6. 6DB BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C. The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

6.1.1 TEST PROCEDURE

6dB Bandwidth	
Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Span	30MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP

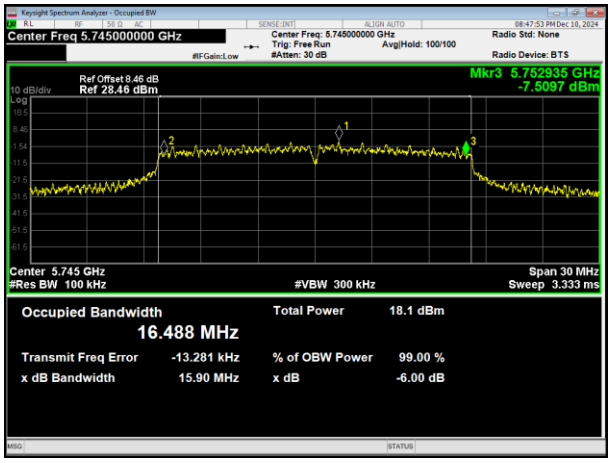
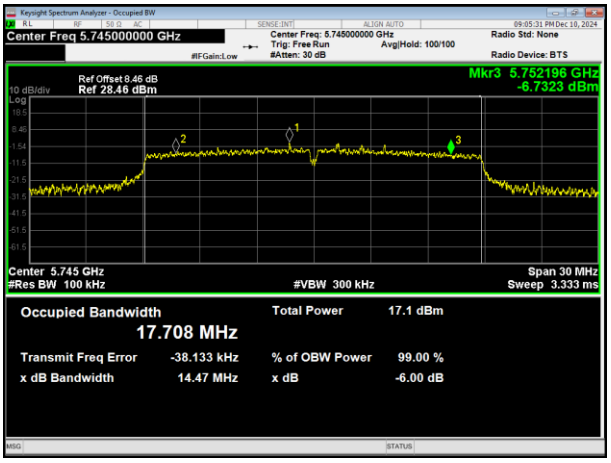
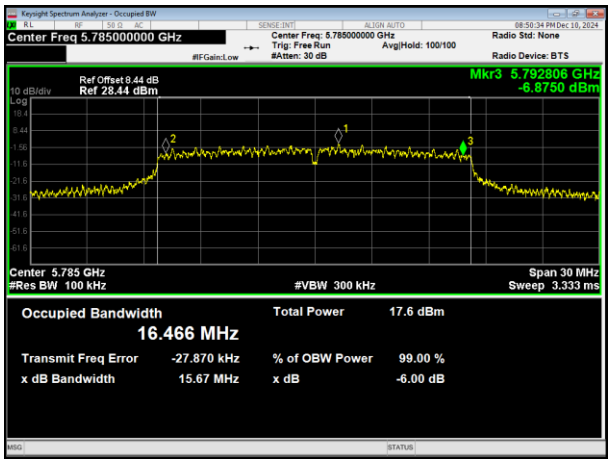
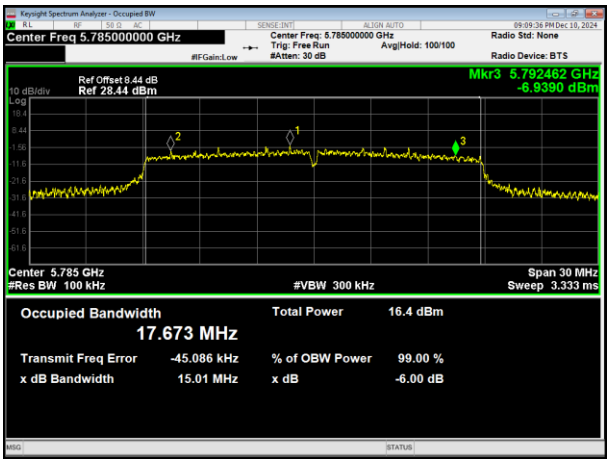
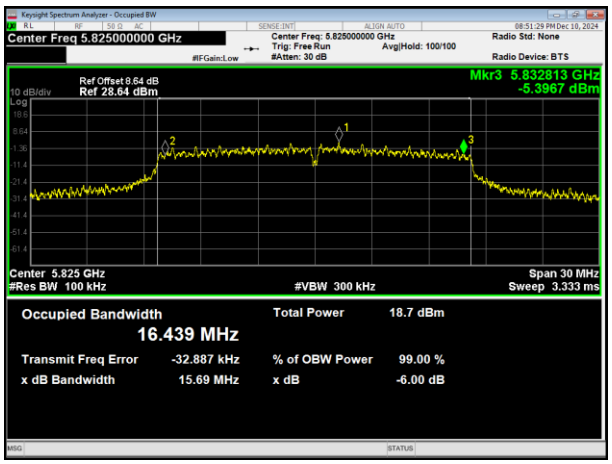
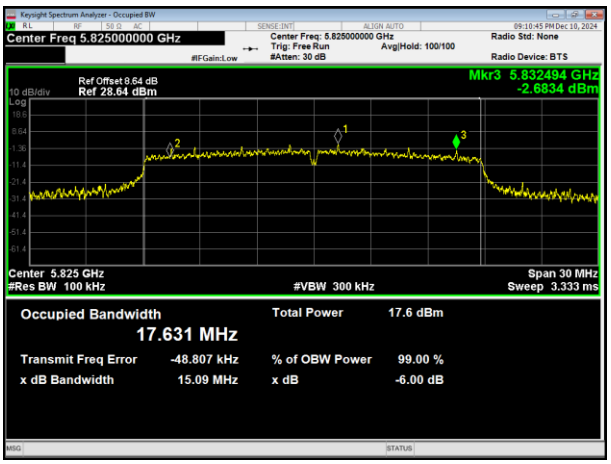
6.1.4 EUT OPERATION CONDITIONS

