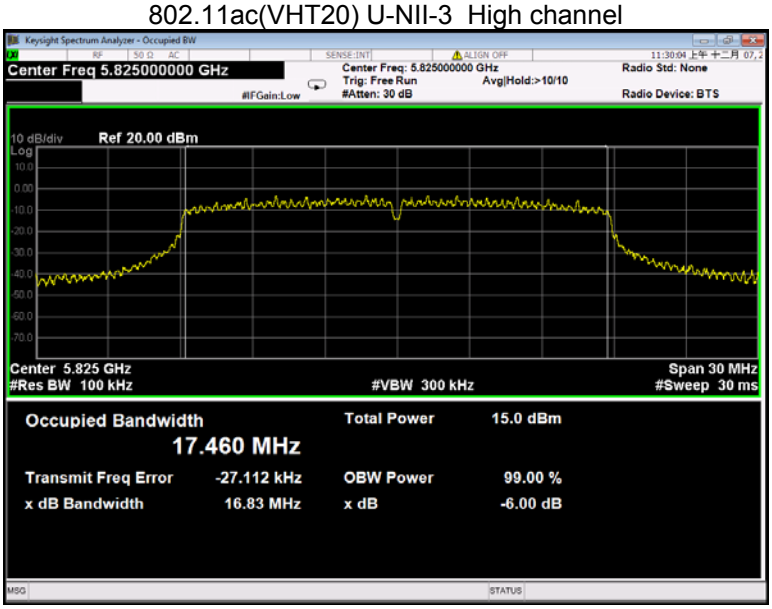
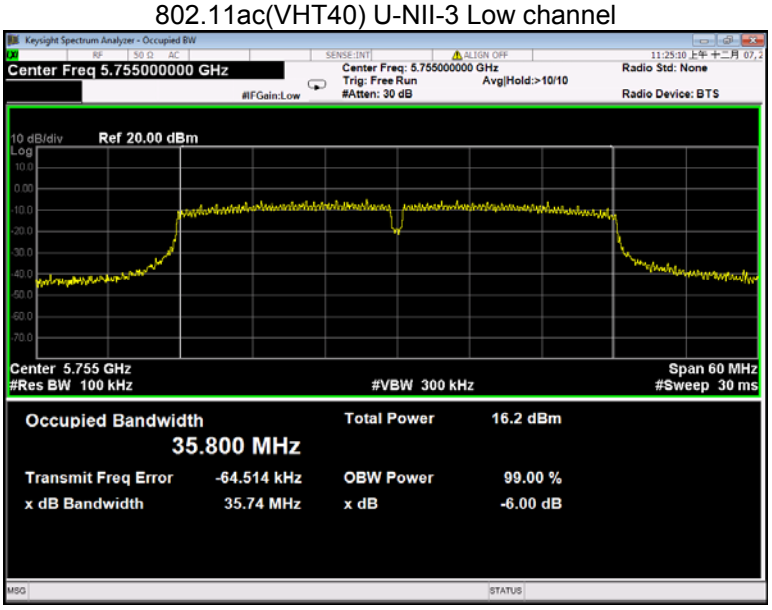
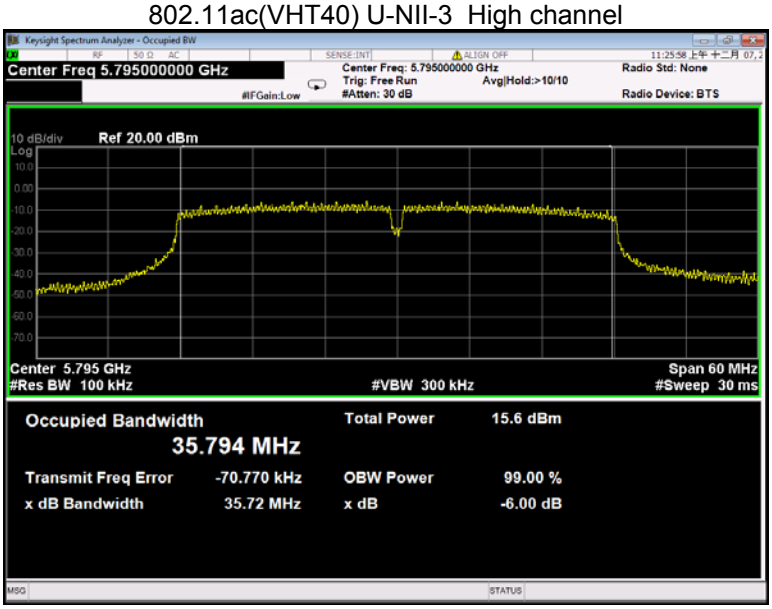
802.11ac(VHT20) U-NII-3 High channel



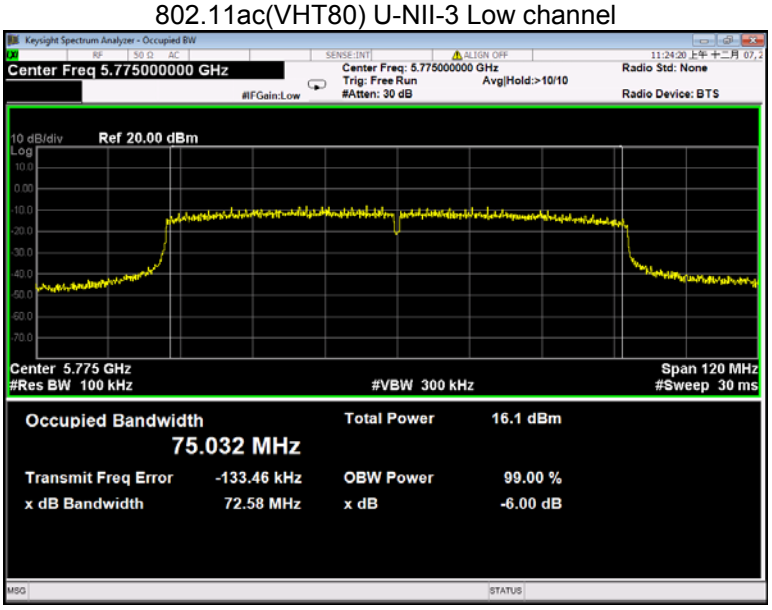
802.11ac(VHT40) U-NII-3 Low channel



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



802.11ac(VHT80) U-NII-3 Low channel



11 26 dB Bandwidth and 99% Occupied Bandwidth

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 D
Test Limit:	No restriction limits
Test Result:	PASS

11.1 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% to 5% of the OBW, VBW = 3x RBW

11.2 Test Result

Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
U-NII-1	802.11a	19.92	18.83	18.73	16.213	16.228	16.206
	802.11n(HT20)	19.80	20.10	19.56	17.389	17.379	17.345
	802.11n(HT40)	42.54	/	40.27	35.836	/	35.782
	802.11ac(VHT20)	19.60	19.60	19.62	17.375	17.397	17.367
	802.11ac(VHT40)	41.54	/	40.19	35.795	/	35.744
	802.11ac(VHT80)	82.62	/	/	75.109	/	/

Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
U-NII-2A	802.11a	18.81	19.35	19.55	16.222	16.226	16.243
	802.11n(HT20)	19.66	19.59	19.66	17.380	17.365	17.387
	802.11n(HT40)	40.00	/	40.57	35.802	/	35.826
	802.11ac(VHT20)	19.53	19.65	19.72	17.355	17.395	17.369
	802.11ac(VHT40)	40.02	/	44.50	35.776	/	35.790
	802.11ac(VHT80)	83.81	/	/	75.290	/	/

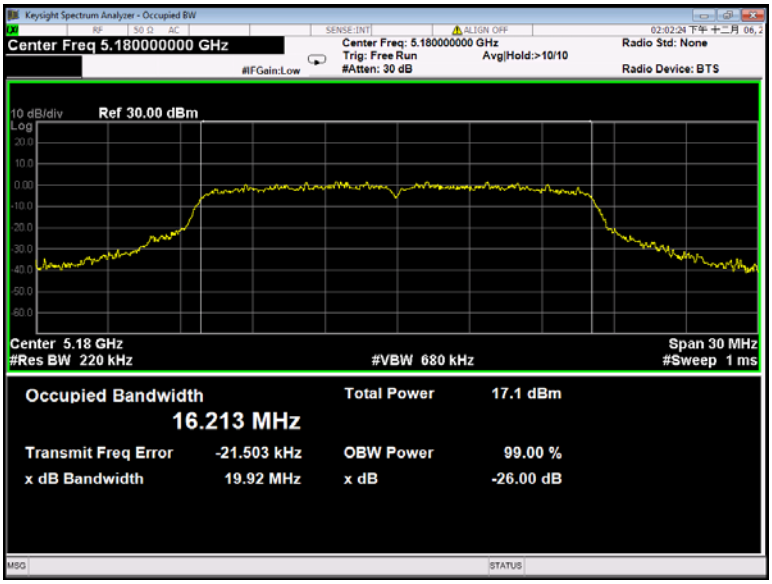
Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
U-NII-2C	802.11a	18.53	18.61	18.67	16.302	16.289	16.285
	802.11n(HT20)	19.63	19.28	19.33	17.460	17.467	17.458
	802.11n(HT40)	39.63	39.25	39.18	35.893	35.847	35.844
	802.11ac(VHT20)	19.40	19.14	19.40	17.449	17.469	17.461
	802.11ac(VHT40)	39.69	38.52	39.27	35.881	35.829	35.833
	802.11ac(VHT80)	81.58	/	81.02	75.145	/	75.114

Band	Operation mode	99% Bandwidth (MHz)		
		Low	Middle	High
U-NII-3	802.11a	16.311	16.319	16.315
	802.11n(HT20)	17.444	17.464	17.471
	802.11n(HT40)	35.839	/	35.850
	802.11ac(VHT20)	17.476	17.461	17.473
	802.11ac(VHT40)	35.842	/	35.878
	802.11ac(VHT80)	75.011	/	/

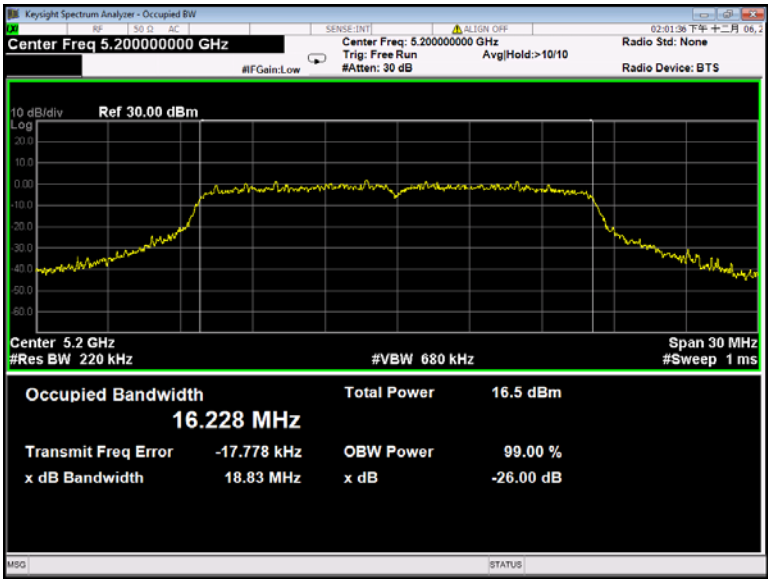
Test result plots shown as follows:

