



FCC Part 15E Test Report

FCC ID: 2BB7B-ARSRUR

Applicant: Shenzhen Qingfen Tingxiu Information Technology Co., Ltd

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Manufacturer: Shenzhen Qingfen Tingxiu Information Technology Co., Ltd

Address: 2405-06, Baotai Building, 182 Design Park 182 Bulan Road, Lilang Community Nanwan Street, Longgang District, Shenzhen

EUT: Tablet

Trade Mark: FIREBAT

Model Number: AR1
AR2, AR3, SR1, SR2, SR3, UR1, UR2, UR3

Date of Receipt: May 07, 2025

Test Date: May 07, 2025 - May 17, 2025

Date of Report: May 17, 2025

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

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Applicable Standards: FCC PART 15 E 15.407
ANSI C63.10:2013

Test Result: Pass

Report Number: DLE-250507005R

Prepared (Test Engineer): Ken Tan

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.407(b), 15.205, 15.209	Radiated Spurious Emission	PASS	
15.407 (b), 15.205, 15.209	Band Edge Emission	PASS	
15.407 (a)	Average Output Power	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.407(a) (e)	26dB bandwidth and 99%dB Bandwidth 6dB bandwidth and 99%dB Bandwidth	PASS	
15.407(g)	Frequency Stability	PASS	
15.407(c)	Transmission in case of Absence of Information	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

Test lab: Shenzhen DL Testing Technology Co., Ltd.

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The test results presented in this report relate only to the object tested.

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FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118



1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$ providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	RF power,conducted	$\pm 0.42\text{dB}$
3	Spurious emissions,conducted	$\pm 2.76\text{dB}$
4	All emissions,radiated(<30MHz)	$\pm 3.54\text{dB}$
5	All emissions,radiated(<1G)	$\pm 3.65\text{dB}$
6	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
7	Occupied bandwidth	$\pm 0.2\text{MHz}$
8	PSD	$\pm 0.69\text{dB}$
9	Temperature	$\pm 0.5^{\circ}\text{C}$
10	Humidity	$\pm 2\%$
11	Time	$\pm 2\%$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Tablet
Trademark	FIREBAT
Model No.:	AR1 AR2, AR3, SR1, SR2, SR3, UR1, UR2, UR3
Model Difference	All models are same as the samples except model name, they have the same structure and circuit.
Operation Frequency:	5180-5240, 5745-5825MHz(802.11a/n/ac(HT20)) 5190-5230, 5755-5795MHz(802.11n/ac(HT40))
Channel numbers:	See channel list
Channel separation:	5MHz
Modulation technology:	64QAM, 16QAM, QPSK, BPSK for OFDM
Rate of Transmitter	802.11a: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps 802.11n: Up to 300Mbps 802.11ac: up to 867Mbps
Antenna Type:	Internal Antenna
Antenna gain:	2.02dBi
Power Supply:	DC 3.85V from battery DC 5V from adapter
Adapter:	Model:M050200-S86USU Input:100-240V~ 50/60Hz, 0.5A Output:5.0V  2.0A, 10.0W

Note:

- 1.For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2.The EUT's all information provided by client.



2. Channel List

Channel List for 802.11a/n(HT20)/ac(HT20)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

Channel List for 802.11n(HT40)/ac(HT40)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

Channel List for 802.11a/n(HT20)/ac(HT20)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

Channel List for 802.11n(HT40)/ac(HT40)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795



2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Description			
Pretest Mode	Channel	Band 1	Band 4
Mode 1	802.11a/n/acHT20	CH36, CH44, CH48	CH149, CH157, CH165
Mode 2	802.11n/acHT40	CH38, CH46	CH151, CH159
Mode 3	Link Mode		

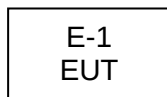
For Radiated Emission			
Pretest Mode	Channel	Band 1	Band 4
Mode 1	802.11a/n/acHT20	CH36, CH44, CH48	CH149, CH157, CH165
Mode 2	802.11n/acHT40	CH38, CH46	CH151, CH159
Mode 3	Link Mode		

Note: 1. The measurements are performed at the highest, middle, lowest available channels.
2. During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

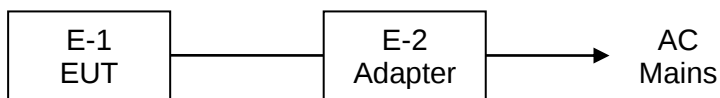


2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Power line conducted emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
E-1	Tablet	AR1	N/A	EUT
E-2	Adapter	M050200-S86USU	N/A	Zhongshan Master Light Source Electronic Co., Ltd

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the end product.

Max output power Setting				
Test software Version	Test program: RF Test_V1.4			
Mode	802.11a	802.11n HT20	802.11n HT40	802.11ac HT20/HT40
Data Rate	6Mbps	MSC0	MSC0	MSC0
Power Setting of Software	60	60	66	66



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation test, Band-edge test and 6db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Nov. 01, 2024	Oct. 31, 2025
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 01, 2024	Oct. 31, 2025
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 01, 2024	Oct. 31, 2025
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 01, 2024	Oct. 31, 2025
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 01, 2024	Oct. 31, 2025
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 01, 2024	Oct. 31, 2025
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 01, 2024	Oct. 31, 2025
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 01, 2024	Oct. 31, 2025
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 01, 2024	Oct. 31, 2025
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 01, 2024	Oct. 31, 2025
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 01, 2024	Oct. 31, 2025
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 01, 2024	Oct. 31, 2025
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 01, 2024	Oct. 31, 2025
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 01, 2024	Oct. 31, 2025
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 01, 2024	Oct. 31, 2025
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 01, 2024	Oct. 31, 2025
17	Temperature & humidity chamber	Changfeng	CF-150-40-P	CF170802-01	Nov. 01, 2024	Oct. 31, 2025

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Nov. 01, 2024	Oct. 31, 2025
3	LISN	R&S	ENV216	102417	Nov. 01, 2024	Oct. 31, 2025
4	843 Cable 1#	ChengYu	CE Cable	001	Nov. 01, 2024	Oct. 31, 2025

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMCC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMCC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.5 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

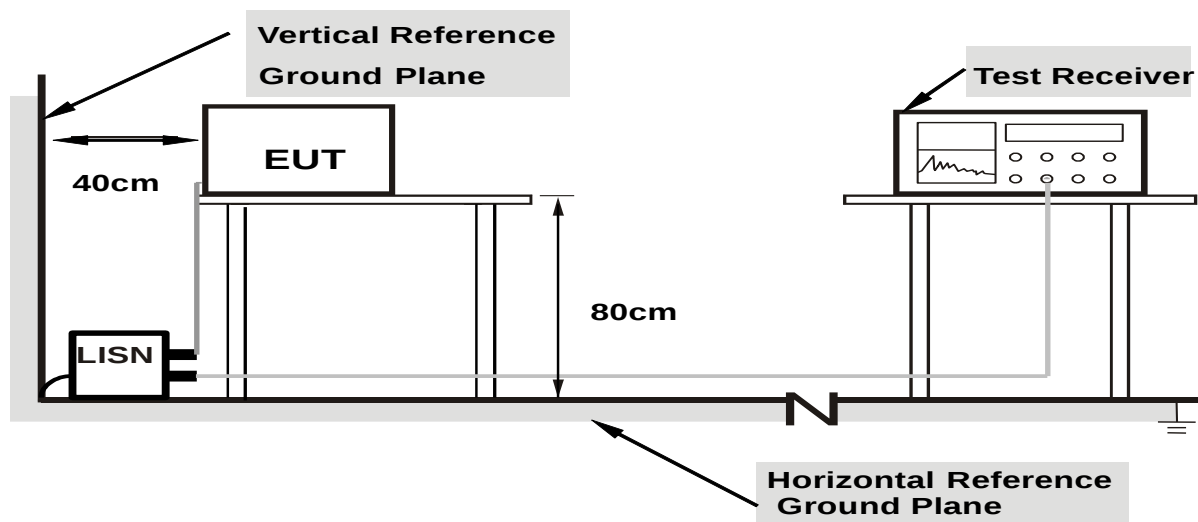
3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

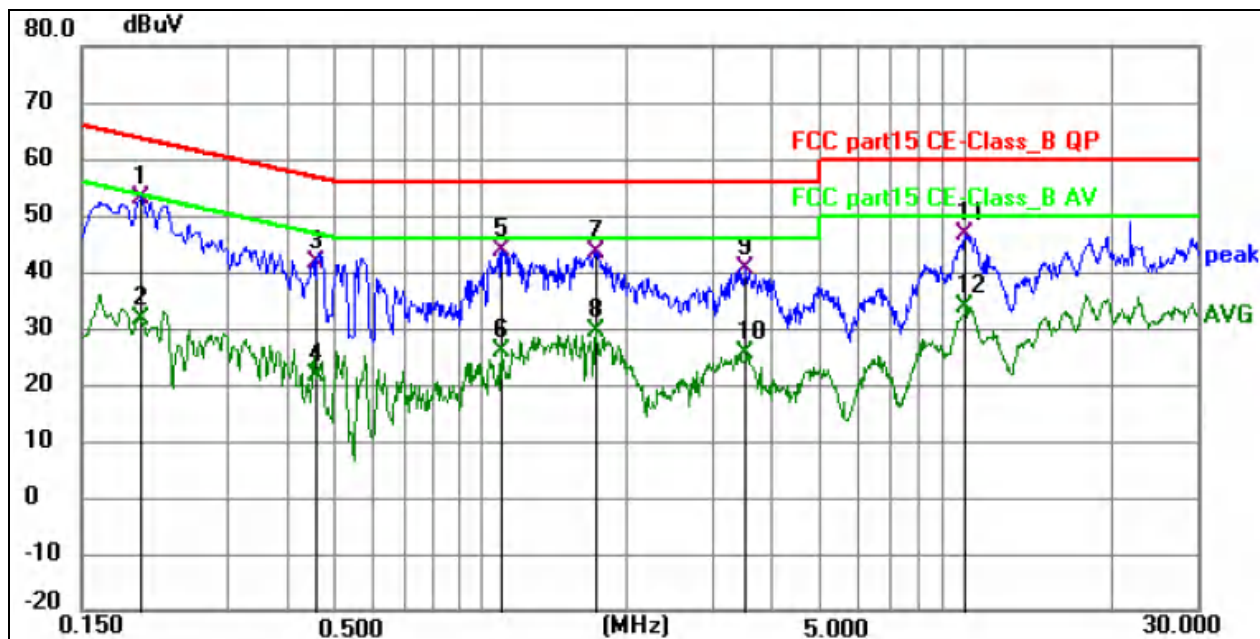
3.1.6 TEST RESULTS

PASS

Please refer to the following page.



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 3



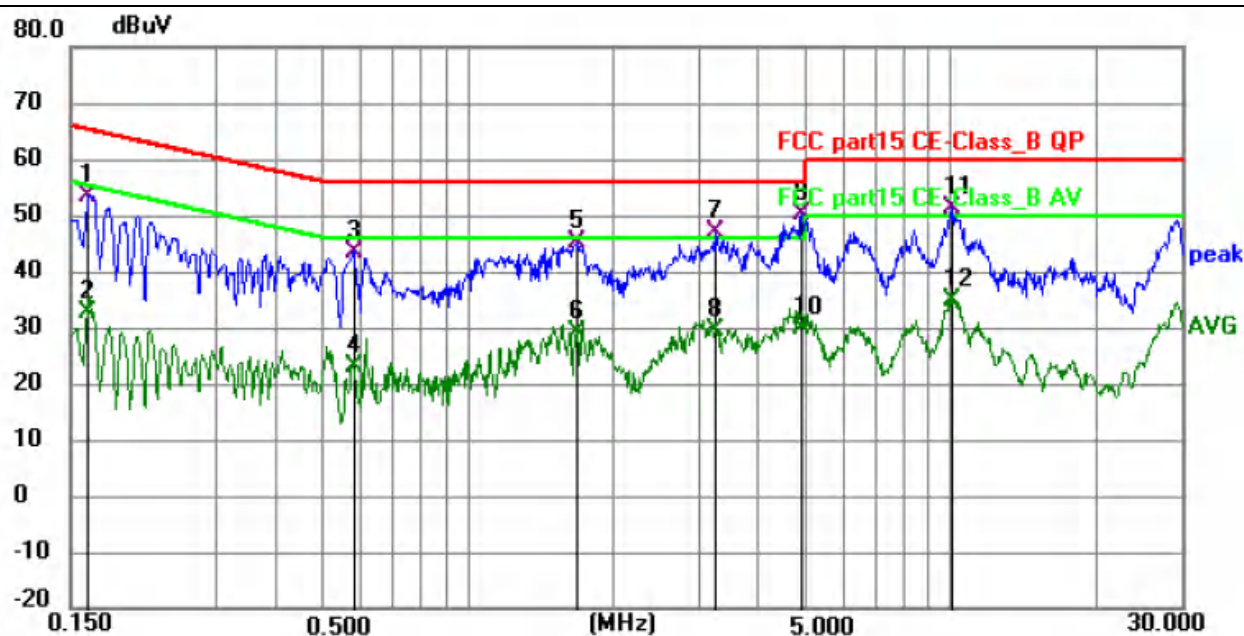
Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.1995	42.99	10.09	53.08	63.63	-10.55	QP	P	
2	0.1995	21.48	10.09	31.57	53.63	-22.06	AVG	P	
3	0.4605	31.42	10.20	41.62	56.68	-15.06	QP	P	
4	0.4605	11.25	10.20	21.45	46.68	-25.23	AVG	P	
5	1.1085	33.59	10.04	43.63	56.00	-12.37	QP	P	
6	1.1085	15.95	10.04	25.99	46.00	-20.01	AVG	P	
7	1.7380	33.34	10.06	43.40	56.00	-12.60	QP	P	
8	1.7380	19.24	10.06	29.30	46.00	-16.70	AVG	P	
9	3.5160	30.51	10.17	40.68	56.00	-15.32	QP	P	
10	3.5160	15.45	10.17	25.62	46.00	-20.38	AVG	P	
11	10.0140	35.50	11.26	46.76	60.00	-13.24	QP	P	
12	10.0140	22.62	11.26	33.88	50.00	-16.12	AVG	P	



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 3



Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1635	43.22	10.14	53.36	65.28	-11.92	QP	P	
2	0.1635	22.50	10.14	32.64	55.28	-22.64	AVG	P	
3	0.5820	33.12	10.16	43.28	56.00	-12.72	QP	P	
4	0.5820	12.90	10.16	23.06	46.00	-22.94	AVG	P	
5	1.6800	34.98	10.07	45.05	56.00	-10.95	QP	P	
6	1.6800	18.94	10.07	29.01	46.00	-16.99	AVG	P	
7	3.2683	36.83	10.10	46.93	56.00	-9.07	QP	P	
8	3.2683	19.34	10.10	29.44	46.00	-16.56	AVG	P	
9 *	4.9110	39.84	10.30	50.14	56.00	-5.86	QP	P	
10	4.9110	19.58	10.30	29.88	46.00	-16.12	AVG	P	
11	10.0995	40.06	11.23	51.29	60.00	-8.71	QP	P	
12	10.0995	23.42	11.23	34.65	50.00	-15.35	AVG	P	



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

15.407(b) Undesirable emission limits. Except as shown in paragraph (b) (10) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating solely in the 5.725-5.850GHz band:
All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40GHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average



Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre.
- Test the EUT in the lowest channel, the middle channel, the Highest channel

Note:

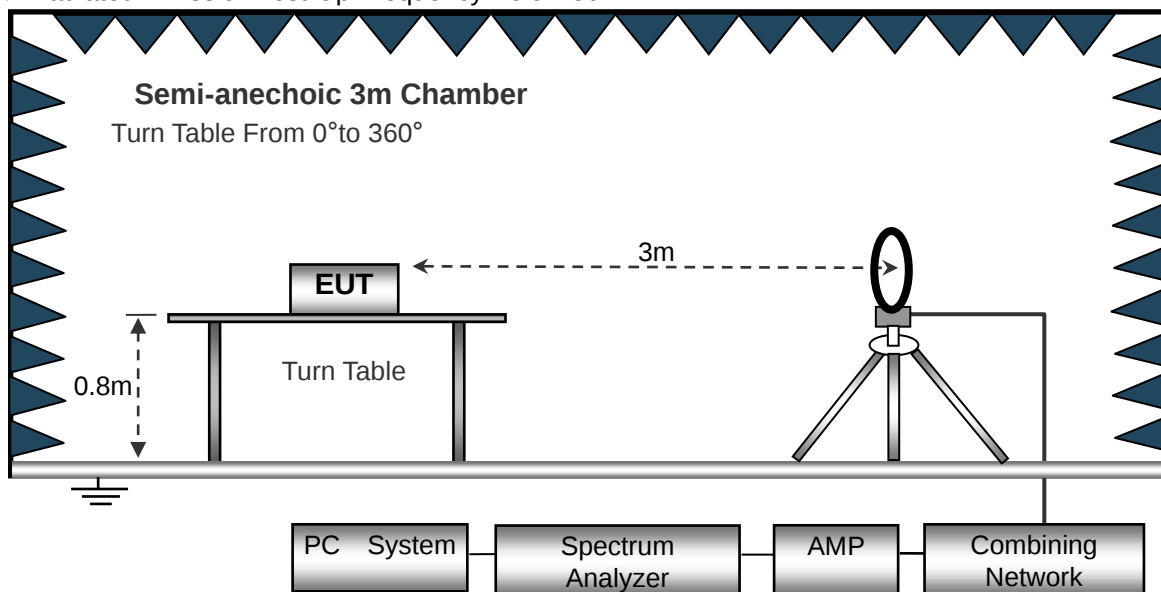
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

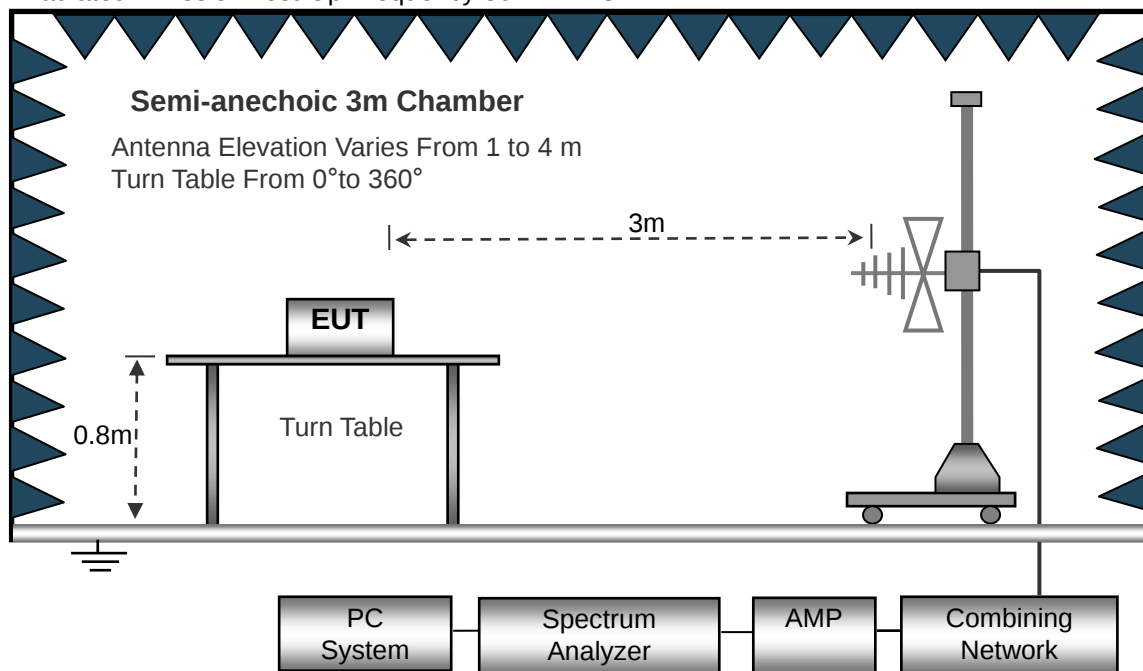
No deviation

3.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz

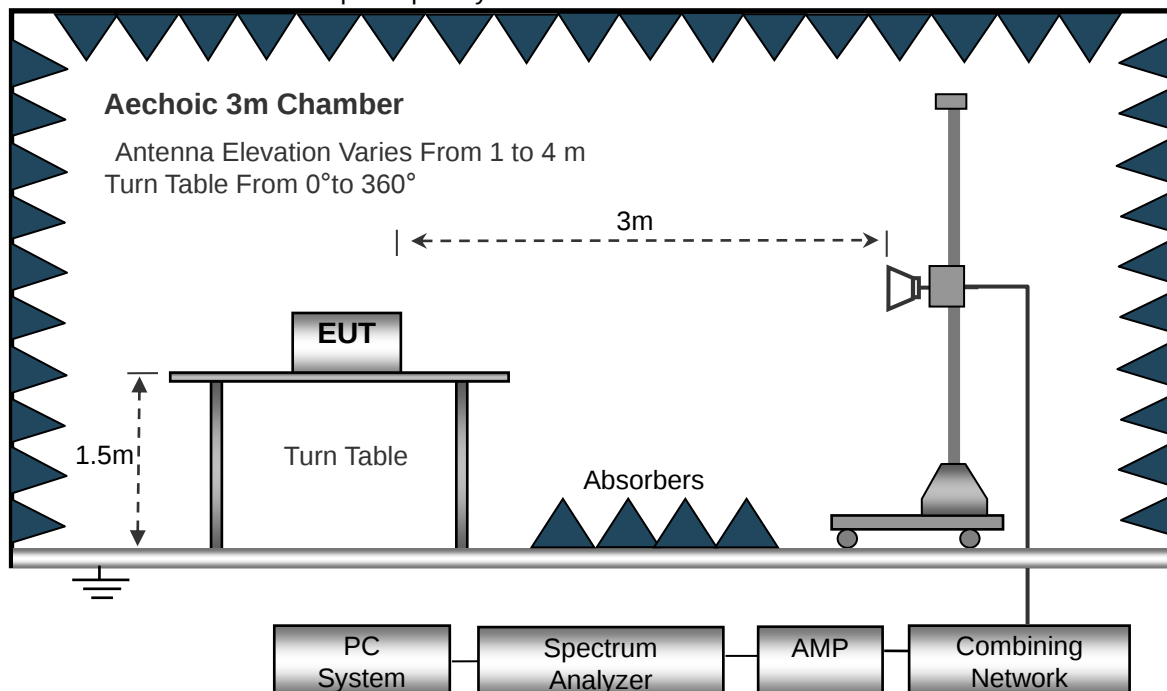


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(C) Radiated Emission Test-Up Frequency Above 1GHz

