TEST REPORT

Report No.:	BCTC2308109656-4E
Applicant:	CHINA DRAGON TECHNOLOGY LIMITED
Product Name:	WIFi 11a/b/g/n/ac 2T2R and BT5.0 Module
Model/Type reference:	EL.RT8822VB-WFT
Tested Date:	2023-07-31 to 2023-08-23
Issued Date:	2023-08-23

Shenzhen BCTC Testing Co., Ltd.

FCC ID: ROW-RT8822VBWFT

Product Name:	WIFi 11a/b/g/n/ac 2T2R and BT5.0 Module
Trademark:	N/A
Model/Type reference:	EL.RT8822VB-WFT
Prepared For:	CHINA DRAGON TECHNOLOGY LIMITED
Address:	B4 Bldg.haosan No.1 Industry Park, Shajing street, B, Shenzhen, China
Manufacturer:	CHINA DRAGON TECHNOLOGY LIMITED
Address:	B4 Bldg.haosan No.1 Industry Park, Shajing street, B, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2023-07-31
Sample tested Date:	2023-07-31 to 2023-08-23
Issue Date:	2023-08-23
Report No.:	BCTC2308109656-4E
Test Standards:	FCC Part15 15.407 ANSI C63.10-2013 KDB 662911 D01 v02r01 KDB 789033 D02 v02r01
Test Results:	PASS

Tested by:

Lei Chen

Lei Chen/Project Handler

Approved by:

Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

Table Of Content

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2308109656-4E	2023-08-23	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

No.	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

Note：The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure.

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(9kHz-30MHz)	U=3.7dB
2	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
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℃

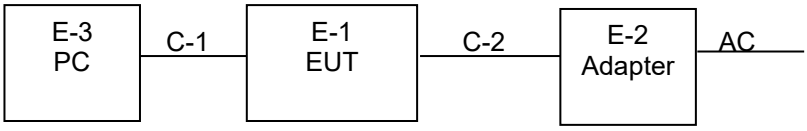
4. Product Information And Test Setup

4.1 Product Information

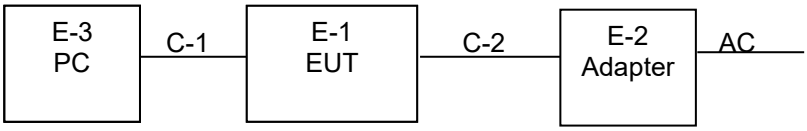
Model/Type Ref.:	EL.RT8822VB-WFT
Model differences:	N/A
Hardware Version:	EL.RT8822VB-WFT_1V0
Software Version:	RTL8822CU-F9822CU-02_WL(ANT3)20221015.map
IEEE 802.11 WLAN Mode Supported	802.11a/n/ac(20MHz channel bandwidth) 802.11n/ac(40MHz channel bandwidth) 802.11ac(80MHz channel bandwidth)
Operation Frequency:	5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); 5210MHz for 802.11 ac80; 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11n(HT40); 5775MHz for 802.11 ac80;
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(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:	Shrapnel antenna
Antenna Gain:	5.1G: Antenna A: 3.25 dBi Antenna B: 3.55 dBi 5.8G: Antenna A: 3.25 dBi Antenna B: 3.55 dBi
Ratings:	DC 3.3V

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-1	WIFi 11a/b/g/n/ac 2T2R and BT5.0 Module	N/A	EL.RT8822VB-WFT	N/A	EUT
E-2	Adapter	N/A	CD122	N/A	Auxiliary
E-3	PC	Lenovo	Thinkpad S2	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.5M	USB cable unshielded
C-2	NO	NO	0.5M	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

5.1G

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

5.8G

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 generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible 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

Note:

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

(2) We're testing antenna A data.

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	MP_Kit_RTL11ac_8822CU_USB_v13.00		
Parameters	DEF	DEF	DEF

4.7 Antenna

5.1G
1)For power spectral density(PSD) measurements,
Array Gain=10log(NANT/NSS)dB=10log(2/1)=3.01dB,
So the directional gain for PSD is 6.56 dBi
2)For power measurements,
The Array gain=0 dB for NANT≤4,
So the directional gain for Power measurements is 3.55 dBi

Antenna	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	Shrapnel antenna	3.25	
B	N/A	N/A	Shrapnel antenna	3.55	

5.8G
For power spectral density(PSD) measurements,
Array Gain=10log(NANT/NSS)dB=10log(2/1)=3.01dB,
So the directional gain for PSD is 6.56 dBi
2)For power measurements,
The Array gain=0 dB for NANT≤4,
So the directional gain for Power measurements is 3.55 dBi

Antenna	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	Shrapnel antenna	3.25	
B	N/A	N/A	Shrapnel antenna	3.55	

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, Zhancheng, 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
A2LA certificate registration number is: CN1212
ISED Registered No.: 23583
ISED CAB identifier: CN0017

5.2 Test Instrument Used

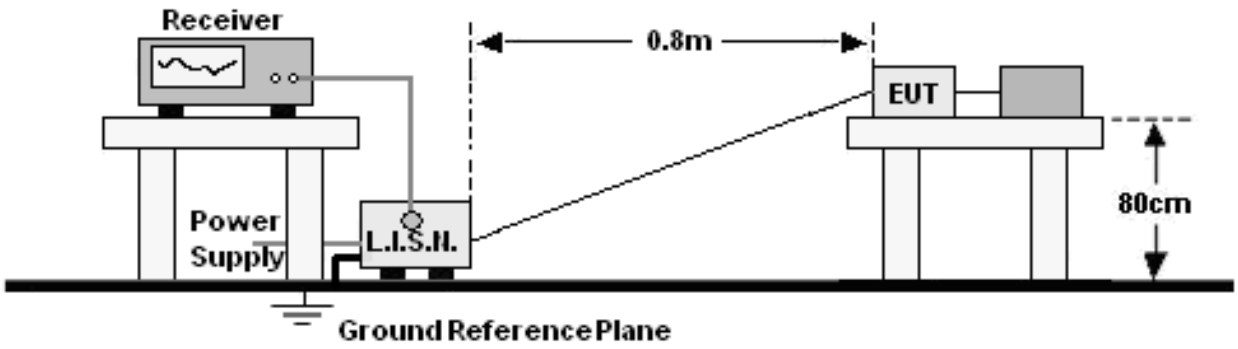
Conducted Emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 15, 2023	May 14, 2024
LISN	R&S	ENV216	101375	May 15, 2023	May 14, 2024
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	10dB DC-6GHz	1650	May 15, 2023	May 14, 2024

RF Conducted Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Power Meter	Keysight	E4419	\	May 15, 2023	May 14, 2024
Power Sensor (AV)	Keysight	E9300A	\	May 15, 2023	May 14, 2024
Signal Analyzer20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 15, 2023	May 14, 2024
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 15, 2023	May 14, 2024
Radio frequency control box	MAIWEI	MW100-RFCB	\	\	\
Software	MAIWEI	MTS 8310	\	\	\

Radiated Emissions Test (966 Chamber01)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	May 15, 2023	May 14, 2026
Receiver	R&S	ESR3	102075	May 15, 2023	May 14, 2024
Receiver	R&S	ESRP	101154	May 15, 2023	May 14, 2024
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 15, 2023	May 14, 2024
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 29, 2023	May 28, 2024
Loop Antenna(9KHz -30MHz)	Schwarzbeck	FMZB1519B	00014	May 31, 2023	May 30, 2024
Amplifier	SKET	LAPA_01G18 G-45dB	\	May 15, 2023	May 14, 2024
Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 31, 2023	May 30, 2024
Amplifier(18G Hz-40GHz)	MITEQ	TTA1840-35-HG	2034381	May 15, 2023	May 14, 2024
Horn Antenna(18G Hz-40GHz)	Schwarzbeck	BBHA9170	00822	May 31, 2023	May 30, 2024
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 15, 2023	May 14, 2024
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

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: 1. *Decreasing linearly with logarithm of frequency. 2. 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

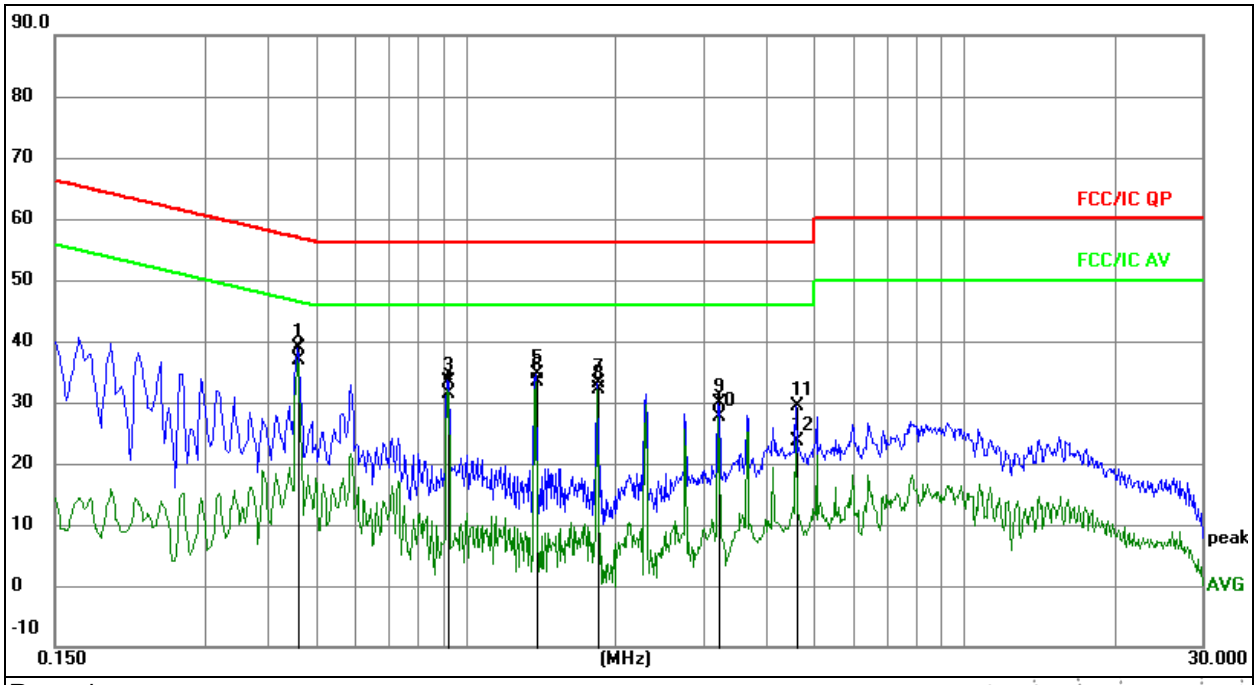
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak 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.

