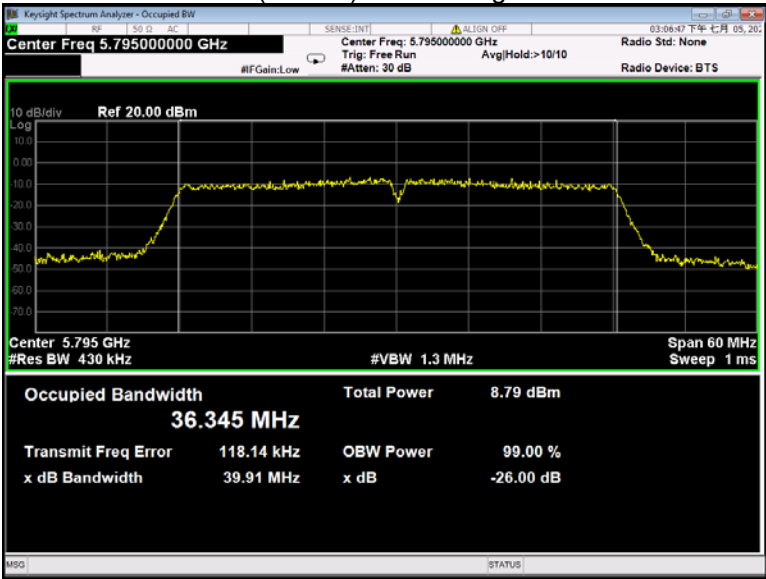
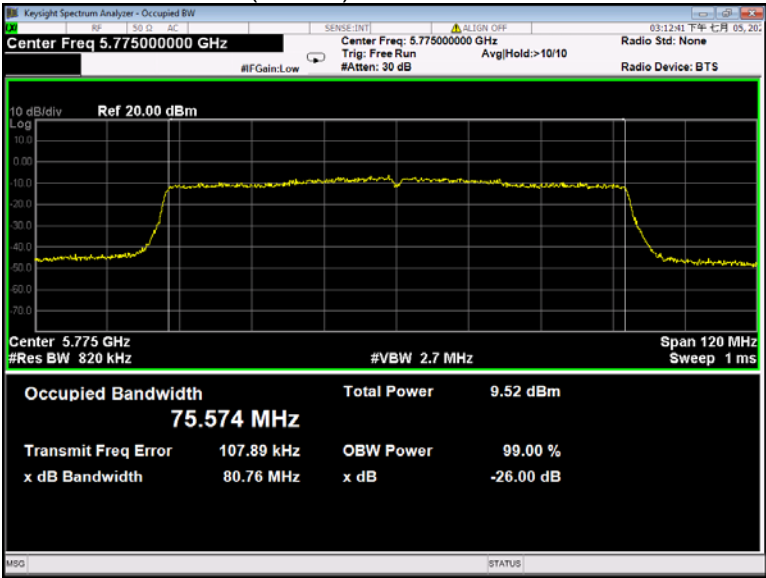


802.11ac(VHT40) U-NII-3 High channel



802.11ac(VHT80) U-NII-3 Middle 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:	U-NII-1 250mW(24dBm) U-NII-2A 250mW(24dBm) U-NII-2C 250mW(24dBm) U-NII-3 1W(30dBm)
Test Result:	PASS
Remark:	Conducted output power= measurement power+10log(1/x) x is duty cycle Duty cycle factor=10*log (1/Duty cycle)

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

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-1	802.11a	Low	2.00	13.04
		Middle		13.77
		High		14.30
	802.11n(HT20)	Low	2.15	13.21
		Middle		13.67
		High		14.32
	802.11ac(VHT20)	Low	2.31	13.32
		Middle		13.70
		High		14.84
	802.11n(HT40)	Low	3.05	14.51
		High		15.28
	802.11ac(VHT40)	Low	3.34	14.84
		High		15.62
	802.11ac(VHT80)	Middle	4.17	15.90

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-2A	802.11a	Low	2.00	14.75
		Middle		14.84
		High		15.5
	802.11n(HT20)	Low	2.15	14.99
		Middle		15.21
		High		15.57
	802.11ac(VHT20)	Low	2.31	15.31
		Middle		15.36
		High		15.79
	802.11n(HT40)	Low	3.05	15.94
		High		16.17
	802.11ac(VHT40)	Low	3.34	15.95
		High		16.42
	802.11ac(VHT80)	Middle	4.17	17.29

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-2C	802.11a	Low	2.00	13.13
		Middle		13.14
		High		12.35
	802.11n(HT20)	Low	2.15	13.18
		Middle		13.29
		High		12.84
	802.11ac(VHT20)	Low	2.31	13.32
		Middle		13.45
		High		12.66
	802.11n(HT40)	Low	3.05	13.87
		Middle		14.01
		High		13.26
	802.11ac(VHT40)	Low	3.34	14.14
		Middle		14.33
		High		13.46
	802.11ac(VHT80)	Middle	4.17	14.82
		High		14.66

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-3	802.11a	Low	2.00	13.40
		Middle		13.18
		High		13.06
	802.11n(HT20)	Low	2.15	13.84
		Middle		13.15
		High		12.87
	802.11ac(VHT20)	Low	2.31	14.31
		Middle		13.63
		High		12.93
	802.11n(HT40)	Low	3.05	14.65
		High		13.71
	802.11ac(VHT40)	Low	3.34	14.77
		High		14.04
	802.11ac(VHT80)	Middle	4.17	15.24

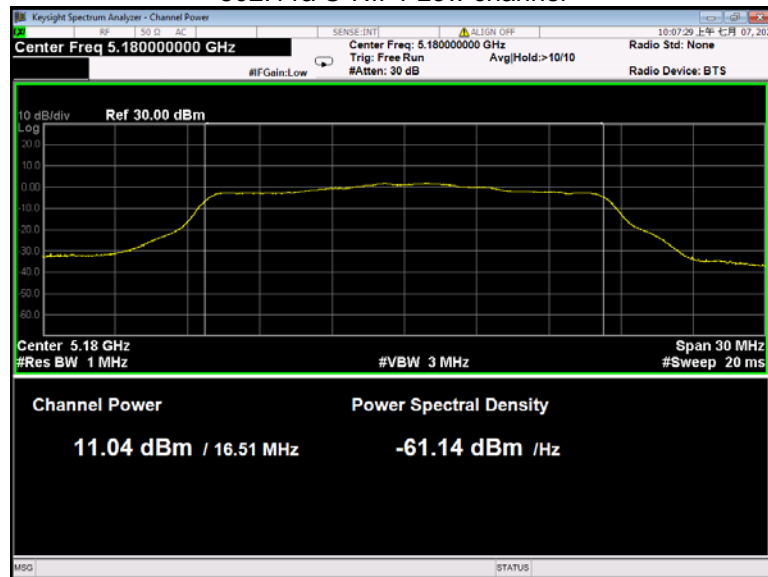
Note:

1. Conducted Output Power = Measurements + Duty Cycle Factor

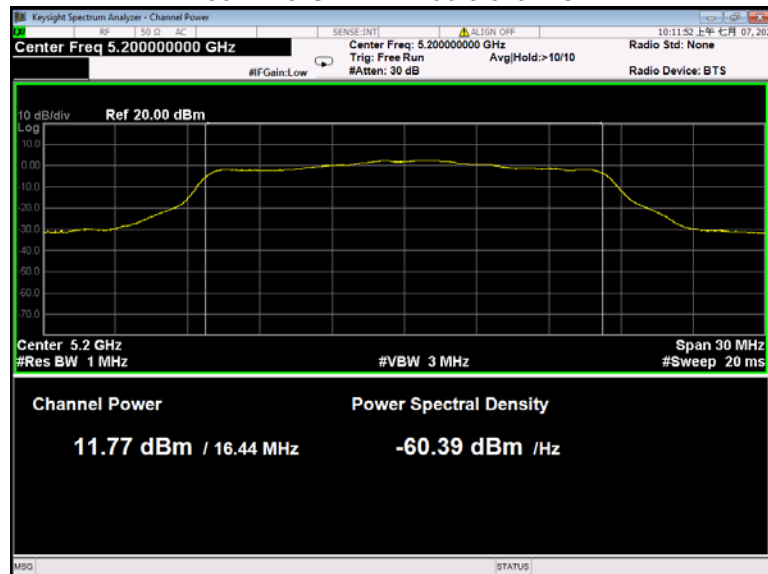
* All transmit signals are completely uncorrelated with each other, Directional gain = G_{ANT} which is less than 6dBi. So the limit does not be reduced.

Test result plots shown as follows:

