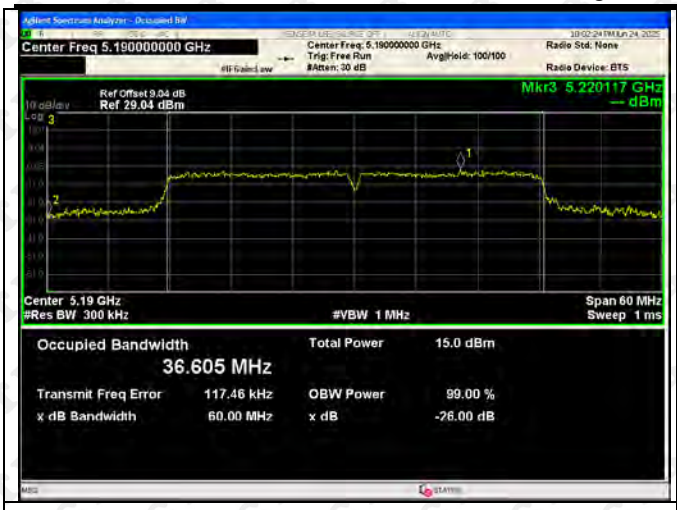
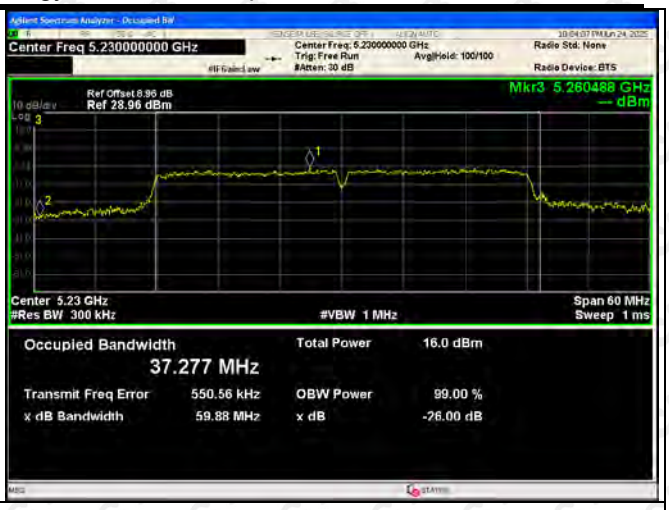
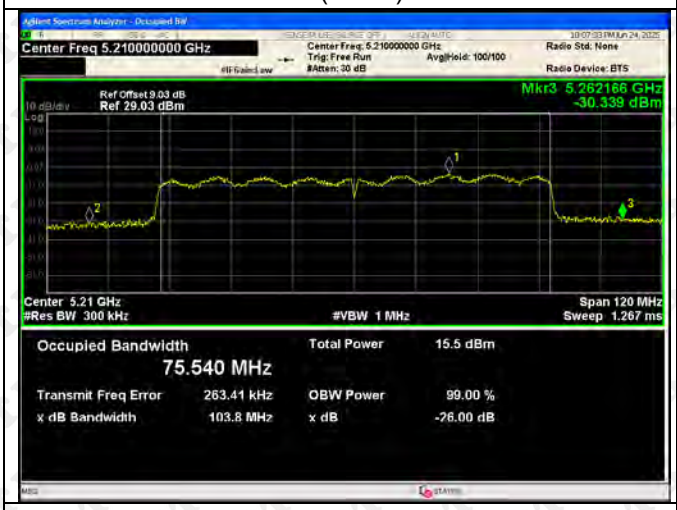


