Report On

FCC Testing of the
Sharp Quad-band LTE(B1 /B3/ B19/ B21), and Tri-band WCDMA(FDD I/ VI /XIX) Dual mode hand held Mini Phablet with Bluetooth, ANT+, W-LAN, NFC and GPS
In accordance with FCC CFR 47 Part 15E

COMMERCIAL-IN-CONFIDENCE

FCC ID: APYHRO00216

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REPORT ON

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Sharp Quad-band LTE(B1 /B3/ B19/ B21), and Tri-band WCDMA(FDD I/ VI /XIX) Dual mode hand held Mini Phablet with Bluetooth, ANT+, W-LAN, NFC and GPS
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DATED 13 January 2015

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 CFR 47 Part 15E. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

J Tuckwell J Hurley T Guy N Rousell G Lawler

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SECTION 1

REPORT SUMMARY

FCC Testing of the
Sharp Quad-band LTE(B1 /B3/ B19/ B21), and Tri-band WCDMA(FDD I/ VI /XIX) Dual mode hand held Mini Phablet with Bluetooth, ANT+, W-LAN, NFC and GPS
In accordance with FCC CFR 47 Part 15E

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/ B19/ B21), and Tri-band WCDMA(FDD I/ VI /XIX) Dual mode hand held Mini Phablet with Bluetooth, ANT+, W-LAN, NFC and GPS to the requirements of FCC CFR 47 Part 15E.

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 004401115303394 IMEI 004401115303428 IMEI 004401115303360 IMEI 004401115303386
Number of Samples Tested	4
Test Specification/Issue/Date	FCC CFR 47 Part 15E (2013)
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	10377 02 December 2014
Start of Test	23 November 2014
Finish of Test	13 December 2014
Name of Engineer(s)	J Tuckwell J Hurley T Guy N Rousell G Lawler
Related Document(s)	789033 D02 General UNII Test Procedures New Rules v01 ETSI TR 100 028: 2001

Product Service

1.2 BRIEF SUMMARY OF RESULTS

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

Section	Spec Clause	Test Description	Result	Comments/Base Standard
802.11(a)				
2.1	15.207	AC Line Conducted Emissions	Pass	
2.2	15.407 (a)	26 dB Bandwidth	Pass	
2.3	15.407 (a)(1)(2)(3)	Power Limits	Pass	
2.4	15.407 (a)(5)	Peak Power Spectral Density	Pass	
2.5	15.407 (b)(1)(2)(3)(4)(6)(7)	Undesirable Emission Limits	Pass	
2.6	2.1055 and 15.407 (g)	Frequency Stability	Pass	
802.11(n) - 5 GHz 20 MHz BW				
2.2	15.407 (a)	26 dB Bandwidth	Pass	
2.3	15.407 (a)(1)(2)(3)	Power Limits	Pass	
2.4	15.407 (a)(5)	Peak Power Spectral Density	Pass	
2.5	15.407 (b)(1)(2)(3)(4)(6)(7)	Undesirable Emission Limits	Pass	
2.6	2.1055 and 15.407 (g)	Frequency Stability	Pass	

Product Service

Section	Spec Clause	Test Description	Result	Comments/Base Standard
802.11(n) - 5 GHz 40 MHz BW				
2.2	15.407 (a)	26 dB Bandwidth	Pass	
2.3	15.407 (a)(1)(2)(3)	Power Limits	Pass	
2.4	15.407 (a)(5)	Peak Power Spectral Density	Pass	
2.5	15.407 (b)(1)(2)(3)(4)(6)(7)	Undesirable Emission Limits	Pass	
2.6	2.1055 and 15.407 (g)	Frequency Stability	Pass	
802.11(ac) - 5 GHz 20 MHz BW				
2.2	15.407 (a)	26 dB Bandwidth	Pass	
2.3	15.407 (a)(1)(2)(3)	Power Limits	Pass	
2.4	15.407 (a)(5)	Peak Power Spectral Density	Pass	
2.5	15.407 (b)(1)(2)(3)(4)(6)(7)	Undesirable Emission Limits	Pass	
2.6	2.1055 and 15.407 (g)	Frequency Stability	Pass	
802.11(ac) - 5 GHz 40 MHz BW				
2.2	15.407 (a)	26 dB Bandwidth	Pass	
2.3	15.407 (a)(1)(2)(3)	Power Limits	Pass	
2.4	15.407 (a)(5)	Peak Power Spectral Density	Pass	
2.5	15.407 (b)(1)(2)(3)(4)(6)(7)	Undesirable Emission Limits	Pass	
2.6	2.1055 and 15.407 (g)	Frequency Stability	Pass	

Product Service

Section	Spec Clause	Test Description	Result	Comments/Base Standard
802.11(ac) - 5 GHz 80 MHz BW				
2.2	15.407 (a)	26 dB Bandwidth	Pass	
2.3	15.407 (a)(1)(2)(3)	Power Limits	Pass	
2.4	15.407 (a)(5)	Peak Power Spectral Density	Pass	
2.5	15.407 (b)(1)(2)(3)(4)(6)(7)	Undesirable Emission Limits	Pass	
2.6	2.1055 and 15.407 (g)	Frequency Stability	Pass	

1.3 PRODUCT TECHNICAL DESCRIPTION

Please refer to the Model Description Form, referenced to FCC ID: APYHRO00216.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Sharp Quad-band LTE(B1 /B3/ B19/ B21), and Tri-band WCDMA(FDD I/ VI /XIX) Dual mode hand held Mini Phablet with Bluetooth, ANT+, W-LAN, NFC 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 were made during testing.

1.7 MODIFICATION RECORD

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Serial Number: IMEI 004401115303394			
0	As supplied by manufacturer.	N/A	N/A
1	Adjusted display driver parameters in firmware	M Russell	11/12/2014
Serial Number: IMEI 004401115303428			
0	As supplied by manufacturer.	N/A	N/A
Serial Number: IMEI 004401115303360			
0	As supplied by manufacturer.	N/A	N/A
Serial Number: IMEI 004401115303386			
0	As supplied by manufacturer.	N/A	N/A

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test are recorded on the appropriate test pages.

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SECTION 2

TEST DETAILS

FCC Testing of the
Sharp Quad-band LTE(B1 /B3/ B19/ B21), and Tri-band WCDMA(FDD I/ VI /XIX) Dual mode hand held Mini Phablet with Bluetooth, ANT+, W-LAN, NFC and GPS
In accordance with FCC CFR 47 Part 15E

2.1 AC LINE CONDUCTED EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 15E, Clause 15.207

2.1.2 Equipment Under Test and Modification State

S/N: IMEI 004401115303394 - Modification State 0

2.1.3 Date of Test

4 December 2014

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

A test environment and testing arrangement meeting the specification of ANSI C63.4 was used during all testing. The Equipment Under Test (EUT) was set upon a non-conducting platform at an elevation of 80 cm above a horizontal reference ground plane. A vertical reference ground plane was situated 40 cm from the EUT and bonded to the horizontal reference ground plane.

The EUT was powered by a Line Impedance Stabilization Network (LISN), whereby emissions measurements of the current-carrying conductors were made through this LISN. The LISN was bonded to the horizontal reference ground plane with a separation distance greater than 80 cm from the EUT. A mains supply cable of 1 m length was used to supply mains power to the EUT from the LISN.

A preliminary emissions scan was conducted for each current-carrying conductor of the EUT, using a peak detector over a frequency range of 150 kHz to 30 MHz. At least six of the greatest peak emissions, frequency positions were selected from each preliminary emissions scan for further evaluation as final measuring points.

Final measurement points were measured using quasi-peak and average detectors. All final measurements were assessed against the emission limits in Clause 15.207 of FCC CFR 47 FCC Part 15.

2.1.6 Environmental Conditions

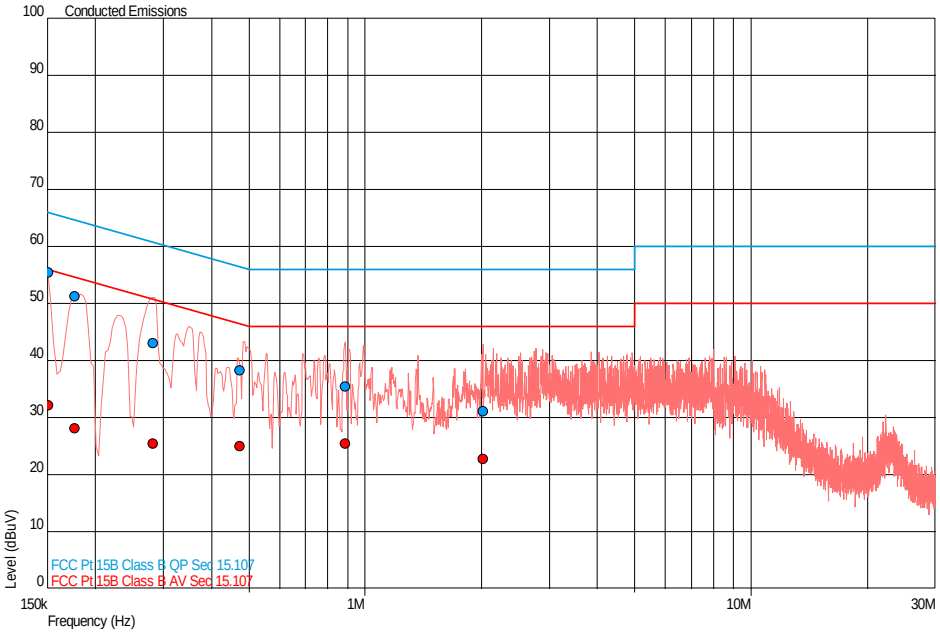
Ambient Temperature	19.3°C
Relative Humidity	31.0%

Product Service

2.1.7 Test Results

802.11(a)

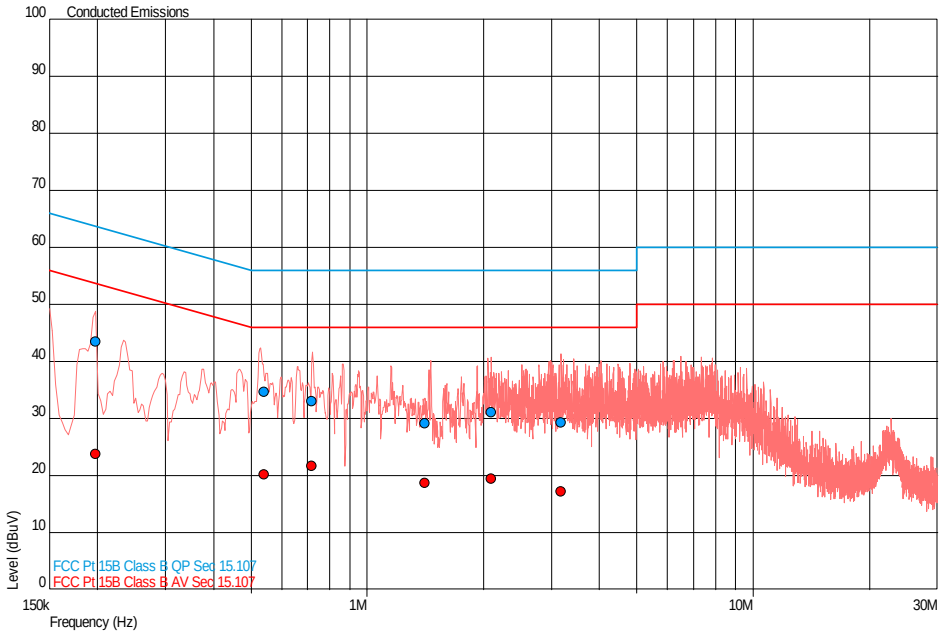
Live Line



Frequency (MHz)	QP Level (dBµV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.151	55.5	65.9	-10.5	32.2	55.9	-23.7
0.177	51.3	64.6	-13.3	28.2	54.6	-26.4
0.282	43.1	60.8	-17.7	25.5	50.8	-25.3
0.474	38.2	56.4	-18.2	25.0	46.4	-21.5
0.890	35.4	56.0	-20.6	25.4	46.0	-20.6
2.019	31.1	56.0	-24.9	22.7	46.0	-23.3

Product Service

Neutral Line



Frequency (MHz)	QP Level (dBµV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.198	43.4	63.7	-20.2	23.8	53.7	-29.9
0.541	34.7	56.0	-21.3	20.2	46.0	-25.8
0.719	33.1	56.0	-22.9	21.8	46.0	-24.2
1.407	29.1	56.0	-26.9	18.8	46.0	-27.2
2.096	31.1	56.0	-24.9	19.5	46.0	-26.5
3.183	29.3	56.0	-26.7	17.2	46.0	-28.8

2.2 26 dB BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 15E, Clause 15.407 (a)

2.2.2 Equipment Under Test and Modification State

S/N: IMEI 004401115303428 - Modification State 0
S/N: IMEI 004401115303360 - Modification State 0

2.2.3 Date of Test

25 November 2014 & 26 November 2014

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 applied in accordance with the test method requirements of FCC CFR 47 Part 15.407 (a) and KDB 789033 D02 v01.

The EUT was transmitting at maximum power, for bottom, middle and top channels on the data rate pre-determined to give the highest level of average output power. The EUT was connected to a spectrum analyser via a cable and attenuator. The Analyser x dB bandwidth measurement function was configured to a RBW of approximately 1% of the emission bandwidth with the VBW 3 x RBW. The analyser was configured with peak detector and trace set to max hold. The trace was allowed to stabilize and then recorded.

The plots on the following pages show the resultant display from the Spectrum Analyser.

2.2.6 Environmental Conditions

Ambient Temperature	22.4 - 22.5°C
Relative Humidity	35.3 - 40.5%

Product Service

2.2.7 Test Results

802.11(a)

Frequency Band 1

5180 MHz

26 dB Bandwidth (MHz)	21.53

5200 MHz

26 dB Bandwidth (MHz)	21.64

5240 MHz

26 dB Bandwidth (MHz)	21.84

The test was performed on the worst case data rate for 802.11(a) modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was 9 Mbps.

Product Service

Frequency Band 2

5260 MHz

26 dB Bandwidth (MHz)	21.32

Product Service

5300 MHz

26 dB Bandwidth (MHz)	22.08

Product Service

5320 MHz

26 dB Bandwidth (MHz)	21.90

The test was performed on the worst case data rate for 802.11(a) modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was 9 Mbps.

Product Service

Frequency Band 3

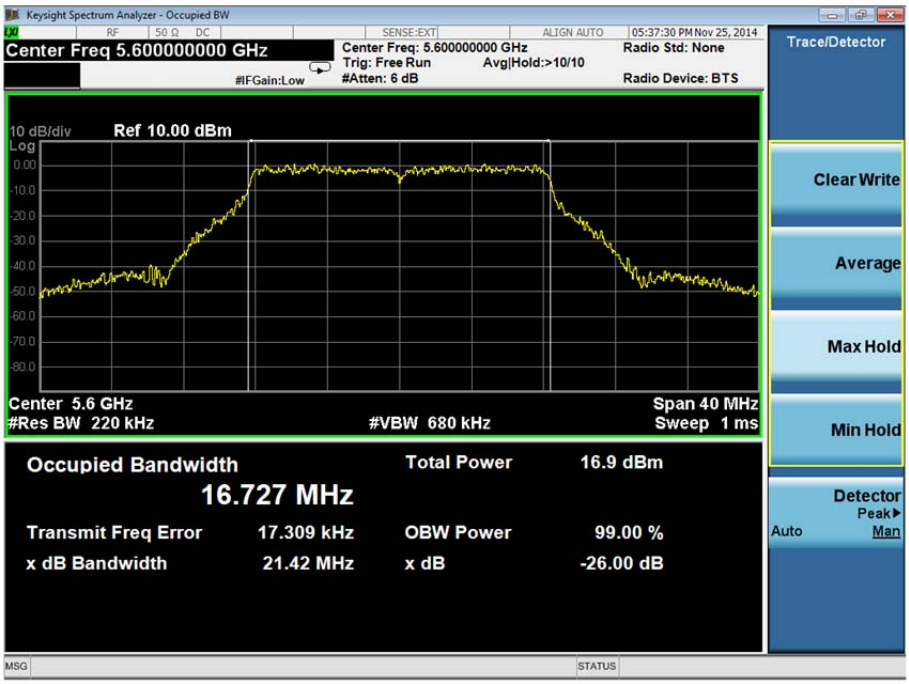
5500 MHz

26 dB Bandwidth (MHz)	21.45

Product Service

5600 MHz

26 dB Bandwidth (MHz)	21.42



Product Service

5700 MHz

26 dB Bandwidth (MHz)	21.87

The test was performed on the worst case data rate for 802.11(a) modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was 9 Mbps.

