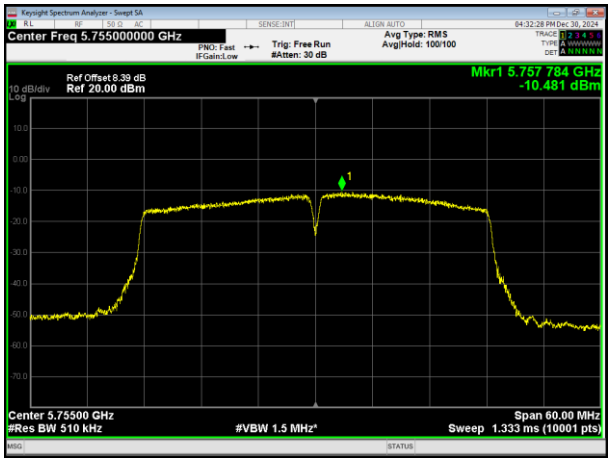
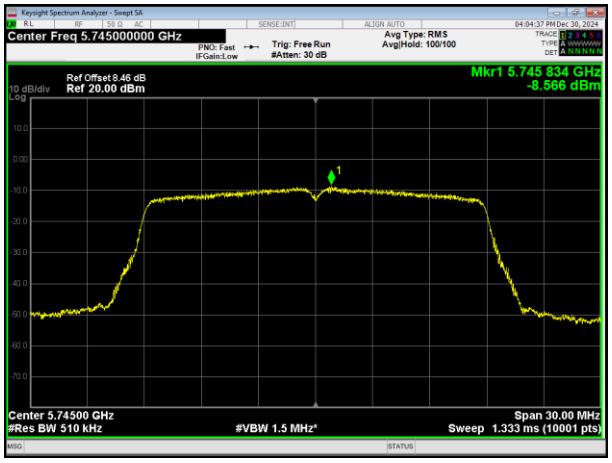
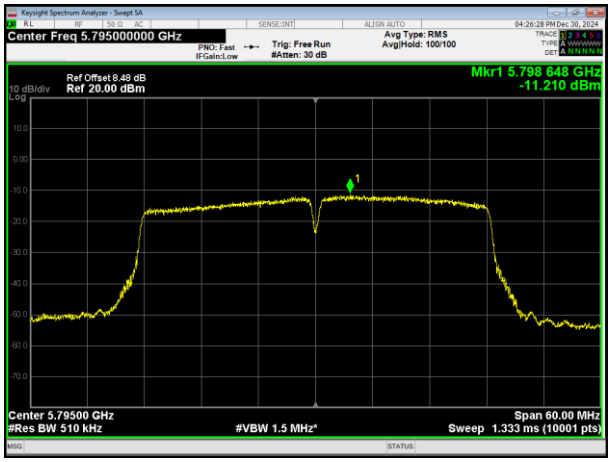
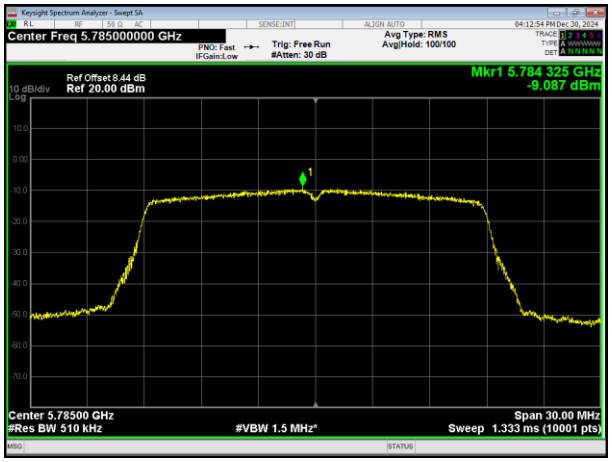
802.11ac HT40	802.11ax HT20
	
5755MHz	5745MHz
	
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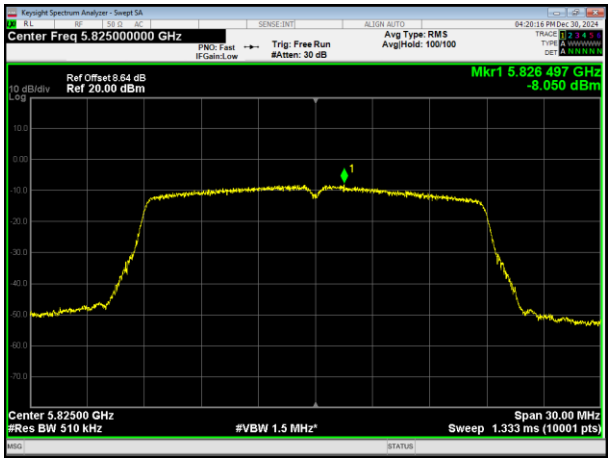
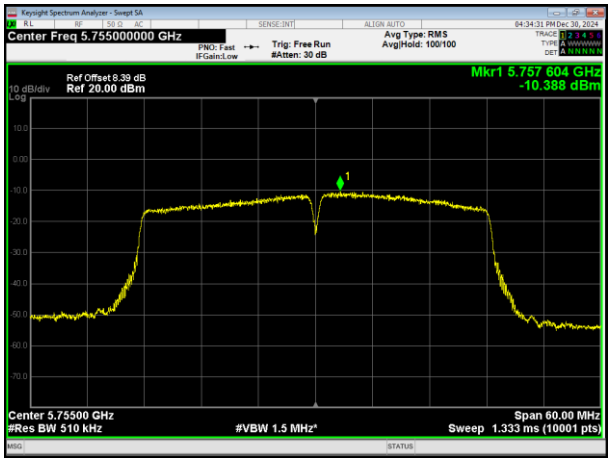
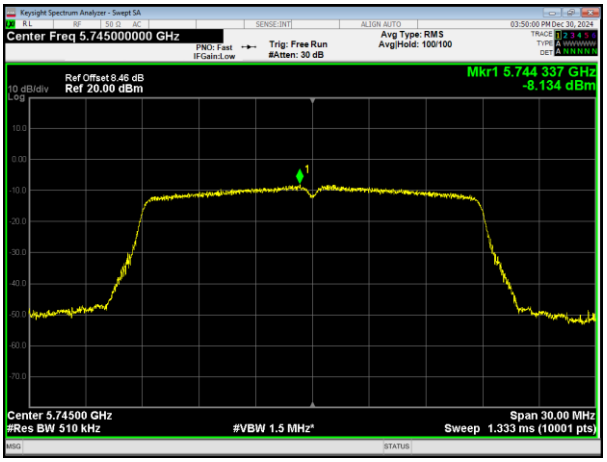
	
	5825MHz

802.11ax HT40	802.11n HT20
	
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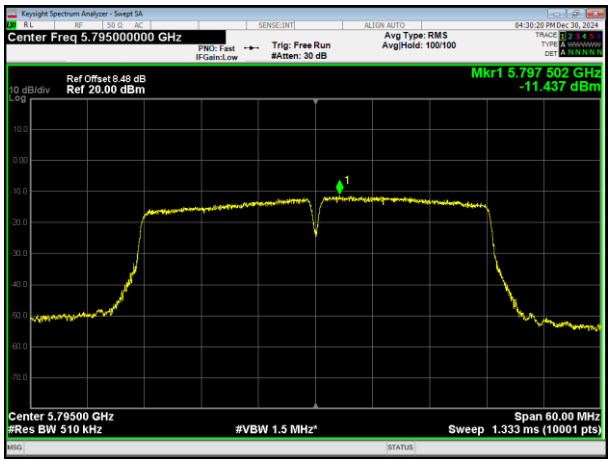
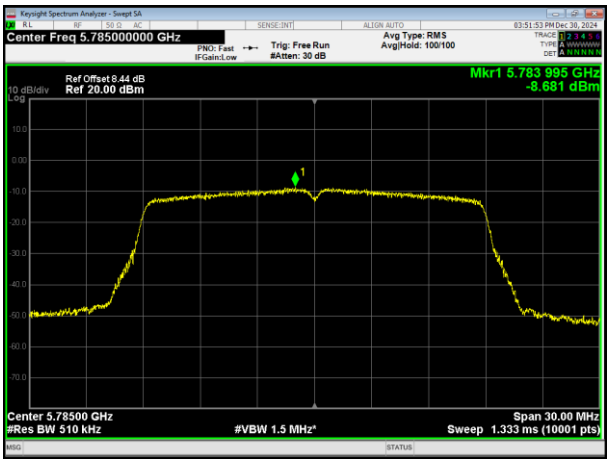
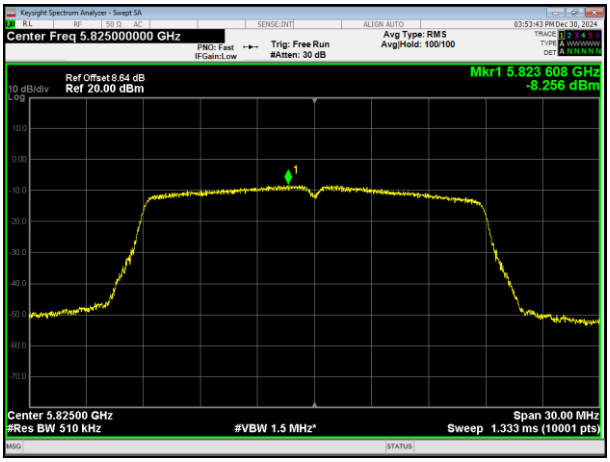
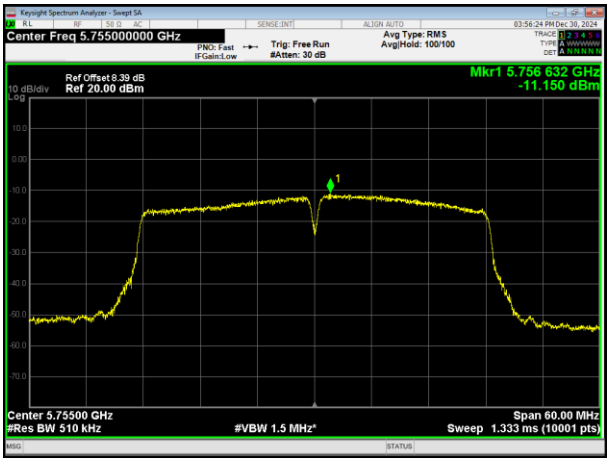
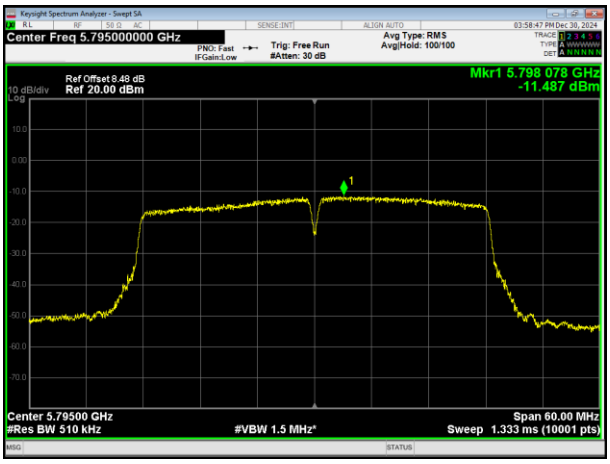
	
5795MHz	5785MHz
	
	5825MHz

802.11n HT40



5755MHz



5795MHz

6.. 6DB&26DB&99% BANDWIDTH TEST

6.1. APPLIED PROCEDURES / LIMIT

The 26 dB bandwidth is used to determine the conducted power limits. 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

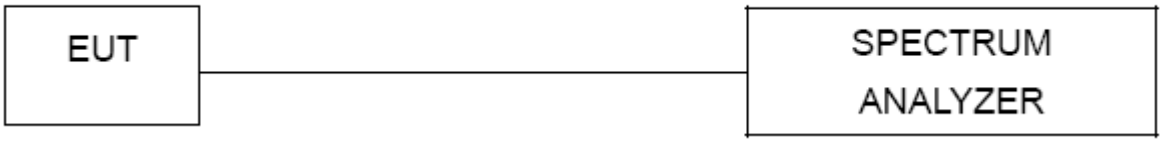
26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	>RBW
Span	30MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

99% Occupied Bandwidth	
Spectrum Parameters	Setting
RBW	1% to 5% of the OBW
VBW	Approximately three times the RBW
Span	between 1.5 times and 5.0 times the OBW
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

6.1.2. DEVIATION FROM STANDARD

No deviation.