**3.2.5 EUT OPERATING 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.

**3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)**

Temperature:	20℃	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 3	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

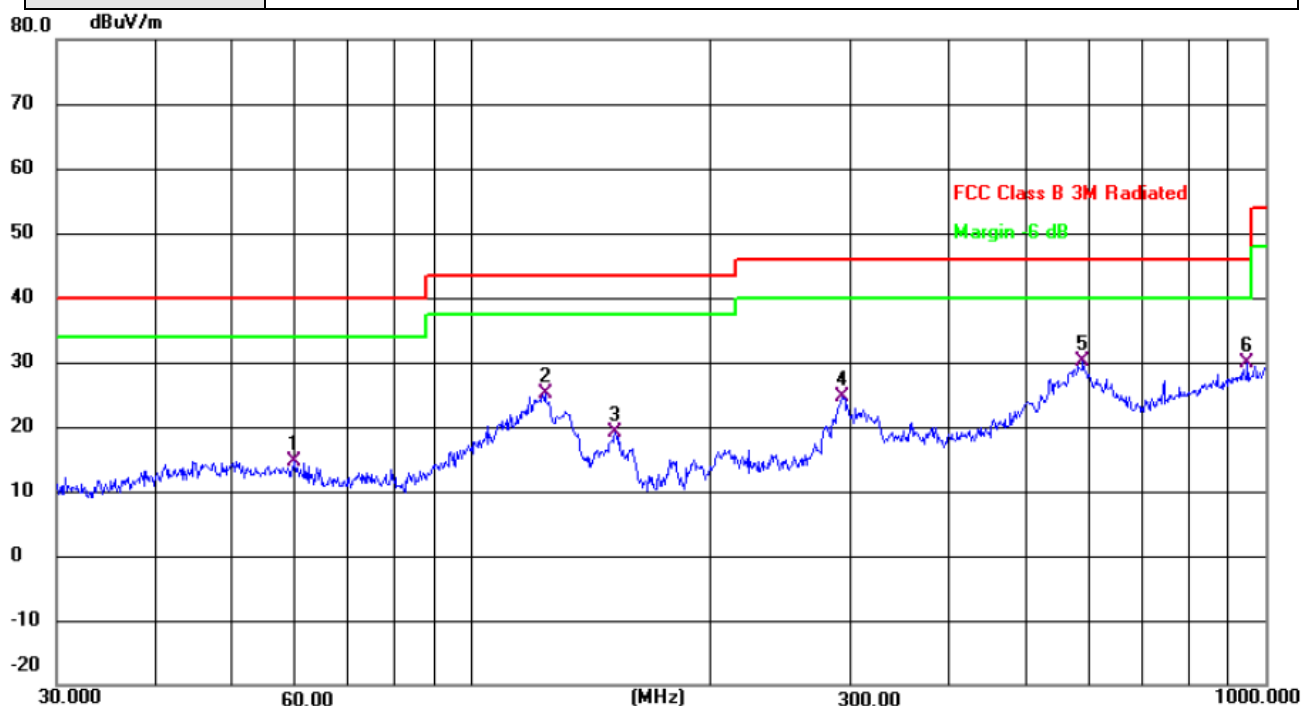
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

**3.2.7 TEST RESULTS (Between 30MHz – 1GHz)**

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 3.85V		
Test Mode :	Mode 3		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		59.8588	28.31	-13.61	14.70	40.00	-25.30	QP
2		123.6984	42.48	-17.27	25.21	43.50	-18.29	QP
3		151.5971	37.23	-18.22	19.01	43.50	-24.49	QP
4		293.0842	36.79	-12.15	24.64	46.00	-21.36	QP
5	*	588.9048	35.63	-5.50	30.13	46.00	-15.87	QP
6		948.7608	30.14	-0.27	29.87	46.00	-16.13	QP

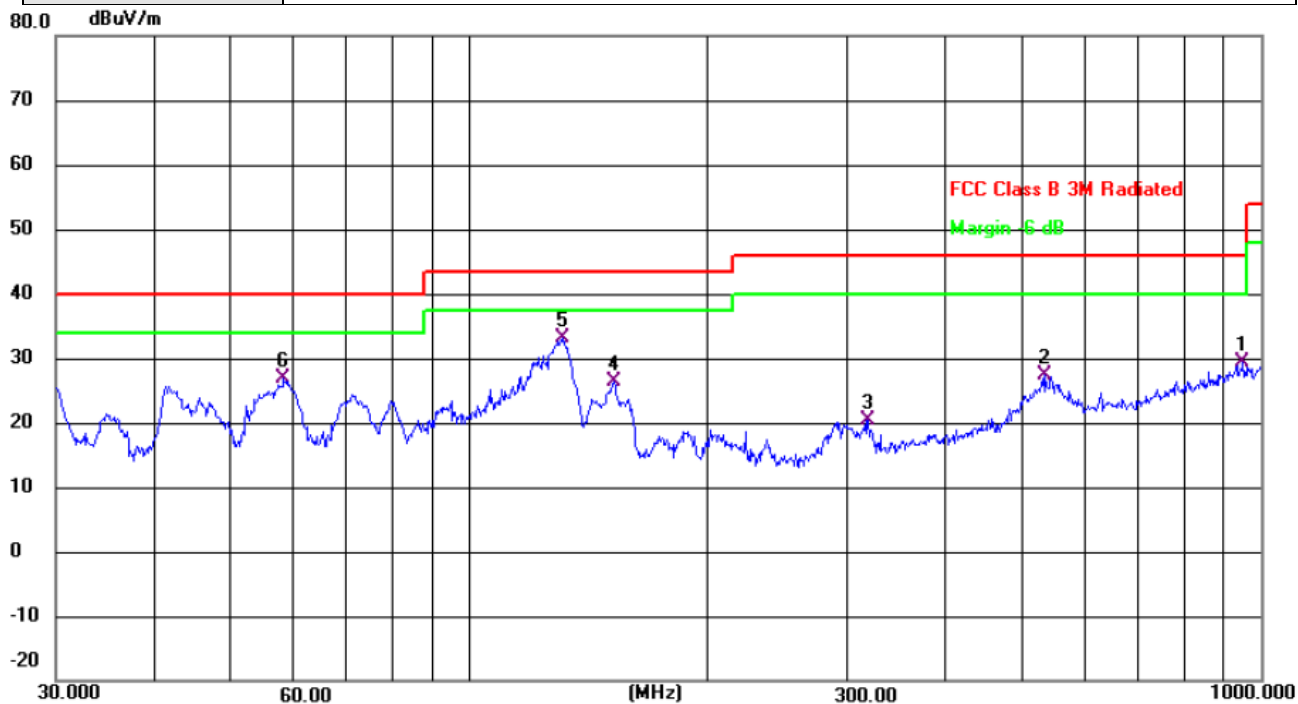
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;



Temperature:	26°C	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Vertical
test voltage :	DC 3.85V		
Test Mode :	Mode 3		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector
		MHz	dBuV	dB	dBuV/m	dB/m	dB	
1		948.7608	29.73	-0.27	29.46	46.00	-16.54	QP
2		533.8318	33.84	-6.46	27.38	46.00	-18.62	QP
3		318.8170	31.97	-11.51	20.46	46.00	-25.54	QP
4		152.1297	44.53	-18.18	26.35	43.50	-17.15	QP
5	*	130.8369	50.83	-17.77	33.06	43.50	-10.44	QP
6		58.2028	40.47	-13.53	26.94	40.00	-13.06	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;

**3.2.8 TEST RESULTS (1ghz~40ghZ)**

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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5180									
V	10360	57.26	49.05	15.3	37.39	60.9	68.2	-7.30	PK
V	10360	41.74	49.05	15.3	37.39	45.38	54	-8.62	AV
V	15540	53.44	49.16	15.27	40.45	60	74	-14.00	PK
V	15540	39.53	49.16	15.27	40.45	46.09	54	-7.91	AV
H	10360	56.97	49.05	15.3	37.39	60.61	68.2	-7.59	PK
H	10360	40.53	49.05	15.3	37.39	44.17	54	-9.83	AV
H	15540	51.97	49.16	15.27	40.45	58.53	74	-15.47	PK
H	15540	39.28	49.16	15.27	40.45	45.84	54	-8.16	AV
operation frequency:5200									
V	10400	58.3	49.09	15.34	37.42	61.97	68.2	-6.23	PK
V	10400	39.84	49.09	15.34	37.42	43.51	54	-10.49	AV
V	15600	53.21	49.18	15.29	40.47	59.79	74	-14.21	PK
V	15600	38.64	49.18	15.29	40.47	45.22	54	-8.78	AV
H	10400	56.79	49.09	15.34	37.42	60.46	68.2	-7.74	PK
H	10400	39.65	49.09	15.34	37.42	43.32	54	-10.68	AV
H	15600	53.79	49.18	15.29	40.47	60.37	74	-13.63	PK
H	15600	39.04	49.18	15.29	40.47	45.62	54	-8.38	AV
operation frequency:5240									
V	10480	58.82	49.11	15.37	37.46	62.54	68.2	-5.66	PK
V	10480	40.25	49.11	15.37	37.46	43.97	54	-10.03	AV
V	15720	54.23	49.21	15.34	40.51	60.87	74	-13.13	PK
V	15720	38.52	49.21	15.34	40.51	45.16	54	-8.84	AV
H	10480	58.14	49.11	15.37	31.31	55.71	68.2	-12.49	PK
H	10480	46.01	49.11	15.37	31.31	43.58	54	-10.42	AV
H	15720	54.96	49.21	15.34	40.51	61.6	74	-12.40	PK
H	15720	37.51	49.21	15.34	40.51	44.15	54	-9.85	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5180									
V	10360	56.86	49.05	15.3	37.39	60.5	68.2	-7.70	PK
V	10360	38.87	49.05	15.3	37.39	42.51	54	-11.49	AV
V	15540	52.92	49.16	15.27	40.45	59.48	74	-14.52	PK
V	15540	39.02	49.16	15.27	40.45	45.58	54	-8.42	AV
H	10360	57.57	49.05	15.3	37.39	61.21	68.2	-6.99	PK
H	10360	40.03	49.05	15.3	37.39	43.67	54	-10.33	AV
H	15540	51.71	49.16	15.27	40.45	58.27	74	-15.73	PK
H	15540	38.78	49.16	15.27	40.45	45.34	54	-8.66	AV
operation frequency:5200									
V	10400	56.88	49.09	15.34	37.42	60.55	68.2	-7.65	PK
V	10400	39.76	49.09	15.34	37.42	43.43	54	-10.57	AV
V	15600	52.72	49.18	15.29	40.47	59.3	74	-14.70	PK
V	15600	38.6	49.18	15.29	40.47	45.18	54	-8.82	AV
H	10400	56.16	49.09	15.34	37.42	59.83	68.2	-8.37	PK
H	10400	40.59	49.09	15.34	37.42	44.26	54	-9.74	AV
H	15600	54.54	49.18	15.29	40.47	61.12	74	-12.88	PK
H	15600	40.03	49.18	15.29	40.47	46.61	54	-7.39	AV
operation frequency:5240									
V	10480	57.9	49.11	15.37	37.46	61.62	68.2	-6.58	PK
V	10480	41.04	49.11	15.37	37.46	44.76	54	-9.24	AV
V	15720	52.72	49.21	15.34	40.51	59.36	74	-14.64	PK
V	15720	38.67	49.21	15.34	40.51	45.31	54	-8.69	AV
H	10480	58.52	49.11	15.37	31.31	56.09	68.2	-12.11	PK
H	10480	45	49.11	15.37	31.31	42.57	54	-11.43	AV
H	15720	52.23	49.21	15.34	40.51	58.87	74	-15.13	PK
H	15720	39.58	49.21	15.34	40.51	46.22	54	-7.78	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5190									
V	10380	56.89	49.07	15.33	37.41	60.56	68.2	-7.64	PK
V	10380	39.75	49.07	15.33	37.41	43.42	54	-10.58	AV
V	15570	53.02	49.17	15.28	40.46	59.59	74	-14.41	PK
V	15570	38.77	49.17	15.28	40.46	45.34	54	-8.66	AV
H	10380	56.86	49.07	15.33	37.41	60.53	68.2	-7.67	PK
H	10380	40.55	49.07	15.33	37.41	44.22	54	-9.78	AV
H	15570	52.84	49.17	15.28	40.46	59.41	74	-14.59	PK
H	15570	39.06	49.17	15.28	40.46	45.63	54	-8.37	AV
operation frequency:5230									
V	10460	57.91	49.11	15.37	37.46	61.63	68.2	-6.57	PK
V	10460	40.02	49.11	15.37	37.46	43.74	54	-10.26	AV
V	15690	52.94	49.21	15.34	40.51	59.58	74	-14.42	PK
V	15690	38.74	49.21	15.34	40.51	45.38	54	-8.62	AV
H	10460	58.29	49.11	15.37	31.31	55.86	68.2	-12.34	PK
H	10460	45.23	49.11	15.37	31.31	42.8	54	-11.20	AV
H	15690	53.44	49.21	15.34	40.51	60.08	74	-13.92	PK
H	15690	40.23	49.21	15.34	40.51	46.87	54	-7.13	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5180									
V	10360	57.27	49.05	15.3	37.39	60.91	68.2	-7.29	PK
V	10360	39.58	49.05	15.3	37.39	43.22	54	-10.78	AV
V	15540	52.21	49.16	15.27	40.45	58.77	74	-15.23	PK
V	15540	38.73	49.16	15.27	40.45	45.29	54	-8.71	AV
H	10360	57.25	49.05	15.3	37.39	60.89	68.2	-7.31	PK
H	10360	38.78	49.05	15.3	37.39	42.42	54	-11.58	AV
H	15540	53.26	49.16	15.27	40.45	59.82	74	-14.18	PK
H	15540	39.74	49.16	15.27	40.45	46.3	54	-7.70	AV
operation frequency:5200									
V	10400	57.26	49.09	15.34	37.42	60.93	68.2	-7.27	PK
V	10400	41.71	49.09	15.34	37.42	45.38	54	-8.62	AV
V	15600	52.84	49.18	15.29	40.47	59.42	74	-14.58	PK
V	15600	40.82	49.18	15.29	40.47	47.4	54	-6.60	AV
H	10400	56.56	49.09	15.34	37.42	60.23	68.2	-7.97	PK
H	10400	40.98	49.09	15.34	37.42	44.65	54	-9.35	AV
H	15600	54.43	49.18	15.29	40.47	61.01	74	-12.99	PK
H	15600	41.95	49.18	15.29	40.47	48.53	54	-5.47	AV
operation frequency:5240									
V	10480	57.98	49.11	15.37	37.46	61.7	68.2	-6.50	PK
V	10480	41.26	49.11	15.37	37.46	44.98	54	-9.02	AV
V	15720	52.49	49.21	15.34	40.51	59.13	74	-14.87	PK
V	15720	40.29	49.21	15.34	40.51	46.93	54	-7.07	AV
H	10480	58.01	49.11	15.37	31.31	55.58	68.2	-12.62	PK
H	10480	44.88	49.11	15.37	31.31	42.45	54	-11.55	AV
H	15720	53.21	49.21	15.34	40.51	59.85	74	-14.15	PK
H	15720	41.09	49.21	15.34	40.51	47.73	54	-6.27	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5190									
V	10380	56.88	49.07	15.33	37.41	60.55	68.2	-7.65	PK
V	10380	40.75	49.07	15.33	37.41	44.42	54	-9.58	AV
V	15570	53.22	49.17	15.28	40.46	59.79	74	-14.21	PK
V	15570	40.02	49.17	15.28	40.46	46.59	54	-7.41	AV
H	10380	56.79	49.07	15.33	37.41	60.46	68.2	-7.74	PK
H	10380	41.26	49.07	15.33	37.41	44.93	54	-9.07	AV
H	15570	52.06	49.17	15.28	40.46	58.63	74	-15.37	PK
H	15570	40.03	49.17	15.28	40.46	46.6	54	-7.40	AV
operation frequency:5230									
V	10460	57.79	49.11	15.37	37.46	61.51	68.2	-6.69	PK
V	10460	42.06	49.11	15.37	37.46	45.78	54	-8.22	AV
V	15690	53.54	49.21	15.34	40.51	60.18	74	-13.82	PK
V	15690	39.84	49.21	15.34	40.51	46.48	54	-7.52	AV
H	10460	58.62	49.11	15.37	31.31	56.19	68.2	-12.01	PK
H	10460	44.72	49.11	15.37	31.31	42.29	54	-11.71	AV
H	15690	52.9	49.21	15.34	40.51	59.54	74	-14.46	PK
H	15690	41.35	49.21	15.34	40.51	47.99	54	-6.01	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	11490	54.81	49.05	15.3	37.39	58.45	74	-15.55	PK
V	11490	42.26	49.05	15.3	37.39	45.9	54	-8.10	AV
V	17235	56.15	49.16	15.27	40.45	62.71	68.2	-5.49	PK
V	17235	41.35	49.16	15.27	40.45	47.91	54	-6.09	AV
H	11490	52.76	49.05	15.3	37.39	56.4	74	-17.60	PK
H	11490	43.3	49.05	15.3	37.39	46.94	54	-7.06	AV
H	17235	51.7	49.16	15.27	40.45	58.26	68.2	-9.94	PK
H	17235	41.27	49.16	15.27	40.45	47.83	54	-6.17	AV
operation frequency:5785									
V	11570	51.94	49.09	15.34	37.42	55.61	74	-18.39	PK
V	11570	42.27	49.09	15.34	37.42	45.94	54	-8.06	AV
V	17355	50.73	49.18	15.29	40.47	57.31	68.2	-10.89	PK
V	17355	41.38	49.18	15.29	40.47	47.96	54	-6.04	AV
H	11570	51.3	49.09	15.34	37.42	54.97	74	-19.03	PK
H	11570	42.47	49.09	15.34	37.42	46.14	54	-7.86	AV
H	17355	48.89	49.18	15.29	40.47	55.47	68.2	-12.73	PK
H	17355	41.27	49.18	15.29	40.47	47.85	54	-6.15	AV
operation frequency:5825									
V	11650	52.81	49.11	15.37	37.46	56.53	74	-17.47	PK
V	11650	42.28	49.11	15.37	37.46	46	54	-8.00	AV
V	17475	50.11	49.21	15.34	40.51	56.75	68.2	-11.45	PK
V	17475	40.78	49.21	15.34	40.51	47.42	54	-6.58	AV
H	11650	58.29	49.11	15.37	31.31	55.86	74	-18.14	PK
H	11650	49.5	49.11	15.37	31.31	47.07	54	-6.93	AV
H	17475	49.81	49.21	15.34	40.51	56.45	68.2	-11.75	PK
H	17475	40.74	49.21	15.34	40.51	47.38	54	-6.62	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	11490	49.99	49.05	15.3	37.39	53.63	74	-20.37	PK
V	11490	42.61	49.05	15.3	37.39	46.25	54	-7.75	AV
V	17235	49.2	49.16	15.27	40.45	55.76	68.2	-12.44	PK
V	17235	41.04	49.16	15.27	40.45	47.6	54	-6.40	AV
H	11490	49.75	49.05	15.3	37.39	53.39	74	-20.61	PK
H	11490	41.95	49.05	15.3	37.39	45.59	54	-8.41	AV
H	17235	48.66	49.16	15.27	40.45	55.22	68.2	-12.98	PK
H	17235	41.15	49.16	15.27	40.45	47.71	54	-6.29	AV
operation frequency:5785									
V	11570	53.04	49.09	15.34	37.42	56.71	74	-17.29	PK
V	11570	42.86	49.09	15.34	37.42	46.53	54	-7.47	AV
V	17355	49.98	49.18	15.29	40.47	56.56	68.2	-11.64	PK
V	17355	41.27	49.18	15.29	40.47	47.85	54	-6.15	AV
H	11570	50.51	49.09	15.34	37.42	54.18	74	-19.82	PK
H	11570	44.41	49.09	15.34	37.42	48.08	54	-5.92	AV
H	17355	49.68	49.18	15.29	40.47	56.26	68.2	-11.94	PK
H	17355	41.38	49.18	15.29	40.47	47.96	54	-6.04	AV
operation frequency:5825									
V	11650	51.9	49.11	15.37	37.46	55.62	74	-18.38	PK
V	11650	42.06	49.11	15.37	37.46	45.78	54	-8.22	AV
V	17475	48.87	49.21	15.34	40.51	55.51	68.2	-12.69	PK
V	17475	41.27	49.21	15.34	40.51	47.91	54	-6.09	AV
H	11650	58.49	49.11	15.37	31.31	56.06	74	-17.94	PK
H	11650	45.11	49.11	15.37	31.31	42.68	54	-11.32	AV
H	17475	49.91	49.21	15.34	40.51	56.55	68.2	-11.65	PK
H	17475	41.04	49.21	15.34	40.51	47.68	54	-6.32	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5755									
V	11510	49.89	49.07	15.33	37.41	53.56	74	-20.44	PK
V	11510	41.67	49.07	15.33	37.41	45.34	54	-8.66	AV
V	17265	50.18	49.17	15.28	40.46	56.75	68.2	-11.45	PK
V	17265	41.21	49.17	15.28	40.46	47.78	54	-6.22	AV
H	11510	49.17	49.07	15.33	37.41	52.84	74	-21.16	PK
H	11510	42.06	49.07	15.33	37.41	45.73	54	-8.27	AV
H	17265	50.17	49.17	15.28	40.46	56.74	68.2	-11.46	PK
H	17265	40.85	49.17	15.28	40.46	47.42	54	-6.58	AV
operation frequency:5795									
V	11590	49.8	49.11	15.37	37.46	53.52	74	-20.48	PK
V	11590	41.71	49.11	15.37	37.46	45.43	54	-8.57	AV
V	17385	48.94	49.21	15.34	40.51	55.58	68.2	-12.62	PK
V	17385	40.87	49.21	15.34	40.51	47.51	54	-6.49	AV
H	11590	58.22	49.11	15.37	31.31	55.79	74	-18.21	PK
H	11590	45.01	49.11	15.37	31.31	42.58	54	-11.42	AV
H	17385	49.49	49.21	15.34	40.51	56.13	68.2	-12.07	PK
H	17385	41.25	49.21	15.34	40.51	47.89	54	-6.11	AV
Remark: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit 2. If peak below the average limit, the average emission was no test. 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.									



