



诺检标准
NTT STANDARD

TEST REPORT

FCC ID: 2BXP5-GII70

Product : MINI PC

Model Name : GII70, GII71, GII72, GII73, GII74, GII75, GI76, GII77, GII78,
GII79, GII7X, GII7V, GII7P, GII7H, GII7J, GII7U, MQ

Brand : N/A

Report No. : SZNTT26035976E1-4

Prepared for

GZ GRACE IT CO.,LTD
ROOM 102, NO. 3 CUILAN STREET, HUANGGE TOWN, NANSHA DISTRICT,
GUANGZHOU CHINA 510000

Prepared by

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1 TEST RESULT CERTIFICATION

Applicant : GZ GRACE IT CO.,LTD
Address : ROOM 102, NO. 3 CUILAN STREET, HUANGGE TOWN, NANSHA DISTRICT,
GUANGZHOU CHINA 510000
Manufacturer : GZ GRACE IT CO.,LTD
Address : ROOM 102, NO. 3 CUILAN STREET, HUANGGE TOWN, NANSHA DISTRICT,
GUANGZHOU CHINA 510000
Product name : MINI PC
Model name : GII70
Additional model : GII71, GII72, GII73, GII74, GII75, GII76, GII77, GII78, GII79, GII7X, GII7V, GII7P,
GII7H, GII7J, GII7U, MQ
Standards : FCC CFR47 Part 15 Section 15.247
Test procedure : ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Date of test : Jun. 23, 2026 to Jul. 08, 2026
Date of Issue : Jul. 08, 2026

This device described above has been tested by NTT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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2 Test Summary

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.407(b), 15.209	Radiated Spurious Emission	PASS	
15.207	AC Power Line conducted emission	PASS	
15.407 (a) 15.407 (e)	99% , 6dB and 26dB Bandwidth	PASS	
15.407 (a)	Maximum Conducted Output Power	PASS	
15.407(b)	Band Edge	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.407(g)	Frequency Stability	PASS	
15.203	Antenna Requirement	PASS	

Remark:

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



3 TEST FACILITY

Site Description

Designation Number: CN3446

EMC Lab.

:

Test Firm Registration Number: 129414

Accredited by ANAB, Dec. 19, 2025

The Certificate Registration Number is AT-3446

Name of Firm

:

Shenzhen NTT Testing Technology Co., Ltd.

Site Location

:

1B, Building 2, Factory Building & 103, Building 3, Factory Building, Dayang Industrial Park No.4, Industrial Avenue, Tangwei Community, Fuhai Sub-district, Bao'an District, Shenzhen City, China

4 General Information

4.1 General Description of E.U.T.

Product Name:	MINI PC
Model No.:	GII70
Sample ID:	N/A
Sample(s) Status:	N/A
series model:	GII71, GII72, GII73, GII74, GII75, GII76, GII77, GII78, GII79, GII7X, GII7V, GII7P, GII7H, GII7J, GII7U, MQ
Model Different.:	All the model are the same circuit and RF module, only the name and appearance are different. Test sample model: GII70
Operation Frequency:	UNII-2: 5150MHz~5250MHz(20MHz bandwidth) 5150MHz~5250MHz(40MHz bandwidth) 5150MHz~5250MHz(80MHz bandwidth) UNII-3: 5725MHz~5850MHz(20MHz bandwidth) 5725MHz~5850MHz(40MHz bandwidth) 5725MHz~5850MHz(80MHz bandwidth)
Number of Channel:	UNII-2: 4 channels for 20MHz bandwidth 2 channels for 40MHz bandwidth 2 channels for 80MHz bandwidth UNII-3: 5 channels for 20MHz bandwidth 2 channels for 40MHz bandwidth 2 channels for 80MHz bandwidth
Modulation type:	802.11a: (64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11n: (64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac: (256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM
Antenna Type:	FPC antenna
Antenna gain:	Ant1: WiFi (5.2G): 2.48dBi; WiFi (5.8G): 3.45dBi Ant2: WiFi (5.2G): 2.92dBi; WiFi (5.8G): 2.22dBi
Power supply:	DC 19V 3.42A
Hardware Version:	V1.0
Software Version:	V1.0
Note:	N/A
Remark:	the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.



802.11a/n/ac (20MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	48	5240		

802.11n/ac (40MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	-	-	-	-

802.11 ac (80MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
50	5210	-	-	-	-	-	-

802.11a/n/ac (20 MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825		

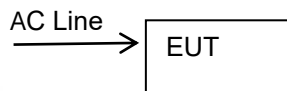
802.11//ac (40MHz) Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795	-	-

802.11ac (80MHz) Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
167	5775	-	-	-	-

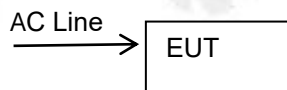


4.2 Test Setup Configuration

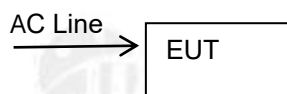
Conducted Emission



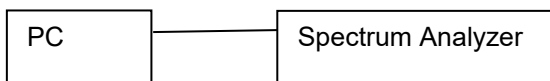
Radiated Emission(30MHz-1GHz)



Radiated Emission(above 1GHz)



RF Conducted Test



4.3 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: 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.	

Test Software	The EUT enters engineering mode
Power level setup	Default

5 Equipment During Test

5.1 Equipments List

Conducted emission Test Equipment

Conducted Test Site

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
944 Shielded Room	HSRCE944	/	HTEC	2025/04/30	2028/04/29
EMI Test Receiver	ESCI	100881/003	ROHDE&SCHWARZ	2026/09/04	2027/09/03
LISN	AMN6500	101185	ROHDE&SCHWARZ	2026/09/04	2027/09/03
LISN	NNLK 8129	00603	SCHWARZBECK	2026/09/04	2027/09/03
Cable	RG223-2M	/	RG	2026/09/04	2027/09/03

Radiated Test Site(Below 1G and Above 1G)&RF Test Site

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
966 Shielded Room	966 Room	/	EMToni	2025/07/24	2028/07/23
EMI Test Receiver	ESPI	101018	ROHDE&SCHWARZ	2026/09/04	2027/09/03
Amplifier (30MHz-1GHz)	BBV 9745	00431	SCHWARZBECK	2026/09/04	2027/09/03
Bilog Antenna (30MHz-1GHz)	VULB9168	1858	SCHWARZBECK	2026/09/05	2027/09/04
Horn antenna (1GHz-18GHz)	BBHA 9120 D	02622	SCHWARZBECK	2026/09/05	2027/09/04
Preamplifier (1GHz-18GHz)	BBV 9718D	0024	SCHWARZBECK	2026/09/04	2027/09/03
Spectrum Analyzer (10Hz-40GHz)	FSV 40	100952	ROHDE&SCHWARZ	2026/09/04	2027/09/03
Preamplifier (18GHz-40GHz)	BBV 9721	0056	SCHWARZBECK	2026/09/04	2027/09/03
Double Ridge Guide Horn Antenna (18GHz-40GHz)	SAS-574	588	A.H.System	2026/09/05	2027/09/04
Loop Antenna (9KHz-30MHz)	FMZB 1513-60	00115	SCHWARZBECK	2026/09/04	2027/09/03
MXG Signal Analyzer	N9020A	MY49100730	Agilent	2026/09/04	2027/09/03
MXG Vector Signal Generator	N5182A	MY50144920	Agilent	2026/09/04	2027/09/03
WIDEBAND RADIO COMMUNICATION TESTER	CMW500	/	ROHDE&SCHWARZ	2026/09/07	2027/09/06



Power Sensor	MW100-RFCB-2	MW260105N TT-64	MWRFtest	2026/09/04	2027/09/03
RF Swith	MW100-RFCB-1	MW260105N TT-64	MWRFtest	2026/09/04	2027/09/03
Cable	RG223-3M	/	DA	2026/09/04	2027/09/03
Cable	RG223-12M	/	DA	2026/09/04	2027/09/03
Cable	SFT205-NMNMSW-2.5M	/	DA	2026/09/04	2027/09/03
Cable	SFT205-NMNM-12M	/	DA	2026/09/04	2027/09/03
Cable	UCA500-NJWSM-1.5M	017	MWRFtest	2026/09/04	2027/09/03



5.2 Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	$\pm 1.0\text{dB}$
Power Spectral Density, conducted	$\pm 2.2\text{dB}$
Radio Frequency	$\pm 1 \times 10^{-6}$
Bandwidth	$\pm 1.5 \times 10^{-6}$
Time	$\pm 2\%$
Duty Cycle	$\pm 2\%$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 3\%$
Conducted Emissions (150kHz~30MHz)	$\pm 3.64\text{dB}$
Radiated Emission(9KHz~30MHz)	$\pm 4.51\text{dB}$
Radiated Emission(30MHz~1GHz)	$\pm 5.03\text{dB}$
Radiated Emission(1GHz~25GHz)	$\pm 4.74\text{dB}$
Remark:When making a conformity declaration based on test results for regulations/standards or specifications,the default is to use Clause 4.2.1of ILAC-G8:09/2019 and the guidelines on decision rules and conformity declaration in IEC Guide 115:2023.	

5.3 Description of Support Units

The EUT has been tested as an independent unit .



6 Conducted Emission

Test Requirement:	: FCC CFR 47 Part 15 Section 15.207
Test Method:	: ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
Test Result:	: PASS
Frequency Range:	: 150kHz to 30MHz
Class/Severity:	: Class B
Detector:	: Peak for pre-scan (9kHz Resolution Bandwidth)

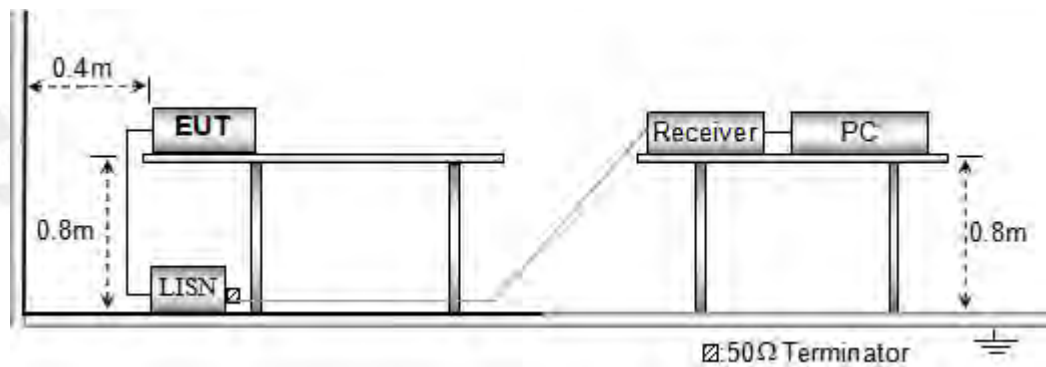
6.1 E.U.T. Operation

Operating Environment :

Temperature:	: 26°C
Humidity:	: 54 % RH
Atmospheric Pressure:	: 101.12 kPa
Test Voltage	: AC 120V/60Hz

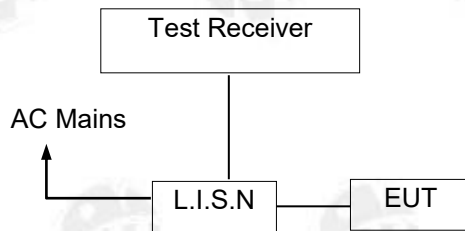
6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024.





6.3 Test SET-UP (Block Diagram of Configuration)



6.4 Measurement Procedure:

1. 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.
2. 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.
3. 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.
4. LISN at least 80 cm from nearest part of EUT chassis.
5. For the actual test configuration, please refer to the related Item – EUT Test Photos.

6.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

6.6 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

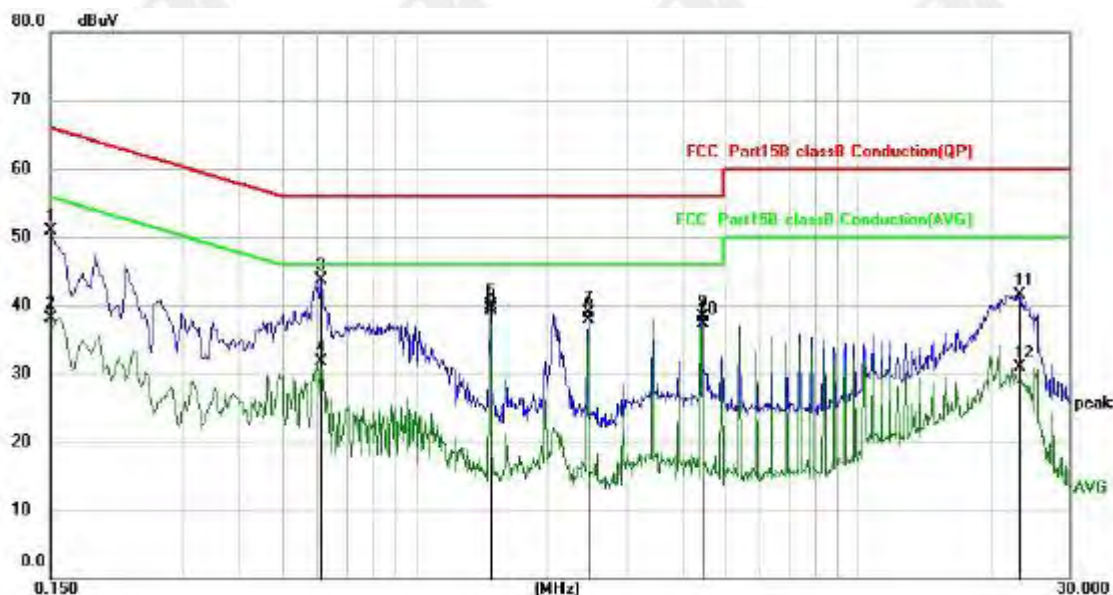
6.7 Conducted Emission Test Result

Pass

All the modulation modes were tested the data of the worst mode (802.11a, Lowest channel) are recorded in the following pages and the others modulation methods do not exceed the limits.