26 dB Bandwidth and 99% Occupied Bandwidth

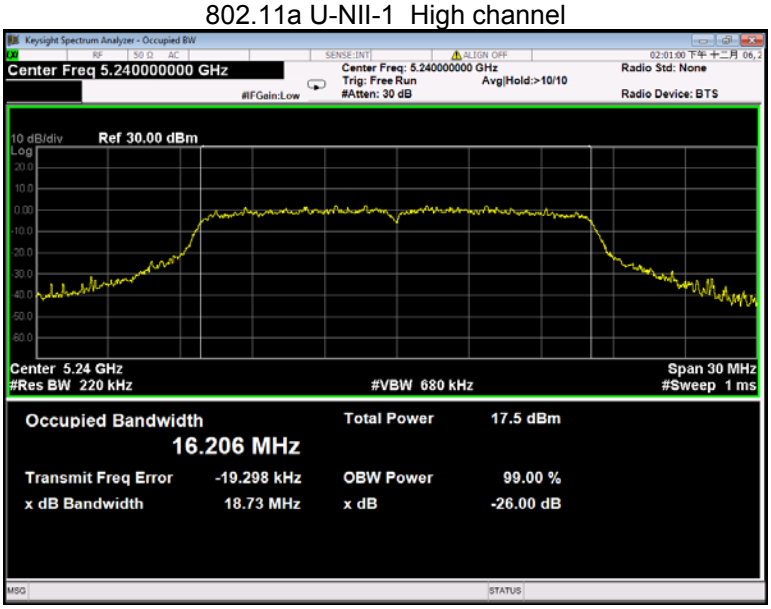
802.11a U-NII-1 Low channel



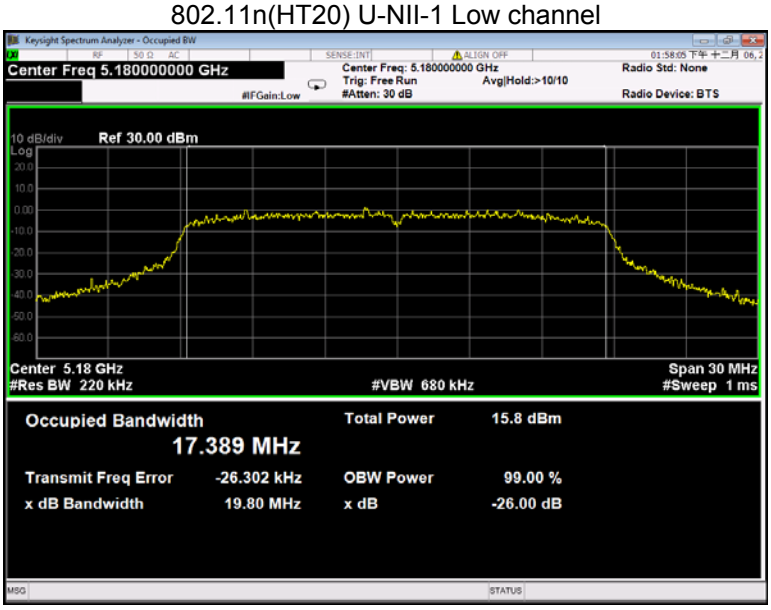
802.11a U-NII-1 Middle channel



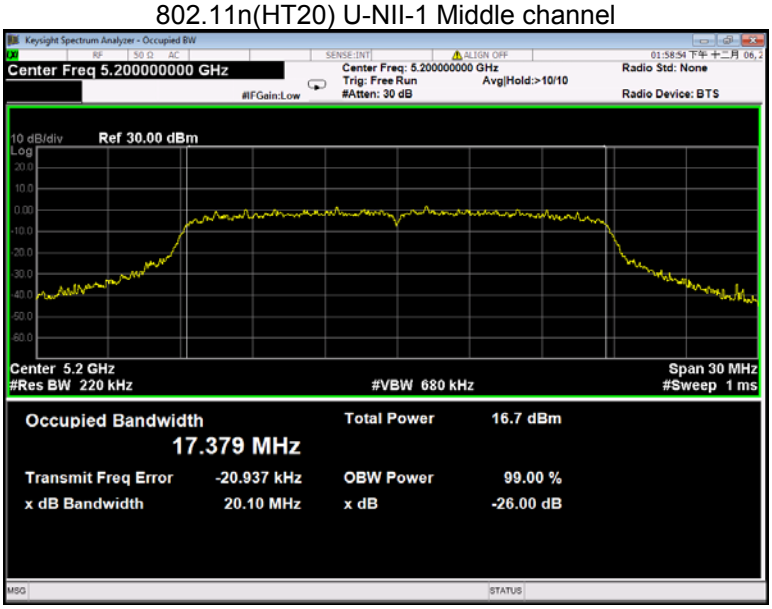
802.11a U-NII-1 High channel



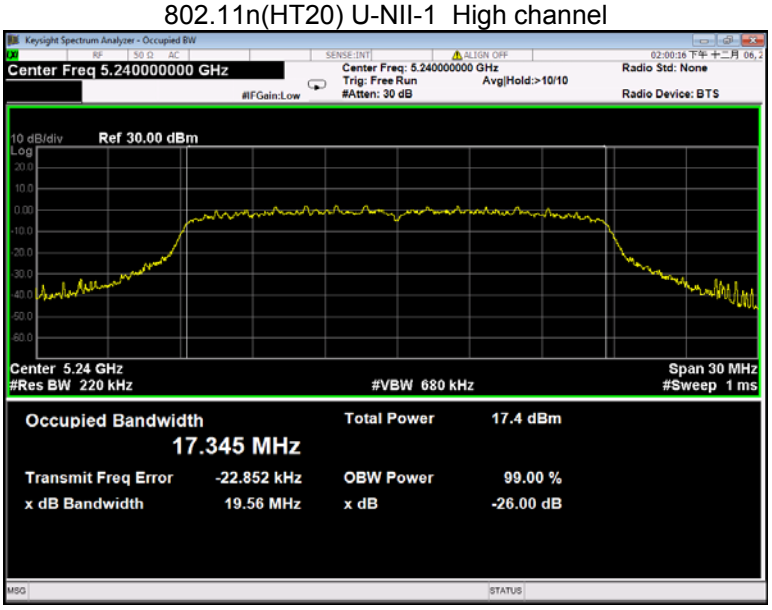
802.11n(HT20) U-NII-1 Low channel



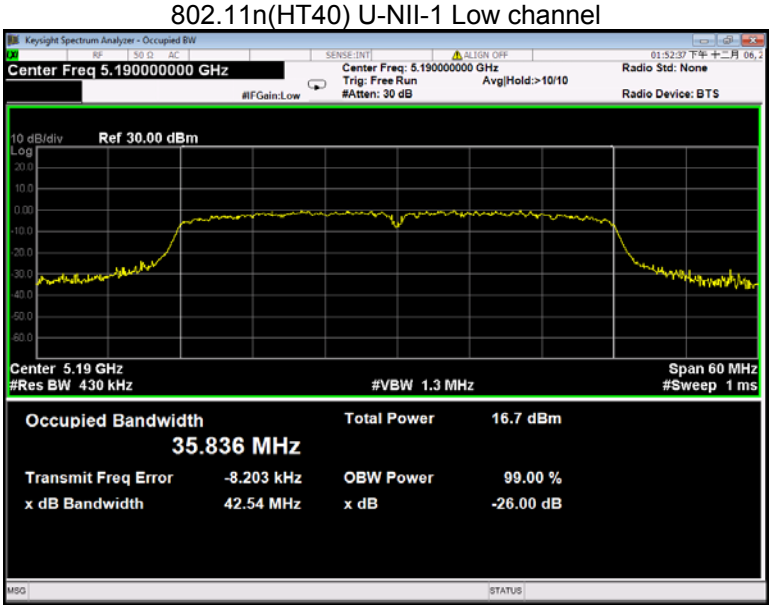
802.11n(HT20) U-NII-1 Middle channel



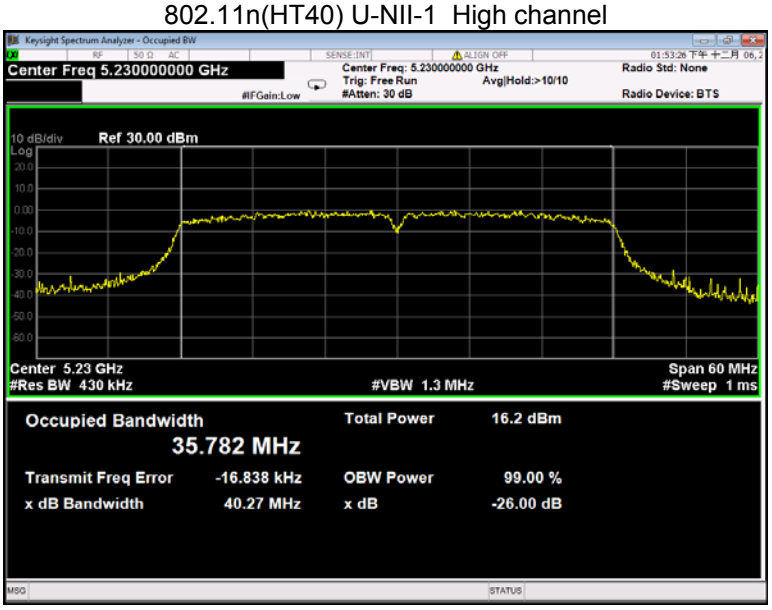
802.11n(HT20) U-NII-1 High channel



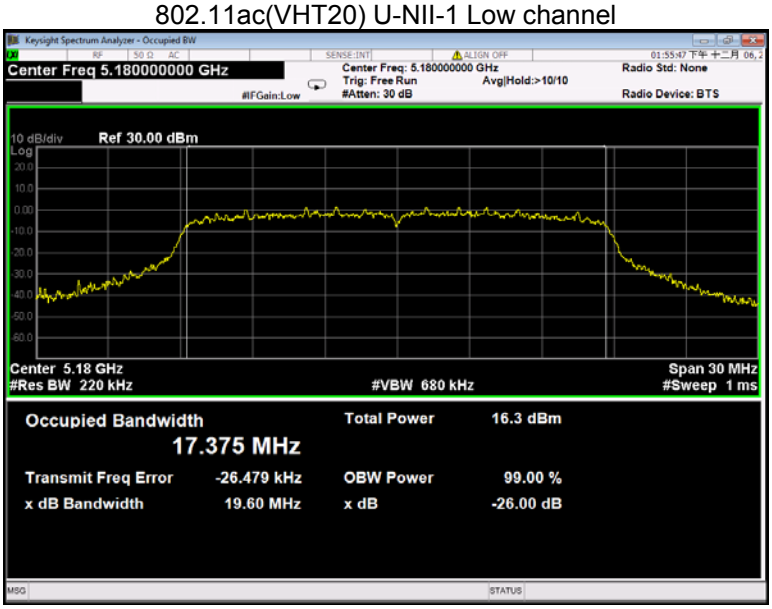
802.11n(HT40) U-NII-1 Low channel



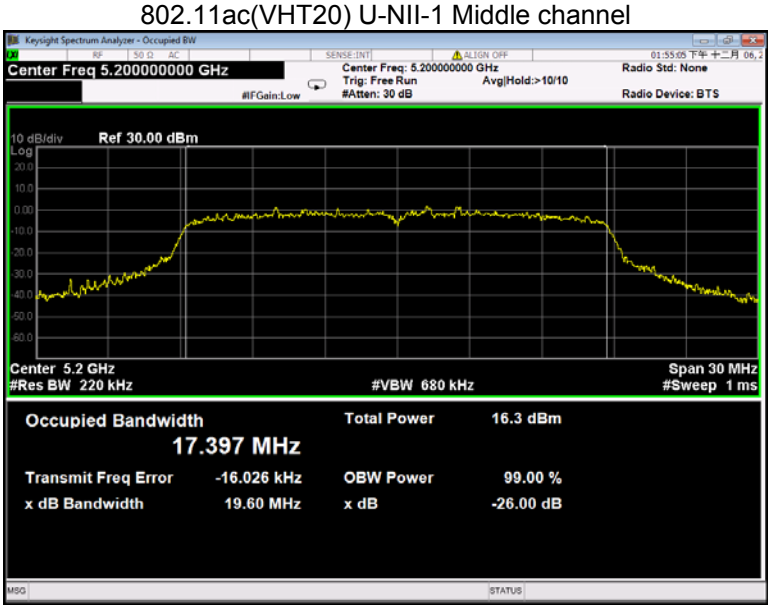
802.11n(HT40) U-NII-1 High channel



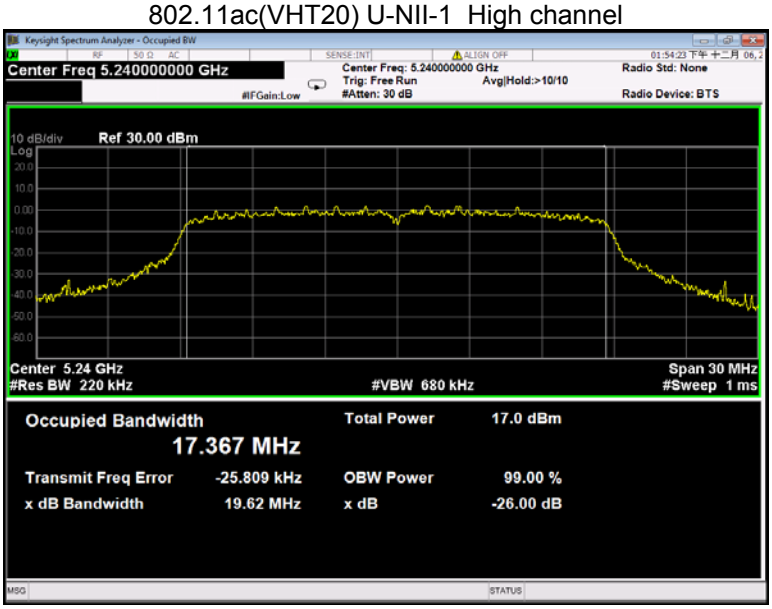
802.11ac(VHT20) U-NII-1 Low channel



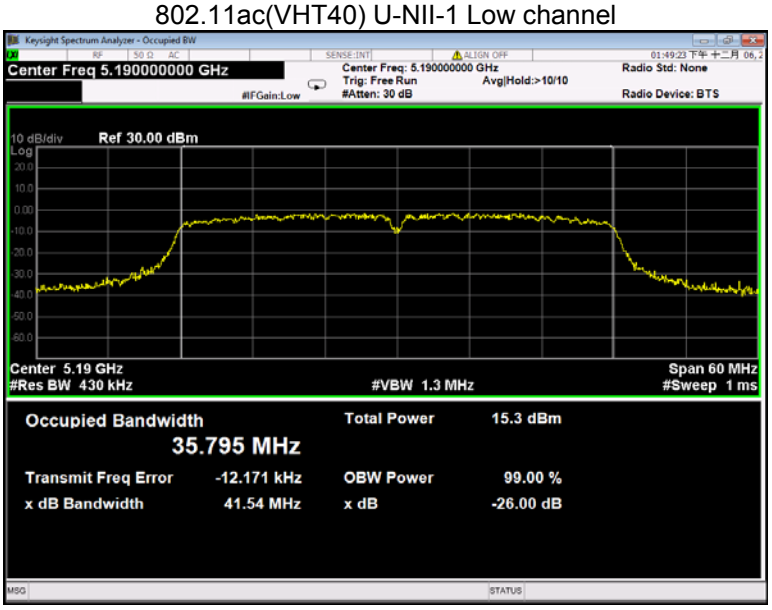
802.11ac(VHT20) U-NII-1 Middle channel



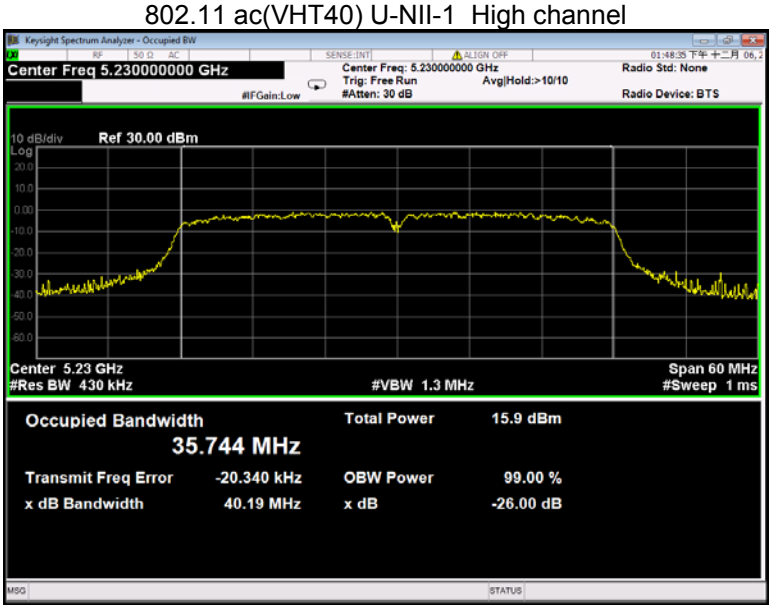
802.11ac(VHT20) U-NII-1 High channel



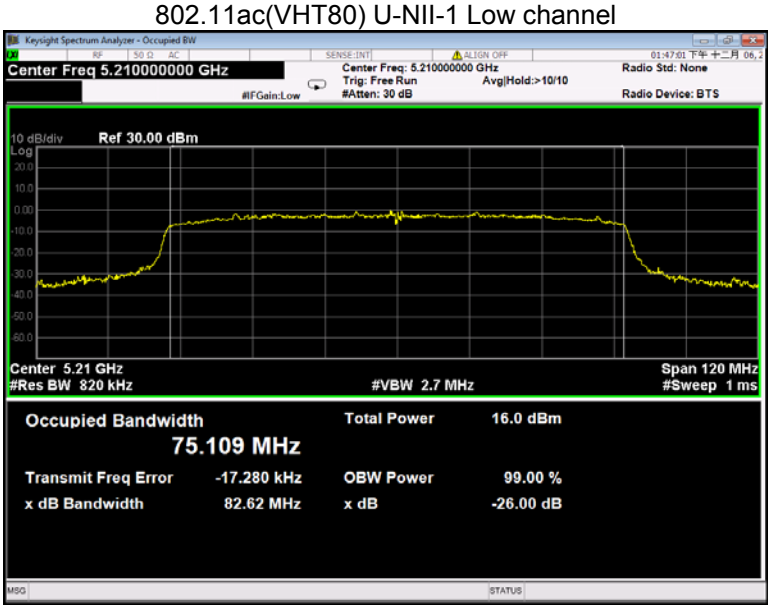
802.11ac(VHT40) U-NII-1 Low channel



