

TEST REPORT

Test report no.: 1-4254/12-47-08-A



Testing laboratory

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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

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Manufacturer

Sony Mobile Communications AB
 Nya Vattentornet
 22188 Lund / SWEDEN

Test standard/s

47 CFR Part 15 Title 47 of the Code of Federal Regulations; Chapter I
 Part 15 - Radio frequency devices

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 HSPA FDDI/V/VI/XIX; LTE FDD 1/19/21; WLAN a/b/g/n; BT 3.1; RFID; FM Rx; A-GPS
Model name: PM-0070-BV
FCC ID: PY7PM-0070
IC: -/
Frequency: ISM band 5150 MHz to 5250 MHz
 ISM band 5250 MHz to 5350 MHz
 ISM band 5470 MHz to 5725 MHz
Technology tested: WLAN (OFDM a, n HT20 & n HT40)
Antenna: Integrated antenna
Power Supply: 3.7 V DC by Li - polymer battery
Temperature Range: -20°C to +55 °C

Test report authorised:

2012-09-12 Stefan Bös
 Senior Testing Manager

Test performed:

2012-09-12 Marco Bertolino
 Testing Manager

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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:	2012-08-02
Date of receipt of test item:	2012-08-08
Start of test:	2012-08-29
End of test:	2008-10-05
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

3.1 Measurement guidance

UNII: KDB 789033	2011-10	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E
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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:		52 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	3.7 V DC by Li - polymer battery
	V_{max}	4.2 V
	V_{min}	3.3 V

5 Test item

Kind of test item	:	GSM Mobile Phone GPRS/EGPRS 850/900/1800/1900; UMTS HSPA FDDI/V/VI/XIX; LTE FDD 1/19/21; WLAN a/b/g/n; BT 3.1; RFID; FM Rx; A-GPS
Type identification	:	PM-0070-BV
S/N serial number	:	Radiated units: CB5A1K8J9R, CB5A1K8J5S Conducted units: CB5A1K8JGV, CB5A1K8LPZ
HW hardware status	:	AP1
SW software status	:	9.0.A.0.120, s_atp_tsubasa_1_0_8_0_e, 9.0.A.172A
Frequency band [MHz]	:	ISM bands: - 5150 MHz to 5250 MHz - 5250 MHz to 5350 MHz - 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 - polymer 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	Passed	2012-09-12	-/-

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-NII 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)	Maximum output power (conducted & radiated)	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a)	Power spectral density	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a)	Spectrum bandwidth 26dB bandwidth	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a)	Peak excursion measurements	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.205	Band edge compliance radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(b)	TX spurious emissions radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.109	RX spurious emissions radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.209(a)	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

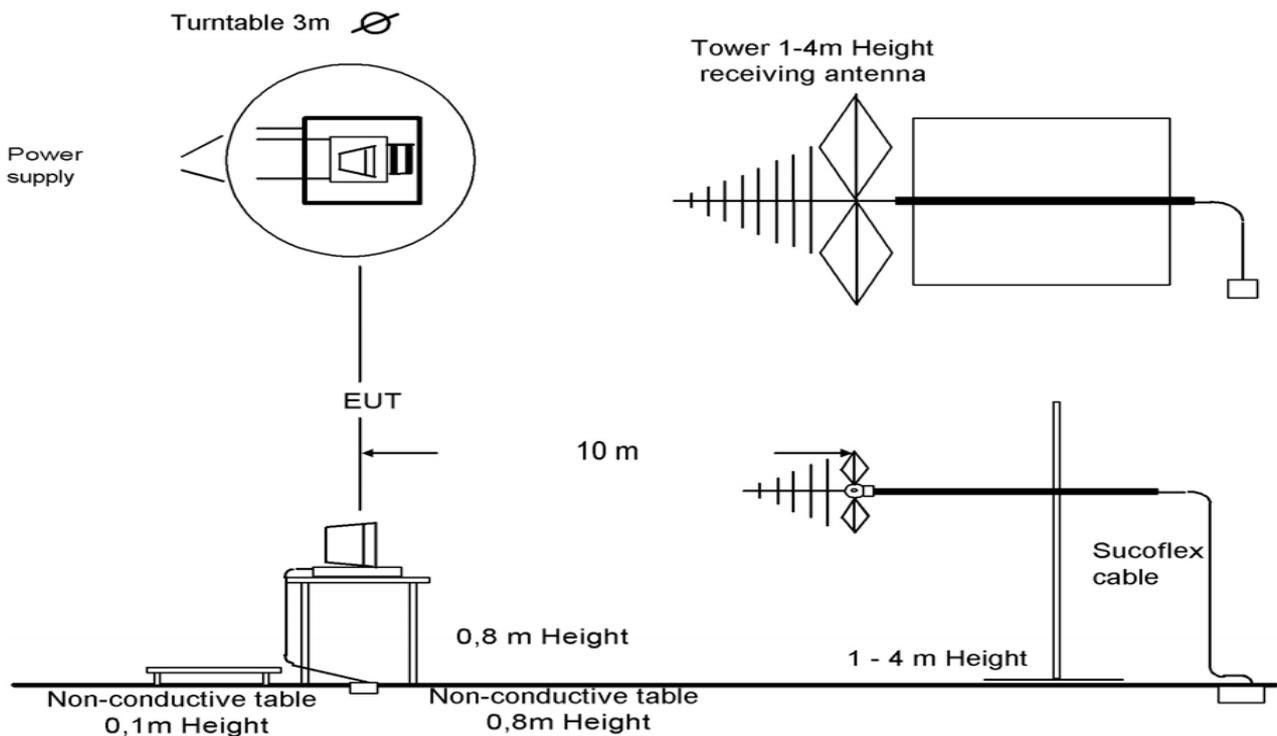
8.1 Description of test setup

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



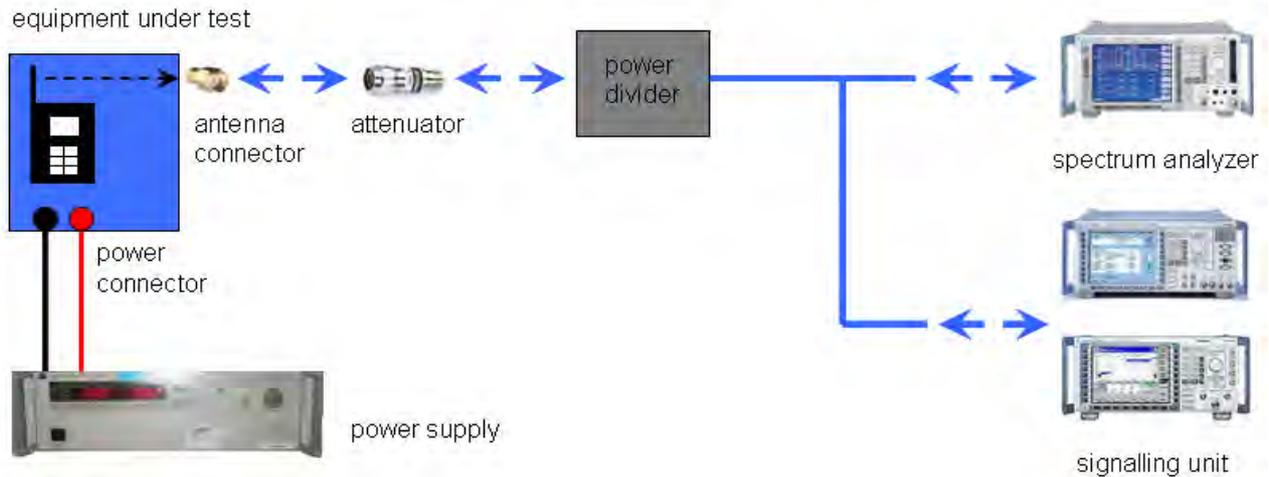
Picture 1: Diagram radiated measurements

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: None

Special test descriptions: None

Configuration descriptions: None

- Test mode:
- No test mode available.
 - Special software is used.
EUT is transmitting pseudo random data by itself

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 all modes and all data rates to determine the data rate per mode which results in the highest output power. This mode will be selected for all further measurements.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	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	15.21	15.06	13.80	14.36	14.61	14.00	14.44	14.49
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	14.66	14.84	15.57	14.88	15.09	15.35	15.09	15.20
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	15.53	15.74	15.69	13.55	13.48	10.68	13.04	15.58
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: MCS1

9.2 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:	8 MHz / 10 MHz
Span:	See complete signal!
Trace-Mode:	Max Hold

Limits:

Antenna Gain
Maximum 6 dBi

Result:

OFDM Band 5150 MHz to 5250 MHz Channel	Gain		
	Lowest 5180 MHz	-/-	Highest 5240 MHz
Radiated power for gain calculation	8.46	-/-	8.47
Conducted power for gain calculation	12.89	-/-	11.79
Gain	-4.43	-/-	-3.32
Measurement uncertainty	± 3 dB		

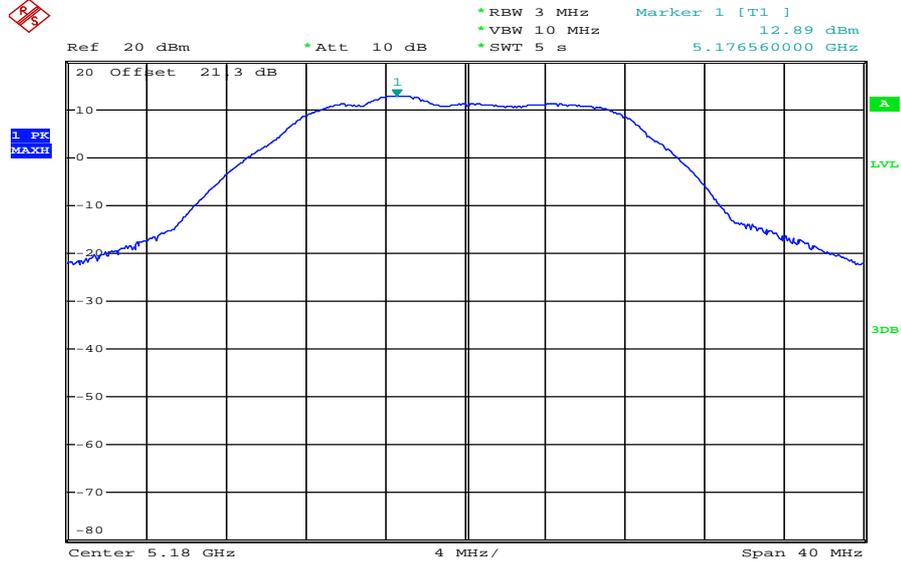
OFDM Band 5250 MHz to 5350 MHz Channel	Gain		
	Lowest 5260 MHz	-/-	Highest 5320 MHz
Radiated power for gain calculation	8.40	-/-	10.55
Conducted power for gain calculation	12.25	-/-	11.61
Gain	-3.85	-/-	-1.06
Measurement uncertainty	± 3 dB		

OFDM Band 5470 MHz to 5725 MHz Channel	Gain		
	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz
Radiated power for gain calculation	10.10	9.67	7.70
Conducted power for gain calculation	11.73	11.64	11.55
Gain	-1.63	-1.97	-3.85
Measurement uncertainty	± 3 dB		

Result: Passed

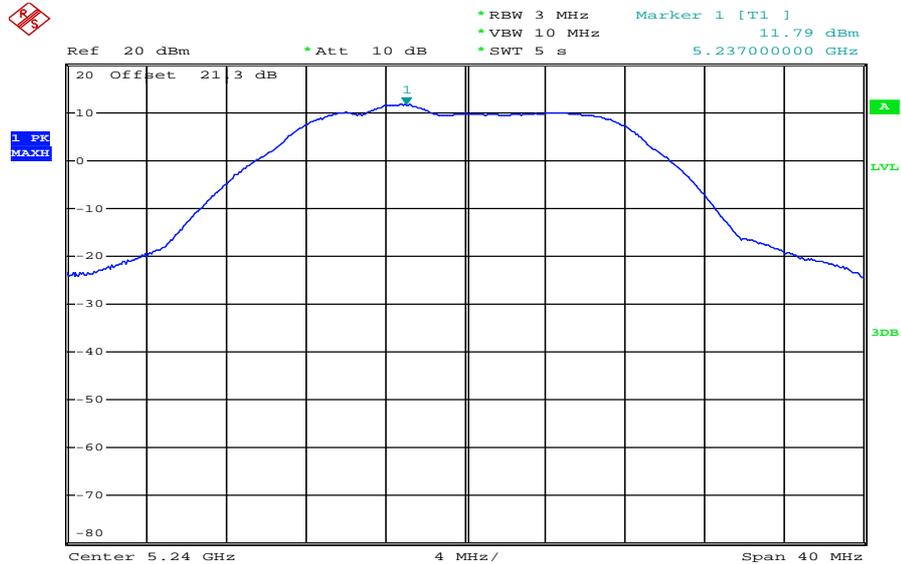
Plots: conducted power for gain calculation

Plot 1: OFDM / a – mode, 5180 MHz



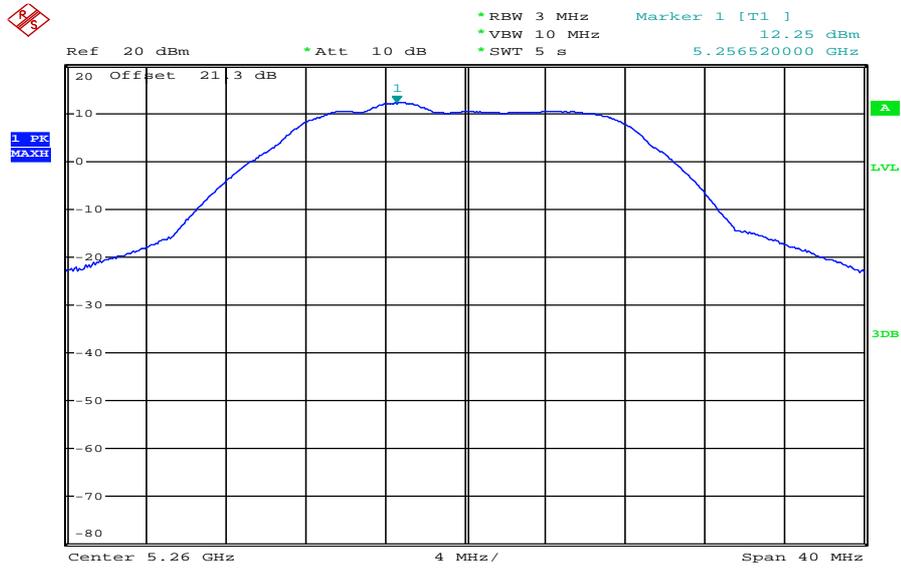
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Plot 2: OFDM / a – mode, 5240 MHz



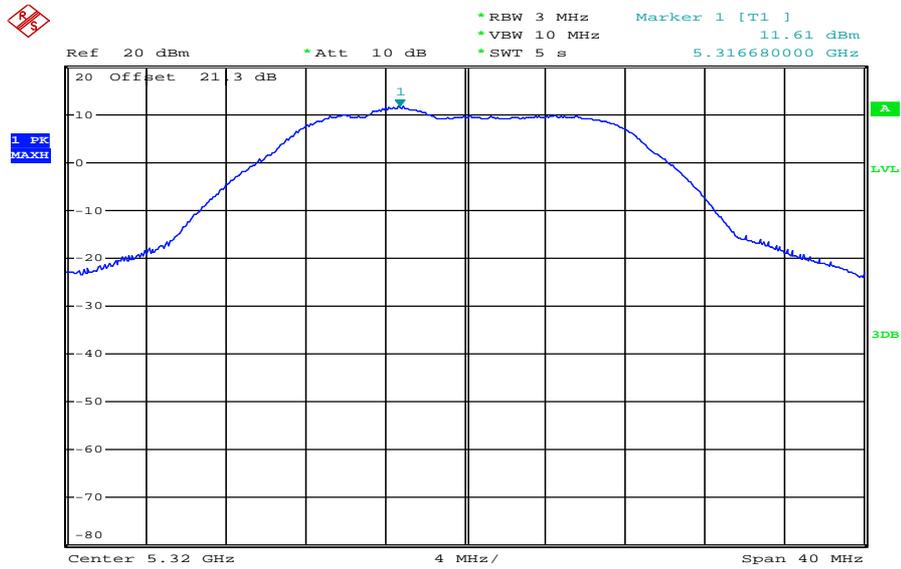
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Plot 3: OFDM / a – mode, 5260 MHz



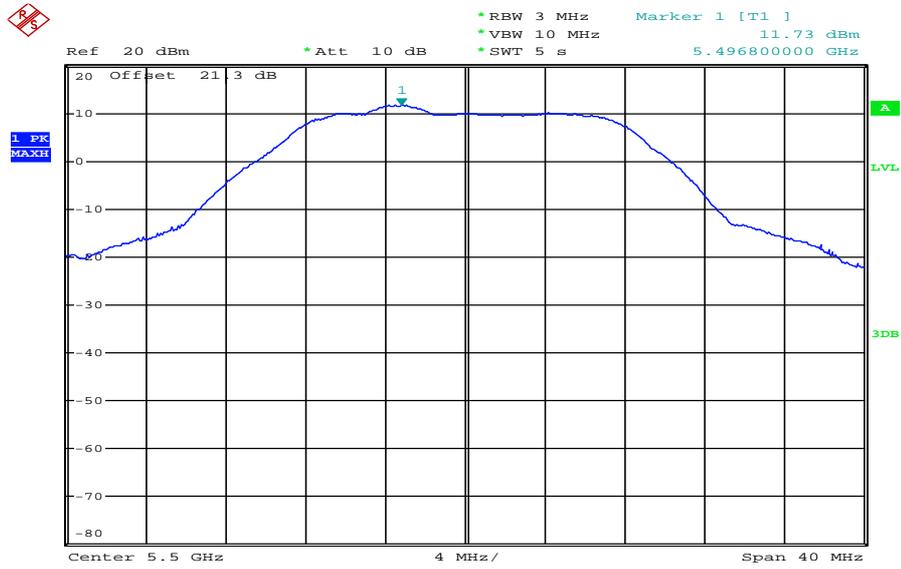
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Plot 4: OFDM / a – mode, 5320 MHz



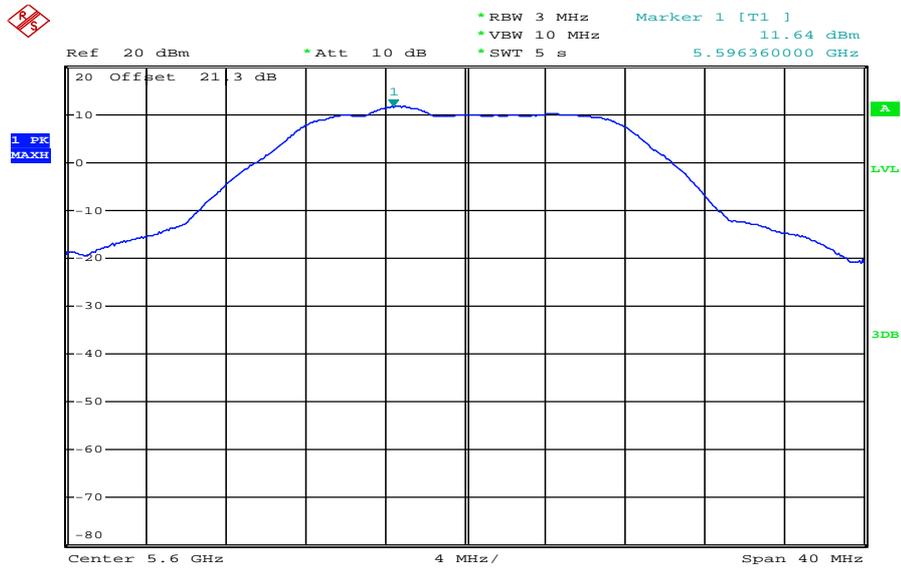
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Plot 5: OFDM / a – mode, 5500 MHz



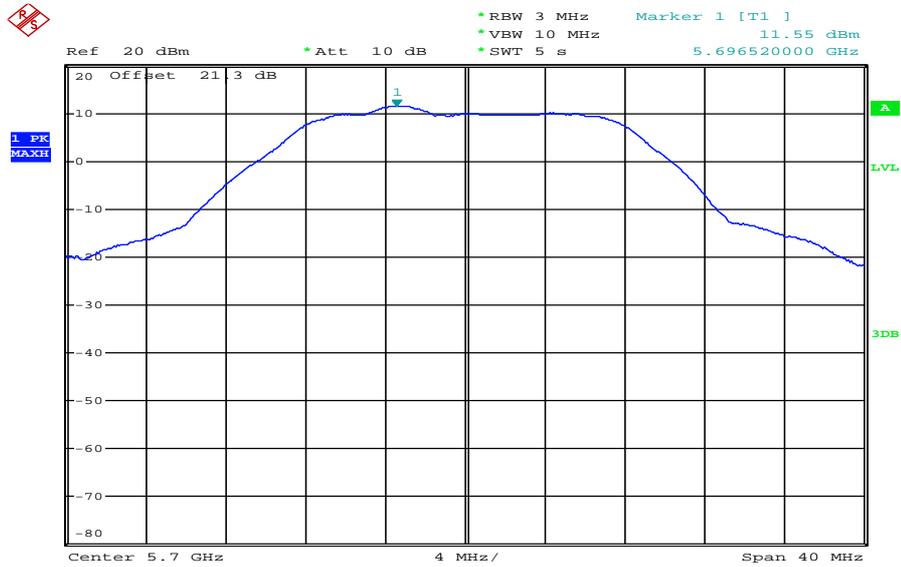
Date: 29.AUG.2012 07:49:34

Plot 6: OFDM / a – mode, 5600 MHz



Date: 29.AUG.2012 07:51:02

Plot 7: OFDM / a – mode, 5700 MHz



Date: 29.AUG.2012 07:52:28

9.3 Duty cycle

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	See Plots!
Resolution bandwidth:	10 MHz
Video bandwidth:	10 MHz
Span:	Zero
Trace-Mode:	Video trigger / View / Single sweep

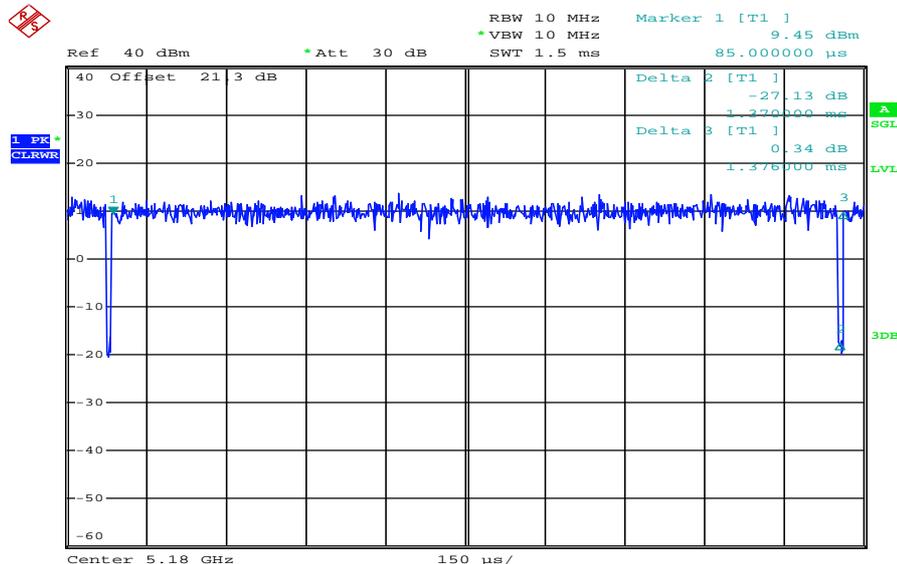
Results:

Duty cycle and correction factor:

OFDM / a – mode: 99.56 % duty cycle => 0.02 dB
 OFDM / n – mode HT20: 98.06 % duty cycle => 0.09 dB
 OFDM / n – mode HT40: 98.60 % duty cycle => 0.06 dB

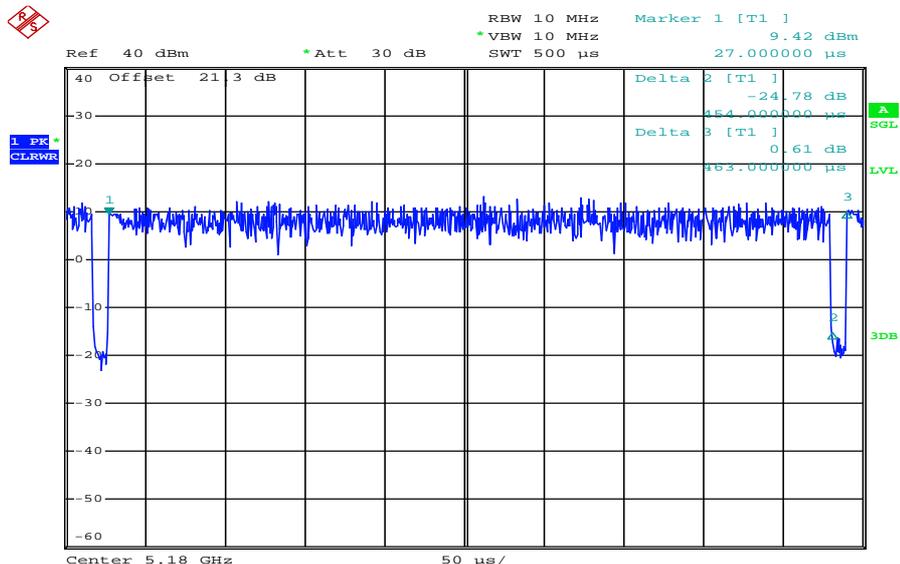
Plots:

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



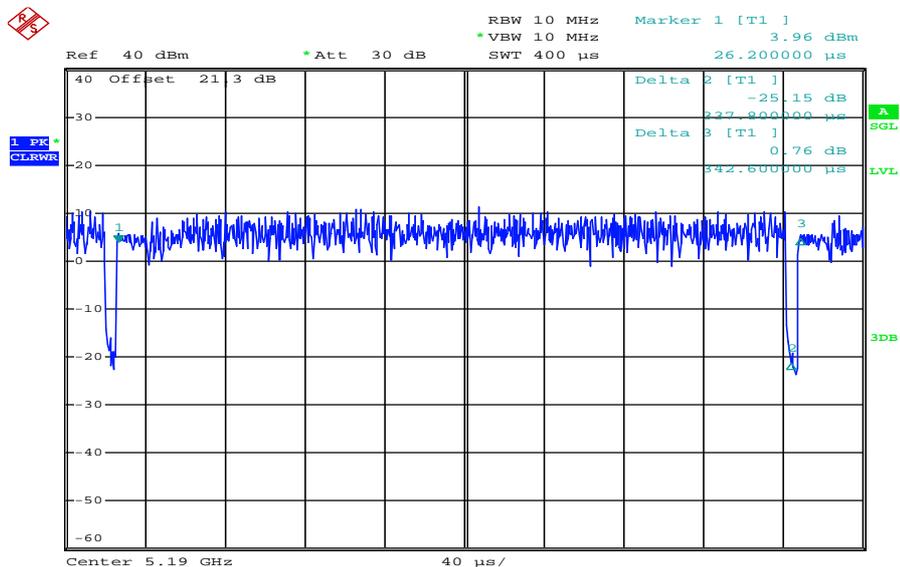
Date: 29.AUG.2012 07:57:23

Plot 2: duty cycle of the transmitter – OFDM / n – mode HT20



Date: 29.AUG.2012 08:00:02

Plot 3: duty cycle of the transmitter – OFDM / n – mode HT40



Date: 29.AUG.2012 08:03:33

9.4 Maximum output power conducted and radiated

Description:

Measurement of the maximum output power conducted and radiated

Measurement:

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

Limits:

Radiated output power	Conducted output power
Conducted power + 6dBi antenna gain	The lesser one of 50mW or 4 dBm + 10 log Bandwidth 5.15-5.25 GHz 250mW or 11 dBm + 10 log Bandwidth 5.25-5.35 GHz 250mW or 11 dBm + 10 log Bandwidth 5.47-5.725 GHz 1W or 17 dBm + 10 log Bandwidth 5.47-5.725 GHz (where Bandwidth is the 26dB Bandwidth)

Result: OFDM / a – mode

OFDM / a – mode Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
+0.02 dB duty cycle correction	7.72	6.91	7.38	6.62
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.02 dB duty cycle correction	7.08	7.02	6.82	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

OFDM / a – mode Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
+0.02 dB duty cycle correction	3.29	3.59	3.53	5.56
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.02 dB duty cycle correction	5.45	5.05	2.97	-/-
Measurement uncertainty	± 3 dB			

Result: Passed

Result: OFDM / n – mode HT20

OFDM / n – mode HT20 Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
+0.09 dB duty cycle correction	8.67	7.57	8.12	6.59
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.09 dB duty cycle correction	7.72	7.68	7.72	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

OFDM / n – mode HT20 Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
+0.09 dB duty cycle correction	4.24	4.25	4.27	5.53
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.09 dB duty cycle correction	6.09	5.71	3.87	-/-
Measurement uncertainty	± 3 dB			

Result: Passed

Result: OFDM / n – mode HT40

OFDM / n – mode HT40 Channel	Maximum output power conducted [dBm]			
	Lowest 5190 MHz	Highest 5230 MHz	Lowest 5270 MHz	Highest 5310 MHz
+0.06 dB duty cycle correction	7.15	7.32	6.67	5.56
Channel	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
+0.06 dB duty cycle correction	5.81	5.44	6.44	-/-
Measurement uncertainty	± 1 dB			

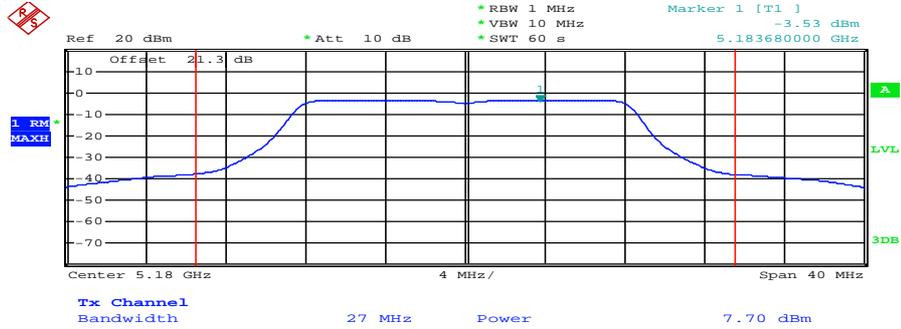
Result: Passed

OFDM / n – mode HT40 Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5190 MHz	Highest 5230 MHz	Lowest 5270 MHz	Highest 5310 MHz
+0.06 dB duty cycle correction	2.72	4.00	2.82	4.50
Channel	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
+0.06 dB duty cycle correction	4.18	3.47	2.59	-/-
Measurement uncertainty	± 3 dB			

Result: Passed

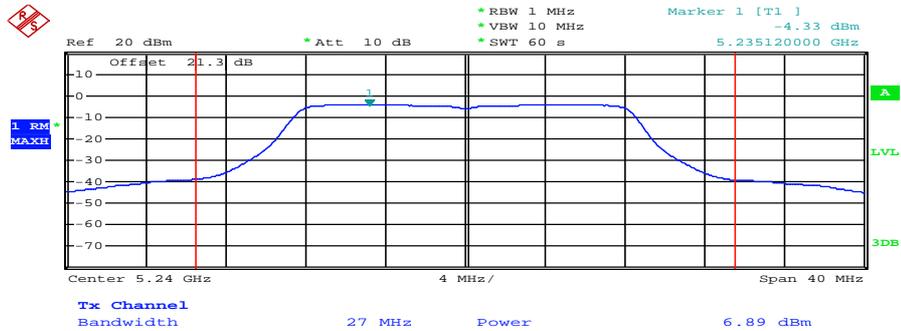
Plots: OFDM / a – mode

Plot 1: 5180 MHz



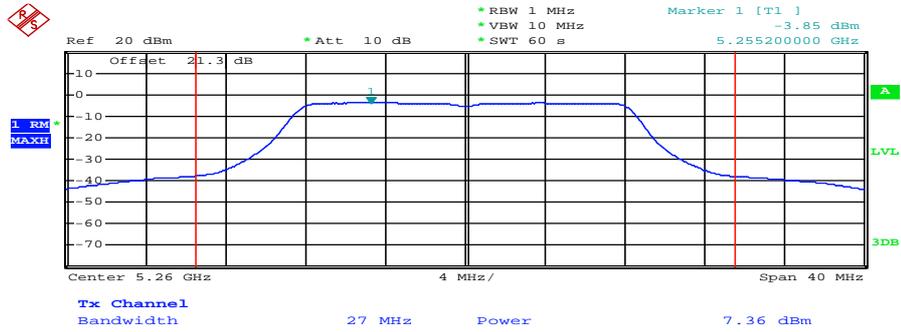
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Plot 2: 5240 MHz



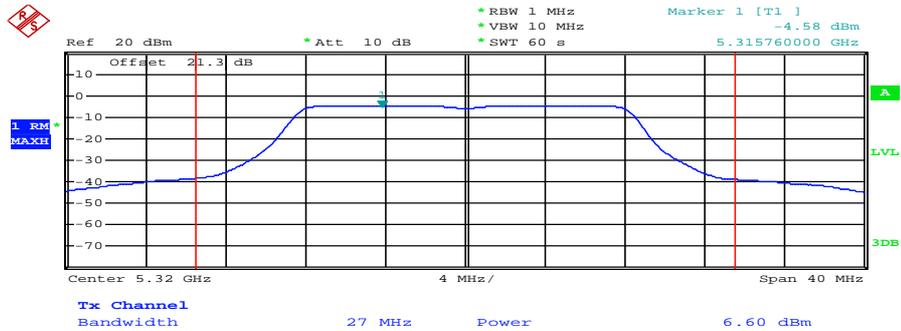
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Plot 3: 5260 MHz



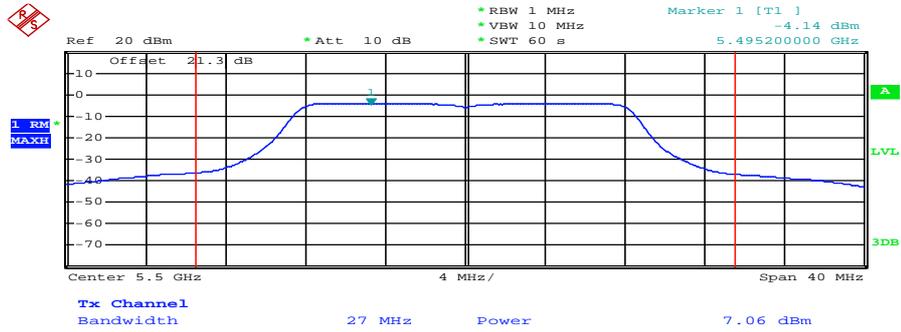
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Plot 4: 5320 MHz



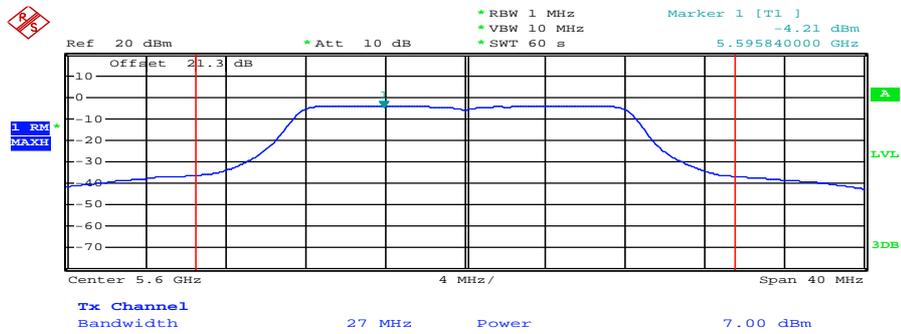
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Plot 5: 5500 MHz



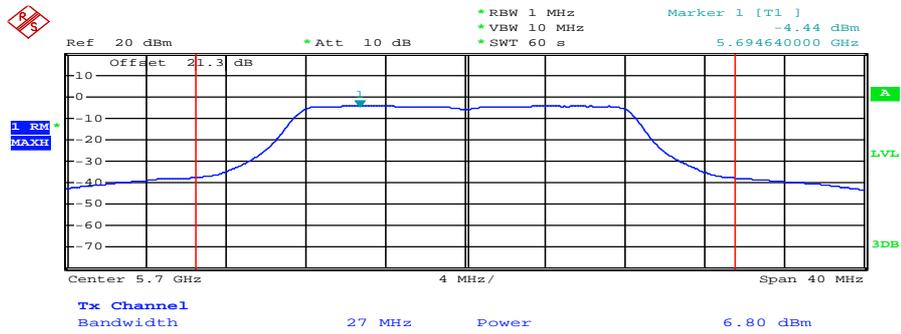
Date: 29.AUG.2012 10:51:44

Plot 6: 5600 MHz



Date: 29.AUG.2012 10:53:24

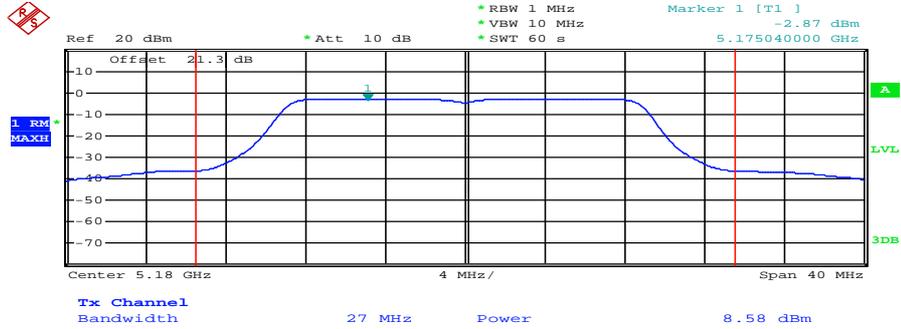
Plot 7: 5700 MHz



Date: 29.AUG.2012 10:55:00

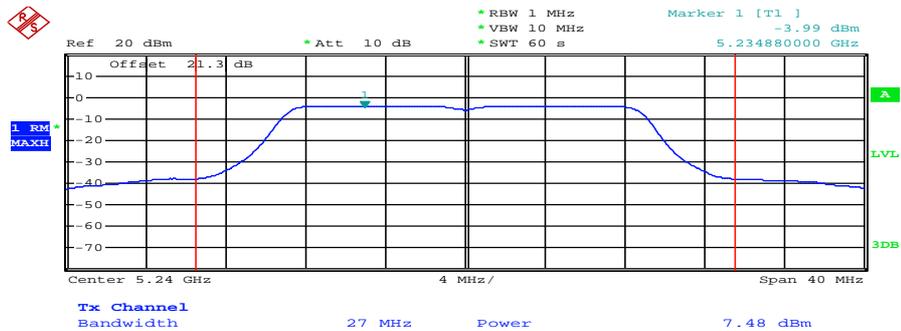
Plots: OFDM / n – mode HT20

Plot 1: 5180 MHz



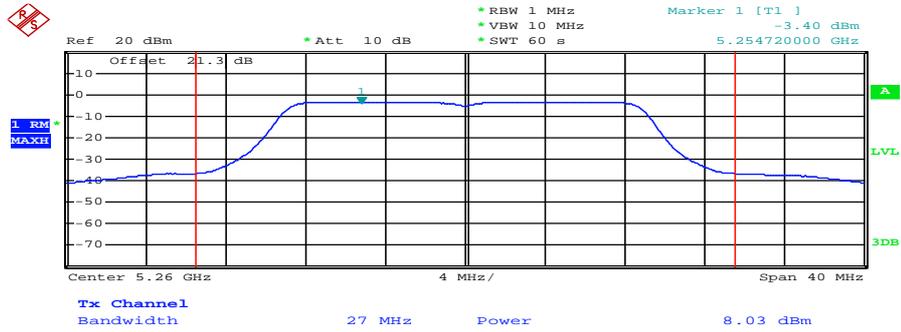
Date: 29.AUG.2012 11:12:25

Plot 2: 5240 MHz



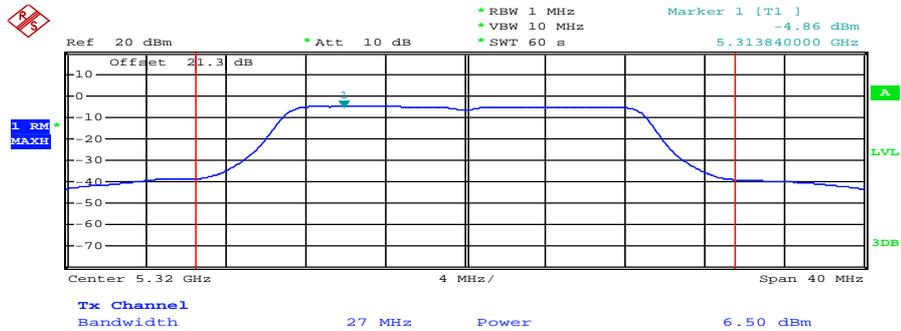
Date: 29.AUG.2012 11:10:56

Plot 3: 5260 MHz



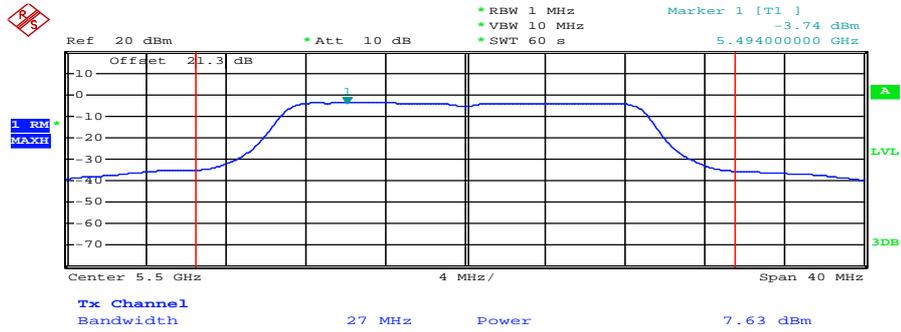
Date: 29.AUG.2012 11:09:17

Plot 4: 5320 MHz



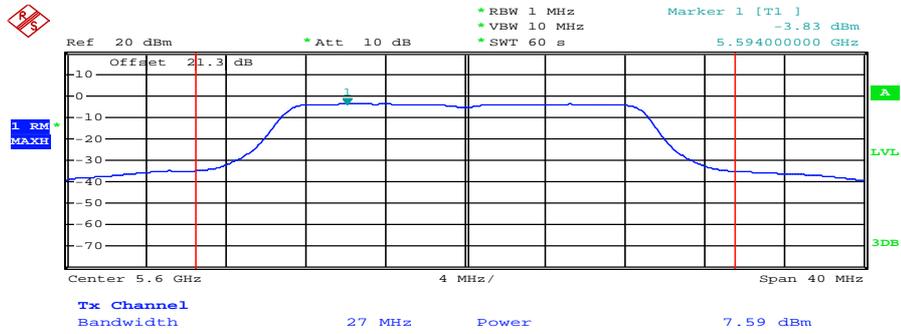
Date: 29.AUG.2012 11:07:18

Plot 5: 5500 MHz



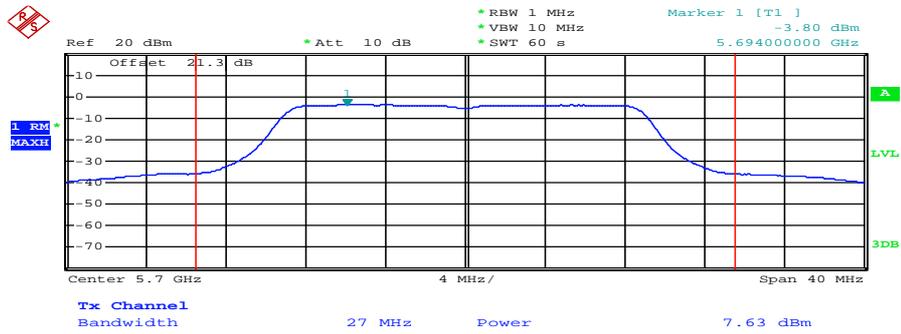
Date: 29.AUG.2012 11:05:25

Plot 6: 5600 MHz



Date: 29.AUG.2012 11:03:55

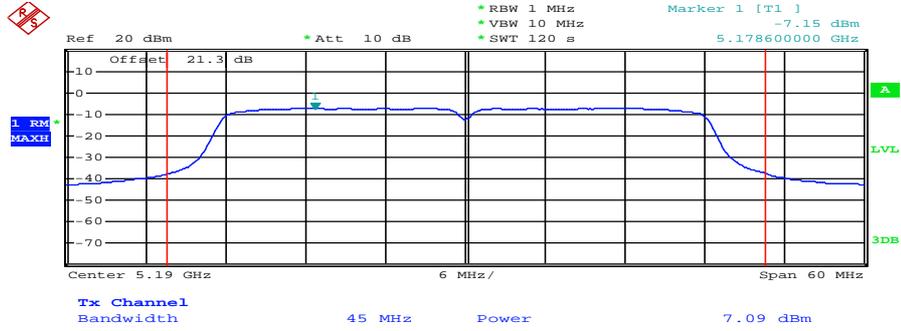
Plot 7: 5700 MHz



Date: 29.AUG.2012 10:58:33

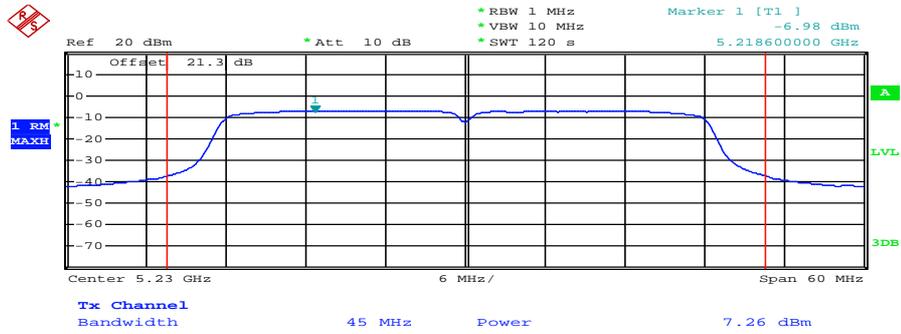
Plots: OFDM / n – mode HT40

Plot 1: 5190 MHz



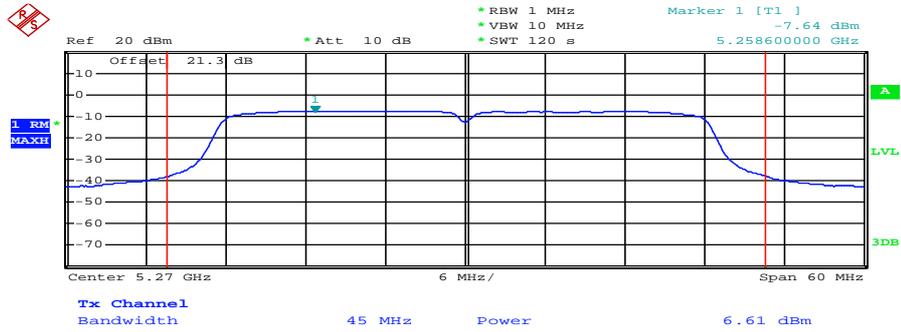
Date: 29.AUG.2012 11:18:12

Plot 2: 5230 MHz



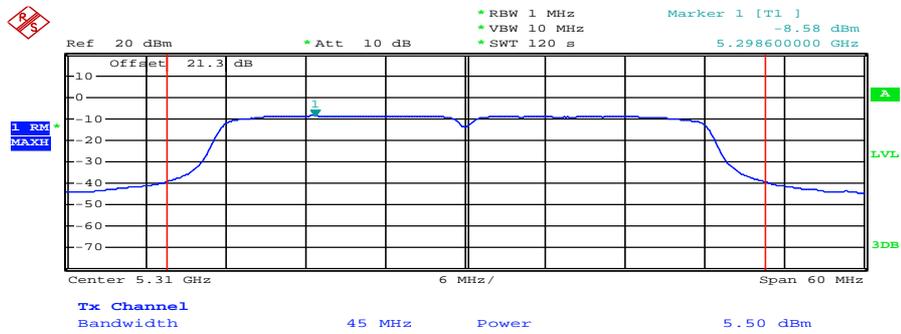
Date: 29.AUG.2012 11:21:00

Plot 3: 5270 MHz



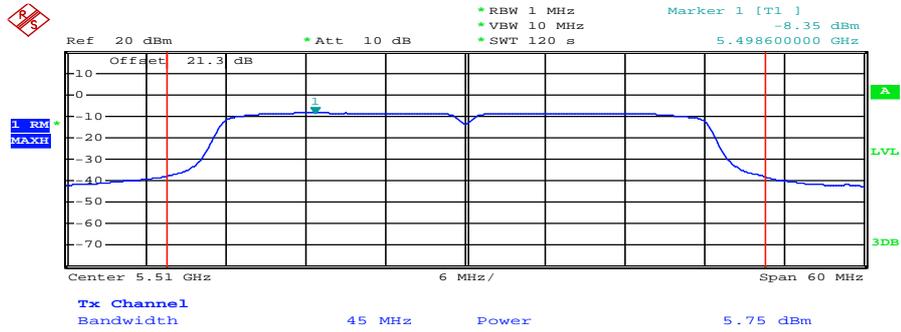
Date: 29.AUG.2012 11:23:57

Plot 4: 5310 MHz



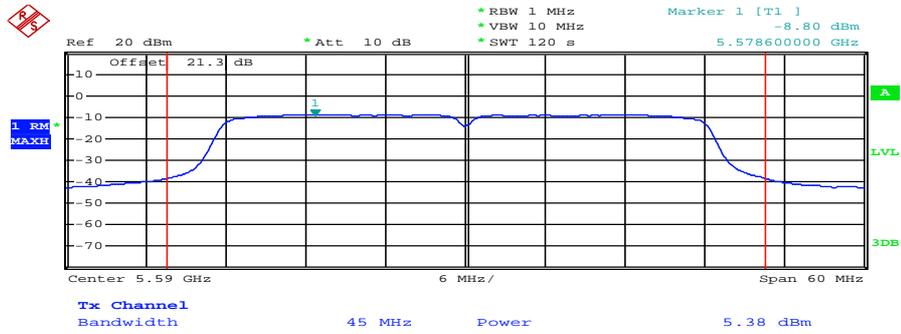
Date: 29.AUG.2012 11:26:56

Plot 5: 5510 MHz



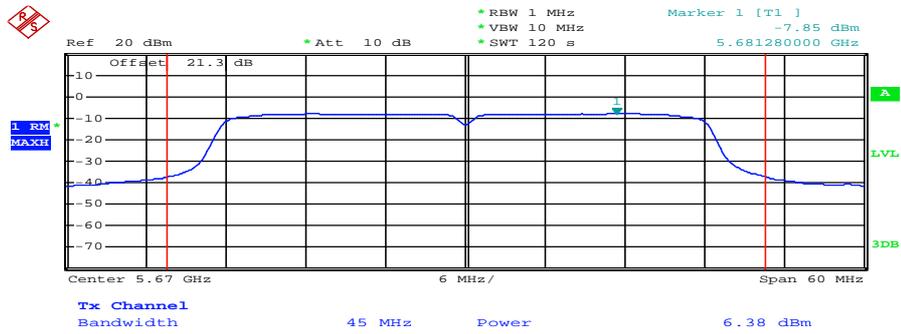
Date: 29.AUG.2012 11:29:45

Plot 6: 5590 MHz



Date: 29.AUG.2012 11:32:47

Plot 7: 5670 MHz



Date: 29.AUG.2012 11:38:35

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:

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
power spectral density conducted ≤ 4 dBm in any 1 MHz band (band 5150 – 5250 MHz)
power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5250 – 5350 MHz)
power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5470 – 5725 MHz)
power spectral density conducted ≤ 17 dBm in any 1 MHz band (band 5725 – 5850 MHz)

Result: OFDM / a – mode

OFDM / a – mode Channel	Power Spectral density [dBm/MHz]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
+0.02 dB duty cycle correction	-3.08	-4.06	-3.59	-4.44
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.02 dB duty cycle correction	-3.81	-3.89	-3.95	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

Result: OFDM / n – mode HT20

OFDM / n – mode HT20 Channel	Power Spectral density [dBm/MHz]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
+0.09 dB duty cycle correction	-3.07	-4.05	-3.57	-4.35
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
+0.09 dB duty cycle correction	-3.87	-3.83	-3.93	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

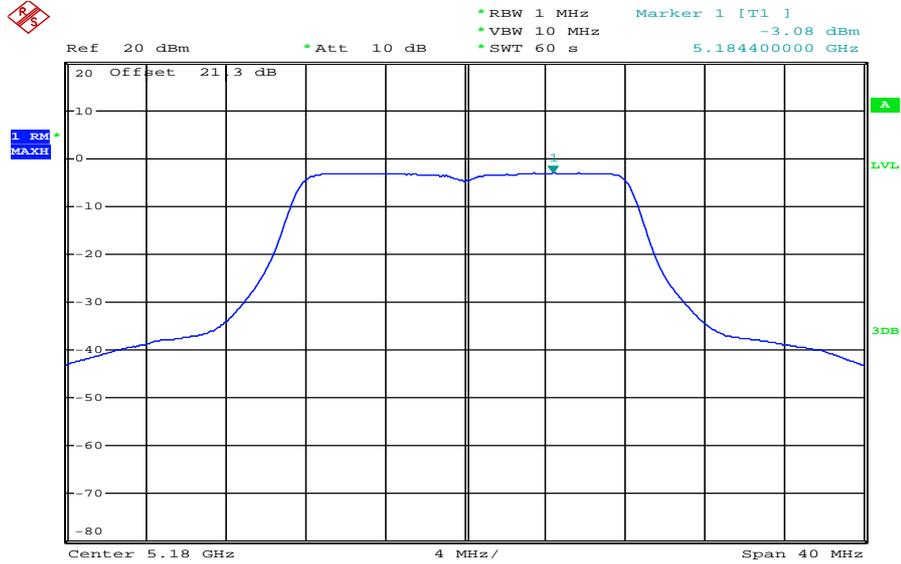
Result: OFDM / n – mode HT40

OFDM / n – mode HT40 Channel	Power Spectral density [dBm/MHz]			
	Lowest 5190 MHz	Highest 5230 MHz	Lowest 5270 MHz	Highest 5310 MHz
+0.06 dB duty cycle correction	-5.40	-8.14	-7.87	-7.77
Channel	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
+0.06 dB duty cycle correction	-6.58	-8.64	-8.58	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

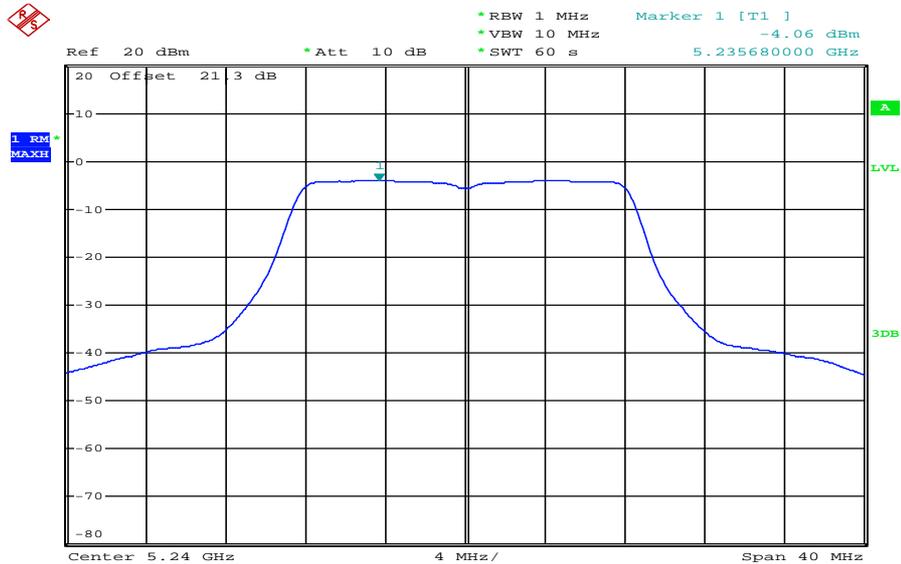
Plots: OFDM / a – mode

Plot 1: 5180 MHz



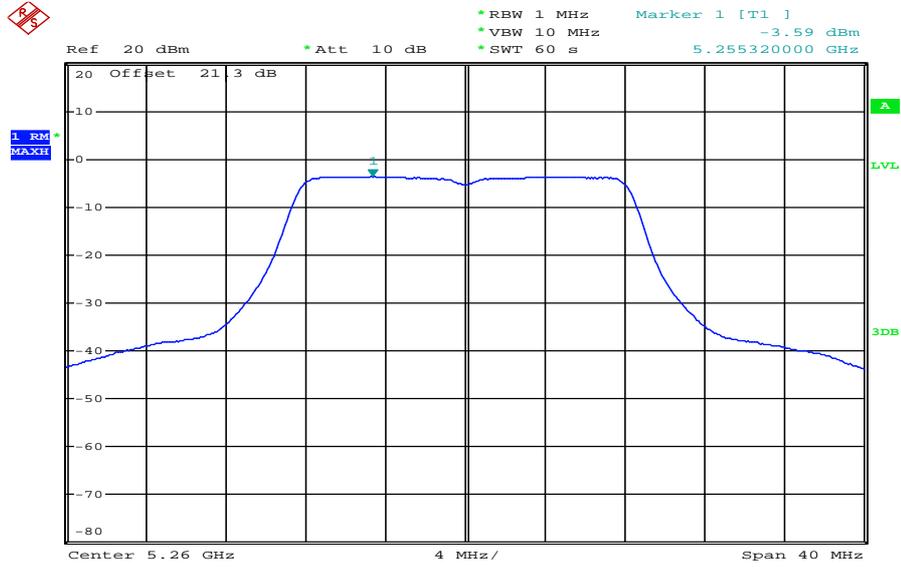
Date: 29.AUG.2012 08:09:48

Plot 2: 5240 MHz



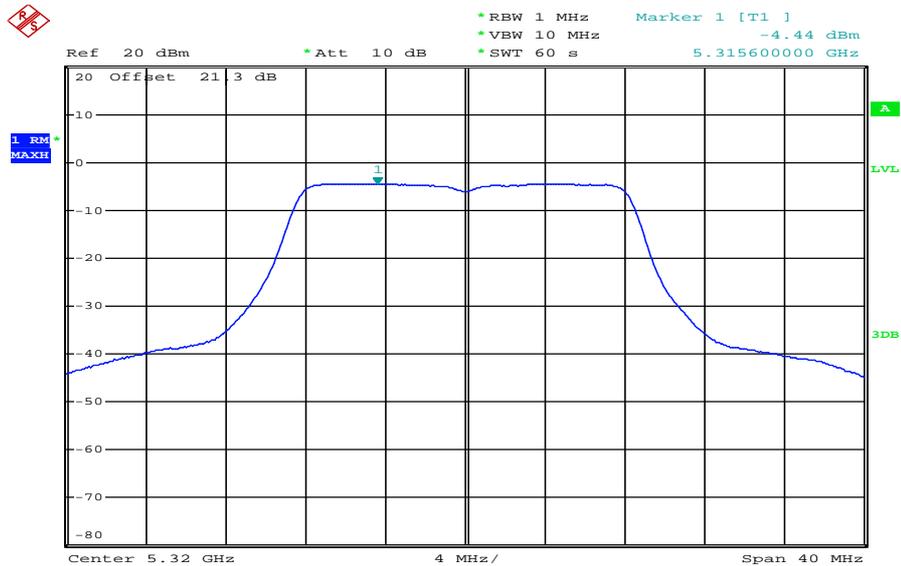
Date: 29.AUG.2012 08:34:34

Plot 3: 5260 MHz



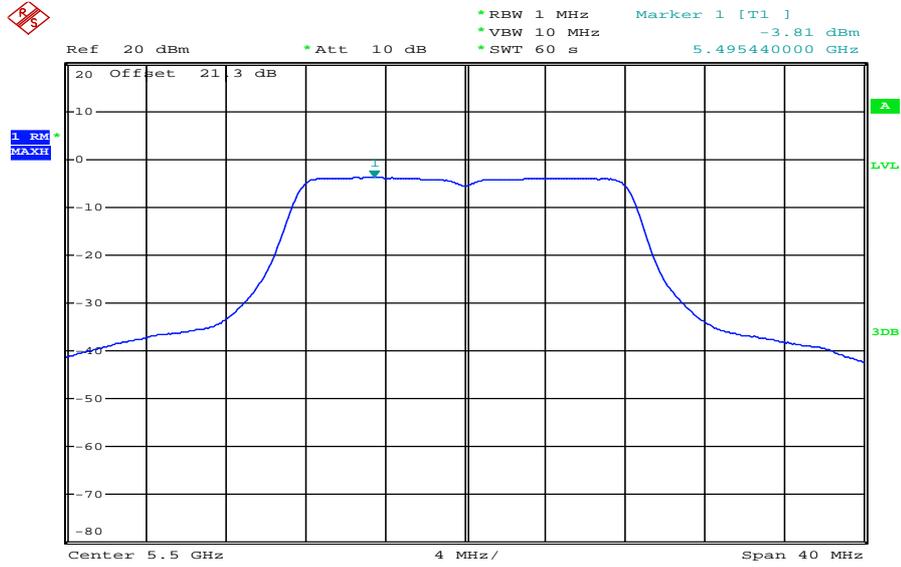
Date: 29.AUG.2012 08:36:18

Plot 4: 5320 MHz



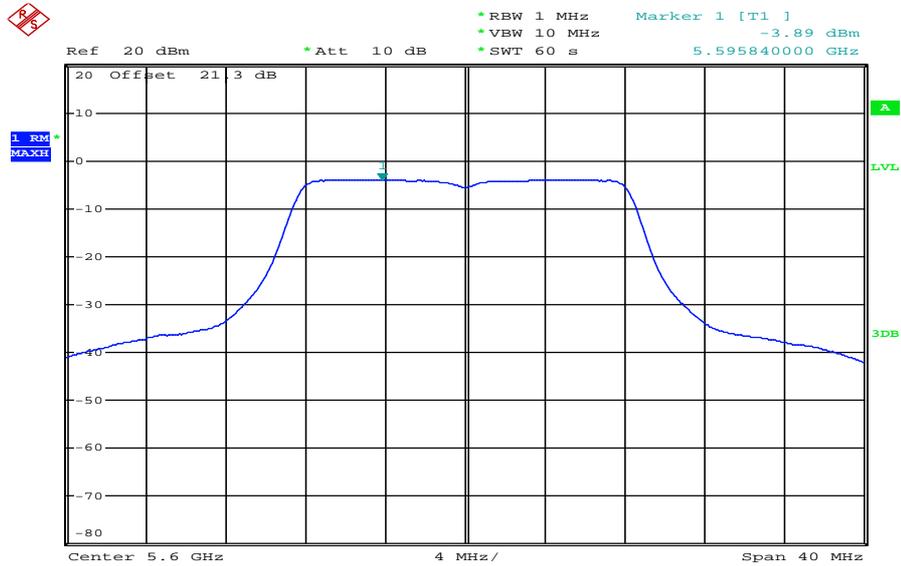
Date: 29.AUG.2012 08:38:16

Plot 5: 5500 MHz



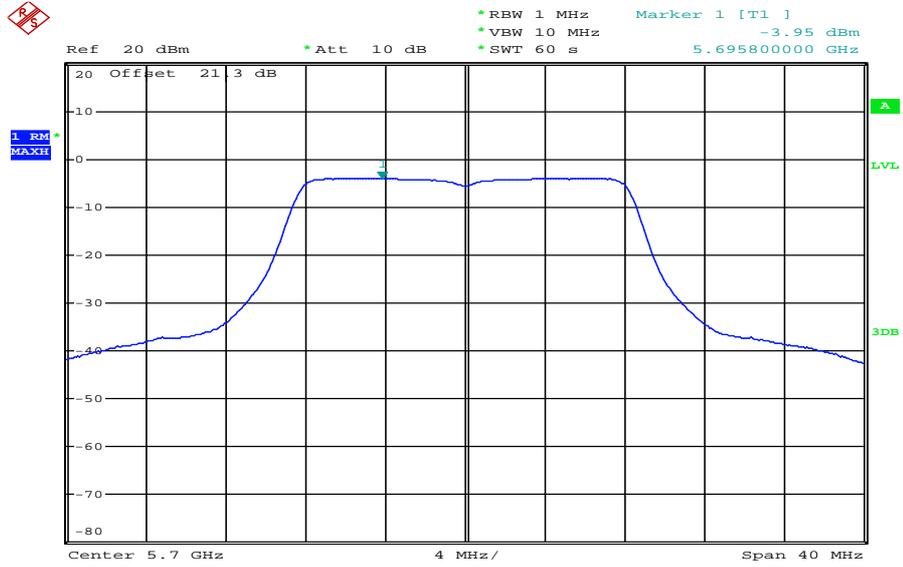
Date: 29.AUG.2012 08:40:24

Plot 6: 5600 MHz



Date: 29.AUG.2012 08:41:59

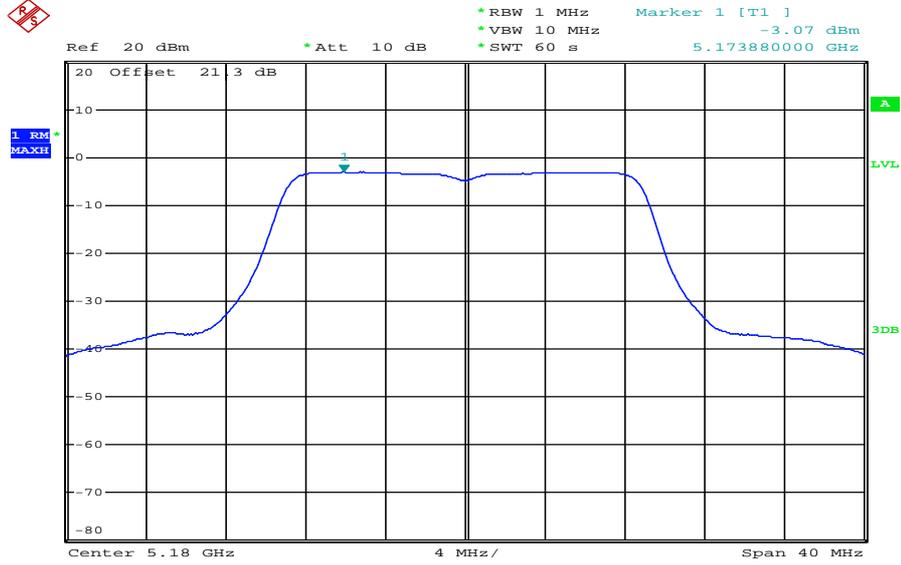
Plot 7: 5700 MHz



Date: 29.AUG.2012 08:43:37

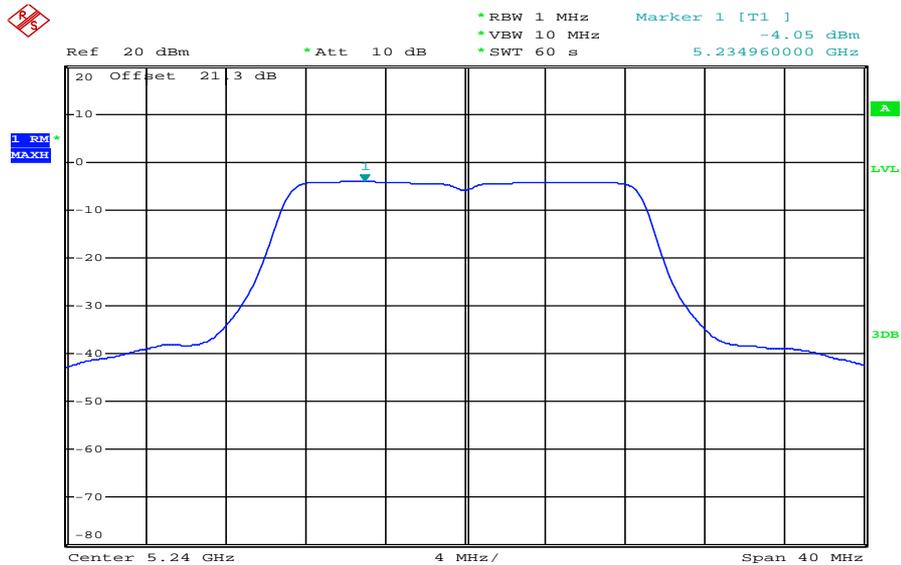
Plots: OFDM / n – mode HT20

Plot 1: 5180 MHz



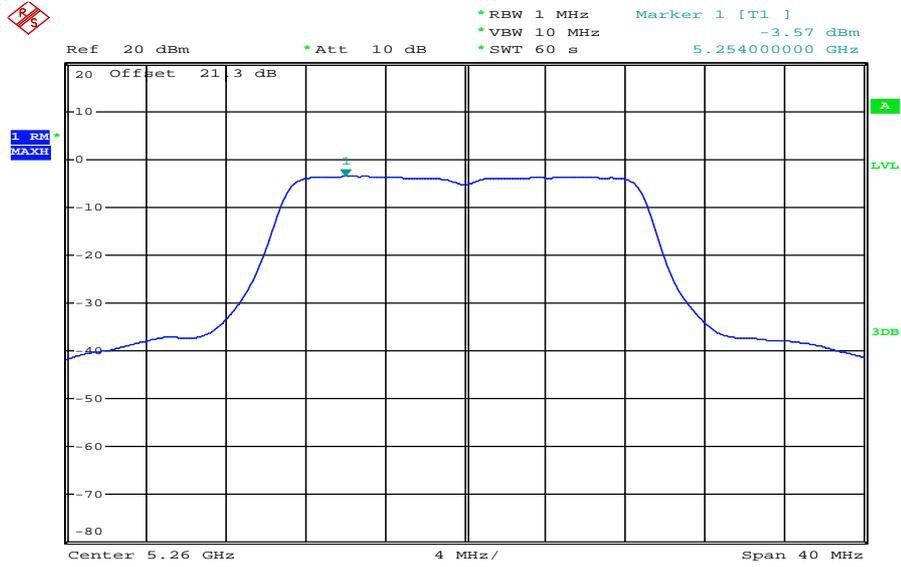
Date: 29.AUG.2012 08:46:20

Plot 2: 5240 MHz



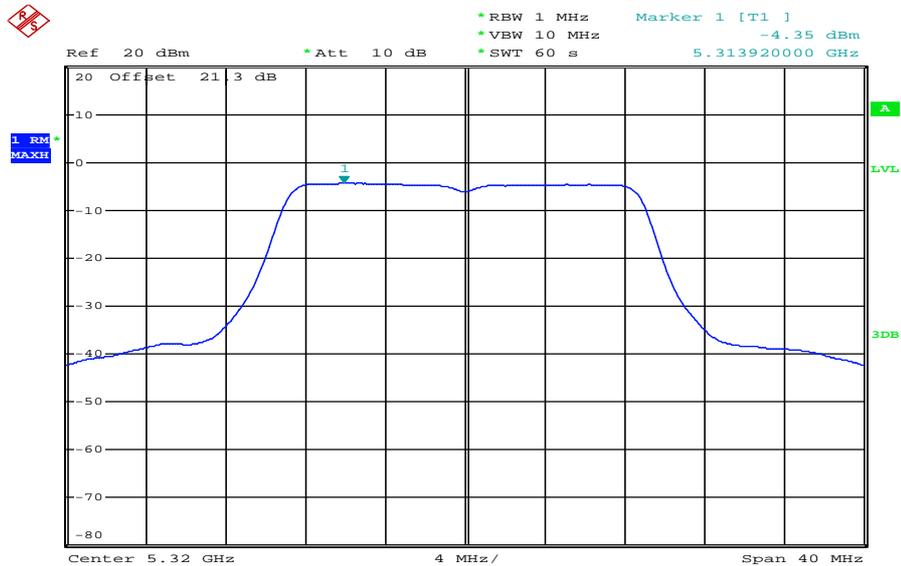
Date: 29.AUG.2012 08:51:10

Plot 3: 5260 MHz



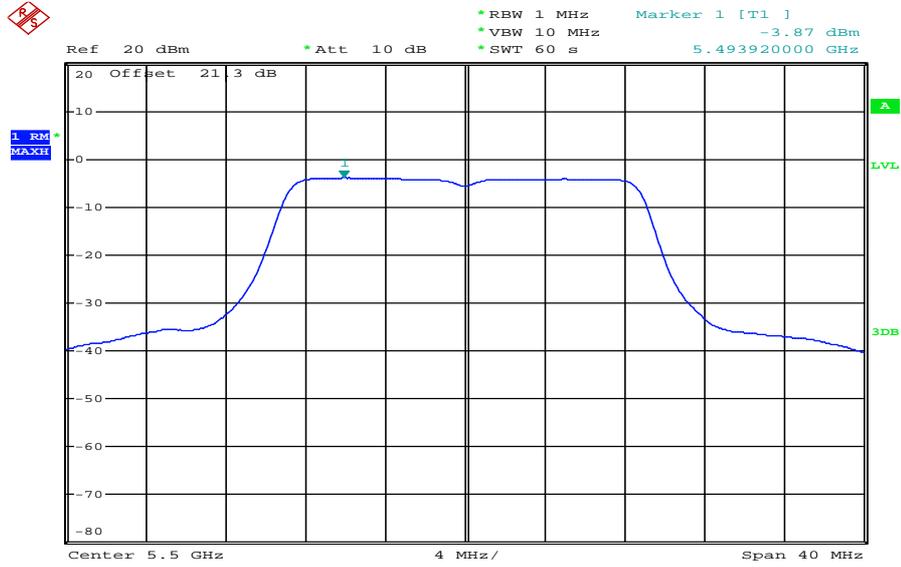
Date: 29.AUG.2012 08:52:51

Plot 4: 5320 MHz



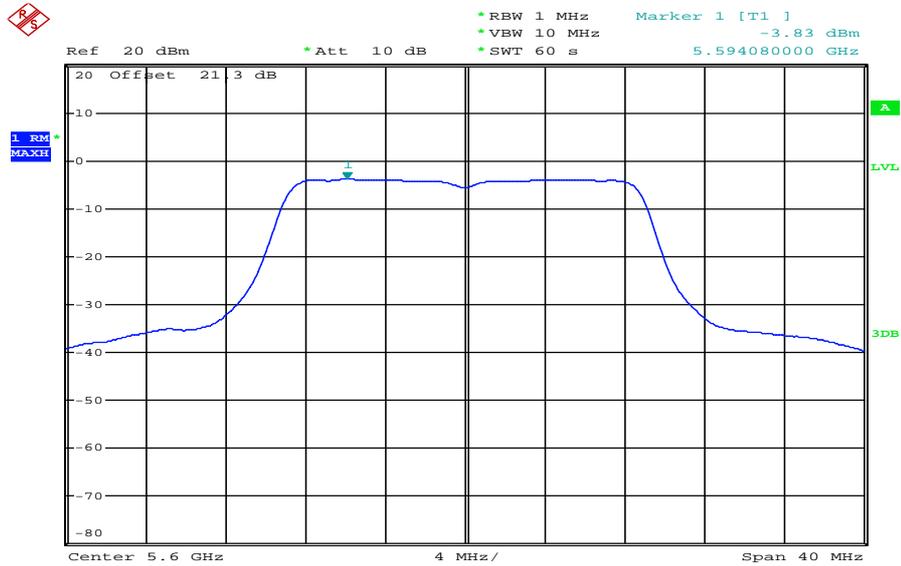
Date: 29.AUG.2012 08:54:26

Plot 5: 5500 MHz



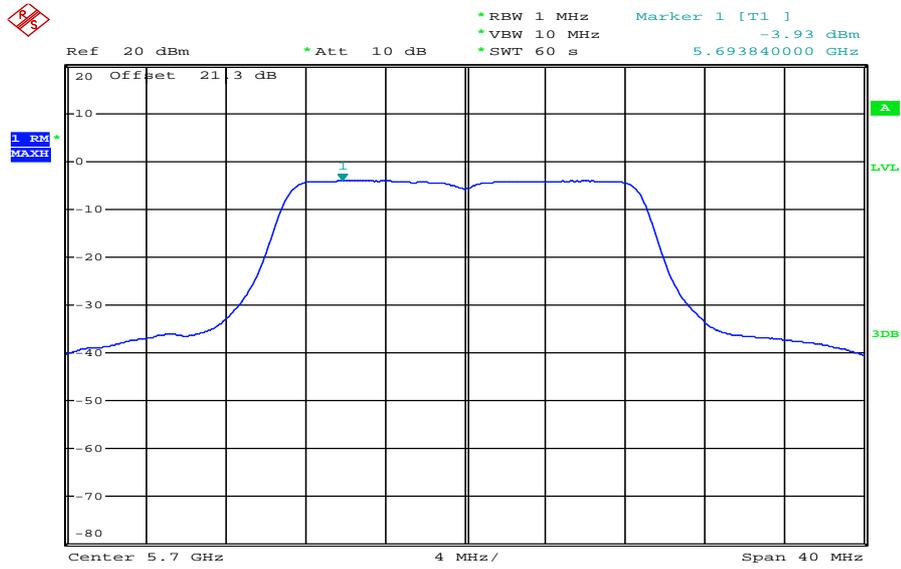
Date: 29.AUG.2012 08:56:00

Plot 6: 5600 MHz



Date: 29.AUG.2012 08:57:39

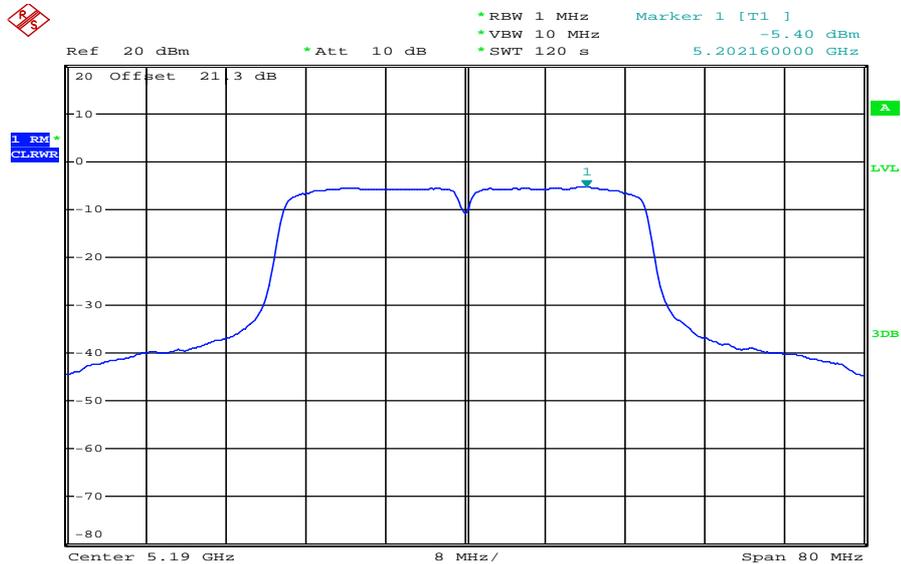
Plot 7: 5700 MHz



Date: 29.AUG.2012 08:59:22

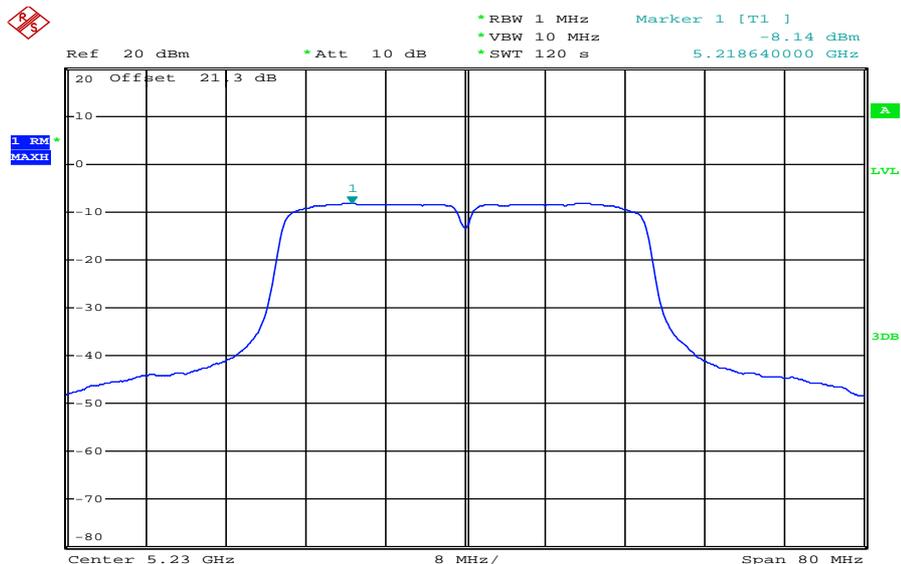
Plots: OFDM / n – mode HT40

Plot 1: 5190 MHz



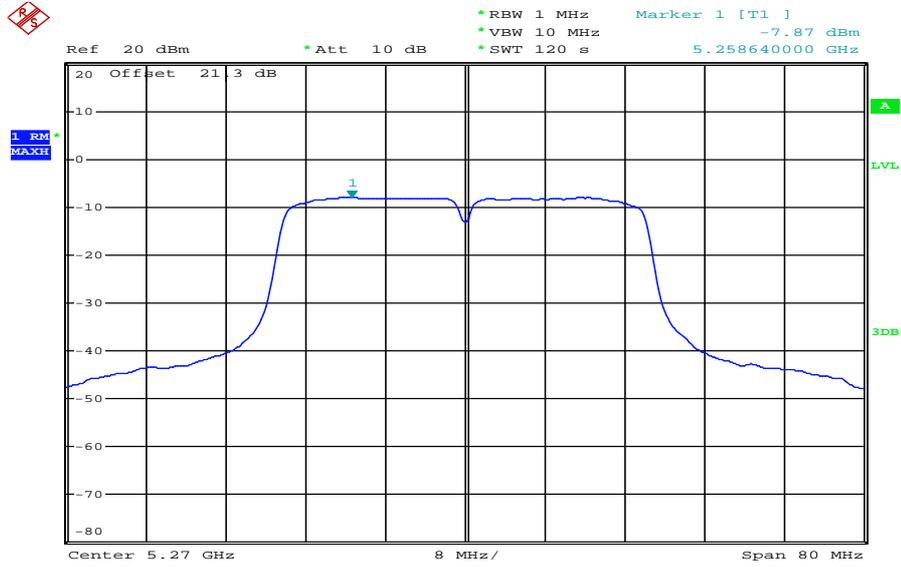
Date: 29.AUG.2012 09:02:55

Plot 2: 5230 MHz



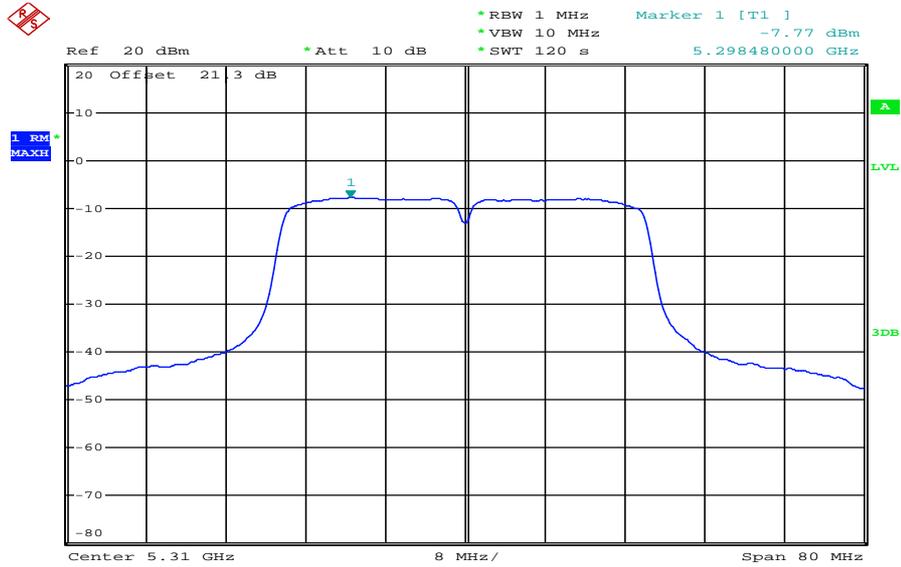
Date: 29.AUG.2012 09:22:21

Plot 3: 5270 MHz



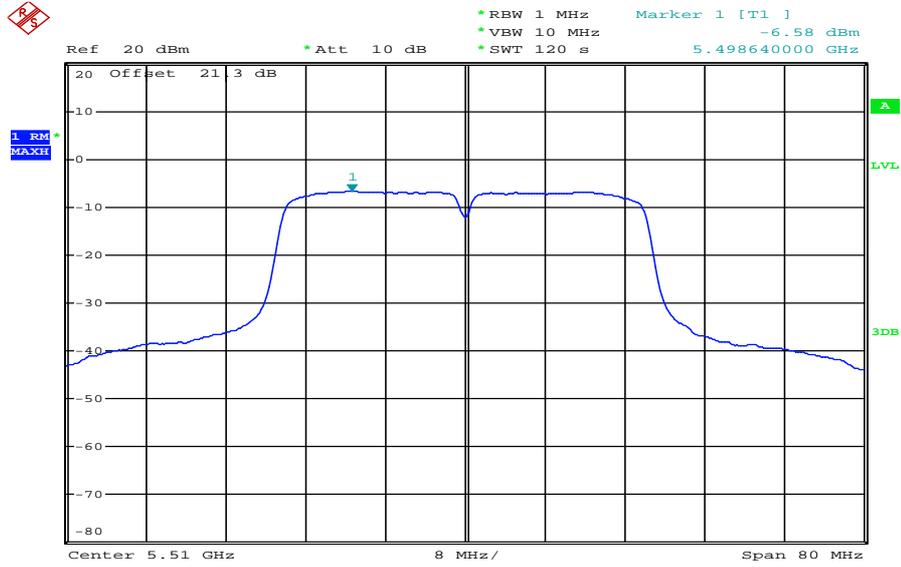
Date: 29.AUG.2012 09:17:53

Plot 4: 5310 MHz



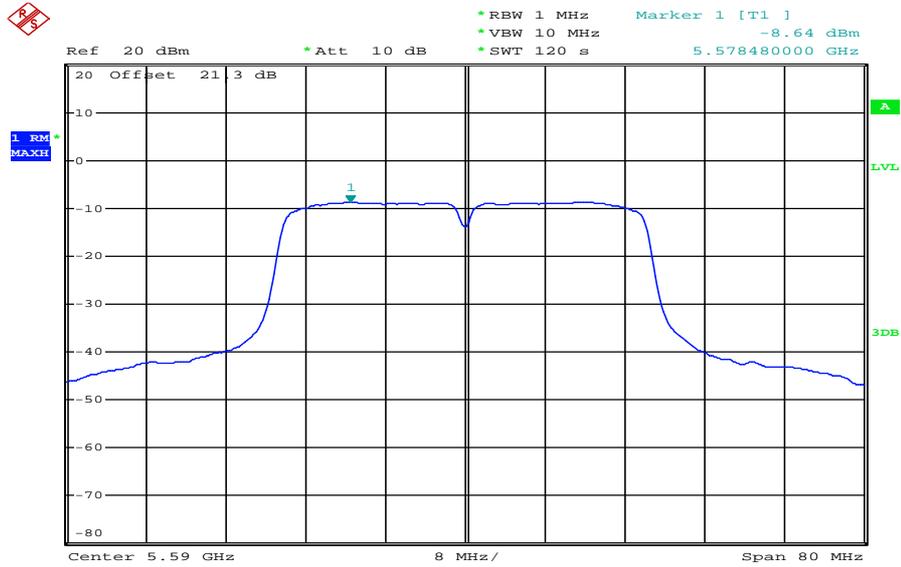
Date: 29.AUG.2012 09:25:32

Plot 5: 5510 MHz



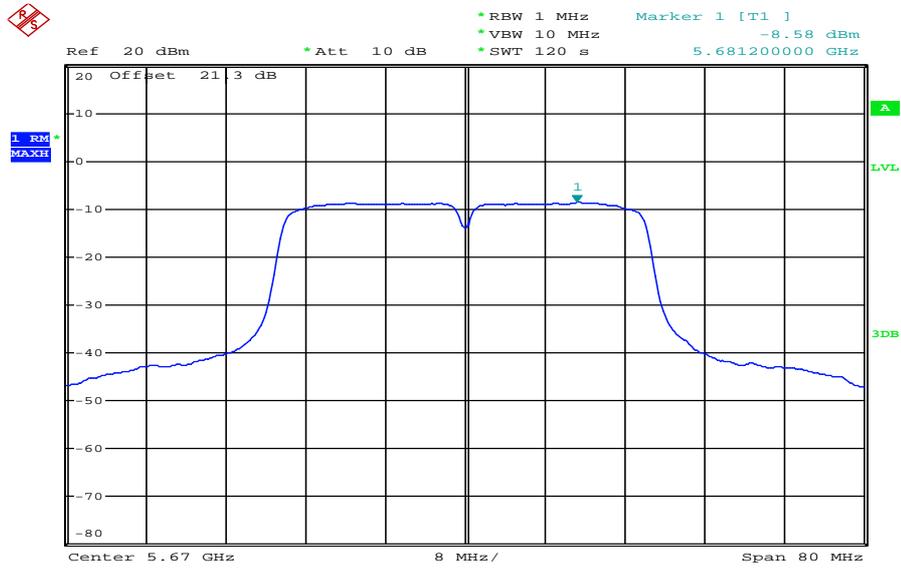
Date: 29.AUG.2012 09:28:28

Plot 6: 5590 MHz



Date: 29.AUG.2012 09:32:54

Plot 7: 5670 MHz



Date: 29.AUG.2012 09:36:33

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:	≥ RBW
Span:	> complete signal!
Trace-Mode:	Max hold

Limits:

Spectrum Bandwidth – 26 dB Bandwidth
-/-

Result: OFDM / a – mode

OFDM / a – mode Channel	26 dB BANDWIDTH [MHz]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
	22.80	22.80	22.88	22.88
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
	22.96	22.96	22.88	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

Result: OFDM / n – mode HT20

OFDM / n – mode HT20 Channel	26 dB BANDWIDTH [MHz]			
	Lowest 5180 MHz	Highest 5240 MHz	Lowest 5260 MHz	Highest 5320 MHz
	23.68	23.36	23.68	23.44
Channel	Lowest 5500 MHz	Middle 5600 MHz	Highest 5700 MHz	-/-
	23.84	24.00	23.76	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

