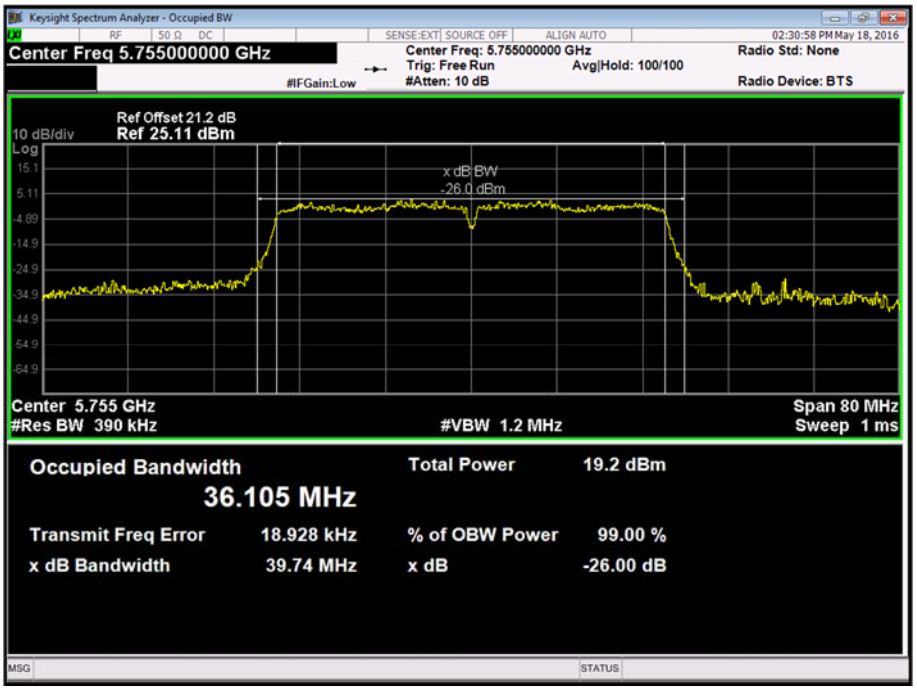
Product Service

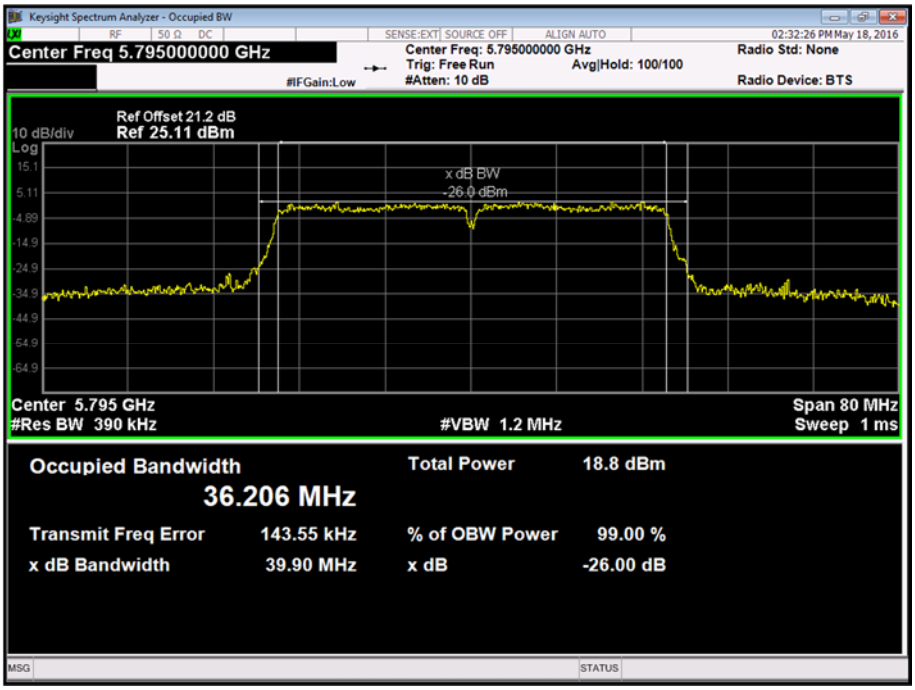
802.11n 40 MHz Bandwidth, OFDM, MCS7, Frequency Band 4, 26 dB Bandwidth Results

5755 MHz	5795 MHz
MHz	MHz
39.74	39.90

802.11n 40 MHz Bandwidth, 5755 MHz, OFDM, MCS7, Frequency Band 4, 26 dB Bandwidth Plot



802.11n 40 MHz Bandwidth, 5795 MHz, OFDM, MCS7, Frequency Band 4, 26 dB Bandwidth Plot



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

No limit specified.

Industry Canada RSS-247, Limit Clause 6.2

No limit specified.

Product Service

2.3 MAXIMUM CONDUCTED OUTPUT POWER

2.3.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (a)(1)(2)
Industry Canada RSS-247, Clause 6.2

2.3.2 Equipment Under Test and Modification State

Minuet/FS5332 S/N: RAD108620 (Module) and RAD108704 (Platform) - Modification State 0

2.3.3 Date of Test

20 May 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

This test was performed in accordance with KDB 789033 D02 v01r02, Section II clause E.3b Method PM-G.

Remarks

Method PM-G (Measurement using a gated RF average power meter)

2.3.6 Environmental Conditions

Ambient Temperature	22.5°C
Relative Humidity	45.9%

Product Service

2.3.7 Test Results

802.11a, OFDM, 6 Mbps, Frequency Band 1, Maximum Conducted Output Power Results

5180 MHz		5200 MHz		5240 MHz	
dBm	mW	dBm	mW	dBm	mW
13.07	20.28	13.12	20.51	12.91	19.54

802.11a, OFDM, 6 Mbps, Frequency Band 2, Maximum Conducted Output Power Results

5260 MHz		5300 MHz		5320 MHz	
dBm	mW	dBm	mW	dBm	mW
12.95	19.72	12.93	19.63	13.10	20.42

802.11a, OFDM, 6 Mbps, Frequency Band 3, Maximum Conducted Output Power Results

5500 MHz		5600 MHz		5700 MHz	
dBm	mW	dBm	mW	dBm	mW
12.83	19.19	13.21	20.94	13.50	22.39

802.11a, OFDM, 6 Mbps, Frequency Band 4, Maximum Conducted Output Power Results

5745 MHz		5785 MHz		5825 MHz	
dBm	mW	dBm	mW	dBm	mW
13.51	22.44	13.47	22.23	13.48	22.28

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

Frequency Band (MHz)	Limit
5150 to 5250	≤250 mW
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	≤1 W or 17 dBm

Note: “B” = 26 dB Bandwidth (MHz).

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	Lesser of 200 mW or 10 + 10 log B
5250 to 5350	Lesser of 250 mW or 11 + 10 log B
5470 to 5600 and 5600 to 5725	Lesser of 250 mW or 11 + 10 log B
5725 to 5850	≤1 W

Note: “B” = 99 % Emission Bandwidth (MHz).

802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 1, Maximum Conducted Output Power Results

5180 MHz		5200 MHz		5240 MHz	
dBm	mW	dBm	mW	dBm	mW
13.01	20.00	12.94	19.68	12.85	19.28

802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 2, Maximum Conducted Output Power Results

5260 MHz		5300 MHz		5320 MHz	
dBm	mW	dBm	mW	dBm	mW
13.14	20.61	12.91	19.54	13.02	20.04

802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 3, Maximum Conducted Output Power Results

5500 MHz		5600 MHz		5700 MHz	
dBm	mW	dBm	mW	dBm	mW
12.93	19.63	13.22	20.99	13.36	21.68

802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 4, Maximum Conducted Output Power Results

5745 MHz		5785 MHz		5825 MHz	
dBm	mW	dBm	mW	dBm	mW
13.36	21.68	13.18	20.80	13.26	21.18

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

Frequency Band (MHz)	Limit
5150 to 5250	≤250 mW
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	≤1 W or 17 dBm

Note: “B” = 26 dB Bandwidth (MHz).

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	Lesser of 200 mW or 10 + 10 log B
5250 to 5350	Lesser of 250 mW or 11 + 10 log B
5470 to 5600 and 5600 to 5725	Lesser of 250 mW or 11 + 10 log B
5725 to 5850	≤1 W

Note: “B” = 99 % Emission Bandwidth (MHz).

802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 1, Maximum Conducted Output Power Results

5190 MHz		5230 MHz	
dBm	mW	dBm	mW
9.92	9.82	9.84	9.64

802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 2, Maximum Conducted Output Power Results

5270 MHz		5310 MHz	
dBm	mW	dBm	mW
9.96	9.91	9.78	9.51

802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 3, Maximum Conducted Output Power Results

5510 MHz		5590 MHz		5670 MHz	
dBm	mW	dBm	mW	dBm	mW
9.85	9.66	10.13	10.30	10.19	10.45

802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 4, Maximum Conducted Output Power Results

5755 MHz		5795 MHz	
dBm	mW	dBm	mW
10.37	10.89	10.31	10.74

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

Frequency Band (MHz)	Limit
5150 to 5250	≤250 mW
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	≤1 W or 17 dBm

Note: “B” = 26 dB Bandwidth (MHz).

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	Lesser of 200 mW or 10 + 10 log B
5250 to 5350	Lesser of 250 mW or 11 + 10 log B
5470 to 5600 and 5600 to 5725	Lesser of 250 mW or 11 + 10 log B
5725 to 5850	≤1 W

Note: “B” = 99 % Emission Bandwidth (MHz).

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 1, Maximum Conducted Output Power Results

5210 MHz	
dBm	mW
5.07	3.21

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 2, Maximum Conducted Output Power Results

5290 MHz	
dBm	mW
5.44	3.50

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 3, Maximum Conducted Output Power Results

5530 MHz		5610 MHz	
dBm	mW	dBm	mW
5.76	3.77	5.81	3.81

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 4, Maximum Conducted Output Power Results

5775 MHz	
dBm	mW
5.99	3.97

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

Frequency Band (MHz)	Limit
5150 to 5250	≤250 mW
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	≤1 W or 17 dBm

Note: “B” = 26 dB Bandwidth (MHz).

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	Lesser of 200 mW or 10 + 10 log B
5250 to 5350	Lesser of 250 mW or 11 + 10 log B
5470 to 5600 and 5600 to 5725	Lesser of 250 mW or 11 + 10 log B
5725 to 5850	≤1 W

Note: “B” = 99 % Emission Bandwidth (MHz).

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 1, Maximum Conducted Output Power Results

5180 MHz		5200 MHz		5240 MHz	
dBm	mW	dBm	mW	dBm	mW
13.09	20.37	13.08	20.32	13.06	20.23

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 2, Maximum Conducted Output Power Results

5260 MHz		5300 MHz		5320 MHz	
dBm	mW	dBm	mW	dBm	mW
12.91	19.45	12.89	19.45	12.97	19.82

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 3, Maximum Conducted Output Power Results

5500 MHz		5600 MHz		5700 MHz	
dBm	mW	dBm	mW	dBm	mW
13.03	20.09	13.32	21.48	13.36	21.68

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 4, Maximum Conducted Output Power Results

5745 MHz		5785 MHz		5825 MHz	
dBm	mW	dBm	mW	dBm	mW
13.15	20.65	13.31	21.43	13.31	21.43

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

Frequency Band (MHz)	Limit
5150 to 5250	≤250 mW
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	≤1 W or 17 dBm

Note: “B” = 26 dB Bandwidth (MHz).

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	Lesser of 200 mW or 10 + 10 log B
5250 to 5350	Lesser of 250 mW or 11 + 10 log B
5470 to 5600 and 5600 to 5725	Lesser of 250 mW or 11 + 10 log B
5725 to 5850	≤1 W

Note: “B” = 99 % Emission Bandwidth (MHz).

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 1, Maximum Conducted Output Power Results

5190 MHz		5230 MHz	
dBm	mW	dBm	mW
11.33	13.58	11.22	13.24

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 2, Maximum Conducted Output Power Results

5270 MHz		5310 MHz	
dBm	mW	dBm	mW
10.92	12.36	11.05	12.74

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 3, Maximum Conducted Output Power Results

5510 MHz		5590 MHz		5670 MHz	
dBm	mW	dBm	mW	dBm	mW
11.25	13.34	11.51	14.16	11.44	13.93

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 4, Maximum Conducted Output Power Results

5755 MHz		5795 MHz	
dBm	mW	dBm	mW
11.49	14.09	11.55	14.29

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

Frequency Band (MHz)	Limit
5150 to 5250	≤250 mW
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	≤1 W or 17 dBm

Note: “B” = 26 dB Bandwidth (MHz).

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	Lesser of 200 mW or 10 + 10 log B
5250 to 5350	Lesser of 250 mW or 11 + 10 log B
5470 to 5600 and 5600 to 5725	Lesser of 250 mW or 11 + 10 log B
5725 to 5850	≤1 W

Note: “B” = 99 % Emission Bandwidth (MHz).

Product Service

2.4 PEAK POWER SPECTRAL DENSITY

2.4.1 Specification Reference

FCC 47 CFR Part 15E Clause 15.407 (a)(5)
Industry Canada RSS-247, Clause 6.2

2.4.2 Equipment Under Test and Modification State

Minuet/FS5332 S/N: RAD108620 (Module) and RAD108704 (Platform) - Modification State 0

2.4.3 Date of Test

20 May 2016, 23 May 2016 & 23 June 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

This test was performed in accordance with KDB 789033 D02 v01r02, Section II clause F, methods SA-1 and SA-2

Remarks

Duty cycle correction was included in the final result of 802.11.ac 80 MHz Bandwidth mode only and the other mode had duty cycle greater than 98% and so duty cycle correction was not added, as per the specification.

Measurements were made in a 1MHz RBW where the specification defines a 500 kHz RBW. Results are therefore 3dB[1] higher than would have been recorded using the specified bandwidth.

Note 1 10log (1 MHz / 500kHz) = 3dB

2.4.6 Environmental Conditions

Ambient Temperature	19.5 - 22.5°C
Relative Humidity	45.9 - 50.7%

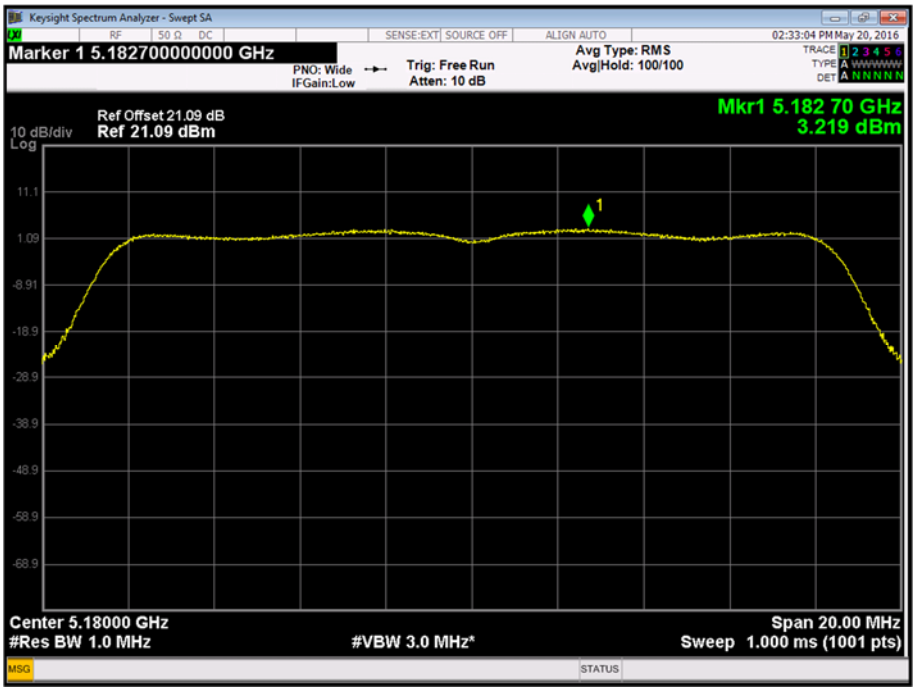
Product Service

2.4.7 Test Results

802.11a, OFDM, 6 Mbps, Frequency Band 1, Peak Power Spectral Density Results

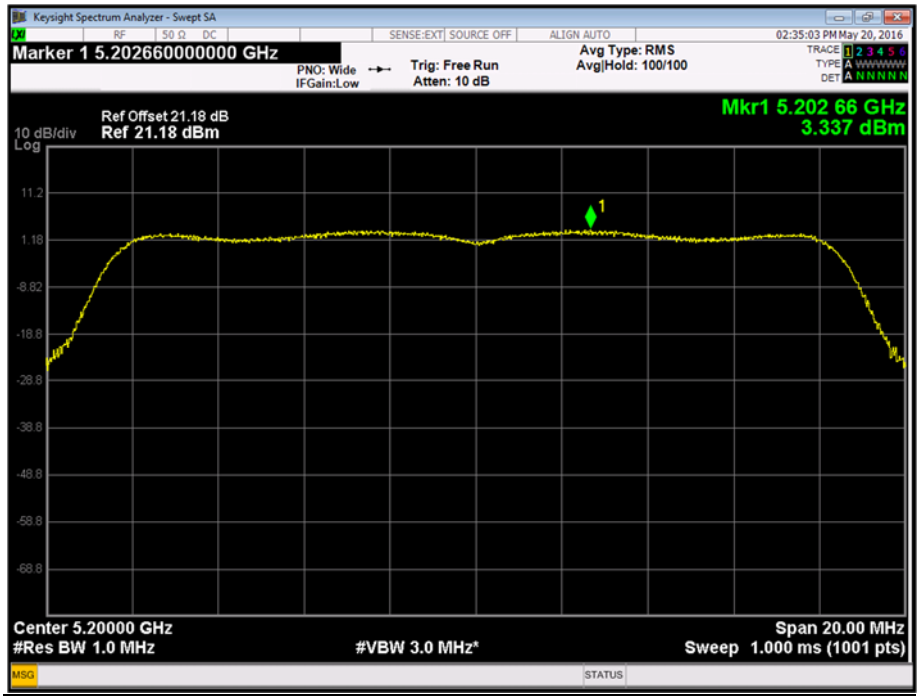
5180 MHz	5200 MHz	5240 MHz
dBm	dBm	dBm
3.219	3.337	3.075

802.11a, 5180 MHz, OFDM, 6 Mbps, Frequency Band 1, Peak Power Spectral Density Plot

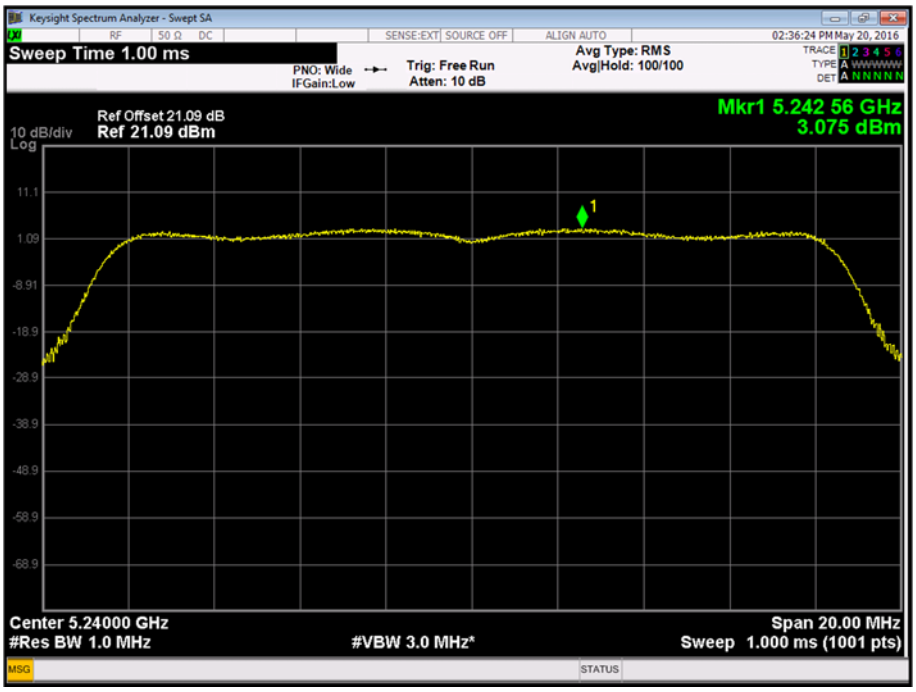


Product Service

802.11a, 5200 MHz, OFDM, 6 Mbps, Frequency Band 1, Peak Power Spectral Density Plot



802.11a, 5240 MHz, OFDM, 6 Mbps, Frequency Band 1, Peak Power Spectral Density Plot

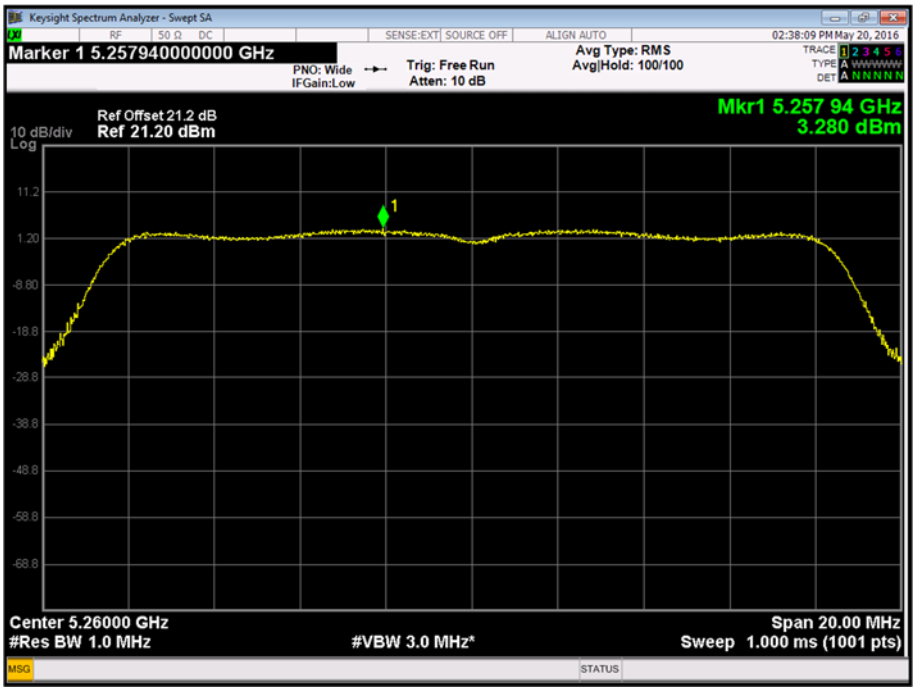


Product Service

802.11a, OFDM, 6 Mbps, Frequency Band 2, Peak Power Spectral Density Results

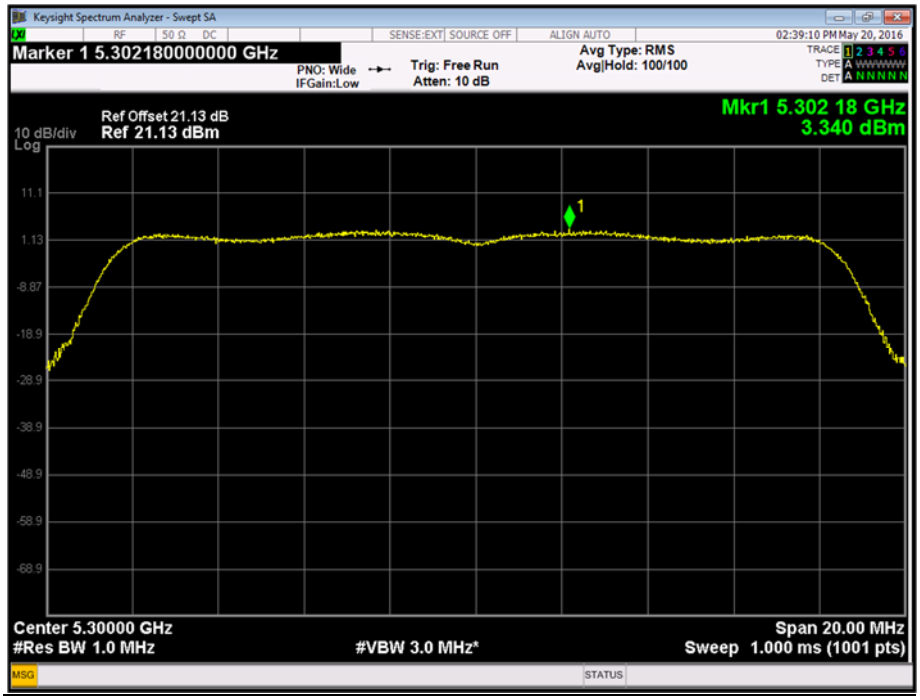
5260 MHz	5300 MHz	5320 MHz
dBm	dBm	dBm
3.280	3.340	3.211