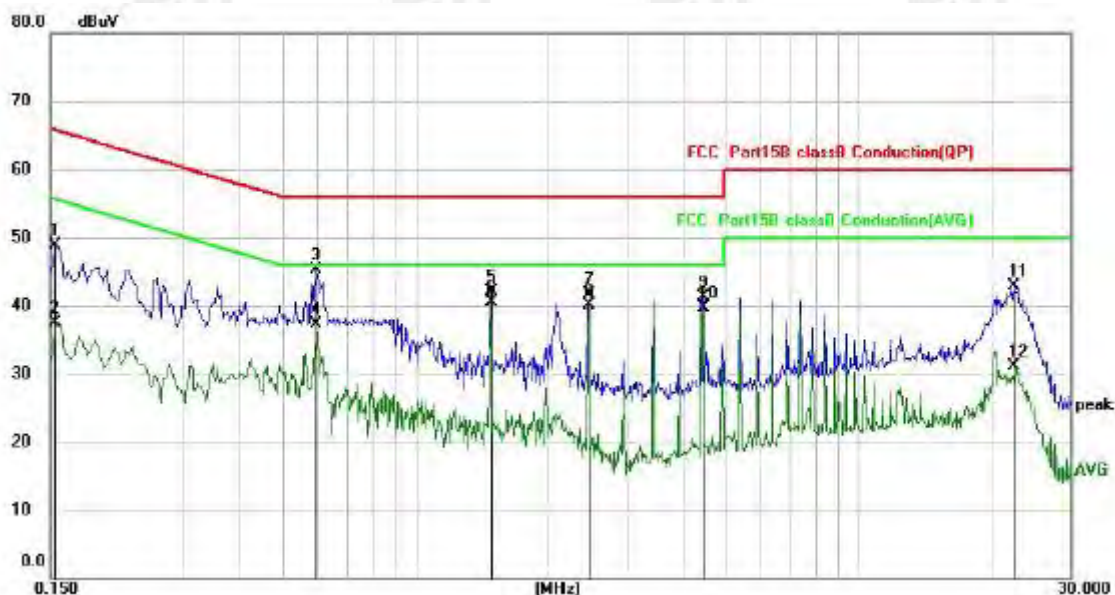
Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	DC 19V 3.42A		



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dBuV	dB	
1		0.1500	40.92	10.07	50.99	66.00	-15.01	QP
2		0.1500	28.08	10.07	38.15	56.00	-17.85	AVG
3		0.6139	33.63	10.10	43.73	56.00	-12.27	QP
4		0.6139	21.60	10.10	31.70	46.00	-14.30	AVG
5		1.4778	29.81	10.15	39.96	56.00	-16.04	QP
6	*	1.4778	29.14	10.15	39.29	46.00	-6.71	AVG
7		2.4620	28.74	10.19	38.93	56.00	-17.07	QP
8		2.4620	27.73	10.19	37.92	46.00	-8.08	AVG
9		4.4339	28.03	10.26	38.29	56.00	-17.71	QP
10		4.4339	27.03	10.26	37.29	46.00	-8.71	AVG
11		23.1259	30.43	11.11	41.54	60.00	-18.46	QP
12		23.1259	19.75	11.11	30.86	50.00	-19.14	AVG



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	DC 19V 3.42A		



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.1539	38.89	10.07	48.96	65.79	-16.83	QP
2	0.1539	27.41	10.07	37.48	55.79	-18.31	AVG
3	0.5977	35.14	10.10	45.24	56.00	-10.76	QP
4	0.5977	27.25	10.10	37.35	46.00	-8.65	AVG
5	1.4778	31.97	10.15	42.12	56.00	-13.88	QP
6 *	1.4778	30.27	10.15	40.42	46.00	-5.58	AVG
7	2.4620	31.60	10.19	41.79	56.00	-14.21	QP
8	2.4620	30.00	10.19	40.19	46.00	-5.81	AVG
9	4.4339	31.08	10.26	41.34	56.00	-14.66	QP
10	4.4339	29.48	10.26	39.74	46.00	-6.26	AVG
11	22.3856	31.90	11.07	42.97	60.00	-17.03	QP
12	22.3856	20.13	11.07	31.20	50.00	-18.80	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor
Correct Factor = Insertion loss of LISN + Cable loss.
4. Margin = Measurement Level - Limit



7 Radiated Spurious Emissions

Test Requirement	:	FCC CFR47 Part 15 Section 15.209 & 15.407
Test Method	:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
Test Result	:	PASS
Measurement Distance	:	3m
Limit	:	See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40
1.705 ~ 30	30	30	100 * 30	20log ⁽³⁰⁾ + 40
30 ~ 88	100	3	100	20log ⁽¹⁰⁰⁾
88 ~ 216	150	3	150	20log ⁽¹⁵⁰⁾
216 ~ 960	200	3	200	20log ⁽²⁰⁰⁾
Above 960	500	3	500	20log ⁽⁵⁰⁰⁾

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

Undesirable emission limits

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 5.15-5.25 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.

(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 5.47-5.725 GHz 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 in the 5.725-5.85 GHz 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 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

Requirement	Limit(EIRP)	Limit (Field strength at 3m)
15.407(b)(1)	PK:-27(dBm/MHz)	PK:68.2(dB μ V/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)		

7.1 EUT Operation

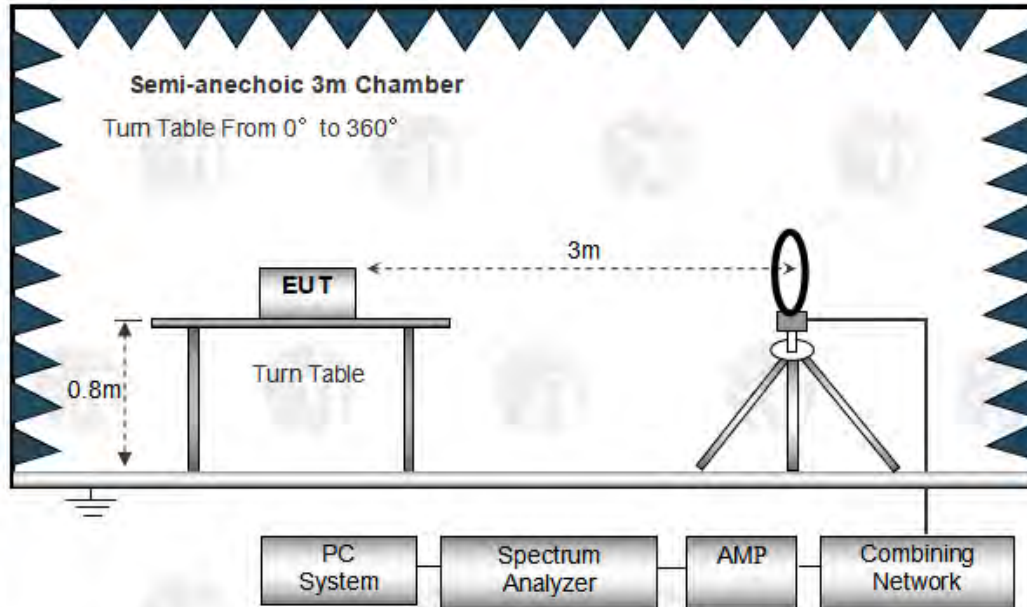
Operating Environment :

Temperature	: 26 °C
Humidity	: 54% RH
Atmospheric Pressure	: 101.3kPa
Test Voltage	: DC 19V 3.42A

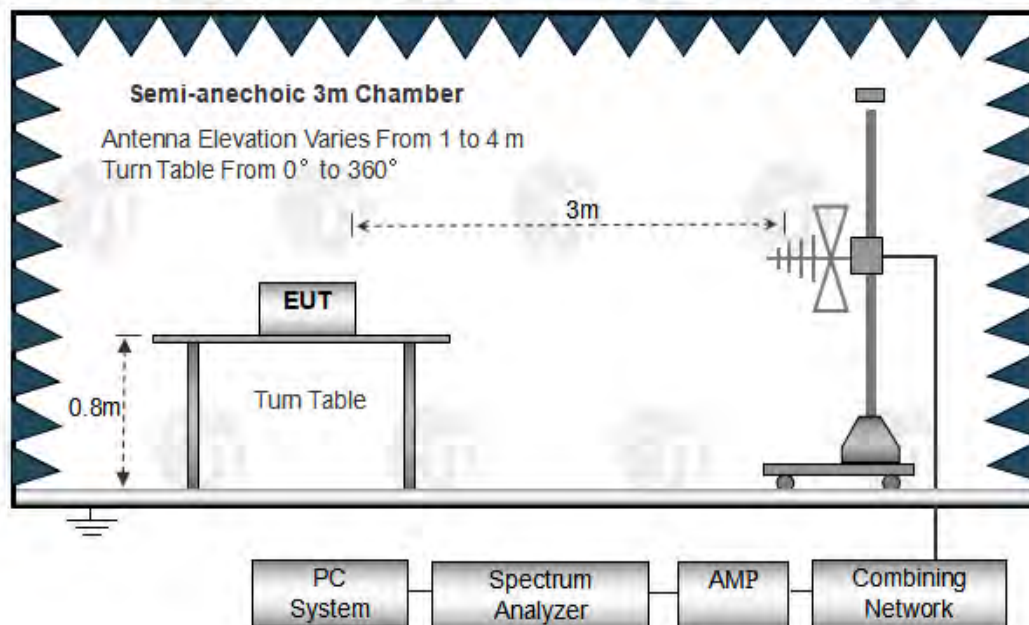
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

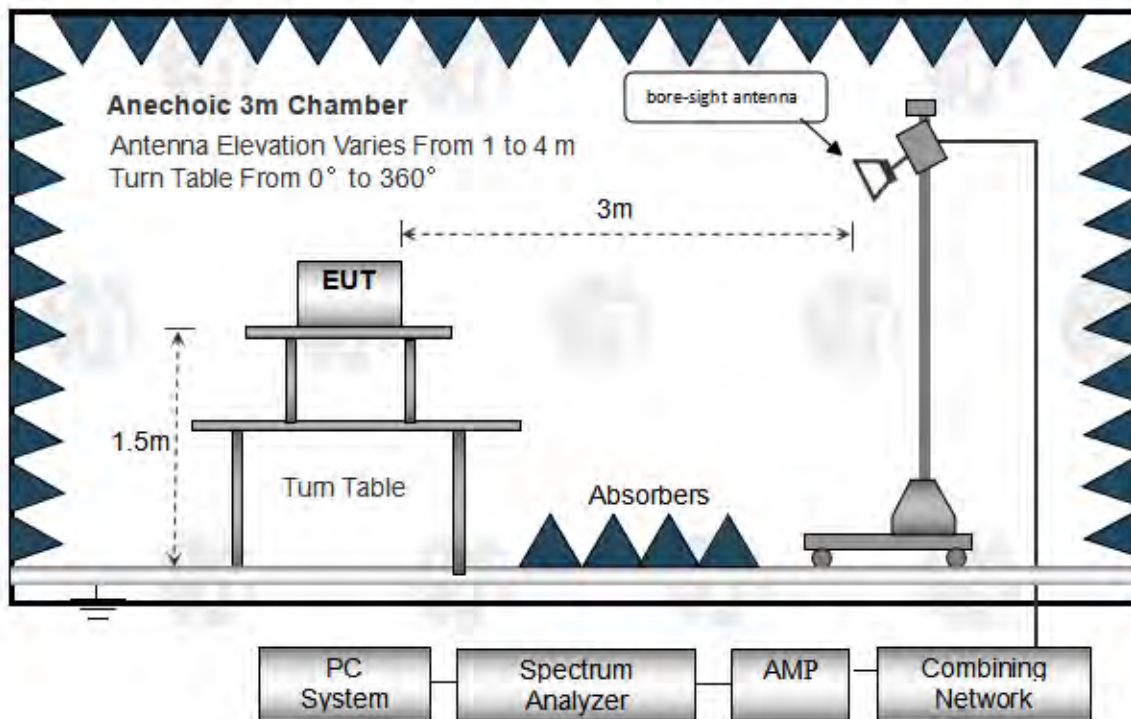
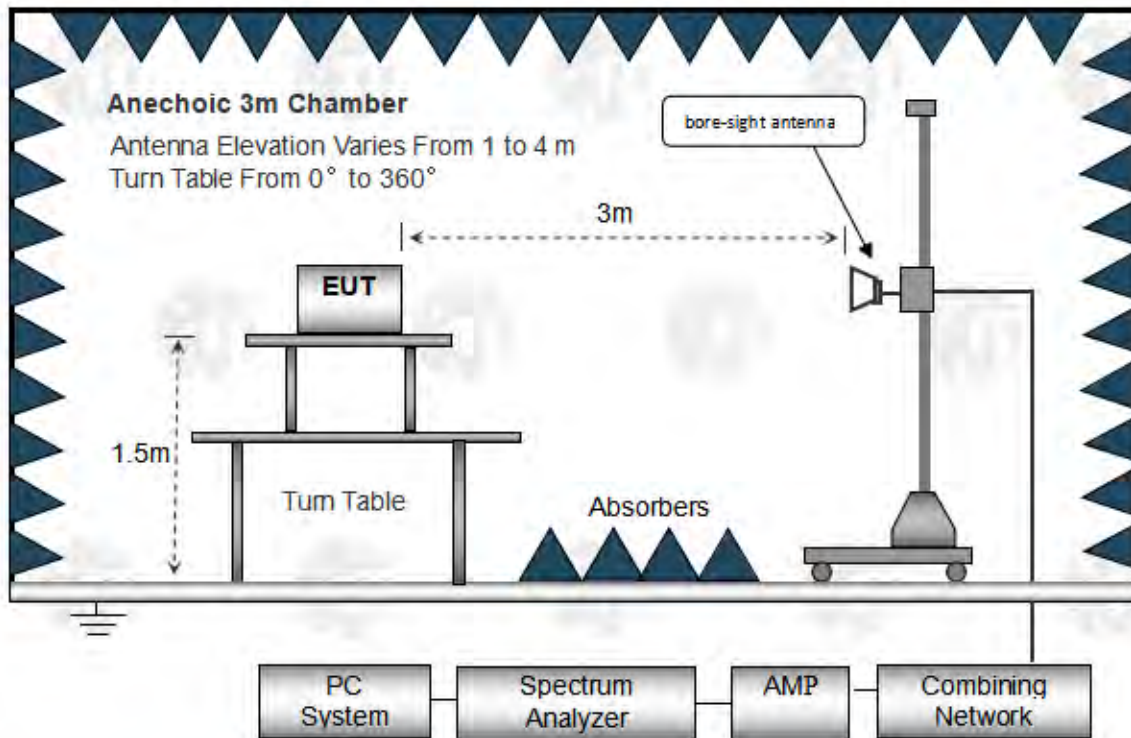
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



7.3 Spectrum Analyzer Setup

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz



Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 3 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



7.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024.
2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.
7. Test Procedure of measurement (For Above 1GHz):
 - 1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).
 - 2) Change the antenna polarization and repeat 1) with vertical polarization.
 - 3) Make a hardcopy of the spectrum.
 - 4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
 - 5) Change the analyser mode to Clear/ Write and found the cone of emission.
 - 6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.
 - 7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.
 - 8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.



