TEST REPORT

Report No.:	BCTC2306090263-3E
Applicant:	Ecoer, Inc
Product Name:	Smart Wi-Fi Thermostat
Model/Type reference:	EST02
Tested Date:	2023-06-29 to 2023-07-18
Issued Date:	2023-07-18

Shenzhen BCTC Testing Co., Ltd.

FCC ID: 2BAPJ-EST02

Product Name:	Smart Wi-Fi Thermostat
Trademark:	N/A
Model/Type reference:	EST02
Prepared For:	Ecoer, Inc
Address:	43671 Trade Center Place, Suite 100 Dulles, Virginia, United States 20166
Manufacturer:	Ecoer, Inc
Address:	43671 Trade Center Place, Suite 100 Dulles, Virginia, United States 20166
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:	2023-06-29
Sample tested Date:	2023-06-29 to 2023-07-18
Issue Date:	2023-07-18
Report No.:	BCTC2306090263-3E
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
BCTC2306090263-3E	2023-07-18	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

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

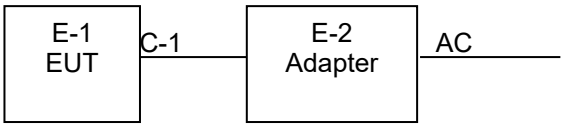
4.1 Product Information

Model/Type Ref.:	EST02
Model differences:	N/A
Hardware Version:	N/A
Software Version:	N/A
IEEE 802.11 WLAN Mode Supported	802.11a/n/ac(20MHz channel bandwidth) 802.11n/ac(40MHz channel bandwidth)
Operation Frequency:	5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); 5745-5825MHz for 802.11a/n(HT20); 5755-5795MHz 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 for 802.11a/n
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 ; 5 channels for 802.11a/n20 in the 5745-5825MHz band ; 2 channels for 802.11 n40 in the 5755-5795MHz band
Antenna installation:	FPC antenna
Antenna Gain:	2.9 dBi
Ratings:	AC 120V/60Hz form adapter to AC 24V output

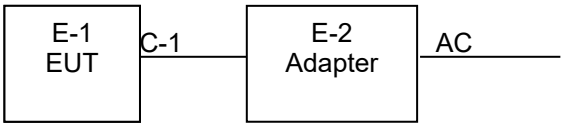
4.2 Test Setup Configuration

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	Smart Wi-Fi Thermostat	N/A	EST02	N/A	EUT
E-2	Adapter	N/A	AC-AC	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.5M	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	-	-	-	-	-	-

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	-	-

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	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 3	Link Mode

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

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	SecureCRT		
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

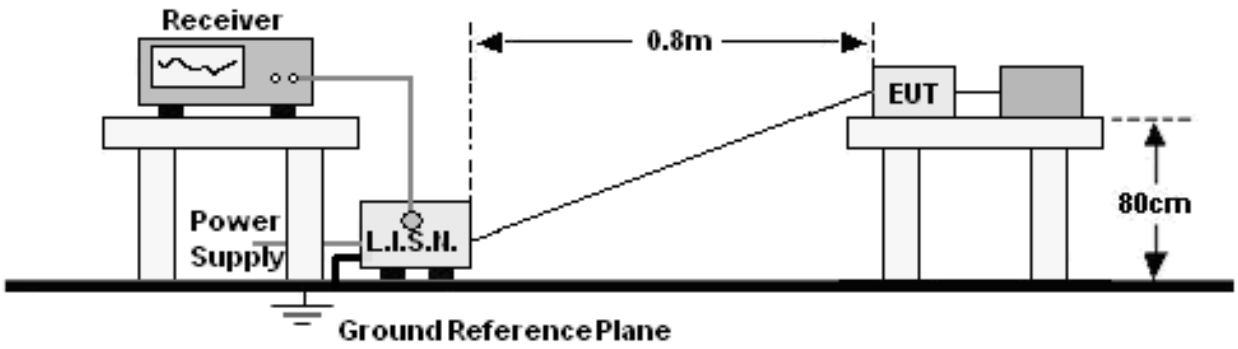
Conducted Emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 15, 2023	May 14, 2024
LISN	R&S	ENV216	101375	May 15, 2023	May 14, 2024
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	10dB DC-6GHz	1650	May 15, 2023	May 14, 2024

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

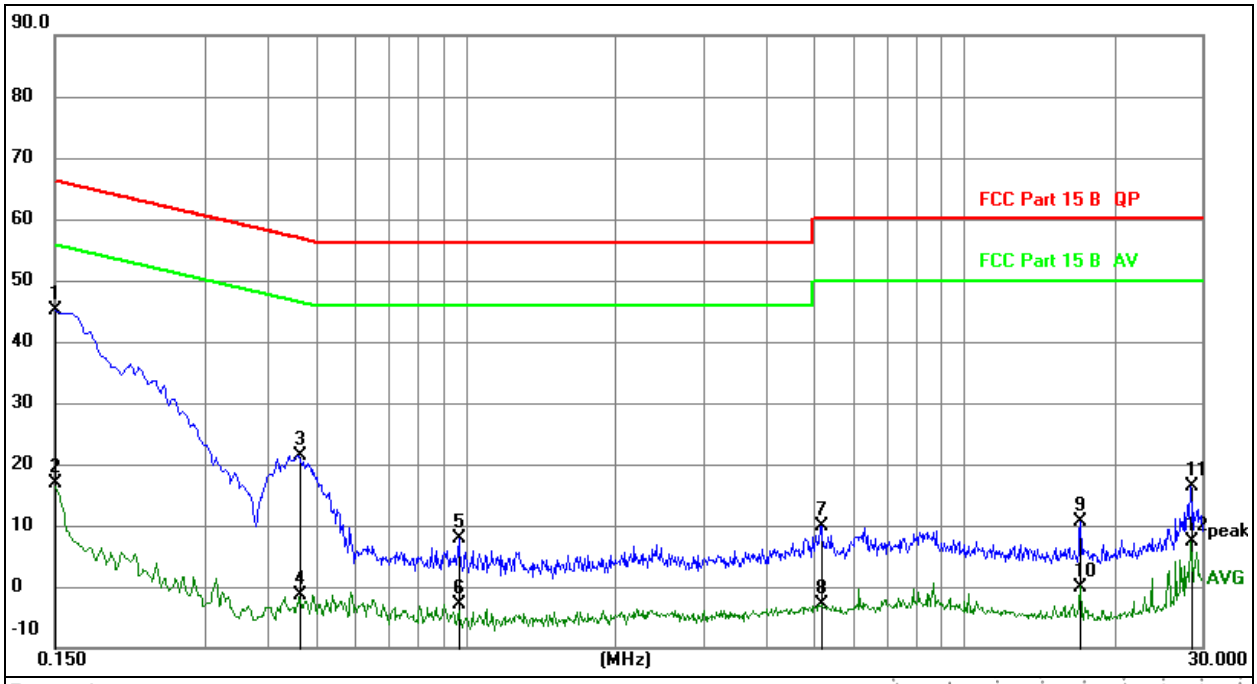
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak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

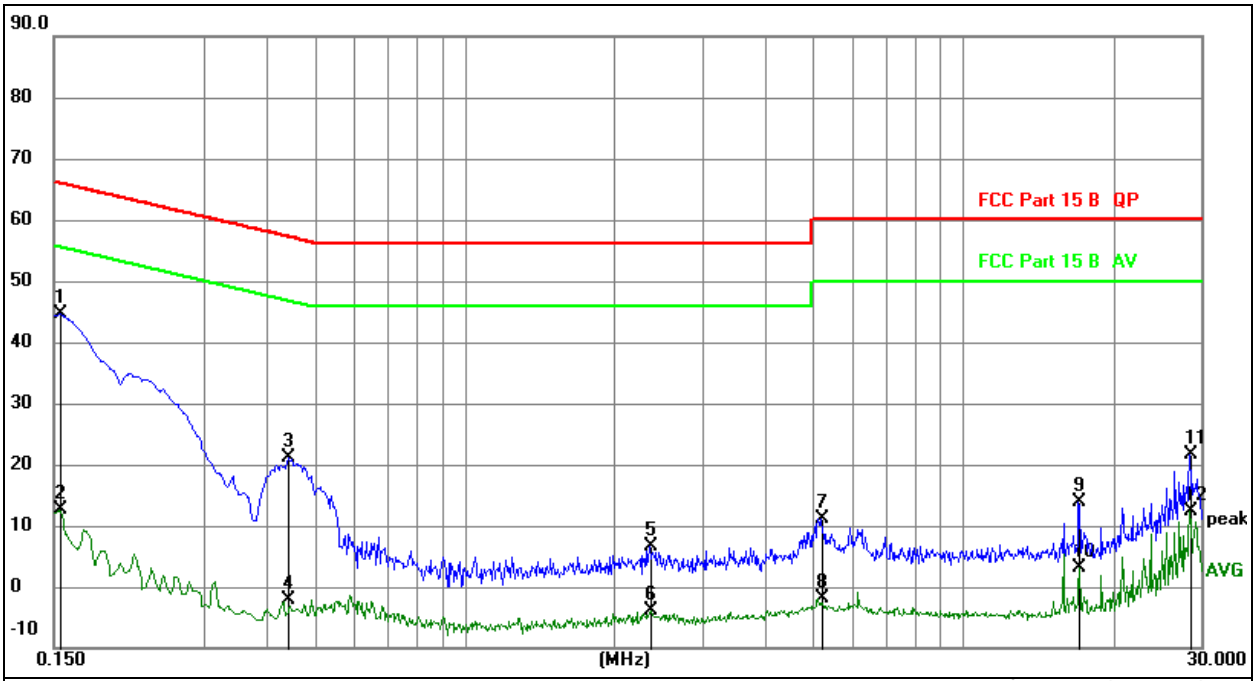
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz form adapter to AC 24V output