802.11ac(VH80)-5210



802.11n(HT20)-5180



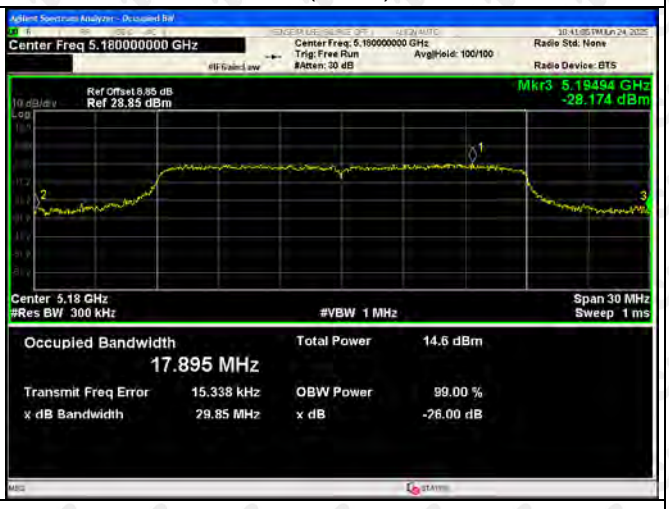
802.11n(HT20)-5200

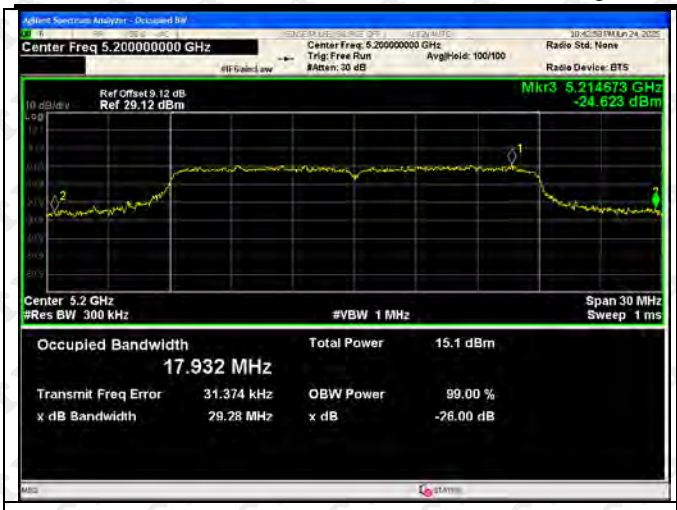
802.11n(HT20)-5240

802.11n(HT40)-5190

802.11n(HT40)-5230

ANT2

802.11a-5180	802.11a-5200
802.11a-5240	802.11ac(VH20)-5180
	
802.11ac(VH20)-5200	802.11ac(VH20)-5240

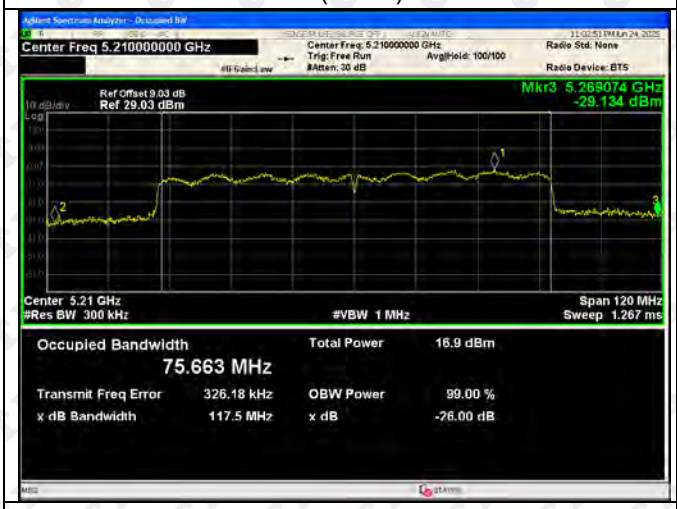


802.11ac(VH40)-5190

802.11ac(VH40)-5230

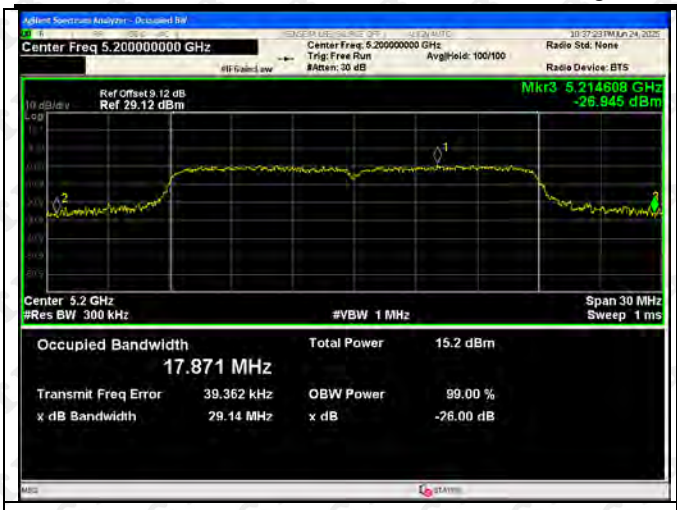
802.11ac(VH80)-5210

802.11n(HT20)-5180



802.11n(HT20)-5200

802.11n(HT20)-5240



802.11n(HT40)-5190

802.11n(HT40)-5230

5250-5350MHz-Power
ANT1

802.11a-5260

802.11a-5280

802.11a-5320

802.11ac(VH20)-5260

802.11ac(VH20)-5280

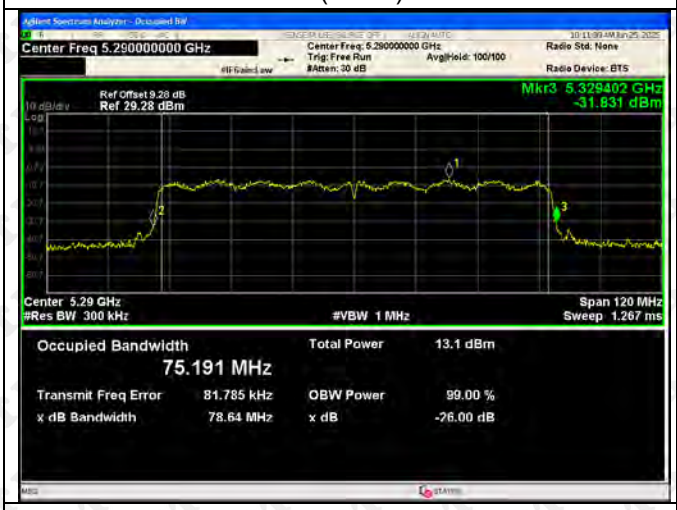
802.11ac(VH20)-5320

802.11ac(VH40)-5270

802.11ac(VH40)-5310

802.11ac(VH80)-5290

802.11n(HT20)-5260



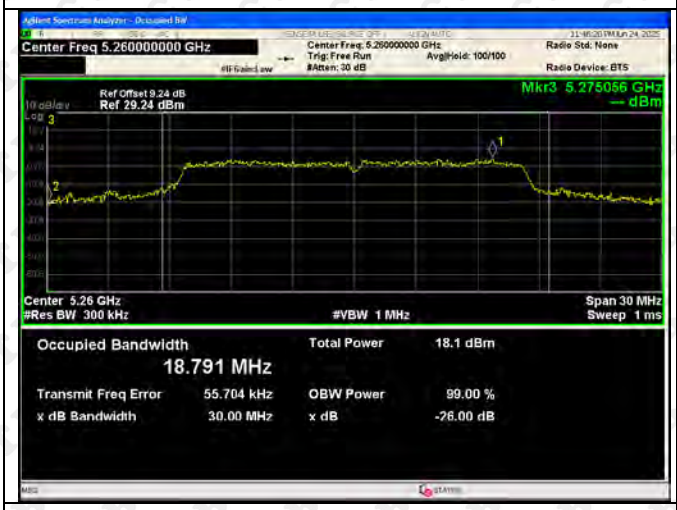
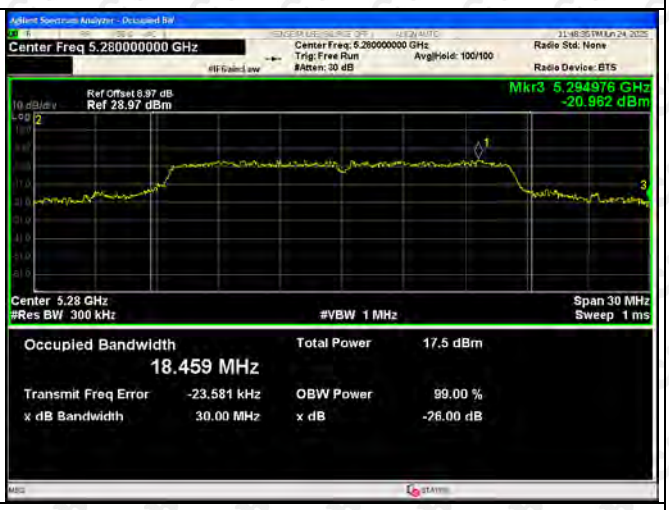
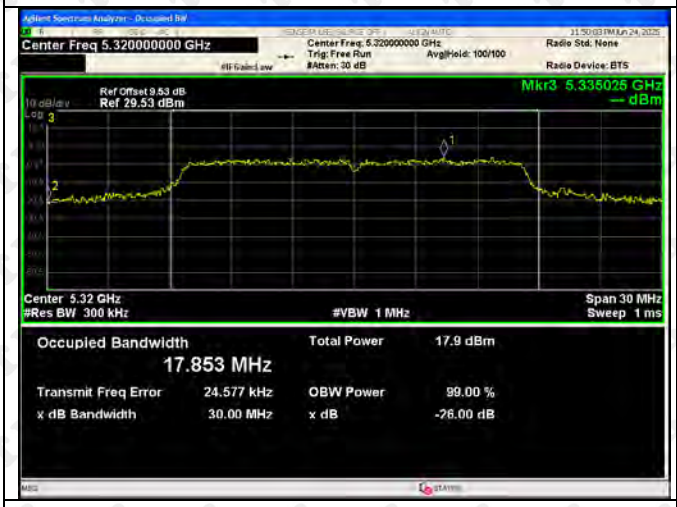
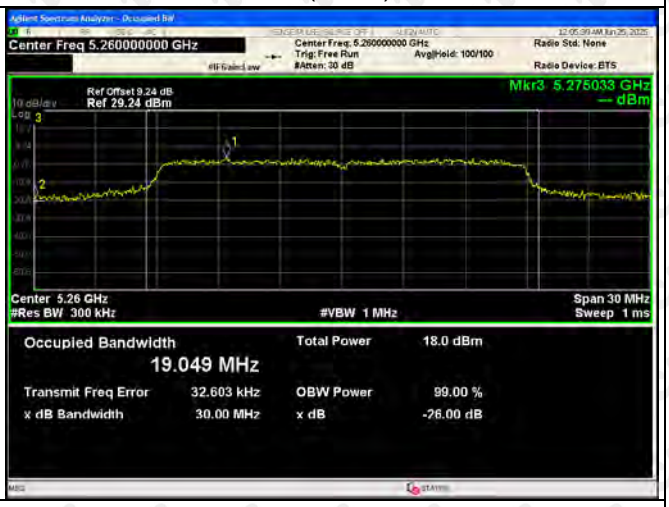
802.11n(HT20)-5280

