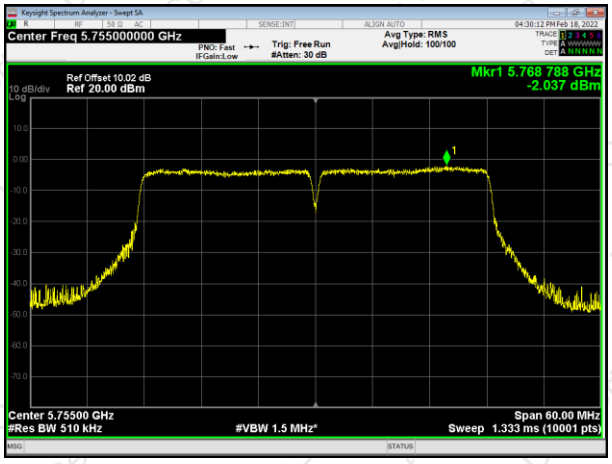
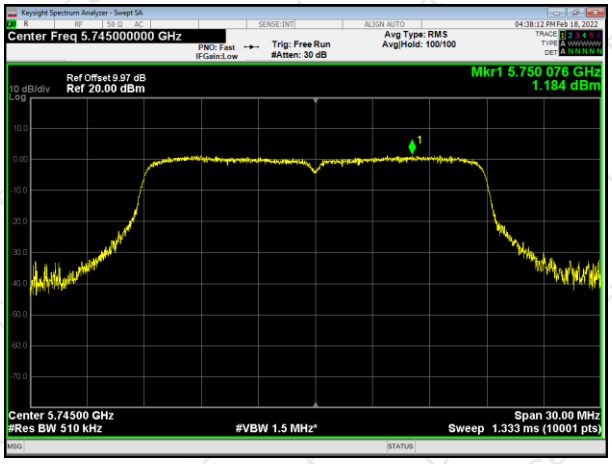
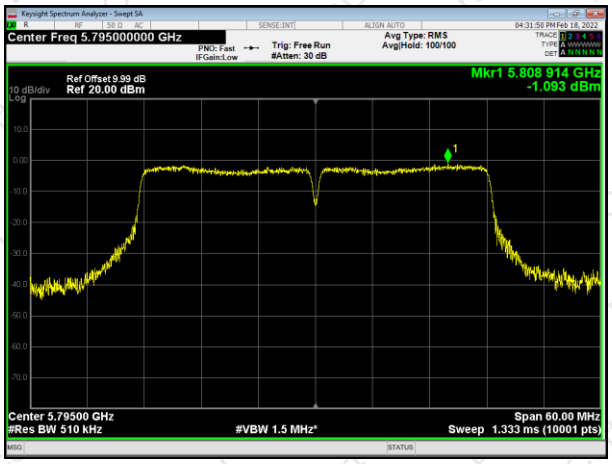
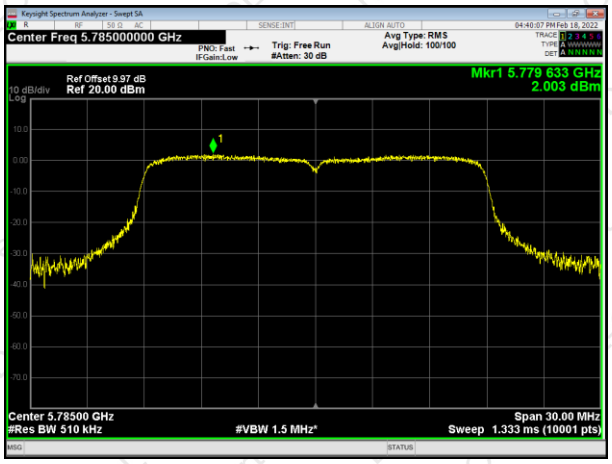
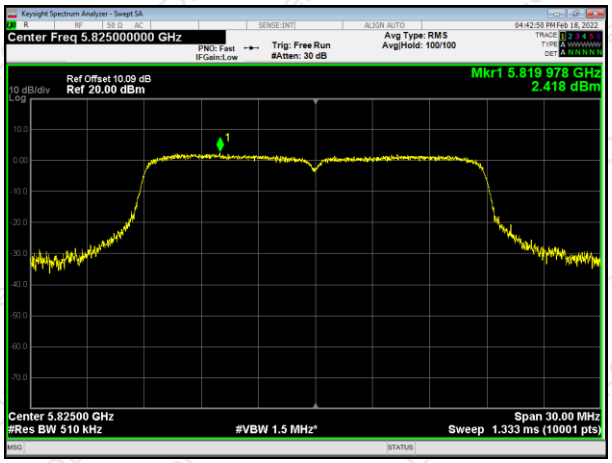
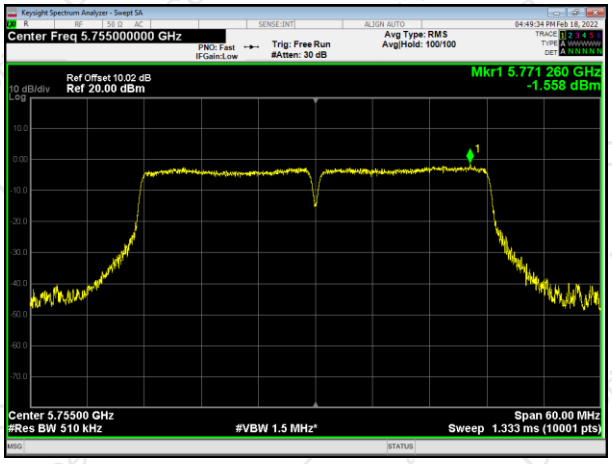
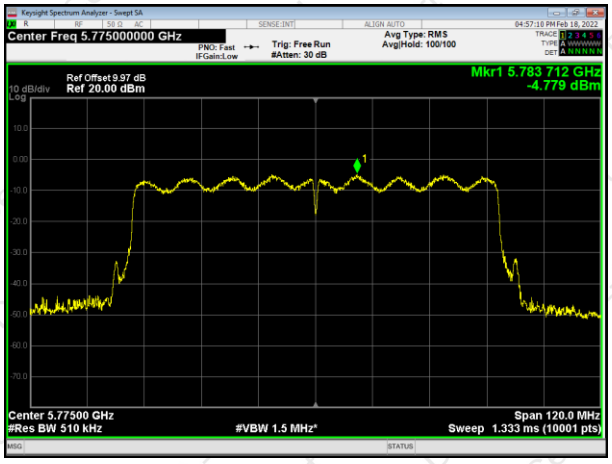
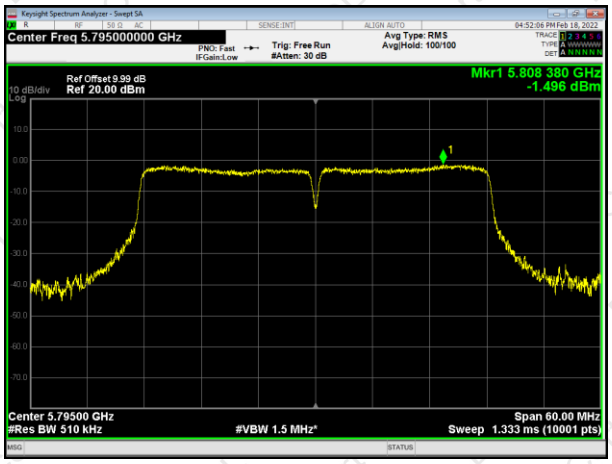
802.11n HT40	802.11ac HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11ac HT40	802.11ac HT80
	
5755MHz	5775MHz
	
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

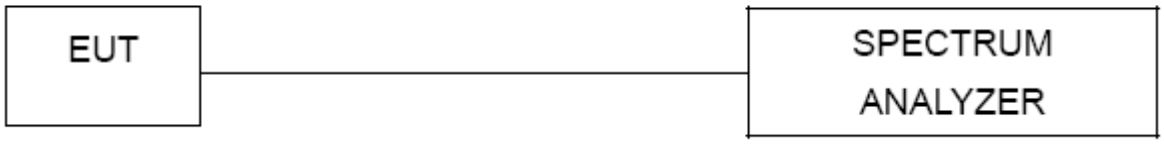
26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	>RBW
Span	30MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

