

TEST REPORT

Report No.: BCTC2108026527-2E

Applicant: SHENZHEN ZHIBOTONG ELECTRONICS CO., LTD

Product Name: Wireless Router

Model/Type
reference: WG1602

Tested Date: 2021-08-27 to 2021-09-28

Issued Date: 2021-09-29



Shenzhen BCTC Testing Co., Ltd.



FCC ID: 2AC47-WG1602

Product Name: Wireless Router
Trademark: N/A
Model/Type reference: WG1602
WE2805, WE5927, WG156, S600, Z100, Z600, Z200, WD523, MIFI001, UFI1601, UFI1602, Z800, WG1402
Prepared For: SHENZHEN ZHIBOTONG ELECTRONICS CO., LTD
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Sample Received Date: 2021-08-27
Sample tested Date: 2021-08-27 to 2021-09-28
Issue Date: 2021-09-29
Report No.: BCTC2108026527-2E
FCC Part15 15.407
Test Standards ANSI C63.10-2013
KDB 662911 D01 v02r01
KDB 789033 D02 v02r01
Test Results PASS

Tested by:



Eric Yang/Project Handler

Approved by:



Zero Zhou/Reviewer

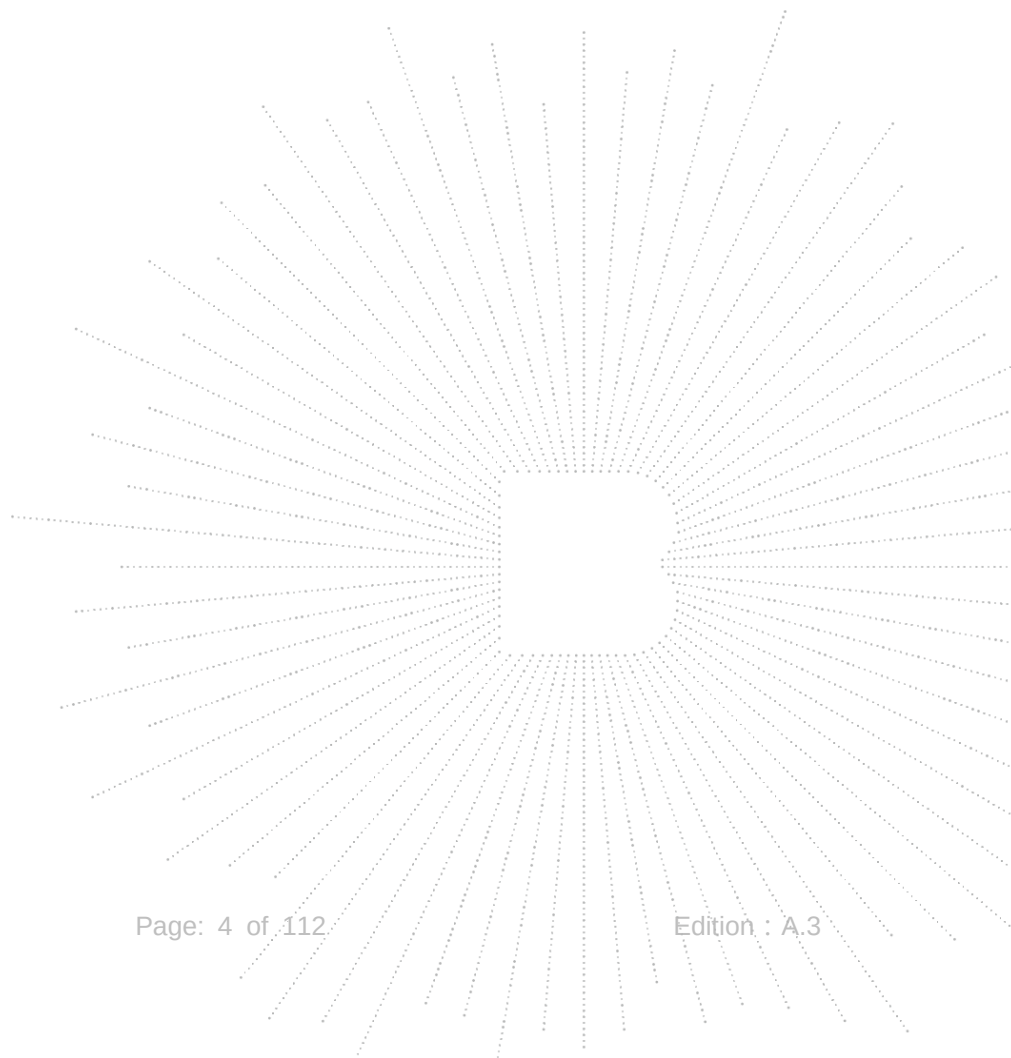
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(Note: N/A Means Not Applicable)



1. Version

Report No.	Issue Date	Description	Approved
BCTC2108026527-2E	2021-09-29	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

1	Test Parameter	Clause No	Results
1	Spurious Radiated Emissions	15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(8)	PASS
2	Conducted Emission	15.207	PASS
3	26 dB and 99% Emission Bandwidth	15.407 (a)(12) 15.1049	PASS
4	Minimum 6 dB bandwidth	15.407(e)	PASS
5	Maximum Conducted Output Power	15.407 (a)(1) 15.407 (a)(3)	PASS
6	Band Edge	2.1051, 15.407(b)(1) 15.407(b)(4)	PASS
7	Power Spectral Density	15.407 (a)(1) 15.407 (a)(3)	PASS
8	Spurious Emissions at Antenna Terminals	2.1051, 15.407(b)	PASS
9	Antenna Requirement	15.203	PASS

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(9KHz-30MHz)	U=3.7dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
5	Conducted Emission (150kHz-30MHz)	U=3.20dB
6	Conducted Adjacent channel power	U=1.38dB
7	Conducted output power uncertainty Above 1G	U=1.576dB
8	Conducted output power uncertainty below 1G	U=1.28dB
9	humidity uncertainty	U=5.3%
10	Temperature uncertainty	U=0.59°C

4. Product Information And Test Setup

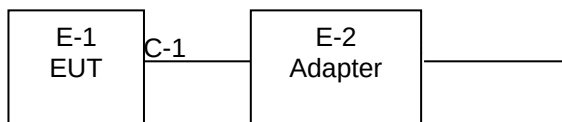
4.1 Product Information

Model/Type reference:	WG1602 WE2805, WE5927, WG156, S600, Z100, Z600, Z200, WD523, MIFI001, UFI1601, UFI1602, Z800, WG1402
Model differences:	All the model are the same circuit and RF module, except model names.
IEEE 802.11 WLAN	802.11a/n/ac(20MHz channel bandwidth)
Mode Supported	802.11n/ac(40MHz channel bandwidth)
Operation Frequency:	802.11ac(80MHz channel bandwidth)
	5180-5240MHz for 802.11a/n/ac(HT20);
	5190-5230MHz for 802.11n/ac(HT40);
	5210MHz for 802.11 ac80;
	5745-5825 MHz for 802.11a/n/ac(HT20);
	5755-5795 MHz for 802.11a/n/ac(HT40);
	5775MHz for 802.11 ac80;
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps;
	802.11n/ac(HT20/HT40):MCS0-MCS15;
	802.11ac(VHT20): NSS1, MCS0-MCS8
	802.11ac(VHT40/VHT80):NSS1, MCS0-MCS
Type of Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
Number Of Channel	4 channels for 802.11a/n20 in the 5180-5240MHz band ;
	2 channels for 802.11 n40 in the 5190-5230MHz band ;
	1 channels for 802.11 ac80 in the 5210MHz band ;
	5 channels for 802.11a/n20 in the 5745-5825MHz band ;
	2 channels for 802.11 n40 in the 5755-5795MHz band ;
	1 channels for 802.11 ac80 in the 5775MHz band ;
Antenna installation:	External antenna
Antenna Gain:	Antenna A:2dBi
	Antenna B:2dBi
Type of device:	Indoor AP
Ratings:	DC 12V
Adapter:	Model: SA24V-120200U
	Input: AC100-240V 50/60Hz 0.8A
	Output: 12.V 2A

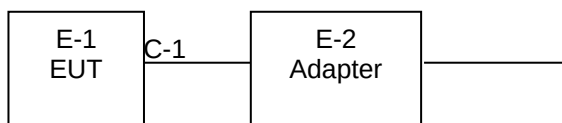
4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission:



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-2	Adapter	N/A	SA24V-120200U	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.2M	DC cable unshielded

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

Frequency and Channel list for 802.11a/n/ac(20 MHz) band IV (5180-5240MHz):

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	-	-	-	-
40	5200	48	5240	-	-	-	-

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

802.11ac (80MHz) Carrier Frequency Channel	
Channel	Frequency (MHz)
42	5210

Frequency and Channel list for 802.11a/n/ac(20 MHz) band IV (5745-5825MHz):

802.11a/n/ac(20 MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

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

802.11ac 80MHz Carrier Frequency Channel	
Channel	Frequency (MHz)
155	5775

4.5 Test Mode

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.

Pretest Mode	Description
Mode 1	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 2	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 42/CH 155
Mode 4	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 4	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 2	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 42/CH 155

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

4.6 table of parameters of text 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 firmware of the final end product power parameters

Test software Version	CMD		
Parameters	DEF	DEF	DEF

4.7 Antenna

EUT has two External antennas with Max gain GANT 2dBi on every antenna, CDD device with two spatial streams, also can operate with one spatial streams according to KDB662911 D01 v02r01, Directional gain= GANT + Array Gain, where Array Gain is as follows.

1) For power spectral density (PSD) measurements,
Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB = $10 \log(2/1)$ = 3.01 dB,

So the directional gain for PSD is 5.01 dBi

2) For power measurements,

The Array gain = 0 dB for $N_{\text{ANT}} \leq 4$,

So the directional gain for Power measurements is 2 dBi

Antenna	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	External antenna	2	N/A
B	N/A	N/A	External antenna	2	N/A

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address:1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

5.2 Test Instrument Used

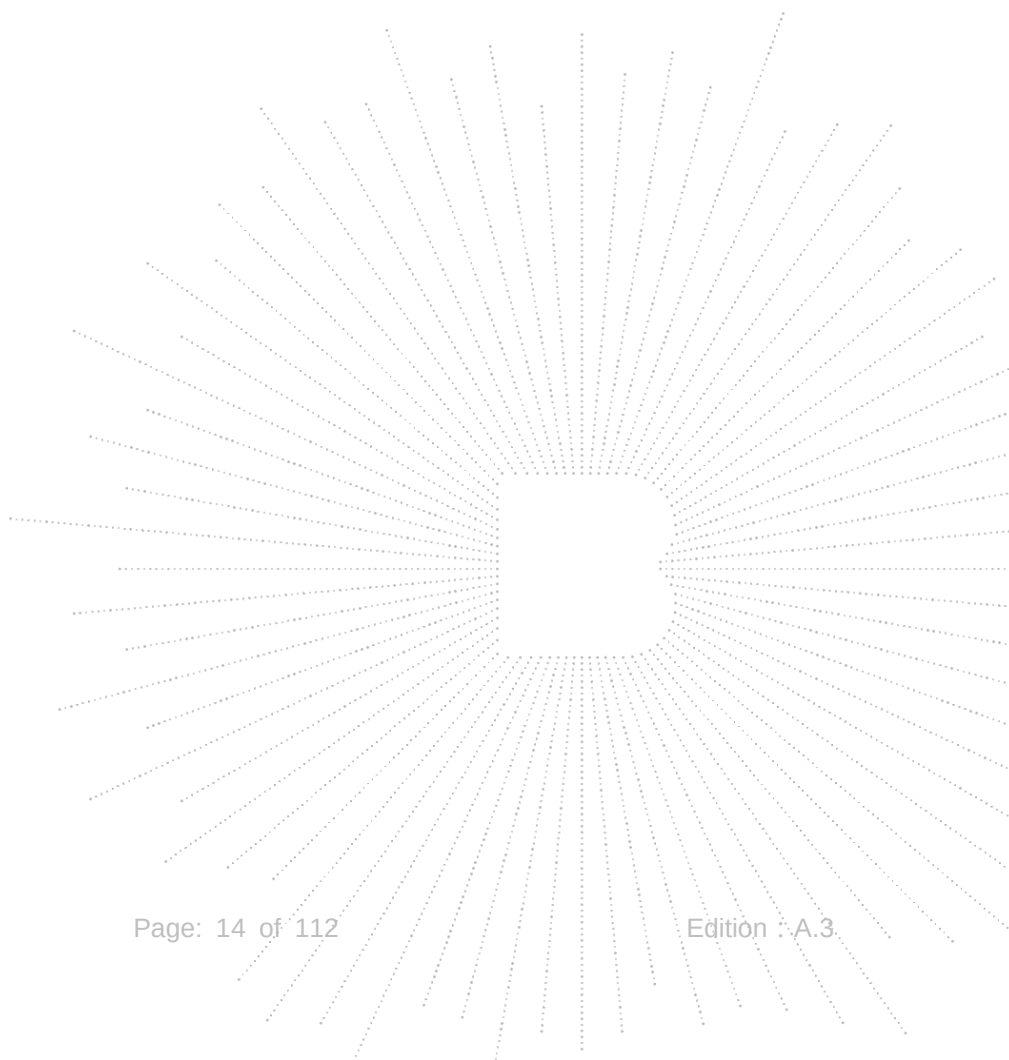
Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4407B	MY45109572	May 28, 2021	May 27, 2022
2	Test Receiver (9kHz-7GHz)	R&S	ESRP	101154	May 28, 2021	May 27, 2022
3	Bilog Antenna (30MHz-3GHz)	SCHWARZBEC K	VULB9163	VULB9163-942	Jun. 01, 2021	May 31, 2022
4	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	Jun. 02, 2021	Jun. 01, 2022
5	Horn Antenna (18GHz-40GHz)	SCHWARZBEC K	BBHA9170	00822	Jun. 15, 2021	Jun. 14, 2022
6	Amplifier (9KHz-6GHz)	SCHWARZBEC K	BBV9744	9744-0037	May 28, 2021	May 27, 2022
7	Amplifier	SKET	LAPA_01G18G-45dB	\	May 28, 2021	May 27, 2022
8	Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-H G	2034381	May 28, 2021	May 27, 2022
9	Loop Antenna (9KHz-30MHz)	SCHWARZBEC K	FMZB1519B	00014	Jun. 02, 2021	Jun. 01, 2022
10	RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	May 28, 2021	May 27, 2022
11	RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	May 28, 2021	May 27, 2022
12	RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	May 28, 2021	May 27, 2022
13	Power Metter	Keysight	E4419B	\	May 28, 2021	May 27, 2022
14	Power Sensor (AV)	Keysight	E9 300A	\	May 28, 2021	May 27, 2022
15	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	May 28, 2021	May 27, 2022
16	Spectrum Analyzer 9kHz-40GHz	Agilent	FSP40	100363	May 28, 2021	May 27, 2022
17	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
2	LISN	SCHWARZBECK	NSLK8127	8127739	May 28, 2021	May 27, 2022
3	LISN	R&S	ENV216	101375	May 28, 2021	May 27, 2022
4	RF cables	Huber+Suhnar	9kHz-30MHz	B1702988-0008	May 28, 2021	May 27, 2022
5	Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