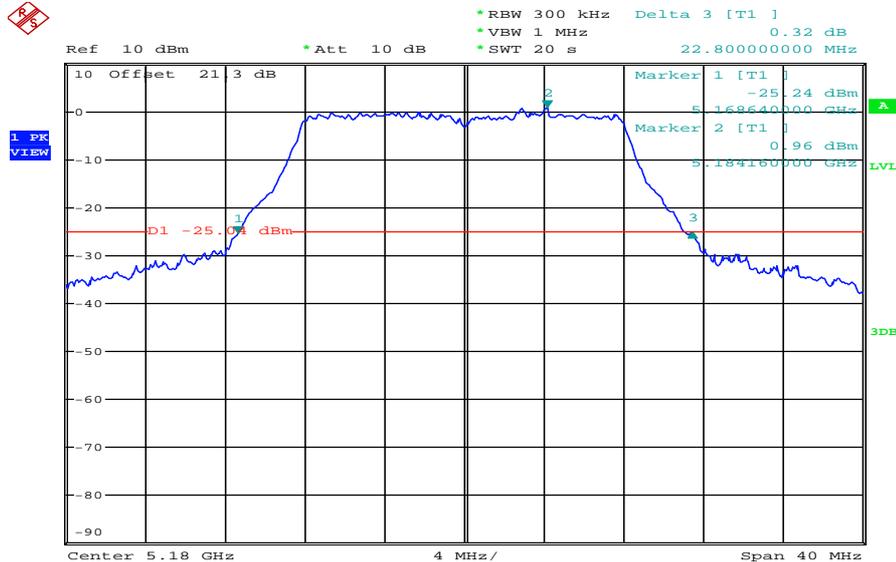
Result: OFDM / n – mode HT40

OFDM / n – mode HT40 Channel	26 dB BANDWIDTH [MHz]			
	Lowest 5190 MHz	Highest 5230 MHz	Lowest 5270 MHz	Highest 5310 MHz
	42.16	42.08	42.24	42.24
Channel	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
	42.40	43.84	40.16	-/-
Measurement uncertainty	± 1 dB			

Result: Passed

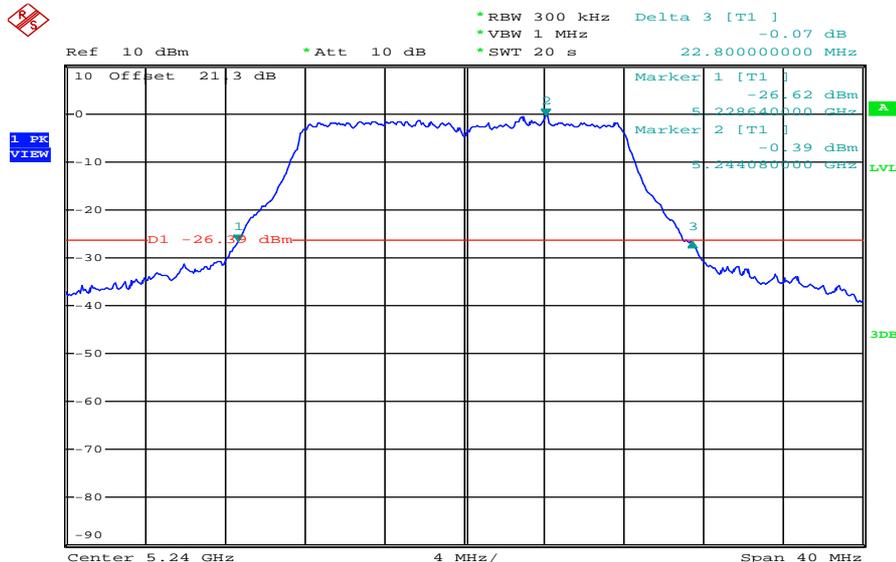
Plots: OFDM / a – mode

Plot 1: 5180 MHz



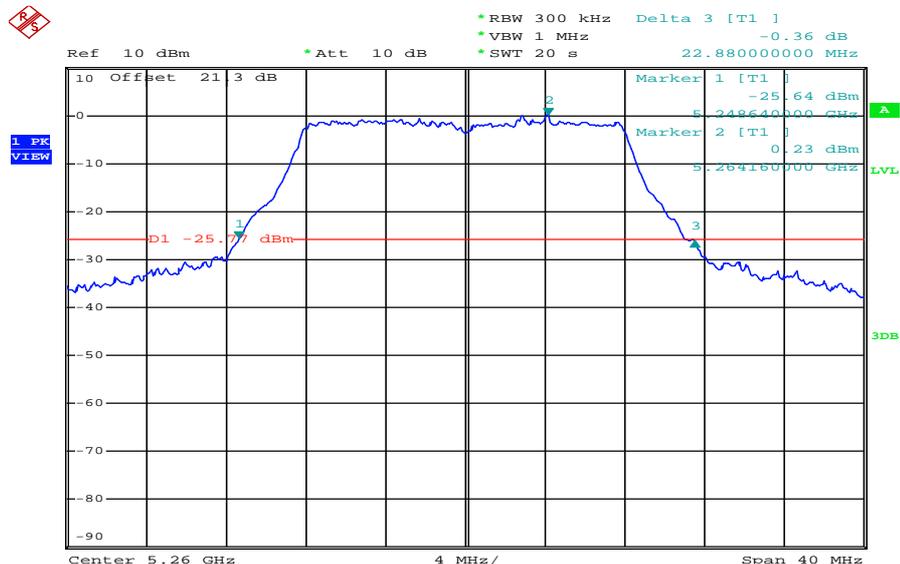
Date: 29.AUG.2012 13:19:15

Plot 2: 5240 MHz



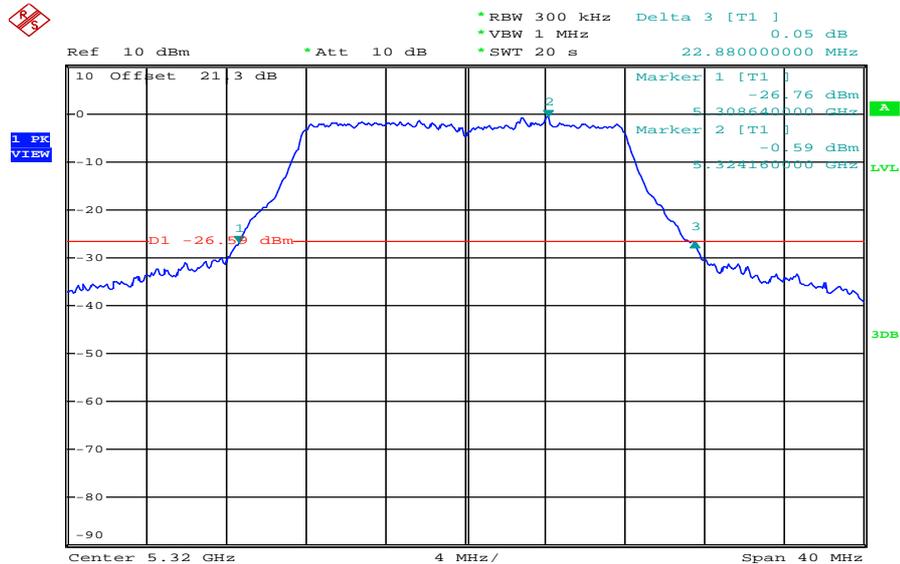
Date: 29.AUG.2012 13:22:20

Plot 3: 5260 MHz



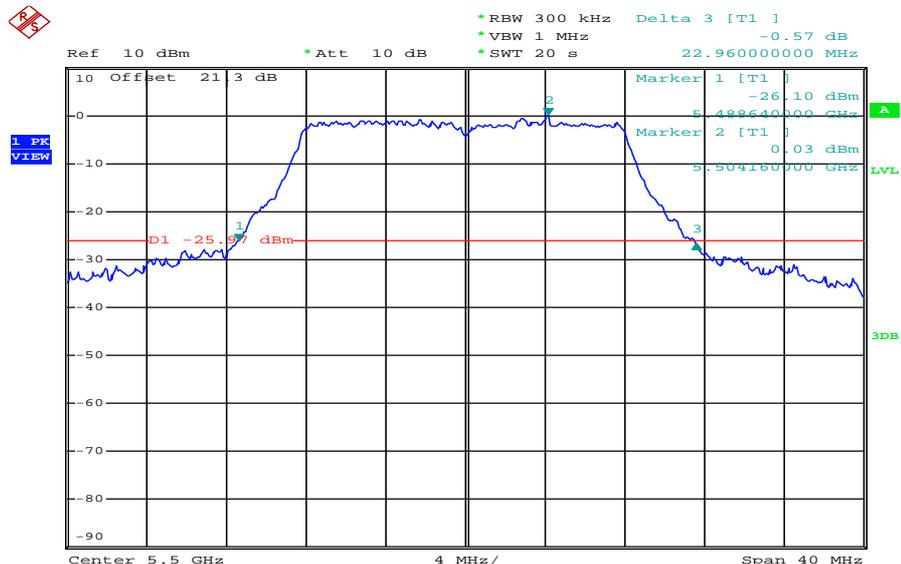
Date: 29.AUG.2012 13:23:55

Plot 4: 5320 MHz



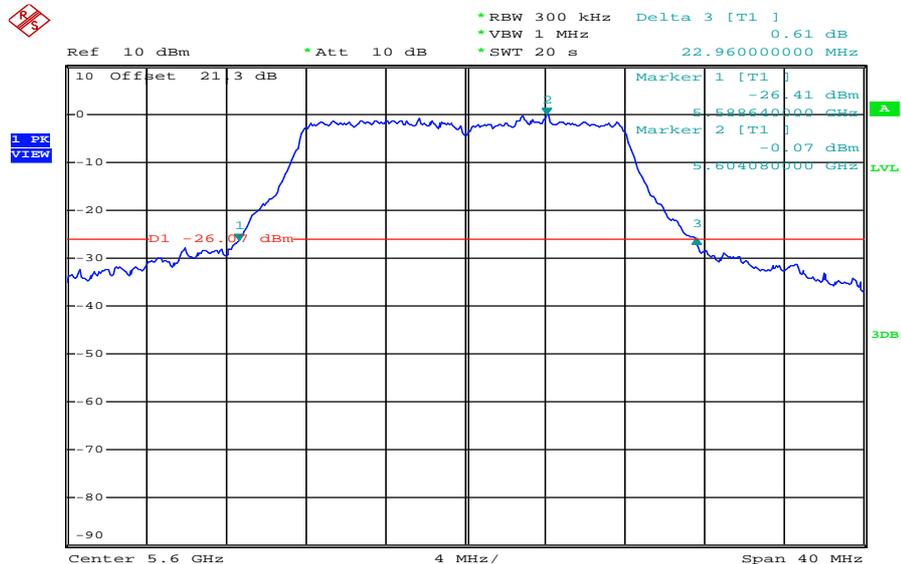
Date: 29.AUG.2012 13:25:43

Plot 5: 5500 MHz



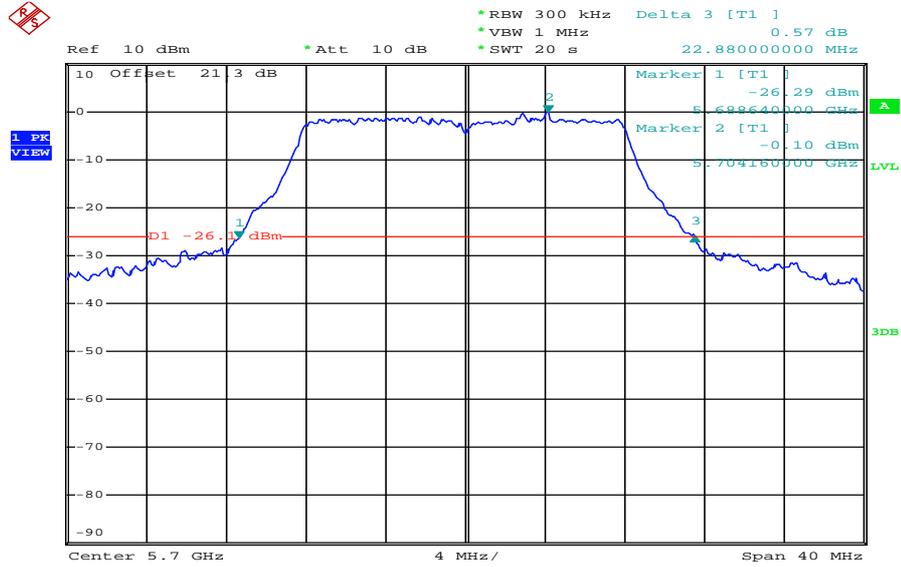
Date: 29.AUG.2012 13:27:35

Plot 6: 5600 MHz



Date: 29.AUG.2012 13:29:15

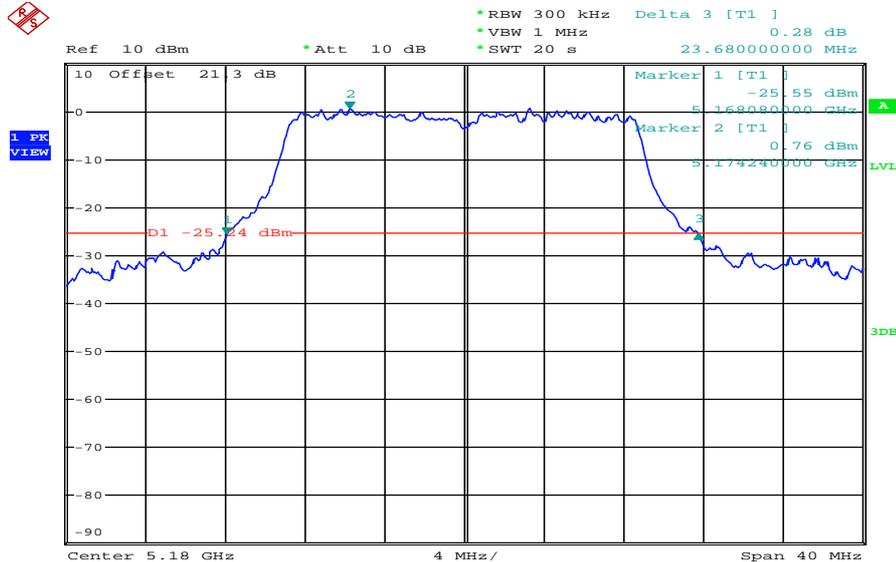
Plot 7: 5700 MHz



Date: 29.AUG.2012 13:30:53

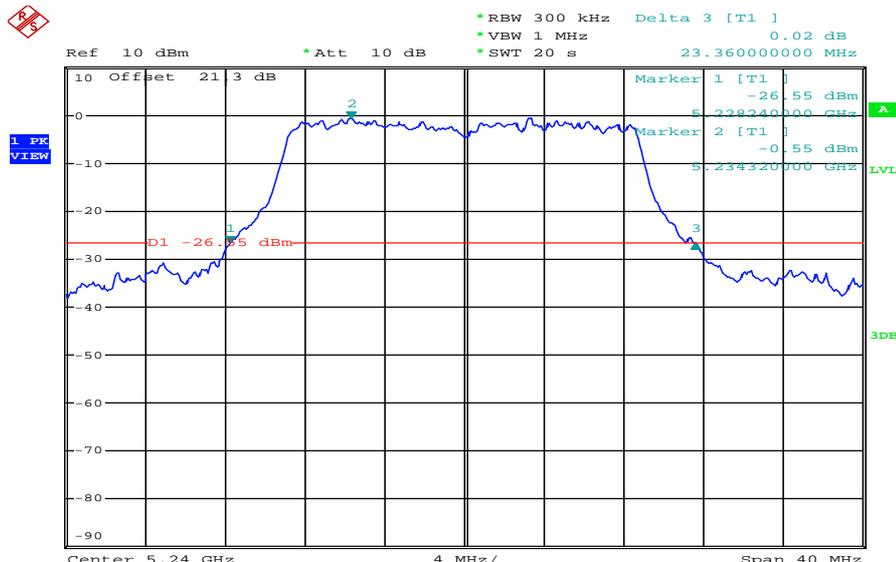
Plots: OFDM / n – mode HT20

Plot 1: 5180 MHz



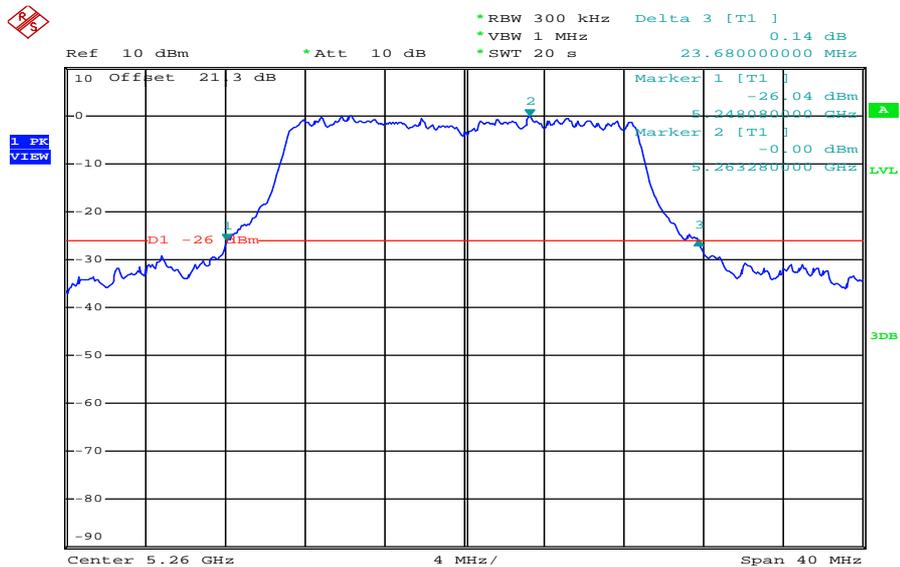
Date: 29.AUG.2012 13:45:49

Plot 2: 5240 MHz



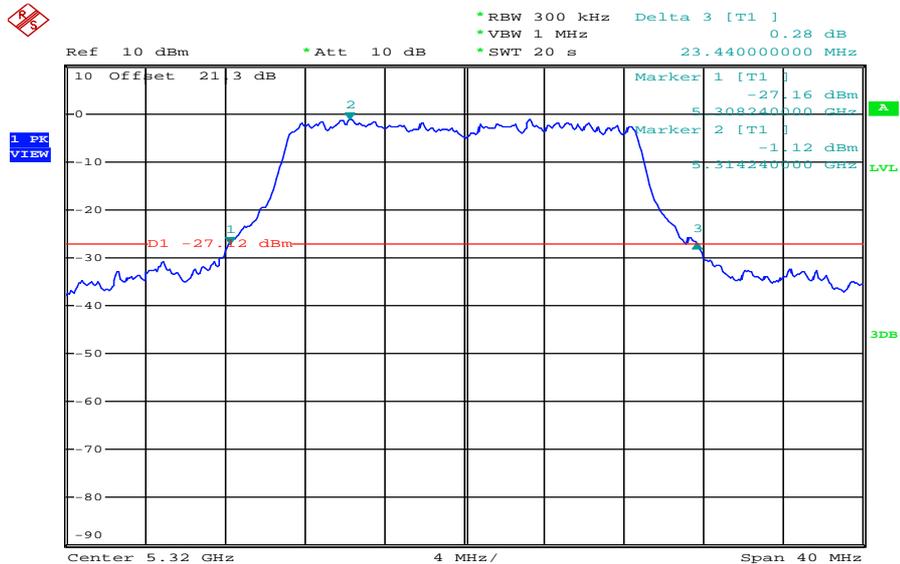
Date: 29.AUG.2012 13:43:48

Plot 3: 5260 MHz



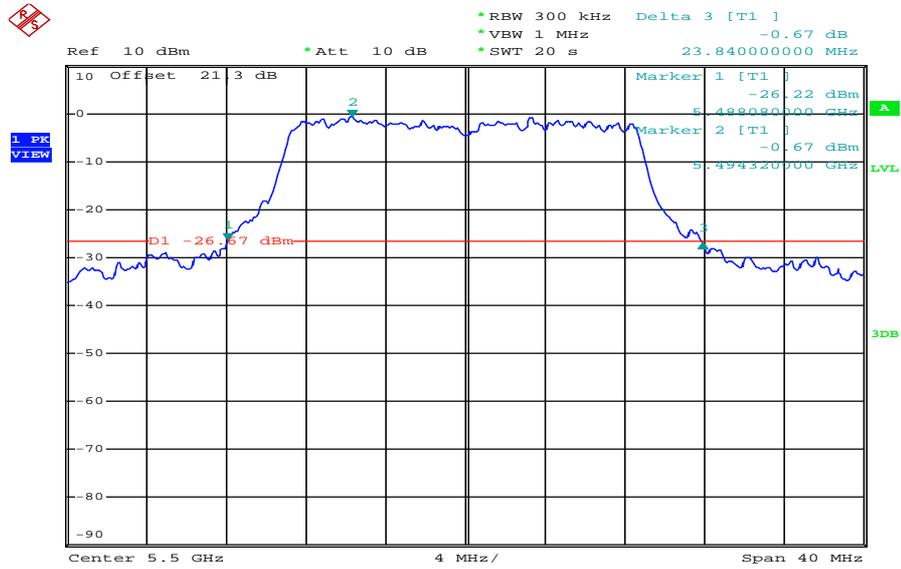
Date: 29.AUG.2012 13:40:59

Plot 4: 5320 MHz



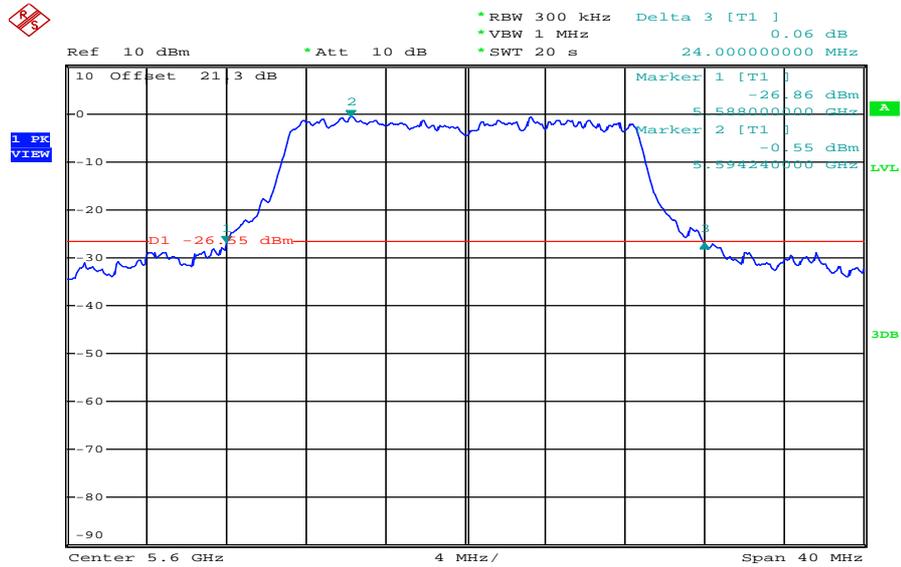
Date: 29.AUG.2012 13:38:50

Plot 5: 5500 MHz



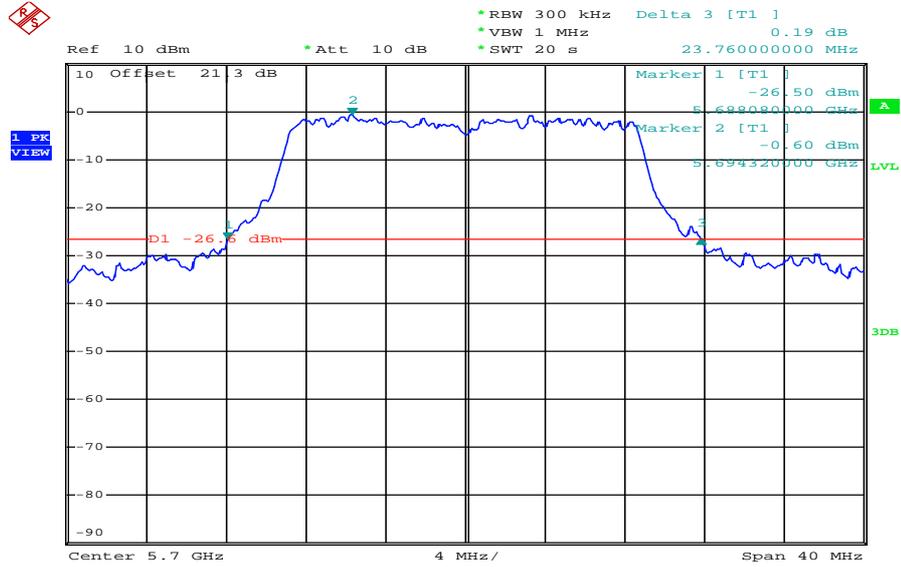
Date: 29.AUG.2012 13:36:54

Plot 6: 5600 MHz



Date: 29.AUG.2012 13:35:08

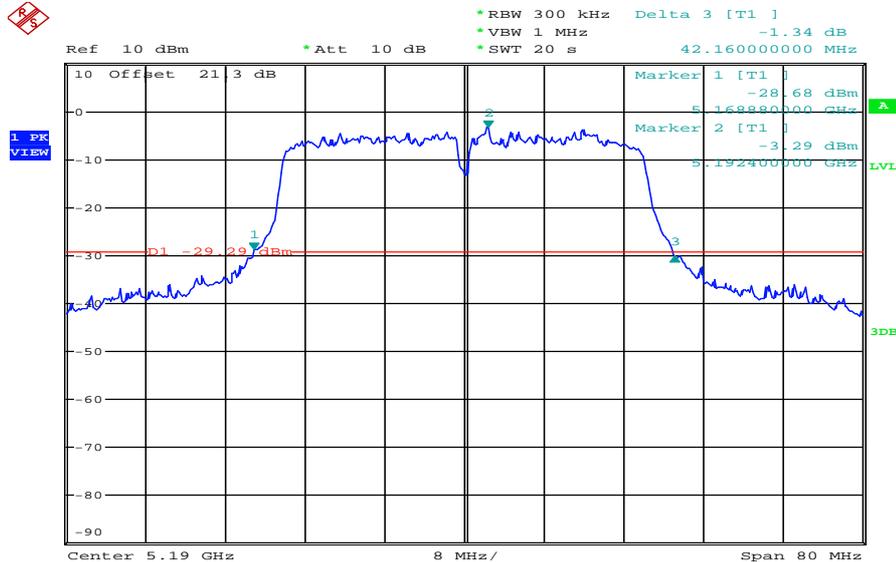
Plot 7: 5700 MHz



Date: 29.AUG.2012 13:33:19

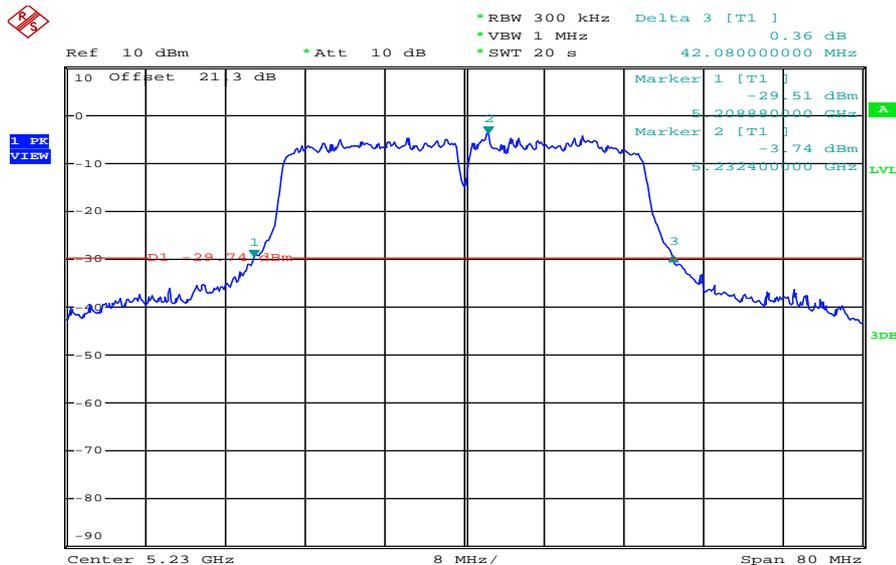
Plots: OFDM / n – mode HT40

Plot 1: 5190 MHz



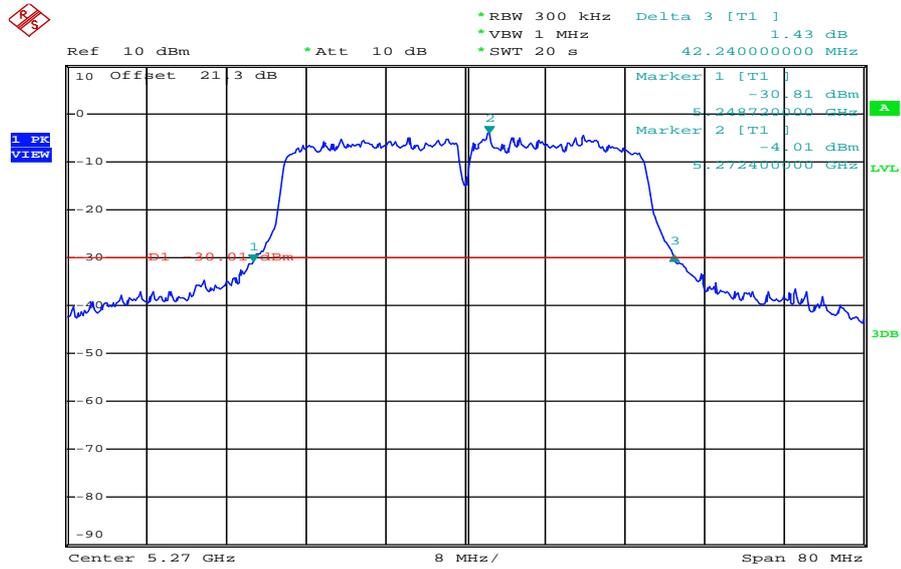
Date: 29.AUG.2012 13:16:48

Plot 2: 5230 MHz



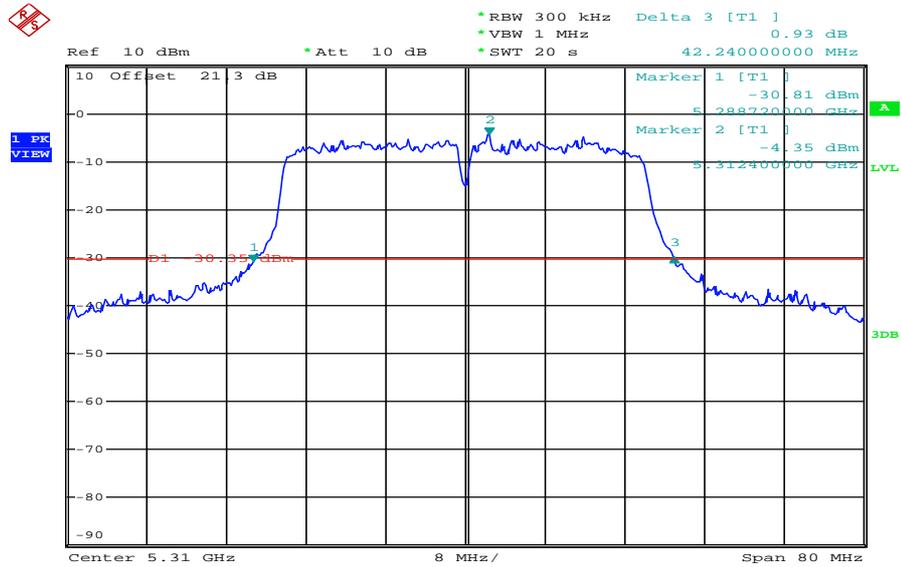
Date: 29.AUG.2012 13:12:38

Plot 3: 5270 MHz



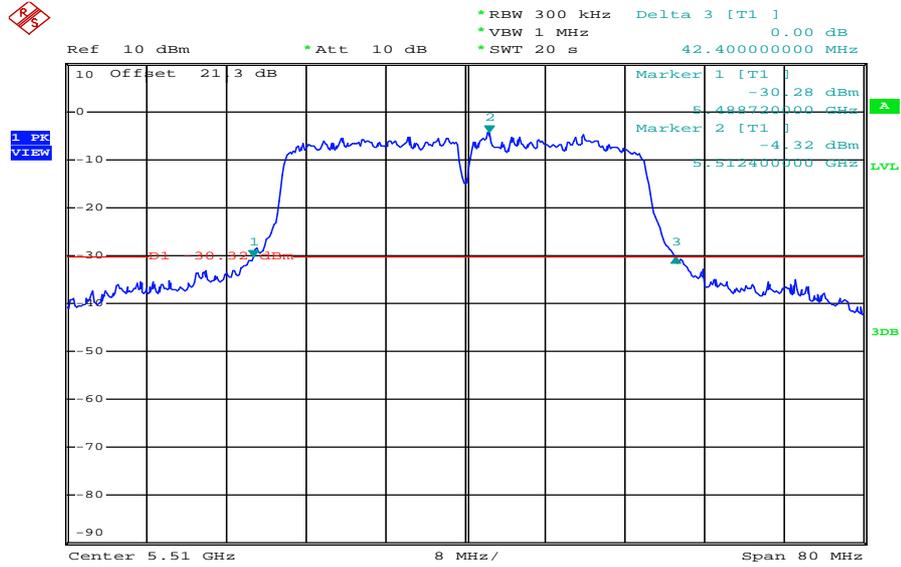
Date: 29.AUG.2012 13:10:41

Plot 4: 5310 MHz



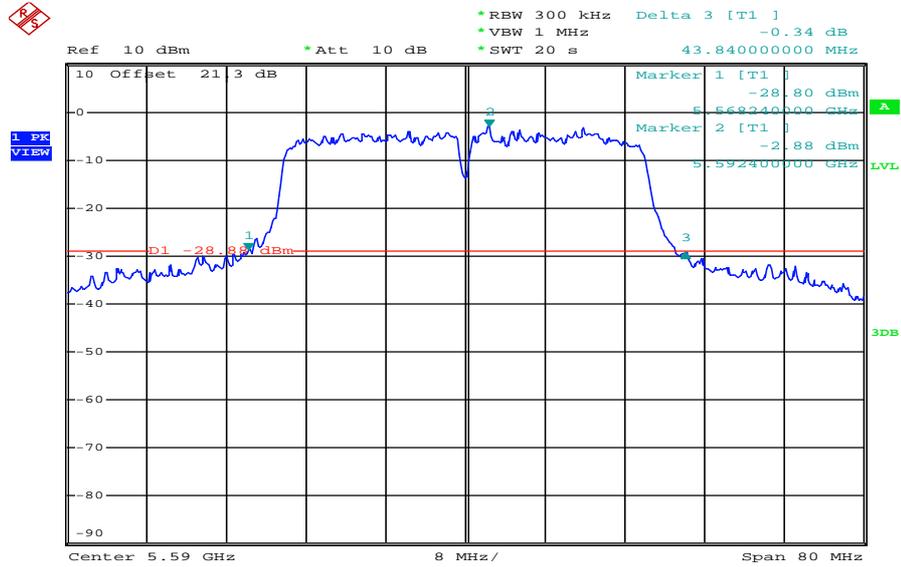
Date: 29.AUG.2012 13:08:07

Plot 5: 5510 MHz



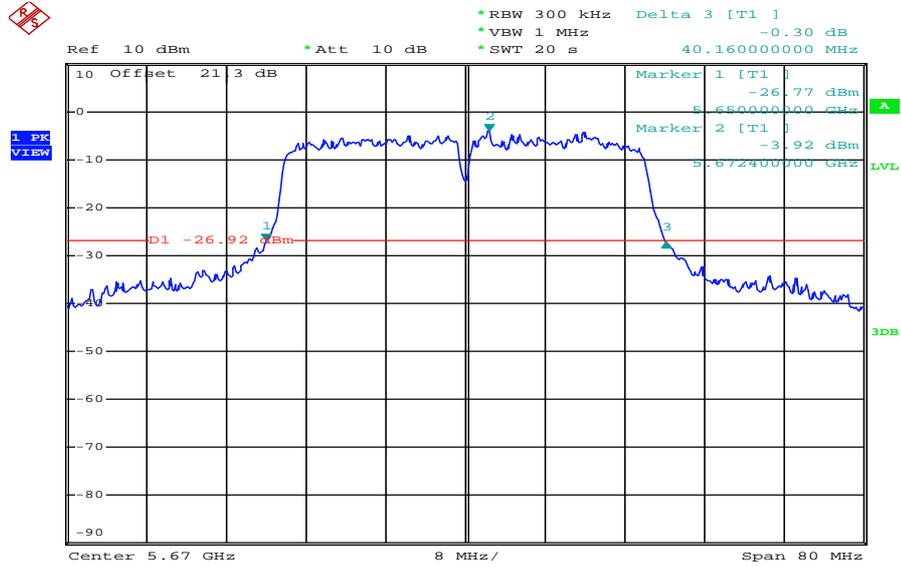
Date: 29.AUG.2012 13:06:05

Plot 6: 5590 MHz



Date: 29.AUG.2012 13:04:10

Plot 7: 5670 MHz



Date: 29.AUG.2012 13:01:30

9.7 Peak excursion measurements

Description:

Peak to average value.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	60 s / 120 s
Resolution bandwidth:	1 MHz
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		
	Channel	5180 MHz	-/-
RMS	-3.08	-/-	-4.06
Peak	6.45	-/-	5.44
Peak excursion value	9.53	-/-	9.50
Channel	5260 MHz	-/-	5320 MHz
RMS	-3.59	-/-	-4.44
Peak	6.11	-/-	5.23
Peak excursion value	9.70	-/-	9.67
Channel	5500 MHz	5600 MHz	5700 MHz
RMS	-3.81	-3.89	-3.95
Peak	5.75	5.81	5.66
Peak excursion value	9.56	9.70	9.61
Measurement uncertainty	± 1 dB		

Result: Passed

Results:

Modulation OFDM / n – mode HT20	Peak excursion value		
	Channel	5180 MHz	-/-
RMS	-3.07	-/-	-4.05
Peak	7.33	-/-	5.62
Peak excursion value	10.40	-/-	9.67
Channel	5260 MHz	-/-	5320 MHz
RMS	-3.57	-/-	-4.35
Peak	5.99	-/-	4.98
Peak excursion value	9.56	-/-	9.33
Channel	5500 MHz	5600 MHz	5700 MHz
RMS	-3.87	-3.83	-3.93
Peak	5.32	5.44	5.29
Peak excursion value	9.19	9.27	9.22
Measurement uncertainty	± 1 dB		

Result: Passed

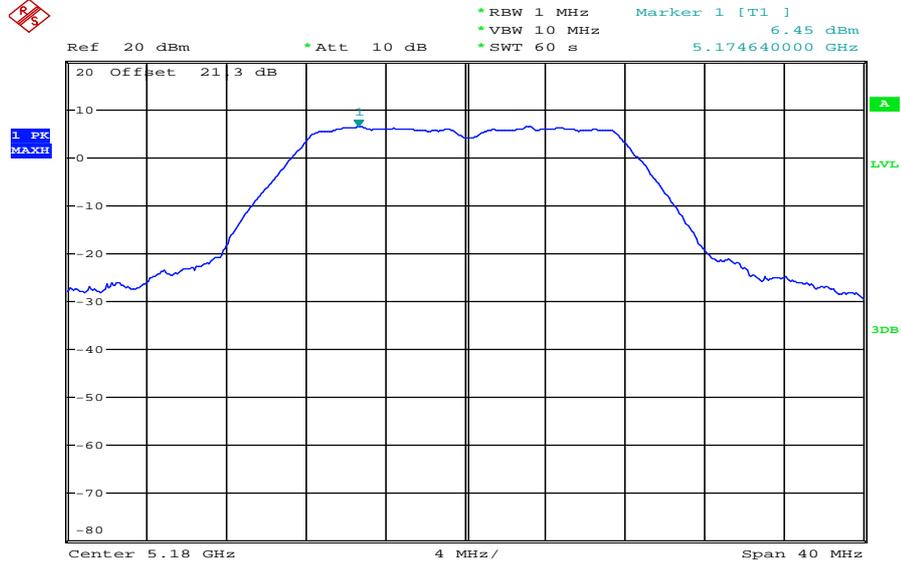
Results:

Modulation OFDM / n – mode HT40	Peak excursion value		
	5190 MHz	5230 MHz	5270 MHz
Channel	5190 MHz	5230 MHz	5270 MHz
RMS	-5.40	-8.14	-7.87
Peak	3.12	2.18	1.54
Peak excursion value	8.52	10.32	9.41
Channel	5310 MHz	5510 MHz	5590 MHz
RMS	-7.77	-6.58	-8.64
Peak	2.66	0.99	2.48
Peak excursion value	10.43	7.57	11.12
Channel	5670 MHz	-/-	-/-
RMS	-8.58	-/-	-/-
Peak	2.21	-/-	-/-
Peak excursion value	10.79	-/-	-/-
Measurement uncertainty	± 1 dB		

