e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described in this section. For devices that use channel aggregation refer to III.A and III.C for determining emission bandwidth.

D. 99% Occupied Bandwidth

The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. Measurement of the 99% occupied bandwidth is *required* only as a condition for using the optional band-edge measurement techniques described in II.G.3.d). Measurements of 99% occupied bandwidth may also optionally be used in lieu of the EBW to define the minimum frequency range over which the 789033 D02 General UNII Test Procedures New Rules v02r01 Page 4 spectrum is integrated when measuring maximum conducted output power as described in II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with Section 15.407(a).
The following procedure shall be used for measuring (99%) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1% to 5% of the OBW

4. Set VBW ≥ 3 * RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99% power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

10.4 Test Results

Test mode ANT 1	Test Channel (MHz)	26dB Bandwidth (MHz)
802.11a	5180	19.932
	5200	20.317
	5240	19.838
802.11ac20	5180	21.079
	5200	21.079
	5240	21.141
802.11ac40	5190	39.9
	5230	39.455
802.11ac80	5210	77.934
802.11n(HT20)	5180	20.672
	5200	20.942
	5240	21.122
802.11n(HT40)	5190	39.471
	5230	39.802

Test mode ANT 2	Test Channel (MHz)	26dB Bandwidth (MHz)
802.11a	5180	19.896
	5200	20.003
	5240	20.394
802.11ac20	5180	21.193
	5200	20.802
	5240	20.954
802.11ac40	5190	39.059
	5230	38.86
802.11ac80	5210	78.396
802.11n(HT20)	5180	21.436
	5200	21.002
	5240	20.865
802.11n(HT40)	5190	39.281
	5230	39.142

5725-5850 MHz

Test mode Ant 1	Test Channel (MHz)	6dB Bandwidth (MHz)	Result
802.11a	5745	15.378	Pass
	5785	15.667	Pass
	5825	15.791	Pass
802.11ac(VH20)	5745	15.707	Pass
	5785	16.265	Pass
	5825	16.31	Pass
802.11ac(VH40)	5755	35.17	Pass
	5795	35.17	Pass
802.11ac(VH80)	5775	75.24	Pass
802.11n(VH20)	5745	17.116	Pass
	5785	15.952	Pass
	5825	16.373	Pass
802.11n(VH40)	5755	35.162	Pass
	5795	35.466	Pass

Test mode Ant 2	Test Channel (MHz)	6dB Bandwidth (MHz)	Result
802.11a	5745	15.875	Pass
	5785	15.395	Pass
	5825	15.723	Pass
802.11ac(VH20)	5745	16.335	Pass
	5785	16.33	Pass
	5825	15.685	Pass
802.11ac(VH40)	5755	35.174	Pass
	5795	35.154	Pass
802.11ac(VH80)	5775	75.166	Pass
802.11n(VH20)	5745	15.653	Pass
	5785	15.35	Pass
	5825	17.302	Pass
802.11n(VH40)	5755	35.176	Pass
	5795	35.135	Pass

