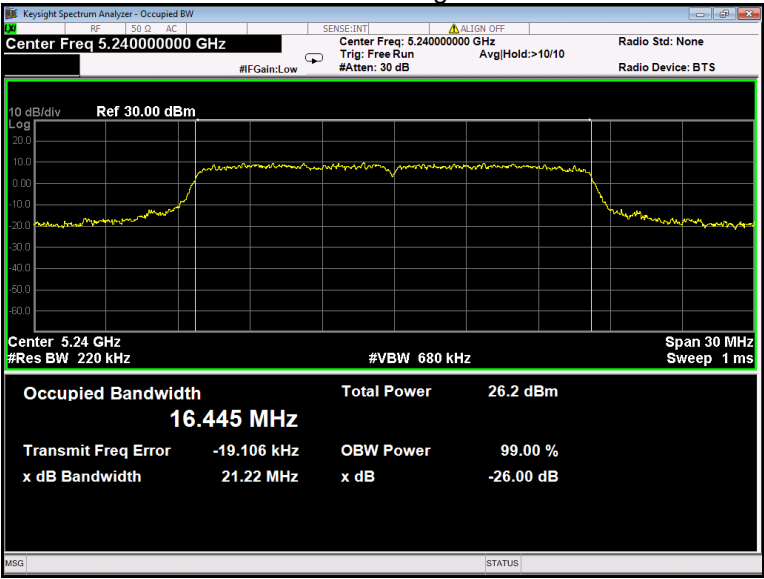
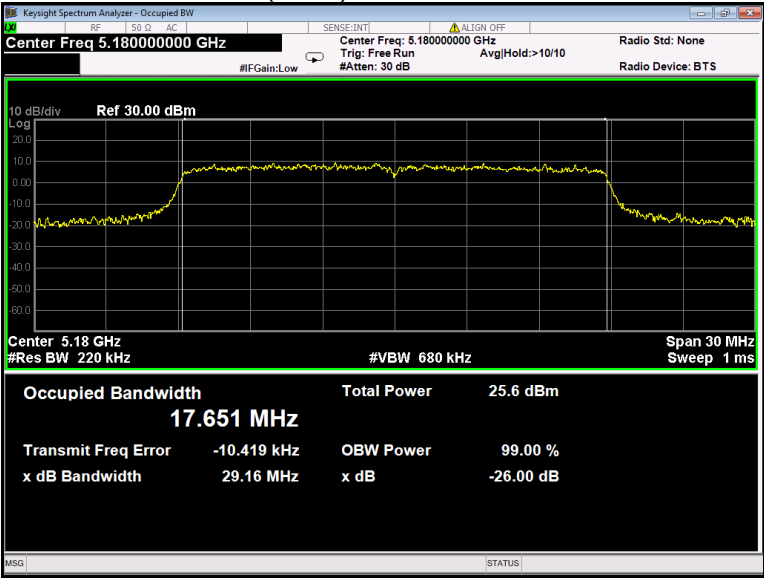


