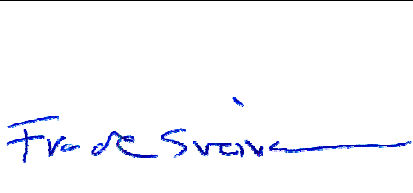


Test Report

Product	WLAN in UPCS Base station
Name and address of the applicant	Panasonic Corporation of North America
Name and address of the manufacturer	Panasonic System Networks Co., Ltd. 1-62, 4-chome, Minoshima, Hakata-ku Fukuoka 812-8531, Japan
Model	KX-PRW120
Rating	/
Trademark	Panasonic
Serial number	/
Additional information	/
Tested according to	FCC Part 15.247 Frequency Hopping Transmitters / Digital Transmission Systems Industry Canada RSS-210, Issue 8 Low Power Licence-Exempt Radiocommunications Devices
Order number	243524
Tested in period	2013.08.08 to 2013.09.06
Issue date	2013.10.02
Name and address of the testing laboratory	 Instituttveien 6 Kjeller, Norway FCC No: 994405 IC OATS: 2040D-1 TEL: (+47) 22 96 03 30 FAX: (+47) 22 96 05 50
 Prepared by [Frode Sveinsen]  Approved by [Jan G Eriksen]	
This report shall not be reproduced except in full without the written approval of Nemko. Opinions and interpretations expressed within this report are not part of the current accreditation. This report was originally distributed electronically with digital signatures. For more information contact Nemko.	

CONTENTS

1	INFORMATION	3
1.1	Test Item.....	3
1.2	Test Environment	4
1.3	Test Engineer(s)	4
1.4	Test Equipment	4
2	TEST REPORT SUMMARY	5
2.1	General.....	5
2.2	Test Summary	6
2.3	Description of modification for Modification Filing	6
2.4	Comments	6
2.5	Family List Rational	6
3	TEST RESULTS.....	7
3.1	Power Line Conducted Emissions.....	7
3.2	Occupied Bandwidth (99% BW).....	9
3.3	Minimum 6 dB Bandwidth (DTS Bandwidth).....	16
3.4	Peak Power Output	23
3.5	Spurious Emissions (Radiated)	42
3.6	Power Spectral Density (PSD).....	84
4	LIST OF TEST EQUIPMENT	94
5	BLOCK DIAGRAM.....	95
5.1	Power Line Conducted Emission.....	95
5.2	Test Site Radiated Emission	95

1 INFORMATION

1.1 Test Item

Name :	Panasonic
FCC ID :	ACJ96NKX-PRW120
Industry Canada ID :	216A-KXPRW120
Model/version :	KX-PRW120
Serial number :	/
Hardware identity and/or version:	/
Software identity and/or version :	/
Frequency Range :	2412 – 2462 MHz
Number of Channels :	11
Operating Modes :	IEEE 802.11 b/g/n (20MHz BW only)
Type of Modulation :	Digital (DSSS, OFDM)
User Frequency Adjustment :	None
Conducted Output Power :	78 mW (Peak)
Type of Power Supply :	AC Adaptor PNLV236(UC)
Antenna Connector :	None
Number of Antennas :	1
Antenna Diversity Supported :	No

Description of Test Item

The EUT is a UPCS Base Station with an integrated WLAN Base Station.

Exposure Evaluation

The EUT is designed to be fixed to a wall etc. and the user manual contains text that it shall be mounted with a separation distance of at least 20 cm from any humans. For the purposes of exposure evaluation this EUT is a mobile or fixed device. MPE Calculation at 20 cm satisfying FCC requirements is submitted as a separate document.

The EUT is exempted from RF Exposure Evaluation to Industry Canada requirements since the output power complies with the power levels of section 2.5.2 of RSS-102 Issue 4.

1.2 Test Environment

1.2.1 Normal test condition

Temperature:	21 - 23 °C
Relative humidity:	40 - 54 %
Normal test voltage:	120 V AC

The values are the limit registered during the test period.

1.3 Test Engineer(s)

Frode Sveinsen
Thomas Dangle

1.4 Test Equipment

See list of test equipment in clause 6.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

The tests were conducted for the purpose of demonstrating compliance with FCC CFR 47 Part 15, paragraph 15.247 and Industry Canada RSS-210 Issue 8.

Radiated tests were conducted in accordance with ANSI C63.4-2003 and KDB 558074 D01 DTS Measurement Guidance v03. The radiated tests were made in a semi-anechoic chamber at measuring distances of 3m and 10m.

A description of the test facility is on file with the FCC and Industry Canada.

☒ New Submission

☒ Production Unit

☐ Class II Permissive Change

☐ Pre-production Unit

DTS Equipment Code

☐ Family Listing



THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

Nemko Group authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only. Any reproduction of parts of this report requires approval in writing from Nemko Group.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Group accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this report.

2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-210 Issue 8 reference	Result
Supply Voltage Variations	15.31(e)	8 (RSS-GEN)	Complies
Number of Operating Frequencies	15.31(m)	A8.1	Complies
Antenna Requirement	15.203	7.1.4 (RSS-GEN)	Complies
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2.2 (RSS-GEN)	Complies
Channel Separation	15.247(a)(1)	A8.1	N/A
Pseudorandom Hopping Algorithm	15.247(a)(1)	A8.1	N/A
Time of Occupancy	15.247(a)(1)(iii)	A8.1	N/A
Occupied Bandwidth	N/A	A8.1	No requirement
Minimum 6 dB Bandwidth	15.247(a)(2)	A8.2	Complies
Peak Power Output	15.247(b)	A8.4	Complies
Power Spectral Density	15.247(d)	A8.2	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	A8.5	Complies ¹
Spurious Emissions (Radiated)	15.247(c) 15.109(a) 15.209(a)	A8.5	Complies

¹ The tested equipment has integrated antennas only.

2.3 Description of modification for Modification Filing

Not applicable.

2.4 Comments

The measurements were done with the EUT powered by 120 V AC. It was checked that power variations between 85% and 115% did not have any influence on the measurements.

All ports were populated during spurious emission measurements.

2.5 Family List Rational

Not Applicable.

3 TEST RESULTS

3.1 Power Line Conducted Emissions

Para. No.: 15.207 (a)

Test Performed By: Thomas Dangle	Date of Test: 23-Aug-2013
----------------------------------	---------------------------

Measurement procedure: ANSI C63.4-2009 using 50 μ H/50 ohms LISN.

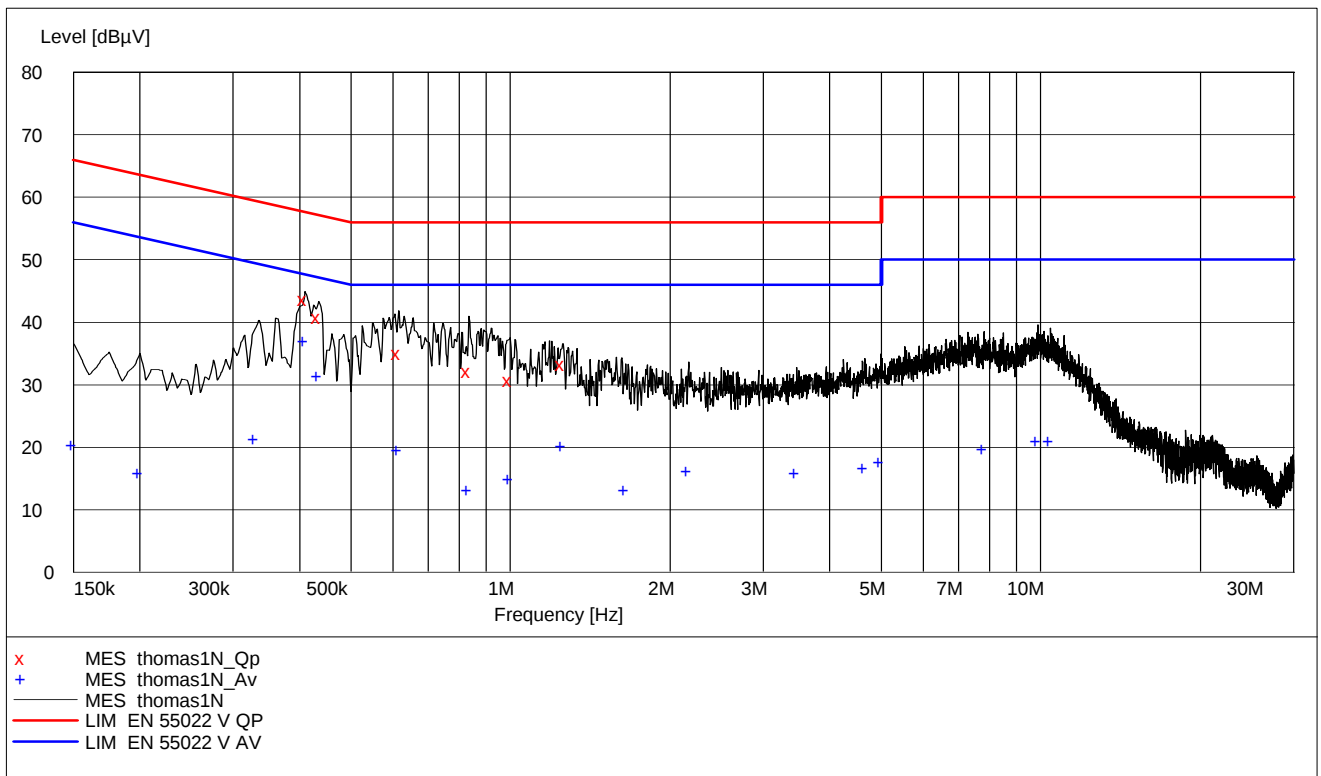
Test Results: Complies

Measurement Data: See attached graph, (Peak detector).

Highest measured value (L1 and N):

AC Adaptor PNLV236(UC), 120V 60Hz:

Frequency [MHz]	Level [dBuV]	Af [dB]	Limit [dBuV]	Margin [dB]	Det	Position	Verdict [Pass/Fail]
0.410000	43.80	10.20	57.60	13.80	QP	L1	Pass
0.435000	40.90	10.20	57.20	16.30	QP	L1	Pass
0.615000	35.10	10.20	56.00	20.90	QP	L1	Pass
0.835000	32.20	10.20	56.00	23.80	QP	L1	Pass
1.000000	30.70	10.20	56.00	25.30	QP	L1	Pass
1.255000	33.40	10.20	56.00	22.60	QP	L1	Pass
0.150000	20.30	10.10	56.00	35.70	AV	N	Pass
0.200000	15.80	10.10	53.60	37.80	AV	N	Pass
0.330000	21.30	10.20	49.50	28.20	AV	L1	Pass
0.410000	37.10	10.20	47.60	10.50	AV	L1	Pass
0.435000	31.40	10.20	47.20	15.80	AV	L1	Pass
0.615000	19.60	10.20	46.00	26.40	AV	L1	Pass
0.835000	13.10	10.20	46.00	32.90	AV	L1	Pass
1.000000	14.90	10.20	46.00	31.10	AV	L1	Pass
1.255000	20.20	10.20	46.00	25.80	AV	L1	Pass
1.650000	13.20	10.30	46.00	32.80	AV	L1	Pass
2.170000	16.20	10.30	46.00	29.80	AV	L1	Pass
3.470000	15.80	10.30	46.00	30.20	AV	L1	Pass
4.665000	16.60	10.40	46.00	29.40	AV	L1	Pass
4.990000	17.70	10.40	46.00	28.30	AV	L1	Pass
7.825000	19.70	10.50	50.00	30.30	AV	L1	Pass
9.870000	21.00	10.60	50.00	29.00	AV	L1	Pass
10.435000	21.00	10.60	50.00	29.00	AV	L1	Pass



AC Adaptor PNLV236(UC), 120V 60Hz

3.2 Occupied Bandwidth (99% BW)

Para. No.: 15.247 (a)(1)(iii)

Test Performed By: Frode Sveinsen	Date of Test: 13-Aug-2013
-----------------------------------	---------------------------

Test Results: Complies

Measurement Data: 11 RF channels in use

Modulation type and bitrate	Occupied Bandwidth / 99% BW (MHz)
	Ch 06, 2437 MHz
802.11b, 1 Mbps	14.9
802.11b, 11 Mbps	14.7
802.11g, 6 Mbps	16.5
802.11g, 54 Mbps	16.5
802.11n, MCS0	17.6
802.11n, MCS7	17.5

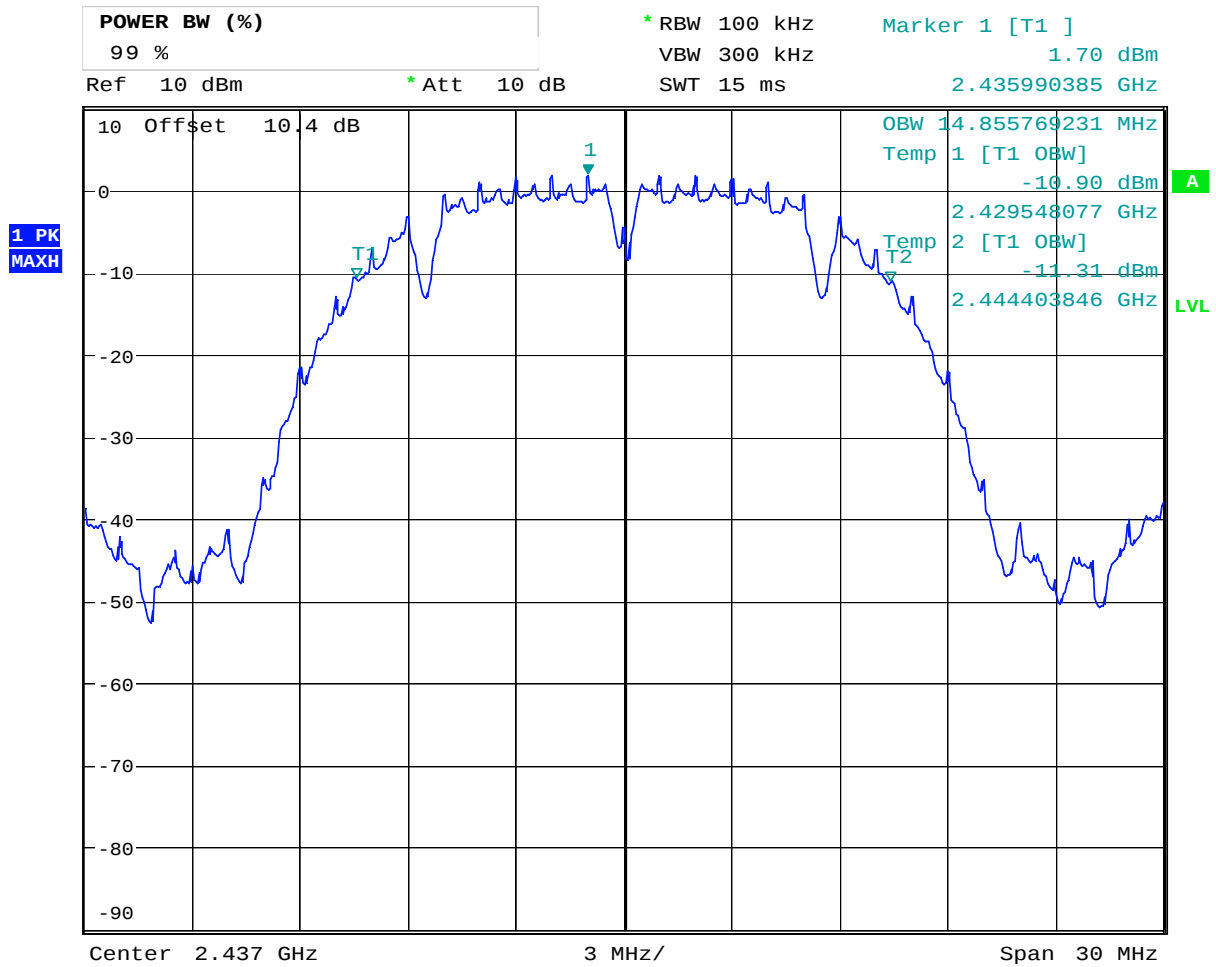
Occupied Bandwidth (99% BW) is reported for information only.

See attached graph.

Requirements:

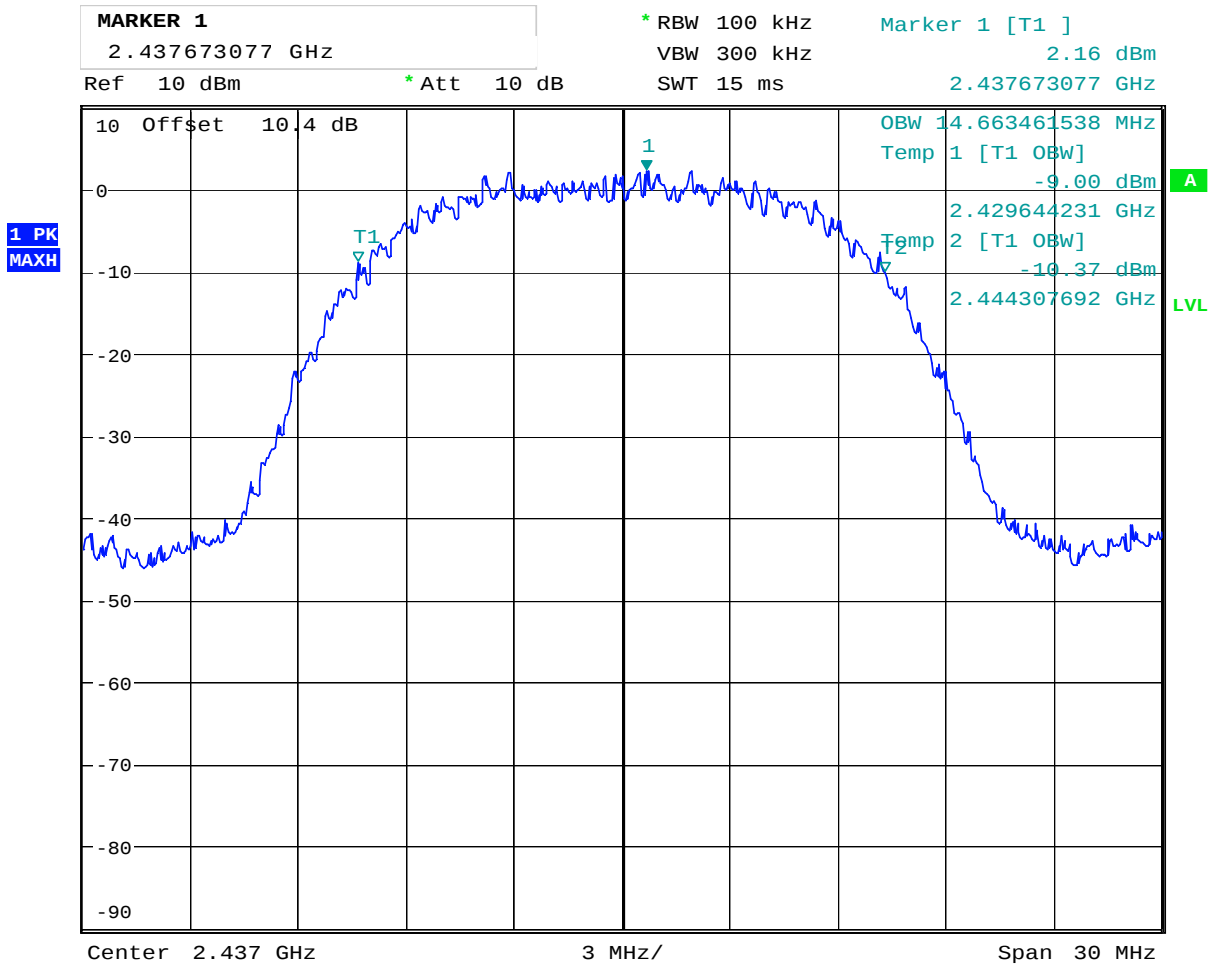
Frequency hopping systems in the 2400 - 2483.5 MHz band shall use at least 15 non-overlapping channels.
No requirements for bandwidth for this frequency band.

No requirements for Digital Transmission Systems.



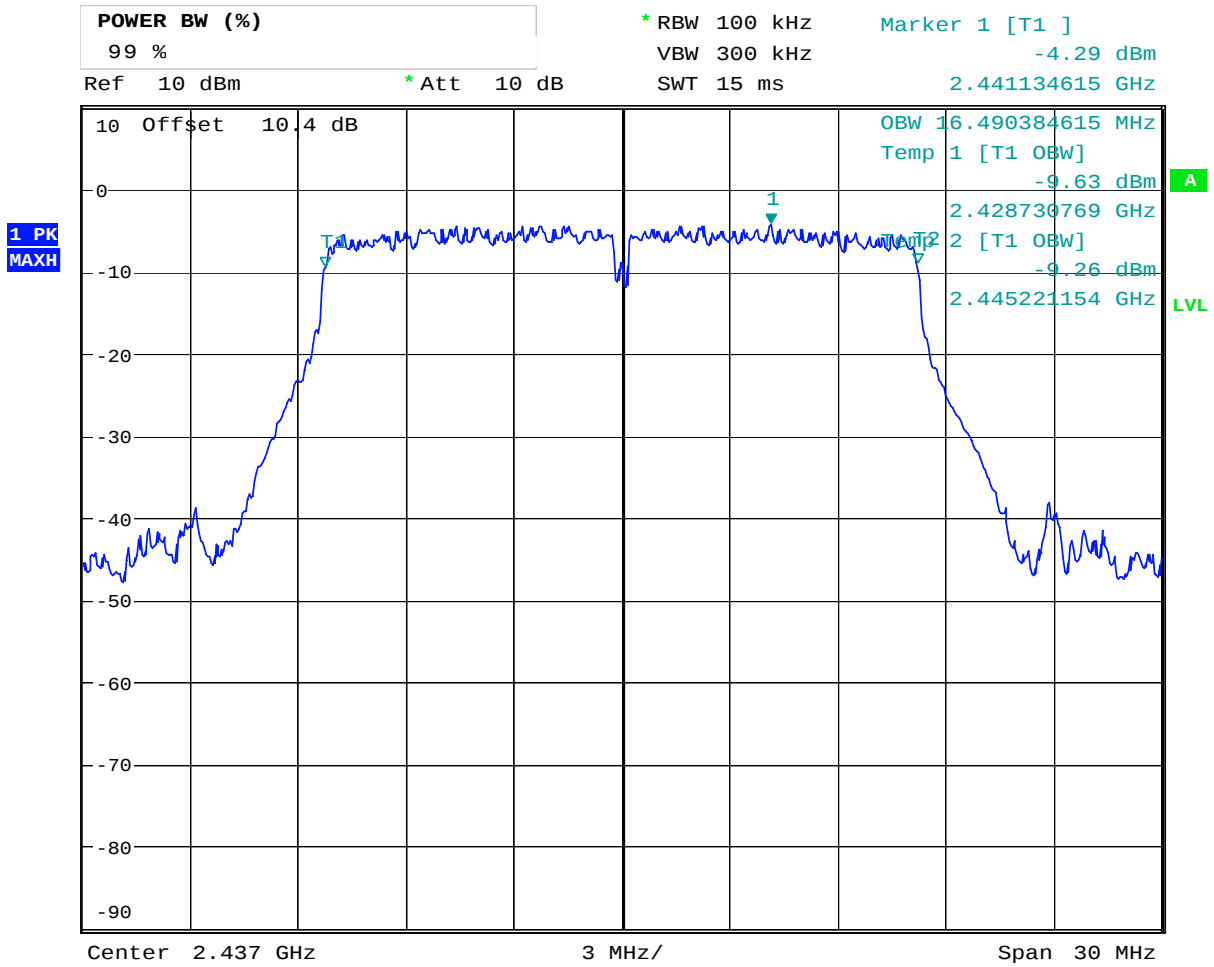
Date: 13.AUG.2013 10:23:47

Occupied Bandwidth, 2437 MHz, 802.11b, 1Mbps



Date: 13.AUG.2013 10:22:12

Occupied Bandwidth, 2437 MHz, 802.11b, 11Mbps

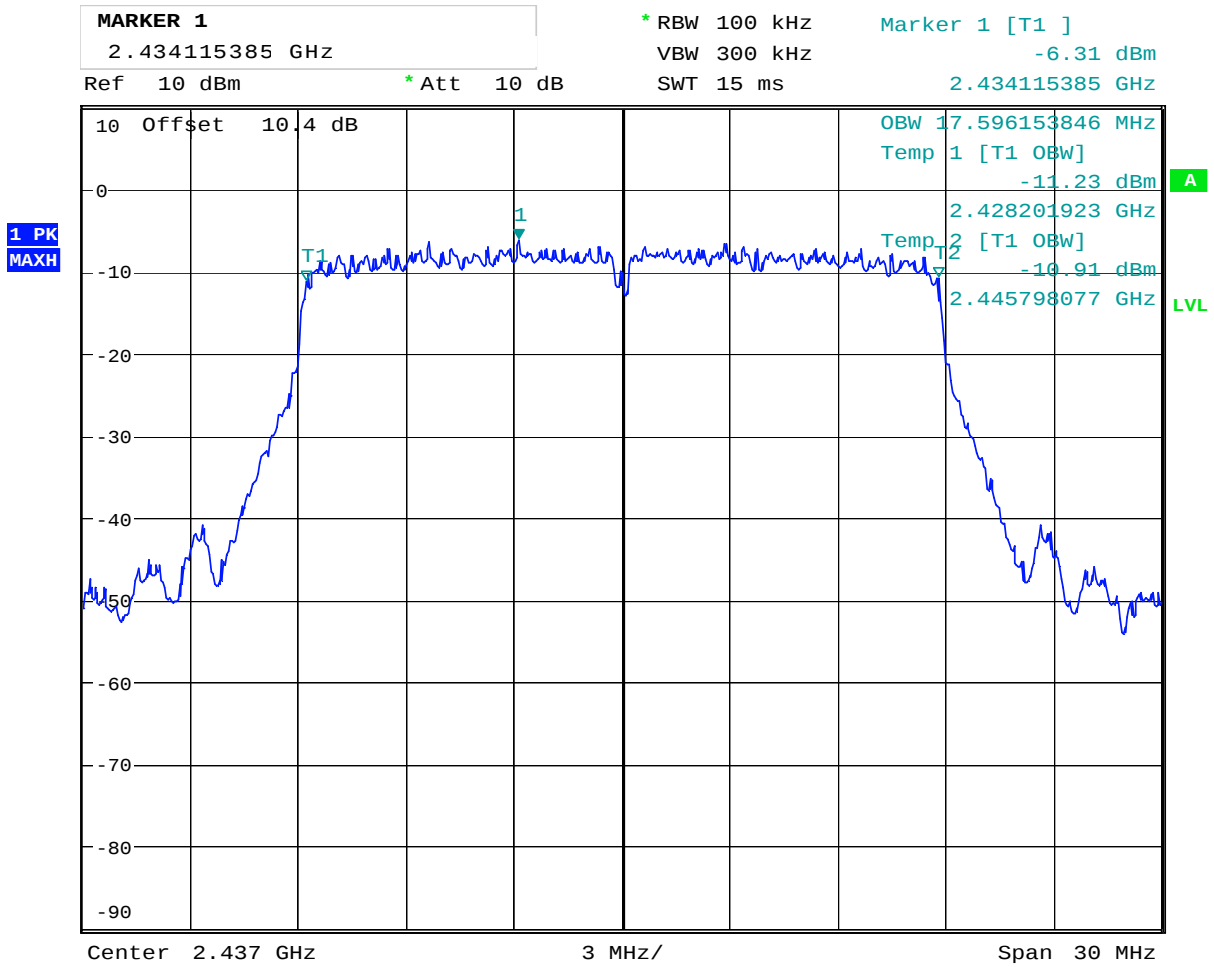


Date: 13.AUG.2013 10:25:44

Occupied Bandwidth, 2437 MHz, 802.11g, 6Mbps

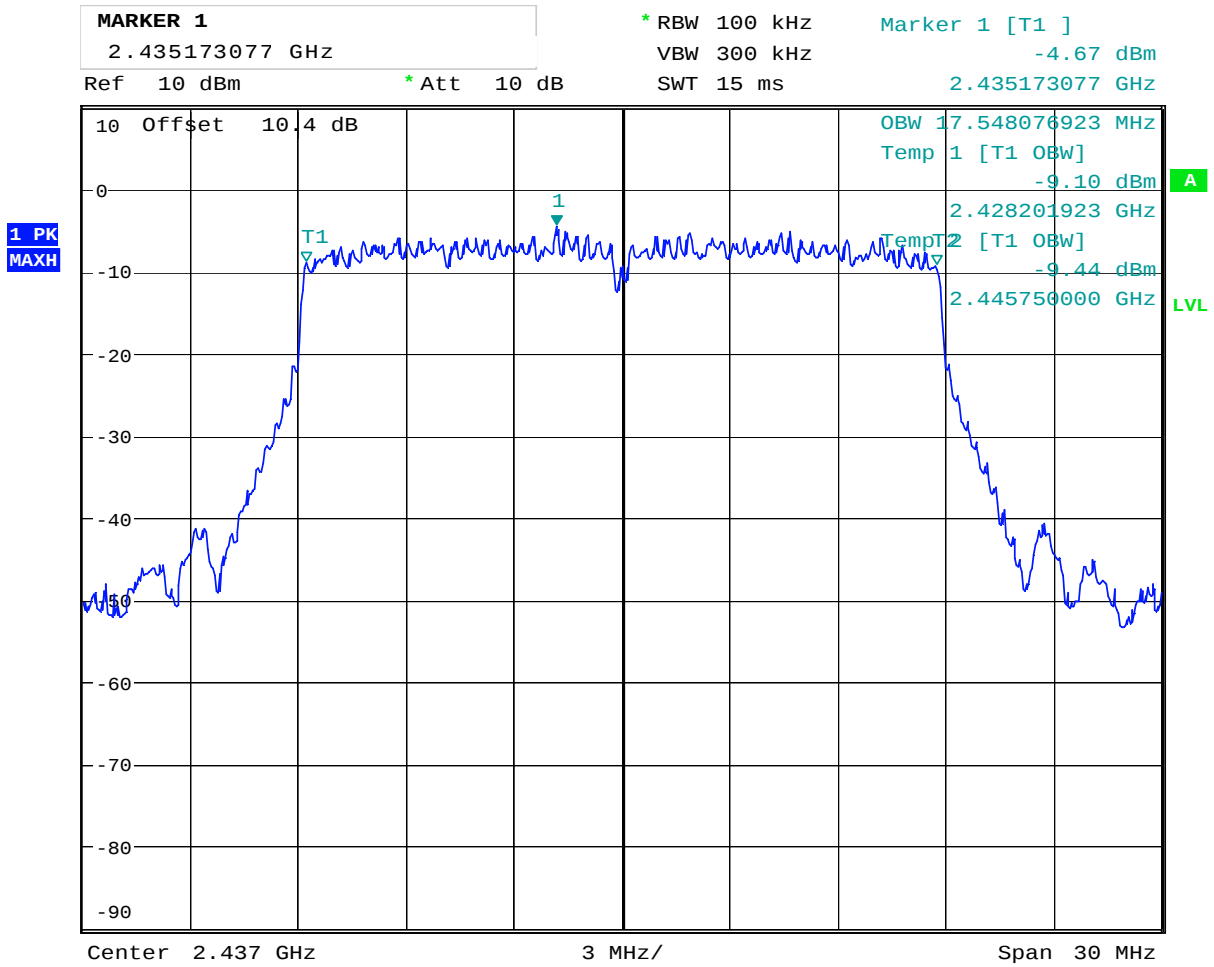


Occupied Bandwidth, 2437 MHz, 802.11g, 54Mbps



Date: 13.AUG.2013 10:29:26

Occupied Bandwidth, 2437 MHz, 802.11n, MCS0



Date: 13.AUG.2013 10:30:34

Occupied Bandwidth, 2437 MHz, 802.11n, MCS7

3.3 Minimum 6 dB Bandwidth (DTS Bandwidth)

Para. No.: 15.247 (a)(2)

Test Performed By: Frode Sveinsen	Date of Test: 13-Aug-2013
-----------------------------------	---------------------------

Test Results: Complies

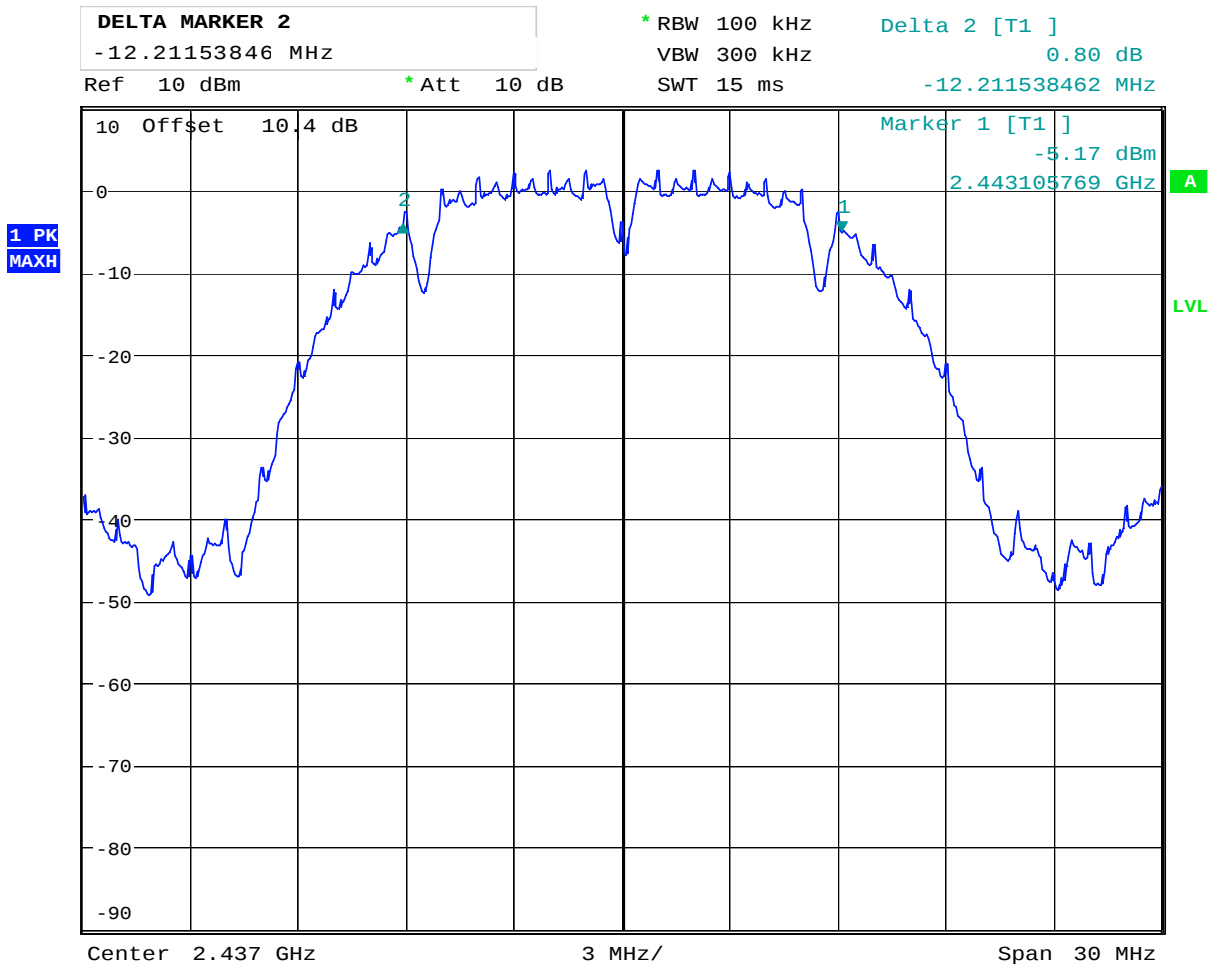
Measurement Data:

Modulation type and bitrate	Measured DTS Bandwidth (MHz)
	Ch 6, 2437 MHz
802.11b, 1 Mbps	12.2
802.11b, 11 Mbps	11.6
802.11g, 6 Mbps	16.7
802.11g, 54 Mbps	16.6
802.11n, MCS0	17.7
802.11n, MCS7	17.7

Power supply variation within 85 % to 115% of nominal value has no influence on measured value.