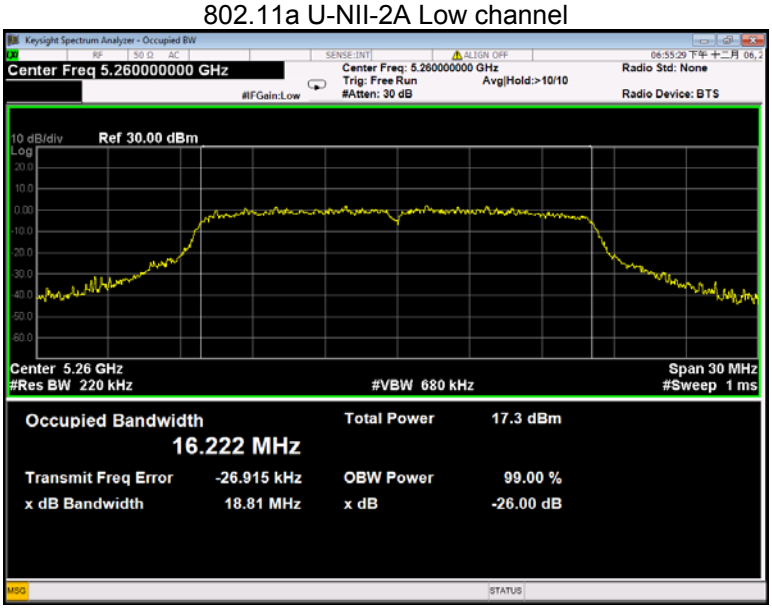
802.11 ac(VHT40) U-NII-1 High channel



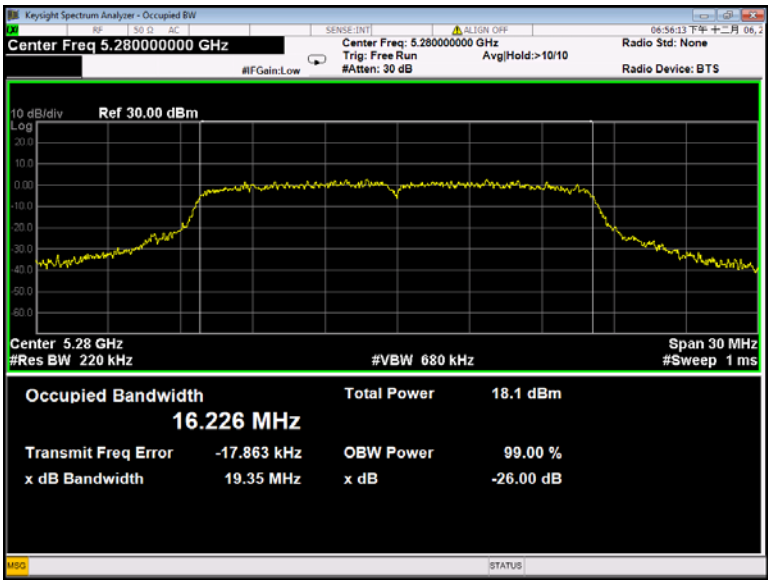
802.11ac(VHT80) U-NII-1 Low channel



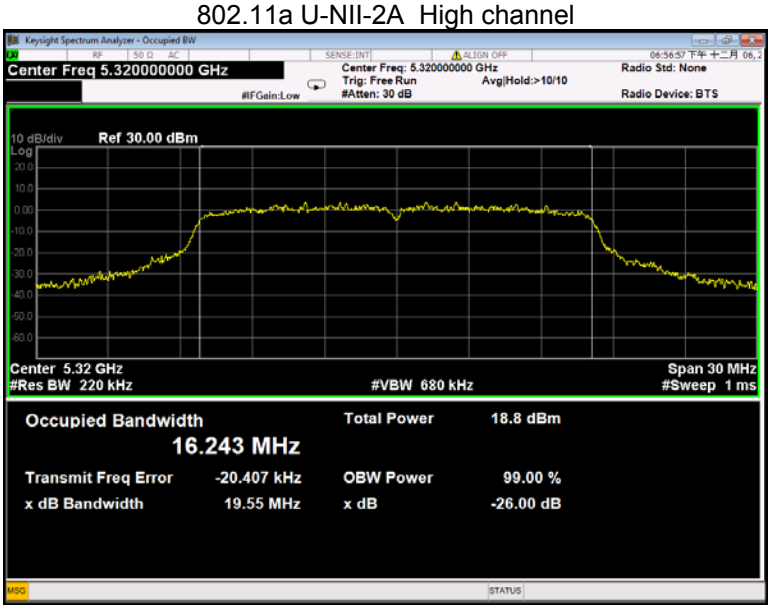
802.11a U-NII-2A Low channel



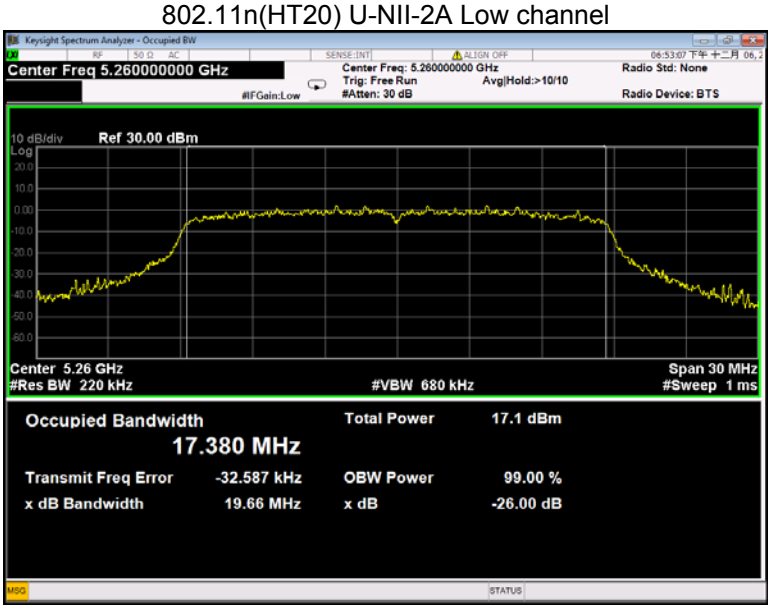
802.11a U-NII-2A Middle channel



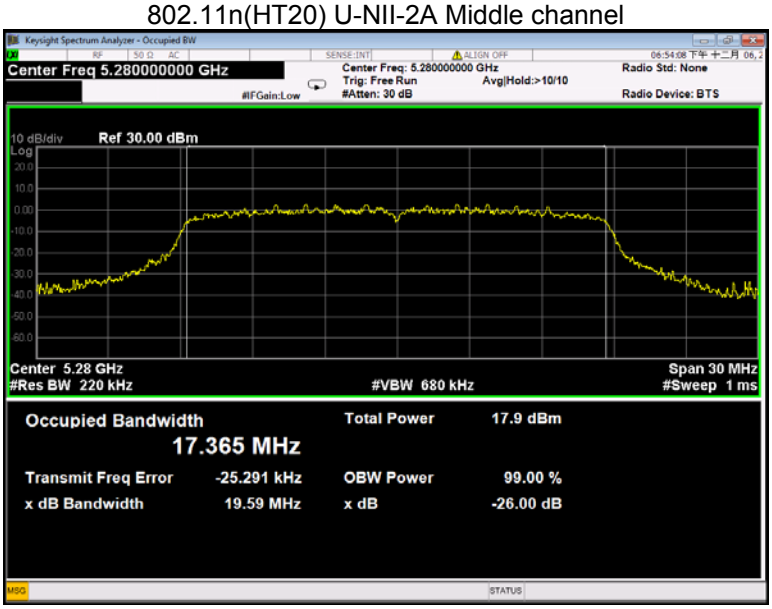
802.11a U-NII-2A High channel



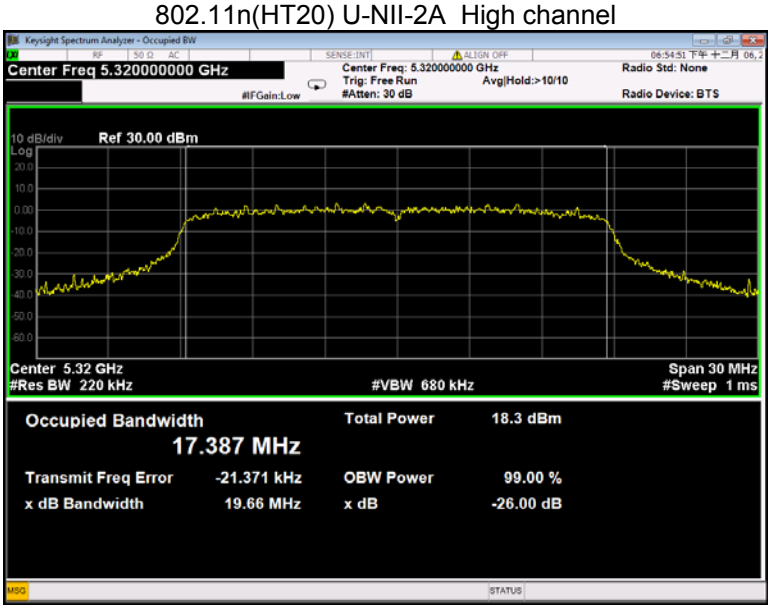
802.11n(HT20) U-NII-2A Low channel



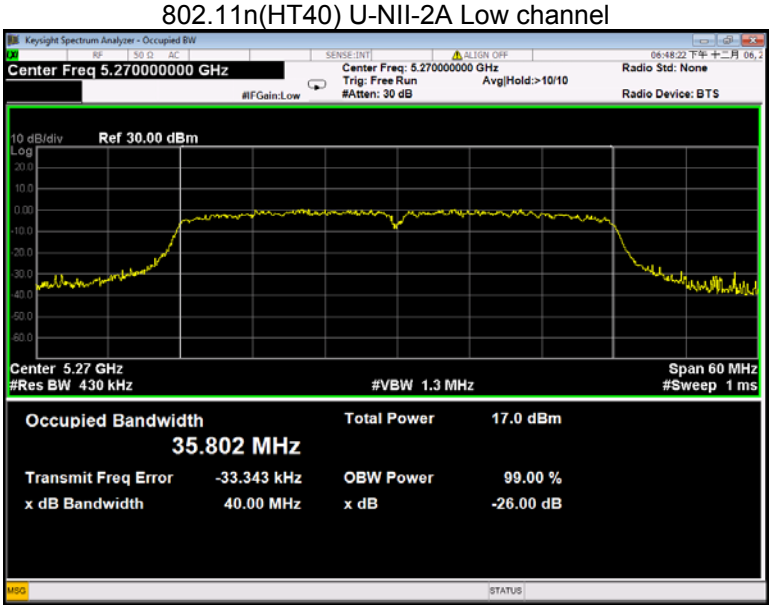
802.11n(HT20) U-NII-2A Middle channel



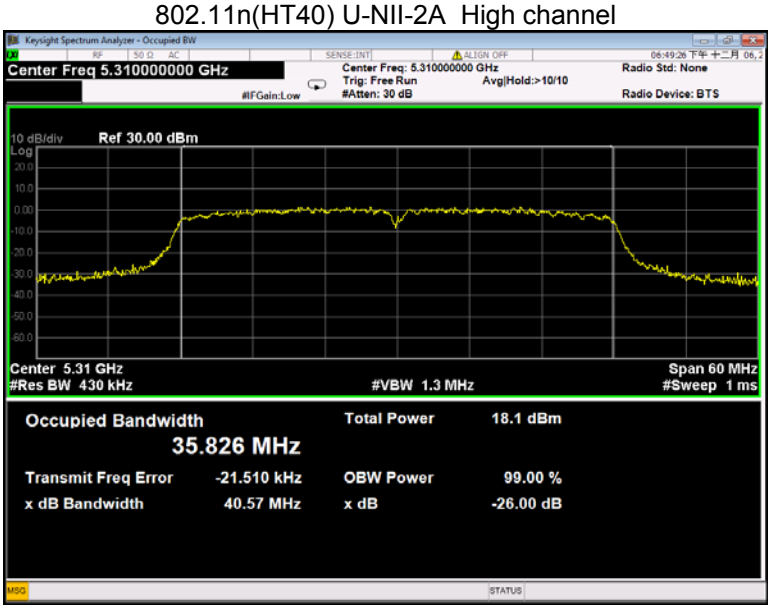
802.11n(HT20) U-NII-2A High channel



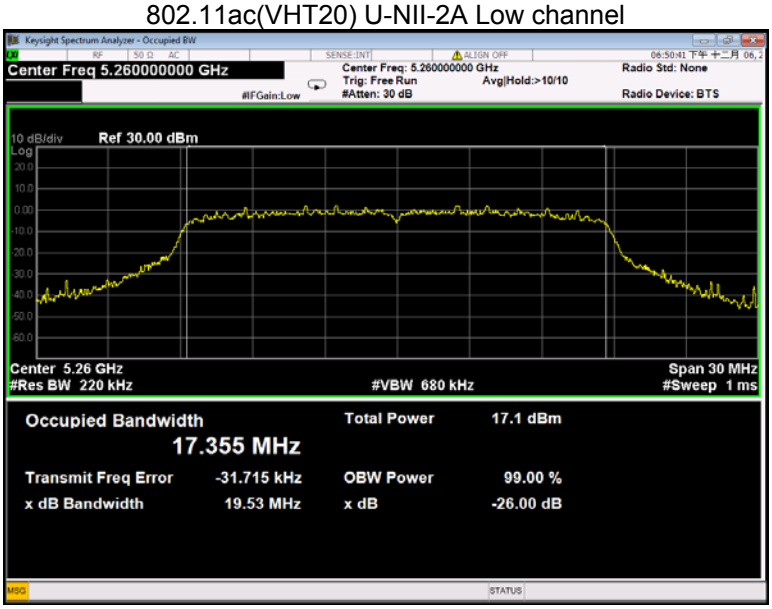
802.11n(HT40) U-NII-2A Low channel



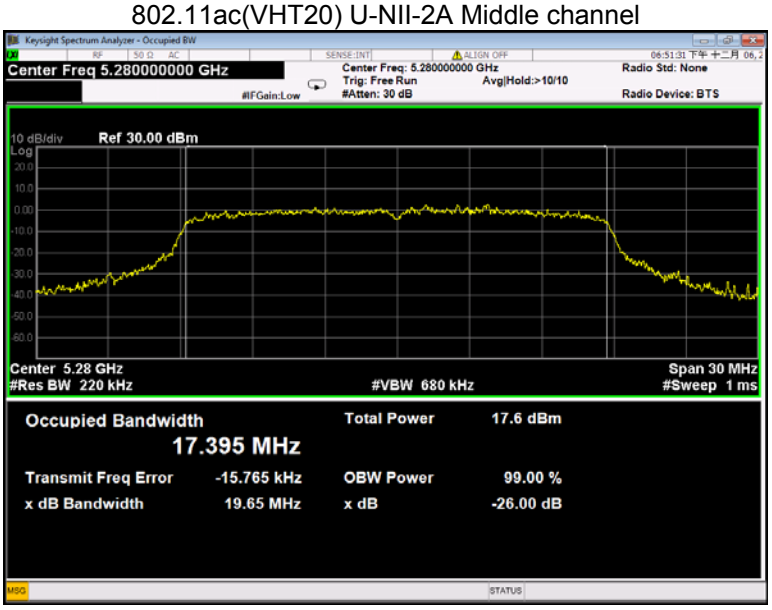
802.11n(HT40) U-NII-2A High channel



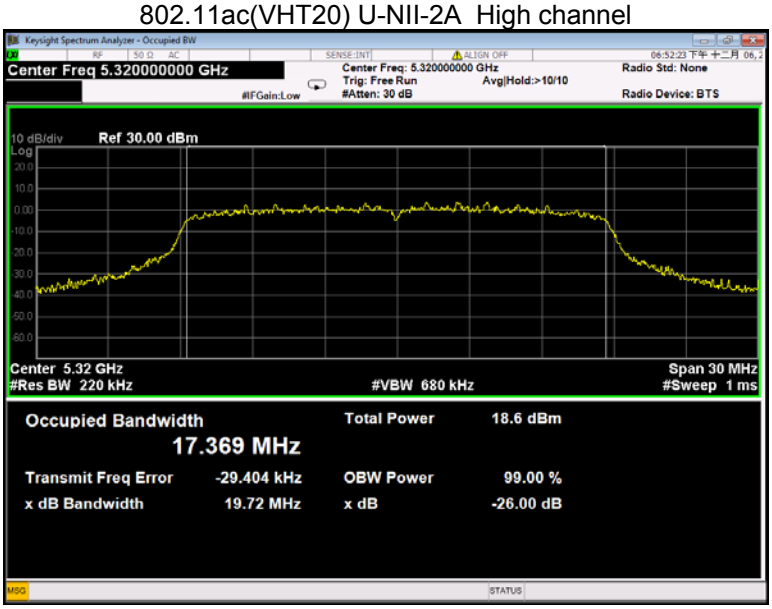
802.11ac(VHT20) U-NII-2A Low channel



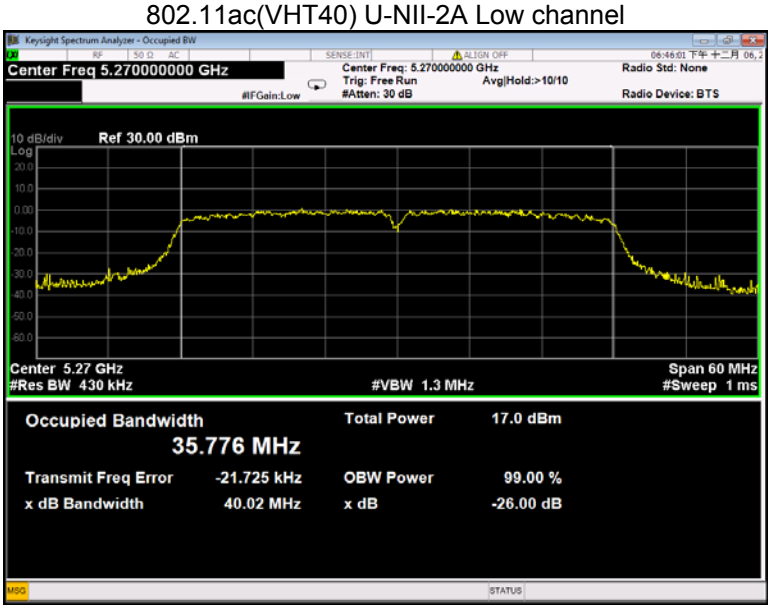
802.11ac(VHT20) U-NII-2A Middle channel



