TEST REPORT

Report No.:	BCTC2407026189-3E
Applicant:	Shenzhen Whale Vision Technology Co., Ltd
Product Name:	WiFi Camera
Test Model:	JS-L01
Tested Date:	2024-07-22 to 2024-08-06
Issued Date:	2024-08-19

Shenzhen BCTC Testing Co., Ltd.

FCC ID:2AW24JS-L01

Product Name:	WiFi Camera
Trademark:	N/A
Model/Type Reference:	JS-L01,JS-L02,JS-L03, JS-L04,JS-L05,JS-L06,JS-K259, JS-P158,JS-P159, JS-P160,JS-P161,JS-P162, JS-P163, JS-R01,JS-R02,JS-R03,JS-R04, JS-P167,JS-P168, JS-K268, JS-G05, JS-G02,JS-G08,JS- GL09,JN-LB4AB, JN-LB4AB-2, JS-B01,JS-B02,JS-PL01,JS-PLX,JS-BLX, (X Can be 01~99)
Prepared For:	Shenzhen Whale Vision Technology Co., Ltd
Address:	Room 510-511, Building A8, Peking University Sci-Tech Park, 3000-1 Songbai Road, Shiyan Town, Bao'an District, Shenzhen, China
Manufacturer:	Shenzhen Whale Vision Technology Co., Ltd
Address:	Room 510-511, Building A8, Peking University Sci-Tech Park, 3000-1 Songbai Road, Shiyan Town, Bao'an District, 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:	2024-07-22
Sample Tested Date:	2024-07-22 to 2024-08-06
Report No.:	BCTC2407026189-3E
Test Standards:	FCC Part15 15.407 ANSI C63.10-2013 KDB 662911 D01 v02r01 KDB 789033 D02 v02r01
Test Results:	PASS

Tested by:

Brave Zeng/ 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

Test Report Declaration Page
1. Version 5
2. Test Summary 6
3. Measurement Uncertainty 7
4. Product Information And Test Setup 8
4.1 Product Information 8
4.2 Test Setup Configuration 9
4.3 Support Equipment 9
4.4 Channel List 10
4.5 Test Mode 11
4.6 Table Of Parameters Of Text Software Setting 11
5. Test Facility And Test Instrument Used 12
5.1 Test Facility 12
5.2 Test Instrument Used 12
6. Conducted Emissions 14
6.1 Block Diagram Of Test Setup 14
6.2 Limit 14
6.3 Test procedure 14
6.4 EUT operating Conditions 14
6.5 Test Result 15
7. Radiated Emissions 17
7.1 Block Diagram Of Test Setup 17
7.2 Limit 18
7.3 Test Procedure 19
7.4 EUT Operating Conditions 20
7.5 Test Result 20
8. Power Spectral Density Test 38
8.1 Block Diagram Of Test Setup 38
8.2 Limit 38
8.3 Test Procedure 39
8.4 EUT Operating Conditions 39
8.5 Test Result 40
9. 26dB & 6dB & 99% Emission Bandwidth 61
9.1 Block Diagram Of Test Setup 61
9.2 Limit 61
9.3 Test Procedure 61
9.4 EUT Operating Conditions 62
9.5 Test Result 63
10. Maximum Conducted Output Power 101
10.1 Block Diagram Of Test Setup 101
10.2 Limit 101
10.3 Test Procedure 101
10.4 EUT Operating Conditions 102
10.5 Test Result 103

11. Out Of Band Emissions 105
11.1 Block Diagram Of Test Setup 105
11.2 Limit 105
11.3 Test Procedure 105
11.4 EUT Operating Conditions 105
11.5 Test Result 106
12. Spurious RF Conducted Emissions 118
12.1 Block Diagram Of Test Setup 118
12.2 Limit 118
12.3 Test Procedure 118
12.4 Test Result 118
13. Frequency Stability Measurement 136
13.1 Block Diagram Of Test Setup 136
13.2 Limit 136
13.3 Test Procedure 136
13.4 Test Result 137
14. Duty Cycle Of Test Signal 149
14.1 Standard Requirement 149
14.2 Formula 149
14.3 Test Procedure 149
14.4 Test Result 149
15. Antenna Requirement 151
15.1 Limit 151
15.2 Test Result 151
16. EUT Test Setup Photographs 152

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2407026189-3E	2024-08-19	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)	PASS
2	Conducted Emission	15.207	PASS
3	26 dB and 99% Emission Bandwidth	15.407 a 15.1049	PASS
4	Minimum 6 dB bandwidth	15.407(e)	PASS
5	Maximum Conducted Output Power	15.407 a	PASS
6	Band Edge	15.407 b	PASS
7	Power Spectral Density	15.407 a	PASS
8	Spurious Emissions at Antenna Terminals	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(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

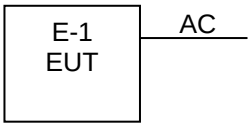
4.1 Product Information

Model/Type reference:	JS-L01,JS-L02,JS-L03, JS-L04,JS-L05,JS-L06,JS-K259, JS-P158,JS-P159, JS-P160,JS-P161,JS-P162, JS-P163, JS-R01,JS-R02,JS-R03,JS-R04, JS-P167,JS-P168, JS-K268, JS-G05, JS-G02,JS-G08,JS- GL09,JN-LB4AB, JN-LB4AB-2, JS-B01,JS-B02,JS-PL01,JS-PLX,JS-BLX, (X Can be 01~99)
Model differences:	The following models of units we produce are identical in electrical, mechanical and physical structure; The difference is only in the model name, we finally have JS-L01 as test model.
Device type:	Client
TPC Function:	☐ Applicable ☒Not Applicable
Hardware Version:	N/A
Software Version:	N/A
IEEE 802.11 WLAN Mode Supported:	802.11a/n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth)
Operation Frequency:	5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); 5260-5320MHz for 802.11a/n(HT20); 5270-5310MHz for 802.11n(HT40); 5500-5700MHz for 802.11a/n(HT20); 5410-5670MHz for 802.11n(HT40); 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11n(HT40);
Data Rate:	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15;
Type of Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n;
Antenna installation:	Internal antenna
Antenna Gain:	1.85 dBi
Ratings:	AC 120V/60Hz
Remark:	The antenna gain of the product is provided by the customer, and the test data is affected by the customer information.

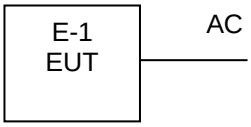
4.2 Test Setup Configuration

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 Camera	N/A	JS-L01	N/A	EUT
E-2	N/A	N/A	N/A	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	N/A	N/A	N/A	N/A

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

(U-NII-1) 5180MHz-5240MHz				
Bandwidth	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency**
20MHz	36	5180	40	5200
	44	5220	48	5240
40MHz	38	5190	46	5230
(U-NII-2A) 5260MHz-5320MHz				
Bandwidth	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency**
20MHz	52	5260	56	5280
	60	5300	64	5320
40MHz	54	5270	62	5310
(U-NII-2C) 5500MHz-5700MHz				
Bandwidth	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency**
20MHz	100	5500	105	5520
	108	5540	112	5560
	116	5580	132	5660
	136	5680	140	5700
40MHz	102	5510	110	5550
	134	5670	142	5710
(U-NII-3) 5745MHz-5825MHz				
Bandwidth	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency**
20MHz	149	5745	153	5765
	157	5785	161	5805
	165	5825		
40MHz	151	5755	159	5795

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/ 20 CH36/ CH40/ CH 48 802.11a / n/ 20 CH52/ CH56/ CH 64 802.11a / n/ 20 CH100/ CH116/ CH 140 802.11a /n/ 20 CH149/ CH157/ CH 165
Mode 2	802.11n40 CH38/ CH 46 802.11n40 CH54/ CH 62 802.11n CH102/ CH 110/CH134 802.11n40 CH 151 / CH 159
Mode 3	Link Mode

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

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

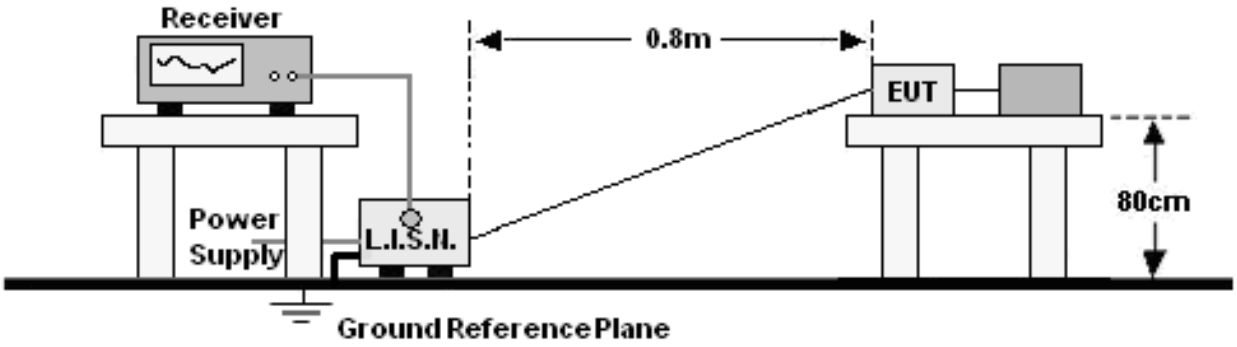
Conducted Emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025
LISN	R&S	ENV216	101375	May 16, 2024	May 15, 2025
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Pulse limiter	Schwarzbeck	VTSD 9561-F	01323	May 16, 2024	May 15, 2025

RF Conducted Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Power meter	Keysight	E4419	\	May 16, 2024	May 15, 2025
Power Sensor (AV)	Keysight	E9300A	\	May 16, 2024	May 15, 2025
Signal Analyzer20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 16, 2024	May 15, 2025
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 16, 2024	May 15, 2025

Radiated Emissions Test (966 Chamber)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	May 16, 2024	May 15, 2025
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025
Receiver	R&S	ESRP	101154	May 16, 2024	May 15, 2025
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 16, 2024	May 15, 2025
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 21, 2024	May 20, 2025
Loop Antenna(9KHz -30MHz)	Schwarzbeck	FMZB1519B	00014	May 21, 2024	May 20, 2025
Amplifier	SKET	LAPA_01G18G-45dB	SK2021040901	May 16, 2024	May 15, 2025
Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 21, 2024	May 20, 2025
Amplifier(18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	May 16, 2024	May 15, 2025
Horn Antenn(18GHz-40GHz)	Schwarzbeck	BBHA9170	00822	May 21, 2024	May 20, 2025
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 16, 2024	May 15, 2025
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

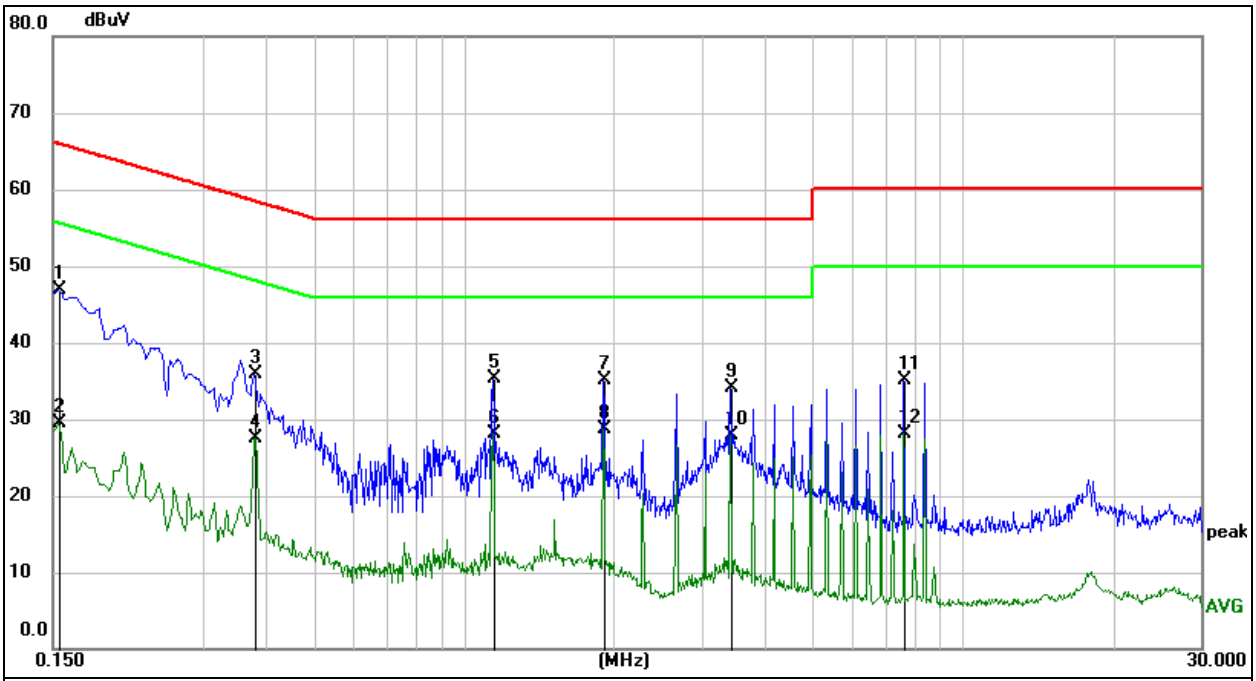
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak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

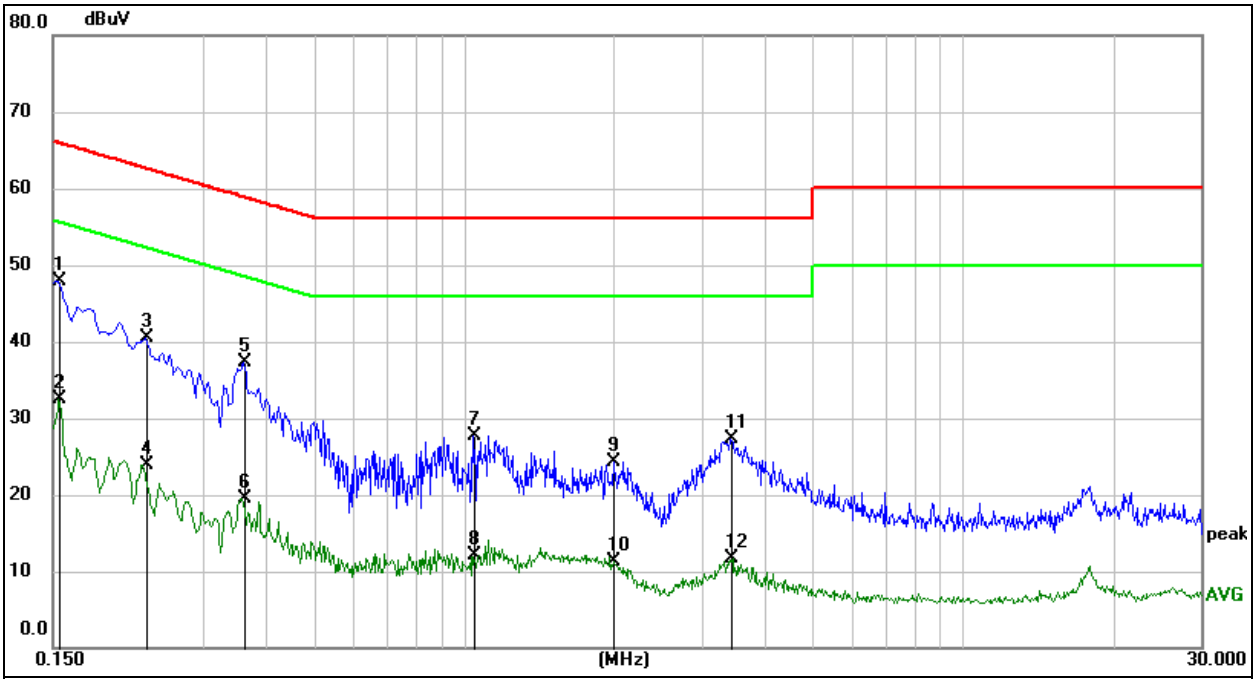
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	Mode 3	Polarization :	L



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.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1545	36.70	10.25	46.95	65.75	-18.80
2	0.1545	19.35	10.25	29.60	55.75	-26.15
3	0.3795	25.57	10.29	35.86	58.29	-22.43
4	0.3795	17.13	10.29	27.42	48.29	-20.87
5	1.1445	25.08	10.28	35.36	56.00	-20.64
6	1.1445	17.73	10.28	28.01	46.00	-17.99
7	1.9050	24.75	10.36	35.11	56.00	-20.89
8 *	1.9050	18.34	10.36	28.70	46.00	-17.30
9	3.4305	23.55	10.58	34.13	56.00	-21.87
10	3.4305	17.25	10.58	27.83	46.00	-18.17
11	7.6290	24.20	10.85	35.05	60.00	-24.95
12	7.6290	17.19	10.85	28.04	50.00	-21.96

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	Mode 3	Polarization :	N



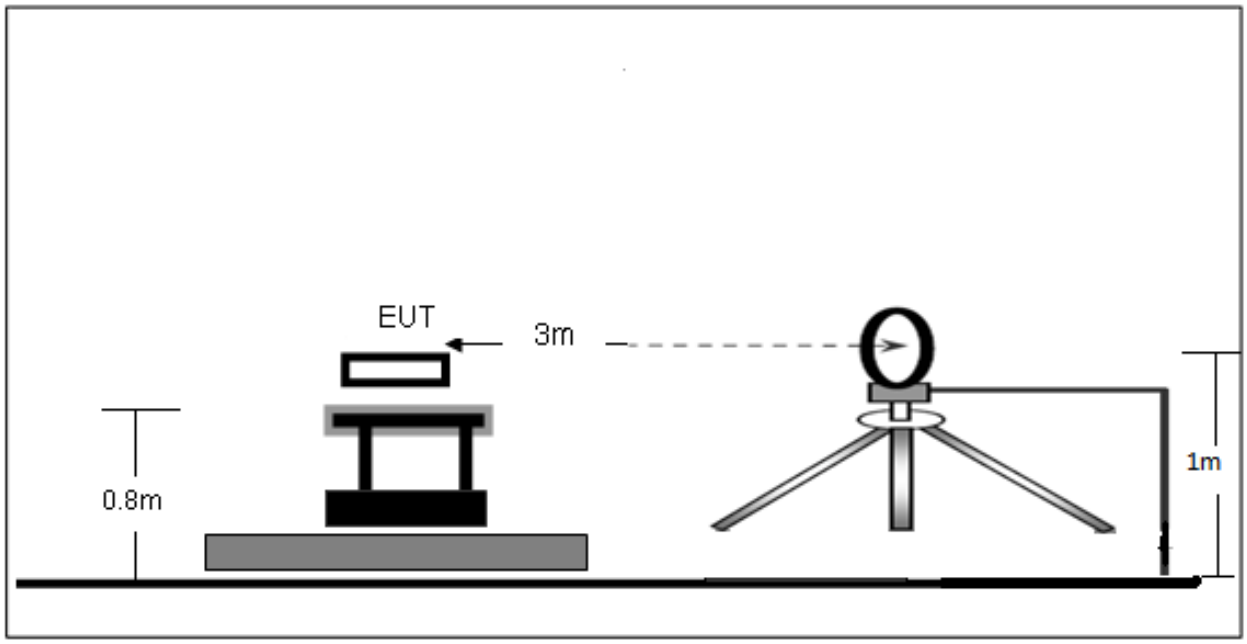
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1 *	0.1545	37.71	10.25	47.96	65.75	-17.79	QP
2	0.1545	22.31	10.25	32.56	55.75	-23.19	AVG
3	0.2310	30.18	10.27	40.45	62.41	-21.96	QP
4	0.2310	13.71	10.27	23.98	52.41	-28.43	AVG
5	0.3615	26.94	10.29	37.23	58.69	-21.46	QP
6	0.3615	9.22	10.29	19.51	48.69	-29.18	AVG
7	1.0455	17.46	10.27	27.73	56.00	-28.27	QP
8	1.0455	1.80	10.27	12.07	46.00	-33.93	AVG
9	1.9995	13.88	10.37	24.25	56.00	-31.75	QP
10	1.9995	0.89	10.37	11.26	46.00	-34.74	AVG
11	3.4215	16.63	10.58	27.21	56.00	-28.79	QP
12	3.4215	1.10	10.58	11.68	46.00	-34.32	AVG