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	11490	49.92	49.05	15.3	37.39	53.56	74	-20.44	PK
V	11490	42.66	49.05	15.3	37.39	46.3	54	-7.70	AV
V	17235	49.22	49.16	15.27	40.45	55.78	68.2	-12.42	PK
V	17235	40.76	49.16	15.27	40.45	47.32	54	-6.68	AV
H	11490	48.79	49.05	15.3	37.39	52.43	74	-21.57	PK
H	11490	42.17	49.05	15.3	37.39	45.81	54	-8.19	AV
H	17235	49.16	49.16	15.27	40.45	55.72	68.2	-12.48	PK
H	17235	40.55	49.16	15.27	40.45	47.11	54	-6.89	AV
operation frequency:5785									
V	11570	49.15	49.09	15.34	37.42	52.82	74	-21.18	PK
V	11570	42.02	49.09	15.34	37.42	45.69	54	-8.31	AV
V	17355	49.68	49.18	15.29	40.47	56.26	68.2	-11.94	PK
V	17355	40.97	49.18	15.29	40.47	47.55	54	-6.45	AV
H	11570	50.52	49.09	15.34	37.42	54.19	74	-19.81	PK
H	11570	43.59	49.09	15.34	37.42	47.26	54	-6.74	AV
H	17355	49.68	49.18	15.29	40.47	56.26	68.2	-11.94	PK
H	17355	40.7	49.18	15.29	40.47	47.28	54	-6.72	AV
operation frequency:5825									
V	11650	49.68	49.11	15.37	37.46	53.4	74	-20.60	PK
V	11650	41.79	49.11	15.37	37.46	45.51	54	-8.49	AV
V	17475	49.05	49.21	15.34	40.51	55.69	68.2	-12.51	PK
V	17475	40.74	49.21	15.34	40.51	47.38	54	-6.62	AV
H	11650	57.92	49.11	15.37	31.31	55.49	74	-18.51	PK
H	11650	44.72	49.11	15.37	31.31	42.29	54	-11.71	AV
H	17475	48.67	49.21	15.34	40.51	55.31	68.2	-12.89	PK
H	17475	41.38	49.21	15.34	40.51	48.02	54	-5.98	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5755									
V	11510	49.68	49.07	15.33	37.41	53.35	74	-20.65	PK
V	11510	42.98	49.07	15.33	37.41	46.65	54	-7.35	AV
V	17265	48.9	49.17	15.28	40.46	55.47	68.2	-12.73	PK
V	17265	42.06	49.17	15.28	40.46	48.63	54	-5.37	AV
H	11510	49.29	49.07	15.33	37.41	52.96	74	-21.04	PK
H	11510	42.86	49.07	15.33	37.41	46.53	54	-7.47	AV
H	17265	49.16	49.17	15.28	40.46	55.73	68.2	-12.47	PK
H	17265	41.29	49.17	15.28	40.46	47.86	54	-6.14	AV
operation frequency:5795									
V	11590	50.01	49.11	15.37	37.46	53.73	74	-20.27	PK
V	11590	41.78	49.11	15.37	37.46	45.5	54	-8.50	AV
V	17385	48.86	49.21	15.34	40.51	55.5	68.2	-12.70	PK
V	17385	41.26	49.21	15.34	40.51	47.9	54	-6.10	AV
H	11590	58.01	49.11	15.37	31.31	55.58	74	-18.42	PK
H	11590	45.24	49.11	15.37	31.31	42.81	54	-11.19	AV
H	17385	48.98	49.21	15.34	40.51	55.62	68.2	-12.58	PK
H	17385	40.64	49.21	15.34	40.51	47.28	54	-6.72	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

**3.3 RADIATED BAND EMISSION MEASUREMENT****3.3.1 TEST REQUIREMENT:**

15.407 (b)

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating solely in the 5.725-5.850 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

The provisions of §15.205 apply to intentional radiators operating under this section, 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	Band 1:5000MHz-5150MHz, Band 4:5600MHz-5785MHz
Stop Frequency	Band 1:5350MHz-5460MHz, Band 4:5780MHz-6000MHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average



3.3.2 TEST PROCEDURE

Above 1GHz test procedure as below:

- a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel,the Highest channel

Note:

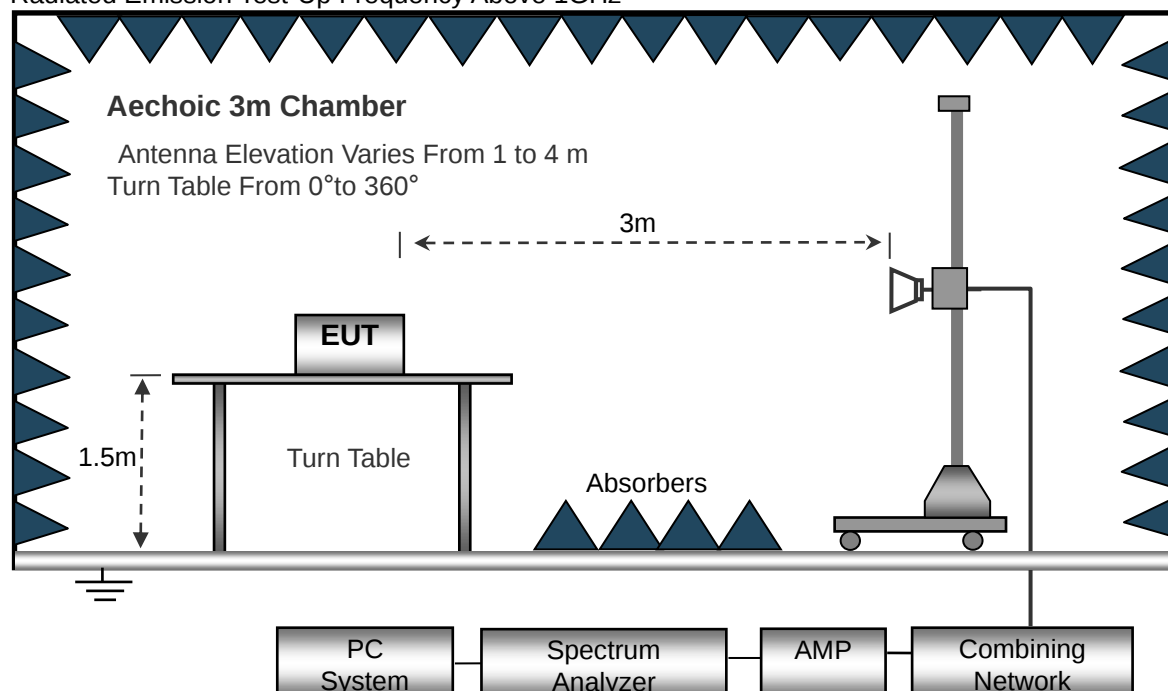
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz





3.3.5 EUT OPERATING 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.

3.3.6 TEST RESULT

802.11a(Band 1)

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5180									
V	5110	53.47	49.12	15.6	37.34	57.29	74	-16.71	PK
V	5110	40.12	49.12	15.6	37.34	43.94	54	-10.06	AV
H	5135	54.56	49.19	15.24	40.43	61.04	74	-12.96	PK
H	5135	36.99	49.19	15.24	40.43	43.47	54	-10.53	AV
V	5110	52.78	49.12	15.6	37.34	56.6	74	-17.4	PK
V	5110	37.70	49.12	15.6	37.34	41.52	54	-12.48	AV
H	5135	54.40	49.19	15.24	40.43	60.88	74	-13.12	PK
H	5135	33.77	49.19	15.24	40.43	40.25	54	-13.75	AV
operation frequency:5240									
V	5360	53.35	49.13	15.32	37.46	57	74	-17	PK
V	5360	35.99	49.13	15.32	37.46	39.64	54	-14.36	AV
H	5385	53.38	49.24	15.36	40.51	60.01	74	-13.99	PK
H	5385	32.29	49.24	15.36	40.51	38.92	54	-15.08	AV
V	5360	52.85	49.13	15.32	31.31	50.35	74	-23.65	PK
V	5360	40.90	49.13	15.32	31.31	38.4	54	-15.6	AV
H	5385	52.66	49.24	15.36	40.51	59.29	74	-14.71	PK
H	5385	32.99	49.24	15.36	40.51	39.62	54	-14.38	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	5110	51.83	49.12	15.6	37.34	55.65	74	-18.35	PK
V	5110	33.28	49.12	15.6	37.34	37.1	54	-16.9	AV
H	5135	52.08	49.19	15.24	40.43	58.56	74	-15.44	PK
H	5135	33.77	49.19	15.24	40.43	40.25	54	-13.75	AV
V	5110	51.45	49.12	15.6	37.34	55.27	74	-18.73	PK
V	5110	33.50	49.12	15.6	37.34	37.32	54	-16.68	AV
H	5135	51.05	49.19	15.24	40.43	57.53	74	-16.47	PK
H	5135	32.48	49.19	15.24	40.43	38.96	54	-15.04	AV
operation frequency:5240									
V	5360	53.47	49.13	15.32	37.46	57.12	74	-16.88	PK
V	5360	35.00	49.13	15.32	37.46	38.65	54	-15.35	AV
H	5385	51.05	49.24	15.36	40.51	57.68	74	-16.32	PK
H	5385	33.50	49.24	15.36	40.51	40.13	54	-13.87	AV
V	5360	54.47	49.13	15.32	31.31	51.97	74	-22.03	PK
V	5360	36.83	49.13	15.32	31.31	34.33	54	-19.67	AV
H	5385	51.61	49.24	15.36	40.51	58.24	74	-15.76	PK
H	5385	34.03	49.24	15.36	40.51	40.66	54	-13.34	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	5110	52.56	49.12	15.33	37.41	56.18	74	-17.82	PK
V	5110	34.69	49.12	15.33	37.41	38.31	54	-15.69	AV
H	5135	51.46	49.19	15.28	40.46	58.01	74	-15.99	PK
H	5135	33.99	49.19	15.28	40.46	40.54	54	-13.46	AV
V	5110	52.36	49.12	15.33	37.41	55.98	74	-18.02	PK
V	5110	34.99	49.12	15.33	37.41	38.61	54	-15.39	AV
H	5135	50.76	49.19	15.28	40.46	57.31	74	-16.69	PK
H	5135	33.81	49.19	15.28	40.46	40.36	54	-13.64	AV
operation frequency:5240									
V	5360	53.85	49.13	15.32	37.46	57.5	74	-16.5	PK
V	5360	36.28	49.13	15.32	37.46	39.93	54	-14.07	AV
H	5385	50.38	49.24	15.36	40.51	57.01	74	-16.99	PK
H	5385	33.77	49.24	15.36	40.51	40.4	54	-13.6	AV
V	5360	53.77	49.13	15.32	31.31	51.27	74	-22.73	PK
V	5360	40.82	49.13	15.32	31.31	38.32	54	-15.68	AV
H	5385	51.38	49.24	15.36	40.51	58.01	74	-15.99	PK
H	5385	35.55	49.24	15.36	40.51	42.18	54	-11.82	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5190									
V	5110	53.01	49.12	15.6	37.39	56.88	74	-17.12	PK
V	5110	35.82	49.12	15.6	37.39	39.69	54	-14.31	AV
H	5135	52.01	49.19	15.24	40.45	58.51	74	-15.49	PK
H	5135	34.68	49.19	15.24	40.45	41.18	54	-12.82	AV
V	5110	52.96	49.12	15.6	37.39	56.83	74	-17.17	PK
V	5110	35.20	49.12	15.6	37.39	39.07	54	-14.93	AV
H	5135	50.90	49.19	15.24	40.45	57.4	74	-16.6	PK
H	5135	35.50	49.19	15.24	40.45	42	54	-12	AV
operation frequency:5230									
V	5360	53.67	49.13	15.34	37.46	57.34	74	-16.66	PK
V	5360	37.68	49.13	15.34	37.46	41.35	54	-12.65	AV
H	5385	50.54	49.24	15.35	40.51	57.16	74	-16.84	PK
H	5385	36.77	49.24	15.35	40.51	43.39	54	-10.61	AV
V	5360	54.74	49.13	15.34	31.31	52.26	74	-21.74	PK
V	5360	42.14	49.13	15.34	31.31	39.66	54	-14.34	AV
H	5385	52.94	49.24	15.35	40.51	59.56	74	-14.44	PK
H	5385	36.72	49.24	15.35	40.51	43.34	54	-10.66	AV
Remark: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit 2. If peak below the average limit, the average emission was no test. 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.									



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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5190									
V	5110	52.85	49.12	15.32	37.41	56.46	74	-17.54	PK
V	5110	35.71	49.12	15.32	37.41	39.32	54	-14.68	AV
H	5135	51.86	49.19	15.36	40.46	58.49	74	-15.51	PK
H	5135	34.58	49.19	15.36	40.46	41.21	54	-12.79	AV
V	5110	52.80	49.12	15.32	37.41	56.41	74	-17.59	PK
V	5110	35.10	49.12	15.32	37.41	38.71	54	-15.29	AV
H	5135	50.75	49.19	15.36	40.46	57.38	74	-16.62	PK
H	5135	35.39	49.19	15.36	40.46	42.02	54	-11.98	AV
operation frequency:5230									
V	5360	53.51	49.13	15.34	37.34	57.06	74	-16.94	PK
V	5360	37.55	49.13	15.34	37.34	41.1	54	-12.9	AV
H	5385	50.39	49.24	15.35	40.43	56.93	74	-17.07	PK
H	5385	36.66	49.24	15.35	40.43	43.2	54	-10.8	AV
V	5360	54.58	49.13	15.34	37.34	58.13	74	-15.87	PK
V	5360	42.01	49.13	15.34	37.34	45.56	54	-8.44	AV
H	5385	52.78	49.24	15.35	40.43	59.32	74	-14.68	PK
H	5385	36.61	49.24	15.35	40.43	43.15	54	-10.85	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



802.11a(Band 4)

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5650	51.52	46.38	12.43	35.65	53.22	68.2	-14.98	PK
V	5650	41.05	46.38	12.43	35.65	42.75	54	-11.25	AV
H	5720	51.90	46.56	12.47	35.76	53.57	68.2	-14.63	PK
H	5720	41.24	46.56	12.47	35.76	42.91	54	-11.09	AV
V	5650	52.21	46.38	12.43	35.65	53.91	68.2	-14.29	PK
V	5650	41.24	46.38	12.43	35.65	42.94	54	-11.06	AV
H	5720	51.50	46.56	12.47	35.76	53.17	68.2	-15.03	PK
H	5720	41.17	46.56	12.47	35.76	42.84	54	-11.16	AV
operation frequency:5825									
V	5855	52.09	46.55	12.65	35.87	54.06	68.2	-14.14	PK
V	5855	40.34	46.55	12.65	35.87	42.31	54	-11.69	AV
H	5875	52.62	46.58	12.67	35.93	54.64	68.2	-13.56	PK
H	5875	40.07	46.58	12.67	35.93	42.09	54	-11.91	AV
V	5855	51.26	46.55	12.65	35.87	53.23	68.2	-14.97	PK
V	5855	39.28	46.55	12.65	35.87	41.25	54	-12.75	AV
H	5875	51.18	46.58	12.67	35.93	53.2	68.2	-15	PK
H	5875	39.51	46.58	12.67	35.93	41.53	54	-12.47	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



802.11n HT20

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5650	51.99	47.36	13.18	36.26	54.07	68.2	-14.13	PK
V	5650	42.10	47.36	13.18	36.26	44.18	54	-9.82	AV
H	5720	51.95	47.38	13.2	36.29	54.06	68.2	-14.14	PK
H	5720	41.81	47.38	13.2	36.29	43.92	54	-10.08	AV
V	5650	52.32	47.36	13.18	36.26	54.4	68.2	-13.8	PK
V	5650	41.43	47.36	13.18	36.26	43.51	54	-10.49	AV
H	5720	51.65	47.38	13.2	36.29	53.76	68.2	-14.44	PK
H	5720	40.42	47.38	13.2	36.29	42.53	54	-11.47	AV
operation frequency:5825									
V	5855	51.72	46.38	12.43	35.65	53.42	68.2	-14.78	PK
V	5855	41.66	46.38	12.43	35.65	43.36	54	-10.64	AV
H	5875	51.72	46.56	12.47	35.76	53.39	68.2	-14.81	PK
H	5875	41.93	46.56	12.47	35.76	43.6	54	-10.4	AV
V	5855	51.93	46.38	12.43	35.65	53.63	68.2	-14.57	PK
V	5855	40.44	46.38	12.43	35.65	42.14	54	-11.86	AV
H	5875	51.50	46.56	12.47	35.76	53.17	68.2	-15.03	PK
H	5875	40.47	46.56	12.47	35.76	42.14	54	-11.86	AV
Remark: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit 2. If peak below the average limit, the average emission was no test. 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.									



802.11ac HT20

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5650	51.78	46.55	12.65	35.87	53.75	68.2	-14.45	PK
V	5650	40.51	46.55	12.65	35.87	42.48	54	-11.52	AV
H	5720	52.14	46.58	12.67	35.93	54.16	68.2	-14.04	PK
H	5720	41.21	46.58	12.67	35.93	43.23	54	-10.77	AV
V	5650	51.91	46.55	12.65	35.87	53.88	68.2	-14.32	PK
V	5650	41.22	46.55	12.65	35.87	43.19	54	-10.81	AV
H	5720	51.59	46.58	12.67	35.93	53.61	68.2	-14.59	PK
H	5720	40.73	46.58	12.67	35.93	42.75	54	-11.25	AV
operation frequency:5825									
V	5855	51.52	47.36	13.18	36.26	53.6	68.2	-14.6	PK
V	5855	39.70	47.36	13.18	36.26	41.78	54	-12.22	AV
H	5875	50.89	47.38	13.2	36.29	53	68.2	-15.2	PK
H	5875	39.43	47.38	13.2	36.29	41.54	54	-12.46	AV
V	5855	51.16	47.36	13.18	36.26	53.24	68.2	-14.96	PK
V	5855	40.25	47.36	13.18	36.26	42.33	54	-11.67	AV
H	5875	51.20	47.38	13.2	36.29	53.31	68.2	-14.89	PK
H	5875	39.21	47.38	13.2	36.29	41.32	54	-12.68	AV
Remark: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit 2. If peak below the average limit, the average emission was no test. 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.									