Test Graph ANT 1

802.11a-5180

802.11a-5200

802.11a-5240

802.11n(HT20)-5180

802.11n(HT20)-5200

802.11n(HT20)-5240

802.11n(HT40)-5190

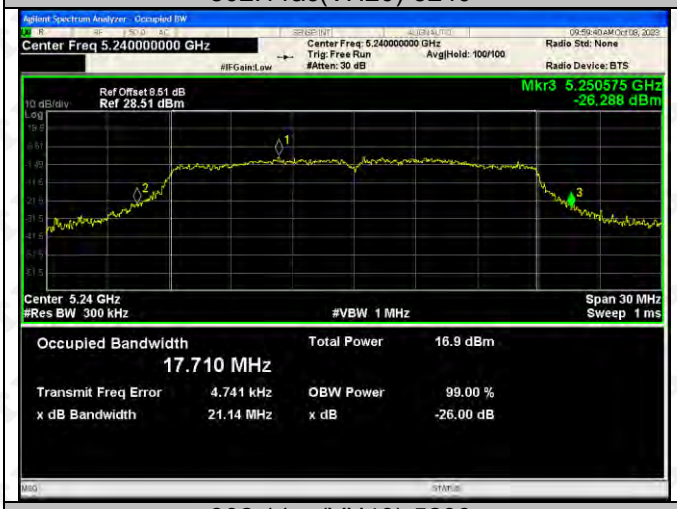
802.11n(HT40)-5230

802.11ac(VH20)-5180

802.11ac(VH20)-5200

802.11ac(VH20)-5240

802.11ac(VH40)-5190

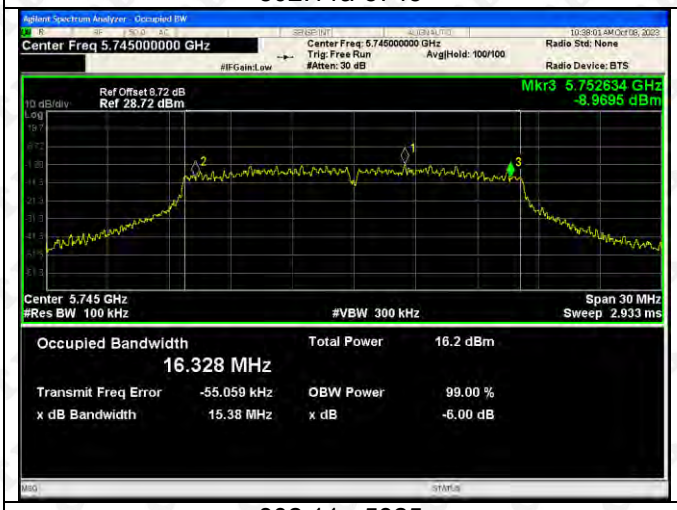


802.11ac(VH40)-5230

802.11ac(VH80)-5210

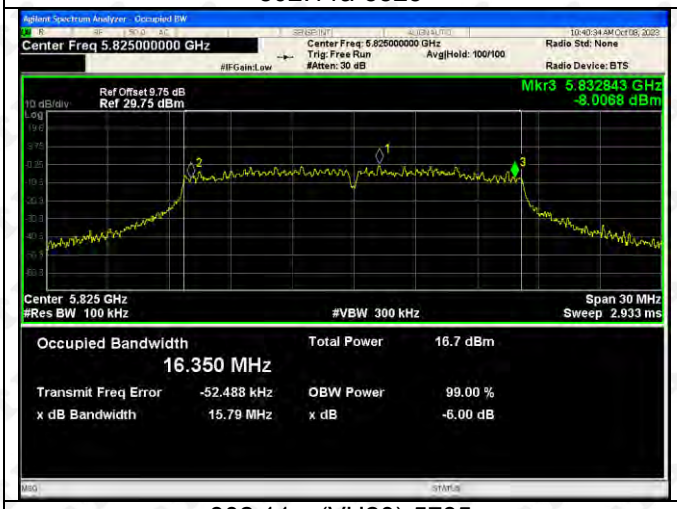
ANT1:
5725-5850MHz

802.11a-5745

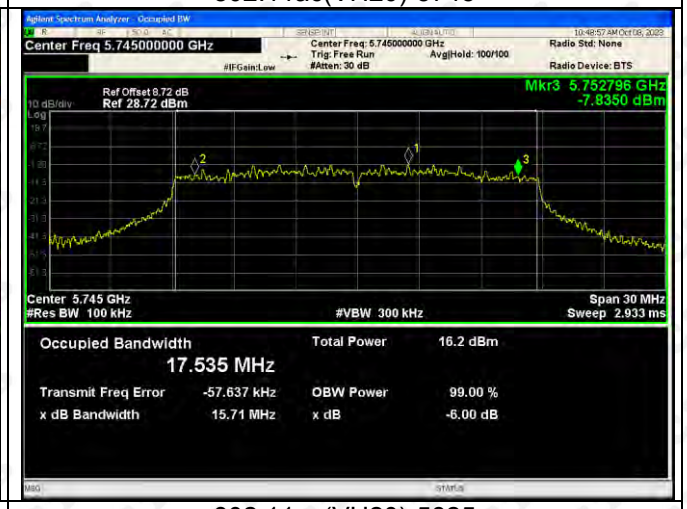


802.11a-5785

802.11a-5825



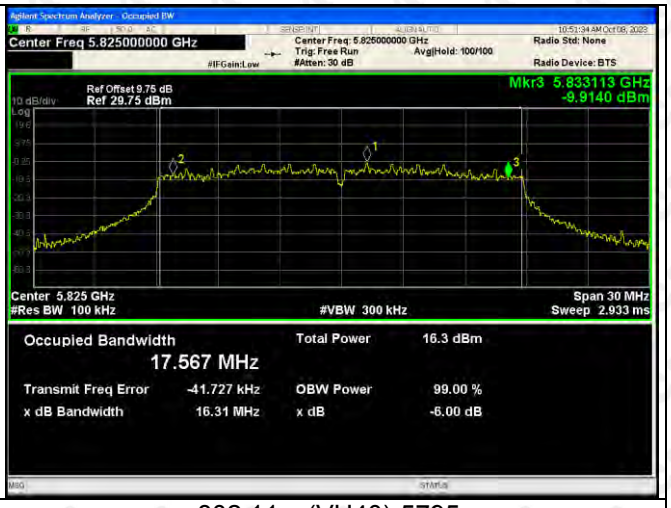
802.11ac(VH20)-5745



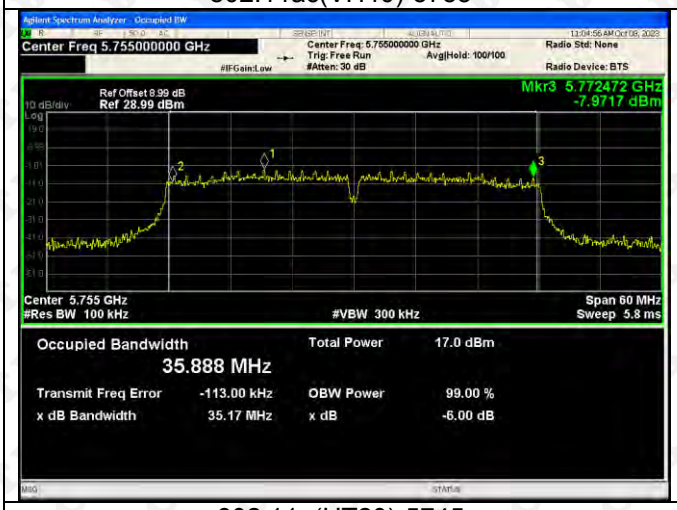
802.11ac(VH20)-5785

802.11ac(VH20)-5825