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	*	0.1500	35.73	9.51	45.24	66.00	-20.76	QP
2		0.1500	7.40	9.51	16.91	56.00	-39.09	AVG
3		0.4637	11.85	9.62	21.47	56.63	-35.16	QP
4		0.4637	-10.97	9.62	-1.35	46.63	-47.98	AVG
5		0.9684	-1.73	9.72	7.99	56.00	-48.01	QP
6		0.9684	-12.66	9.72	-2.94	46.00	-48.94	AVG
7		5.1663	0.17	9.80	9.97	60.00	-50.03	QP
8		5.1663	-12.59	9.80	-2.79	50.00	-52.79	AVG
9		17.1084	1.03	9.71	10.74	60.00	-49.26	QP
10		17.1084	-9.71	9.71	0.00	50.00	-50.00	AVG
11		28.4519	6.77	9.71	16.48	60.00	-43.52	QP
12		28.4519	-2.33	9.71	7.38	50.00	-42.62	AVG

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz form adapter to AC 24V output



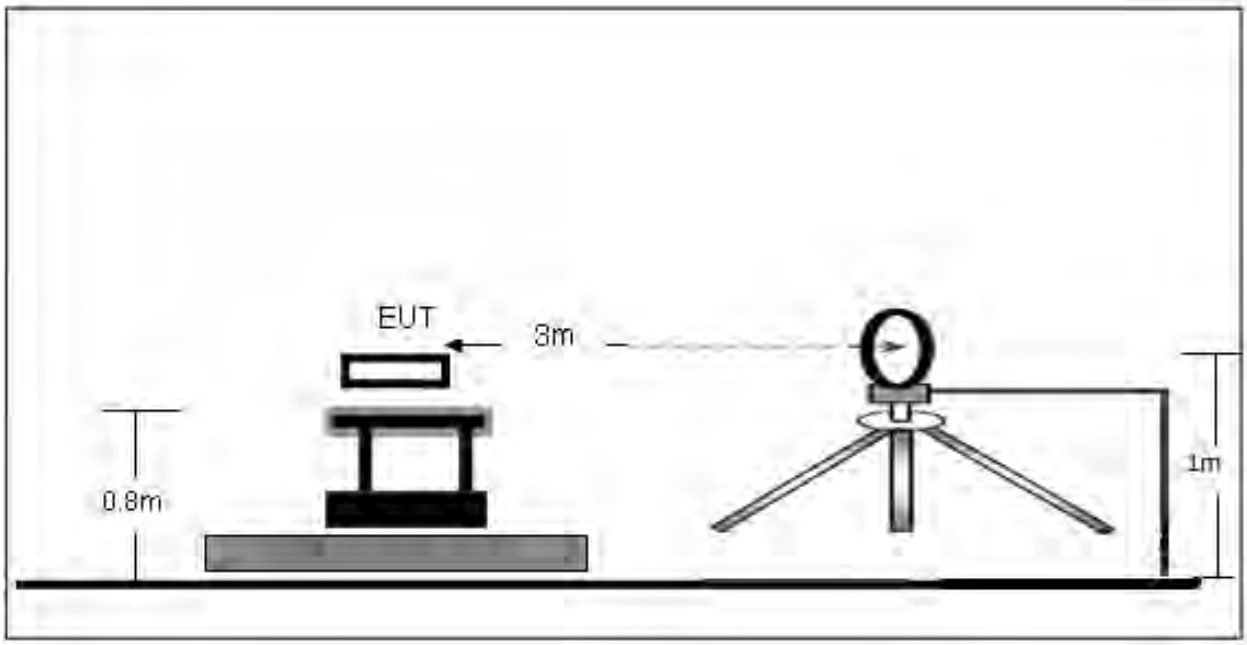
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over1 Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1	*	0.1545	35.16	9.52	44.68	65.75	-21.07	QP
2		0.1545	3.16	9.52	12.68	55.75	-43.07	AVG
3		0.4425	11.57	9.62	21.19	57.01	-35.82	QP
4		0.4425	-11.79	9.62	-2.17	47.01	-49.18	AVG
5		2.3460	-3.14	9.75	6.61	56.00	-49.39	QP
6		2.3460	-13.58	9.75	-3.83	46.00	-49.83	AVG
7		5.1945	1.43	9.80	11.23	60.00	-48.77	QP
8		5.1945	-11.69	9.80	-1.89	50.00	-51.89	AVG
9		17.0700	4.22	9.71	13.93	60.00	-46.07	QP
10		17.0700	-6.48	9.71	3.23	50.00	-46.77	AVG
11		28.5270	11.88	9.71	21.59	60.00	-38.41	QP
12		28.5270	2.61	9.71	12.32	50.00	-37.68	AVG

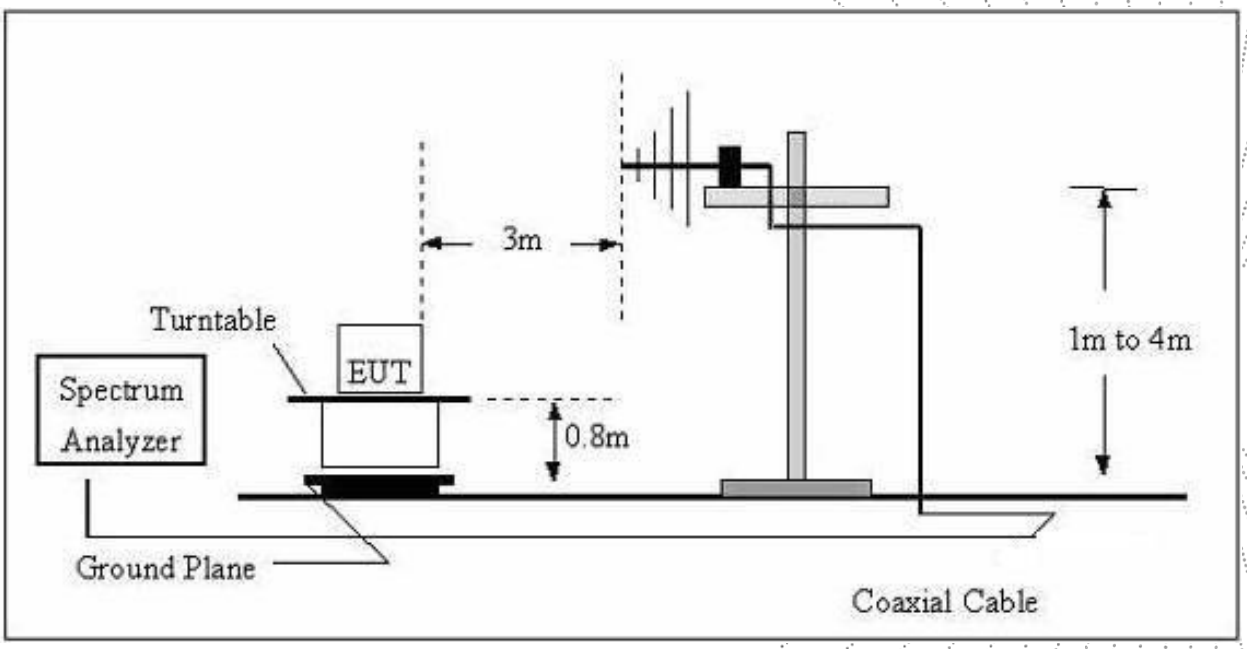
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