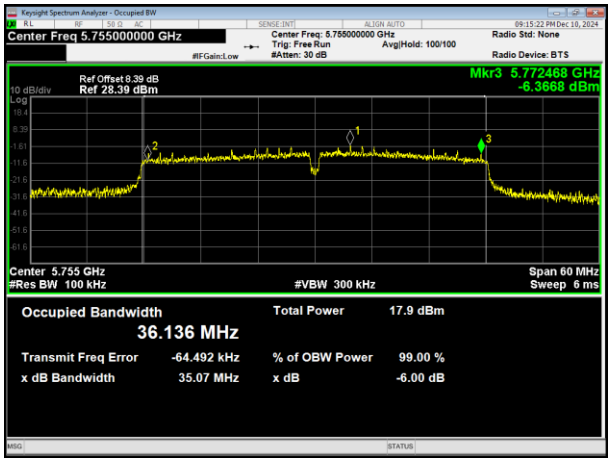
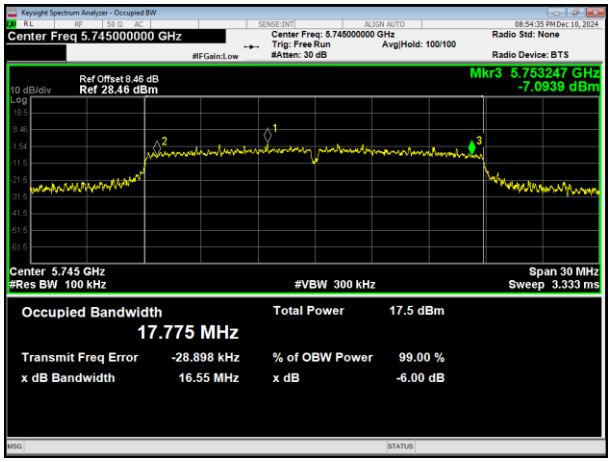
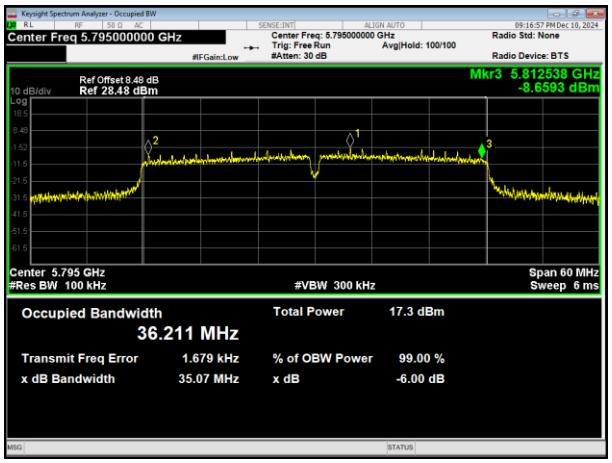
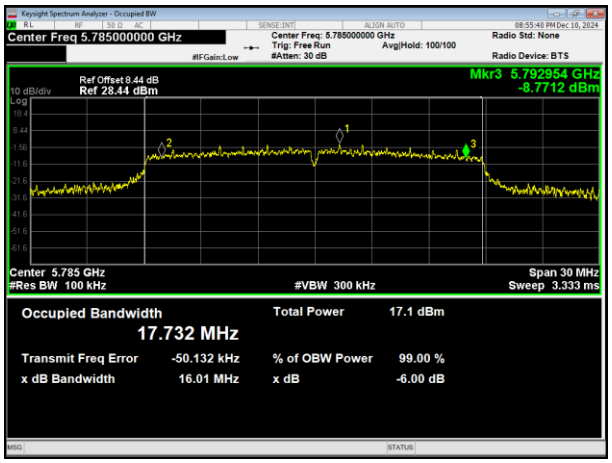
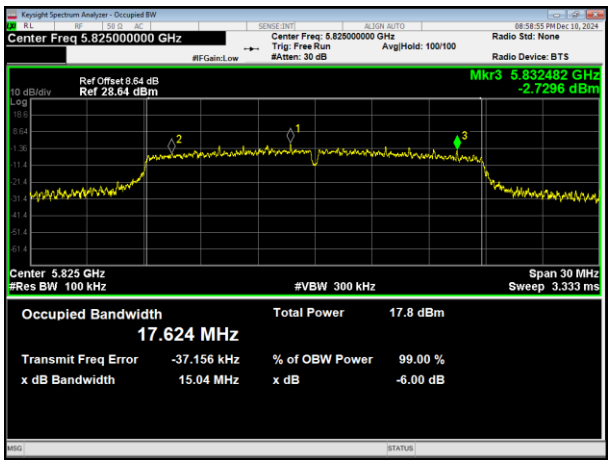
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

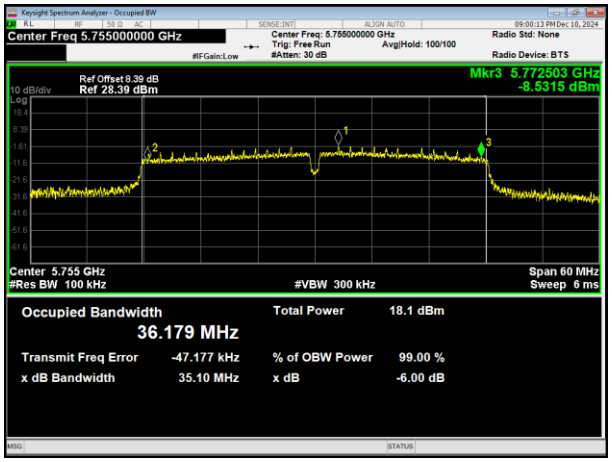
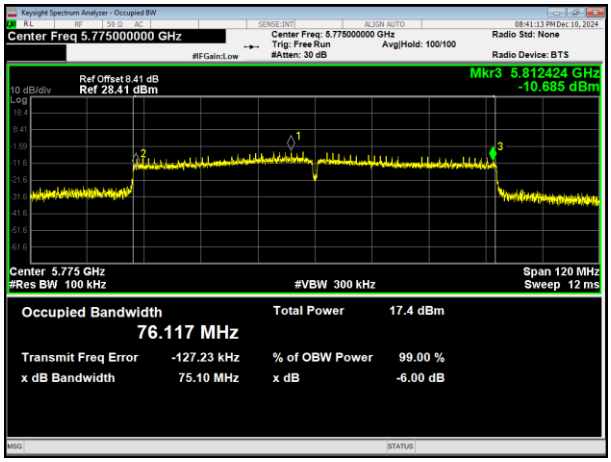
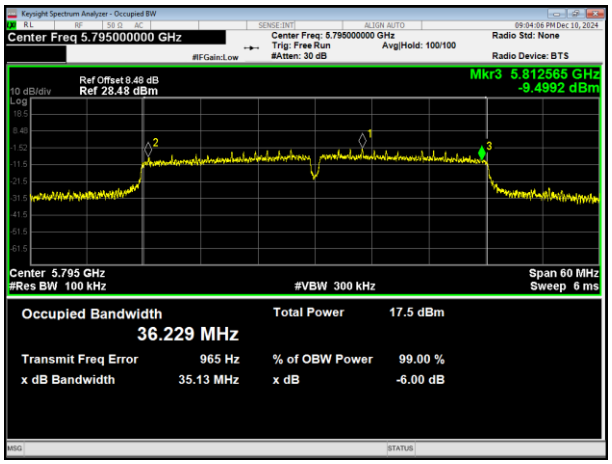
6.1.5 TEST RESULTS

		Test Channel	6dB Bandwidth (MHz)		6dB Bandwidth Limit (MHz)	Result
			Antenna1	Antenna2		
Band 4	802.11a	Low	15.896	15.722	>0.5	Pass
		Middle	15.668	15.98	>0.5	Pass
		High	15.692	15.291	>0.5	Pass
	802.11ac HT20	Low	14.467	16.514	>0.5	Pass
		Middle	15.014	15.665	>0.5	Pass
		High	15.085	15.014	>0.5	Pass
	802.11ac HT40	Low	35.065	35.064	>0.5	Pass
		High	35.072	33.888	>0.5	Pass
	802.11ac HT80	/	75.101	75.122	>0.5	Pass
	802.11n HT20	Low	16.551	16.33	>0.5	Pass
		Middle	16.009	15.789	>0.5	Pass
		High	15.038	13.848	>0.5	Pass
	802.11n HT40	Low	35.101	35.067	>0.5	Pass
		High	35.128	35.287	>0.5	Pass