Limit

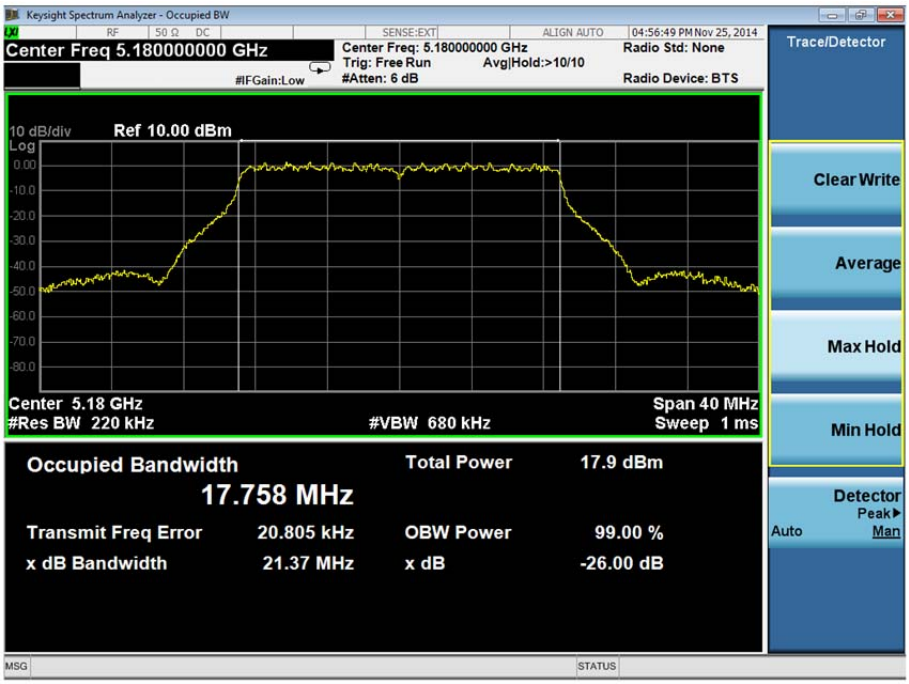
Not specified.

802.11(ac) - 5 GHz 20 MHz BW

Frequency Band 1

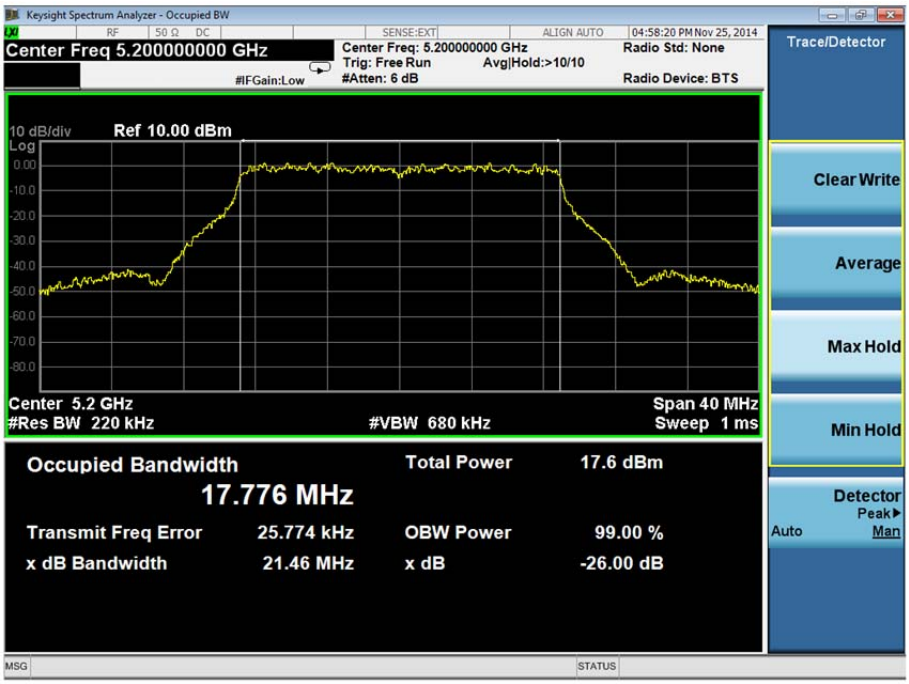
5180 MHz

26 dB Bandwidth (MHz)	21.37



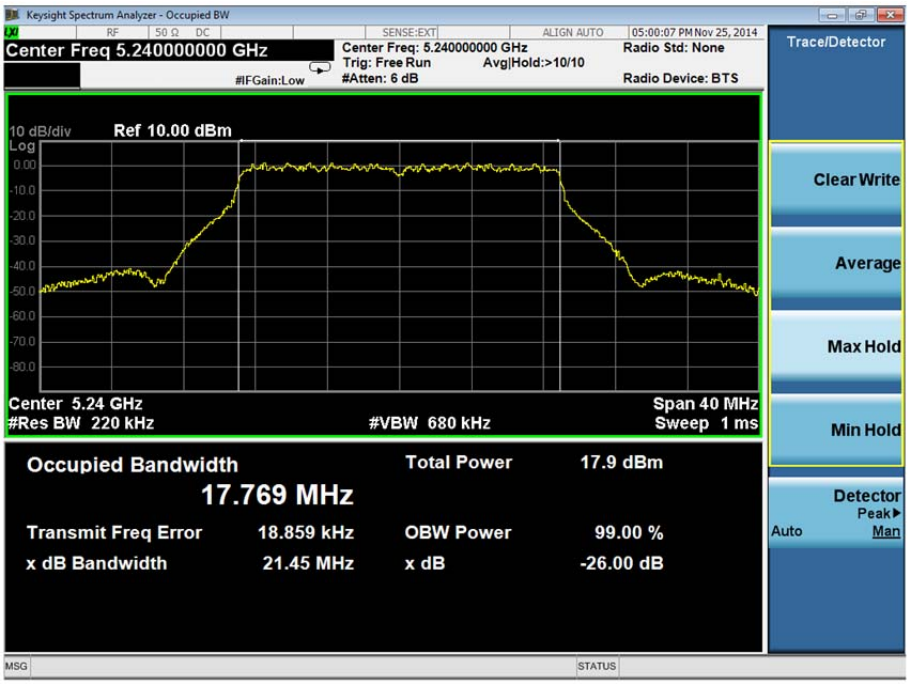
5200 MHz

26 dB Bandwidth (MHz)	21.46



5240 MHz

26 dB Bandwidth (MHz)	21.45



The test was performed on the worst case data rate for 802.11(ac) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

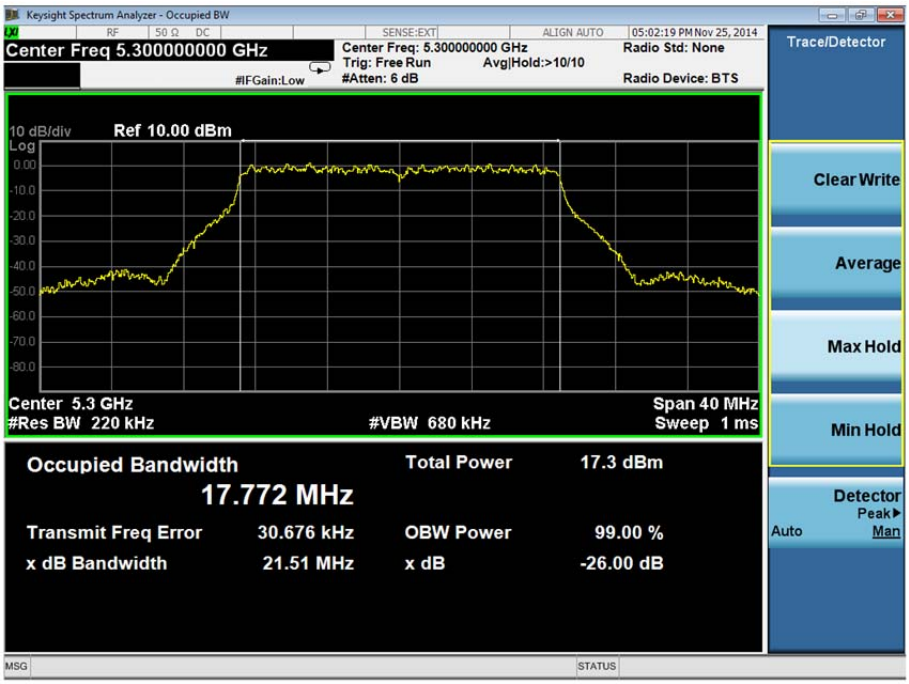
Frequency Band 2

5260 MHz

26 dB Bandwidth (MHz)	21.57

5300 MHz

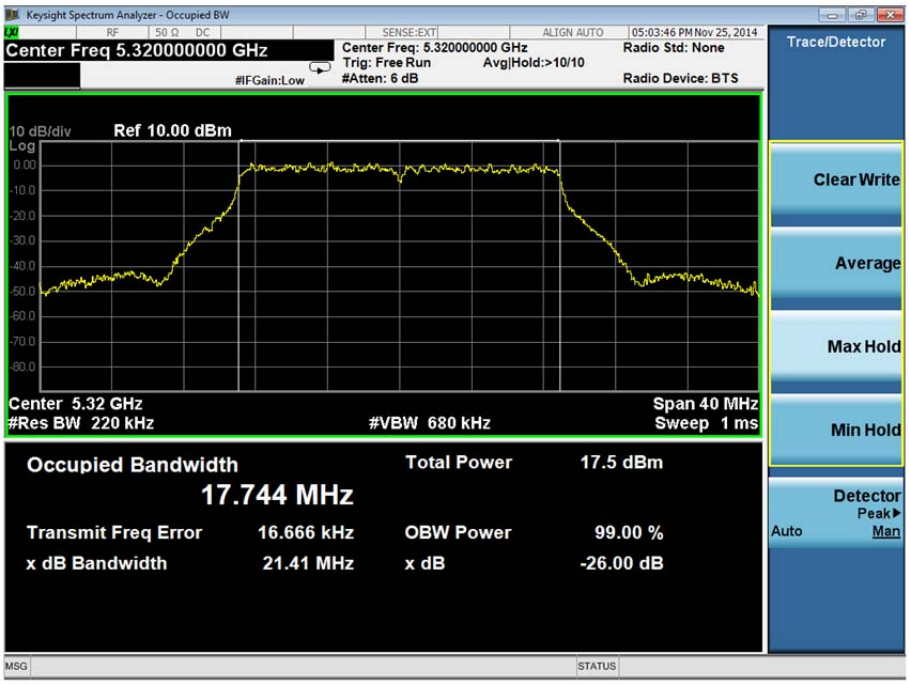
26 dB Bandwidth (MHz)	21.51



Product Service

5320 MHz

26 dB Bandwidth (MHz)	21.41



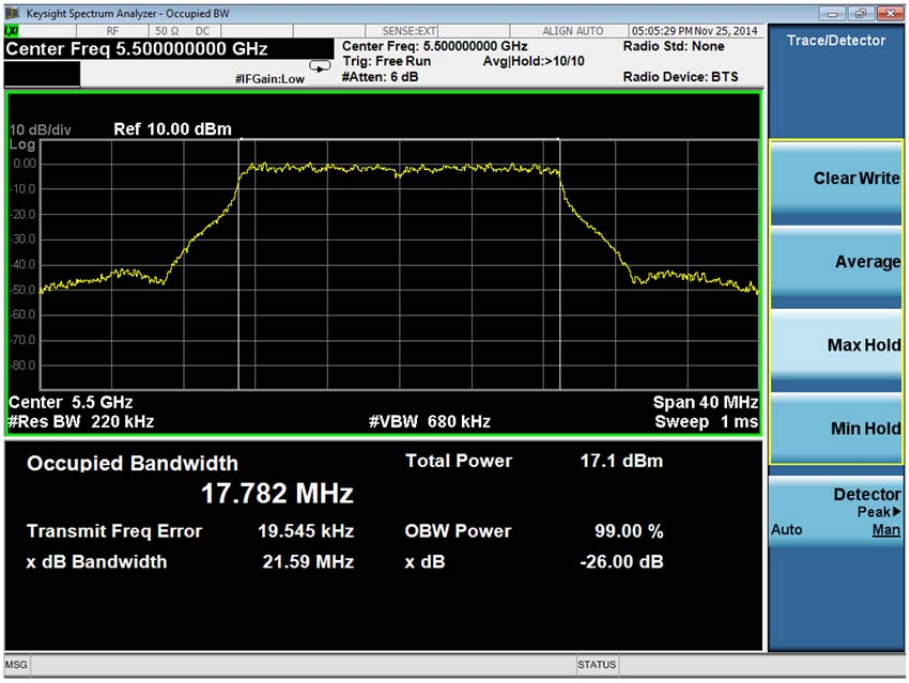
The test was performed on the worst case data rate for 802.11(ac) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Product Service

Frequency Band 3

5500 MHz

26 dB Bandwidth (MHz)	21.59

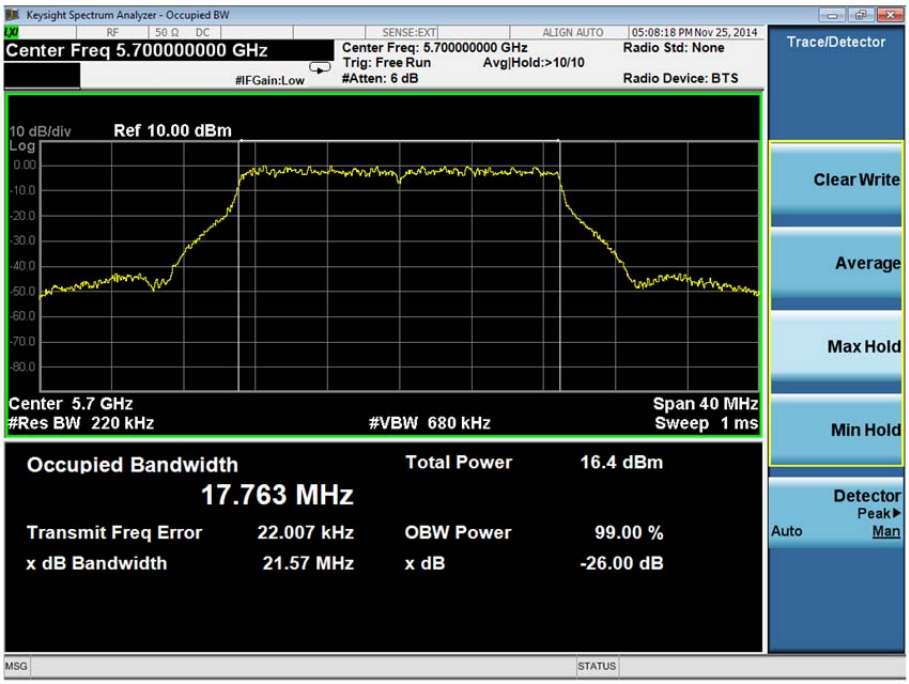


5600 MHz

26 dB Bandwidth (MHz)	21.55

5700 MHz

26 dB Bandwidth (MHz)	21.57



The test was performed on the worst case data rate for 802.11(ac) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Limit

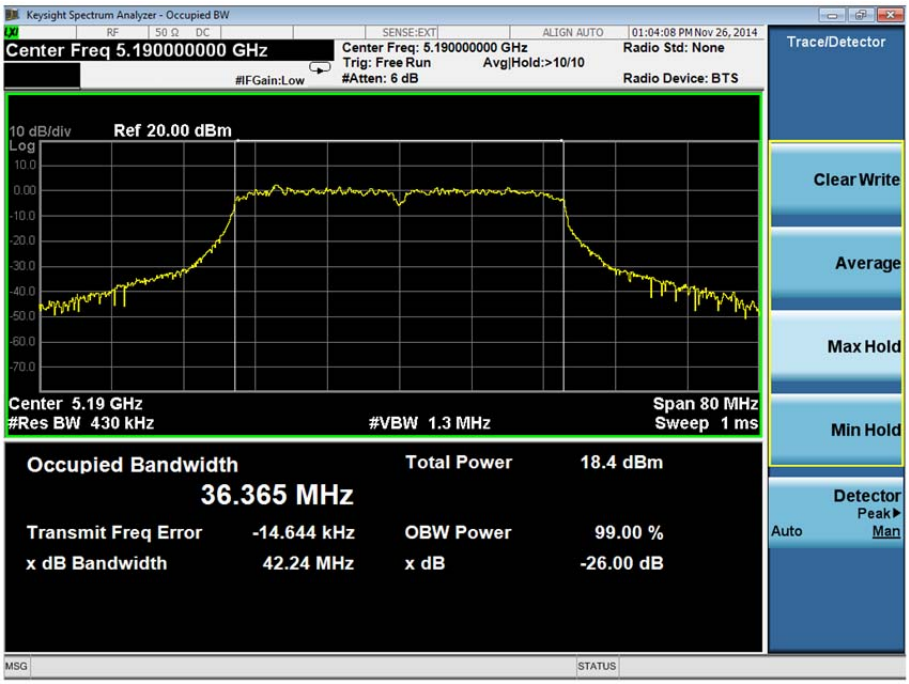
Not specified.