6.5 Test Result

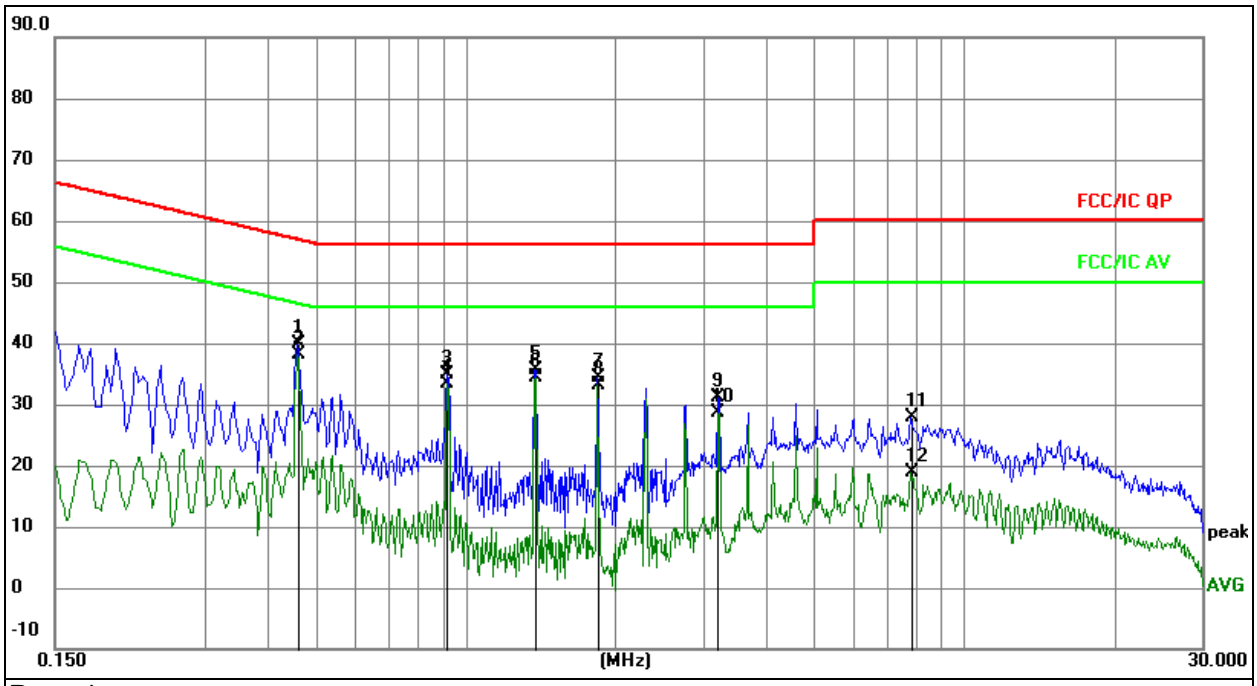
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 4	Test Voltage :	AC120V/60Hz



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over= Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.4605	29.15	9.62	38.77	56.68	-17.91	QP
2	*	0.4605	27.21	9.62	36.83	46.68	-9.85	AVG
3		0.9195	23.80	9.70	33.50	56.00	-22.50	QP
4		0.9195	21.59	9.70	31.29	46.00	-14.71	AVG
5		1.3829	24.86	9.73	34.59	56.00	-21.41	QP
6		1.3829	23.61	9.73	33.34	46.00	-12.66	AVG
7		1.8420	23.28	9.73	33.01	56.00	-22.99	QP
8		1.8420	22.44	9.73	32.17	46.00	-13.83	AVG
9		3.2235	20.19	9.80	29.99	56.00	-26.01	QP
10		3.2235	17.93	9.80	27.73	46.00	-18.27	AVG
11		4.6050	19.46	9.82	29.28	56.00	-26.72	QP
12		4.6050	13.70	9.82	23.52	46.00	-22.48	AVG

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 4	Test Voltage :	AC120V/60Hz



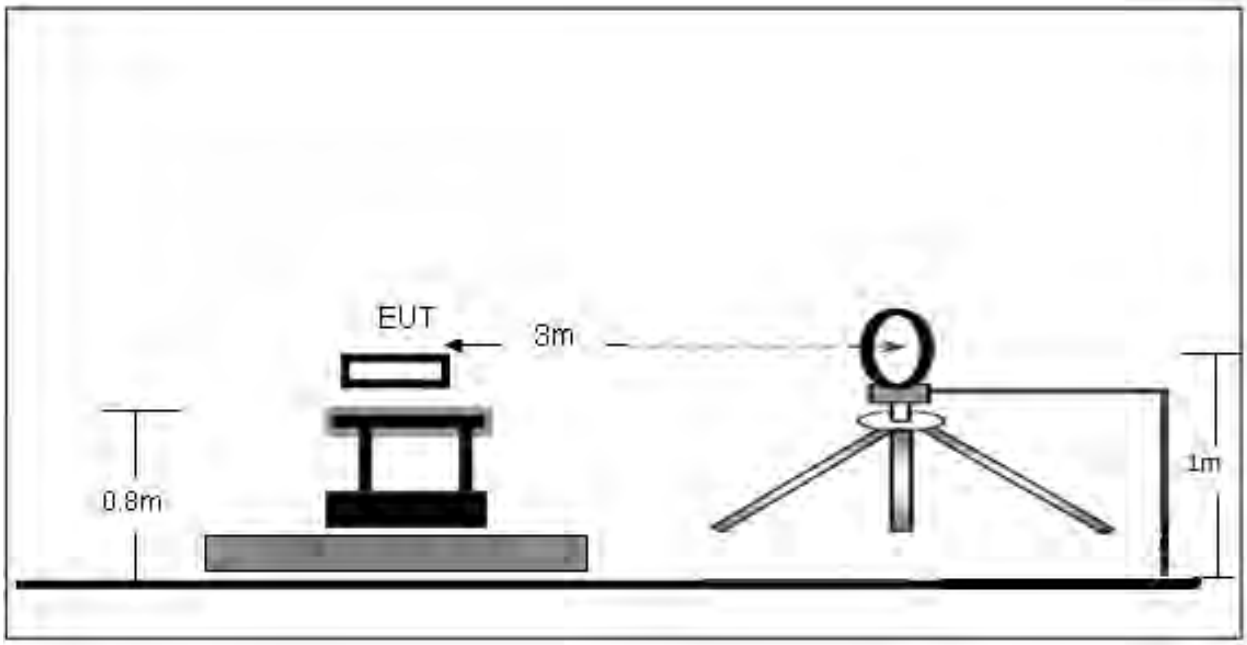
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over= Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.4588	30.23	9.62	39.85	56.71	-16.86	QP
2	*	0.4588	28.45	9.62	38.07	46.71	-8.64	AVG
3		0.9184	25.23	9.70	34.93	56.00	-21.07	QP
4		0.9184	23.75	9.70	33.45	46.00	-12.55	AVG
5		1.3810	25.94	9.73	35.67	56.00	-20.33	QP
6		1.3810	24.53	9.73	34.26	46.00	-11.74	AVG
7		1.8386	24.65	9.73	34.38	56.00	-21.62	QP
8		1.8386	23.45	9.73	33.18	46.00	-12.82	AVG
9		3.2069	21.25	9.80	31.05	56.00	-24.95	QP
10		3.2069	18.94	9.80	28.74	46.00	-17.26	AVG
11		7.8102	18.23	9.72	27.95	60.00	-32.05	QP
12		7.8102	9.09	9.72	18.81	50.00	-31.19	AVG

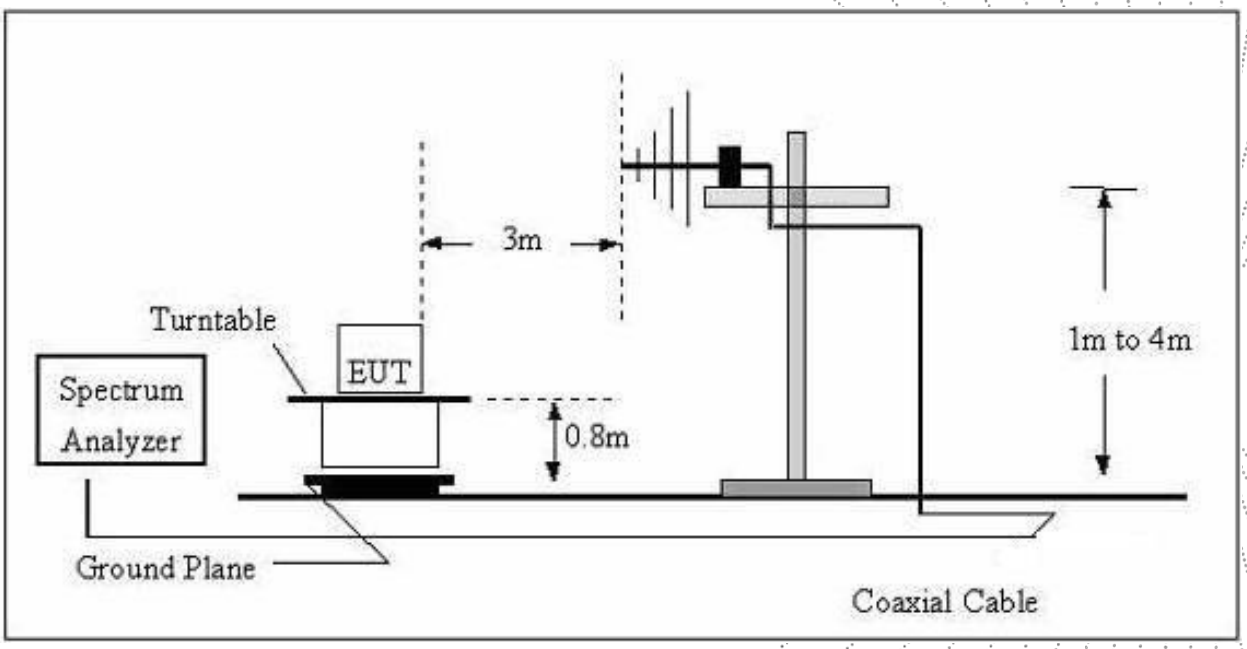
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

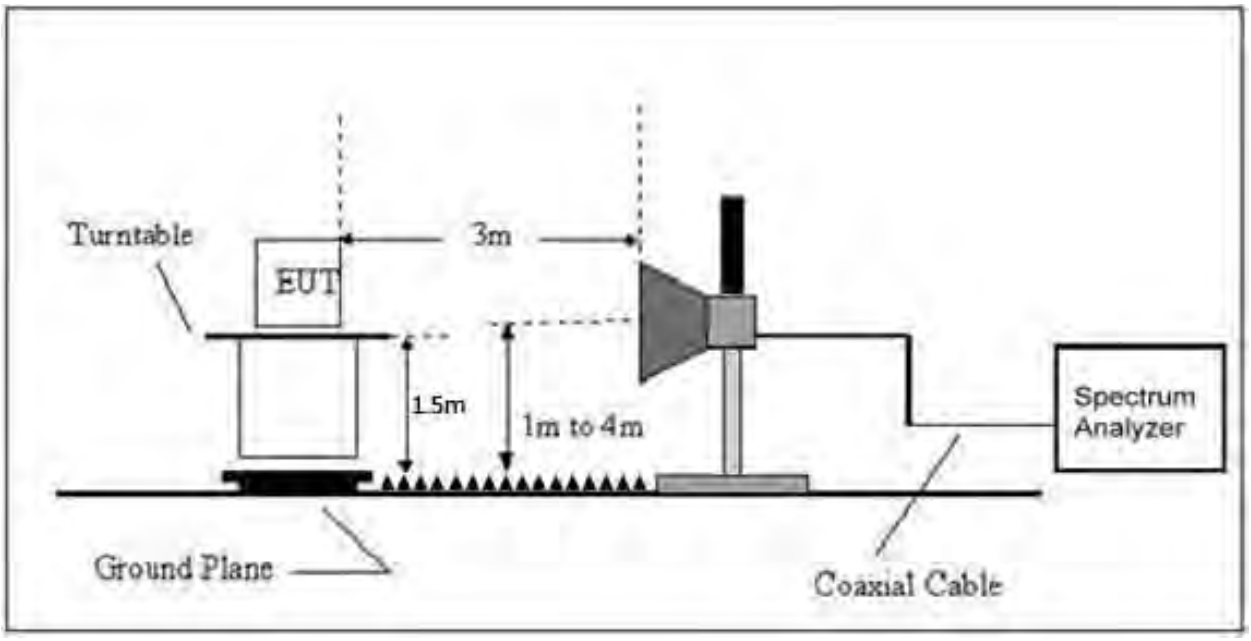
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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)	uV/m	(m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))}$ + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))}$ + 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 (dBuV/m) (at 3M)	
	Peak	Average
Above 1000	74	54

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

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

a. 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.
b. 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.
c. 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.
d. 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.
e. 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.
f. 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*lg(100 [kHz]/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