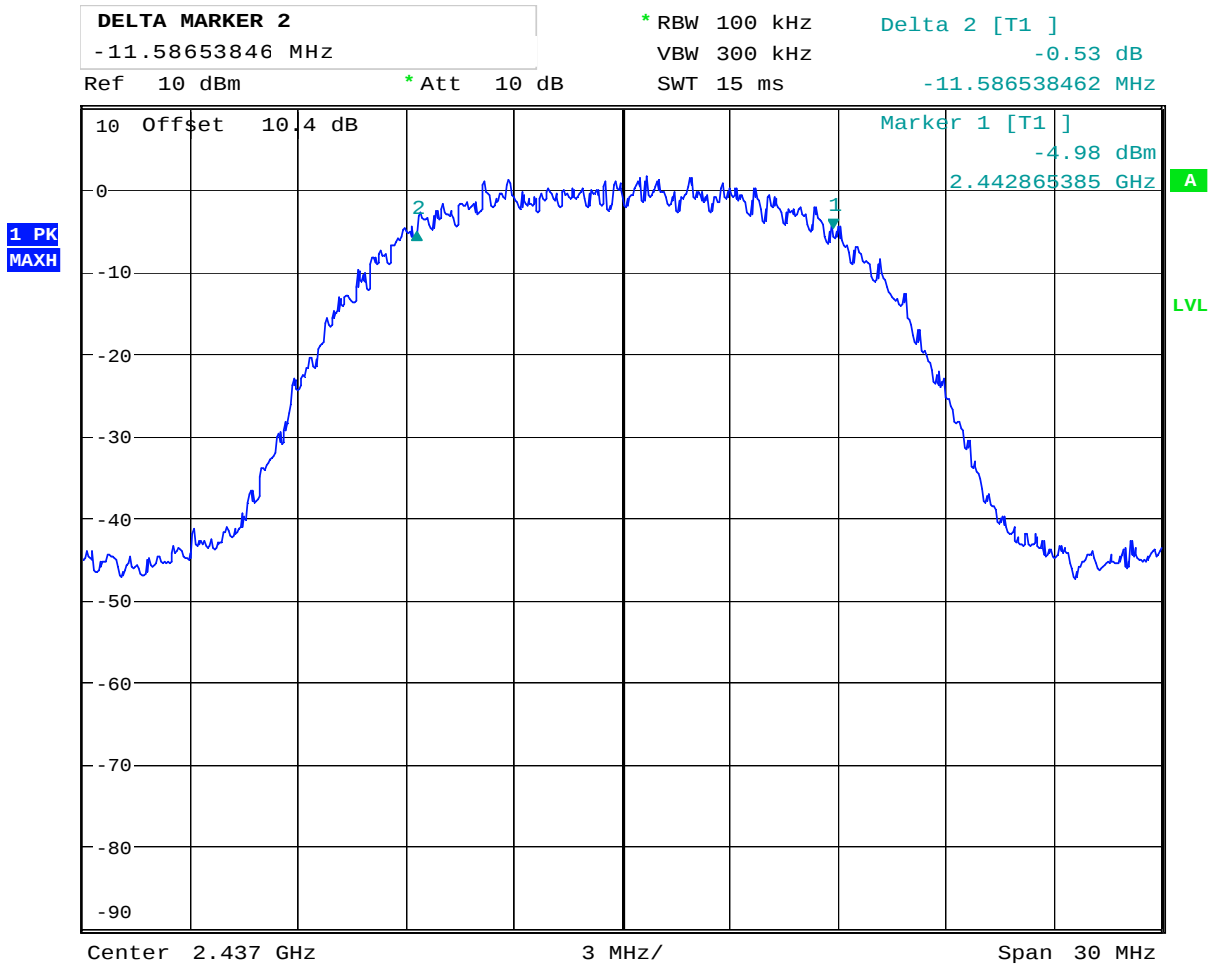
Requirements:

For Digital Transmission Systems in the 2400-2483.5 MHz band the minimum 6 dB bandwidth shall be at least 500 KHz.



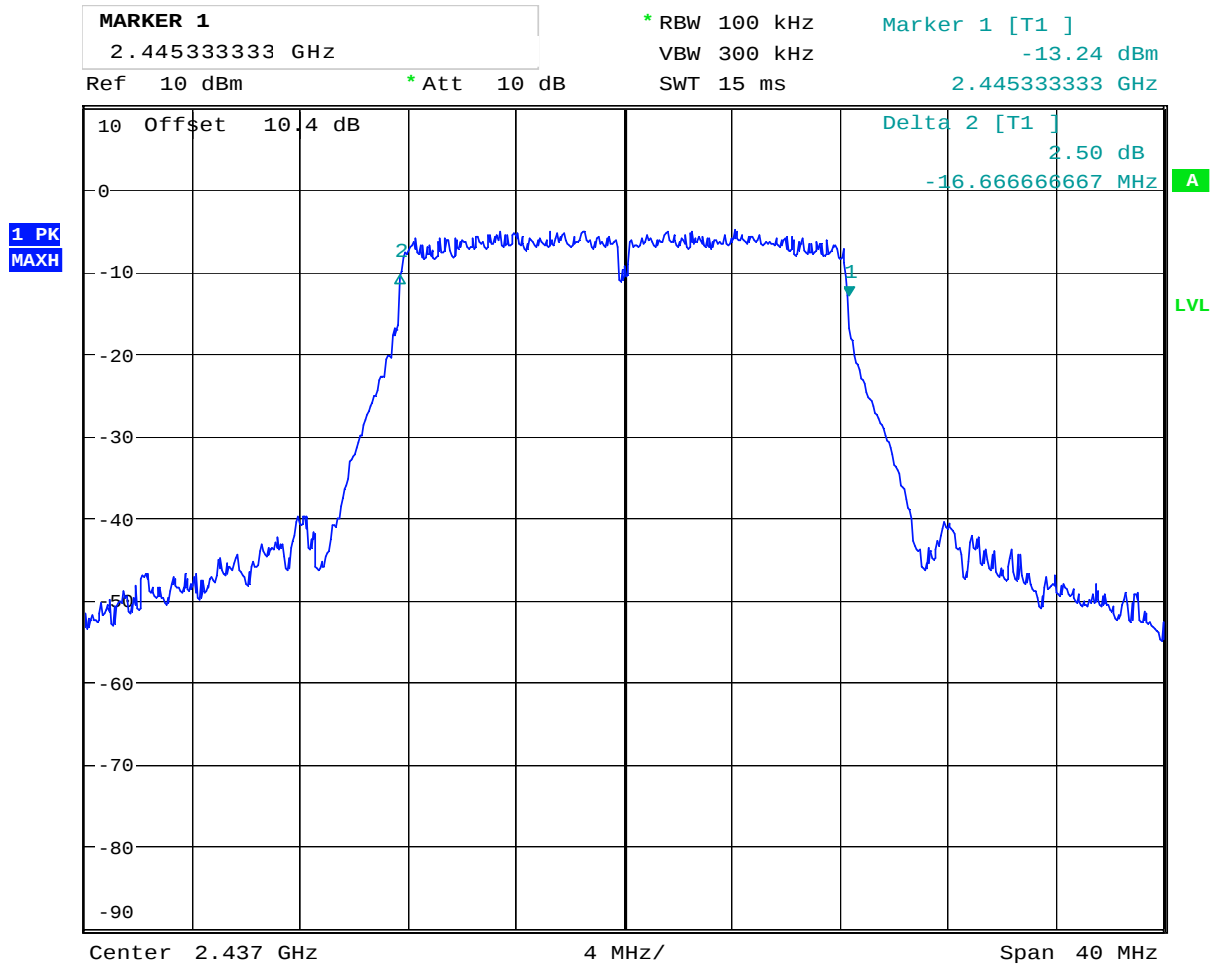
Date: 13.AUG.2013 10:20:16

6 dB Bandwidth, 2437 MHz, 802.11b, 1Mbps, Option 1



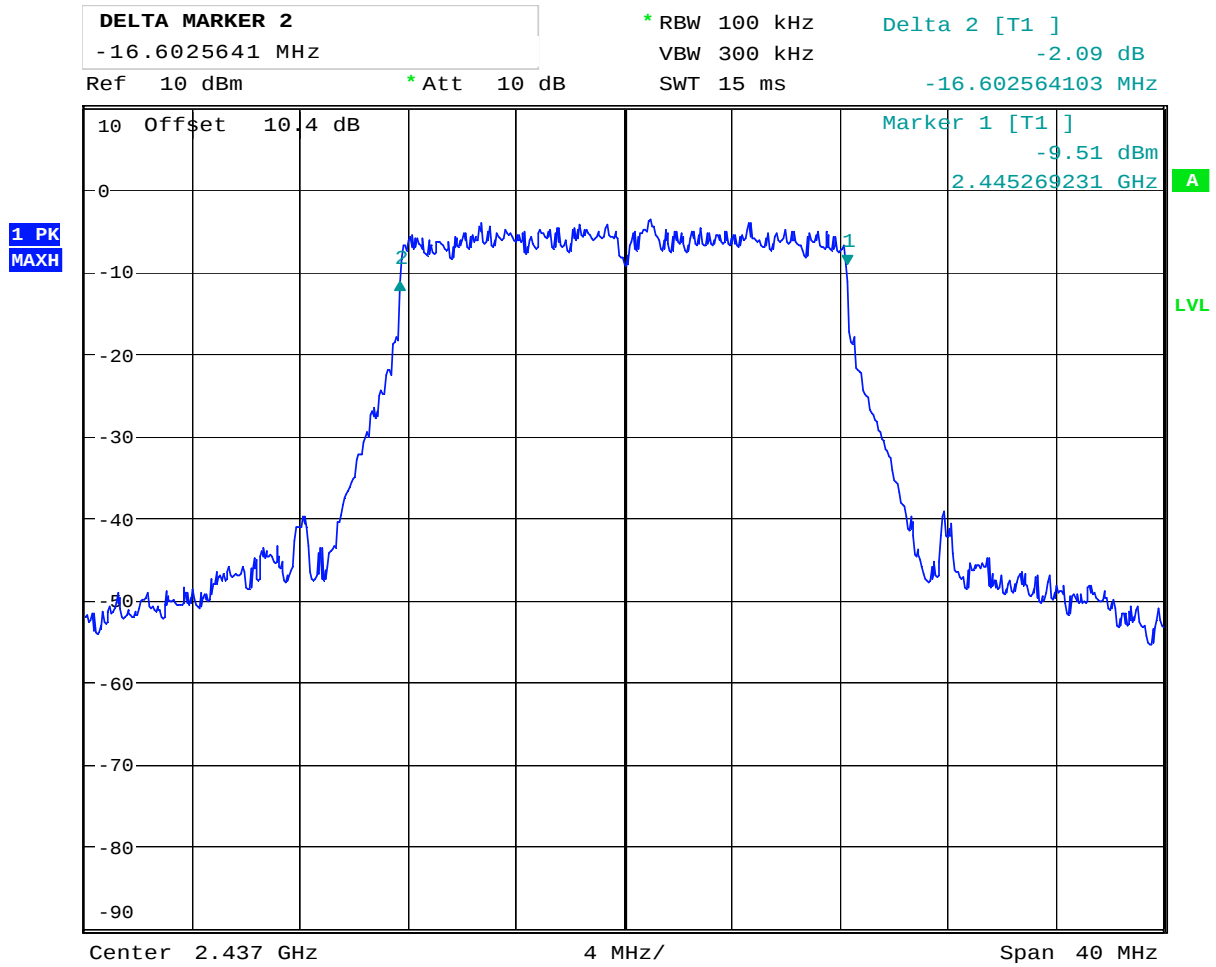
Date: 13.AUG.2013 10:57:17

6 dB Bandwidth, 2437 MHz, 802.11b, 11Mbps, Option 1



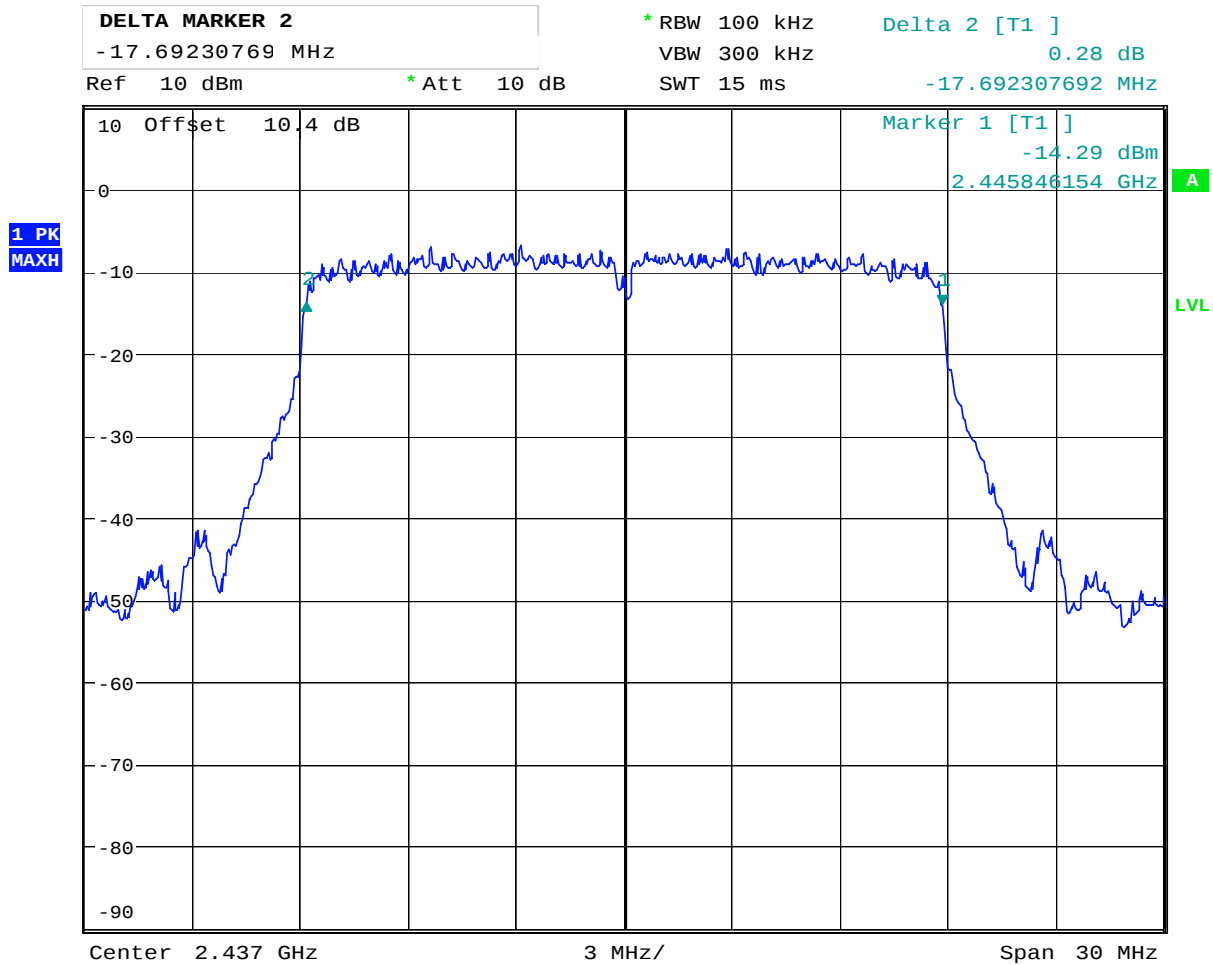
Date: 12.AUG.2013 16:31:10

6 dB Bandwidth, 2437 MHz, 802.11g, 6Mbps, Option 1



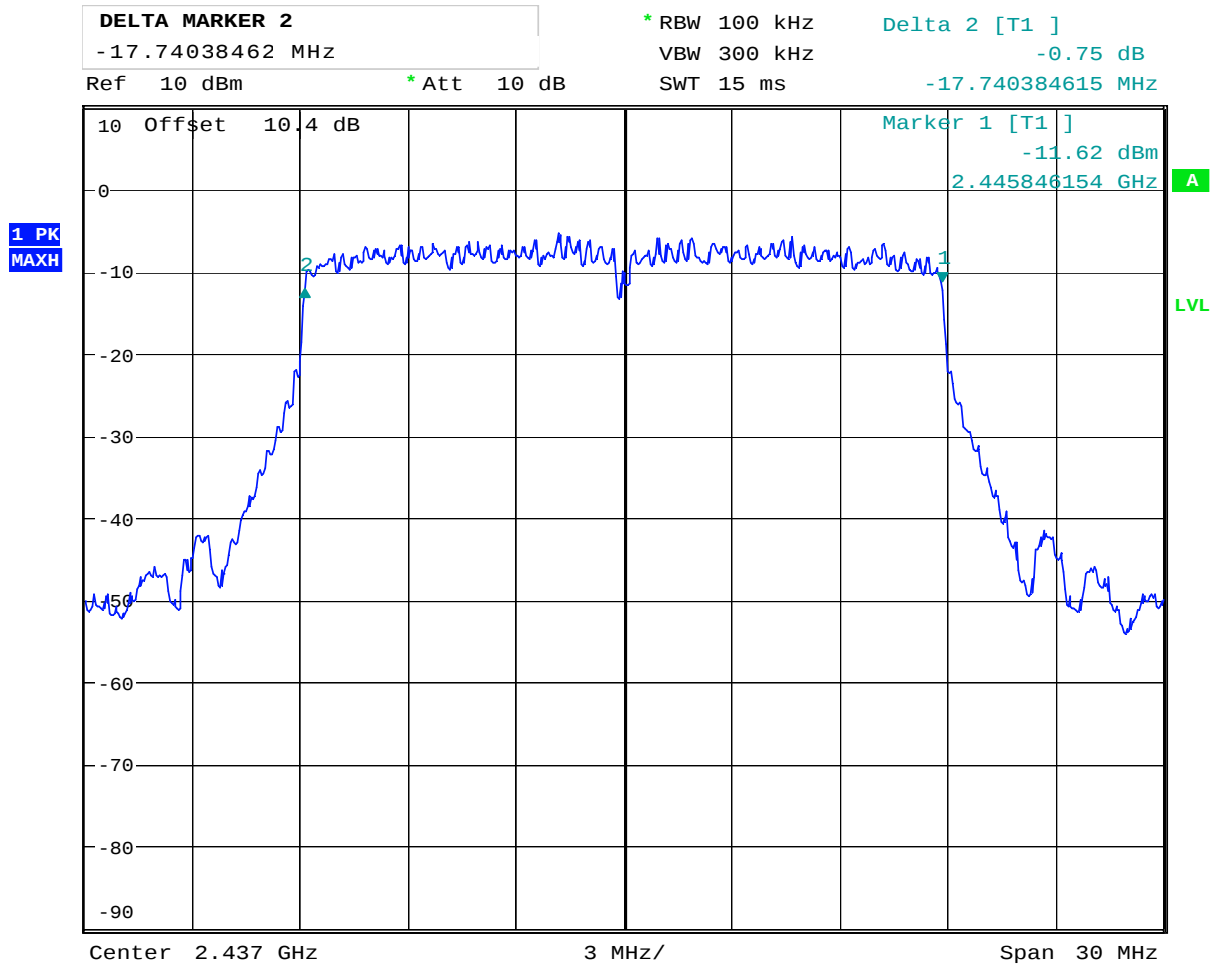
Date: 12.AUG.2013 17:04:59

6 dB Bandwidth, 2437 MHz, 802.11g, 54Mbps, Option 1



Date: 13.AUG.2013 10:43:11

6 dB Bandwidth, 2437 MHz, 802.11n, MCS0, Option 1



Date: 13.AUG.2013 10:37:15

6 dB Bandwidth, 2437 MHz, 802.11n, MCS7, Option 1

3.4 Peak Power Output

Para. No.: 15.247 (b)

Test Performed By: Frode Sveinsen	Date of Test: 13-23 Aug 2013
-----------------------------------	------------------------------

Test Results: Complies

Measurement Data:

Carrier Frequency	Maximum Conducted Output Power, dBm		
	802.11b, 11 Mbps	802.11g, 54 Mbps	802.11n, MCS7
2412 MHz	18.9	17.5	15.4
2437 MHz	18.1	17.2	15.7
2462 MHz	18.3	17.1	14.8

Carrier Frequency	Maximum EIRP, dBm		
	802.11b, 11 Mbps	802.11g, 54 Mbps	802.11n, MCS7
2412 MHz	14.2	14.1	12.2
2437 MHz	16.8	16.0	14.0
2462 MHz	16.8	16.0	13.8

Carrier Frequency	Maximum Antenna Gain, dBi		
	802.11b, 11 Mbps	802.11g, 54 Mbps	802.11n, MCS7
2412 MHz	-4.7	-3.4	-3.2
2437 MHz	-1.3	-1.2	-1.7
2462 MHz	-1.5	-1.1	-1.0

Antenna gain = $10 \cdot \log(\text{EIRP} / \text{Conducted power})$ dBi

EIRP is calculated from measured field strength by the formulas in KDB 412172 D01 Determining ERP and EIRP v01.

See attached plots.

Detachable antenna?

☐ Yes ☐ No

If detachable, is the antenna connector non-standard?

☐ Yes ☐ No

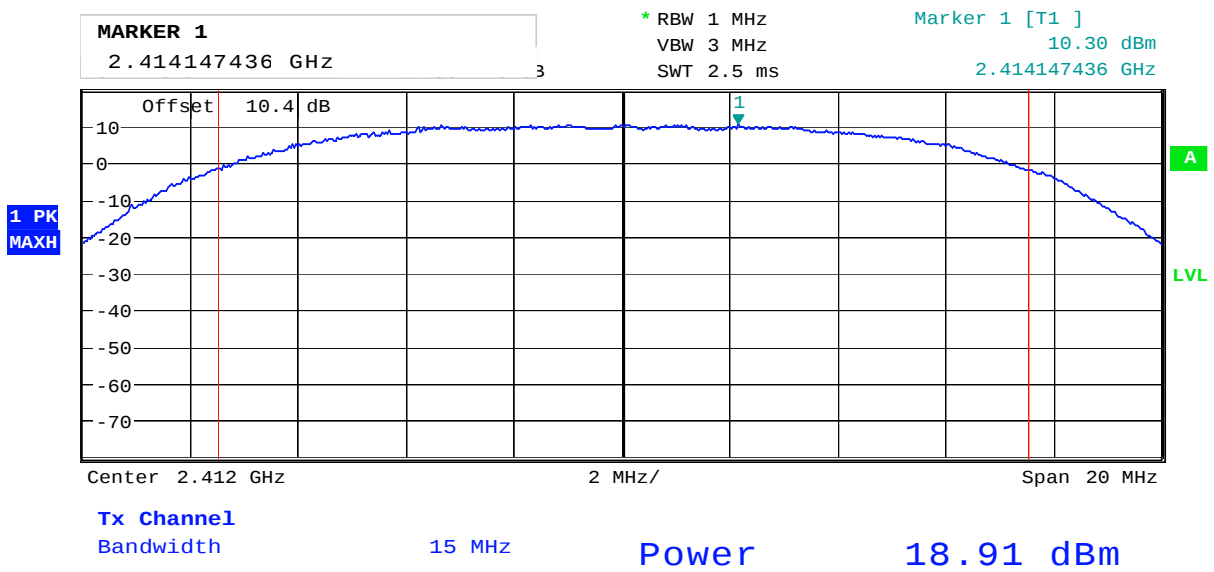
Type of antenna connector: >

Requirements:

The maximum peak output power shall not exceed the following limits:

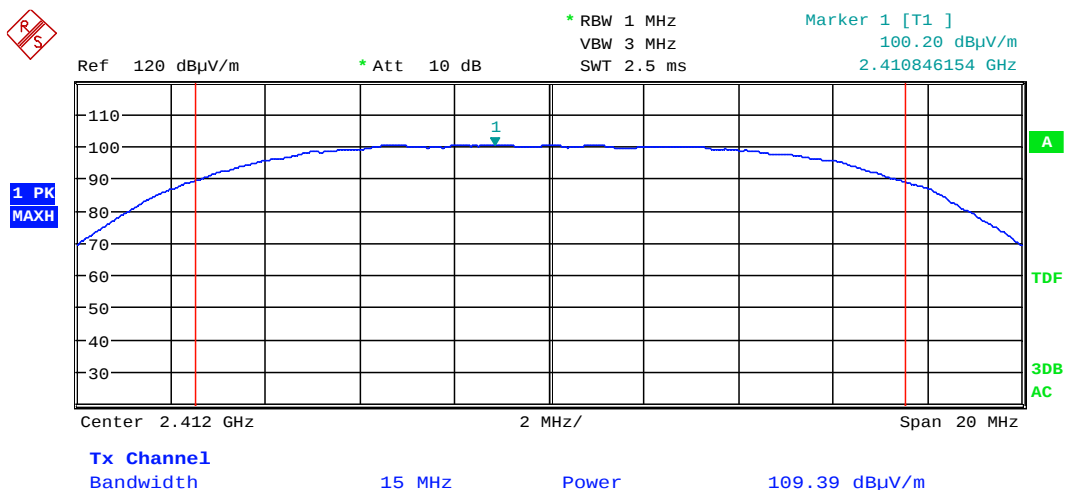
For Digital Transmission Systems in the 2400 - 2483.5 MHz band: 1 Watt

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced below the stated value above by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



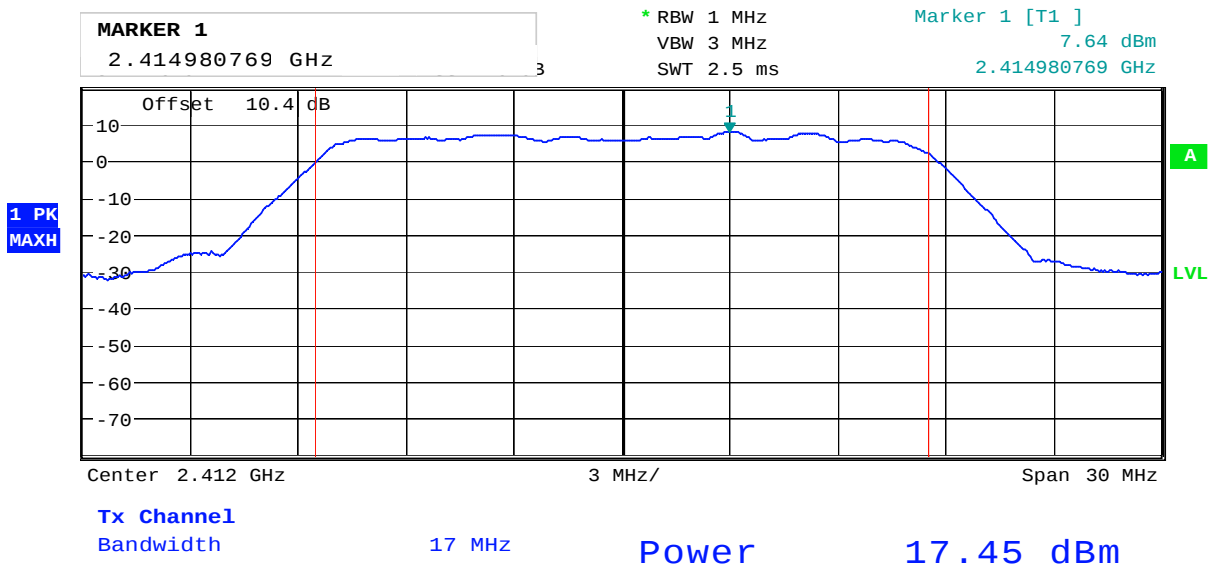
Date: 13.AUG.2013 11:13:17

Conducted Output Power, 2412 MHz, 802.11b, 11Mbps



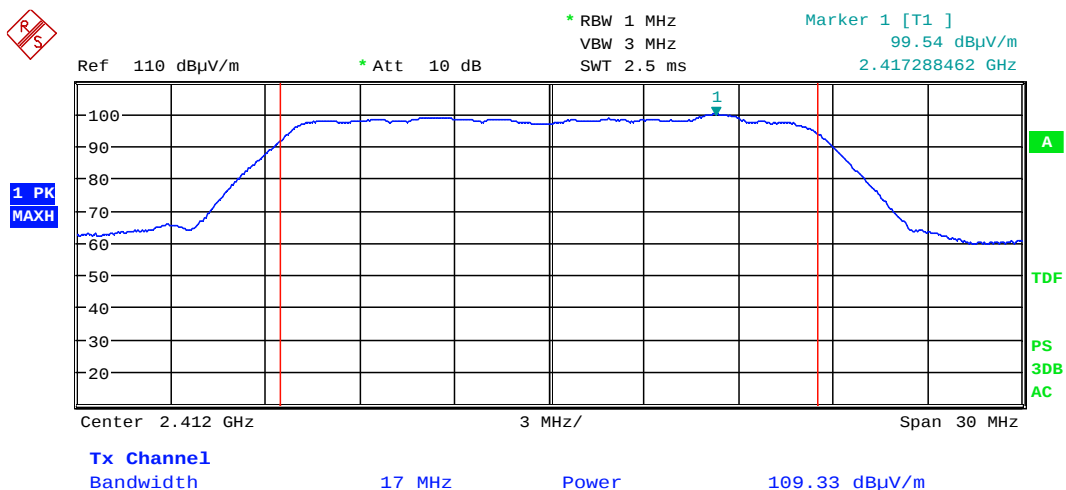
Date: 4.SEP.2013 12:27:56

Radiated Output Power, 2412 MHz, 802.11b, 11Mbps (Max: VP)