7.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

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

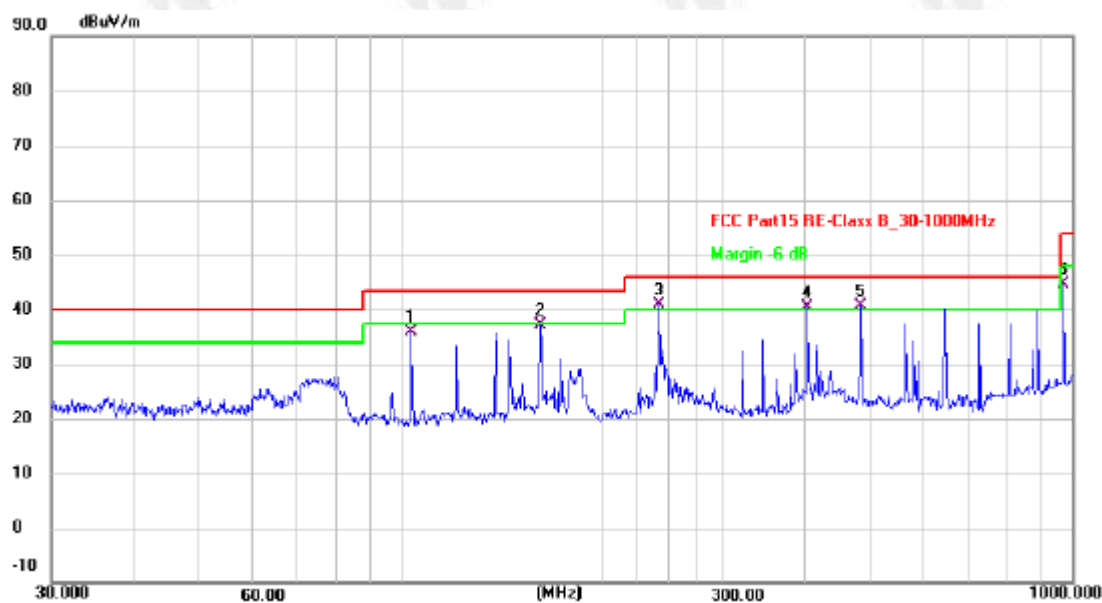
Limit line = Specific limits (dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

Please refer to the following test plots, Low Channel Worst case 802.11a for record:



Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Horizontal
Test Voltage:	DC 19V 3.42A		



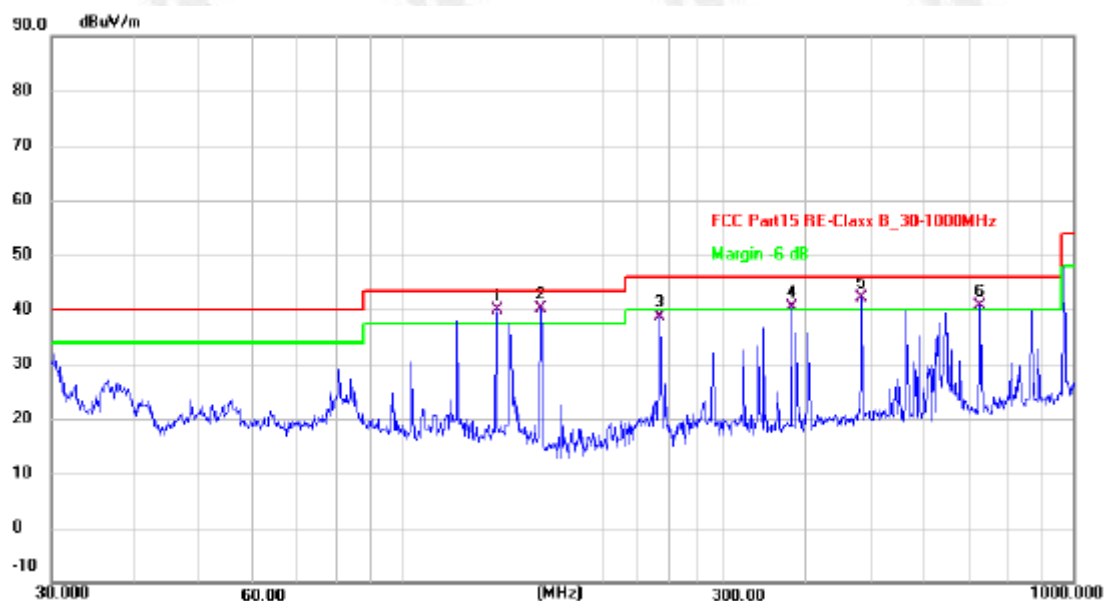
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	103.4419	53.50	-17.60	35.90	43.50	-7.60	QP
2	160.9090	49.26	-12.25	37.01	43.50	-6.49	QP
3 *	241.6760	55.15	-14.26	40.89	46.00	-5.11	QP
4 !	403.2500	50.58	-10.25	40.33	46.00	-5.67	QP
5 !	483.9094	49.08	-8.33	40.75	46.00	-5.25	QP
6	968.9337	44.45	0.28	44.73	54.00	-9.27	QP

Remark: Emission Level = Reading + Cable Loss + ANT Factor - AMP Factor

Margin = Emission Level - Limit



Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 19V 3.42A		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 !	138.3873	53.39	-13.53	39.86	43.50	-3.64	QP
2 *	160.9090	52.34	-12.25	40.09	43.50	-3.41	QP
3	241.6760	52.80	-14.26	38.54	46.00	-7.46	QP
4 !	379.9141	51.12	-10.69	40.43	46.00	-5.57	QP
5 !	483.9094	50.53	-8.33	42.20	46.00	-3.80	QP
6 !	726.8052	43.81	-3.15	40.66	46.00	-5.34	QP

Remark: Emission Level = Reading + Cable Loss + ANT Factor - AMP Factor

Margin = Emission Level - Limit

Test Frequency 1GHz-40GHz

802.11a

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:5745MHz									
V	11490	53.30	32.29	8.39	38.9	68.30	68.2	0.10	PK
V	11490	39.76	32.29	8.39	38.9	54.76	54	0.76	AV
V	17233.3	49.65	31.19	9.62	40.37	68.45	68.2	0.25	PK
V	17233.3	34.15	31.19	9.62	40.37	52.95	54	-1.05	AV
V	22980	48.90	27.02	7.2	38.98	68.06	68.2	-0.14	PK
V	22980	34.39	27.02	7.2	38.98	53.55	54	-0.45	AV
V	28723.3	44.18	27.1	7.56	40.18	64.82	68.2	-3.38	PK
V	28723.3	27.39	27.1	7.56	40.18	48.03	54	-5.97	AV
H	11490	50.25	32.29	8.39	38.9	65.25	68.2	-2.95	PK
H	11490	41.01	32.29	8.39	38.9	56.01	54	2.01	AV
H	17233.3	47.91	31.19	9.62	40.37	66.71	68.2	-1.49	PK
H	17233.3	32.43	31.19	9.62	40.37	51.23	54	-2.77	AV
H	22980	47.40	27.02	7.2	38.98	66.56	68.2	-1.64	PK
H	22980	30.35	27.02	7.2	38.98	49.51	54	-4.49	AV
H	28723.3	39.59	27.1	7.56	40.18	60.23	68.2	-7.97	PK
H	28723.3	26.65	27.1	7.56	40.18	47.29	54	-6.71	AV



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Middle Channel:5785MHz									
V	11570	49.15	32.26	8.48	38.9	64.27	68.2	-3.93	PK
V	11570	39.34	32.26	8.48	38.9	54.46	54	0.46	AV
V	17353.3	46.42	31.08	9.67	40.61	65.62	68.2	-2.58	PK
V	17353.3	37.48	31.08	9.67	40.61	56.68	54	2.68	AV
V	23140	42.35	27.03	7.24	39.03	61.59	68.2	-6.61	PK
V	23140	31.58	27.03	7.24	39.03	50.82	54	-3.18	AV
V	28923.3	41.65	27.1	7.58	40.34	62.47	68.2	-5.73	PK
V	28923.3	29.22	27.1	7.58	40.34	50.04	54	-3.96	AV
H	11570	49.40	32.26	8.48	38.9	64.52	68.2	-3.68	PK
H	11570	40.26	32.26	8.48	38.9	55.38	54	1.38	AV
H	17353.3	47.63	31.08	9.67	40.61	66.83	68.2	-1.37	PK
H	17353.3	34.09	31.08	9.67	40.61	53.29	54	-0.71	AV
H	23140	42.80	27.03	7.24	39.03	62.04	68.2	-6.16	PK
H	23140	31.22	27.03	7.24	39.03	50.46	54	-3.54	AV
H	28923.3	40.53	27.1	7.58	40.34	61.35	68.2	-6.85	PK
H	28923.3	29.20	27.1	7.58	40.34	50.02	54	-3.98	AV



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
High Channel:5825MHz									
V	11650	49.97	32.23	8.56	38.9	65.20	68.2	-3.00	PK
V	11650	36.96	32.23	8.56	38.9	52.19	54	-1.81	AV
V	17473.3	44.76	30.97	9.73	40.85	64.37	68.2	-3.83	PK
V	17473.3	36.35	30.97	9.73	40.85	55.96	54	1.96	AV
V	23300	40.78	27.03	7.26	39.06	60.07	68.2	-8.13	PK
V	23300	30.21	27.03	7.26	39.06	49.50	54	-4.50	AV
V	29123.3	38.80	27.1	7.61	40.4	59.71	68.2	-8.49	PK
V	29123.3	28.43	27.1	7.61	40.4	49.34	54	-4.66	AV
H	11650	47.65	32.23	8.56	38.9	62.88	68.2	-5.32	PK
H	11650	38.27	32.23	8.56	38.9	53.50	54	-0.50	AV
H	17473.3	44.31	30.97	9.73	40.85	63.92	68.2	-4.28	PK
H	17473.3	32.57	30.97	9.73	40.85	52.18	54	-1.82	AV
H	23300	40.99	27.03	7.26	39.06	60.28	68.2	-7.92	PK
H	23300	27.97	27.03	7.26	39.06	47.26	54	-6.74	AV
H	29123.3	41.24	27.1	7.61	40.4	62.15	68.2	-6.05	PK
H	29123.3	29.14	27.1	7.61	40.4	50.05	54	-3.95	AV



802.11a

Polar (H/V)	Frequency (MHz)	Meter Reading (dBUV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBUV/m)	Limits (dBUV/ m)	Margin (dB)	Detect or Type
Low Channel:5180MHz									
V	10360	52.33	32.7	7.72	38.59	65.94	68.2	-2.26	PK
V	10360	40.03	32.7	7.72	38.59	53.64	54	-0.36	AV
V	15540	48.98	31.74	9.44	39.29	65.97	68.2	-2.23	PK
V	15540	34.91	31.74	9.44	39.29	51.90	54	-2.10	AV
V	20720	47.23	26.93	6.64	37.94	64.88	68.2	-3.32	PK
V	20720	33.89	26.93	6.64	37.94	51.54	54	-2.46	AV
V	25900	43.90	27.1	7.9	39.32	64.02	68.2	-4.18	PK
V	25900	27.25	27.1	7.9	39.32	47.37	54	-6.63	AV
H	10360	49.91	32.7	7.72	38.59	63.52	68.2	-4.68	PK
H	10360	41.15	32.7	7.72	38.59	54.76	54	0.76	AV
H	15540	48.14	31.74	9.44	39.29	65.13	68.2	-3.07	PK
H	15540	33.31	31.74	9.44	39.29	50.30	54	-3.70	AV
H	20720	48.19	26.93	6.64	37.94	65.84	68.2	-2.36	PK
H	20720	29.69	26.93	6.64	37.94	47.34	54	-6.66	AV
H	25900	39.07	27.1	7.9	39.32	59.19	68.2	-9.01	PK
H	25900	25.33	27.1	7.9	39.32	45.45	54	-8.55	AV



