

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: OWS451x

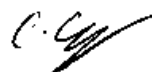
FCC ID: PVH0941

IC Certification Number: 5325A-0941

To: FCC Part 15.247: 2010 Subpart C, RSS-GEN Issue 3 December 2010
and RSS-210 Issue 8 December 2010

Test Report Serial No:
RFI-RPT-RP78718JD01A

This Test Report Is Issued Under The Authority
Of Chris Guy, Head of Global Approvals:



Checked By:

Nigel Davison

Signature:



Date of Issue:

17 May 2011

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1. Customer Information

Company Name:	connectBlue AB
Address:	Norra Vallgatan 64 3V SE-211 22 Malmö Sweden

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart C (Intentional Radiators) - Section 15.247
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart B (Unintentional Radiators) - Sections 15.107 and 15.109
Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Specification Reference:	RSS-GEN Issue 3 December 2010
Specification Title:	General Requirements and Information for the Certification of Radio communication Equipment
Specification Reference:	RSS-210 Issue 8 December 2010
Specification Title:	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment.
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	7 October 2010 to 12 May 2011

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
Part 15.107(a)	RSS-Gen 7.2.4	Receiver/Idle Mode AC Conducted Emissions	✓
Part 15.109	RSS-Gen 4.10/6.1	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 15.207	RSS-Gen 7.2.4	Transmitter AC Conducted Emissions	✓
Part 15.247(a)(2)	RSS-Gen 4.6.2 RSS-210 A8.2(a)	Transmitter 6 dB Bandwidth	✓
Part 2.1049	RSS-Gen 4.6.1/4.6.3	Transmitter 20 dB Bandwidth	✓
Part 15.247(e)	RSS-210 A8.2(b)	Transmitter Power Spectral Density	✓
Part 15.247(b)(3)	RSS-Gen 4.8 RSS-210 A8.4(4)	Transmitter Maximum Peak Output Power	✓
Part 15.247(d)/ 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Radiated Emissions	✓
Part 15.247(d)/ 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Band Edge Radiated Emissions	✓
Part 2.1055	RSS-Gen 4.7	Transmitter Frequency Stability	-
Key to Results  = Complied  = Did not comply			

Note: Where FCC clause references are made within this report also read the equivalent IC reference.

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Wireless Devices

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	connectBlue AB
Model Name or Number:	OWS451x
Serial Number:	Not Stated
Hardware Version Number:	cB-0941-02
Software Version Number:	2.4_2.1.9_RPS / ows451_pcti_firmware_2.1.0_release.cbz
FCC ID:	PVH0941
IC Certification ID:	5325A-0941
Antenna:	ProAnt Inside WLAN, gain 3dB

3.2. Description of EUT

The equipment under test was a WLAN module with an external antenna port which provided a wireless communication link using IEEE802.11b/g/n WLAN.

- ProAnt Inside WLAN

Note: This test report includes the test results for the ProAnt Inside WLAN antenna. Please refer to RFI Test Report Serial Number RFI-RPT-RP78718JD07A and RFI-RPT-RP78718JD07C for additional antennas tested.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	WLAN		
Type of Unit:	Transceiver		
Modulation Type:	BPSK; 64QAM		
Data Rate:	802.11b (DSSS): 1,2,5.5,11 Mbps 802.11g (OFDM): 6,9,12,18,24,36,48,54 Mbps 802.11n (OFDM): 6.5,13,19.5,26,39,52,58.5,65 Mbps		
Power Supply Requirement(s):	Nominal	5.0 V	
	Minimum	3.3V	
	Maximum	5.5V	
Maximum Conducted Peak Power Output	17.4 dBm		
Transmit Frequency Range:	2412 MHz to 2462 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462
Receive Frequency Range:	2412 MHz to 2462 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Brand Name:	Dell
Description:	Laptop
Model Name or Number:	Latitude D610
Serial Number:	CN-0G5152-48643-48A-4478

Brand Name:	Connect Blue AB
Description:	Development Board
Model Name or Number:	CB-0903-03
Serial Number:	0068-01-002440

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Receiver/Idle mode – the highest channel was selected and the unit placed into a receive/idle mode. The emissions profile was similar to the top, middle and bottom channels, hence final measurements were performed on the top channel only.
- Continuously transmitting at maximum power on the bottom, centre and top channels as required using the data rates the client has stated within their proposal form:
 - o 802.11b: 1,2,5.5,11 Mbps
 - o 802.11g: 6,9,12,18,24,36,48,54 Mbps
 - o 802.11n: 6.5,13,19.5,26,39,52,58.5,65 Mbps

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Connected to a development board, which was powered by a 5V DC power supply that was connected to 120V mains. The development board was then connected via a serial cable to a laptop, which contained a bespoke application which was supplied by the client. The application was used to enable continuous transmission and idle mode (enabled but not transmitting) and to select the test channels, data rates and modulation schemes as required.
- Transmitter spurious emissions were performed with the EUT transmitting with a data rate of 65Mbps, as this was found to have the highest power level and therefore deemed to be worst case.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6: Measurement Uncertainty* for details.

5.2. Test Results

5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Nicholas Jones	Test Date:	12 May 2011
Test Sample:	ID:8		

FCC/IC Part:	15.107(a) and RSS-Gen 7.2.4
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	30

Results: Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
Please refer to Note 1					

Results: Average

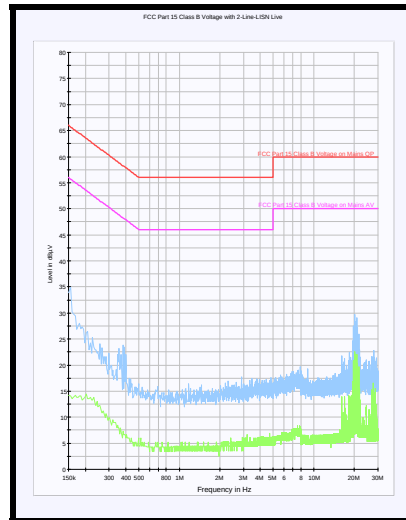
Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
Please refer to Note 1					

Note(s):

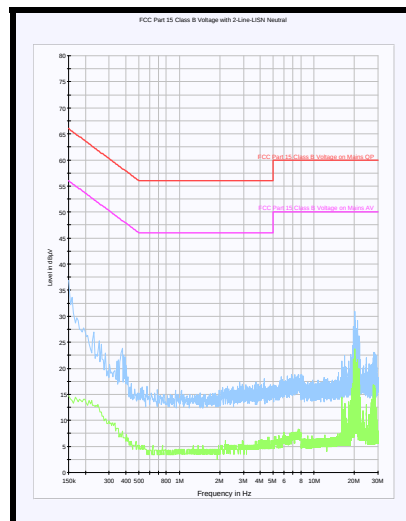
1. All pre-scan results were >20dB below the applicable limits, therefore no final measurements were made.

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

Idle/LIVE



Idle/NEUTRAL



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	07 October 2010
Test Sample:	ID:8		

FCC/IC Part:	15.109 and RSS-Gen 4.10 / RSS-Gen 6.1
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.5 referencing ANSI C63.4
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

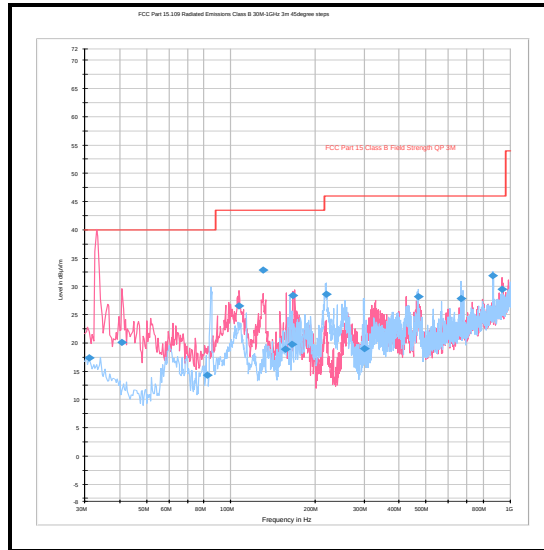
Temperature (°C):	26
Relative Humidity (%):	30

Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
40.680	Vertical	20.1	40.0	19.9	Complied
106.763	Vertical	26.5	43.5	17.0	Complied
130.120	Vertical	32.8	43.5	10.7	Complied
167.207	Vertical	28.3	43.5	15.2	Complied
218.933	Horizontal	28.7	46.0	17.3	Complied
467.303	Horizontal	28.1	46.0	17.9	Complied
664.956	Horizontal	27.9	46.0	18.1	Complied
867.914	Horizontal	31.9	46.0	14.1	Complied
932.420	Vertical	29.5	46.0	16.5	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	07 October 2010
Test Sample:	ID:8		

FCC/IC Part:	15.109 and RSS-Gen 4.10 / RSS-Gen 6.1
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.6 referencing ANSI C63.4
Frequency Range:	1 GHz to 12.5 GHz

Environmental Conditions:

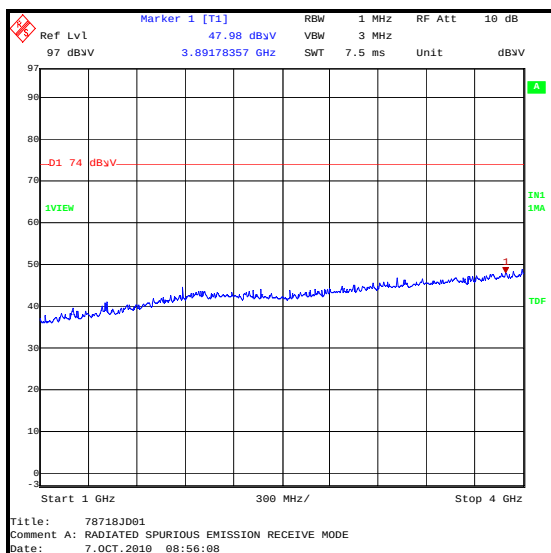
Temperature (°C):	26
Relative Humidity (%):	30

Results:

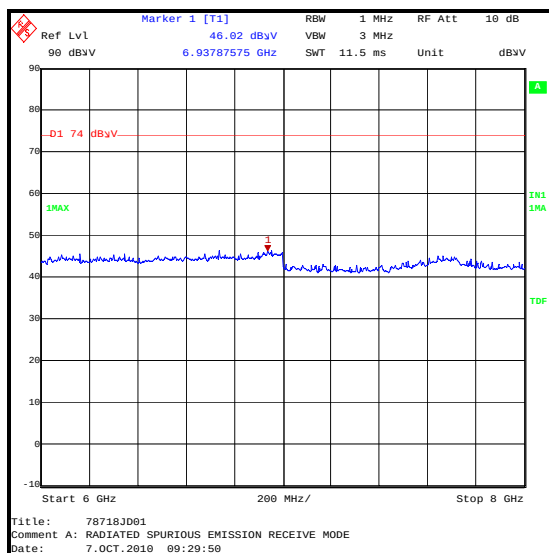
Frequency (MHz)	Antenna Polarity	Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Margin (dB)	Result
12436.874	Vertical	52.6	74.0	21.4	Complied

Note(s):

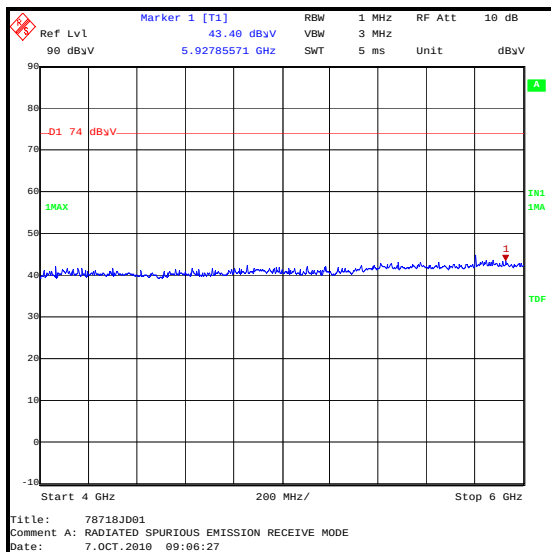
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.

Receiver/Idle Mode Radiated Spurious Emissions (continued)

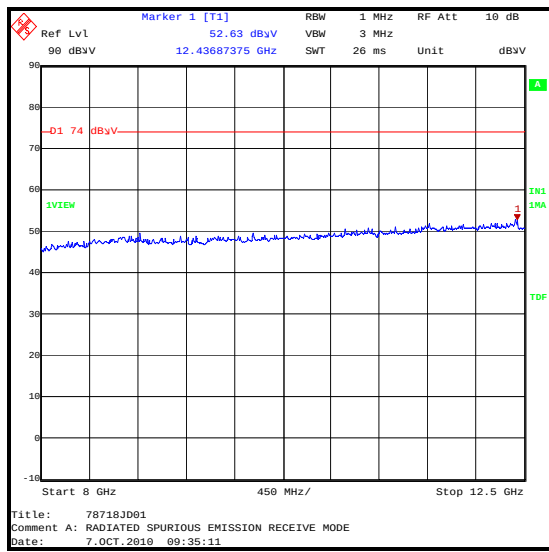
Peak Detector



Peak Detector



Peak Detector



Peak Detector

5.2.3. Transmitter AC Conducted Spurious Emissions**Test Summary:**

Test Engineer:	Crawford Lindsay	Test Date:	11 October 2010
Test Sample:	ID:8		

FCC/IC Part:	15.207 and RSS-Gen 7.2.4
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	28

Results: Quasi Peak

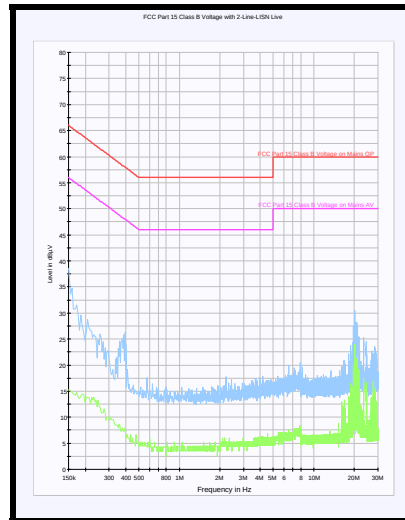
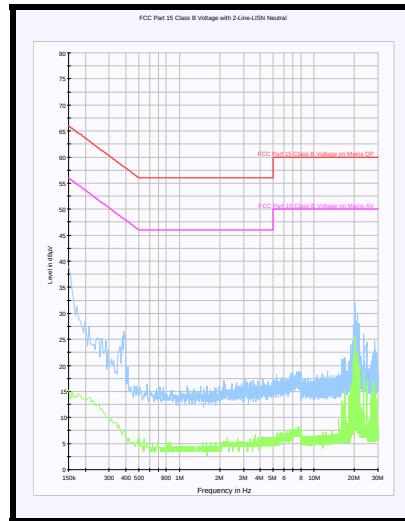
Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
Please refer to Note 1					

Results: Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
Please refer to Note 1					

Note(s):

1. All pre-scan results were >20dB below the applicable limits, therefore no final measurements were made.

Transmitter AC Conducted Spurious Emissions (continued)**Transmit/LIVE****Transmit/NEUTRAL**

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

5.2.4. Transmitter 6 dB Bandwidth**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	10 May 2011
Test Sample:	ID:8		

FCC/IC Part:	15.247(a)(2) and RSS-210 A8.2
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.1 referencing KDB 558074 "Measurement of Digital Transmission Systems Operating under Section 15.247 March 23, 2005" delete "As detailed in ANSI C63.10 Section 6.9.1".

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	39

Results: 802.11b

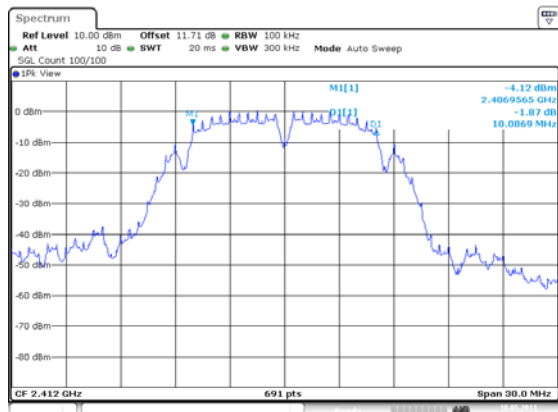
Channel	Frequency (MHz)	Modulation Scheme	Data Rate (MB/s)	Limit (KHz)	6 dB Emission Bandwidth (MHz)
Bottom	2412	BPSK	1	500	10.1
Middle	2437	BPSK	1	500	10.0
Top	2462	BPSK	1	500	10.1
Bottom	2412	QPSK	2	500	10.0
Middle	2437	QPSK	2	500	10.0
Top	2462	QPSK	2	500	10.0
Bottom	2412	QPSK	5.5	500	9.7
Middle	2437	QPSK	5.5	500	9.8
Top	2462	QPSK	5.5	500	10.2
Bottom	2412	QPSK	11	500	10.3
Middle	2437	QPSK	11	500	10.2
Top	2462	QPSK	11	500	10.3

Transmitter 6 dB Bandwidth (continued)**Results: 802.11g**

Channel	Frequency (MHz)	Modulation Scheme	Data Rate (MB/s)	Limit (KHz)	6 dB Emission Bandwidth (MHz)
Bottom	2412	BPSK	6	500	16.6
Middle	2437	BPSK	6	500	16.6
Top	2462	BPSK	6	500	16.6
Bottom	2412	BPSK	9	500	16.5
Middle	2437	BPSK	9	500	16.6
Top	2462	BPSK	9	500	16.6
Bottom	2412	QPSK	12	500	16.6
Middle	2437	QPSK	12	500	16.5
Top	2462	QPSK	12	500	16.6
Bottom	2412	QPSK	18	500	16.6
Middle	2437	QPSK	18	500	16.5
Top	2462	QPSK	18	500	16.5
Bottom	2412	16QAM	24	500	16.5
Middle	2437	16QAM	24	500	16.6
Top	2462	16QAM	24	500	16.6
Bottom	2412	16QAM	36	500	16.5
Middle	2437	16QAM	36	500	16.5
Top	2462	16QAM	36	500	16.6
Bottom	2412	16QAM	48	500	16.5
Middle	2437	16QAM	48	500	16.5
Top	2462	16QAM	48	500	16.5
Bottom	2412	64QAM	54	500	16.6
Middle	2437	64QAM	54	500	16.5
Top	2462	64QAM	54	500	16.5

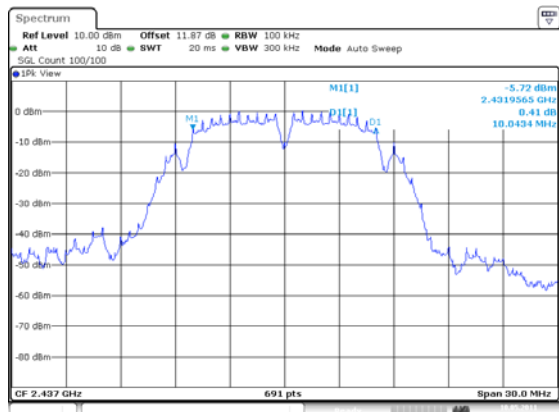
Transmitter 6 dB Bandwidth (continued)**Results: 802.11n**

Channel	Frequency (MHz)	Modulation Scheme	Data Rate (MB/s)	Limit (KHz)	6 dB Emission Bandwidth (MHz)
Bottom	2412	BPSK	6.5	500	17.8
Middle	2437	BPSK	6.5	500	17.7
Top	2462	BPSK	6.5	500	17.8
Bottom	2412	QPSK	13	500	17.8
Middle	2437	QPSK	13	500	17.8
Top	2462	QPSK	13	500	17.8
Bottom	2412	QPSK	19.5	500	17.7
Middle	2437	QPSK	19.5	500	17.8
Top	2462	QPSK	19.5	500	17.8
Bottom	2412	16QAM	26	500	17.8
Middle	2437	16QAM	26	500	17.8
Top	2462	16QAM	26	500	17.8
Bottom	2412	16QAM	39	500	17.8
Middle	2437	16QAM	39	500	17.7
Top	2462	16QAM	39	500	17.7
Bottom	2412	64QAM	52	500	17.7
Middle	2437	64QAM	52	500	17.7
Top	2462	64QAM	52	500	17.8
Bottom	2412	64QAM	58.5	500	17.8
Middle	2437	64QAM	58.5	500	17.7
Top	2462	64QAM	58.5	500	17.8
Bottom	2412	64QAM	65	500	17.0
Middle	2437	64QAM	65	500	17.7
Top	2462	64QAM	65	500	17.8

Transmitter 6 dB Bandwidth (continued)

