TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: NTT docomo EB-4058

FCC ID: UCE212051A

To: FCC Part 15.247: 2011 Subpart C

Test Report Serial No.:
RFI-RPT-RP87473JD09A V2.0

Version 2.0 supersedes all previous versions

This Test Report Is Issued Under The Authority Of John Newell, Group Quality Manager:	
Checked By:	Sarah Williams
Signature:	
Date of Issue:	25 June 2012

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Table of Contents

1. Customer Information 4

2. Summary of Testing 5
2.1. General Information 5
2.2. Summary of Test Results 5
2.3. Methods and Procedures 6
2.4. Deviations from the Test Specification 6

3. Equipment Under Test (EUT) 7
3.1. Identification of Equipment Under Test (EUT) 7
3.2. Description of EUT 8
3.3. Modifications Incorporated in the EUT 8
3.4. Additional Information Related to Testing 9
3.5. Support Equipment 9

4. Operation and Monitoring of the EUT during Testing 10
4.1. Operating Modes 10
4.2. Configuration and Peripherals 10

5. Measurements, Examinations and Derived Results 11
5.1. General Comments 11
5.2. Test Results 12
5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions 12
5.2.2. Receiver/Idle Mode Radiated Spurious Emissions 15
5.2.3. Transmitter AC Conducted Spurious Emissions 19
5.2.4. Transmitter 6 dB Bandwidth 22
5.2.5. Transmitter Power Spectral Density 51
5.2.6. Transmitter Maximum Peak Output Power 53
5.2.7. Transmitter Radiated Emissions 66
5.2.8. Transmitter Band Edge Radiated Emissions 71

6. Measurement Uncertainty 83

Appendix 1. Test Equipment Used 84

1. Customer Information

Company Name:	Panasonic Mobile Communications Development of Europe Ltd.
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: 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) 2011: 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) 2011: Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	21 May 2012 to 25 June 2012

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Emissions	✓
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 15.207	Transmitter AC Conducted Emissions	✓
Part 15.247(a)(2)	Transmitter Minimum 6 dB Bandwidth	✓
Part 15.247(e)	Transmitter Power Spectral Density	✓
Part 15.247(b)(3)	Transmitter Maximum Peak Output Power	✓
Part 15.247(d) & 15.209(a)	Transmitter Radiated Emissions	✓
Part 15.247(d) & 15.209(a)	Transmitter Band Edge Radiated Emissions	✓

Key to Results

✓ = Complied ✗ = Did not comply

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
Reference:	KDB 558074 D01 v01 1/18/2012
Title:	Guidance for Performing Compliance Measurements on Digital Transmission System (DTS) devices operating Under 15.247

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:	NTT docomo
Model Name or Number:	EB-4058
IMEI:	351807050019168 *(Conducted RF port sample)*
Hardware Version Number:	Rev E
Software Version Number:	ACPU: fujiko-ics-09-0316 CCPU: HY11-N5119_ALL_00.20.31
FCC ID:	UCE212051A

Brand Name:	NTT docomo
Model Name or Number:	EB-4058
IMEI:	351807050018897 *(Radiated sample #1)*
Hardware Version Number:	Rev E
Software Version Number:	ACPU: fujiko-ics-09-0316 CCPU: HY11-N5119_ALL_00.20.31
FCC ID:	UCE212051A

Identification of Equipment Under Test (continued)

Brand Name:	NTT docomo
Description:	Battery
Model Name or Number:	Not stated

Brand Name:	NTT docomo
Description:	AC Charger
Model Name or Number:	Type P01

Brand Name:	NTT docomo
Description:	USB Data cable
Model Name or Number:	Type 01

Brand Name:	Panasonic
Description:	Personal Hands-Free
Model Name or Number:	Type 02

3.2. Description of EUT

The equipment under test was a Dual Mode UMTS/GSM Mobile Phone with WLAN, *Bluetooth* and RFID.

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:	Digital Transmission System (IEEE 802.11b/g/n)		
Type of Unit:	Transceiver		
Modulation Type:	BPSK, QPSK, 16 QAM and 64QAM		
Data Rates:	802.11b: 1, 2, 5.5, 11 Mbps		
	802.11g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps		
	802.11n: 6.5, 7.2, 13, 14.4, 19.5, 21.7, 26, 28.9, 39, 43.3, 52, 57.8, 58.5, 65, 65, 72.2 Mbps		
Declared Antenna Gain:	-2.9 dBi		
Power Supply Requirement(s):	Nominal	3.8 V	
Maximum Conducted Output Power:	20.7 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:	Panasonic
Description:	Laptop PC
Model Name or Number:	CF-74

Brand Name:	Not marked or stated
Description:	2 GB Micro SD Card
Model Name or Number:	Not known

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.
- Continuously transmitting at maximum power on the bottom, centre and top channels as required using the supported data rates.

4.2. Configuration and Peripherals

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

- Controlled using a bespoke application on the laptop PC supplied by the Client. The application was used to enable continuous transmission and receive mode and to select the test channels, data rates and modulation schemes as required.
- Receive/Idle tests: The 802.11 mode was active but not transmitting.
- Transmitter radiated spurious emissions measurements were performed using the 802.11b 11 Mbps configuration as this was measured and found to produce the highest EIRP.
- Idle and transmitter radiated spurious emissions tests were performed with the AC charger and PHF connected to the EUT as this was found to be the worst case during pre-scans. All the accessories were individually connected and measurements made during the pre-scans to determine the worst case combination.
- The conducted sample with IMEI 351807050019168 was used for 6dB Bandwidth, maximum output power and power spectral density tests.
- The radiated sample with IMEI 351807050018897 was used for all other tests.

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:	Steven White	**Test Date:**	25 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.107
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	45

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.303	Live	36.9	60.2	23.3	Complied
1.203	Live	27.8	56.0	28.2	Complied
1.487	Live	27.6	56.0	28.4	Complied
1.770	Live	28.5	56.0	27.5	Complied
2.805	Live	31.4	56.0	24.6	Complied
4.929	Live	32.0	56.0	24.0	Complied
4.992	Live	32.1	56.0	23.9	Complied
5.496	Live	32.6	60.0	27.4	Complied
7.013	Live	32.2	60.0	27.8	Complied
8.574	Live	34.8	60.0	25.2	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.321	Live	29.2	49.7	20.5	Complied
1.194	Live	22.5	46.0	23.5	Complied
1.518	Live	20.2	46.0	25.8	Complied
2.647	Live	22.8	46.0	23.2	Complied
4.083	Live	24.3	46.0	21.7	Complied
16.120	Live	27.8	50.0	22.2	Complied
16.170	Live	24.5	50.0	25.5	Complied
16.219	Live	21.3	50.0	28.7	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

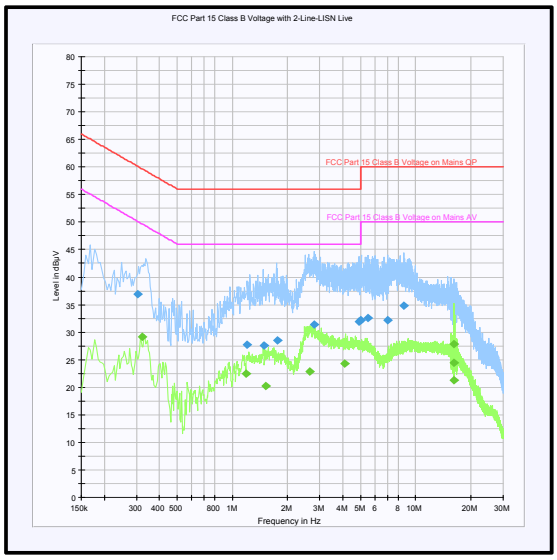
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150	Neutral	50.4	66.0	15.6	Complied
0.154	Neutral	50.6	65.8	15.2	Complied
0.168	Neutral	50.5	65.1	14.6	Complied
0.168	Neutral	49.6	65.1	15.5	Complied
0.195	Neutral	51.4	63.8	12.4	Complied
0.217	Neutral	44.7	62.9	18.2	Complied
0.249	Neutral	40.3	61.8	21.5	Complied
0.280	Neutral	39.3	60.8	21.5	Complied
0.307	Neutral	37.8	60.0	22.2	Complied
0.361	Neutral	36.3	58.7	22.4	Complied

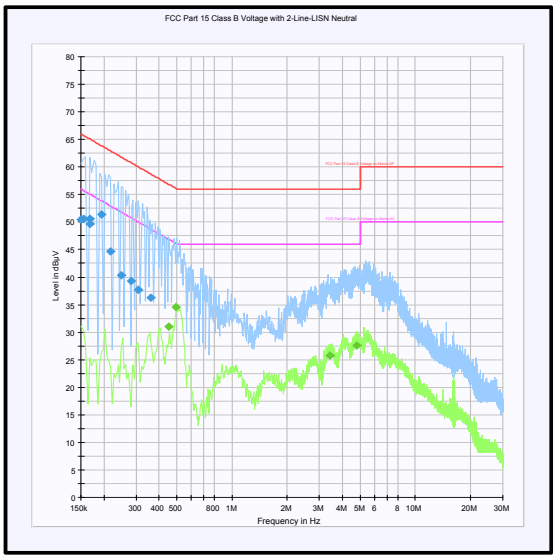
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin(dB)	Result
0.451500	Neutral	31.0	46.8	15.8	Complied
0.492000	Neutral	34.5	46.1	11.6	Complied
3.439500	Neutral	25.8	46.0	20.2	Complied
4.771500	Neutral	27.6	46.0	18.4	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Steven White	**Test Date:**	25 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.109
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):	24
Relative Humidity (%):	38

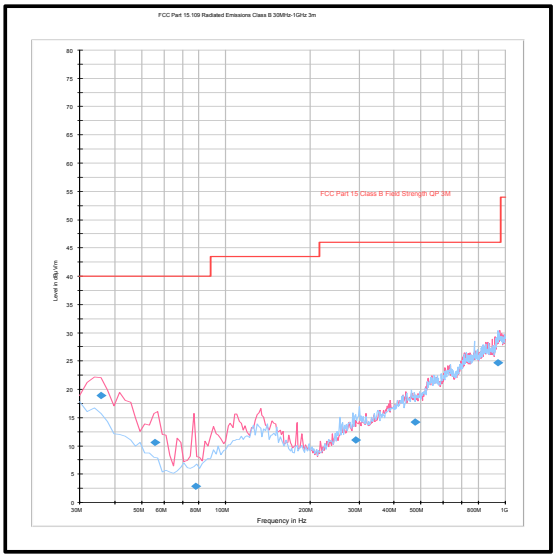
Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
35.788	Vertical	18.9	40.00	21.1	Complied
55.815	Vertical	10.6	40.00	29.4	Complied
77.861	Vertical	2.8	40.00	37.2	Complied
291.746	Horizontal	11.0	46.00	35.0	Complied
475.510	Vertical	14.2	46.00	31.8	Complied
943.873	Horizontal	24.7	46.00	21.3	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 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:	David Doyle	**Test Date:**	25 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.109
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.6 referencing ANSI C63.4
Frequency Range:	1 GHz to 12.75 GHz

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	44

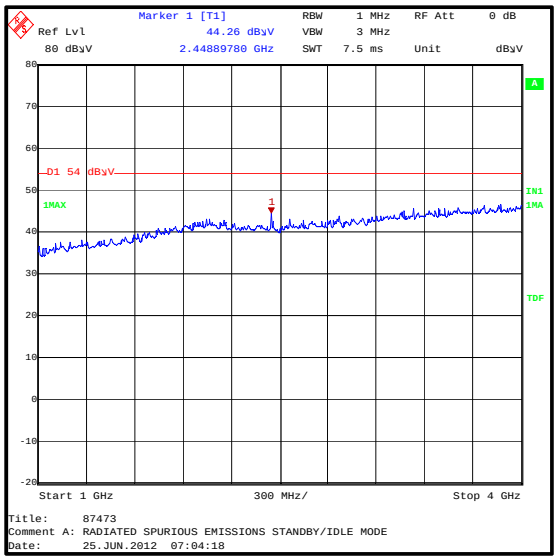
Results:

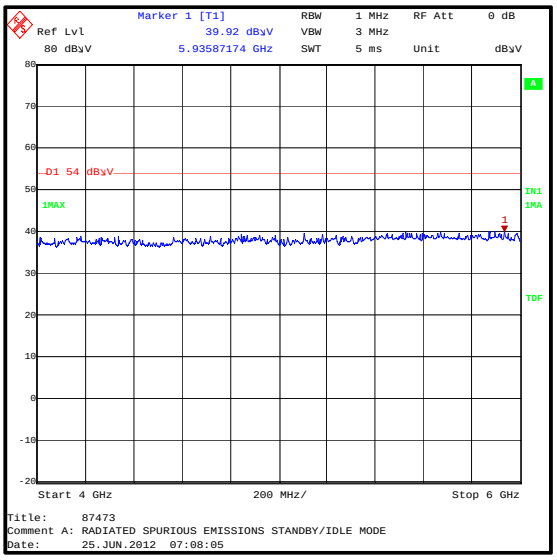
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
6957.916	Vertical	46.1	54.0	7.9	Complied

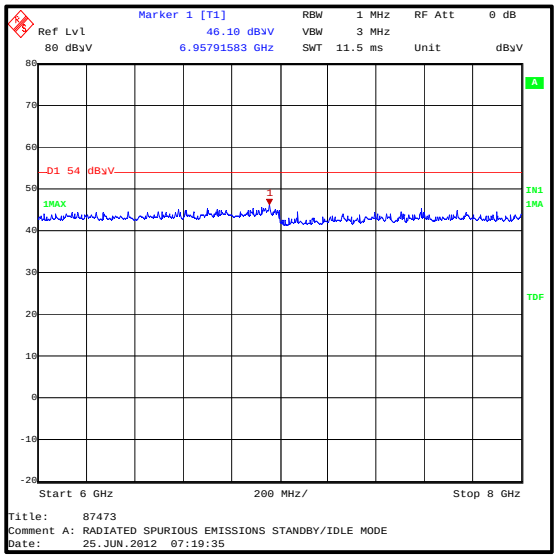
Note(s):

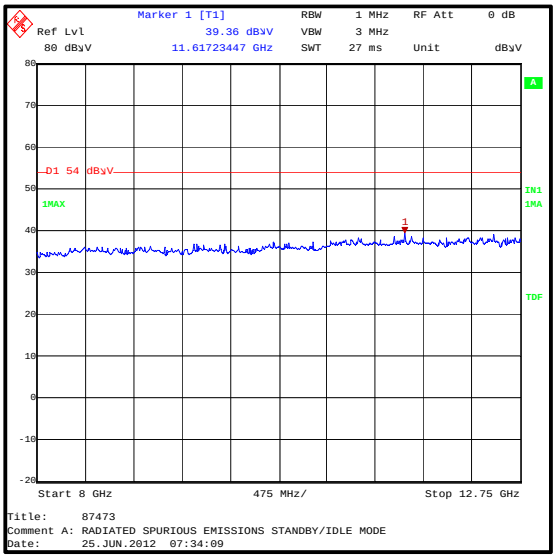
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 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.
3. 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)









5.2.3. Transmitter AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	19 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.207
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	43

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.505500	Live	33.7	56.0	22.3	Complied
0.699000	Live	21.3	56.0	34.7	Complied
3.943500	Live	20.0	56.0	36.0	Complied
5.019000	Live	20.2	60.0	39.8	Complied
7.791000	Live	23.5	60.0	36.5	Complied
9.078000	Live	23.3	60.0	36.7	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.510000	Live	31.7	46.0	14.3	Complied
0.712500	Live	19.3	46.0	26.7	Complied
4.051500	Live	18.0	46.0	28.0	Complied
5.176500	Live	17.7	50.0	32.3	Complied
7.908000	Live	16.8	50.0	33.2	Complied
9.114000	Live	17.7	50.0	32.3	Complied

Transmitter AC Conducted Spurious Emissions (continued)

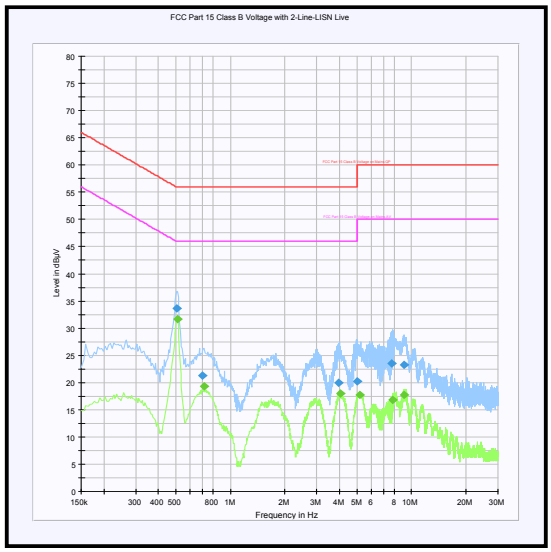
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.505500	Neutral	28.7	56.0	27.3	Complied
5.424000	Neutral	23.9	60.0	36.1	Complied
6.490500	Neutral	21.7	60.0	38.3	Complied
7.692000	Neutral	23.3	60.0	36.7	Complied
9.042000	Neutral	18.9	60.0	41.1	Complied
10.347000	Neutral	16.0	60.0	44.0	Complied

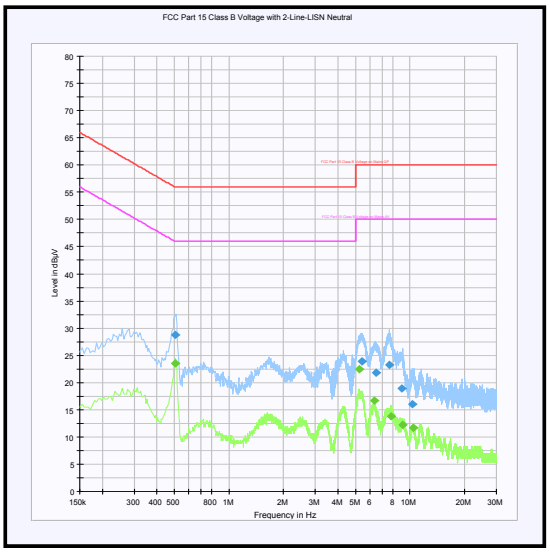
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.505500	Neutral	23.5	46.0	22.5	Complied
5.248500	Neutral	22.4	50.0	27.6	Complied
6.342000	Neutral	16.7	50.0	33.3	Complied
7.890000	Neutral	13.8	50.0	36.2	Complied
9.096000	Neutral	12.2	50.0	37.8	Complied
10.414500	Neutral	11.7	50.0	38.3	Complied

Transmitter AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.4. Transmitter 6 dB Bandwidth

Test Summary:

Test Engineer:	Sarah Williams	**Test Date:**	14 June 2012
Test Sample IMEI:	351807050019168		

FCC Reference:	Part 15.247(a)(2)
Test Method Used:	FCC KDB 558074 D01 Section 5.1.1 ANSI C63.10 Section 6.9.1

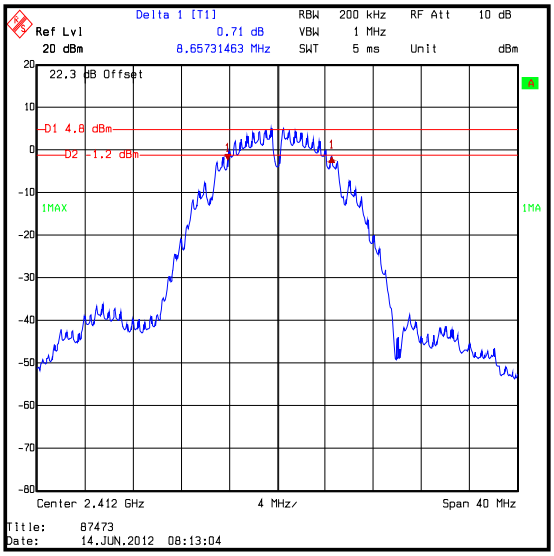
Environmental Conditions:

Temperature (°C):	23 to 27
Relative Humidity (%):	31 to 40

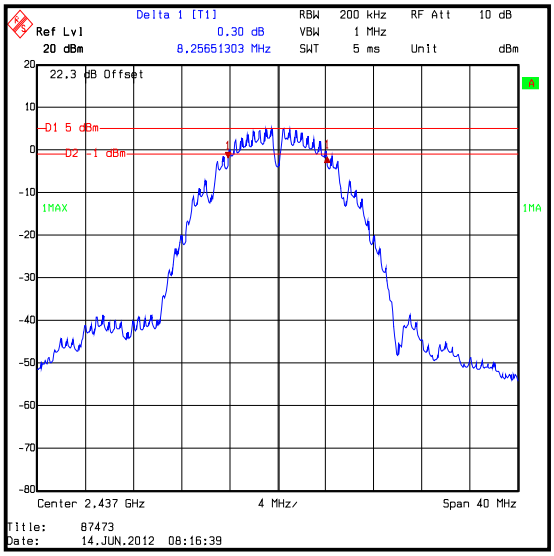
Transmitter 6 dB Bandwidth (continued)

Results: 802.11b / 1 Mbps

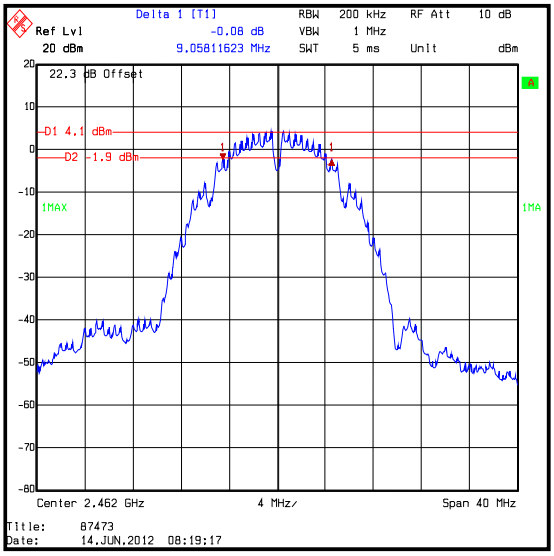
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	8.657	≥0.5	8.157	Complied
Middle	8.257	≥0.5	7.757	Complied
Top	9.058	≥0.5	8.558	Complied