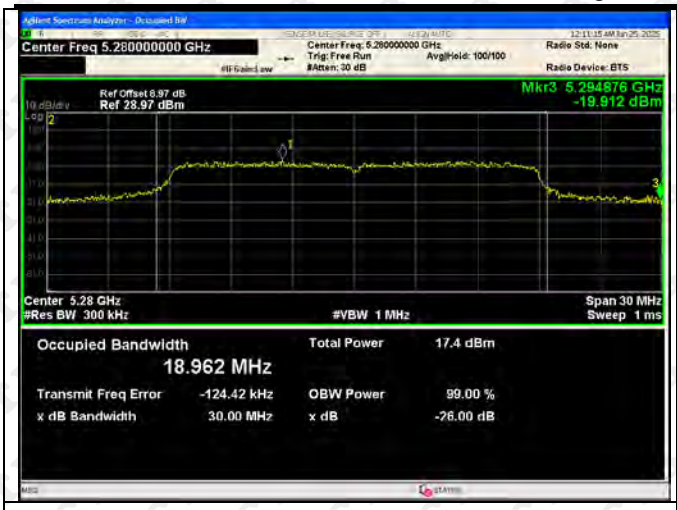
802.11n(HT20)-5320

802.11n(HT40)-5270

802.11n(HT40)-5310

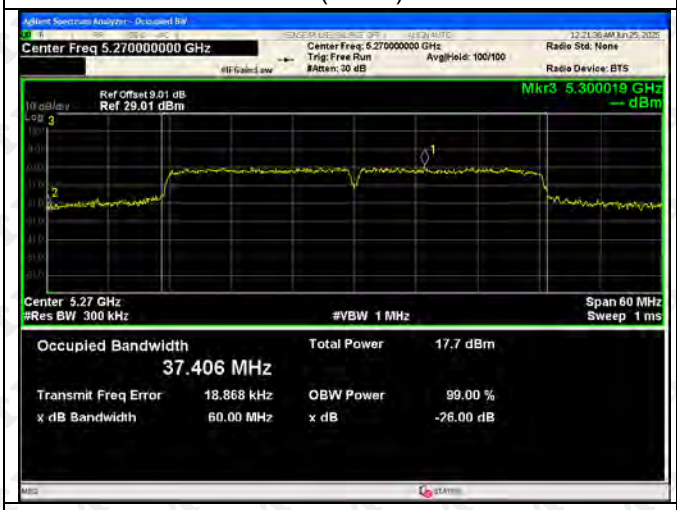
ANT2

802.11a-5260	802.11a-5280
	
802.11a-5320	802.11ac(VH20)-5260
	
802.11ac(VH20)-5280	802.11ac(VH20)-5320

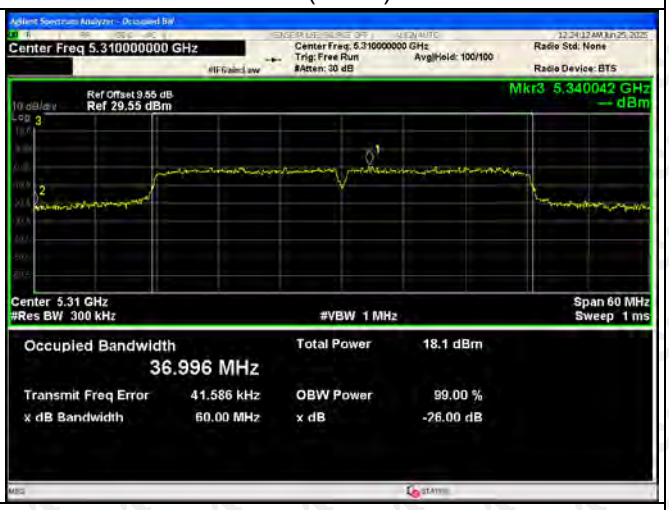


802.11ac(VH40)-5270

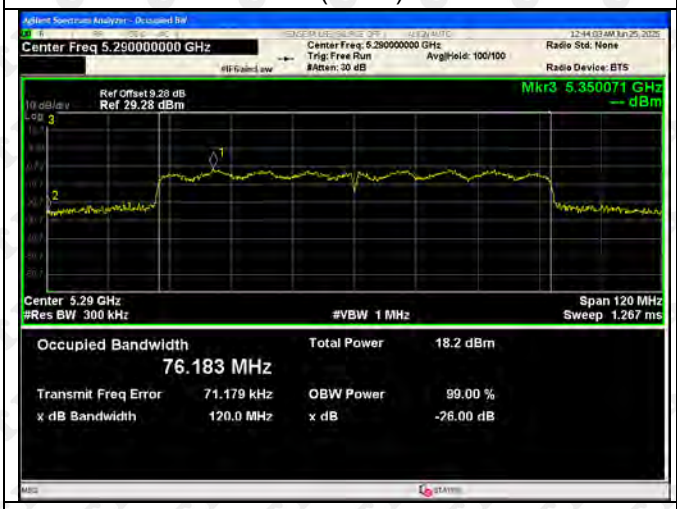
802.11ac(VH40)-5310



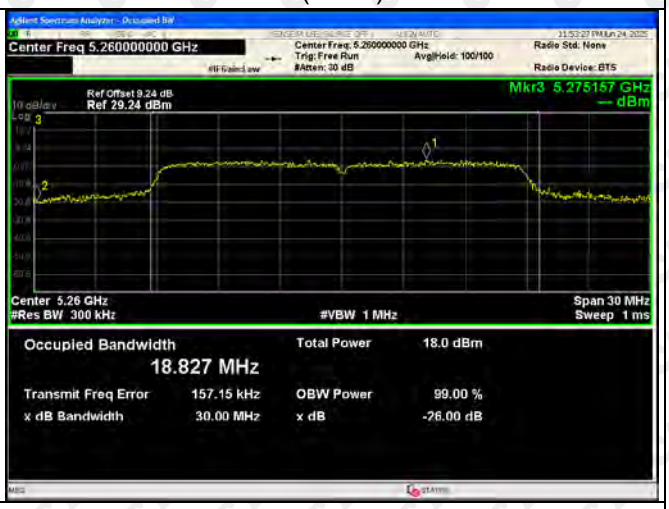
802.11ac(VH80)-5290



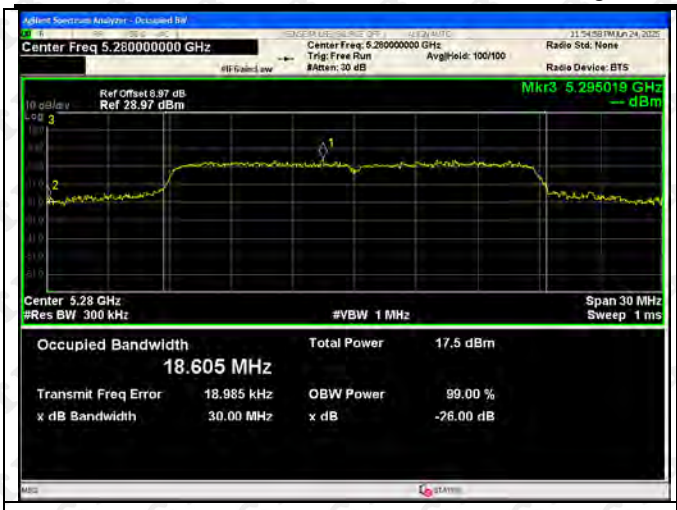
802.11n(HT20)-5260



802.11n(HT20)-5280

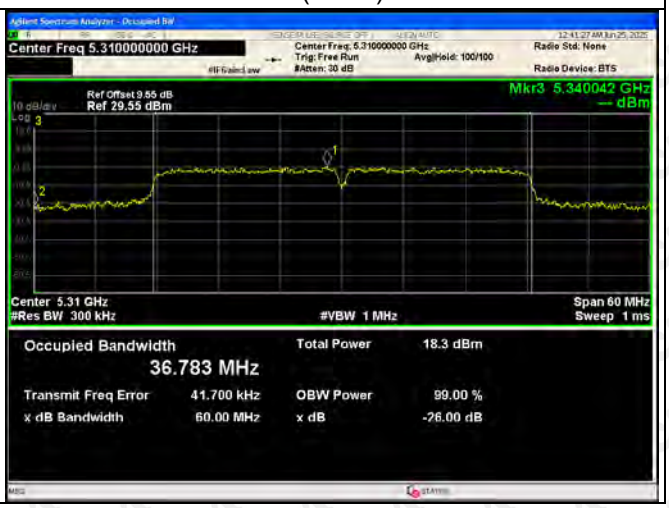


802.11n(HT20)-5320



802.11n(HT40)-5270

802.11n(HT40)-5310

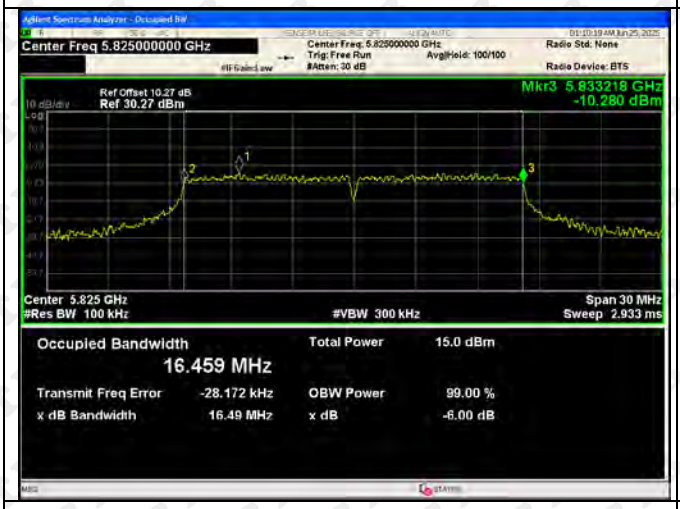


5470-5725MHz-Power
ANT1

802.11a-5500

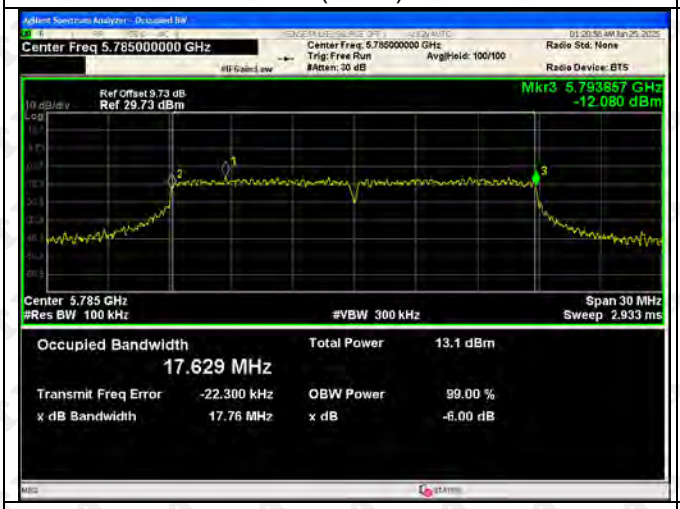
802.11a-5580

802.11a-5700



802.11ac(VH20)-5500

802.11ac(VH20)-5580



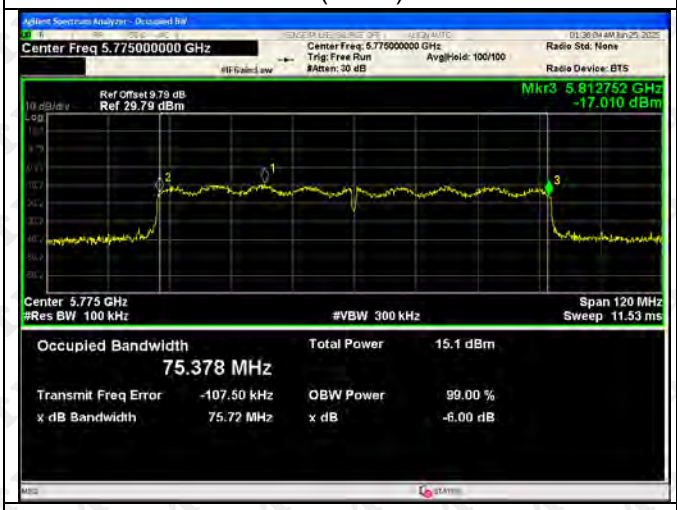
802.11ac(VH20)-5700

802.11ac(VH40)-5510

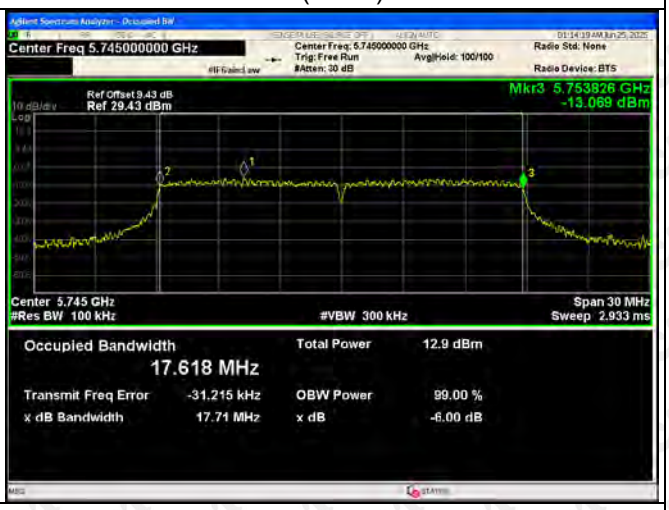
802.11ac(VH40)-5670

802.11ac(VH80)-5530

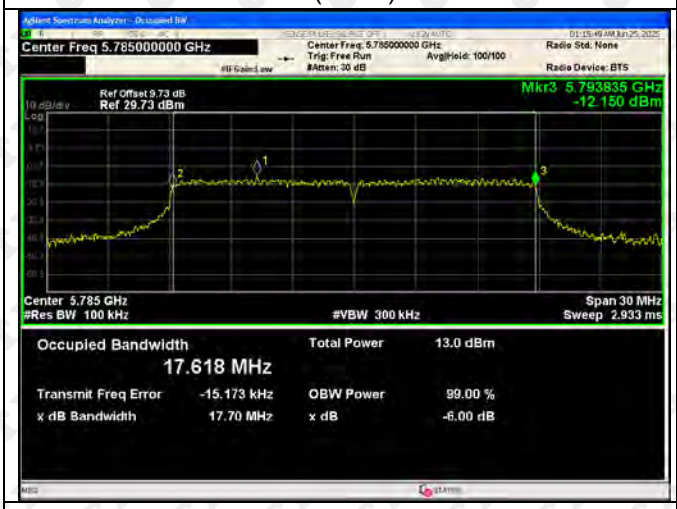
802.11n(HT20)-5500



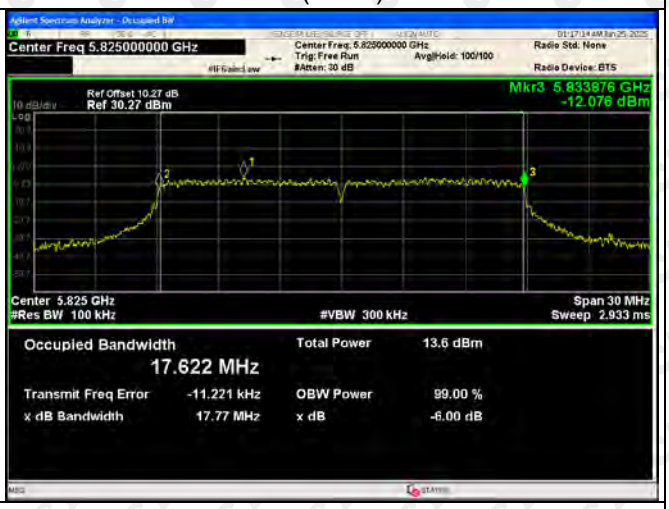
802.11n(HT20)-5580



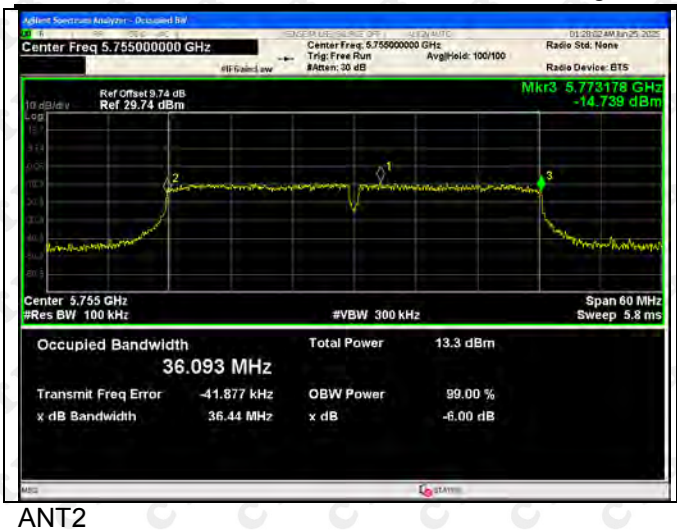
802.11n(HT20)-5700

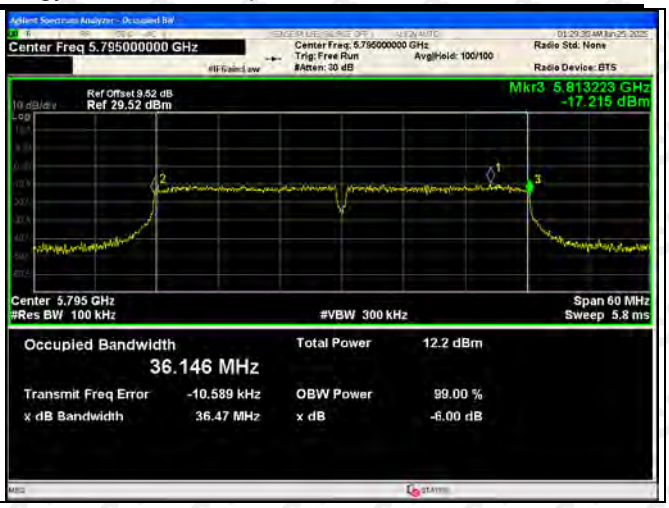


802.11n(HT40)-5510



802.11n(HT40)-5670





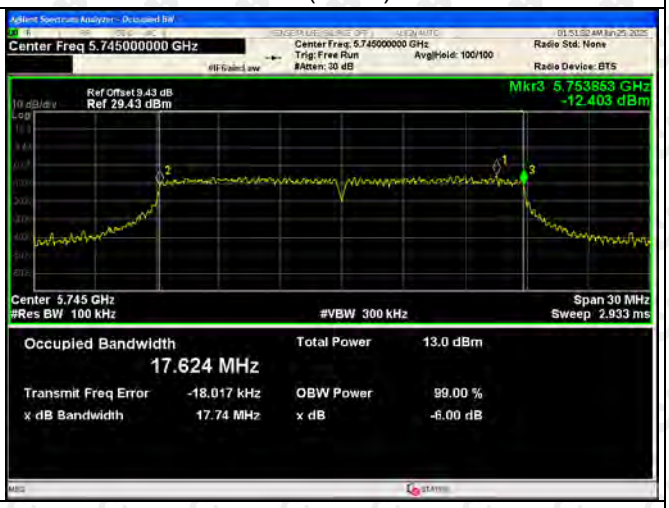
ANT2

802.11a-5500

802.11a-5580

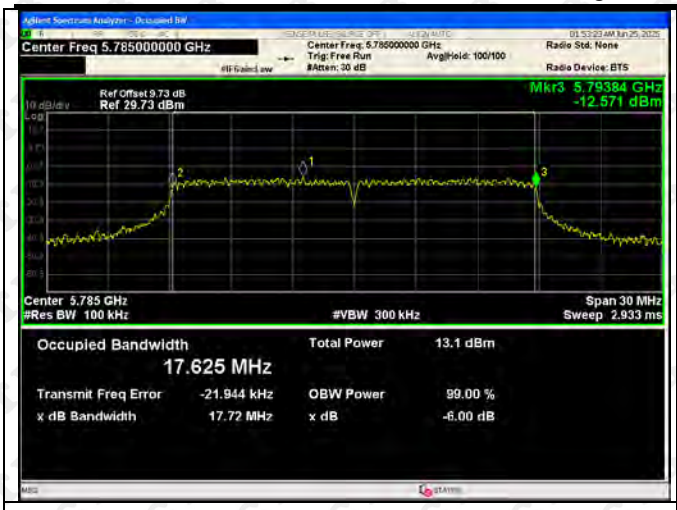
802.11a-5700

802.11ac(VH20)-5500

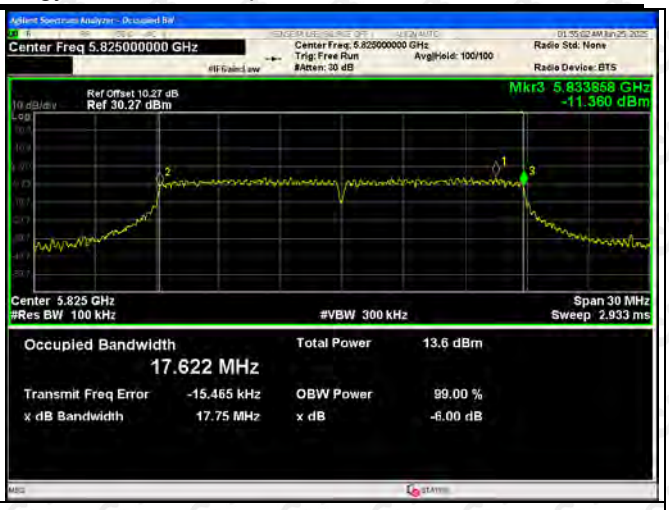


802.11ac(VH20)-5580

802.11ac(VH20)-5700

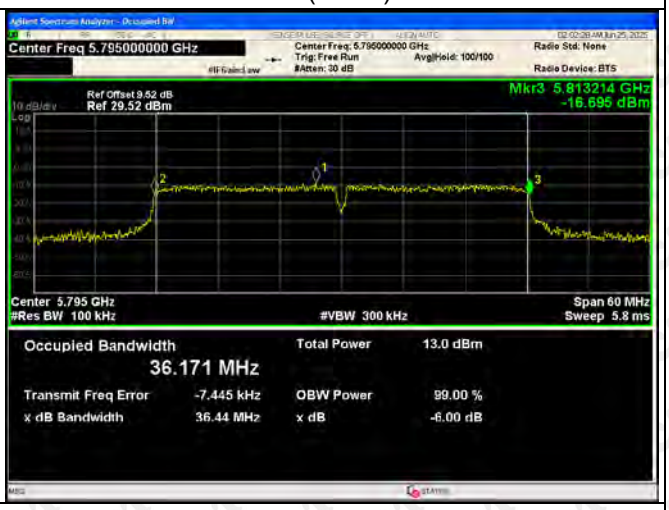


802.11ac(VH40)-5510

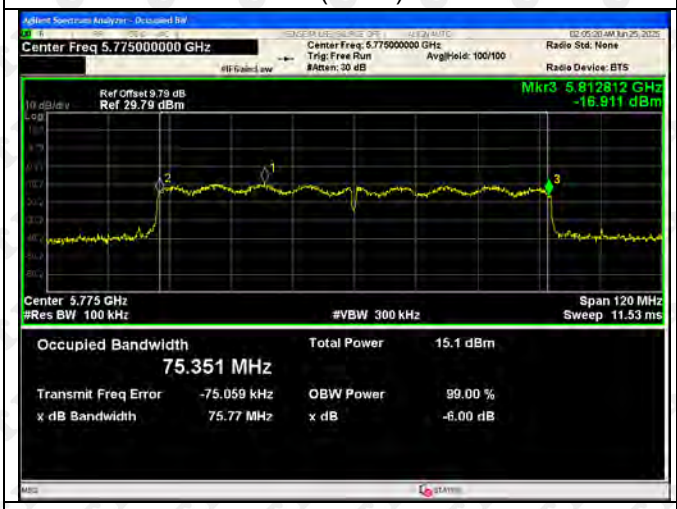


802.11ac(VH40)-5670

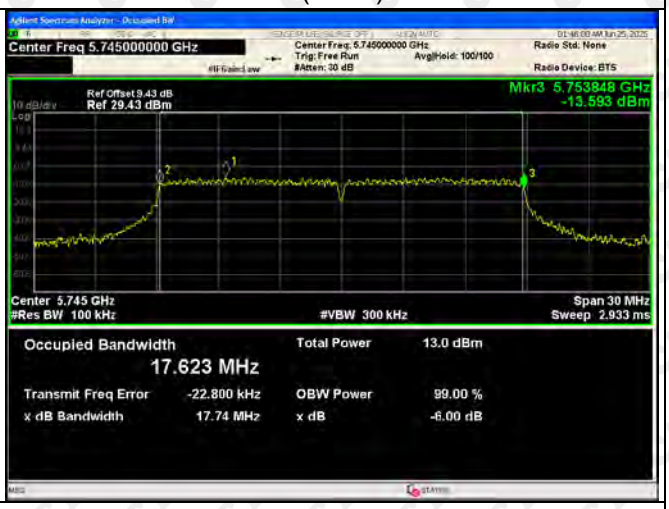
802.11ac(VH80)-5530



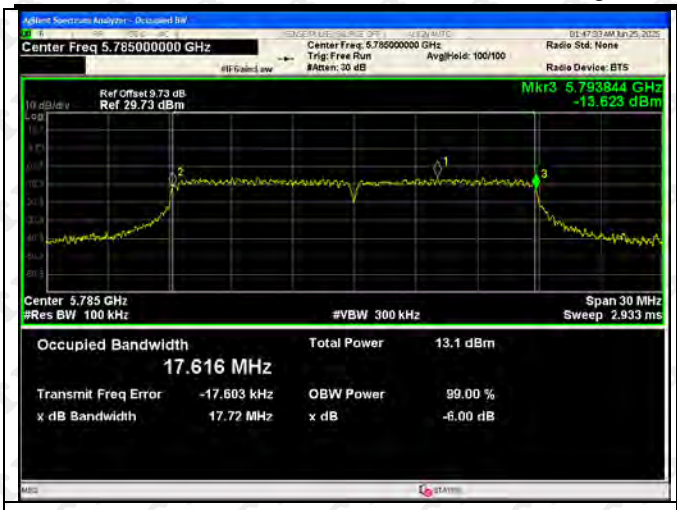
802.11n(HT20)-5500



802.11n(HT20)-5580

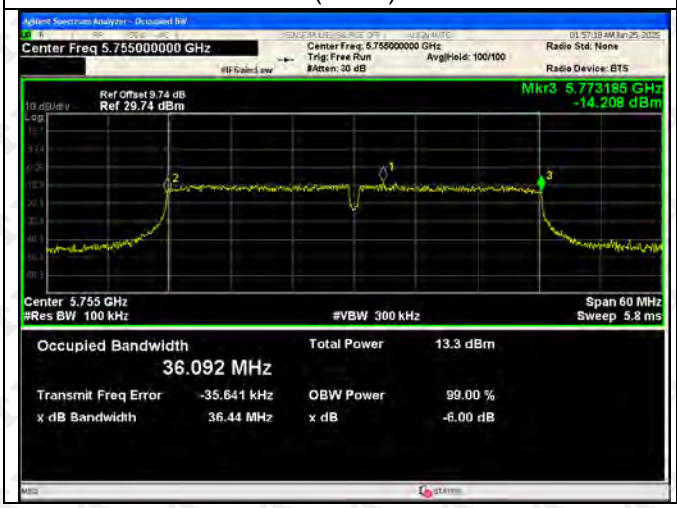


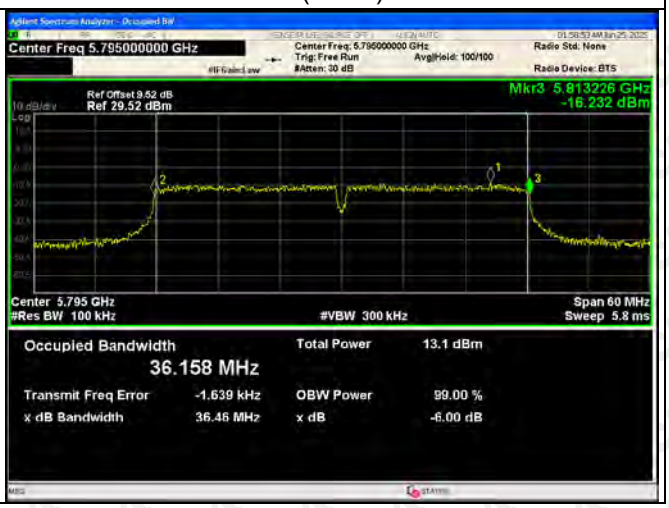
802.11n(HT20)-5700



802.11n(HT40)-5510

802.11n(HT40)-5670



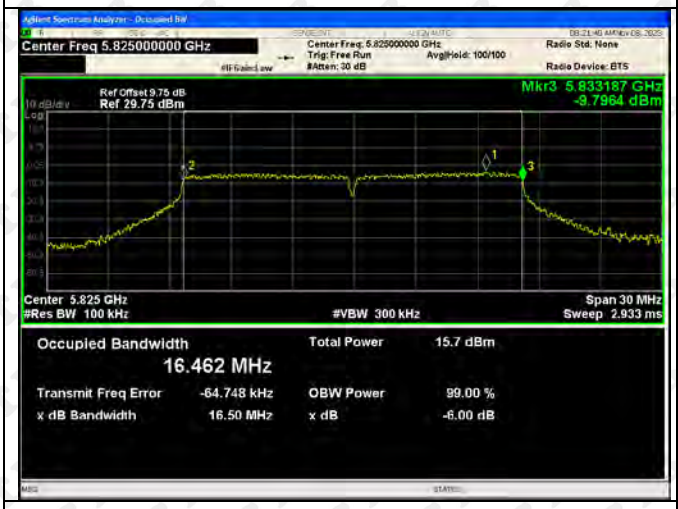