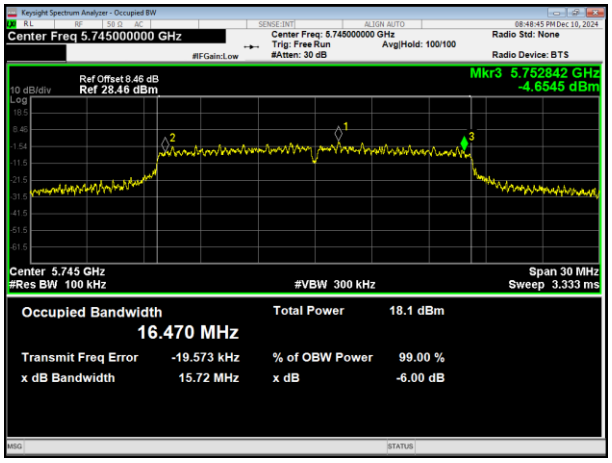
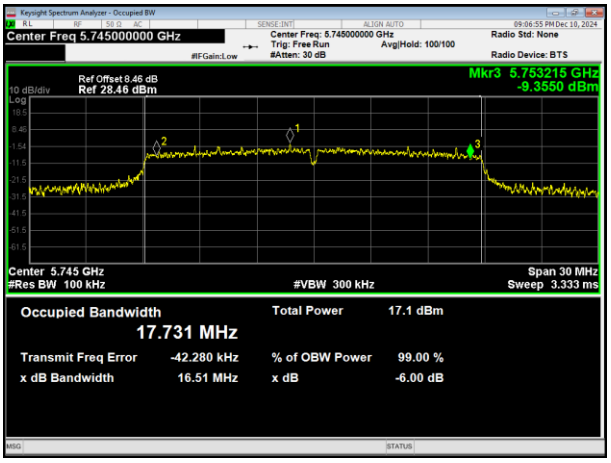
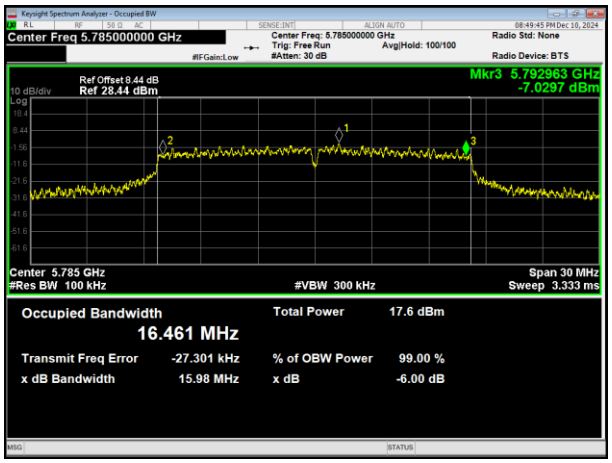
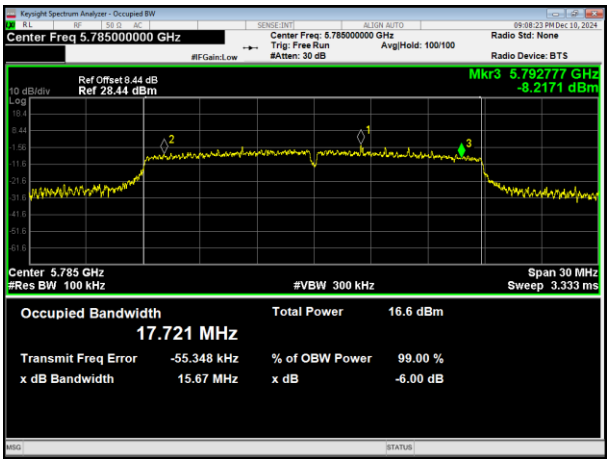
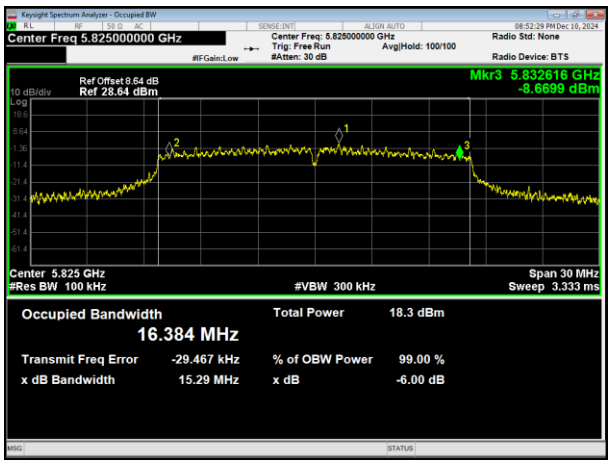
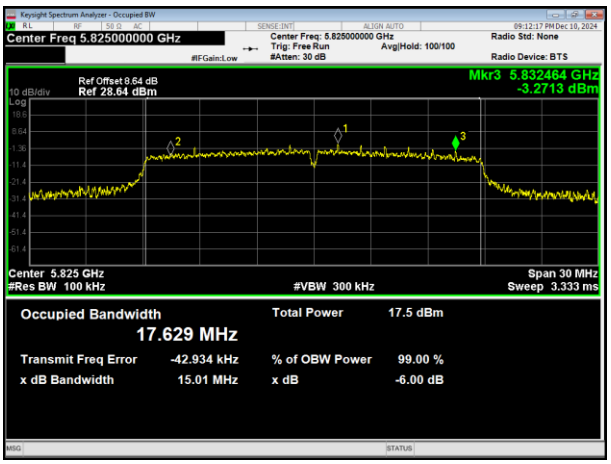
Antenna1

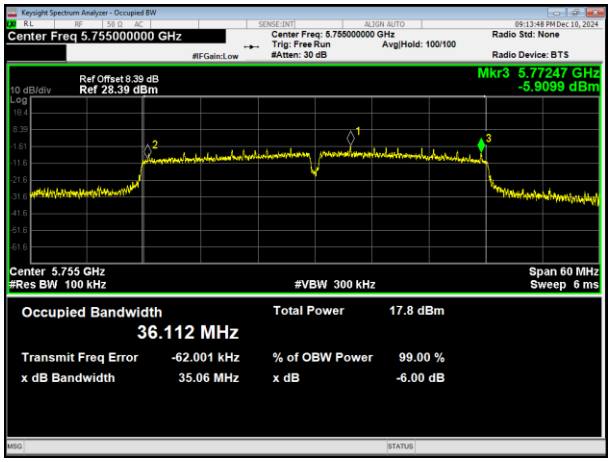
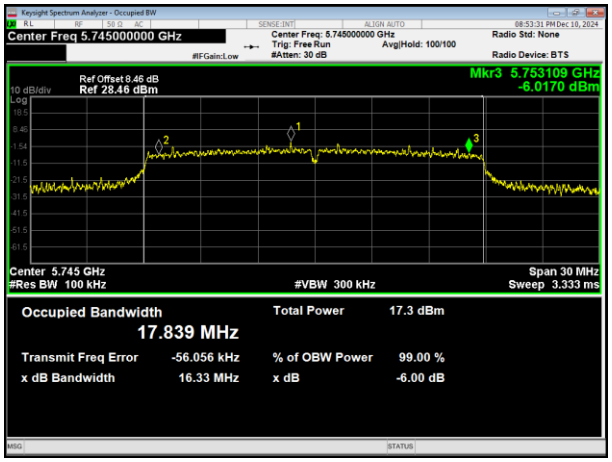
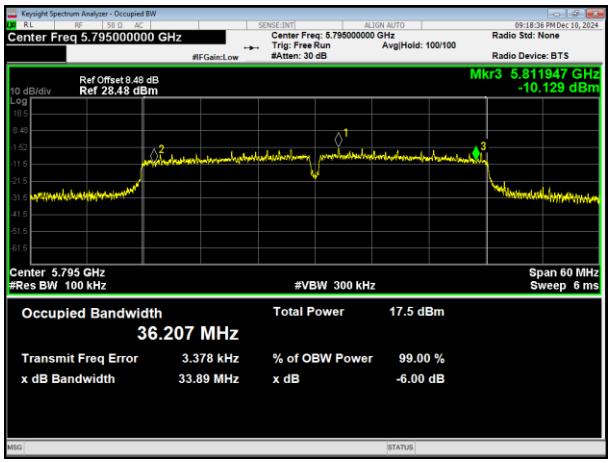
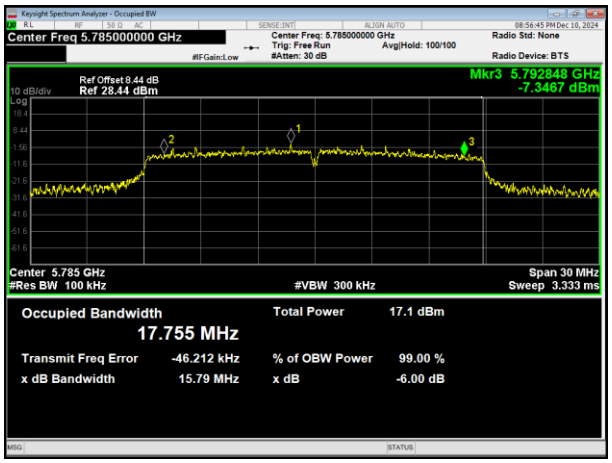
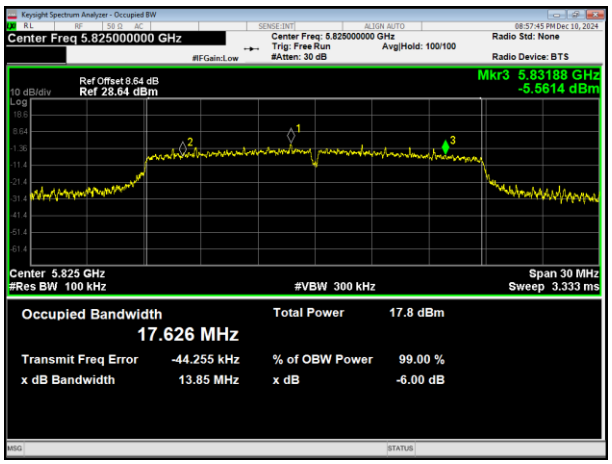
802.11a	802.11ac HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