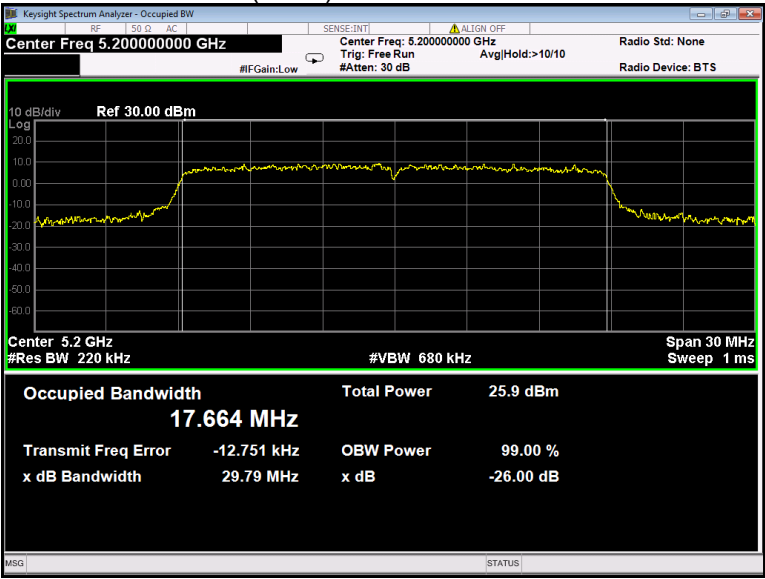
802.11a U-NII-1 High channel



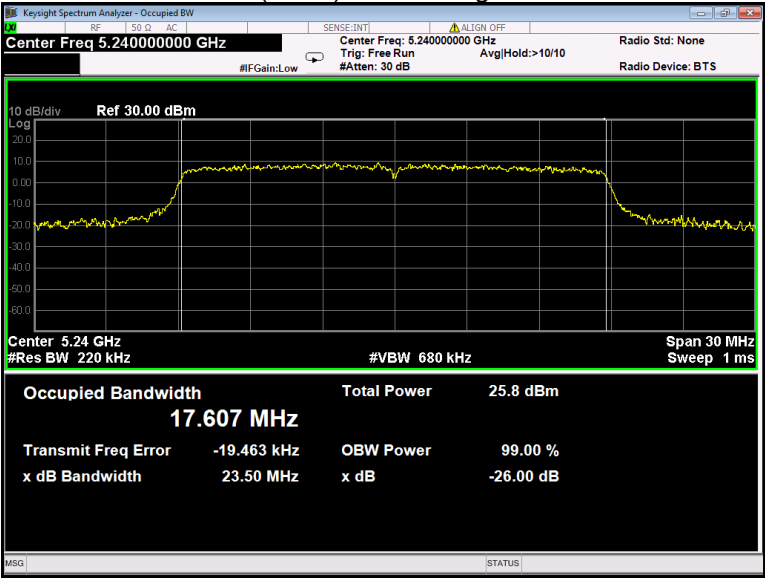
802.11n(HT20) U-NII-1 Low channel



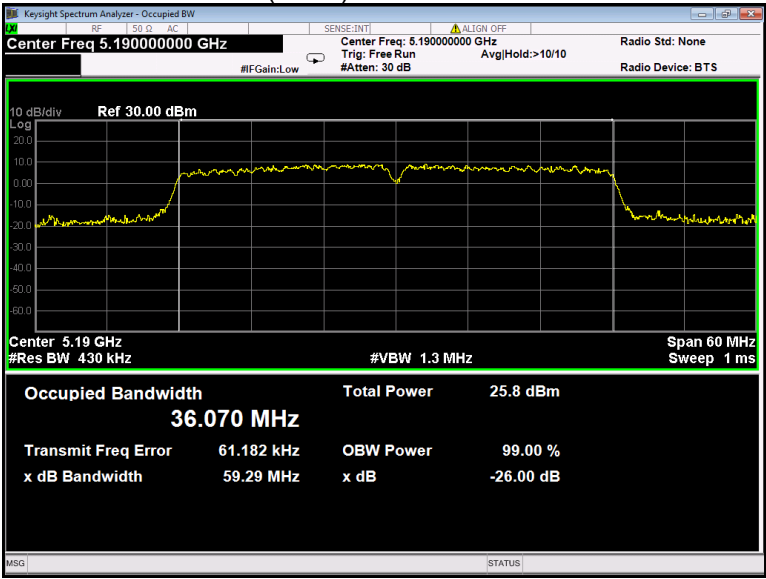
802.11n(HT20) U-NII-1 Middle channel



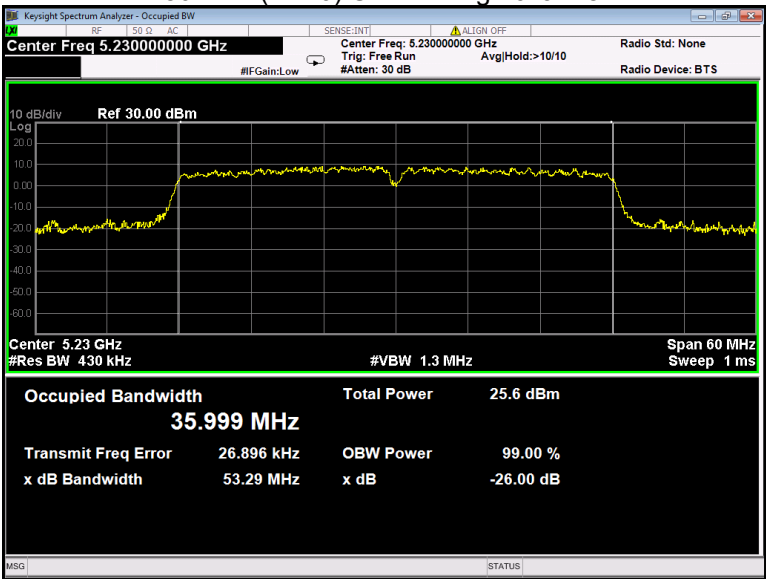
802.11n(HT20) U-NII-1 High channel



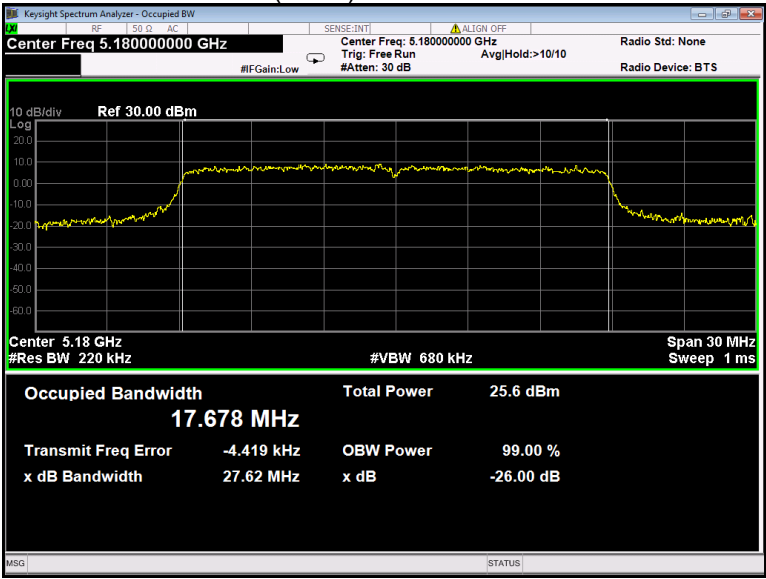
802.11n(HT40) U-NII-1 Low channel



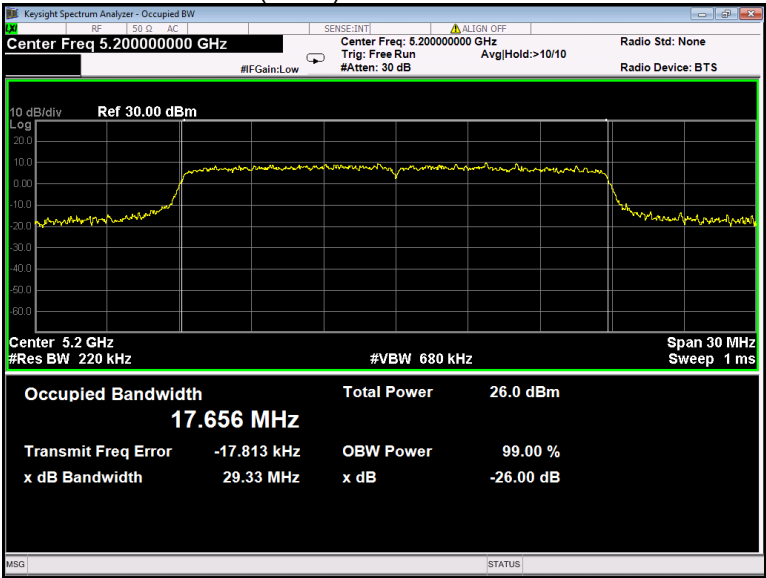
802.11n(HT40) U-NII-1 High channel



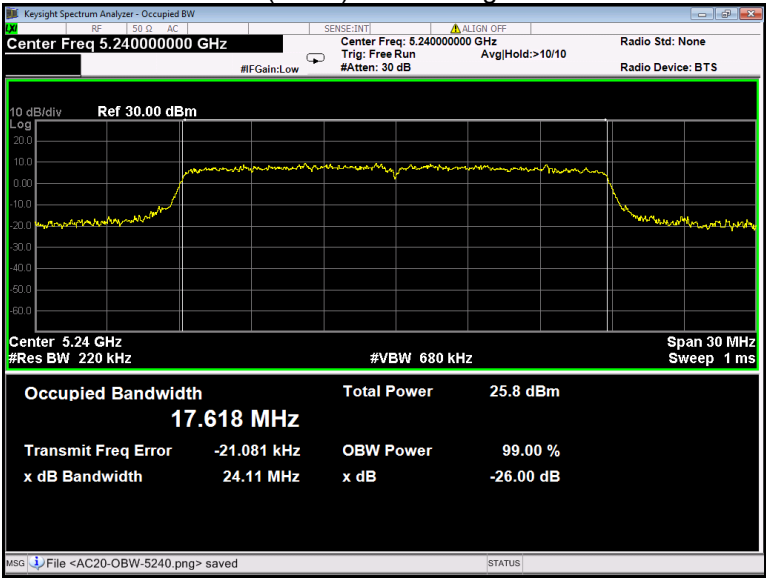
802.11ac(HT20) U-NII-1 Low channel



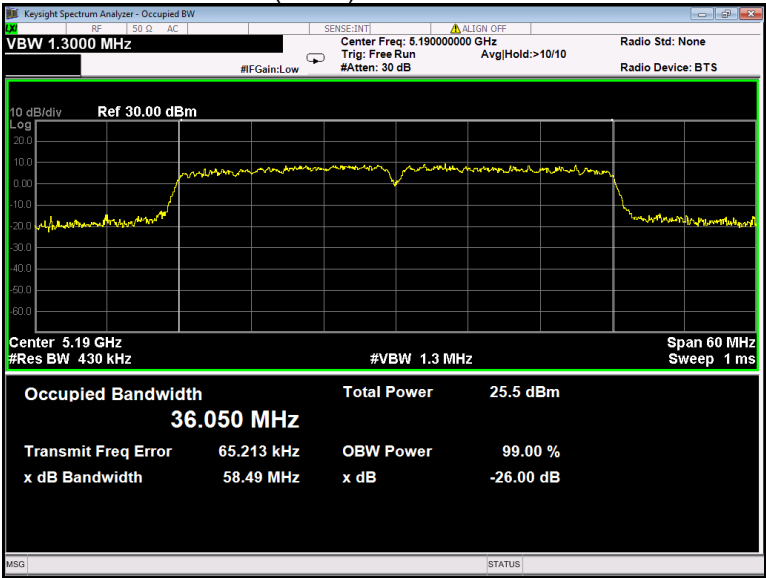
802.11ac(HT20) U-NII-1 Middle channel



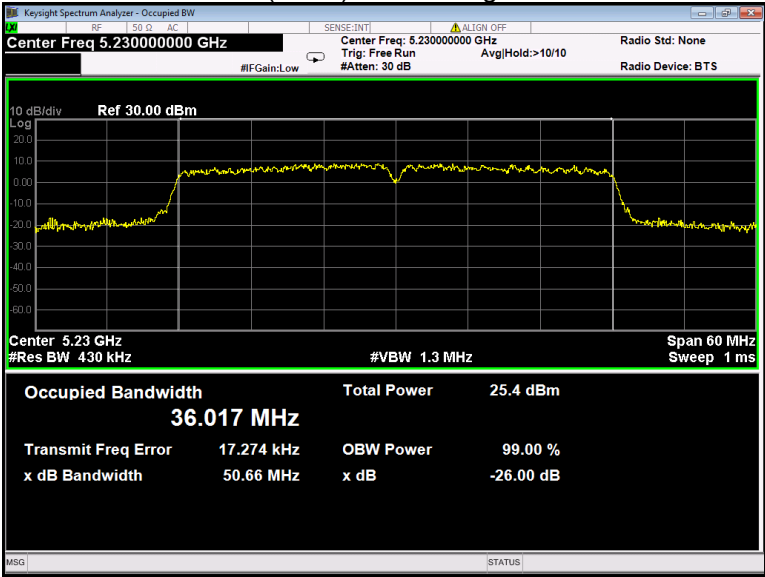
802.11ac(HT20) U-NII-1 High channel



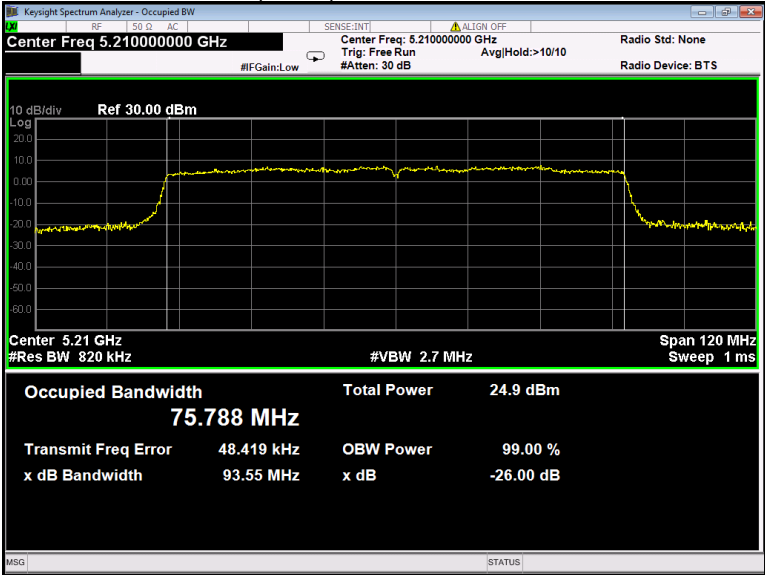
802.11ac(HT40) U-NII-1 Low channel



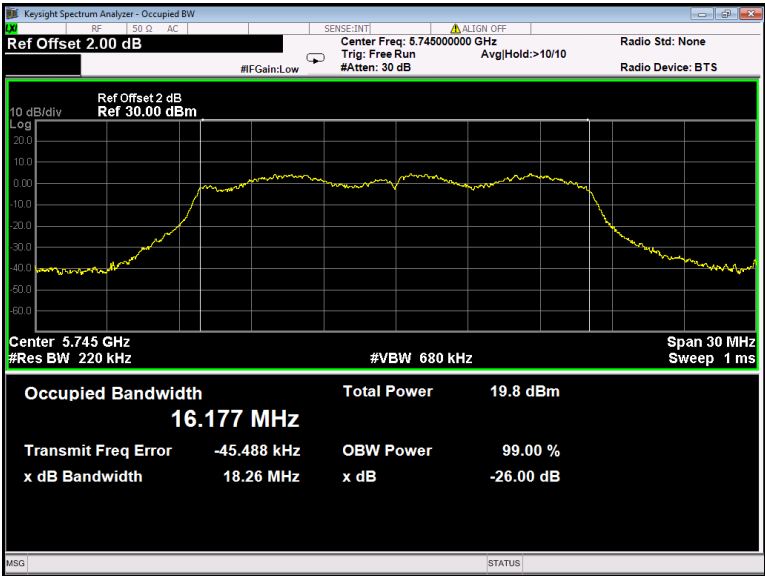
802.11ac(HT40) U-NII-1 High channel



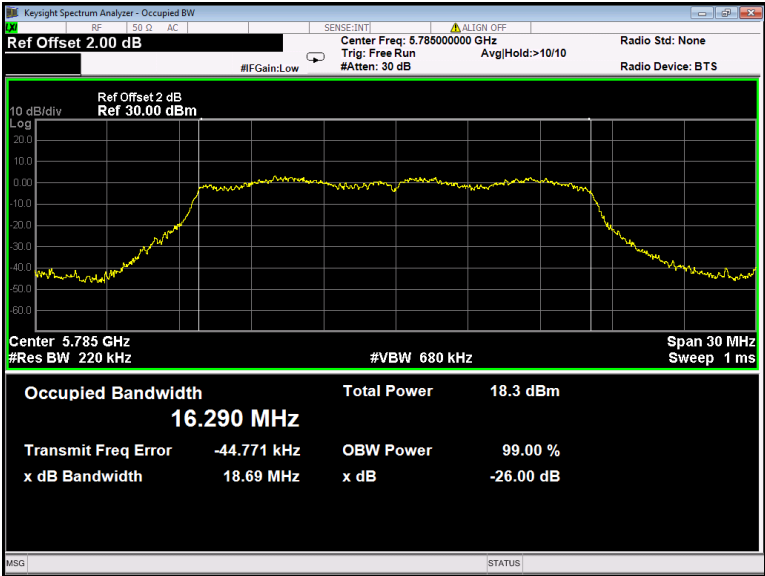
802.11ac(HT80) U-NII-1 Middle channel



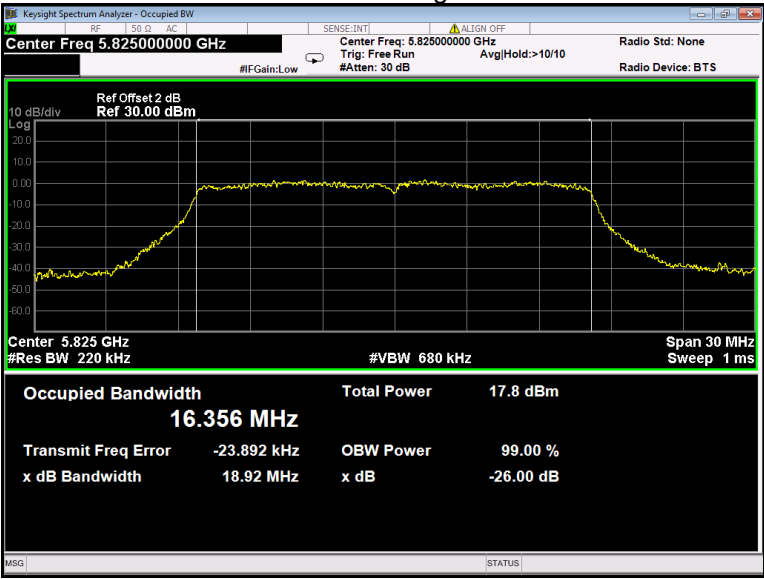
802.11a U-NII-3 Low channel



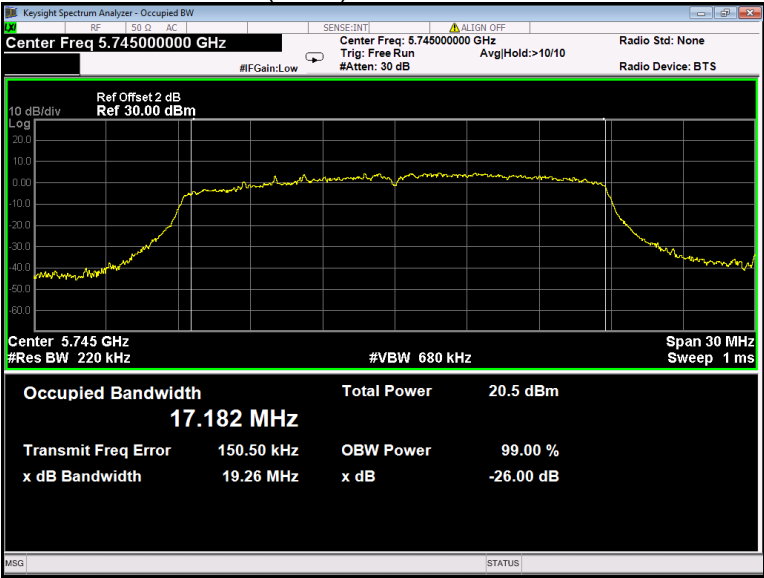
802.11a U-NII-3 Middle channel



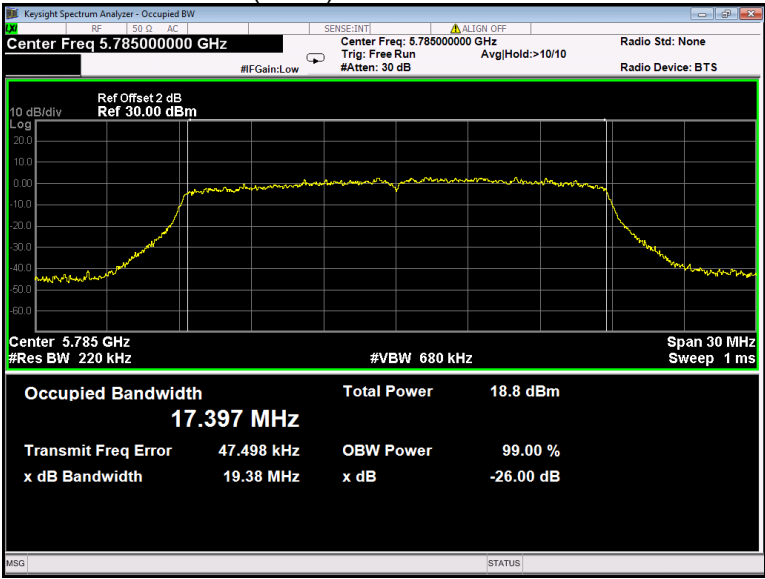
802.11a U-NII-3 High channel



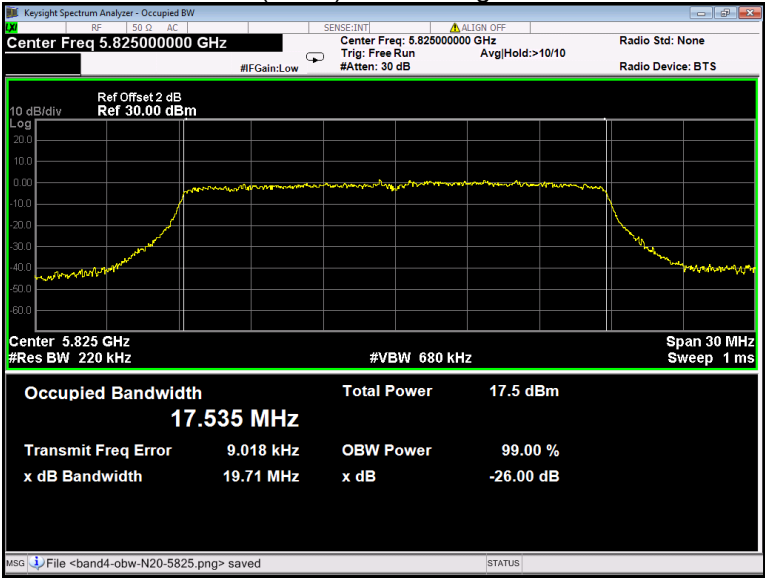
802.11n(HT20) U-NII-3 Low channel



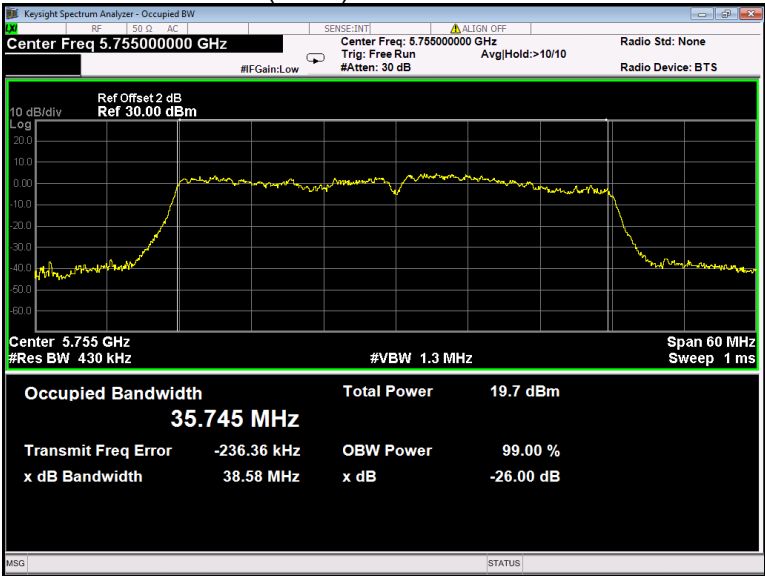
802.11n(HT20) U-NII-3 Middle channel



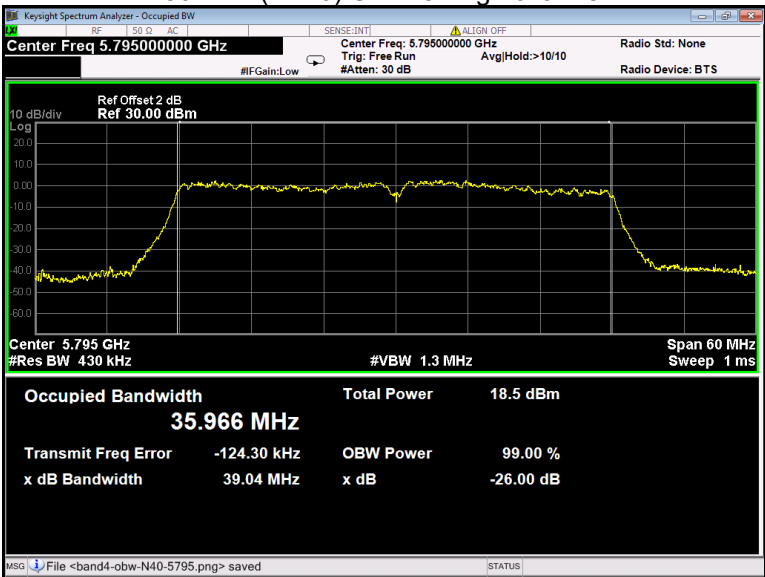
802.11n(HT20) U-NII-3 High channel



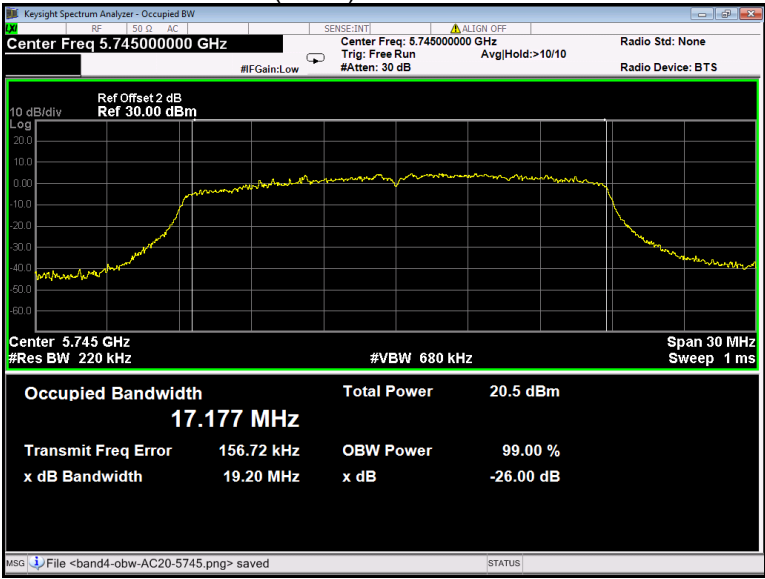
802.11n(HT40) U-NII-3 Low channel



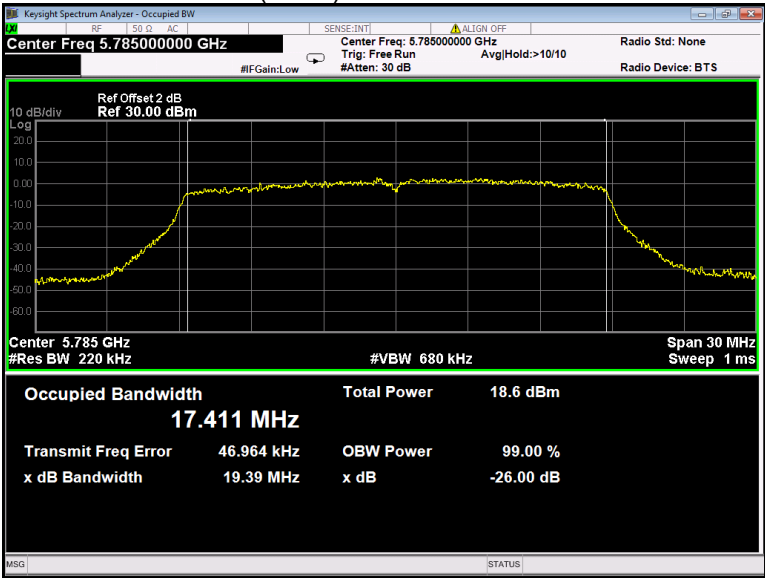
802.11n(HT40) U-NII-3 High channel



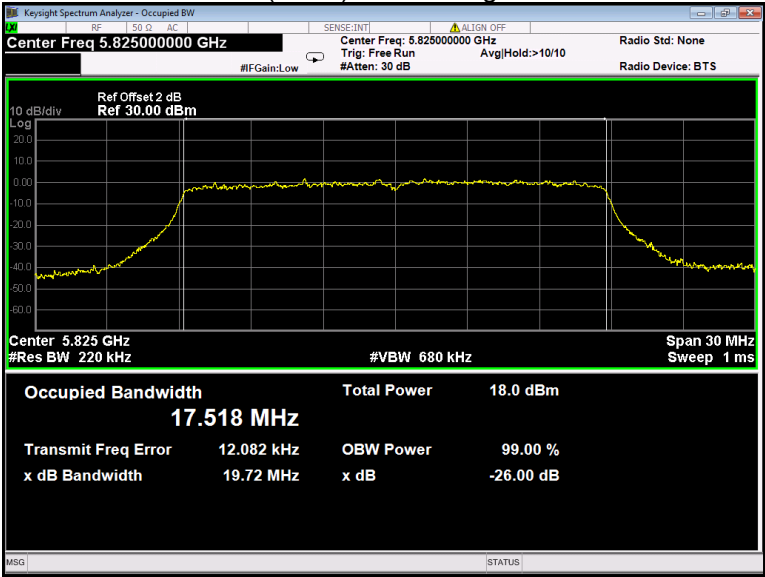
802.11ac(HT20) U-NII-3 Low channel



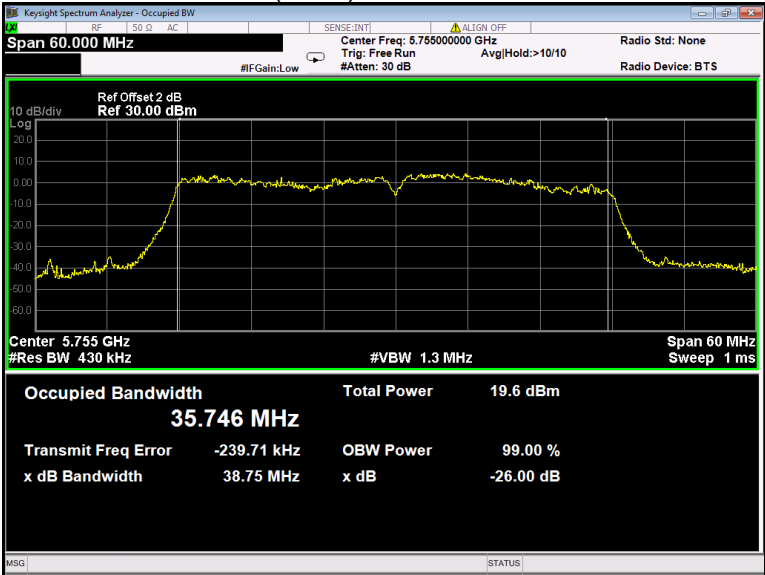
802.11ac(HT20) U-NII-3 Middle channel



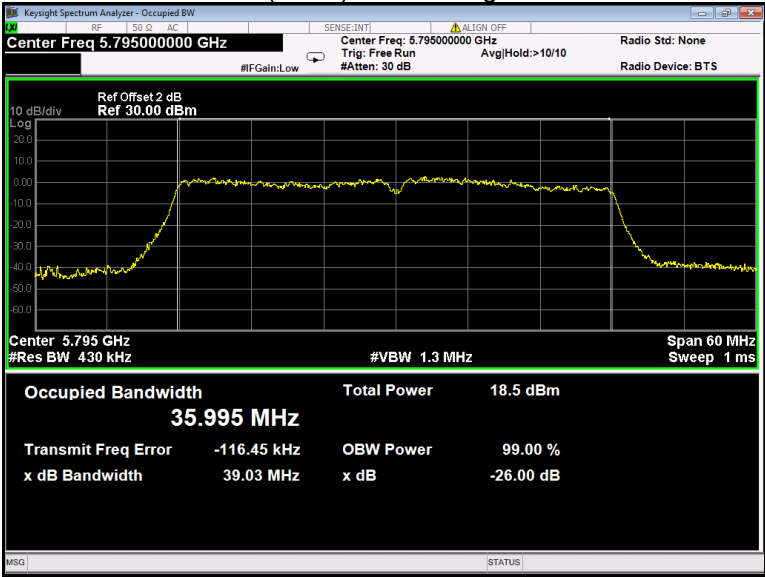
802.11ac(HT20) U-NII-3 High channel



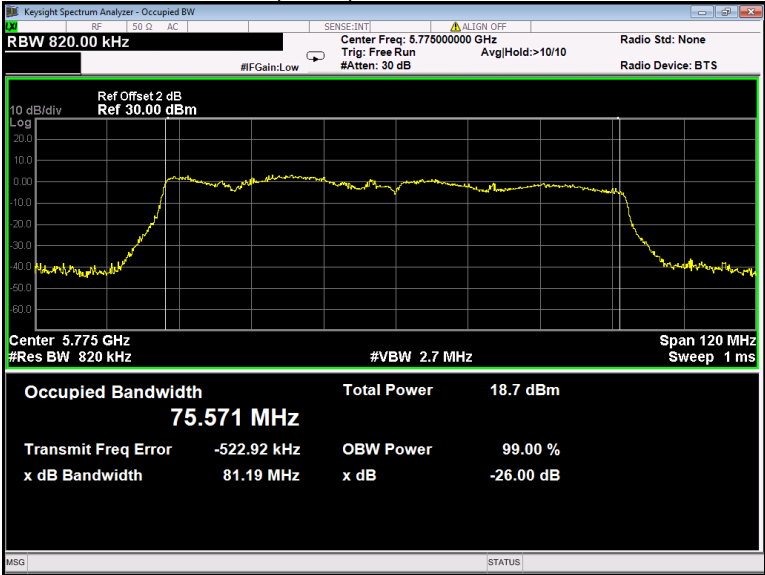
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel



802.11ac(HT80) U-NII-3 Low channel



13 Conducted Output Power

Test Requirement:	FCC 47CFR Part 15 Section 15.407(a)
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v02r01 Section E
Test Limit:	Frequency band 5.15-5.25 GHz For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. Frequency band 5.25-5.35 GHz and 5.47-5.725 GHz For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. Frequency band 5.725-5.85 GHz For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
Test Result:	PASS
Remark:	Conducted output power= measurement power+10log(1/x) X is duty cycle, refer to clause 7.1.

13.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

13.2 Test Result

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Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-1	802.11a	Low	18.46	0.18	18.64
		Middle	19.06		19.24
		High	19.25		19.43
	802.11n(HT20)	Low	19.63	0.08	19.71
		Middle	19.69		19.77
		High	19.87		19.95
	802.11n(HT40)	Low	18.55	0.20	18.75
		High	18.02		18.22
	802.11ac(HT20)	Low	20.17	0.08	20.37
		Middle	19.43		19.51
		High	19.74		19.82
	802.11ac(HT40)	Low	18.71	0.21	18.92
		High	18.57		18.78
	802.11ac(HT80)	Low	18.83	0.43	19.26

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-3	802.11a	Low	19.21	0.19	19.40
		Middle	17.48		17.67
		High	16.89		17.08
	802.11n(HT20)	Low	20.15	0.09	20.24
		Middle	18.46		18.55
		High	17.44		17.53
	802.11n(HT40)	Low	18.93	0.20	19.13
		High	18.01		18.21
	802.11ac(HT20)	Low	20.17	0.09	20.37
		Middle	18.58		18.67
		High	17.12		17.21
	802.11ac(HT40)	Low	19.26	0.20	19.46
		High	17.94		18.14
	802.11ac(HT80)	Low	18.46	0.43	18.89

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Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-1	802.11a	Low	18.38	0.20	18.58
		Middle	19.81		20.01
		High	17.16		17.36
	802.11n(HT20)	Low	19.75	0.08	19.83
		Middle	19.64		19.72
		High	20.19		20.27
	802.11n(HT40)	Low	18.53	0.21	18.74
		High	18.57		18.78
	802.11ac(HT20)	Low	19.40	0.08	19.61
		Middle	20.06		20.14
		High	20.08		20.16
	802.11ac(HT40)	Low	18.75	0.21	18.96
		High	18.18		18.39
	802.11ac(HT80)	Low	19.54	0.39	19.93

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-3	802.11a	Low	19.11	0.18	19.29
		Middle	17.64		17.82
		High	16.41		16.59
	802.11n(HT20)	Low	20.06	0.09	20.15
		Middle	18.25		18.34
		High	17.11		17.20
	802.11n(HT40)	Low	18.86	0.20	19.06
		High	17.19		17.39
	802.11ac(HT20)	Low	19.96	0.08	20.16
		Middle	18.66		18.74
		High	16.94		17.02
	802.11ac(HT40)	Low	18.78	0.21	18.99
		High	17.58		17.79
	802.11ac(HT80)	Low	18.77	0.45	19.22

Simultaneous Transmission

Band	Operation mode	Channel	Conducted Output Power (dBm)		
			Ant. 0	Ant. 1	SUM
U-NII-1	802.11a	Low	18.64	18.58	/
		Middle	19.24	20.01	/
		High	19.43	17.36	/
	802.11n(HT20)	Low	19.71	19.83	22.78
		Middle	19.77	19.72	22.76
		High	19.95	20.27	23.12
	802.11ac (HT20)	Low	18.75	18.74	21.76
		Middle	18.22	18.78	21.52
		High	20.37	19.61	23.02
	802.11n(HT40)	Low	19.51	20.14	22.85
		High	19.82	20.16	23.00
	802.11ac (HT40)	Low	18.92	18.96	21.95
		High	18.78	18.39	21.60
	802.11ac (HT80)	Middle	19.26	19.93	22.62

Band	Operation mode	Channel	Conducted Output Power (dBm)		
			Ant. 0	Ant. 1	SUM
U-NII-3	802.11a	Low	19.40	19.29	/
		Middle	17.67	17.82	/
		High	17.08	16.59	/
	802.11n(HT20)	Low	20.24	20.15	23.21
		Middle	18.55	18.34	21.46
		High	17.53	17.20	20.38
	802.11ac (HT20)	Low	19.13	19.06	22.11
		Middle	18.21	17.39	20.83
		High	20.37	20.16	23.28
	802.11n(HT40)	Low	18.67	18.74	21.72
		High	17.21	17.02	20.13
	802.11ac (HT40)	Low	19.46	18.99	22.24
		High	18.14	17.79	20.98
	802.11ac (HT80)	Middle	18.89	19.22	22.07

Note:

According to ANSI C63.10 clause 14.4.3.1,

U-NII-1: Directional gain=antenna gain + 10log(N)=3.3 + 10log2= 6.31dBi

U-NII-3: Directional gain=antenna gain + 10log(N)=3.9 + 10log2= 6.91dBi

N is number of array elements or staves

According to ANSI C63.10 clause 11.7,

For those cases where it is specified that the conducted output power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6dBi, the output power effective limit shall be calculated as follows in Equation:

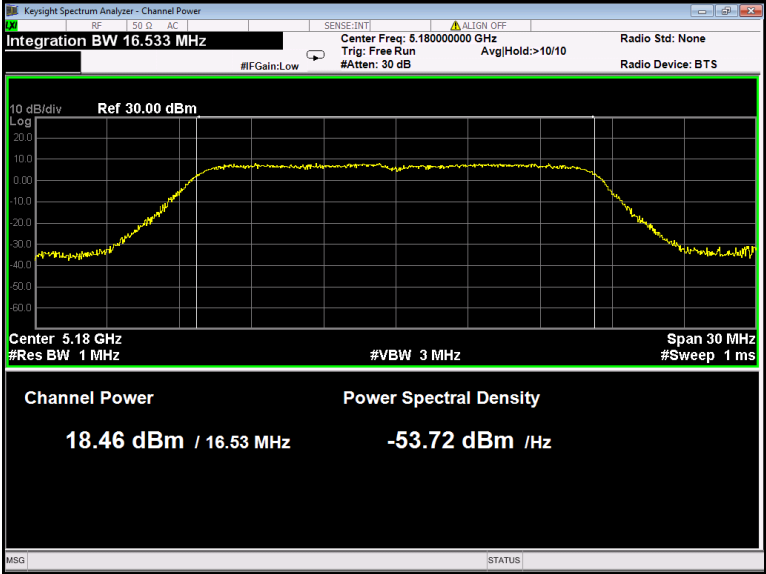
$$P_{out} = P_{Limit} - (G_{TX} - 6)$$

Then the limit of U-NII-1 should reduce 0.31dB, and the limit of U-NII-3 should reduce 0.91dB.

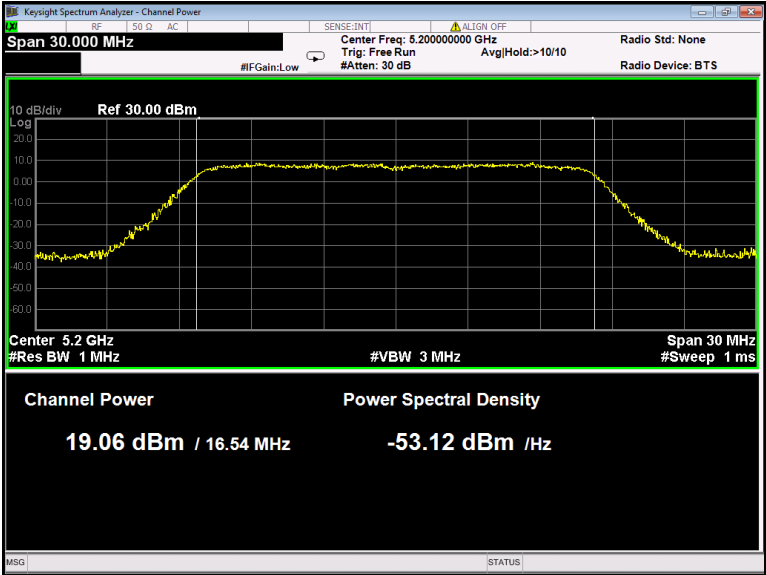
Test result plots shown as follows:

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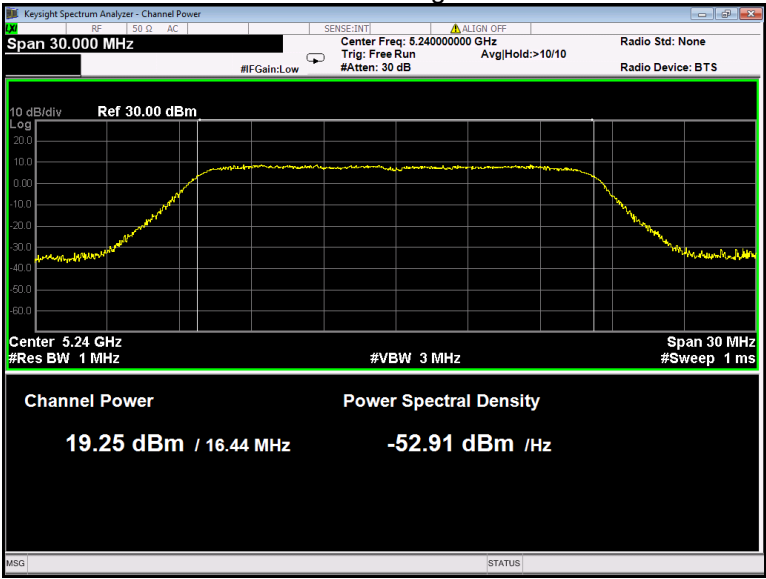
802.11a U-NII-1 Low channel