802.11(ac) - 5 GHz 40 MHz BW

Frequency Band 1

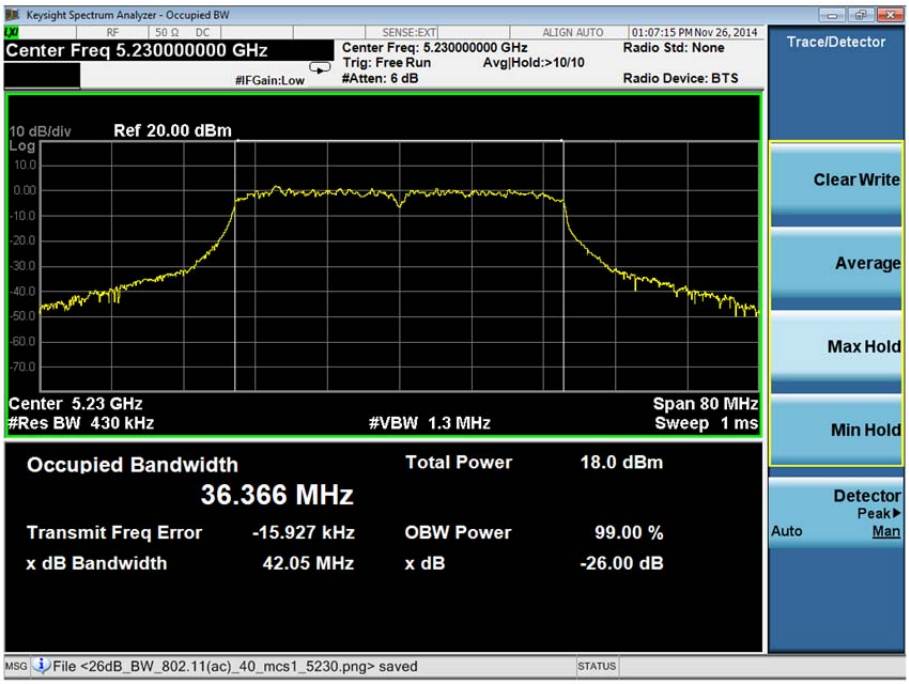
5190 MHz

26 dB Bandwidth (MHz)	42.24



5230 MHz

26 dB Bandwidth (MHz)	42.05



The test was performed on the worst case data rate for 802.11(ac) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

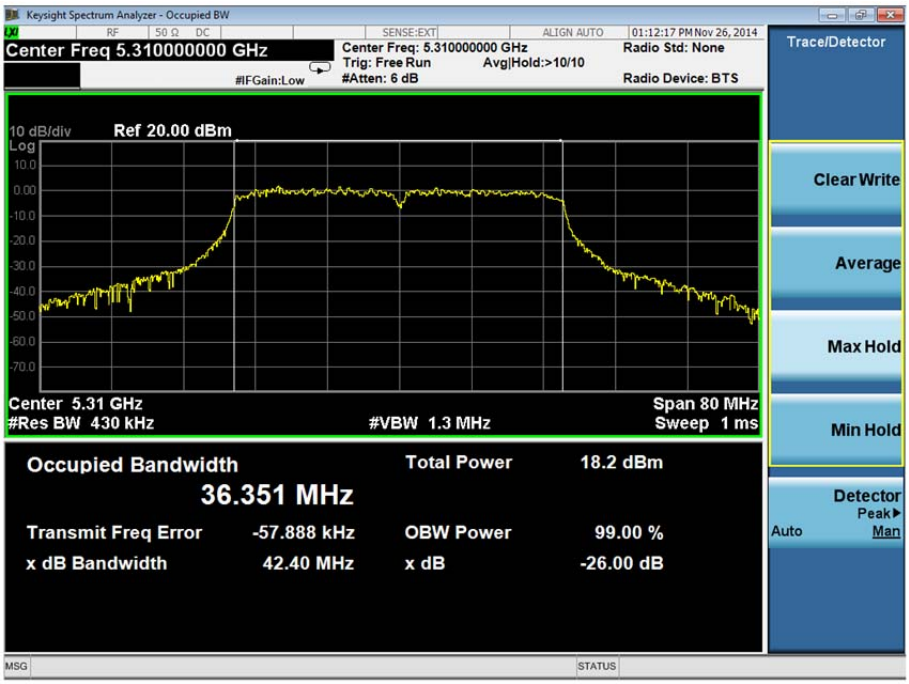
Frequency Band 2

5270 MHz

26 dB Bandwidth (MHz)	42.10

5310 MHz

26 dB Bandwidth (MHz)	42.40



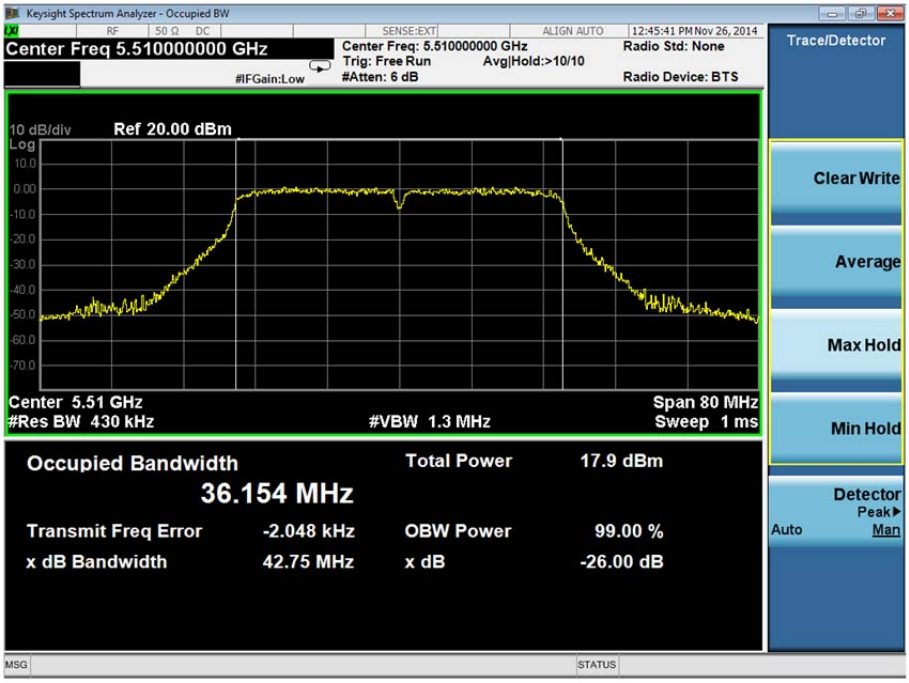
The test was performed on the worst case data rate for 802.11(ac) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Product Service

Frequency Band 3

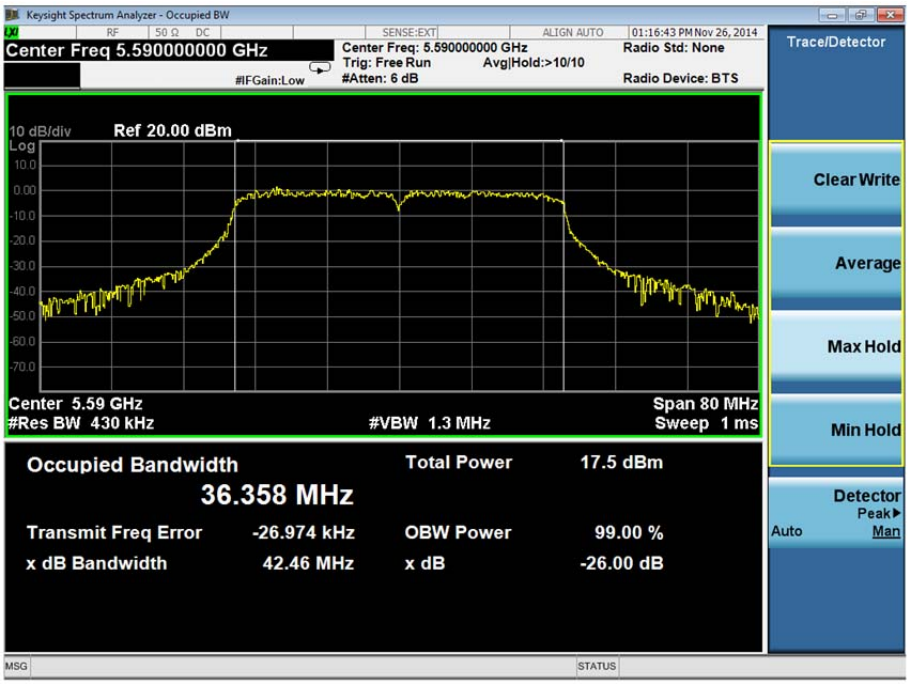
5510 MHz

26 dB Bandwidth (MHz)	42.75



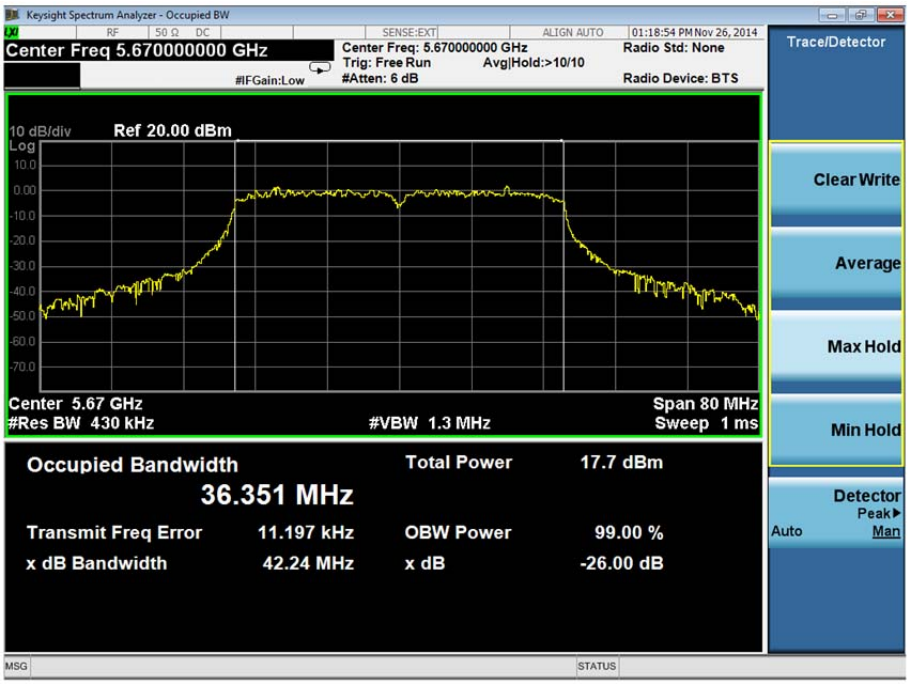
5590 MHz

26 dB Bandwidth (MHz)	42.46



5670 MHz

26 dB Bandwidth (MHz)	42.24



The test was performed on the worst case data rate for 802.11(ac) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Limit

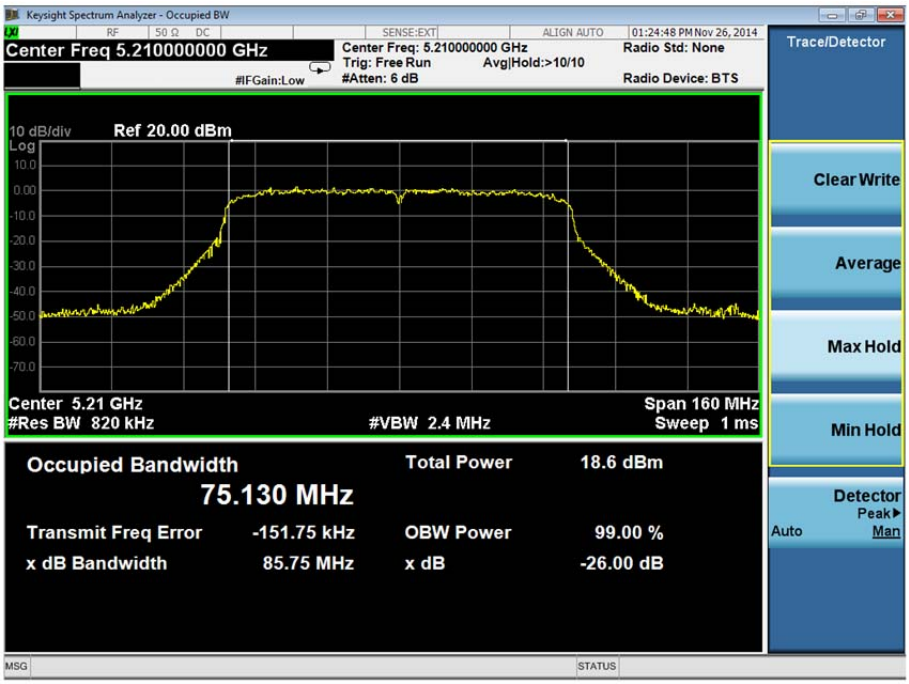
Not specified.

802.11(ac) - 5 GHz 80 MHz BW

Frequency Band 1

5210 MHz

26 dB Bandwidth (MHz)	85.75

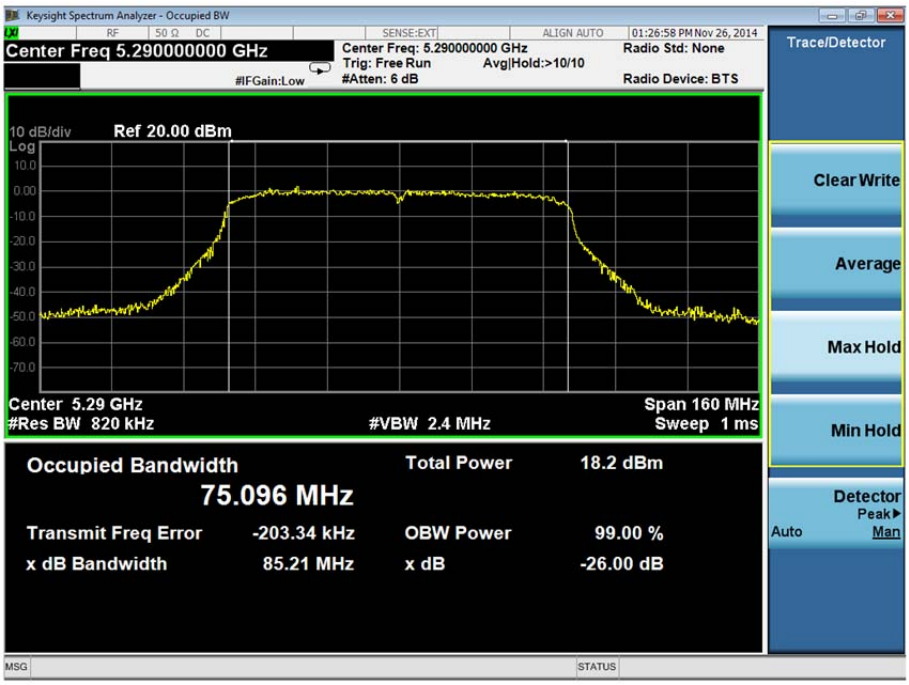


The test was performed on the worst case data rate for 802.11(ac) - 80 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Frequency Band 2

5290 MHz

26 dB Bandwidth (MHz)	85.21



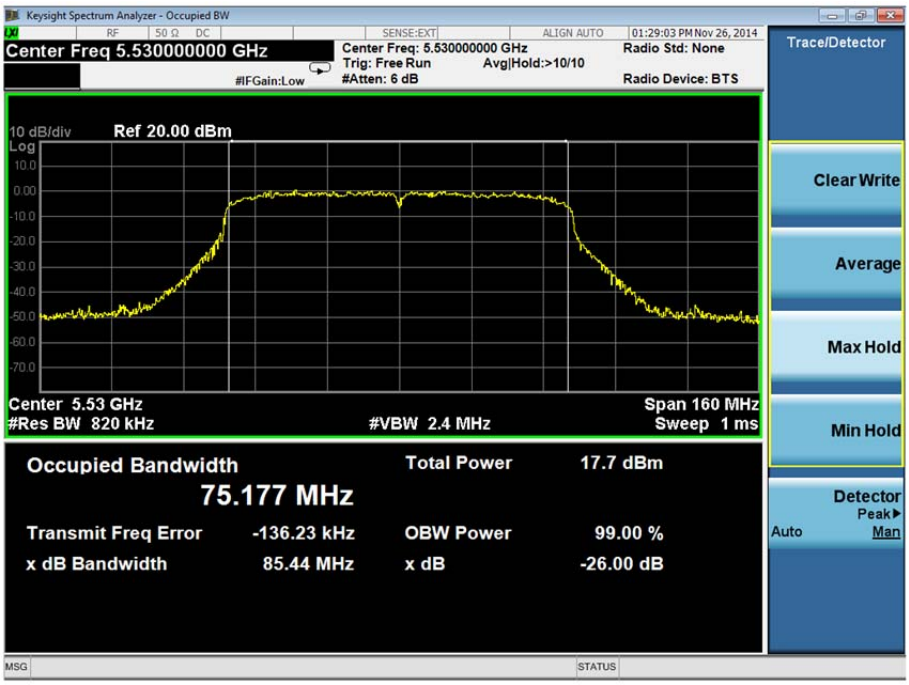
The test was performed on the worst case data rate for 802.11(ac) - 80 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Product Service