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detect or Type
Middle Channel:5200MHz									
V	10400	49.33	32.69	7.73	38.62	62.99	68.2	-5.21	PK
V	10400	38.50	32.69	7.73	38.62	52.16	54	-1.84	AV
V	15600	44.93	31.72	9.45	39.28	61.94	68.2	-6.26	PK
V	15600	36.73	31.72	9.45	39.28	53.74	54	-0.26	AV
V	20800	42.76	26.93	6.73	37.96	60.52	68.2	-7.68	PK
V	20800	30.29	26.93	6.73	37.96	48.05	54	-5.95	AV
V	26000	40.41	27.1	7.94	39.3	60.55	68.2	-7.65	PK
V	26000	30.35	27.1	7.94	39.3	50.49	54	-3.51	AV
H	10400	49.09	32.69	7.73	38.62	62.75	68.2	-5.45	PK
H	10400	39.42	32.69	7.73	38.62	53.08	54	-0.92	AV
H	15600	46.31	31.72	9.45	39.28	63.32	68.2	-4.88	PK
H	15600	34.79	31.72	9.45	39.28	51.80	54	-2.20	AV
H	20800	42.21	26.93	6.73	37.96	59.97	68.2	-8.23	PK
H	20800	31.09	26.93	6.73	37.96	48.85	54	-5.15	AV
H	26000	39.19	27.1	7.94	39.3	59.33	68.2	-8.87	PK
H	26000	29.80	27.1	7.94	39.3	49.94	54	-4.06	AV



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detect or Type
High Channel:5240MHz									
V	10480	49.60	32.66	7.74	38.68	63.36	68.2	-4.84	PK
V	10480	35.87	32.66	7.74	38.68	49.63	54	-4.37	AV
V	15720	45.54	31.68	9.48	39.26	62.60	68.2	-5.60	PK
V	15720	35.32	31.68	9.48	39.26	52.38	54	-1.62	AV
V	20960	41.60	26.94	6.91	37.99	59.56	68.2	-8.64	PK
V	20960	30.79	26.94	6.91	37.99	48.75	54	-5.25	AV
V	26200	38.00	27.1	7.89	39.5	58.29	68.2	-9.91	PK
V	26200	28.33	27.1	7.89	39.5	48.62	54	-5.38	AV
H	10480	48.54	32.66	7.74	38.68	62.30	68.2	-5.90	PK
H	10480	38.90	32.66	7.74	38.68	52.66	54	-1.34	AV
H	15720	45.67	31.68	9.48	39.26	62.73	68.2	-5.47	PK
H	15720	31.33	31.68	9.48	39.26	48.39	54	-5.61	AV
H	20960	41.81	26.94	6.91	37.99	59.77	68.2	-8.43	PK
H	20960	27.10	26.94	6.91	37.99	45.06	54	-8.94	AV
H	26200	40.21	27.1	7.89	39.5	60.50	68.2	-7.70	PK
H	26200	29.00	27.1	7.89	39.5	49.29	54	-4.71	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. The worst mode is 802.11a, only the worst data is recorded.
The 1-40GHz range has been tested, and the report only records the worst performance of the 1-30G range.



Restrict Band EMISSION MEASUREMENT

U-NII-1

Frequency	Meter Reading	antenna Factor	cable loss	preamp factor	Emission Level	Limit	Margin	Polar	Detector Type	Result
(MHz)	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(H/V)		
802.11a:5180MHz										
5150	58.72	33.14	5.29	33.88	64.75	74	-9.25	V	PK	Pass
5150	51.68	33.14	5.29	33.88	57.71	54	3.71	V	AV	Pass
5145	61.36	33.14	5.29	33.88	67.39	74	-6.61	V	PK	Pass
5145	50.63	33.14	5.29	33.88	56.66	54	2.66	V	AV	Pass
5150	57.43	33.14	5.29	33.88	63.46	74	-10.54	H	PK	Pass
5150	51.40	33.14	5.29	33.88	57.43	54	3.43	H	AV	Pass
5145	59.08	33.14	5.29	33.88	65.11	74	-8.89	H	PK	Pass
5145	51.18	33.14	5.29	33.88	57.21	54	3.21	H	AV	Pass
802.11a:5240MHz										
5350	57.30	33.06	5.44	33.72	63.40	74	-10.60	V	PK	Pass
5350	50.08	33.06	5.44	33.72	56.18	54	2.18	V	AV	Pass
5370	61.21	33.05	5.45	33.7	67.31	74	-6.69	V	PK	Pass
5370	48.99	33.05	5.45	33.7	55.09	54	1.09	V	AV	Pass
5350	59.73	33.06	5.44	33.72	65.83	74	-8.17	H	PK	Pass
5350	50.43	33.06	5.44	33.72	56.53	54	2.53	H	AV	Pass
5370	60.25	33.05	5.45	33.7	66.35	74	-7.65	H	PK	Pass
5370	51.58	33.05	5.45	33.7	57.68	54	3.68	H	AV	Pass
802.11n20:5180MHz										
5150	58.93	33.14	5.29	33.88	64.96	74	-9.04	V	PK	Pass
5150	51.09	33.14	5.29	33.88	57.12	54	3.12	V	AV	Pass



5145	61.32	33.14	5.29	33.88	67.35	74	-6.65	V	PK	Pass
5145	49.05	33.14	5.29	33.88	55.08	54	1.08	V	AV	Pass
5150	58.20	33.14	5.29	33.88	64.23	74	-9.77	H	PK	Pass
5150	50.27	33.14	5.29	33.88	56.30	54	2.30	H	AV	Pass
5145	59.42	33.14	5.29	33.88	65.45	74	-8.55	H	PK	Pass
5145	51.13	33.14	5.29	33.88	57.16	54	3.16	H	AV	Pass
802.11n20:5240MHz										
5350	58.08	33.14	5.29	33.88	64.11	74	-9.89	V	PK	Pass
5350	48.83	33.14	5.29	33.88	54.86	54	0.86	V	AV	Pass
5370	60.60	33.14	5.29	33.88	66.63	74	-7.37	V	PK	Pass
5370	50.95	33.14	5.29	33.88	56.98	54	2.98	V	AV	Pass
5350	58.03	33.14	5.29	33.88	64.06	74	-9.94	H	PK	Pass
5350	52.54	33.14	5.29	33.88	58.57	54	4.57	H	AV	Pass
5370	59.72	33.14	5.29	33.88	65.75	74	-8.25	H	PK	Pass
5370	50.30	33.14	5.29	33.88	56.33	54	2.33	H	AV	Pass
802.11ac20:5180MHz										
5150	59.44	33.06	5.44	33.72	65.54	74	-8.46	V	PK	Pass
5150	48.27	33.06	5.44	33.72	54.37	54	0.37	V	AV	Pass
5145	59.04	33.05	5.45	33.7	65.14	74	-8.86	V	PK	Pass
5145	50.16	33.05	5.45	33.7	56.26	54	2.26	V	AV	Pass
5150	58.23	33.06	5.44	33.72	64.33	74	-9.67	H	PK	Pass
5150	50.51	33.06	5.44	33.72	56.61	54	2.61	H	AV	Pass
5145	59.51	33.05	5.45	33.7	65.61	74	-8.39	H	PK	Pass
5145	50.03	33.05	5.45	33.7	56.13	54	2.13	H	AV	Pass
802.11ac20:5240MHz										
5350	58.05	33.06	5.44	33.72	64.15	74	-9.85	V	PK	Pass
5350	50.67	33.06	5.44	33.72	56.77	54	2.77	V	AV	Pass
5370	60.92	33.05	5.45	33.7	67.02	74	-6.98	V	PK	Pass
5370	49.45	33.05	5.45	33.7	55.55	54	1.55	V	AV	Pass
5350	59.52	33.06	5.44	33.72	65.62	74	-8.38	H	PK	Pass
5350	50.41	33.06	5.44	33.72	56.51	54	2.51	H	AV	Pass



5370	58.25	33.05	5.45	33.7	64.35	74	-9.65	H	PK	Pass
5370	49.96	33.05	5.45	33.7	56.06	54	2.06	H	AV	Pass
802.11n40:5190MHz										
5150	59.98	33.14	5.29	33.88	66.01	74	-7.99	V	PK	Pass
5150	50.55	33.14	5.29	33.88	56.58	54	2.58	V	AV	Pass
5145	61.45	33.14	5.29	33.88	67.48	74	-6.52	V	PK	Pass
5145	50.24	33.14	5.29	33.88	56.27	54	2.27	V	AV	Pass
5150	58.66	33.14	5.29	33.88	64.69	74	-9.31	H	PK	Pass
5150	50.26	33.14	5.29	33.88	56.29	54	2.29	H	AV	Pass
5145	59.23	33.14	5.29	33.88	65.26	74	-8.74	H	PK	Pass
5145	50.96	33.14	5.29	33.88	56.99	54	2.99	H	AV	Pass
802.11n40:5230MHz										
5350	57.38	33.06	5.44	33.72	63.48	74	-10.52	V	PK	Pass
5350	48.28	33.06	5.44	33.72	54.38	54	0.38	V	AV	Pass
5370	61.18	33.05	5.45	33.7	67.28	74	-6.72	V	PK	Pass
5370	51.62	33.05	5.45	33.7	57.72	54	3.72	V	AV	Pass
5350	58.47	33.06	5.44	33.72	64.57	74	-9.43	H	PK	Pass
5350	51.27	33.06	5.44	33.72	57.37	54	3.37	H	AV	Pass
5370	60.01	33.05	5.45	33.7	66.11	74	-7.89	H	PK	Pass
5370	49.68	33.05	5.45	33.7	55.78	54	1.78	H	AV	Pass
802.11ac40:5190MHz										
5150	57.44	33.14	5.29	33.88	63.47	74	-10.53	V	PK	Pass
5150	49.38	33.14	5.29	33.88	55.41	54	1.41	V	AV	Pass
5145	60.10	33.14	5.29	33.88	66.13	74	-7.87	V	PK	Pass
5145	49.59	33.14	5.29	33.88	55.62	54	1.62	V	AV	Pass
5150	57.68	33.14	5.29	33.88	63.71	74	-10.29	H	PK	Pass
5150	50.37	33.14	5.29	33.88	56.40	54	2.40	H	AV	Pass
5145	60.29	33.14	5.29	33.88	66.32	74	-7.68	H	PK	Pass
5145	49.40	33.14	5.29	33.88	55.43	54	1.43	H	AV	Pass
802.11ac40:5230MHz										



5350	58.06	33.06	5.44	33.72	64.16	74	-9.84	V	PK	Pass
5350	48.78	33.06	5.44	33.72	54.88	54	0.88	V	AV	Pass
5370	60.29	33.05	5.45	33.7	66.39	74	-7.61	V	PK	Pass
5370	50.89	33.05	5.45	33.7	56.99	54	2.99	V	AV	Pass
5350	58.88	33.06	5.44	33.72	64.98	74	-9.02	H	PK	Pass
5350	52.24	33.06	5.44	33.72	58.34	54	4.34	H	AV	Pass
5370	57.97	33.05	5.45	33.7	64.07	74	-9.93	H	PK	Pass
5370	52.06	33.05	5.45	33.7	58.16	54	4.16	H	AV	Pass



U-NII-3

Frequency	Meter Reading	antenna Factor	cable loss	preamp factor	Emission Level	Limit	Margin	Polar	Detector Type	Result
(MHz)	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(H/V)		
802.11a:5745MHz										
5650	59.42	30.22	4.85	23.98	58.03	68.2	-10.17	V	PK	Pass
5725	49.51	30.22	4.85	23.98	48.12	122.2	-74.08	V	PK	Pass
5650	59.46	30.22	4.85	23.98	58.07	68.2	-10.13	H	PK	Pass
5725	51.88	30.22	4.85	23.98	50.49	122.2	-71.71	H	PK	Pass
802.11a:5825MHz										
5850	61.11	30.22	4.85	23.98	59.72	68.2	-8.48	V	PK	Pass
5925	50.92	30.22	4.85	23.98	49.53	122.2	-72.67	V	PK	Pass
5850	58.32	30.22	4.85	23.98	56.93	68.2	-11.27	H	PK	Pass
5925	52.51	30.22	4.85	23.98	51.12	122.2	-71.08	H	PK	Pass
Remark: All the modes have tested and recorded the worst mode(802.11a&802.11ax) in the report										

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.