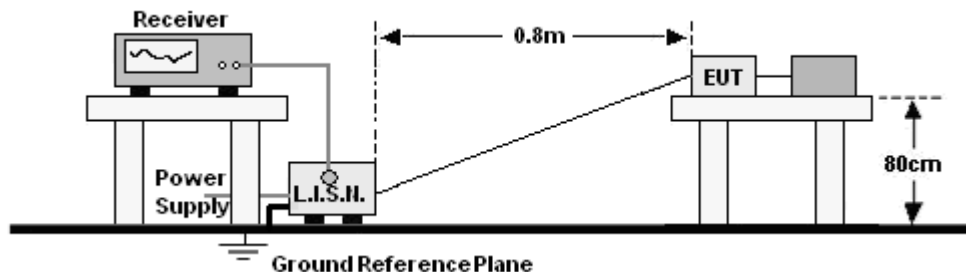
RF conducted test

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Power Metter	Keysight	E4419B	\	May 28, 2021	May 27, 2022
2	Power Sensor (AV)	Keysight	E9 300A	\	May 28, 2021	May 27, 2022
3	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	May 28, 2021	May 27, 2022
4	Spectrum Analyzer 9kHz-40GHz	Agilent	FSP40	100363	May 28, 2021	May 27, 2022



6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

FREQUENCY (MHz)	Limit (dBuV)	
	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:

- *Decreasing linearly with logarithm of frequency.
- The lower limit shall apply at the transition frequencies.

6.3 Test procedure

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

a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

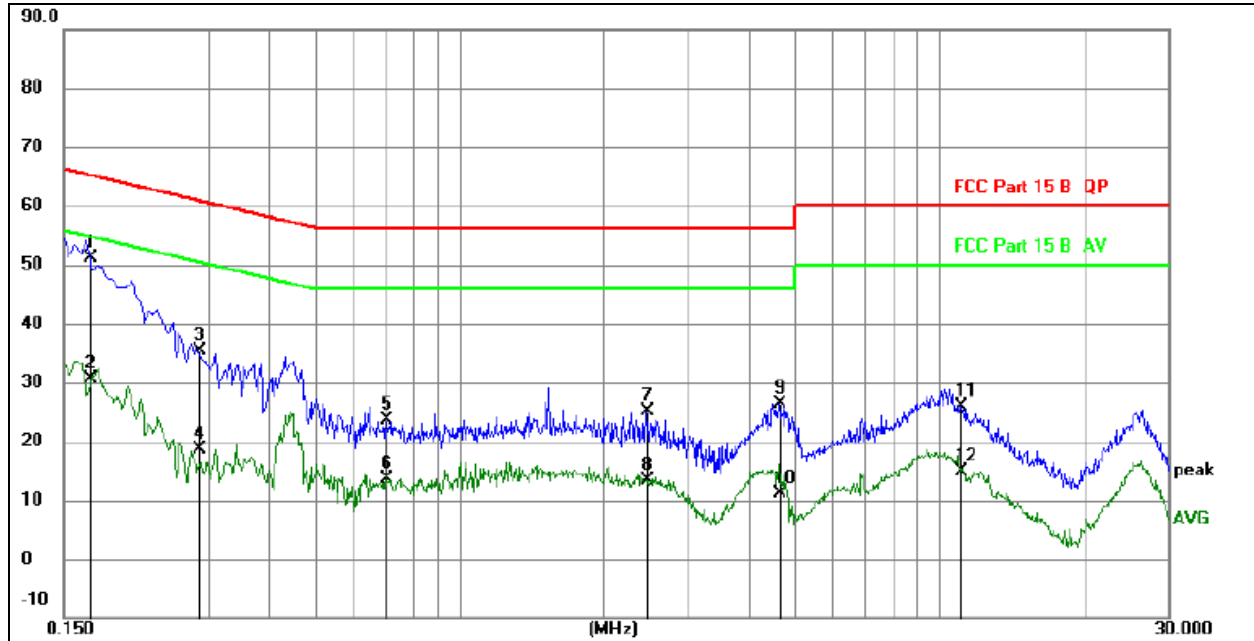
6.4 EUT operating Conditions

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 240V, the worst voltage was AC 120V and the data recording in the report.

6.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	L

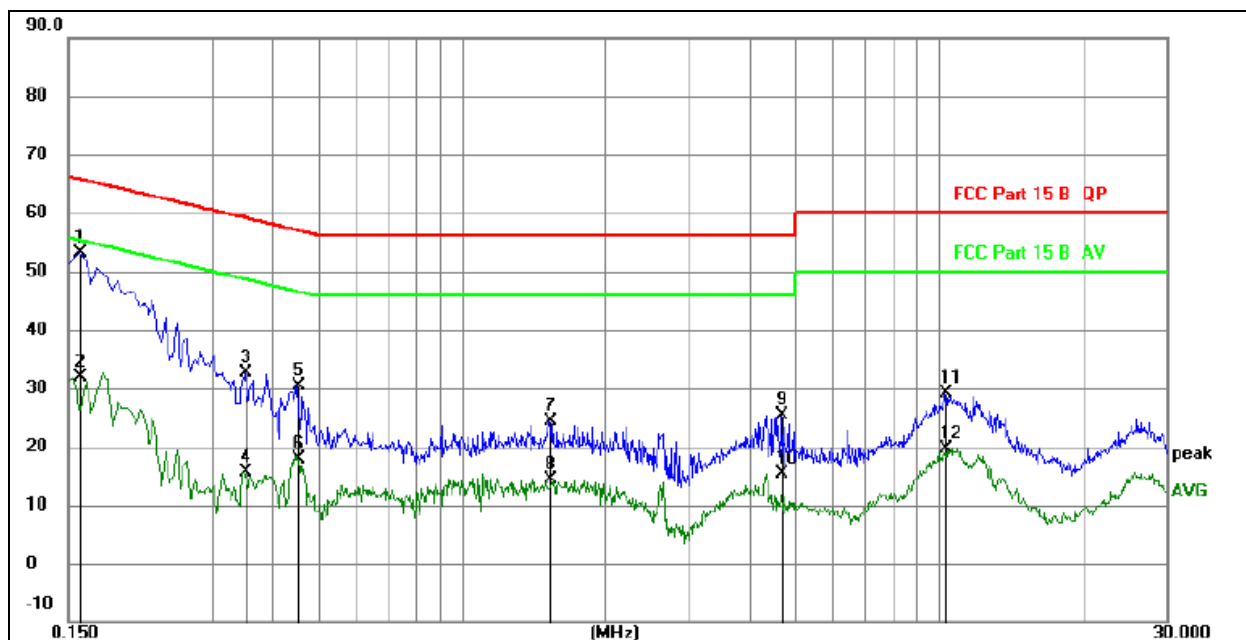


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No. Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1 *	0.1703	41.52	9.61	51.13	64.95	-13.82	QP
2	0.1703	21.01	9.61	30.62	54.95	-24.33	AVG
3	0.2863	25.72	9.61	35.33	60.63	-25.30	QP
4	0.2863	9.04	9.61	18.65	50.63	-31.98	AVG
5	0.7010	14.12	9.62	23.74	56.00	-32.26	QP
6	0.7010	3.96	9.62	13.58	46.00	-32.42	AVG
7	2.4476	15.42	9.64	25.06	56.00	-30.94	QP
8	2.4476	3.84	9.64	13.48	46.00	-32.52	AVG
9	4.6223	16.68	9.70	26.38	56.00	-29.62	QP
10	4.6223	1.31	9.70	11.01	46.00	-34.99	AVG
11	11.0797	16.19	9.80	25.99	60.00	-34.01	QP
12	11.0797	5.07	9.80	14.87	50.00	-35.13	AVG

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	N


Remark:

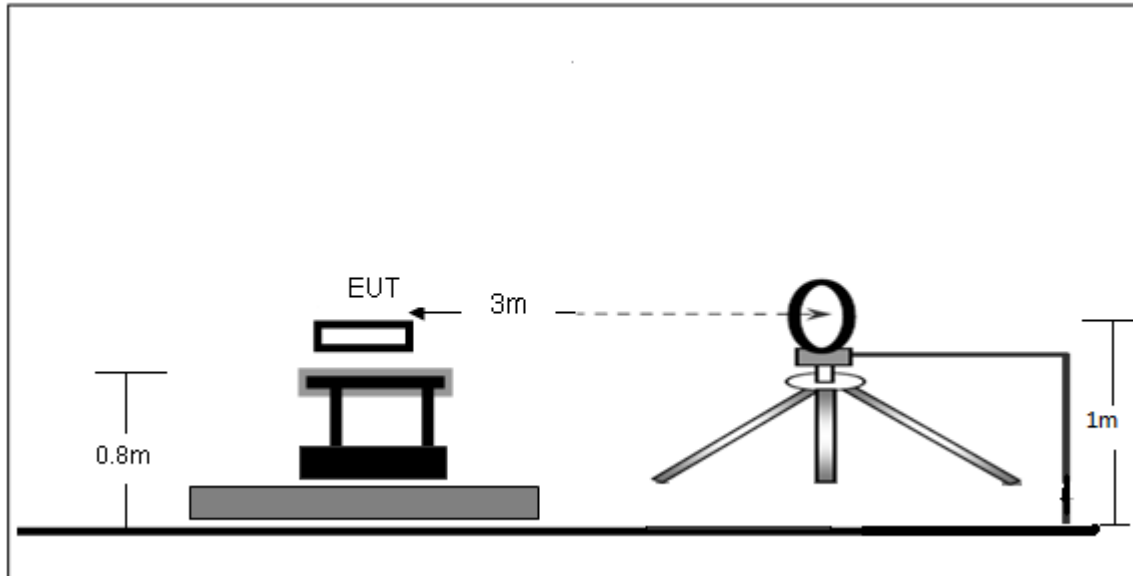
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz		dB	dBuV	dBuV	dB	
1	*	0.1590	43.57	9.61	53.18	65.52	-12.34	QP
2		0.1590	22.18	9.61	31.79	55.52	-23.73	AVG
3		0.3525	23.06	9.62	32.68	58.90	-26.22	QP
4		0.3525	5.98	9.62	15.60	48.90	-33.30	AVG
5		0.4560	20.88	9.62	30.50	56.77	-26.27	QP
6		0.4560	8.14	9.62	17.76	46.77	-29.01	AVG
7		1.5315	14.69	9.63	24.32	56.00	-31.68	QP
8		1.5315	4.79	9.63	14.42	46.00	-31.58	AVG
9		4.6950	15.66	9.70	25.36	56.00	-30.64	QP
10		4.6950	5.78	9.70	15.48	46.00	-30.52	AVG
11		10.2930	19.44	9.80	29.24	60.00	-30.76	QP
12		10.2930	9.92	9.80	19.72	50.00	-30.28	AVG