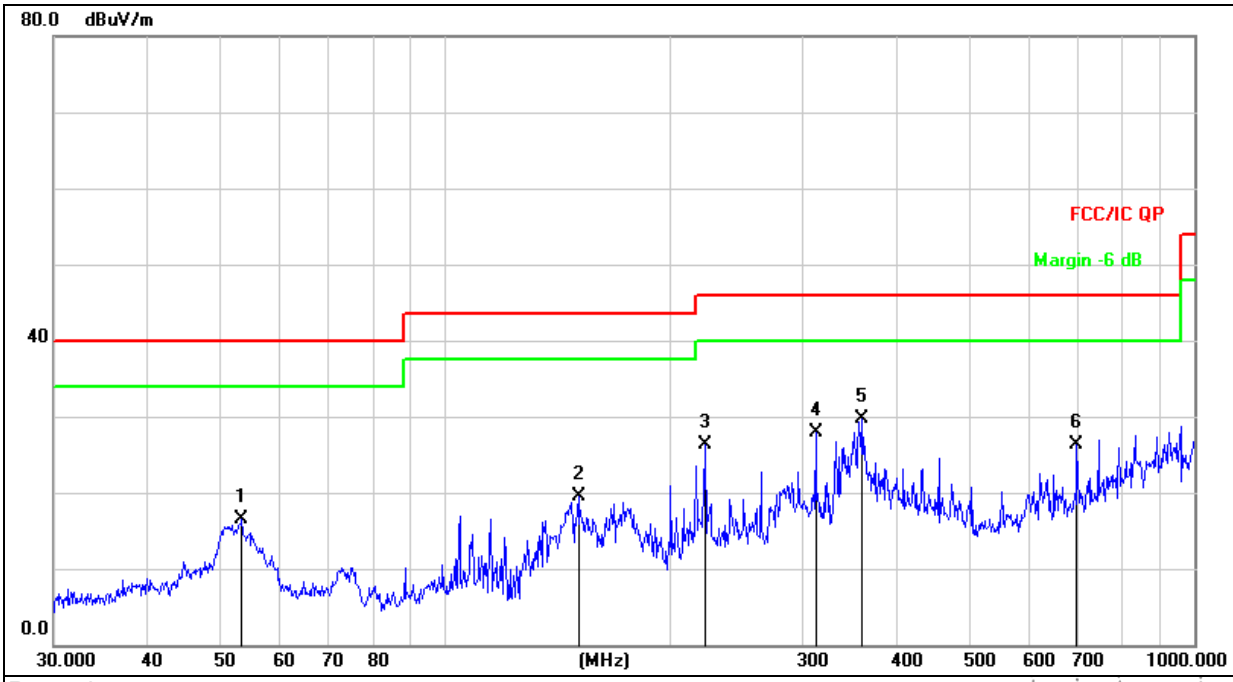
Temperature:	26℃	Relative Humidity:	24%
Pressure:	101 kPa	Test Voltage:	AC120V/60Hz
Test Mode:	Mode 4	Polarization:	--

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 (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

Between 30MHz – 1GHz

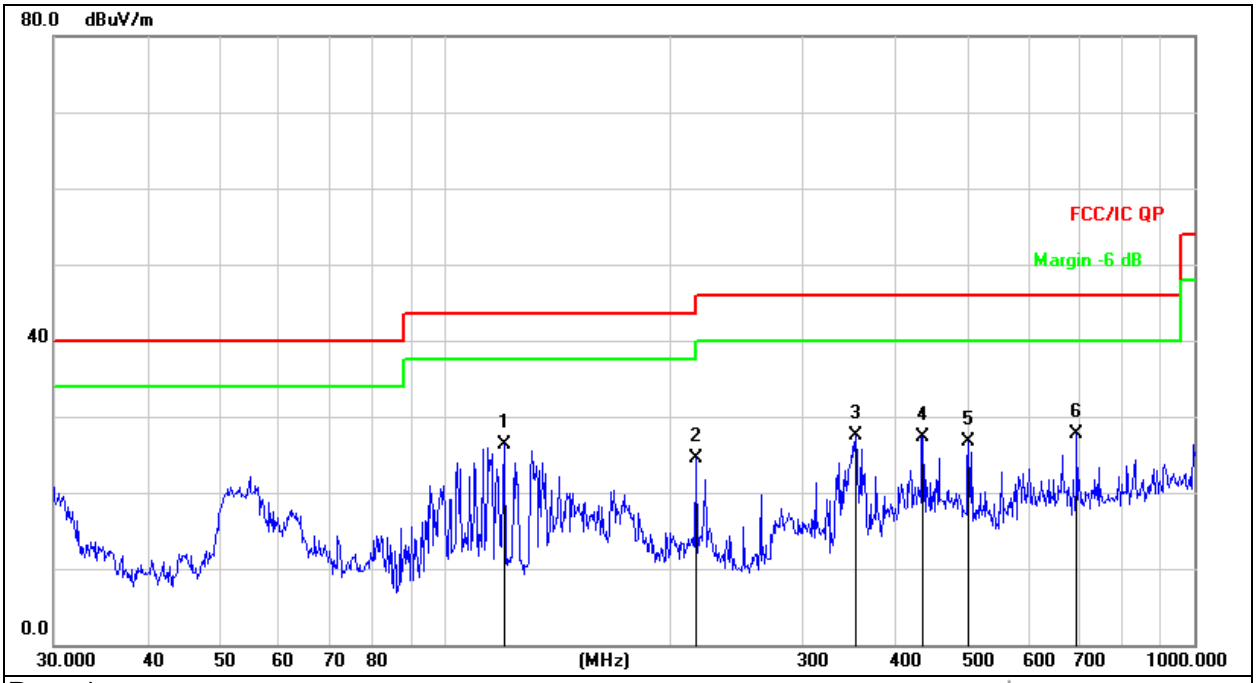
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 4	Test Voltage :	AC120V/60Hz



Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over= Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		53.5052	32.53	-16.12	16.41	40.00	-23.59	QP
2		150.5378	40.56	-21.01	19.55	43.50	-23.95	QP
3		222.1698	42.96	-16.69	26.27	46.00	-19.73	QP
4		312.1794	41.98	-14.14	27.84	46.00	-18.16	QP
5	*	360.4476	42.41	-12.67	29.74	46.00	-16.26	QP
6		696.8567	33.51	-7.22	26.29	46.00	-19.71	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 4	Test Voltage :	AC120V/60Hz



Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over= Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	119.8556	45.28	-19.07	26.21	43.50	-17.29	QP
2		216.0240	41.38	-16.88	24.50	46.00	-21.50	QP
3		352.9433	40.29	-12.76	27.53	46.00	-18.47	QP
4		434.0651	39.01	-11.72	27.29	46.00	-18.71	QP
5		499.4247	36.89	-10.26	26.63	46.00	-19.37	QP
6		696.8567	34.96	-7.22	27.74	46.00	-18.26	QP

Between 1GHz – 40GHz

Test Mode:	TX(5.1G) - 802.11a

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	4434.013	61.41	5.94	35.40	44.00	58.75	68.2	-9.45	PK
V	4434.013	43.86	5.94	35.40	44.00	41.20	54	-12.80	AV
V	10360.080	62.93	8.46	39.75	44.50	66.64	68.2	-1.56	PK
V	10360.080	43.27	8.46	39.75	44.50	46.98	54	-7.02	AV
V	15540.160	64.05	10.12	38.80	44.10	68.87	74	-5.13	PK
V	15540.160	43.67	10.12	38.80	42.70	49.89	54	-4.11	AV
H	4434.103	60.61	5.94	35.18	44.00	57.73	68.2	-10.47	PK
H	4434.103	43.86	5.94	35.18	44.00	40.98	54	-13.02	AV
H	10360.004	51.42	8.46	38.71	44.50	54.09	68.2	-14.11	PK
H	10360.004	44.54	8.46	38.71	44.50	47.21	54	-6.79	AV
H	15540.150	51.79	10.12	38.38	44.10	56.19	74	-17.81	PK
H	15540.150	44.39	10.12	38.38	44.10	48.79	54	-5.21	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.116	60.41	6.48	36.35	44.05	59.19	74	-14.81	PK
V	4592.116	43.88	6.48	36.35	44.05	42.66	54	-11.34	AV
V	10400.088	64.85	8.47	37.88	44.51	66.69	68.2	-1.51	PK
V	10400.088	43.07	8.47	37.88	44.51	44.91	54	-9.09	AV
V	15600.065	61.70	10.12	38.80	44.10	66.52	74	-7.48	PK
V	15600.065	43.87	10.12	38.80	42.70	50.09	54	-3.91	AV
H	4592.137	61.61	6.48	36.37	44.05	60.41	74	-13.59	PK
H	4592.137	43.61	6.48	36.37	44.05	42.41	54	-11.59	AV
H	10400.197	54.83	8.47	38.64	44.50	57.44	68.2	-10.76	PK
H	10400.197	43.01	8.47	38.64	44.50	45.62	54	-8.38	AV
H	15600.109	54.53	10.12	38.38	44.10	58.93	74	-15.07	PK
H	15600.109	40.39	10.12	38.38	44.10	44.79	54	-9.21	AV
High Channel (5240 MHz)-Above 1G									
V	4739.199	64.57	7.10	37.24	43.50	65.41	74	-8.59	PK
V	4739.199	43.07	7.10	37.24	43.50	43.91	54	-10.09	AV
V	10480.006	61.01	8.46	37.68	44.50	62.65	68.2	-5.55	PK
V	10480.006	43.79	8.46	37.68	44.50	45.43	54	-8.57	AV
V	15720.142	61.78	10.12	38.80	44.10	66.60	74	-7.40	PK
V	15720.142	43.86	10.12	38.80	42.70	50.08	54	-3.92	AV
H	4739.122	64.24	7.10	37.24	43.50	65.08	74	-8.92	PK
H	4739.122	43.50	7.10	37.24	43.50	44.34	54	-9.66	AV
H	10480.095	50.95	8.46	38.57	44.50	53.48	68.2	-14.72	PK
H	10480.095	42.57	8.46	38.57	44.50	45.10	54	-8.90	AV
H	15720.062	52.22	10.12	38.38	44.10	56.62	74	-17.38	PK
H	15720.062	44.36	10.12	38.38	44.10	48.76	54	-5.24	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 case is Antenna A.

Test Mode :	TX(5.1G) - 802.11n-HT20

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	4434.012	61.58	5.94	35.40	44.00	58.92	68.2	-9.28	PK
V	4434.012	43.44	5.94	35.40	44.00	40.78	54	-13.22	AV
V	10360.041	60.21	8.46	39.75	44.50	63.92	68.2	-4.28	PK
V	10360.041	43.31	8.46	39.75	44.50	47.02	54	-6.98	AV
V	15540.111	63.57	10.12	38.80	44.10	68.39	74	-5.61	PK
V	15540.111	43.08	10.12	38.80	42.70	49.30	54	-4.70	AV
H	4434.082	64.54	5.94	35.18	44.00	61.66	68.2	-6.54	PK
H	4434.082	43.59	5.94	35.18	44.00	40.71	54	-13.29	AV
H	10360.107	54.49	8.46	38.71	44.50	57.16	68.2	-11.04	PK
H	10360.107	41.37	8.46	38.71	44.50	44.04	54	-9.96	AV
H	15540.051	53.39	10.12	38.38	44.10	57.79	74	-16.21	PK
H	15540.051	41.62	10.12	38.38	44.10	46.02	54	-7.98	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.071	61.01	6.48	36.35	44.05	59.79	74	-14.21	PK
V	4592.071	43.05	6.48	36.35	44.05	41.83	54	-12.17	AV
V	10400.065	60.90	8.47	37.88	44.51	62.74	68.2	-5.46	PK
V	10400.065	43.76	8.47	37.88	44.51	45.60	54	-8.40	AV
V	15600.155	61.11	10.12	38.80	44.10	65.93	74	-8.07	PK
V	15600.155	43.86	10.12	38.80	42.70	50.08	54	-3.92	AV
H	4592.155	62.53	6.48	36.37	44.05	61.33	74	-12.67	PK
H	4592.155	43.31	6.48	36.37	44.05	42.11	54	-11.89	AV
H	10400.072	53.63	8.47	38.64	44.50	56.24	68.2	-11.96	PK
H	10400.072	43.83	8.47	38.64	44.50	46.44	54	-7.56	AV
H	15600.131	54.47	10.12	38.38	44.10	58.87	74	-15.13	PK
H	15600.131	43.85	10.12	38.38	44.10	48.25	54	-5.75	AV
High Channel (5240 MHz)-Above 1G									
V	4739.051	63.37	7.10	37.24	43.50	64.21	74	-9.79	PK
V	4739.051	43.05	7.10	37.24	43.50	43.89	54	-10.11	AV
V	10480.010	62.96	8.46	37.68	44.50	64.60	68.2	-3.60	PK
V	10480.010	43.97	8.46	37.68	44.50	45.61	54	-8.39	AV
V	15720.196	63.98	10.12	38.80	44.10	68.80	74	-5.20	PK
V	15720.196	43.39	10.12	38.80	42.70	49.61	54	-4.39	AV
H	4739.130	64.84	7.10	37.24	43.50	65.68	74	-8.32	PK
H	4739.130	44.00	7.10	37.24	43.50	44.84	54	-9.16	AV
H	10480.010	52.46	8.46	38.57	44.50	54.99	68.2	-13.21	PK
H	10480.010	43.04	8.46	38.57	44.50	45.57	54	-8.43	AV
H	15720.071	50.74	10.12	38.38	44.10	55.14	74	-18.86	PK
H	15720.071	44.94	10.12	38.38	44.10	49.34	54	-4.66	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