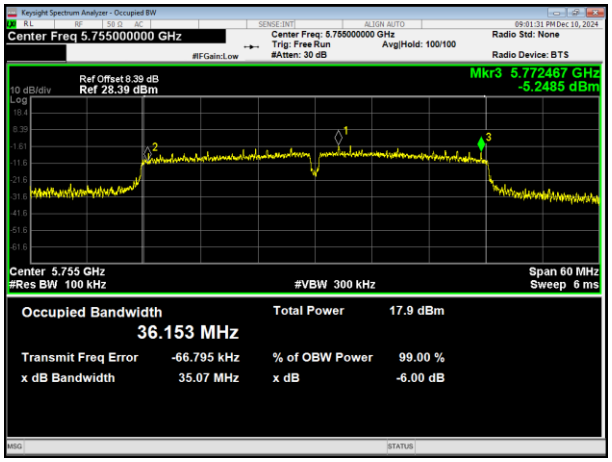
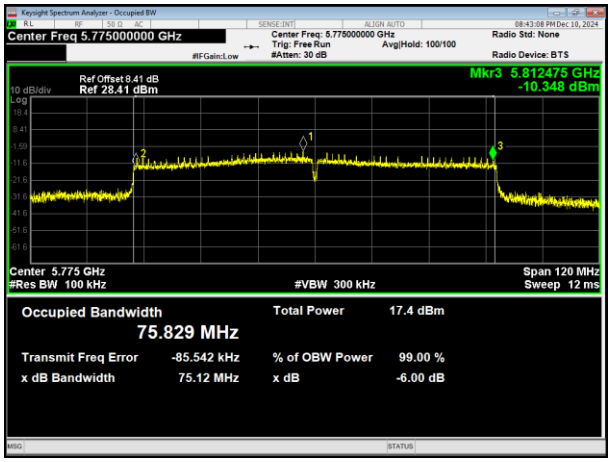
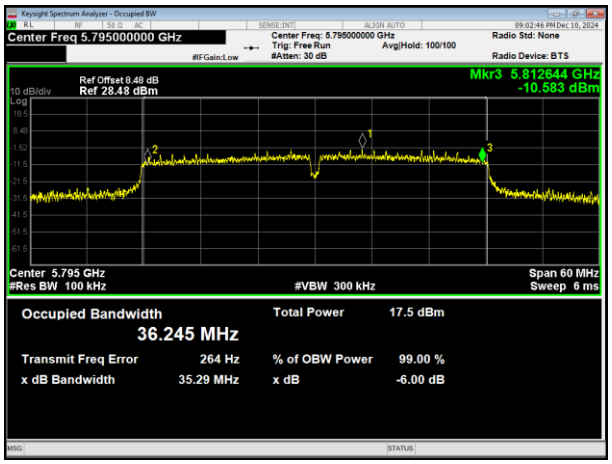
802.11ac HT40	802.11n HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11n HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

Antenna2

802.11a	802.11ac HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

802.11ac HT40	802.11n HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11n HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

7. DUTY CYCLE TEST SIGNAL

7.1 APPLIED PROCEDURES / LIMIT

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

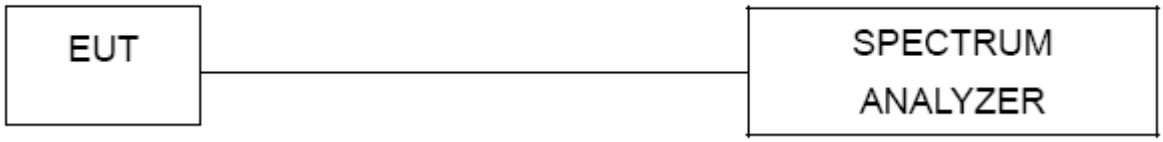
7.1.1 TEST PROCEDURE

1. Set RBW = 1 MHz.
2. Set the video bandwidth (VBW) ≥RBW.
3. Detector = Peak.
4. Sweep = auto couple.
5. Allow the trace to stabilize.
6. Span=0