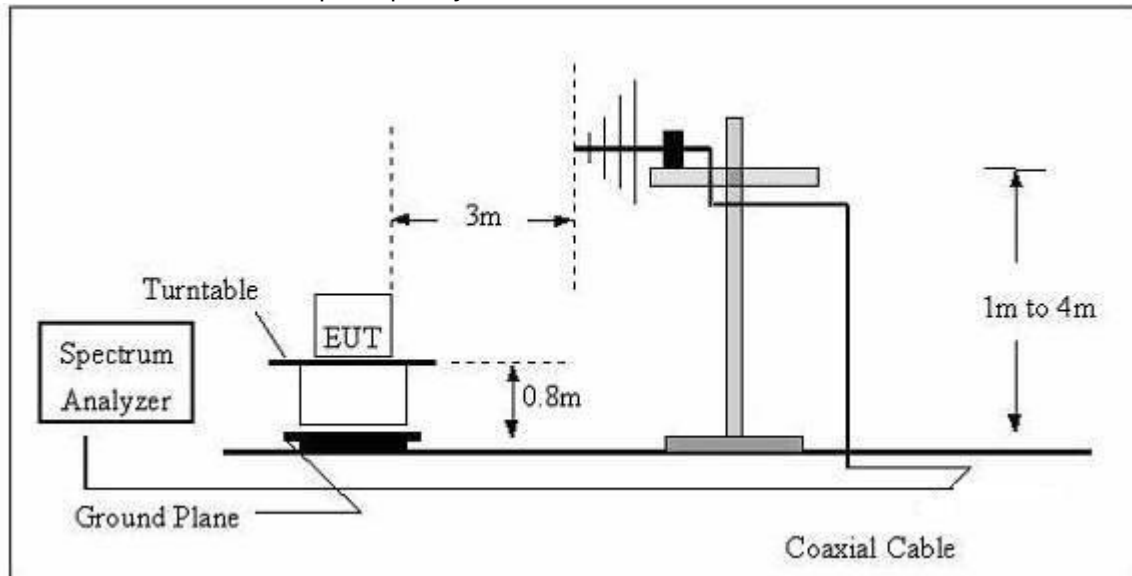
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

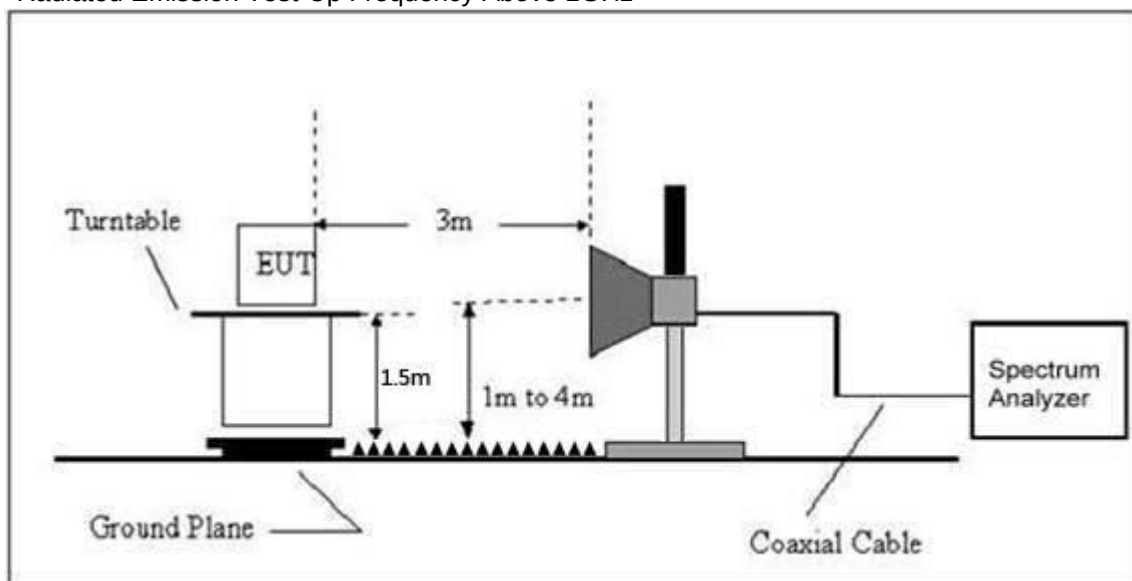
(A) Radiated Emission Test-Up Frequency Below 30MHz



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



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



7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. 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.

Frequency	Field Strength	Distance	Field Strength Limit at 3m Distance	
(MHz)	$\mu\text{V/m}$	(m)	$\mu\text{V/m}$	dB $\mu\text{V/m}$
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log(2400/F(\text{kHz})) + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log(24000/F(\text{kHz})) + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log(30) + 40$
30 ~ 88	100	3	100	$20\log(100)$
88 ~ 216	150	3	150	$20\log(150)$
216 ~ 960	200	3	200	$20\log(200)$
Above 960	500	3	500	$20\log(500)$

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dB $\mu\text{V/m}$) (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 (dB $\mu\text{V/m}$)= $20\log$ Emission level ($\mu\text{V/m}$).

7.3 Test procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205.

It must be performed with the highest gain of each type of antenna proposed for use with the EUT.

Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
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

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

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

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW} [kHz])$. , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

7.4 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.

7.5 Test Result

Below 30MHz

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	---

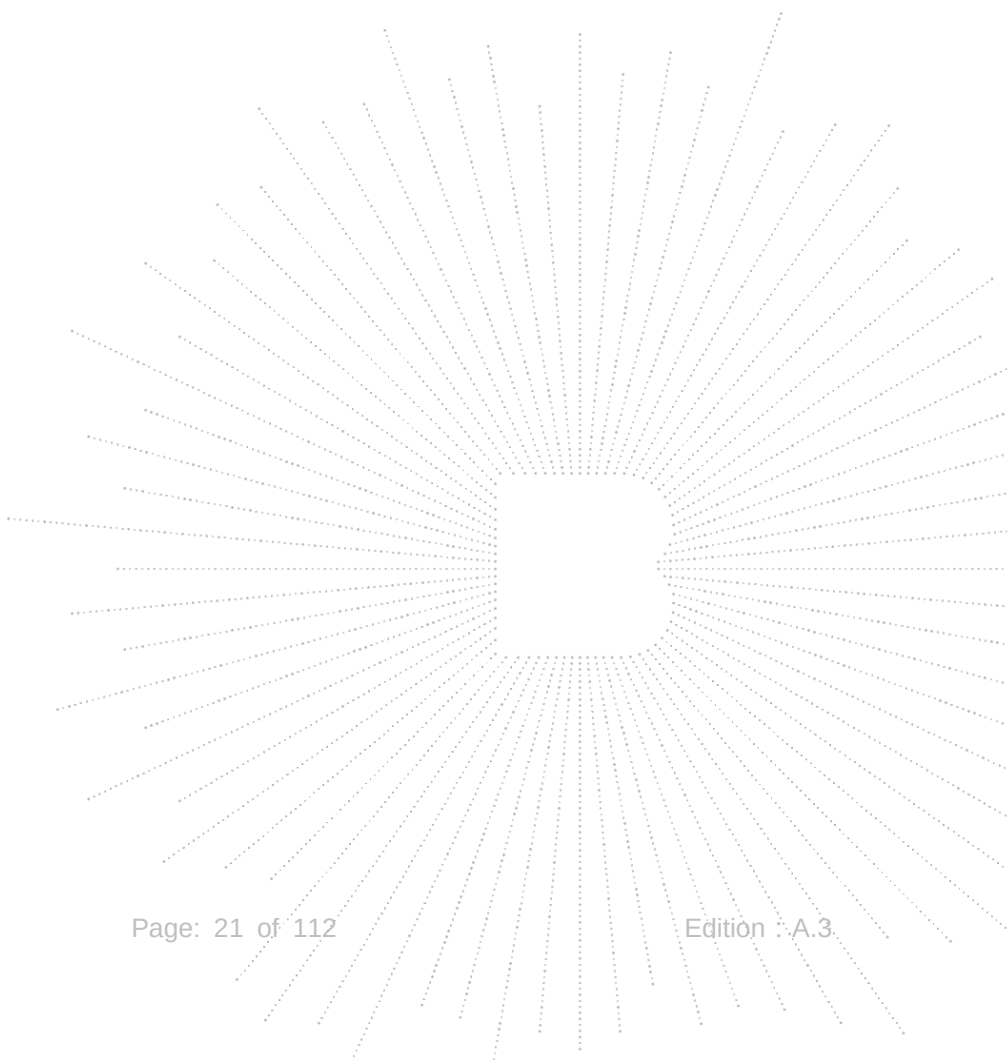
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

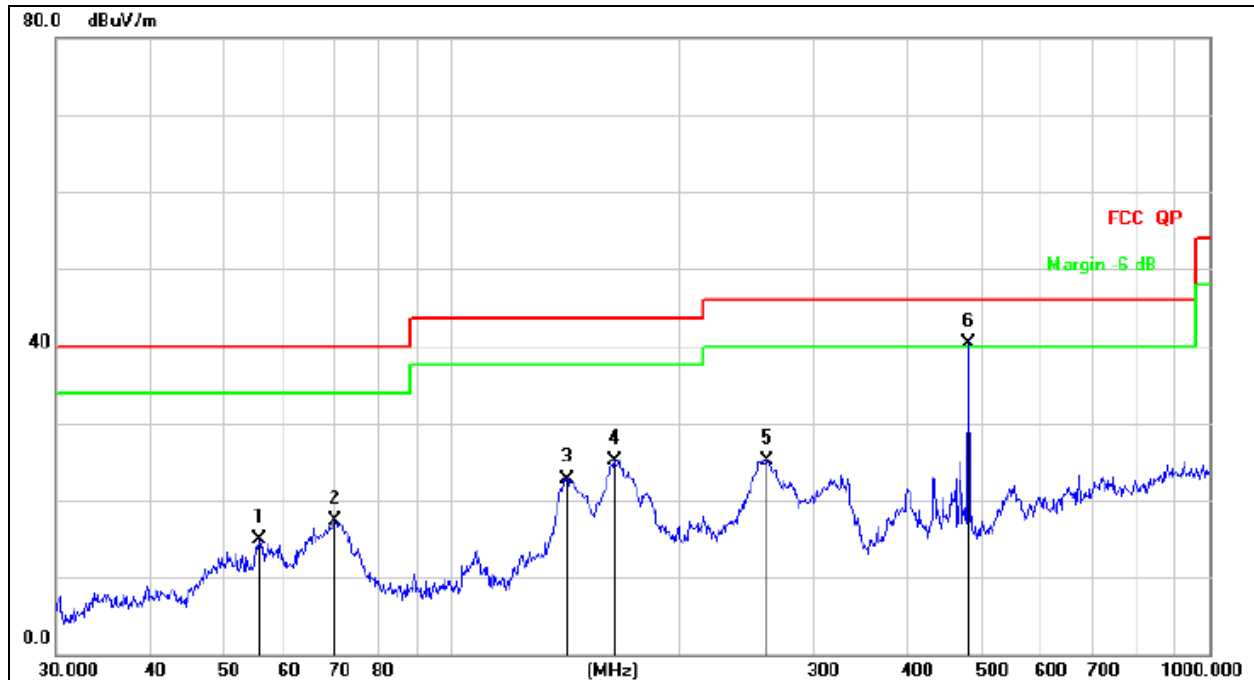
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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

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



Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	Horizontal

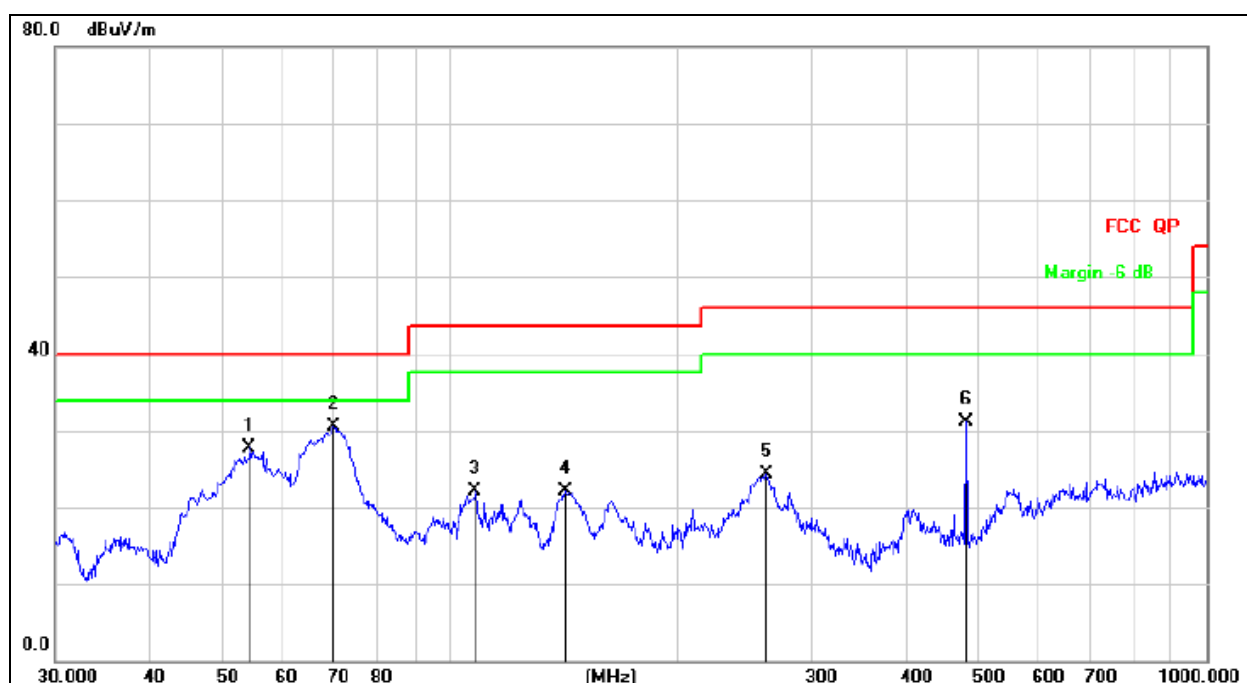


Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		55.8047	30.75	-15.76	14.99	40.00	-25.01	QP
2		70.0903	36.01	-18.76	17.25	40.00	-22.75	QP
3		141.8262	41.74	-18.94	22.80	43.50	-20.70	QP
4		163.7550	43.52	-18.38	25.14	43.50	-18.36	QP
5		260.1444	39.60	-14.47	25.13	46.00	-20.87	QP
6	*	480.5276	49.05	-8.80	40.25	46.00	-5.75	QP

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	Mode 4	Polarization :	Vertical



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		54.2610	43.47	-15.67	27.80	40.00	-12.20	QP
2	*	70.0903	49.31	-18.76	30.55	40.00	-9.45	QP
3		107.8877	38.74	-16.66	22.08	43.50	-21.42	QP
4		141.8262	41.04	-18.94	22.10	43.50	-21.40	QP
5		261.9753	38.69	-14.44	24.25	46.00	-21.75	QP
6		480.5276	39.93	-8.80	31.13	46.00	-14.87	QP

Between 1GHz – 40GHz

The worst case is Antenna A.