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



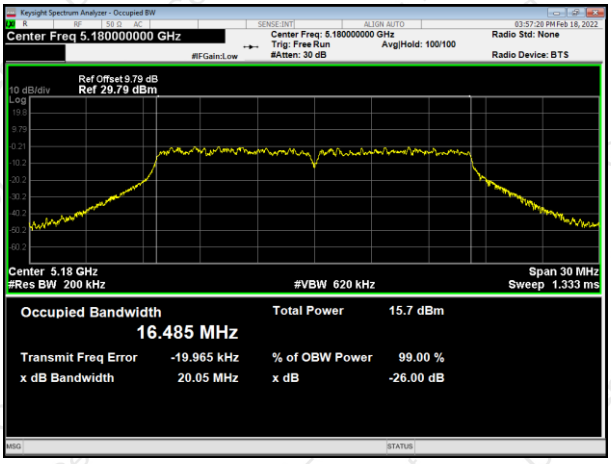
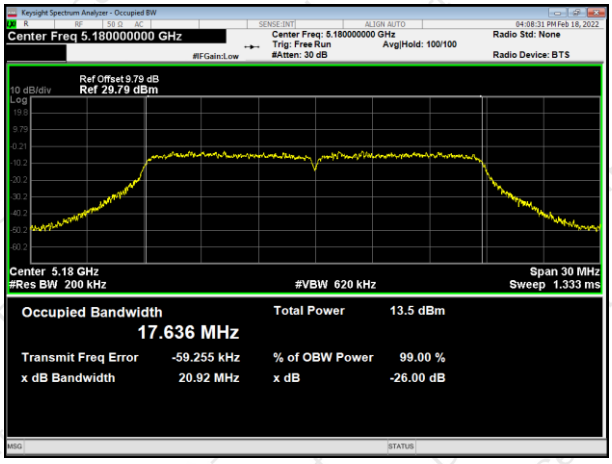
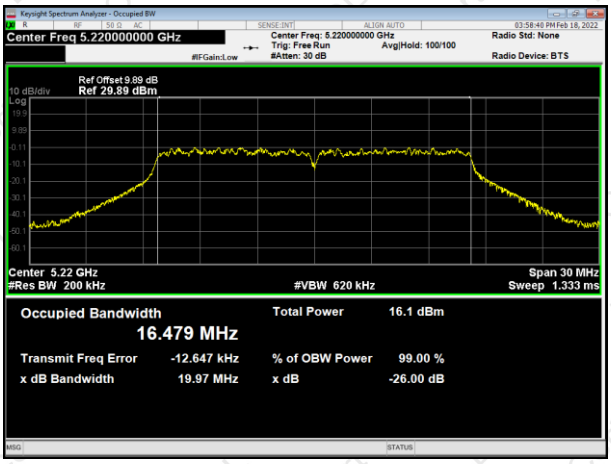
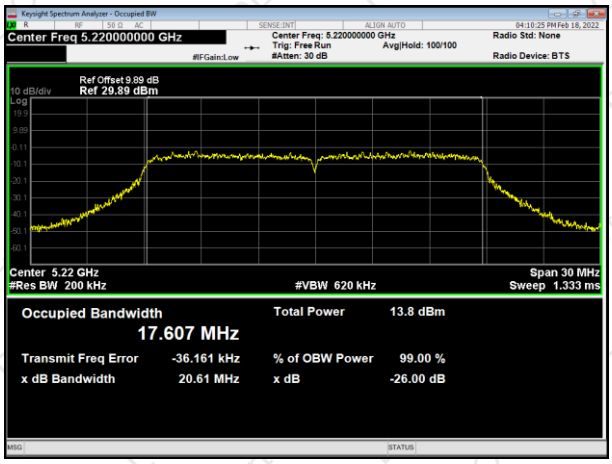
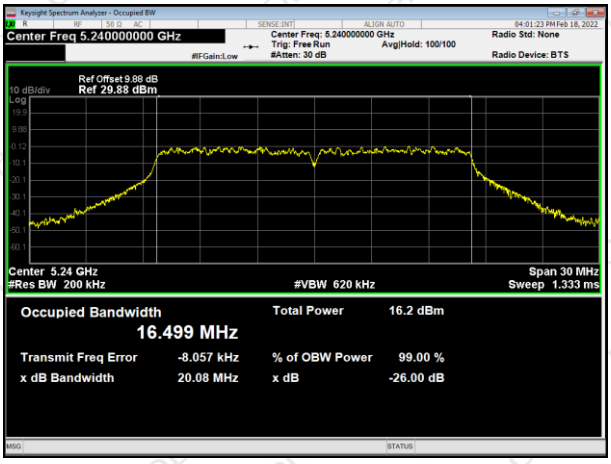
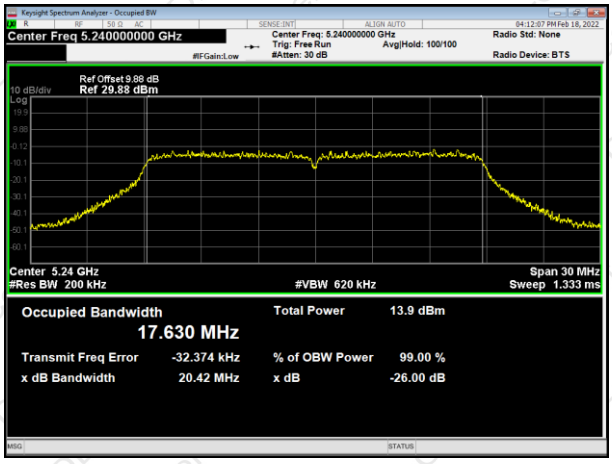
6.1.4 EUT OPERATION CONDITIONS

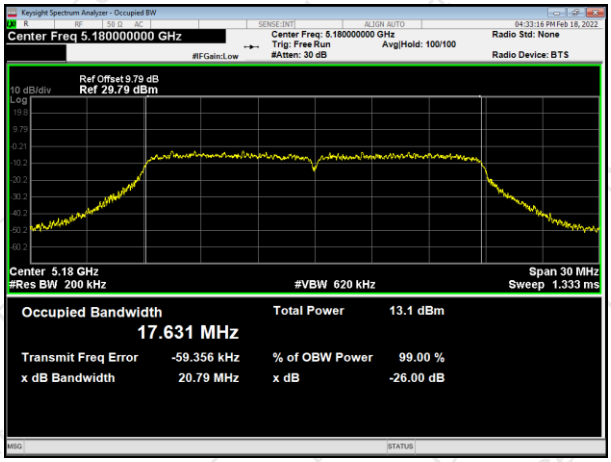
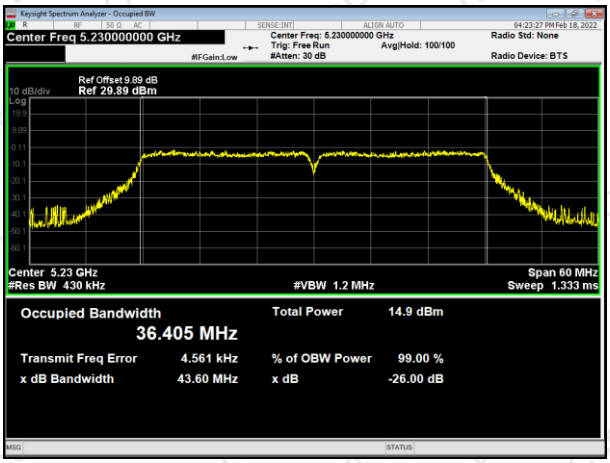
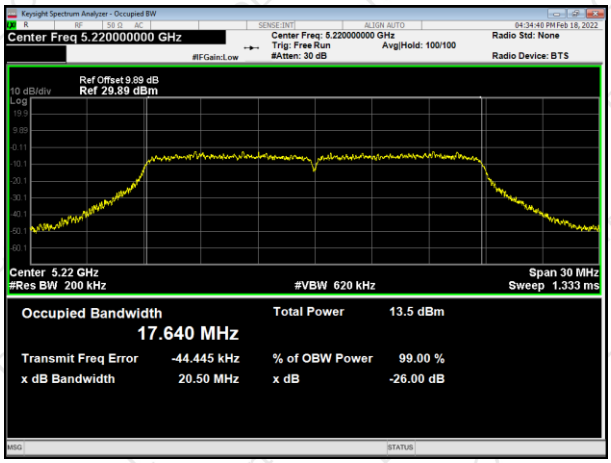
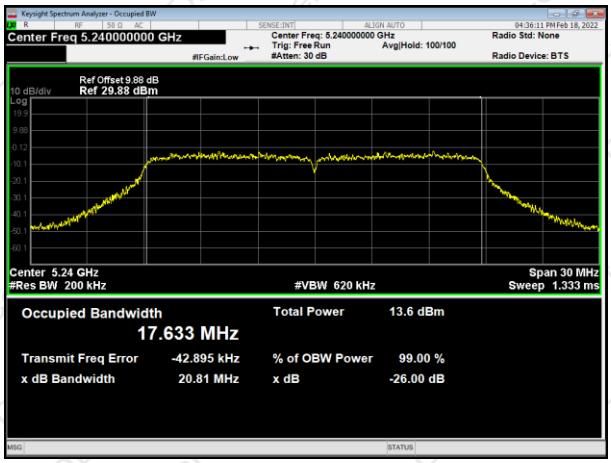
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

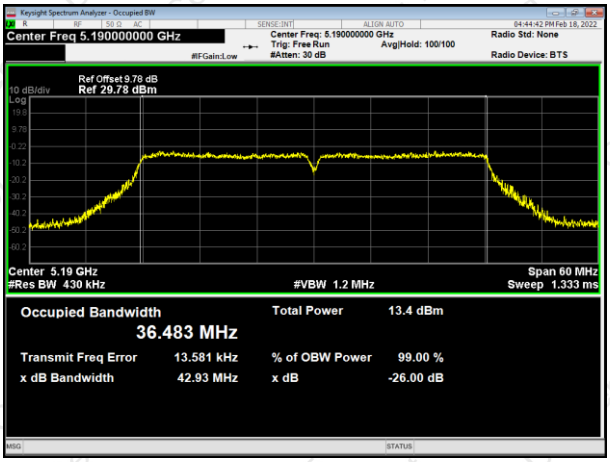
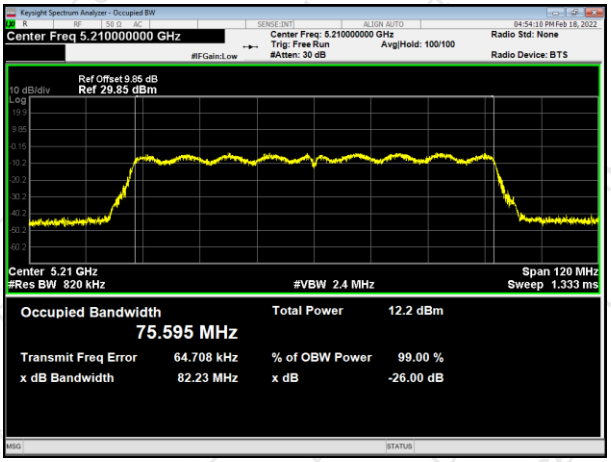
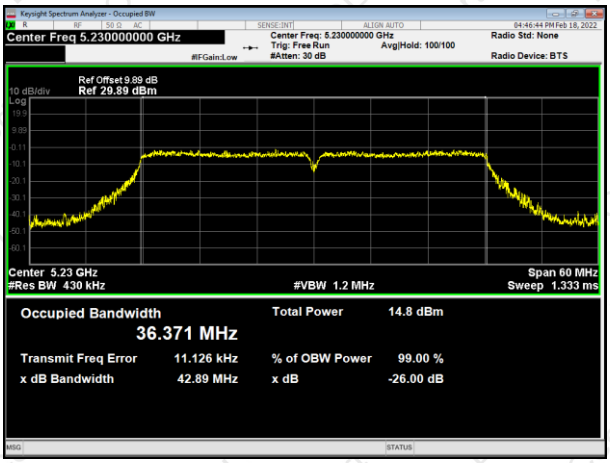
6.1.5 TEST RESULTS