802.11a, 5260 MHz, OFDM, 6 Mbps, Frequency Band 2, Peak Power Spectral Density Plot

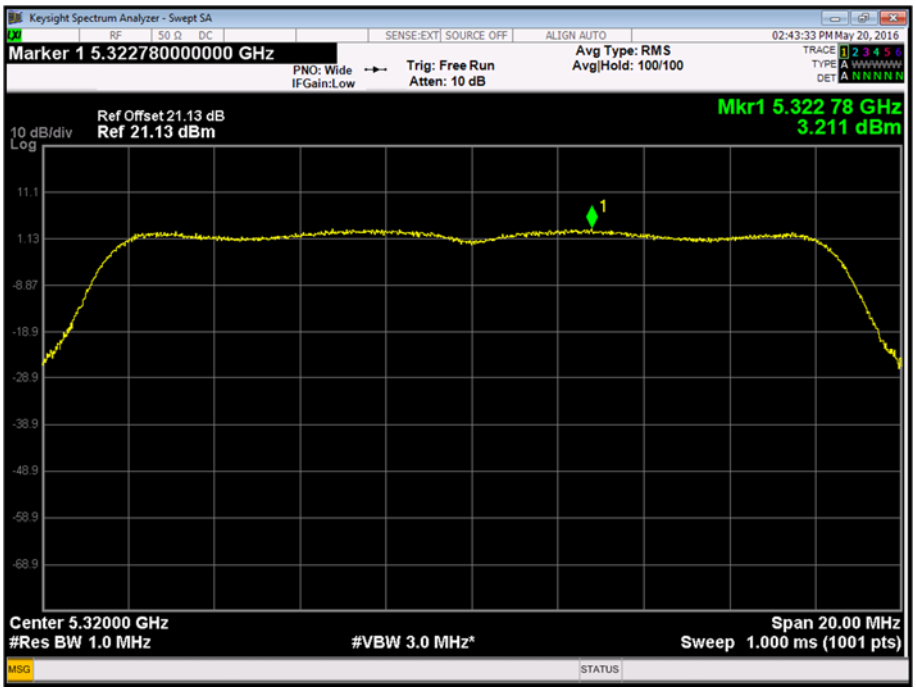


Product Service

802.11a, 5300 MHz, OFDM, 6 Mbps, Frequency Band 2, Peak Power Spectral Density Plot



802.11a, 5320 MHz, OFDM, 6 Mbps, Frequency Band 2, Peak Power Spectral Density Plot

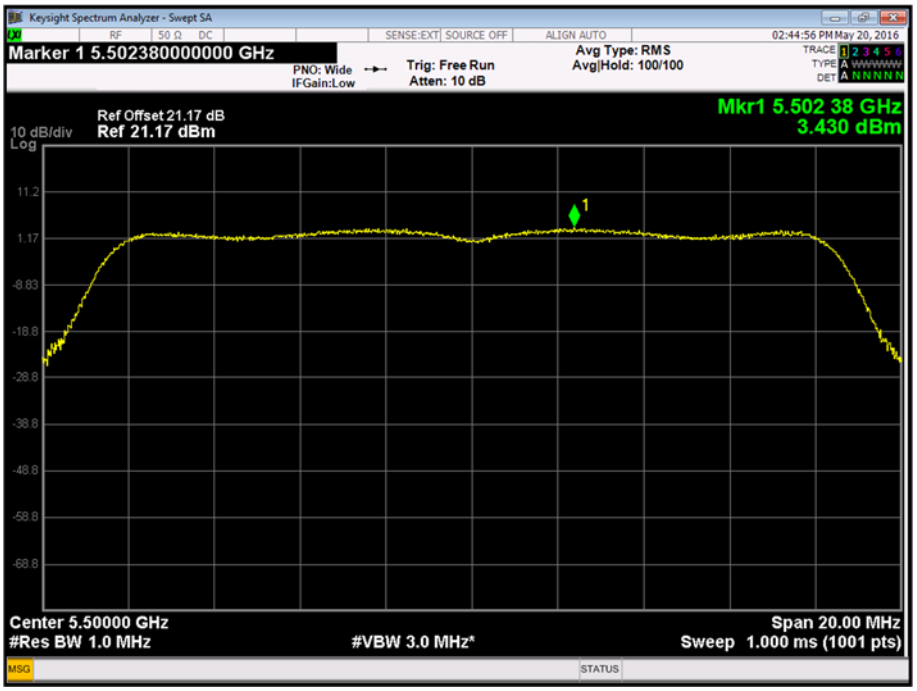


Product Service

802.11a, OFDM, 6 Mbps, Frequency Band 3, Peak Power Spectral Density Results

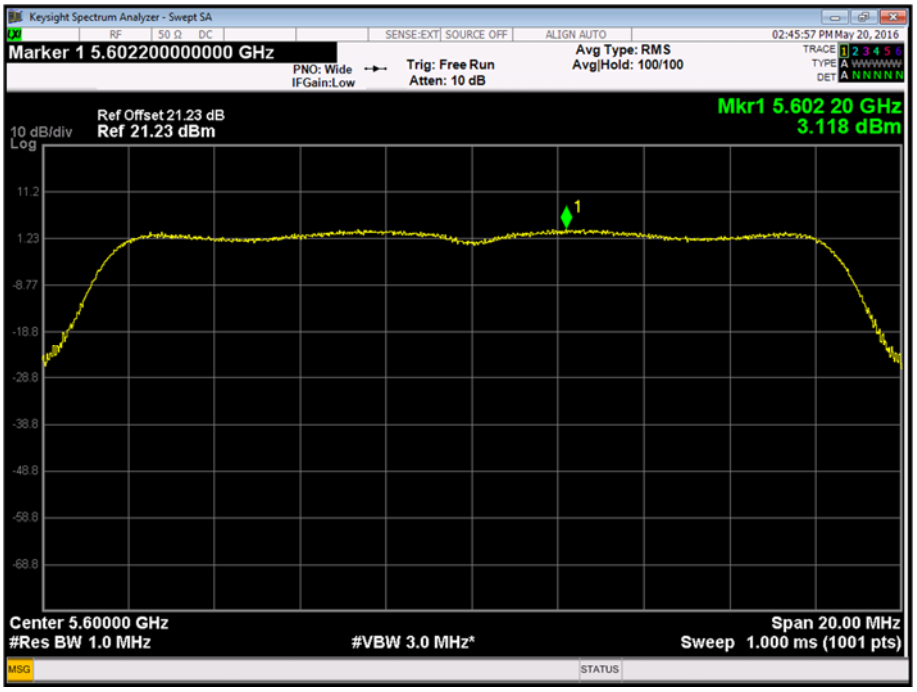
5500 MHz	5600 MHz	5700 MHz
dBm	dBm	dBm
3.430	3.118	3.866

802.11a, 5500 MHz, OFDM, 6 Mbps, Frequency Band 3, Peak Power Spectral Density Plot

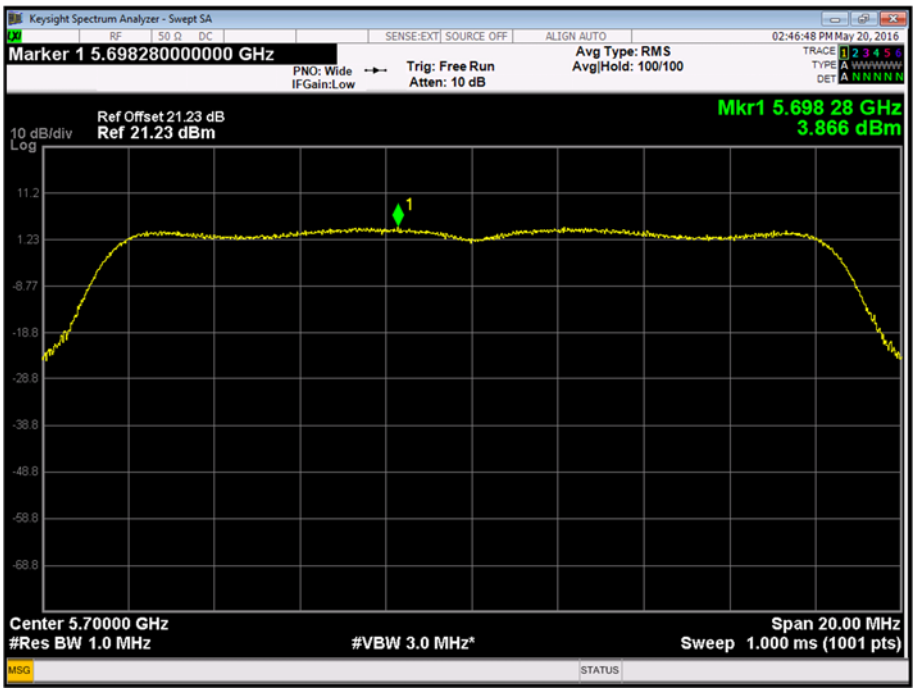


Product Service

802.11a, 5600 MHz, OFDM, 6 Mbps, Frequency Band 3, Peak Power Spectral Density Plot



802.11a, 5700 MHz, OFDM, 6 Mbps, Frequency Band 3, Peak Power Spectral Density Plot

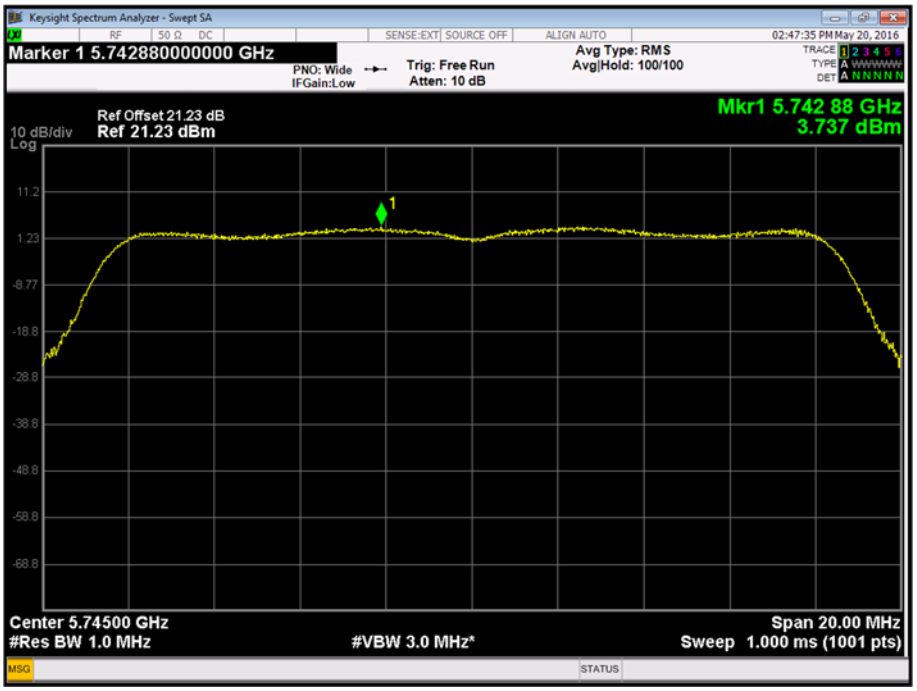


Product Service

802.11a, OFDM, 6 Mbps, Frequency Band 4, Peak Power Spectral Density Results

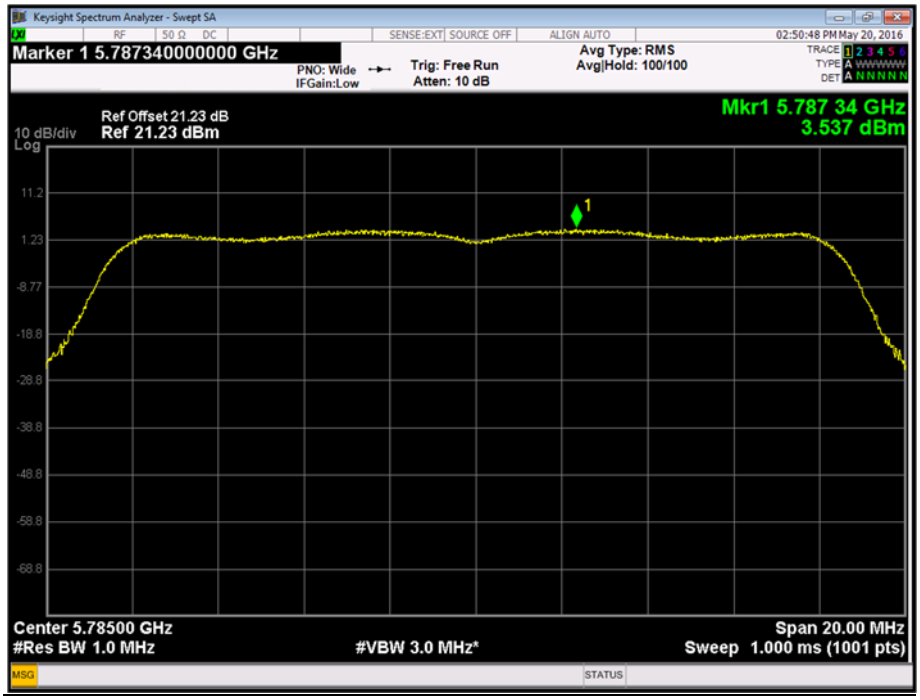
5745 MHz	5785 MHz	5825 MHz
dBm	dBm	dBm
3.737	3.537	3.303

802.11a, 5745 MHz, OFDM, 6 Mbps, Frequency Band 4, Peak Power Spectral Density Plot

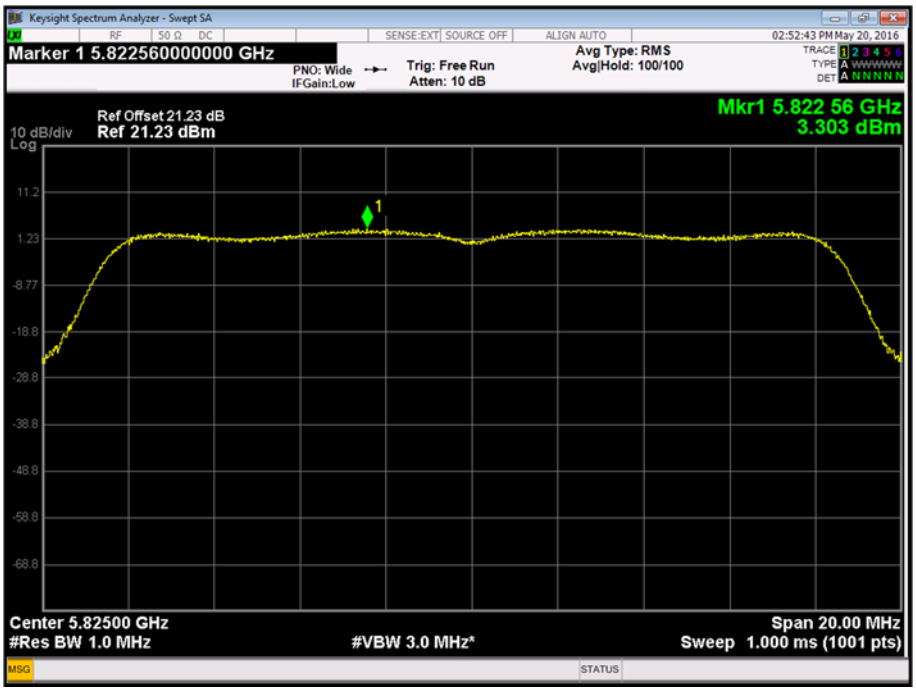


Product Service

802.11a, 5785 MHz, OFDM, 6 Mbps, Frequency Band 4, Peak Power Spectral Density Plot



802.11a, 5825 MHz, OFDM, 6 Mbps, Frequency Band 4, Peak Power Spectral Density Plot



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

Frequency Band (MHz)	Limit
5150 to 5250	≤11 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5725	≤11 dBm/MHz
5725 to 5825	≤30 dBm / 500 kHz

Industry Canada RSS-247, Limit Clause 6.2

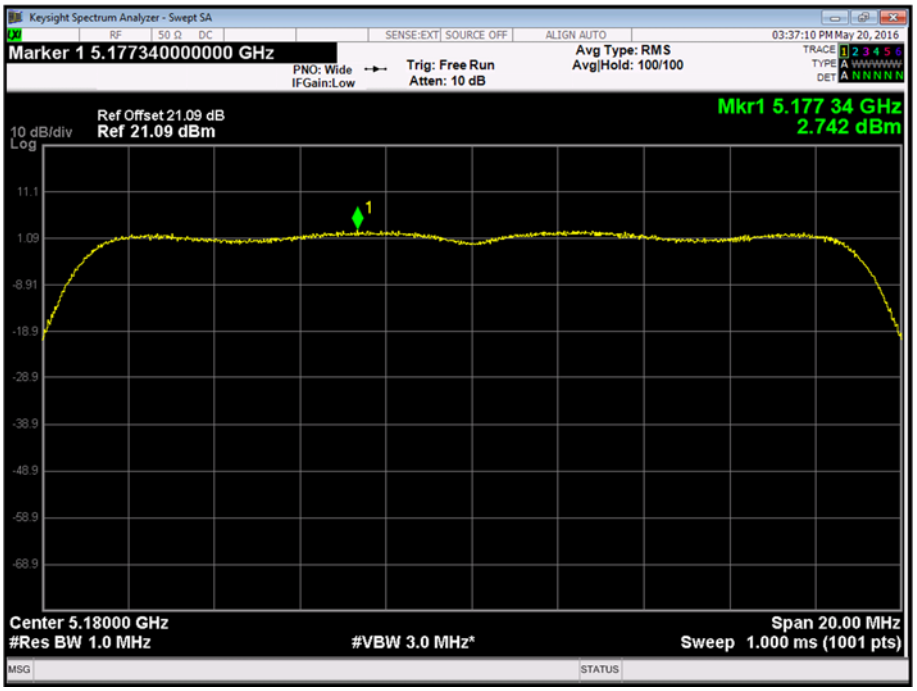
Frequency Band (MHz)	Limit
5150 to 5250	≤10 dBm /MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5600 5650 to 5725	≤11 dBm/MHz
5725 to 5850	≤30 dBm / 500 kHz

Product Service

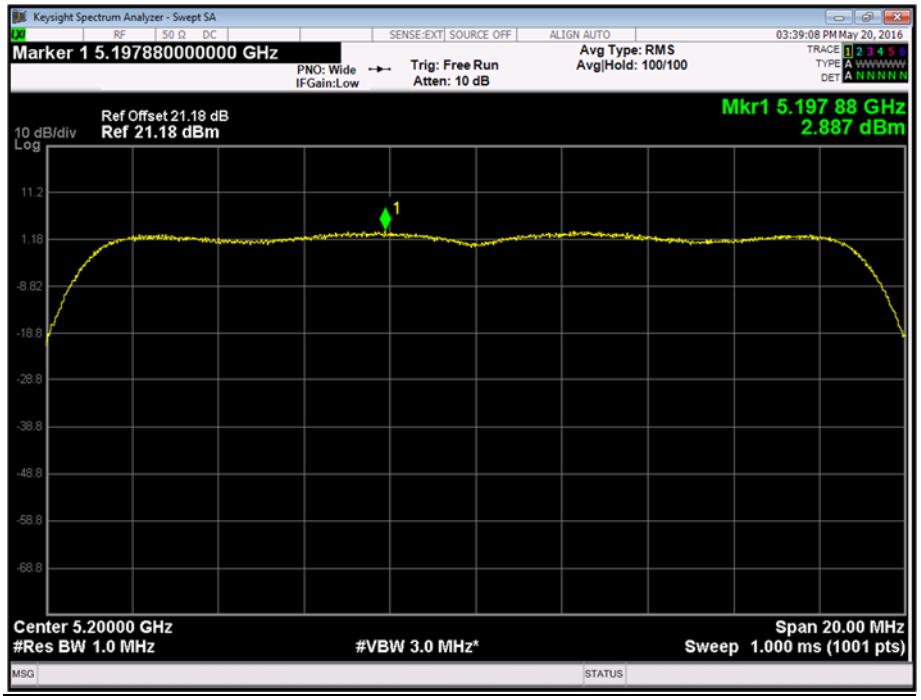
802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 1, Peak Power Spectral Density Results