Test Mode:	TX(5.1G) - 802.11a
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamplifier Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.054	62.10	5.94	35.40	44.00	59.44	68.20	-8.76	PK
V	4434.054	43.54	5.94	35.40	44.00	40.88	54.00	-13.12	AV
V	10360.111	63.03	8.46	39.75	44.50	66.74	74.00	-7.26	PK
V	10360.111	43.30	8.46	39.75	44.50	47.01	54.00	-6.99	AV
V	15540.086	62.12	10.12	38.80	44.10	66.94	74.00	-7.06	PK
V	15540.086	43.75	10.12	38.80	42.70	49.97	54.00	-4.03	AV
H	4434.151	61.50	5.94	35.18	44.00	58.62	68.20	-9.58	PK
H	4434.151	43.04	5.94	35.18	44.00	40.16	54.00	-13.84	AV
H	10360.115	50.36	8.46	38.71	44.50	53.03	74.00	-20.97	PK
H	10360.115	42.55	8.46	38.71	44.50	45.22	54.00	-8.78	AV
H	15540.130	52.08	10.12	38.38	44.10	56.48	74.00	-17.52	PK
H	15540.130	40.46	10.12	38.38	44.10	44.86	54.00	-9.14	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.044	63.52	6.48	36.35	44.05	62.30	74.00	-11.70	PK
V	4592.044	43.54	6.48	36.35	44.05	42.32	54.00	-11.68	AV
V	10400.003	62.23	8.47	37.88	44.51	64.07	68.20	-4.13	PK
V	10400.003	43.91	8.47	37.88	44.51	45.75	54.00	-8.25	AV
V	15600.046	64.76	10.12	38.80	44.10	69.58	74.00	-4.42	PK
V	15600.046	43.40	10.12	38.80	42.70	49.62	54.00	-4.38	AV
H	4592.157	61.84	6.48	36.37	44.05	60.64	74.00	-13.36	PK
H	4592.157	43.11	6.48	36.37	44.05	41.91	54.00	-12.09	AV
H	10400.158	54.83	8.47	38.64	44.50	57.44	68.20	-10.76	PK
H	10400.158	42.73	8.47	38.64	44.50	45.34	54.00	-8.66	AV
H	15600.192	50.23	10.12	38.38	44.10	54.63	74.00	-19.37	PK
H	15600.192	41.04	10.12	38.38	44.10	45.44	54.00	-8.56	AV
High Channel (5240 MHz)-Above 1G									
V	4739.149	63.18	7.10	37.24	43.50	64.02	74.00	-9.98	PK
V	4739.149	43.35	7.10	37.24	43.50	44.19	54.00	-9.81	AV
V	10480.131	64.45	8.46	37.68	44.50	66.09	68.20	-2.11	PK
V	10480.131	43.79	8.46	37.68	44.50	45.43	54.00	-8.57	AV
V	15720.187	64.73	10.12	38.80	44.10	69.55	74.00	-4.45	PK
V	15720.187	43.44	10.12	38.80	42.70	49.66	54.00	-4.34	AV
H	4739.009	64.23	7.10	37.24	43.50	65.07	74.00	-8.93	PK
H	4739.009	43.59	7.10	37.24	43.50	44.43	54.00	-9.57	AV
H	10480.103	53.59	8.46	38.57	44.50	56.12	68.20	-12.08	PK
H	10480.103	42.02	8.46	38.57	44.50	44.55	54.00	-9.45	AV
H	15720.131	50.24	10.12	38.38	44.10	54.64	74.00	-19.36	PK
H	15720.131	42.41	10.12	38.38	44.10	46.81	54.00	-7.19	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode:	TX(5.1G) - 802.11n-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.044	64.60	5.94	35.40	44.00	61.94	68.20	-6.26	PK
V	4434.044	43.62	5.94	35.40	44.00	40.96	54.00	-13.04	AV
V	10360.007	60.55	8.46	39.75	44.50	64.26	68.20	-3.94	PK
V	10360.007	43.58	8.46	39.75	44.50	47.29	54.00	-6.71	AV
V	15540.038	60.67	10.12	38.80	44.10	65.49	74.00	-8.51	PK
V	15540.038	43.57	10.12	38.80	42.70	49.79	54.00	-4.21	AV
H	4434.129	62.23	5.94	35.18	44.00	59.35	68.20	-8.85	PK
H	4434.129	43.41	5.94	35.18	44.00	40.53	54.00	-13.47	AV
H	10360.164	53.99	8.46	38.71	44.50	56.66	68.20	-11.54	PK
H	10360.164	44.32	8.46	38.71	44.50	46.99	54.00	-7.01	AV
H	15540.029	53.26	10.12	38.38	44.10	57.66	74.00	-16.34	PK
H	15540.029	40.65	10.12	38.38	44.10	45.05	54.00	-8.95	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.194	63.15	6.48	36.35	44.05	61.93	74.00	-12.07	PK
V	4592.194	43.50	6.48	36.35	44.05	42.28	54.00	-11.72	AV
V	10400.141	61.84	8.47	37.88	44.51	63.68	68.20	-4.52	PK
V	10400.141	43.58	8.47	37.88	44.51	45.42	54.00	-8.58	AV
V	15600.195	60.88	10.12	38.80	44.10	65.70	74.00	-8.30	PK
V	15600.195	43.30	10.12	38.80	42.70	49.52	54.00	-4.48	AV
H	4592.195	62.15	6.48	36.37	44.05	60.95	74.00	-13.05	PK
H	4592.195	43.37	6.48	36.37	44.05	42.17	54.00	-11.83	AV
H	10400.162	54.67	8.47	38.64	44.50	57.28	68.20	-10.92	PK
H	10400.162	41.19	8.47	38.64	44.50	43.80	54.00	-10.20	AV
H	15600.017	50.51	10.12	38.38	44.10	54.91	74.00	-19.09	PK
H	15600.017	40.75	10.12	38.38	44.10	45.15	54.00	-8.85	AV
High Channel (5240 MHz)-Above 1G									
V	4739.113	64.03	7.10	37.24	43.50	64.87	74.00	-9.13	PK
V	4739.113	43.55	7.10	37.24	43.50	44.39	54.00	-9.61	AV
V	10480.178	62.03	8.46	37.68	44.50	63.67	68.20	-4.53	PK
V	10480.178	43.09	8.46	37.68	44.50	44.73	54.00	-9.27	AV
V	15720.139	62.14	10.12	38.80	44.10	66.96	74.00	-7.04	PK
V	15720.139	43.30	10.12	38.80	42.70	49.52	54.00	-4.48	AV
H	4739.016	63.20	7.10	37.24	43.50	64.04	74.00	-9.96	PK
H	4739.016	43.69	7.10	37.24	43.50	44.53	54.00	-9.47	AV
H	10480.029	50.83	8.46	38.57	44.50	53.36	68.20	-14.84	PK
H	10480.029	43.31	8.46	38.57	44.50	45.84	54.00	-8.16	AV
H	15720.200	50.10	10.12	38.38	44.10	54.50	74.00	-19.50	PK
H	15720.200	43.51	10.12	38.38	44.10	47.91	54.00	-6.09	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11n-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5190 MHz)-Above 1G									
V	4434.191	63.01	5.94	35.40	44.00	60.35	74.00	-13.65	PK
V	4434.191	43.55	5.94	35.40	44.00	40.89	54.00	-13.11	AV
V	10380.064	60.38	8.46	39.75	44.50	64.09	68.20	-4.11	PK
V	10380.064	43.97	8.46	39.75	44.50	47.68	54.00	-6.32	AV
V	15570.036	64.12	10.12	38.80	44.10	68.94	74.00	-5.06	PK
V	15570.036	43.93	10.12	38.80	42.70	50.15	54.00	-3.85	AV
H	4434.067	63.37	5.94	35.18	44.00	60.49	74.00	-13.51	PK
H	4434.067	43.35	5.94	35.18	44.00	40.47	54.00	-13.53	AV
H	10380.192	54.58	8.46	38.71	44.50	57.25	68.20	-10.95	PK
H	10380.192	42.29	8.46	38.71	44.50	44.96	54.00	-9.04	AV
H	15570.069	51.39	10.12	38.38	44.10	55.79	74.00	-18.21	PK
H	15570.069	44.83	10.12	38.38	44.10	49.23	54.00	-4.77	AV
High Channel (5230 MHz)-Above 1G									
V	4739.030	62.32	6.48	36.35	44.05	61.10	74.00	-12.90	PK
V	4739.030	43.21	6.48	36.35	44.05	41.99	54.00	-12.01	AV
V	10460.102	64.09	8.47	37.88	44.51	65.93	68.20	-2.27	PK
V	10460.102	43.43	8.47	37.88	44.51	45.27	54.00	-8.73	AV
V	15690.135	63.75	10.12	38.80	44.10	68.57	74.00	-5.43	PK
V	15690.135	43.98	10.12	38.80	42.70	50.20	54.00	-3.80	AV
H	4739.059	64.22	6.48	36.37	44.05	63.02	74.00	-10.98	PK
H	4739.059	43.10	6.48	36.37	44.05	41.90	54.00	-12.10	AV
H	10460.063	54.28	8.47	38.64	44.50	56.89	68.20	-11.31	PK
H	10460.063	41.81	8.47	38.64	44.50	44.42	54.00	-9.58	AV
H	15690.164	50.79	10.12	38.38	44.10	55.19	74.00	-18.81	PK
H	15690.164	42.09	10.12	38.38	44.10	46.49	54.00	-7.51	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11ac-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.030	60.87	5.94	35.40	44.00	58.21	68.20	-9.99	PK
V	4434.030	43.83	5.94	35.40	44.00	41.17	54.00	-12.83	AV
V	10360.179	62.05	8.46	39.75	44.50	65.76	68.20	-2.44	PK
V	10360.179	43.84	8.46	39.75	44.50	47.55	54.00	-6.45	AV
V	15540.056	61.51	10.12	38.80	44.10	66.33	74.00	-7.67	PK
V	15540.056	43.96	10.12	38.80	42.70	50.18	54.00	-3.82	AV
H	4434.076	60.52	5.94	35.18	44.00	57.64	68.20	-10.56	PK
H	4434.076	43.92	5.94	35.18	44.00	41.04	54.00	-12.96	AV
H	10360.143	54.63	8.46	38.71	44.50	57.30	68.20	-10.90	PK
H	10360.143	41.17	8.46	38.71	44.50	43.84	54.00	-10.16	AV
H	15540.016	54.19	10.12	38.38	44.10	58.59	74.00	-15.41	PK
H	15540.016	40.50	10.12	38.38	44.10	44.90	54.00	-9.10	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.079	64.81	6.48	36.35	44.05	63.59	74.00	-10.41	PK
V	4592.079	43.94	6.48	36.35	44.05	42.72	54.00	-11.28	AV
V	10400.112	63.82	8.47	37.88	44.51	65.66	68.20	-2.54	PK
V	10400.112	43.58	8.47	37.88	44.51	45.42	54.00	-8.58	AV
V	15600.163	60.73	10.12	38.80	44.10	65.55	74.00	-8.45	PK
V	15600.163	43.57	10.12	38.80	42.70	49.79	54.00	-4.21	AV
H	4592.029	63.95	6.48	36.37	44.05	62.75	74.00	-11.25	PK
H	4592.029	43.58	6.48	36.37	44.05	42.38	54.00	-11.62	AV
H	10400.030	53.15	8.47	38.64	44.50	55.76	68.20	-12.44	PK
H	10400.030	44.61	8.47	38.64	44.50	47.22	54.00	-6.78	AV
H	15600.036	50.16	10.12	38.38	44.10	54.56	74.00	-19.44	PK
H	15600.036	41.09	10.12	38.38	44.10	45.49	54.00	-8.51	AV
High Channel (5240 MHz)-Above 1G									
V	4739.026	60.95	7.10	37.24	43.50	61.79	74.00	-12.21	PK
V	4739.026	43.40	7.10	37.24	43.50	44.24	54.00	-9.76	AV
V	10480.097	63.45	8.46	37.68	44.50	65.09	68.20	-3.11	PK
V	10480.097	43.64	8.46	37.68	44.50	45.28	54.00	-8.72	AV
V	15720.079	61.34	10.12	38.80	44.10	66.16	74.00	-7.84	PK
V	15720.079	43.34	10.12	38.80	42.70	49.56	54.00	-4.44	AV
H	4739.141	60.03	7.10	37.24	43.50	60.87	74.00	-13.13	PK
H	4739.141	43.04	7.10	37.24	43.50	43.88	54.00	-10.12	AV
H	10480.092	54.62	8.46	38.57	44.50	57.15	68.20	-11.05	PK
H	10480.092	44.86	8.46	38.57	44.50	47.39	54.00	-6.61	AV
H	15720.160	50.29	10.12	38.38	44.10	54.69	74.00	-19.31	PK
H	15720.160	41.08	10.12	38.38	44.10	45.48	54.00	-8.52	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11ac-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5190 MHz)-Above 1G									
V	4434.018	60.82	5.94	35.40	44.00	58.16	74.00	-15.84	PK
V	4434.018	43.81	5.94	35.40	44.00	41.15	54.00	-12.85	AV
V	10380.031	61.48	8.46	39.75	44.50	65.19	68.20	-3.01	PK
V	10380.031	43.27	8.46	39.75	44.50	46.98	54.00	-7.02	AV
V	15570.163	63.67	10.12	38.80	44.10	68.49	74.00	-5.51	PK
V	15570.163	43.16	10.12	38.80	42.70	49.38	54.00	-4.62	AV
H	4434.012	60.54	5.94	35.18	44.00	57.66	74.00	-16.34	PK
H	4434.012	43.44	5.94	35.18	44.00	40.56	54.00	-13.44	AV
H	10380.076	53.81	8.46	38.71	44.50	56.48	68.20	-11.72	PK
H	10380.076	42.49	8.46	38.71	44.50	45.16	54.00	-8.84	AV
H	15570.079	51.83	10.12	38.38	44.10	56.23	74.00	-17.77	PK
H	15570.079	41.35	10.12	38.38	44.10	45.75	54.00	-8.25	AV
High Channel (5230 MHz)-Above 1G									
V	4739.139	61.66	6.48	36.35	44.05	60.44	74.00	-13.56	PK
V	4739.139	43.28	6.48	36.35	44.05	42.06	54.00	-11.94	AV
V	10460.134	64.73	8.47	37.88	44.51	66.57	68.20	-1.63	PK
V	10460.134	43.35	8.47	37.88	44.51	45.19	54.00	-8.81	AV
V	15690.194	60.32	10.12	38.80	44.10	65.14	74.00	-8.86	PK
V	15690.194	43.56	10.12	38.80	42.70	49.78	54.00	-4.22	AV
H	4739.155	60.54	6.48	36.37	44.05	59.34	74.00	-14.66	PK
H	4739.155	43.34	6.48	36.37	44.05	42.14	54.00	-11.86	AV
H	10460.031	51.77	8.47	38.64	44.50	54.38	68.20	-13.82	PK
H	10460.031	42.09	8.47	38.64	44.50	44.70	54.00	-9.30	AV
H	15690.028	51.27	10.12	38.38	44.10	55.67	74.00	-18.33	PK
H	15690.028	44.35	10.12	38.38	44.10	48.75	54.00	-5.25	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.1G) - 802.11ac-HT80
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detector Type
(5210 MHz)-Above 1G									
V	4434.054	64.53	5.94	35.40	44.00	61.87	74.00	-12.13	PK
V	4434.054	43.68	5.94	35.40	44.00	41.02	54.00	-12.98	AV
V	10420.180	60.24	8.46	39.75	44.50	63.95	68.20	-4.25	PK
V	10420.180	43.85	8.46	39.75	44.50	47.56	54.00	-6.44	AV
V	15630.043	61.80	10.12	38.80	44.10	66.62	74.00	-7.38	PK
V	15630.043	43.50	10.12	38.80	42.70	49.72	54.00	-4.28	AV
H	4434.181	64.37	5.94	35.18	44.00	61.49	74.00	-12.51	PK
H	4434.181	43.44	5.94	35.18	44.00	40.56	54.00	-13.44	AV
H	10420.058	50.95	8.46	38.71	44.50	53.62	68.20	-14.58	PK
H	10420.058	40.27	8.46	38.71	44.50	42.94	54.00	-11.06	AV
H	15630.010	52.60	10.12	38.38	44.10	57.00	74.00	-17.00	PK
H	15630.010	44.40	10.12	38.38	44.10	48.80	54.00	-5.20	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11a
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.073	58.01	5.94	35.40	44.00	55.35	74.00	-18.65	PK
V	4679.073	43.89	5.94	35.40	44.00	41.23	54.00	-12.77	AV
V	11490.193	57.83	8.46	39.75	44.50	61.54	68.20	-6.66	PK
V	11490.193	43.35	8.46	39.75	44.50	47.06	54.00	-6.94	AV
V	17235.011	59.30	10.12	38.80	44.10	64.12	74.00	-9.88	PK
V	17235.011	43.59	10.12	38.80	42.70	49.81	54.00	-4.19	AV
H	4679.177	56.74	5.94	35.18	44.00	53.86	74.00	-20.14	PK
H	4679.177	43.36	5.94	35.18	44.00	40.48	54.00	-13.52	AV
H	11490.199	51.75	8.46	38.71	44.50	54.42	68.20	-13.78	PK
H	11490.199	42.47	8.46	38.71	44.50	45.14	54.00	-8.86	AV
H	17235.131	50.20	10.12	38.38	44.10	54.60	74.00	-19.40	PK
H	17235.131	43.05	10.12	38.38	44.10	47.45	54.00	-6.55	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.021	56.01	6.48	36.35	44.05	54.79	74.00	-19.21	PK
V	4592.021	43.83	6.48	36.35	44.05	42.61	54.00	-11.39	AV
V	11570.197	56.87	8.47	37.88	44.51	58.71	68.20	-9.49	PK
V	11570.197	43.67	8.47	37.88	44.51	45.51	54.00	-8.49	AV
V	17355.060	60.10	10.12	38.80	44.10	64.92	74.00	-9.08	PK
V	17355.060	39.15	10.12	38.80	42.70	45.37	54.00	-8.63	AV
H	4592.147	59.99	6.48	36.37	44.05	58.79	74.00	-15.21	PK
H	4592.147	43.60	6.48	36.37	44.05	42.40	54.00	-11.60	AV
H	11570.138	53.32	8.47	38.64	44.50	55.93	68.20	-12.27	PK
H	11570.138	40.26	8.47	38.64	44.50	42.87	54.00	-11.13	AV
H	17355.037	50.78	10.12	38.38	44.10	55.18	74.00	-18.82	PK
H	17355.037	41.35	10.12	38.38	44.10	45.75	54.00	-8.25	AV
High Channel (5825 MHz)-Above 1G									
V	6039.112	56.26	7.10	37.24	43.50	57.10	68.20	-11.10	PK
V	6039.112	43.20	7.10	37.24	43.50	44.04	54.00	-9.96	AV
V	11650.148	58.77	8.46	37.68	44.50	60.41	74.00	-13.59	PK
V	11650.148	43.10	8.46	37.68	44.50	44.74	54.00	-9.26	AV
V	17475.107	57.59	10.12	38.80	44.10	62.41	68.20	-5.79	PK
V	17475.107	43.42	10.12	38.80	42.70	49.64	54.00	-4.36	AV
H	6039.040	55.07	7.10	37.24	43.50	55.91	68.20	-12.29	PK
H	6039.040	43.99	7.10	37.24	43.50	44.83	54.00	-9.17	AV
H	11650.195	50.54	8.46	38.57	44.50	53.07	74.00	-20.93	PK
H	11650.195	41.80	8.46	38.57	44.50	44.33	54.00	-9.67	AV
H	17475.189	54.72	10.12	38.38	44.10	59.12	68.20	-9.08	PK
H	17475.189	40.68	10.12	38.38	44.10	45.08	54.00	-8.92	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The Worst mode is Antenna A.