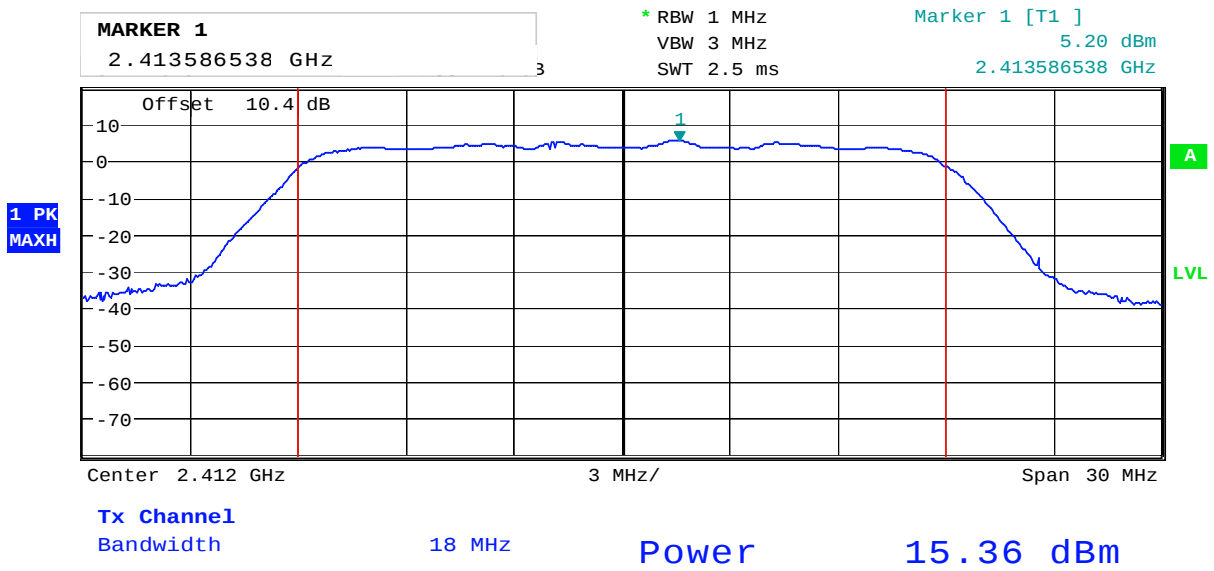
Date: 13.AUG.2013 11:49:13

Conducted Output Power, 2412 MHz, 802.11g, 54Mbps



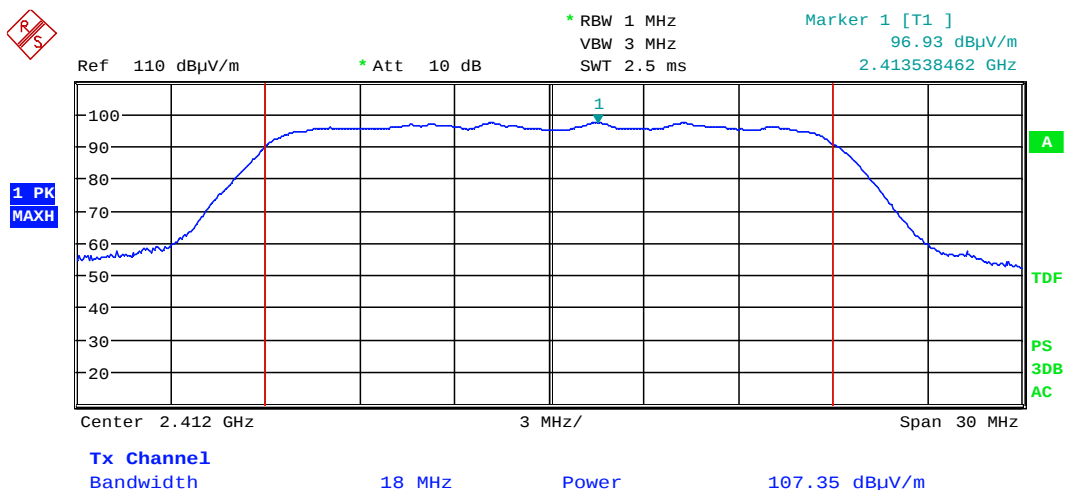
Date: 16.AUG.2013 16:17:57

Radiated Output Power, 2412 MHz, 802.11g, 54Mbps (Max: VP)



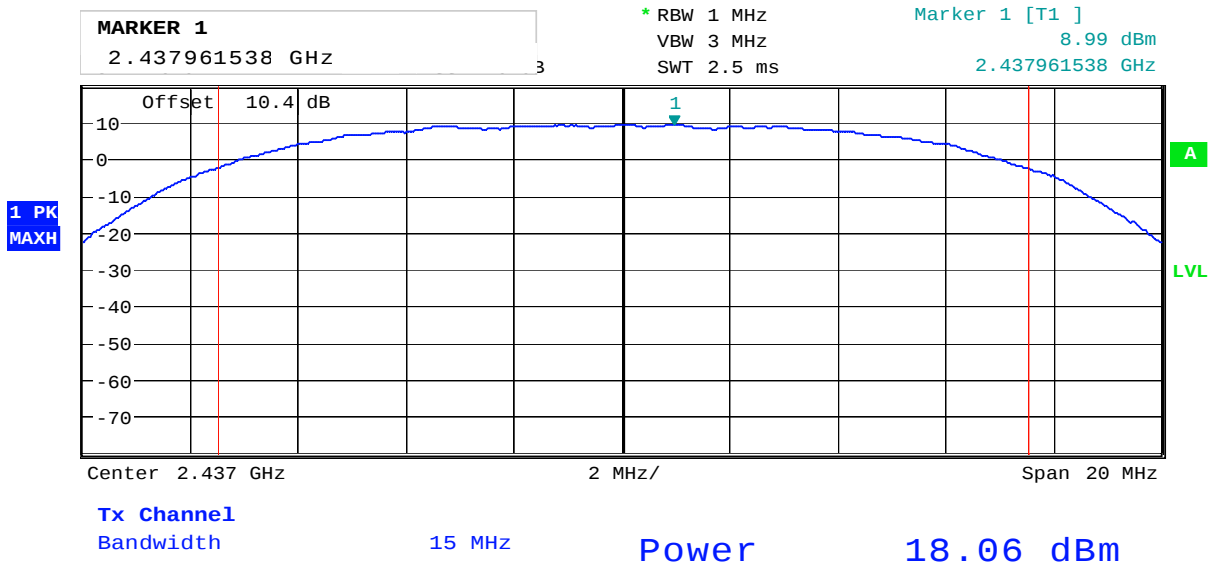
Date: 13.AUG.2013 11:42:45

Conducted Output Power, 2412 MHz, 802.11n, MCS7



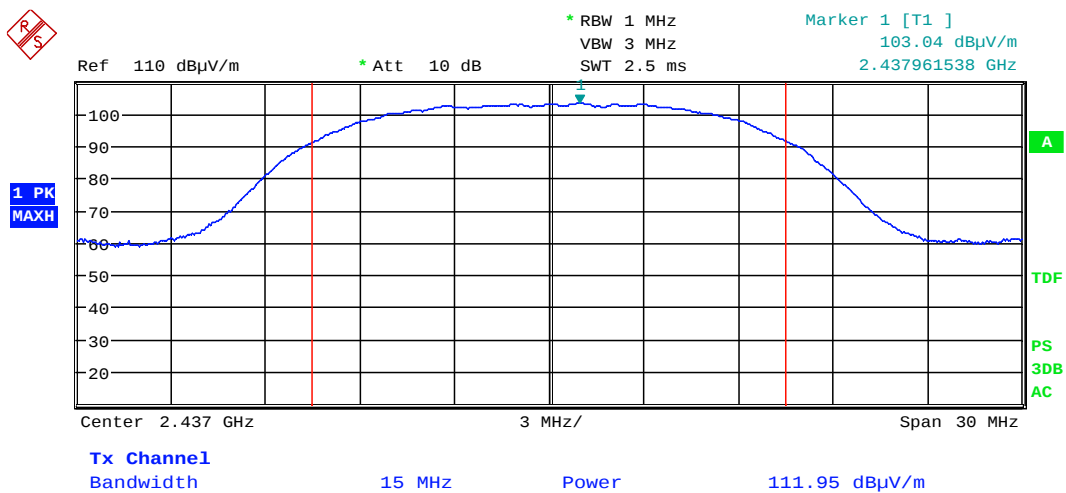
Date: 23.AUG.2013 16:54:47

Radiated Output Power, 2412 MHz, 802.11n, MCS7 (Max: VP)



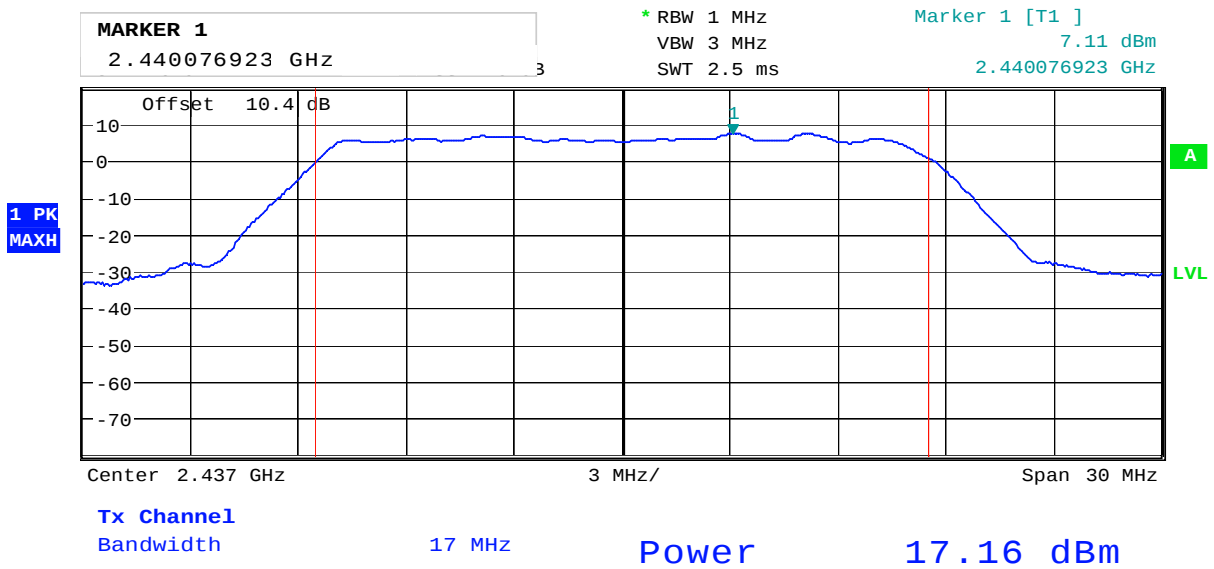
Date: 13.AUG.2013 11:05:28

Conducted Output Power, 2437 MHz, 802.11b, 11Mbps



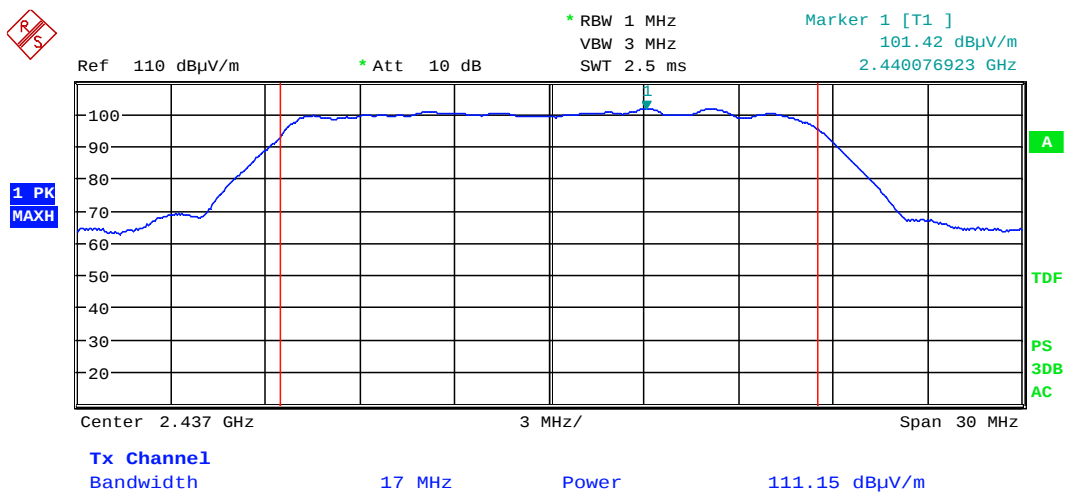
Date: 23.AUG.2013 16:33:33

Radiated Output Power, 2437 MHz, 802.11b, 11Mbps (Max: HP)



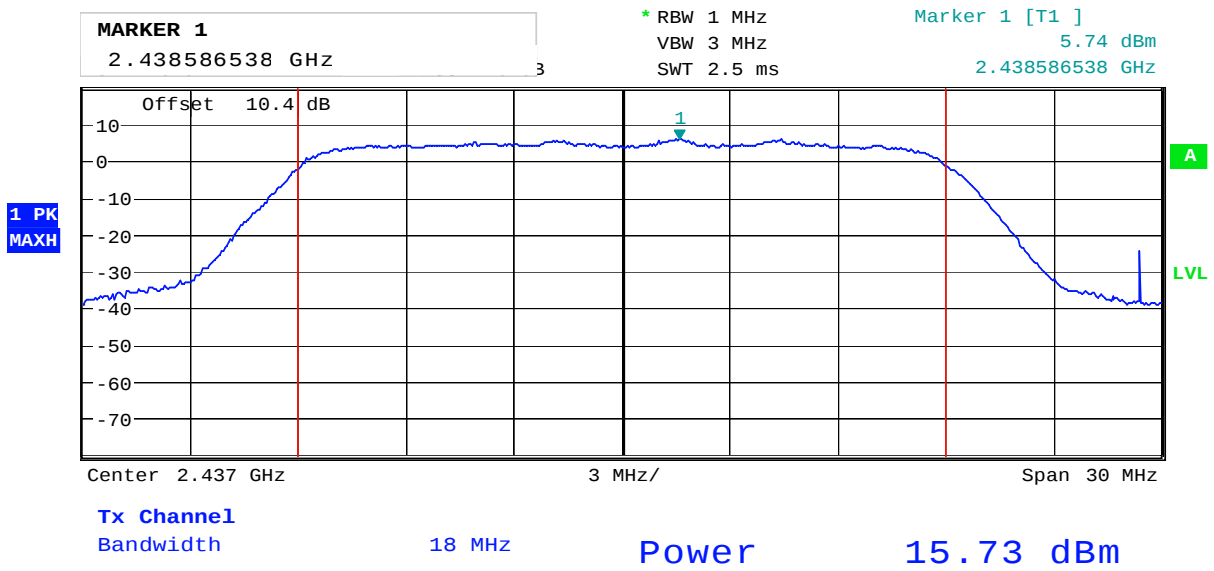
Date: 12.AUG.2013 17:10:43

Conducted Output Power, 2437 MHz, 802.11g, 54Mbps



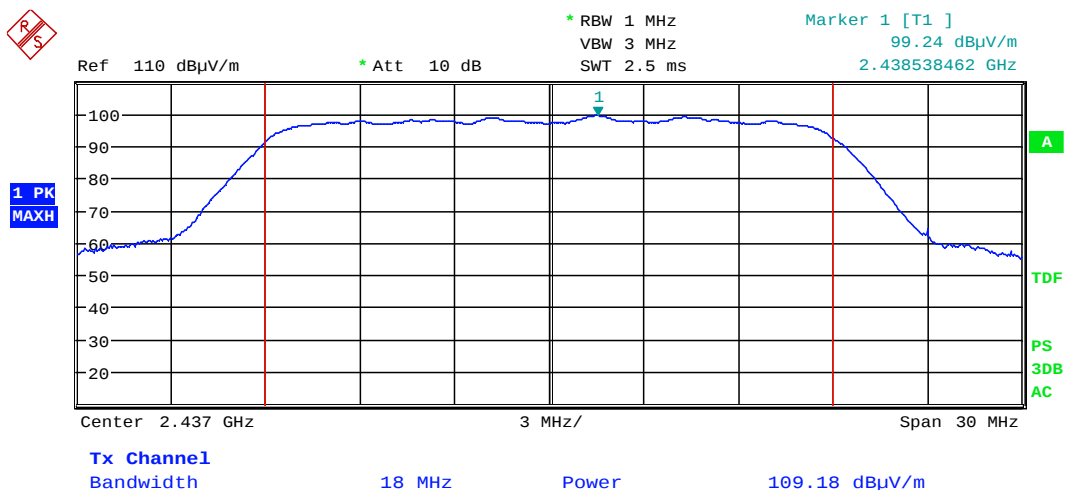
Date: 23.AUG.2013 16:31:12

Radiated Output Power, 2437 MHz, 802.11g, 54Mbps (Max: HP)



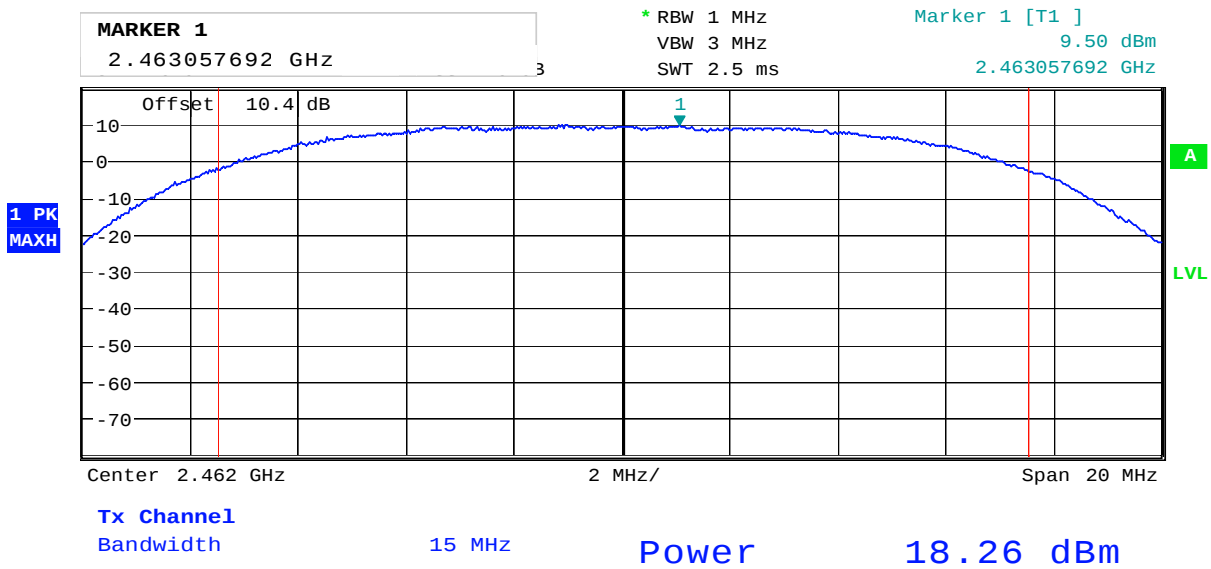
Date: 13.AUG.2013 11:18:33

Conducted Output Power, 2437 MHz, 802.11n, MCS7



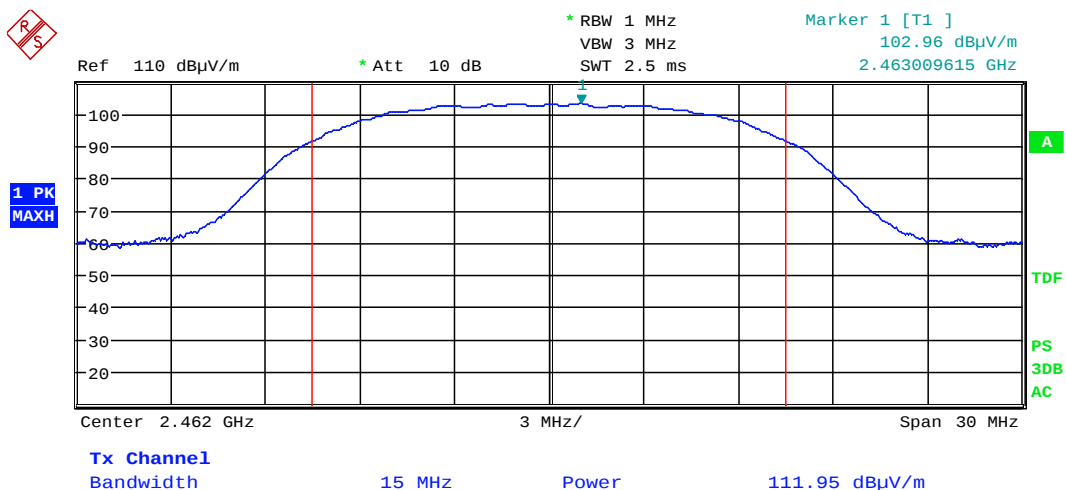
Date: 23.AUG.2013 16:27:25

Radiated Output Power, 2437 MHz, 802.11n, MCS7 (Max: HP)



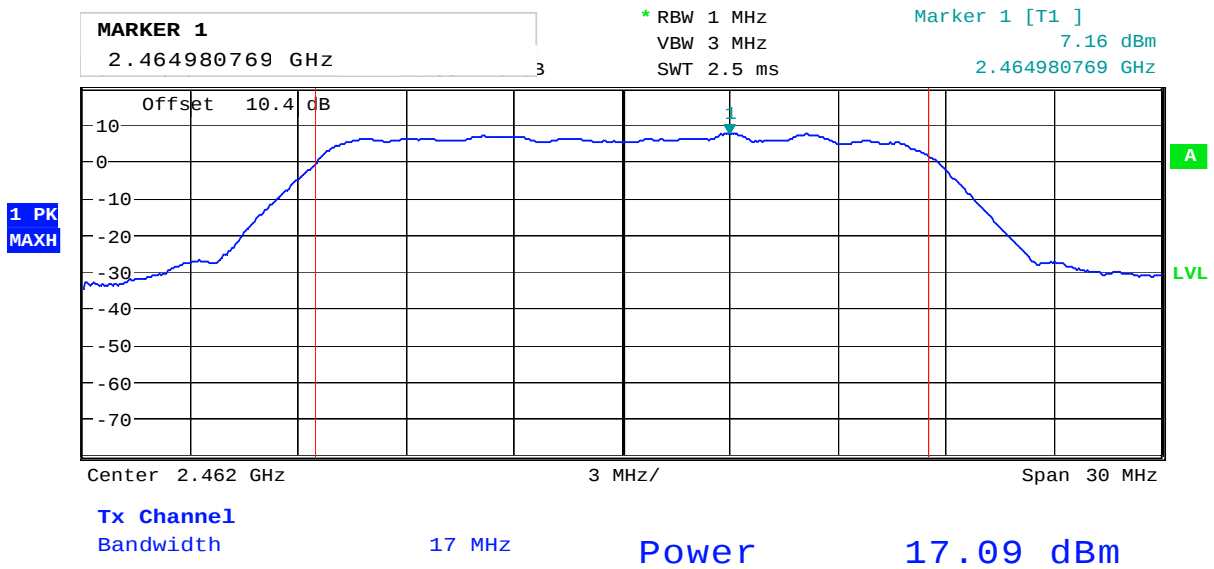
Date: 13.AUG.2013 11:15:20

Conducted Output Power, 2462 MHz, 802.11b, 11Mbps



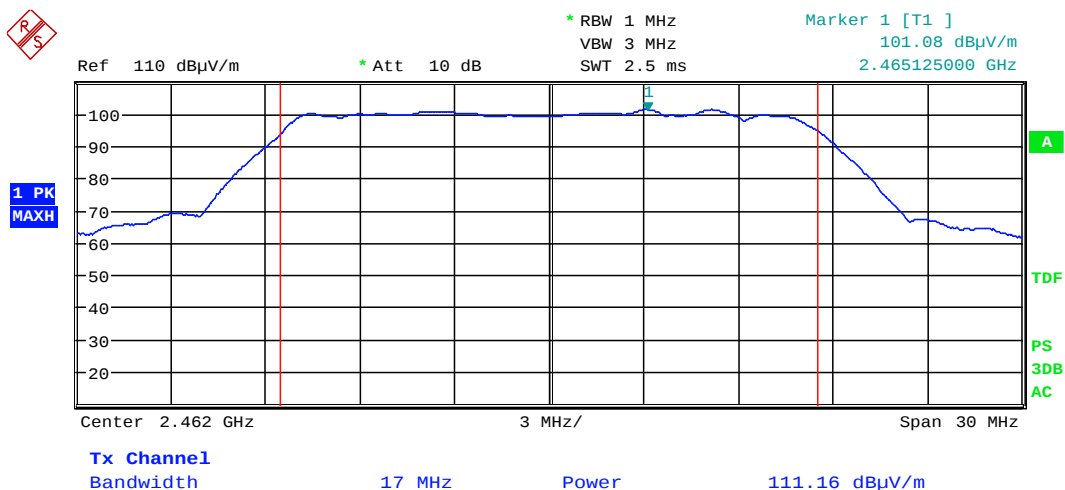
Date: 23.AUG.2013 16:13:54

Radiated Output Power, 2462 MHz, 802.11b, 11Mbps (Max: HP)



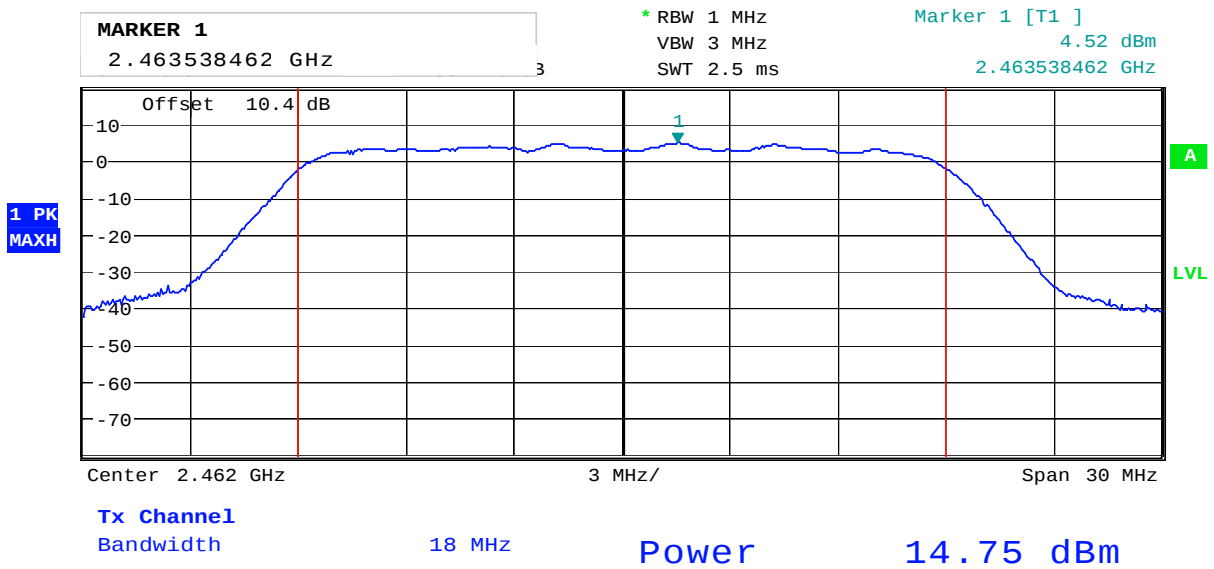
Date: 13.AUG.2013 11:53:57

Conducted Output Power, 2462 MHz, 802.11g, 54Mbps



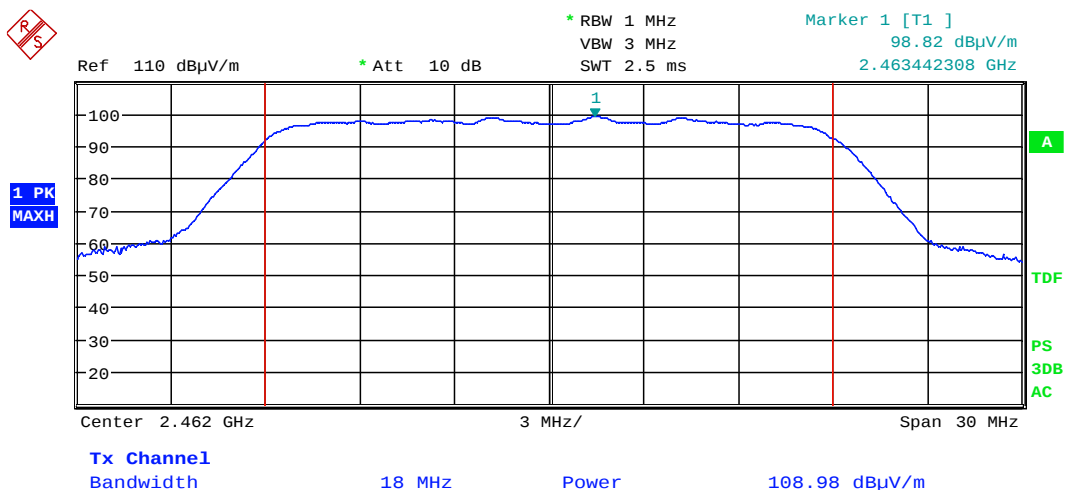
Date: 23.AUG.2013 16:08:30

Radiated Output Power, 2462 MHz, 802.11g, 54Mbps (Max: HP)



Date: 13.AUG.2013 11:38:33

Conducted Output Power, 2462 MHz, 802.11n, MCS7



Date: 23.AUG.2013 16:20:02

Radiated Output Power, 2462 MHz, 802.11n, MCS7 (Max: HP)

3.5 Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: Frode Sveinsen	Date of Test: 16 and 23 Aug 2013
-----------------------------------	----------------------------------

Test Results: Complies

Measurement Data:

Peak Detector:

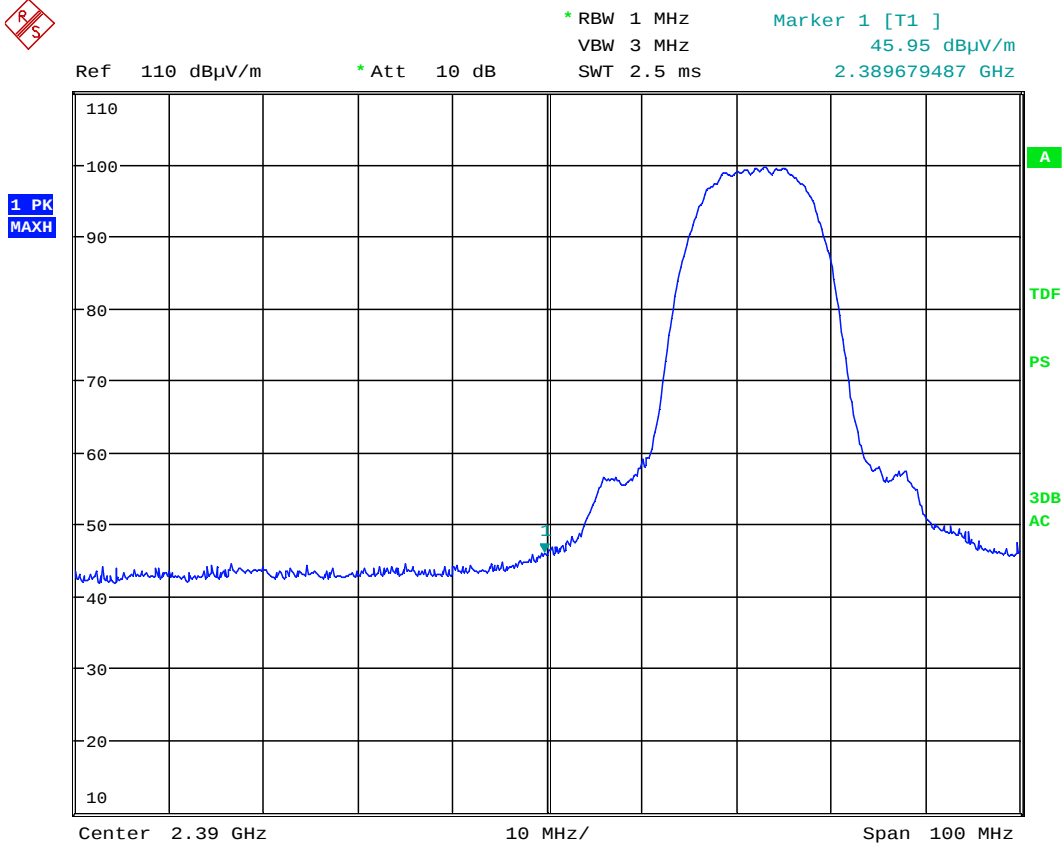
Modulation and Bitrate	Measured field strength (dB μ V/m)		Limit	Margin	
	2390 MHz	2483.5 MHz	dB	dB	
802.11b, 11Mbps	46.0	49.5	74	28.0	24.5
802.11g, 54Mbps	51.1	53.9	74	22.9	20.5
802.11n, MCS7	48.0	50.6	74	26.0	23.4

Average Detector:

Modulation and Bitrate	Measured field strength (dB μ V/m)		Limit	Margin	
	2390 MHz	2483.5 MHz	dB	dB	
802.11b, 11Mbps	41.4	42.0	54	12.6	12.0
802.11g, 54Mbps	40.6	41.3	54	13.4	12.7
802.11n, MCS7	37.0	40.5	54	17.0	13.5

Duty Cycle was 100% during all tests.