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 TEST RESULTS

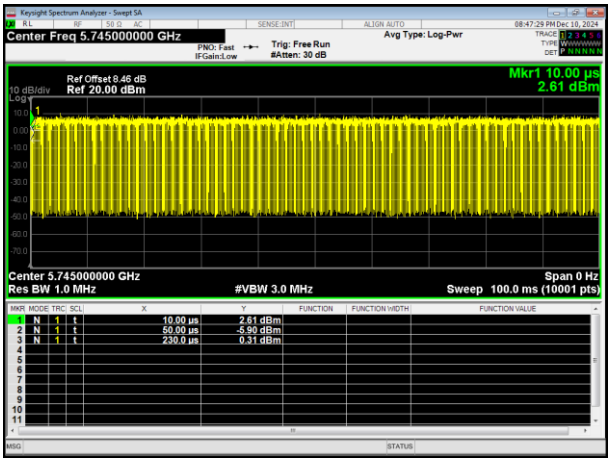
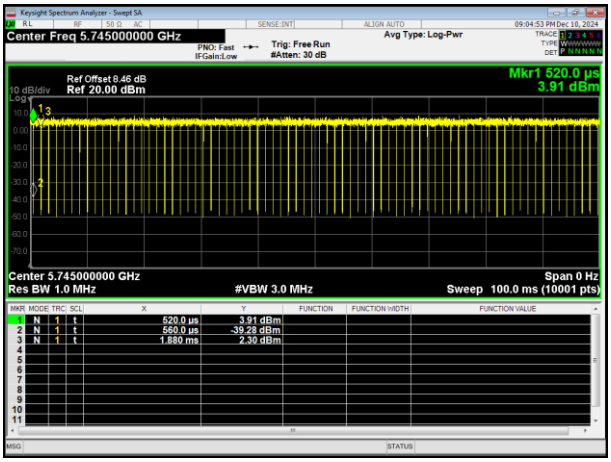
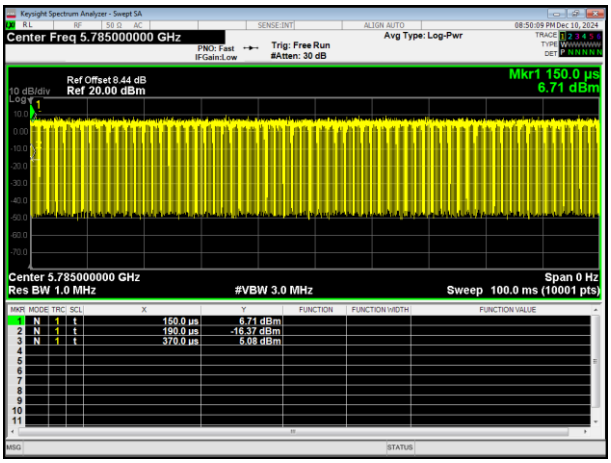
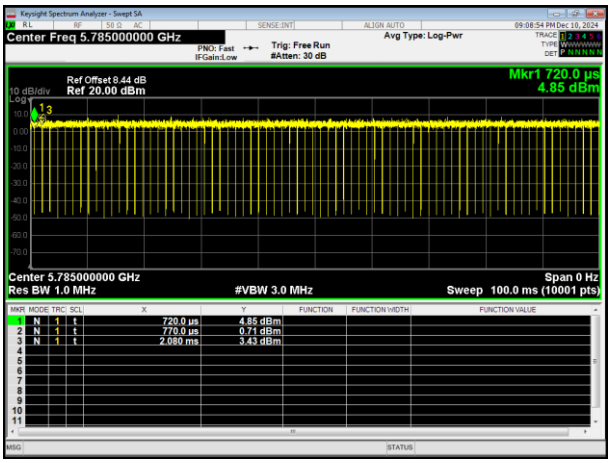
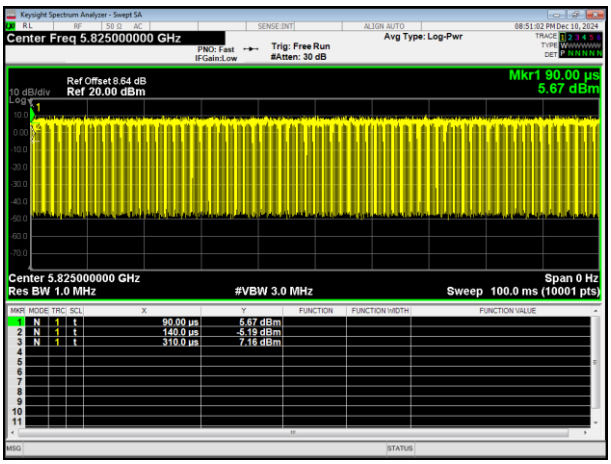
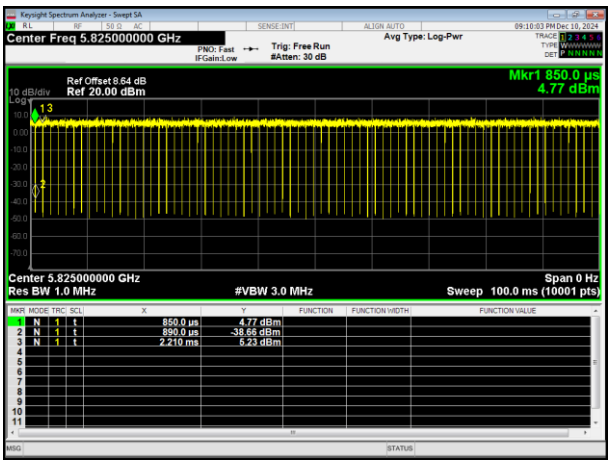
Antenna1

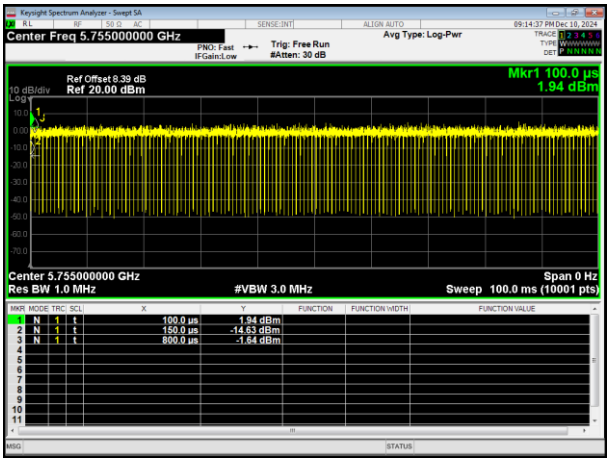
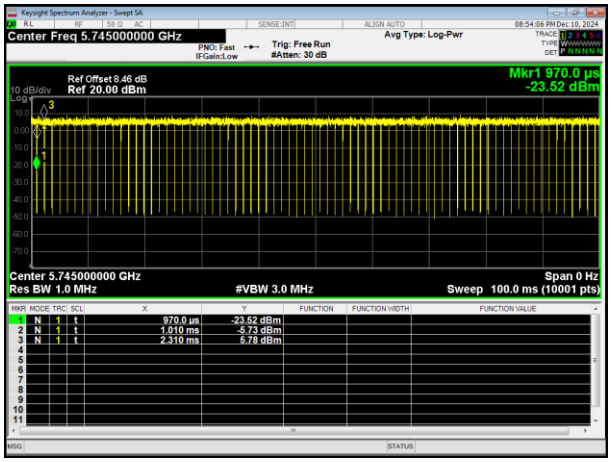
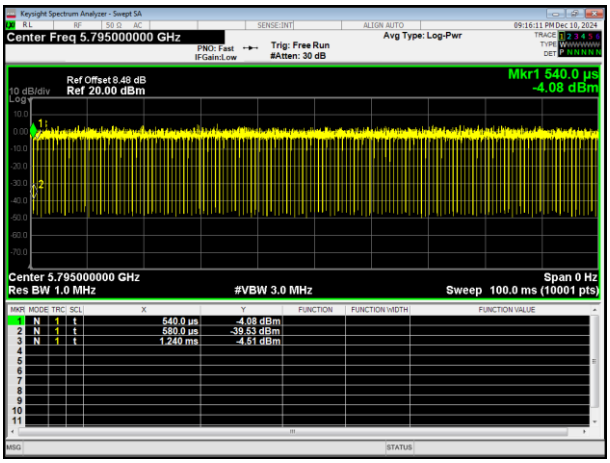
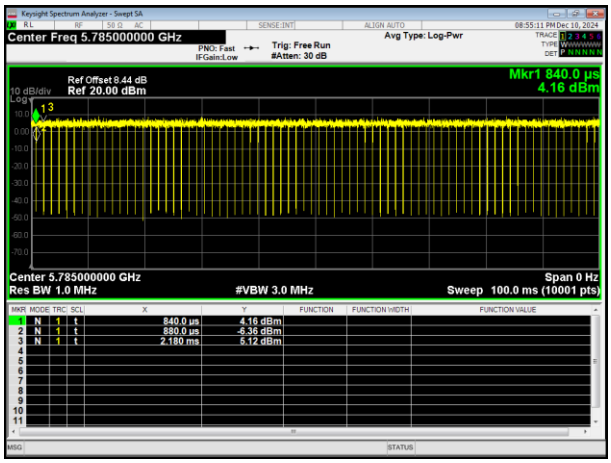
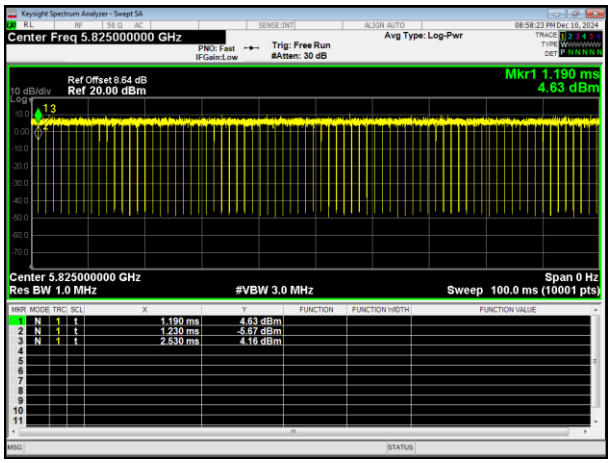
		Test Channel	Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 4	802.11a	Low	81.82	0.87
		Middle	81.82	0.87
		High	77.27	1.12
	802.11ac HT20	Low	97.06	0.13
		Middle	96.32	0.16
		High	97.06	0.13
	802.11ac HT40	Low	92.86	0.32
		High	94.29	0.26
	802.11ac HT80	/	89.19	0.5
	802.11n HT20	Low	97.01	0.13
		Middle	97.01	0.13
		High	97.01	0.13
	802.11n HT40	Low	94.2	0.26
		High	94.2	0.26