5725-5850MHz:-Power
ANT1

802.11a-5745

802.11a-5785

802.11a-5825



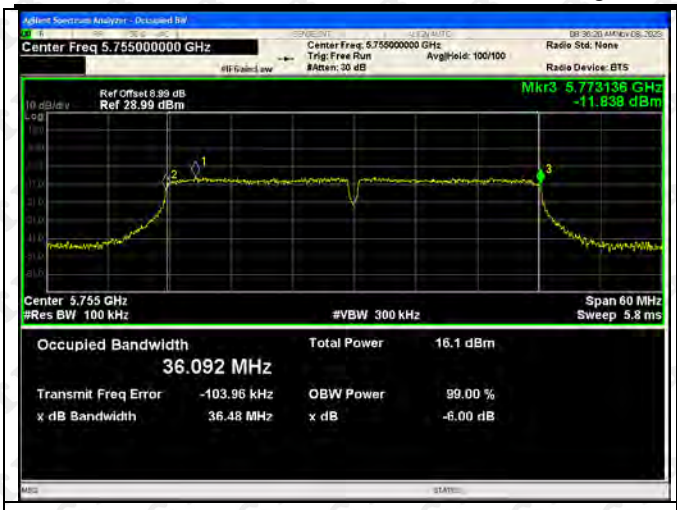
802.11ac(VH20)-5745

802.11ac(VH20)-5785

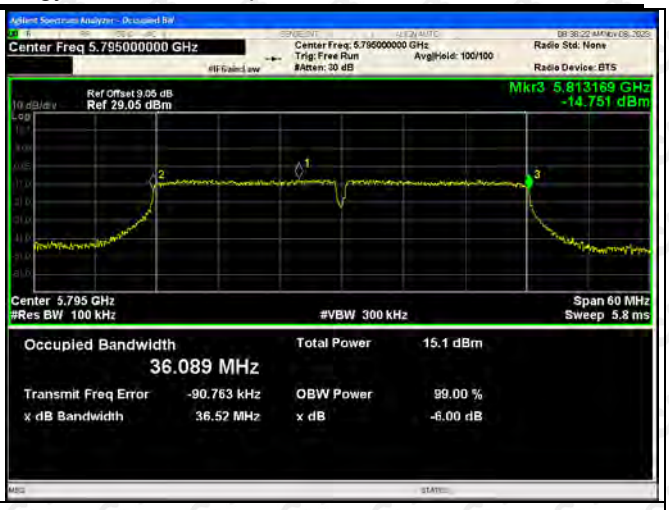
802.11ac(VH20)-5825

802.11ac(VH40)-5755

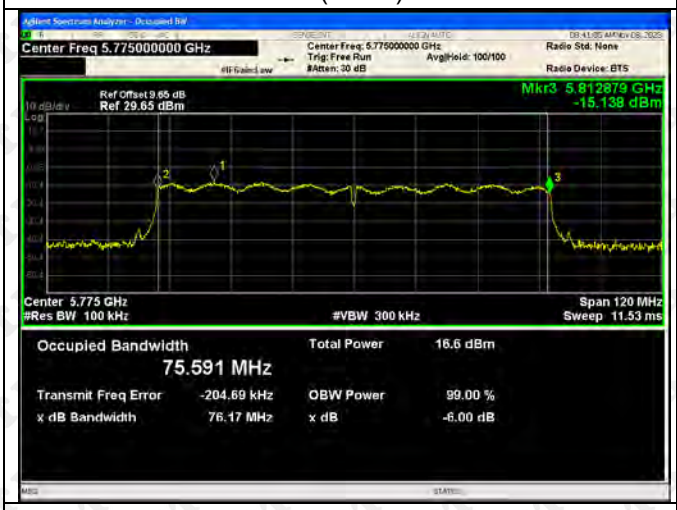
802.11ac(VH40)-5795



802.11ac(VH80)-5775



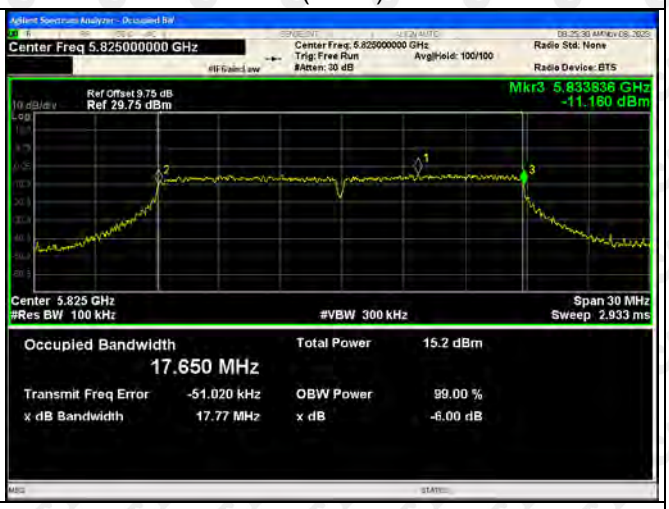
802.11n(HT20)-5745



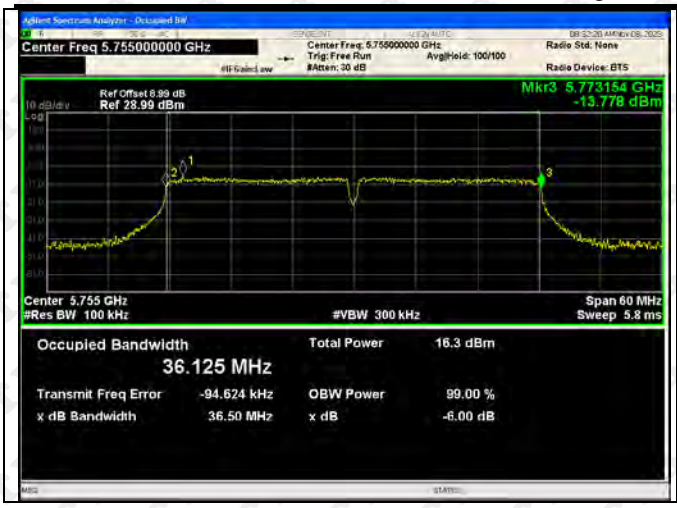
802.11n(HT20)-5785

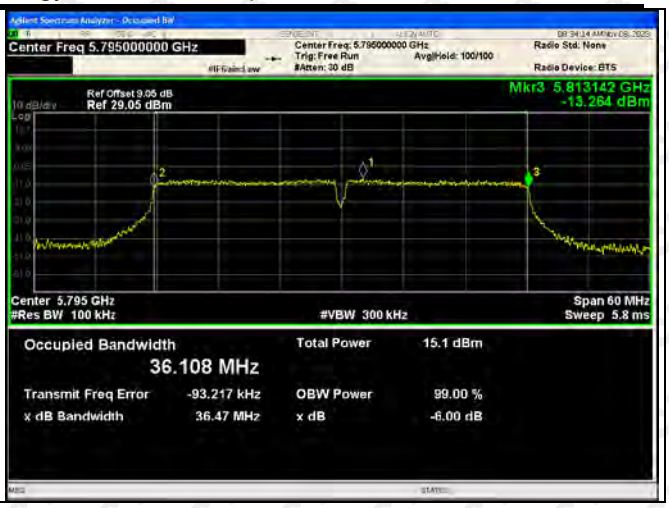
802.11n(HT20)-5825

802.11n(HT40)-5795



802.11n(HT40)-5825

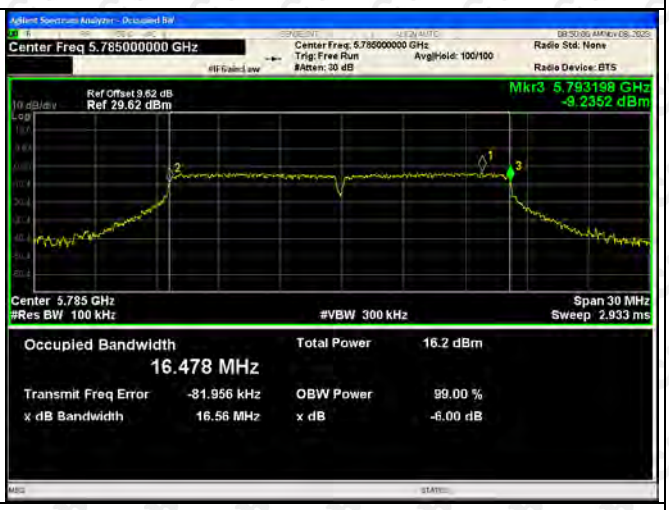




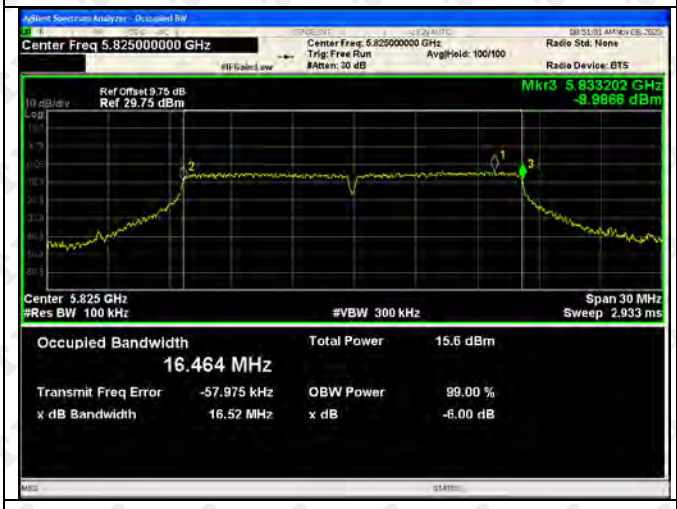
ANT2

802.11a-5745

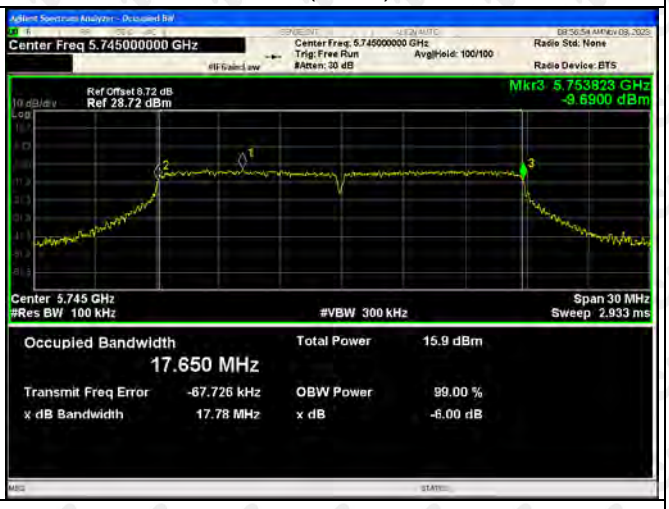
802.11a-5785



802.11a-5825

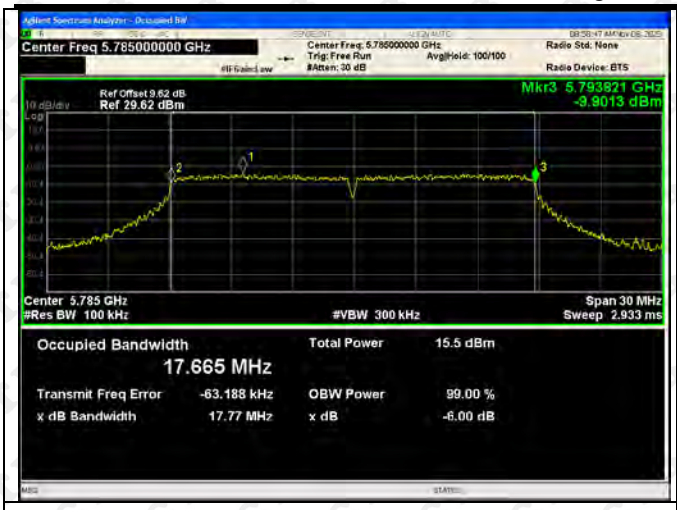


802.11ac(VH20)-5745



802.11ac(VH20)-5785

802.11ac(VH20)-5825

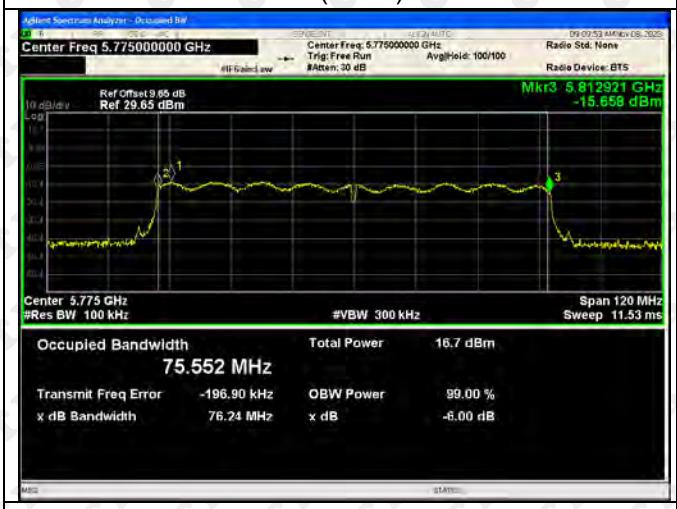


802.11ac(VH40)-5755

802.11ac(VH40)-5795

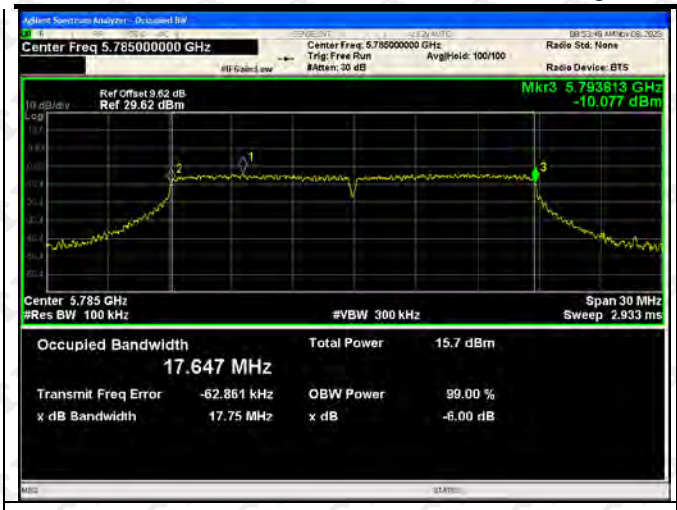
802.11ac(VH80)-5775

802.11n(HT20)-5745



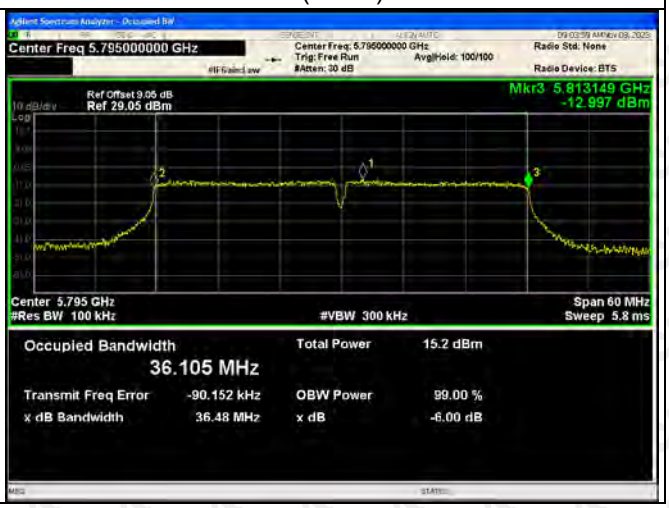
802.11n(HT20)-5785

802.11n(HT20)-5825



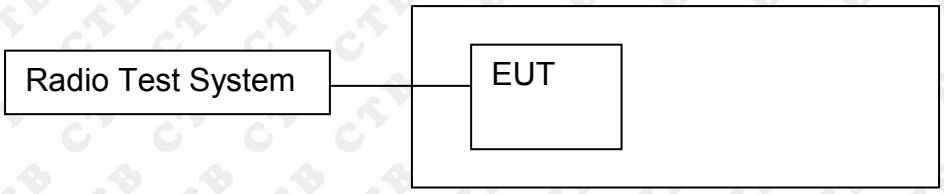
802.11n(HT40)-5795

802.11n(HT40)-5825



11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

(1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable 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. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(2) 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 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

11.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

For devices operating in the bands 5.15−5.25 GHz, 5.25−5.35 GHz, and 5.47−5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725−5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:
a) Set RBW ≥ 1/*T*, where *T* is defined in II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set

during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.
Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

11.4 Test Result