Bottom channel



Middle channel

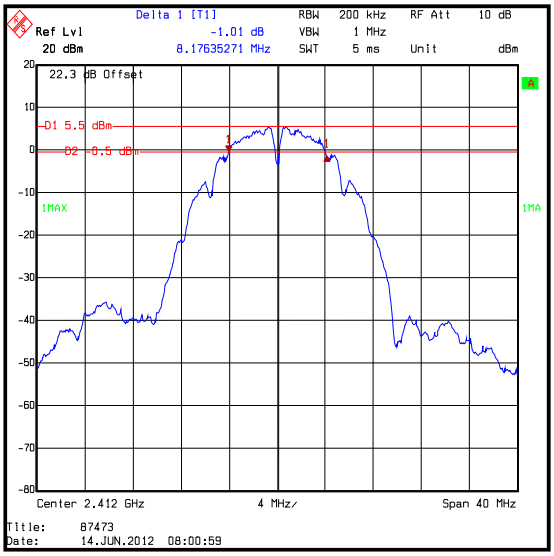


Top channel

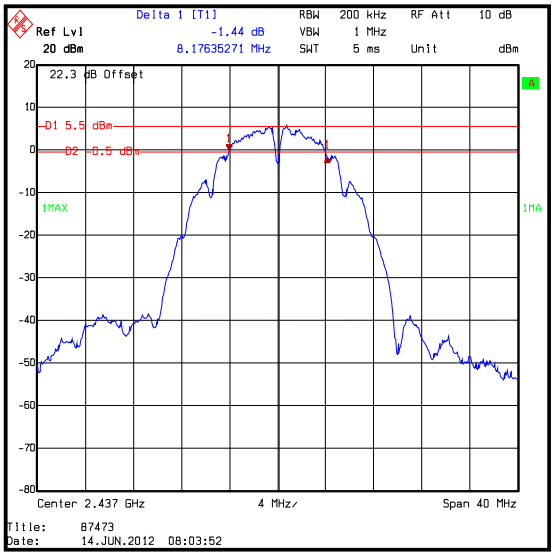
Transmitter 6 dB Bandwidth (continued)

Results: 802.11b / 2 Mbps

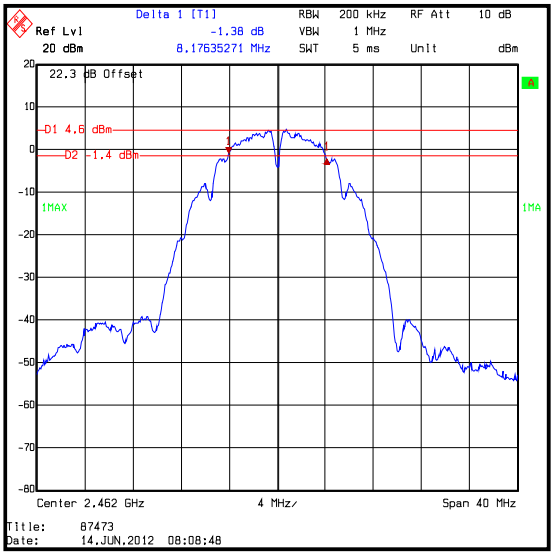
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	8.176	≥0.5	7.676	Complied
Middle	8.176	≥0.5	7.676	Complied
Top	8.176	≥0.5	7.676	Complied



Bottom channel



Middle channel

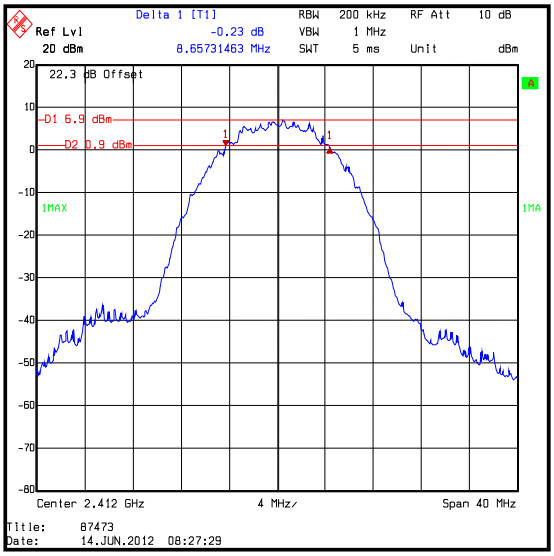


Top channel

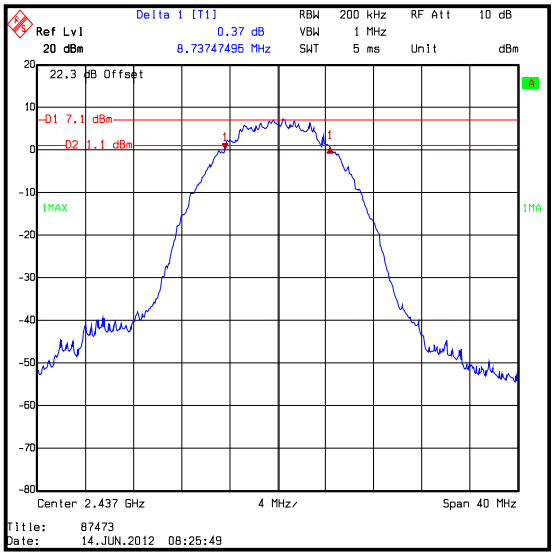
Transmitter 6 dB Bandwidth (continued)

Results: 802.11b / 5.5 Mbps

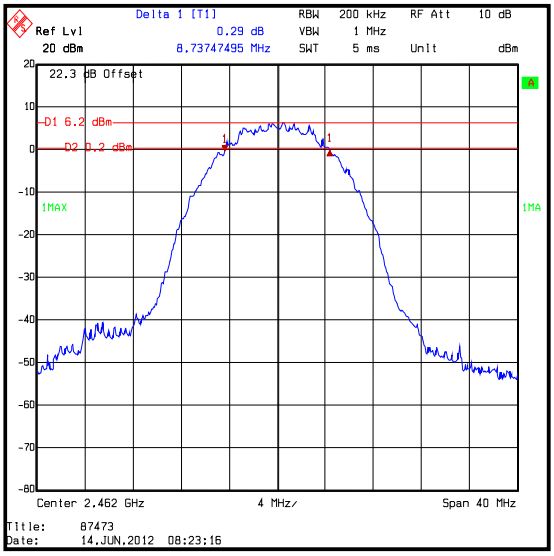
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	8.657	≥0.5	8.157	Complied
Middle	8.737	≥0.5	8.237	Complied
Top	8.737	≥0.5	8.237	Complied



Bottom channel



Middle channel

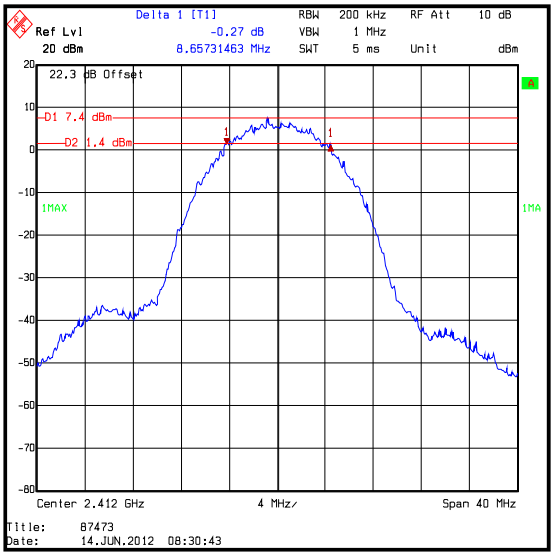


Top channel

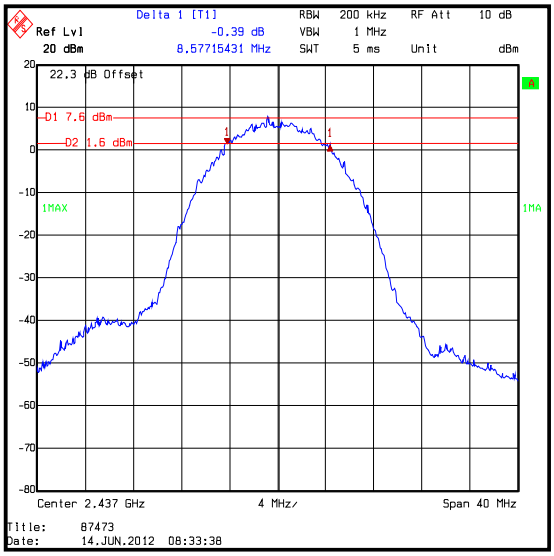
Transmitter 6 dB Bandwidth (continued)

Results: 802.11b / 11 Mbps

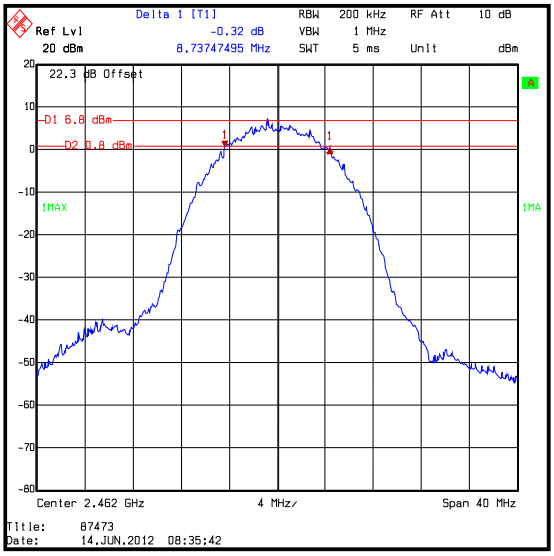
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	8.657	≥0.5	8.157	Complied
Middle	8.577	≥0.5	8.077	Complied
Top	8.737	≥0.5	8.237	Complied



Bottom channel



Middle channel

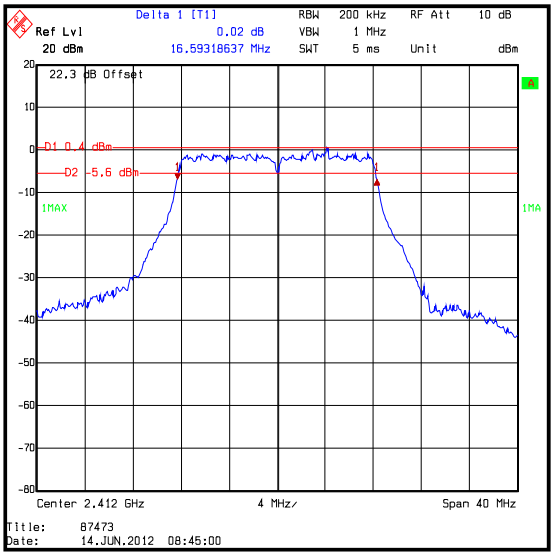


Top channel

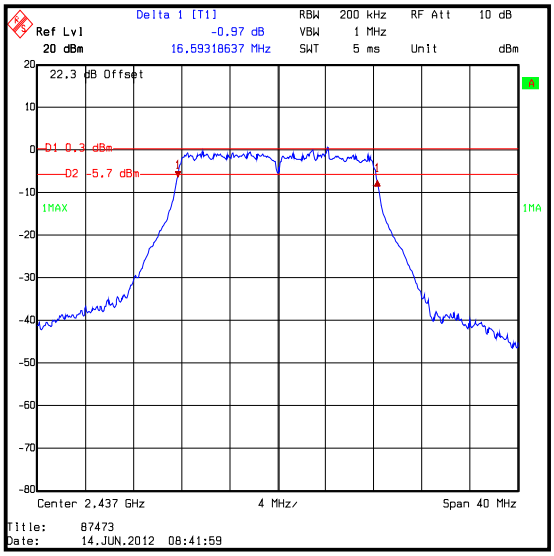
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 6 Mbps

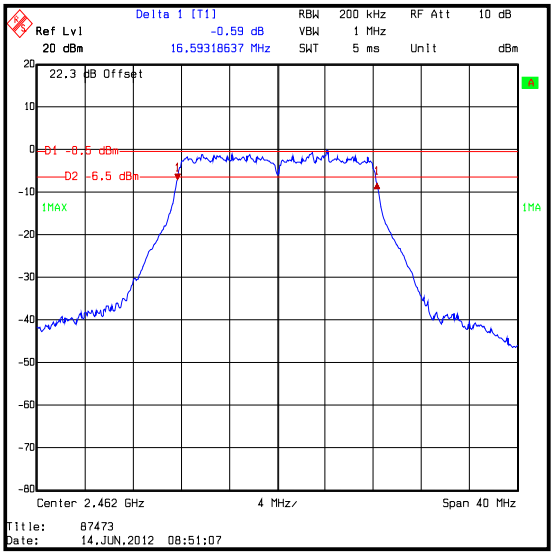
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.593	≥0.5	16.093	Complied
Middle	16.593	≥0.5	16.093	Complied
Top	16.593	≥0.5	16.093	Complied



Bottom channel



Middle channel

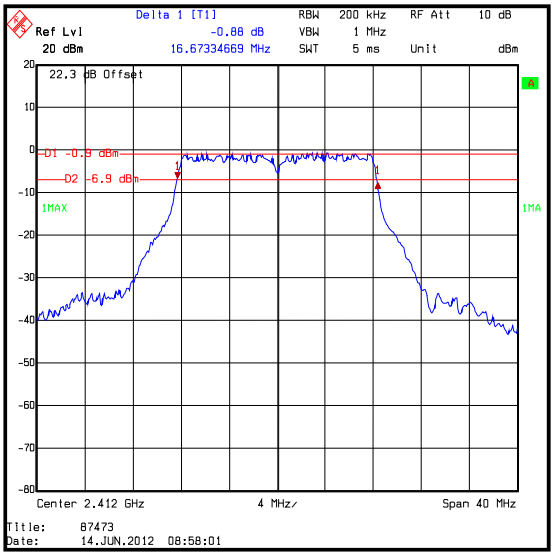


Top channel

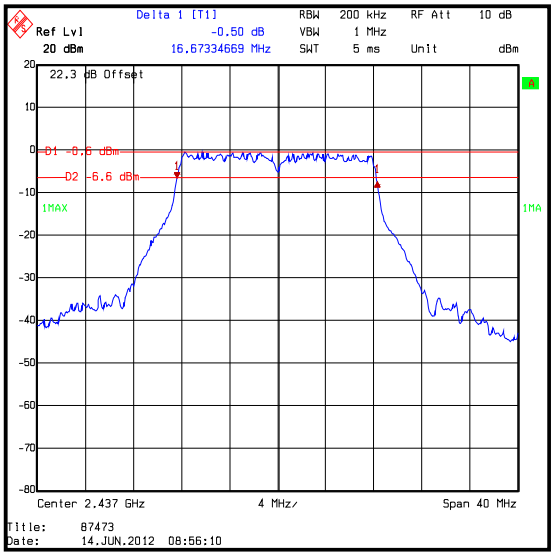
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 9 Mbps

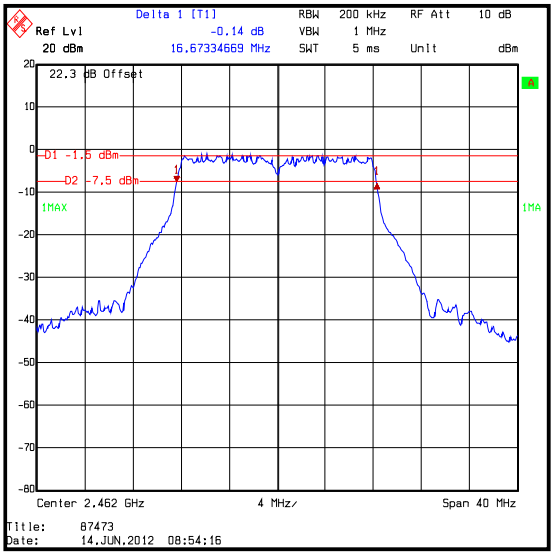
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.673	≥0.5	16.173	Complied
Middle	16.673	≥0.5	16.173	Complied
Top	16.673	≥0.5	16.173	Complied



Bottom channel



Middle channel

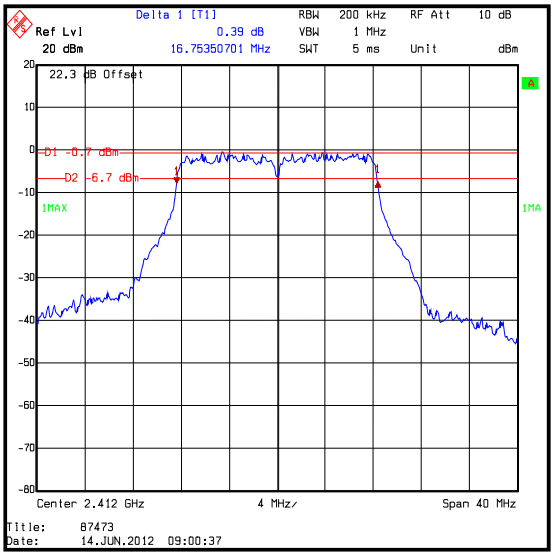


Top channel

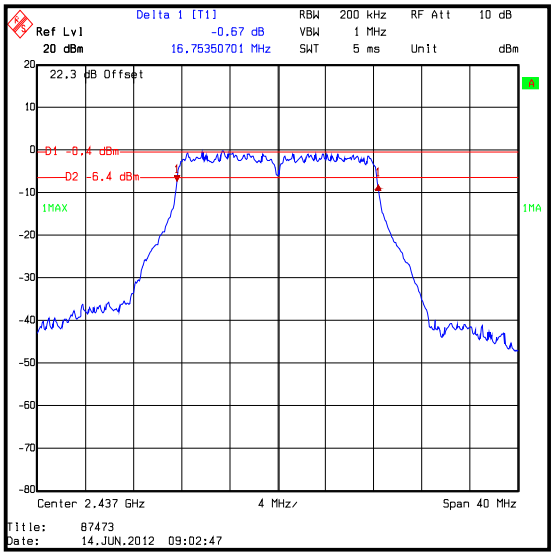
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 12 Mbps

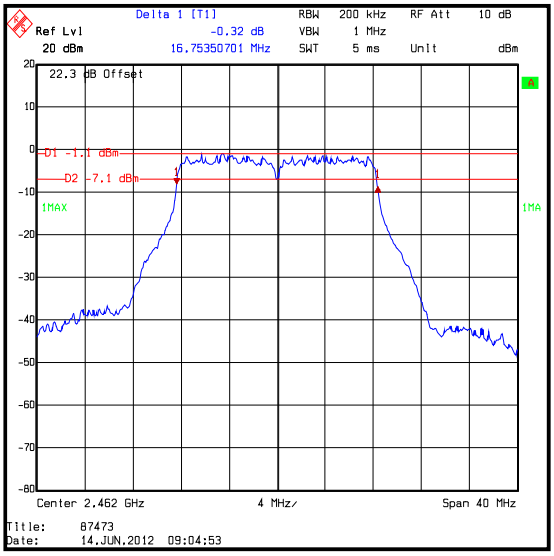
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.753	≥0.5	16.253	Complied
Middle	16.753	≥0.5		Complied
Top	16.753	≥0.5	16.253	Complied



Bottom channel



Middle channel

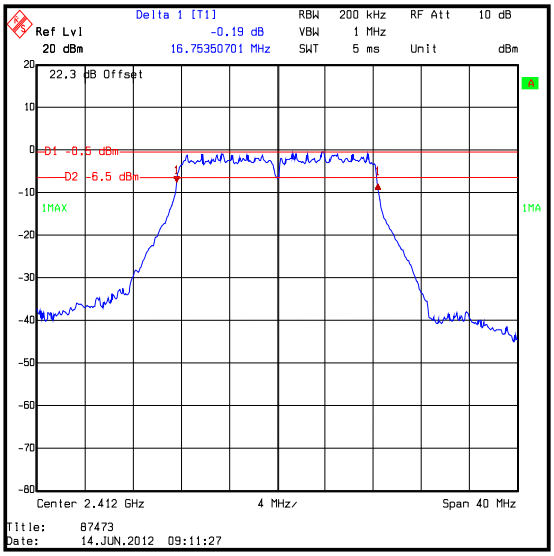


Top channel

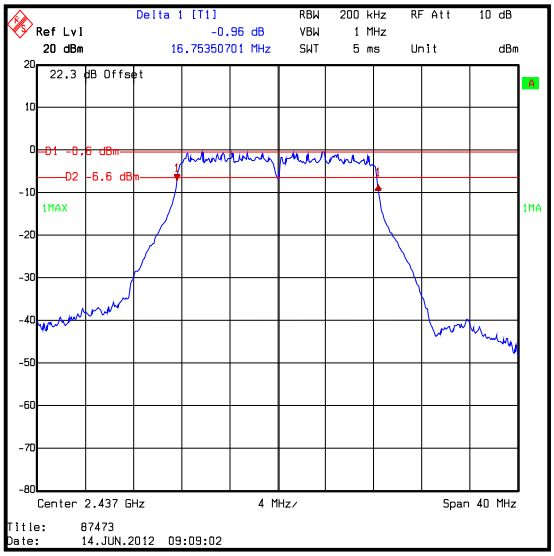
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 18 Mbps

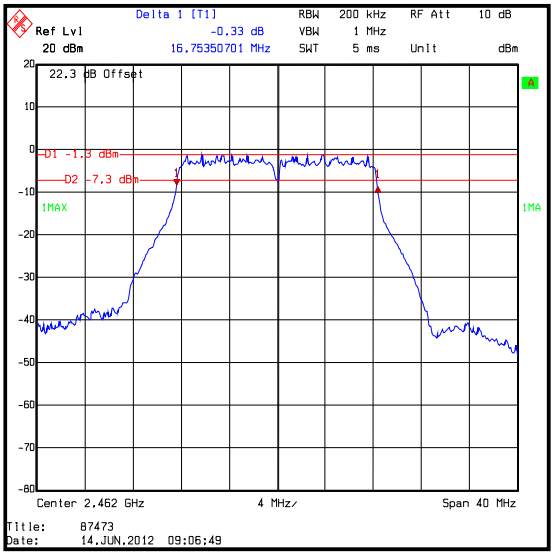
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.753	≥0.5	16.253	Complied
Middle	16.753	≥0.5	16.253	Complied
Top	16.753	≥0.5	16.253	Complied