6.1.3. TEST SETUP



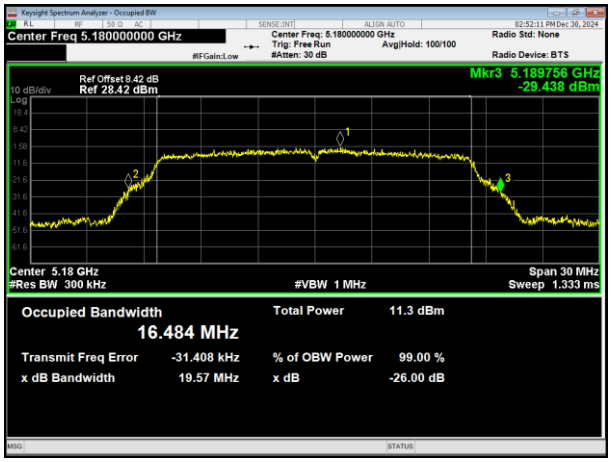
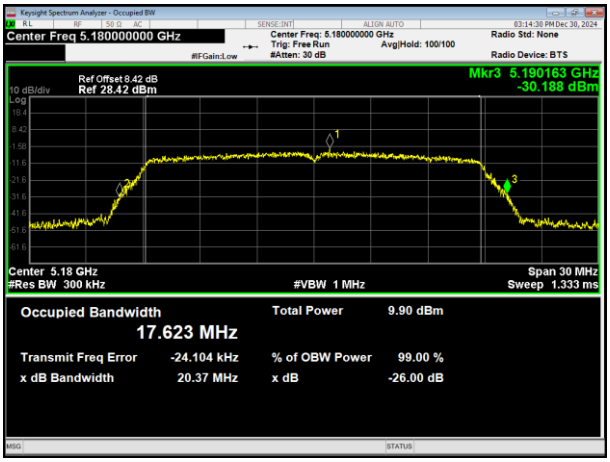
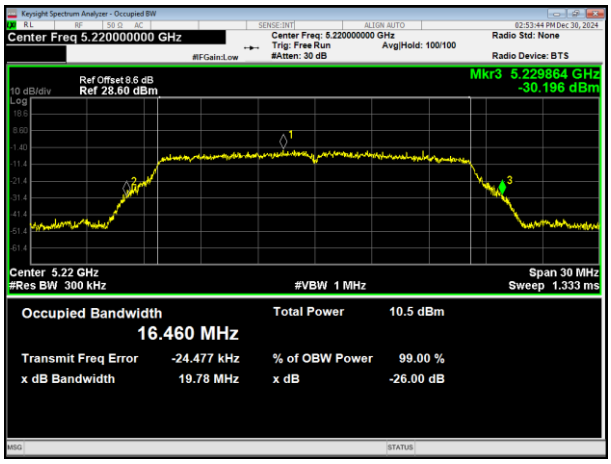
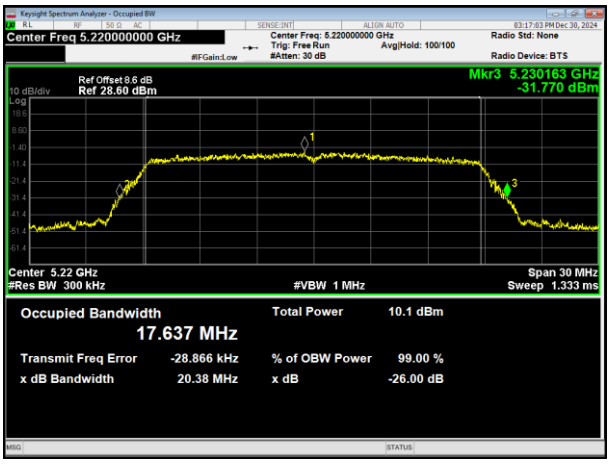
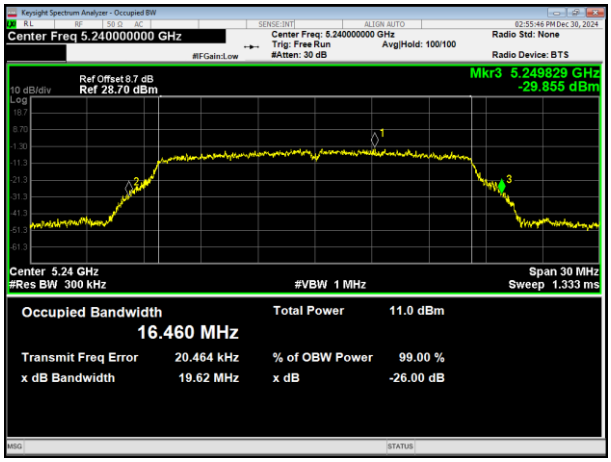
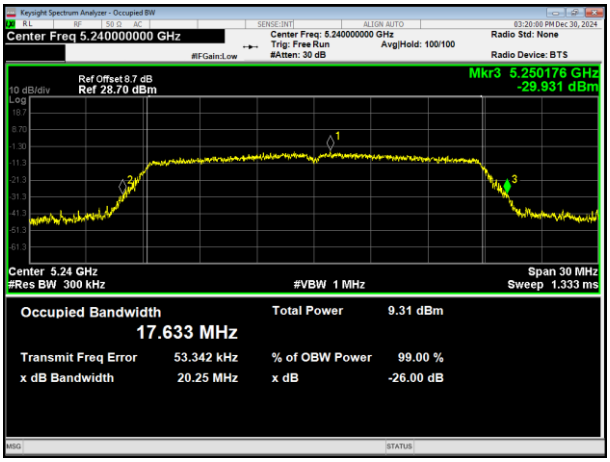
6.1.4. EUT OPERATION CONDITIONS

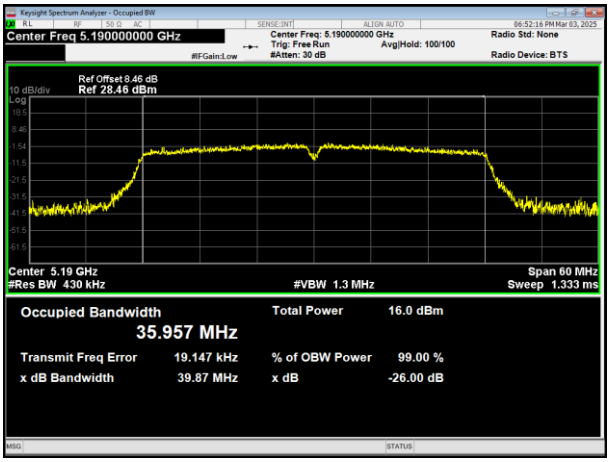
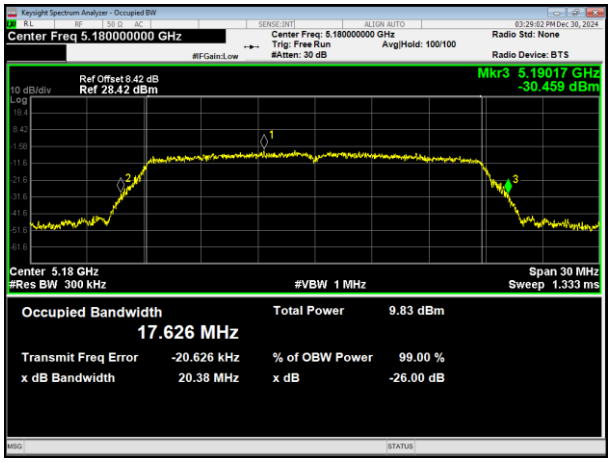
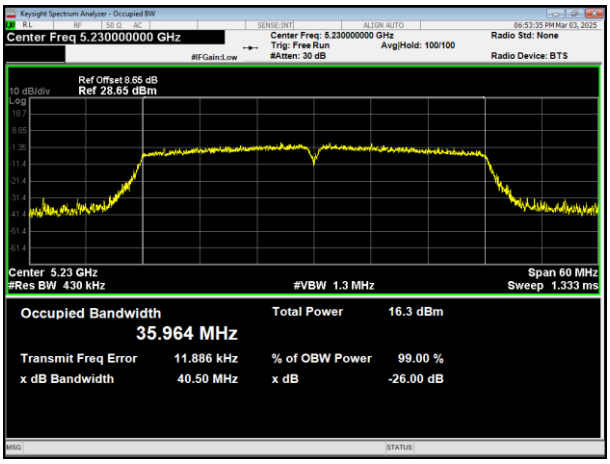
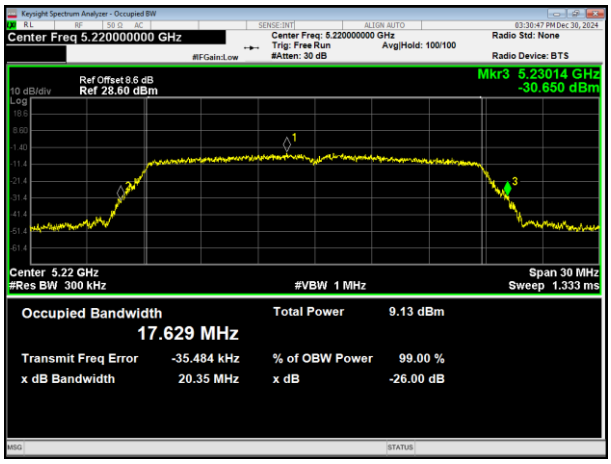
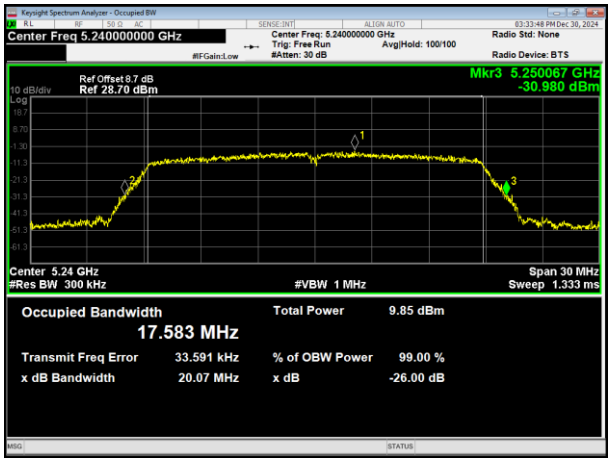
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