802.11n HT40

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5650	51.97	46.38	12.43	35.65	53.67	68.2	-14.53	PK
V	5650	42.39	46.38	12.43	35.65	44.09	54	-9.91	AV
H	5720	52.30	46.56	12.47	35.76	53.97	68.2	-14.23	PK
H	5720	40.67	46.56	12.47	35.76	42.34	54	-11.66	AV
V	5650	52.34	46.38	12.43	35.65	54.04	68.2	-14.16	PK
V	5650	41.31	46.38	12.43	35.65	43.01	54	-10.99	AV
H	5720	51.97	46.56	12.47	35.76	53.64	68.2	-14.56	PK
H	5720	41.73	46.56	12.47	35.76	43.4	54	-10.6	AV
operation frequency:5825									
V	5855	51.62	46.55	12.65	35.87	53.59	68.2	-14.61	PK
V	5855	41.61	46.55	12.65	35.87	43.58	54	-10.42	AV
H	5875	51.62	46.58	12.67	35.93	53.64	68.2	-14.56	PK
H	5875	41.88	46.58	12.67	35.93	43.9	54	-10.1	AV
V	5855	51.83	46.55	12.65	35.87	53.8	68.2	-14.4	PK
V	5855	40.40	46.55	12.65	35.87	42.37	54	-11.63	AV
H	5875	51.40	46.58	12.67	35.93	53.42	68.2	-14.78	PK
H	5875	40.43	46.58	12.67	35.93	42.45	54	-11.55	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



802.11ac HT40

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5650	51.81	47.36	13.18	36.26	53.89	68.2	-14.31	PK
V	5650	42.23	47.36	13.18	36.26	44.31	54	-9.69	AV
H	5720	52.14	47.38	13.2	36.29	54.25	68.2	-13.95	PK
H	5720	40.51	47.38	13.2	36.29	42.62	54	-11.38	AV
V	5650	52.18	47.36	13.18	36.26	54.26	68.2	-13.94	PK
V	5650	41.14	47.36	13.18	36.26	43.22	54	-10.78	AV
H	5720	51.81	47.38	13.2	36.29	53.92	68.2	-14.28	PK
H	5720	41.57	47.38	13.2	36.29	43.68	54	-10.32	AV
operation frequency:5825									
V	5855	51.54	46.38	12.43	35.65	53.24	68.2	-14.96	PK
V	5855	40.82	46.38	12.43	35.65	42.52	54	-11.48	AV
H	5875	51.42	46.56	12.47	35.76	53.09	68.2	-15.11	PK
H	5875	40.69	46.56	12.47	35.76	42.36	54	-11.64	AV
V	5855	51.69	46.38	12.43	35.65	53.39	68.2	-14.81	PK
V	5855	41.13	46.38	12.43	35.65	42.83	54	-11.17	AV
H	5875	51.60	46.56	12.47	35.76	53.27	68.2	-14.93	PK
H	5875	40.64	46.56	12.47	35.76	42.31	54	-11.69	AV
Remark: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit 2. If peak below the average limit, the average emission was no test. 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.									



4. AVERAGING OUTPUT POWER

4.1 APPLIED PROCEDURES / LIMIT

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.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

4.1.1 TEST PROCEDURE

Method SA-2 uses trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction. The procedure for this method is as follows:

- a) Measure the duty cycle D of the transmitter output signal as described in 12.2.
- b) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.
- c) Set RBW=1 MHz.
- d) Set VBW ≥ 3 MHz.
- e) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- f) Sweep time = auto.
- g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- h) Do not use sweep triggering. Allow the sweep to "free run."
- i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
- j) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.
- k) Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and off times of the transmission). For example, add $[10 \log (1 / 0.25)] = 6$ dB if the duty cycle is 25%.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**4.1.5 TEST RESULTS**

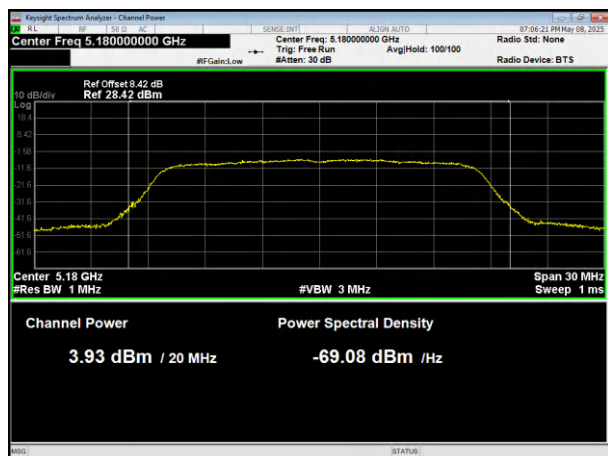
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC 3.85V

Band	Mode	Test Channel	Average Output Power (dBm)	Duty factor (dB)	Total Output Power(dBm)	LIMIT (dBm)
Band 1	802.11a	Low	3.926	1.12	5.046	23.98
		Middle	3.439	1.12	4.559	23.98
		High	4.373	0.87	5.243	23.98
	802.11ac HT20	Low	3.794	0.13	3.924	23.98
		Middle	3.361	0.16	3.521	23.98
		High	3.275	0.13	3.405	23.98
	802.11ac HT40	Low	3.982	0.26	4.242	23.98
		High	3.843	0.26	4.103	23.98
	802.11n HT20	Low	4.648	0.16	4.808	23.98
		Middle	4.14	0.16	4.3	23.98
		High	3.224	0.13	3.354	23.98
	802.11n HT40	Low	3.523	0.32	3.843	23.98
		High	3.337	0.26	3.597	23.98

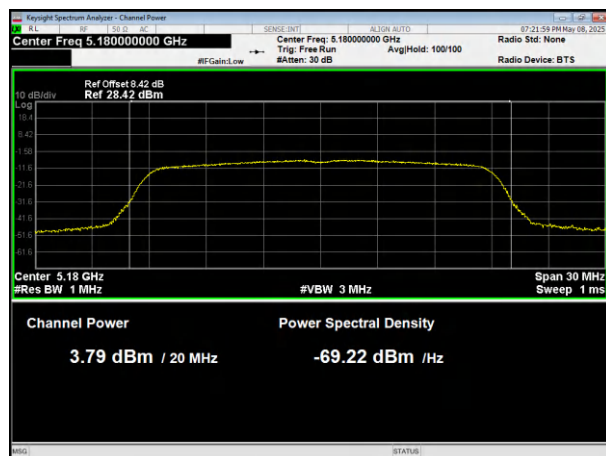
Band	Mode	Test Channel	Average Output Power (dBm)	Duty factor (dB)	Total Output Power(dBm)	LIMIT (dBm)
Band 4	802.11a	Low	3.573	0.87	4.443	30
		Middle	3.982	0.87	4.852	30
		High	4.003	1.12	5.123	30
	802.11ac HT20	Low	3.353	0.13	3.483	30
		Middle	2.853	0.13	2.983	30
		High	3.862	0.16	4.022	30
	802.11ac HT40	Low	3.759	0.26	4.019	30
		High	3.865	0.26	4.125	30
	802.11n HT20	Low	4.306	0.13	4.436	30
		Middle	3.722	0.13	3.852	30
		High	3.574	0.13	3.704	30
	802.11n HT40	Low	3.739	0.26	3.999	30
		High	3.9	0.26	4.16	30



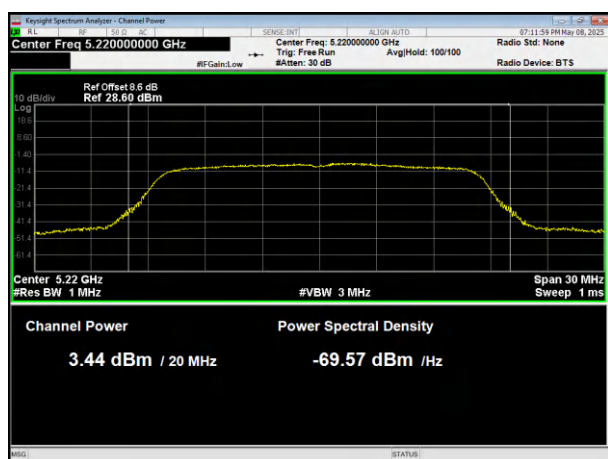
802.11a



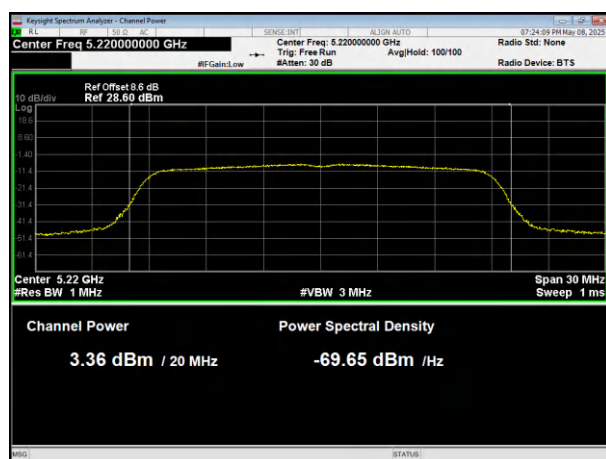
802.11ac HT20



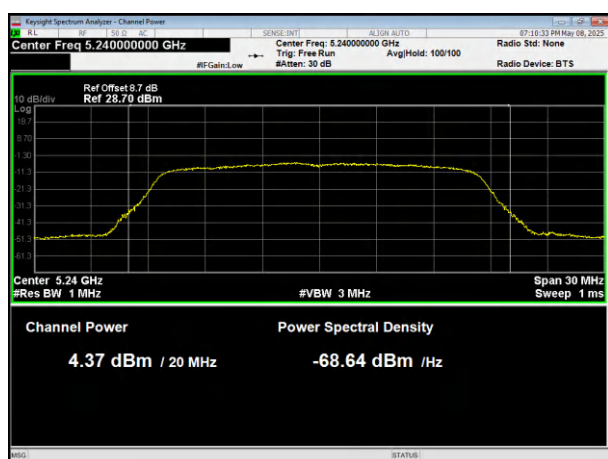
5180MHz



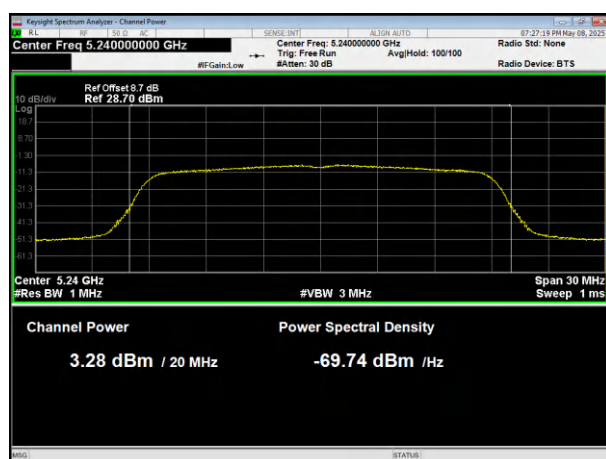
5180MHz



5200MHz



5200MHz

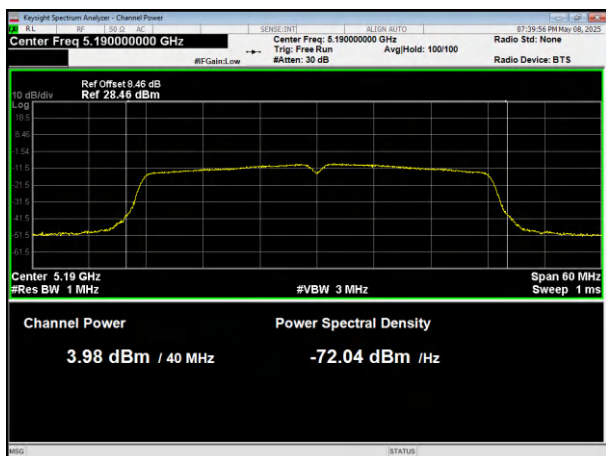


5240MHz

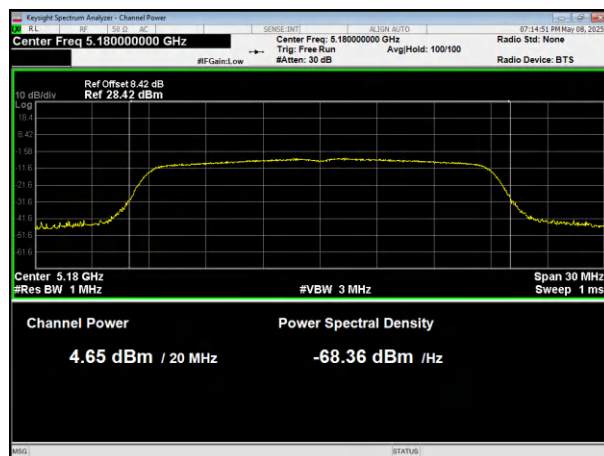
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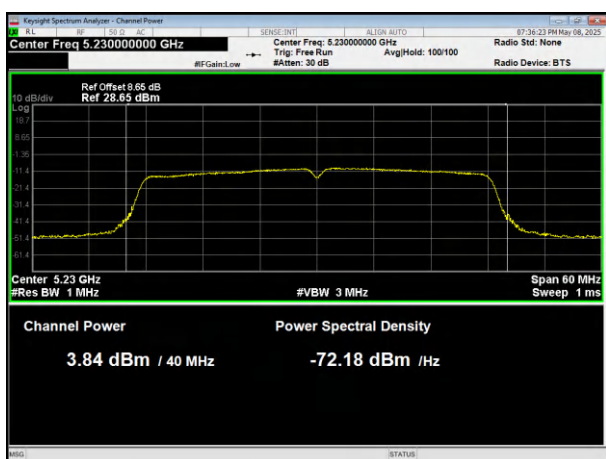
802.11ac HT40



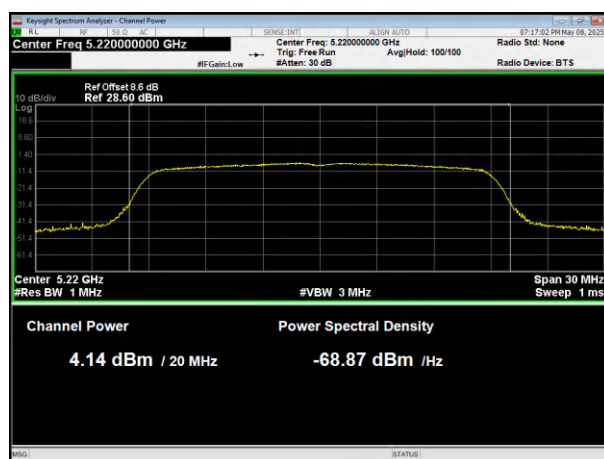
802.11n HT20



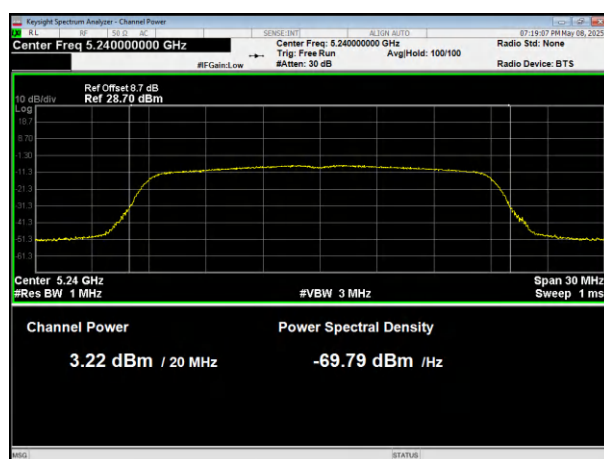
5190MHz



5180MHz



5230MHz

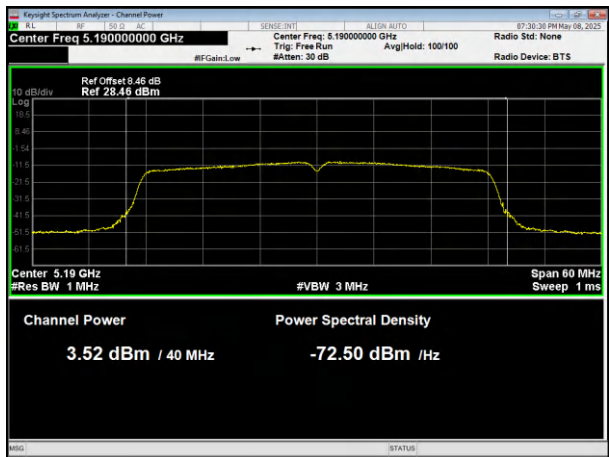


5200MHz

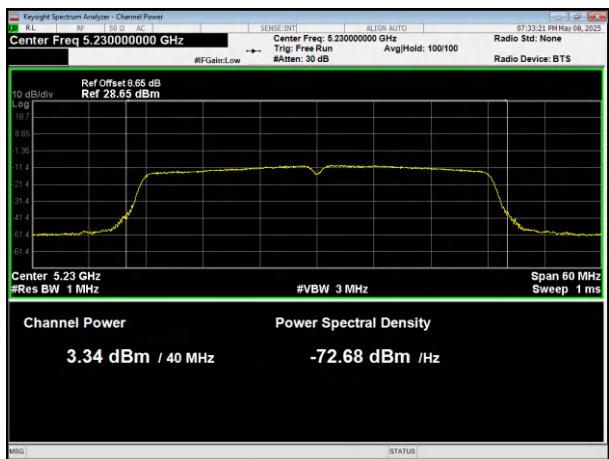
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802.11n HT40



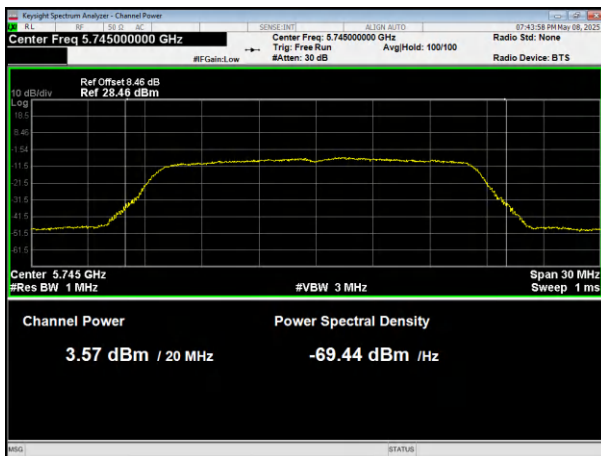
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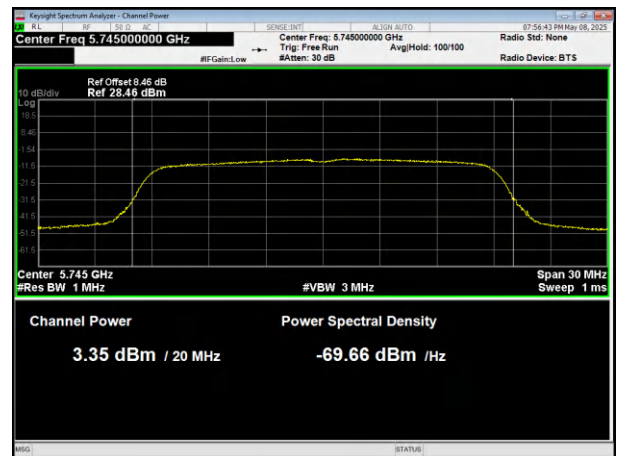
5230MHz