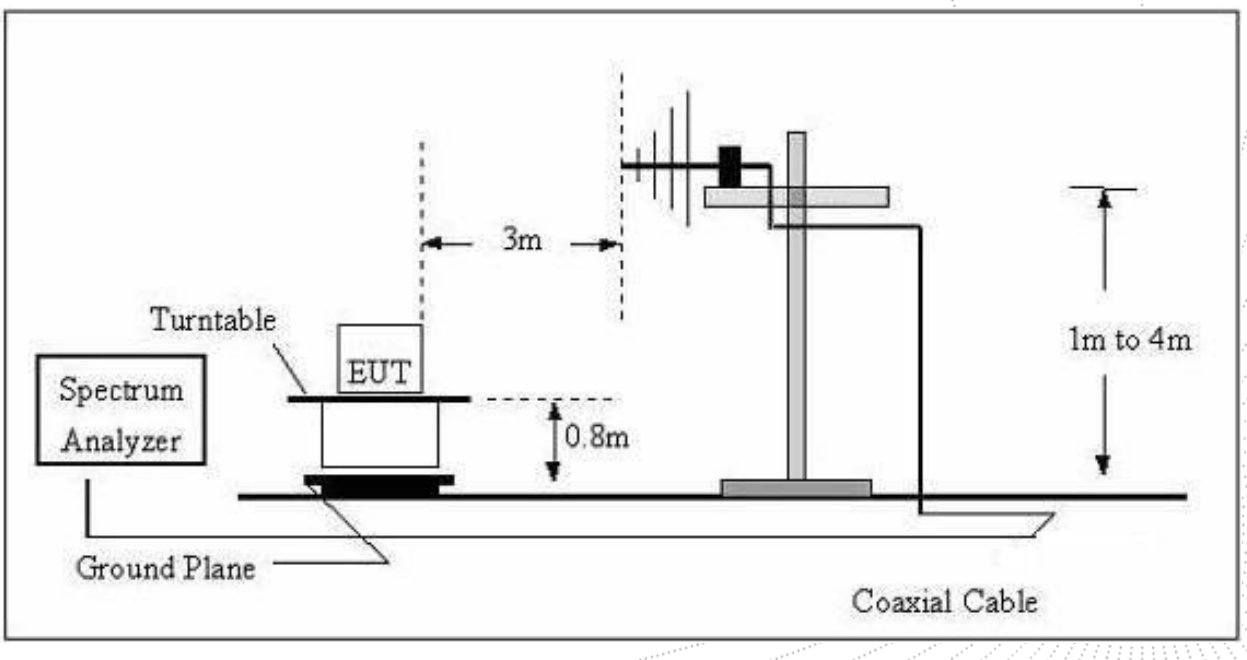
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

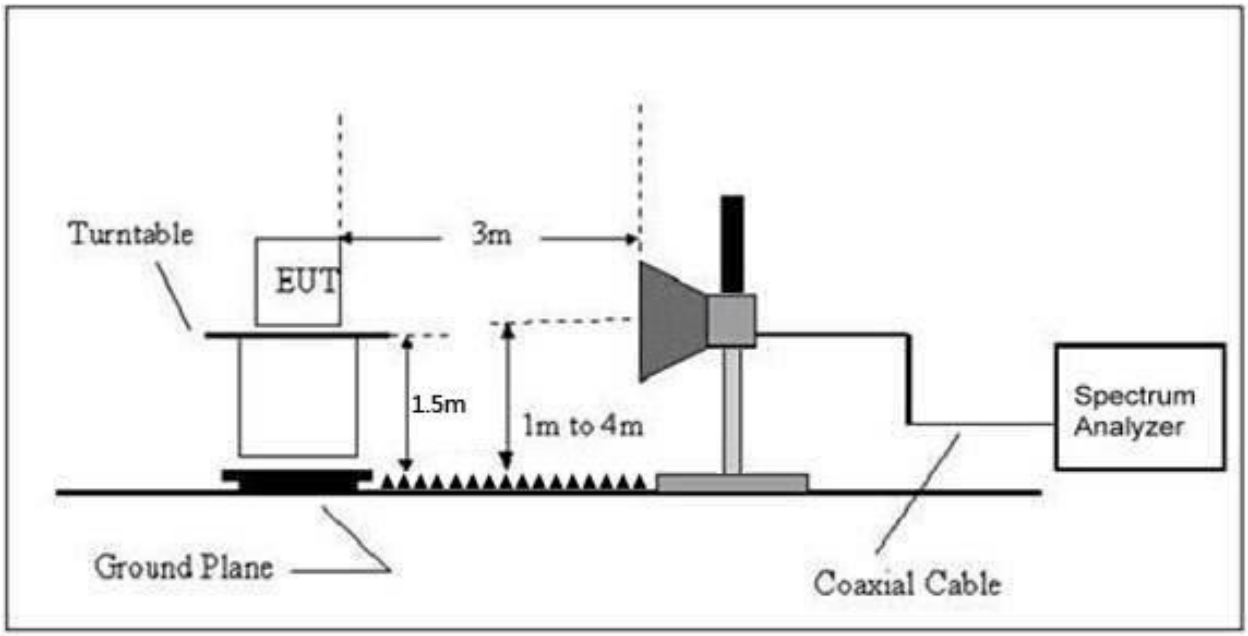
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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

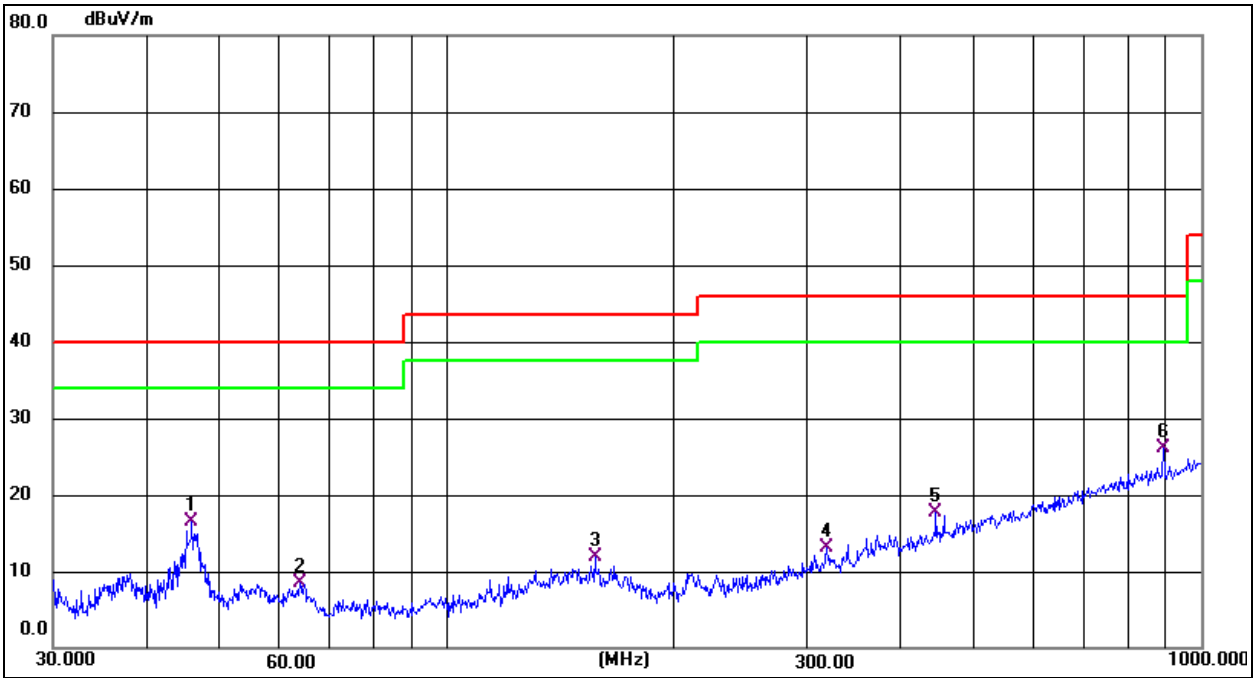
Temperature:	26℃	Relative Humidity:	24%
Pressure:	101 kPa	Test Voltage :	AC 120V/60Hz
Test Mode:	Mode 3	Polarization:	--

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

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

Between 30MHz – 1GHz

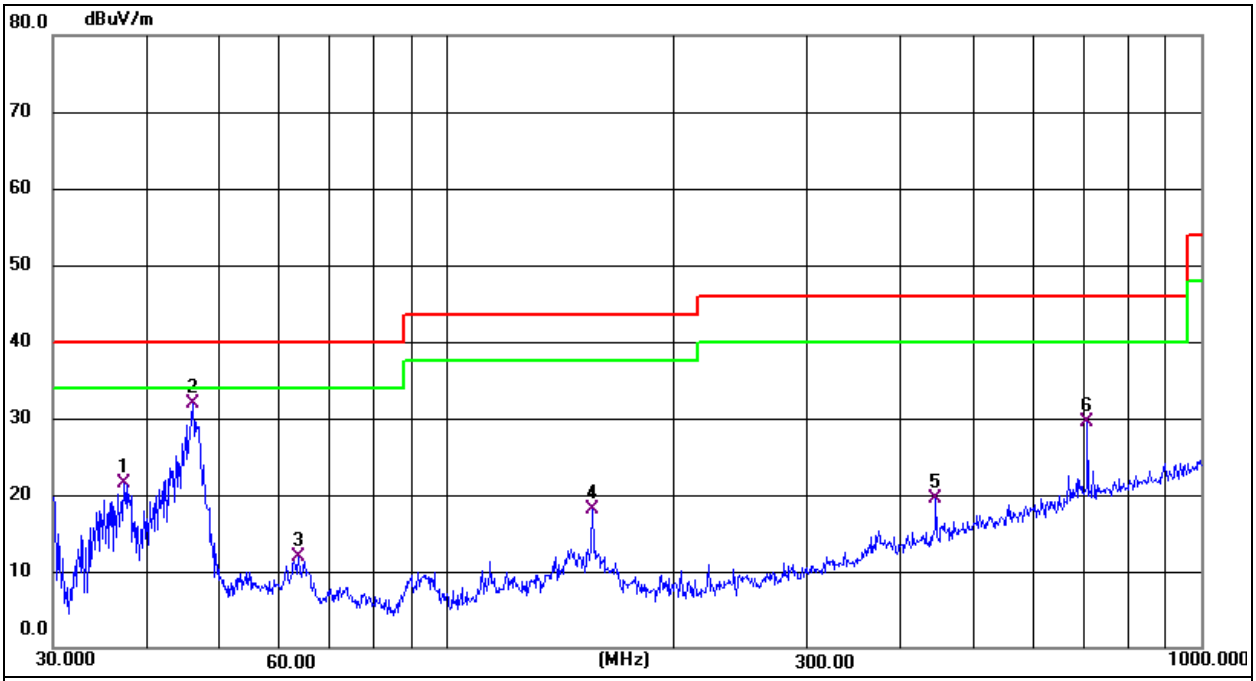
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Mode 3	Polarization :	Horizontal



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

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	45.8553	33.39	-16.85	16.54	40.00	-23.46	QP
2	63.7588	26.29	-17.80	8.49	40.00	-31.51	QP
3	157.0074	26.77	-14.82	11.95	43.50	-31.55	QP
4	318.8170	26.04	-12.99	13.05	46.00	-32.95	QP
5	444.8514	26.73	-9.07	17.66	46.00	-28.34	QP
6 *	890.7278	25.46	0.74	26.20	46.00	-19.80	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Mode 3	Polarization :	Vertical



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

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.2855	38.81	-17.24	21.57	40.00	-18.43	QP
2 *	46.0164	48.75	-16.85	31.90	40.00	-8.10	QP
3	63.5356	29.74	-17.76	11.98	40.00	-28.02	QP
4	155.9101	32.79	-14.75	18.04	43.50	-25.46	QP
5	444.8514	28.63	-9.07	19.56	46.00	-26.44	QP
6	706.6999	32.21	-2.66	29.55	46.00	-16.45	QP

Between 1GHz – 40GHz

Test Mode:	TX(5.1G) - 802.11a

Polar (H/V)	Fre-quency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measure-ment (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G							
Vertical	4434.154	70.74	-20.73	50.01	68.2	-18.19	PK
Vertical	4434.154	59.48	-20.73	38.75	54	-15.25	AV
Vertical	10360.184	61.40	-9.36	52.04	68.2	-16.16	PK
Vertical	10360.184	49.51	-9.36	40.15	54	-13.85	AV
Vertical	15540.191	63.05	-7.84	55.21	74	-18.79	PK
Vertical	15540.191	49.20	-7.84	41.36	54	-12.64	AV
Horizontal	4434.024	71.04	-20.73	50.31	68.2	-17.89	PK
Horizontal	4434.024	59.29	-20.73	38.56	54	-15.44	AV
Horizontal	10360.036	62.68	-9.36	53.32	68.2	-14.88	PK
Horizontal	10360.036	49.17	-9.36	39.81	54	-14.19	AV
Horizontal	15540.096	61.96	-7.84	54.12	74	-19.88	PK
Horizontal	15540.096	49.65	-7.84	41.81	54	-12.19	AV
middle Channel (5200 MHz)-Above 1G							
Vertical	4592.187	73.00	-20.42	52.58	74	-21.42	PK
Vertical	4592.187	59.12	-20.42	38.70	54	-15.30	AV
Vertical	10400.025	64.65	-9.30	55.35	68.2	-12.85	PK
Vertical	10400.025	49.08	-9.30	39.78	54	-14.22	AV
Vertical	15600.067	61.65	-7.82	53.83	74	-20.17	PK
Vertical	15600.067	49.33	-7.82	41.51	54	-12.49	AV
Horizontal	4592.119	71.05	-20.42	50.64	74	-23.36	PK
Horizontal	4592.119	59.38	-20.42	38.97	54	-15.03	AV
Horizontal	10400.062	61.24	-9.30	51.94	68.2	-16.26	PK
Horizontal	10400.062	49.33	-9.30	40.03	54	-13.97	AV
Horizontal	15600.188	60.40	-7.82	52.58	74	-21.42	PK
Horizontal	15600.188	49.67	-7.82	41.85	54	-12.15	AV
High Channel (5240 MHz)-Above 1G							
Vertical	4739.061	71.05	-20.12	50.93	74	-23.07	PK
Vertical	4739.061	59.23	-20.12	39.11	54	-14.89	AV
Vertical	10480.064	63.72	-9.18	54.54	68.2	-13.66	PK
Vertical	10480.064	49.64	-9.18	40.46	54	-13.54	AV
Vertical	15720.000	65.00	-7.78	57.22	74	-16.78	PK
Vertical	15720.000	49.01	-7.78	41.23	54	-12.77	AV
Horizontal	4739.163	74.10	-20.12	53.97	74	-20.03	PK
Horizontal	4739.163	59.90	-20.12	39.77	54	-14.23	AV
Horizontal	10480.127	60.38	-9.18	51.20	68.2	-17.00	PK
Horizontal	10480.127	49.03	-9.18	39.85	54	-14.15	AV
Horizontal	15720.106	60.11	-7.78	52.33	74	-21.67	PK
Horizontal	15720.106	49.67	-7.78	41.89	54	-12.11	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

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G							
Vertical	4434.059	71.97	-20.73	51.24	68.2	-16.96	PK
Vertical	4434.059	59.97	-20.73	39.23	54	-14.77	AV
Vertical	10360.164	64.00	-9.36	54.64	68.2	-13.56	PK
Vertical	10360.164	49.11	-9.36	39.75	54	-14.25	AV
Vertical	15540.187	63.26	-7.84	55.42	74	-18.58	PK
Vertical	15540.187	49.11	-7.84	41.27	54	-12.73	AV
Horizontal	4434.147	72.42	-20.73	51.69	68.2	-16.51	PK
Horizontal	4434.147	59.29	-20.73	38.55	54	-15.45	AV
Horizontal	10360.127	64.88	-9.36	55.52	68.2	-12.68	PK
Horizontal	10360.127	49.58	-9.36	40.22	54	-13.78	AV
Horizontal	15540.180	60.83	-7.84	52.99	74	-21.01	PK
Horizontal	15540.180	49.48	-7.84	41.64	54	-12.36	AV
middle Channel (5200 MHz)-Above 1G							
Vertical	4592.099	71.03	-20.42	50.61	74	-23.39	PK
Vertical	4592.099	59.63	-20.42	39.21	54	-14.79	AV
Vertical	10400.067	61.82	-9.30	52.52	68.2	-15.68	PK
Vertical	10400.067	49.26	-9.30	39.96	54	-14.04	AV
Vertical	15600.147	61.94	-7.82	54.12	74	-19.88	PK
Vertical	15600.147	49.03	-7.82	41.21	54	-12.79	AV
Horizontal	4592.082	73.10	-20.42	52.69	74	-21.31	PK
Horizontal	4592.082	59.66	-20.42	39.24	54	-14.76	AV
Horizontal	10400.102	62.61	-9.30	53.31	68.2	-14.89	PK
Horizontal	10400.102	49.60	-9.30	40.30	54	-13.70	AV
Horizontal	15600.035	61.57	-7.82	53.75	74	-20.25	PK
Horizontal	15600.035	49.27	-7.82	41.45	54	-12.55	AV
High Channel (5240 MHz)-Above 1G							
Vertical	4739.062	70.34	-20.12	50.21	74	-23.79	PK
Vertical	4739.062	59.20	-20.12	39.08	54	-14.92	AV
Vertical	10480.111	64.62	-9.18	55.44	68.2	-12.76	PK
Vertical	10480.111	49.85	-9.18	40.67	54	-13.33	AV
Vertical	15720.153	60.82	-7.78	53.04	74	-20.96	PK
Vertical	15720.153	49.23	-7.78	41.45	54	-12.55	AV
Horizontal	4739.096	73.85	-20.12	53.72	74	-20.28	PK
Horizontal	4739.096	59.47	-20.12	39.35	54	-14.65	AV
Horizontal	10480.099	61.17	-9.18	51.99	68.2	-16.21	PK
Horizontal	10480.099	49.84	-9.18	40.66	54	-13.34	AV
Horizontal	15720.025	60.72	-7.78	52.94	74	-21.06	PK
Horizontal	15720.025	49.19	-7.78	41.41	54	-12.59	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-HT40

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5190 MHz)-Above 1G							
Vertical	4434.086	72.90	-20.73	52.17	68.2	-16.03	PK
Vertical	4434.086	59.77	-20.73	39.04	54	-14.96	AV
Vertical	10380.120	63.78	-9.33	54.45	68.2	-13.75	PK
Vertical	10380.120	49.71	-9.33	40.38	54	-13.62	AV
Vertical	15570.019	60.39	-7.83	52.56	74	-21.44	PK
Vertical	15570.019	49.21	-7.83	41.38	54	-12.62	AV
Horizontal	4434.175	71.99	-20.73	51.26	74	-22.74	PK
Horizontal	4434.175	59.92	-20.73	39.18	54	-14.82	AV
Horizontal	10380.167	64.08	-9.33	54.75	68.2	-13.45	PK
Horizontal	10380.167	49.47	-9.33	40.14	54	-13.86	AV
Horizontal	15570.110	63.04	-7.83	55.21	74	-18.79	PK
Horizontal	15570.110	49.62	-7.83	41.79	54	-12.21	AV
High Channel (5230 MHz)-Above 1G							
Vertical	4739.172	72.55	-20.12	52.43	68.2	-15.77	PK
Vertical	4739.172	59.11	-20.12	38.99	54	-15.01	AV
Vertical	10460.053	62.57	-9.21	53.36	68.2	-14.84	PK
Vertical	10460.053	49.27	-9.21	40.06	54	-13.94	AV
Vertical	15690.008	63.46	-7.79	55.67	74	-18.33	PK
Vertical	15690.008	49.92	-7.79	42.13	54	-11.87	AV
Horizontal	4739.198	73.94	-20.12	53.82	68.2	-14.38	PK
Horizontal	4739.198	60.00	-20.12	39.88	54	-14.12	AV
Horizontal	10460.107	61.16	-9.21	51.95	68.2	-16.25	PK
Horizontal	10460.107	49.09	-9.21	39.88	54	-14.12	AV
Horizontal	15690.117	64.84	-7.79	57.05	74	-16.95	PK
Horizontal	15690.117	49.51	-7.79	41.72	54	-12.28	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.