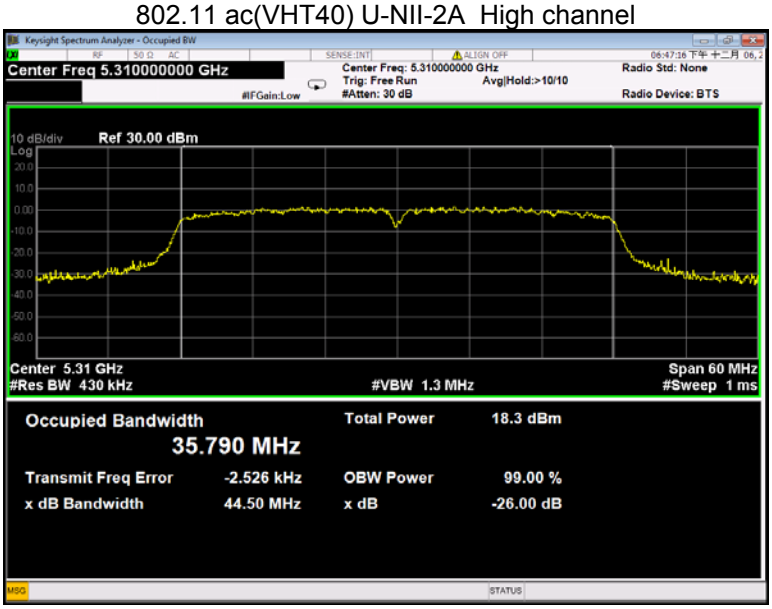
802.11ac(VHT20) U-NII-2A High channel



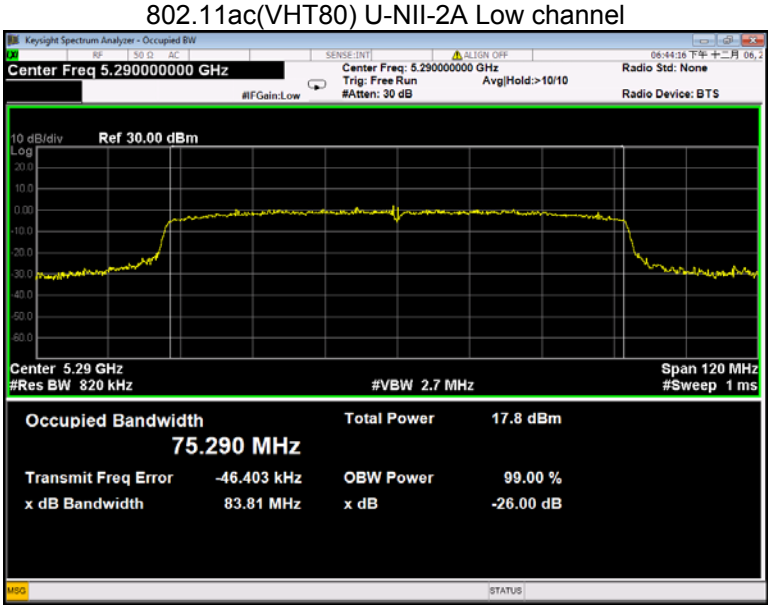
802.11ac(VHT40) U-NII-2A Low channel



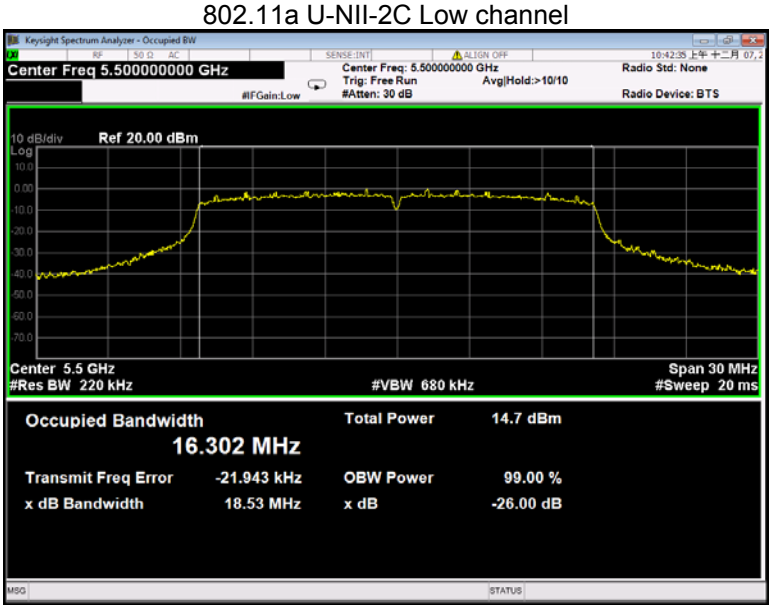
802.11 ac(VHT40) U-NII-2A High channel



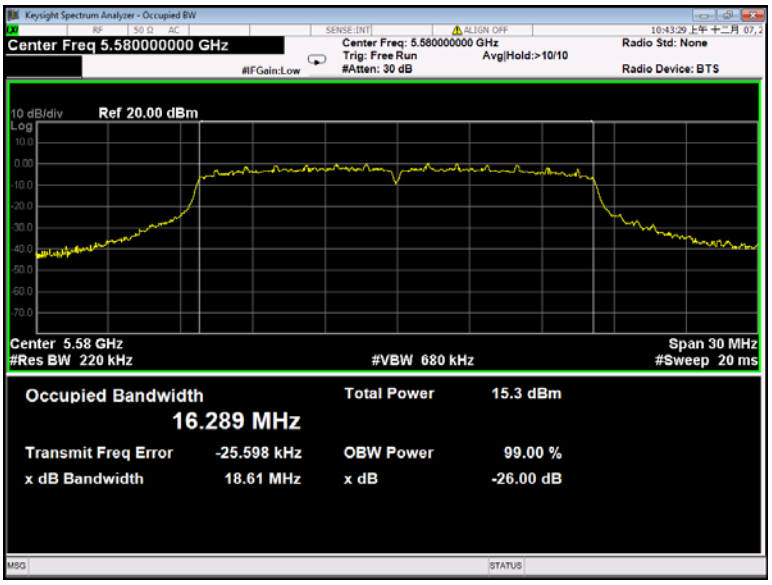
802.11ac(VHT80) U-NII-2A Low channel



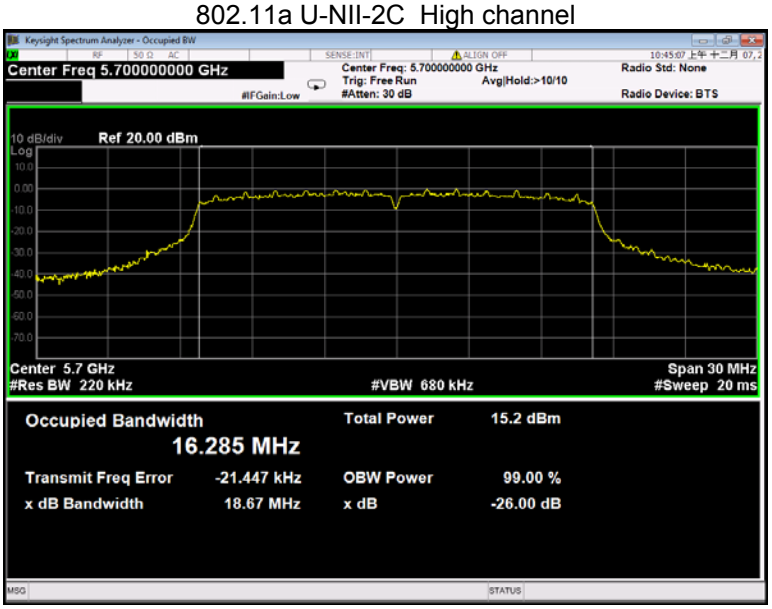
802.11a U-NII-2C Low channel



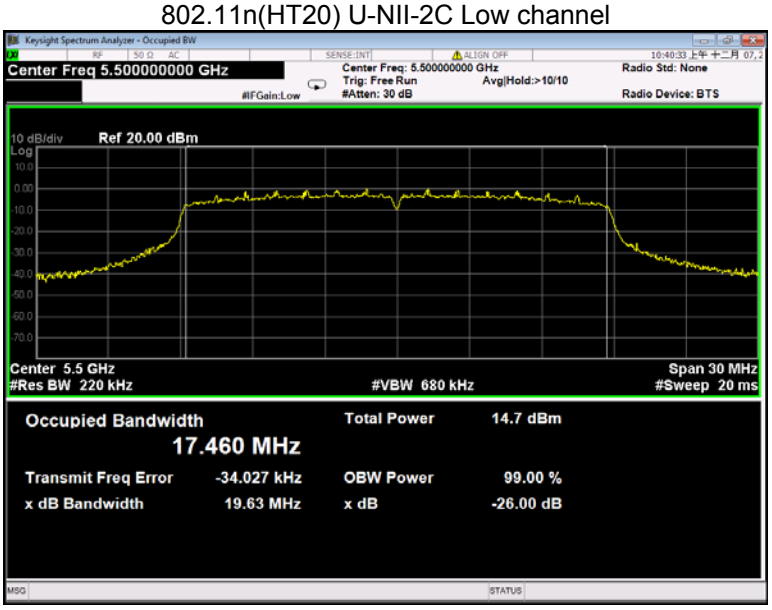
802.11a U-NII-2C Middle channel



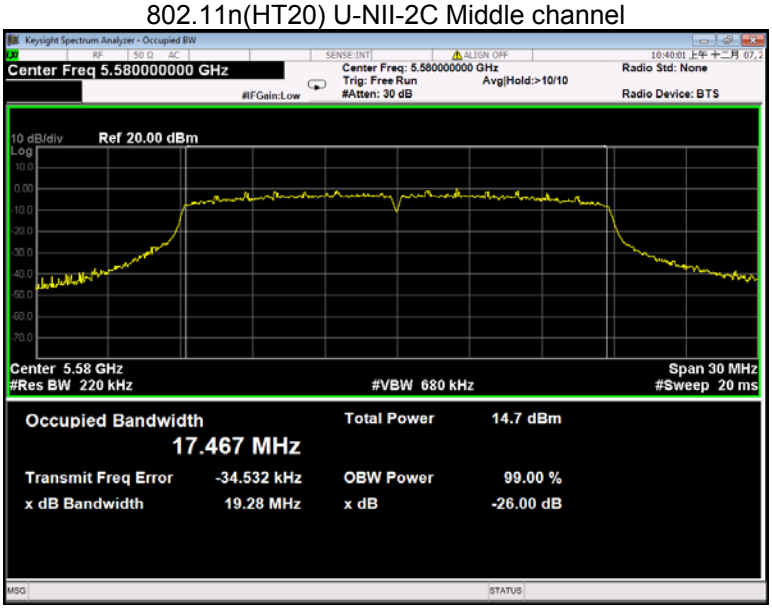
802.11a U-NII-2C High channel



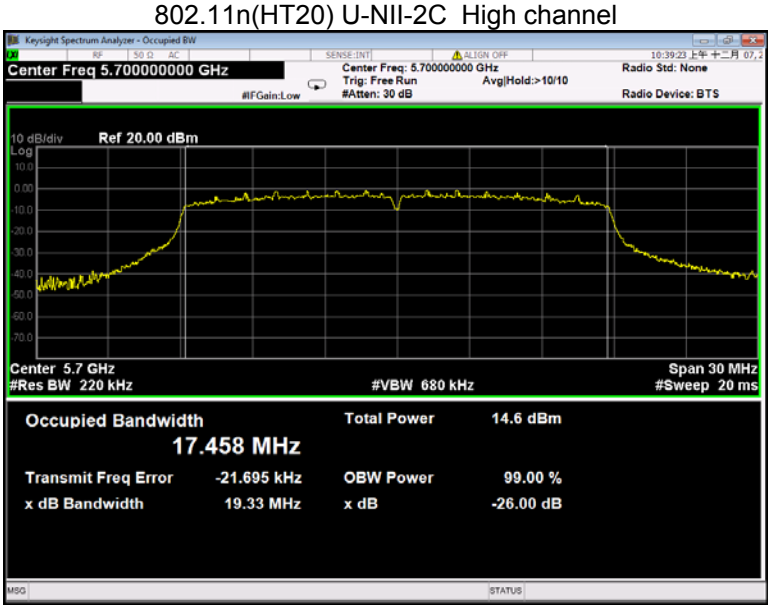
802.11n(HT20) U-NII-2C Low channel



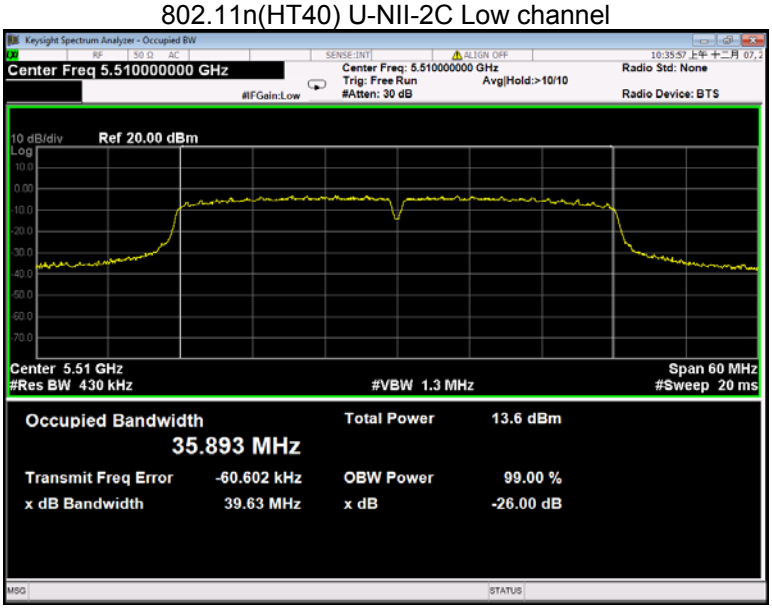
802.11n(HT20) U-NII-2C Middle channel



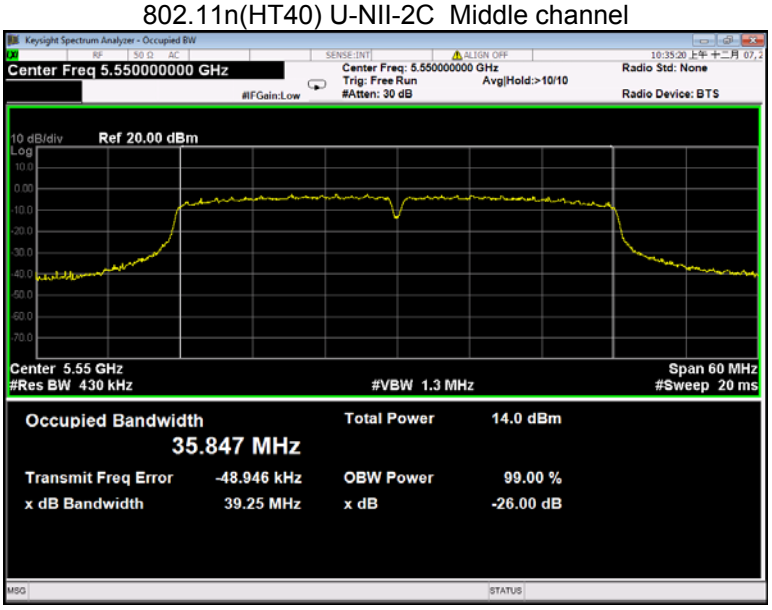
802.11n(HT20) U-NII-2C High channel



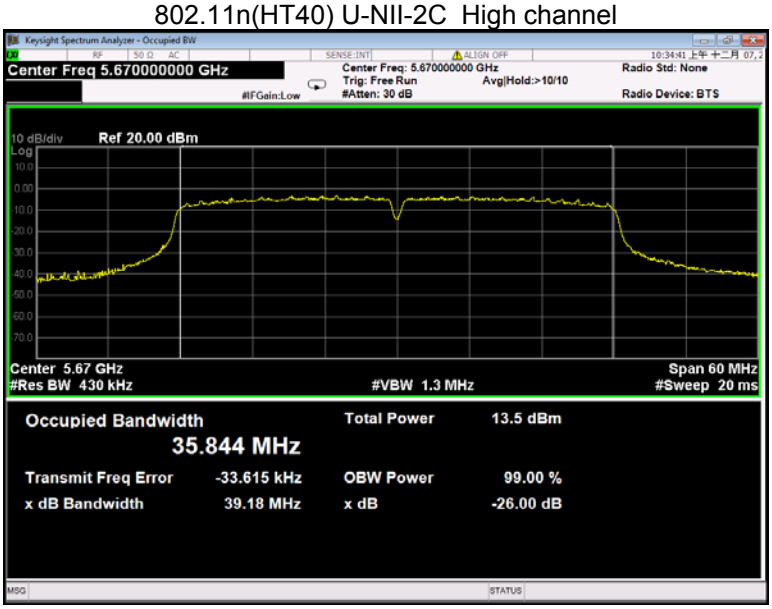
802.11n(HT40) U-NII-2C Low channel



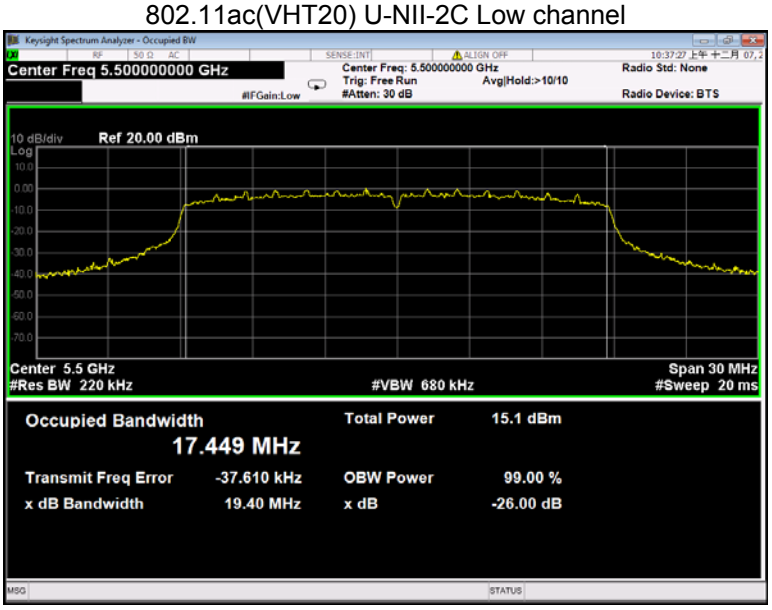
802.11n(HT40) U-NII-2C Middle channel