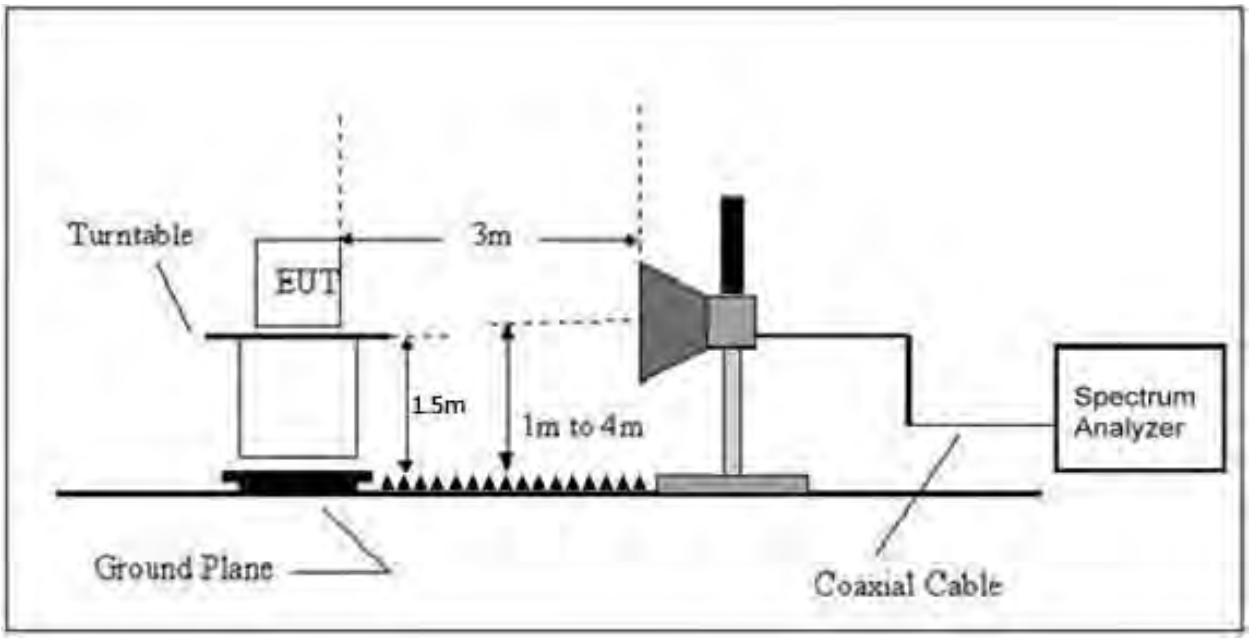
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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

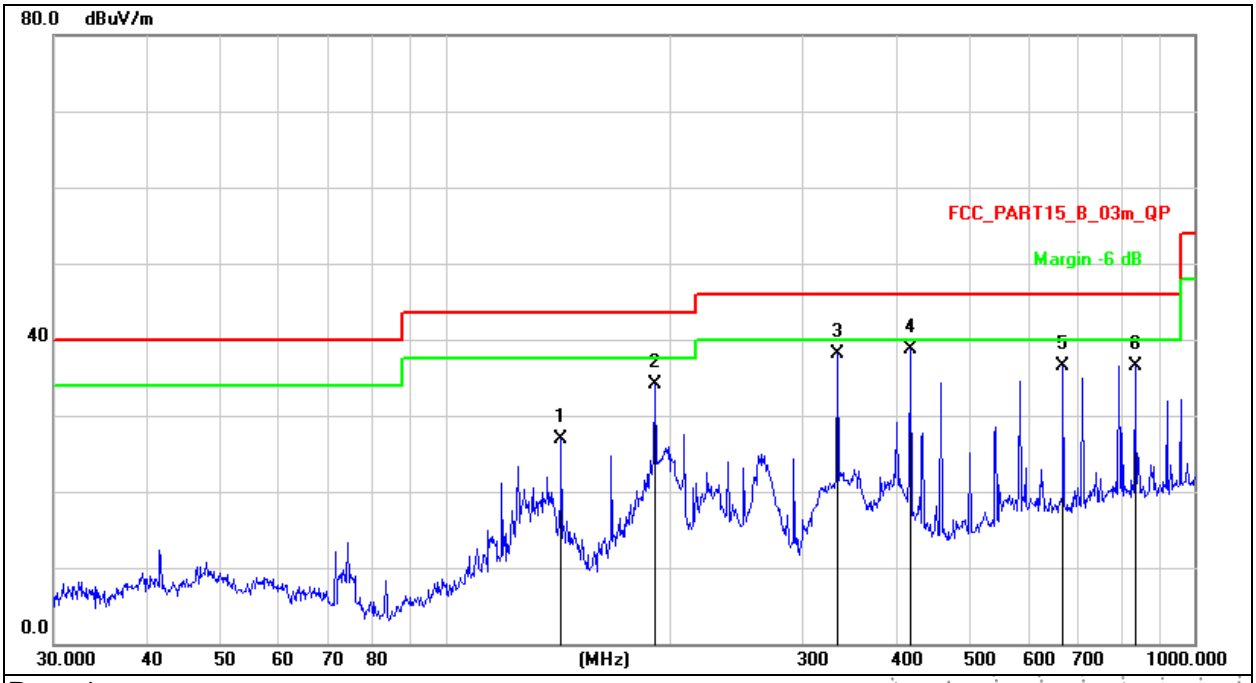
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz form adapter to AC 24V output
Test Mode:	Mode 3	Polarization :	--

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

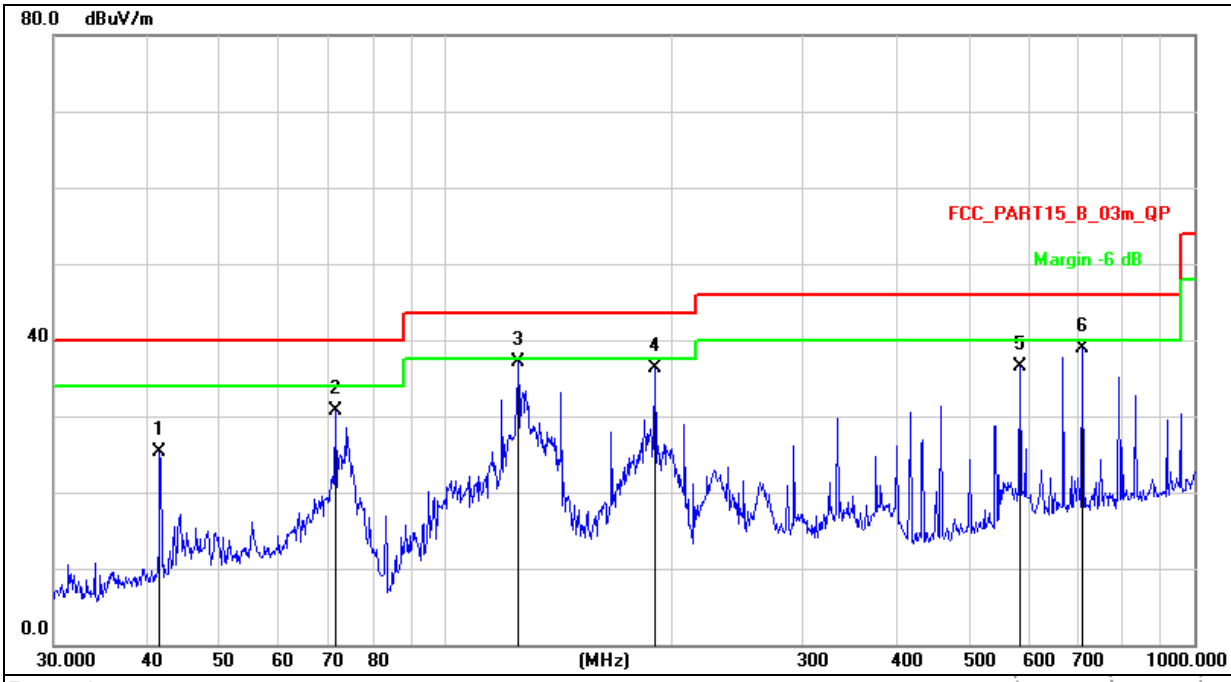
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz form adapter to AC 24V output



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		142.8243	47.53	-20.58	26.95	43.50	-16.55	QP
2		190.4050	52.10	-18.08	34.02	43.50	-9.48	QP
3		333.6867	51.46	-13.37	38.09	46.00	-7.91	QP
4	*	417.6411	50.68	-11.96	38.72	46.00	-7.28	QP
5		668.1423	44.03	-7.51	36.52	46.00	-9.48	QP
6		833.3171	41.87	-5.29	36.58	46.00	-9.42	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz form adapter to AC 24V output