Result: Passed

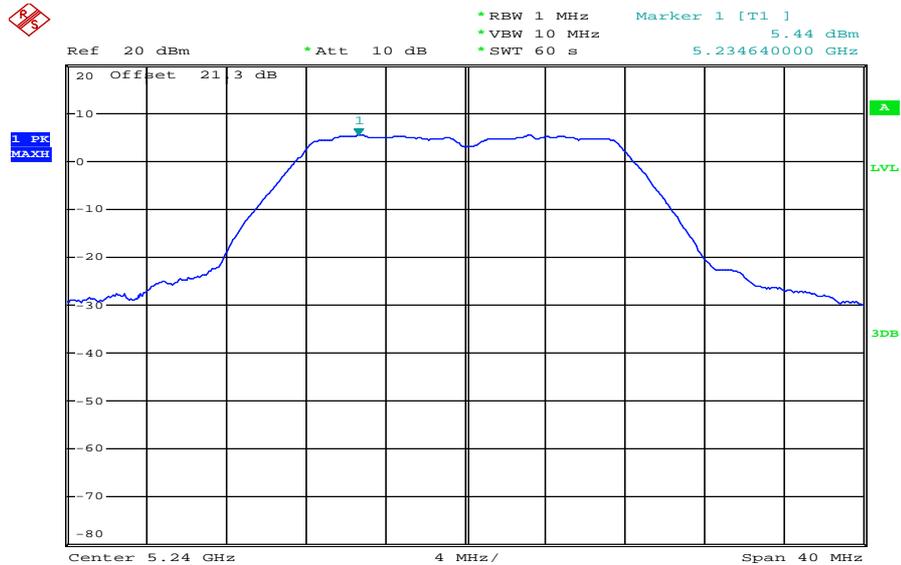
Plots: OFDM / a – mode

Plot 1: 5180 MHz



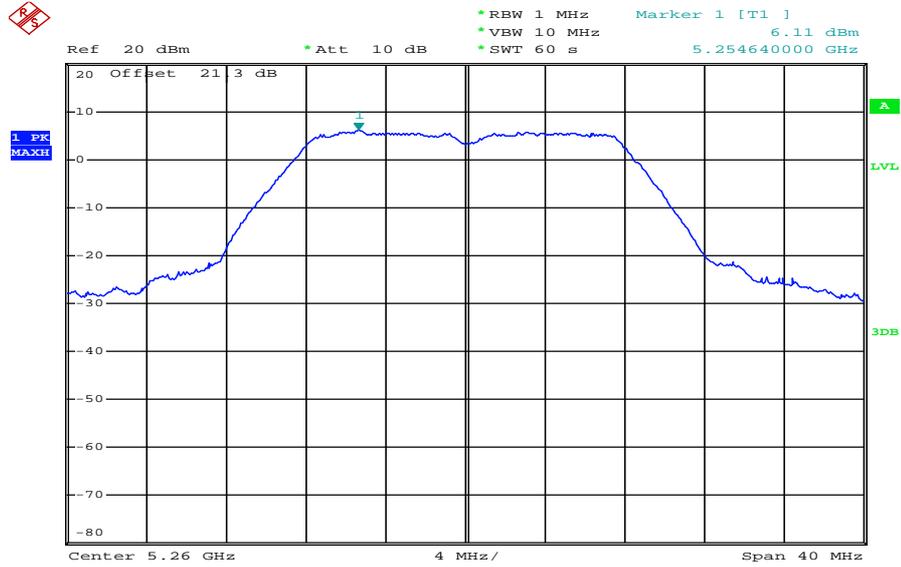
Date: 29.AUG.2012 10:09:17

Plot 2: 5240 MHz



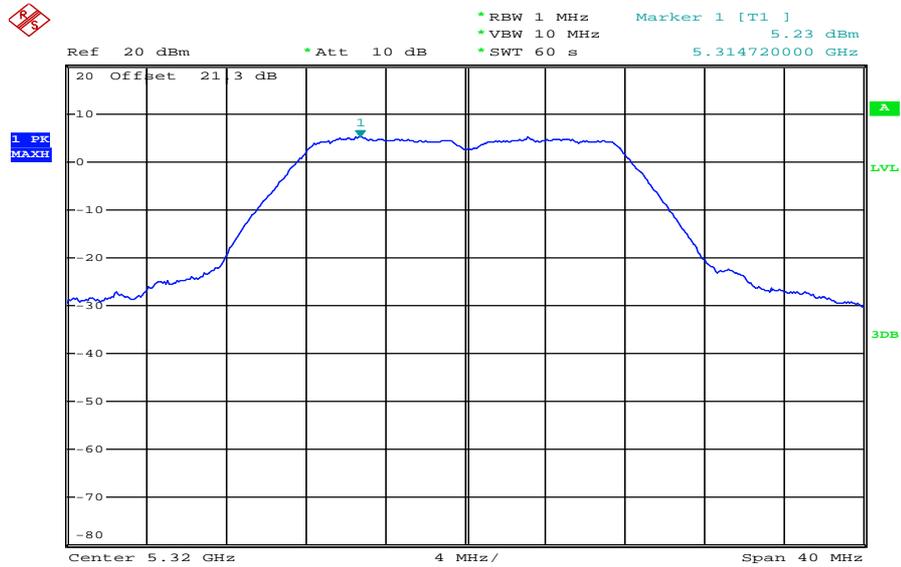
Date: 29.AUG.2012 10:10:57

Plot 3: 5260 MHz



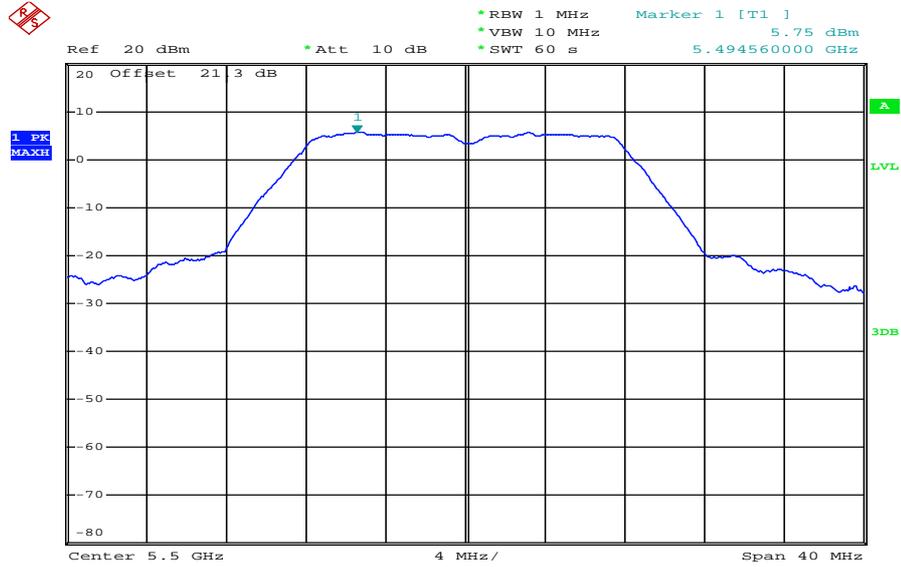
Date: 29.AUG.2012 10:12:34

Plot 4: 5320 MHz



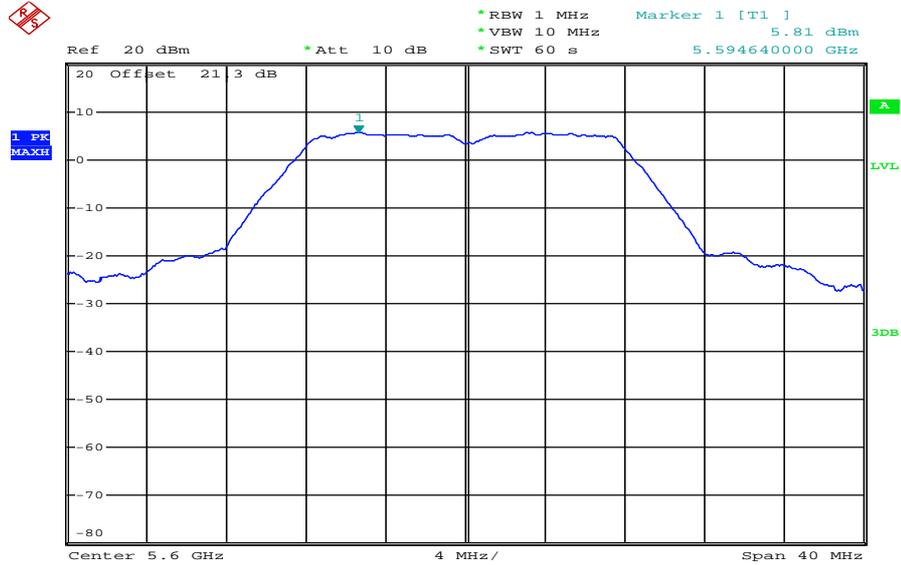
Date: 29.AUG.2012 10:14:22

Plot 5: 5500 MHz



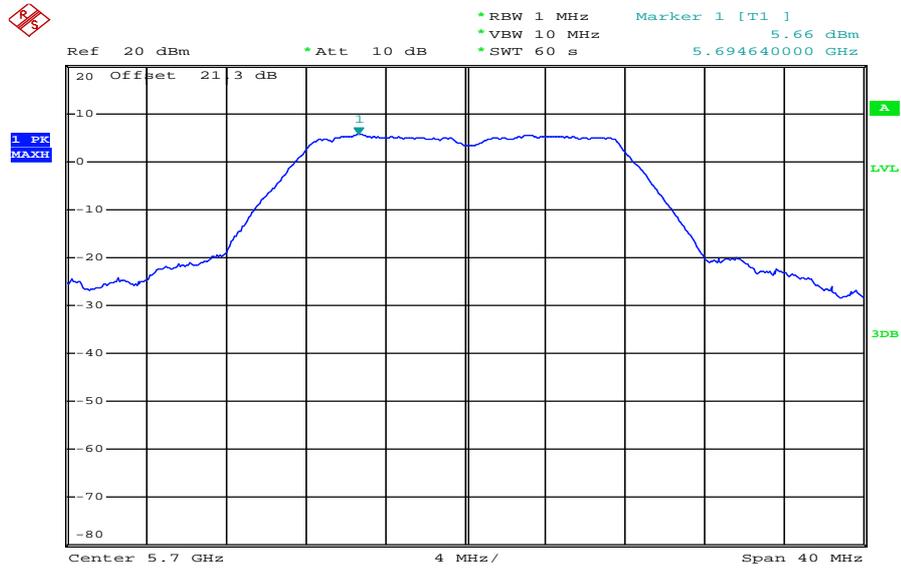
Date: 29.AUG.2012 10:16:01

Plot 6: 5600 MHz



Date: 29.AUG.2012 10:17:41

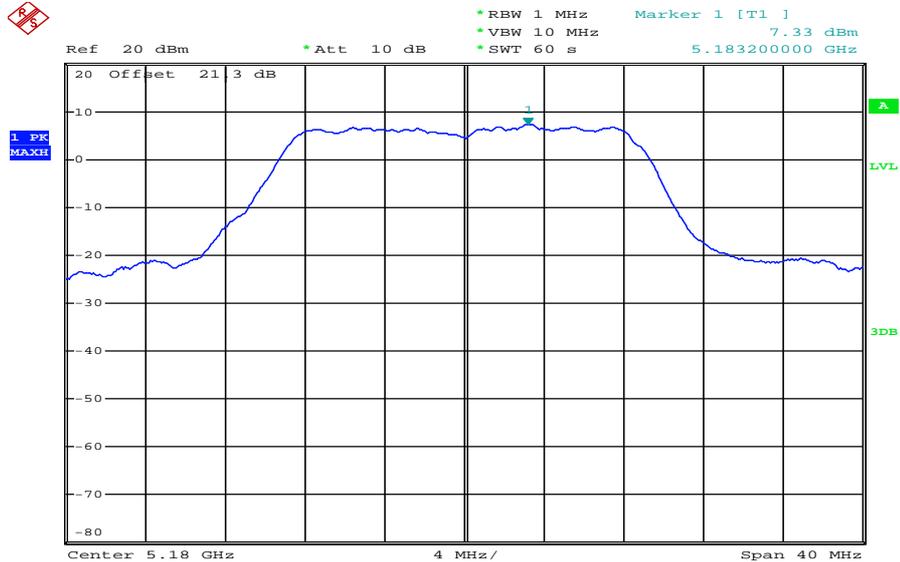
Plot 7: 5700 MHz



Date: 29.AUG.2012 10:19:17

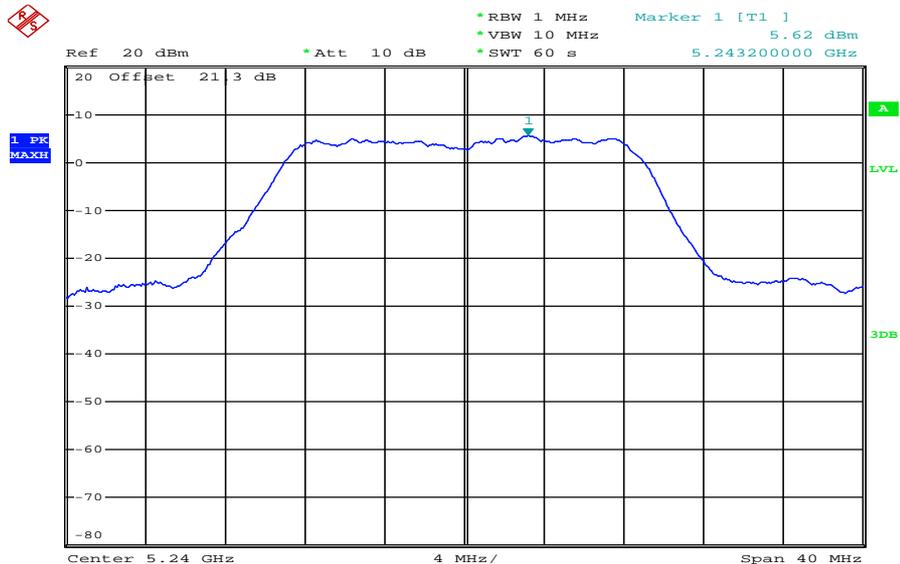
Plots: OFDM / n – mode HT20

Plot 1: 5180 MHz



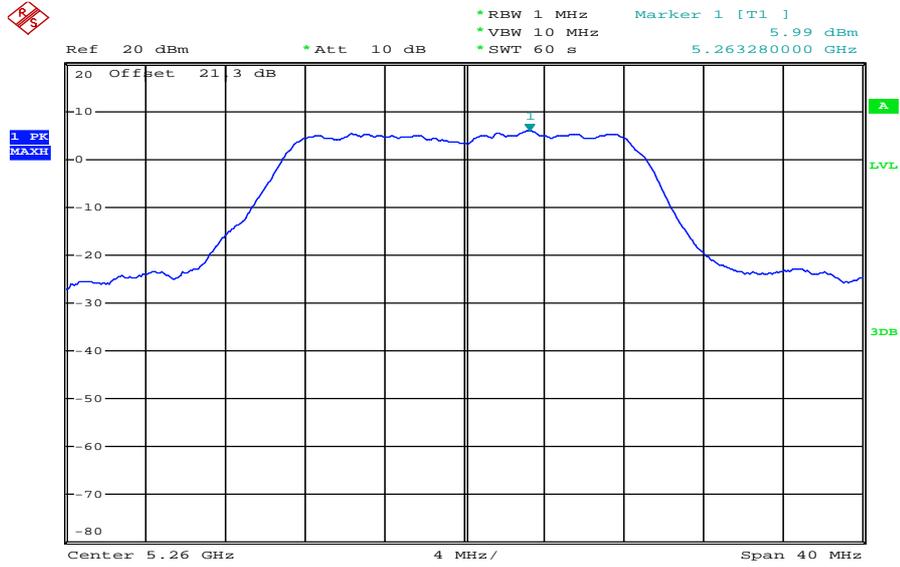
Date: 29.AUG.2012 10:21:15

Plot 2: 5240 MHz



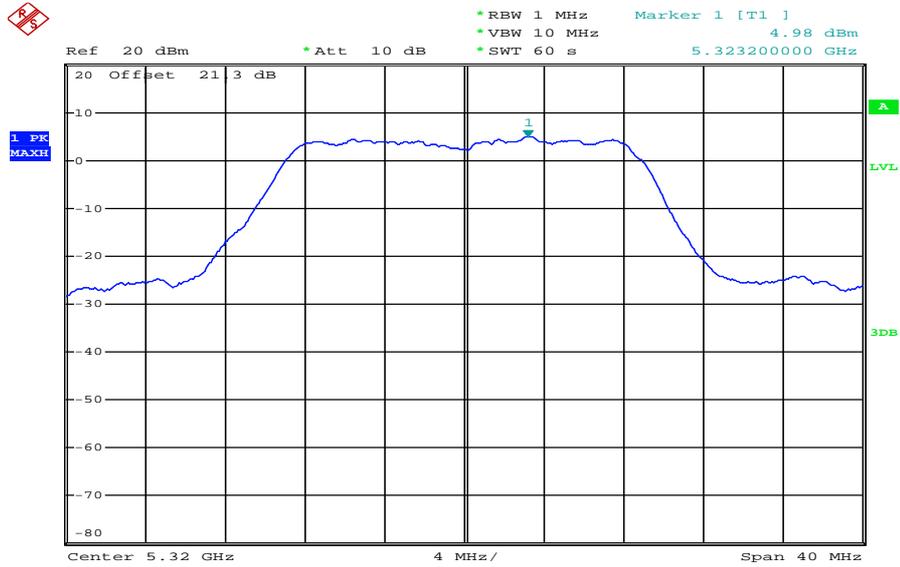
Date: 29.AUG.2012 10:23:06

Plot 3: 5260 MHz



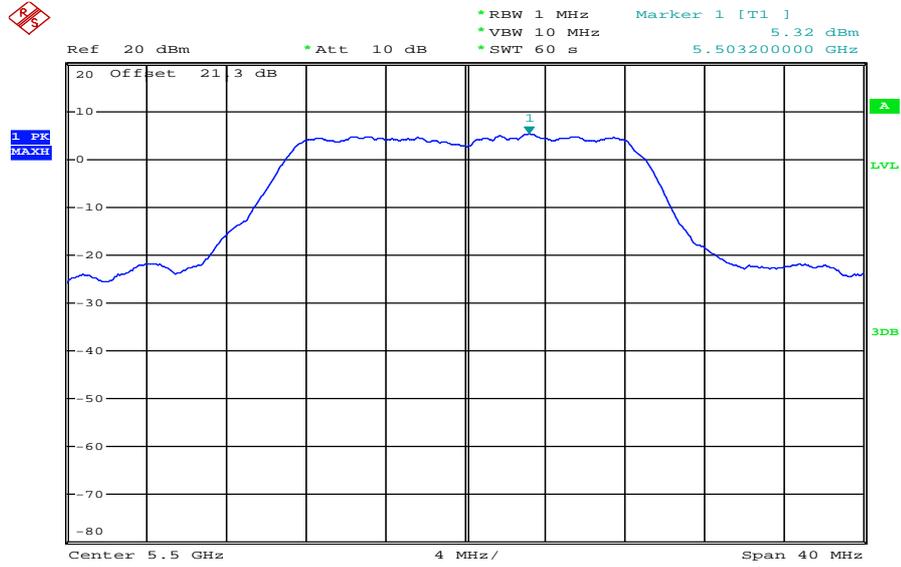
Date: 29.AUG.2012 10:25:18

Plot 4: 5320 MHz



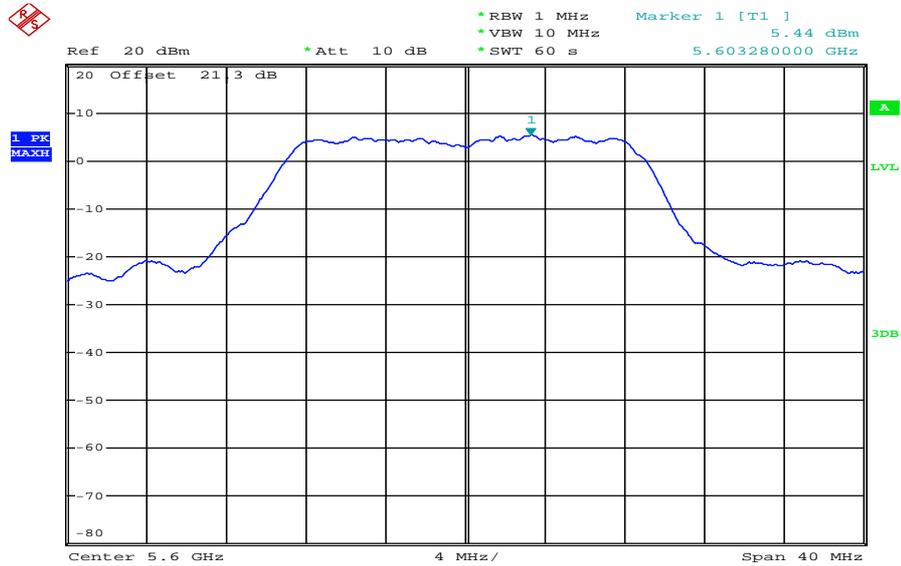
Date: 29.AUG.2012 10:26:59

Plot 5: 5500 MHz



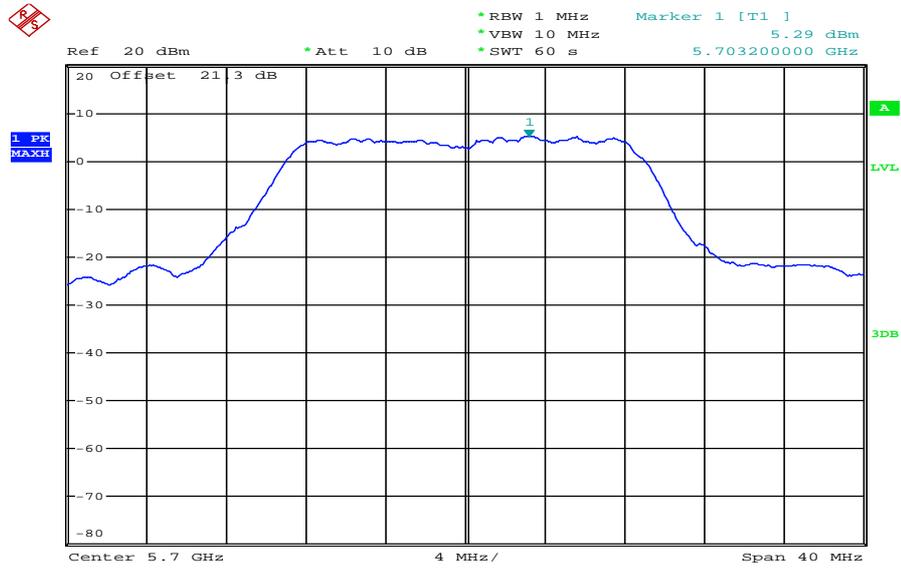
Date: 29.AUG.2012 10:28:38

Plot 6: 5600 MHz



Date: 29.AUG.2012 10:30:17

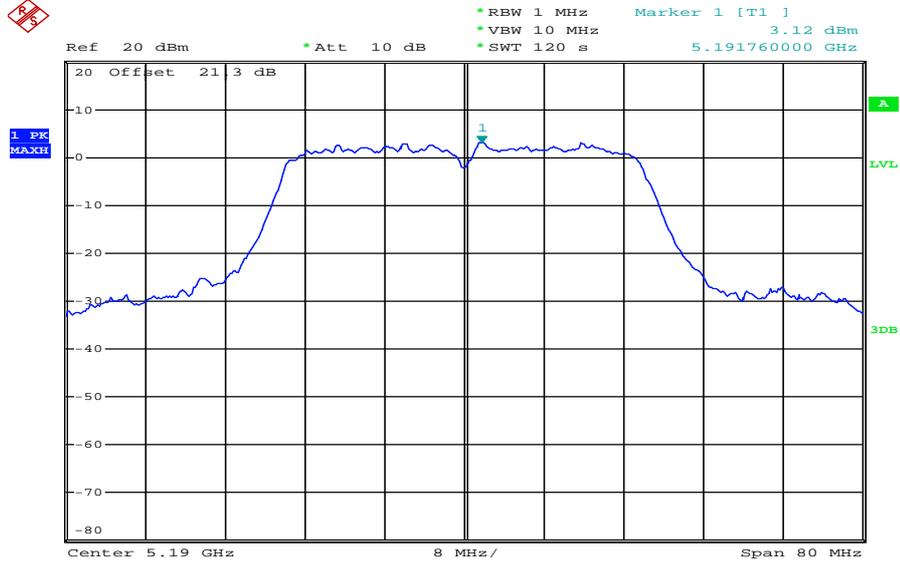
Plot 7: 5700 MHz



Date: 29.AUG.2012 10:31:53

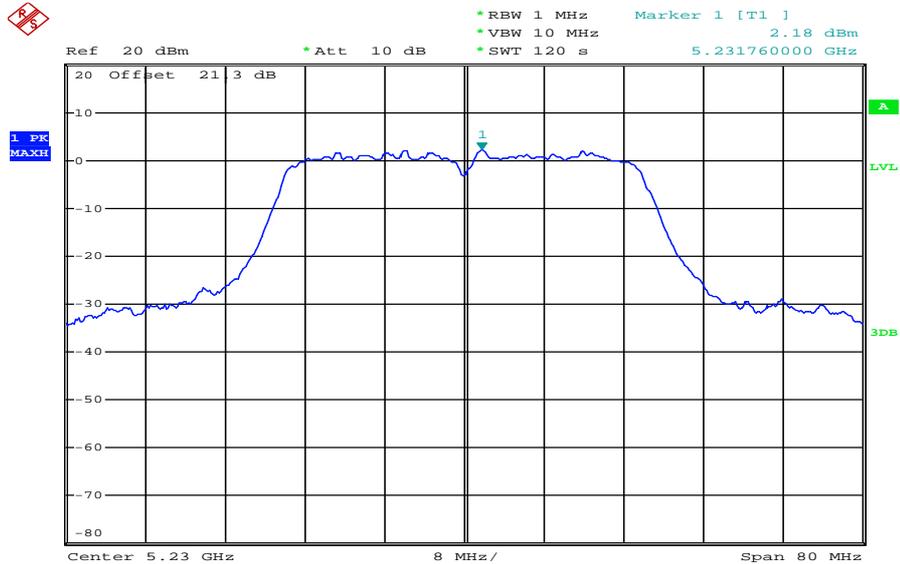
Plots: OFDM / n – mode HT40

Plot 1: 5190 MHz



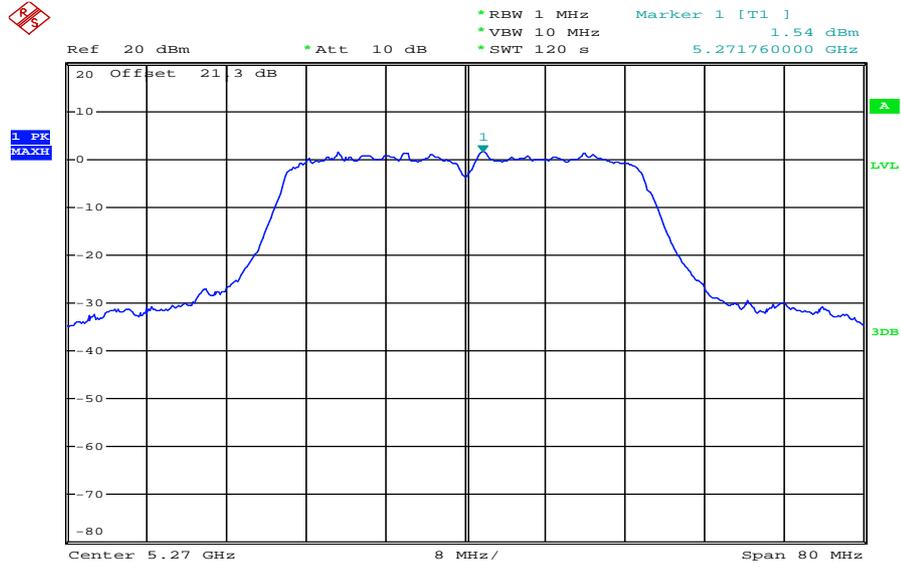
Date: 29.AUG.2012 10:05:55

Plot 2: 5230 MHz



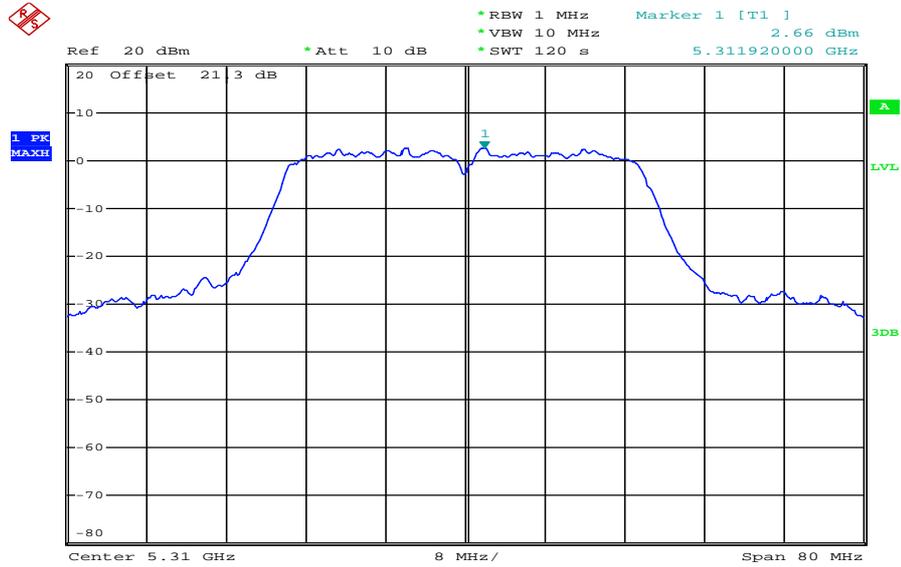
Date: 29.AUG.2012 10:00:28

Plot 3: 5270 MHz



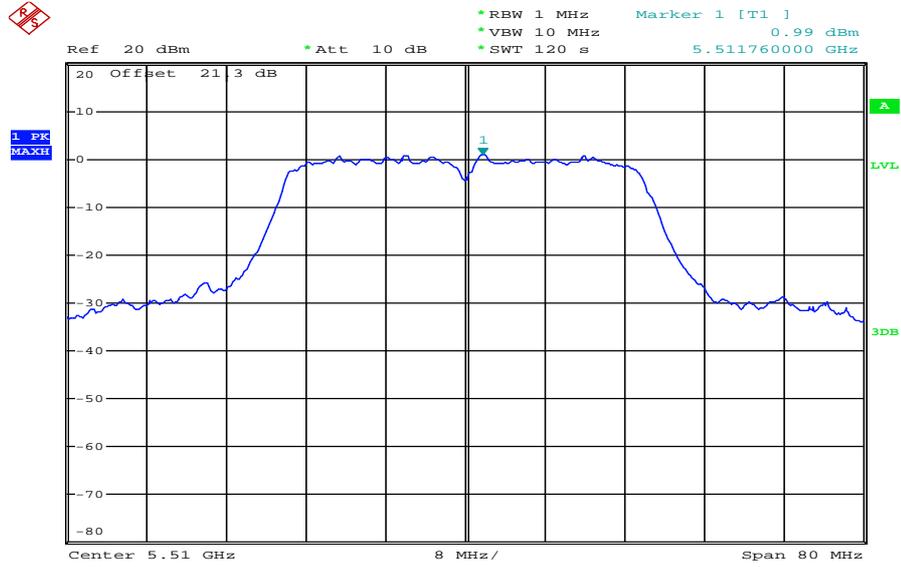
Date: 29.AUG.2012 10:03:11

Plot 4: 5310 MHz



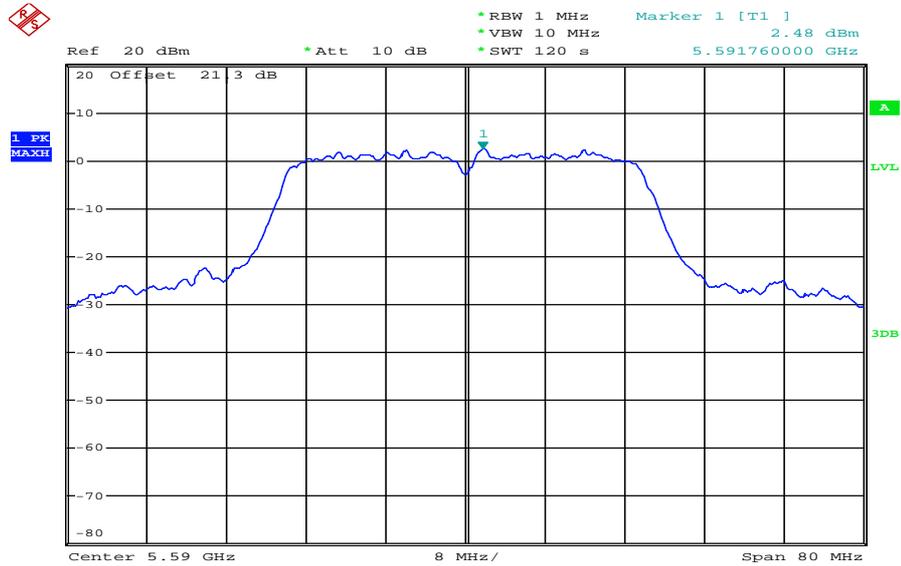
Date: 29.AUG.2012 09:52:19

Plot 5: 5510 MHz



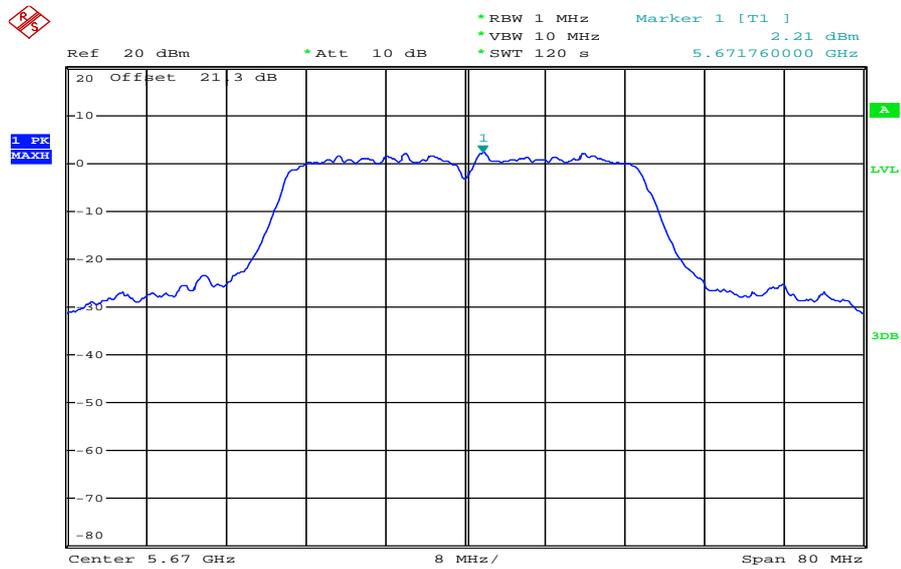
Date: 29.AUG.2012 09:49:29

Plot 6: 5590 MHz



Date: 29.AUG.2012 09:46:50

Plot 7: 5670 MHz



Date: 29.AUG.2012 09:43:59

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 / 1 MHz
Span:	See plots!
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 μ V/m AVG

Result:

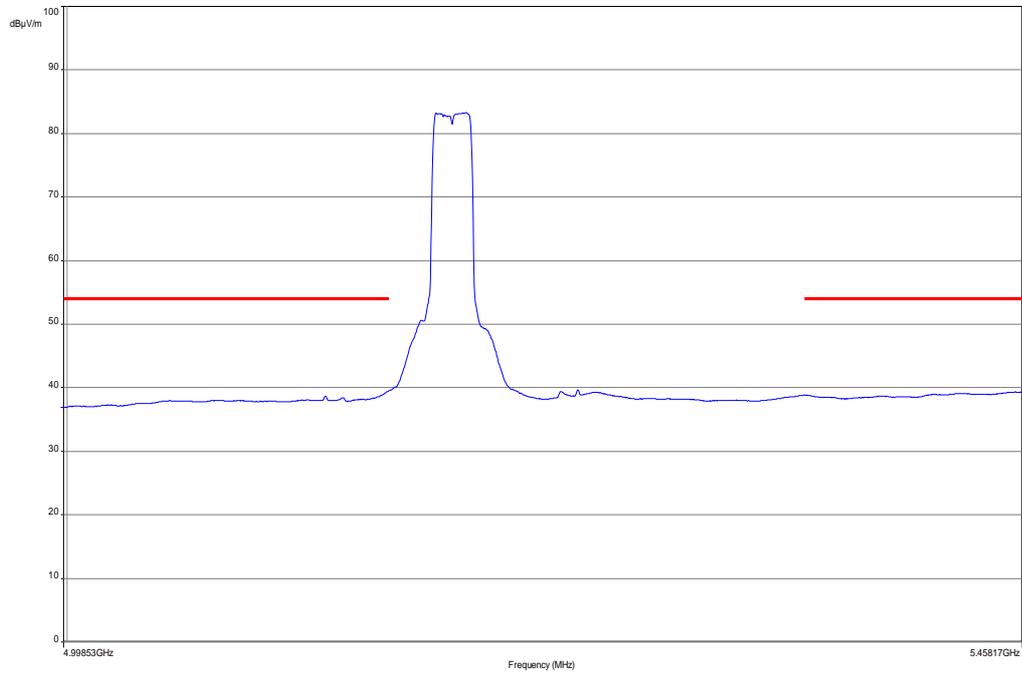
Scenario	Band Edge Compliance Radiated [dB μ V/m]
band edge	< 54 dB μ V/m (see plots 1/3)
Measurement uncertainty	\pm 3 dB

Note:

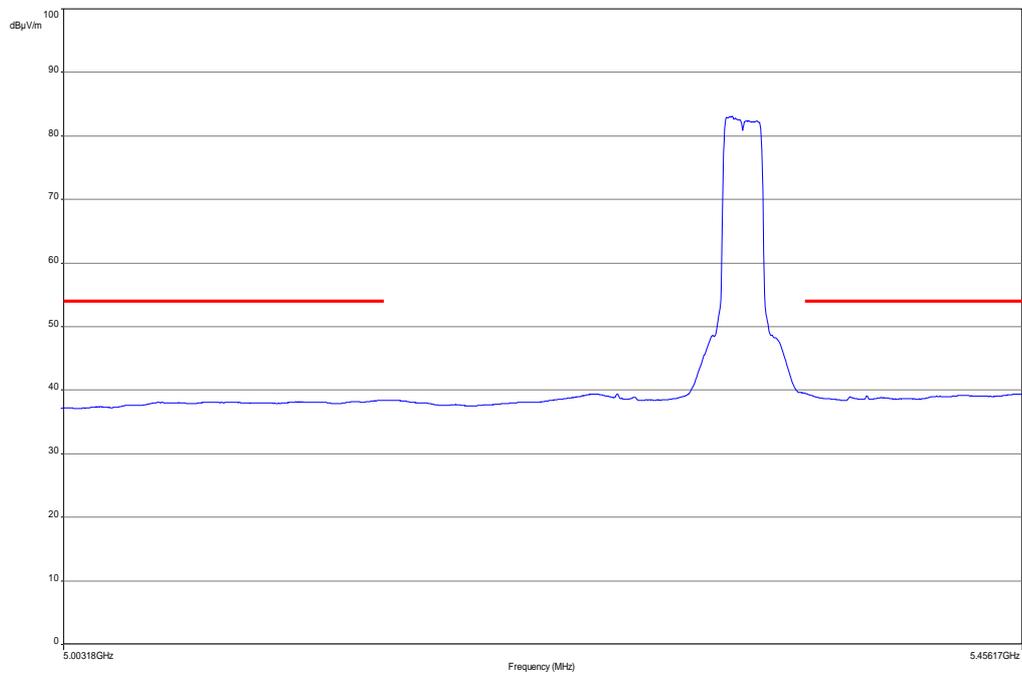
Results of the OFDM / n – mode HT20 and HT40 are added to show the behaviour of the EUT.

Plots:

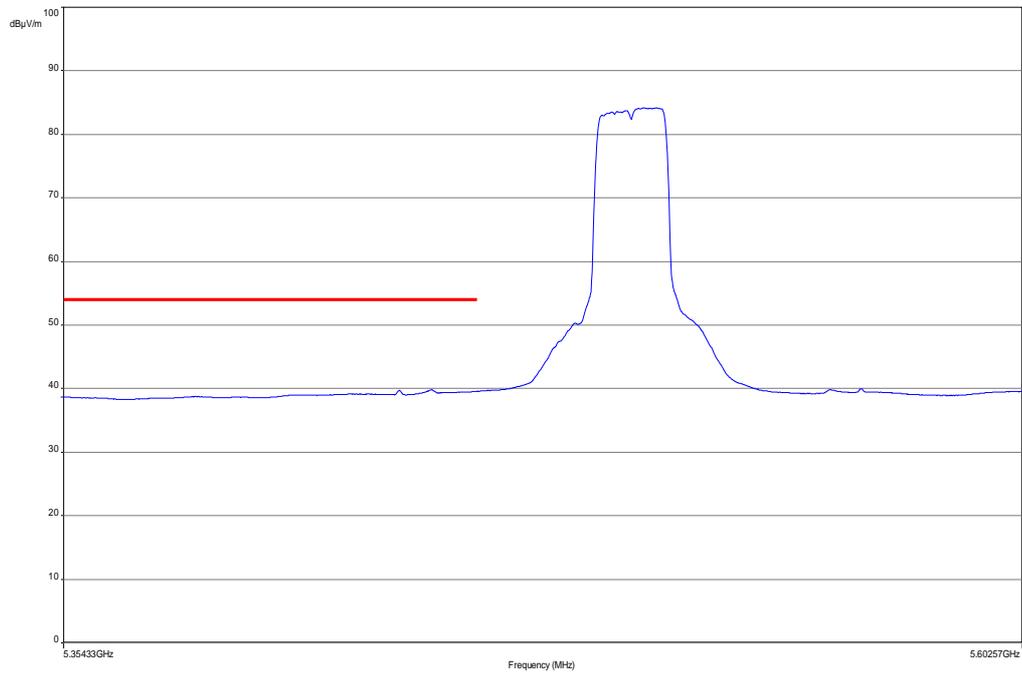
Plot 1: lower band edge, vertical & horizontal polarization (n HT 20 mode), channel 36



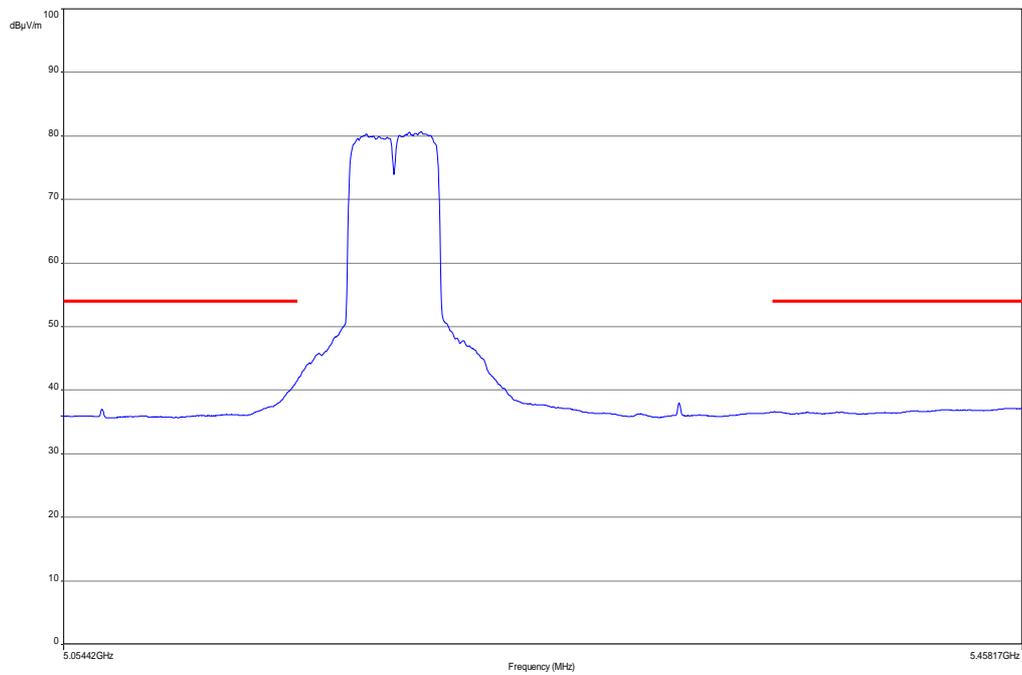
Plot 2: upper band edge, vertical & horizontal polarization (n HT 20 mode), channel 64



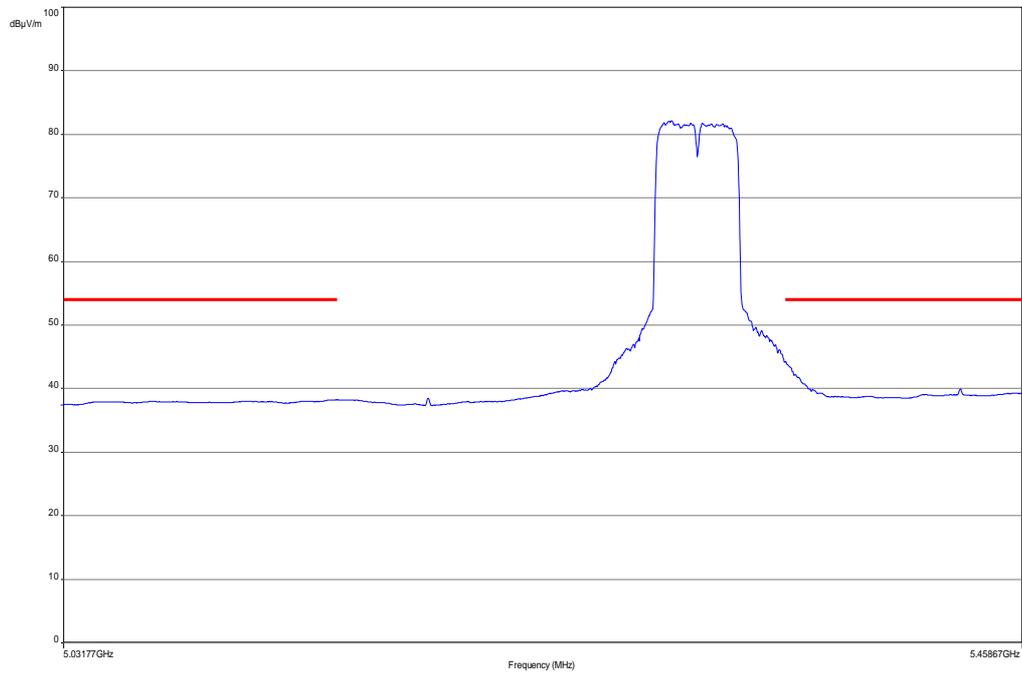
Plot 3: lower band edge, vertical & horizontal polarization (n HT 20 mode), channel 100



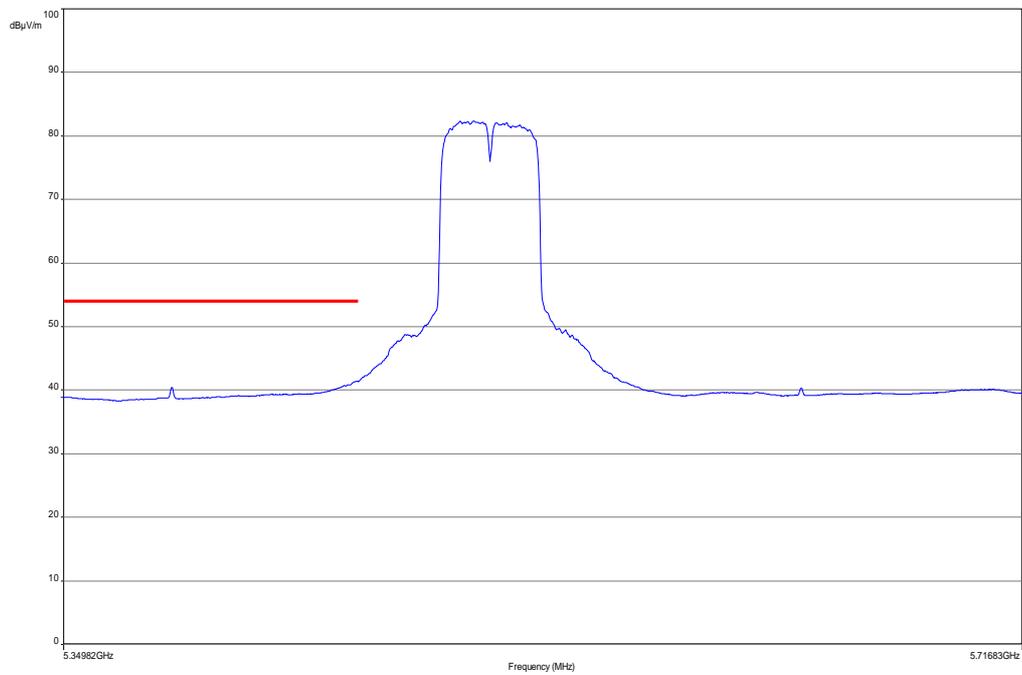
Plot 4: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 36



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: OFDM / a – mode

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz			-/-			Highest 5240 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
No peaks found.			-/-			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM a – mode								
Lowest 5260 MHz			-/-			Highest 5320 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
No peaks found.			-/-			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM a – mode								
Lowest 5500 MHz			Middle 5600 MHz			Highest 5700 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

Result: Passed

Results: OFDM / n – modeHT20

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM n – mode HT20								
Lowest 5180 MHz			-/-			Highest 5240 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM n – mode HT20								
Lowest 5260 MHz			-/-			Highest 5320 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM n – mode HT20								
Lowest 5500 MHz			Middle 5600 MHz			Highest 5700 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

Result: Passed

Results: OFDM / n – modeHT40

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM n – mode HT40								
Lowest 5190 MHz			Middle 5230 MHz			Highest 5270 MHz		
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 5310 MHz			Middle 5510 MHz			Highest 5590 MHz		
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 5670 MHz			-/-			-/-		
F [MHz]	Detector	Level [dBμV/m]	F [MHz]	Detector	Level [dBμV/m]	F [MHz]	Detector	Level [dBμV/m]
No peaks found.			-/-			-/-		
Measurement uncertainty			± 3 dB					

Result: Passed

Note:

Results of the OFDM / n – mode HT20 and HT40 are added to show the behaviour of the EUT.