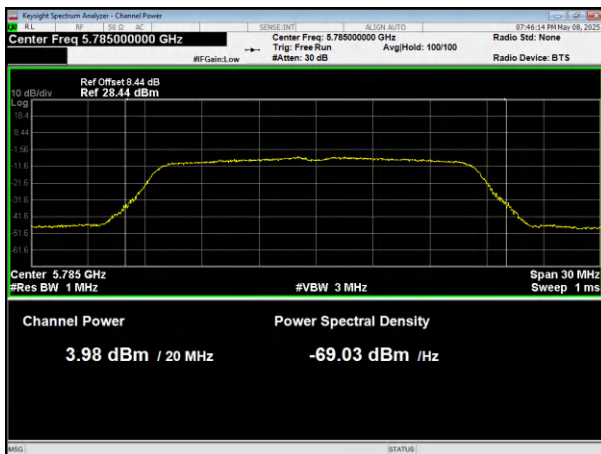
802.11a



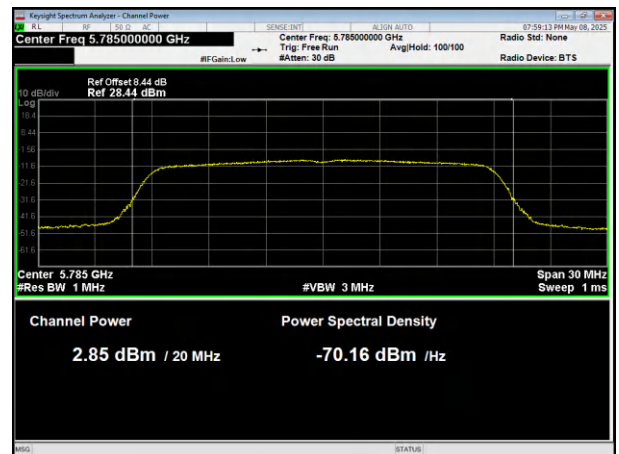
802.11ac HT20



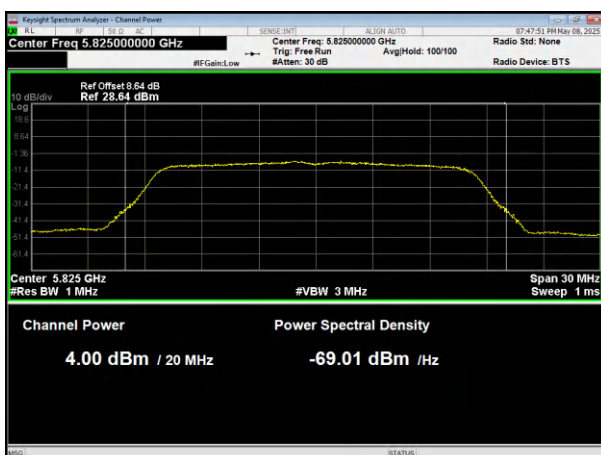
5745MHz



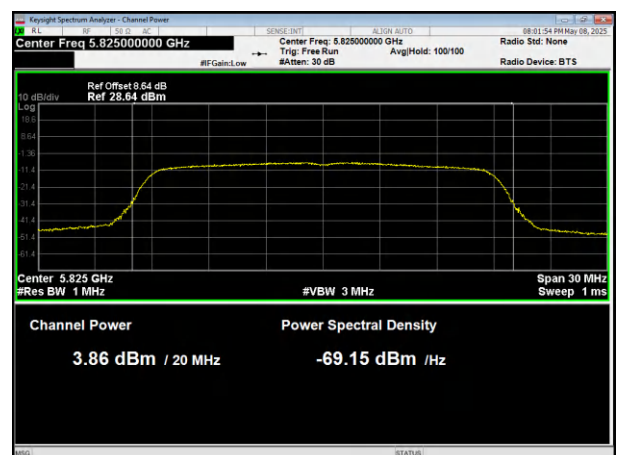
5745MHz



5785MHz



5785MHz

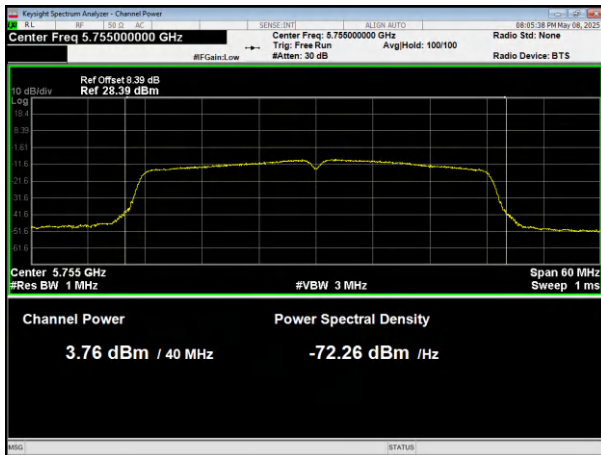


5825MHz

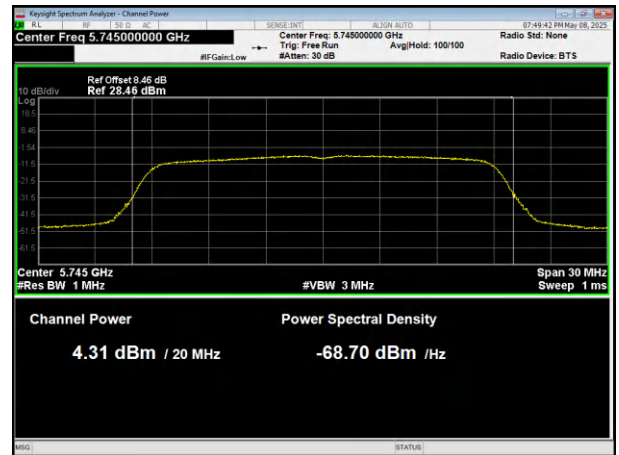
5825MHz



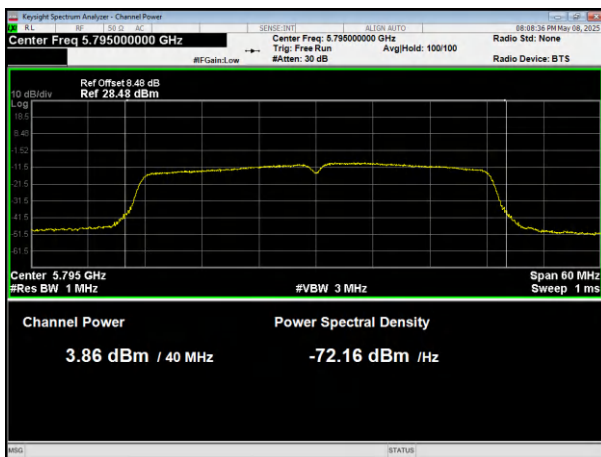
802.11ac HT40



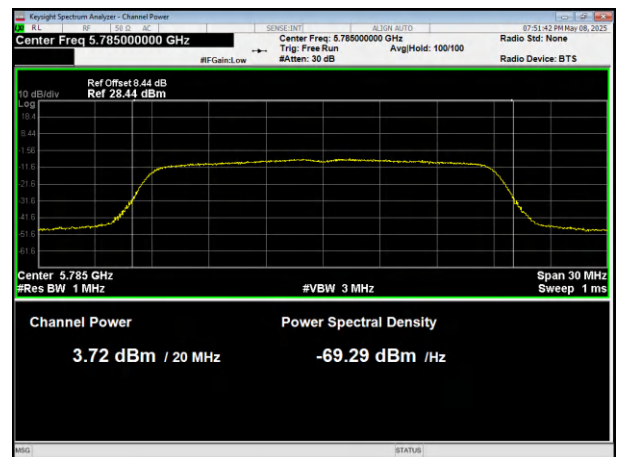
802.11n HT20



5755MHz



5745MHz



5795MHz

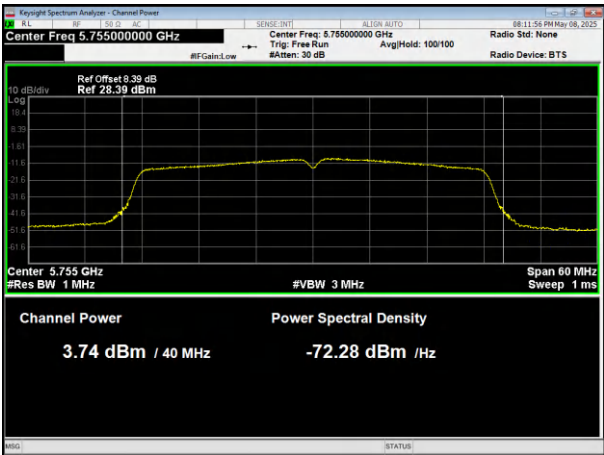


5785MHz

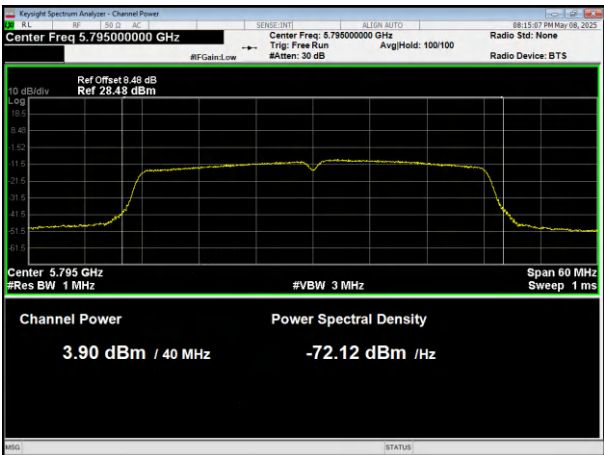
5825MHz



802.11n HT40



5755MHz



5795MHz



5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

In addition, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	= the frequency band of operation
RB	RBW $\geq$ 1MHz for band 1 RBW $\geq$ 510KHz for band 4
VB	VBW $\geq$ 3RBW
Detector	RMS (i.e., power averaging).
Trace	Average
Sweep Time	Auto

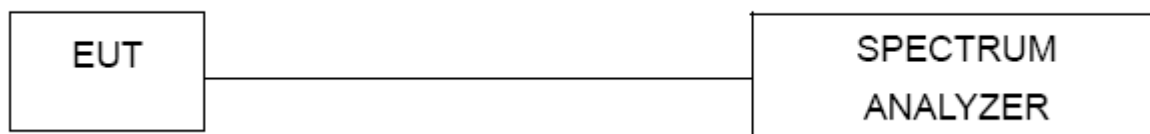
5.1.1 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. For U-NII1, U-NII-2A, U-NII-2C Band:
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
For U-NII-3 Band:
Set RBW=510 kHz, VBW=3*RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. Use the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
we test all antennas, the antenna 1 was worst mode and the data recording in the report.
7. Duty factor Reference is made to the test results in Section 7.1.5.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

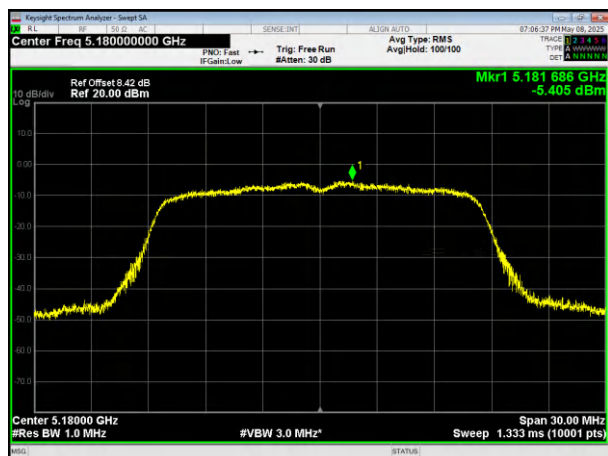
**5.1.5 TEST RESULTS**

	Mode	Test Channel	Reading Level (dBm/MHz)	Duty factor (dB)	PSD (dBm/MHz)	Limit (dBm)	Result
Band1	802.11a	Low	-5.405	1.12	-4.285	11.00	PASS
		Middle	-6.062	1.12	-4.942	11.00	PASS
		High	-4.744	0.87	-3.874	11.00	PASS
	802.11ac20	Low	-5.791	0.13	-5.661	11.00	PASS
		Middle	-6.762	0.16	-6.602	11.00	PASS
		High	-6.459	0.13	-6.329	11.00	PASS
	802.11ac40	Low	-8.257	0.26	-7.997	11.00	PASS
		High	-8.925	0.26	-8.665	11.00	PASS
	802.11n20	Low	-5.147	0.16	-4.987	11.00	PASS
		Middle	-5.589	0.16	-5.429	11.00	PASS
		High	-6.114	0.13	-5.984	11.00	PASS
	802.11n40	Low	-8.901	0.32	-8.581	11.00	PASS
		High	-9.333	0.26	-9.073	11.00	PASS

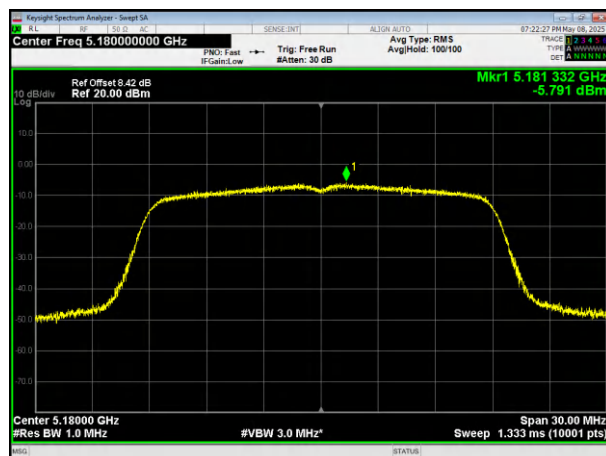
	Mode	Test Channel	Reading Level (dBm/510kHz)	Duty factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Band4	802.11a	Low	-8.533	0.87	-7.663	30.00	PASS
		Middle	-8.456	0.87	-7.586	30.00	PASS
		High	-7.779	1.12	-6.659	30.00	PASS
	802.11ac20	Low	-9.554	0.13	-9.424	30.00	PASS
		Middle	-9.933	0.13	-9.803	30.00	PASS
		High	-8.897	0.16	-8.737	30.00	PASS
	802.11ac40	Low	-11.347	0.26	-11.087	30.00	PASS
		High	-11.625	0.26	-11.365	30.00	PASS
	802.11n20	Low	-8.73	0.13	-8.6	30.00	PASS
		Middle	-9.108	0.13	-8.978	30.00	PASS
		High	-9.021	0.13	-8.891	30.00	PASS
	802.11n40	Low	-10.859	0.26	-10.599	30.00	PASS
		High	-11.467	0.26	-11.207	30.00	PASS



802.11a



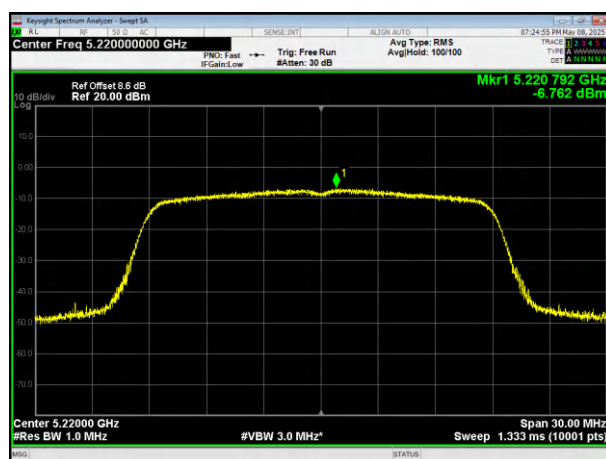
802.11ac HT20



5180MHz



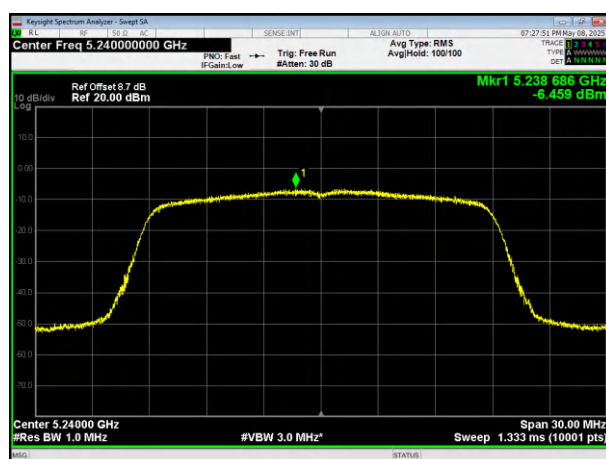
5180MHz



5200MHz



5200MHz

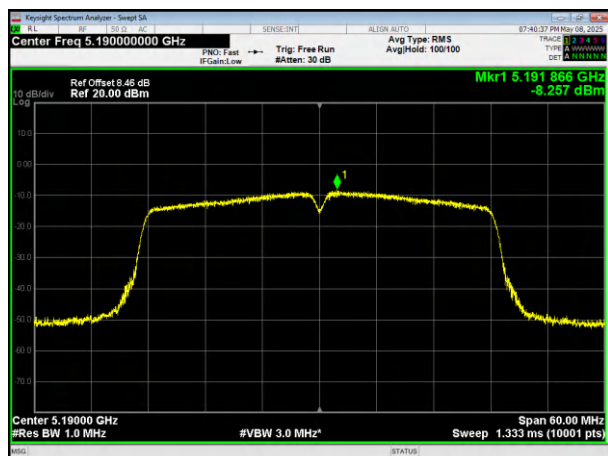


5240MHz

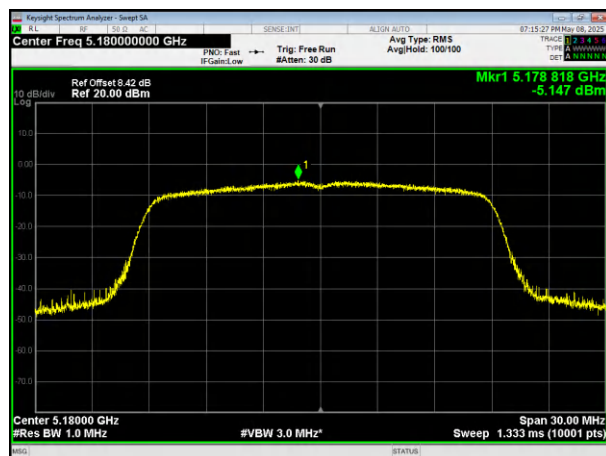
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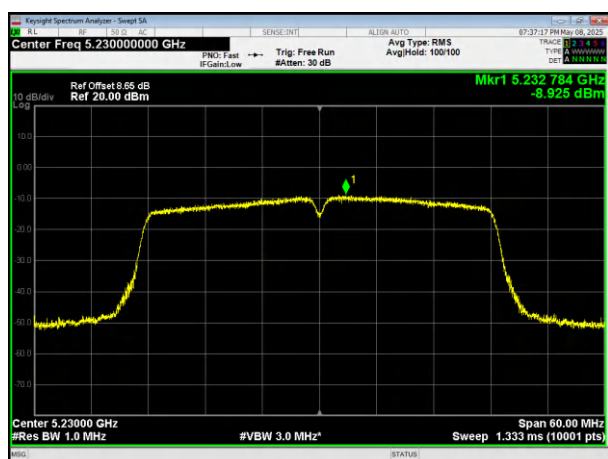
802.11ac HT40