5150-5250MHz:MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5180	3.207	3.042	/	11	Pass
	5200	3.973	3.615	/	11	Pass
	5240	5.461	3.2	/	11	Pass
802.11n(HT20)	5180	3.281	3.31	6.306	11	Pass
	5200	3.951	3.863	6.918	11	Pass
	5240	4.942	2.441	6.879	11	Pass
802.11n(HT40)	5190	0.155	0.347	3.262	11	Pass
	5230	1.777	0.403	4.154	11	Pass
802.11ac(VH20)	5210	-6.777	-5.201	-2.908	11	Pass
	5180	3.426	3.97	6.717	11	Pass
	5200	4.318	3.991	7.168	11	Pass
802.11ac(VH40)	5240	5.726	3.711	7.845	11	Pass
	5190	0.351	-0.207	3.091	11	Pass
802.11ac(VH80)	5230	1.791	2.146	4.982	11	Pass

5250-5350 MHzMHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5260	-4.316	0.848	/	11	Pass
	5280	-4.709	0.581	/	11	Pass
	5320	-4.335	0.605	/	11	Pass
802.11n(HT20)	5260	-4.662	0.34	1.533	11	Pass
	5280	-5.286	-0.073	1.070	11	Pass
	5320	-4.748	0.471	1.613	11	Pass
802.11n(HT40)	5270	-7.752	-2.793	-1.590	11	Pass
	5310	-7.894	-2.499	-1.397	11	Pass
802.11ac(VH20)	5260	-9.842	-5.024	-3.786	11	Pass
	5280	-4.774	0.484	1.617	11	Pass
	5320	-5.113	-0.035	1.140	11	Pass
802.11ac(VH40)	5270	-4.821	0.425	1.560	11	Pass
	5310	-7.756	-2.75	-1.558	11	Pass
802.11ac(VH80)	5290	-8.119	-2.264	-1.261	11	Pass

5470-5725MHz:
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5500	-3.648	-3.778	/	30	Pass
	5580	-3.614	0.655	/	30	Pass
	5700	-3.373	1.077	/	30	Pass
802.11n(HT20)	5500	-4.208	1.028	2.166	30	Pass
	5580	-3.954	0.327	1.704	30	Pass
	5700	-2.956	0.896	2.394	30	Pass
802.11n(HT40)	5510	-7.123	-2.005	-0.840	30	Pass
	5670	-6.224	-2.802	-1.174	30	Pass
802.11ac(VH20)	5530	-9.074	-3.98	-2.809	30	Pass
	5500	-4.216	0.841	2.021	30	Pass
	5580	-3.884	0.361	1.748	30	Pass
802.11ac(VH40)	5700	-3.197	1.04	2.429	30	Pass
	5510	-7.1	-1.811	-0.685	30	Pass
802.11ac(VH80)	5670	-6.108	-2.49	-0.922	30	Pass

5725-5850MHz:
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5745	0.977	-0.551	/	30	Pass
	5785	0.232	-0.413	/	30	Pass
	5825	1.399	-0.124	/	30	Pass
802.11n(HT20)	5745	-0.65	-1.072	2.154	30	Pass
	5785	-1.529	-1.126	1.687	30	Pass
