Report On

FCC Testing of the Sharp Quad-band LTE (B1/ B3/ B17/ B26), Dual-band WCDMA (FDD I / V) , Quad-band GSM (850/900/1800/1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS in accordance with FCC 47 CFR Part 15C (WLAN and Bluetooth Low Energy)

COMMERCIAL-IN-CONFIDENCE

FCC ID: APYHRO00243

Document 75935599 Report 18 Issue 1 September 2016

Product Service

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COMMERCIAL-IN-CONFIDENCE

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Document 75935599 Report 18 Issue 1

September 2016

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DATED 23 September 2016

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler D Ralley M Russell

UKAS TESTING 0141

Product Service

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Product Service

SECTION 1

REPORT SUMMARY

FCC Testing of the
Sharp Quad-band LTE (B1/ B3/ B17/ B26), Dual-band WCDMA (FDD I / V) , Quad-band GSM (850/900/1800/1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS
In accordance with FCC 47 CFR Part 15C (WLAN and Bluetooth Low Energy)

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1.1 INTRODUCTION

The information contained in this report is intended to show the verification of FCC Testing of the Sharp Quad-band LTE (B1/ B3/ B17/ B26), Dual-band WCDMA (FDD I / V) , Quad-band GSM (850/900/1800/1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS to the requirements of FCC 47 CFR Part 15C.

Objective	To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Sharp Corporation
Serial Number(s)	IMEI 004401115905446 IMEI 004401115905206 IMEI 004401115905404
Number of Samples Tested	3
Test Specification/Issue/Date	FCC 47 CFR Part 15C (2015)
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	10879 18 July 2016
Start of Test	16 August 2016
Finish of Test	5 September 2016
Name of Engineer(s)	G Lawler D Ralley M Russell
Related Document(s)	ANSI C63.10: 2013

Product Service

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
802.11b				
2.1	15.207	AC Line Conducted Emissions	Pass	
2.2	15.247 (a)(2)	6 dB Bandwidth	Pass	
2.3	15.247 (b)(3)	Maximum Conducted Output Power	Pass	
2.4	15.247 (d), 15.205 and 15.209	Spurious Radiated Emissions	Pass	
2.5	15.205	Restricted Band Edges	Pass	
2.6	15.247 (d)	Authorised Band Edges	Pass	
2.7	15.247 (e)	Power Spectral Density	Pass	
802.11g				
2.2	15.247 (a)(2)	6 dB Bandwidth	Pass	
2.3	15.247 (b)(3)	Maximum Conducted Output Power	Pass	
2.4	15.247 (d), 15.205 and 15.209	Spurious Radiated Emissions	Pass	
2.5	15.205	Restricted Band Edges	Pass	
2.6	15.247 (d)	Authorised Band Edges	Pass	
2.7	15.247 (e)	Power Spectral Density	Pass	

Product Service

Section	Specification Clause	Test Description	Result	Comments/Base Standard
802.11n				
2.2	15.247 (a)(2)	6 dB Bandwidth	Pass	
2.3	15.247 (b)(3)	Maximum Conducted Output Power	Pass	
2.4	15.247 (d), 15.205 and 15.209	Spurious Radiated Emissions	Pass	
2.5	15.205	Restricted Band Edges	Pass	
2.6	15.247 (d)	Authorised Band Edges	Pass	
2.7	15.247 (e)	Power Spectral Density	Pass	
Bluetooth Low Energy				
2.2	15.247 (a)(2)	6 dB Bandwidth	Pass	
2.3	15.247 (b)(3)	Maximum Conducted Output Power	Pass	
2.4	15.247 (d), 15.205 and 15.209	Spurious Radiated Emissions	Pass	
2.5	15.205	Restricted Band Edges	Pass	
2.6	15.247 (d)	Authorised Band Edges	Pass	
2.7	15.247 (e)	Power Spectral Density	Pass	

1.3 PRODUCT TECHNICAL DESCRIPTION

Refer to Model Description APYHRO00243 Rev 4.0 document.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Sharp Quad-band LTE (B1/ B3/ B17/ B26), Dual-band WCDMA (FDD I / V) , Quad-band GSM (850/900/1800/1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 4.0 V DC supply.

FCC Measurement Facility Registration Number
90987 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard or test plan were made during testing.

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.

Product Service

SECTION 2

TEST DETAILS

FCC Testing of the
Sharp Quad-band LTE (B1/ B3/ B17/ B26), Dual-band WCDMA (FDD I / V) , Quad-band GSM (850/900/1800/1900) & WiMAX2+ (TDD41) multi mode Smart phone with Bluetooth, WLAN, SRD(NFC,FeliCa) and GPS
In accordance with FCC 47 CFR Part 15C (WLAN and Bluetooth Low Energy)

2.1 AC LINE CONDUCTED EMISSIONS

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.207

2.1.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905446 - Modification State 0

2.1.3 Date of Test

5 September 2016

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

The test was performed in accordance with ANSI C63.10, Clause 6.2.

Remarks

A mains supply cable of 1 m length was used to supply mains power to the EUT from the LISN.

All final measurements were assessed against the Class B emission limits in FCC 47 CFR Part 15, Clause 15.207.

2.1.6 Environmental Conditions

Ambient Temperature	20.0°C
Relative Humidity	73.0%

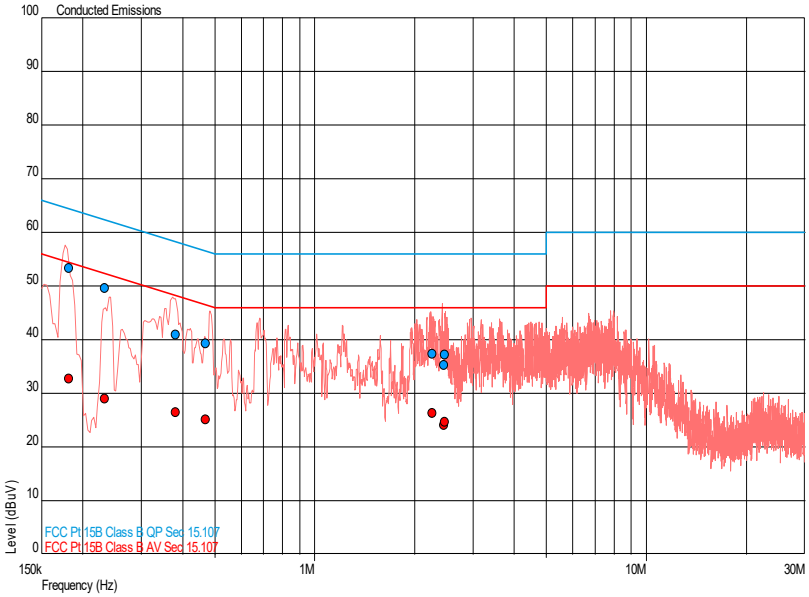
Product Service

2.1.7 Test Results

802.11b, Live Line, AC Line Conducted Emissions Result

Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dBµV)	AV Level (dBµV)	AV Limit (dBµV)	AV Margin (dBµV)
0.182	53.3	64.4	-11.1	32.7	54.4	-21.7
0.233	49.6	62.3	-12.7	29.0	52.3	-23.4
0.380	41.0	58.3	-17.3	26.5	48.3	-21.8
0.469	39.3	56.5	-17.2	25.2	46.5	-21.3
2.256	37.4	56.0	-18.6	26.3	46.0	-19.7
2.448	35.3	56.0	-20.7	24.0	46.0	-22.0
2.462	37.2	56.0	-18.8	24.6	46.0	-21.4

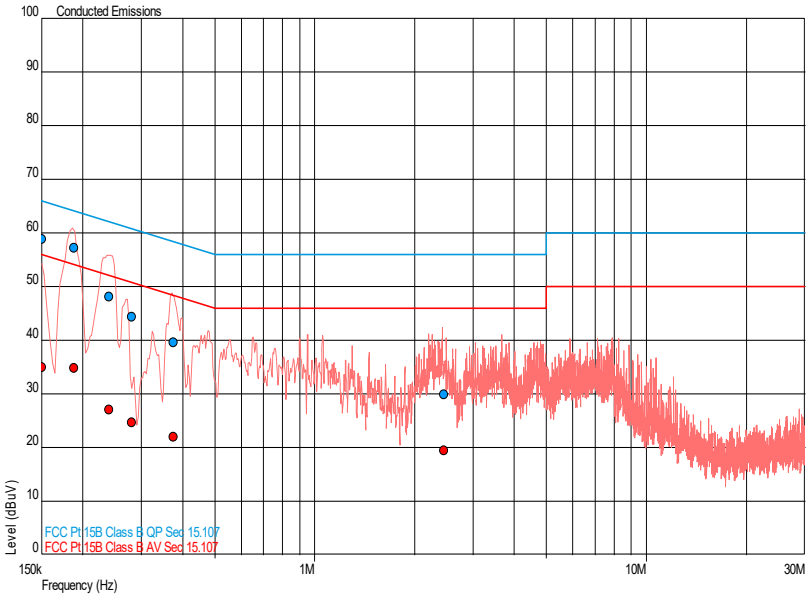
802.11b, Live Line, AC Line Conducted Emissions Plot



802.11b, Neutral Line, AC Line Conducted Emissions Result

Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dBµV)	AV Level (dBµV)	AV Limit (dBµV)	AV Margin (dBµV)
0.150	58.9	66.0	-7.1	35.0	56.0	-21.0
0.188	57.3	64.1	-6.9	34.8	54.1	-19.3
0.240	48.2	62.1	-13.9	27.1	52.1	-25.0
0.280	44.5	60.8	-16.3	24.7	50.8	-26.1
0.374	39.6	58.4	-18.8	22.0	48.4	-26.4
2.451	29.9	56.0	-26.1	19.4	46.0	-26.6

802.11b, Neutral Line, AC Line Conducted Emissions Plot



FCC 47 CFR Part 15, Limit Clause 15.207

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50

*Decreases with the logarithm of the frequency.

Product Service

2.2 6 dB BANDWIDTH

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(2)

2.2.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905206 - Modification State 0

2.2.3 Date of Test

18 August 2016 & 19 August 2016

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The test was performed in accordance with ANSI C63.10, 6.9.2 and 11.8.

Remarks

Preliminary checks were performed to determine the data rate with the widest bandwidth.

2.2.6 Environmental Conditions

Ambient Temperature	21.2 - 22.2°C
Relative Humidity	55.1 - 67.5%

Product Service

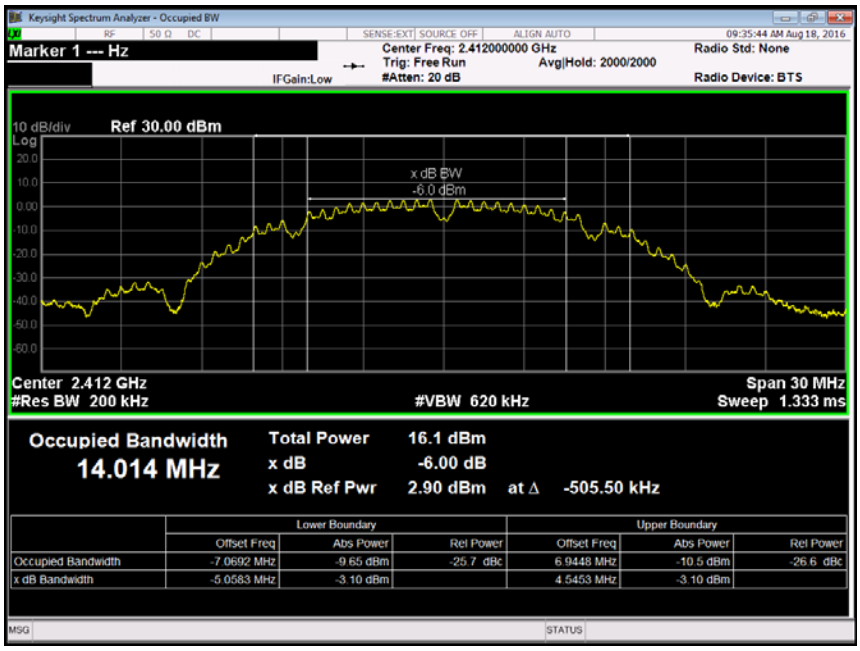
2.2.7 Test Results

4.0 V DC Supply

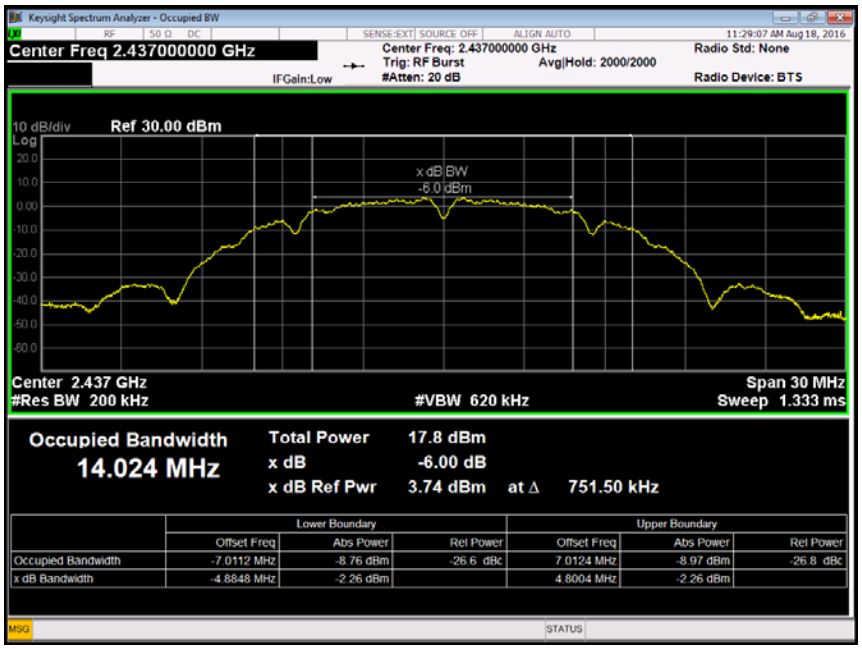
802.11b, DSSS, 5.5 Mbps, 6 dB Bandwidth Results

2412 MHz	2437 MHz	2462 MHz
kHz	kHz	kHz
9603.6	9685.2	9603.9

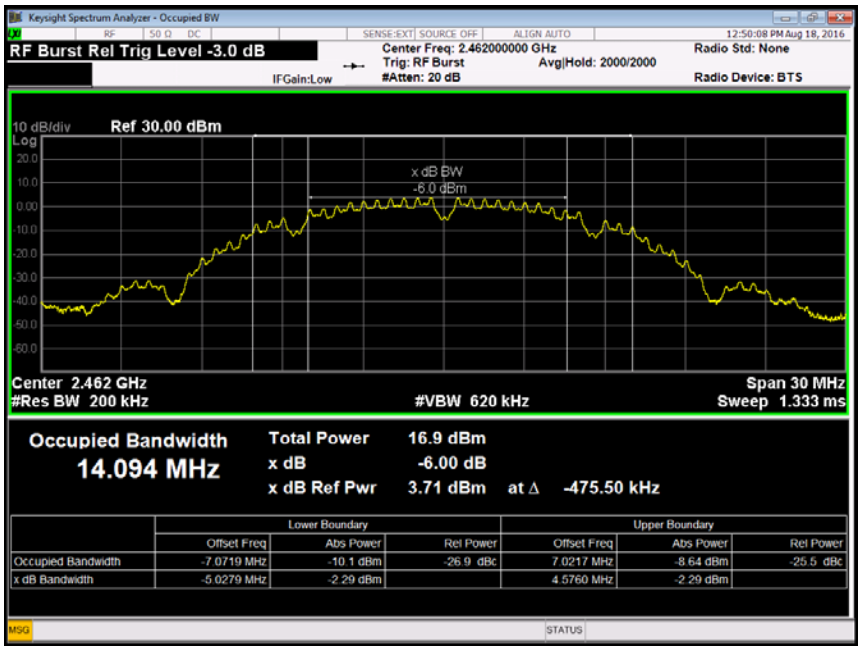
802.11b, 2412 MHz, DSSS, 5.5 Mbps, 6 dB Bandwidth Plot



802.11b, 2437 MHz, DSSS, 5.5 Mbps, 6 dB Bandwidth Plot



802.11b, 2462 MHz, DSSS, 5.5 Mbps, 6 dB Bandwidth Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (a)(2)

The minimum 6 dB Bandwidth shall be at least 500 kHz.

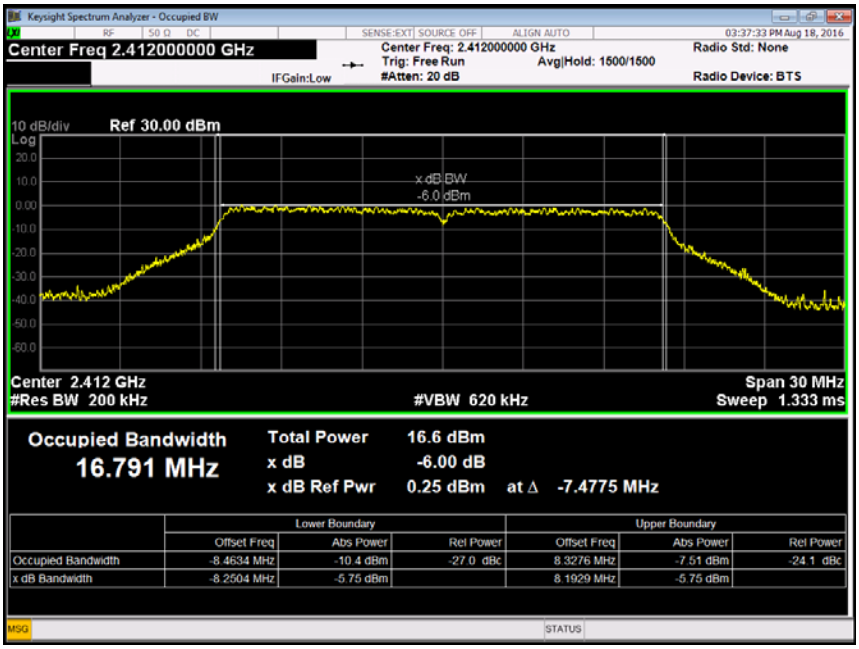
Product Service

4.0 V DC Supply

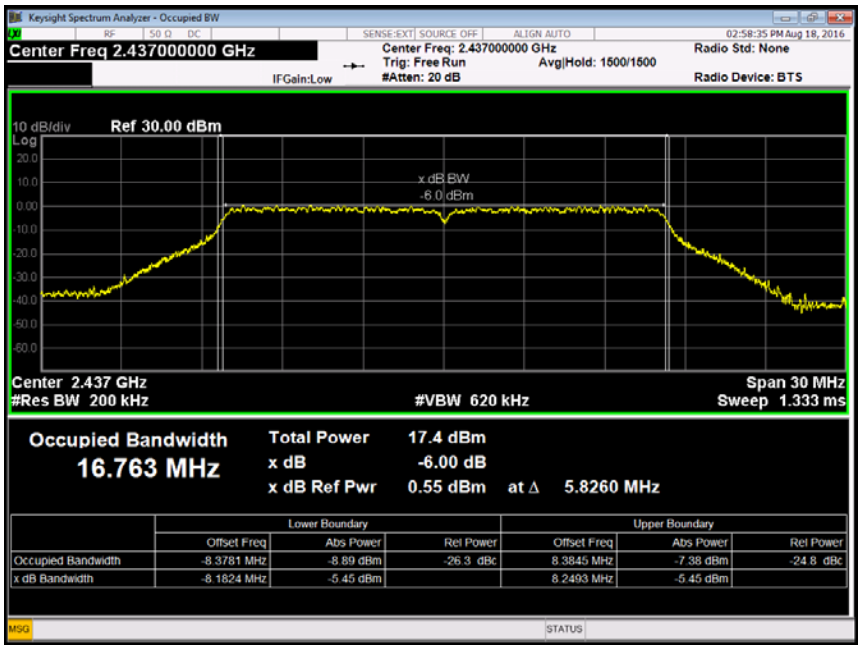
802.11g, OFDM, 54 Mbps, 6 dB Bandwidth Results

2412 MHz	2437 MHz	2462 MHz
kHz	kHz	kHz
16443.3	16431.7	16396.7

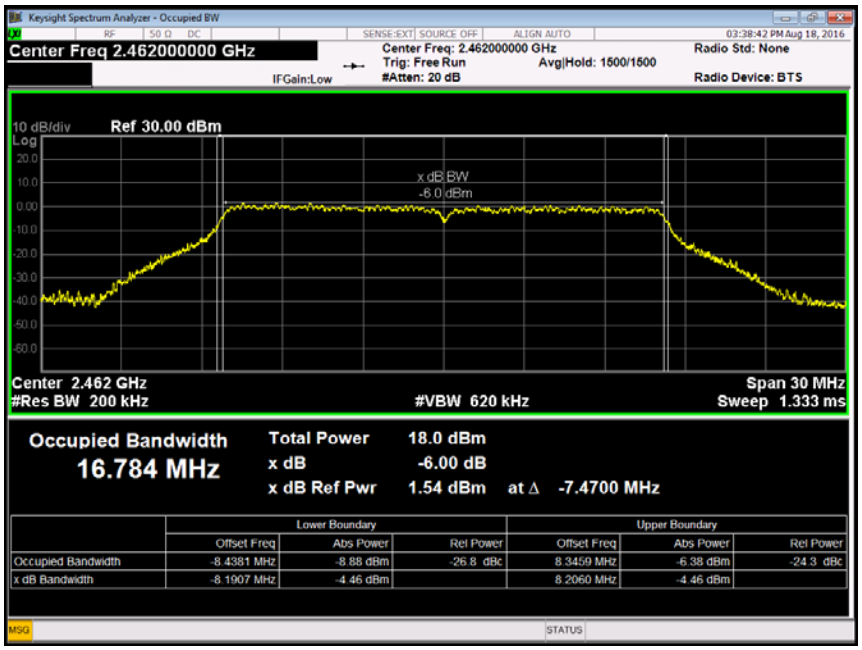
802.11g, 2412 MHz, OFDM, 54 Mbps, 6 dB Bandwidth Plot



802.11g, 2437 MHz, OFDM, 54 Mbps, 6 dB Bandwidth Plot



802.11g, 2462 MHz, OFDM, 54 Mbps, 6 dB Bandwidth Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (a)(2)

The minimum 6 dB Bandwidth shall be at least 500 kHz.

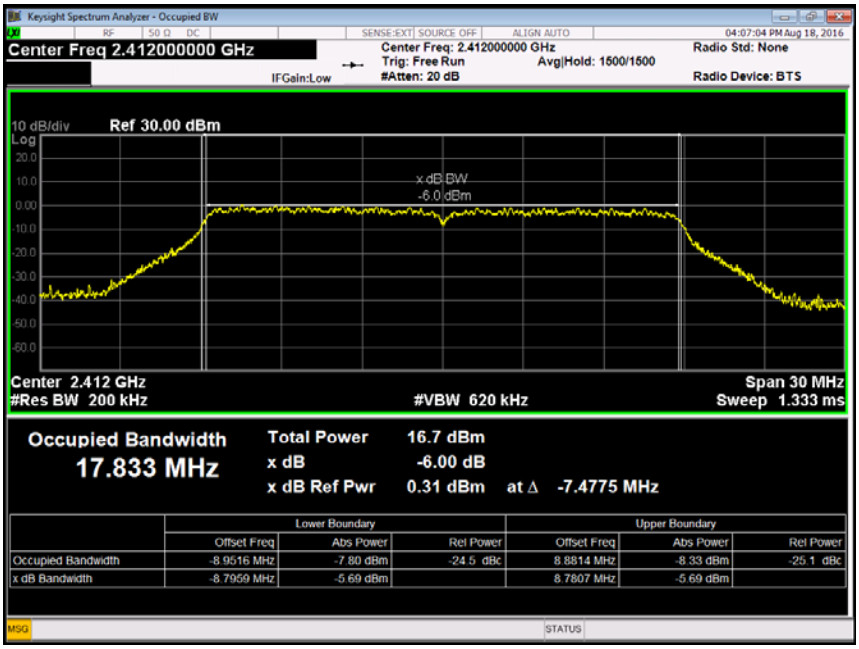
Product Service

4.0 V DC Supply

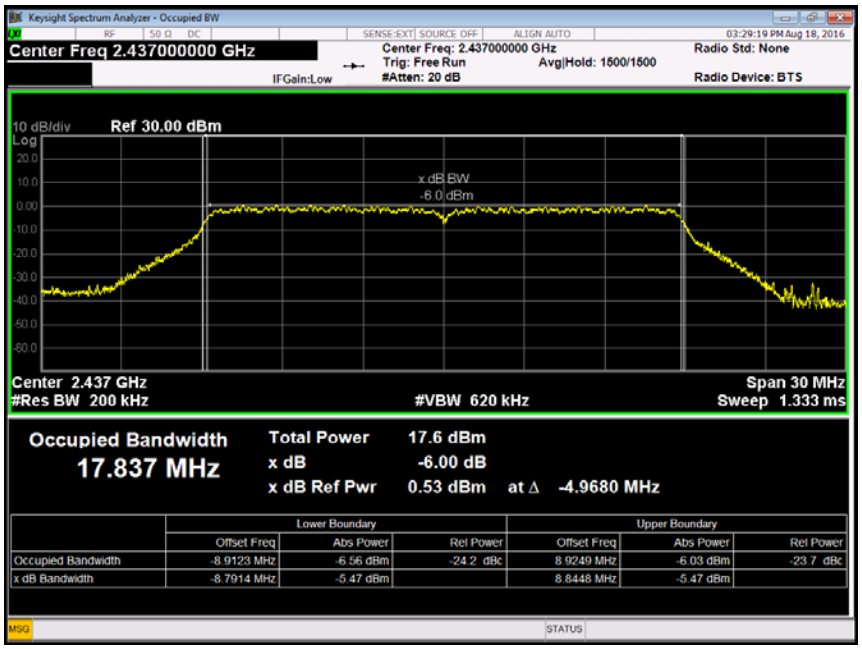
802.11n, OFDM, MCS6, 6 dB Bandwidth Results

2412 MHz	2437 MHz	2462 MHz
kHz	kHz	kHz
17576.6	17636.2	17577.8

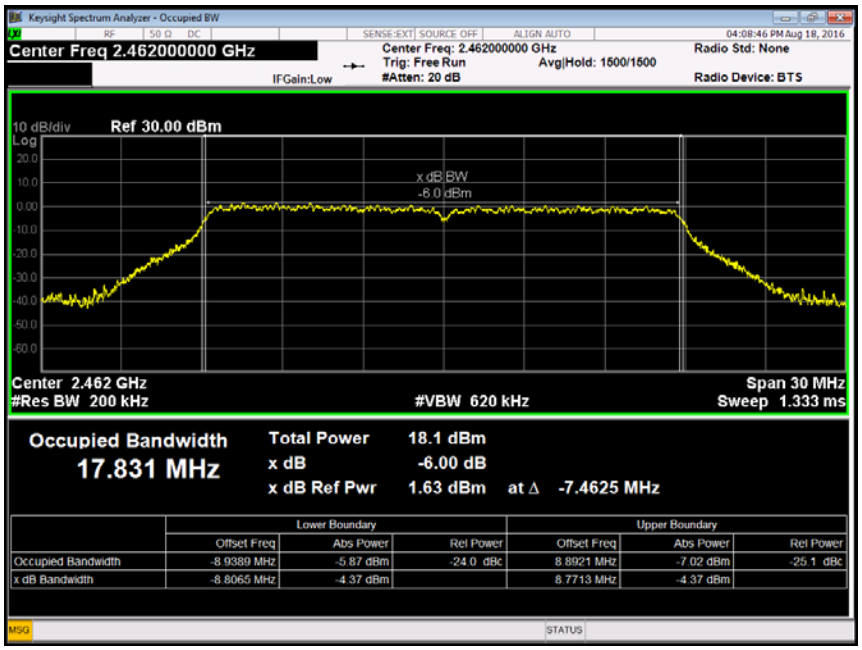
802.11n, 2412 MHz, OFDM, MCS6, 6 dB Bandwidth Plot



802.11n, 2437 MHz, OFDM, MCS6, 6 dB Bandwidth Plot



802.11n, 2462 MHz, OFDM, MCS6, 6 dB Bandwidth Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (a)(2)

The minimum 6 dB Bandwidth shall be at least 500 kHz.