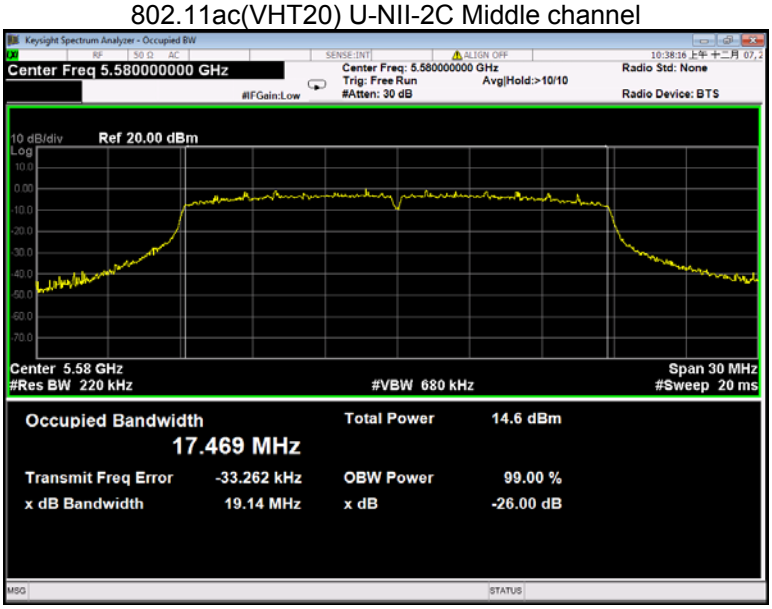
802.11n(HT40) U-NII-2C High channel



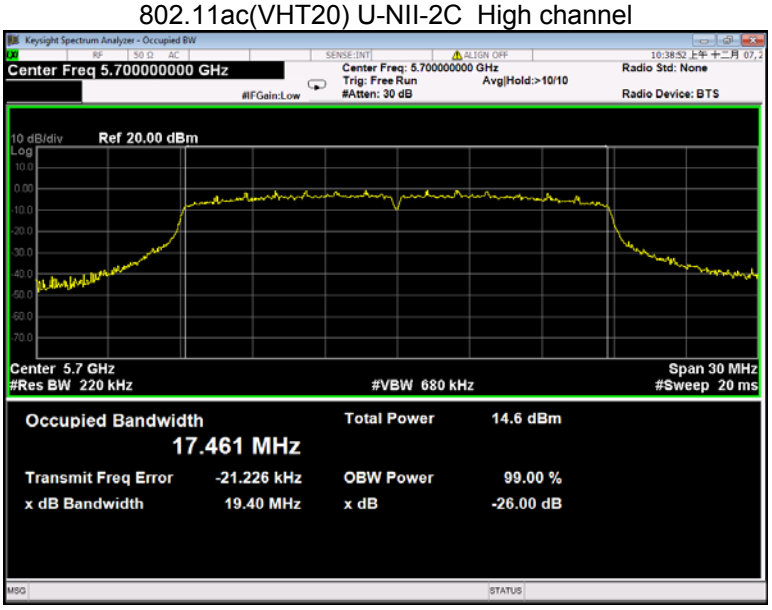
802.11ac(VHT20) U-NII-2C Low channel



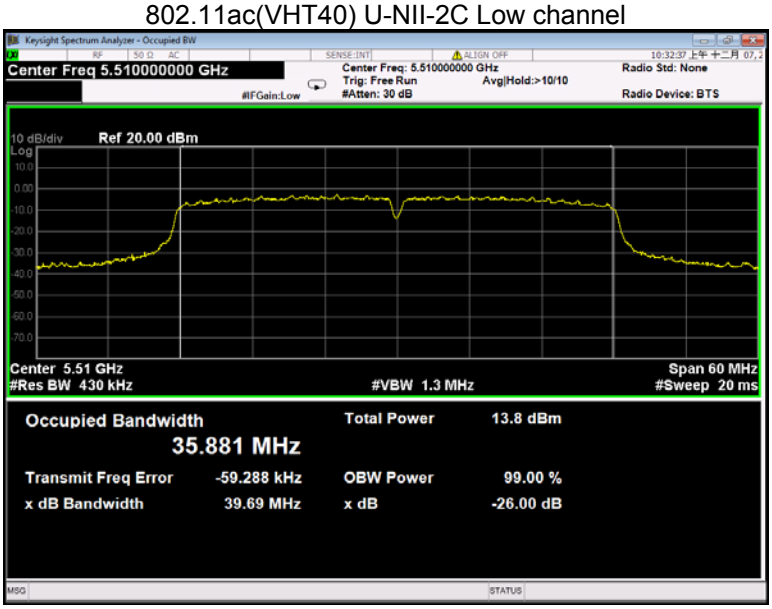
802.11ac(VHT20) U-NII-2C Middle channel



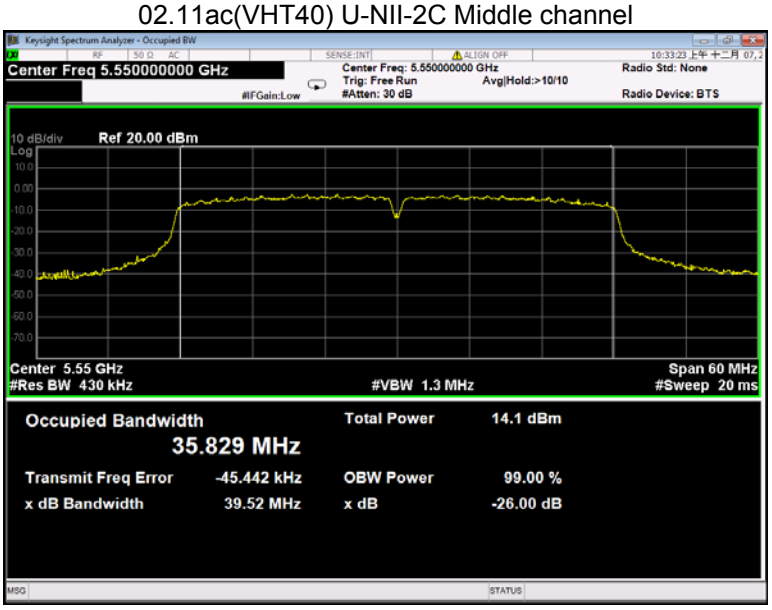
802.11ac(VHT20) U-NII-2C High channel



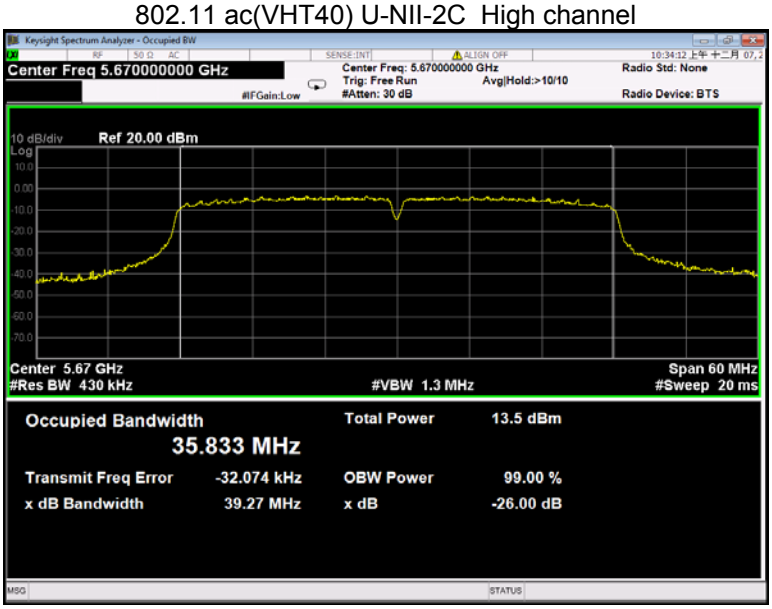
802.11ac(VHT40) U-NII-2C Low channel



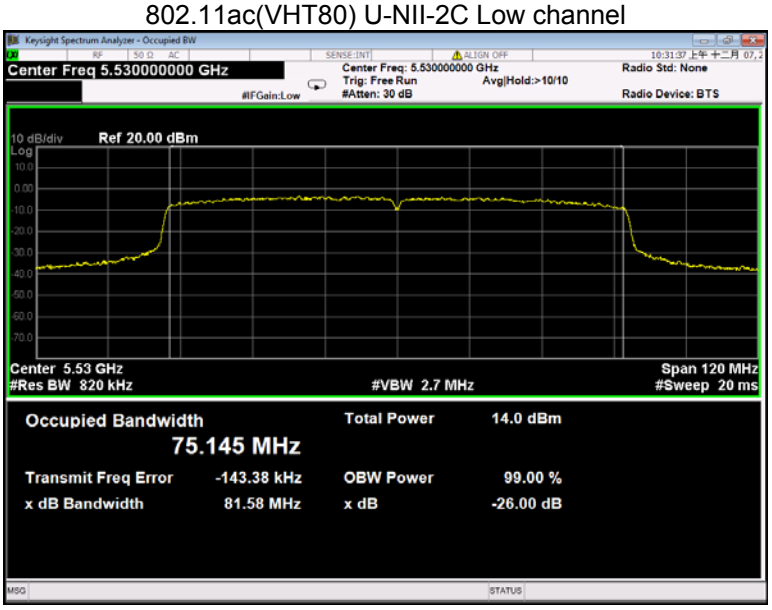
02.11ac(VHT40) U-NII-2C Middle channel



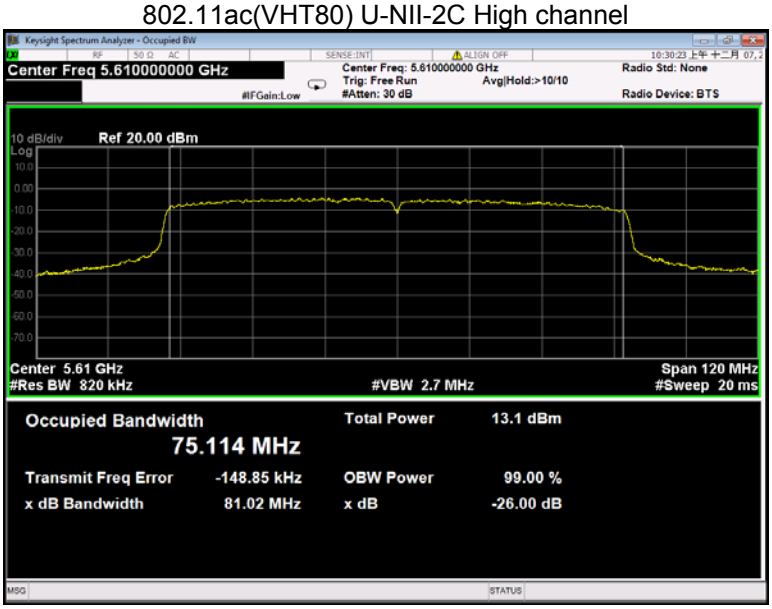
802.11 ac(VHT40) U-NII-2C High channel



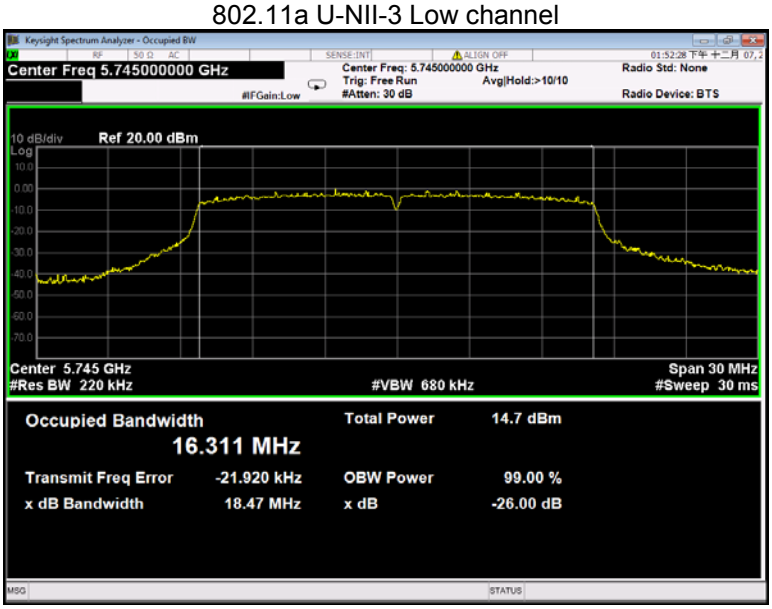
802.11ac(VHT80) U-NII-2C Low channel



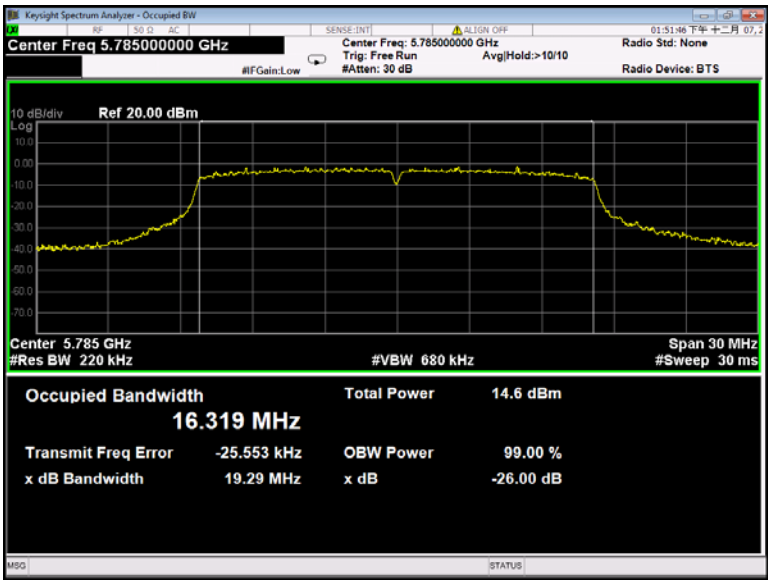
802.11ac(VHT80) U-NII-2C High channel



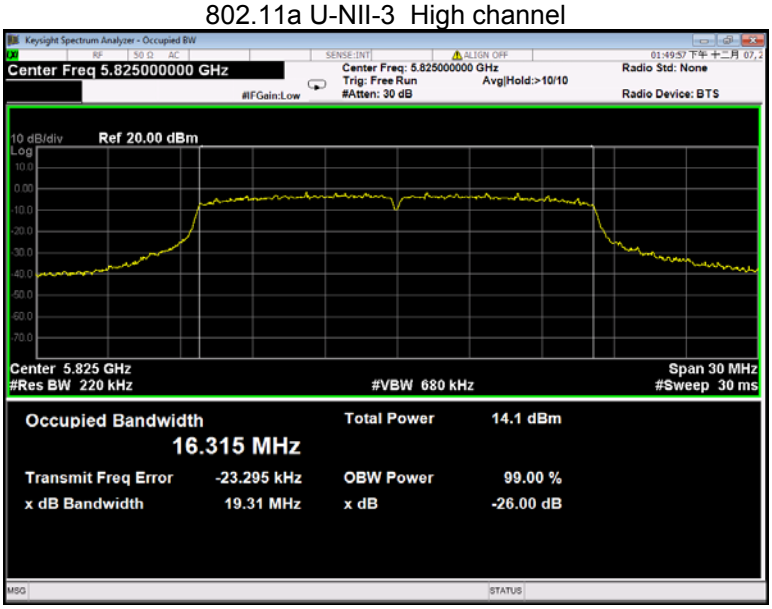
802.11a U-NII-3 Low channel



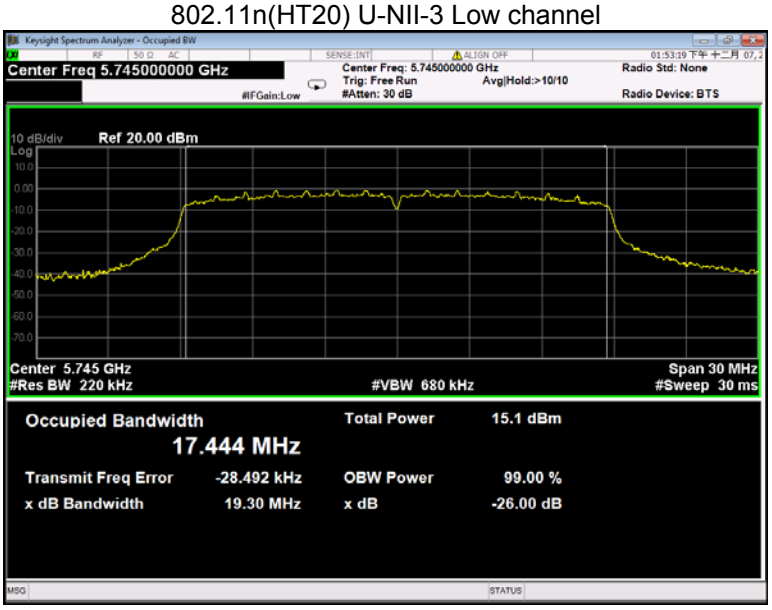
802.11a U-NII-3 Middle channel



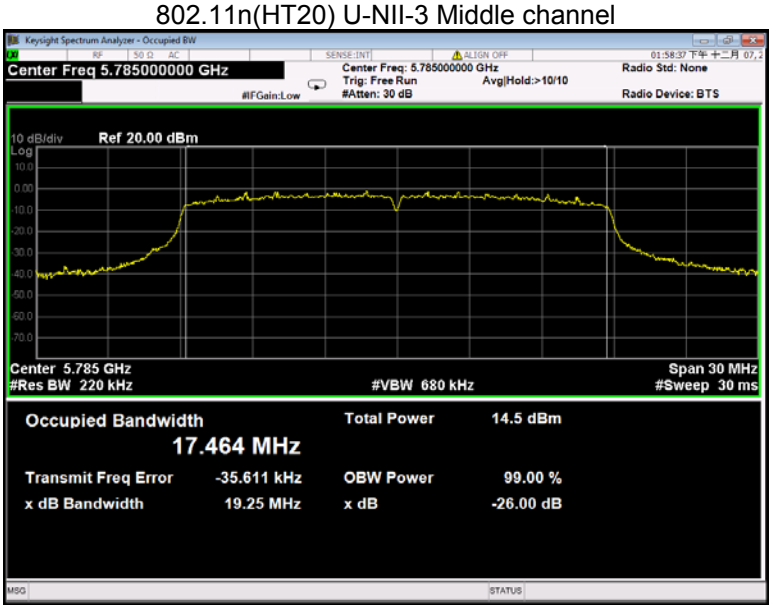
802.11a U-NII-3 High channel



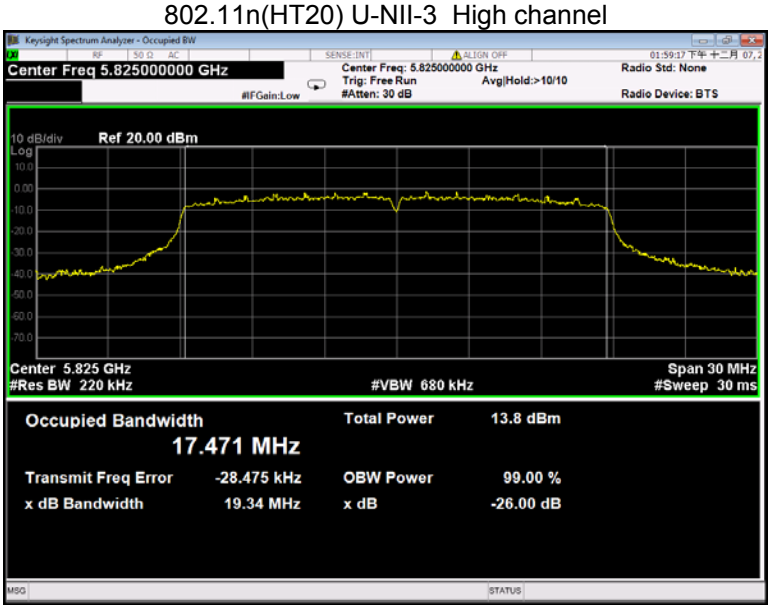