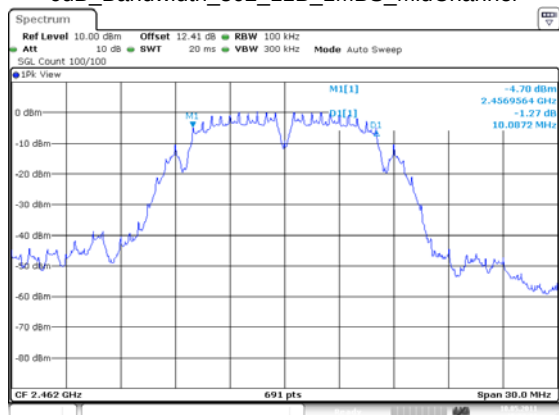
Date: 10.MAY.2011 15:51:20

6dB_Bandwidth_802_11B_1MBS_BottomChannel



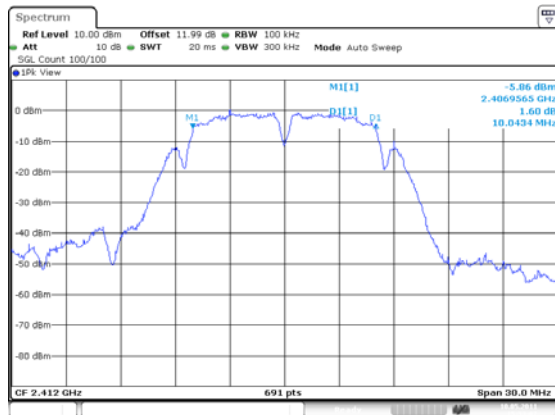
Date: 10.MAY.2011 15:51:52

6dB_Bandwidth_802_11B_1MBS_MidChannel



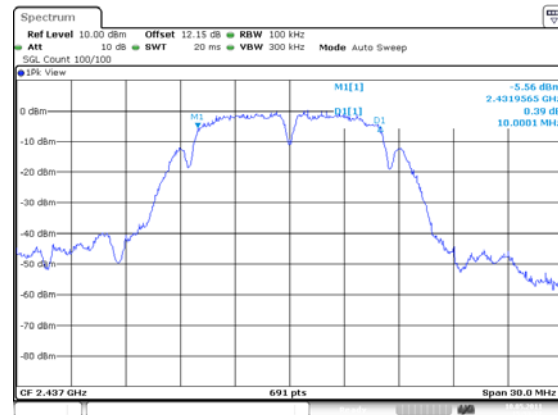
Date: 10.MAY.2011 15:52:22

6dB_Bandwidth_802_11B_1MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

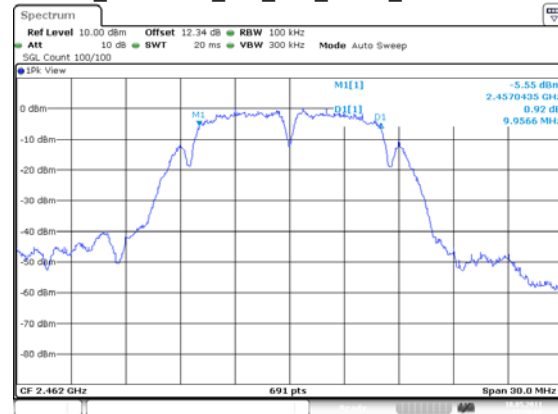
Date: 10.MAY.2011 15:53:07

6dB_Bandwidth_802_11B_2MBS_BottomChannel



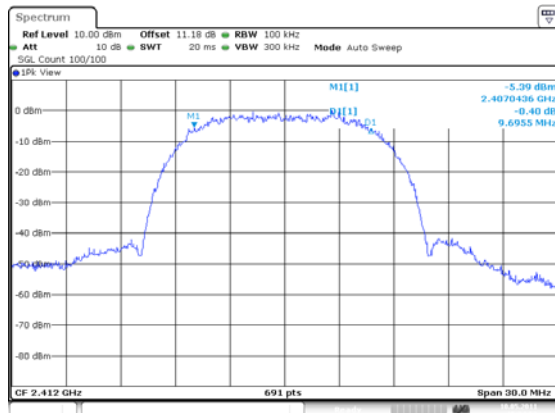
Date: 10.MAY.2011 15:53:37

6dB_Bandwidth_802_11B_2MBS_MidChannel



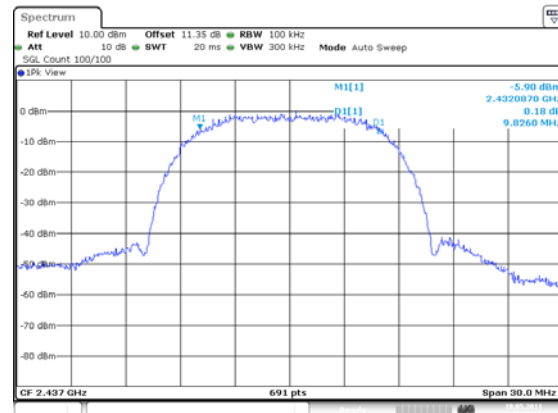
Date: 10.MAY.2011 15:54:07

6dB_Bandwidth_802_11B_2MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

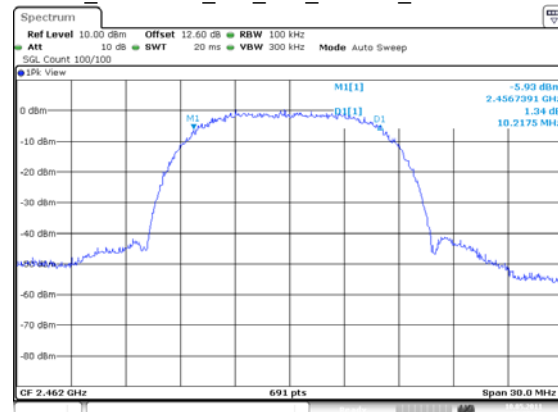
Date: 10.MAY.2011 15:54:52

6dB_Bandwidth_802_11B_5.5MBS_BottomChannel



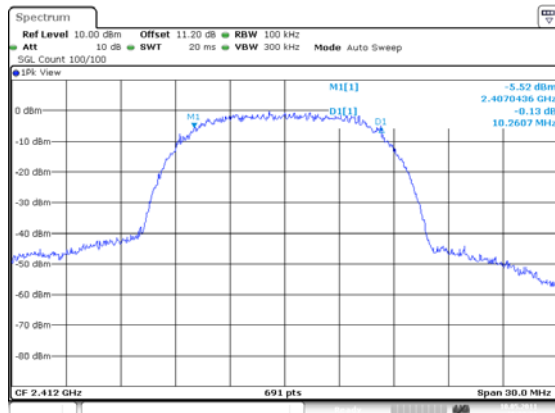
Date: 10.MAY.2011 15:55:22

6dB_Bandwidth_802_11B_5.5MBS_MidChannel



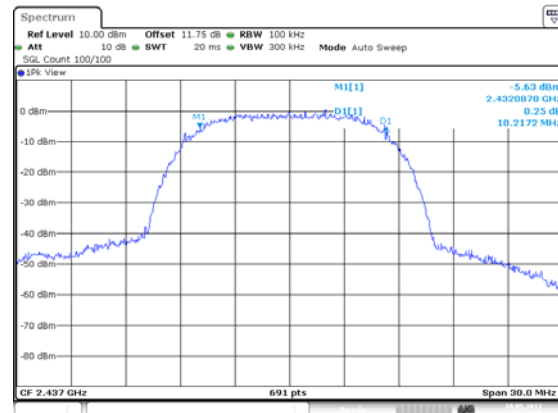
Date: 10.MAY.2011 15:55:53

6dB_Bandwidth_802_11B_5.5MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

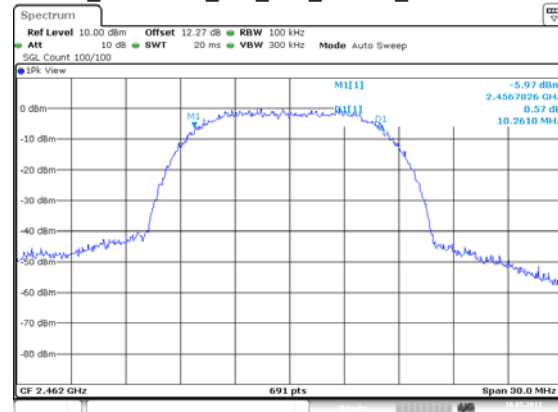
Date: 10.MAY.2011 16:22:28

6dB_Bandwidth_802_11B_11MBS_BottomChannel



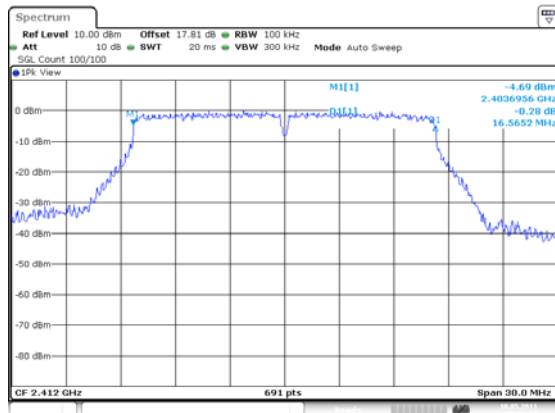
Date: 10.MAY.2011 15:57:08

6dB_Bandwidth_802_11B_11MBS_MidChannel



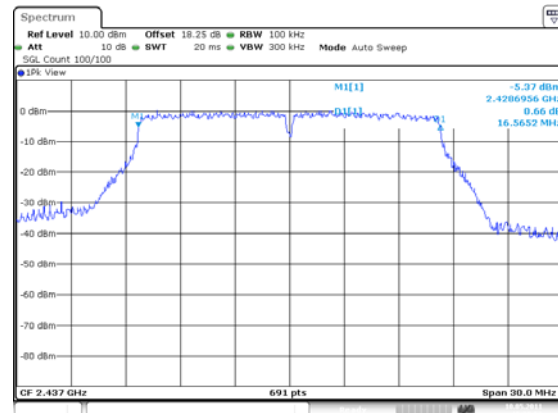
Date: 10.MAY.2011 15:57:38

6dB_Bandwidth_802_11B_11MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

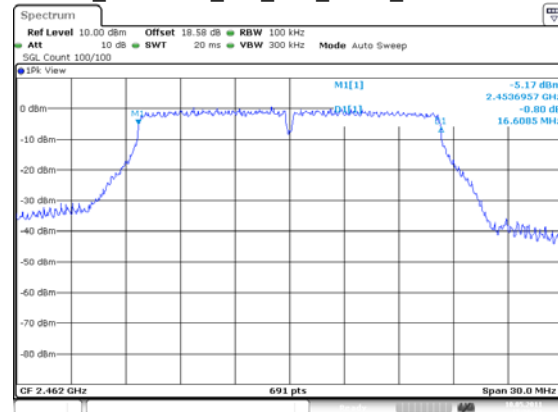
Date: 10.MAY.2011 15:58:23

6dB_Bandwidth_802_11G_6MBS_BottomChannel



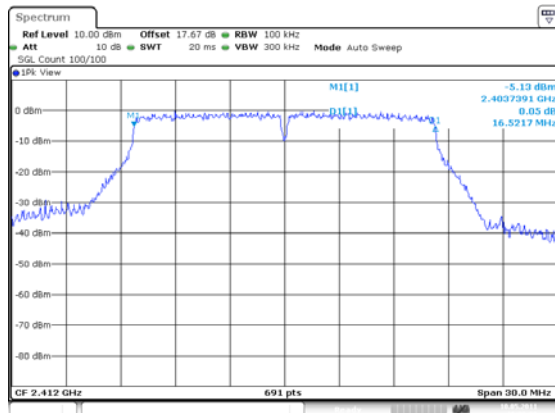
Date: 10.MAY.2011 15:58:53

6dB_Bandwidth_802_11G_6MBS_MidChannel



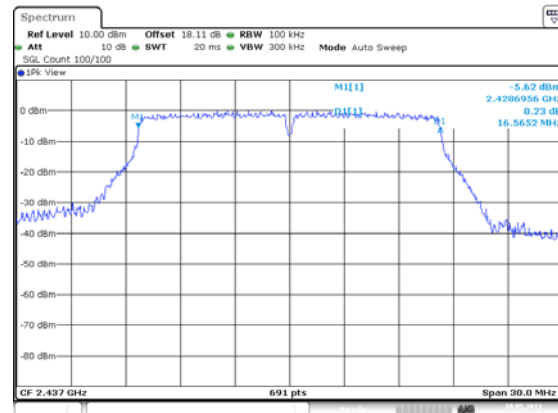
Date: 10.MAY.2011 15:59:23

6dB_Bandwidth_802_11G_6MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

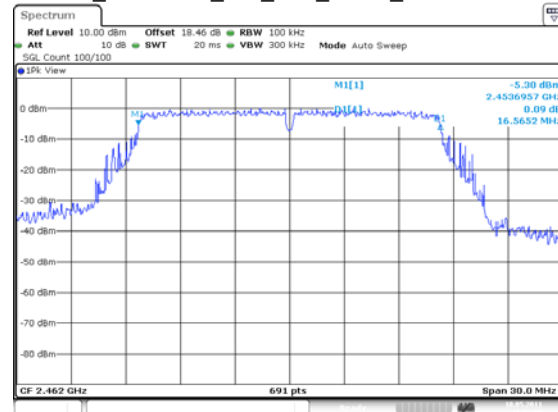
Date: 10.MAY.2011 16:00:08

6dB_Bandwidth_802_11G_9MBS_BottomChannel



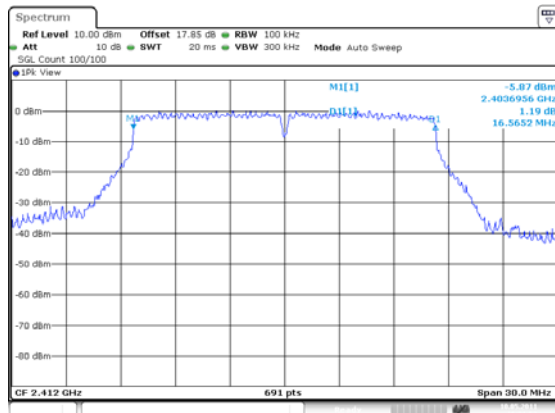
Date: 10.MAY.2011 16:00:39

6dB_Bandwidth_802_11G_9MBS_MidChannel



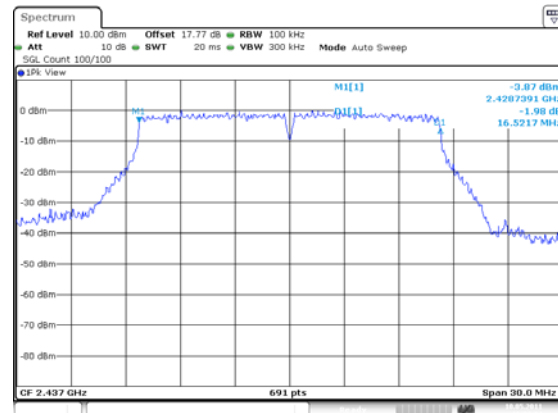
Date: 10.MAY.2011 16:01:09

6dB_Bandwidth_802_11G_9MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

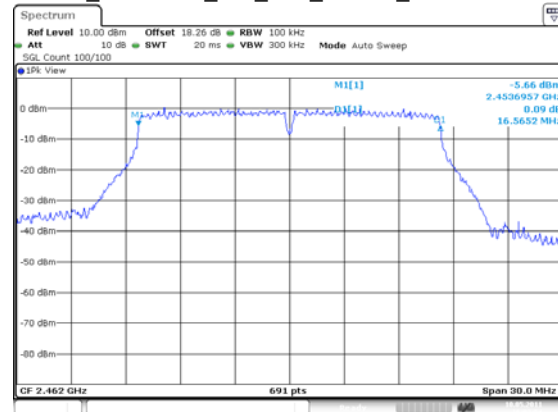
Date: 10.MAY.2011 16:01:53

6dB_Bandwidth_802_11G_12MBS_BottomChannel



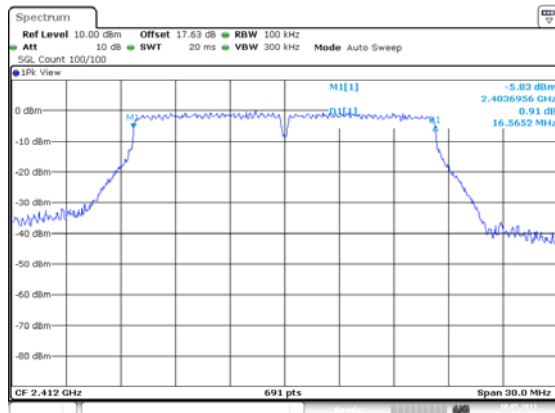
Date: 10.MAY.2011 16:02:24

6dB_Bandwidth_802_11G_12MBS_MidChannel



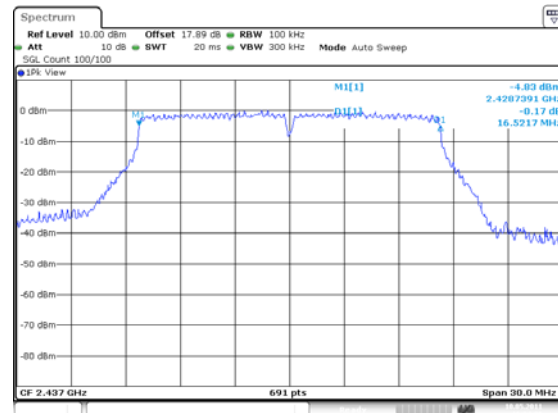
Date: 10.MAY.2011 16:02:54

6dB_Bandwidth_802_11G_12MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

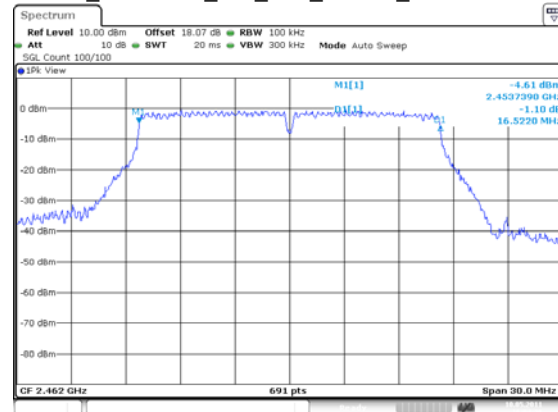
Date: 10.MAY.2011 16:03:38

6dB_Bandwidth_802_11G_18MBS_BottomChannel



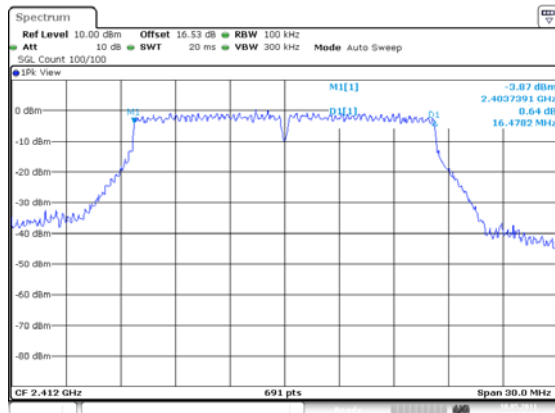
Date: 10.MAY.2011 16:04:09

6dB_Bandwidth_802_11G_18MBS_MidChannel



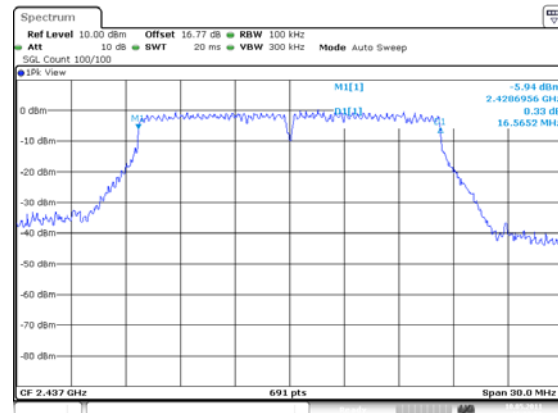
Date: 10.MAY.2011 16:04:39

6dB_Bandwidth_802_11G_18MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

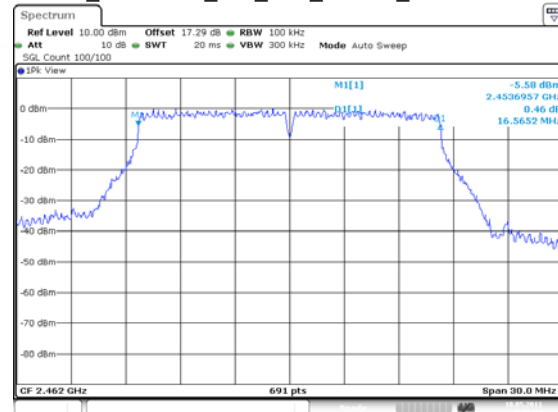
Date: 10.MAY.2011 16:05:24

6dB_Bandwidth_802_11G_24MBS_BottomChannel



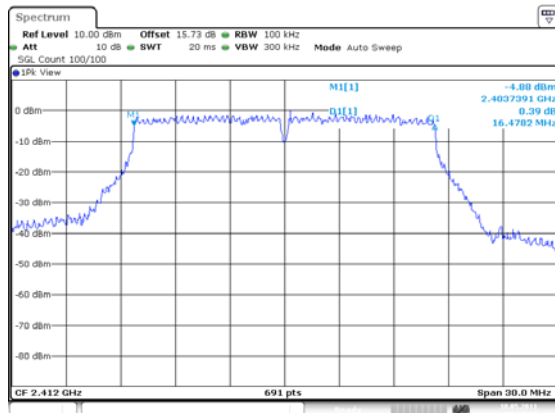
Date: 10.MAY.2011 16:22:58

6dB_Bandwidth_802_11G_24MBS_MidChannel



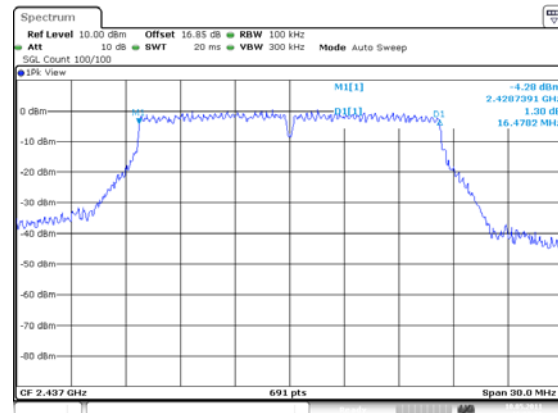
Date: 10.MAY.2011 16:06:24

6dB_Bandwidth_802_11G_24MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

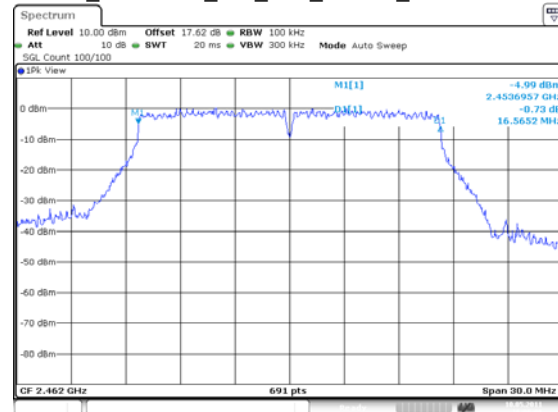
Date: 10.MAY.2011 16:07:08

6dB_Bandwidth_802_11G_36MBS_BottomChannel



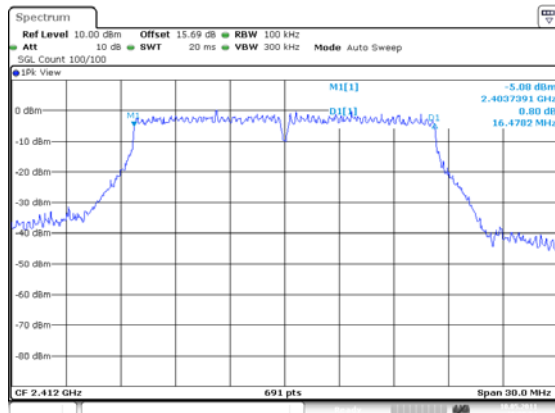
Date: 10.MAY.2011 16:07:39

6dB_Bandwidth_802_11G_36MBS_MidChannel



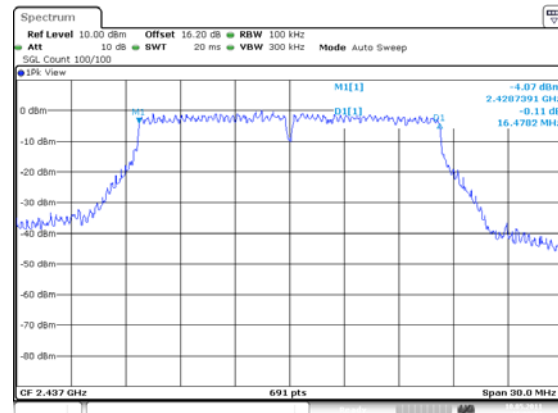
Date: 10.MAY.2011 16:08:09

6dB_Bandwidth_802_11G_36MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

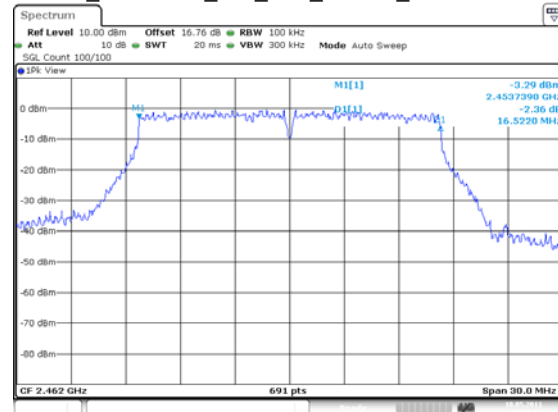
Date: 10.MAY.2011 16:08:54

6dB_Bandwidth_802_11G_48MBS_BottomChannel



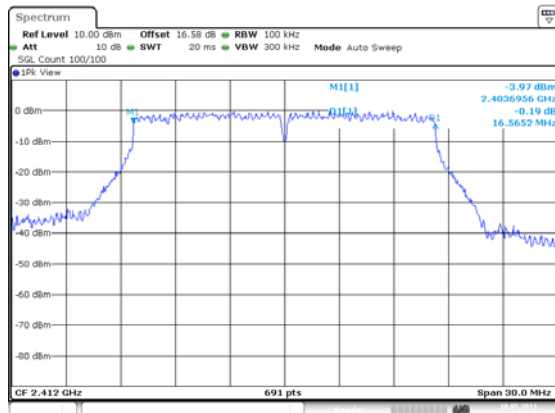
Date: 10.MAY.2011 16:09:24

6dB_Bandwidth_802_11G_48MBS_MidChannel



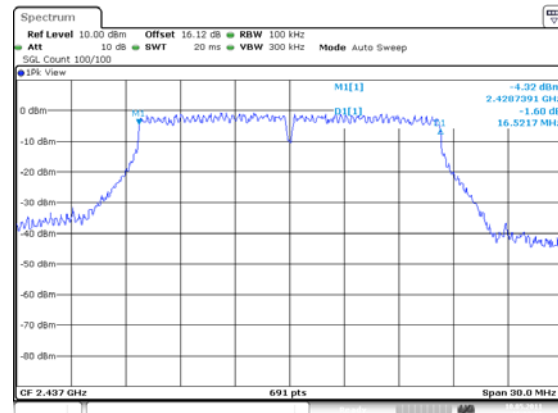
Date: 10.MAY.2011 16:09:55

6dB_Bandwidth_802_11G_48MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

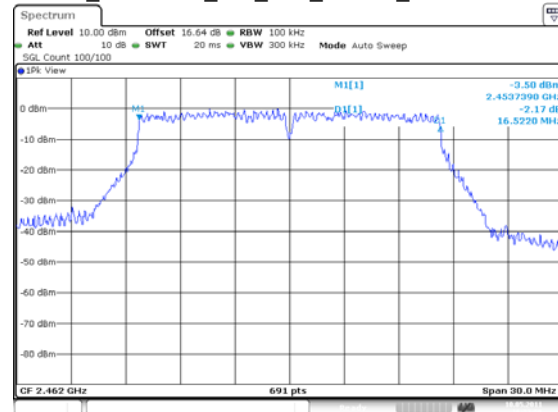
Date: 10.MAY.2011 16:10:39

6dB_Bandwidth_802_11G_54MBS_BottomChannel



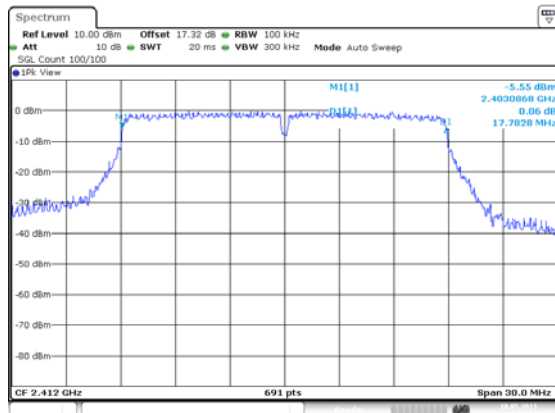
Date: 10.MAY.2011 16:23:28

6dB_Bandwidth_802_11G_54MBS_MidChannel



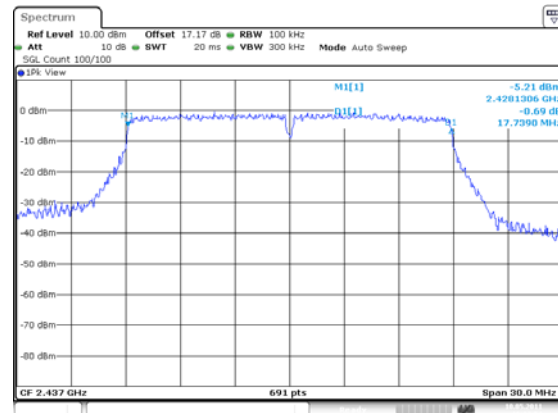
Date: 10.MAY.2011 16:23:59

6dB_Bandwidth_802_11G_54MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

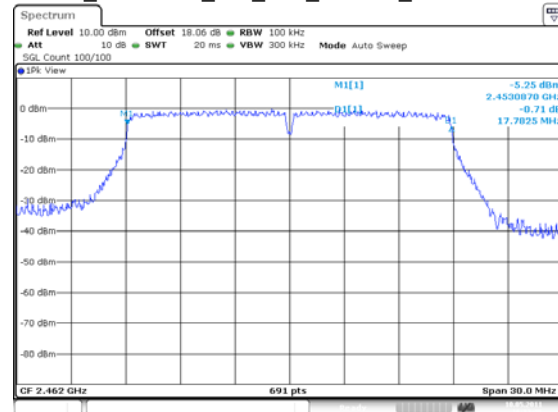
Date: 10.MAY.2011 16:12:24

6dB_Bandwidth_802_11N_6.5MBS_BotChannel



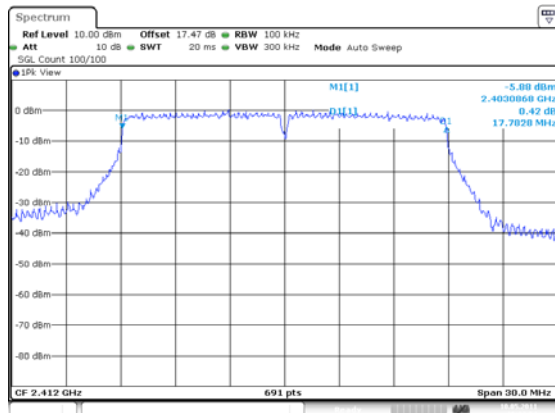
Date: 10.MAY.2011 16:12:54

6dB_Bandwidth_802_11N_6.5MBS_MidChannel



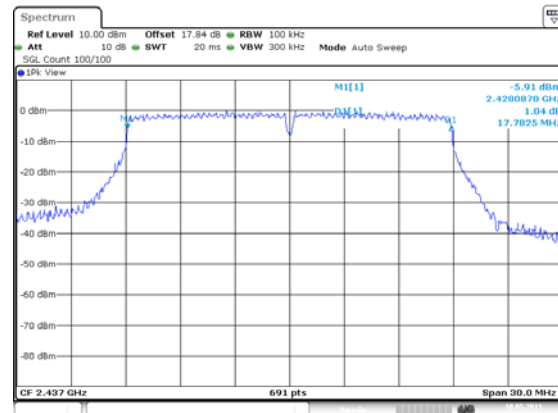
Date: 10.MAY.2011 16:13:25

6dB_Bandwidth_802_11N_6.5MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

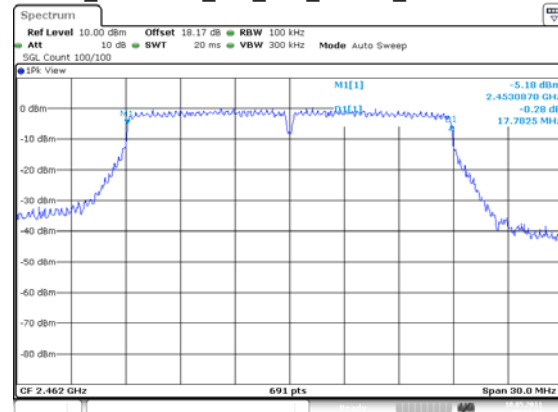
Date: 10.MAY.2011 16:13:54

6dB_Bandwidth_802_11N_13MBS_BotChannel



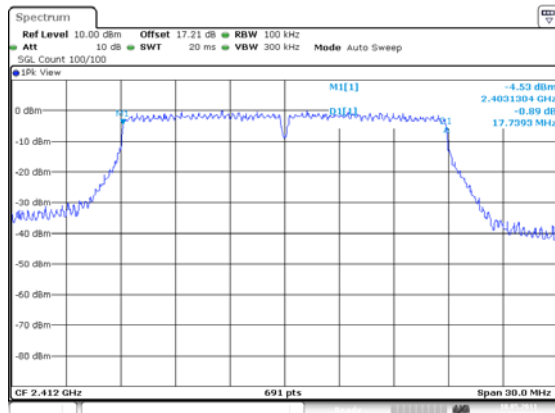
Date: 10.MAY.2011 16:14:24

6dB_Bandwidth_802_11N_13MBS_MidChannel



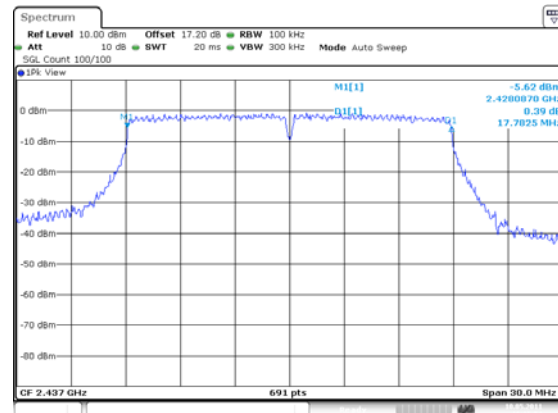
Date: 10.MAY.2011 16:24:44

6dB_Bandwidth_802_11N_13MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

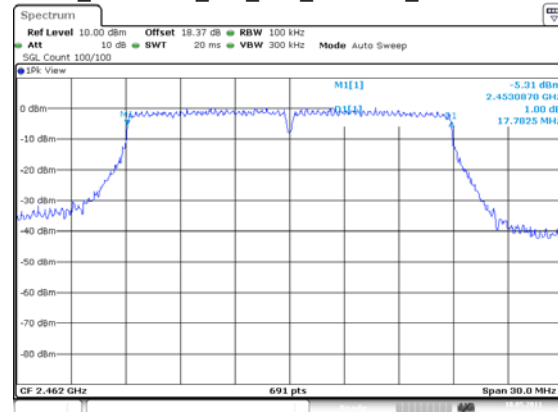
Date: 10.MAY.2011 16:15:24

6dB_Bandwidth_802_11N_19.5MBS_BotChannel



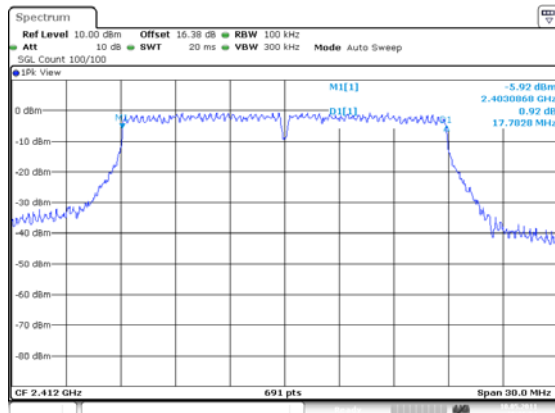
Date: 10.MAY.2011 16:15:54

6dB_Bandwidth_802_11N_19.5MBS_MidChannel

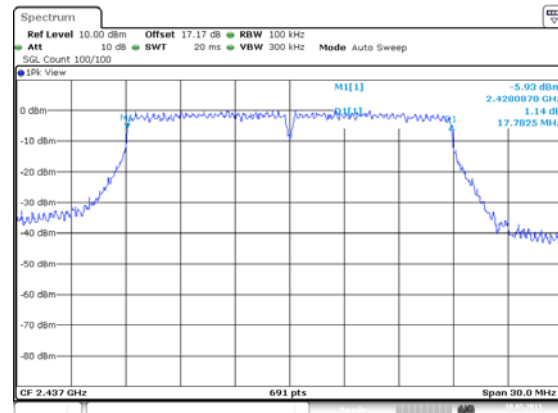


Date: 10.MAY.2011 16:16:25

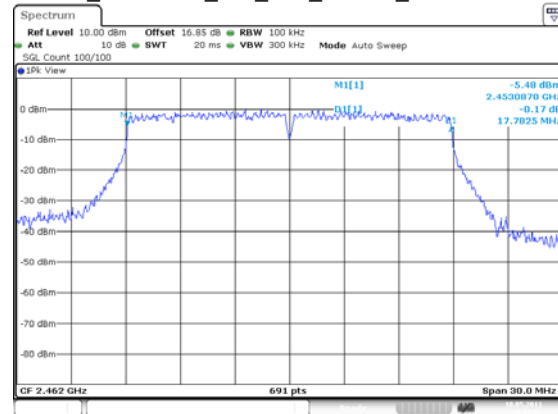
6dB_Bandwidth_802_11N_19.5MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

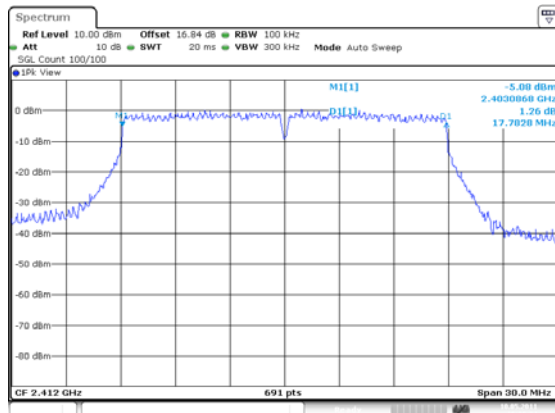
6dB_Bandwidth_802_11N_26MBS_BotChannel



6dB_Bandwidth_802_11N_26MBS_MidChannel

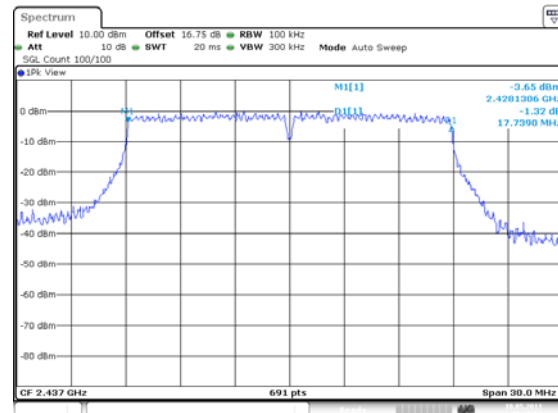


6dB_Bandwidth_802_11N_26MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

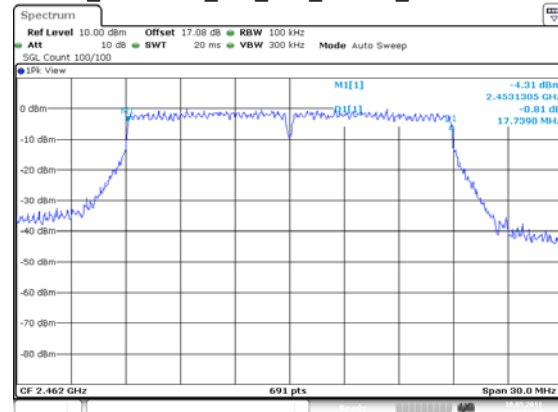
Date: 10.MAY.2011 16:18:24

6dB_Bandwidth_802_11N_39MBS_BotChannel



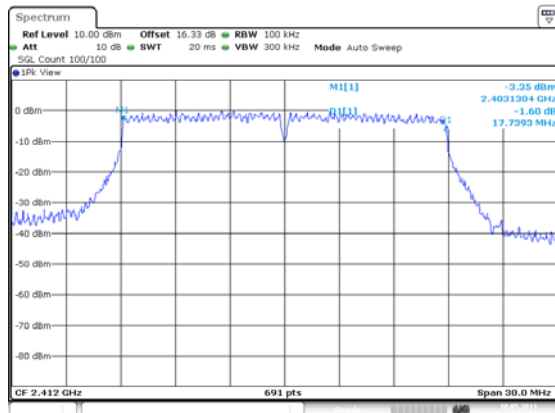
Date: 10.MAY.2011 16:18:54

6dB_Bandwidth_802_11N_39MBS_MidChannel



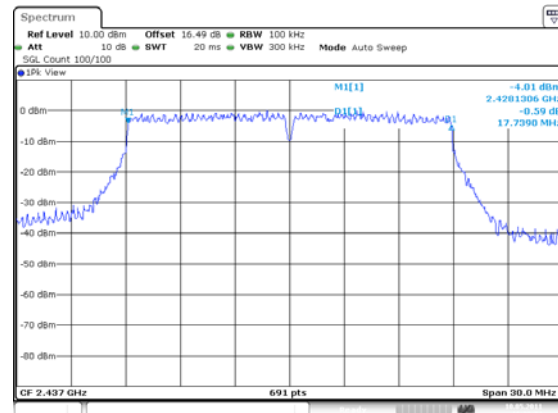
Date: 10.MAY.2011 16:19:24

6dB_Bandwidth_802_11N_39MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

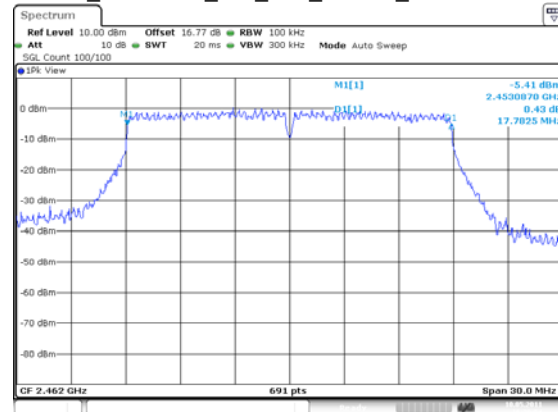
Date: 10.MAY.2011 16:19:54

6dB_Bandwidth_802_11N_52MBS_BotChannel



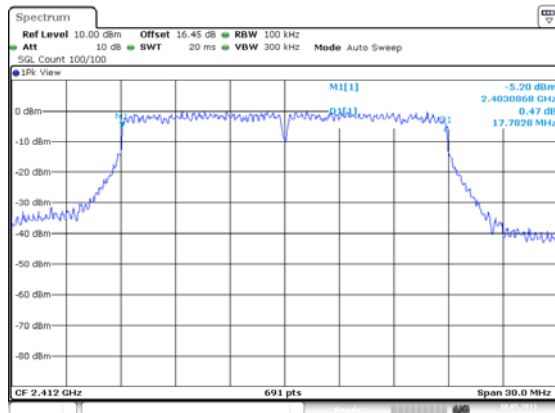
Date: 10.MAY.2011 16:20:24

6dB_Bandwidth_802_11N_52MBS_MidChannel



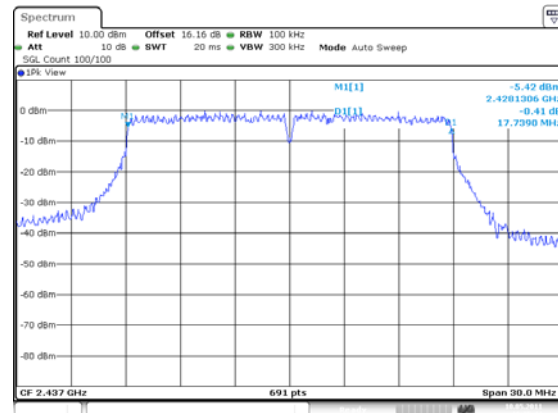
Date: 10.MAY.2011 16:20:54

6dB_Bandwidth_802_11N_52MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

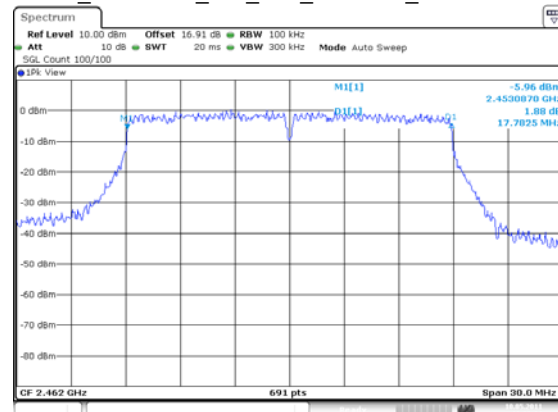
Date: 10.MAY.2011 16:25:14

6dB_Bandwidth_802_11N_58.5MBS_BotChannel



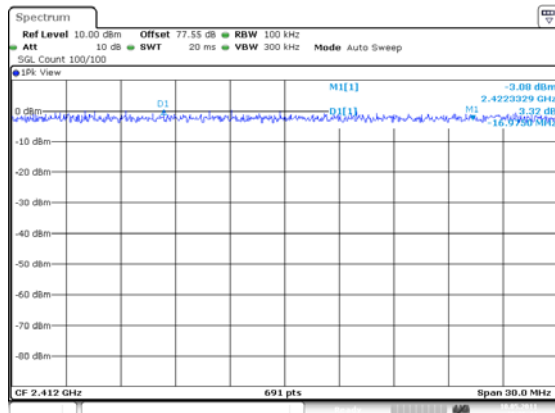
Date: 10.MAY.2011 16:25:44

6dB_Bandwidth_802_11N_58.5MBS_MidChannel



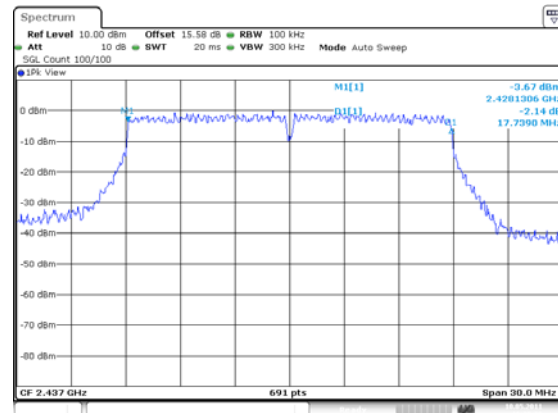
Date: 10.MAY.2011 16:26:14

6dB_Bandwidth_802_11N_58.5MBS_TopChannel

Transmitter 6 dB Bandwidth (continued)

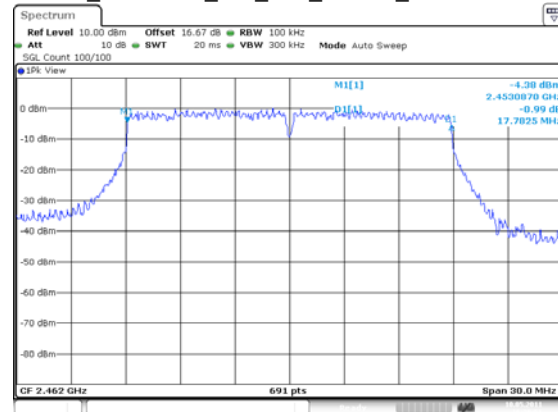
Date: 10.MAY.2011 16:26:44

6dB_Bandwidth_802_11N_65MBS_BotChannel



Date: 10.MAY.2011 16:28:29

6dB_Bandwidth_802_11N_65MBS_MidChannel



Date: 10.MAY.2011 16:28:51

6dB_Bandwidth_802_11N_65MBS_TopChannel

5.2.5. Transmitter 20 dB Bandwidth**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	06 January 2011
Test Sample:	ID:8		

FCC/IC Part:	15.247(a)(2) and RSS-Gen 4.6.1
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.1

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	39

Results: 802.11b

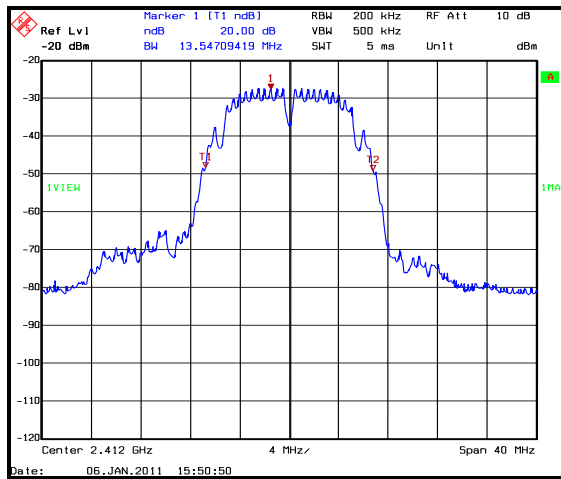
Channel	Frequency (MHz)	Modulation Scheme	Data Rate (MB/s)	20 dB Emission Bandwidth (MHz)
Bottom	2412	BPSK	1	13.5
Middle	2437	BPSK	1	13.4
Top	2462	BPSK	1	13.5
Bottom	2412	QPSK	2	13.6
Middle	2437	QPSK	2	13.6
Top	2462	QPSK	2	13.6
Bottom	2412	QPSK	5.5	13.5
Middle	2437	QPSK	5.5	13.5
Top	2462	QPSK	5.5	13.5
Bottom	2412	QPSK	11	13.7
Middle	2437	QPSK	11	13.7
Top	2462	QPSK	11	13.6