8 Duty cycle

8.1 Limit

Test Requirement: FCC CFR Title 47 Part 15 Subpart C Section 15.407
Test Method: ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
KDB 789033 D02 v02r01
Test Result: PASS

8.2 Test Setup



8.3 Test Procedure

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW $\geq$ EBW if possible; otherwise, set RBW to the largest available value. Set VBW $\geq$ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in IILB.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)



8.4 Test Result

5150-5250MHz:

ANT1:

Duty Cycle

Mode	Channel.	Duty Cycle (%)	Correction Factor (dB)
802.11a	5180	100	0
	5200	100	0
	5240	100	0
802.11ac(VHT20)	5210	100	0
	5180	100	0
	5200	100	0
802.11ac(VHT40)	5240	100	0
	5190	100	0
802.11ac(VHT80)	5230	100	0
802.11n(HT20)	5180	100	0
	5200	100	0
	5240	100	0
802.11n(HT40)	5190	100	0
	5230	100	0



ANT2:
Duty Cycle

Mode	Channel.	Duty Cycle (%)	Correction Factor (dB)
802.11a	5180	100	0
	5200	100	0
	5240	100	0
802.11ac(VHT20)	5210	100	0
	5180	100	0
	5200	100	0
802.11ac(VHT40)	5240	100	0
	5190	100	0
802.11ac(VHT80)	5230	100	0
802.11n(HT20)	5180	100	0
	5200	100	0
	5240	100	0
802.11n(HT40)	5190	100	0
	5230	100	0



5725-5850MHz:

ANT1:

Duty Cycle

Mode	Channel.	Duty Cycle (%)	Correction Factor (dB)
802.11a	5745	100	0
	5785	100	0
	5825	100	0
802.11ac(VHT20)	5745	100	0
	5785	100	0
	5825	100	0
802.11ac(VHT40)	5755	100	0
	5795	100	0
802.11ac(VHT80)	5775	100	0
802.11n(HT20)	5745	100	0
	5785	100	0
	5825	100	0
802.11n(HT40)	5755	100	0
	5795	100	0



ANT2:
Duty Cycle

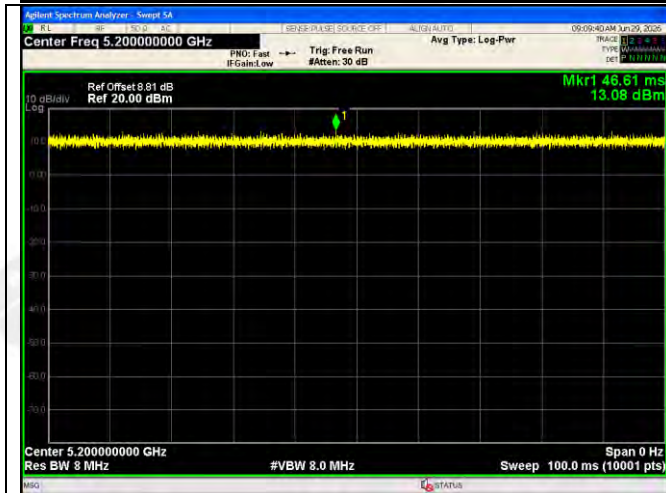
Mode	Channel.	Duty Cycle (%)	Correction Factor (dB)
802.11a	5745	100	0
	5785	100	0
	5825	100	0
802.11ac(VHT20)	5745	100	0
	5785	100	0
	5825	100	0
802.11ac(VHT40)	5755	100	0
	5795	100	0
802.11ac(VHT80)	5775	100	0
802.11n(HT20)	5745	100	0
	5785	100	0
	5825	100	0
802.11n(HT40)	5755	100	0
	5795	100	0



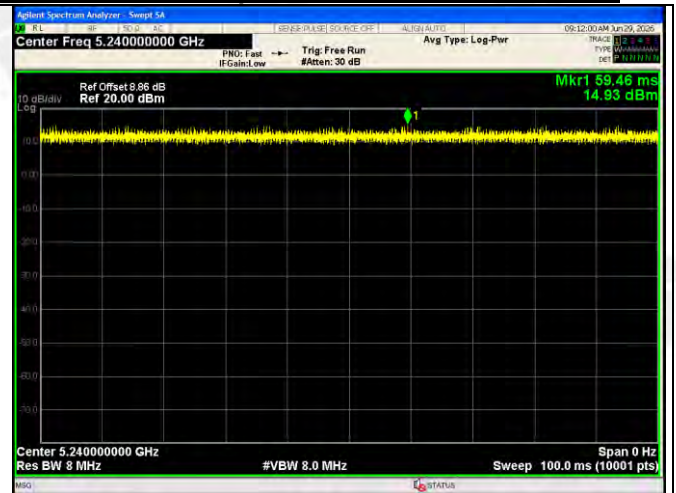
5150-5250MHz:

ANT1

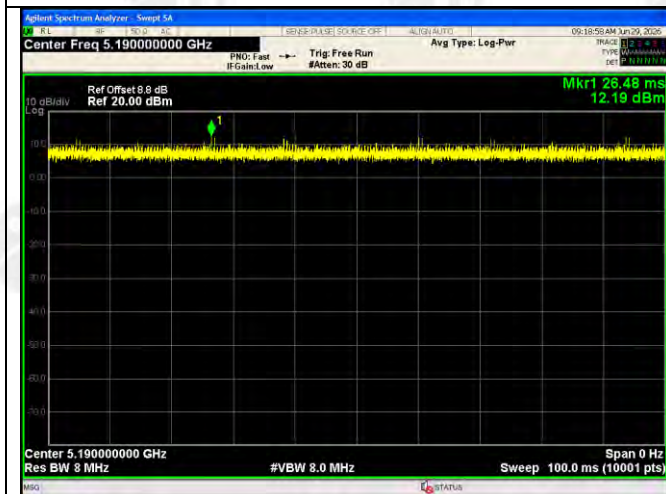




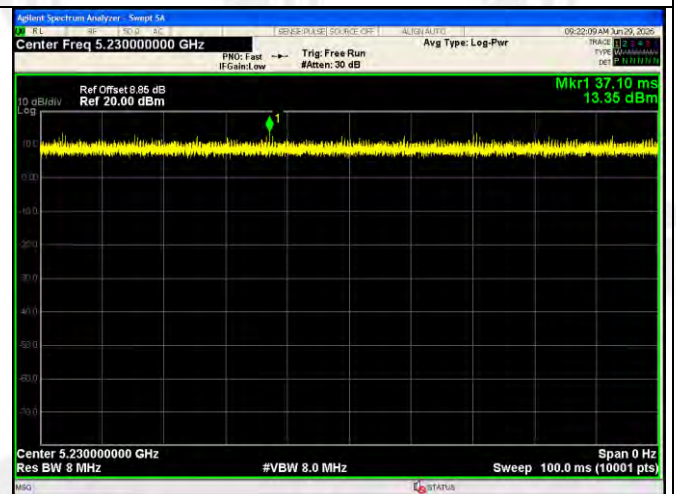
802.11ac(VHT40)-5190



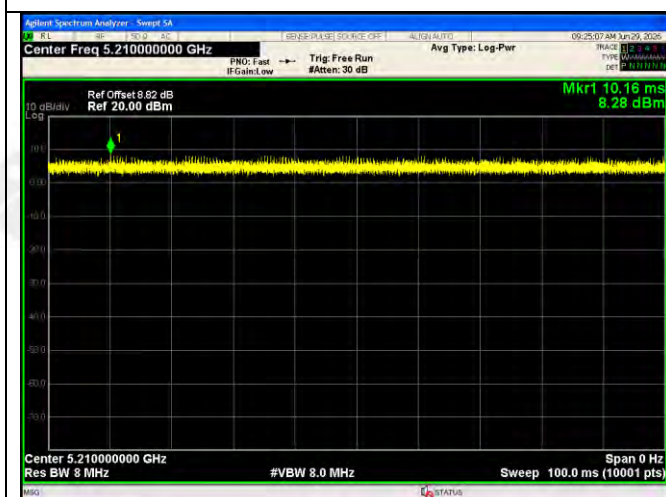
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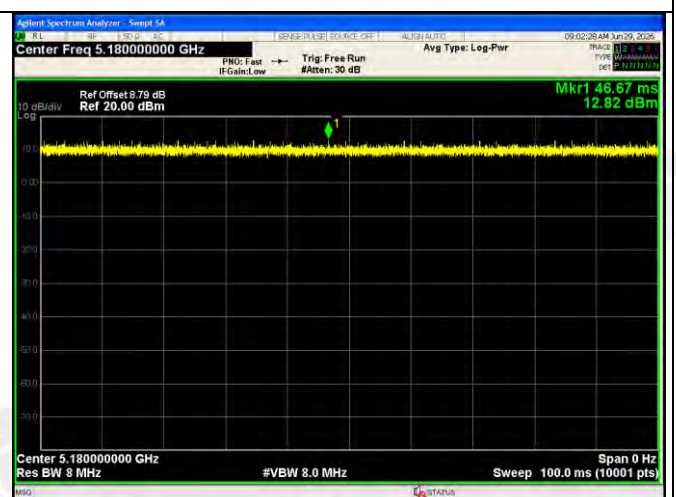
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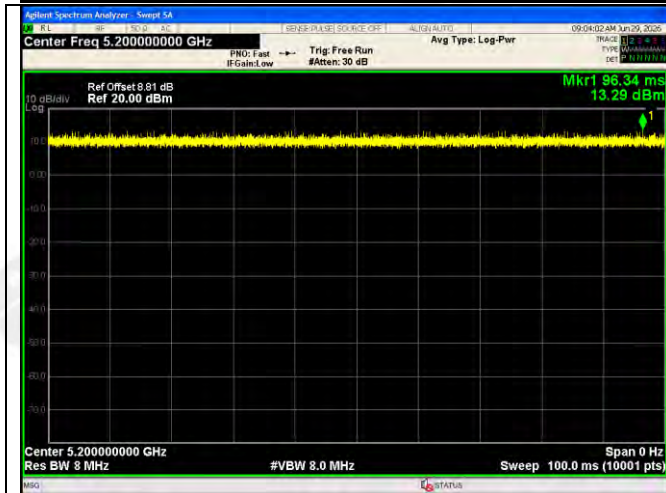
802.11n(HT20)-5180



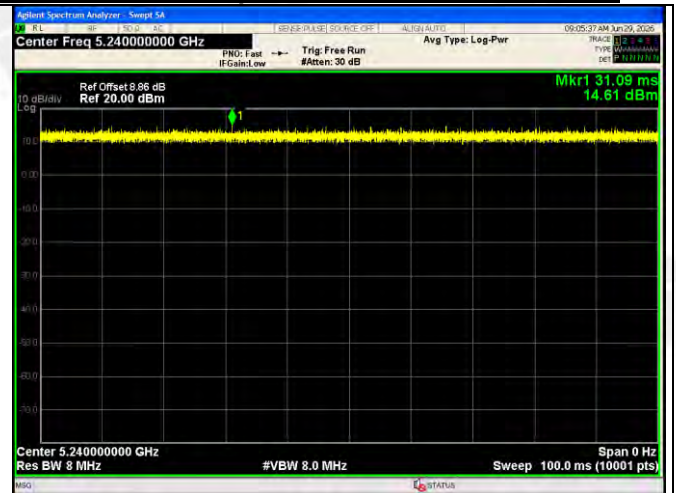
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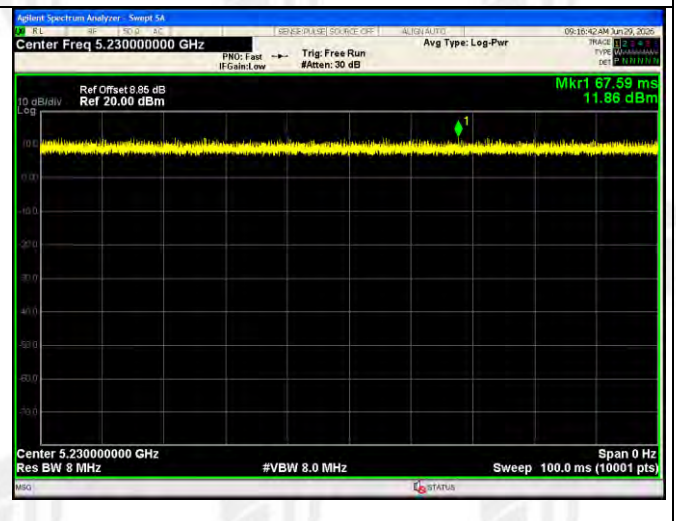
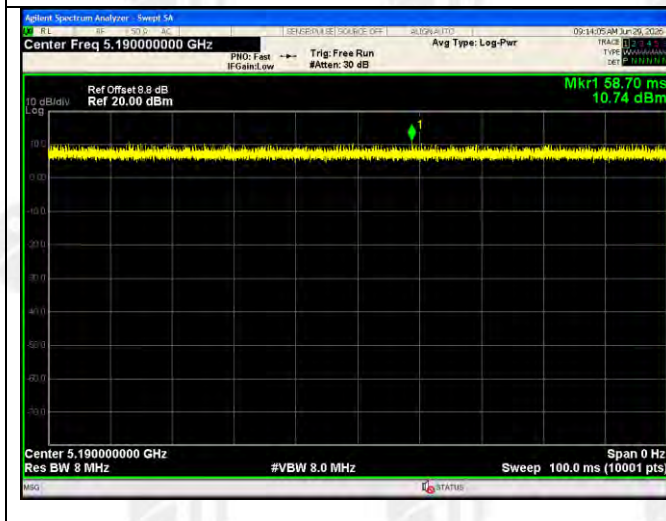
802.11n(HT20)-5240



802.11n(HT40)-5190



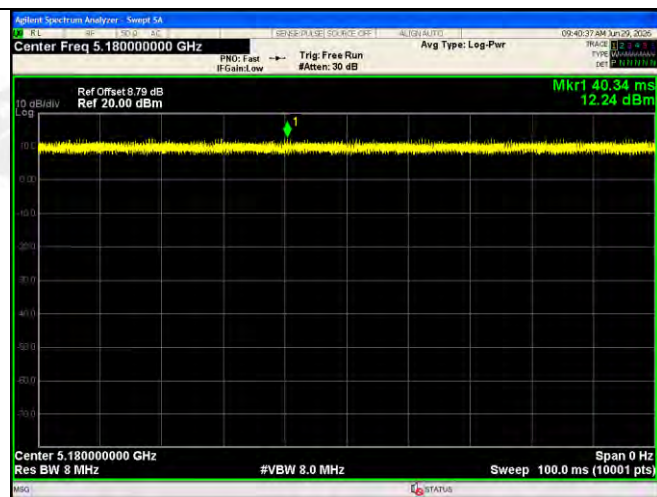
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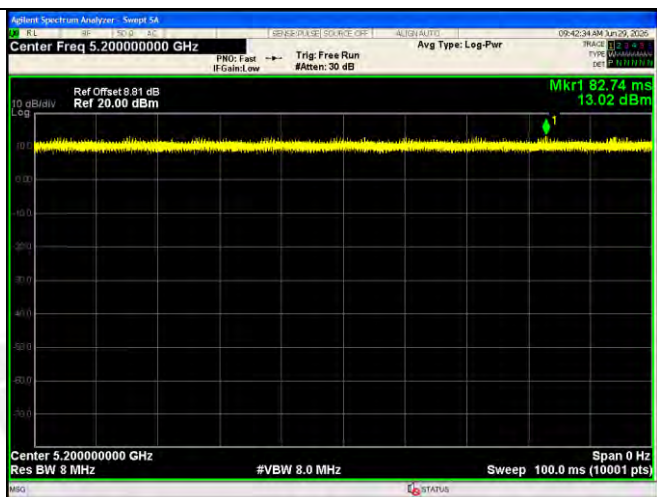