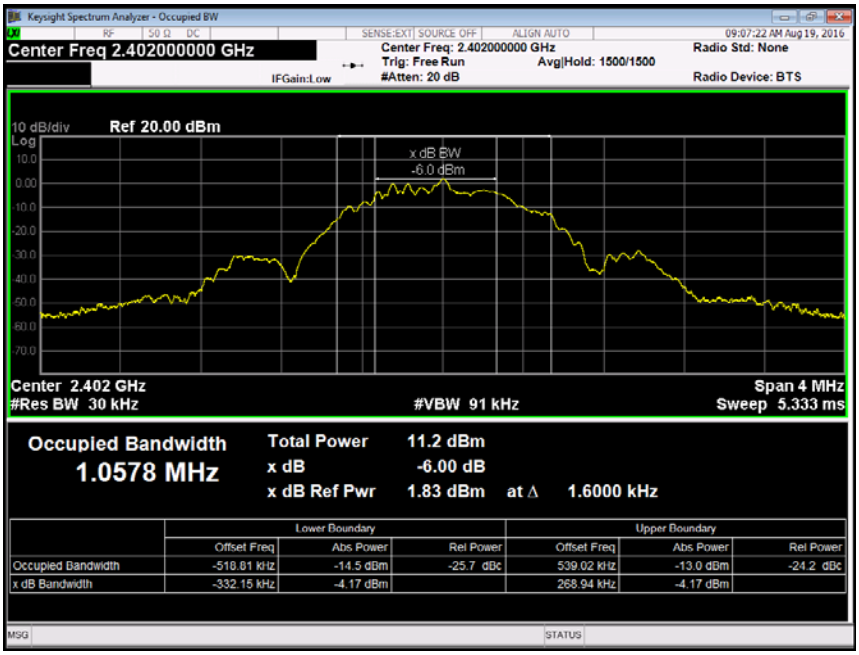
Product Service

4.0 V DC Supply

Bluetooth Low Energy, GFSK, 6 dB Bandwidth Results

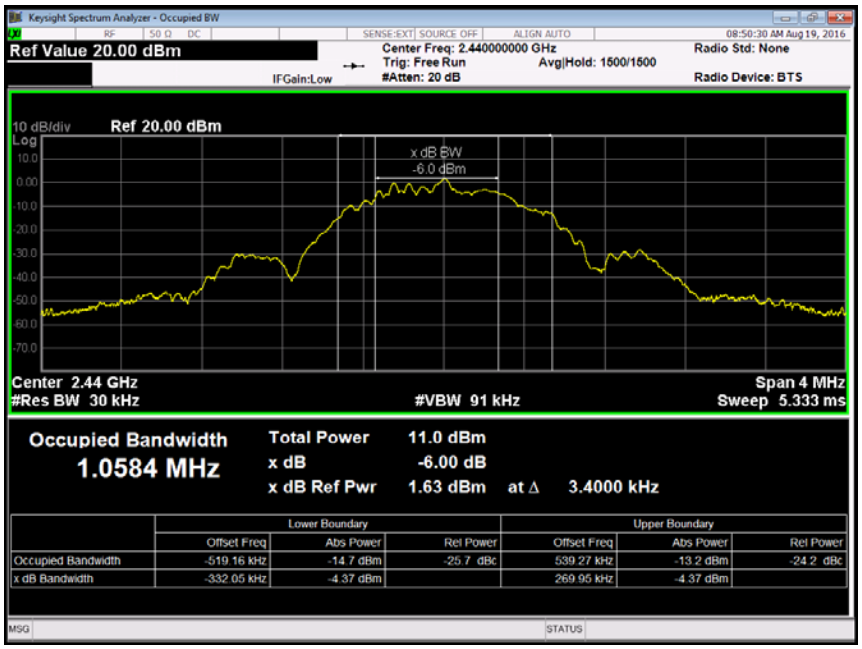
2402 MHz	2441 MHz	2480 MHz
kHz	kHz	kHz
601.09	602.00	601.33

Bluetooth Low Energy, 2402 MHz, GFSK, 6 dB Bandwidth Plot

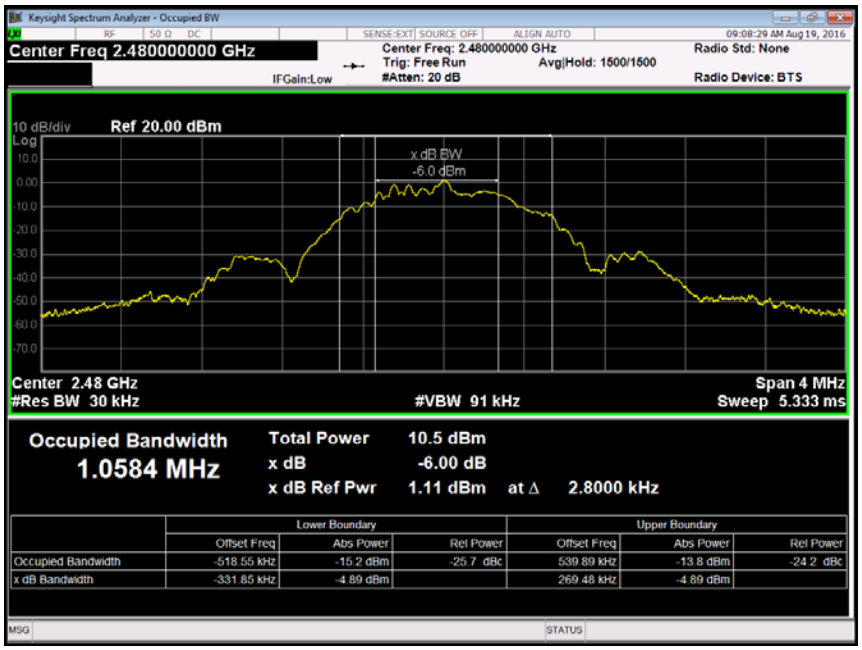


Product Service

Bluetooth Low Energy, 2441 MHz, GFSK, 6 dB Bandwidth Plot



Bluetooth Low Energy, 2480 MHz, GFSK, 6 dB Bandwidth Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (a)(2)

The minimum 6 dB Bandwidth shall be at least 500 kHz.

2.3 MAXIMUM CONDUCTED OUTPUT POWER

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (b)(3)

2.3.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905404 - Modification State 0
S/N: IMEI 004401115905206 - Modification State 0

2.3.3 Date of Test

16 August 2016, 26 August 2016 & 5 September 2016

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

The test was performed in accordance with ANSI C63.10, clause 11.9.1.3.

2.3.6 Environmental Conditions

Ambient Temperature	23.6 - 24.7°C
Relative Humidity	49.7 - 70.4%

Product Service

2.3.7 Test Results

4.0 V DC Supply

802.11b, 1 Mbps, Maximum Conducted Output Power Results

2412 MHz		2437 MHz		2462 MHz	
dBm	mW	dBm	mW	dBm	mW
14.49	28.12	14.91	30.97	14.77	29.99

FCC 47 CFR Part 15, Limit Clause 15.247 (b)

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

4.0 V DC Supply

802.11g, 54 Mbps, Maximum Conducted Output Power Results

2412 MHz		2437 MHz		2462 MHz	
dBm	mW	dBm	mW	dBm	mW
21.28	134.28	21.89	154.53	21.51	141.58

FCC 47 CFR Part 15, Limit Clause 15.247 (b)

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

Product Service

4.0 V DC Supply

802.11n, MCS2, Maximum Conducted Output Power Results

2412 MHz		2437 MHz		2462 MHz	
dBm	mW	dBm	mW	dBm	mW
21.30	134.90	21.89	154.53	21.84	152.6

FCC 47 CFR Part 15, Limit Clause 15.247 (b)

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.
4.0 V DC Supply

Bluetooth Low Energy, Maximum Conducted Output Power Results

2402 MHz		2441 MHz		2480 MHz	
dBm	mW	dBm	mW	dBm	mW
4.920	3.105	4.658	2.923	4.124	2.585

FCC 47 CFR Part 15, Limit Clause 15.247 (b)

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

2.4 SPURIOUS RADIATED EMISSIONS

2.4.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d), 15.205 and 15.209

2.4.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905446 - Modification State 0

2.4.3 Date of Test

23 August 2016, 24 August 2016, 28 August 2016, 30 August 2016 & 4 September 2016

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

Testing was performed in accordance with ANSI C63.10, clause 11.11, 11.12.1 and 11.12.2.7.

Remarks

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.3.
Final average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.2.

2.4.6 Environmental Conditions

Ambient Temperature	19.6 - 20.9°C
Relative Humidity	54.0 - 69.0%

Product Service

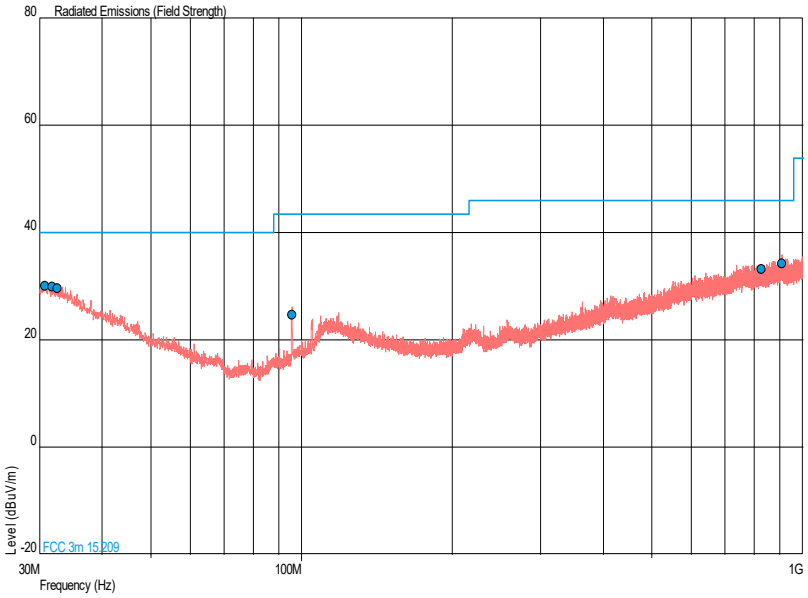
2.4.7 Test Results

4.0 V DC Supply

802.11b, 2412 MHz, 1 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.776	30.1	-9.9	32.0	-68.0	90	1.00	Vertical
31.795	29.9	-10.1	31.3	-68.7	90	1.00	Vertical
32.522	29.7	-10.3	30.5	-69.5	90	1.00	Vertical
95.621	24.7	-18.8	17.2	-132.8	90	1.00	Vertical
825.912	33.2	-12.8	45.7	-154.3	90	1.00	Vertical
907.802	34.2	-11.8	51.3	-148.7	180	1.00	Vertical

802.11b, 2412 MHz, 1 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

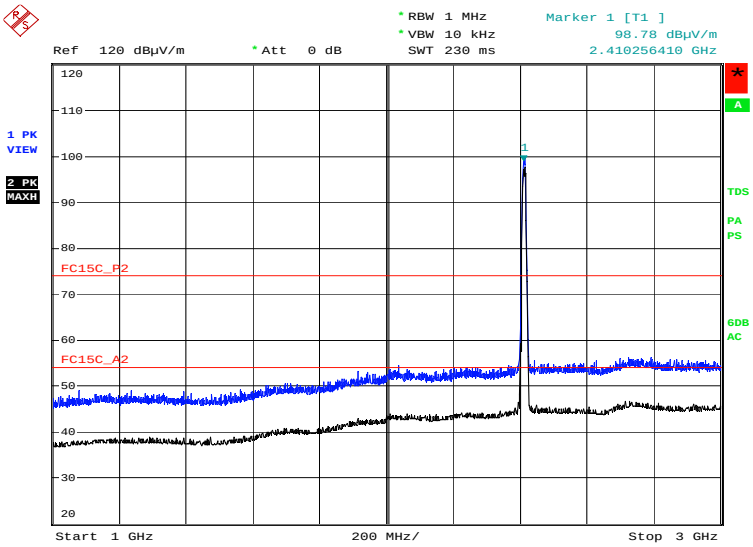


802.11b, 2412 MHz, 1 Mbps, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

*No emissions were detected within 10 dB of the limit.

802.11b, 2412 MHz, 1 Mbps, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



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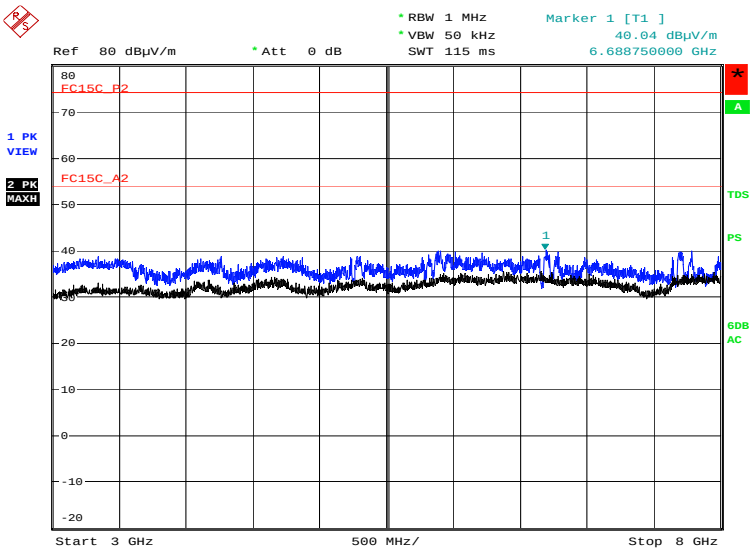
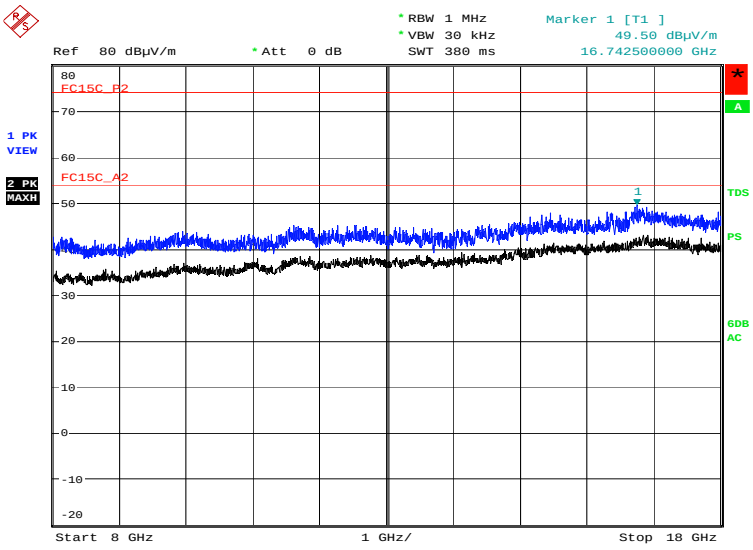
Product Service

802.11b, 2412 MHz,1 Mbps, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



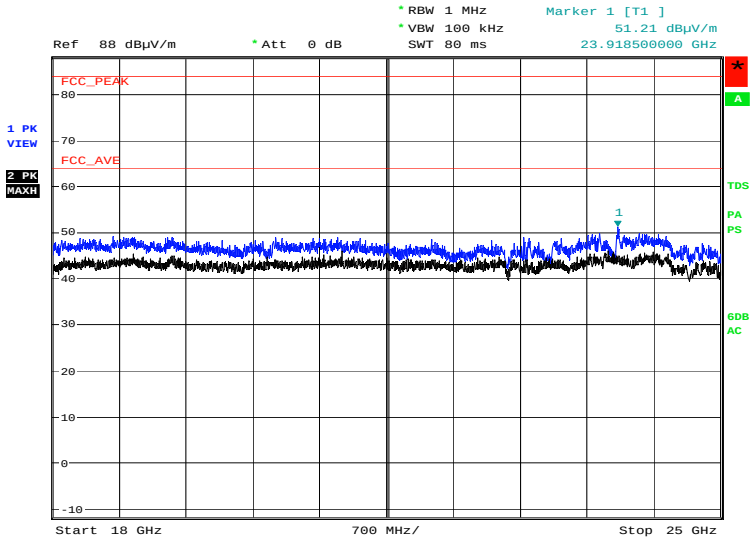
Date: 28.AUG.2016 12:38:25

802.11b, 2412 MHz,1 Mbps, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 14:07:49

802.11b, 2412 MHz, 1 Mbps, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot

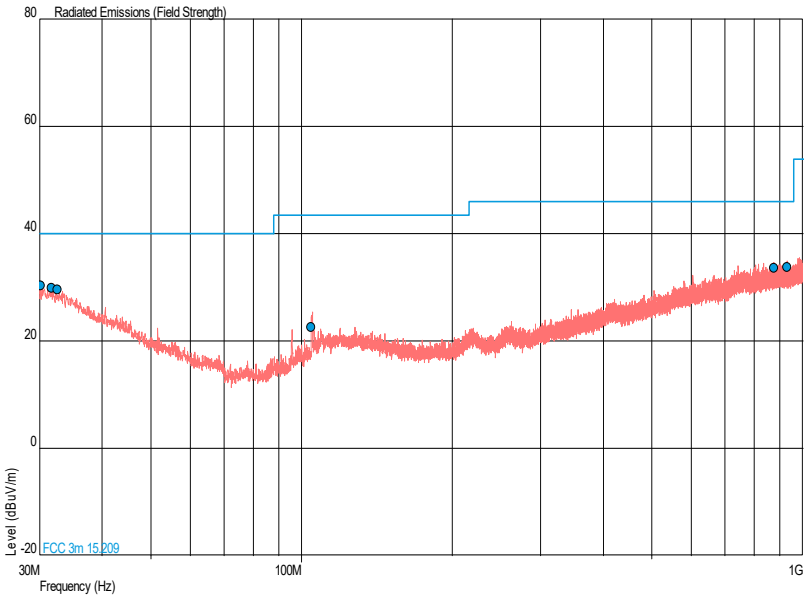


Date: 4.SEP.2016 11:05:31

802.11b, 2437 MHz, 1 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.194	30.4	-9.6	33.1	-66.9	270	1.00	Vertical
31.746	29.9	-10.1	31.3	-68.7	270	1.00	Vertical
32.571	29.7	-10.3	30.5	-69.5	180	1.00	Vertical
104.642	22.6	-20.9	13.5	-136.5	180	1.00	Vertical
875.307	33.6	-12.4	47.9	-152.1	90	1.00	Vertical
929.966	33.8	-12.2	49.0	-151.0	90	1.00	Vertical

802.11b, 2437 MHz, 1 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

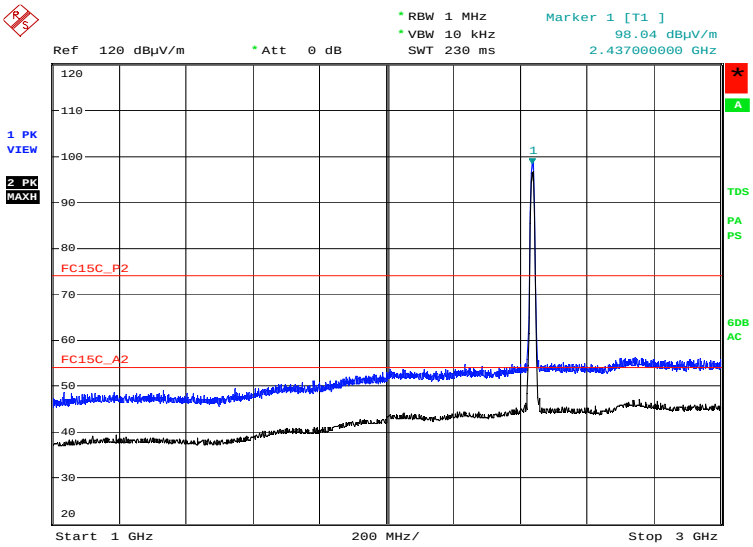


802.11b, 2437 MHz, 1 Mbps, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

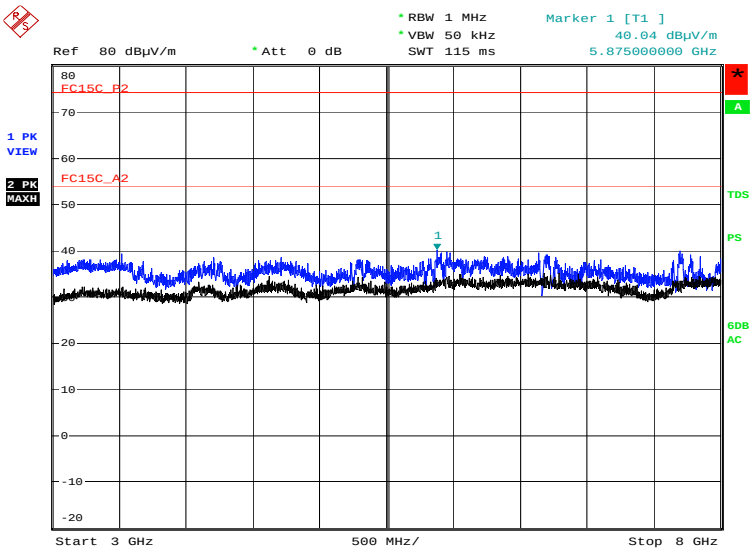
*No emissions were detected within 10 dB of the limit.

802.11b, 2437 MHz, 1 Mbps, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



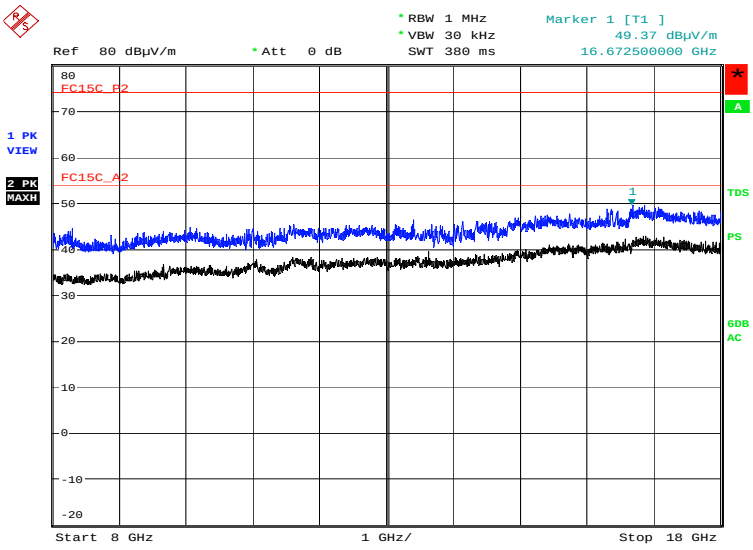
Product Service

802.11b, 2437 MHz, 1 Mbps, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 12:49:50

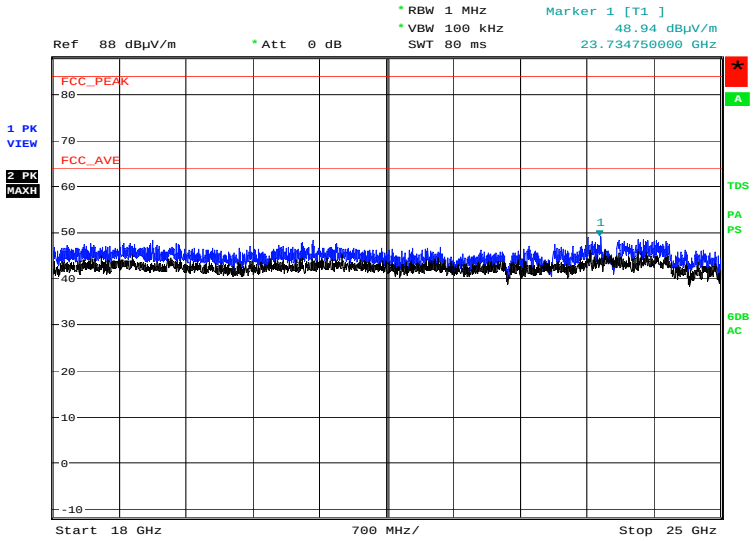
802.11b, 2437 MHz, 1 Mbps, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 14:21:18

Product Service

802.11b, 2437 MHz, 1 Mbps, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot

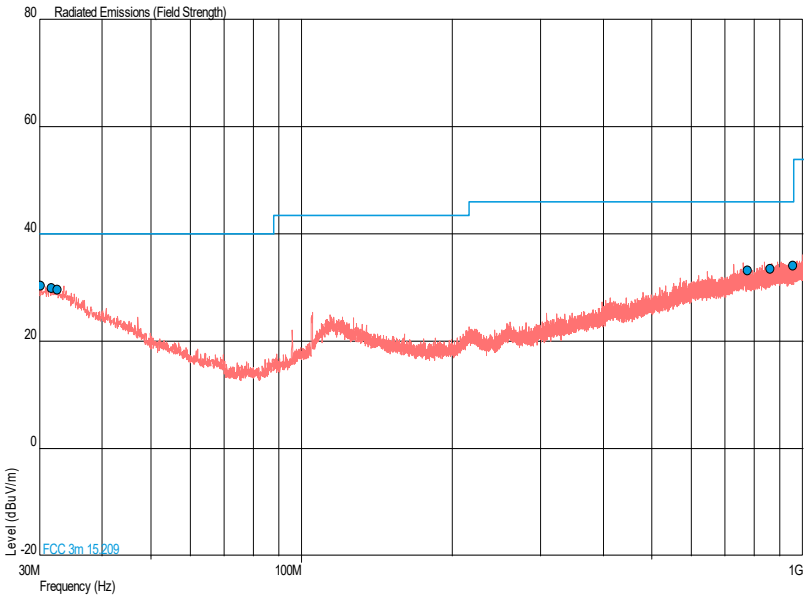


Date: 4.SEP.2016 11:08:41

802.11b, 2462 MHz, 1 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.194	30.4	-9.6	33.1	-66.9	180	1.00	Horizontal
31.698	29.9	-10.1	31.3	-68.7	0	1.00	Horizontal
32.619	29.6	-10.4	30.2	-69.8	0	1.00	Horizontal
775.688	33.2	-12.8	45.7	-154.3	0	1.00	Horizontal
862.163	33.5	-12.5	47.3	-152.7	0	1.00	Vertical
956.352	34.1	-11.9	50.7	-149.3	0	1.00	Vertical

802.11b, 2462 MHz, 1 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

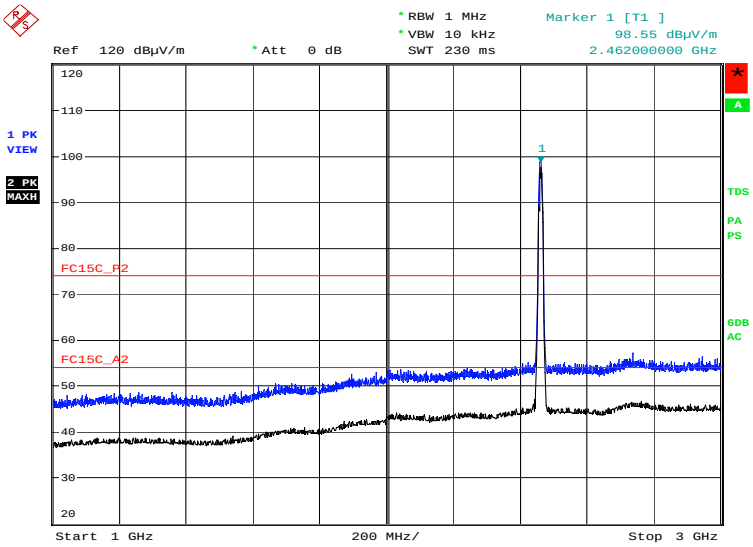


802.11b, 2462 MHz, 1 Mbps, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

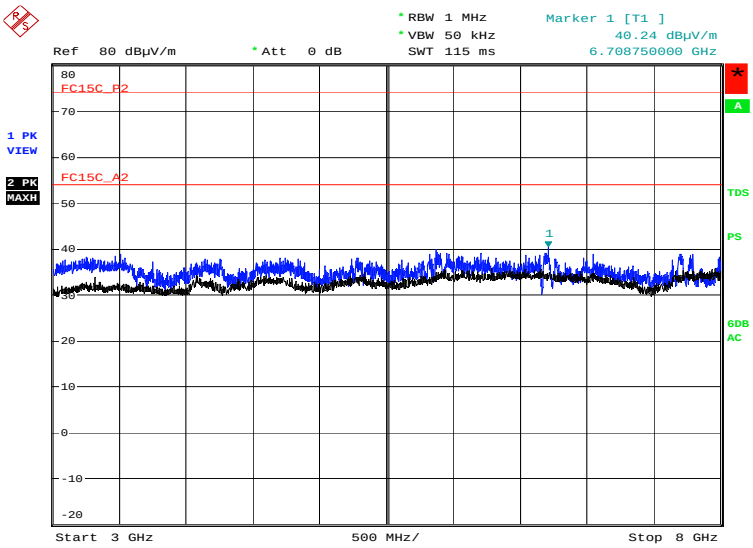
*No emissions were detected within 10 dB of the limit.

