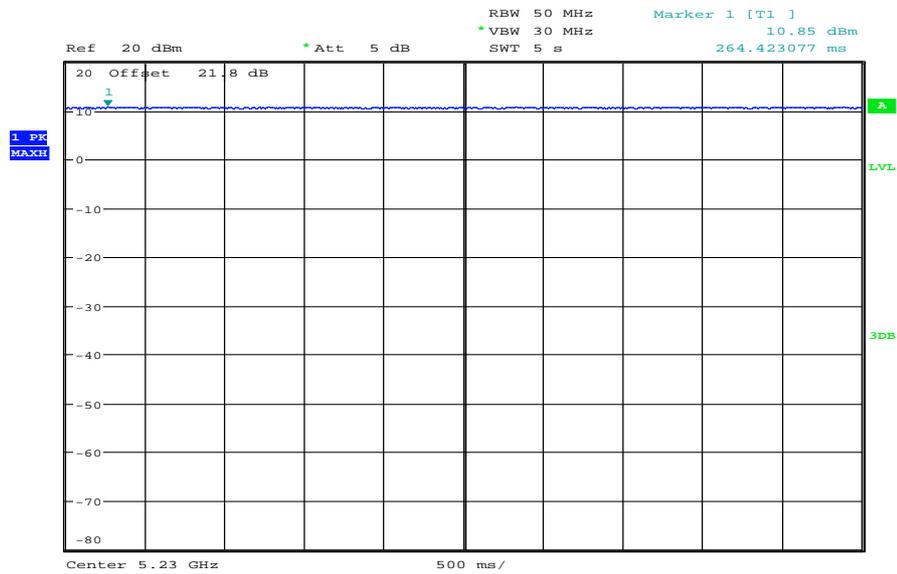
Date: 25.APR.2012 09:52:28

Plot 5: MCS4



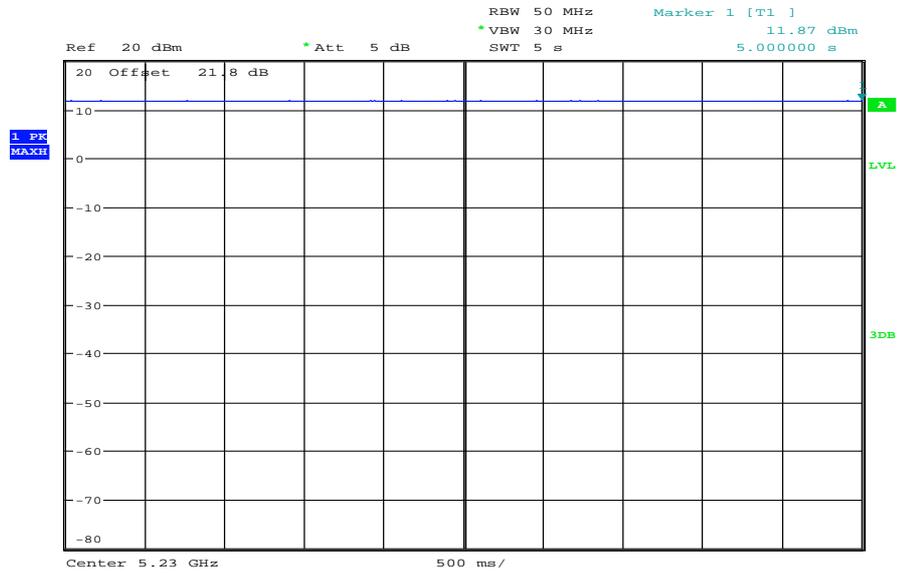
Date: 25.APR.2012 09:53:42

Plot 6: MCS5



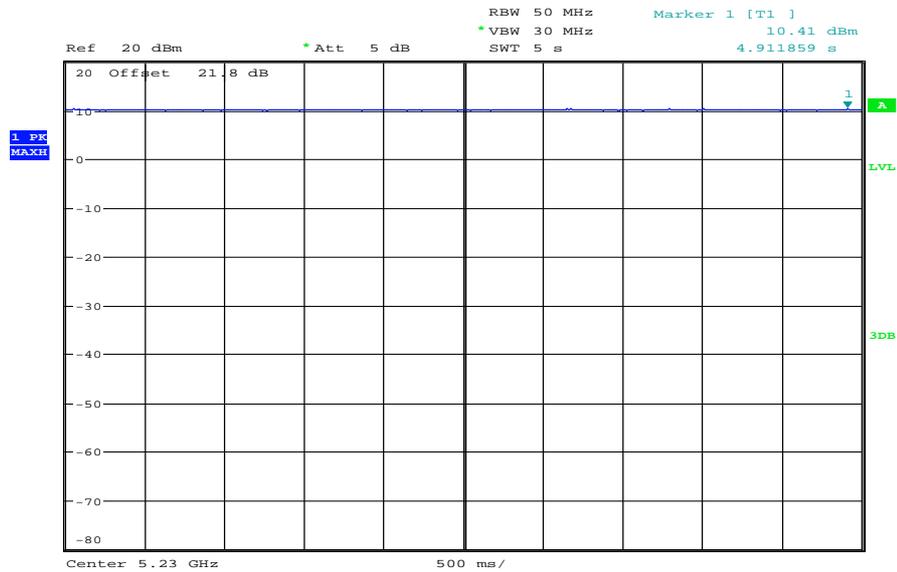
Date: 25.APR.2012 09:54:50

Plot 7: MCS6



Date: 25.APR.2012 09:55:51

Plot 8: MCS7



Date: 25.APR.2012 09:56:50

## 9.2 Antenna Gain

### Description:

Measurement of the maximum output power conducted and radiated

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	5s
Resolution bandwidth:	3 MHz
Video bandwidth:	10 MHz / 8 MHz
Span:	40 MHz
Trace-Mode:	Max Hold

### Limits:

Antenna Gain
Maximum 6 dBi

**Result:**

OFDM Channel	Gain		
	Lowest 5180 MHz	-/-	Highest 5240 MHz
Band 5150 MHz to 5250 MHz	0.66	-/-	1.72
Conducted power for gain calculation	6.01	-/-	6.09
Radiated power for gain calculation	6.67	-/-	7.81
Measurement uncertainty	± 3 dB		

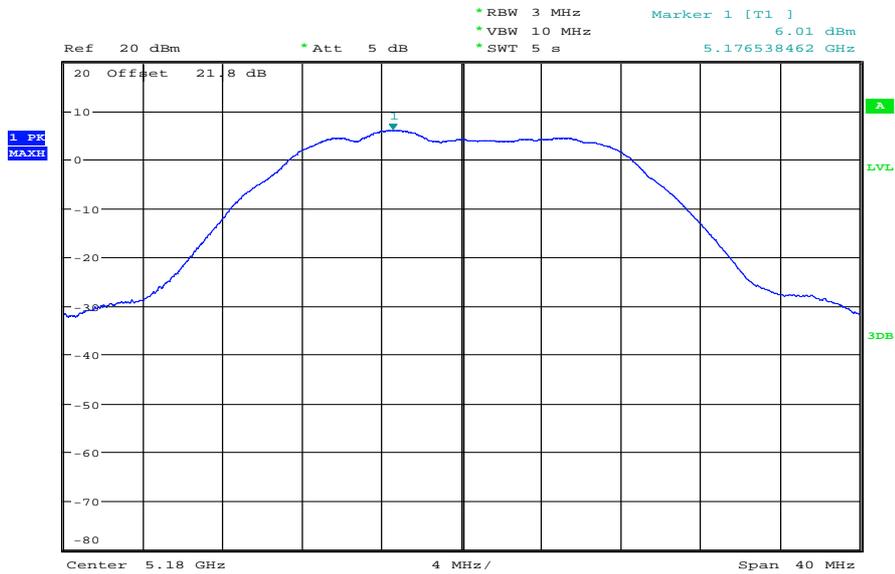
OFDM Channel	Gain		
	Lowest 5260 MHz	-/-	Highest 5320 MHz
Band 5250 MHz to 5350 MHz	1.50	-/-	2.60
Conducted power for gain calculation	5.95	-/-	7.05
Radiated power for gain calculation	7.45	-/-	9.65
Measurement uncertainty	± 3 dB		

OFDM Channel	Gain		
	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz
Band 5470 MHz to 5725 MHz	2.83	3.10	2.72
Conducted power for gain calculation	6.93	5.44	5.55
Radiated power for gain calculation	9.76	8.54	8.27
Measurement uncertainty	± 3 dB		

**Result: Passed**

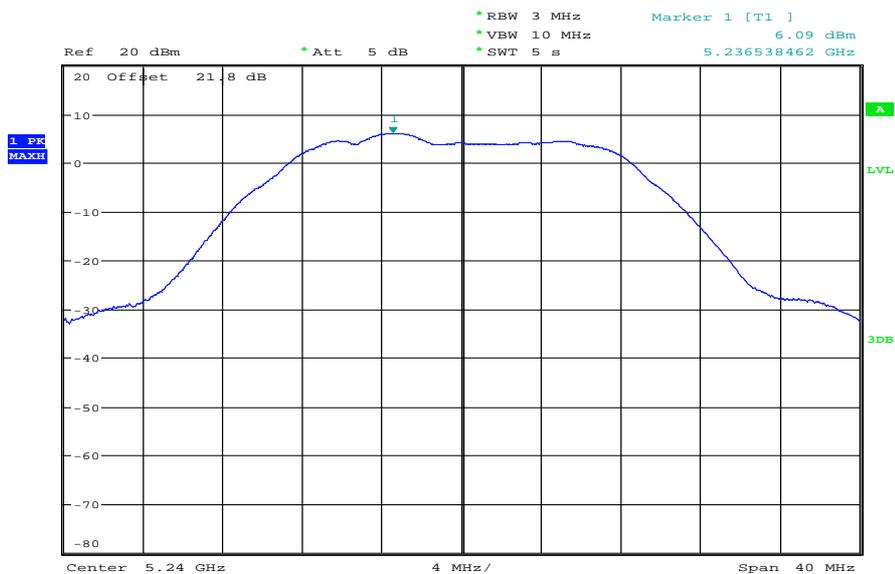
**Plots: conducted power for gain calculation**

Plot 1: OFDM / a – mode, 5180 MHz



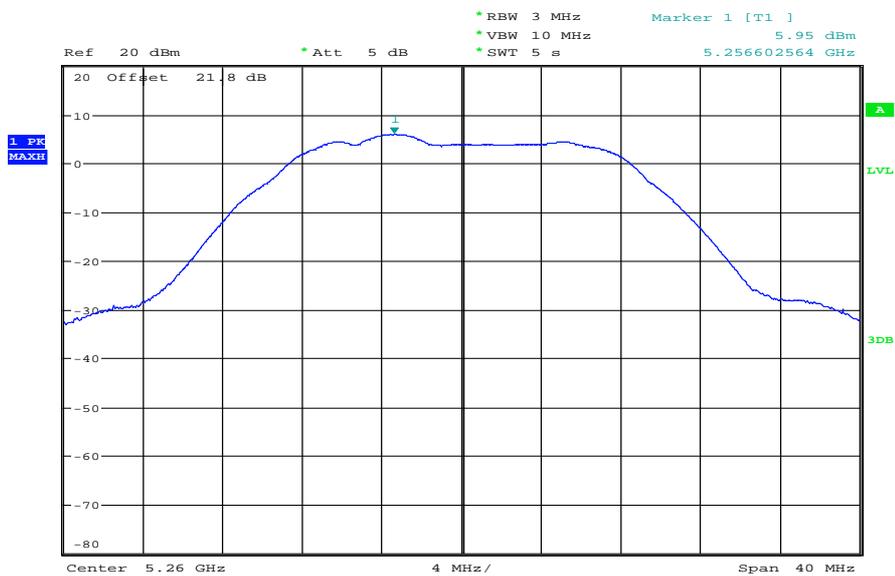
Date: 25.APR.2012 13:58:56

Plot 2: OFDM / a – mode, 5240 MHz



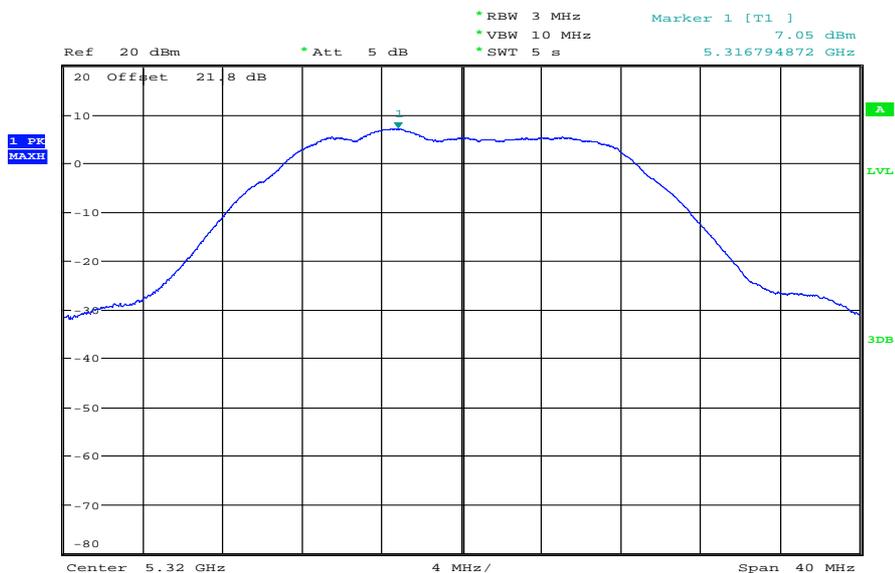
Date: 25.APR.2012 13:58:08

Plot 3: OFDM / a – mode, 5260 MHz



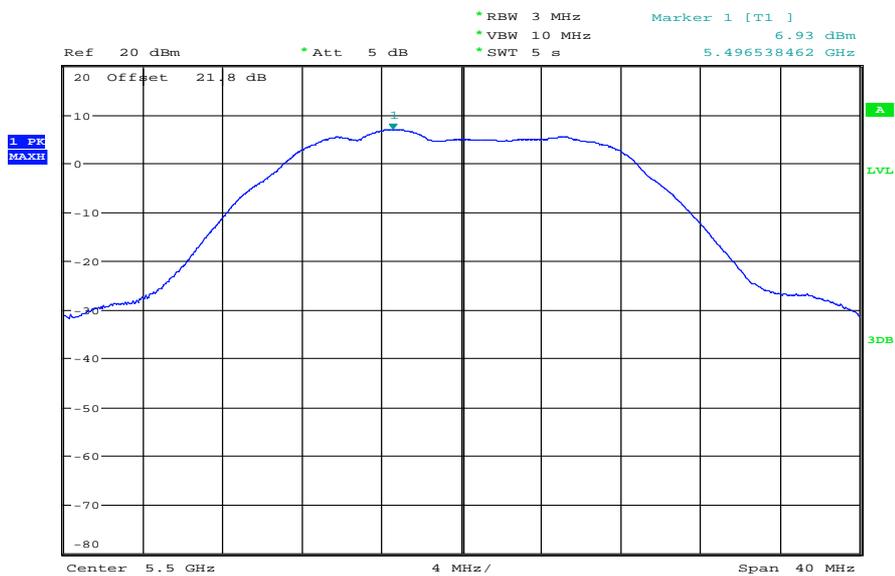
Date: 25.APR.2012 13:57:15

Plot 4: OFDM / a – mode, 5320 MHz



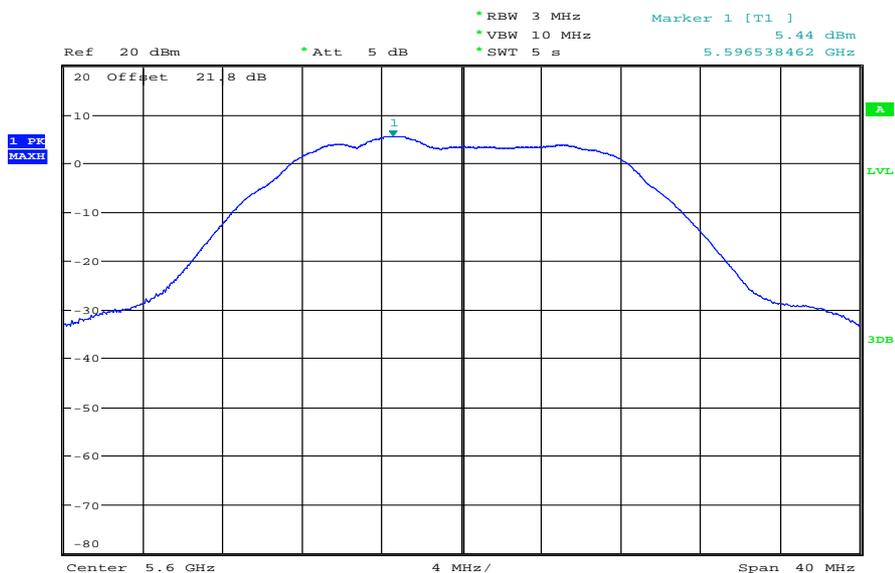
Date: 25.APR.2012 13:56:07

Plot 5: OFDM / a – mode, 5500 MHz



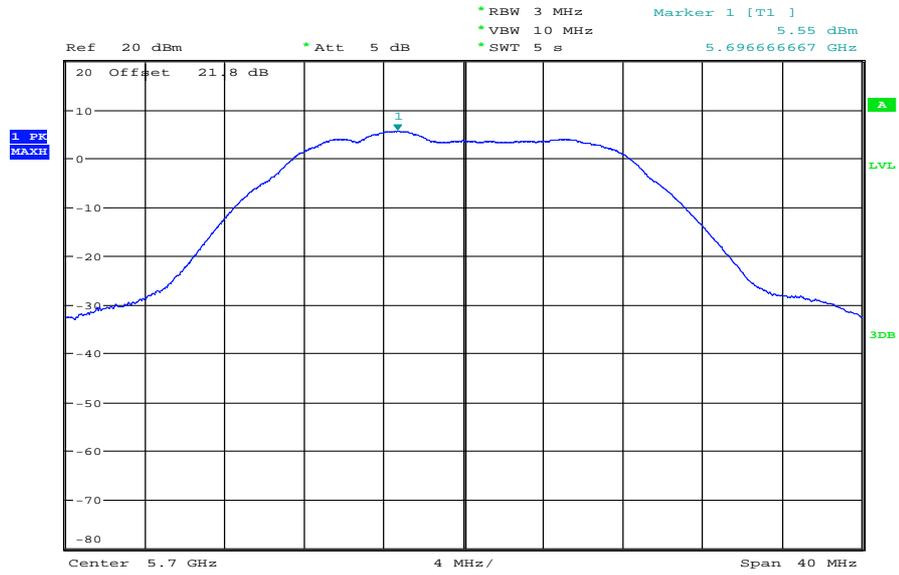
Date: 25.APR.2012 13:55:02

Plot 6: OFDM / a – mode, 5600 MHz



Date: 25.APR.2012 13:54:16

Plot 7: OFDM / a – mode, 5700 MHz



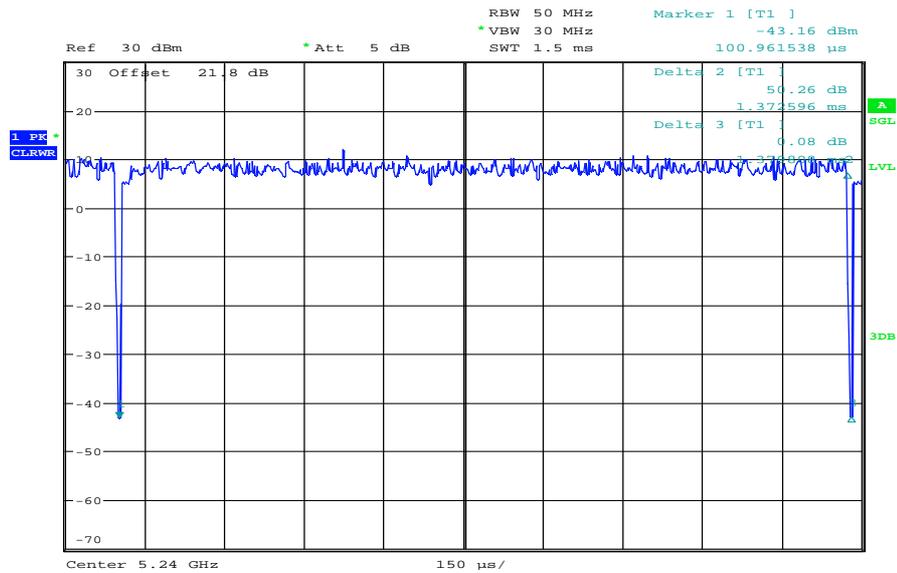
Date: 25.APR.2012 13:52:56

### 9.3 Duty cycle

**Measurement:**

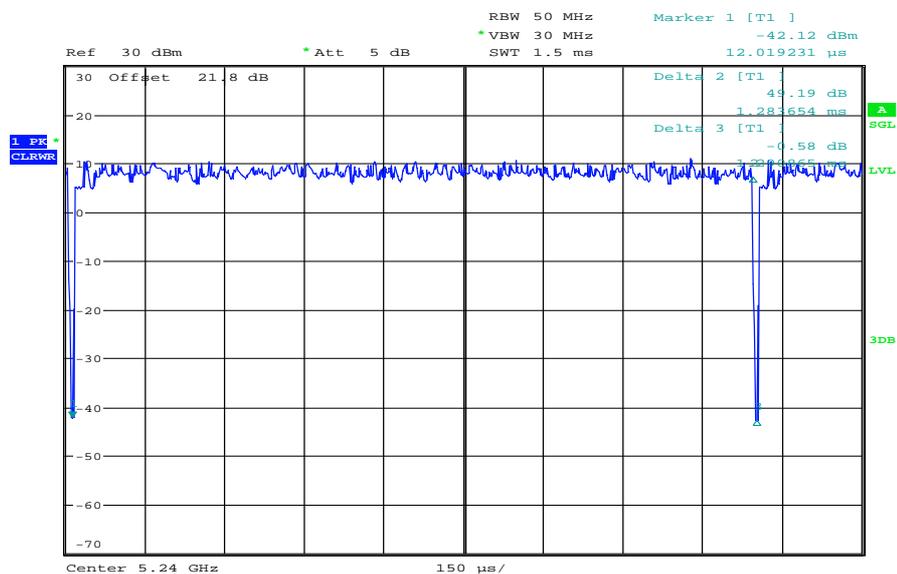
Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	50 MHz
Video bandwidth:	30 MHz
Span:	Zero
Trace-Mode:	Single sweep

**Plot 1:** duty cycle of the transmitter / OFDM a – mode



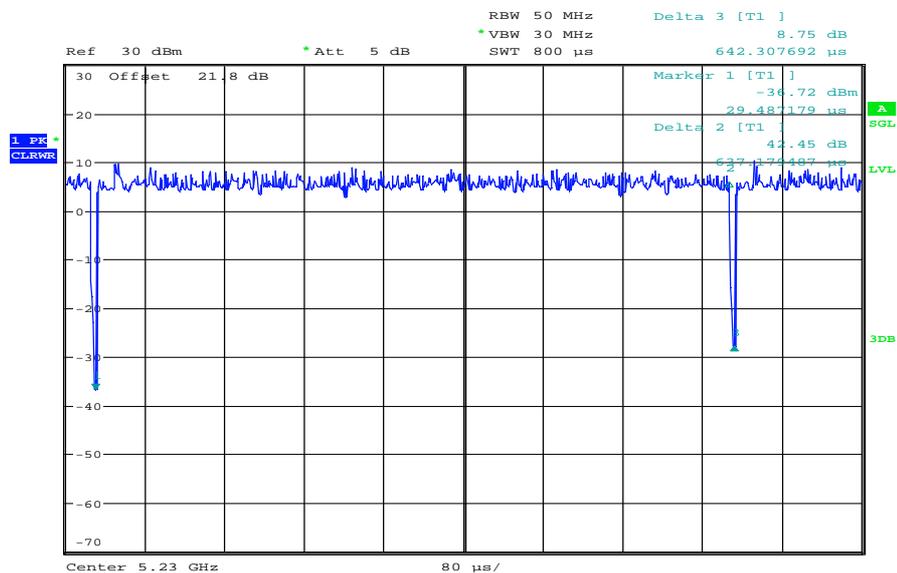
Date: 25.APR.2012 08:34:12

**Plot 2:** duty cycle of the transmitter / OFDM n – mode HT 20



Date: 25.APR.2012 08:36:43

**Plot 3:** duty cycle of the transmitter / OFDM n – mode HT 40



Date: 25.APR.2012 09:06:22

**Duty cycle and correction factor:**

OFDM / a – mode:	99.48 % duty cycle	=>	0.02 dB
OFDM / n – mode HT20:	99.44 % duty cycle	=>	0.02 dB
OFDM / n – mode HT40:	99.20 % duty cycle	=>	0.03 dB

## 9.4 Maximum output power conducted and radiated

### Description:

Measurement of the maximum output power conducted and radiated

Measurement: Method SA-2 alternative

Measurement parameter	
Detector:	RMS
Sweep time:	60s /120s
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> EBW
Trace-Mode:	Max hold / single sweep
Analyzer function	Band power / channel power Interval > 26 dB EBW

### Limits:

Radiated output power	Conducted output power
23 dBm (calculated with 50mW and 6dBi antenna gain)	The lesser one of 50mW or 4 dBm + 10 log Bandwidth (where Bandwidth is the 26dB Bandwidth)

**Result: OFDM / a – mode**

OFDM / a – mode Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Middle 5240 MHz	Middle 5260 MHz	Highest 5320 MHz
+0.02 duty cycle correction	2.13	2.17	2.10	3.16
Measurement uncertainty	± 1 dB			
OFDM / a – mode Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Middle 5240 MHz	Middle 5260 MHz	Highest 5320 MHz
	2.79	3.89	3.60	5.76
Measurement uncertainty	± 3 dB			

OFDM / a – mode Channel	Maximum output power conducted [dBm]			
	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.02 duty cycle correction	3.06	1.52	1.65	-/-
Measurement uncertainty	± 1 dB			
OFDM / a – mode Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
	5.89	4.62	4.37	-/-
Measurement uncertainty	± 3 dB			

**Result: Passed**

**Result: OFDM / n – mode HT20**

OFDM / n – mode HT20 Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Middle 5240 MHz	Middle 5260 MHz	Highest 5320 MHz
+0.02 duty cycle correction	2.14	2.17	2.07	3.09
Measurement uncertainty	± 1 dB			
OFDM / n – mode HT20 Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Middle 5240 MHz	Middle 5260 MHz	Highest 5320 MHz
	2.80	3.89	3.57	5.69
Measurement uncertainty	± 3 dB			

OFDM / n – mode HT20 Channel	Maximum output power conducted [dBm]			
	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.02 duty cycle correction	3.05	1.50	1.59	-/-
Measurement uncertainty	± 1 dB			
OFDM / n – mode HT20 Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
	5.88	4.60	4.31	-/-
Measurement uncertainty	± 3 dB			

**Result: Passed**

**Result: OFDM / n – mode HT40**

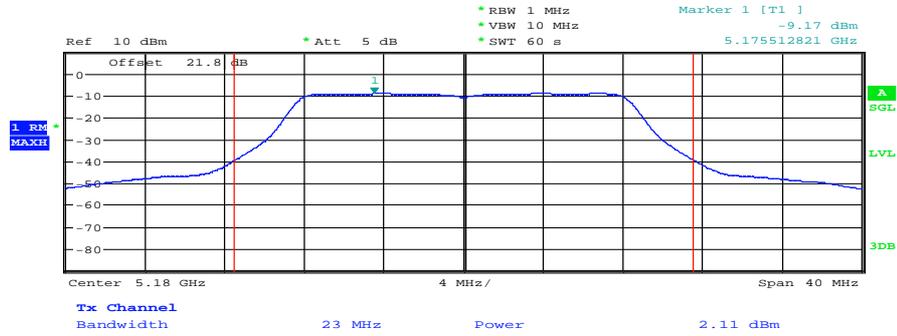
OFDM / n – mode HT40 Channel	Maximum output power conducted [dBm]			
	Lowest 5190 MHz	Middle 5230 MHz	Middle 5270 MHz	Highest 5310 MHz
+0.03 duty cycle correction	2.16	2.21	2.02	2.01
Measurement uncertainty	± 1 dB			
OFDM / n – mode HT40 Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5190 MHz	Middle 5230 MHz	Middle 5270 MHz	Highest 5310 MHz
	2.82	3.93	3.52	4.61
Measurement uncertainty	± 3 dB			

OFDM / n – mode HT40 Channel	Maximum output power conducted [dBm]			
	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
+0.03 duty cycle correction	2.99	1.64	1.59	-/-
Measurement uncertainty	± 1 dB			
OFDM / n – mode HT40 Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
	5.82	4.74	4.31	-/-
Measurement uncertainty	± 3 dB			