Test Mode:	TX(5.8G) - 802.11n-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.058	58.77	5.94	35.40	44.00	56.11	74.00	-17.89	PK
V	4679.058	43.67	5.94	35.40	44.00	41.01	54.00	-12.99	AV
V	11490.191	54.34	8.46	39.75	44.50	58.05	68.20	-10.15	PK
V	11490.191	43.93	8.46	39.75	44.50	47.64	54.00	-6.36	AV
V	17235.083	57.94	10.12	38.80	44.10	62.76	74.00	-11.24	PK
V	17235.083	43.05	10.12	38.80	42.70	49.27	54.00	-4.73	AV
H	4679.086	57.53	5.94	35.18	44.00	54.65	74.00	-19.35	PK
H	4679.086	43.73	5.94	35.18	44.00	40.85	54.00	-13.15	AV
H	11490.089	49.03	8.46	38.71	44.50	51.70	68.20	-16.50	PK
H	11490.089	43.24	8.46	38.71	44.50	45.91	54.00	-8.09	AV
H	17235.088	52.82	10.12	38.38	44.10	57.22	74.00	-16.78	PK
H	17235.088	41.97	10.12	38.38	44.10	46.37	54.00	-7.63	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.012	62.21	6.48	36.35	44.05	60.99	74.00	-13.01	PK
V	4592.012	43.58	6.48	36.35	44.05	42.36	54.00	-11.64	AV
V	11570.171	54.78	8.47	37.88	44.51	56.62	68.20	-11.58	PK
V	11570.171	43.91	8.47	37.88	44.51	45.75	54.00	-8.25	AV
V	17355.129	57.01	10.12	38.80	44.10	61.83	74.00	-12.17	PK
V	17355.129	43.11	10.12	38.80	42.70	49.33	54.00	-4.67	AV
H	4592.062	60.41	6.48	36.37	44.05	59.21	74.00	-14.79	PK
H	4592.062	43.56	6.48	36.37	44.05	42.36	54.00	-11.64	AV
H	11570.120	52.32	8.47	38.64	44.50	54.93	68.20	-13.27	PK
H	11570.120	44.51	8.47	38.64	44.50	47.12	54.00	-6.88	AV
H	17355.132	53.58	10.12	38.38	44.10	57.98	74.00	-16.02	PK
H	17355.132	41.76	10.12	38.38	44.10	46.16	54.00	-7.84	AV
High Channel (5825 MHz)-Above 1G									
V	6039.159	59.85	7.10	37.24	43.50	60.69	68.20	-7.51	PK
V	6039.159	43.97	7.10	37.24	43.50	44.81	54.00	-9.19	AV
V	11650.160	60.41	8.46	37.68	44.50	62.05	74.00	-11.95	PK
V	11650.160	43.36	8.46	37.68	44.50	45.00	54.00	-9.00	AV
V	17475.179	56.69	10.12	38.80	44.10	61.51	68.20	-6.69	PK
V	17475.179	43.12	10.12	38.80	42.70	49.34	54.00	-4.66	AV
H	6039.123	57.98	7.10	37.24	43.50	58.82	68.20	-9.38	PK
H	6039.123	43.95	7.10	37.24	43.50	44.79	54.00	-9.21	AV
H	11650.089	53.55	8.46	38.57	44.50	56.08	74.00	-17.92	PK
H	11650.089	40.27	8.46	38.57	44.50	42.80	54.00	-11.20	AV
H	17475.107	52.08	10.12	38.38	44.10	56.48	68.20	-11.72	PK
H	17475.107	42.88	10.12	38.38	44.10	47.28	54.00	-6.72	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The Worst mode is Antenna A.