- ☒Undesirable radiated Undesirable radiated Spurious Emission in Band Edge
- All the modes 802.11a/n/ac has been tested and the worst result 802.11ac recorded as below:

Test mode: 802.11ac Frequency(MHz): 5180

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5149.800	H	64.46	74	46.03	54
5149.500	V	60.98	74	39.43	54

Test mode: 802.11ac Frequency(MHz): 5320

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5300.800	H	43.17	74	27.27	54
5300.200	V	43.62	74	27.48	54

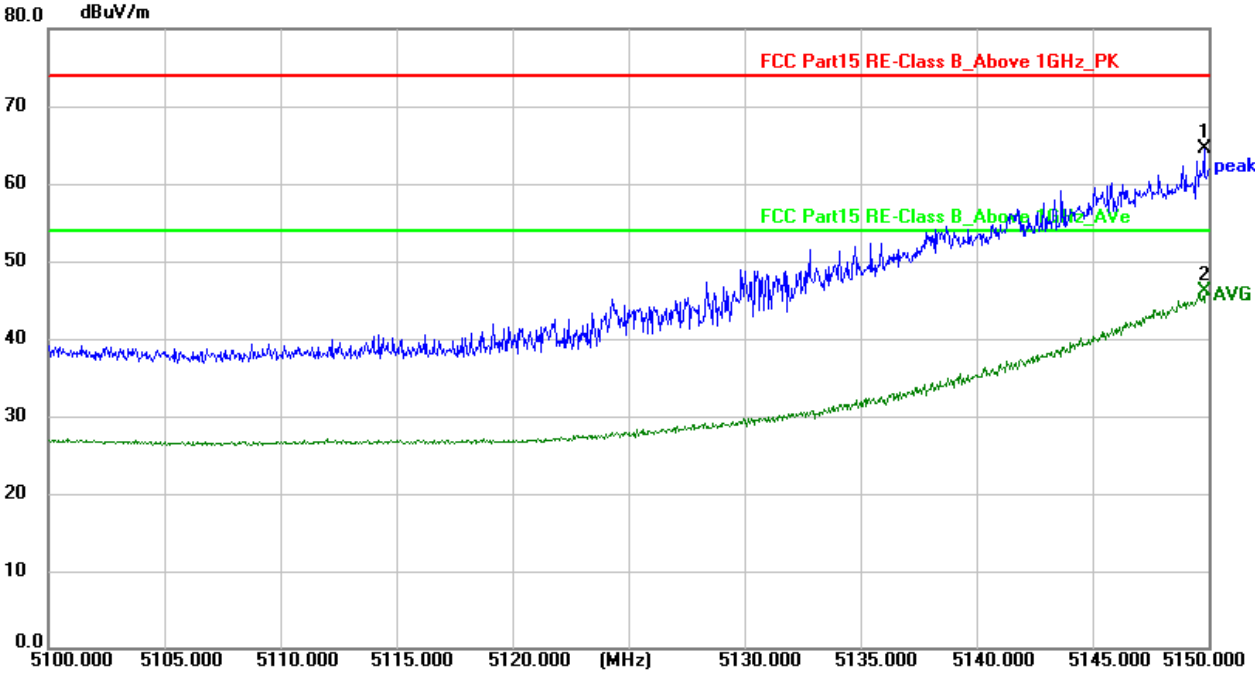
Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp

U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

☒802.11ac ☐802.11n(HT20) ☐802.11n(HT40)

☒5180 Ant.Pol H

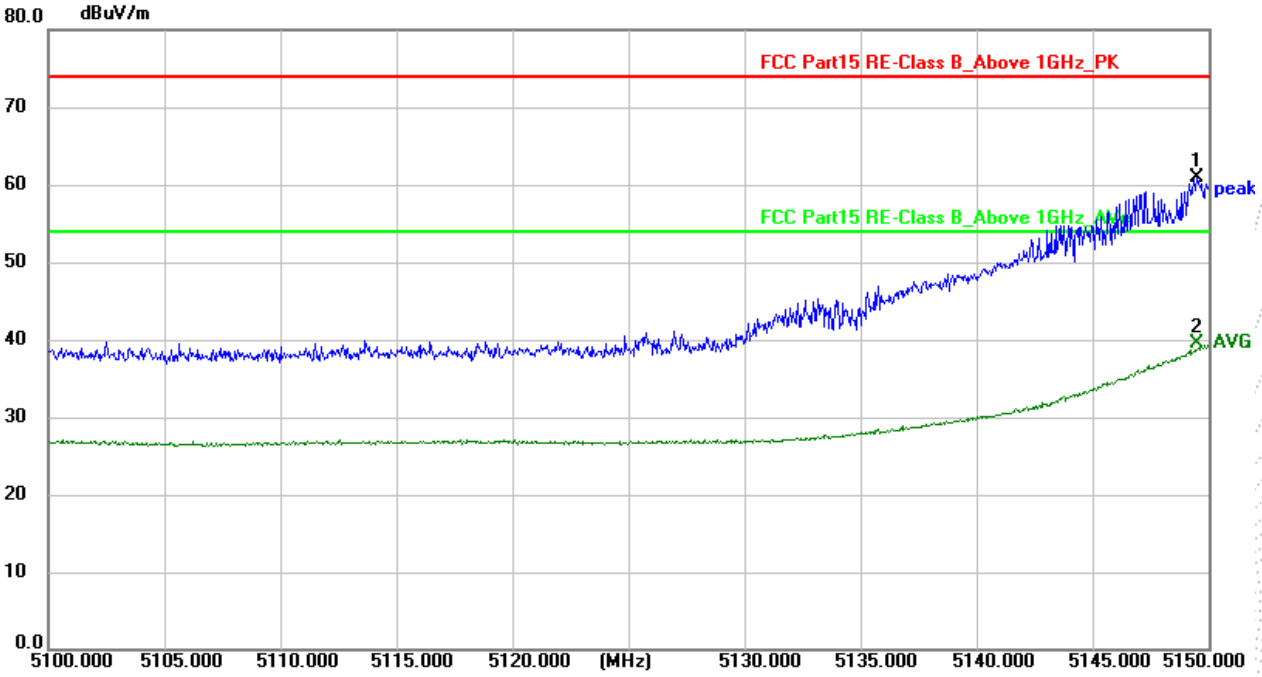


U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

☒802.11ac ☐802.11n(HT20) ☐802.11n(HT40)

☒5180 Ant.Pol V

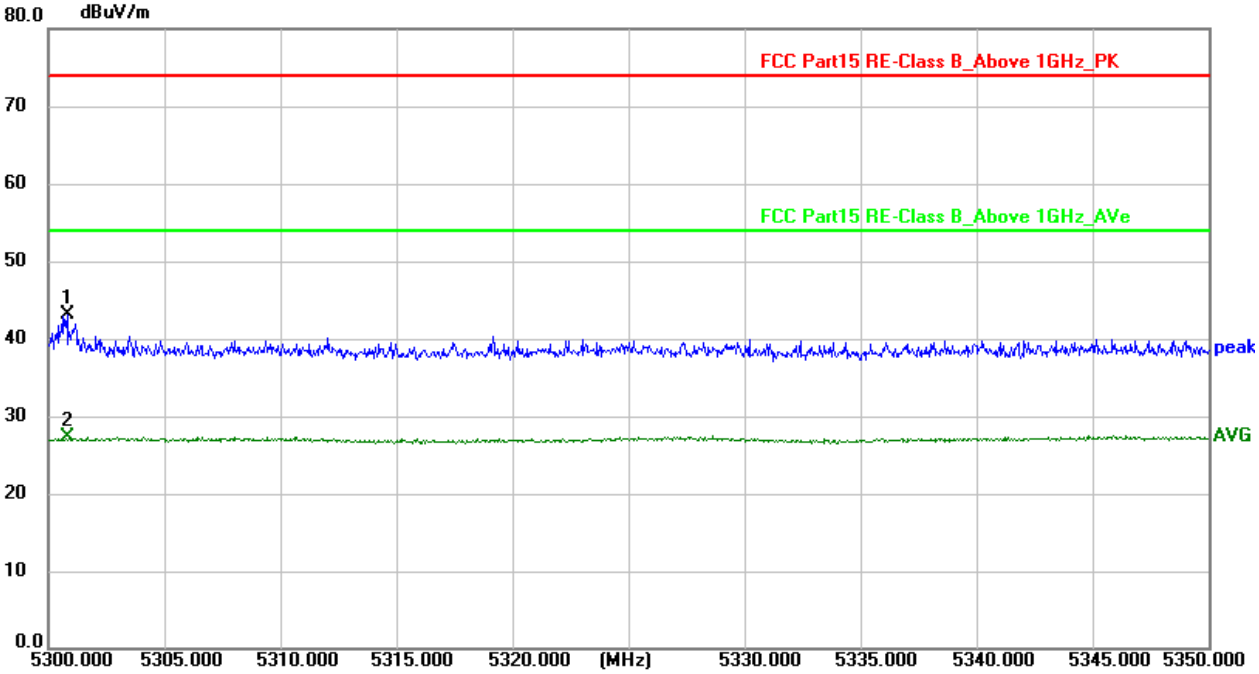


U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5460MHz)

☒802.11ac ☐802.11n(HT20) ☐802.11n(HT40)

☒5320 Ant.Pol H

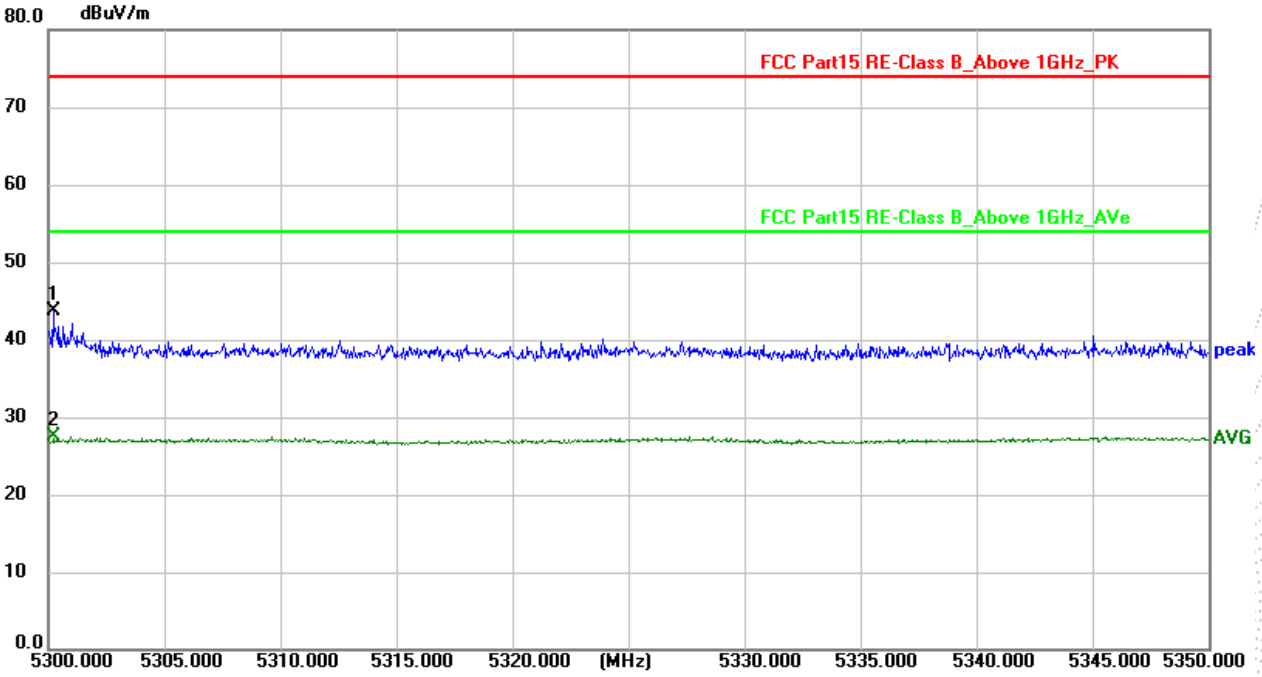


U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5460MHz)

☒802.11ac ☐802.11n(HT20) ☐802.11n(HT40)

☒5320 Ant.Pol V



Test Mode:	TX(5.3G) - 802.11a

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5260 MHz)-Above 1G							
Vertical	4434.059	73.36	-20.73	52.62	68.2	-15.58	PK
Vertical	4434.059	59.03	-20.73	38.30	54	-15.70	AV
Vertical	10520.021	62.34	-9.12	53.22	68.2	-14.98	PK
Vertical	10520.021	49.07	-9.12	39.95	54	-14.05	AV
Vertical	15780.182	61.30	-7.77	53.53	74	-20.47	PK
Vertical	15780.182	49.48	-7.77	41.71	54	-12.29	AV
Horizontal	4434.019	70.48	-20.73	49.75	68.2	-18.45	PK
Horizontal	4434.019	59.77	-20.73	39.04	54	-14.96	AV
Horizontal	10520.031	62.14	-9.12	53.02	68.2	-15.18	PK
Horizontal	10520.031	49.41	-9.12	40.29	54	-13.71	AV
Horizontal	15780.041	63.75	-7.77	55.98	74	-18.02	PK
Horizontal	15780.041	49.42	-7.77	41.65	54	-12.35	AV
middle Channel (5280 MHz)-Above 1G							
Vertical	4592.147	73.32	-20.42	52.90	74	-21.10	PK
Vertical	4592.147	59.12	-20.42	38.70	54	-15.30	AV
Vertical	10560.098	63.16	-9.06	54.10	68.2	-14.10	PK
Vertical	10560.098	49.14	-9.06	40.08	54	-13.92	AV
Vertical	15840.180	63.06	-7.75	55.31	74	-18.69	PK
Vertical	15840.180	49.56	-7.75	41.81	54	-12.19	AV
Horizontal	4592.035	74.04	-20.42	53.62	74	-20.38	PK
Horizontal	4592.035	59.59	-20.42	39.17	54	-14.83	AV
Horizontal	10560.065	60.10	-9.06	51.04	68.2	-17.16	PK
Horizontal	10560.065	49.17	-9.06	40.11	54	-13.89	AV
Horizontal	15840.197	61.58	-7.75	53.83	74	-20.17	PK
Horizontal	15840.197	49.91	-7.75	42.16	54	-11.84	AV
High Channel (5320 MHz)-Above 1G							
Vertical	4739.104	71.40	-20.12	51.28	74	-22.72	PK
Vertical	4739.104	59.85	-20.12	39.73	54	-14.27	AV
Vertical	10640.157	64.00	-8.94	55.06	68.2	-13.14	PK
Vertical	10640.157	49.76	-8.94	40.82	54	-13.18	AV
Vertical	15960.048	61.04	-7.71	53.33	74	-20.67	PK
Vertical	15960.048	49.38	-7.71	41.67	54	-12.33	AV
Horizontal	4739.025	74.97	-20.12	54.85	74	-19.15	PK
Horizontal	4739.025	59.27	-20.12	39.15	54	-14.85	AV
Horizontal	10640.024	62.31	-8.94	53.37	68.2	-14.83	PK
Horizontal	10640.024	49.21	-8.94	40.27	54	-13.73	AV
Horizontal	15960.193	60.66	-7.71	52.95	74	-21.05	PK
Horizontal	15960.193	49.40	-7.71	41.69	54	-12.31	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(5.3G) - 802.11n-HT20

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5260 MHz)-Above 1G							
Vertical	4434.076	74.25	-20.73	53.51	68.2	-14.69	PK
Vertical	4434.076	59.25	-20.73	38.52	54	-15.48	AV
Vertical	10520.130	61.01	-9.12	51.89	68.2	-16.31	PK
Vertical	10520.130	49.49	-9.12	40.37	54	-13.63	AV
Vertical	15780.122	64.87	-7.77	57.10	74	-16.90	PK
Vertical	15780.122	49.50	-7.77	41.73	54	-12.27	AV
Horizontal	4434.182	70.42	-20.73	49.69	68.2	-18.51	PK
Horizontal	4434.182	59.33	-20.73	38.60	54	-15.40	AV
Horizontal	10520.191	64.45	-9.12	55.33	68.2	-12.87	PK
Horizontal	10520.191	49.51	-9.12	40.39	54	-13.61	AV
Horizontal	15780.039	62.66	-7.77	54.89	74	-19.11	PK
Horizontal	15780.039	49.98	-7.77	42.21	54	-11.79	AV
middle Channel (5280 MHz)-Above 1G							
Vertical	4592.052	72.87	-20.42	52.45	74	-21.55	PK
Vertical	4592.052	59.72	-20.42	39.30	54	-14.70	AV
Vertical	10560.147	64.05	-9.06	54.99	68.2	-13.21	PK
Vertical	10560.147	49.00	-9.06	39.94	54	-14.06	AV
Vertical	15840.177	62.66	-7.75	54.91	74	-19.09	PK
Vertical	15840.177	49.25	-7.75	41.50	54	-12.50	AV
Horizontal	4592.190	72.55	-20.42	52.14	74	-21.86	PK
Horizontal	4592.190	59.37	-20.42	38.96	54	-15.04	AV
Horizontal	10560.063	64.46	-9.06	55.40	68.2	-12.80	PK
Horizontal	10560.063	49.64	-9.06	40.58	54	-13.42	AV
Horizontal	15840.116	60.43	-7.75	52.68	74	-21.32	PK
Horizontal	15840.116	49.26	-7.75	41.51	54	-12.49	AV
High Channel (5320 MHz)-Above 1G							
Vertical	4739.039	73.70	-20.12	53.57	74	-20.43	PK
Vertical	4739.039	59.95	-20.12	39.83	54	-14.17	AV
Vertical	10640.048	60.04	-8.94	51.10	68.2	-17.10	PK
Vertical	10640.048	49.64	-8.94	40.70	54	-13.30	AV
Vertical	15960.021	63.22	-7.71	55.51	74	-18.49	PK
Vertical	15960.021	49.80	-7.71	42.09	54	-11.91	AV
Horizontal	4739.092	73.16	-20.12	53.03	74	-20.97	PK
Horizontal	4739.092	59.88	-20.12	39.76	54	-14.24	AV
Horizontal	10640.116	62.26	-8.94	53.32	68.2	-14.88	PK
Horizontal	10640.116	49.03	-8.94	40.09	54	-13.91	AV
Horizontal	15960.137	60.19	-7.71	52.48	74	-21.52	PK
Horizontal	15960.137	49.85	-7.71	42.14	54	-11.86	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(5.3G) - 802.11n-HT40