802.11n(HT20) U-NII-3 Low channel



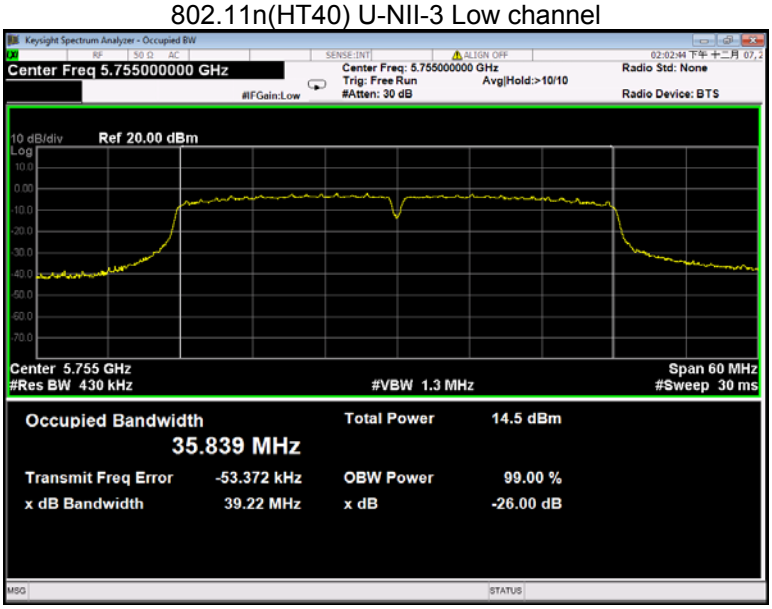
802.11n(HT20) U-NII-3 Middle channel



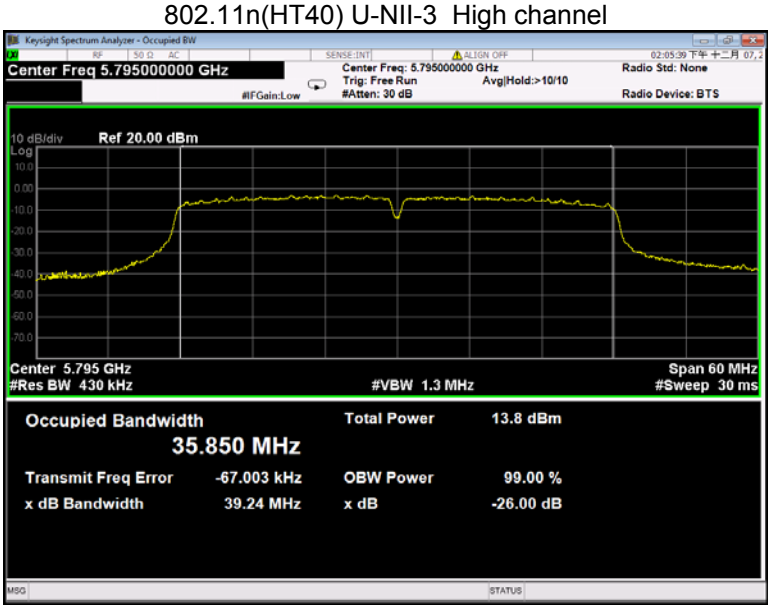
802.11n(HT20) U-NII-3 High channel



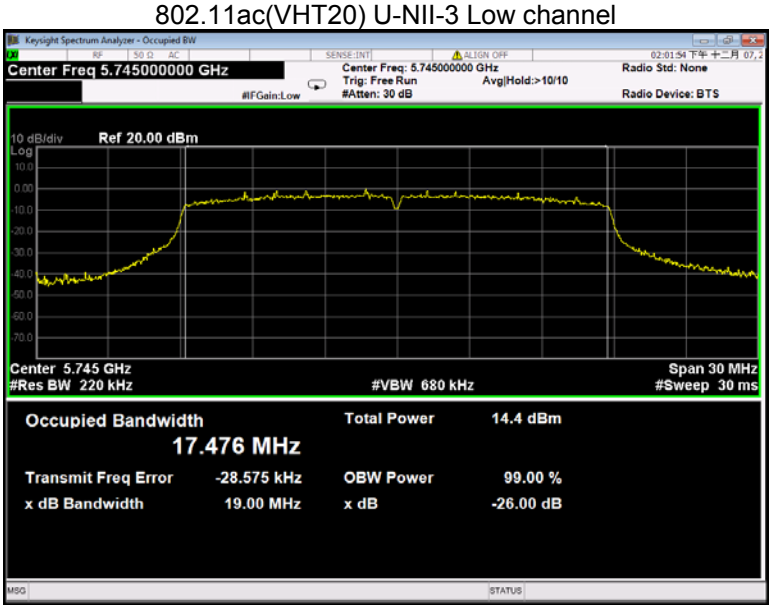
802.11n(HT40) U-NII-3 Low channel



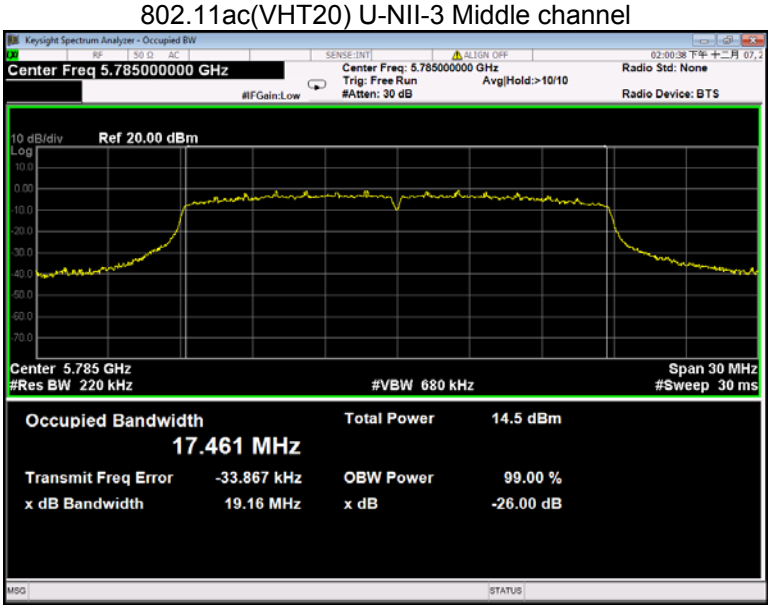
802.11n(HT40) U-NII-3 High channel



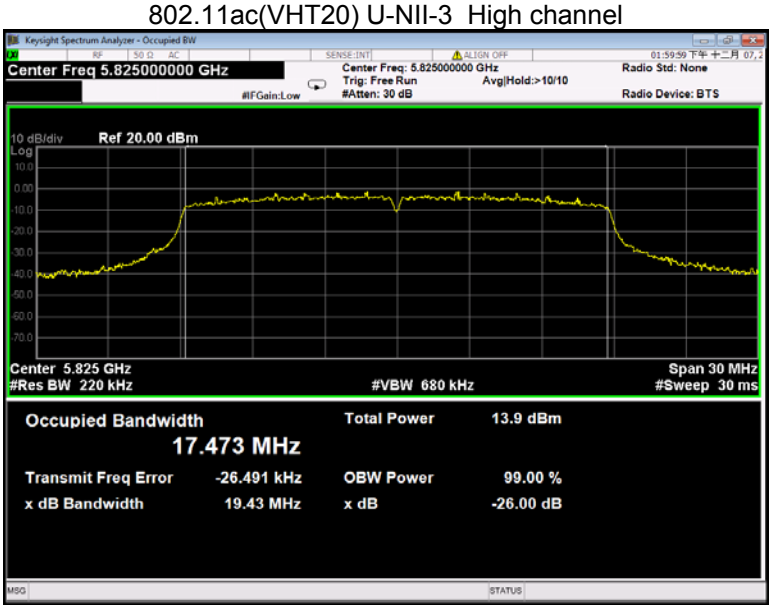
802.11ac(VHT20) U-NII-3 Low channel



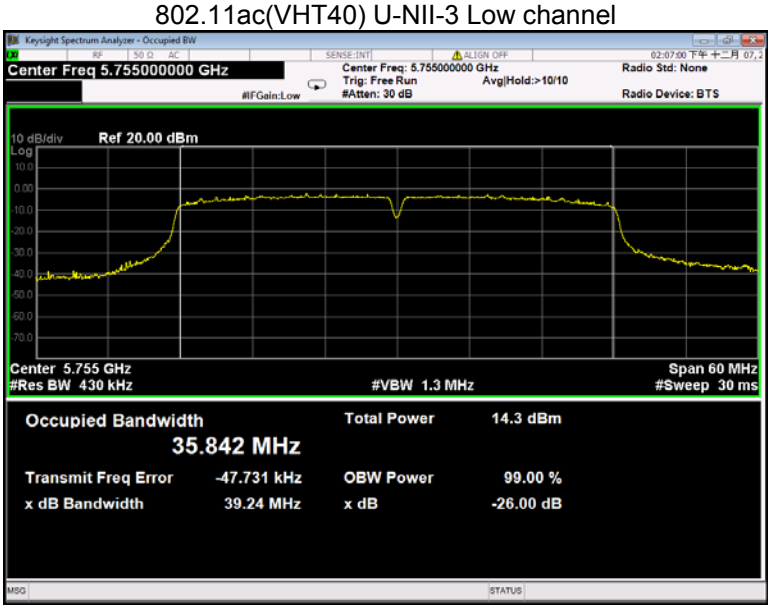
802.11ac(VHT20) U-NII-3 Middle channel



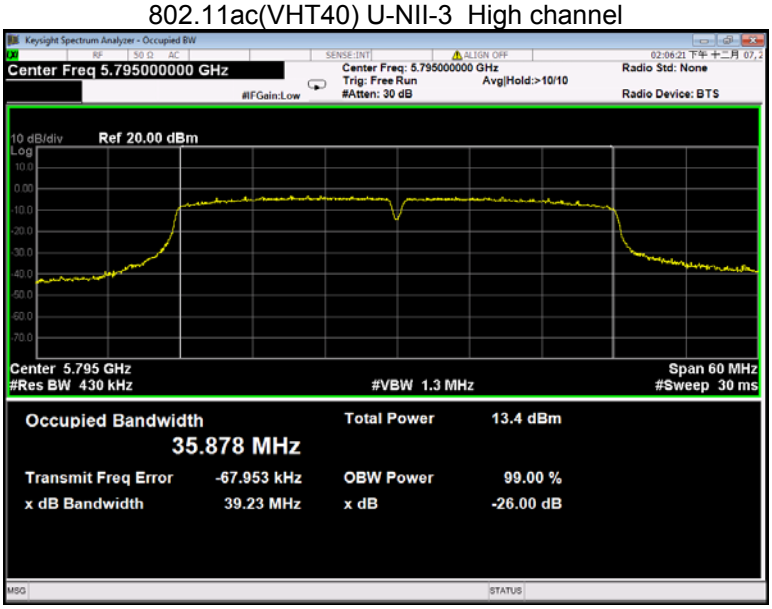
802.11ac(VHT20) U-NII-3 High channel



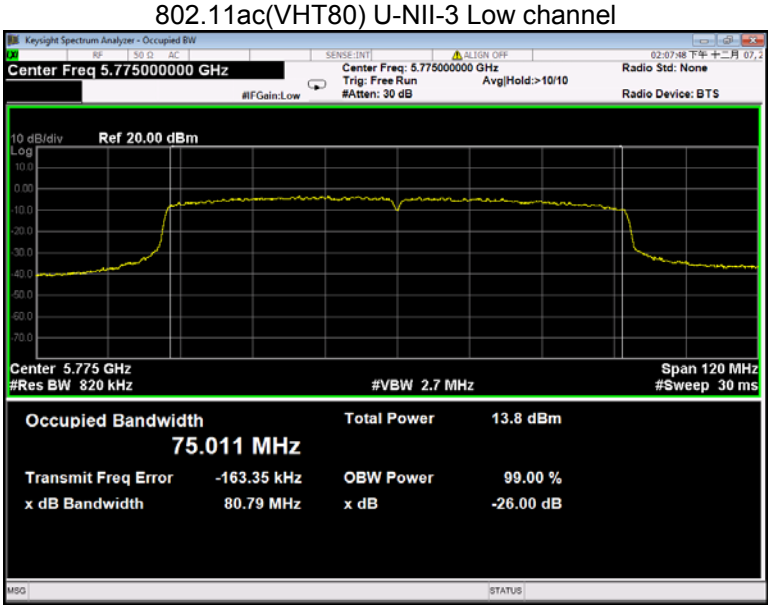
802.11ac(VHT40) U-NII-3 Low channel



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



802.11ac(VHT80) U-NII-3 Low channel



12 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=1, so 10log(1/1)=0 Conducted output power= measurement power

12.1 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.