Plots: OFDM / n – mode HT20

Plot 1: 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization

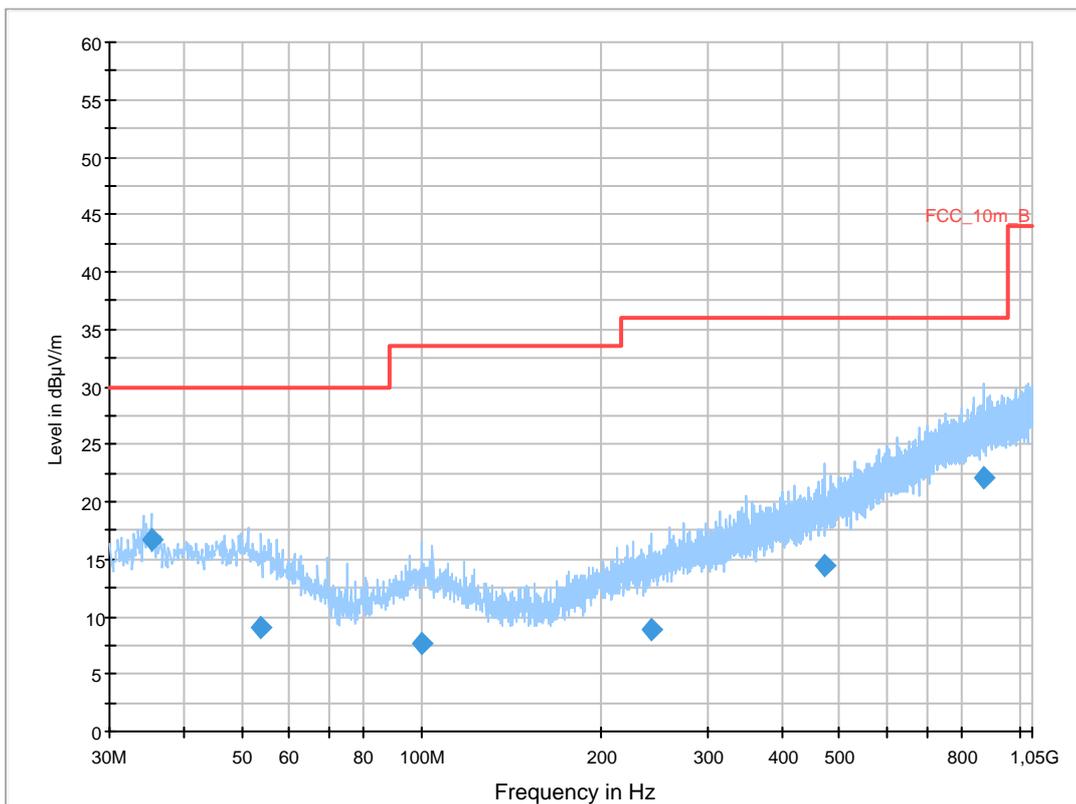
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 36 + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

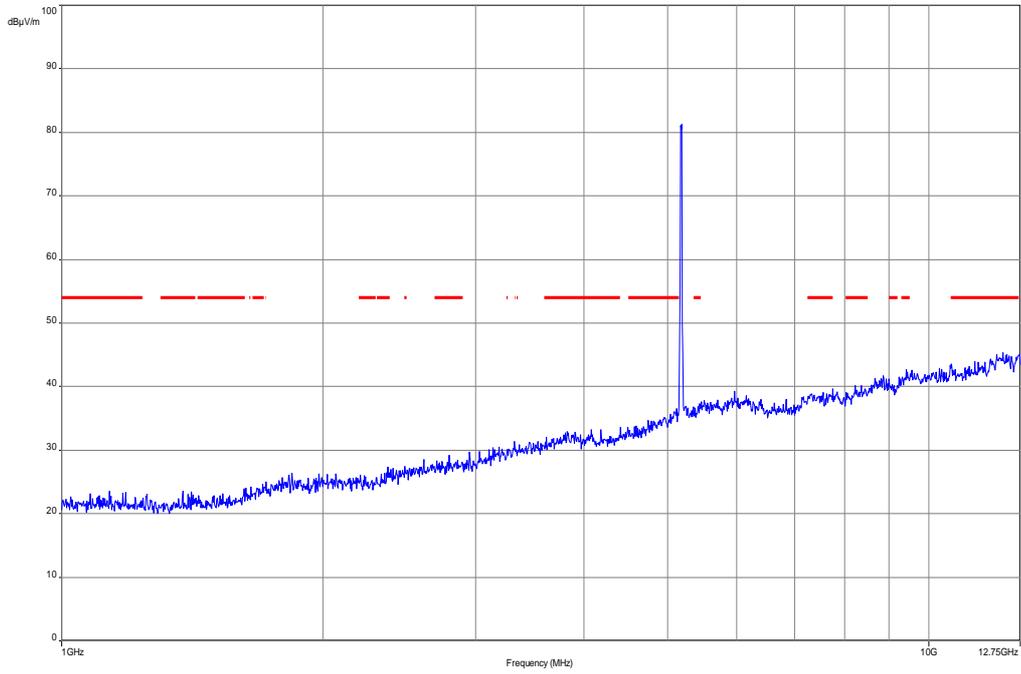
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



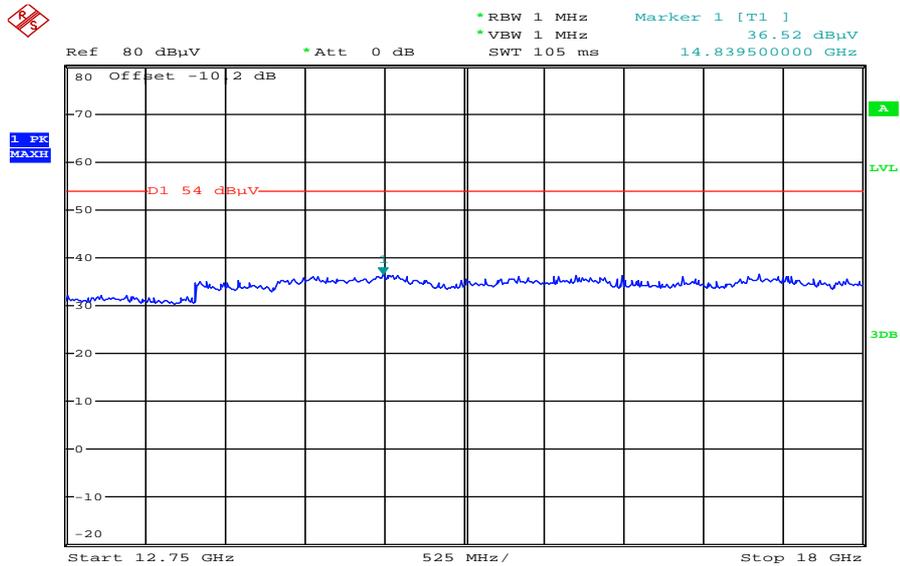
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.289150	16.7	1000.0	120.000	111.0	V	190.0	13.0	13.3	30.0	
53.711550	9.0	1000.0	120.000	98.0	V	87.0	13.0	21.0	30.0	
99.753900	7.7	1000.0	120.000	98.0	H	190.0	11.9	25.8	33.5	
241.179900	8.9	1000.0	120.000	170.0	V	268.0	13.1	27.1	36.0	
470.548050	14.5	1000.0	120.000	170.0	H	270.0	18.1	21.5	36.0	
871.628100	22.0	1000.0	120.000	153.0	H	87.0	24.8	14.0	36.0	

Plot 2: 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization

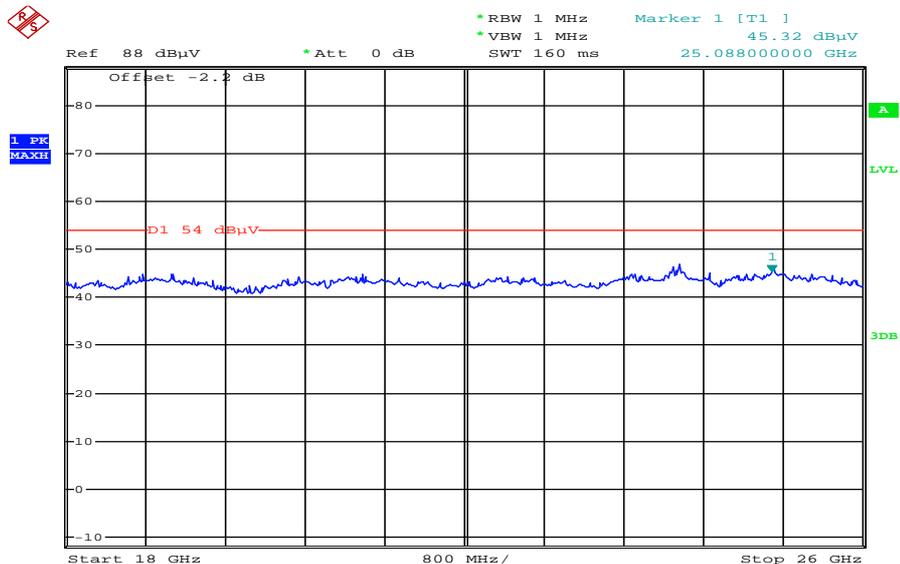


Plot 3: 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



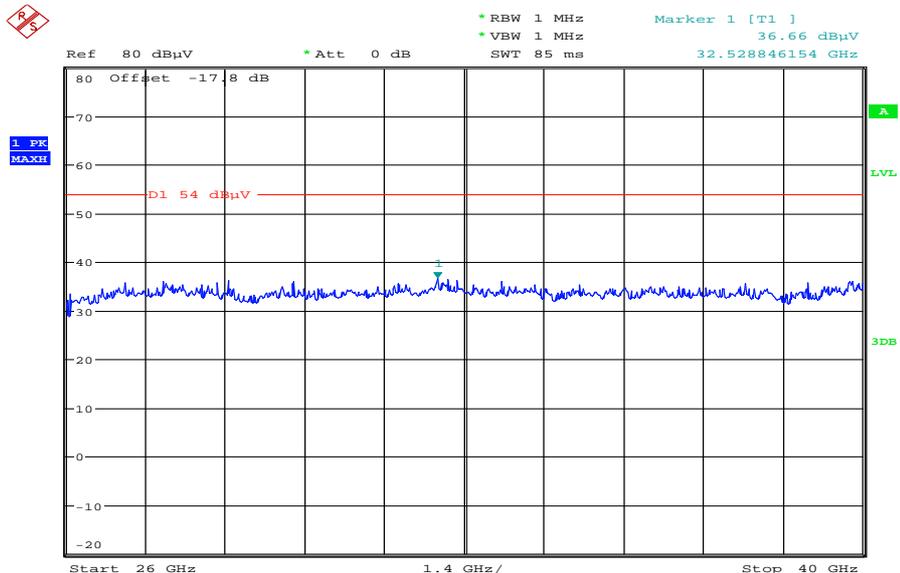
Date: 30.AUG.2012 13:29:44

Plot 4: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:18:51

Plot 5: 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:35:46

Plot 6: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization

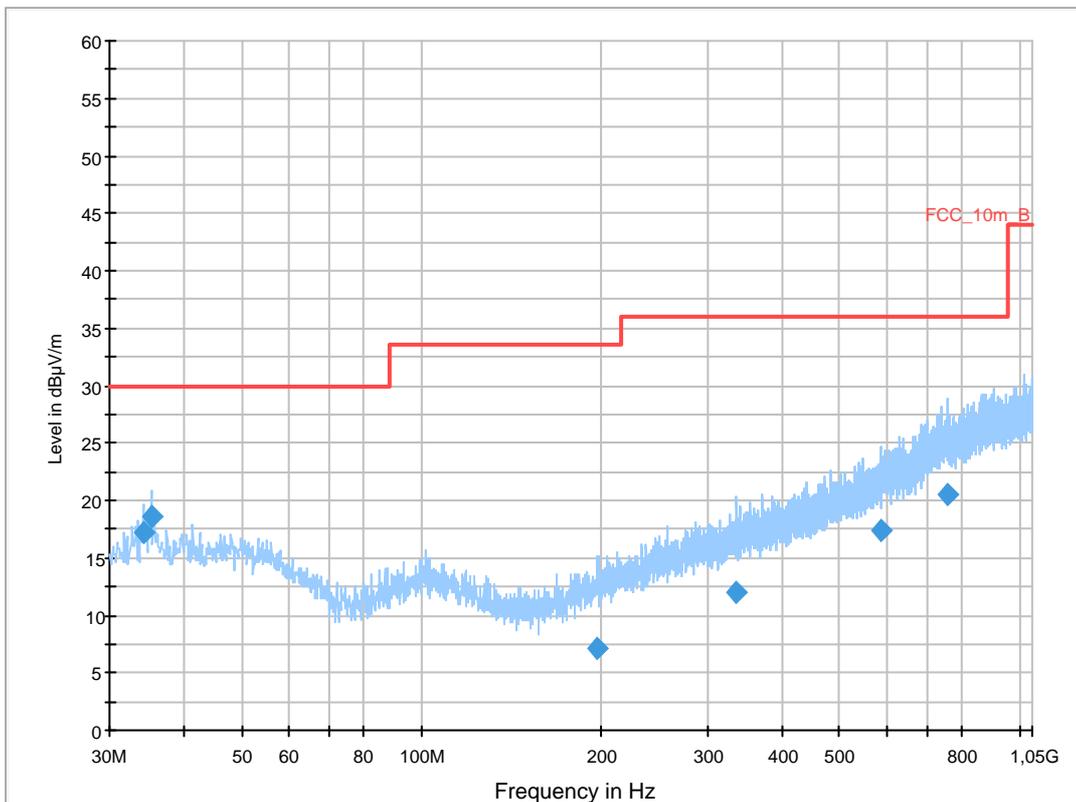
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 48 + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

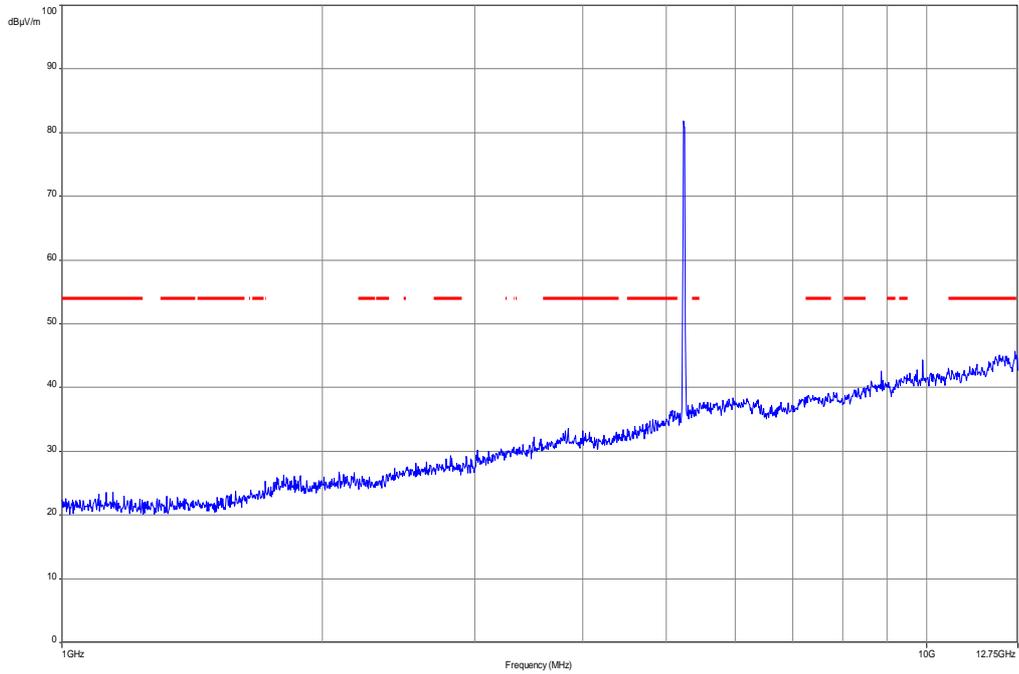
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



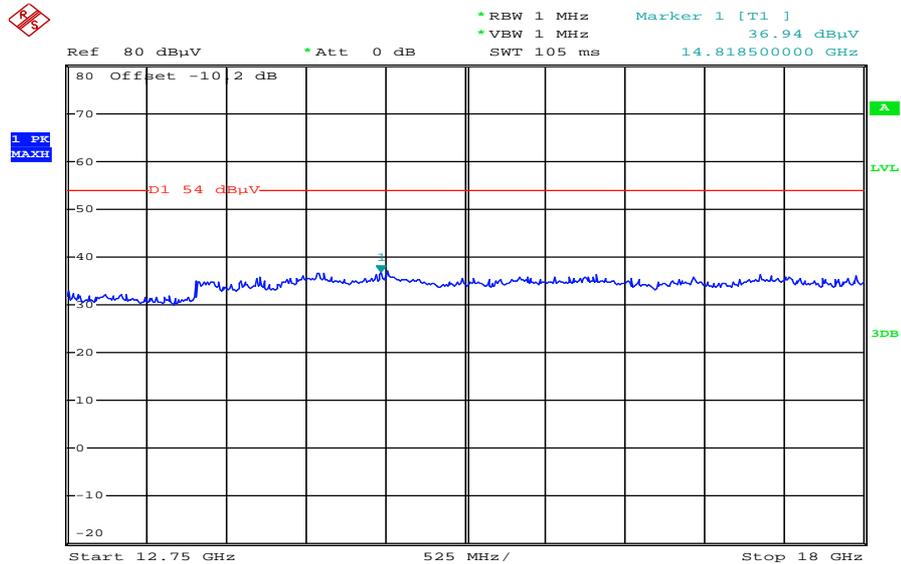
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.260750	17.2	1000.0	120.000	162.0	V	171.0	12.9	12.8	30.0	
35.255100	18.6	1000.0	120.000	98.0	V	280.0	13.0	11.4	30.0	
196.231500	7.2	1000.0	120.000	143.0	H	10.0	11.5	26.3	33.5	
336.448050	12.0	1000.0	120.000	161.0	H	280.0	15.7	24.0	36.0	
584.769750	17.5	1000.0	120.000	170.0	V	190.0	20.4	18.5	36.0	
756.562800	20.6	1000.0	120.000	170.0	V	190.0	23.7	15.4	36.0	

Plot 7: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization

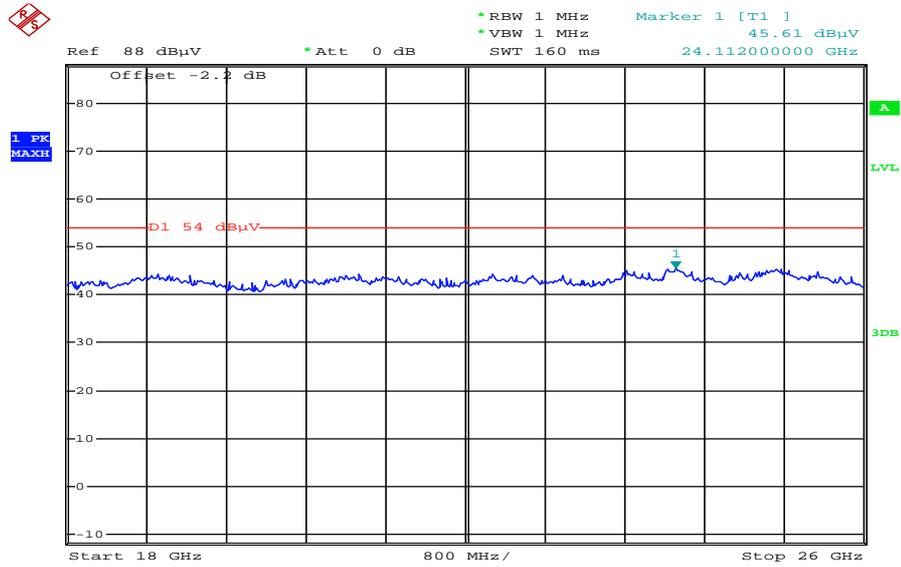


Plot 8: 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



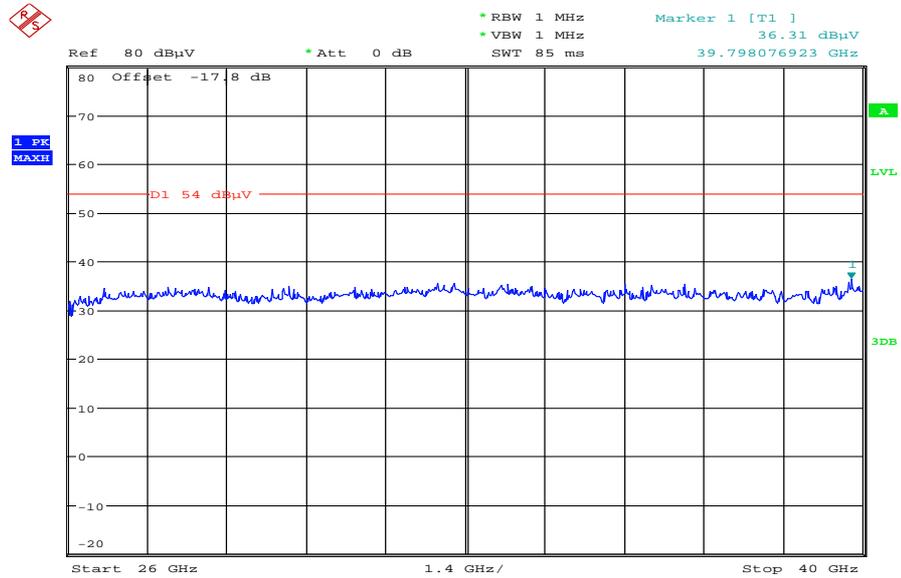
Date: 30.AUG.2012 13:31:32

Plot 9: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:36:46

Plot 10: 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:38:45

Plot 11: 30 MHz to 1 GHz, 5260 MHz, vertical & horizontal polarization

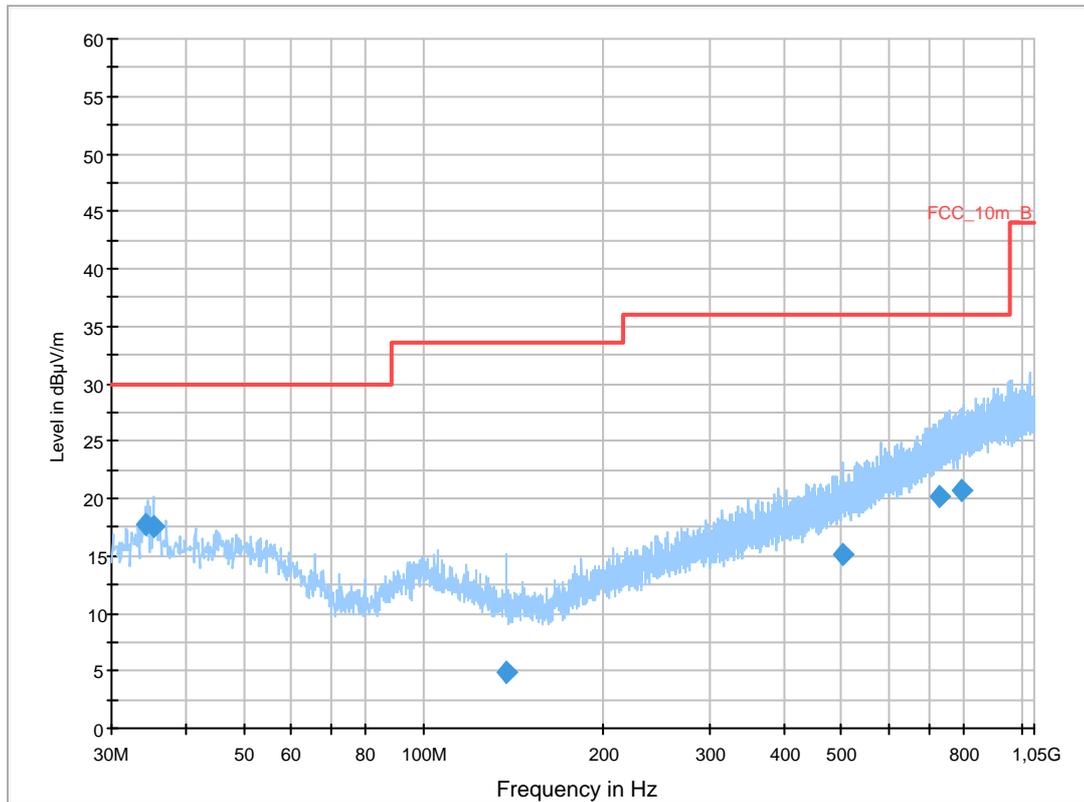
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 52 + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

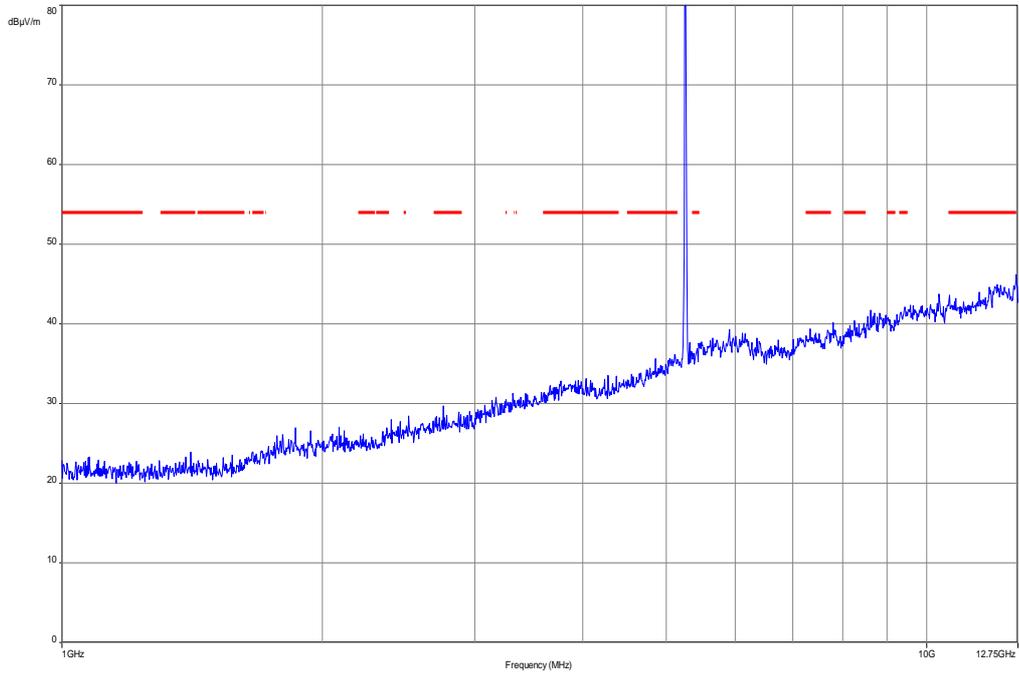
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



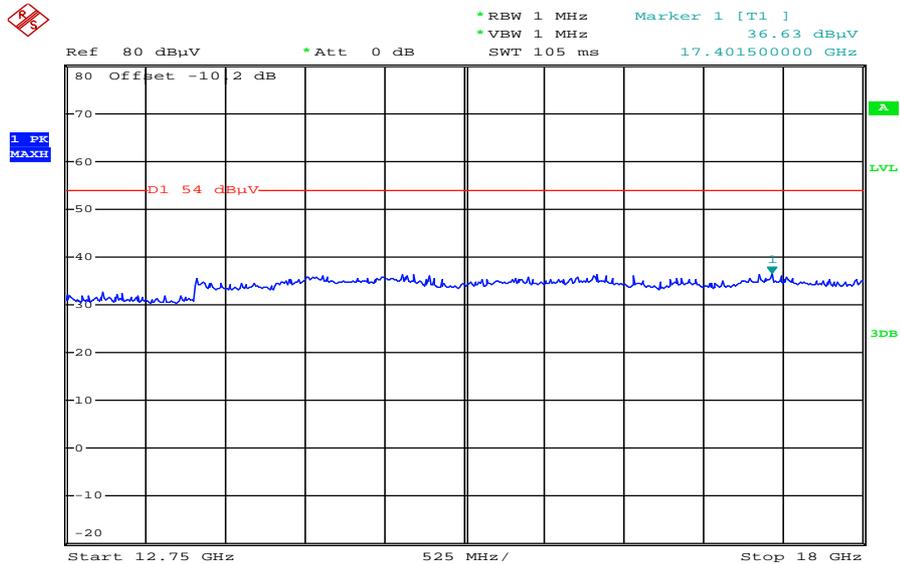
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.246350	17.7	1000.0	120.000	170.0	V	270.0	12.9	12.3	30.0	
35.266350	17.5	1000.0	120.000	170.0	V	80.0	13.0	12.5	30.0	
137.229000	4.9	1000.0	120.000	170.0	H	190.0	8.9	28.6	33.5	
503.107050	15.2	1000.0	120.000	121.0	V	170.0	18.7	20.8	36.0	
726.616200	20.1	1000.0	120.000	170.0	H	100.0	23.1	15.9	36.0	
791.394600	20.6	1000.0	120.000	170.0	V	280.0	23.8	15.4	36.0	

Plot 12: 1 GHz to 12.75 GHz, 5260 MHz, vertical & horizontal polarization

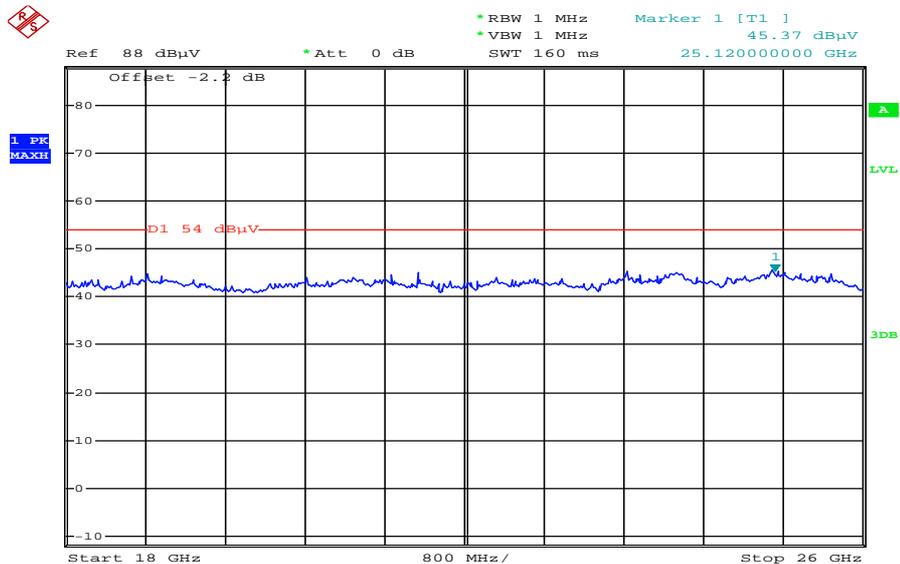


Plot 13: 12 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization



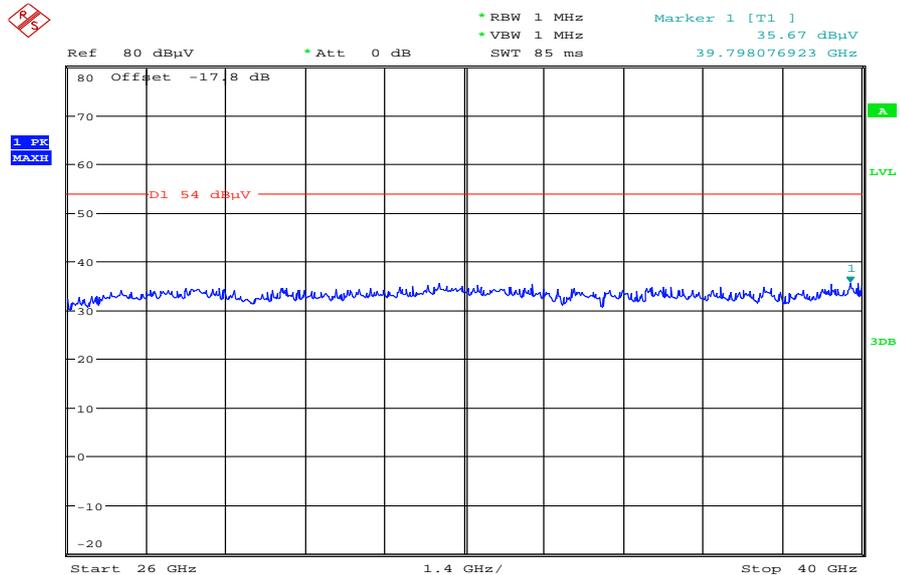
Date: 30.AUG.2012 13:33:16

Plot 14: 18 GHz to 26 GHz, 5260 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:38:41

Plot 15: 26 GHz to 40 GHz, 5260 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:40:36

Plot 16: 30 MHz to 1 GHz, 5320 MHz, vertical & horizontal polarization

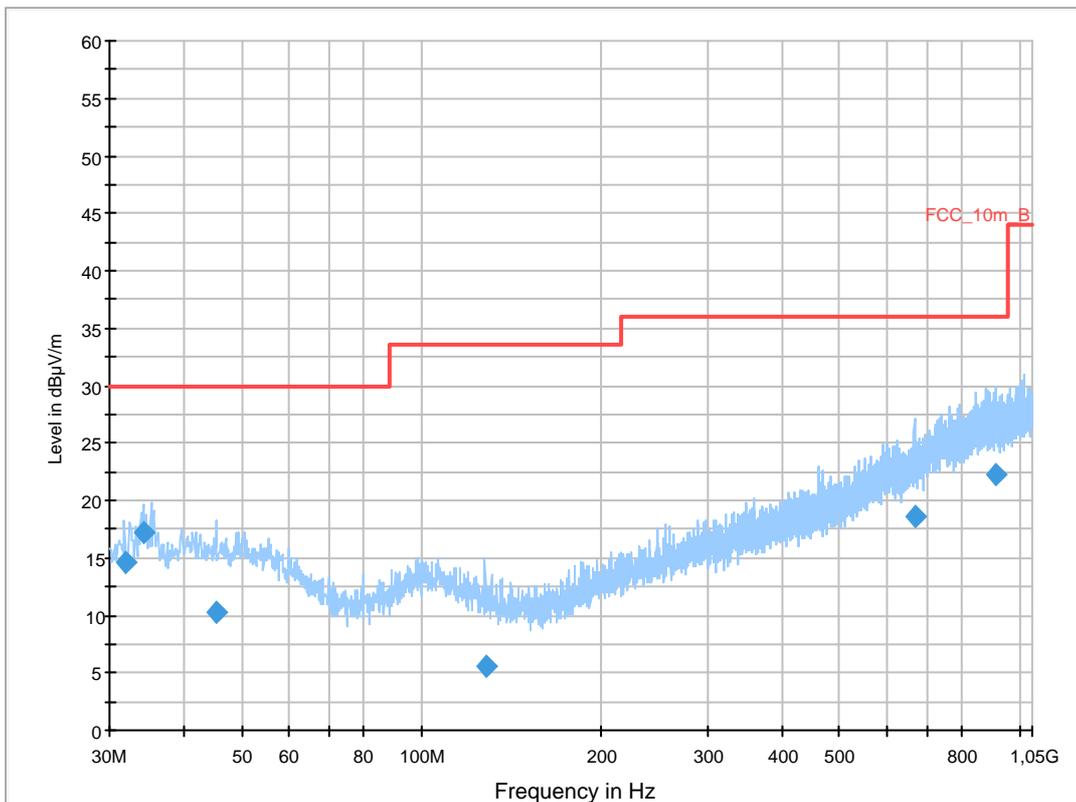
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 64 + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

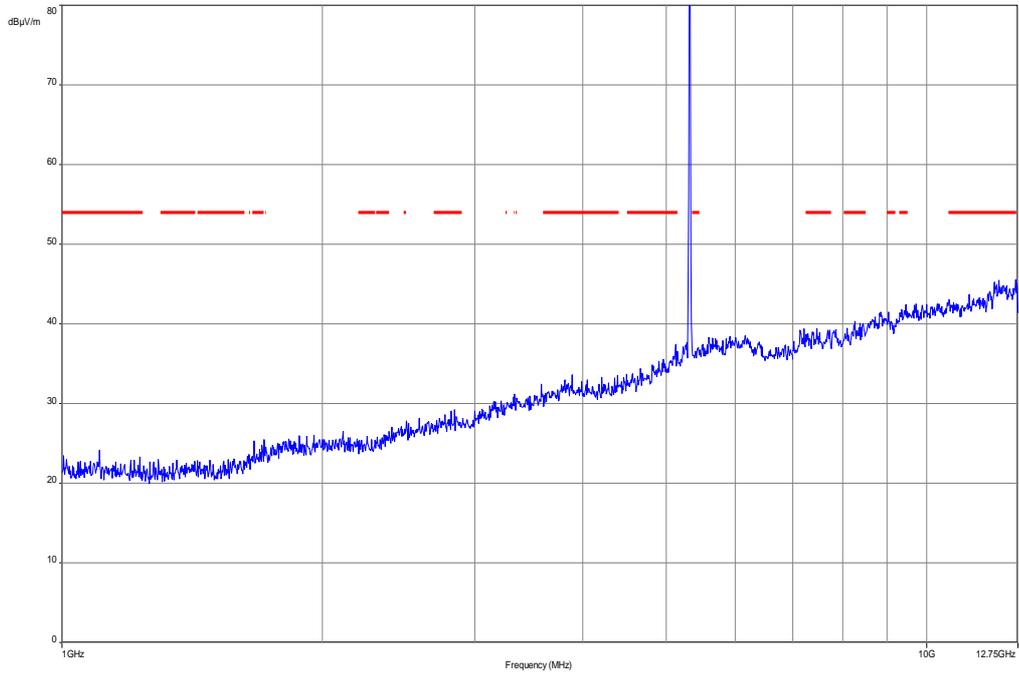
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



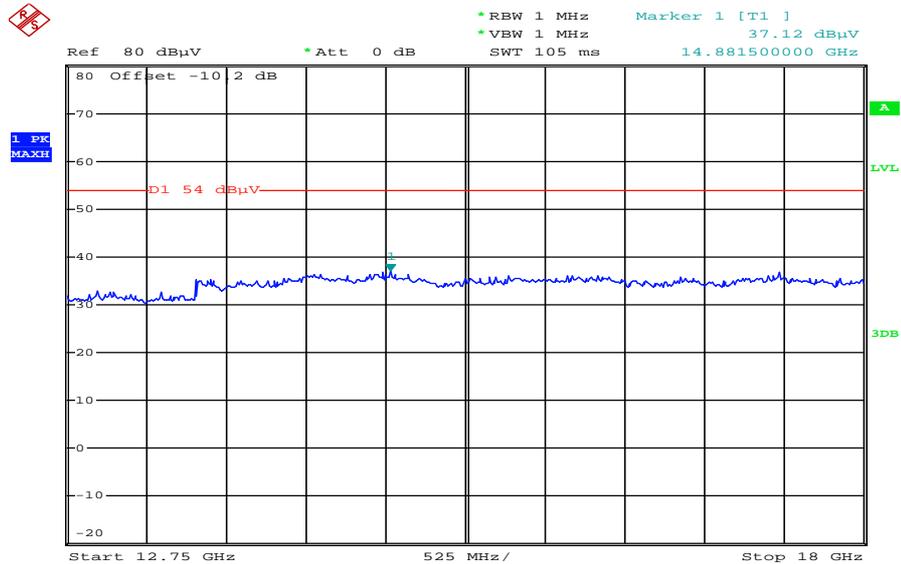
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.875600	14.7	1000.0	120.000	170.0	V	190.0	12.7	15.3	30.0	
34.246800	17.3	1000.0	120.000	142.0	V	280.0	12.9	12.7	30.0	
45.324150	10.3	1000.0	120.000	98.0	V	260.0	13.3	19.7	30.0	
128.106450	5.6	1000.0	120.000	112.0	H	261.0	9.6	27.9	33.5	
667.111200	18.6	1000.0	120.000	98.0	H	265.0	21.6	17.4	36.0	
912.469650	22.2	1000.0	120.000	123.0	V	100.0	25.2	13.8	36.0	

Plot 17: 1 GHz to 12.75 GHz, 5320 MHz, vertical & horizontal polarization

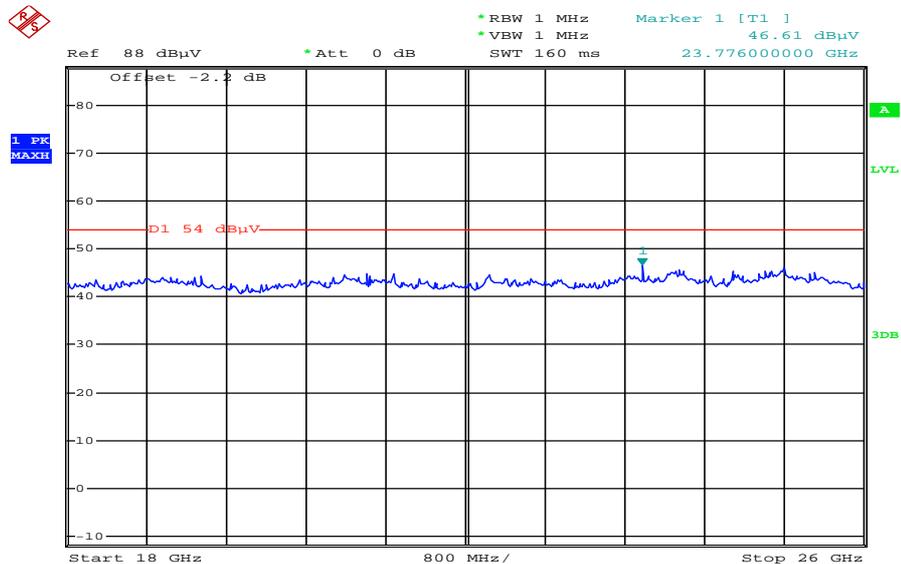


Plot 18: 12 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization



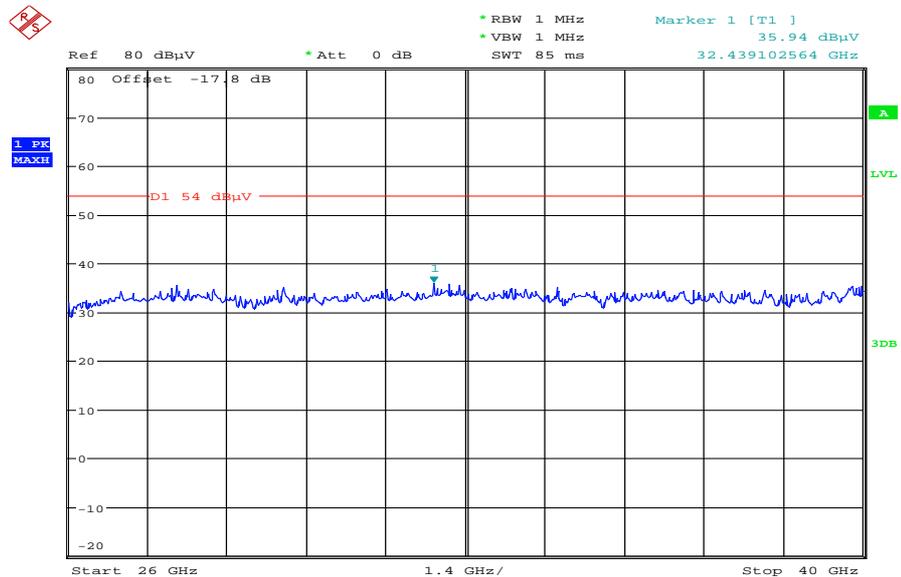
Date: 30.AUG.2012 13:35:41

Plot 19: 18 GHz to 26 GHz, 5320 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:40:16

Plot 20: 26 GHz to 40 GHz, 5320 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:41:38

Plot 21: 30 MHz to 1 GHz, 5500 MHz, vertical & horizontal polarization

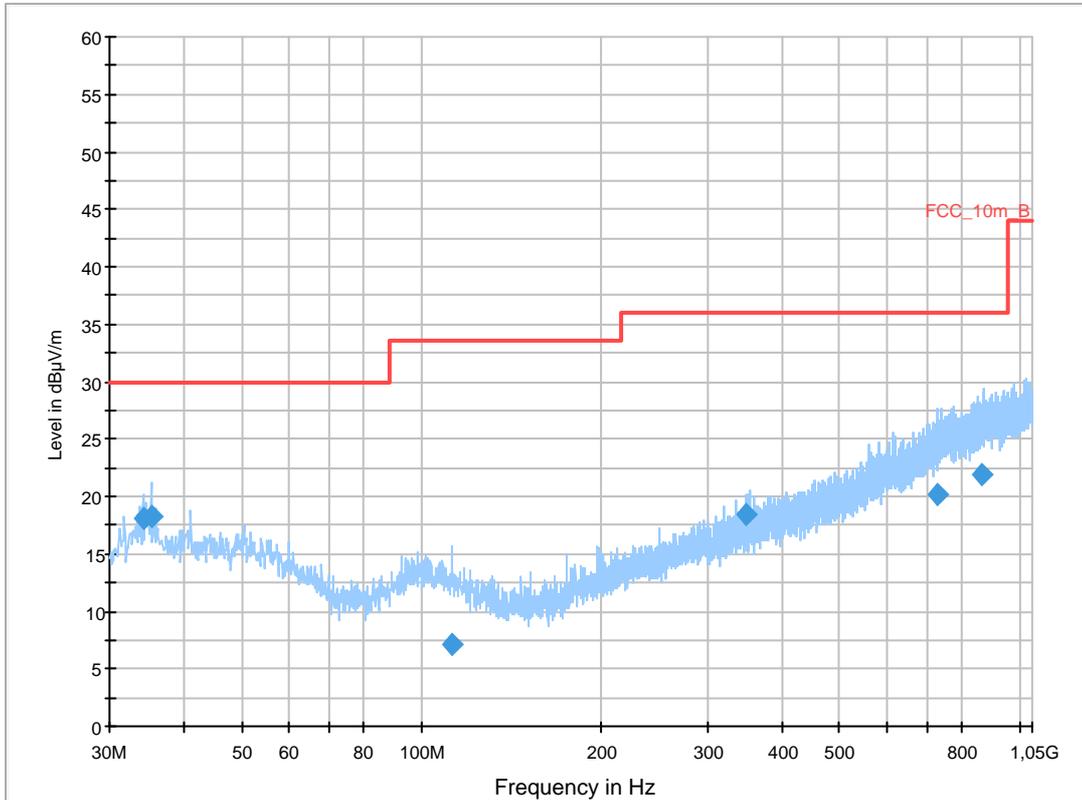
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 100 + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