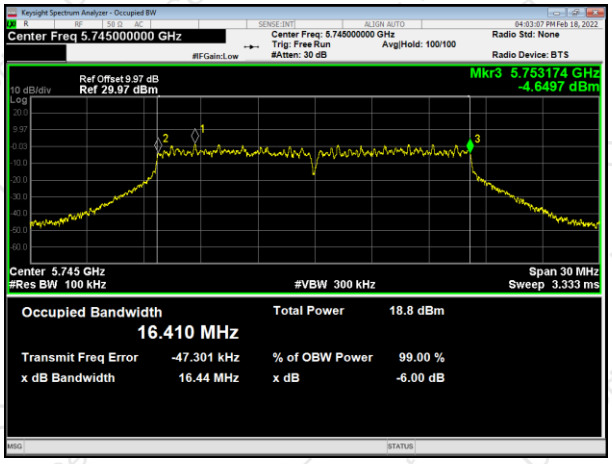
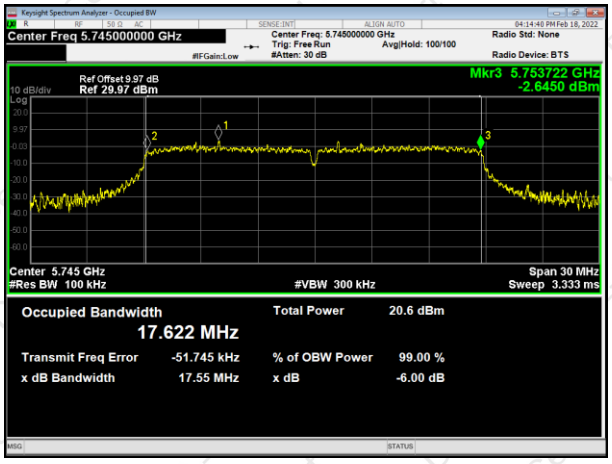
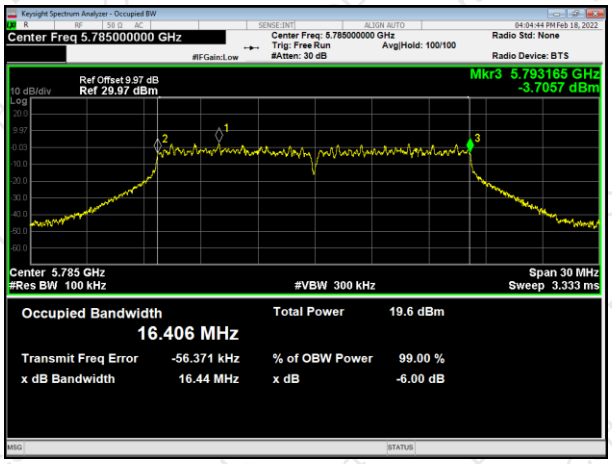
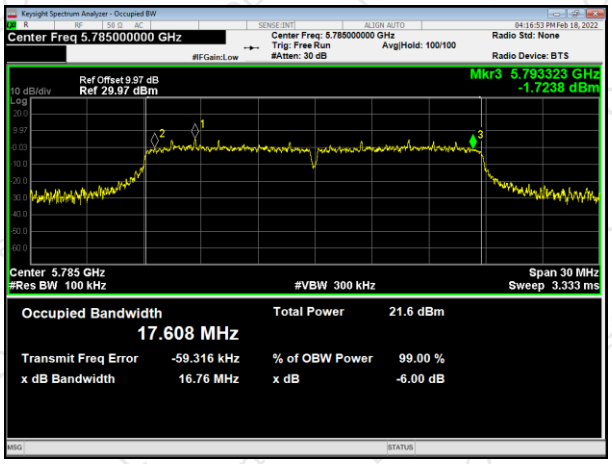
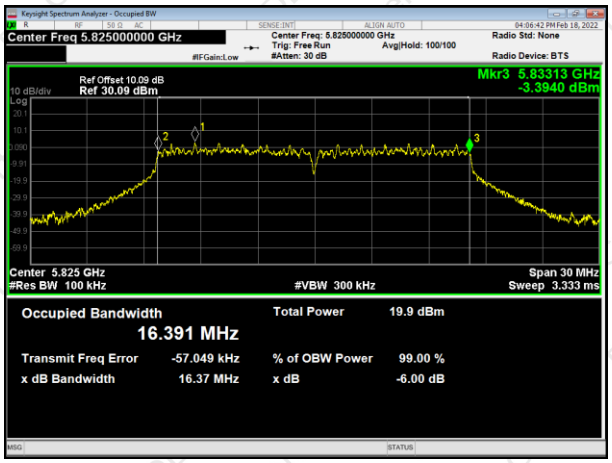
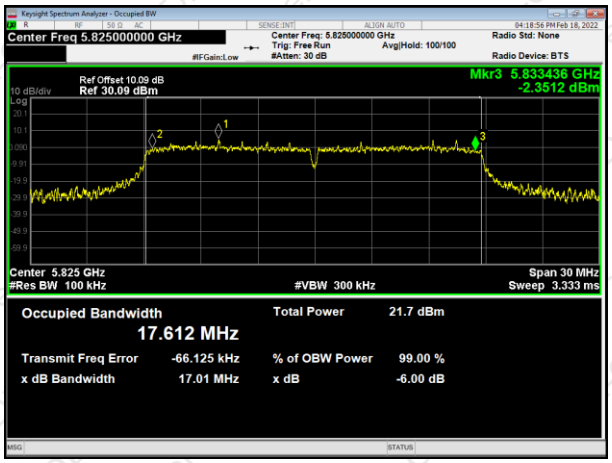
		Test Channel	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Result
Band 1	802.11a	Low	20.05	16.485	Pass
		Middle	19.97	16.479	Pass
		High	20.08	16.499	Pass
	802.11n HT20	Low	20.92	17.636	Pass
		Middle	20.61	17.607	Pass
		High	20.42	17.630	Pass
	802.11n HT40	Low	43.08	36.449	Pass
		High	43.60	36.405	Pass
	802.11ac HT20	Low	20.79	17.631	Pass
		Middle	20.50	17.640	Pass
		High	20.81	17.633	Pass
	802.11ac HT40	Low	42.93	36.483	Pass
		High	42.89	36.371	Pass
	802.11ac HT80	/	82.23	75.595	Pass