Transmitter 20 dB Bandwidth (continued)**Results: 802.11g**

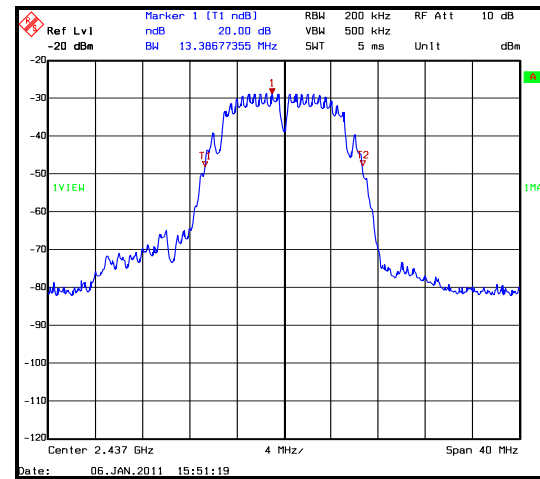
Channel	Frequency (MHz)	Modulation Scheme	Data Rate (MB/s)	20 dB Emission Bandwidth (MHz)
Bottom	2412	BPSK	6	18.8
Middle	2437	BPSK	6	18.8
Top	2462	BPSK	6	19.1
Bottom	2412	BPSK	9	19.1
Middle	2437	BPSK	9	19.1
Top	2462	BPSK	9	18.8
Bottom	2412	QPSK	12	18.8
Middle	2437	QPSK	12	18.7
Top	2462	QPSK	12	18.5
Bottom	2412	QPSK	18	18.7
Middle	2437	QPSK	18	18.8
Top	2462	QPSK	18	18.8
Bottom	2412	16QAM	24	18.6
Middle	2437	16QAM	24	18.5
Top	2462	16QAM	24	18.4
Bottom	2412	16QAM	36	18.6
Middle	2437	16QAM	36	18.4
Top	2462	16QAM	36	18.7
Bottom	2412	16QAM	48	18.4
Middle	2437	16QAM	48	18.8
Top	2462	16QAM	48	18.8
Bottom	2412	64QAM	54	18.5
Middle	2437	64QAM	54	18.5
Top	2462	64QAM	54	18.5

Transmitter 20 dB Bandwidth (continued)**Results: 802.11n**

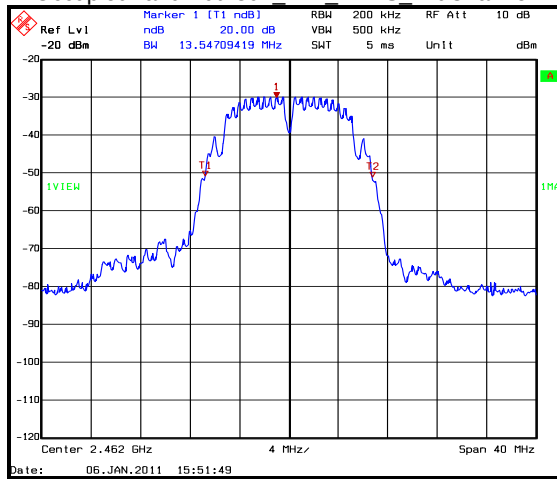
Channel	Frequency (MHz)	Modulation Scheme	Data Rate (MB/s)	20 dB Emission Bandwidth (MHz)
Bottom	2412	BPSK	6.5	19.5
Middle	2437	BPSK	6.5	19.6
Top	2462	BPSK	6.5	19.6
Bottom	2412	QPSK	13	19.4
Middle	2437	QPSK	13	19.6
Top	2462	QPSK	13	19.6
Bottom	2412	QPSK	19.5	19.6
Middle	2437	QPSK	19.5	19.6
Top	2462	QPSK	19.5	19.6
Bottom	2412	16QAM	26	19.5
Middle	2437	16QAM	26	19.5
Top	2462	16QAM	26	19.3
Bottom	2412	16QAM	39	19.2
Middle	2437	16QAM	39	19.4
Top	2462	16QAM	39	19.3
Bottom	2412	64QAM	52	19.4
Middle	2437	64QAM	52	19.4
Top	2462	64QAM	52	19.6
Bottom	2412	64QAM	58.5	19.2
Middle	2437	64QAM	58.5	19.3
Top	2462	64QAM	58.5	19.4
Bottom	2412	64QAM	65	19.3
Middle	2437	64QAM	65	19.4
Top	2462	64QAM	65	19.3

Transmitter 20 dB Bandwidth (continued)

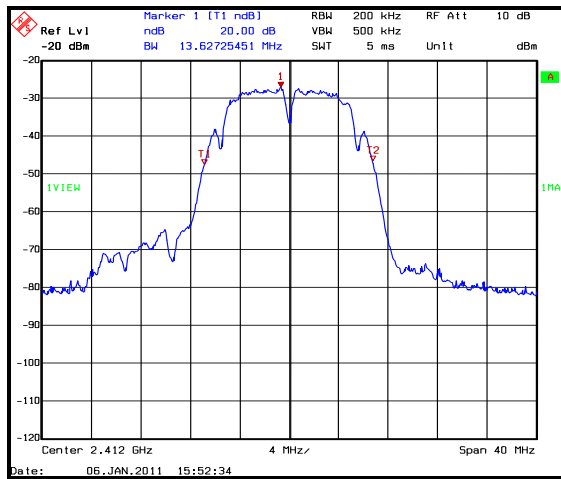
OccupiedBandwidth802_11B_1MBS_BottomChannel



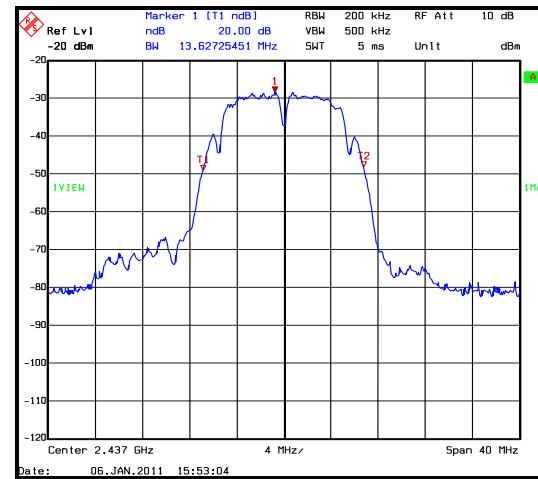
OccupiedBandwidth802_11B_1MBS_MidChannel



OccupiedBandwidth802_11B_1MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

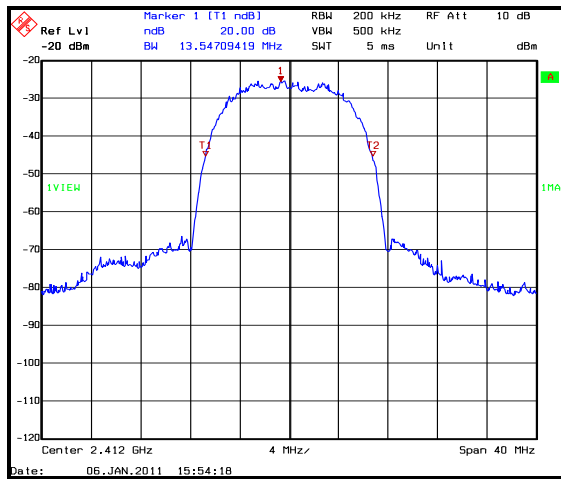
OccupiedBandwidth802_11B_2MBS_BottomChannel



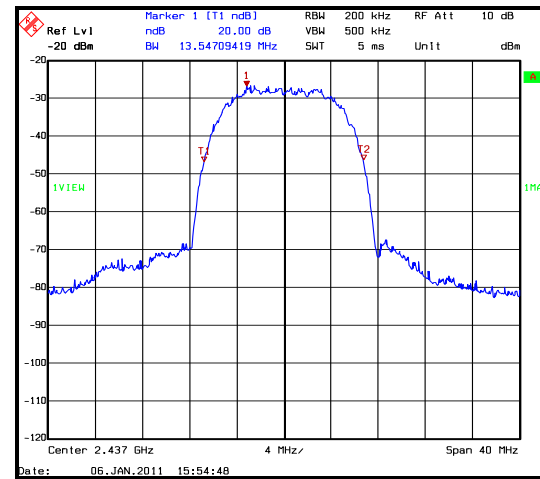
OccupiedBandwidth802_11B_2MBS_MidChannel



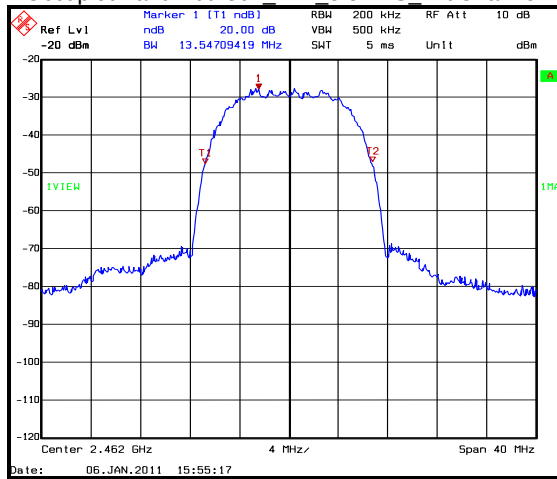
OccupiedBandwidth802_11B_2MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

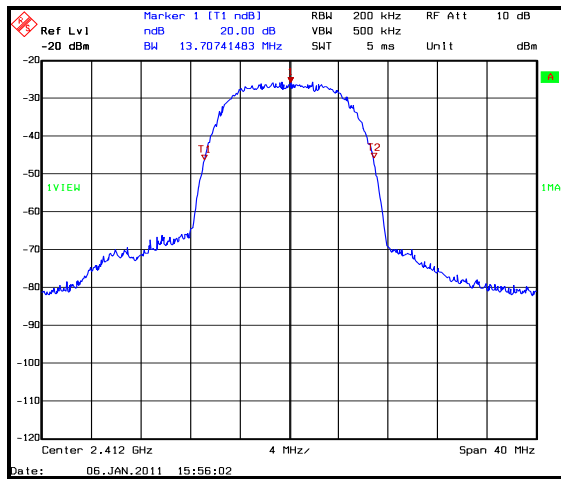
OccupiedBandwidth802_11B_5.5MBS_BottomChannel



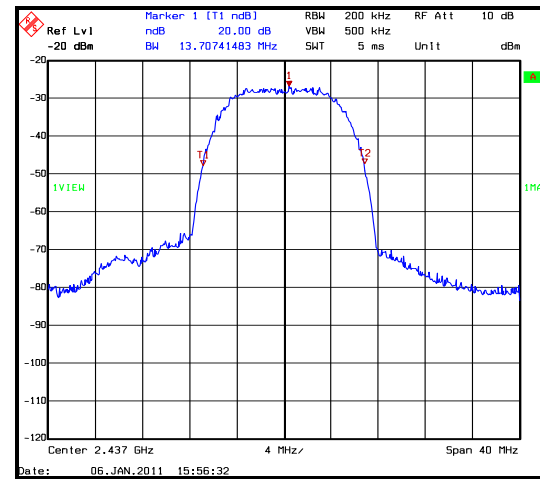
OccupiedBandwidth802_11B_5.5MBS_MidChannel



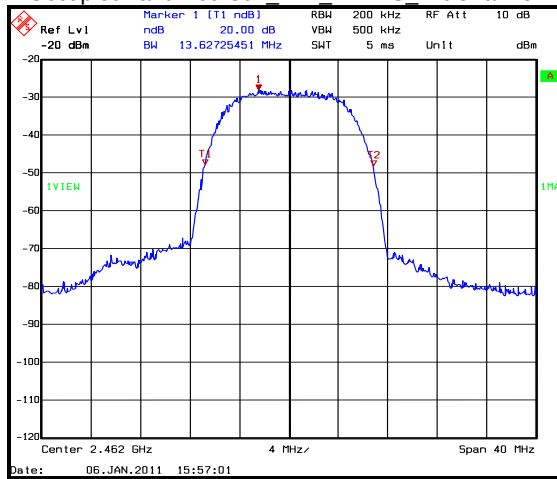
OccupiedBandwidth802_11B_5.5MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

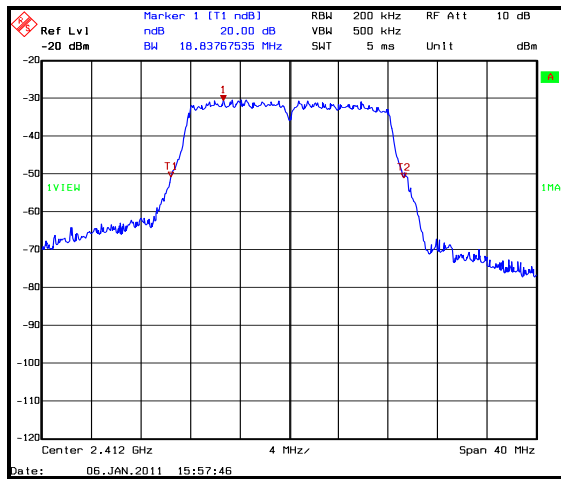
OccupiedBandwidth802_11B_11MBS_BottomChannel



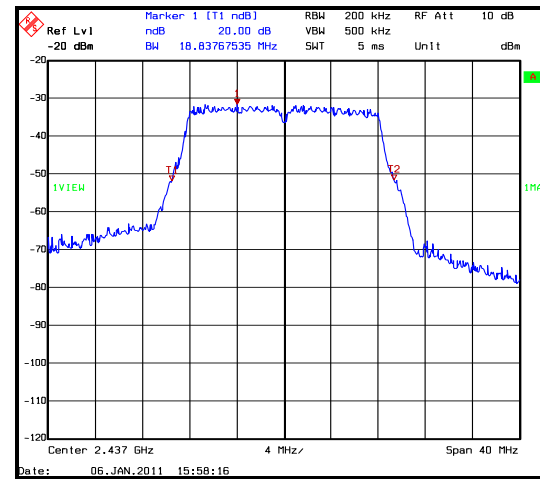
OccupiedBandwidth802_11B_11MBS_MidChannel



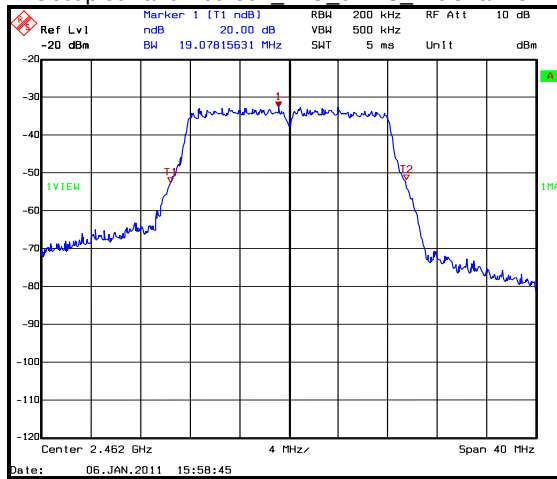
OccupiedBandwidth802_11B_11MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

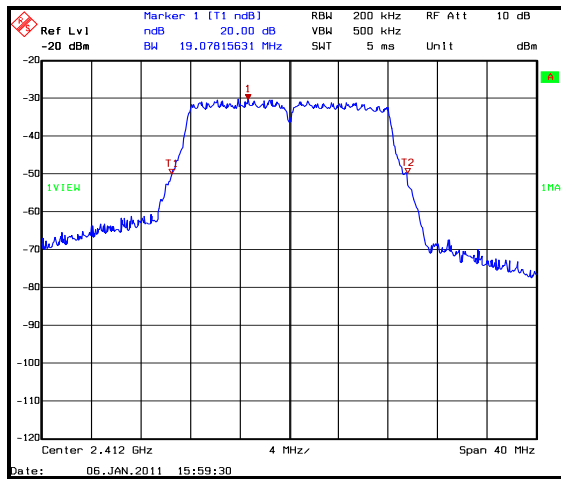
OccupiedBandwidth802_11G_6MBS_BottomChannel



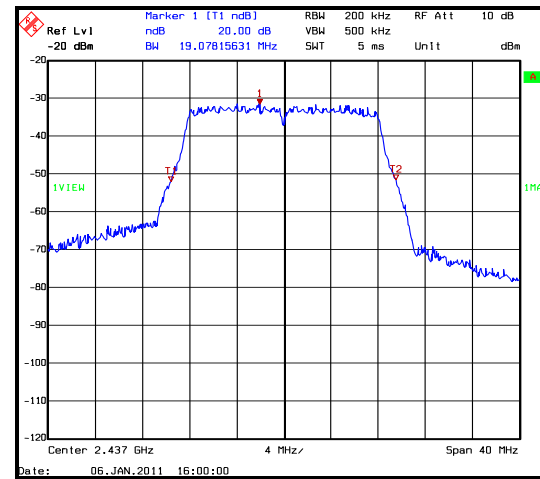
OccupiedBandwidth802_11G_6MBS_MidChannel



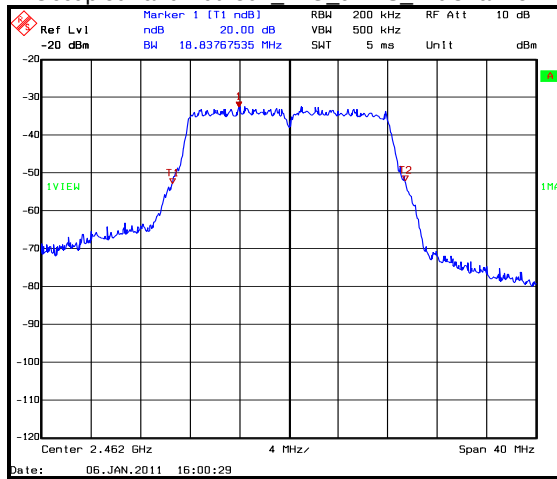
OccupiedBandwidth802_11G_6MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

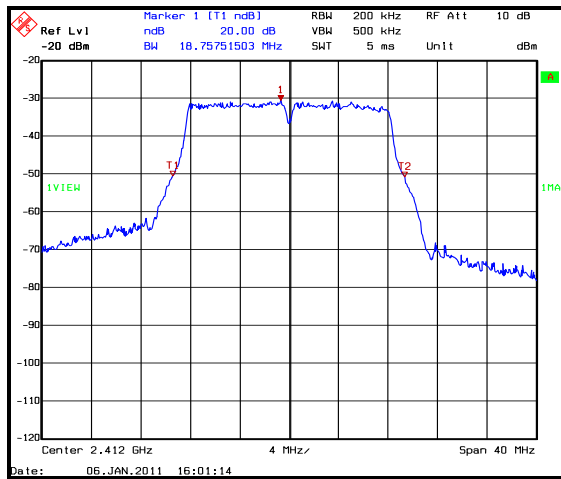
OccupiedBandwidth802_11G_9MBS_BottomChannel



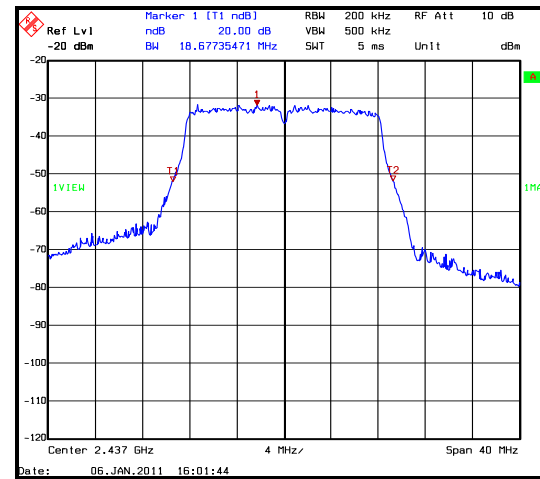
OccupiedBandwidth802_11G_9MBS_MidChannel



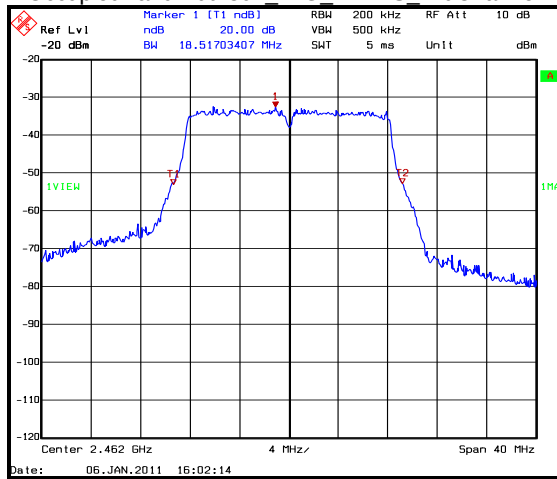
OccupiedBandwidth802_11G_9MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

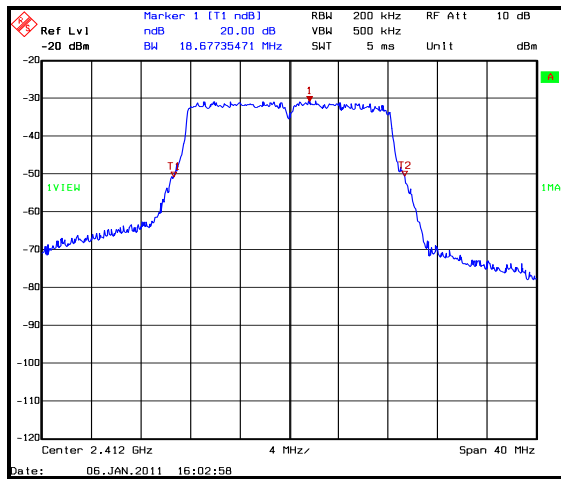
OccupiedBandwidth802_11G_12MBS_BottomChannel



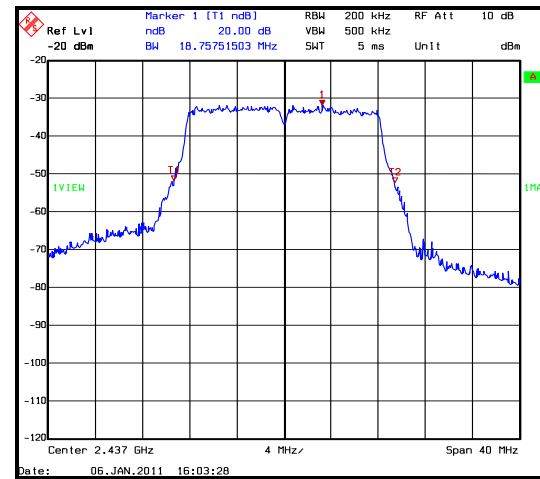
OccupiedBandwidth802_11G_12MBS_MidChannel



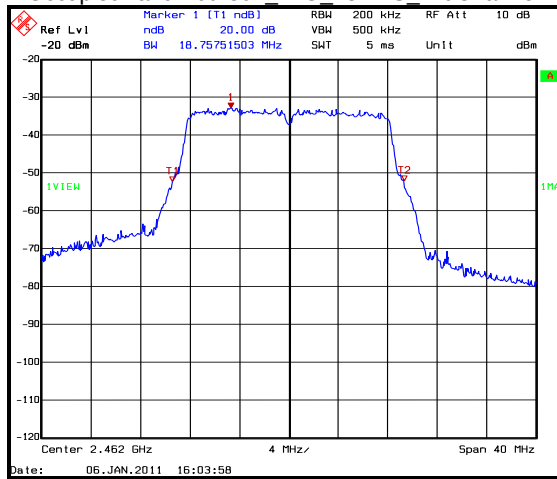
OccupiedBandwidth802_11G_12MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

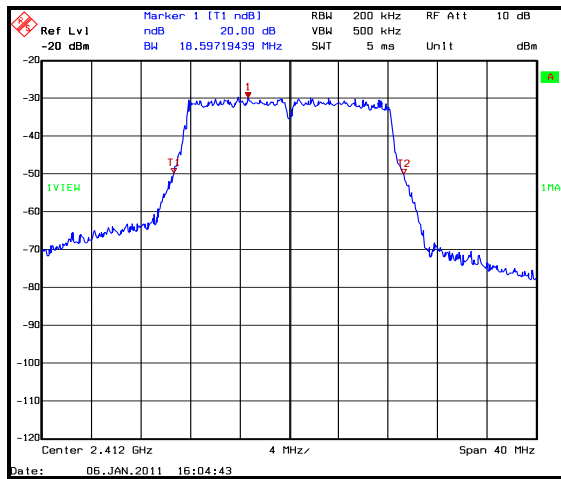
OccupiedBandwidth802_11G_18MBS_BottomChannel



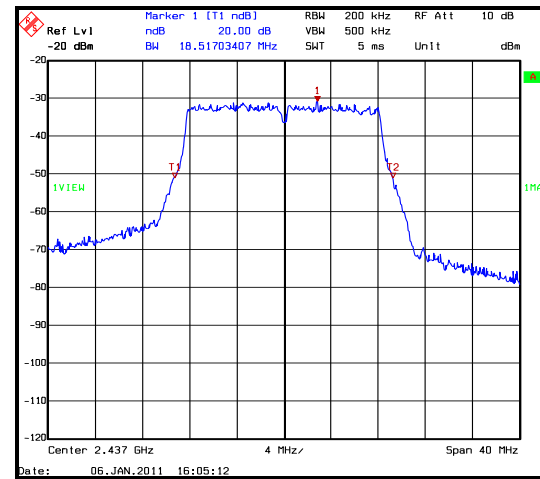
OccupiedBandwidth802_11G_18MBS_MidChannel



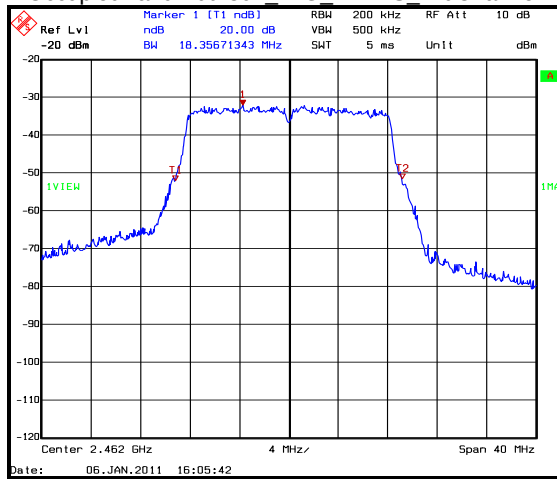
OccupiedBandwidth802_11G_18MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

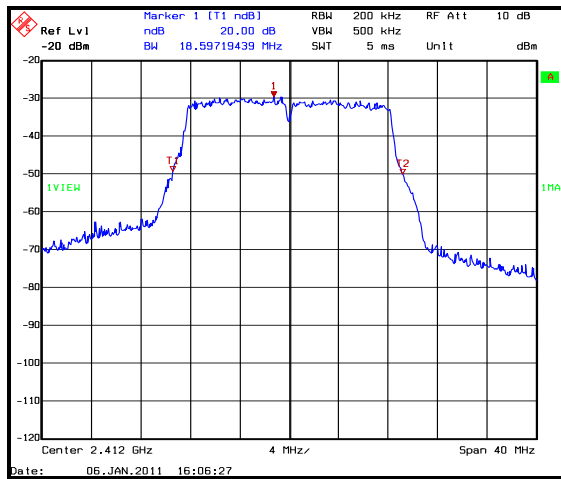
OccupiedBandwidth802_11G_24MBS_BottomChannel



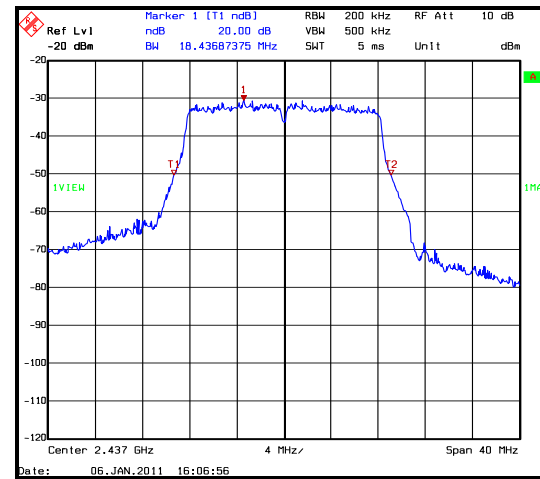
OccupiedBandwidth802_11G_24MBS_MidChannel



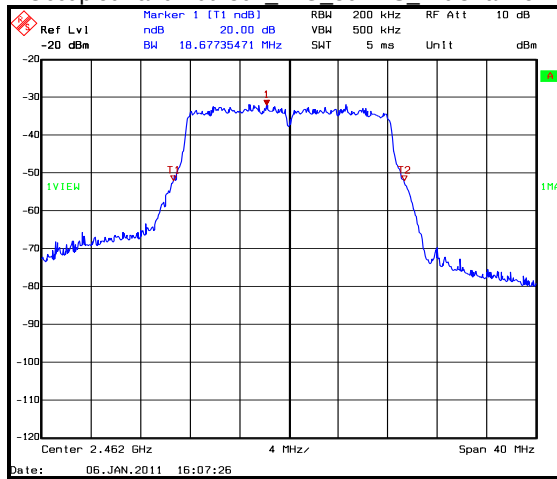
OccupiedBandwidth802_11G_24MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

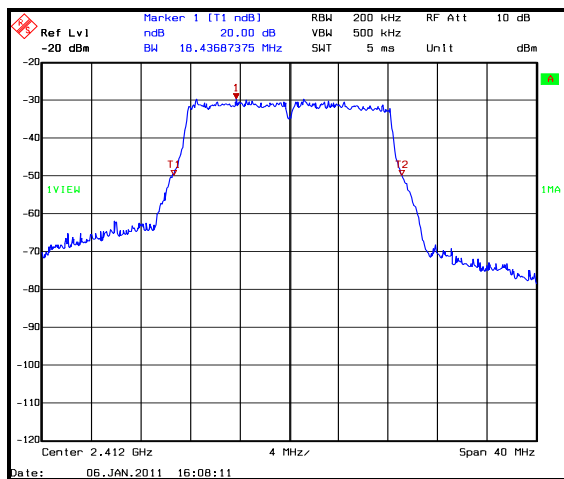
OccupiedBandwidth802_11G_36MBS_BottomChannel



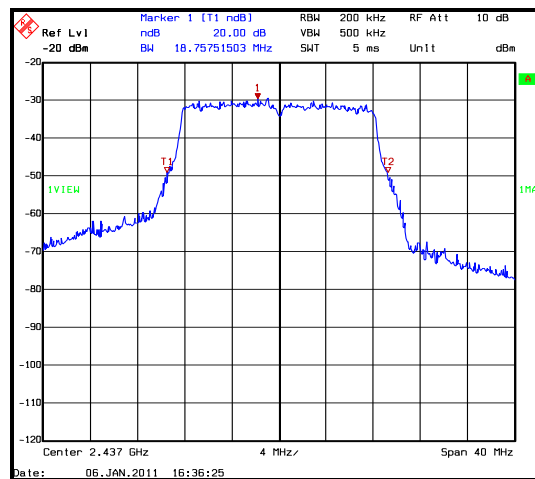
OccupiedBandwidth802_11G_36MBS_MidChannel



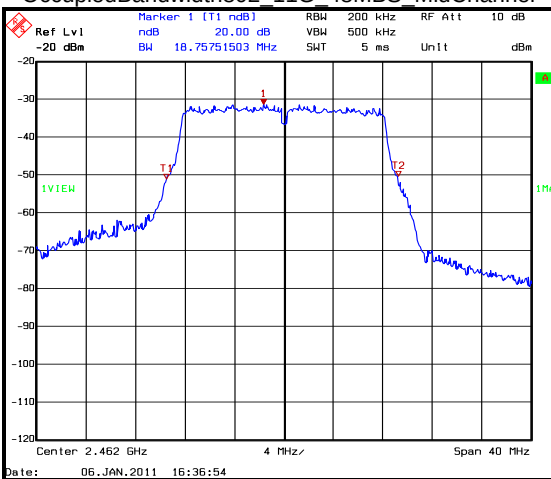
OccupiedBandwidth802_11G_36MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

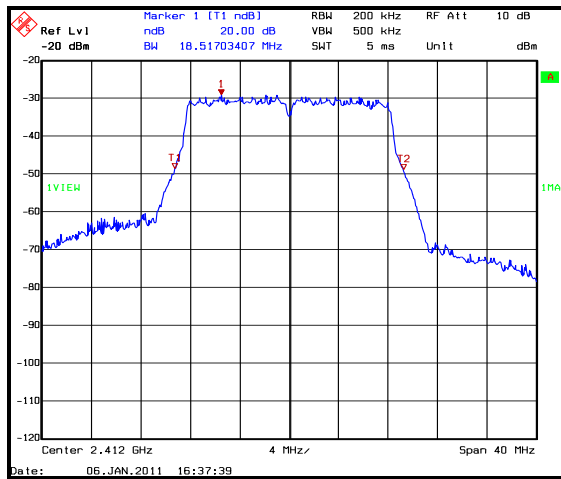
OccupiedBandwidth802_11G_48MBS_BottomChannel



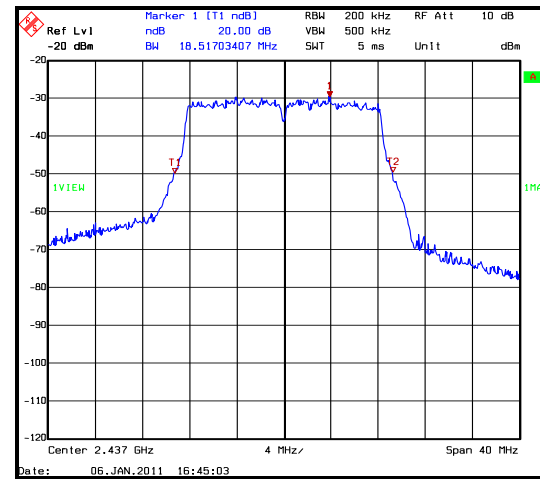
OccupiedBandwidth802_11G_48MBS_MidChannel



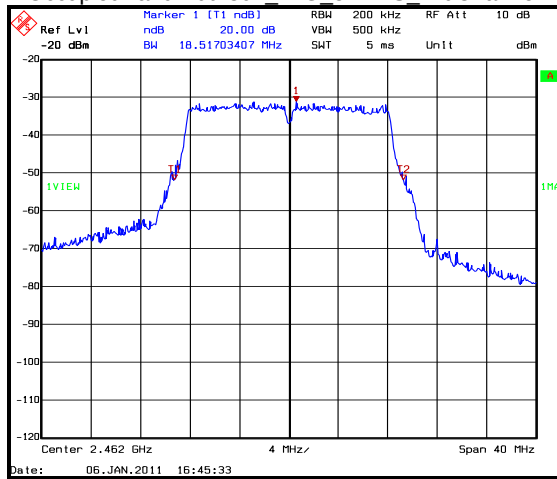
OccupiedBandwidth802_11G_48MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