Frequency Band 3

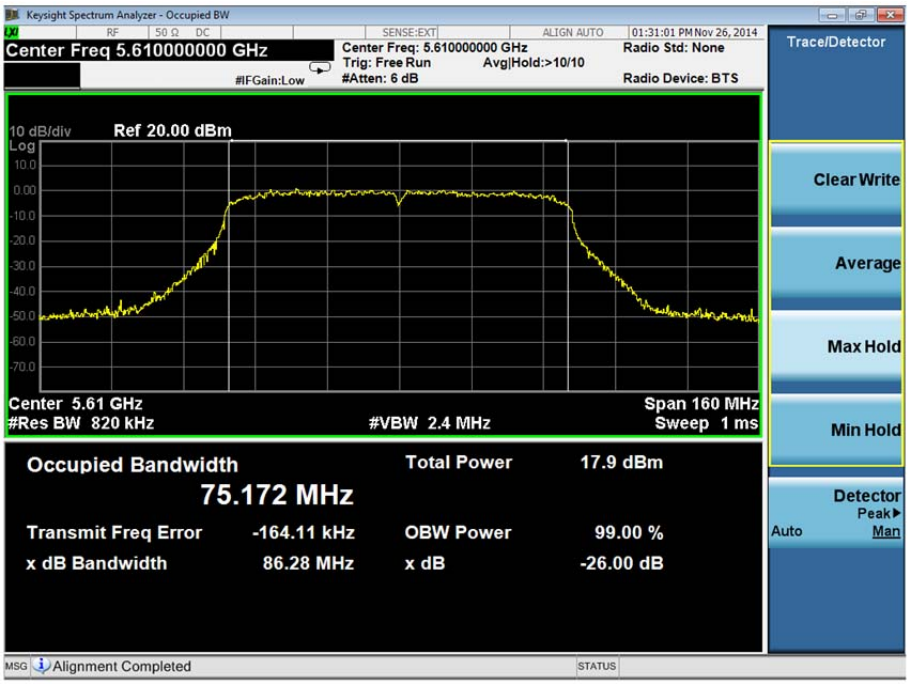
5530 MHz

26 dB Bandwidth (MHz)	85.44



5610 MHz

26 dB Bandwidth (MHz)	86.28



The test was performed on the worst case data rate for 802.11(ac) - 80 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Limit

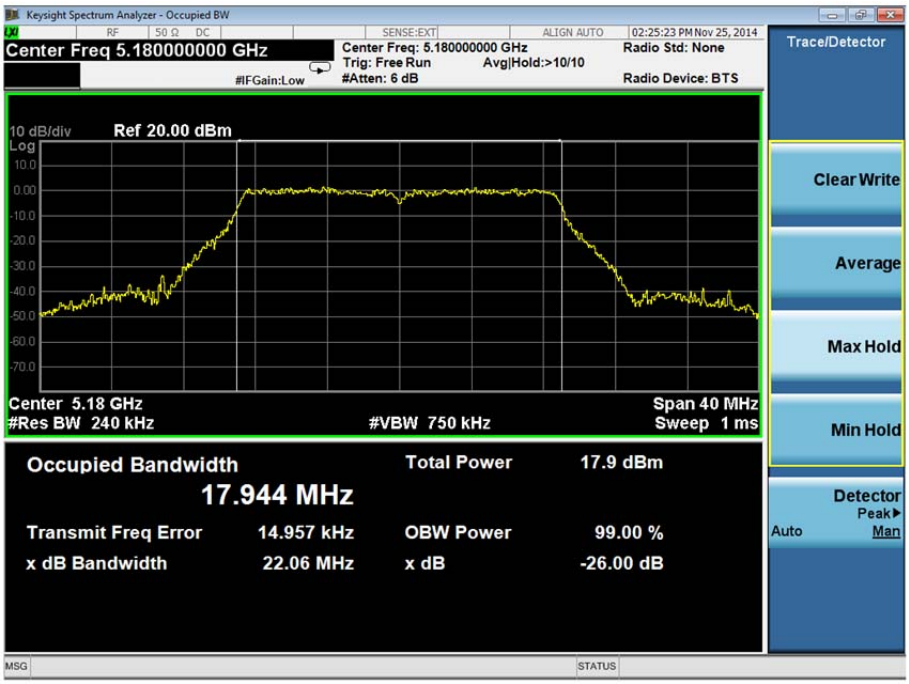
Not specified.

802.11(n) - 5 GHz 20 MHz BW

Frequency Band 1

5180 MHz

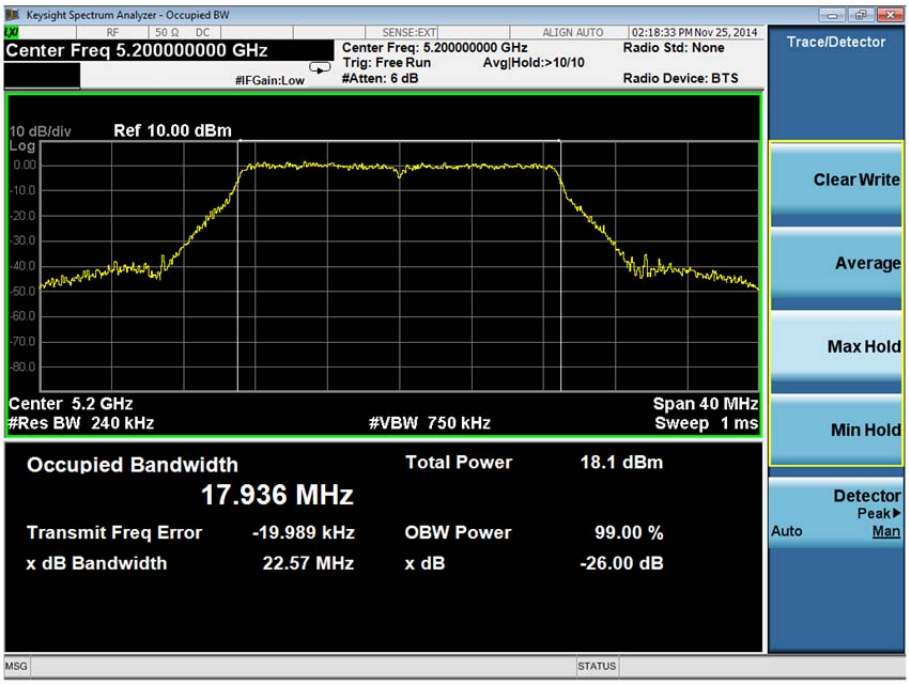
26 dB Bandwidth (MHz)	22.06



Product Service

5200 MHz

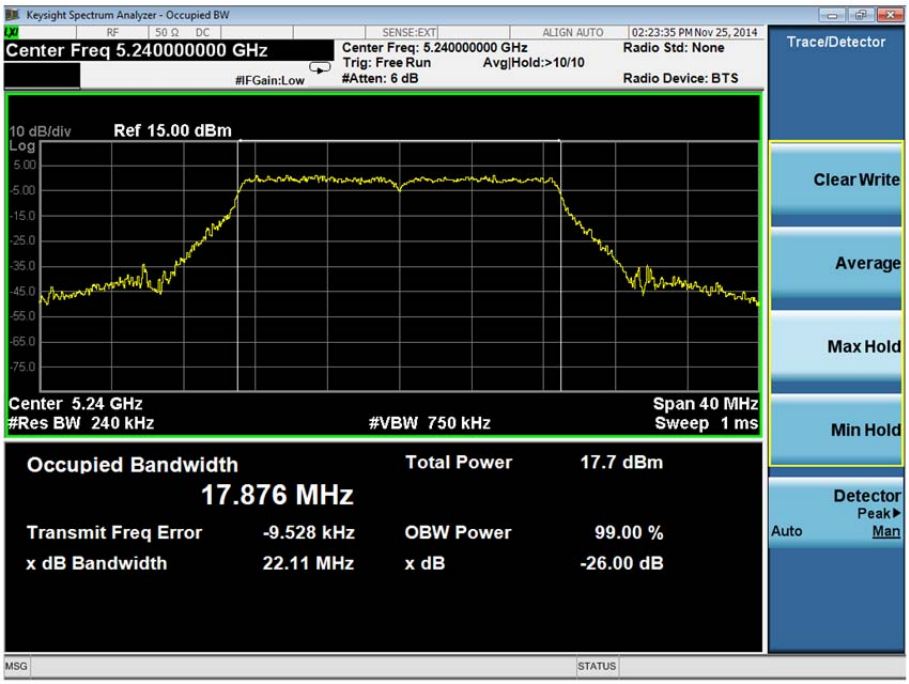
26 dB Bandwidth (MHz)	22.57



Product Service

5240 MHz

26 dB Bandwidth (MHz)	22.11



The test was performed on the worst case data rate for 802.11(n) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Product Service

Frequency Band 2

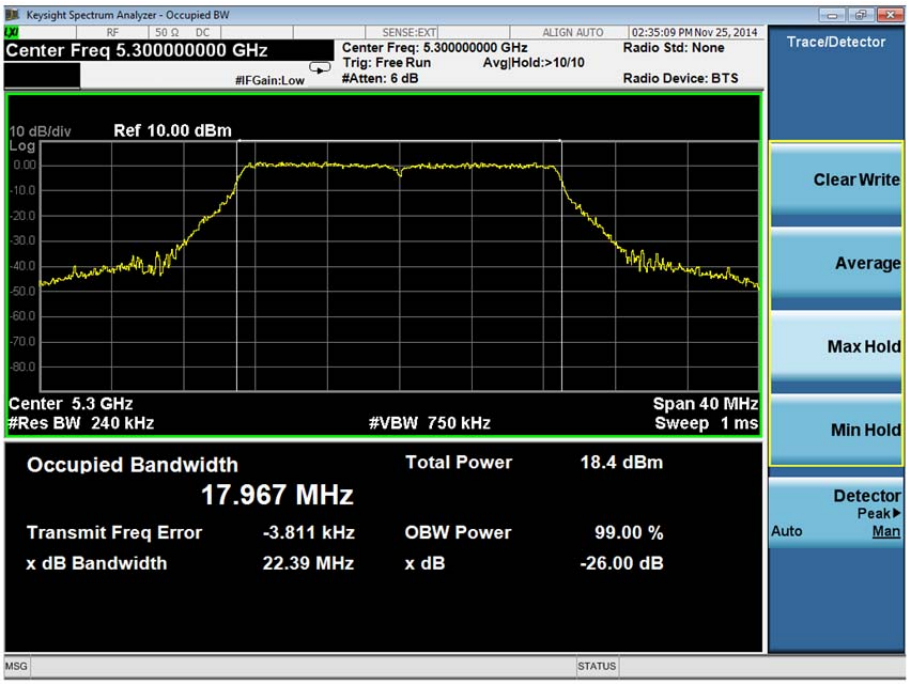
5260 MHz

26 dB Bandwidth (MHz)	22.03

Product Service

5300 MHz

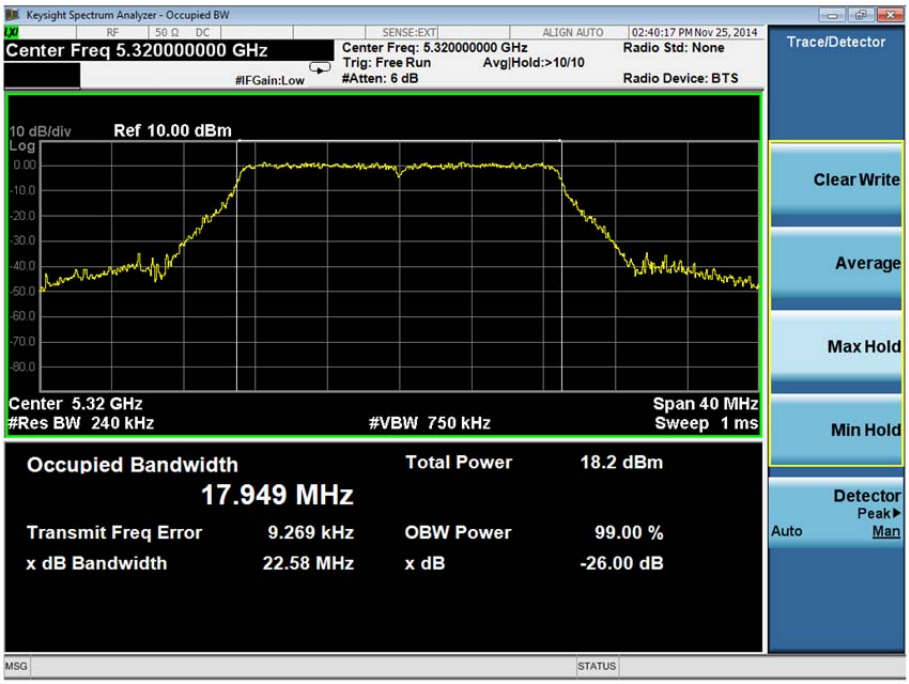
26 dB Bandwidth (MHz)	22.39



Product Service

5320 MHz

26 dB Bandwidth (MHz)	22.58



The test was performed on the worst case data rate for 802.11(n) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Product Service

Frequency Band 3

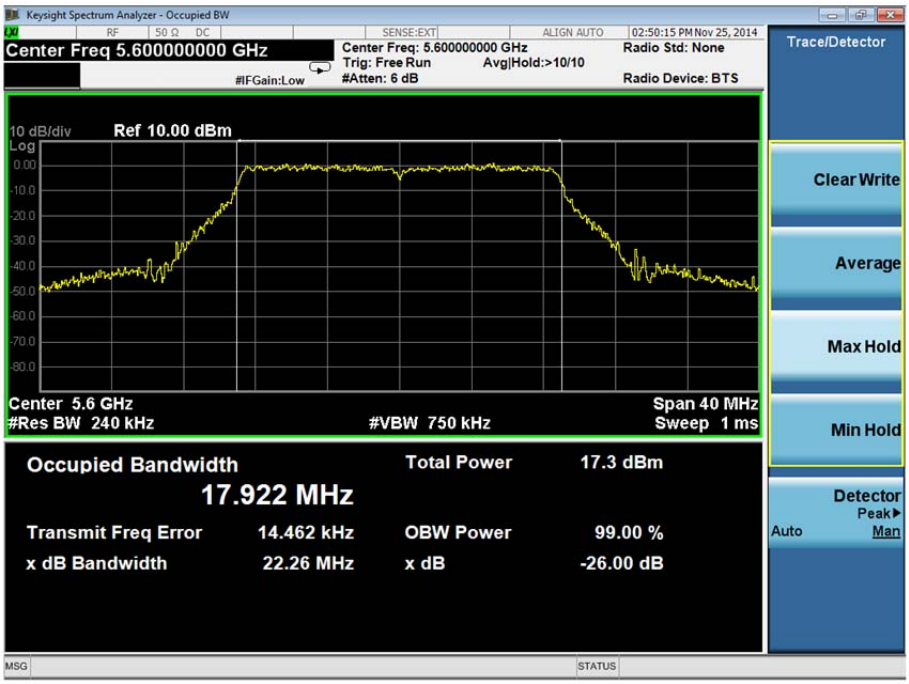
5500 MHz

26 dB Bandwidth (MHz)	22.34

Product Service

5600 MHz

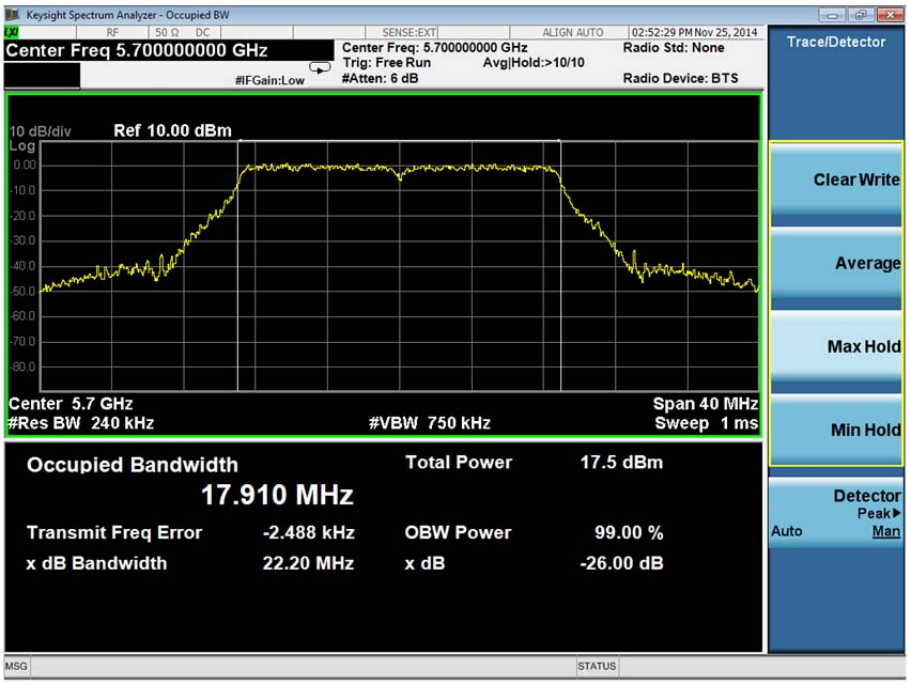
26 dB Bandwidth (MHz)	22.26



Product Service

5700 MHz

26 dB Bandwidth (MHz)	22.20



The test was performed on the worst case data rate for 802.11(n) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Limit

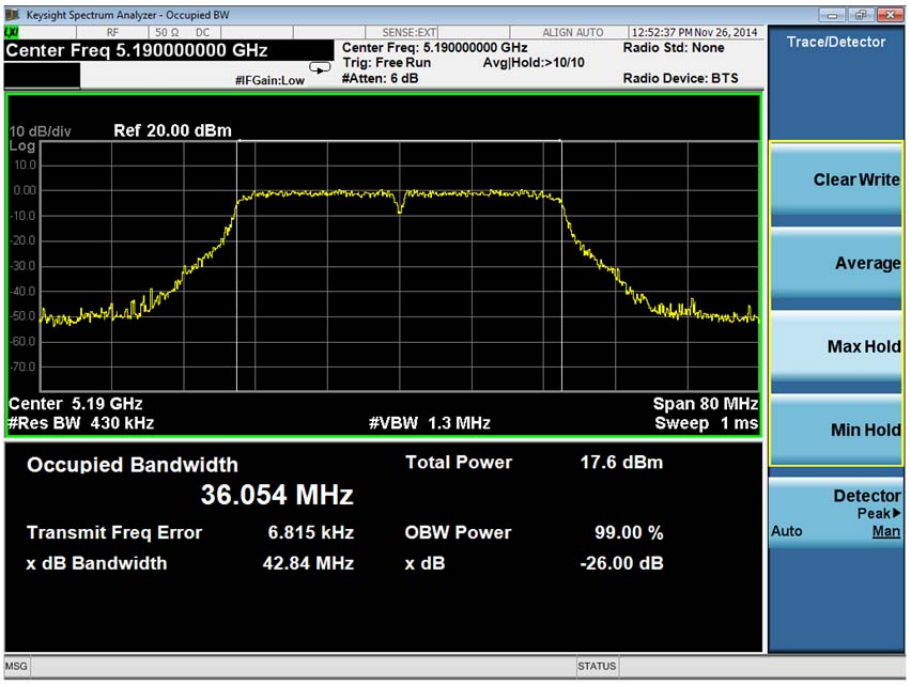
Not specified.