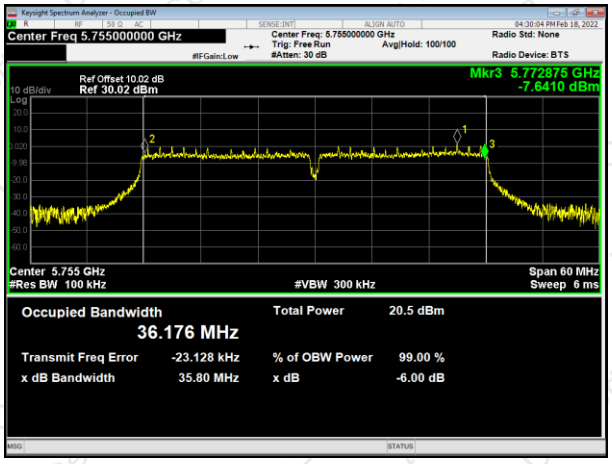
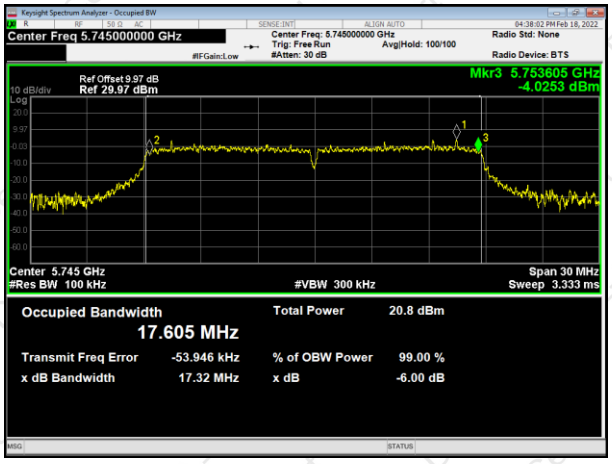
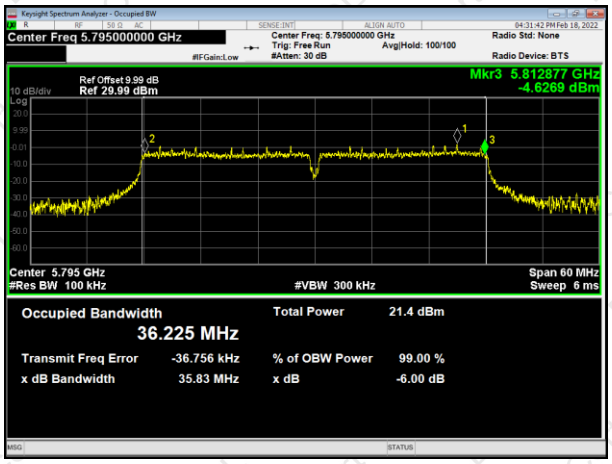
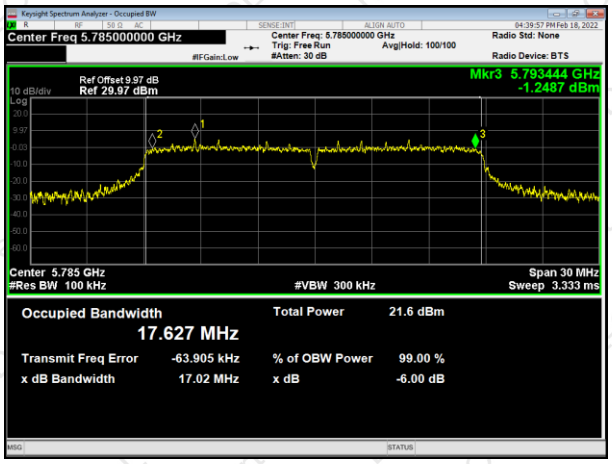
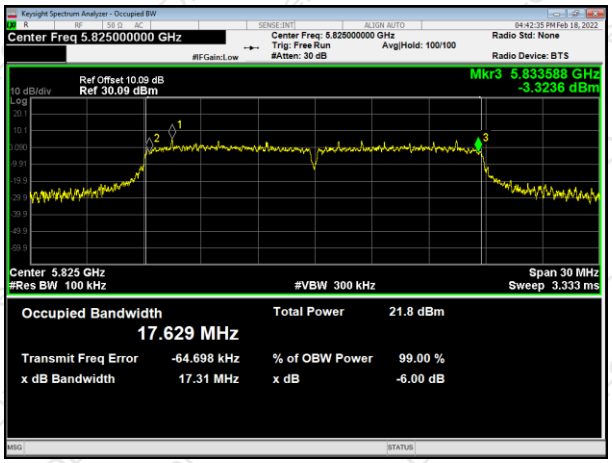
		Test Channel	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Result
Band 4	802.11a	Low	16.44	16.495	>0.5	Pass
		Middle	16.44	16.498	>0.5	Pass
		High	16.37	16.478	>0.5	Pass
	802.11n HT20	Low	17.55	17.673	>0.5	Pass
		Middle	16.76	17.704	>0.5	Pass
		High	17.01	17.695	>0.5	Pass
	802.11n HT40	Low	35.80	36.427	>0.5	Pass
		High	35.83	36.496	>0.5	Pass
	802.11ac HT20	Low	17.32	17.670	>0.5	Pass
		Middle	17.02	17.688	>0.5	Pass
		High	17.31	17.719	>0.5	Pass
	802.11ac HT40	Low	36.03	36.429	>0.5	Pass
		High	36.26	36.502	>0.5	Pass
	802.11ac HT80	/	75.15	75.512	>0.5	Pass

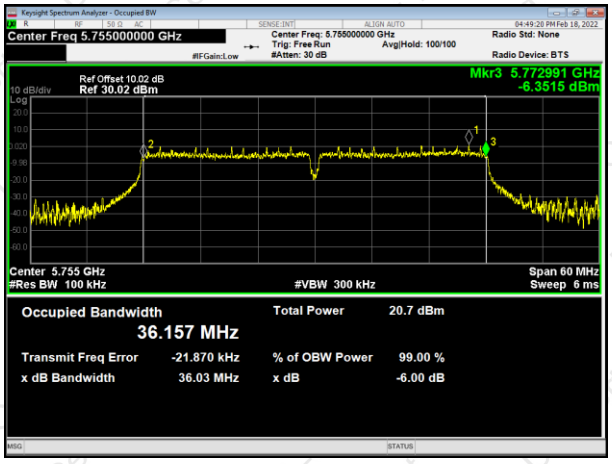
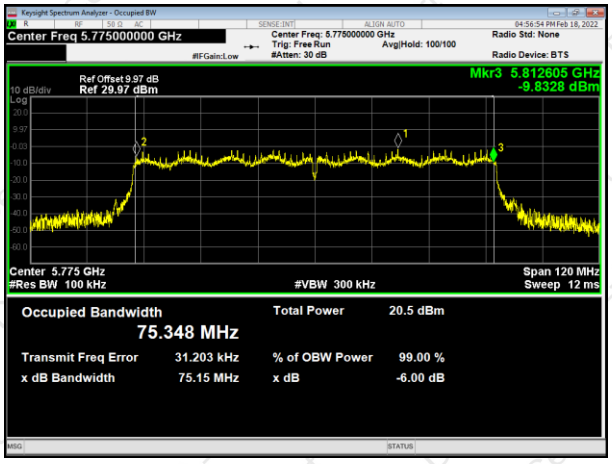
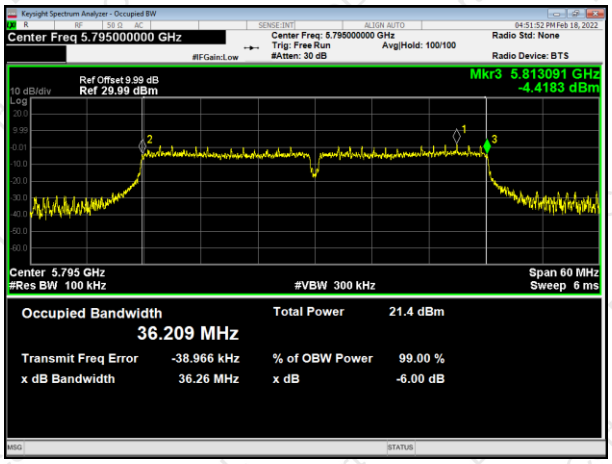
802.11a	802.11n HT20
	
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz

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

802.11ac HT40	802.11ac HT80
	
5190MHz	5210
	
5230MHz	

802.11a	802.11n HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

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

802.11ac 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.

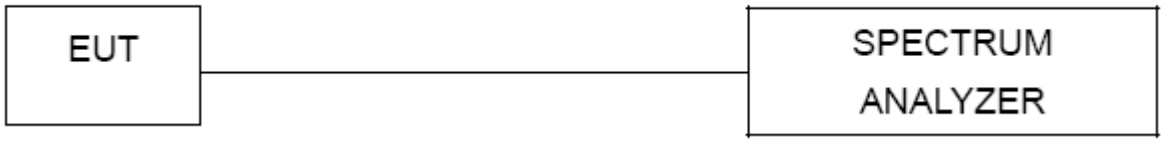
7.1.1 TEST PROCEDURE

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



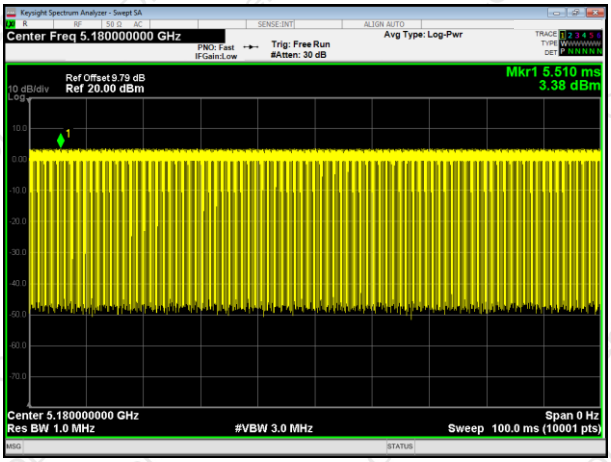
7.1.4 EUT OPERATION CONDITIONS

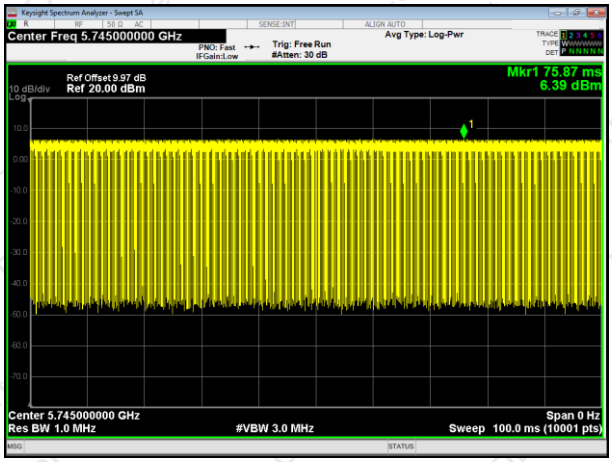
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 TEST RESULTS