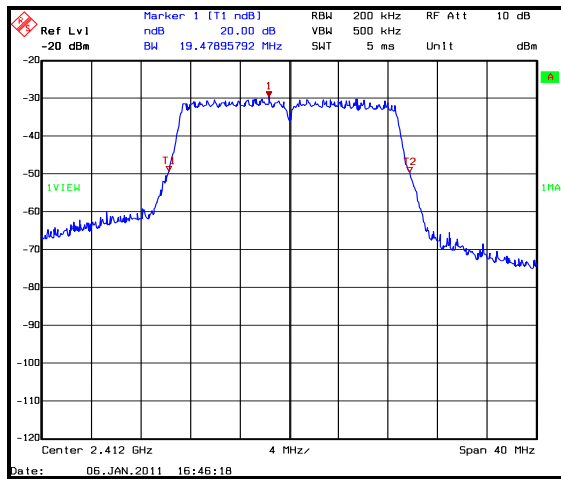
OccupiedBandwidth802_11G_54MBS_BottomChannel



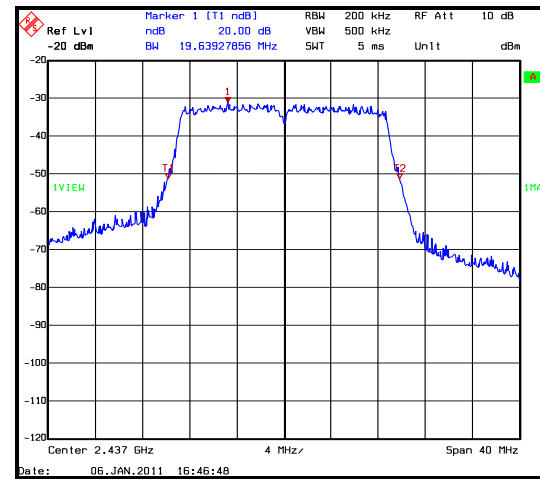
OccupiedBandwidth802_11G_54MBS_MidChannel



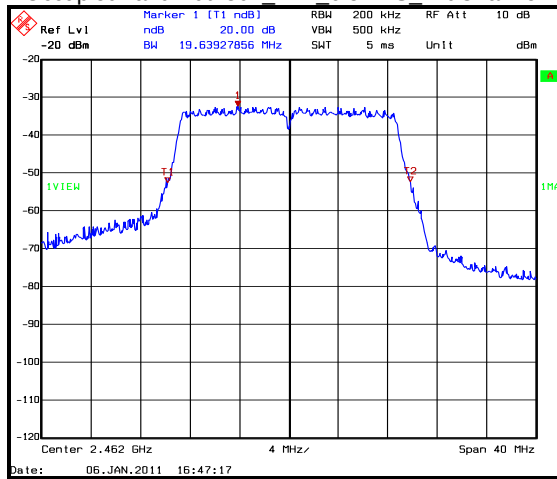
OccupiedBandwidth802_11G_54MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

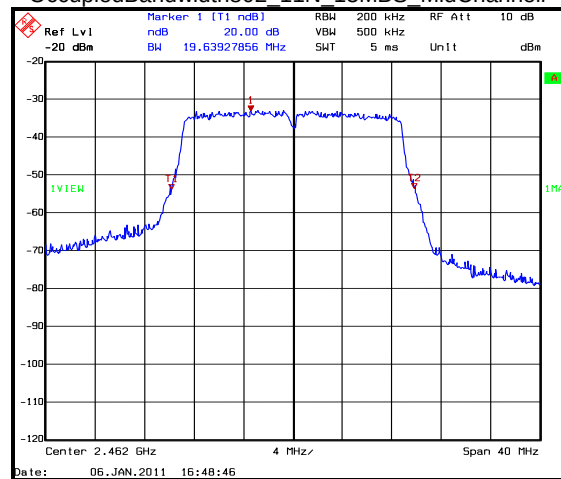
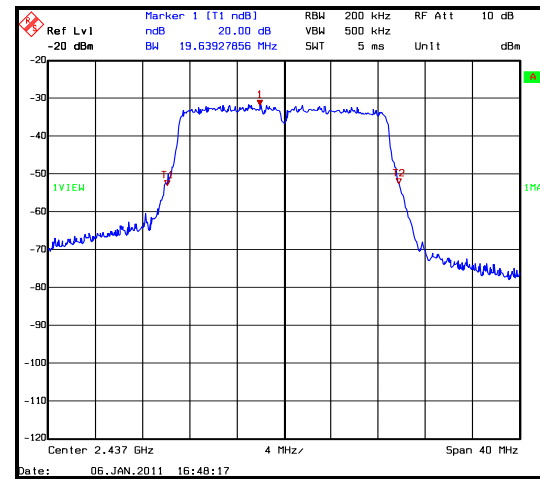
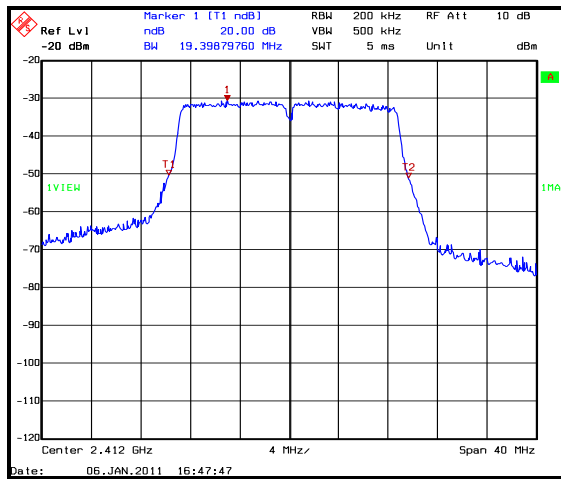
OccupiedBandwidth802_11N_6.5MBS_BotChannel

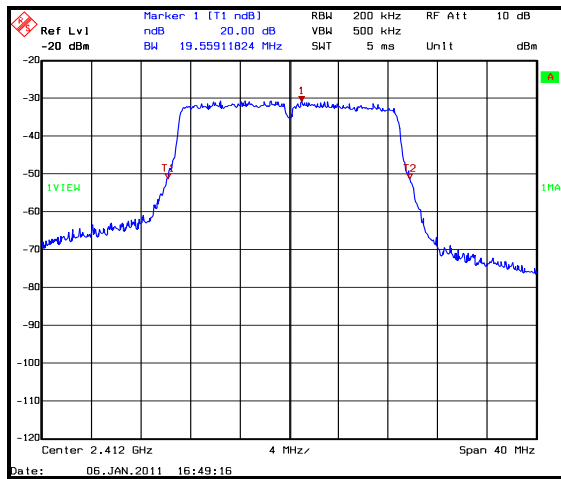


OccupiedBandwidth802_11N_6.5MBS_MidChannel

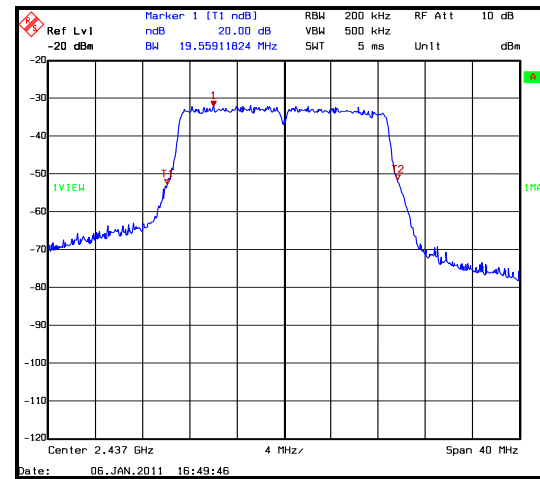


OccupiedBandwidth802_11N_6.5MBS_TopChannel

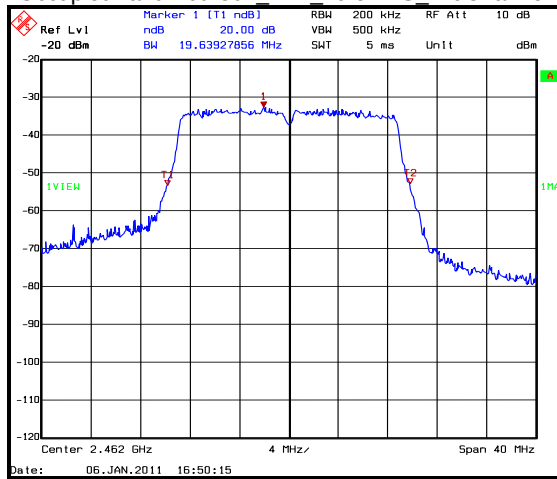
Transmitter 20 dB Bandwidth (continued)

Transmitter 20 dB Bandwidth (continued)

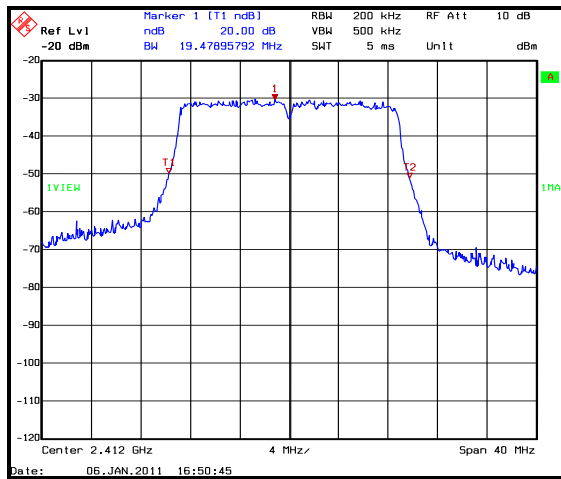
OccupiedBandwidth802_11N_19.5MBS_BotChannel



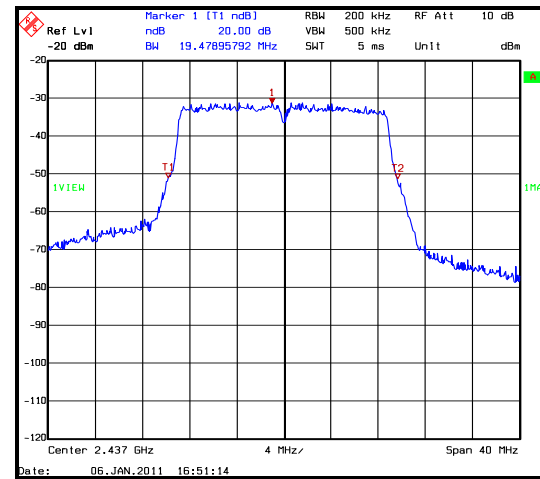
OccupiedBandwidth802_11N_19.5MBS_MidChannel



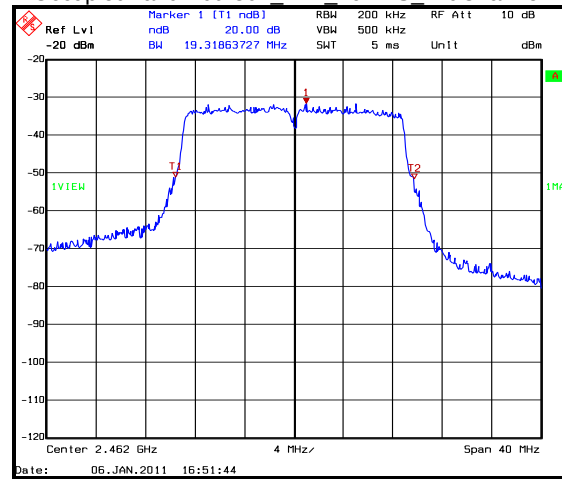
OccupiedBandwidth802_11N_19.5MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

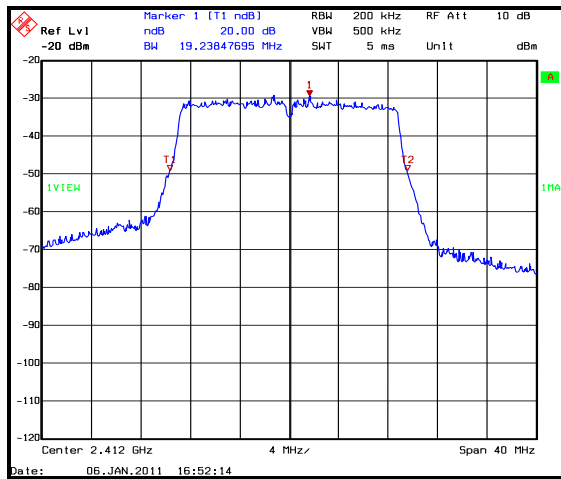
OccupiedBandwidth802_11N_26MBS_BotChannel



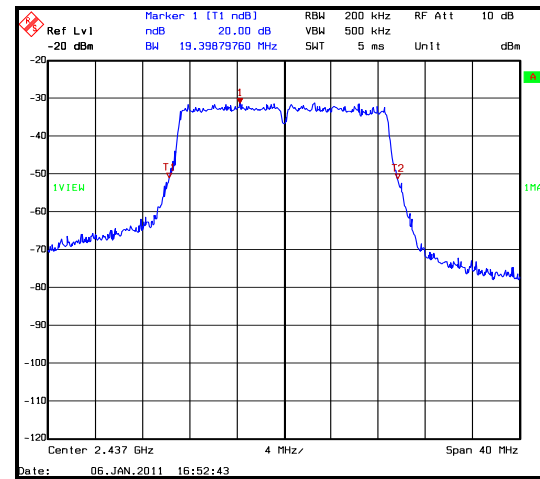
OccupiedBandwidth802_11N_26MBS_MidChannel



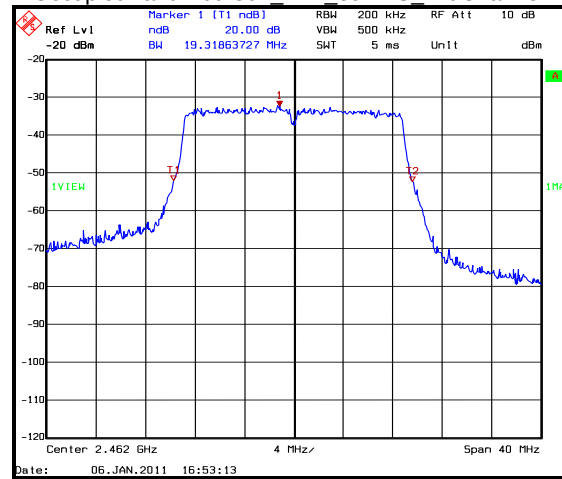
OccupiedBandwidth802_11N_26MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

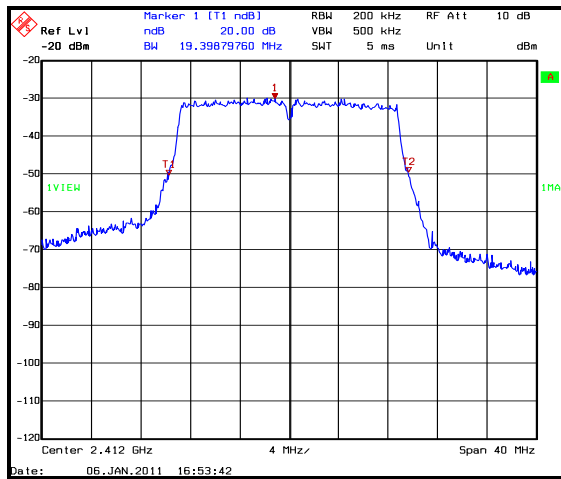
OccupiedBandwidth802_11N_39MBS_BotChannel



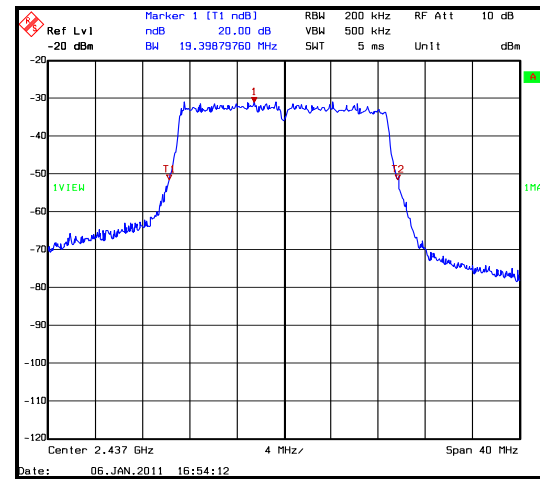
OccupiedBandwidth802_11N_39MBS_MidChannel



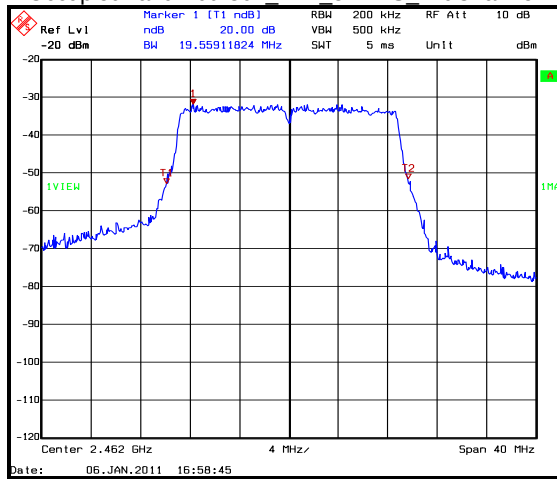
OccupiedBandwidth802_11N_39MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

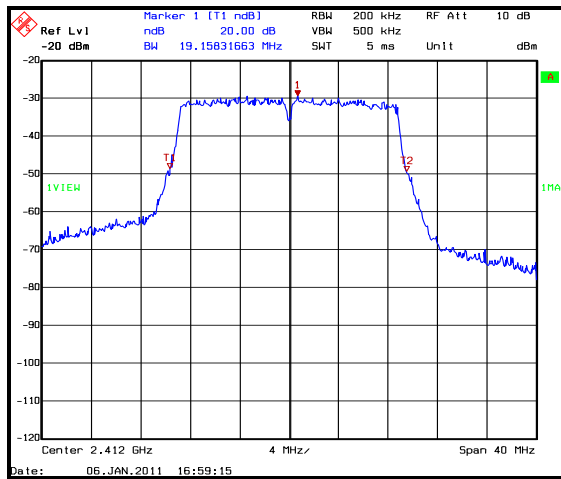
OccupiedBandwidth802_11N_52MBS_BotChannel



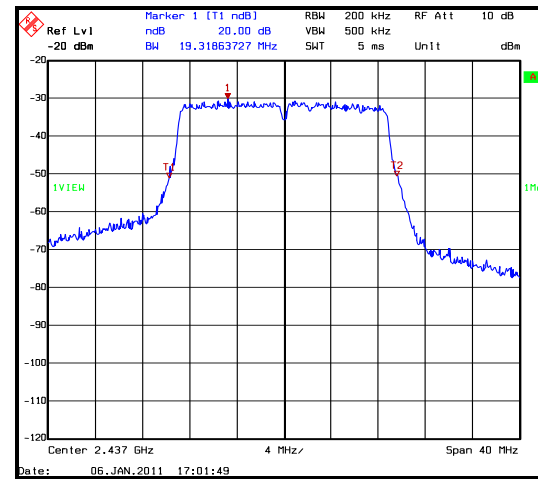
OccupiedBandwidth802_11N_52MBS_MidChannel



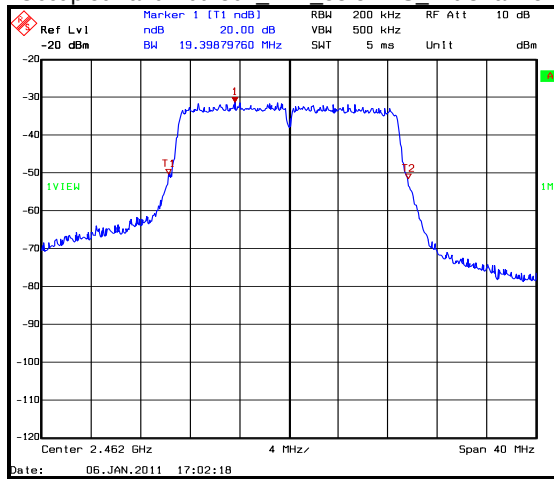
OccupiedBandwidth802_11N_52MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

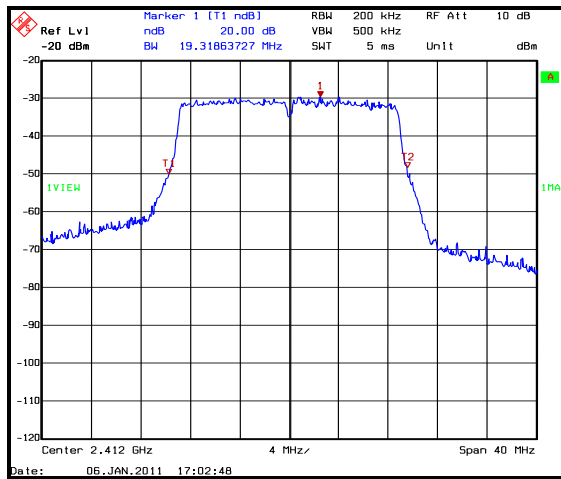
OccupiedBandwidth802_11N_58.5MBS_BotChannel



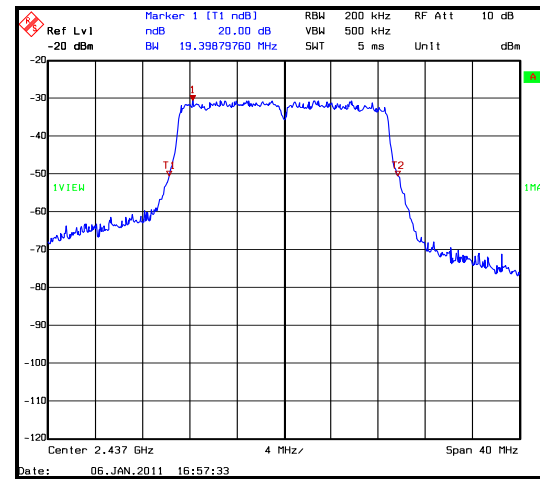
OccupiedBandwidth802_11N_58.5MBS_MidChannel



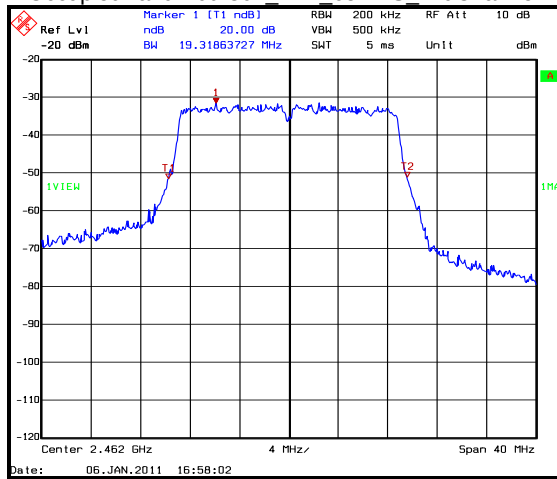
OccupiedBandwidth802_11N_58.5MBS_TopChannel

Transmitter 20 dB Bandwidth (continued)

OccupiedBandwidth802_11N_65MBS_BotChannel



OccupiedBandwidth802_11N_65MBS_MidChannel



OccupiedBandwidth802_11N_65MBS_TopChannel

5.2.6. Transmitter Power Spectral Density**Test Summary:**

Test Engineer:	David Lakeland	Test Date:	11 May 2011
Test Sample:	ID:8		

FCC/IC Part:	15.247(e) and RSS-210 A8.2
Test Method Used:	As detailed in ANSI C63.10 Section 6.11.2

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	27

Results: 802.11b

Channel	Frequency (MHz)	Modulation Scheme	Data Rate (Mbps)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)	Result
Bottom	2412	BPSK	1	-12.1	8	20.1	Complied
Middle	2437	BPSK	1	-12.4	8	20.4	Complied
Top	2462	BPSK	1	-14.0	8	22.0	Complied
Bottom	2412	QPSK	2	-14.0	8	22.0	Complied
Middle	2437	QPSK	2	-13.7	8	21.7	Complied
Top	2462	QPSK	2	-14.6	8	22.6	Complied
Bottom	2412	QPSK	5.5	-7.8	8	15.8	Complied
Middle	2437	QPSK	5.5	-7.6	8	15.6	Complied
Top	2462	QPSK	5.5	-9.1	8	17.1	Complied
Bottom	2412	QPSK	11	-7.6	8	15.6	Complied
Middle	2437	QPSK	11	-8.6	8	16.6	Complied
Top	2462	QPSK	11	-7.4	8	15.4	Complied

Transmitter Power Spectral Density (continued)**Results: 802.11g**

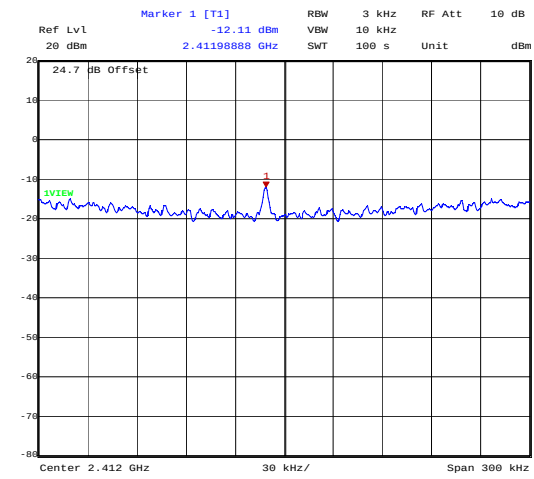
Channel	Frequency (MHz)	Modulation Scheme	Data Rate (Mbps)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)	Result
Bottom	2412	BPSK	6	-17.8	8	25.8	Complied
Middle	2437	BPSK	6	-18.9	8	26.9	Complied
Top	2462	BPSK	6	-18.1	8	26.1	Complied
Bottom	2412	BPSK	9	-17.5	8	25.5	Complied
Middle	2437	BPSK	9	-16.9	8	24.9	Complied
Top	2462	BPSK	9	-18.1	8	26.1	Complied
Bottom	2412	QPSK	12	-17.9	8	25.9	Complied
Middle	2437	QPSK	12	-17.7	8	25.7	Complied
Top	2462	QPSK	12	-18.9	8	26.9	Complied
Bottom	2412	QPSK	18	-16.6	8	24.6	Complied
Middle	2437	QPSK	18	-17.5	8	25.5	Complied
Top	2462	QPSK	18	-17.9	8	25.9	Complied
Bottom	2412	16QAM	24	-18.3	8	26.3	Complied
Middle	2437	16QAM	24	-18.0	8	26.0	Complied
Top	2462	16QAM	24	-17.2	8	25.2	Complied
Bottom	2412	16QAM	36	-17.3	8	25.3	Complied
Middle	2437	16QAM	36	-18.1	8	26.1	Complied
Top	2462	16QAM	36	-18.5	8	26.5	Complied
Bottom	2412	16QAM	48	-17.3	8	25.3	Complied
Middle	2437	16QAM	48	-16.8	8	24.8	Complied
Top	2462	16QAM	48	-19.1	8	27.1	Complied
Bottom	2412	64QAM	54	-17.2	8	25.2	Complied
Middle	2437	64QAM	54	-17.2	8	25.2	Complied
Top	2462	64QAM	54	-19.2	8	27.2	Complied

Transmitter Power Spectral Density (continued)**Results: 802.11n**

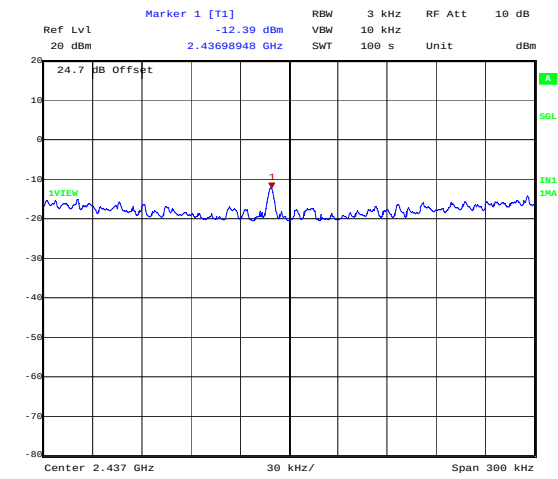
Channel	Frequency (MHz)	Modulation Scheme	Data Rate (Mbps)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)	Result
Bottom	2412	BPSK	6.5	-17.0	8	25.0	Complied
Middle	2437	BPSK	6.5	-17.2	8	25.2	Complied
Top	2462	BPSK	6.5	-17.6	8	25.6	Complied
Bottom	2412	QPSK	13	-16.0	8	24.0	Complied
Middle	2437	QPSK	13	-16.3	8	24.3	Complied
Top	2462	QPSK	13	-17.2	8	25.2	Complied
Bottom	2412	QPSK	19.5	-16.5	8	24.5	Complied
Middle	2437	QPSK	19.5	-16.9	8	24.9	Complied
Top	2462	QPSK	19.5	-17.4	8	25.4	Complied
Bottom	2412	16QAM	26	-16.1	8	24.1	Complied
Middle	2437	16QAM	26	-16.8	8	24.8	Complied
Top	2462	16QAM	26	-17.1	8	25.1	Complied
Bottom	2412	16QAM	39	-16.0	8	24.0	Complied
Middle	2437	16QAM	39	-15.8	8	23.8	Complied
Top	2462	16QAM	39	-17.1	8	25.1	Complied
Bottom	2412	64QAM	52	-18.0	8	26.0	Complied
Middle	2437	64QAM	52	-16.9	8	24.9	Complied
Top	2462	64QAM	52	-16.6	8	24.6	Complied
Bottom	2412	64QAM	58.5	-15.5	8	23.5	Complied
Middle	2437	64QAM	58.5	-16.6	8	24.6	Complied
Top	2462	64QAM	58.5	-18.1	8	26.1	Complied
Bottom	2412	64QAM	65	-17.0	8	25.0	Complied
Middle	2437	64QAM	65	-16.4	8	24.4	Complied
Top	2462	64QAM	65	-16.6	8	24.6	Complied

Note(s):

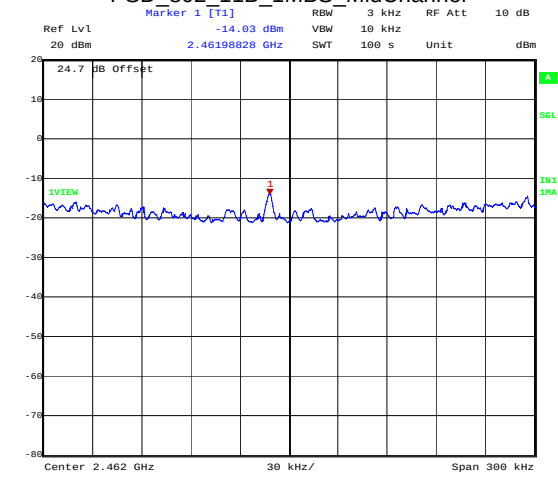
1. These tests were performed conducted as the EUT has an external antenna port.