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	4434.095	64.27	5.94	35.40	44.00	61.61	68.2	-6.59	PK
V	4434.095	43.69	5.94	35.40	44.00	41.03	54	-12.97	AV
V	10380.188	62.70	8.46	39.75	44.50	66.41	68.2	-1.79	PK
V	10380.188	43.29	8.46	39.75	44.50	47.00	54	-7.00	AV
V	15570.065	63.14	10.12	38.80	44.10	67.96	74	-6.04	PK
V	15570.065	43.16	10.12	38.80	42.70	49.38	54	-4.62	AV
H	4434.189	64.02	5.94	35.18	44.00	61.14	74	-12.86	PK
H	4434.189	43.63	5.94	35.18	44.00	40.75	54	-13.25	AV
H	10380.044	51.34	8.46	38.71	44.50	54.01	68.2	-14.19	PK
H	10380.044	44.85	8.46	38.71	44.50	47.52	54	-6.48	AV
H	15570.185	54.95	10.12	38.38	44.10	59.35	74	-14.65	PK
H	15570.185	40.51	10.12	38.38	44.10	44.91	54	-9.09	AV
middle Channel (5230 MHz)-Above 1G									
V	4739.052	60.16	6.48	36.35	44.05	58.94	68.2	-9.26	PK
V	4739.052	43.76	6.48	36.35	44.05	42.54	54	-11.46	AV
V	10460.021	60.31	8.47	37.88	44.51	62.15	68.2	-6.05	PK
V	10460.021	43.50	8.47	37.88	44.51	45.34	54	-8.66	AV
V	15690.095	64.14	10.12	38.80	44.10	68.96	74	-5.04	PK
V	15690.095	43.45	10.12	38.80	42.70	49.67	54	-4.33	AV
H	4739.135	63.39	6.48	36.37	44.05	62.19	68.2	-6.01	PK
H	4739.135	43.38	6.48	36.37	44.05	42.18	54	-11.82	AV
H	10460.194	54.57	8.47	38.64	44.50	57.18	68.2	-11.02	PK
H	10460.194	44.58	8.47	38.64	44.50	47.19	54	-6.81	AV
H	15690.063	50.57	10.12	38.38	44.10	54.97	74	-19.03	PK
H	15690.063	41.55	10.12	38.38	44.10	45.95	54	-8.05	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

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	4434.018	60.50	5.94	35.40	44.00	57.84	68.2	-10.36	PK
V	4434.018	43.31	5.94	35.40	44.00	40.65	54	-13.35	AV
V	10360.110	63.01	8.46	39.75	44.50	66.72	68.2	-1.48	PK
V	10360.110	43.90	8.46	39.75	44.50	47.61	54	-6.39	AV
V	15540.133	60.76	10.12	38.80	44.10	65.58	74	-8.42	PK
V	15540.133	43.82	10.12	38.80	42.70	50.04	54	-3.96	AV
H	4434.092	63.71	5.94	35.18	44.00	60.83	68.2	-7.37	PK
H	4434.092	43.72	5.94	35.18	44.00	40.84	54	-13.16	AV
H	10360.145	53.85	8.46	38.71	44.50	56.52	68.2	-11.68	PK
H	10360.145	40.19	8.46	38.71	44.50	42.86	54	-11.14	AV
H	15540.086	53.44	10.12	38.38	44.10	57.84	74	-16.16	PK
H	15540.086	42.74	10.12	38.38	44.10	47.14	54	-6.86	AV
Middle Channel (5200 MHz)-Above 1G									
V	4592.181	61.63	6.48	36.35	44.05	60.41	74	-13.59	PK
V	4592.181	43.19	6.48	36.35	44.05	41.97	54	-12.03	AV
V	10400.003	62.01	8.47	37.88	44.51	63.85	68.2	-4.35	PK
V	10400.003	43.70	8.47	37.88	44.51	45.54	54	-8.46	AV
V	15600.191	63.79	10.12	38.80	44.10	68.61	74	-5.39	PK
V	15600.191	43.16	10.12	38.80	42.70	49.38	54	-4.62	AV
H	4592.001	61.99	6.48	36.37	44.05	60.79	74	-13.21	PK
H	4592.001	43.96	6.48	36.37	44.05	42.76	54	-11.24	AV
H	10400.014	52.40	8.47	38.64	44.50	55.01	68.2	-13.19	PK
H	10400.014	42.91	8.47	38.64	44.50	45.52	54	-8.48	AV
H	15600.048	53.70	10.12	38.38	44.10	58.10	74	-15.90	PK
H	15600.048	41.89	10.12	38.38	44.10	46.29	54	-7.71	AV
High Channel (5240 MHz)-Above 1G									
V	4739.093	64.70	7.10	37.24	43.50	65.54	74	-8.46	PK
V	4739.093	43.82	7.10	37.24	43.50	44.66	54	-9.34	AV
V	10480.118	61.30	8.46	37.68	44.50	62.94	68.2	-5.26	PK
V	10480.118	43.13	8.46	37.68	44.50	44.77	54	-9.23	AV
V	15720.028	64.52	10.12	38.80	44.10	69.34	74	-4.66	PK
V	15720.028	43.21	10.12	38.80	42.70	49.43	54	-4.57	AV
H	4739.004	62.76	7.10	37.24	43.50	63.60	74	-10.40	PK
H	4739.004	43.75	7.10	37.24	43.50	44.59	54	-9.41	AV
H	10480.084	54.32	8.46	38.57	44.50	56.85	68.2	-11.35	PK
H	10480.084	42.04	8.46	38.57	44.50	44.57	54	-9.43	AV
H	15720.132	53.71	10.12	38.38	44.10	58.11	74	-15.89	PK
H	15720.132	43.21	10.12	38.38	44.10	47.61	54	-6.39	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

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	4434.173	64.06	5.94	35.40	44.00	61.40	68.2	-6.80	PK
V	4434.173	43.18	5.94	35.40	44.00	40.52	54	-13.48	AV
V	10380.025	61.43	8.46	39.75	44.50	65.14	68.2	-3.06	PK
V	10380.025	43.07	8.46	39.75	44.50	46.78	54	-7.22	AV
V	15570.044	62.28	10.12	38.80	44.10	67.10	74	-6.90	PK
V	15570.044	43.07	10.12	38.80	42.70	49.29	54	-4.71	AV
H	4434.026	60.92	5.94	35.18	44.00	58.04	74	-15.96	PK
H	4434.026	43.89	5.94	35.18	44.00	41.01	54	-12.99	AV
H	10380.153	50.24	8.46	38.71	44.50	52.91	68.2	-15.29	PK
H	10380.153	44.97	8.46	38.71	44.50	47.64	54	-6.36	AV
H	15570.044	53.79	10.12	38.38	44.10	58.19	74	-15.81	PK
H	15570.044	44.20	10.12	38.38	44.10	48.60	54	-5.40	AV
High Channel (5230 MHz)-Above 1G									
V	4739.002	63.34	6.48	36.35	44.05	62.12	68.2	-6.08	PK
V	4739.002	43.15	6.48	36.35	44.05	41.93	54	-12.07	AV
V	10460.090	60.77	8.47	37.88	44.51	62.61	68.2	-5.59	PK
V	10460.090	43.29	8.47	37.88	44.51	45.13	54	-8.87	AV
V	15690.197	64.06	10.12	38.80	44.10	68.88	74	-5.12	PK
V	15690.197	43.74	10.12	38.80	42.70	49.96	54	-4.04	AV
H	4739.183	61.39	6.48	36.37	44.05	60.19	68.2	-8.01	PK
H	4739.183	43.08	6.48	36.37	44.05	41.88	54	-12.12	AV
H	10460.094	50.16	8.47	38.64	44.50	52.77	68.2	-15.43	PK
H	10460.094	43.16	8.47	38.64	44.50	45.77	54	-8.23	AV
H	15690.036	53.09	10.12	38.38	44.10	57.49	74	-16.51	PK
H	15690.036	41.07	10.12	38.38	44.10	45.47	54	-8.53	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

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	4434.123	60.61	5.94	35.40	44.00	57.95	68.2	-10.25	PK
V	4434.123	43.83	5.94	35.40	44.00	41.17	54	-12.83	AV
V	10420.023	63.00	8.46	39.75	44.50	66.71	68.2	-1.49	PK
V	10420.023	43.45	8.46	39.75	44.50	47.16	54	-6.84	AV
V	15630.157	61.24	10.12	38.80	44.10	66.06	74	-7.94	PK
V	15630.157	43.05	10.12	38.80	42.70	49.27	54	-4.73	AV
H	4434.067	60.19	5.94	35.18	44.00	57.31	68.2	-10.89	PK
H	4434.067	43.45	5.94	35.18	44.00	40.57	54	-13.43	AV
H	10420.154	51.63	8.46	38.71	44.50	54.30	68.2	-13.90	PK
H	10420.154	40.41	8.46	38.71	44.50	43.08	54	-10.92	AV
H	15630.048	51.08	10.12	38.38	44.10	55.48	74	-18.52	PK
H	15630.048	41.03	10.12	38.38	44.10	45.43	54	-8.57	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

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	4679.150	55.61	5.94	35.40	44.00	52.95	74	-21.05	PK
V	4679.150	43.79	5.94	35.40	44.00	41.13	54	-12.87	AV
V	11490.095	54.24	8.46	39.75	44.50	57.95	68.2	-10.25	PK
V	11490.095	43.34	8.46	39.75	44.50	47.05	54	-6.95	AV
V	17235.057	58.99	10.12	38.80	44.10	63.81	68.2	-4.39	PK
V	17235.057	43.05	10.12	38.80	42.70	49.27	54	-4.73	AV
H	4679.135	58.80	5.94	35.18	44.00	55.92	74	-18.08	PK
H	4679.135	43.35	5.94	35.18	44.00	40.47	54	-13.53	AV
H	11490.057	51.43	8.46	38.71	44.50	54.10	68.2	-14.10	PK
H	11490.057	42.68	8.46	38.71	44.50	45.35	54	-8.65	AV
H	17235.192	52.87	10.12	38.38	44.10	57.27	68.2	-10.93	PK
H	17235.192	41.66	10.12	38.38	44.10	46.06	54	-7.94	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.199	55.16	6.48	36.35	44.05	53.94	74	-20.06	PK
V	4592.199	43.02	6.48	36.35	44.05	41.80	54	-12.20	AV
V	11570.131	58.80	8.47	37.88	44.51	60.64	68.2	-7.56	PK
V	11570.131	43.85	8.47	37.88	44.51	45.69	54	-8.31	AV
V	17355.040	56.86	10.12	38.80	44.10	61.68	68.2	-6.52	PK
V	17355.040	39.63	10.12	38.80	42.70	45.85	54	-8.15	AV
H	4592.044	58.28	6.48	36.37	44.05	57.08	74	-16.92	PK
H	4592.044	43.23	6.48	36.37	44.05	42.03	54	-11.97	AV
H	11570.134	54.39	8.47	38.64	44.50	57.00	68.2	-11.20	PK
H	11570.134	41.44	8.47	38.64	44.50	44.05	54	-9.95	AV
H	17355.061	51.07	10.12	38.38	44.10	55.47	68.2	-12.73	PK
H	17355.061	41.34	10.12	38.38	44.10	45.74	54	-8.26	AV
High Channel (5825 MHz)-Above 1G									
V	6039.020	59.87	7.10	37.24	43.50	60.71	68.2	-7.49	PK
V	6039.020	43.56	7.10	37.24	43.50	44.40	54	-9.60	AV
V	11650.023	61.72	8.46	37.68	44.50	63.36	74	-10.64	PK
V	11650.023	43.39	8.46	37.68	44.50	45.03	54	-8.97	AV
V	17475.038	57.09	10.12	38.80	44.10	61.91	68.2	-6.29	PK
V	17475.038	43.42	10.12	38.80	42.70	49.64	54	-4.36	AV
H	6039.130	58.99	7.10	37.24	43.50	59.83	68.2	-8.37	PK
H	6039.130	43.60	7.10	37.24	43.50	44.44	54	-9.56	AV
H	11650.056	53.50	8.46	38.57	44.50	56.03	74	-17.97	PK
H	11650.056	44.28	8.46	38.57	44.50	46.81	54	-7.19	AV
H	17475.123	52.58	10.12	38.38	44.10	56.98	68.2	-11.22	PK
H	17475.123	41.94	10.12	38.38	44.10	46.34	54	-7.66	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 case is Antenna A.