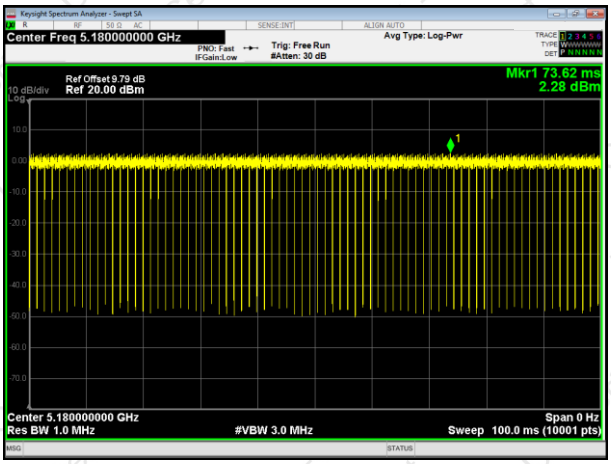
Operation Mode		Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 1	802.11a	80.34	0.95
	802.11n(HT20)	96.96	0.13
	802.11n(HT40)	94.16	0.26
	802.11ac(HT20)	96.9	0.14
	802.11ac(HT40)	94.03	0.27
	802.11ac(HT80)	88.76	0.52
Band 4	802.11a	82.21	0.85
	802.11n(HT20)	97	0.13
	802.11n(HT40)	93.85	0.28
	802.11ac(HT20)	96.92	0.14
	802.11ac(HT40)	94.05	0.27
	802.11ac(HT80)	88.87	0.51

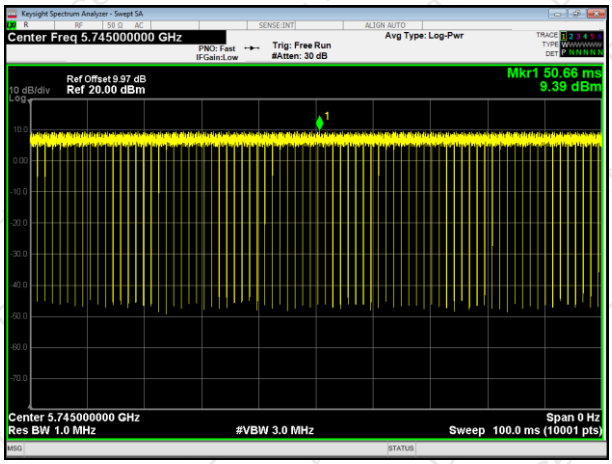
802.11a



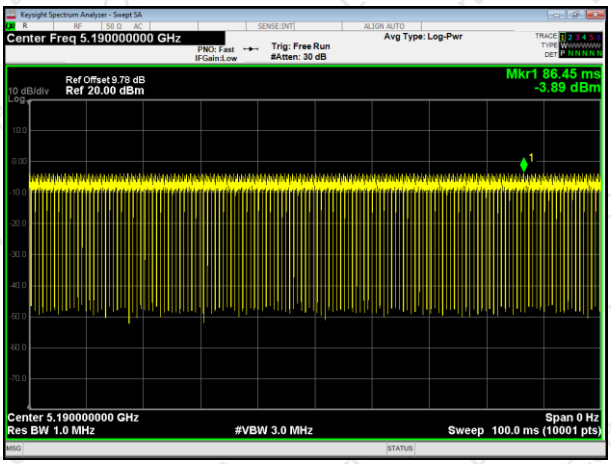


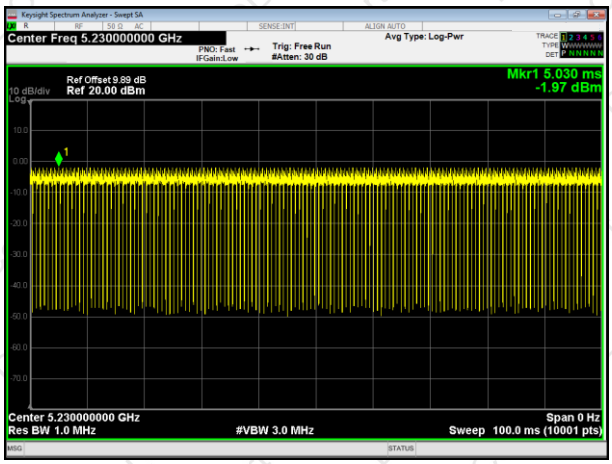
802.11n HT20



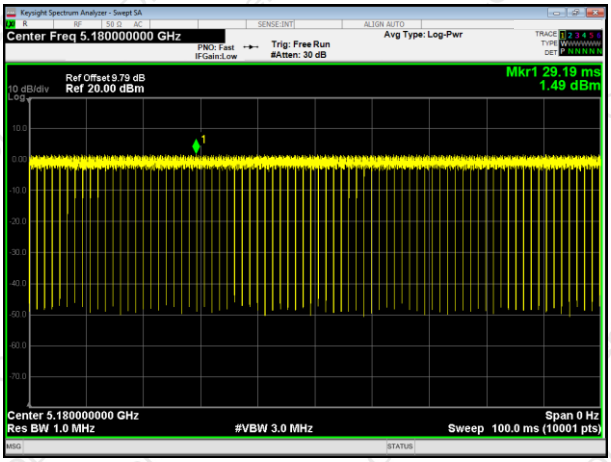


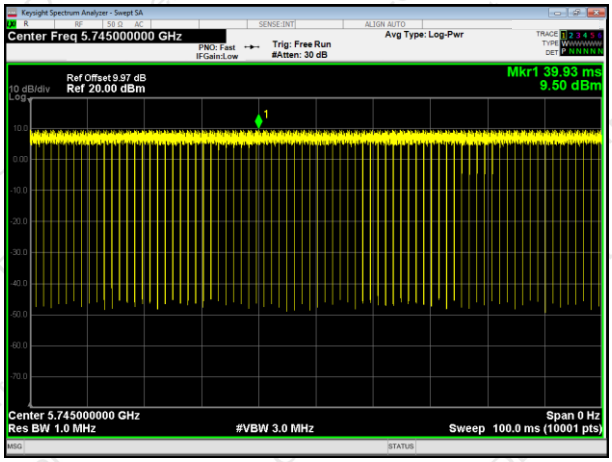
802.11n HT40



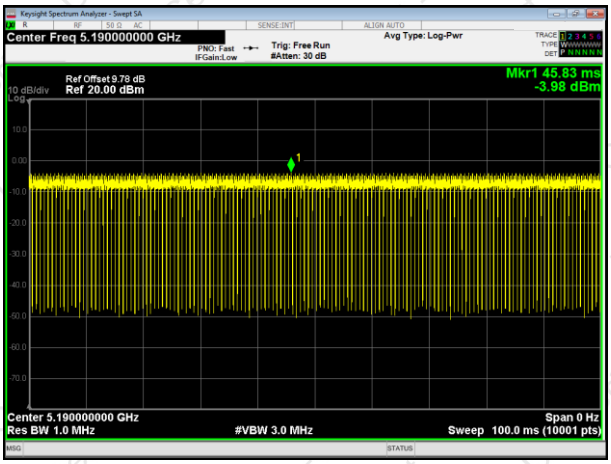


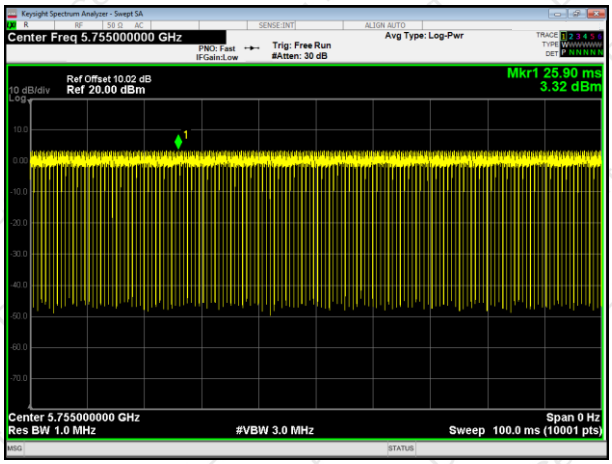
802.11ac HT20



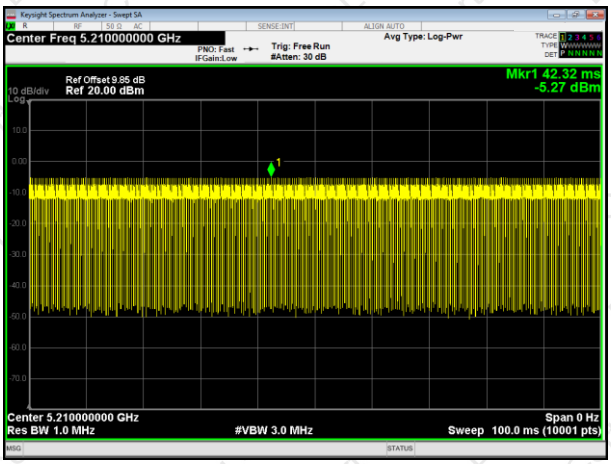


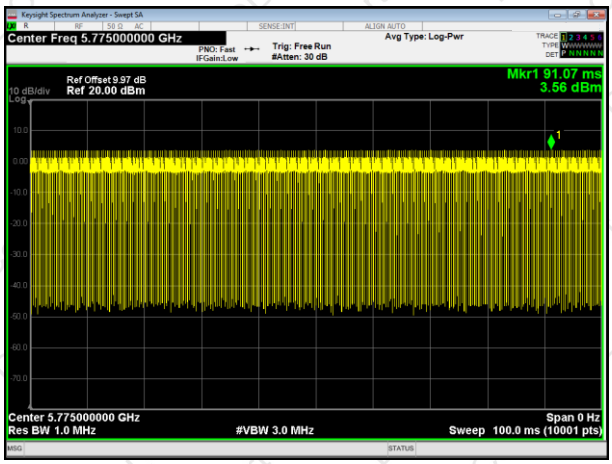
802.11ac HT40





802.11ac HT80





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.