802.11(n) - 5 GHz 40 MHz BW

Frequency Band 1

5190 MHz

26 dB Bandwidth (MHz)	42.84



Product Service

5230 MHz

26 dB Bandwidth (MHz)	43.61

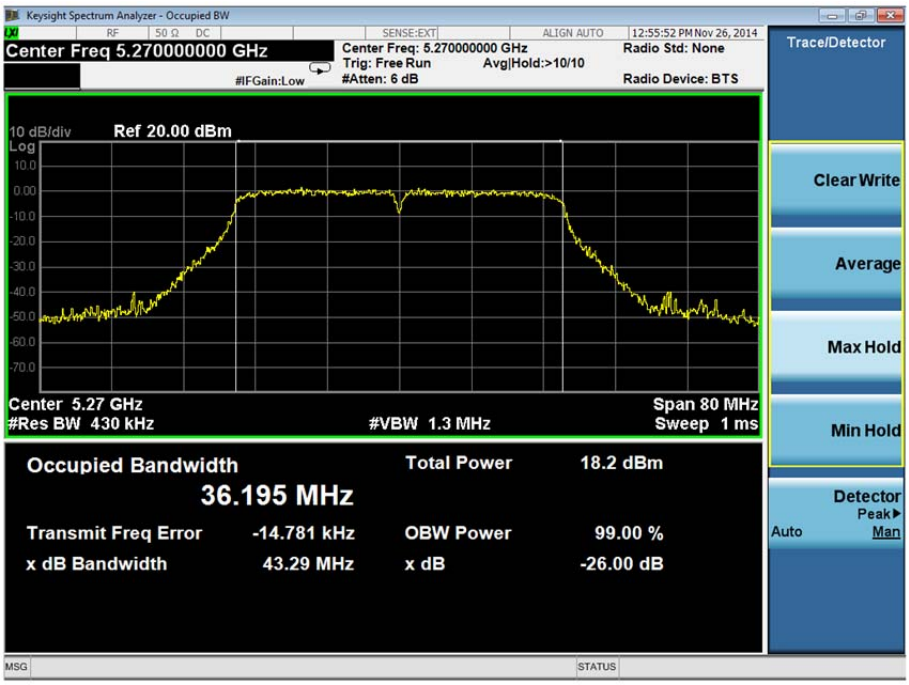
The test was performed on the worst case data rate for 802.11(n) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Product Service

Frequency Band 2

5270 MHz

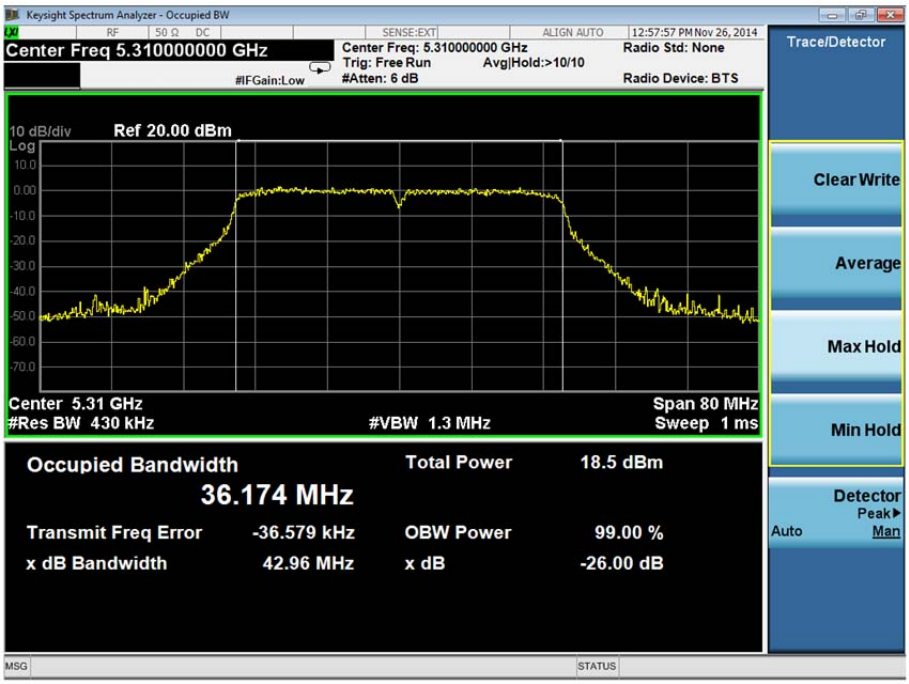
26 dB Bandwidth (MHz)	43.29



Product Service

5310 MHz

26 dB Bandwidth (MHz)	42.96



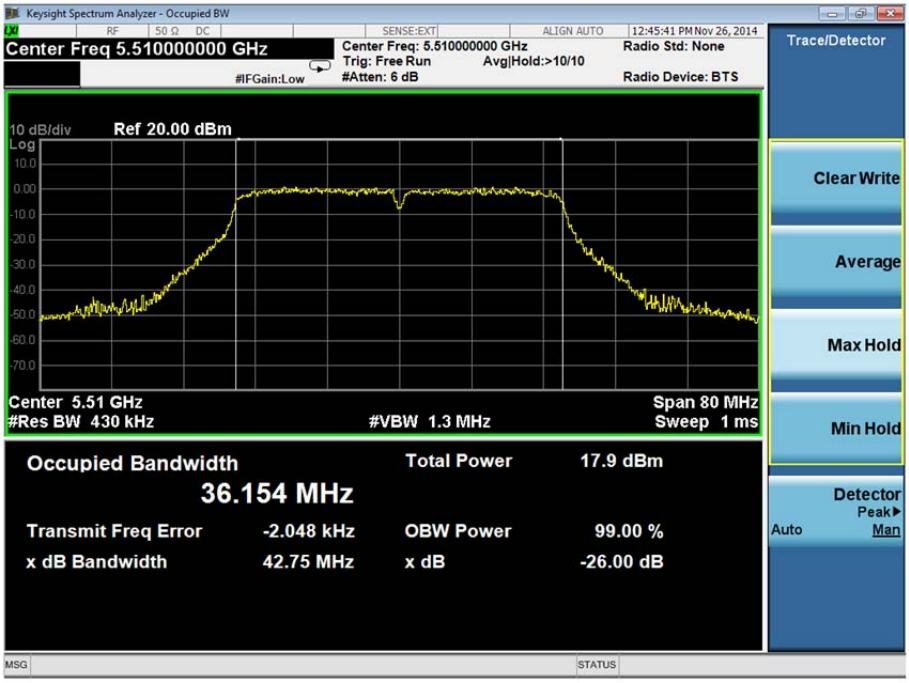
The test was performed on the worst case data rate for 802.11(n) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Product Service

Frequency Band 3

5510 MHz

26 dB Bandwidth (MHz)	42.75

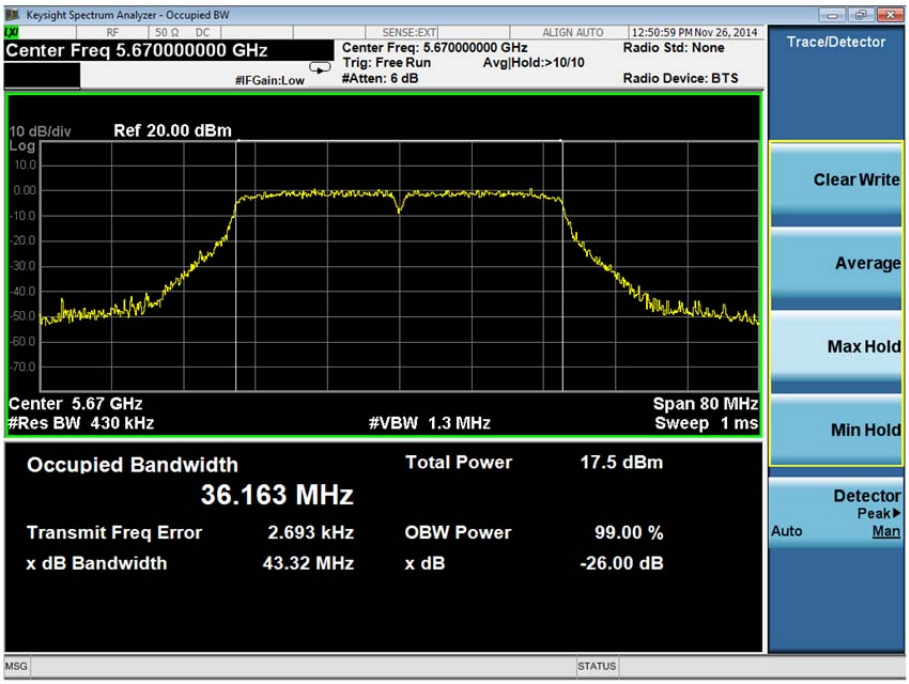


5590 MHz

26 dB Bandwidth (MHz)	42.91

5670 MHz

26 dB Bandwidth (MHz)	43.32



The test was performed on the worst case data rate for 802.11(n) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Limit

Not specified.

Product Service

2.3 POWER LIMITS

2.3.1 Specification Reference

FCC CFR 47 Part 15E, Clause 15.407 (a)(1)(2)(3)

2.3.2 Equipment Under Test and Modification State

S/N: IMEI 004401115303394 - Modification State 0
S/N: IMEI 004401115303386 - Modification State 0

2.3.3 Date of Test

26 November 2014, 27 November 2014, 28 November 2014 & 1 December 2014

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

Conducted Power

The path loss between the EUT and Power Sensor was measured using a Network Analyser. The path loss at the measurement frequency was entered as an offset. The EUT was set to transmit at maximum power at 100% duty cycle on the worst case data rate and the peak power was recorded as per KDB 789033 D02 v01 E.3(a).

Radiated EIRP

The EUT was transmitted at maximum power. The signal was observed on the Spectrum Analyser with a 100 kHz RBW and the channel power function of the spectrum analyser was used to obtain an integrated power result. The EUT was placed on a non-conducting platform 3 meters away from a Double Ridge Guide antenna. The signal was maximised by rotating the EUT 360° and a height search of the measuring antenna. A substitution was then performed using a substitution antenna and signal generator.

This level was maximised by adjusting the height of the measuring antenna once more. The level from the signal generator was then adjusted to achieve the same raw result as with the EUT. This level was then corrected to account for cable loss and antenna factor. A calculation was then performed to obtain the final figure.

2.3.6 Environmental Conditions

Ambient Temperature	19.2 - 22.5°C
Relative Humidity	33.0 - 47.1%

Product Service

2.3.7 Test Results

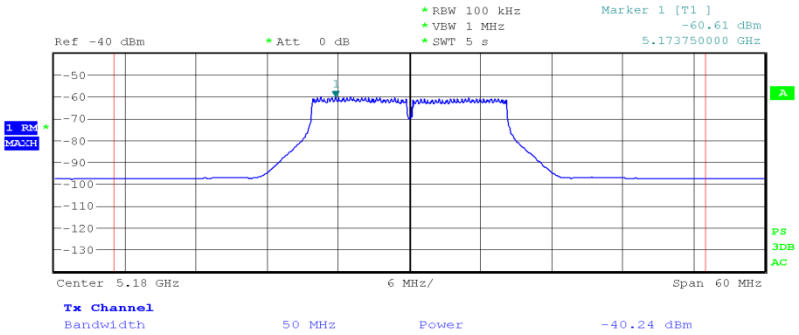
802.11(a)