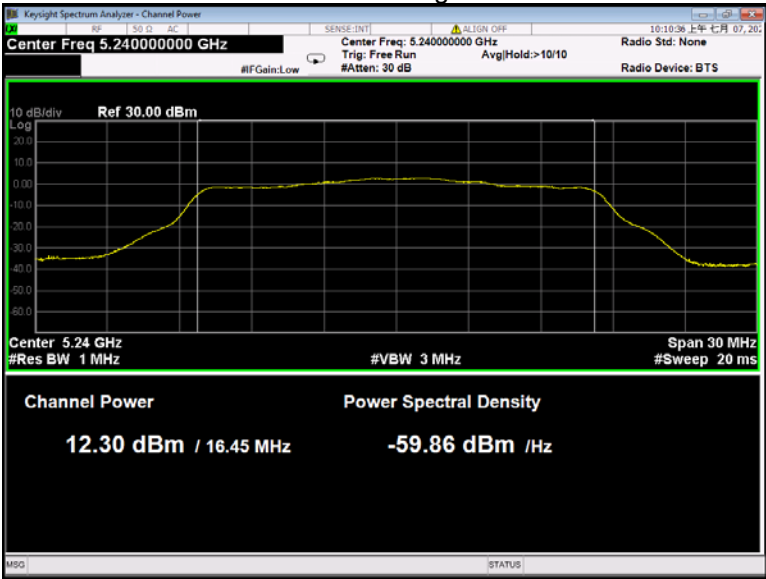
802.11a U-NII-1 Low channel



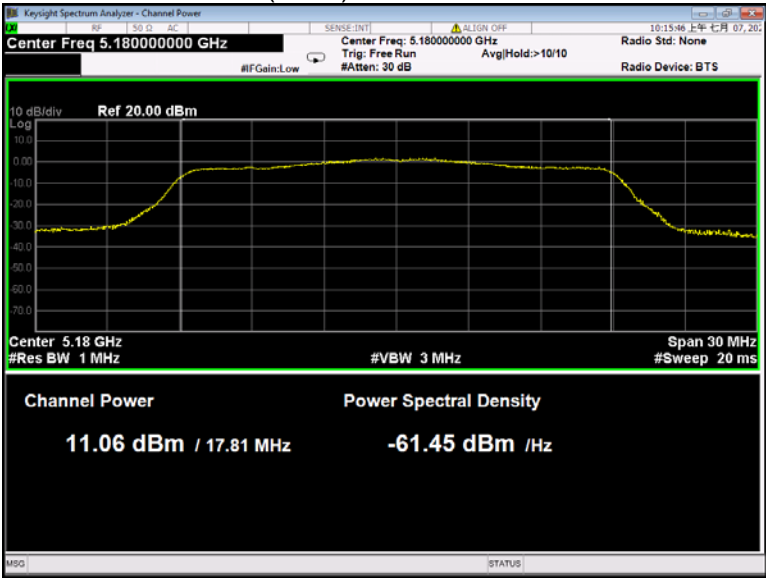
802.11a U-NII-1 Middle channel



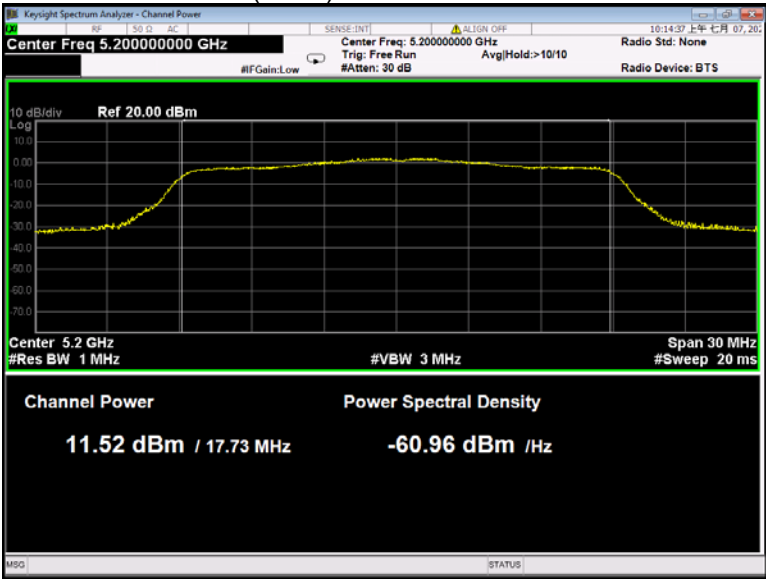
802.11a U-NII-1 High channel



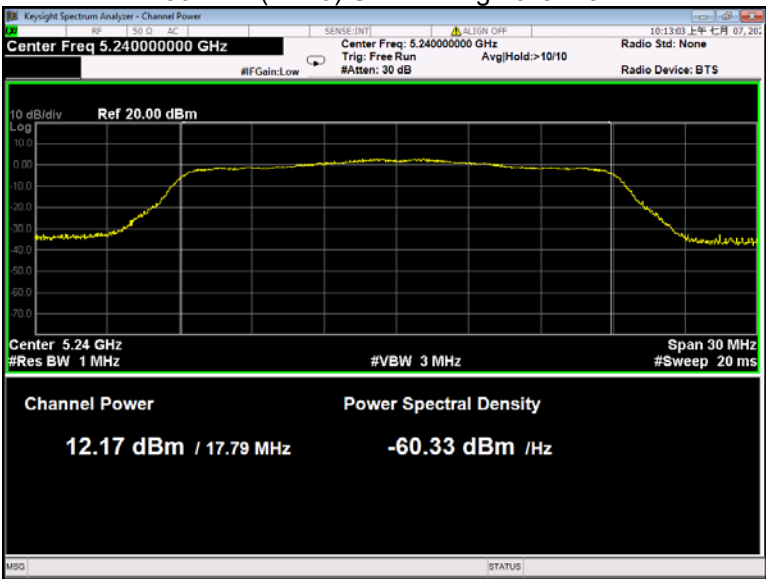
802.11n(HT20) U-NII-1 Low channel



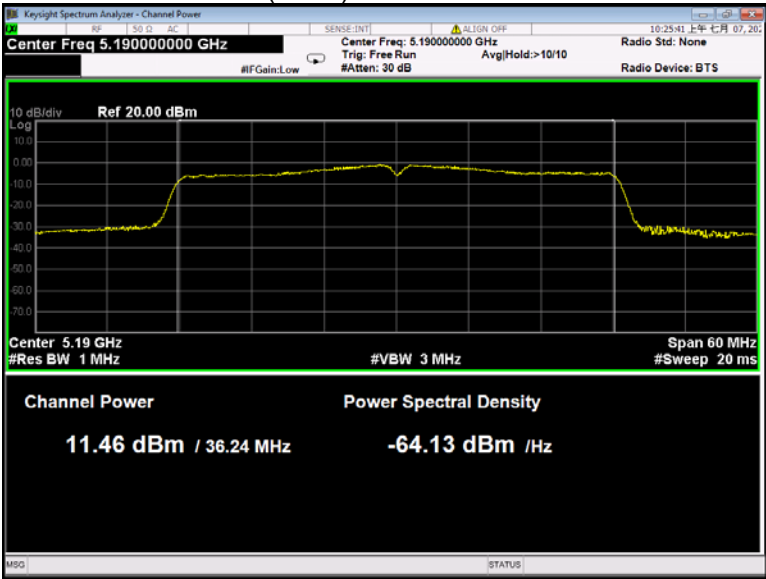
802.11n(HT20) U-NII-1 Middle channel



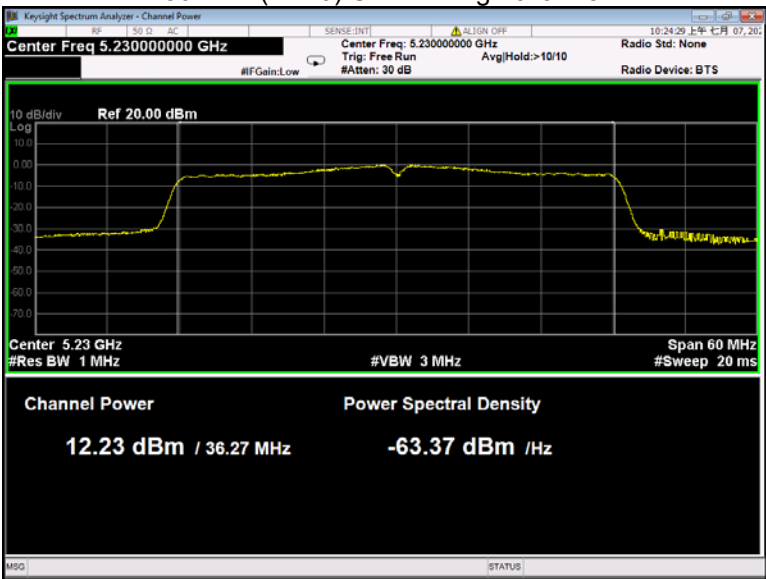
802.11n(HT20) U-NII-1 High channel



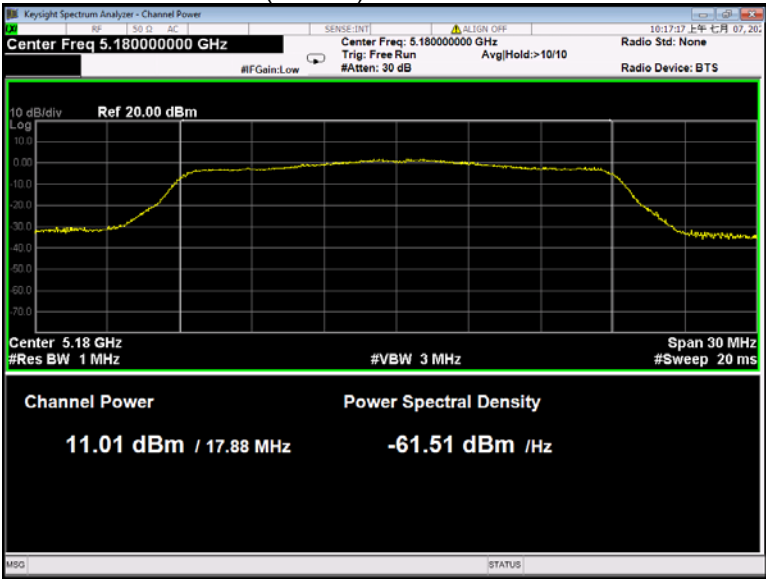
802.11n(HT40) U-NII-1 Low channel



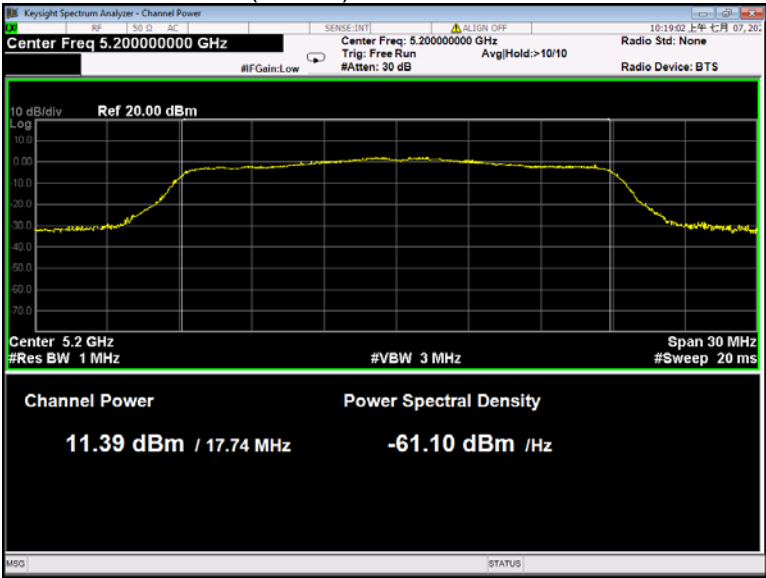
802.11n(HT40) U-NII-1 High channel



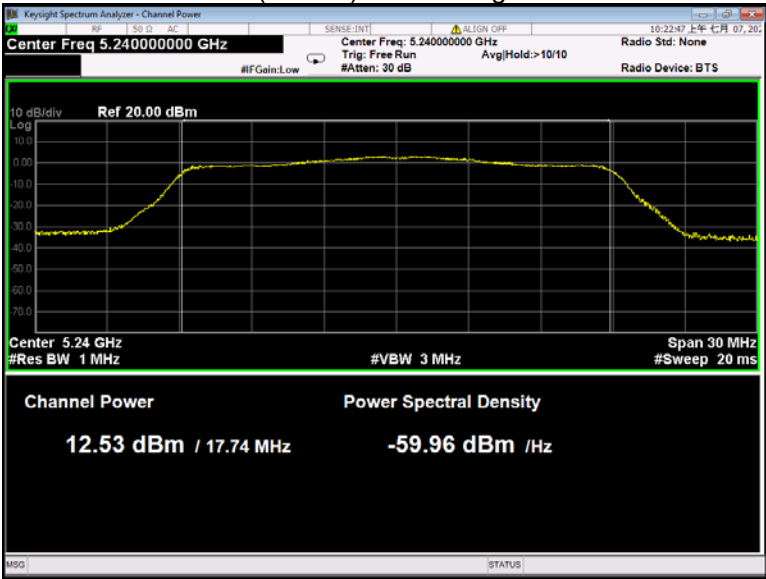
802.11ac(VHT20) U-NII-1 Low channel



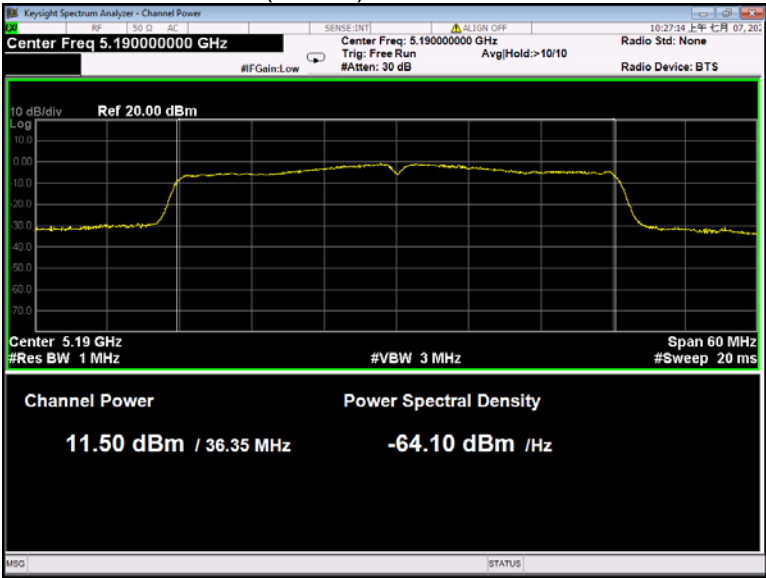
802.11ac(VHT20) U-NII-1 Middle channel



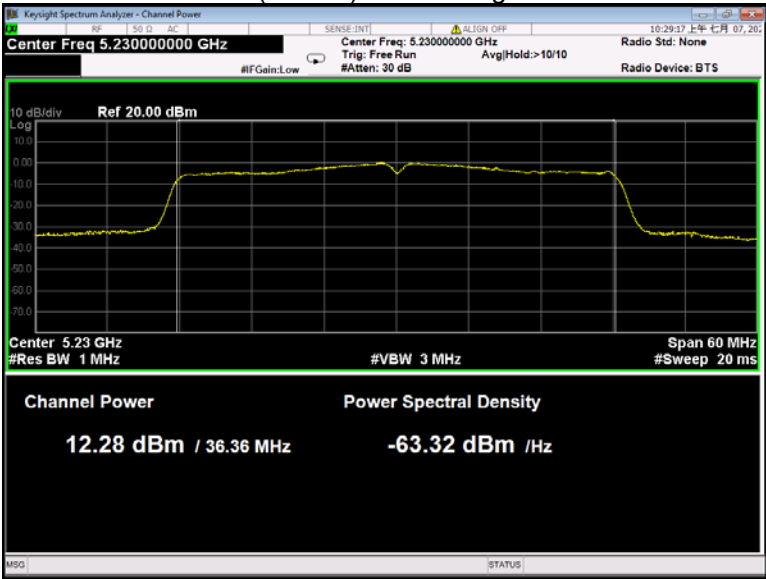
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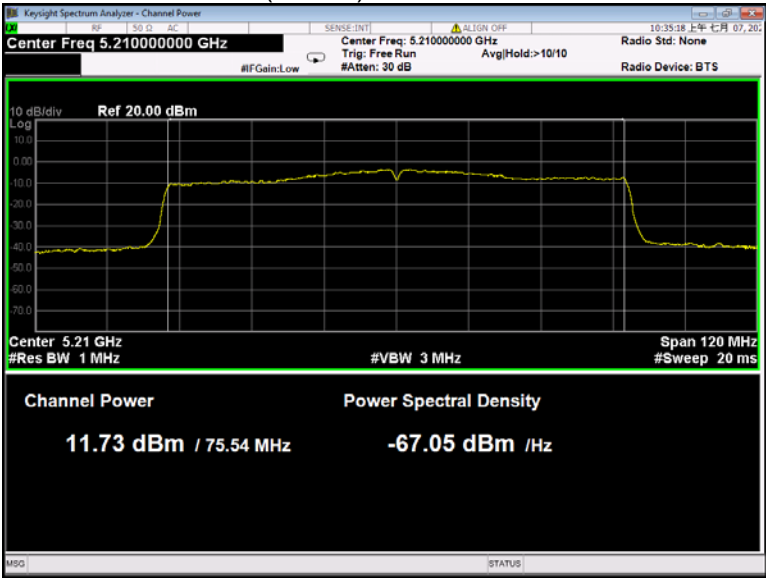
802.11ac(VHT40) U-NII-1 Low channel