ANT2

802.11a-5180



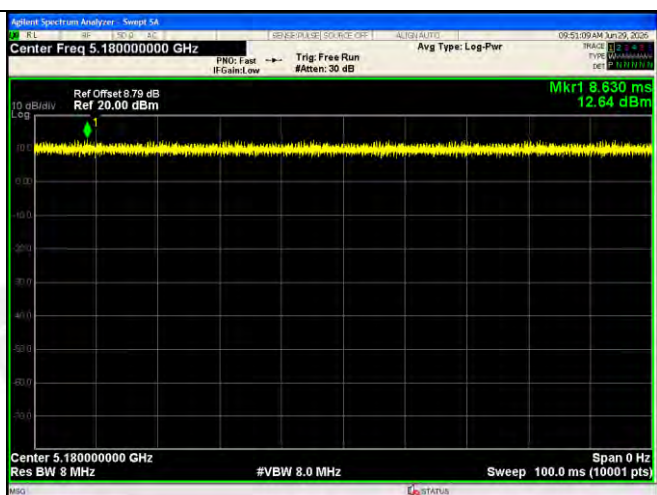
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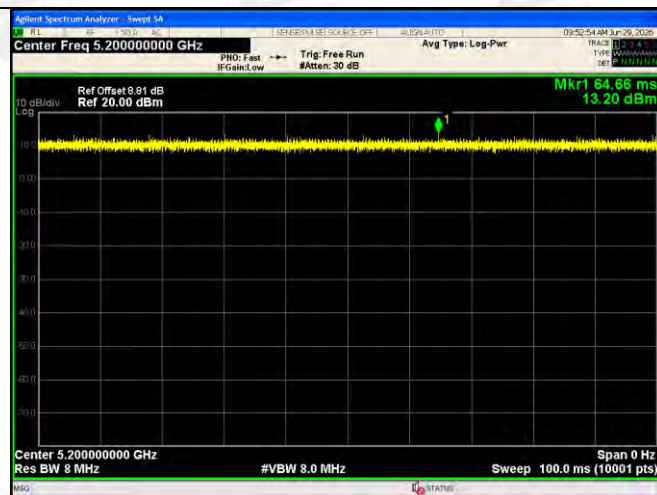
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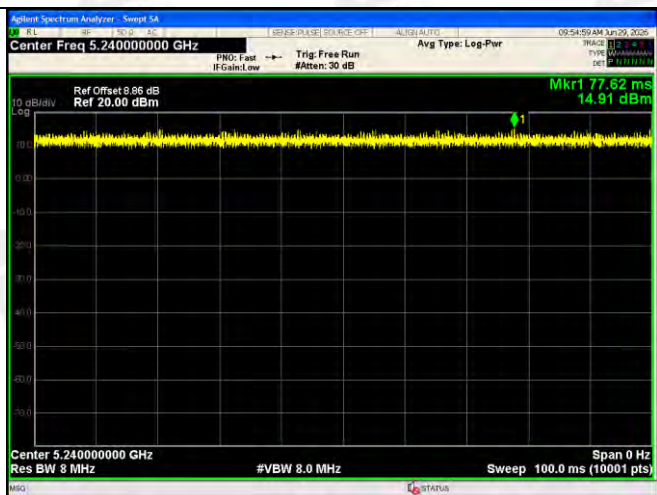
802.11ac(VHT20)-5180



802.11ac(VHT20)-5200

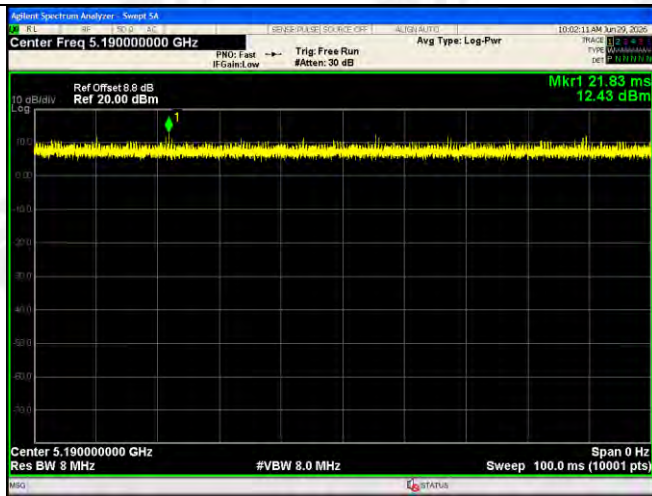


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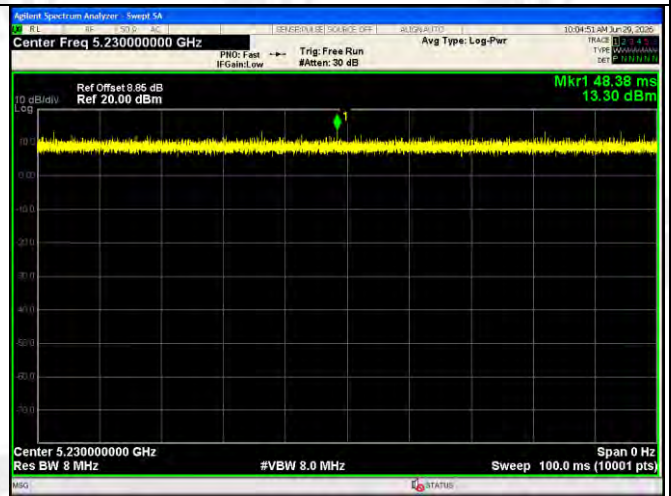




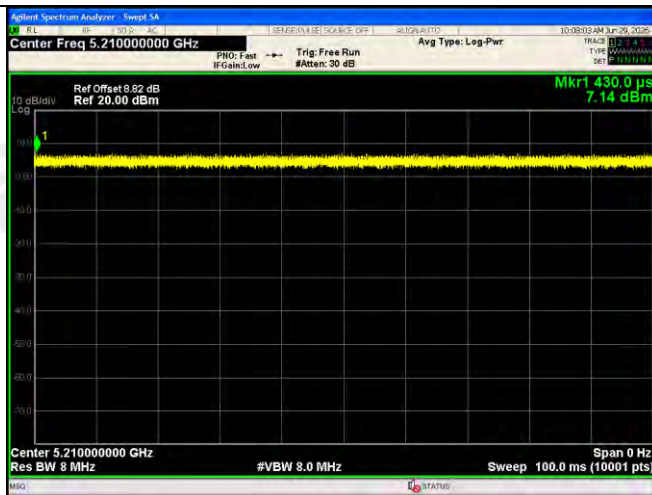
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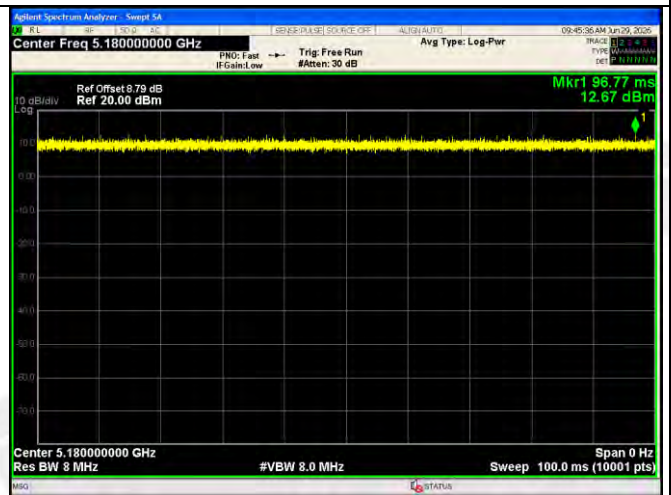
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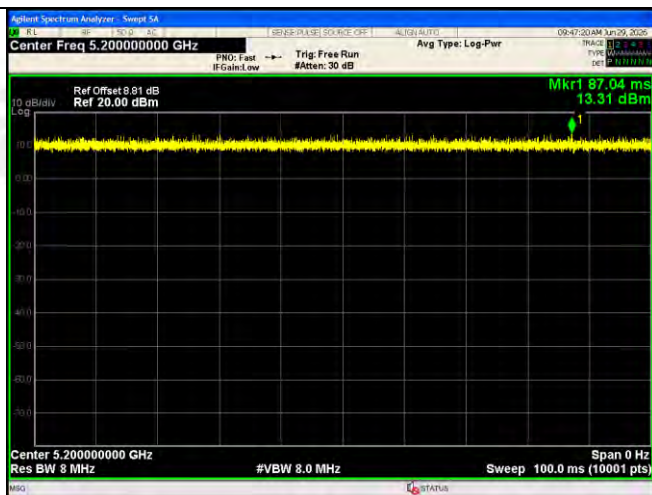
802.11ac(VHT80)-5210



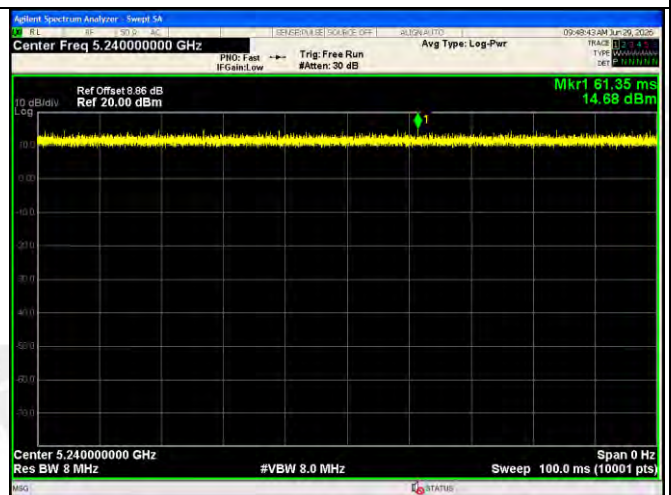
802.11n(HT20)-5180



802.11n(HT20)-5200

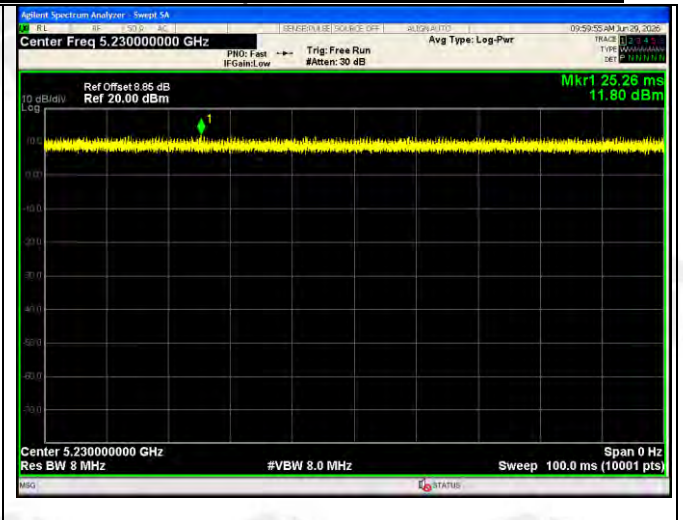
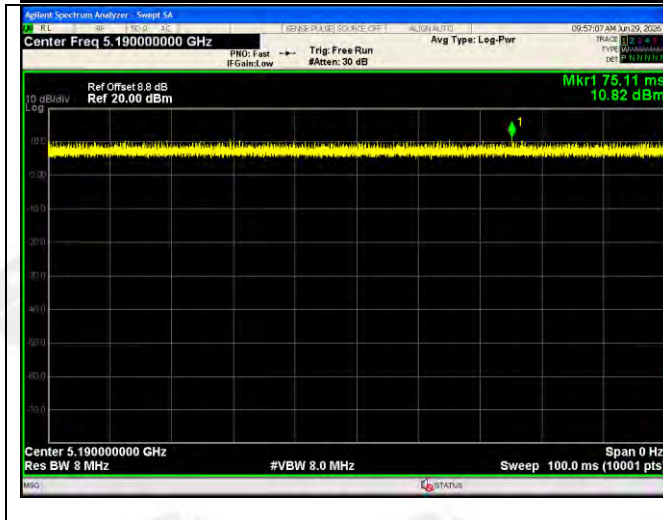