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5270 MHz)-Above 1G							
Vertical	4434.103	73.24	-20.73	52.50	68.2	-15.70	PK
Vertical	4434.103	59.41	-20.73	38.68	54	-15.32	AV
Vertical	10540.052	62.75	-9.09	53.66	68.2	-14.54	PK
Vertical	10540.052	49.47	-9.09	40.38	54	-13.62	AV
Vertical	15810.119	60.78	-7.76	53.02	74	-20.98	PK
Vertical	15810.119	49.64	-7.76	41.88	54	-12.12	AV
Horizontal	4434.011	72.91	-20.73	52.18	74	-21.82	PK
Horizontal	4434.011	59.66	-20.73	38.93	54	-15.07	AV
Horizontal	10540.012	62.62	-9.09	53.53	68.2	-14.67	PK
Horizontal	10540.012	49.29	-9.09	40.20	54	-13.80	AV
Horizontal	15810.068	60.01	-7.76	52.25	74	-21.75	PK
Horizontal	15810.068	49.60	-7.76	41.84	54	-12.16	AV
High Channel (5310 MHz)-Above 1G							
Vertical	4739.098	73.09	-20.12	52.97	68.2	-15.23	PK
Vertical	4739.098	59.83	-20.12	39.71	54	-14.29	AV
Vertical	10620.006	62.77	-8.97	53.80	68.2	-14.40	PK
Vertical	10620.006	49.53	-8.97	40.56	54	-13.44	AV
Vertical	15930.058	62.87	-7.72	55.15	74	-18.85	PK
Vertical	15930.058	49.71	-7.72	41.99	54	-12.01	AV
Horizontal	4739.104	73.64	-20.12	53.52	68.2	-14.68	PK
Horizontal	4739.104	59.21	-20.12	39.09	54	-14.91	AV
Horizontal	10620.001	60.90	-8.97	51.93	68.2	-16.27	PK
Horizontal	10620.001	49.18	-8.97	40.21	54	-13.79	AV
Horizontal	15930.187	62.99	-7.72	55.27	74	-18.73	PK
Horizontal	15930.187	49.11	-7.72	41.39	54	-12.61	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.

Test Mode:	TX(5.6G) - 802.11a

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5500 MHz)-Above 1G							
Vertical	4434.010	70.93	-20.73	50.20	68.2	-18.00	PK
Vertical	4434.010	59.00	-20.73	38.27	54	-15.73	AV
Vertical	11000.034	63.41	-8.40	55.01	68.2	-13.19	PK
Vertical	11000.034	50.00	-8.40	41.60	54	-12.40	AV
Vertical	16500.073	60.47	-6.09	54.38	74	-19.62	PK
Vertical	16500.073	49.29	-6.09	43.20	54	-10.80	AV
Horizontal	4434.071	74.13	-20.73	53.40	68.2	-14.80	PK
Horizontal	4434.071	59.27	-20.73	38.54	54	-15.46	AV
Horizontal	11000.109	61.17	-8.40	52.77	68.2	-15.43	PK
Horizontal	11000.109	49.23	-8.40	40.83	54	-13.17	AV
Horizontal	16500.044	61.62	-6.09	55.53	74	-18.47	PK
Horizontal	16500.044	49.26	-6.09	43.17	54	-10.83	AV
middle Channel (5580 MHz)-Above 1G							
Vertical	4592.200	72.81	-20.42	52.40	74	-21.60	PK
Vertical	4592.200	59.12	-20.42	38.70	54	-15.30	AV
Vertical	11160.121	64.86	-8.53	56.33	68.2	-11.87	PK
Vertical	11160.121	49.31	-8.53	40.78	54	-13.22	AV
Vertical	16740.068	63.23	-5.31	57.92	74	-16.08	PK
Vertical	16740.068	49.14	-5.31	43.83	54	-10.17	AV
Horizontal	4592.195	71.18	-20.42	50.76	74	-23.24	PK
Horizontal	4592.195	59.43	-20.42	39.01	54	-14.99	AV
Horizontal	11160.124	60.03	-8.53	51.50	68.2	-16.70	PK
Horizontal	11160.124	49.07	-8.53	40.54	54	-13.46	AV
Horizontal	16740.198	61.51	-5.31	56.20	74	-17.80	PK
Horizontal	16740.198	49.31	-5.31	44.00	54	-10.00	AV
High Channel (5700 MHz)-Above 1G							
Vertical	4739.035	72.32	-20.12	52.20	74	-21.80	PK
Vertical	4739.035	59.59	-20.12	39.47	54	-14.53	AV
Vertical	11400.011	63.41	-8.72	54.69	68.2	-13.51	PK
Vertical	11400.011	49.60	-8.72	40.88	54	-13.12	AV
Vertical	17100.002	61.68	-3.92	57.76	74	-16.24	PK
Vertical	17100.002	49.25	-3.92	45.33	54	-8.67	AV
Horizontal	4739.137	72.38	-20.12	52.26	74	-21.74	PK
Horizontal	4739.137	59.86	-20.12	39.74	54	-14.26	AV
Horizontal	11400.129	61.74	-8.72	53.02	68.2	-15.18	PK
Horizontal	11400.129	49.31	-8.72	40.59	54	-13.41	AV
Horizontal	17100.193	61.43	-3.92	57.51	74	-16.49	PK
Horizontal	17100.193	49.77	-3.92	45.85	54	-8.15	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(5.6G) - 802.11n-HT20

Polar (H/V)	Fre-quency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measure-ment (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
Low Channel (5500 MHz)-Above 1G							
Vertical	4434.173	74.26	-20.73	53.53	68.2	-14.67	PK
Vertical	4434.173	59.28	-20.73	38.54	54	-15.46	AV
Vertical	11000.033	63.03	-8.40	54.63	68.2	-13.57	PK
Vertical	11000.033	49.50	-8.40	41.10	54	-12.90	AV
Vertical	16500.150	63.32	-6.09	57.23	74	-16.77	PK
Vertical	16500.150	49.11	-6.09	43.02	54	-10.98	AV
Horizontal	4434.086	74.81	-20.73	54.07	68.2	-14.13	PK
Horizontal	4434.086	59.57	-20.73	38.83	54	-15.17	AV
Horizontal	11000.013	60.61	-8.40	52.21	68.2	-15.99	PK
Horizontal	11000.013	49.38	-8.40	40.98	54	-13.02	AV
Horizontal	16500.124	63.78	-6.09	57.69	74	-16.31	PK
Horizontal	16500.124	49.58	-6.09	43.49	54	-10.51	AV
middle Channel (5580 MHz)-Above 1G							
Vertical	4592.070	73.82	-20.42	53.40	74	-20.60	PK
Vertical	4592.070	59.05	-20.42	38.63	54	-15.37	AV
Vertical	11160.096	64.22	-8.53	55.69	68.2	-12.51	PK
Vertical	11160.096	49.63	-8.53	41.10	54	-12.90	AV
Vertical	16740.008	63.47	-5.31	58.16	74	-15.84	PK
Vertical	16740.008	49.38	-5.31	44.07	54	-9.93	AV
Horizontal	4592.091	74.98	-20.42	54.57	74	-19.43	PK
Horizontal	4592.091	59.10	-20.42	38.68	54	-15.32	AV
Horizontal	11160.029	61.66	-8.53	53.13	68.2	-15.07	PK
Horizontal	11160.029	49.64	-8.53	41.11	54	-12.89	AV
Horizontal	16740.162	61.52	-5.31	56.21	74	-17.79	PK
Horizontal	16740.162	49.15	-5.31	43.84	54	-10.16	AV
High Channel (5700 MHz)-Above 1G							
Vertical	4739.070	71.98	-20.12	51.85	74	-22.15	PK
Vertical	4739.070	59.47	-20.12	39.35	54	-14.65	AV
Vertical	11400.123	63.37	-8.72	54.65	68.2	-13.55	PK
Vertical	11400.123	49.59	-8.72	40.87	54	-13.13	AV
Vertical	17100.148	63.99	-3.92	60.07	74	-13.93	PK
Vertical	17100.148	49.76	-3.92	45.84	54	-8.16	AV
Horizontal	4739.047	73.64	-20.12	53.52	74	-20.48	PK
Horizontal	4739.047	59.94	-20.12	39.82	54	-14.18	AV
Horizontal	11400.004	61.96	-8.72	53.24	68.2	-14.96	PK
Horizontal	11400.004	49.35	-8.72	40.63	54	-13.37	AV
Horizontal	17100.067	64.77	-3.92	60.85	74	-13.15	PK
Horizontal	17100.067	49.36	-3.92	45.44	54	-8.56	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(5.6G) - 802.11n-HT40

Polar (H/V)	Fre-quency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measure-ment (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
Low Channel (5510 MHz)-Above 1G							
Vertical	4434.186	60.56	-20.73	39.83	68.2	-28.37	PK
Vertical	4434.186	43.40	-20.73	22.67	54	-31.33	AV
Vertical	11020.000	63.93	-8.42	55.51	68.2	-12.69	PK
Vertical	11020.000	43.93	-8.42	35.51	54	-18.49	AV
Vertical	16530.199	62.04	-5.99	56.05	74	-17.95	PK
Vertical	16530.199	43.18	-5.99	37.19	54	-16.81	AV
Horizontal	4434.162	63.62	-20.73	42.89	74	-31.11	PK
Horizontal	4434.162	43.08	-20.73	22.35	54	-31.65	AV
Horizontal	11020.167	50.24	-8.42	41.82	68.2	-26.38	PK
Horizontal	11020.167	42.15	-8.42	33.73	54	-20.27	AV
Horizontal	16530.200	53.71	-5.99	47.72	74	-26.28	PK
Horizontal	16530.200	41.44	-5.99	35.45	54	-18.55	AV
middle Channel (5550 MHz)-Above 1G							
Vertical	4592.141	63.99	-20.42	43.57	74	-30.43	PK
Vertical	4592.141	43.96	-20.42	23.55	54	-30.45	AV
Vertical	11100.102	62.97	-8.40	54.57	68.2	-13.63	PK
Vertical	11100.102	43.97	-8.40	35.57	54	-18.43	AV
Vertical	16650.157	62.19	-5.60	56.59	74	-17.41	PK
Vertical	16650.157	43.94	-5.60	38.34	54	-15.66	AV
Horizontal	4592.140	61.62	-20.42	41.20	74	-32.80	PK
Horizontal	4592.140	43.54	-20.42	23.12	54	-30.88	AV
Horizontal	11100.102	51.89	-8.40	43.49	68.2	-24.71	PK
Horizontal	11100.102	42.03	-8.40	33.63	54	-20.37	AV
Horizontal	16650.016	50.68	-5.60	45.08	74	-28.92	PK
Horizontal	16650.016	41.41	-5.60	35.81	54	-18.19	AV
High Channel (5670 MHz)-Above 1G							
Vertical	4739.012	62.92	-20.12	42.80	68.2	-25.40	PK
Vertical	4739.012	43.13	-20.12	23.01	54	-30.99	AV
Vertical	11340.193	61.33	-8.67	52.66	68.2	-15.54	PK
Vertical	11340.193	43.26	-8.67	34.59	54	-19.41	AV
Vertical	17010.068	64.37	-4.41	59.96	74	-14.04	PK
Vertical	17010.068	43.81	-4.41	39.40	54	-14.60	AV
Horizontal	4739.147	60.15	-20.12	40.02	68.2	-28.18	PK
Horizontal	4739.147	43.79	-20.12	23.67	54	-30.33	AV
Horizontal	11340.052	54.08	-8.67	45.41	68.2	-22.79	PK
Horizontal	11340.052	40.41	-8.67	31.74	54	-22.26	AV
Horizontal	17010.135	52.54	-4.41	48.13	74	-25.87	PK
Horizontal	17010.135	43.93	-4.41	39.52	54	-14.48	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(5.8G) - 802.11a

Polar (H/V)	Fre-quency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measure-ment (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G							
Vertical	4679.094	72.14	-20.24	51.90	74	-22.10	PK
Vertical	4679.094	59.41	-20.24	39.16	54	-14.84	AV
Vertical	11490.086	62.05	-8.79	53.26	68.2	-14.94	PK
Vertical	11490.086	49.59	-8.79	40.80	54	-13.20	AV
Vertical	17235.055	57.83	-3.18	54.65	68.2	-13.55	PK
Vertical	17235.055	44.60	-3.18	41.42	54	-12.58	AV
Horizontal	4679.157	74.67	-20.73	53.94	74	-20.06	PK
Horizontal	4679.157	59.92	-20.73	39.19	54	-14.81	AV
Horizontal	11490.173	63.70	-8.79	54.91	68.2	-13.29	PK
Horizontal	11490.173	49.74	-8.79	40.95	54	-13.05	AV
Horizontal	17235.117	55.41	-3.18	52.23	68.2	-15.97	PK
Horizontal	17235.117	44.87	-3.18	41.69	54	-12.31	AV
middle Channel (5785 MHz)-Above 1G							
Vertical	4592.049	74.29	-20.42	53.87	74	-20.13	PK
Vertical	4592.049	59.59	-20.42	39.17	54	-14.83	AV
Vertical	11570.190	64.97	-8.86	56.11	68.2	-12.09	PK
Vertical	11570.190	49.29	-8.86	40.43	54	-13.57	AV
Vertical	17355.149	58.31	-2.52	55.79	68.2	-12.41	PK
Vertical	17355.149	44.18	-2.52	41.66	54	-12.34	AV
Horizontal	4592.104	70.64	-20.42	50.22	74	-23.78	PK
Horizontal	4592.104	59.34	-20.42	38.93	54	-15.07	AV
Horizontal	11570.052	63.34	-8.86	54.48	68.2	-13.72	PK
Horizontal	11570.052	49.67	-8.86	40.81	54	-13.19	AV
Horizontal	17355.110	56.41	-2.52	53.89	68.2	-14.31	PK
Horizontal	17355.110	44.59	-2.52	42.07	54	-11.93	AV
High Channel (5825 MHz)-Above 1G							
Vertical	6039.022	71.22	-18.93	52.28	68.2	-15.92	PK
Vertical	6039.022	59.23	-18.93	40.30	54	-13.70	AV
Vertical	11650.134	60.07	-8.92	51.15	74	-22.85	PK
Vertical	11650.134	49.47	-8.92	40.55	54	-13.45	AV
Vertical	17475.111	58.62	-1.86	56.76	68.2	-11.44	PK
Vertical	17475.111	44.69	-1.86	42.83	54	-11.17	AV
Horizontal	6039.082	73.66	-18.93	54.73	68.2	-13.47	PK
Horizontal	6039.082	59.46	-18.93	40.53	54	-13.47	AV
Horizontal	11650.150	61.53	-8.92	52.61	74	-21.39	PK
Horizontal	11650.150	49.67	-8.92	40.75	54	-13.25	AV
Horizontal	17475.189	59.89	-1.86	58.03	68.2	-10.17	PK
Horizontal	17475.189	44.82	-1.86	42.96	54	-11.04	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:	TX(5.8G) - 802.11n-HT20

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G							
Vertical	4679.162	71.41	-20.24	51.17	74	-22.83	PK
Vertical	4679.162	59.56	-20.24	39.32	54	-14.68	AV
Vertical	11490.198	64.97	-8.79	56.18	68.2	-12.02	PK
Vertical	11490.198	49.30	-8.79	40.51	54	-13.49	AV
Vertical	17235.029	55.86	-3.18	52.68	68.2	-15.52	PK
Vertical	17235.029	44.35	-3.18	41.17	54	-12.83	AV
Horizontal	4679.138	73.52	-20.24	53.28	74	-20.72	PK
Horizontal	4679.138	59.56	-20.24	39.32	54	-14.68	AV
Horizontal	11490.089	64.73	-8.79	55.94	68.2	-12.26	PK
Horizontal	11490.089	49.47	-8.79	40.68	54	-13.32	AV
Horizontal	17235.158	56.90	-3.18	53.72	68.2	-14.48	PK
Horizontal	17235.158	44.93	-3.18	41.75	54	-12.25	AV
middle Channel (5785 MHz)-Above 1G							
Vertical	4592.023	71.52	-20.42	51.10	74	-22.90	PK
Vertical	4592.023	59.67	-20.42	39.25	54	-14.75	AV
Vertical	11570.132	61.63	-8.86	52.77	68.2	-15.43	PK
Vertical	11570.132	49.55	-8.86	40.69	54	-13.31	AV
Vertical	17355.118	55.90	-2.52	53.38	68.2	-14.82	PK
Vertical	17355.118	44.90	-2.52	42.38	54	-11.62	AV
Horizontal	4592.069	72.74	-20.42	52.33	74	-21.67	PK
Horizontal	4592.069	59.17	-20.42	38.76	54	-15.24	AV
Horizontal	11570.010	64.62	-8.86	55.76	68.2	-12.44	PK
Horizontal	11570.010	49.12	-8.86	40.26	54	-13.74	AV
Horizontal	17355.115	57.39	-2.52	54.87	68.2	-13.33	PK
Horizontal	17355.115	44.91	-2.52	42.39	54	-11.61	AV
High Channel (5825 MHz)-Above 1G							
Vertical	6039.183	74.85	-18.93	55.91	68.2	-12.29	PK
Vertical	6039.183	59.55	-18.93	40.62	54	-13.38	AV
Vertical	11650.175	64.55	-8.92	55.63	74	-18.37	PK
Vertical	11650.175	49.47	-8.92	40.55	54	-13.45	AV
Vertical	17475.104	55.95	-1.86	54.09	68.2	-14.11	PK
Vertical	17475.104	44.34	-1.86	42.48	54	-11.52	AV
Horizontal	6039.027	73.26	-18.93	54.32	68.2	-13.88	PK
Horizontal	6039.027	59.83	-18.93	40.90	54	-13.10	AV
Horizontal	11650.092	60.29	-8.92	51.37	74	-22.63	PK
Horizontal	11650.092	49.56	-8.92	40.64	54	-13.36	AV
Horizontal	17475.134	58.19	-1.86	56.33	68.2	-11.87	PK
Horizontal	17475.134	44.41	-1.86	42.55	54	-11.45	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.