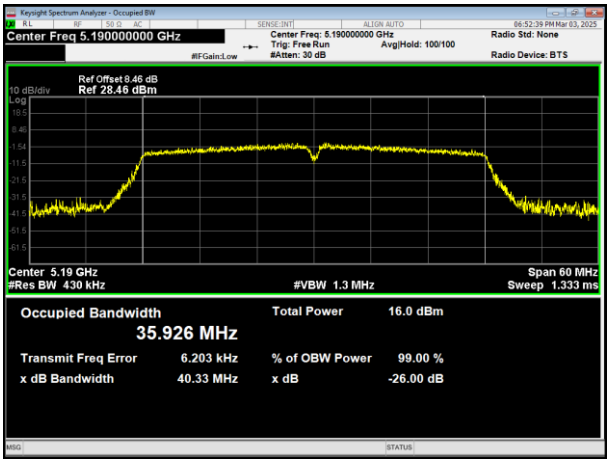
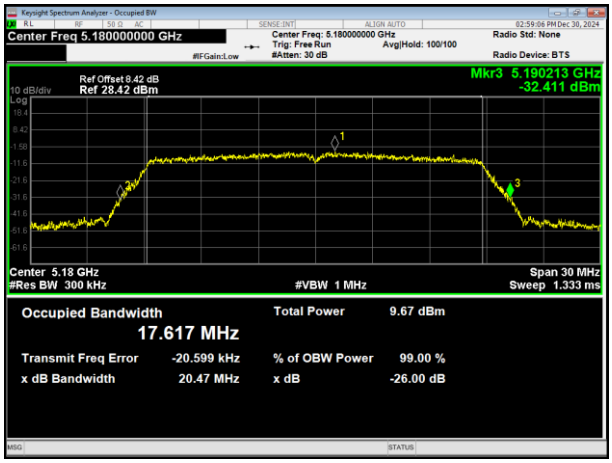
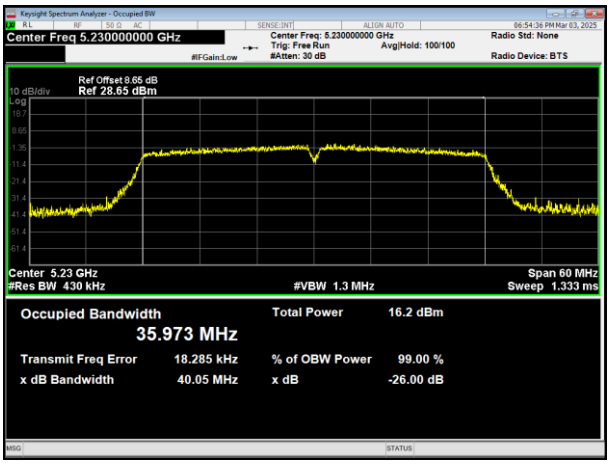
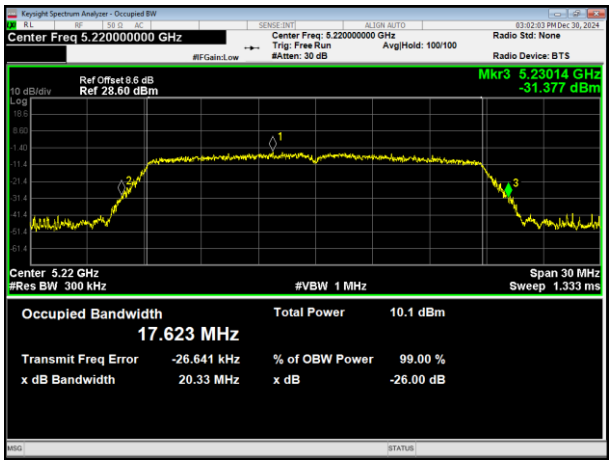
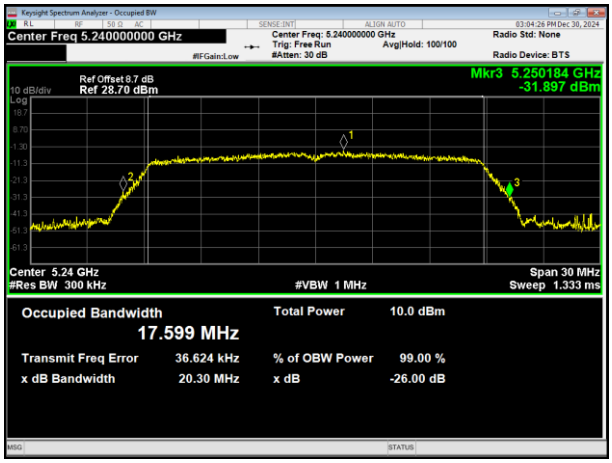
6.1.5. TEST RESULTS

		Test Channel	26dB Bandwidth (MHz)	Result
Band 1	802.11a	Low	19.57	Pass
		Middle	19.78	Pass
		High	19.62	Pass
	802.11ac HT20	Low	20.37	Pass
		Middle	20.38	Pass
		High	20.25	Pass
	802.11ac HT40	Low	39.87	Pass
		High	40.50	Pass
	802.11ax HT20	Low	20.38	Pass
		Middle	20.35	Pass
		High	20.07	Pass
	802.11ax HT40	Low	40.33	Pass
		High	40.05	Pass
	802.11n HT20	Low	20.47	Pass
		Middle	20.33	Pass
		High	20.30	Pass
	802.11n HT40	Low	39.83	Pass
		High	40.31	Pass

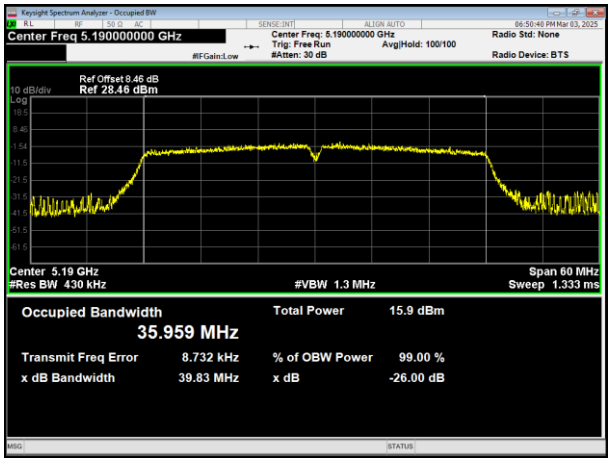
		Test Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Result
Band 4	802.11a	Low	16.31	>0.5	Pass
		Middle	15.66	>0.5	Pass
		High	16.01	>0.5	Pass
	802.11ac HT20	Low	15.09	>0.5	Pass
		Middle	15.90	>0.5	Pass
		High	16.07	>0.5	Pass
	802.11ac HT40	Low	33.77	>0.5	Pass
		High	35.40	>0.5	Pass
	802.11ax HT20	Low	17.53	>0.5	Pass
		Middle	15.27	>0.5	Pass
		High	16.03	>0.5	Pass
	802.11ax HT40	Low	35.06	>0.5	Pass
		High	33.86	>0.5	Pass
	802.11n HT20	Low	15.99	>0.5	Pass
		Middle	16.04	>0.5	Pass
		High	16.28	>0.5	Pass
	802.11n HT40	Low	35.02	>0.5	Pass
		High	35.06	>0.5	Pass

802.11a	802.11ac HT20
	
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz

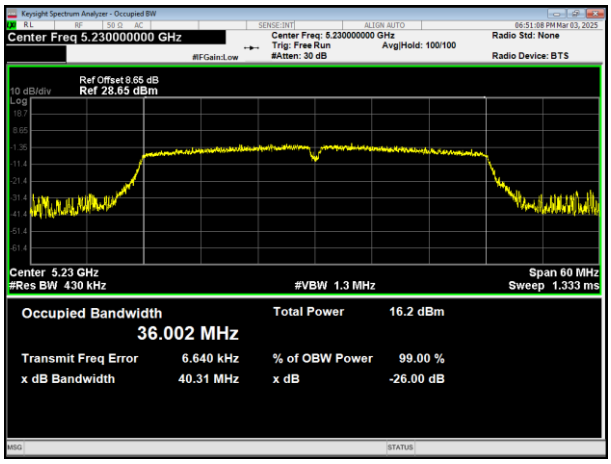
802.11ac HT40	802.11ax HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

802.11ax HT40	802.11n HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

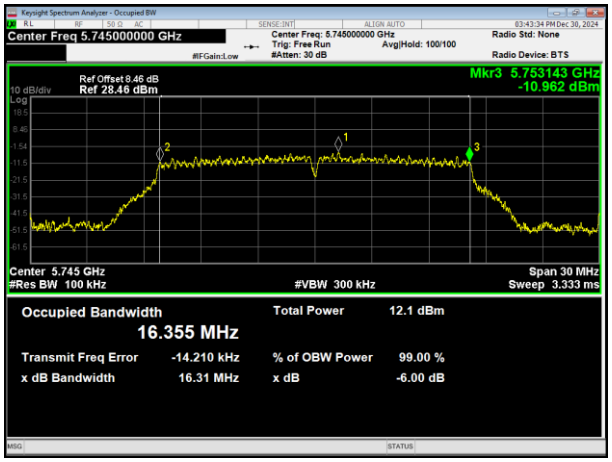
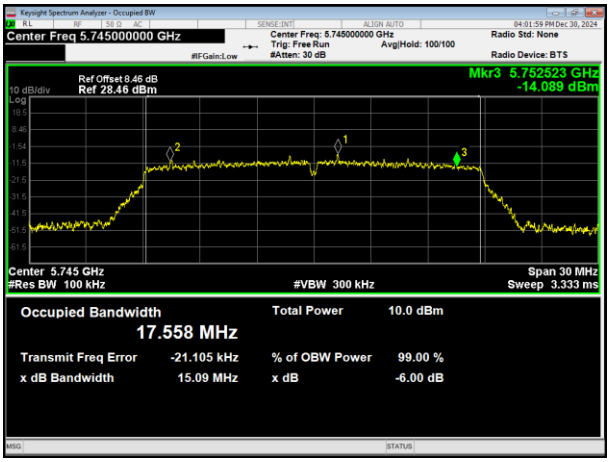
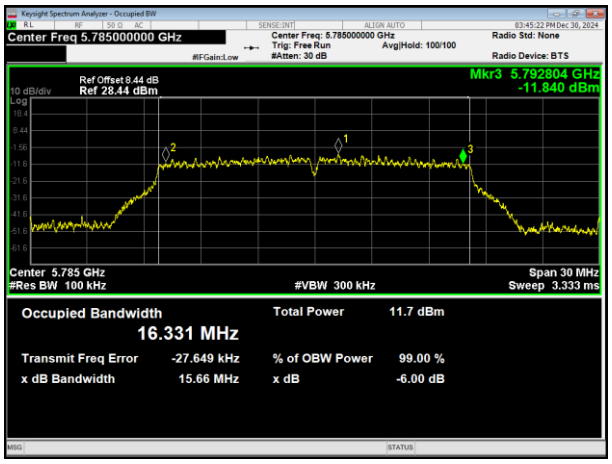
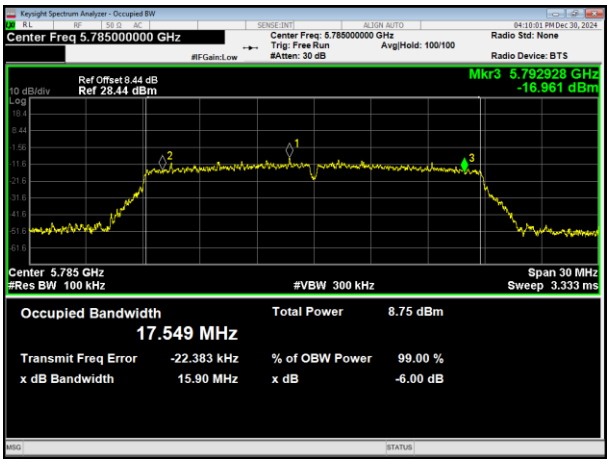
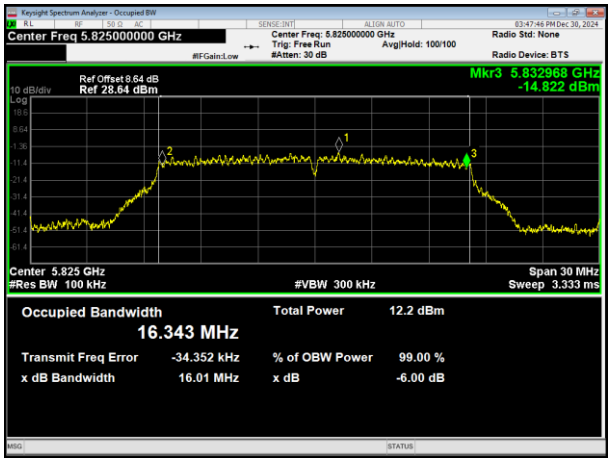
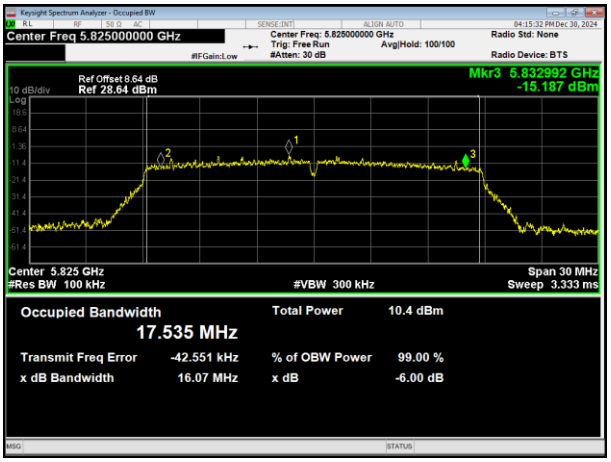
802.11n HT40