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		41.5670	41.86	-16.54	25.32	40.00	-14.68	QP
2		71.3300	50.82	-20.16	30.66	40.00	-9.34	QP
3	*	125.0066	56.51	-19.41	37.10	43.50	-6.40	QP
4		190.4050	54.35	-18.08	36.27	43.50	-7.23	QP
5		584.7895	45.17	-8.74	36.43	46.00	-9.57	QP
6		709.1823	46.01	-7.04	38.97	46.00	-7.03	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	4434.030	61.71	5.94	35.40	44.00	59.05	68.2	-9.15	PK
V	4434.030	43.01	5.94	35.40	44.00	40.35	54	-13.65	AV
V	10360.151	61.24	8.46	39.75	44.50	64.95	68.2	-3.25	PK
V	10360.151	43.40	8.46	39.75	44.50	47.11	54	-6.89	AV
V	15540.192	64.24	10.12	38.80	44.10	69.06	74	-4.94	PK
V	15540.192	43.26	10.12	38.80	42.70	49.48	54	-4.52	AV
H	4434.084	61.28	5.94	35.18	44.00	58.40	68.2	-9.80	PK
H	4434.084	43.81	5.94	35.18	44.00	40.93	54	-13.07	AV
H	10360.030	51.60	8.46	38.71	44.50	54.27	68.2	-13.93	PK
H	10360.030	42.22	8.46	38.71	44.50	44.89	54	-9.11	AV
H	15540.026	54.61	10.12	38.38	44.10	59.01	74	-14.99	PK
H	15540.026	44.19	10.12	38.38	44.10	48.59	54	-5.41	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.040	61.63	6.48	36.35	44.05	60.41	74	-13.59	PK
V	4592.040	43.88	6.48	36.35	44.05	42.66	54	-11.34	AV
V	10400.170	62.92	8.47	37.88	44.51	64.76	68.2	-3.44	PK
V	10400.170	43.77	8.47	37.88	44.51	45.61	54	-8.39	AV
V	15600.086	62.29	10.12	38.80	44.10	67.11	74	-6.89	PK
V	15600.086	43.78	10.12	38.80	42.70	50.00	54	-4.00	AV
H	4592.082	64.91	6.48	36.37	44.05	63.71	74	-10.29	PK
H	4592.082	43.31	6.48	36.37	44.05	42.11	54	-11.89	AV
H	10400.172	54.71	8.47	38.64	44.50	57.32	68.2	-10.88	PK
H	10400.172	41.23	8.47	38.64	44.50	43.84	54	-10.16	AV
H	15600.099	51.06	10.12	38.38	44.10	55.46	74	-18.54	PK
H	15600.099	41.44	10.12	38.38	44.10	45.84	54	-8.16	AV
High Channel (5240 MHz)-Above 1G									
V	4739.166	64.67	7.10	37.24	43.50	65.51	74	-8.49	PK
V	4739.166	43.74	7.10	37.24	43.50	44.58	54	-9.42	AV
V	10480.138	64.66	8.46	37.68	44.50	66.30	68.2	-1.90	PK
V	10480.138	43.24	8.46	37.68	44.50	44.88	54	-9.12	AV
V	15720.103	60.08	10.12	38.80	44.10	64.90	74	-9.10	PK
V	15720.103	43.78	10.12	38.80	42.70	50.00	54	-4.00	AV
H	4739.061	60.72	7.10	37.24	43.50	61.56	74	-12.44	PK
H	4739.061	43.18	7.10	37.24	43.50	44.02	54	-9.98	AV
H	10480.191	54.76	8.46	38.57	44.50	57.29	68.2	-10.91	PK
H	10480.191	43.53	8.46	38.57	44.50	46.06	54	-7.94	AV
H	15720.051	54.67	10.12	38.38	44.10	59.07	74	-14.93	PK
H	15720.051	43.04	10.12	38.38	44.10	47.44	54	-6.56	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(5.1G) - 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	4434.112	64.84	5.94	35.40	44.00	62.18	68.2	-6.02	PK
V	4434.112	43.55	5.94	35.40	44.00	40.89	54	-13.11	AV
V	10360.136	63.34	8.46	39.75	44.50	67.05	68.2	-1.15	PK
V	10360.136	43.51	8.46	39.75	44.50	47.22	54	-6.78	AV
V	15540.160	60.76	10.12	38.80	44.10	65.58	74	-8.42	PK
V	15540.160	43.59	10.12	38.80	42.70	49.81	54	-4.19	AV
H	4434.032	64.61	5.94	35.18	44.00	61.73	68.2	-6.47	PK
H	4434.032	43.89	5.94	35.18	44.00	41.01	54	-12.99	AV
H	10360.105	51.03	8.46	38.71	44.50	53.70	68.2	-14.50	PK
H	10360.105	41.91	8.46	38.71	44.50	44.58	54	-9.42	AV
H	15540.049	51.42	10.12	38.38	44.10	55.82	74	-18.18	PK
H	15540.049	42.74	10.12	38.38	44.10	47.14	54	-6.86	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.074	62.12	6.48	36.35	44.05	60.90	74	-13.10	PK
V	4592.074	43.17	6.48	36.35	44.05	41.95	54	-12.05	AV
V	10400.021	62.44	8.47	37.88	44.51	64.28	68.2	-3.92	PK
V	10400.021	43.64	8.47	37.88	44.51	45.48	54	-8.52	AV
V	15600.035	64.16	10.12	38.80	44.10	68.98	74	-5.02	PK
V	15600.035	43.52	10.12	38.80	42.70	49.74	54	-4.26	AV
H	4592.068	64.97	6.48	36.37	44.05	63.77	74	-10.23	PK
H	4592.068	43.84	6.48	36.37	44.05	42.64	54	-11.36	AV
H	10400.063	50.48	8.47	38.64	44.50	53.09	68.2	-15.11	PK
H	10400.063	41.78	8.47	38.64	44.50	44.39	54	-9.61	AV
H	15600.069	50.79	10.12	38.38	44.10	55.19	74	-18.81	PK
H	15600.069	40.87	10.12	38.38	44.10	45.27	54	-8.73	AV
High Channel (5240 MHz)-Above 1G									
V	4739.127	61.92	7.10	37.24	43.50	62.76	74	-11.24	PK
V	4739.127	43.40	7.10	37.24	43.50	44.24	54	-9.76	AV
V	10480.021	63.04	8.46	37.68	44.50	64.68	68.2	-3.52	PK
V	10480.021	43.84	8.46	37.68	44.50	45.48	54	-8.52	AV
V	15720.192	62.92	10.12	38.80	44.10	67.74	74	-6.26	PK
V	15720.192	43.52	10.12	38.80	42.70	49.74	54	-4.26	AV
H	4739.116	60.59	7.10	37.24	43.50	61.43	74	-12.57	PK
H	4739.116	43.86	7.10	37.24	43.50	44.70	54	-9.30	AV
H	10480.123	52.27	8.46	38.57	44.50	54.80	68.2	-13.40	PK
H	10480.123	42.38	8.46	38.57	44.50	44.91	54	-9.09	AV
H	15720.096	53.57	10.12	38.38	44.10	57.97	74	-16.03	PK
H	15720.096	43.90	10.12	38.38	44.10	48.30	54	-5.70	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 (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	4434.021	60.49	5.94	35.40	44.00	57.83	68.2	-10.37	PK
V	4434.021	43.89	5.94	35.40	44.00	41.23	54	-12.77	AV
V	10380.081	61.48	8.46	39.75	44.50	65.19	68.2	-3.01	PK
V	10380.081	43.67	8.46	39.75	44.50	47.38	54	-6.62	AV
V	15570.043	64.22	10.12	38.80	44.10	69.04	74	-4.96	PK
V	15570.043	43.68	10.12	38.80	42.70	49.90	54	-4.10	AV
H	4434.052	64.72	5.94	35.18	44.00	61.84	74	-12.16	PK
H	4434.052	43.70	5.94	35.18	44.00	40.82	54	-13.18	AV
H	10380.127	50.08	8.46	38.71	44.50	52.75	68.2	-15.45	PK
H	10380.127	43.22	8.46	38.71	44.50	45.89	54	-8.11	AV
H	15570.126	53.87	10.12	38.38	44.10	58.27	74	-15.73	PK
H	15570.126	41.41	10.12	38.38	44.10	45.81	54	-8.19	AV
middle Channel (5230 MHz)-Above 1G									
V	4739.063	64.52	6.48	36.35	44.05	63.30	68.2	-4.90	PK
V	4739.063	43.54	6.48	36.35	44.05	42.32	54	-11.68	AV
V	10460.072	63.87	8.47	37.88	44.51	65.71	68.2	-2.49	PK
V	10460.072	43.77	8.47	37.88	44.51	45.61	54	-8.39	AV
V	15690.044	63.67	10.12	38.80	44.10	68.49	74	-5.51	PK
V	15690.044	43.11	10.12	38.80	42.70	49.33	54	-4.67	AV
H	4739.030	64.35	6.48	36.37	44.05	63.15	68.2	-5.05	PK
H	4739.030	43.22	6.48	36.37	44.05	42.02	54	-11.98	AV
H	10460.168	50.44	8.47	38.64	44.50	53.05	68.2	-15.15	PK
H	10460.168	41.53	8.47	38.64	44.50	44.14	54	-9.86	AV
H	15690.090	53.78	10.12	38.38	44.10	58.18	74	-15.82	PK
H	15690.090	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:	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	4679.046	56.28	5.94	35.40	44.00	53.62	74	-20.38	PK
V	4679.046	43.30	5.94	35.40	44.00	40.64	54	-13.36	AV
V	11490.005	55.04	8.46	39.75	44.50	58.75	68.2	-9.45	PK
V	11490.005	43.45	8.46	39.75	44.50	47.16	54	-6.84	AV
V	17235.015	59.11	10.12	38.80	44.10	63.93	68.2	-4.27	PK
V	17235.015	43.41	10.12	38.80	42.70	49.63	54	-4.37	AV
H	4679.070	54.04	5.94	35.18	44.00	51.16	74	-22.84	PK
H	4679.070	43.09	5.94	35.18	44.00	40.21	54	-13.79	AV
H	11490.184	51.03	8.46	38.71	44.50	53.70	68.2	-14.50	PK
H	11490.184	42.39	8.46	38.71	44.50	45.06	54	-8.94	AV
H	17235.066	52.31	10.12	38.38	44.10	56.71	68.2	-11.49	PK
H	17235.066	43.17	10.12	38.38	44.10	47.57	54	-6.43	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.121	56.26	6.48	36.35	44.05	55.04	74	-18.96	PK
V	4592.121	43.91	6.48	36.35	44.05	42.69	54	-11.31	AV
V	11570.063	59.65	8.47	37.88	44.51	61.49	68.2	-6.71	PK
V	11570.063	43.37	8.47	37.88	44.51	45.21	54	-8.79	AV
V	17355.140	56.55	10.12	38.80	44.10	61.37	68.2	-6.83	PK
V	17355.140	39.60	10.12	38.80	42.70	45.82	54	-8.18	AV
H	4592.175	58.02	6.48	36.37	44.05	56.82	74	-17.18	PK
H	4592.175	43.46	6.48	36.37	44.05	42.26	54	-11.74	AV
H	11570.035	52.51	8.47	38.64	44.50	55.12	68.2	-13.08	PK
H	11570.035	43.61	8.47	38.64	44.50	46.22	54	-7.78	AV
H	17355.112	51.20	10.12	38.38	44.10	55.60	68.2	-12.60	PK
H	17355.112	44.56	10.12	38.38	44.10	48.96	54	-5.04	AV
High Channel (5825 MHz)-Above 1G									
V	6039.136	59.77	7.10	37.24	43.50	60.61	68.2	-7.59	PK
V	6039.136	43.64	7.10	37.24	43.50	44.48	54	-9.52	AV
V	11650.130	60.72	8.46	37.68	44.50	62.36	74	-11.64	PK
V	11650.130	43.78	8.46	37.68	44.50	45.42	54	-8.58	AV
V	17475.088	57.13	10.12	38.80	44.10	61.95	68.2	-6.25	PK
V	17475.088	43.69	10.12	38.80	42.70	49.91	54	-4.09	AV
H	6039.050	54.47	7.10	37.24	43.50	55.31	68.2	-12.89	PK
H	6039.050	43.66	7.10	37.24	43.50	44.50	54	-9.50	AV
H	11650.084	54.21	8.46	38.57	44.50	56.74	74	-17.26	PK
H	11650.084	44.17	8.46	38.57	44.50	46.70	54	-7.30	AV
H	17475.171	54.62	10.12	38.38	44.10	59.02	68.2	-9.18	PK
H	17475.171	44.41	10.12	38.38	44.10	48.81	54	-5.19	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode:	TX (5.8G) --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	4679.015	58.40	5.94	35.40	44.00	55.74	74	-18.26	PK
V	4679.015	43.62	5.94	35.40	44.00	40.96	54	-13.04	AV
V	11490.074	54.88	8.46	39.75	44.50	58.59	68.2	-9.61	PK
V	11490.074	43.65	8.46	39.75	44.50	47.36	54	-6.64	AV
V	17235.037	59.98	10.12	38.80	44.10	64.80	68.2	-3.40	PK
V	17235.037	43.63	10.12	38.80	42.70	49.85	54	-4.15	AV
H	4679.161	60.98	5.94	35.18	44.00	58.10	74	-15.90	PK
H	4679.161	43.97	5.94	35.18	44.00	41.09	54	-12.91	AV
H	11490.039	49.96	8.46	38.71	44.50	52.63	68.2	-15.57	PK
H	11490.039	40.11	8.46	38.71	44.50	42.78	54	-11.22	AV
H	17235.126	52.35	10.12	38.38	44.10	56.75	68.2	-11.45	PK
H	17235.126	42.53	10.12	38.38	44.10	46.93	54	-7.07	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.150	58.51	6.48	36.35	44.05	57.29	74	-16.71	PK
V	4592.150	43.98	6.48	36.35	44.05	42.76	54	-11.24	AV
V	11570.159	56.08	8.47	37.88	44.51	57.92	68.2	-10.28	PK
V	11570.159	43.53	8.47	37.88	44.51	45.37	54	-8.63	AV
V	17355.121	61.81	10.12	38.80	44.10	66.63	68.2	-1.57	PK
V	17355.121	43.51	10.12	38.80	42.70	49.73	54	-4.27	AV
H	4592.083	58.20	6.48	36.37	44.05	57.00	74	-17.00	PK
H	4592.083	43.45	6.48	36.37	44.05	42.25	54	-11.75	AV
H	11570.146	50.65	8.47	38.64	44.50	53.26	68.2	-14.94	PK
H	11570.146	41.79	8.47	38.64	44.50	44.40	54	-9.60	AV
H	17355.101	54.17	10.12	38.38	44.10	58.57	68.2	-9.63	PK
H	17355.101	40.28	10.12	38.38	44.10	44.68	54	-9.32	AV
High Channel (5825 MHz)-Above 1G									
V	6039.102	58.18	7.10	37.24	43.50	59.02	68.2	-9.18	PK
V	6039.102	43.81	7.10	37.24	43.50	44.65	54	-9.35	AV
V	11650.118	58.88	8.46	37.68	44.50	60.52	74	-13.48	PK
V	11650.118	43.57	8.46	37.68	44.50	45.21	54	-8.79	AV
V	17475.070	56.87	10.12	38.80	44.10	61.69	68.2	-6.51	PK
V	17475.070	43.80	10.12	38.80	42.70	50.02	54	-3.98	AV
H	6039.187	55.05	7.10	37.24	43.50	55.89	68.2	-12.31	PK
H	6039.187	43.81	7.10	37.24	43.50	44.65	54	-9.35	AV
H	11650.162	54.06	8.46	38.57	44.50	56.59	74	-17.41	PK
H	11650.162	40.70	8.46	38.57	44.50	43.23	54	-10.77	AV
H	17475.168	54.98	10.12	38.38	44.10	59.38	68.2	-8.82	PK
H	17475.168	40.97	10.12	38.38	44.10	45.37	54	-8.63	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.