802.11b, 2462 MHz, 1 Mbps, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



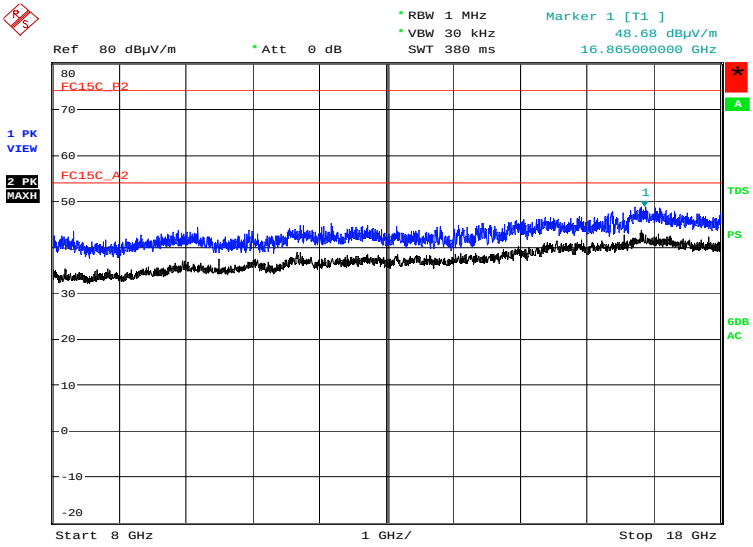
Product Service

802.11b, 2462 MHz, 1 Mbps, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



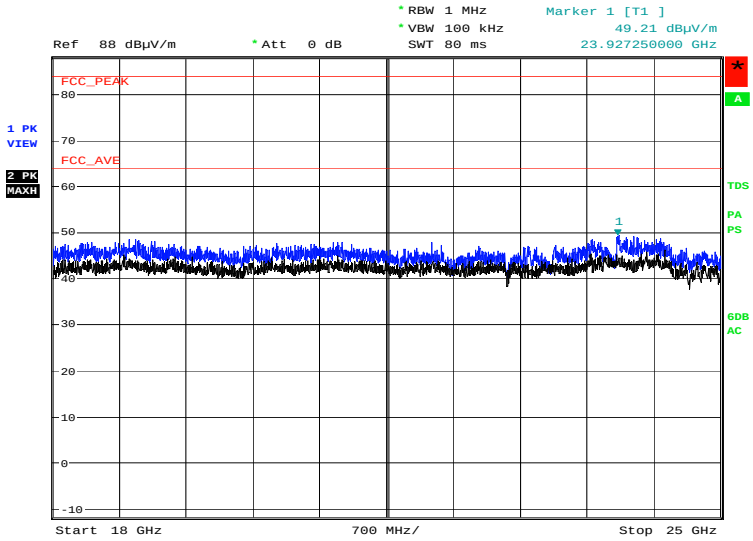
Date: 28.AUG.2016 12:57:23

802.11b, 2462 MHz, 1 Mbps, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 14:32:28

802.11b, 2462 MHz, 1 Mbps, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

Emissions outside the restricted bands shall be at least 20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

FCC 47 CFR Part 15, Limit Clause 15.209

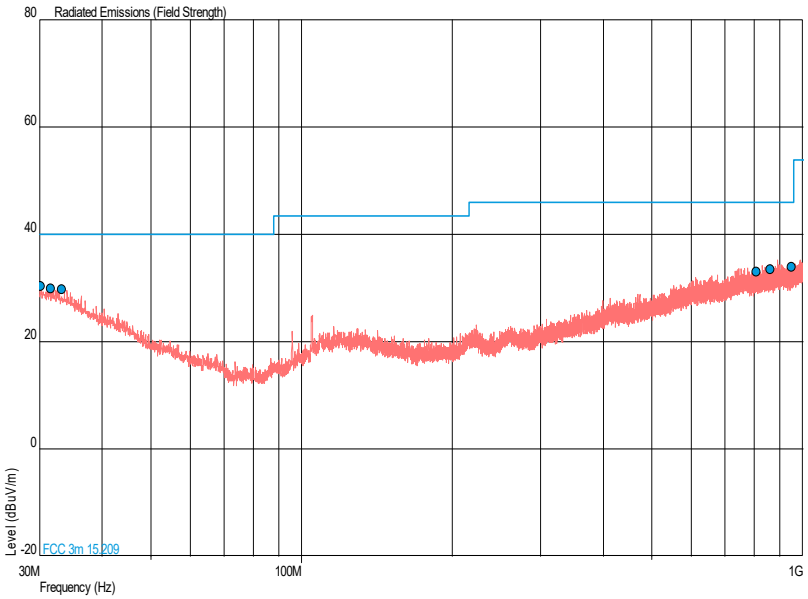
Frequency (MHz)	Field Strength			Measurement Distance (m)
	(µV/m)	Average (dBµV/m)	Peak (dBµV/m)	
30-88	100	40.0	60.0	3
88-216	150	43.5	63.5	3
216-960	200	46.0	66.0	3
Above 960	500	54.0	74.0	3

4.0 V DC Supply

802.11g, 2412 MHz, 54 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.194	30.4	-9.6	33.1	-66.9	90	1.00	Vertical
31.649	29.9	-10.1	31.3	-68.7	90	1.00	Vertical
33.201	29.8	-10.2	30.9	-69.1	0	1.00	Vertical
808.231	33.1	-12.9	45.2	-154.8	0	1.00	Vertical
860.563	33.5	-12.5	47.3	-152.7	180	1.00	Vertical
950.274	34.0	-12.0	50.1	-149.9	180	1.00	Vertical

802.11g, 2412 MHz, 54 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

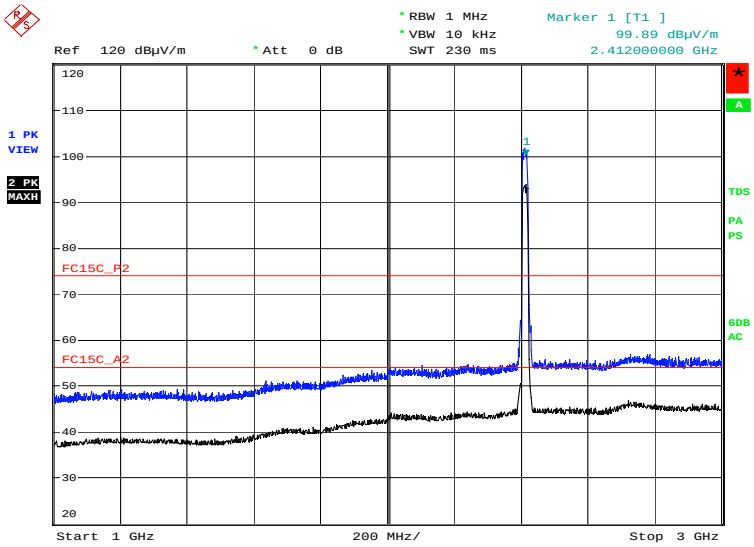


802.11g, 2412 MHz, 54 Mbps, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

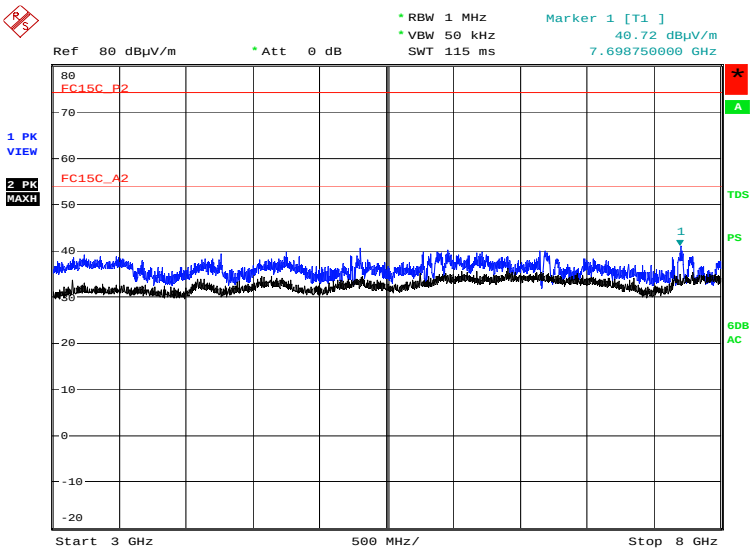
*No emissions were detected within 10 dB of the limit.

802.11g, 2412 MHz, 54 Mbps, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



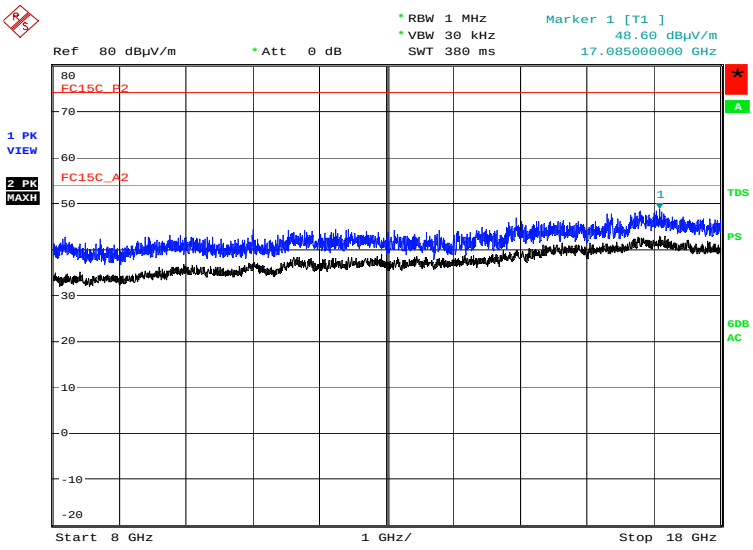
Product Service

802.11g, 2412 MHz,54 Mbps, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 13:03:20

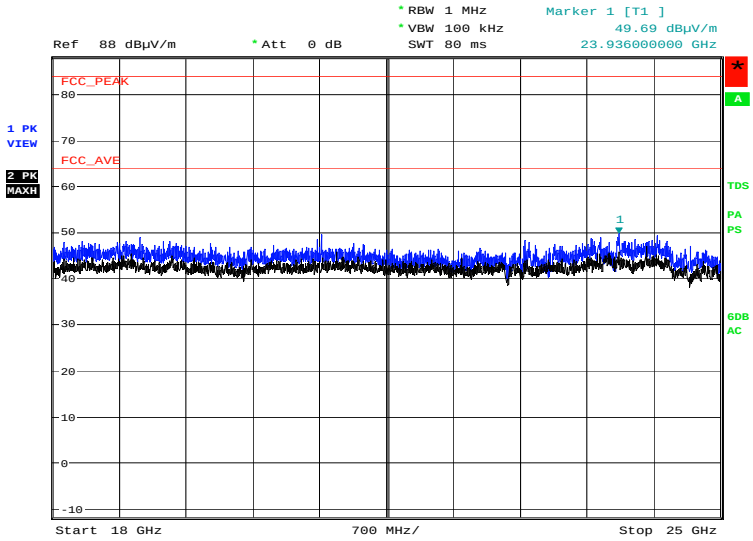
802.11g, 2412 MHz,54 Mbps, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 14:49:37

Product Service

802.11g, 2412 MHz, 54 Mbps, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



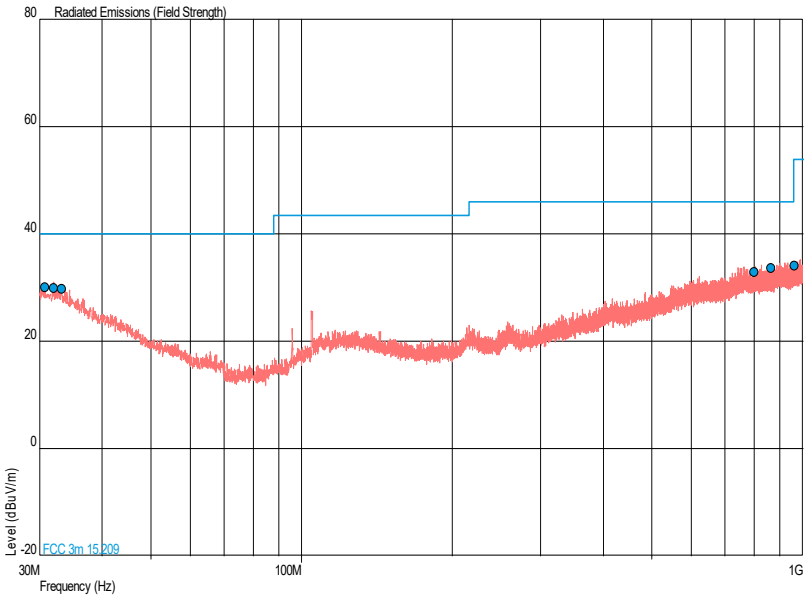
Date: 4.SEP.2016 11:16:06

Product Service

802.11g, 2437 MHz, 54 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.776	30.1	-9.9	32.0	-68.0	180	1.00	Vertical
32.037	29.9	-10.1	31.3	-68.7	180	1.00	Vertical
33.201	29.8	-10.2	30.9	-69.1	180	1.00	Vertical
800.229	32.8	-13.2	43.7	-156.3	90	1.00	Vertical
863.715	33.6	-12.4	47.9	-152.1	180	1.00	Vertical
962.469	34.1	-19.9	50.7	-450.3	180	1.00	Vertical

802.11g, 2437 MHz, 54 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

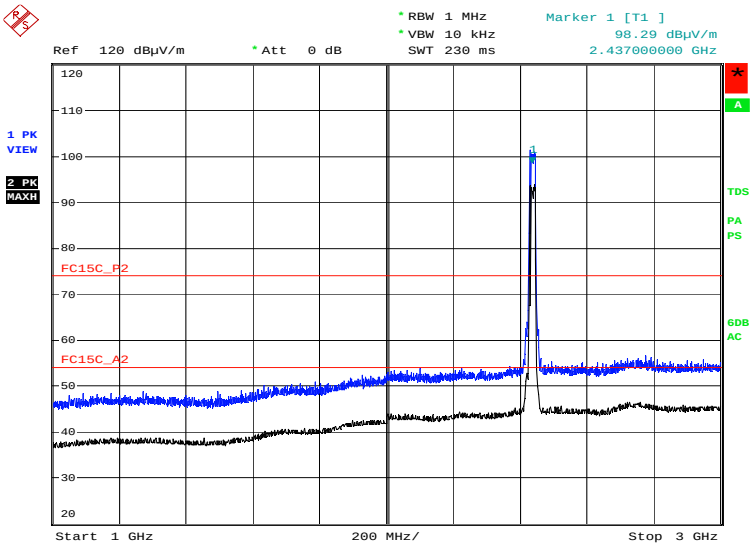


802.11g, 2437 MHz, 54 Mbps, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

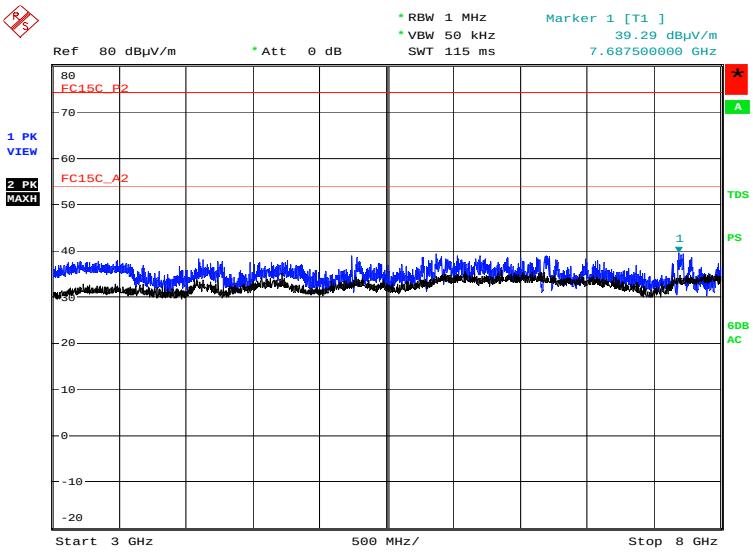
Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

*No emissions were detected within 10 dB of the limit.

802.11g, 2437 MHz, 54 Mbps, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot

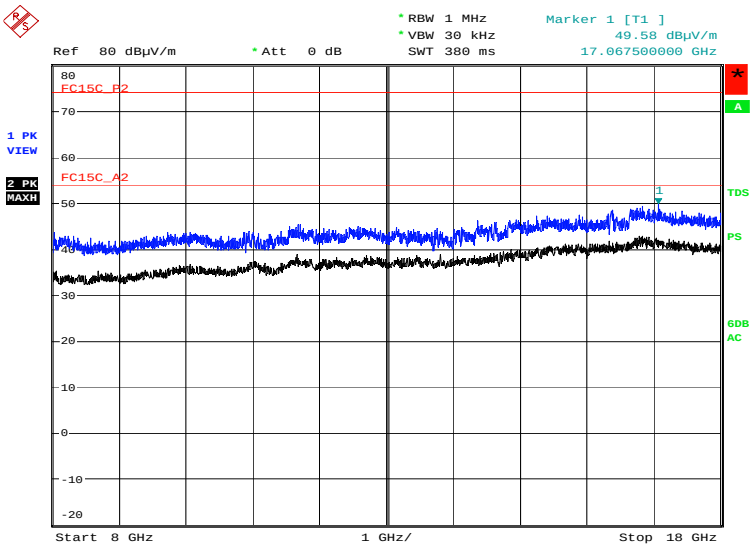


802.11g, 2437 MHz, 54 Mbps, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



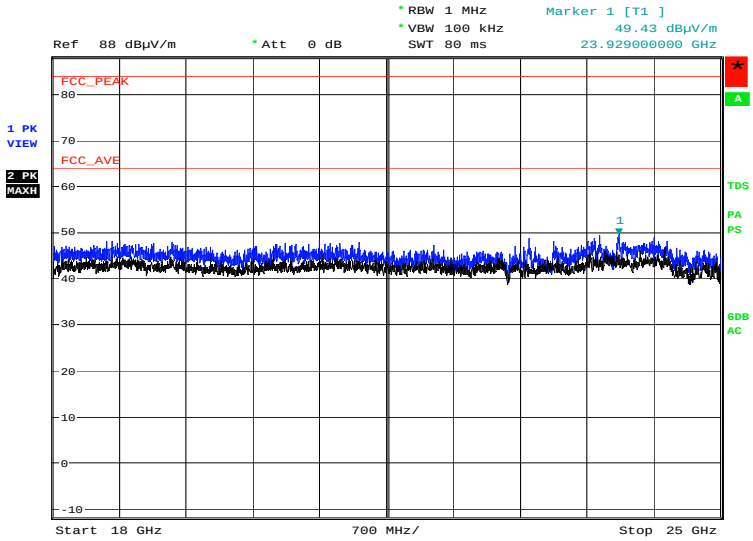
Date: 28.AUG.2016 13:23:47

802.11g, 2437 MHz, 54 Mbps, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 15:01:51

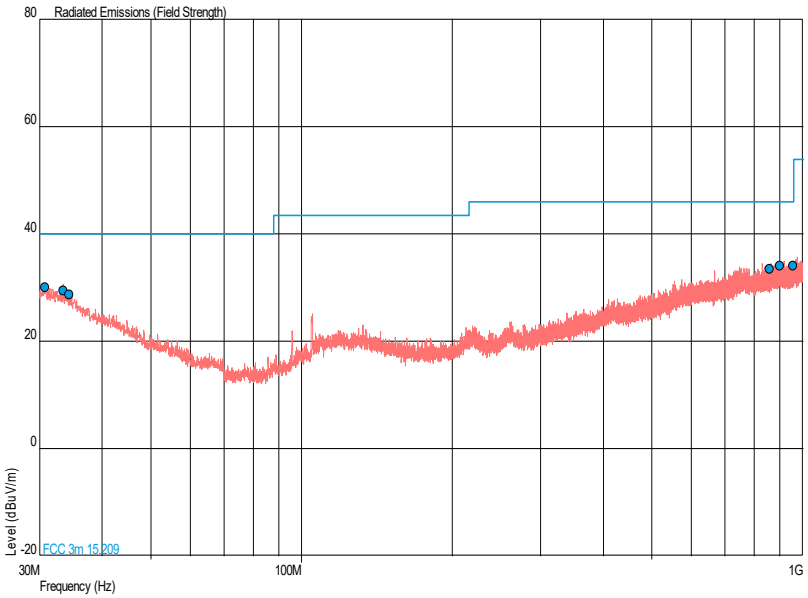
802.11g, 2437 MHz, 54 Mbps, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



802.11g, 2462 MHz, 54 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.728	30.1	-9.9	32.0	-68.0	180	1.00	Vertical
33.492	29.5	-10.5	29.9	-70.1	0	1.00	Vertical
34.317	28.8	-11.2	27.5	-72.5	0	1.00	Vertical
858.429	33.5	-12.5	47.3	-152.7	90	1.00	Vertical
899.508	34.0	-12.0	50.1	-149.9	270	1.00	Vertical
956.352	34.1	-11.9	50.7	-149.3	270	1.00	Vertical

802.11g, 2462 MHz, 54 Mbps, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

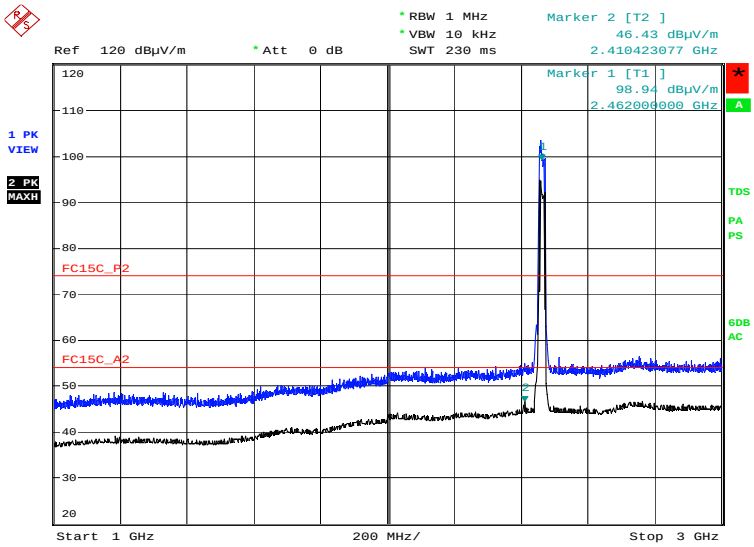


802.11g, 2462 MHz, 54 Mbps, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

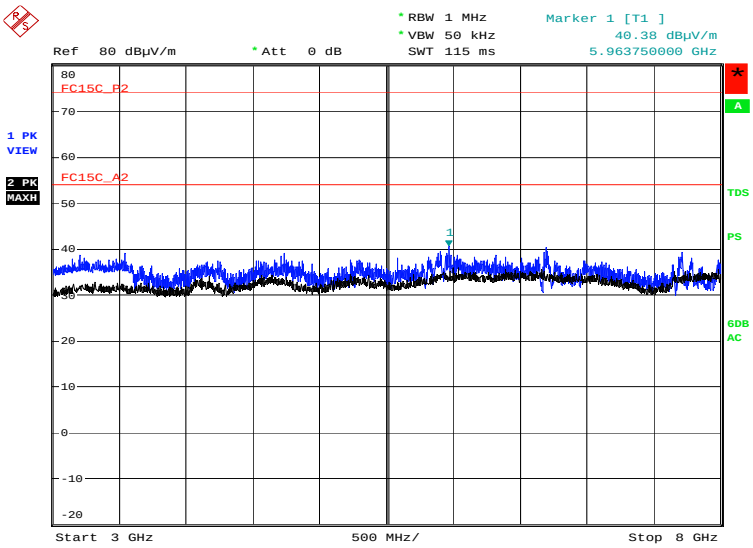
*No emissions were detected within 10 dB of the limit.