5180 MHz	5200 MHz	5240 MHz
dBm	dBm	dBm
2.742	2.887	3.007

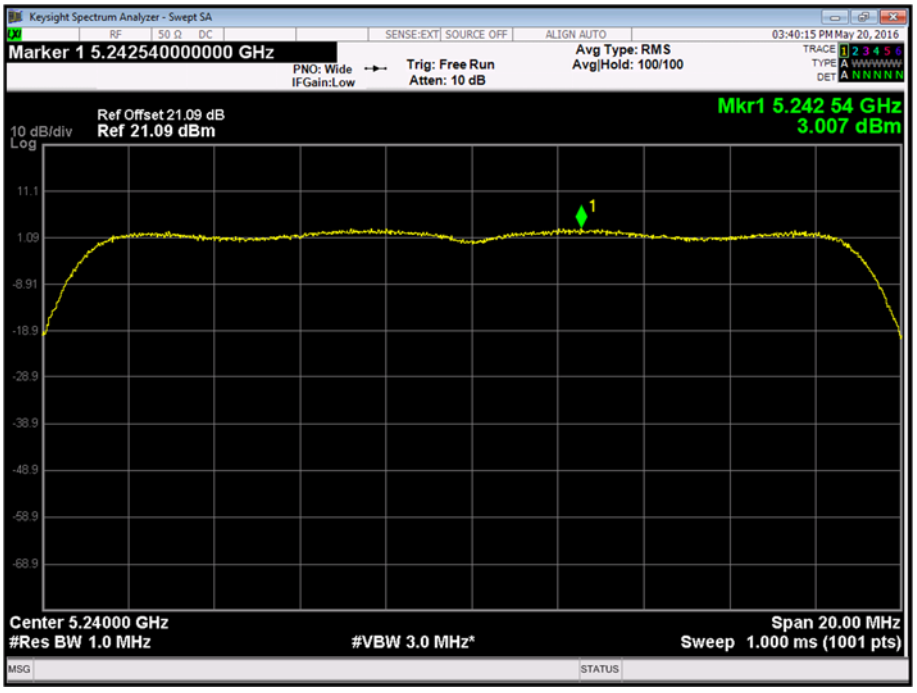
802.11ac 20 MHz Bandwidth, 5180 MHz, OFDM, MCS1, Frequency Band 1, Peak Power Spectral Density Plot



802.11ac 20 MHz Bandwidth, 5200 MHz, OFDM, MCS1, Frequency Band 1, Peak Power Spectral Density Plot



802.11ac 20 MHz Bandwidth, 5240 MHz, OFDM, MCS1, Frequency Band 1, Peak Power Spectral Density Plot

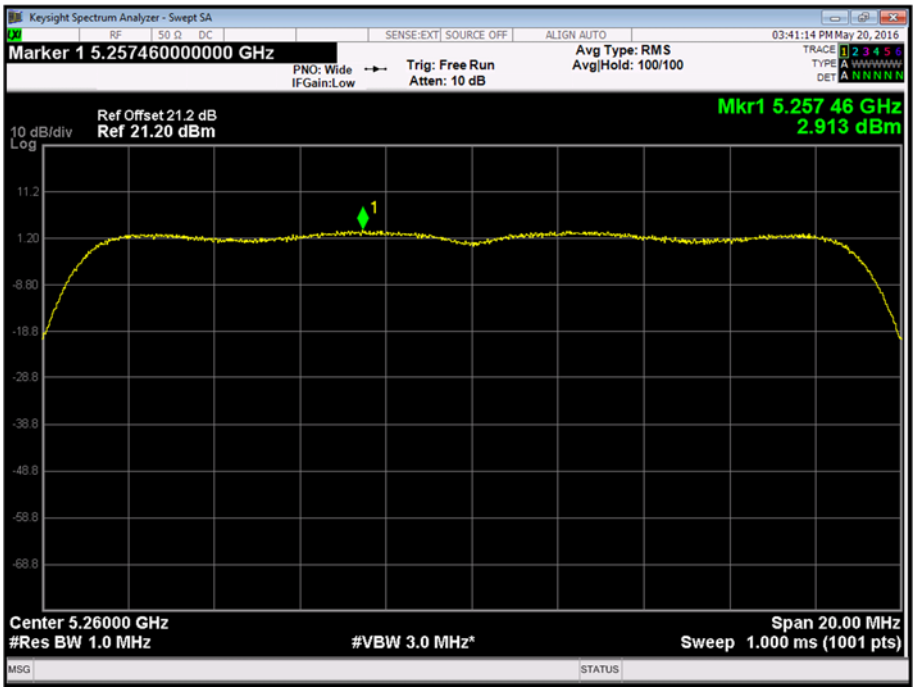


Product Service

802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 2, Peak Power Spectral Density Results

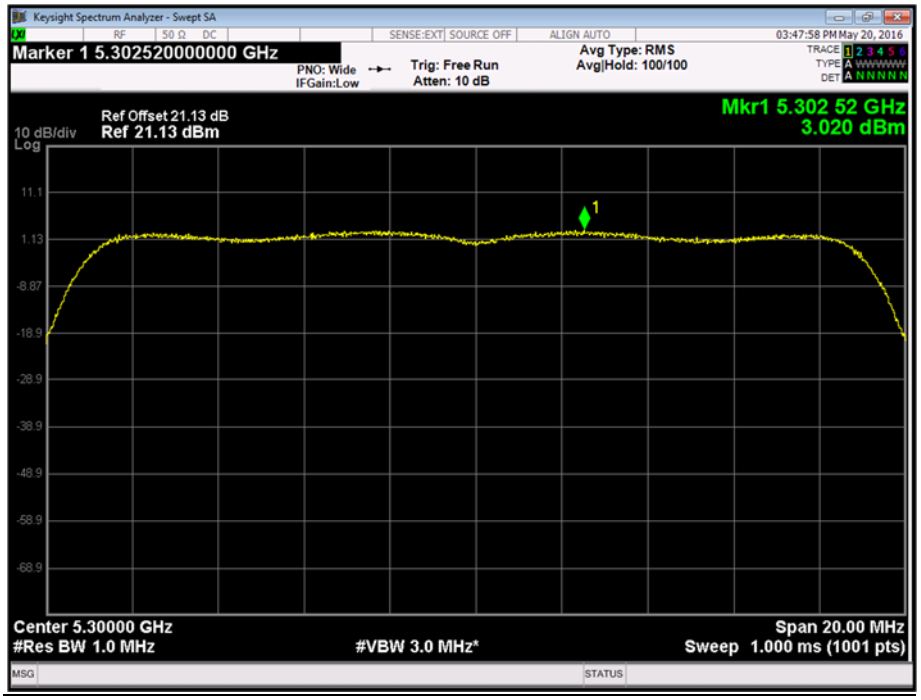
5260 MHz	5300 MHz	5320 MHz
dBm	dBm	dBm
2.913	3.020	2.740

802.11ac 20 MHz Bandwidth, 5260 MHz, OFDM, MCS1, Frequency Band 2, Peak Power Spectral Density Plot

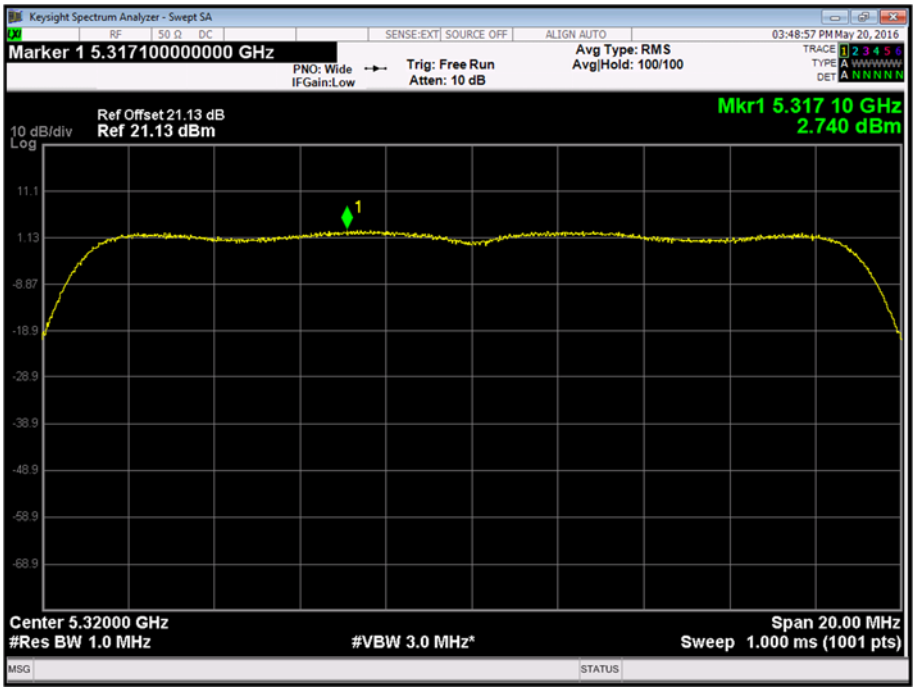


Product Service

802.11ac 20 MHz Bandwidth, 5300 MHz, OFDM, MCS1, Frequency Band 2, Peak Power Spectral Density Plot



802.11ac 20 MHz Bandwidth, 5320 MHz, OFDM, MCS1, Frequency Band 2, Peak Power Spectral Density Plot

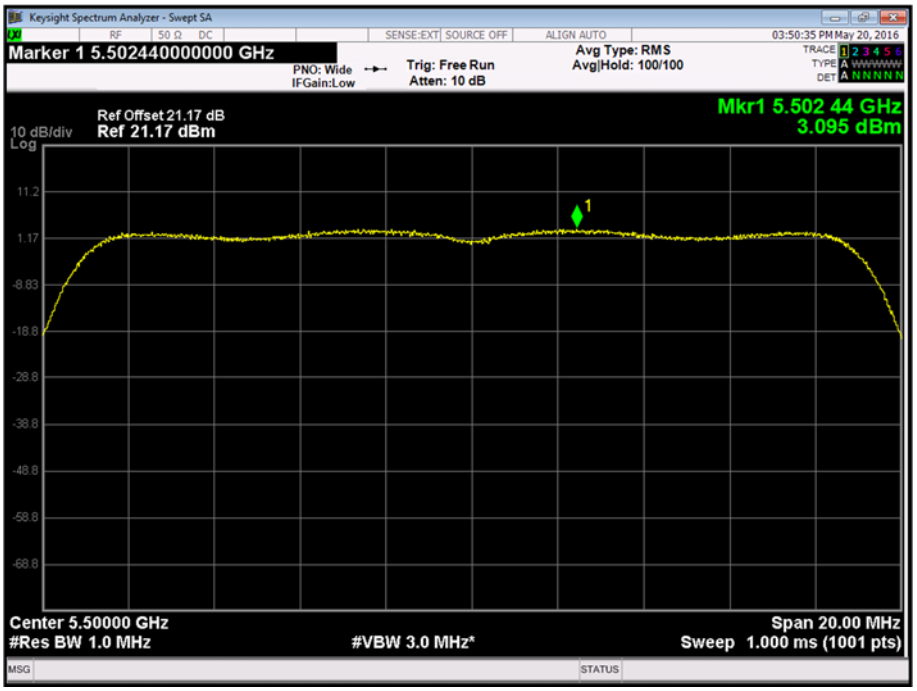


Product Service

802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 3, Peak Power Spectral Density Results

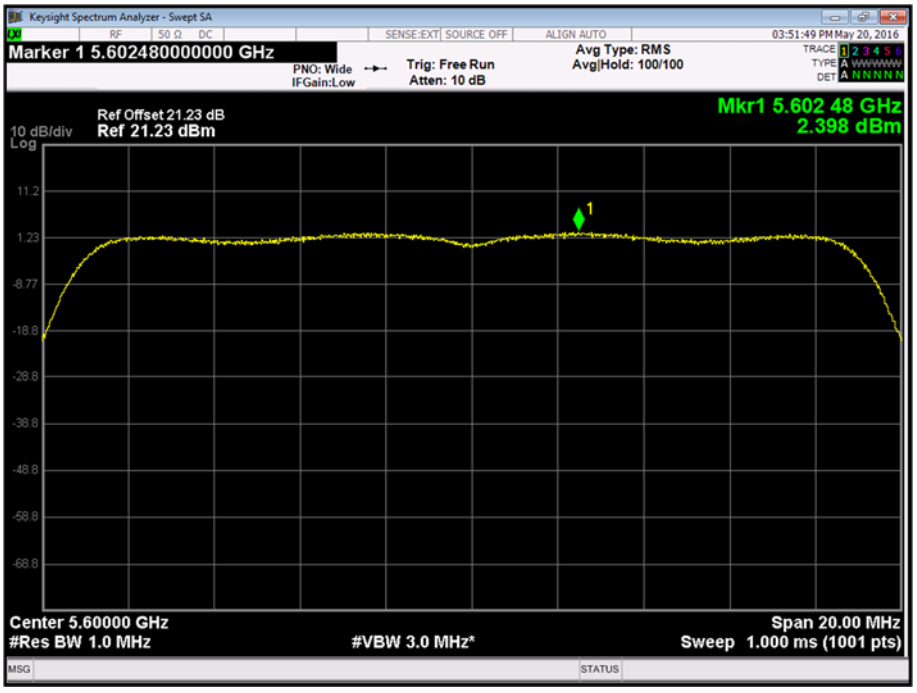
5500 MHz	5600 MHz	5700 MHz
dBm	dBm	dBm
3.095	2.398	3.314

802.11ac 20 MHz Bandwidth, 5500 MHz, OFDM, MCS1, Frequency Band 3, Peak Power Spectral Density Plot

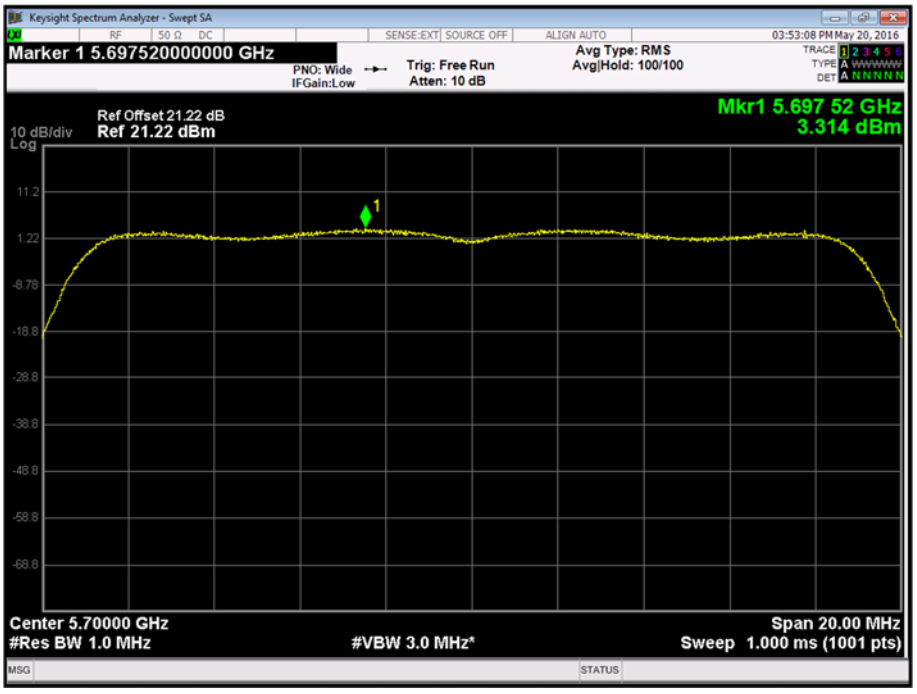


Product Service

802.11ac 20 MHz Bandwidth, 5600 MHz, OFDM, MCS1, Frequency Band 3, Peak Power Spectral Density Plot



802.11ac 20 MHz Bandwidth, 5700 MHz, OFDM, MCS1, Frequency Band 3, Peak Power Spectral Density Plot

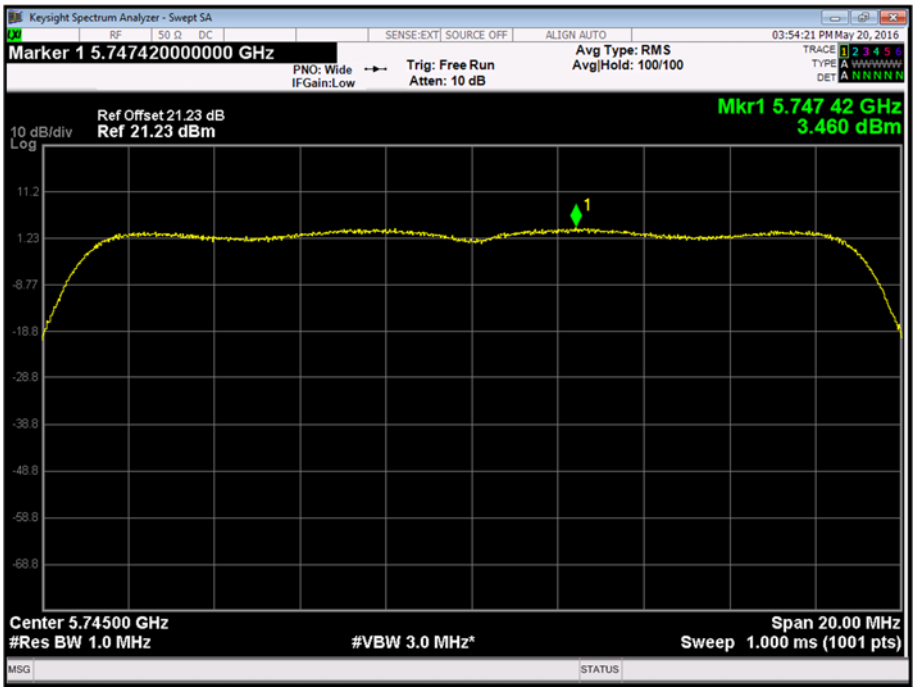


Product Service

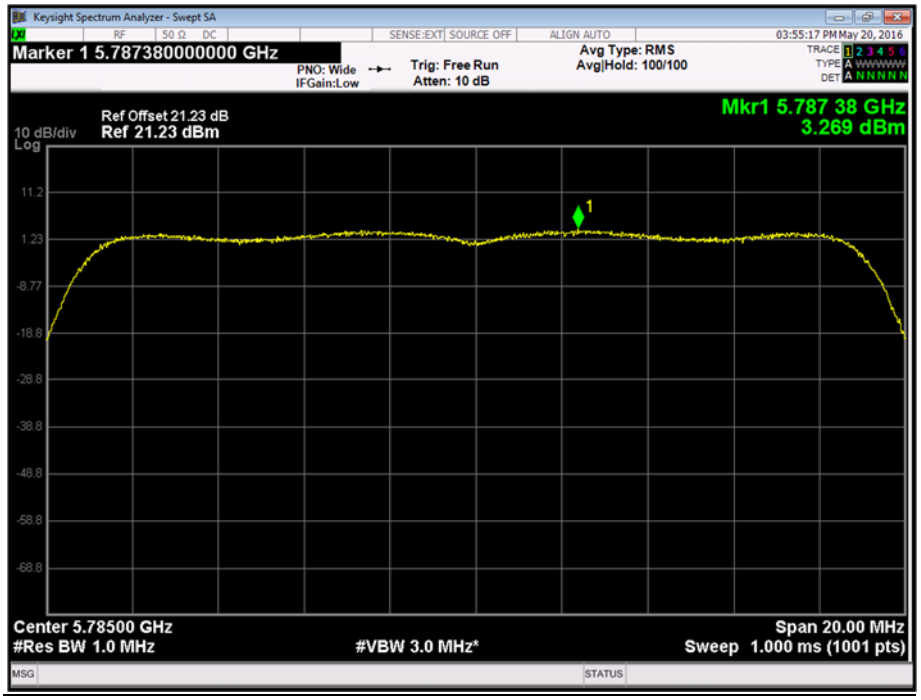
802.11ac 20 MHz Bandwidth, OFDM, MCS1, Frequency Band 4, Peak Power Spectral Density Results

5745 MHz	5785 MHz	5825 MHz
dBm	dBm	dBm
3.460	3.269	3.226

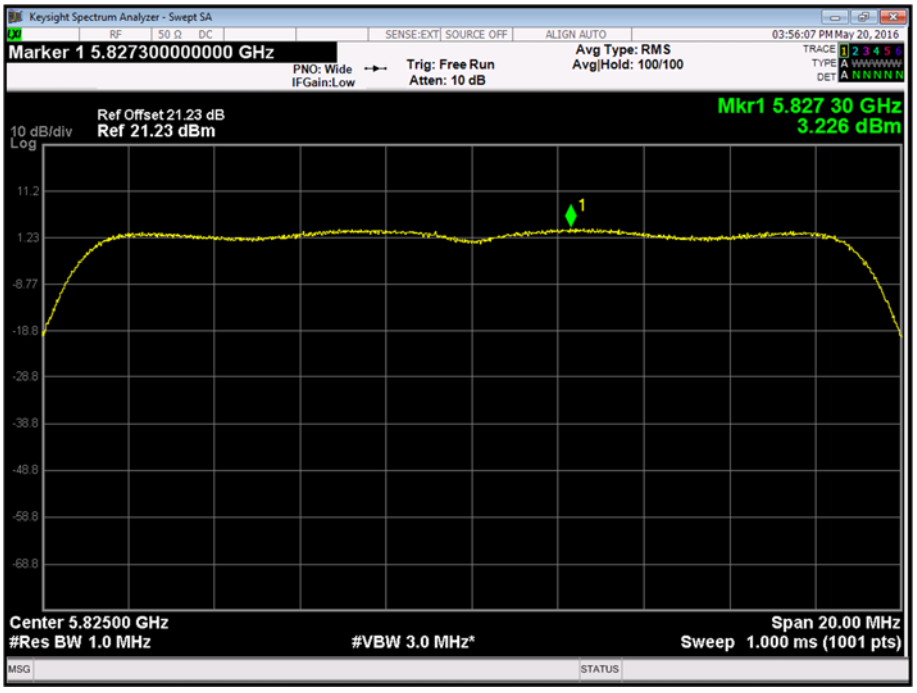
802.11ac 20 MHz Bandwidth, 5745 MHz, OFDM, MCS1, Frequency Band 4, Peak Power Spectral Density Plot



802.11ac 20 MHz Bandwidth, 5785 MHz, OFDM, MCS1, Frequency Band 4, Peak Power Spectral Density Plot



802.11ac 20 MHz Bandwidth, 5825 MHz, OFDM, MCS1, Frequency Band 4, Peak Power Spectral Density Plot



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

Frequency Band (MHz)	Limit
5150 to 5250	≤11 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5725	≤11 dBm/MHz
5725 to 5825	≤30 dBm / 500 kHz

Industry Canada RSS-247, Limit Clause 6.2

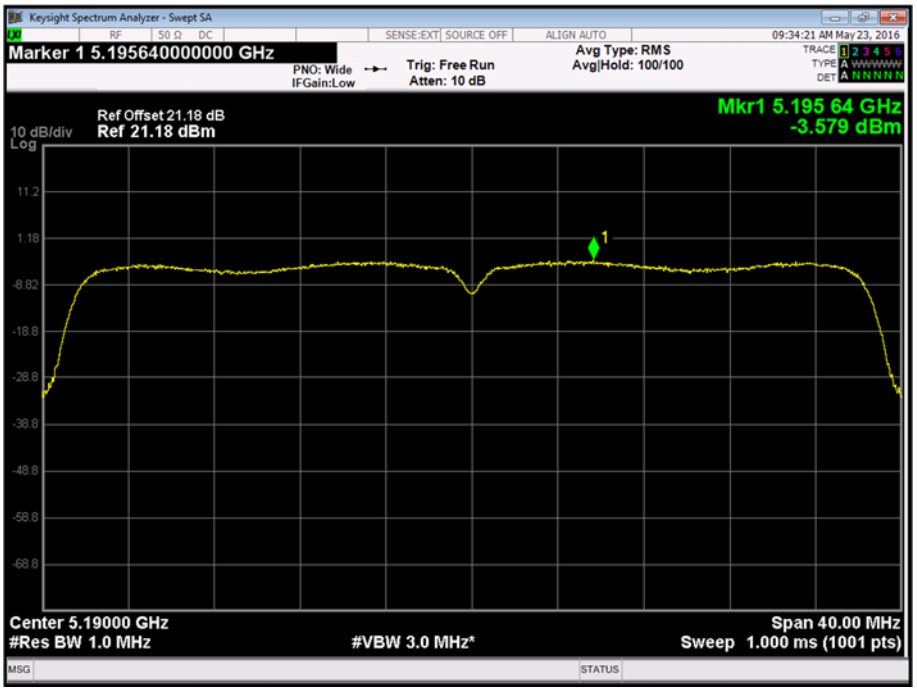
Frequency Band (MHz)	Limit
5150 to 5250	≤10 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5600 5650 to 5725	≤11 dBm/MHz
5725 to 5850	≤30 dBm / 500 kHz