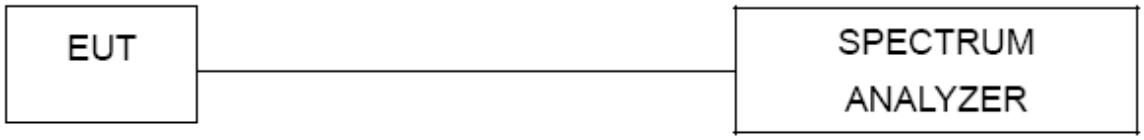
Test Mode:	TX (5.8G) -- 802.11n-HT40

Polar (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	4679.117	59.09	5.94	35.40	44.00	56.43	74	-17.57	PK
V	4679.117	43.07	5.94	35.40	44.00	40.41	54	-13.59	AV
V	11510.178	56.68	8.46	39.75	44.50	60.39	74	-13.61	PK
V	11510.178	43.65	8.46	39.75	44.50	47.36	54	-6.64	AV
V	17265.119	58.61	10.12	38.80	44.10	63.43	68.2	-4.77	PK
V	17265.119	43.57	10.12	38.80	42.70	49.79	54	-4.21	AV
H	4679.196	56.19	5.94	35.18	44.00	53.31	74	-20.69	PK
H	4679.196	43.01	5.94	35.18	44.00	40.13	54	-13.87	AV
H	11510.067	51.55	8.46	38.71	44.50	54.22	74	-19.78	PK
H	11510.067	40.96	8.46	38.71	44.50	43.63	54	-10.37	AV
H	17265.068	54.75	10.12	38.38	44.10	59.15	68.2	-9.05	PK
H	17265.068	44.12	10.12	38.38	44.10	48.52	54	-5.48	AV
middle Channel (5795 MHz)-Above 1G									
V	6039.022	60.36	6.48	36.35	44.05	59.14	68.2	-9.06	PK
V	6039.022	43.55	6.48	36.35	44.05	42.33	54	-11.67	AV
V	11590.196	55.15	8.47	37.88	44.51	56.99	74	-17.01	PK
V	11590.196	43.98	8.47	37.88	44.51	45.82	54	-8.18	AV
V	17385.055	55.11	10.12	38.80	44.10	59.93	68.2	-8.27	PK
V	17385.055	41.02	10.12	38.80	42.70	47.24	54	-6.76	AV
H	6039.042	60.04	6.48	36.37	44.05	58.84	68.2	-9.36	PK
H	6039.042	43.24	6.48	36.37	44.05	42.04	54	-11.96	AV
H	11590.029	52.76	8.47	38.64	44.50	55.37	74	-18.63	PK
H	11590.029	44.60	8.47	38.64	44.50	47.21	54	-6.79	AV
H	17385.191	54.87	10.12	38.38	44.10	59.27	68.2	-8.93	PK
H	17385.191	42.38	10.12	38.38	44.10	46.78	54	-7.22	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.

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.