**Result: Passed**

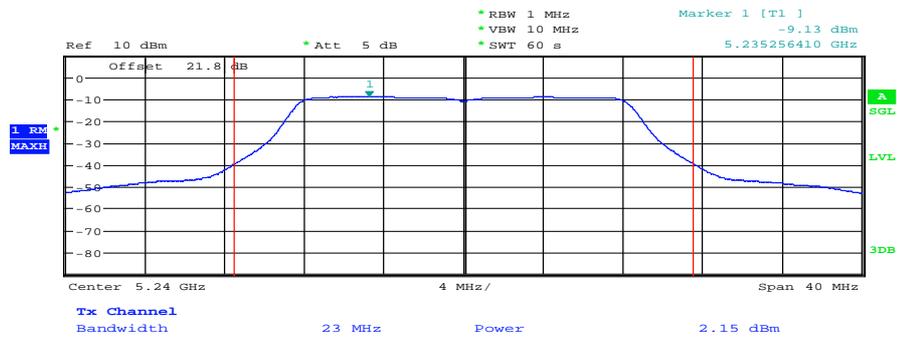
**Plots: OFDM / a – mode**

**Plot 1: 5180 MHz**



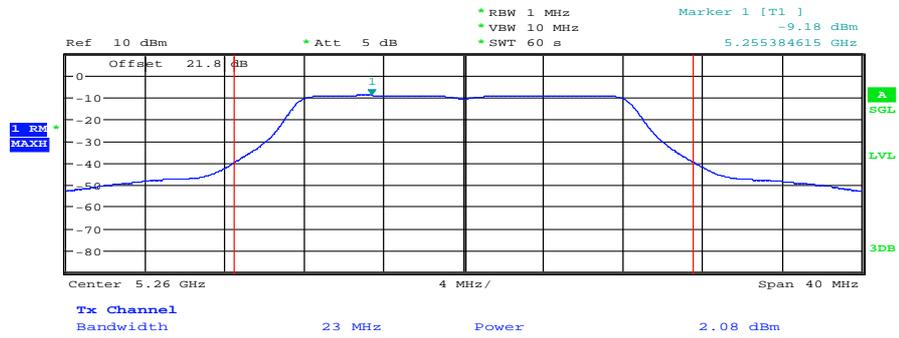
Date: 25.APR.2012 13:22:25

**Plot 2: 5240 MHz**



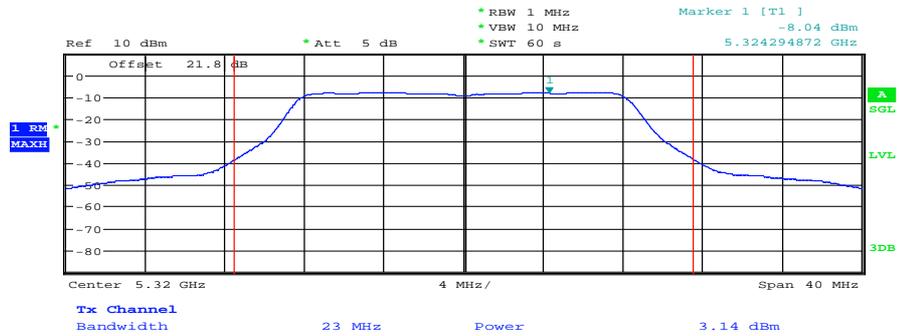
Date: 25.APR.2012 13:24:25

Plot 3: 5260 MHz



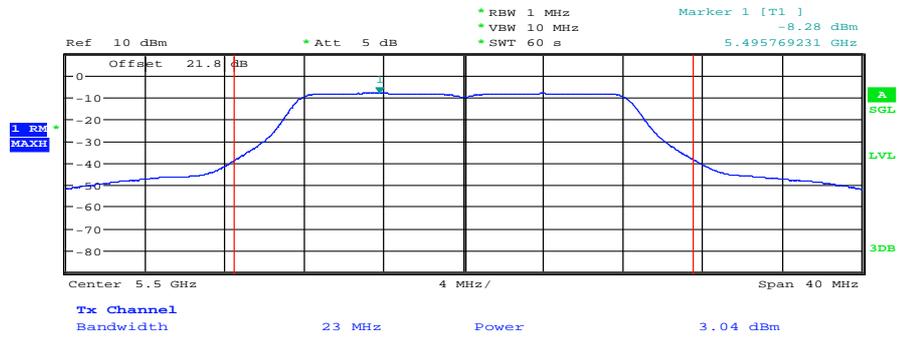
Date: 25.APR.2012 13:26:11

Plot 4: 5320 MHz



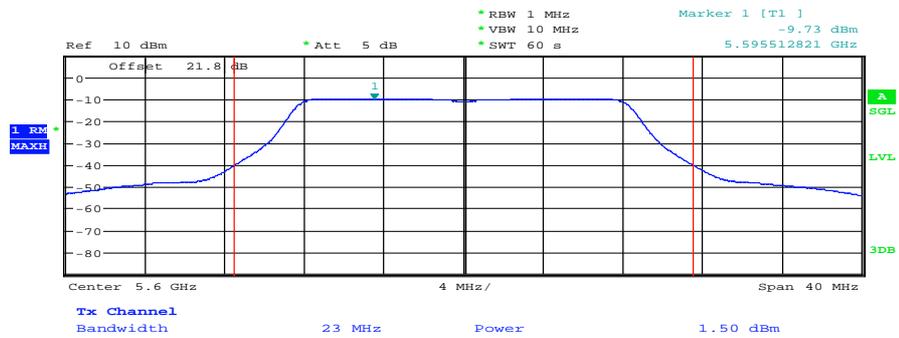
Date: 25.APR.2012 13:27:46

Plot 5: 5500 MHz



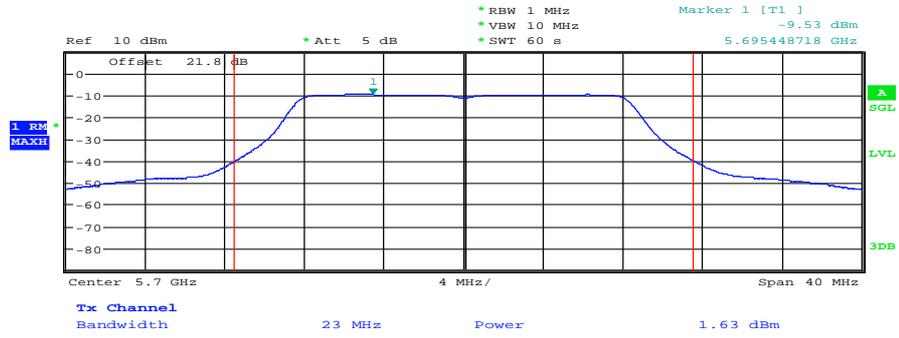
Date: 25.APR.2012 13:29:44

Plot 6: 5600 MHz



Date: 25.APR.2012 13:32:30

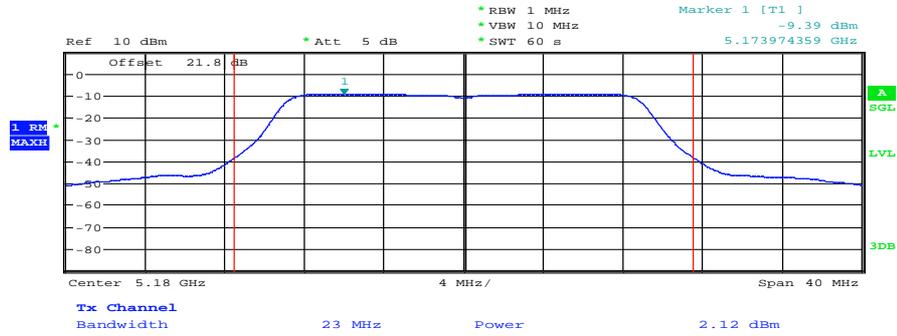
Plot 7: 5700 MHz



Date: 25.APR.2012 13:34:05

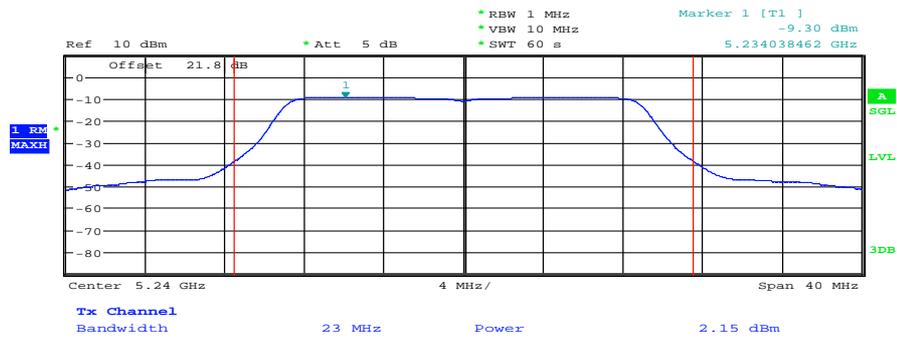
**Plots: OFDM / n – mode HT20**

**Plot 1: 5180 MHz**



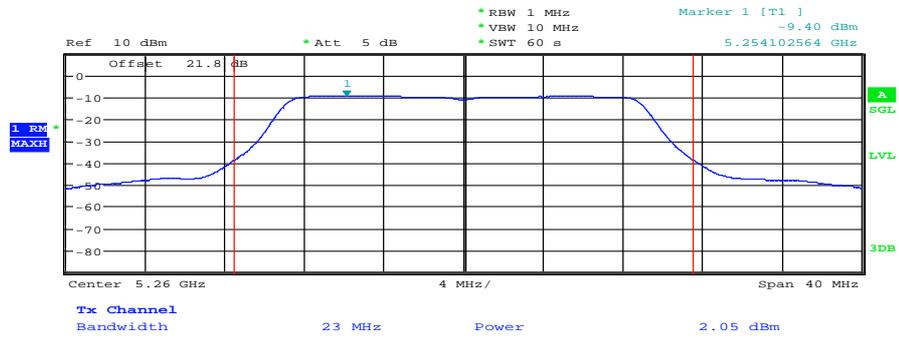
Date: 25.APR.2012 13:37:38

**Plot 2: 5240 MHz**



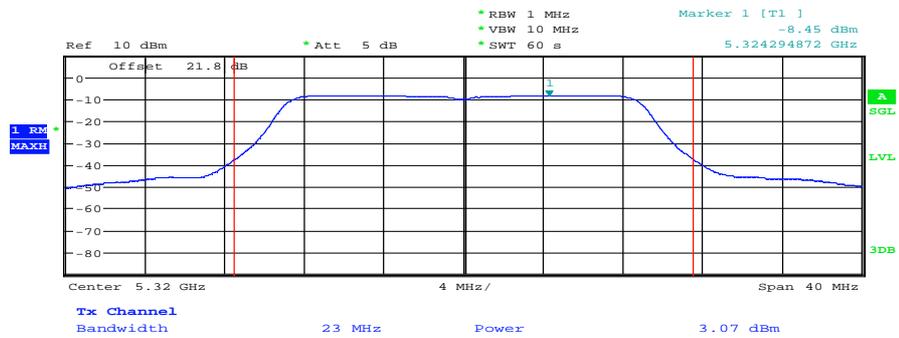
Date: 25.APR.2012 13:39:41

Plot 3: 5260 MHz



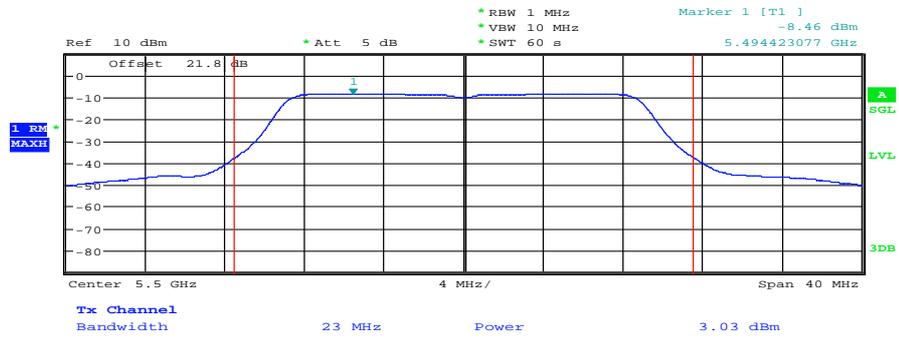
Date: 25.APR.2012 13:41:26

Plot 4: 5320 MHz



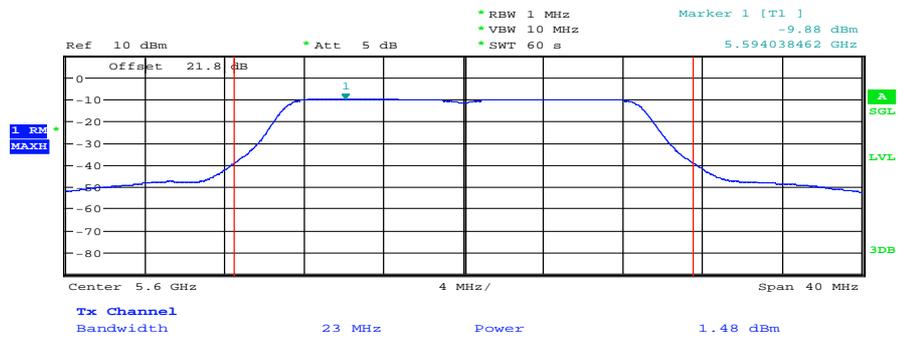
Date: 25.APR.2012 13:43:14

Plot 5: 5500 MHz



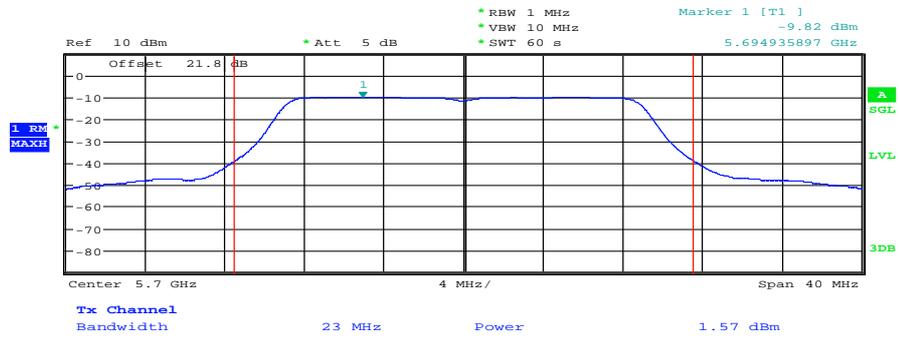
Date: 25.APR.2012 13:46:11

Plot 6: 5600 MHz



Date: 25.APR.2012 13:48:38

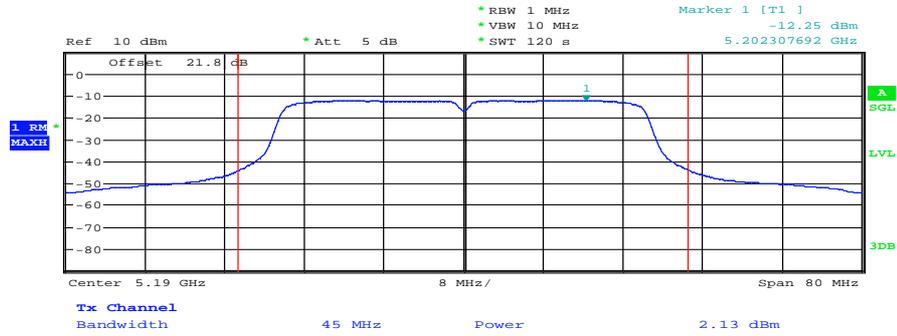
Plot 7: 5700 MHz



Date: 25.APR.2012 13:50:39

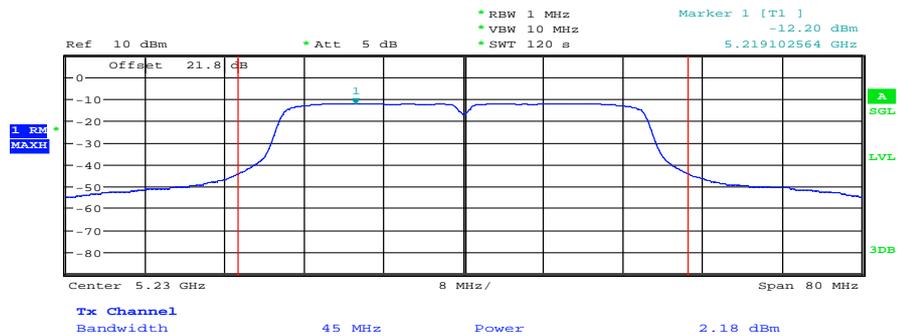
**Plots: OFDM / n – mode HT40**

**Plot 1: 5190 MHz**



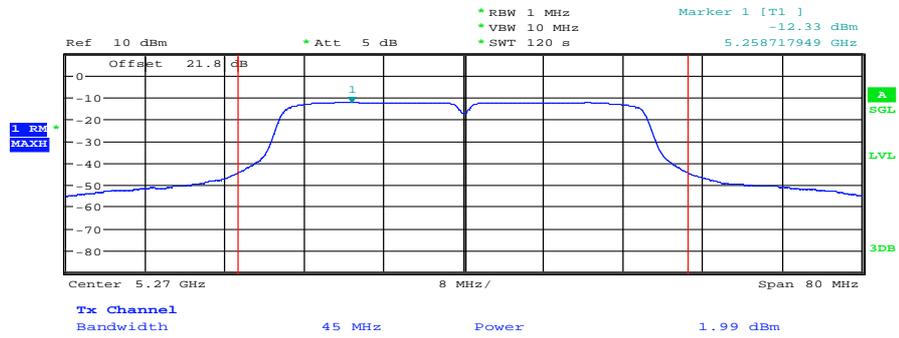
Date: 25.APR.2012 13:18:30

**Plot 2: 5230 MHz**



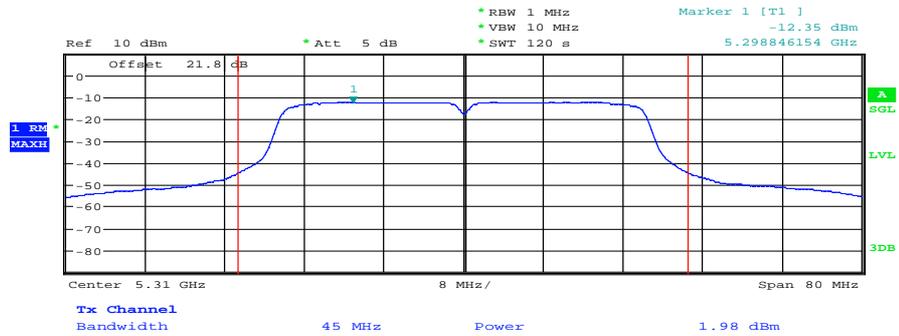
Date: 25.APR.2012 13:15:40

Plot 3: 5270 MHz



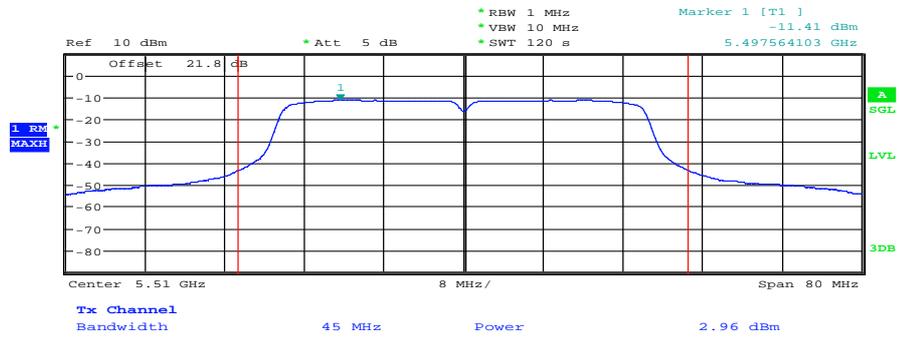
Date: 25.APR.2012 13:11:18

Plot 4: 5310 MHz



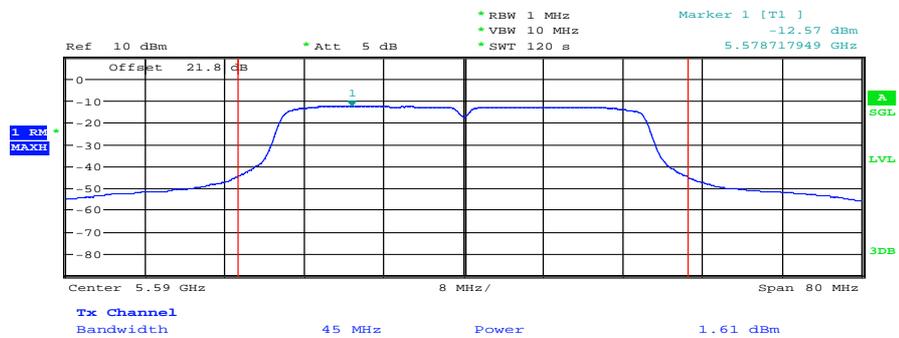
Date: 25.APR.2012 13:08:25

Plot 5: 5510 MHz



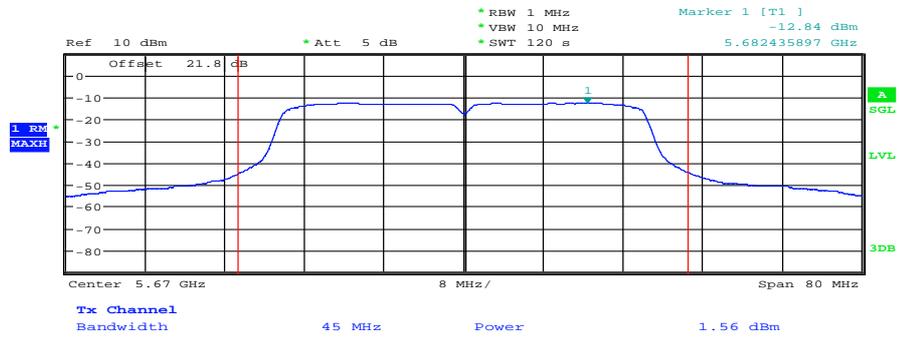
Date: 25.APR.2012 13:05:18

Plot 6: 5590 MHz



Date: 25.APR.2012 13:02:28

Plot 7: 5670 MHz



Date: 25.APR.2012 12:59:28

## 9.5 Power spectral density

### Description:

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

**Measurement:** Method SA-1 alternative (for devices with 100 % duty cycle only)

Measurement parameter	
Detector:	RMS
Sweep time:	60 s / 120 s
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> EBW
Trace-Mode:	Max hold

### Limits:

Power Spectral Density
The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 4 dBm in any 1 MHz band

### Results:

Modulation OFDM / a – mode Channel	Power Spectral density [dBm/MHz]		
	5180 MHz	5240 MHz	5260 MHz
+0.02 duty cycle correction	-8.74	-8.86	-8.92
Channel	5320 MHz	5500 MHz	5600 MHz
+0.02 duty cycle correction	-7.69	-7.98	-9.49
Channel	5700 MHz	-/-	-/-
+0.02 duty cycle correction	-9.35	-/-	-/-
Measurement uncertainty	± 0.5 dB		

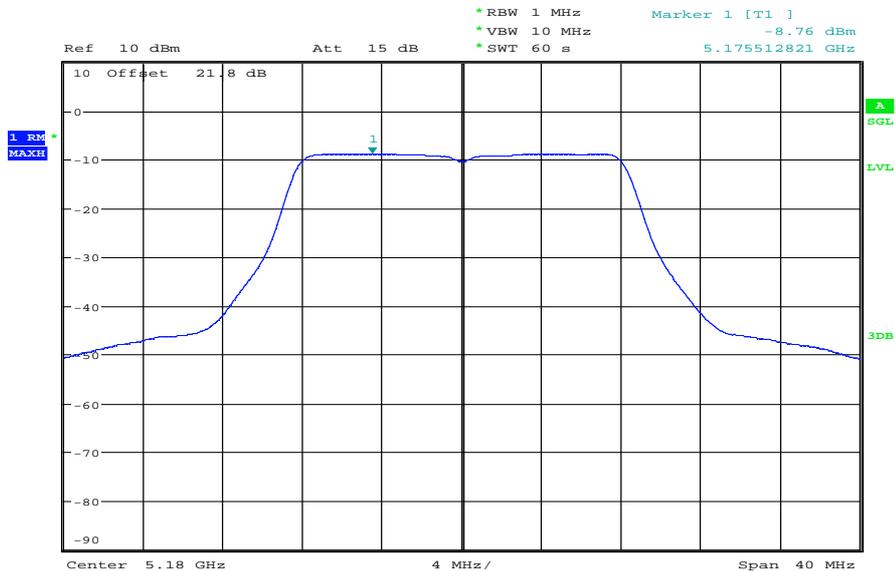
Modulation OFDM / n – mode HT20 Channel	Power Spectral density [dBm/MHz]		
	5180 MHz	5240 MHz	5260 MHz
+0.02 duty cycle correction	-9.16	-9.11	-9.24
Channel	5320 MHz	5500 MHz	5600 MHz
+0.02 duty cycle correction	-8.28	-8.24	-9.68
Channel	5700 MHz	-/-	-/-
+0.02 duty cycle correction	-9.71	-/-	-/-
Measurement uncertainty	± 0.5 dB		

Modulation OFDM / n – mode HT40 Channel	Power Spectral density [dBm/MHz]		
	5190 MHz	5230 MHz	5270 MHz
+0.03 duty cycle correction	-12.04	-12.03	-12.17
Channel	5310 MHz	5510 MHz	5590 MHz
+0.03 duty cycle correction	-12.14	-11.18	-12.34
Channel	5670 MHz	-/-	-/-
+0.03 duty cycle correction	-12.74	-/-	-/-
Measurement uncertainty	± 0.5 dB		