See attached plots.

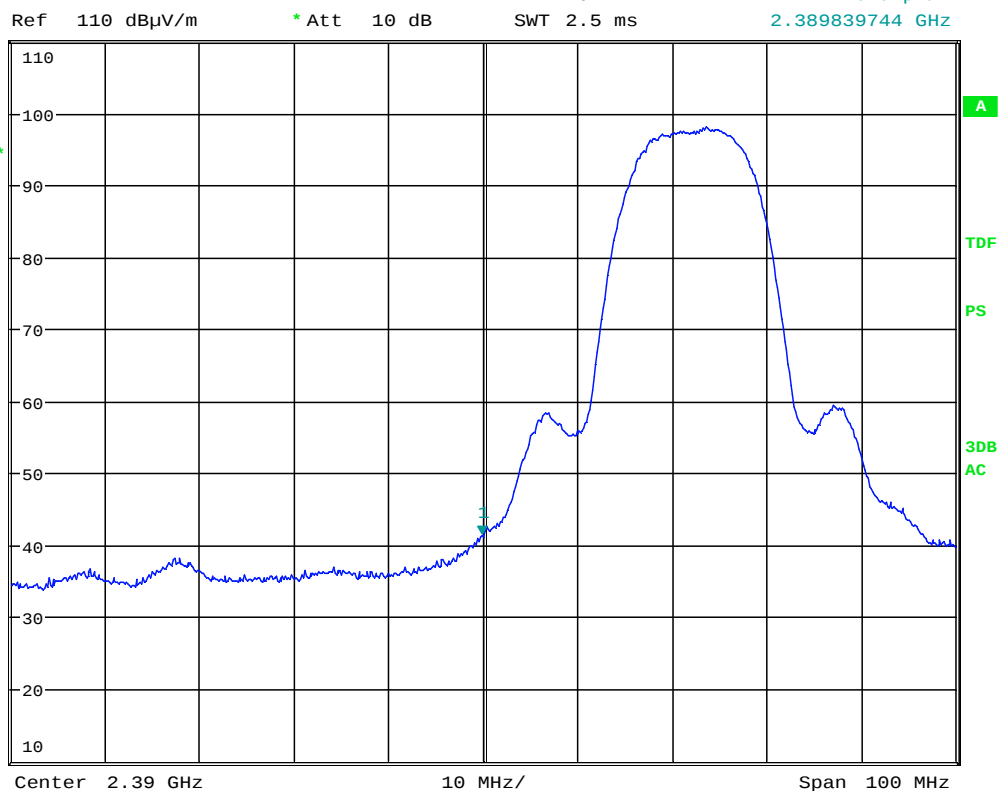


Date: 23.AUG.2013 16:37:44

Band Edge, Lower, Peak, 2412 MHz, 802.11b, 11Mbps



* RBW 1 MHz Marker 1 [T1]
VBW 10 MHz 41.40 dBμV/m
SWT 2.5 ms 2.389839744 GHz



Date: 23.AUG.2013 16:40:42

Band Edge, Lower, Average, 2412 MHz, 802.11b, 11Mbps

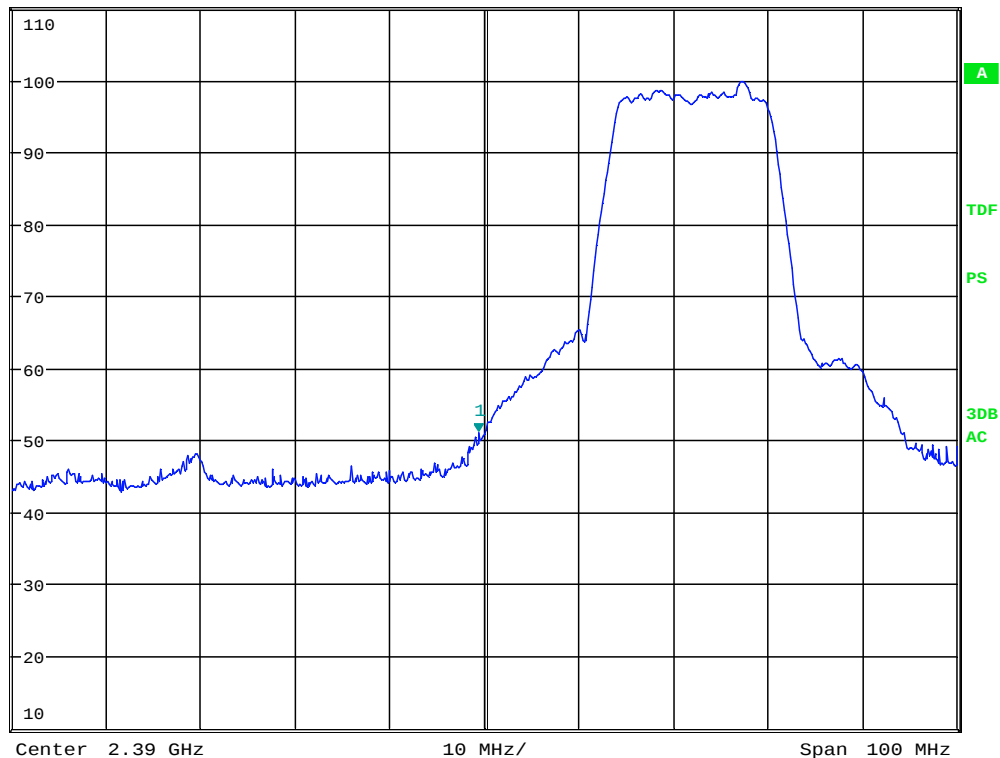


* RBW 1 MHz Marker 1 [T1]
VBW 3 MHz 51.11 dBμV/m
SWT 2.5 ms 2.389358974 GHz

Ref 110 dBμV/m

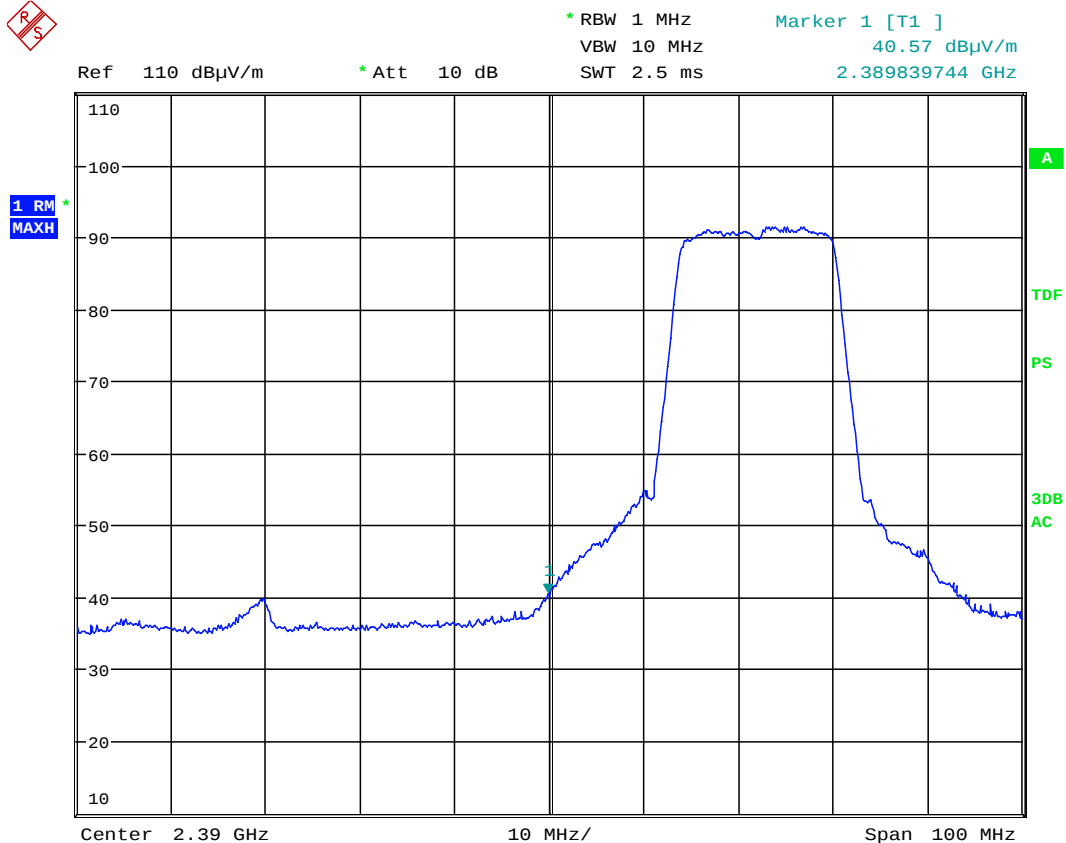
* Att 10 dB

1 PK
MAXH



Date: 16.AUG.2013 16:26:31

Band Edge, Lower, Peak, 2412 MHz, 802.11g, 54Mbps



Date: 16.AUG.2013 16:27:24

Band Edge, Lower, Average, 2412 MHz, 802.11g, 54Mbps

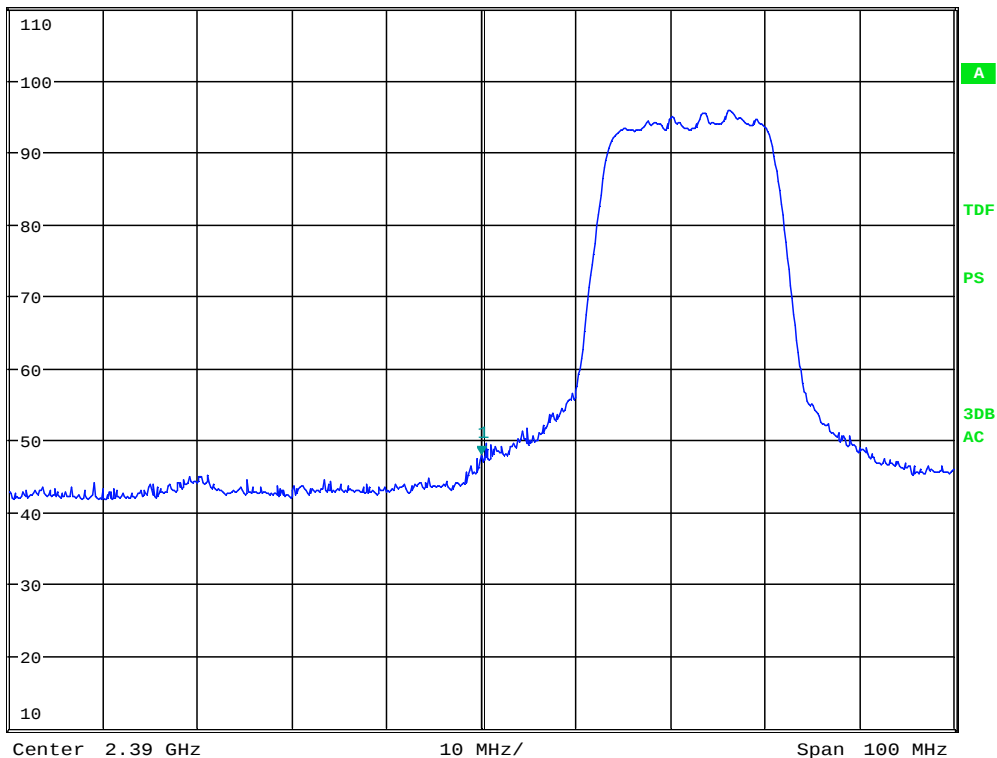


* RBW 1 MHz Marker 1 [T1]
VBW 3 MHz 48.00 dBμV/m
SWT 2.5 ms 2.390000000 GHz

Ref 110 dBμV/m

* Att 10 dB

1 PK
MAXH



Date: 23.AUG.2013 16:49:32

Band Edge, Lower, Peak, 2412 MHz, 802.11n, MCS7

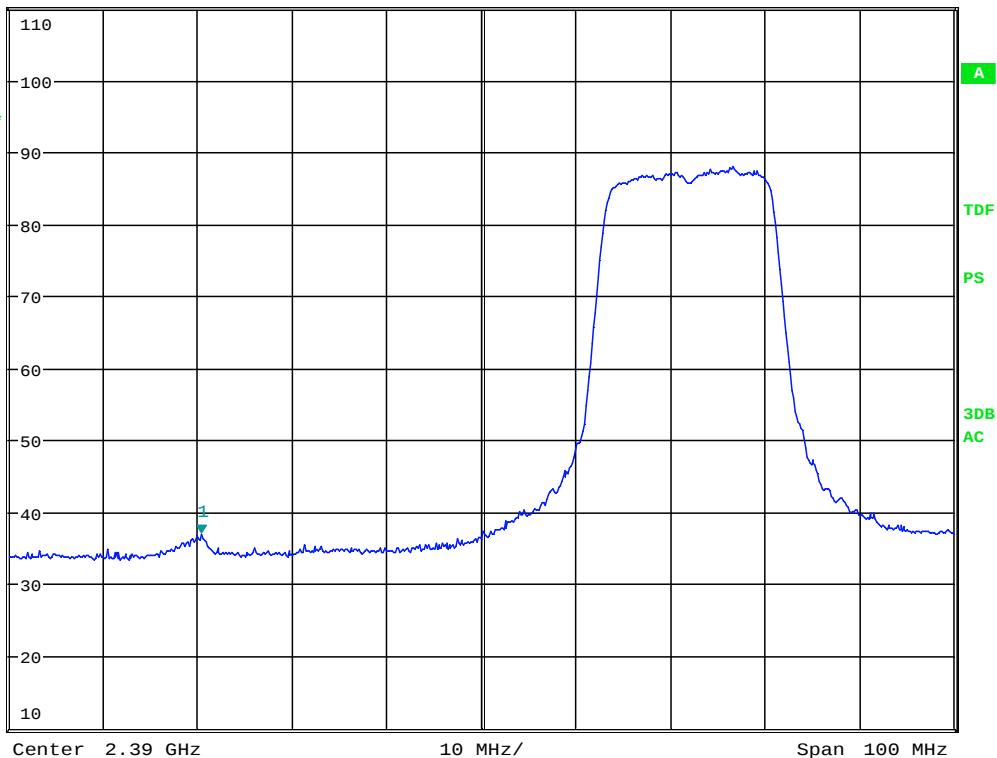


* RBW 1 MHz
VBW 10 MHz
SWT 2.5 ms
Marker 1 [T1]
36.97 dBμV/m
2.360352564 GHz

Ref 110 dBμV/m

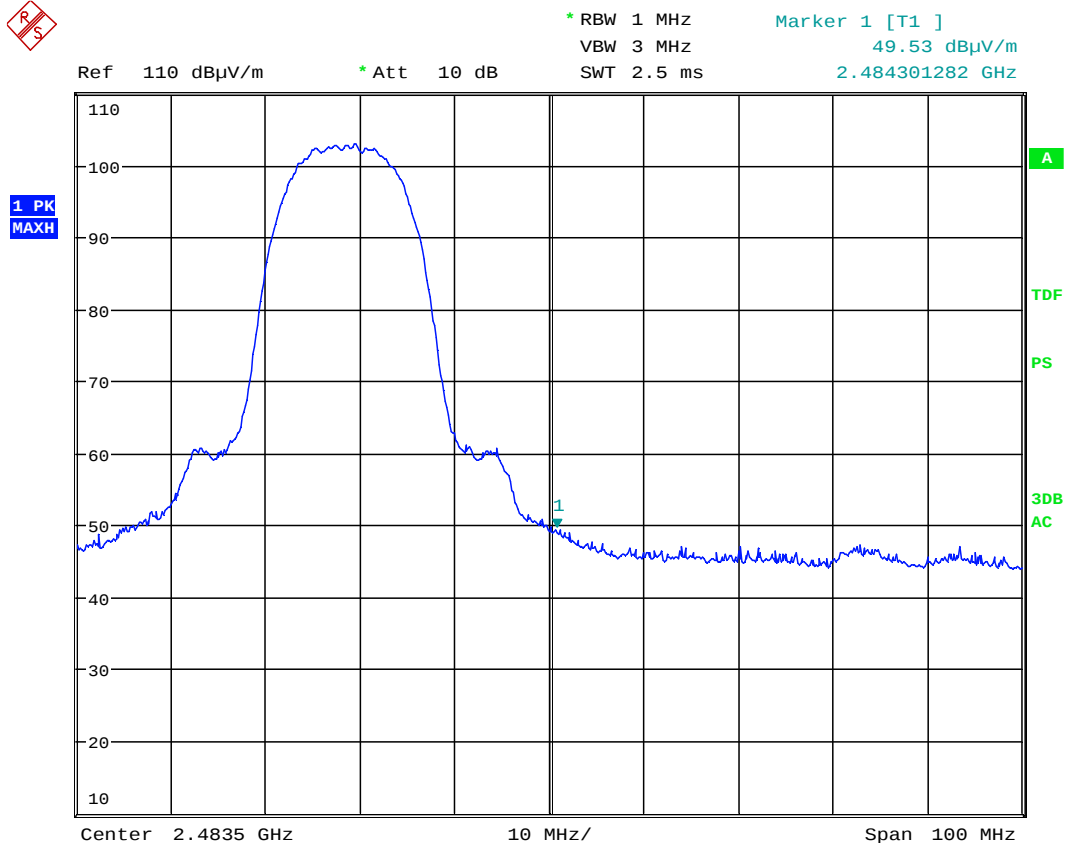
* Att 10 dB

1 RM
MAXH



Date: 23.AUG.2013 16:51:19

Band Edge, Lower, Average, 2412 MHz, 802.11n, MCS7

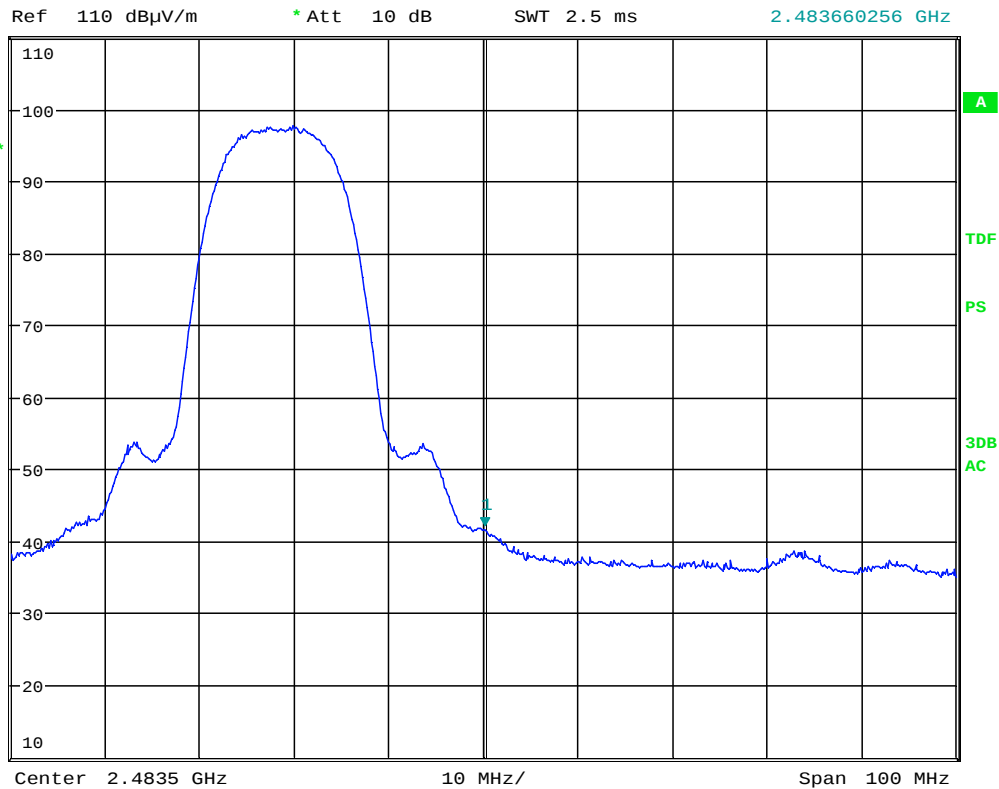


Date: 23.AUG.2013 16:15:54

Band Edge, Upper, Peak, 2462 MHz, 802.11b, 11Mbps



* RBW 1 MHz
VBW 10 MHz
SWT 2.5 ms
Marker 1 [T1]
41.97 dBμV/m
2.483660256 GHz



Date: 23.AUG.2013 16:16:57

Band Edge, Upper, Average, 2462 MHz, 802.11b, 11Mbps



* RBW 1 MHz
VBW 3 MHz
SWT 2.5 ms
Marker 1 [T1]
53.91 dBμV/m
2.483660256 GHz

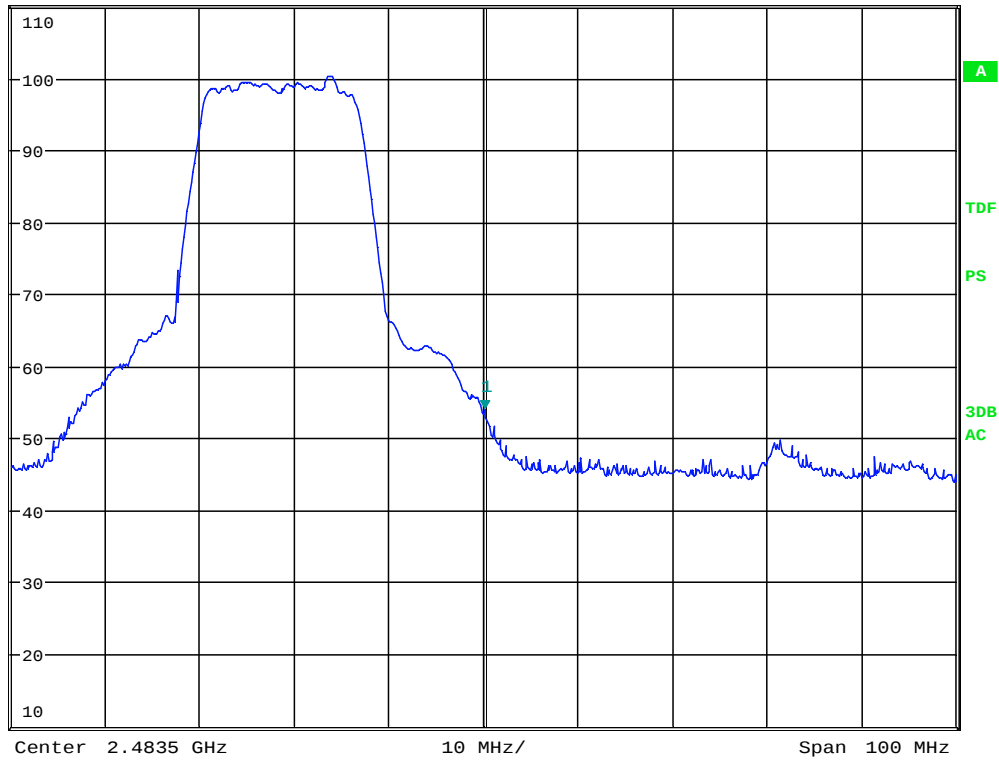
Ref 110 dBμV/m

* Att 10 dB

SWT 2.5 ms

2.483660256 GHz

1 PK
MAXH

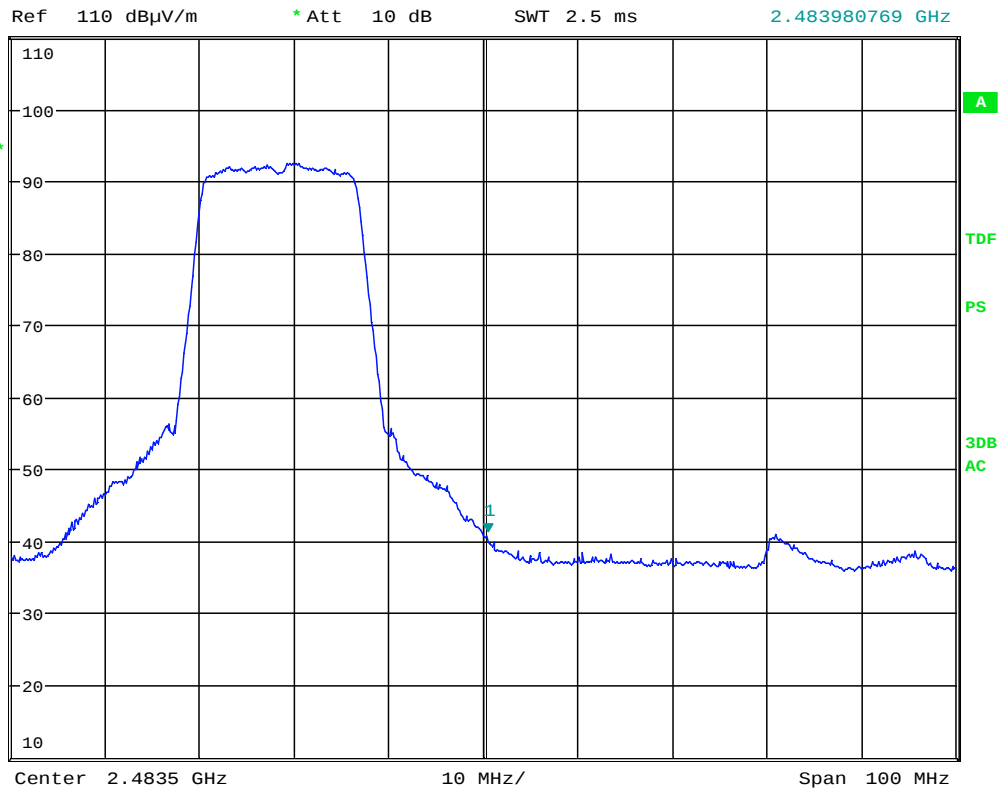


Date: 16.AUG.2013 14:47:21

Band Edge, Upper, Peak, 2462 MHz, 802.11g, 54Mbps



* RBW 1 MHz
VBW 10 MHz
SWT 2.5 ms
Marker 1 [T1]
41.26 dBμV/m
2.483980769 GHz

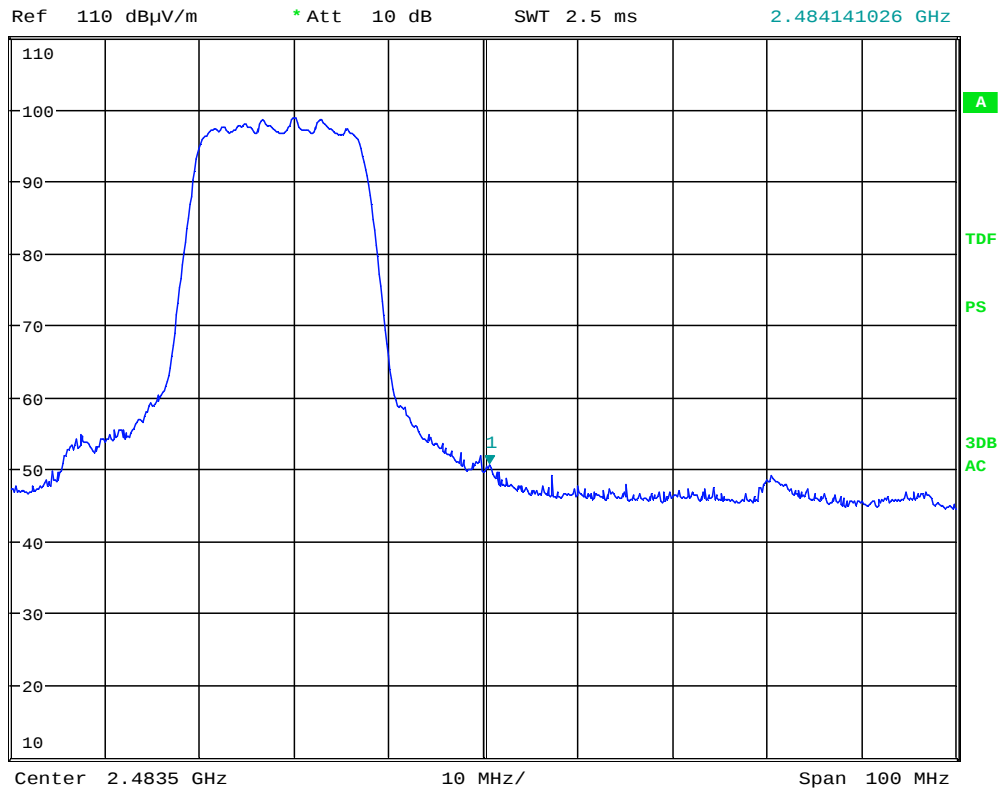


Date: 16.AUG.2013 14:46:34

Band Edge, Upper, Average, 2462 MHz, 802.11g, 54Mbps



* RBW 1 MHz
VBW 3 MHz
SWT 2.5 ms
Marker 1 [T1]
50.61 dBμV/m
2.484141026 GHz

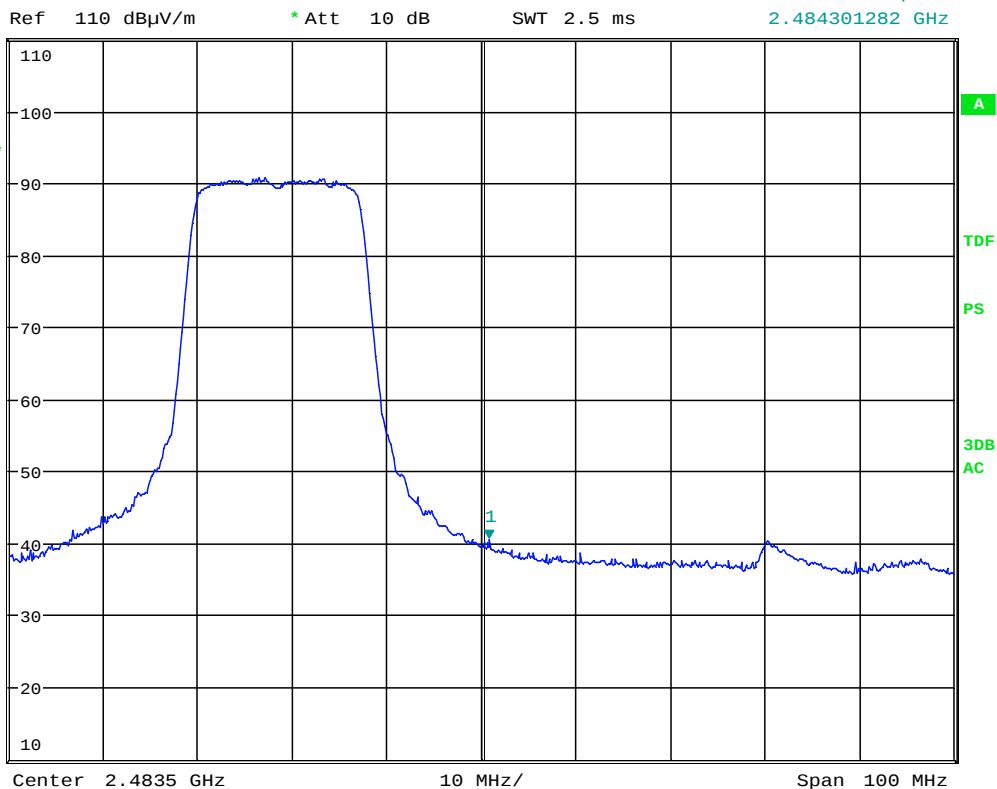


Date: 23.AUG.2013 16:22:02

Band Edge, Upper, Peak, 2462 MHz, 802.11n, MCS7



* RBW 1 MHz
VBW 10 MHz
SWT 2.5 ms
Marker 1 [T1]
40.51 dBμV/m
2.484301282 GHz



Date: 23.AUG.2013 16:23:06

Band Edge, Upper, Average, 2462 MHz, 802.11n, MCS7

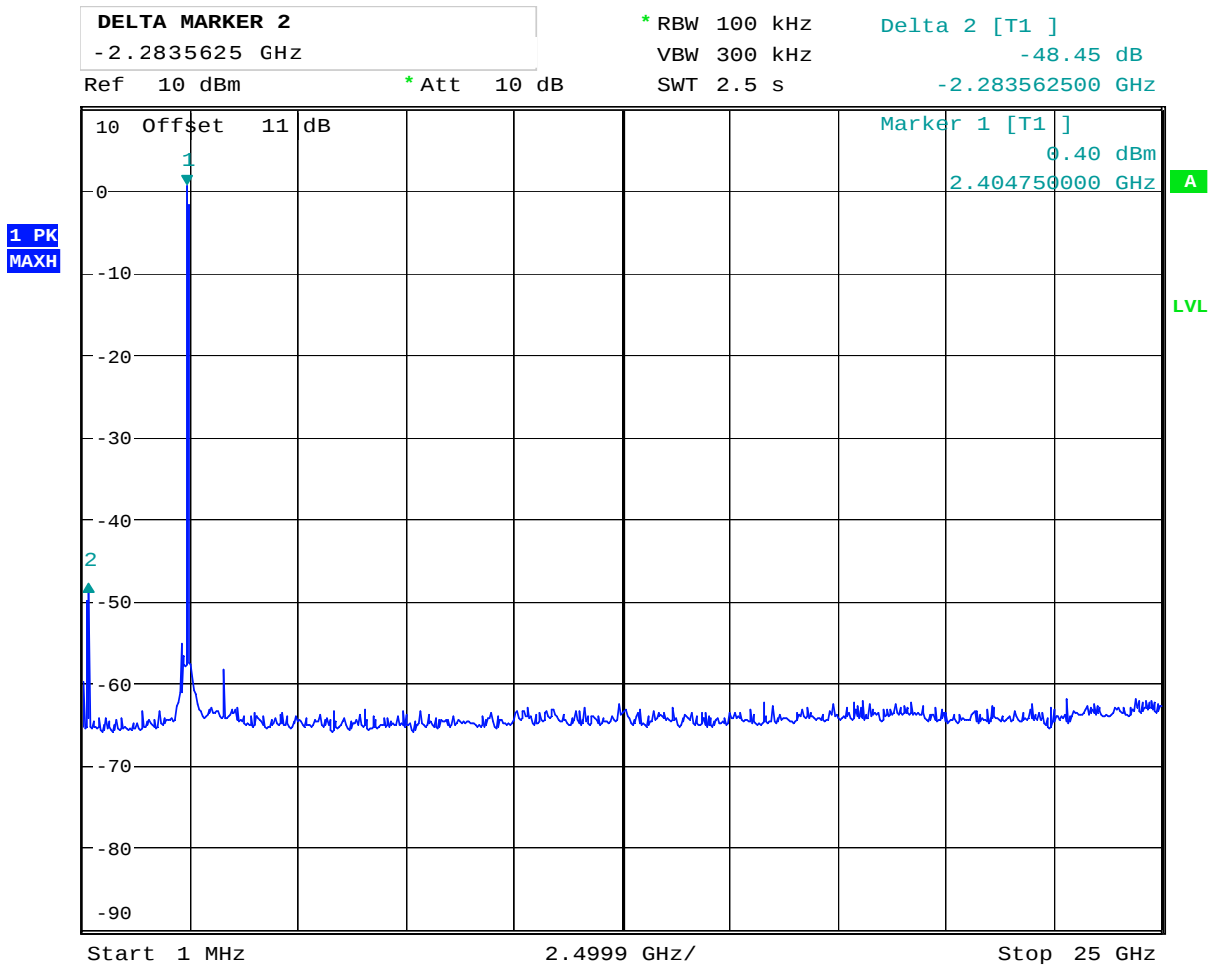
RF conducted power to 25 GHz see attached plots.

Maximum RF level outside operating band:

RF ch 1: >40 dB/C, margin >20 dB

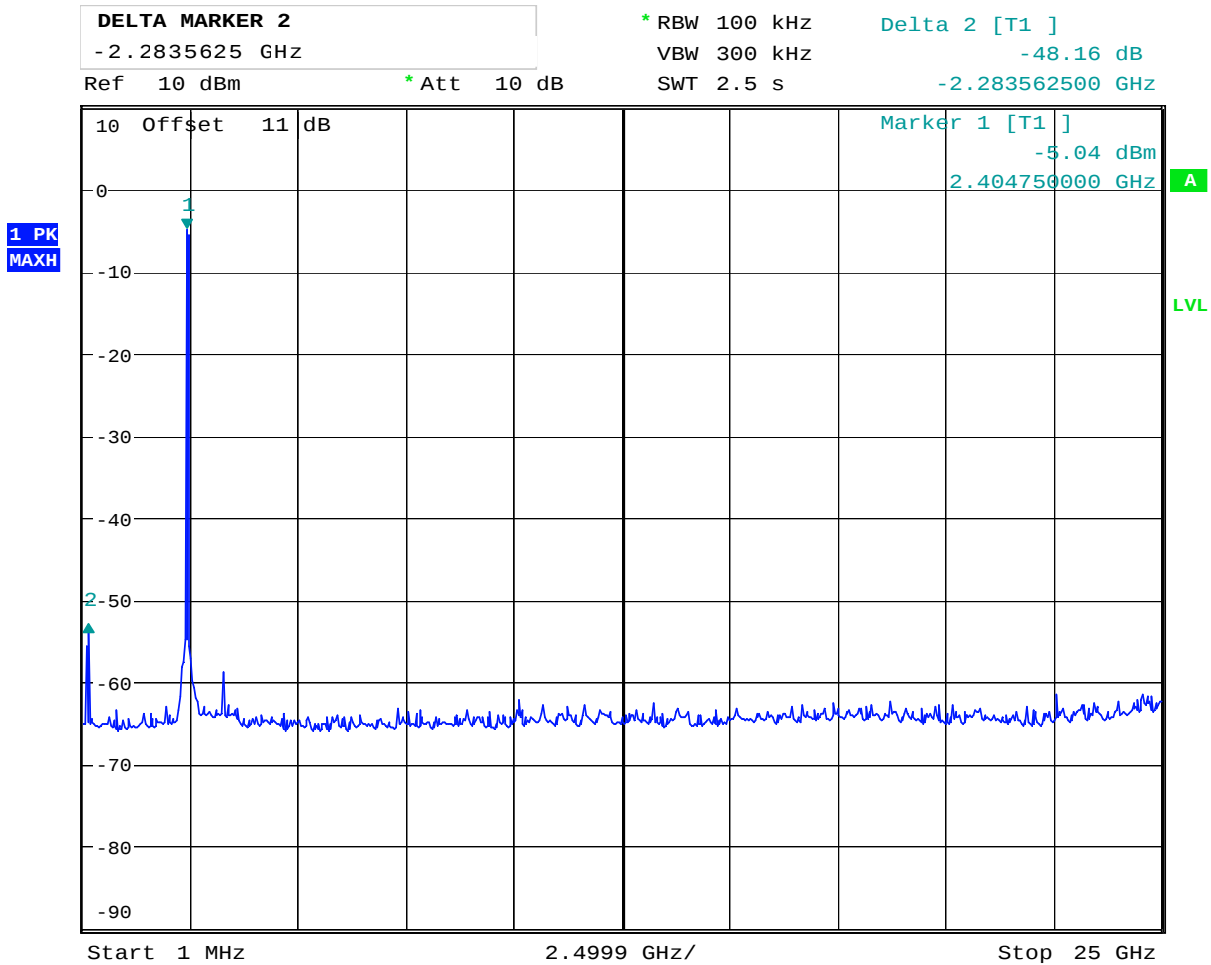
RF ch 6: >40 dB/C, margin >20 dB

RF ch 11: >40 dB/C, margin >20 dB



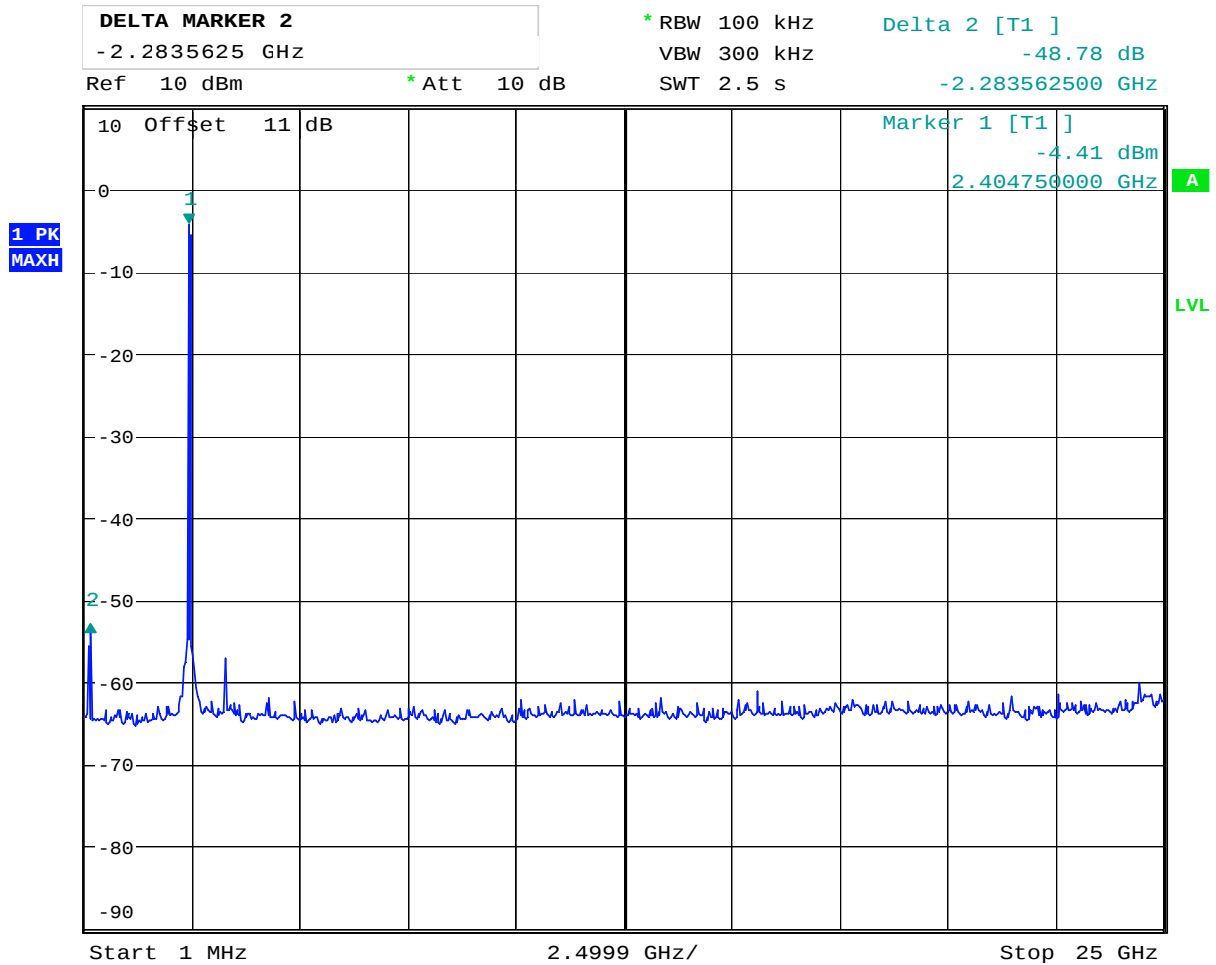
Date: 13.AUG.2013 13:32:22

Conducted Emissions 1 MHz – 26 GHz, 2437 MHz, 802.11b, 11Mbps



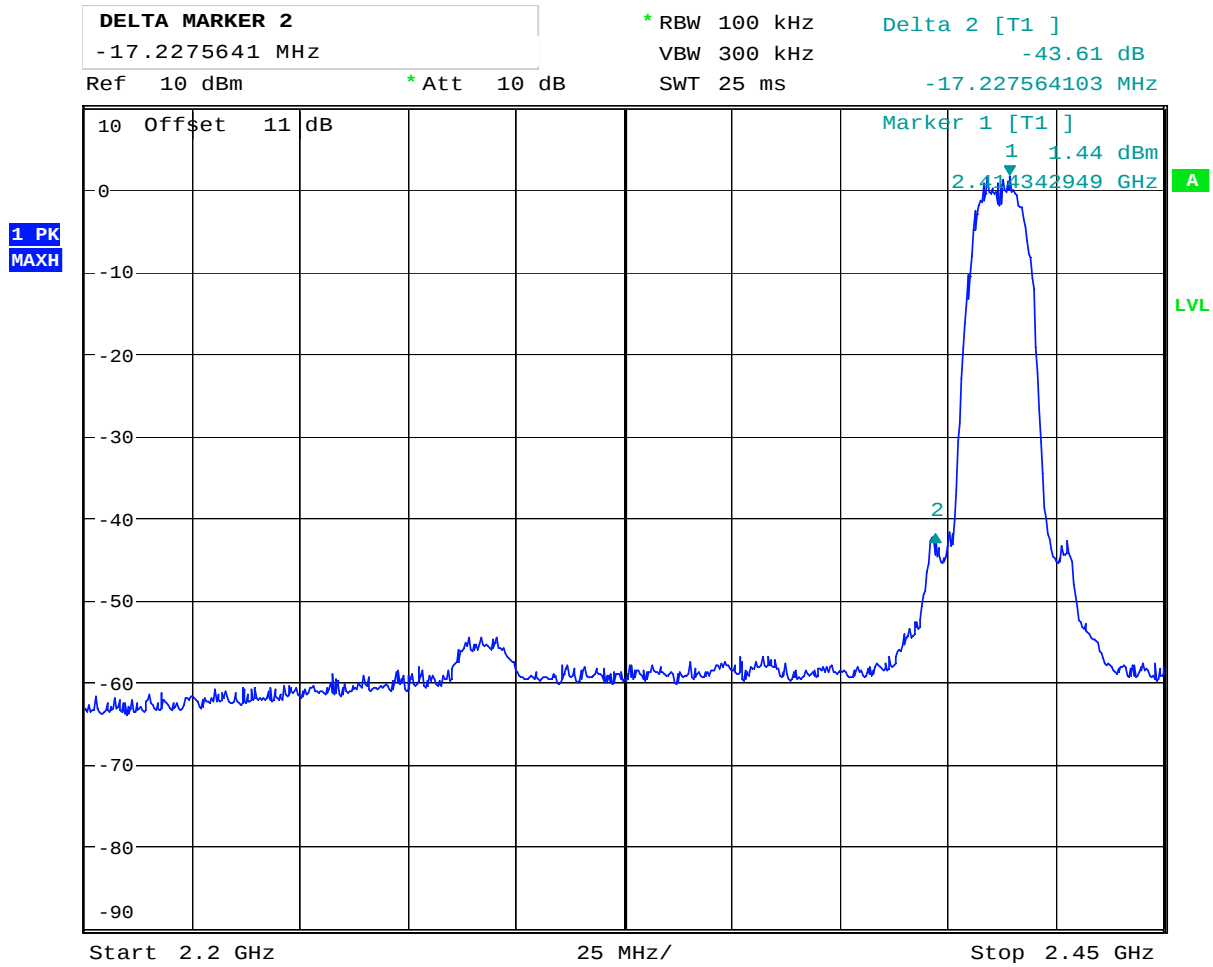
Date: 13.AUG.2013 13:33:35

Conducted Emissions 1 MHz – 26 GHz, 2437 MHz, 802.11g, 6Mbps



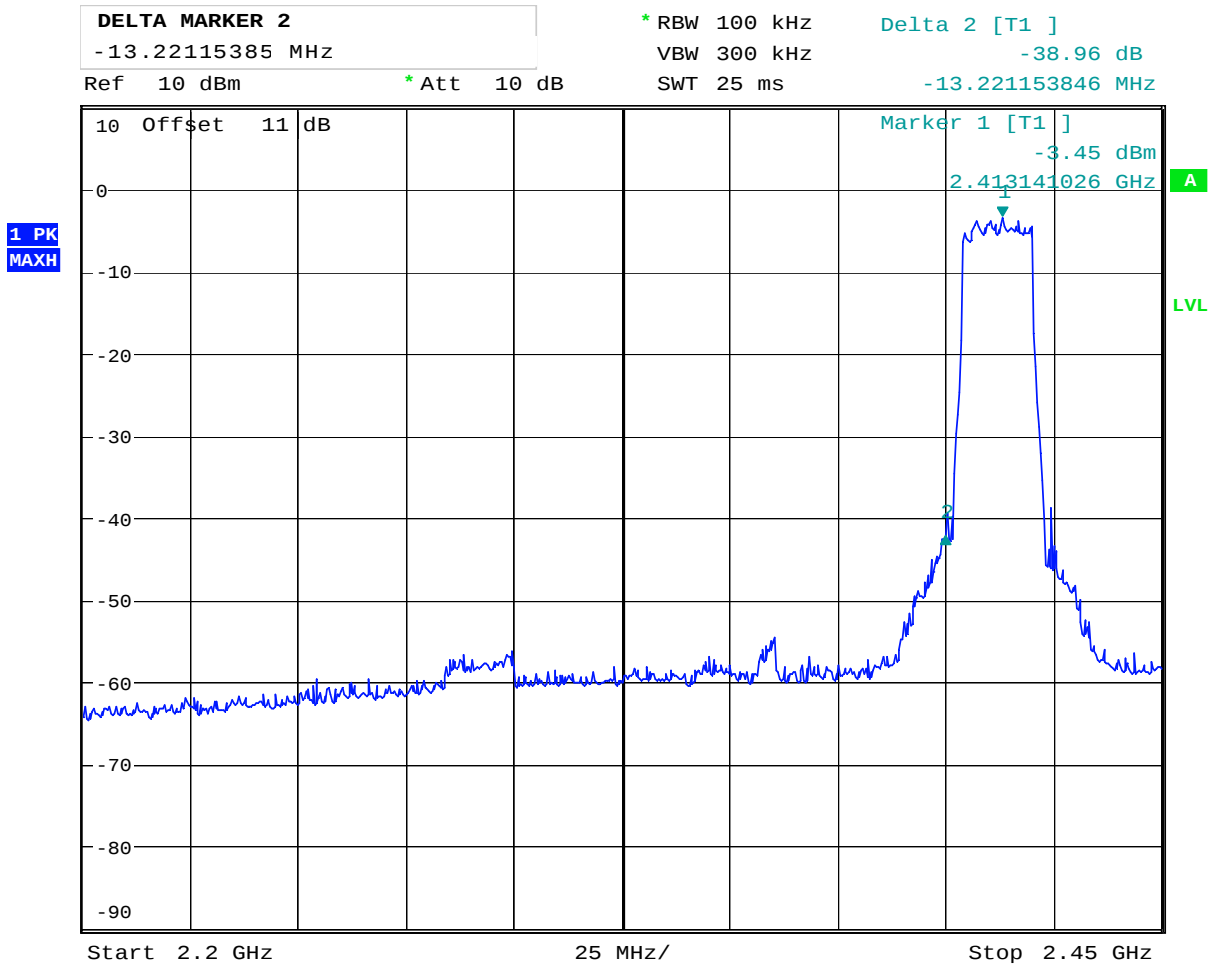
Date: 13.AUG.2013 13:34:32

Conducted Emissions 1 MHz – 26 GHz, 2437 MHz, 802.11n, MCS0



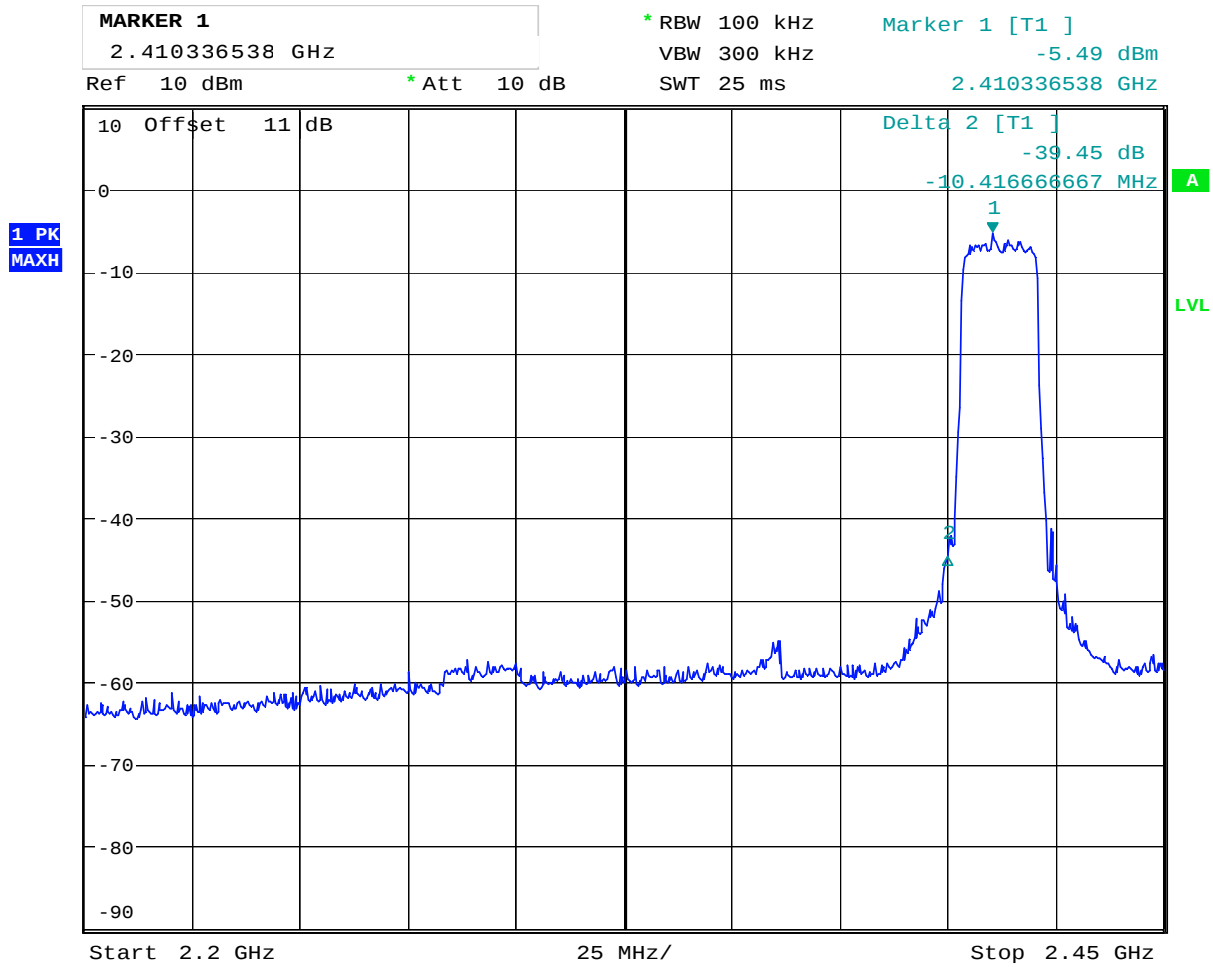
Date: 13.AUG.2013 14:03:05

Lower Band Edge 1, Conducted, 2412 MHz, 802.11b, 11Mbps



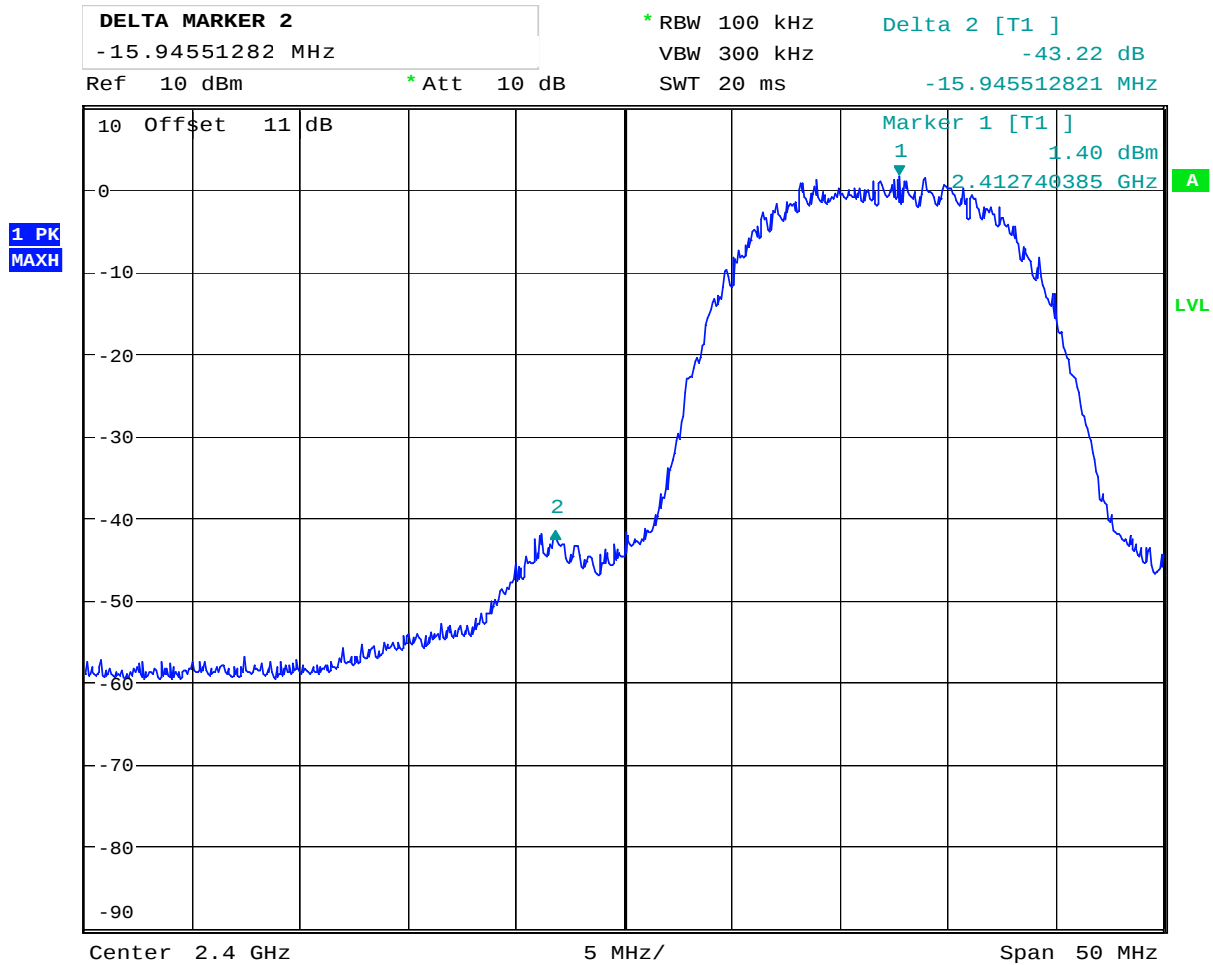
Date: 13.AUG.2013 14:08:59

Lower Band Edge 1, Conducted, 2412 MHz, 802.11g, 54Mbps



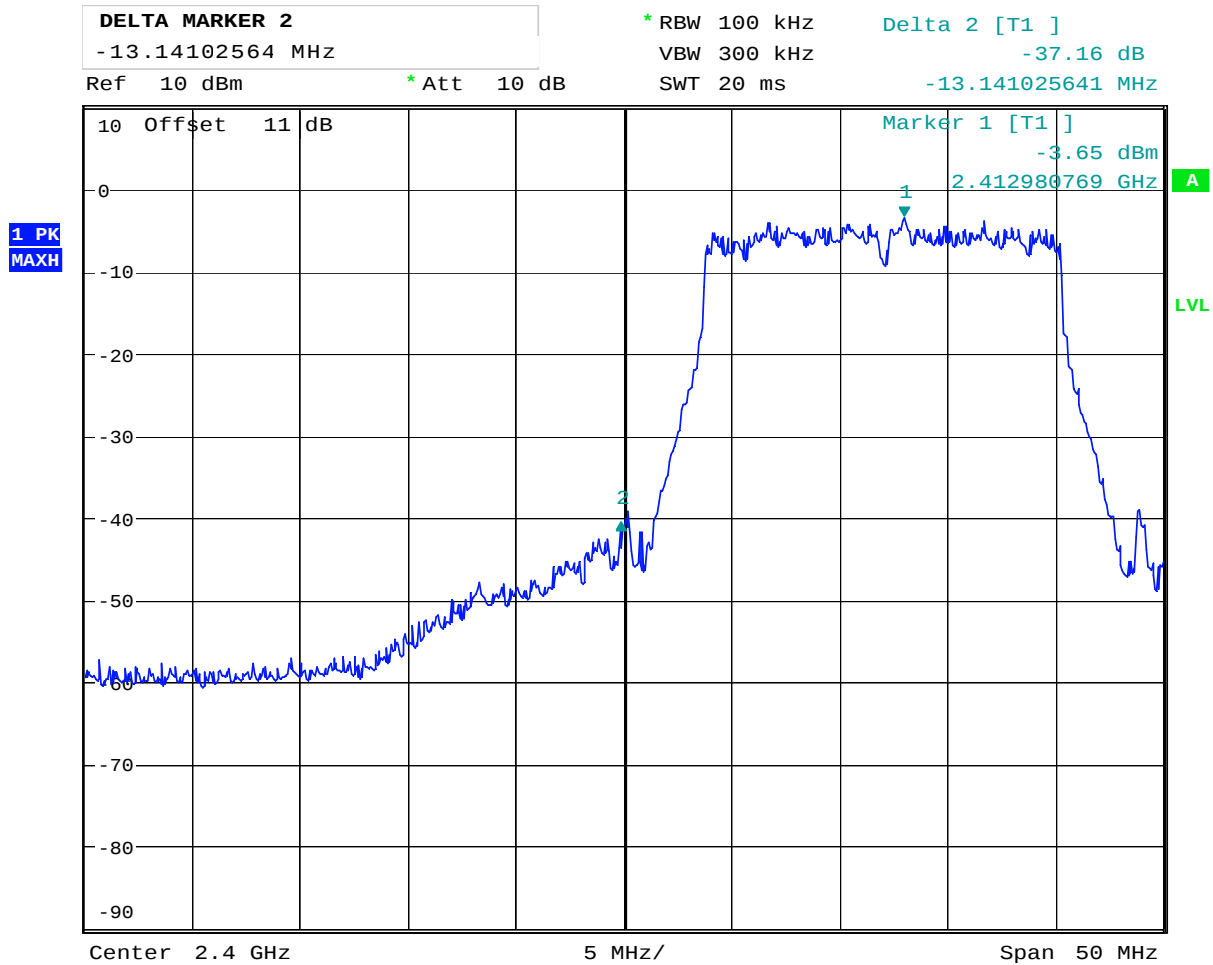
Date: 13.AUG.2013 13:58:50

Lower Band Edge 1, Conducted, 2412 MHz, 802.11n, MCS7



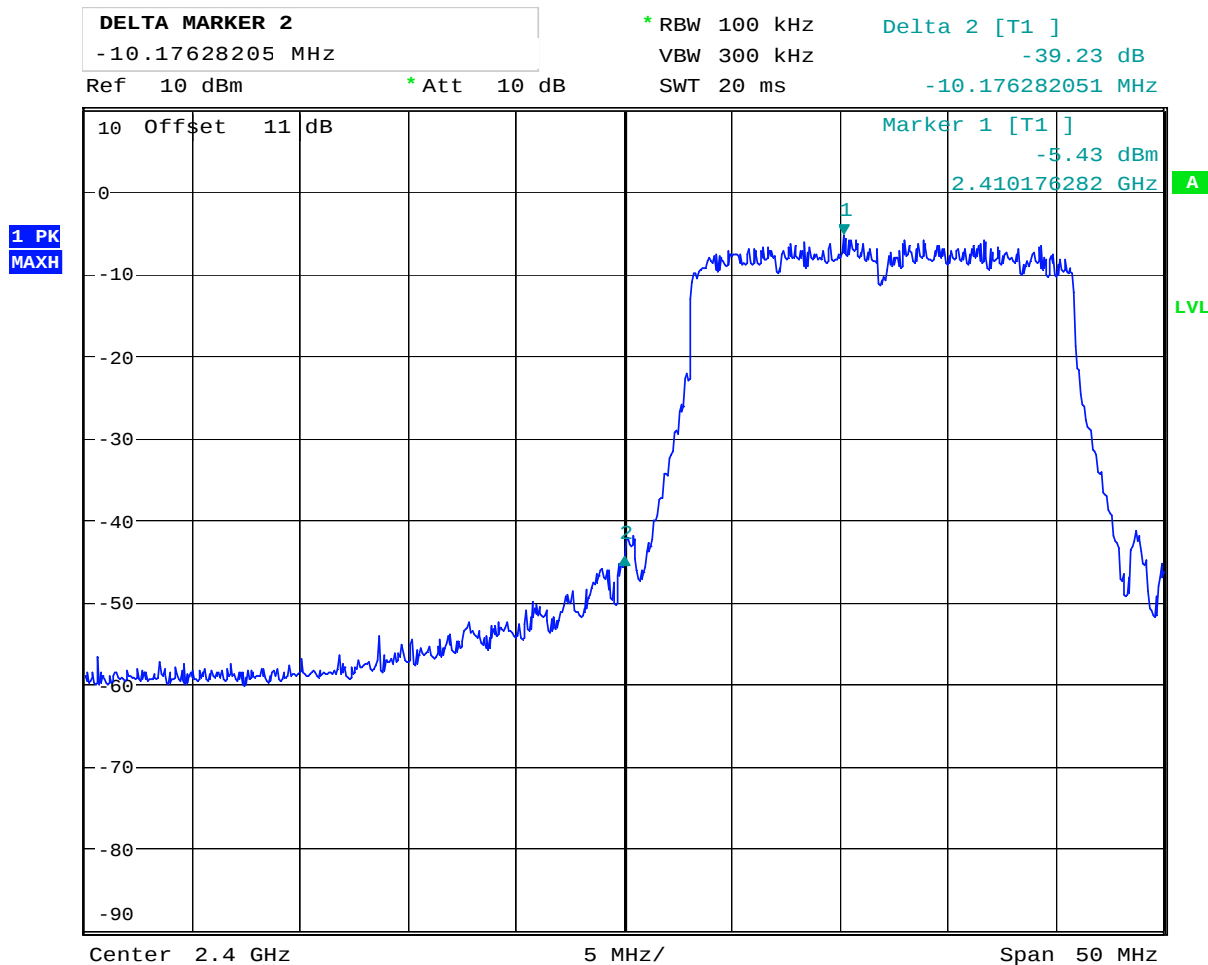
Date: 13.AUG.2013 13:24:20

Lower Band Edge 2, Conducted, 2412 MHz, 802.11b, 11Mbps



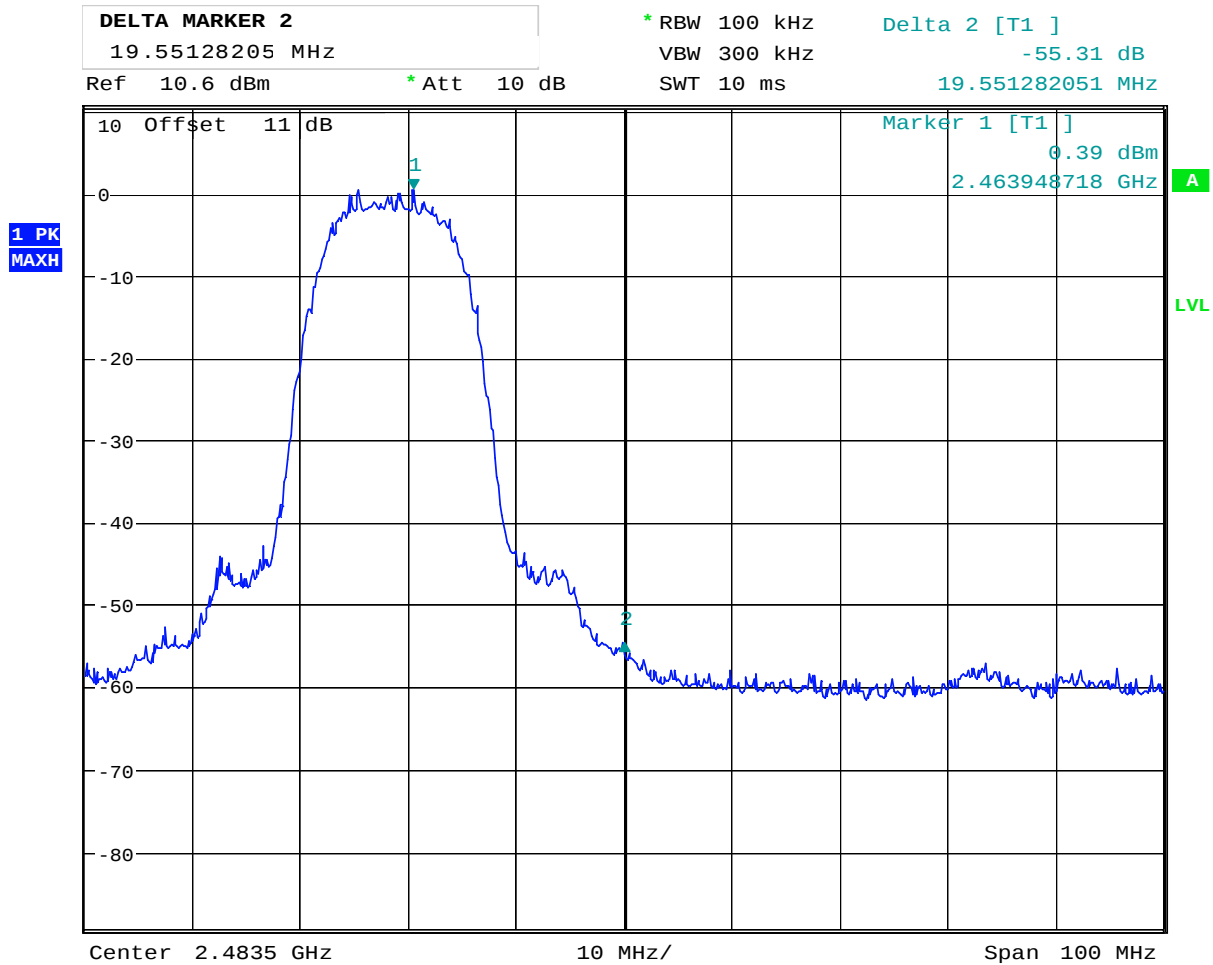
Date: 13.AUG.2013 13:21:34

Lower Band Edge 2, Conducted, 2412 MHz, 802.11g, 54Mbps



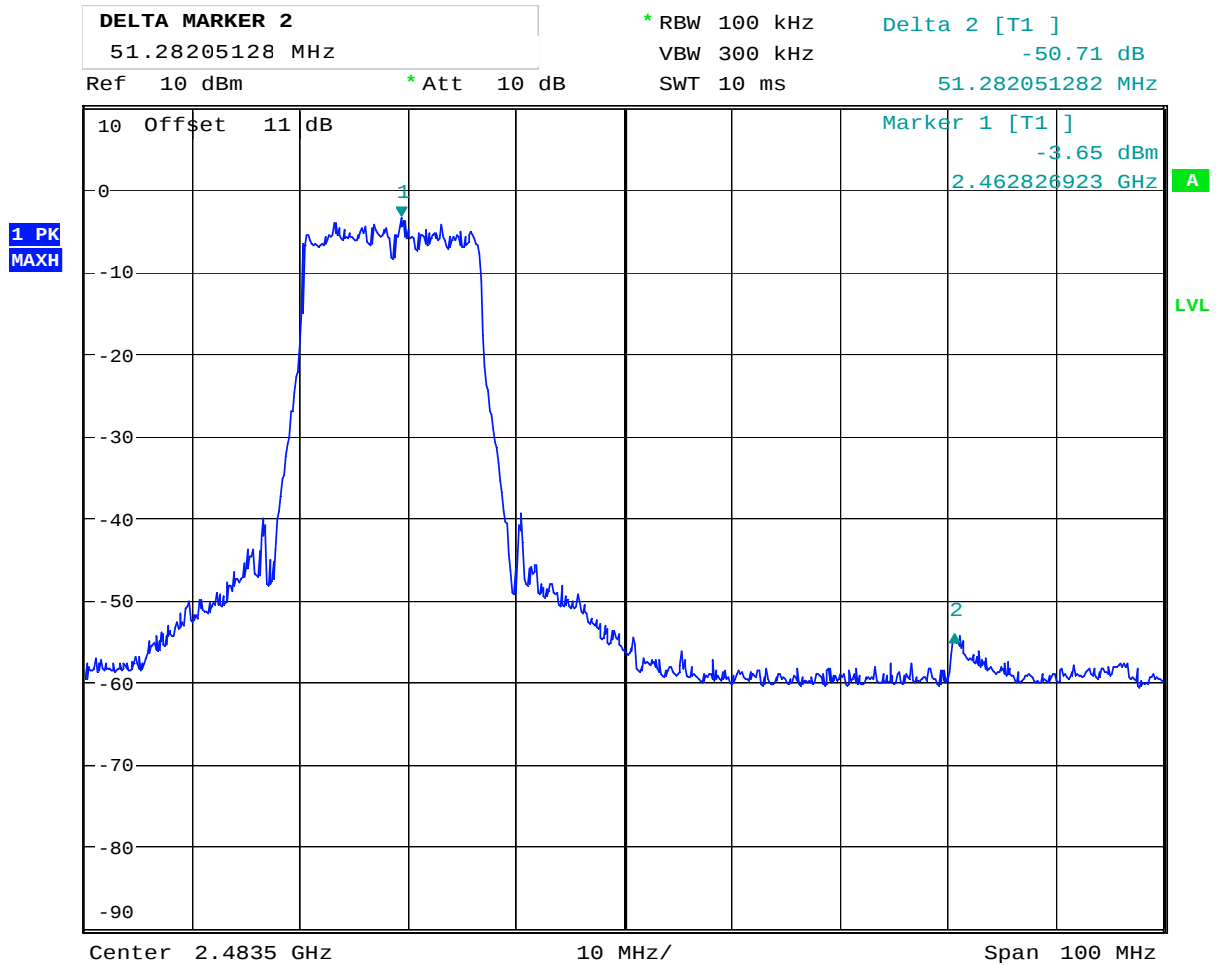
Date: 13.AUG.2013 13:26:45

Lower Band Edge 2, Conducted, 2412 MHz, 802.11n, MCS7



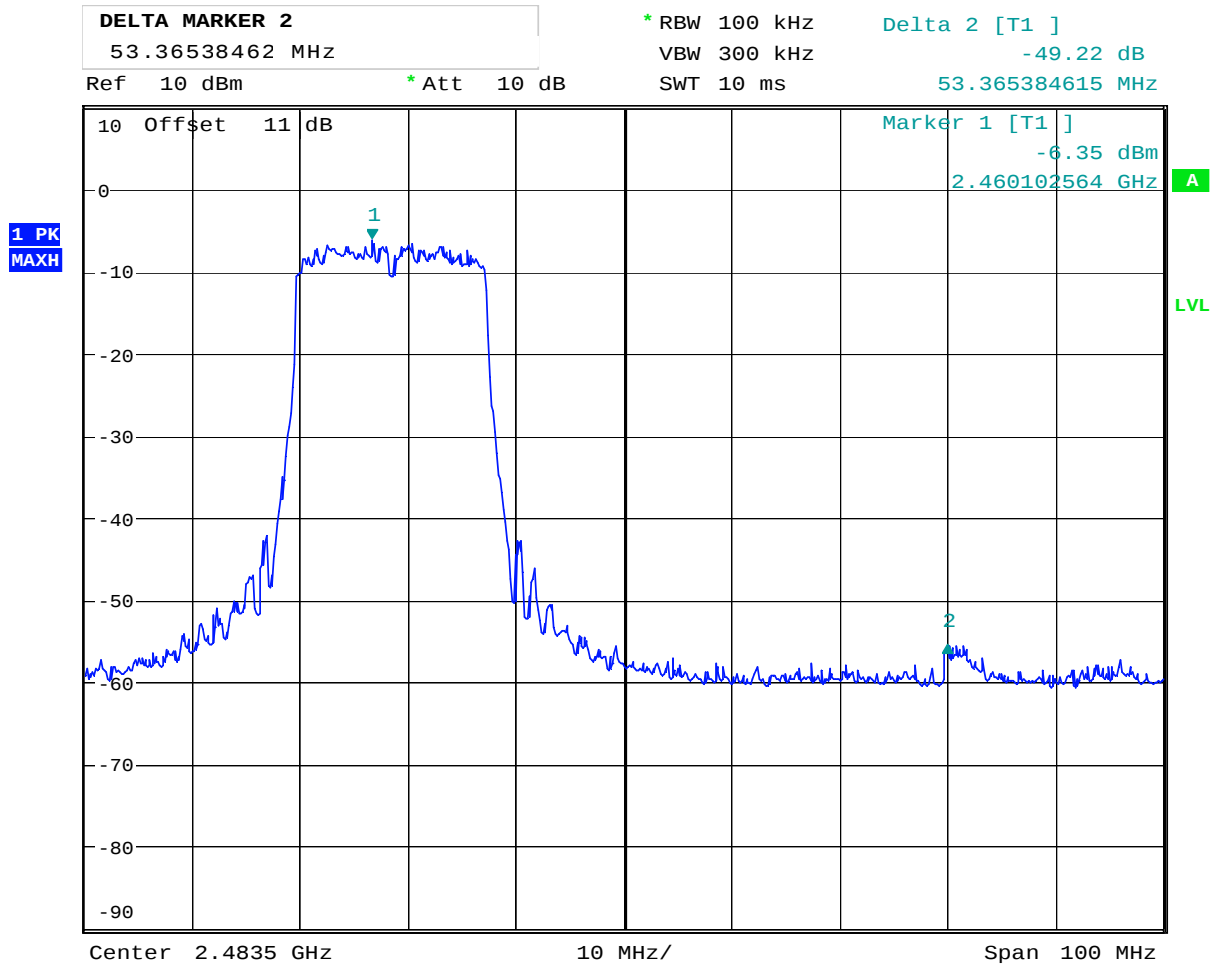
Date: 13.AUG.2013 13:13:19

Upper Band Edge, Conducted, 2462 MHz, 802.11b, 11Mbps



Date: 13.AUG.2013 13:19:26

Upper Band Edge, Conducted, 2462 MHz, 802.11g, 54Mbps



Date: 13.AUG.2013 13:15:31

Upper Band Edge, Conducted, 2462 MHz, 802.11n, MCS7