802.11g, 2462 MHz, 54 Mbps, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



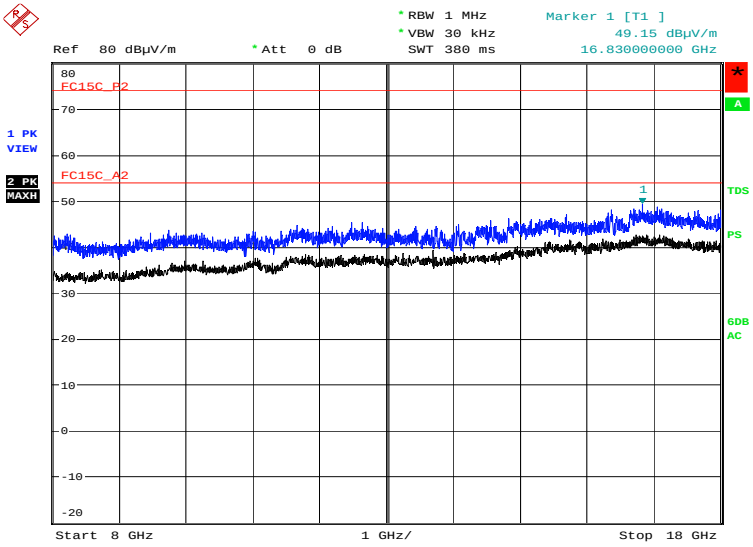
Product Service

802.11g, 2462 MHz, 54 Mbps, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



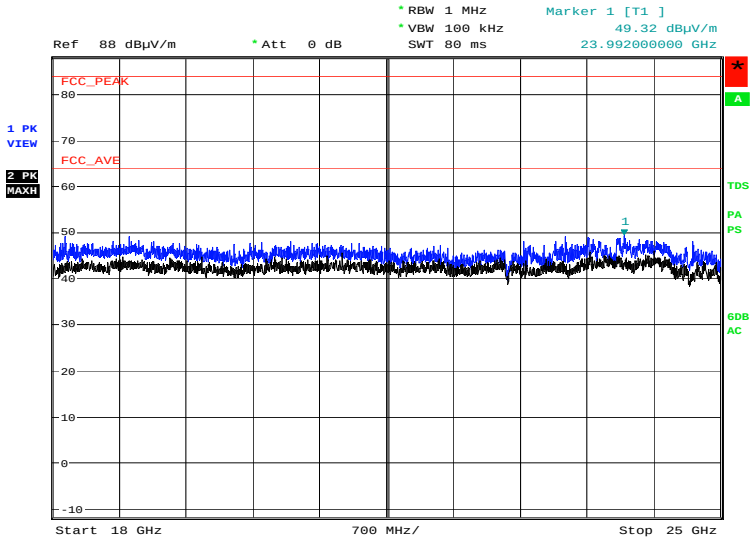
Date: 28.AUG.2016 13:31:34

802.11g, 2462 MHz, 54 Mbps, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 15:11:45

802.11g, 2462 MHz, 54 Mbps, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

Emissions outside the restricted bands shall be at least 20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

FCC 47 CFR Part 15, Limit Clause 15.209

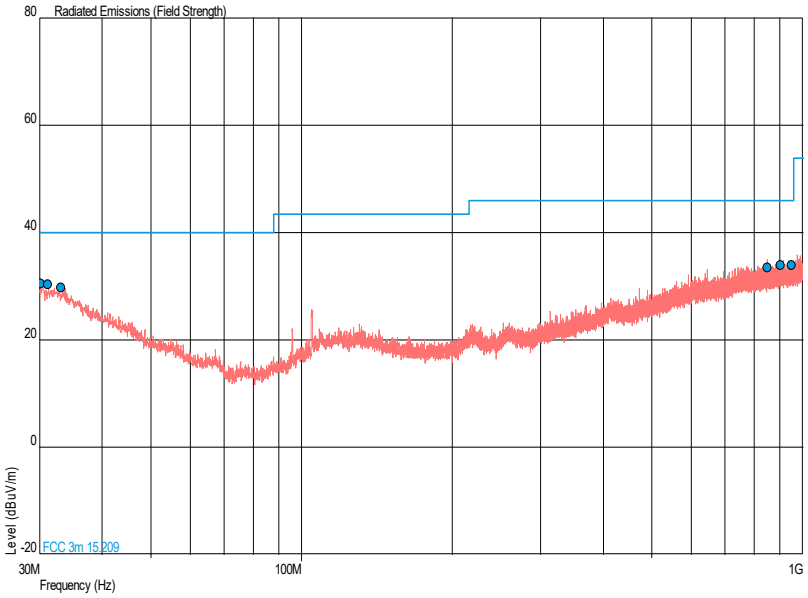
Frequency (MHz)	Field Strength			Measurement Distance (m)
	(µV/m)	Average (dBµV/m)	Peak (dBµV/m)	
30-88	100	40.0	60.0	3
88-216	150	43.5	63.5	3
216-960	200	46.0	66.0	3
Above 960	500	54.0	74.0	3

4.0 V DC Supply

802.11n, 2412 MHz, MCS2, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.194	30.4	-9.6	33.1	-66.9	90	1.00	Vertical
31.213	30.3	-9.7	32.7	-67.3	0	1.00	Vertical
33.153	29.8	-10.2	30.9	-69.1	180	1.00	Vertical
850.184	33.5	-12.5	47.3	-152.7	180	1.00	Vertical
903.021	33.9	-12.1	49.5	-150.5	180	1.00	Vertical
950.274	34.0	-12.0	50.1	-149.9	180	1.00	Vertical

802.11n, 2412 MHz, MCS2, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

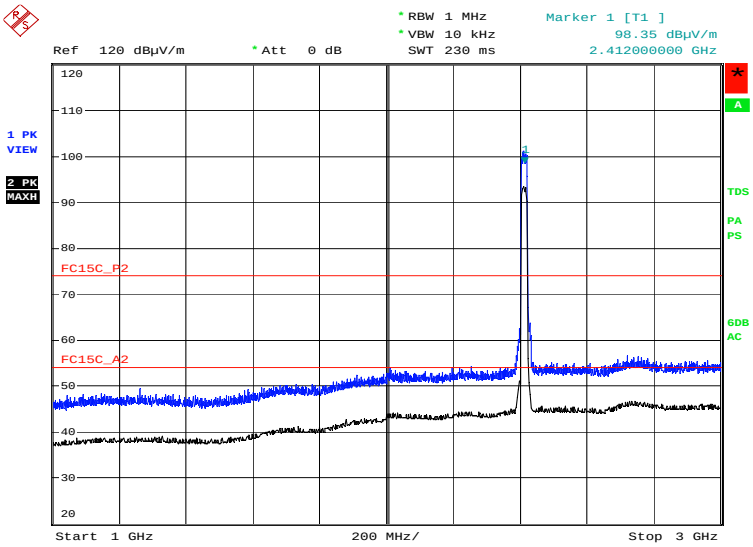


802.11n, 2412 MHz, MCS2, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

*No emissions were detected within 10 dB of the limit.

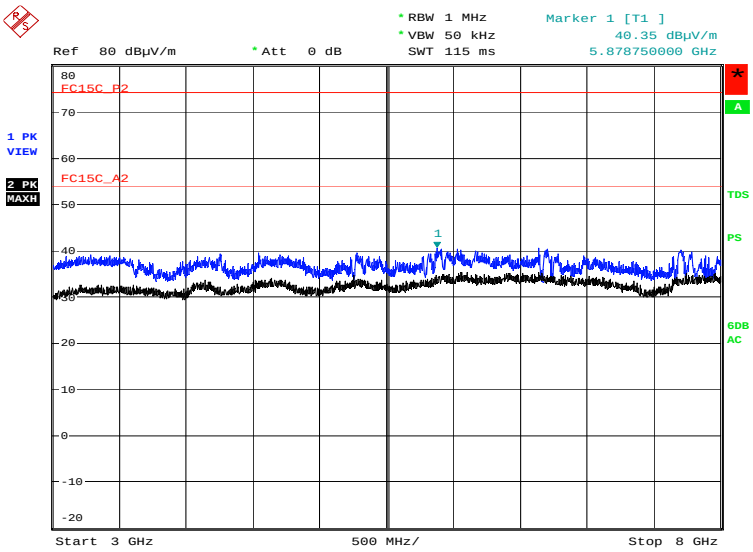
802.11n, 2412 MHz, MCS2, 1 GHz to 3 GHz , Spurious Radiated Emissions Plot



Date: 24.AUG.2016 20:50:55

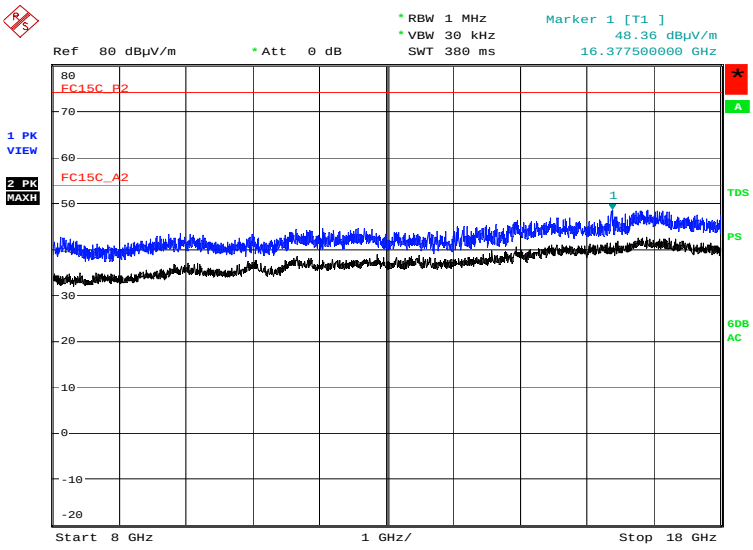
Product Service

802.11n, 2412 MHz,MCS2, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



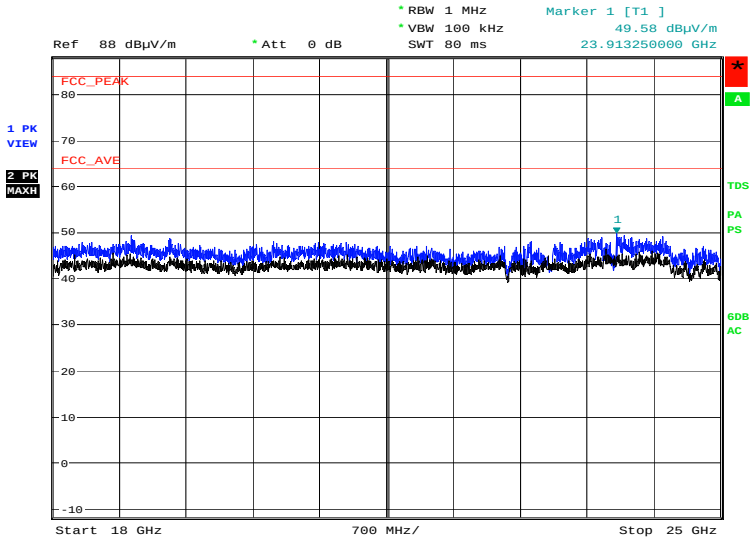
Date: 28.AUG.2016 13:39:41

802.11n, 2412 MHz,MCS2, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 15:21:33

802.11n, 2412 MHz, MCS2, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot

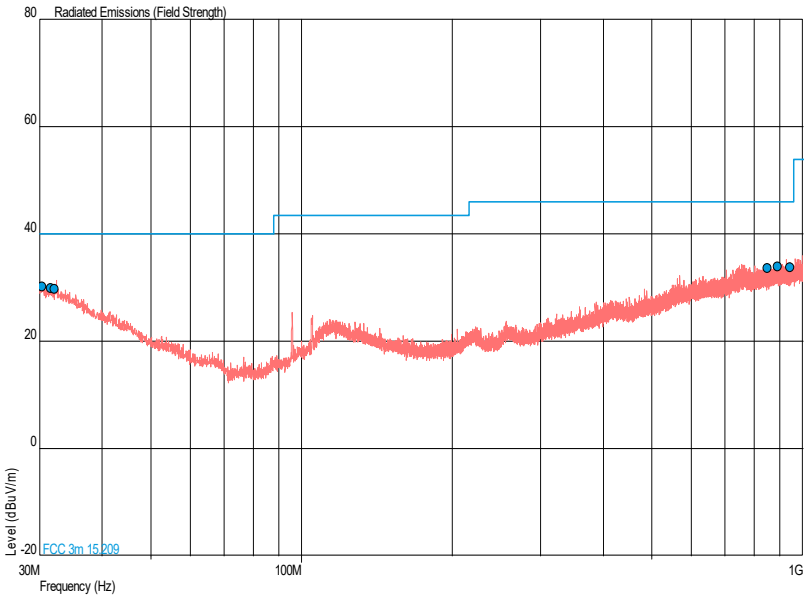


Date: 4.SEP.2016 11:30:51

802.11n, 2437 MHz, MCS2, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.388	30.2	-9.8	32.4	-67.6	270	1.00	Horizontal
31.552	29.9	-10.1	31.3	-68.7	180	1.00	Vertical
32.183	29.8	-10.2	30.9	-69.1	270	1.00	Horizontal
851.008	33.6	-12.4	47.9	-152.1	0	1.00	Horizontal
891.580	33.9	-12.1	49.5	-150.5	0	1.00	Horizontal
944.235	33.8	-12.2	49.0	-151.0	0	1.00	Horizontal

802.11n, 2437 MHz, MCS2, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

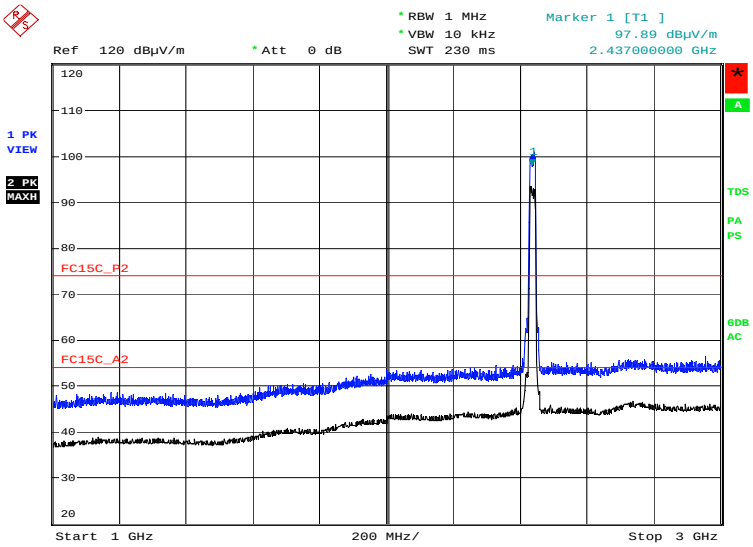


802.11n, 2437 MHz, MCS2, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

*No emissions were detected within 10 dB of the limit.

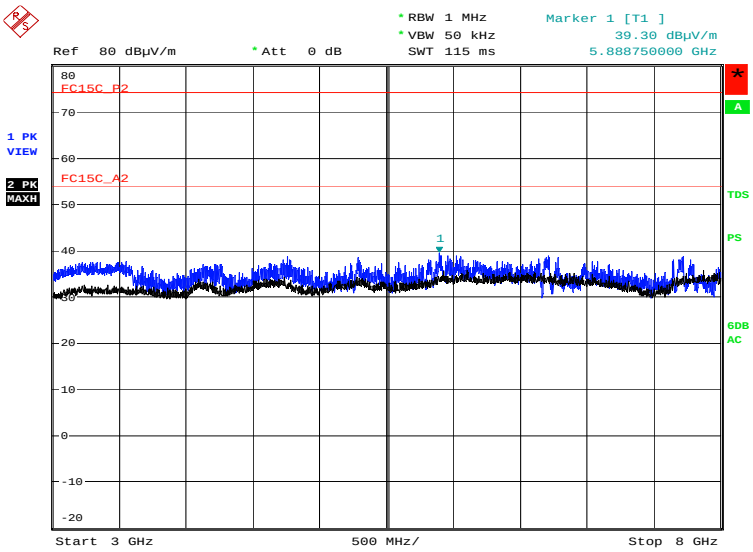
802.11n, 2437 MHz, MCS2, 1 GHz to 3 GHz , Spurious Radiated Emissions Plot



Date: 24.AUG.2016 21:01:47

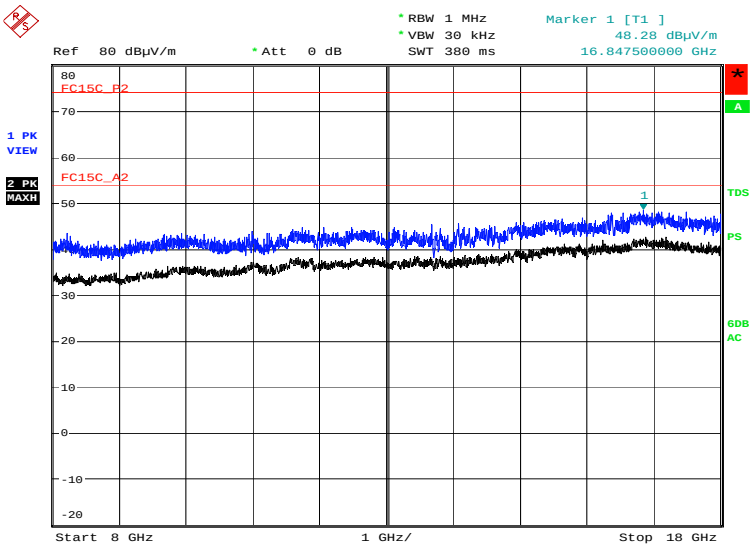
Product Service

802.11n, 2437 MHz, MCS2, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



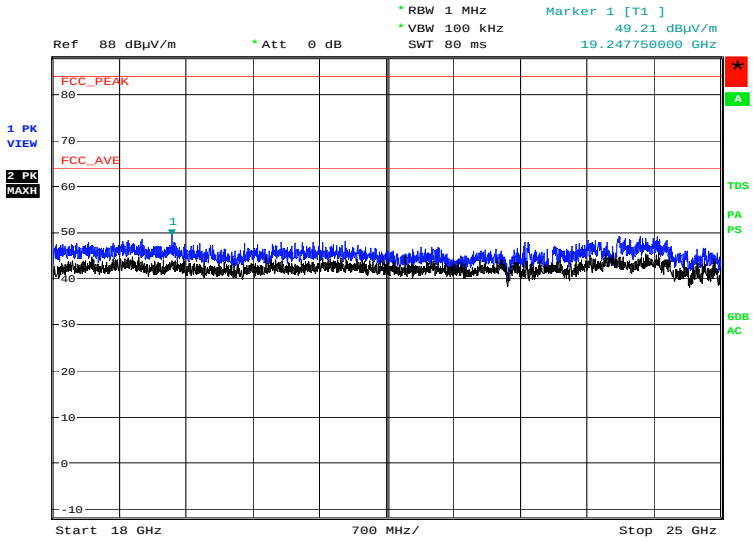
Date: 28.AUG.2016 13:44:39

802.11n, 2437 MHz, MCS2, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 15:37:48

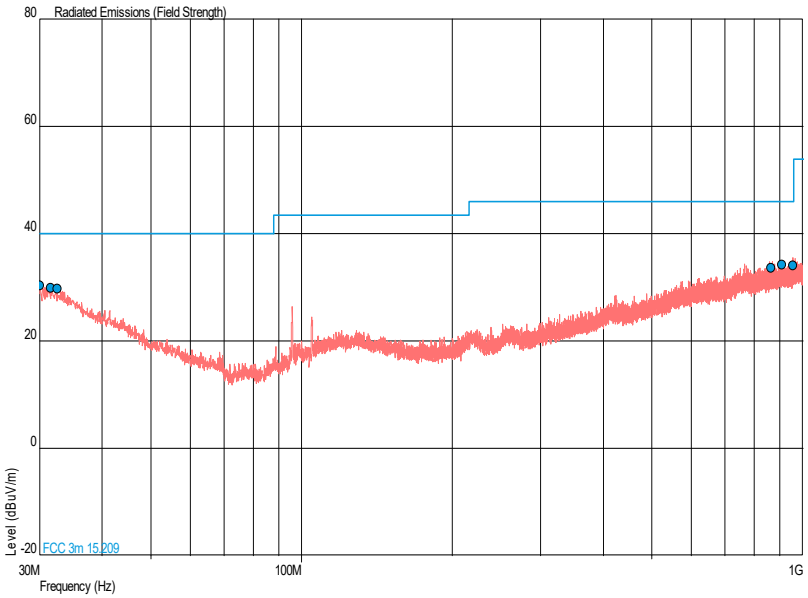
802.11n, 2437 MHz, MCS2, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



802.11n, 2462 MHz, MCS2, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.097	30.3	-9.7	32.7	-67.3	90	1.00	Vertical
31.601	30.0	-10.0	31.6	-68.4	90	1.00	Vertical
32.522	29.7	-10.3	30.5	-69.5	0	1.00	Vertical
864.491	33.7	-12.3	48.4	-151.6	180	1.00	Vertical
908.797	34.2	-11.8	51.3	-148.7	180	1.00	Vertical
956.352	34.2	-11.8	51.3	-148.7	180	1.00	Vertical

802.11n, 2462 MHz, MCS2, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot

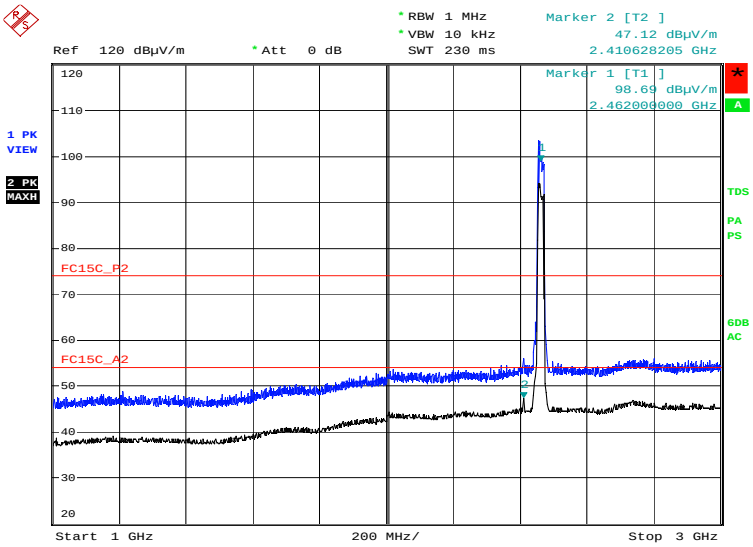


802.11n, 2462 MHz, MCS2, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

*No emissions were detected within 10 dB of the limit.

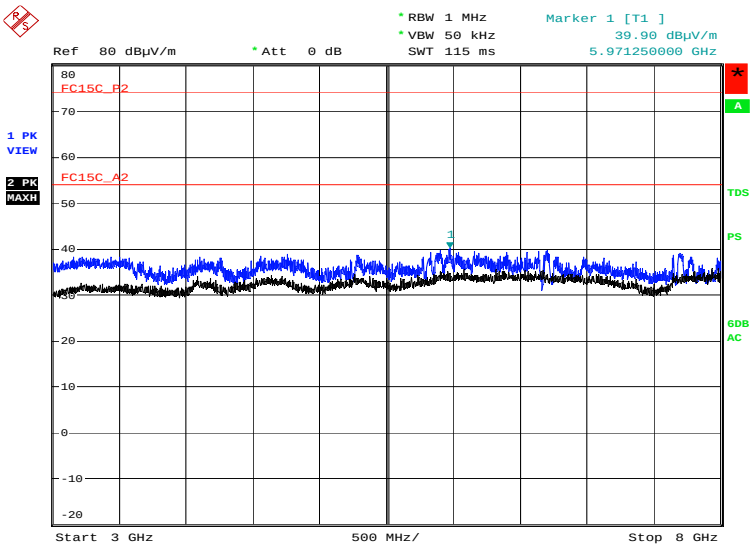
802.11n, 2462 MHz, MCS2, 1 GHz to 3 GHz , Spurious Radiated Emissions Plot



Date: 24.AUG.2016 21:10:01

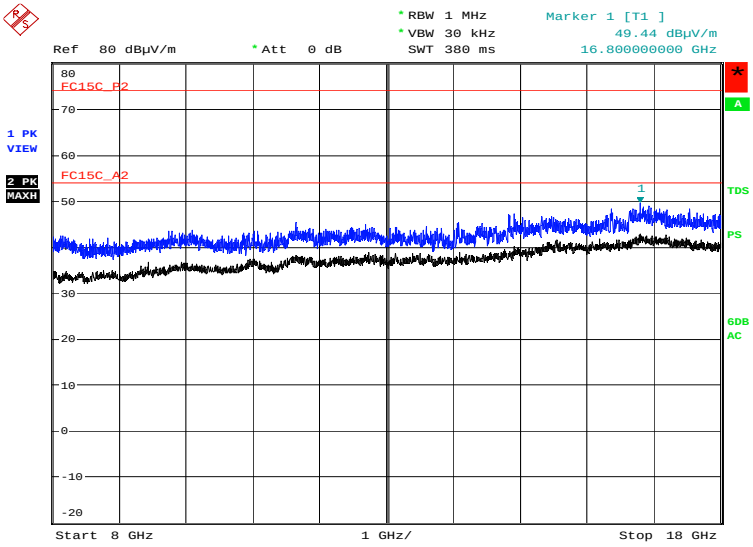
Product Service

802.11n, 2462 MHz, MCS2, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



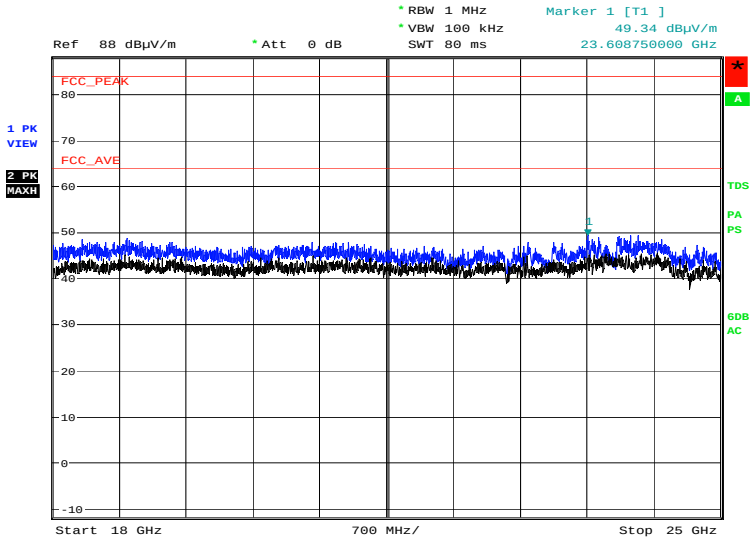
Date: 28.AUG.2016 13:50:10

802.11n, 2462 MHz, MCS2, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 15:45:54

802.11n, 2462 MHz, MCS2, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

Emissions outside the restricted bands shall be at least 20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

FCC 47 CFR Part 15, Limit Clause 15.209

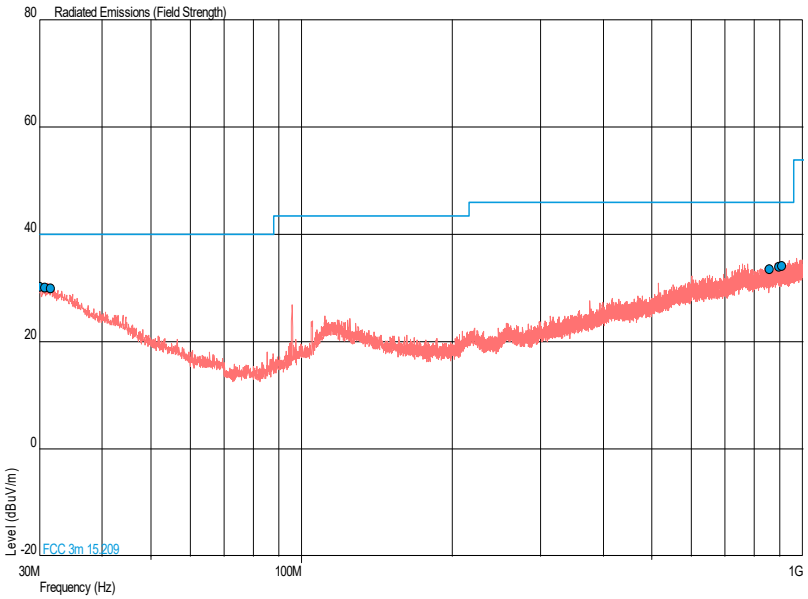
Frequency (MHz)	Field Strength			Measurement Distance (m)
	(µV/m)	Average (dBµV/m)	Peak (dBµV/m)	
30-88	100	40.0	60.0	3
88-216	150	43.5	63.5	3
216-960	200	46.0	66.0	3
Above 960	500	54.0	74.0	3

4.0 V DC Supply

Bluetooth Low Energy, 2402 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.097	30.3	-9.7	32.7	-67.3	0	1.00	Horizontal
30.776	30.1	-9.9	32.0	-68.0	270	1.00	Vertical
31.601	29.9	-10.1	31.3	-68.7	270	1.00	Horizontal
858.817	33.5	-12.5	47.3	-152.7	180	1.00	Horizontal
897.520	33.9	-12.1	49.5	-150.5	270	1.00	Horizontal
908.917	34.2	-11.8	51.3	-148.7	180	1.00	Horizontal

Bluetooth Low Energy, 2402 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot



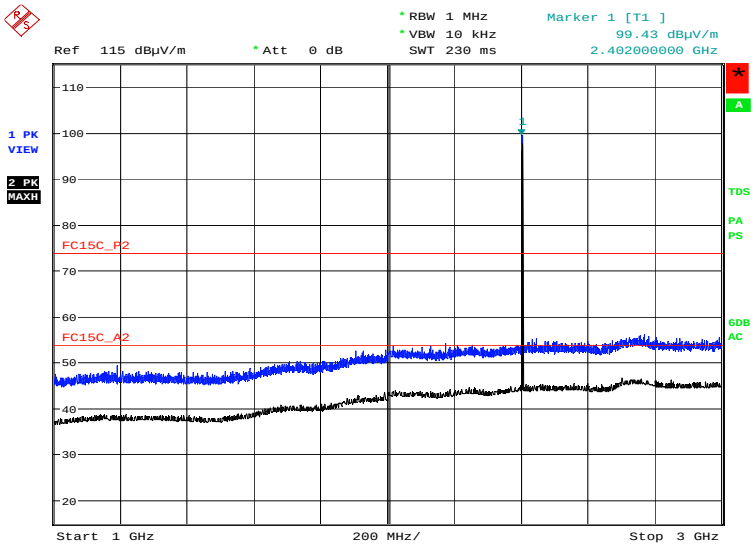
Product Service

Bluetooth Low Energy, 2402 MHz, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

*No emissions were detected within 10 dB of the limit.