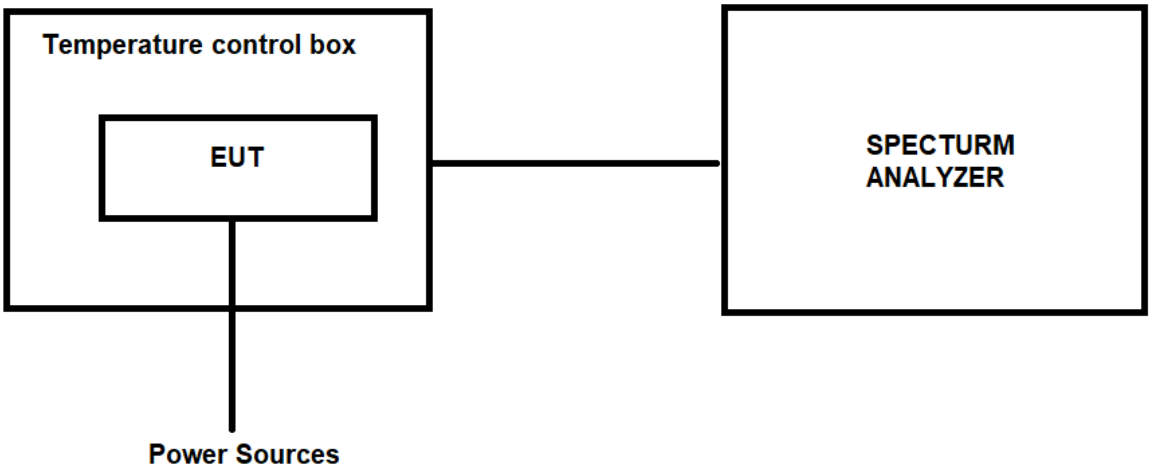
8.1.1 TEST PROCEDURE

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)			Δ Frequency (MHz)		
			802.11a	802.11n HT20	802.11ac HT20	802.11a	802.11n HT20	802.11ac HT20
132V	-20℃	5180.0357	5180.0347	5180.0347	-0.0357	-0.0347	-0.0347	5180.0357
		5220.0355	5220.0363	5220.0363	-0.0355	-0.0363	-0.0363	5220.0355
		5240.0214	5240.0214	5240.0245	-0.0214	-0.0214	-0.0245	5240.0214
		5745.0363	5745.0355	5745.0396	-0.0363	-0.0355	-0.0396	5745.0363
		5785.0318	5785.0336	5785.0385	-0.0318	-0.0336	-0.0385	5785.0318
		5825.0385	5825.0341	5825.0326	-0.0385	-0.0341	-0.0326	5825.0385
108V		5180.0263	5180.0258	5180.0252	-0.0263	-0.0258	-0.0252	5180.0263
		5220.0317	5220.0366	5220.0344	-0.0317	-0.0366	-0.0344	5220.0317
		5240.0256	5240.0241	5240.0247	-0.0256	-0.0241	-0.0247	5240.0256
		5745.0247	5745.0285	5745.0257	-0.0247	-0.0285	-0.0257	5745.0247
		5785.0333	5785.0347	5785.0366	-0.0333	-0.0347	-0.0366	5785.0333
		5825.0449	5825.0463	5825.0485	-0.0449	-0.0463	-0.0485	5825.0449
120V	25℃	5180.0541	5180.0555	5180.0569	-0.0541	-0.0555	-0.0569	5180.0541
		5220.0264	5220.0236	5220.0255	-0.0264	-0.0236	-0.0255	5220.0264
		5240.0363	5240.0341	5240.0347	-0.0363	-0.0341	-0.0347	5240.0363
		5745.0345	5745.0352	5745.0369	-0.0345	-0.0352	-0.0369	5745.0345
		5785.0485	5785.0433	5785.0478	-0.0485	-0.0433	-0.0478	5785.0485
		5825.0228	5825.0258	5825.0296	-0.0228	-0.0258	-0.0296	5825.0228
132V	50℃	5180.0347	5180.0374	5180.0341	-0.0347	-0.0374	-0.0341	5180.0347
		5220.0209	5220.0225	5220.0225	-0.0209	-0.0225	-0.0225	5220.0209
		5240.0336	5240.0363	5240.0347	-0.0336	-0.0363	-0.0347	5240.0336
		5745.0647	5745.0647	5745.0611	-0.0647	-0.0647	-0.0611	5745.0647
		5785.0427	5785.0411	5785.0447	-0.0427	-0.0411	-0.0447	5785.0427
		5825.0664	5825.0665	5825.0669	-0.0664	-0.0665	-0.0669	5825.0664
108V	50℃	5180.0314	5180.0347	5180.0347	-0.0314	-0.0347	-0.0347	5180.0314
		5220.0233	5220.0252	5220.0285	-0.0233	-0.0252	-0.0285	5220.0233
		5240.0357	5240.0317	5240.0314	-0.0357	-0.0317	-0.0314	5240.0357
		5745.0466	5745.0447	5745.0436	-0.0466	-0.0447	-0.0436	5745.0466
		5785.0227	5785.0256	5785.0244	-0.0227	-0.0256	-0.0244	5785.0227
		5825.0763	5825.0747	5825.0758	-0.0763	-0.0747	-0.0758	5825.0763

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℃	5190.000	5190.0214	5190.0247	-0.0214	-0.0247
		5230.000	5230.0355	5230.0363	-0.0355	-0.0363
		5755.000	5755.0585	5755.0558	-0.0585	-0.0558
		5795.000	5795.0617	5795.0615	-0.0617	-0.0615
108V		5190.000	5190.0263	5190.0236	-0.0263	-0.0236
		5230.000	5230.0328	5230.0347	-0.0328	-0.0347
		5755.000	5755.0246	5755.0652	-0.0246	-0.0652
		5795.000	5795.0439	5795.0486	-0.0439	-0.0486
120V	25℃	5190.000	5190.0247	5190.0285	-0.0247	-0.0285
		5230.000	5230.0666	5230.0657	-0.0666	-0.0657
		5755.000	5755.0217	5755.0263	-0.0217	-0.0263
		5795.000	5795.0563	5795.0528	-0.0563	-0.0528
132V	50℃	5190.000	5190.0647	5190.0644	-0.0647	-0.0644
		5230.000	5230.0559	5230.0585	-0.0559	-0.0585
		5755.000	5755.0463	5755.0441	-0.0463	-0.0441
		5795.000	5795.0317	5795.0339	-0.0317	-0.0339
108V	50℃	5190.000	5190.0549	5190.0552	-0.0549	-0.0552
		5230.000	5230.0358	5230.0341	-0.0358	-0.0341
		5755.000	5755.0314	5755.0333	-0.0314	-0.0333
		5795.000	5795.0466	5795.0447	-0.0466	-0.0447

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)	Δ Frequency (MHz)
			802.11ac HT80	802.11ac HT80
132V	-20℃	5210.000	5210.0125	-0.0125
		5775.000	5775.0146	-0.0146
108V		5210.000	5210.0285	-0.0285
		5775.000	5775.0346	-0.0346
230V	25℃	5210.000	5210.0496	-0.0496
		5775.000	5775.0455	-0.0455
132V	50℃	5210.000	5210.0338	-0.0338
		5775.000	5775.0274	-0.0274
108V	50℃	5210.000	5210.0349	-0.0349
		5775.000	5775.0552	-0.0552

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

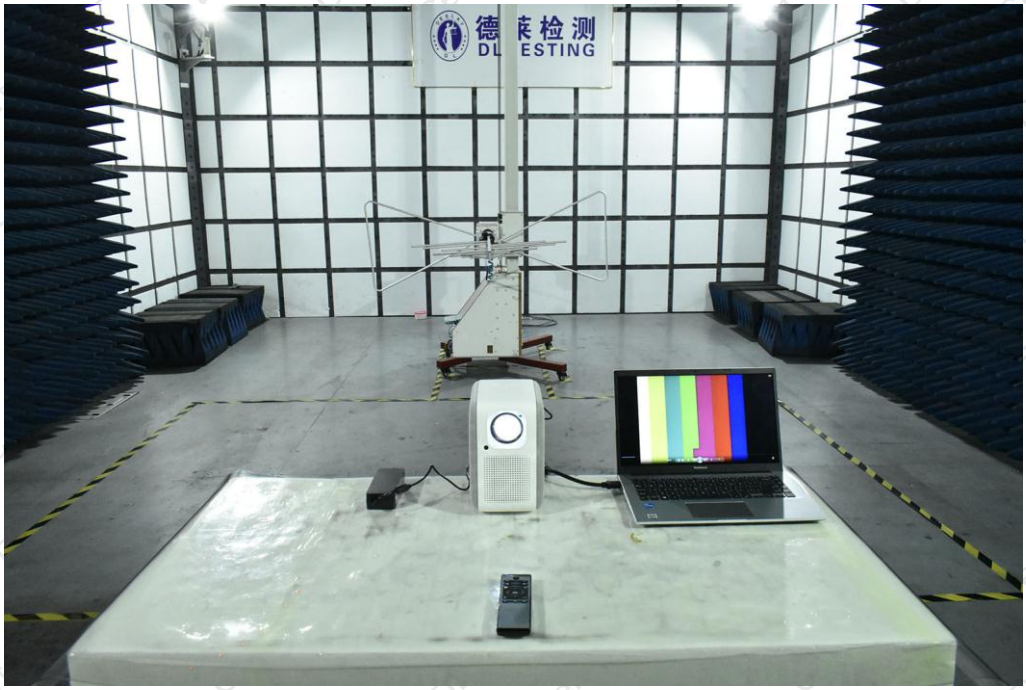
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