Test Mode:	TX(5.8G) - 802.11n-HT20

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	4679.164	57.11	5.94	35.40	44.00	54.45	74	-19.55	PK
V	4679.164	43.12	5.94	35.40	44.00	40.46	54	-13.54	AV
V	11490.167	55.20	8.46	39.75	44.50	58.91	68.2	-9.29	PK
V	11490.167	43.76	8.46	39.75	44.50	47.47	54	-6.53	AV
V	17235.046	61.54	10.12	38.80	44.10	66.36	68.2	-1.84	PK
V	17235.046	43.52	10.12	38.80	42.70	49.74	54	-4.26	AV
H	4679.032	59.14	5.94	35.18	44.00	56.26	74	-17.74	PK
H	4679.032	43.98	5.94	35.18	44.00	41.10	54	-12.90	AV
H	11490.169	51.24	8.46	38.71	44.50	53.91	68.2	-14.29	PK
H	11490.169	43.94	8.46	38.71	44.50	46.61	54	-7.39	AV
H	17235.156	52.30	10.12	38.38	44.10	56.70	68.2	-11.50	PK
H	17235.156	40.22	10.12	38.38	44.10	44.62	54	-9.38	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.150	59.14	6.48	36.35	44.05	57.92	74	-16.08	PK
V	4592.150	43.51	6.48	36.35	44.05	42.29	54	-11.71	AV
V	11570.001	54.03	8.47	37.88	44.51	55.87	68.2	-12.33	PK
V	11570.001	43.63	8.47	37.88	44.51	45.47	54	-8.53	AV
V	17355.141	58.33	10.12	38.80	44.10	63.15	68.2	-5.05	PK
V	17355.141	43.03	10.12	38.80	42.70	49.25	54	-4.75	AV
H	4592.044	59.28	6.48	36.37	44.05	58.08	74	-15.92	PK
H	4592.044	43.58	6.48	36.37	44.05	42.38	54	-11.62	AV
H	11570.079	50.99	8.47	38.64	44.50	53.60	68.2	-14.60	PK
H	11570.079	44.36	8.47	38.64	44.50	46.97	54	-7.03	AV
H	17355.160	52.07	10.12	38.38	44.10	56.47	68.2	-11.73	PK
H	17355.160	44.06	10.12	38.38	44.10	48.46	54	-5.54	AV
High Channel (5825 MHz)-Above 1G									
V	6039.086	57.40	7.10	37.24	43.50	58.24	68.2	-9.96	PK
V	6039.086	43.20	7.10	37.24	43.50	44.04	54	-9.96	AV
V	11650.159	57.35	8.46	37.68	44.50	58.99	74	-15.01	PK
V	11650.159	43.78	8.46	37.68	44.50	45.42	54	-8.58	AV
V	17475.161	57.09	10.12	38.80	44.10	61.91	68.2	-6.29	PK
V	17475.161	43.34	10.12	38.80	42.70	49.56	54	-4.44	AV
H	6039.148	56.86	7.10	37.24	43.50	57.70	68.2	-10.50	PK
H	6039.148	43.09	7.10	37.24	43.50	43.93	54	-10.07	AV
H	11650.100	52.09	8.46	38.57	44.50	54.62	74	-19.38	PK
H	11650.100	40.77	8.46	38.57	44.50	43.30	54	-10.70	AV
H	17475.009	53.25	10.12	38.38	44.10	57.65	68.2	-10.55	PK
H	17475.009	40.38	10.12	38.38	44.10	44.78	54	-9.22	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) - 802.11n-HT40

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	4679.192	58.30	5.94	35.40	44.00	55.64	74	-18.36	PK
V	4679.192	43.38	5.94	35.40	44.00	40.72	54	-13.28	AV
V	11510.022	56.99	8.46	39.75	44.50	60.70	74	-13.30	PK
V	11510.022	43.65	8.46	39.75	44.50	47.36	54	-6.64	AV
V	17265.072	56.67	10.12	38.80	44.10	61.49	68.2	-6.71	PK
V	17265.072	43.39	10.12	38.80	42.70	49.61	54	-4.39	AV
H	4679.074	59.30	5.94	35.18	44.00	56.42	74	-17.58	PK
H	4679.074	43.04	5.94	35.18	44.00	40.16	54	-13.84	AV
H	11510.186	54.29	8.46	38.71	44.50	56.96	74	-17.04	PK
H	11510.186	41.93	8.46	38.71	44.50	44.60	54	-9.40	AV
H	17265.136	51.60	10.12	38.38	44.10	56.00	68.2	-12.20	PK
H	17265.136	42.47	10.12	38.38	44.10	46.87	54	-7.13	AV
High Channel (5795 MHz)-Above 1G									
V	6039.130	56.58	6.48	36.35	44.05	55.36	68.2	-12.84	PK
V	6039.130	43.86	6.48	36.35	44.05	42.64	54	-11.36	AV
V	11590.181	55.12	8.47	37.88	44.51	56.96	74	-17.04	PK
V	11590.181	43.53	8.47	37.88	44.51	45.37	54	-8.63	AV
V	17385.098	55.33	10.12	38.80	44.10	60.15	68.2	-8.05	PK
V	17385.098	41.30	10.12	38.80	42.70	47.52	54	-6.48	AV
H	6039.107	57.39	6.48	36.37	44.05	56.19	68.2	-12.01	PK
H	6039.107	43.87	6.48	36.37	44.05	42.67	54	-11.33	AV
H	11590.023	53.50	8.47	38.64	44.50	56.11	74	-17.89	PK
H	11590.023	43.68	8.47	38.64	44.50	46.29	54	-7.71	AV
H	17385.174	50.65	10.12	38.38	44.10	55.05	68.2	-13.15	PK
H	17385.174	43.98	10.12	38.38	44.10	48.38	54	-5.62	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

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	4679.082	57.05	5.94	35.40	44.00	54.39	74	-19.61	PK
V	4679.082	43.30	5.94	35.40	44.00	40.64	54	-13.36	AV
V	11490.088	53.70	8.46	39.75	44.50	57.41	68.2	-10.79	PK
V	11490.088	43.91	8.46	39.75	44.50	47.62	54	-6.38	AV
V	17235.135	59.42	10.12	38.80	44.10	64.24	68.2	-3.96	PK
V	17235.135	43.07	10.12	38.80	42.70	49.29	54	-4.71	AV
H	4679.111	57.76	5.94	35.18	44.00	54.88	74	-19.12	PK
H	4679.111	43.19	5.94	35.18	44.00	40.31	54	-13.69	AV
H	11490.086	47.49	8.46	38.71	44.50	50.16	68.2	-18.04	PK
H	11490.086	40.57	8.46	38.71	44.50	43.24	54	-10.76	AV
H	17235.051	53.65	10.12	38.38	44.10	58.05	68.2	-10.15	PK
H	17235.051	43.41	10.12	38.38	44.10	47.81	54	-6.19	AV
Middle Channel (5785 MHz)-Above 1G									
V	4592.136	62.57	6.48	36.35	44.05	61.35	74	-12.65	PK
V	4592.136	43.96	6.48	36.35	44.05	42.74	54	-11.26	AV
V	11570.146	57.39	8.47	37.88	44.51	59.23	68.2	-8.97	PK
V	11570.146	43.22	8.47	37.88	44.51	45.06	54	-8.94	AV
V	17355.126	59.12	10.12	38.80	44.10	63.94	68.2	-4.26	PK
V	17355.126	43.29	10.12	38.80	42.70	49.51	54	-4.49	AV
H	4592.045	59.10	6.48	36.37	44.05	57.90	74	-16.10	PK
H	4592.045	43.57	6.48	36.37	44.05	42.37	54	-11.63	AV
H	11570.088	54.63	8.47	38.64	44.50	57.24	68.2	-10.96	PK
H	11570.088	41.69	8.47	38.64	44.50	44.30	54	-9.70	AV
H	17355.107	51.53	10.12	38.38	44.10	55.93	68.2	-12.27	PK
H	17355.107	41.19	10.12	38.38	44.10	45.59	54	-8.41	AV
High Channel (5825 MHz)-Above 1G									
V	6039.099	58.35	7.10	37.24	43.50	59.19	68.2	-9.01	PK
V	6039.099	43.77	7.10	37.24	43.50	44.61	54	-9.39	AV
V	11650.196	56.07	8.46	37.68	44.50	57.71	74	-16.29	PK
V	11650.196	43.22	8.46	37.68	44.50	44.86	54	-9.14	AV
V	17475.048	59.80	10.12	38.80	44.10	64.62	68.2	-3.58	PK
V	17475.048	43.07	10.12	38.80	42.70	49.29	54	-4.71	AV
H	6039.008	57.83	7.10	37.24	43.50	58.67	68.2	-9.53	PK
H	6039.008	43.23	7.10	37.24	43.50	44.07	54	-9.93	AV
H	11650.134	51.42	8.46	38.57	44.50	53.95	74	-20.05	PK
H	11650.134	42.91	8.46	38.57	44.50	45.44	54	-8.56	AV
H	17475.179	52.93	10.12	38.38	44.10	57.33	68.2	-10.87	PK
H	17475.179	42.47	10.12	38.38	44.10	46.87	54	-7.13	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-HT40

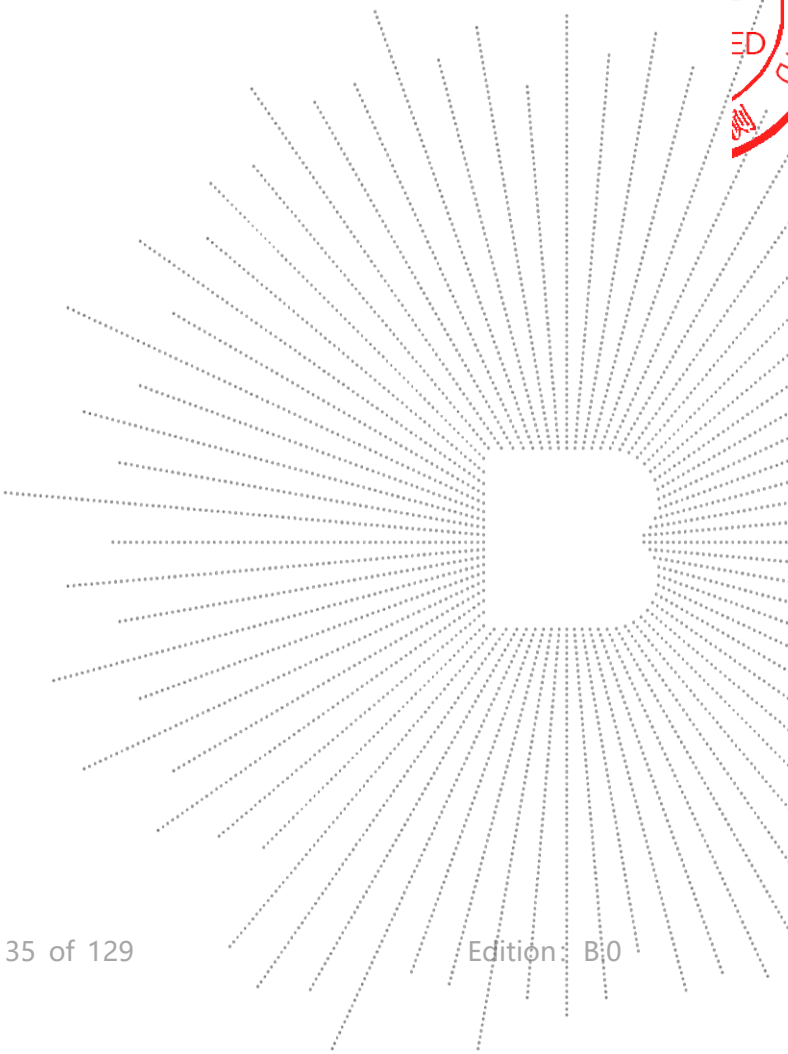
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5755 MHz)-Above 1G									
V	4679.192	58.48	5.94	35.40	44.00	55.82	74	-18.18	PK
V	4679.192	43.13	5.94	35.40	44.00	40.47	54	-13.53	AV
V	11510.094	55.64	8.46	39.75	44.50	59.35	74	-14.65	PK
V	11510.094	43.58	8.46	39.75	44.50	47.29	54	-6.71	AV
V	17265.194	56.79	10.12	38.80	44.10	61.61	68.2	-6.59	PK
V	17265.194	43.73	10.12	38.80	42.70	49.95	54	-4.05	AV
H	4679.157	58.07	5.94	35.18	44.00	55.19	74	-18.81	PK
H	4679.157	43.70	5.94	35.18	44.00	40.82	54	-13.18	AV
H	11510.010	50.68	8.46	38.71	44.50	53.35	74	-20.65	PK
H	11510.010	44.37	8.46	38.71	44.50	47.04	54	-6.96	AV
H	17265.182	50.36	10.12	38.38	44.10	54.76	68.2	-13.44	PK
H	17265.182	40.60	10.12	38.38	44.10	45.00	54	-9.00	AV
High Channel (5795 MHz)-Above 1G									
V	6039.017	59.37	6.48	36.35	44.05	58.15	68.2	-10.05	PK
V	6039.017	43.41	6.48	36.35	44.05	42.19	54	-11.81	AV
V	11590.061	57.23	8.47	37.88	44.51	59.07	74	-14.93	PK
V	11590.061	43.52	8.47	37.88	44.51	45.36	54	-8.64	AV
V	17385.017	56.00	10.12	38.80	44.10	60.82	68.2	-7.38	PK
V	17385.017	41.80	10.12	38.80	42.70	48.02	54	-5.98	AV
H	6039.152	57.25	6.48	36.37	44.05	56.05	68.2	-12.15	PK
H	6039.152	43.04	6.48	36.37	44.05	41.84	54	-12.16	AV
H	11590.126	50.81	8.47	38.64	44.50	53.42	74	-20.58	PK
H	11590.126	41.78	8.47	38.64	44.50	44.39	54	-9.61	AV
H	17385.038	54.92	10.12	38.38	44.10	59.32	68.2	-8.88	PK
H	17385.038	44.72	10.12	38.38	44.10	49.12	54	-4.88	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