Transmitter Power Spectral Density (continued)

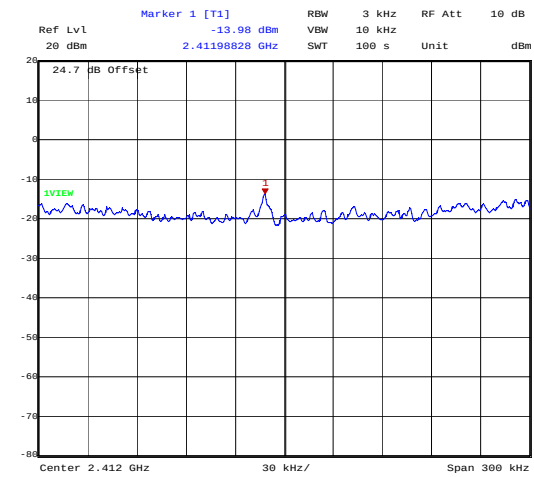
PSD_802_11B_1MBS_BottomChannel



PSD_802_11B_1MBS_MidChannel

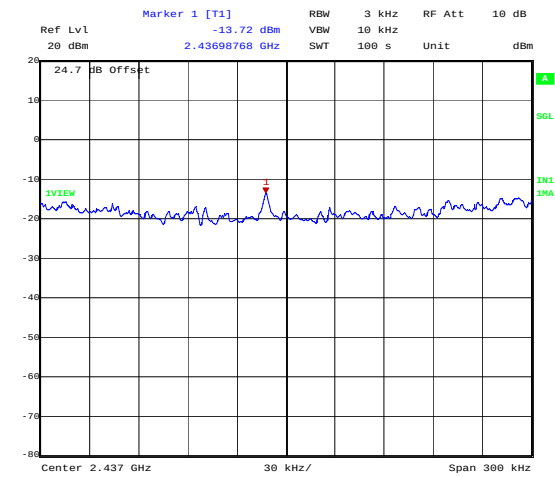


PSD_802_11B_1MBS_TopChannel

Transmitter Power Spectral Density (continued)

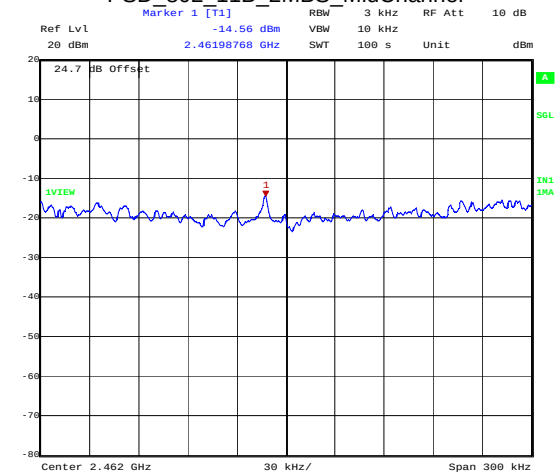
Date: 11.MAY.2011 17:39:43

PSD_802_11B_2MBS_BottomChannel



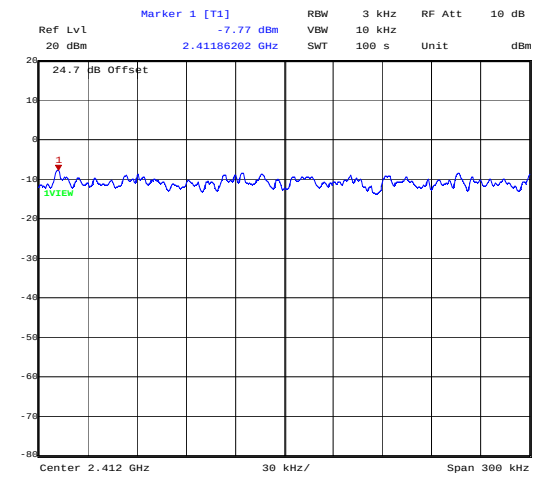
Date: 11.MAY.2011 17:41:57

PSD_802_11B_2MBS_MidChannel



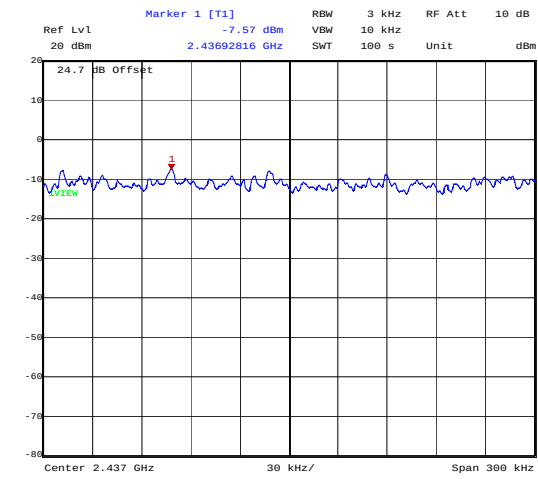
Date: 11.MAY.2011 17:44:10

PSD_802_11B_2MBS_TopChannel

Transmitter Power Spectral Density (continued)

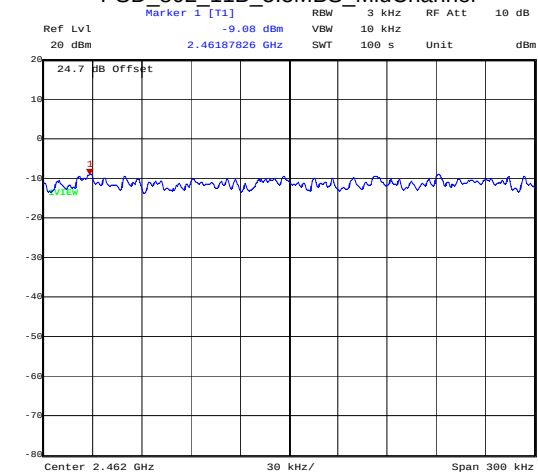
Date: 11.MAY.2011 17:46:39

PSD_802_11B_5.5MBS_BottomChannel



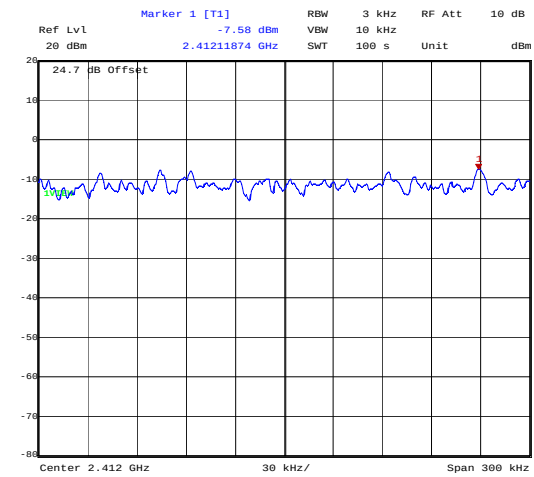
Date: 11.MAY.2011 17:48:52

PSD_802_11B_5.5MBS_MidChannel



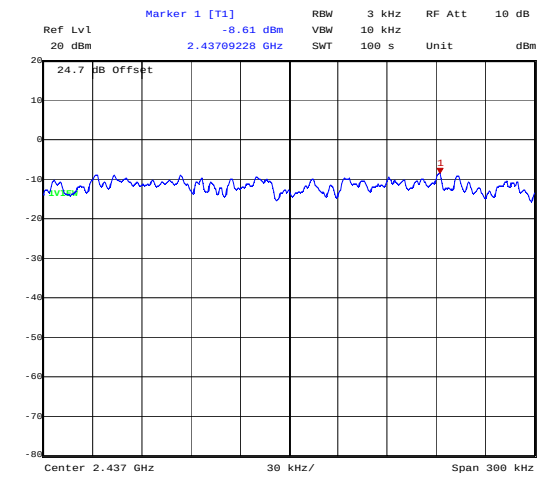
Date: 11.MAY.2011 17:51:05

PSD_802_11B_5.5MBS_TopChannel

Transmitter Power Spectral Density (continued)

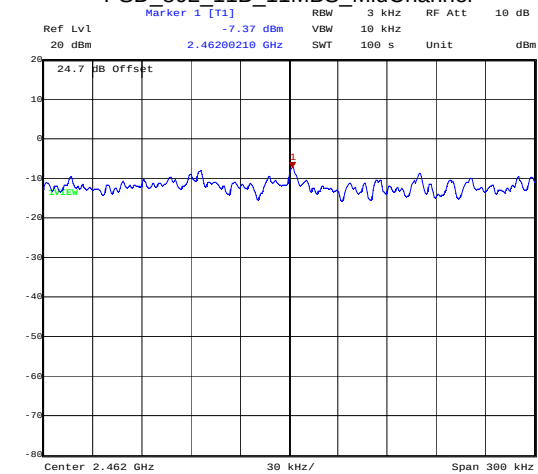
Date: 11.MAY.2011 17:53:34

PSD_802_11B_11MBS_BottomChannel



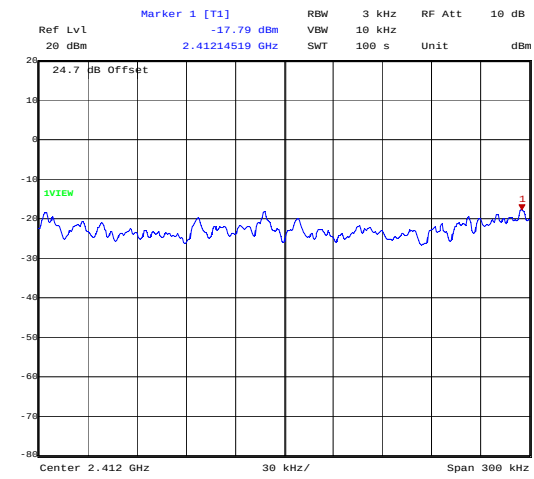
Date: 11.MAY.2011 17:55:47

PSD_802_11B_11MBS_MidChannel

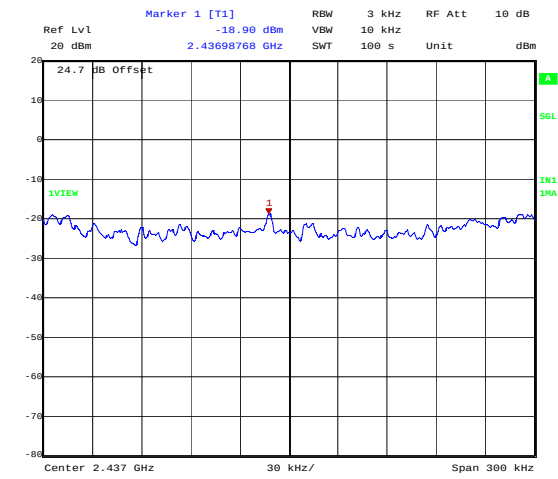


Date: 11.MAY.2011 17:58:01

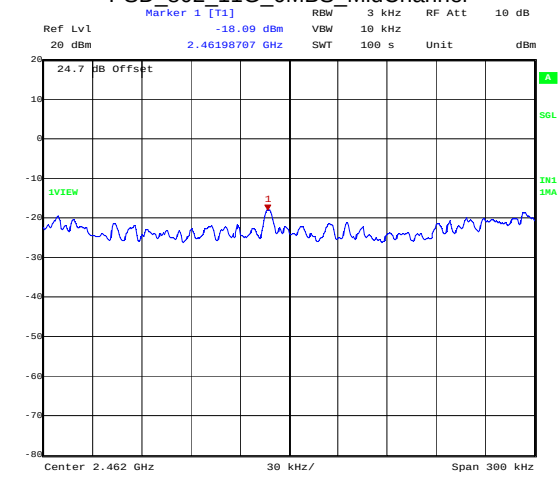
PSD_802_11B_11MBS_TopChannel

Transmitter Power Spectral Density (continued)

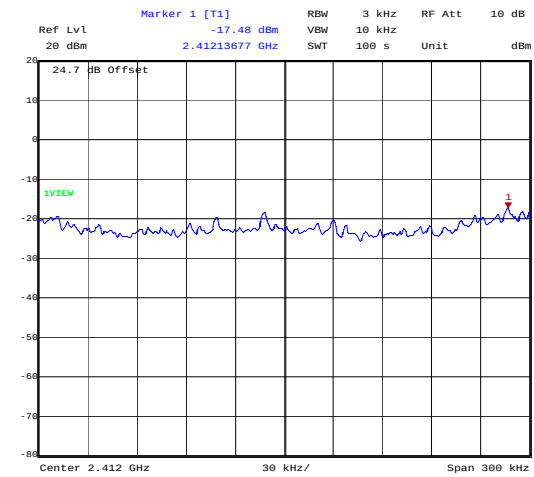
PSD_802_11G_6MBS_BottomChannel



PSD_802_11G_6MBS_MidChannel

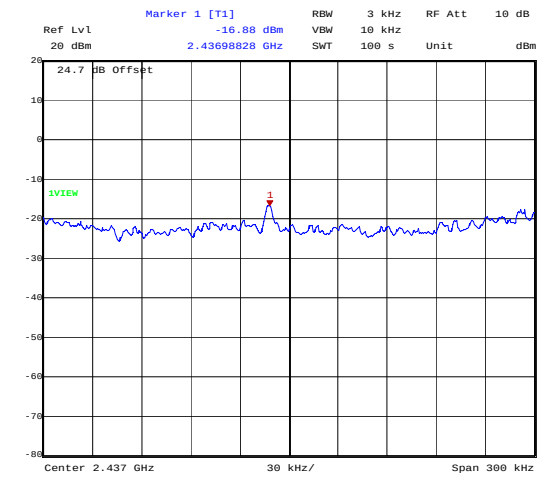


PSD_802_11G_6MBS_TopChannel

Transmitter Power Spectral Density (continued)

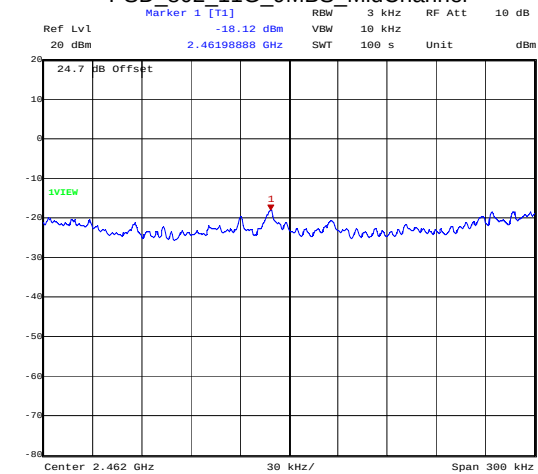
Date: 11.MAY.2011 18:07:24

PSD_802_11G_9MBS_BottomChannel



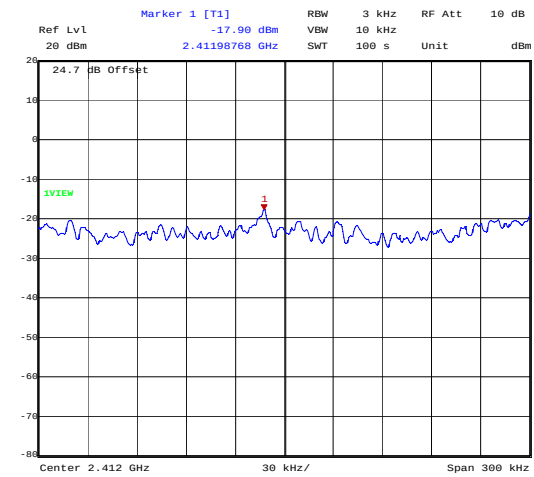
Date: 11.MAY.2011 19:57:43

PSD_802_11G_9MBS_MidChannel



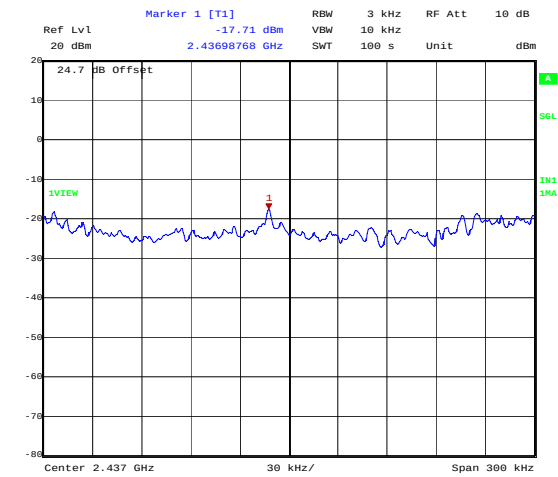
Date: 11.MAY.2011 18:11:51

PSD_802_11G_9MBS_TopChannel

Transmitter Power Spectral Density (continued)

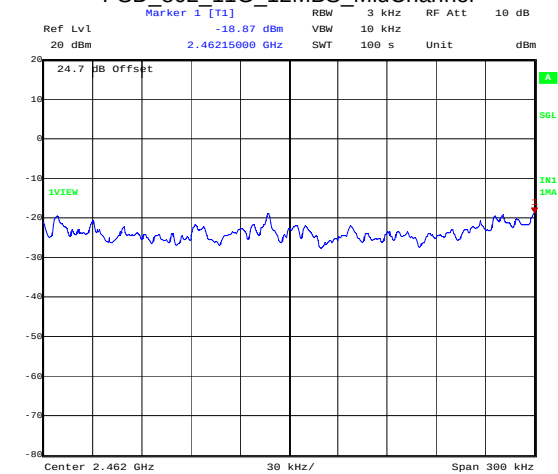
Date: 11.MAY.2011 18:14:20

PSD_802_11G_12MBS_BottomChannel



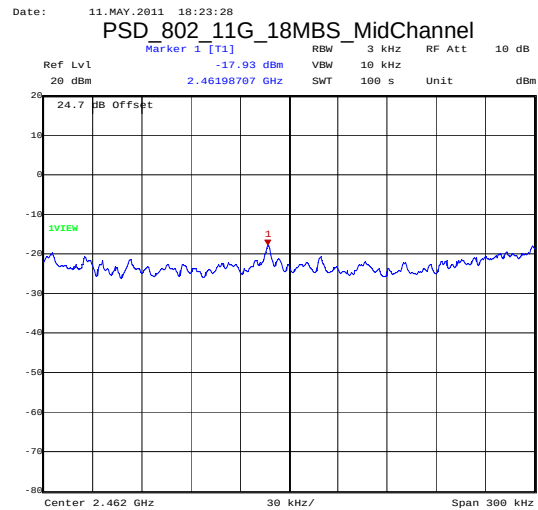
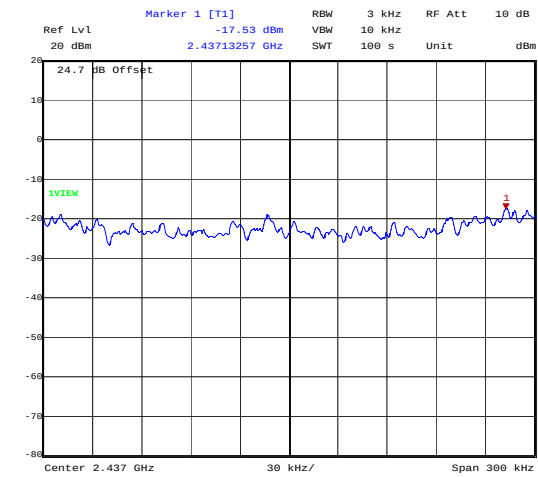
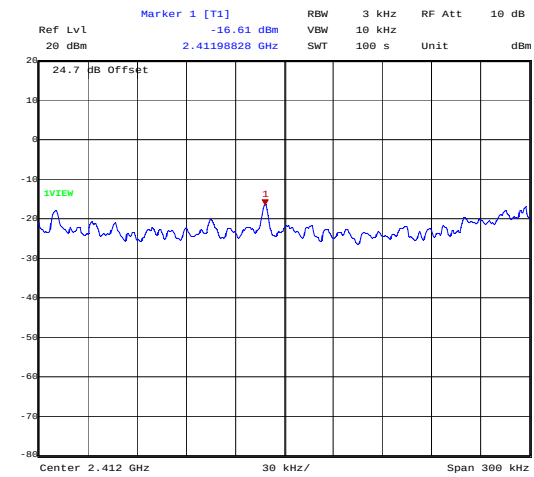
Date: 11.MAY.2011 18:16:33

PSD_802_11G_12MBS_MidChannel

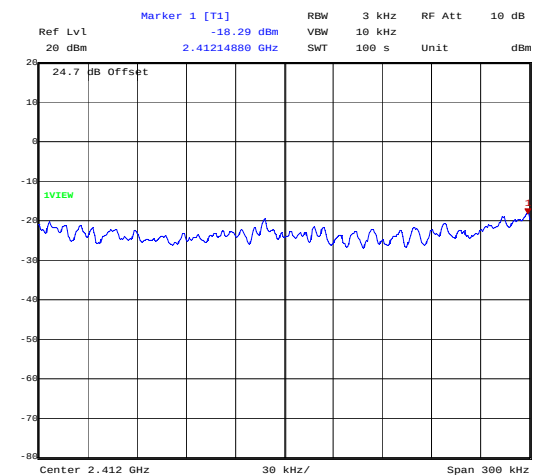


Date: 11.MAY.2011 18:18:47

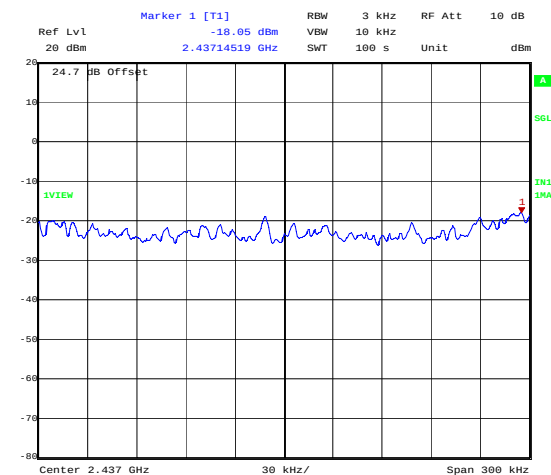
PSD_802_11G_12MBS_TopChannel

Transmitter Power Spectral Density (continued)

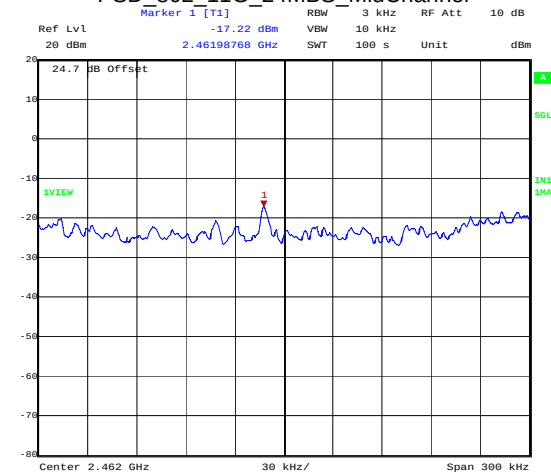
Transmitter Power Spectral Density (continued)



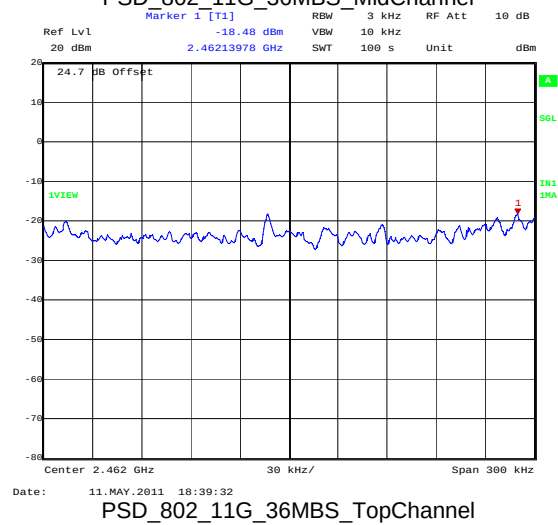
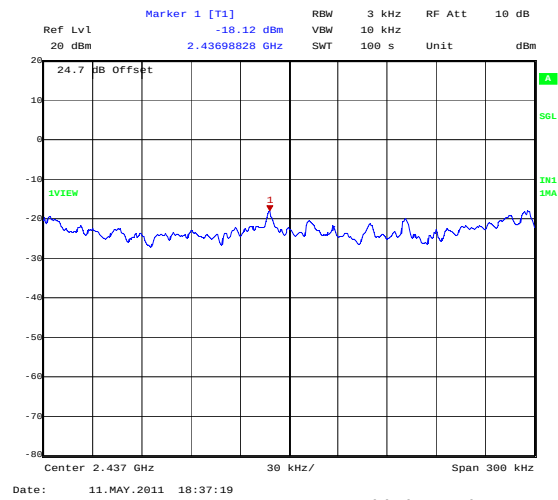
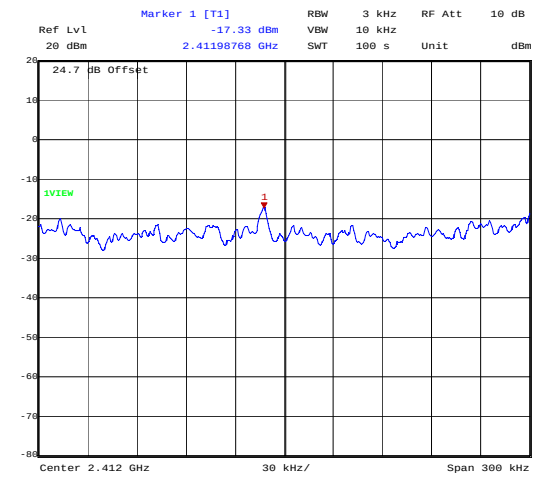
Date: 11.MAY.2011 18:28:10
PSD 802 11G 24MBS BottomChannel



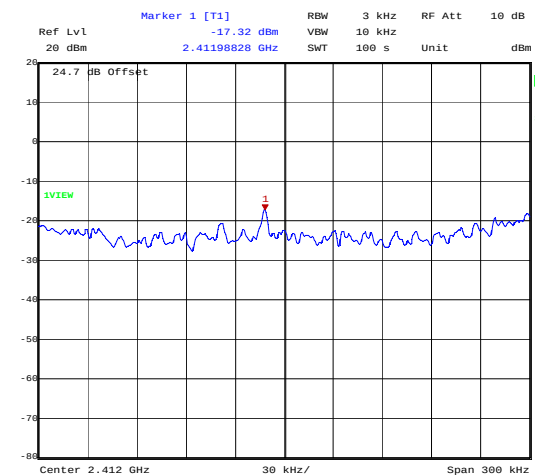
Date: 11.MAY.2011 18:30:24
PSD 802 11G 24MBS MidChannel



Date: 11.MAY.2011 18:32:37
PSD 802 11G 24MBS TopChannel

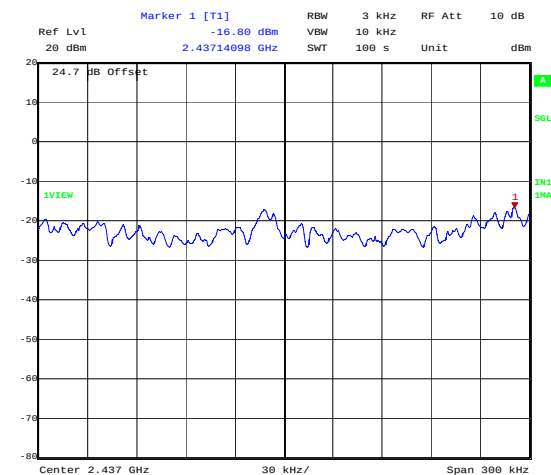
Transmitter Power Spectral Density (continued)

Transmitter Power Spectral Density (continued)



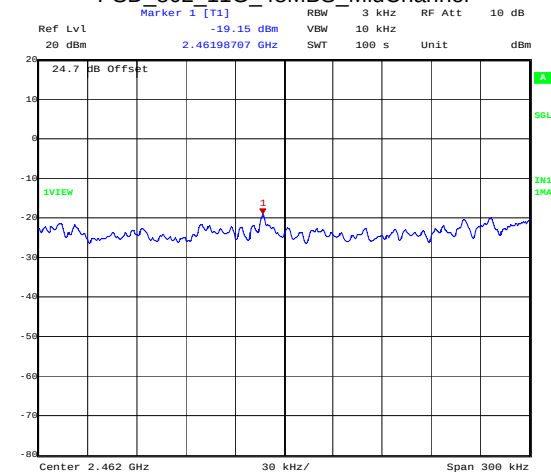
Date: 11.MAY.2011 18:42:01

PSD 802 11G 48MBS BottomChannel



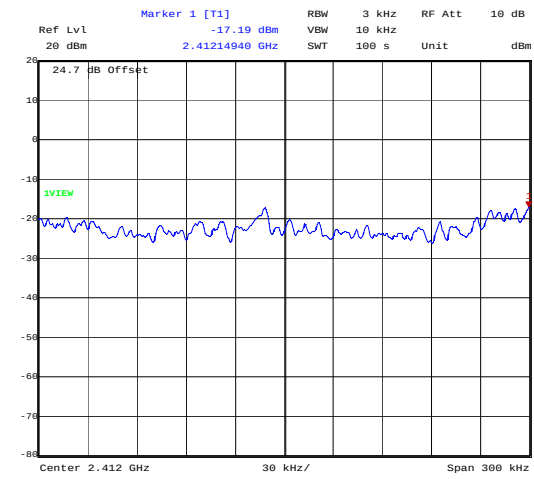
Date: 11.MAY.2011 18:44:14

PSD 802 11G 48MBS MidChannel



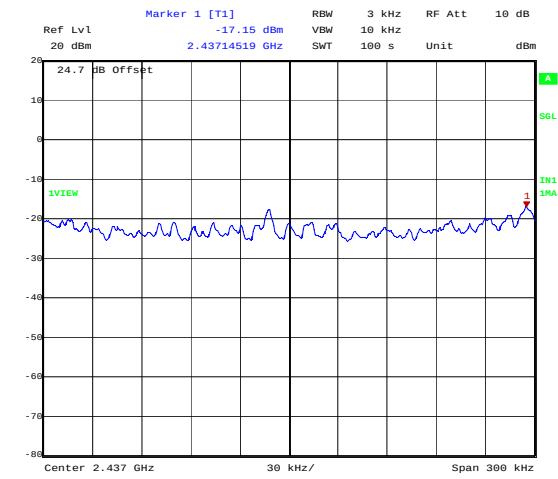
Date: 11.MAY.2011 19:59:57

PSD 802 11G 48MBS TopChannel

Transmitter Power Spectral Density (continued)

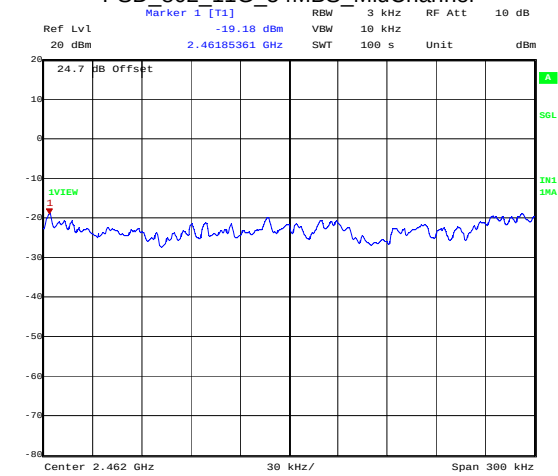
Date: 11.MAY.2011 18:48:56

PSD_802_11G_54MBS_BottomChannel



Date: 11.MAY.2011 18:51:10

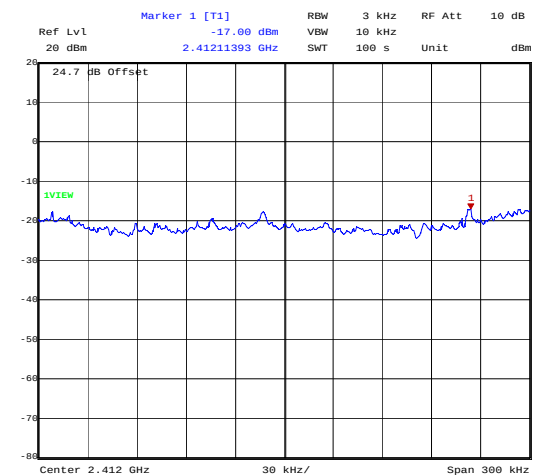
PSD_802_11G_54MBS_MidChannel



Date: 11.MAY.2011 18:53:23

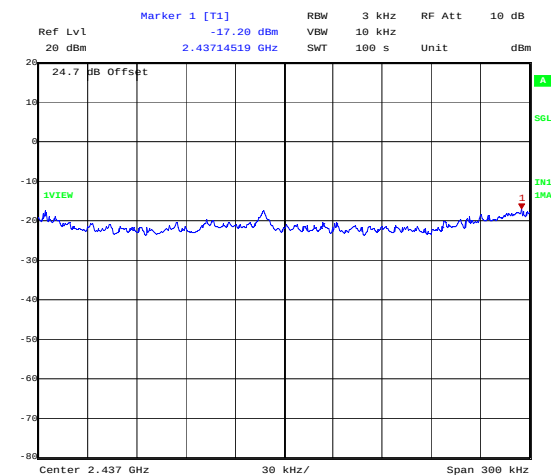
PSD_802_11G_54MBS_TopChannel

Transmitter Power Spectral Density (continued)



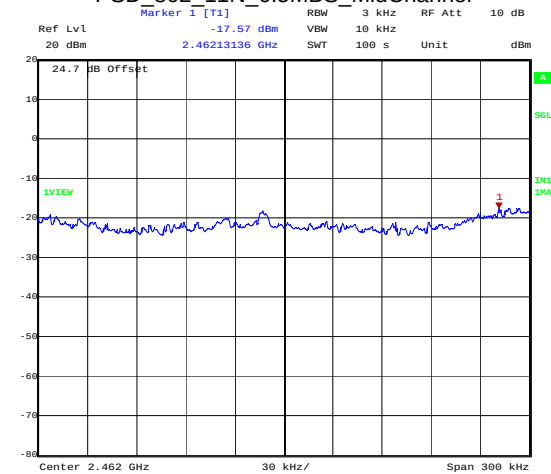
Date: 11.MAY.2011 18:55:51

PSD_802_11N_6.5MBS_BotChannel



Date: 11.MAY.2011 18:58:05

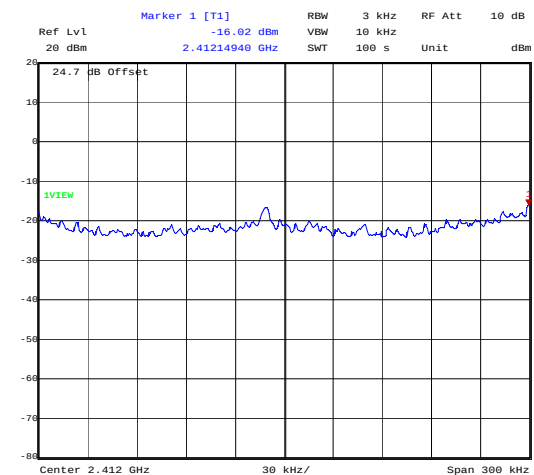
PSD_802_11N_6.5MBS_MidChannel



Date: 11.MAY.2011 19:00:18

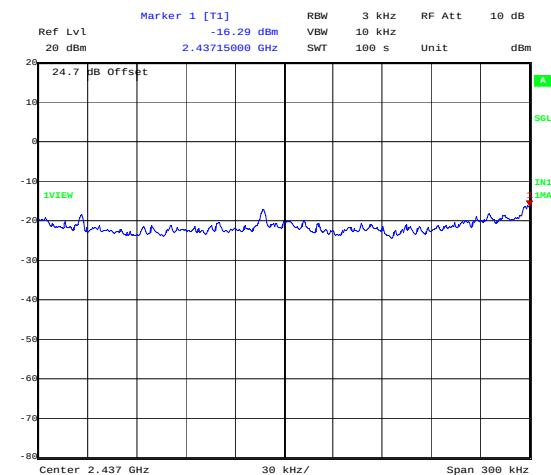
PSD_802_11N_6.5MBS_TopChannel

Transmitter Power Spectral Density (continued)



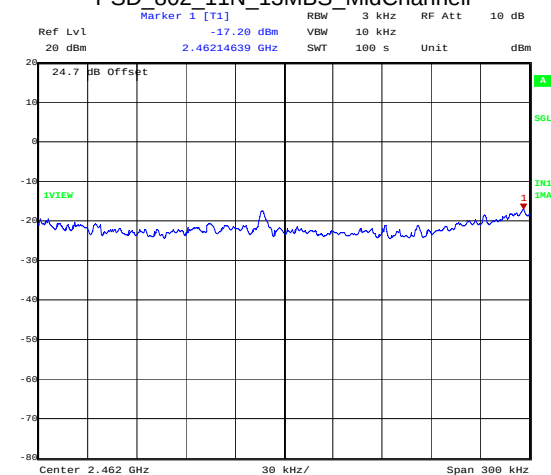
Date: 11.MAY.2011 19:02:32

PSD 802 11N 13MBS BotChannel



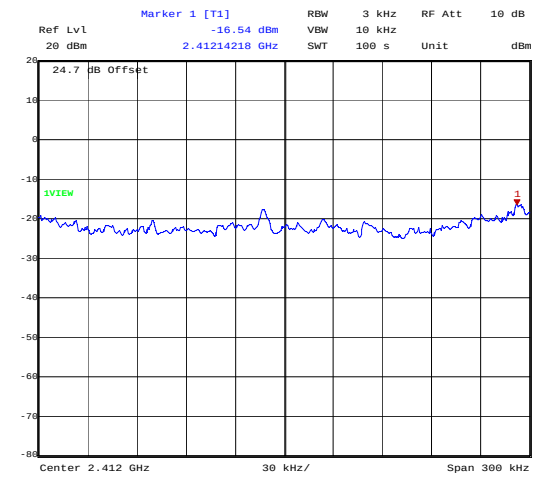
Date: 11.MAY.2011 19:04:45

PSD 802 11N 13MBS MidChannell

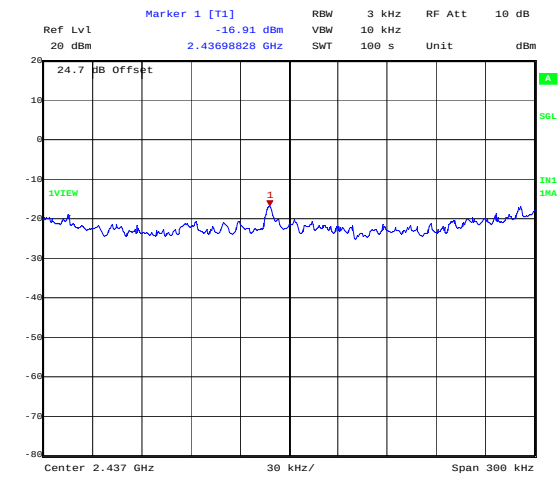


Date: 11.MAY.2011 19:06:59

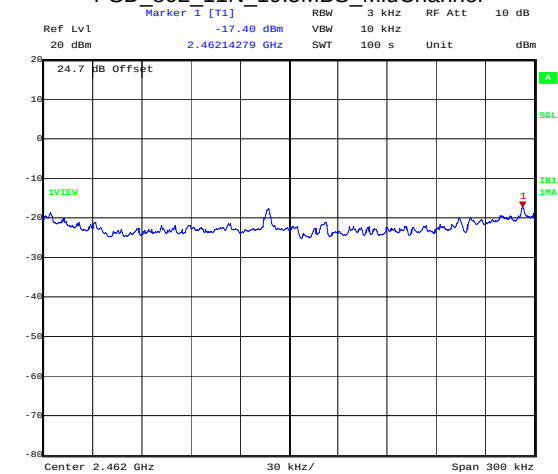
PSD 802 11N 13MBS TopChannel

Transmitter Power Spectral Density (continued)