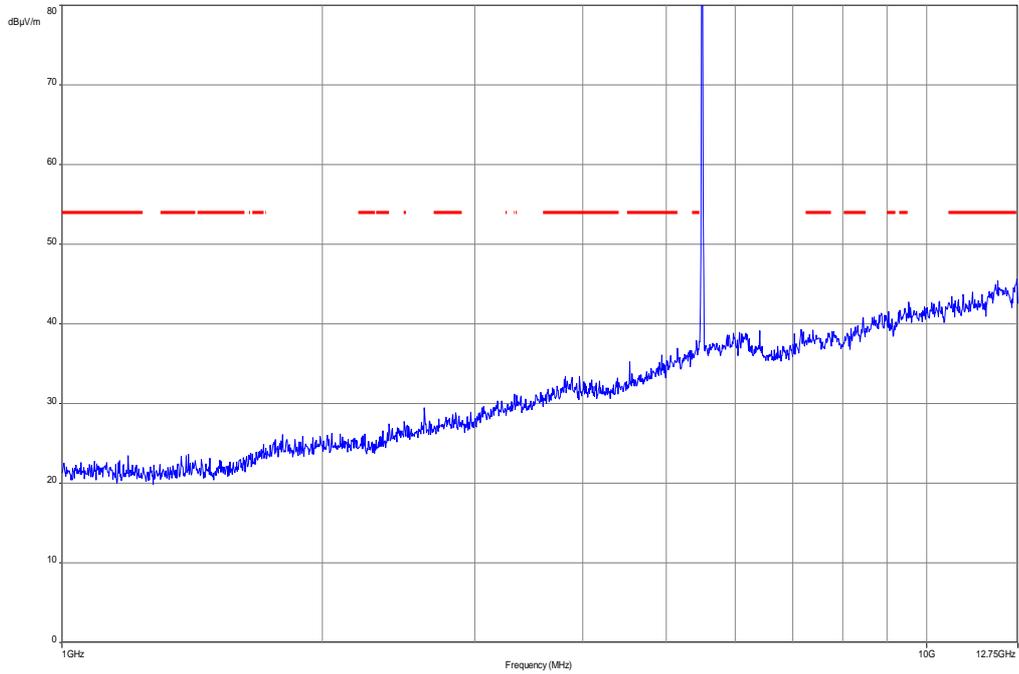
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



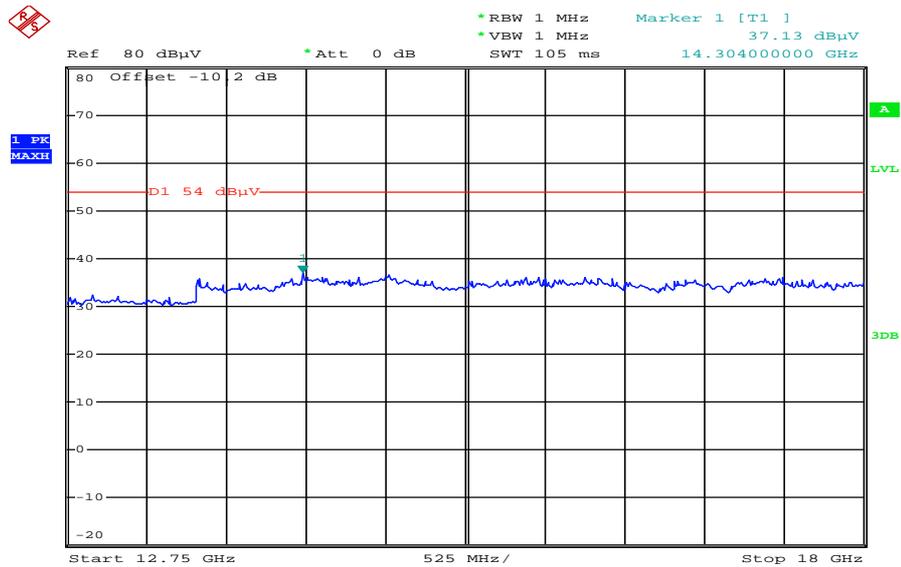
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.221300	18.2	1000.0	120.000	170.0	V	280.0	12.9	11.8	30.0	
35.232300	18.3	1000.0	120.000	121.0	V	272.0	13.0	11.7	30.0	
112.327050	7.2	1000.0	120.000	170.0	H	-10.0	10.8	26.3	33.5	
349.990950	18.5	1000.0	120.000	120.0	V	100.0	16.1	17.5	36.0	
730.600500	20.2	1000.0	120.000	170.0	H	-10.0	23.2	15.8	36.0	
867.723450	21.9	1000.0	120.000	143.0	H	270.0	24.8	14.1	36.0	

Plot 22: 1 GHz to 12.75 GHz, 5500 MHz, vertical & horizontal polarization

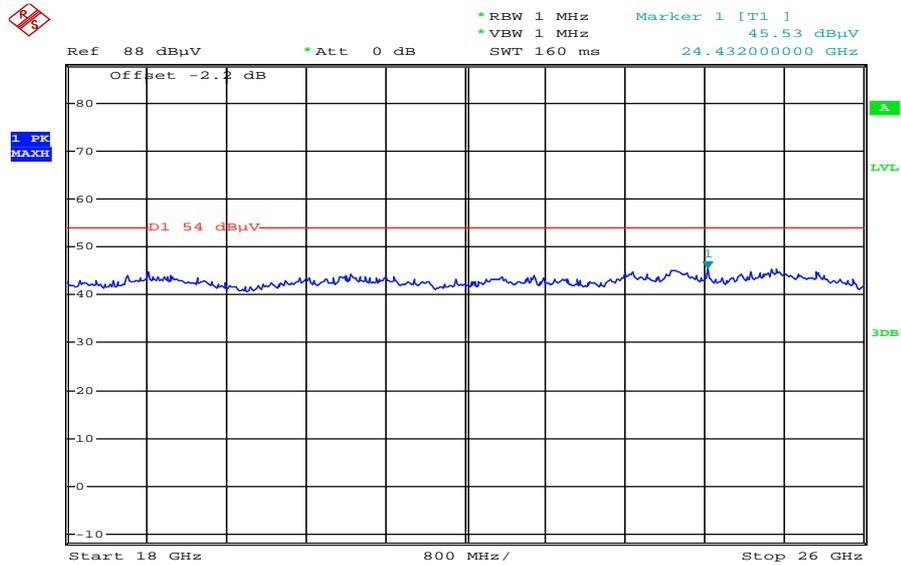


Plot 23: 12 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization



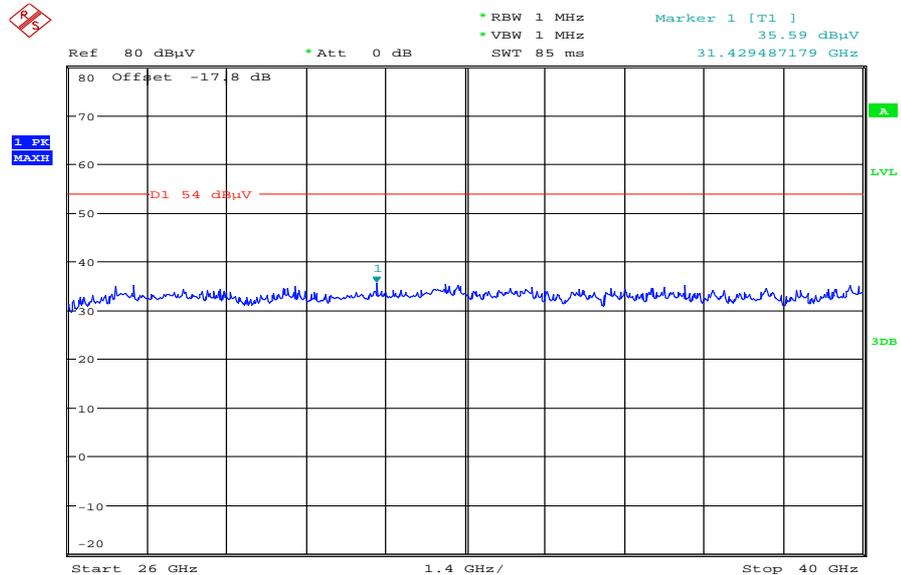
Date: 30.AUG.2012 13:36:57

Plot 24: 18 GHz to 26 GHz, 5500 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:41:52

Plot 25: 26 GHz to 40 GHz, 5500 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:42:37

Plot 26: 30 MHz to 1 GHz, 5600 MHz, vertical & horizontal polarization

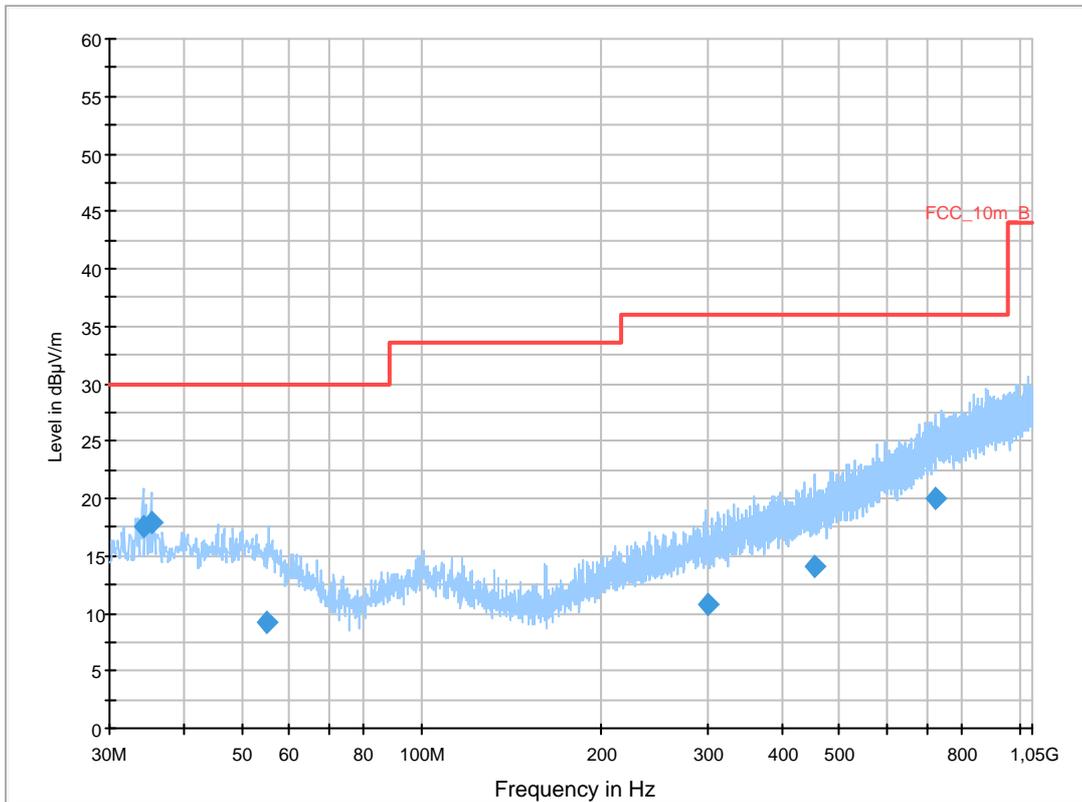
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 120 + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

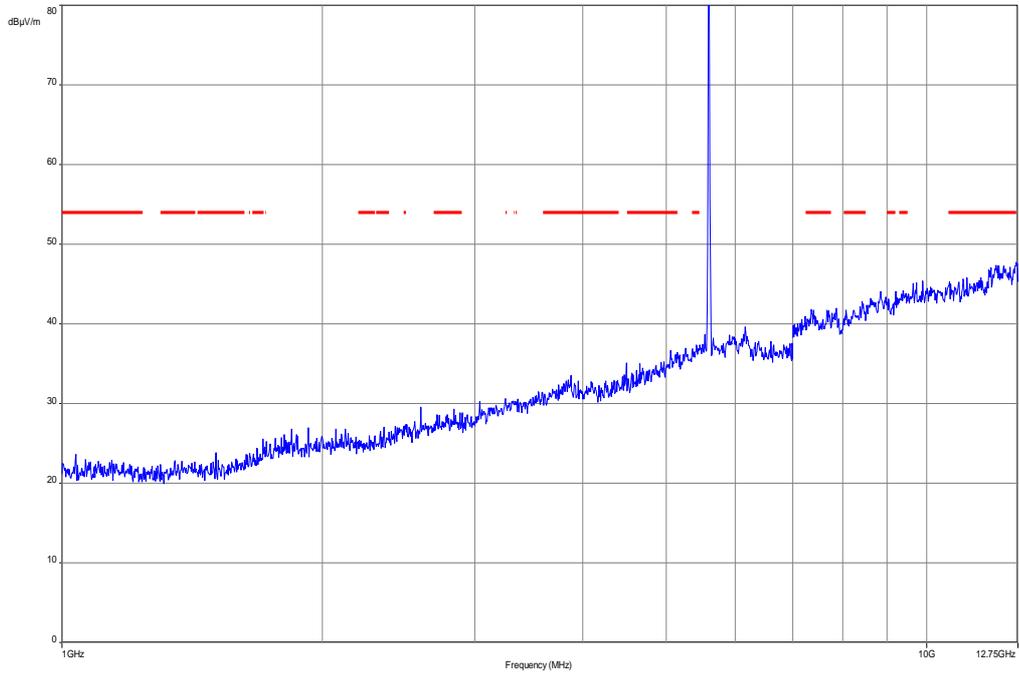
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



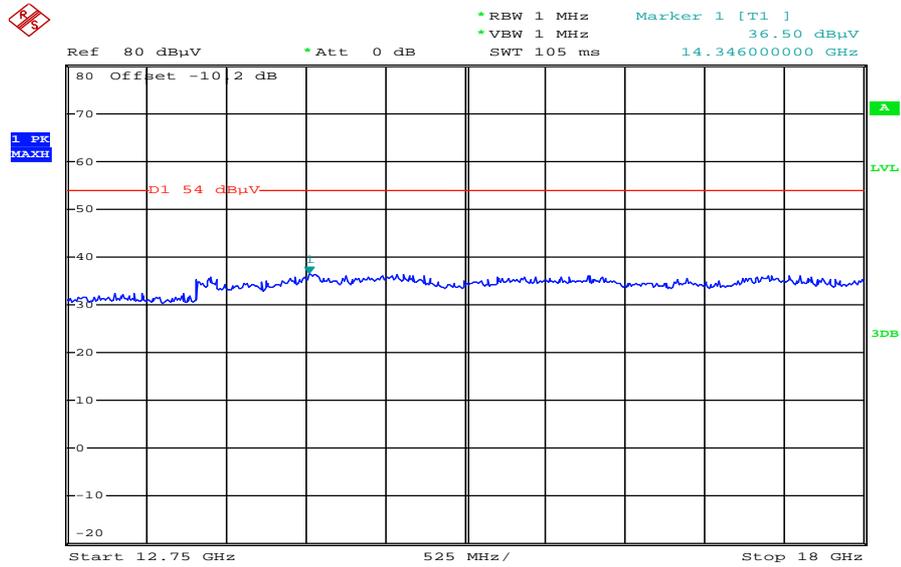
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.225650	17.6	1000.0	120.000	120.0	V	180.0	12.9	12.4	30.0	
35.257200	17.9	1000.0	120.000	98.0	V	85.0	13.0	12.1	30.0	
55.125600	9.3	1000.0	120.000	105.0	H	90.0	12.9	20.7	30.0	
299.917200	10.9	1000.0	120.000	120.0	V	100.0	14.5	25.1	36.0	
454.084650	14.1	1000.0	120.000	170.0	H	190.0	17.7	21.9	36.0	
720.686400	20.0	1000.0	120.000	170.0	V	-9.0	23.0	16.0	36.0	

Plot 27: 1 GHz to 12.75 GHz, 5600 MHz, vertical & horizontal polarization

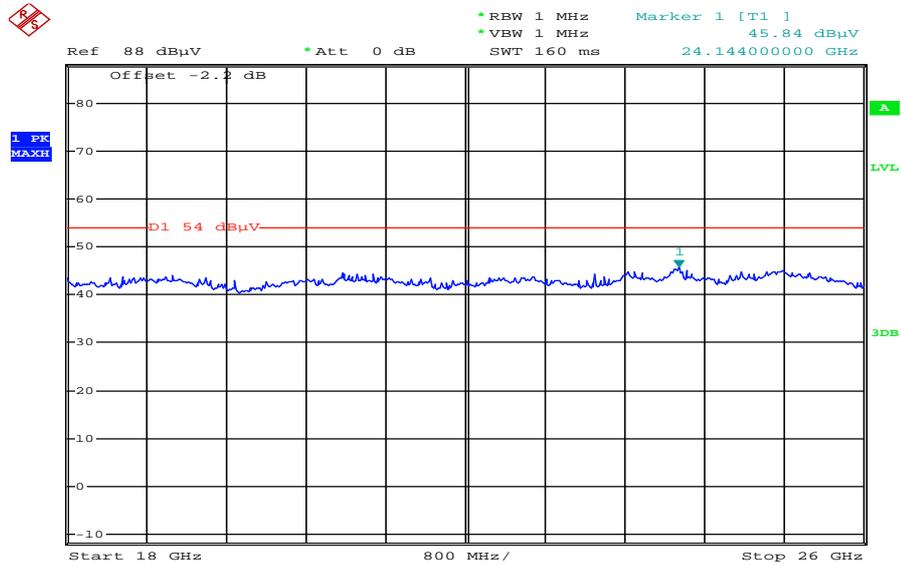


Plot 28: 12 GHz to 18 GHz, 5600 MHz, vertical & horizontal polarization



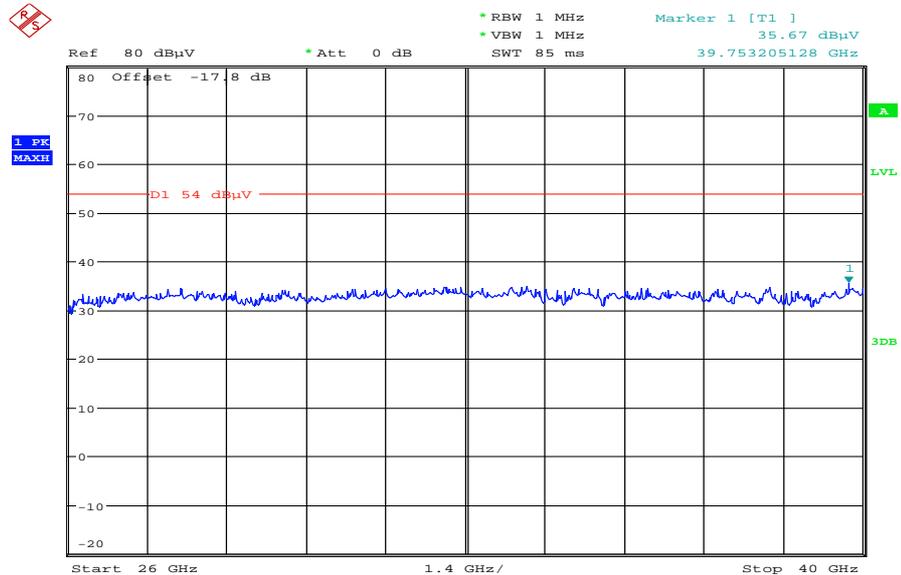
Date: 30.AUG.2012 13:38:33

Plot 29: 18 GHz to 26 GHz, 5600 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:43:18

Plot 30: 26 GHz to 40 GHz, 5600 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:43:37

Plot 31: 30 MHz to 1 GHz, 5700 MHz, vertical & horizontal polarization

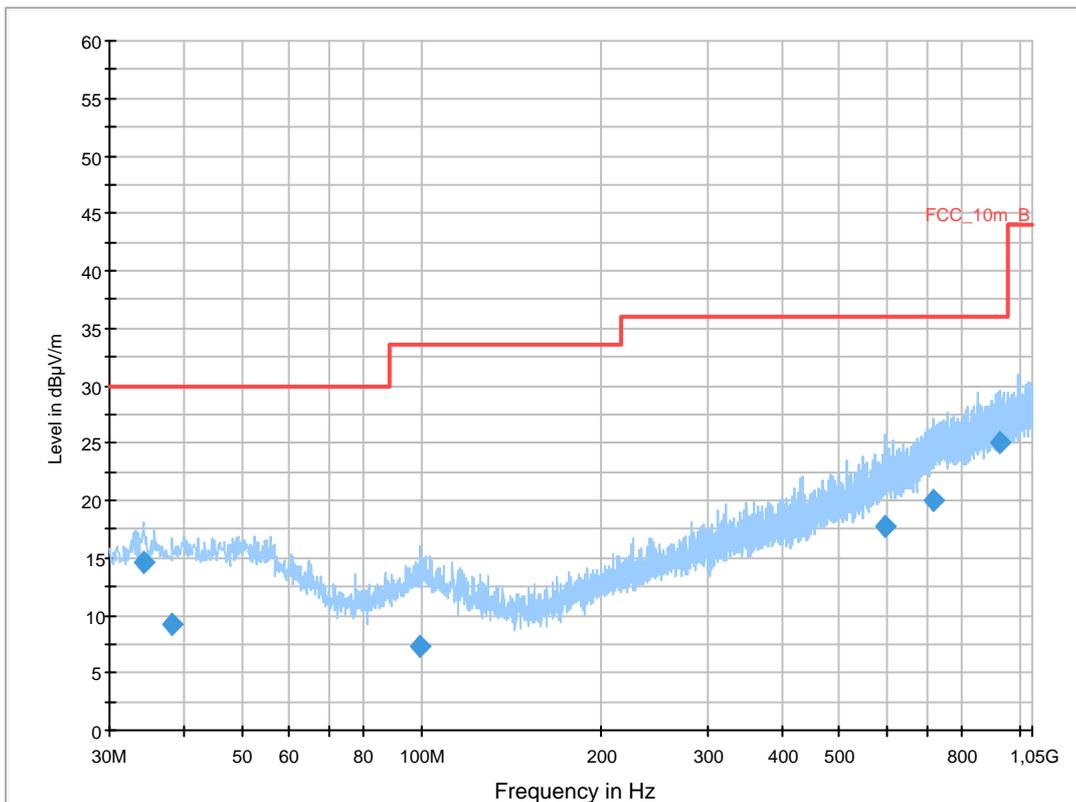
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT20 TX ch 140 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

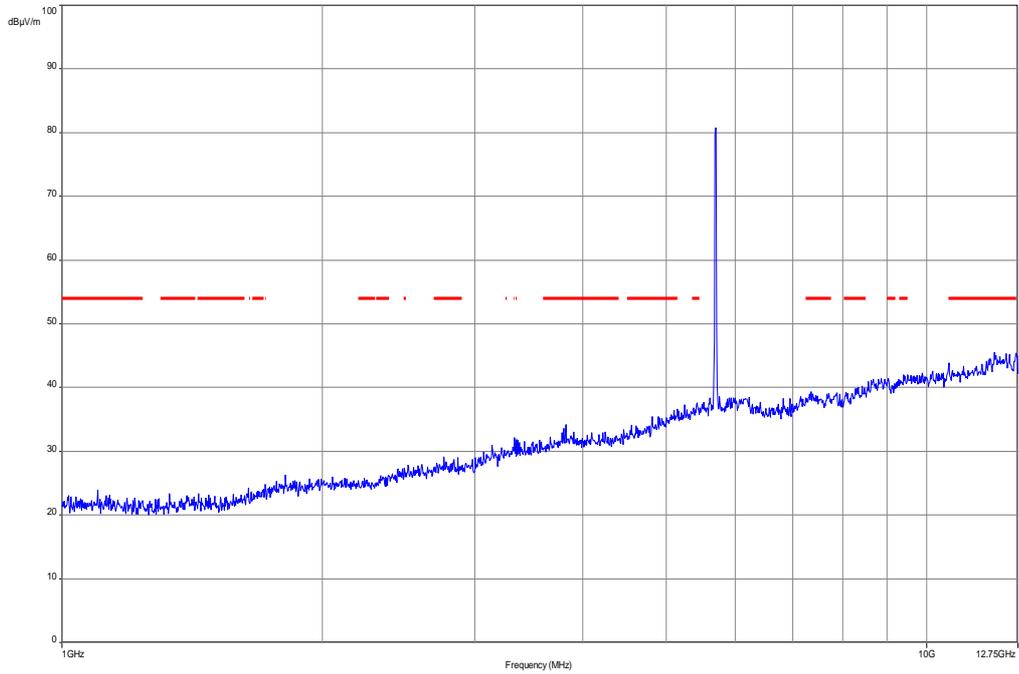
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



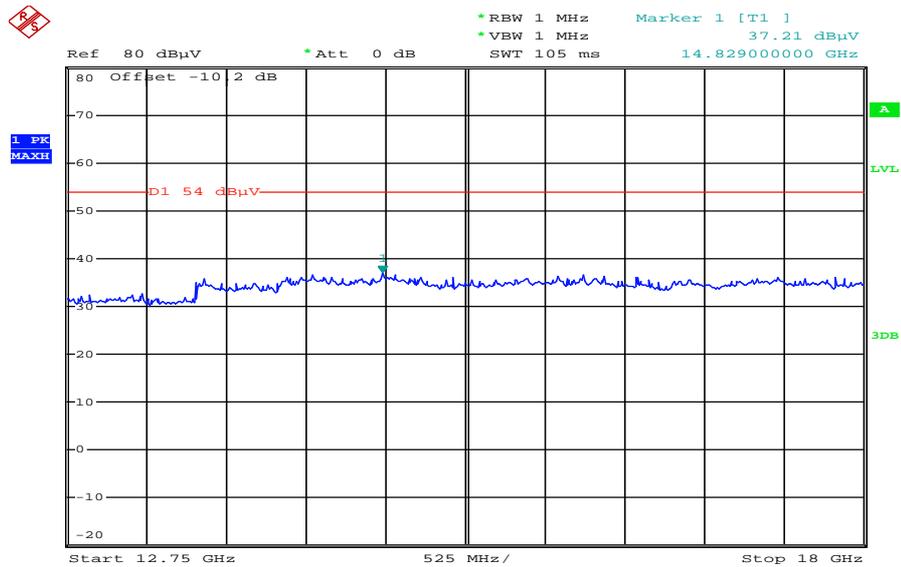
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.247550	14.6	1000.0	120.000	159.0	V	272.0	12.9	15.4	30.0	
38.022900	9.2	1000.0	120.000	170.0	V	182.0	13.3	20.8	30.0	
98.876850	7.2	1000.0	120.000	170.0	V	280.0	11.8	26.3	33.5	
596.902950	17.8	1000.0	120.000	170.0	V	260.0	20.7	18.2	36.0	
715.317300	20.0	1000.0	120.000	98.0	H	-3.0	22.9	16.0	36.0	
927.490200	25.1	1000.0	120.000	98.0	V	100.0	25.3	10.9	36.0	

Plot 32: 1 GHz to 12.75 GHz, 5700 MHz, vertical & horizontal polarization

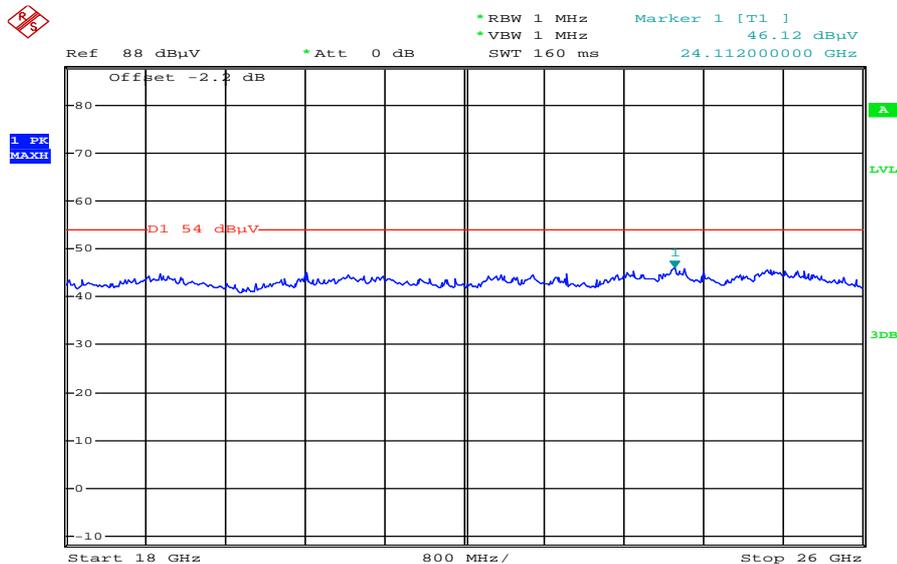


Plot 33: 12 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization



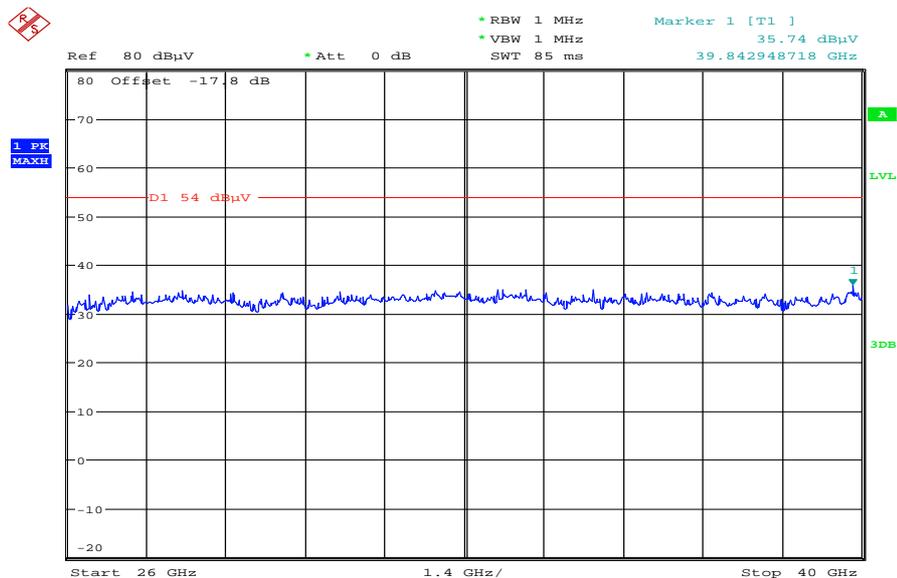
Date: 30.AUG.2012 13:40:25

Plot 34: 18 GHz to 26 GHz, 5700 MHz, vertical & horizontal polarization



Date: 30.AUG.2012 14:46:38

Plot 35: 26 GHz to 40 GHz, 5700 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:44:40

Plots: OFDM / n – mode HT40

Plot 1: 30 MHz to 1 GHz, 5190 MHz, vertical & horizontal polarization

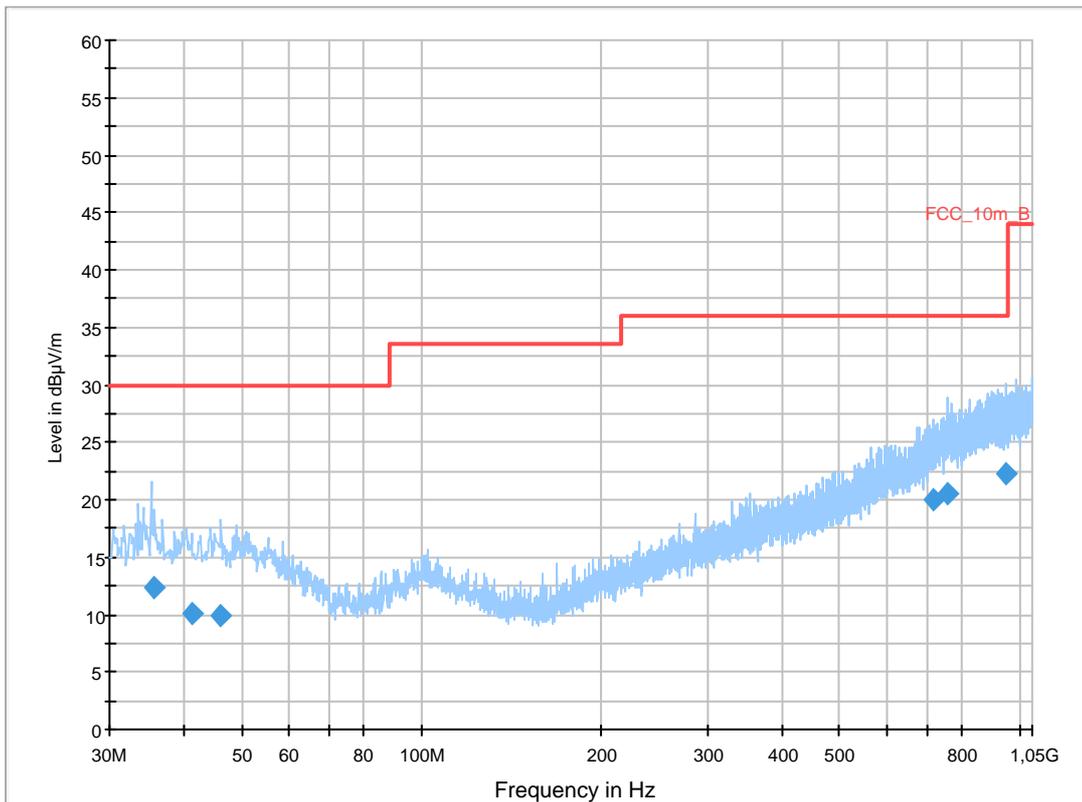
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 38 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

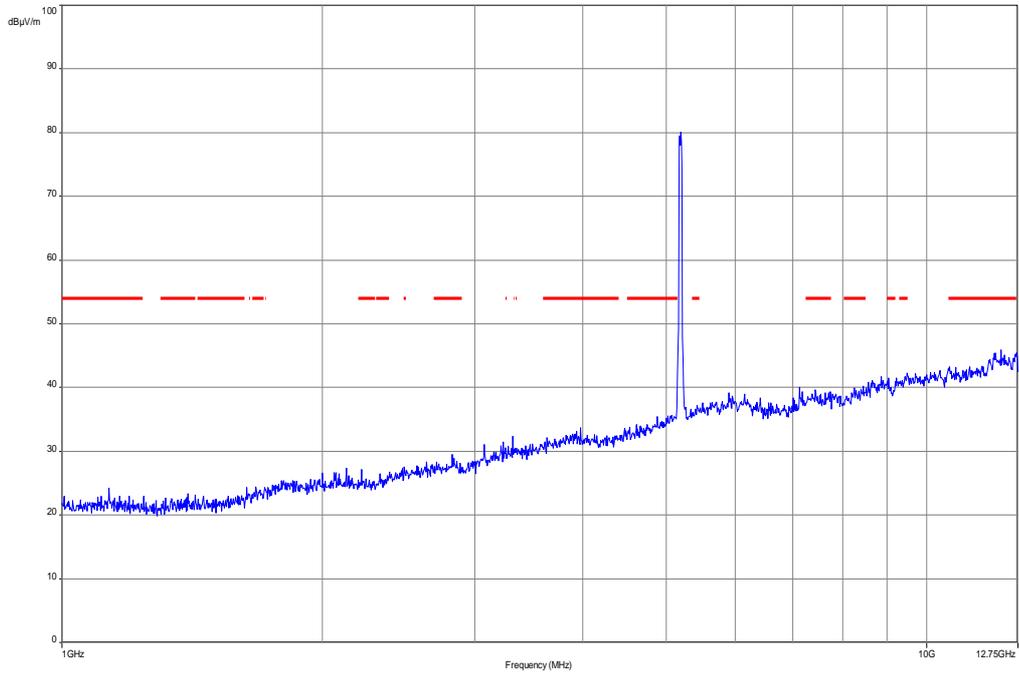
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



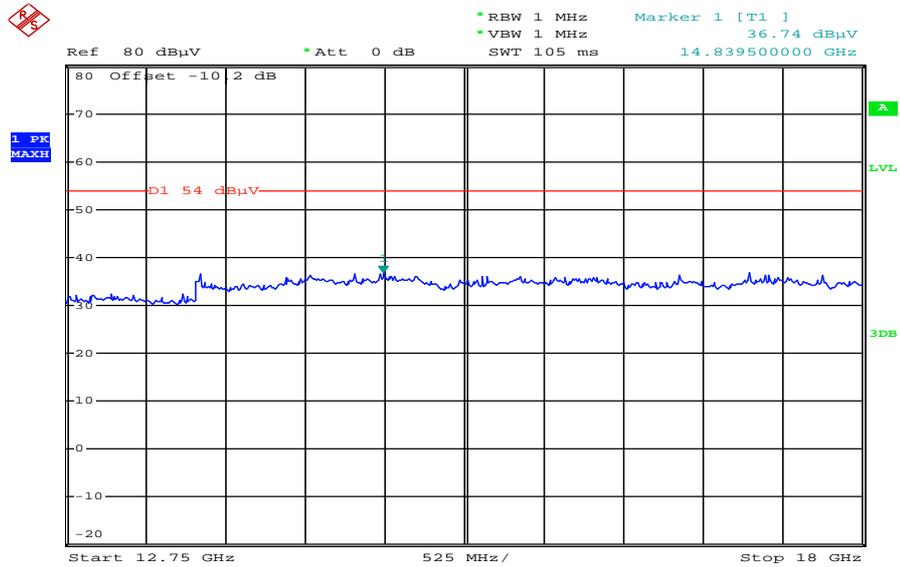
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.570700	12.3	1000.0	120.000	104.0	V	0.0	13.1	17.7	30.0	
41.134200	10.1	1000.0	120.000	170.0	H	178.0	13.4	19.9	30.0	
46.154400	10.0	1000.0	120.000	98.0	H	265.0	13.3	20.0	30.0	
717.416400	19.9	1000.0	120.000	170.0	H	10.0	22.9	16.1	36.0	
756.919050	20.6	1000.0	120.000	170.0	H	88.0	23.7	15.4	36.0	
946.789050	22.3	1000.0	120.000	170.0	V	280.0	25.3	13.7	36.0	

Plot 2: 1 GHz to 12.75 GHz, 5190 MHz, vertical & horizontal polarization

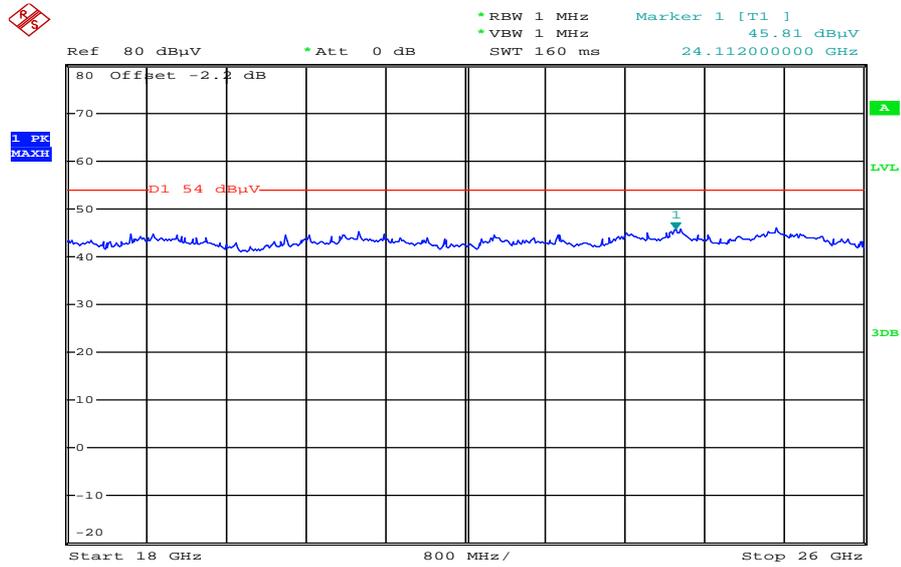


Plot 3: 12 GHz to 18 GHz, 5190 MHz, vertical & horizontal polarization



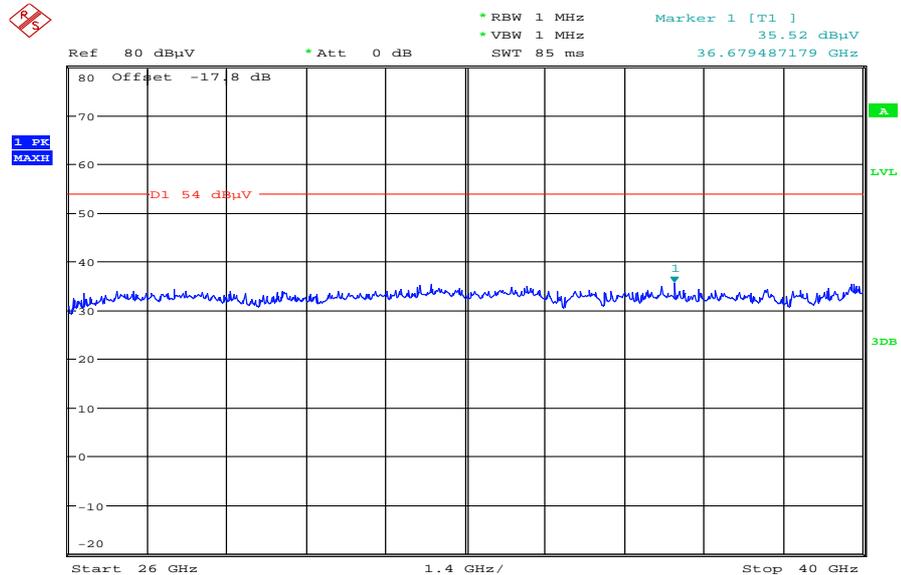
Date: 30.AUG.2012 13:42:43

Plot 4: 18 GHz to 26 GHz, 5190 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:07:33

Plot 5: 26 GHz to 40 GHz, 5190 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:46:08

Plot 6: 30 MHz to 1 GHz, 5230 MHz, vertical & horizontal polarization

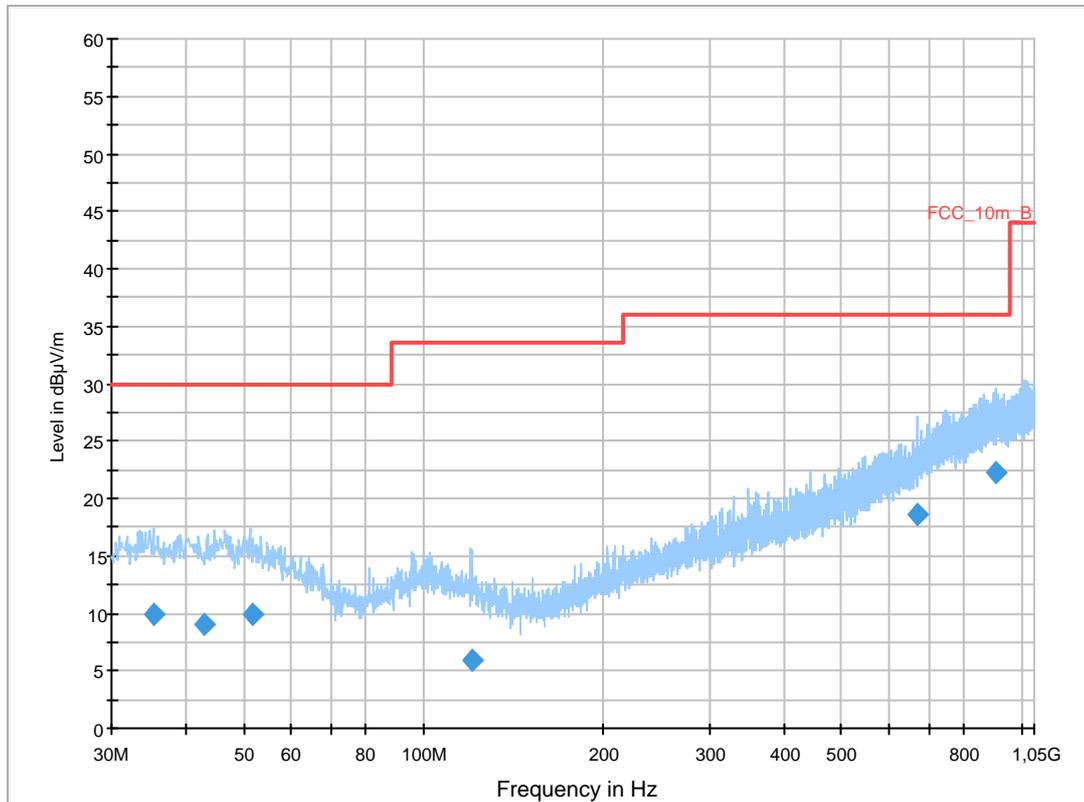
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 46 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