Product Service

802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 1, Peak Power Spectral Density Results

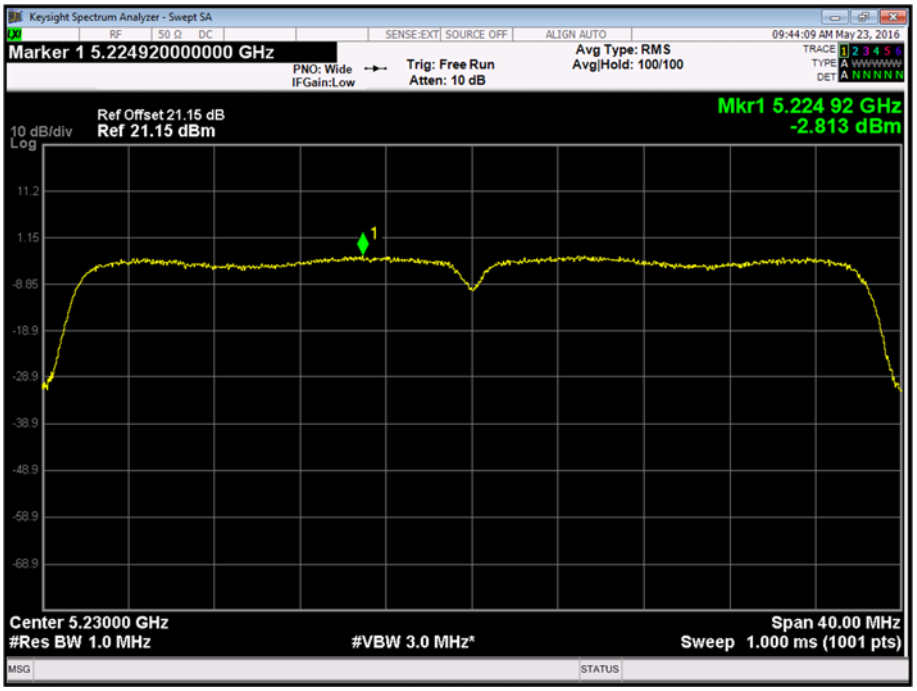
5190 MHz	5230 MHz
dBm	dBm
-3.579	-2.813

802.11ac 40 MHz Bandwidth, 5190 MHz, OFDM, MCS4, Frequency Band 1, Peak Power Spectral Density Plot



Product Service

802.11ac 40 MHz Bandwidth, 5230 MHz, OFDM, MCS4, Frequency Band 1, Peak Power Spectral Density Plot

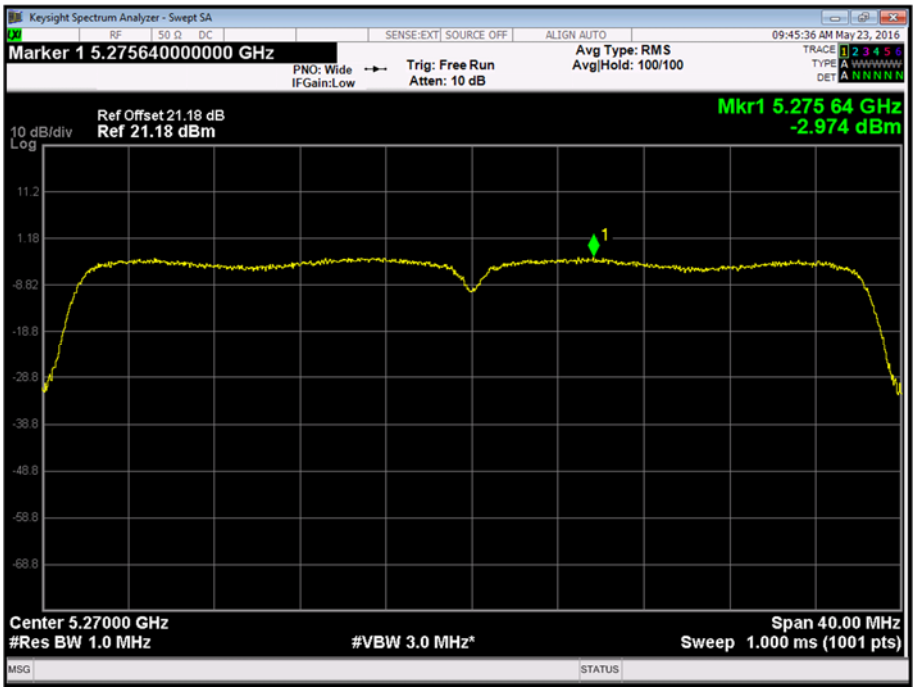


Product Service

802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 2, Peak Power Spectral Density Results

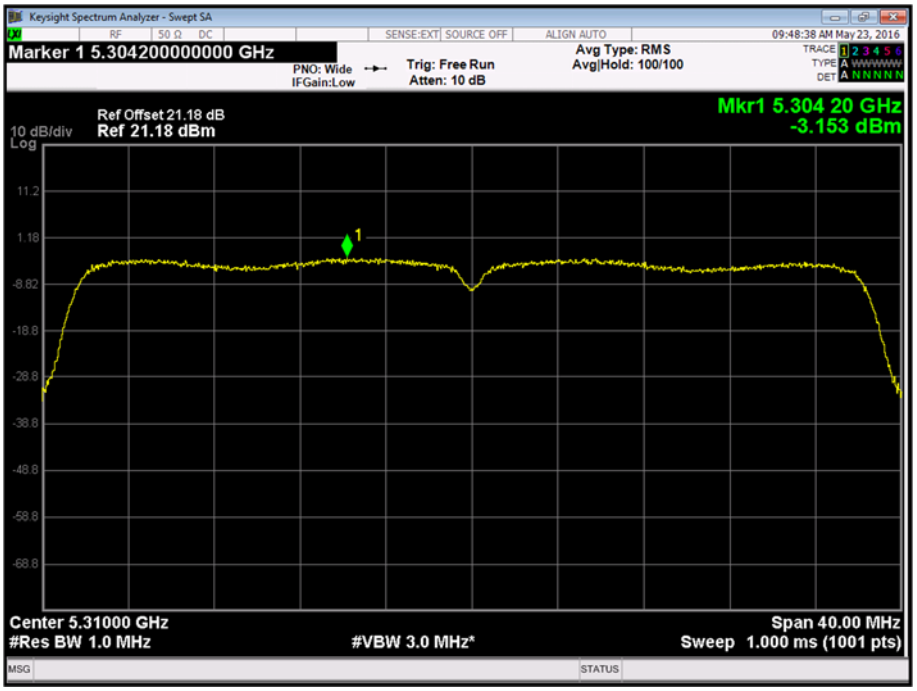
5270 MHz	5310 MHz
dBm	dBm
-2.974	-3.153

802.11ac 40 MHz Bandwidth, 5270 MHz, OFDM, MCS4, Frequency Band 2, Peak Power Spectral Density Plot



Product Service

802.11ac 40 MHz Bandwidth, 5310 MHz, OFDM, MCS4, Frequency Band 2, Peak Power Spectral Density Plot

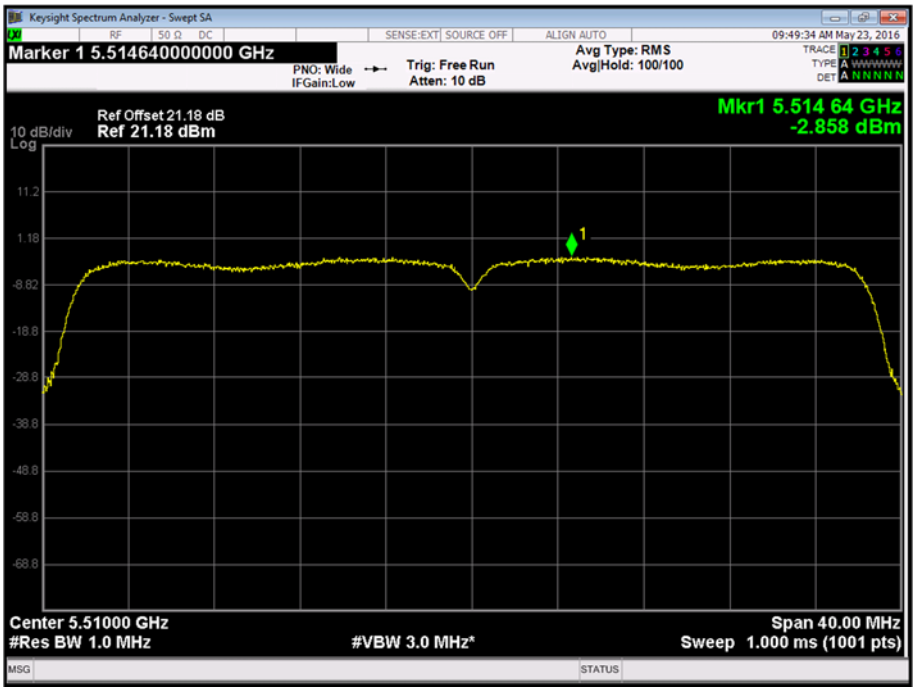


Product Service

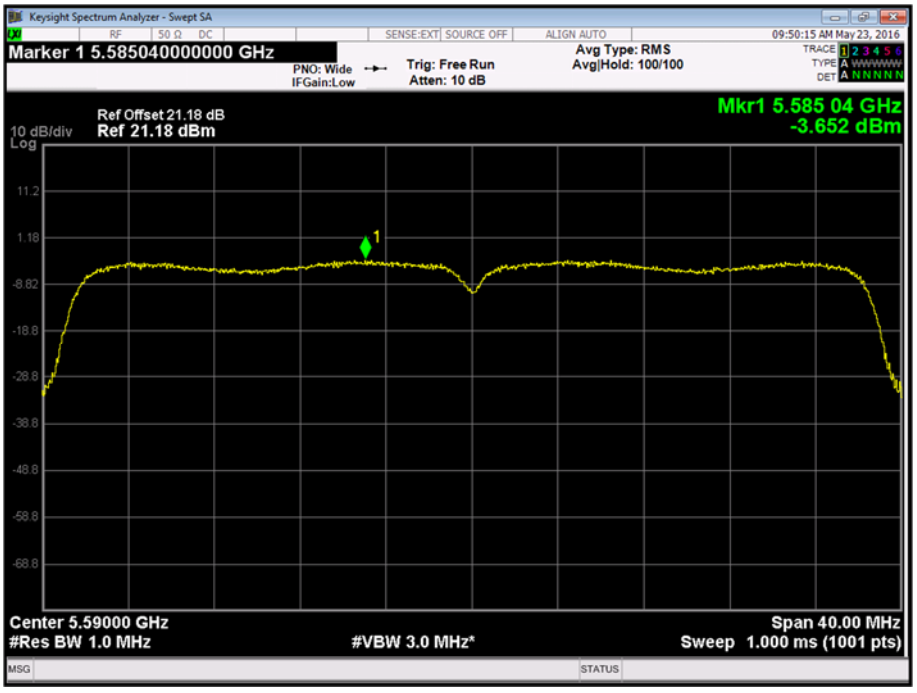
802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 3, Peak Power Spectral Density Results

5510 MHz	5590 MHz	5670 MHz
dBm	dBm	dBm
-2.858	-3.652	-2.809

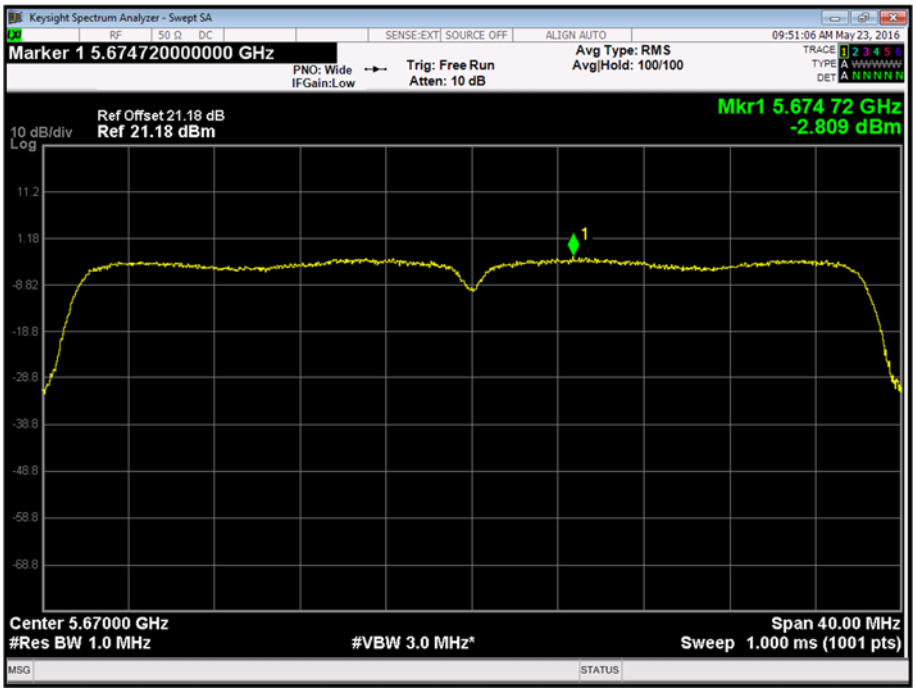
802.11ac 40 MHz Bandwidth, 5510 MHz, OFDM, MCS4, Frequency Band 3, Peak Power Spectral Density Plot



802.11ac 40 MHz Bandwidth, 5590 MHz, OFDM, MCS4, Frequency Band 3, Peak Power Spectral Density Plot



802.11ac 40 MHz Bandwidth, 5670 MHz, OFDM, MCS4, Frequency Band 3, Peak Power Spectral Density Plot

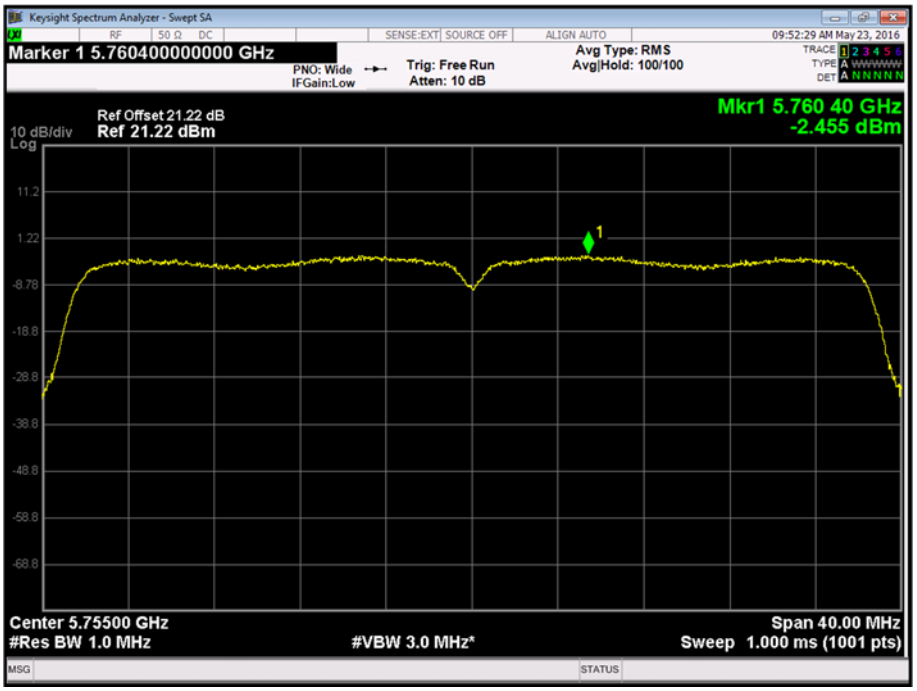


Product Service

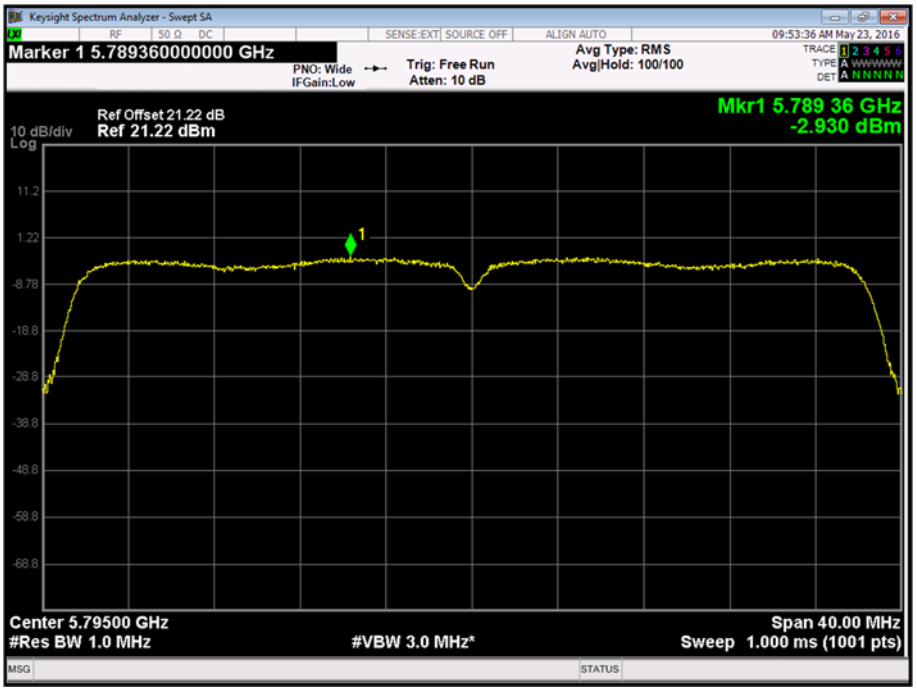
802.11ac 40 MHz Bandwidth, OFDM, MCS4, Frequency Band 4, Peak Power Spectral Density Results

5755 MHz	5795 MHz
dBm	dBm
-2.455	-2.930

802.11ac 40 MHz Bandwidth, 5755 MHz, OFDM, MCS4, Frequency Band 4, Peak Power Spectral Density Plot



802.11ac 40 MHz Bandwidth, 5795 MHz, OFDM, MCS4, Frequency Band 4, Peak Power Spectral Density Plot



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

Frequency Band (MHz)	Limit
5150 to 5250	≤11 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5725	≤11 dBm/MHz
5725 to 5825	≤30 dBm / 500 kHz

Industry Canada RSS-247, Limit Clause 6.2

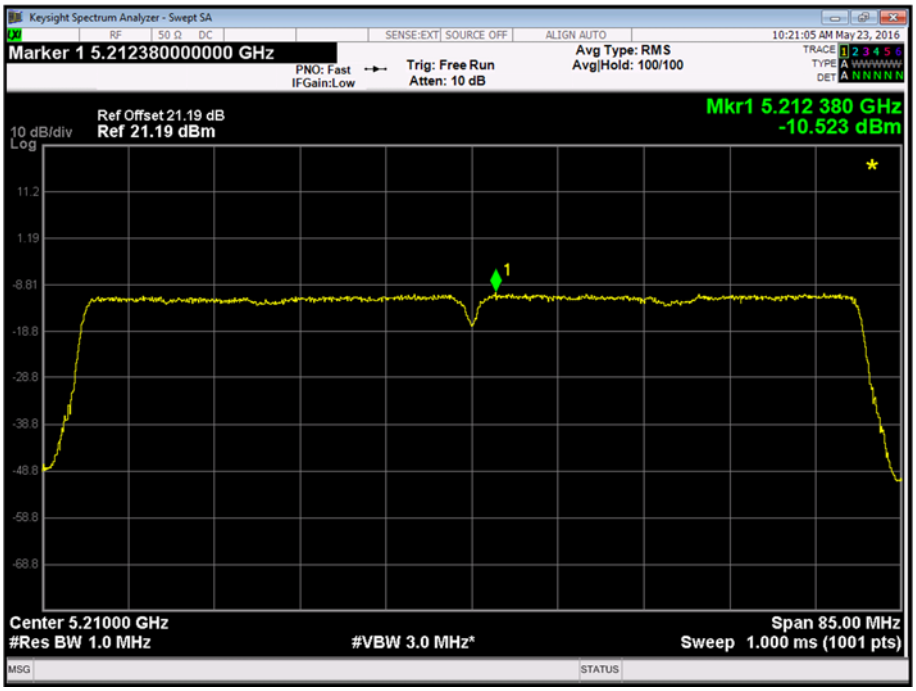
Frequency Band (MHz)	Limit
5150 to 5250	≤10 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5600 5650 to 5725	≤11 dBm/MHz
5725 to 5850	≤30 dBm / 500 kHz

Product Service

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 1, Peak Power Spectral Density Results

5210 MHz
dBm
-10.118

802.11ac 80 MHz Bandwidth, 5210 MHz, OFDM, MCS8, Frequency Band 1, Peak Power Spectral Density Plot



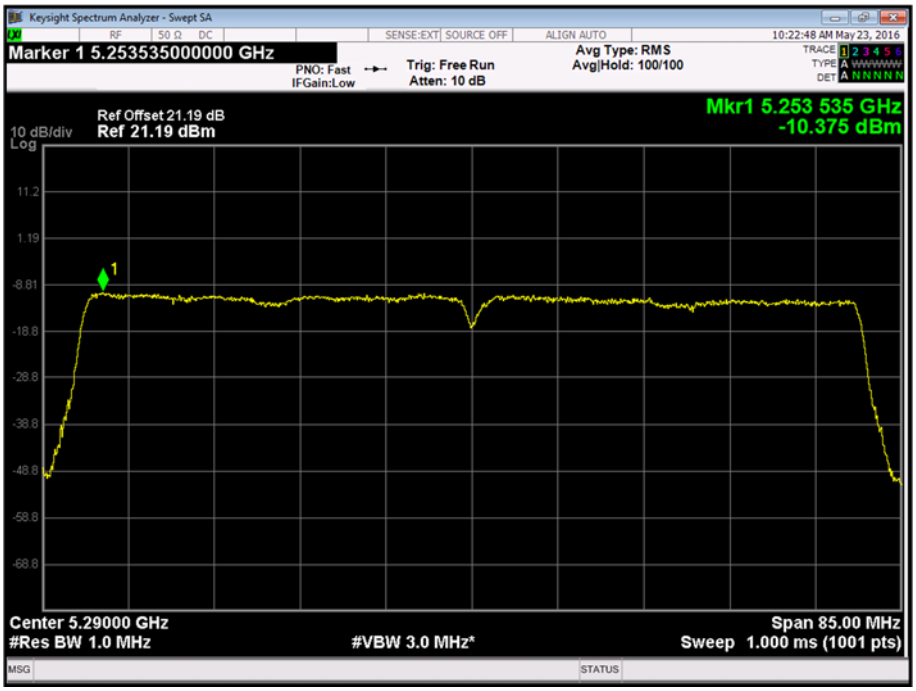
Note: The duty cycle correction factor of 0.405 dB was added to the final result.