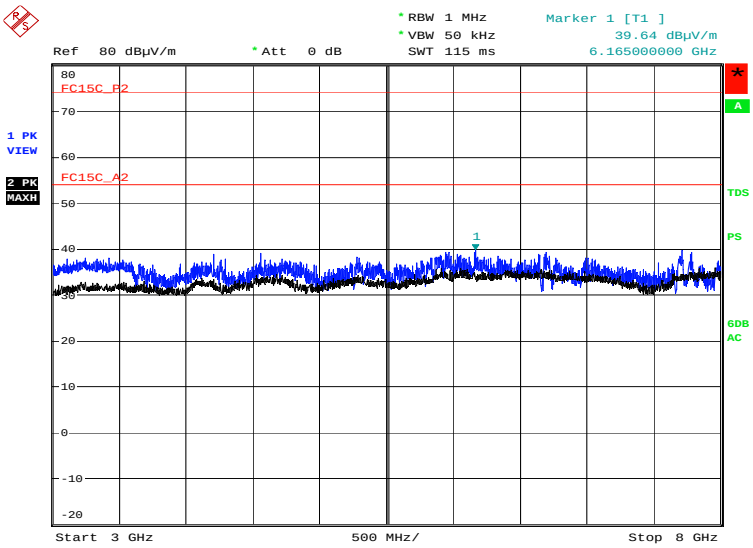
Bluetooth Low Energy, 2402 MHz, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



Date: 23.AUG.2016 22:45:58

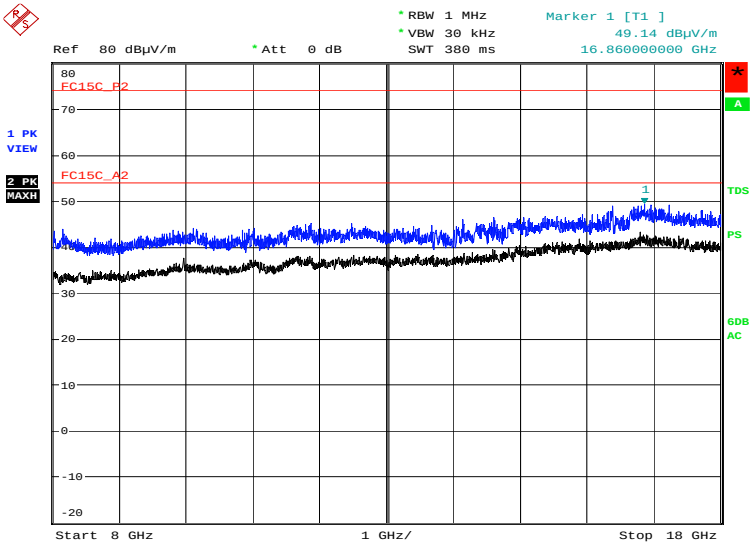
Product Service

Bluetooth Low Energy, 2402 MHz, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 12:07:59

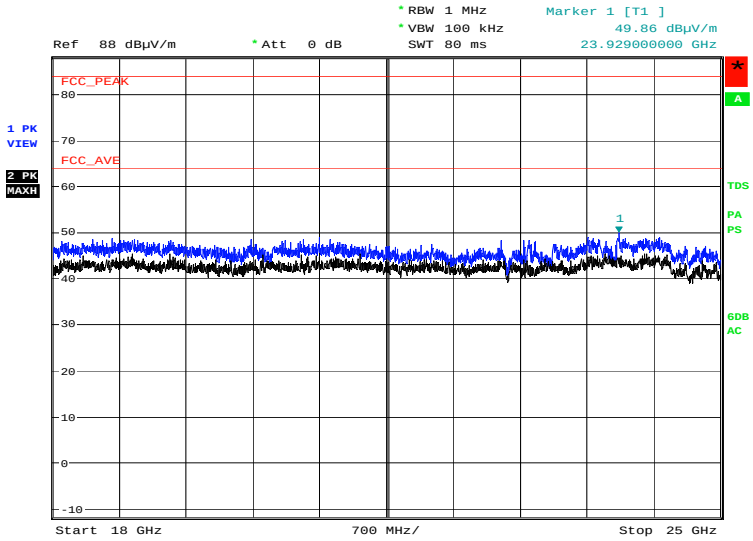
Bluetooth Low Energy, 2402 MHz, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 16:15:44

Product Service

Bluetooth Low Energy, 2402 MHz, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot

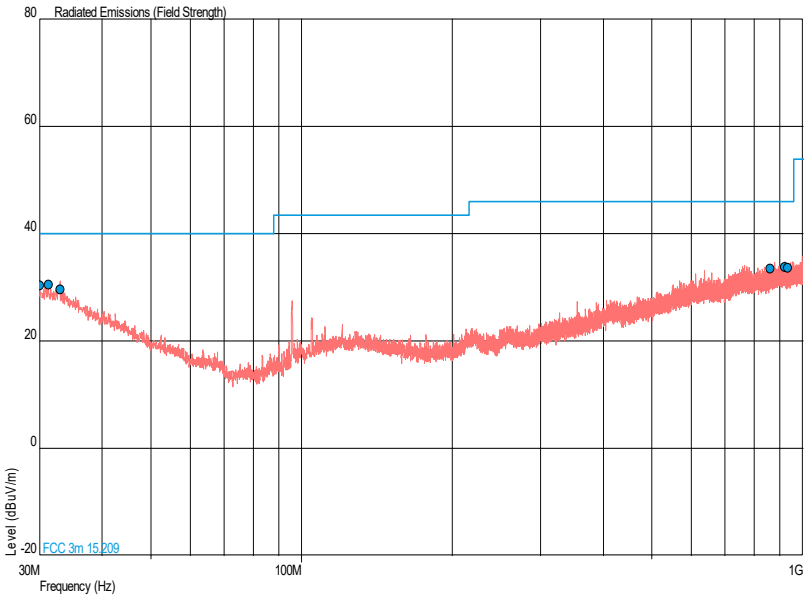


Date: 4.SEP.2016 10:28:41

Bluetooth Low Energy, 2441 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.000	30.4	-9.6	33.1	-66.9	180	1.00	Vertical
31.261	30.5	-9.5	33.5	-66.5	90	1.00	Vertical
32.959	29.6	-10.4	30.2	-69.8	270	1.00	Vertical
859.981	33.5	-12.5	47.3	-152.7	180	1.00	Vertical
921.333	33.9	-12.1	49.5	-150.5	180	1.00	Vertical
933.361	33.6	-12.4	47.9	-152.1	270	1.00	Vertical

Bluetooth Low Energy, 2441 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot



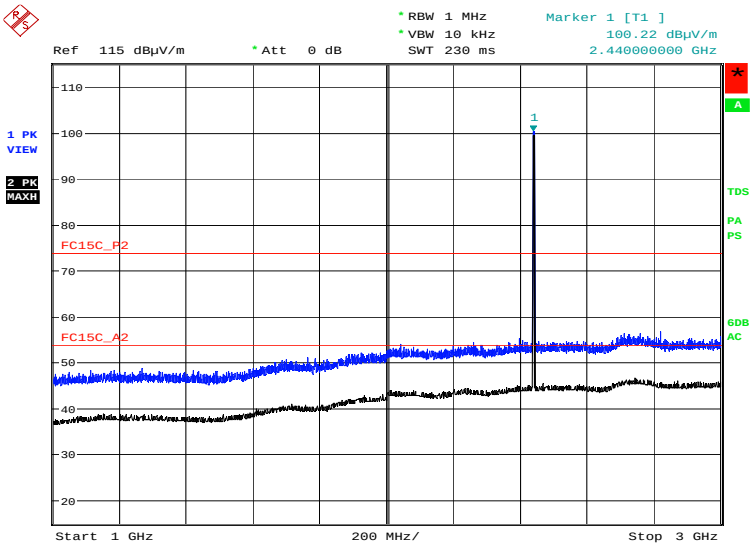
Product Service

Bluetooth Low Energy, 2441 MHz, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

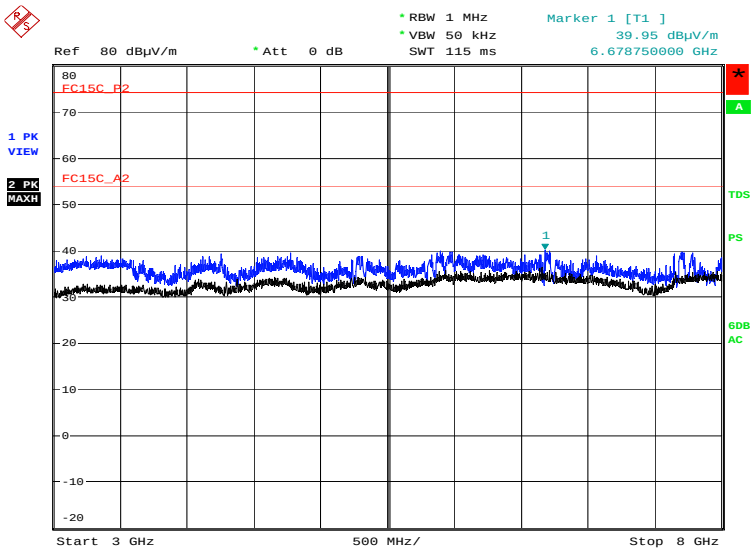
No emissions were detected within 10 dB of the limit.

Bluetooth Low Energy, 2441 MHz, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



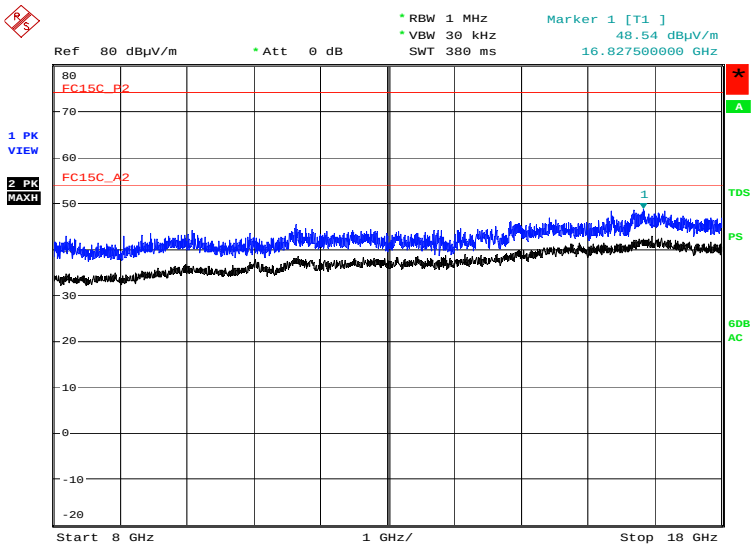
Product Service

Bluetooth Low Energy, 2441 MHz, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 12:15:26

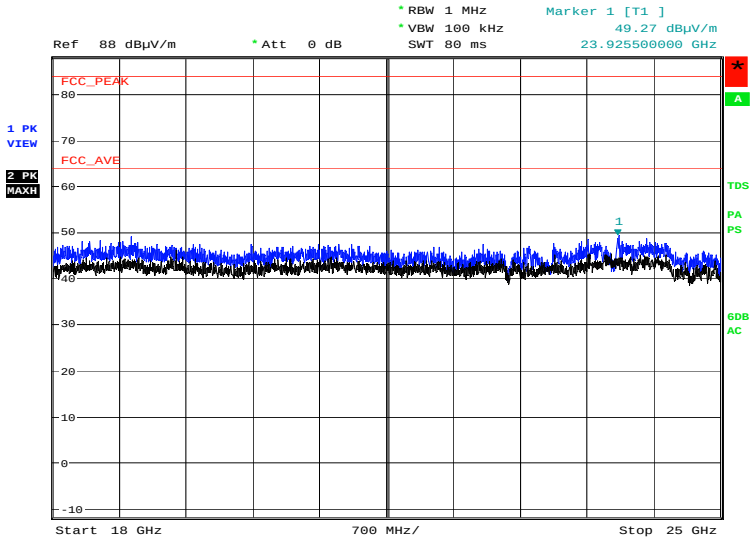
Bluetooth Low Energy, 2441 MHz, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 16:27:27

Product Service

Bluetooth Low Energy, 2441 MHz, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



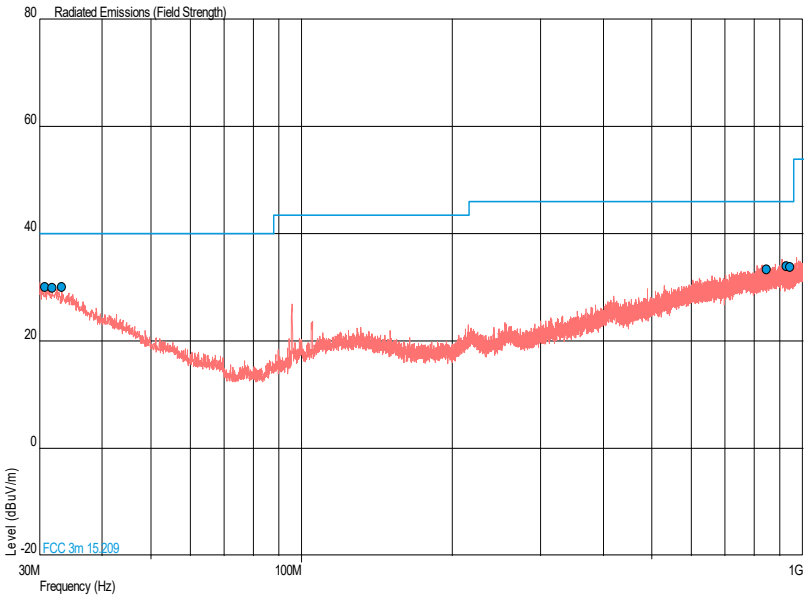
Date: 4.SEP.2016 10:31:49

Product Service

Bluetooth Low Energy, 2480 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	QP Level (dBµV/m)	QP Margin (dBµV/m)	QP Level (µV/m)	QP Margin (µV/m)	Angle (°)	Height (m)	Polarisation
30.775	30.1	-9.9	32.0	-68.0	0	0.00	Horizontal
31.795	29.9	-10.1	31.3	-68.7	90	1.00	Vertical
33.250	30.1	-9.9	32.0	-68.0	180	1.00	Vertical
847.246	33.3	-12.7	46.2	-153.8	180	1.00	Vertical
926.347	33.9	-12.1	49.5	-150.5	180	1.00	Vertical
944.235	33.8	-12.2	49.0	-151.0	180	1.00	Vertical

Bluetooth Low Energy, 2480 MHz, 30 MHz to 1 GHz, Spurious Radiated Emissions Plot



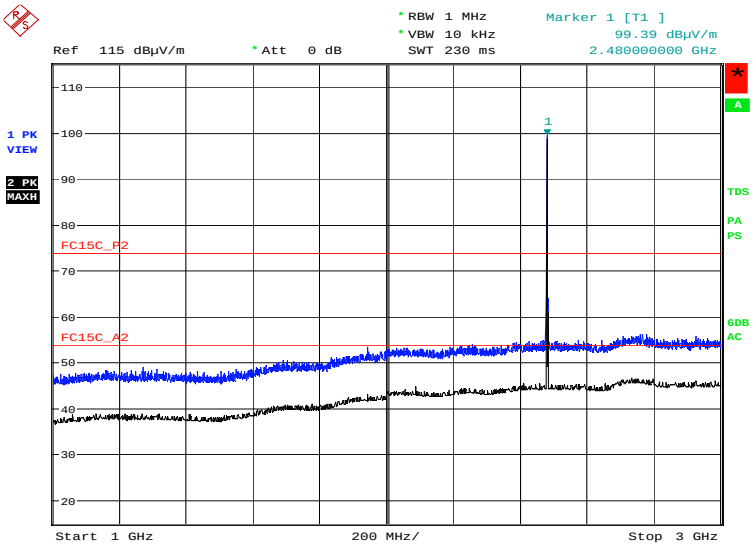
Product Service

Bluetooth Low Energy, 2480 MHz, 1 GHz to 25 GHz, Spurious Radiated Emissions Results

Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

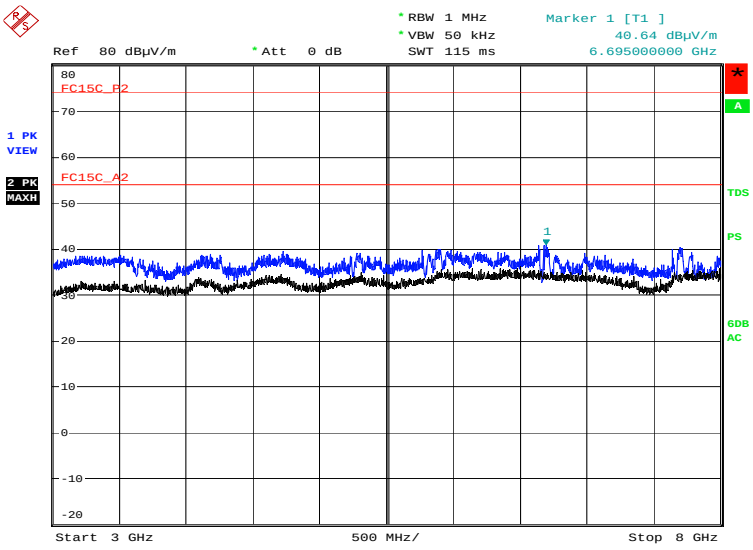
No emissions were detected within 10 dB of the limit.

Bluetooth Low Energy, 2480 MHz, 1 GHz to 3 GHz, Spurious Radiated Emissions Plot



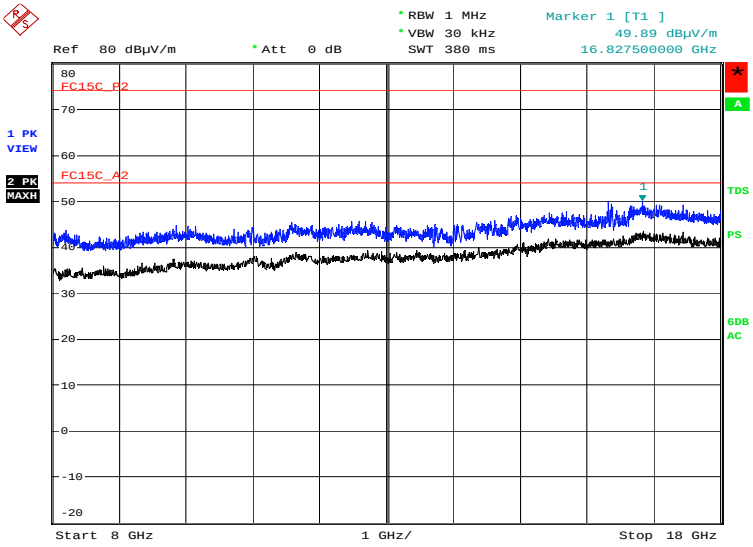
Product Service

Bluetooth Low Energy, 2480 MHz, 3 GHz to 8 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 12:30:46

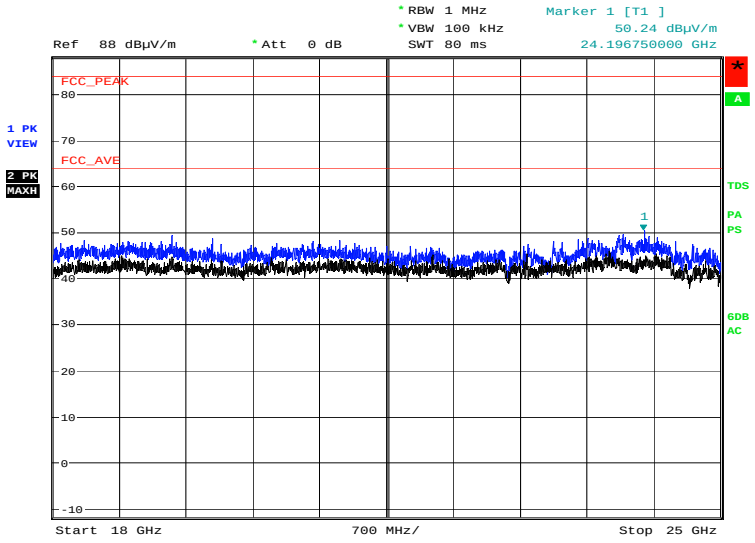
Bluetooth Low Energy, 2480 MHz, 8 GHz to 18 GHz, Spurious Radiated Emissions Plot



Date: 28.AUG.2016 16:53:49

Product Service

Bluetooth Low Energy, 2480 MHz, 18 GHz to 25 GHz, Spurious Radiated Emissions Plot



Date: 4.SEP.2016 10:34:53

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

Emissions outside the restricted bands shall be at least 20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength			Measurement Distance (m)
	(µV/m)	Average (dBµV/m)	Peak (dBµV/m)	
30-88	100	40.0	60.0	3
88-216	150	43.5	63.5	3
216-960	200	46.0	66.0	3
Above 960	500	54.0	74.0	3

2.5 RESTRICTED BAND EDGES

2.5.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205

2.5.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905446 - Modification State 0

2.5.3 Date of Test

23 August 2016 & 24 August 2016

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Test Procedure

Testing was performed in accordance with ANSI C63.10, clause 11.13.1

Remarks

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.3
Final average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.2

2.5.6 Environmental Conditions

Ambient Temperature	19.6 - 20.0°C
Relative Humidity	67.0 - 69.0%

Product Service

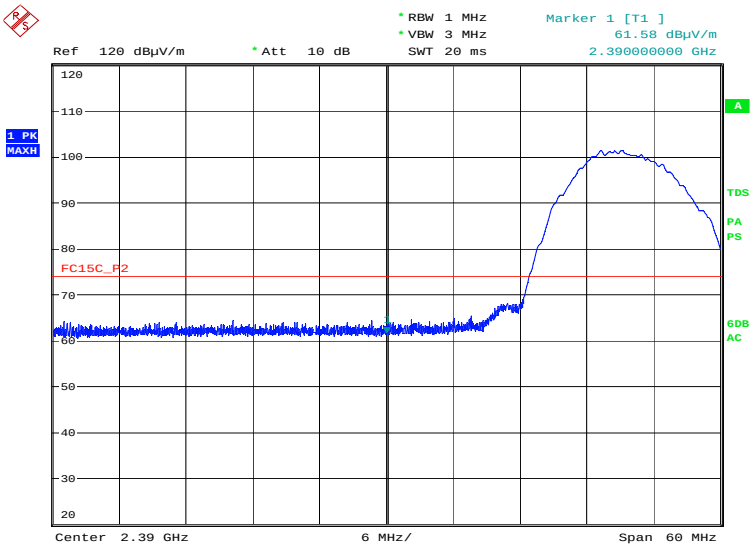
2.5.7 Test Results

4.0 V DC Supply

802.11b, 1 Mbps, Restricted Band Edges Results

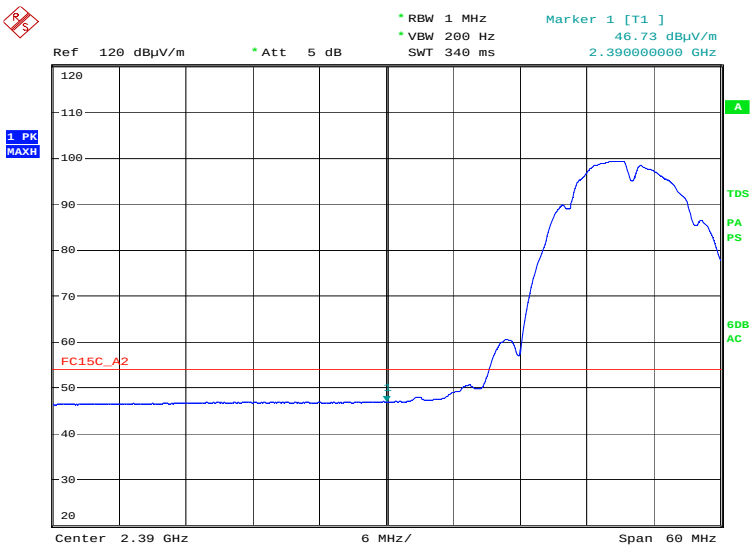
2412 MHz		2462 MHz	
Measured Frequency 2390.00 MHz		Measured Frequency 2483.50 MHz	
dBµV/m		dBµV/m	
Final Peak	Final Average	Final Peak	Final Average
61.58	46.41	62.81	46.56

802.11b, 2412 MHz, Measured Frequency 2390 MHz, 1 Mbps, Final Peak, Restricted Band Edges Plot



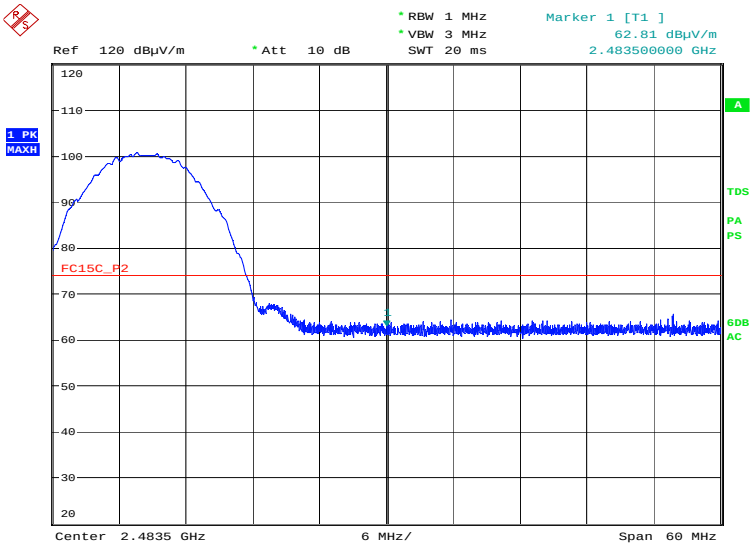
Date: 24.AUG.2016 17:35:23

802.11b, 2412 MHz, Measured Frequency 2390 MHz, 1 Mbps, Final Average, Restricted Band Edges Plot