12.2 Test Result

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-1	802.11a	Low	11.19	0.26	11.45
		Middle	11.94		12.20
		High	12.13		12.39
	802.11n(HT20)	Low	11.09	0.36	11.45
		Middle	11.52		11.88
		High	11.93		12.29
	802.11n(HT40)	Low	11.18	0.46	11.64
		Middle	/		/
		High	11.49		11.95
	802.11ac(VHT20)	Low	11.26	0.85	12.11
		Middle	11.45		12.30
		High	11.95		**12.80**
	802.11ac(VHT40)	Low	11.31	0.71	12.02
		Middle	/		/
		High	11.51		12.22
	802.11ac(VHT80)	Low	11.84	0.88	12.72
		Middle	/		/
		High	/		/

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-2A	802.11a	Low	12.16	0.25	12.41
		Middle	13.07		13.32
		High	13.61		**13.86**
	802.11n(HT20)	Low	12.11	0.28	12.39
		Middle	13.08		13.36
		High	13.54		13.82
	802.11n(HT40)	Low	11.98	0.48	12.46
		Middle	/		/
		High	13.11		13.59
	802.11ac(VHT20)	Low	12.12	0.32	12.44
		Middle	12.93		13.25
		High	13.44		13.76
	802.11ac(VHT40)	Low	12.04	0.47	12.51
		Middle	/		/
		High	13.07		13.54
	802.11ac(VHT80)	Low	12.98	0.85	13.83
		Middle	/		/
		High	/		/

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-2C	802.11a	Low	12.77	0.28	13.05
		Middle	12.97		13.25
		High	12.81		13.09
	802.11n(HT20)	Low	12.70	0.32	13.02
		Middle	12.75		13.07
		High	12.59		12.91
	802.11n(HT40)	Low	12.49	0.61	13.10
		Middle	12.76		13.37
		High	12.35		12.96
	802.11ac(VHT20)	Low	12.72	0.27	12.99
		Middle	12.74		13.01
		High	12.63		12.90
	802.11ac(VHT40)	Low	12.49	0.53	13.02
		Middle	12.92		13.45
		High	12.27		12.80
	802.11ac(VHT80)	Low	13.32	0.82	**14.14**
		Middle	/		/
		High	12.36		13.18

Band	Operation mode	Channel	Measurements (dBm)	Duty Cycle Factor (dB)	Conducted Output Power (dBm)
U-NII-3	802.11a	Low	13.31	0.23	13.54
		Middle	13.17		13.40
		High	12.54		12.77
	802.11n(HT20)	Low	13.30	0.28	13.58
		Middle	13.09		13.37
		High	12.43		12.71
	802.11n(HT40)	Low	13.46	0.47	13.93
		Middle	/		/
		High	12.78		13.25
	802.11ac(VHT20)	Low	13.22	0.24	13.46
		Middle	13.11		13.35
		High	12.40		12.64
	802.11ac(VHT40)	Low	13.46	0.47	13.93
		Middle	/		/
		High	12.70		13.17
	802.11ac(VHT80)	Low	13.32	1.29	**14.61**
		Middle	/		/
		High	/		/

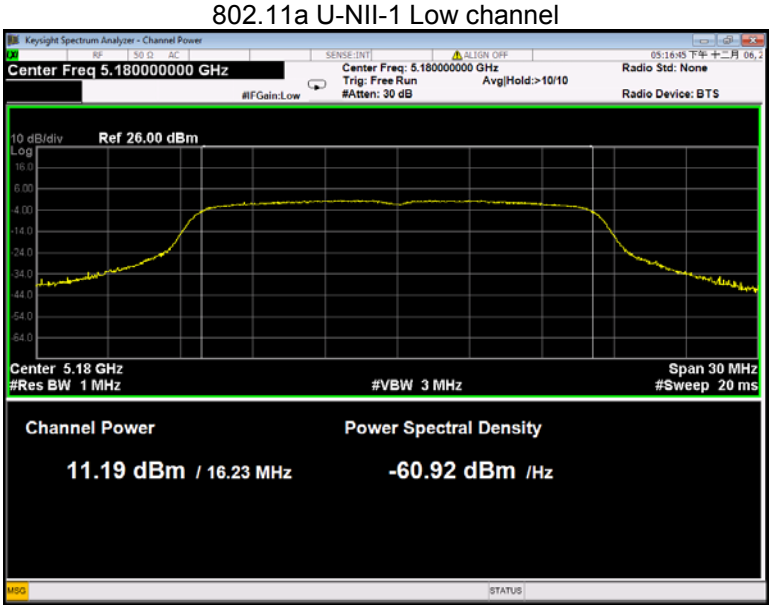
Note:

1. Conducted Output Power = Measurements + Duty Cycle Factor

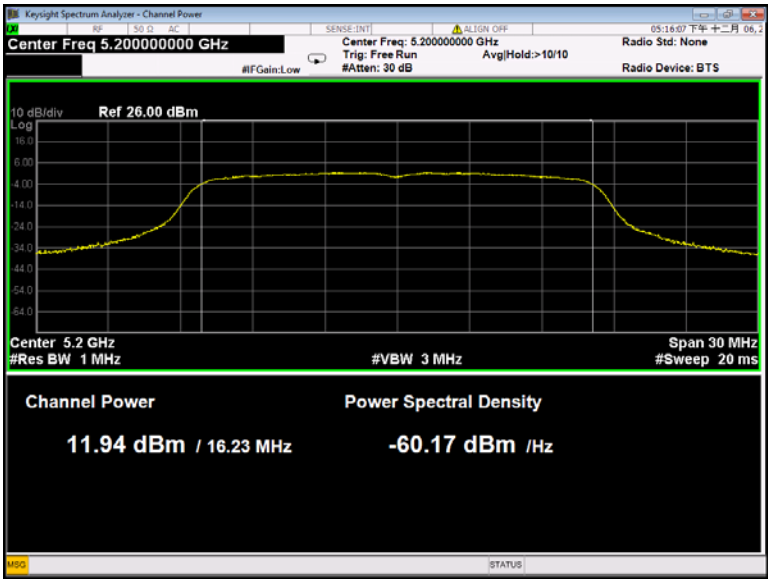
* All transmit signals are completely uncorrelated with each other, Directional gain = G_{ANT} which is less than 6dBi. So the limit does not be reduced.

Test result plots shown as follows:

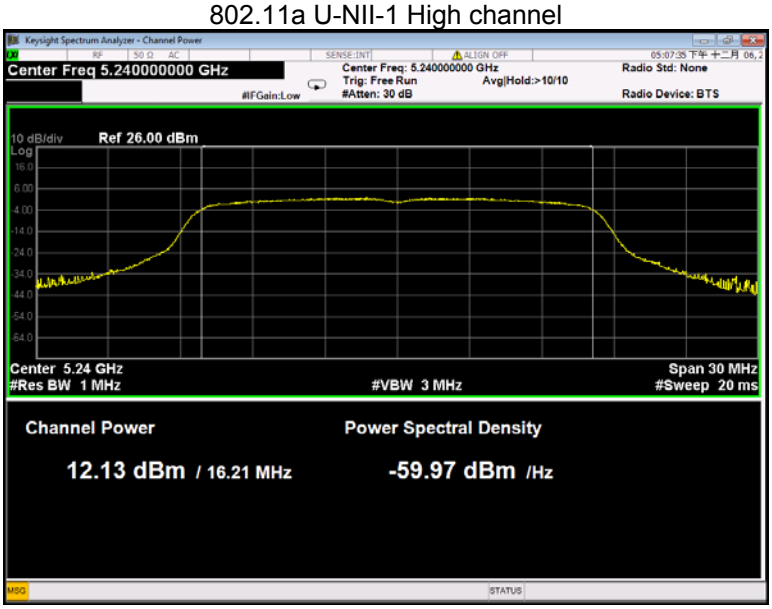
802.11a U-NII-1 Low channel



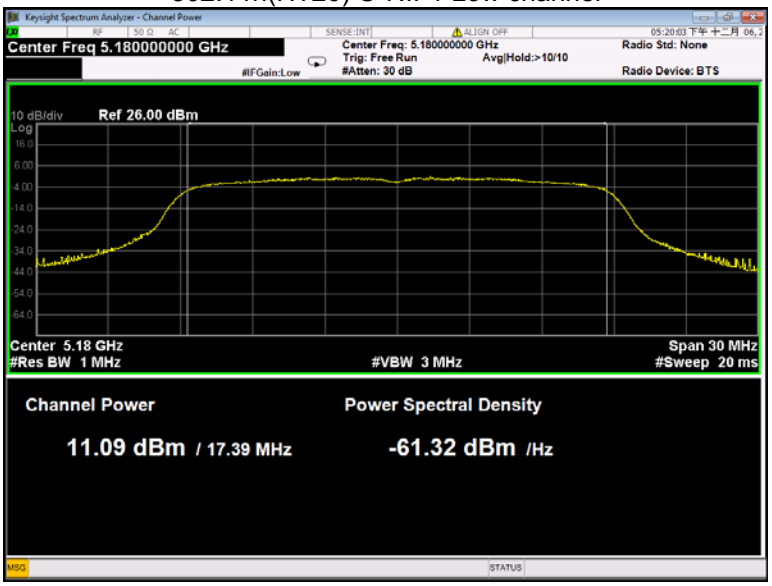
802.11a U-NII-1 Middle channel



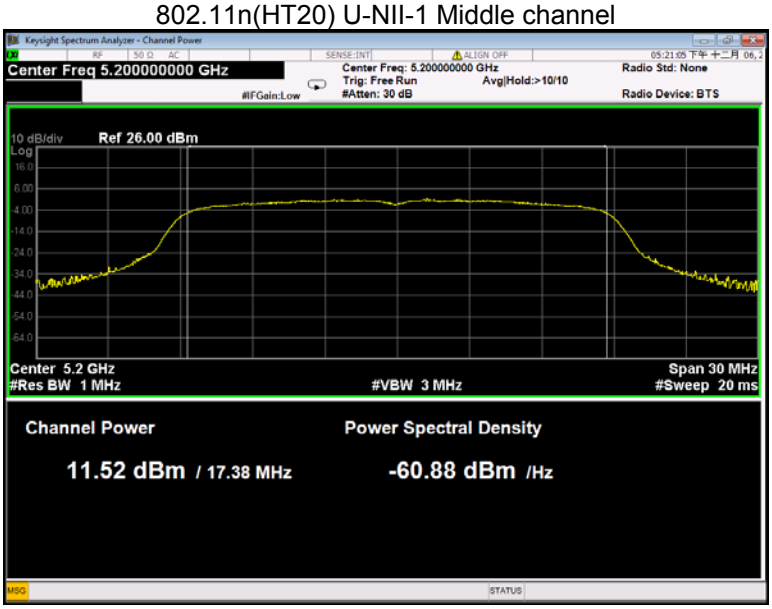
802.11a U-NII-1 High channel



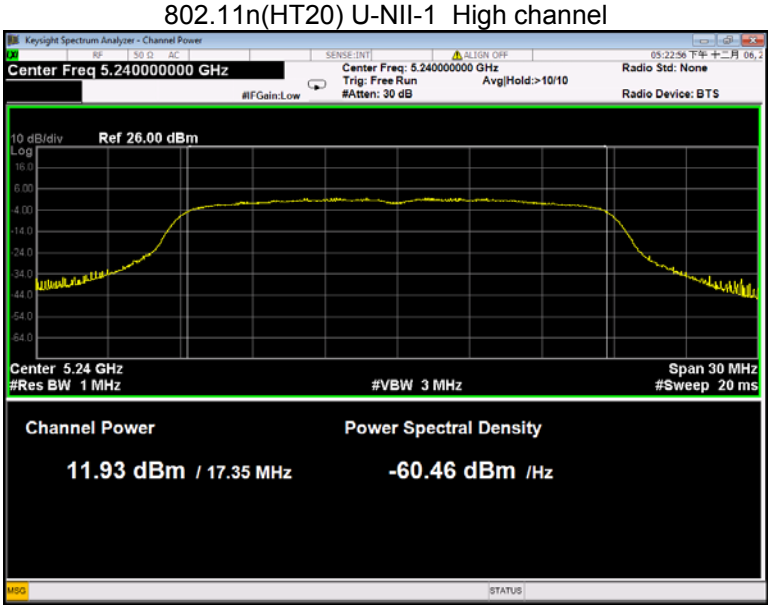
802.11n(HT20) U-NII-1 Low channel



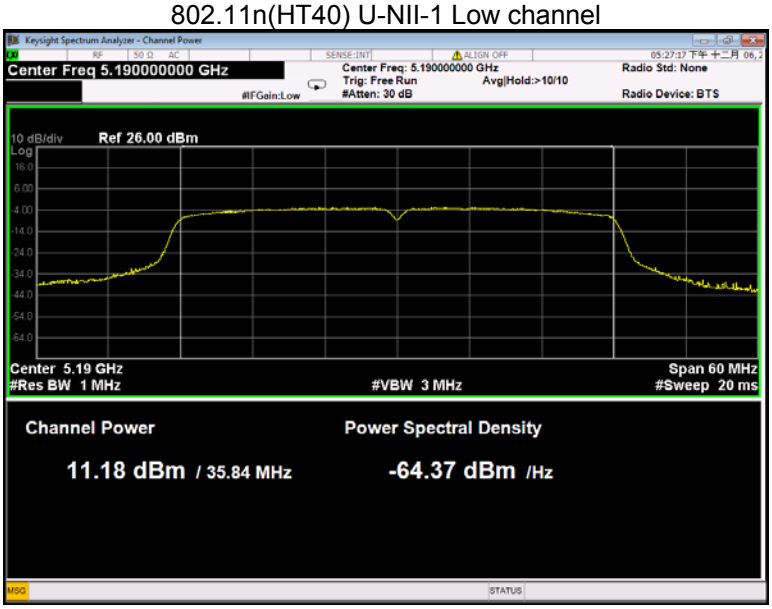
802.11n(HT20) U-NII-1 Middle channel



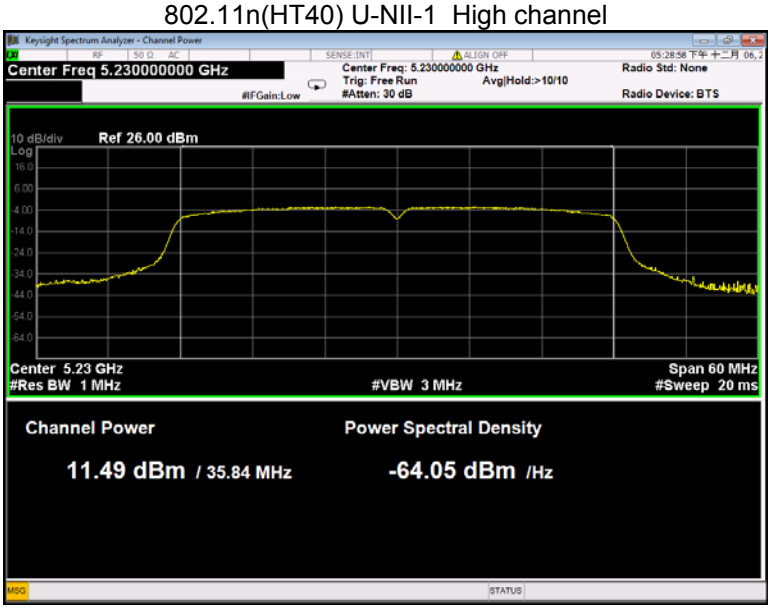
802.11n(HT20) U-NII-1 High channel



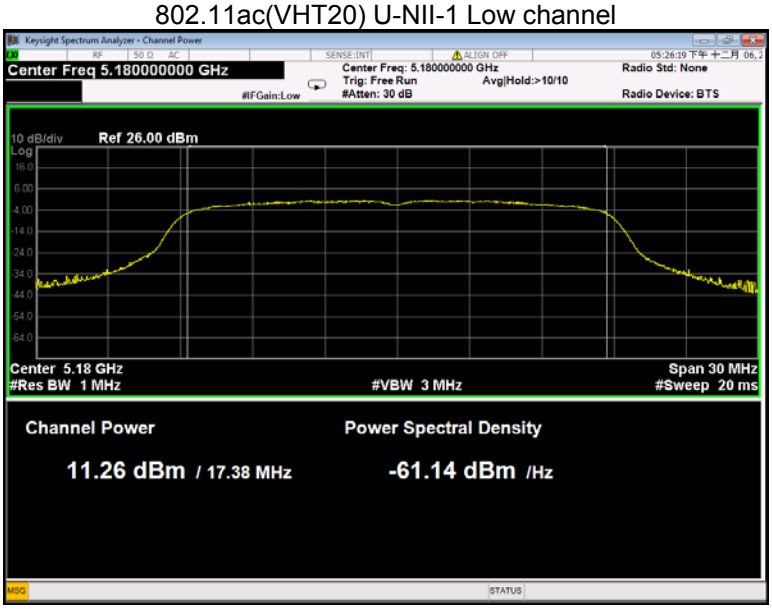
802.11n(HT40) U-NII-1 Low channel



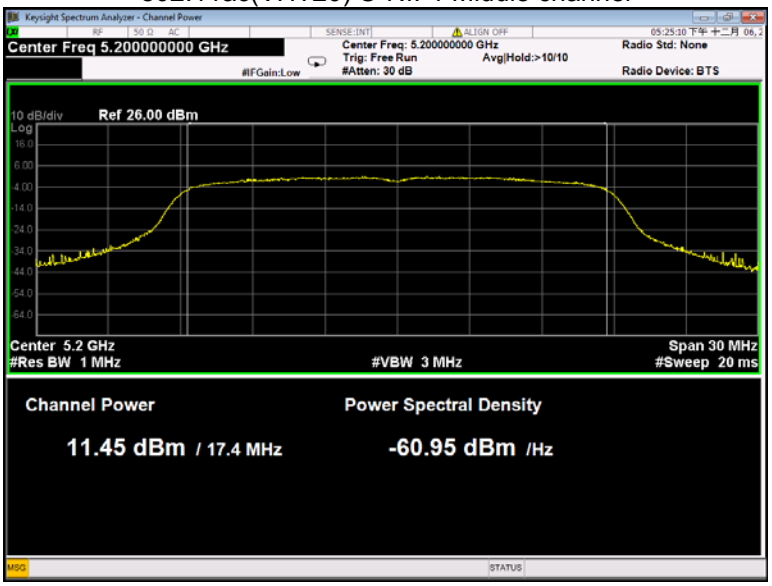
802.11n(HT40) U-NII-1 High channel



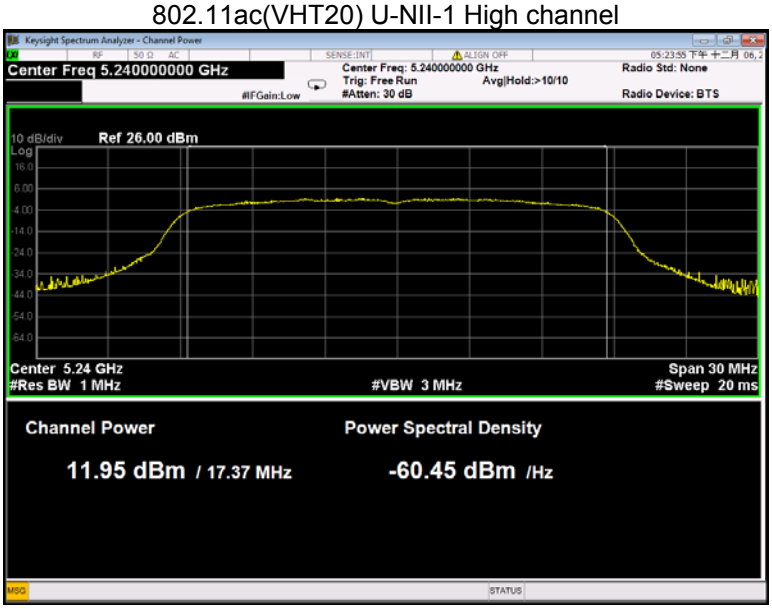
802.11ac(VHT20) U-NII-1 Low channel



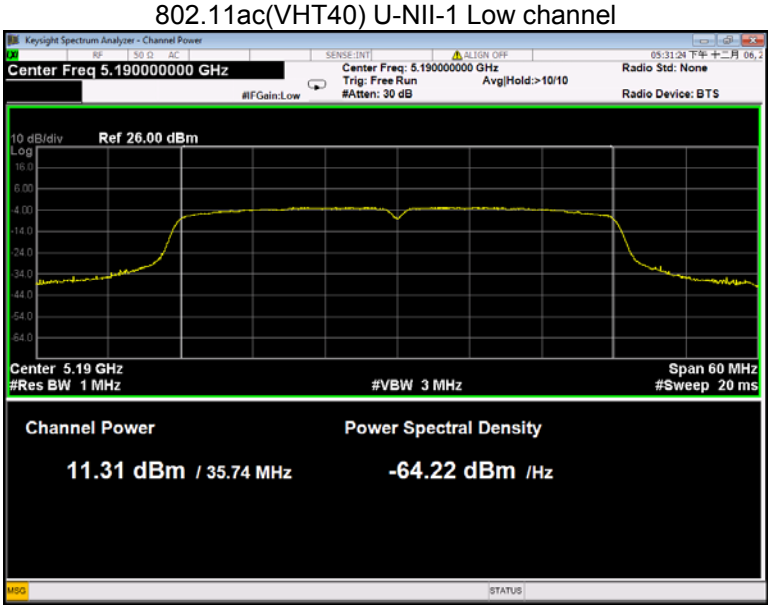
802.11ac(VHT20) U-NII-1 Middle channel



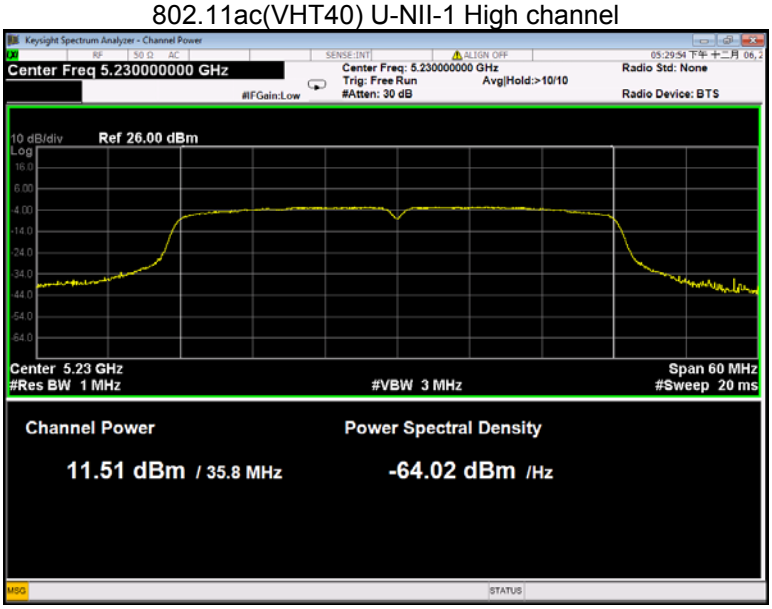
802.11ac(VHT20) U-NII-1 High channel



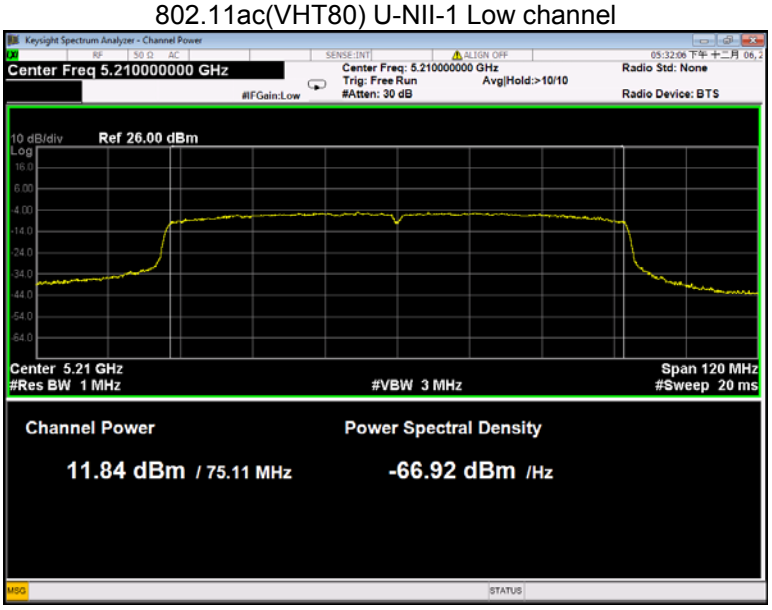
802.11ac(VHT40) U-NII-1 Low channel



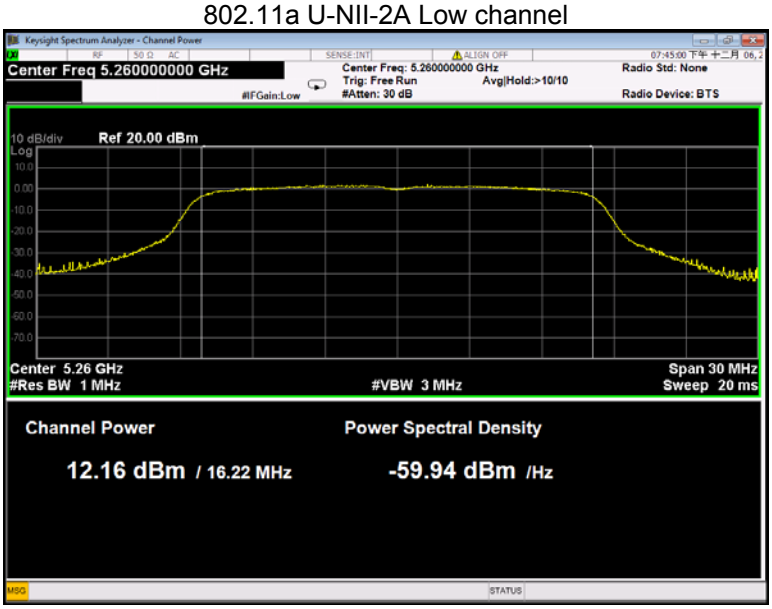
802.11ac(VHT40) U-NII-1 High channel



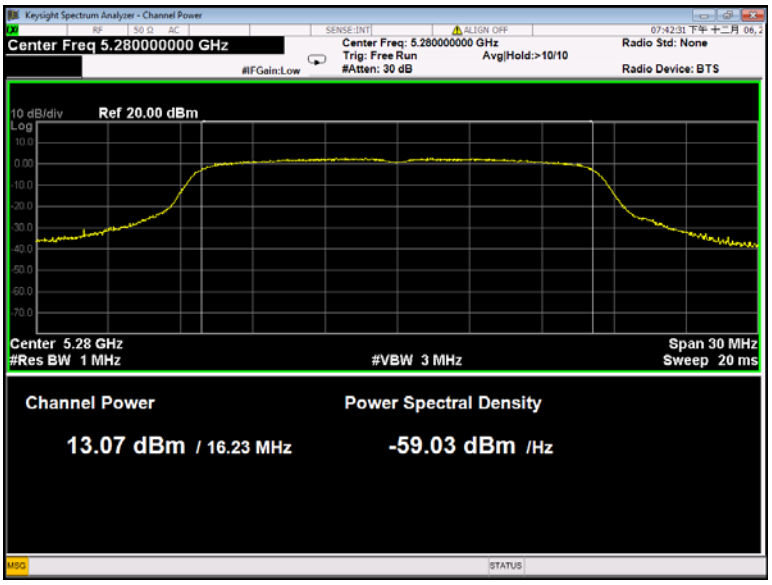
802.11ac(VHT80) U-NII-1 Low channel



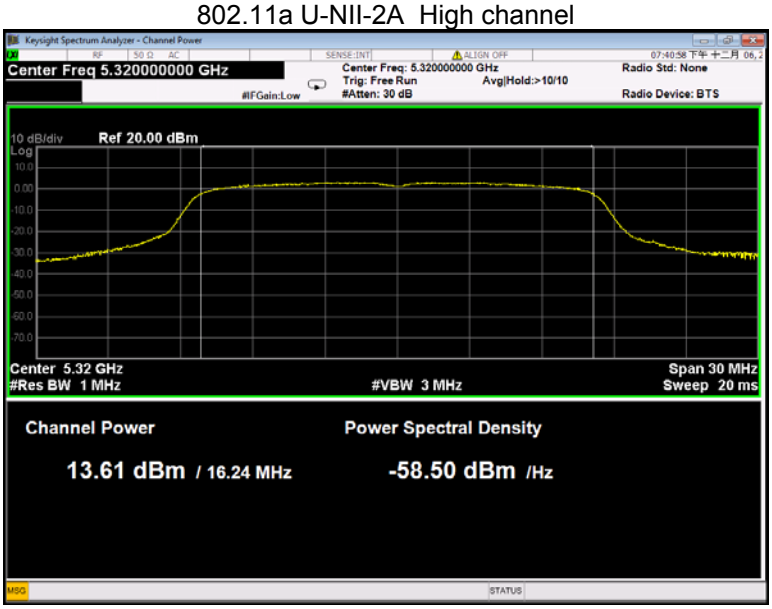
802.11a U-NII-2A Low channel



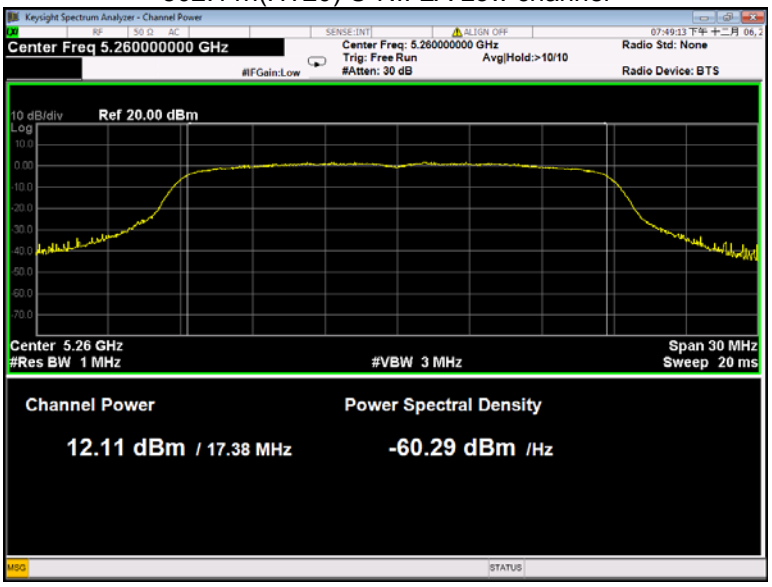
802.11a U-NII-2A Middle channel



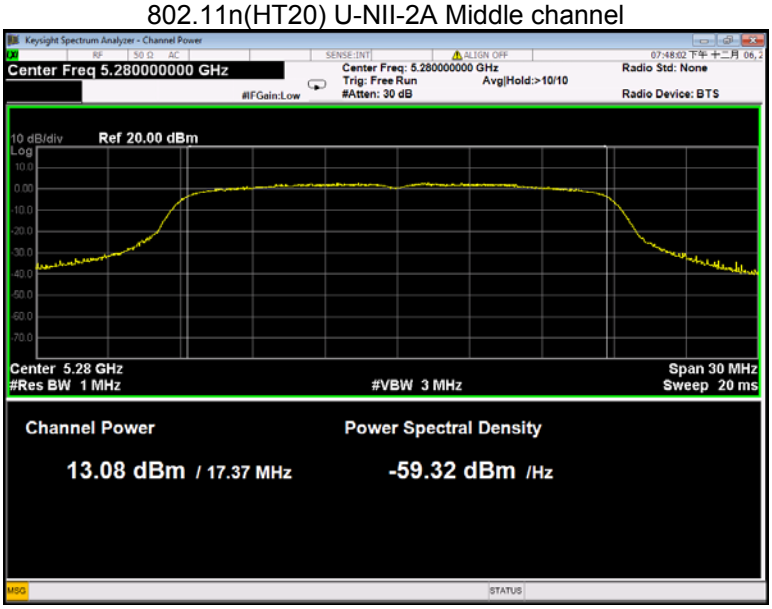
802.11a U-NII-2A High channel



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



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



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