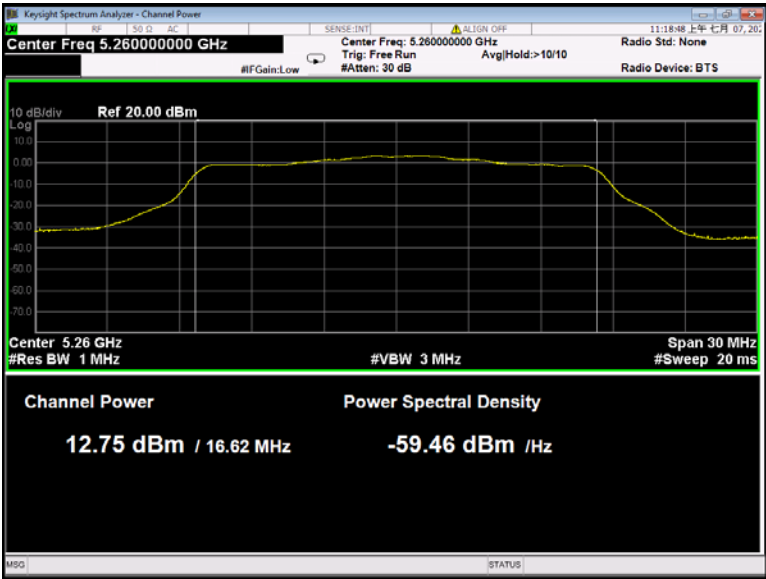
802.11ac(VHT40) U-NII-1 High channel



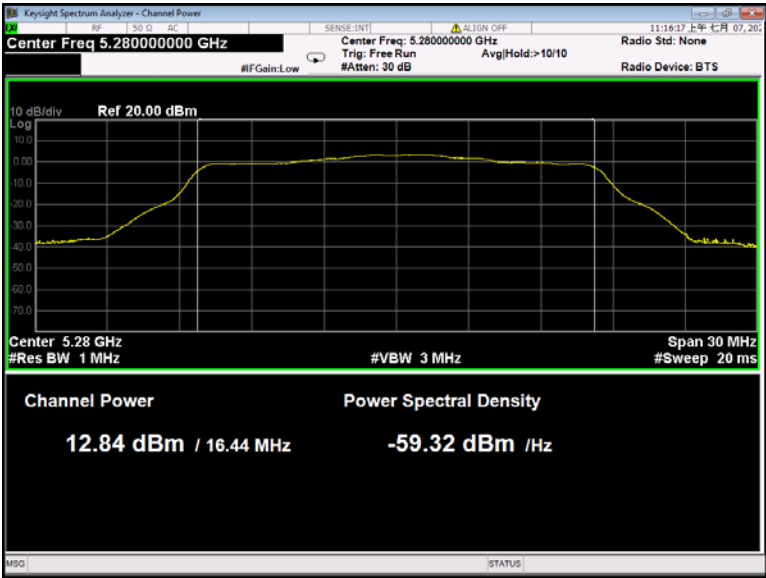
802.11ac(VHT80) U-NII-1 Low channel



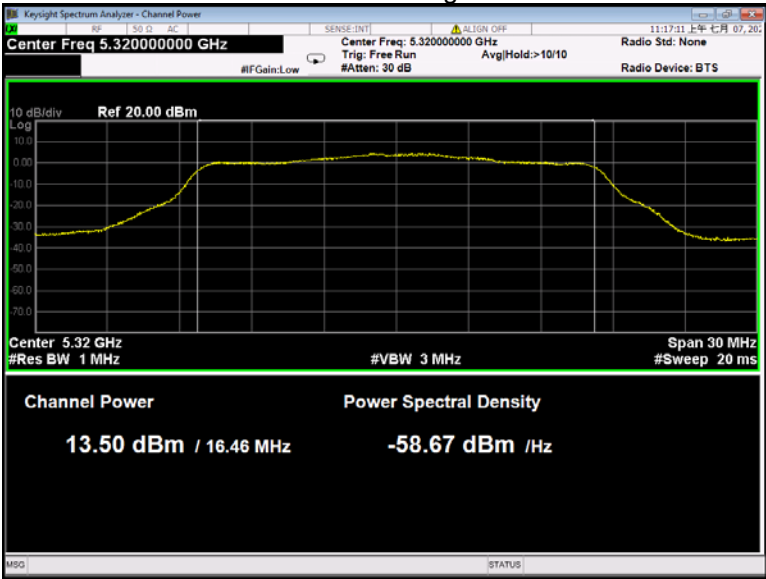
802.11a U-NII-2A Low channel



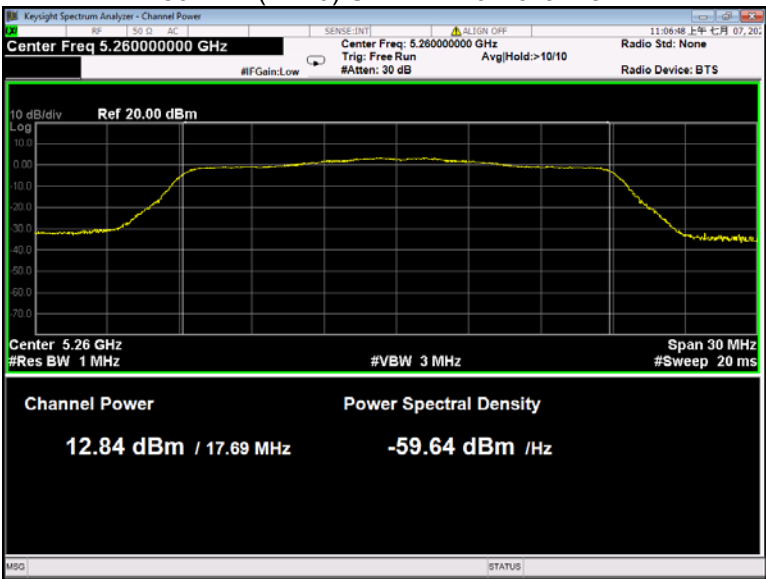
802.11a U-NII-2A Middle channel



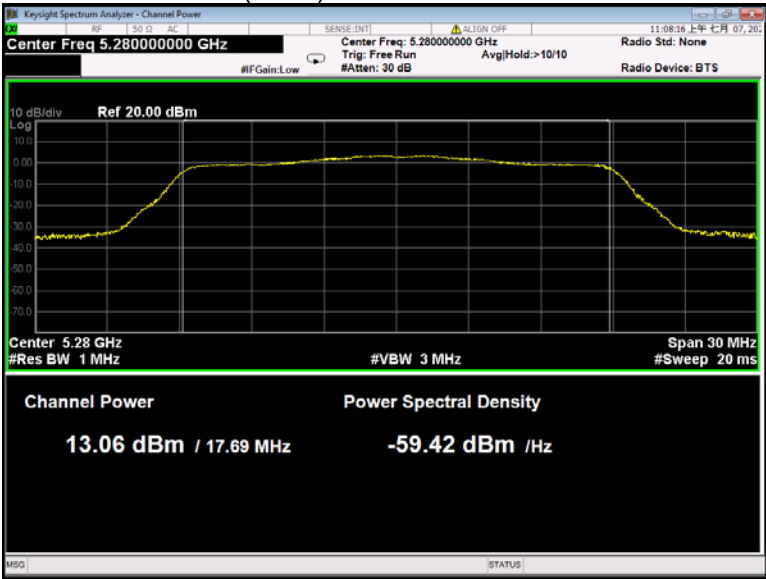
802.11a U-NII-2A High channel



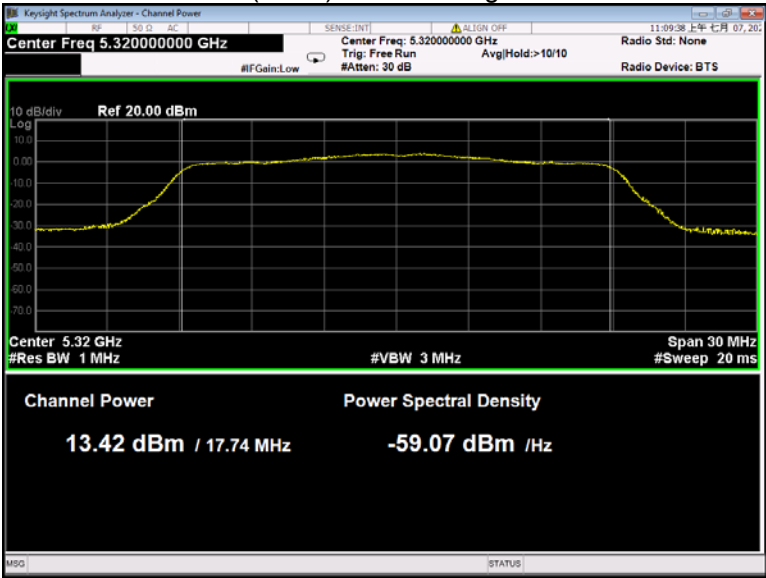
802.11n(HT20) U-NII-2A Low channel



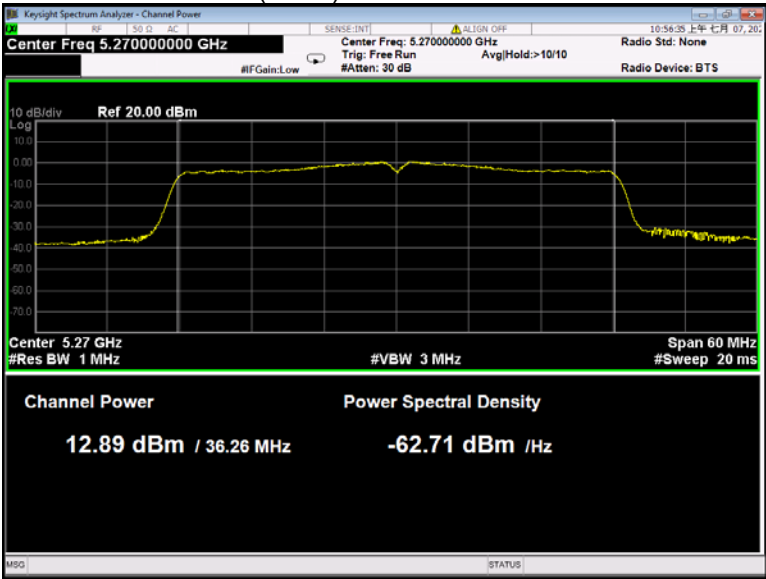
802.11n(HT20) U-NII-2A Middle channel



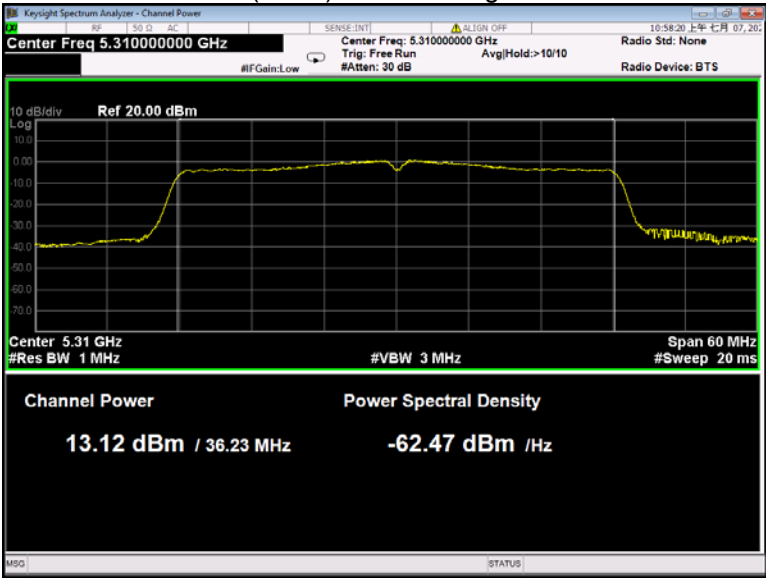
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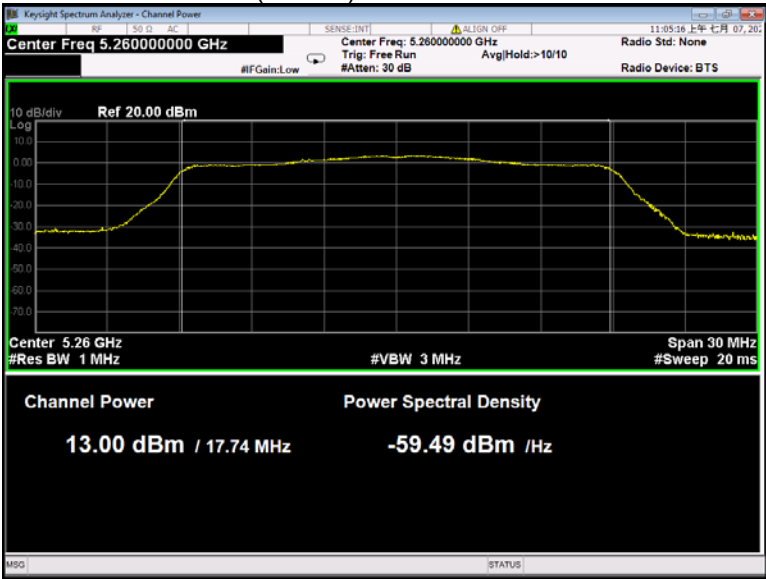
802.11n(HT40) U-NII-2A Low channel



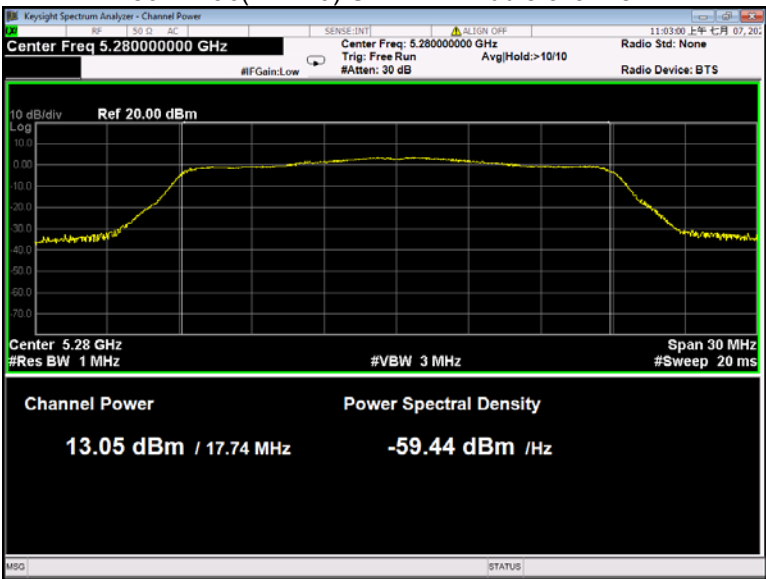
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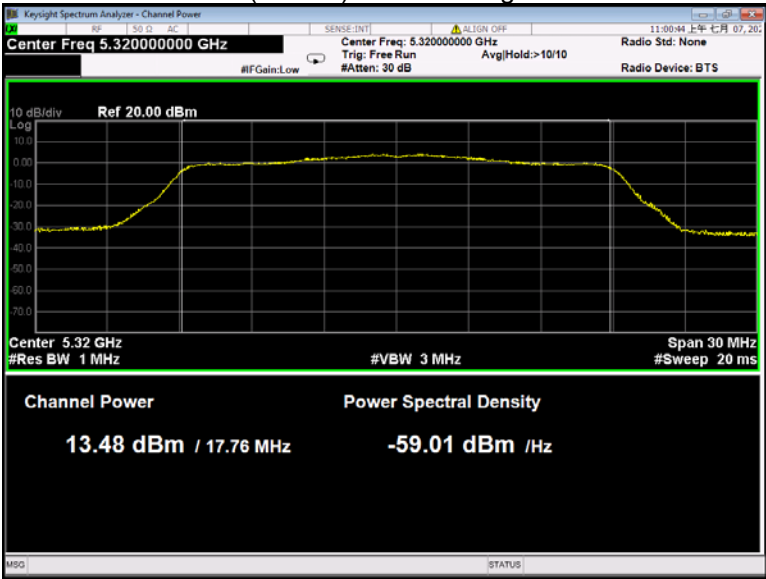
802.11ac(VHT20) U-NII-2A Low channel



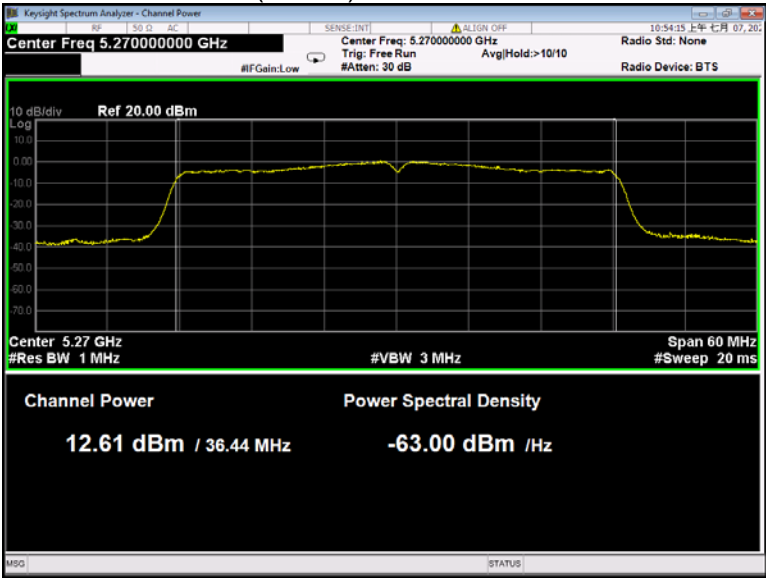
802.11ac(VHT20) U-NII-2A Middle channel



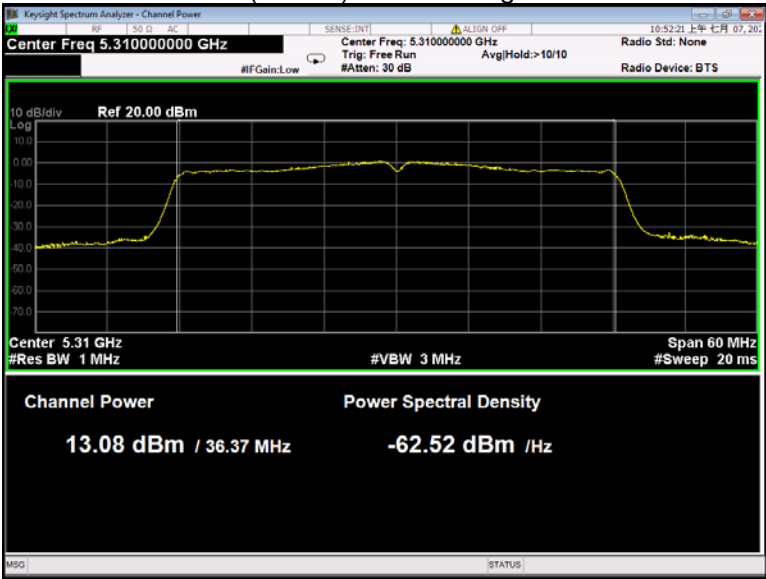
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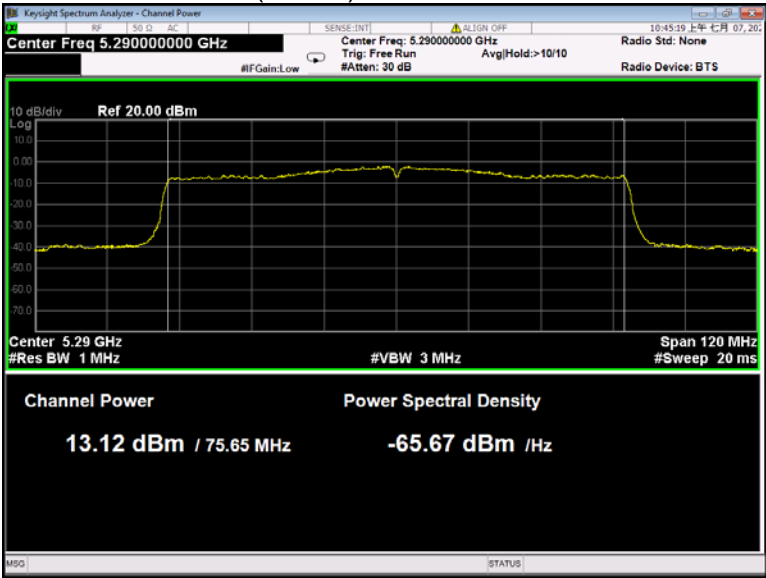
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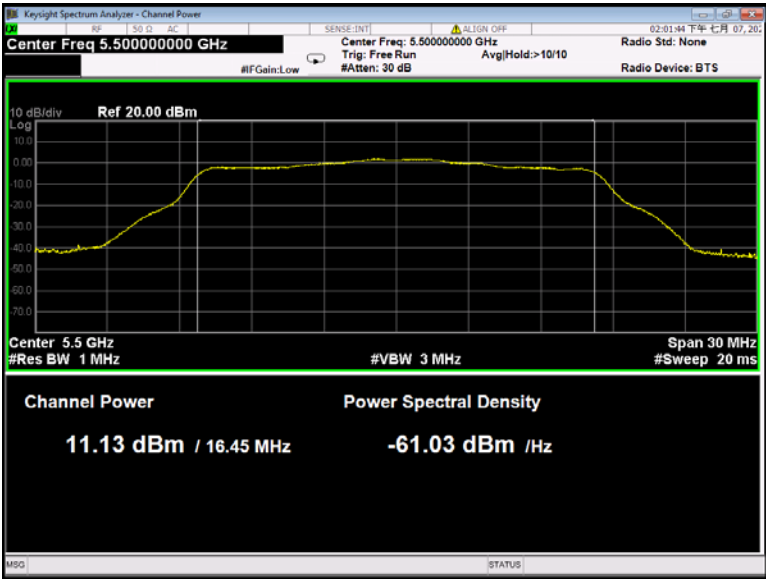
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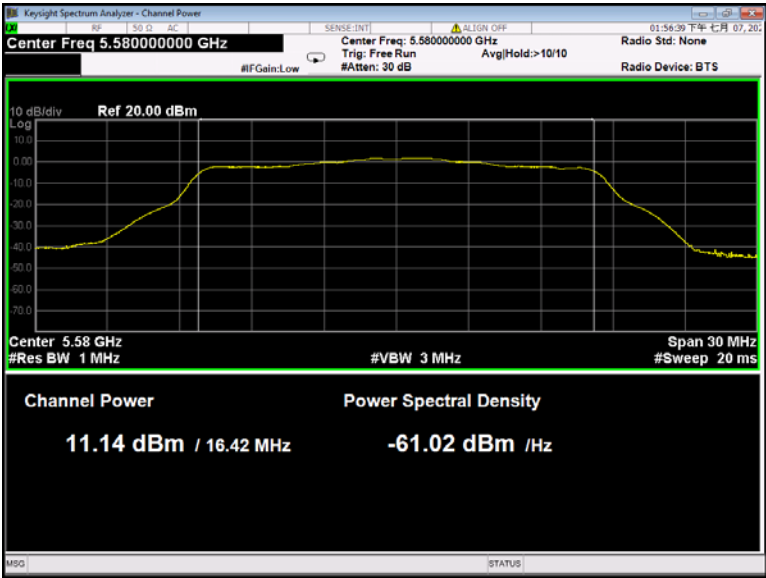
802.11ac(VHT80) U-NII-2A Low channel