	5825	-0.616	-0.745	2.330	30	Pass
802.11n(HT40)	5755	-3.933	-3.623	-0.765	30	Pass
	5795	-3.955	-3.98	-0.957	30	Pass
802.11ac(VH20)	5745	-4.597	-4.814	-1.694	30	Pass
	5785	-0.574	-0.355	2.547	30	Pass
	5825	-1.089	-0.968	1.982	30	Pass
802.11ac(VH40)	5755	0.338	-0.369	3.009	30	Pass
	5795	-4.331	-4.223	-1.266	30	Pass
802.11ac(VH80)	5775	-4.974	-3.964	-1.429	30	Pass

Test Graph:
5150-5250MHz
ANT1

802.11a-5180

802.11a-5200

802.11a-5240

802.11ac(VH20)-5180

802.11ac(VH20)-5200

802.11ac(VH20)-5240

802.11ac(VH40)-5190

802.11ac(VH40)-5230

802.11ac(VH80)-5210

802.11n(HT20)-5180

802.11n(HT20)-5200

802.11n(HT20)-5240

802.11n(HT40)-5190

802.11n(HT40)-5230

ANT2

802.11a-5180	802.11a-5200
802.11a-5240	802.11ac(VH20)-5180
802.11ac(VH20)-5200	802.11ac(VH20)-5240

802.11ac(VH40)-5190

802.11ac(VH40)-5230

802.11ac(VH80)-5210

802.11n(HT20)-5180

802.11n(HT20)-5200

802.11n(HT20)-5240

802.11n(HT40)-5190

802.11n(HT40)-5230

5250-5350MHz
ANT1

802.11a-5260

802.11a-5280

802.11a-5320

802.11ac(VH20)-5260

802.11ac(VH20)-5280

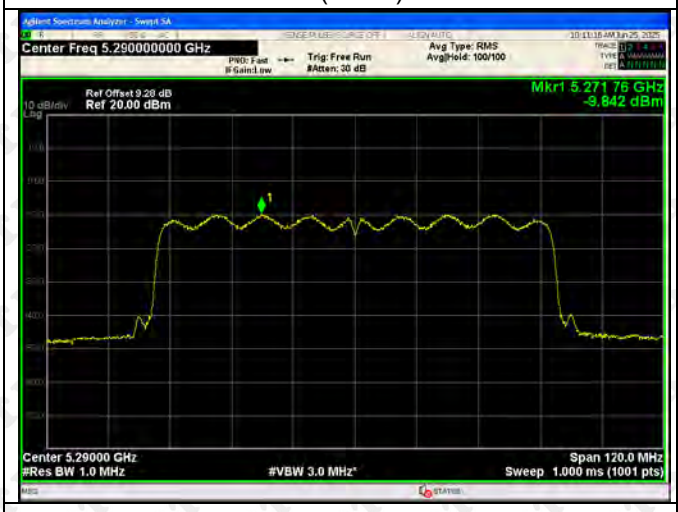
802.11ac(VH20)-5320

802.11ac(VH40)-5270

802.11ac(VH40)-5310

802.11ac(VH80)-5290

802.11n(HT20)-5260



802.11n(HT20)-5280

802.11n(HT20)-5320

802.11n(HT40)-5270

802.11n(HT40)-5310

ANT2

802.11a-5260	802.11a-5280
802.11a-5320	802.11ac(VH20)-5260
802.11ac(VH20)-5280	802.11ac(VH20)-5320

802.11ac(VH40)-5270

802.11ac(VH40)-5310

802.11ac(VH80)-5290

802.11n(HT20)-5260

802.11n(HT20)-5280

802.11n(HT20)-5320

802.11n(HT40)-5270

802.11n(HT40)-5310

5470-5725MHzANT1

802.11a-5500

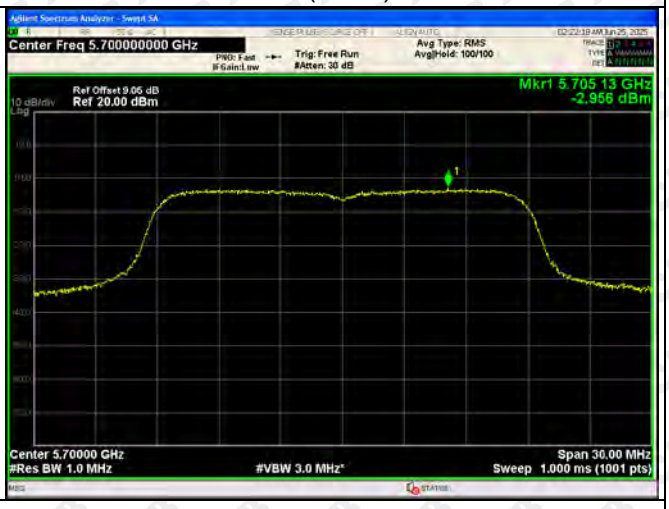
802.11a-5580

802.11a-5700

802.11ac(VH20)-5500

802.11ac(VH20)-5580

802.11ac(VH20)-5700



802.11ac(VH40)-5510

802.11ac(VH40)-5670

802.11ac(VH80)-5530

802.11n(HT20)-5500

802.11n(HT20)-5580

802.11n(HT20)-5700

802.11n(HT40)-5510

802.11n(HT40)-5670

ANT2

802.11a-5500	802.11a-5580
802.11a-5700	802.11ac(VH20)-5500
802.11ac(VH20)-5580	802.11ac(VH20)-5700