Test Mode:	TX(5.8G) - 802.11n-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5755 MHz)-Above 1G									
V	4679.101	57.17	5.94	35.40	44.00	54.51	74.00	-19.49	PK
V	4679.101	43.32	5.94	35.40	44.00	40.66	54.00	-13.34	AV
V	11510.140	55.81	8.46	39.75	44.50	59.52	68.20	-8.68	PK
V	11510.140	43.68	8.46	39.75	44.50	47.39	54.00	-6.61	AV
V	17265.121	57.94	10.12	38.80	44.10	62.76	74.00	-11.24	PK
V	17265.121	41.23	10.12	38.8	42.7	47.45	54.00	-6.55	AV
H	4679.088	59.84	5.94	35.18	44.00	56.96	74.00	-17.04	PK
H	4679.088	43.25	5.94	35.18	44.00	40.37	54.00	-13.63	AV
H	11510.181	53.80	8.46	38.71	44.50	56.47	68.20	-11.73	PK
H	11510.181	43.43	8.46	38.71	44.50	46.10	54.00	-7.90	AV
H	17265.142	54.47	10.12	38.38	44.10	58.87	74.00	-15.13	PK
H	17265.142	40.29	10.12	38.38	44.10	44.69	54.00	-9.31	AV
High Channel (5795 MHz)-Above 1G									
V	6039.094	57.13	6.48	36.35	44.05	55.91	68.20	-12.29	PK
V	6039.094	43.83	6.48	36.35	44.05	42.61	54.00	-11.39	AV
V	11590.056	57.38	8.47	37.88	44.51	59.22	74.00	-14.78	PK
V	11590.056	43.90	8.47	37.88	44.51	45.74	54.00	-8.26	AV
V	17385.083	55.76	10.12	38.80	44.10	60.58	68.20	-7.62	PK
V	17385.083	41.89	10.12	38.80	42.70	48.11	54.00	-5.89	AV
H	6039.105	57.80	6.48	36.37	44.05	56.60	68.20	-11.60	PK
H	6039.105	43.73	6.48	36.37	44.05	42.53	54.00	-11.47	AV
H	11590.030	51.35	8.47	38.64	44.50	53.96	74.00	-20.04	PK
H	11590.030	42.57	8.47	38.64	44.50	45.18	54.00	-8.82	AV
H	17385.042	50.32	10.12	38.38	44.10	54.72	68.20	-13.48	PK
H	17385.042	42.56	10.12	38.38	44.10	46.96	54.00	-7.04	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11ac-HT20
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.142	57.70	5.94	35.40	44.00	55.04	74.00	-18.96	PK
V	4679.142	43.15	5.94	35.40	44.00	40.49	54.00	-13.51	AV
V	11490.090	53.94	8.46	39.75	44.50	57.65	68.20	-10.55	PK
V	11490.090	43.05	8.46	39.75	44.50	46.76	54.00	-7.24	AV
V	17235.160	61.61	10.12	38.80	44.10	66.43	74.00	-7.57	PK
V	17235.160	43.19	10.12	38.80	42.70	49.41	54.00	-4.59	AV
H	4679.052	58.50	5.94	35.18	44.00	55.62	74.00	-18.38	PK
H	4679.052	43.89	5.94	35.18	44.00	41.01	54.00	-12.99	AV
H	11490.087	49.85	8.46	38.71	44.50	52.52	68.20	-15.68	PK
H	11490.087	44.62	8.46	38.71	44.50	47.29	54.00	-6.71	AV
H	17235.099	51.15	10.12	38.38	44.10	55.55	74.00	-18.45	PK
H	17235.099	40.76	10.12	38.38	44.10	45.16	54.00	-8.84	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.175	60.65	6.48	36.35	44.05	59.43	74.00	-14.57	PK
V	4592.175	43.00	6.48	36.35	44.05	41.78	54.00	-12.22	AV
V	11570.098	55.99	8.47	37.88	44.51	57.83	68.20	-10.37	PK
V	11570.098	43.44	8.47	37.88	44.51	45.28	54.00	-8.72	AV
V	17355.066	60.97	10.12	38.80	44.10	65.79	74.00	-8.21	PK
V	17355.066	43.12	10.12	38.80	42.70	49.34	54.00	-4.66	AV
H	4592.029	60.53	6.48	36.37	44.05	59.33	74.00	-14.67	PK
H	4592.029	43.80	6.48	36.37	44.05	42.60	54.00	-11.40	AV
H	11570.000	53.66	8.47	38.64	44.50	56.27	68.20	-11.93	PK
H	11570.000	43.23	8.47	38.64	44.50	45.84	54.00	-8.16	AV
H	17355.072	53.13	10.12	38.38	44.10	57.53	74.00	-16.47	PK
H	17355.072	41.87	10.12	38.38	44.10	46.27	54.00	-7.73	AV
High Channel (5825 MHz)-Above 1G									
V	6039.091	59.87	7.10	37.24	43.50	60.71	68.20	-7.49	PK
V	6039.091	43.14	7.10	37.24	43.50	43.98	54.00	-10.02	AV
V	11650.191	59.75	8.46	37.68	44.50	61.39	74.00	-12.61	PK
V	11650.191	43.78	8.46	37.68	44.50	45.42	54.00	-8.58	AV
V	17475.126	59.06	10.12	38.80	44.10	63.88	68.20	-4.32	PK
V	17475.126	43.77	10.12	38.80	42.70	49.99	54.00	-4.01	AV
H	6039.059	57.79	7.10	37.24	43.50	58.63	68.20	-9.57	PK
H	6039.059	43.23	7.10	37.24	43.50	44.07	54.00	-9.93	AV
H	11650.178	52.54	8.46	38.57	44.50	55.07	74.00	-18.93	PK
H	11650.178	43.39	8.46	38.57	44.50	45.92	54.00	-8.08	AV
H	17475.188	50.74	10.12	38.38	44.10	55.14	68.20	-13.06	PK
H	17475.188	42.99	10.12	38.38	44.10	47.39	54.00	-6.61	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The Worst mode is Antenna A.

Test Mode:	TX(5.8G) - 802.11ac-HT40
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5755 MHz)-Above 1G									
V	4679.185	59.25	5.94	35.40	44.00	56.59	74.00	-17.41	PK
V	4679.185	43.88	5.94	35.40	44.00	41.22	54.00	-12.78	AV
V	11510.195	55.82	8.46	39.75	44.50	59.53	68.20	-8.67	PK
V	11510.195	43.21	8.46	39.75	44.50	46.92	54.00	-7.08	AV
V	17265.030	55.91	10.12	38.80	44.10	60.73	74.00	-13.27	PK
V	17265.030	42.00	10.12	38.8	42.70	48.22	54.00	-5.78	AV
H	4679.151	60.44	5.94	35.18	44.00	57.56	74.00	-16.44	PK
H	4679.151	43.33	5.94	35.18	44.00	40.45	54.00	-13.55	AV
H	11510.156	54.39	8.46	38.71	44.50	57.06	68.20	-11.14	PK
H	11510.156	41.34	8.46	38.71	44.50	44.01	54.00	-9.99	AV
H	17265.097	52.50	10.12	38.38	44.10	56.90	74.00	-17.10	PK
H	17265.097	43.06	10.12	38.38	44.10	47.46	54.00	-6.54	AV
High Channel (5795 MHz)-Above 1G									
V	6039.065	57.75	6.48	36.35	44.05	56.53	68.20	-11.67	PK
V	6039.065	43.99	6.48	36.35	44.05	42.77	54.00	-11.23	AV
V	11590.165	56.89	8.47	37.88	44.51	58.73	74.00	-15.27	PK
V	11590.165	43.86	8.47	37.88	44.51	45.70	54.00	-8.30	AV
V	17385.054	55.62	10.12	38.80	44.10	60.44	68.20	-7.76	PK
V	17385.054	41.45	10.12	38.80	42.70	47.67	54.00	-6.33	AV
H	6039.179	57.33	6.48	36.37	44.05	56.13	68.20	-12.07	PK
H	6039.179	43.08	6.48	36.37	44.05	41.88	54.00	-12.12	AV
H	11590.169	53.78	8.47	38.64	44.50	56.39	74.00	-17.61	PK
H	11590.169	43.62	8.47	38.64	44.50	46.23	54.00	-7.77	AV
H	17385.035	52.24	10.12	38.38	44.10	56.64	68.20	-11.56	PK
H	17385.035	42.02	10.12	38.38	44.10	46.42	54.00	-7.58	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode:	TX(5.8G) - 802.11ac-HT80
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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detector Type
(5775 MHz)-Above 1G									
V	4679.037	59.16	5.94	35.40	44.00	56.50	74.00	-17.50	PK
V	4679.037	43.41	5.94	35.40	44.00	40.75	54.00	-13.25	AV
V	11550.024	58.28	8.46	39.75	44.50	61.99	68.20	-6.21	PK
V	11550.024	42.28	8.46	39.75	44.50	45.99	54.00	-8.01	AV
V	17325.179	58.91	10.12	38.80	44.10	63.73	74.00	-10.27	PK
V	17325.179	41.14	10.12	38.80	42.70	47.36	54.00	-6.64	AV
H	4679.084	59.01	5.94	35.18	44.00	56.13	74.00	-17.87	PK
H	4679.084	43.54	5.94	35.18	44.00	40.66	54.00	-13.34	AV
H	11550.053	51.26	8.46	38.71	44.50	53.93	68.20	-14.27	PK
H	11550.053	40.65	8.46	38.71	44.50	43.32	54.00	-10.68	AV
H	17325.047	50.47	10.12	38.38	44.10	54.87	74.00	-19.13	PK
H	17325.047	40.40	10.12	38.38	44.10	44.80	54.00	-9.20	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

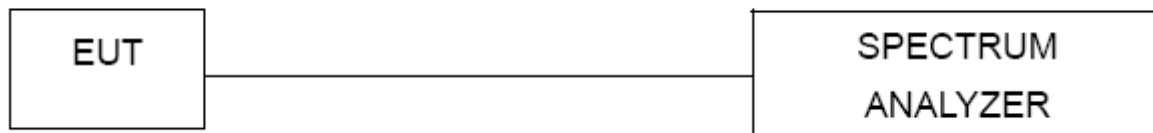
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

8. POWER SPECTRAL DENSITY TEST

8.1 Block Diagram Of Test Setup



8.2 Limit

For the band 5.15-5.25 GHz,

(i) For an outdoor Wifi Repeater 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 Wifi Repeater 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 Wifi Repeaters 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 colocated 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.

For the band 5.725-5.85 GHz

(3) For the band 5.725-5.85 GHz, 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.

8.3 Test procedure

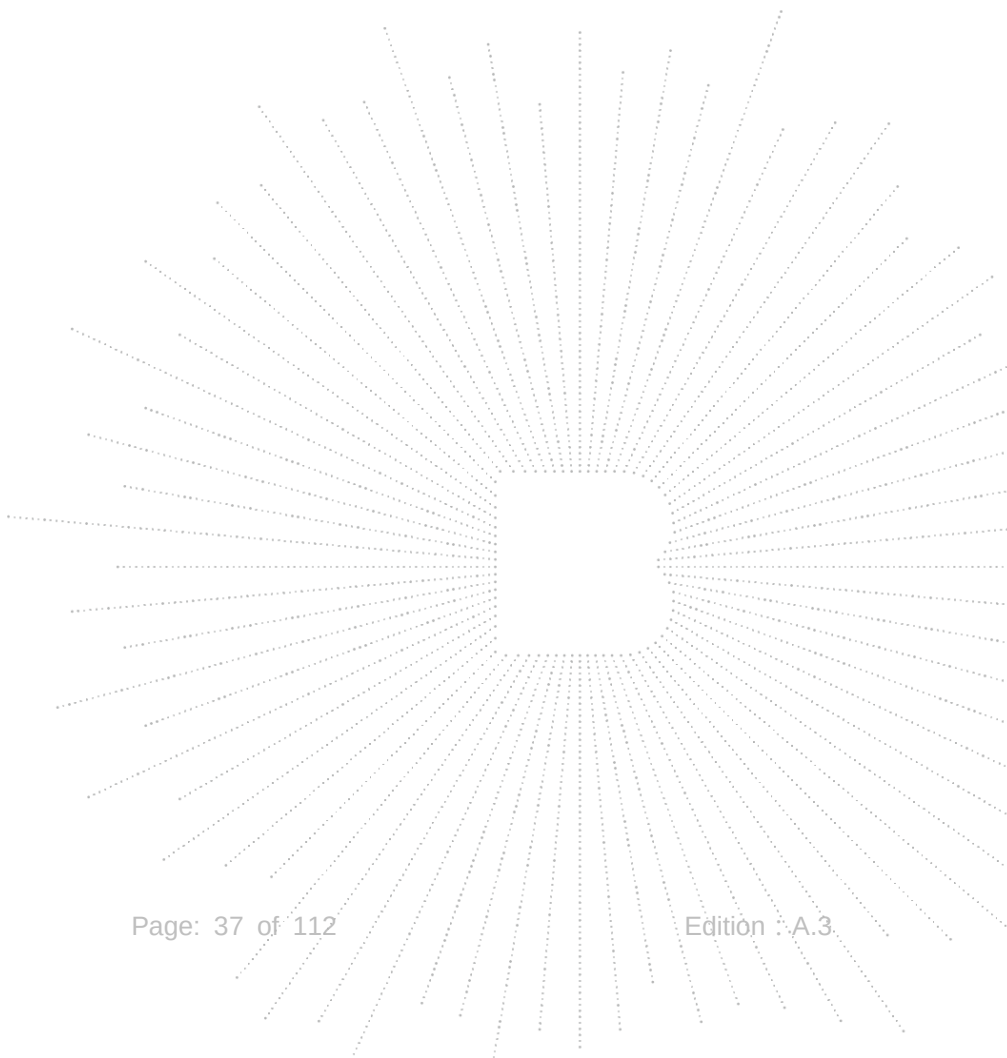
For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHz is available on nearly all spectrum analyzers.

8.4 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.