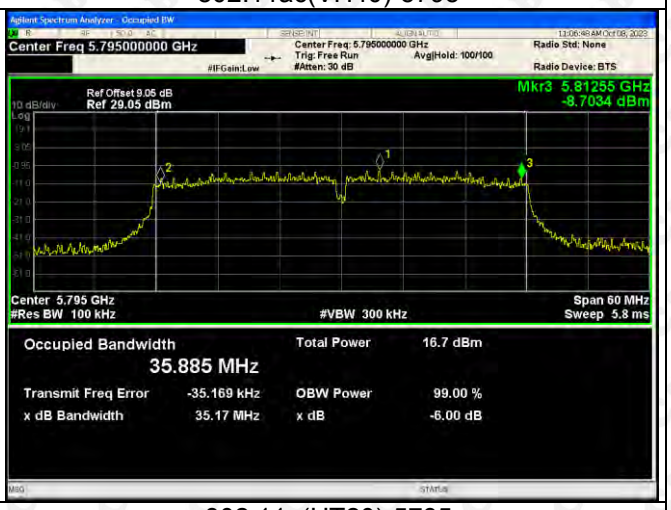
802.11ac(VH40)-5755



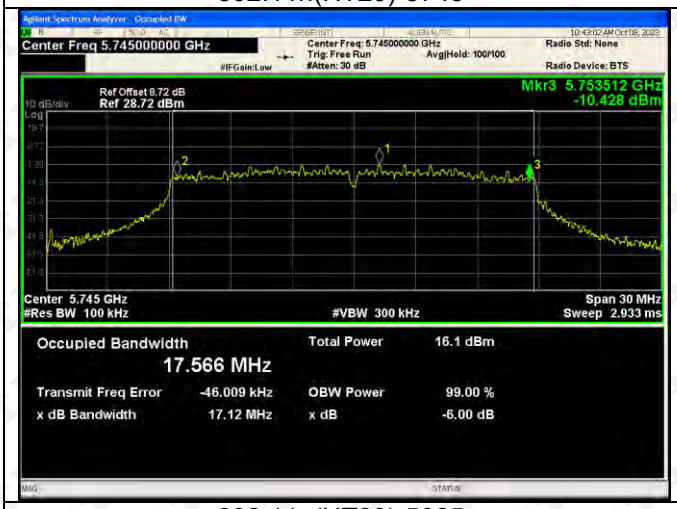
802.11ac(VH40)-5795



802.11n(HT20)-5745



802.11n(HT20)-5785

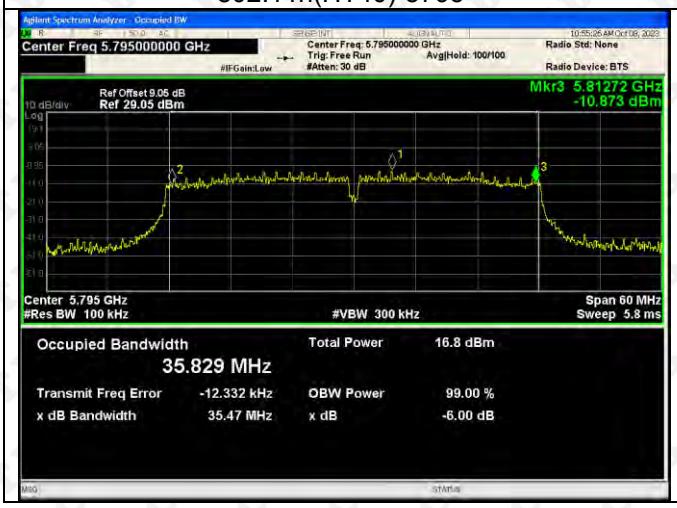


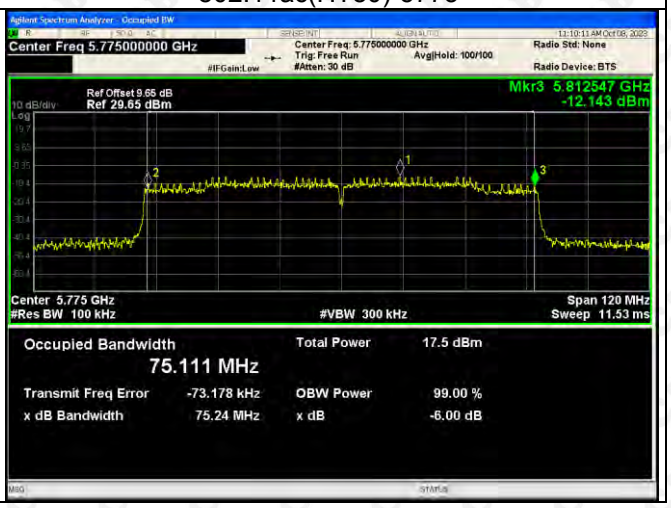
802.11n(HT20)-5825

802.11n(HT40)-5755

802.11n(HT40)-5795

802.11ac(HT80)-5775





Test Graph ANT 2

802.11a-5180

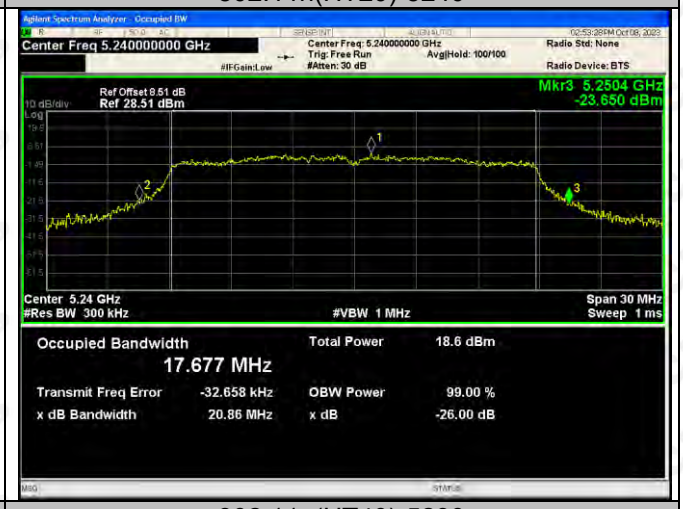
802.11a-5200

802.11a-5240

802.11n(HT20)-5180

802.11n(HT20)-5200

802.11n(HT20)-5240



802.11n(HT40)-5190

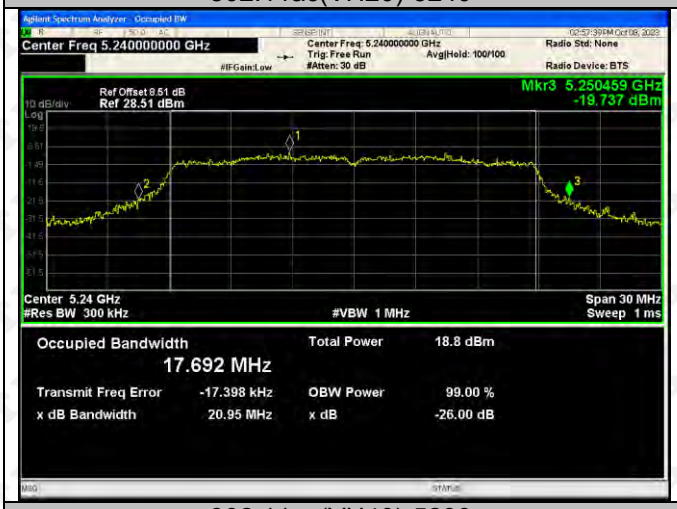
802.11n(HT40)-5230

802.11ac(VH20)-5180

802.11ac(VH20)-5200

802.11ac(VH20)-5240

802.11ac(VH40)-5190