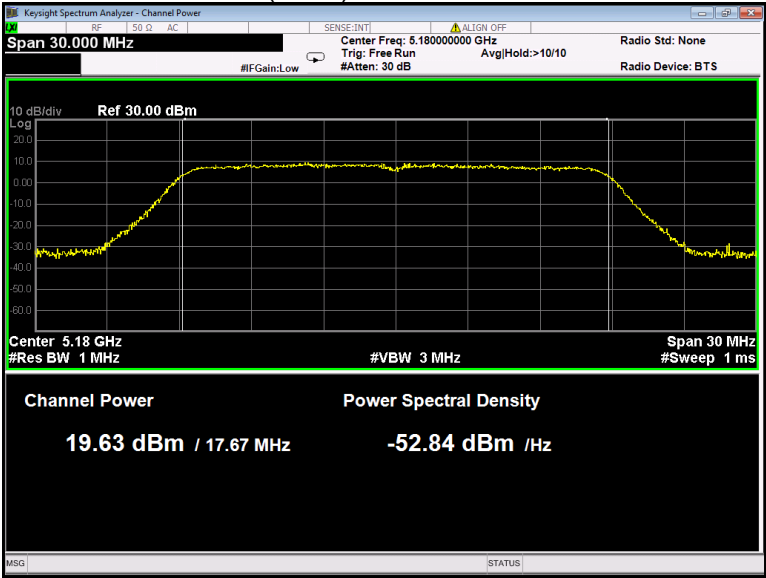
802.11a U-NII-1 Middle channel



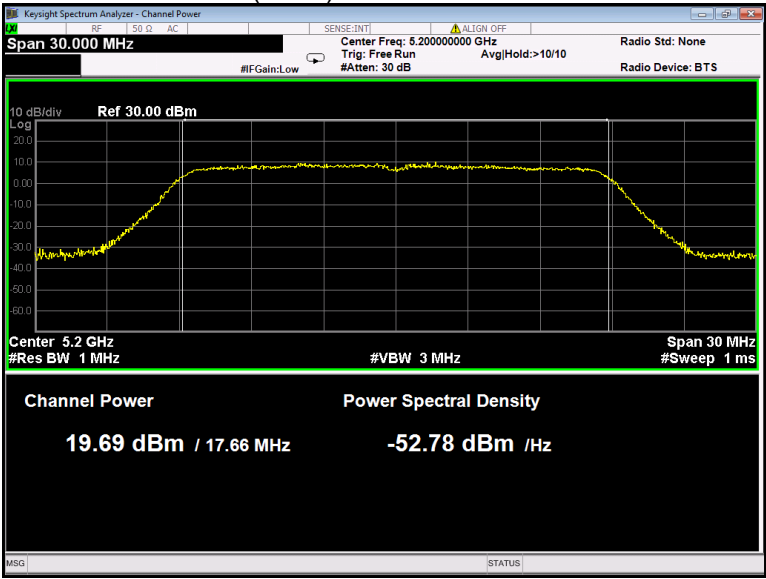
802.11a U-NII-1 High channel



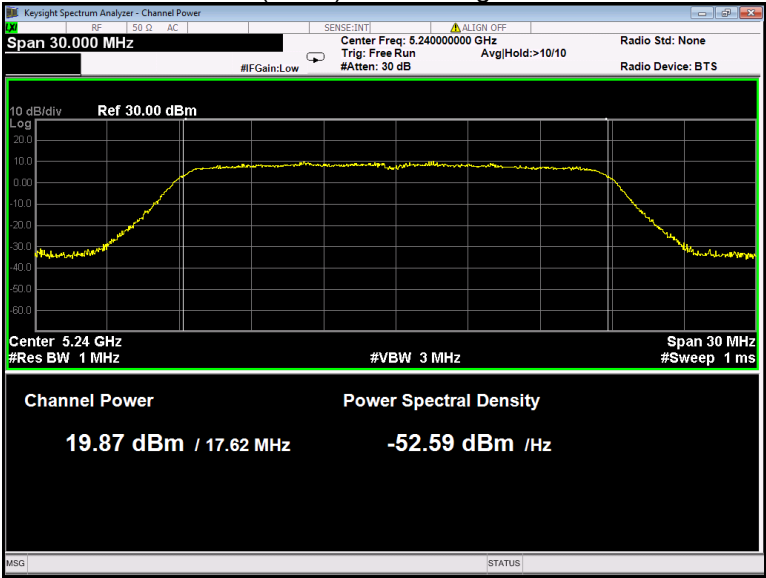
802.11n(HT20) U-NII-1 Low channel



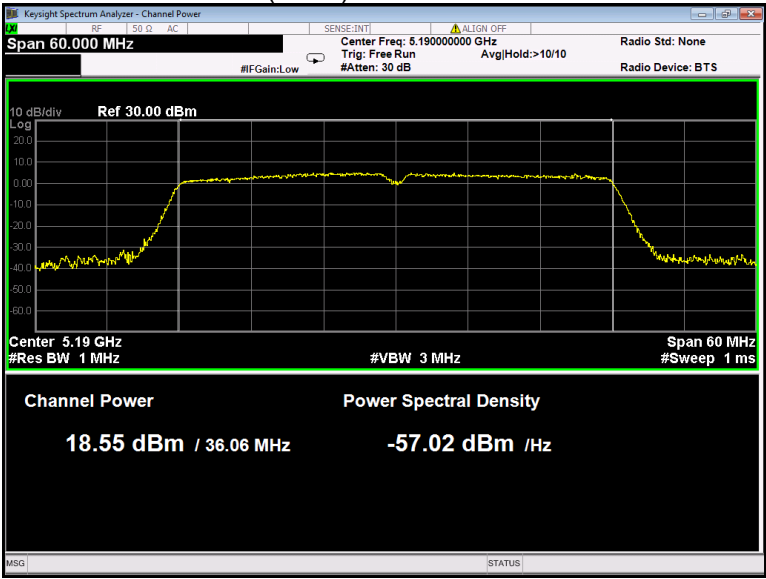
802.11n(HT20) U-NII-1 Middle channel



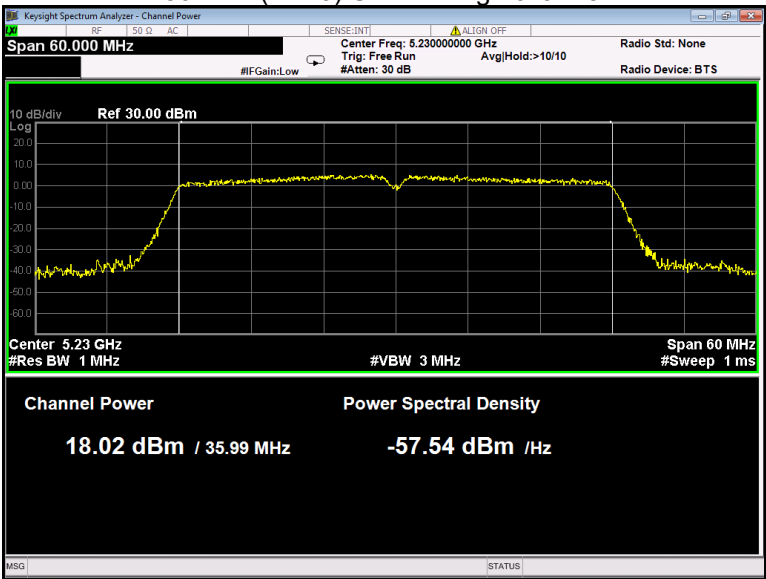
802.11n(HT20) U-NII-1 High channel



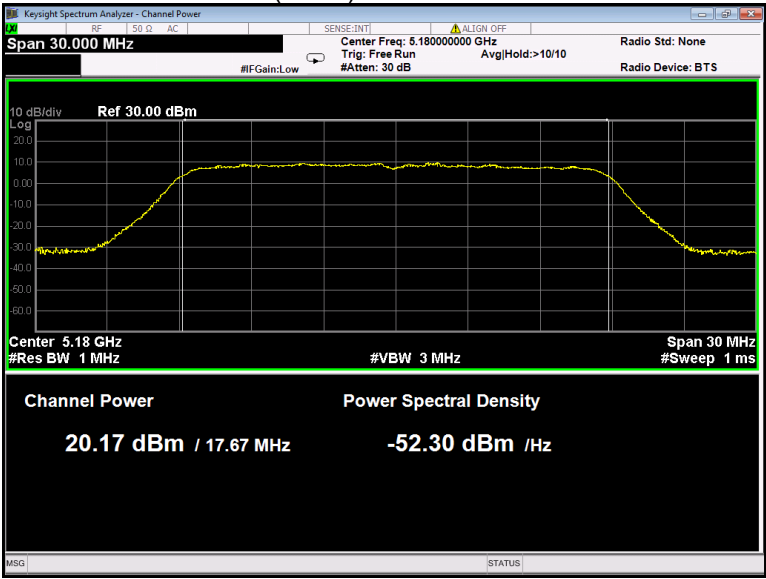
802.11n(HT40) U-NII-1 Low channel



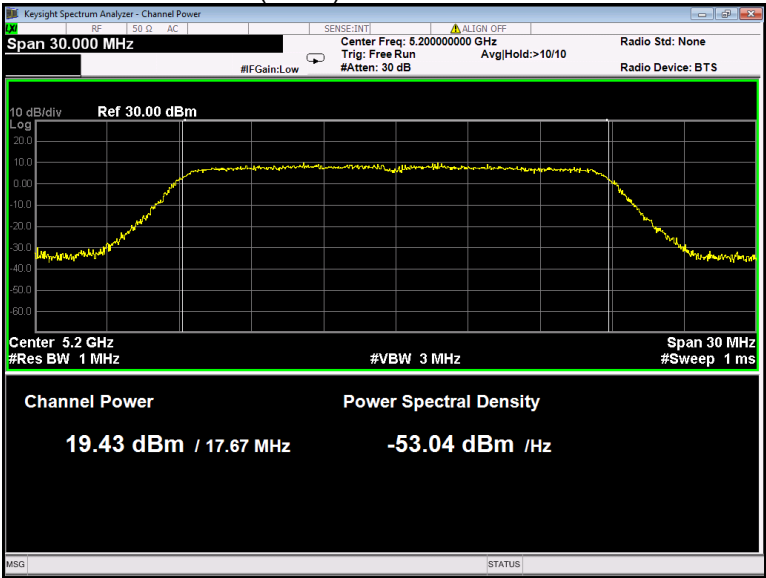
802.11n(HT40) U-NII-1 High channel



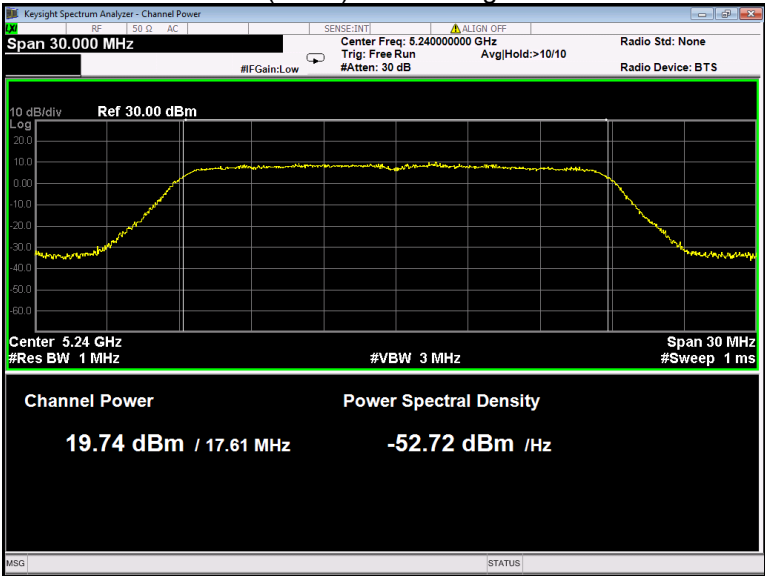
802.11ac(HT20) U-NII-1 Low channel



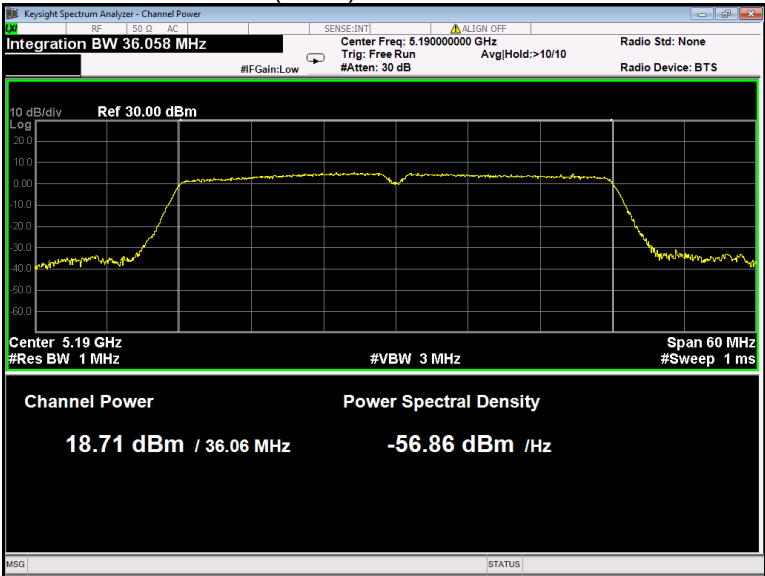
802.11ac(HT20) U-NII-1 Middle channel



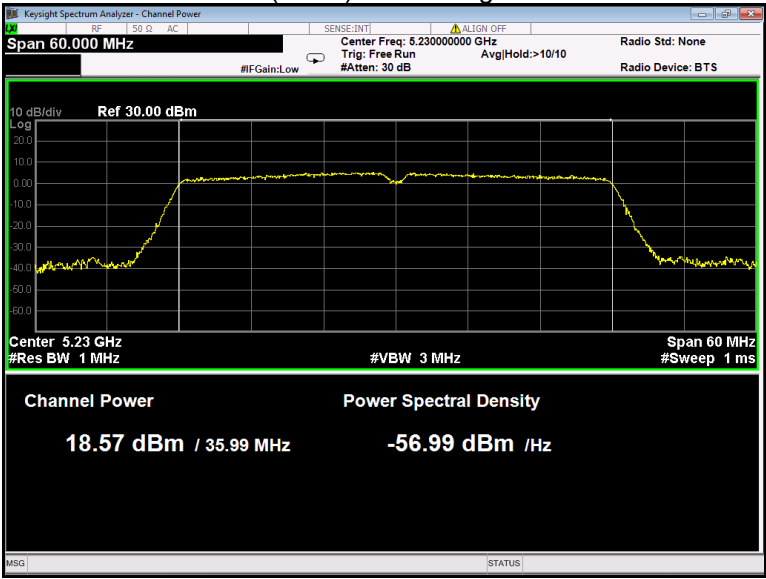
802.11ac(HT20) U-NII-1 High channel



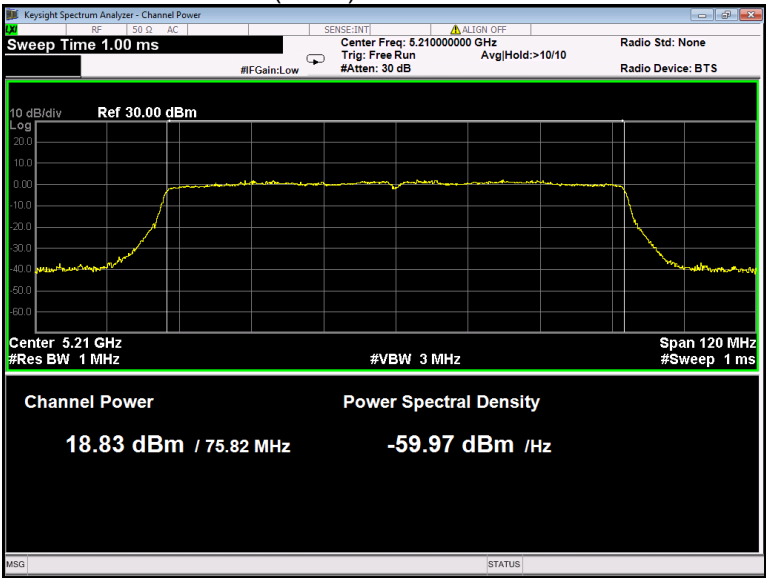
802.11ac(HT40) U-NII-1 Low channel



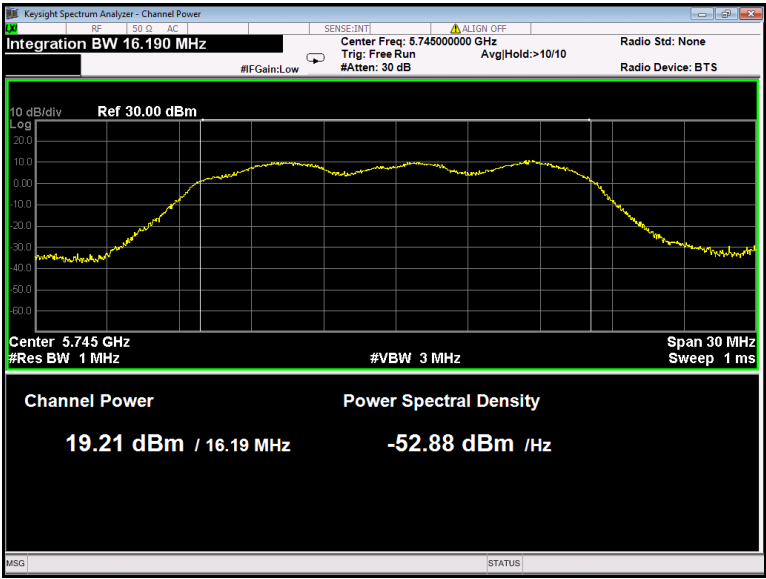
802.11ac(HT40) U-NII-1 High channel



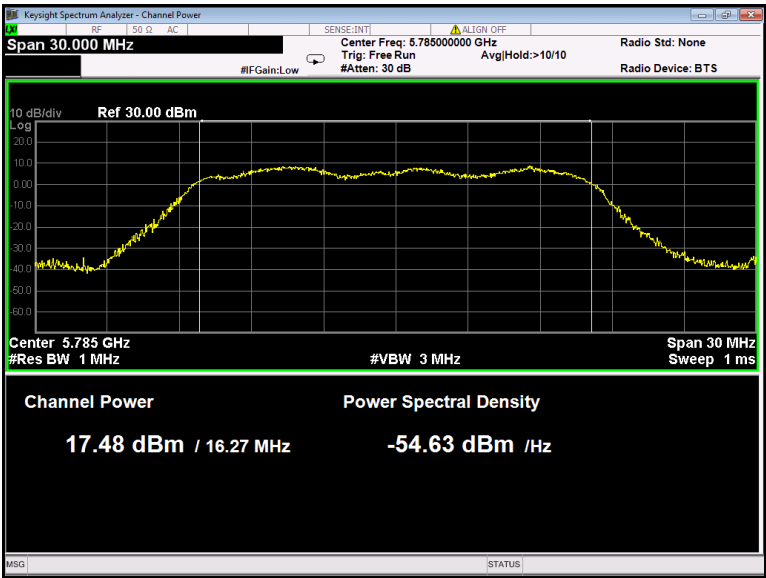
802.11ac(HT80) U-NII-1 Low channel



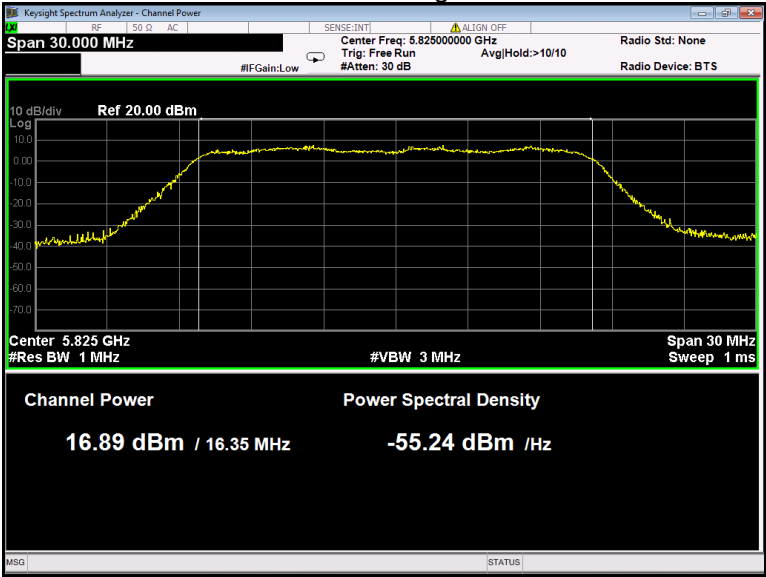
802.11a U-NII-3 Low channel



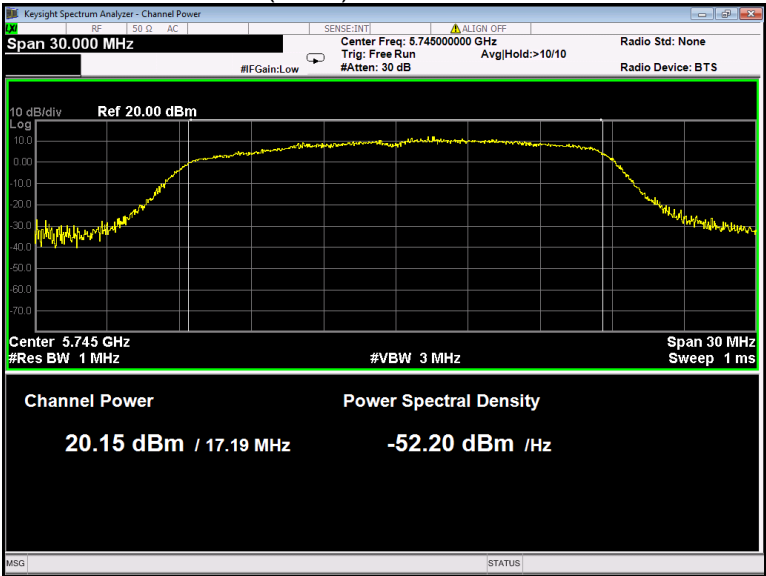
802.11a U-NII-3 Middle channel



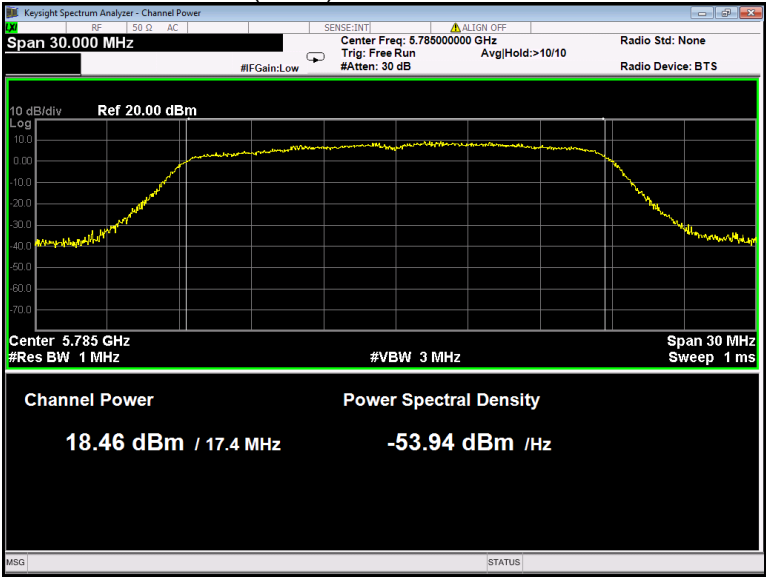
802.11a U-NII-3 High channel



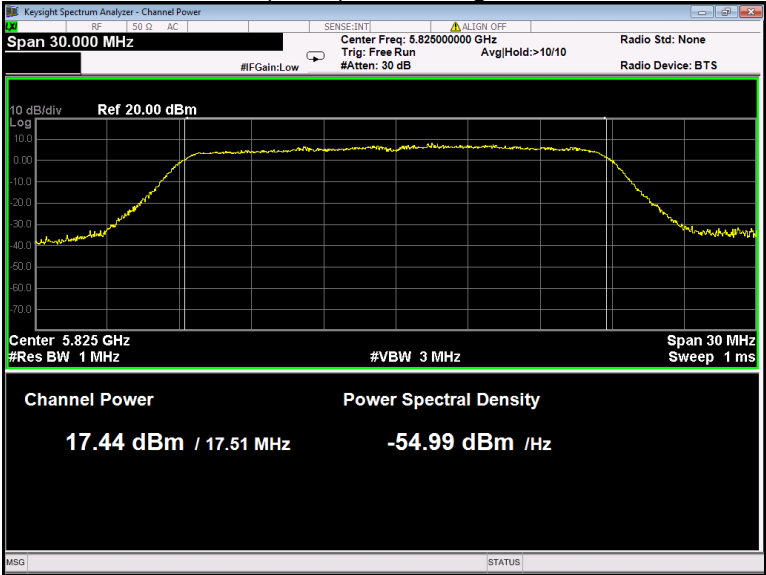
802.11n(HT20) U-NII-3 Low channel



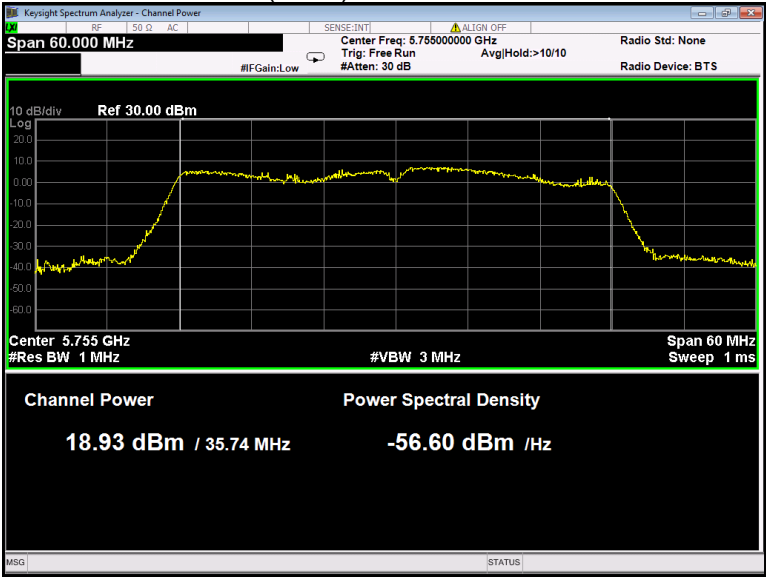
802.11n(HT20) U-NII-3 Middle channel



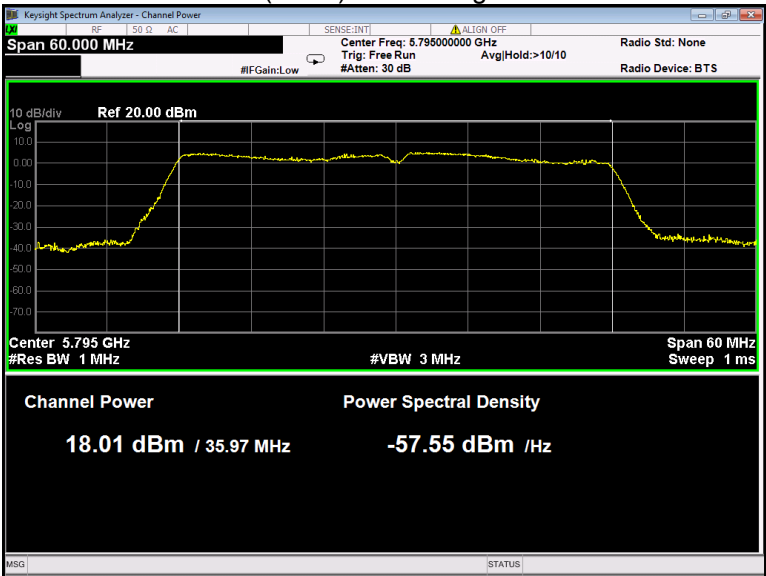
802.11n(HT20) U-NII-3 High channel



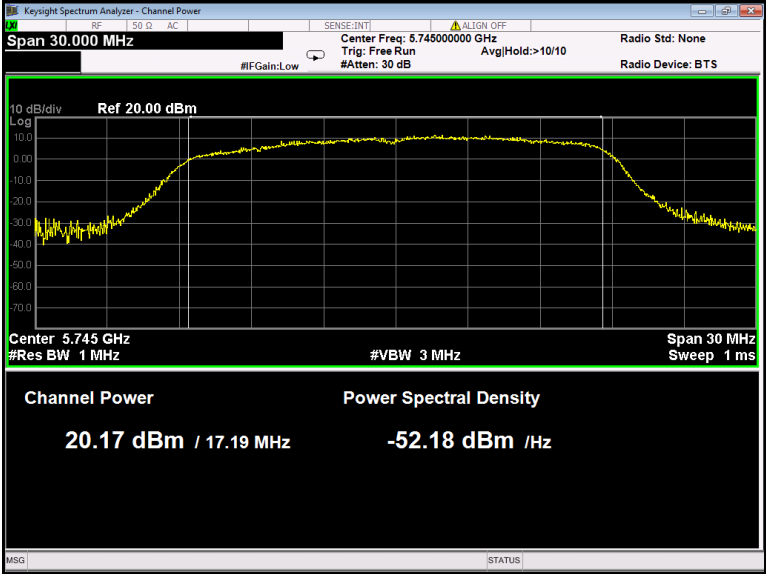
802.11n(HT40) U-NII-3 Low channel



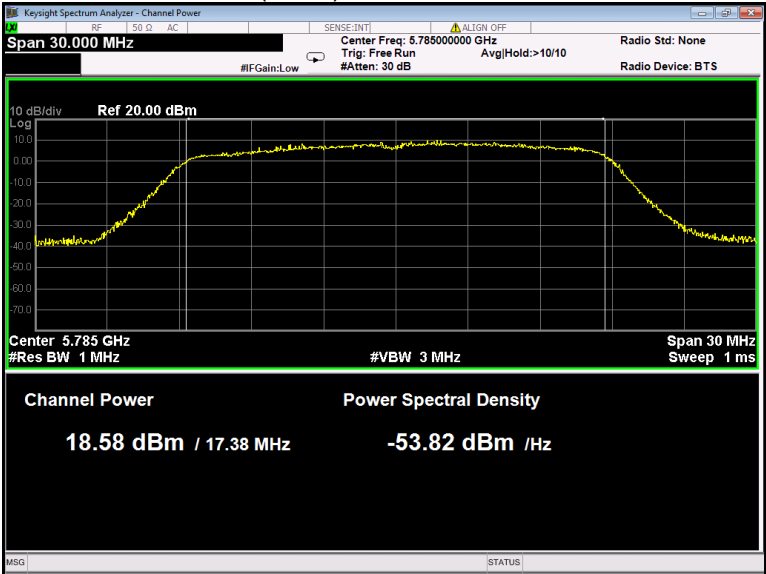
802.11n(HT40) U-NII-3 High channel



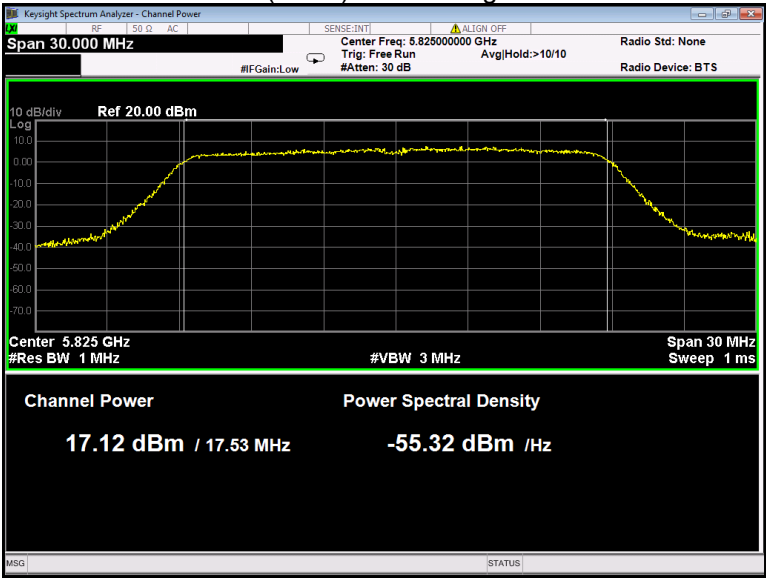
802.11ac(HT20) U-NII-3 Low channel



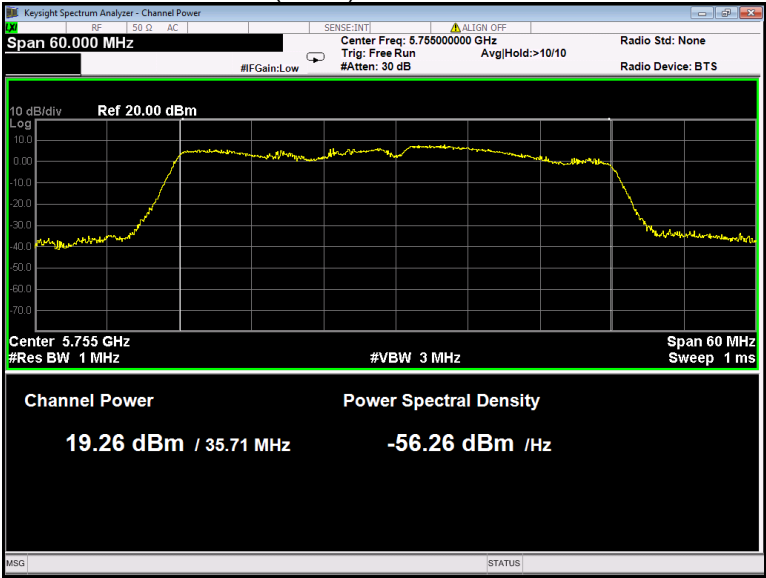
802.11ac(HT20) U-NII-3 Middle channel



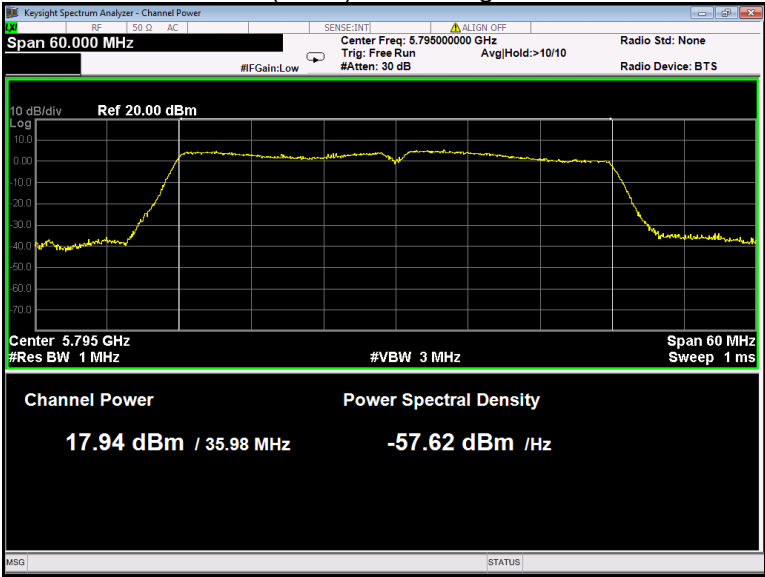
802.11ac(HT20) U-NII-3 High channel



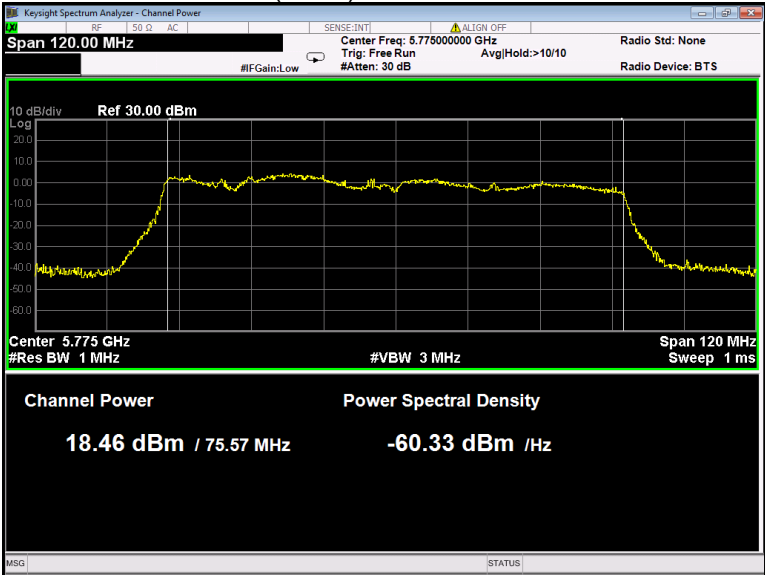
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel

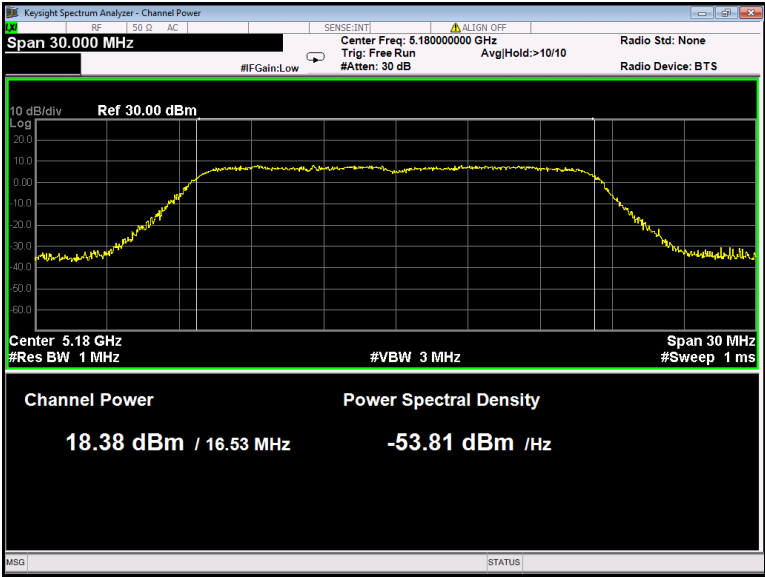


802.11ac(HT80) U-NII-3 Low channel

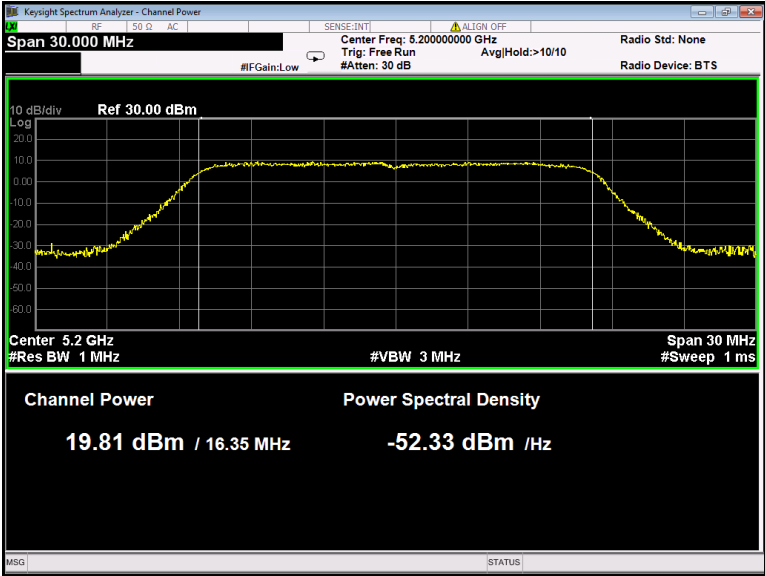


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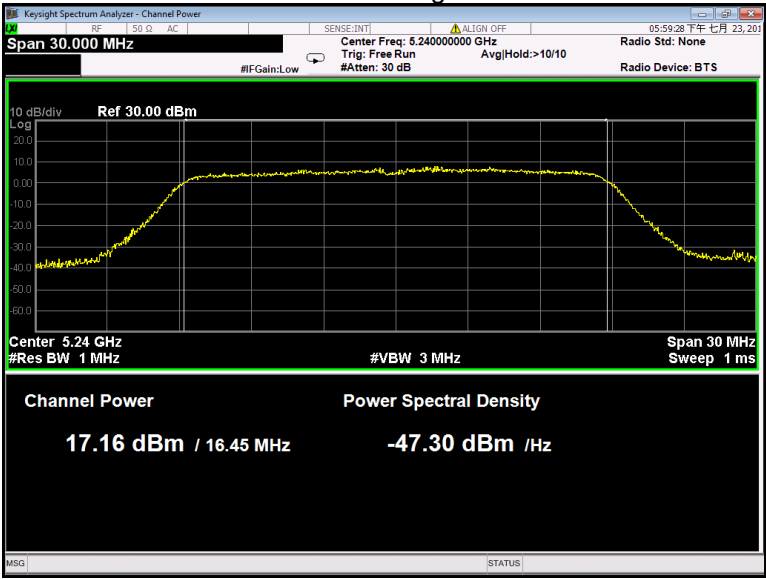
802.11a U-NII-1 Low channel