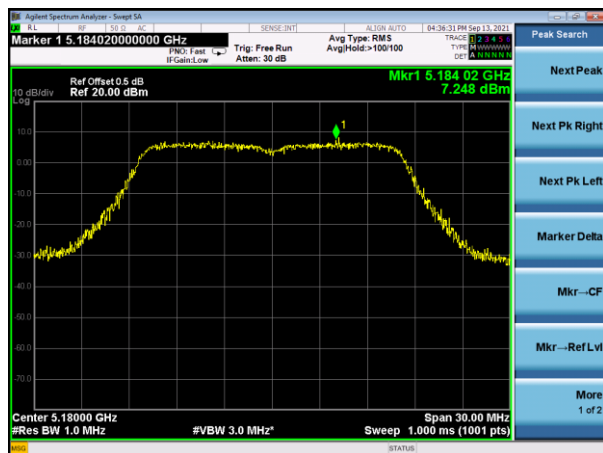
8.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	TX Frequency U-NII-1 (5180-5240MHz)		

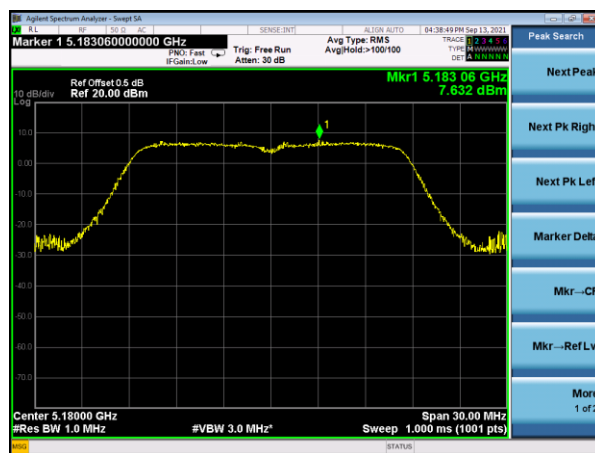
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.

Mode	Frequency	Measured Power Density (dBm/MHz)			Limit (dBm/MHz)	Result
		ANT A	ANT B	Total		
802.11 a	5180 MHz	7.248	6.735	/	17	PASS
	5200 MHz	7.300	6.732	/	17	PASS
	5240 MHz	5.760	6.656	/	17	PASS
802.11 n20	5180 MHz	7.632	6.768	10.232	17	PASS
	5200 MHz	6.311	7.050	9.706	17	PASS
	5240 MHz	5.638	5.974	8.820	17	PASS
802.11 n40	5190 MHz	5.339	5.845	8.610	17	PASS
	5230 MHz	4.475	4.148	7.325	17	PASS
802.11 ac20	5180 MHz	6.713	7.036	9.888	17	PASS
	5200 MHz	6.416	6.774	9.609	17	PASS
	5240 MHz	5.430	6.235	8.861	17	PASS
802.11 ac40	5190 MHz	5.035	5.181	8.119	17	PASS
	5230 MHz	4.151	3.953	7.063	17	PASS
802.11 AC80	5210 MHz	3.675	3.642	6.669	17	PASS

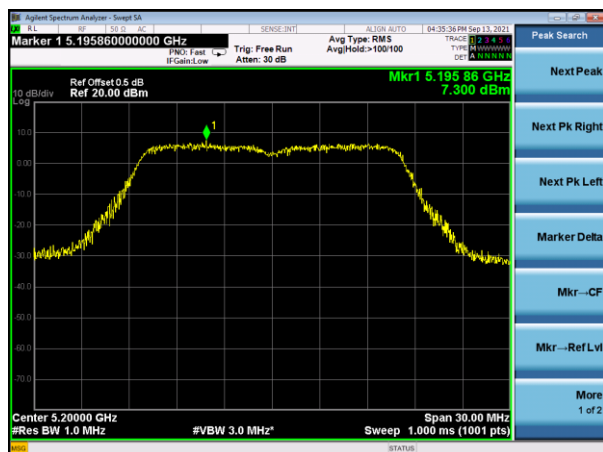
(802.11a) PSD plot on channel 36



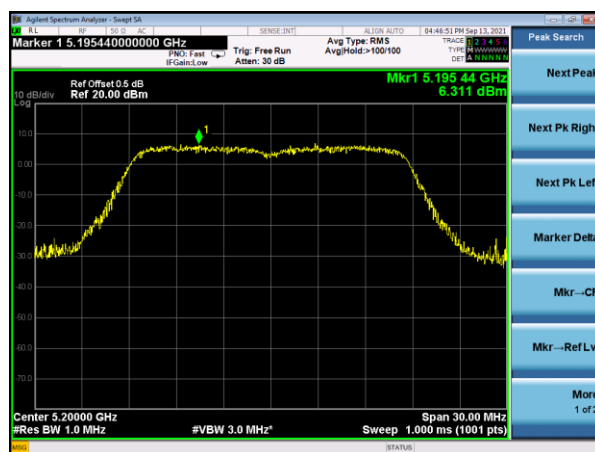
(802.11n20) PSD plot on channel 36



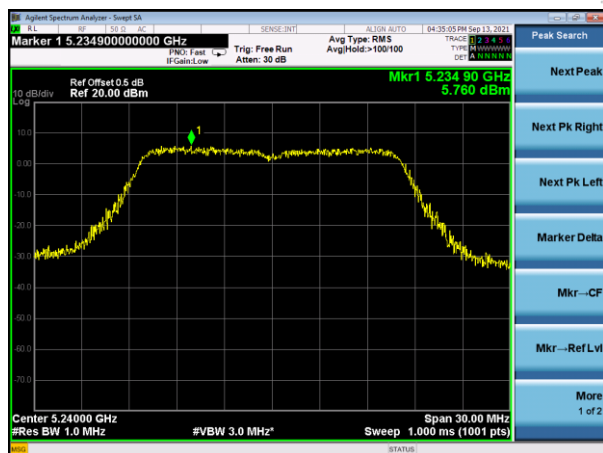
(802.11a) PSD plot on channel 40



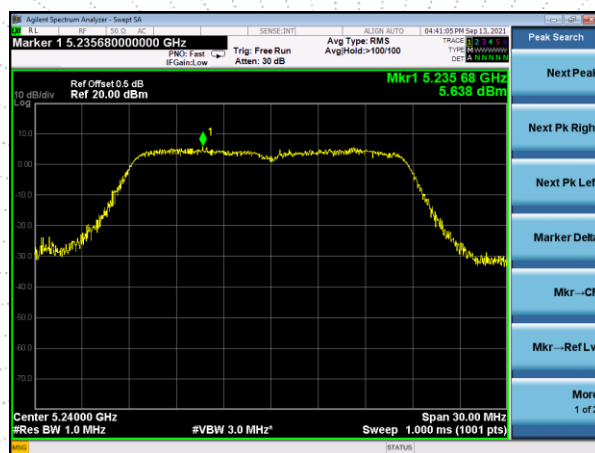
(802.11n20) PSD plot on channel 40



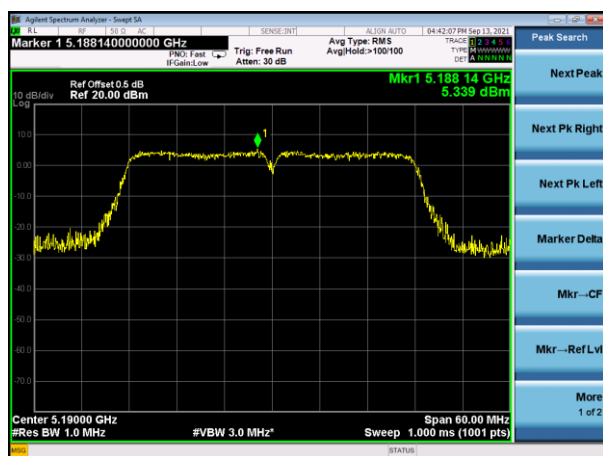
(802.11a) PSD plot on channel 48



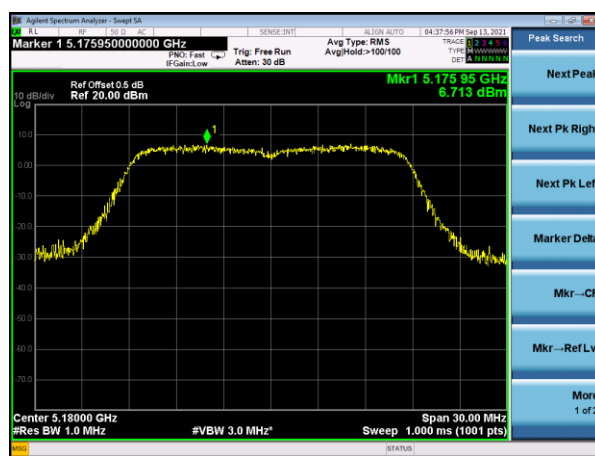
(802.11n20) PSD plot on channel 48



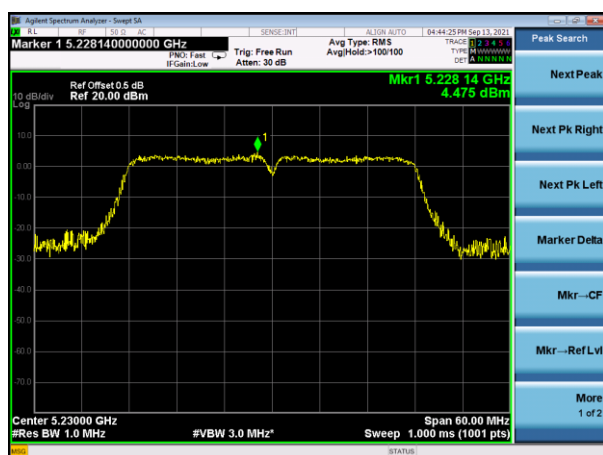
(802.11n40) PSD plot on channel 38



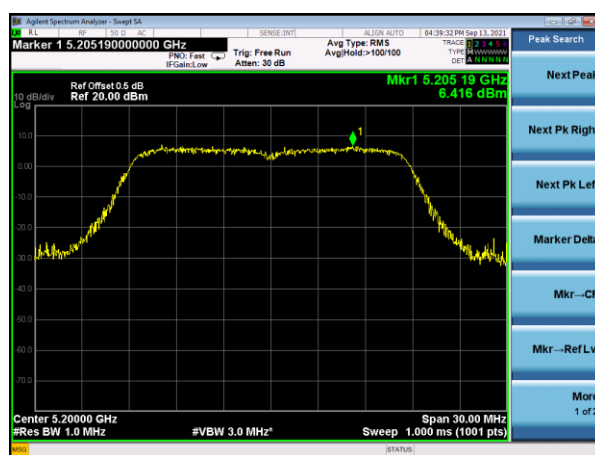
(802.11ac20) PSD plot on channel 36



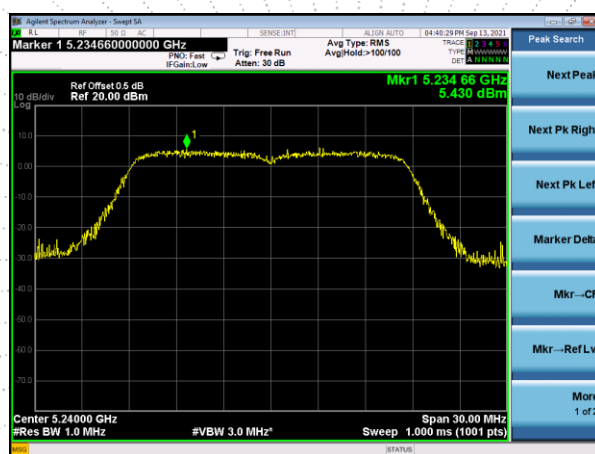
(802.11n40) PSD plot on channel 46



(802.11ac20) PSD plot on channel 40



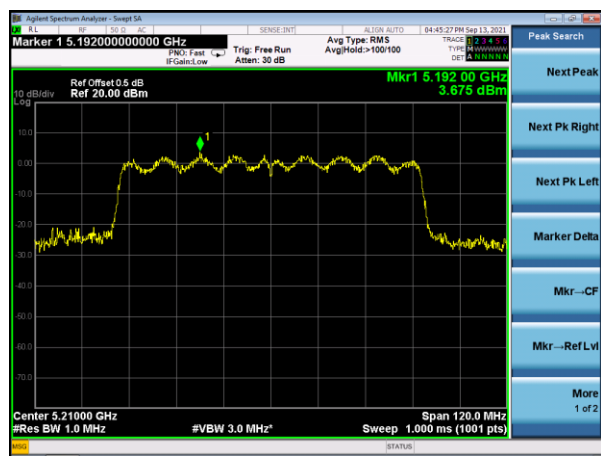
(802.11ac20) PSD plot on channel 48



(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42



(802.11ac40) PSD plot on channel 46

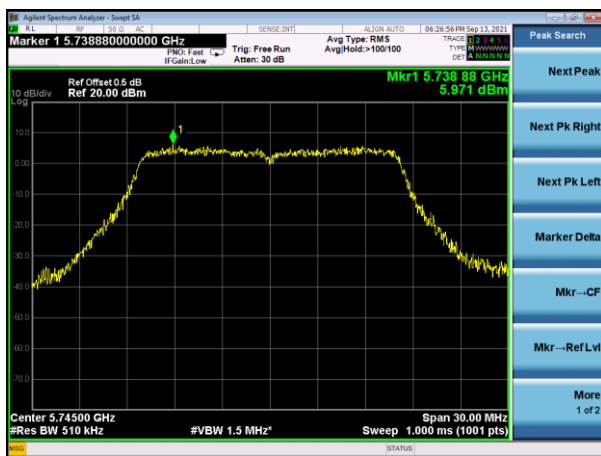


Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	TX Frequency U-NII-3 (5745-5825MHz)		