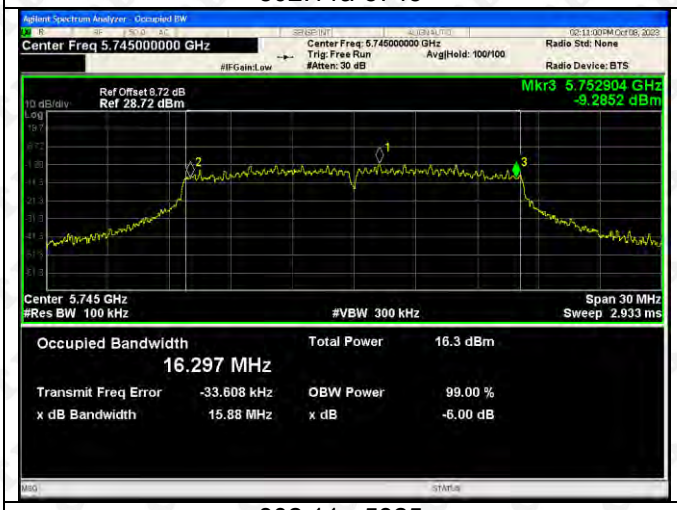


802.11ac(VH40)-5230

802.11ac(VH80)-5210

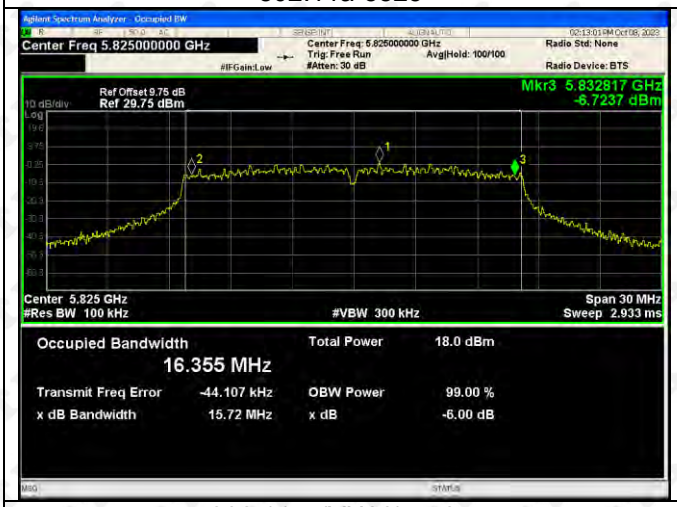
ANT2:
5725-5850MHz

802.11a-5745

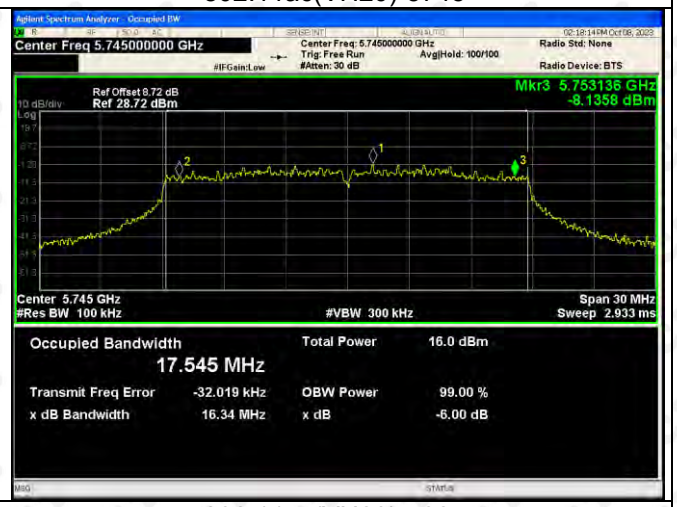


802.11a-5785

802.11a-5825



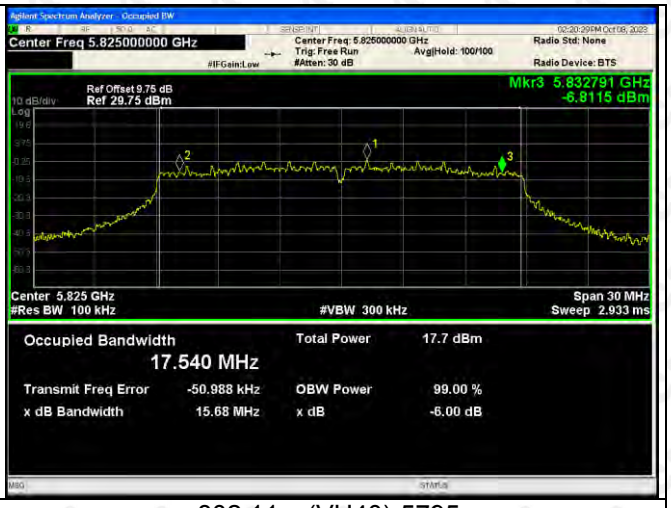
802.11ac(VH20)-5745



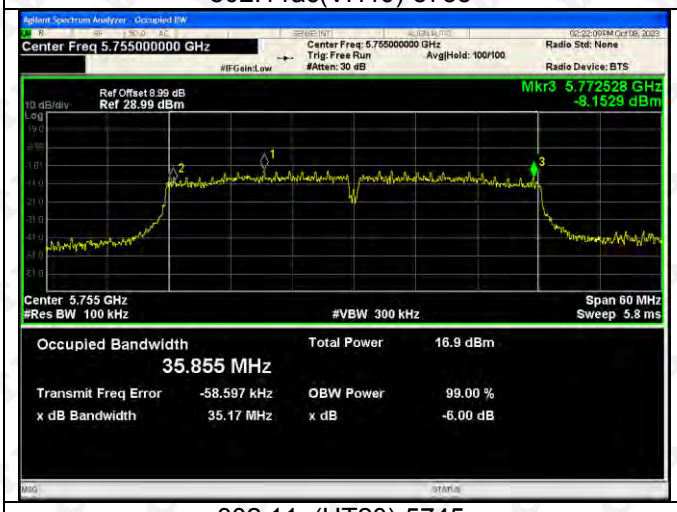
802.11ac(VH20)-5785

802.11ac(VH20)-5825

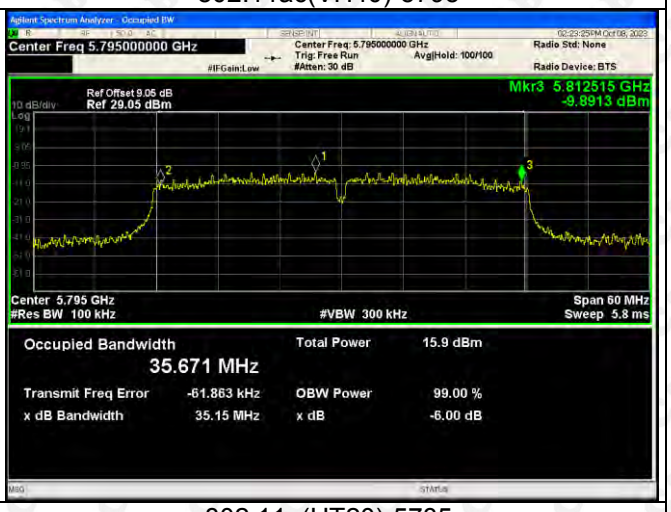
802.11ac(VH40)-5755



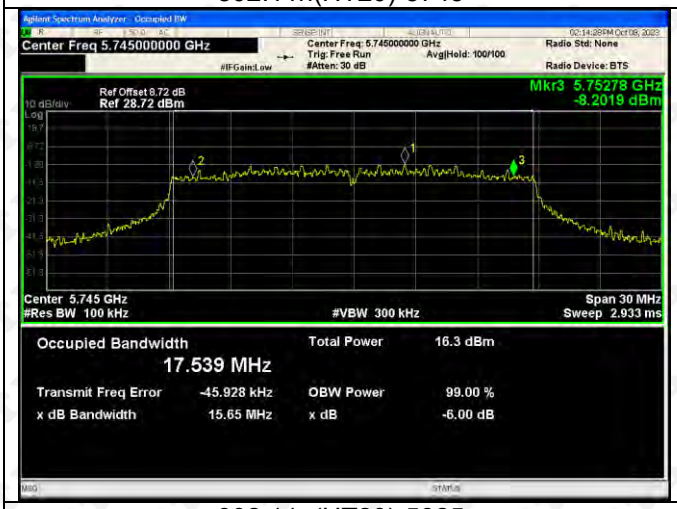
802.11ac(VH40)-5795



802.11n(HT20)-5745



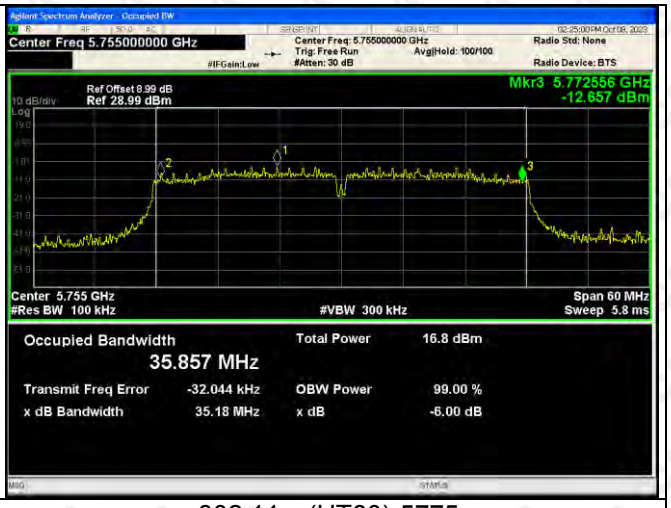
802.11n(HT20)-5785



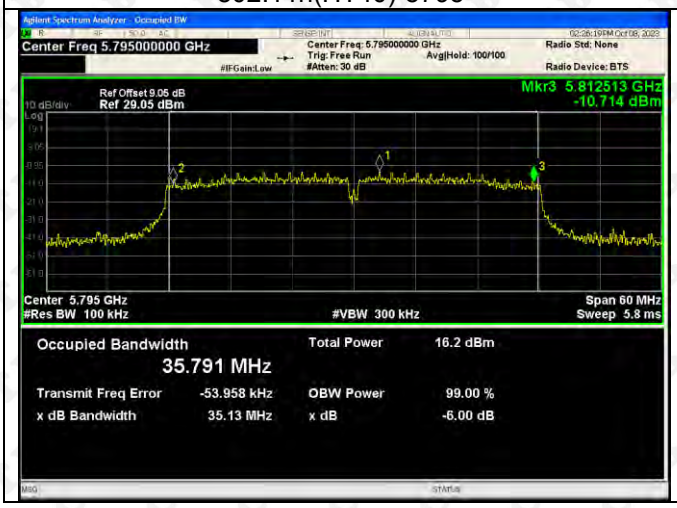
802.11n(HT20)-5825

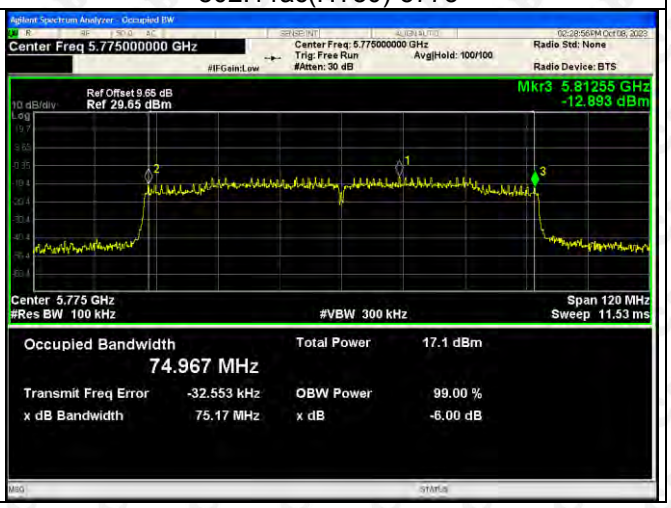