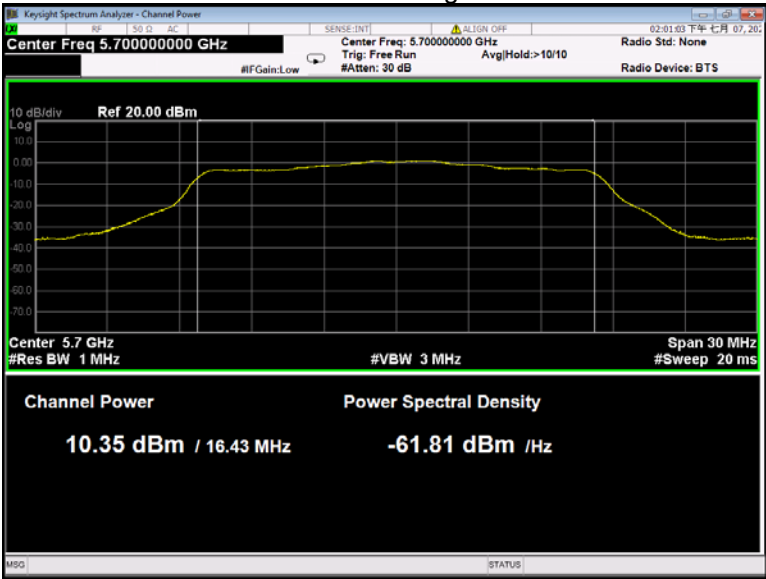
802.11a U-NII-2C Low channel



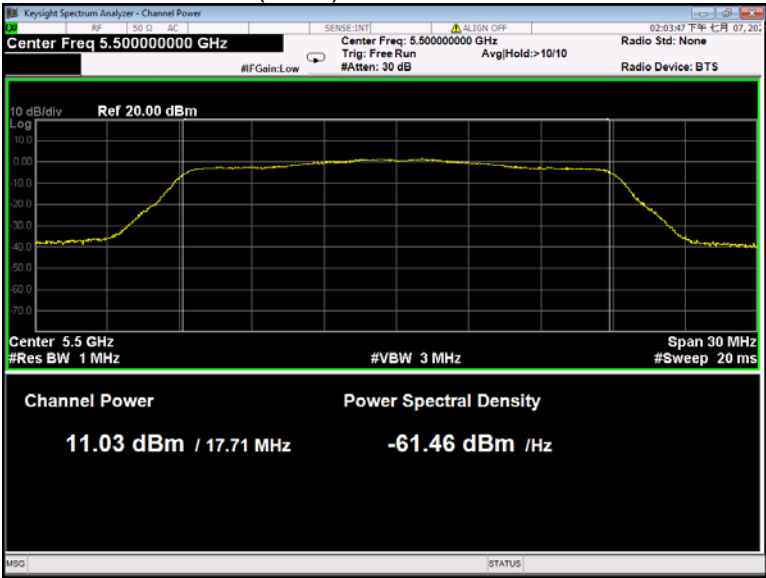
802.11a U-NII-2C Middle channel



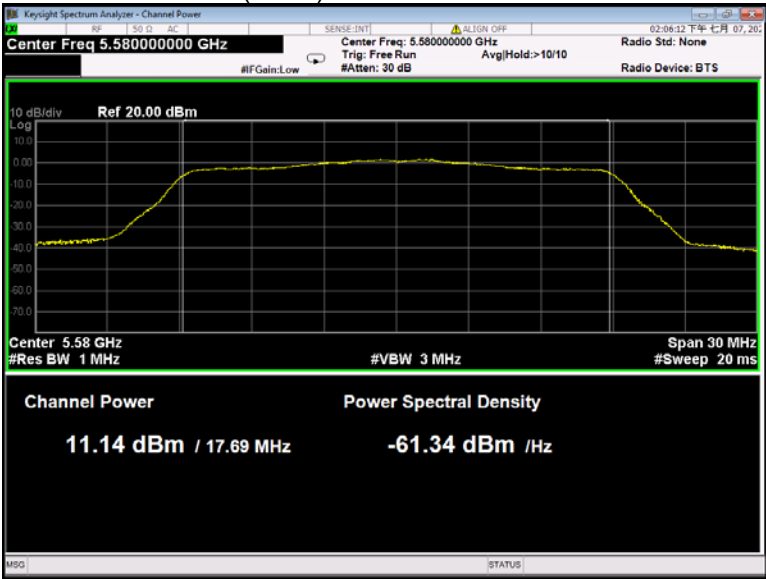
802.11a U-NII-2C High channel



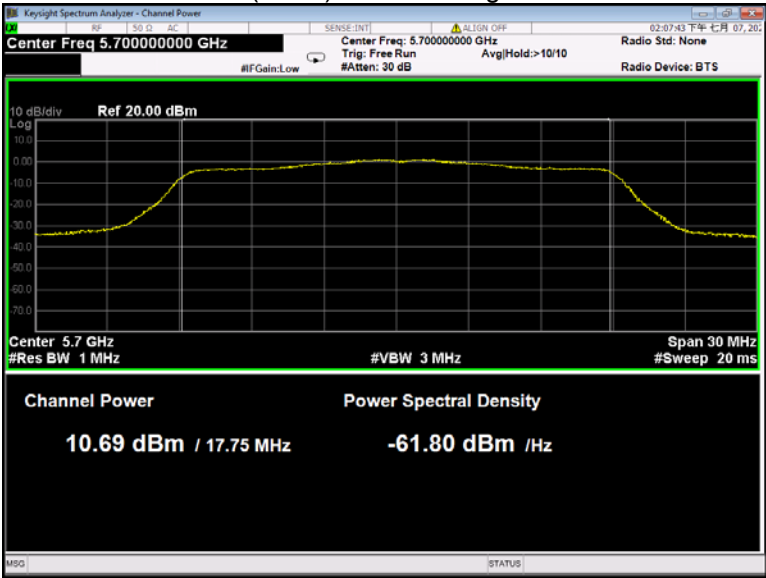
802.11n(HT20) U-NII-2C Low channel



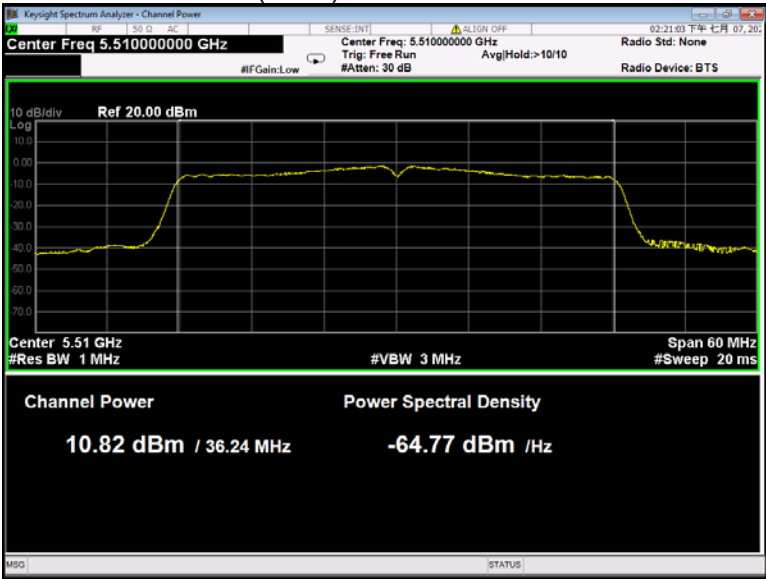
802.11n(HT20) U-NII-2C Middle channel



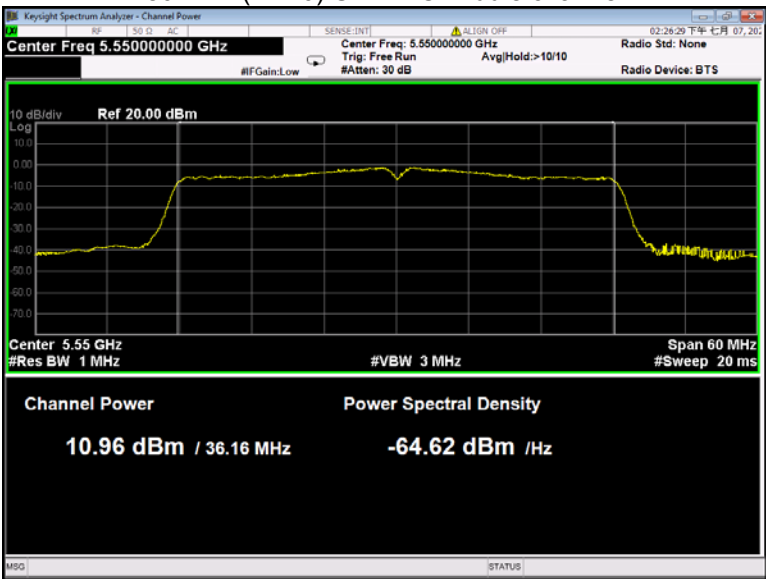
802.11n(HT20) U-NII-2C High channel



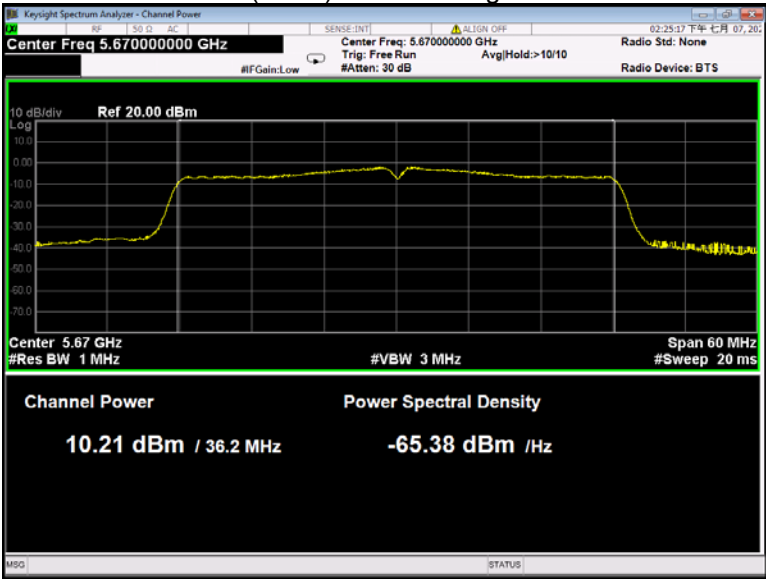
802.11n(HT40) U-NII-2C Low channel



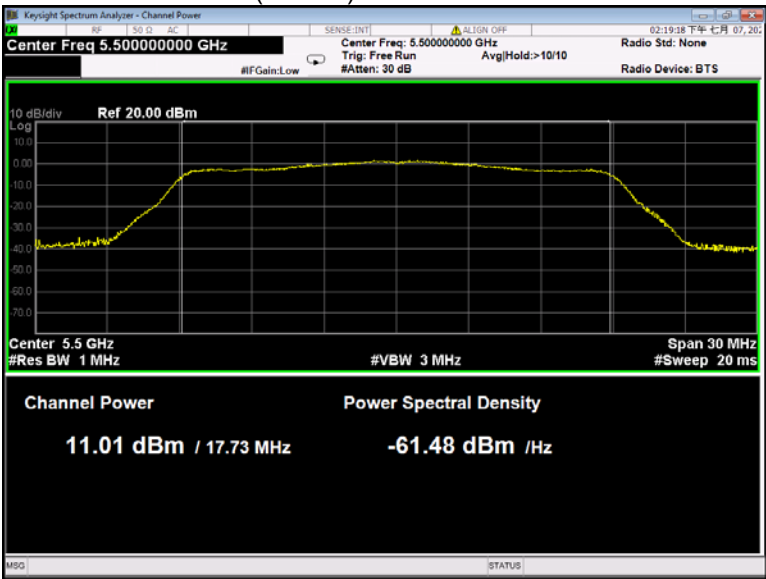
802.11n(HT40) U-NII-2C Middle channel



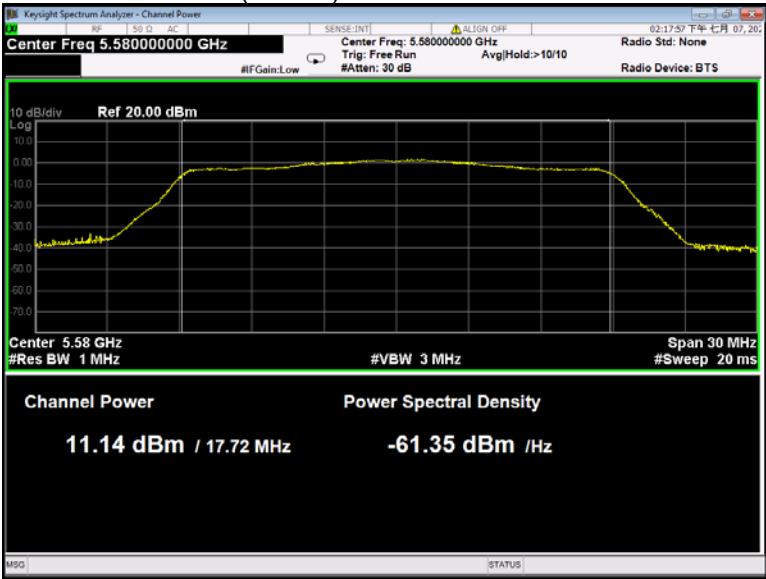
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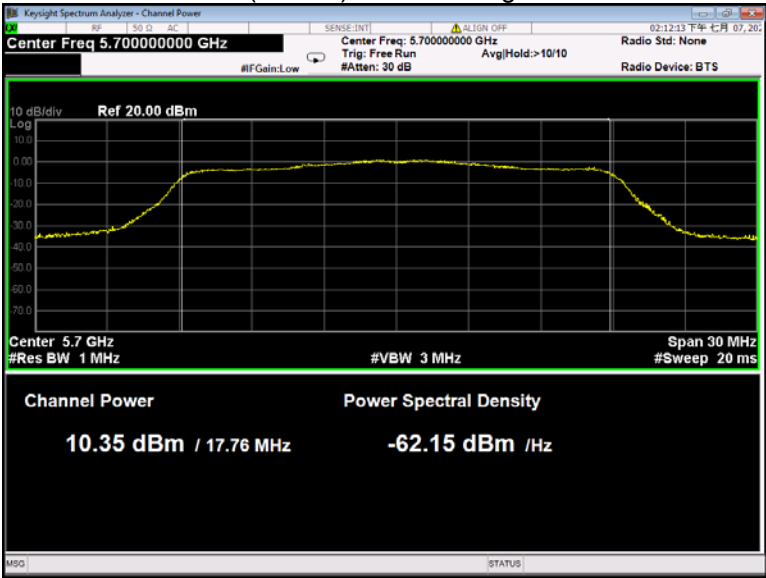
802.11ac(VHT20) U-NII-2C Low channel