Bottom channel



Middle channel

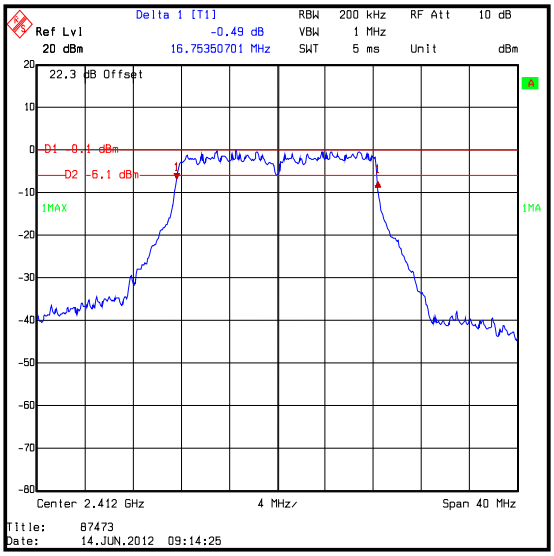


Top channel

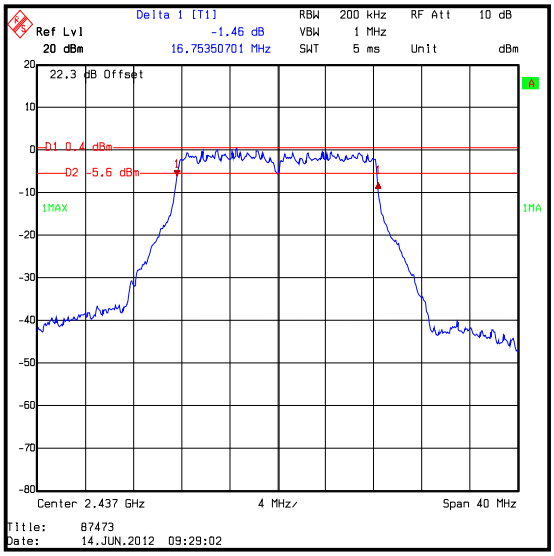
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 24 Mbps

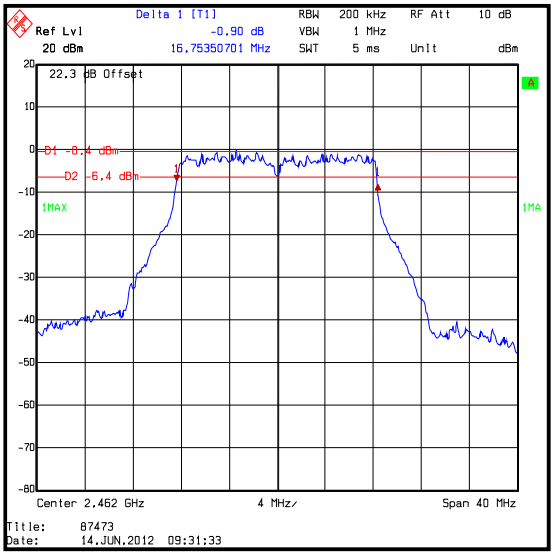
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.753	≥0.5	16.253	Complied
Middle	16.753	≥0.5	16.253	Complied
Top	16.753	≥0.5	16.253	Complied



Bottom channel



Middle channel

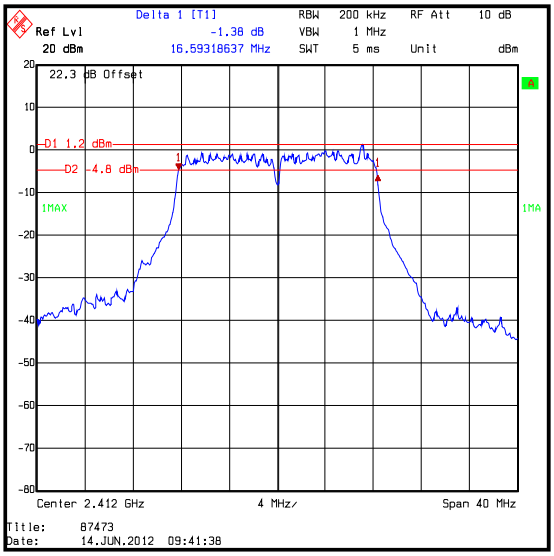


Top channel

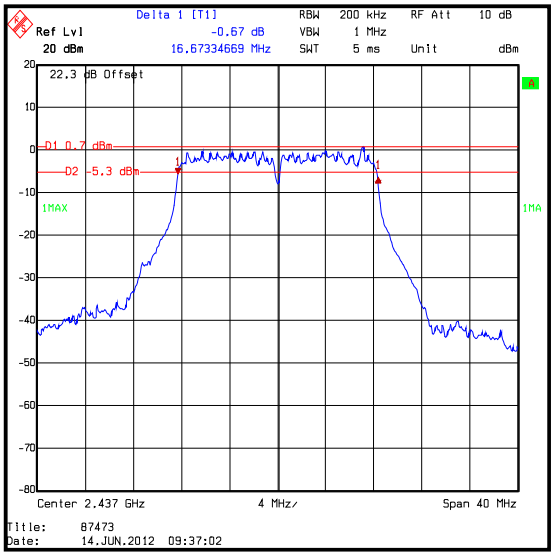
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 36 Mbps

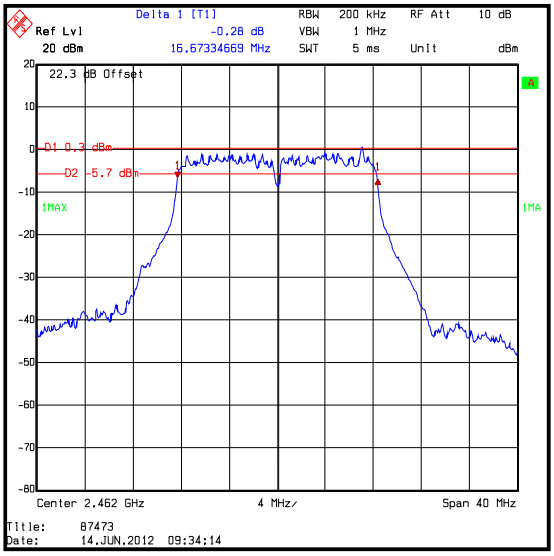
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.593	≥0.5	16.093	Complied
Middle	16.673	≥0.5	16.173	Complied
Top	16.673	≥0.5	16.173	Complied



Bottom channel



Middle channel

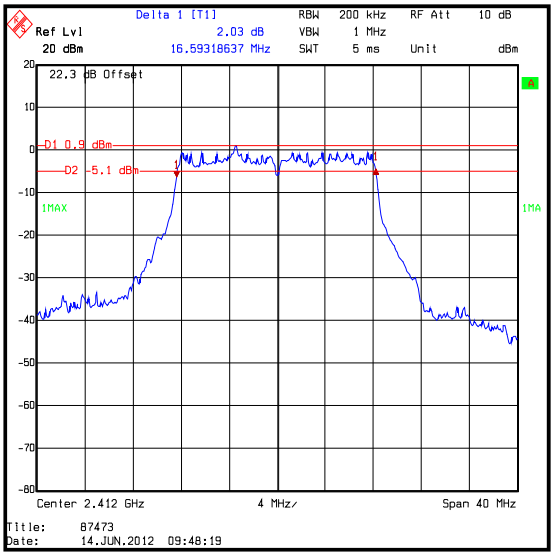


Top channel

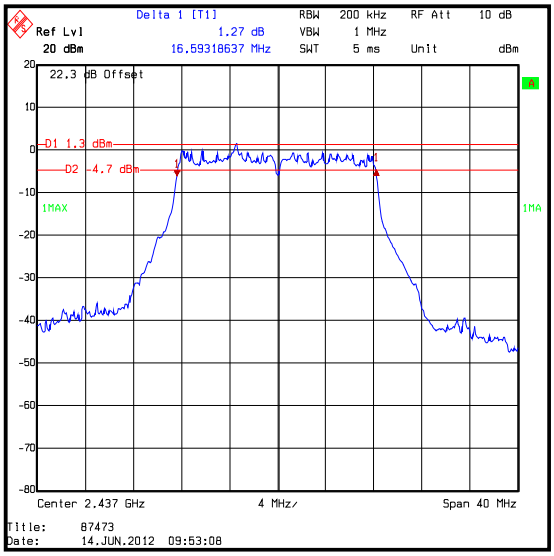
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 48 Mbps

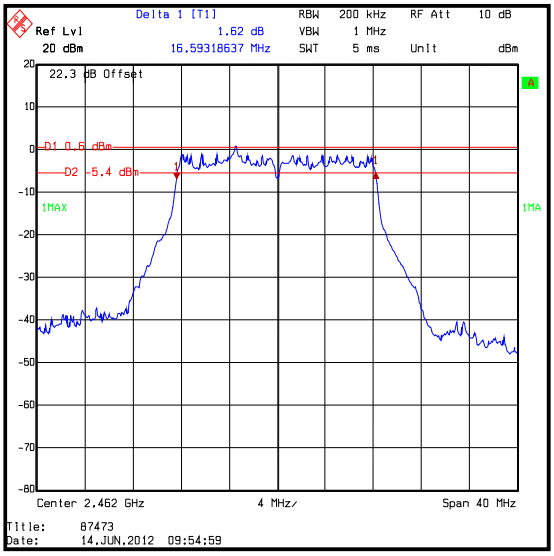
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.593	≥0.5	16.093	Complied
Middle	16.593	≥0.5	16.093	Complied
Top	16.593	≥0.5	16.093	Complied



Bottom channel



Middle channel

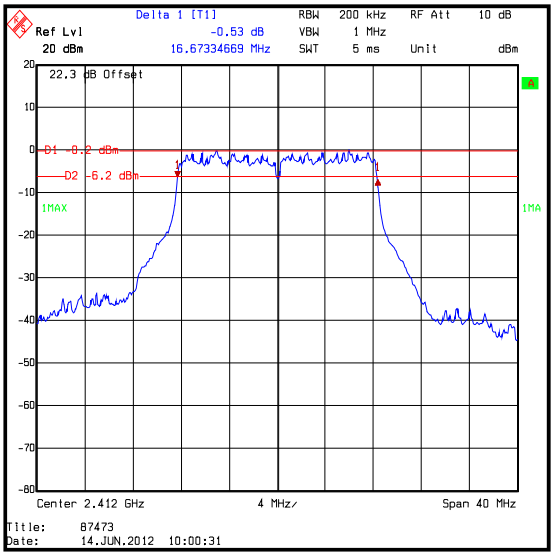


Top channel

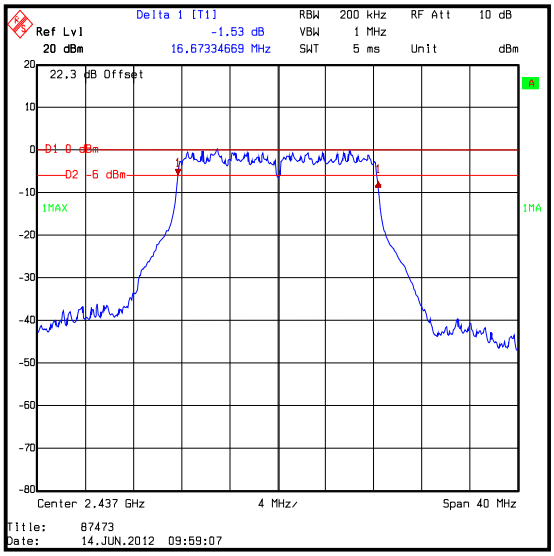
Transmitter 6 dB Bandwidth (continued)

Results: 802.11g / 54 Mbps

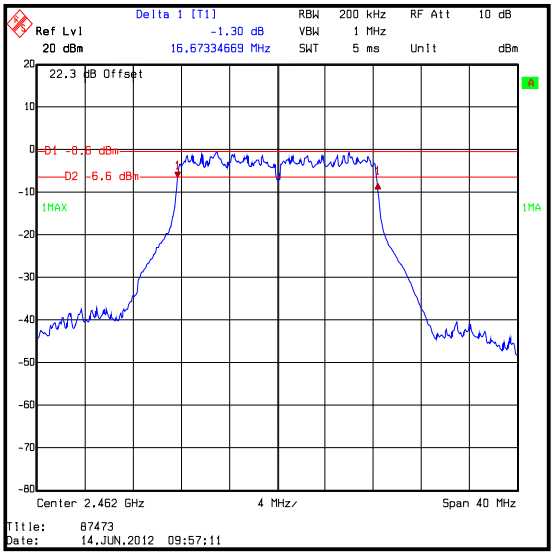
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.673	≥0.5	16.173	Complied
Middle	16.673	≥0.5	16.173	Complied
Top	16.673	≥0.5	16.173	Complied



Bottom channel



Middle channel

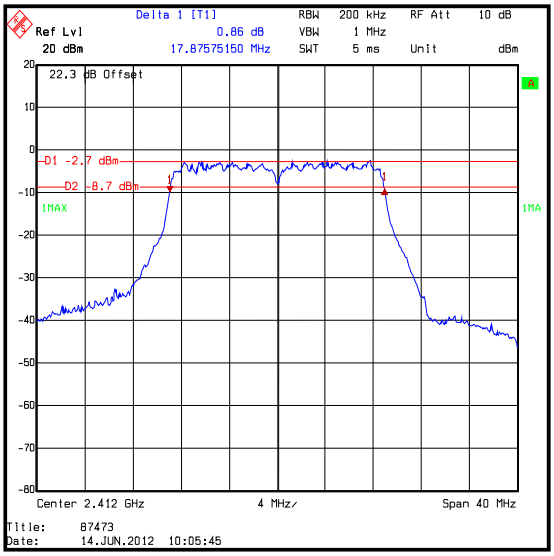


Top channel

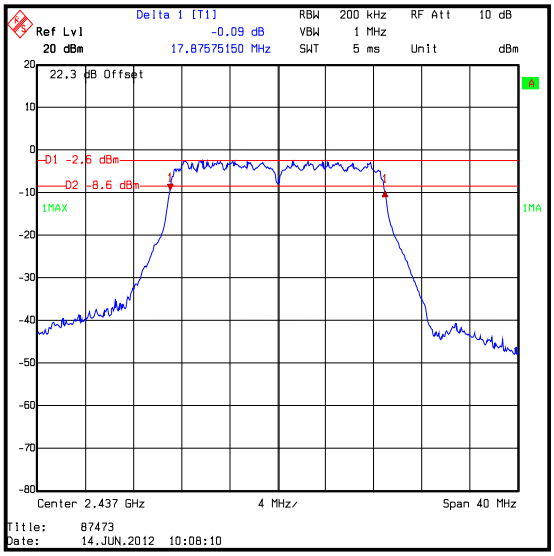
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 6.5 Mbps

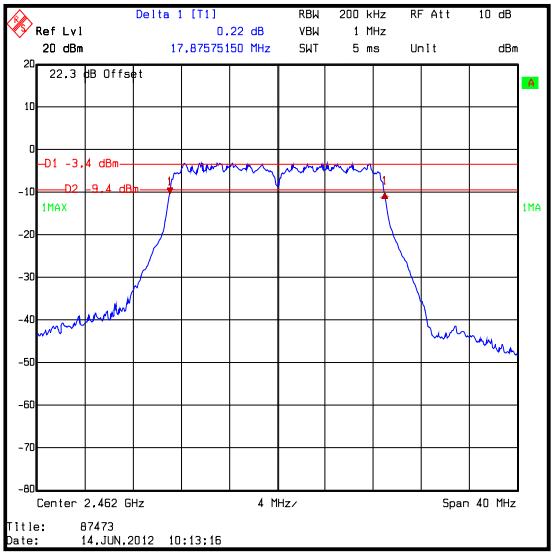
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

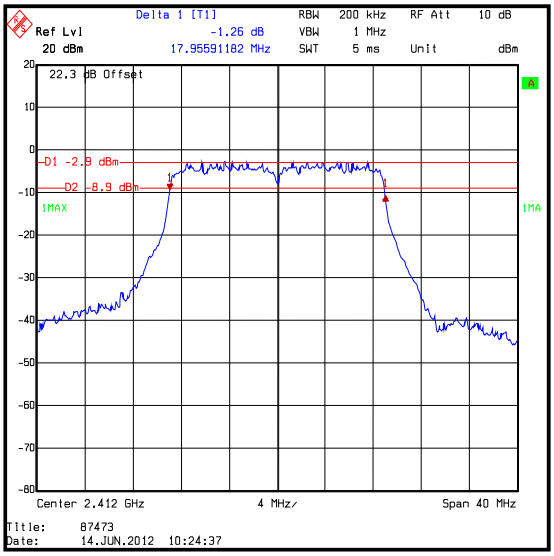


Top channel

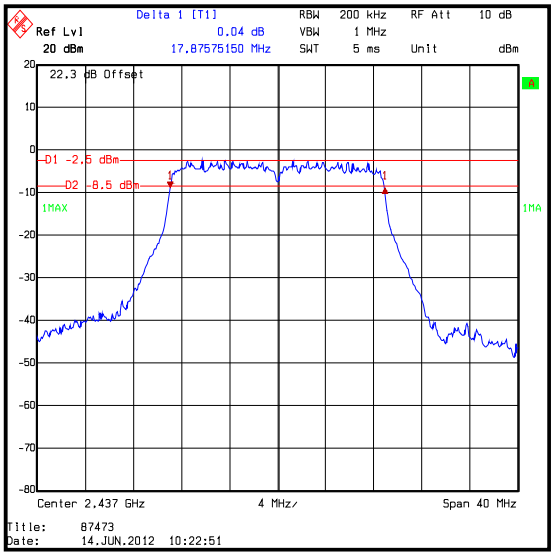
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 13 Mbps

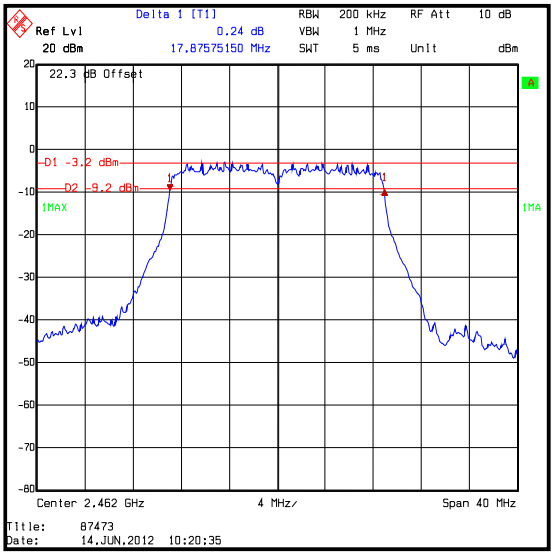
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.956	≥0.5	17.456	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

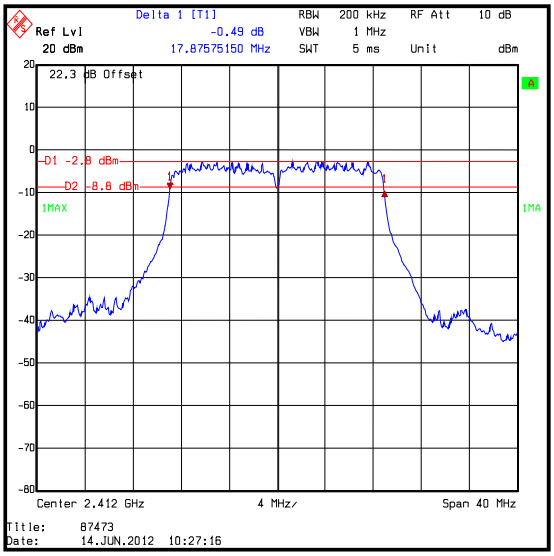


Top channel

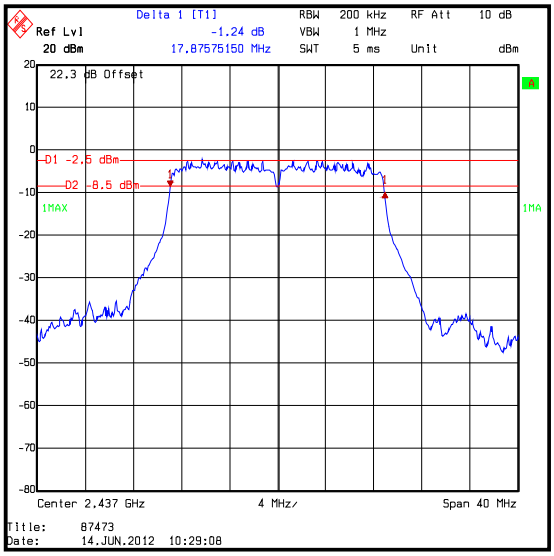
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 19.5 Mbps

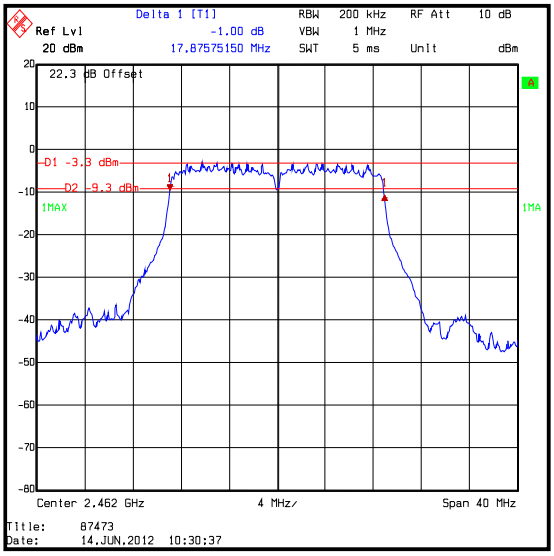
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