802.11n(HT40)-5755

802.11n(HT40)-5795



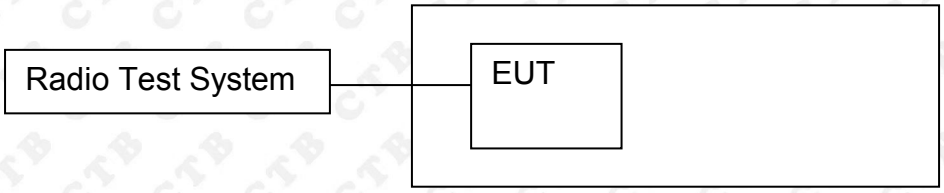
802.11ac(HT80)-5775





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

ANT 1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm/MHz)	Result
802.11a	5180	0.081	0.858	/	11	Pass
	5200	0.189	0.896	/	11	Pass
	5240	0.567	1.099	/	11	Pass
802.11ac(VH20)	5180	-0.752	0.452	2.902	11	Pass
	5200	-1.158	1.06	3.101	11	Pass
	5240	-0.387	1.507	3.673	11	Pass
802.11ac(VH40)	5190	-3.049	-2.407	0.294	11	Pass
	5230	-2.904	-2.069	0.544	11	Pass
802.11n(VH20)	5180	0.037	0.63	3.354	11	Pass
	5200	-0.015	0.263	3.137	11	Pass
	5240	0.04	0.859	3.479	11	Pass
802.11n(VH40)	5190	-3.621	-2.344	0.075	11	Pass
	5230	-2.938	-2.098	0.513	11	Pass
802.11ac(VH80)	5230	-8.226	-7.346	-4.753	11	Pass

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	-4.373	-4.376	/	30	Pass
	5785	-3.688	-3.64	/	30	Pass
	5825	-4.311	-2.443	/	30	Pass
802.11ac(VH20)	5745	-4.647	-4.448	-1.536	30	Pass
	5785	-3.588	-4.861	-1.168	30	Pass
	5825	-4.436	-3.107	-0.711	30	Pass
802.11ac(VH40)	5755	-6.501	-7.042	-3.753	30	Pass
	5795	-7.22	-8.219	-4.681	30	Pass
802.11n(VH20)	5775	-4.893	-5.047	-1.959	30	Pass
	5745	-3.481	-4.72	-1.046	30	Pass
	5785	-4.412	-3.248	-0.781	30	Pass
802.11n(VH40)	5825	-7.036	-7.521	-4.261	30	Pass
	5755	-7.641	-7.891	-4.754	30	Pass
802.11ac(VH80)	5795	-10.002	-10.508	-7.237	30	Pass