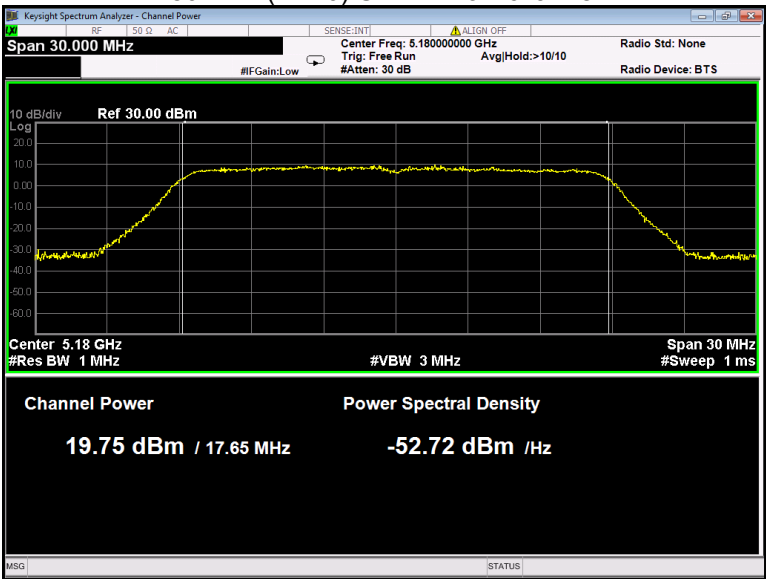
802.11a U-NII-1 Middle channel



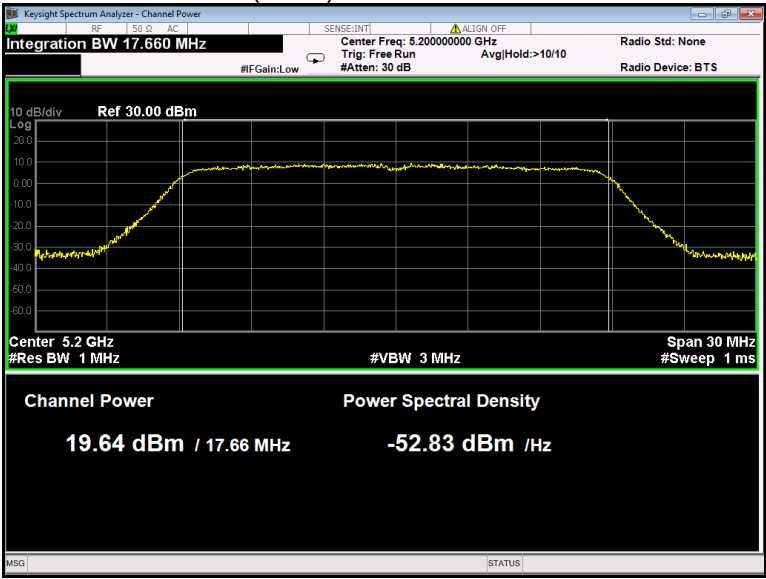
802.11a U-NII-1 High channel



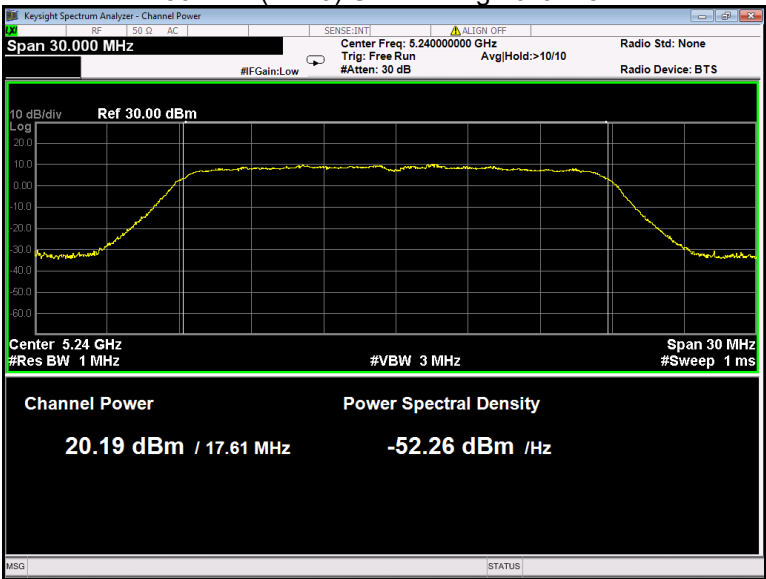
802.11n(HT20) U-NII-1 Low channel



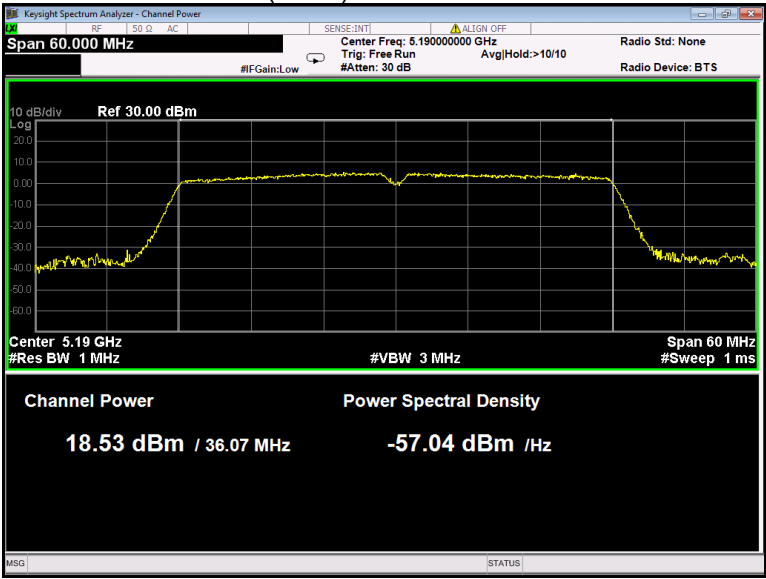
802.11n(HT20) U-NII-1 Middle channel



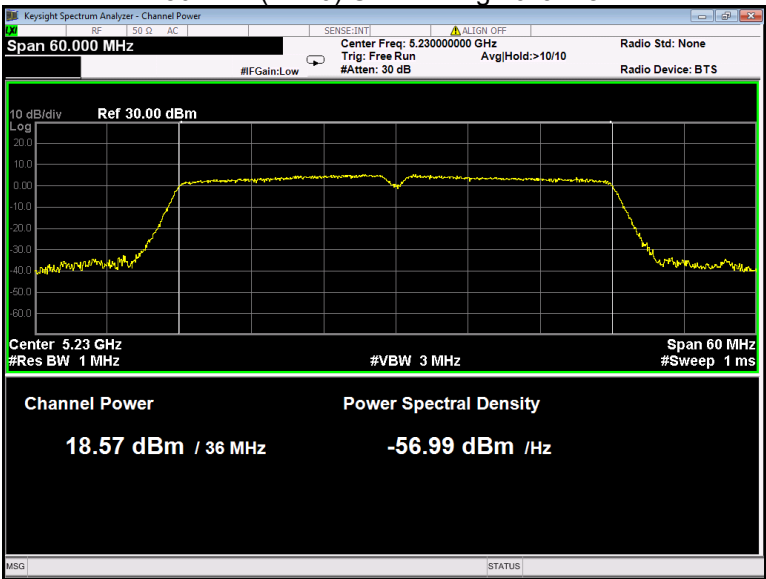
802.11n(HT20) U-NII-1 High channel



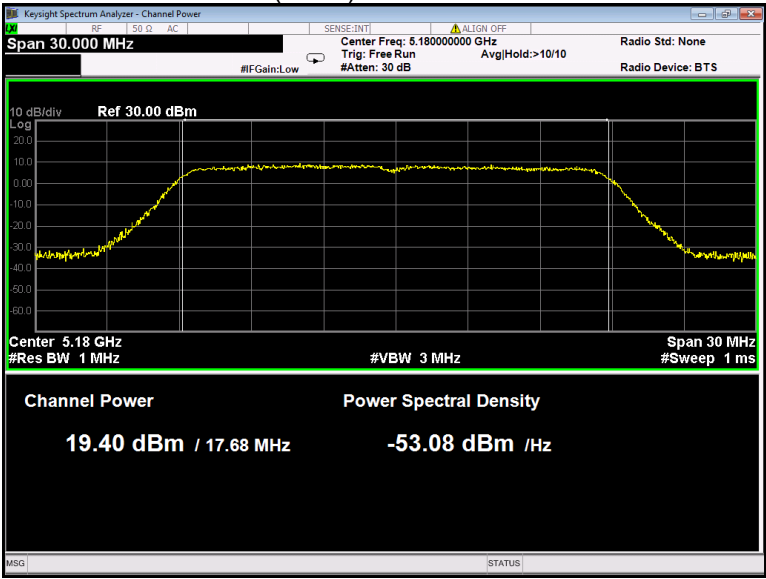
802.11n(HT40) U-NII-1 Low channel



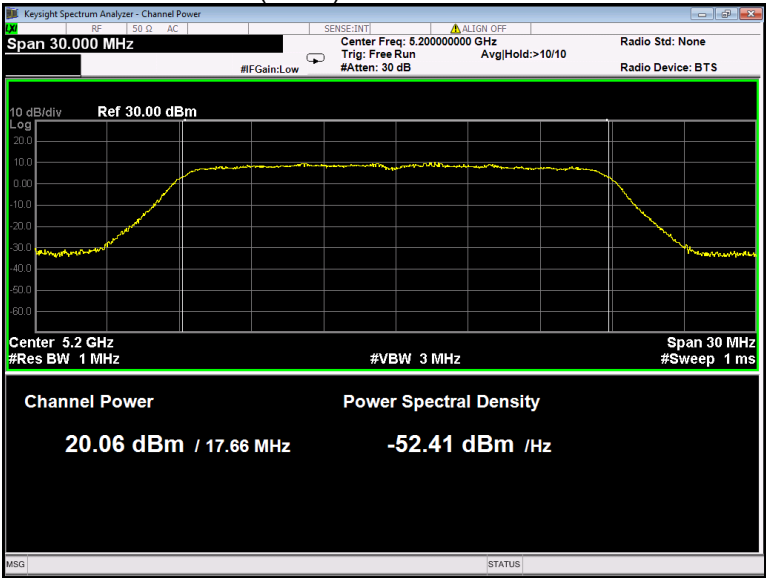
802.11n(HT40) U-NII-1 High channel



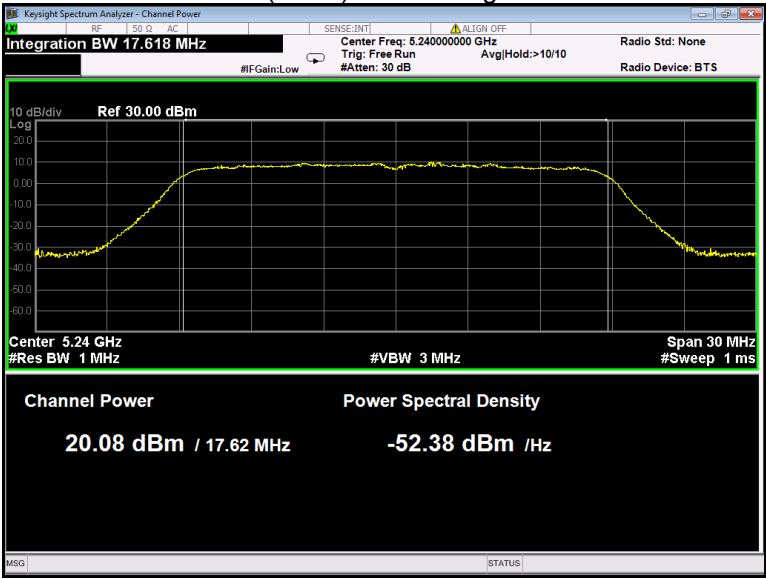
802.11ac(HT20) U-NII-1 Low channel



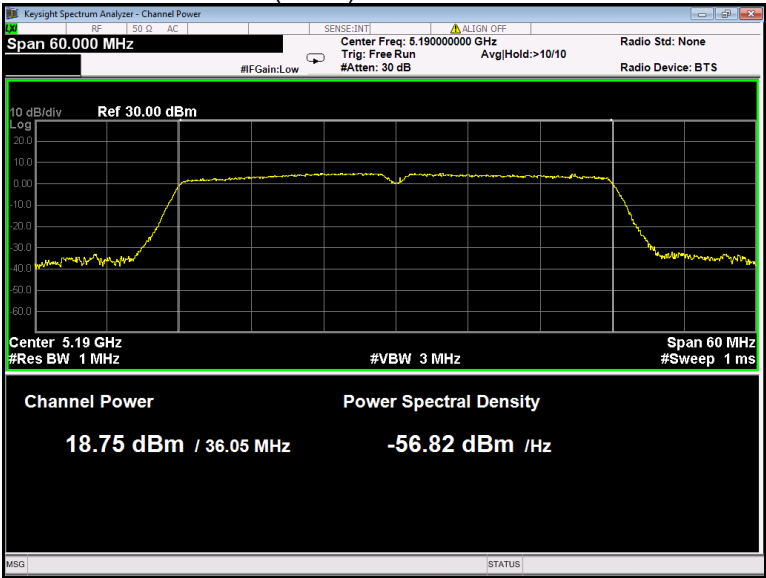
802.11ac(HT20) U-NII-1 Middle channel



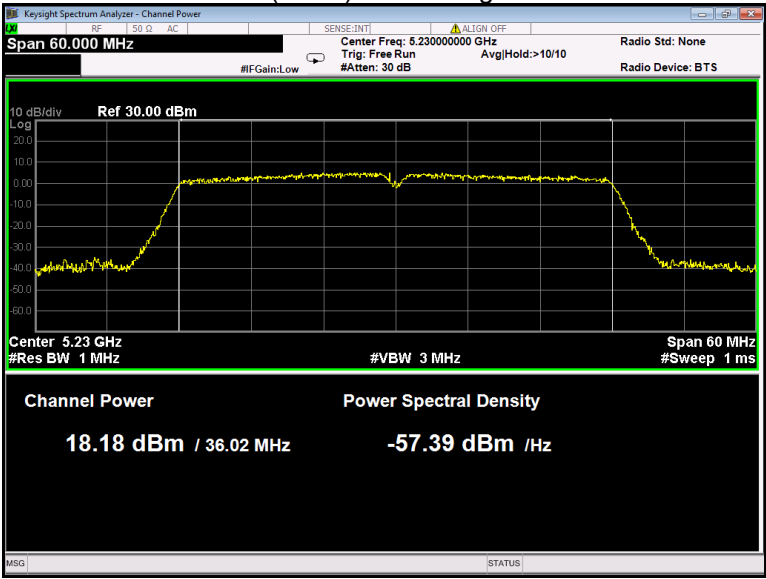
802.11ac(HT20) U-NII-1 High channel



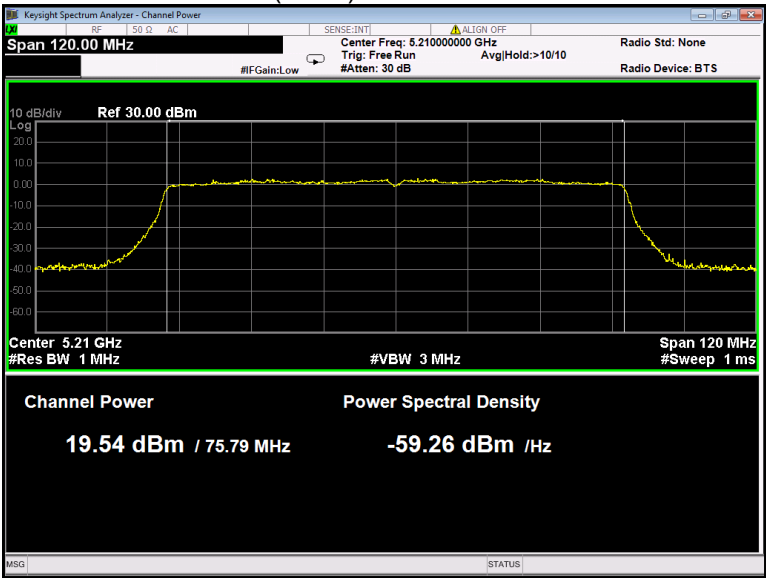
802.11ac(HT40) U-NII-1 Low channel



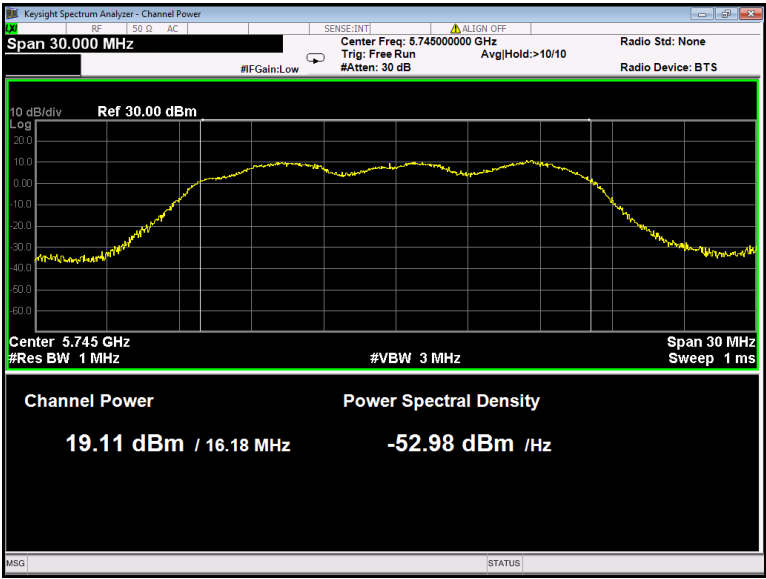
802.11ac(HT40) U-NII-1 High channel



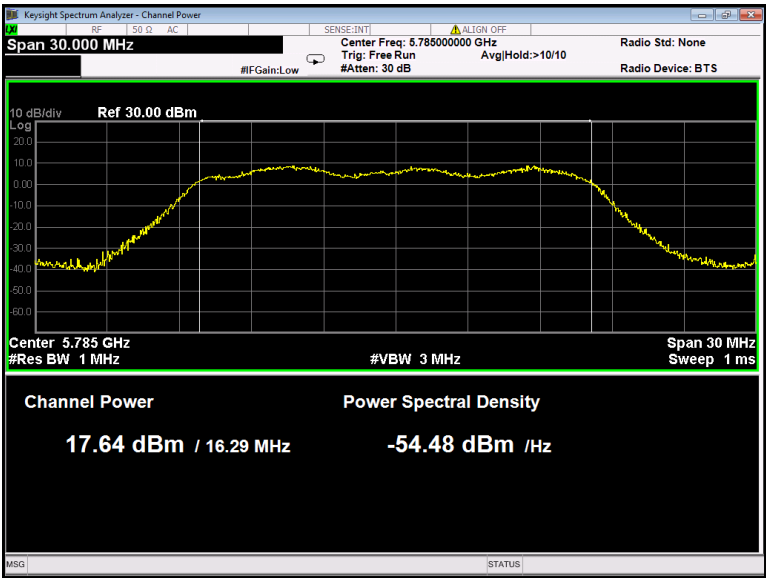
802.11ac(HT80) U-NII-1 Low channel



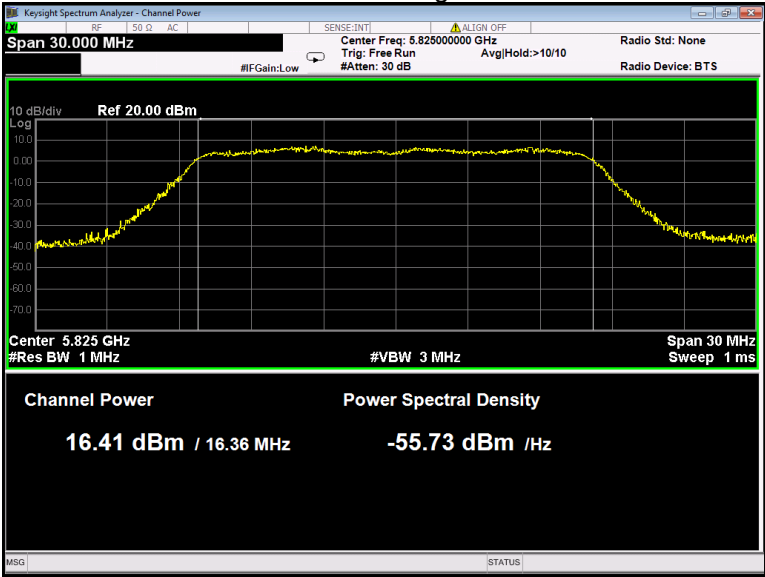
802.11a U-NII-3 Low channel



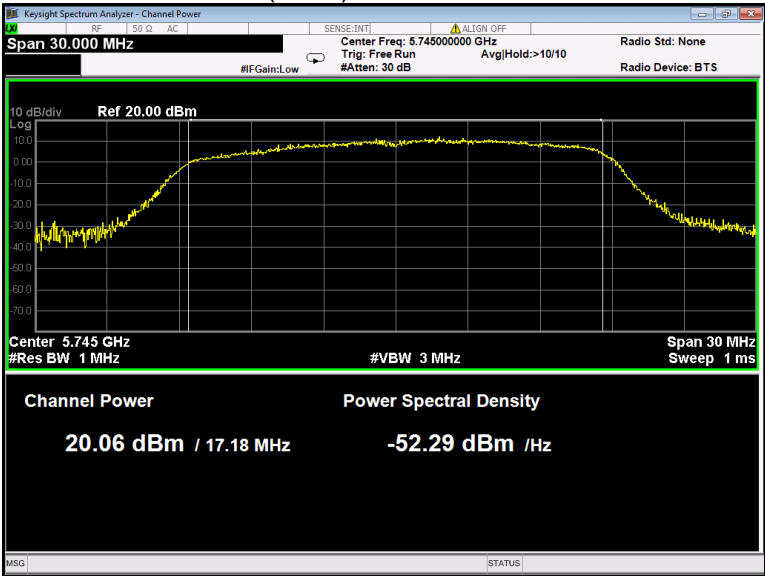
802.11a U-NII-3 Middle channel



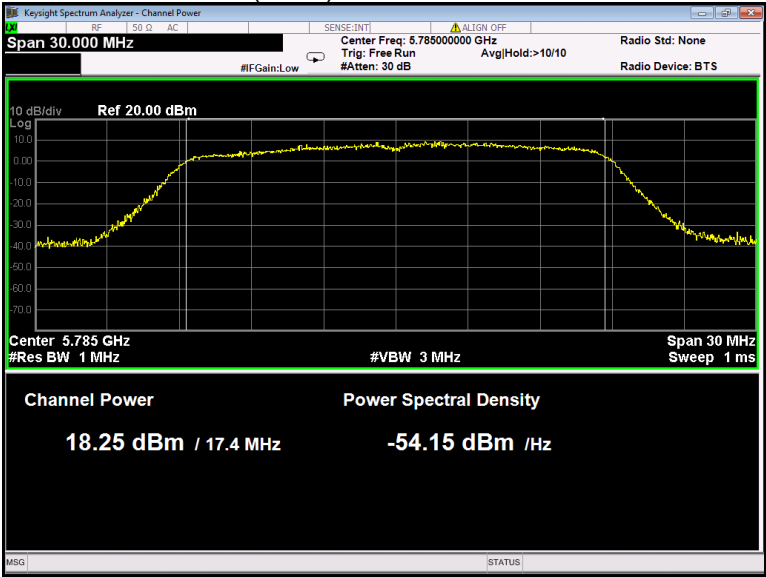
802.11a U-NII-3 High channel



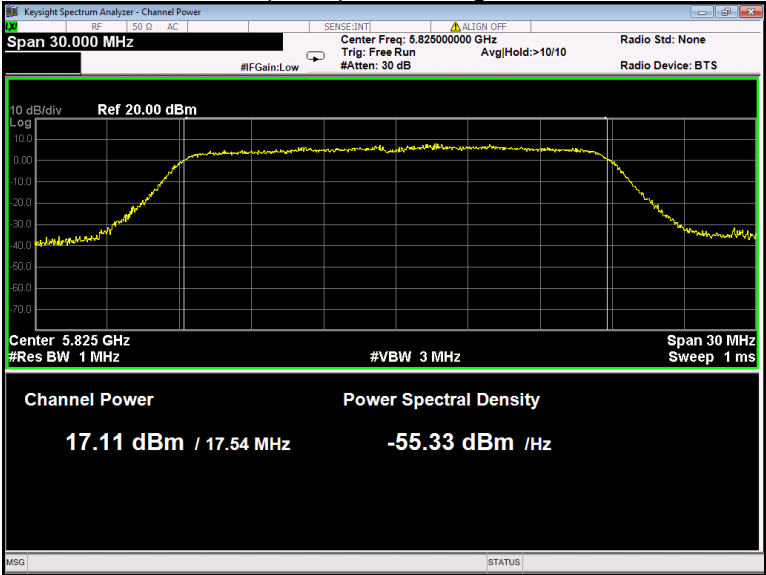
802.11n(HT20) U-NII-3 Low channel



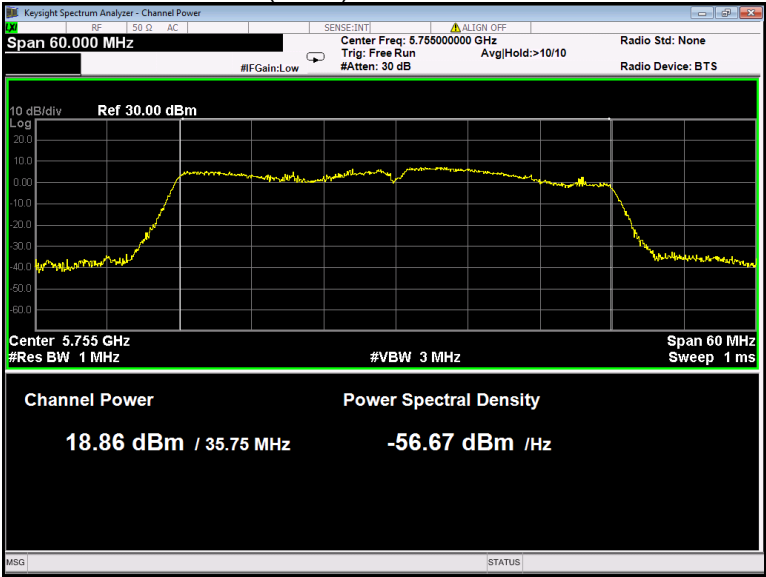
802.11n(HT20) U-NII-3 Middle channel



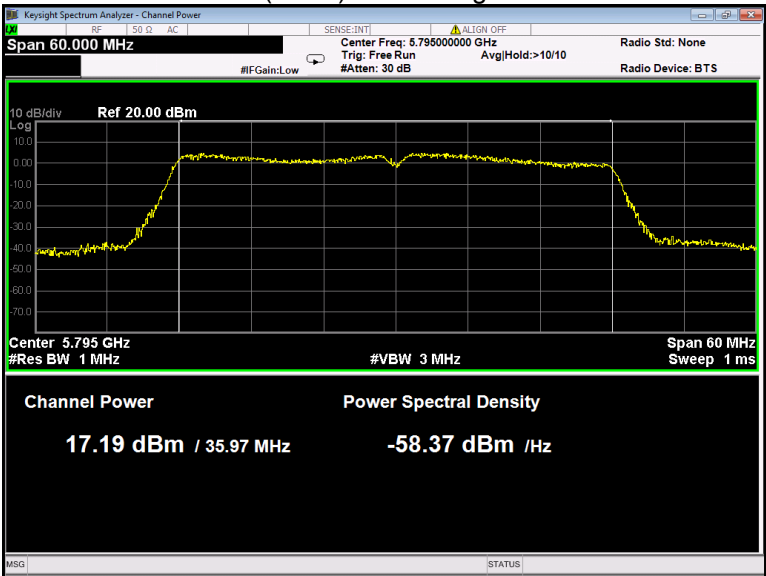
802.11n(HT20) U-NII-3 High channel



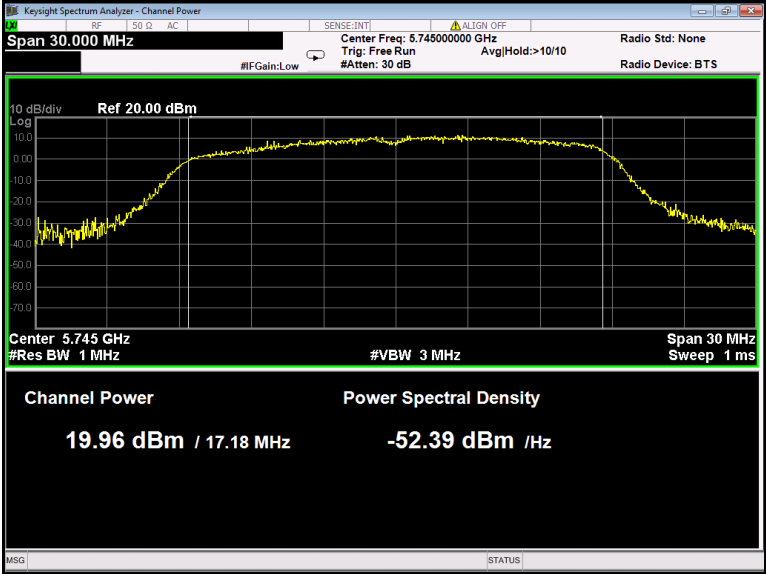
802.11n(HT40) U-NII-3 Low channel



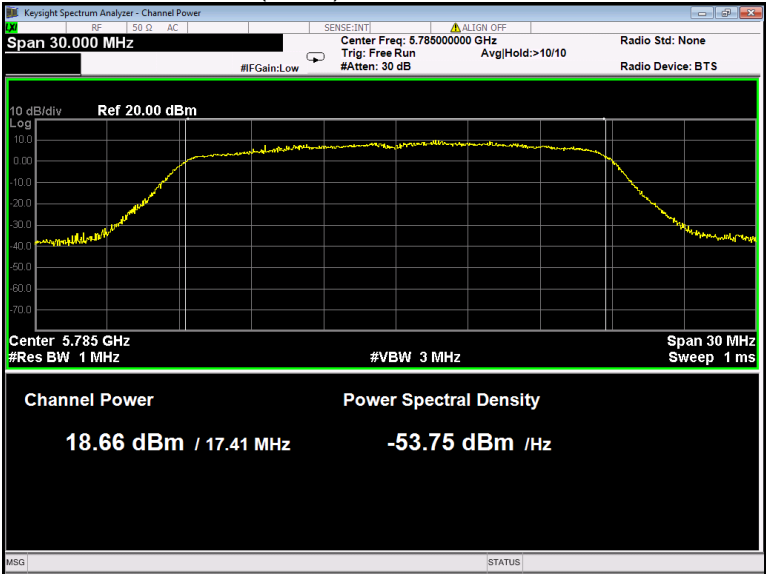
802.11n(HT40) U-NII-3 High channel



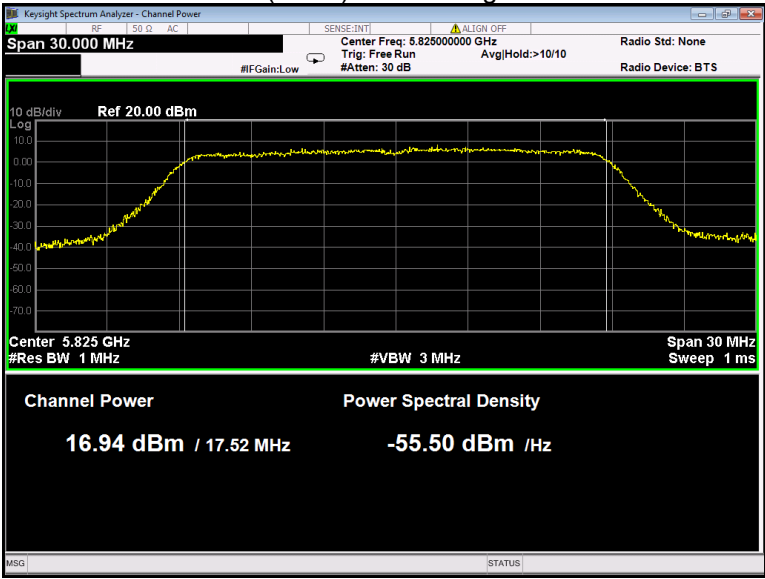
802.11ac(HT20) U-NII-3 Low channel



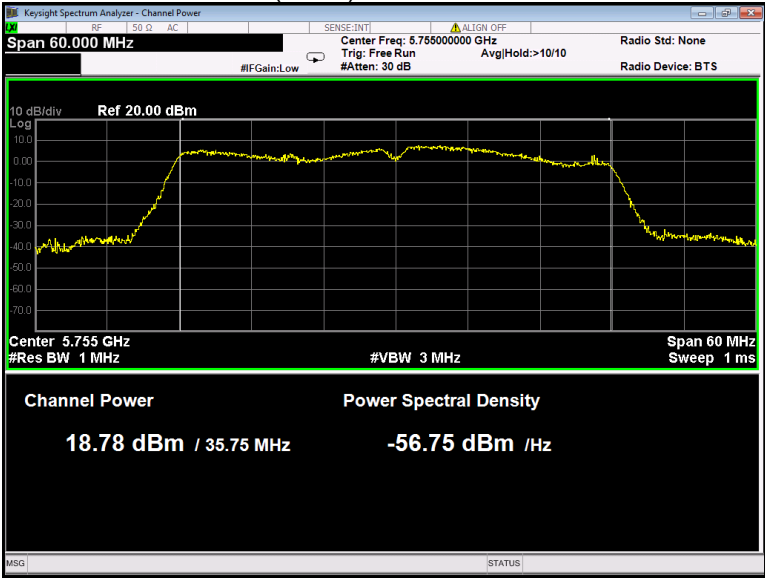
802.11ac(HT20) U-NII-3 Middle channel



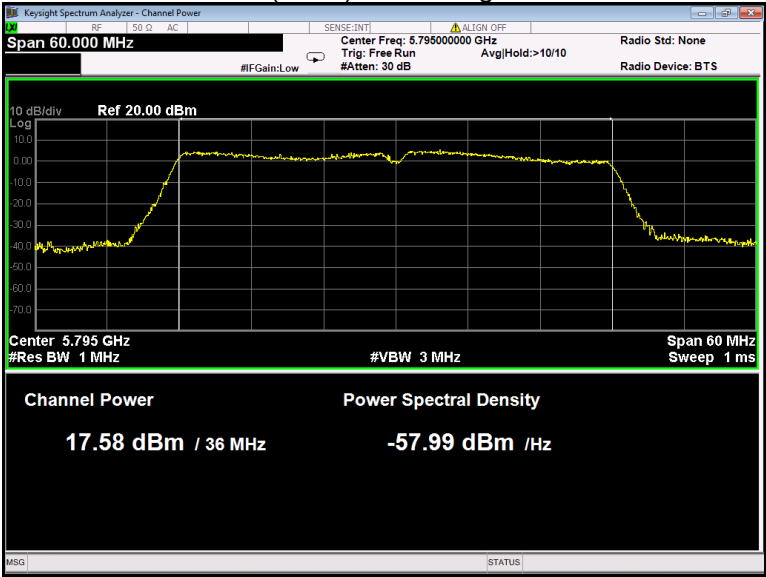
802.11ac(HT20) U-NII-3 High channel



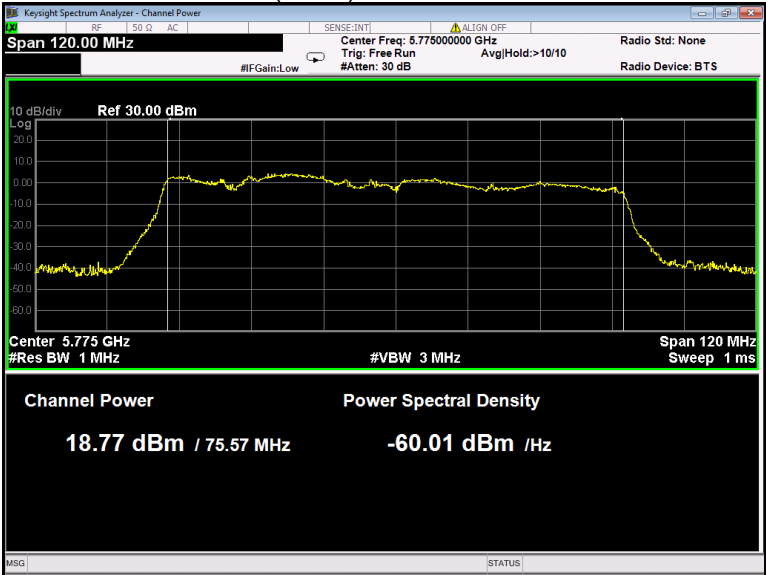
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel



802.11ac(HT80) U-NII-3 Low channel



14 Power Spectral density

Test Requirement:	FCC 47CFR Part 15 Section 15.407(a)
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Test Limit:	Frequency band 5.15-5.25 GHz For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. Frequency band 5.25-5.35 GHz and 5.47-5.725 GHz The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. Frequency band 5.725-5.85 GHz The maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.
Test Result:	PASS

14.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer:
U-NII-1
RBW = 1MHz, VBW $\geq 3 \times$ RBW Sweep = auto; Detector Function = Peak. Trace = Max hold.
U-NII-3
RBW = 510KHz, VBW $\geq 3 \times$ RBW Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section
Submit this plot.

14.2 Test Result

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Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Power Spectral density (dBm)
U-NII-1	802.11a	Low	8.594	0.18	8.77
		Middle	9.321		9.50
		High	8.829		9.01
	802.11n(HT20)	Low	9.315	0.08	9.40
		Middle	9.537		9.62
		High	9.863		9.94
	802.11n(HT40)	Low	5.814	0.20	6.01
		High	5.912		6.11
	802.11ac(HT20)	Low	9.473	0.08	9.67
		Middle	9.195		9.20
		High	9.750		9.75
	802.11ac(HT40)	Low	6.018	0.21	6.23
		High	5.858		6.07
	802.11ac(HT80)	Middle	3.157	0.43	3.59

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Power Spectral density (dBm)
U-NII-3	802.11a	Low	9.533	0.19	9.72
		Middle	7.247		7.44
		High	5.809		6.00
	802.11n(HT20)	Low	9.698	0.09	9.79
		Middle	7.250		7.34
		High	5.449		5.54
	802.11n(HT40)	Low	5.504	0.20	5.70
		High	3.098		3.30
	802.11ac(HT20)	Low	9.162	0.09	9.36
		Middle	7.233		7.23
		High	5.116		5.12
	802.11ac(HT40)	Low	5.791	0.20	5.99
		High	3.022		3.22
	802.11ac(HT80)	Low	2.893	0.43	3.32

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Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Power Spectral density (dBm)
U-NII-1	802.11a	Low	8.909	0.20	9.11
		Middle	8.784		8.98
		High	8.861		9.06
	802.11n(HT20)	Low	9.371	0.08	9.45
		Middle	9.983		10.06
		High	9.675		9.76
	802.11n(HT40)	Low	5.907	0.21	6.12
		High	6.004		6.21
	802.11ac(HT20)	Low	9.259	0.08	9.47
		Middle	9.533		9.61
		High	9.437		9.52
	802.11ac(HT40)	Low	5.829	0.21	6.04
		High	5.931		6.14
	802.11ac(HT80)	Middle	2.915	0.39	3.31

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Power Spectral density (dBm)
U-NII-3	802.11a	Low	9.298	0.18	9.48
		Middle	6.964		7.14
		High	5.618		5.80
	802.11n(HT20)	Low	9.287	0.09	9.38
		Middle	7.484		7.57
		High	4.967		5.06
	802.11n(HT40)	Low	4.967	0.20	5.17
		High	5.182		5.38
	802.11ac(HT20)	Low	8.829	0.08	9.03
		Middle	7.202		7.20
		High	5.279		5.28
	802.11ac(HT40)	Low	5.645	0.21	5.86
		High	3.137		3.35
	802.11ac(HT80)	Low	2.777	0.45	3.23

Simultaneous Transmission

Band	Operation mode	Channel	Power Spectral density (dBm)		
			Ant. 0	Ant. 1	SUM
U-NII-1	802.11a	Low	8.77	9.11	/
		Middle	9.50	8.98	/
		High	9.01	9.06	/
	802.11n(HT20)	Low	9.40	9.45	12.44
		Middle	9.62	10.06	12.86
		High	9.94	9.76	12.86
	802.11ac (HT20)	Low	6.01	6.12	9.08
		Middle	6.11	6.21	9.17
		High	9.67	9.47	12.58
	802.11n(HT40)	Low	9.20	9.61	12.42
		High	9.75	9.52	12.65
	802.11ac (HT40)	Low	6.23	6.04	9.15
		High	6.07	6.14	9.12
	802.11ac (HT80)	Middle	3.59	3.31	6.46

Band	Operation mode	Channel	Power Spectral density (dBm)		
			Ant. 0	Ant. 1	SUM
U-NII-3	802.11a	Low	9.72	9.48	/
		Middle	7.44	7.14	/
		High	6.00	5.80	/
	802.11n(HT20)	Low	9.79	9.38	12.60
		High	7.34	7.57	10.47
	802.11ac (HT20)	Low	5.54	5.06	8.32
		Middle	5.70	5.17	8.45
		High	3.30	5.38	7.47
	802.11n(HT40)	Low	9.36	9.03	12.21
		High	7.23	7.2	10.23
	802.11ac (HT40)	Low	5.12	5.28	8.21
		High	5.99	5.86	8.94
	802.11ac (HT80)	Middle	3.22	3.35	6.30

Note:

According to ANSI C63.10 clause 14.4.3.1,

U-NII-1: Directional gain=antenna gain + $10\log(N)=3.3 + 10\log 2= 6.31\text{dBi}$

U-NII-3: Directional gain=antenna gain + $10\log(N)=3.9 + 10\log 2= 6.91\text{dBi}$

N is number of array elements or staves

According to ANSI C63.10 clause 11.7,

For those cases where it is specified that the conducted output power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6dBi, the output power effective limit shall be calculated as follows in Equation:

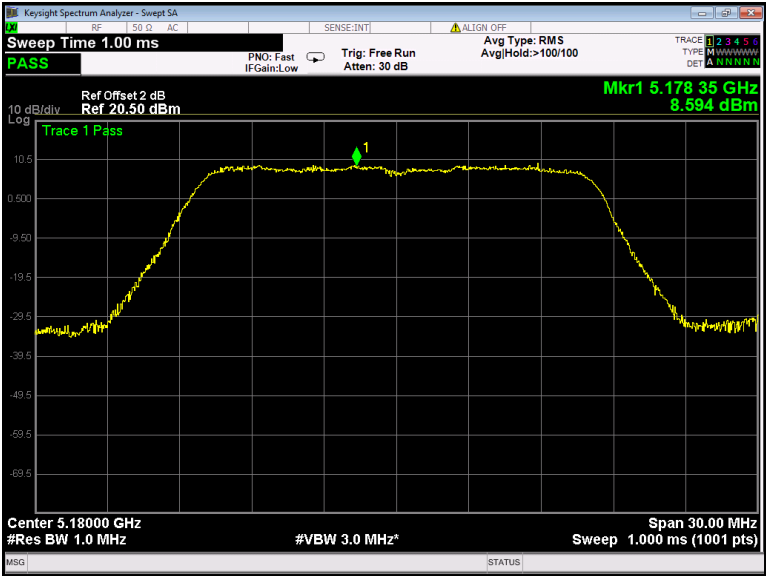
$$P_{\text{out}} = P_{\text{Limit}} - (G_{\text{TX}} - 6)$$

Then the limit of U-NII-1 should reduce 0.31dB, and the limit of U-NII-3 should reduce 0.91dB.