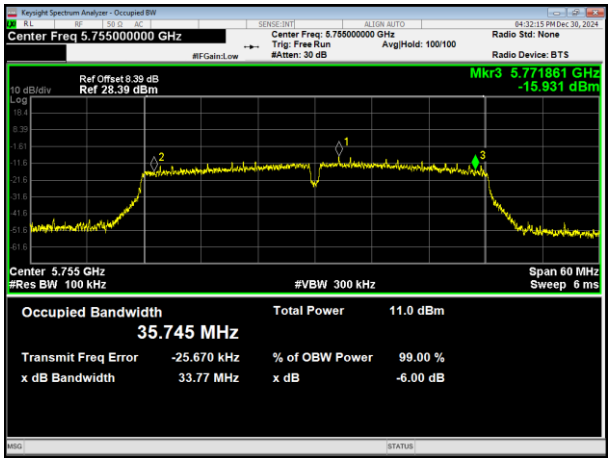
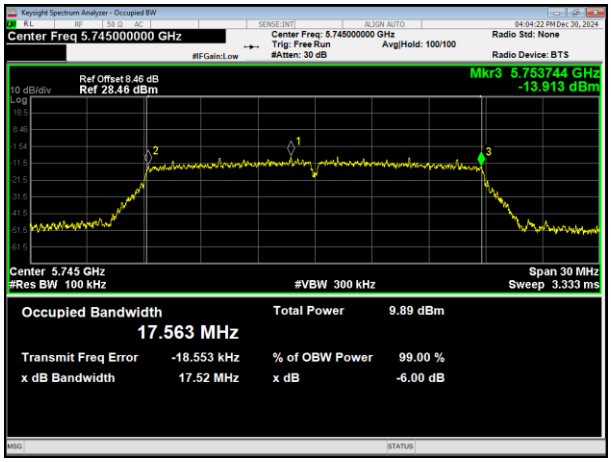
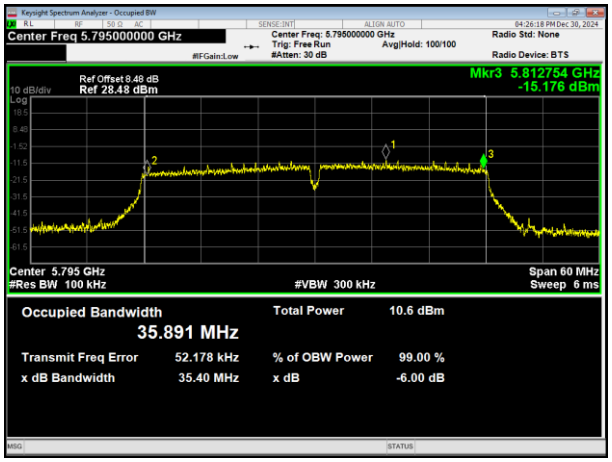
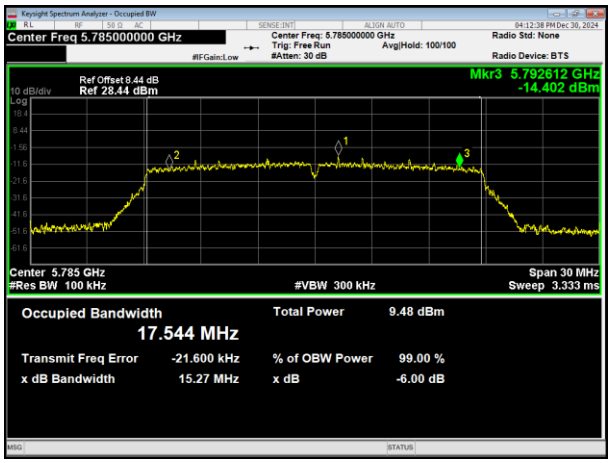
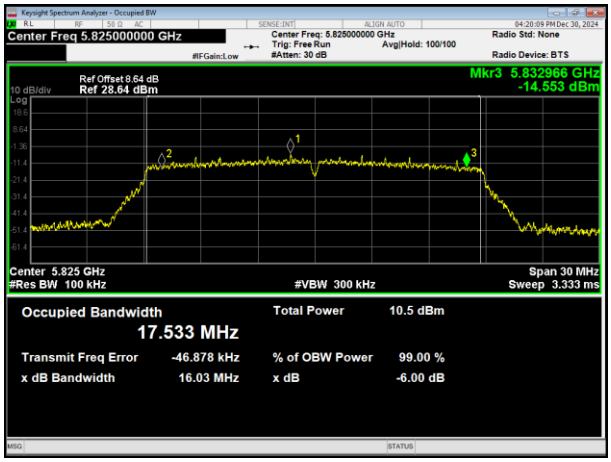


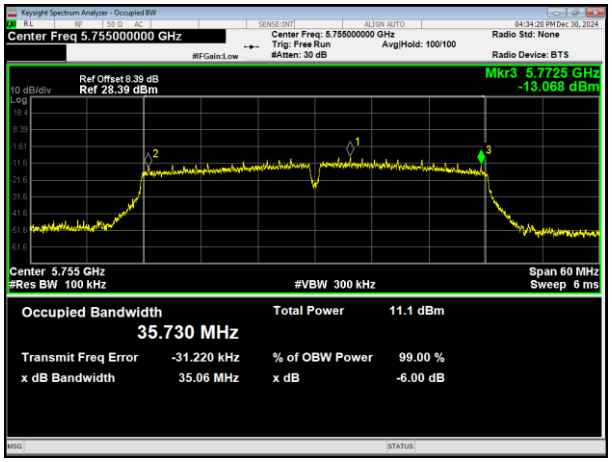
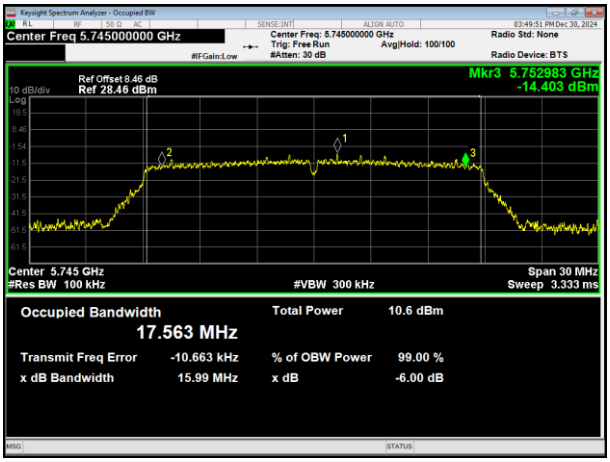
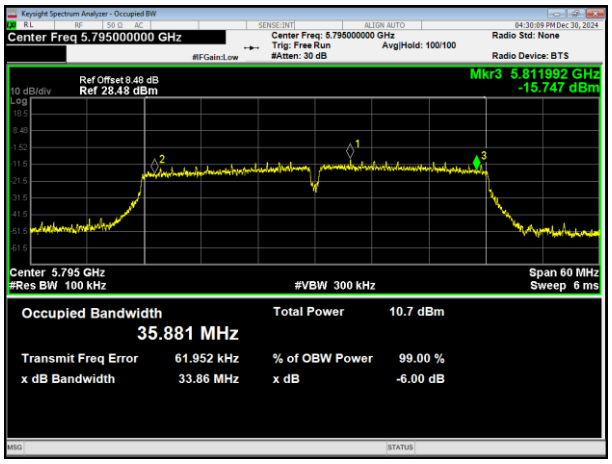
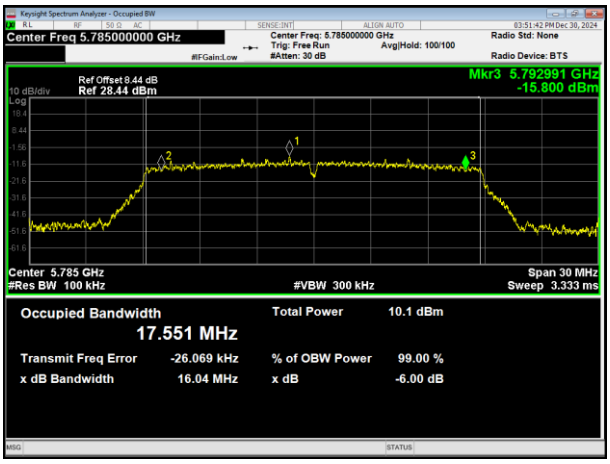
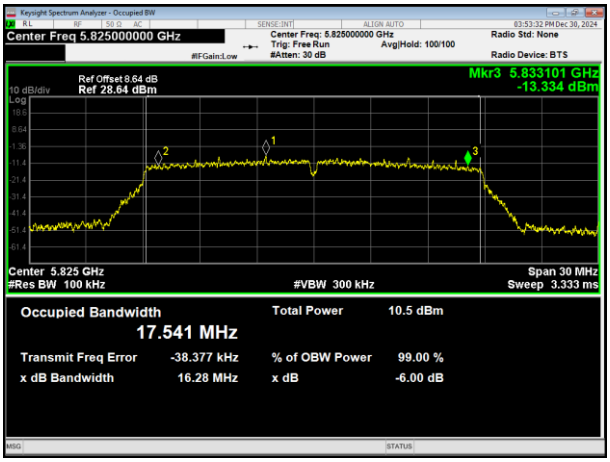
5190MHz