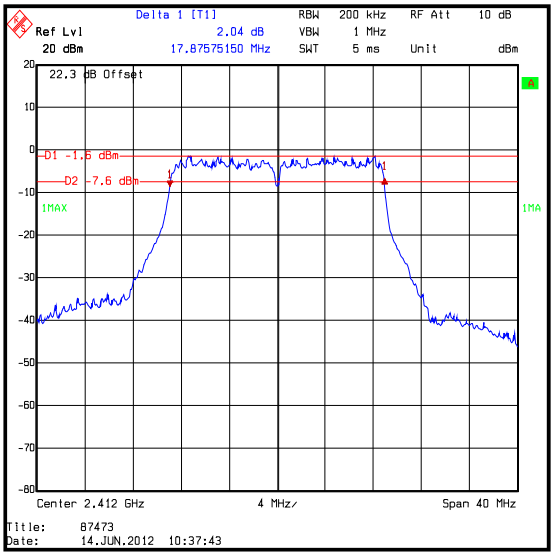


Top channel

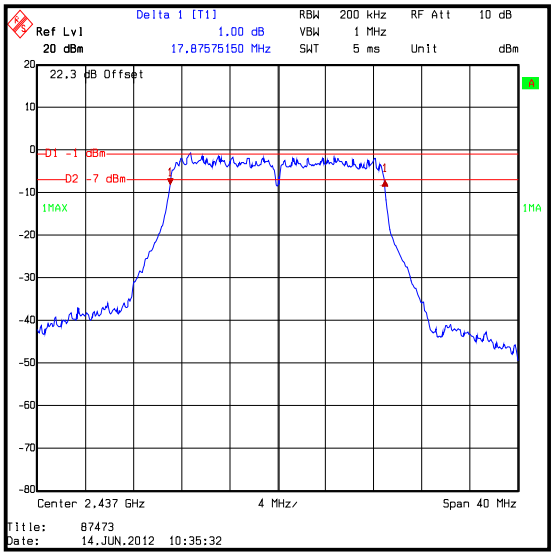
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 26 Mbps

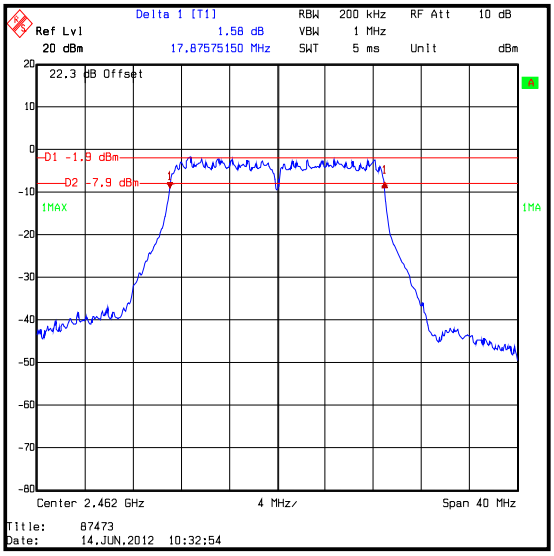
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

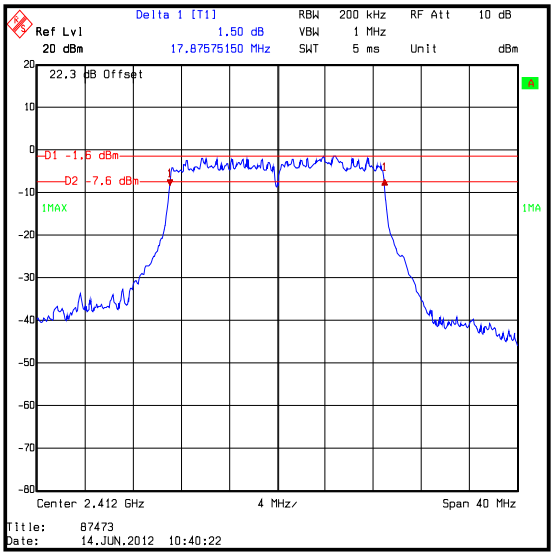


Top channel

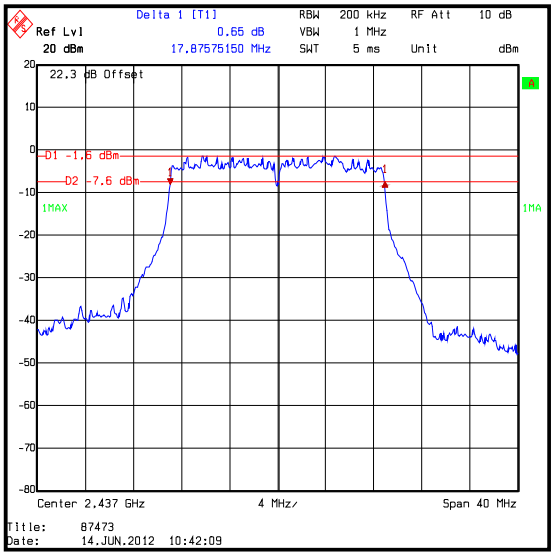
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 39 Mbps

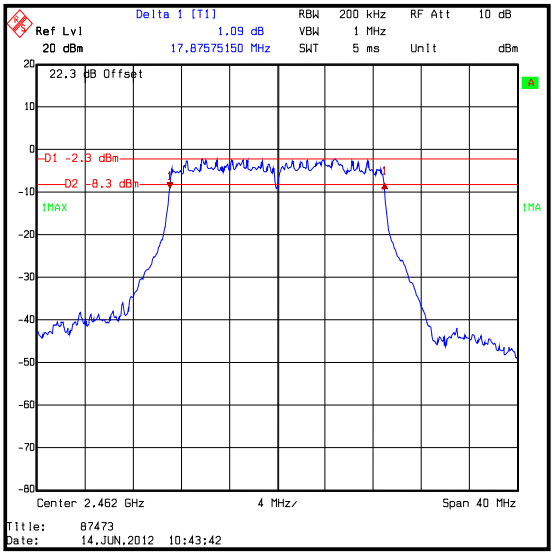
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

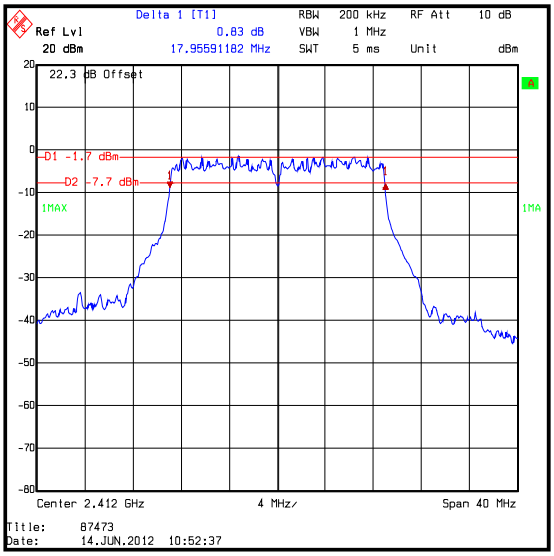


Top channel

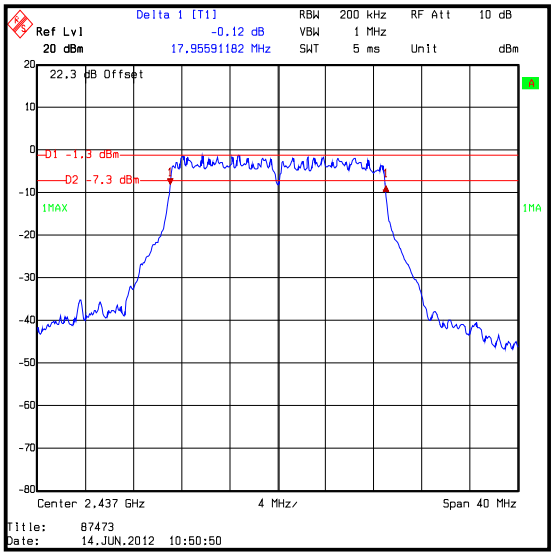
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 52 Mbps

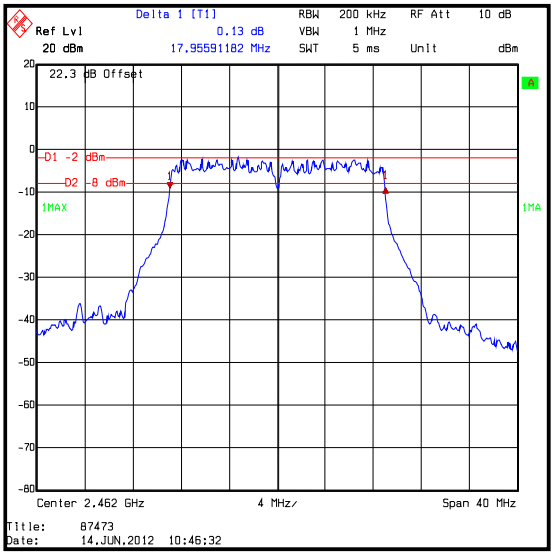
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.956	≥0.5	17.456	Complied
Middle	17.956	≥0.5	17.456	Complied
Top	17.956	≥0.5	17.456	Complied



Bottom channel



Middle channel

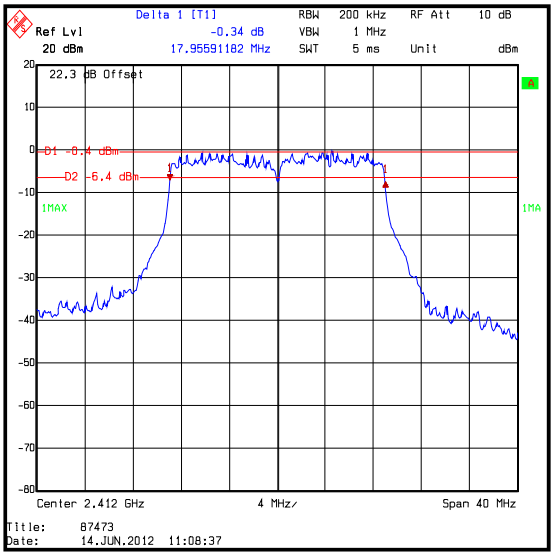


Top channel

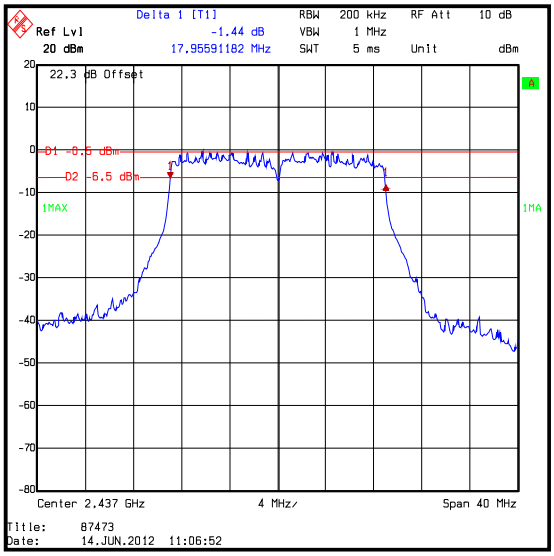
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 58.5 Mbps

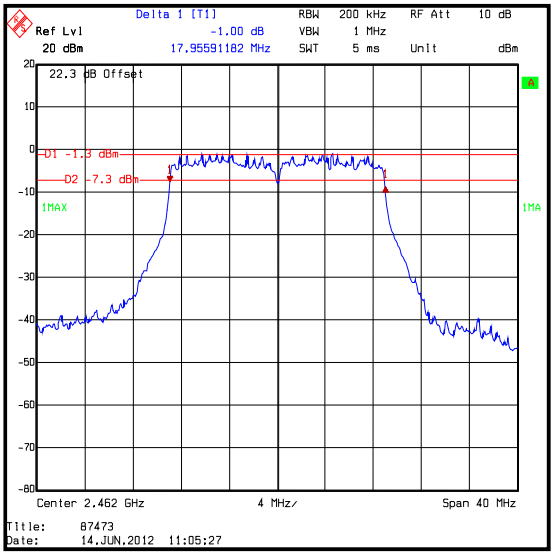
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.956	≥0.5	17.456	Complied
Middle	17.956	≥0.5	17.456	Complied
Top	17.956	≥0.5	17.456	Complied



Bottom channel



Middle channel

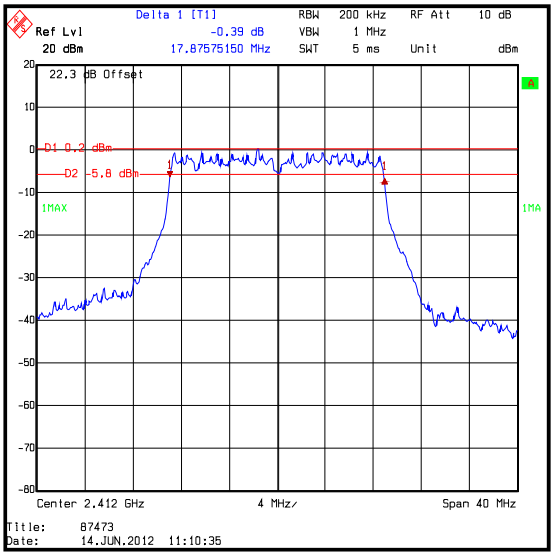


Top channel

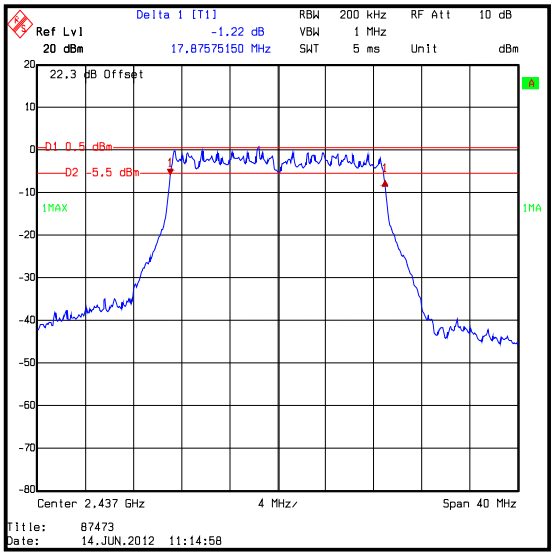
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 65 Mbps

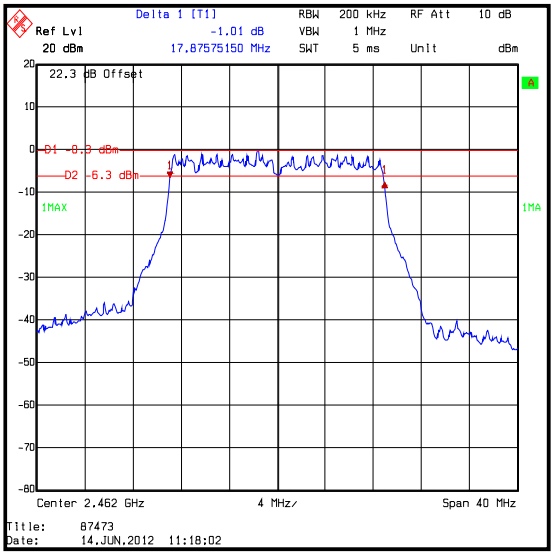
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

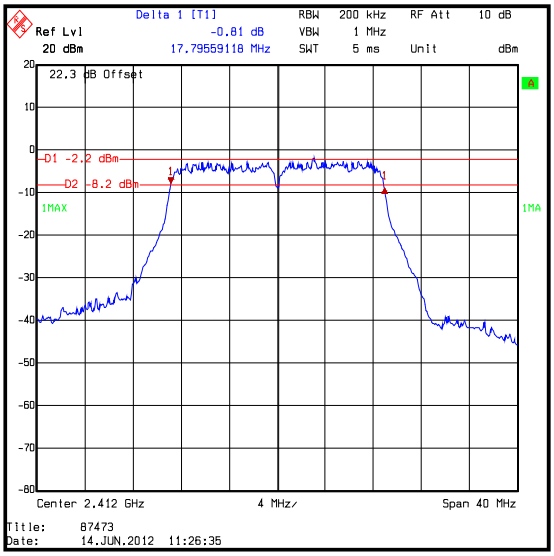


Top channel

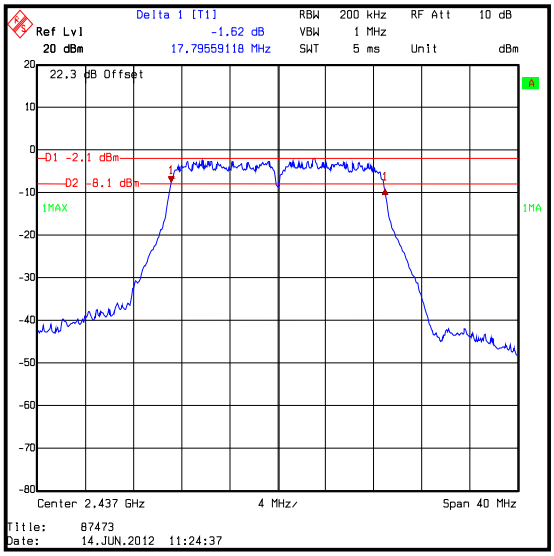
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 7.2 Mbps

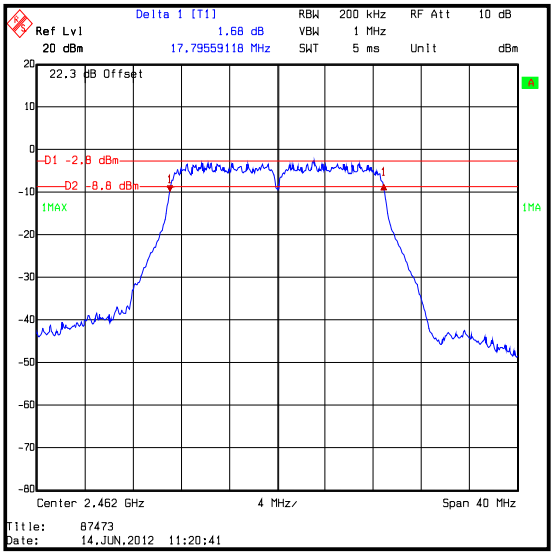
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.796	≥0.5	17.296	Complied
Middle	17.796	≥0.5	17.296	Complied
Top	17.796	≥0.5	17.296	Complied



Bottom channel



Middle channel

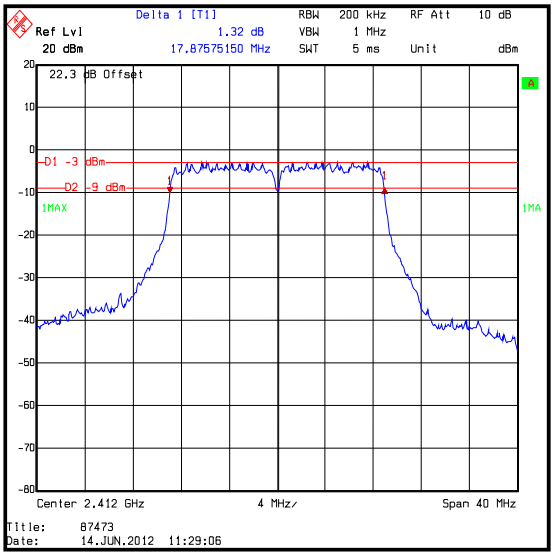


Top channel

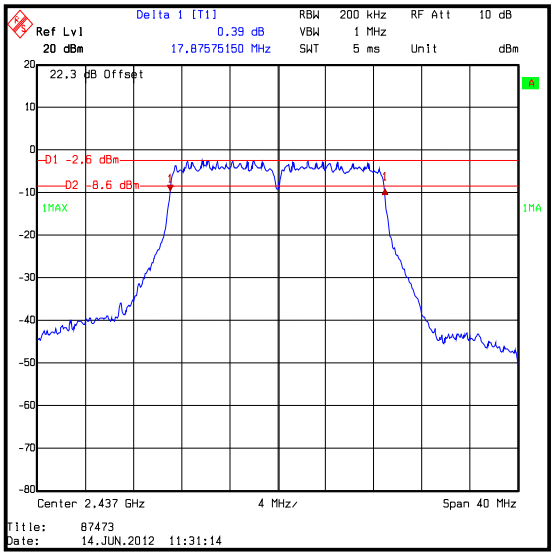
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 14.4 Mbps

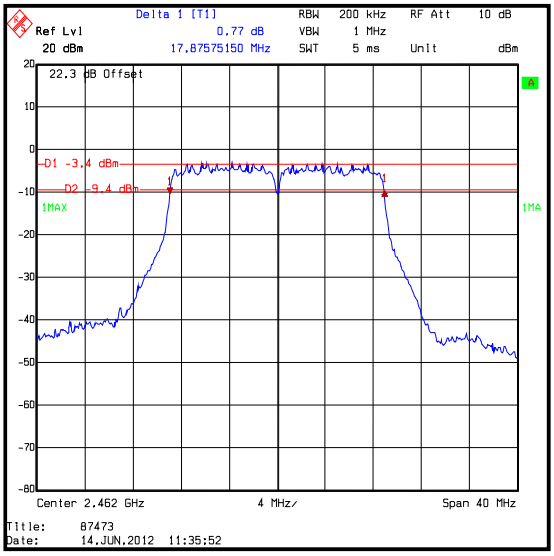
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

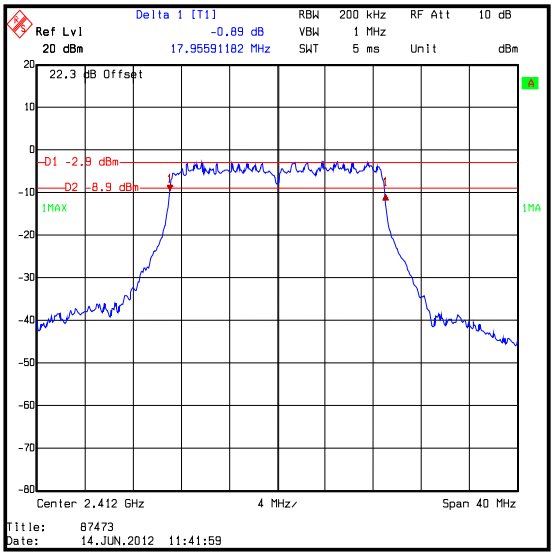


Top channel

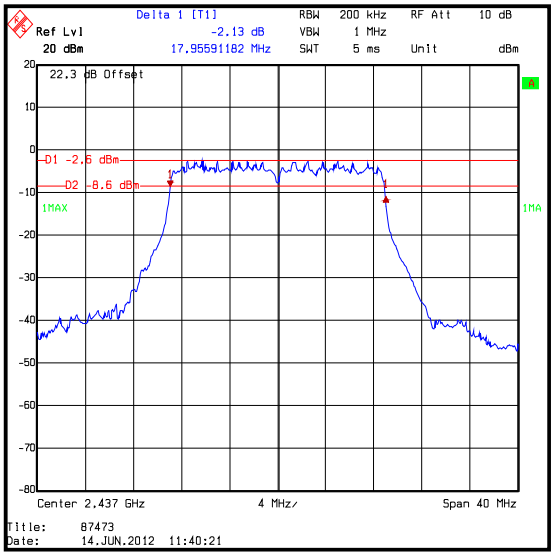
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 21.7 Mbps