**Result: Passed**

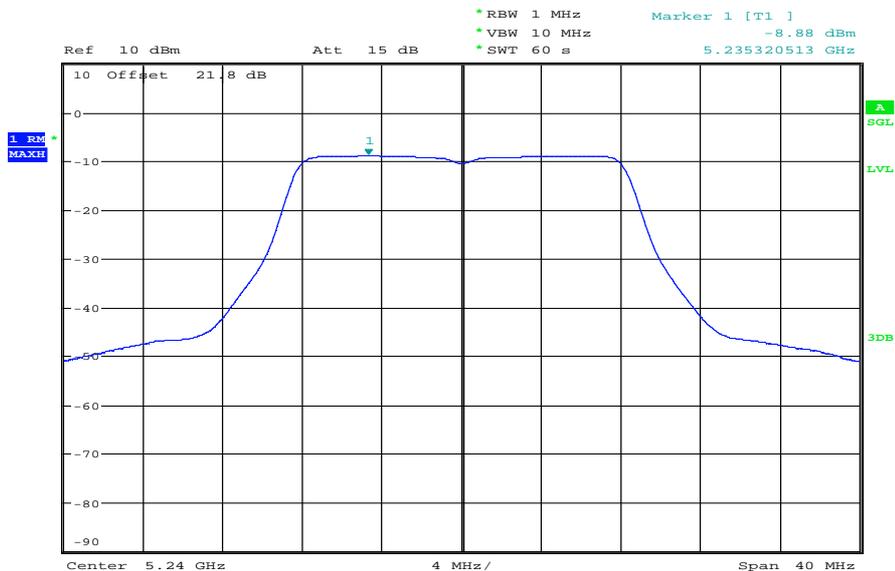
**Plots: OFDM / a – mode**

**Plot 1: 5180 MHz**



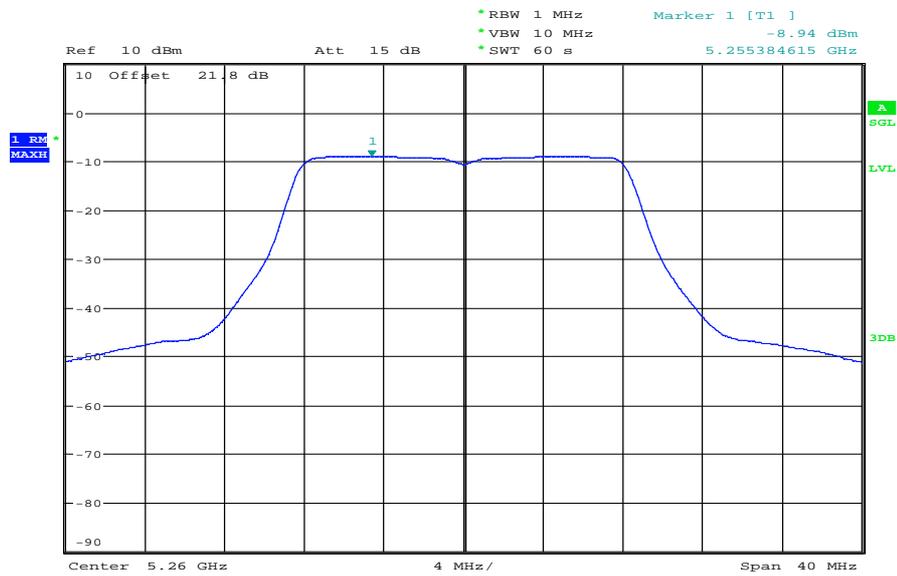
Date: 26.APR.2012 07:19:52

**Plot 2: 5240 MHz**



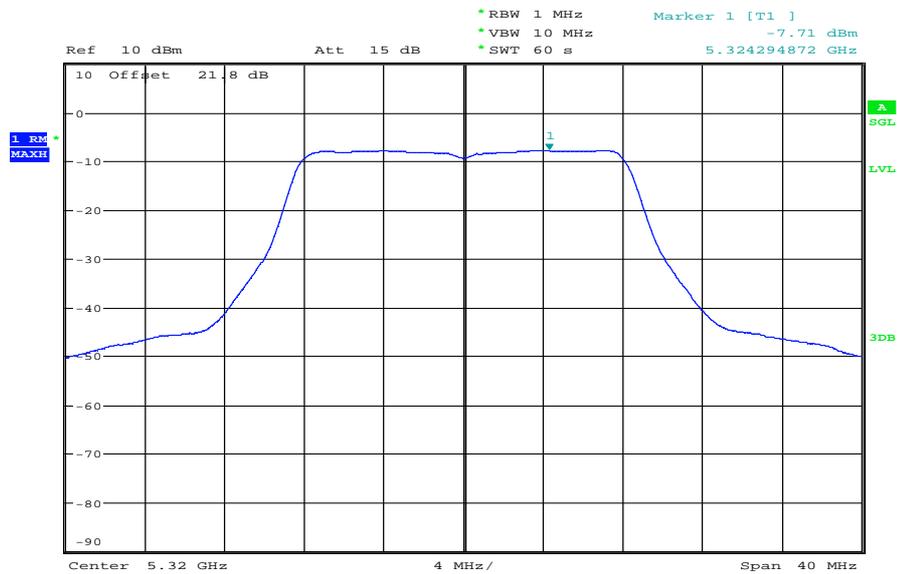
Date: 26.APR.2012 07:25:31

Plot 3: 5260 MHz



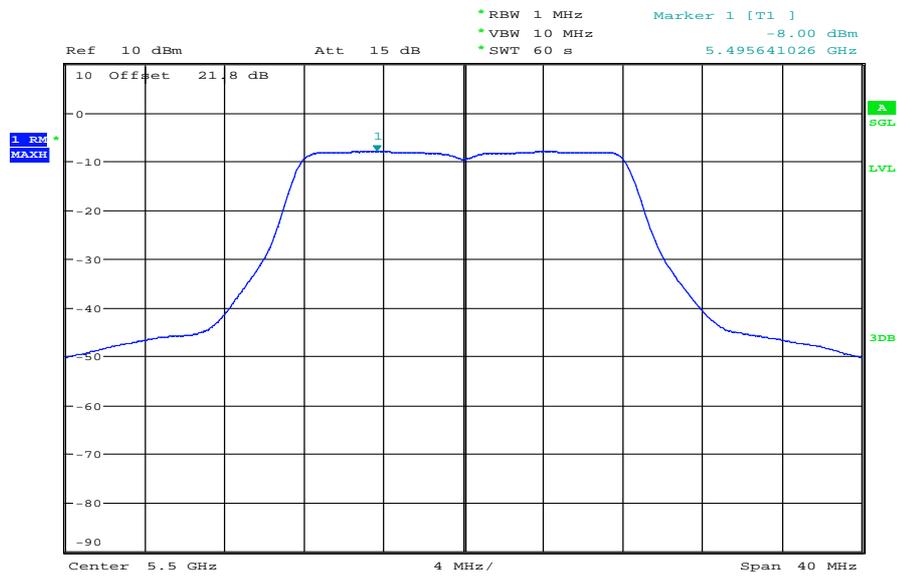
Date: 26.APR.2012 07:23:54

Plot 4: 5320 MHz



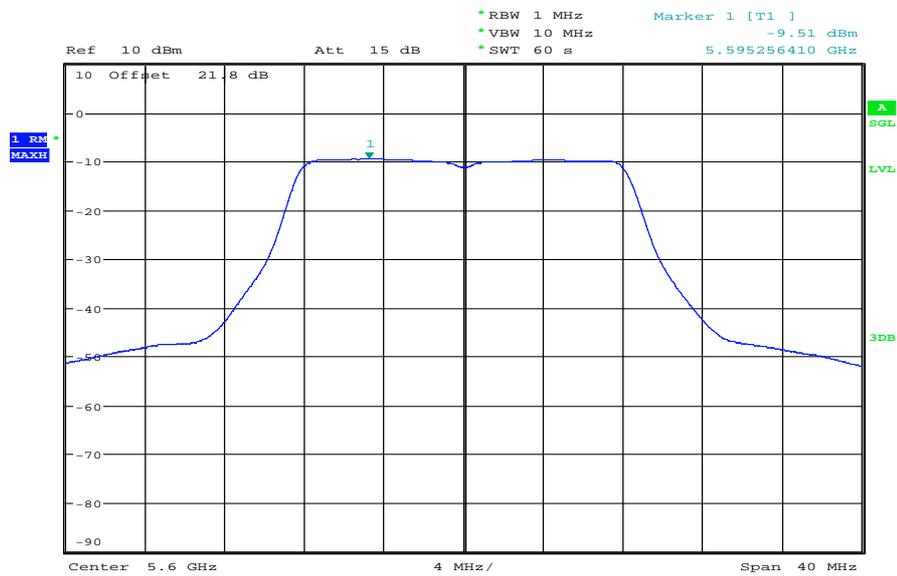
Date: 26.APR.2012 07:27:10

Plot 5: 5500 MHz



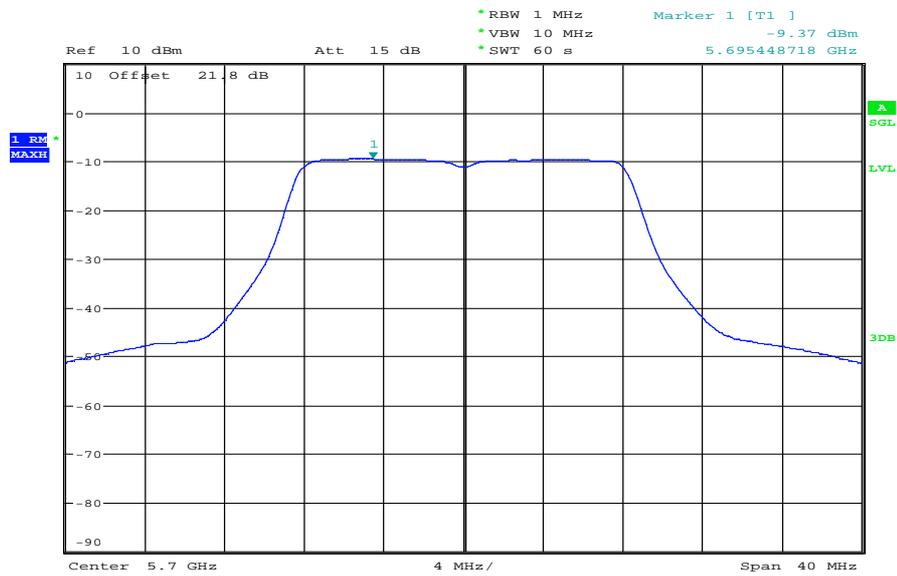
Date: 26.APR.2012 07:33:42

Plot 6: 5600 MHz



Date: 26.APR.2012 07:35:15

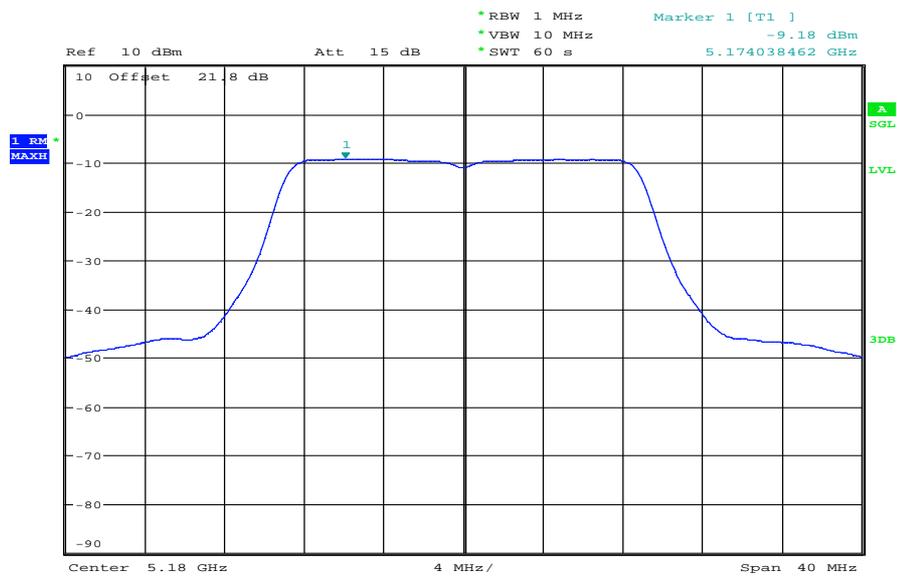
**Plot 7: 5700 MHz**



Date: 26.APR.2012 07:36:40

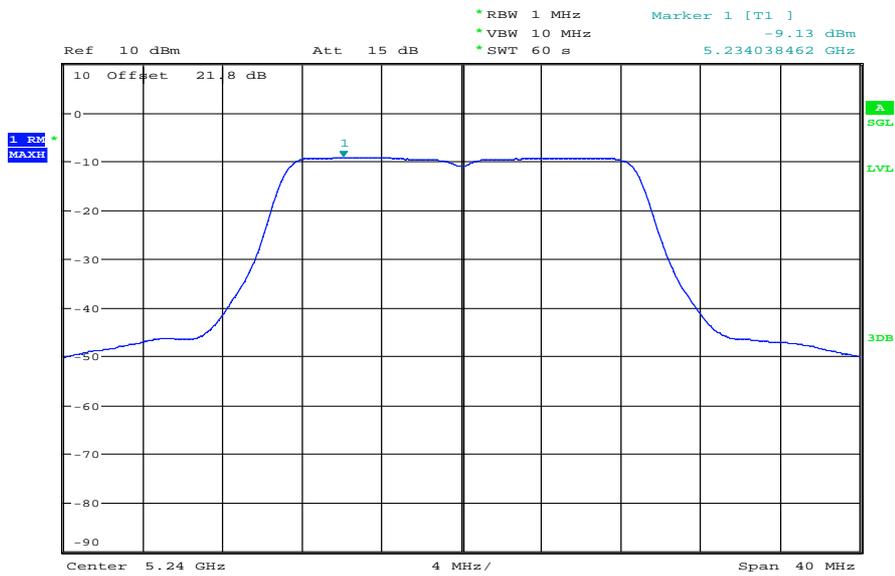
**Plots: OFDM / n – mode HT20**

**Plot 1: 5180 MHz**



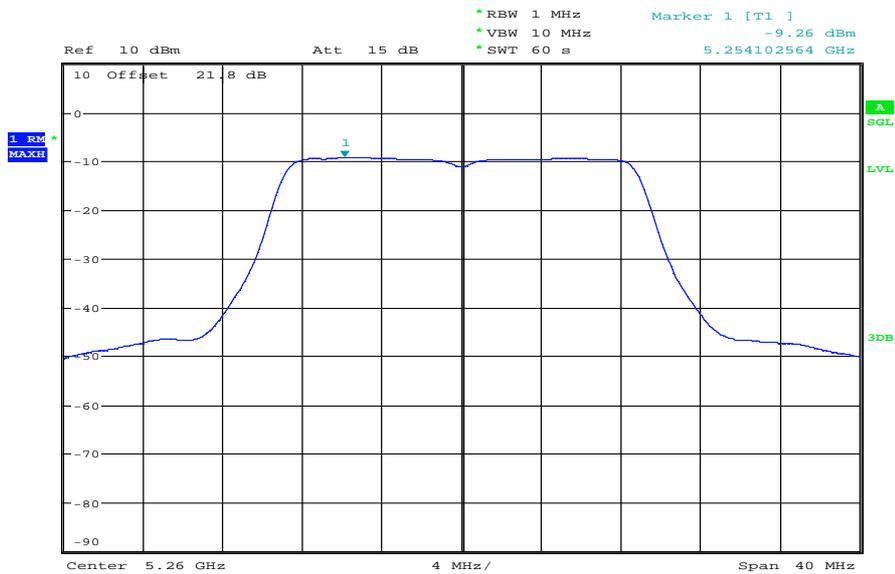
Date: 26.APR.2012 07:38:44

Plot 2: 5240 MHz



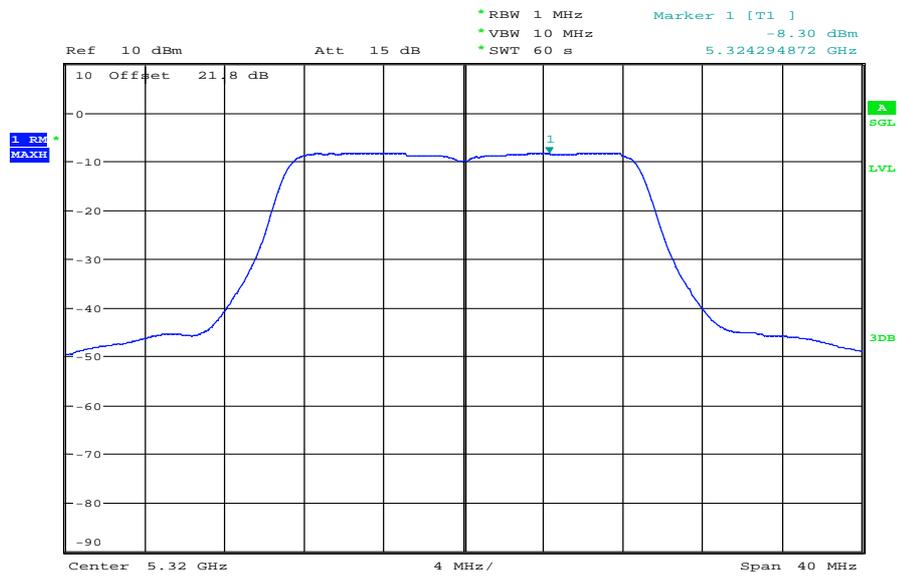
Date: 26.APR.2012 07:40:22

Plot 3: 5260 MHz



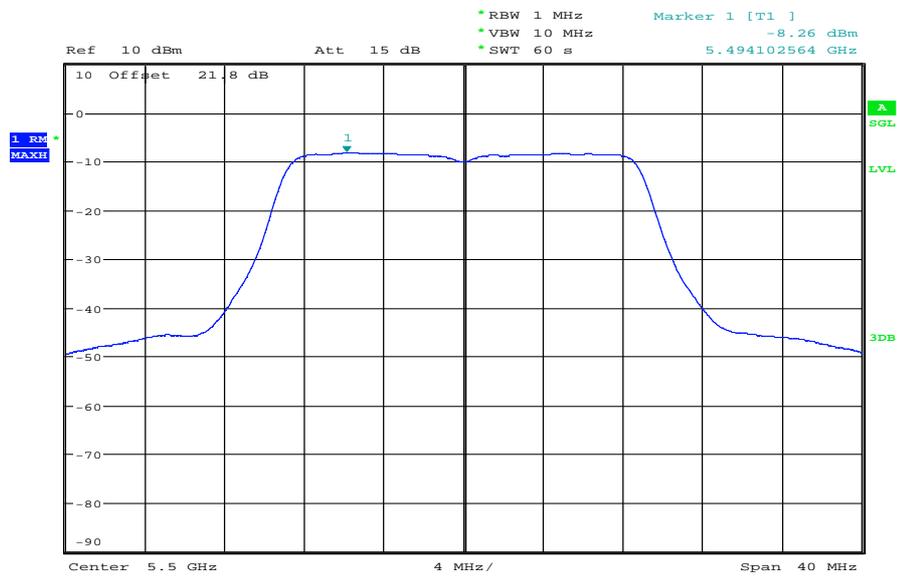
Date: 26.APR.2012 07:41:56

Plot 4: 5320 MHz



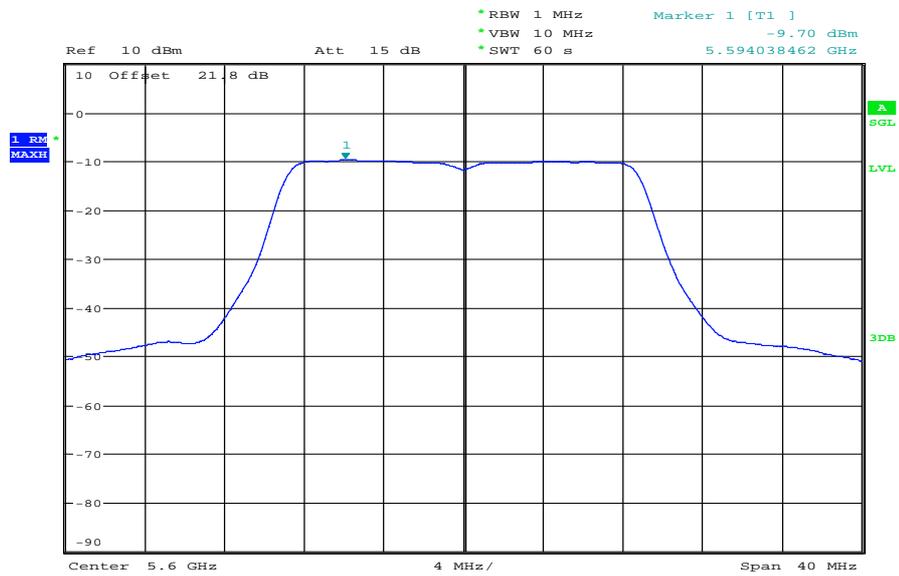
Date: 26.APR.2012 07:43:28

Plot 5: 5500 MHz



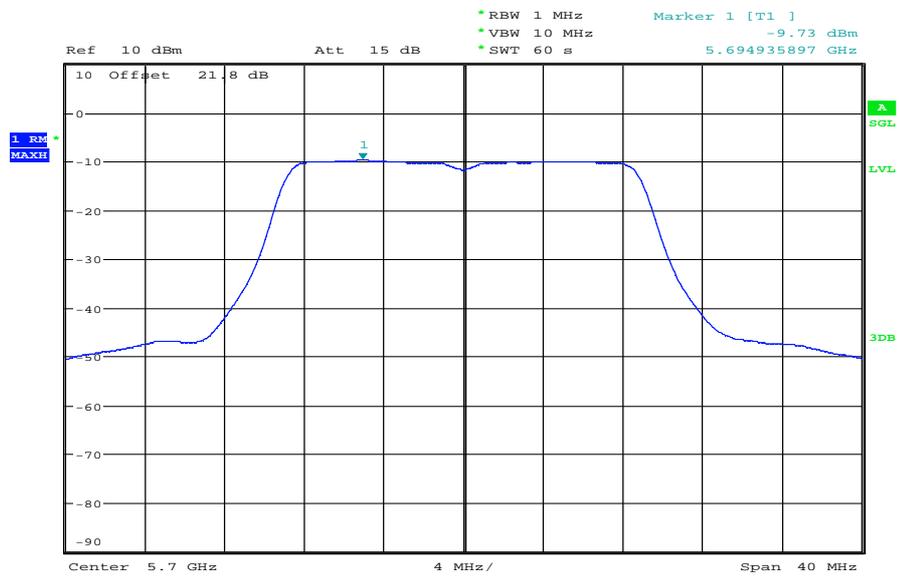
Date: 26.APR.2012 07:45:05

Plot 6: 5600 MHz



Date: 26.APR.2012 07:46:36

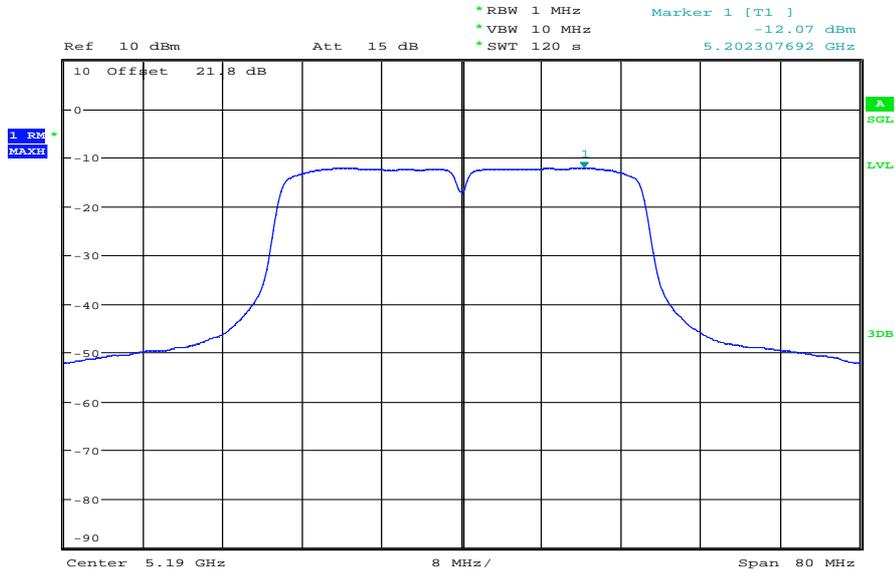
Plot 7: 5700 MHz



Date: 26.APR.2012 07:49:03

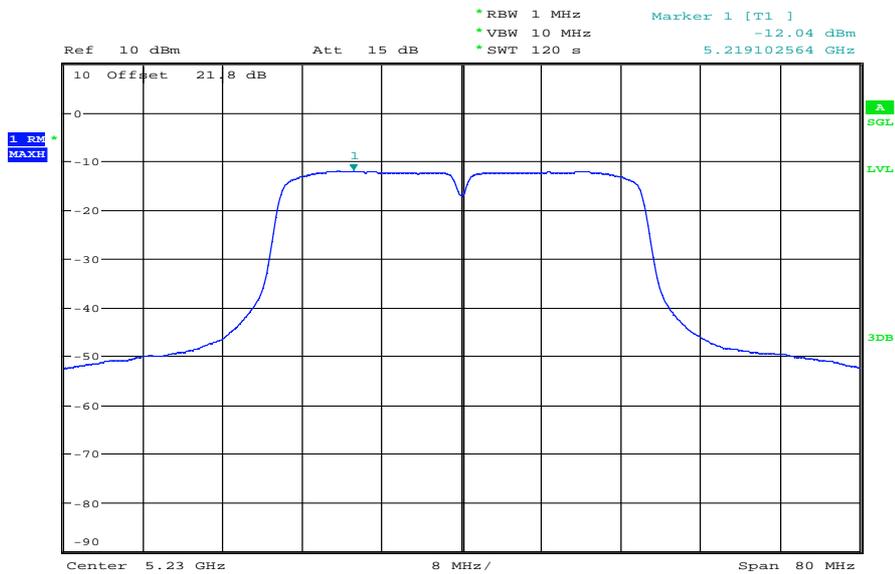
**Plots: OFDM / a – mode HT40**

**Plot 1: 5190 MHz**



Date: 26.APR.2012 07:56:08

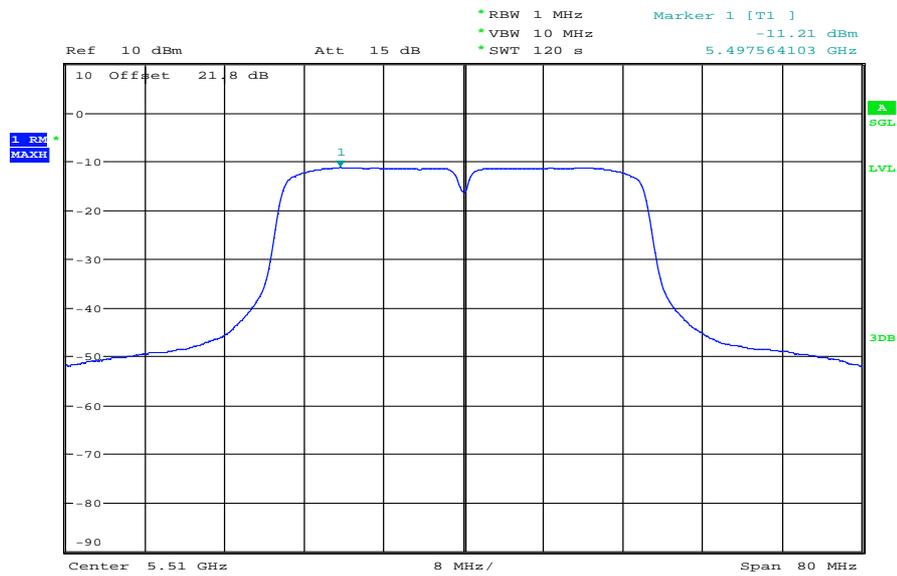
**Plot 2: 5230 MHz**



Date: 26.APR.2012 07:58:48

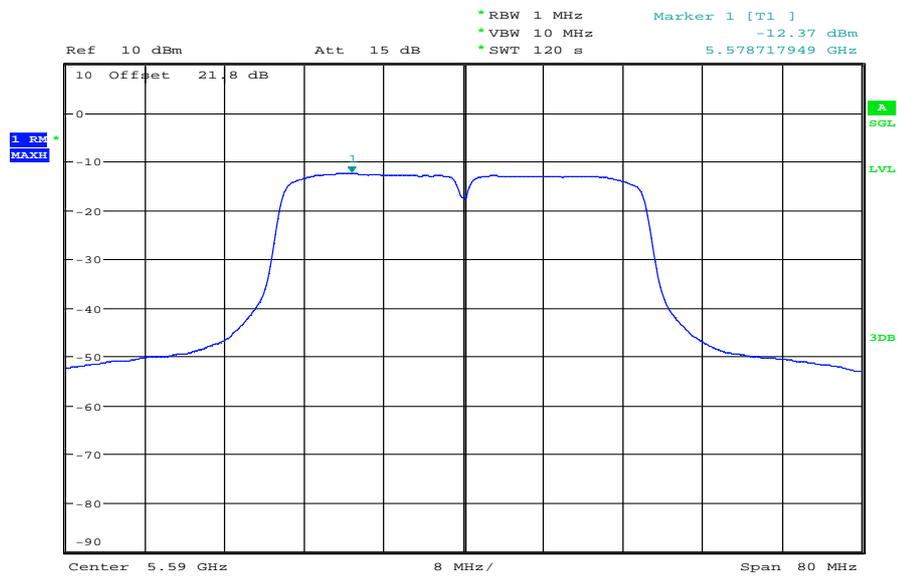


Plot 5: 5510 MHz



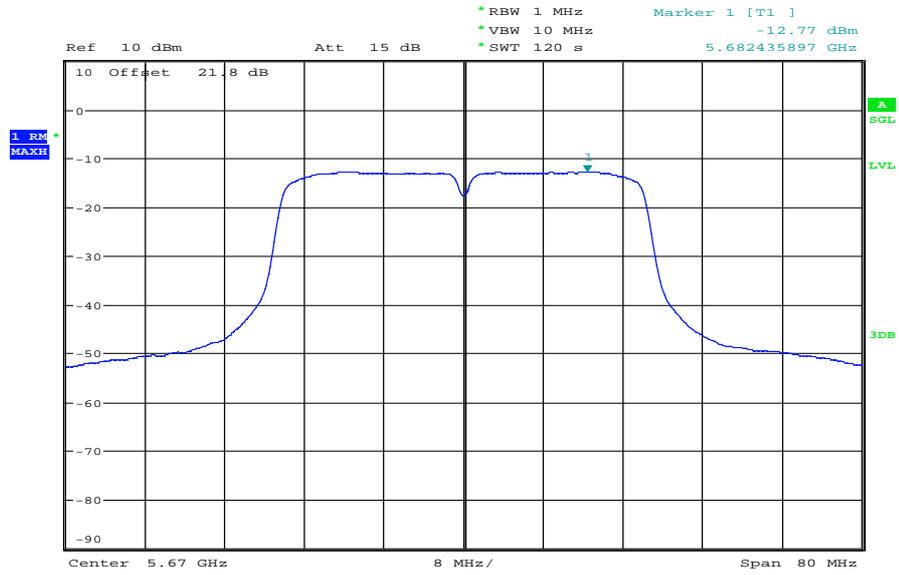
Date: 26.APR.2012 08:07:44

Plot 6: 5590 MHz



Date: 26.APR.2012 08:10:33

Plot 7: 5670 MHz



Date: 26.APR.2012 08:13:13

## 9.6 Spectrum bandwidth – 26 dB bandwidth

**Description:**

Measurement of the 26 dB bandwidth of the modulated signal.

**Measurement:**

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1% EBW
Video bandwidth:	≥ EBW
Span:	Complete signal
Trace-Mode:	Max hold

**Limits:**

Spectrum Bandwidth – 26 dB Bandwidth
No limitation!

**Results: OFDM / a – mode**

Modulation OFDM / a – mode Channel	26 dB BANDWIDTH [MHz]		
	5180 MHz	5240 MHz	5260 MHz
	22.50	22.50	22.50
Channel	5320 MHz	5500 MHz	5600 MHz
	22.50	22.50	22.55
Channel	5700 MHz	-/-	-/-
	22.50	-/-	-/-
Measurement uncertainty	See RBW!		

**Result: Passed**

**Results: OFDM / n – mode HT20**

Modulation OFDM / n – mode HT20 Channel	26 dB BANDWIDTH [MHz]		
	5180 MHz	5240 MHz	5260 MHz
	22.84	22.84	22.84
Channel	5320 MHz	5500 MHz	5600 MHz
	22.84	22.93	22.84
Channel	5700 MHz	-/-	-/-
	22.88	-/-	-/-
Measurement uncertainty	See RBW!		

**Result: Passed**

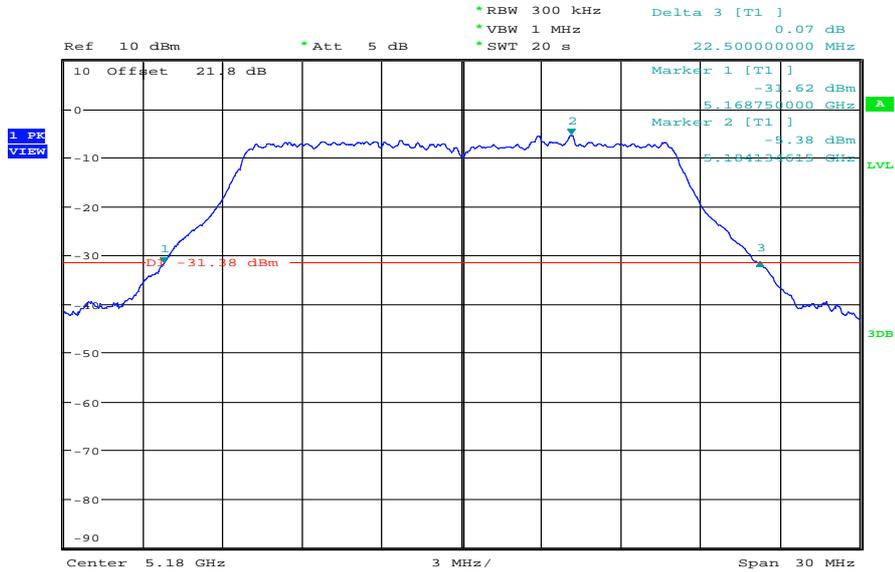
**Results: OFDM / n – mode HT40**

Modulation OFDM / n – mode HT40 Channel	26 dB BANDWIDTH [MHz]		
	5190 MHz	5230 MHz	5270 MHz
	44.62	44.62	44.74
Channel	5310 MHz	5510 MHz	5590 MHz
	44.74	44.62	44.62
Channel	5670 MHz	-/-	-/-
	44.62	-/-	-/-
Measurement uncertainty	See RBW!		