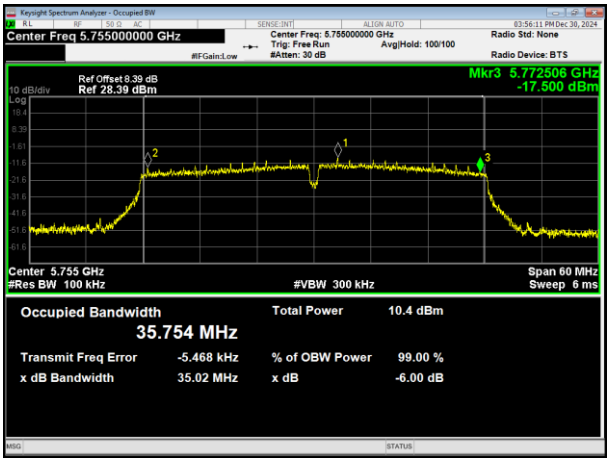
5230MHz

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

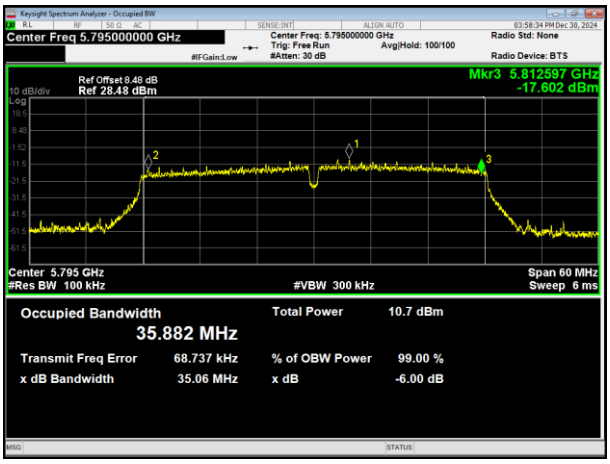
802.11ac HT40	802.11ax HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

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

802.11n HT40



5755MHz



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.

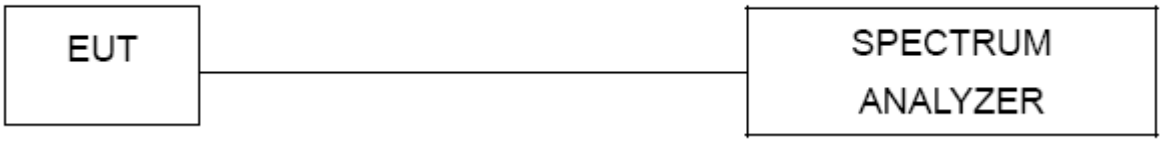
7.1.1. TEST PROCEDURE

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



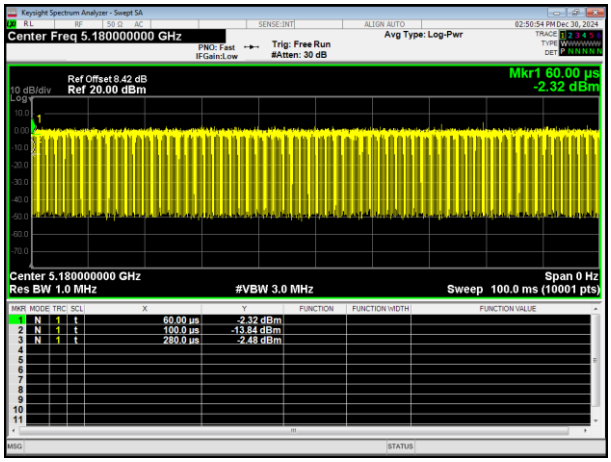
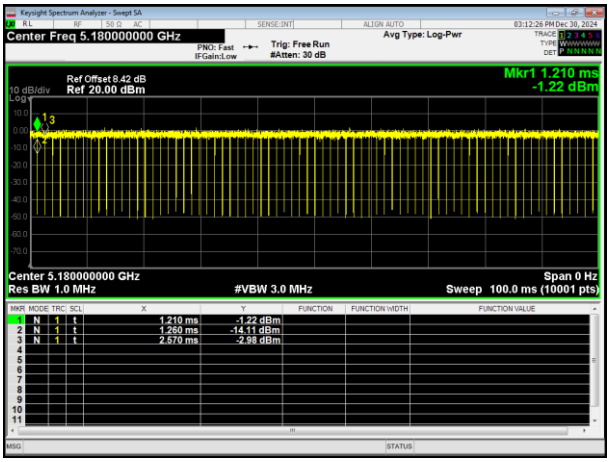
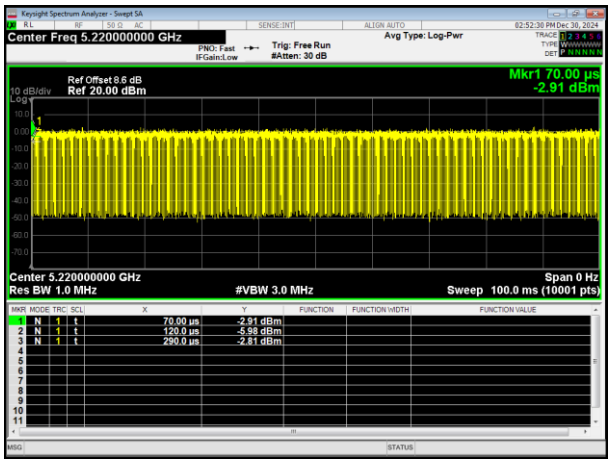
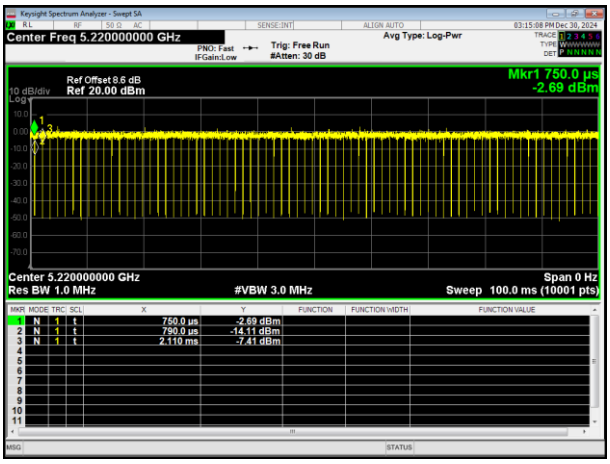
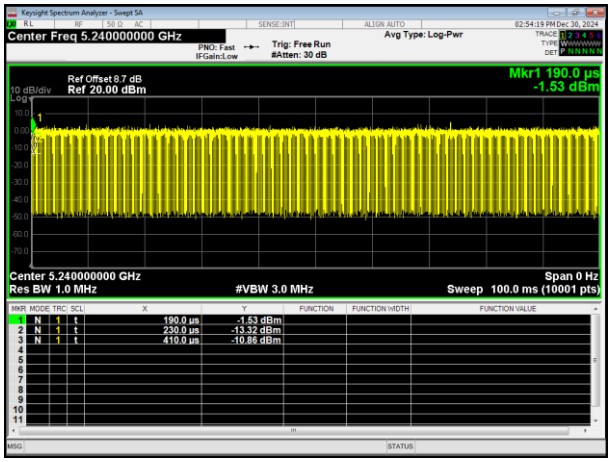
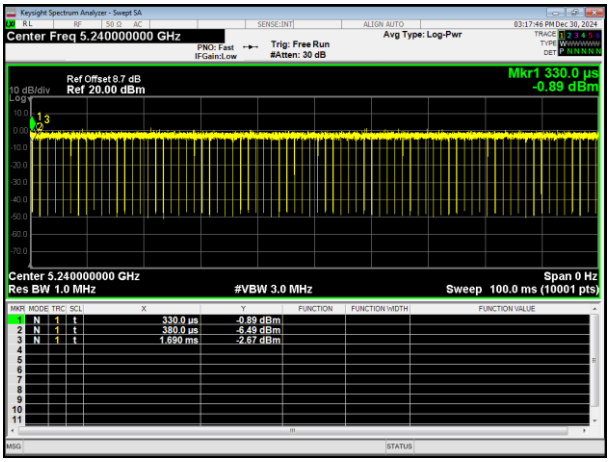
7.1.4. EUT OPERATION CONDITIONS

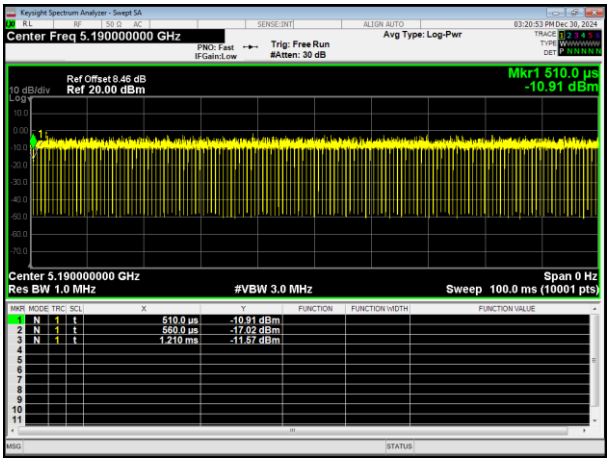
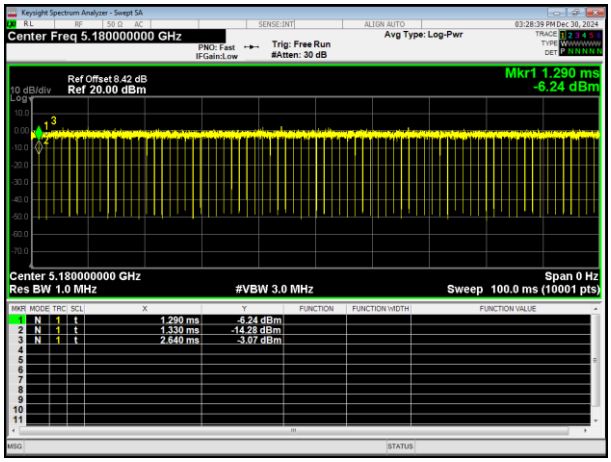
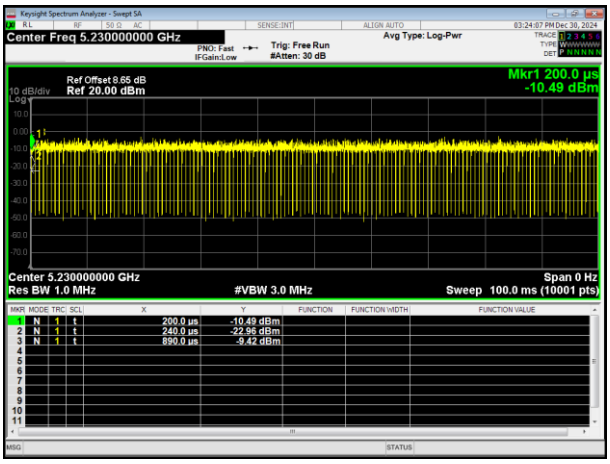
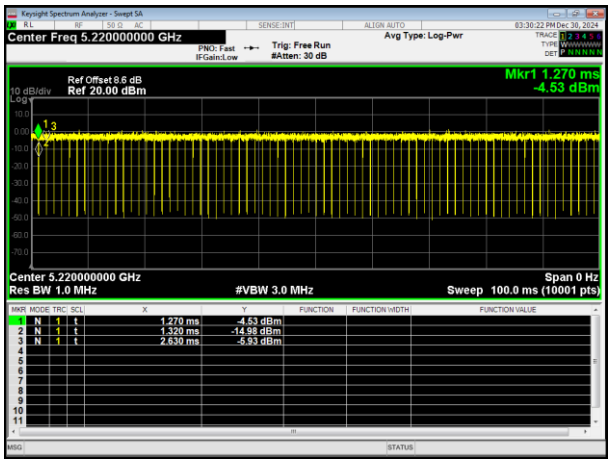
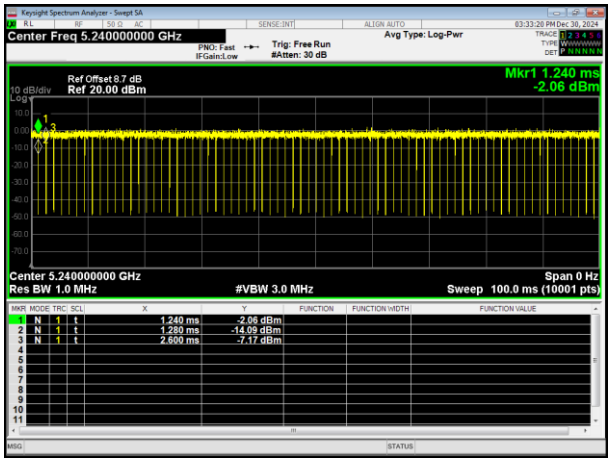
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