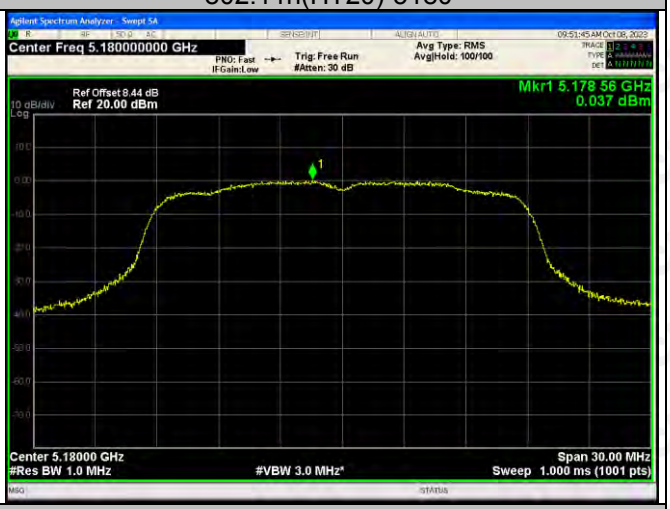
ANT 1

802.11a-5180

802.11a-5200

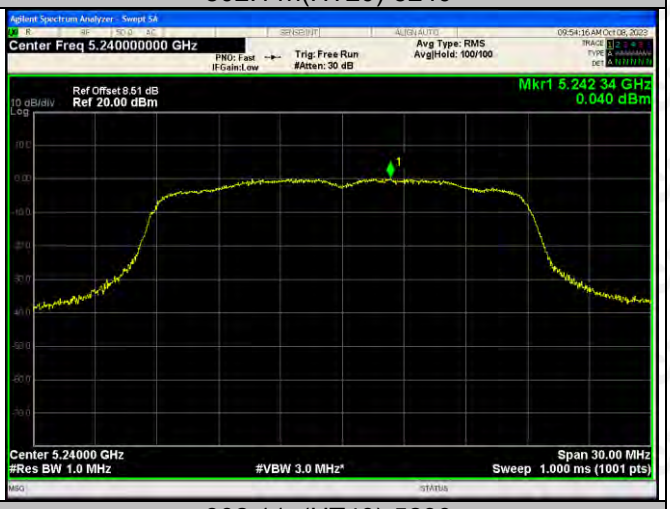
802.11a-5240

802.11n(HT20)-5180



802.11n(HT20)-5200

802.11n(HT20)-5240



802.11n(HT40)-5190

802.11n(HT40)-5230

802.11ac(VH20)-5180

802.11ac(VH20)-5200

802.11ac(VH20)-5240

802.11ac(VH40)-5190

802.11ac(VH40)-5230

802.11ac(VH80)-5210

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

802.11n(HT20)-5745

802.11n(HT20)-5785

802.11n(HT20)-5825

802.11n(HT40)-5755

802.11n(HT40)-5795

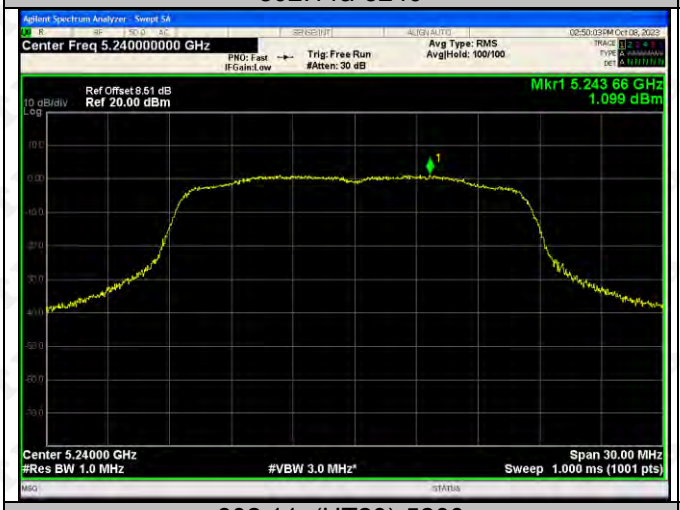
802.11ac(HT80)-5775

ANT 2

802.11a-5180

802.11a-5200

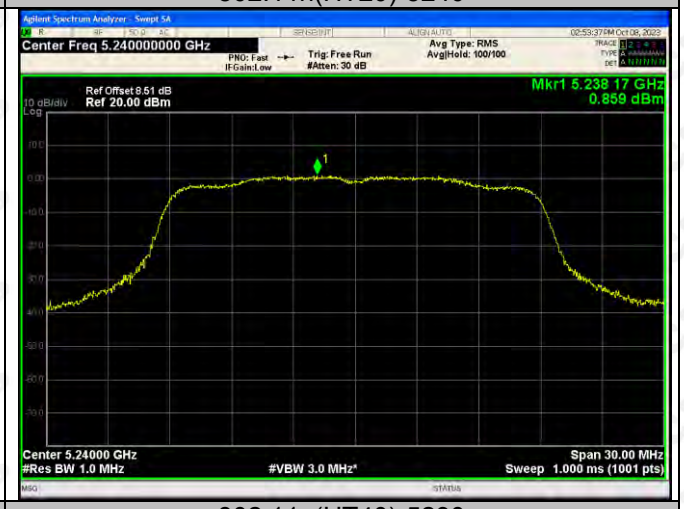
802.11a-5240



802.11n(HT20)-5180

802.11n(HT20)-5200

802.11n(HT20)-5240



802.11n(HT40)-5190

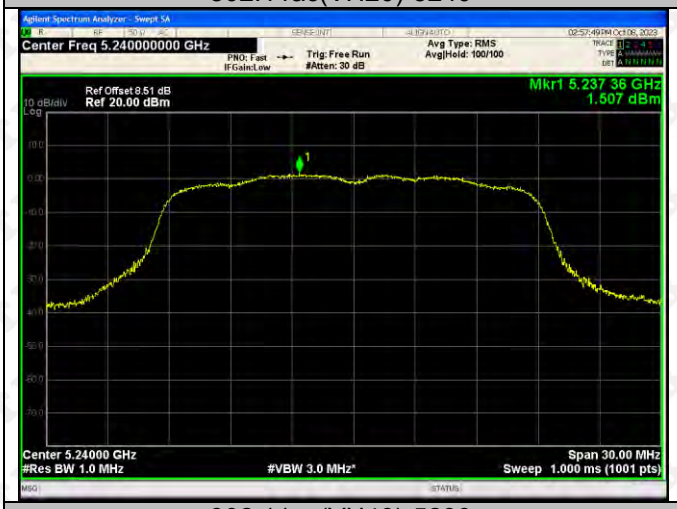
802.11n(HT40)-5230

802.11ac(VH20)-5180

802.11ac(VH20)-5200

802.11ac(VH20)-5240

802.11ac(VH40)-5190



802.11ac(VH40)-5230

802.11ac(VH80)-5210

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

802.11n(HT20)-5745

802.11n(HT20)-5785

802.11n(HT20)-5825

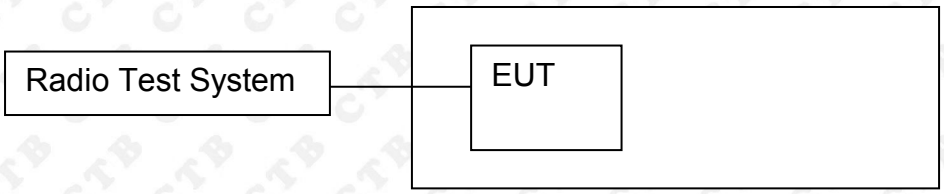
802.11n(HT40)-5755

802.11n(HT40)-5795

802.11ac(HT80)-5775

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	5180.0590	5180	0.0590	11.3896
		V max (V)	132	5180.0648	5180	0.0648	12.5015
		V min (V)	108	5180.0034	5180	0.0034	0.6587
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	5180.0470	5180	0.0470	9.0815
		T (°C)	10	5180.0465	5180	0.0465	8.9828
		T (°C)	20	5180.0230	5180	0.0230	4.4350
		T (°C)	30	5180.0178	5180	0.0178	3.4279
		T (°C)	40	5180.0533	5180	0.0533	10.2860
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	5200.0011	5200	0.0011	0.2098
		V max (V)	132	5200.0497	5200	0.0497	9.5653
		V min (V)	108	5200.0398	5200	0.0398	7.6532
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	5200.0384	5200	0.0384	7.3939
		T (°C)	10	5200.0396	5200	0.0396	7.6088
		T (°C)	20	5200.0217	5200	0.0217	4.1659
		T (°C)	30	5200.0406	5200	0.0406	7.8022
		T (°C)	40	5200.0331	5200	0.0331	6.3705
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	5240.0406	5240	0.0406	7.7533
		V max (V)	132	5240.0080	5240	0.0080	1.5359
		V min (V)	108	5240.0389	5240	0.0389	7.4287
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	5240.0046	5240	0.0046	0.8737
		T (°C)	10	5240.0468	5240	0.0468	8.9300
		T (°C)	20	5240.0041	5240	0.0041	0.7917
		T (°C)	30	5240.0284	5240	0.0284	5.4139
		T (°C)	40	5240.0163	5240	0.0163	3.1013
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	5745.0060	5745	0.0060	1.0368
		V max (V)	132	5745.0669	5745	0.0669	11.6476
		V min (V)	108	5745.0060	5745	0.0060	1.0368
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	5745.0799	5745	0.0799	13.8991
		T (°C)	10	5745.0649	5745	0.0649	11.2970
		T (°C)	20	5745.0425	5745	0.0425	7.3919
		T (°C)	30	5745.0144	5745	0.0144	2.5032
		T (°C)	40	5745.0645	5745	0.0645	11.2333
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	5785.0057	5785	0.0057	0.9915
		V max (V)	132	5785.0832	5785	0.0832	14.3758
		V min (V)	108	5785.0356	5785	0.0356	6.1609
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	5785.0906	5785	0.0906	15.6637
		T (°C)	10	5785.0043	5785	0.0043	0.7398
		T (°C)	20	5785.0178	5785	0.0178	3.0800
		T (°C)	30	5785.0319	5785	0.0319	5.5077
		T (°C)	40	5785.0239	5785	0.0239	4.1352
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	5825.0616	5825	0.0616	10.5695