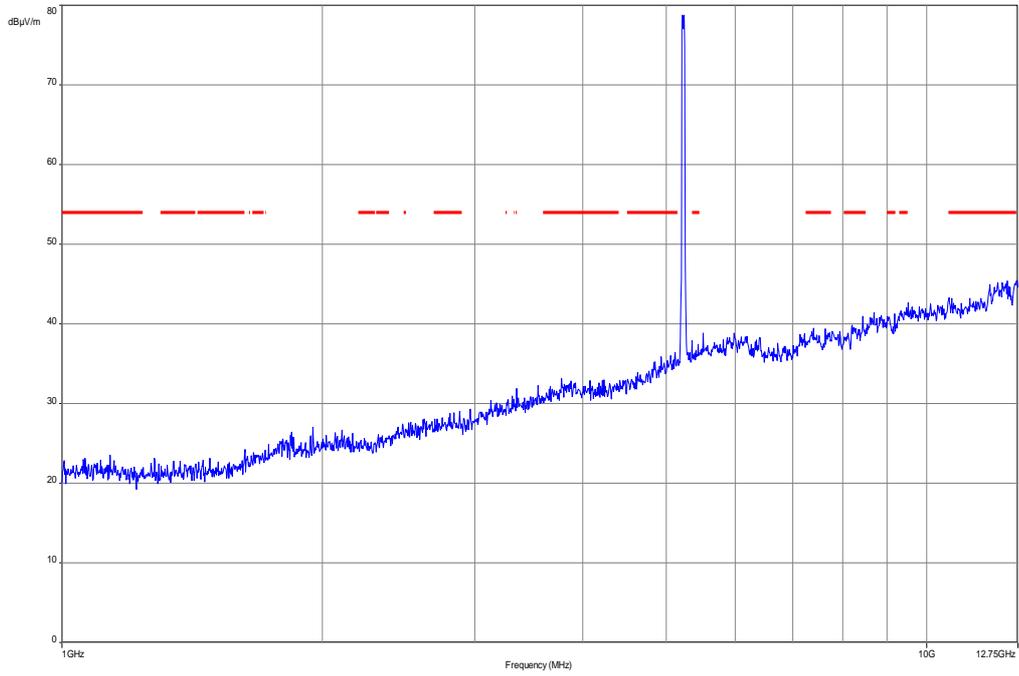
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



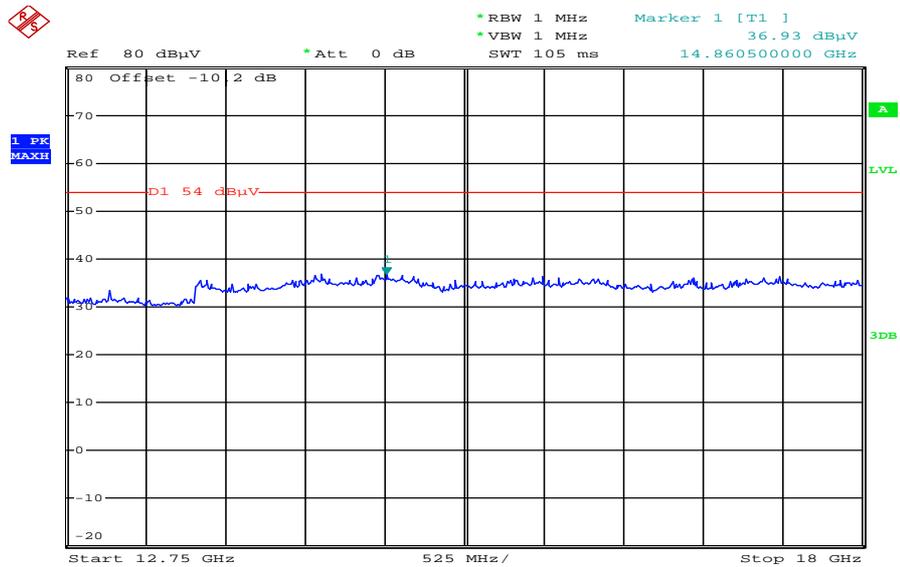
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.403900	10.0	1000.0	120.000	170.0	H	10.0	13.1	20.0	30.0	
42.972900	9.0	1000.0	120.000	162.0	H	190.0	13.3	21.0	30.0	
51.472350	9.9	1000.0	120.000	98.0	H	261.0	13.2	20.1	30.0	
120.394650	6.0	1000.0	120.000	113.0	V	10.0	10.2	27.5	33.5	
671.186100	18.7	1000.0	120.000	170.0	V	81.0	21.7	17.3	36.0	
907.200150	22.2	1000.0	120.000	170.0	V	268.0	25.2	13.8	36.0	

Plot 7: 1 GHz to 12.75 GHz, 5230 MHz, vertical & horizontal polarization

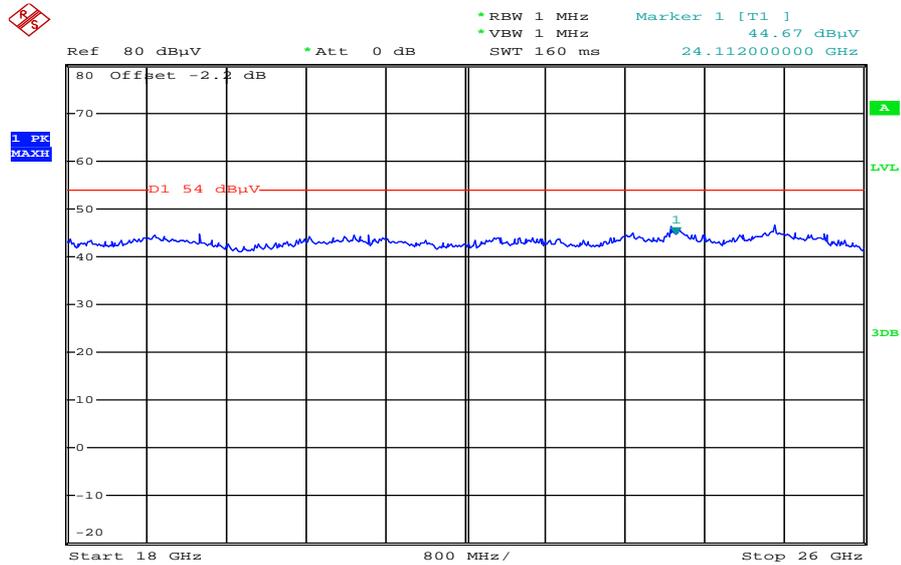


Plot 8: 12 GHz to 18 GHz, 5230 MHz, vertical & horizontal polarization



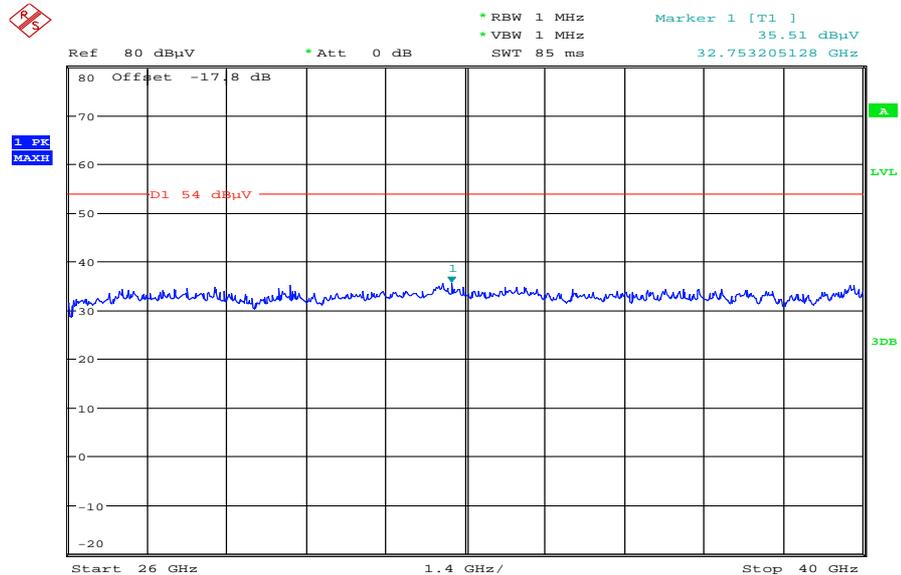
Date: 30.AUG.2012 13:44:20

Plot 9: 18 GHz to 26 GHz, 5230 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:10:28

Plot 10: 26 GHz to 40 GHz, 5230 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:47:20

Plot 11: 30 MHz to 1 GHz, 5270 MHz, vertical & horizontal polarization

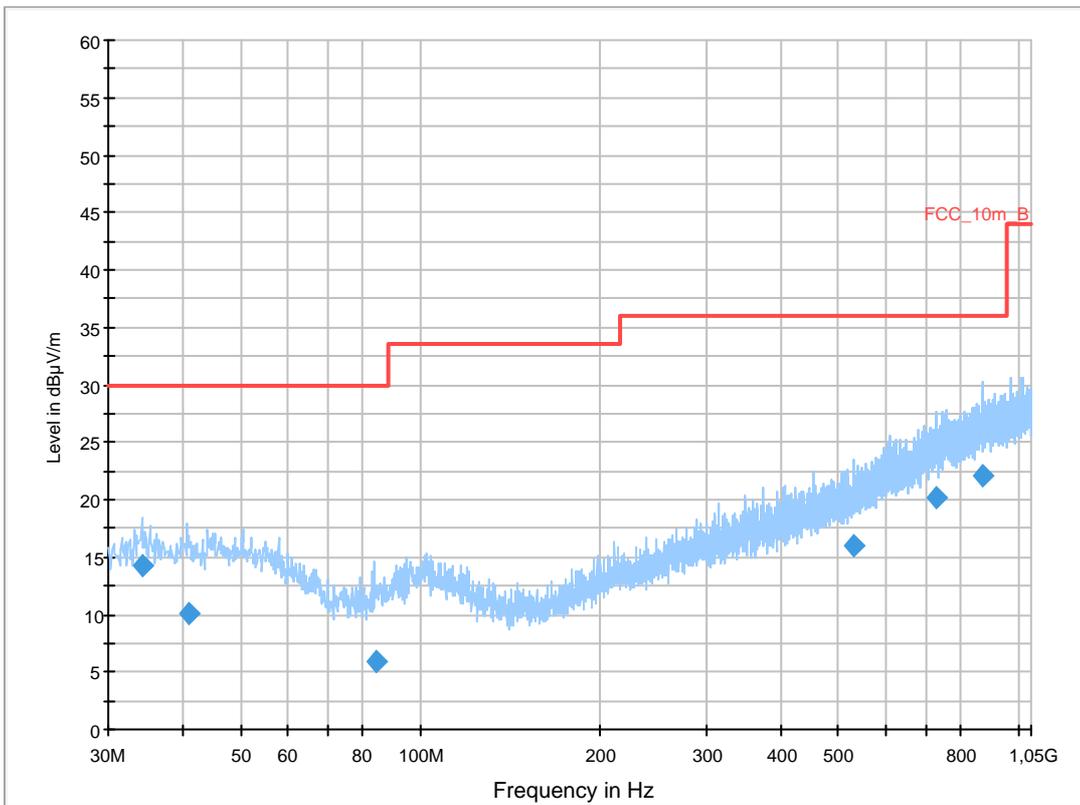
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 54 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

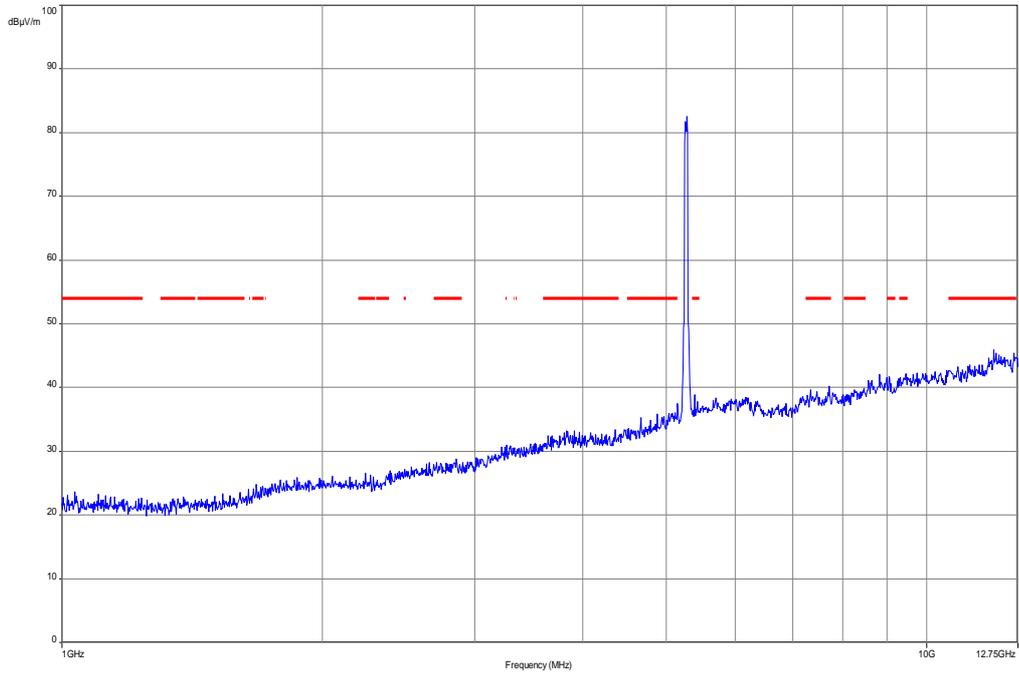
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



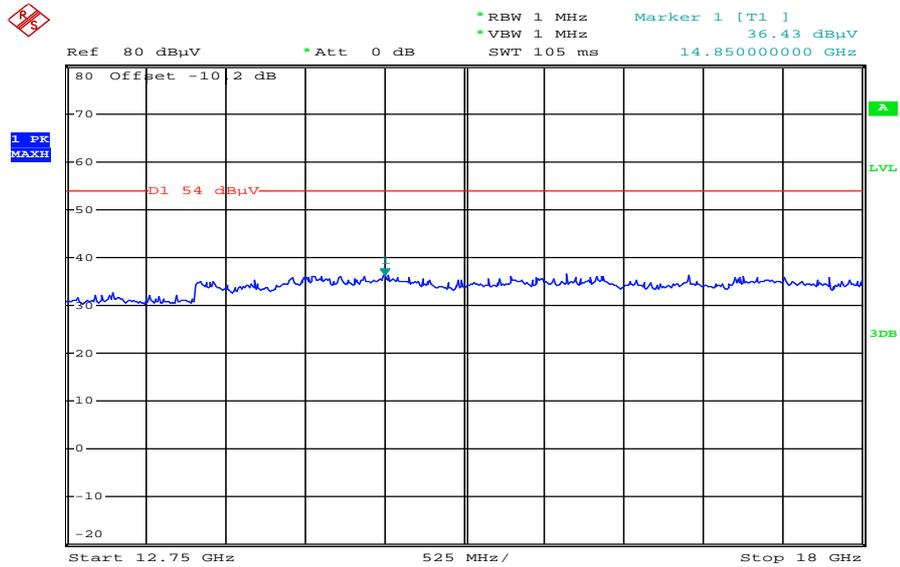
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.204050	14.2	1000.0	120.000	152.0	V	280.0	12.9	15.8	30.0	
40.974600	10.1	1000.0	120.000	170.0	V	190.0	13.4	19.9	30.0	
84.110100	5.9	1000.0	120.000	170.0	V	272.0	9.7	24.1	30.0	
530.355300	16.0	1000.0	120.000	153.0	H	280.0	19.1	20.0	36.0	
729.889950	20.3	1000.0	120.000	170.0	H	100.0	23.2	15.7	36.0	
871.660050	22.0	1000.0	120.000	170.0	V	-10.0	24.8	14.0	36.0	

Plot 12: 1 GHz to 12.75 GHz, 5270 MHz, vertical & horizontal polarization

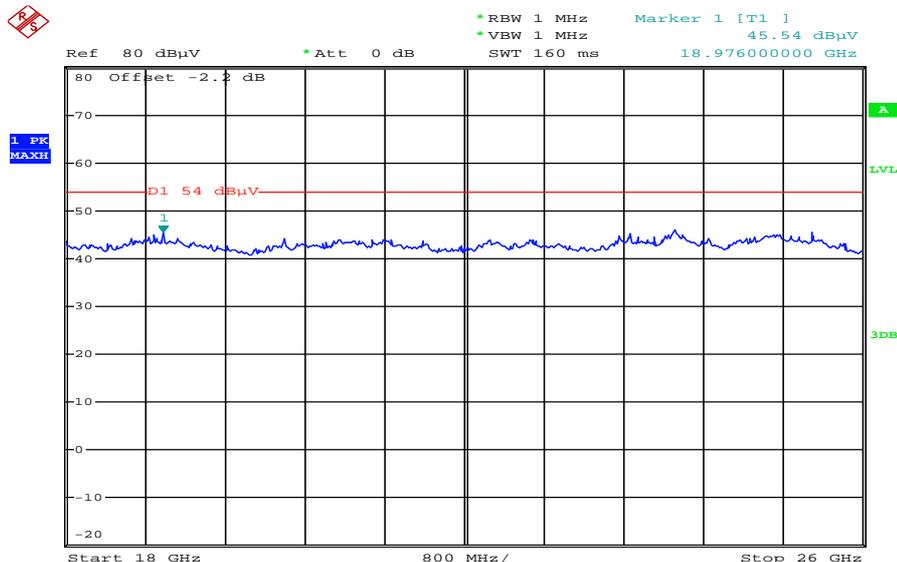


Plot 13: 12 GHz to 18 GHz, 5270 MHz, vertical & horizontal polarization



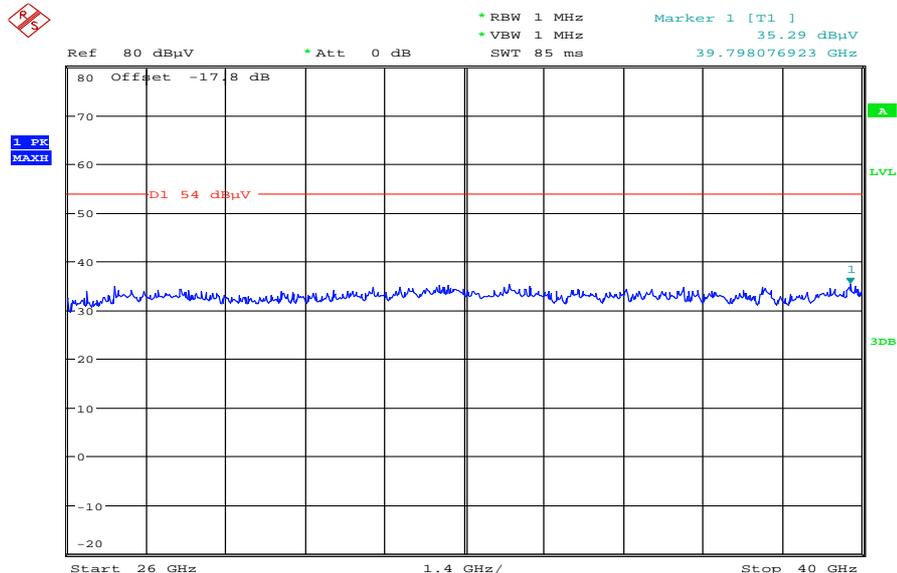
Date: 30.AUG.2012 13:45:39

Plot 14: 18 GHz to 26 GHz, 5270 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:12:55

Plot 15: 26 GHz to 40 GHz, 5270 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:48:32

Plot 16: 30 MHz to 1 GHz, 5310 MHz, vertical & horizontal polarization

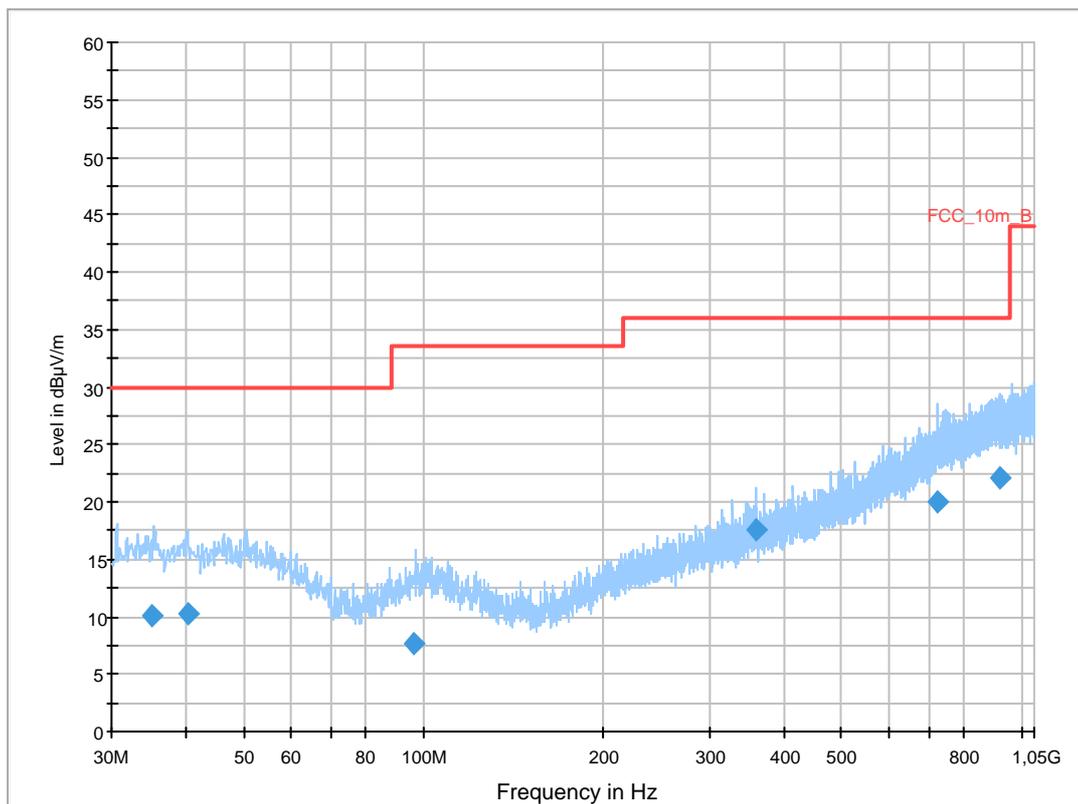
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 64 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

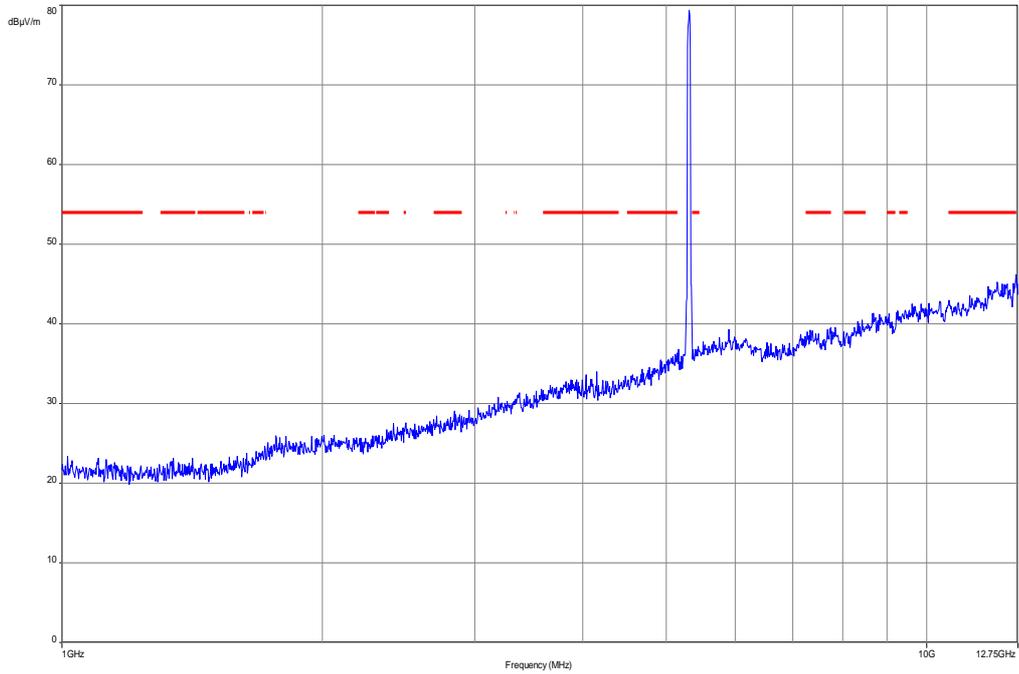
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



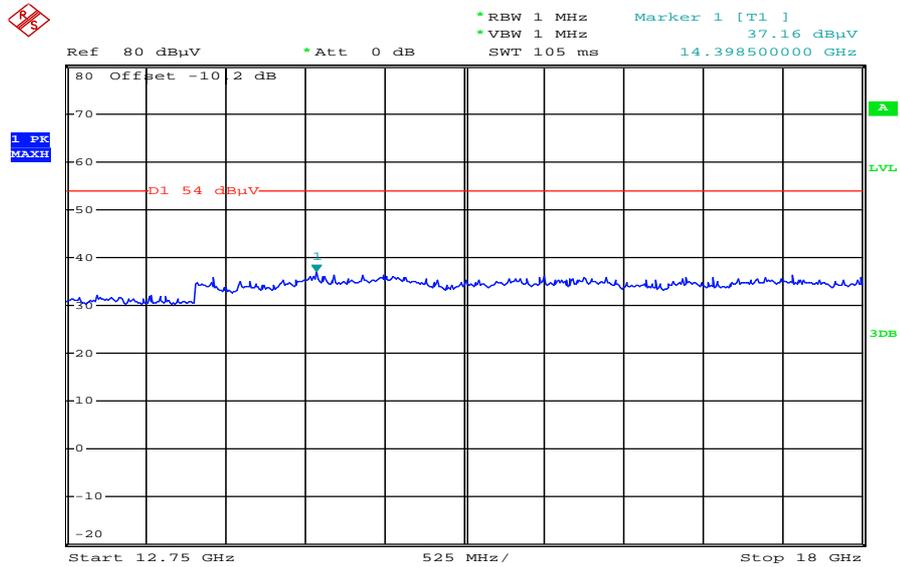
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.167200	10.1	1000.0	120.000	170.0	V	10.0	13.0	19.9	30.0	
40.269150	10.2	1000.0	120.000	111.0	H	171.0	13.4	19.8	30.0	
96.269400	7.7	1000.0	120.000	121.0	H	-10.0	11.4	25.8	33.5	
360.032550	17.5	1000.0	120.000	98.0	V	272.0	16.2	18.5	36.0	
721.387800	20.0	1000.0	120.000	170.0	V	190.0	23.0	16.0	36.0	
921.558750	22.1	1000.0	120.000	170.0	V	175.0	25.3	13.9	36.0	

Plot 17: 1 GHz to 12.75 GHz, 5310 MHz, vertical & horizontal polarization

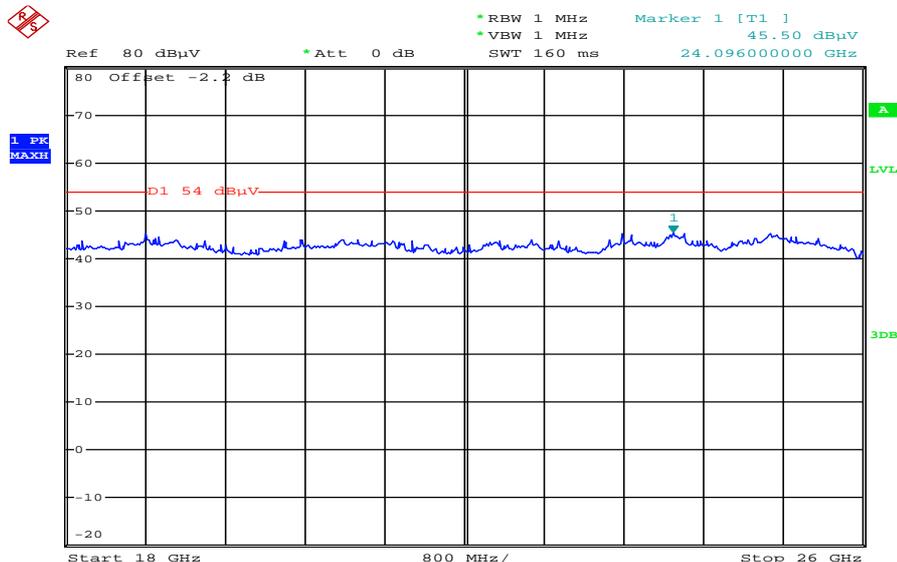


Plot 18: 12 GHz to 18 GHz, 5310 MHz, vertical & horizontal polarization



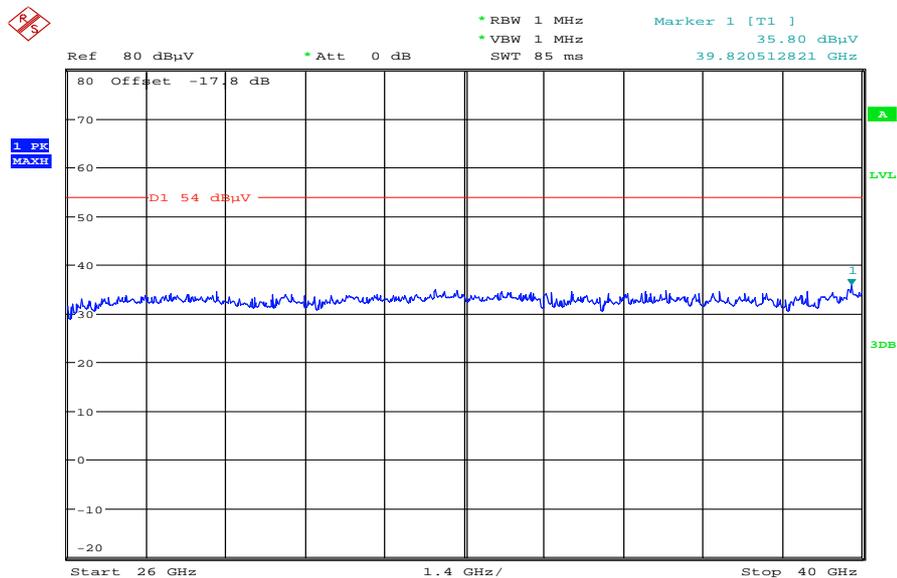
Date: 30.AUG.2012 13:46:58

Plot 19: 18 GHz to 26 GHz, 5310 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:14:57

Plot 20: 26 GHz to 40 GHz, 5310 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:49:46

Plot 21: 30 MHz to 1 GHz, 5510 MHz, vertical & horizontal polarization

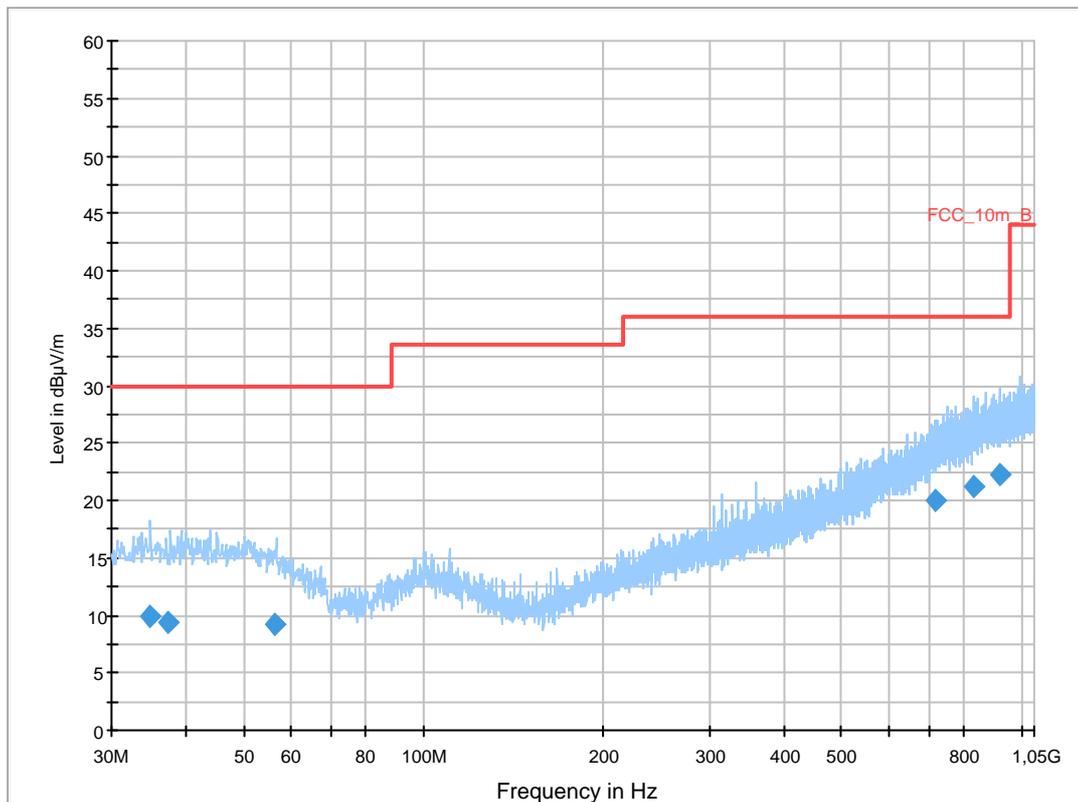
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 102 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

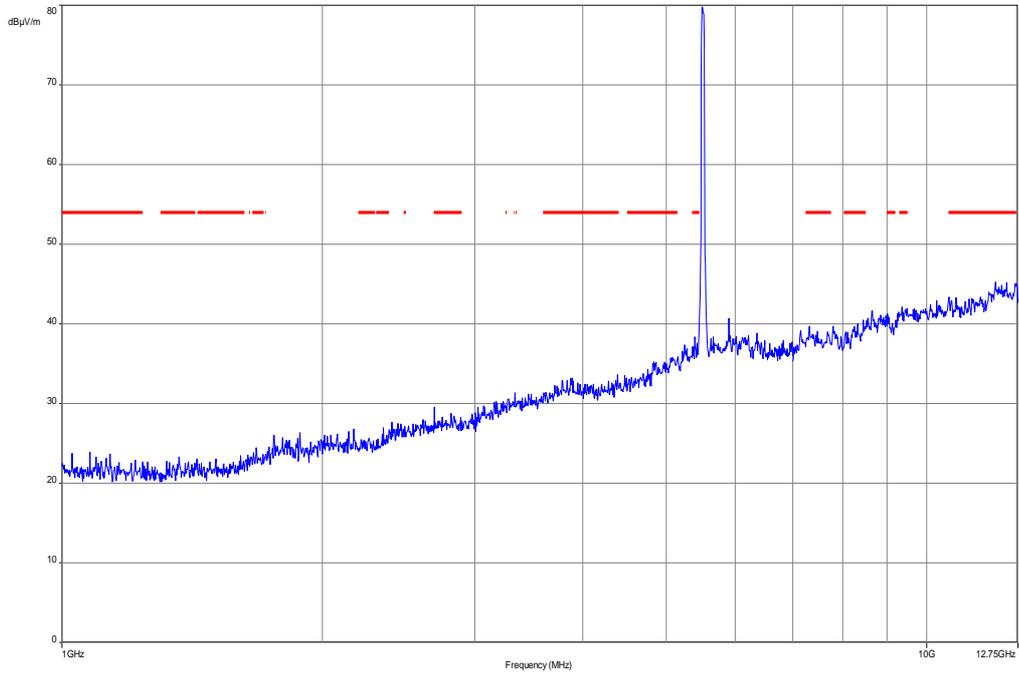
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



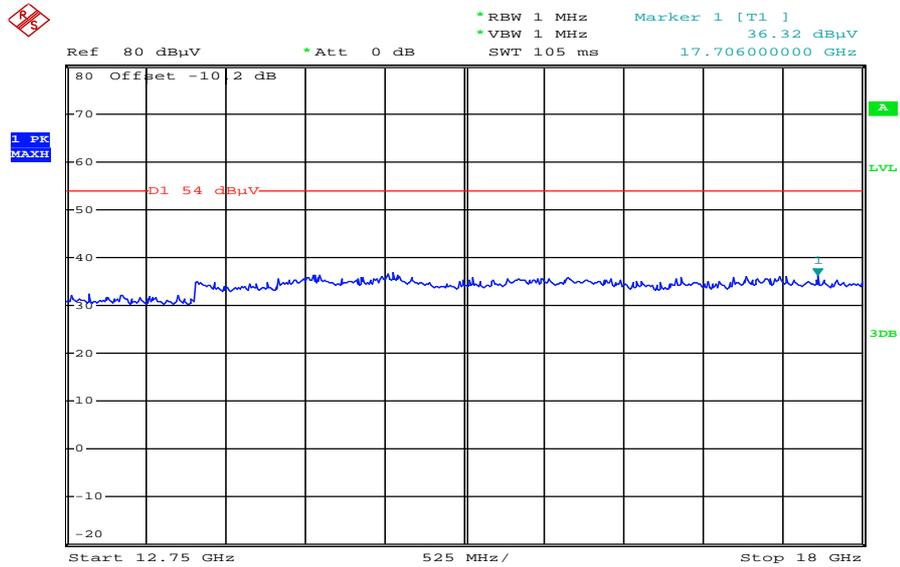
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.881150	9.9	1000.0	120.000	105.0	V	272.0	13.0	20.1	30.0	
37.403100	9.4	1000.0	120.000	170.0	V	10.0	13.2	20.6	30.0	
56.352750	9.2	1000.0	120.000	170.0	V	280.0	12.5	20.8	30.0	
715.221300	19.9	1000.0	120.000	98.0	H	272.0	22.9	16.1	36.0	
829.346700	21.2	1000.0	120.000	98.0	V	10.0	24.2	14.8	36.0	
922.410000	22.2	1000.0	120.000	170.0	H	175.0	25.3	13.8	36.0	

Plot 22: 1 GHz to 12.75 GHz, 5510 MHz, vertical & horizontal polarization

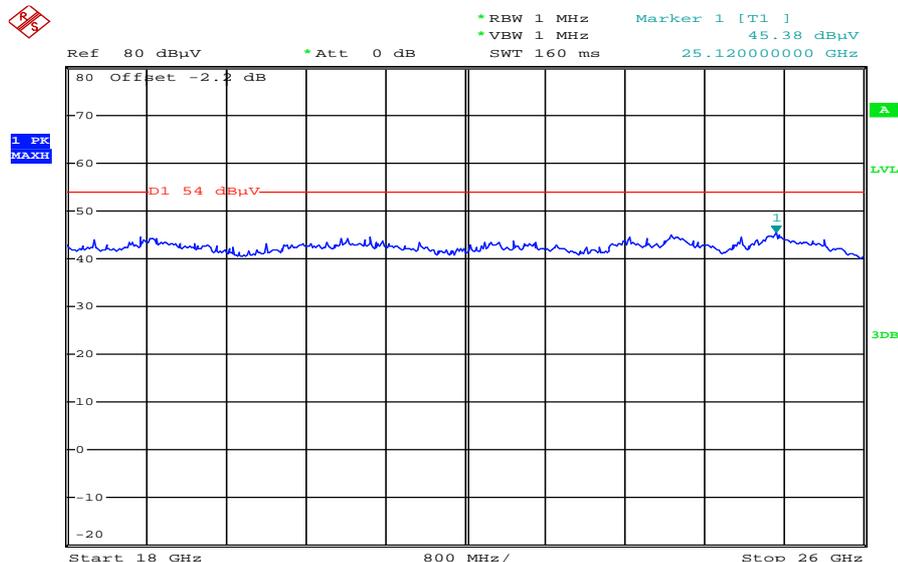


Plot 23: 12 GHz to 18 GHz, 5510 MHz, vertical & horizontal polarization



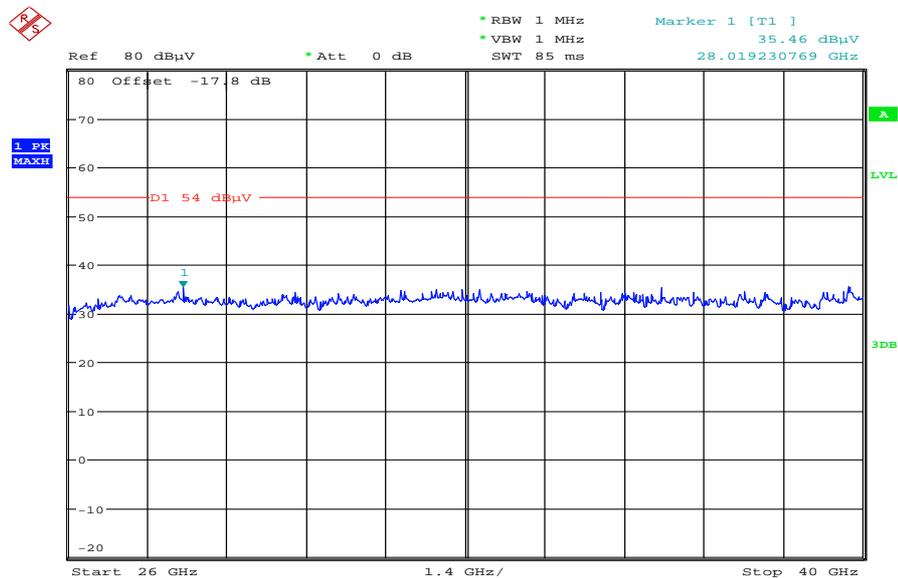
Date: 30.AUG.2012 13:48:24

Plot 24: 18 GHz to 26 GHz, 5510 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:17:14

Plot 25: 26 GHz to 40 GHz, 5510 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:50:49

Plot 26: 30 MHz to 1 GHz, 5590 MHz, vertical & horizontal polarization

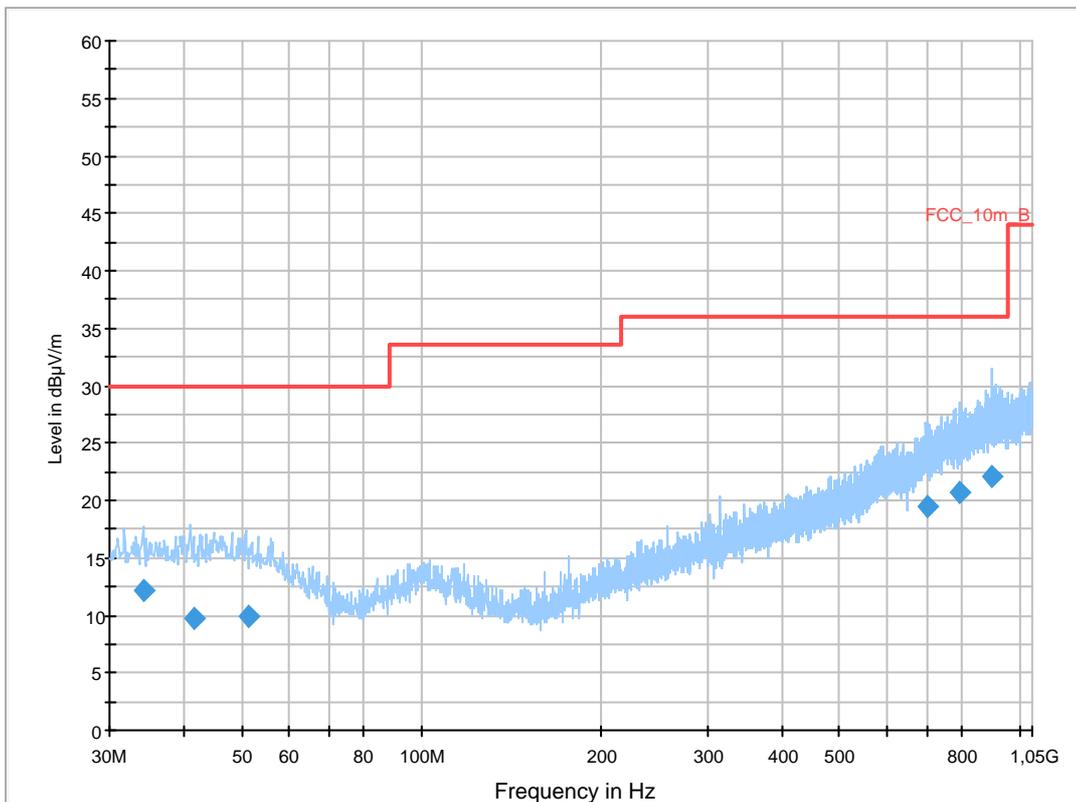
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 118 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

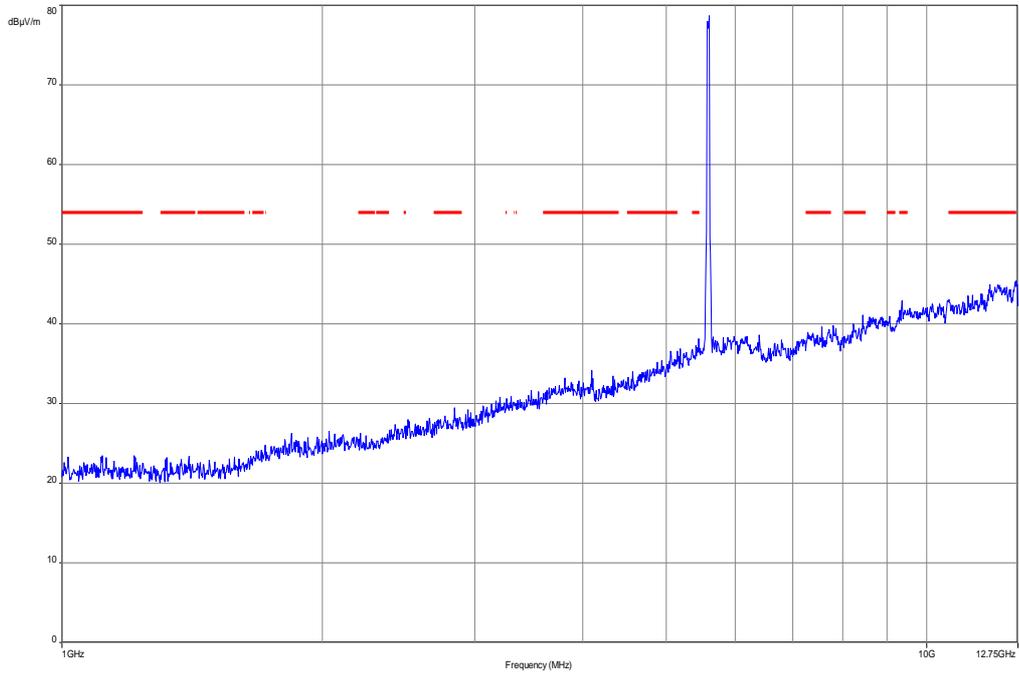
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