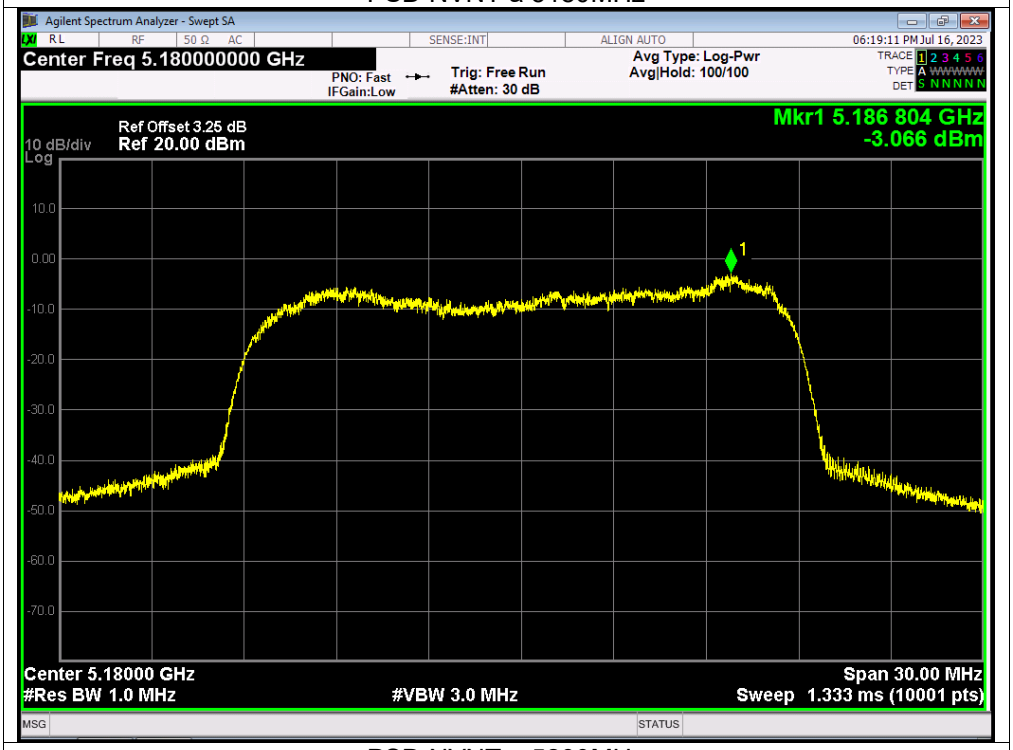
8.5 Test Result

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	AC 120V/60Hz form adapter to AC 24V output
Test Mode ：	(5180-5240MHz); (5745-5825MHz)		

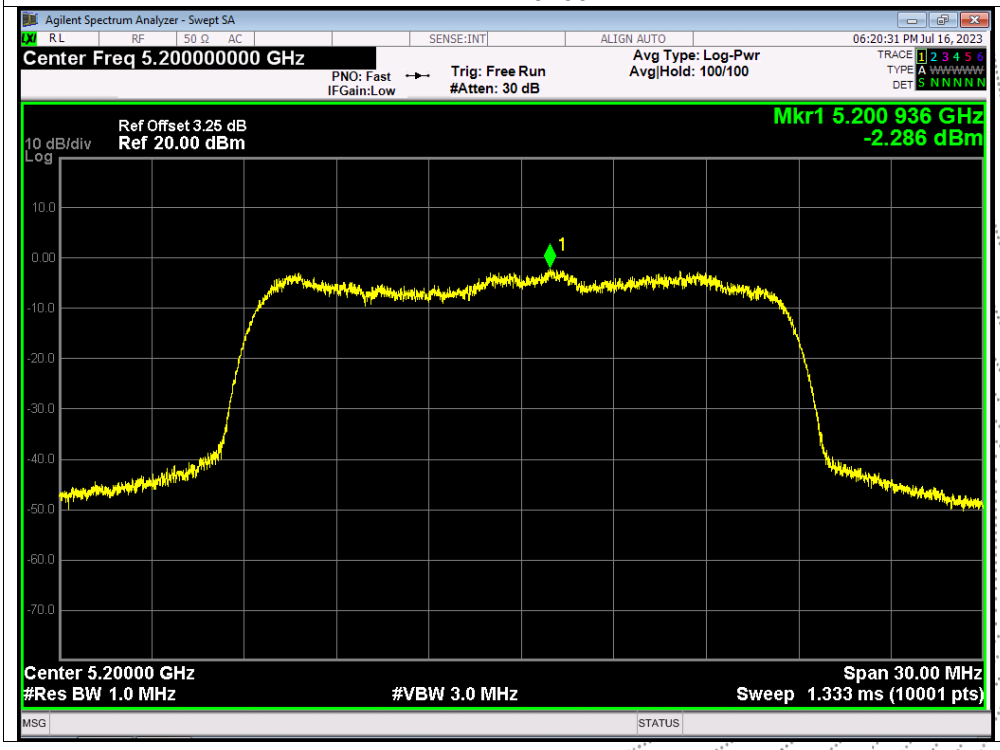
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/1MHz)	Limit (dBm/1MHz)	Verdict
NVNT	a	5180	-3.07	11	Pass
NVNT	a	5200	-2.29	11	Pass
NVNT	a	5240	-3.12	11	Pass
NVNT	n20	5180	-3.65	11	Pass
NVNT	n20	5200	-3.71	11	Pass
NVNT	n20	5240	-2.72	11	Pass
NVNT	n40	5190	-7.92	11	Pass
NVNT	n40	5230	-11.09	11	Pass

Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
NVNT	a	5745	-5.45	30	Pass
NVNT	a	5785	-5.04	30	Pass
NVNT	a	5825	-6.33	30	Pass
NVNT	n20	5745	-4.5	30	Pass
NVNT	n20	5785	-5.91	30	Pass
NVNT	n20	5825	-6.93	30	Pass
NVNT	n40	5755	-11.14	30	Pass
NVNT	n40	5795	-14.16	30	Pass