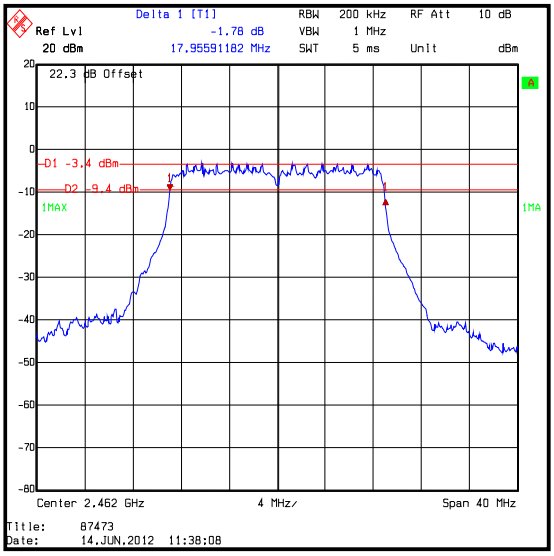
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.956	≥0.5	17.456	Complied
Middle	17.956	≥0.5	17.456	Complied
Top	17.956	≥0.5	17.456	Complied



Bottom channel



Middle channel

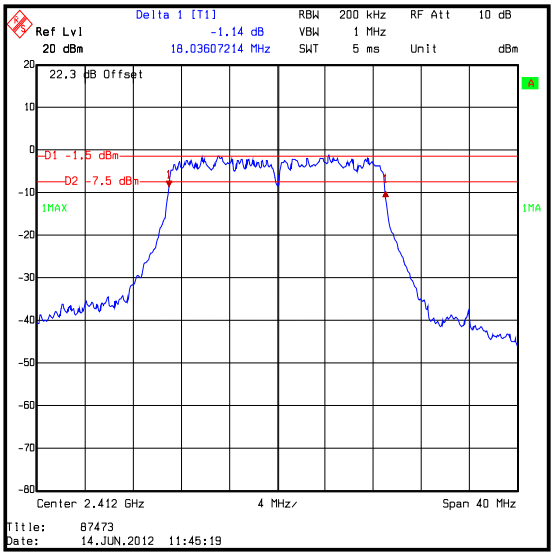


Top channel

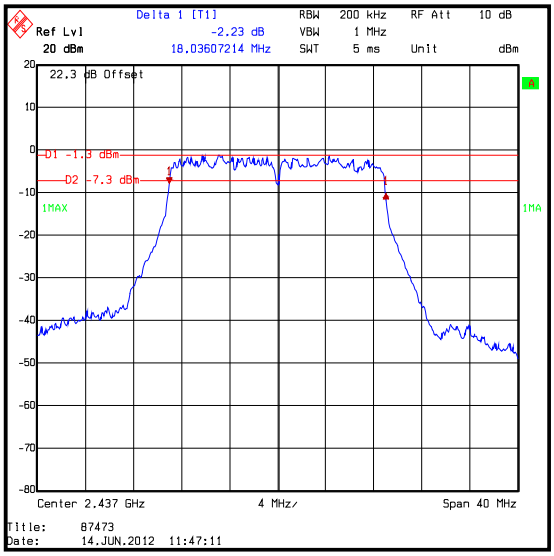
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 28.9 Mbps

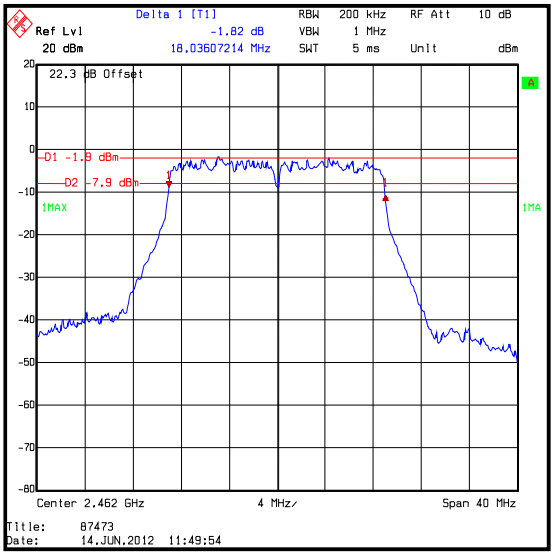
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	18.036	≥0.5	17.536	Complied
Middle	18.036	≥0.5	17.536	Complied
Top	18.036	≥0.5	17.536	Complied



Bottom channel



Middle channel

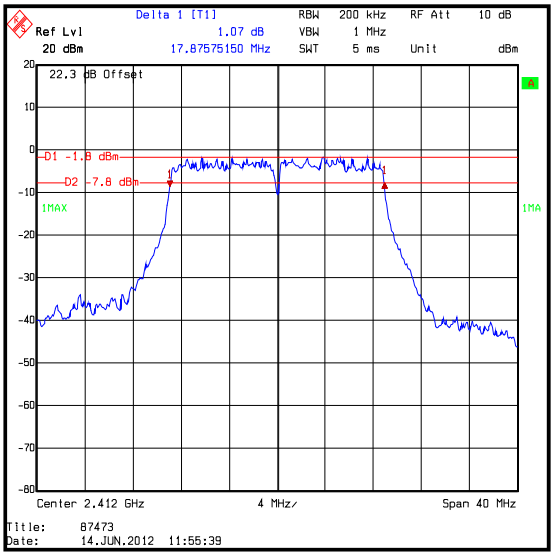


Top channel

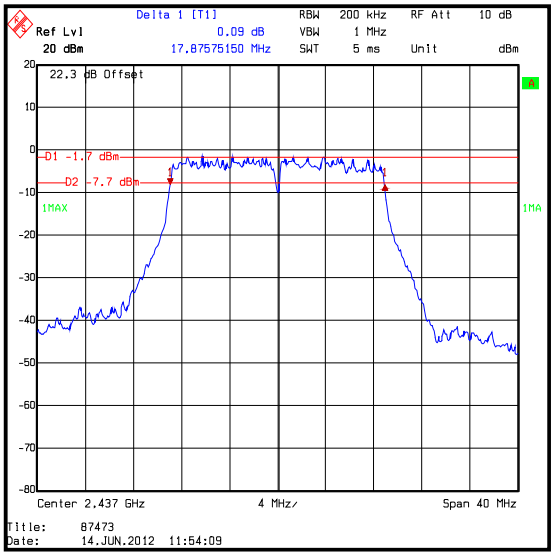
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 43.3 Mbps

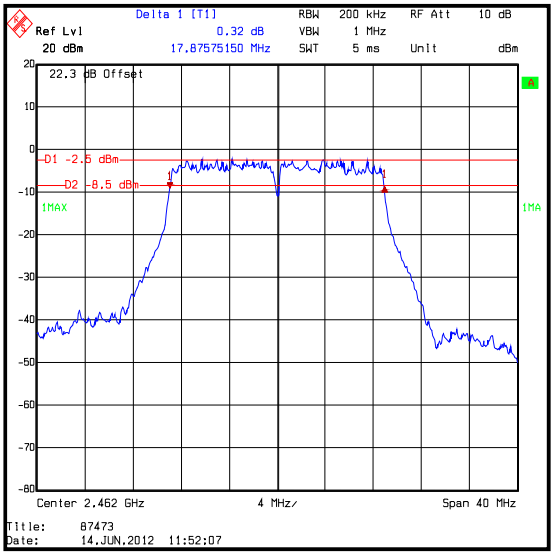
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

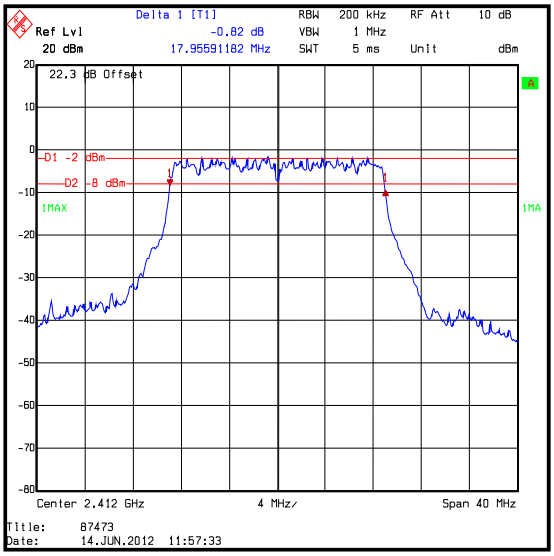


Top channel

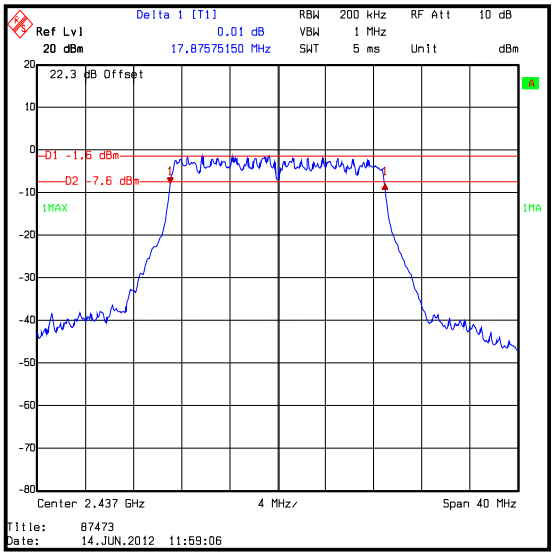
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 57.8 Mbps

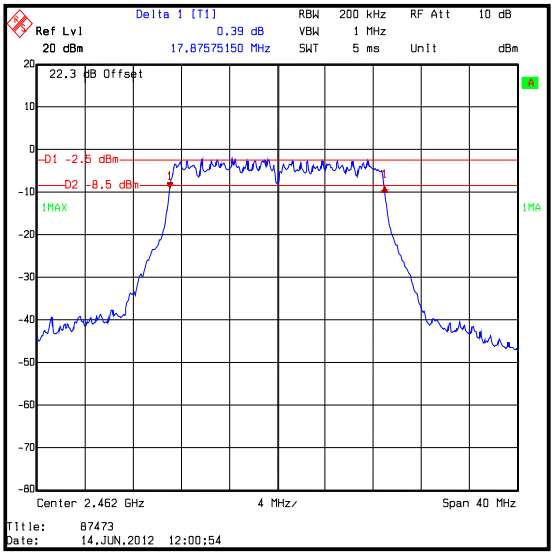
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.956	≥0.5	17.456	Complied
Middle	17.876	≥0.5	17.376	Complied
Top	17.876	≥0.5	17.376	Complied



Bottom channel



Middle channel

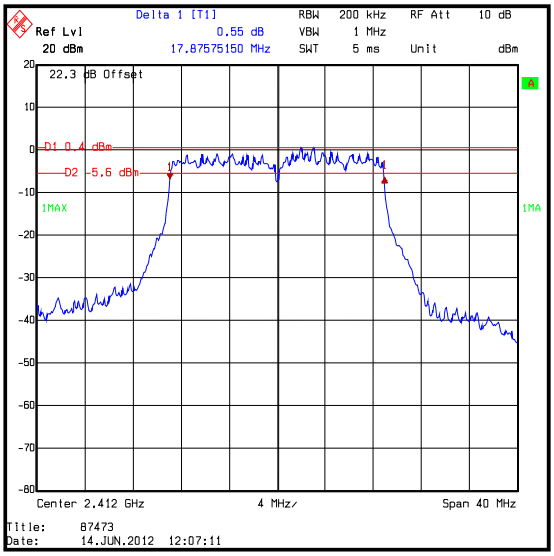


Top channel

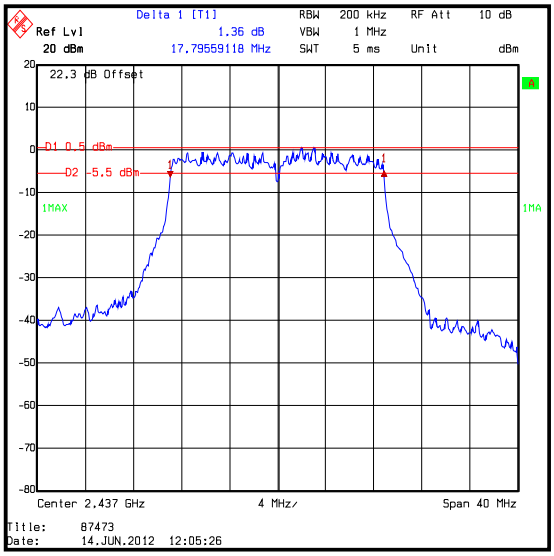
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 65 Mbps

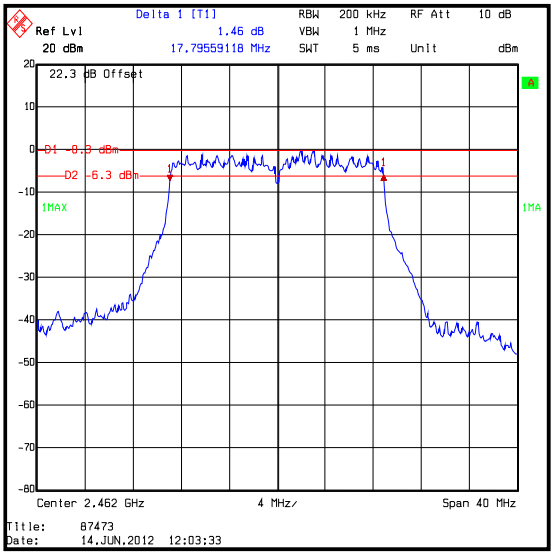
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.876	≥0.5	17.376	Complied
Middle	17.796	≥0.5	17.296	Complied
Top	17.796	≥0.5	17.296	Complied



Bottom channel



Middle channel

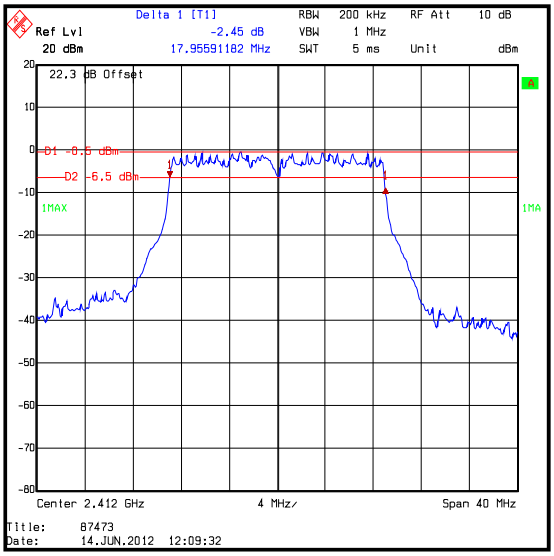


Top channel

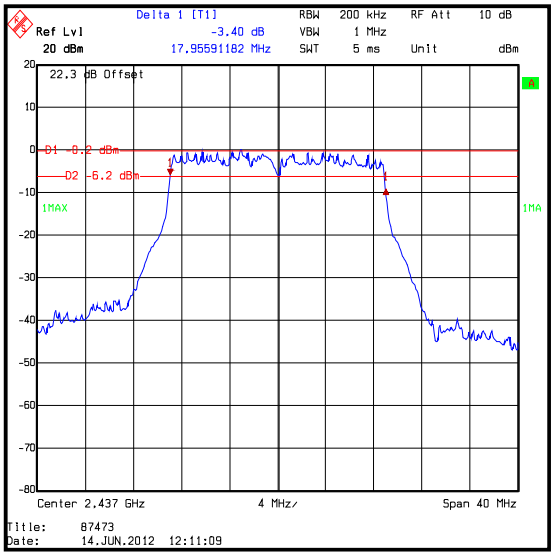
Transmitter 6 dB Bandwidth (continued)

Results: 802.11n / 20 MHz / 72.2 Mbps

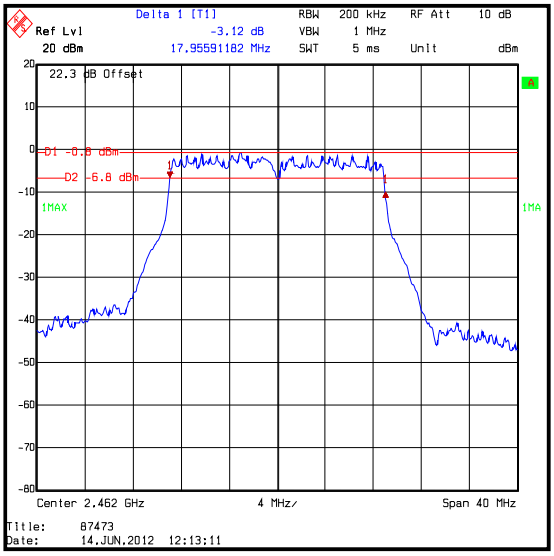
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.956	≥0.5	17.456	Complied
Middle	17.956	≥0.5	17.456	Complied
Top	17.956	≥0.5	17.456	Complied



Bottom channel



Middle channel



Top channel

5.2.5. Transmitter Power Spectral Density

Test Summary:

Test Engineer:	Sarah Williams	**Test Date:**	14 June 2012
Test Sample IMEI:	351807050019168		

FCC Reference:	Part 15.247(e)
Test Method Used:	FCC KDB 558074 Section 5.3.1

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

Note(s):

1. Transmitter Power Spectral Density tests in all bands were performed using a spectrum analyser in accordance with FCC KDB 558074 Section 5.3.1 Measurement Procedure PKPSD.
2. Preliminary tests were made on one frequency for all supported data rates and modulation types to determine worst case operation. Final tests were performed on the bottom, middle and top channels.
3. In accordance with FCC KDB 558074 Section 5.3.1, the measurements were performed using a 100 kHz resolution bandwidth. A Band Width Correction Factor of 15.2 dB was then subtracted from the combined results as the limit is specified in a 3 kHz bandwidth. The correction factor (BWCF) was calculated as shown below:

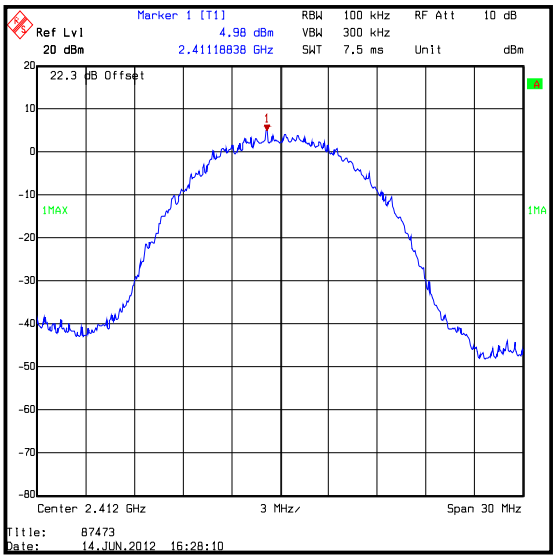
$$10 \log_{10} (3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}.$$

Results: 802.11b / 11 Mbps

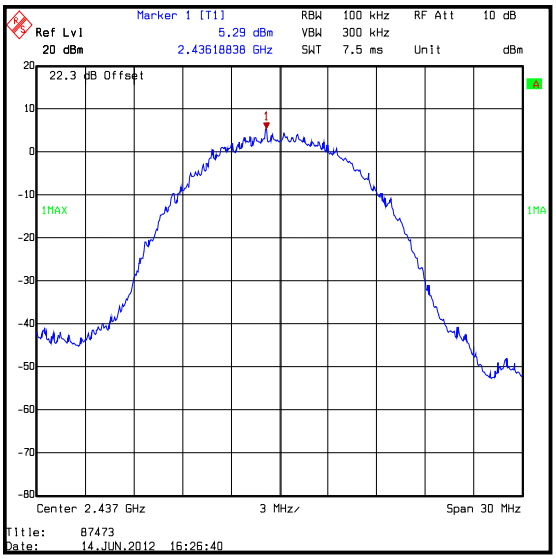
Channel	Output Power (dBm / 100 kHz)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	5.0	-10.2	8.0	18.2	Complied
Middle	5.3	-9.9	8.0	17.9	Complied
Top	4.4	-10.8	8.0	18.8	Complied

Transmitter Power Spectral Density (continued)

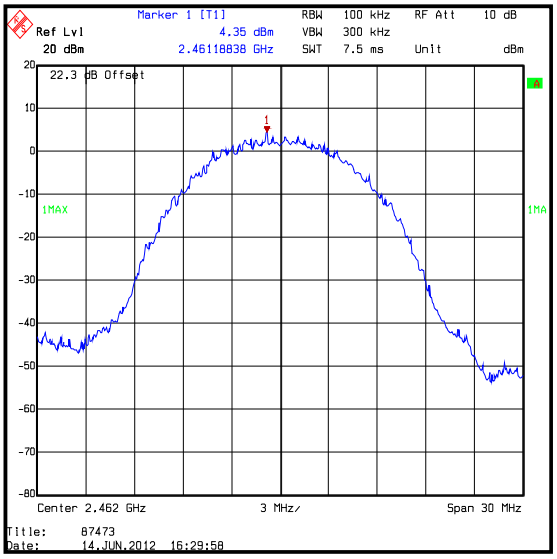
Results: 802.11b / 11 Mbps



Bottom channel



Middle channel



Top channel

5.2.6. Transmitter Maximum Peak Output Power

Test Summary:

Test Engineer:	Sarah Williams	**Test Date:**	11 June 2012
Test Sample IMEI:	351807050019168		

FCC Reference:	Part 15.247(b)(3)
Test Method Used:	FCC KDB 558074 Section 5.2.1.2

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	45

Note(s):

1. Conducted power tests were performed using a spectrum analyser in accordance with FCC KDB 558074 Section 5.2.1.2 Measurement Procedure PK2. The spectrum analyser was connected to the RF port on the EUT using suitable attenuation and RF cable.
2. Each supported modulation type was tested at the highest data rate.