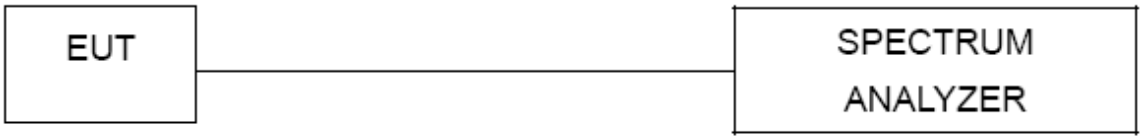
Test Mode:	TX(5.8G) - 802.11n-HT40

Polar	Fre-quency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5755 MHz)-Above 1G							
Vertical	4679.161	71.02	-20.24	50.78	74	-23.22	PK
Vertical	4679.161	59.15	-20.24	38.91	54	-15.09	AV
Vertical	11510.042	64.45	-8.81	55.64	74	-18.36	PK
Vertical	11510.042	49.13	-8.81	40.32	54	-13.68	AV
Vertical	17265.062	56.92	-3.01	53.91	68.2	-14.29	PK
Vertical	17265.062	44.94	-3.01	41.93	54	-12.07	AV
Horizontal	4679.078	72.37	-20.24	52.13	74	-21.87	PK
Horizontal	4679.078	59.70	-20.24	39.45	54	-14.55	AV
Horizontal	11510.032	60.30	-8.81	51.49	74	-22.51	PK
Horizontal	11510.032	49.95	-8.81	41.14	54	-12.86	AV
Horizontal	17265.014	58.16	-3.01	55.15	68.2	-13.05	PK
Horizontal	17265.014	44.47	-3.01	41.46	54	-12.54	AV
High Channel (5795 MHz)-Above 1G							
Vertical	6039.113	74.76	-18.93	55.83	68.2	-12.37	PK
Vertical	6039.113	59.84	-18.93	40.91	54	-13.09	AV
Vertical	11590.127	60.06	-8.87	51.19	74	-22.81	PK
Vertical	11590.127	49.62	-8.87	40.75	54	-13.25	AV
Vertical	17385.199	58.67	-2.35	56.32	68.2	-11.88	PK
Vertical	17385.199	44.65	-2.35	42.30	54	-11.70	AV
Horizontal	6039.166	71.83	-18.93	52.90	68.2	-15.30	PK
Horizontal	6039.166	59.98	-18.93	41.05	54	-12.95	AV
Horizontal	11590.142	60.98	-8.87	52.11	74	-21.89	PK
Horizontal	11590.142	49.95	-8.87	41.08	54	-12.92	AV
Horizontal	17385.084	57.56	-2.35	55.21	68.2	-12.99	PK
Horizontal	17385.084	44.48	-2.35	42.13	54	-11.87	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.

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

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

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

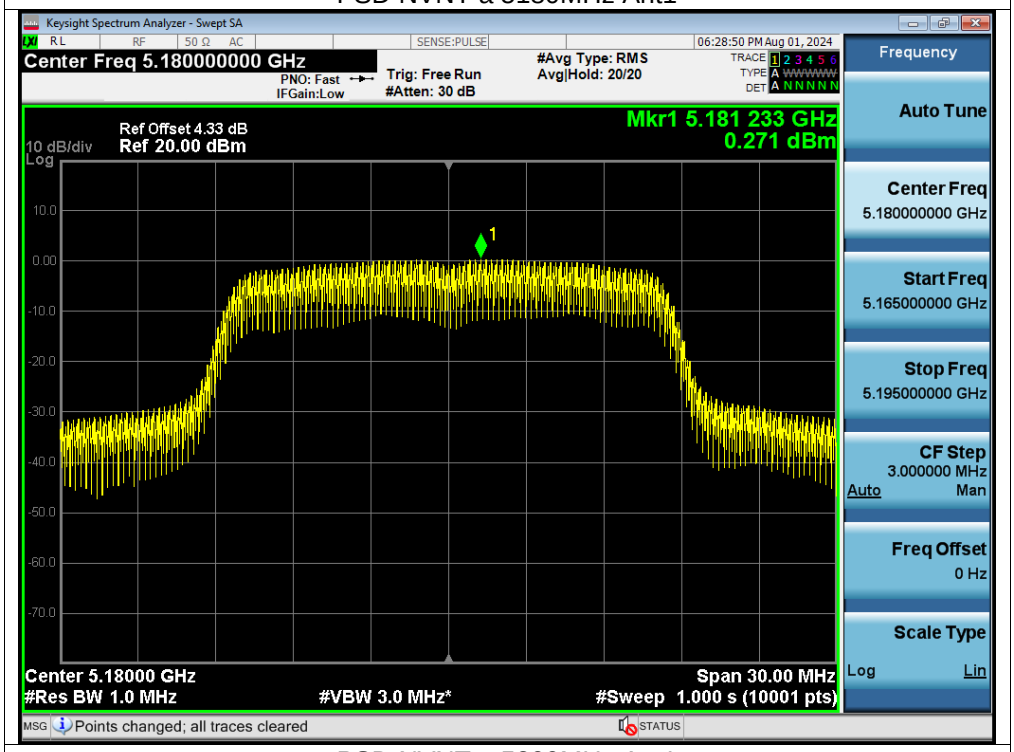
8.5 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5180-5240MHz)		

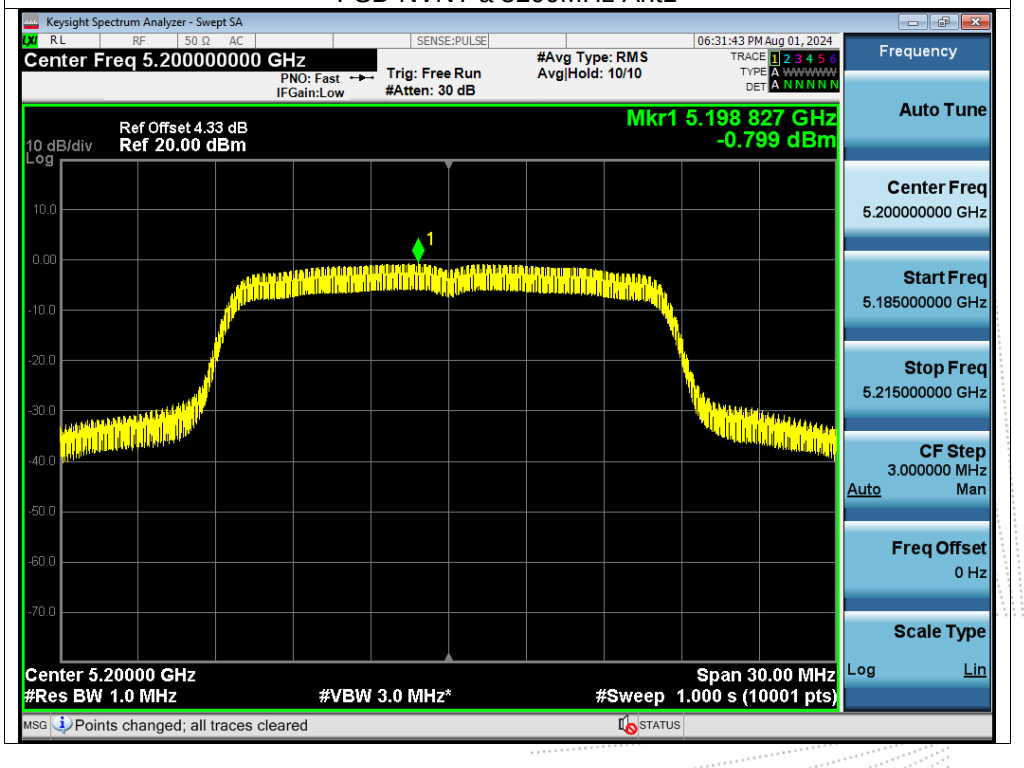
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	a	5180	0.27	11	Pass
NVNT	a	5200	-0.8	11	Pass
NVNT	a	5240	-0.36	11	Pass
NVNT	n20	5180	-0.8	11	Pass
NVNT	n20	5200	-1.36	11	Pass
NVNT	n20	5240	-1.18	11	Pass
NVNT	n40	5190	-2.84	11	Pass
NVNT	n40	5230	-1.81	11	Pass