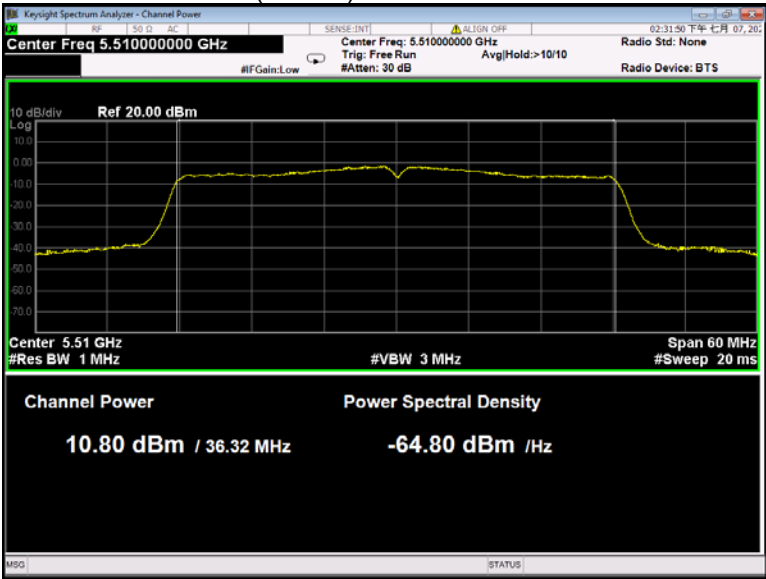
802.11ac(VHT20) U-NII-2C Middle channel



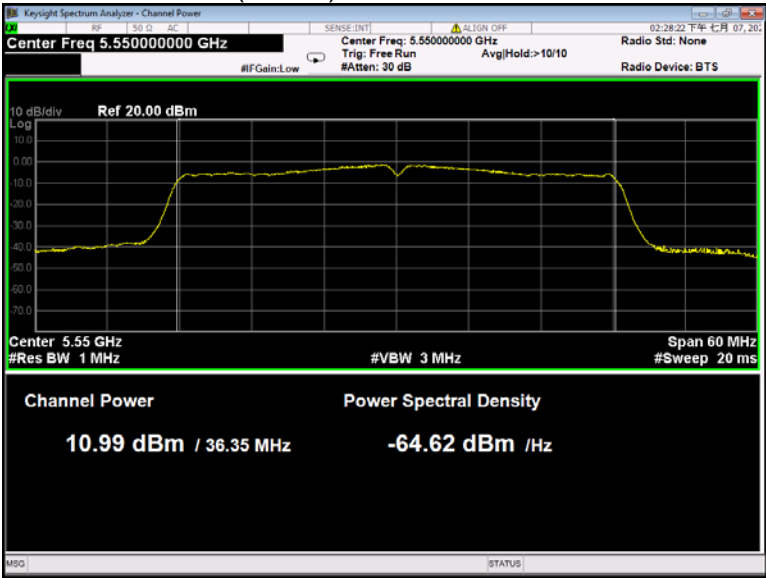
802.11ac(VHT20) U-NII-2C High channel



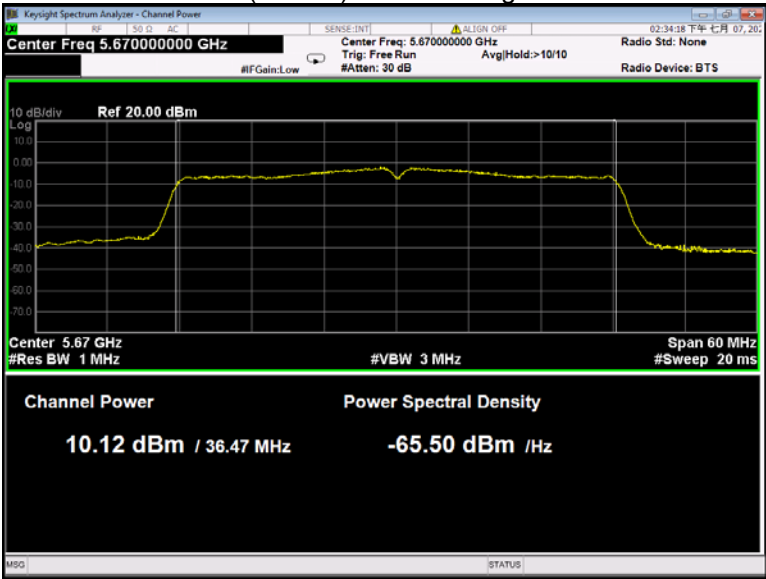
802.11ac(VHT40) U-NII-2C Low channel



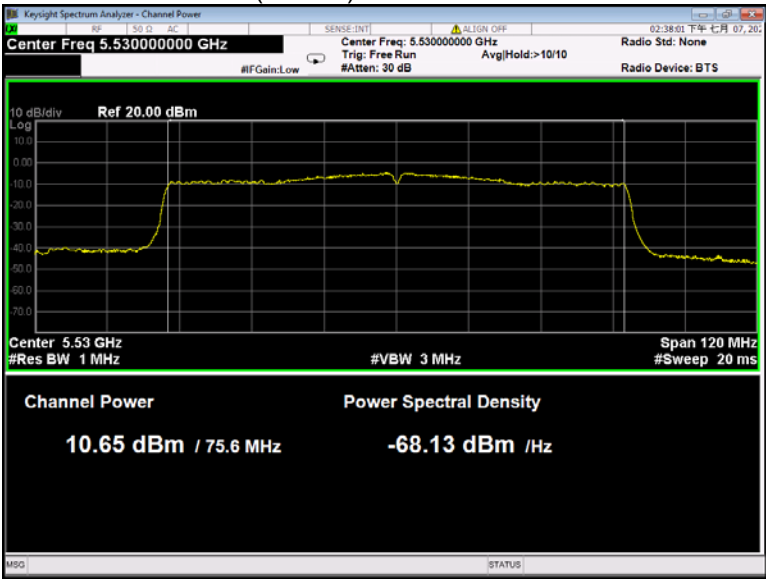
802.11ac(VHT40) U-NII-2C Middle channel



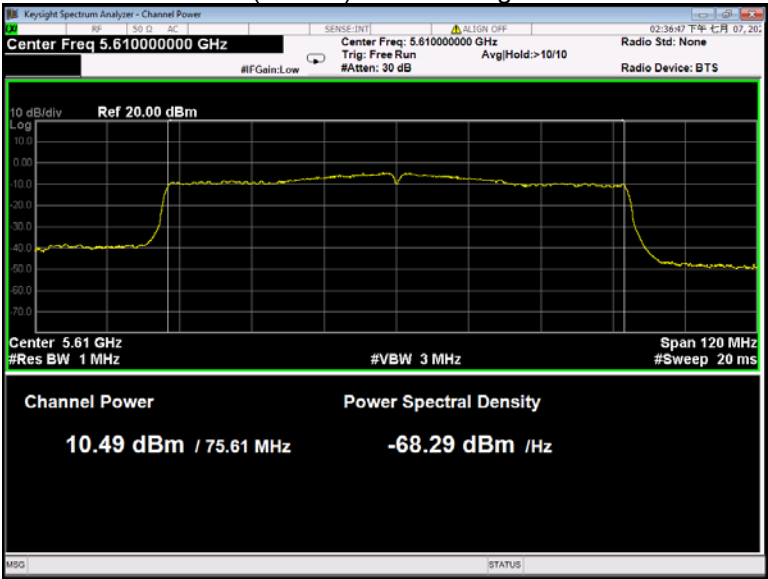
802.11ac(VHT40) U-NII-2C High channel



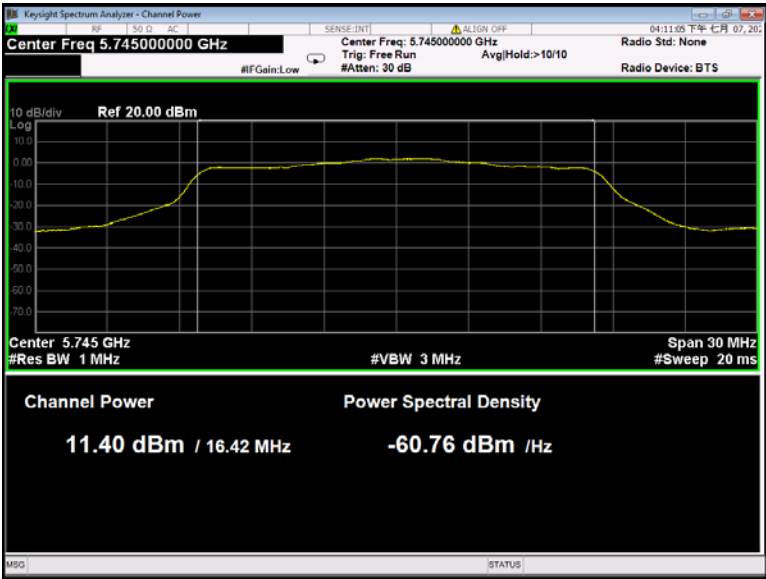
802.11ac(VHT80) U-NII-2C Low channel



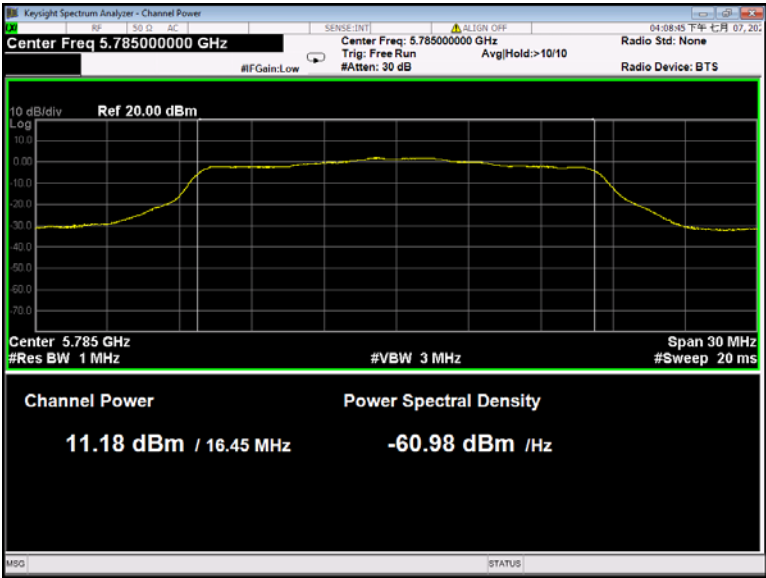
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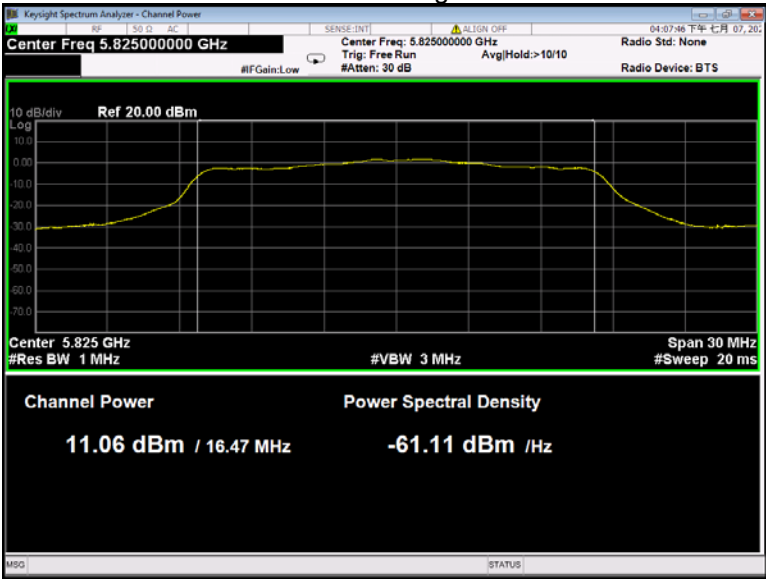
802.11a U-NII-3 Low channel



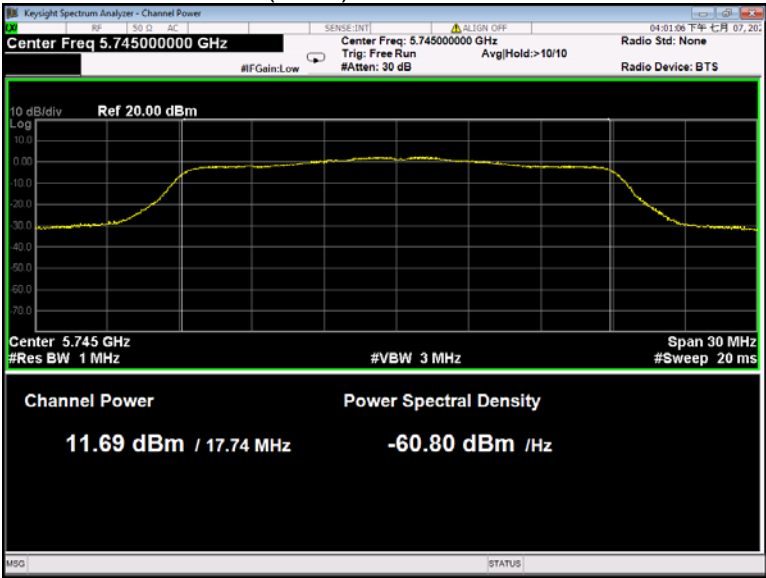
802.11a U-NII-3 Middle channel



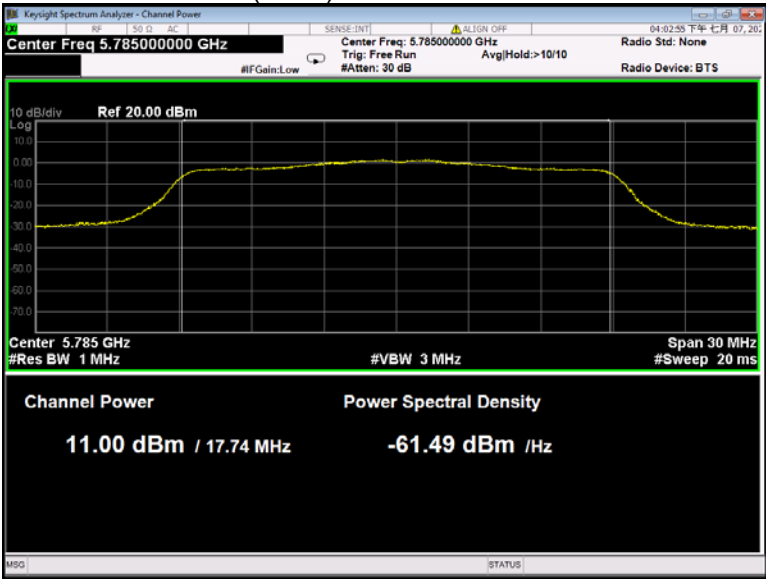
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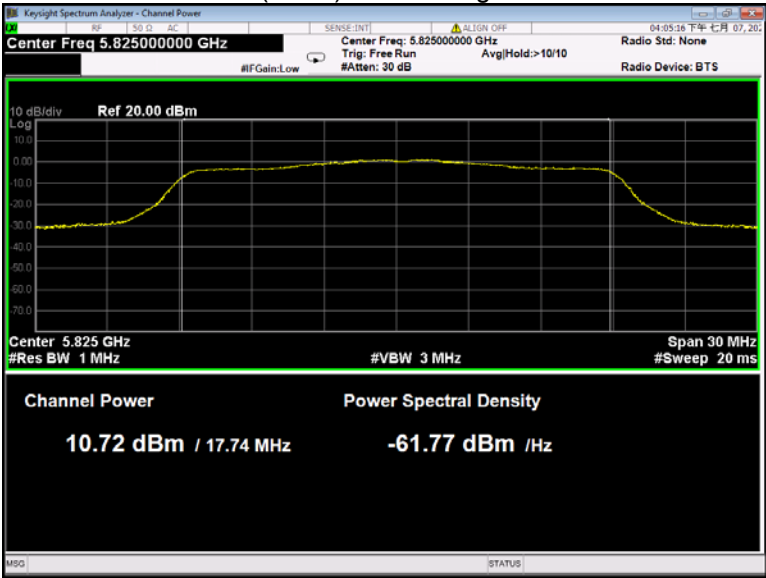
802.11n(HT20) U-NII-3 Low channel