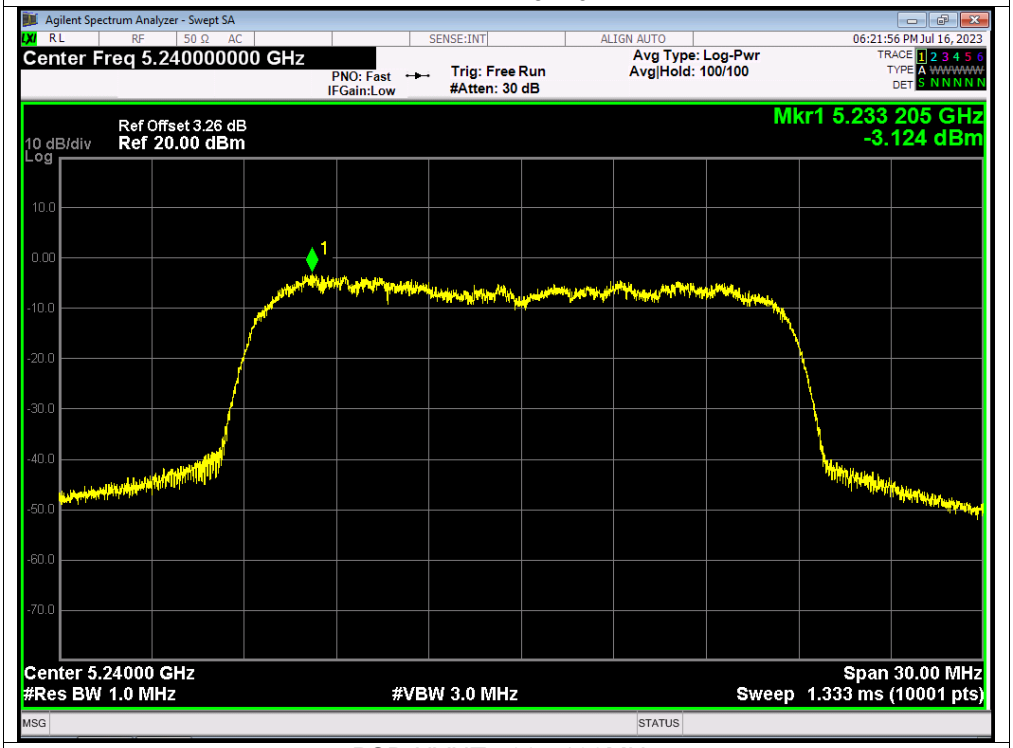
Test Graphs
PSD NVNT a 5180MHz



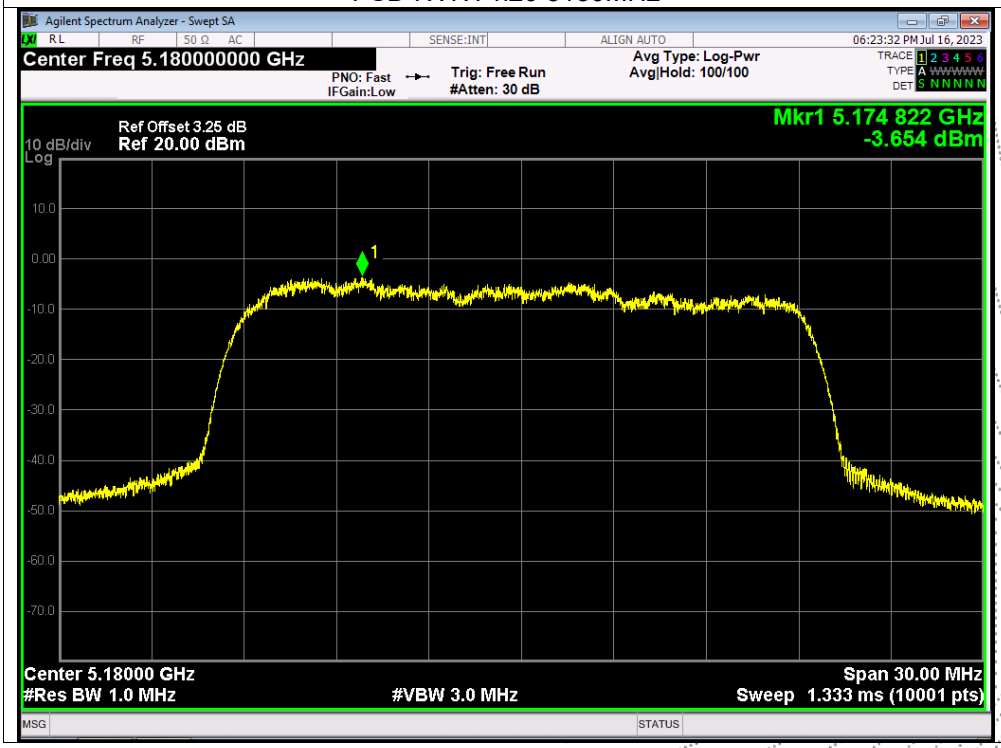
PSD NVNT a 5200MHz



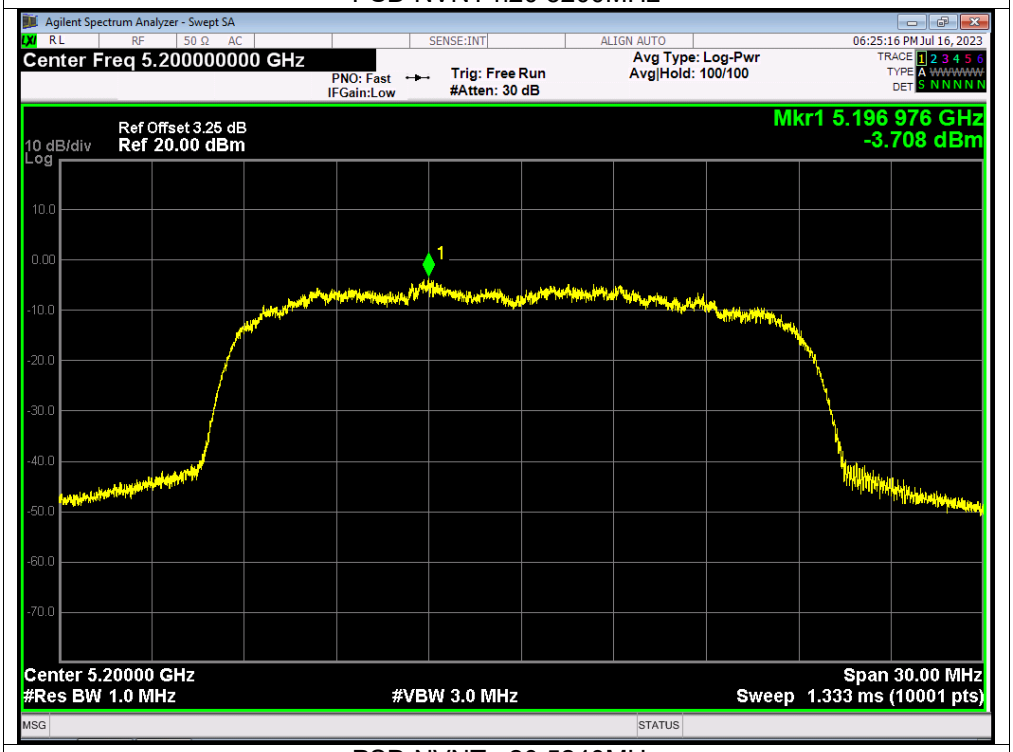
PSD NVNT a 5240MHz



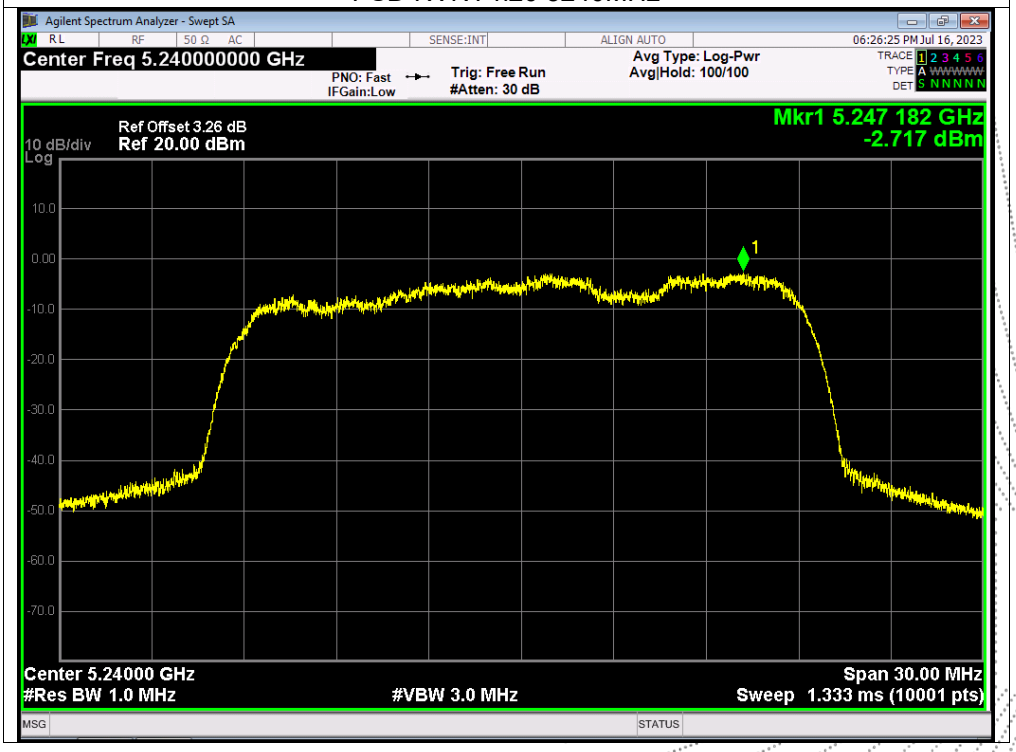
PSD NVNT n20 5180MHz



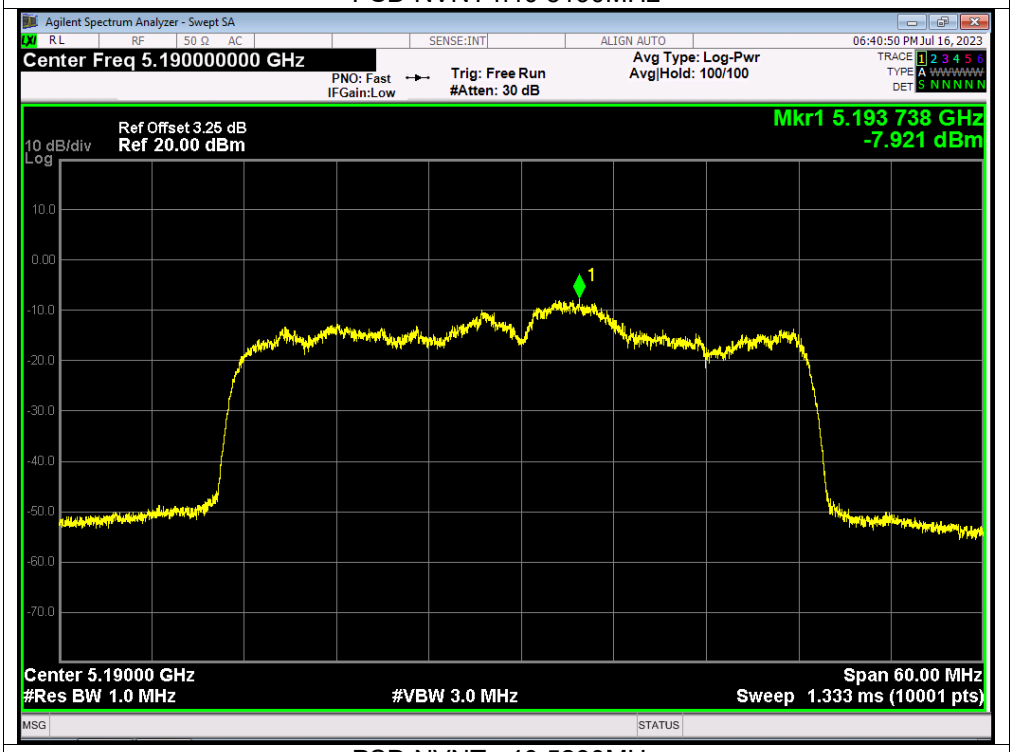