		V max (V)	132	5825.0130	5825	0.0130	2.2353
		V min (V)	108	5825.0257	5825	0.0257	4.4117
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	5825.0924	5825	0.0924	15.8639
		T (°C)	10	5825.0575	5825	0.0575	9.8748
		T (°C)	20	5825.0281	5825	0.0281	4.8290
		T (°C)	30	5825.0871	5825	0.0871	14.9588
		T (°C)	40	5825.0872	5825	0.0872	14.9654
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	5180.0215	5180	0.0215	4.1489
		V max (V)	132	5180.0931	5180	0.0931	17.9717
		V min (V)	108	5180.0384	5180	0.0384	7.4066
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	5180.0803	5180	0.0803	15.4967
		T (°C)	10	5180.0699	5180	0.0699	13.4874
		T (°C)	20	5180.0110	5180	0.0110	2.1274
		T (°C)	30	5180.0191	5180	0.0191	3.6967
		T (°C)	40	5180.0615	5180	0.0615	11.8657
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	5200.0812	5200	0.0812	15.6106
		V max (V)	132	5200.0545	5200	0.0545	10.4876
		V min (V)	108	5200.0626	5200	0.0626	12.0447
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	5200.0233	5200	0.0233	4.4829
		T (°C)	10	5200.0895	5200	0.0895	17.2170
		T (°C)	20	5200.0776	5200	0.0776	14.9263
		T (°C)	30	5200.0037	5200	0.0037	0.7186
		T (°C)	40	5200.0906	5200	0.0906	17.4168
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	5240.0686	5240	0.0686	13.0860
		V max (V)	132	5240.0781	5240	0.0781	14.9140
		V min (V)	108	5240.0316	5240	0.0316	6.0281
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	5240.0460	5240	0.0460	8.7771
		T (°C)	10	5240.0706	5240	0.0706	13.4762
		T (°C)	20	5240.0689	5240	0.0689	13.1432
		T (°C)	30	5240.0079	5240	0.0079	1.5087
		T (°C)	40	5240.0328	5240	0.0328	6.2648
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	5745.0700	5745	0.0700	12.1778
		V max (V)	132	5745.0555	5745	0.0555	9.6677
		V min (V)	108	5745.0518	5745	0.0518	9.0080
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	5745.0006	5745	0.0006	0.1056
		T (°C)	10	5745.0928	5745	0.0928	16.1553
		T (°C)	20	5745.0334	5745	0.0334	5.8093
		T (°C)	30	5745.0385	5745	0.0385	6.6938
		T (°C)	40	5745.0551	5745	0.0551	9.5915
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	5785.0890	5785	0.0890	15.3897
		V max (V)	132	5785.0226	5785	0.0226	3.8984
		V min (V)	108	5785.0176	5785	0.0176	3.0374
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	5785.0826	5785	0.0826	14.2852
		T (°C)	10	5785.0910	5785	0.0910	15.7232
		T (°C)	20	5785.0676	5785	0.0676	11.6777
		T (°C)	30	5785.0522	5785	0.0522	9.0180
		T (°C)	40	5785.0402	5785	0.0402	6.9559
		T (°C)	50	5785.0849	5785	0.0849	14.6780
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	5825.0273	5825	0.0273	4.6901
		V max (V)	132	5825.0443	5825	0.0443	7.5985
		V min (V)	108	5825.0307	5825	0.0307	5.2733
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	5825.0650	5825	0.0650	11.1600
		T (°C)	10	5825.0001	5825	0.0001	0.0228
		T (°C)	20	5825.0652	5825	0.0652	11.1985
		T (°C)	30	5825.0489	5825	0.0489	8.3911
		T (°C)	40	5825.0259	5825	0.0259	4.4460
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.

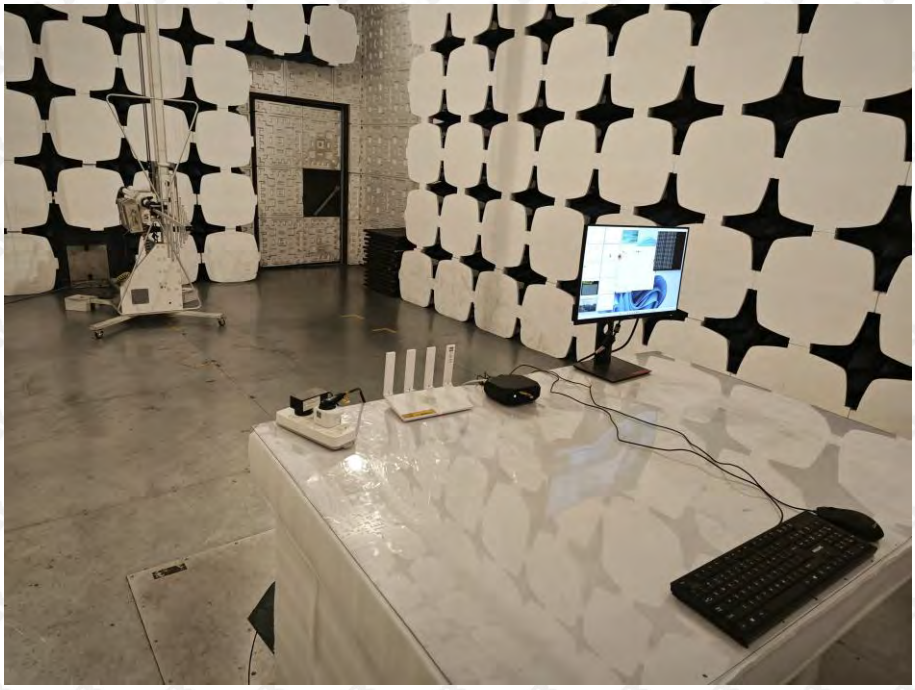
EUT Antenna:

The antenna is Internal antenna and no consideration of replacement. The best case gain of the antenna is WiFi (5.2G): 0.96dBi,WiFi (5.8G): 1.05dBi.

15. EUT TEST SETUP PHOTOGRAPHS

Spurious emissions

Below 1GHz



Above 1GHz

Conducted Emission

※※※※※ **END OF REPORT** ※※※※※