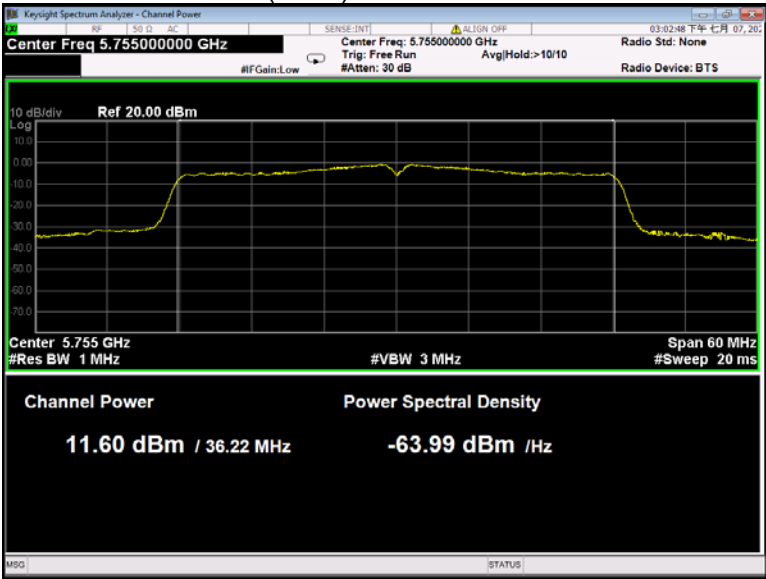
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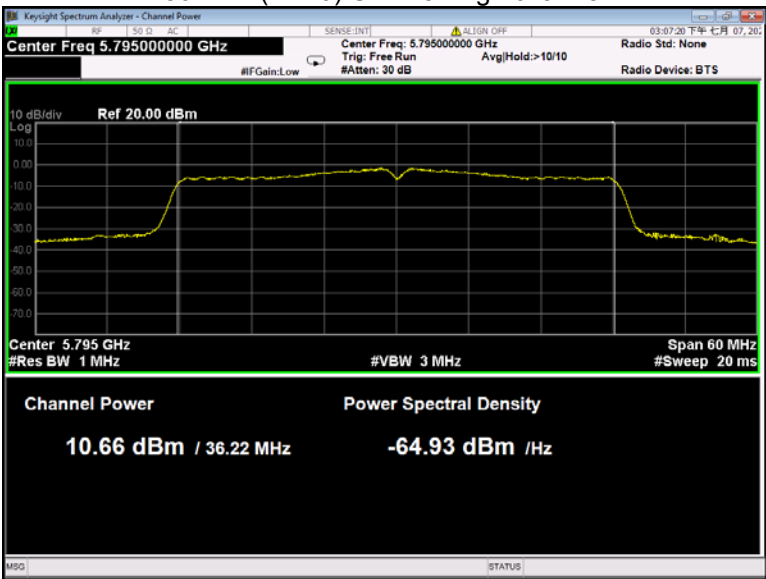
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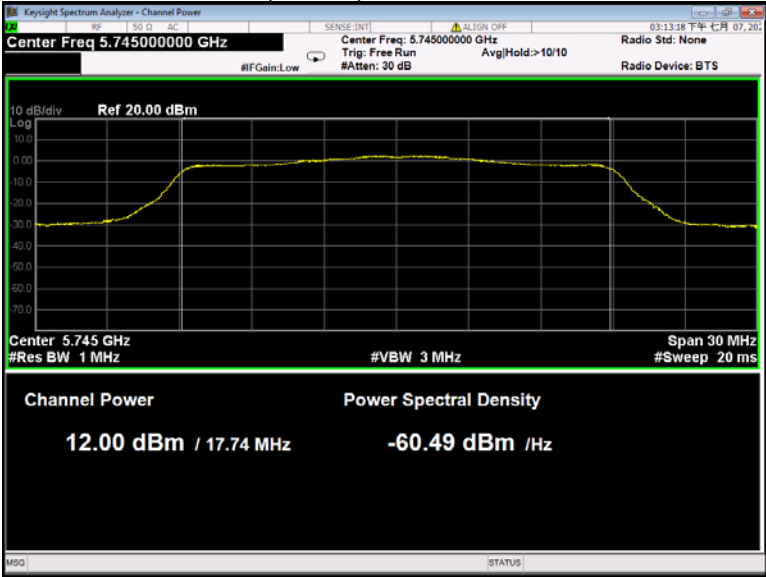
802.11n(HT40) U-NII-3 Low channel



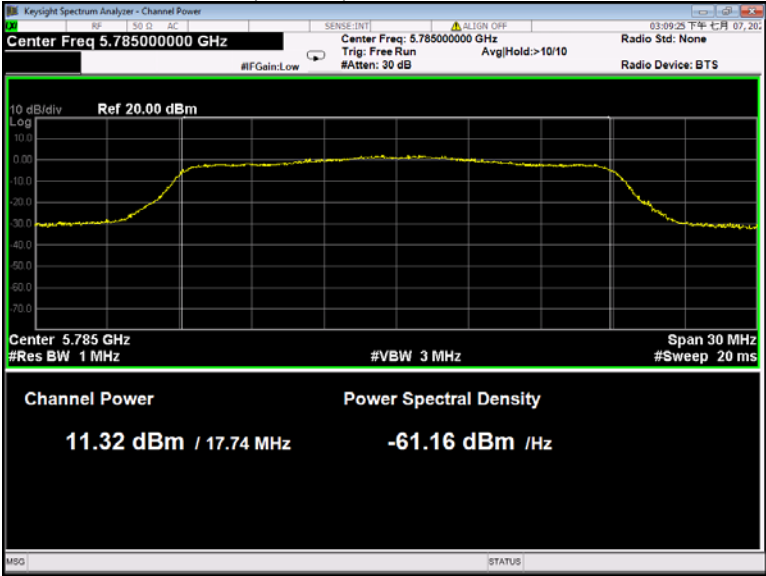
802.11n(HT40) U-NII-3 High channel



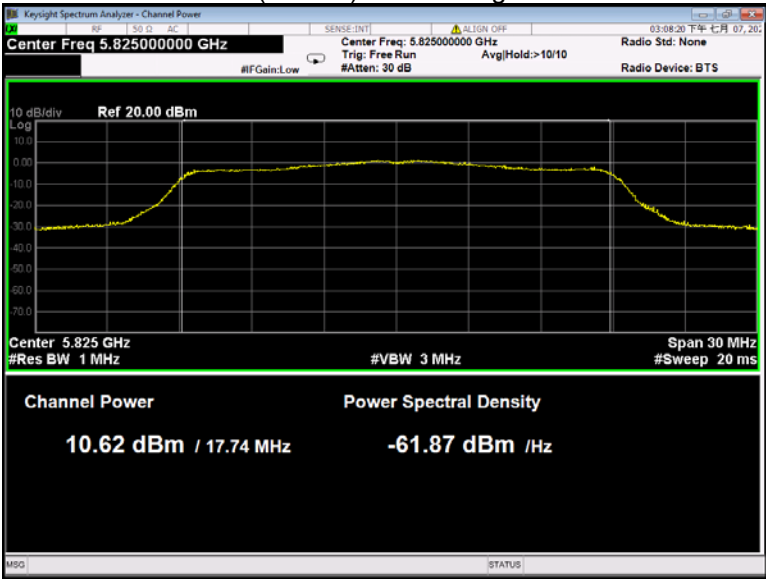
802.11ac(VHT20) U-NII-3 Low channel



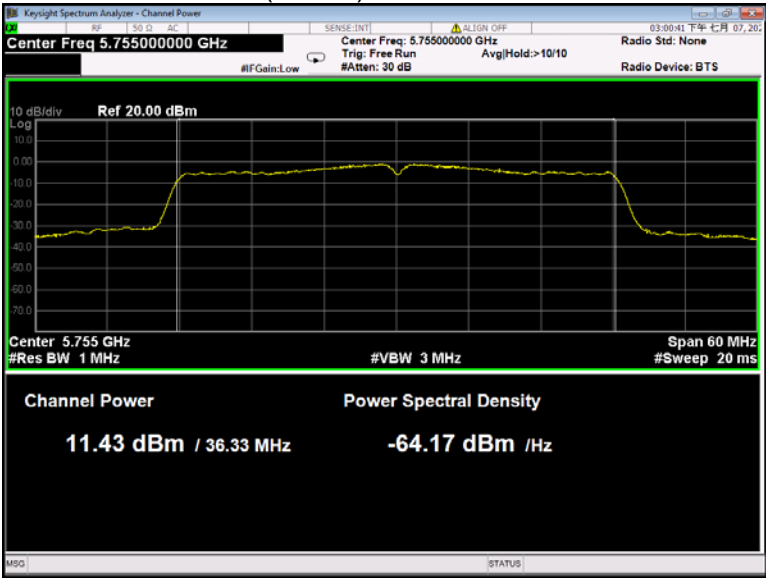
802.11ac(VHT20) U-NII-3 Middle channel



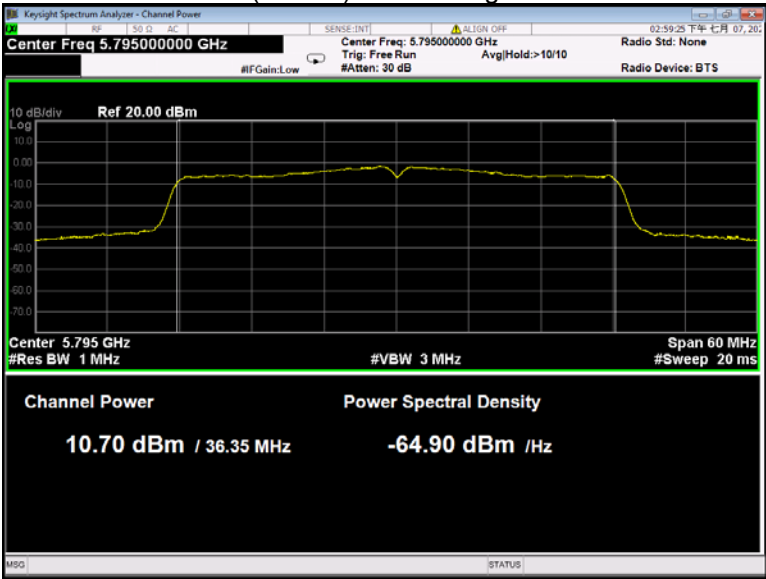
802.11ac(VHT20) U-NII-3 High channel



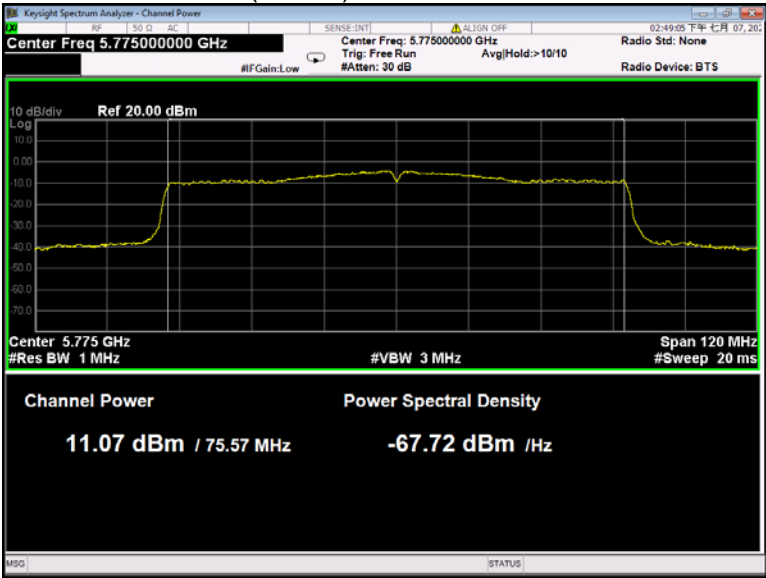
802.11ac(VHT40) U-NII-3 Low channel



802.11n(VHT40) U-NII-3 High channel



802.11ac(VHT80) U-NII-3 Middle 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:	$\leq 11\text{dBm/MHz}$ for Operation in the U-NII-1(5150MHz-5250MHz, 5250-5350MHz and 5470-5725MHz)of device; $\leq 30\text{dBm/500kHz}$ for Operation in the U-NII-3(5725MHz-5850MHz)of device
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

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power spectral density (dBm)
U-NII-1	802.11a	Low	2.00	2.869
		Middle		3.746
		High		4.225
	802.11n(HT20)	Low	2.15	2.727
		Middle		3.307
		High		4.330
	802.11ac(VHT20)	Low	2.31	2.772
		Middle		3.303
		High		1.090
	802.11n(HT40)	Low	3.05	0.666
		High		1.281
	802.11ac(VHT40)	Low	3.34	0.365
		High		1.090
	802.11ac(VHT80)	Middle	4.17	2.764

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power spectral density (dBm)
U-NII-2A	802.11a	Low	2.00	4.449
		Middle		4.606
		High		5.614
	802.11n(HT20)	Low	2.15	4.531
		Middle		4.562
		High		5.149
	802.11ac(VHT20)	Low	2.31	4.551
		Middle		4.740
		High		5.153
	802.11n(HT40)	Low	3.05	1.648
		High		2.170
	802.11ac(VHT40)	Low	3.34	1.230
		High		1.870
	802.11ac(VHT80)	Middle	4.17	0.965

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power spectral density (dBm)
U-NII-2C	802.11a	Low	2.00	2.450
		Middle		2.893
		High		2.175
	802.11n(HT20)	Low	2.15	2.541
		Middle		2.574
		High		2.054
	802.11ac(VHT20)	Low	2.31	2.436
		Middle		2.651
		High		2.024
	802.11n(HT40)	Low	3.05	0.523
		Middle		0.209
		High		0.780
	802.11ac(VHT40)	Low	3.34	0.626
		Middle		0.311
		High		1.180
	802.11ac(VHT80)	Middle	4.17	3.540
		High		2.968

Band	Operation mode	Channel	Duty Cycle Factor (dB)	Conducted Output Power spectral density (dBm)
U-NII-3	802.11a	Low	2.00	0.295
		Middle		0.177
		High		0.656
	802.11n(HT20)	Low	2.15	0.237
		Middle		0.074
		High		0.512
	802.11ac(VHT20)	Low	2.31	0.452
		Middle		0.263
		High		0.732
	802.11n(HT40)	Low	3.05	2.877
		High		3.588
	802.11ac(VHT40)	Low	3.34	1.761
		High		3.164
	802.11ac(VHT80)	Middle	4.17	5.336

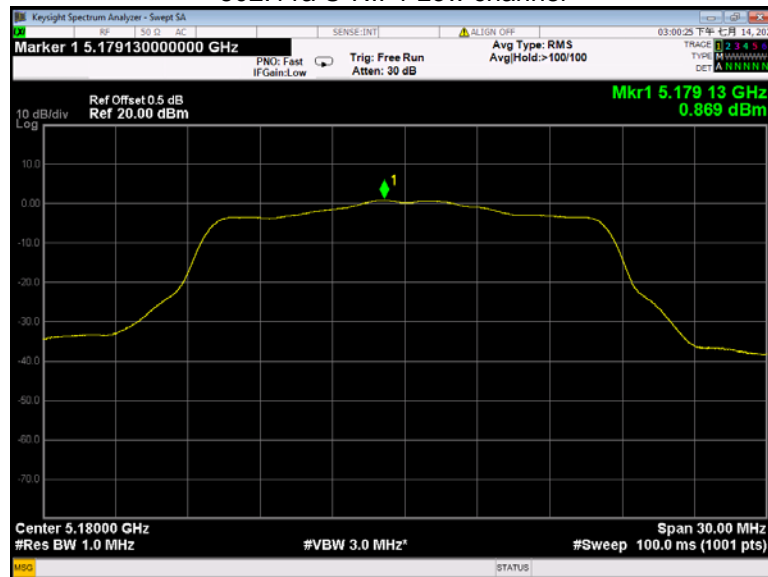
Note:

1. Conducted Output Power spectral density = Measurements + Duty Cycle Factor

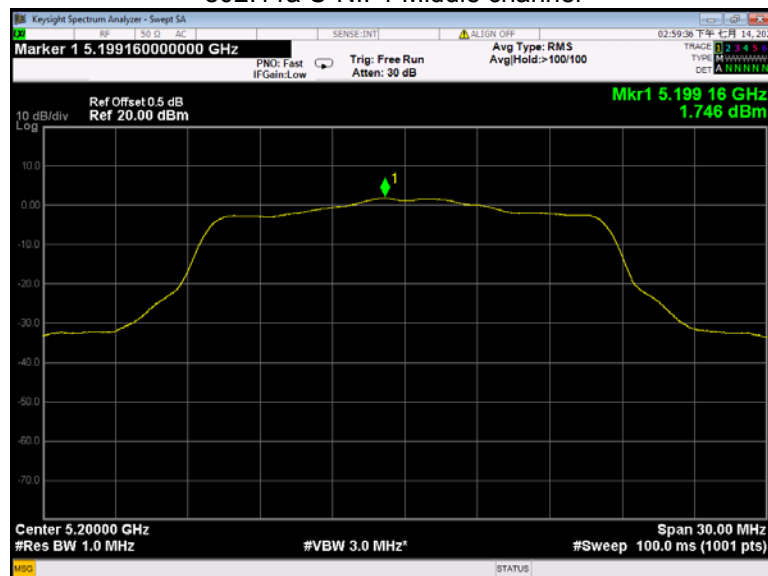
* All transmit signals are completely uncorrelated with each other, Directional gain = G_{ANT} which is less than 6dBi. So the limit does not be reduced.