**Result: Passed**

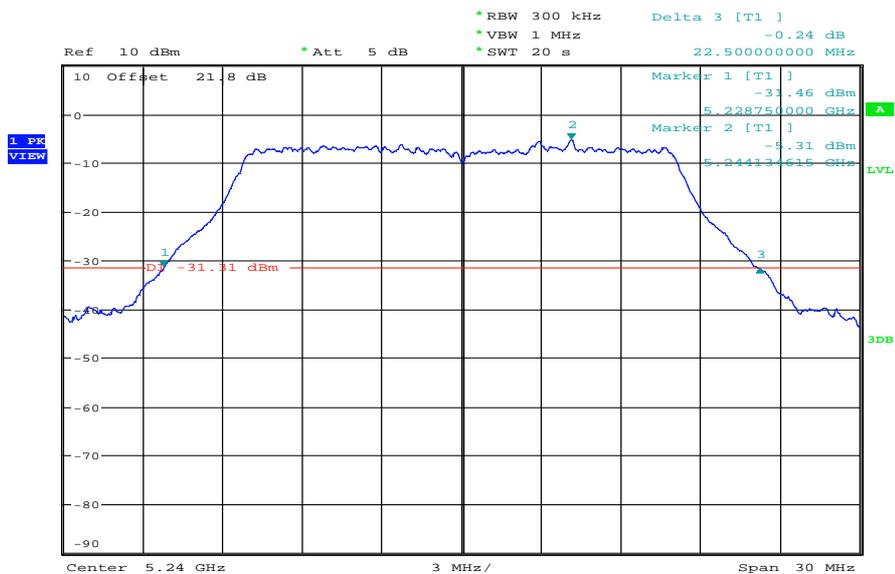
**Plots: OFDM / a – mode**

**Plot 1: 5180 MHz**



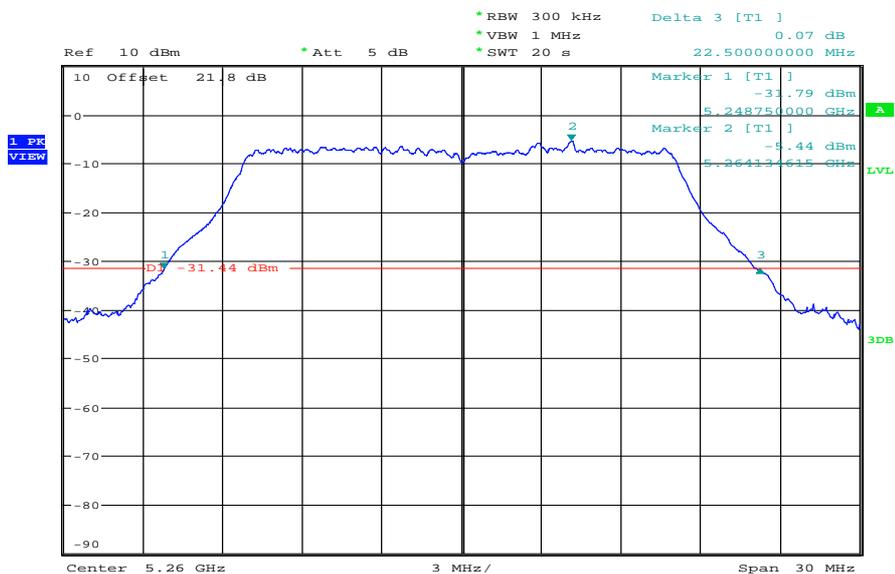
Date: 25.APR.2012 10:14:06

**Plot 2: 5240 MHz**



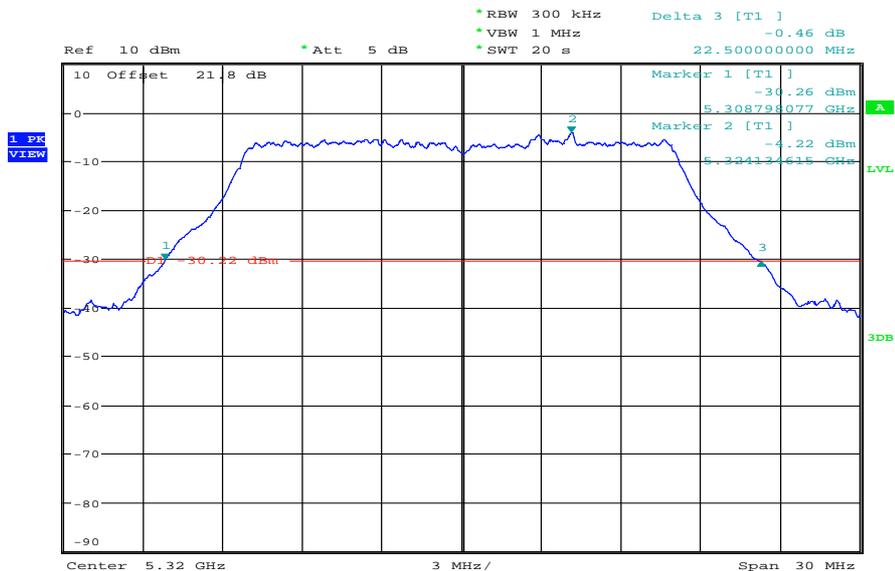
Date: 25.APR.2012 10:18:05

Plot 3: 5260 MHz



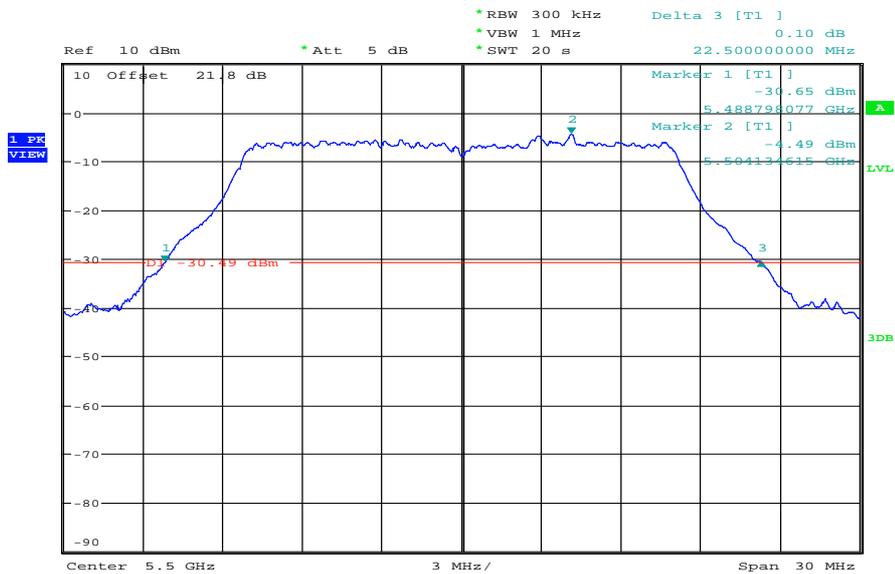
Date: 25.APR.2012 10:20:19

Plot 4: 5320 MHz



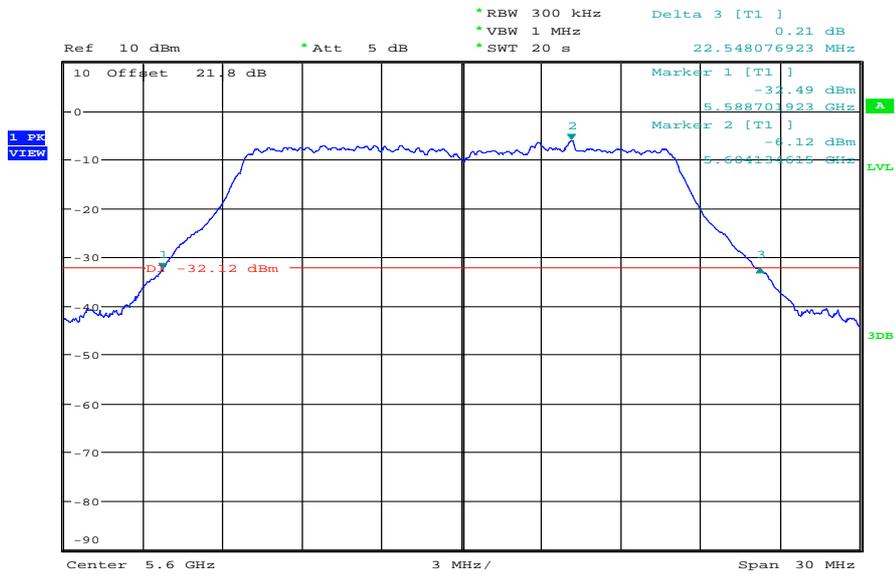
Date: 25.APR.2012 10:23:49

Plot 5: 5500 MHz



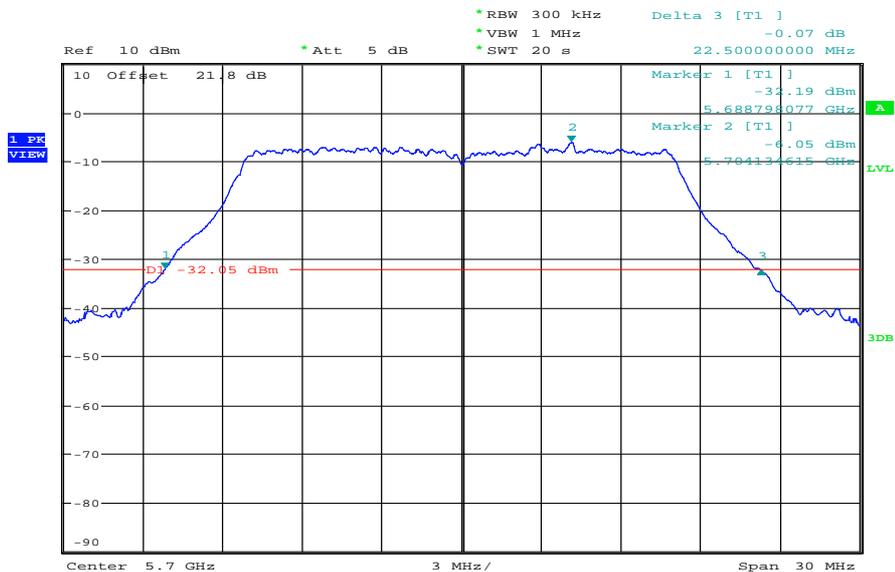
Date: 25.APR.2012 10:25:54

Plot 6: 5600 MHz



Date: 25.APR.2012 10:28:02

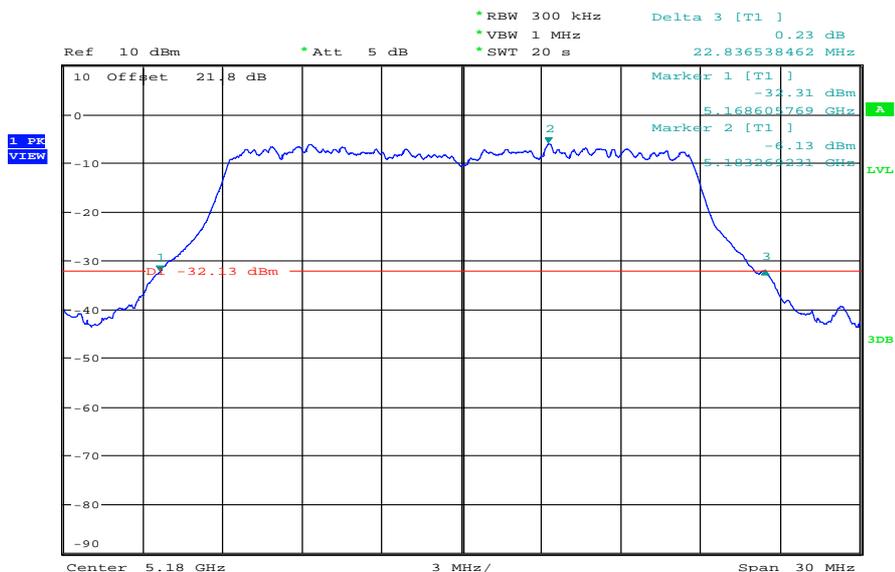
Plot 7: 5700 MHz



Date: 25.APR.2012 10:30:02

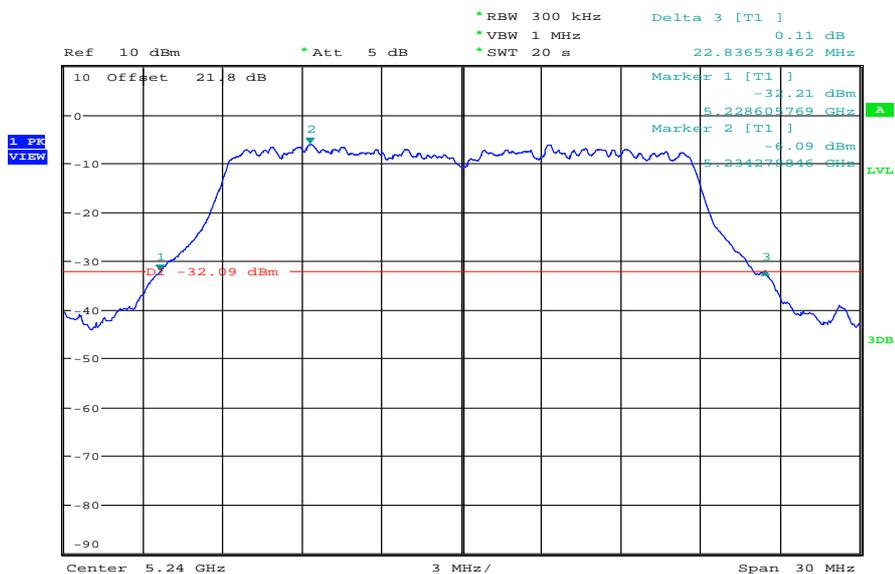
Plots: OFDM / n – mode HT20

Plot 1: 5180 MHz



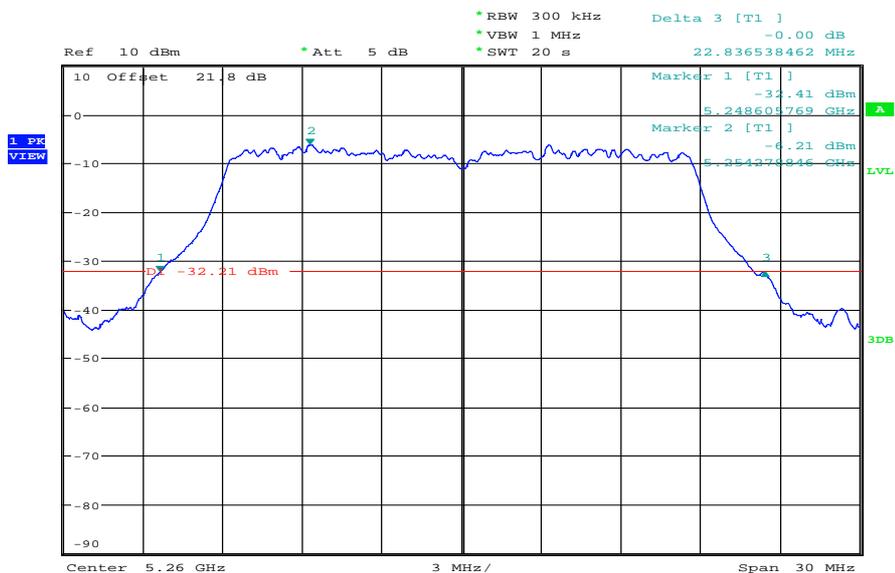
Date: 25.APR.2012 10:32:31

Plot 2: 5240 MHz



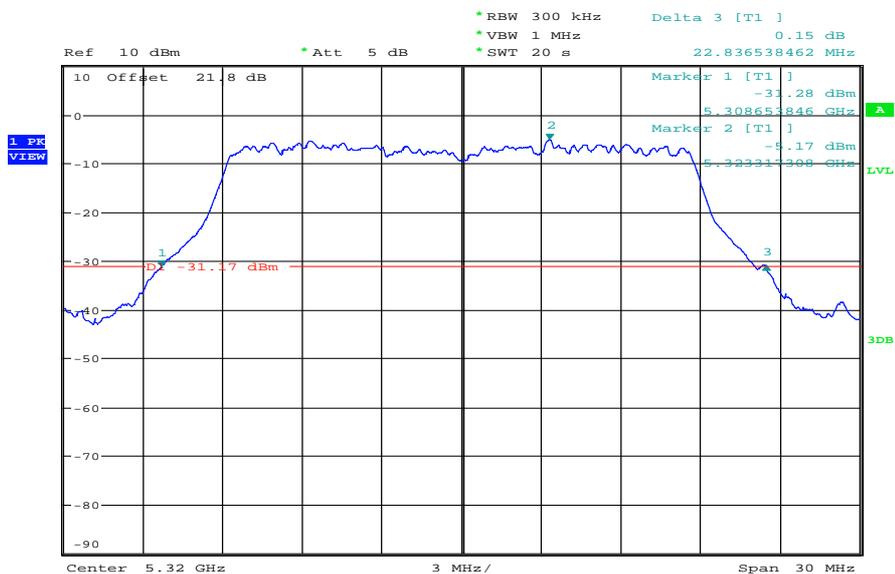
Date: 25.APR.2012 10:34:49

Plot 3: 5260 MHz



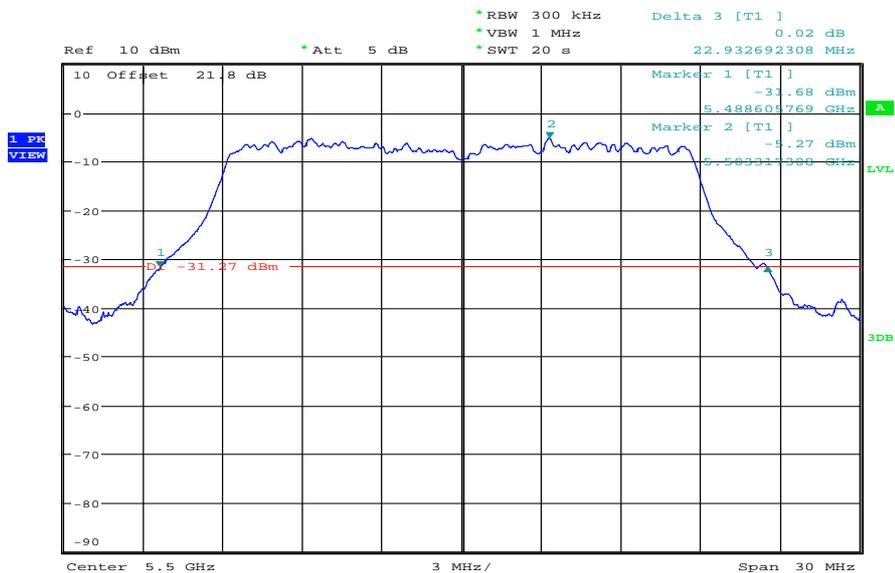
Date: 25.APR.2012 10:36:34

Plot 4: 5320 MHz



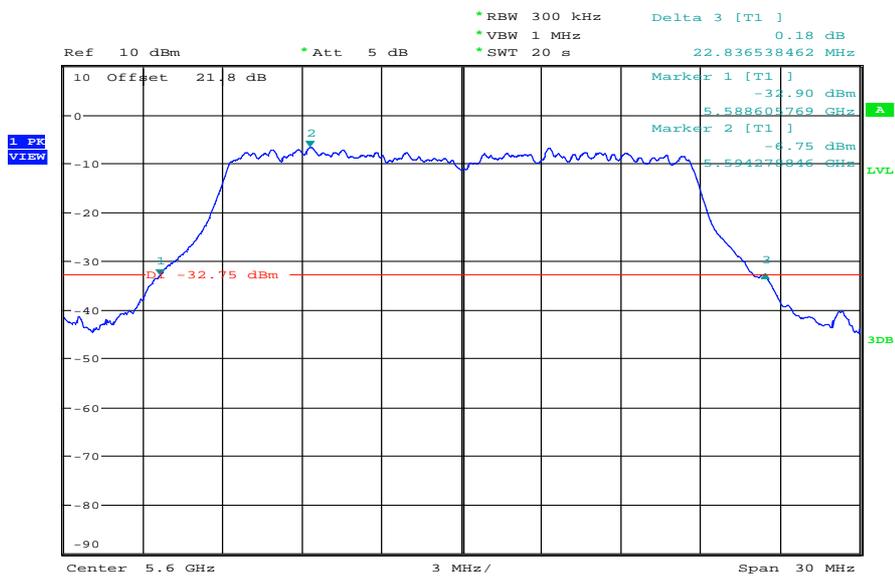
Date: 25.APR.2012 10:38:23

Plot 5: 5500 MHz



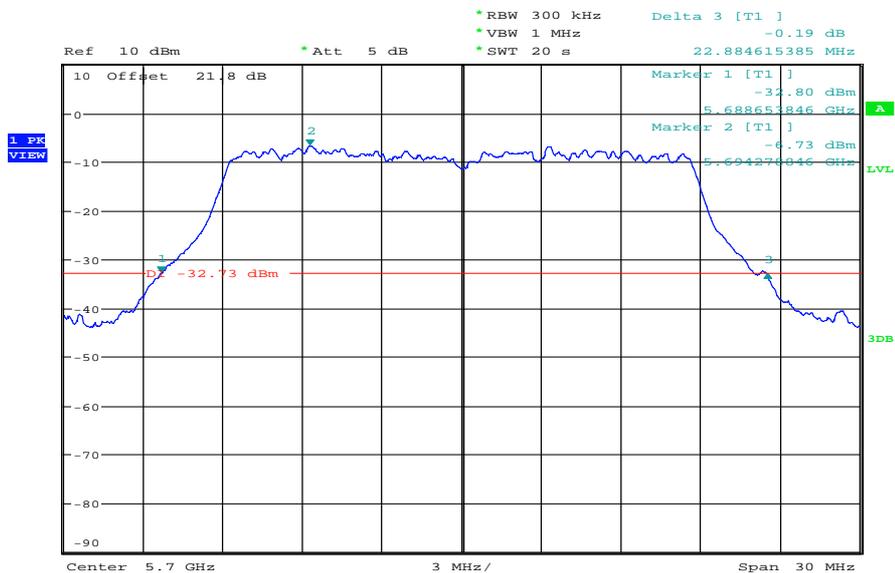
Date: 25.APR.2012 10:40:17

Plot 6: 5600 MHz



Date: 25.APR.2012 10:42:12

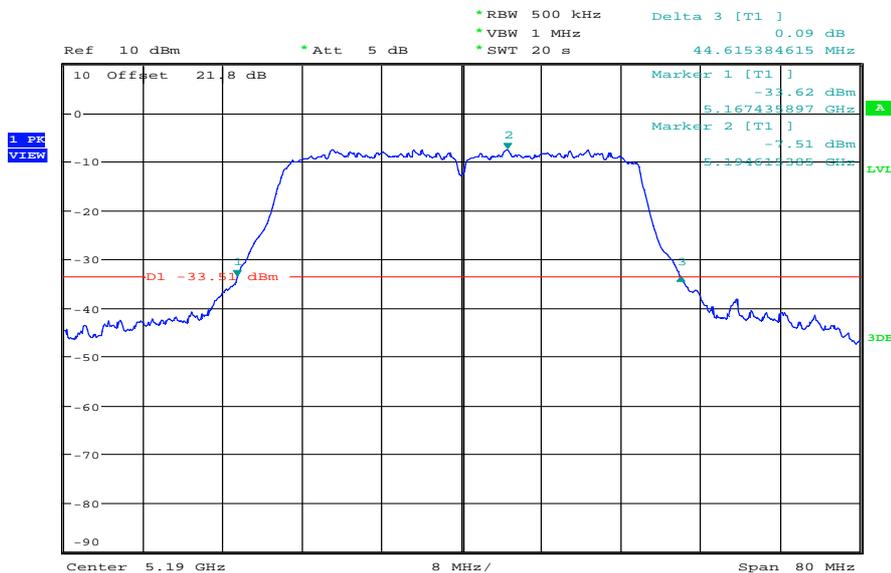
Plot 7: 5700 MHz



Date: 25.APR.2012 10:46:38

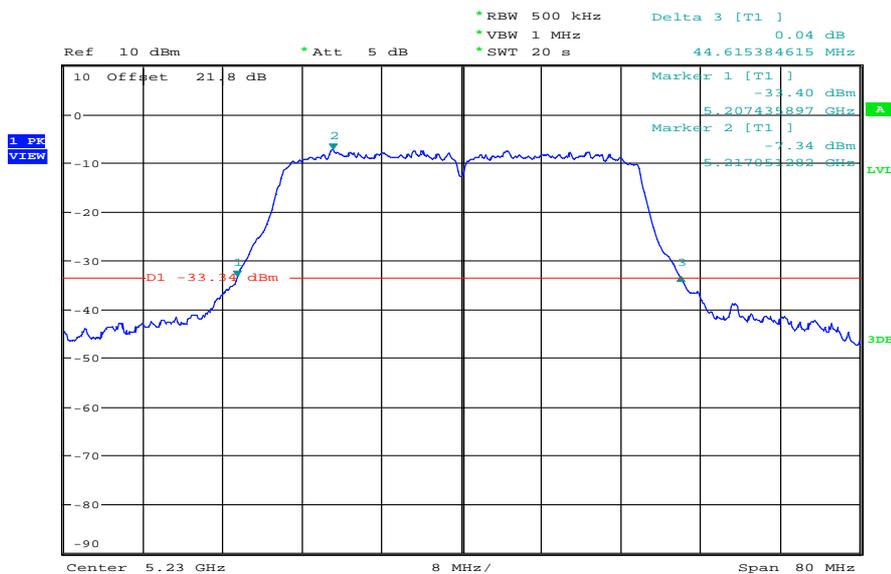
**Plots: OFDM / a – mode HT40**

**Plot 1: 5190 MHz**



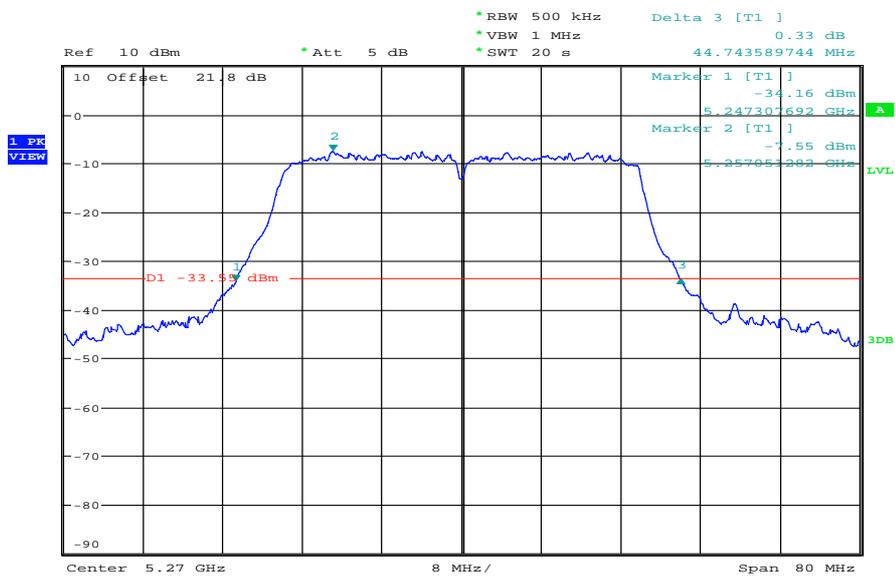
Date: 25.APR.2012 11:04:15

**Plot 2: 5230 MHz**



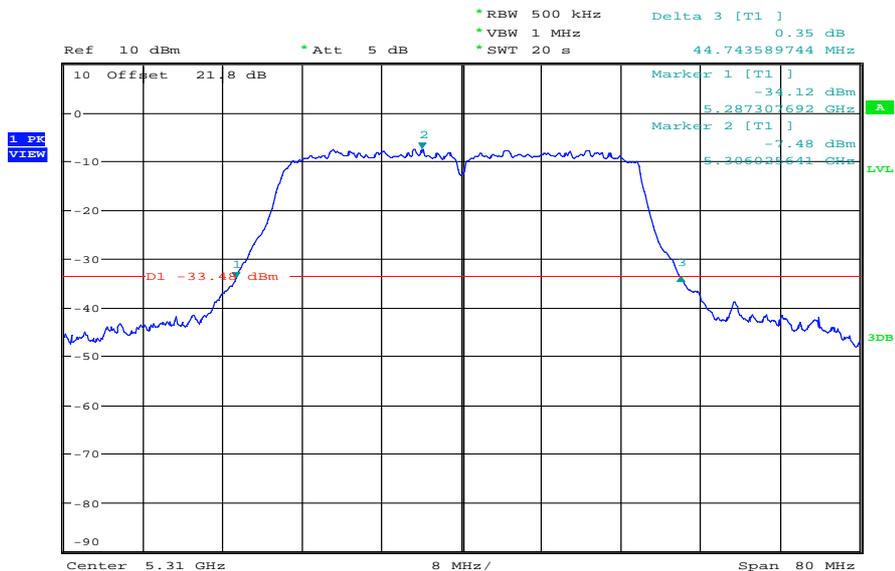
Date: 25.APR.2012 11:14:16

Plot 3: 5270 MHz



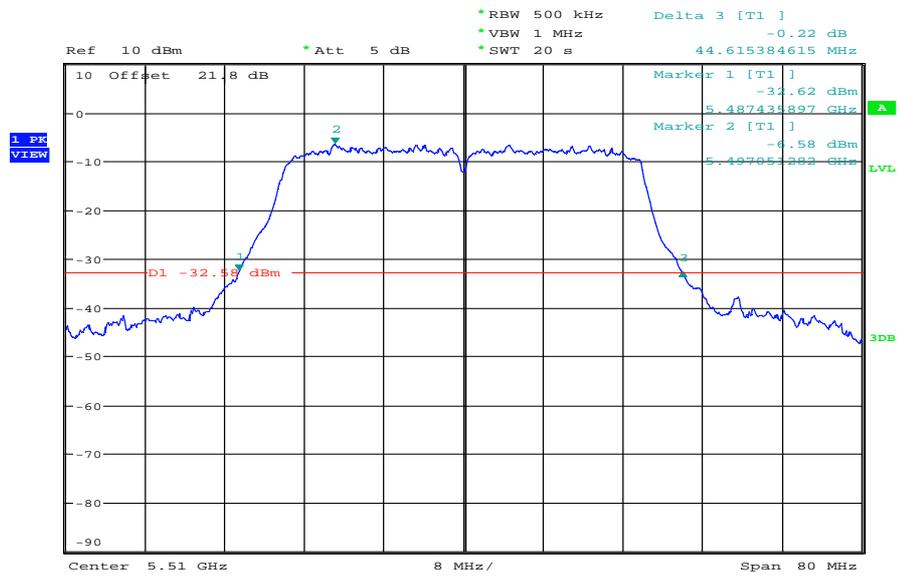
Date: 25.APR.2012 11:17:21

Plot 4: 5310 MHz



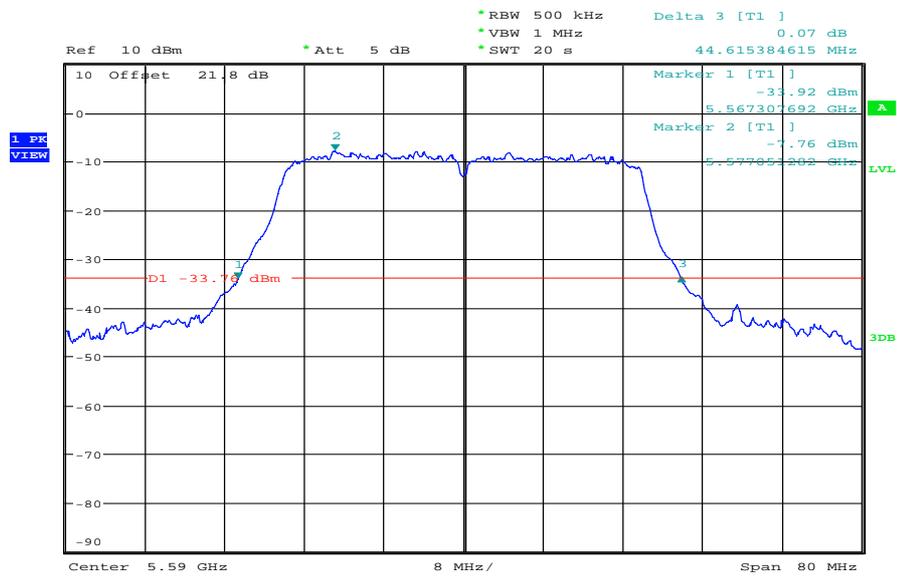
Date: 25.APR.2012 11:19:49

Plot 5: 5510 MHz



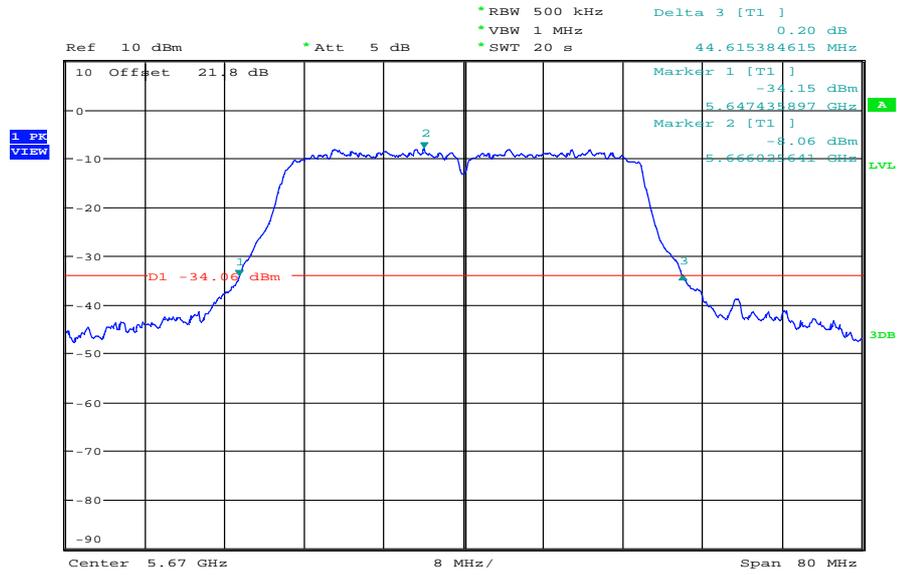
Date: 25.APR.2012 11:26:14

Plot 6: 5590 MHz



Date: 25.APR.2012 11:30:02

Plot 7: 5670 MHz



Date: 25.APR.2012 11:34:51

## 9.7 Peak excursion measurements

### Description:

Peak to average value.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	60 s / 120 s
Resolution bandwidth:	1 RBW
Video bandwidth:	≥ 3 MHz
Span:	Complete signal
Trace-Mode:	Max hold

### Limits:

Peak excursion value
Does not exceed 13 dB.

**Results:**

Modulation OFDM / a – mode	Peak excursion value		
	5180 MHz	5240 MHz	5260 MHz
Channel	5180 MHz	5240 MHz	5260 MHz
RMS	-8.74	-8.86	-8.92
Peak	0.12	0.04	-0.11
Peak excursion value	8.86	8.90	8.81
Channel	5320 MHz	5500 MHz	5600 MHz
RMS	-7.69	-7.98	-9.49
Peak	1.12	1.04	-0.63
Peak excursion value	8.81	9.02	8.86
Channel	5700 MHz	-/-	-/-
RMS	-9.35	-/-	-/-
Peak	-0.59		
Peak excursion value	8.76		
Measurement uncertainty	± 0.5 dB		

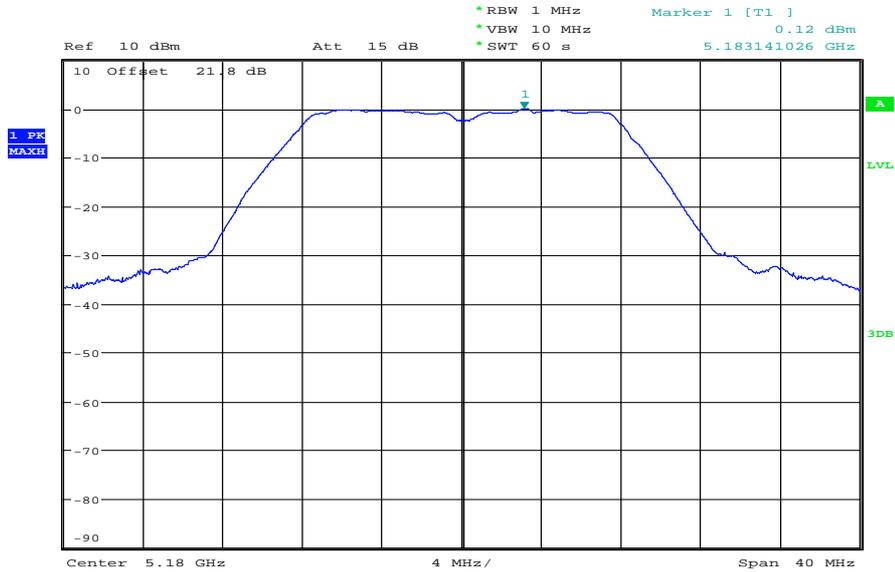
Modulation OFDM / n – mode HT20	Peak excursion value		
	5180 MHz	5240 MHz	5260 MHz
Channel	5180 MHz	5240 MHz	5260 MHz
RMS	-9.16	-9.11	-9.24
Peak	-0.08	-0.17	-0.30
Peak excursion value	9.08	8.94	8.94
Channel	5320 MHz	5500 MHz	5600 MHz
RMS	-8.28	-8.24	-9.68
Peak	0.96	0.83	-0.82
Peak excursion value	9.24	9.07	8.86
Channel	5700 MHz	-/-	-/-
RMS	-9.71	-/-	-/-
Peak	-0.77		
Peak excursion value	8.94		
Measurement uncertainty	± 0.5 dB		

Modulation OFDM / n – mode HT40	Peak excursion value		
	5190 MHz	5230 MHz	5270 MHz
Channel	5190 MHz	5230 MHz	5270 MHz
RMS	-12.04	-12.03	-12.17
Peak	-3.21	-3.18	-3.21
Peak excursion value	8.83	8.85	8.96
Channel	5310 MHz	5510 MHz	5590 MHz
RMS	-12.14	-11.18	-12.34
Peak	-3.10	-2.25	-3.51
Peak excursion value	9.04	8.93	8.83
Channel	5670 MHz	-/-	-/-
RMS	-12.74	-/-	-/-
Peak	-3.75		
Peak excursion value	8.99		
Measurement uncertainty	± 0.5 dB		