Transmitter Maximum Peak Output Power (continued)

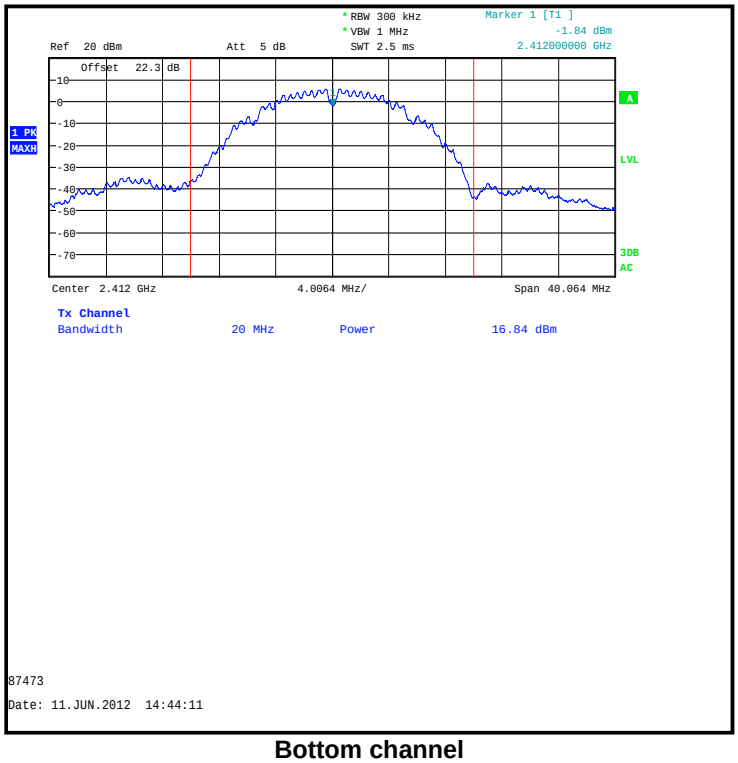
Results: 802.11b / BPSK / 1 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	16.8	30.0	13.2	Complied
Middle	17.1	30.0	12.9	Complied
Top	16.3	30.0	13.7	Complied

De Facto EIRP Limit Comparison

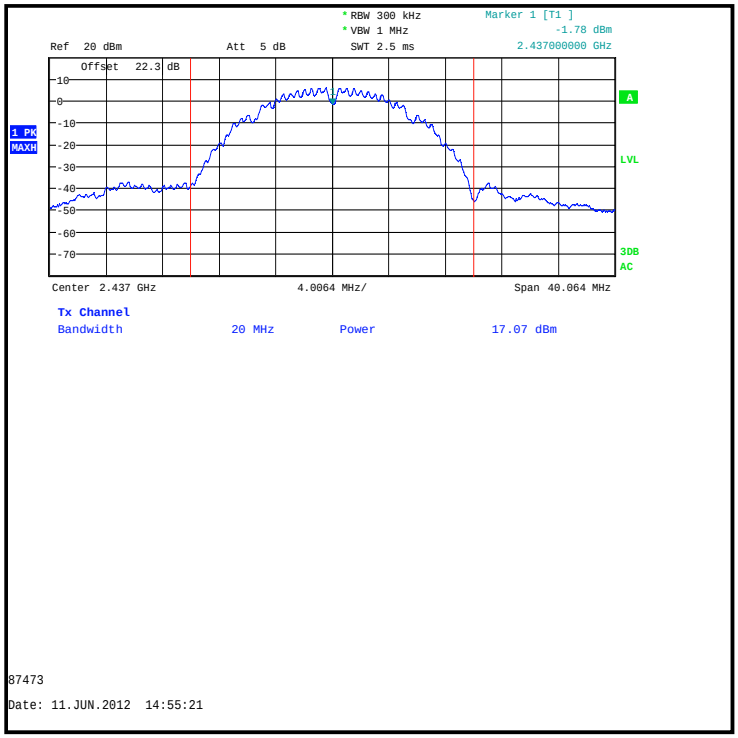
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	16.8	-2.9	13.9	36.0	22.1	Complied
Middle	17.1	-2.9	14.2	36.0	21.8	Complied
Top	16.3	-2.9	13.4	36.0	22.6	Complied



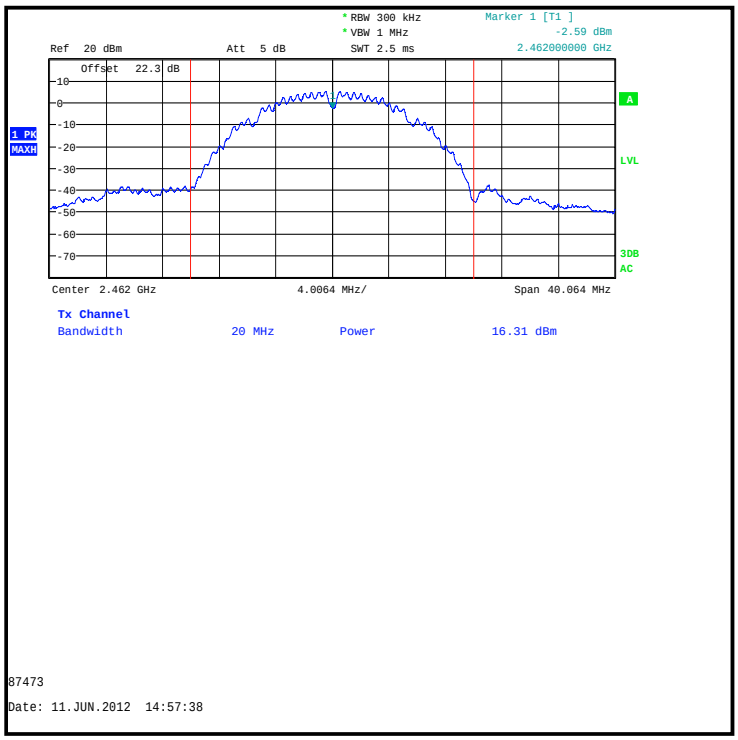
Bottom channel

Transmitter Maximum Peak Output Power (continued)

Results: 802.11b / BPSK / 1 Mbps



Middle channel



Top channel

Transmitter Maximum Peak Output Power (continued)

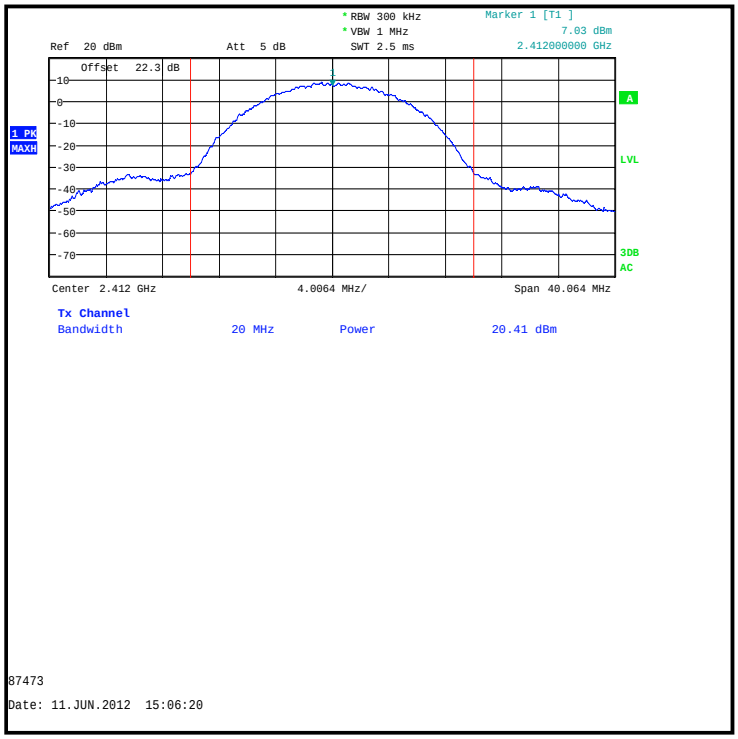
Results: 802.11b / QPSK / 11 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	20.4	30.0	9.6	Complied
Middle	20.7	30.0	9.3	Complied
Top	19.8	30.0	10.2	Complied

De Facto EIRP Limit Comparison

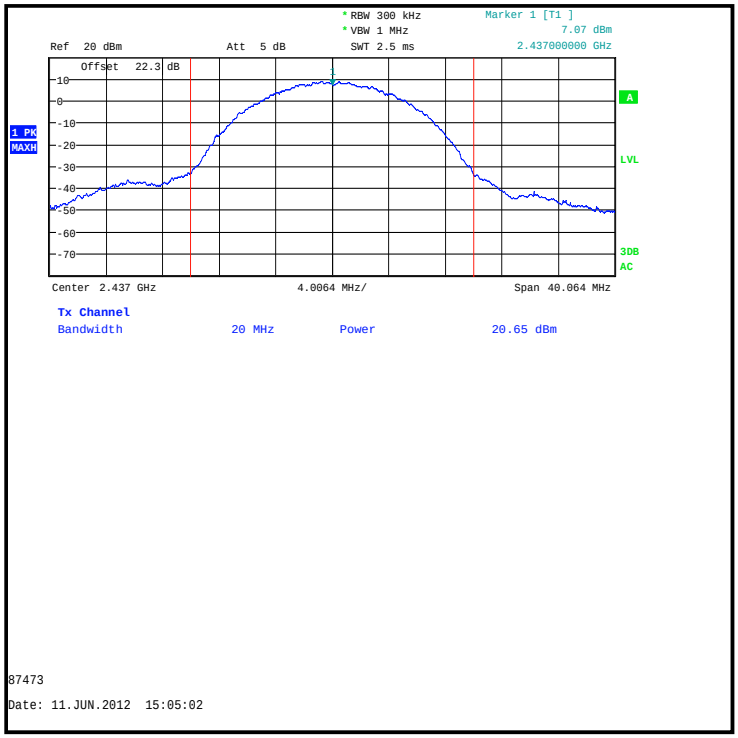
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	20.4	-2.9	17.5	36.0	18.5	Complied
Middle	20.7	-2.9	17.8	36.0	18.2	Complied
Top	19.8	-2.9	16.9	36.0	19.1	Complied



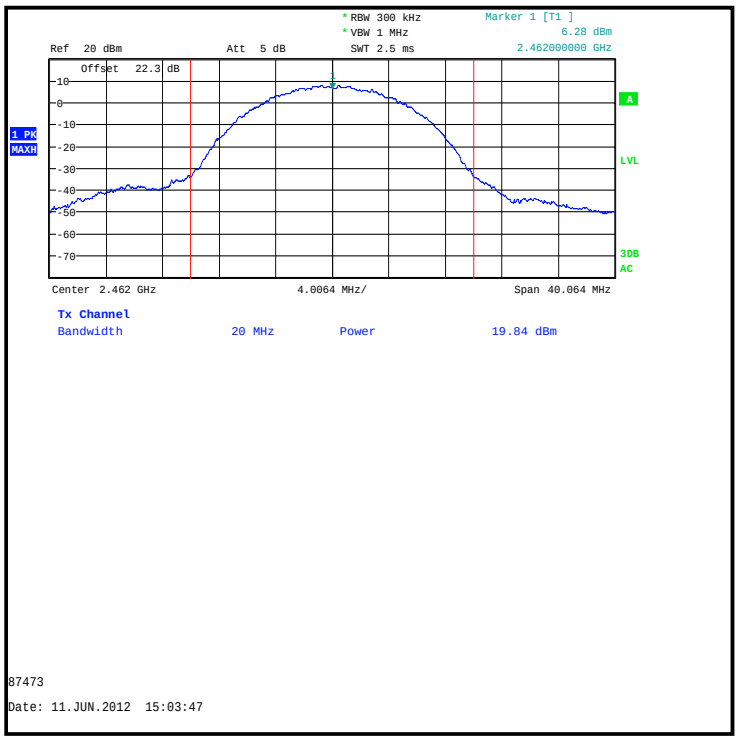
Bottom channel

Transmitter Maximum Peak Output Power (continued)

Results: 802.11b / QPSK / 11 Mbps



Middle channel



Top channel

Transmitter Maximum Peak Output Power (continued)

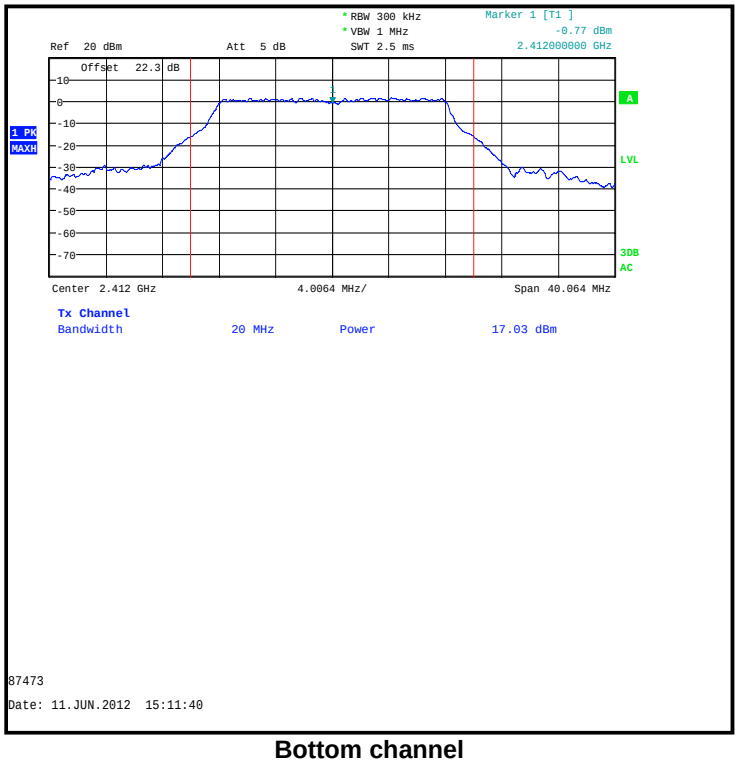
Results: 802.11g / BPSK / 9 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	17.0	30.0	13.0	Complied
Middle	17.3	30.0	12.7	Complied
Top	16.5	30.0	13.5	Complied

De Facto EIRP Limit Comparison

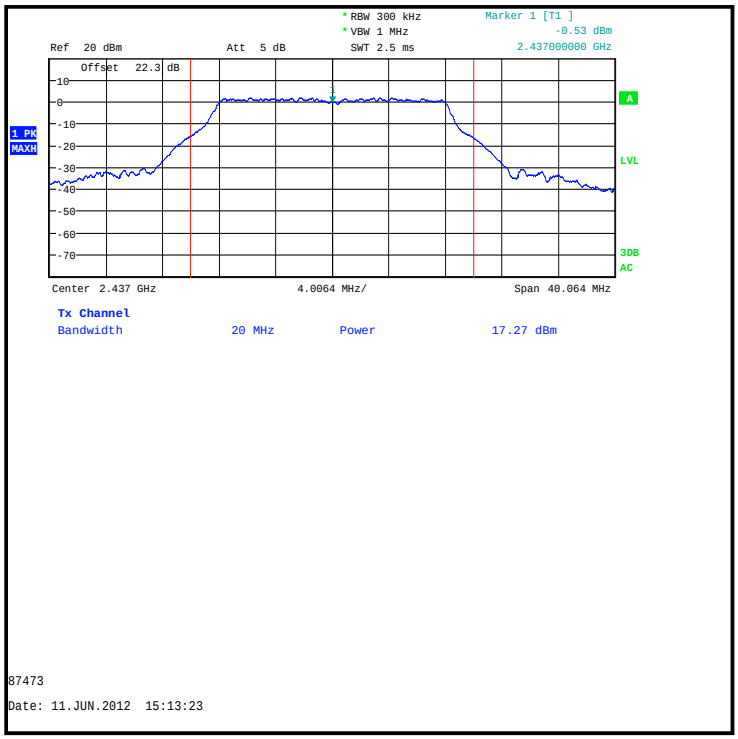
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	17.0	-2.9	14.1	36.0	21.9	Complied
Middle	17.3	-2.9	14.4	36.0	21.6	Complied
Top	16.5	-2.9	13.6	36.0	22.4	Complied



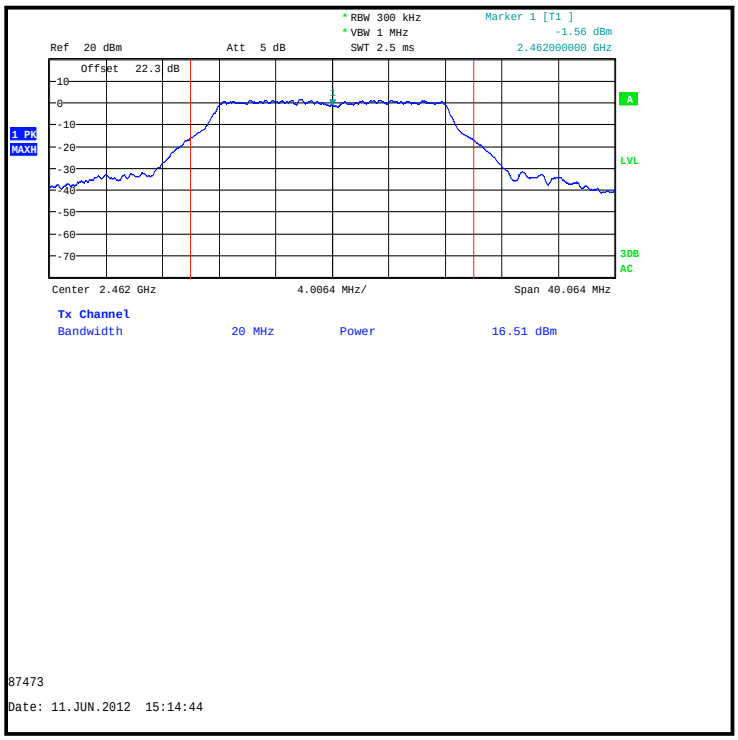
Bottom channel

Transmitter Maximum Peak Output Power (continued)

Results: 802.11g / BPSK / 9 Mbps



Middle channel



Top channel

Transmitter Maximum Peak Output Power (continued)

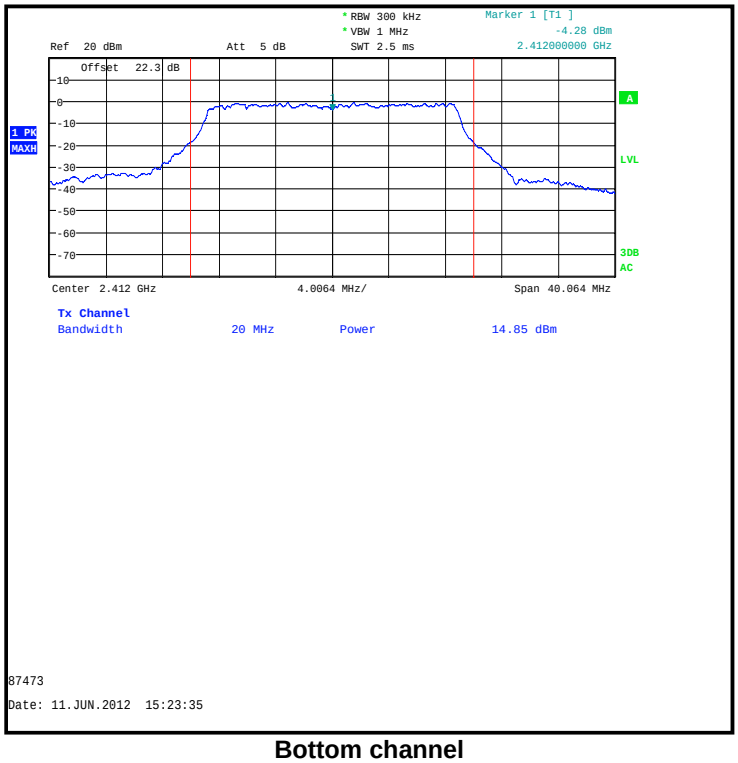
Results: 802.11n / 20 MHz / QPSK / 21.7 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	14.9	30.0	15.1	Complied
Middle	15.1	30.0	14.9	Complied
Top	14.4	30.0	15.6	Complied

De Facto EIRP Limit Comparison

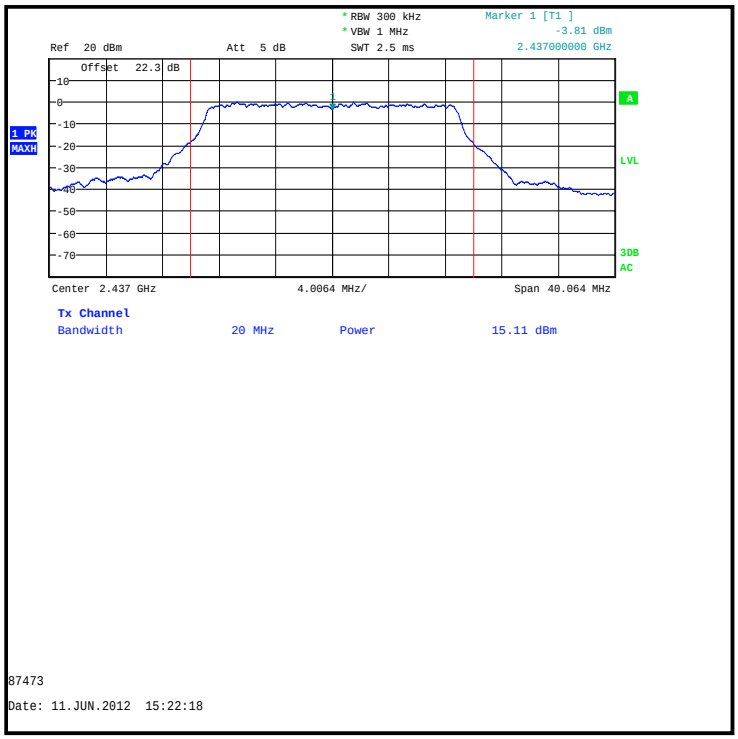
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	14.9	-2.9	12.0	36.0	24.0	Complied
Middle	15.1	-2.9	12.2	36.0	23.8	Complied
Top	14.4	-2.9	11.5	36.0	24.5	Complied