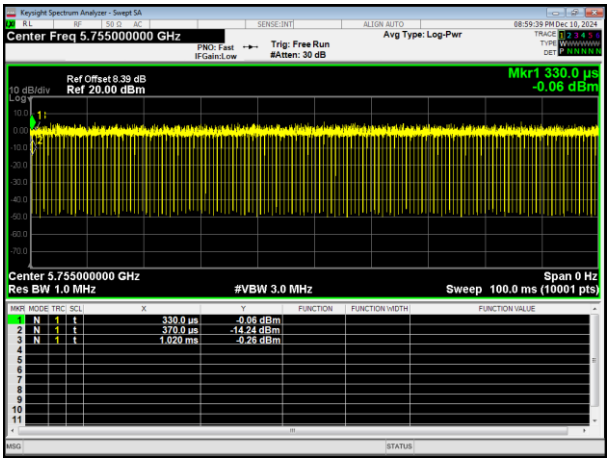
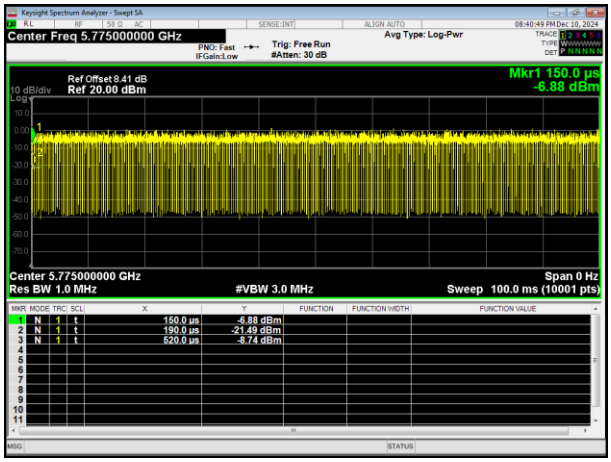
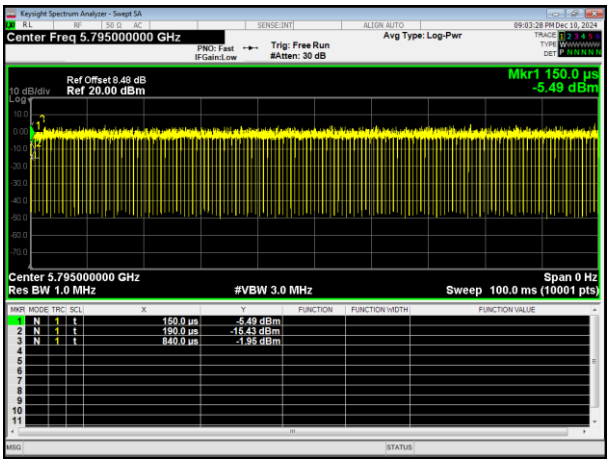
Antenna2

		Test Channel	Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 4	802.11a	Low	81.82	0.87
		Middle	81.82	0.87
		High	77.27	1.12
	802.11ac HT20	Low	96.32	0.16
		Middle	97.06	0.13
		High	97.04	0.13
	802.11ac HT40	Low	94.2	0.26
		High	94.2	0.26
	802.11ac HT80	/	89.19	0.5
	802.11n HT20	Low	96.3	0.16
		Middle	97.01	0.13
		High	96.3	0.16
	802.11n HT40	Low	94.2	0.26
		High	94.2	0.26

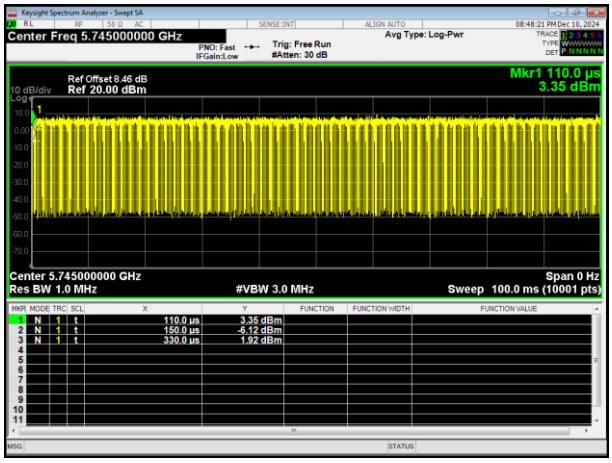
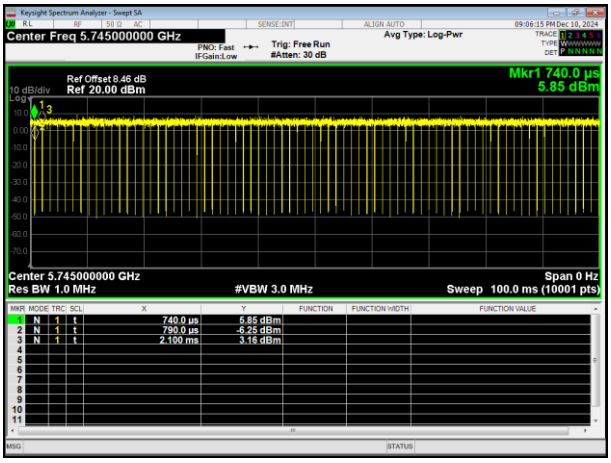
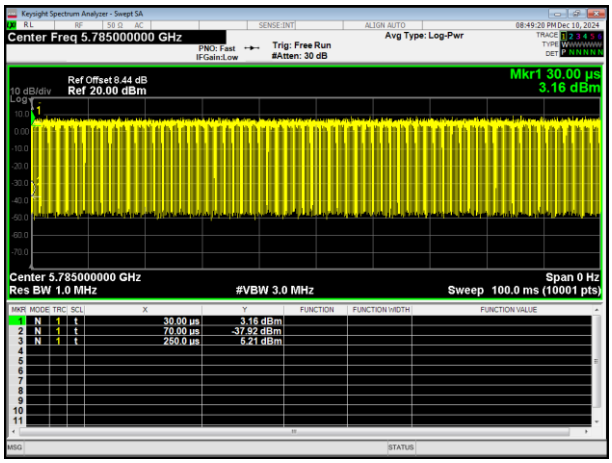
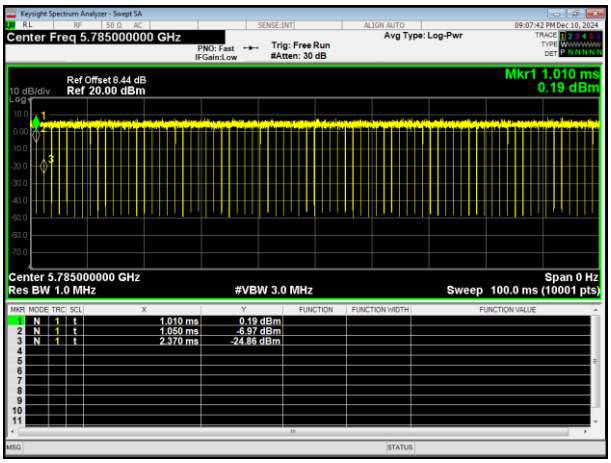
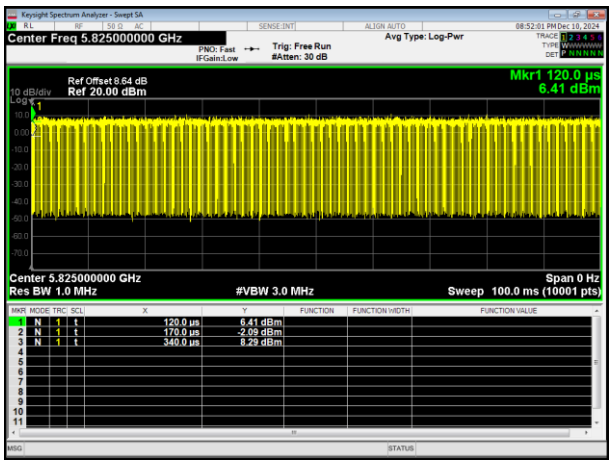
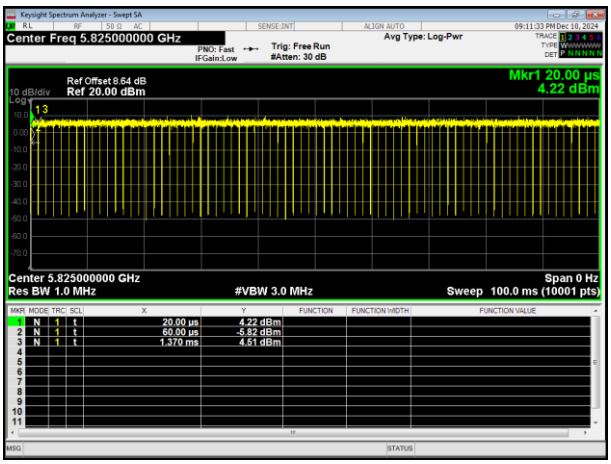
Antenna1