Test Graphs

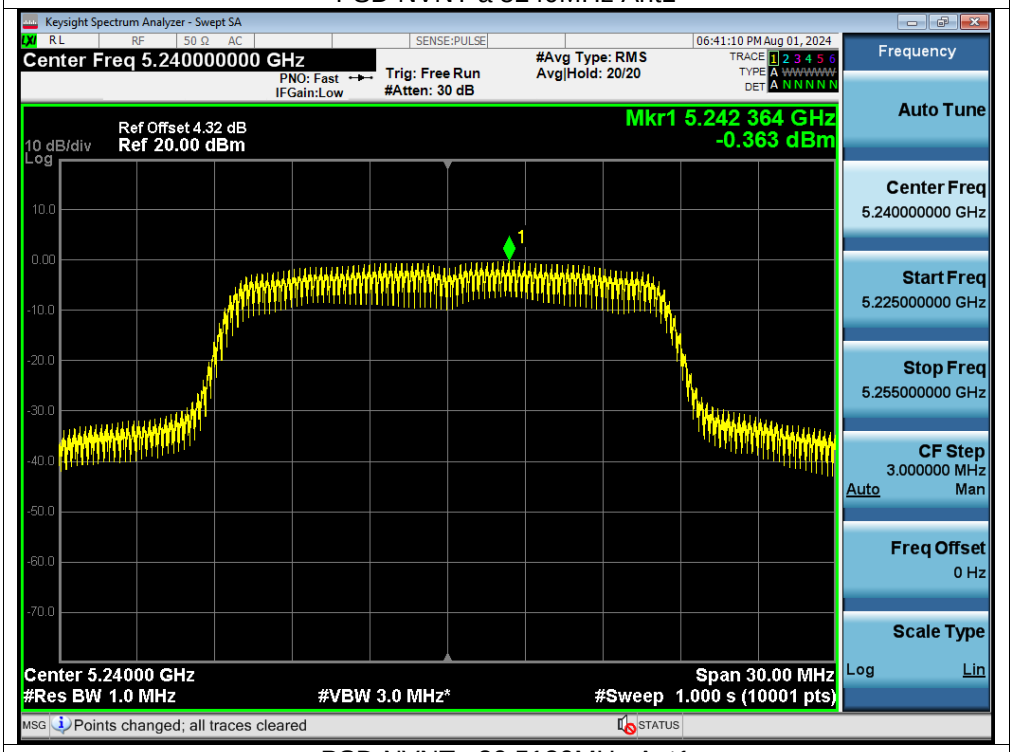
PSD NVNT a 5180MHz Ant1



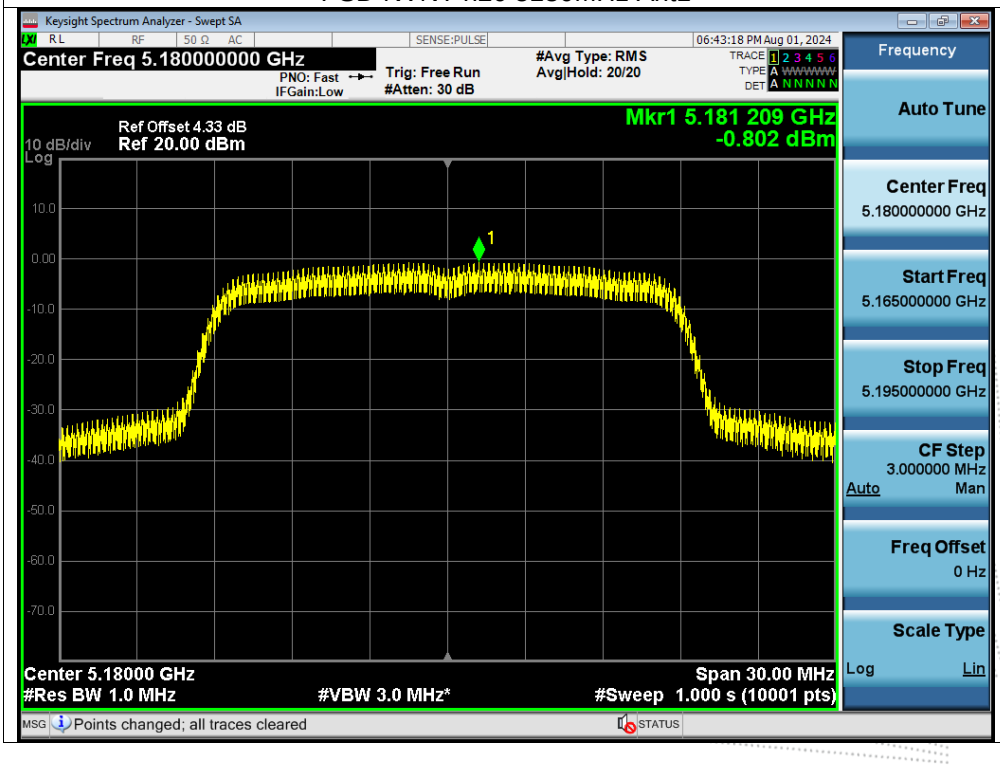
PSD NVNT a 5200MHz Ant1



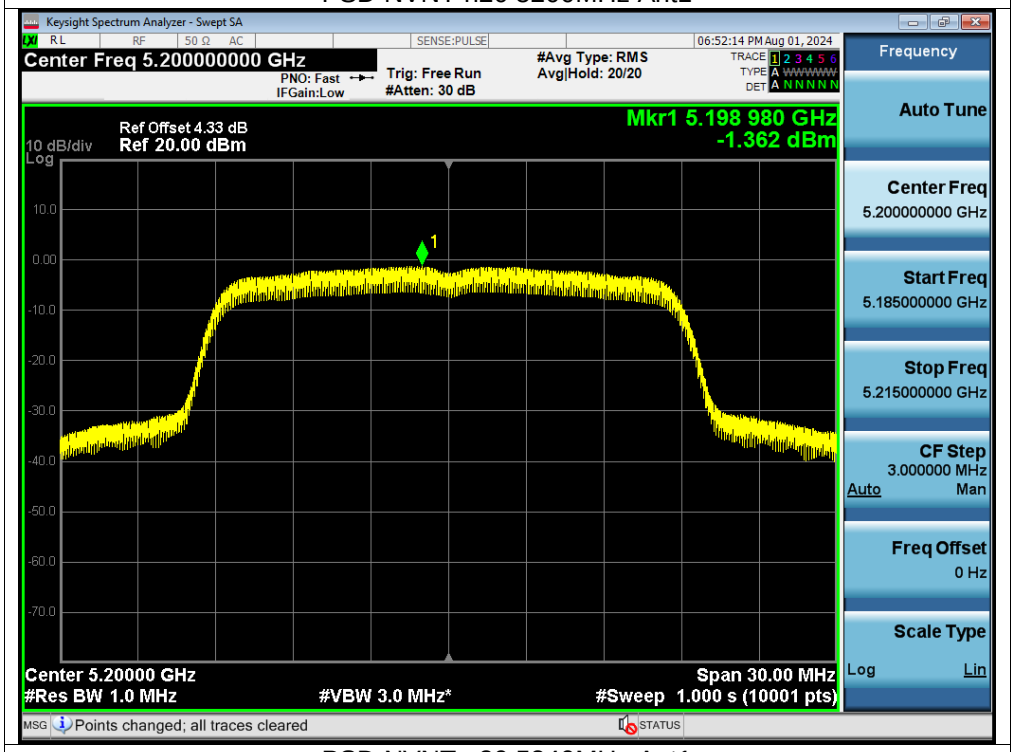
PSD NVNT a 5240MHz Ant1



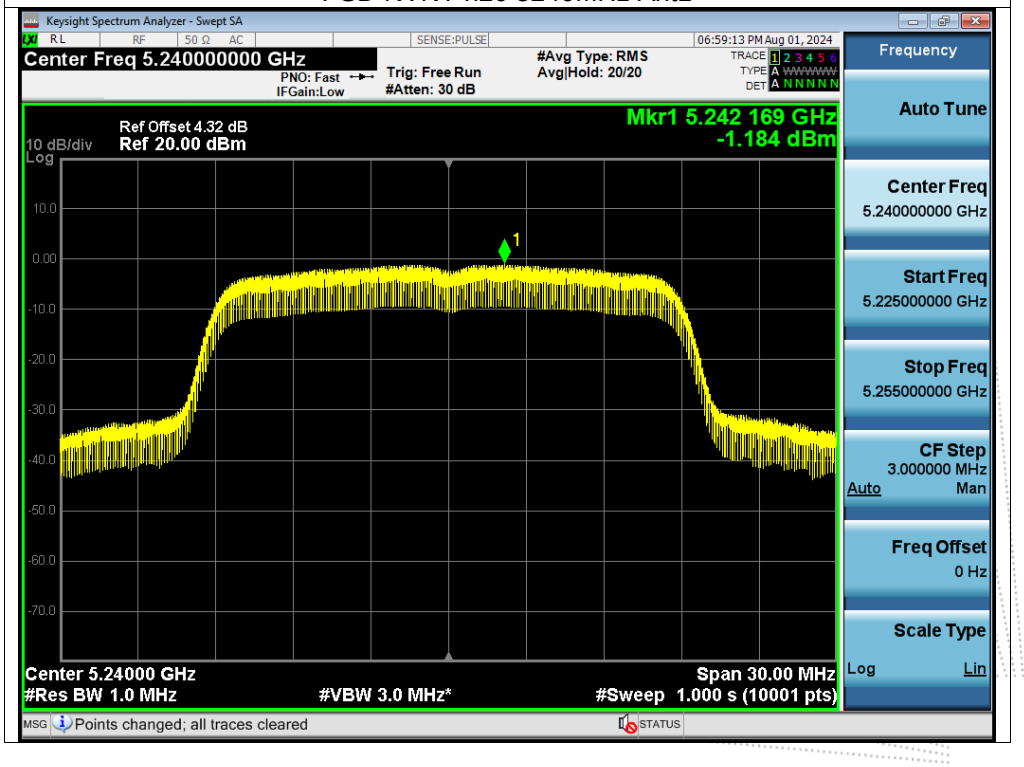
PSD NVNT n20 5180MHz Ant1



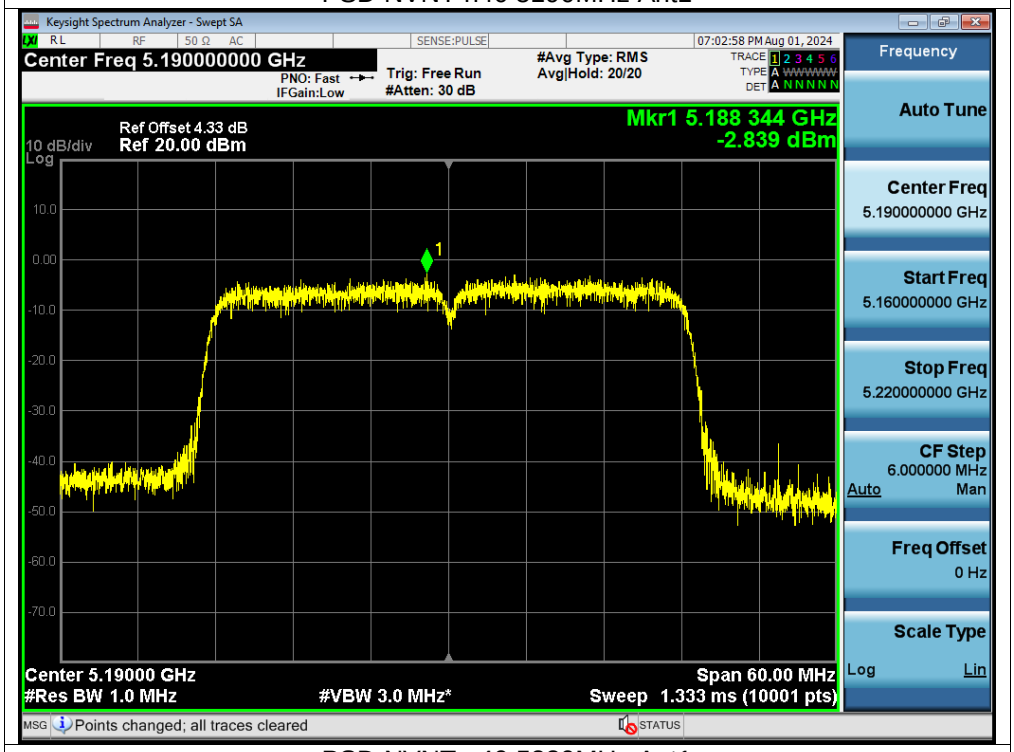
PSD NVNT n20 5200MHz Ant1



PSD NVNT n20 5240MHz Ant1



PSD NVNT n40 5190MHz Ant1



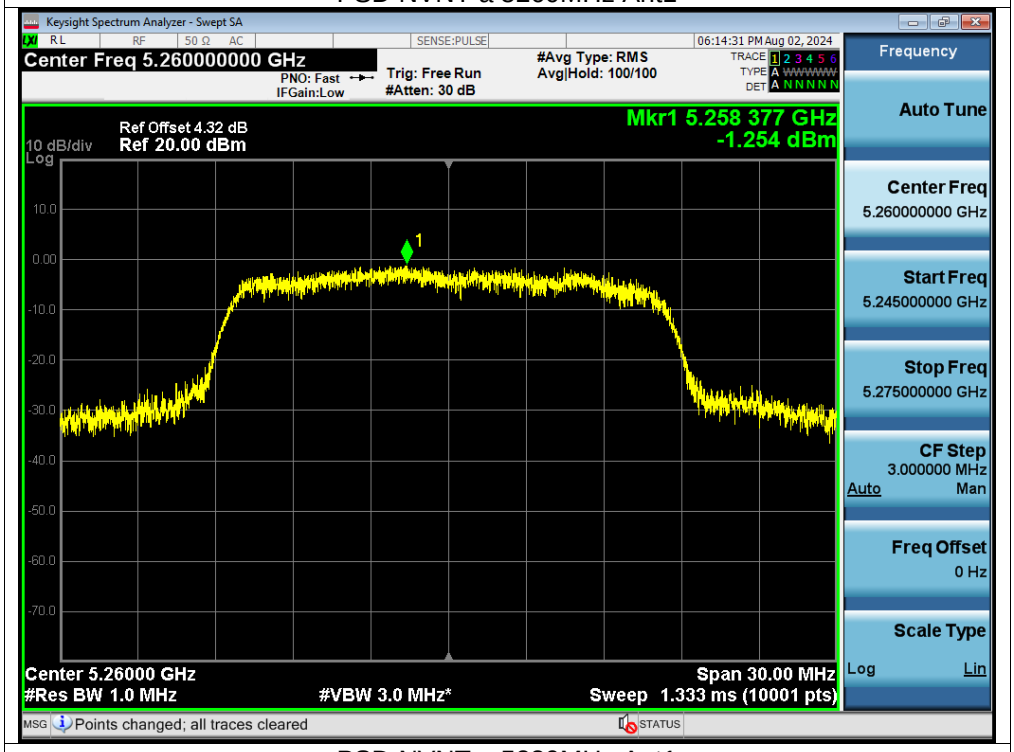
PSD NVNT n40 5230MHz Ant1

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5260-5320MHz)		

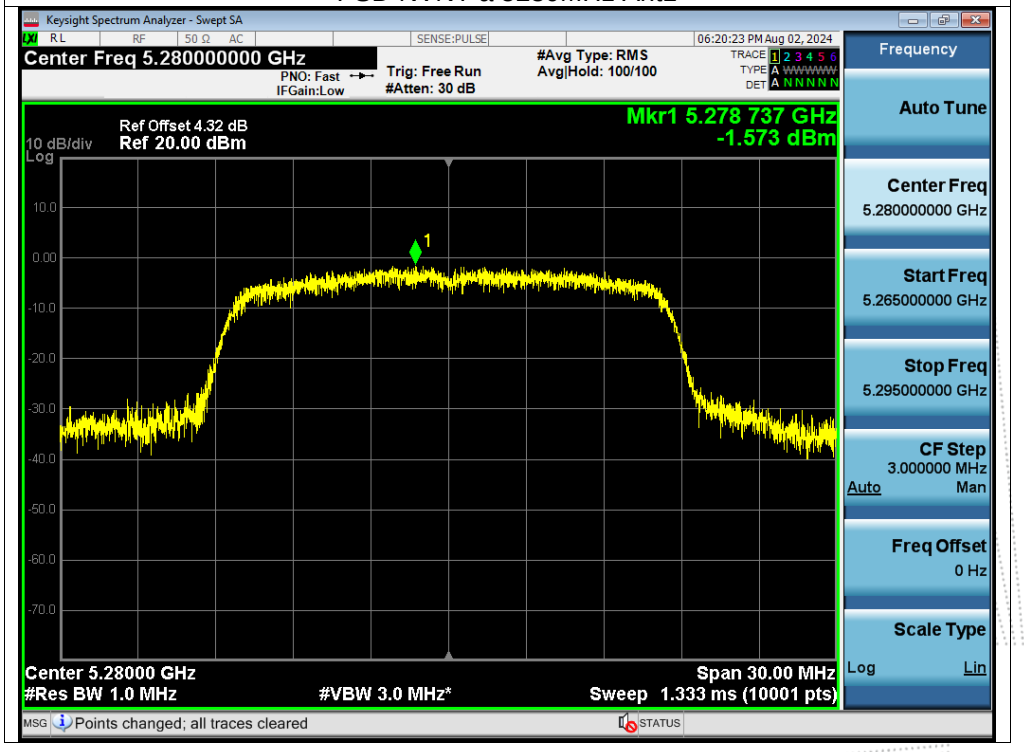
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	a	5260	-1.25	11	Pass
NVNT	a	5280	-1.57	11	Pass
NVNT	a	5320	-0.14	11	Pass
NVNT	n20	5260	0.08	11	Pass
NVNT	n20	5280	-0.88	11	Pass
NVNT	n20	5320	-1.84	11	Pass
NVNT	n40	5270	-3.22	11	Pass
NVNT	n40	5310	-5.2	11	Pass

Test Graphs

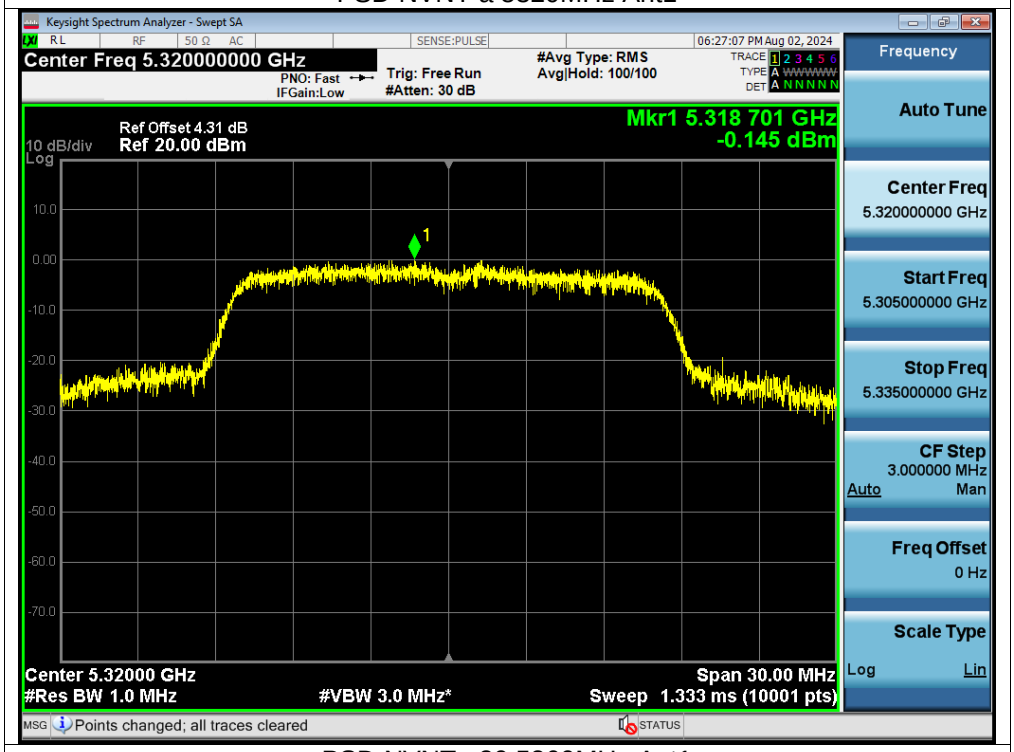
PSD NVNT a 5260MHz Ant1



PSD NVNT a 5280MHz Ant1



PSD NVNT a 5320MHz Ant1



PSD NVNT n20 5260MHz Ant1

PSD NVNT n20 5280MHz Ant1

PSD NVNT n20 5320MHz Ant1

PSD NVNT n40 5270MHz Ant1

PSD NVNT n40 5310MHz Ant1

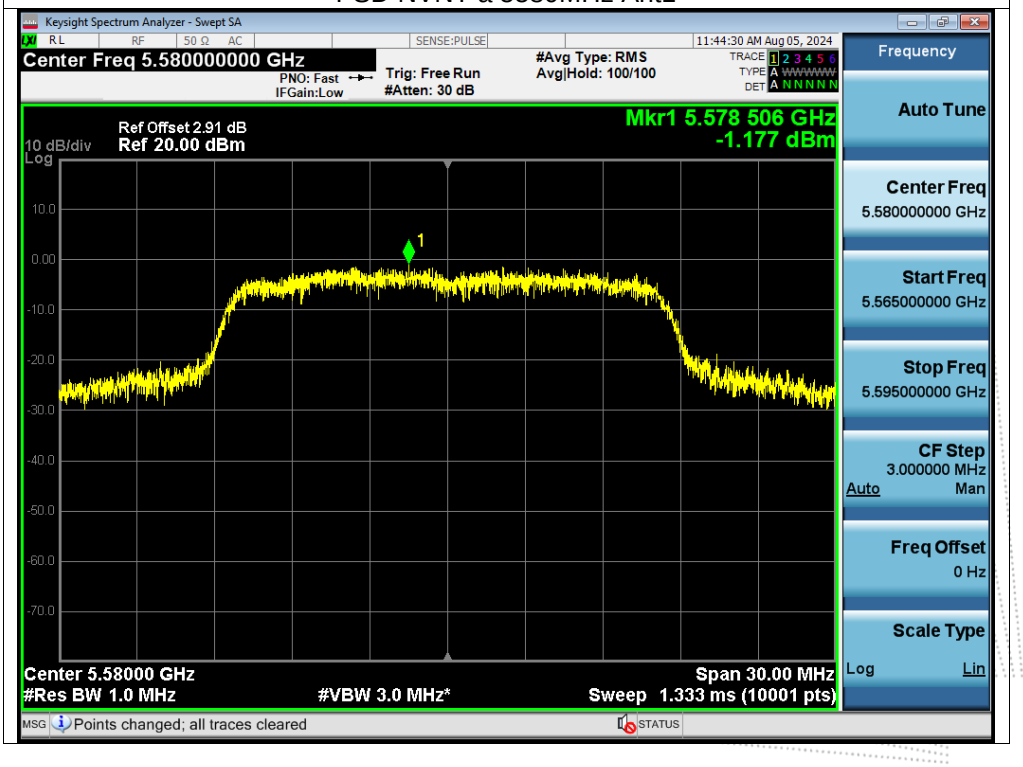
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5500-5700MHz)		

Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	a	5500	-2.1	11	Pass
NVNT	a	5580	-1.18	11	Pass
NVNT	a	5700	-5.19	11	Pass
NVNT	n20	5500	-1.64	11	Pass
NVNT	n20	5580	0.02	11	Pass
NVNT	n20	5700	-0.36	11	Pass
NVNT	n40	5510	-4.77	11	Pass
NVNT	n40	5550	-5.51	11	Pass
NVNT	n40	5670	-4.77	11	Pass

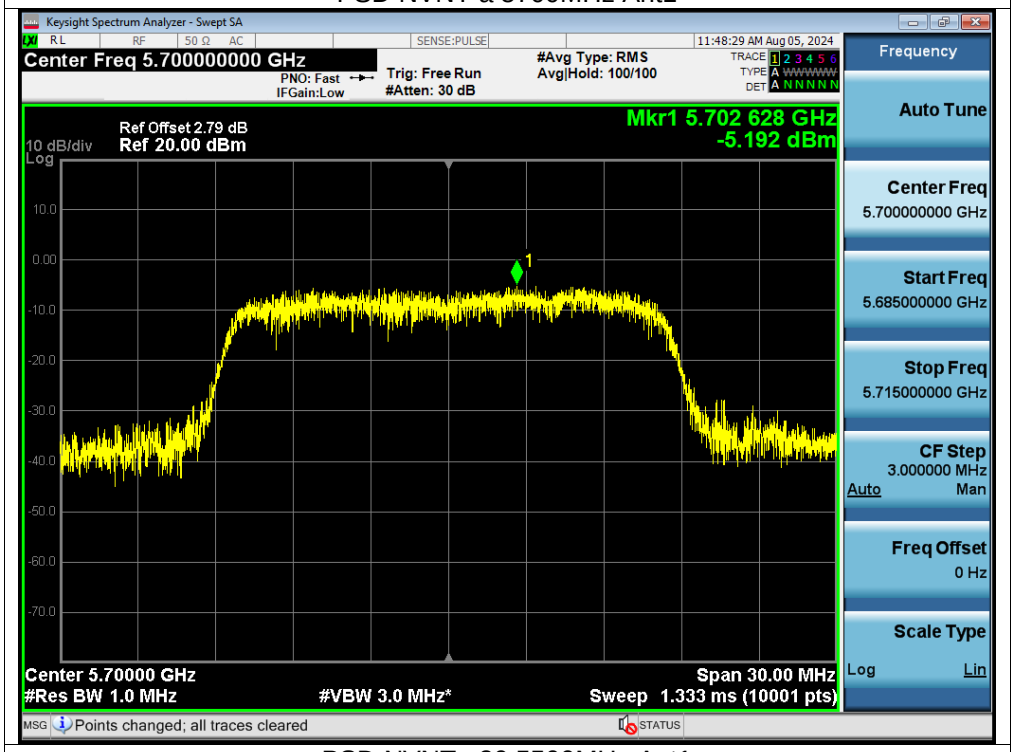
Test Graphs

PSD NVNT a 5500MHz Ant1

PSD NVNT a 5580MHz Ant1



PSD NVNT a 5700MHz Ant1



PSD NVNT n20 5500MHz Ant1

PSD NVNT n20 5580MHz Ant1

PSD NVNT n20 5700MHz Ant1

PSD NVNT n40 5510MHz Ant1

PSD NVNT n40 5550MHz Ant1

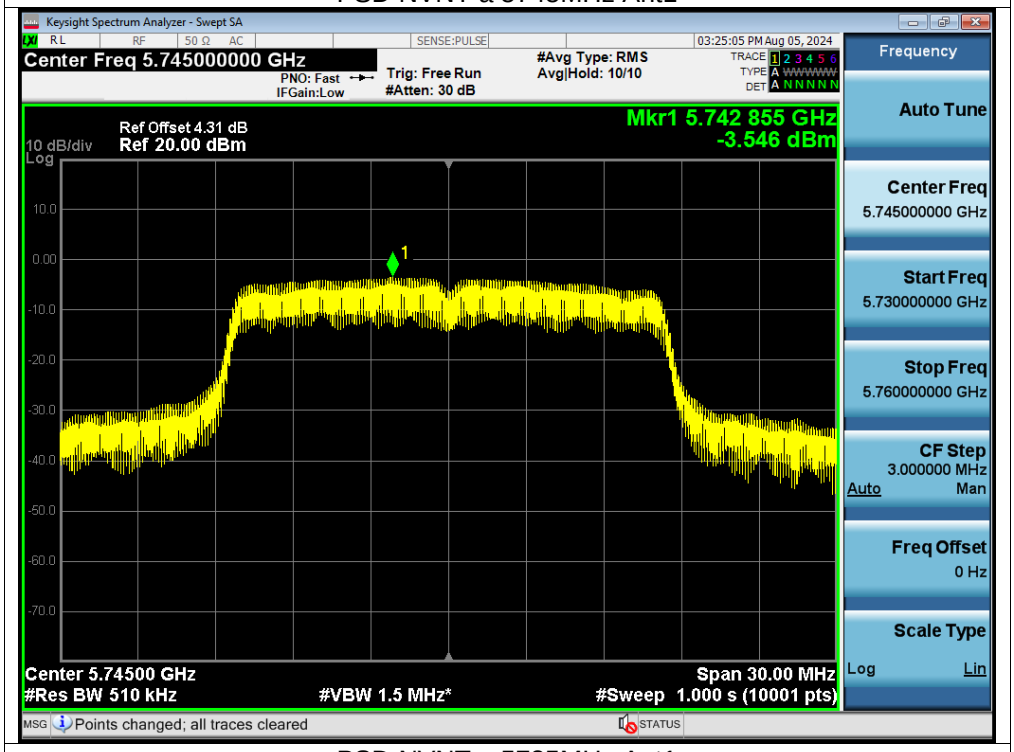
PSD NVNT n40 5670MHz Ant1

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5745-5825MHz)		

Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	a	5745	-3.55	30	Pass
NVNT	a	5785	-4.99	30	Pass
NVNT	a	5825	-5.03	30	Pass
NVNT	n20	5745	-3.83	30	Pass
NVNT	n20	5785	-4.55	30	Pass
NVNT	n20	5825	-4.06	30	Pass
NVNT	n40	5755	-8.29	30	Pass
NVNT	n40	5795	-8.84	30	Pass