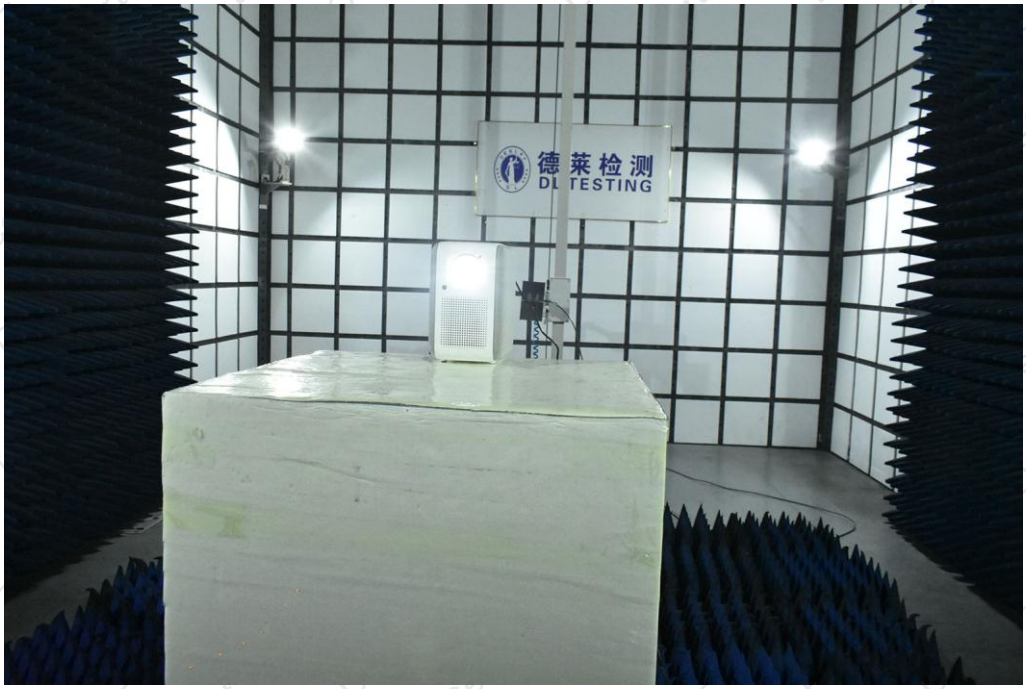
10.2 EUT ANTENNA

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

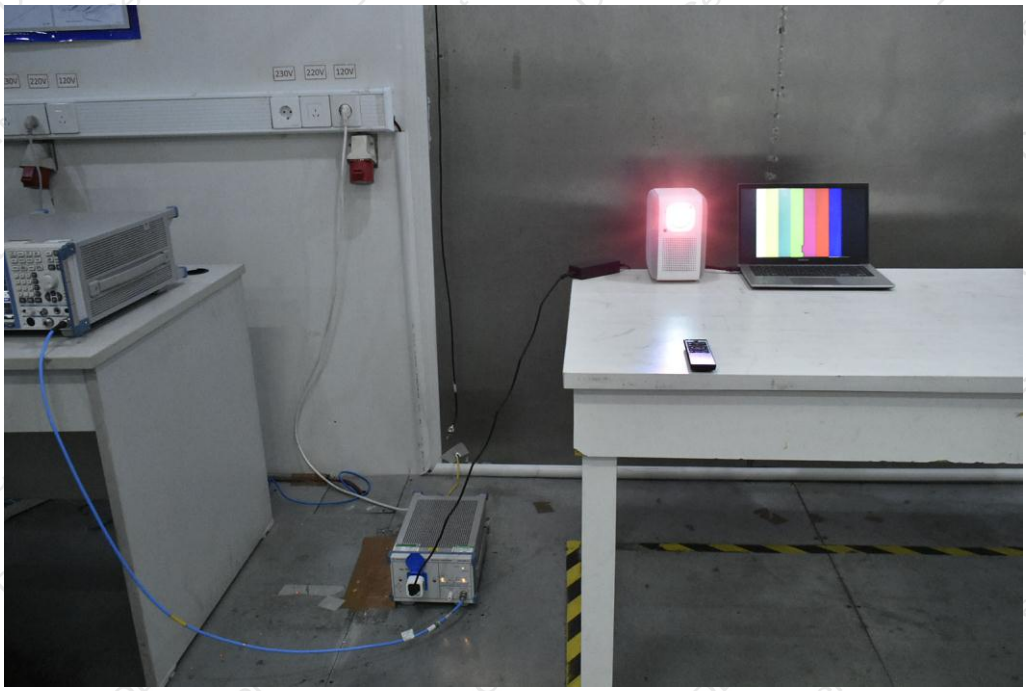
11. TEST SEUUP PHOTO

Radiated Measurement Photos



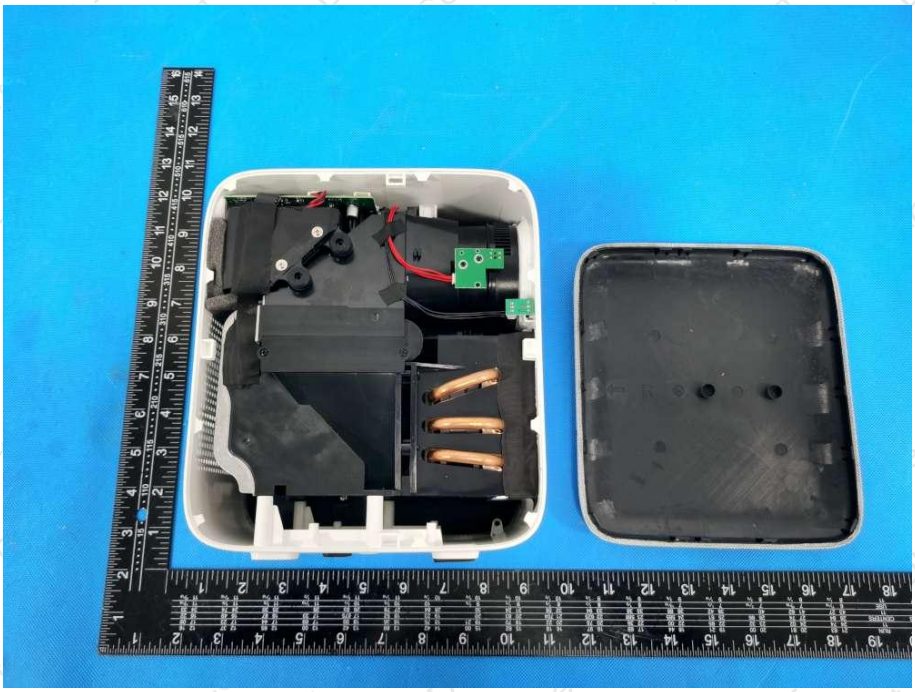


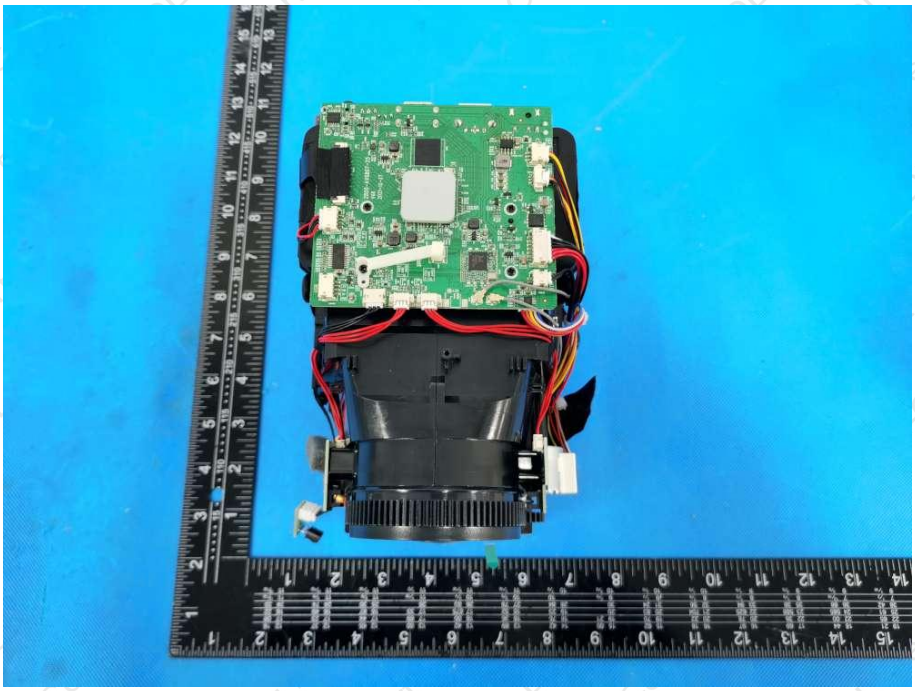
Conducted Measurement Photos

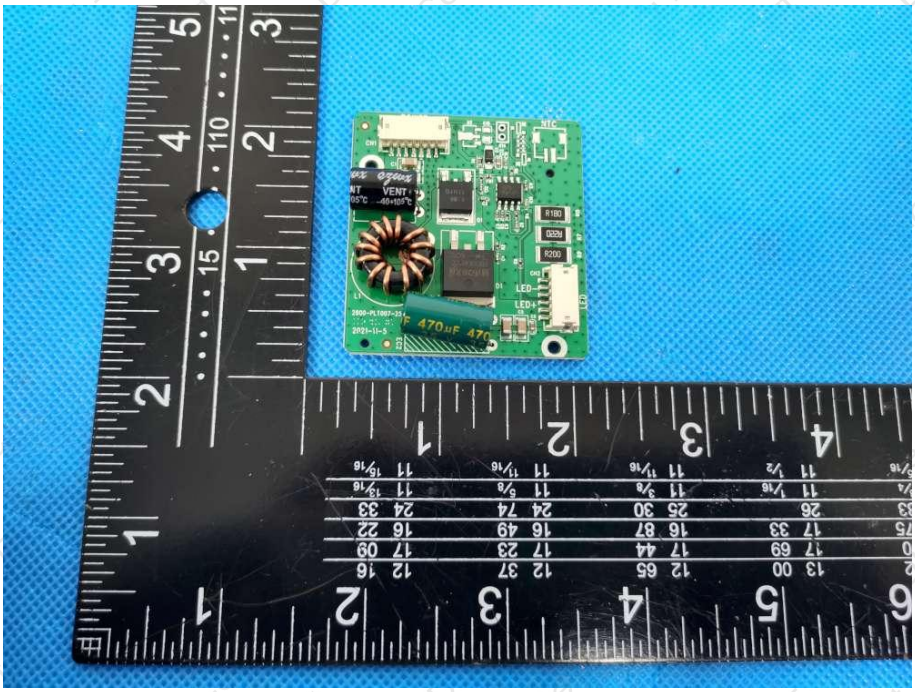


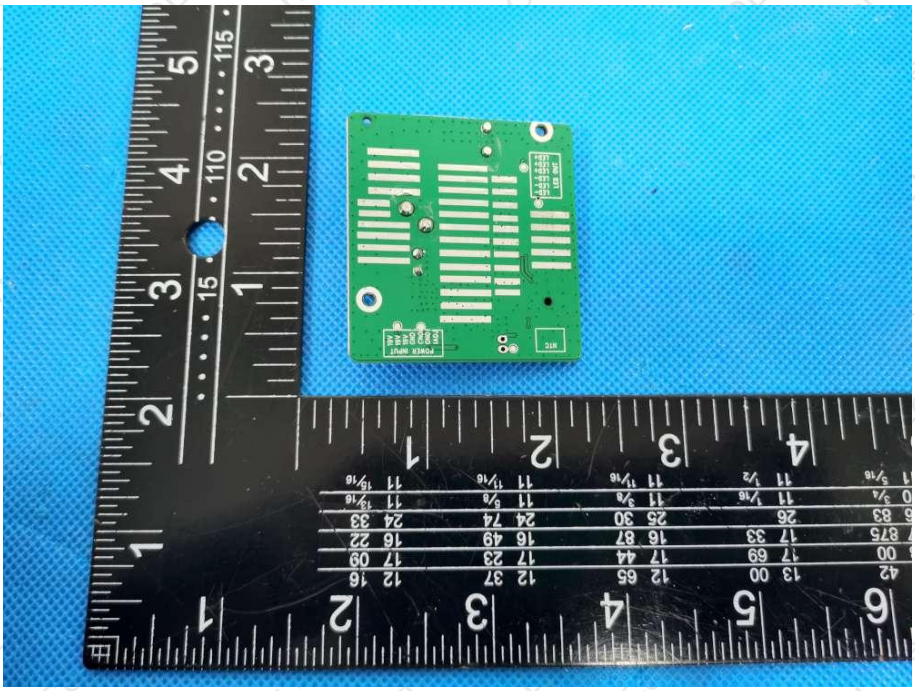