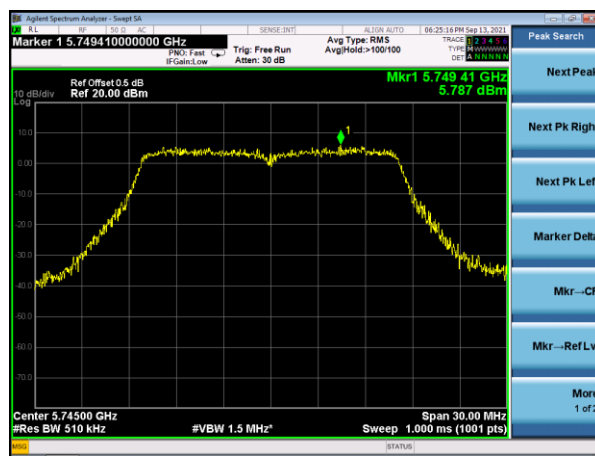
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

Mode	Frequency	Measured Power Density (dBm/500KHz)			Limit (dBm/500kHz)	Result
		ANT A	ANT B	Total		
802.11 a	5745 MHz	5.530	5.971	/	30	PASS
	5785 MHz	5.065	4.722	/	30	PASS
	5825 MHz	3.756	3.820	/	30	PASS
802.11 n20	5745 MHz	5.110	5.787	8.472	30	PASS
	5785 MHz	4.085	5.156	7.664	30	PASS
	5825 MHz	3.672	5.219	7.524	30	PASS
802.11 n40	5755 MHz	3.062	3.210	6.147	30	PASS
	5795 MHz	1.986	2.538	5.281	30	PASS
802.11 ac20	5745 MHz	4.828	5.002	7.926	30	PASS
	5785 MHz	4.538	4.395	7.477	30	PASS
	5825 MHz	3.054	3.217	6.147	30	PASS
802.11 ac40	5755 MHz	2.895	3.355	6.141	30	PASS
	5795 MHz	3.142	2.396	5.795	30	PASS
802.11 AC80	5775 MHz	3.324	2.876	6.116	30	PASS

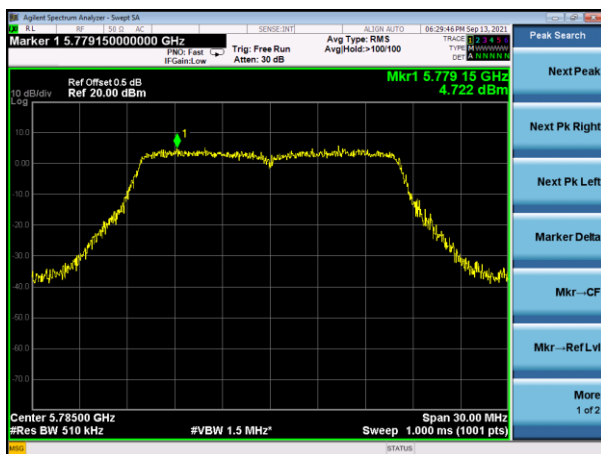
(802.11a) PSD plot on channel 149



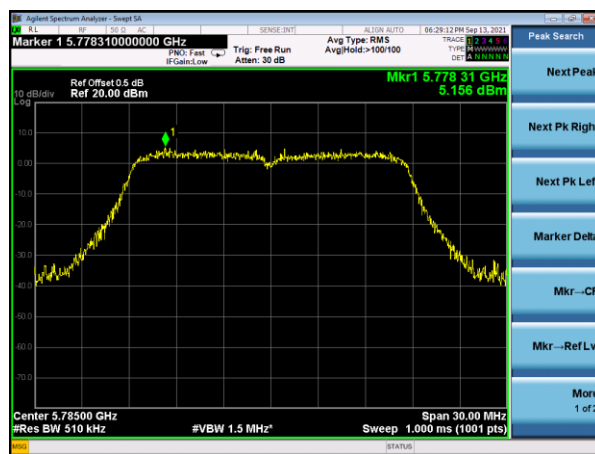
(802.11n20) PSD plot on channel 149



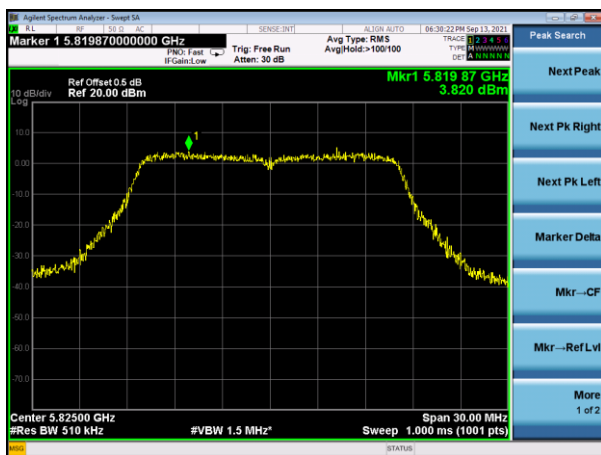
(802.11a) PSD plot on channel 157



(802.11n20) PSD plot on channel 157



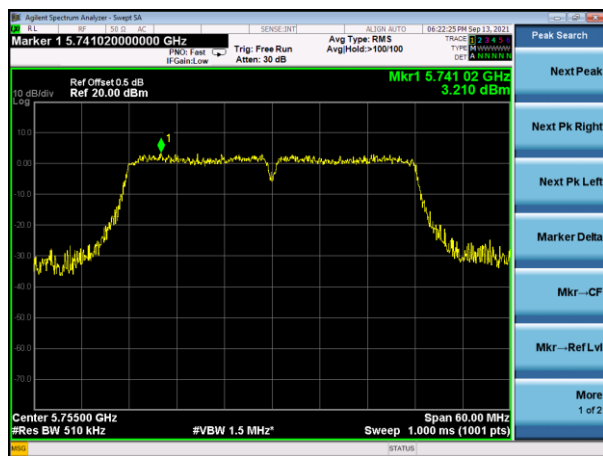
(802.11a) PSD plot on channel 165



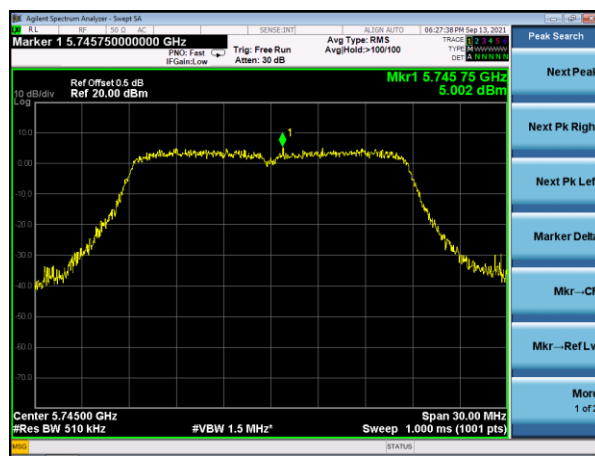
(802.11n20) PSD plot on channel 165



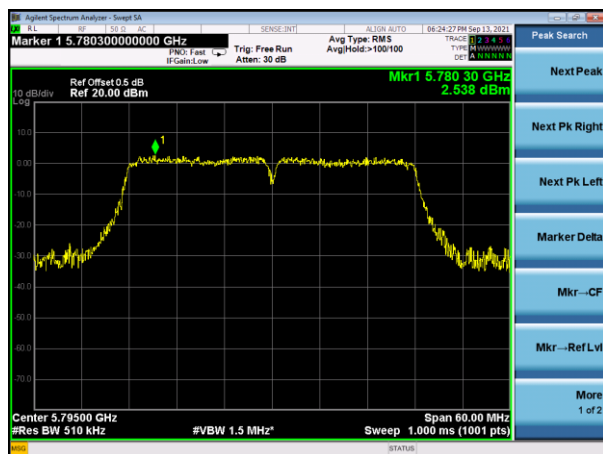
(802.11n40) PSD plot on channel 151



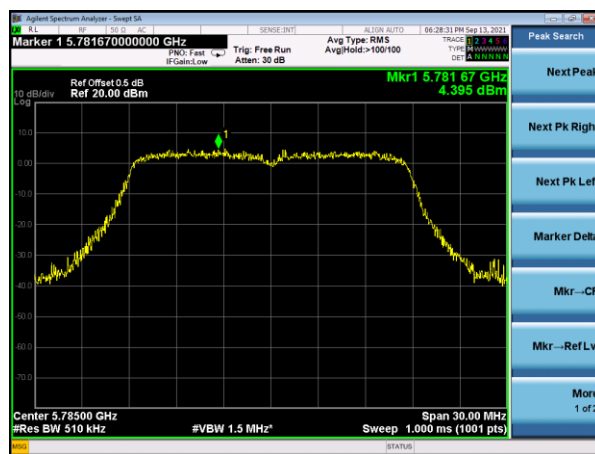
(802.11ac20) PSD plot on channel 149



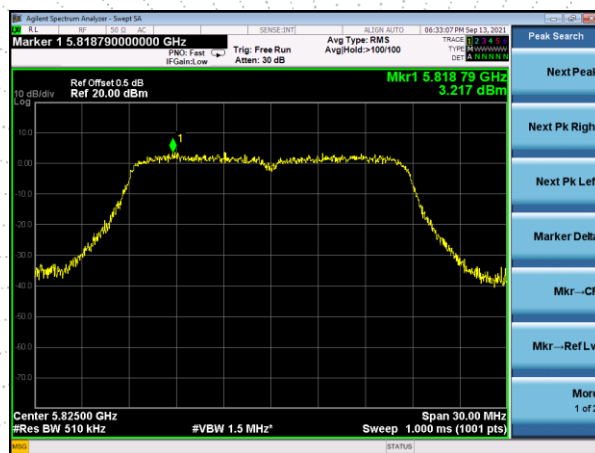
(802.11n40) PSD plot on channel 159



(802.11ac20) PSD plot on channel 157



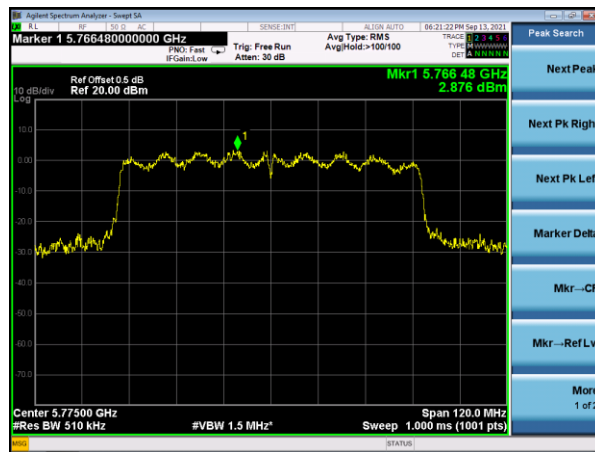
(802.11ac20) PSD plot on channel 165



(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155

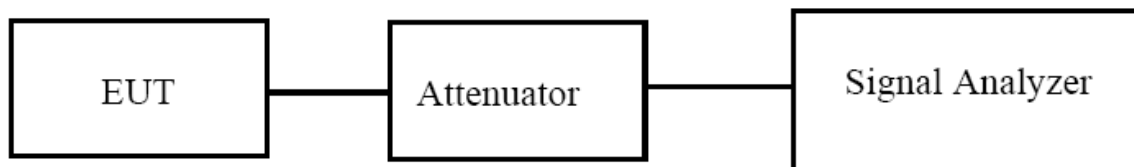


(802.11ac40) PSD plot on channel 159



9. 26DB & 6DB & 99% EMISSION BANDWIDTH

9.1 Block Diagram Of Test Setup



9.2 Limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

9.3 Test procedure

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5.0 times the OBW.
- Set RBW = 1 % to 5 % of the OBW
- Set VBW $\geq 3 \cdot$ RBW
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- Use the 99 % power bandwidth function of the instrument (if available).
- If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

9.4 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.

9.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
Test Mode:	TX Frequency U-NII-1 (5180-5240MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)	26dB bandwidth (MHz)	Limit MHz	Result
			ANT A	ANT A		
802.11a	CH36	5180	16.678	20.90	N/A	Pass
	CH40	5200	16.648	20.56	N/A	Pass
	CH48	5240	16.616	20.49	N/A	Pass
802.11 n20	CH36	5180	17.651	21.01	N/A	Pass
	CH40	5200	17.632	20.75	N/A	Pass
	CH48	5240	17.661	21.07	N/A	Pass
802.11 n40	CH 38	5190	37.265	45.87	N/A	Pass
	CH 46	5230	37.339	48.44	N/A	Pass
802.11 ac20	CH36	5180	17.683	21.15	N/A	Pass
	CH40	5200	17.636	20.94	N/A	Pass
	CH48	5240	17.660	21.21	N/A	Pass
802.11 ac40	CH 38	5190	36.635	44.03	N/A	Pass
	CH 46	5230	36.904	48.27	N/A	Pass
802.11 AC80	CH 42	5210	75.328	83.02	N/A	Pass