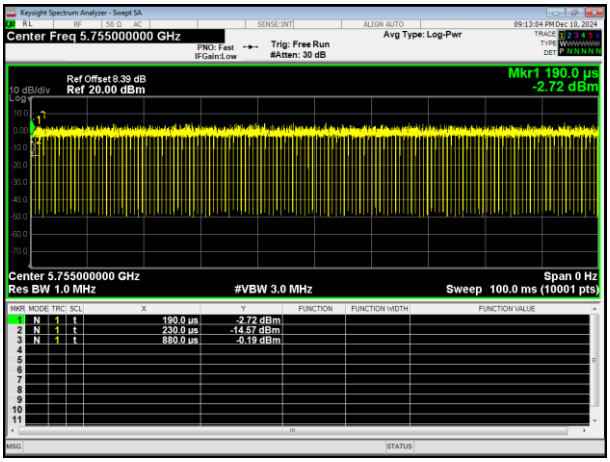
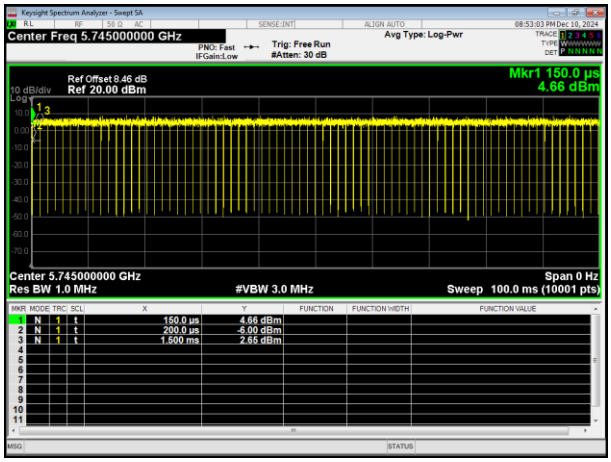
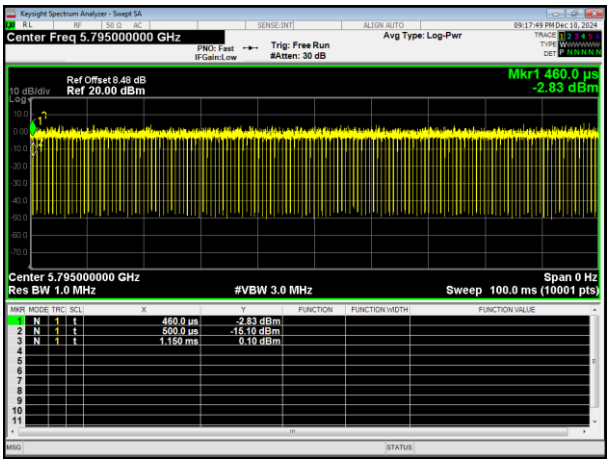
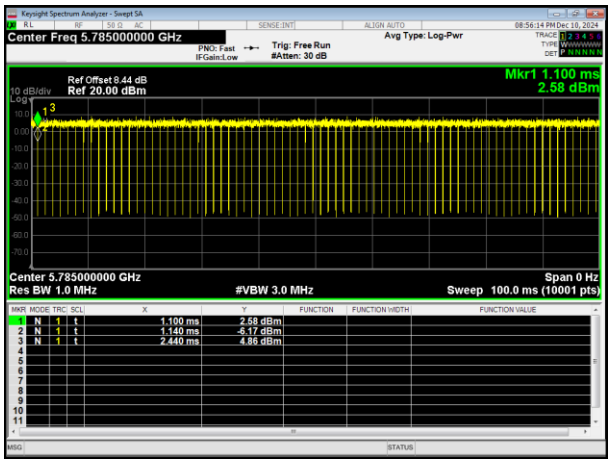
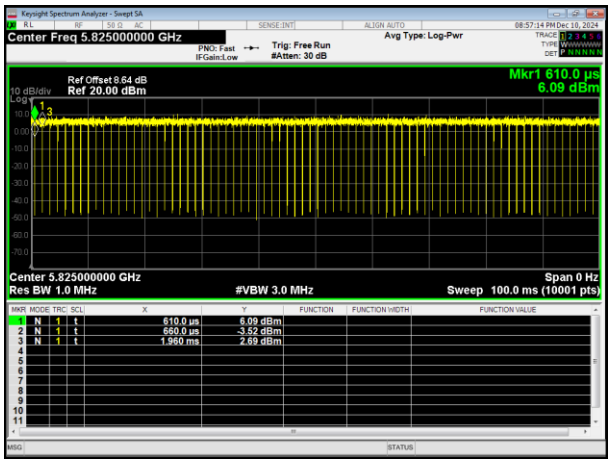
802.11a	802.11ac HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