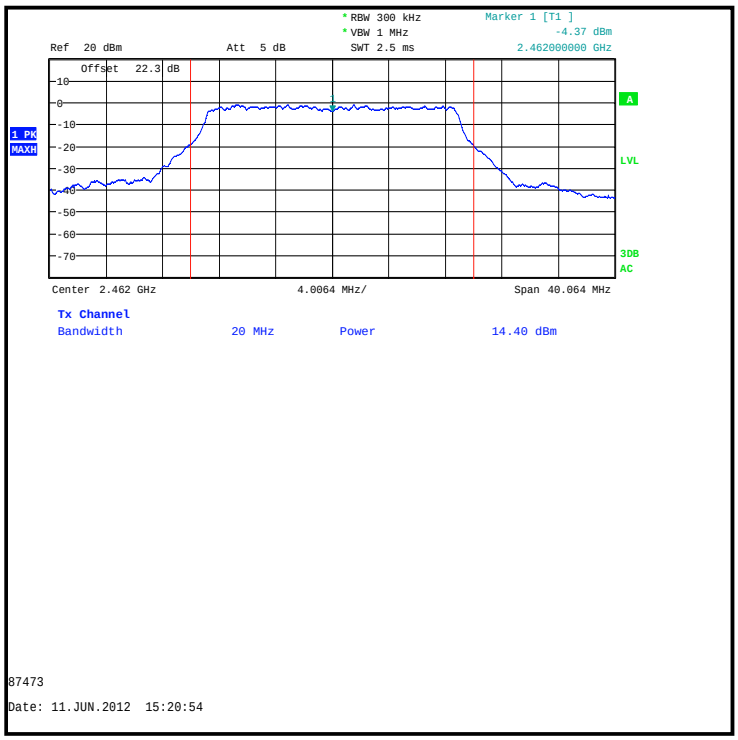
Bottom channel

Transmitter Maximum Peak Output Power (continued)

Results: 802.11n / 20 MHz / QPSK / 21.7 Mbps



Middle channel



Top channel

Transmitter Maximum Peak Output Power (continued)

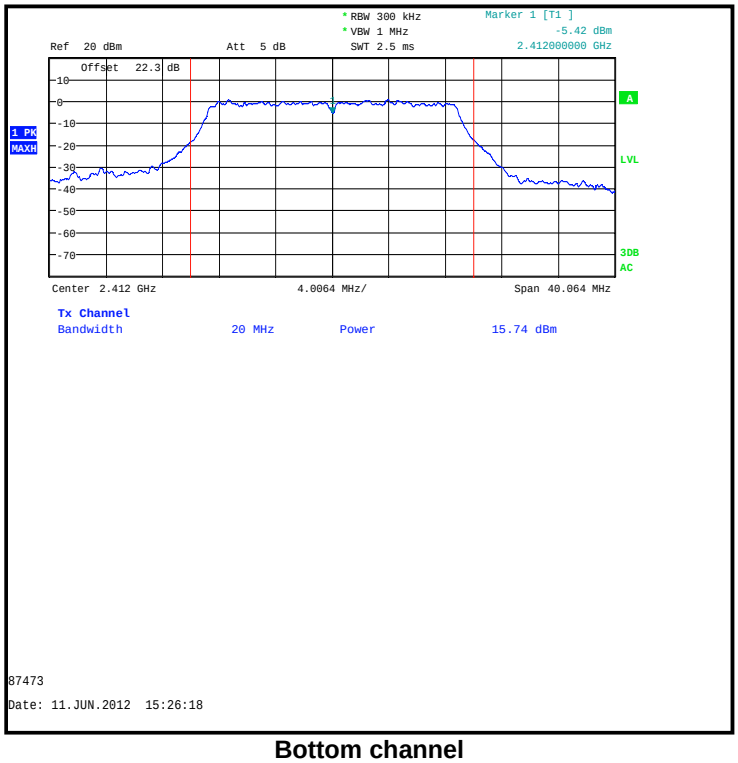
Results: 802.11n / 20 MHz / 16QAM / 43.3 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	15.7	30.0	14.3	Complied
Middle	16.0	30.0	14.0	Complied
Top	15.3	30.0	14.7	Complied

De Facto EIRP Limit Comparison

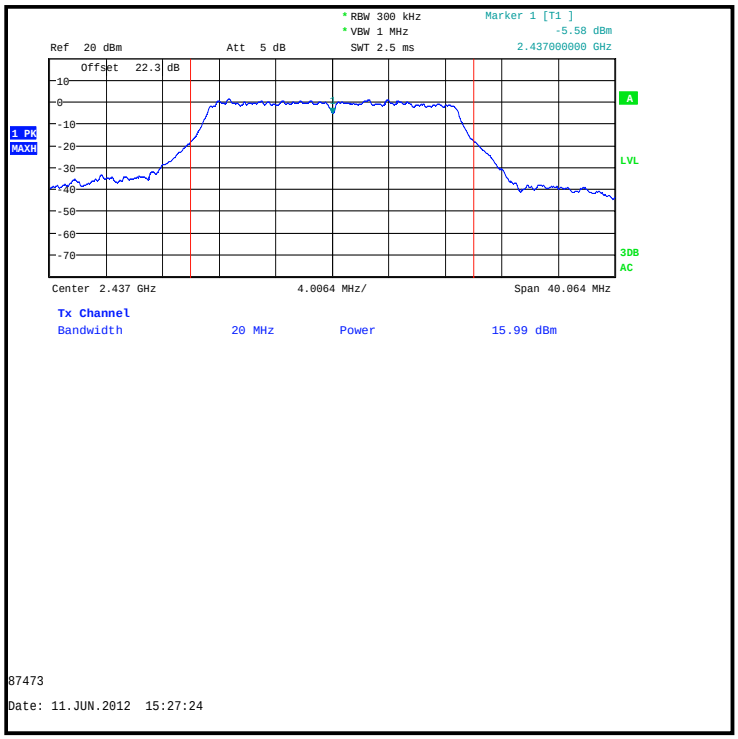
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	15.7	-2.9	12.8	36.0	23.2	Complied
Middle	16.0	-2.9	13.1	36.0	22.9	Complied
Top	15.3	-2.9	12.4	36.0	23.6	Complied



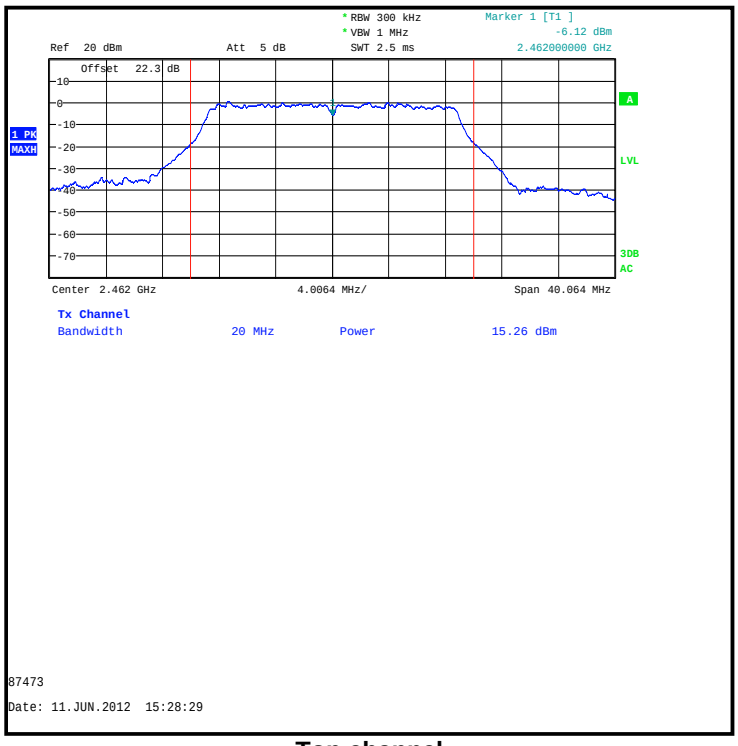
Bottom channel

Transmitter Maximum Peak Output Power (continued)

Results: 802.11n / 20 MHz / 16QAM / 43.3 Mbps



Middle channel



Top channel

Transmitter Maximum Peak Output Power (continued)

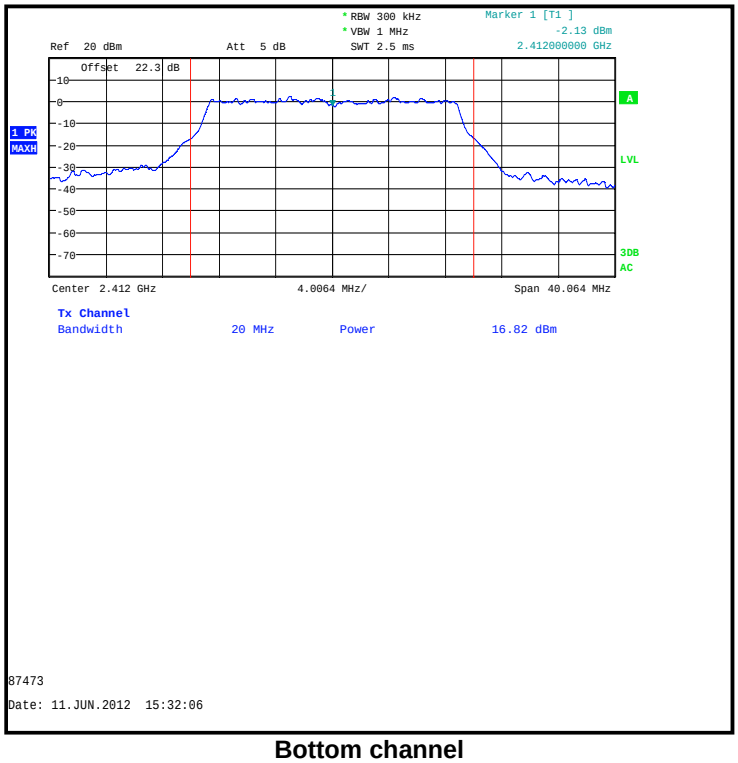
Results: 802.11n / 20 MHz / 64QAM / 72.2 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	16.8	30.0	13.2	Complied
Middle	17.1	30.0	12.9	Complied
Top	16.3	30.0	13.7	Complied

De Facto EIRP Limit Comparison

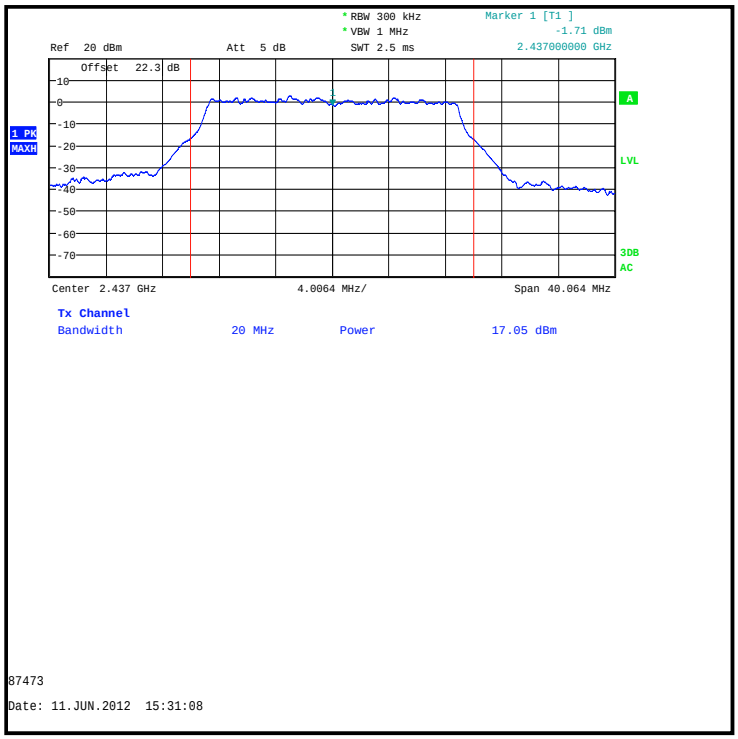
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	16.8	-2.9	13.9	36.0	22.1	Complied
Middle	17.1	-2.9	14.2	36.0	21.8	Complied
Top	16.3	-2.9	13.4	36.0	22.6	Complied



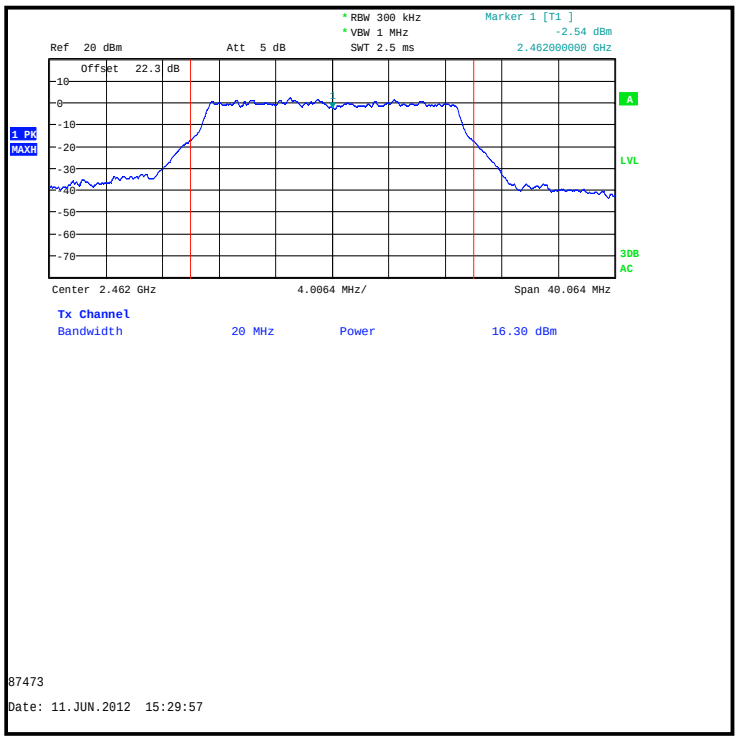
Bottom channel

Transmitter Maximum Peak Output Power (continued)

Results: 802.11n / 20 MHz / 64QAM / 72.2 Mbps



Middle channel



Top channel

5.2.7. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	11 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.247(d) & 15.209(a)
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 (%):	37

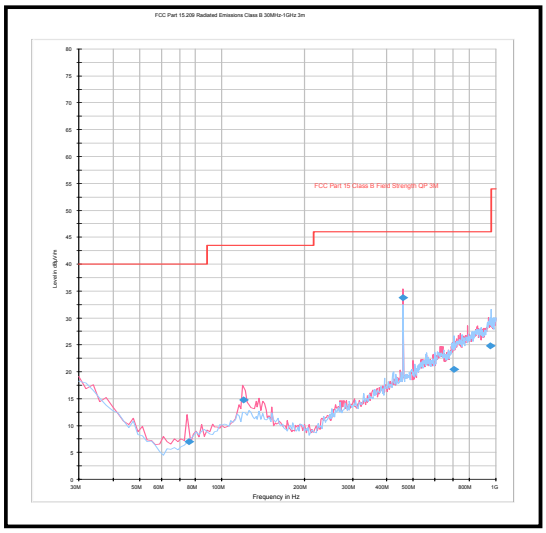
Results: Top Channel / 802.11b / 11 Mbps

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
120.010	Vertical	14.7	43.5	28.8	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:**	12 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.247(d) & 15.209(a)
Test Method Used:	FCC KDB 558074 D01 Section 5.4 & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range	1 GHz to 25 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

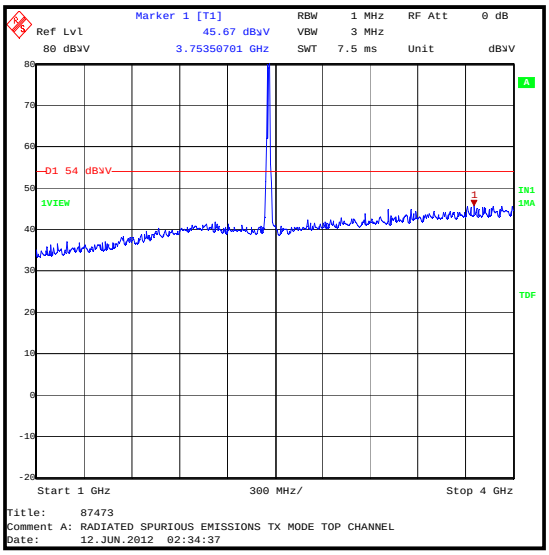
Results:

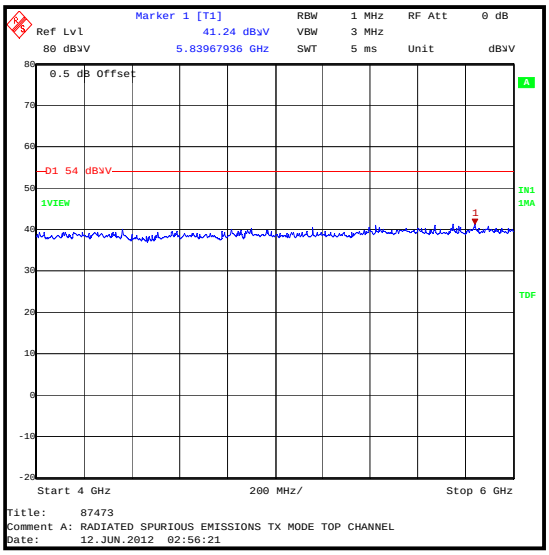
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
24915.832	Vertical	49.2	54.0	4.8	Complied

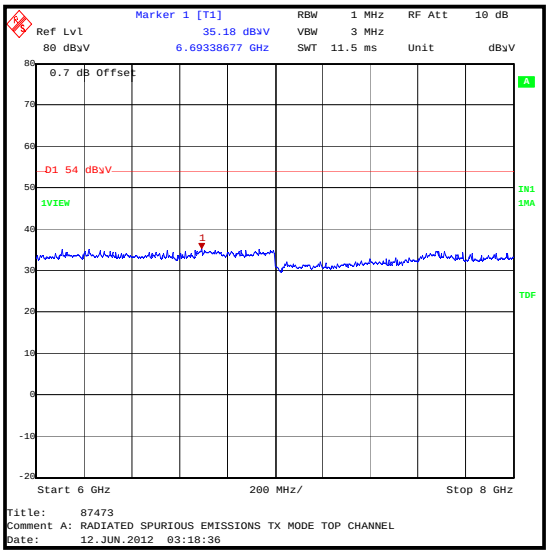
Note(s):

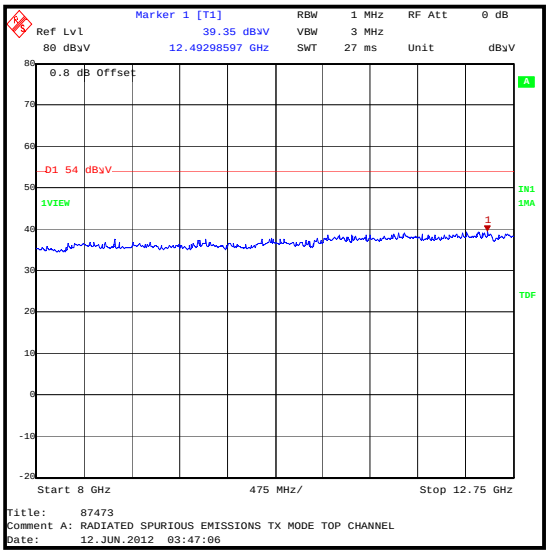
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded 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.
3. The emission shown at 2462 MHz on the 1 GHz to 4 GHz plot is the EUT fundamental.
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 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)

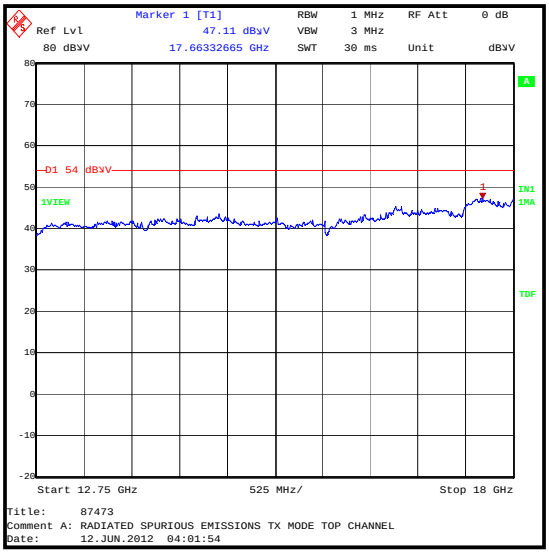


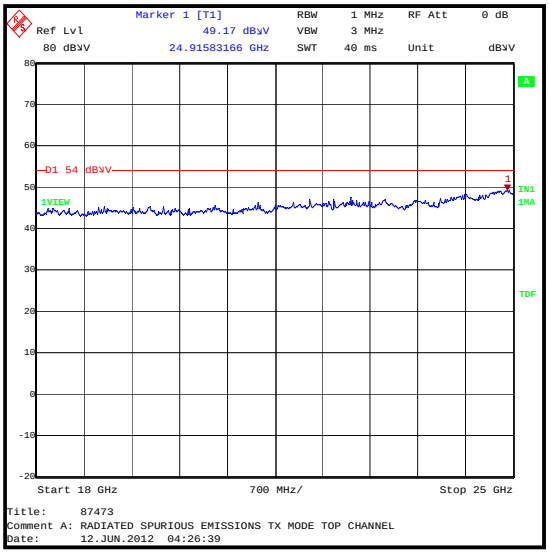






Transmitter Radiated Emissions (continued)





5.2.8. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineers:	David Doyle & Andrew Edwards	**Test Dates:**	12 June 2012 & 13 June 2012
Test Sample IMEI:	351807050018897		

FCC Reference:	Part 15.247(d) & 15.209(a)
Test Method Used:	FCC KDB 558074 D01 Section 5.4 & ANSI C63.10 Section 6.9.2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	39

Note(s):

1. The final measured value, for the given emission in the tables below, incorporates the calibrated antenna factor and cable loss.
2. The highest data rate for each supported modulation type was tested.
3. *-20 dBc limit applied.