Test result plots shown as follows:

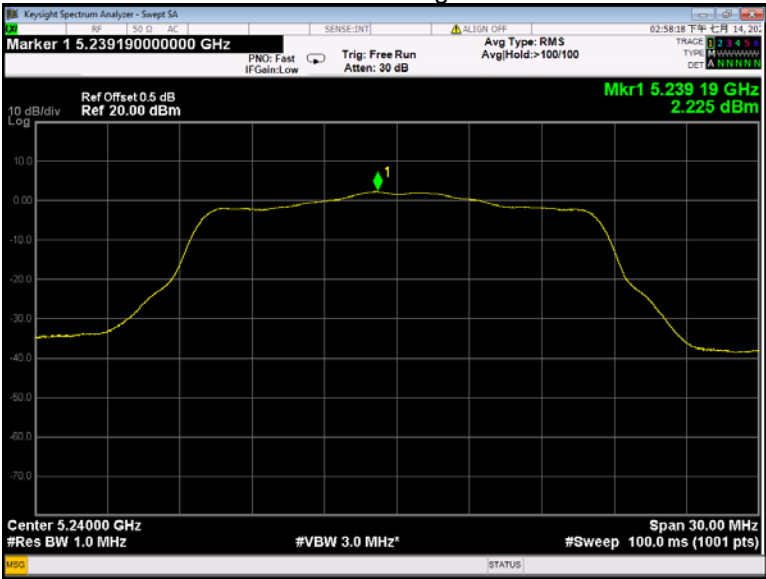
802.11a U-NII-1 Low channel



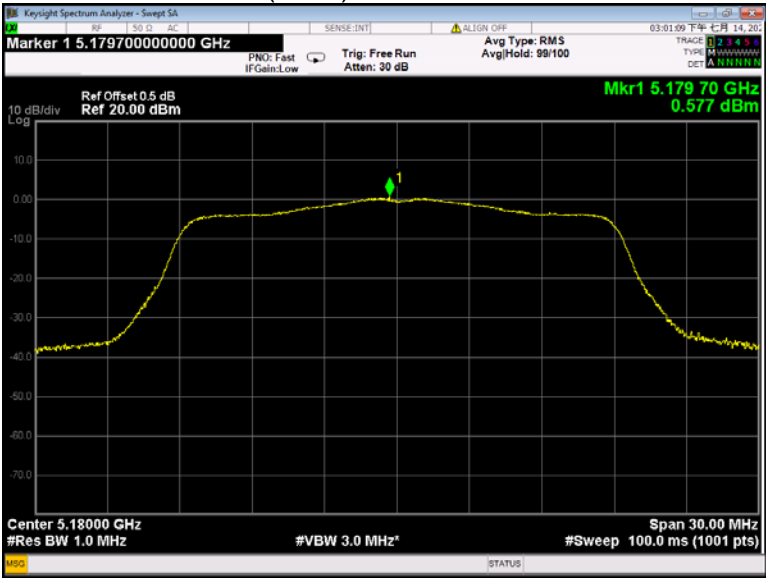
802.11a U-NII-1 Middle channel



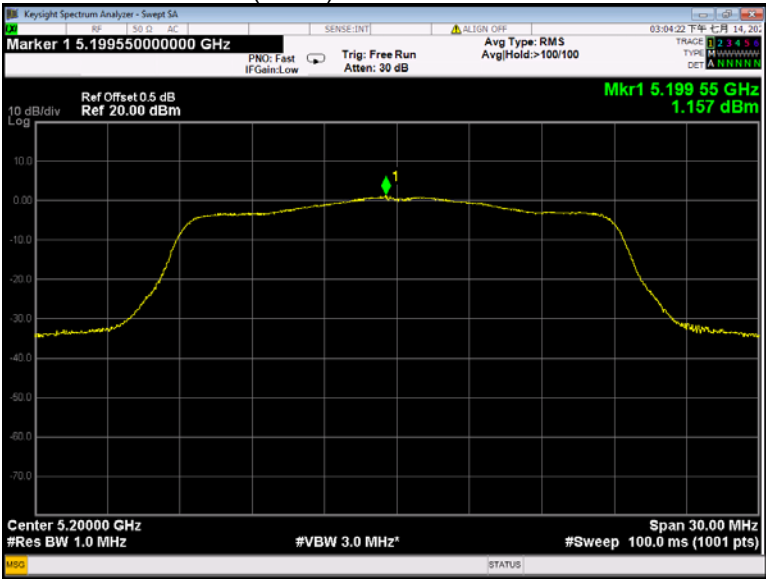
802.11a U-NII-1 High channel



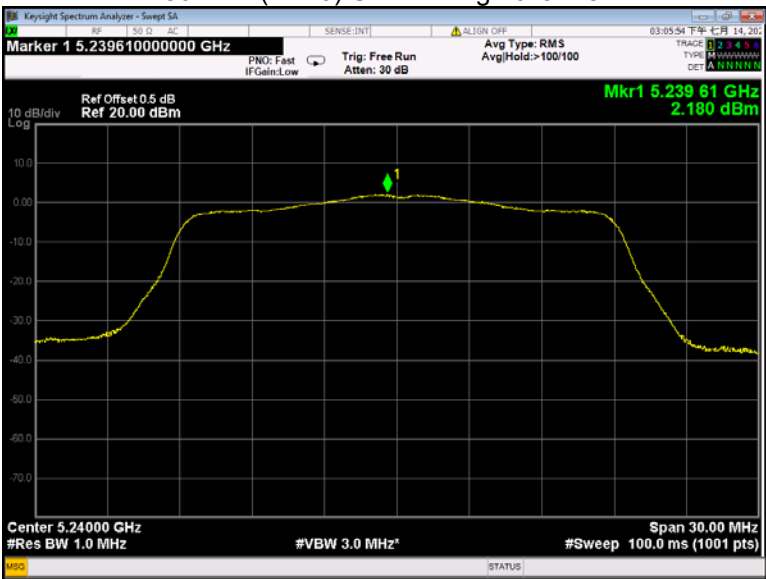
802.11n(HT20) U-NII-1 Low channel



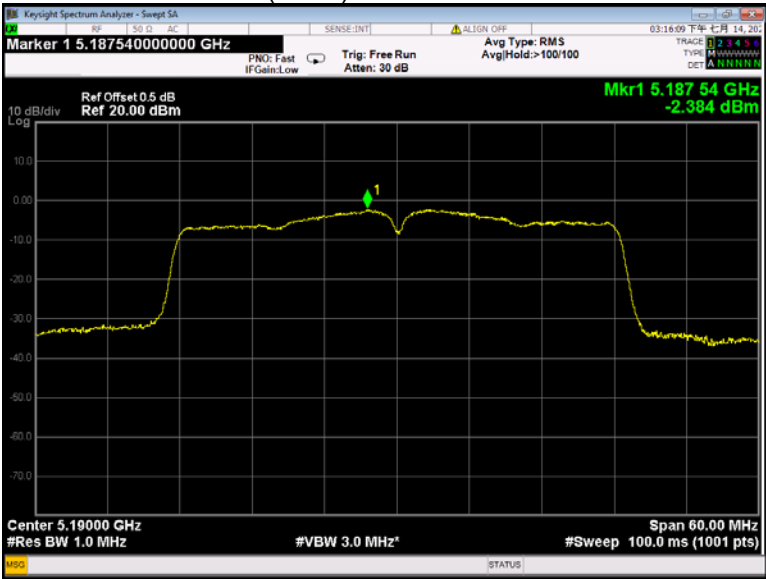
802.11n(HT20) U-NII-1 Middle channel



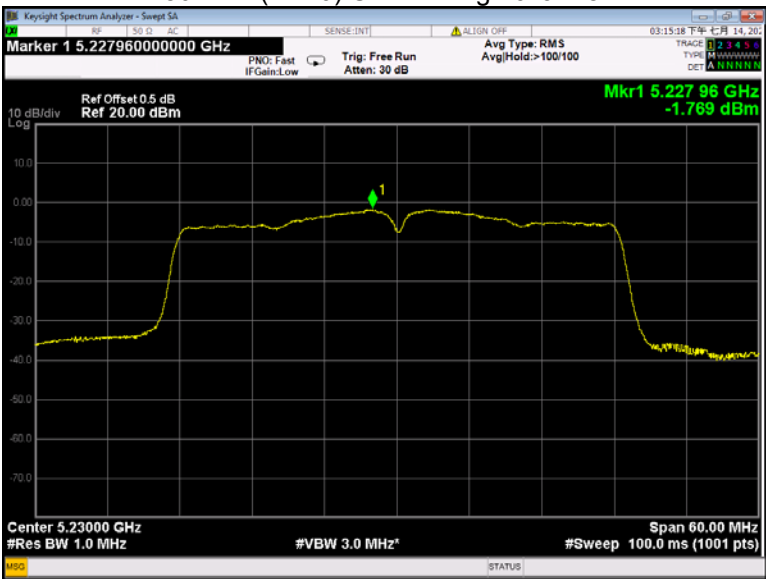
802.11n(HT20) U-NII-1 High channel



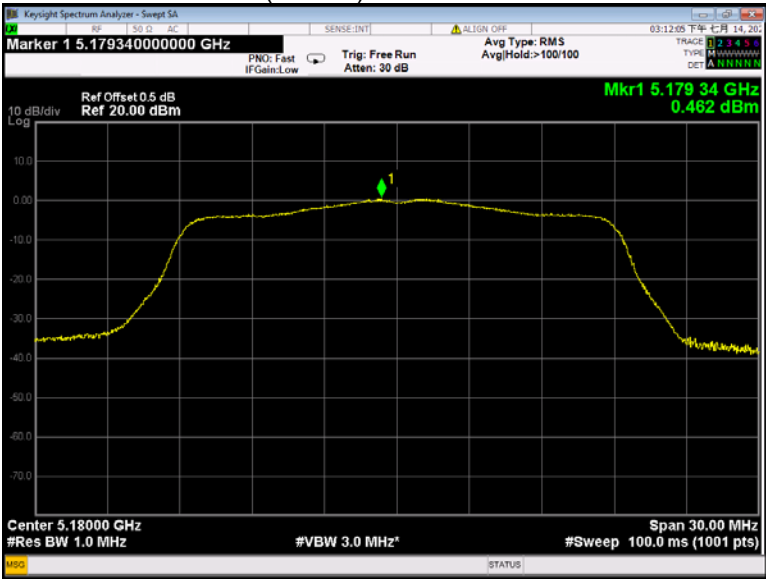
802.11n(HT40) U-NII-1 Low channel



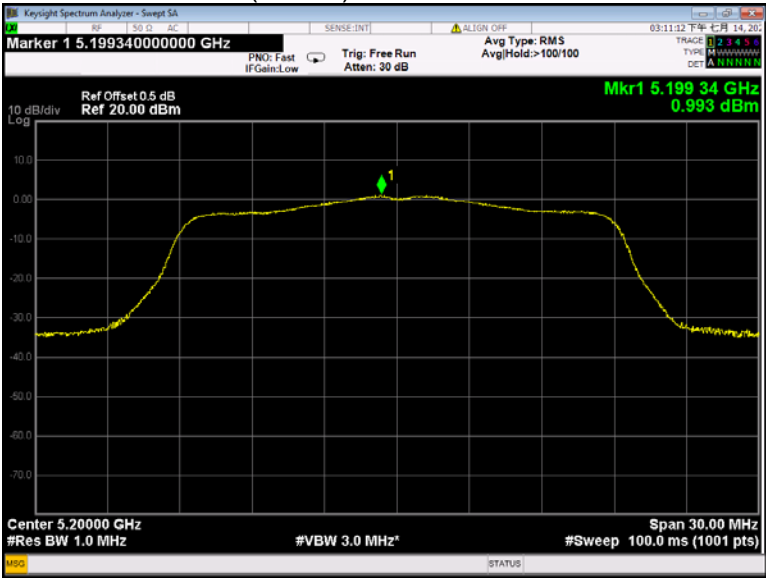
802.11n(HT40) U-NII-1 High channel



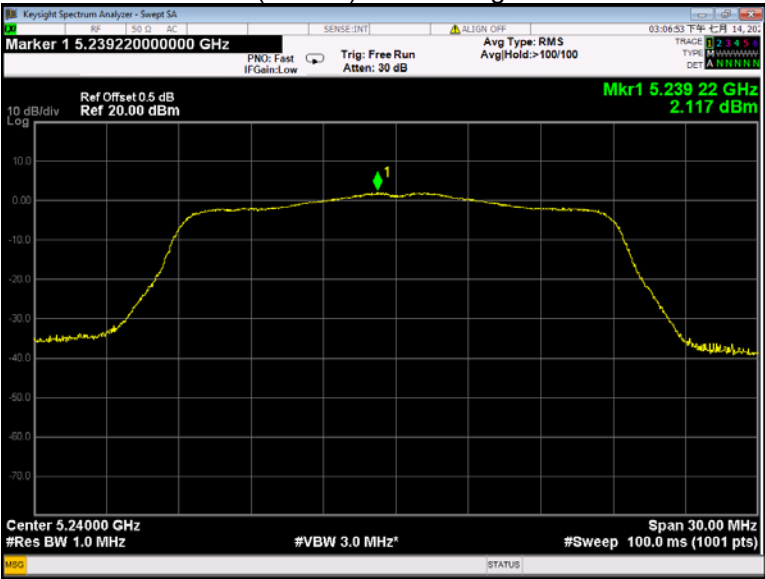
802.11ac(VHT20) U-NII-1 Low channel



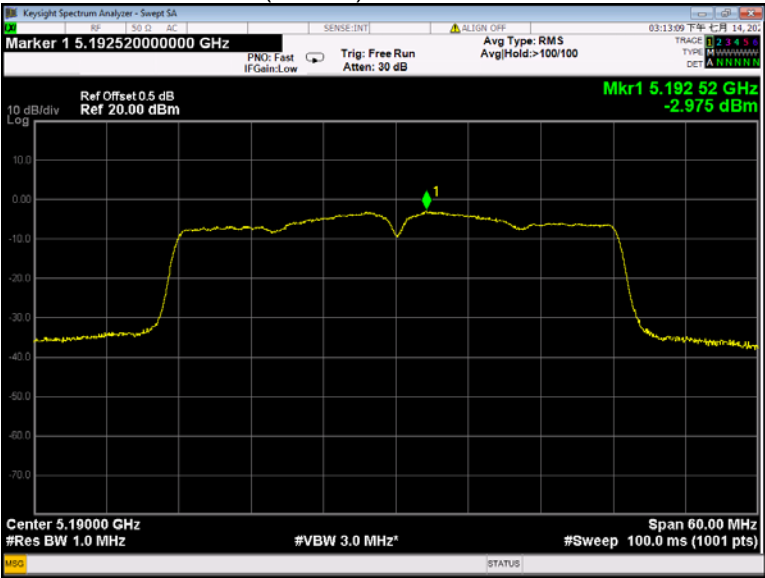
802.11ac(VHT20) U-NII-1 Middle channel



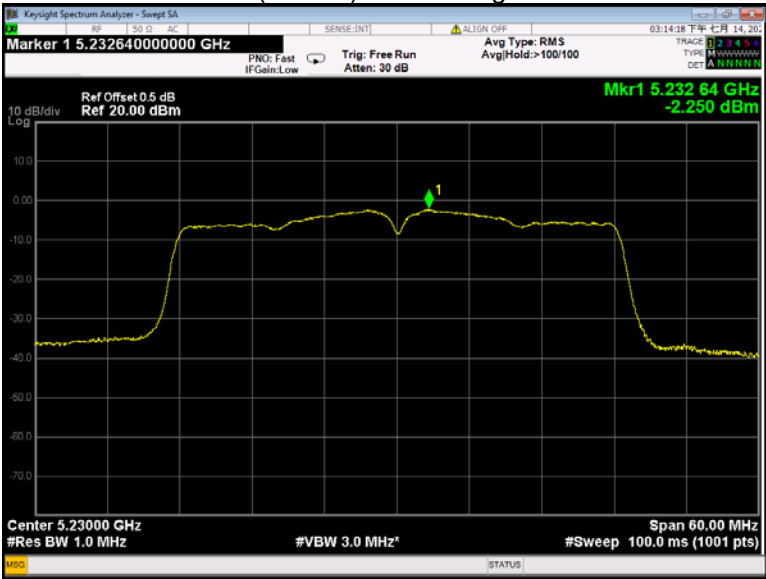
802.11ac(VHT20) U-NII-1 High channel