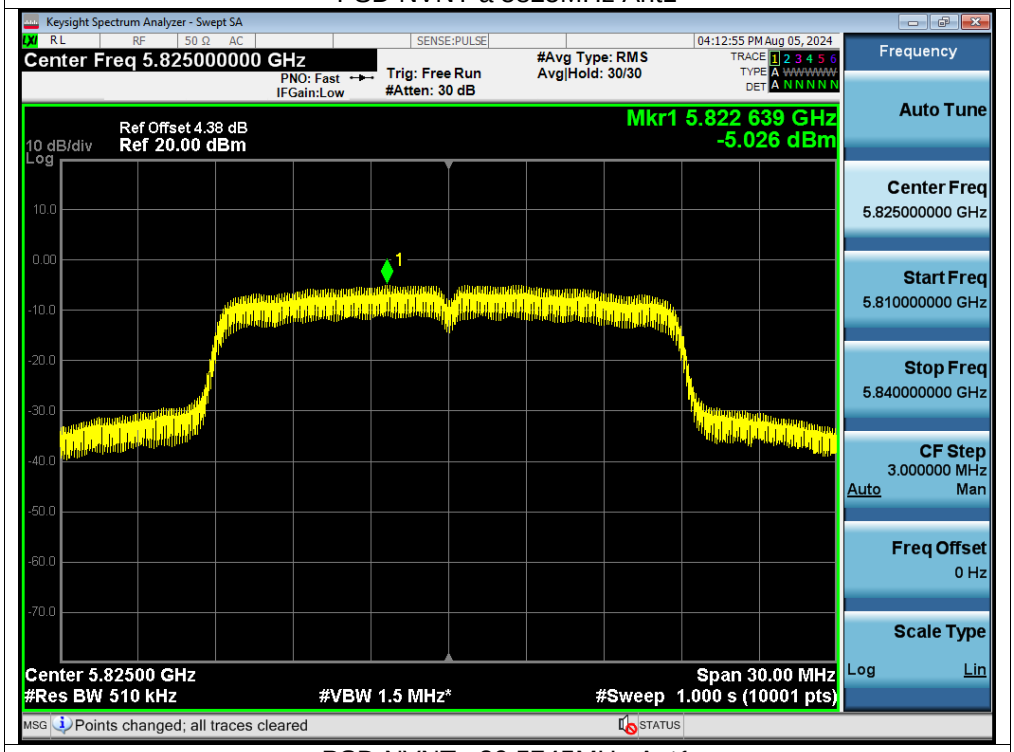
Test Graphs

PSD NVNT a 5745MHz Ant1

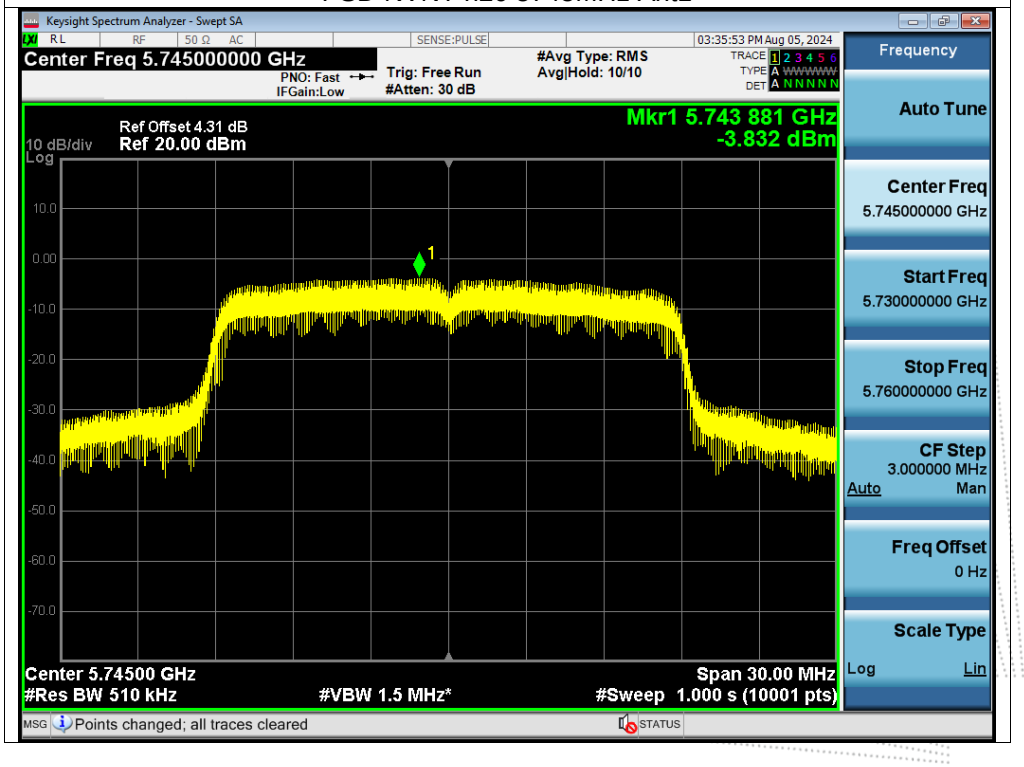


PSD NVNT a 5785MHz Ant1

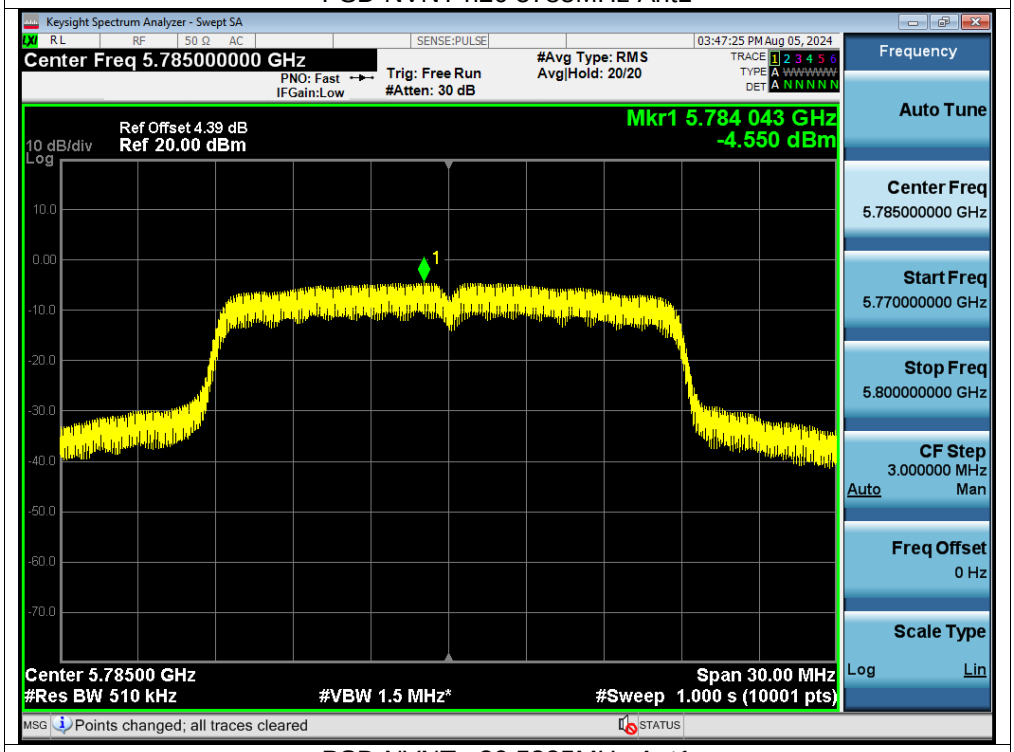
PSD NVNT a 5825MHz Ant1



PSD NVNT n20 5745MHz Ant1



PSD NVNT n20 5785MHz Ant1



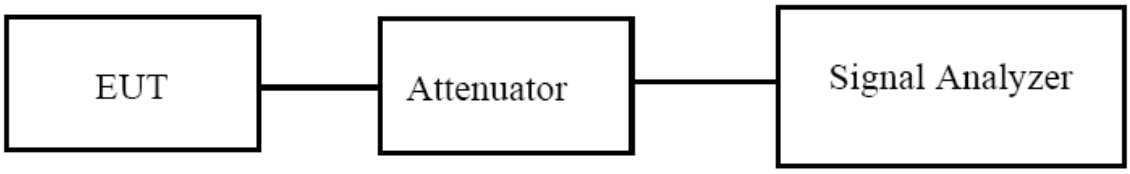
PSD NVNT n20 5825MHz Ant1

PSD NVNT n40 5755MHz Ant1

PSD NVNT n40 5795MHz Ant1

9. 26dB & 6dB & 99% Emission Bandwidth

9.1 Block Diagram Of Test Setup



9.2 Limit

(1) For the band 5.15-5.25 GHz.
(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

9.3 Test Procedure

a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) 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:
1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. 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.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. 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

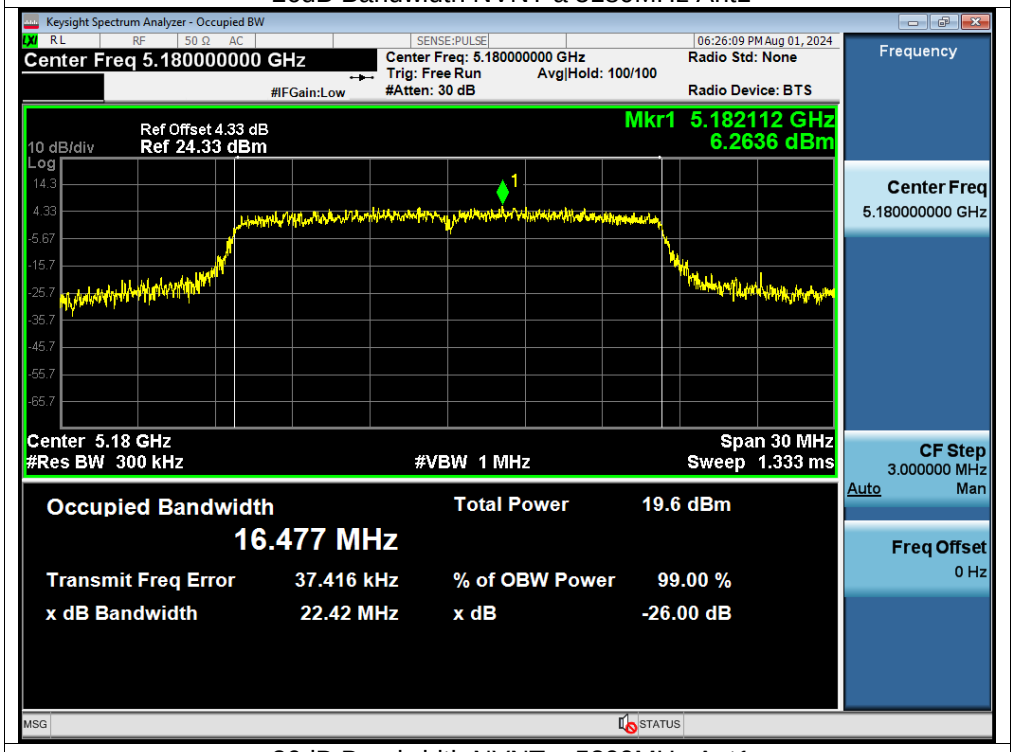
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5180-5240MHz)		

Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	22.423	Pass
NVNT	a	5200	21.378	Pass
NVNT	a	5240	19.56	Pass
NVNT	n20	5180	21.998	Pass
NVNT	n20	5200	24.007	Pass
NVNT	n20	5240	21.663	Pass
NVNT	n40	5190	38.486	Pass
NVNT	n40	5230	38.737	Pass

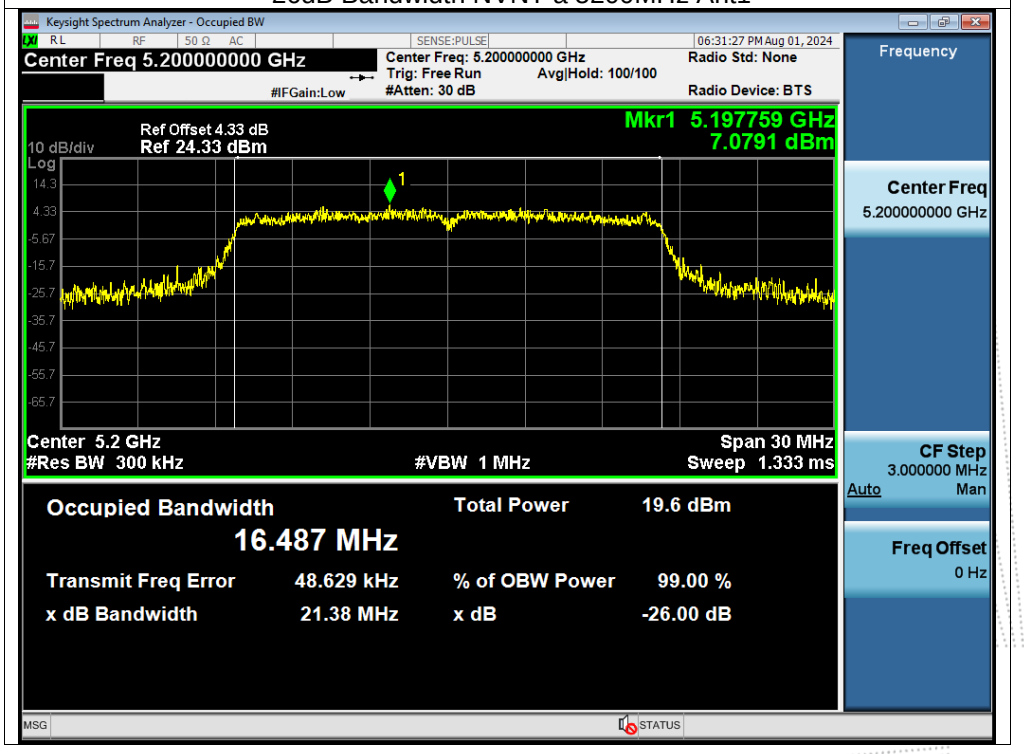
Condition	Mode	Frequency (MHz)	99% OBW (MHz)
NVNT	a	5180	16.437
NVNT	a	5200	16.395
NVNT	a	5240	16.379
NVNT	n20	5180	17.478
NVNT	n20	5200	17.483
NVNT	n20	5240	17.47
NVNT	n40	5190	35.854
NVNT	n40	5230	35.934