**Result: Passed**

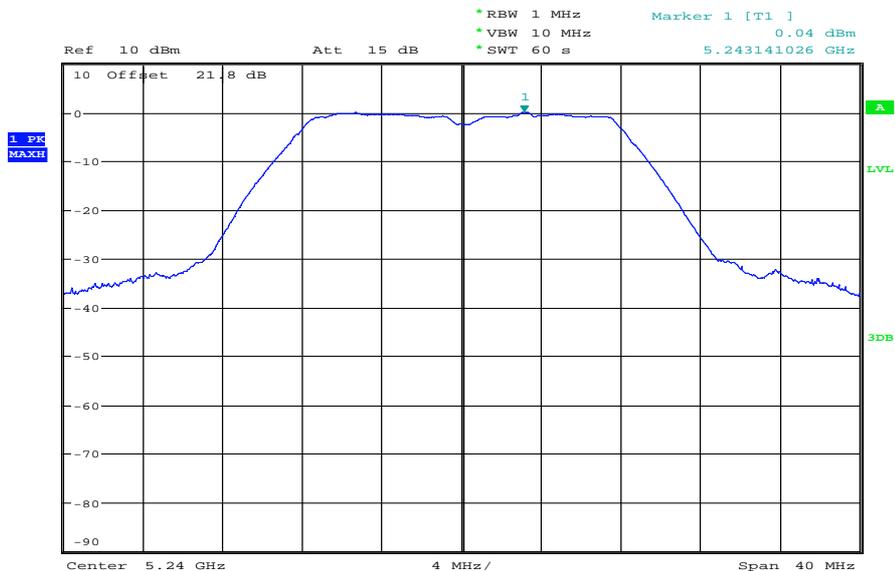
**Plots: OFDM / a – mode**

**Plot 1: 5180 MHz**



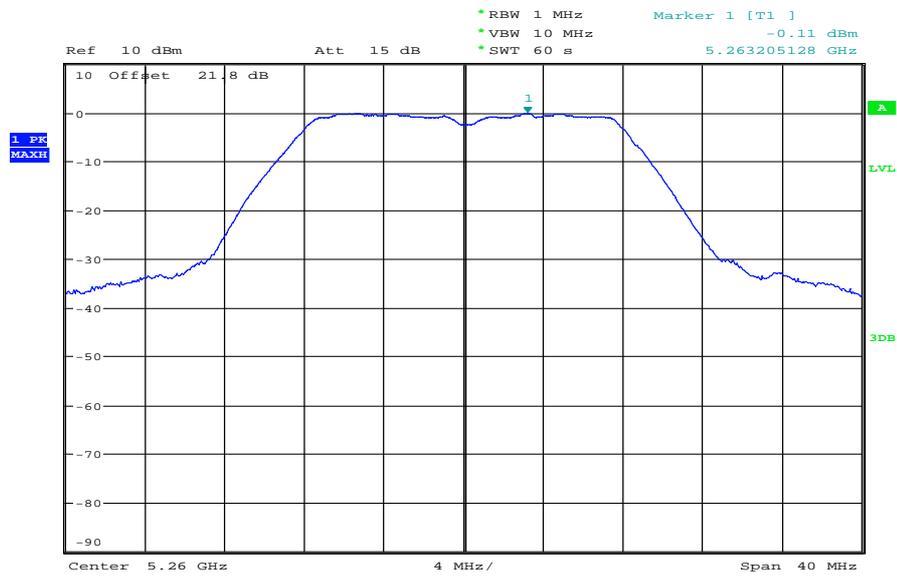
Date: 26.APR.2012 10:18:17

**Plot 2: 5240 MHz**



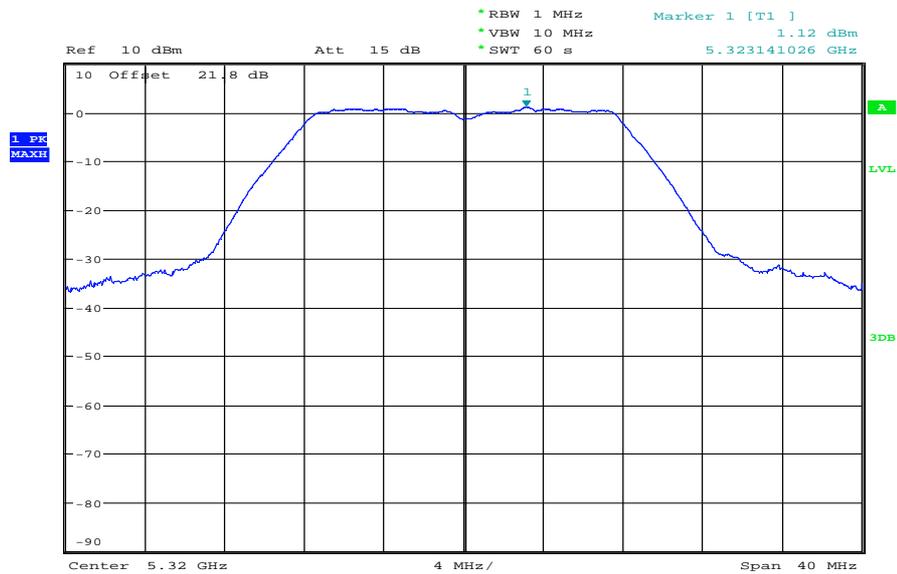
Date: 26.APR.2012 10:20:56

Plot 3: 5260 MHz



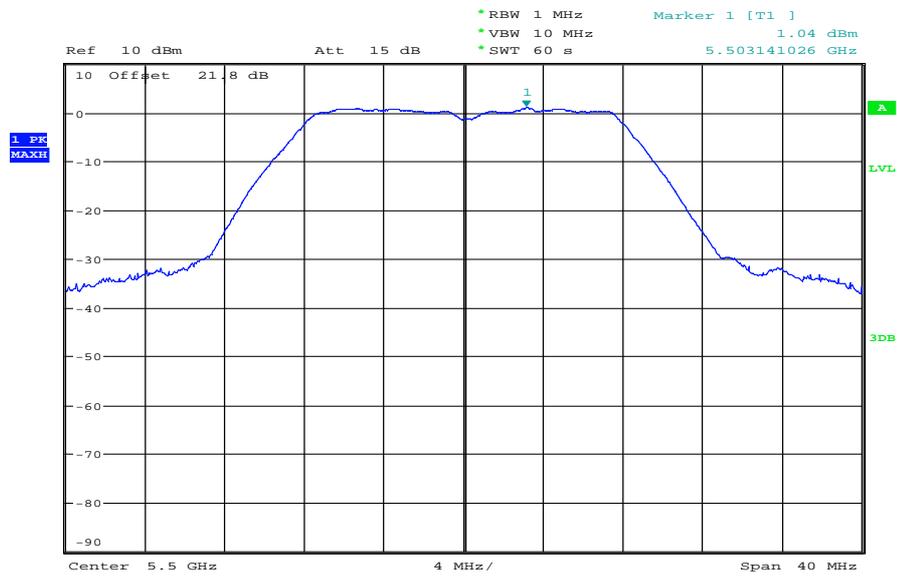
Date: 26.APR.2012 10:24:39

Plot 4: 5320 MHz



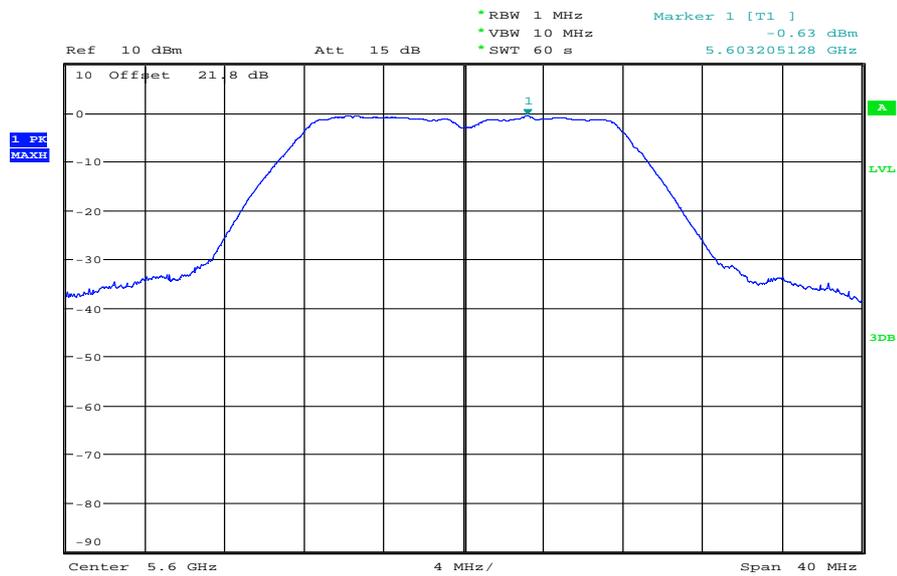
Date: 26.APR.2012 10:27:35

Plot 5: 5500 MHz



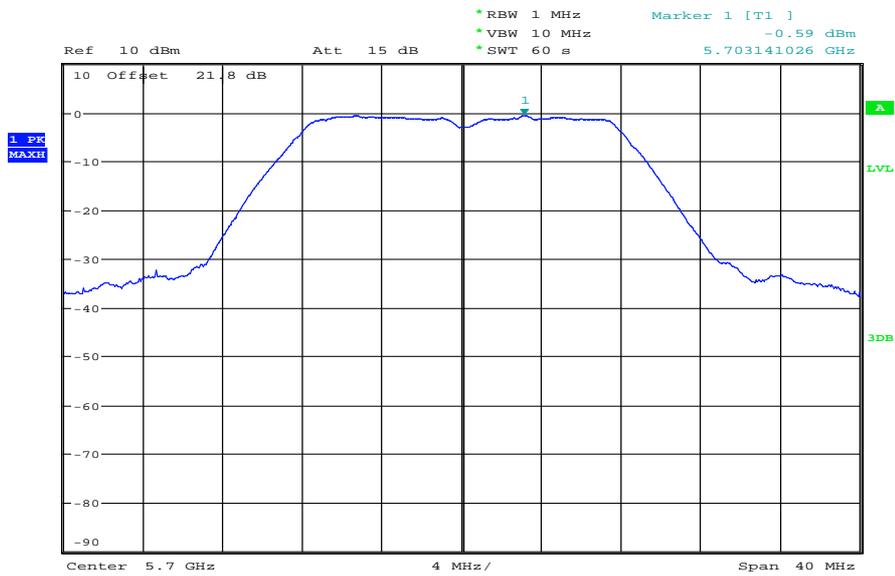
Date: 26.APR.2012 10:29:23

Plot 6: 5600 MHz



Date: 26.APR.2012 10:31:23

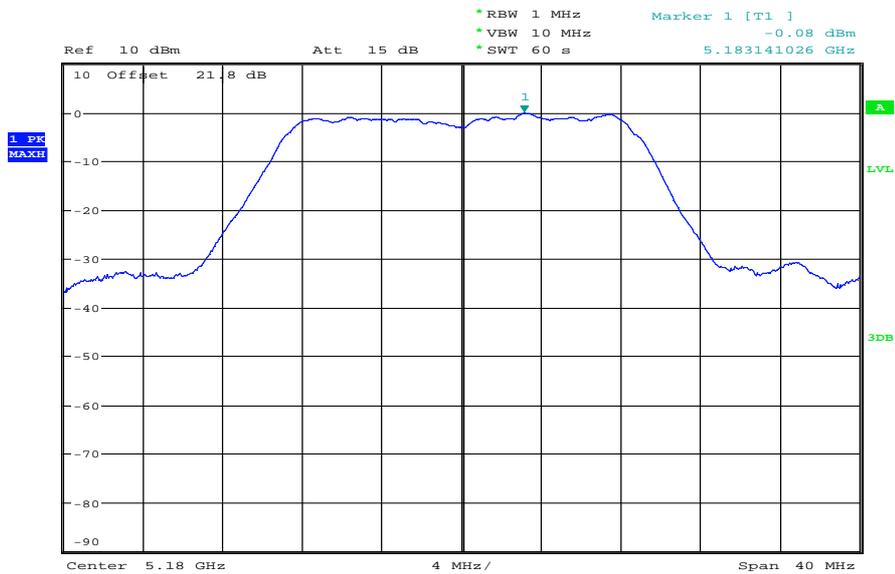
Plot 7: 5700 MHz



Date: 26.APR.2012 10:39:05

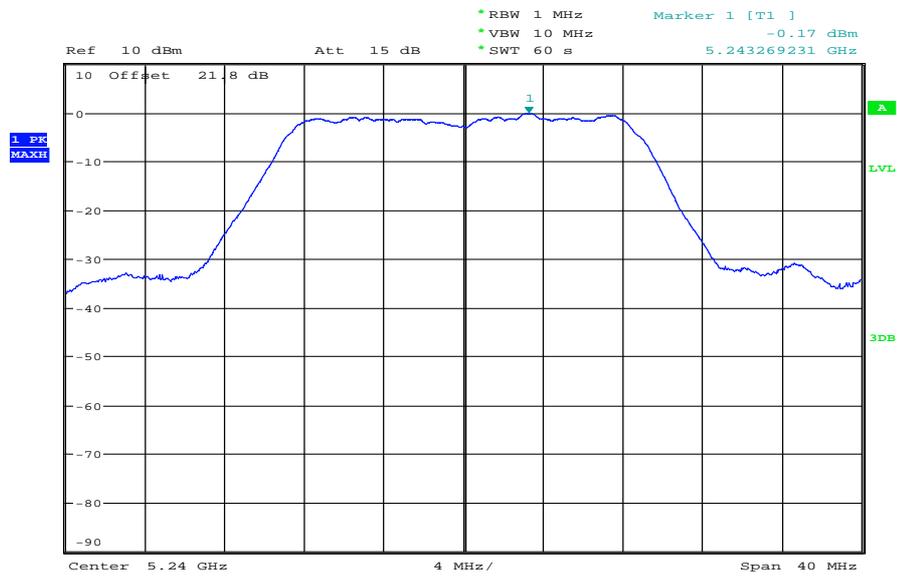
**Plots: OFDM / n – mode HT20**

Plot 1: 5180 MHz



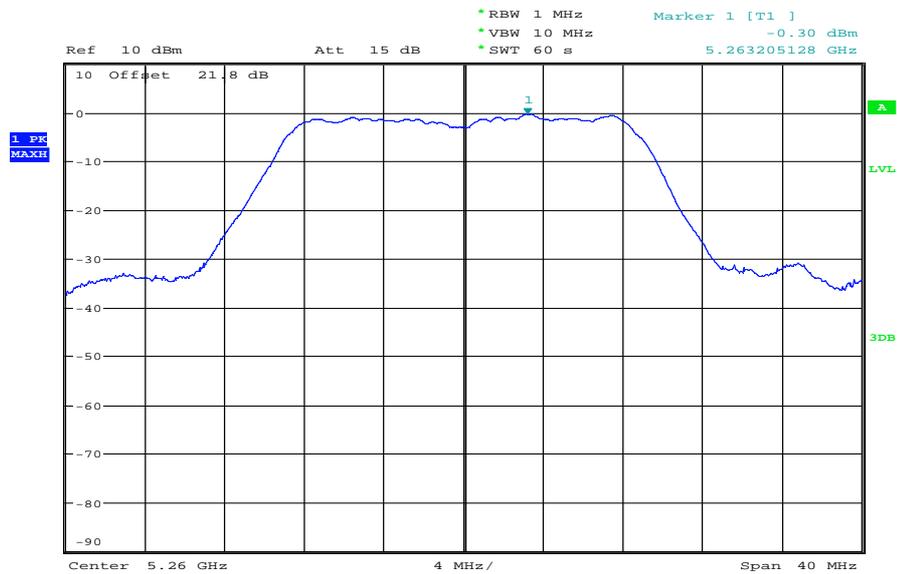
Date: 26.APR.2012 10:43:21

Plot 2: 5240 MHz



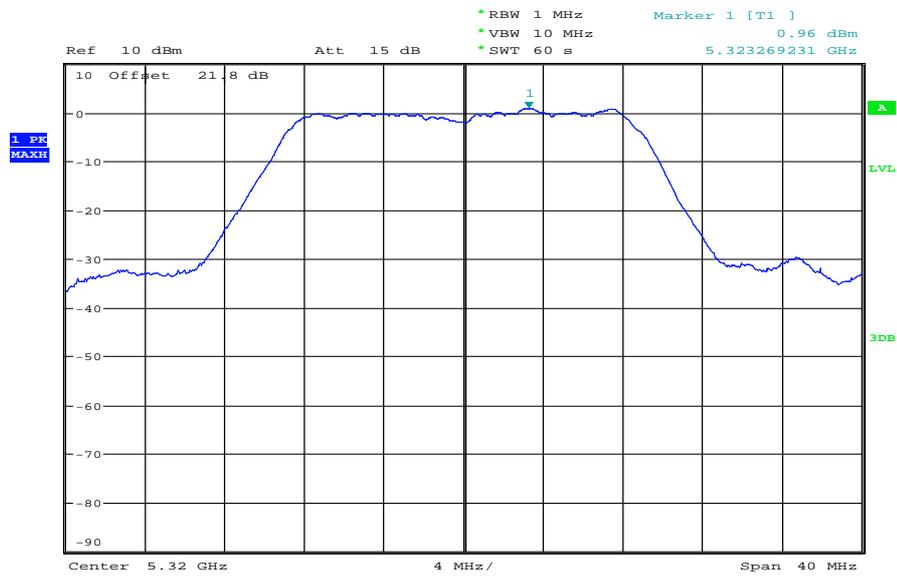
Date: 26.APR.2012 10:45:12

Plot 3: 5260 MHz



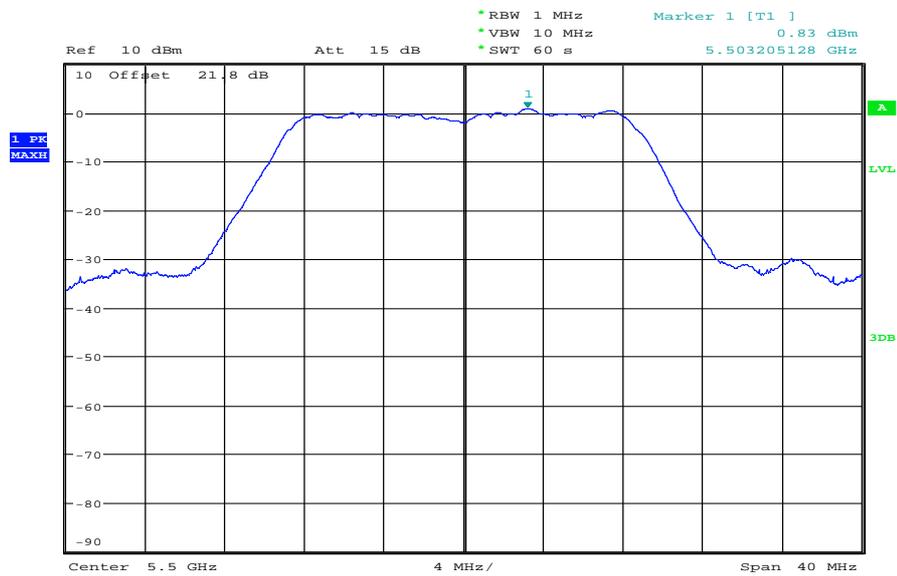
Date: 26.APR.2012 10:46:52

Plot 4: 5320 MHz



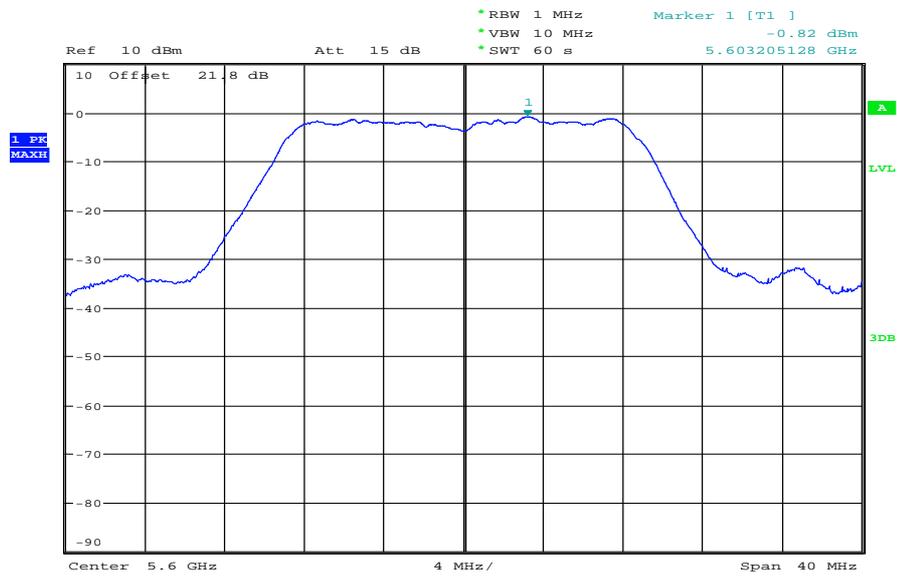
Date: 26.APR.2012 10:49:31

Plot 5: 5500 MHz



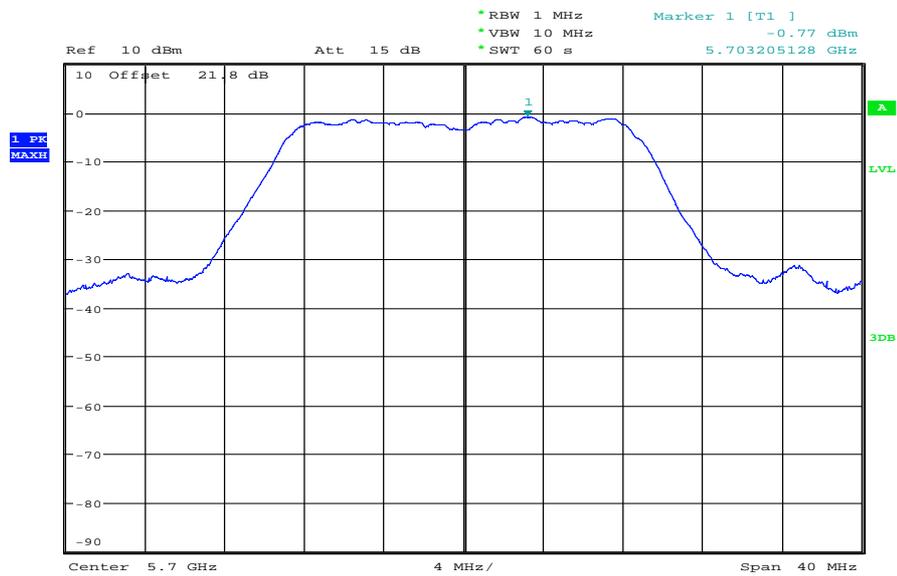
Date: 26.APR.2012 10:51:33

Plot 6: 5600 MHz



Date: 26.APR.2012 10:53:12

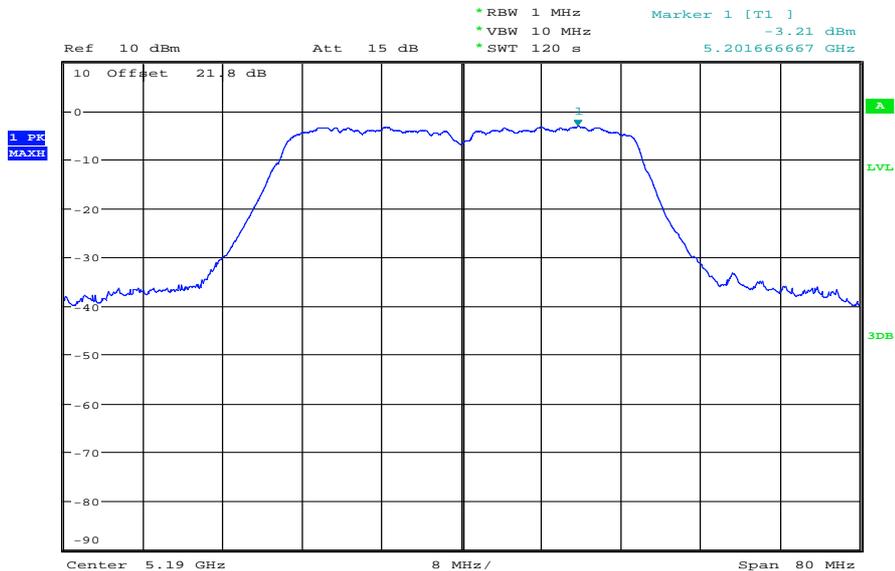
Plot 7: 5700 MHz



Date: 26.APR.2012 10:55:35

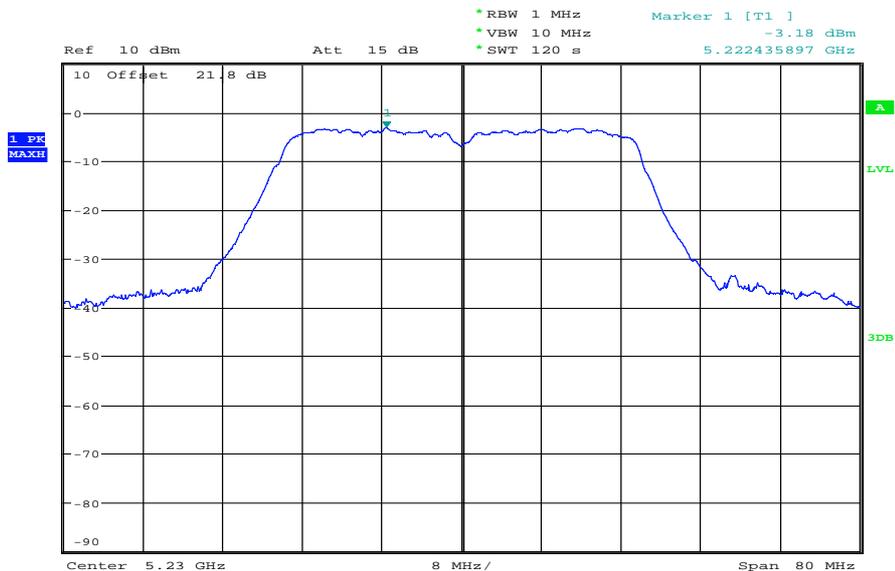
**Plots: OFDM / a – mode HT40**

**Plot 1: 5190 MHz**



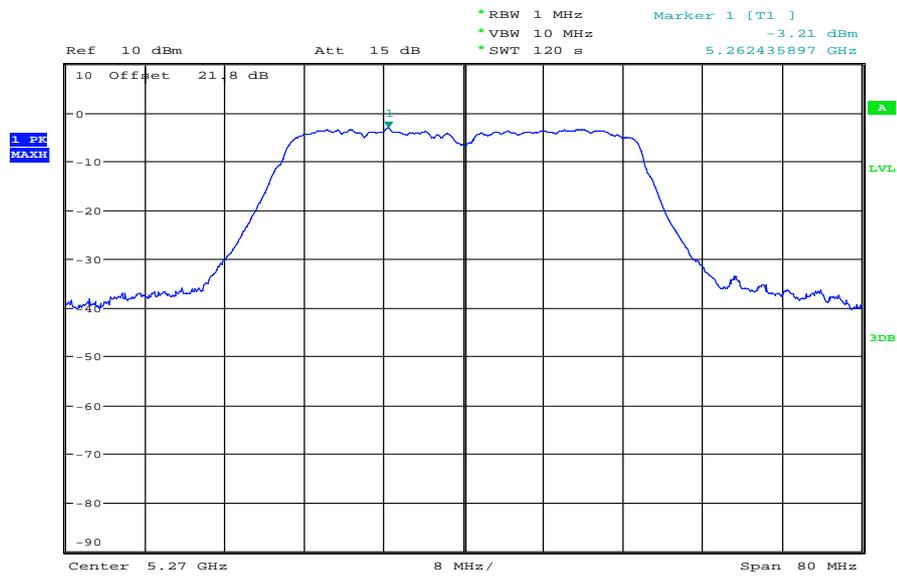
Date: 26.APR.2012 10:59:04

**Plot 2: 5230 MHz**



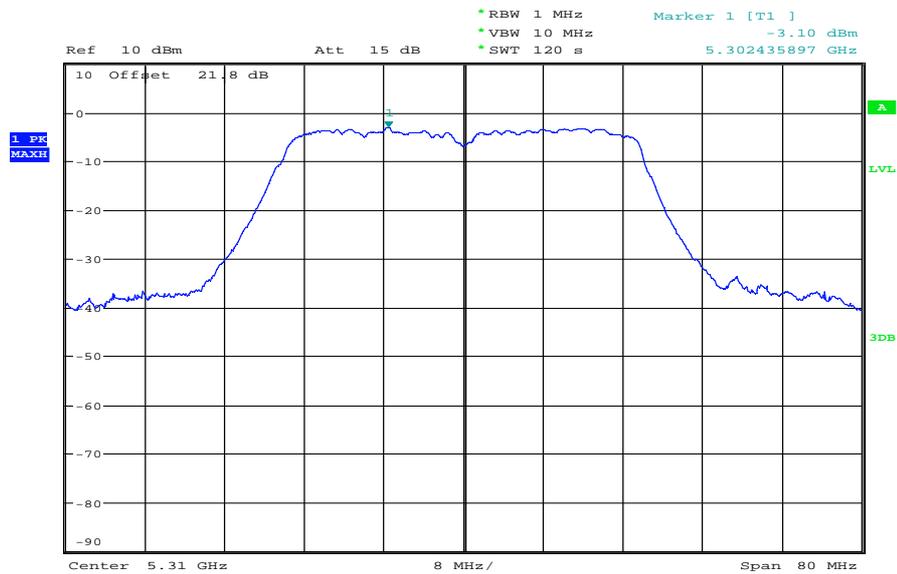
Date: 26.APR.2012 11:01:53

Plot 3: 5270 MHz



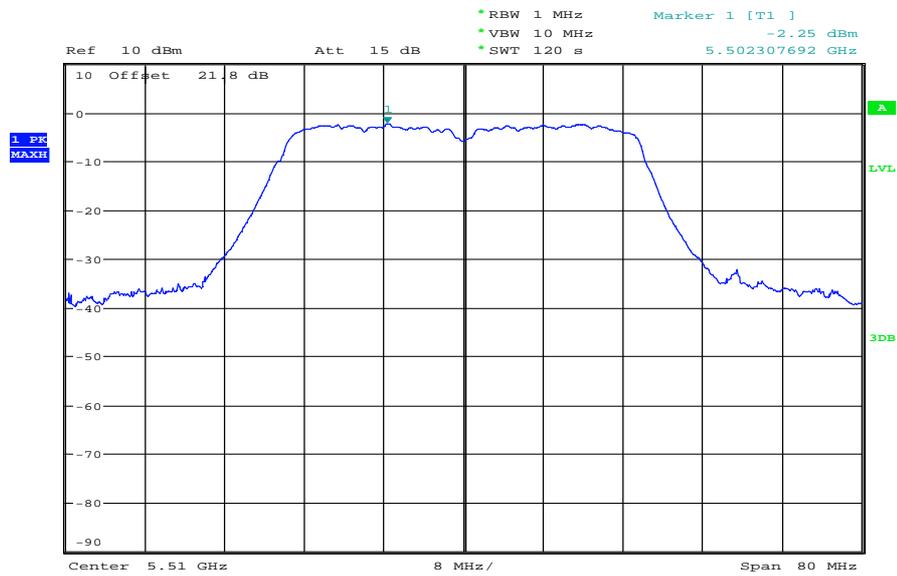
Date: 26.APR.2012 11:06:07

Plot 4: 5310 MHz



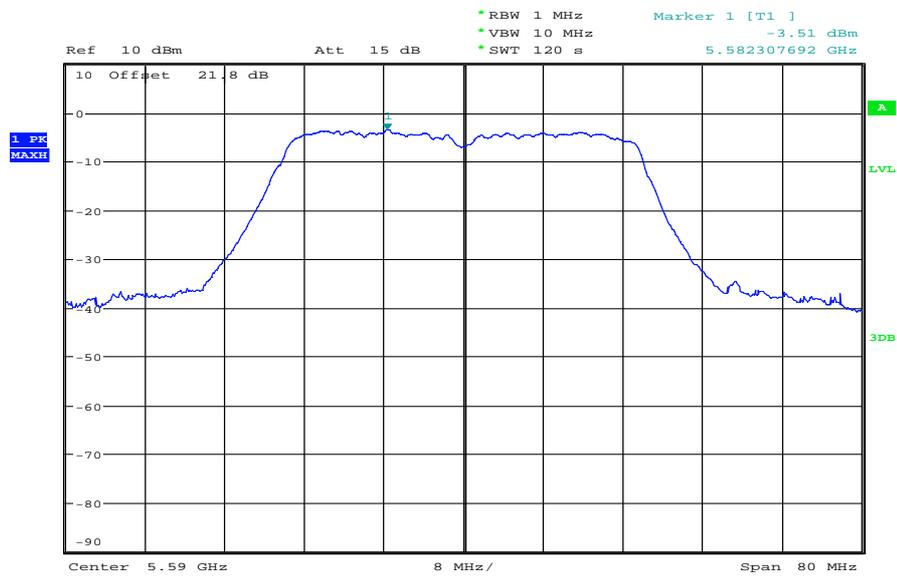
Date: 26.APR.2012 11:08:50

Plot 5: 5510 MHz



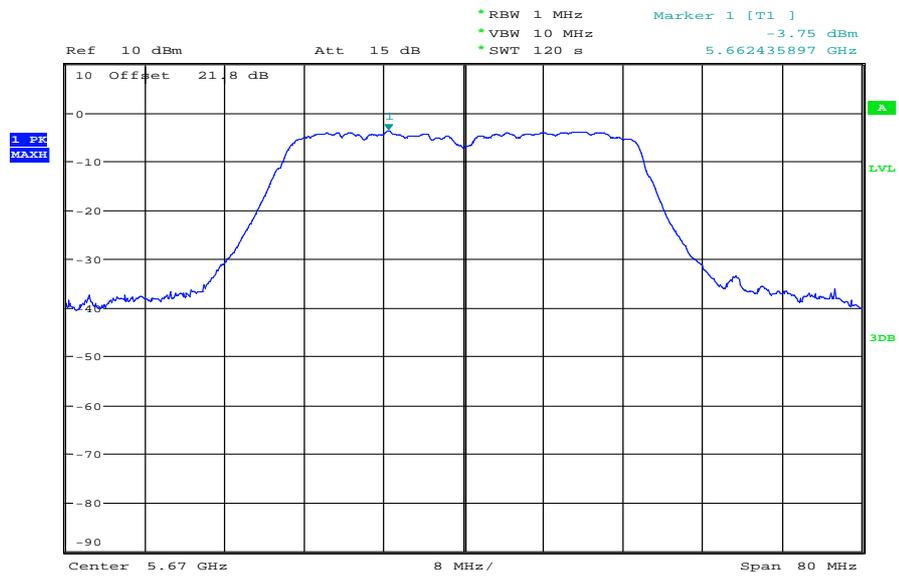
Date: 26.APR.2012 11:11:32

Plot 6: 5590 MHz



Date: 26.APR.2012 11:14:32

Plot 7: 5670 MHz



Date: 26.APR.2012 11:18:42

## 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 the lowest channel for the lower restricted band and to the highest channel for the upper restricted band. Measurement distance is 3m.

### Measurement:

Measurement parameter	
Detector:	Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	10 Hz / 3 MHz
Span:	5150 MHz $\pm$ 100 MHz
Trace-Mode:	Max Hold

### Limits:

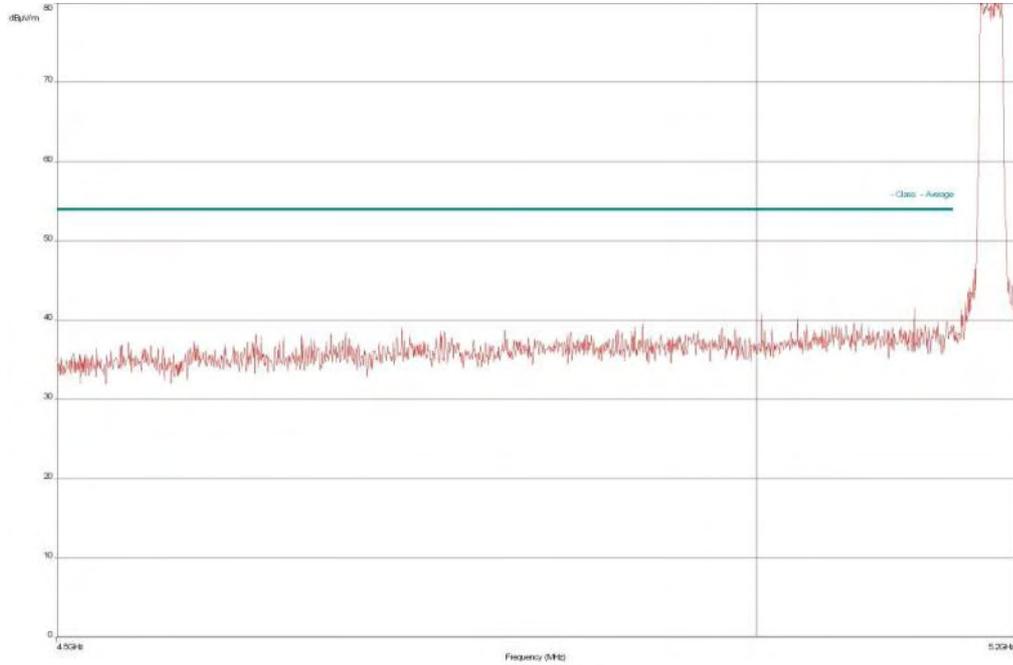
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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)).
54 dB $\mu$ V/m AVG

### Result:

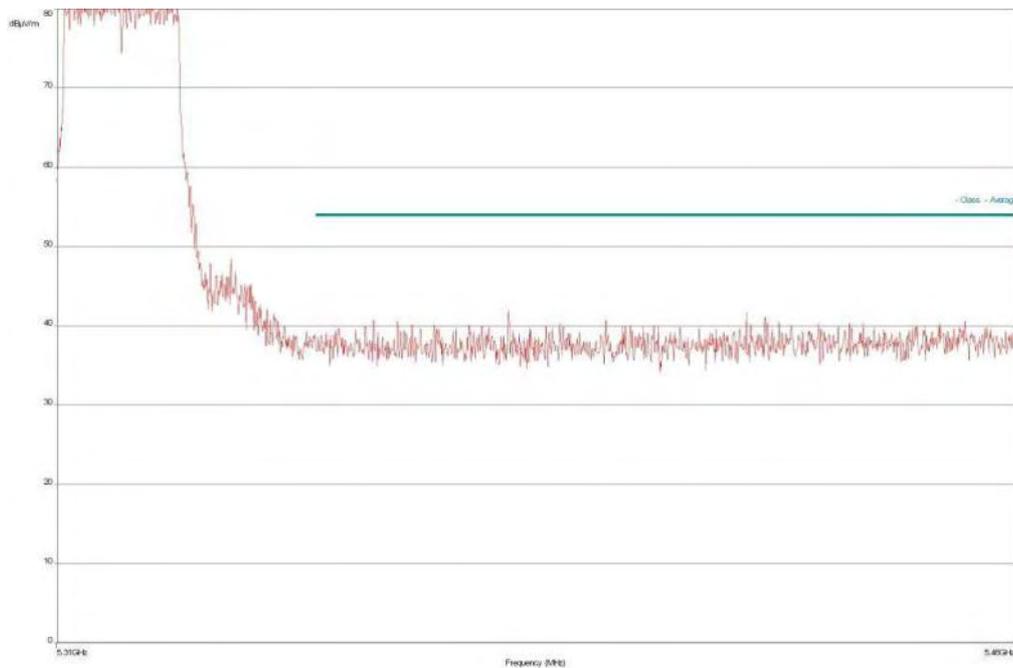
Szenario	Band Edge Compliance Radiated [dB $\mu$ V/m]
Lower Band Edge	< 54 dB $\mu$ V/m
Measurement uncertainty	$\pm$ 3 dB

**Plots:**

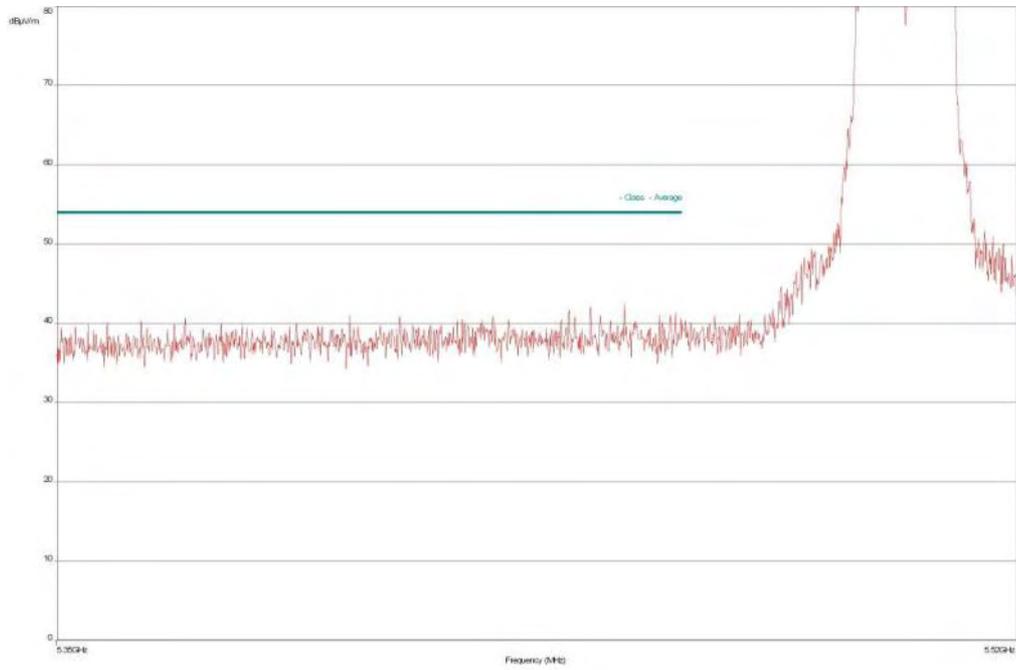
**Plot 1:** lower band edge, vertical & horizontal polarization (n HT 20 mode / a mode), channel 36



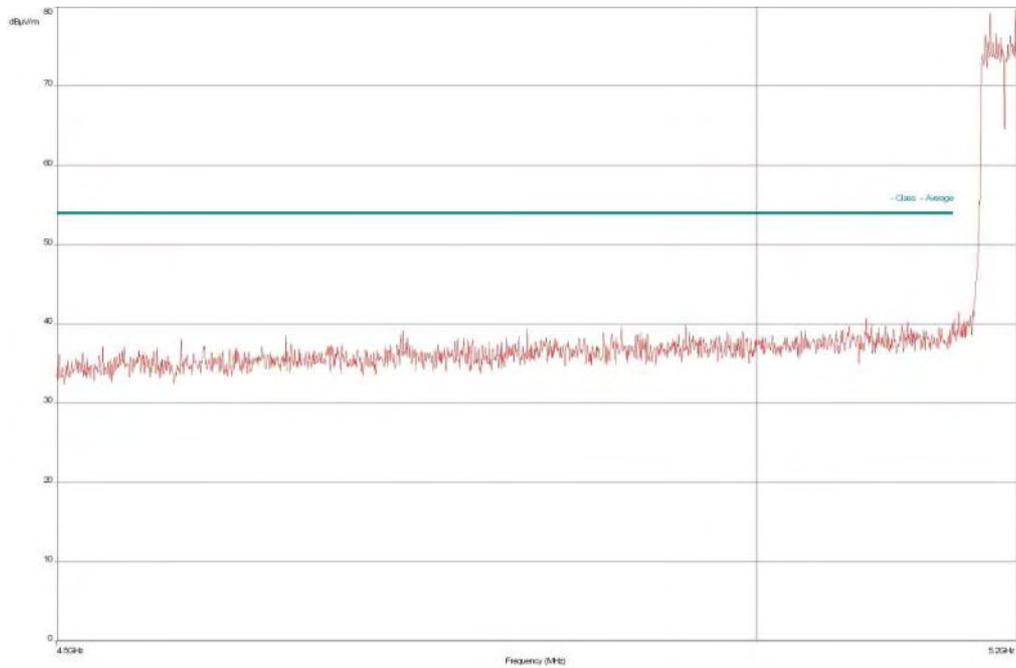
**Plot 2:** upper band edge, vertical & horizontal polarization (n HT 20 mode / a mode), channel 64



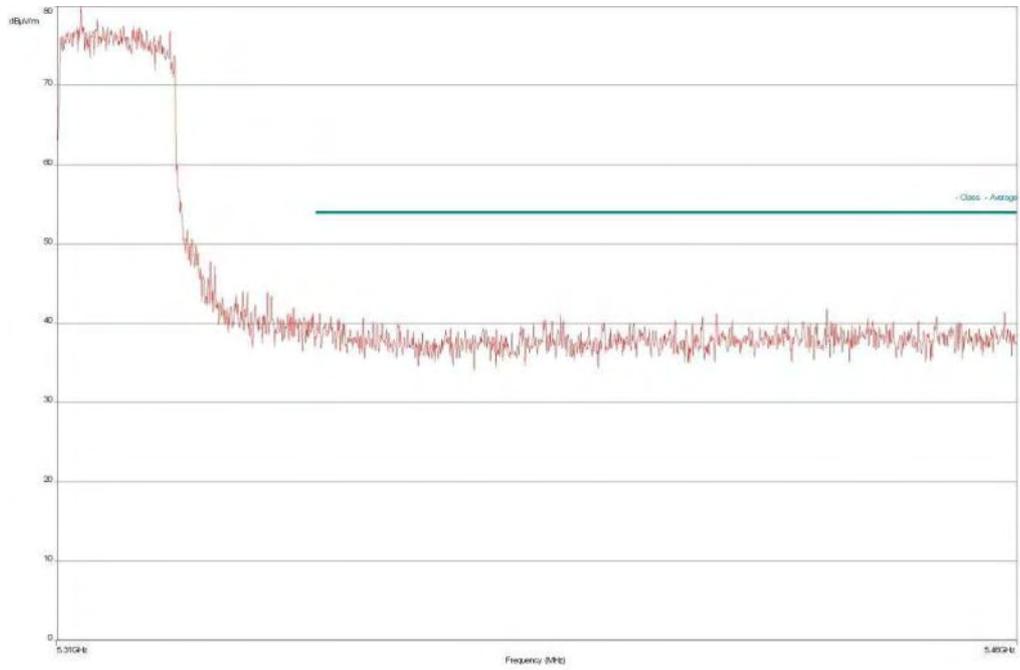
**Plot 3:** lower band edge, vertical & horizontal polarization (n HT 20 mode / a mode), channel 100



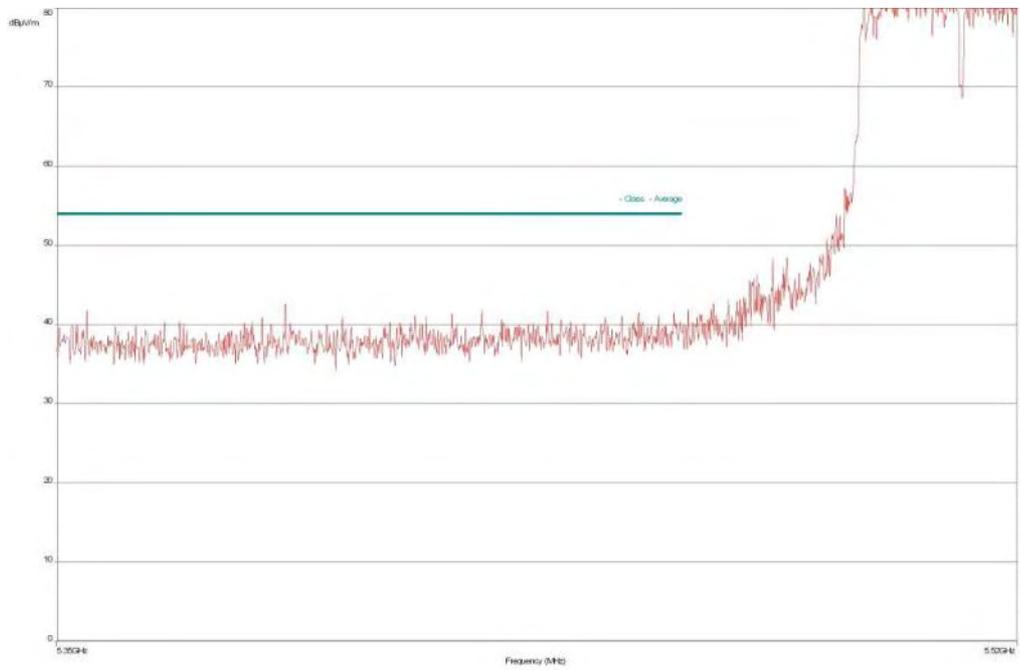
**Plot 4:** lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 36



**Plot 5:** upper band edge, vertical & horizontal polarization (n HT 40 mode), channel 60



**Plot 6:** lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 100



**Result:** Passed

## 9.9 TX spurious emissions radiated

**Description:**

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at lowest, middle and highest channel.

**Measurement:**

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak)  Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz / 10 Hz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %

**Limits:**

TX Spurious Emissions Radiated		
§15.209		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

**Results:**

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM a – mode								
Lowest			Middle			Highest		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT20								
Lowest			Middle			Highest		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT40								
Lowest			Middle			Highest		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

**Note:**

Results of the OFDM / n – mode HT40 are added to show the behaviour of the EUT.