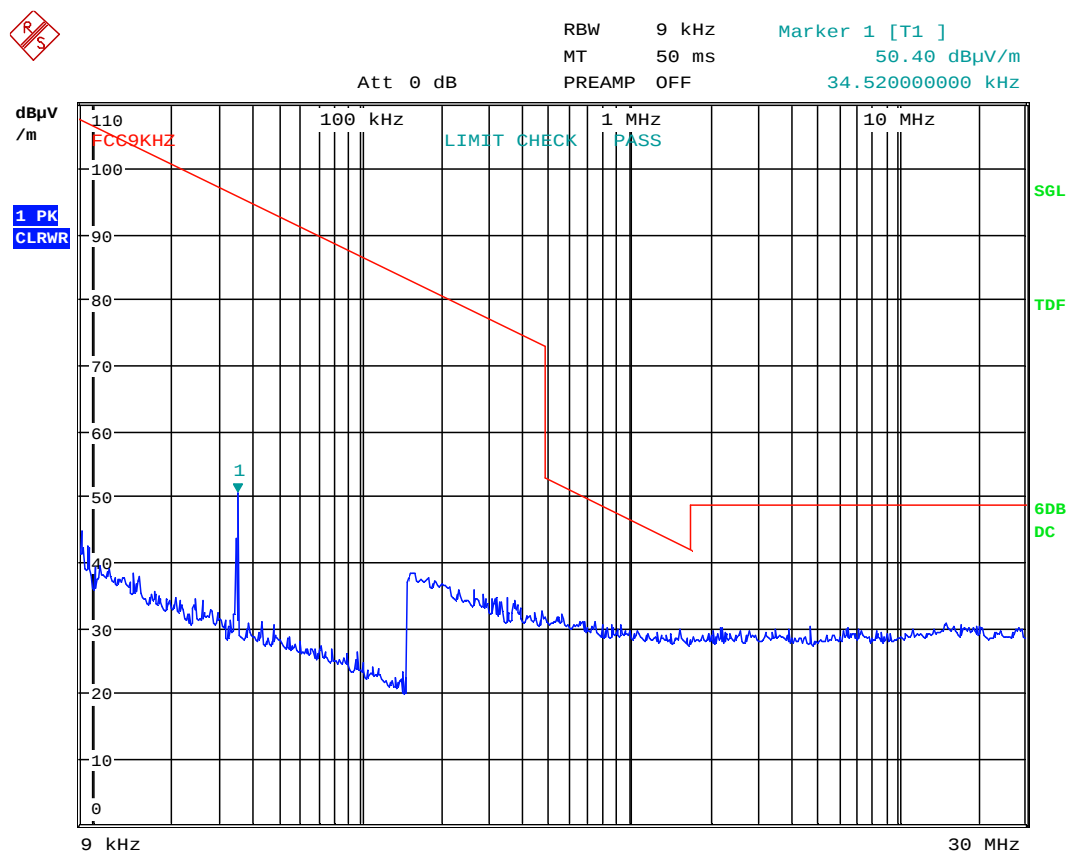
Radiated emissions 10 kHz-30 MHz.

Measuring distance 10 m, measured with Peak detector.

Limit is converted to 10 m using 40 dB/decade according to 15.31 (f) (2).

Frequency	Operational condition	Field strength	Measuring distance	Limit	Margin
				FCC15.209	
		dB μ V/m	metres	dB μ V/m	dB
34.5 kHz	TX on	<60	10	96	>30

See plot.



Date: 6.SEP.2013 16:14:29

Radiated emission 30 – 1000 MHz.

Detector: Quasi-Peak

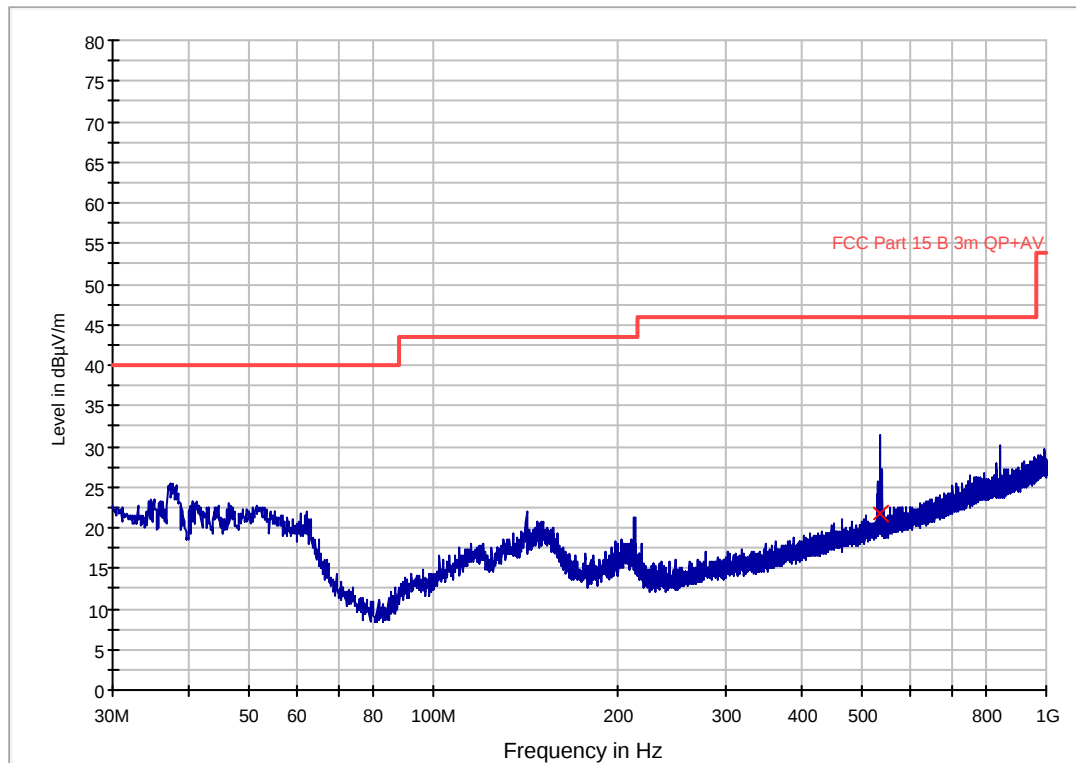
Measuring distance 10 m according to CISPR 22.

Tested in speech mode with active connection.

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Polarization	Margin (dB)	Limit (dBµV/m)	Comment
534.580572	21.7	120.000	V	24.3	46.0	/

See plot.

NTC FCC Pt15 Class B 30-1000M 3m



Radiated Emissions, 1-25 GHz

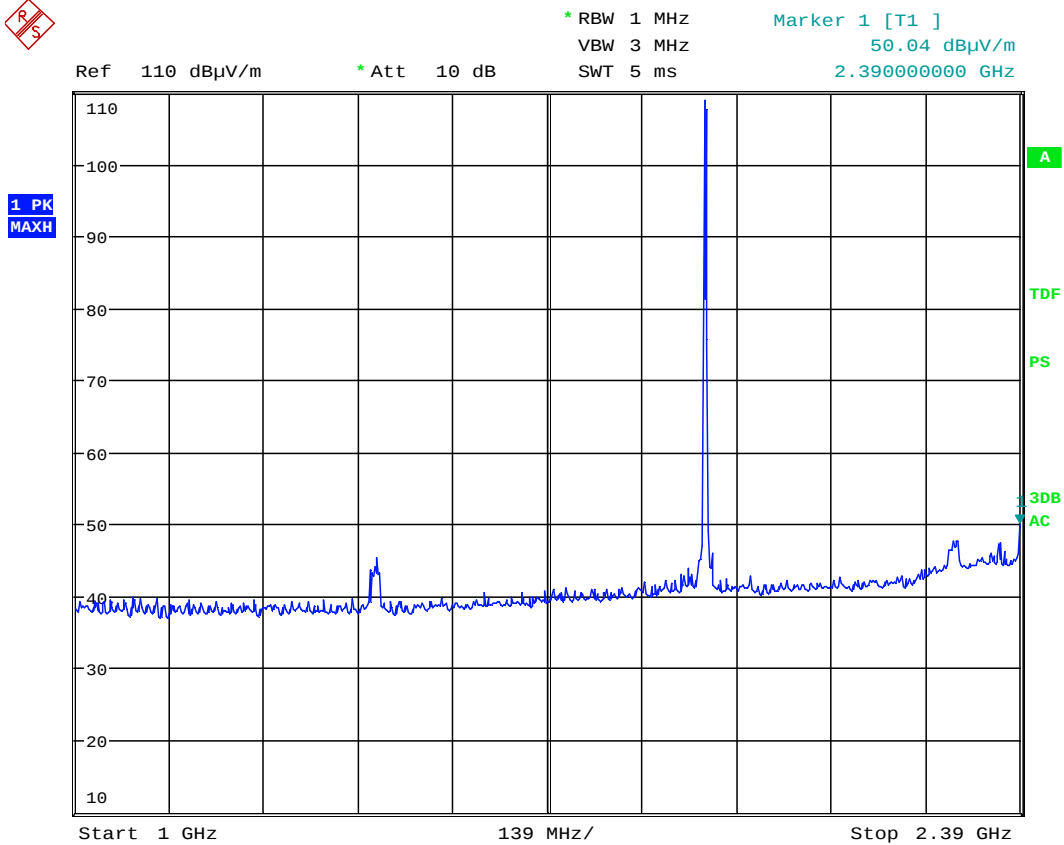
Measuring distance: 3m (1 – 8.5 GHz)
1m (5.5 – 18 GHz)

A pre-scan was performed above 18 GHz and no spurious emissions were detected.

All emissions are below the Average limit even when measured with Peak Detector.

Antenna factor, amplifier gain and cable loss are included in spectrum analyzer "Transducer factor".

See plots.



Date: 16.AUG.2013 15:55:07

Radiated Emissions, 1000 -2390 MHz, VP, 802.11g, 54Mbps
(strong signal in plot is the UPCS part)

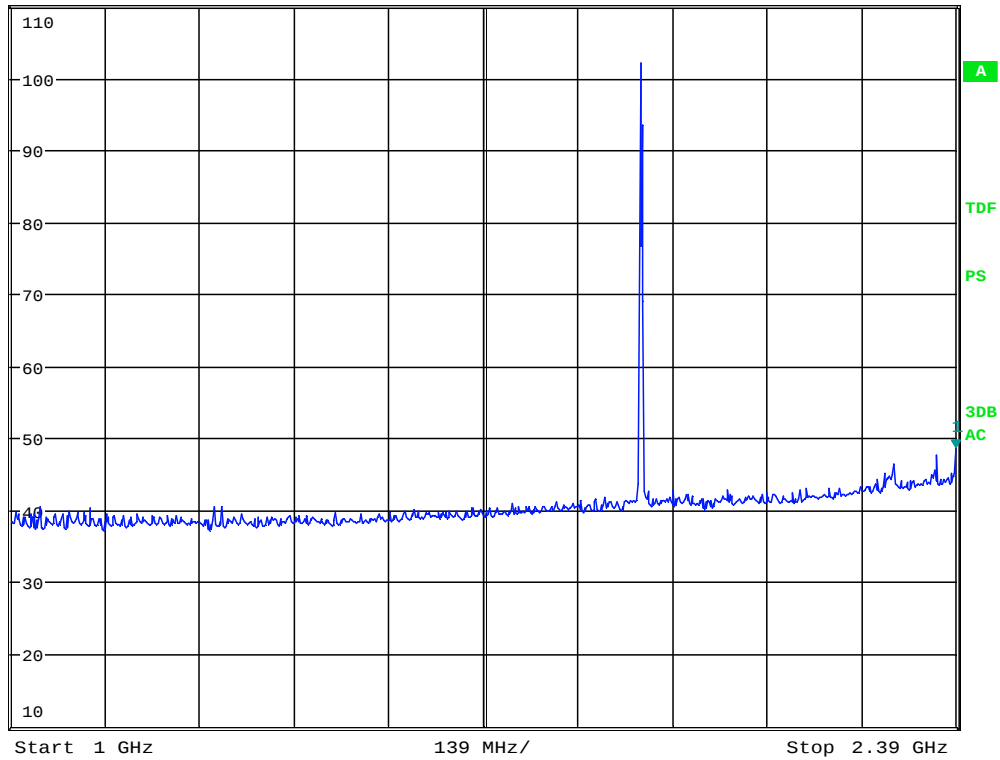


* RBW 1 MHz Marker 1 [T1]
VBW 3 MHz 48.45 dBμV/m
SWT 5 ms 2.390000000 GHz

Ref 110 dBμV/m

* Att 10 dB

1 PK
MAXH



Date: 16.AUG.2013 15:58:43

Radiated Emissions, 1000 -2390 MHz, HP, 802.11g, 54Mbps

(strong signal in plot is the UPCS part)