Test Graphs

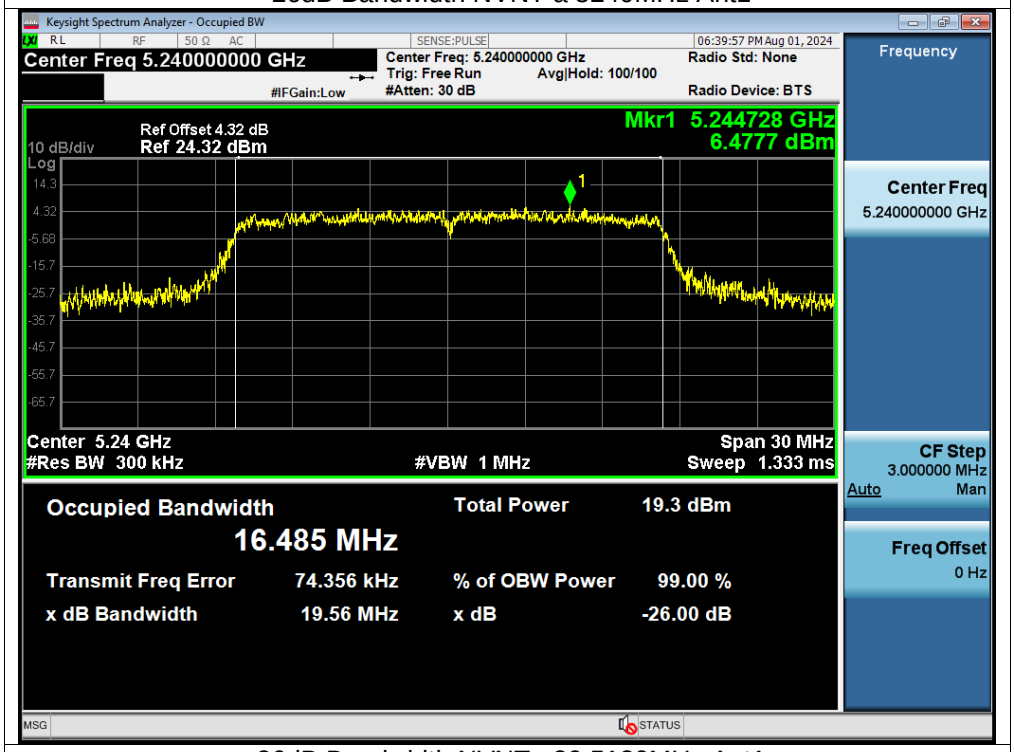
-26dB Bandwidth NVNT a 5180MHz Ant1



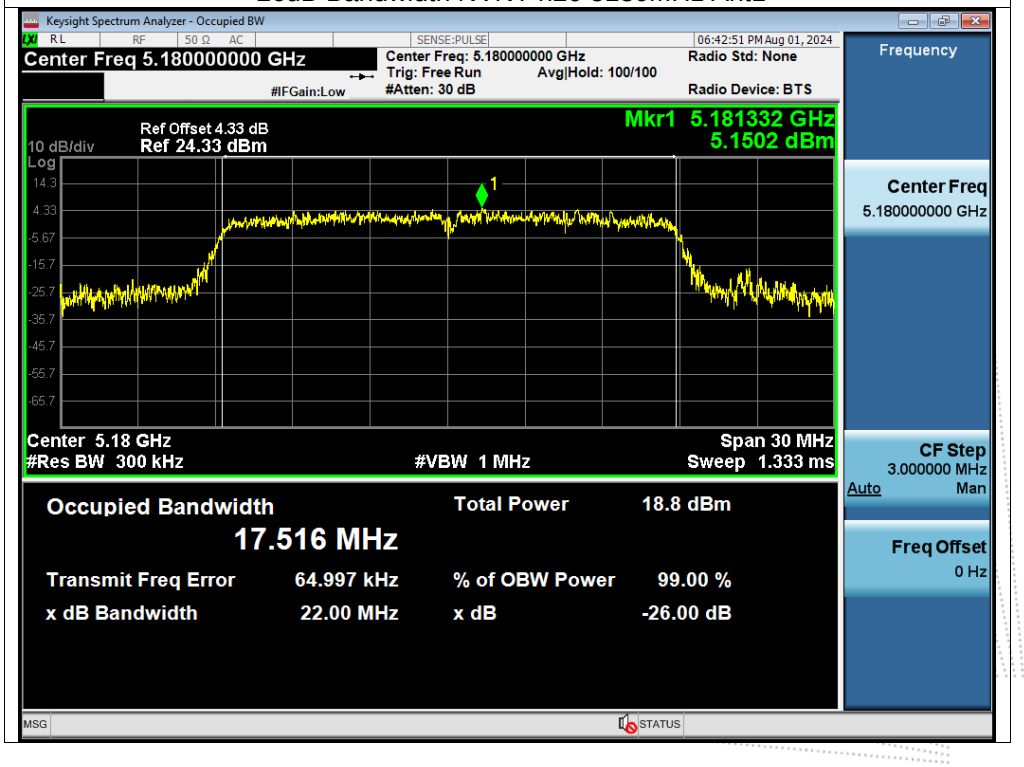
-26dB Bandwidth NVNT a 5200MHz Ant1



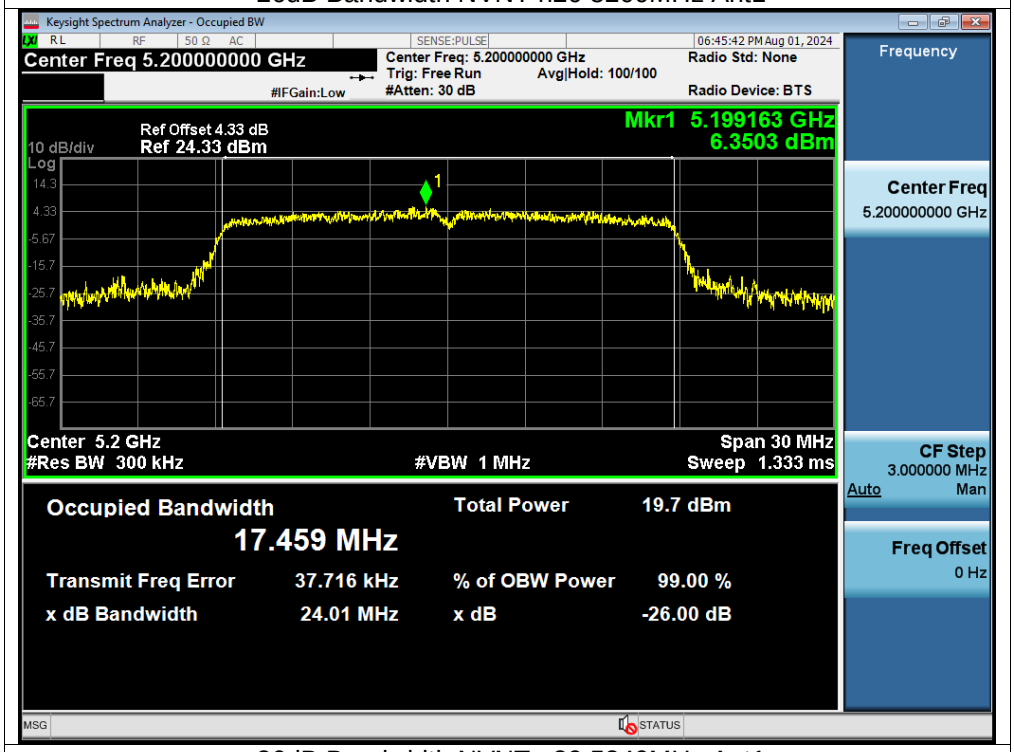
-26dB Bandwidth NVNT a 5240MHz Ant1



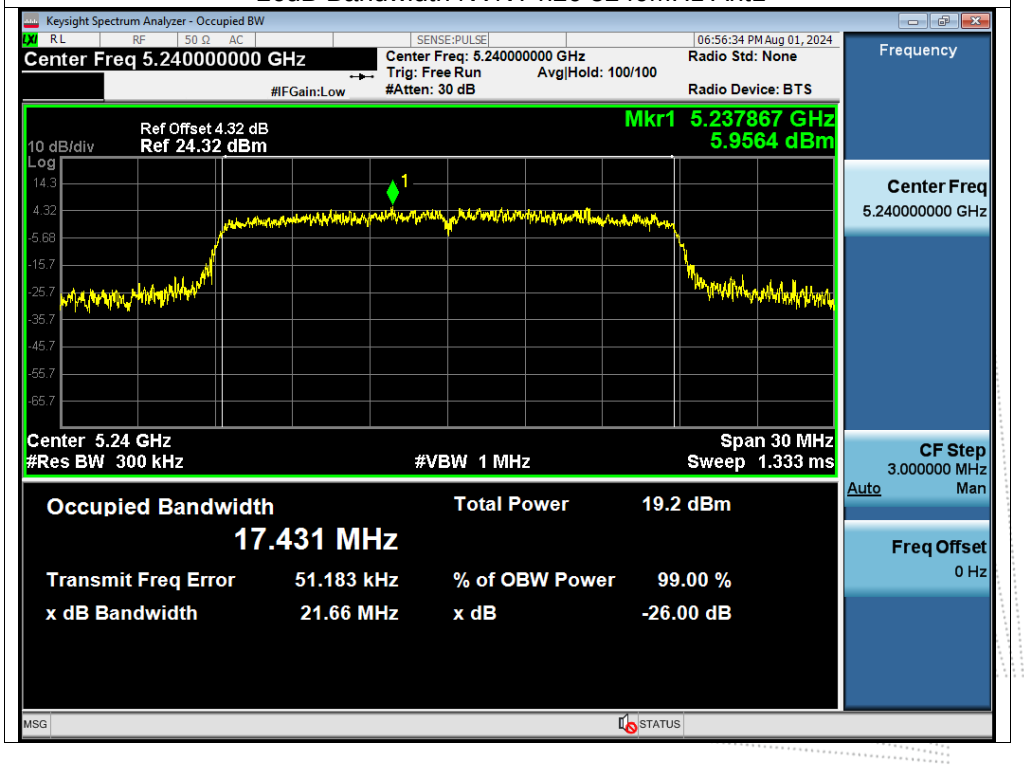
-26dB Bandwidth NVNT n20 5180MHz Ant1



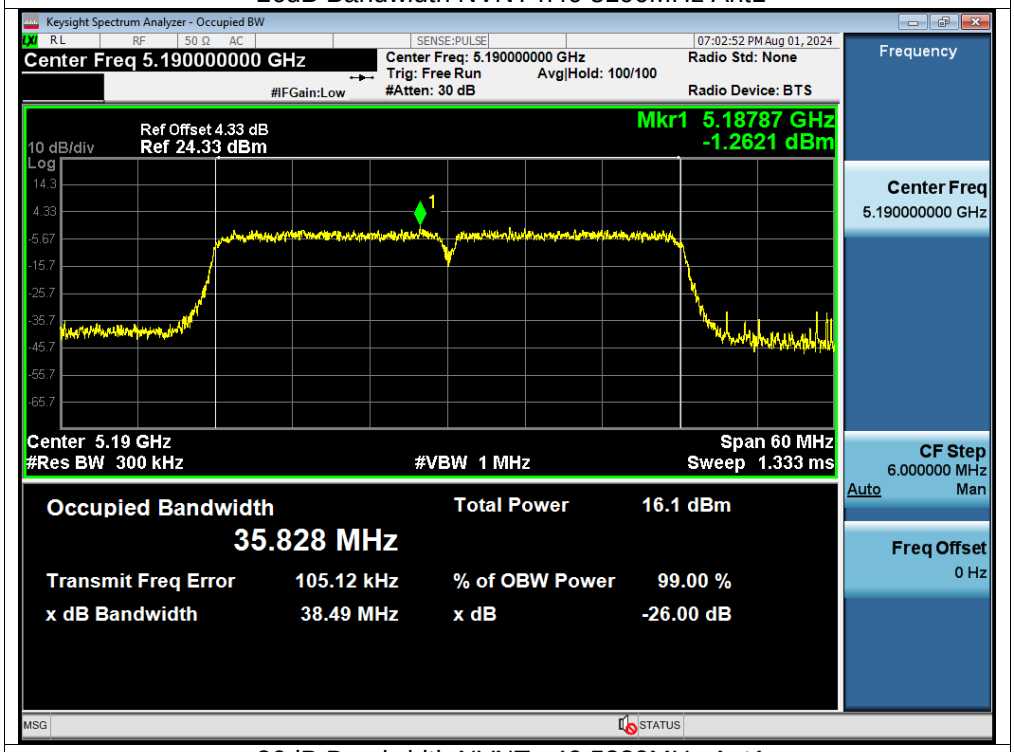
-26dB Bandwidth NVNT n20 5200MHz Ant1



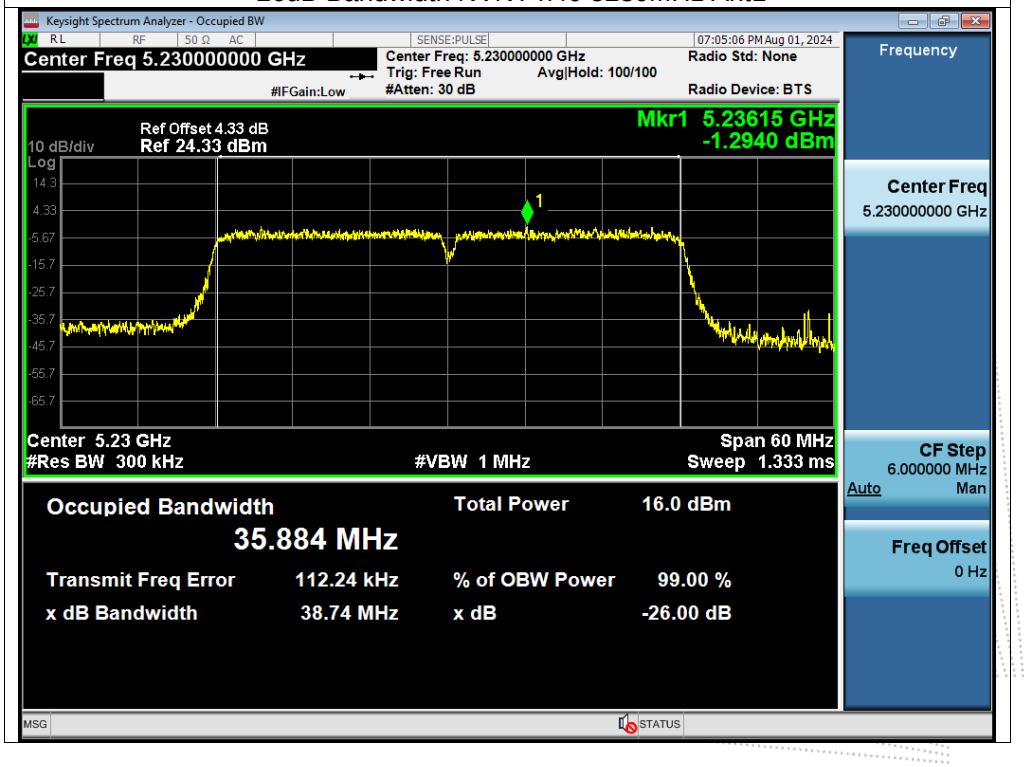
-26dB Bandwidth NVNT n20 5240MHz Ant1



-26dB Bandwidth NVNT n40 5190MHz Ant1

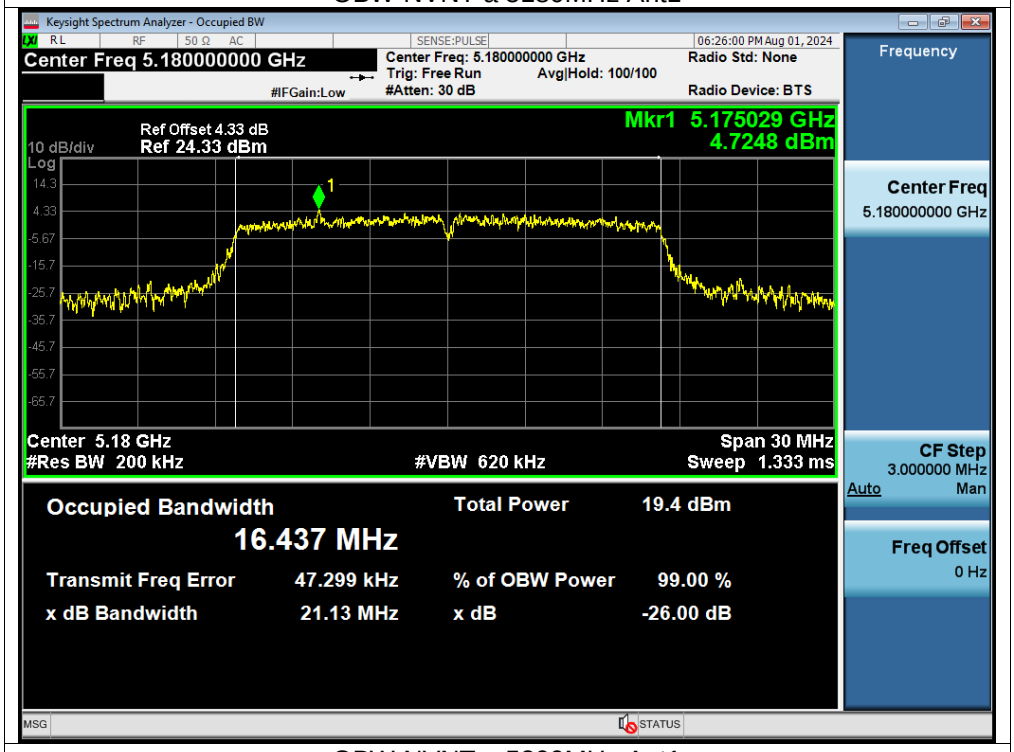


-26dB Bandwidth NVNT n40 5230MHz Ant1

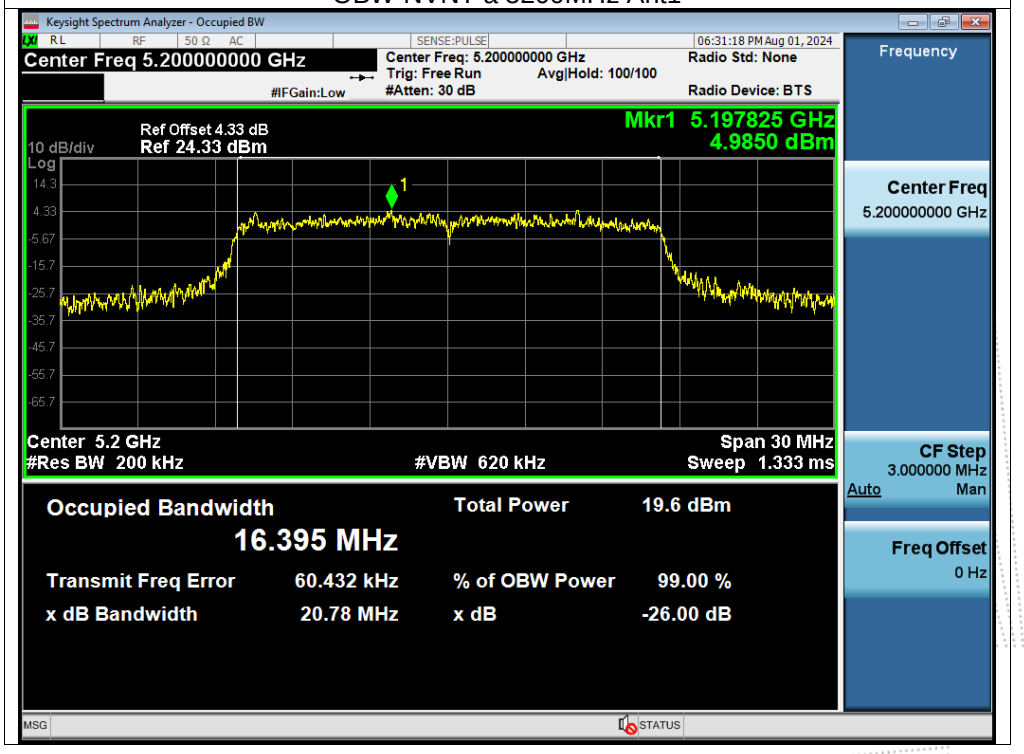


Test Graphs

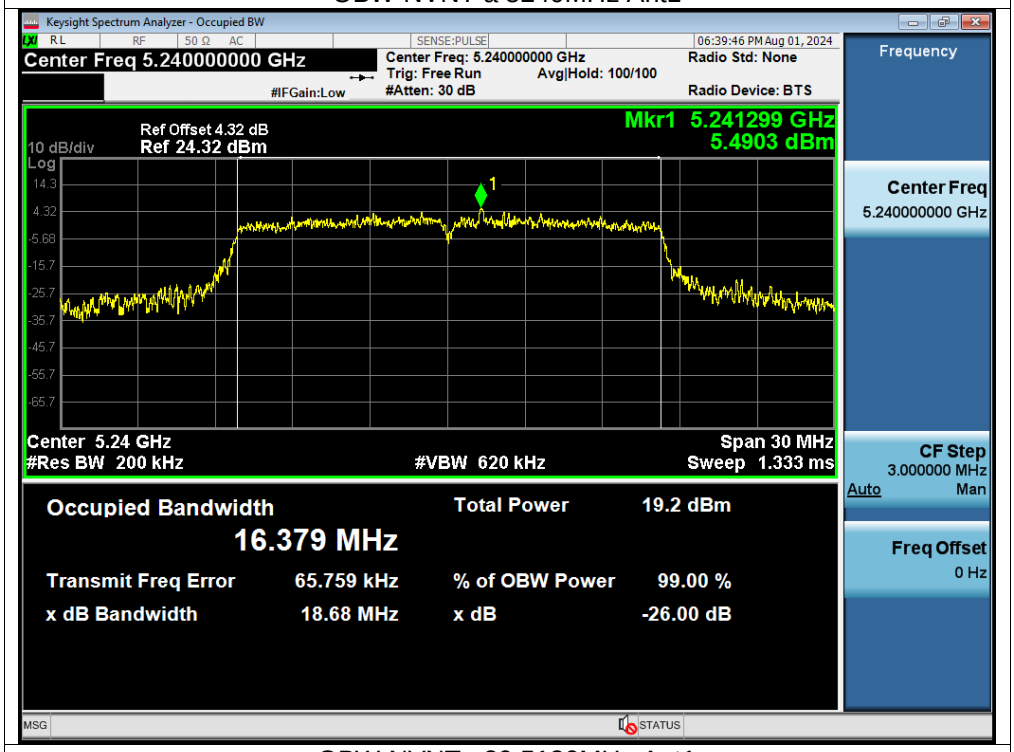
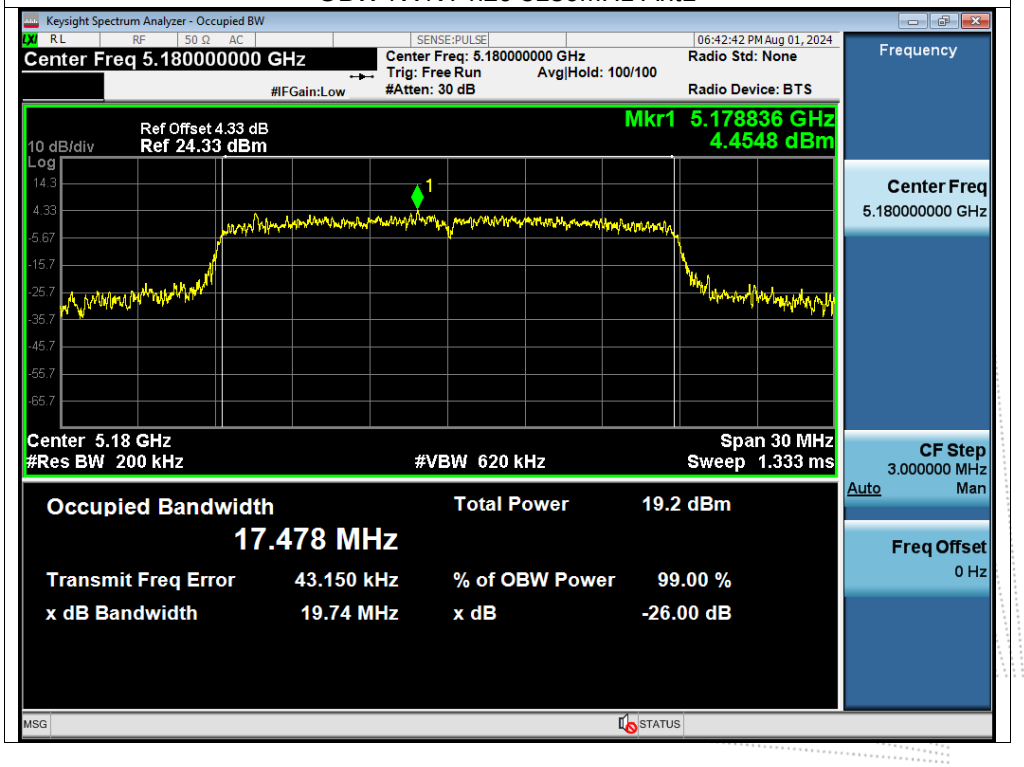
OBW NVNT a 5180MHz Ant1



OBW NVNT a 5200MHz Ant1



OBW NVNT a 5240MHz Ant1



OBW NVNT n20 5180MHz Ant1