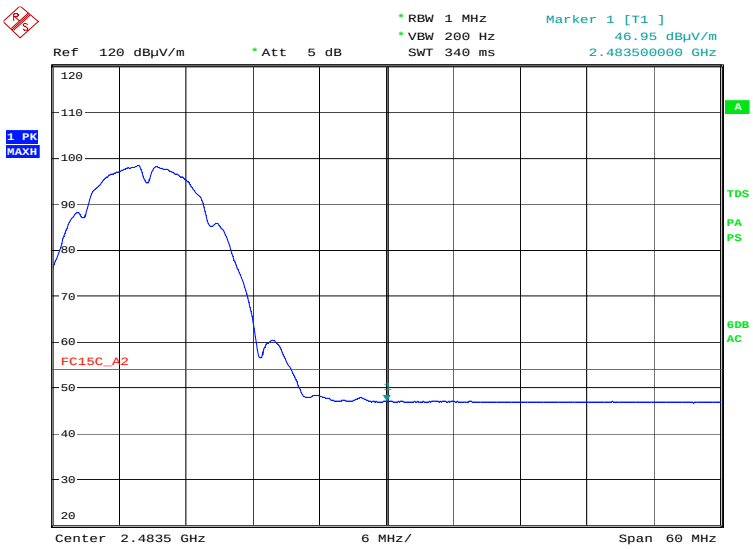
Date: 24.AUG.2016 18:11:56

802.11b, 2462 MHz, Measured Frequency 2483.5 MHz, 1 Mbps, Final Peak, Restricted Band Edges Plot



Date: 24.AUG.2016 18:06:23

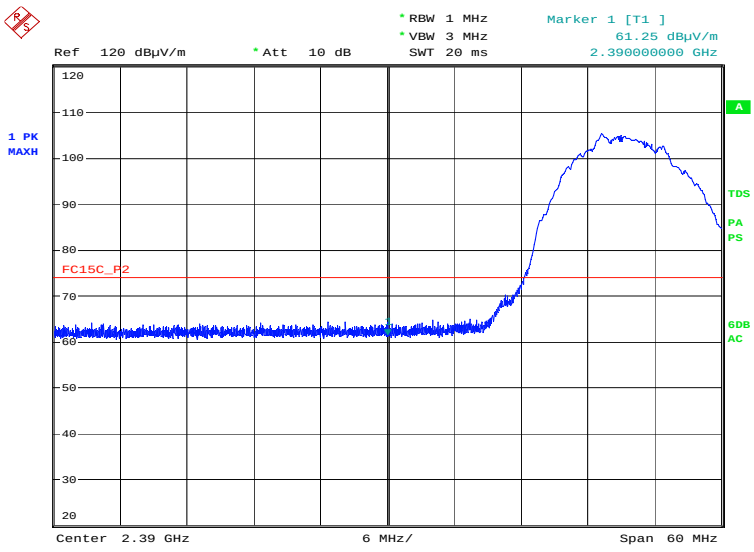
802.11b, 2462 MHz, Measured Frequency 2483.5 MHz, 1 Mbps, Final Average, Restricted Band Edges Plot



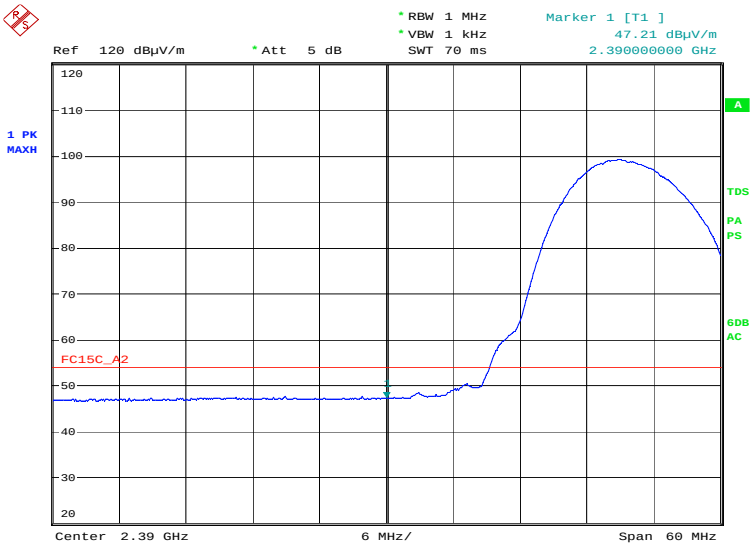
802.11b, 5.5 Mbps, Restricted Band Edges Results

2412 MHz		2462 MHz	
Measured Frequency 2390.00 MHz		Measured Frequency 2483.50 MHz	
dBµV/m		dBµV/m	
Final Peak	Final Average	Final Peak	Final Average
61.25	46.45	61.89	46.54

802.11b, 2412 MHz, Measured Frequency 2390 MHz, 5.5 Mbps, Final Peak, Restricted Band Edges Plot

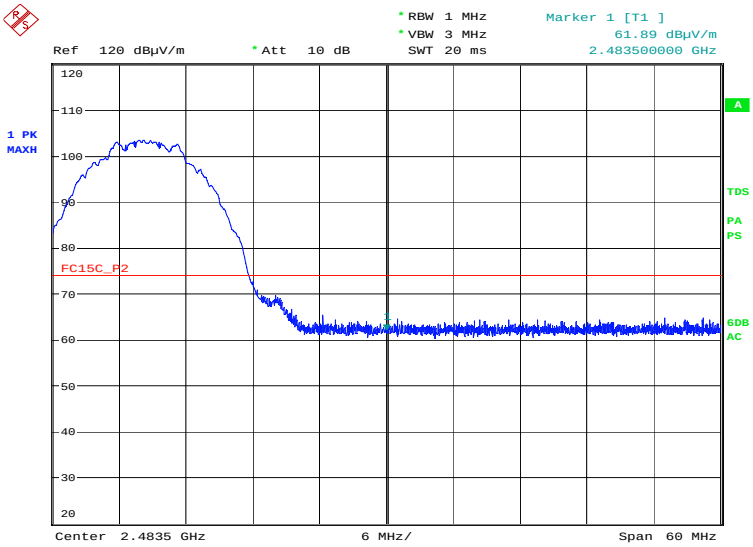


802.11b, 2412 MHz, Measured Frequency 2390 MHz, 5.5 Mbps, Final Average, Restricted Band Edges Plot



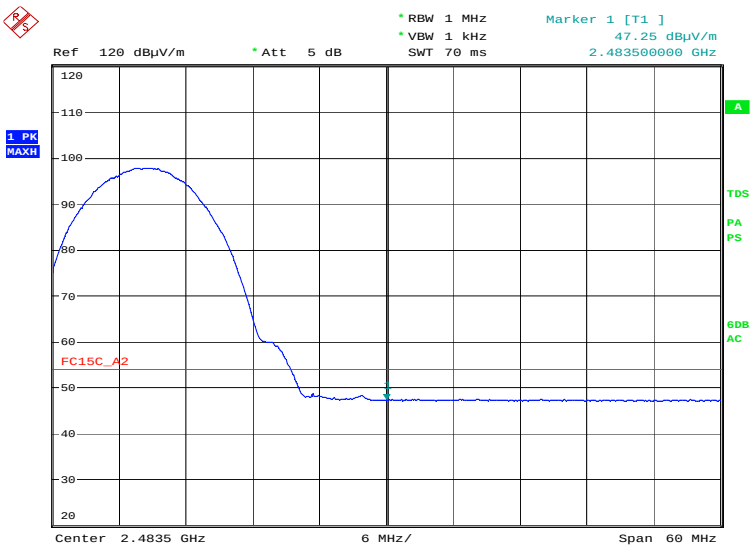
Date: 24.AUG.2016 18:45:14

802.11b, 2462 MHz, Measured Frequency 2483.5 MHz, 5.5 Mbps, Final Peak, Restricted Band Edges Plot



Date: 24.AUG.2016 18:37:08

802.11b, 2462 MHz, Measured Frequency 2483.5 MHz, 5.5 Mbps, Final Average, Restricted Band Edges Plot



Date: 24.AUG.2016 18:37:40

Remarks

The test was performed on 1 Mbps because this was deemed the worst case data rate for Conducted Output Power.

The test was performed on 5.5 Mbps because this was deemed the worst case data rate for Bandwidth.

Final average results shown in the tables above were recorded using a CISPR average detector as described in ANSI C63.10 clause 4.1.2. In order to determine the maximum emissions with the restricted band near the band edge, the method described in ANSI C63.10 clause 6.10.5.2 has been used and these plots are included in the report.

FCC 47 CFR Part 15, Limit Clause 15.205

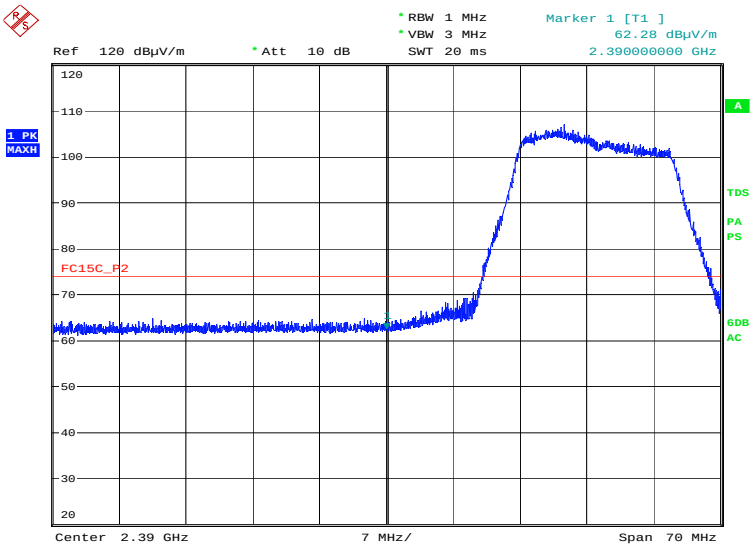
	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

4.0 V DC Supply

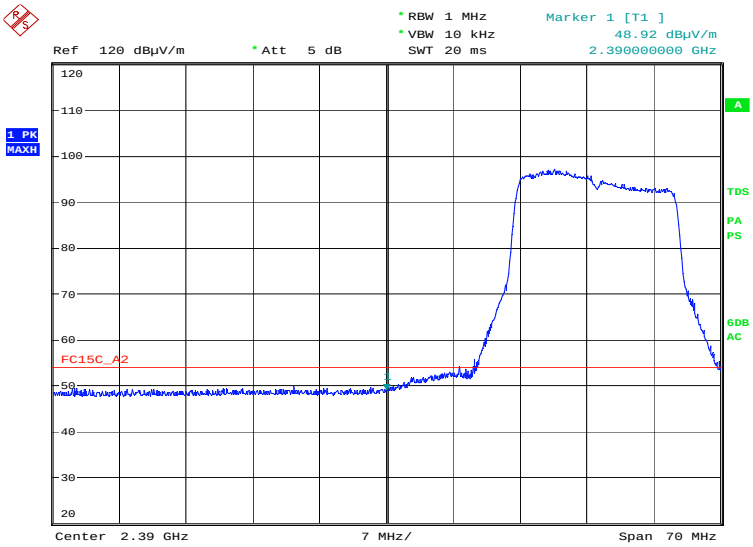
802.11g, 54 Mbps, Restricted Band Edges Results

2412 MHz		2462 MHz	
Measured Frequency 2390.00 MHz		Measured Frequency 2483.50 MHz	
dBµV/m		dBµV/m	
Final Peak	Final Average	Final Peak	Final Average
62.28	46.76	63.30	46.75

802.11g, 2412 MHz, Measured Frequency 2390 MHz, 54 Mbps, Final Peak, Restricted Band Edges Plot

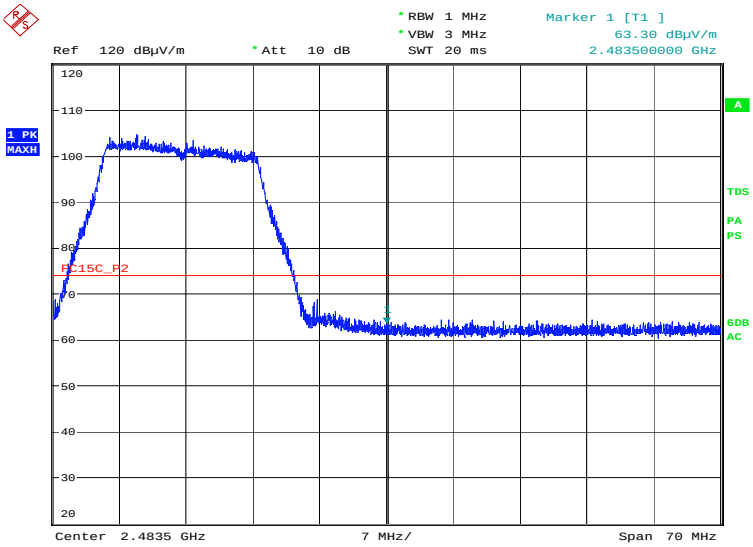


802.11g, 2412 MHz, Measured Frequency 2390 MHz, 54 Mbps, Final Average, Restricted Band Edges Plot



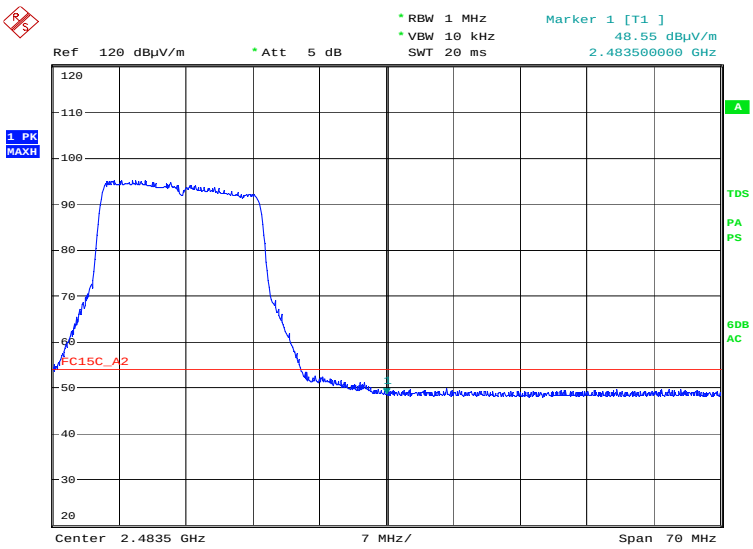
Date: 24.AUG.2016 19:49:06

802.11g, 2462 MHz, Measured Frequency 2483.5 MHz, 54 Mbps, Final Peak, Restricted Band Edges Plot



Date: 24.AUG.2016 20:16:25

802.11g, 2462 MHz, Measured Frequency 2483.5 MHz, 54 Mbps, Final Average, Restricted Band Edges Plot



Date: 24.AUG.2016 20:17:01

Remarks

The test was performed on 54 Mbps only because this was deemed the worst case data rate for Conducted Output Power and 6 dB Bandwidth.

Final average results shown in the tables above were recorded using a CISPR average detector as described in ANSI C63.10 clause 4.1.2. In order to determine the maximum emissions with the restricted band near the band edge, the method described in ANSI C63.10 clause 6.10.5.2 has been used and these plots are included in the report.

FCC 47 CFR Part 15, Limit Clause 15.205

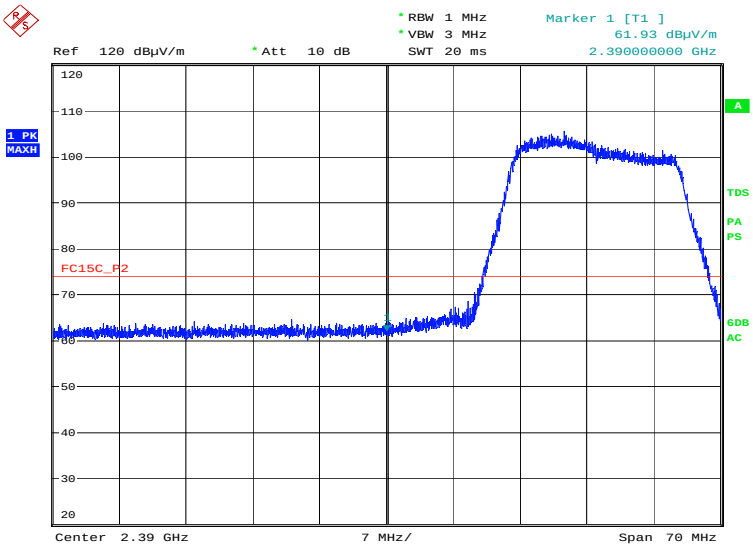
	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

4.0 V DC Supply

802.11n, MCS2, Restricted Band Edges Results

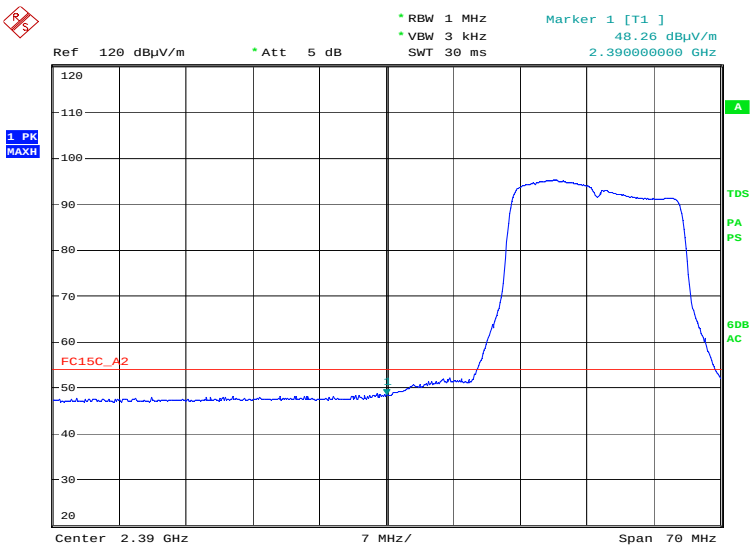
2412 MHz		2462 MHz	
Measured Frequency 2390.00 MHz		Measured Frequency 2483.50 MHz	
dBµV/m		dBµV/m	
Final Peak	Final Average	Final Peak	Final Average
61.93	47.11	63.24	47.05

802.11n, 2412 MHz, Measured Frequency 2390 MHz, MCS2, Final Peak, Restricted Band Edges Plot



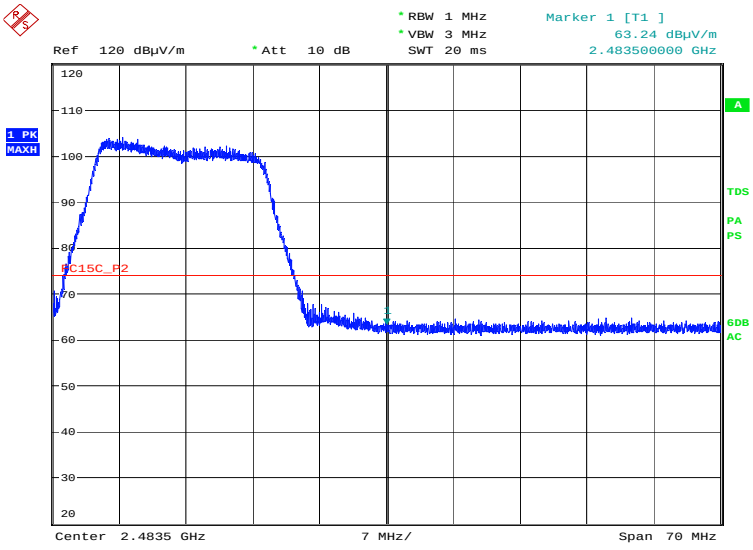
Date: 24.AUG.2016 20:54:41

802.11n, 2412 MHz, Measured Frequency 2390 MHz, MCS2, Final Average, Restricted Band Edges Plot



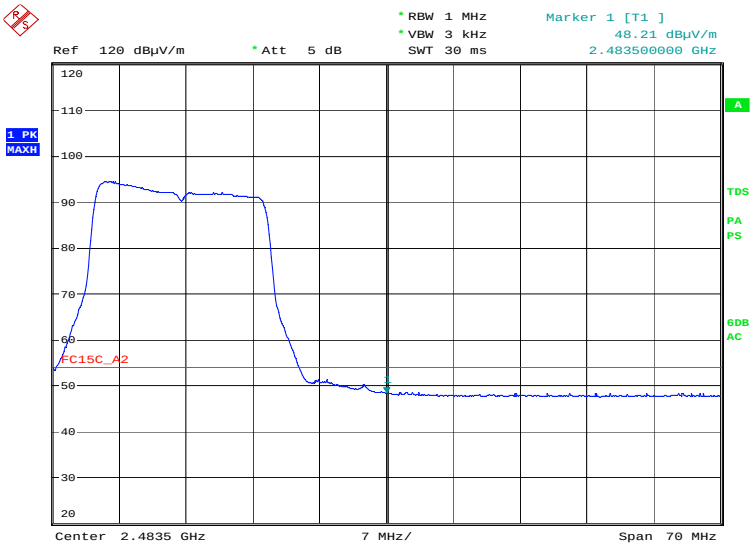
Date: 24.AUG.2016 20:55:14

802.11n, 2462 MHz, Measured Frequency 2483.5 MHz, MCS2, Final Peak, Restricted Band Edges Plot



Date: 24.AUG.2016 21:14:42

802.11n, 2462 MHz, Measured Frequency 2483.5 MHz, MCS2, Final Average, Restricted Band Edges Plot

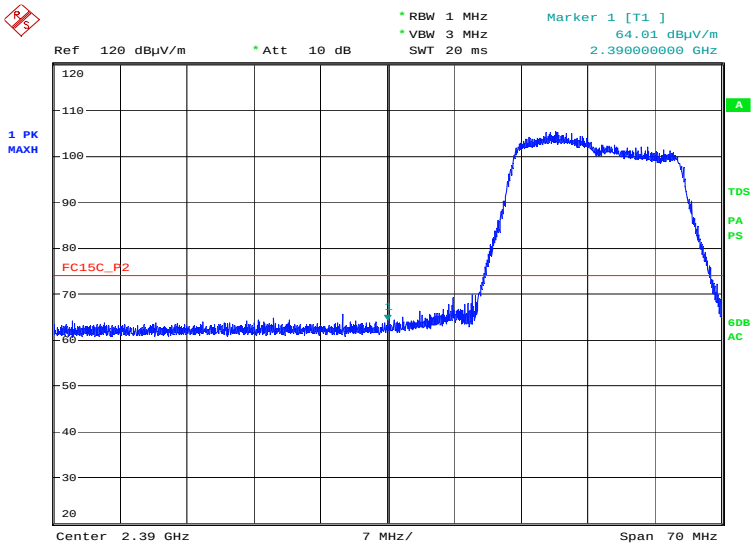


Date: 24.AUG.2016 21:16:12

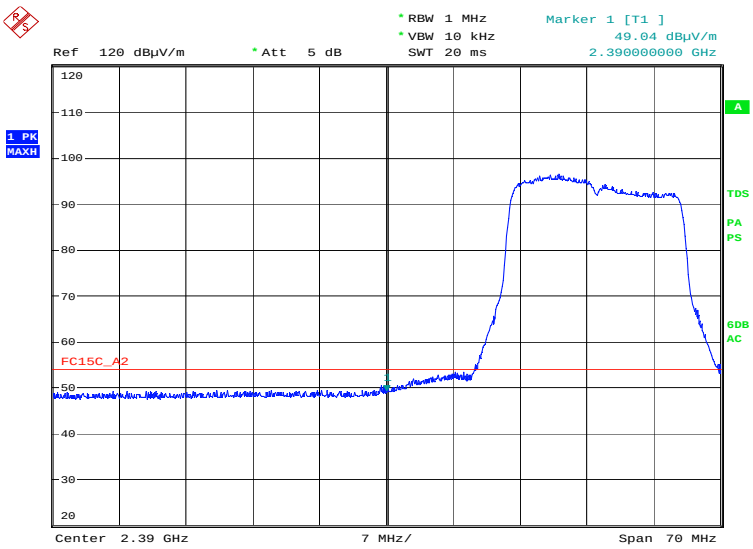
802.11n, MCS6, Restricted Band Edges Results

2412 MHz		2462 MHz	
Measured Frequency 2390.00 MHz		Measured Frequency 2483.50 MHz	
dBµV/m		dBµV/m	
Final Peak	Final Average	Final Peak	Final Average
64.01	46.97	63.42	47.00

802.11n, 2412 MHz, Measured Frequency 2390 MHz, MCS6, Final Peak, Restricted Band Edges Plot

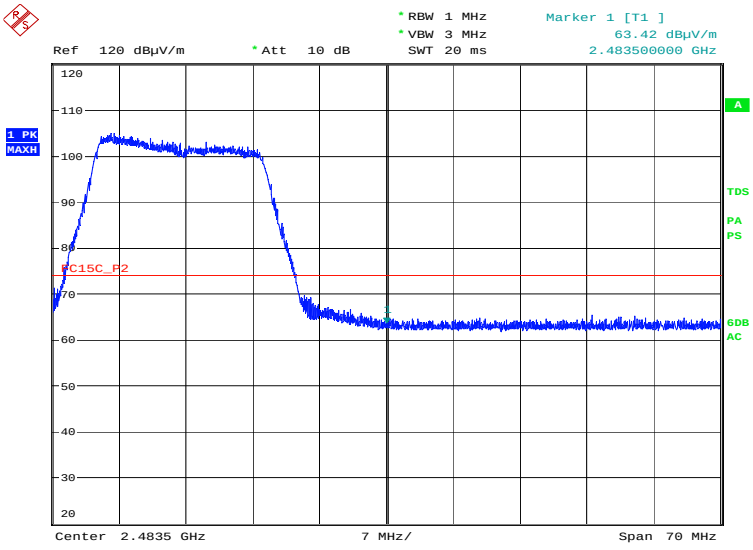


802.11n, 2412 MHz, Measured Frequency 2390 MHz, MCS6, Final Average, Restricted Band Edges Plot



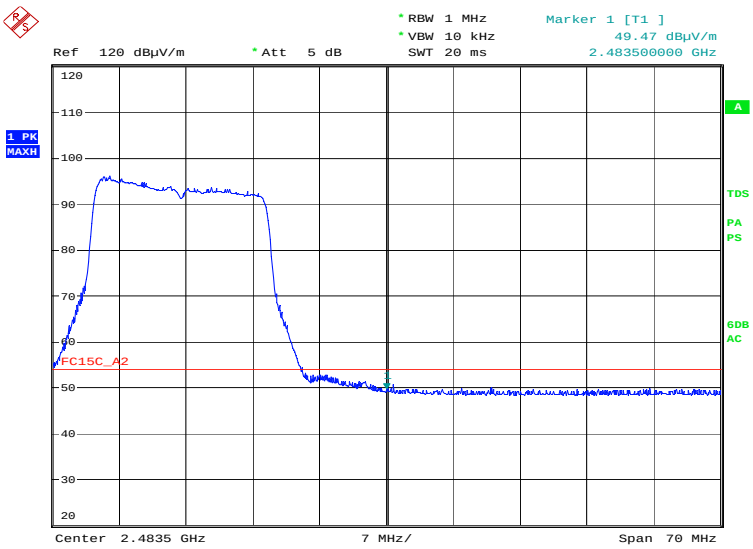
Date: 24.AUG.2016 21:35:02

802.11n, 2462 MHz, Measured Frequency 2483.5 MHz, MCS6, Final Peak, Restricted Band Edges Plot



Date: 24.AUG.2016 21:45:48

802.11n, 2462 MHz, Measured Frequency 2483.5 MHz, MCS6, Final Average, Restricted Band Edges Plot



Date: 24.AUG.2016 21:40:07

Remarks

The test was performed on MCS2 because this was deemed the worst case data rate for Conducted Output Power.