*RBW 1 MHz
*VBW 3 MHz
SWT 2.5 ms

Marker 1 [T1]
50.87 dBμV/m
2.584134615 GHz

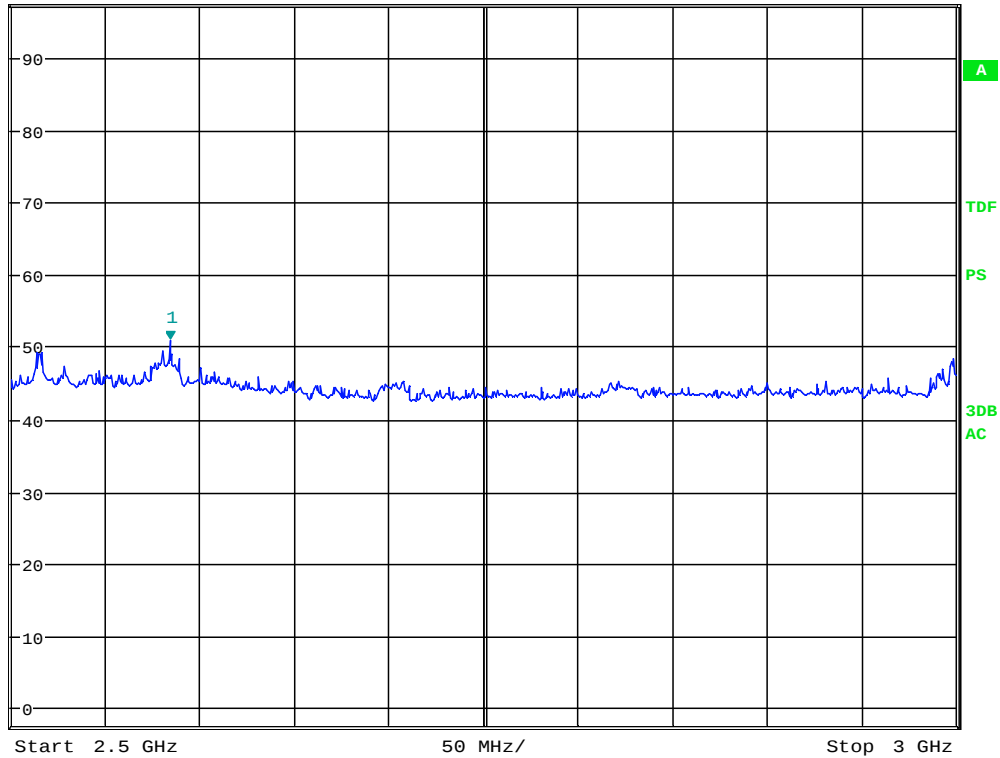
Ref 97.5 dBμV/m

*Att 10 dB

SWT 2.5 ms

2.584134615 GHz

1 PK
MAXH



Date: 4.SEP.2013 14:19:59

Radiated Emissions, 2500 -3000 MHz, VP, 802.11b, 1Mbps

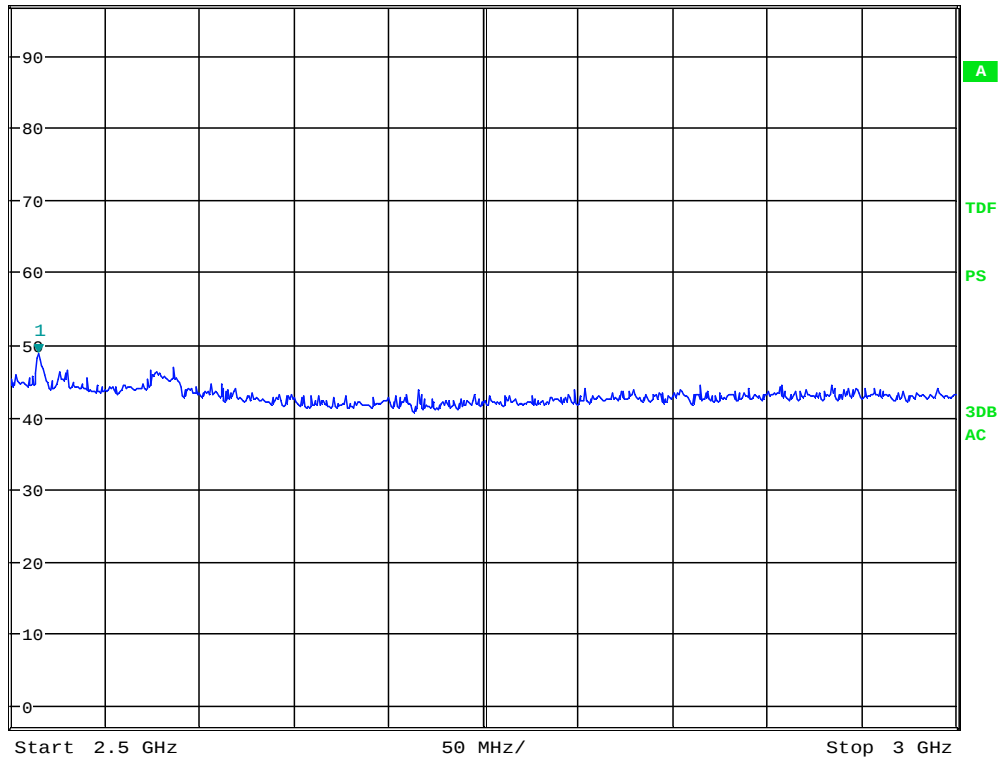


* RBW 1 MHz Marker 1 [T1]
VBW 3 MHz 48.72 dBμV/m
SWT 2.5 ms 2.514423077 GHz

Ref 97 dBμV/m

* Att 10 dB

1 PK
MAXH



Date: 16.AUG.2013 14:52:11

Radiated Emissions, 2500 -3000 MHz, HP, 802.11b, 1Mbps



* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

51.05 dBμV/m

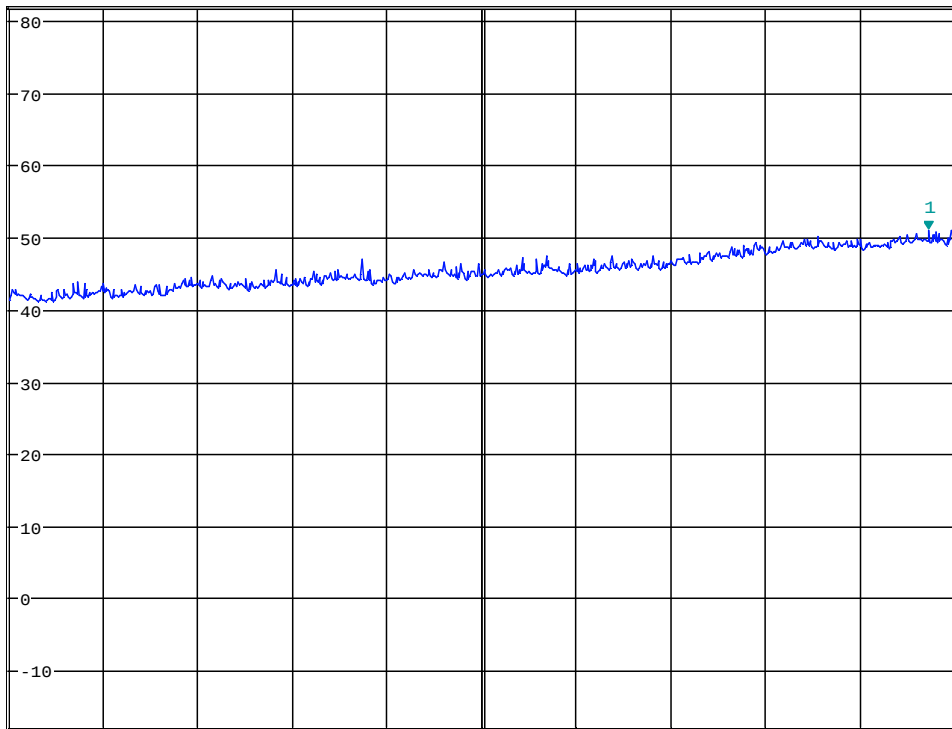
SWT 35 ms

8.350160256 GHz

Ref 82 dBμV/m

* Att 10 dB

1 PK
MAXH



Start 3 GHz

550 MHz/

Stop 8.5 GHz

Date: 4.SEP.2013 13:27:50

Radiated Emissions, 3000 -8500 MHz, VP, 802.11g, 6Mbps



* RBW 1 MHz
* VBW 3 MHz
SWT 35 ms

Marker 1 [T1]
50.85 dB μ V/m
8.138621795 GHz

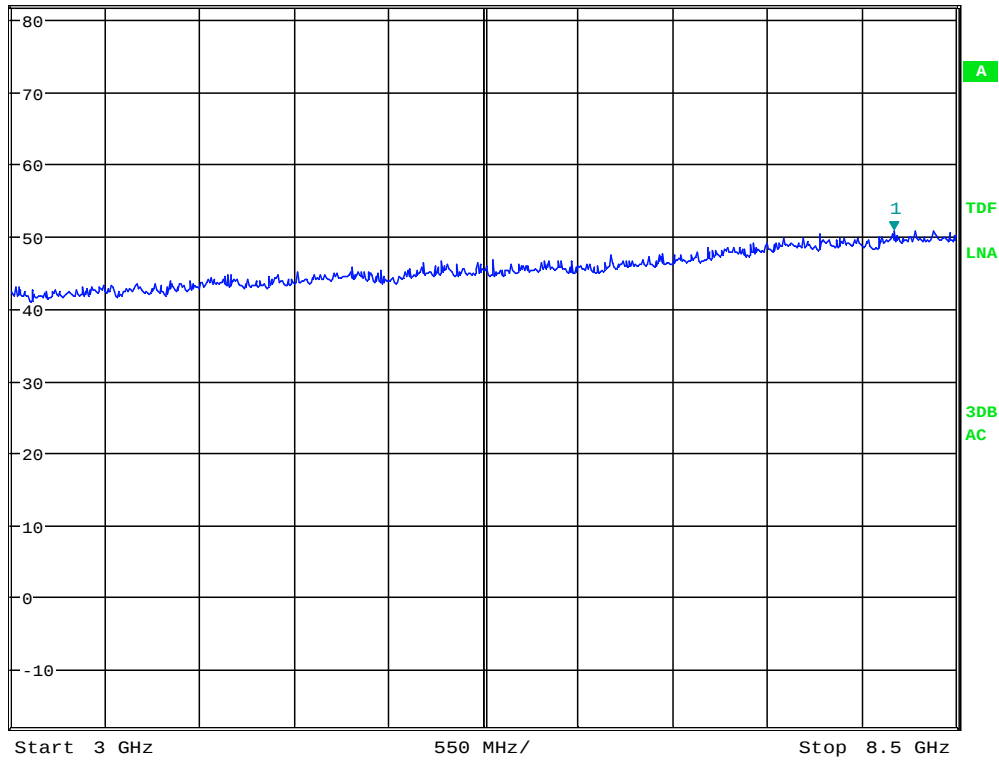
Ref 82 dB μ V/m

* Att 10 dB

SWT 35 ms

8.138621795 GHz

1 PK
MAXH



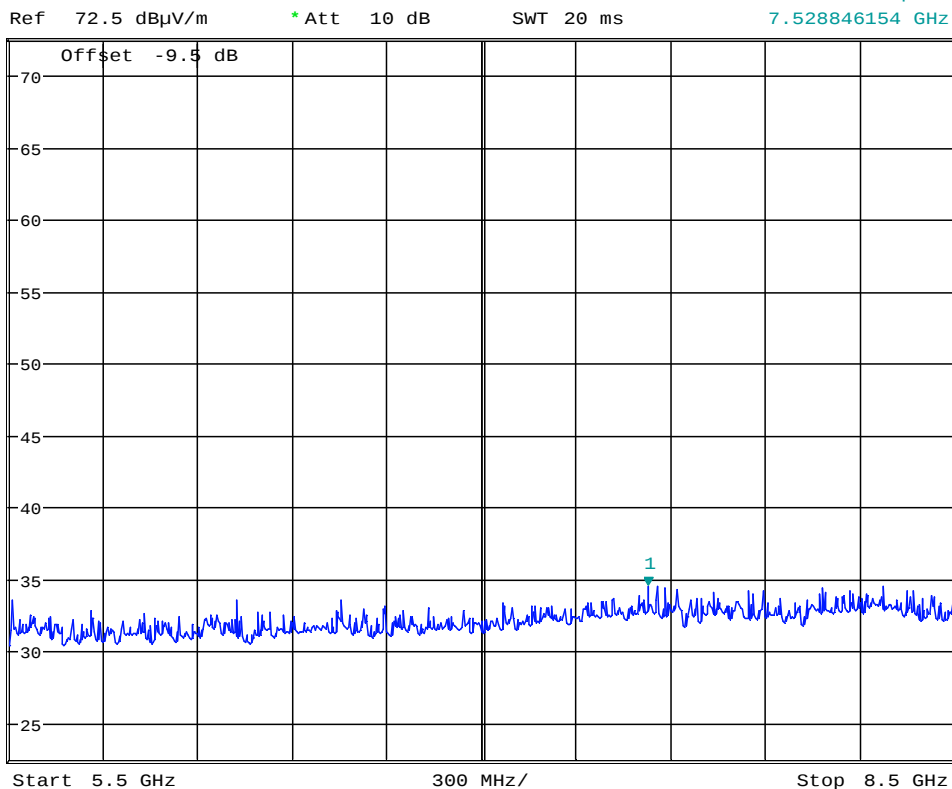
Date: 4.SEP.2013 13:29:32

Radiated Emissions, 3000 -8500 MHz, HP, 802.11g, 54Mbps



* RBW 1 MHz
* VBW 3 MHz
SWT 20 ms

Marker 1 [T1]
34.56 dBμV/m
7.528846154 GHz



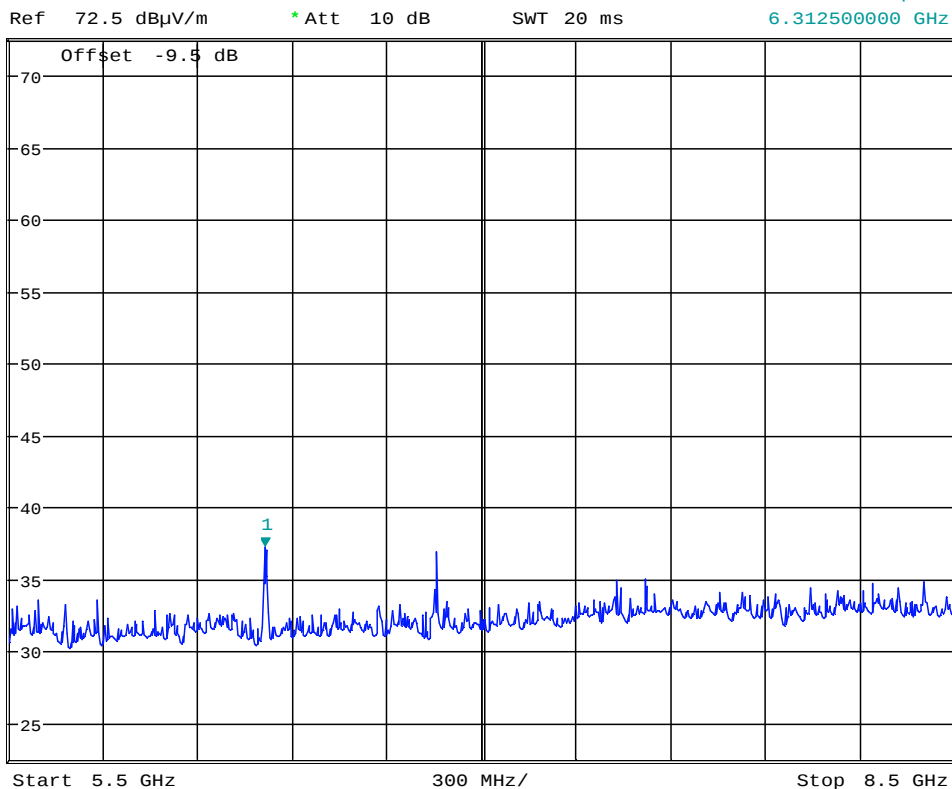
Date: 4.SEP.2013 13:39:05

Radiated Emissions, 5500 -8500 MHz, VP, 802.11g, 54Mbps, @1m



* RBW 1 MHz
* VBW 3 MHz
SWT 20 ms

Marker 1 [T1]
37.26 dBμV/m
6.312500000 GHz



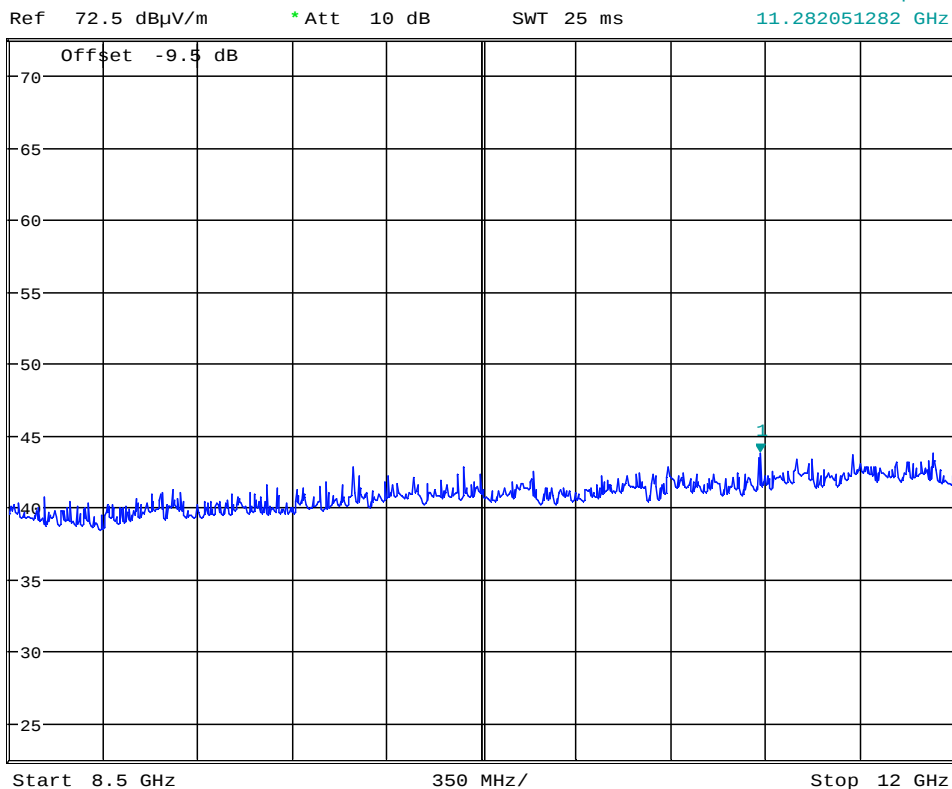
Date: 4.SEP.2013 13:40:47

Radiated Emissions, 5500 -8500 MHz, HP, 802.11g, 54Mbps, @1m



* RBW 1 MHz
* VBW 3 MHz
SWT 25 ms

Marker 1 [T1]
43.79 dBμV/m
11.282051282 GHz

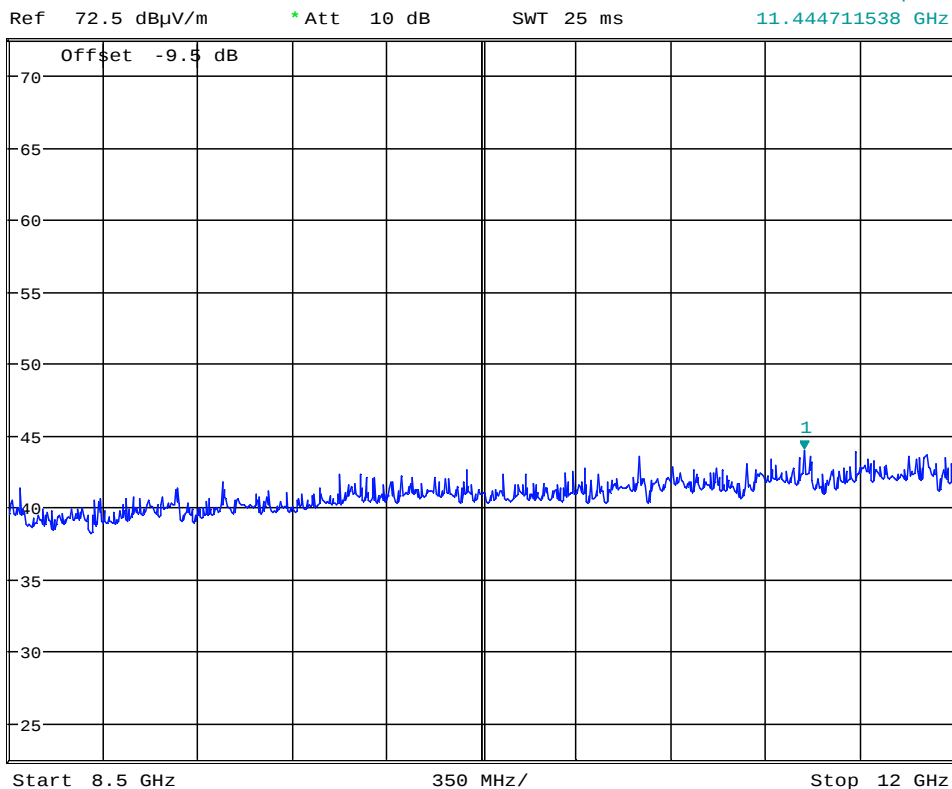


Date: 4.SEP.2013 13:50:21

Radiated Emissions, 8000 -12000 MHz, VP, 802.11g, 54Mbps, @1m



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
43.98 dBμV/m
11.444711538 GHz

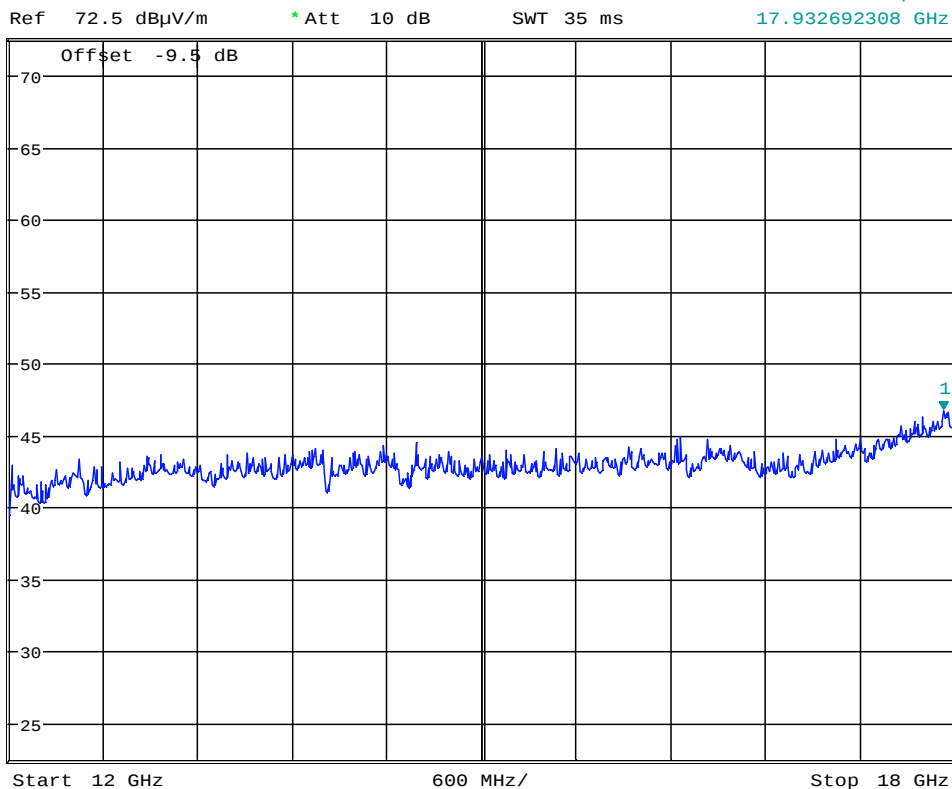


Date: 4.SEP.2013 13:52:02

Radiated Emissions, 8000 -12000 MHz, HP, 802.11g, 54Mbps, @1m



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
46.73 dBμV/m
17.932692308 GHz



Date: 4.SEP.2013 14:08:36

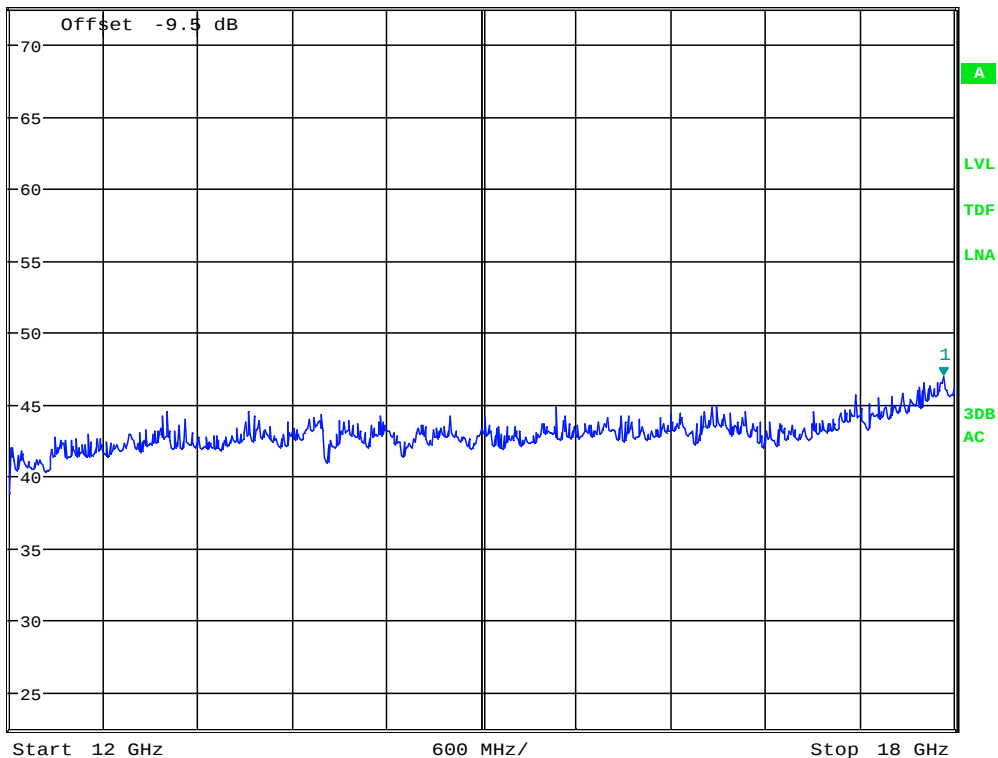
Radiated Emissions, 12000 -18000 MHz, VP, 802.11g, 6Mbps, @1m



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
46.96 dBμV/m
17.932692308 GHz

Ref 72.5 dBμV/m * Att 10 dB SWT 35 ms

1 PK
MAXH



Date: 4.SEP.2013 14:10:18

Radiated Emissions, 12000 -18000 MHz, HP, 802.11g, 6Mbps, @1m

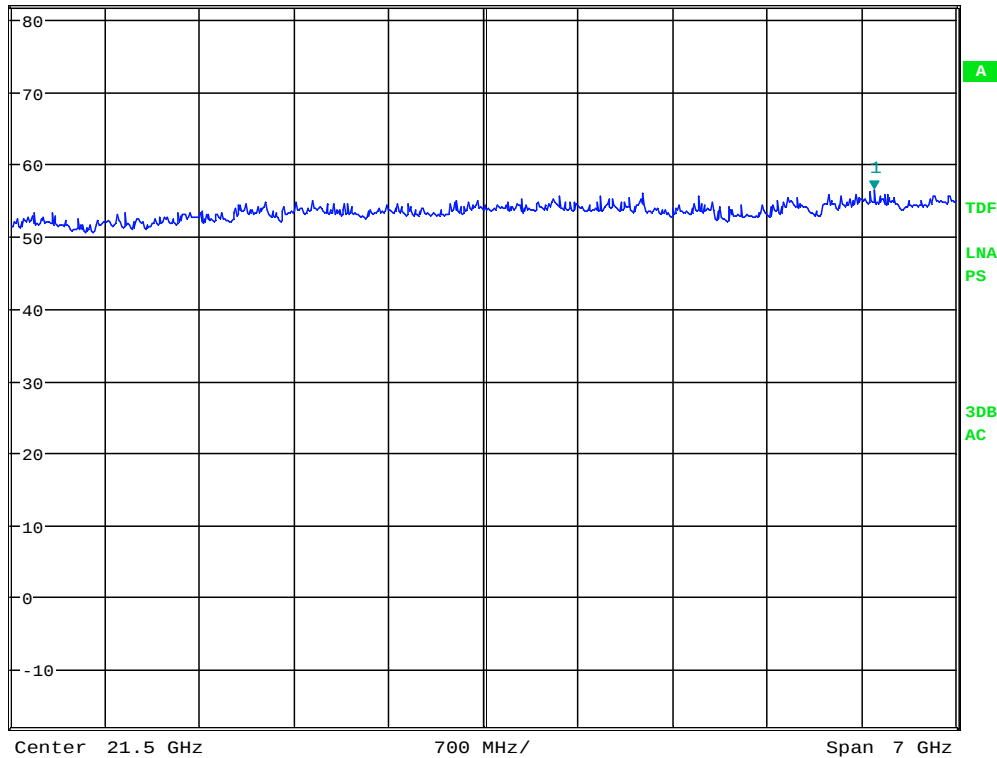


* RBW 1 MHz
VBW 3 MHz
SWT 45 ms
Marker 1 [T1]
56.39 dBμV/m
24.394230769 GHz

Ref 82 dBμV/m

* Att 10 dB

1 PK
MAXH



Date: 10.SEP.2013 15:32:39

Pre-scan, 18000 -25000 MHz, 802.11g, 6Mbps

3.6 Power Spectral Density (PSD)

Para. No.: 15.247 (d)

Test Performed By: Frode Sveinsen

Date of Test: 13-Aug-2013

Test Results: Passed

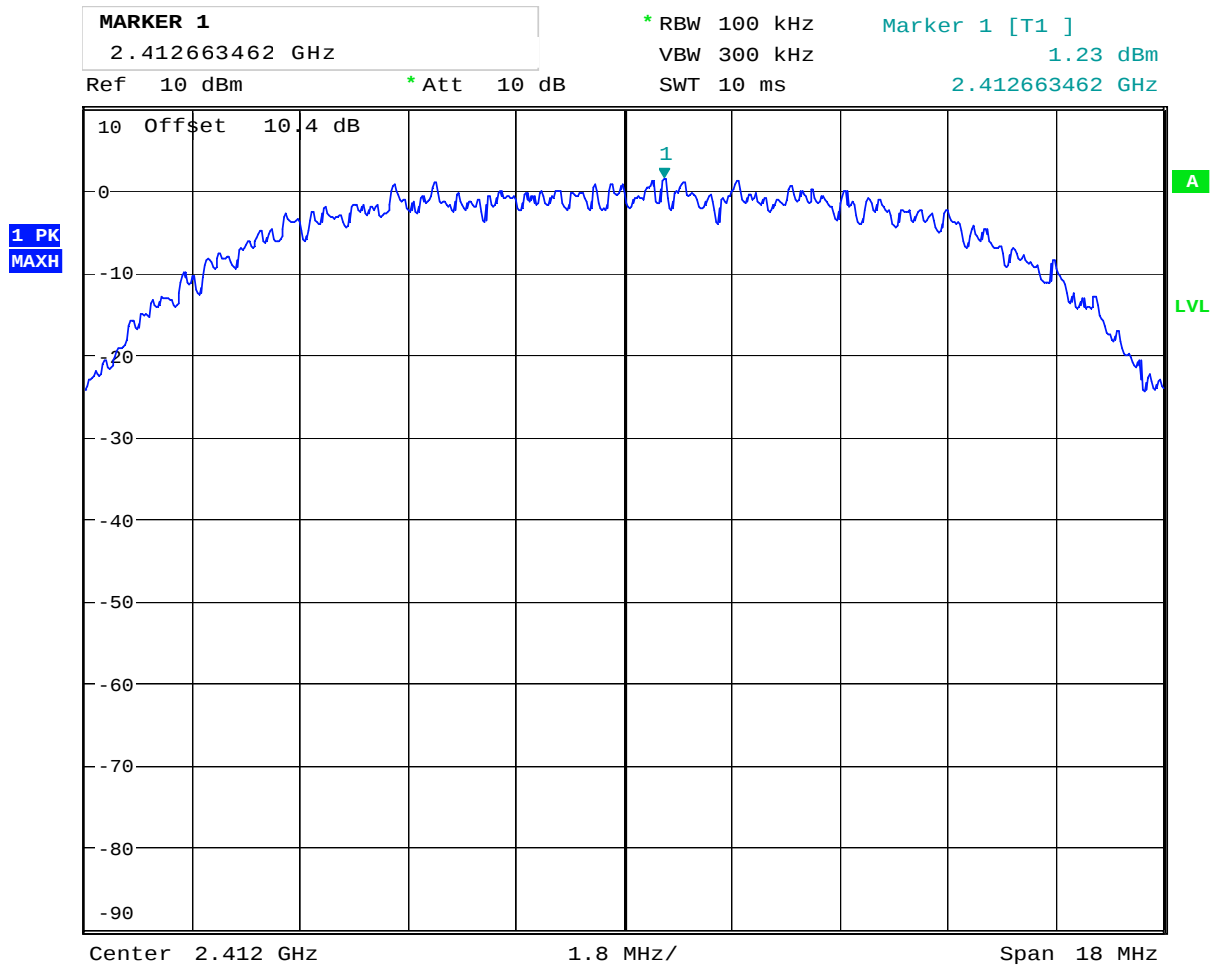
Measured and Calculated Data:

The measurement procedures PKPSD described in KDB 558074 D01 v03 was used.