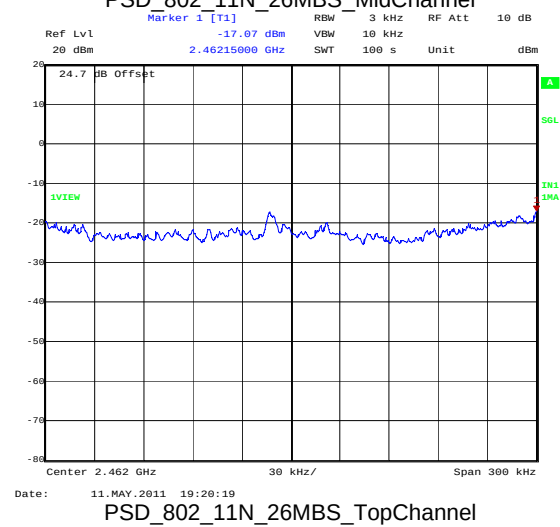
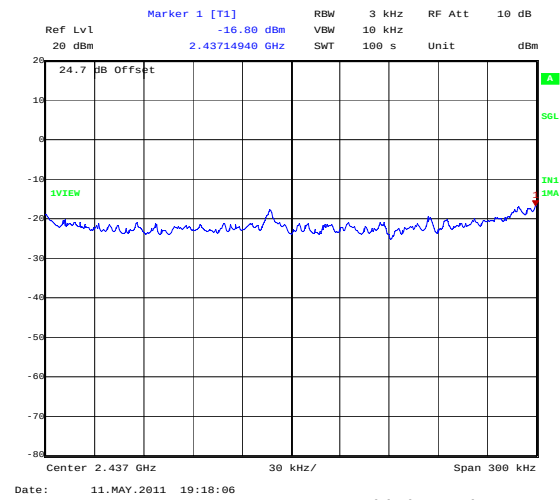
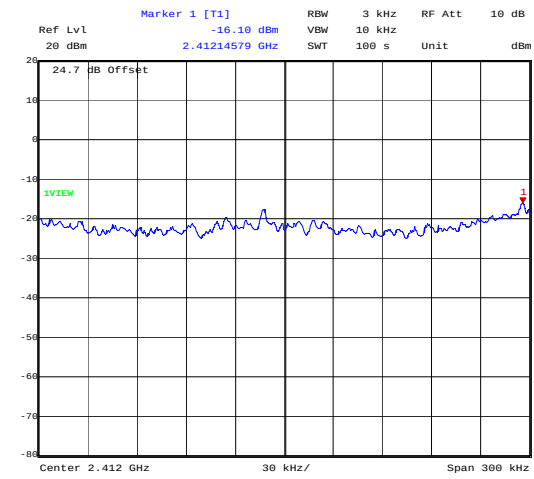
PSD_802_11N_19.5MBS_BotChannel

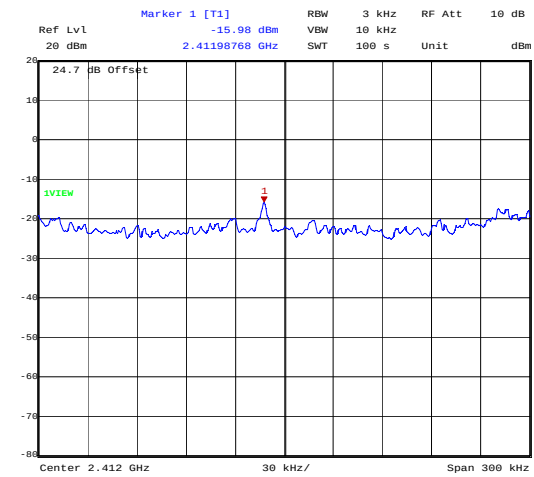


PSD_802_11N_19.5MBS_MidChannel



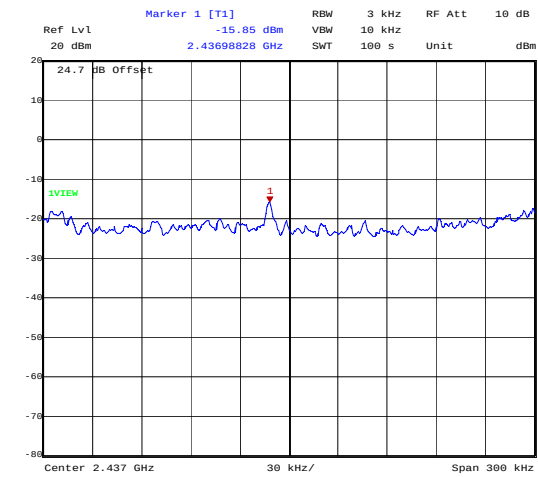
PSD_802_11N_19.5MBS_TopChannel

Transmitter Power Spectral Density (continued)

Transmitter Power Spectral Density (continued)

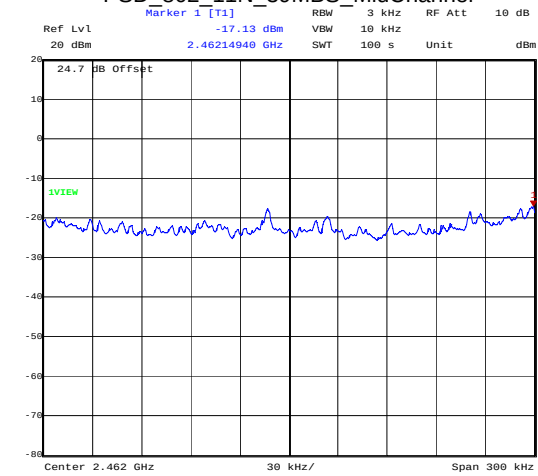
Date: 11.MAY.2011 20:02:25

PSD_802_11N_39MBS_BotChannel



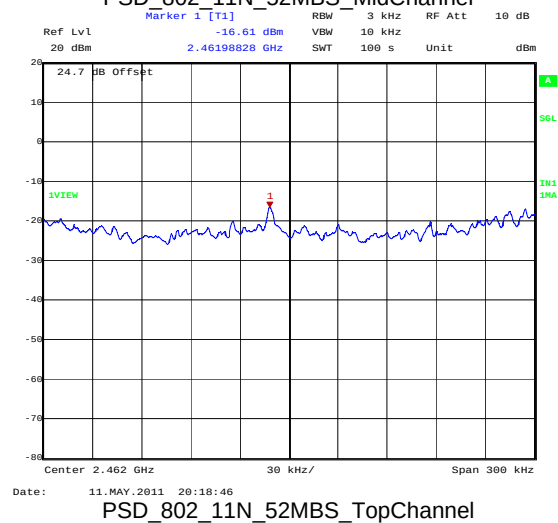
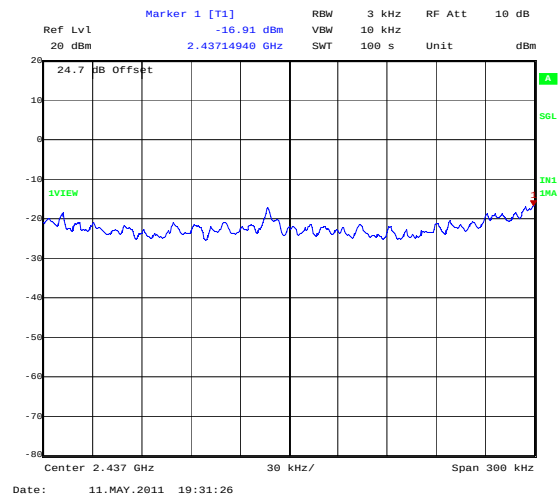
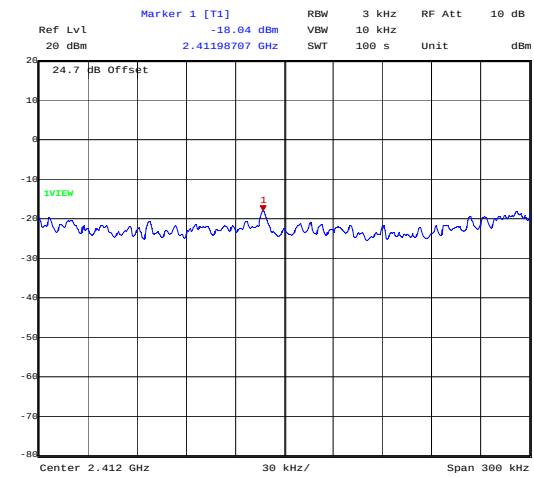
Date: 11.MAY.2011 19:24:46

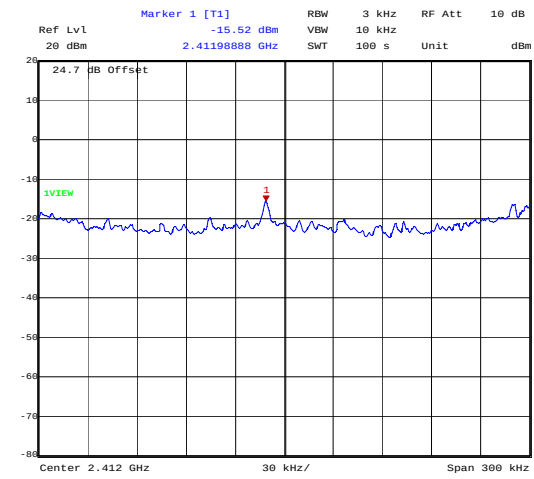
PSD_802_11N_39MBS_MidChannel



Date: 11.MAY.2011 19:26:59

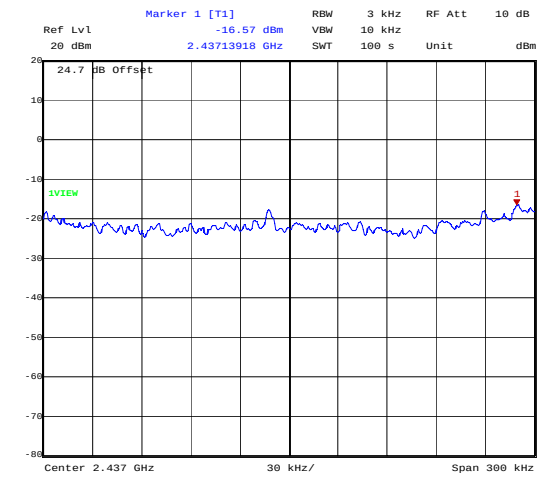
PSD_802_11N_39MBS_TopChannel

Transmitter Power Spectral Density (continued)

Transmitter Power Spectral Density (continued)

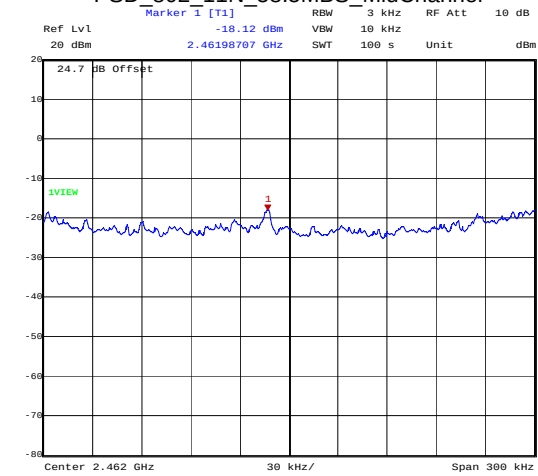
Date: 11.MAY.2011 19:35:53

PSD_802_11N_58.5MBS_BotChannel



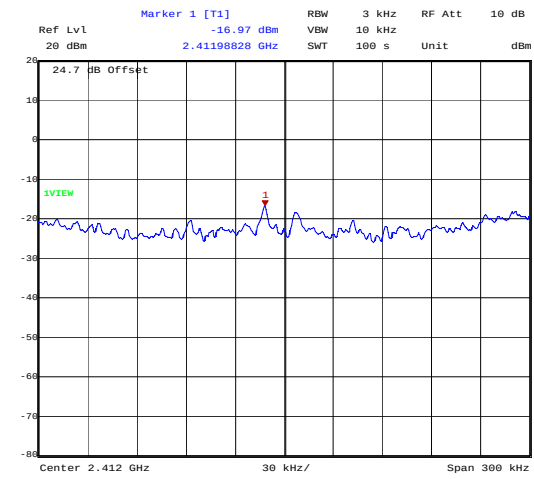
Date: 11.MAY.2011 19:38:07

PSD_802_11N_58.5MBS_MidChannel



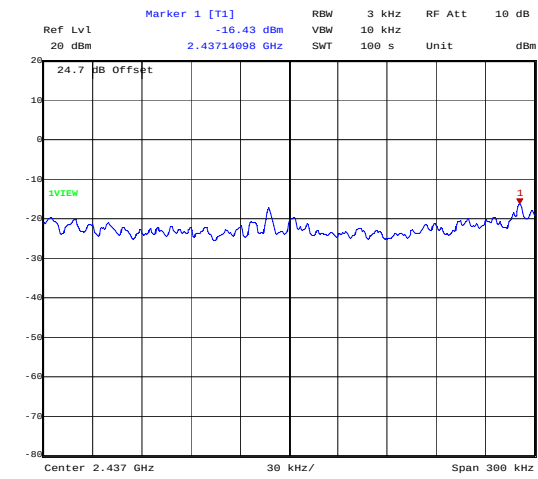
Date: 11.MAY.2011 19:40:20

PSD_802_11N_58.5MBS_TopChannel

Transmitter Power Spectral Density (continued)

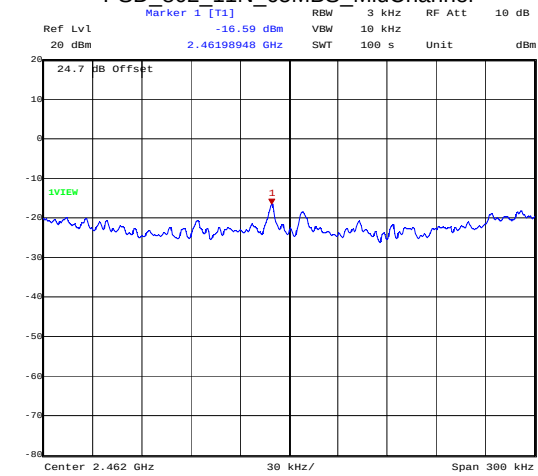
Date: 11.MAY.2011 20:06:52

PSD_802_11N_65MBS_BotChannel



Date: 11.MAY.2011 20:09:05

PSD_802_11N_65MBS_MidChannel



Date: 11.MAY.2011 19:47:00

PSD_802_11N_65MBS_TopChannel

5.2.7. Transmitter Maximum Peak Output Power**Test Summary:**

Test Engineer:	David Lakeland	Test Date:	11 May 2011
Test Sample:	ID:8		

FCC Part:	15.247(b)(3)
Test Method Used:	As detailed in ANSI C63.10 Section 6.10.2

Note: Test method used – Power meter

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	29

Results: 802.11b

Channel	Frequency (MHz)	Mod Scheme	Data Rate (Mbps)	Conducted Peak Power (dBm)	Conducted Limit (dBm)	Margin (dB)	Result
Bottom	2412	BPSK	1	17.4	30	12.6	Complied
Middle	2437	BPSK	1	17.1	30	12.9	Complied
Top	2462	BPSK	1	16.3	30	13.7	Complied
Bottom	2412	QPSK	2	16.8	30	13.2	Complied
Middle	2437	QPSK	2	16.5	30	13.5	Complied
Top	2462	QPSK	2	16.2	30	13.8	Complied
Bottom	2412	QPSK	5.5	16.8	30	13.2	Complied
Middle	2437	QPSK	5.5	16.5	30	13.6	Complied
Top	2462	QPSK	5.5	16.1	30	13.9	Complied
Bottom	2412	QPSK	11	16.7	30	13.3	Complied
Middle	2437	QPSK	11	16.5	30	13.6	Complied
Top	2462	QPSK	11	16.2	30	13.9	Complied

Transmitter Maximum Peak Output Power (continued)**Results: 802.11g**

Channel	Frequency (MHz)	Mod Scheme	Data Rate (Mbps)	Conducted Peak Power (dBm)	Conducted Limit (dBm)	Margin (dB)	Result
Bottom	2412	BPSK	6	15.2	30	14.8	Complied
Middle	2437	BPSK	6	14.9	30	15.1	Complied
Top	2462	BPSK	6	14.6	30	15.4	Complied
Bottom	2412	BPSK	9	15.2	30	14.8	Complied
Middle	2437	BPSK	9	15.1	30	14.9	Complied
Top	2462	BPSK	9	15.1	30	14.9	Complied
Bottom	2412	QPSK	12	15.4	30	14.6	Complied
Middle	2437	QPSK	12	15.0	30	15.0	Complied
Top	2462	QPSK	12	14.7	30	15.3	Complied
Bottom	2412	QPSK	18	15.3	30	14.7	Complied
Middle	2437	QPSK	18	15.1	30	14.9	Complied
Top	2462	QPSK	18	14.7	30	15.3	Complied
Bottom	2412	16QAM	24	15.3	30	14.7	Complied
Middle	2437	16QAM	24	15.0	30	15.0	Complied
Top	2462	16QAM	24	14.7	30	15.3	Complied
Bottom	2412	16QAM	36	15.4	30	14.6	Complied
Middle	2437	16QAM	36	15.0	30	15.0	Complied
Top	2462	16QAM	36	14.7	30	15.3	Complied
Bottom	2412	16QAM	48	15.4	30	14.6	Complied
Middle	2437	16QAM	48	15.1	30	14.9	Complied
Top	2462	16QAM	48	14.8	30	15.3	Complied
Bottom	2412	64QAM	54	15.7	30	14.3	Complied
Middle	2437	64QAM	54	15.1	30	14.9	Complied
Top	2462	64QAM	54	14.7	30	15.3	Complied

Transmitter Maximum Peak Output Power (continued)**Results: 802.11n**

Channel	Frequency (MHz)	Mod Scheme	Data Rate (Mbps)	Conducted Peak Power (dBm)	Conducted Limit (dBm)	Margin (dB)	Result
Bottom	2412	BPSK	6.5	15.6	30	14.4	Complied
Middle	2437	BPSK	6.5	15.3	30	14.7	Complied
Top	2462	BPSK	6.5	15.0	30	15.0	Complied
Bottom	2412	QPSK	13	15.5	30	14.6	Complied
Middle	2437	QPSK	13	15.2	30	14.8	Complied
Top	2462	QPSK	13	14.9	30	15.1	Complied
Bottom	2412	QPSK	19.5	15.4	30	14.6	Complied
Middle	2437	QPSK	19.5	14.9	30	15.1	Complied
Top	2462	QPSK	19.5	14.8	30	15.3	Complied
Bottom	2412	16QAM	26	15.3	30	14.7	Complied
Middle	2437	16QAM	26	15.1	30	14.9	Complied
Top	2462	16QAM	26	14.8	30	15.2	Complied
Bottom	2412	16QAM	39	15.6	30	14.4	Complied
Middle	2437	16QAM	39	15.6	30	14.4	Complied
Top	2462	16QAM	39	14.9	30	15.1	Complied
Bottom	2412	64QAM	52	15.4	30	14.6	Complied
Middle	2437	64QAM	52	15.2	30	14.8	Complied
Top	2462	64QAM	52	15.6	30	14.4	Complied
Bottom	2412	64QAM	58.5	16.3	30	13.7	Complied
Middle	2437	64QAM	58.5	15.4	30	14.6	Complied
Top	2462	64QAM	58.5	15.0	30	15.1	Complied
Bottom	2412	64QAM	65	16.0	30	14.0	Complied
Middle	2437	64QAM	65	15.4	30	14.6	Complied
Top	2462	64QAM	65	16.1	30	13.9	Complied

5.2.8. Transmitter Maximum Equivalent Isotropically Radiated Power (EIRP)

FCC Part:	15.247(b)(3)
Test Method Used:	As detailed in ANSI C63.10 Section 6.10.2

Note: Test method used – Power meter plus antenna gain

Results: 802.11b

Channel	Mod Scheme	Data Rate (Mbps)	Antenna Gain (dBi)	Conducted Peak Power (dBm)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	BPSK	1	3	17.4	20.4	36.0	15.6	Complied
Middle	BPSK	1	3	17.1	20.1	36.0	15.9	Complied
Top	BPSK	1	3	16.3	19.3	36.0	16.7	Complied
Bottom	QPSK	2	3	16.8	19.8	36.0	16.2	Complied
Middle	QPSK	2	3	16.5	19.5	36.0	16.5	Complied
Top	QPSK	2	3	16.2	19.2	36.0	16.8	Complied
Bottom	QPSK	5.5	3	16.8	19.8	36.0	16.2	Complied
Middle	QPSK	5.5	3	16.5	19.5	36.0	16.5	Complied
Top	QPSK	5.5	3	16.1	19.1	36.0	16.9	Complied
Bottom	QPSK	11	3	16.7	19.7	36.0	16.3	Complied
Middle	QPSK	11	3	16.5	19.5	36.0	16.5	Complied
Top	QPSK	11	3	16.2	19.2	36.0	16.8	Complied

Transmitter Maximum Equivalent Isotropically Radiated Power (EIRP) (Continued)**Results: 802.11g**

Channel	Mod Scheme	Data Rate (Mbps)	Antenna Gain (dBi)	Conducted Peak Power (dBm)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	BPSK	6	3	15.2	18.2	36.0	17.8	Complied
Middle	BPSK	6	3	14.9	17.9	36.0	18.1	Complied
Top	BPSK	6	3	14.6	17.6	36.0	18.4	Complied
Bottom	BPSK	9	3	15.2	18.2	36.0	17.8	Complied
Middle	BPSK	9	3	15.1	18.1	36.0	17.9	Complied
Top	BPSK	9	3	15.1	18.1	36.0	17.9	Complied
Bottom	QPSK	12	3	15.4	18.4	36.0	17.6	Complied
Middle	QPSK	12	3	15.0	18.0	36.0	18.0	Complied
Top	QPSK	12	3	14.7	17.7	36.0	18.3	Complied
Bottom	QPSK	18	3	15.3	18.3	36.0	17.7	Complied
Middle	QPSK	18	3	15.1	18.1	36.0	17.9	Complied
Top	QPSK	18	3	14.7	17.7	36.0	18.3	Complied
Bottom	16QAM	24	3	15.3	18.3	36.0	17.7	Complied
Middle	16QAM	24	3	15.0	18.0	36.0	18.0	Complied
Top	16QAM	24	3	14.7	17.7	36.0	18.3	Complied
Bottom	16QAM	36	3	15.4	18.4	36.0	17.6	Complied
Middle	16QAM	36	3	15.0	18.0	36.0	18.0	Complied
Top	16QAM	36	3	14.7	17.7	36.0	18.3	Complied
Bottom	16QAM	48	3	15.4	18.4	36.0	17.6	Complied
Middle	16QAM	48	3	15.1	18.1	36.0	17.9	Complied
Top	16QAM	48	3	14.8	17.8	36.0	18.2	Complied
Bottom	64QAM	54	3	15.7	18.7	36.0	17.3	Complied
Middle	64QAM	54	3	15.1	18.1	36.0	17.9	Complied
Top	64QAM	54	3	14.7	17.7	36.0	18.3	Complied

Transmitter Maximum Equivalent Isotropically Radiated Power (EIRP) (Continued)**Results: 802.11n**

Channel	Mod Scheme	Data Rate (Mbps)	Antenna Gain (dBi)	Conducted Peak Power (dBm)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	BPSK	6.5	3	15.6	18.6	36.0	17.4	Complied
Middle	BPSK	6.5	3	15.3	18.3	36.0	17.7	Complied
Top	BPSK	6.5	3	15.0	18.0	36.0	18.0	Complied
Bottom	QPSK	13	3	15.5	18.5	36.0	17.5	Complied
Middle	QPSK	13	3	15.2	18.2	36.0	17.8	Complied
Top	QPSK	13	3	14.9	17.9	36.0	18.1	Complied
Bottom	QPSK	19.5	3	15.4	18.4	36.0	17.6	Complied
Middle	QPSK	19.5	3	14.9	17.9	36.0	18.1	Complied
Top	QPSK	19.5	3	14.8	17.8	36.0	18.2	Complied
Bottom	16QAM	26	3	15.3	18.3	36.0	17.7	Complied
Middle	16QAM	26	3	15.1	18.1	36.0	17.9	Complied
Top	16QAM	26	3	14.8	17.8	36.0	18.2	Complied
Bottom	16QAM	39	3	15.6	18.6	36.0	17.4	Complied
Middle	16QAM	39	3	15.6	18.6	36.0	17.4	Complied
Top	16QAM	39	3	14.9	17.9	36.0	18.1	Complied
Bottom	64QAM	52	3	15.4	18.4	36.0	17.6	Complied
Middle	64QAM	52	3	15.2	18.2	36.0	17.8	Complied
Top	64QAM	52	3	15.6	18.6	36.0	17.4	Complied
Bottom	64QAM	58.5	3	16.3	19.3	36.0	16.7	Complied
Middle	64QAM	58.5	3	15.4	18.4	36.0	17.6	Complied
Top	64QAM	58.5	3	15.0	18.0	36.0	18.0	Complied
Bottom	64QAM	65	3	16.0	19.0	36.0	17.0	Complied
Middle	64QAM	65	3	15.4	18.4	36.0	17.6	Complied
Top	64QAM	65	3	16.1	19.1	36.0	16.9	Complied

5.2.9. Transmitter Radiated Emissions**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	07 October 2010
Test Sample:	ID:8		

FCC/IC Part:	15.247(d), 15.209(a), RSS-Gen 4.9 and RSS-210 A8.5
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.5 referencing ANSI C63.4
Frequency Range	30 MHz to 1000 MHz

Environmental Conditions:

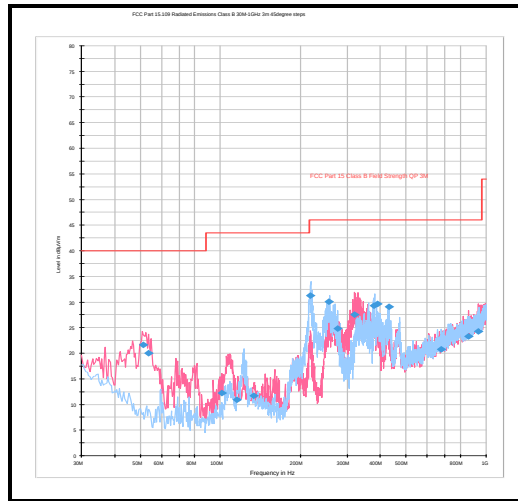
Temperature (°C):	26
Relative Humidity (%):	30

Results: Top Channel

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
51.298	Vertical	21.7	40.0	18.3	Complied
53.868	Vertical	20.0	40.0	20.0	Complied
217.439	Horizontal	31.3	46.0	14.7	Complied
256.062	Horizontal	30.1	46.0	15.9	Complied
319.939	Vertical	27.5	46.0	18.5	Complied
377.660	Horizontal	29.3	46.0	16.7	Complied
389.740	Horizontal	29.6	46.0	16.4	Complied
429.291	Horizontal	29.1	46.0	16.9	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. The preliminary scans showed similar emission levels below 1 GHz, for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the top channel only.
3. All other emissions were at least 20 dB below the appropriate limit or below the noise floor of the measurement system.
4. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Radiated Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Transmitter Radiated Emissions (continued)**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	07 October 2010
Test Sample Serial No:	ID:8		

FCC/IC Part:	15.247(d), 15.209(a), RSS-Gen 4.9 and RSS-210 A8.5
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.6 referencing ANSI C63.4
Frequency Range	1 GHz to 25 GHz

Environmental Conditions:

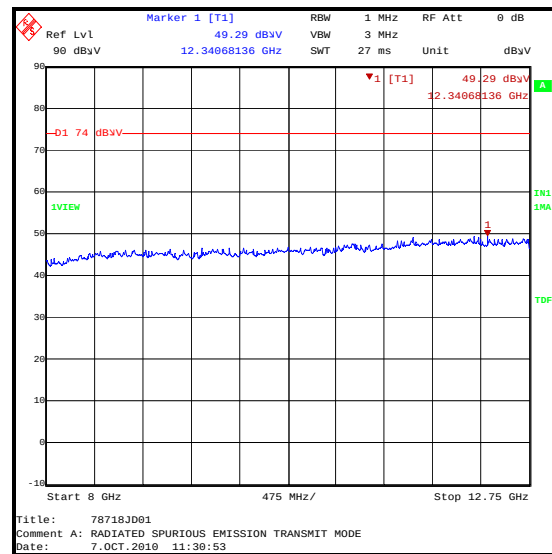
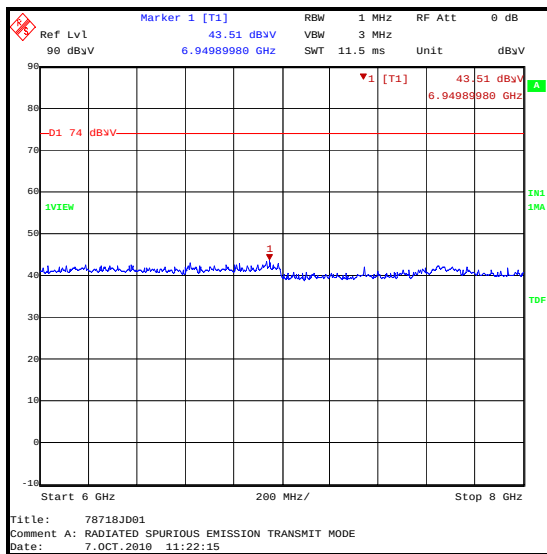
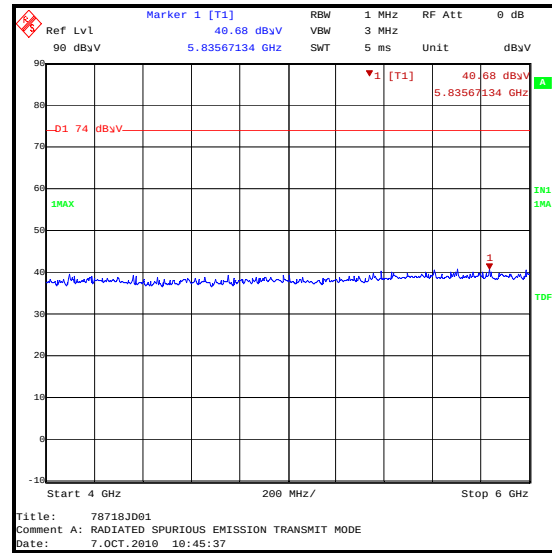
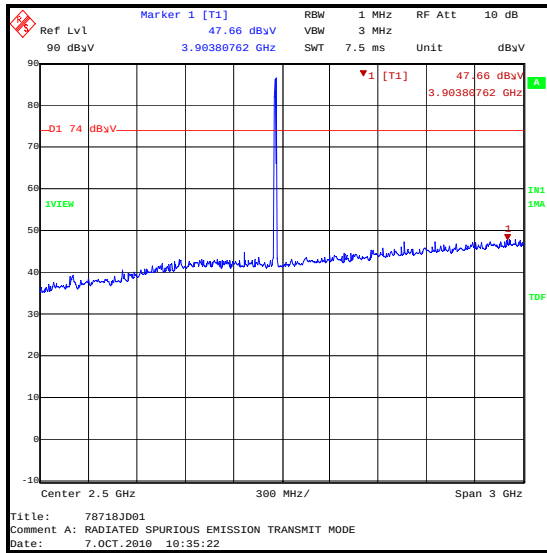
Temperature (°C):	26
Relative Humidity (%):	30

Results: 802.11n - MCS7 65Mbps - Top Channel

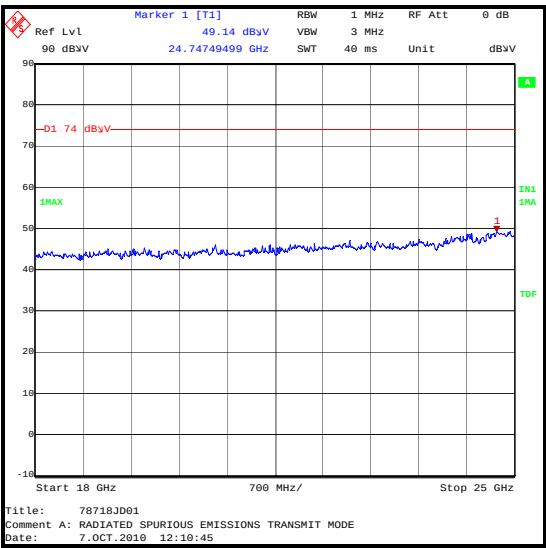
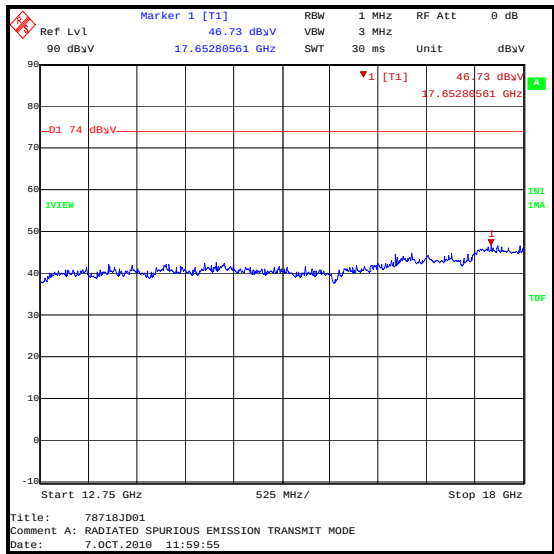
Frequency (GHz)	Antenna Polarity	Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Margin (dB)	Result
24.747495	Vertical	49.1	74.0	24.9	Complied

Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.
2. The emission shown on the 1 GHz to 4 GHz plot is the EUT fundamental.