Product Service

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 2, Peak Power Spectral Density Results

5290 MHz
dBm
-9.970

802.11ac 80 MHz Bandwidth, 5290 MHz, OFDM, MCS8, Frequency Band 2, Peak Power Spectral Density Plot



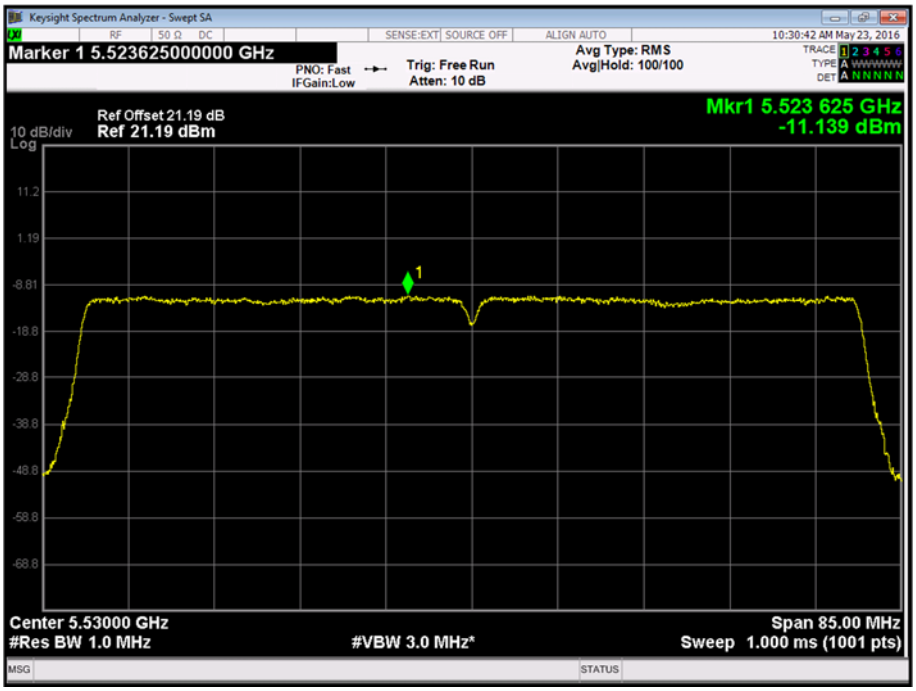
Note: The duty cycle correction factor of 0.405 dB was added to the final result.

Product Service

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 3, Peak Power Spectral Density Results

5530 MHz	5610 MHz
dBm	dBm
-10.734	-11.177

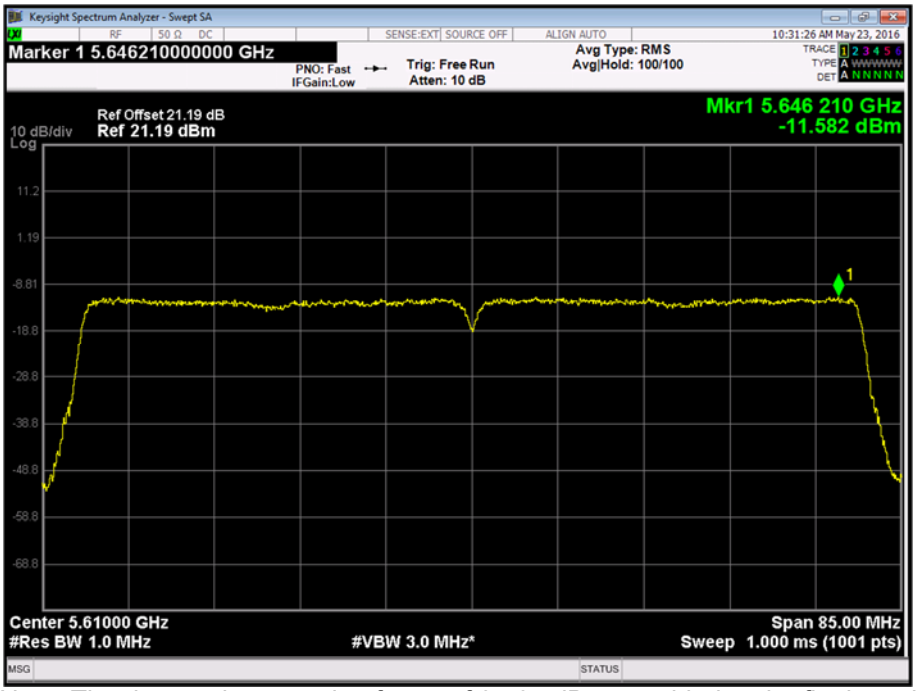
802.11ac 80 MHz Bandwidth, 5530 MHz, OFDM, MCS8, Frequency Band 3, Peak Power Spectral Density Plot



Note: The duty cycle correction factor of 0.405 dB was added to the final result.

Product Service

802.11ac 80 MHz Bandwidth, 5610 MHz, OFDM, MCS8, Frequency Band 3, Peak Power Spectral Density Plot



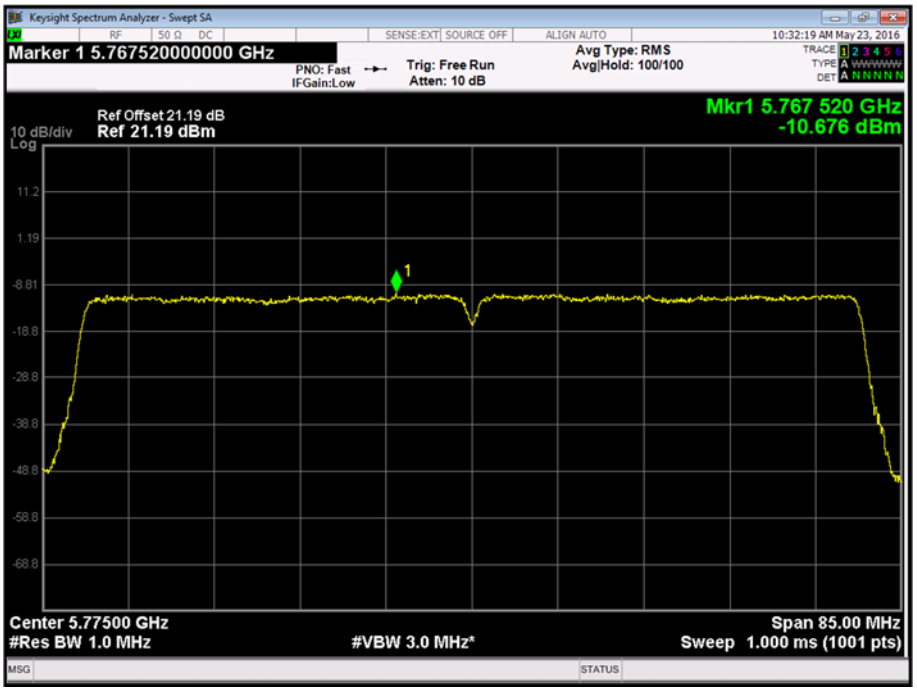
Note: The duty cycle correction factor of 0.405 dB was added to the final result.

Product Service

802.11ac 80 MHz Bandwidth, OFDM, MCS8, Frequency Band 4, Peak Power Spectral Density Results

5775 MHz
dBm
-10.271

802.11ac 80 MHz Bandwidth, 5775 MHz, OFDM, MCS8, Frequency Band 4, Peak Power Spectral Density Plot



Note: The duty cycle correction factor of 0.405 dB was added to the final result.

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

Frequency Band (MHz)	Limit
5150 to 5250	≤11 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5725	≤11 dBm/MHz
5725 to 5825	≤30 dBm / 500 kHz

Industry Canada RSS-247, Limit Clause 6.2

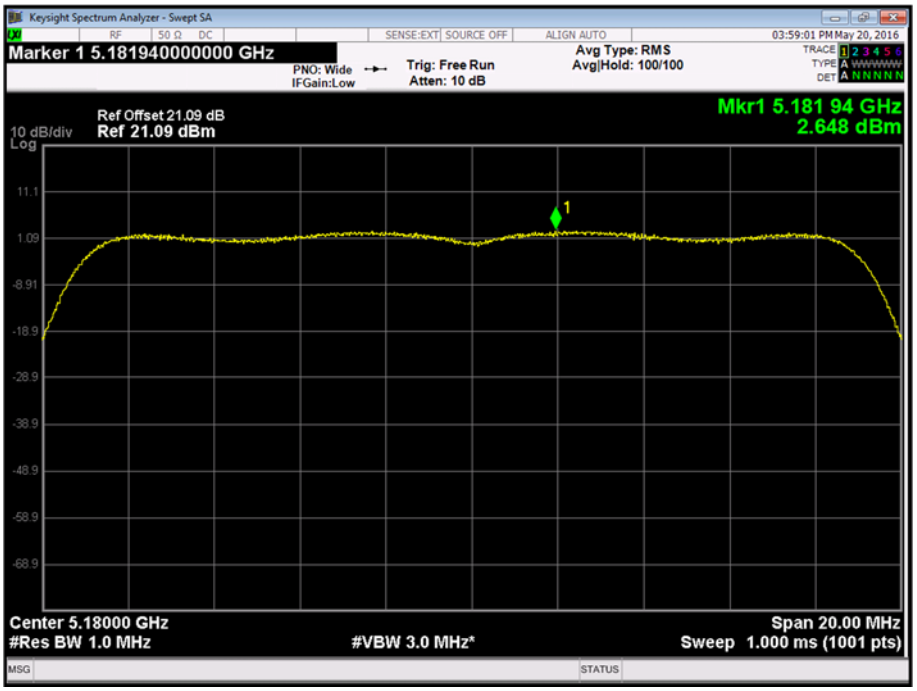
Frequency Band (MHz)	Limit
5150 to 5250	≤10 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5600 5650 to 5725	≤11 dBm/MHz
5725 to 5850	≤30 dBm / 500 kHz

Product Service

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Results

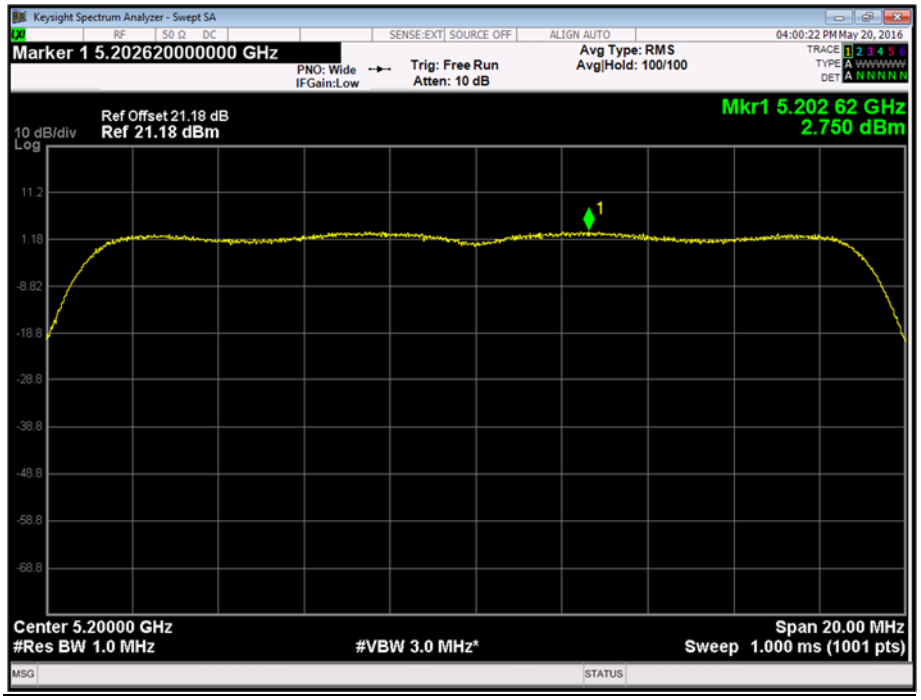
5180 MHz	5200 MHz	5240 MHz
dBm	dBm	dBm
2.648	2.750	3.267

802.11n 20 MHz Bandwidth, 5180 MHz, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Plot

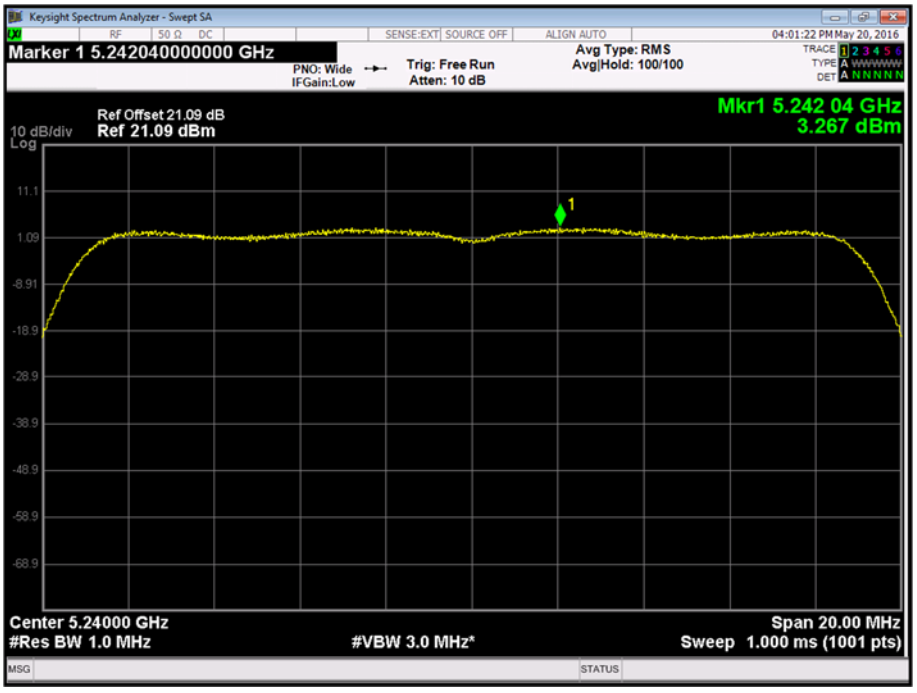


Product Service

802.11n 20 MHz Bandwidth, 5200 MHz, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Plot



802.11n 20 MHz Bandwidth, 5240 MHz, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Plot

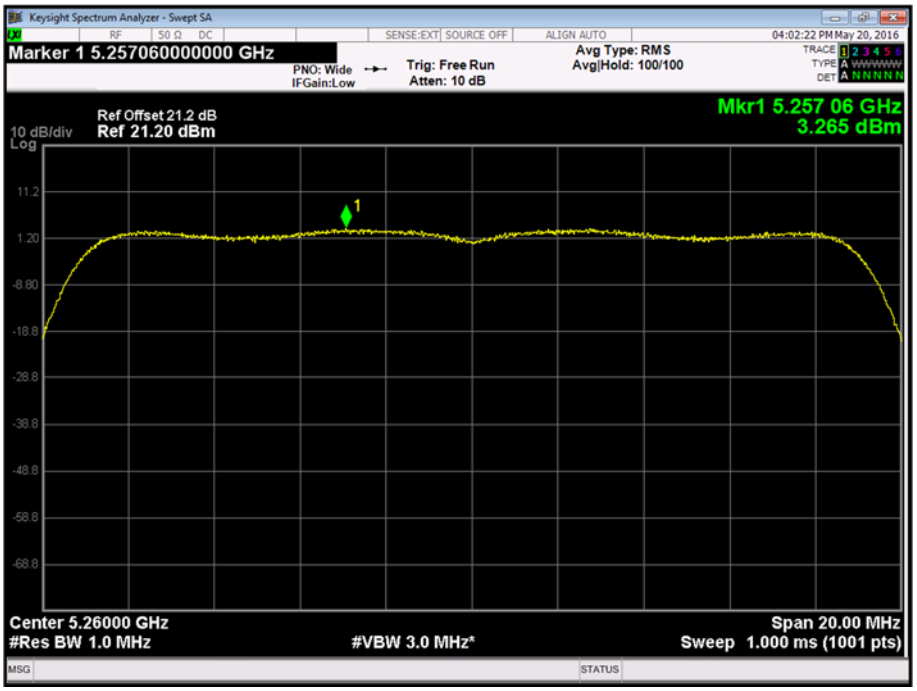


Product Service

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Results

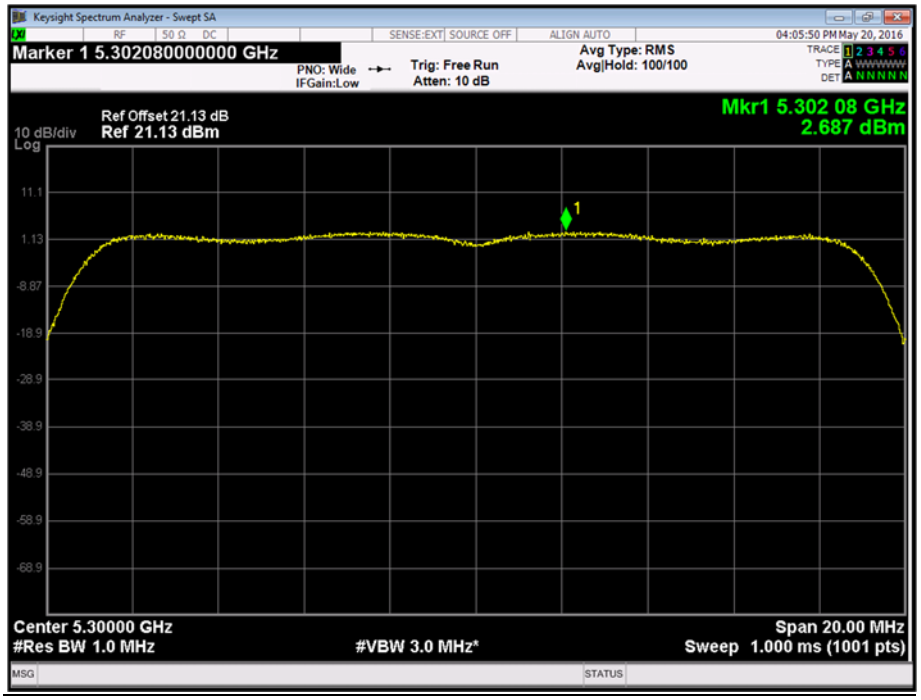
5260 MHz	5300 MHz	5320 MHz
dBm	dBm	dBm
3.265	2.687	2.800

802.11n 20 MHz Bandwidth, 5260 MHz, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Plot

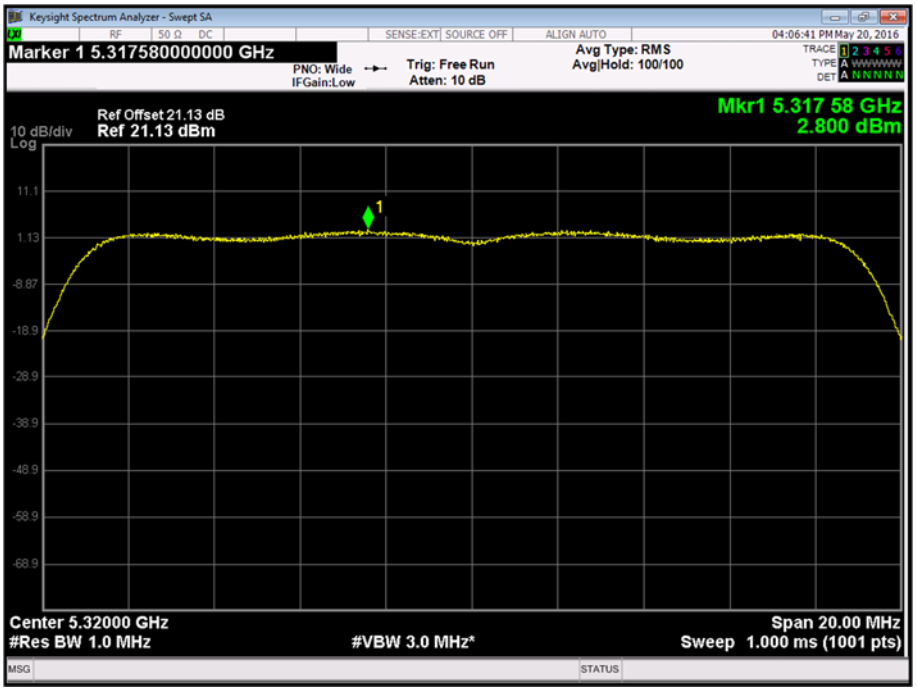


Product Service

802.11n 20 MHz Bandwidth, 5300 MHz, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Plot



802.11n 20 MHz Bandwidth, 5320 MHz, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Plot