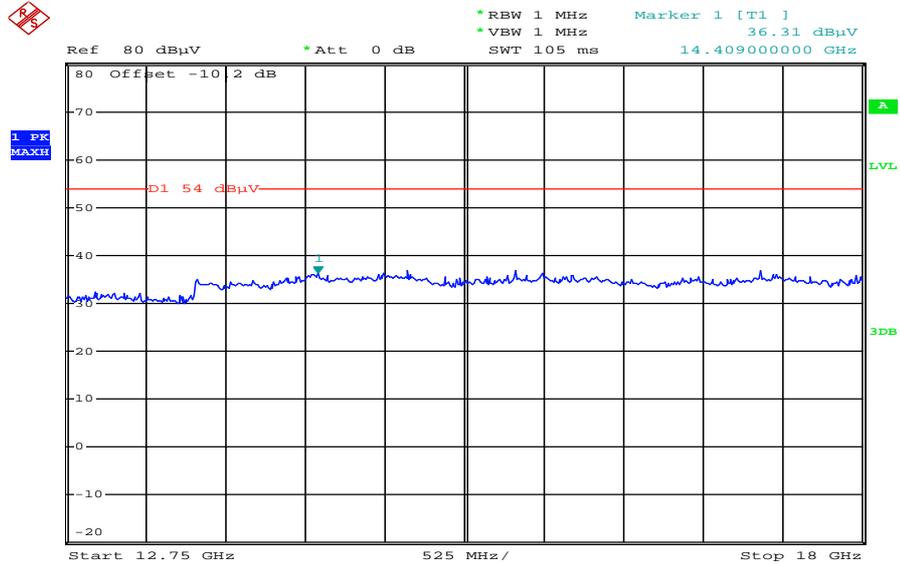
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.279800	12.2	1000.0	120.000	143.0	V	86.0	13.0	17.8	30.0	
41.506950	9.8	1000.0	120.000	170.0	V	80.0	13.4	20.2	30.0	
51.237600	9.9	1000.0	120.000	112.0	H	280.0	13.2	20.1	30.0	
699.541200	19.5	1000.0	120.000	170.0	H	85.0	22.5	16.5	36.0	
796.947300	20.6	1000.0	120.000	160.0	V	280.0	23.8	15.4	36.0	
897.797400	22.1	1000.0	120.000	170.0	V	88.0	25.2	13.9	36.0	

Plot 27: 1 GHz to 12.75 GHz, 5590 MHz, vertical & horizontal polarization

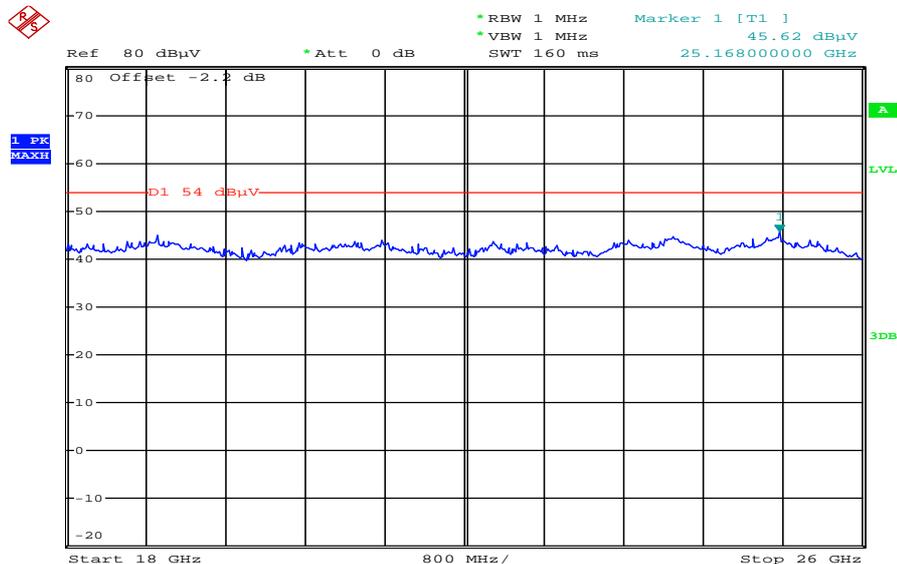


Plot 28: 12 GHz to 18 GHz, 5590 MHz, vertical & horizontal polarization



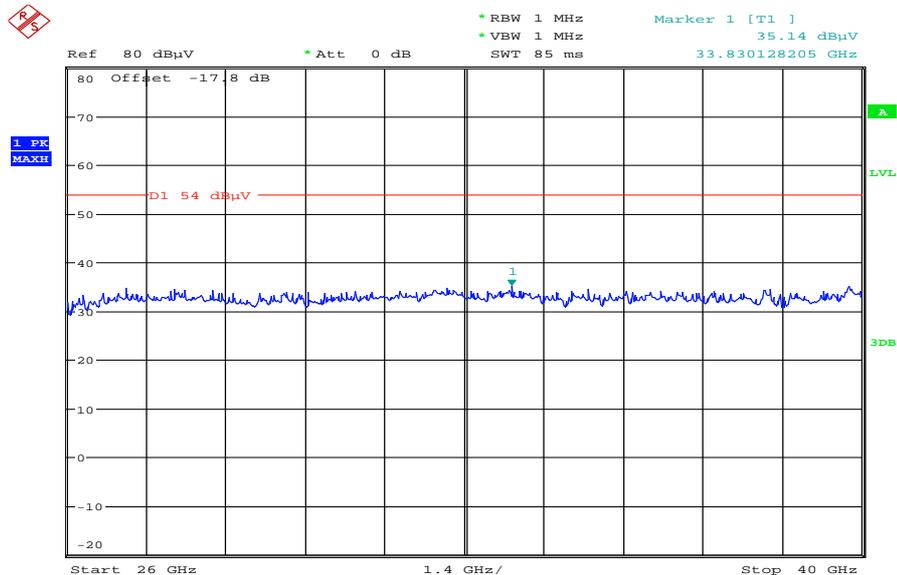
Date: 30.AUG.2012 13:50:00

Plot 29: 18 GHz to 26 GHz, 5590 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:18:37

Plot 30: 26 GHz to 40 GHz, 5590 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:51:54

Plot 31: 30 MHz to 1 GHz, 5670 MHz, vertical & horizontal polarization

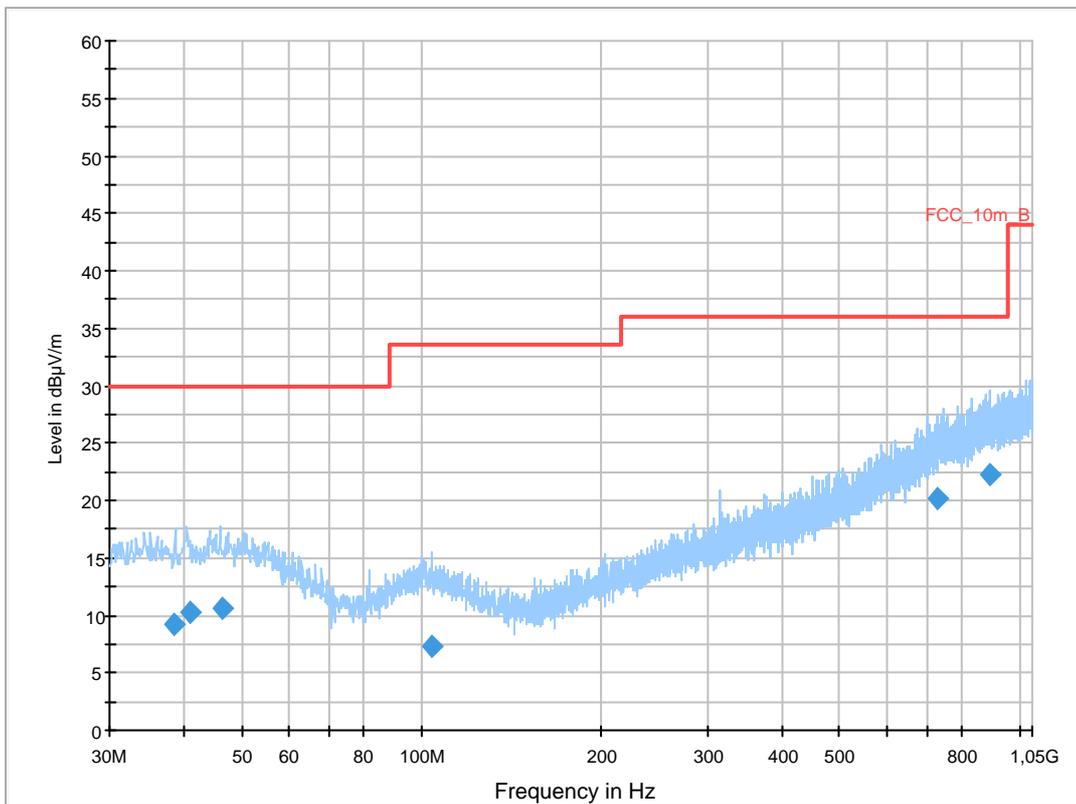
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J9R
 Test Description: FCC part 15 C class B @ 10 m
 Operating Conditions: TX WLAN n-mode HT40 TX ch 134 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

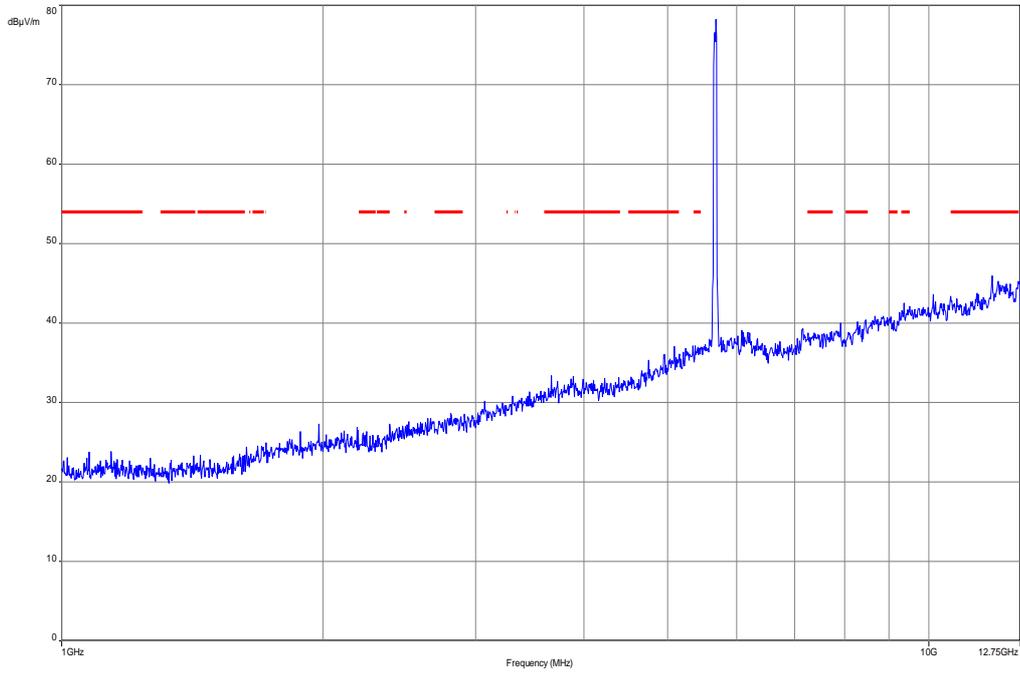
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



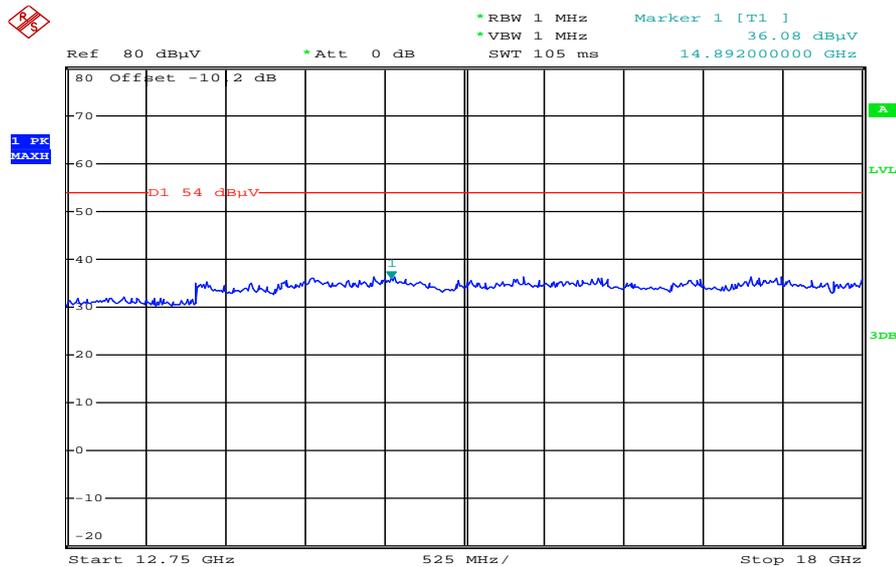
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
38.453700	9.2	1000.0	120.000	170.0	V	180.0	13.3	20.8	30.0	
40.808100	10.2	1000.0	120.000	170.0	H	280.0	13.4	19.8	30.0	
46.461000	10.7	1000.0	120.000	98.0	V	280.0	13.3	19.3	30.0	
103.532100	7.3	1000.0	120.000	98.0	V	190.0	11.6	26.2	33.5	
727.304700	20.1	1000.0	120.000	170.0	H	92.0	23.1	15.9	36.0	
895.214550	22.2	1000.0	120.000	161.0	V	280.0	25.1	13.8	36.0	

Plot 32: 1 GHz to 12.75 GHz, 5670 MHz, vertical & horizontal polarization

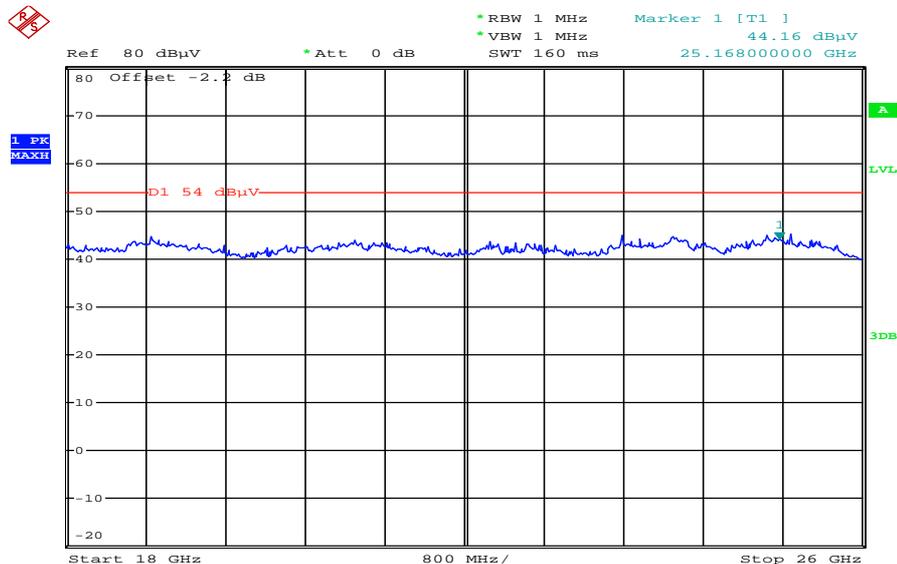


Plot 33: 12 GHz to 18 GHz, 5670 MHz, vertical & horizontal polarization



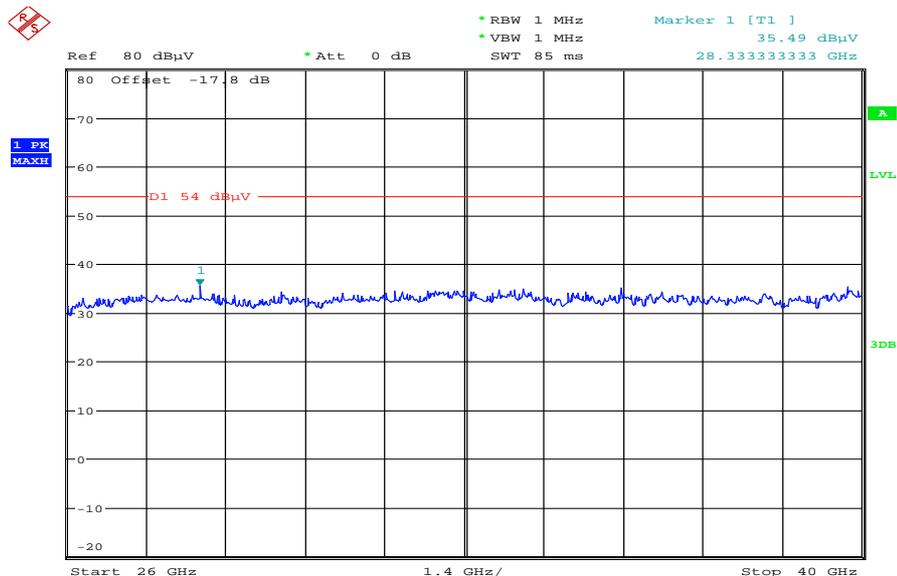
Date: 30.AUG.2012 13:51:30

Plot 34: 18 GHz to 26 GHz, 5670 MHz, vertical & horizontal polarization



Date: 31.AUG.2012 10:20:21

Plot 35: 26 GHz to 40 GHz, 5670 MHz, vertical & horizontal polarization



Date: 3.SEP.2012 10:52:59

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 (dB μ V/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Results:

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

Result: Passed

Plots: RX / Idle – mode

Plot 3: 30 MHz to 1 GHz, vertical & horizontal polarization

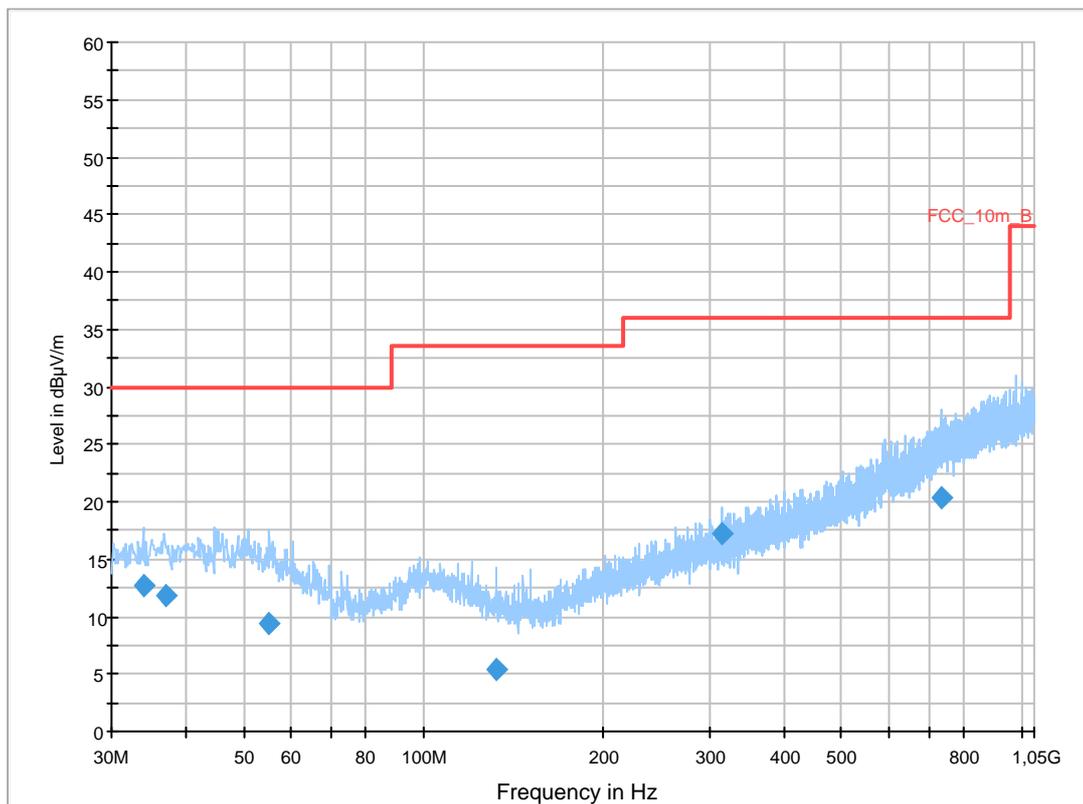
Common Information

EUT: PM-0070-BV
 Serial Number: CB5A1K8J5S
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: TX WLAN RX + charging
 Operator Name: Wolsdorfer
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

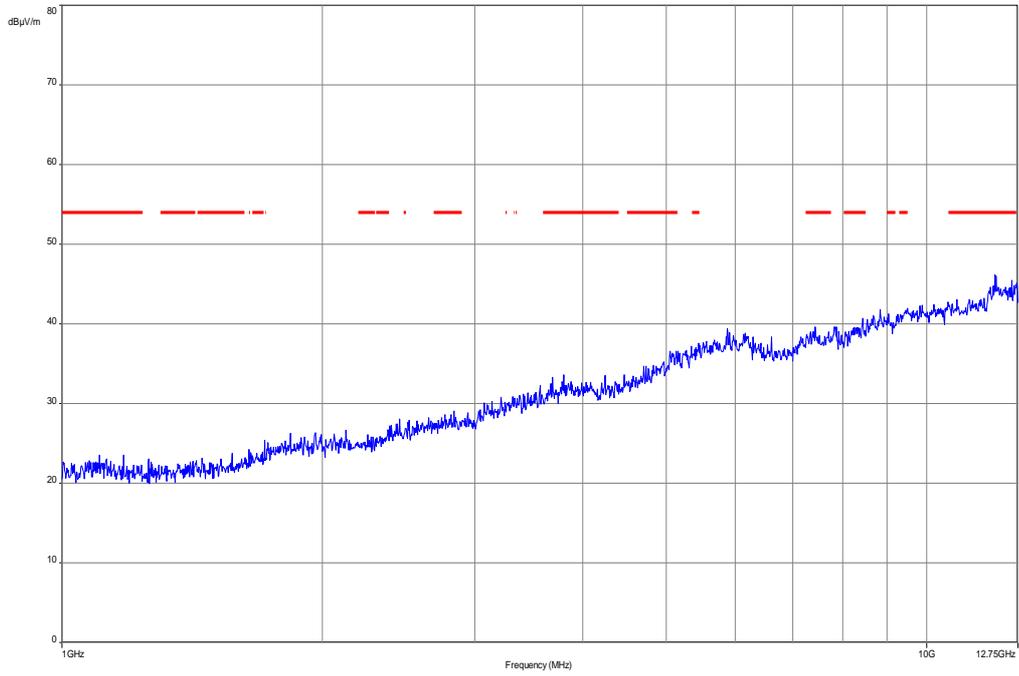
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



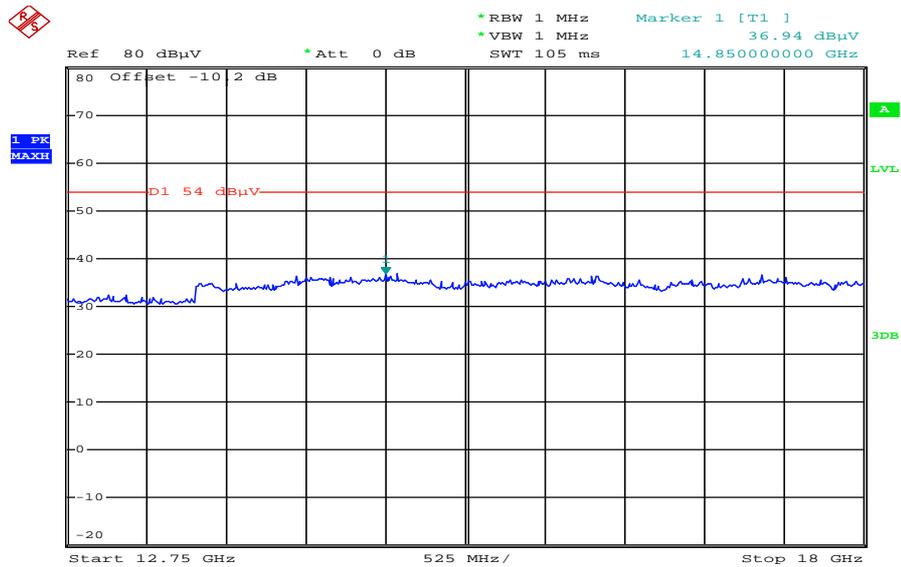
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.005900	12.8	1000.0	120.000	98.0	V	92.0	12.9	17.2	30.0	
37.012500	11.9	1000.0	120.000	133.0	V	87.0	13.2	18.1	30.0	
55.154100	9.3	1000.0	120.000	170.0	V	10.0	12.8	20.7	30.0	
132.244950	5.4	1000.0	120.000	163.0	H	280.0	9.2	28.1	33.5	
314.998500	17.3	1000.0	120.000	105.0	V	81.0	15.0	18.7	36.0	
732.189600	20.4	1000.0	120.000	170.0	H	90.0	23.3	15.6	36.0	

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

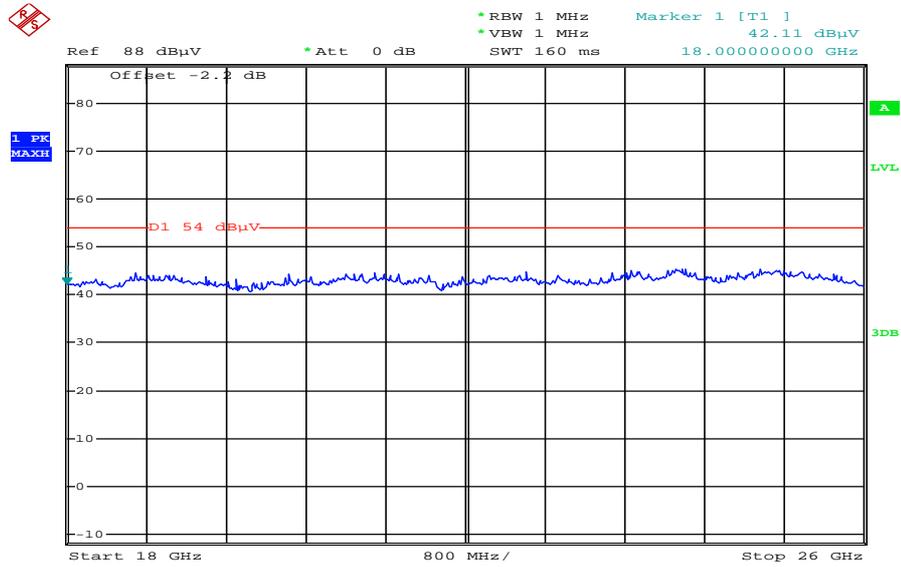


Plot 3: 12 GHz to 18 GHz, vertical & horizontal polarization



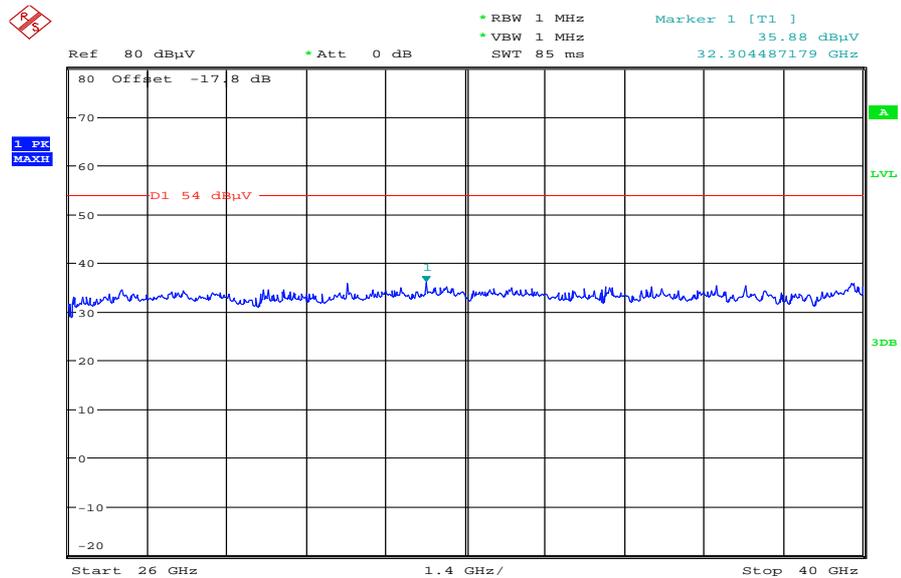
Date: 30.AUG.2012 13:56:28

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



Date: 30.AUG.2012 14:11:56

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



Date: 3.SEP.2012 08:25:06

9.11 Spurious emissions radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode and receive mode below 30 MHz. The EUT is set first to middle channel. This measurement is representative for all channels and modes. If critical peaks are found the lowest channel and the highest channel will be measured too. Then the EUT is set to receive or idle mode. 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 (dB μ V/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

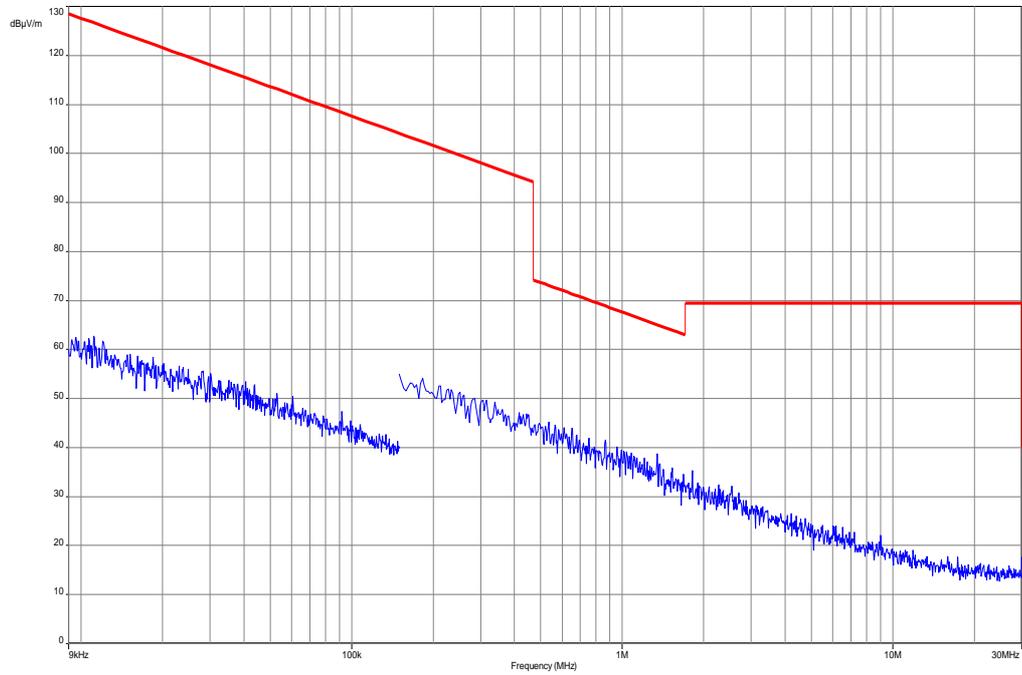
Results:

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

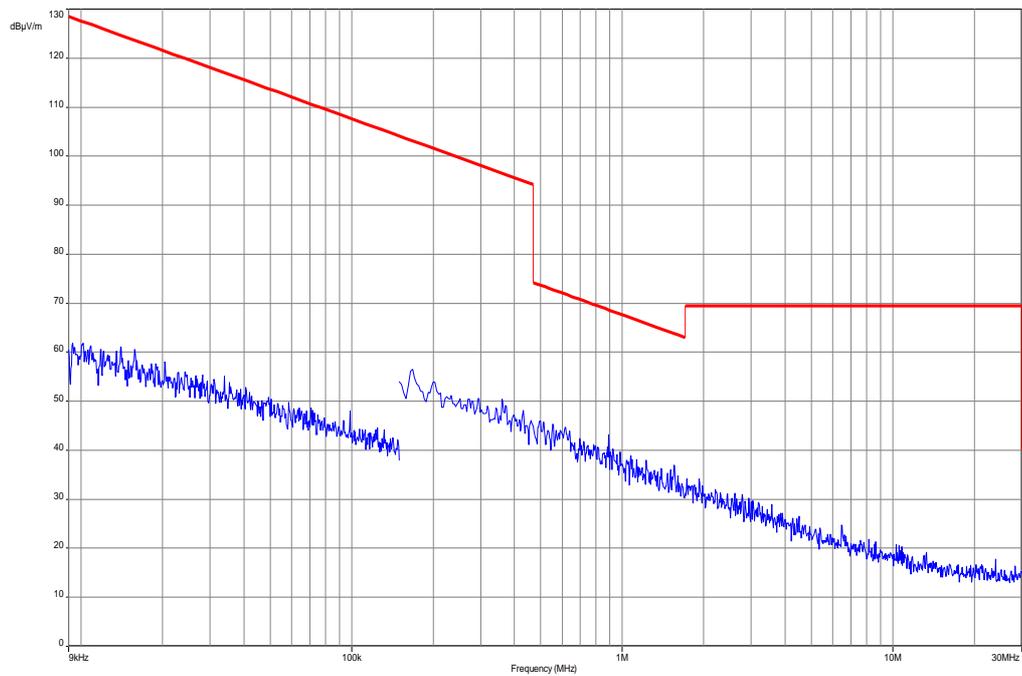
Result: Passed

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 middle channel. If critical peaks are found the lowest channel and the highest channel will be measured too. Both power lines, phase and neutral line, are measured. Found peaks are remeasured with average and quasi peak detection to show compliance to the limits.

Measurement:

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

Limits:

TX Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dB μ V/m)	Average (dB μ 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

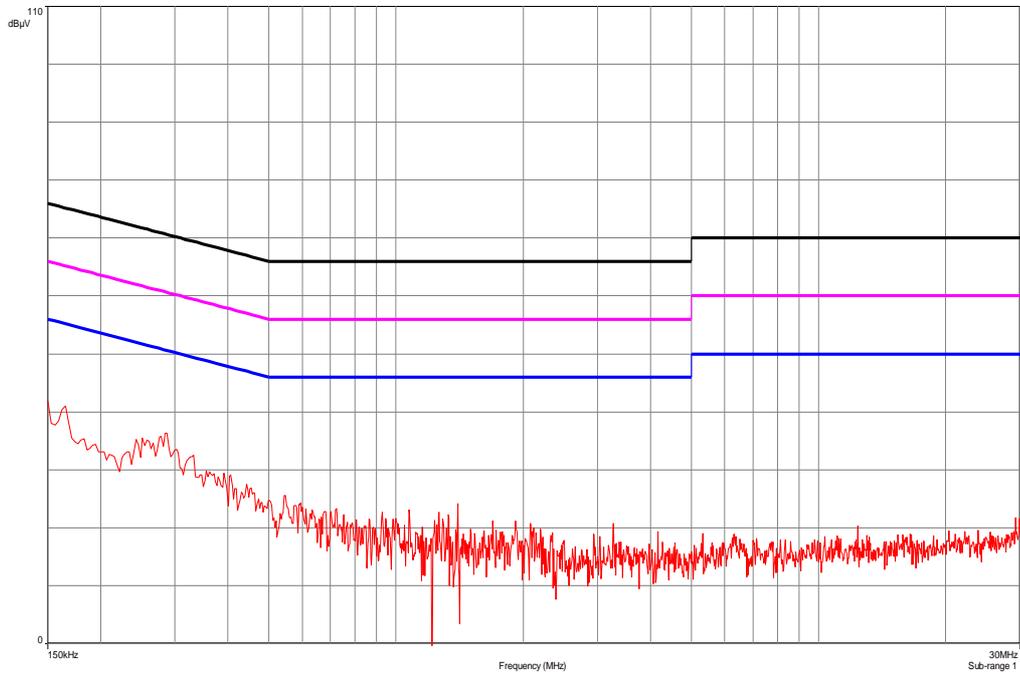
Results:

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

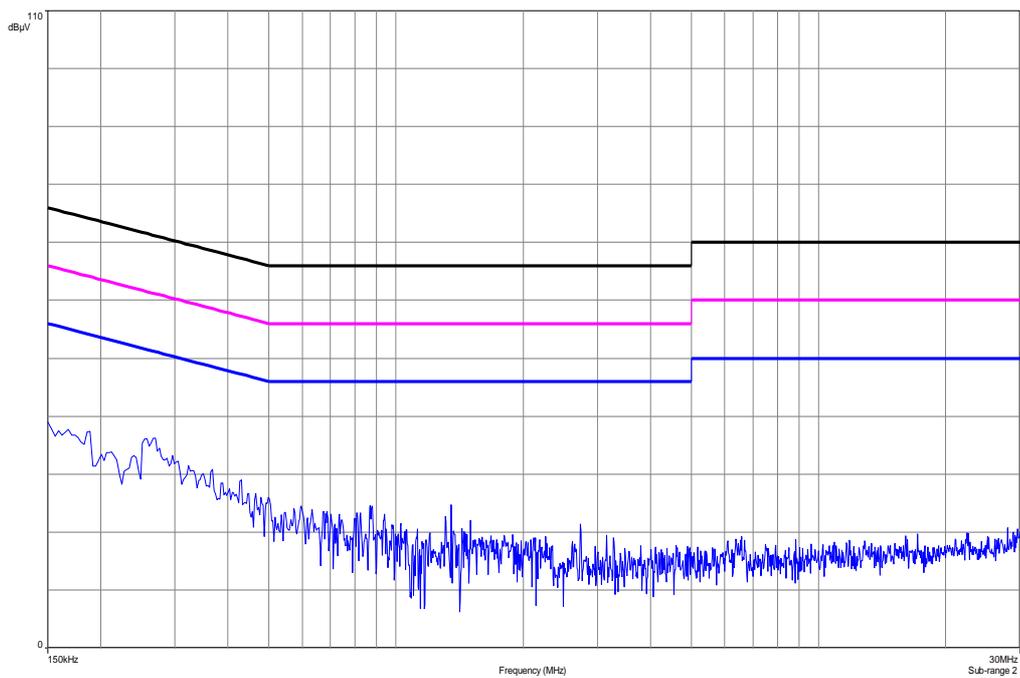
Result: Passed

Plots:

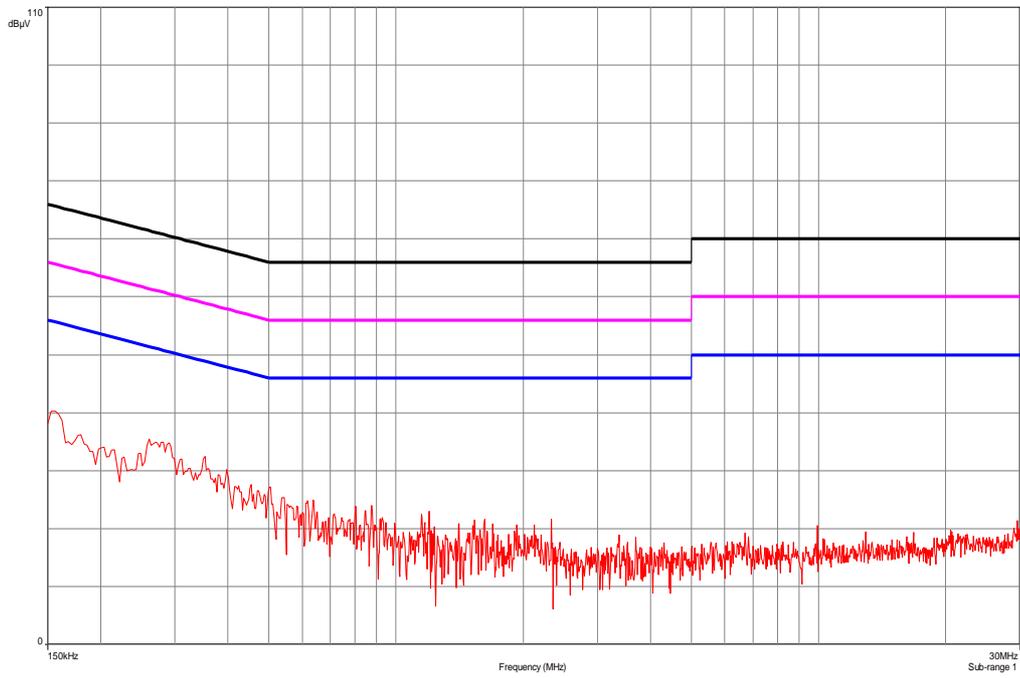
Plot 1: 9 kHz to 30 MHz / phase Line, TX mode



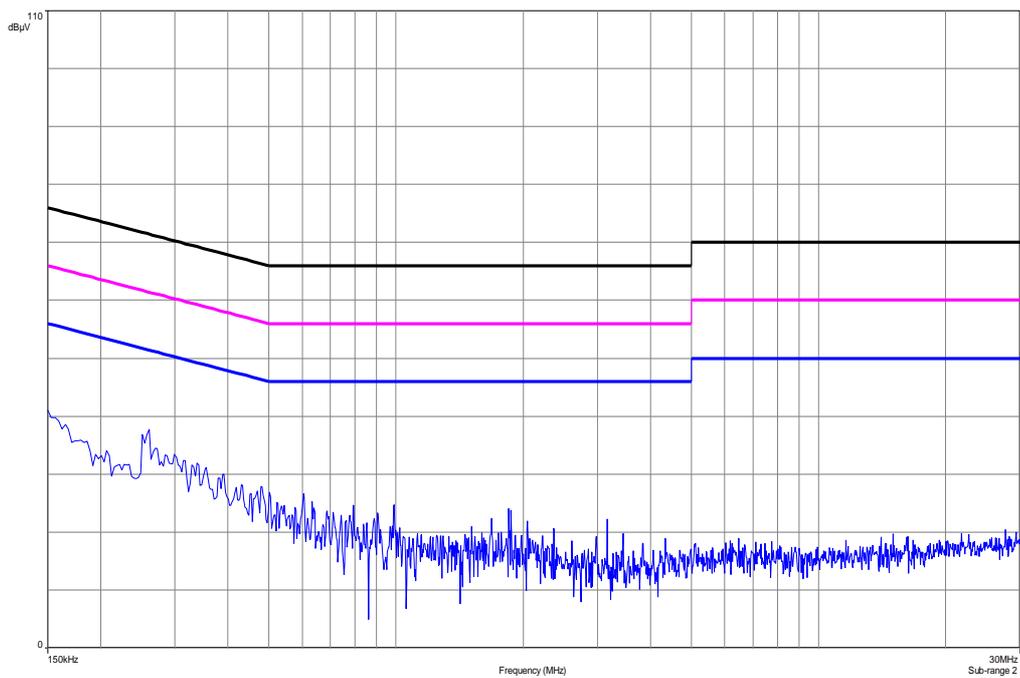
Plot 2: 9 kHz to 30 MHz / neutral Line, TX mode



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 & Spieß	B5981; 5D1081;B597 9	300000210	ne		
4	n. a.	EMI Test Receiver	ESCI 1166.5950. 03	R&S	100083	300003312	k	04.01.2012	04.01.2013
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	vIKI!	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	ev		
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	vIKI!	14.10.2011	14.10.2014
23	n. a.	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologi es	MY51210197	300004405	k	19.12.2011	19.12.2012
24	CR 79	Std. Gain Horn Antenna 26.5-	V637	Narda	7911	300001751	ne		

		40.0 GHz							
25	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
26	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000787	ne		
27	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300002442	ne		
28	n. a.	Broadband Low Noise Amplifier 18-50 GHz	CBL19503 070-XX	CERNEX	19338	300004273	ne		
29	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve		
30	n. a.	Spectrum Analyzer 9kHz to 30GHz - 140..+30dBm	FSP30	R&S	100886	300003575	k	22.08.2012	22.08.2014
31	n. a.	DC Power Supply 0 – 32V	1108-32	Heiden	001802	300001383	Ve	23.06.2010	23.06.2013

Agenda: Kind of Calibration

- | | | | |
|------|--|-----|--|
| k | calibration / calibrated | EK | limited calibration |
| ne | not required (k, ev, izw, zw not required) | zw | cyclical maintenance (external cyclical maintenance) |
| ev | periodic self verification | izw | internal cyclical maintenance |
| Ve | long-term stability recognized | g | blocked for accredited testing |
| vlk! | Attention: extended calibration interval | | |
| NK! | Attention: not calibrated | *) | next calibration ordered / currently in progress |

11 Observations

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

Annex D Document history

Version	Applied changes	Date of release
1.0	Initial release	2012-09-04
-A	Editorial changes	2012-09-12

Annex E Further information**Glossary**

AVG	-	Average
DUT	-	Device under test
EMC	-	Electromagnetic Compatibility
EN	-	European Standard
EUT	-	Equipment under test
ETSI	-	European Telecommunications Standard Institute
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	Not applicable
PP	-	Positive peak
QP	-	Quasi peak
S/N	-	Serial number
SW	-	Software

Annex F Accreditation Certificate



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