Radiated

Frequency Band 1

5180 MHz

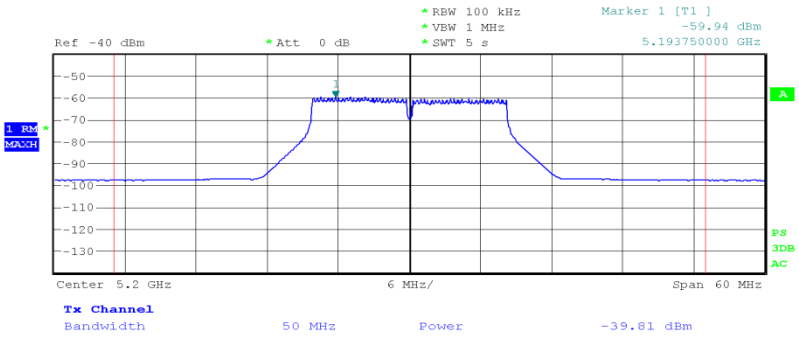
EIRP (dBm)	EIRP (mW)
11.99	15.81



Date: 30.NOV.2014 08:38:59

5200 MHz

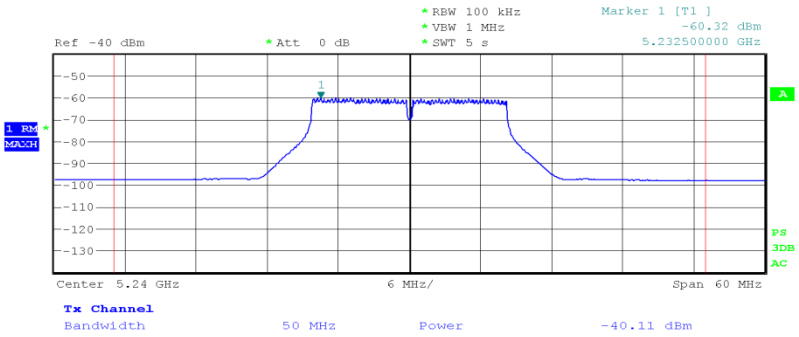
EIRP (dBm)	EIRP (mW)
12.63	18.32



Date: 30.NOV.2014 08:59:04

5240 MHz

EIRP (dBm)	EIRP (mW)
11.74	14.93



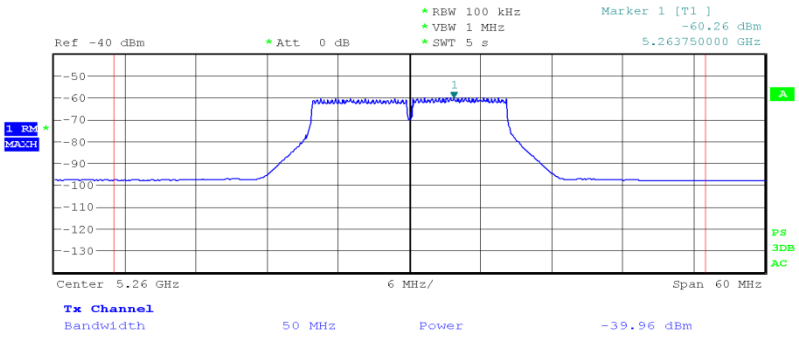
Date: 30.NOV.2014 09:07:05

Radiated

Frequency Band 2

5260 MHz

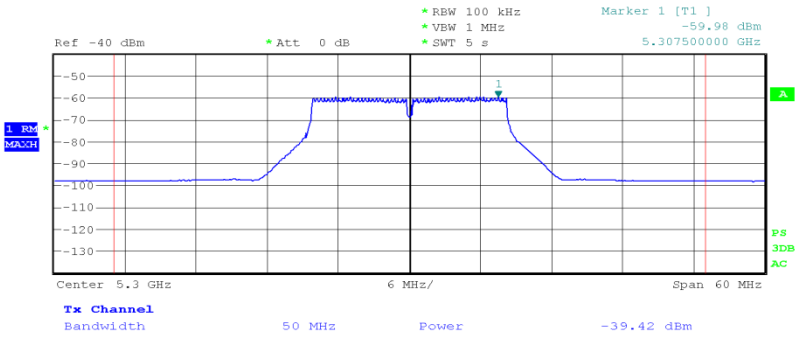
EIRP (dBm)	EIRP (mW)
12.54	17.95



Date: 30.NOV.2014 09:12:28

5300 MHz

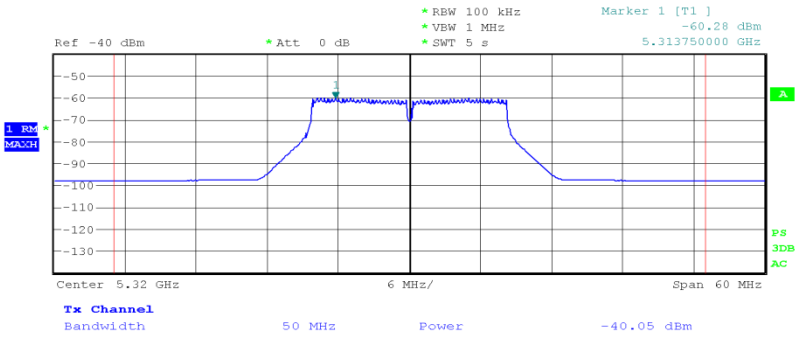
EIRP (dBm)	EIRP (mW)
12.51	17.82



Date: 30.NOV.2014 09:16:57

5320 MHz

EIRP (dBm)	EIRP (mW)
11.81	15.17



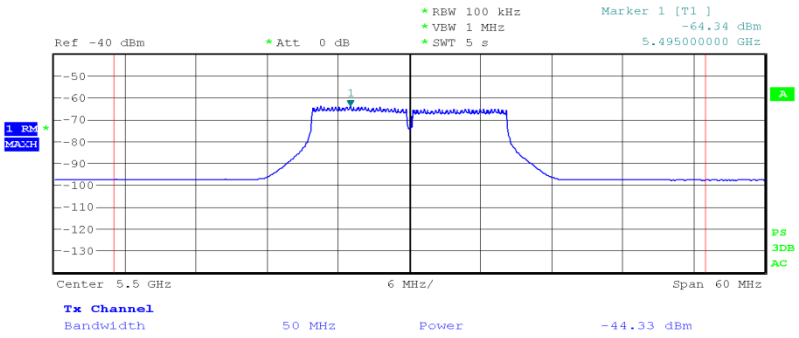
Date: 30.NOV.2014 09:23:38

Radiated

Frequency Band 3

5500 MHz

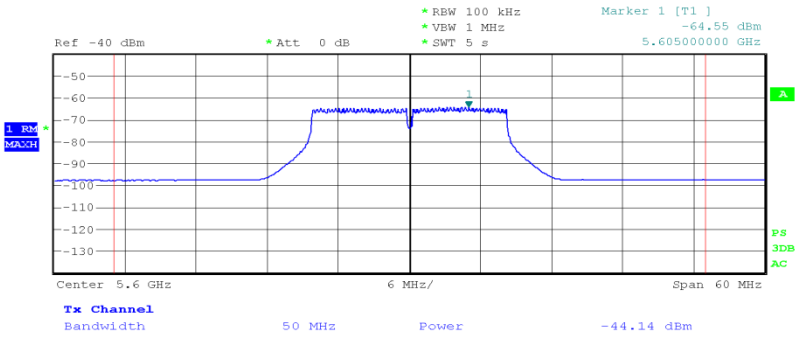
EIRP (dBm)	EIRP (mW)
7.87	6.12



Date: 30.NOV.2014 09:50:33

5600 MHz

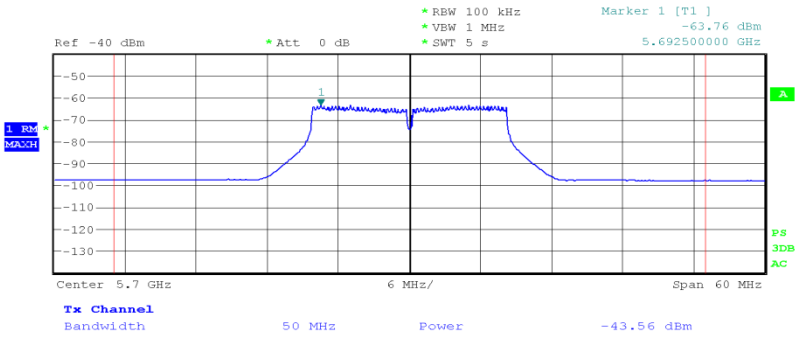
EIRP (dBm)	EIRP (mW)
7.84	6.08



Date: 30.NOV.2014 10:03:49

5700 MHz

EIRP (dBm)	EIRP (mW)
8.21	6.62



Date: 30.NOV.2014 10:12:03

Limit for Radiated

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 200 mW or 10 dBm + 10 log B
5250 to 5350	Lesser of 1 W or 17 dBm + 10 log B
5470 to 5725	Lesser of 1 W or 17 dBm + 10 log B
5725 to 5825	Lesser of 4 W or 23 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

It is acceptable to have an antenna with up to 6 dBi gain, without reducing the conducted output power.

Conducted

Frequency Band 1

5180 MHz

EIRP (dBm)	EIRP (mW)
11.40	13.80

5200 MHz

EIRP (dBm)	EIRP (mW)
11.48	14.06

5240 MHz

EIRP (dBm)	EIRP (mW)
11.13	12.97

The test was performed on the worst case data rate for 802.11(a) modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was 9 Mbps.

Conducted

Frequency Band 2

5260 MHz

EIRP (dBm)	EIRP (mW)
11.16	13.06

5300 MHz

EIRP (dBm)	EIRP (mW)
11.31	13.52

5320 MHz

EIRP (dBm)	EIRP (mW)
11.51	14.16

The test was performed on the worst case data rate for 802.11(a) modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was 9 Mbps.

Conducted

Frequency Band 3

5500 MHz

EIRP (dBm)	EIRP (mW)
11.14	13.00

5600 MHz

EIRP (dBm)	EIRP (mW)
11.04	12.71

5700 MHz

EIRP (dBm)	EIRP (mW)
10.92	12.36

The test was performed on the worst case data rate for 802.11(a) modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was 9 Mbps.

Limit for Conducted

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 50 mW or 4 dBm + 10 log B
5250 to 5350	Lesser of 250 mW or 11 dBm + 10 log B
5470 to 5725	Lesser of 250 mW or 11 dBm + 10 log B
5725 to 5825	Lesser of 1 W or 17 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

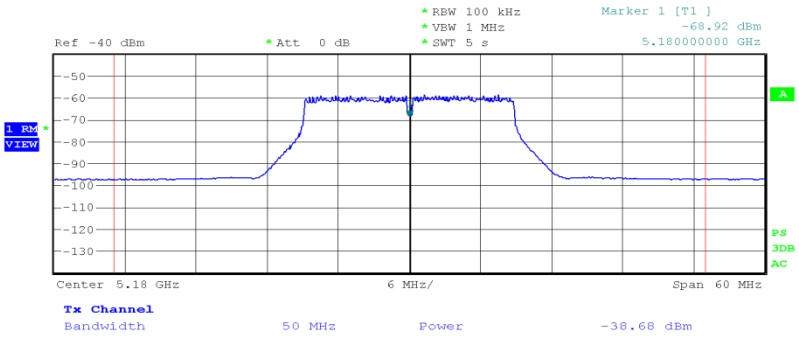
802.11(ac) - 5 GHz 20 MHz BW

Radiated

Frequency Band 1

5180 MHz

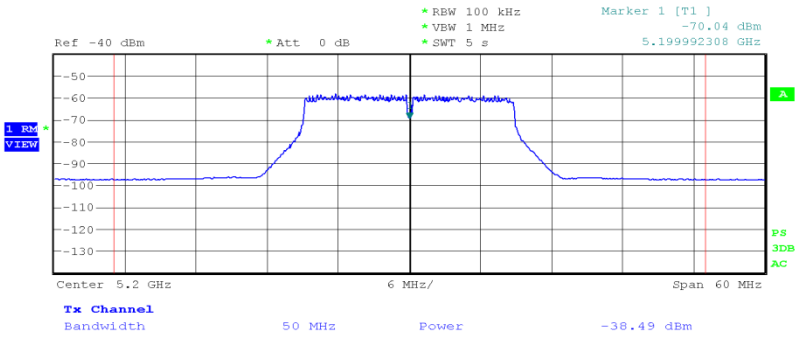
EIRP (dBm)	EIRP (mW)
13.95	24.83



Date: 28.NOV.2014 01:26:06

5200 MHz

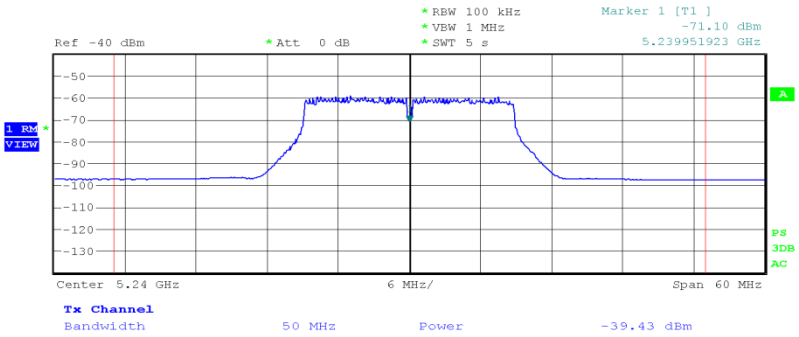
EIRP (dBm)	EIRP (mW)
13.51	22.44



Date: 28.NOV.2014 01:59:09

5240 MHz

EIRP (dBm)	EIRP (mW)
13.05	20.18



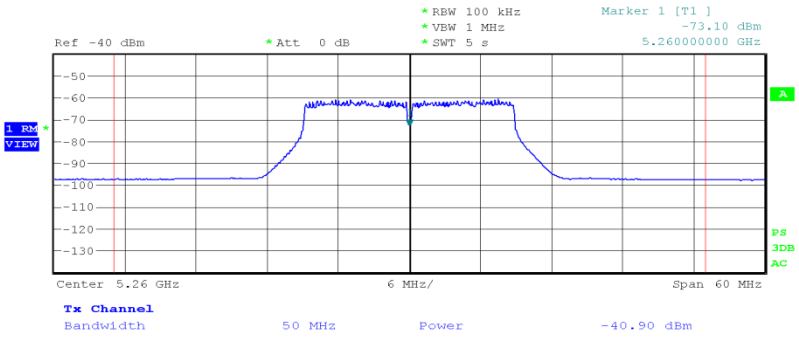
Date: 28.NOV.2014 02:05:26

Radiated

Frequency Band 2

5260 MHz

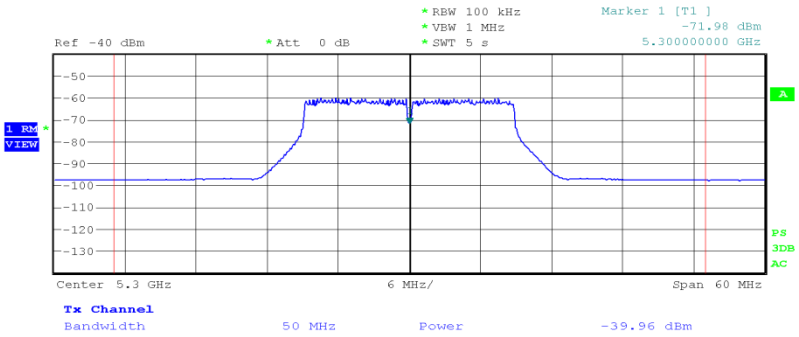
EIRP (dBm)	EIRP (mW)
12.22	16.67



Date: 28.NOV.2014 02:13:56

5300 MHz

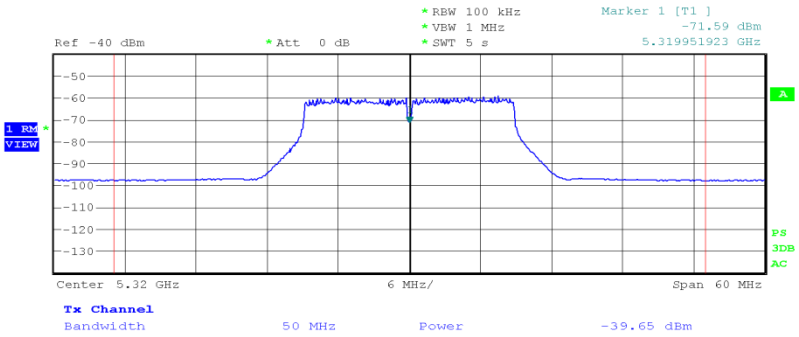
EIRP (dBm)	EIRP (mW)
12.28	16.90



Date: 28.NOV.2014 02:32:17

5320 MHz

EIRP (dBm)	EIRP (mW)
13.48	22.28



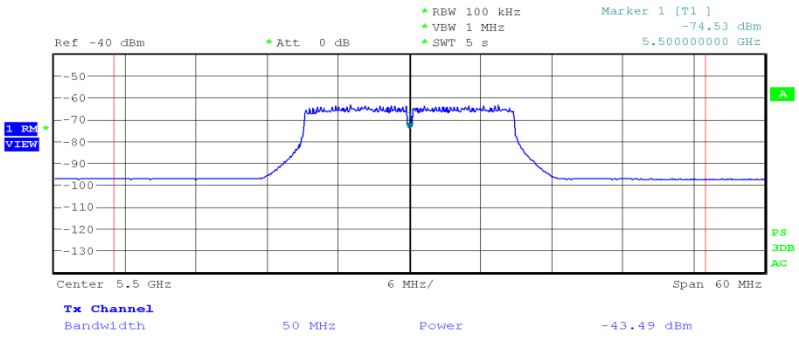
Date: 28.NOV.2014 02:37:31

Radiated

Frequency Band 3

5500 MHz

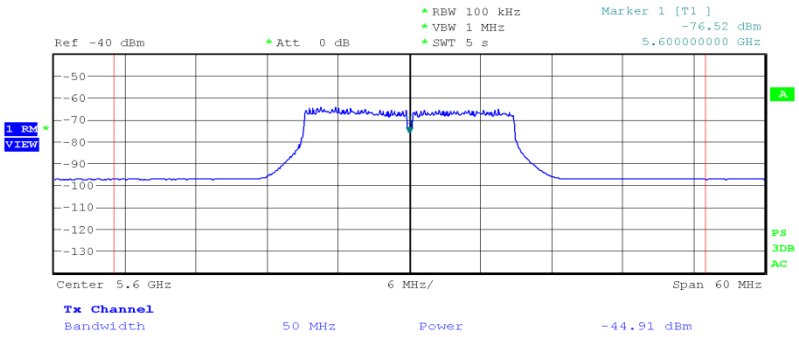
EIRP (dBm)	EIRP (mW)
9.25	8.41



Date: 28.NOV.2014 02:47:57

5600 MHz

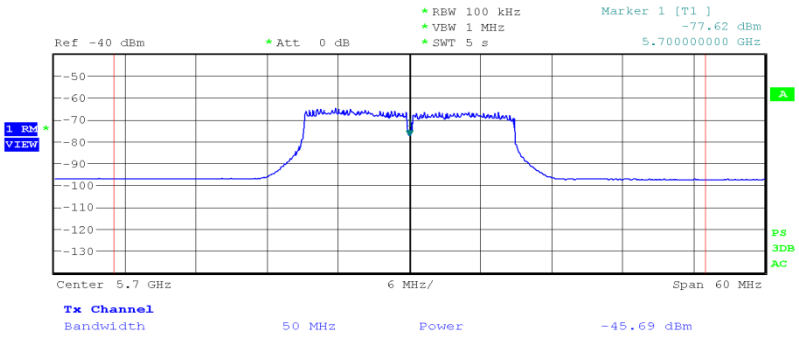
EIRP (dBm)	EIRP (mW)
8.67	7.36



Date: 28.NOV.2014 02:53:03

5700 MHz

EIRP (dBm)	EIRP (mW)
7.70	5.89



Date: 28.NOV.2014 03:00:58

Limit for Radiated

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 200 mW or 10 dBm + 10 log B
5250 to 5350	Lesser of 1 W or 17 dBm + 10 log B
5470 to 5725	Lesser of 1 W or 17 dBm + 10 log B
5725 to 5825	Lesser of 4 W or 23 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

It is acceptable to have an antenna with up to 6 dBi gain, without reducing the conducted output power.