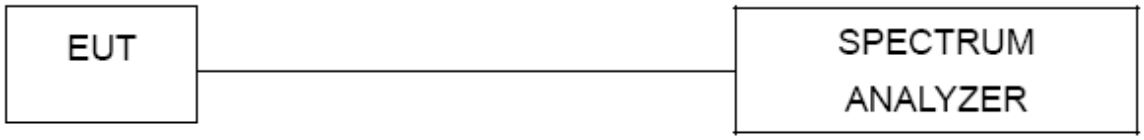
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
(5775 MHz)-Above 1G									
V	4679.179	57.41	5.94	35.40	44.00	54.75	74	-19.25	PK
V	4679.179	43.90	5.94	35.40	44.00	41.24	54	-12.76	AV
V	11550.020	55.27	8.46	39.75	44.50	58.98	74	-15.02	PK
V	11550.020	43.97	8.46	39.75	44.50	47.68	54	-6.32	AV
V	17325.113	60.82	10.12	38.80	44.10	65.64	68.2	-2.56	PK
V	17325.113	41.53	10.12	38.80	42.70	47.75	54	-6.25	AV
H	4679.060	57.74	5.94	35.18	44.00	54.86	74	-19.14	PK
H	4679.060	43.06	5.94	35.18	44.00	40.18	54	-13.82	AV
H	11550.164	54.28	8.46	38.71	44.50	56.95	74	-17.05	PK
H	11550.164	43.65	8.46	38.71	44.50	46.32	54	-7.68	AV
H	17325.058	54.82	10.12	38.38	44.10	59.22	68.2	-8.98	PK
H	17325.058	43.53	10.12	38.38	44.10	47.93	54	-6.07	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 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.

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 ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/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 10log(1MHz/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 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 3.3V
Test Mode ：	TX Frequency U-NII-1 (5180-5240MHz)		

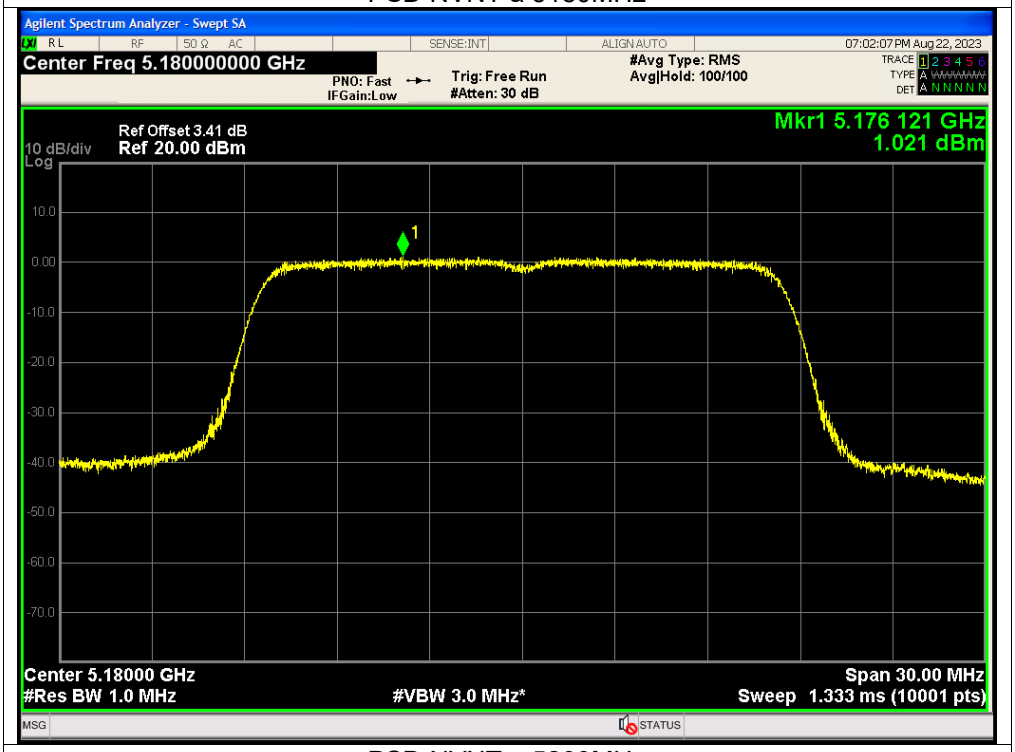
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

Mode	Frequency	Measured Power Density (dBm/MHz)			Limit (dBm/MHz)	Result
		ANT A	ANT B	Total		
802.11 a	5180 MHz	-0.07	1.02	/	11	PASS
	5200 MHz	-0.26	0.9	/	11	PASS
	5240 MHz	-1.14	-0.65	/	11	PASS
802.11 n20	5180 MHz	-1.52	-0.65	1.95	10.44	PASS
	5200 MHz	-1.84	-1.38	1.41	10.44	PASS
	5240 MHz	-2.56	-2.37	0.55	10.44	PASS
802.11 n40	5190 MHz	-5.3	-5.03	-2.15	10.44	PASS
	5230 MHz	-6.39	-5.96	-3.16	10.44	PASS
802.11 ac20	5180 MHz	-1.33	-0.78	1.96	10.44	PASS
	5200 MHz	-1.57	-1.34	1.56	10.44	PASS
	5240 MHz	-2.74	-2.29	0.50	10.44	PASS
802.11 ac40	5190 MHz	-4.98	-4.74	-1.85	10.44	PASS
	5230 MHz	-6.47	-6.27	-3.36	10.44	PASS
802.11 AC80	5210 MHz	-10.03	-10.07	-7.04	10.44	PASS

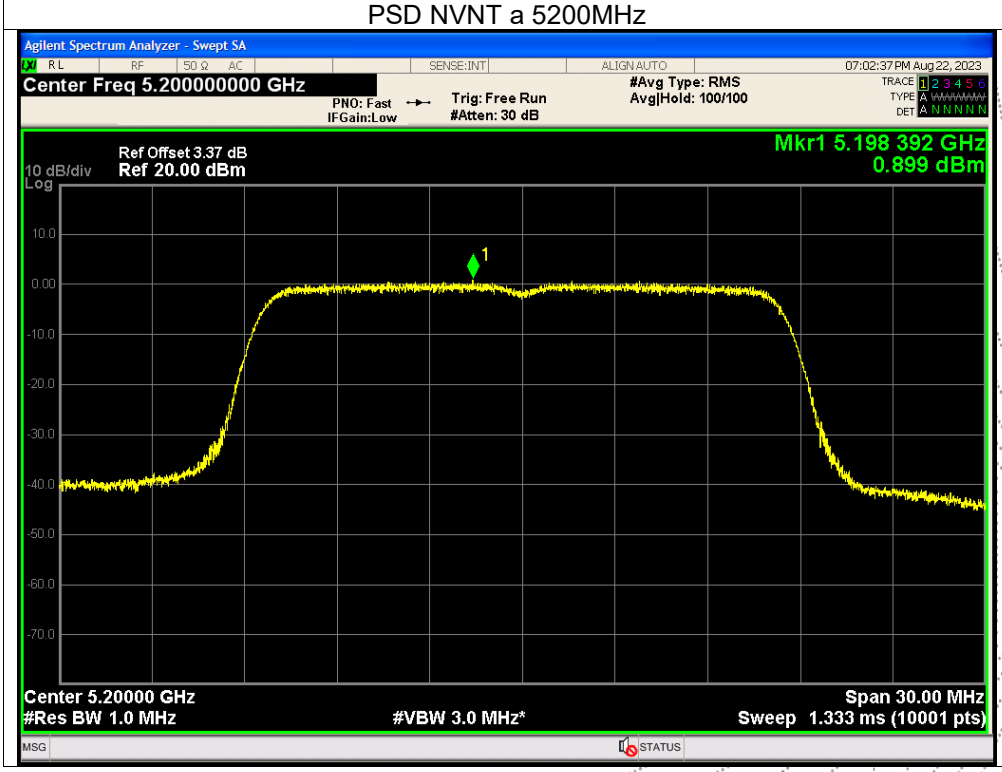
Note: For power spectral density(PSD) measurements,
Array Gain=10log(NANT/NSS)dB=10log(2/1)=3.01 dBi,
So the directional gain for PSD is 6.56 dBi
For MIMO mode:
Antenna A gain:3.25dBi, Antenna B gain: 3.55dBi, Directional gain=GANT+10 log(NANT/NSS) dBi=6.41dBi
6.56dbi>6.0 dbi so power limit= 11-(6.56-6.0)=10.44