The test was performed on MCS6 because this was deemed the worst case data rate for Bandwidth.

Final average results shown in the tables above were recorded using a CISPR average detector as described in ANSI C63.10 clause 4.1.2. In order to determine the maximum emissions with the restricted band near the band edge, the method described in ANSI C63.10 clause 6.10.5.2 has been used and these plots are included in the report.

FCC 47 CFR Part 15, Limit Clause 15.205

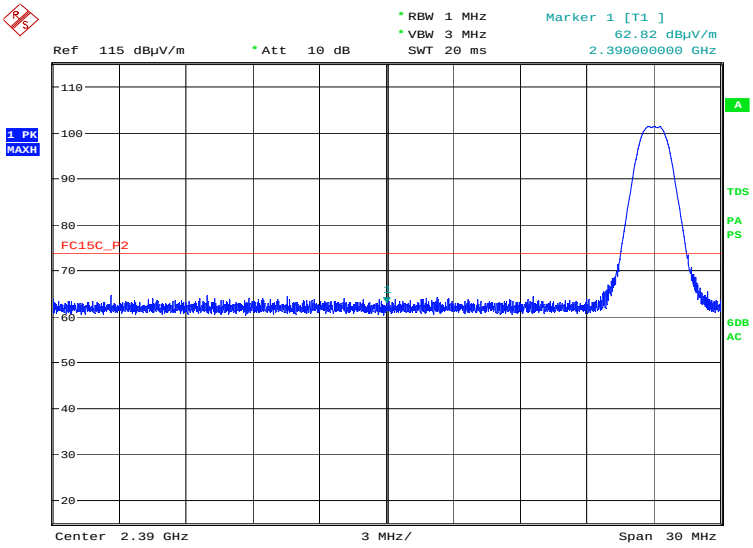
	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

4.0 V DC Supply

Bluetooth Low Energy, GFSK, Restricted Band Edges Results

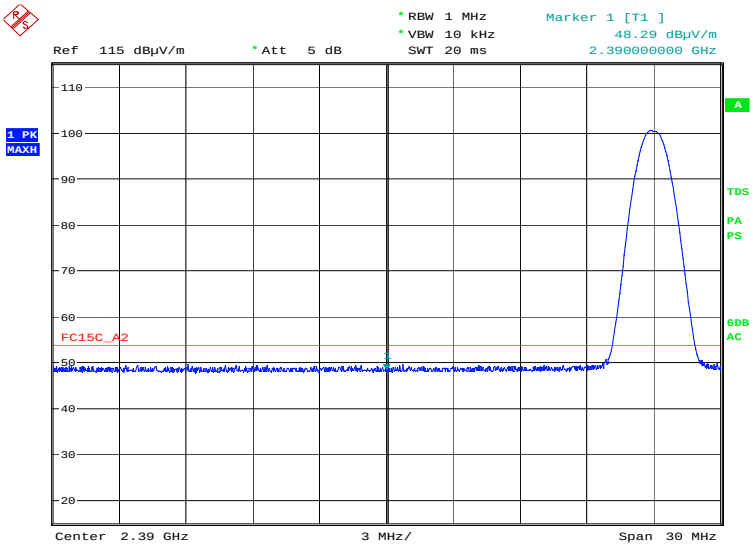
2402 MHz		2480 MHz	
Measured Frequency 2390 MHz		Measured Frequency 2483.5 MHz	
dBµV/m		dBµV/m	
Final Peak	Final Average	Final Peak	Final Average
62.82	46.33	61.86	46.52

Bluetooth Low Energy, 2402 MHz, Measured Frequency 2390 MHz, GFSK, Final Peak, Restricted Band Edges Plot



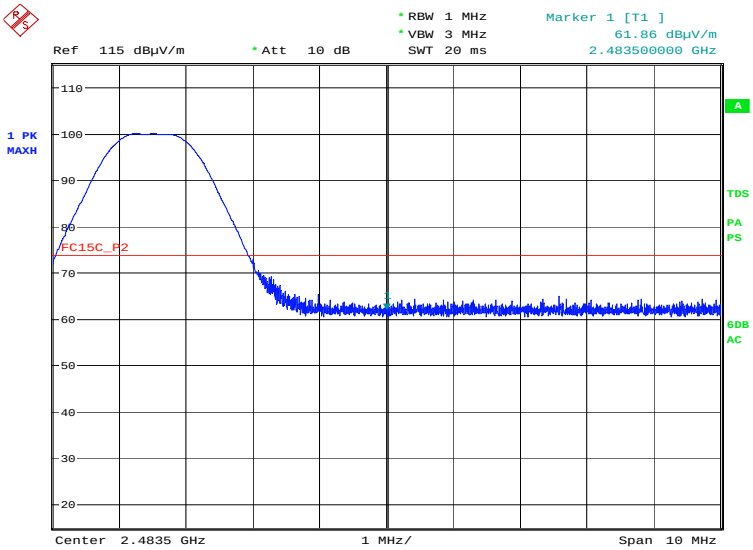
Date: 23.AUG.2016 23:36:05

Bluetooth Low Energy, 2402 MHz, Measured Frequency 2390 MHz, GFSK, Final Average, Restricted Band Edges Plot



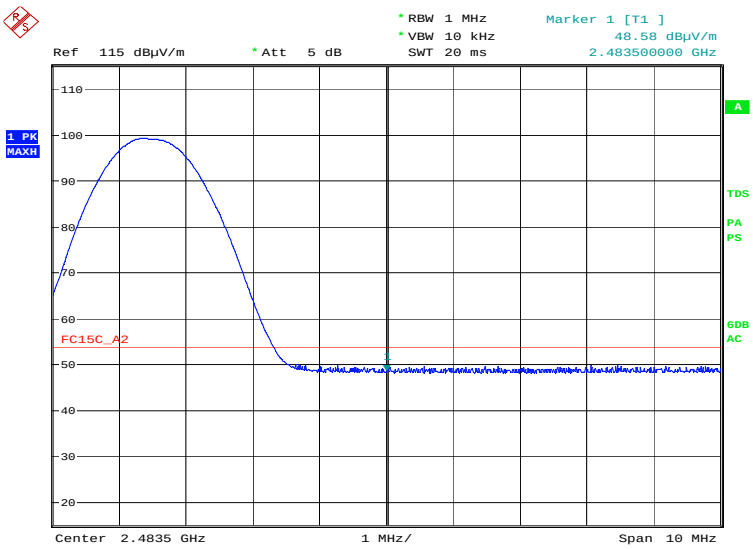
Date: 23.AUG.2016 23:07:09

Bluetooth Low Energy, 2480 MHz, Measured Frequency 2483.5 MHz, GFSK, Final Peak, Restricted Band Edges Plot



Date: 23.AUG.2016 23:24:16

Bluetooth Low Energy, 2480 MHz, Measured Frequency 2483.5 MHz, GFSK, Final Average, Restricted Band Edges Plot



Date: 23.AUG.2016 23:25:13

FCC 47 CFR Part 15, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

2.6 AUTHORISED BAND EDGES

2.6.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d)

2.6.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905446 - Modification State 0

2.6.3 Date of Test

23 August 2016 & 24 August 2016

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.5 Test Procedure

Testing was performed in accordance with ANSI C63.10, clause 6.10.4 and 11.13.1.

2.6.6 Environmental Conditions

Ambient Temperature	19.6 - 20.0°C
Relative Humidity	67.0 - 69.0%

Product Service

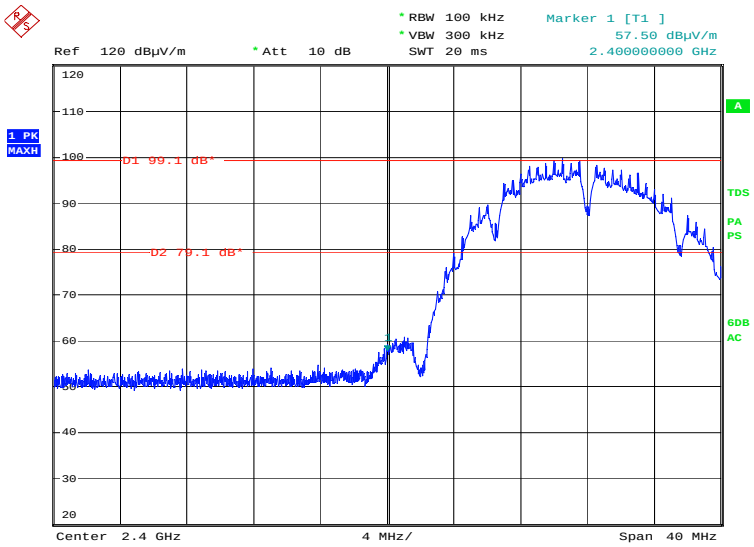
2.6.7 Test Results

4.0 V DC Supply

802.11b, 1 Mbps, Authorised Band Edges Results

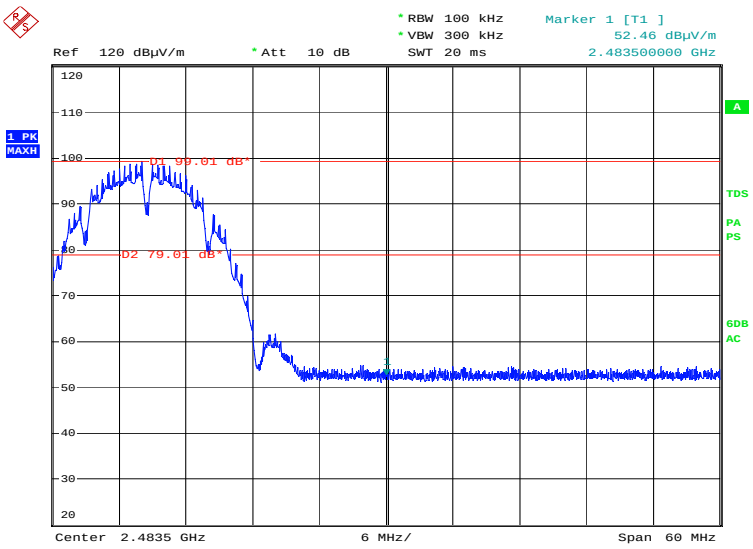
2412 MHz	2462 MHz
Measured Frequency 2400.00 MHz	Measured Frequency 2483.50 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
57.50	52.46

802.11b, 2412 MHz, Measured Frequency 2400.00 MHz, 1 Mbps, Final Peak, Authorised Band Edges Plot



Date: 24.AUG.2016 17:33:05

802.11b, 2462 MHz, Measured Frequency 2483.50 MHz, 1 Mbps, Final Peak, Authorised Band Edges Plot

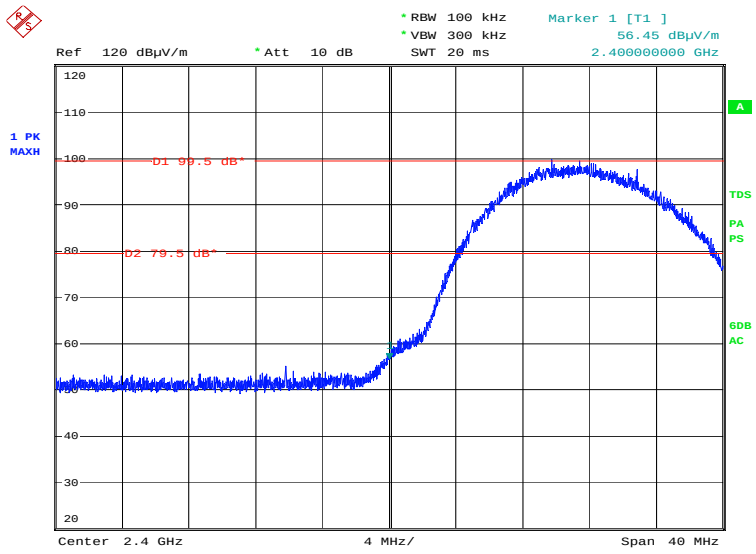


Product Service

802.11b, 5.5 Mbps, Authorised Band Edges Results

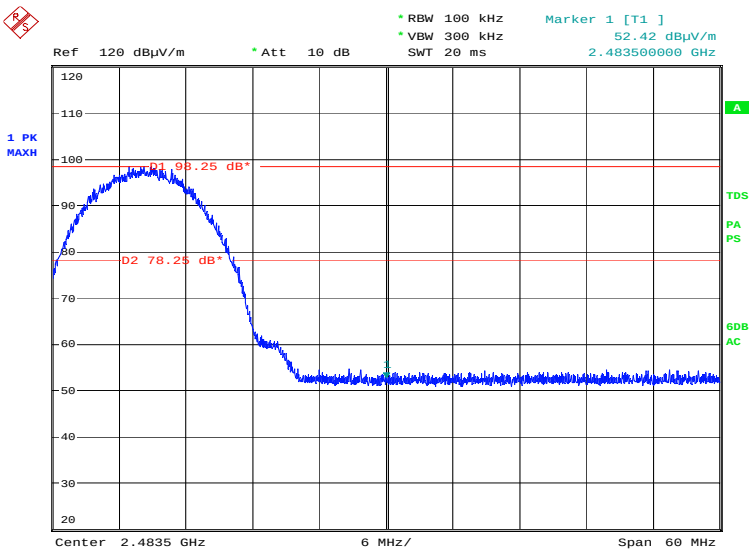
2412 MHz	2462 MHz
Measured Frequency 2400.00 MHz	Measured Frequency 2483.50 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
56.45	52.42

802.11b, 2412 MHz, Measured Frequency 2400.00 MHz, 5.5 Mbps, Final Peak, Authorised Band Edges Plot



Date: 24.AUG.2016 18:47:28

802.11b, 2462 MHz, Measured Frequency 2483.50 MHz, 5.5 Mbps, Final Peak, Authorised Band Edges Plot



Date: 24.AUG.2016 18:36:13

Remark

The test was performed on 1 Mbps because this was deemed the worst case data rate for Conducted Output Power.

The test was performed on 5.5 Mbps because this was deemed the worst case data rate for 6 dB Bandwidth.

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

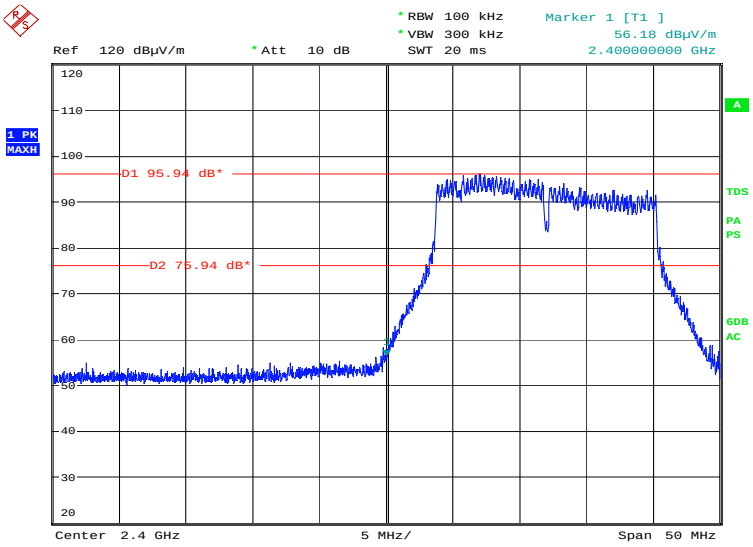
20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

4.0 V DC Supply

802.11g, 54 Mbps, Authorised Band Edges Results

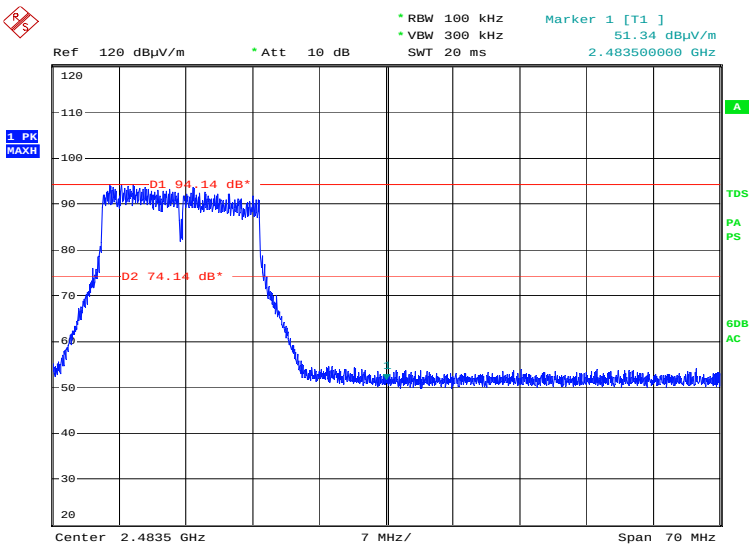
2412 MHz	2462 MHz
Measured Frequency 2400.00 MHz	Measured Frequency 2483.50 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
56.18	51.34

802.11g, 2412 MHz, Measured Frequency 2400.00 MHz, 54 Mbps, Final Peak, Authorised Band Edges Plot



Date: 24.AUG.2016 19:56:08

802.11g, 2462 MHz, Measured Frequency 2483.50 MHz, 54 Mbps, Final Peak, Authorised Band Edges Plot



Remark

The test was performed on 54 Mbps only because this was deemed the worst case data rate for Conducted Output Power and 6 dB Bandwidth.

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

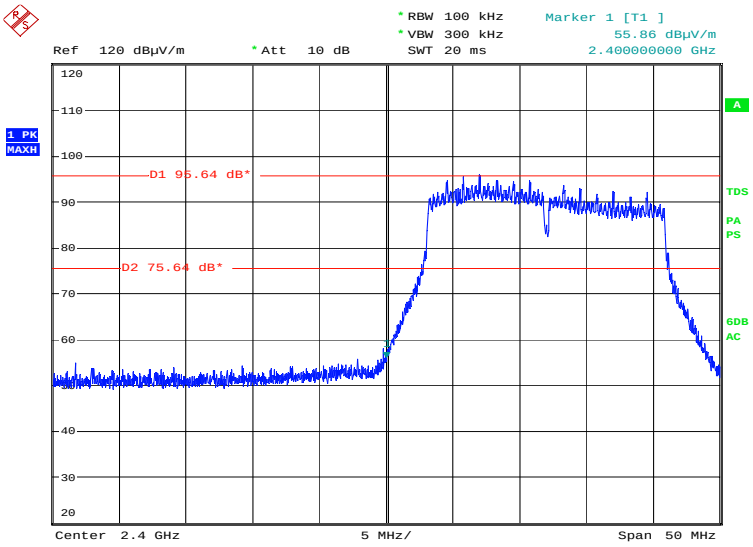
20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

4.0 V DC Supply

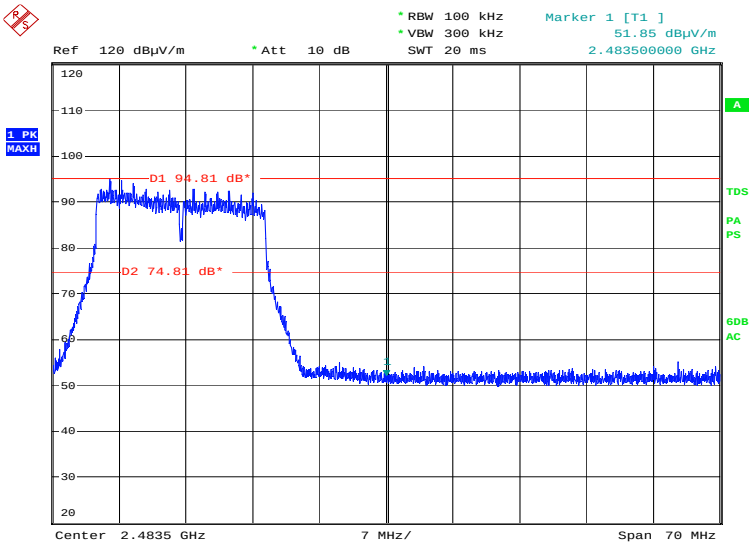
802.11n, MCS2, Authorised Band Edges Results

2412 MHz	2462 MHz
Measured Frequency 2400.00 MHz	Measured Frequency 2483.50 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
55.86	51.85

802.11n, 2412 MHz, Measured Frequency 2400.00 MHz, MCS2, Final Peak, Authorised Band Edges Plot



802.11n, 2462 MHz, Measured Frequency 2483.50 MHz, MCS2, Final Peak, Authorised Band Edges Plot



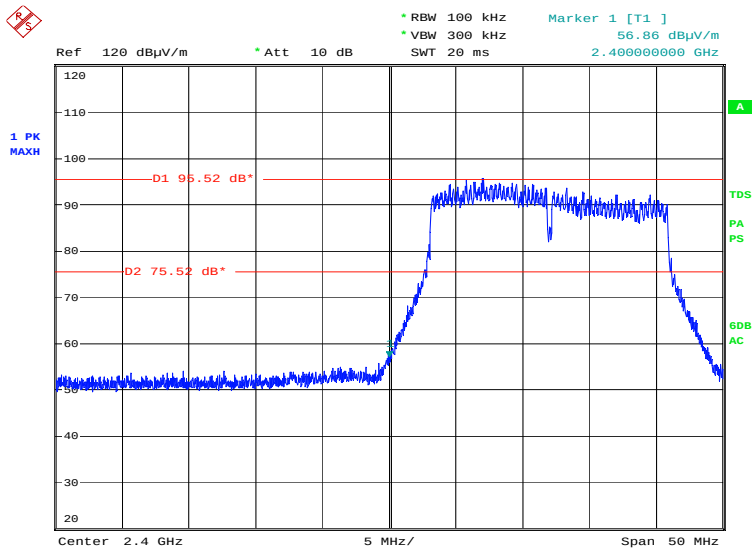
Date: 24.AUG.2016 21:18:02

Product Service

802.11n, MCS6, Authorised Band Edges Results

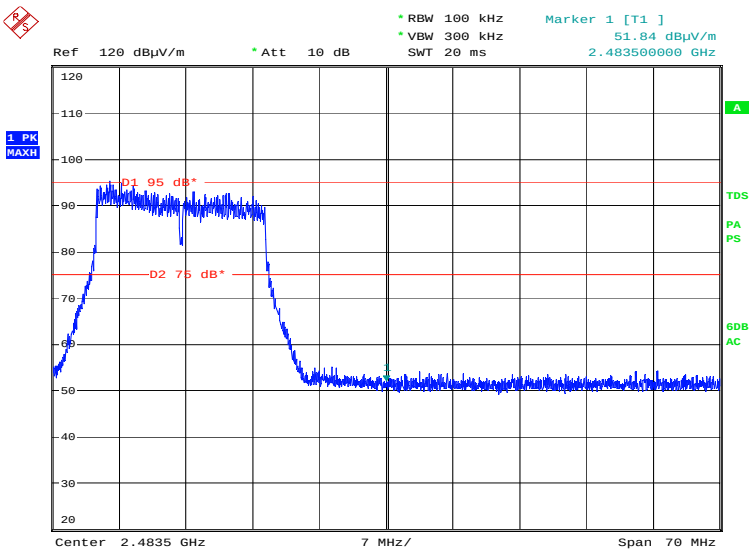
2412 MHz	2462 MHz
Measured Frequency 2400.00 MHz	Measured Frequency 2483.50 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
56.86	51.84

802.11n, 2412 MHz, Measured Frequency 2400.00 MHz, MCS6, Final Peak, Authorised Band Edges Plot



Date: 24.AUG.2016 21:32:34

802.11n, 2462 MHz, Measured Frequency 2483.50 MHz, MCS6, Final Peak, Authorised Band Edges Plot



Remark

The test was performed on MCS2 because this was deemed the worst case data rate for Conducted Output Power.

The test was performed on MCS6 because this was deemed the worst case data rate for 6 dB Bandwidth.

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

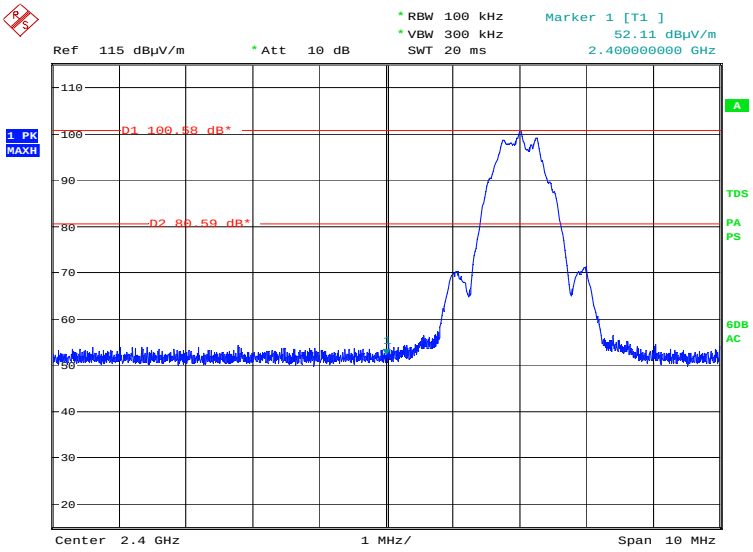
20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

4.0 V DC Supply

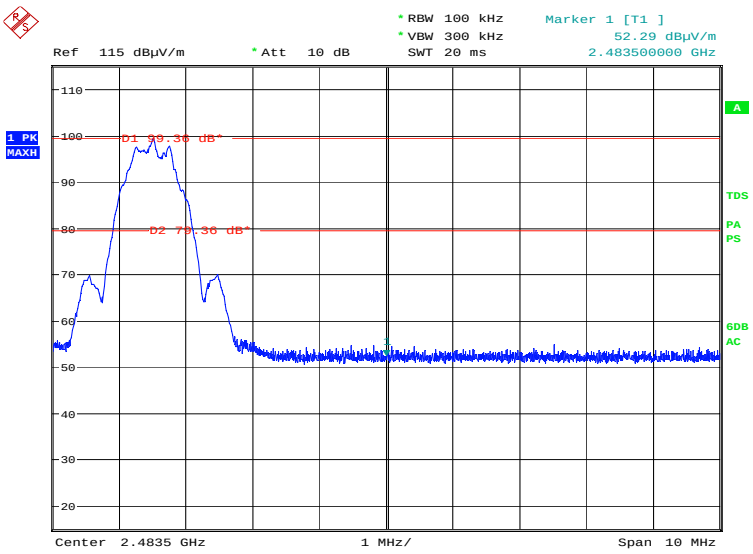
Bluetooth Low Energy, GFSK, Authorised Band Edges Results

2402 MHz	2480 MHz
Measured Frequency 2400.00 MHz	Measured Frequency 2483.50 MHz
dBµV/m	dBµV/m
Final Peak	Final Peak
52.11	52.29

Bluetooth Low Energy, 2402 MHz, Measured Frequency 2400.00 MHz, GFSK, Final Peak, Authorised Band Edges Plot



Bluetooth Low Energy, 2480 MHz, Measured Frequency 2483.50 MHz, GFSK, Final Peak, Authorised Band Edges Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

2.7 POWER SPECTRAL DENSITY

2.7.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (e)

2.7.2 Equipment Under Test and Modification State

S/N: IMEI 004401115905206 - Modification State 0

2.7.3 Date of Test

24 August 2016

2.7.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.7.5 Test Procedure

The test was performed in accordance with ANSI C63.10, clause 11.10.2.