Transmitter Radiated Emissions (continued)

Transmitter Radiated Emissions (continued)



5.2.10. Transmitter Band Edge Radiated Emissions**Test Summary:**

Test Engineer:	David Lakeland	Test Date:	20 December 2010 30 December 2010
Test Sample Serial No:	ID:8		

FCC/IC Part:	15.247(d), 15.209(a), RSS-Gen 4.9 and RSS-210 A8.5
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.2

Environmental Conditions:

Temperature (°C):	29
Relative Humidity (%):	32

Antenna: Inside WLAN**Results: Peak and Average 802.11b**

Frequency (MHz)	Peak/Average	Data Rate Mbps	Modulation Type	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400.0	Peak	1	BPSK	47.3	*67.9	20.6	Complied
2483.5	Peak	1	BPSK	39.9	74.0	34.1	Complied
2483.5	Average	1	BPSK	28.5	54.0	25.5	Complied
2400.0	Peak	2	QPSK	46.1	*67.5	21.4	Complied
2483.5	Peak	2	QPSK	39.7	74.0	34.3	Complied
2483.5	Average	2	QPSK	28.5	54.0	25.5	Complied
2400.0	Peak	5.5	QPSK	40.6	*67.5	26.9	Complied
2483.5	Peak	5.5	QPSK	39.7	74.0	34.3	Complied
2483.5	Average	5.5	QPSK	28.0	54.0	26.0	Complied
2400.0	Peak	11	QPSK	43.8	*67.9	24.1	Complied
2483.5	Peak	11	QPSK	40.5	74.0	33.5	Complied
2483.5	Average	11	QPSK	28.0	54.0	26.0	Complied

Transmitter Band Edge Radiated Emissions (continued)**Results: Peak and Average 802.11g**

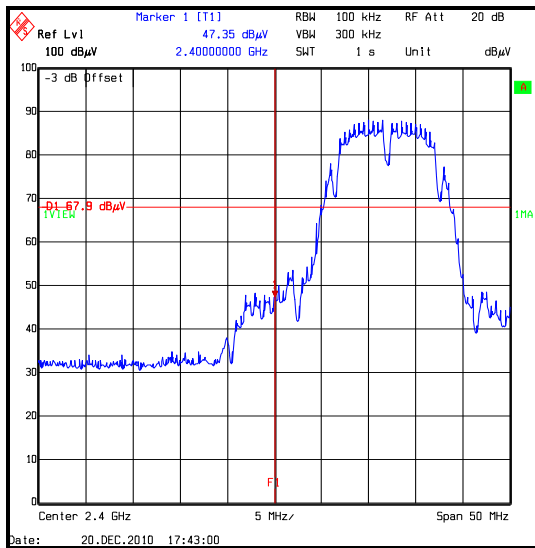
Frequency (MHz)	Peak/Average	Data Rate Mbps	Modulation Type	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400.0	Peak	6	BPSK	54.2	*62.1	7.9	Complied
2483.5	Peak	6	BPSK	51.0	74.0	23.0	Complied
2483.5	Average	6	BPSK	33.4	54.0	20.6	Complied
2400.0	Peak	9	BPSK	52.6	*62.3	9.7	Complied
2483.5	Peak	9	BPSK	50.7	74.0	23.3	Complied
2483.5	Average	9	BPSK	33.4	54.0	20.6	Complied
2400.0	Peak	12	QPSK	52.5	*62.3	9.8	Complied
2483.5	Peak	12	QPSK	48.8	74.0	25.2	Complied
2483.5	Average	12	QPSK	33.7	54.0	20.3	Complied
2400.0	Peak	18	QPSK	53.7	*62.4	8.7	Complied
2483.5	Peak	18	QPSK	48.5	74.0	25.5	Complied
2483.5	Average	18	QPSK	33.4	54.0	20.6	Complied
2400.0	Peak	24	16QAM	53.3	*62.7	9.4	Complied
2483.5	Peak	24	16QAM	50.4	74.0	23.6	Complied
2483.5	Average	24	16QAM	33.4	54.0	20.6	Complied
2400.0	Peak	36	16QAM	52.5	*63.6	11.1	Complied
2483.5	Peak	36	16QAM	48.0	74.0	26.0	Complied
2483.5	Average	36	16QAM	33.4	54.0	20.6	Complied
2400.0	Peak	48	16QAM	52.1	*63.4	11.3	Complied
2483.5	Peak	48	16QAM	47.0	74.0	27.0	Complied
2483.5	Average	48	16QAM	33.4	54.0	20.6	Complied
2400.0	Peak	54	64QAM	53.7	*64.4	10.7	Complied
2483.5	Peak	54	64QAM	49.4	74.0	24.6	Complied
2483.5	Average	54	64QAM	34.0	54.0	20.0	Complied

Transmitter Band Edge Radiated Emissions (continued)**Results: Peak and Average 802.11n**

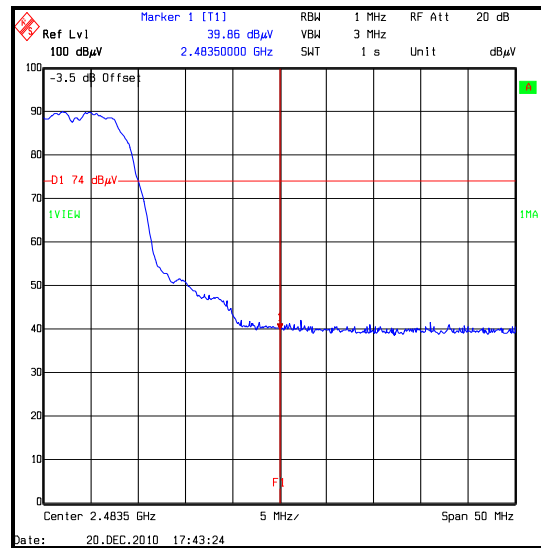
Frequency (MHz)	Peak/Average	Data Rate Mbps	Modulation Type	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	Peak	6.5	BPSK	55.4	*65.7	10.3	Complied
2483.5	Peak	6.5	BPSK	53.0	74.0	21.0	Complied
2483.5	Average	6.5	BPSK	40.4	54.0	13.6	Complied
2400.0	Peak	13	QPSK	55.6	*65.8	10.2	Complied
2483.5	Peak	13	QPSK	51.9	74.0	22.1	Complied
2483.5	Average	13	QPSK	40.4	54.0	13.6	Complied
2400.0	Peak	19.5	QPSK	55.5	*66.1	10.6	Complied
2483.5	Peak	19.5	QPSK	52.6	74.0	21.4	Complied
2483.5	Average	19.5	QPSK	40.8	54.0	13.2	Complied
2400.0	Peak	26	16QAM	55.2	*66.7	11.5	Complied
2483.5	Peak	26	16QAM	52.3	74.0	21.7	Complied
2483.5	Average	26	16QAM	40.4	54.0	13.6	Complied
2400.0	Peak	39	16QAM	55.9	*66.8	10.9	Complied
2483.5	Peak	39	16QAM	52.4	74.0	21.6	Complied
2483.5	Average	39	16QAM	40.4	54.0	13.6	Complied
2400.0	Peak	52	64QAM	55.7	*67.0	11.3	Complied
2483.5	Peak	52	64QAM	53.3	74.0	20.7	Complied
2483.5	Average	52	64QAM	40.4	54.0	13.6	Complied
2400.0	Peak	58.5	64QAM	55.7	*67.2	11.5	Complied
2483.5	Peak	58.5	64QAM	52.1	74.0	21.9	Complied
2483.5	Average	58.5	64QAM	40.8	54.0	13.2	Complied
2400.0	Peak	65	64QAM	55.7	*67.3	11.6	Complied
2483.5	Peak	65	64QAM	54.2	74.0	19.8	Complied
2483.5	Average	65	64QAM	40.4	54.0	13.6	Complied

Note(s):

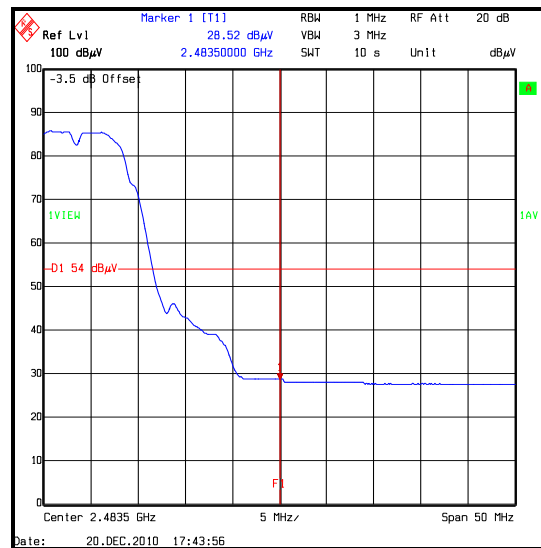
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. * -20 dBc limit.

Transmitter Band Edge Radiated Emissions (continued)

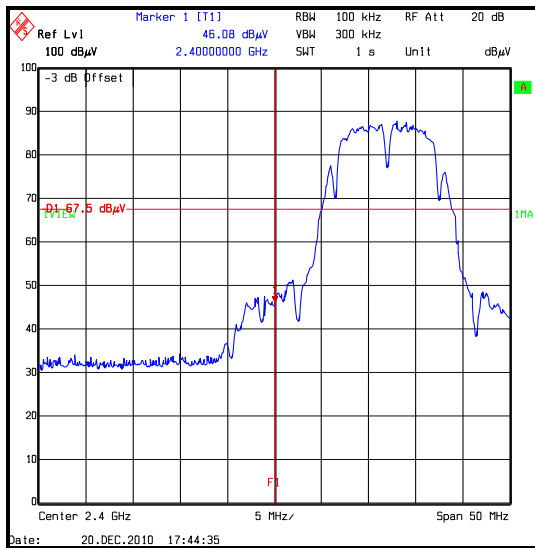
BandEdgeEIRP802_11B_1MBS_BottomChannel



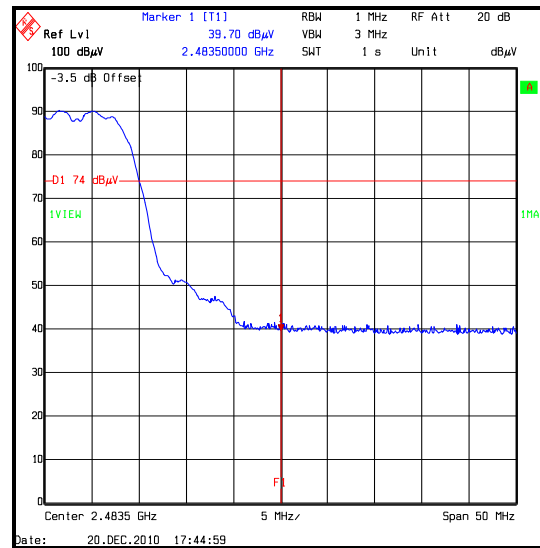
BandEdgeEIRP802_11B_1MBS_TopChannel



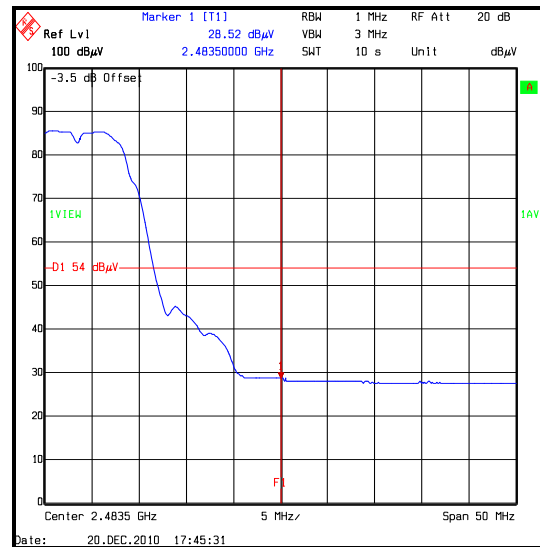
BandEdgeEIRP802_11B_1MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

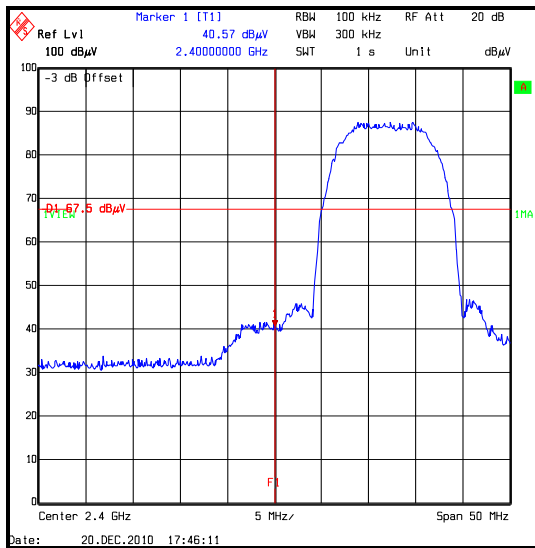
BandEdgeEIRP802_11B_2MBS_BottomChannel



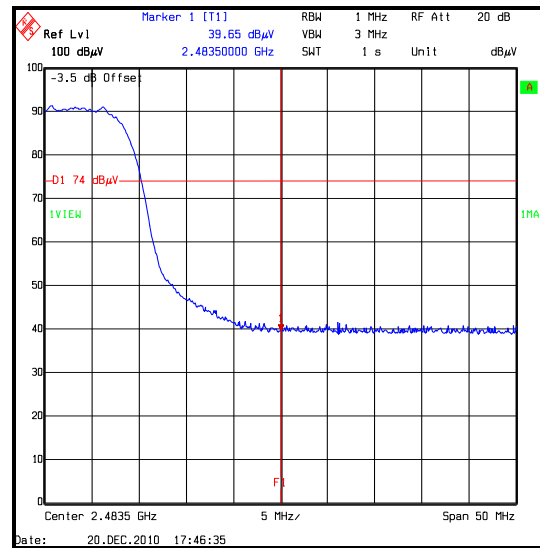
BandEdgeEIRP802_11B_2MBS_TopChannel



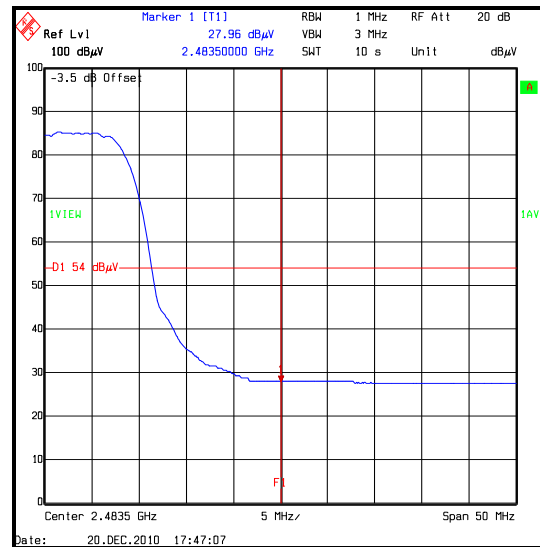
BandEdgeEIRP802_11B_2MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

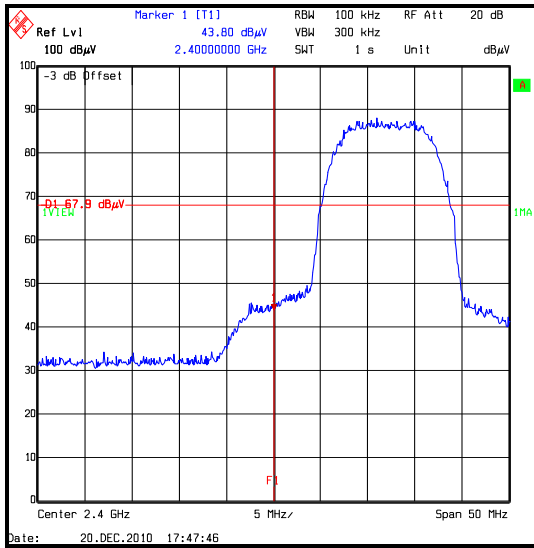
BandEdgeEIRP802_11B_5.5MBS_BottomChannel



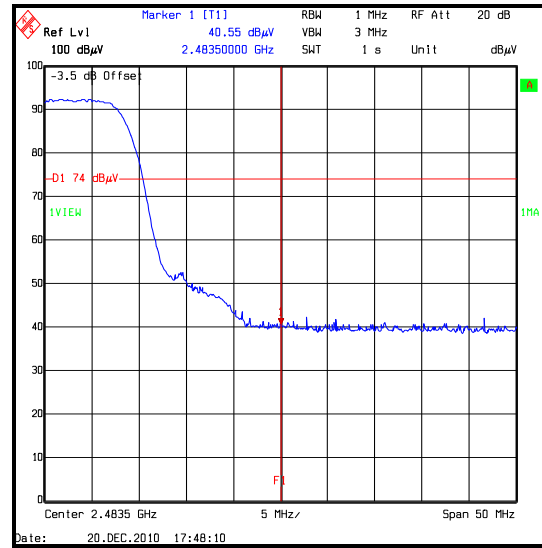
BandEdgeEIRP802_11B_5.5MBS_TopChannel



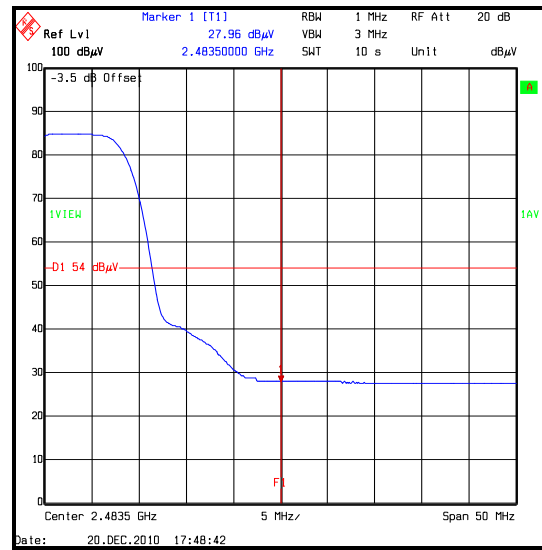
BandEdgeEIRP802_11B_5.5MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

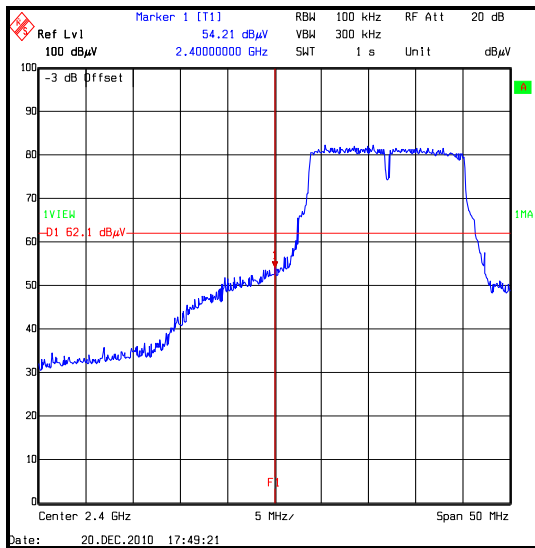
BandEdgeEIRP802_11B_11MBS_BottomChannel



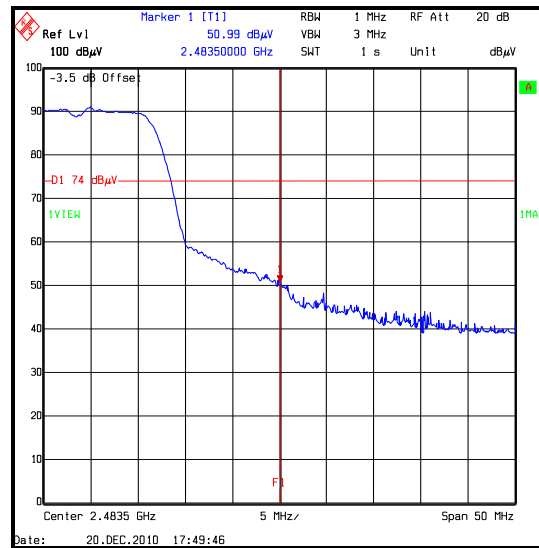
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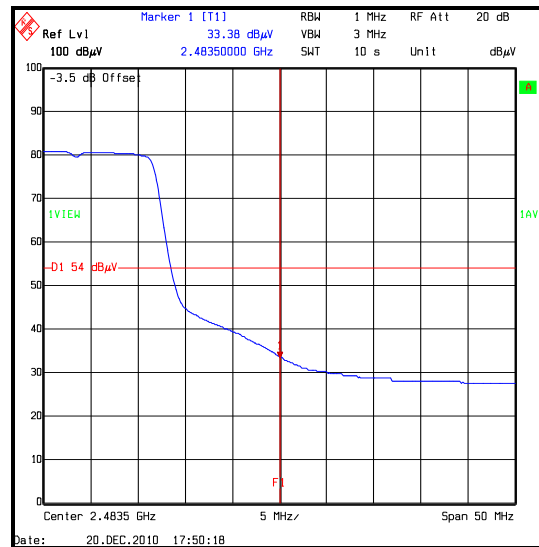
BandEdgeEIRP802_11B_11MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

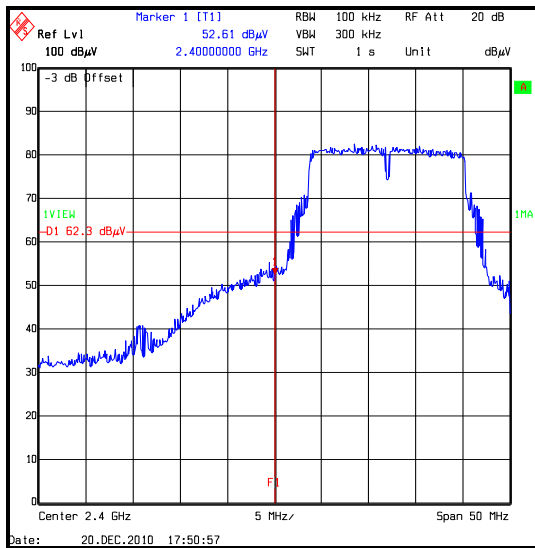
BandEdgeEIRP802_11G_6MBS_BottomChannel



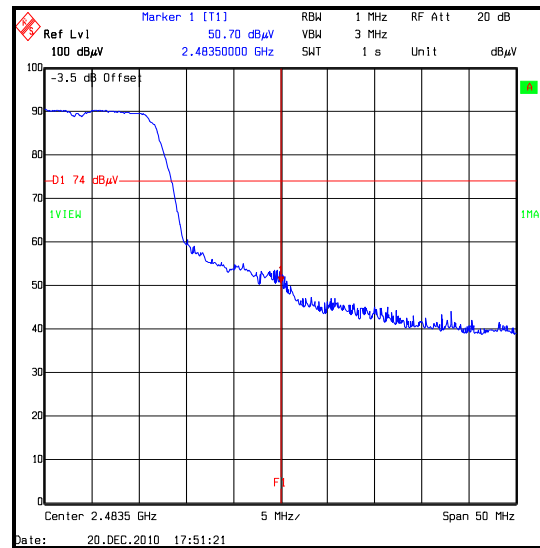
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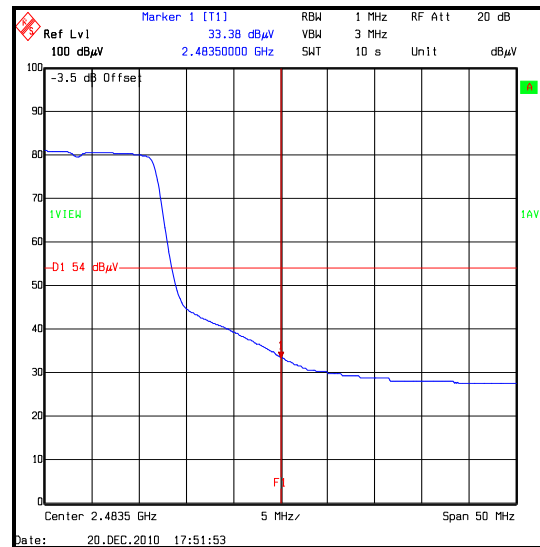
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Transmitter Band Edge Radiated Emissions (continued)

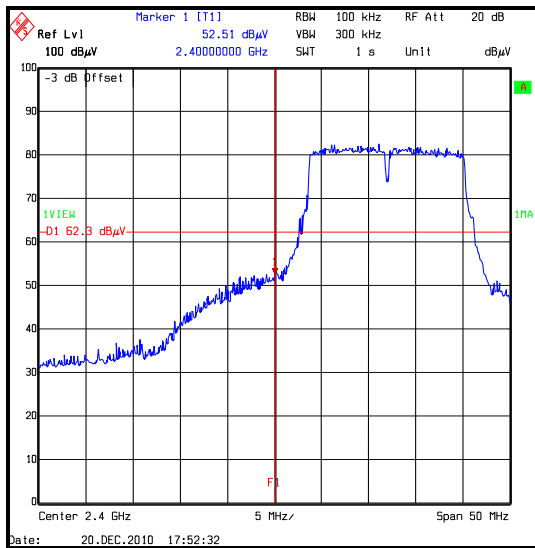
BandEdgeEIRP802_11G_9MBS_BottomChannel



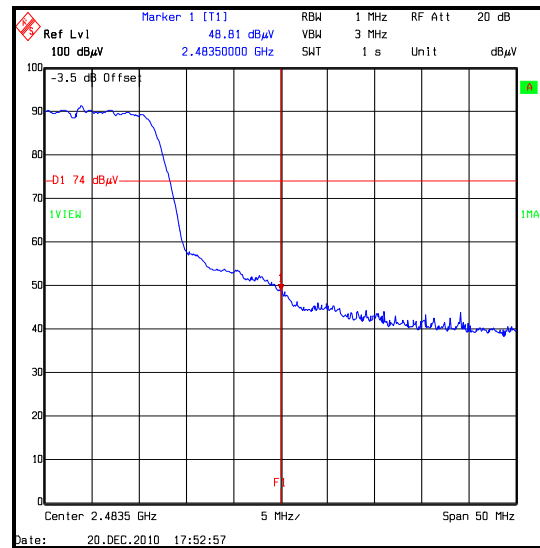
BandEdgeEIRP802_11G_9MBS_TopChannel



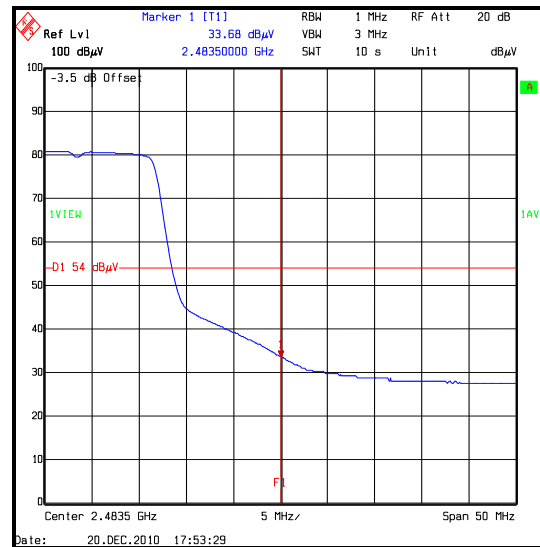
BandEdgeEIRP802_11G_9MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

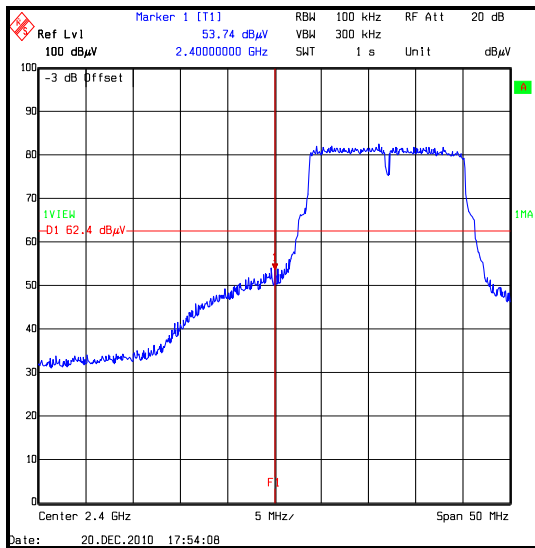
BandEdgeEIRP802_11G_12MBS_BottomChannel



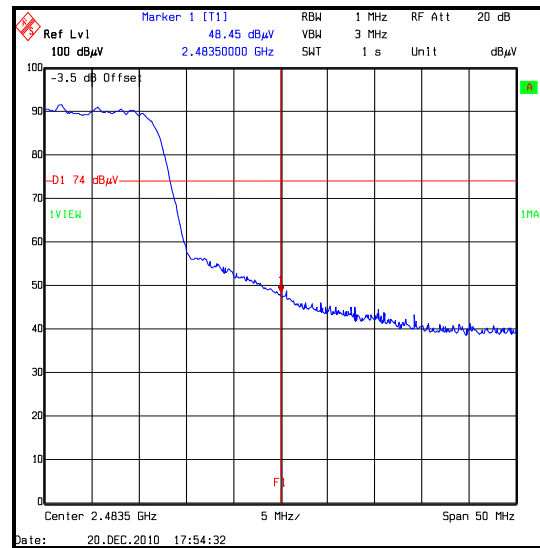
BandEdgeEIRP802_11G_12MBS_TopChannel



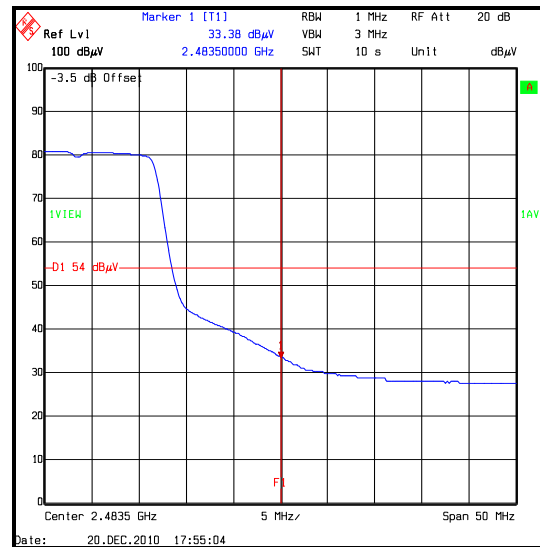
BandEdgeEIRP802_11G_12MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

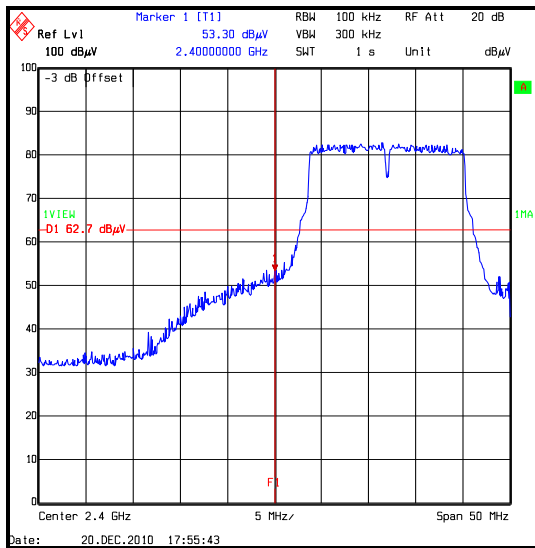
BandEdgeEIRP802_11G_18MBS_BottomChannel



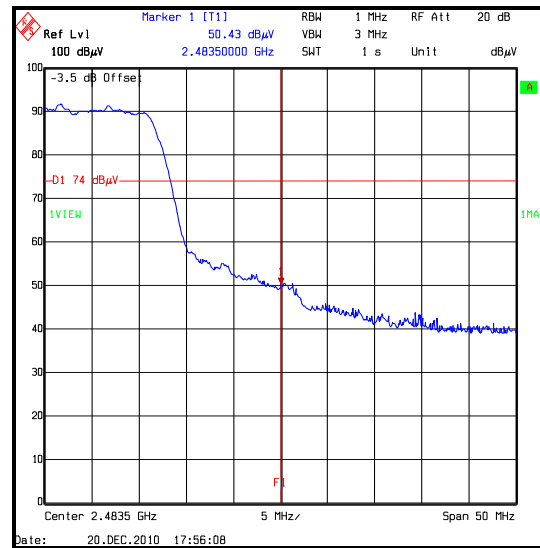
BandEdgeEIRP802_11G_18MBS_TopChannel



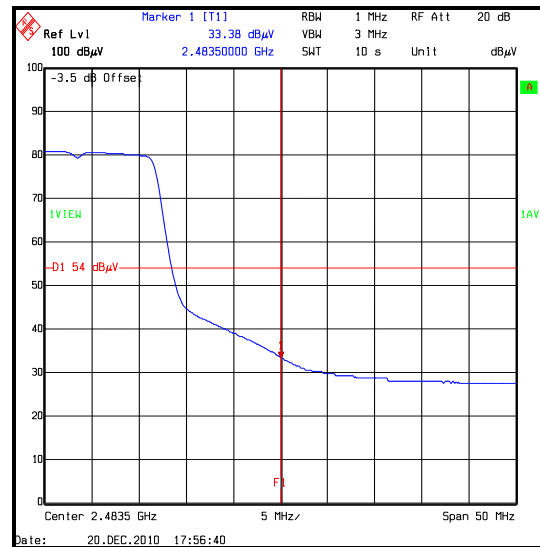
BandEdgeEIRP802_11G_18MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

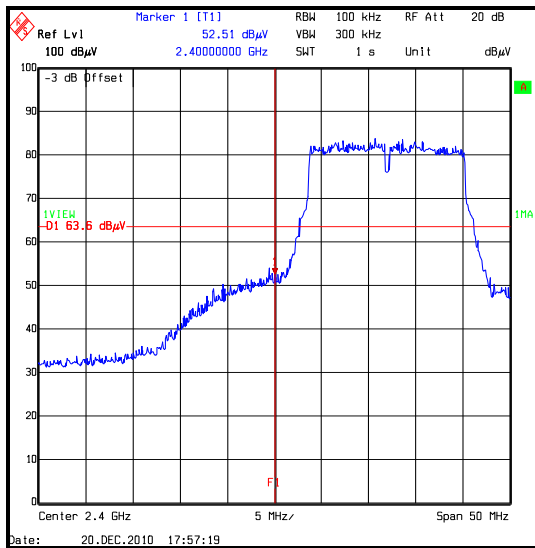
BandEdgeEIRP802_11G_24MBS_BottomChannel



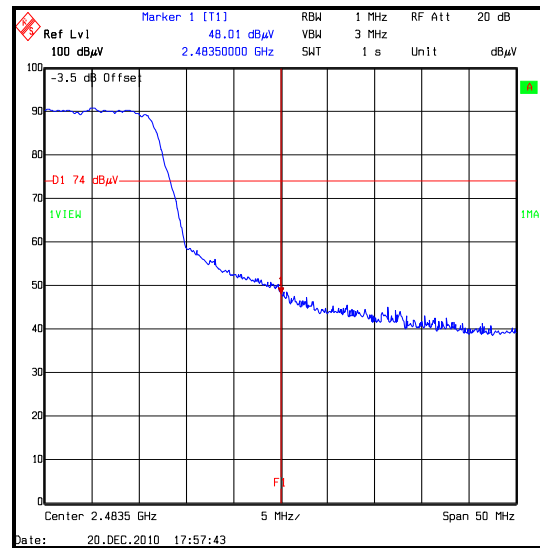
BandEdgeEIRP802_11G_24MBS_TopChannel



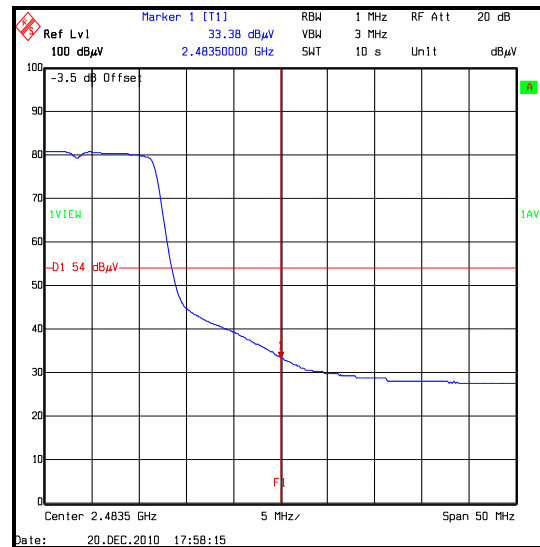
BandEdgeEIRP802_11G_24MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