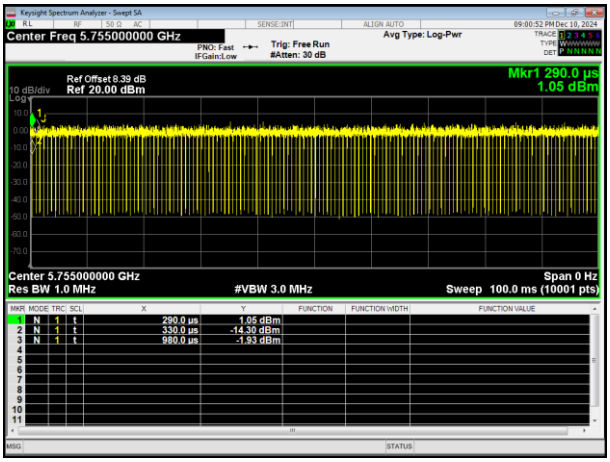
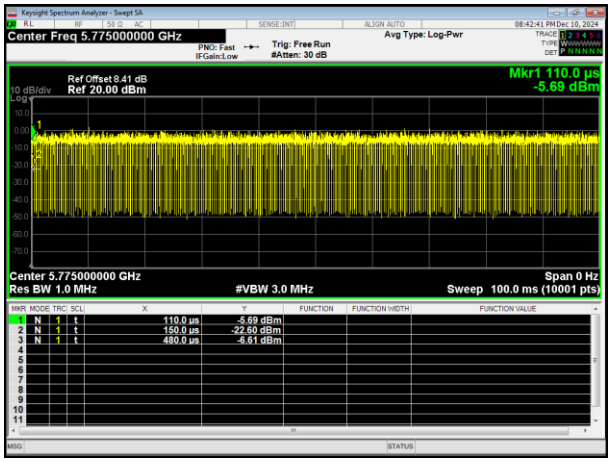
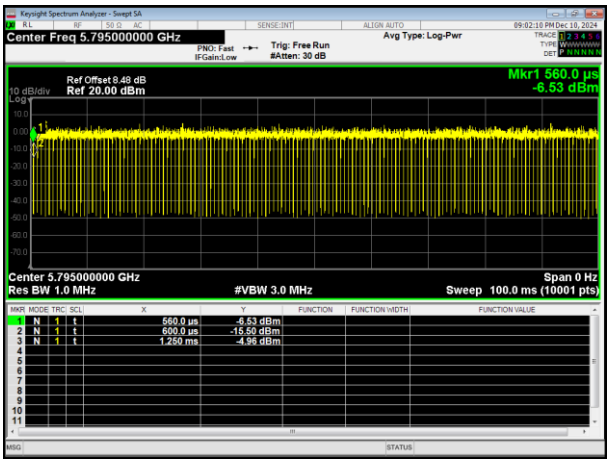
802.11ac HT40	802.11n HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11n HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

Antenna2

802.11a	802.11ac HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

802.11ac HT40	802.11n HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11n HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

8. FREQUENCY STABILITY

8.1 APPLIED PROCEDURES / 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.

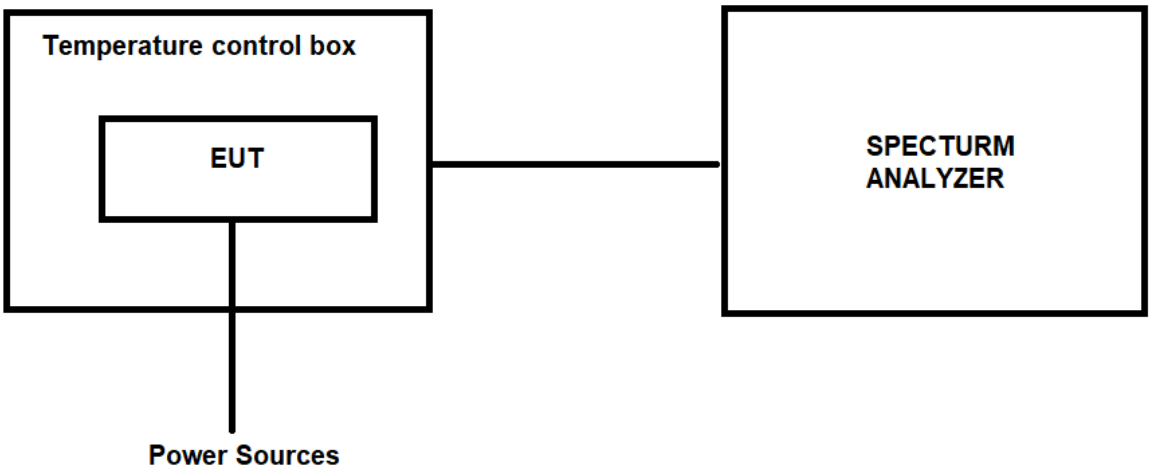
8.1.1 TEST PROCEDURE

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.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 TEST RESULTS

We test all antenna's data, the data only show the Antenna1 worst mode.

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)			Δ Frequency (MHz)		
			802.11a	802.11n HT20	802.11ac HT20	802.11a	802.11n HT20	802.11ac HT20
132V	-20℃	5745	5745.0022	5745.0005	5745.0013	0.3829	0.0870	0.2263
		5785	5785.0033	5785.0013	5785.0025	0.5704	0.2247	0.4322
		5825	5825.0015	5825.0055	5825.0036	0.2575	0.9442	0.6180
108V		5745	5745.0033	5745.0006	5745.0042	0.5744	0.1044	0.7311
		5785	5785.0014	5785.0044	5785.0001	0.2420	0.7606	0.0173
		5825	5825.0021	5825.0052	5825.0006	0.3605	0.8927	0.1030
120V	25℃	5745	5745.0036	5745.0033	5745.0032	0.6266	0.5744	0.5570
		5785	5785.0042	5785.0031	5785.0004	0.7260	0.5359	0.0691
		5825	5825.0036	5825.0016	5825.0016	0.6180	0.2747	0.2747
132V	50℃	5745	5745.0044	5745.0054	5745.0035	0.7659	0.9399	0.6092
		5785	5785.0026	5785.0038	5785.0006	0.4494	0.6569	0.1037
		5825	5825.0015	5825.0003	5825.0014	0.2575	0.0515	0.2403
108V	50℃	5745	5745.0013	5745.0004	5745.0005	0.2263	0.0696	0.0870
		5785	5785.0001	5785.0006	5785.0013	0.0173	0.1037	0.2247
		5825	5825.0003	5825.0007	5825.0027	0.0515	0.1202	0.4635

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)		Δ Frequency (MHz)	
			802.11n HT40	802.11ac HT40	802.11n HT40	802.11ac HT40
132V	-20℃	5755	5755.0013	5755.0005	0.2259	0.0869
		5795	5795.0005	5795.0006	0.0863	0.1035
108V		5755	5755.0016	5755.0004	0.2780	0.0695
		5795	5795.0005	5795.0015	0.0863	0.2588
120V	25℃	5755	5755.0052	5755.0013	0.9036	0.2259
		5795	5795.0005	5795.0008	0.0863	0.1381
132V	50℃	5755	5755.0016	5755.0003	0.2780	0.0521
		5795	5795.0004	5795.0055	0.0690	0.9491
108V	50℃	5755	5755.0058	5755.0012	1.0078	0.2085
		5795	5795.0006	5795.0036	0.1035	0.6212

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)	Δ Frequency (MHz)
			802.11ac HT80	802.11ac HT80
132V	-20℃	5775	5775.0023	0.3983
108V		5775	5775.0034	0.5887
120V	25℃	5775	5775.0046	0.7965
132V	50℃	5775	5775.0005	0.0866
108V	50℃	5775	5775.0006	0.1039

9. TRANSMISSION IN THE ABSENCE OF DATA

9.1 STANDARD REQUIREMENT

According to §15.407(c)

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 signaling 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.

9.2 TEST RESULT

No non-compliance noted:
Refer to the theory of operation.

10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

10.2 EUT ANTENNA

The EUT antenna is External antenna, It comply with the standard requirement.

11. TEST SEUUP PHOTO

Reference to the appendix I for details.

12. EUT PHOTO

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※