12. EUT PHOTO

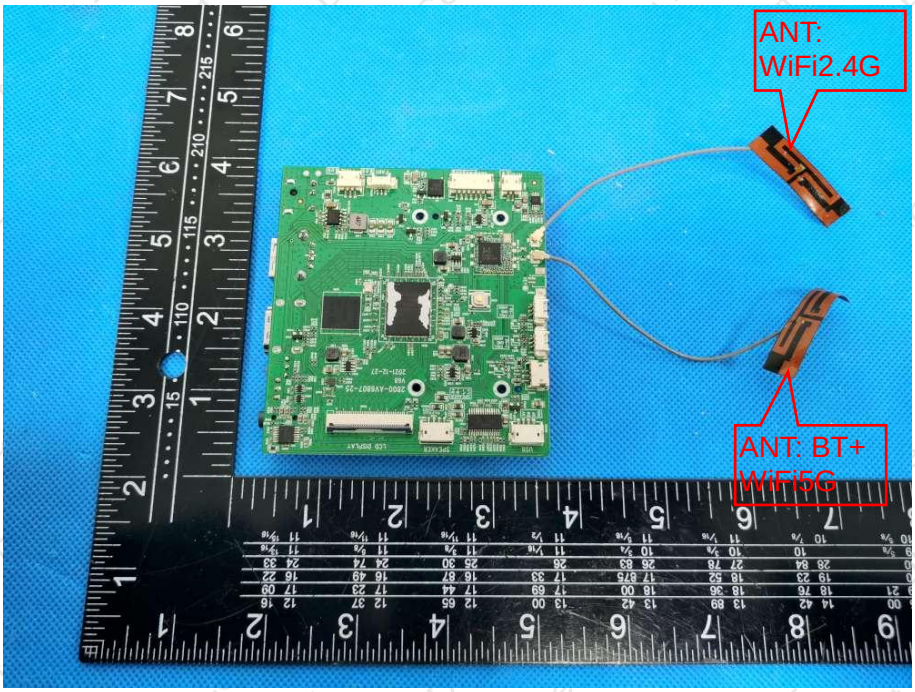

AC/DC ADAPTER
开关电源适配器
Model/型号:
NSA90ED-19047400
Input/输入:
100-240V~ 50/60Hz 2.0A
Output/输出:
19.0V 4.74A 90.0W
Manufacturer/制造商:







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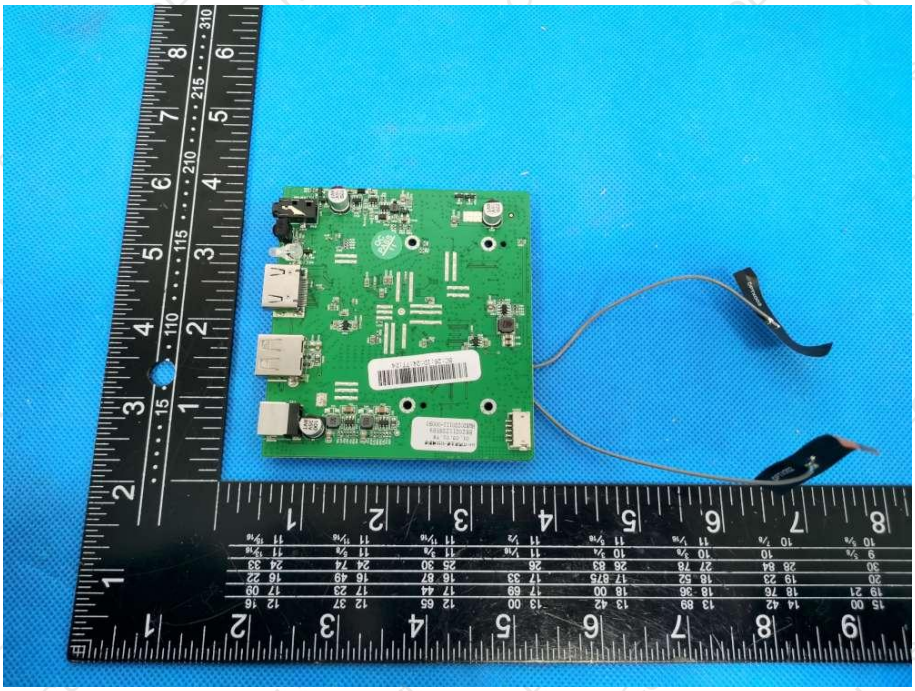
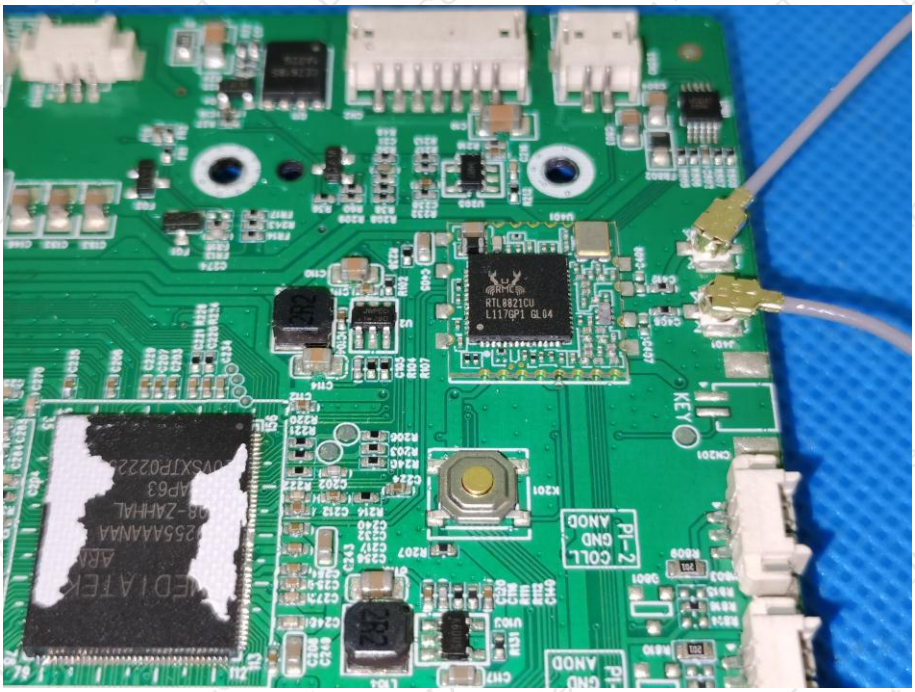
WiFi2.4G
ANT: BT+
WiFi5G





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