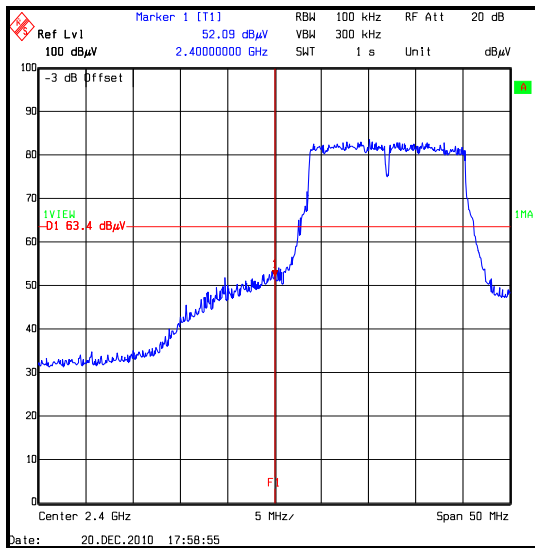
BandEdgeEIRP802_11G_36MBS_BottomChannel



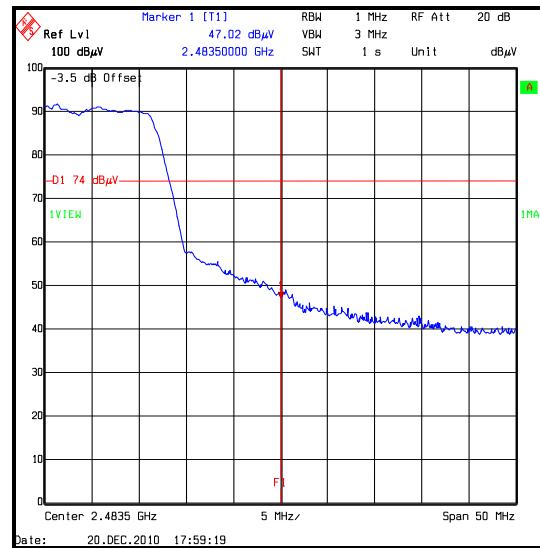
BandEdgeEIRP802_11G_36MBS_TopChannel



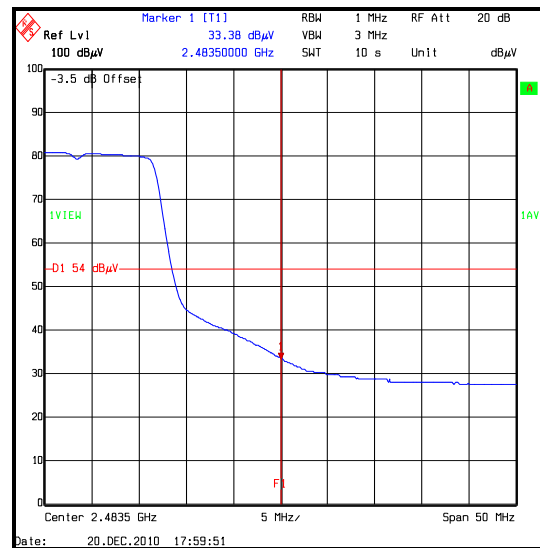
BandEdgeEIRP802_11G_36MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

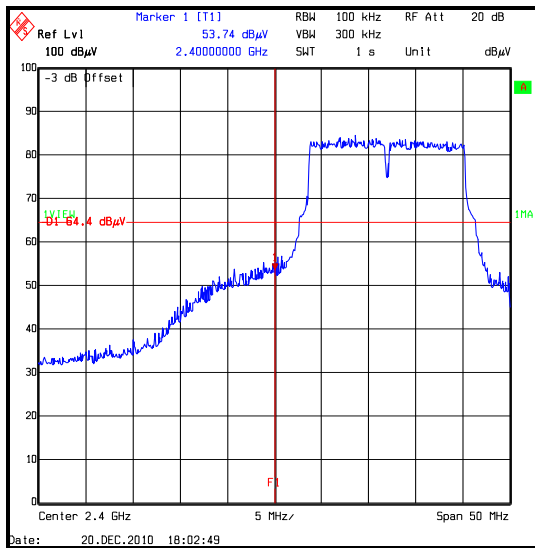
BandEdgeEIRP802_11G_48MBS_BottomChannel



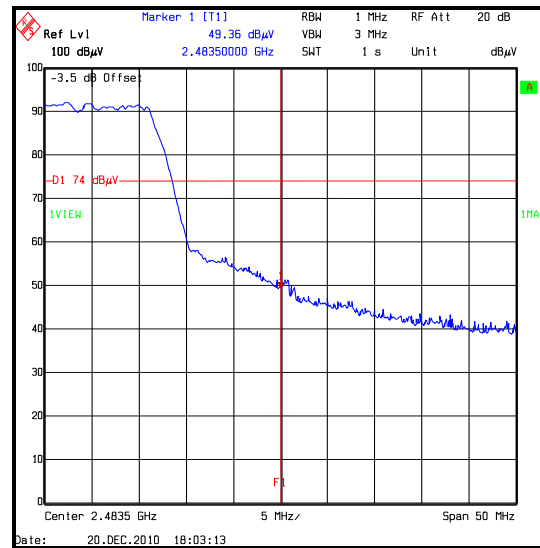
BandEdgeEIRP802_11G_48MBS_TopChannel



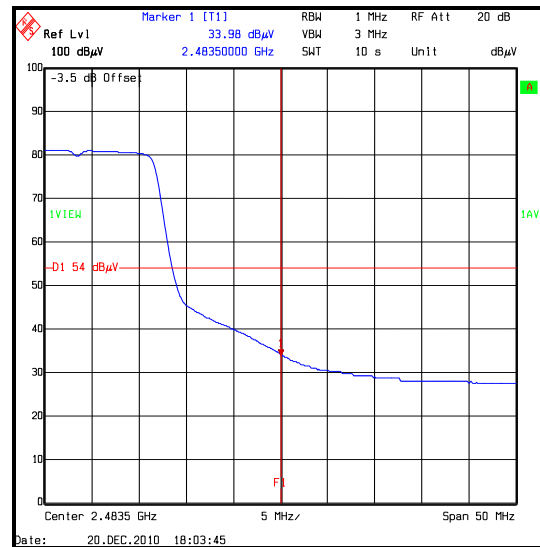
BandEdgeEIRP802_11G_48MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

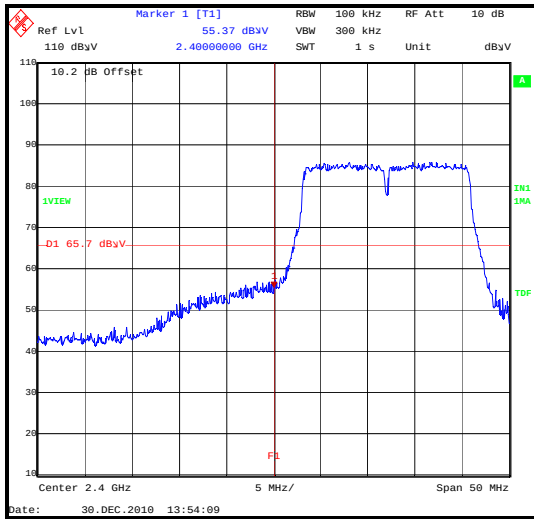
BandEdgeEIRP802_11G_54MBS_BottomChannel



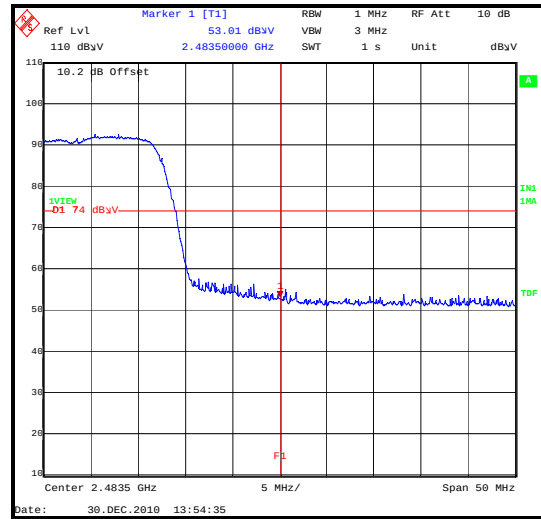
BandEdgeEIRP802_11G_54MBS_TopChannel



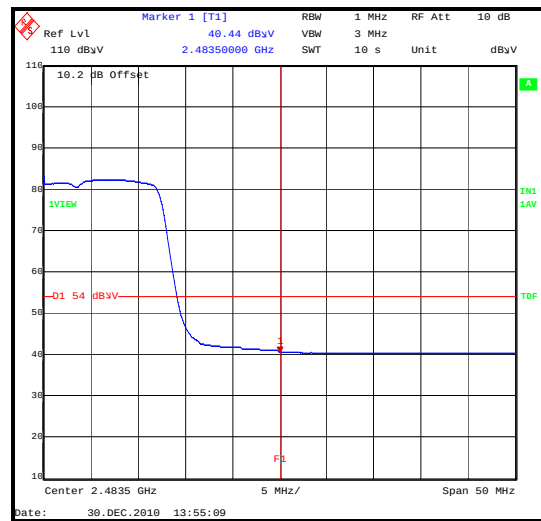
BandEdgeEIRP802_11G_54MBS_TopChannelIAVG

Transmitter Band Edge Radiated Emissions (continued)

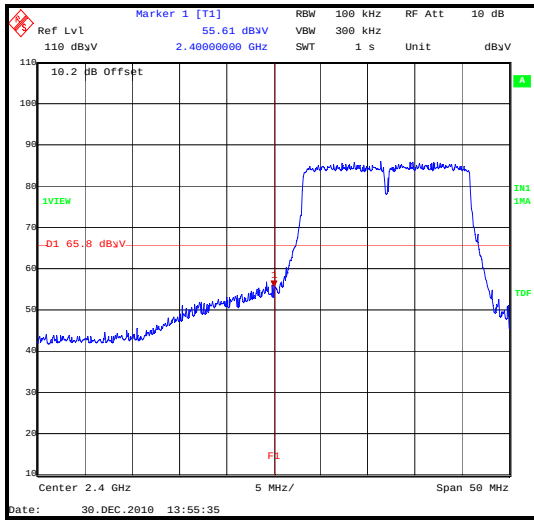
BandEdgeEIRP802_11N_6.5MBS_BotChannel



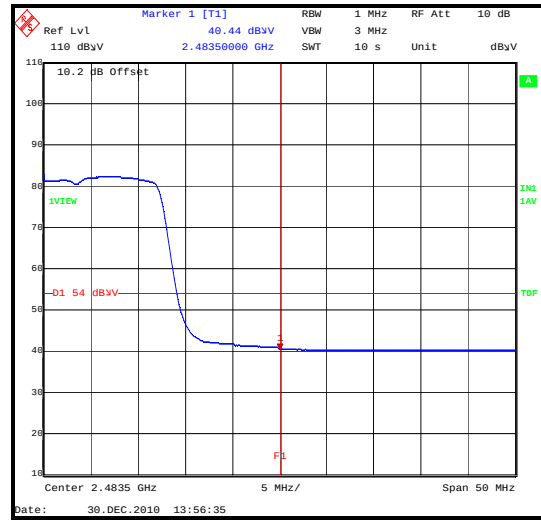
BandEdgeEIRP802_11N_6.5MBS_TopChannel



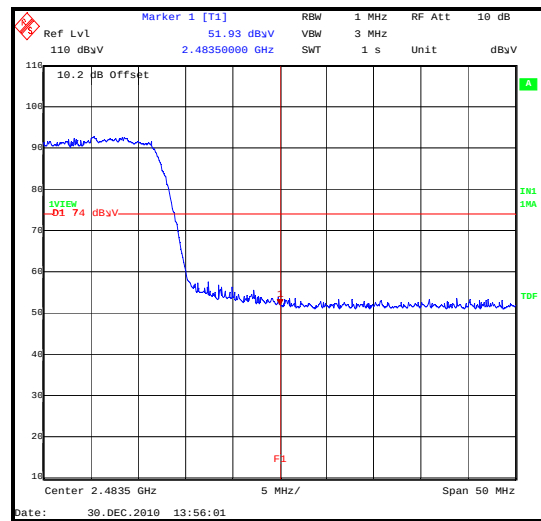
BandEdgeEIRP802_11N_6.5MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

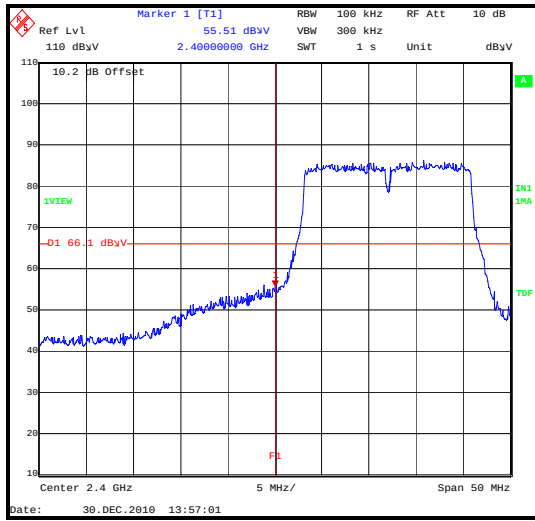
BandEdgeEIRP802_11N_13MBS_BotChannel



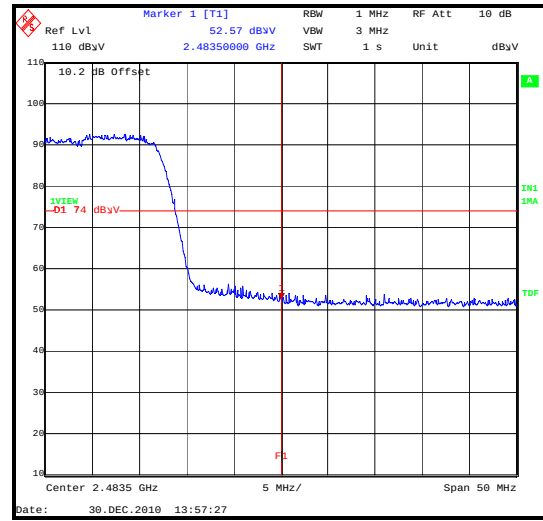
BandEdgeEIRP802_11N_13MBS_TopChannel



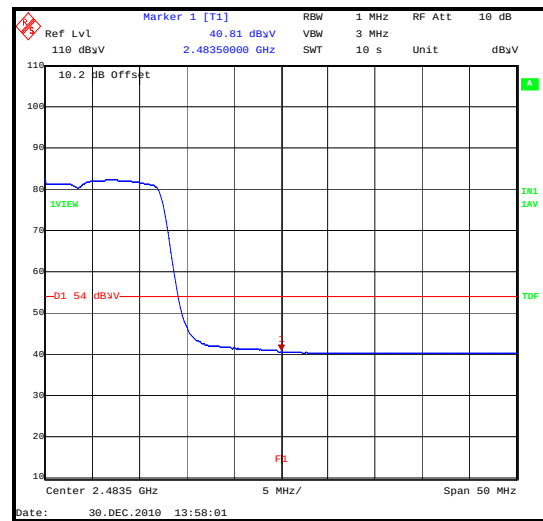
BandEdgeEIRP802_11N_13MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

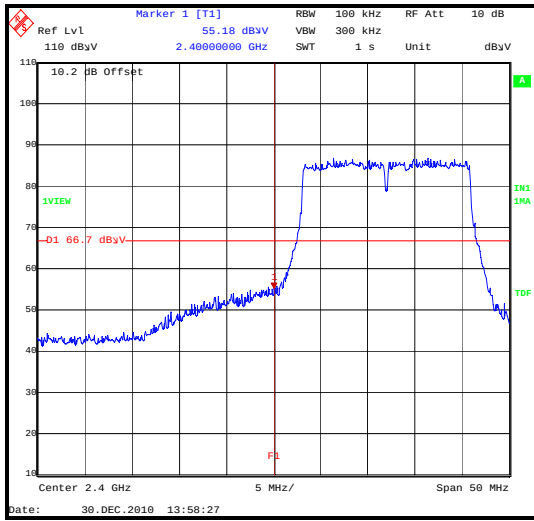
BandEdgeEIRP802_11N_19.5MBS_BotChannel



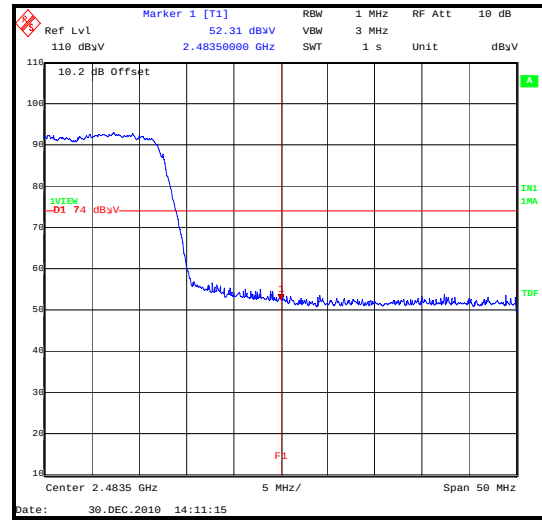
BandEdgeEIRP802_11N_19.5MBS_TopChannel



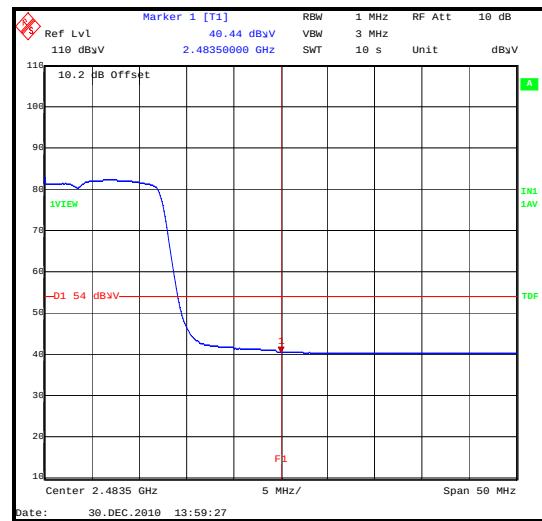
BandEdgeEIRP802_11N_19.5MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

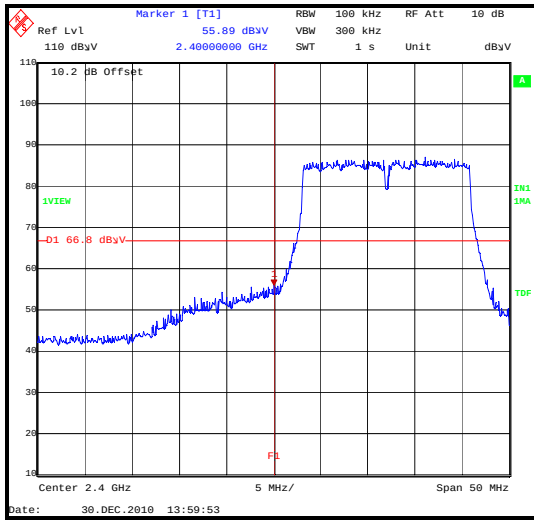
BandEdgeEIRP802_11N_26MBS_BotChannel



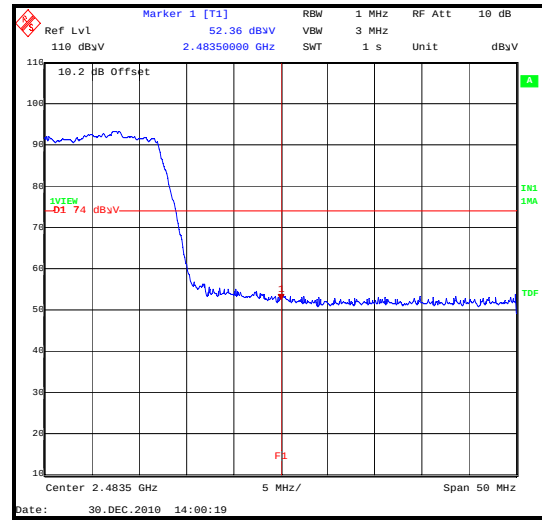
BandEdgeEIRP802_11N_26MBS_TopChannel



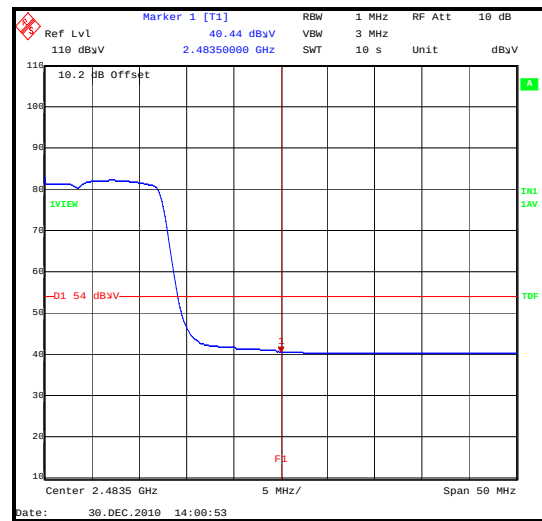
BandEdgeEIRP802_11N_26MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

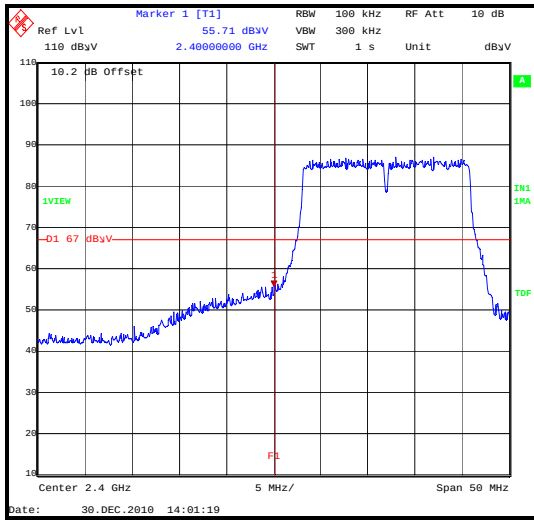
BandEdgeEIRP802_11N_39MBS_BotChannel



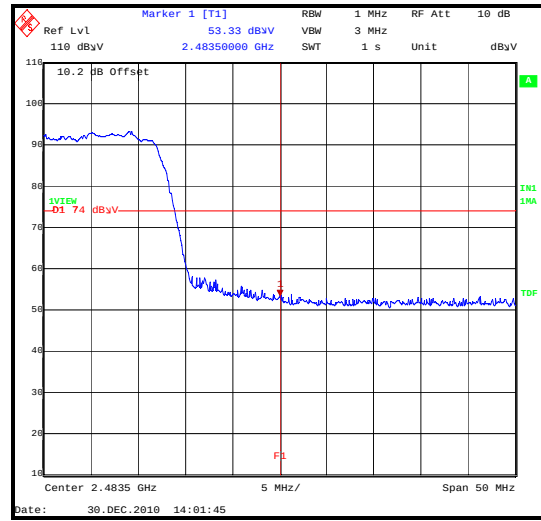
BandEdgeEIRP802_11N_39MBS_TopChannel



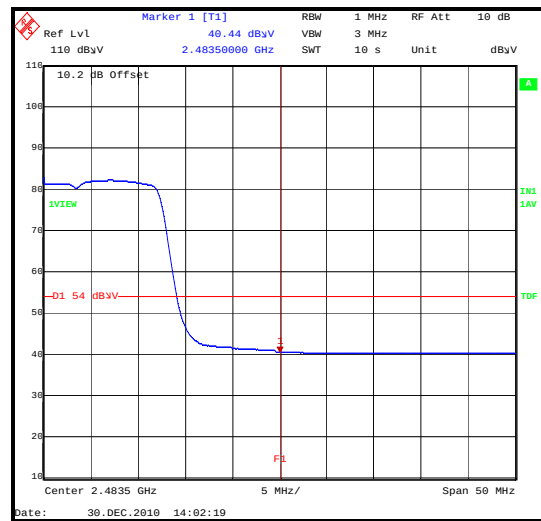
BandEdgeEIRP802_11N_39MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

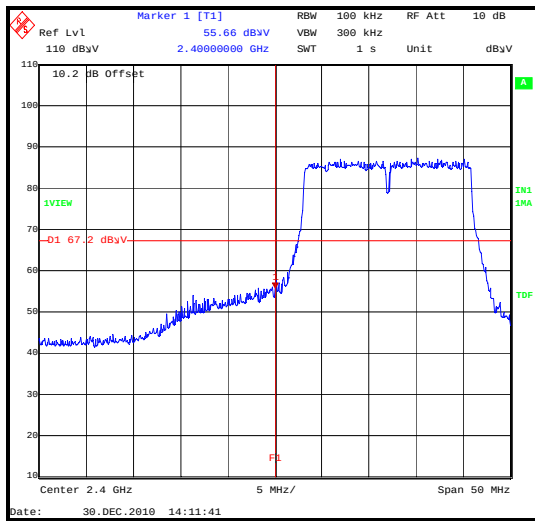
BandEdgeEIRP802_11N_52MBS_BotChannel



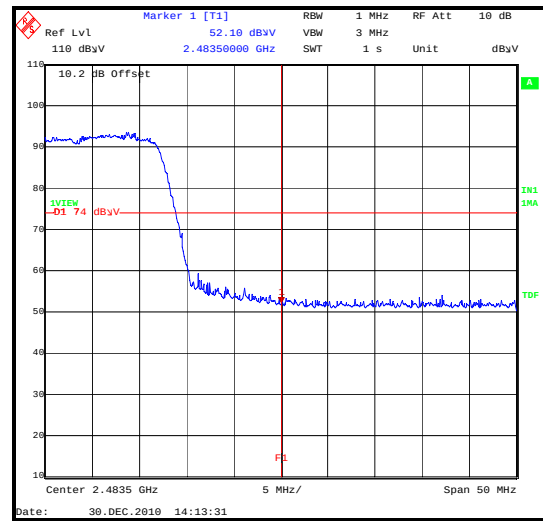
BandEdgeEIRP802_11N_52MBS_TopChannel



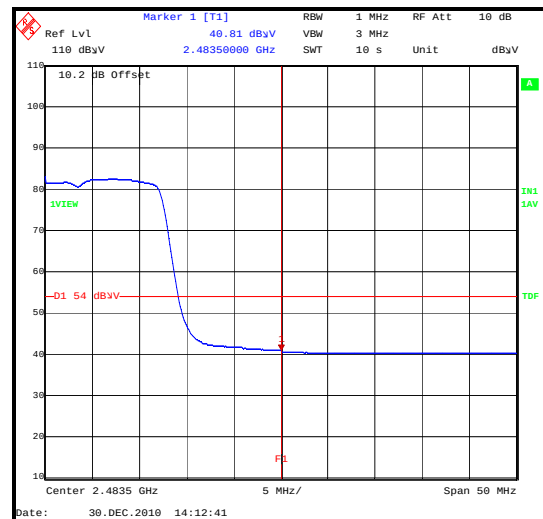
BandEdgeEIRP802_11N_52MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

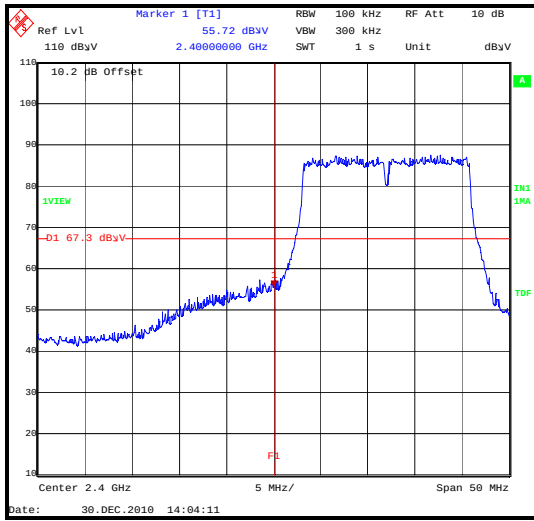
BandEdgeEIRP802_11N_58.5MBS_BotChannel



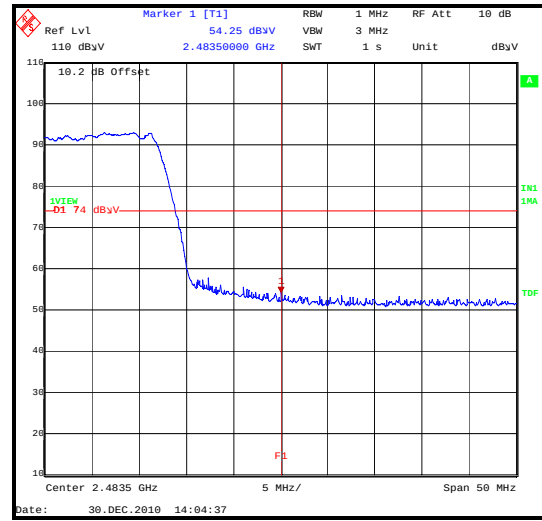
BandEdgeEIRP802_11N_58.5MBS_TopChannel



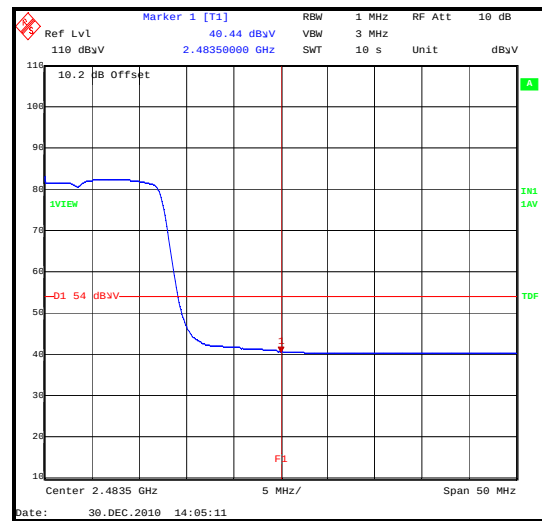
BandEdgeEIRP802_11N_58.5MBS_TopChannelAVG

Transmitter Band Edge Radiated Emissions (continued)

BandEdgeEIRP802_11N_65MBS_BotChannel



BandEdgeEIRP802_11N_65MBS_TopChannel



BandEdgeEIRP802_11N_65MBS_TopChannelAVG

5.2.11. Transmitter Frequency Stability (Temperature Variation)**Test Summary:**

Test Engineer:	ND	Test Date:	12 May 2011
Test Sample Serial No:	ID 3		

FCC/IC Part:	2.1055
Test Method Used:	Using the procedures detailed in ANSI C63.10 Section 6.8.1 and 6.8.2 and the following method: The EUT was operated at the maximum output power and connected to the spectrum analyzer which was set to max hold using a peak detector. The peak value of the power envelope was measured and noted. The lower frequency point of the channel closest to the lower band edge and the upper frequency point of the channel closest to the upper band edge were measured at the -26 dB point relative to the measured peak value. These are the value recorded in the tables below and these must remain within the allocated band at all times. The mode tested was 802.11b 1Mbps as this was the most robust.

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	29

Frequency stability of the EUT with variations in ambient temperature**Results**

65MBS/802.11B			Time after Start-up			
			0 minutes	2 minutes	5 minutes	10 minutes
Channel	Nominal Frequency (MHz)	Temperature (°C)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Bottom	2412	-40	2404.898	2404.898	2404.898	2404.898
Bottom	2412	-30	2404.870	2404.870	2404.870	2404.870
Bottom	2412	-20	2404.829	2404.829	2404.829	2404.829
Bottom	2412	-10	2404.730	2404.730	2404.730	2404.730
Bottom	2412	0	2404.754	2404.754	2404.754	2404.754
Bottom	2412	10	2404.754	2404.754	2404.754	2404.754
Bottom	2412	20	2404.765	2404.765	2404.765	2404.765
Bottom	2412	30	2404.771	2404.771	2404.771	2404.771
Bottom	2412	40	2404.771	2404.771	2404.771	2404.771
Bottom	2412	50	2404.756	2404.756	2404.756	2404.756
Bottom	2412	60	2404.755	2404.755	2404.755	2404.755
Bottom	2412	70	2404.704	2404.704	2404.704	2404.704
Bottom	2412	80	2404.673	2404.673	2404.673	2404.673
Bottom	2412	85	2404.667	2404.667	2404.667	2404.667

Transmitter Frequency Stability (Temperature Variation) (continued)**Results**

65MBS/802.11B			Time after Start-up			
			0 minutes	2 minutes	5 minutes	10 minutes
Channel	Nominal Frequency (MHz)	Temperature (°C)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Top	2462	-40	2469.529	2469.529	2469.529	2469.529
Top	2462	-30	2469.465	2469.465	2469.465	2469.465
Top	2462	-20	2469.323	2469.323	2469.323	2469.323
Top	2462	-10	2469.323	2469.323	2469.323	2469.323
Top	2462	0	2469.326	2469.326	2469.326	2469.326
Top	2462	10	2469.238	2469.238	2469.238	2469.238
Top	2462	20	2469.235	2469.235	2469.235	2469.235
Top	2462	30	2469.206	2469.206	2469.206	2469.206
Top	2462	40	2469.176	2469.176	2469.176	2469.176
Top	2462	50	2469.176	2469.176	2469.176	2469.176
Top	2462	60	2469.158	2469.158	2469.158	2469.158
Top	2462	70	2469.152	2469.152	2469.152	2469.152
Top	2462	80	2469.152	2469.152	2469.152	2469.152
Top	2462	85	2469.145	2469.145	2469.145	2469.145

Transmitter Frequency Stability (Voltage Variation)**Results**

Channel	Nominal Frequency (MHz)	Supply Voltage (V)	Frequency (MHz)	Band Edge (MHz)	Margin (MHz)	Result
Bottom	2412	3.3	2404.765	2400	4.675	Complied
Bottom	2412	5.0	2404.765	2400	4.675	Complied
Bottom	2412	5.5	2404.765	2400	4.675	Complied
Top	2462	3.3	2469.200	2483.5	14.3	Complied
Top	2462	5.0	2469.200	2483.5	14.3	Complied
Top	2462	5.5	2469.200	2483.5	14.3	Complied

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±4.05 dB
Maximum Peak Output Power	2.4 GHz to 2.4835 GHz	95%	±0.27 dB
Spectral Power Density	2.4 GHz to 2.4835 GHz	95%	±0.27 dB
6 dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm
20dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 25 GHz	95%	±4.68 dB
Frequency Stability	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A1069	Single Phase LISN	Rohde & Schwarz	ESH3-Z5	837469/012	13 Apr 2011	12
A1396	Attenuator	Huber & Suhner	757987	6810.17.B	06 Jul 2011	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 Jun 2011	12
A1817	Antenna	EMCO	3115	00075694	27 Nov 2010	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A1834	Attenuator	Hewlett Packard	8491B	10444	30 Jun 2011	12
A253	Antenna	Flann Microwave	12240-20	128	05 Sep 2011	12
A254	Antenna	Flann Microwave	14240-20	139	05 Sep 2011	12
A255	Antenna	Flann Microwave	16240-20	519	05 Sep 2011	12
A553	Antenna	Chase	CBL611 1A	1593	16 Mar 2011	12
G0543	Amplifier	Sonoma Instrument Co.	310N	230801	30 Jun 2011	12
K0001	5m Semi-Anechoic Chamber	Rainford EMC	N/A	N/A	25 Apr 2011	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
L1001	Test Receiver	Rohde & Schwarz	ESU26	100239	28 Jan 2011	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	22 Apr 2011	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	28 Jun 2011	12
A1830	Pulse limiter	Rohde & Schwarz	ESH3-Z2	100668	05 Mar 2012	12

Note: Asset A1817, A553, L1001, M1124 and K0001 was in calibration at the time of testing

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.