Conducted

Frequency Band 1

5180 MHz

EIRP (dBm)	EIRP (mW)
11.25	13.34

5200 MHz

EIRP (dBm)	EIRP (mW)
11.35	13.65

5240 MHz

EIRP (dBm)	EIRP (mW)
11.05	12.74

The test was performed on the worst case data rate for 802.11(ac) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Conducted

Frequency Band 2

5260 MHz

EIRP (dBm)	EIRP (mW)
11.32	13.55

5300 MHz

EIRP (dBm)	EIRP (mW)
11.27	13.40

5320 MHz

EIRP (dBm)	EIRP (mW)
11.39	13.77

The test was performed on the worst case data rate for 802.11(ac) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Conducted

Frequency Band 3

5500 MHz

EIRP (dBm)	EIRP (mW)
11.12	12.94

5600 MHz

EIRP (dBm)	EIRP (mW)
10.82	12.08

5700 MHz

EIRP (dBm)	EIRP (mW)
10.89	12.27

The test was performed on the worst case data rate for 802.11(ac) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Limit for Conducted

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 50 mW or 4 dBm + 10 log B
5250 to 5350	Lesser of 250 mW or 11 dBm + 10 log B
5470 to 5725	Lesser of 250 mW or 11 dBm + 10 log B
5725 to 5825	Lesser of 1 W or 17 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

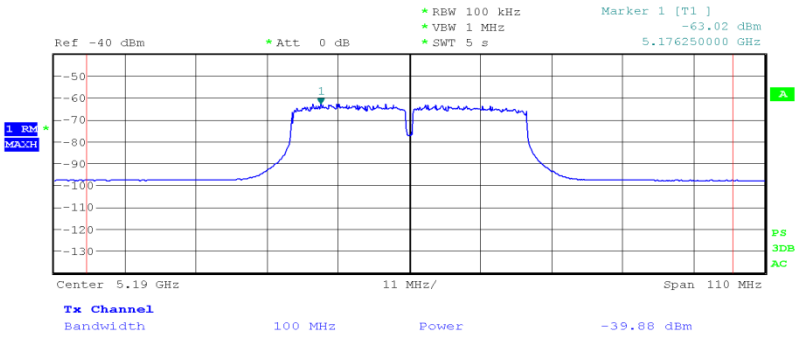
802.11(ac) - 5 GHz 40 MHz BW

Radiated

Frequency Band 1

5190 MHz

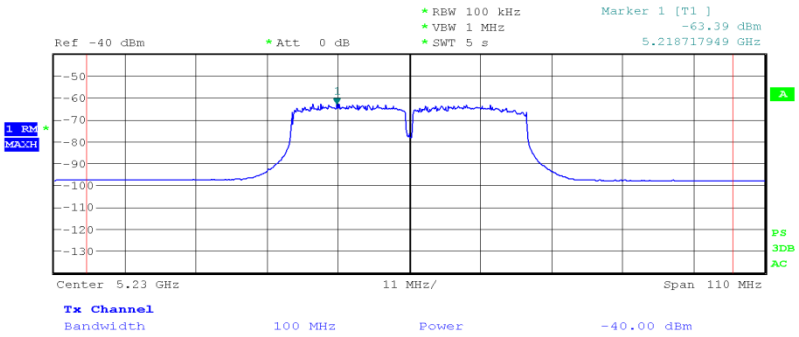
EIRP (dBm)	EIRP (mW)
11.72	14.86



Date: 30.NOV.2014 14:04:57

5230 MHz

EIRP (dBm)	EIRP (mW)
11.03	12.68



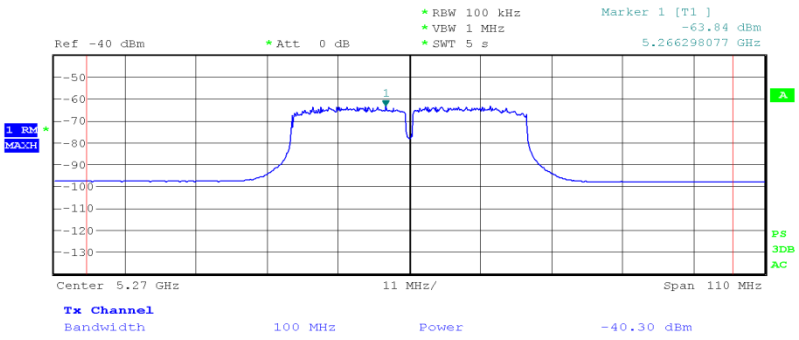
Date: 30.NOV.2014 14:19:08

Radiated

Frequency Band 2

5270 MHz

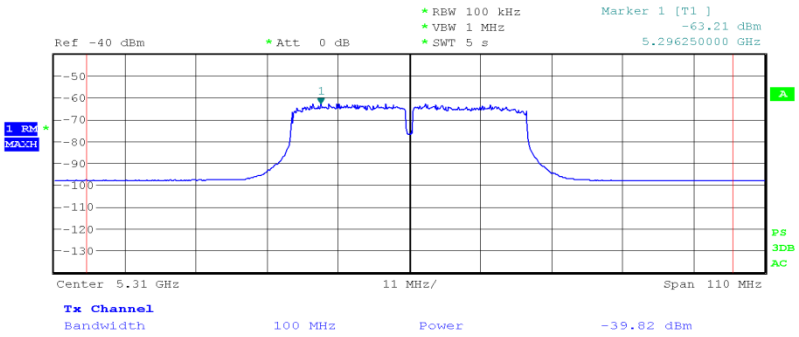
EIRP (dBm)	EIRP (mW)
10.34	10.81



Date: 30.NOV.2014 14:25:37

5310 MHz

EIRP (dBm)	EIRP (mW)
10.50	11.22



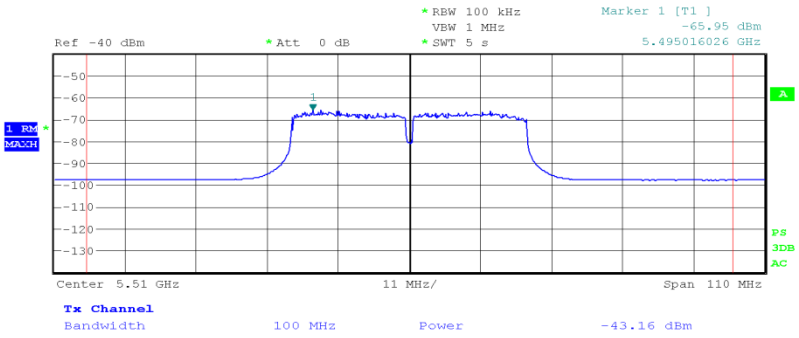
Date: 30.NOV.2014 14:33:48

Radiated

Frequency Band 3

5510 MHz

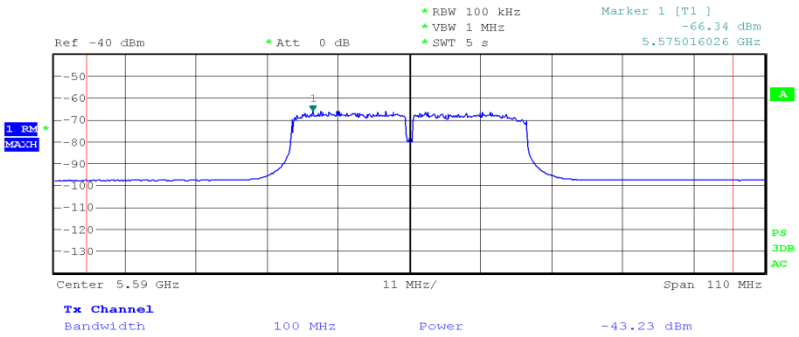
EIRP (dBm)	EIRP (mW)
8.24	6.67



Date: 30.NOV.2014 14:54:13

5590 MHz

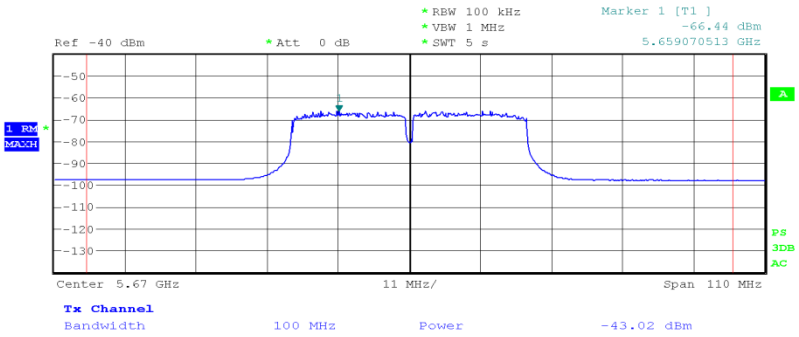
EIRP (dBm)	EIRP (mW)
7.29	5.36



Date: 30.NOV.2014 15:21:06

5670 MHz

EIRP (dBm)	EIRP (mW)
6.92	4.92



Date: 30.NOV.2014 15:17:48

Limit for Radiated

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 200 mW or 10 dBm + 10 log B
5250 to 5350	Lesser of 1 W or 17 dBm + 10 log B
5470 to 5725	Lesser of 1 W or 17 dBm + 10 log B
5725 to 5825	Lesser of 4 W or 23 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

It is acceptable to have an antenna with up to 6 dBi gain, without reducing the conducted output power.

Conducted

Frequency Band 1

5190 MHz

EIRP (dBm)	EIRP (mW)
10.75	11.89

5230 MHz

EIRP (dBm)	EIRP (mW)
10.99	12.56

The test was performed on the worst case data rate for 802.11(ac) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Conducted

Frequency Band 2

5270 MHz

EIRP (dBm)	EIRP (mW)
11.12	12.94

5310 MHz

EIRP (dBm)	EIRP (mW)
10.92	12.36

The test was performed on the worst case data rate for 802.11(ac) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Conducted

Frequency Band 3

5510 MHz

EIRP (dBm)	EIRP (mW)
11.25	13.34

5590 MHz

EIRP (dBm)	EIRP (mW)
10.84	12.13

5670 MHz

EIRP (dBm)	EIRP (mW)
11.11	12.91

The test was performed on the worst case data rate for 802.11(ac) - 40 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Limit for Conducted

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 50 mW or 4 dBm + 10 log B
5250 to 5350	Lesser of 250 mW or 11 dBm + 10 log B
5470 to 5725	Lesser of 250 mW or 11 dBm + 10 log B
5725 to 5825	Lesser of 1 W or 17 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

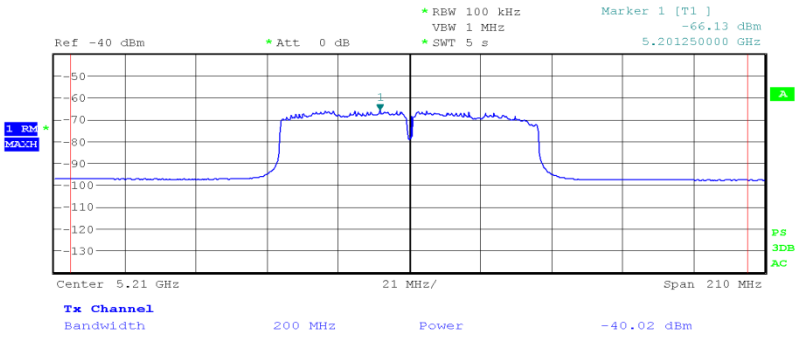
802.11(ac) - 5 GHz 80 MHz BW

Radiated

Frequency Band 1

5210 MHz

EIRP (dBm)	EIRP (mW)
12.87	19.36



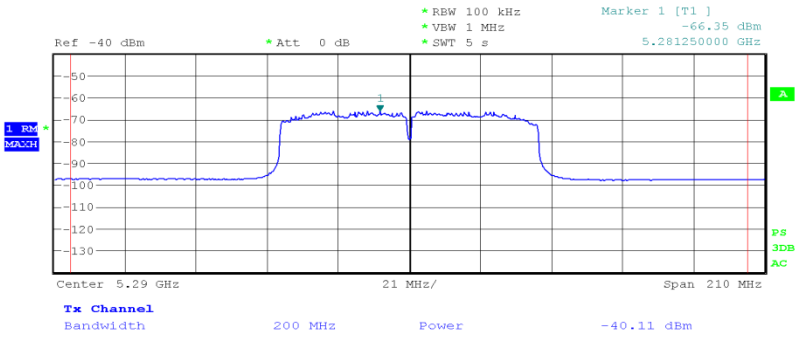
Date: 1.DEC.2014 19:05:11

Radiated

Frequency Band 2

5290 MHz

EIRP (dBm)	EIRP (mW)
12.77	18.92



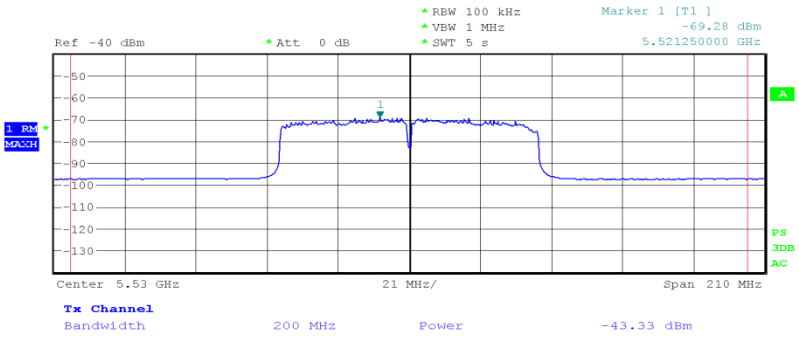
Date: 1.DEC.2014 19:30:55

Radiated

Frequency Band 3

5530 MHz

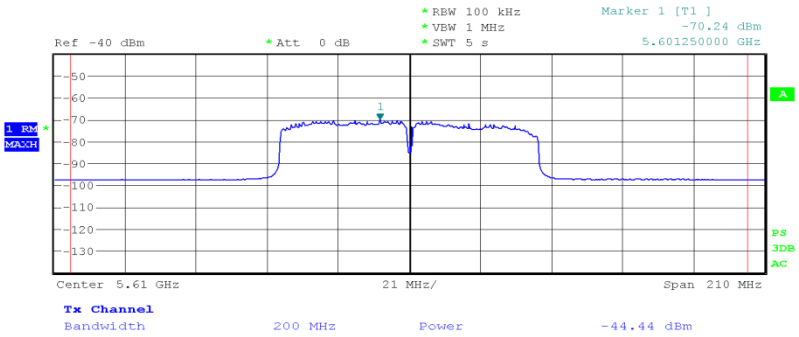
EIRP (dBm)	EIRP (mW)
10.65	11.61



Date: 1.DEC.2014 19:36:10

5610 MHz

EIRP (dBm)	EIRP (mW)
8.69	7.40



Date: 1.DEC.2014 19:41:19

Limit for Radiated

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 200 mW or 10 dBm + 10 log B
5250 to 5350	Lesser of 1 W or 17 dBm + 10 log B
5470 to 5725	Lesser of 1 W or 17 dBm + 10 log B
5725 to 5825	Lesser of 4 W or 23 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

It is acceptable to have an antenna with up to 6 dBi gain, without reducing the conducted output power.

Conducted

Frequency Band 1

5210 MHz

EIRP (dBm)	EIRP (mW)
10.51	11.25

The test was performed on the worst case data rate for 802.11(ac) - 80 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Conducted

Frequency Band 2

5290 MHz

EIRP (dBm)	EIRP (mW)
10.58	11.43

The test was performed on the worst case data rate for 802.11(ac) - 80 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Conducted

Frequency Band 3

5530 MHz

EIRP (dBm)	EIRP (mW)
10.67	11.67

5610 MHz

EIRP (dBm)	EIRP (mW)
10.70	11.75

The test was performed on the worst case data rate for 802.11(ac) - 80 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS1.