Results: Peak / 802.11b / BPSK / 1 Mbps

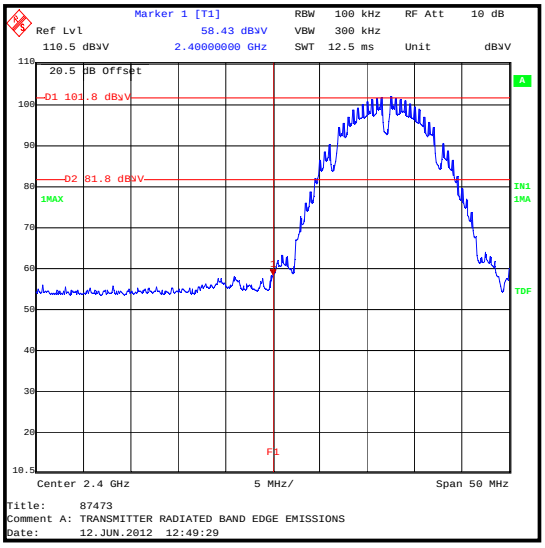
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400	58.4	81.8*	22.7	Complied
2483.5	61.8	74.0	12.2	Complied

Results: Average / 802.11b / BPSK / 1 Mbps

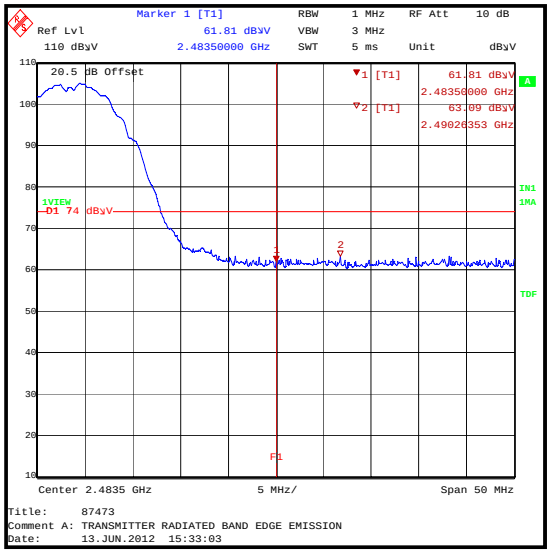
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	49.0	54.0	5.0	Complied

Transmitter Band Edge Radiated Emissions (continued)

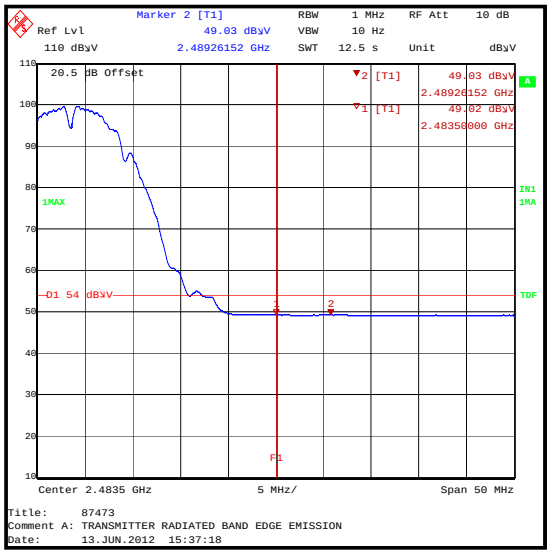
Results: 802.11b / BPSK / 1 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

Results: Peak / 802.11b / QPSK / 11 Mbps

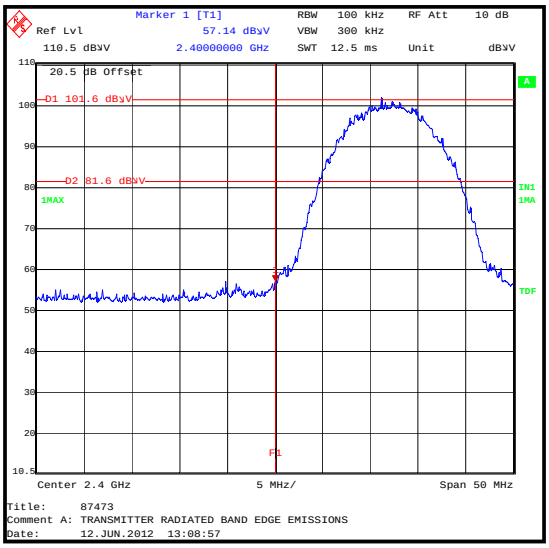
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	57.1	81.6*	24.5	Complied
2483.5	62.0	74.0	12.0	Complied
2505.4	63.8	74.0	10.2	Complied

Results: Average / 802.11b / QPSK / 11 Mbps

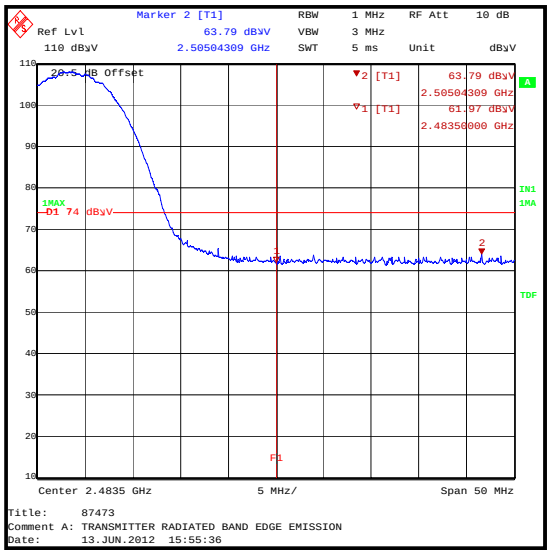
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.0	54.0	5.0	Complied

Transmitter Band Edge Radiated Emissions (continued)

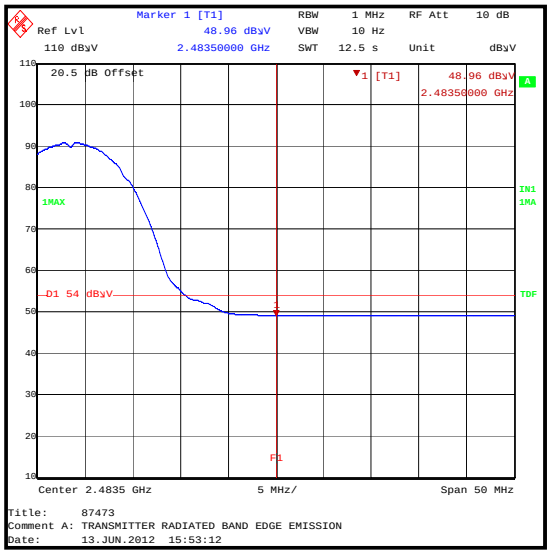
Results: 802.11b / QPSK / 11 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

Results: Peak / 802.11g / BPSK / 9 Mbps

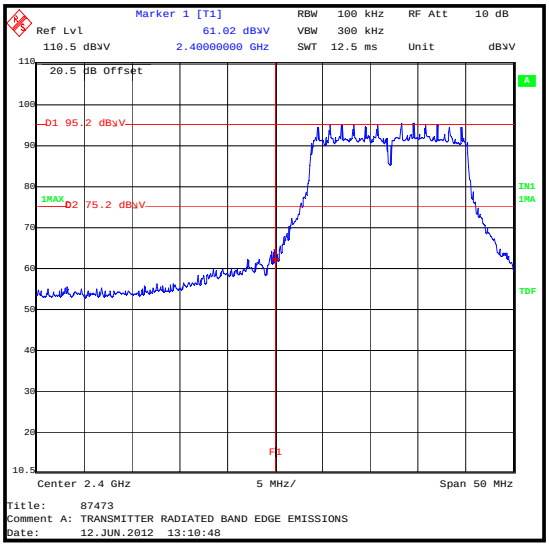
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	61.0	75.2*	14.2	Complied
2483.5	70.6	74.0	3.4	Complied

Results: Average / 802.11g / BPSK / 9 Mbps

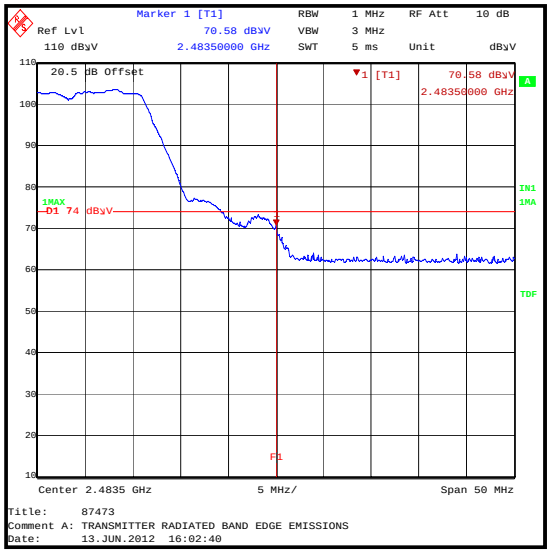
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	50.0	54.0	4.0	Complied

Transmitter Band Edge Radiated Emissions (continued)

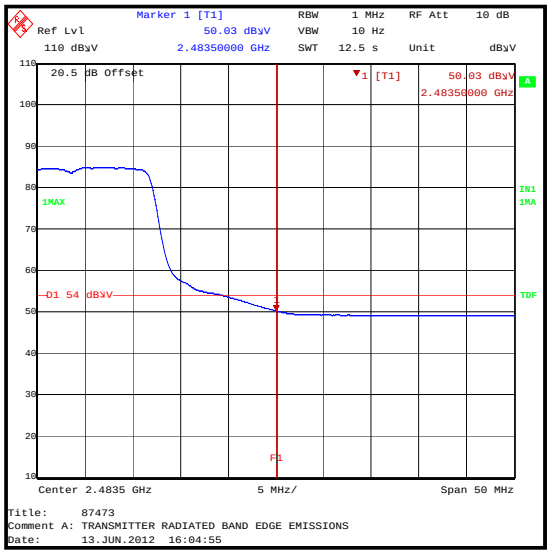
Results: 802.11g / BPSK / 9 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

Results: Peak / 802.11n / 20 MHz / QPSK / 21.7 Mbps

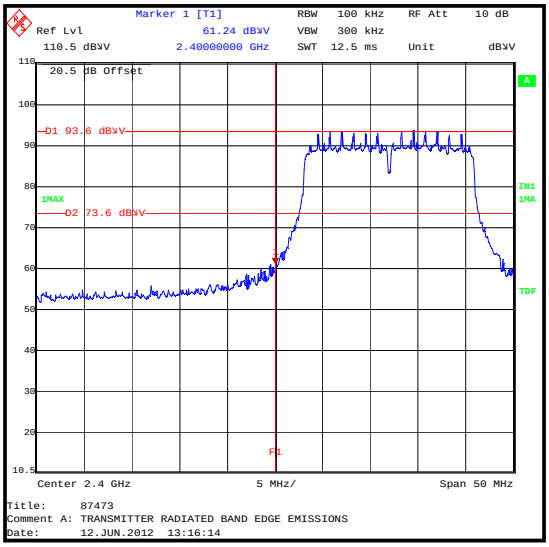
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	61.2	73.6*	12.4	Complied
2483.5	63.1	74.0	10.5	Complied
2487.6	64.2	74.0	9.4	Complied

Results: Average / 802.11n / 20 MHz / QPSK / 21.7 Mbps

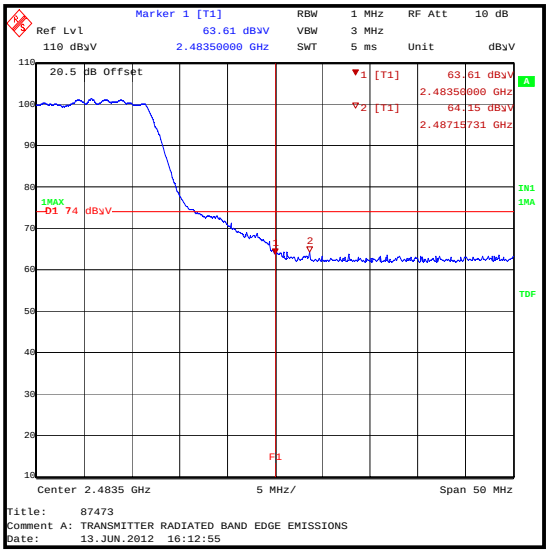
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.2	54.0	4.8	Complied

Transmitter Band Edge Radiated Emissions (continued)

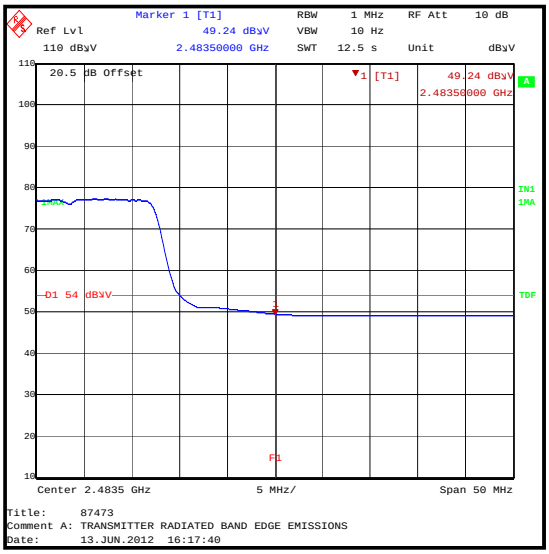
Results: 802.11n / 20 MHz / QPSK / 21.7 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

Results: Peak / 802.11n / 20 MHz / 16QAM / 43.3 Mbps

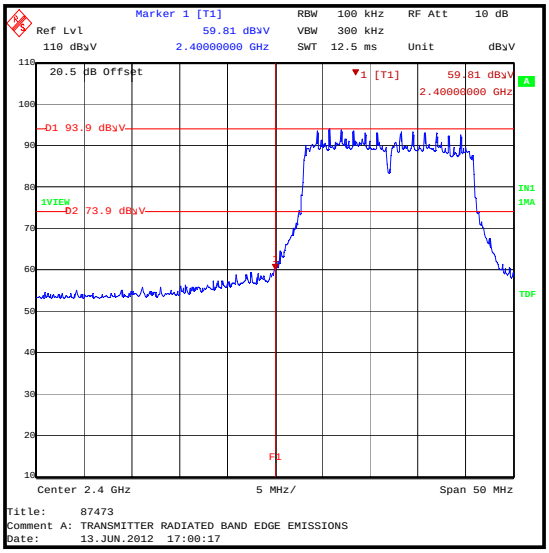
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	59.8	73.9*	14.1	Complied
2483.5	65.9	74.0	8.1	Complied

Results: Average / 802.11n / 20 MHz / 16QAM / 43.3 Mbps

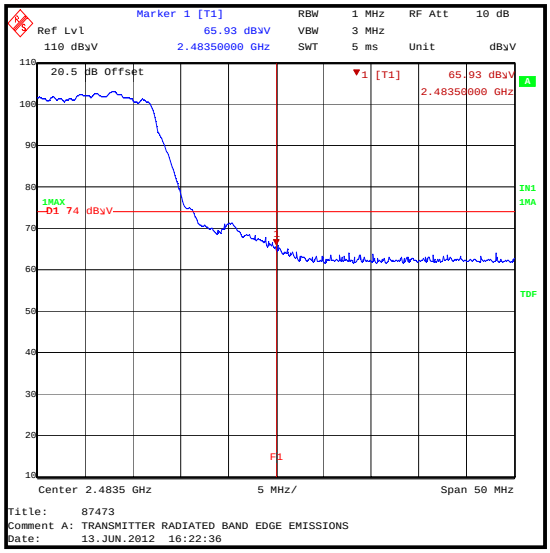
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.4	54.0	4.6	Complied

Transmitter Band Edge Radiated Emissions (continued)

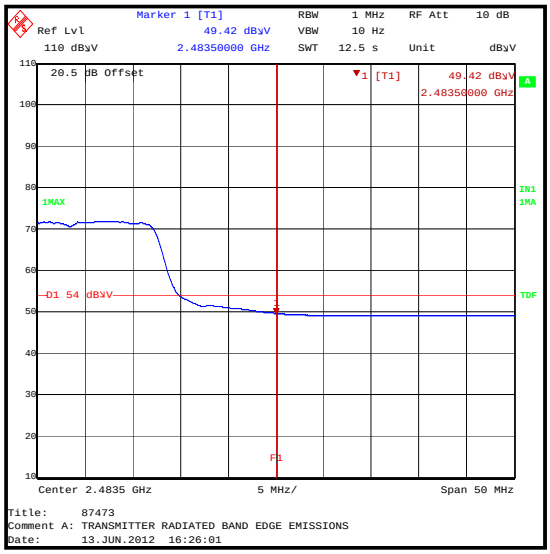
Results: 802.11n / 20 MHz / 16QAM / 43.3 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

Results: Peak / 802.11n / 20 MHz / 64QAM / 72.2 Mbps

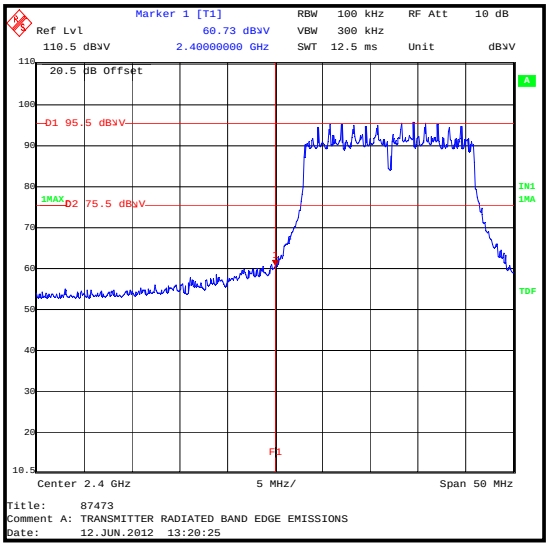
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	60.7	75.5*	14.8	Complied
2483.5	66.5	74.0	7.5	Complied

Results: Average / 802.11n / 20 MHz / 64QAM / 72.2 Mbps

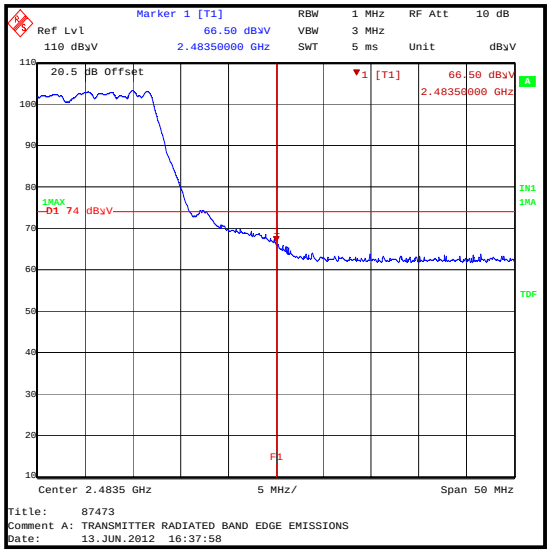
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.6	54.0	4.4	Complied

Transmitter Band Edge Radiated Emissions (continued)

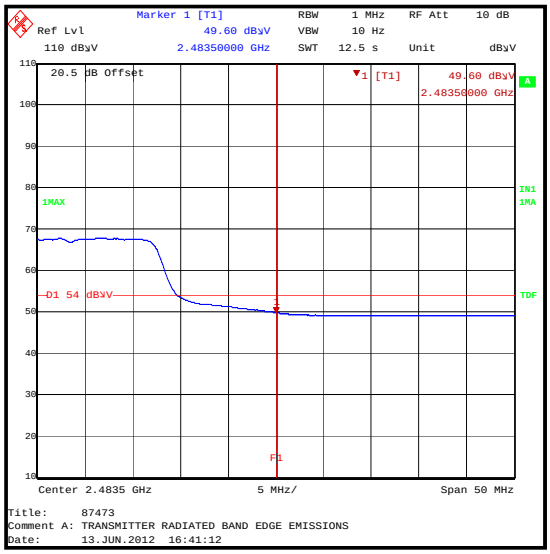
Results: 802.11n / 20 MHz / 64QAM / 72.2 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

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%	±3.25 dB
Conducted Maximum Peak Output Power	2.4 GHz to 2.4835 GHz	95%	±0.28 dB
Spectral Power Density	2.4 GHz to 2.4835 GHz	95%	±2.62 dB
6 dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 25 GHz	95%	±2.94 dB

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)
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	09 Oct 2012	12
A1818	Antenna	EMCO	3115	00075692	09 Oct 2012	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	25 Feb 2013	12
A1834	Attenuator	Hewlett Packard	8491B	10444	29 Jan 2013	12
A1975	High Pass Filter	AtlanTecRF	AFH-03000	090424010	15 Mar 2013	12
A1999	Attenuator	Huber & Suhner	6820.17.B	07101	03 Apr 2013	12
A253	Antenna	Flann Microwave	12240-20	128	09 Oct 2012	12
A254	Antenna	Flann Microwave	14240-20	139	09 Oct 2012	12
A255	Antenna	Flann Microwave	16240-20	519	09 Oct 2012	12
A256	Antenna	Flann Microwave	18240-20	400	09 Oct 2012	12
A436	Antenna	Flann	20240-20	330	09 Oct 2012	12
A553	Antenna	Chase	CBL6111A	1593	15 Feb 2013	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	19 Apr 2013	12
G0543	Amplifier	Sonoma	310N	230801	13 Jul 2012	3
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	31 Aug 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	09 Oct 2012	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1269	DMM	Fluke	179	90250210	20 Jul 2012	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	08 Nov 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	03 Feb 2013	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	20 Sep 2012	12
M1630	Test Receiver	Rohde & Schwarz	ESU40	100233	06 Feb 2013	12
S0523	PSU	TTi	PL320	224235	Calibrated before use	-

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