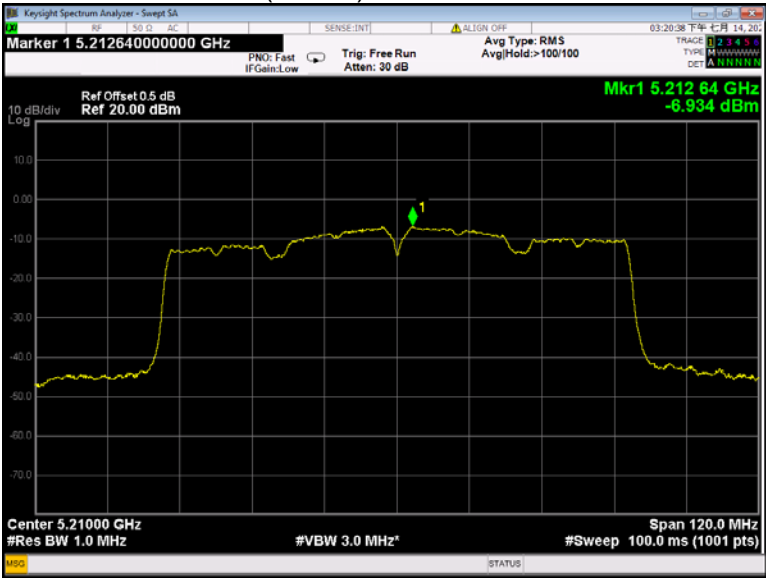
802.11ac(VHT40) U-NII-1 Low channel



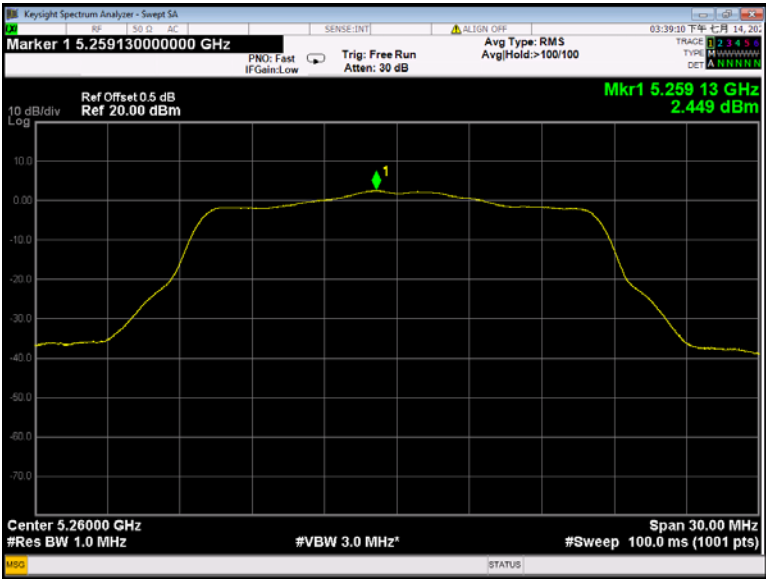
802.11ac(VHT40) U-NII-1 High channel



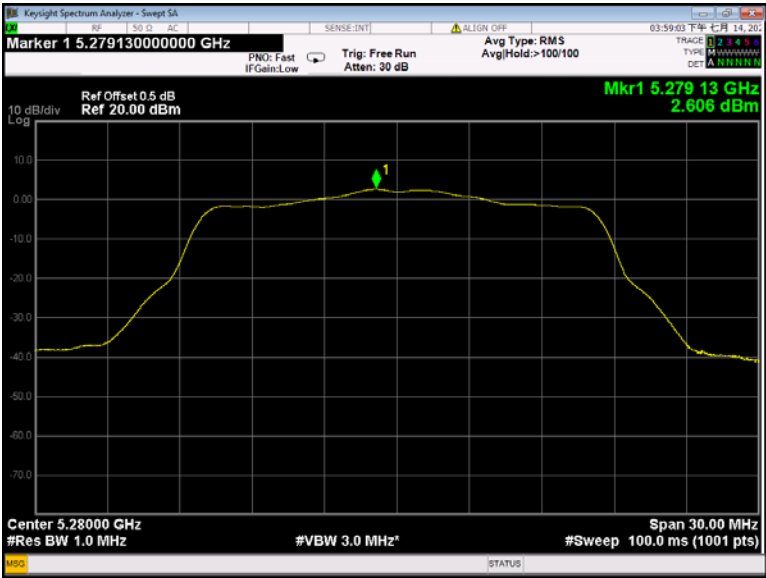
802.11ac(VHT80) U-NII-1 Low channel



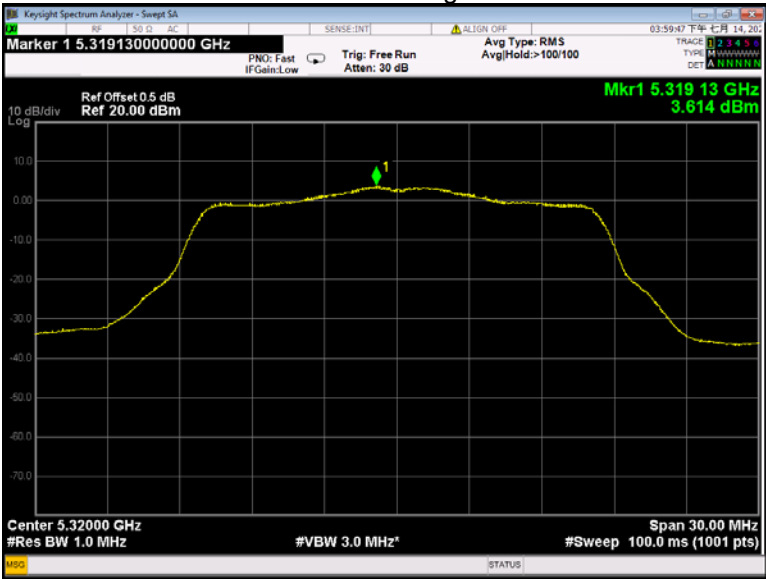
802.11a U-NII-2A Low channel



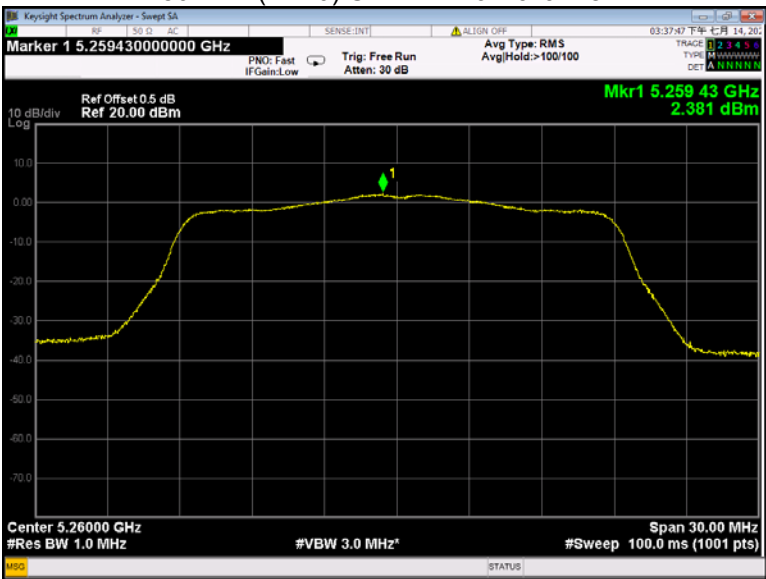
802.11a U-NII-2A Middle channel



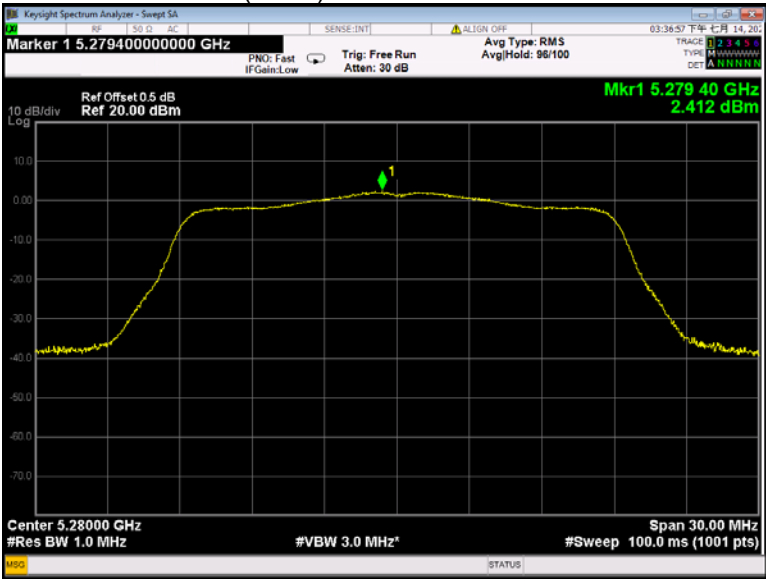
802.11a U-NII-2A High channel



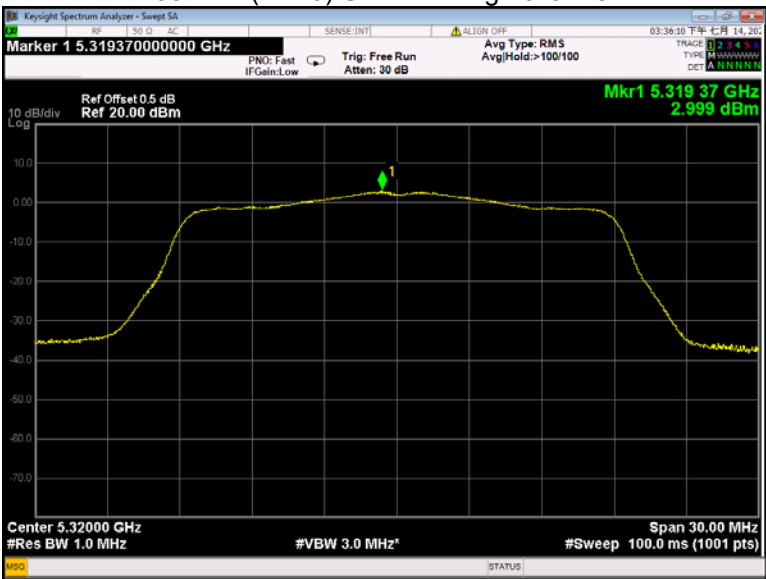
802.11n(HT20) U-NII-2A Low channel



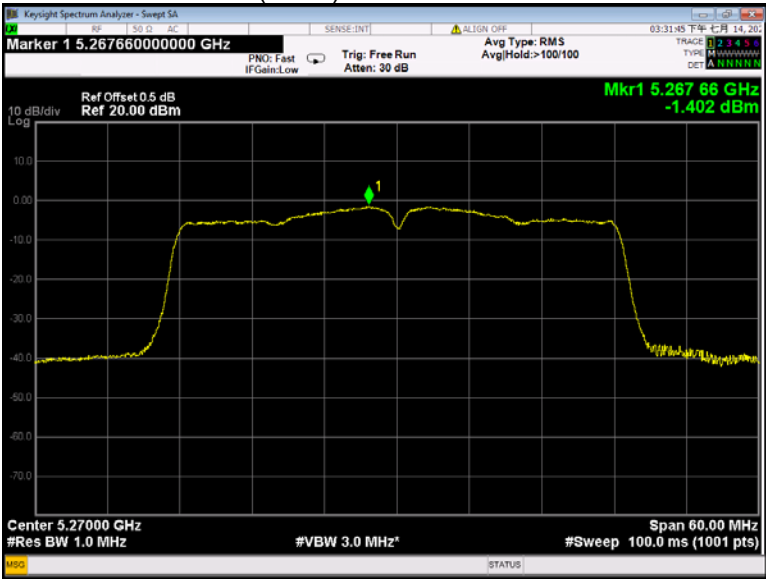
802.11n(HT20) U-NII-2A Middle channel



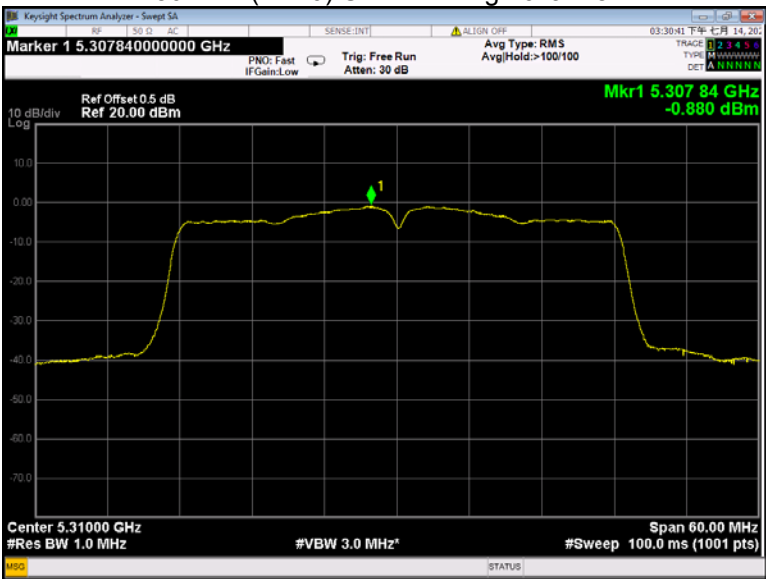
802.11n(HT20) U-NII-2A High channel



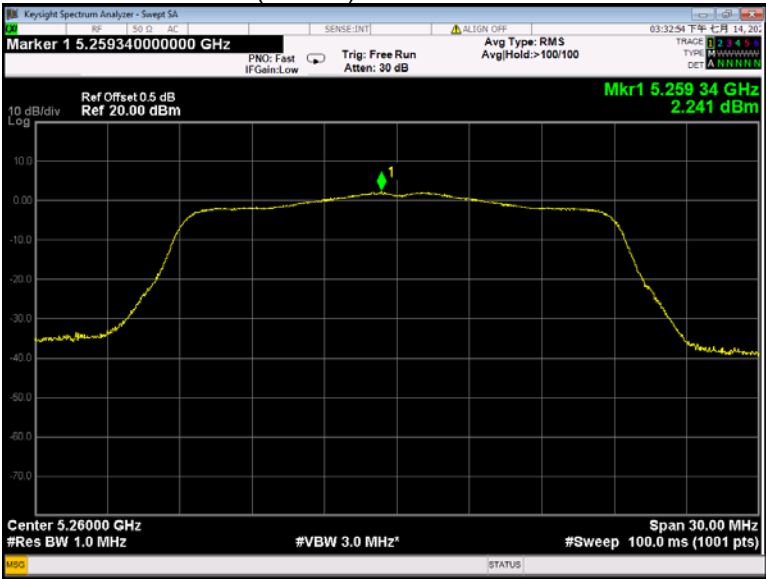
802.11n(HT40) U-NII-2A Low channel



802.11n(HT40) U-NII-2A High channel



802.11ac(VHT20) U-NII-2A Low channel



802.11ac(VHT20) U-NII-2A Middle channel