802.11n(HT20)-5240



802.11n(HT40)-5190

802.11n(HT40)-5230

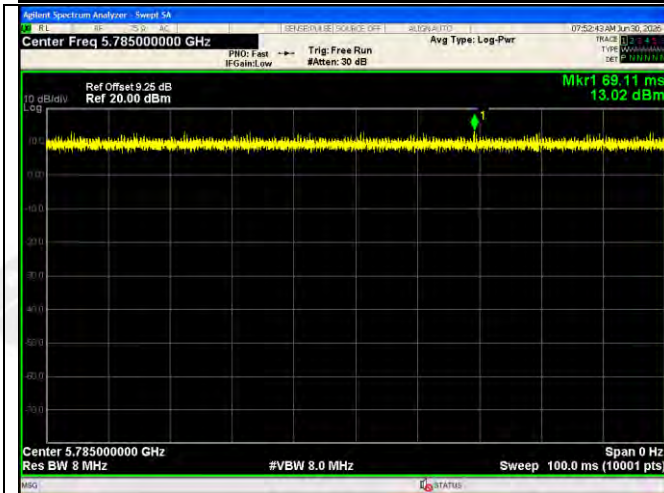




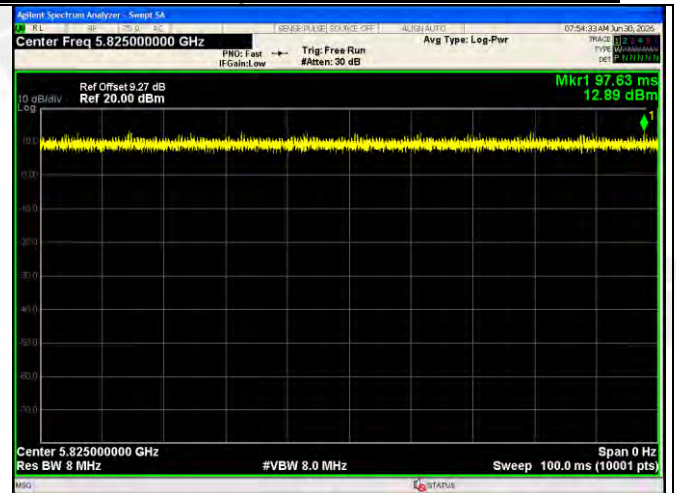
5725-5850MHz:-Power

ANT1

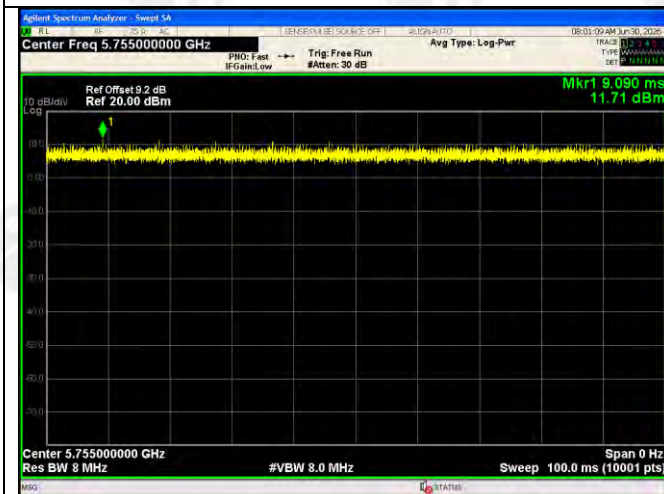




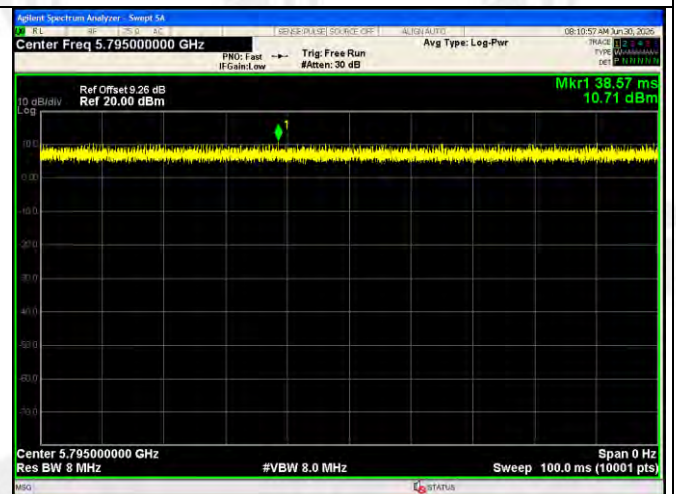
802.11ac(VHT40)-5755



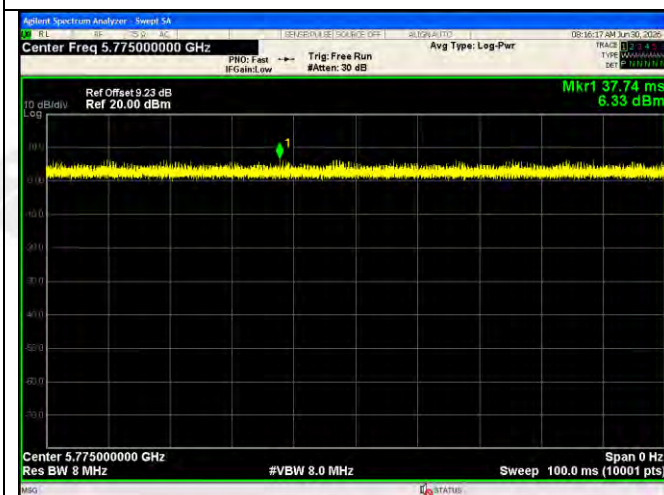
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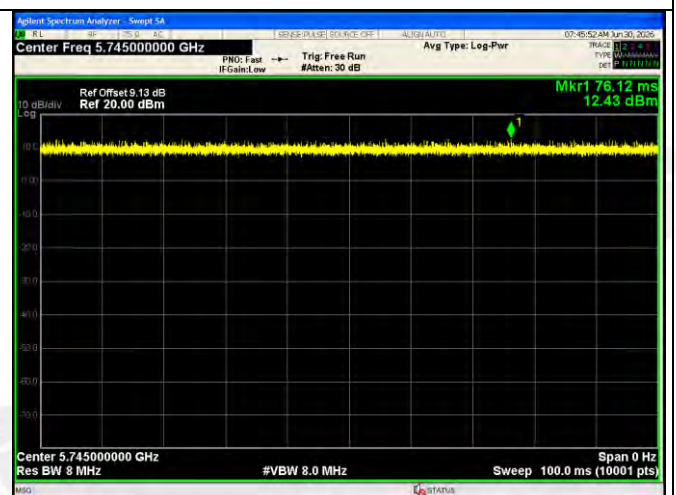
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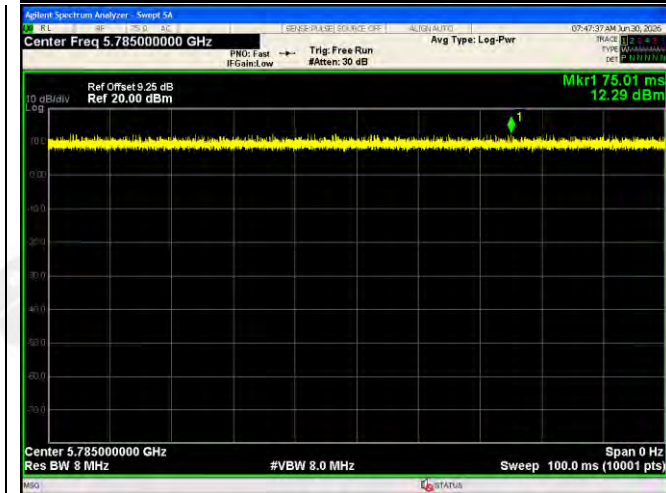
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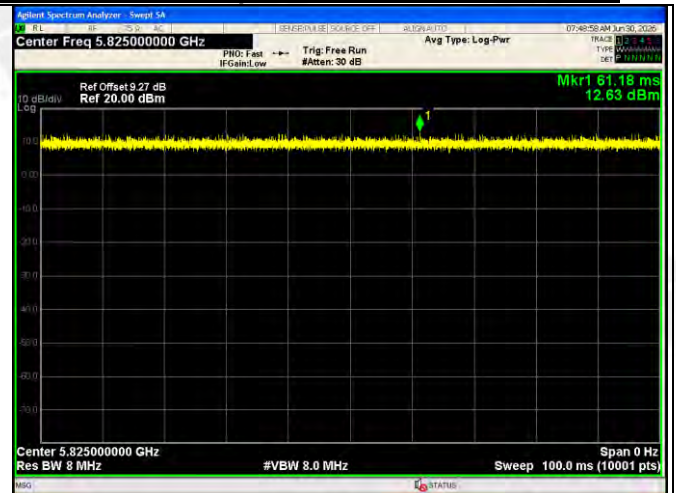
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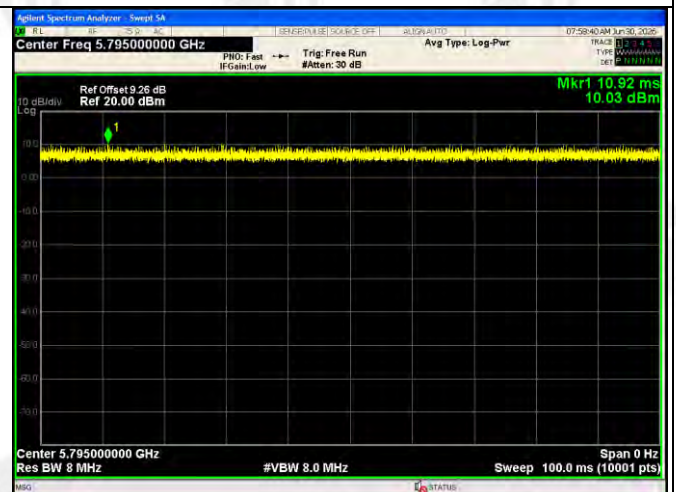
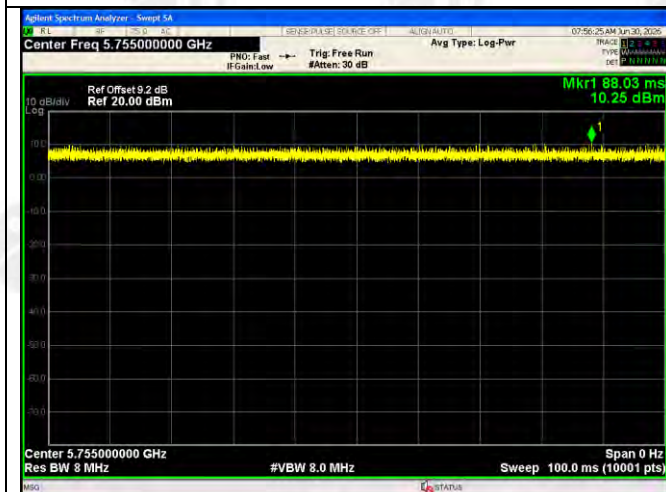
802.11n(HT20)-5825



802.11n(HT40)-5795



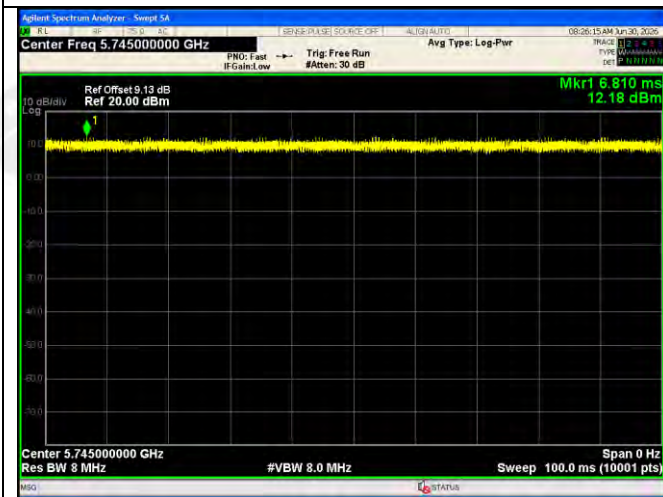
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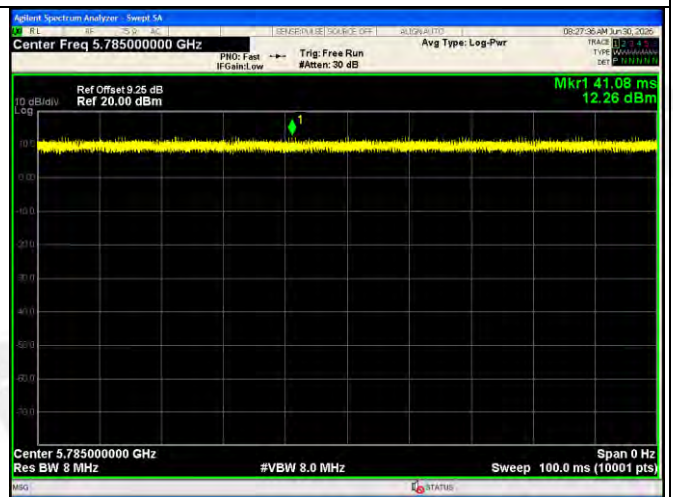