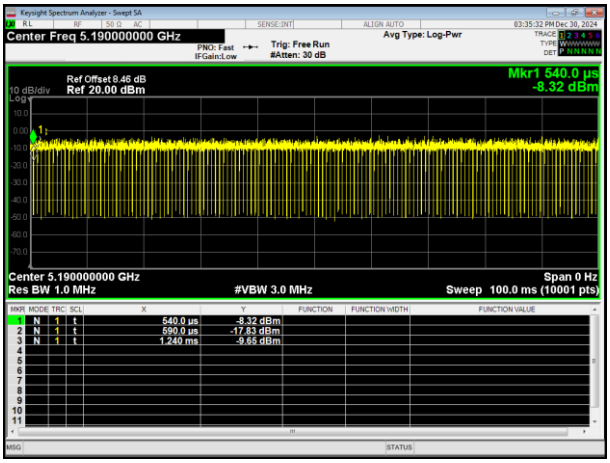
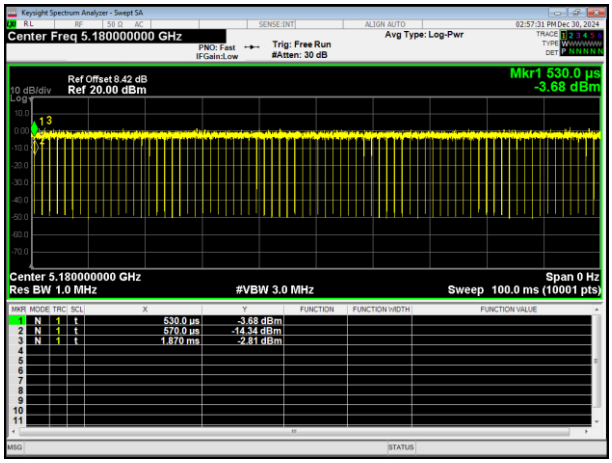
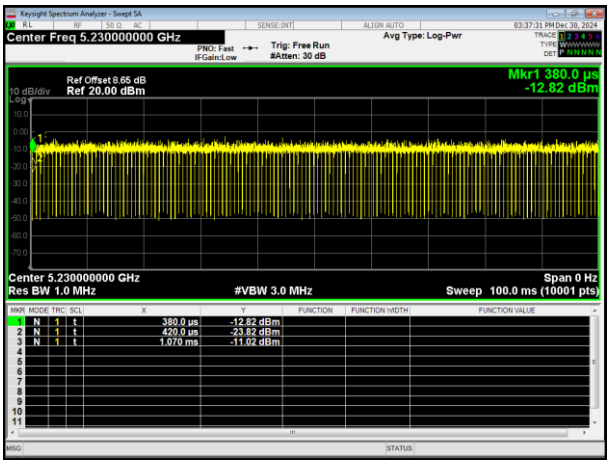
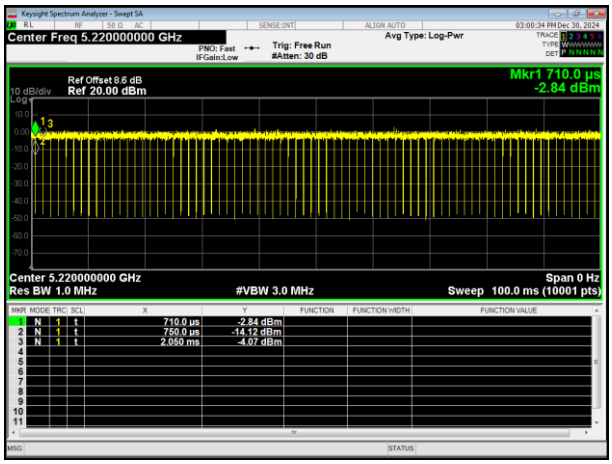
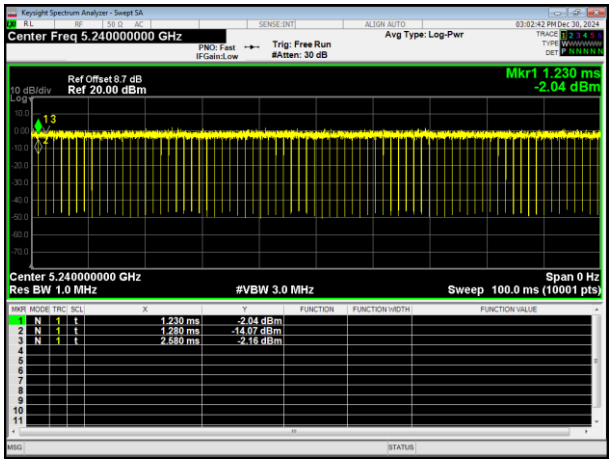
7.1.5. TEST RESULTS

		Test Channel	Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 1	802.11a	Low	81.82	0.87
		Middle	77.27	1.12
		High	81.82	0.87
	802.11ac HT20	Low	96.32	0.16
		Middle	97.06	0.13
		High	96.32	0.16
	802.11ac HT40	Low	92.86	0.32
		High	94.2	0.26
	802.11ax HT20	Low	97.04	0.13
		Middle	96.32	0.16
		High	97.06	0.13
	802.11ax HT40	Low	92.86	0.32
		High	94.2	0.26
	802.11n HT20	Low	97.01	0.13
		Middle	97.01	0.13
		High	96.3	0.16
	802.11n HT40	Low	94.2	0.26
		High	92.86	0.32

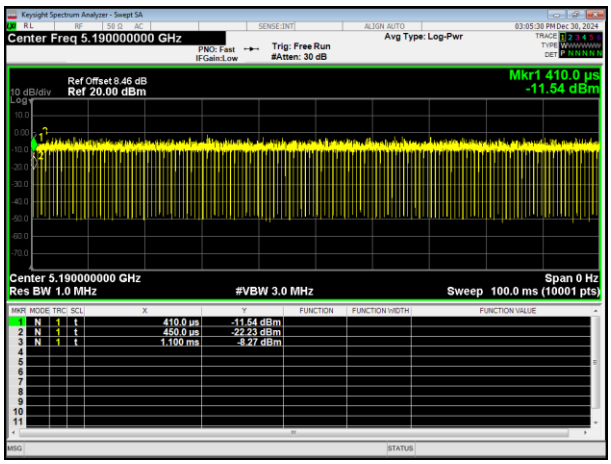
		Test Channel	Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 4	802.11a	Low	77.27	1.12
		Middle	81.82	0.87
		High	77.27	1.12
	802.11ac HT20	Low	97.04	0.13
		Middle	97.06	0.13
		High	96.32	0.16
	802.11ac HT40	Low	94.2	0.26
		High	94.2	0.26
	802.11ax HT20	Low	97.04	0.13
		Middle	96.32	0.16
		High	97.06	0.13
	802.11ax HT40	Low	92.86	0.32
		High	94.2	0.26
	802.11n HT20	Low	97.01	0.13
		Middle	97.01	0.13
		High	96.3	0.16
	802.11n HT40	Low	92.86	0.32
		High	94.2	0.26

802.11a	802.11ac HT20
	
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz

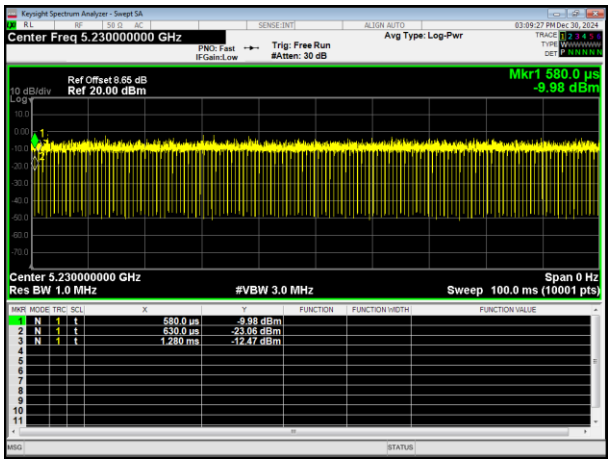
802.11ac HT40	802.11ax HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