Test Graphs

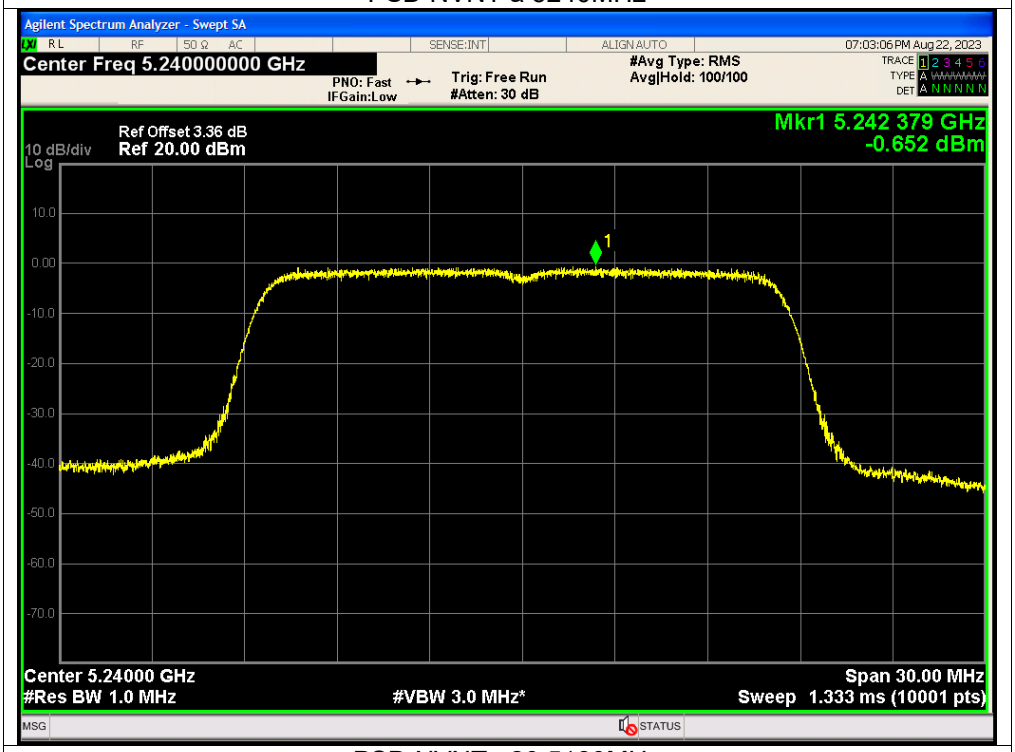
PSD NVNT a 5180MHz



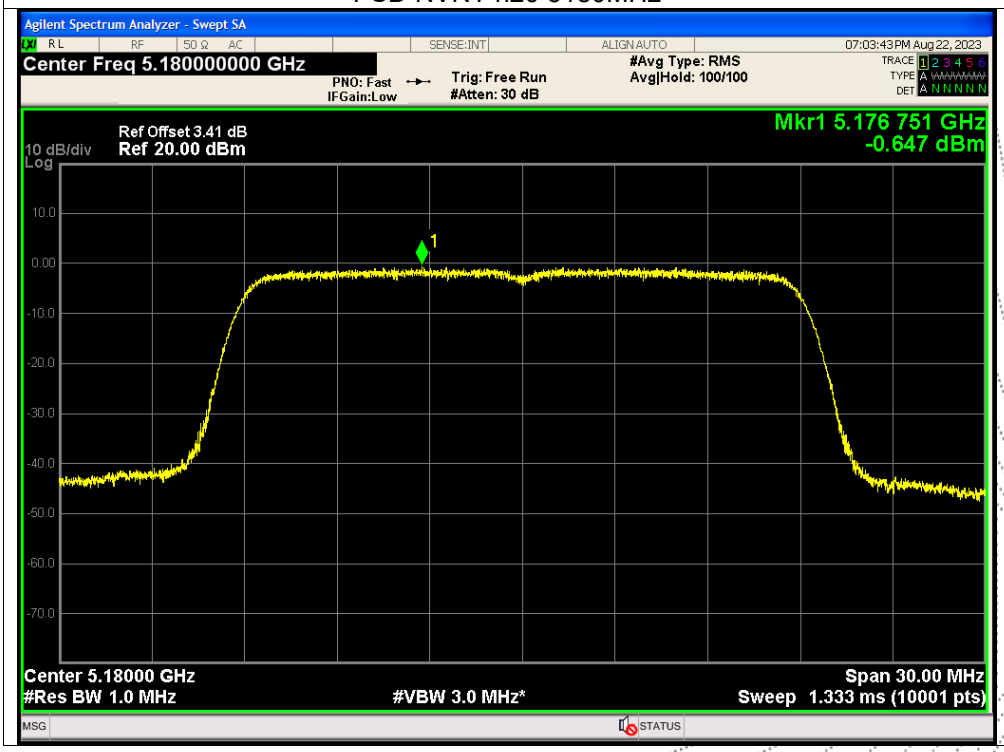
PSD NVNT a 5200MHz



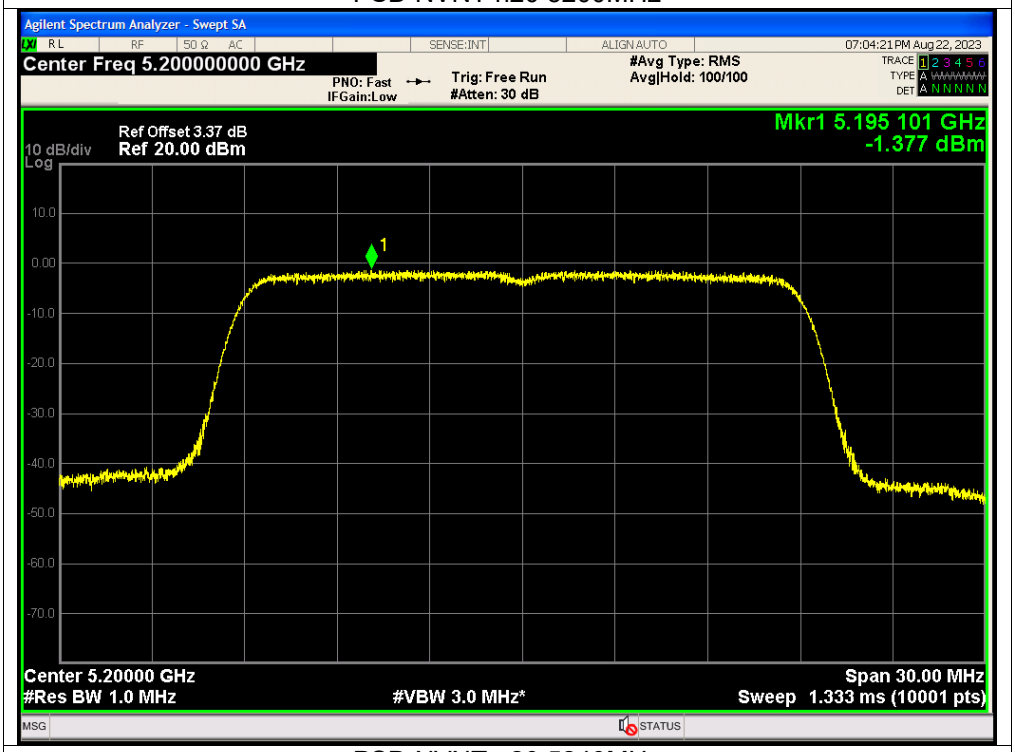
PSD NVNT a 5240MHz



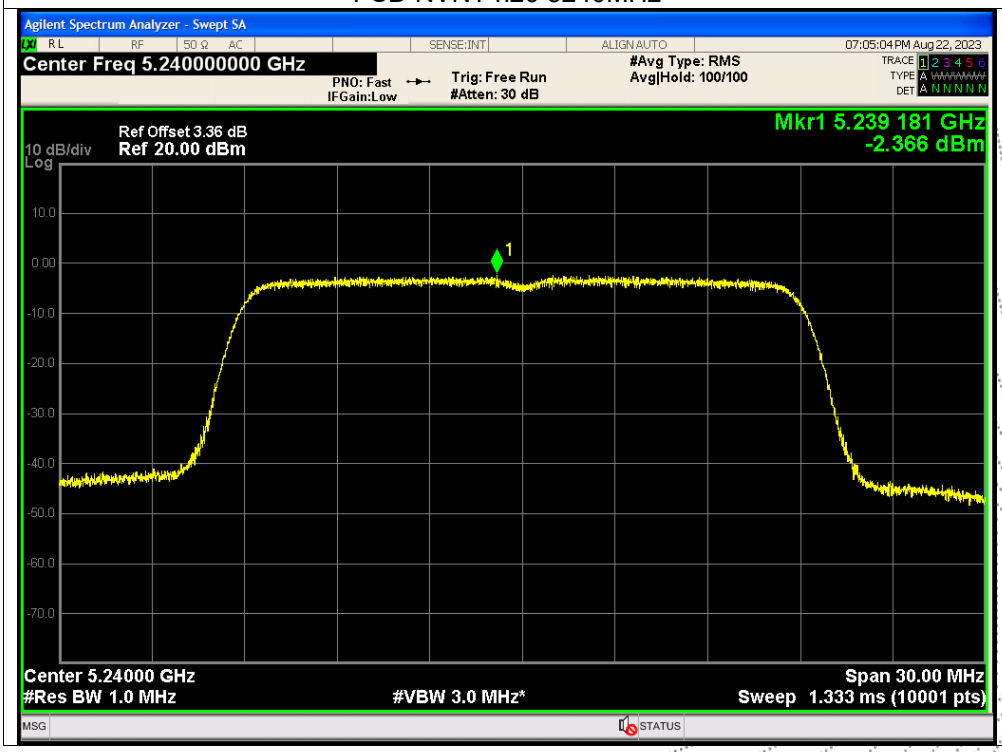
PSD NVNT n20 5180MHz



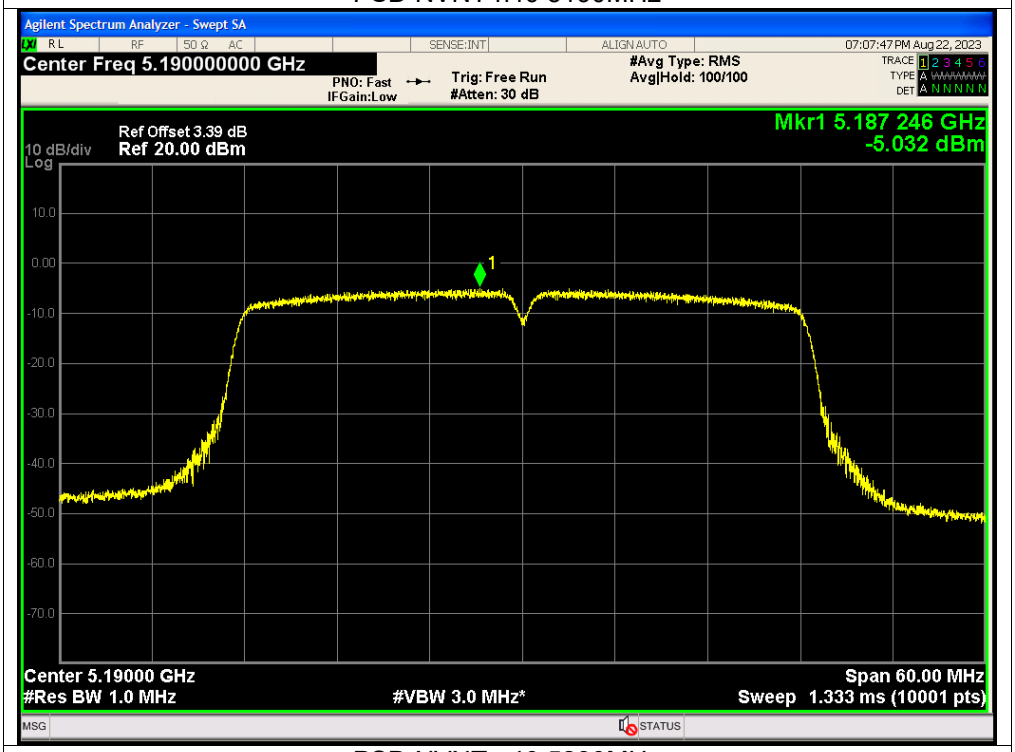
PSD NVNT n20 5200MHz



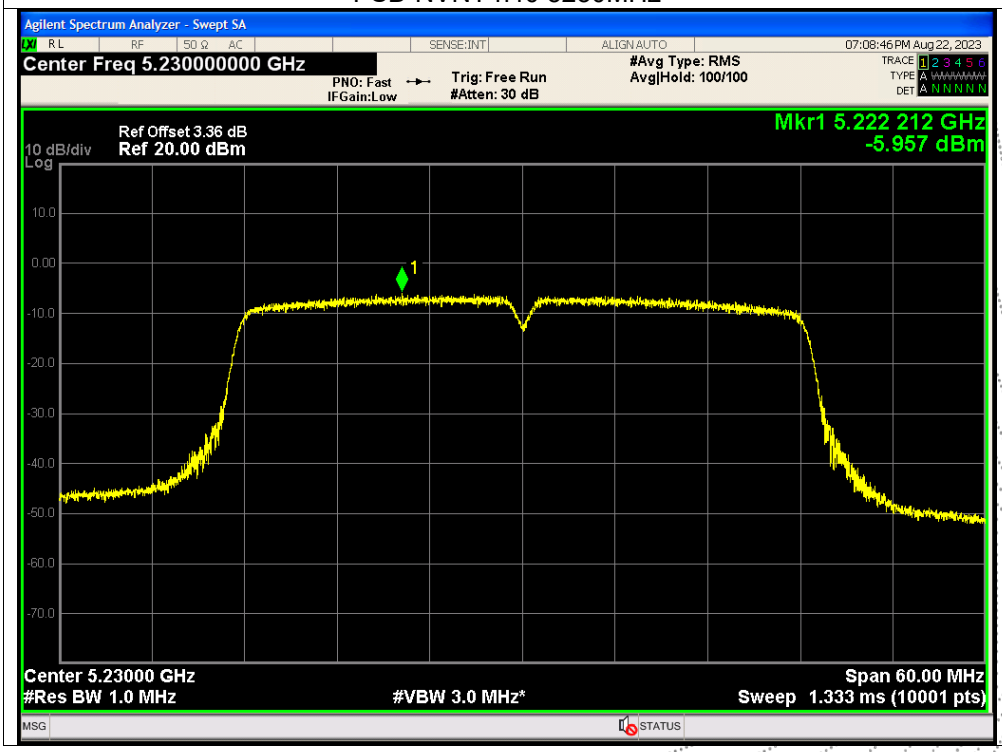
PSD NVNT n20 5240MHz