**Result: Passed**

**Plots:** OFDM / n – mode HT40

**Plot 1:** 30 MHz to 1 GHz, channel 36, vertical & horizontal polarization

### Common Information

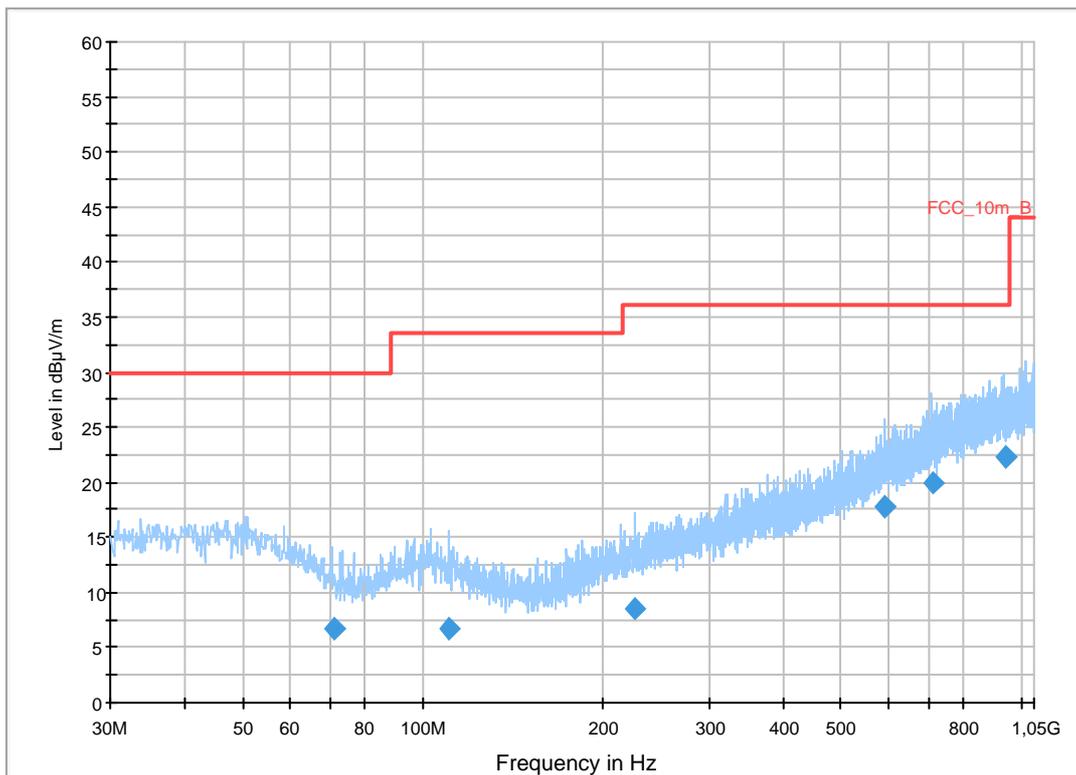
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV | IMEI: 00440245-009369-9  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: W-LAN 5GHz band, TX ch 36 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

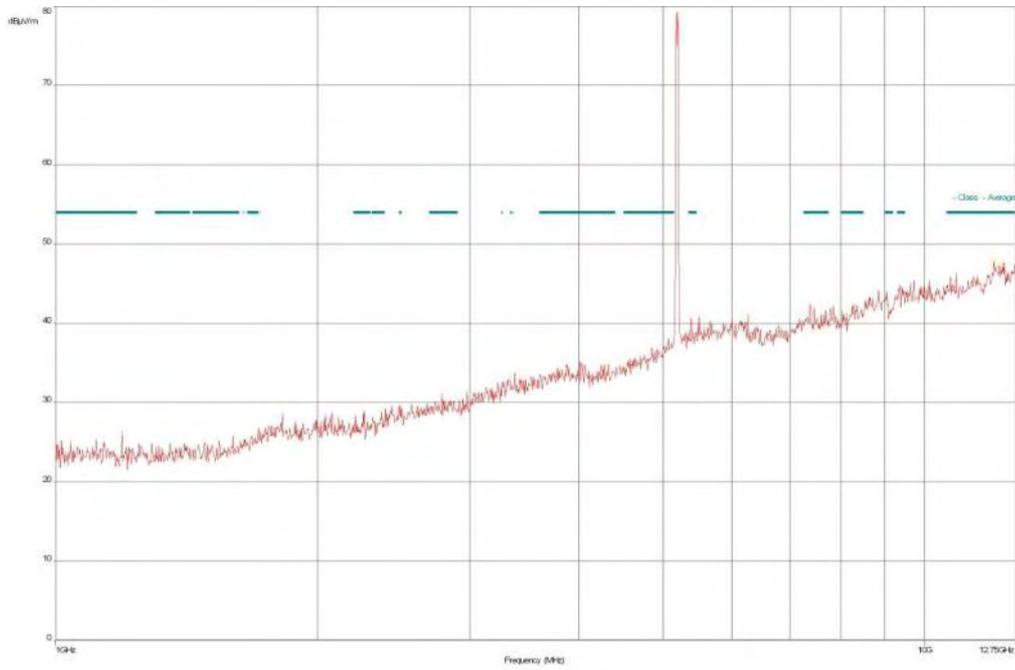
FCC\_10m(B)\_3



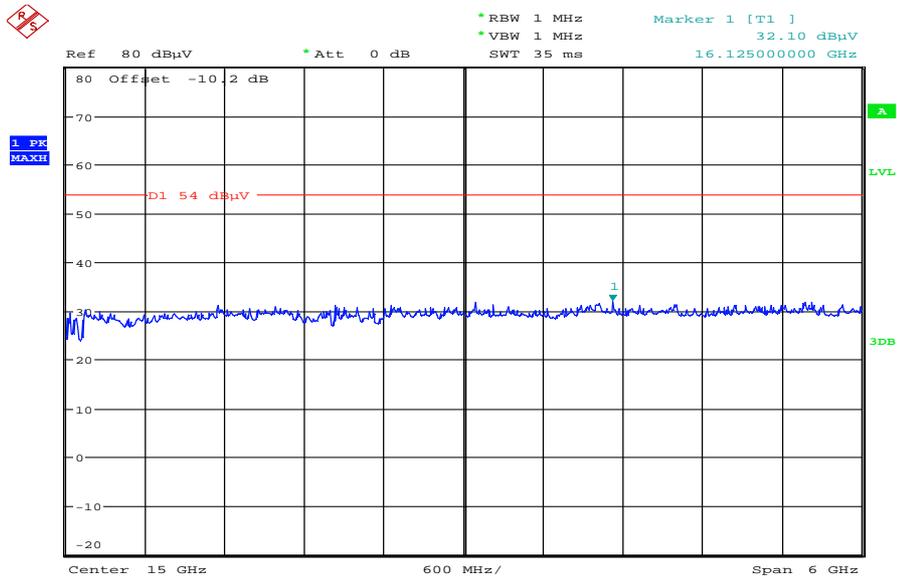
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
70.822950	6.6	1000.0	120.00	170.0	V	190.0	9.3	23.4	30.0	
110.370150	6.6	1000.0	120.00	111.0	H	-1.0	11.0	26.9	33.5	
224.996850	8.5	1000.0	120.00	157.0	V	-10.0	12.5	27.5	36.0	
592.448250	17.7	1000.0	120.00	170.0	H	85.0	20.6	18.3	36.0	
709.857750	19.9	1000.0	120.00	149.0	V	190.0	22.7	16.1	36.0	
938.421600	22.3	1000.0	120.00	170.0	V	100.0	25.3	13.7	36.0	

**Plot 2:** 1 GHz to 12.75 GHz, channel 36, vertical & horizontal polarization

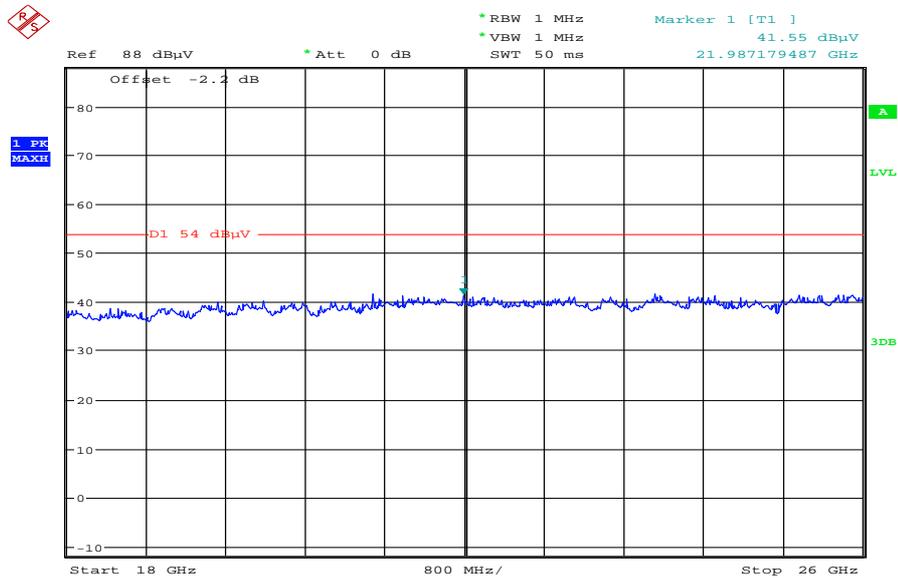


**Plot 3:** 12 GHz to 18 GHz, channel 36, vertical & horizontal polarization



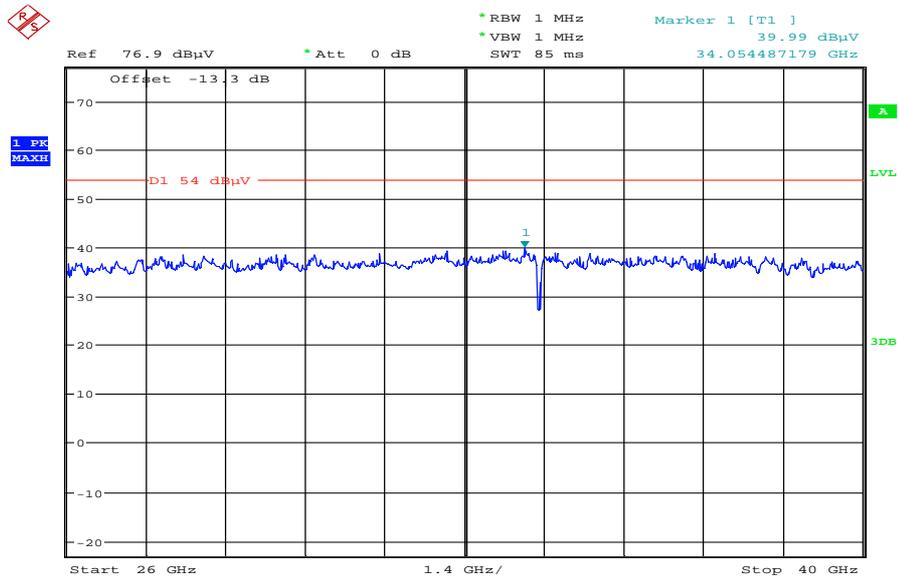
Date: 30.APR.2012 09:20:52

Plot 4: 18 GHz to 26 GHz, channel 36, vertical & horizontal polarization



Date: 30.APR.2012 09:31:27

Plot 5: 26 GHz to 40 GHz, channel 36, vertical & horizontal polarization



Date: 30.APR.2012 09:46:17

Plot 6: 30 MHz to 1 GHz, channel 44, vertical & horizontal polarization

### Common Information

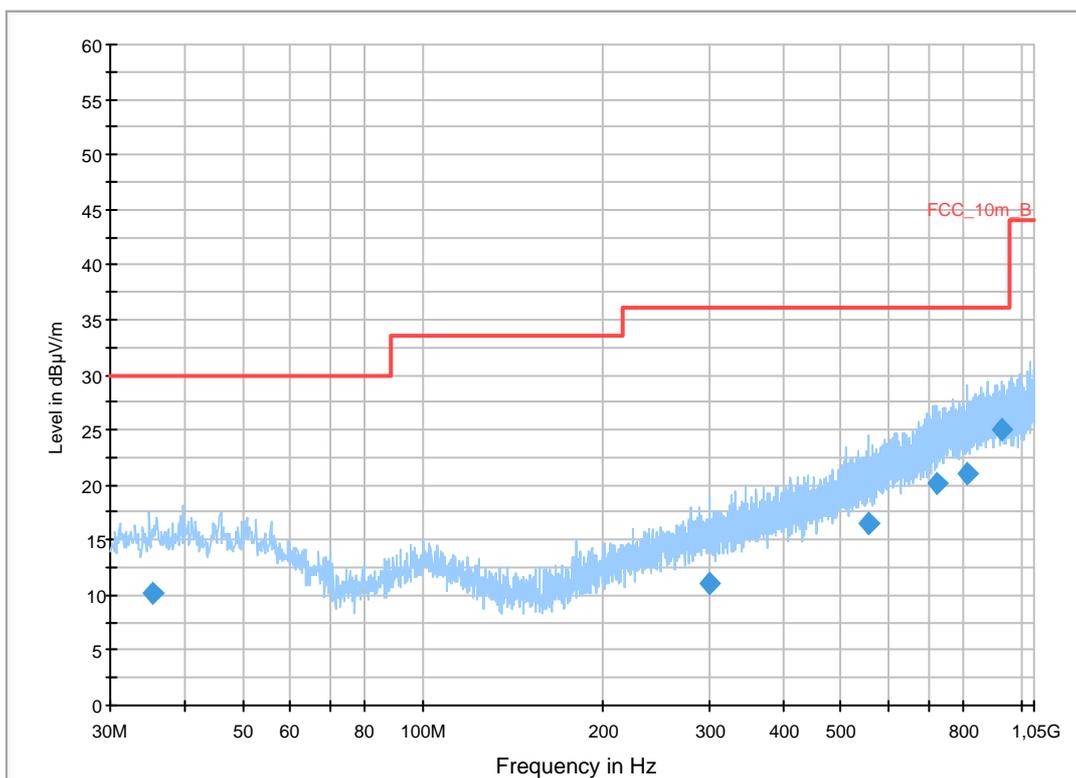
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV | IMEI: 00440245-009369-9  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: W-LAN 5GHz band, TX ch 44 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

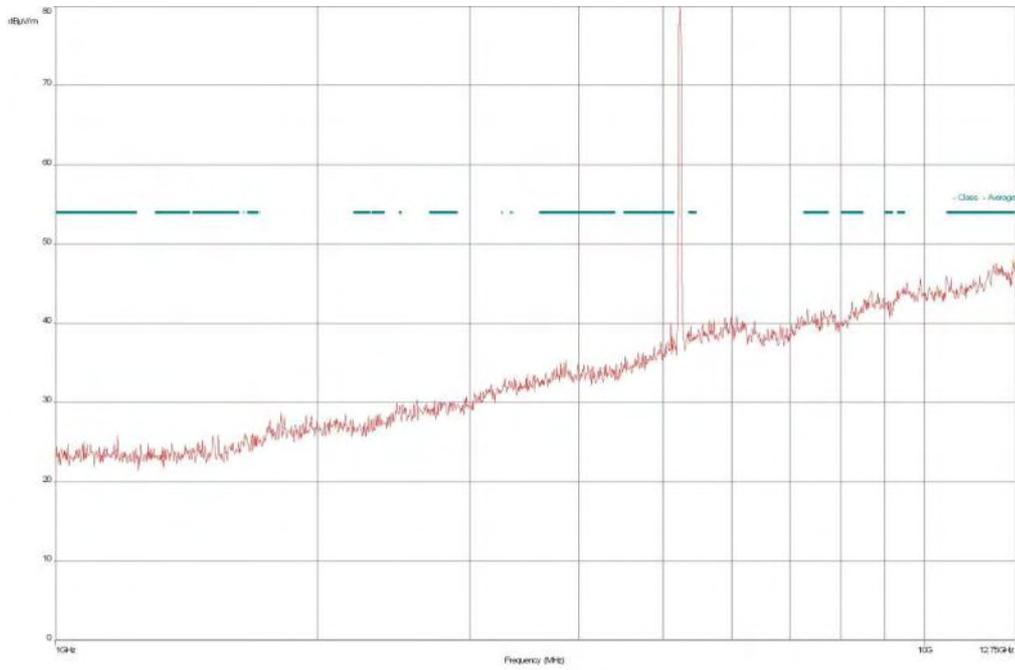
FCC\_10m(B)\_3



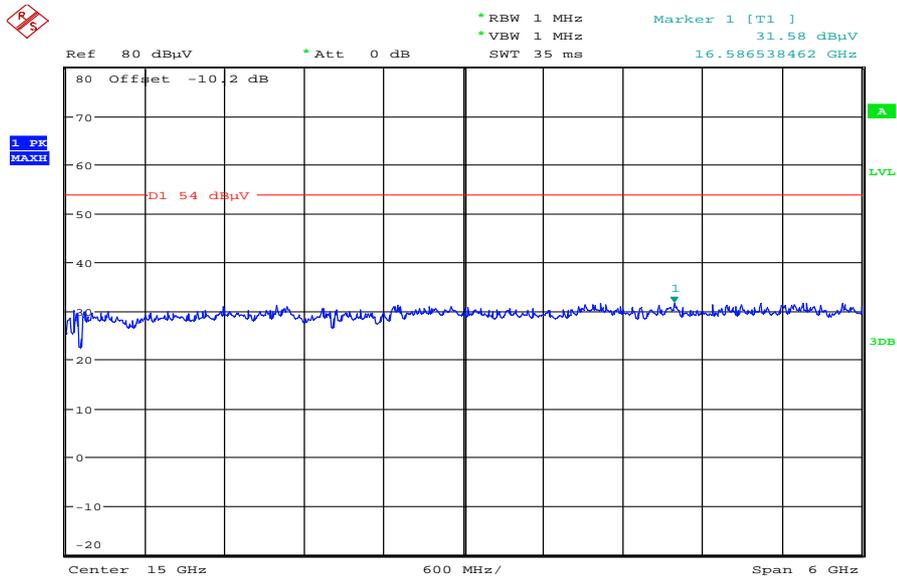
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.259300	10.1	1000.0	120.00	149.0	H	0.0	13.0	19.9	30.0	
300.812250	11.1	1000.0	120.00	142.0	V	175.0	14.5	24.9	36.0	
554.065650	16.5	1000.0	120.00	170.0	H	100.0	19.5	19.5	36.0	
722.205600	20.2	1000.0	120.00	170.0	H	-1.0	23.0	15.8	36.0	
815.046900	21.1	1000.0	120.00	111.0	V	280.0	24.0	14.9	36.0	
927.394500	25.0	1000.0	120.00	170.0	V	-1.0	25.3	11.0	36.0	

**Plot 7:** 1 GHz to 12.75 GHz, channel 44, vertical & horizontal polarization

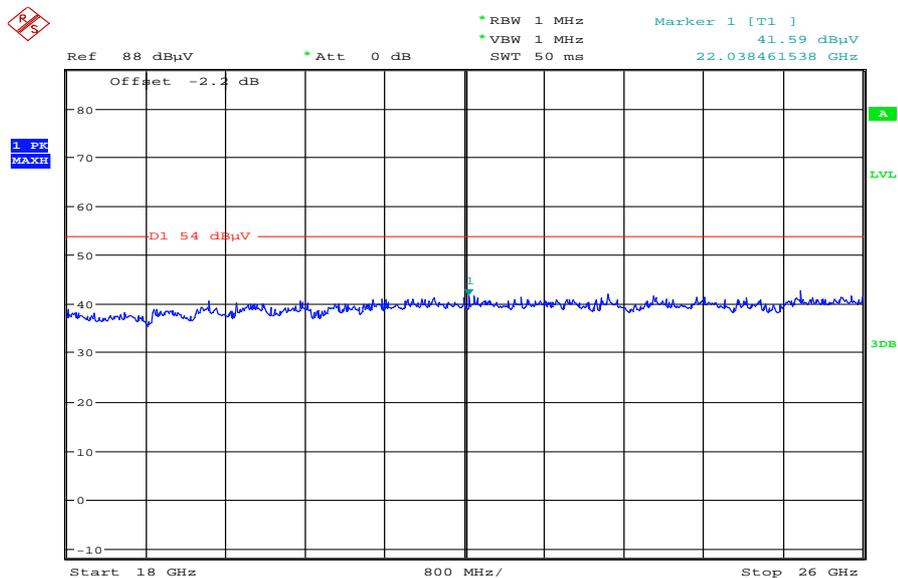


**Plot 8:** 12 GHz to 18 GHz, channel 44, vertical & horizontal polarization



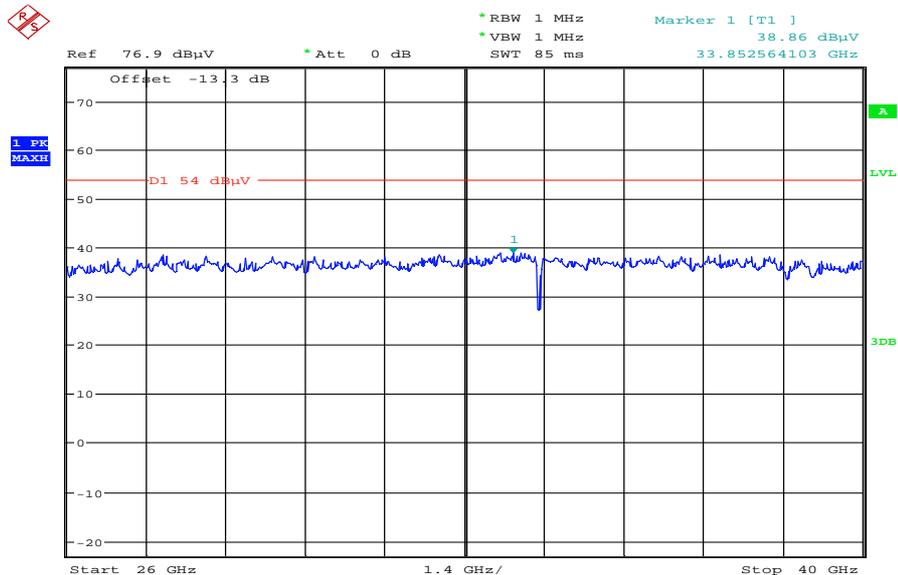
Date: 30.APR.2012 09:21:32

Plot 9: 18 GHz to 26 GHz, channel 44, vertical & horizontal polarization



Date: 30.APR.2012 09:32:09

Plot 10: 26 GHz to 40 GHz, channel 44, vertical & horizontal polarization



Date: 30.APR.2012 09:46:51

Plot 11: 30 MHz to 1 GHz, channel 52, vertical & horizontal polarization

### Common Information

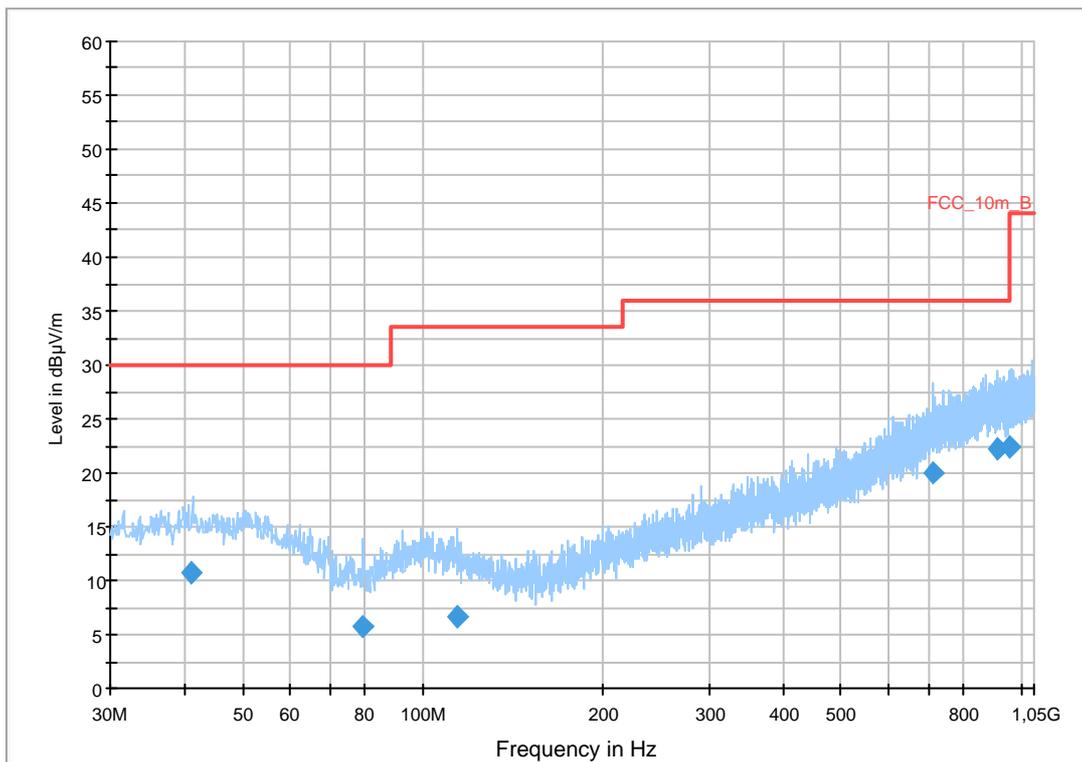
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: WLAN TX ch 52 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

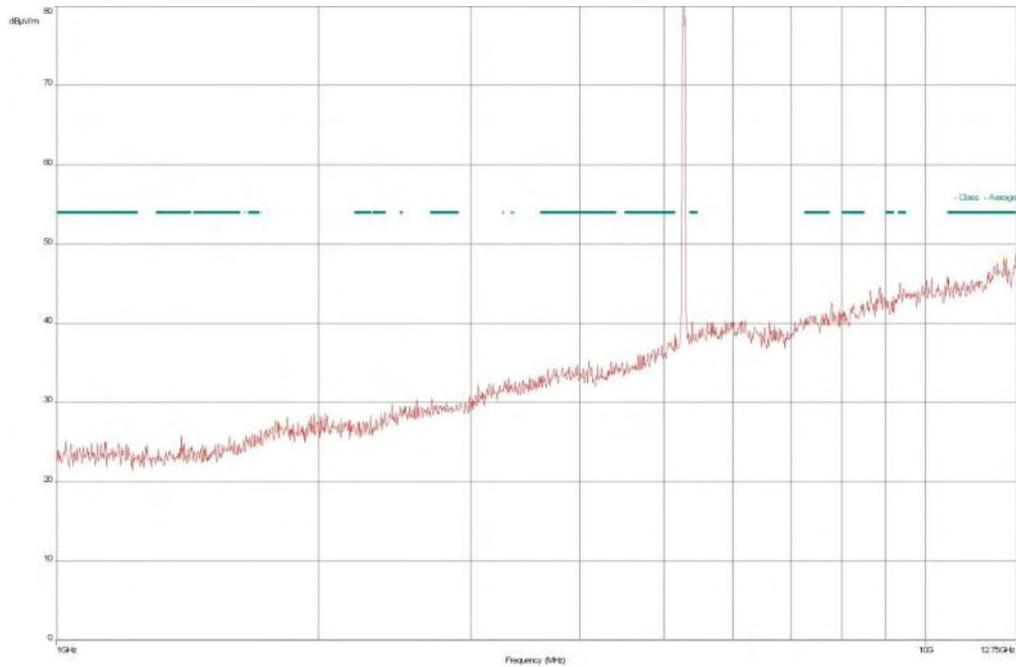
FCC\_10m(B)\_3



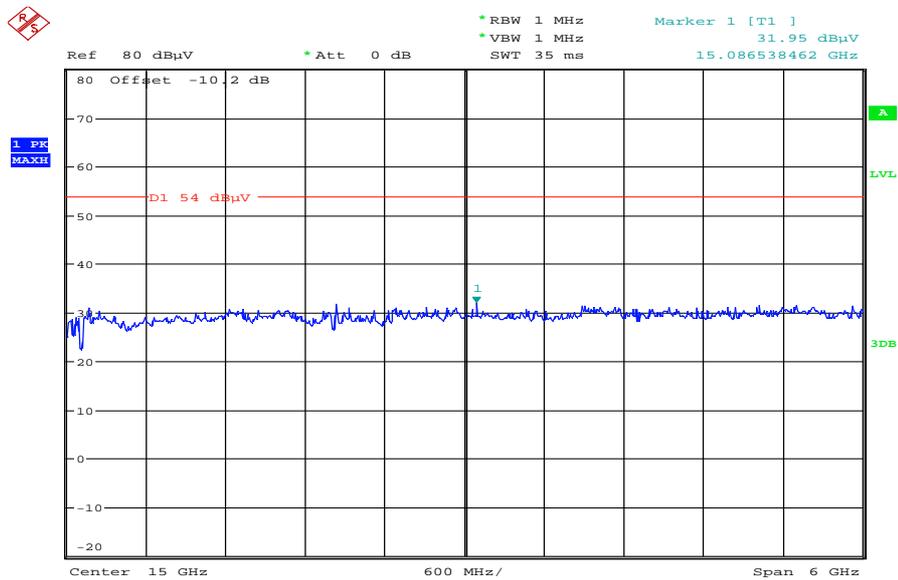
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.921050	10.8	1000.0	120.00	111.0	V	100.0	13.4	19.2	30.0	
79.136250	5.8	1000.0	120.00	170.0	V	1.0	9.1	24.2	30.0	
113.745900	6.7	1000.0	120.00	170.0	H	-10.0	10.7	26.8	33.5	
712.328550	20.0	1000.0	120.00	111.0	V	260.0	22.8	16.0	36.0	
910.246200	22.2	1000.0	120.00	149.0	V	175.0	25.2	13.8	36.0	
958.180500	22.4	1000.0	120.00	163.0	V	10.0	25.4	13.6	36.0	

Plot 12: 1 GHz to 12.75 GHz, channel 52, vertical & horizontal polarization

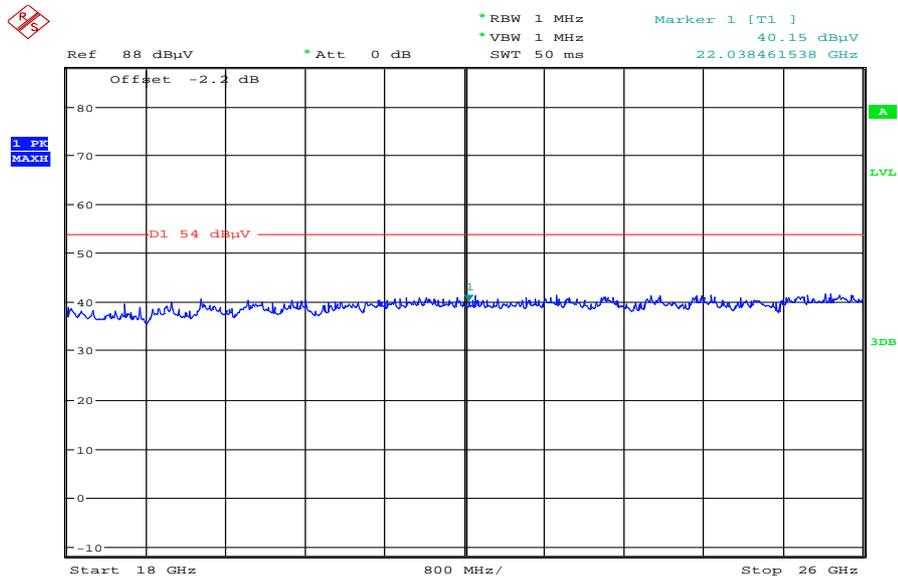


Plot 13: 12 GHz to 18 GHz, channel 52, vertical & horizontal polarization



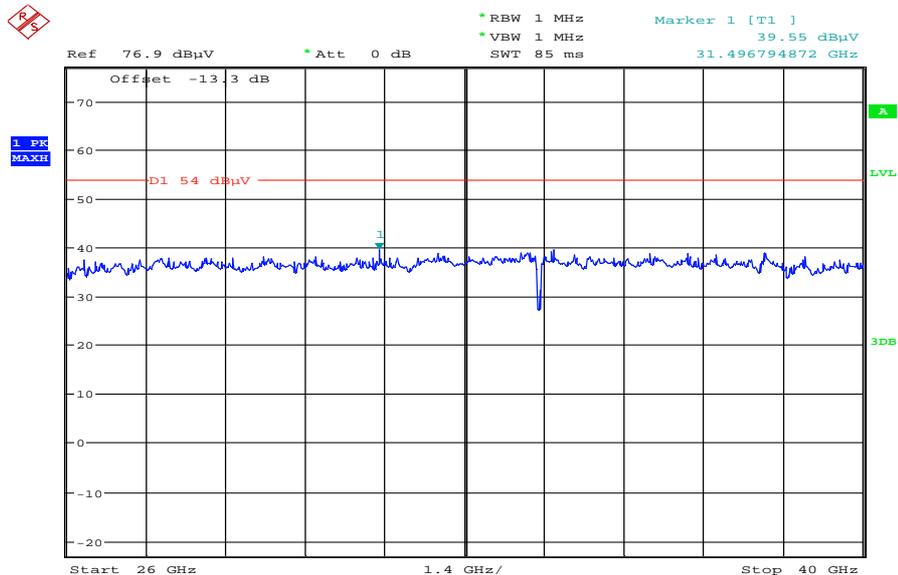
Date: 30.APR.2012 09:22:02

Plot 14: 18 GHz to 26 GHz, channel 52, vertical & horizontal polarization



Date: 30.APR.2012 09:32:40

Plot 15: 26 GHz to 40 GHz, channel 52, vertical & horizontal polarization



Date: 30.APR.2012 09:47:27

Plot 16: 30 MHz to 1 GHz, channel 60, vertical & horizontal polarization

### Common Information

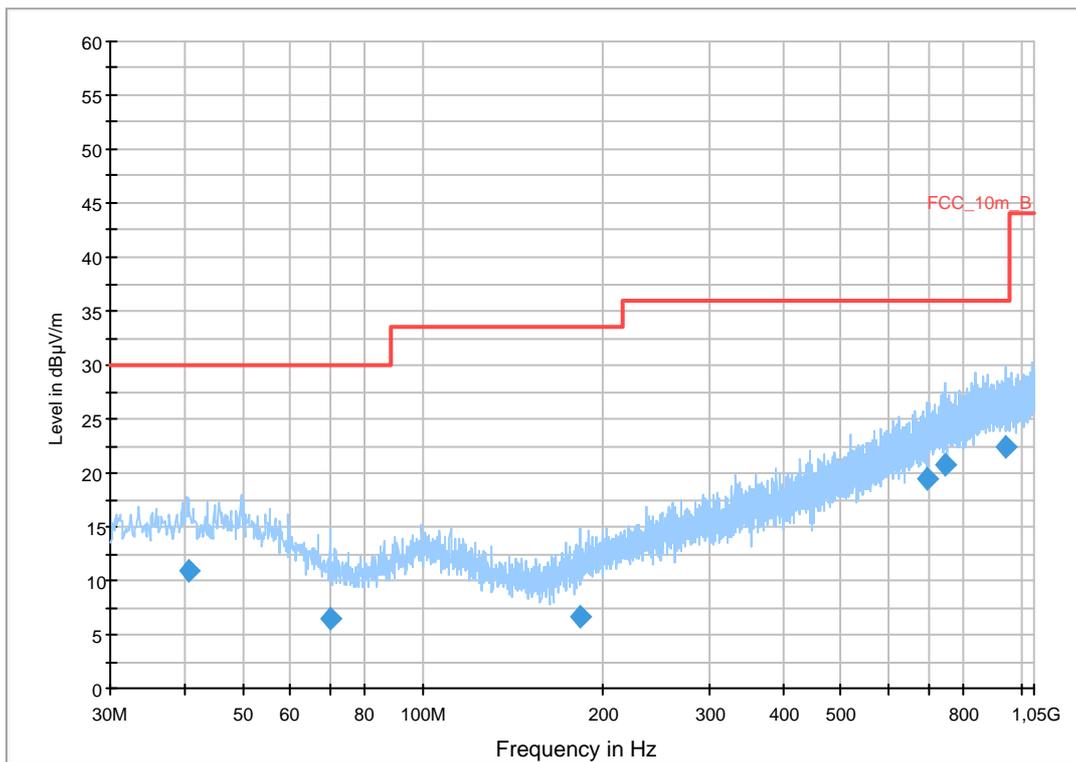
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV | IMEI: 00440245-009369-9  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: WLAN TX ch60 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