802.11ax HT40	802.11n HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

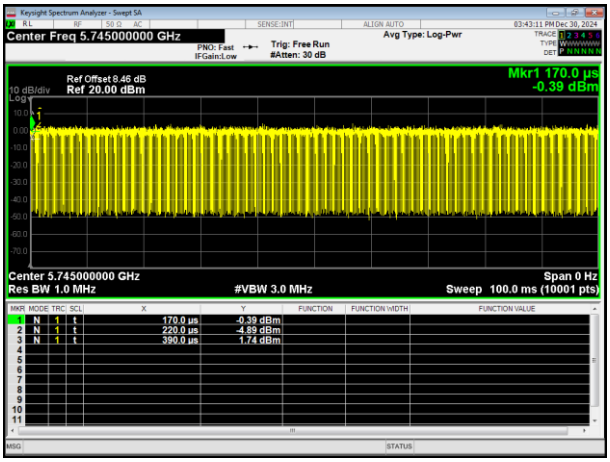
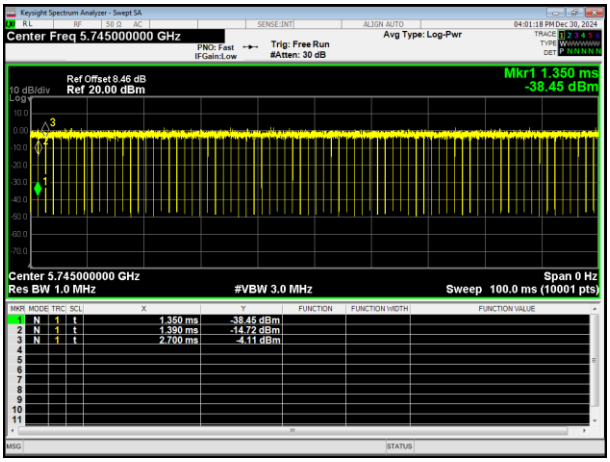
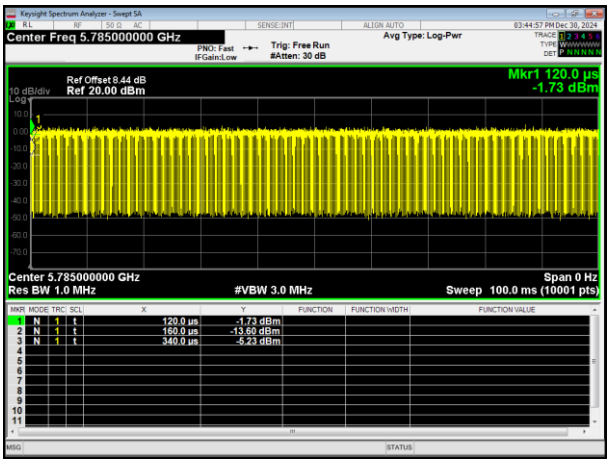
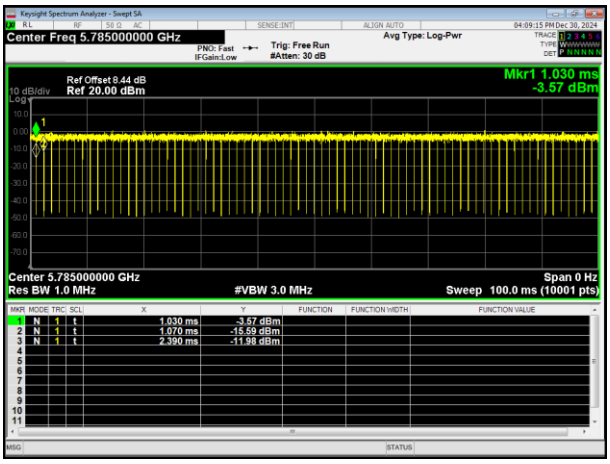
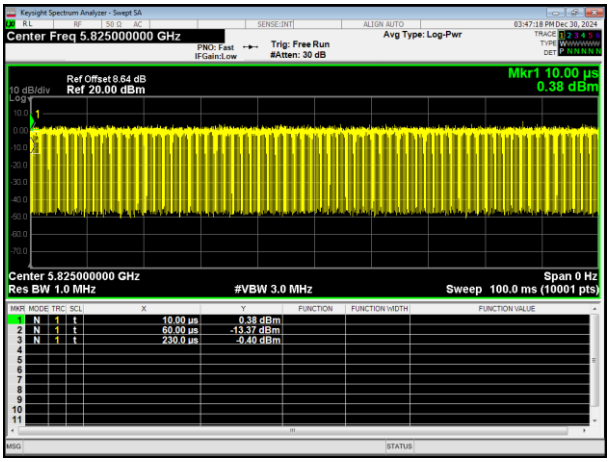
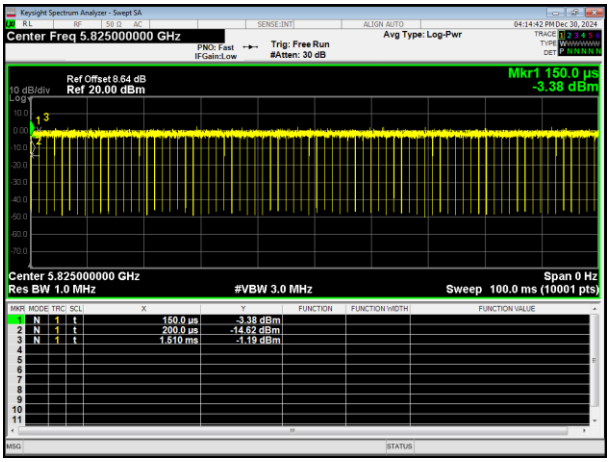
802.11n HT40

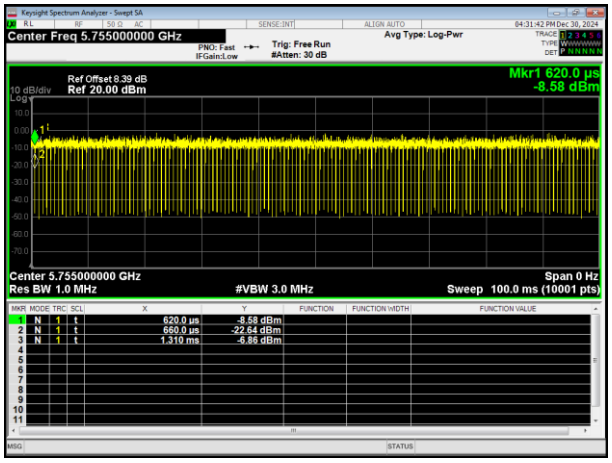
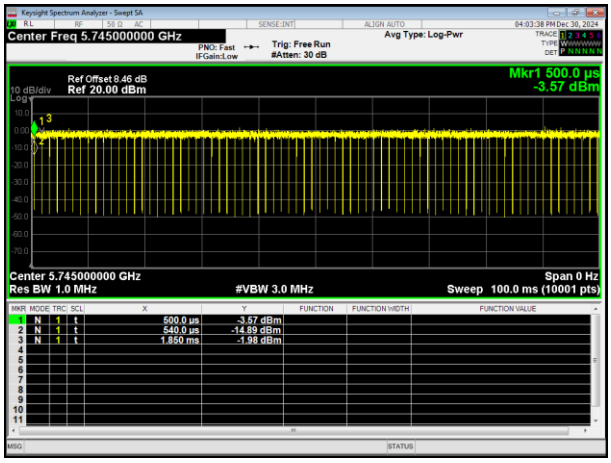
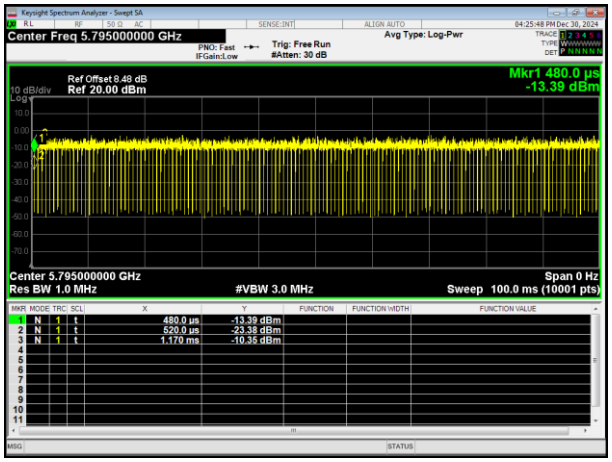
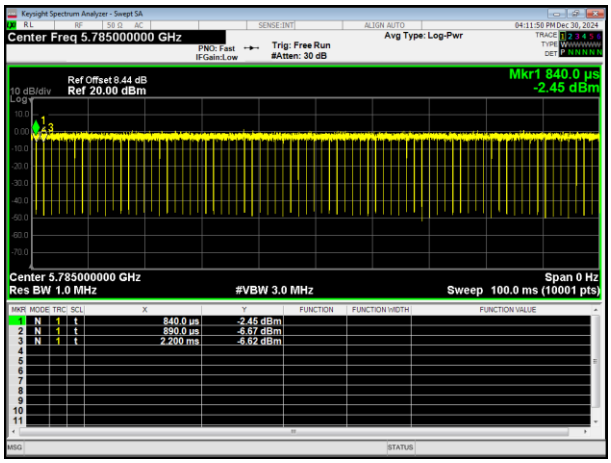
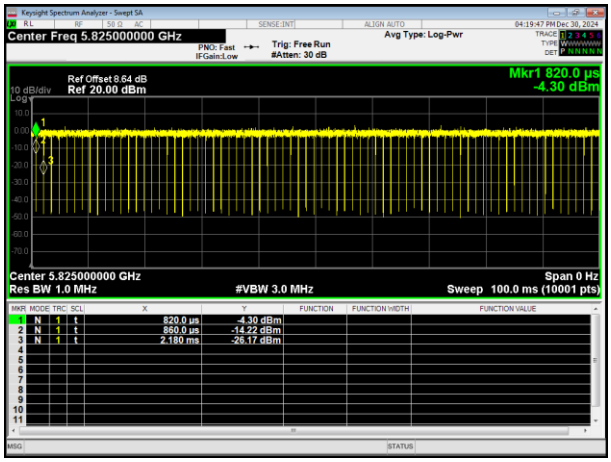


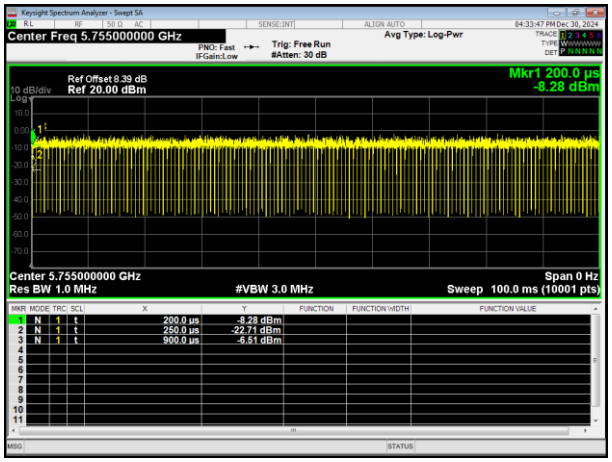
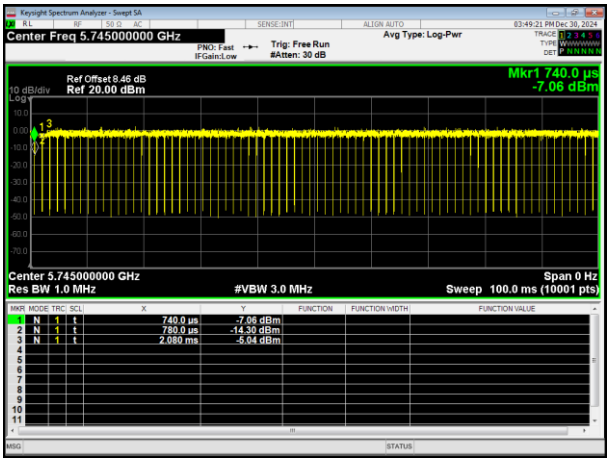
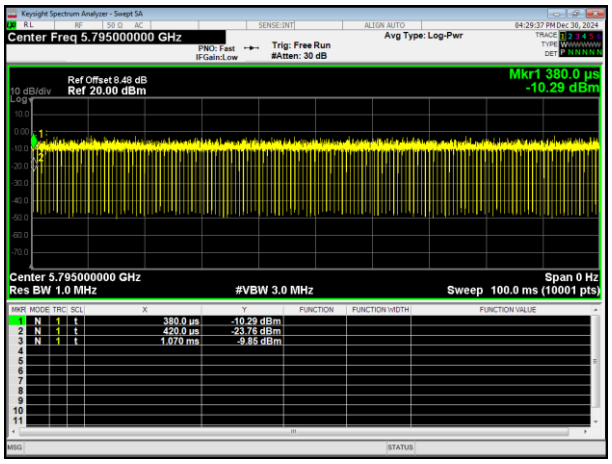
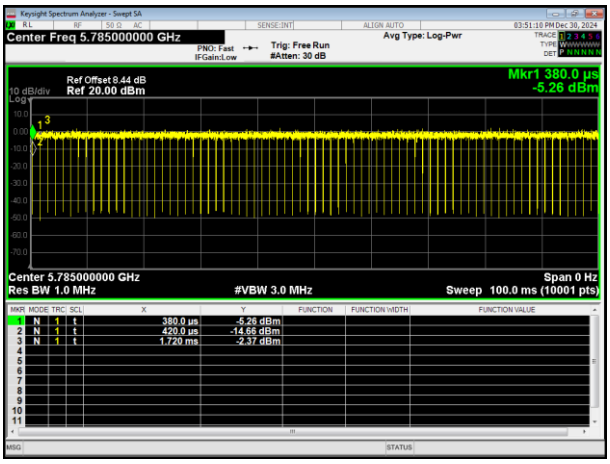
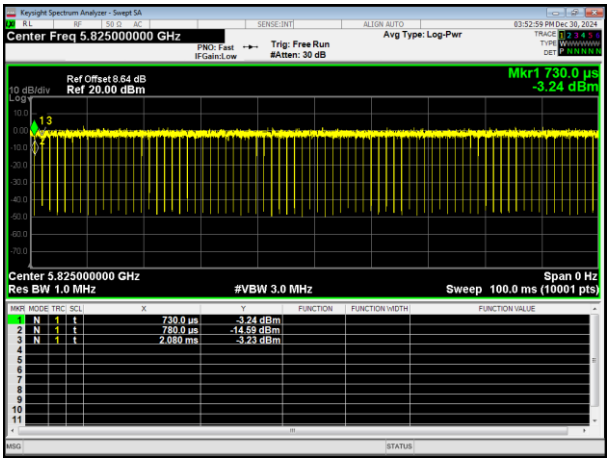
5190MHz