Carrier Frequency (MHz)	Power Spectral Density (dBm)		
	802.11b, 11Mbps	802.11g, 54Mbps	802.11n, MCS0
2412	1.2	-3.3	-5.4
2437	0.8	-4.0	-5.5
2462	0.4	-4.4	-5.9

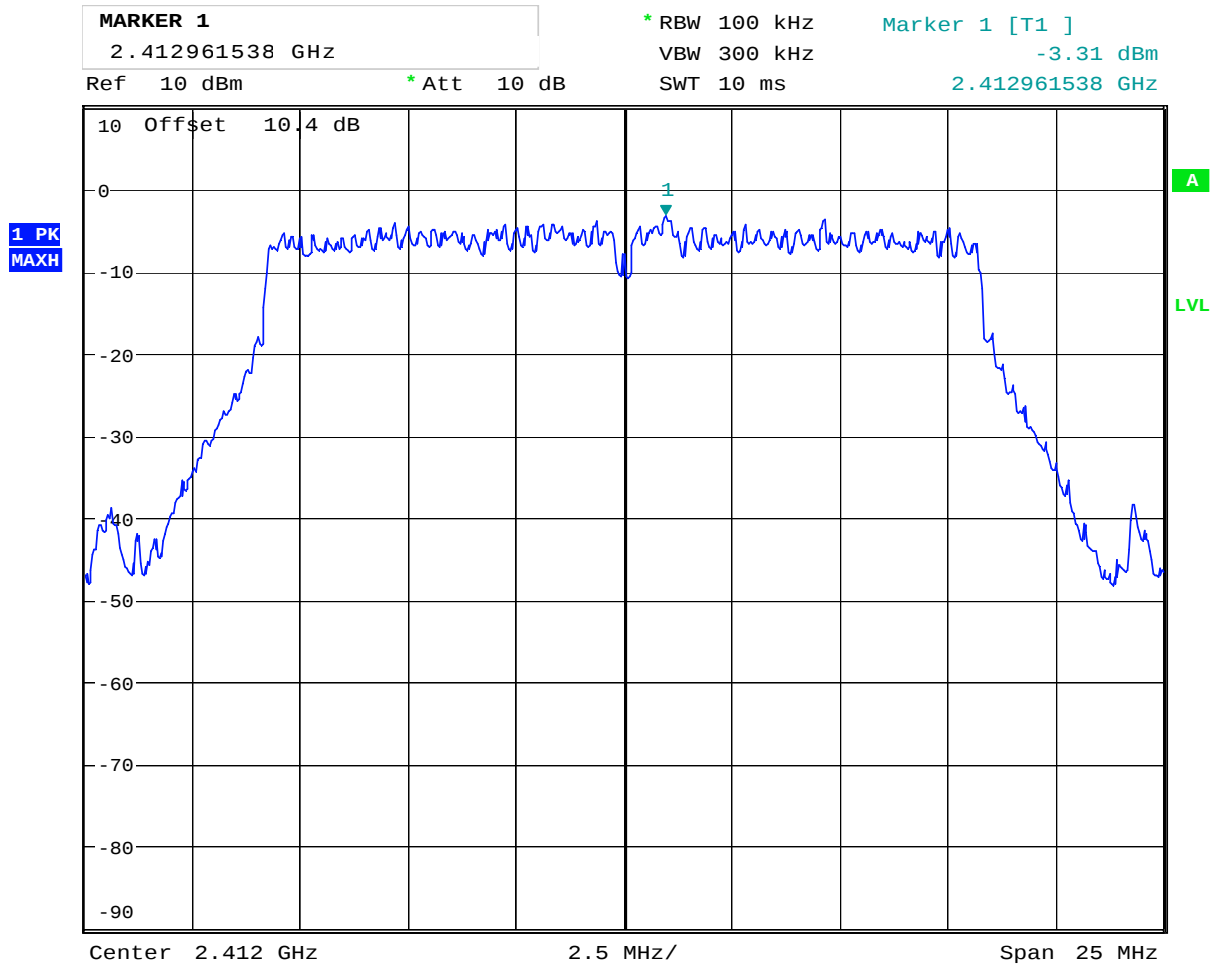
Requirements:

The Power Spectral Density of a Digital Transmission System shall be no greater than +8 dBm in any 3 kHz band



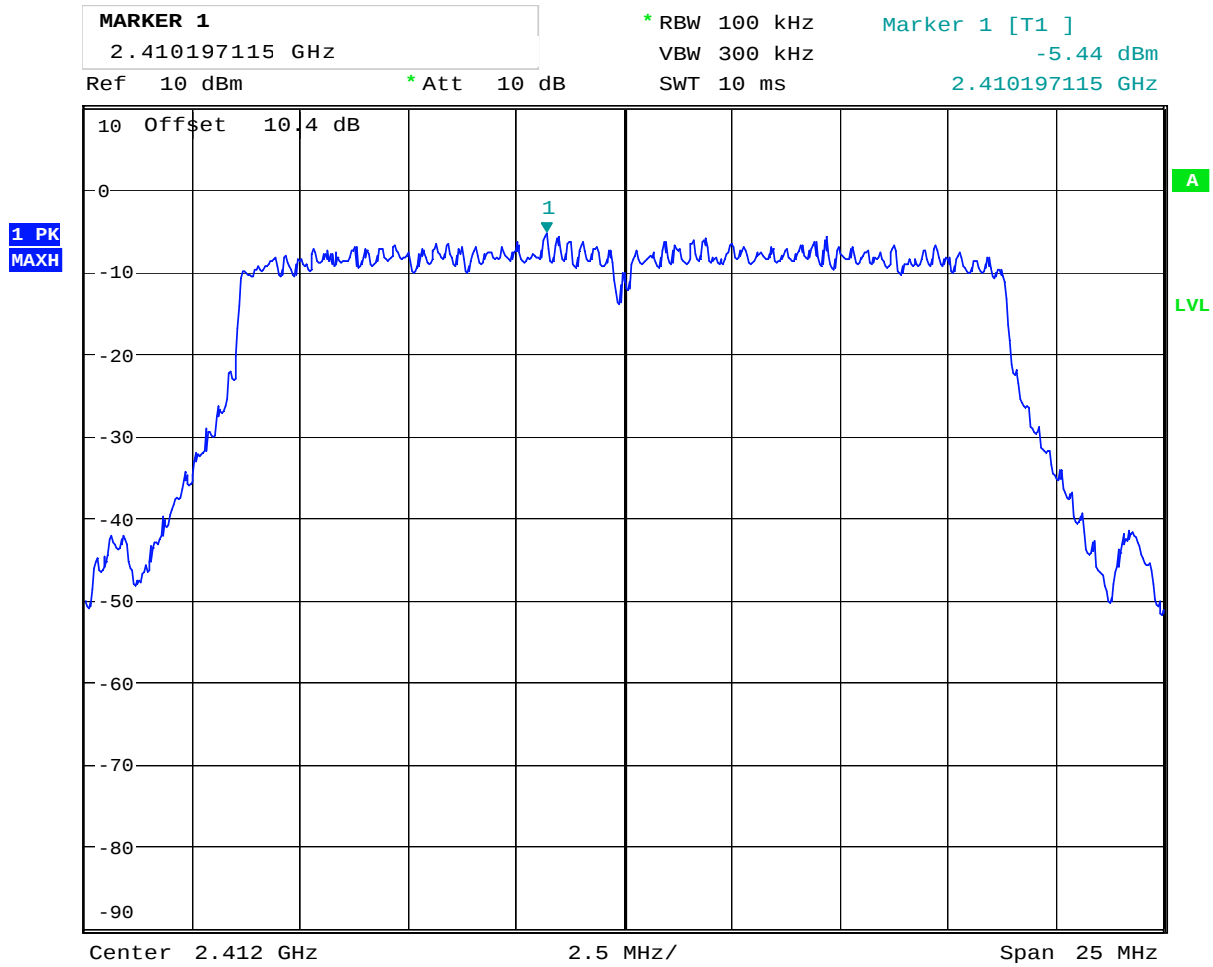
Date: 13.AUG.2013 13:02:23

PSD, 2412 MHz, 802.11b, 11Mbps



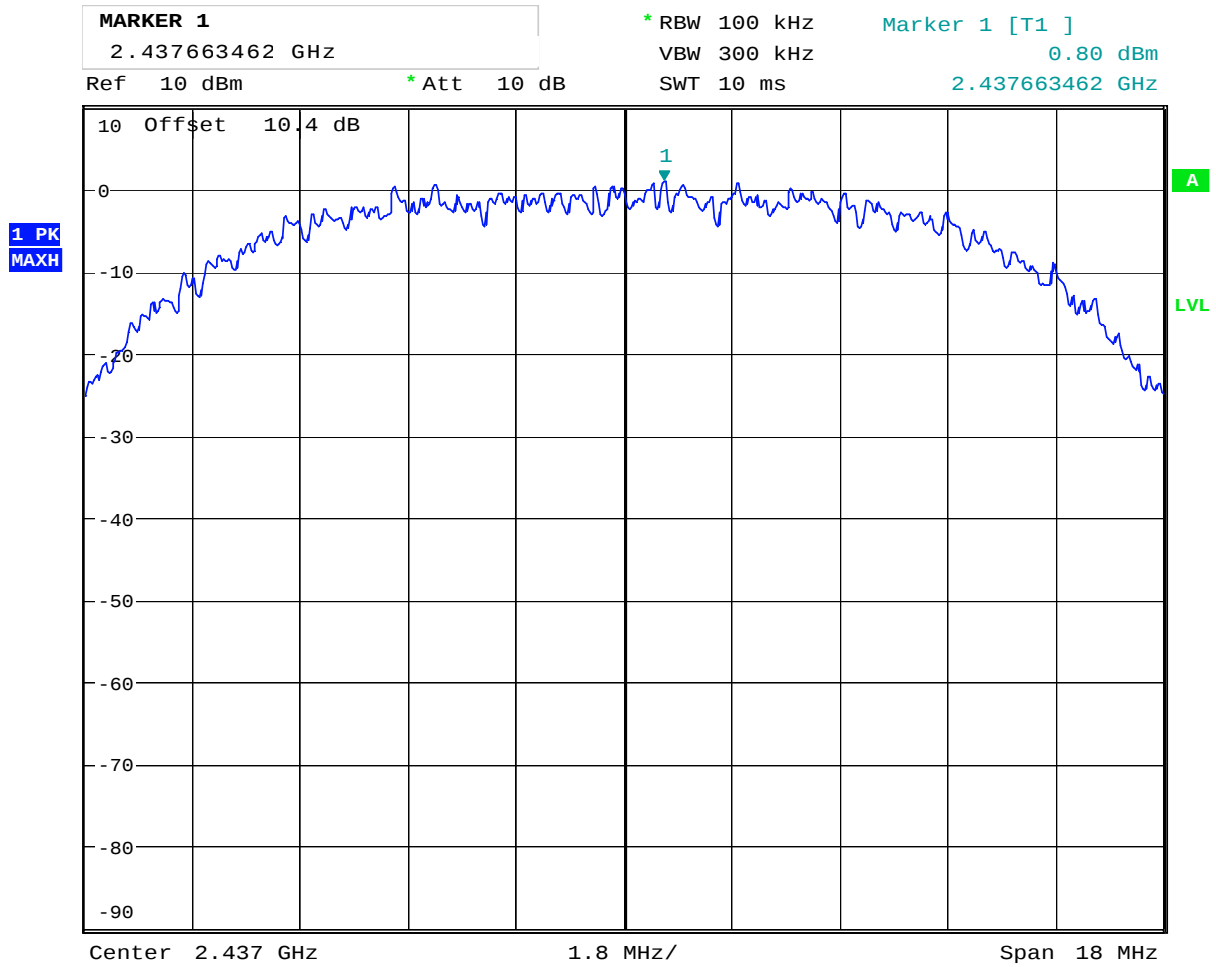
Date: 13.AUG.2013 12:08:34

PSD, 2412 MHz, 802.11g, 54Mbps



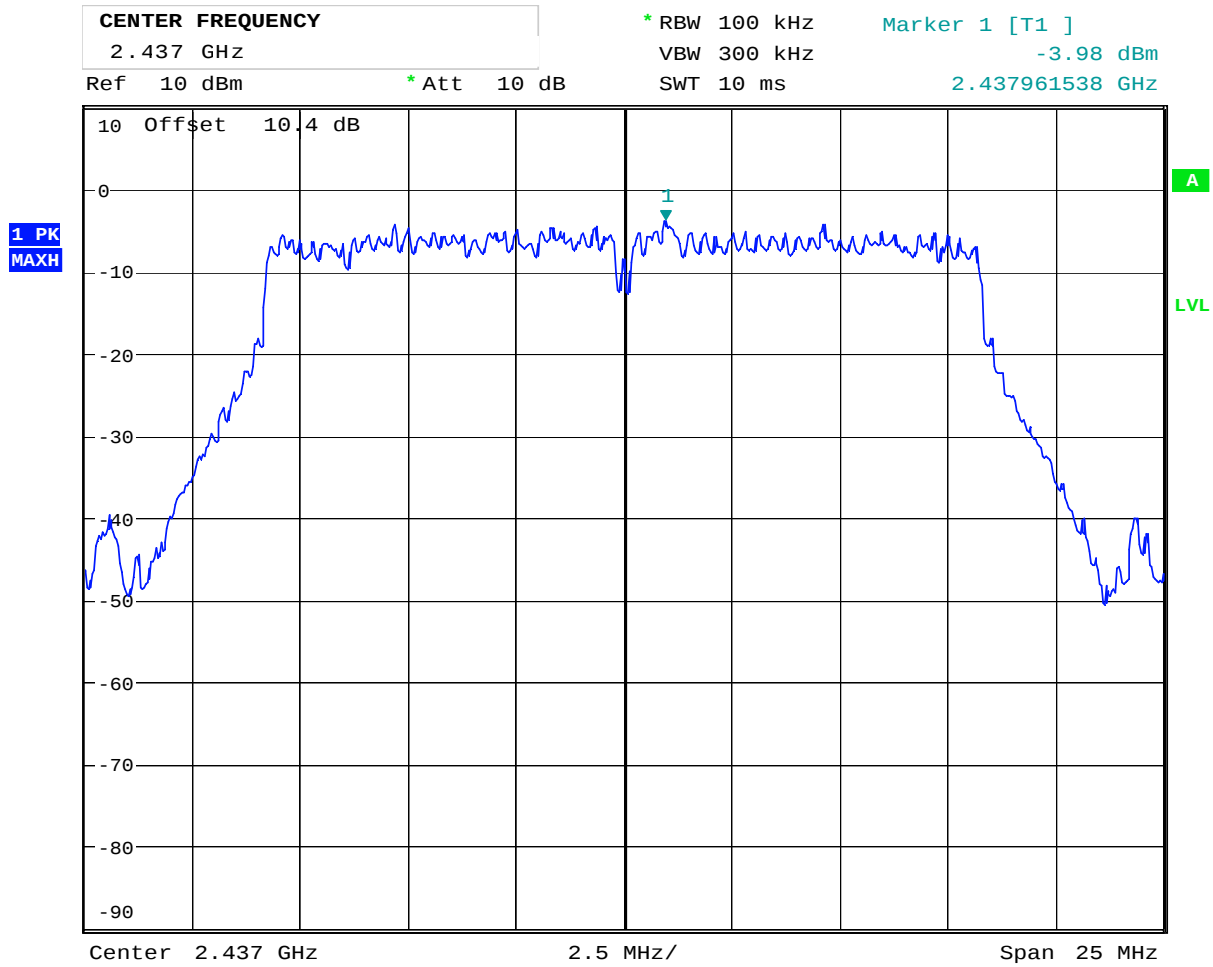
Date: 13.AUG.2013 12:07:03

PSD, 2412 MHz, 802.11n, MCS7



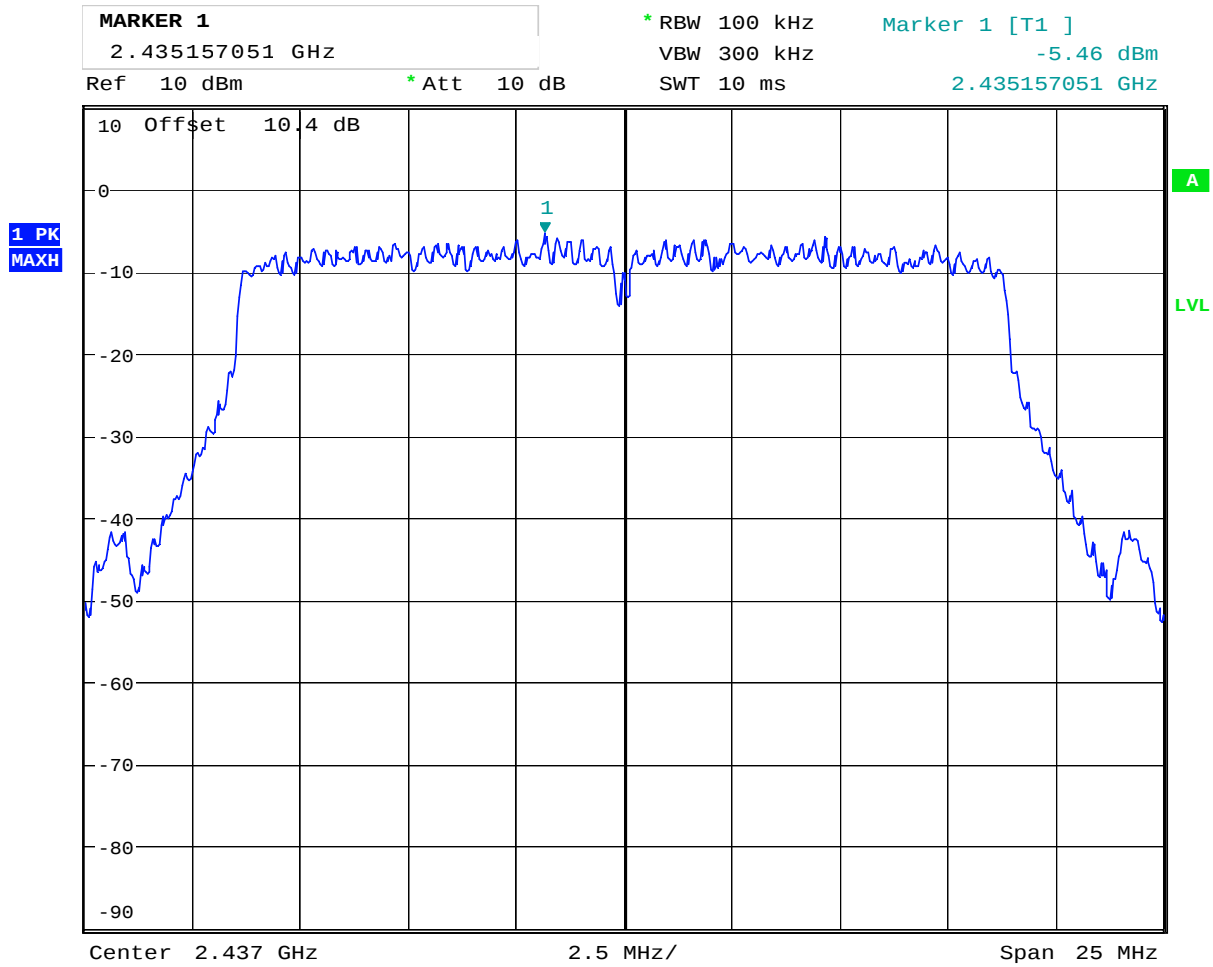
Date: 13.AUG.2013 12:58:41

PSD, 2437 MHz, 802.11b, 11Mbps



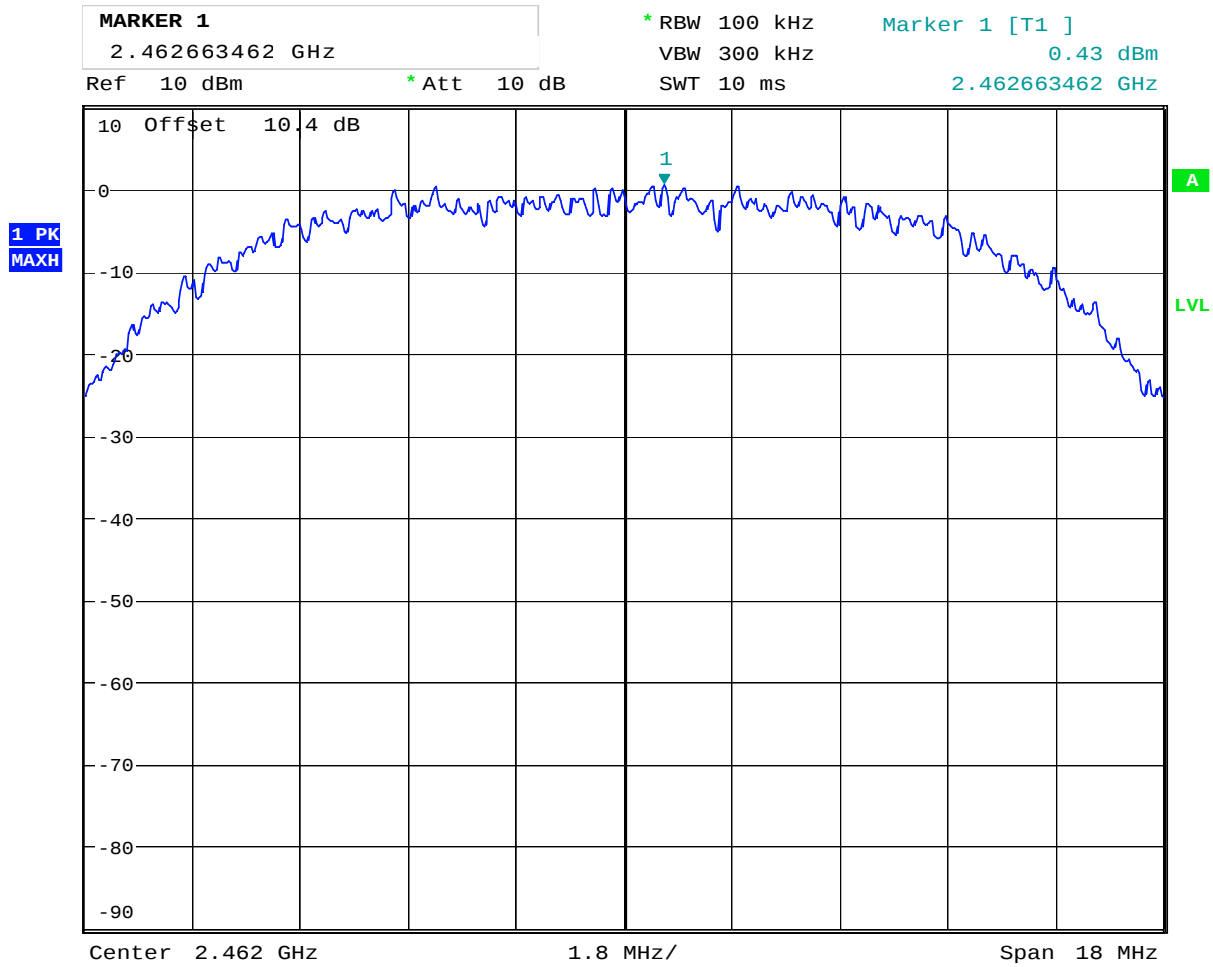
Date: 13.AUG.2013 12:56:08

PSD, 2437 MHz, 802.11g, 54Mbps



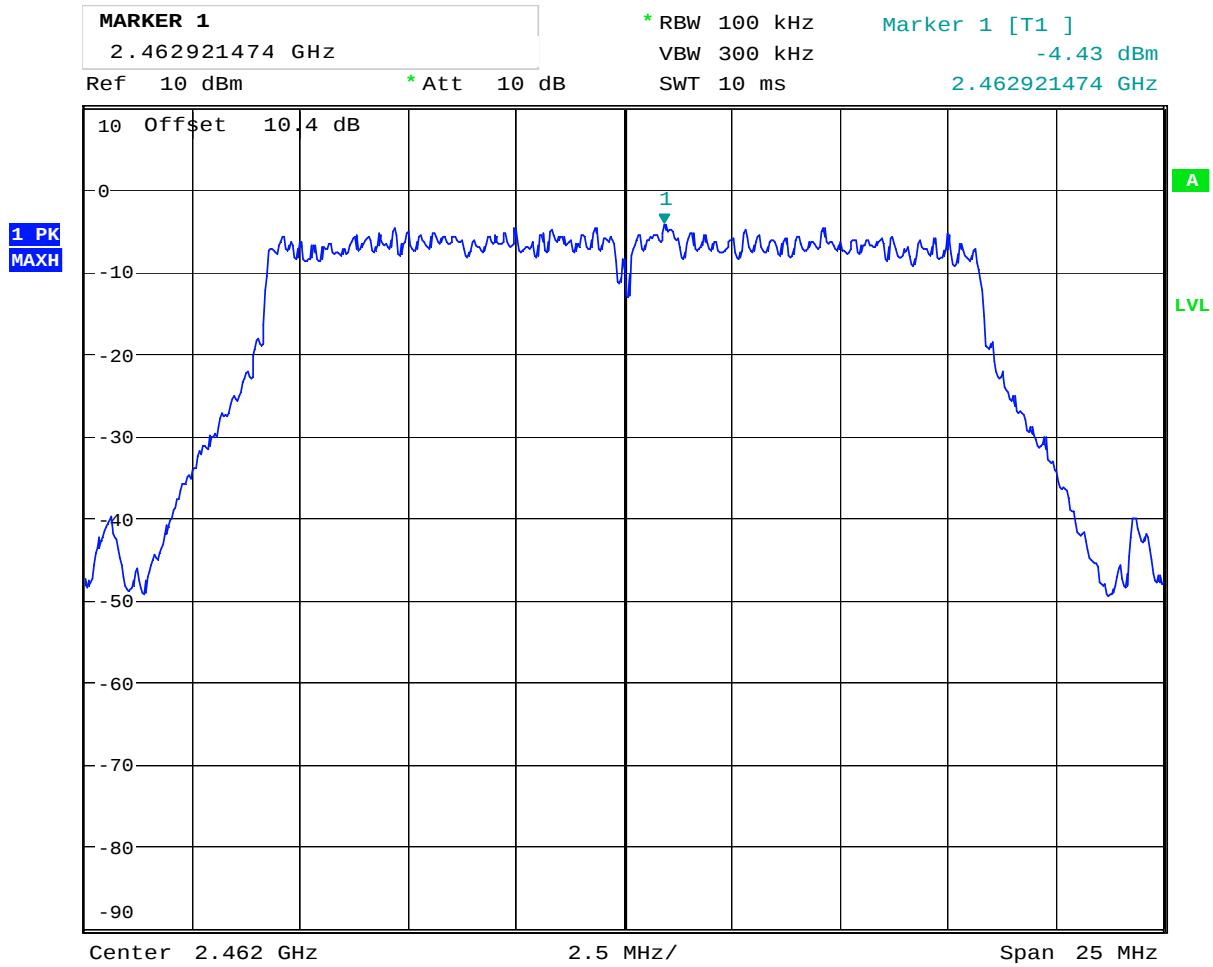
Date: 13.AUG.2013 12:05:28

PSD, 2437 MHz, 802.11n, MCS7



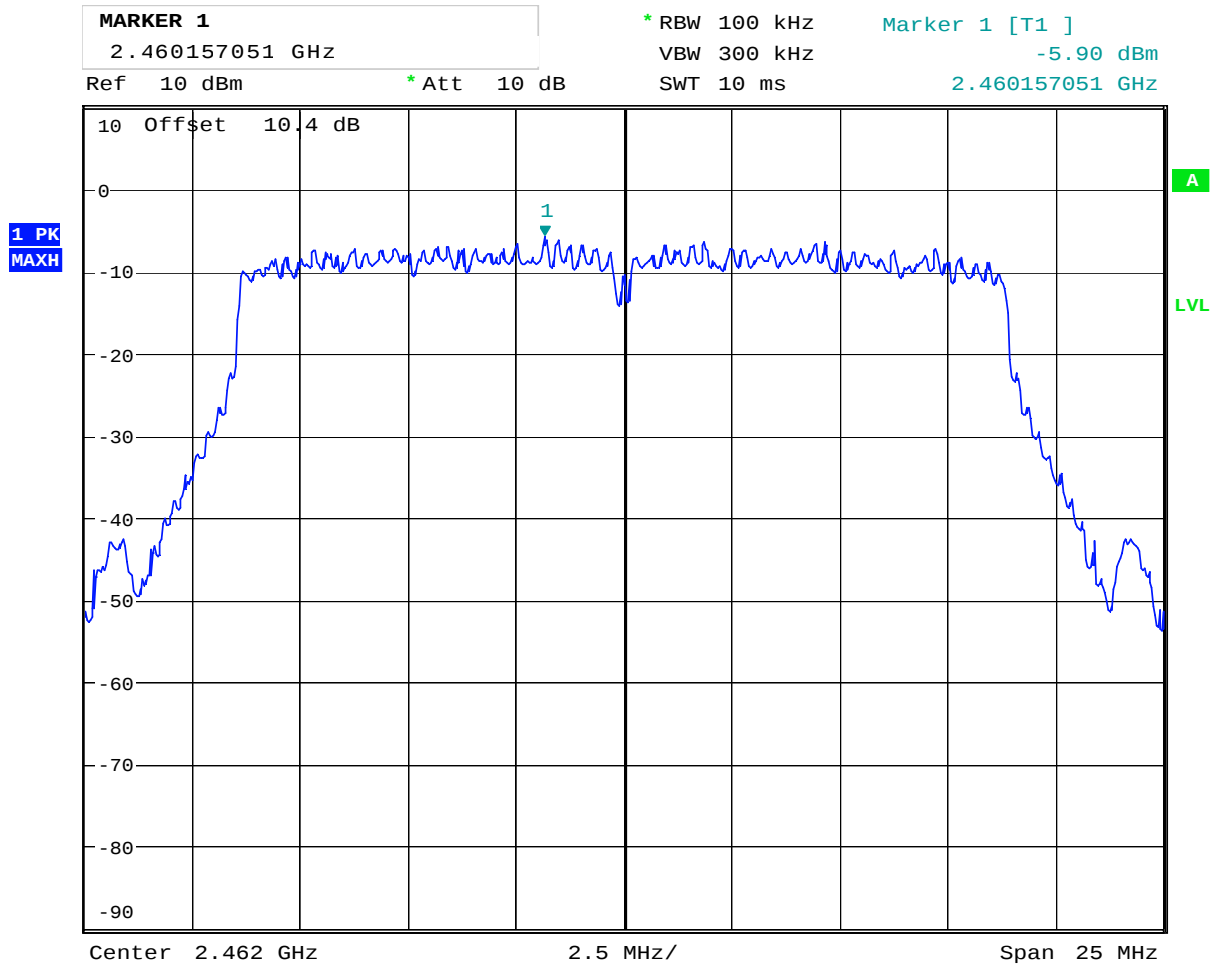
Date: 13.AUG.2013 13:03:49

PSD, 2462 MHz, 802.11b, 11Mbps



Date: 13.AUG.2013 12:01:34

PSD, 2462 MHz, 802.11g, 54Mbps



Date: 13.AUG.2013 12:04:00

PSD, 2462 MHz, 802.11n, MCS7

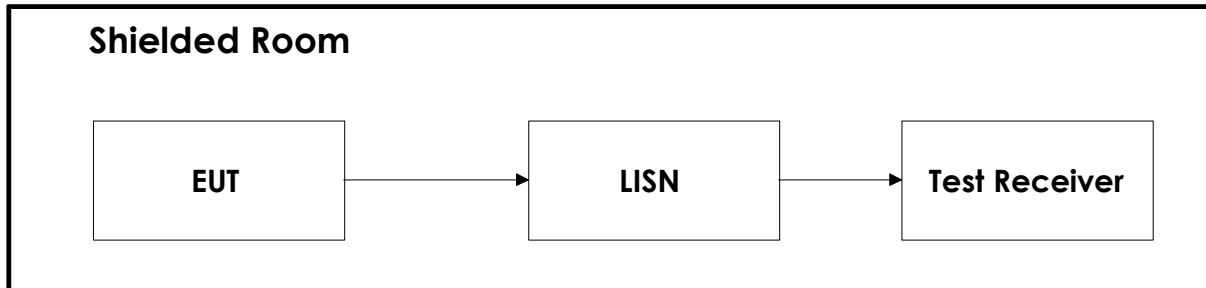
4 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW26	Spectrum Analyzer	Rohde & Schwarz	LR 1640	2012.06	2014.06
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2012.06	2014.06
3	4768-10	Attenuator	Narda	LR 1356	Cal b4 use	
4	6HC3000/18000	Highpass Filter	Trilithic	LR 1614	Cal b4 use	
5	JB3	BiLog Antenna	Sunol Sciences	N-4525	2012.10.11	2015.10.11
6	LNA6900	Preamplifier	Teseq	LR 1593	2011.11.24	2013.11.24
7	3115	Horn Antenna	EMCO	LR 1330	2010.08.05	2015.08.05
8	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2012-09	2013-09
9	643	Antenna Horn	Narda	LR 093	2009.01.26	2014.01.26
10	PM7320X	Antenna Horn	Sivers Lab	LR 102	2009.01.26	2014.01.26
11	DBF-520-20	Antenna Horn	Systron Donner	LR 100	2009.01.26	2014.01.26
12	638	Antenna Horn	Narda	LR 1480	2010.06.17	2015.06.17
14	HFH2-Z2	Loop Antenna	Rohde & Schwarz	LR 285	2010.10.08	2013.10.08
15	Model 87V	Multimeter	Fluke	LR 1599	2012.10.29	2014.10.29
16	6812B	AC Power Source	Agilent	LR 1515	Cal b4 use	

5 BLOCK DIAGRAM

5.1 Power Line Conducted Emission



5.2 Test Site Radiated Emission