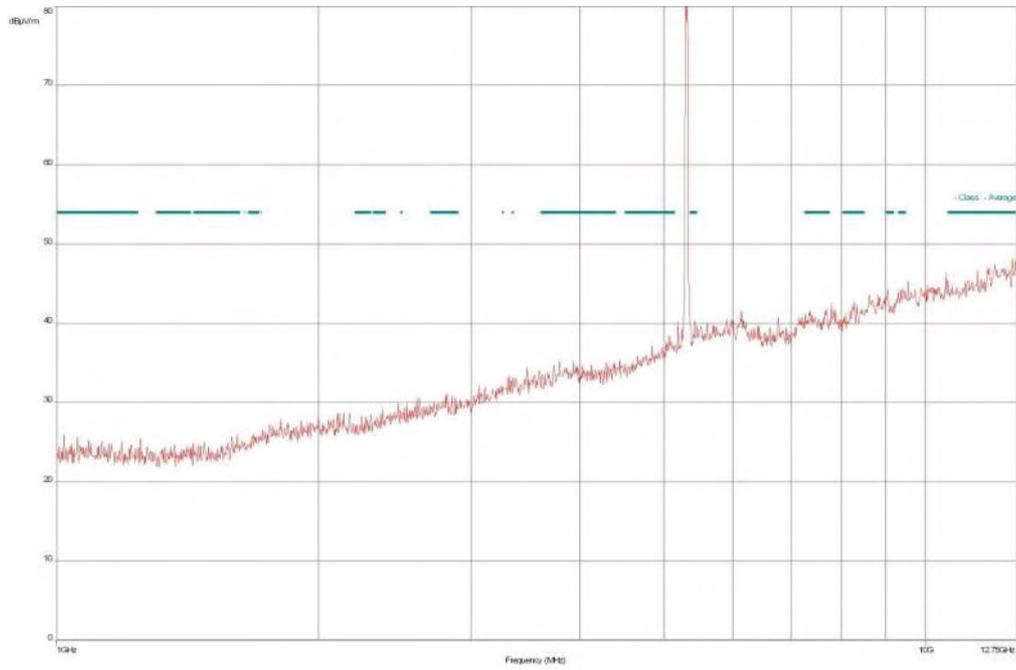
FCC\_10m(B)\_3



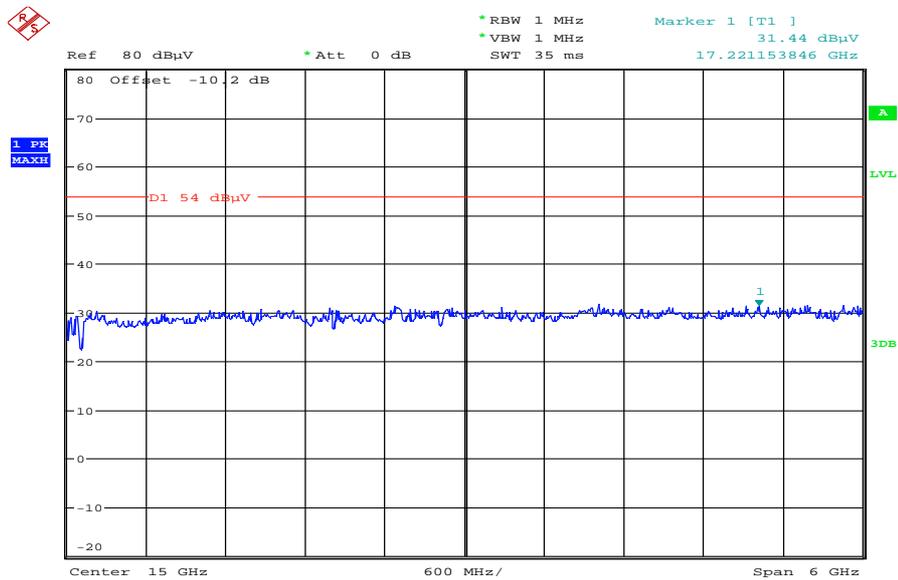
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.567500	10.8	1000.0	120.00	98.0	V	3.0	13.4	19.2	30.0	
69.939600	6.4	1000.0	120.00	170.0	V	85.0	9.3	23.6	30.0	
183.140700	6.7	1000.0	120.00	170.0	V	280.0	10.6	26.8	33.5	
694.514550	19.5	1000.0	120.00	164.0	V	273.0	22.4	16.5	36.0	
744.210150	20.8	1000.0	120.00	121.0	V	10.0	23.5	15.2	36.0	
942.753450	22.4	1000.0	120.00	120.0	V	280.0	25.3	13.6	36.0	

Plot 17: 1 GHz to 12.75 GHz, channel 60, vertical & horizontal polarization

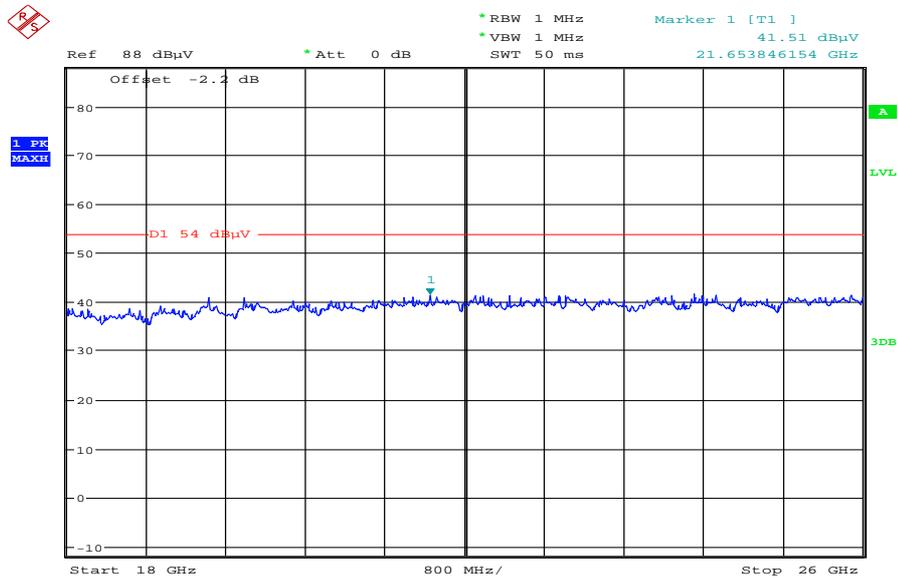


Plot 18: 12 GHz to 18 GHz, channel 60, vertical & horizontal polarization



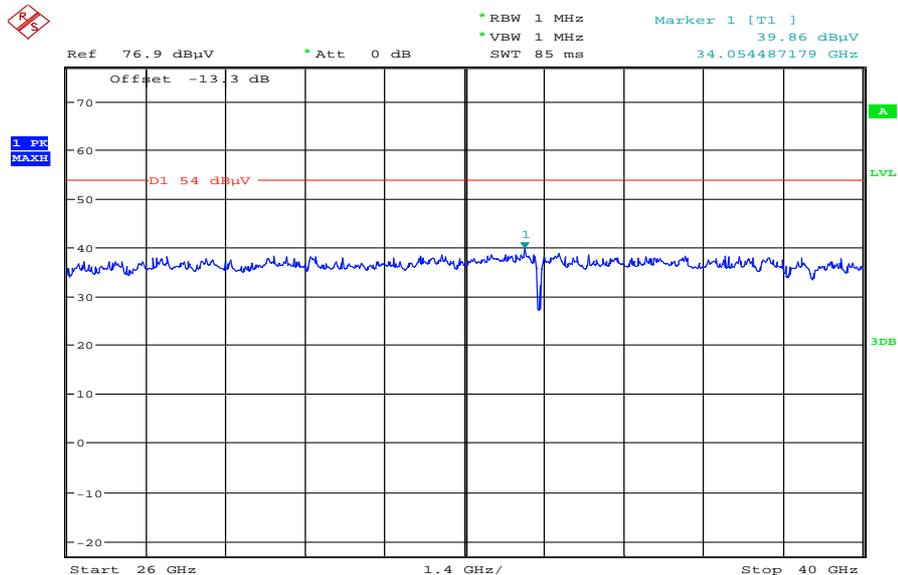
Date: 30.APR.2012 09:22:31

Plot 19: 18 GHz to 26 GHz, channel 60, vertical & horizontal polarization



Date: 30.APR.2012 09:33:14

Plot 20: 26 GHz to 40 GHz, channel 60, vertical & horizontal polarization



Date: 30.APR.2012 09:48:05

Plot 21: 30 MHz to 1 GHz, channel 100, vertical & horizontal polarization

### Common Information

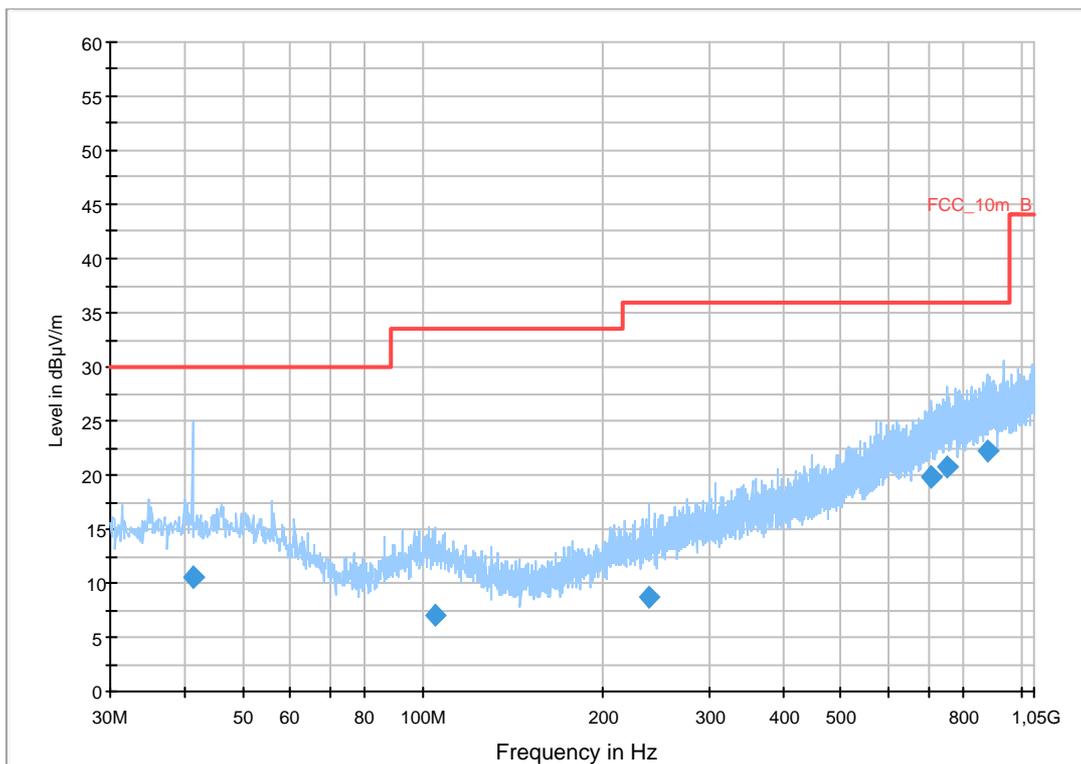
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV | IMEI: 00440245-009369-9  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: WLAN TX ch100 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

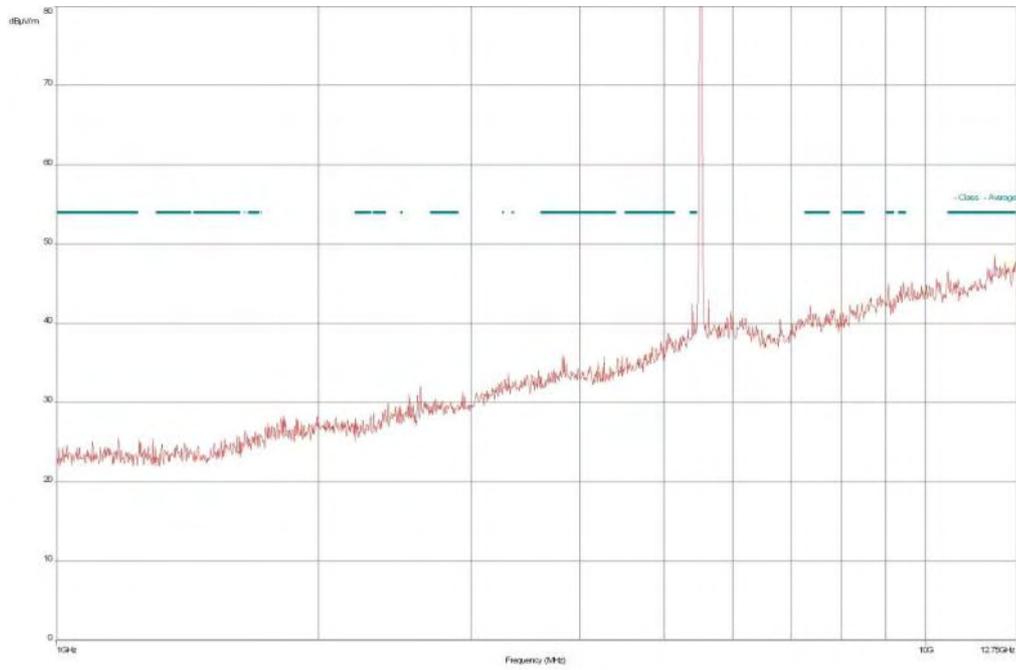
FCC\_10m(B)\_3



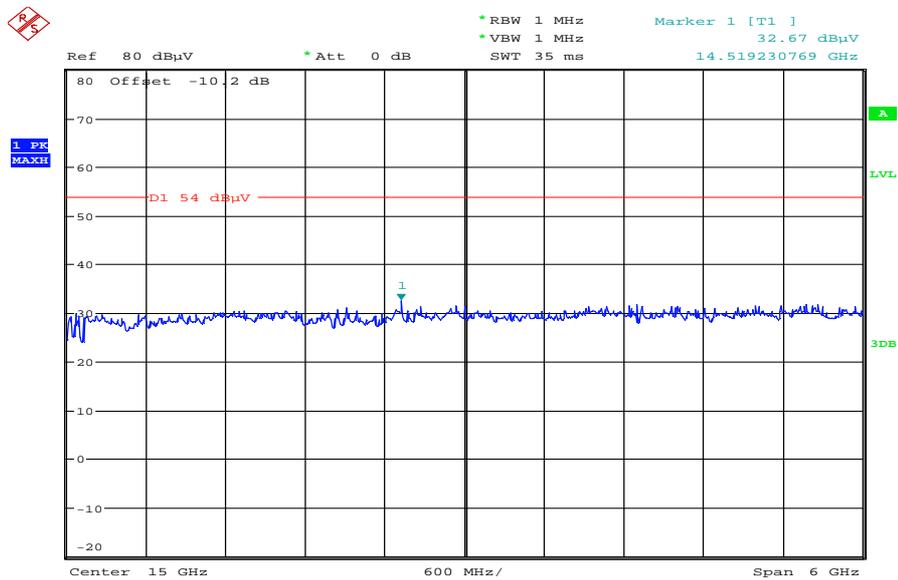
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polariza	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
41.221050	10.5	1000.0	120.00	120.0	V	190.0	13.4	19.5	30.0	
104.499150	7.0	1000.0	120.00	170.0	H	261.0	11.5	26.5	33.5	
238.800150	8.7	1000.0	120.00	170.0	V	170.0	13.0	27.3	36.0	
708.380400	19.9	1000.0	120.00	170.0	H	-5.0	22.7	16.1	36.0	
753.769950	20.7	1000.0	120.00	170.0	V	171.0	23.7	15.3	36.0	
879.180300	22.2	1000.0	120.00	170.0	H	100.0	24.9	13.8	36.0	

Plot 22: 1 GHz to 12.75 GHz, channel 100, vertical & horizontal polarization

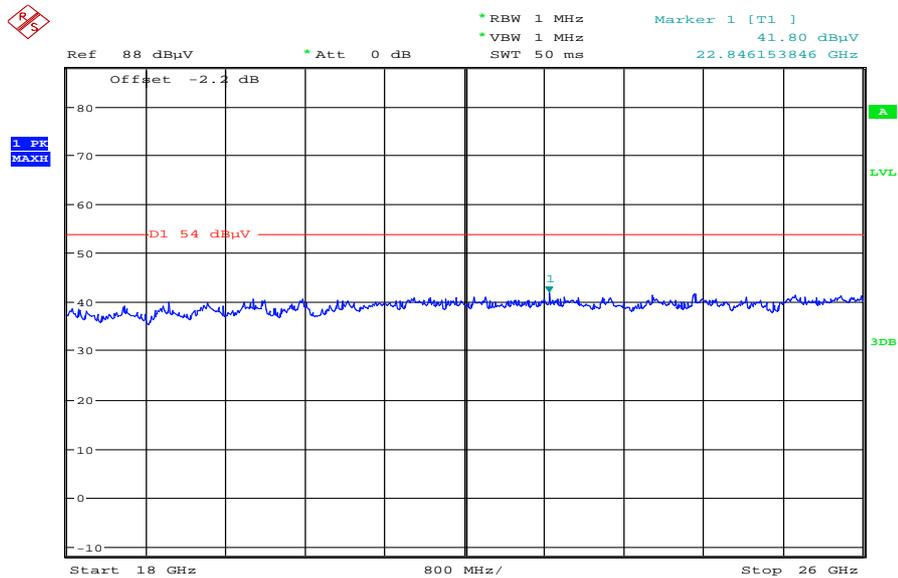


Plot 23: 12 GHz to 18 GHz, channel 100, vertical & horizontal polarization



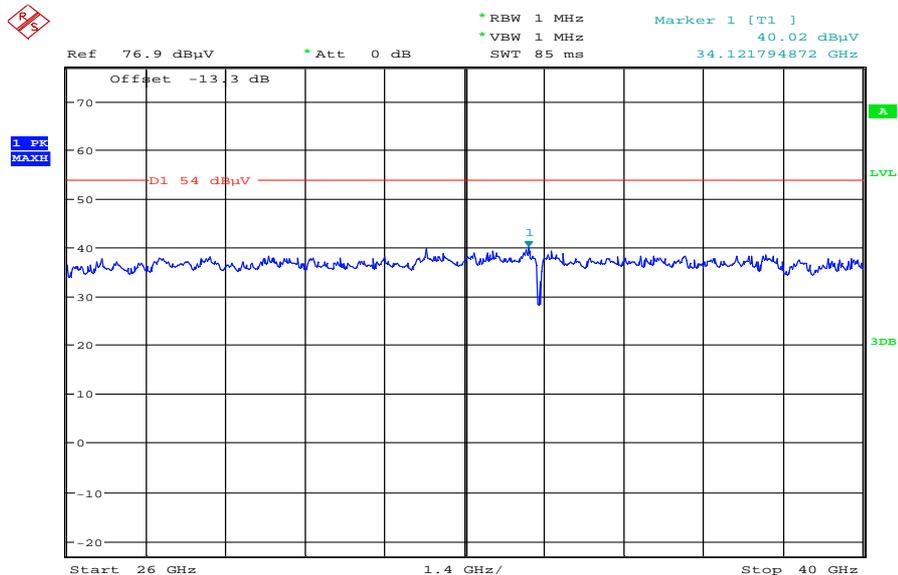
Date: 30.APR.2012 09:22:59

Plot 24: 18 GHz to 26 GHz, channel 100, vertical & horizontal polarization



Date: 30.APR.2012 09:33:56

Plot 25: 26 GHz to 40 GHz, channel 100, vertical & horizontal polarization



Date: 30.APR.2012 09:48:55

Plot 26: 30 MHz to 1 GHz, channel 116, vertical & horizontal polarization

### Common Information

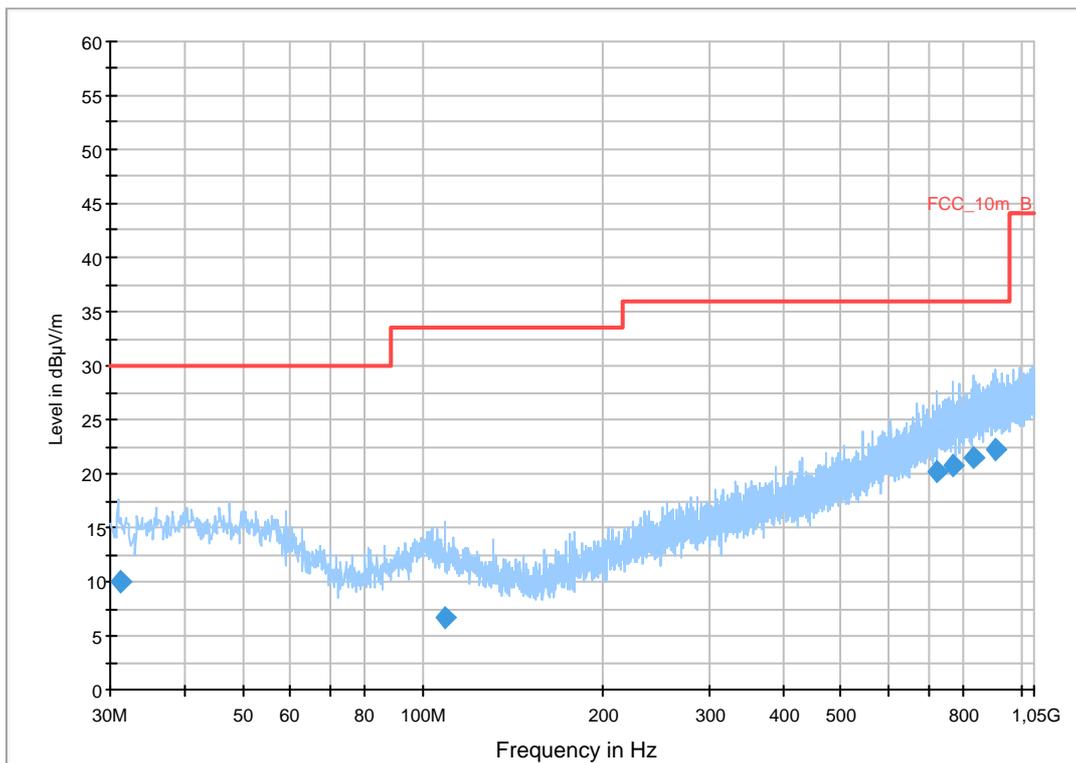
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV | IMEI: 00440245-009369-9  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: WLAN TX ch116 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

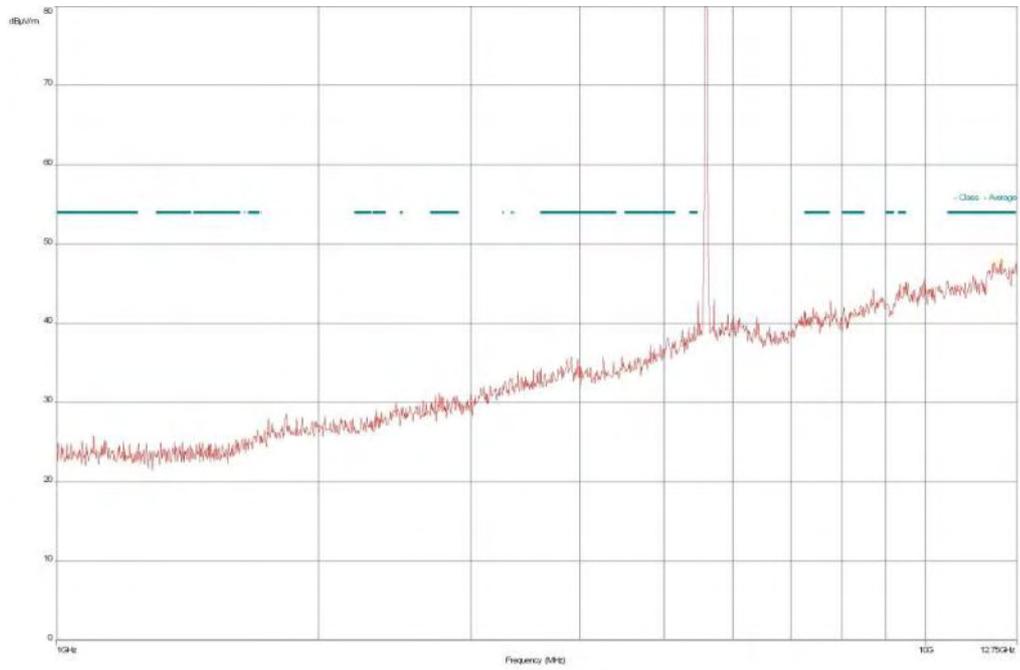
FCC\_10m(B)\_3



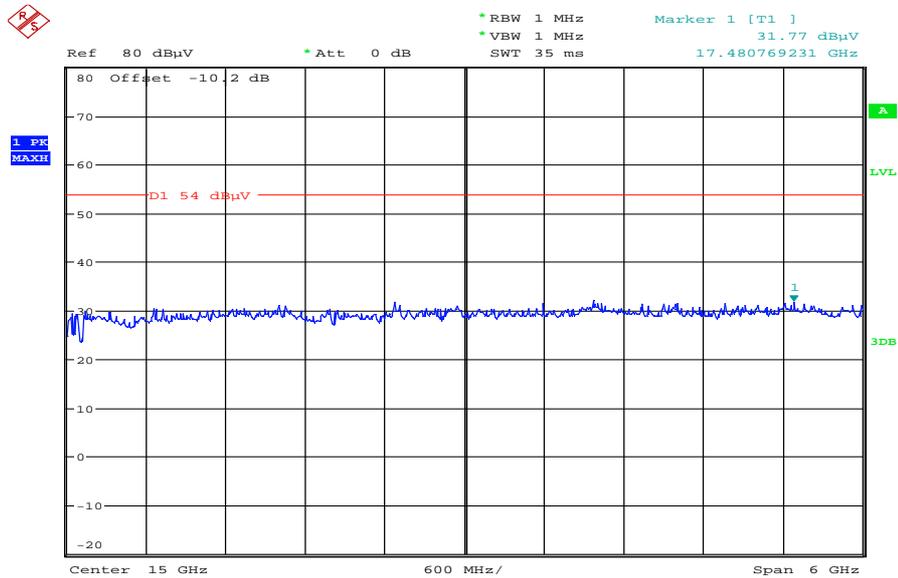
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.128450	9.9	1000.0	120.00	98.0	V	-2.0	12.6	20.1	30.0	
109.068000	6.7	1000.0	120.00	170.0	H	190.0	11.1	26.8	33.5	
722.700000	20.2	1000.0	120.00	170.0	V	0.0	23.0	15.8	36.0	
767.129550	20.8	1000.0	120.00	170.0	V	100.0	23.7	15.2	36.0	
832.740600	21.5	1000.0	120.00	111.0	H	88.0	24.3	14.5	36.0	
907.272900	22.2	1000.0	120.00	170.0	H	80.0	25.2	13.8	36.0	

**Plot 27:** 1 GHz to 12.75 GHz, channel 116, vertical & horizontal polarization

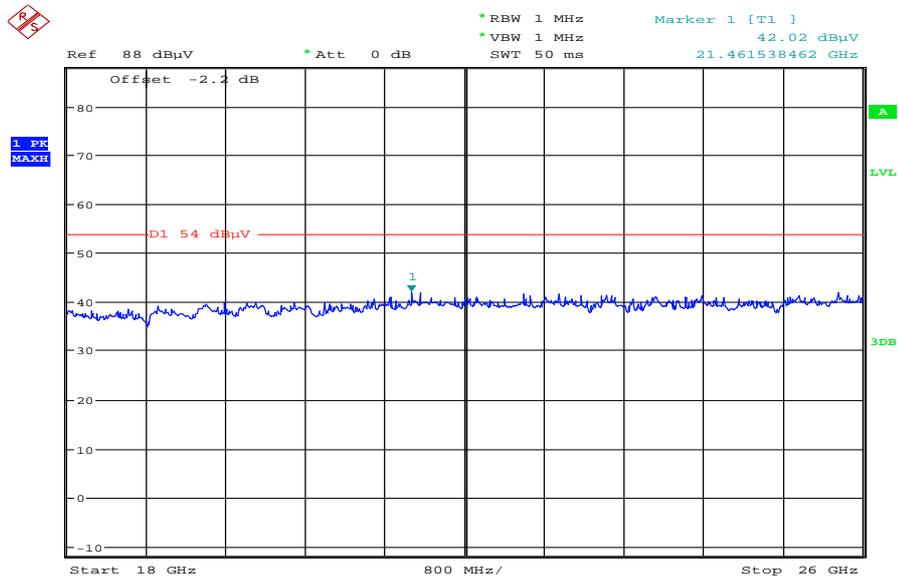


**Plot 28:** 12 GHz to 18 GHz, channel 116, vertical & horizontal polarization



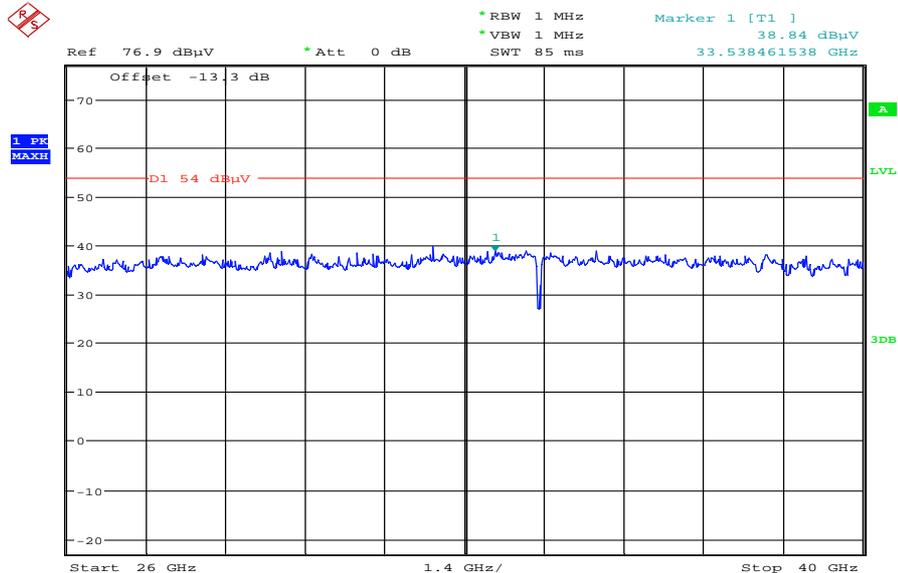
Date: 30.APR.2012 09:23:31

Plot 29: 18 GHz to 26 GHz, channel 116, vertical & horizontal polarization



Date: 30.APR.2012 09:34:38

Plot 30: 26 GHz to 40 GHz, channel 116, vertical & horizontal polarization



Date: 30.APR.2012 09:49:27

Plot 31: 30 MHz to 1 GHz, channel 132, vertical & horizontal polarization

### Common Information

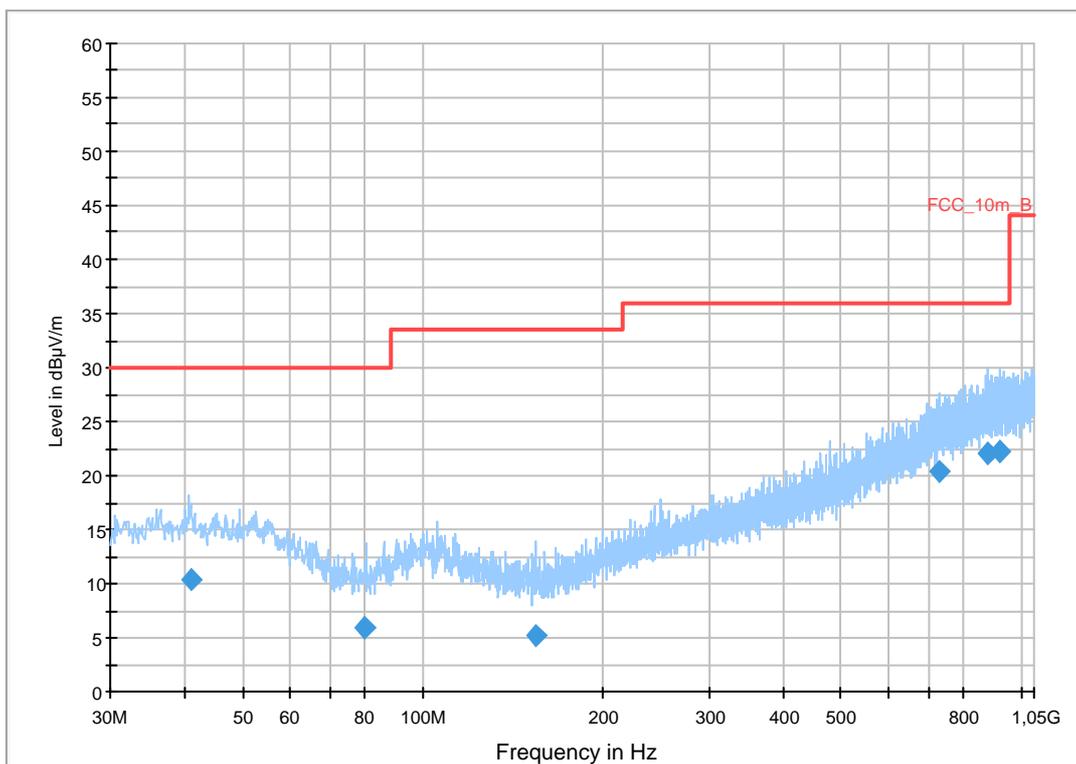
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: WLAN TX ch132 + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