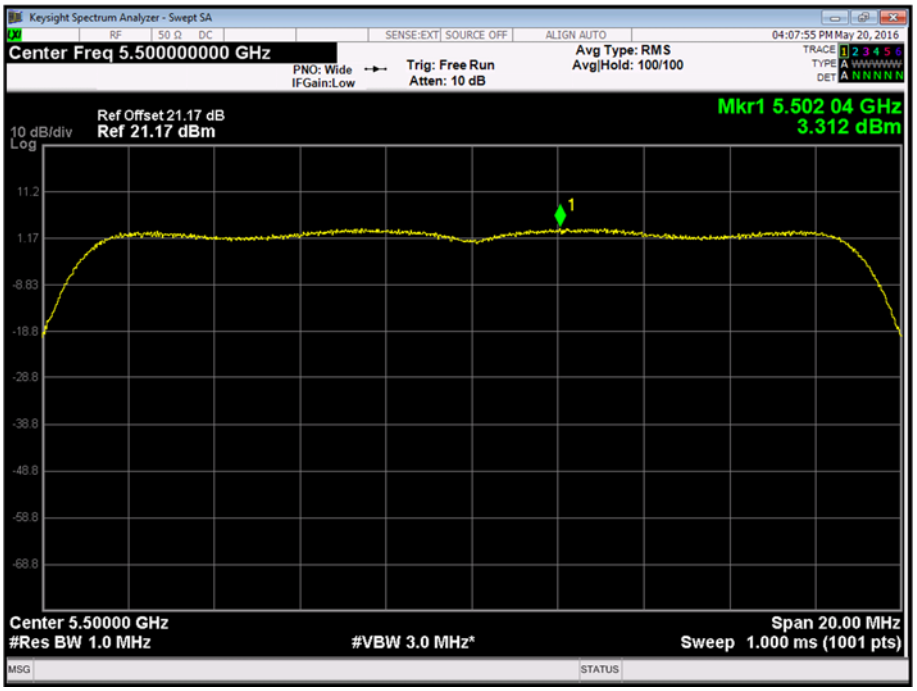


Product Service

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Results

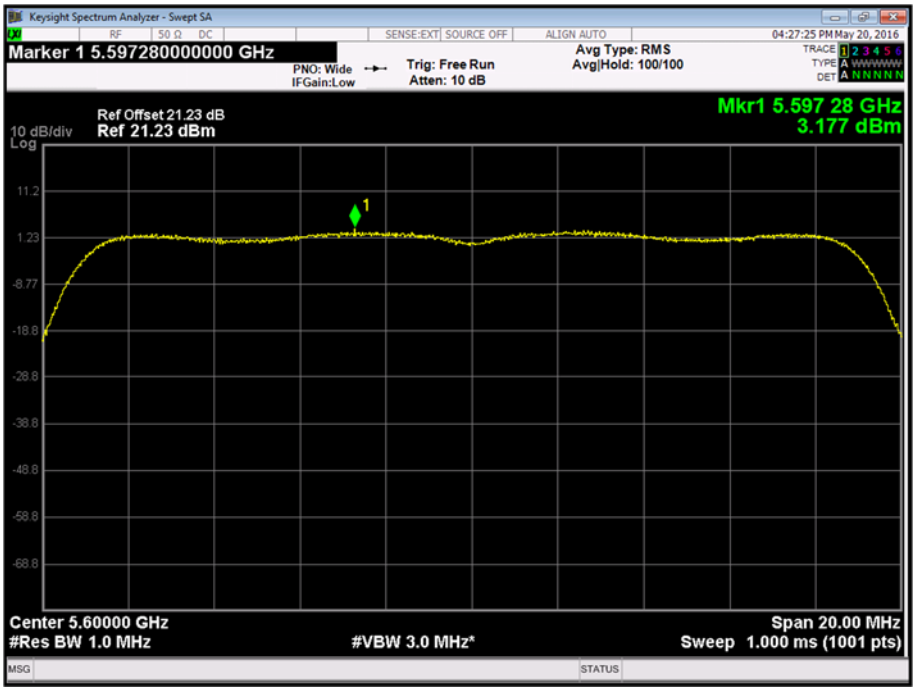
5500 MHz	5600 MHz	5700 MHz
dBm	dBm	dBm
3.312	3.177	3.385

802.11n 20 MHz Bandwidth, 5500 MHz, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Plot

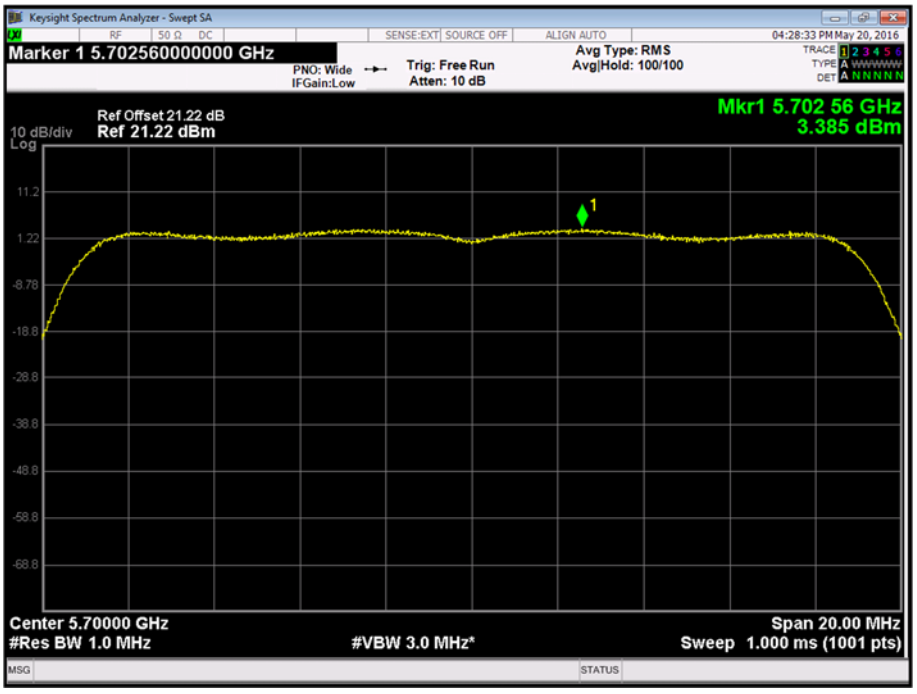


Product Service

802.11n 20 MHz Bandwidth, 5600 MHz, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Plot



802.11n 20 MHz Bandwidth, 5700 MHz, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Plot

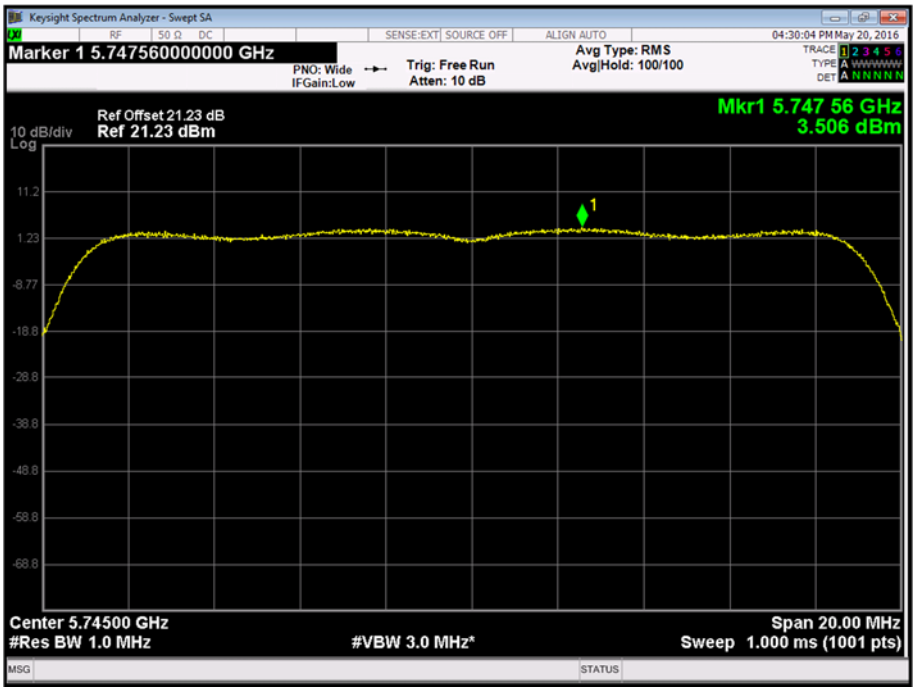


Product Service

802.11n 20 MHz Bandwidth, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Results

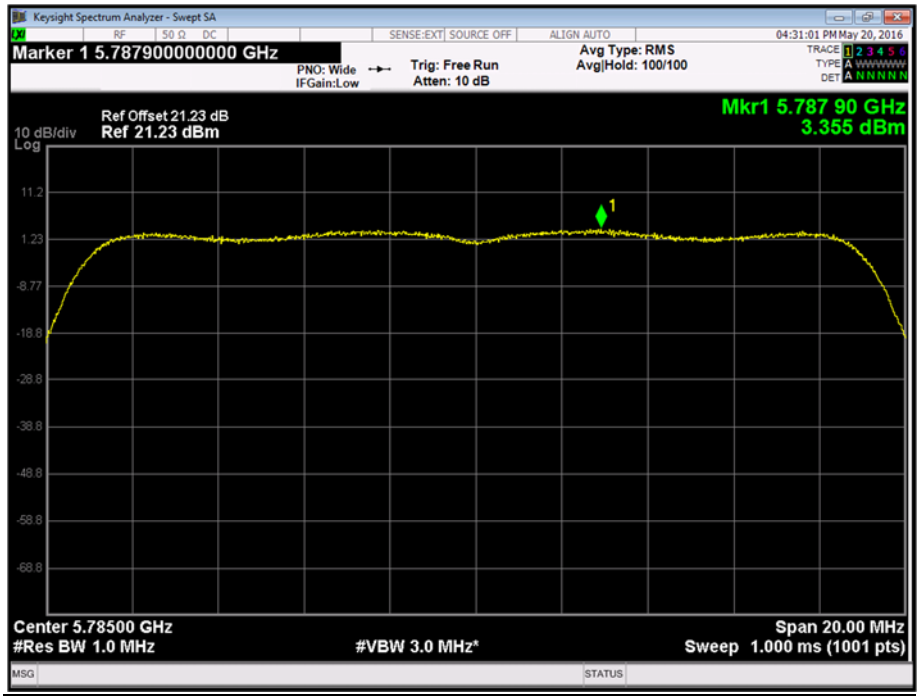
5745 MHz	5785 MHz	5825 MHz
dBm	dBm	dBm
3.506	3.355	3.172

802.11n 20 MHz Bandwidth, 5745 MHz, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Plot

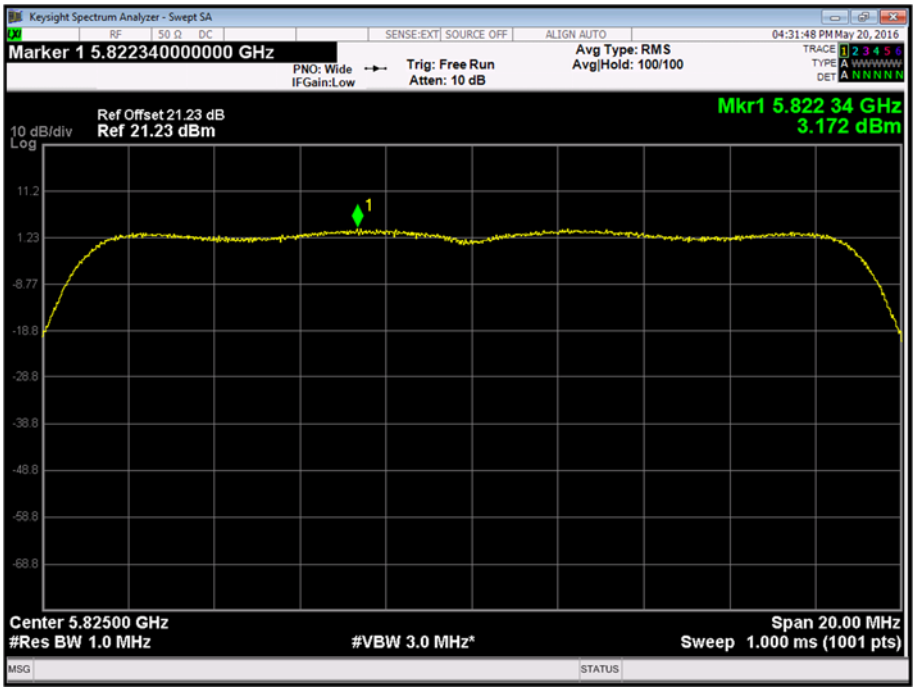


Product Service

802.11n 20 MHz Bandwidth, 5785 MHz, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Plot



802.11n 20 MHz Bandwidth, 5825 MHz, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Plot



Product Service

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

Frequency Band (MHz)	Limit
5150 to 5250	≤11 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5725	≤11 dBm/MHz
5725 to 5825	≤30 dBm / 500 kHz

Industry Canada RSS-247, Limit Clause 6.2

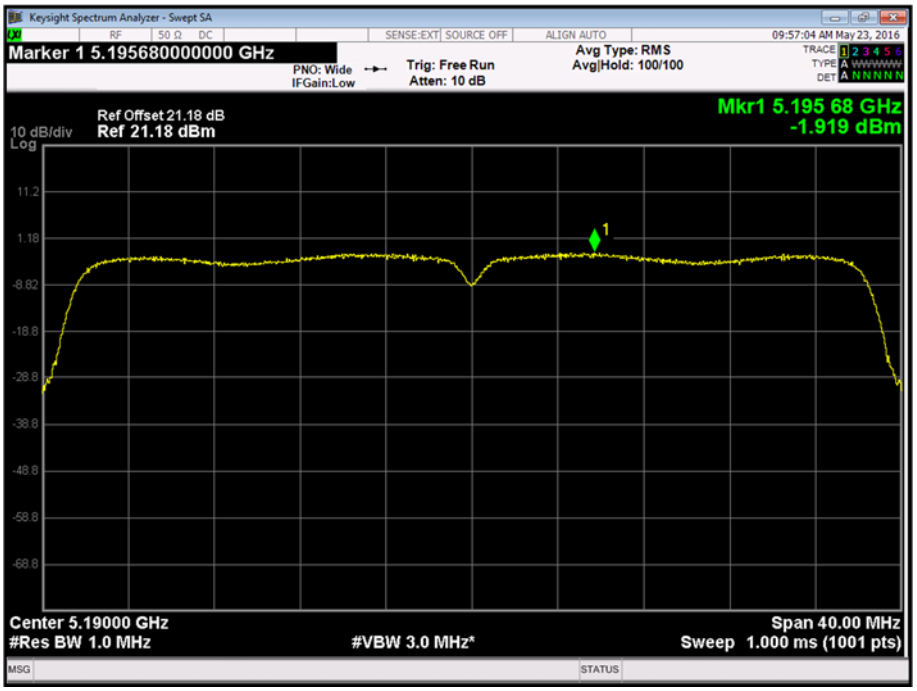
Frequency Band (MHz)	Limit
5150 to 5250	≤10 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5600 5650 to 5725	≤11 dBm/MHz
5725 to 5850	≤30 dBm / 500 kHz

Product Service

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Results

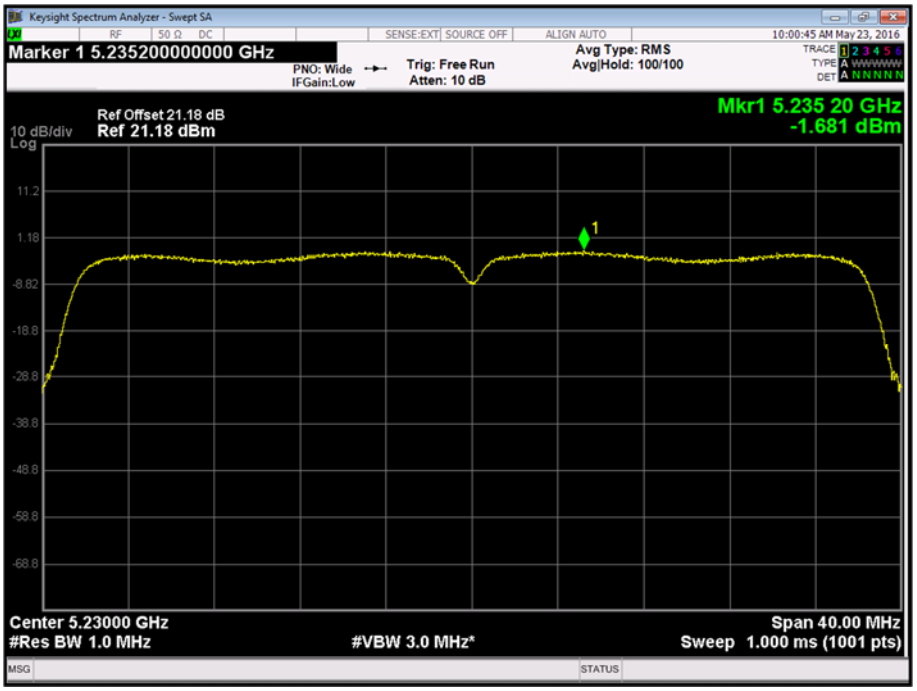
5190 MHz	5230 MHz
dBm	dBm
-1.919	-1.681

802.11n 40 MHz Bandwidth, 5190 MHz, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Plot



Product Service

802.11n 40 MHz Bandwidth, 5230 MHz, OFDM, MCS0, Frequency Band 1, Peak Power Spectral Density Plot

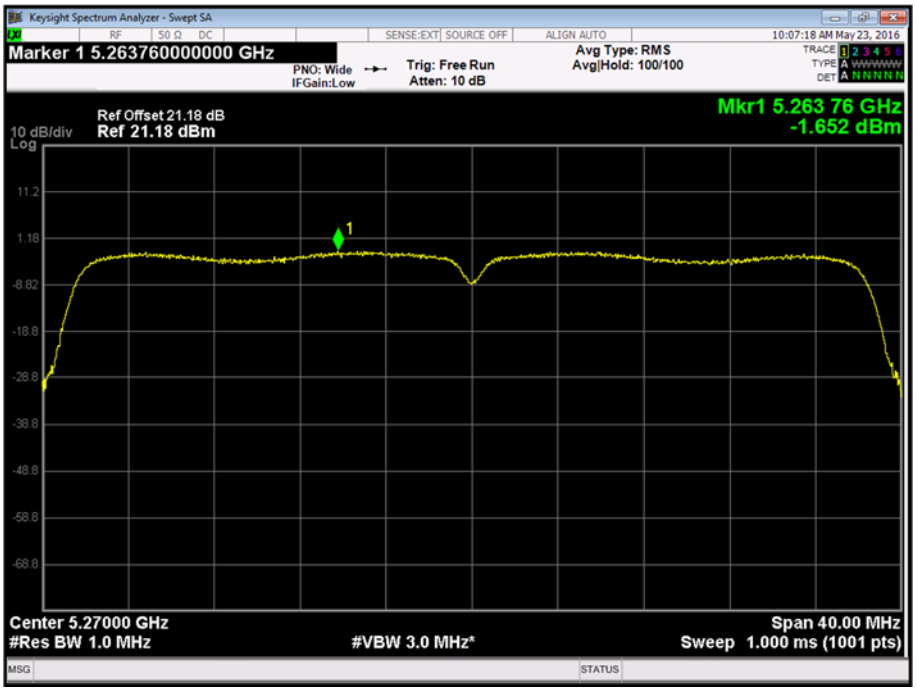


Product Service

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Results

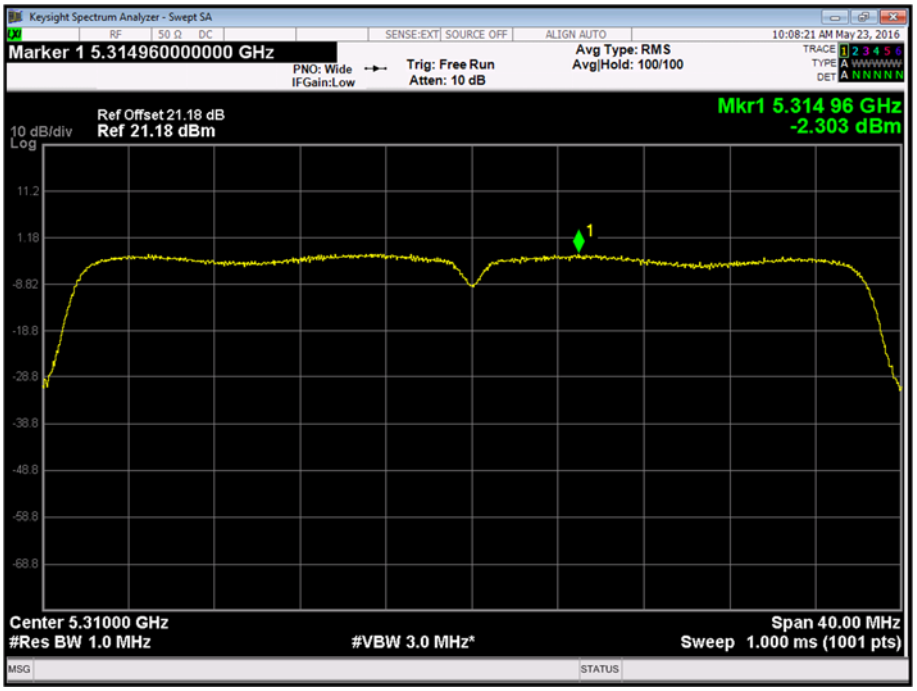
5270 MHz	5310 MHz
dBm	dBm
-1.652	-2.303

802.11n 40 MHz Bandwidth, 5270 MHz, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Plot



Product Service

802.11n 40 MHz Bandwidth, 5310 MHz, OFDM, MCS0, Frequency Band 2, Peak Power Spectral Density Plot

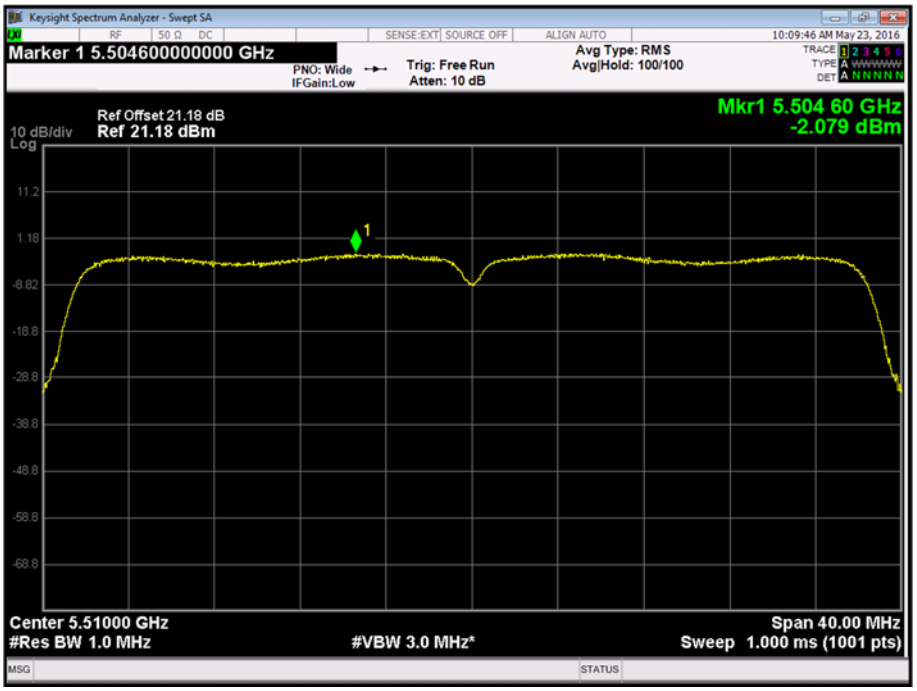


Product Service

802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Results

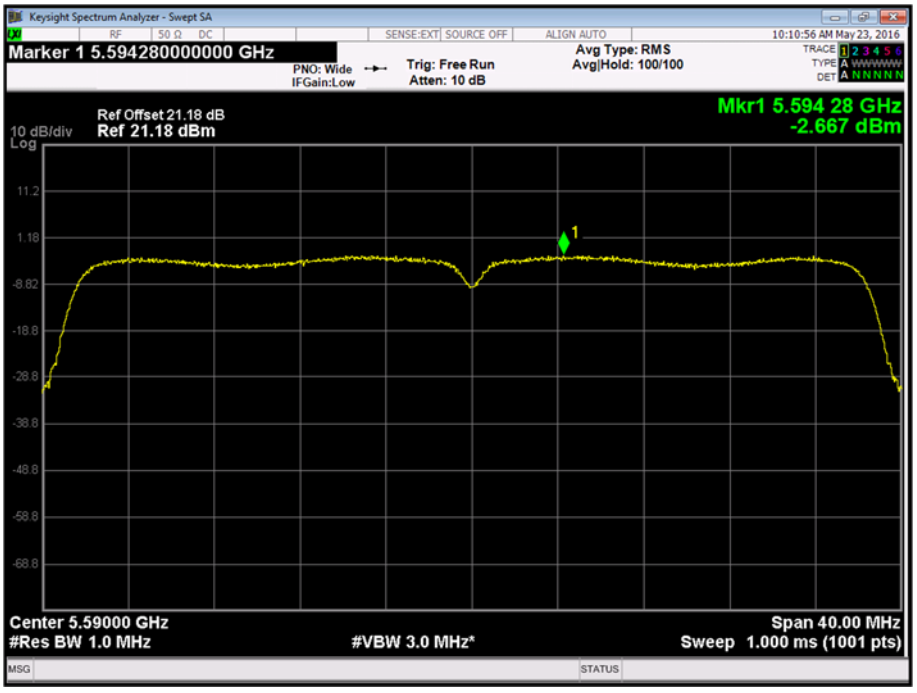
5510 MHz	5590 MHz	5670 MHz
dBm	dBm	dBm
-2.079	-2.667	-1.646