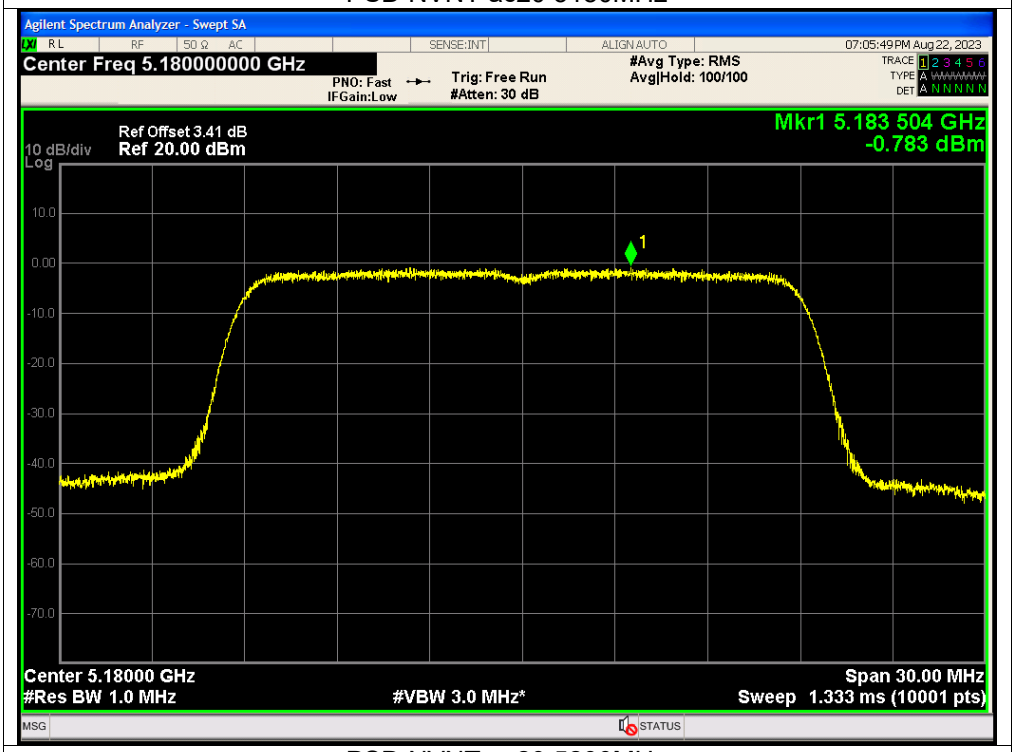
PSD NVNT n40 5190MHz



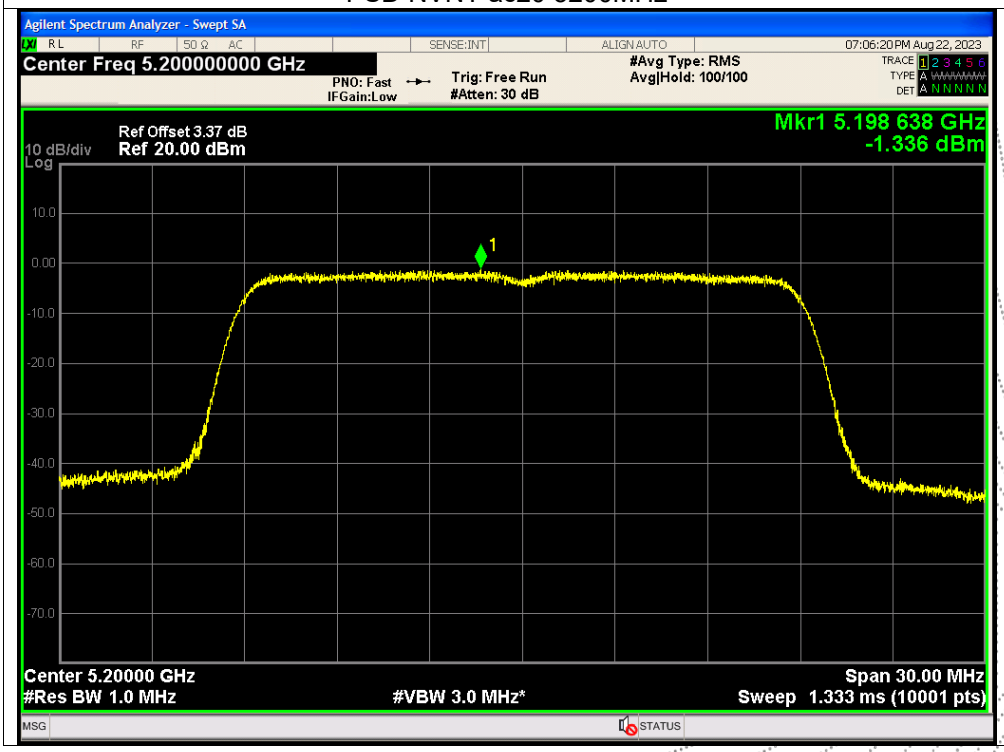
PSD NVNT n40 5230MHz



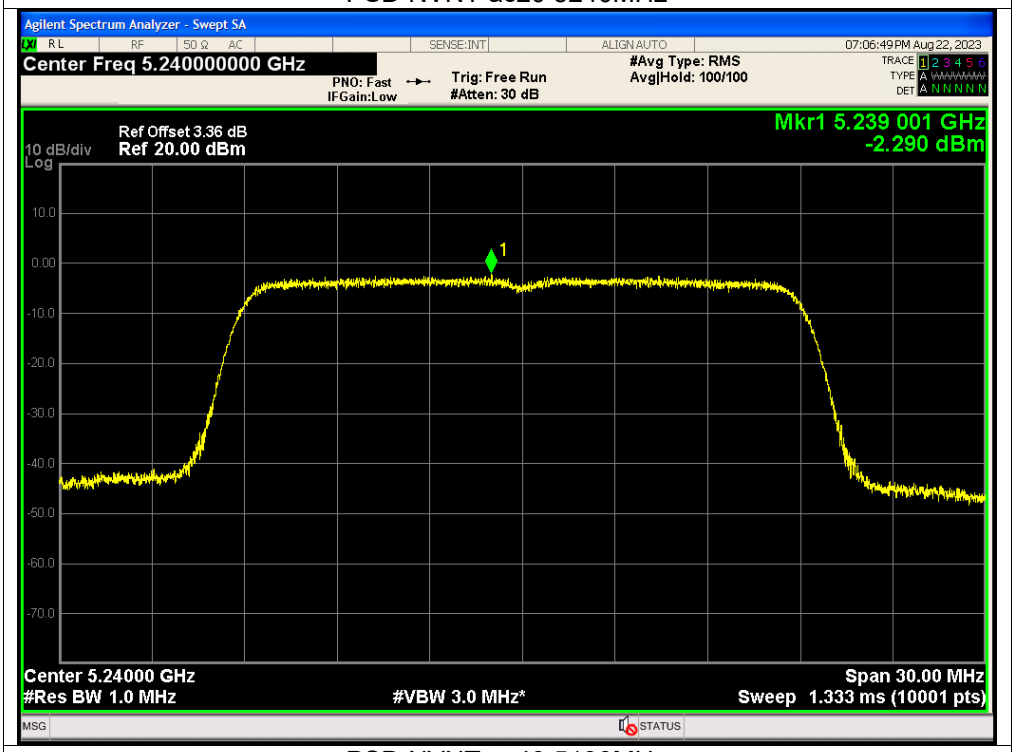
PSD NVNT ac20 5180MHz



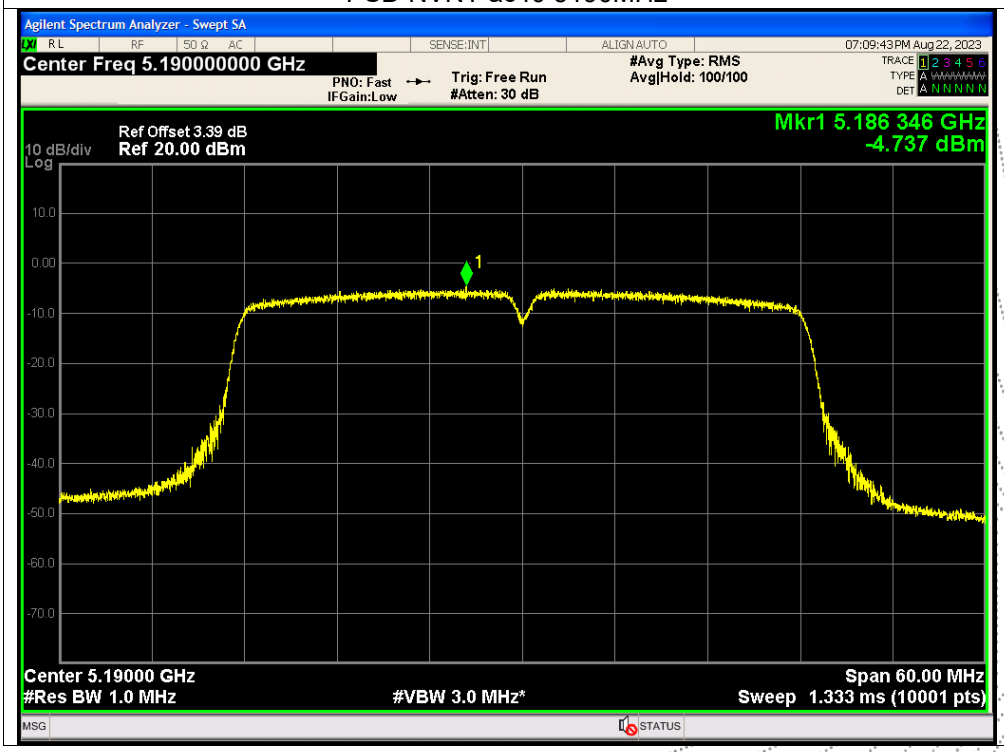
PSD NVNT ac20 5200MHz



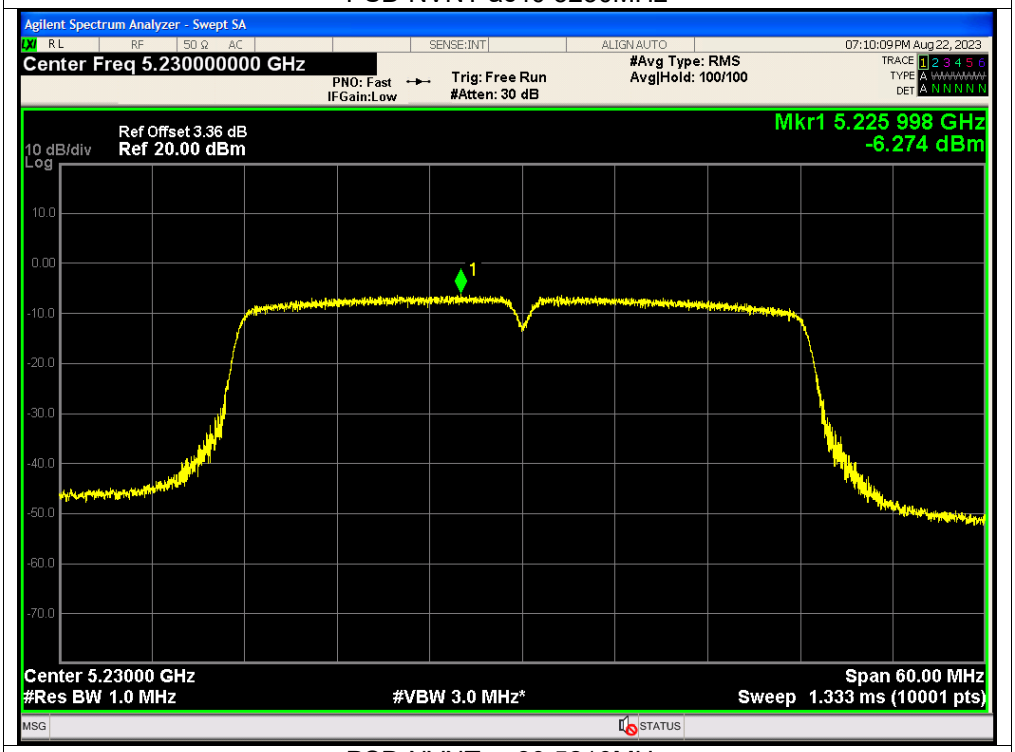
PSD NVNT ac20 5240MHz



PSD NVNT ac40 5190MHz



PSD NVNT ac40 5230MHz



PSD NVNT ac80 5210MHz