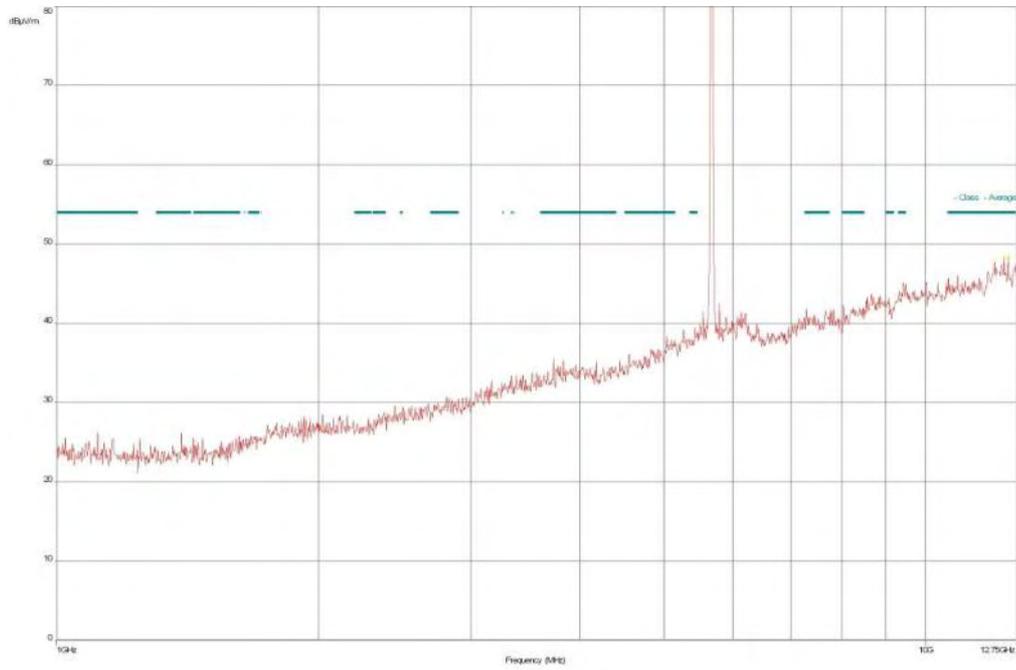
FCC\_10m(B)\_3



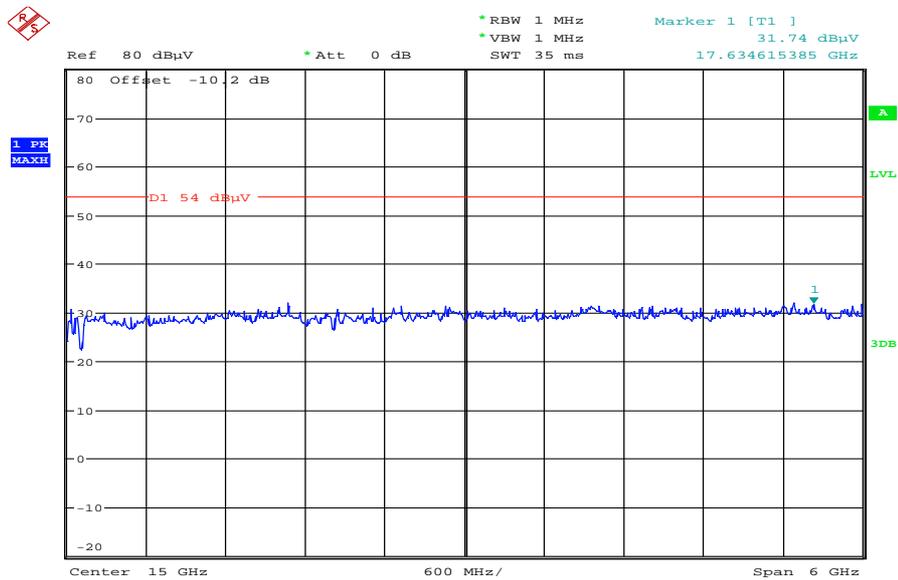
### Final Result 1

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.861650	10.4	1000.0	120.00	98.0	H	190.0	13.4	19.6	30.0	
79.901250	6.0	1000.0	120.00	170.0	V	85.0	9.1	24.0	30.0	
154.092750	5.3	1000.0	120.00	170.0	V	280.0	9.0	28.2	33.5	
728.070750	20.3	1000.0	120.00	121.0	V	100.0	23.2	15.7	36.0	
876.972900	22.1	1000.0	120.00	170.0	V	190.0	24.9	13.9	36.0	
916.929000	22.2	1000.0	120.00	118.0	H	280.0	25.3	13.8	36.0	

**Plot 32:** 1 GHz to 12.75 GHz, channel 132, vertical & horizontal polarization

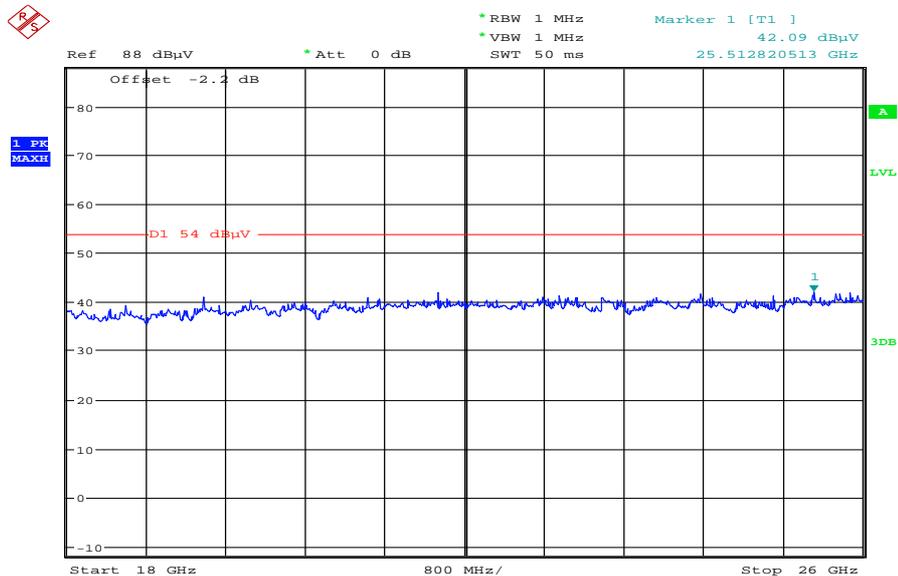


**Plot 33:** 12 GHz to 18 GHz, channel 132, vertical & horizontal polarization



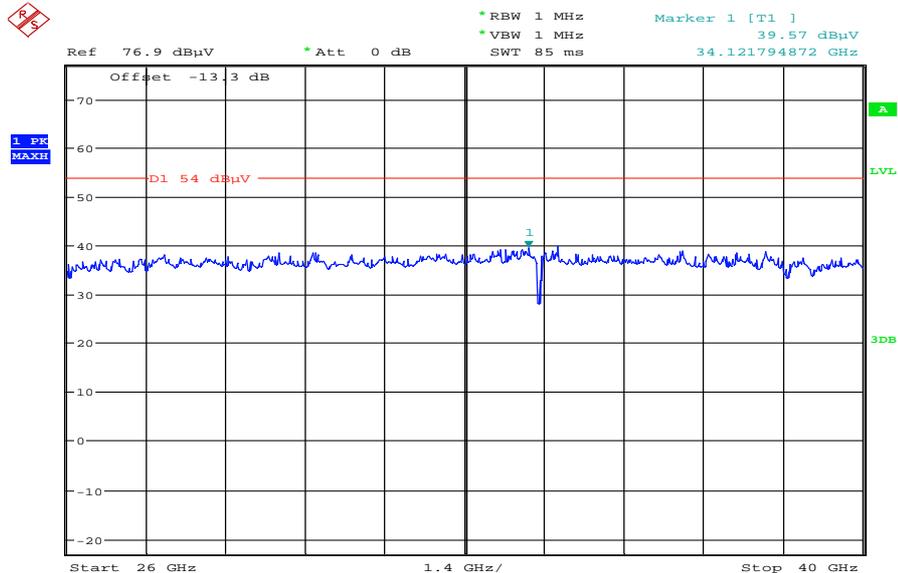
Date: 30.APR.2012 09:24:02

Plot 34: 18 GHz to 26 GHz, channel 132, vertical & horizontal polarization



Date: 30.APR.2012 09:35:10

Plot 35: 26 GHz to 40 GHz, channel 132, vertical & horizontal polarization



Date: 30.APR.2012 09:50:05

## 9.10 RX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in idle/receive mode.

### Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak)  Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz /10 Hz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %

### Limits:

RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

### Results:

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

**Result: Passed**

**Plots: RX / Idle – mode**

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

**Common Information**

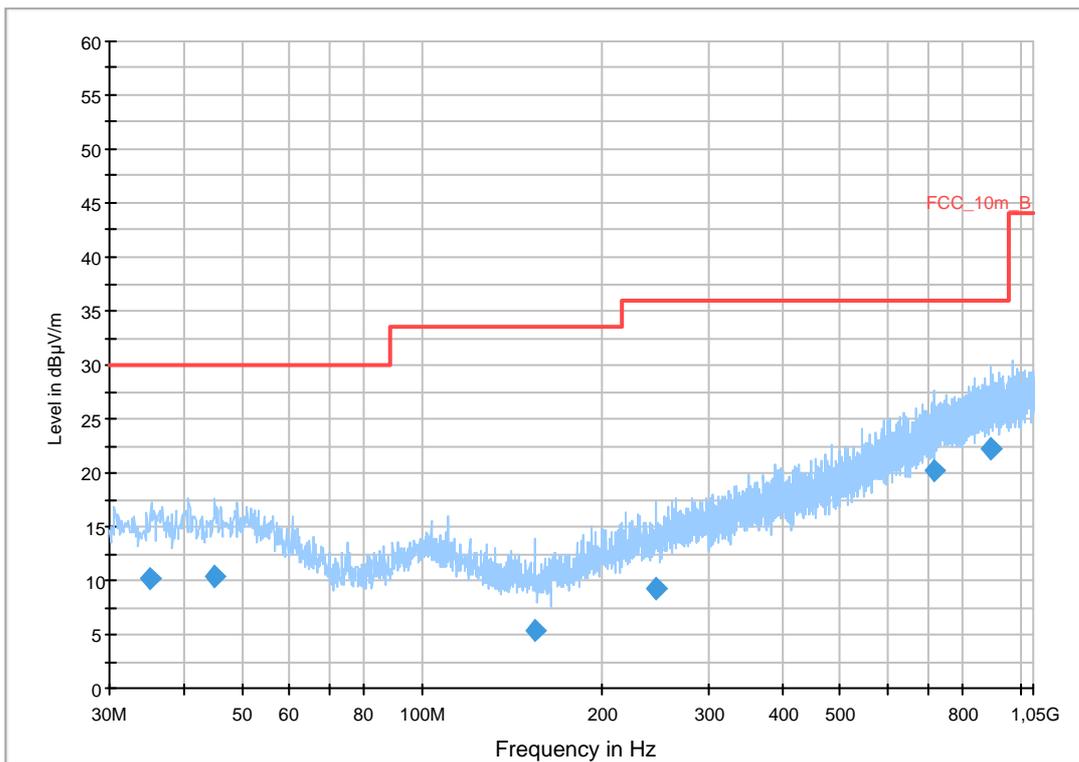
EUT: PM-0000-BV  
 Serial Number: CB5A1JYNGV  
 Test Description: FCC part 15 B class B @ 10 m  
 Operating Conditions: WLAN RX + charging  
 Operator Name: Wolsdorfer  
 Comment: AC: 115V/60Hz

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

Hardware Setup: Electric Field (NOS)  
 Receiver: [ESCI 3]  
 Level Unit: dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

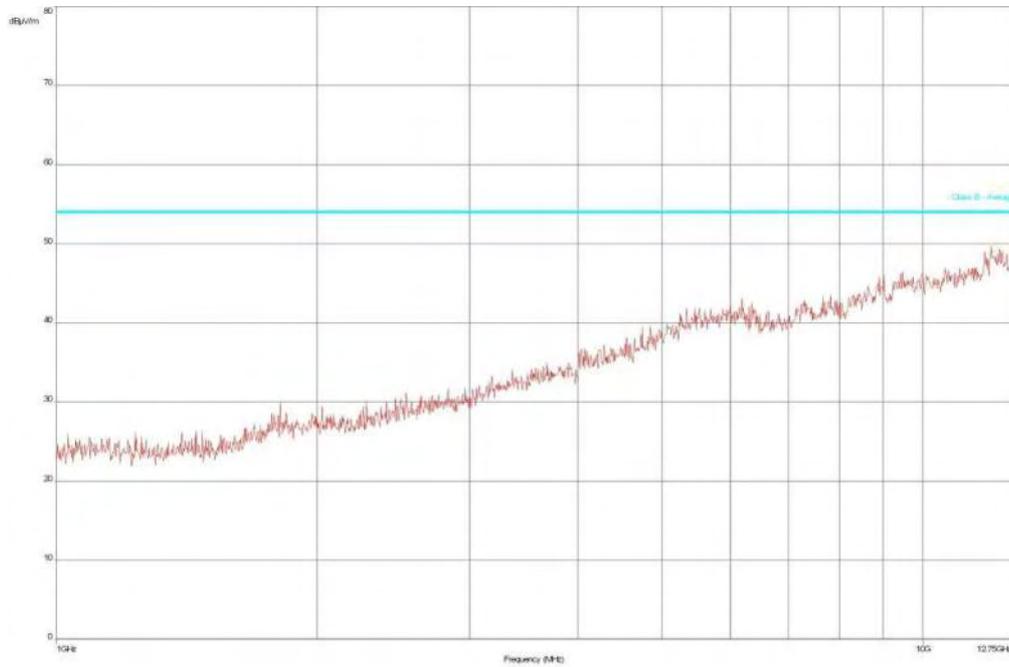
FCC\_10m(B)\_3



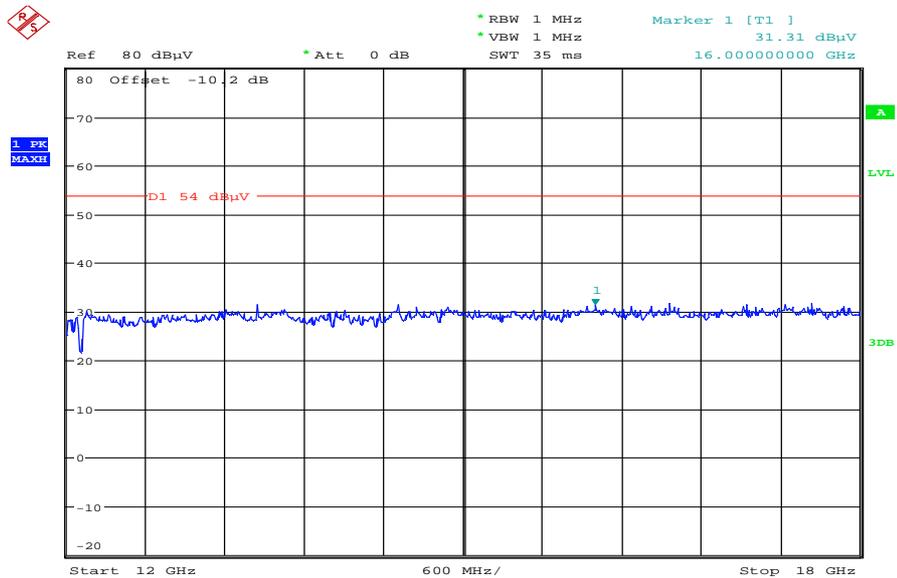
**Final Result 1**

Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polariza	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.148450	10.2	1000.0	120.00	105.0	V	182.0	13.0	19.8	30.0	
44.987850	10.5	1000.0	120.00	98.0	V	280.0	13.3	19.5	30.0	
154.409550	5.3	1000.0	120.00	156.0	V	175.0	9.0	28.2	33.5	
246.626850	9.3	1000.0	120.00	170.0	V	175.0	13.2	26.7	36.0	
717.517200	20.1	1000.0	120.00	170.0	H	0.0	22.9	15.9	36.0	
889.572600	22.2	1000.0	120.00	170.0	V	88.0	25.1	13.8	36.0	

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

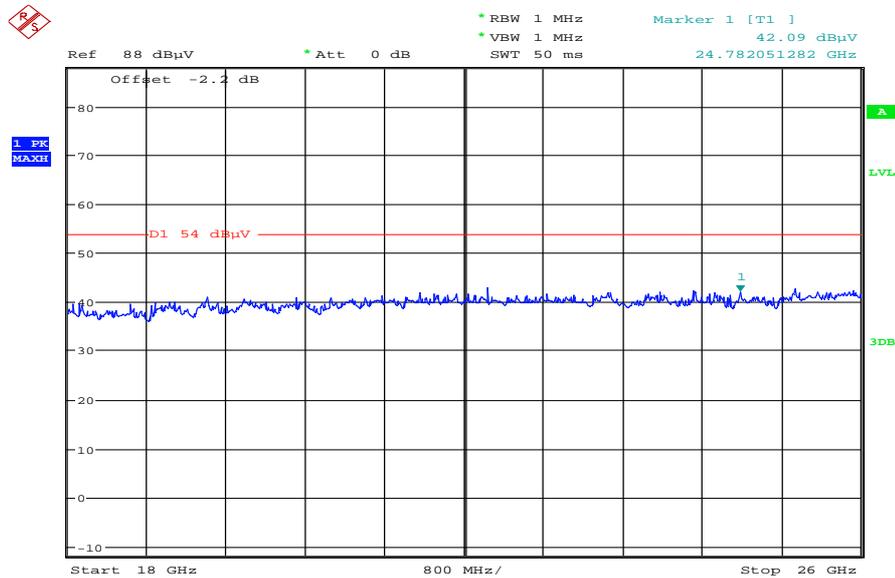


**Plot 3:** 12 GHz to 18 GHz, vertical & horizontal polarization



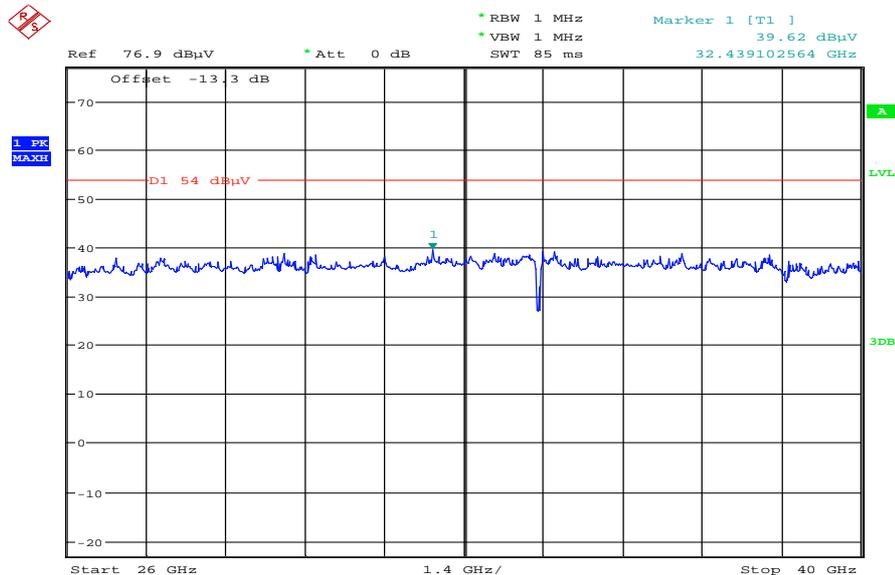
Date: 30.APR.2012 10:18:06

Plot 4: 18 GHz to 26 GHz, vertical & horizontal polarization



Date: 30.APR.2012 10:13:12

Plot 5: 26 GHz to 40 GHz, vertical & horizontal polarization



Date: 30.APR.2012 10:07:36

**9.11 Spurious emissions radiated < 30 MHz**

**Description:**

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 39. This measurement is representative for all channels and modes. If critical peaks are found channel 00 and channel 78 will be measured too. 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:**

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

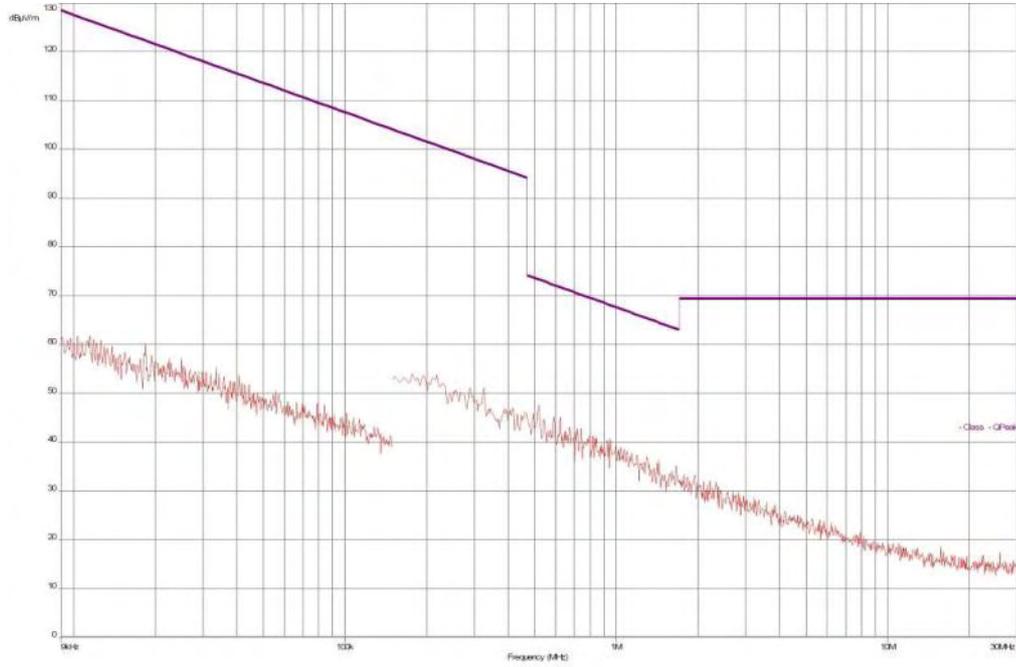
**Results:**

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

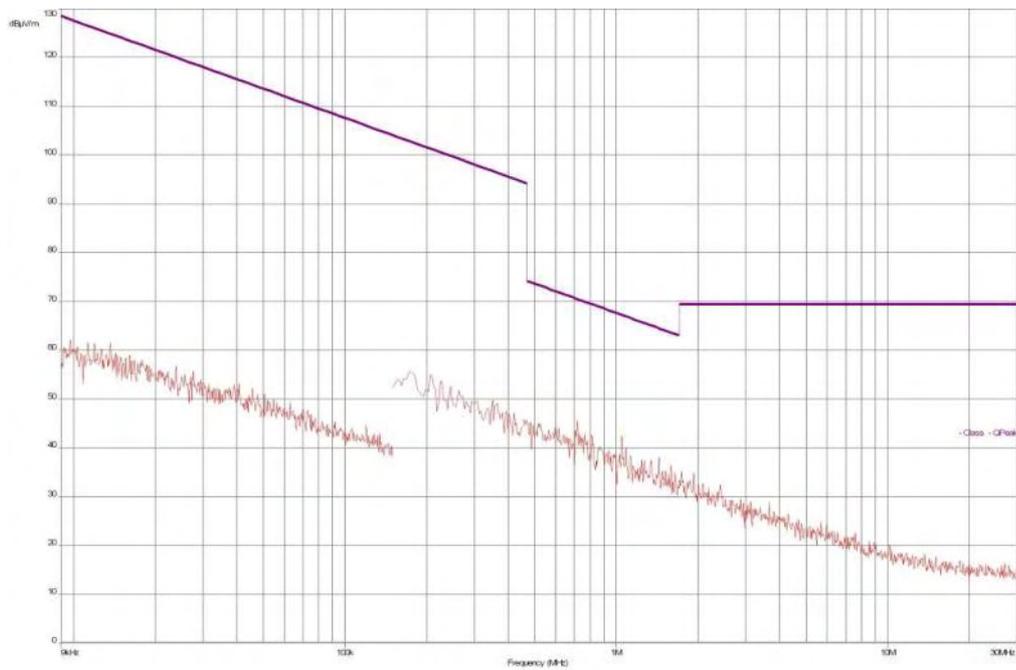
**Result: Passed**

**Plots:**

**Plot 1: 9 kHz to 30 MHz, TX mode**



**Plot 2: 9 kHz to 30 MHz, RX mode**



## 9.12 Spurious emissions conducted < 30 MHz

### Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 39. If critical peaks are found channel 00 and channel 78 will be measured too. Both power lines, phase and neutral line, are measured. Found peaks are re-measured 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:

TX Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

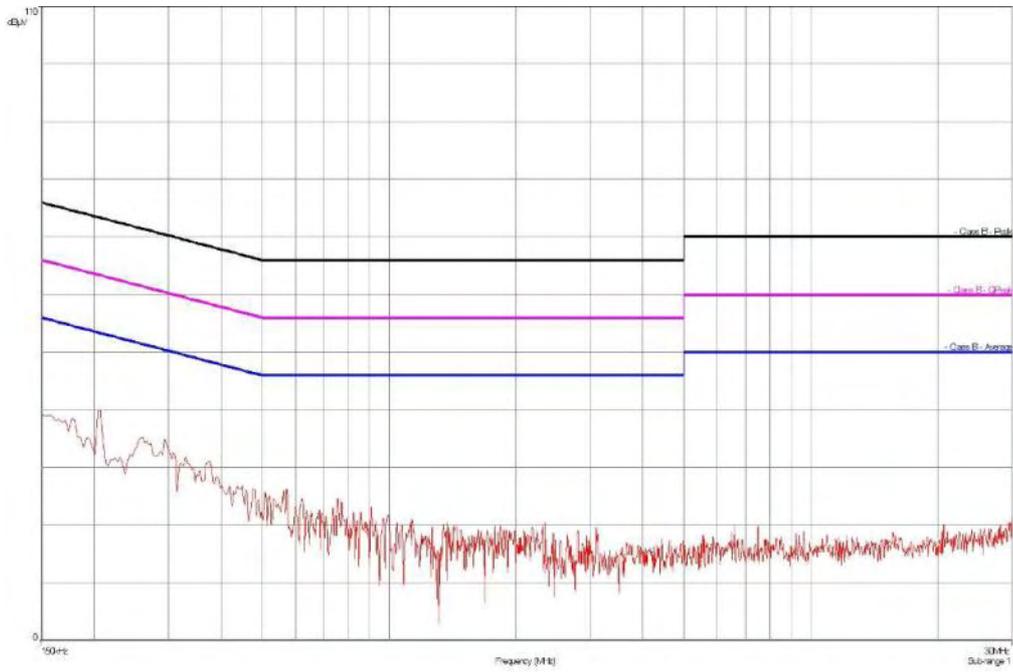
\*Decreases with the logarithm of the frequency

### Results:

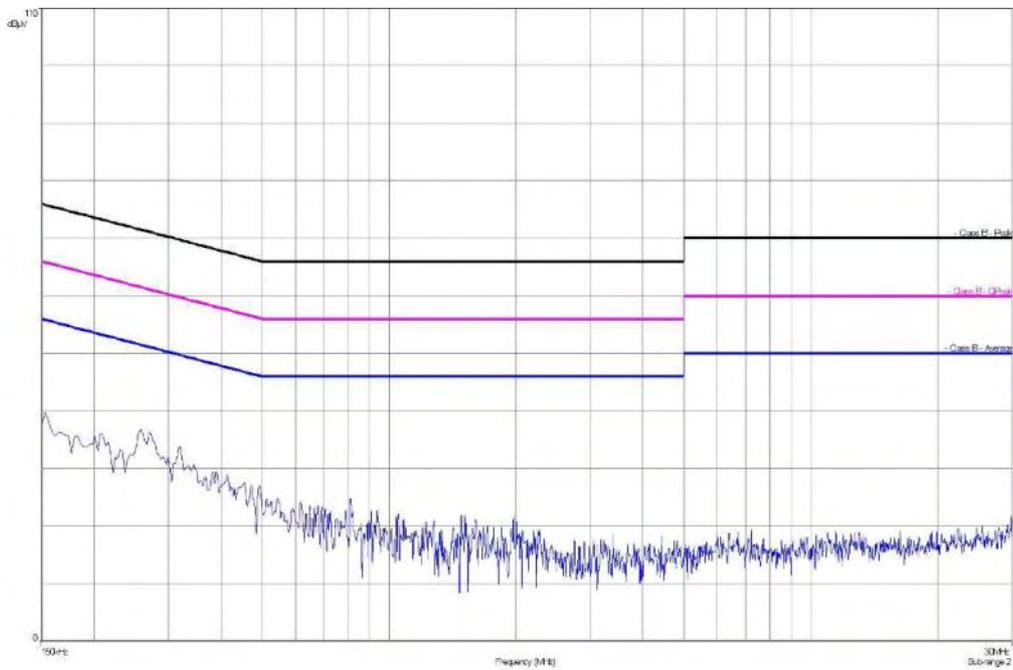
TX Spurious Emissions Conducted < 30 MHz [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
No peaks found.		
Measurement uncertainty	± 3 dB	

**Result: Passed**

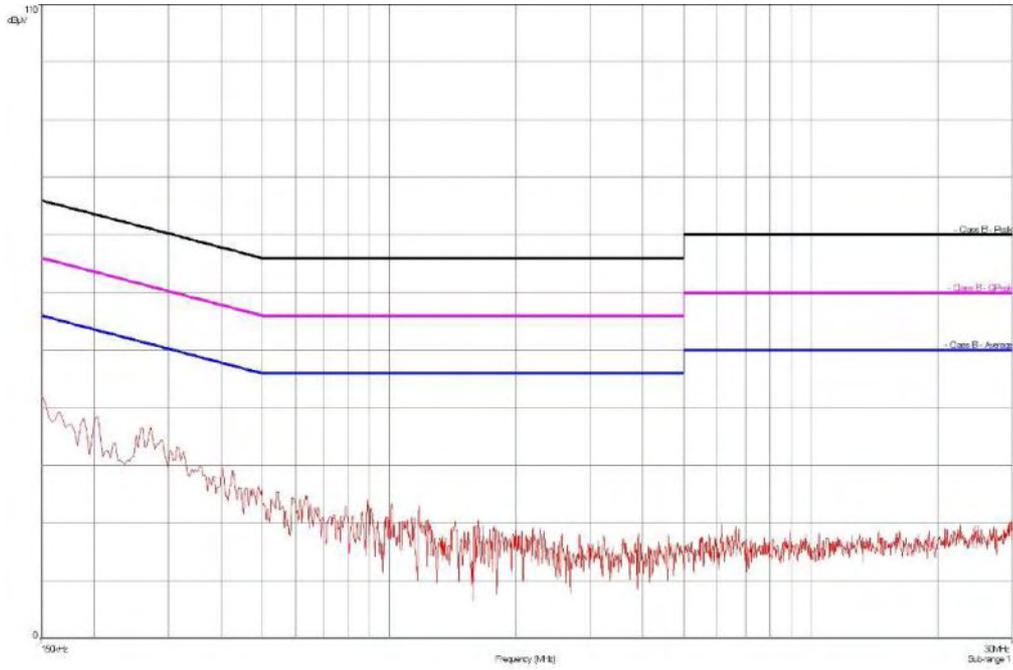
Plot 1: 9 kHz to 30 MHz / phase Line, TX mode



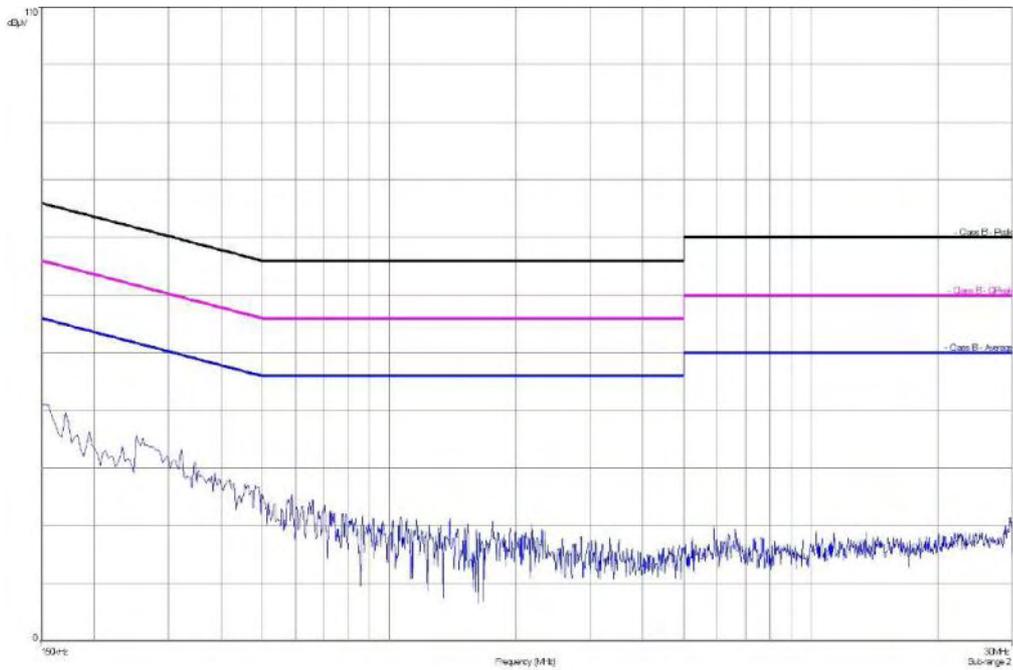
Plot 2: 9 kHz to 30 MHz / neutral Line, TX mode



Plot 3: 9 kHz to 30 MHz / phase Line, RX mode



Plot 4: 9 kHz to 30 MHz / neutral Line, RX mode



## 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	ne		
3	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spiß	B5981; 5D1081;B597 9	300000210	ne		
4	n. a.	EMI Test Receiver	ESCI 1166.5950. 03	R&S	100083	300003312	k	04.01.2012	04.01.2014
5	n. a.	Analyzer- Reference- System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	14.07.2011	14.07.2013
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	Schwarzbe ck	295	300003787	k		
11	n. a.	Spectrum- Analyzer	FSU26	R&S	200809	300003874	k	06.01.2012	06.01.2014
12	n. a.	Isolating Transformer	RT5A	Grundig	8041	300001626	g		
13	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vKI!	11.05.2011	11.05.2013
14	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
15	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996		23.03.2009	
16	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
17	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
18	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
19	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
20	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
21	n. a.	Amplifier	js42- 00502650- 28-5a	Parzich GMBH	928979	300003143	ne		
22	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbe ck	371	300003854	vKI!	14.10.2011	14.10.2014
23	n. a.	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologi es	MY51210197	3000042xx	k	19.12.2011	19.12.2012
24	A026	Std. Gain Horn Antenna 12.4 to	639	Narda		300000787	ne		

		18.0 GHz							
25	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300002442	ne		
26	n. a.	Power Supply	LA30/5GA	Zentro Elektronik	2046	300000711	NK!		
27	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve	01.07.2010	01.07.2012
28	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev	10.03.2011	
29	CR 79	Std. Gain Horn Antenna 26.5-40.0 GHz	V637	Narda	7911	300001751	ne		
30	A022	Std. Gain Horn Antenna 26.4-40.1 GHz	2224-20	Flann	235	300001976	ne		

**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  
 vki! 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

## 11 Observations

No observations exceeding those reported with the single test cases have been made.

**Annex F Accreditation Certificate**



Deutsche Akkreditierungsstelle GmbH  
German Accreditation Body

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV  
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

**Accreditation**



The Deutsche Akkreditierungsstelle GmbH (German Accreditation Body) attests that the testing laboratory

**CETECOM ICT Services GmbH**  
Untertürkheimer Straße 6-10  
66117 Saarbrücken

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

- Wired communications and DECT
- Acoustic
- Radio
- Short Range Devices (SRD)
- RFID
- WiMax and Richtfunk
- Mobile radio (GSM / DCS), Over the Air (OTA) Performance
- Electromagnetic Compatibility (EMC) Incl. Automotive
- Product safety
- SAR and Hearing Aid Compatibility (HAC)
- Environmental simulation
- Smart Card Terminals
- Bluetooth
- Wi-Fi-Services

The accreditation certificate shall only apply in connection with the notice of accreditation of 13.04.2011 with the accreditation number D-PL-12076-01 and is valid until 03.09.2014. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 82 pages.

Registration number of the certificate: **D-PL-12076-01-01**

Frankfurt am Main, 13.04.2011

*[Signature]*  
Dipl.-Ing. (FH) G. Egner  
Head of Division 2

This document is a translation. The definitive version is the original German accreditation certificate.  
See notes on back.

Deutsche Akkreditierungsstelle GmbH

Office Berlin  
Spittelmarkt 10  
10117 Berlin

Office Frankfurt am Main  
Gartenstraße 6  
60594 Frankfurt am Main

Office Braunschweig  
Bundesallee 100  
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAKKS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAKKS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAKKS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:  
EA: [www.european-accreditation.org](http://www.european-accreditation.org)  
ILAC: [www.ilac.org](http://www.ilac.org)  
IAF: [www.iaf.no](http://www.iaf.no)

Front side of certificate

Back side of certificate

**Note:**

The current certificate including annex is published on our website (see link below) or may be received from CETECOM ICT Services on request.

[http://www.cetecom.com/fileadmin/de/CETECOM\\_D\\_Saarbruecken/accreditations\\_Jan\\_2010/DAKKS\\_Akkredi\\_Urk\\_EN17025-En\\_incl\\_Annex.pdf](http://www.cetecom.com/fileadmin/de/CETECOM_D_Saarbruecken/accreditations_Jan_2010/DAKKS_Akkredi_Urk_EN17025-En_incl_Annex.pdf)