802.11n 40 MHz Bandwidth, 5510 MHz, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Plot

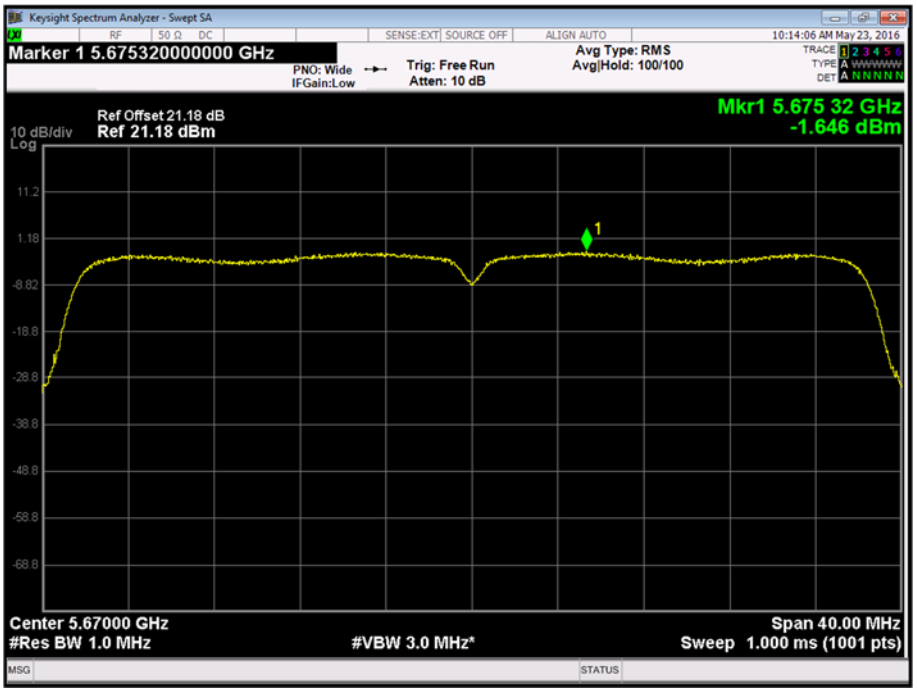


Product Service

802.11n 40 MHz Bandwidth, 5590 MHz, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Plot



802.11n 40 MHz Bandwidth, 5670 MHz, OFDM, MCS0, Frequency Band 3, Peak Power Spectral Density Plot

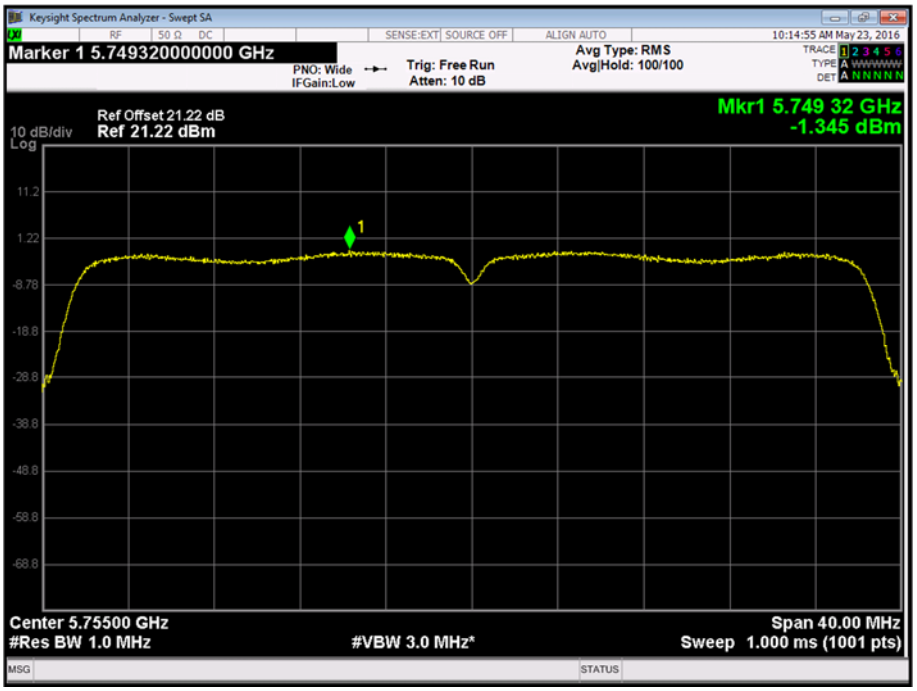


Product Service

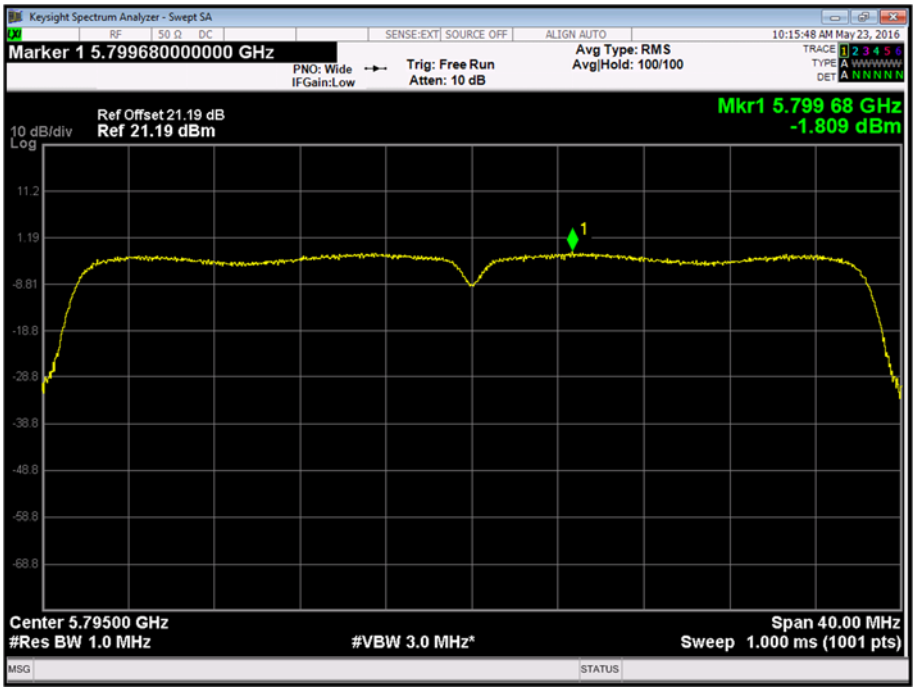
802.11n 40 MHz Bandwidth, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Results

5755 MHz	5795 MHz
dBm	dBm
-1.345	-1.809

802.11n 40 MHz Bandwidth, 5755 MHz, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Plot



802.11n 40 MHz Bandwidth, 5795 MHz, OFDM, MCS0, Frequency Band 4, Peak Power Spectral Density Plot



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

Frequency Band (MHz)	Limit
5150 to 5250	≤11 dBm /MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5725	≤11 dBm/MHz
5725 to 5825	≤30 dBm / 500 kHz

Industry Canada RSS-247, Limit Clause 6.2

Frequency Band (MHz)	Limit
5150 to 5250	≤10 dBm/MHz
5250 to 5350	≤11 dBm/MHz
5470 to 5600 5650 to 5725	≤11 dBm/MHz
5725 to 5850	≤30 dBm / 500 kHz

2.5 SPURIOUS RADIATED EMISSIONS

2.5.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (b), 15.205 and 15.209
Industry Canada RSS-247, Clause 6.2

2.5.2 Equipment Under Test and Modification State

Minuet/FS5332 S/N: RAD108624 (Module) and RAD108700 (Platform) - Modification State 0
Minuet/FS5332 S/N: RAD108616 (Module) and RAD108700 (Platform) - Modification State 0

2.5.3 Date of Test

13 May 2016, 18 May 2016, 19 May 2016, 23 May 2016, 24 May 2016, 21 June 2016, 23 June 2016, 24 June 2016, 26 June 2016, 27 June 2016, 28 June 2016, 29 June 2016, 3 July 2016 & 4 July 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 C63.10-2013 Clause 12.7.

Remarks

Average measurements were performed in accordance with ANSI C63.10-2013 Clause 12.7.7.3

In the 1 GHz – 18 GHz plots the 68.3dB limit line equates to -27dBm/MHz
In the 18 GHz to 40 GHz plots the limit lines have been adjusted to align with 1 metre measurements.

2.5.6 Environmental Conditions

Ambient Temperature	16.0 - 23.5°C
Relative Humidity	32.0 - 57.0%

Product Service

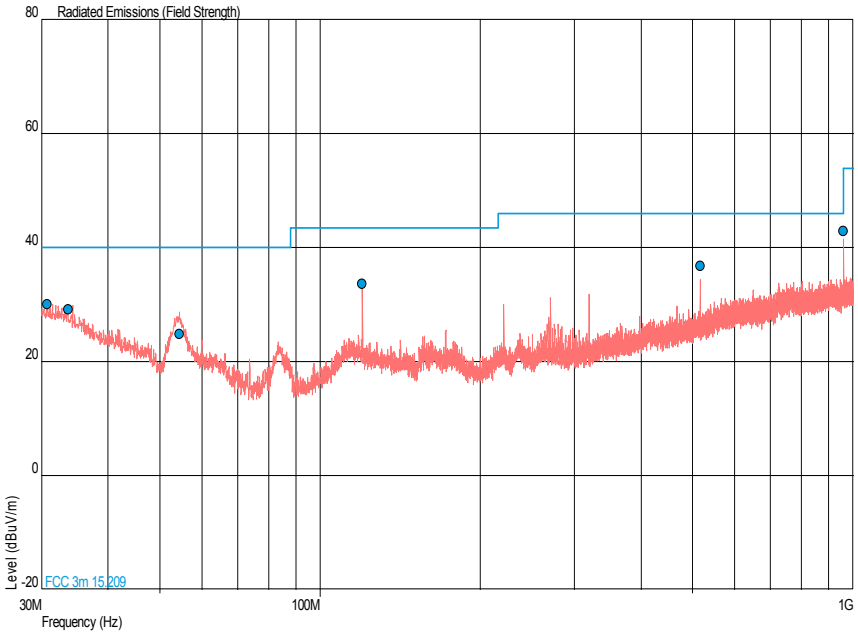
2.5.7 Test Results

5.00 V DC Supply

802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 1, 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
30.779	30.1	-9.9	32.0	-68.0	68	1.00	Horizontal
33.688	29.2	-10.8	28.8	-71.2	360	1.00	Vertical
54.494	24.8	-15.2	17.4	-82.6	148	1.00	Vertical
120.002	33.7	-9.8	48.4	-101.6	194	1.00	Vertical
516.108	36.8	-9.2	69.2	-130.8	41	1.00	Vertical
959.988	42.9	-3.1	139.6	-60.4	360	1.08	Vertical

802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 1, Spurious Radiated Emissions Plot

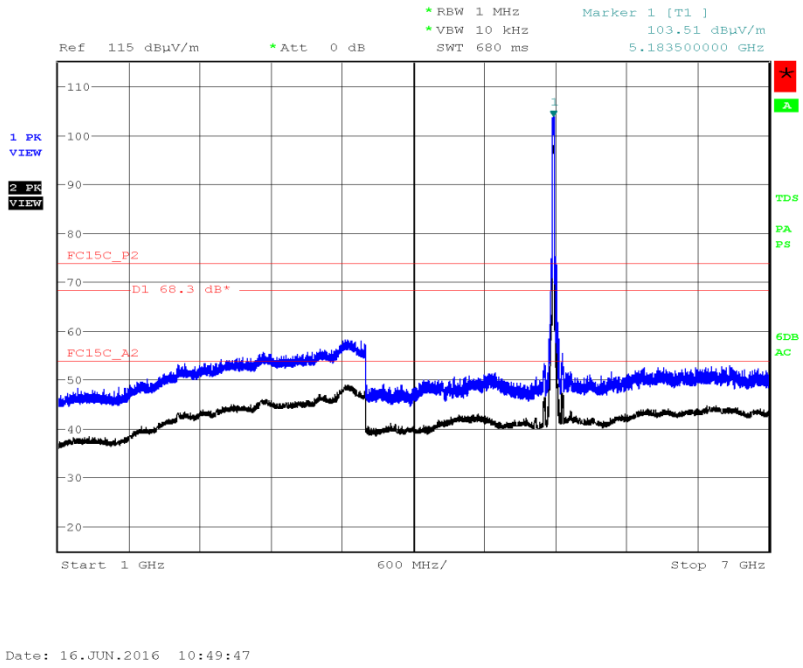


802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 1 GHz to 40 GHz, Frequency Band 1, Spurious Radiated Emissions Results

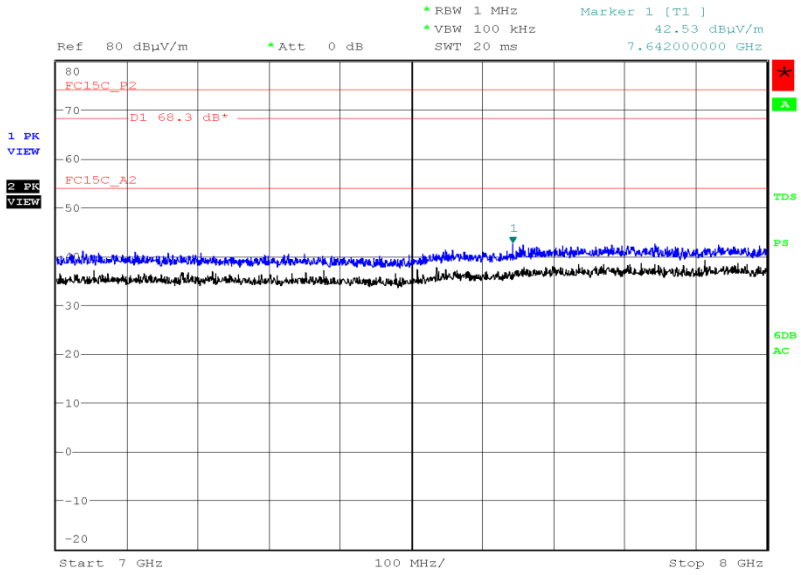
Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

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

802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 1 GHz to 7 GHz, Frequency Band 1, Spurious Radiated Emissions Plot

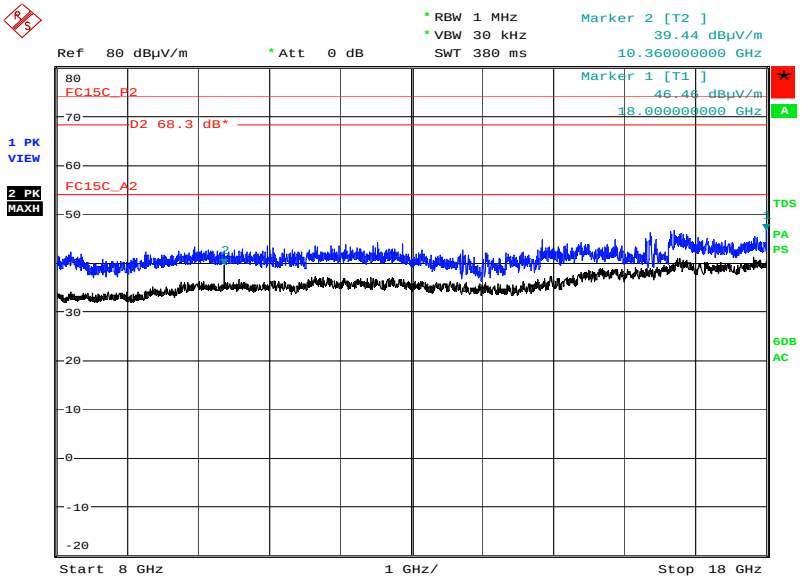


802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 7 GHz to 8 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



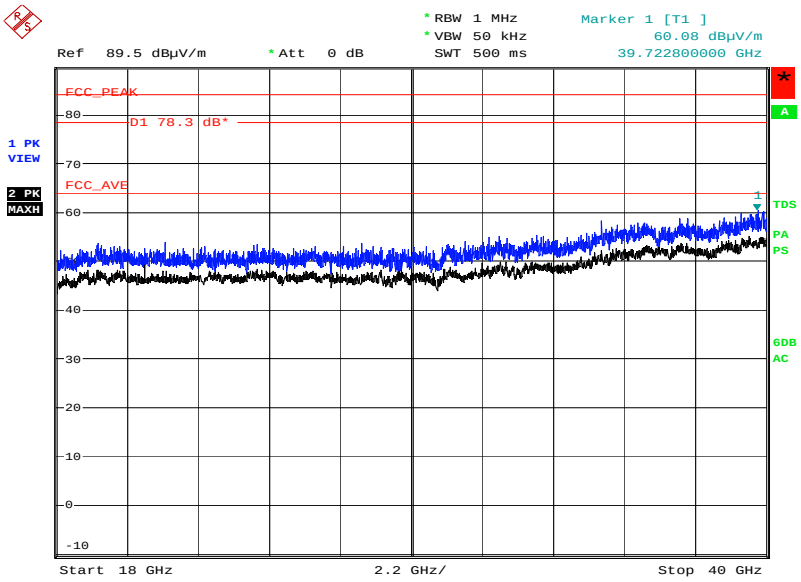
Date: 17.JUN.2016 13:17:04

802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 8 GHz to 18 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



Date: 28.JUN.2016 19:13:59

802.11a (2nd Diversity Antenna), 5180 MHz, 6 Mbps, 18 GHz to 40 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



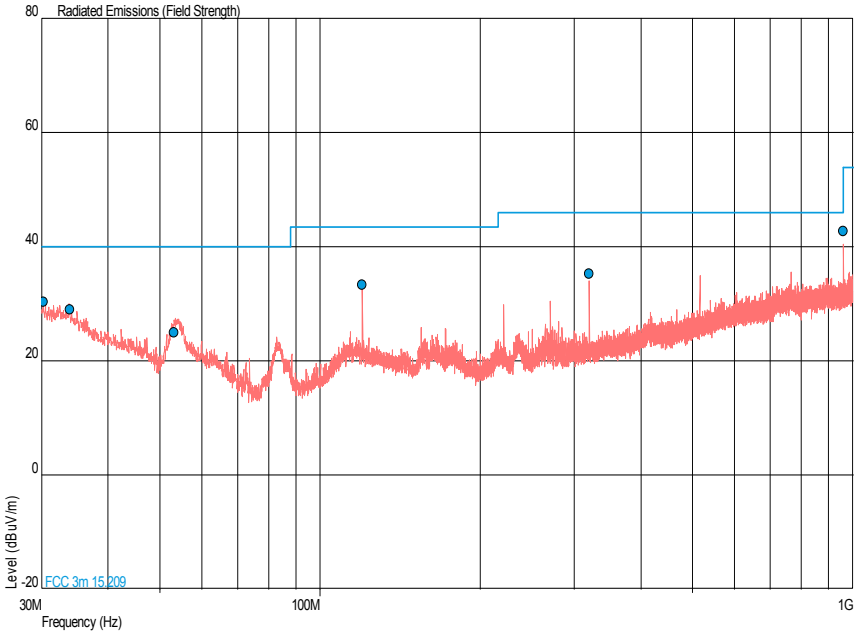
Date: 26.JUN.2016 08:52:05

Product Service

802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 1, 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
30.249	30.3	-9.7	32.7	-67.3	220	1.00	Horizontal
33.877	29.0	-11.0	28.2	-71.8	0	1.00	Vertical
53.186	25.0	-15.0	17.8	-82.2	63	1.00	Vertical
120.006	33.3	-10.2	46.2	-103.8	206	1.00	Vertical
319.476	35.3	-10.7	58.2	-141.8	164	1.00	Horizontal
960.005	42.7	-11.3	136.5	-364.5	360	1.17	Vertical

802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 1, Spurious Radiated Emissions Plot

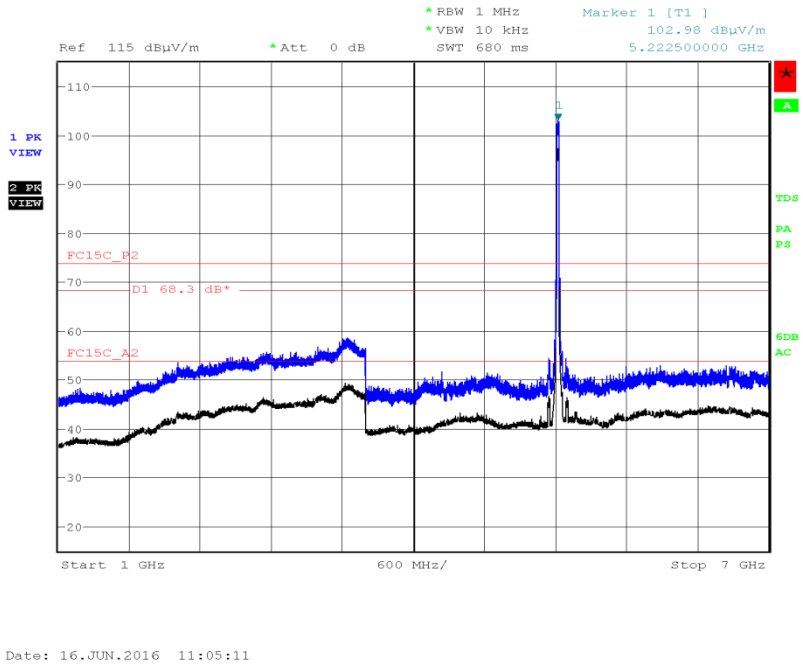


802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 1 GHz to 40 GHz, Frequency Band 1, Spurious Radiated Emissions Results