Limit for Conducted

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 50 mW or 4 dBm + 10 log B
5250 to 5350	Lesser of 250 mW or 11 dBm + 10 log B
5470 to 5725	Lesser of 250 mW or 11 dBm + 10 log B
5725 to 5825	Lesser of 1 W or 17 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

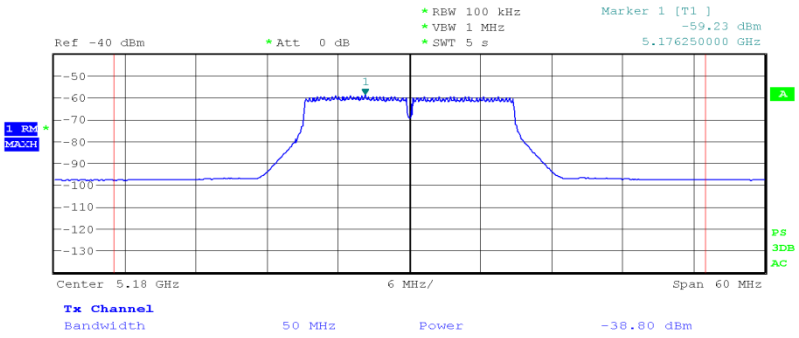
802.11(n) - 5 GHz 20 MHz BW

Radiated

Frequency Band 1

5180 MHz

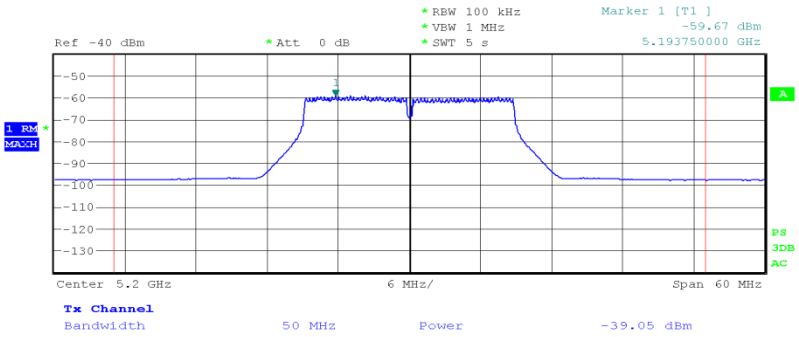
EIRP (dBm)	EIRP (mW)
13.68	23.33



Date: 30.NOV.2014 11:05:55

5200 MHz

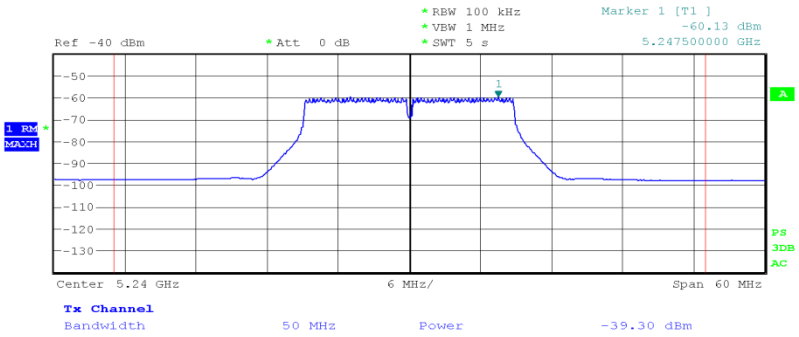
EIRP (dBm)	EIRP (mW)
13.39	21.83



Date: 30.NOV.2014 11:17:46

5240 MHz

EIRP (dBm)	EIRP (mW)
12.55	17.99



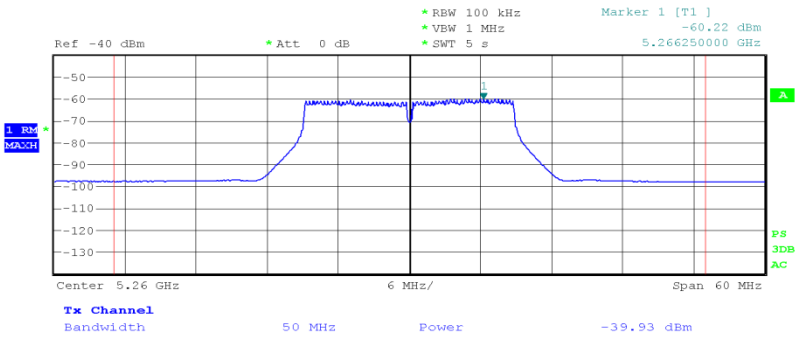
Date: 30.NOV.2014 11:22:06

Radiated

Frequency Band 2

5260 MHz

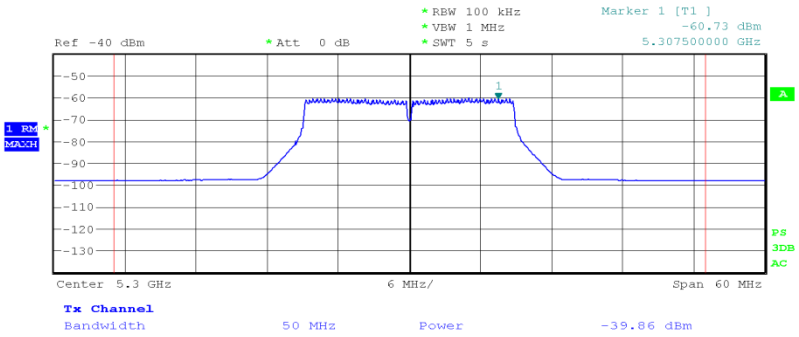
EIRP (dBm)	EIRP (mW)
12.57	18.07



Date: 30.NOV.2014 11:27:57

5300 MHz

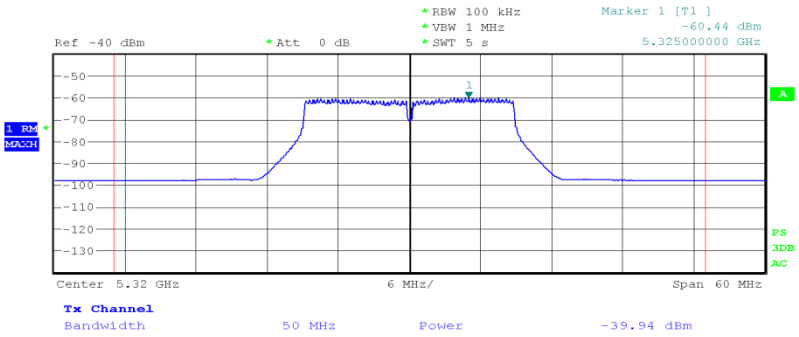
EIRP (dBm)	EIRP (mW)
12.95	19.72



Date: 30.NOV.2014 11:32:40

5320 MHz

EIRP (dBm)	EIRP (mW)
11.91	15.92



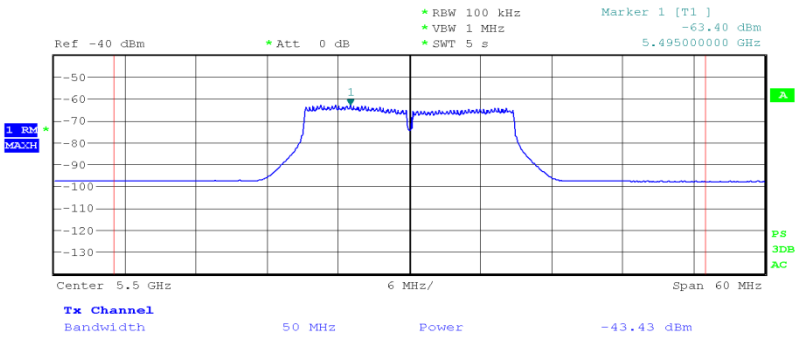
Date: 30.NOV.2014 11:38:34

Radiated

Frequency Band 3

5500 MHz

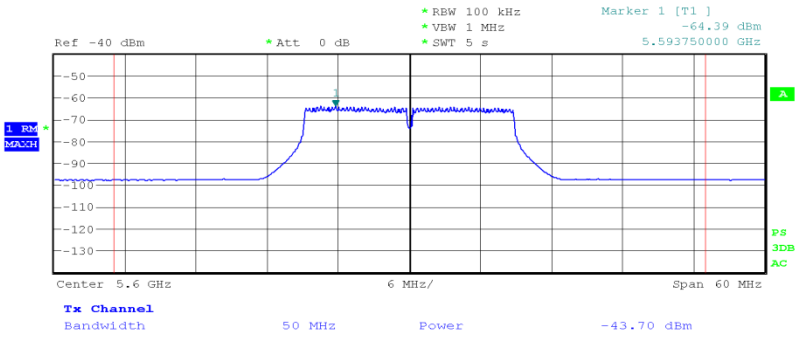
EIRP (dBm)	EIRP (mW)
8.76	7.52



Date: 30.NOV.2014 11:53:24

5600 MHz

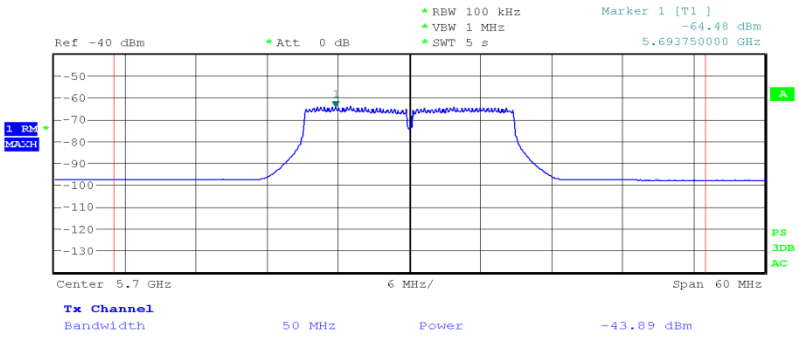
EIRP (dBm)	EIRP (mW)
8.28	6.73



Date: 30.NOV.2014 12:17:34

5700 MHz

EIRP (dBm)	EIRP (mW)
7.88	6.14



Date: 30.NOV.2014 12:08:36

Limit for Radiated

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 200 mW or 10 dBm + 10 log B
5250 to 5350	Lesser of 1 W or 17 dBm + 10 log B
5470 to 5725	Lesser of 1 W or 17 dBm + 10 log B
5725 to 5825	Lesser of 4 W or 23 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

It is acceptable to have an antenna with up to 6 dBi gain, without reducing the conducted output power.

Conducted

Frequency Band 1

5180 MHz

EIRP (dBm)	EIRP (mW)
11.46	14.00

5200 MHz

EIRP (dBm)	EIRP (mW)
11.61	14.49

5240 MHz

EIRP (dBm)	EIRP (mW)
10.90	12.30

The test was performed on the worst case data rate for 802.11(n) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Conducted

Frequency Band 2

5260 MHz

EIRP (dBm)	EIRP (mW)
10.93	12.39

5300 MHz

EIRP (dBm)	EIRP (mW)
11.25	13.34

5320 MHz

EIRP (dBm)	EIRP (mW)
11.09	12.85

The test was performed on the worst case data rate for 802.11(n) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Conducted

Frequency Band 3

5500 MHz

EIRP (dBm)	EIRP (mW)
11.11	12.91

5600 MHz

EIRP (dBm)	EIRP (mW)
11.05	12.74

5700 MHz

EIRP (dBm)	EIRP (mW)
11.10	12.88

The test was performed on the worst case data rate for 802.11(n) - 20 MHz BW modulation. The worst case was deemed as the data rate which produced the highest level of conducted average power. This data rate was MCS0.

Limit for Conducted

Frequency Band (MHz)	FCC Limit
5150 to 5250	Lesser of 50 mW or 4 dBm + 10 log B
5250 to 5350	Lesser of 250 mW or 11 dBm + 10 log B
5470 to 5725	Lesser of 250 mW or 11 dBm + 10 log B
5725 to 5825	Lesser of 1 W or 17 dBm + 10 log B

Note: “B” = 26 dB Bandwidth.

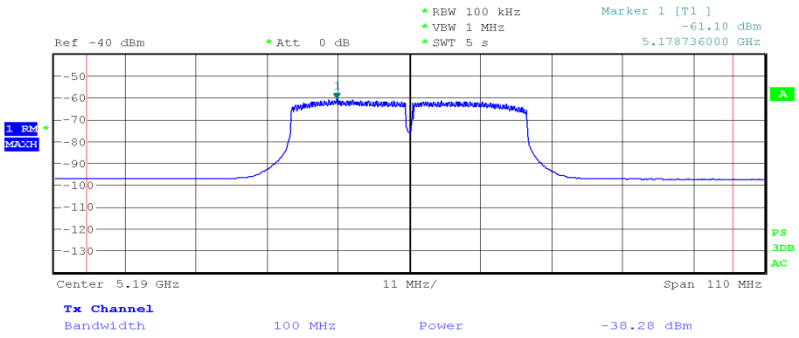
802.11(n) - 5 GHz 40 MHz BW

Radiated

Frequency Band 1

5190 MHz

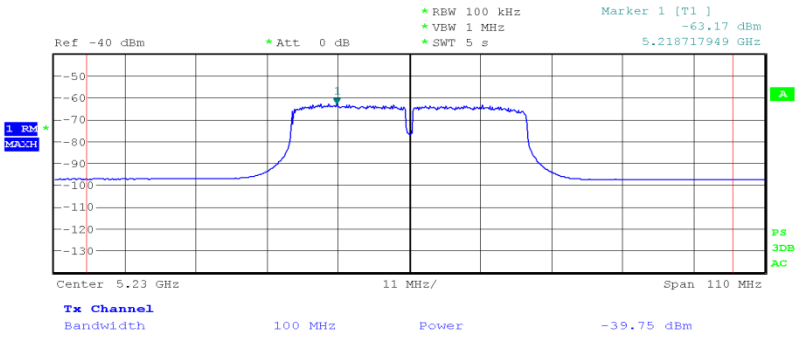
EIRP (dBm)	EIRP (mW)
12.89	19.45



Date: 1.DEC.2014 20:03:37

5230 MHz

EIRP (dBm)	EIRP (mW)
10.86	12.19



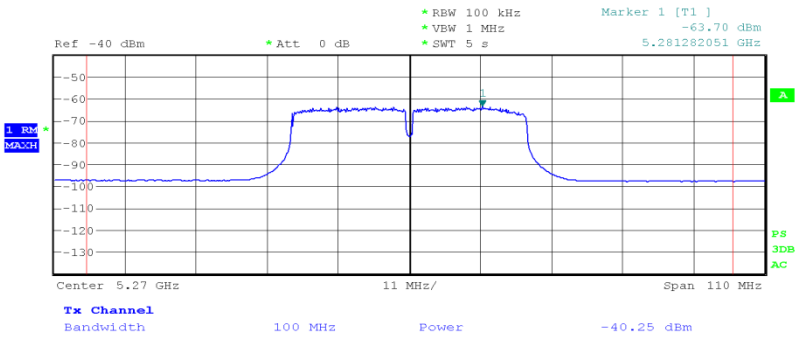
Date: 1.DEC.2014 18:25:05

Radiated

Frequency Band 2

5270 MHz

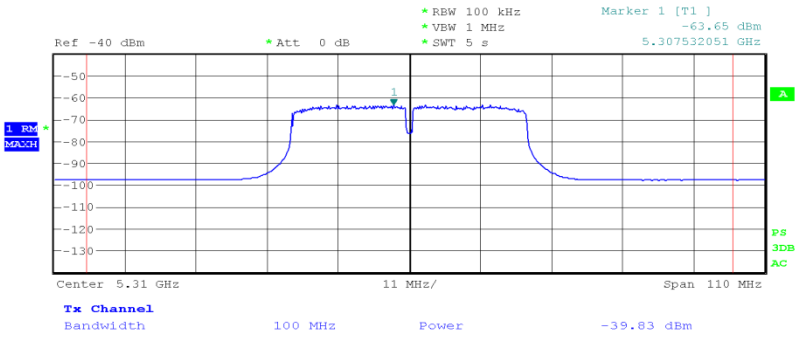
EIRP (dBm)	EIRP (mW)
9.99	9.98



Date: 1.DEC.2014 20:09:37

5310 MHz

EIRP (dBm)	EIRP (mW)
10.1	10.23



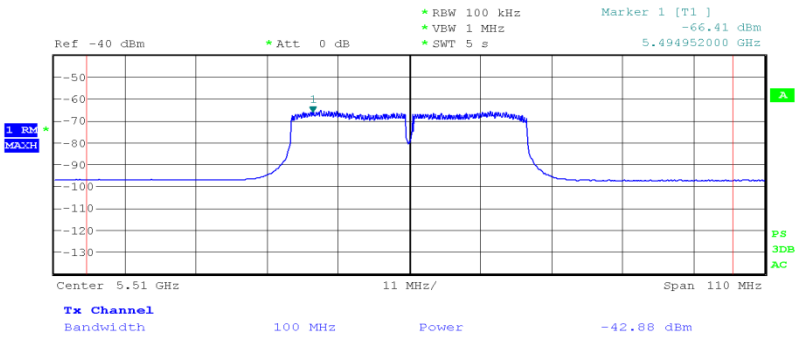
Date: 1.DEC.2014 18:42:14

Radiated

Frequency Band 3

5510 MHz

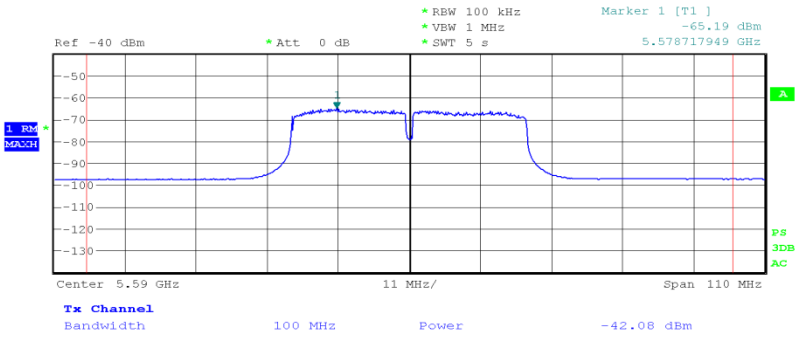
EIRP (dBm)	EIRP (mW)
8.09	6.44



Date: 1.DEC.2014 20:01:08

5590 MHz

EIRP (dBm)	EIRP (mW)
8.05	6.38



Date: 1.DEC.2014 18:54:20