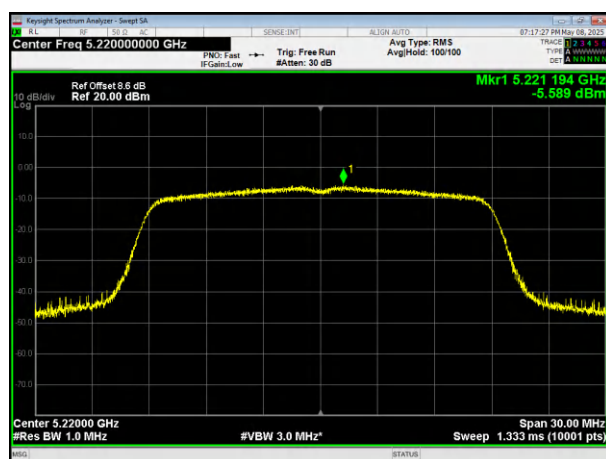
802.11n HT20



5190MHz

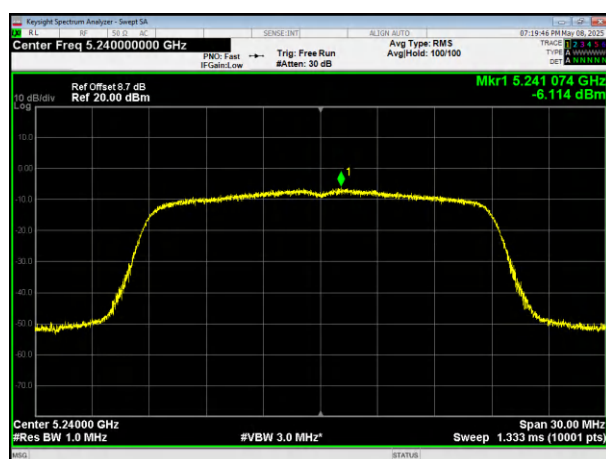


5180MHz



5230MHz

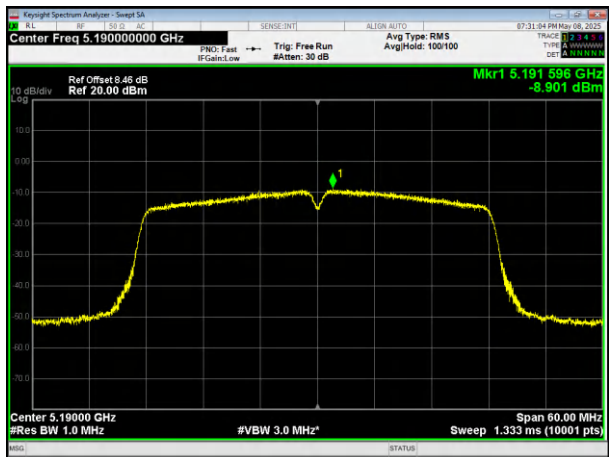
5200MHz



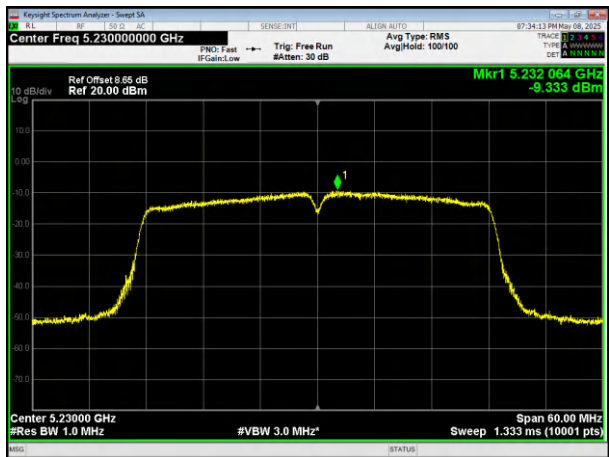
5240MHz



802.11n HT40



5190MHz



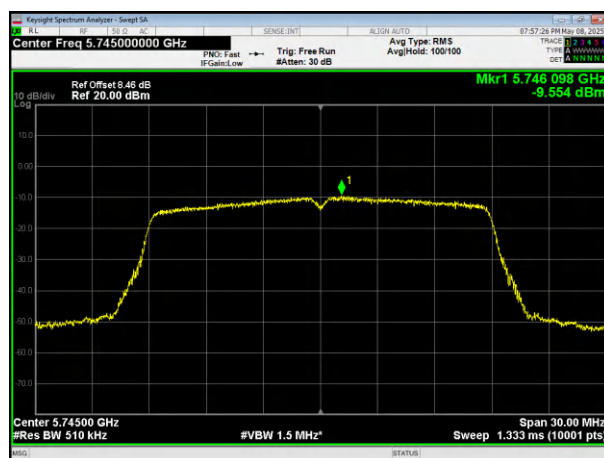
5230MHz



802.11a



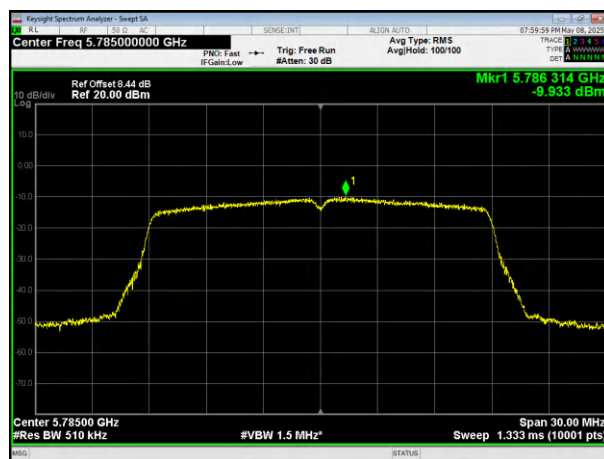
802.11ac HT20



5745MHz



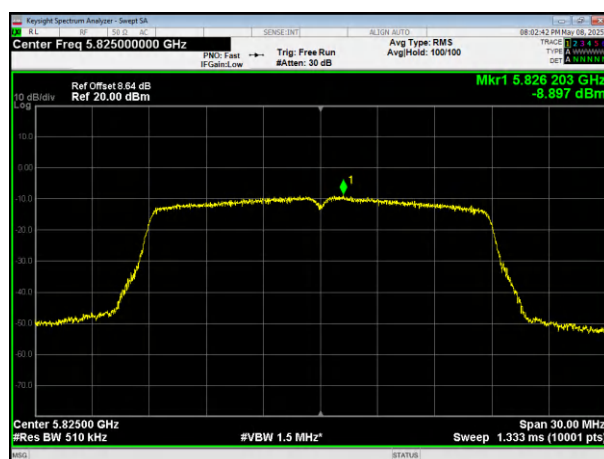
5745MHz



5785MHz



5785MHz

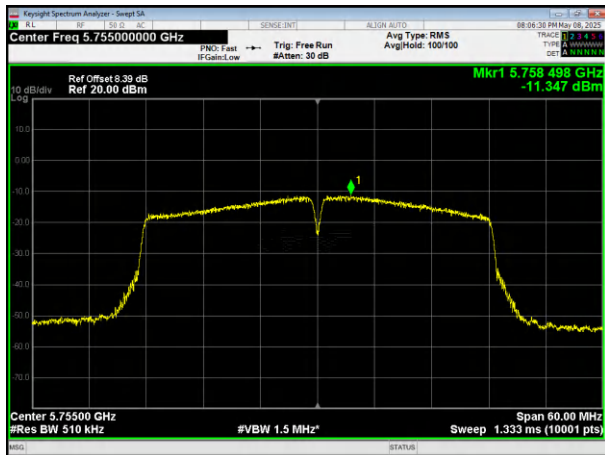


5825MHz

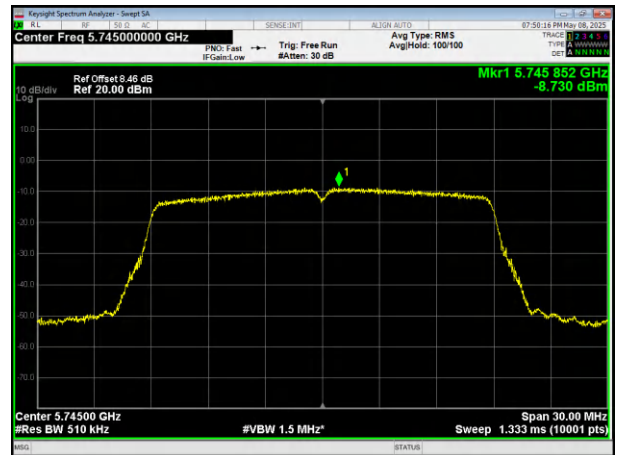
5825MHz



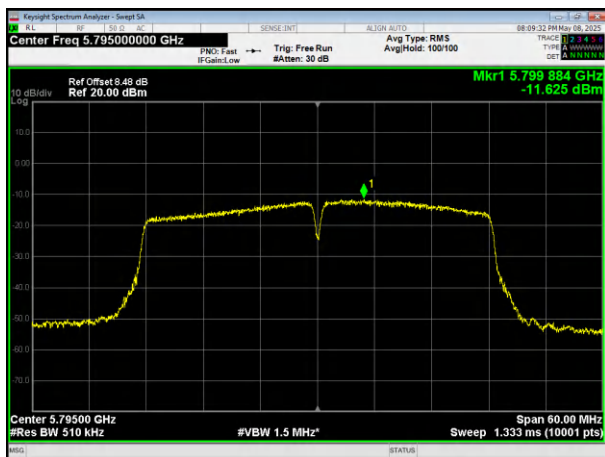
802.11ac HT40



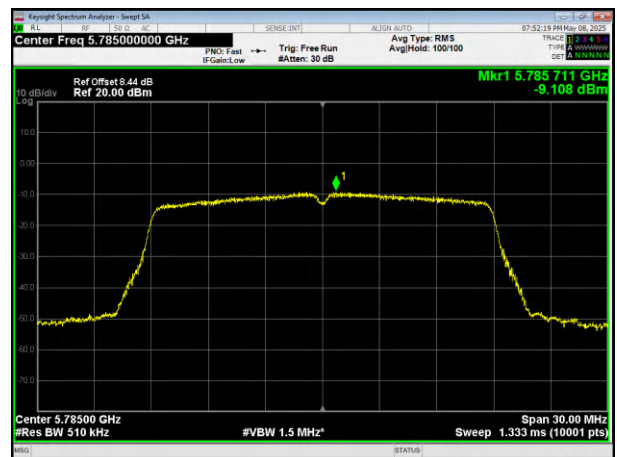
802.11n HT20



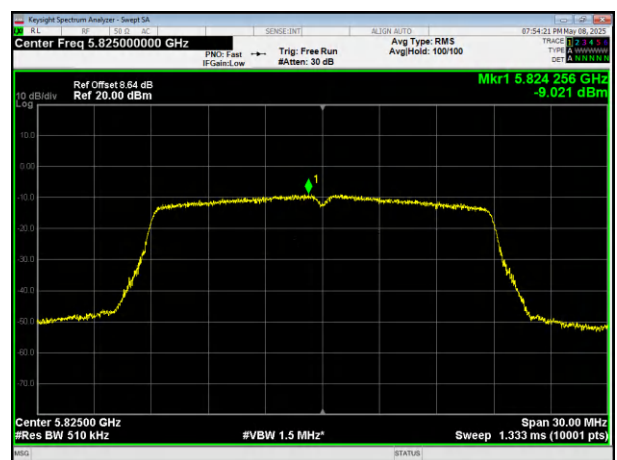
5755MHz



5745MHz



5795MHz

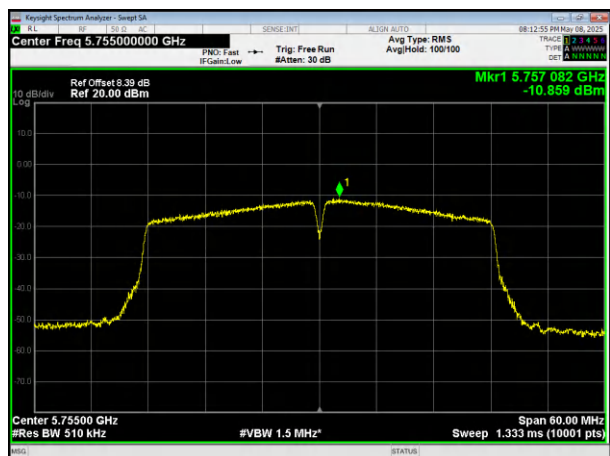


5785MHz

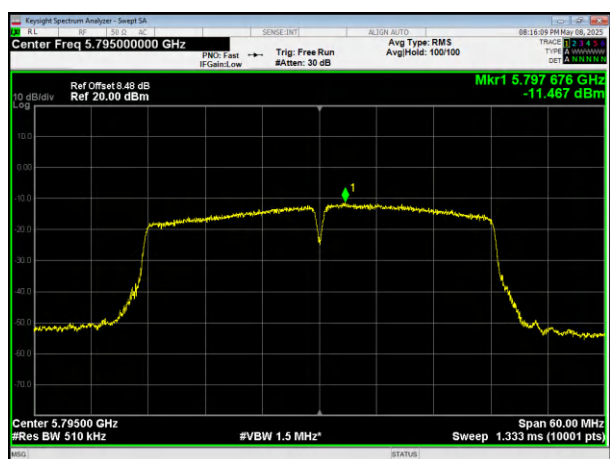
5825MHz



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.

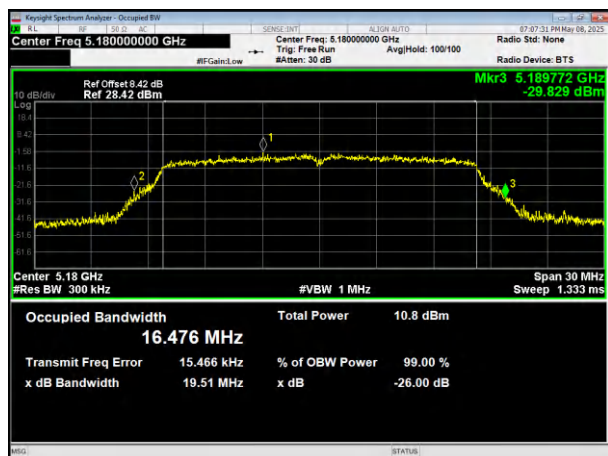
6.1.5 TEST RESULTS

		Test Channel	26dB Bandwidth (MHz)	Result
Band 1	802.11a	Low	19.514	Pass
		Middle	19.715	Pass
		High	19.746	Pass
	802.11ac HT20	Low	20.116	Pass
		Middle	20.44	Pass
		High	20.364	Pass
	802.11ac HT40	Low	39.775	Pass
		High	40.129	Pass
	802.11n HT20	Low	20.398	Pass
		Middle	20.742	Pass
		High	20.232	Pass
	802.11n HT40	Low	39.741	Pass
		High	40.185	Pass

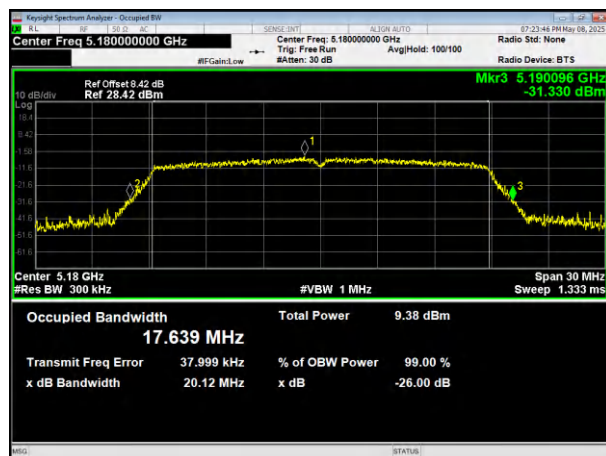
		Test Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Result
Band 4	802.11a	Low	15.655	>0.5	Pass
		Middle	16.026	>0.5	Pass
		High	16.337	>0.5	Pass
	802.11ac HT20	Low	16.005	>0.5	Pass
		Middle	17.293	>0.5	Pass
		High	16.656	>0.5	Pass
	802.11ac HT40	Low	35.05	>0.5	Pass
		High	35.065	>0.5	Pass
	802.11n HT20	Low	16.313	>0.5	Pass
		Middle	14.192	>0.5	Pass
		High	16.133	>0.5	Pass
	802.11n HT40	Low	31.284	>0.5	Pass
		High	35.035	>0.5	Pass



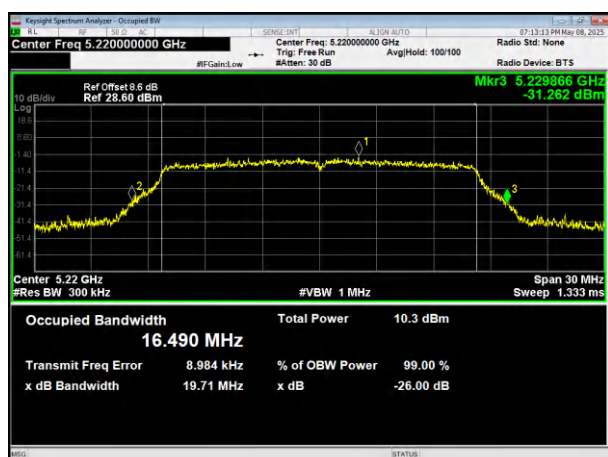
802.11a



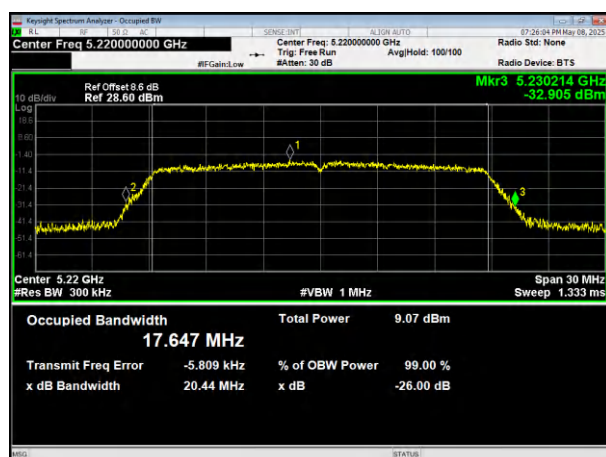
802.11ac HT20



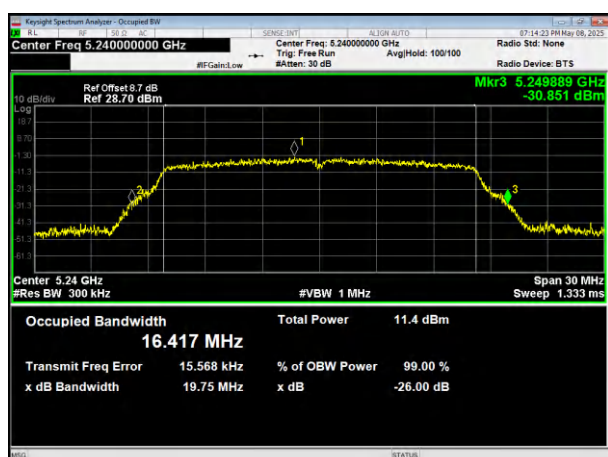
5180MHz



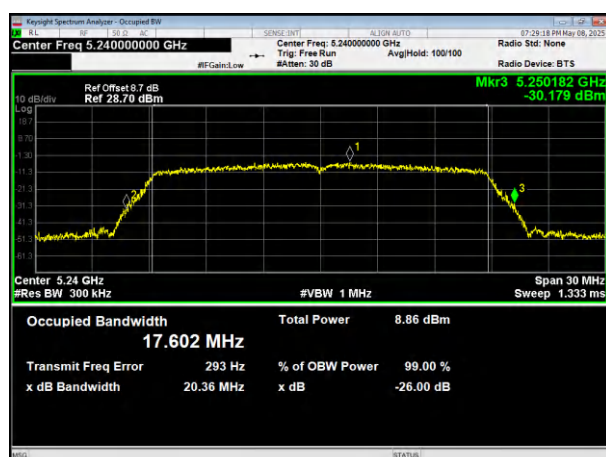
5180MHz



5200MHz



5200MHz

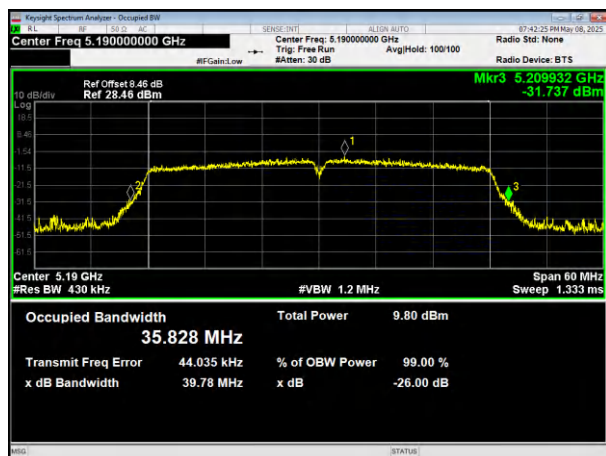


5240MHz

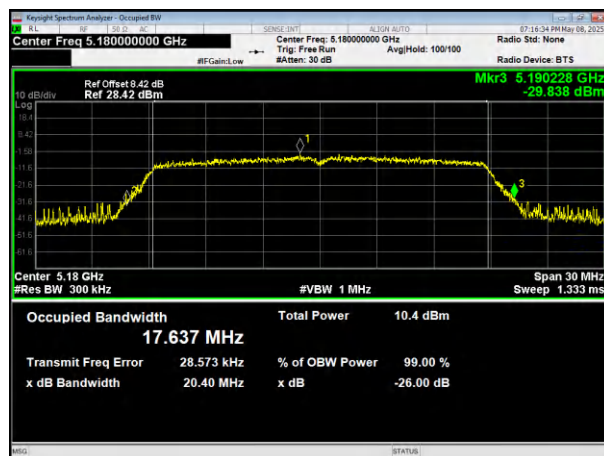
5240MHz



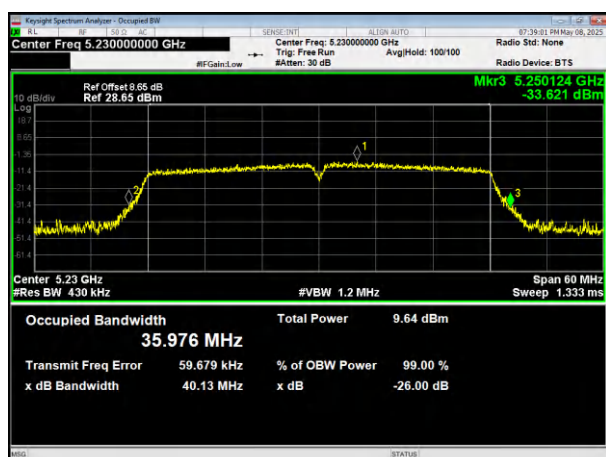
802.11ac HT40



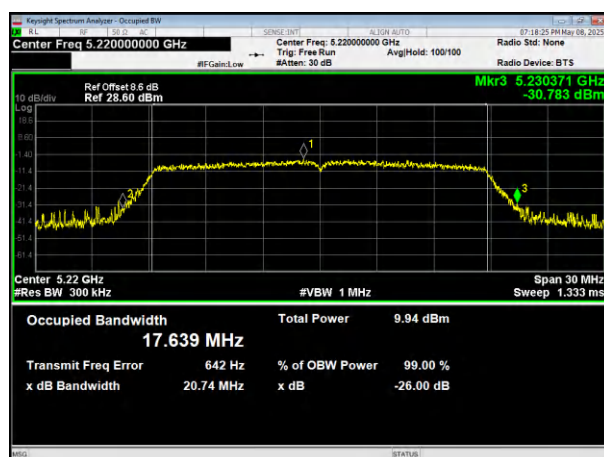
802.11n HT20



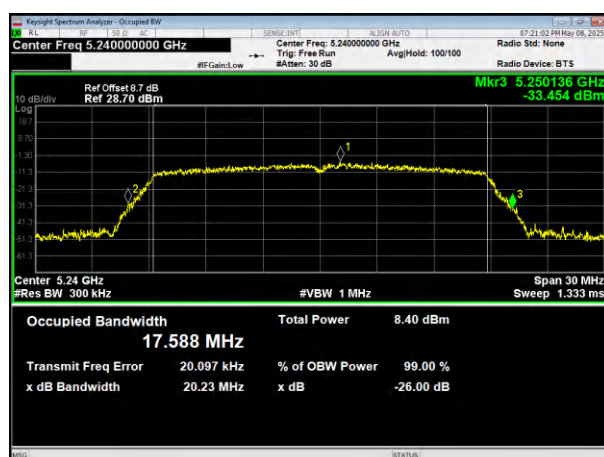
5190MHz



5180MHz



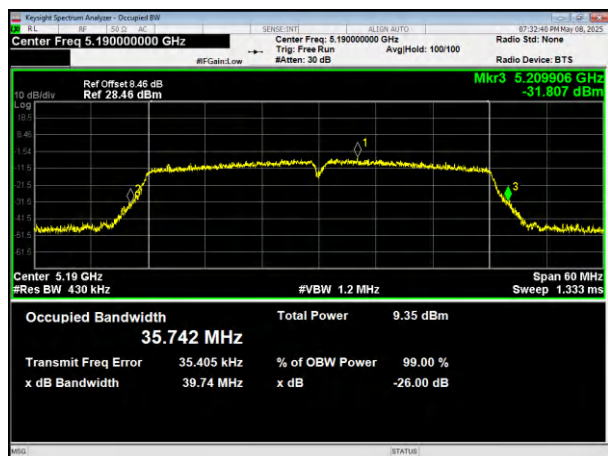
5230MHz



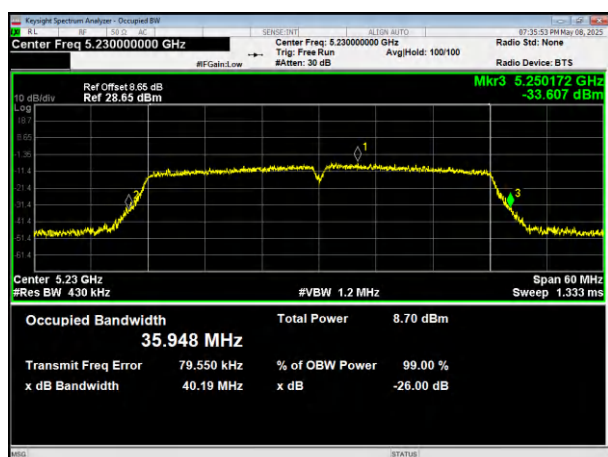
5240MHz



802.11n HT40



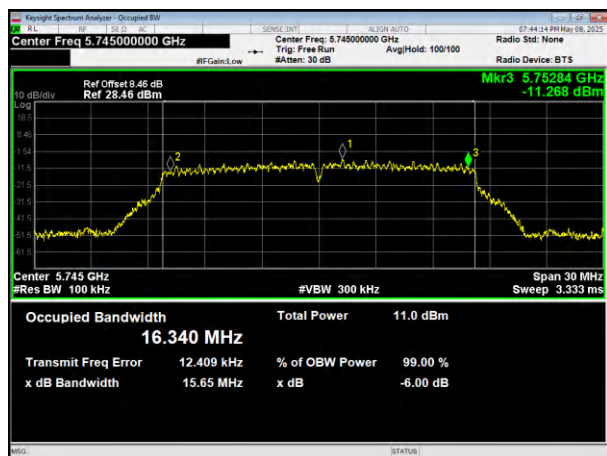
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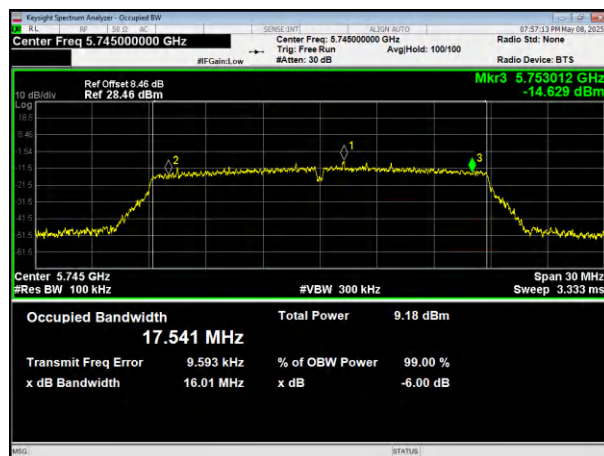
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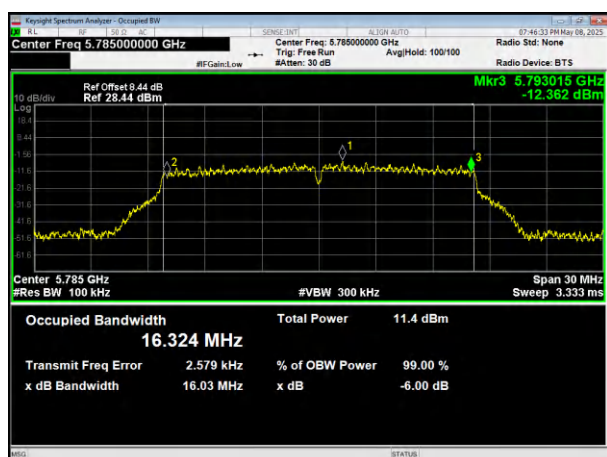
802.11a