2.7.6 Environmental Conditions

Ambient Temperature	21.9 - 22.6°C
Relative Humidity	60.3 - 73.0%

Product Service

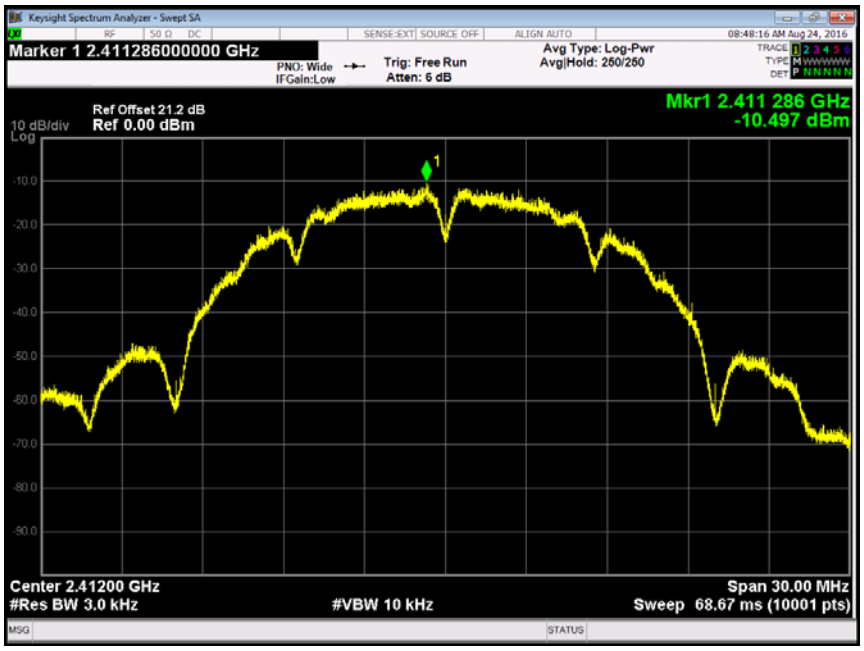
2.7.7 Test Results

4.0 V DC Supply

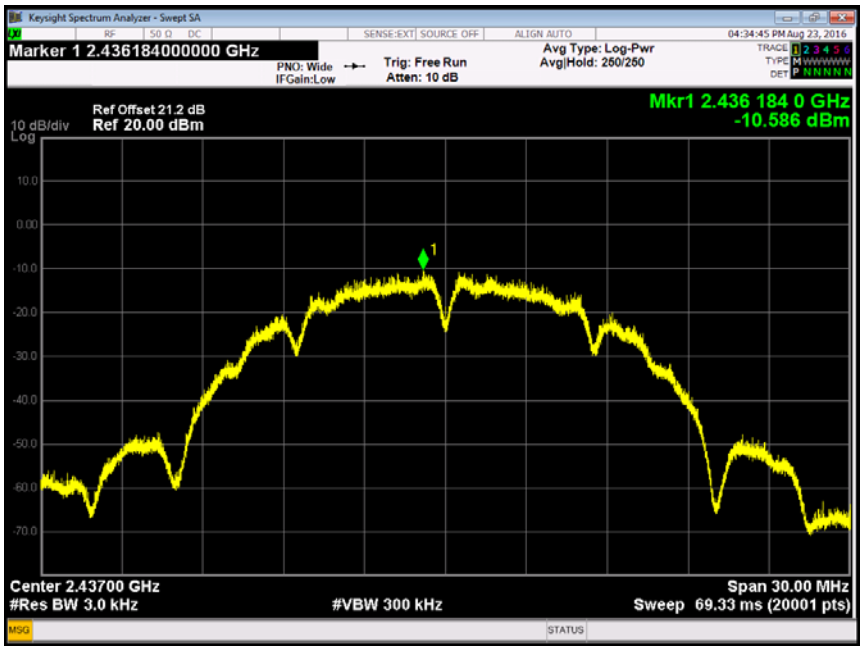
802.11b, DSSS, 1 Mbps, Power Spectral Density Results

2412 MHz	2437 MHz	2462 MHz
dBm	dBm	dBm
-10.497	-10.586	-10.304

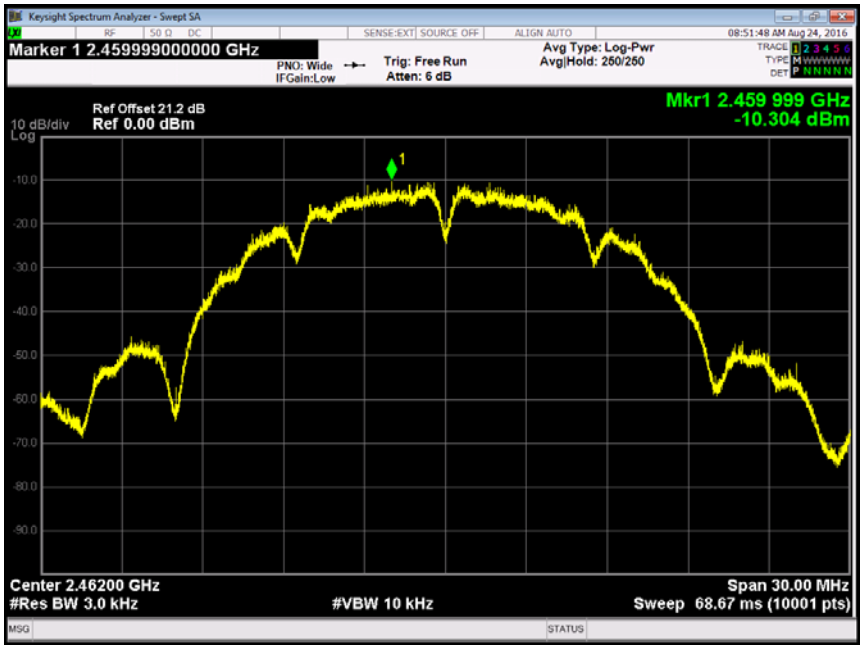
802.11b, 2412 MHz, DSSS, 1 Mbps, Port A, Power Spectral Density Plot



802.11b, 2437 MHz, DSSS, 1 Mbps, Port A, Power Spectral Density Plot



802.11b, 2462 MHz, DSSS, 1 Mbps, Port A Power Spectral Density Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

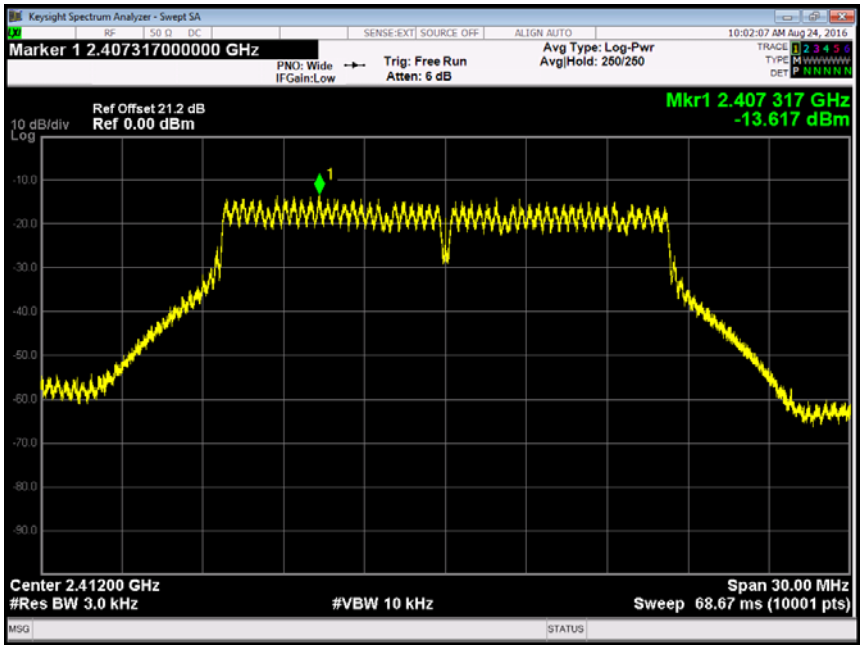
Product Service

4.0 V DC Supply

802.11g, OFDM, 54 Mbps, Power Spectral Density Results

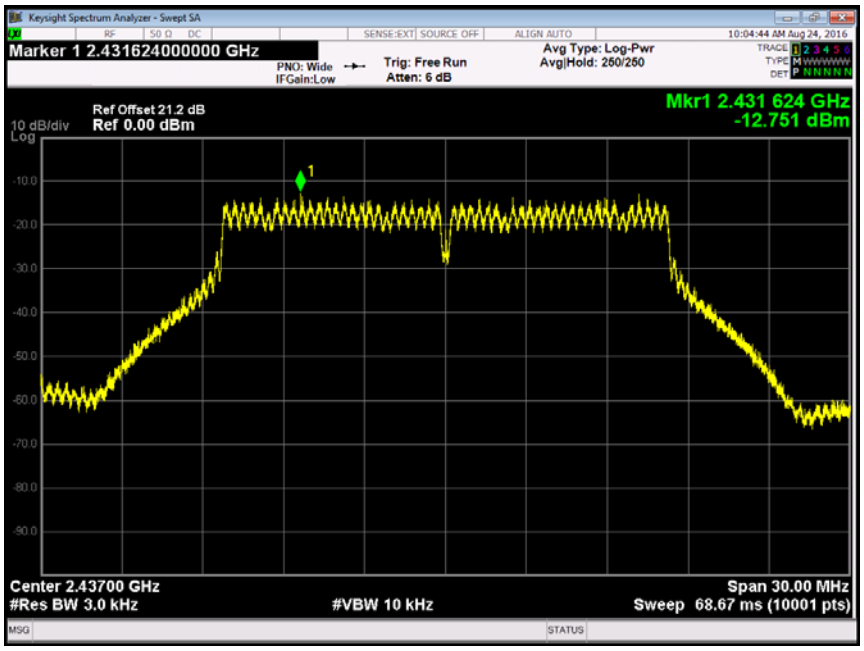
2412 MHz	2437 MHz	2462 MHz
dBm	dBm	dBm
-13.617	-12.751	-12.899

802.11g, 2412 MHz, OFDM, 54 Mbps, Port A, Power Spectral Density Plot

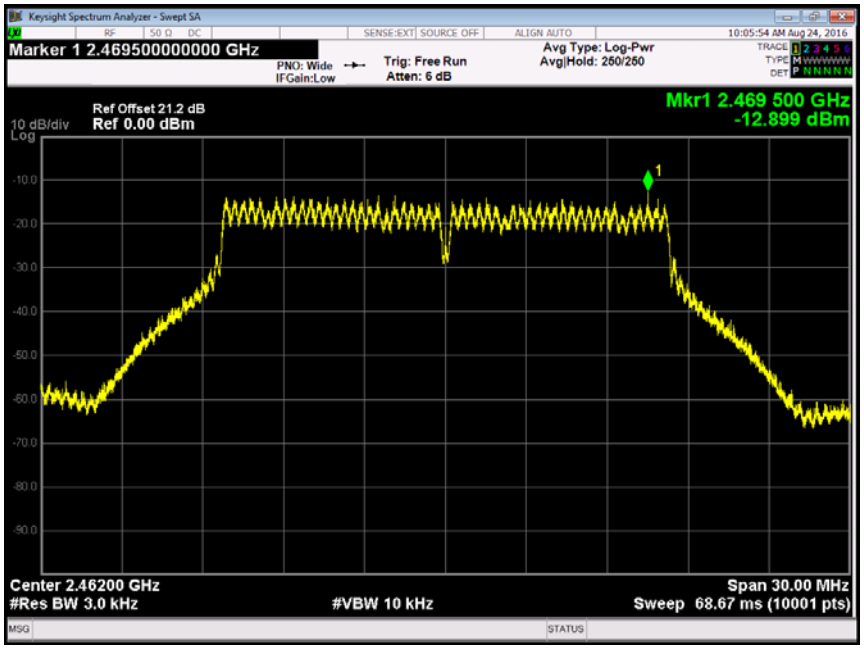


Product Service

802.11g, 2437 MHz, OFDM, 54 Mbps, Port A, Power Spectral Density Plot



802.11g, 2462 MHz, OFDM, 54 Mbps, Port A Power Spectral Density Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

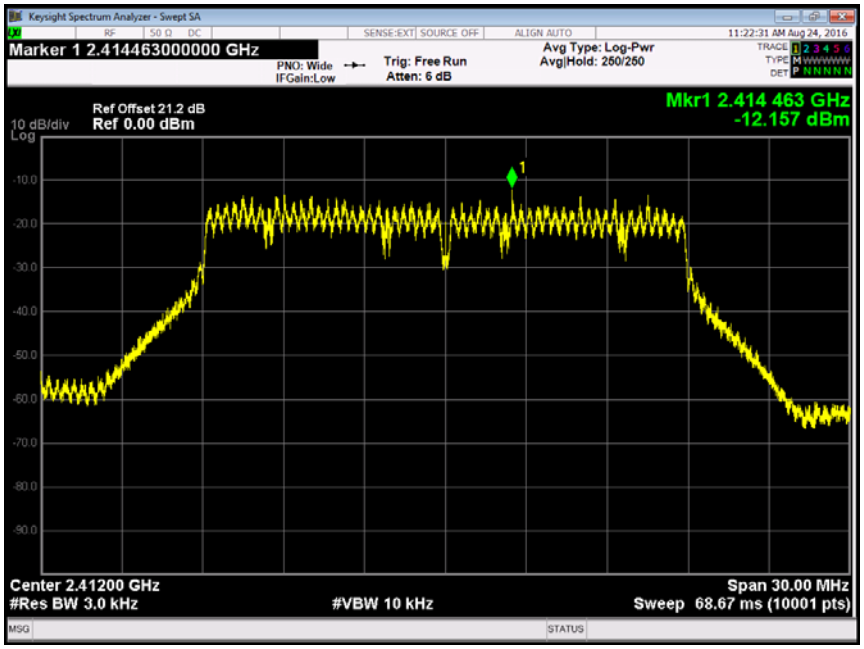
Product Service

4.0 V DC Supply

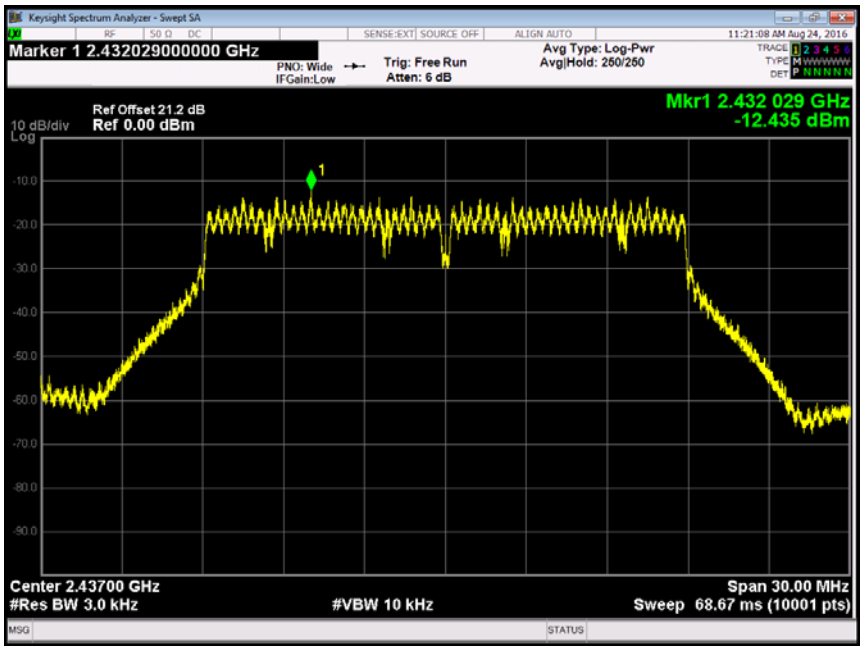
802.11n, OFDM, MCS2, Power Spectral Density Results

2412 MHz	2437 MHz	2462 MHz
dBm	dBm	dBm
-12.157	-12.435	-12.592

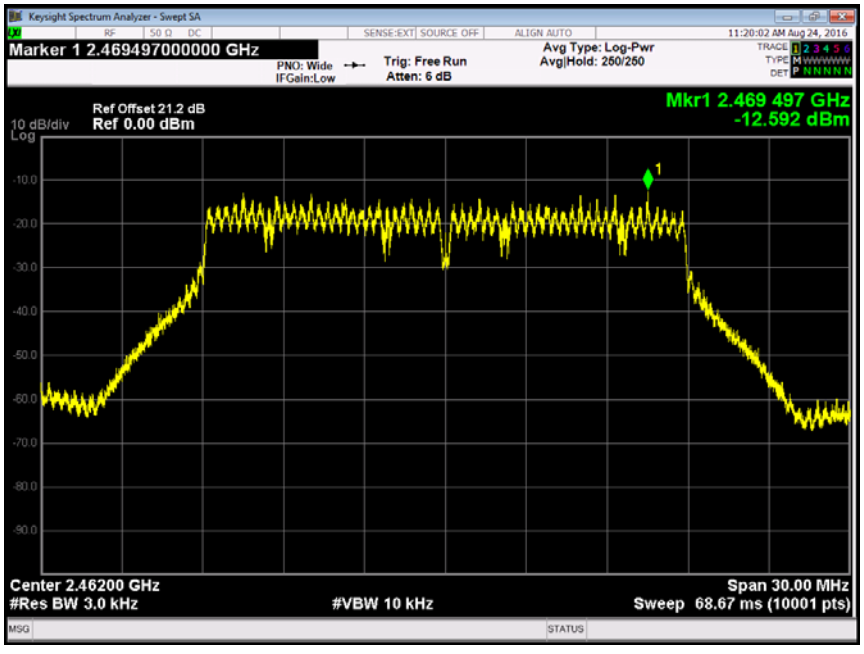
802.11n, 2412 MHz, OFDM, MCS2, Port A, Power Spectral Density Plot



802.11n, 2437 MHz, OFDM, MCS2, Port A, Power Spectral Density Plot



802.11n, 2462 MHz, OFDM, MCS2, Port A Power Spectral Density Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

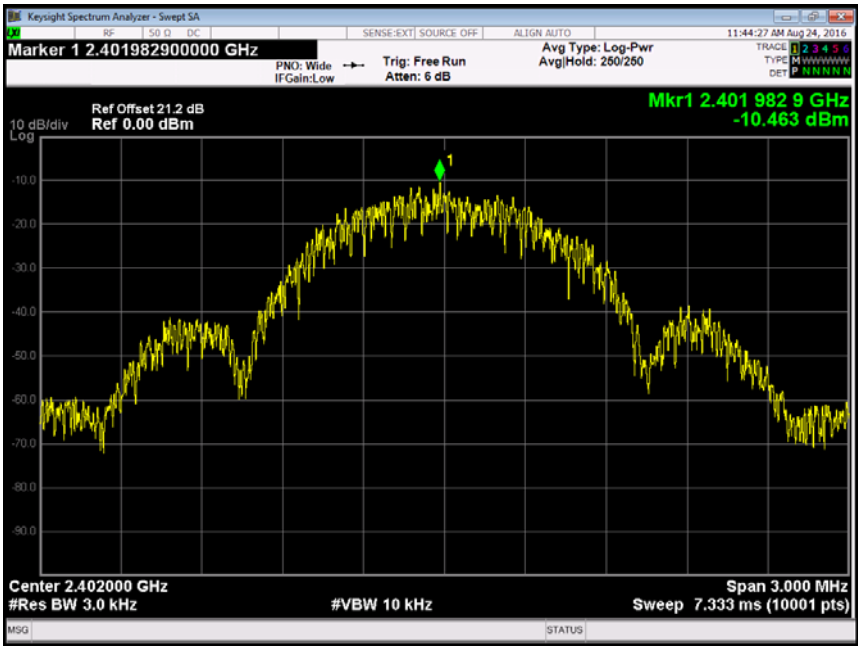
Product Service

4.0 V DC Supply

Bluetooth Low Energy, GFSK, Power Spectral Density Results

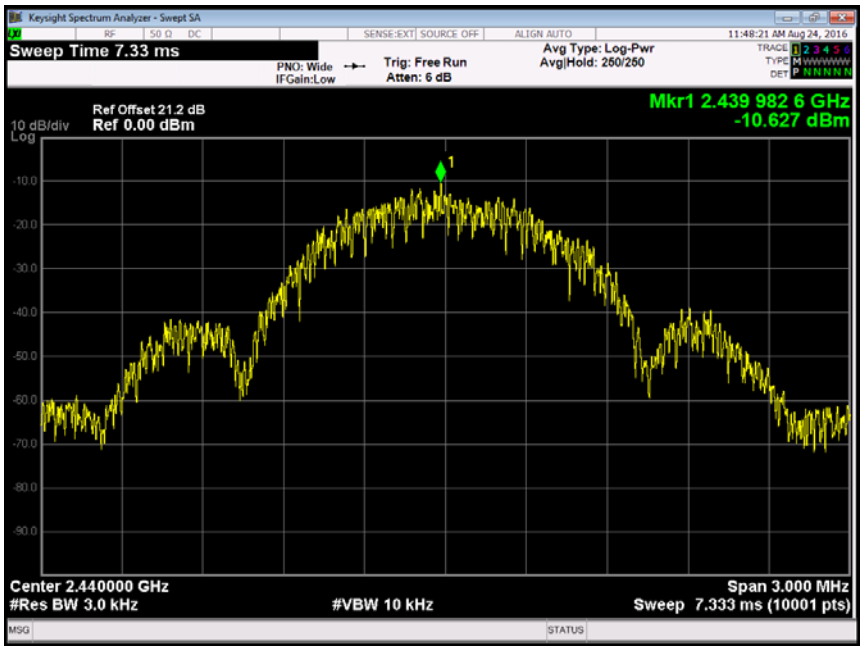
2402 MHz	2441 MHz	2480 MHz
dBm	dBm	dBm
-10.463	-10.627	-11.231

Bluetooth Low Energy, 2402 MHz, GFSK, Power Spectral Density Plot

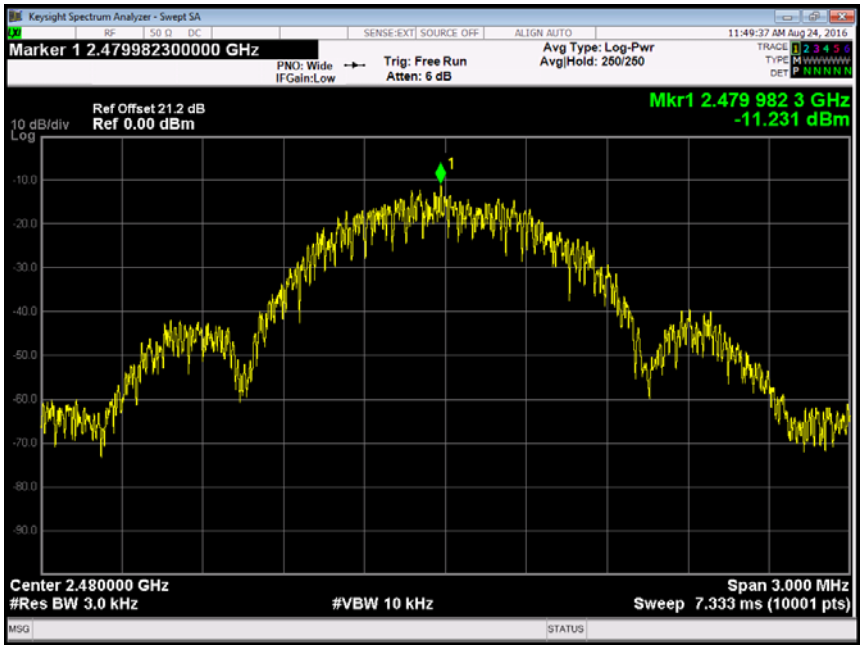


Product Service

Bluetooth Low Energy, 2441 MHz, GFSK, Power Spectral Density Plot



Bluetooth Low Energy, 2480 MHz, GFSK, Power Spectral Density Plot



FCC 47 CFR Part 15, Limit Clause 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 – AC Line Conducted Emissions					
LISN	Rohde & Schwarz	ESH2-Z5	17	12	11-Feb-2017
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Transient Limiter	Hewlett Packard	11947A	2378	12	6-Jul-2017
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
Digital thermo Hygrometer	Radio Spares	1260	4300	12	23-Aug-2017
2 metre SMA Cable	Florida Labs	SMS-235SP-78.8-SMS	4517	12	16-Feb-2017
Section 2.2 - 6dB Bandwidth					
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	3-Sep-2016
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1506	-	TU
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	3-Sep-2016
1 metre K-Type Cable	Florida Labs	KMS-180SP-39.4-KMS	4519	12	16-Feb-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	8-Oct-2016
2 Channel PSU	Rohde & Schwarz	HMP2020	4735	-	TU
Section 2.3 - Maximum Conducted Output Power					
Radio Communications Test Set	Rohde & Schwarz	CMU 200	442	12	18-Jan-2017
Multimeter	Fluke	75 Mk3	455	12	10-Sep-2016
20dB/2W Attenuator	Narda	4772-20	462	-	TU
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	3-Sep-2016
Hygrometer	Rotronic	I-1000	3220	12	19-Aug-2016
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	2-Sep-2016
Combiner/Splitter	Weinschel	1506A	3878	12	7-Jun-2017
P-Series Power Meter	Agilent Technologies	N1911A	3980	12	25-Sep-2016
50 MHz-18 GHz Wideband Power Sensor	Agilent Technologies	N1921A	3982	12	25-Sep-2016
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	7-Sep-2016
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	3-Sep-2016
Wideband Radio Test Set	Rohde & Schwarz	CMW500	4546	12	3-Feb-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4653	12	8-Oct-2016
2 Channel PSU	Rohde & Schwarz	HMP2020	4735	-	TU

Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.4 - Spurious Radiated Emissions					
Antenna 18-40GHz (Double Ridge Guide)	Link Microtek Ltd	AM180HA-K-TU2	230	24	12-Feb-2018
Pre-Amplifier	Phase One	PS04-0086	1533	12	29-Jul-2017
18GHz - 40GHz Pre-Amplifier	Phase One	PSO4-0087	1534	12	23-Dec-2016
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	11-Jun-2017
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Digital thermo Hygrometer	Radio Spares	1260	4300	12	23-Aug-2017
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	6-Oct-2016
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	27-Apr-2017
Suspended Substrate Highpass Filter	Advance Power Components	11SH10-3000/X18000-O/O	4411	12	23-Mar-2017
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU
Cable (Rx, SMAm-SMAm 0.5m)	Scott Cables	SLSLL18-SMSM-00.50M	4528	6	3-Feb-2017
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	29-Dec-2016
Section 2.5 - Restricted Band Edges					
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Digital thermo Hygrometer	Radio Spares	1260	4300	12	23-Aug-2017
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	27-Apr-2017
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	29-Dec-2016
Section 2.6 - Authorised Band Edges					
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Digital thermo Hygrometer	Radio Spares	1260	4300	12	23-Aug-2017
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	27-Apr-2017
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	-	TU
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	29-Dec-2016

Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.7 - Power Spectral Density					
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	3-Sep-2016
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1506	0	Class 1 (Int)
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	3-Sep-2016
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	27-Apr-2017
1 metre K-Type Cable	Florida Labs	KMS-180SP-39.4-KMS	4519	12	16-Feb-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	8-Oct-2016
2 Channel PSU	Rohde & Schwarz	HMP2020	4735	-	TU

TU – Traceability Unscheduled
O/P MON – Output Monitored with Calibrated Equipment

Product Service

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	MU
6 dB Bandwidth	± 212.114 kHz
AC Line Conducted Emissions	± 3.2 dB
Maximum Conducted Output Power	± 0.70 dB
Power Spectral Density	± 3.0 dB
Authorised Band Edges	Conducted: ± 3.08 dB Radiated: 30 MHz to 1 GHz: ± 5.1 dB Radiated: 1 GHz to 40 GHz: ± 6.3 dB
Restricted Band Edges	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB

Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

UKAS TESTING 0141

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).