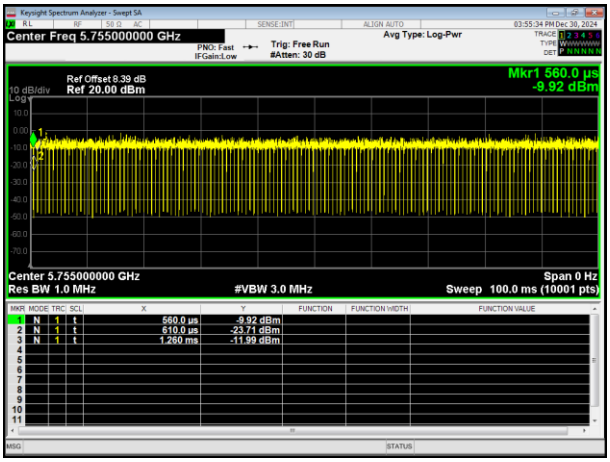
5230MHz

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

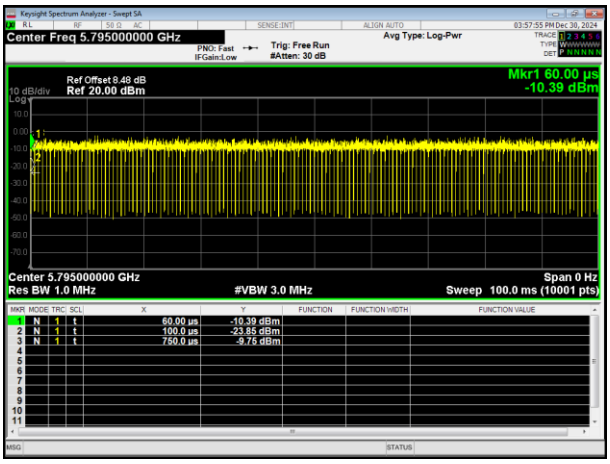
802.11ac HT40	802.11ax HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

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

802.11n HT40



5755MHz



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.

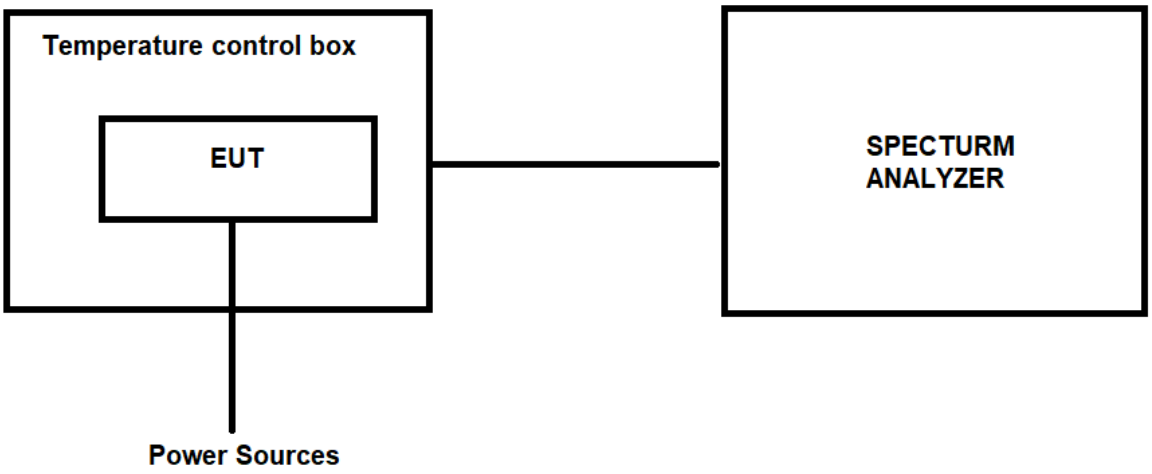
8.1.1. TEST PROCEDURE

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

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz) 802.11a	802.11n HT20	802.11ac HT20	Δ Frequency (PPM) 802.11a	802.11n HT20	802.11ac HT20
5.5V	-20℃	5180	5180.0024	5180.0026	5180.0023	0.4633	0.5019	0.4440
		5220	5220.0036	5220.0018	5220.0022	0.6897	0.3448	0.4215
		5240	5240.0028	5240.0023	5240.0011	0.5344	0.4389	0.2099
		5745	5745.0014	5745.0015	5745.0026	0.2437	0.2611	0.4526
		5785	5785.0021	5785.0022	5785.0022	0.3630	0.3803	0.3803
		5825	5825.0013	5825.0016	5825.0013	0.2232	0.2747	0.2232
4.5V		5180	5180.0052	5180.0014	5180.0024	1.0039	0.2703	0.4633
		5220	5220.0011	5220.0028	5220.0032	0.2107	0.5364	0.6130
		5240	5240.0026	5240.0026	5240.0023	0.4962	0.4962	0.4389
		5745	5745.0012	5745.0015	5745.0014	0.2089	0.2611	0.2437
		5785	5785.0045	5785.0013	5785.0022	0.7779	0.2247	0.3803
		5825	5825.0016	5825.0027	5825.0016	0.2747	0.4635	0.2747
5V	25℃	5180	5180.0024	5180.0016	5180.0024	0.4633	0.3089	0.4633
		5220	5220.0016	5220.0034	5220.0013	0.3065	0.6513	0.2490
		5240	5240.0051	5240.0015	5240.0027	0.9733	0.2863	0.5153
		5745	5745.0056	5745.0022	5745.0046	0.9748	0.3829	0.8007
		5785	5785.0034	5785.0011	5785.0022	0.5877	0.1901	0.3803
		5825	5825.0012	5825.0013	5825.0043	0.2060	0.2232	0.7382
5.5V	50℃	5180	5180.0015	5180.0034	5180.0024	0.2896	0.6564	0.4633
		5220	5220.0033	5220.0048	5220.0025	0.6322	0.9195	0.4789
		5240	5240.0055	5240.0026	5240.0026	1.0496	0.4962	0.4962
		5745	5745.0026	5745.0045	5745.0022	0.4526	0.7833	0.3829
		5785	5785.0024	5785.0022	5785.0026	0.4149	0.3803	0.4494
		5825	5825.0045	5825.0046	5825.0022	0.7725	0.7897	0.3777
4.5V	50℃	5180	5180.0033	5180.0024	5180.0021	0.6371	0.4633	0.4054
		5220	5220.0058	5220.0018	5220.0023	1.1111	0.3448	0.4406
		5240	5240.0016	5240.0022	5240.0045	0.3053	0.4198	0.8588
		5745	5745.0015	5745.0023	5745.0026	0.2611	0.4003	0.4526
		5785	5785.0053	5785.0024	5785.0024	0.9162	0.4149	0.4149
		5825	5825.0034	5825.0037	5825.0042	0.5837	0.6352	0.7210

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)		Δ Frequency (PPM)	
			802.11n HT40	802.11ac HT40	802.11n HT40	802.11ac HT40
5.5V	-20℃	5190	5190.0023	5190.0022	0.4432	0.4239
		5230	5230.0034	5230.0033	0.6501	0.6310
		5755	5755.0022	5755.0012	0.3823	0.2085
		5795	5795.0051	5795.0023	0.8801	0.3969
4.5V		5190	5190.0013	5190.0021	0.2505	0.4046
		5230	5230.0044	5230.0043	0.8413	0.8222
		5755	5755.0032	5755.0022	0.5560	0.3823
		5795	5795.0046	5795.0043	0.7938	0.7420
5V	25℃	5190	5190.0022	5190.0021	0.4239	0.4046
		5230	5230.0043	5230.0033	0.8222	0.6310
		5755	5755.0022	5755.0012	0.3823	0.2085
		5795	5795.0013	5795.0031	0.2243	0.5349
5.5V	50℃	5190	5190.0012	5190.0023	0.2312	0.4432
		5230	5230.0011	5230.0014	0.2103	0.2677
		5755	5755.0033	5755.0026	0.5734	0.4518
		5795	5795.0024	5795.0032	0.4142	0.5522
4.5V	50℃	5190	5190.0022	5190.0011	0.4239	0.2119
		5230	5230.0013	5230.0013	0.2486	0.2486
		5755	5755.0024	5755.0012	0.4170	0.2085
		5795	5795.0013	5795.0013	0.2243	0.2243

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz) 802.11ax	Δ Frequency(PPM) 802.11ax HT20
5.5V	-20℃	5180	5180.0012	0.2317
		5220	5220.0033	0.6322
		5240	5240.0022	0.4198
		5745	5745.0011	0.1915
		5785	5785.0023	0.3976
		5825	5825.0014	0.2403
4.5V		5180	5180.0053	1.0232
		5220	5220.0015	0.2874
		5240	5240.0023	0.4389
		5745	5745.0011	0.1915
		5785	5785.0043	0.7433
		5825	5825.0016	0.2747
5V	25℃	5180	5180.0023	0.4440
		5220	5220.0012	0.2299
		5240	5240.0053	1.0115
		5745	5745.0051	0.8877
		5785	5785.0033	0.5704
		5825	5825.0014	0.2403
5.5V	50℃	5180	5180.0011	0.2124
		5220	5220.0033	0.6322
		5240	5240.0054	1.0305
		5745	5745.0023	0.4003
		5785	5785.0025	0.4322
		5825	5825.0043	0.7382
4.5V	50℃	5180	5180.0034	0.6564
		5220	5220.0053	1.0153
		5240	5240.0011	0.2099
		5745	5745.0013	0.2263
		5785	5785.0054	0.9334
		5825	5825.0037	0.6352

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)	Δ Frequency(PPM)
			802.11ax HT40	802.11ax HT40
5.5V	-20℃	5190	5190.0021	0.4046
		5230	5230.0033	0.6310
		5755	5755.0024	0.4170
		5795	5795.0056	0.9664
4.5V		5190	5190.0012	0.2312
		5230	5230.0043	0.8222
		5755	5755.0031	0.5387
		5795	5795.0043	0.7420
5V	25℃	5190	5190.0022	0.4239
		5230	5230.0046	0.8795
		5755	5755.0023	0.3997
		5795	5795.0015	0.2588
5.5V	50℃	5190	5190.0016	0.3083
		5230	5230.0012	0.2294
		5755	5755.0036	0.6255
		5795	5795.0021	0.3624
4.5V	50℃	5190	5190.0023	0.4432
		5230	5230.0012	0.2294
		5755	5755.0023	0.3997
		5795	5795.0014	0.2416

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 Internal 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** ※※※※※