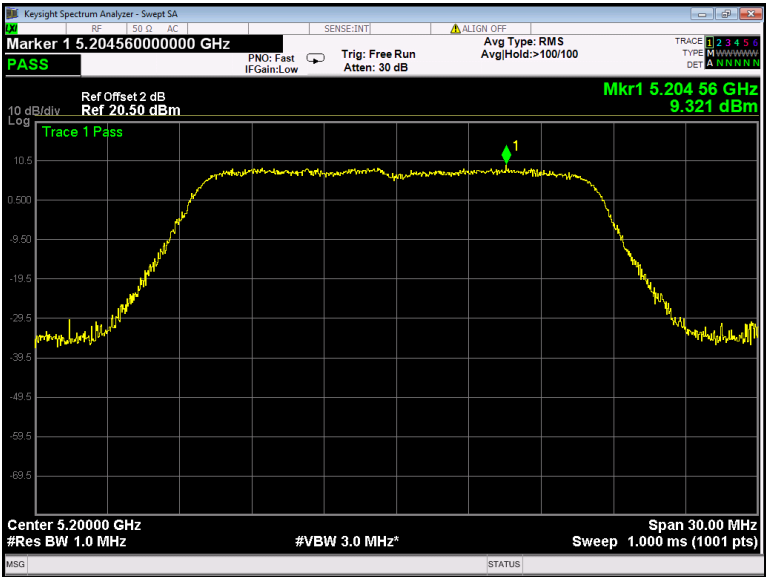
Test result plots shown as follows:

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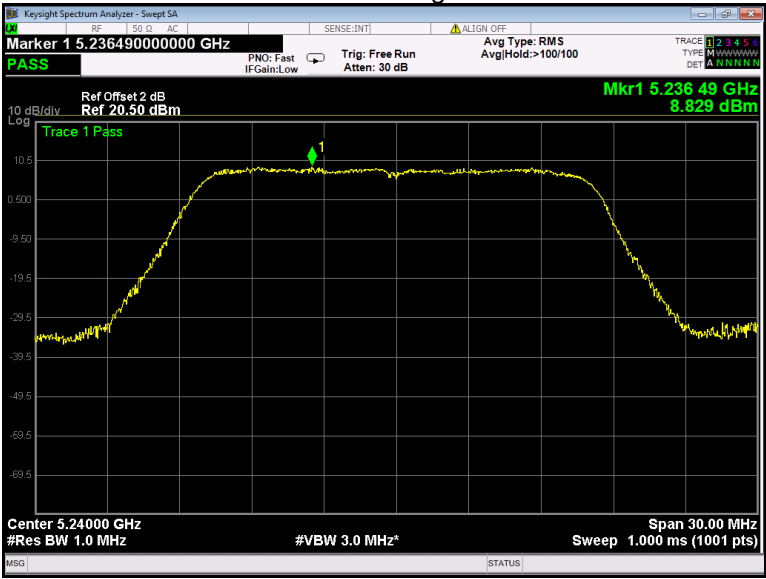
802.11a U-NII-1 Low channel