ANT2

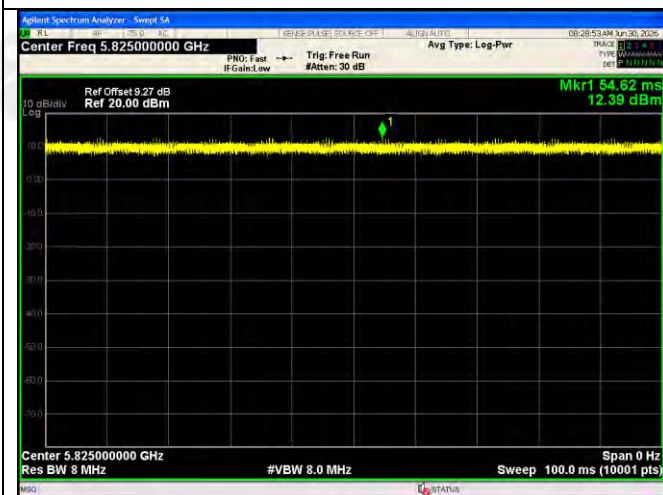
802.11a-5745



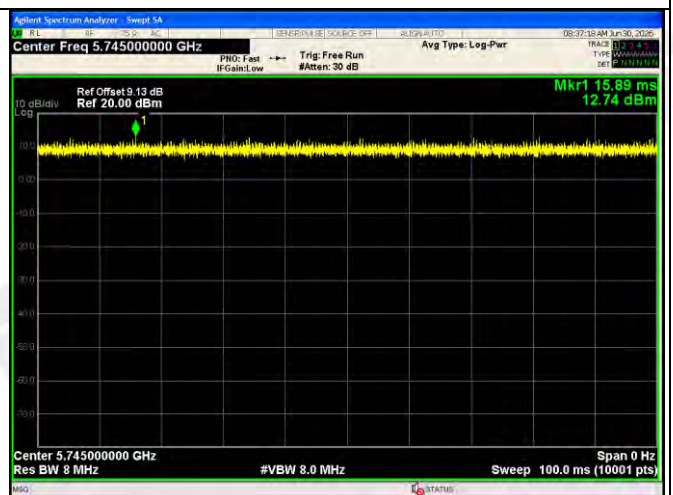
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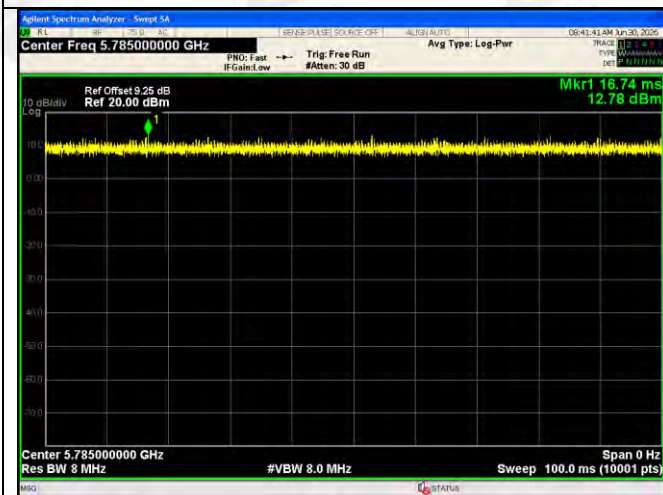
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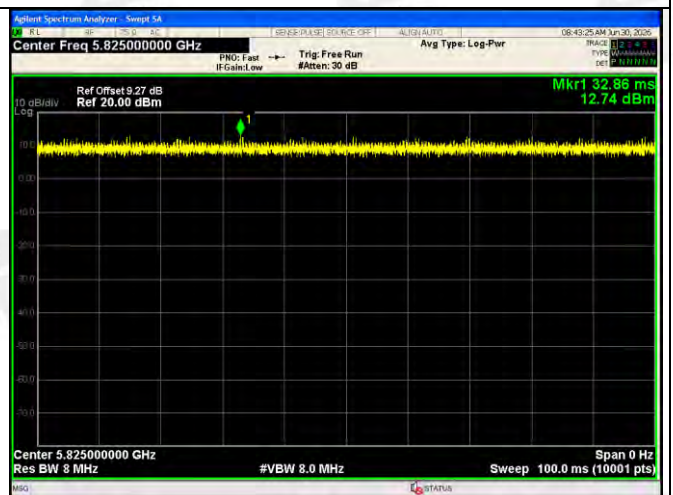
802.11ac(VHT20)-5745



802.11ac(VHT20)-5785

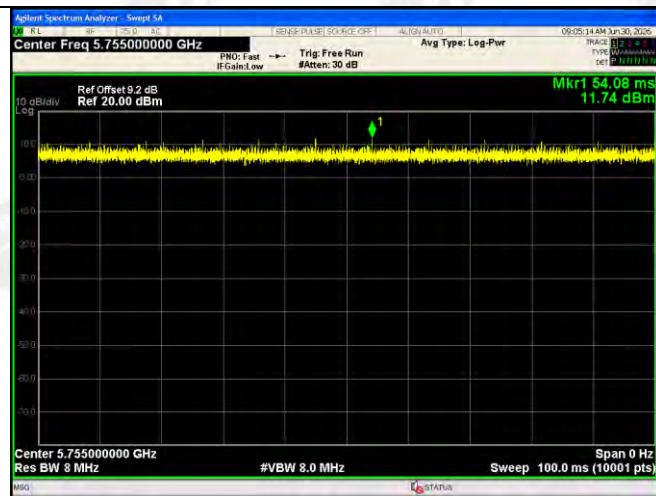


802.11ac(VHT20)-5825

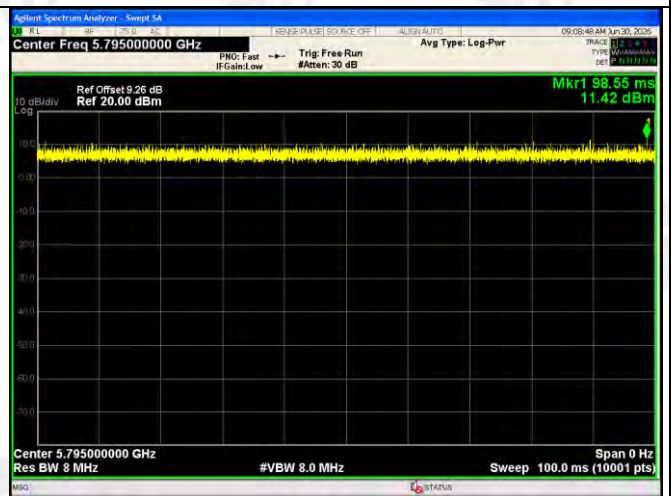




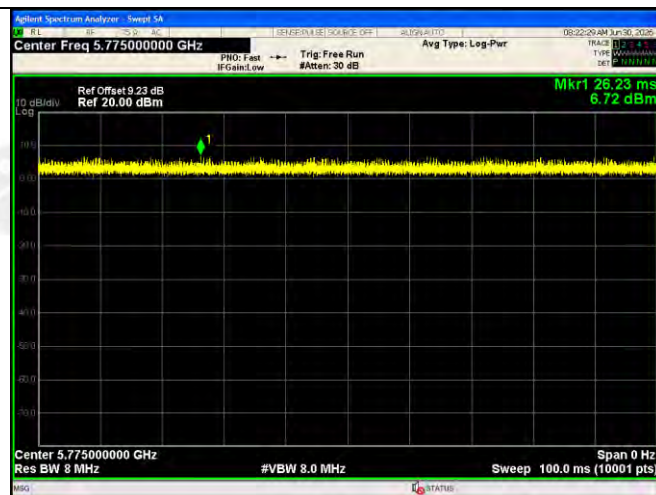
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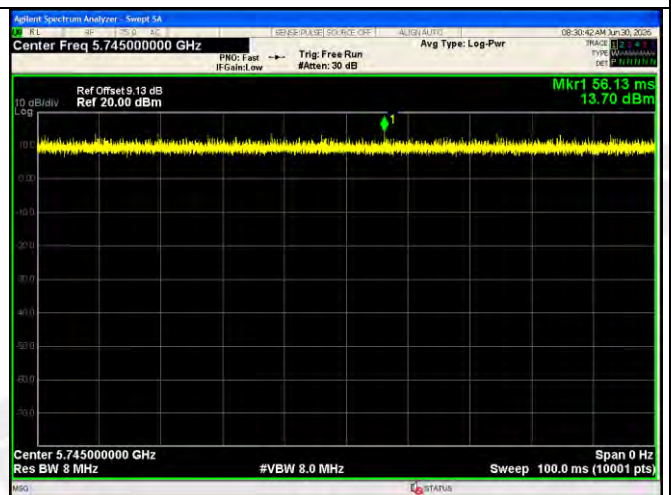
802.11ac(VHT40)-5795



802.11ac(VHT80)-5775



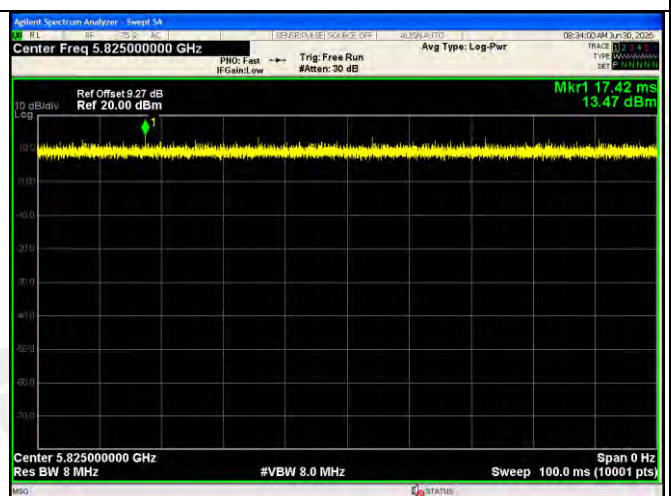
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802.11n(HT20)-5785

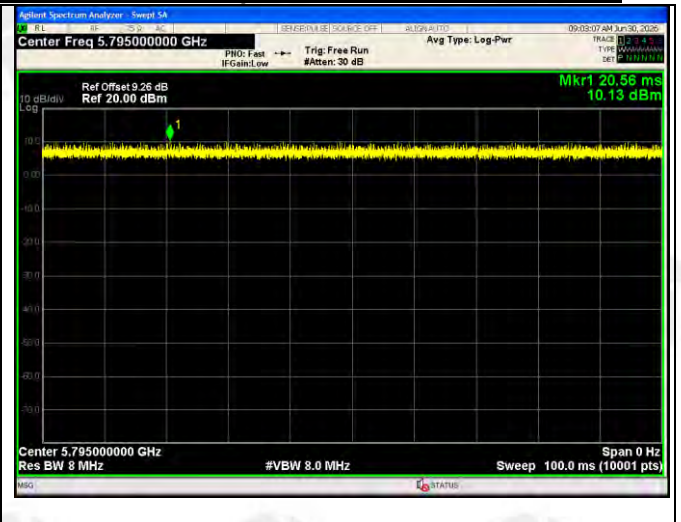
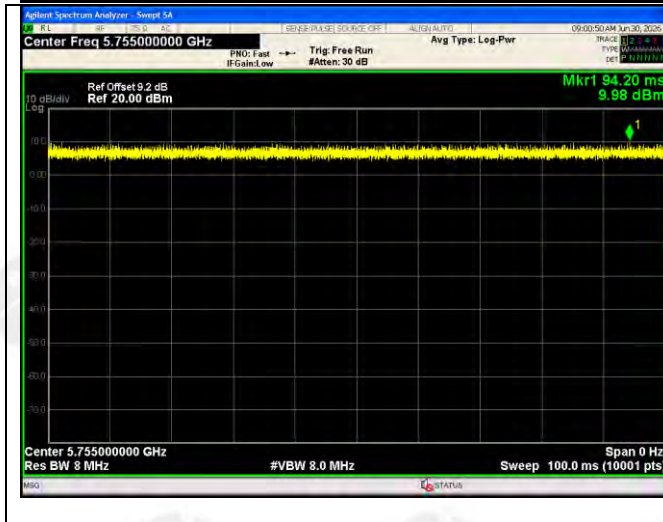


802.11n(HT20)-5825



802.11n(HT40)-5795

802.11n(HT40)-5825



9 POWER SPECTRAL DENSITY TEST

9.1 Test Standard and Limit

According to FCC §15.407(3)

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum

power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

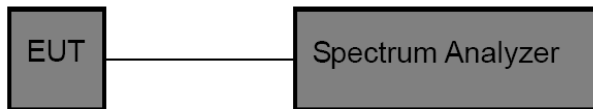
(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.



9.2 Test Setup



9.3 Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above,
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 $10 \log(1/\text{duty cycle})$.

9.4 Test Data

5150-5250MHz:

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5180	-3.99	-4.313	/	11	Pass
	5200	-3.201	-3.805	/	11	Pass
	5240	-2.131	-1.999	/	11	Pass
802.11n(HT20)	5180	-4.283	-4.341	-1.302	11	Pass
	5200	-3.581	-3.74	-0.649	11	Pass
	5240	-2.498	-2.219	0.654	11	Pass
802.11n(HT40)	5190	-6.891	-6.796	-3.833	11	Pass
	5230	-5.634	-5.591	-2.602	11	Pass
802.11ac(VHT20)	5210	-4.116	-4.29	-1.192	11	Pass
	5180	-3.576	-3.426	-0.490	11	Pass
	5200	-2.16	-2.425	0.720	11	Pass
802.11ac(VHT40)	5240	-7.104	-7.111	-4.097	11	Pass
	5190	-5.669	-5.711	-2.680	11	Pass
802.11ac(VHT80)	5230	-7.965	-8.197	-5.069	11	Pass

5725-5850MHz:

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5745	-7.016	-7.465	/	30	Pass
	5785	-6.764	-7.155	/	30	Pass
	5825	-6.346	-7.165	/	30	Pass
802.11n(HT20)	5745	-7.314	-7.504	-4.398	30	Pass
	5785	-7.411	-7.657	-4.522	30	Pass
	5825	-7.235	-7.827	-4.511	30	Pass
802.11n(HT40)	5755	-10.799	-10.595	-7.686	30	Pass
	5795	-10.658	-10.493	-7.564	30	Pass
802.11ac(VHT20)	5745	-7.556	-7.802	-4.667	30	Pass
	5785	-7.403	-7.561	-4.471	30	Pass
	5825	-7.498	-7.54	-4.509	30	Pass
802.11ac(VHT40)	5755	-10.98	-10.995	-7.977	30	Pass
	5795	-10.791	-10.445	-7.604	30	Pass
802.11ac(VHT80)	5775	-13.432	-13.034	-10.218	30	Pass



Test Graph:
5150-5250MHz
ANT1

802.11a-5180



802.11a-5200



802.11a-5240



802.11ac(VHT20)-5180



802.11ac(VHT20)-5200



802.11ac(VHT20)-5240



802.11ac(VHT40)-5190

802.11ac(VHT40)-5230



802.11ac(VHT80)-5210



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



802.11n(HT40)-5190



802.11n(HT40)-5230



ANT2

802.11a-5180



802.11a-5200



802.11a-5240



802.11ac(VHT20)-5180



802.11ac(VHT20)-5200

802.11ac(VHT20)-5240