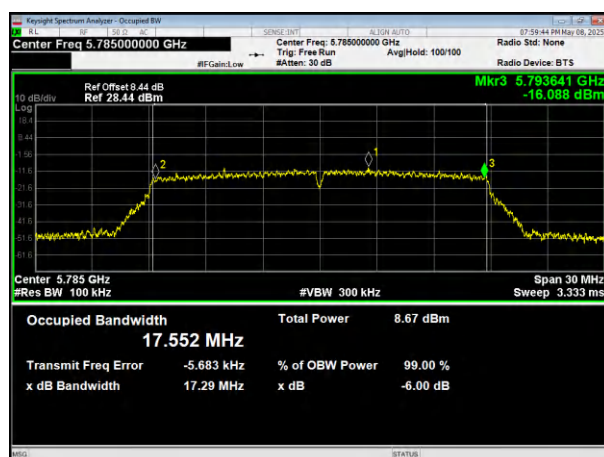
802.11ac HT20



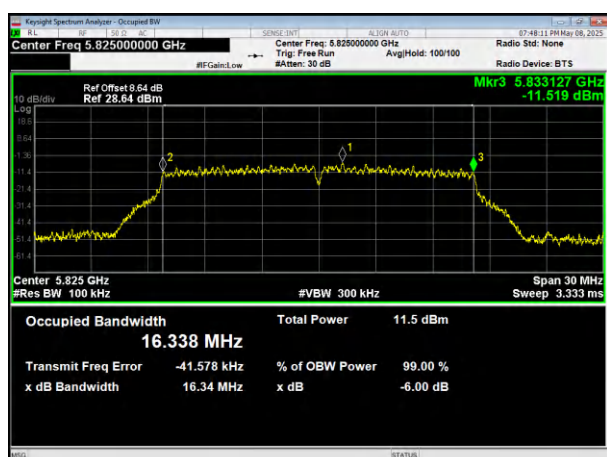
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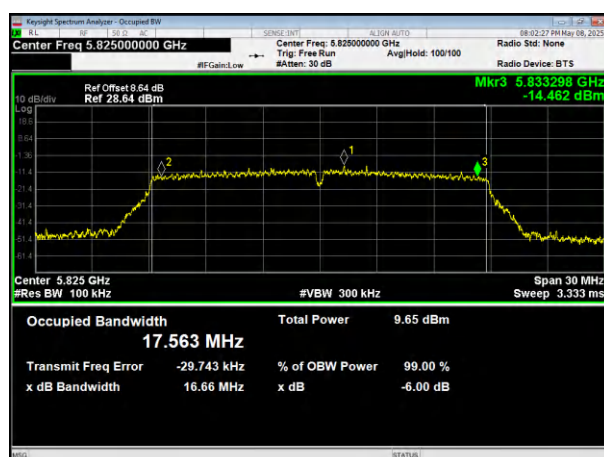
5745MHz



5785MHz



5785MHz

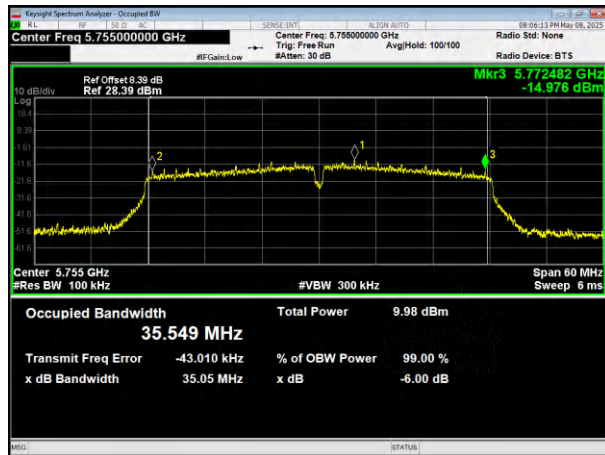


5825MHz

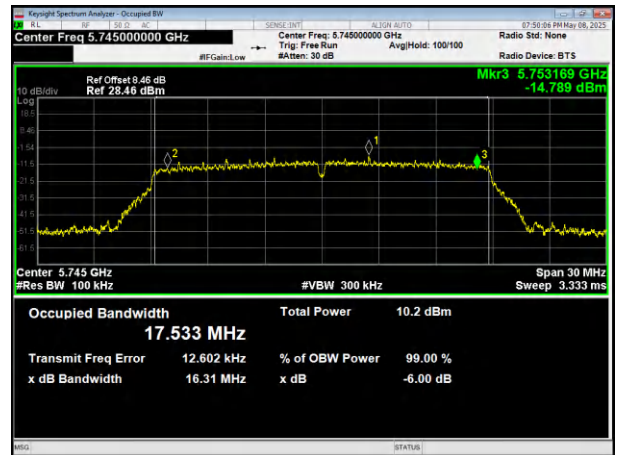
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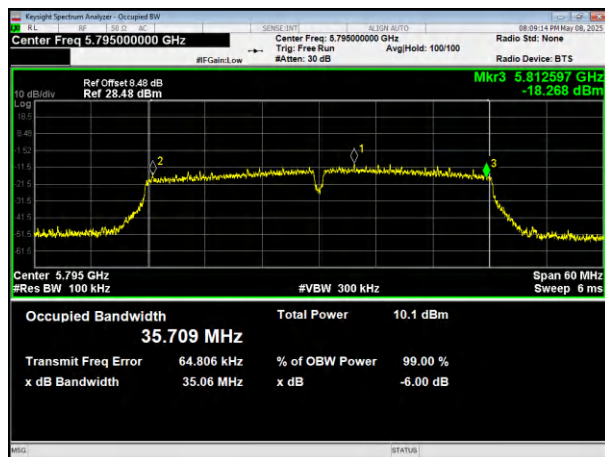
802.11ac HT40



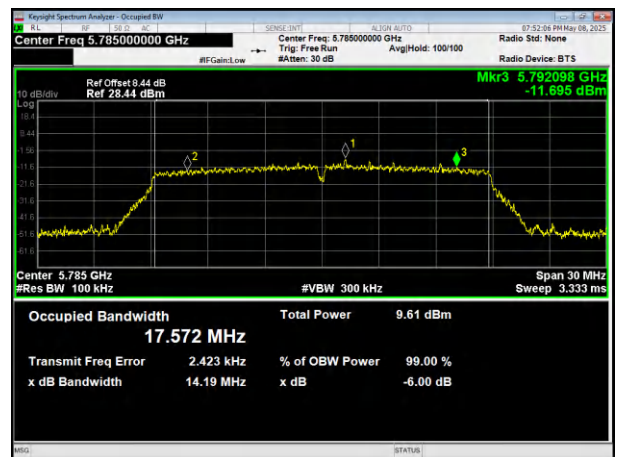
802.11n HT20



5755MHz



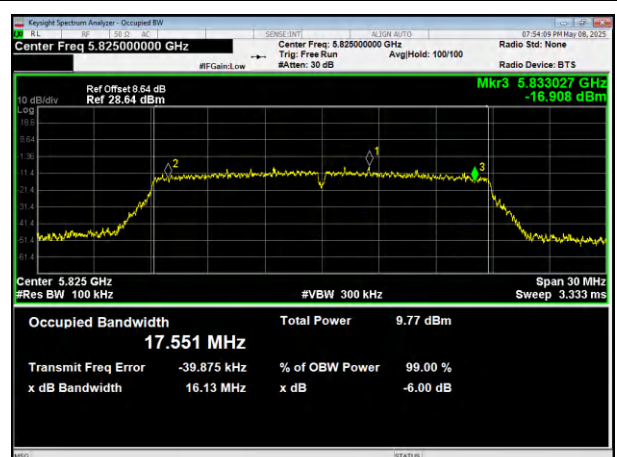
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5795MHz



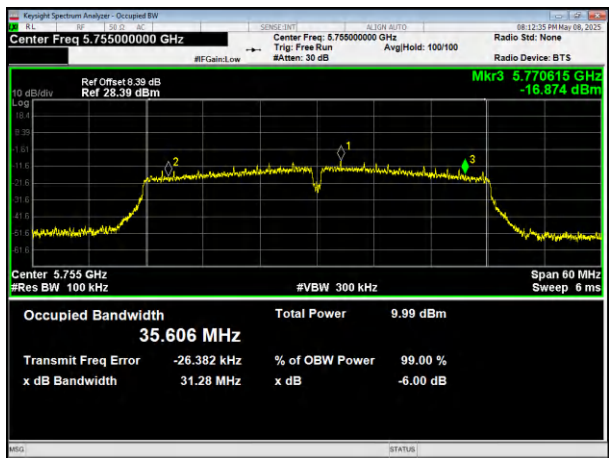
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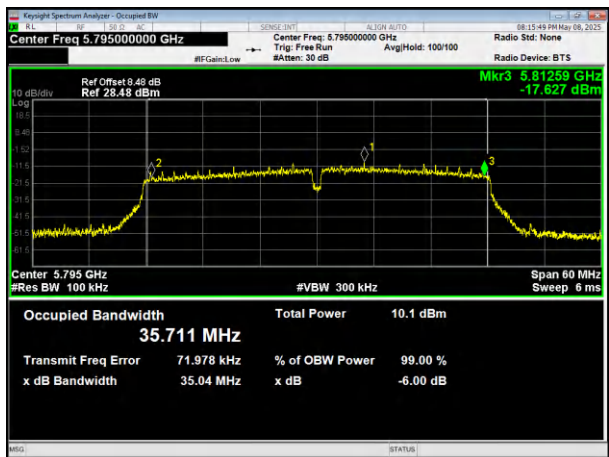
5825MHz



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) $\geq$ 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.

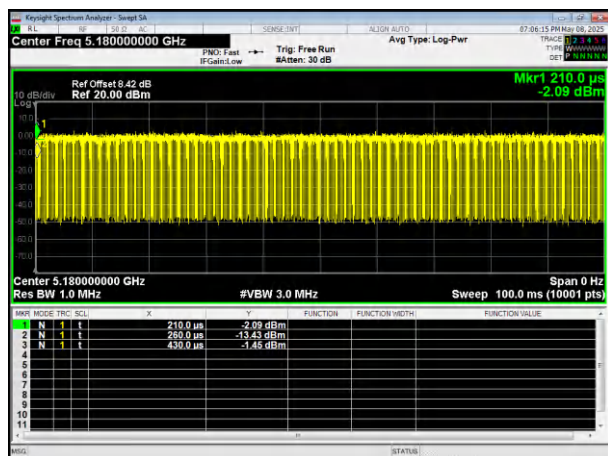
**7.1.5 TEST RESULTS**

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

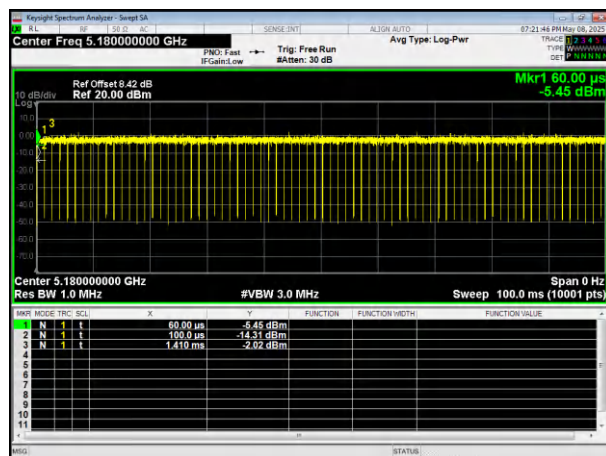
		Test Channel	Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 4	802.11a	Low	81.82	0.87
		Middle	81.82	0.87
		High	77.27	1.12
	802.11ac HT20	Low	97.04	0.13
		Middle	97.04	0.13
		High	96.32	0.16
	802.11ac HT40	Low	94.29	0.26
		High	94.29	0.26
	802.11n HT20	Low	97.04	0.13
		Middle	97.01	0.13
		High	97.01	0.13
	802.11n HT40	Low	94.2	0.26
		High	94.2	0.26



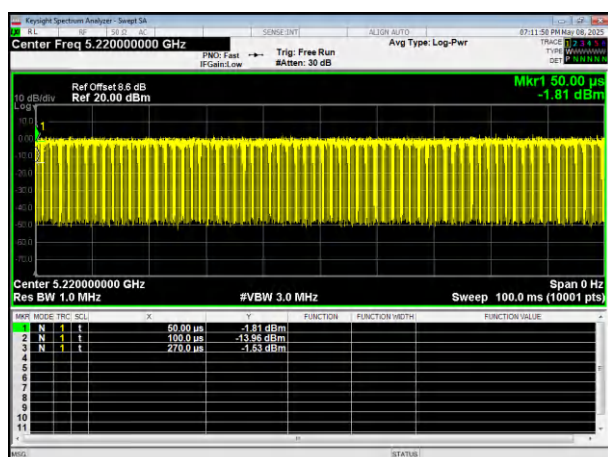
802.11a



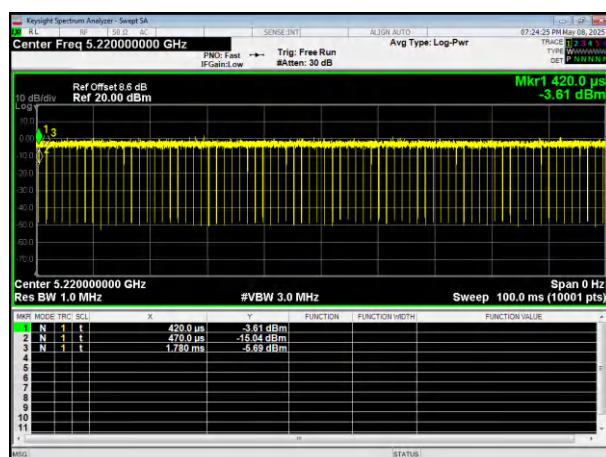
802.11ac HT20



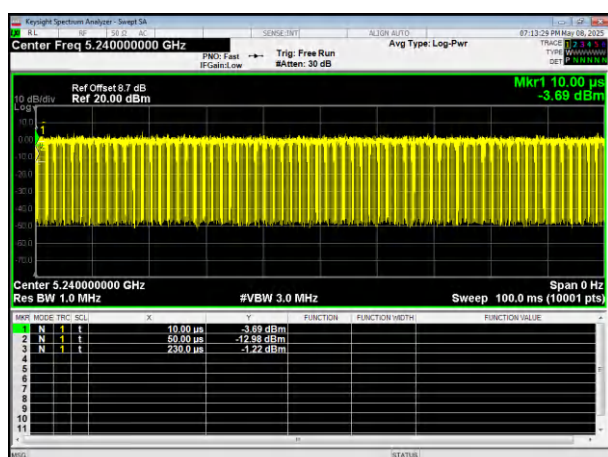
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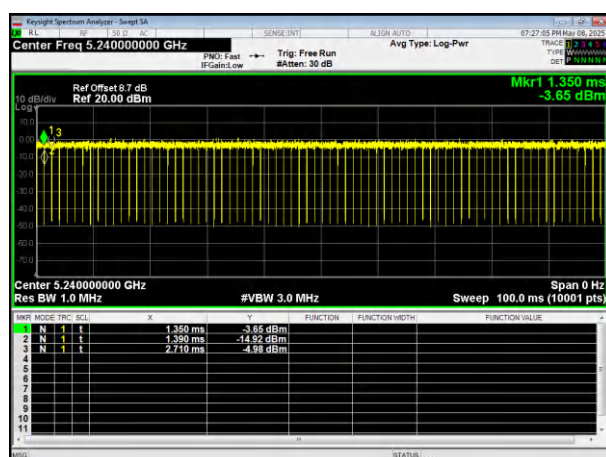
5180MHz