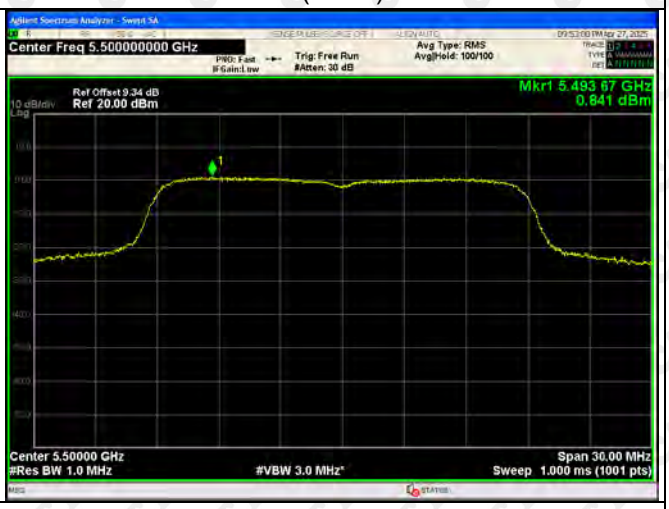
802.11ac(VH40)-5510

802.11ac(VH40)-5670

802.11ac(VH80)-5530

802.11n(HT20)-5500

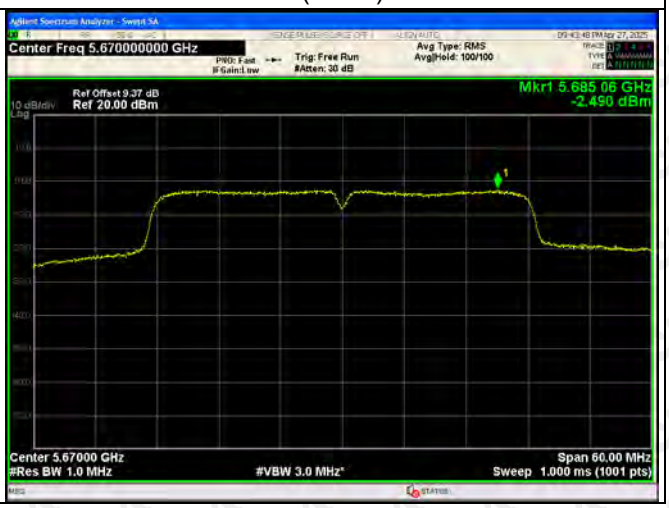
802.11n(HT20)-5580



802.11n(HT20)-5700

802.11n(HT40)-5510

802.11n(HT40)-5670



5725-5850MHz:
ANT1

802.11a-5745

802.11a-5785

802.11a-5825

802.11ac(VH20)-5745

802.11ac(VH20)-5785

802.11ac(VH20)-5825

802.11ac(VH40)-5755

802.11ac(VH40)-5795

802.11ac(VH80)-5775

802.11n(HT20)-5745

802.11n(HT20)-5785

802.11n(HT20)-5825

802.11n(HT40)-5795

802.11n(HT40)-5825

ANT2

802.11a-5745	802.11a-5785
802.11a-5825	802.11ac(VH20)-5745
802.11ac(VH20)-5785	802.11ac(VH20)-5825

802.11ac(VH40)-5755

802.11ac(VH40)-5795

802.11ac(VH80)-5775

802.11n(HT20)-5745

802.11n(HT20)-5785

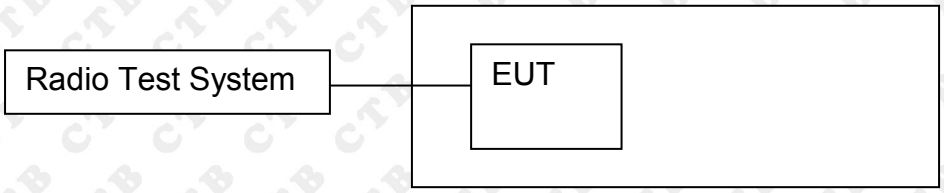
802.11n(HT20)-5825

802.11n(HT40)-5795

802.11n(HT40)-5825

12. FREQUENCY STABILITY

12.1 Block Diagram Of Test Setup



12.2 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 user's manual.

12.3 Test procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.

2. Set EUT as normal operation.

3. Turn the EUT on and couple its output to spectrum.

4. Turn the EUT off and set the chamber to the highest temperature specified.

5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.

6. Repeat step with the temperature chamber set to the lowest temperature.

12.4 Test Result

TX Frequency (5150-5250MHz)

ANT1

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5180.0768	5180	0.0768	14.8235
		V max (V)	132	5180.0515	5180	0.0515	9.9384
		V min (V)	108	5180.1000	5180	0.1000	19.2980
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5180.0488	5180	0.0488	9.4280
		T (°C)	10	5180.0251	5180	0.0251	4.8381
		T (°C)	20	5180.0303	5180	0.0303	5.8582
		T (°C)	30	5180.0168	5180	0.0168	3.2525
		T (°C)	40	5180.0421	5180	0.0421	8.1220
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5200.0098	5200	0.0098	1.8874
		V max (V)	132	5200.0464	5200	0.0464	8.9180
		V min (V)	108	5200.0099	5200	0.0099	1.8968
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5200.0401	5200	0.0401	7.7102
		T (°C)	10	5200.0211	5200	0.0211	4.0591
		T (°C)	20	5200.0107	5200	0.0107	2.0554
		T (°C)	30	5200.0387	5200	0.0387	7.4492
		T (°C)	40	5200.0029	5200	0.0029	0.5609
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5240.0017	5240	0.0017	0.3328
		V max (V)	132	5240.0522	5240	0.0522	9.9649
		V min (V)	108	5240.0410	5240	0.0410	7.8213
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5240.0525	5240	0.0525	10.0157
		T (°C)	10	5240.0529	5240	0.0529	10.0883
		T (°C)	20	5240.0152	5240	0.0152	2.8991
		T (°C)	30	5240.0198	5240	0.0198	3.7790
		T (°C)	40	5240.0329	5240	0.0329	6.2867
Limits				±20ppm			
Result				Complies			

TX Frequency (5250-5350MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5260.0350	5260	0.0350	6.6482
		V max (V)	132	5260.0182	5260	0.0182	3.4533
		V min (V)	108	5260.0440	5260	0.0440	8.3561
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5260.0533	5260	0.0533	10.1262
		T (°C)	10	5260.0295	5260	0.0295	5.6109
		T (°C)	20	5260.0271	5260	0.0271	5.1494
		T (°C)	30	5260.0741	5260	0.0741	14.0792
		T (°C)	40	5260.0552	5260	0.0552	10.4922
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5280.0166	5280	0.0166	3.1531
		V max (V)	132	5280.0327	5280	0.0327	6.2006
		V min (V)	108	5280.0031	5280	0.0031	0.5834
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5280.0400	5280	0.0400	7.5846
		T (°C)	10	5280.0421	5280	0.0421	7.9669
		T (°C)	20	5280.0518	5280	0.0518	9.8046
		T (°C)	30	5280.0259	5280	0.0259	4.9081
		T (°C)	40	5280.0127	5280	0.0127	2.3984
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5320.0340	5320	0.0340	6.3967
		V max (V)	132	5320.0856	5320	0.0856	16.0819
		V min (V)	108	5320.0609	5320	0.0609	11.4506
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5320.0532	5320	0.0532	9.9980
		T (°C)	10	5320.0159	5320	0.0159	2.9860
		T (°C)	20	5320.0579	5320	0.0579	10.8829
		T (°C)	30	5320.0060	5320	0.0060	1.1302
		T (°C)	40	5320.0799	5320	0.0799	15.0181
Limits				±20ppm			
Result				Complies			

TX Frequency (5470-5725MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5500.0185	5500	0.0185	3.3704
		V max (V)	132	5500.0584	5500	0.0584	10.6271
		V min (V)	108	5500.0147	5500	0.0147	2.6775
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5500.0666	5500	0.0666	12.1165
		T (°C)	10	5500.0321	5500	0.0321	5.8326
		T (°C)	20	5500.0110	5500	0.0110	1.9967
		T (°C)	30	5500.0924	5500	0.0924	16.8068
		T (°C)	40	5500.0914	5500	0.0914	16.6155
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5580.0779	5580	0.0779	13.9529
		V max (V)	132	5580.0126	5580	0.0126	2.2575
		V min (V)	108	5580.0715	5580	0.0715	12.8051
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5580.0286	5580	0.0286	5.1310
		T (°C)	10	5580.0739	5580	0.0739	13.2485
		T (°C)	20	5580.0905	5580	0.0905	16.2144
		T (°C)	30	5580.0243	5580	0.0243	4.3506
		T (°C)	40	5580.0058	5580	0.0058	1.0460
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5700.0185	5700	0.0185	3.2481
		V max (V)	132	5700.0446	5700	0.0446	7.8324
		V min (V)	108	5700.0469	5700	0.0469	8.2262
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5700.0198	5700	0.0198	3.4825
		T (°C)	10	5700.0438	5700	0.0438	7.6770
		T (°C)	20	5700.0782	5700	0.0782	13.7262
		T (°C)	30	5700.0116	5700	0.0116	2.0384
		T (°C)	40	5700.0834	5700	0.0834	14.6276
Limits				±20ppm			
Result				Complies			

TX Frequency (5725-5850MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5745.0456	5745	0.0456	7.9303
		V max (V)	132	5745.0560	5745	0.0560	9.7452
		V min (V)	108	5745.0456	5745	0.0456	7.9303
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5745.0282	5745	0.0282	4.9050
		T (°C)	10	5745.0826	5745	0.0826	14.3721
		T (°C)	20	5745.0867	5745	0.0867	15.0943
		T (°C)	30	5745.0215	5745	0.0215	3.7372
		T (°C)	40	5745.0294	5745	0.0294	5.1139
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5785.0901	5785	0.0901	15.5750
		V max (V)	132	5785.0309	5785	0.0309	5.3404
		V min (V)	108	5785.0126	5785	0.0126	2.1734
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5785.0634	5785	0.0634	10.9585
		T (°C)	10	5785.0728	5785	0.0728	12.5880
		T (°C)	20	5785.0697	5785	0.0697	12.0460
		T (°C)	30	5785.0853	5785	0.0853	14.7488
		T (°C)	40	5785.0251	5785	0.0251	4.3380
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5825.0300	5825	0.0300	5.1494
		V max (V)	132	5825.0873	5825	0.0873	14.9867
		V min (V)	108	5825.0209	5825	0.0209	3.5839
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5825.0046	5825	0.0046	0.7868
		T (°C)	10	5825.0897	5825	0.0897	15.3991
		T (°C)	20	5825.0864	5825	0.0864	14.8351
		T (°C)	30	5825.0818	5825	0.0818	14.0364
		T (°C)	40	5825.0763	5825	0.0763	13.0942
Limits				±20ppm			
Result				Complies			

ANT2:

TX Frequency (5150-5250MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5180.0793	5180	0.0793	15.3105
		V max (V)	132	5180.0191	5180	0.0191	3.6889
		V min (V)	108	5180.0724	5180	0.0724	13.9800
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5180.0846	5180	0.0846	16.3354
		T (°C)	10	5180.0170	5180	0.0170	3.2897
		T (°C)	20	5180.0058	5180	0.0058	1.1287
		T (°C)	30	5180.0517	5180	0.0517	9.9798
		T (°C)	40	5180.0843	5180	0.0843	16.2710
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5200.0576	5200	0.0576	11.0692
		V max (V)	132	5200.0157	5200	0.0157	3.0131
		V min (V)	108	5200.0570	5200	0.0570	10.9655
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5200.0321	5200	0.0321	6.1805
		T (°C)	10	5200.0723	5200	0.0723	13.9036
		T (°C)	20	5200.0896	5200	0.0896	17.2225
		T (°C)	30	5200.0672	5200	0.0672	12.9225
		T (°C)	40	5200.0236	5200	0.0236	4.5476
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5240.0627	5240	0.0627	11.9612
		V max (V)	132	5240.0874	5240	0.0874	16.6883
		V min (V)	108	5240.0348	5240	0.0348	6.6380
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5240.0491	5240	0.0491	9.3761
		T (°C)	10	5240.0799	5240	0.0799	15.2491
		T (°C)	20	5240.0457	5240	0.0457	8.7286
		T (°C)	30	5240.0536	5240	0.0536	10.2252
		T (°C)	40	5240.0752	5240	0.0752	14.3441
Limits				±20ppm			
Result				Complies			

TX Frequency (5250-5350MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5260.0026	5260	0.0026	0.5026
		V max (V)	132	5260.0486	5260	0.0486	9.2380
		V min (V)	108	5260.0494	5260	0.0494	9.3919
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5260.0878	5260	0.0878	16.6990
		T (°C)	10	5260.0674	5260	0.0674	12.8121
		T (°C)	20	5260.0615	5260	0.0615	11.6997
		T (°C)	30	5260.0280	5260	0.0280	5.3175
		T (°C)	40	5260.0661	5260	0.0661	12.5728
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5280.0322	5280	0.0322	6.1070
		V max (V)	132	5280.0463	5280	0.0463	8.7645
		V min (V)	108	5280.0308	5280	0.0308	5.8282
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5280.0609	5280	0.0609	11.5377
		T (°C)	10	5280.0655	5280	0.0655	12.3997
		T (°C)	20	5280.0831	5280	0.0831	15.7341
		T (°C)	30	5280.0839	5280	0.0839	15.8985
		T (°C)	40	5280.0628	5280	0.0628	11.9028
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5320.0197	5320	0.0197	3.7061
		V max (V)	132	5320.0327	5320	0.0327	6.1389
		V min (V)	108	5320.0146	5320	0.0146	2.7357
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5320.0446	5320	0.0446	8.3768
		T (°C)	-10	5320.0197	5320	0.0197	3.7082
		T (°C)	0	5320.0334	5320	0.0334	6.2810
		T (°C)	10	5320.0282	5320	0.0282	5.2981
		T (°C)	20	5320.0076	5320	0.0076	1.4339
		T (°C)	30	5320.0757	5320	0.0757	14.2214
		T (°C)	40	5320.0915	5320	0.0915	17.2061
		T (°C)	50	5320.0318	5320	0.0318	5.9693
		T (°C)	60	5320.0177	5320	0.0177	3.3289
		T (°C)	70	5320.0269	5320	0.0269	5.0562
Limits				±20ppm			
Result				Complies			

TX Frequency (5470-5725MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5500.0178	5500	0.0178	3.2285
		V max (V)	132	5500.0828	5500	0.0828	15.0500
		V min (V)	108	5500.0066	5500	0.0066	1.2012
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5500.0911	5500	0.0911	16.5715
		T (°C)	10	5500.0787	5500	0.0787	14.3035
		T (°C)	20	5500.0694	5500	0.0694	12.6150
		T (°C)	30	5500.0062	5500	0.0062	1.1260
		T (°C)	40	5500.0871	5500	0.0871	15.8435
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5580.0682	5580	0.0682	12.2297
		V max (V)	132	5580.0872	5580	0.0872	15.6234
		V min (V)	108	5580.0788	5580	0.0788	14.1229
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5580.0309	5580	0.0309	5.5407
		T (°C)	10	5580.0106	5580	0.0106	1.9015
		T (°C)	20	5580.0593	5580	0.0593	10.6217
		T (°C)	30	5580.0561	5580	0.0561	10.0500
		T (°C)	40	5580.0323	5580	0.0323	5.7887
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5700.0833	5700	0.0833	14.6179
		V max (V)	132	5700.0332	5700	0.0332	5.8321
		V min (V)	108	5700.0785	5700	0.0785	13.7746
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5700.0721	5700	0.0721	12.6554
		T (°C)	10	5700.0416	5700	0.0416	7.3027
		T (°C)	20	5700.0344	5700	0.0344	6.0281
		T (°C)	30	5700.0101	5700	0.0101	1.7754
		T (°C)	40	5700.0117	5700	0.0117	2.0486
Limits				±20ppm			
Result				Complies			

TX Frequency (5725-5850MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5745.0601	5745	0.0601	10.4621
		V max (V)	132	5745.0075	5745	0.0075	1.3103
		V min (V)	108	5745.0507	5745	0.0507	8.8226
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5745.0688	5745	0.0688	11.9695
		T (°C)	10	5745.0788	5745	0.0788	13.7235
		T (°C)	20	5745.0608	5745	0.0608	10.5820
		T (°C)	30	5745.0120	5745	0.0120	2.0825
		T (°C)	40	5745.0071	5745	0.0071	1.2277
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5785.0934	5785	0.0934	16.1526
		V max (V)	132	5785.0285	5785	0.0285	4.9269
		V min (V)	108	5785.0681	5785	0.0681	11.7669
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5785.0073	5785	0.0073	1.2586
		T (°C)	10	5785.0251	5785	0.0251	4.3405
		T (°C)	20	5785.0714	5785	0.0714	12.3442
		T (°C)	30	5785.0819	5785	0.0819	14.1497
		T (°C)	40	5785.0579	5785	0.0579	10.0093
		T (°C)	50	5785.0046	5785	0.0046	0.7977
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5825.0773	5825	0.0773	13.2648
		V max (V)	132	5825.0466	5825	0.0466	8.0022
		V min (V)	108	5825.0759	5825	0.0759	13.0236
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5825.0648	5825	0.0648	11.1326
		T (°C)	10	5825.0513	5825	0.0513	8.8074
		T (°C)	20	5825.0449	5825	0.0449	7.7005
		T (°C)	30	5825.0076	5825	0.0076	1.3054
		T (°C)	40	5825.0855	5825	0.0855	14.6862
Limits				±20ppm			
Result				Complies			

13. OPERATION IN THE ABSENCE OF INFORMATION TO THE TRANSMIT

13.1 Requirement

15.407(c) requirement:
The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signal ling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

13.2 Test Results

Operation in the absence of information to the transmit:

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling
signal of ASK message transmitting from remote device and verify whether it shall resend or
discontinue transmission. (manufacturer declare)

14. ANTENNA REQUIREMENT

15.203 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, 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.
15.247(b) (4) requirement:
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

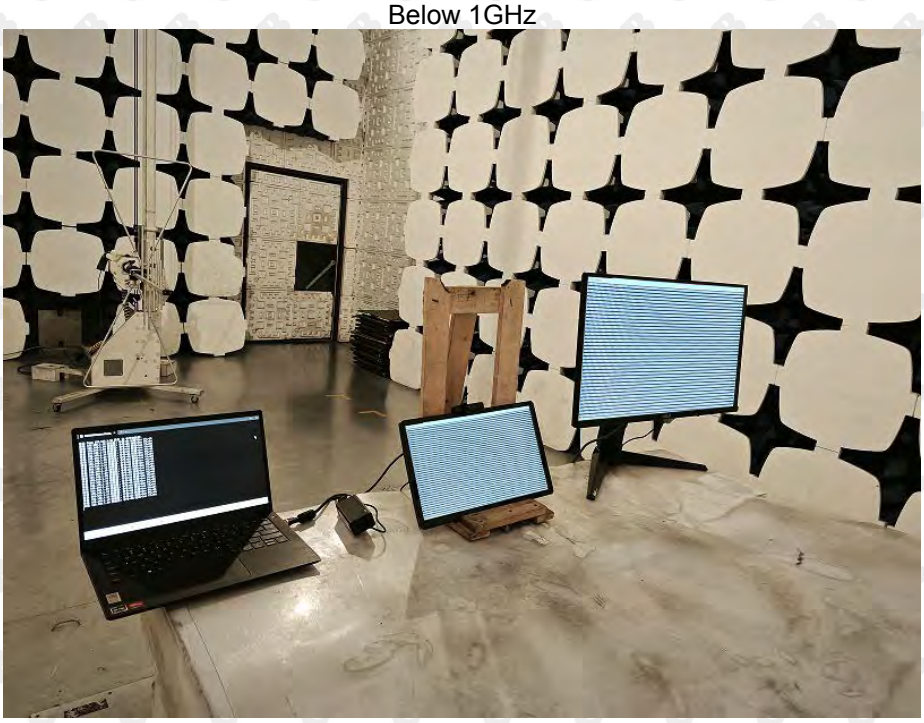
EUT Antenna:

The antenna is FPC antenna and no consideration of replacement. The best case gain of the antenna is WiFi (5.2G): Ant1: 4.16dBi, Ant2: 3.21dBi, WiFi (5.3G): Ant1:2.51dBi, Ant2: 3.21dBi, WiFi (5.6G): Ant1: 3.77dBi, Ant2: 3.38dBi, WiFi (5.8G): Ant1: 2.31dBi, Ant2: 1.95dBi.

15. EUT TEST SETUP PHOTOGRAPHS

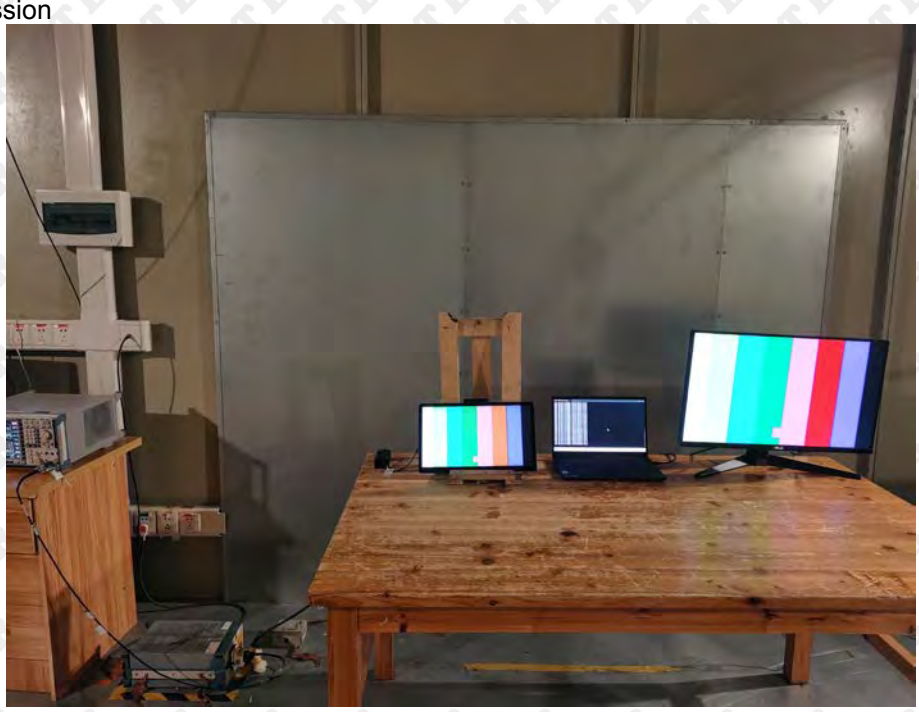
Spurious emissions

Below 1GHz



Above 1GHz

Conducted Emission



※※※※※ **END OF REPORT** ※※※※※