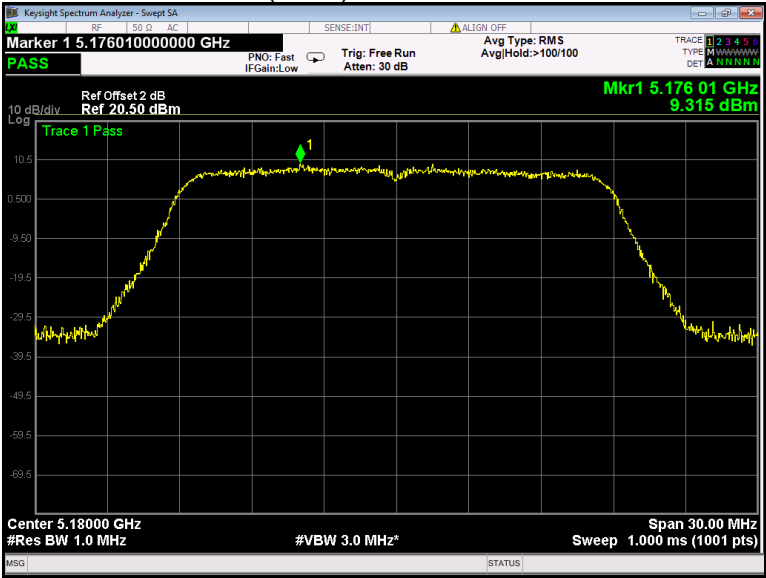
802.11a U-NII-1 Middle channel



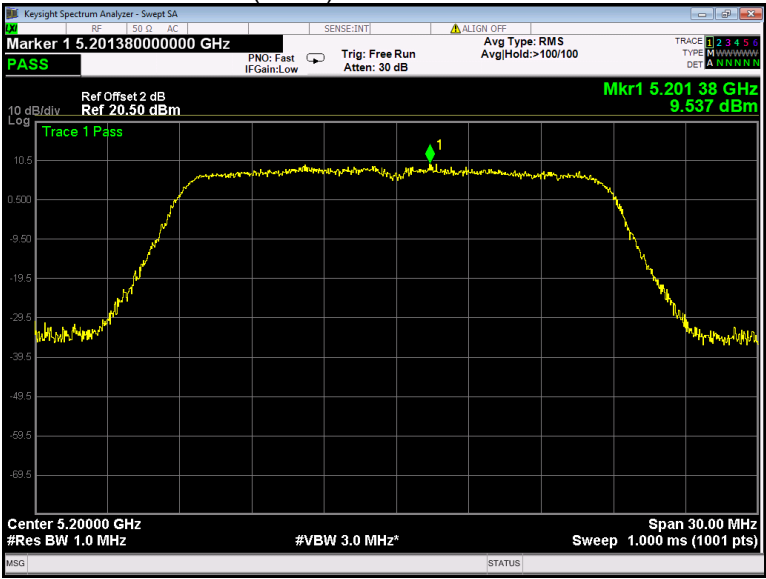
802.11a U-NII-1 High channel



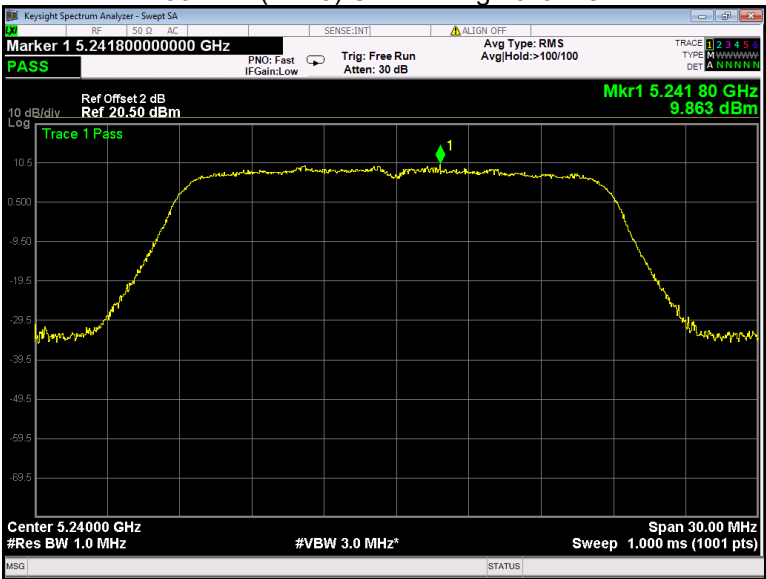
802.11n(HT20) U-NII-1 Low channel



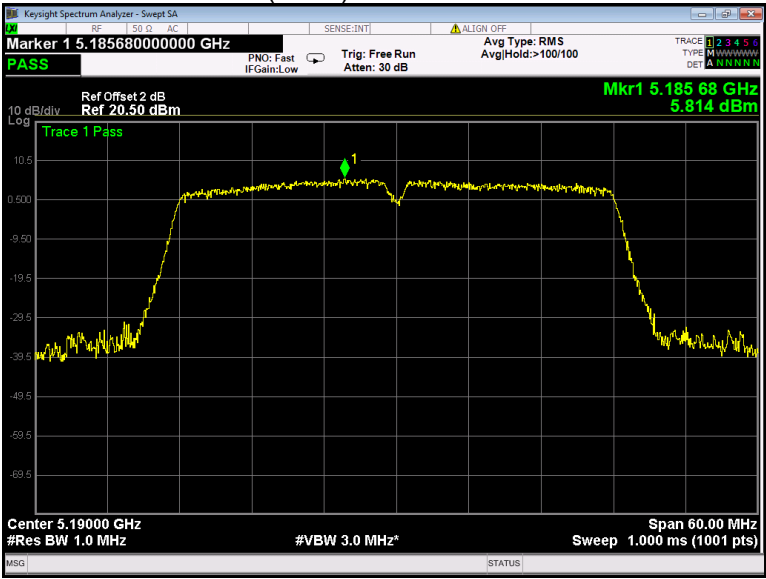
802.11n(HT20) U-NII-1 Middle channel



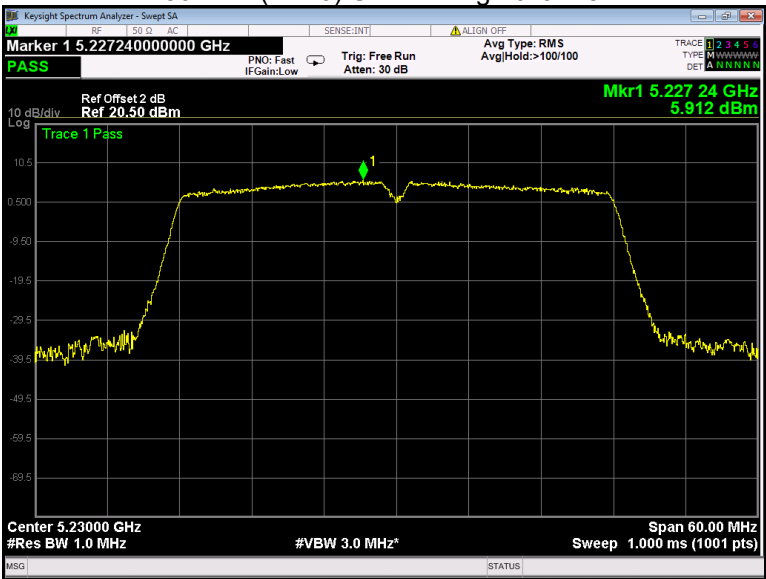
802.11n(HT20) U-NII-1 High channel



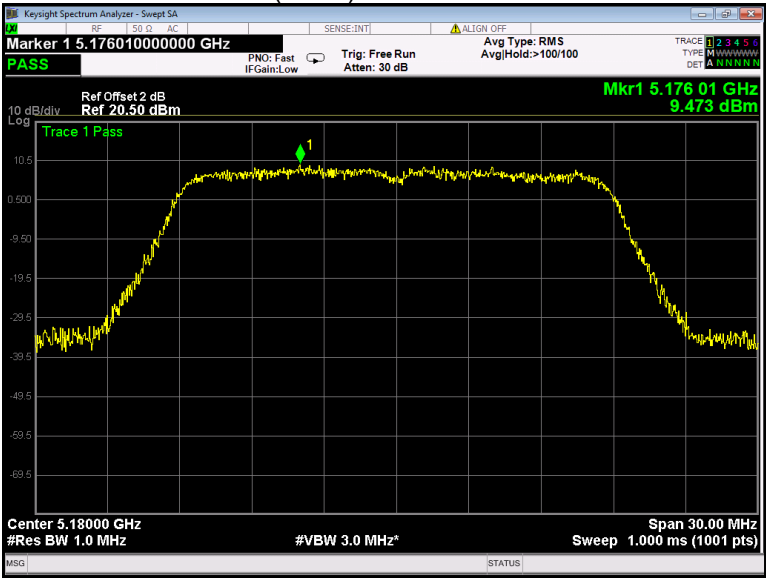
802.11n(HT40) U-NII-1 Low channel



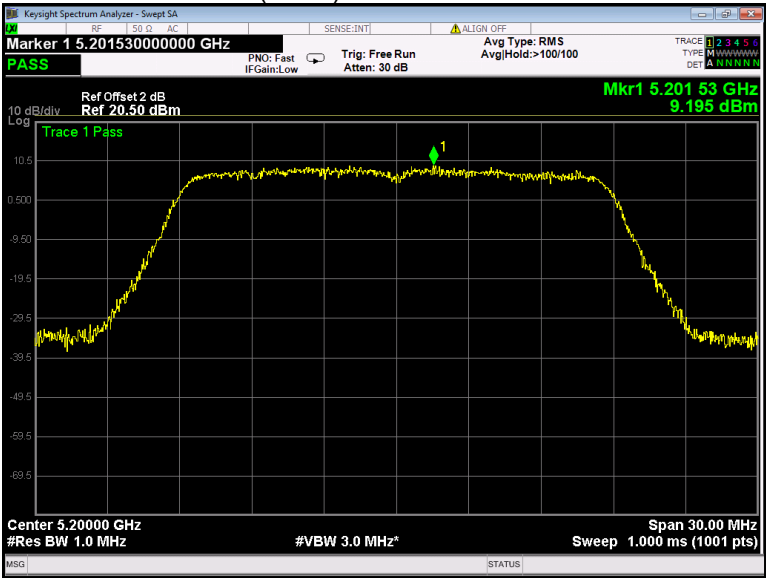
802.11n(HT40) U-NII-1 High channel



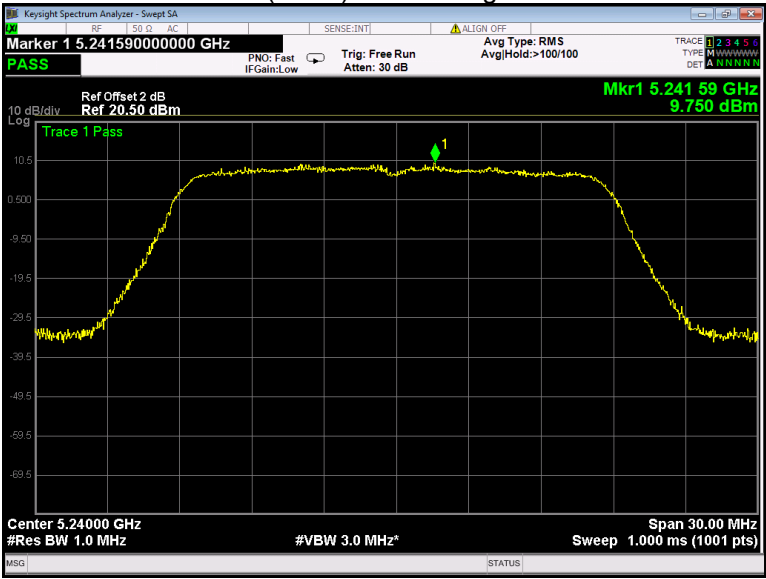
802.11ac(HT20) U-NII-1 Low channel



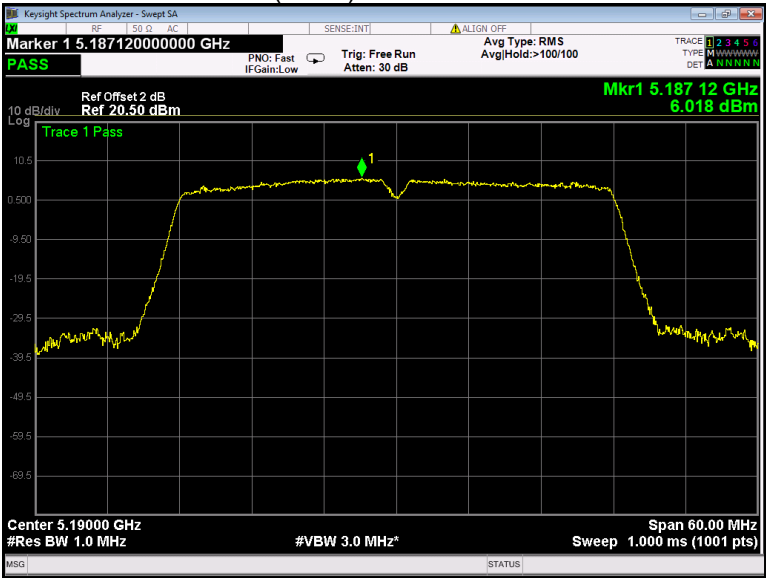
802.11ac(HT20) U-NII-1 Middle channel



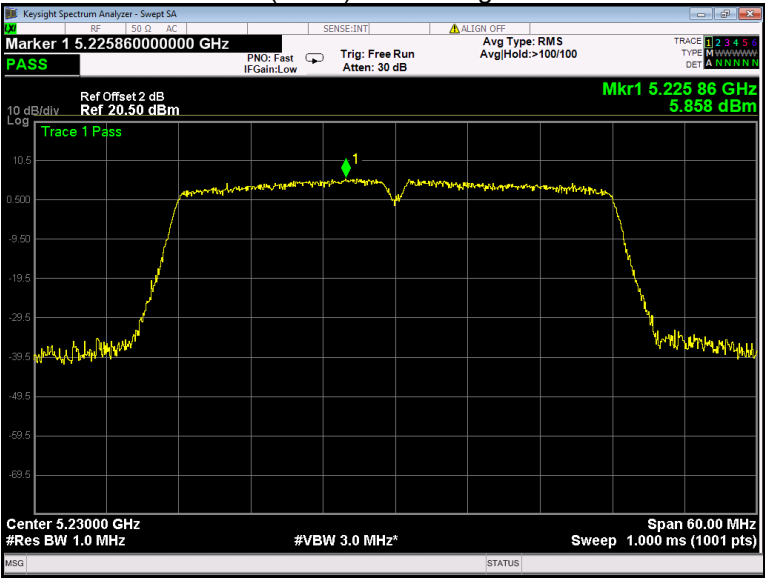
802.11ac(HT20) U-NII-1 High channel



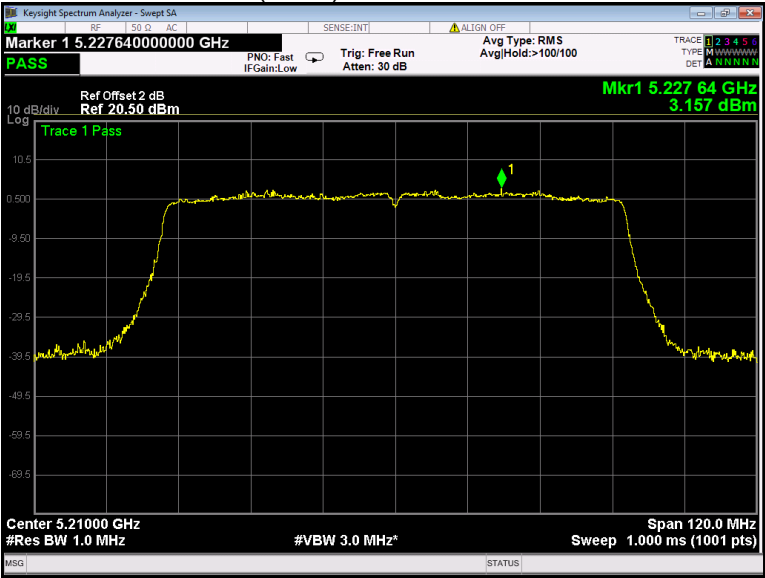
802.11ac(HT40) U-NII-1 Low channel



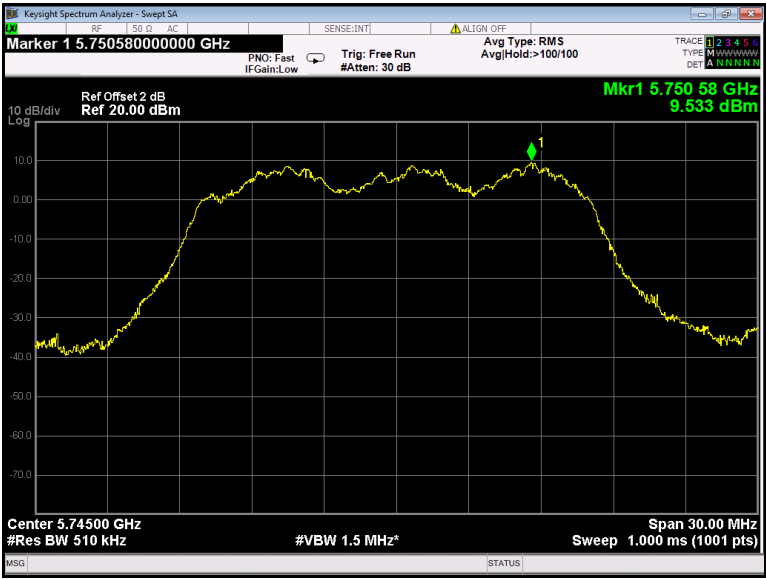
802.11ac(HT40) U-NII-1 High channel



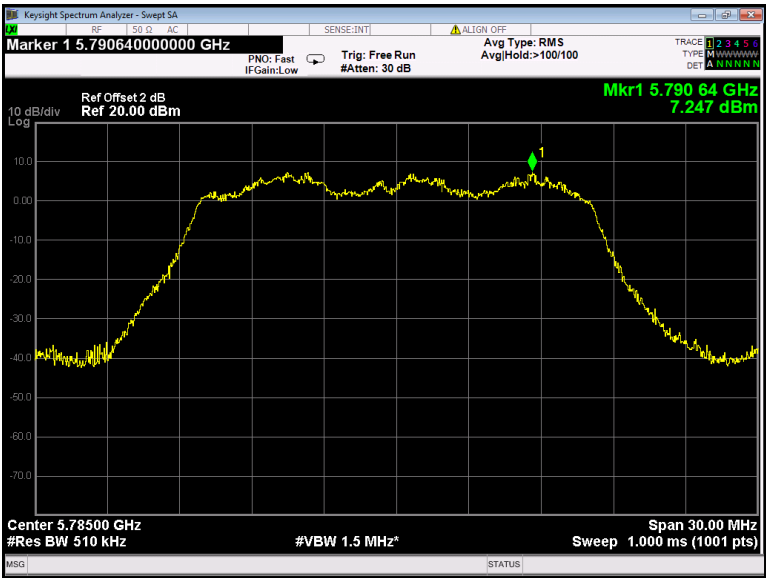
802.11ac(HT80) U-NII-1 Middle channel



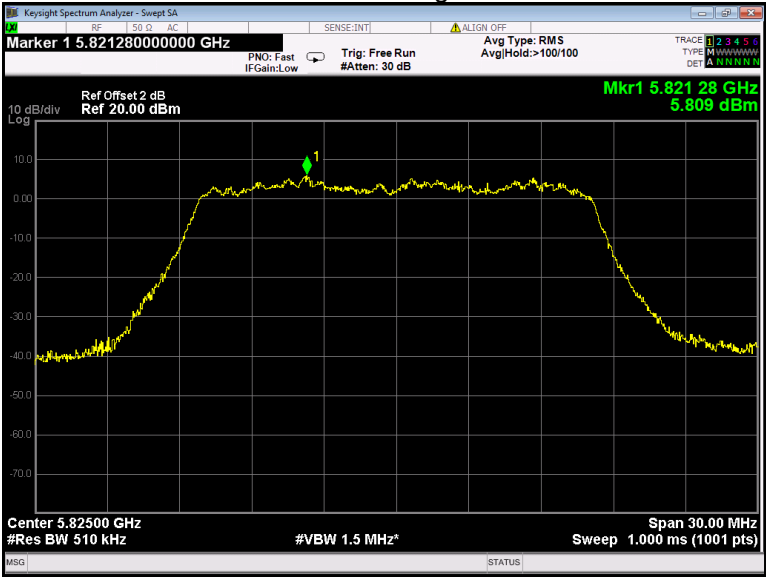
802.11a U-NII-3 Low channel



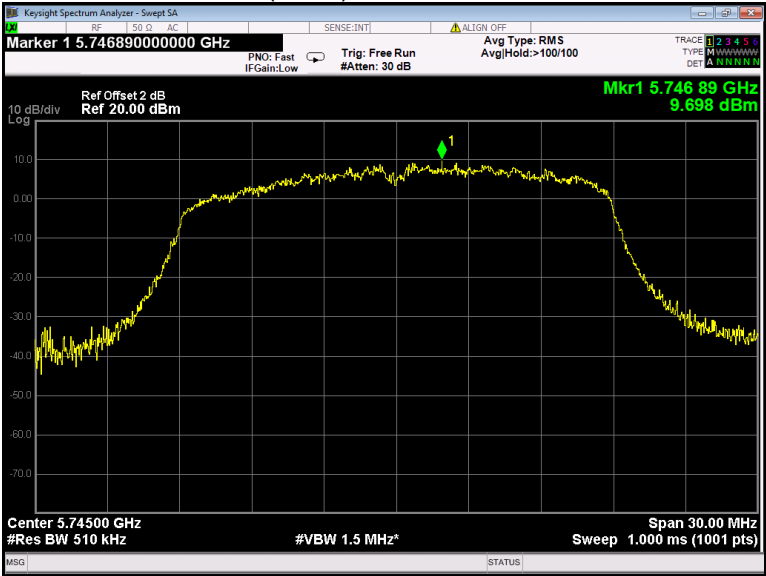
802.11a U-NII-3 Middle channel



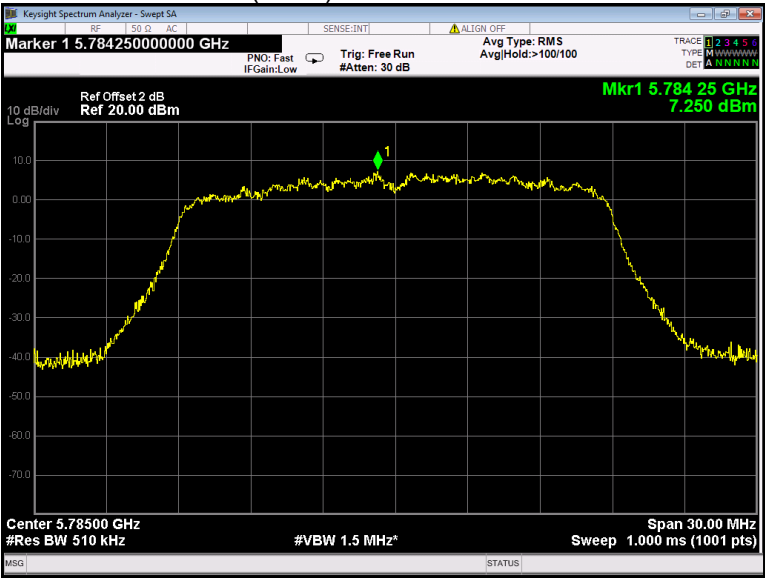
802.11a U-NII-3 High channel



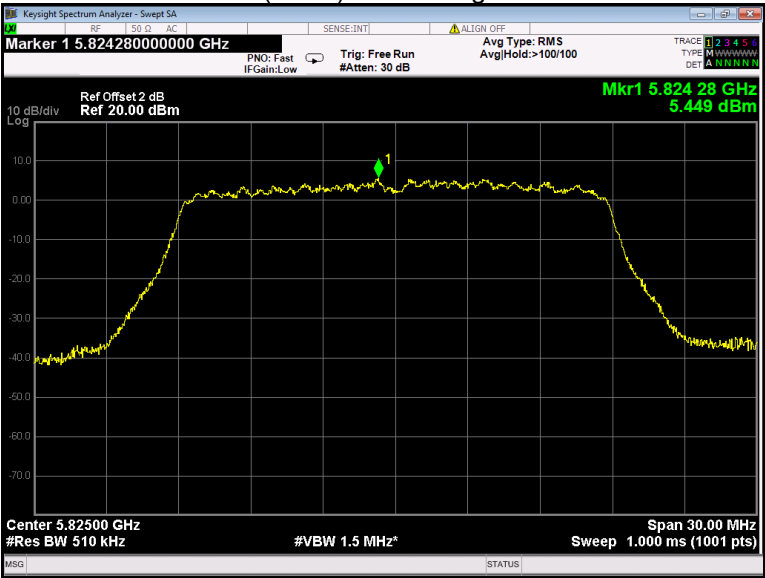
802.11n(HT20) U-NII-3 Low channel



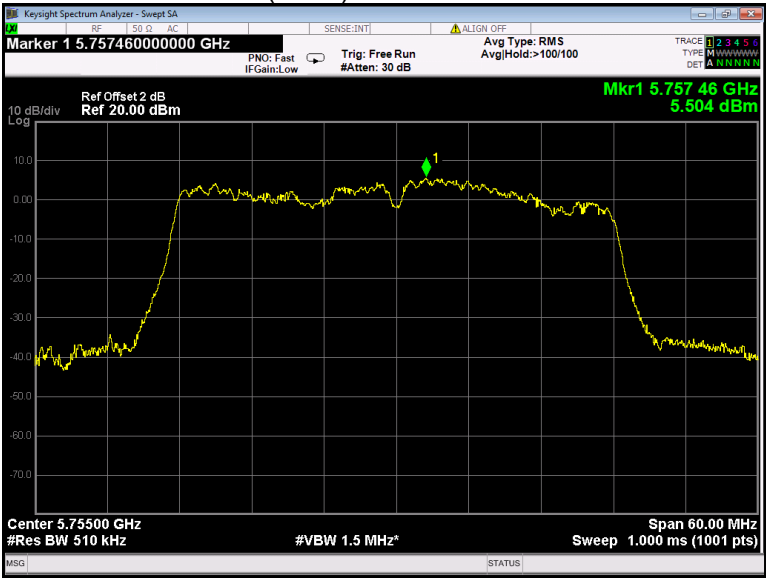
802.11n(HT20) U-NII-3 Middle channel



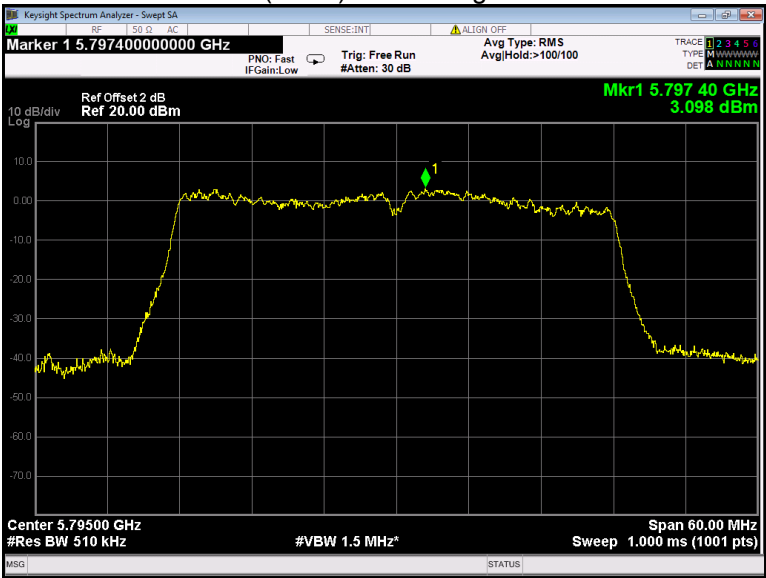
802.11n(HT20) U-NII-3 High channel



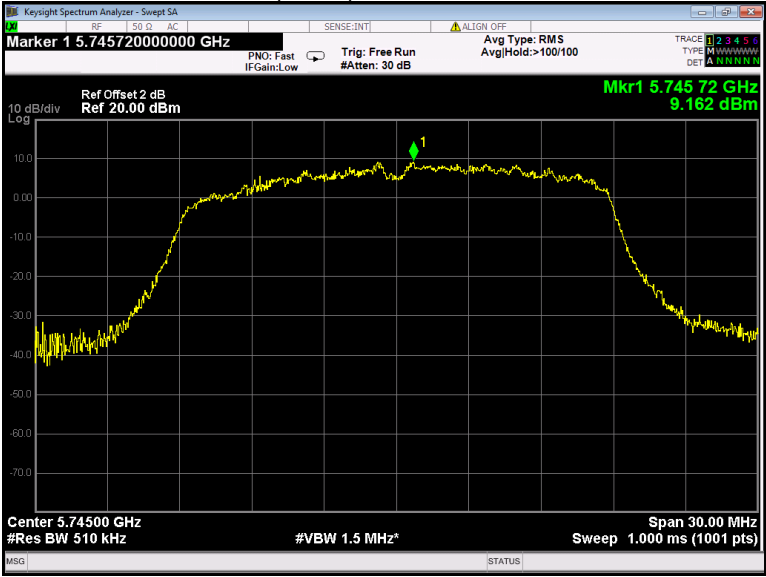
802.11n(HT40) U-NII-3 Low channel



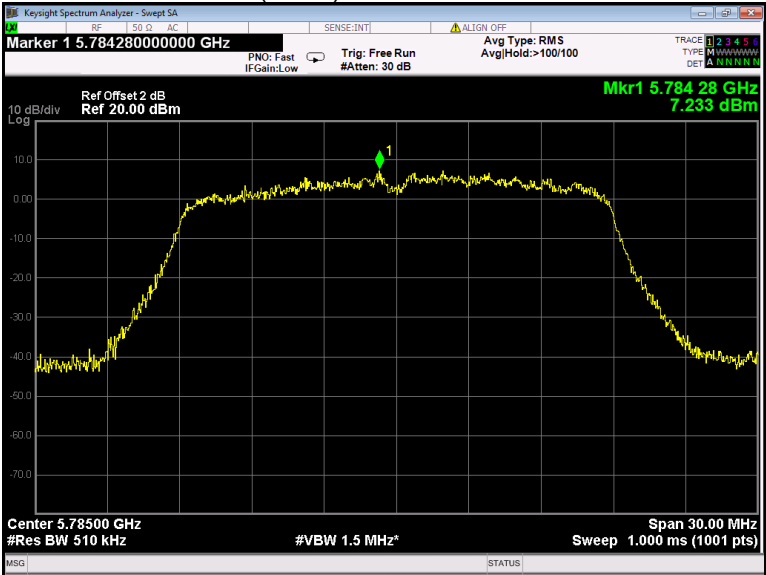
802.11n(HT40) U-NII-3 High channel



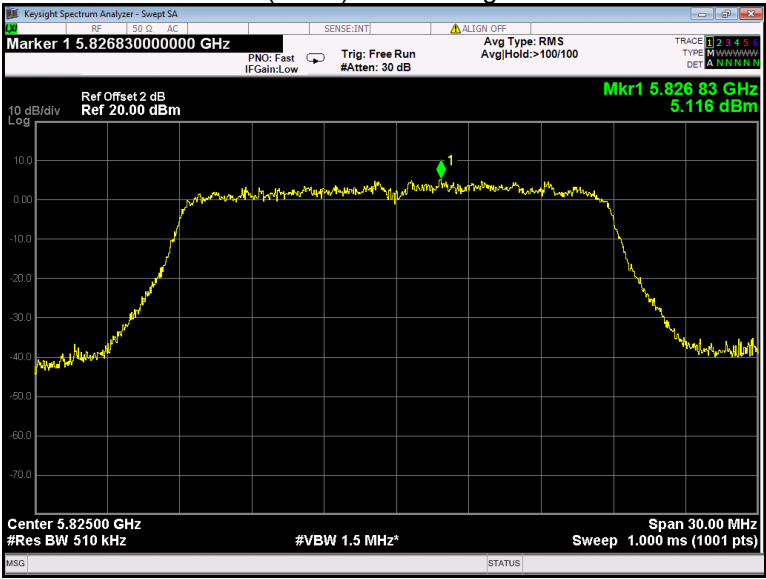
802.11ac(HT20) U-NII-3 Low channel



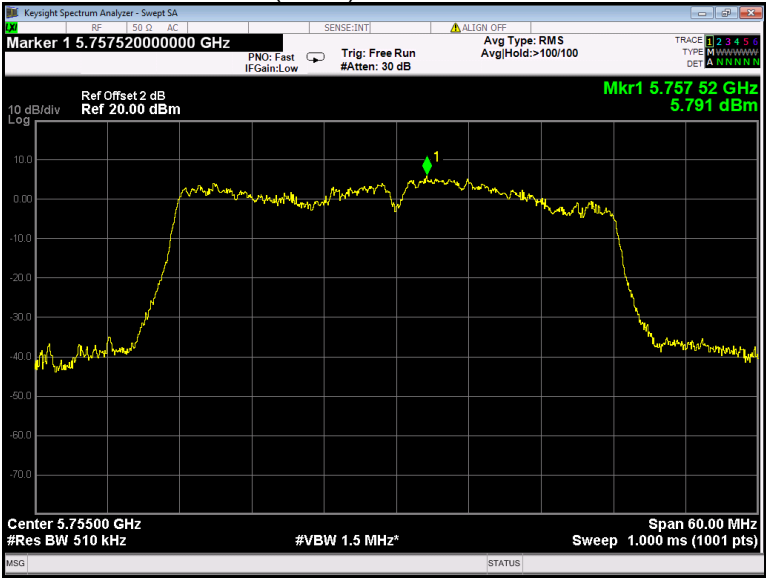
802.11ac(HT20) U-NII-3 Middle channel



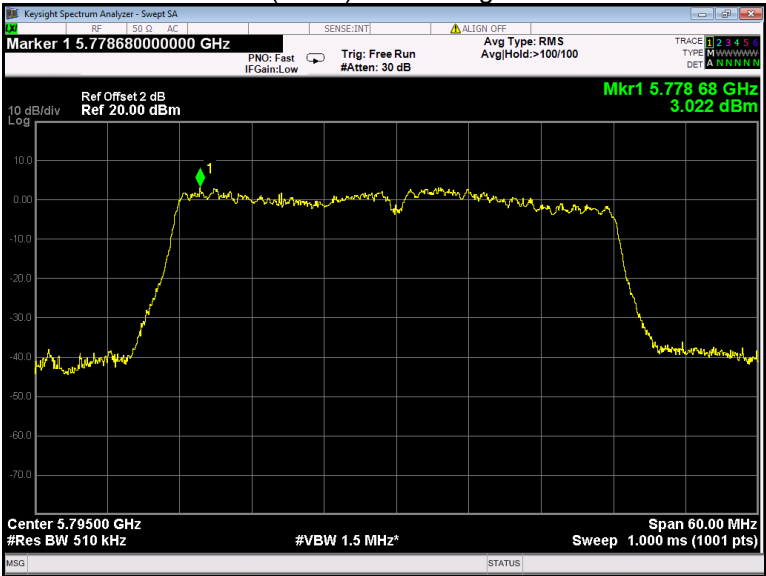
802.11ac(HT20) U-NII-3 High channel



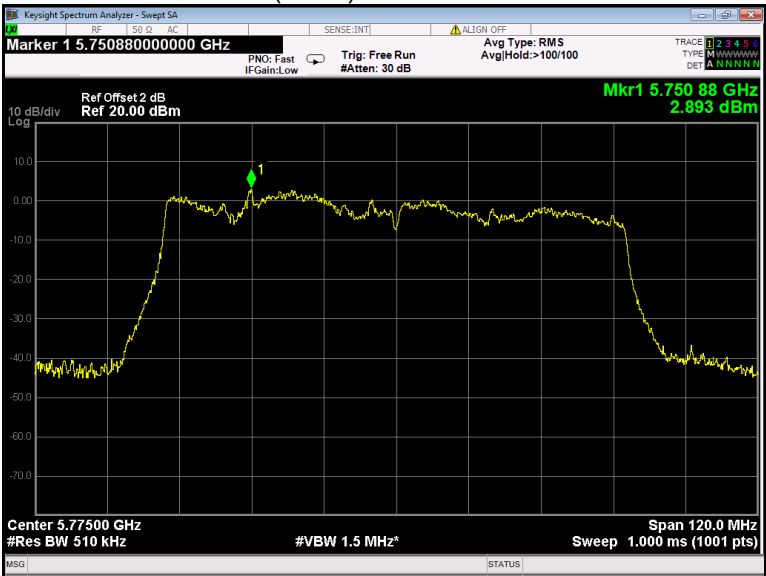
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel

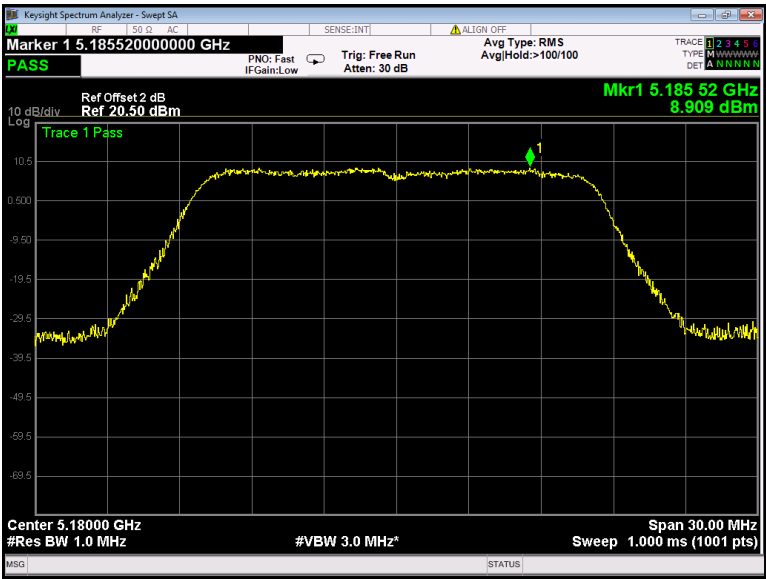


802.11ac(HT80) U-NII-3 Low channel

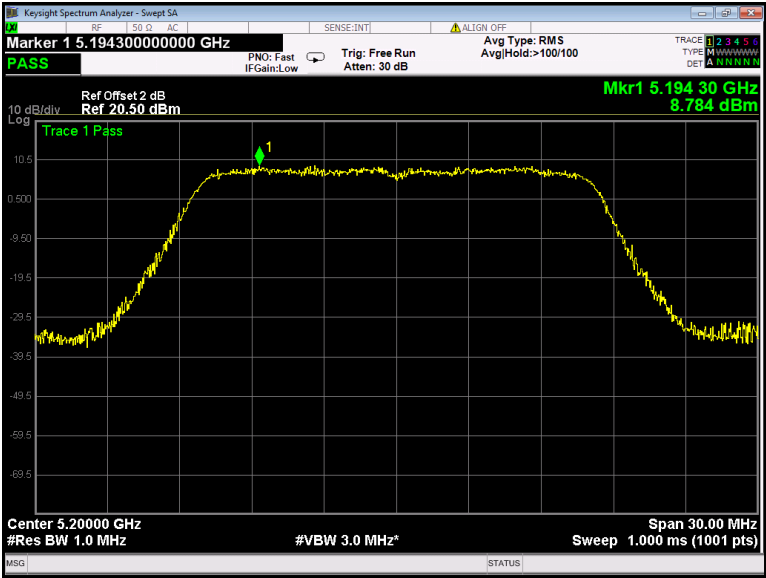


Ant1

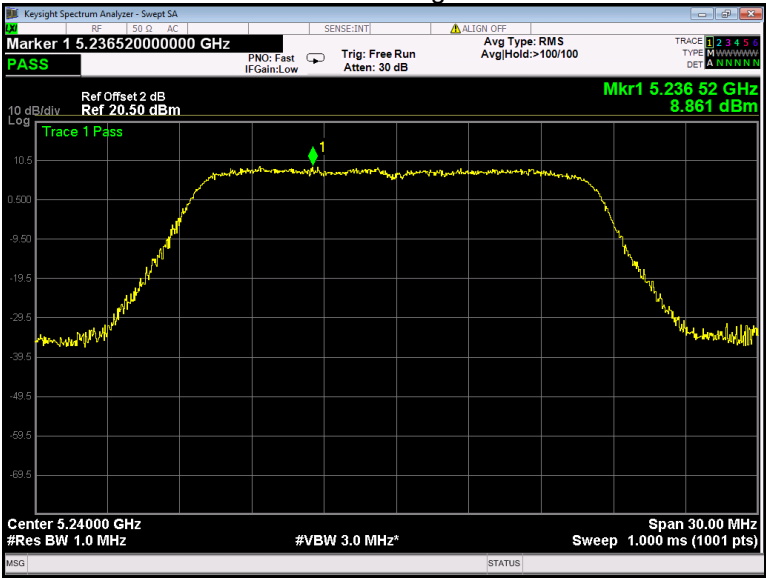
802.11a U-NII-1 Low channel



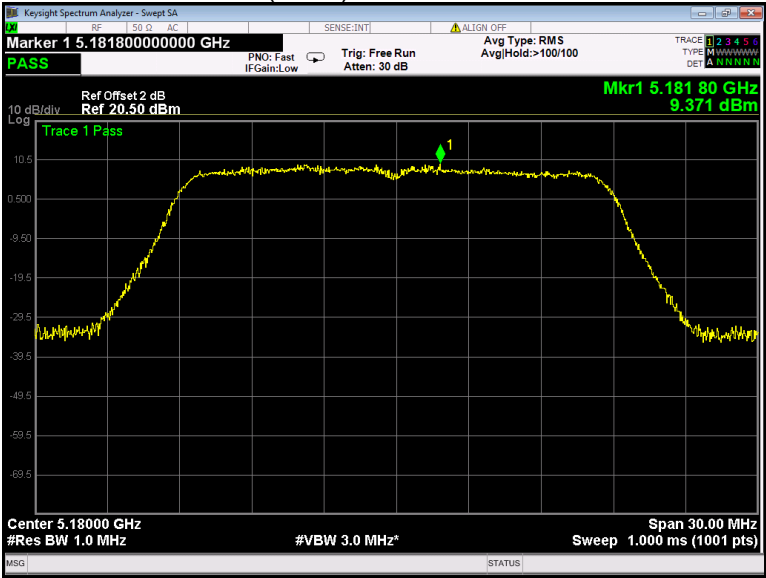
802.11a U-NII-1 Middle channel



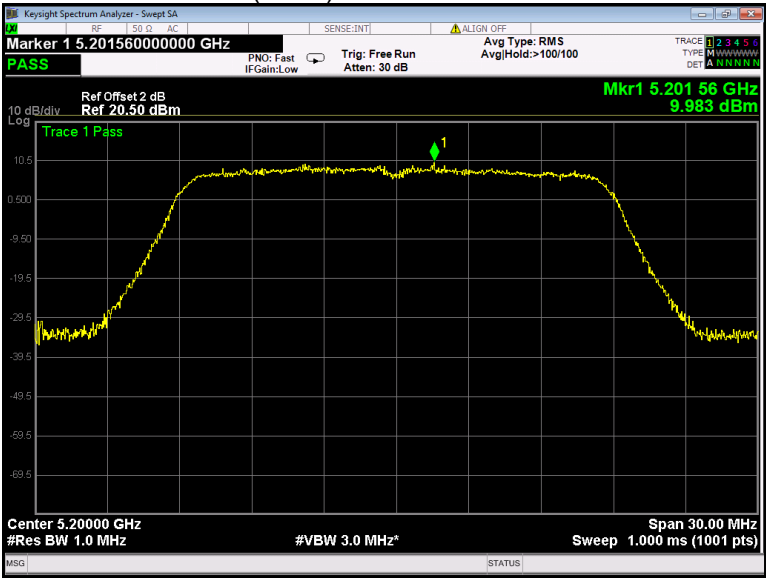
802.11a U-NII-1 High channel



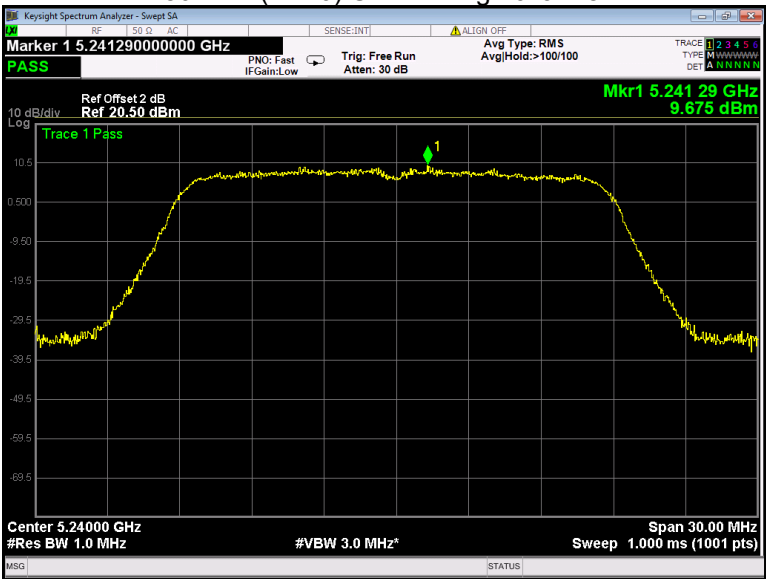
802.11n(HT20) U-NII-1 Low channel



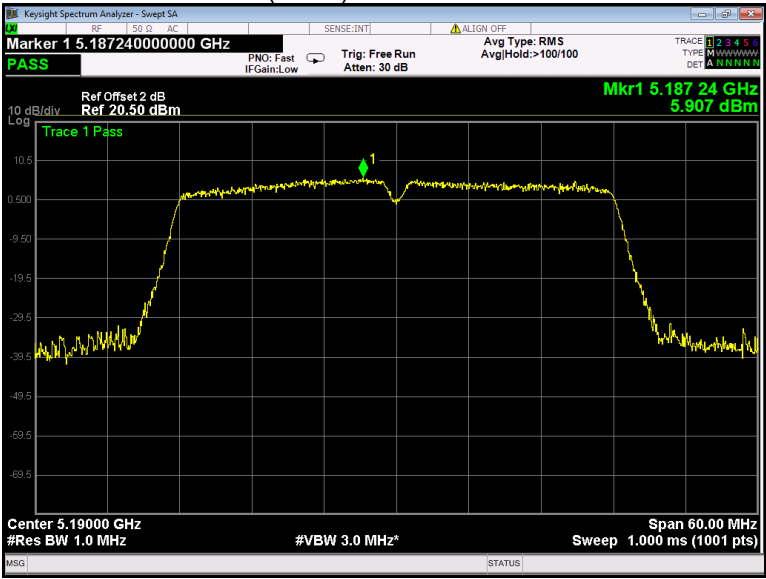
802.11n(HT20) U-NII-1 Middle channel



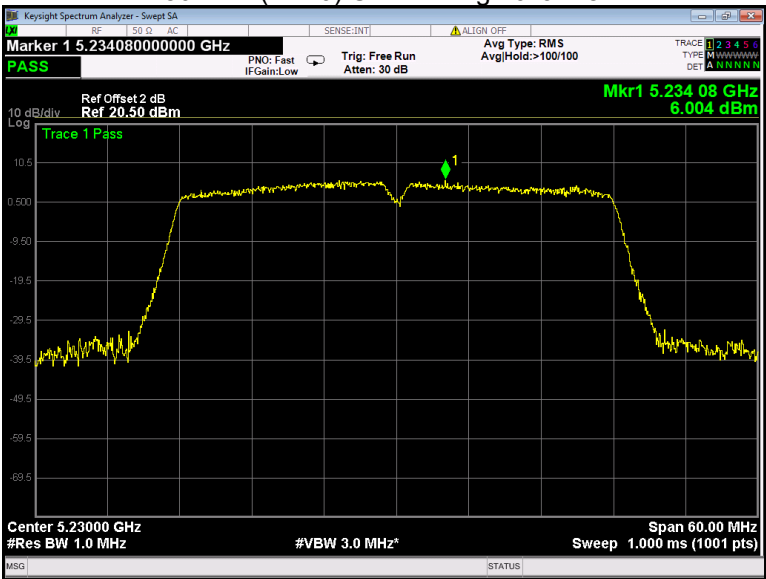
802.11n(HT20) U-NII-1 High channel



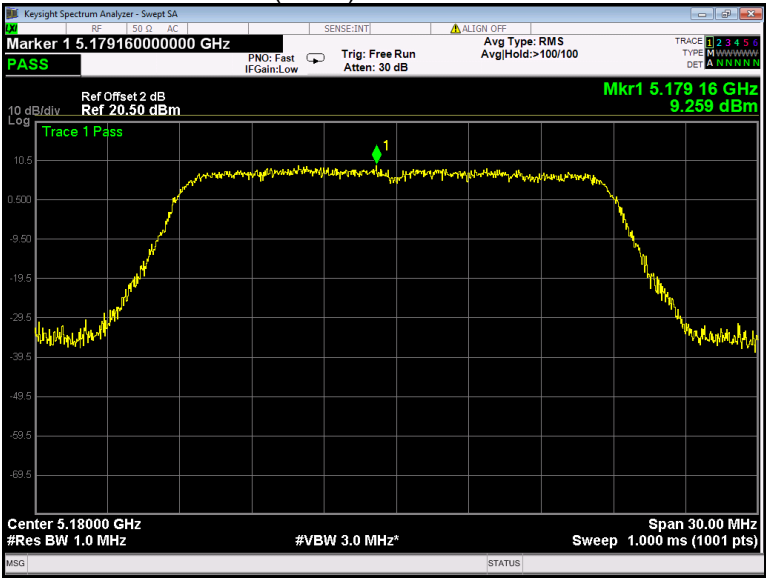
802.11n(HT40) U-NII-1 Low channel



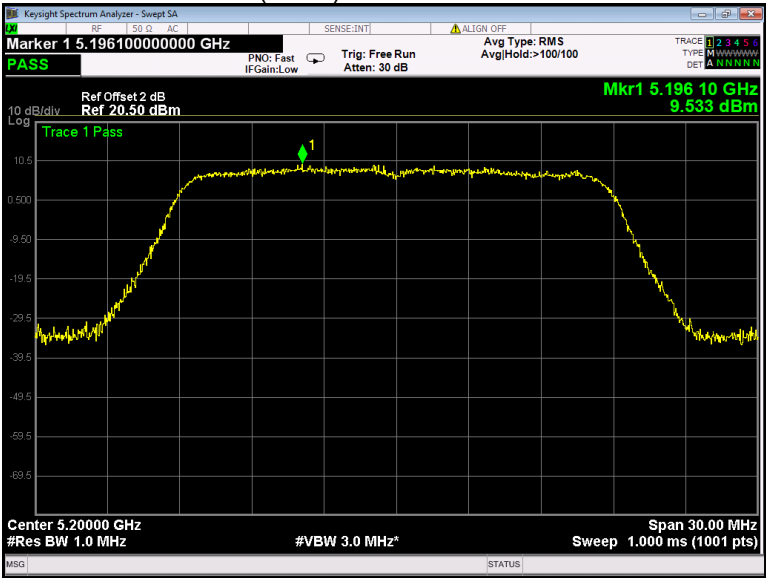
802.11n(HT40) U-NII-1 High channel



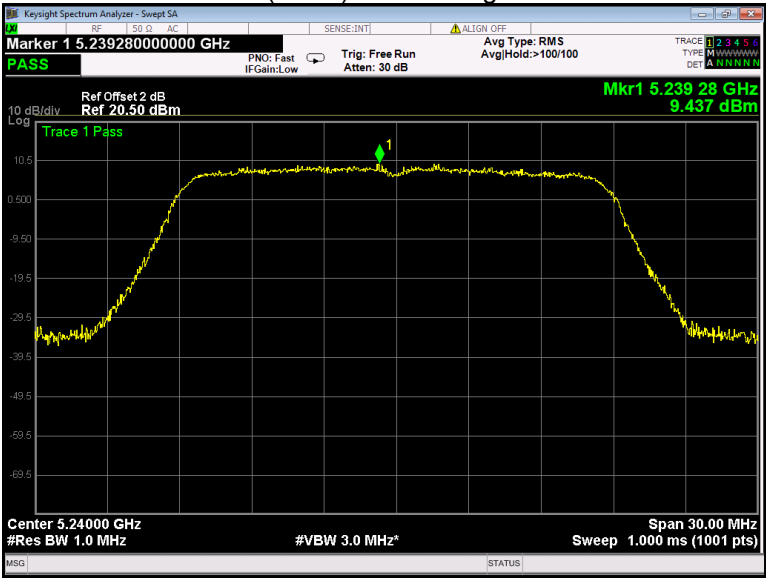
802.11ac(HT20) U-NII-1 Low channel



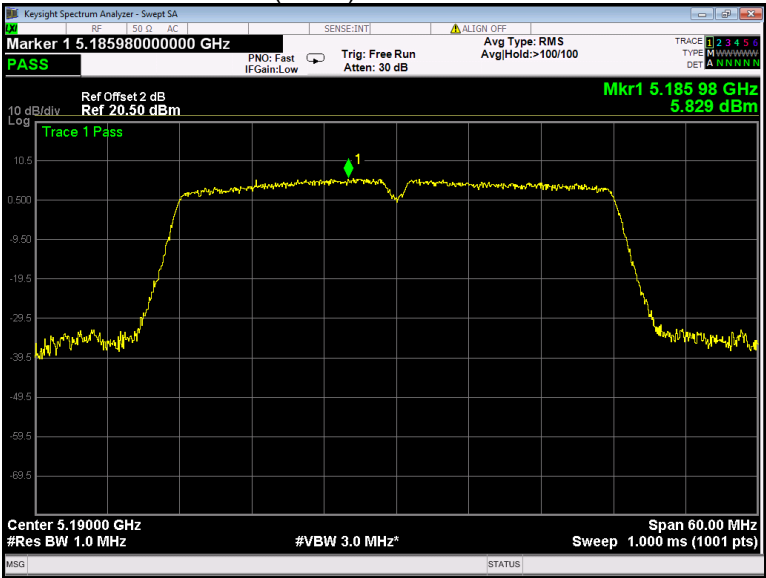
802.11ac(HT20) U-NII-1 Middle channel



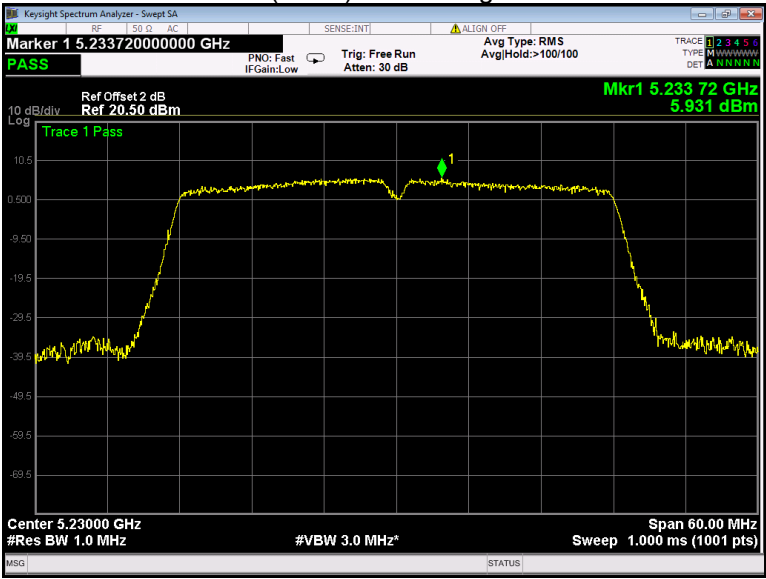
802.11ac(HT20) U-NII-1 High channel



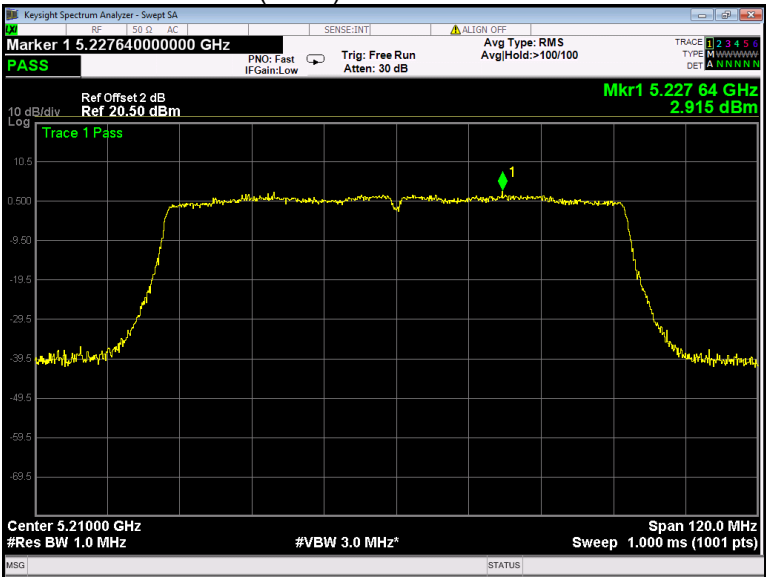
802.11ac(HT40) U-NII-1 Low channel



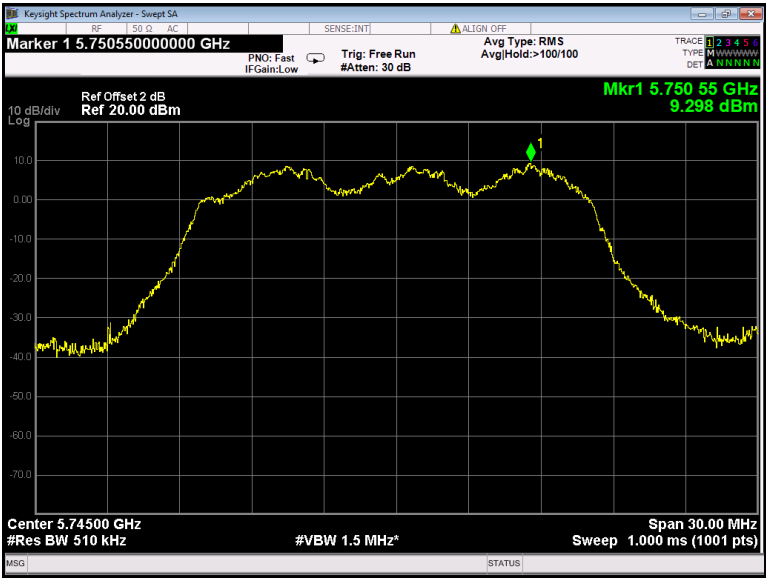
802.11ac(HT40) U-NII-1 High channel



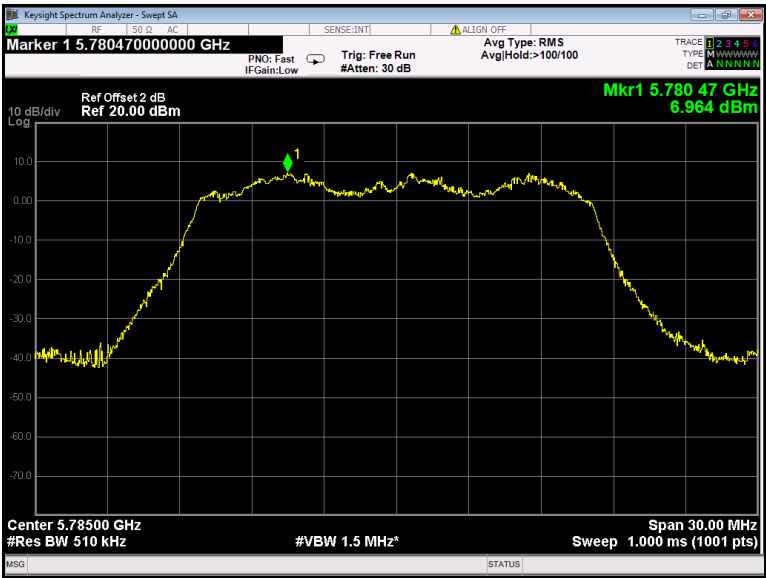
802.11ac(HT80) U-NII-1 Middle channel



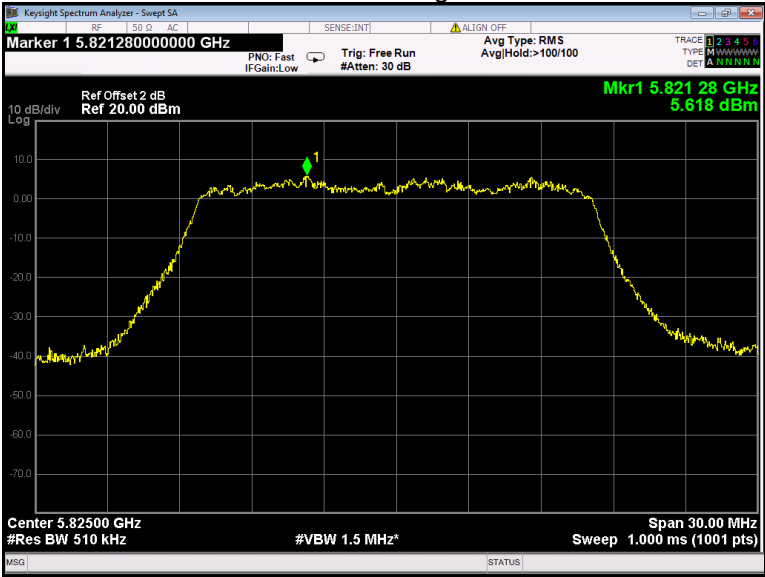
802.11a U-NII-3 Low channel



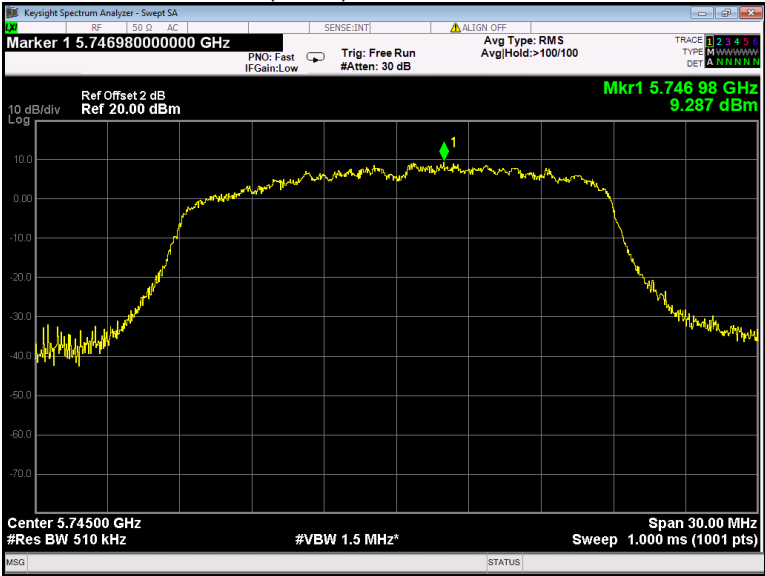
802.11a U-NII-3 Middle channel



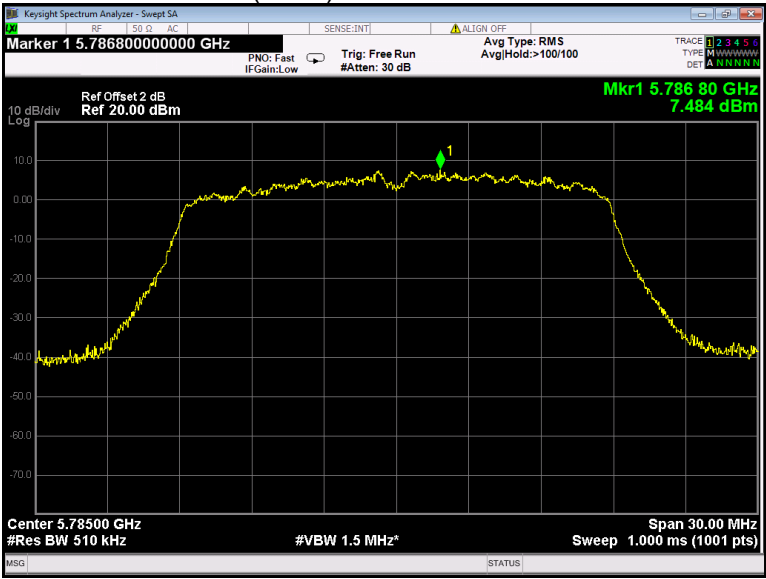
802.11a U-NII-3 High channel



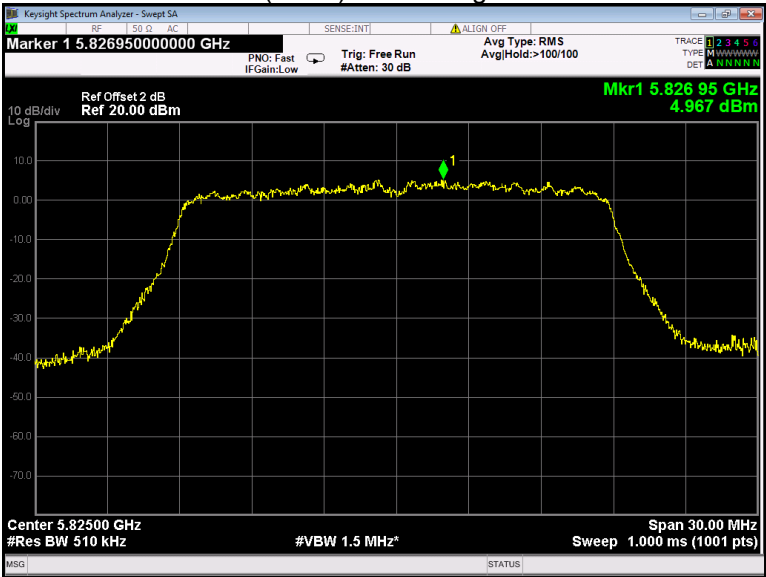
802.11n(HT20) U-NII-3 Low channel



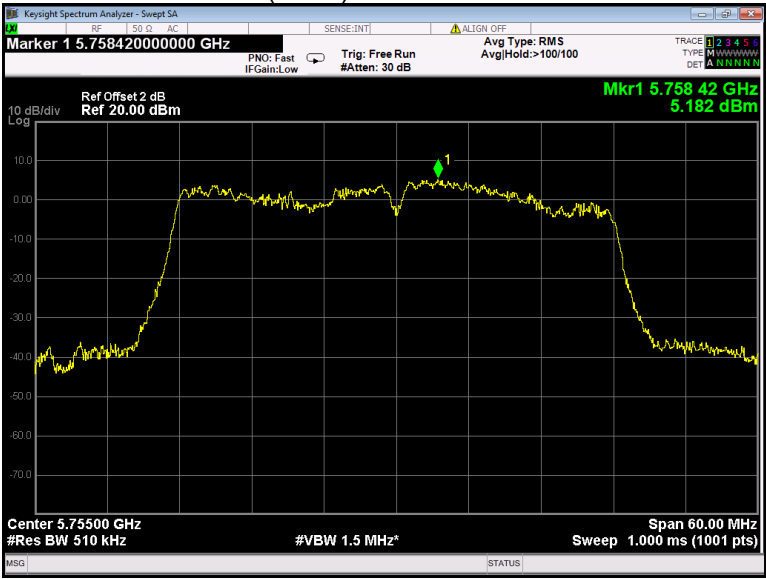
802.11n(HT20) U-NII-3 Middle channel



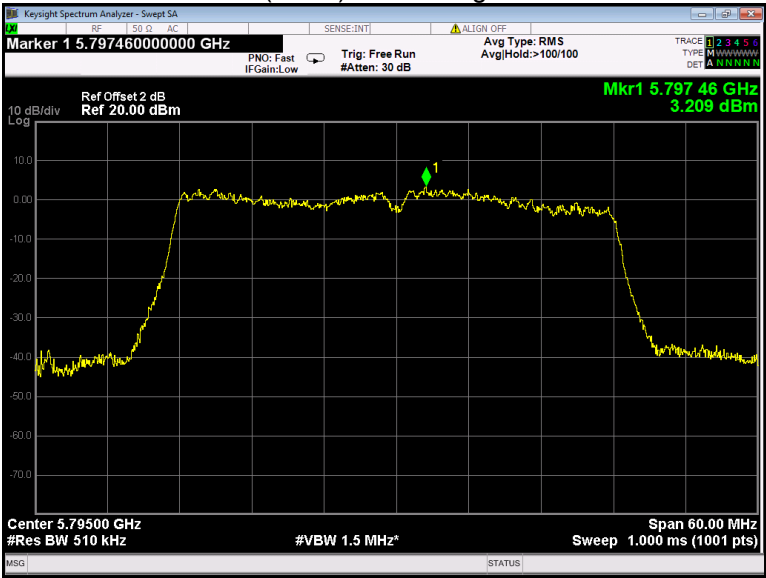
802.11n(HT20) U-NII-3 High channel



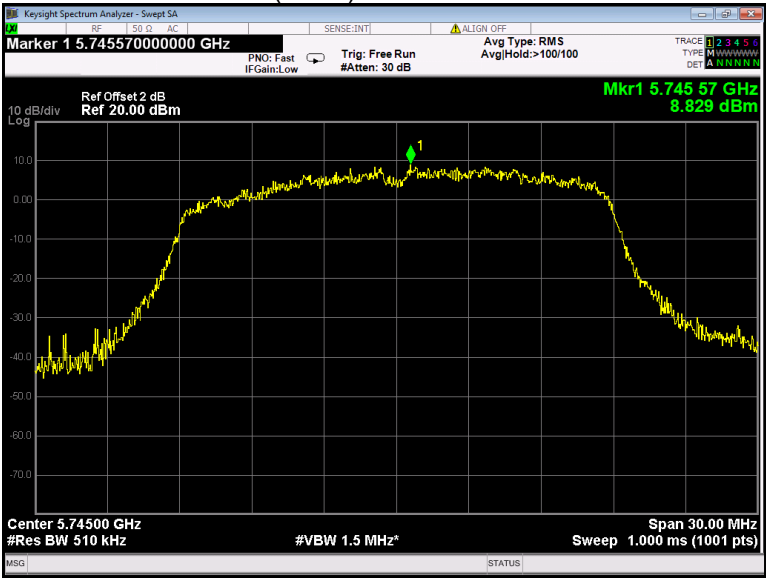
802.11n(HT40) U-NII-3 Low channel



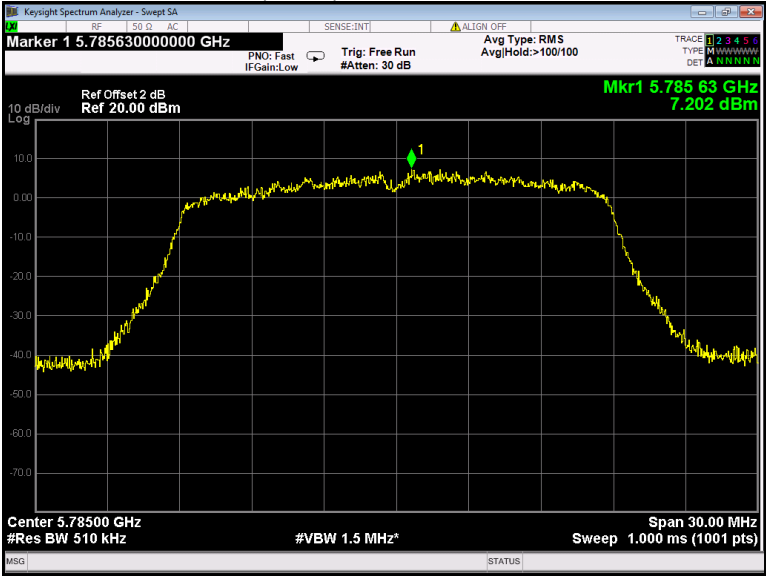
802.11n(HT40) U-NII-3 High channel



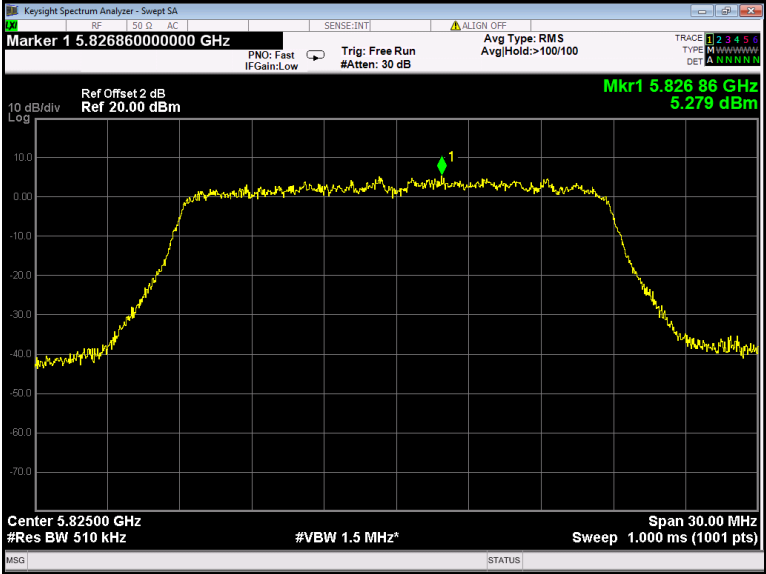
802.11ac(HT20) U-NII-3 Low channel



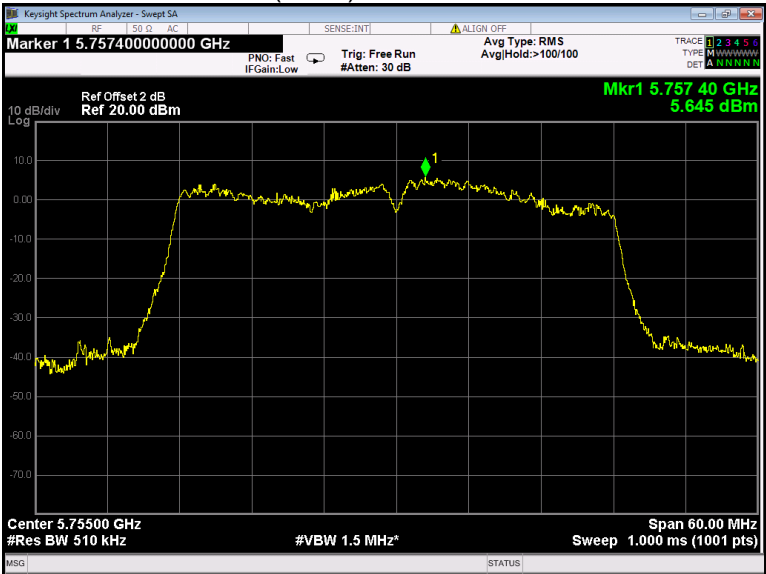
802.11ac(HT20) U-NII-3 Middle channel



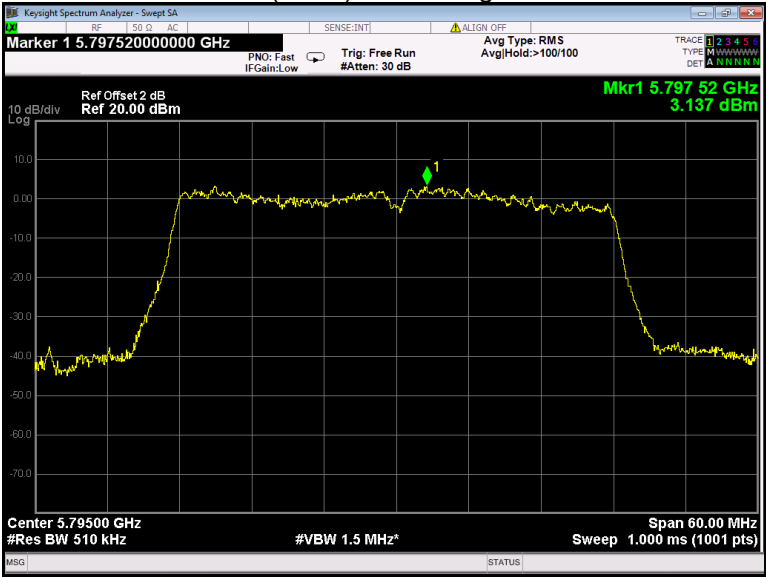
802.11ac(HT20) U-NII-3 High channel



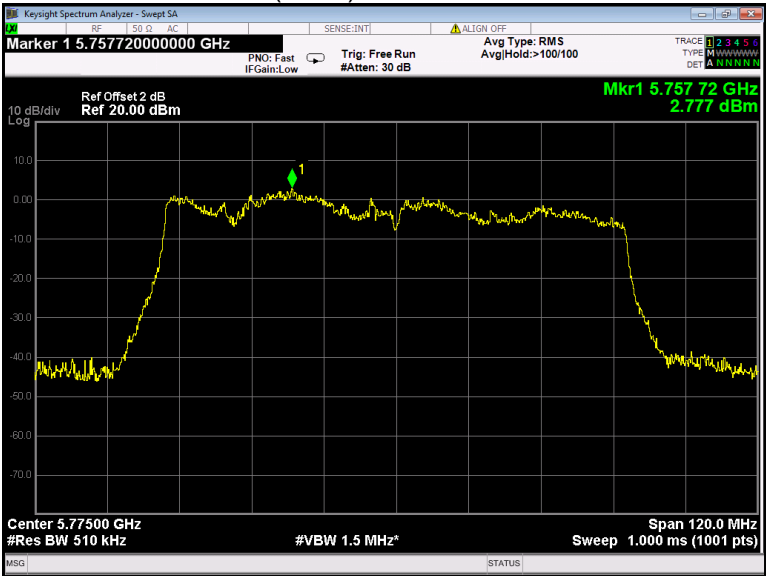
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel



802.11ac(HT80) U-NII-3 Low channel



15 Frequency Stability

Test Requirement:	FCC 47CFR Part 15 Section 15.407(g)
Test Method:	ANSI C63.10:2013
Test Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual or 20ppm.
Test Result:	PASS

15.1 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
EUT have transmitted absence of unmodulation signal and fixed channelise. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
2. Extreme temperature rule is -30°C~ 75°C.

15.2 Test Result

U-NII-1 Test Frequency:5180MHz				
Temperature (°C)	Power Supply (VDC)	Frequency Error (MHz)	Frequency Error (ppm)	Limit (ppm)
75	3.3	0.0001	0.02	20
70		0.0010	0.20	20
60		0.0006	0.12	20
50		0.0000	0.00	20
40		-0.0010	-0.19	20
30		-0.0029	-0.56	20
20		-0.0059	-1.14	20
10		-0.0028	-0.54	20
0		-0.0041	-0.80	20
-10		-0.0016	-0.31	20
-20		-0.0064	-1.24	20
20	2.8	-0.0061	-1.18	20
-20	3.6	-0.0016	-0.31	20

U-NII-3 Test Frequency:5785MHz				
Temperature (°C)	Power Supply (VDC)	Frequency Error (MHz)	Frequency Error (ppm)	Limit (ppm)
75	3.3	-0.0047	-0.91	20
70		-0.0024	-0.47	20
60		0.0085	1.64	20
50		0.0000	0.00	20
40		0.0013	0.25	20
30		-0.0093	-1.79	20
20		0.0052	1.00	20
10		0.0025	0.49	20
0		-0.0017	-0.33	20
-10		-0.0048	-0.92	20
-20		0.0038	0.74	20
-30		-0.0037	-0.71	20
20	2.8	-0.0001	-0.02	20
20	3.6	-0.0012	-0.23	20

16 Antenna Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

This product has two External Antennas with Reverse Thread SMA connector fulfil the requirement of this section.

Note: Please refer to EUT photos for more details.

17 RF Exposure

Remark: refer to MPE test report: WTD24D03066054W003.

18 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-MRR8860-Photos.

=====End of Report=====