5200MHz



5200MHz

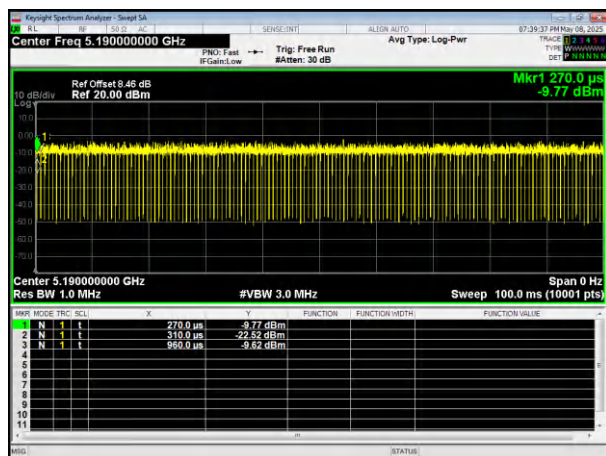


5240MHz

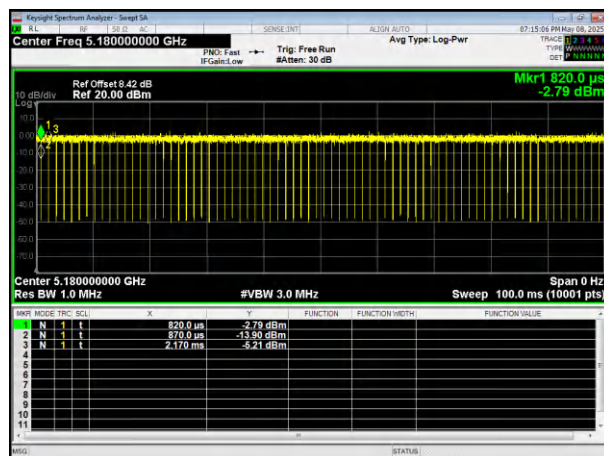
5240MHz



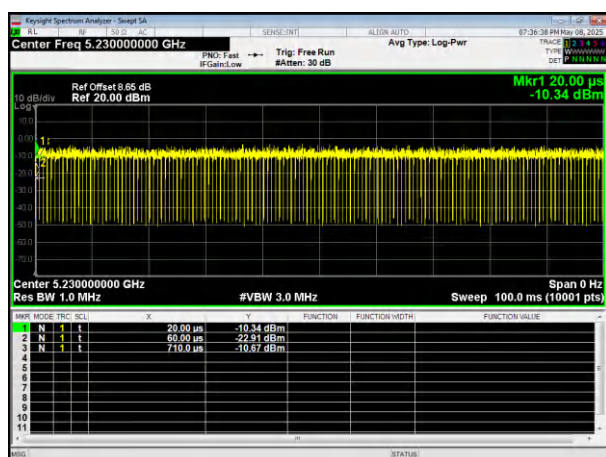
802.11ac HT40



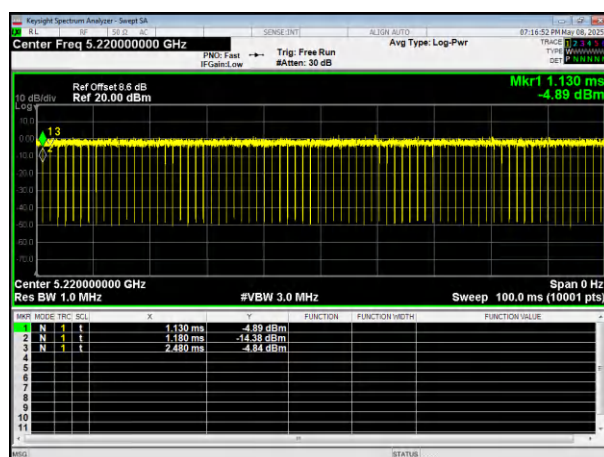
802.11n HT20



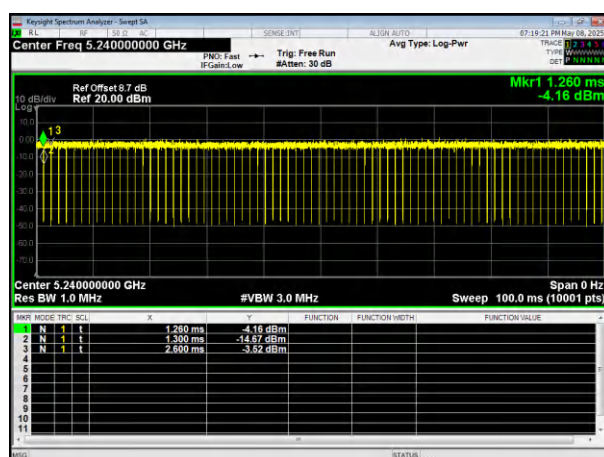
5190MHz



5180MHz



5230MHz

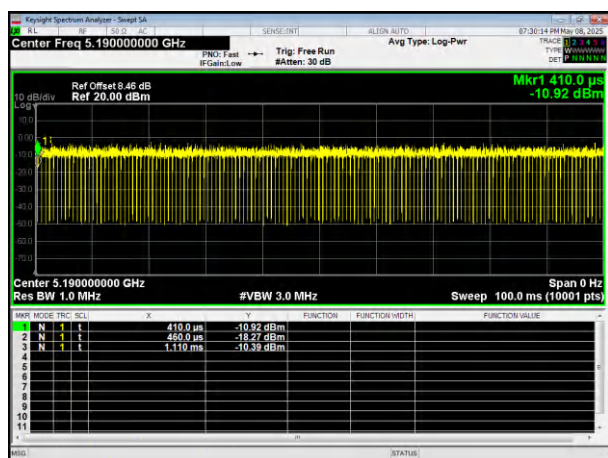


5200MHz

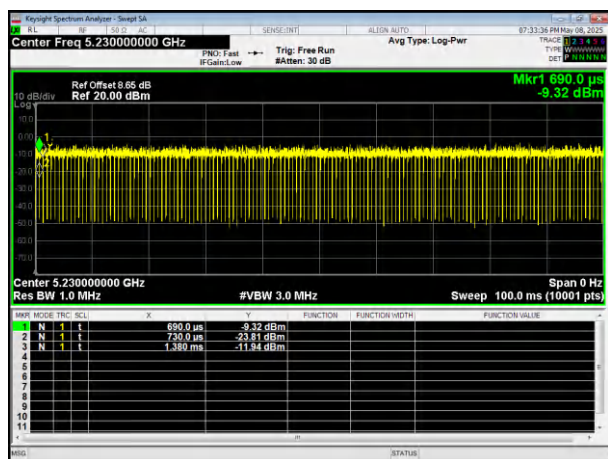
5240MHz



802.11n HT40



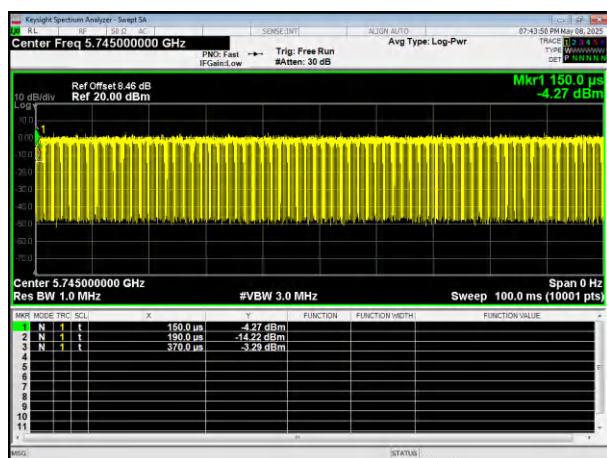
5190MHz



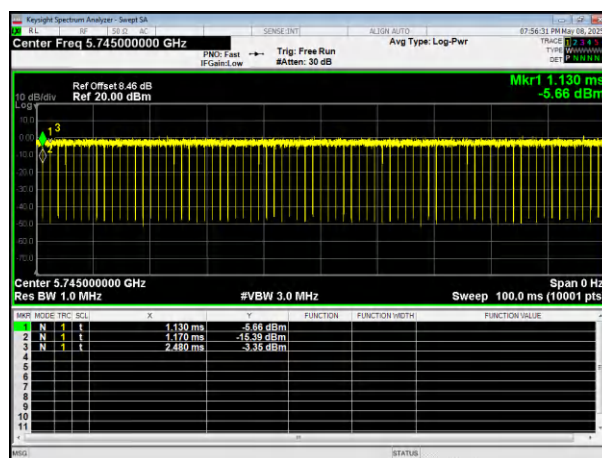
5230MHz



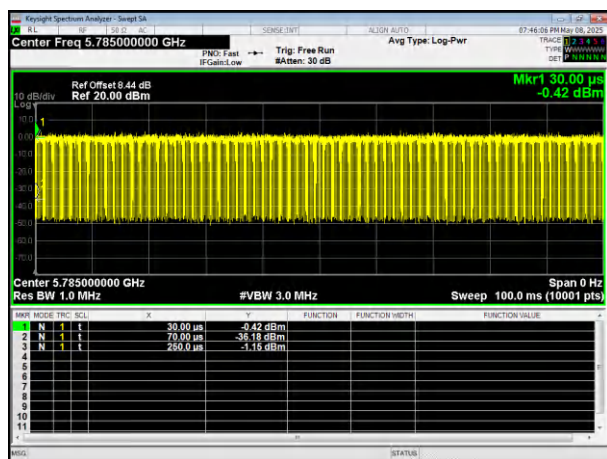
802.11a



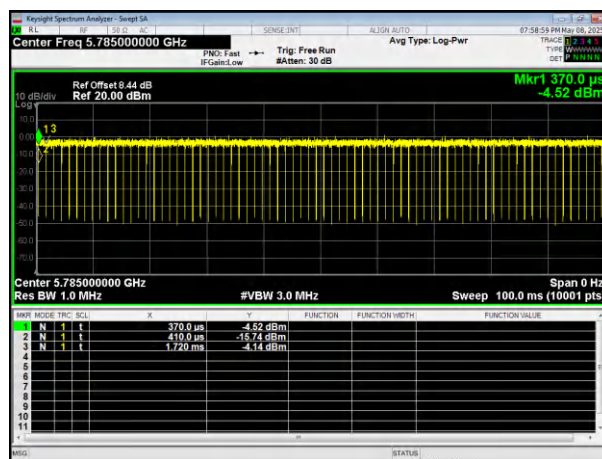
802.11ac HT20



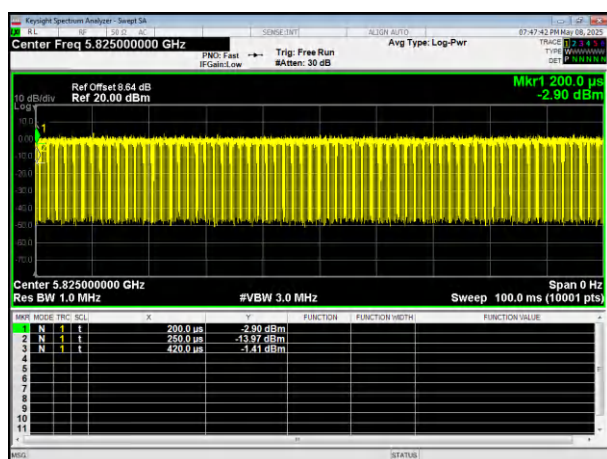
5745MHz



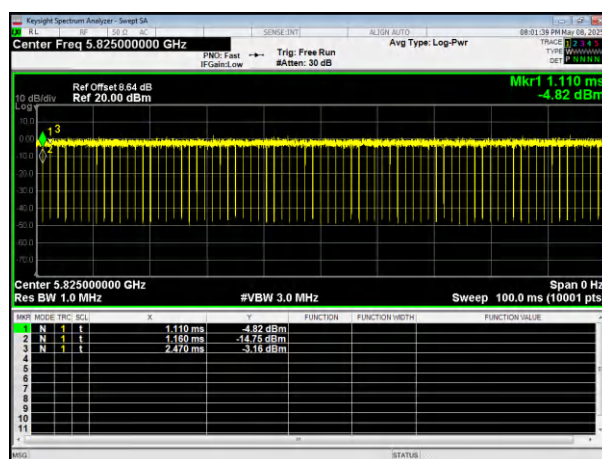
5745MHz



5785MHz



5785MHz

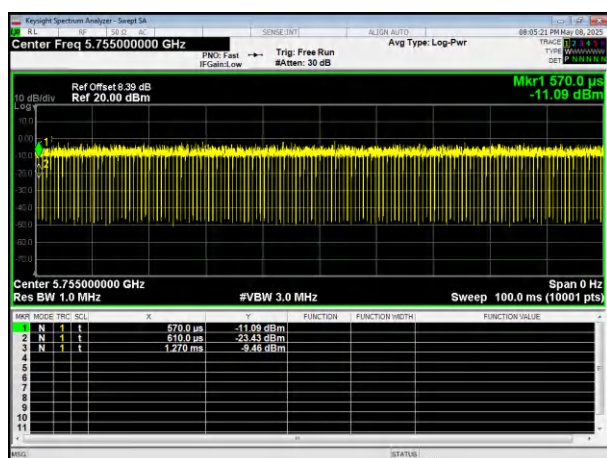


5825MHz

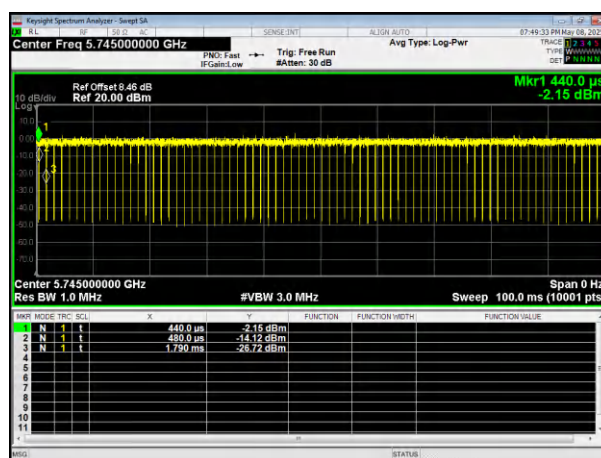
5825MHz



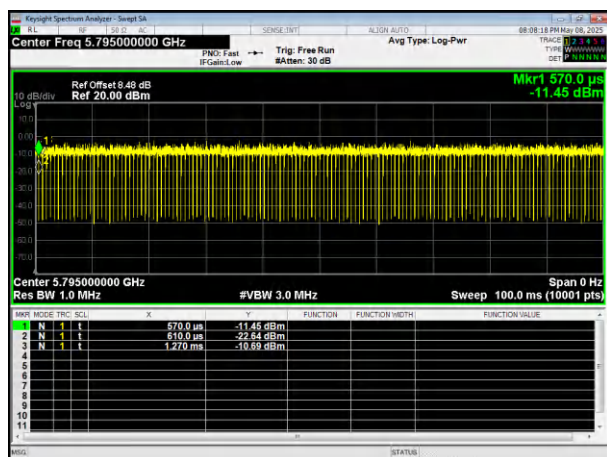
802.11ac HT40



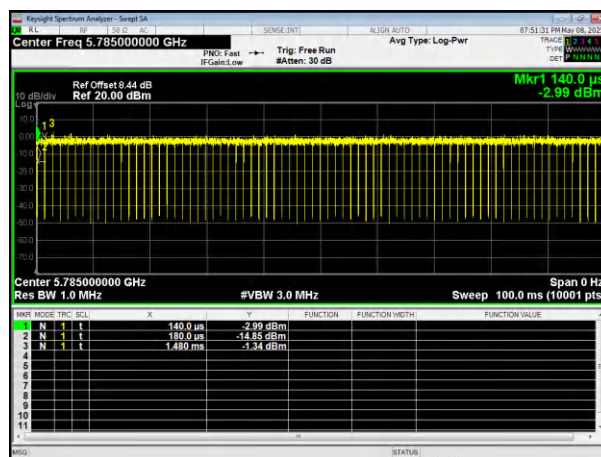
802.11n HT20



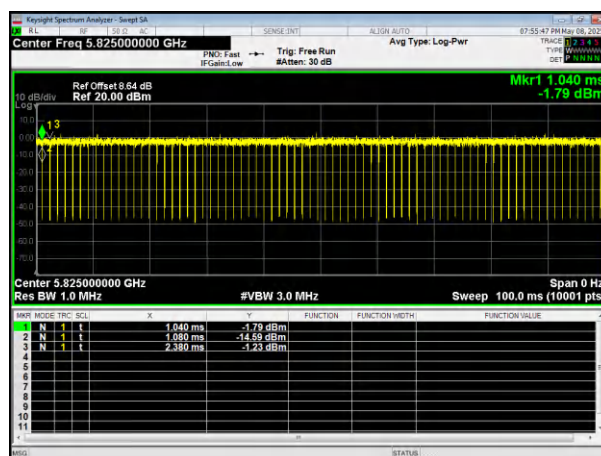
5755MHz



5745MHz



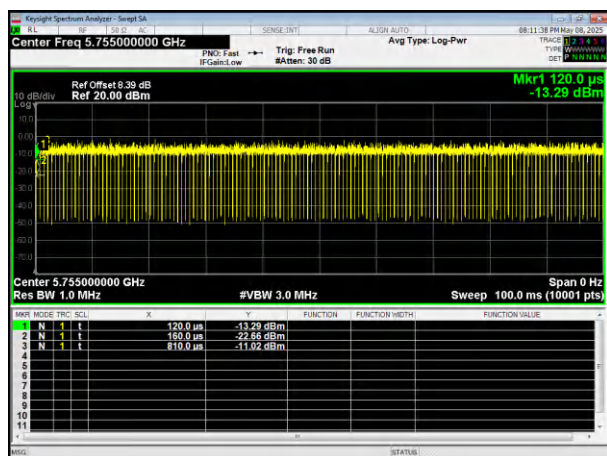
5795MHz



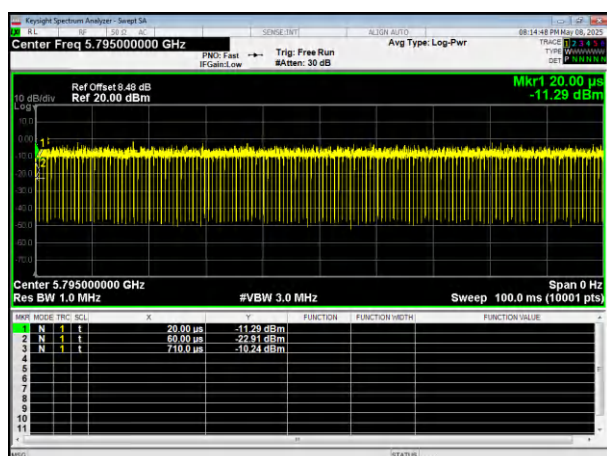
5825MHz



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.

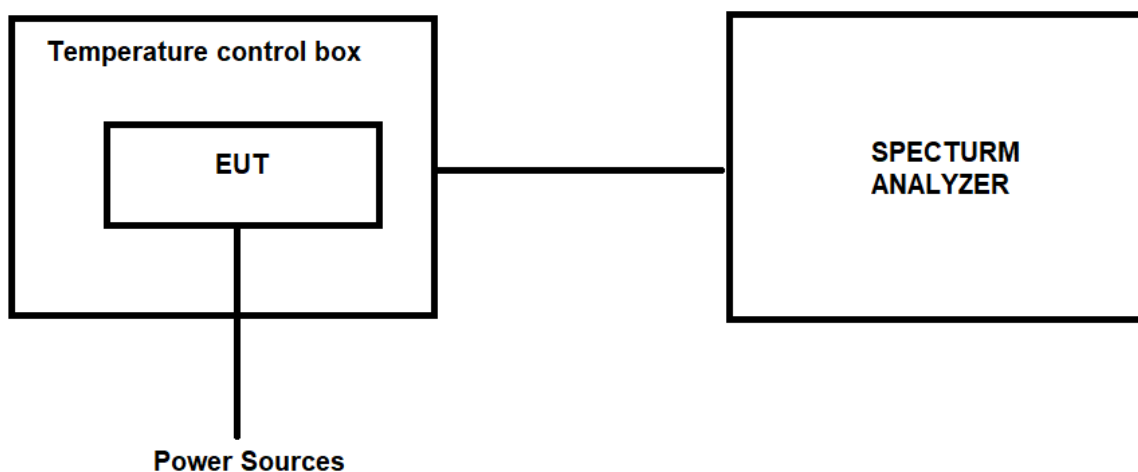
8.1.1 TEST PROCEDURE

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	Spectrum Frequency (MHz)			Δ Frequency (MHz)		
		(MHz)	802.11a	802.11n HT20	802.11ac HT20	802.11a	802.11n HT20	802.11ac HT20
4.235V	-20℃	5180	5180.0382	5180.0446	5180.0364	7.3745	8.6100	7.0270
		5220	5220.0416	5220.0374	5220.0386	7.9693	7.1648	7.3946
		5240	5240.0297	5240.0272	5240.0264	5.6679	5.1908	5.0382
		5745	5745.0452	5745.0452	5745.0383	7.8677	7.8677	6.6667
		5785	5785.0376	5785.0369	5785.0411	6.4996	6.3786	7.1046
		5825	5825.0388	5825.0408	5825.0421	6.6609	7.0043	7.2275
3.465V		5180	5180.0261	5180.0294	5180.0304	5.0386	5.6757	5.8687
		5220	5220.0419	5220.0413	5220.0402	8.0268	7.9119	7.7011
		5240	5240.0283	5240.0295	5240.0277	5.4008	5.6298	5.2863
		5745	5745.0345	5745.0281	5745.0319	6.0052	4.8912	5.5527
		5785	5785.0406	5785.0418	5785.0410	7.0182	7.2256	7.0873
		5825	5825.0538	5825.0497	5825.0468	9.2361	8.5322	8.0343
3.85V	25℃	5180	5180.0639	5180.0563	5180.0613	12.3359	10.8687	11.8340
		5220	5220.0286	5220.0289	5220.0294	5.4789	5.5364	5.6322
		5240	5240.0428	5240.0364	5240.0417	8.1679	6.9466	7.9580
		5745	5745.0377	5745.0378	5745.0381	6.5622	6.5796	6.6319
		5785	5785.0477	5785.0491	5785.0521	8.2455	8.4875	9.0061
		5825	5825.0345	5825.0279	5825.0280	5.9227	4.7897	4.8069
4.235V	50℃	5180	5180.0371	5180.0364	5180.0417	7.1622	7.0270	8.0502
		5220	5220.0253	5220.0294	5220.0322	4.8467	5.6322	6.1686
		5240	5240.0439	5240.0402	5240.0403	8.3779	7.6718	7.6908
		5745	5745.0677	5745.0714	5745.0697	11.7842	12.4282	12.1323
		5785	5785.0486	5785.0481	5785.0498	8.4010	8.3146	8.6085
		5825	5825.0658	5825.0681	5825.0723	11.2961	11.6910	12.4120
3.465V	50℃	5180	5180.0367	5180.0372	5180.0394	7.0849	7.1815	7.6062
		5220	5220.0312	5220.0317	5220.0303	5.9770	6.0728	5.8046
		5240	5240.0371	5240.0403	5240.0374	7.0802	7.6908	7.1374
		5745	5745.0477	5745.0480	5745.0518	8.3029	8.3551	9.0165
		5785	5785.0354	5785.0312	5785.0303	6.1193	5.3933	5.2377
		5825	5825.0817	5825.0792	5825.0819	14.0258	13.5966	14.0601



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
4.235V	-20℃	5190	5190.0264	5190.0327	5.0867	6.3006
		5230	5230.0413	5230.0395	7.8967	7.5526
		5755	5755.0558	5755.0572	9.6959	9.9392
		5795	5795.0673	5795.0670	11.6135	11.5617
3.465V		5190	5190.0254	5190.0312	4.8940	6.0116
		5230	5230.0406	5230.0365	7.7629	6.9790
		5755	5755.0288	5755.0724	5.0043	12.5804
		5795	5795.0517	5795.0533	8.9215	9.1976
3.85V	25℃	5190	5190.0264	5190.0254	5.0867	4.8940
		5230	5230.0732	5230.0699	13.9962	13.3652
		5755	5755.0261	5755.0325	4.5352	5.6473
		5795	5795.0644	5795.0581	11.1130	10.0259
4.235V	50℃	5190	5190.0671	5190.0690	12.9287	13.2948
		5230	5230.0558	5230.0565	10.6692	10.8031
		5755	5755.0546	5755.0469	9.4874	8.1494
		5795	5795.0369	5795.0437	6.3676	7.5410
3.465V	50℃	5190	5190.0630	5190.0564	12.1387	10.8671
		5230	5230.0433	5230.0421	8.2792	8.0497
		5755	5755.0424	5755.0428	7.3675	7.4370
		5795	5795.0506	5795.0497	8.7317	8.5764



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 *******