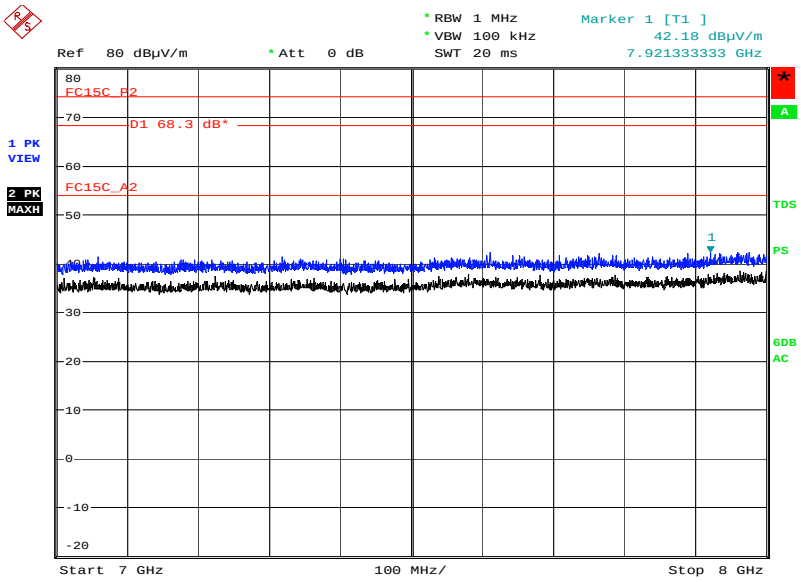
Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

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

802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 1 GHz to 7 GHz, Frequency Band 1, Spurious Radiated Emissions Plot

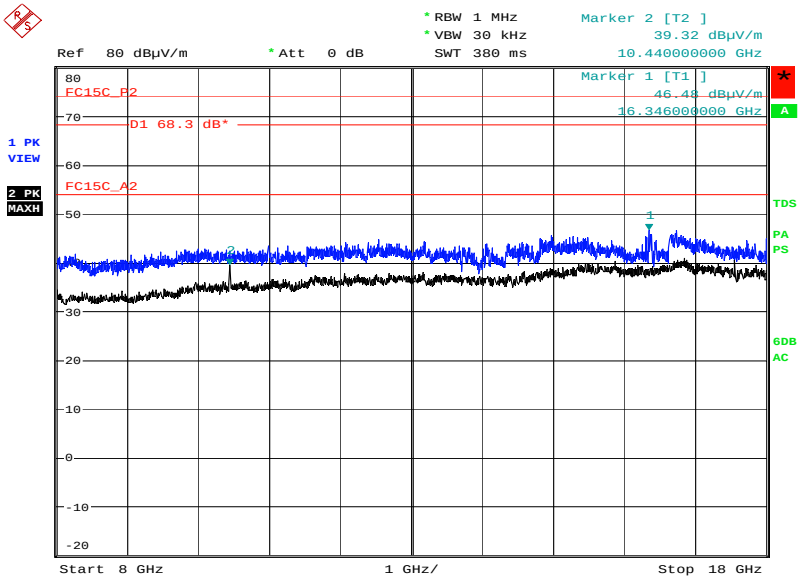


802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 7 GHz to 8 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



Date: 3.JUL.2016 09:12:03

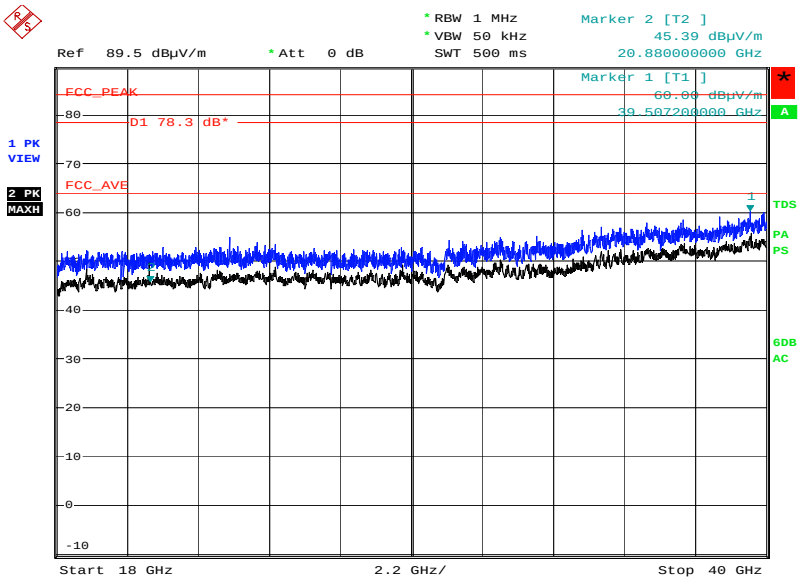
802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 8 GHz to 18 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



Date: 3.JUL.2016 10:00:34

Product Service

802.11a (2nd Diversity Antenna), 5200 MHz, 6 Mbps, 18 GHz to 40 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



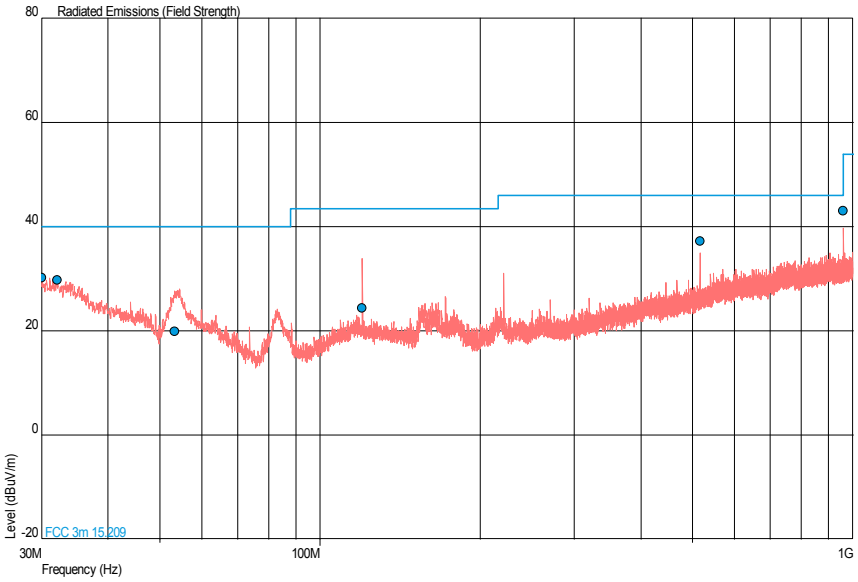
Date: 3.JUL.2016 13:11:04

Product Service

802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 1, 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
30.101	30.2	-9.8	32.4	-67.6	231	1.00	Vertical
32.182	29.8	-10.2	30.9	-69.1	0	1.60	Horizontal
53.329	19.9	-20.1	9.9	-90.1	353	1.00	Horizontal
120.020	24.3	-19.2	16.4	-133.6	226	1.00	Horizontal
516.092	37.2	-8.8	72.4	-127.6	29	1.00	Vertical
960.018	43.0	-11.0	141.3	-359.7	360	1.17	Vertical

802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



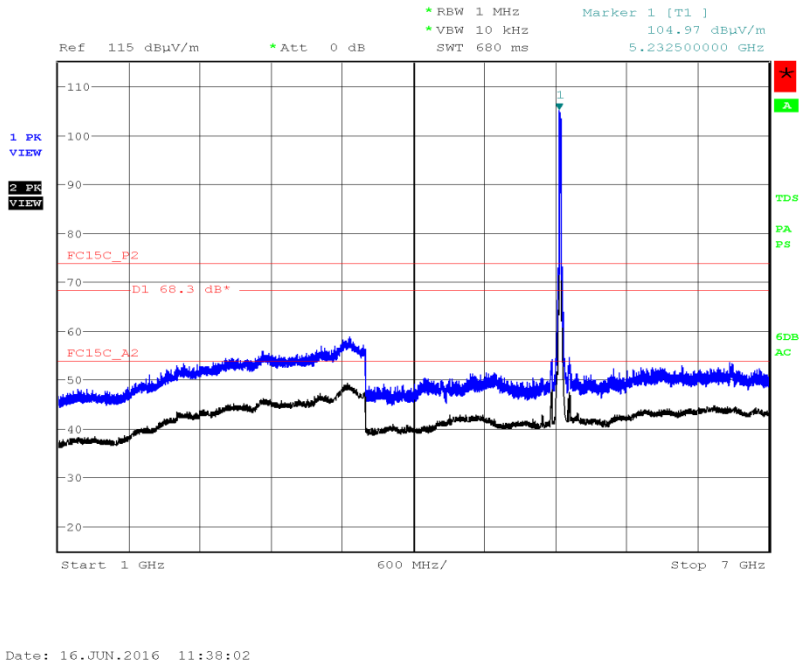
Product Service

802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 1 GHz to 40 GHz, Frequency Band 1, Spurious Radiated Emissions Results

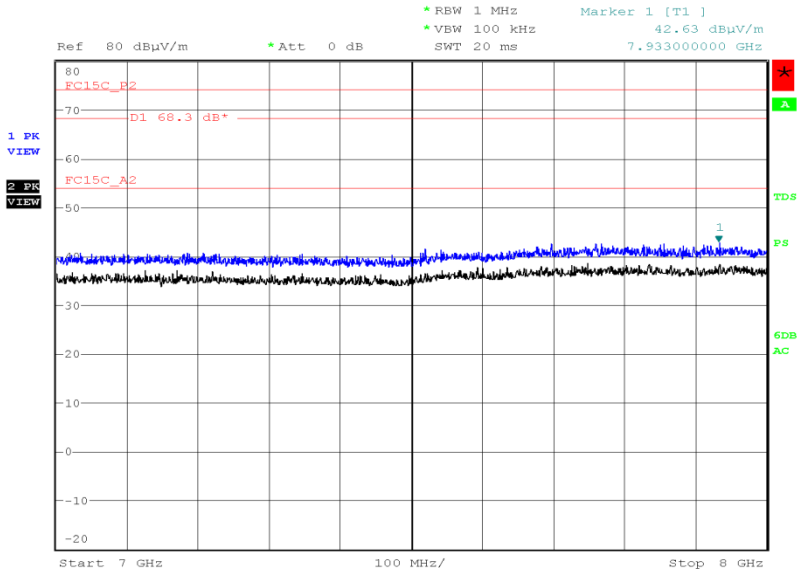
Frequency (MHz)	Final Peak (dBµV/m)	Final Average (dBµV/m)	Final Peak (µV/m)	Final Average (µV/m)	Angle (°)	Height (m)	Polarisation
*							

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

802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 1 GHz to 7 GHz, Frequency Band 1, Spurious Radiated Emissions Plot

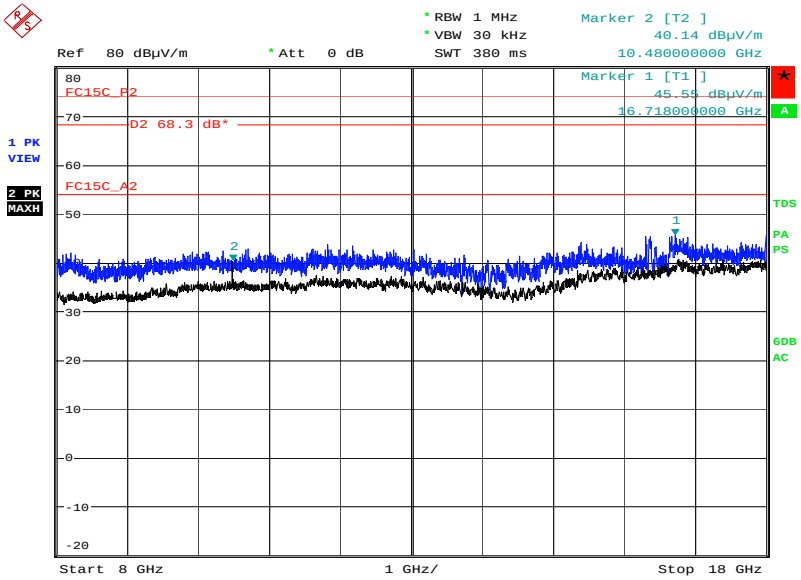


802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 7 GHz to 8 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



Date: 17.JUN.2016 13:29:20

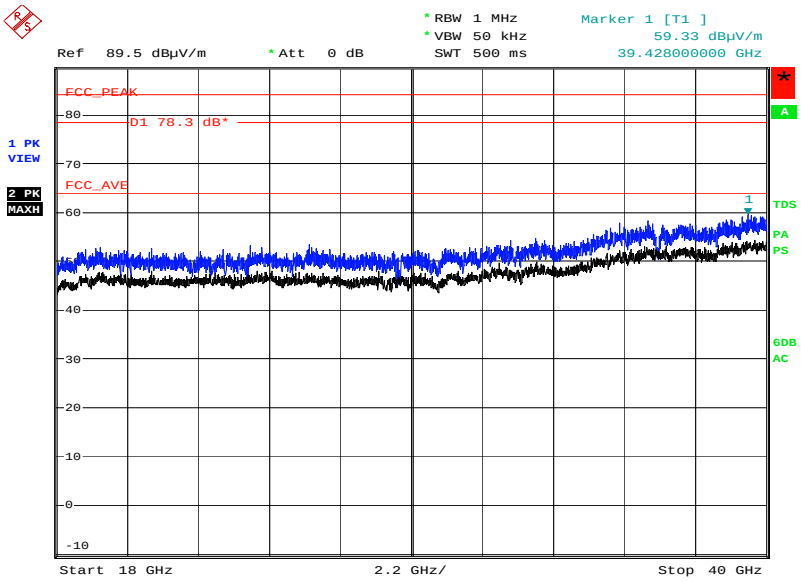
802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 8 GHz to 18 GHz, Frequency Band 1, Spurious Radiated Emissions Plot



Date: 28.JUN.2016 19:32:31

Product Service

802.11a (2nd Diversity Antenna), 5240 MHz, 6 Mbps, 18 GHz to 40 GHz, Frequency Band 1, Spurious Radiated Emissions Plot

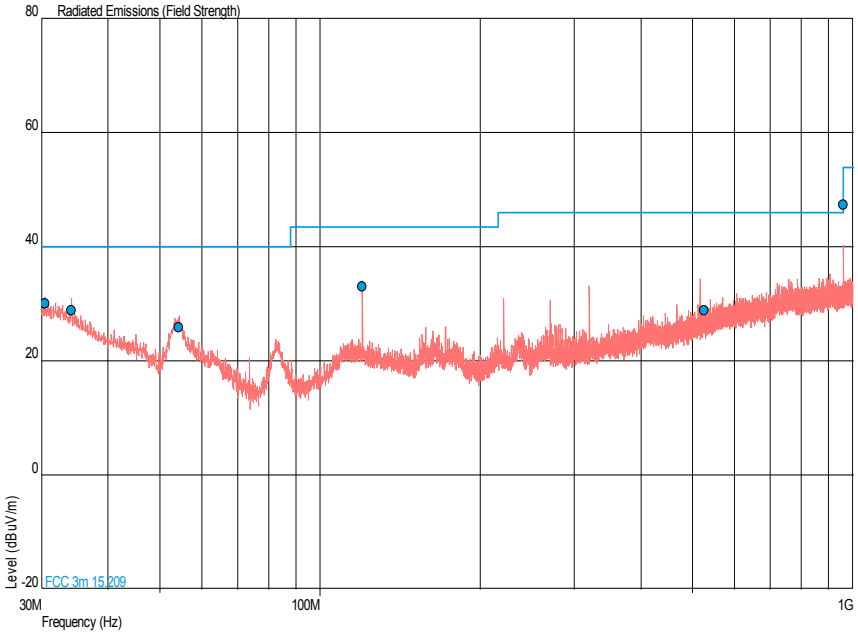


Date: 26.JUN.2016 09:29:31

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 2, 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
30.440	30.1	-9.9	32.0	-68.0	126	1.00	Vertical
34.172	28.9	-11.1	27.9	-72.1	80	1.00	Vertical
54.223	25.9	-14.1	19.7	-80.3	143	1.18	Vertical
119.989	33.1	-10.4	45.2	-104.8	327	1.00	Vertical
525.451	28.9	-17.1	27.9	-172.1	81	1.00	Horizontal
960.011	47.4	-6.6	234.4	-266.6	227	1.60	Horizontal

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 30 MHz to 1 GHz, Frequency Band 2, Spurious Radiated Emissions Plot



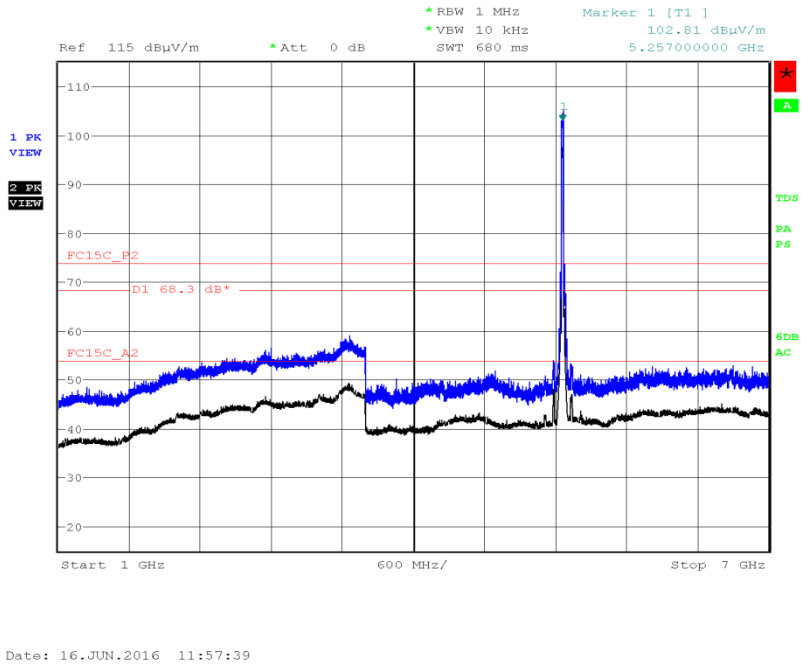
Product Service

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 1 GHz to 40 GHz, Frequency Band 2, 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
*							

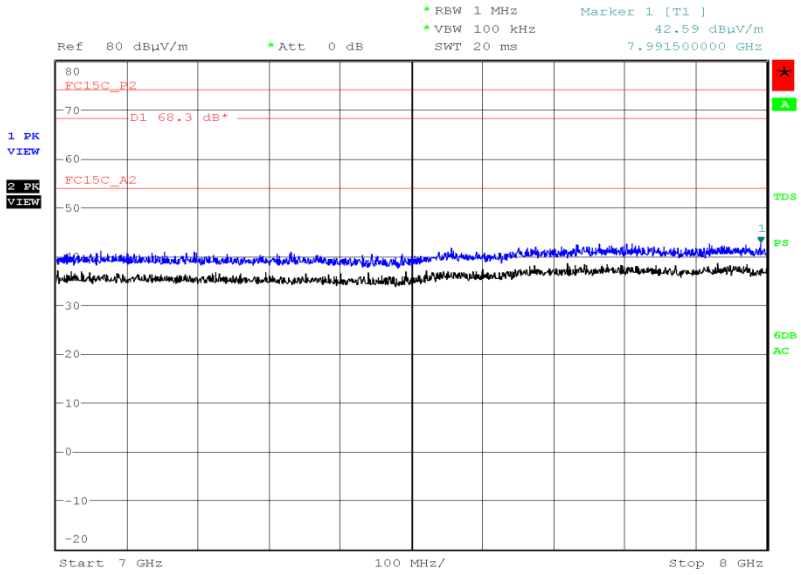
*No emissions were detected within 10 dB of the limit.

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 1 GHz to 7 GHz, Frequency Band 2, Spurious Radiated Emissions Plot



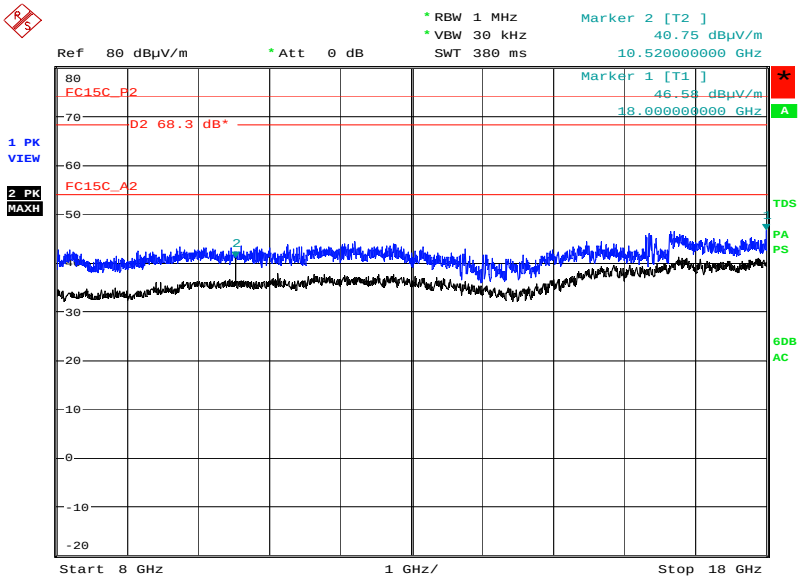
Product Service

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 7 GHz to 8 GHz, Frequency Band 2, Spurious Radiated Emissions Plot



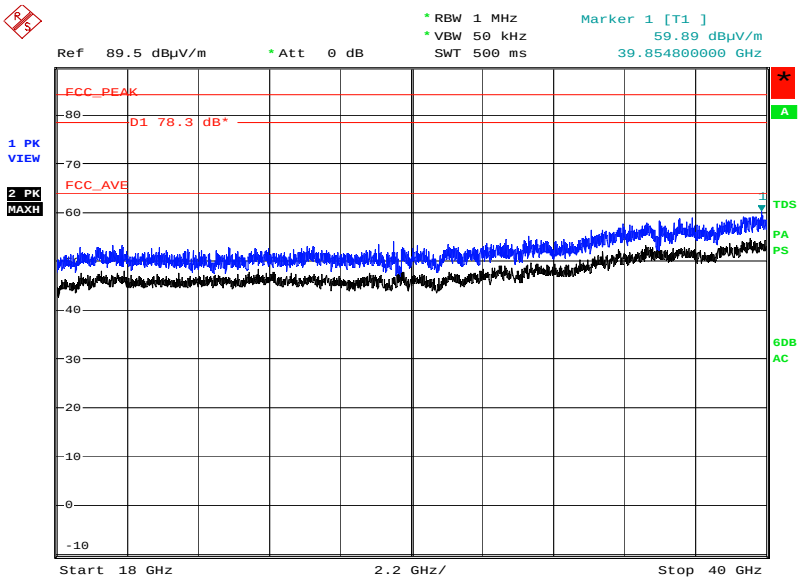
Date: 17.JUN.2016 13:39:36

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 8 GHz to 18 GHz, Frequency Band 2, Spurious Radiated Emissions Plot



Date: 28.JUN.2016 19:50:25

802.11a (2nd Diversity Antenna), 5260 MHz, 6 Mbps, 18 GHz to 40 GHz, Frequency Band 2, Spurious Radiated Emissions Plot



Date: 26.JUN.2016 09:46:52