PSD NVNT n20 5200MHz



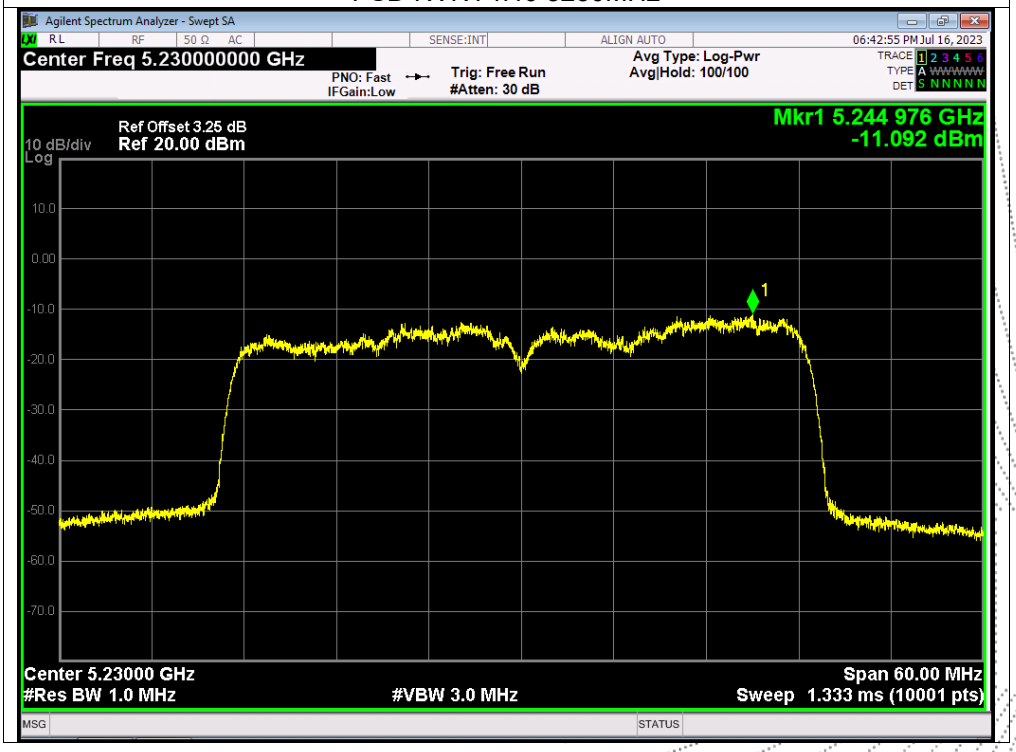
PSD NVNT n20 5240MHz



PSD NVNT n40 5190MHz

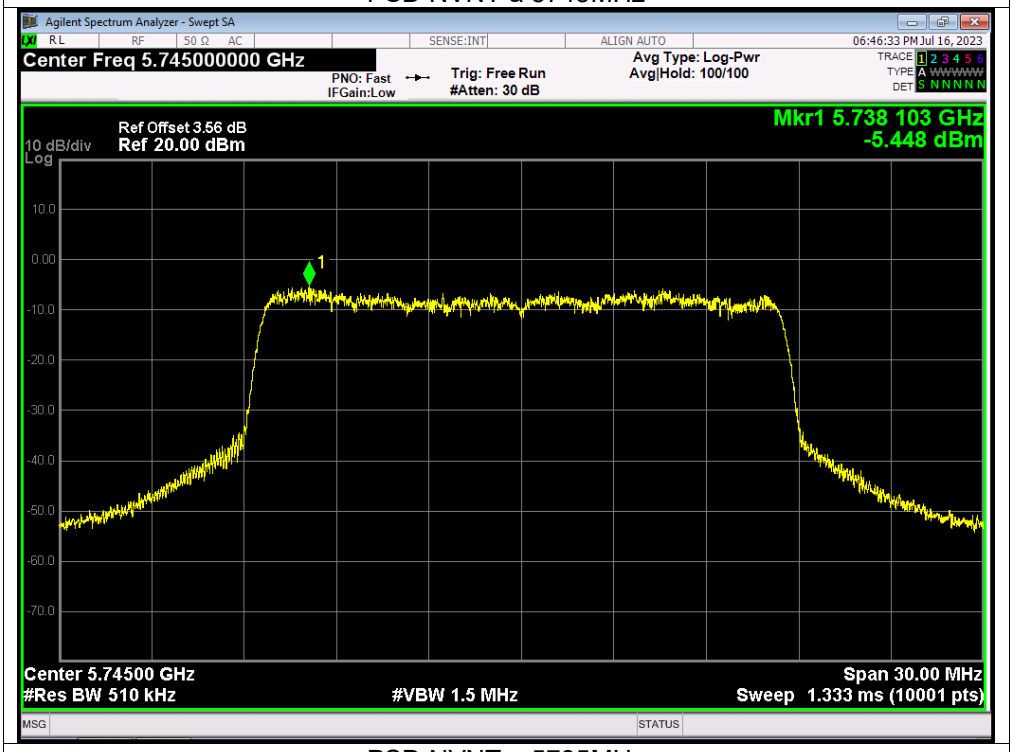


PSD NVNT n40 5230MHz

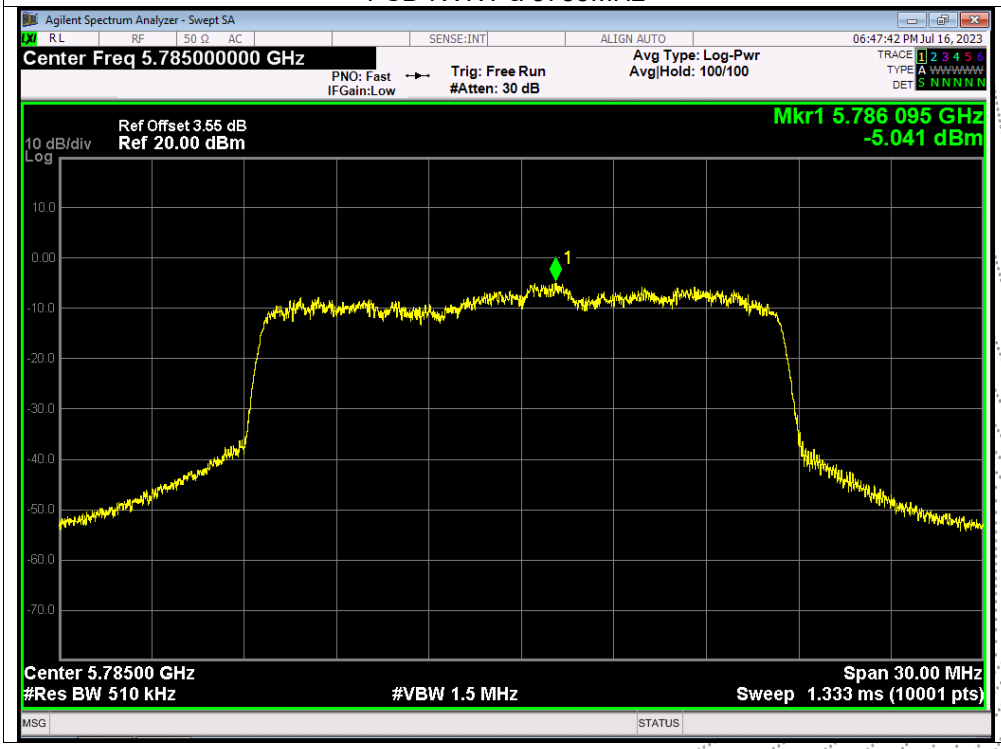


Test Graphs

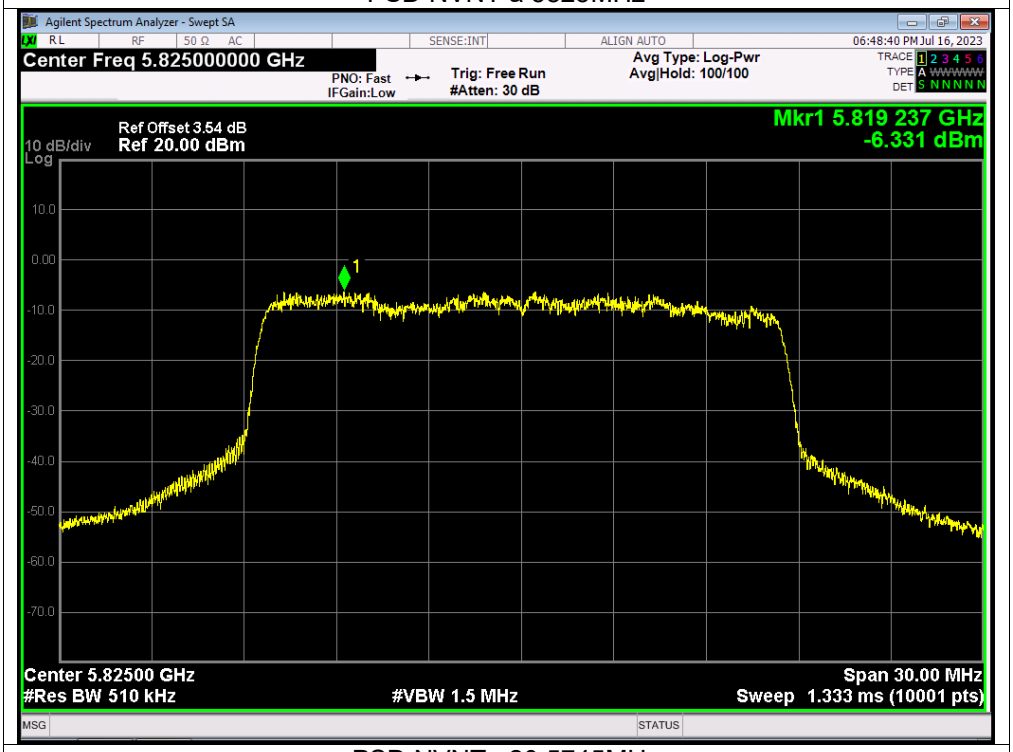
PSD NVNT a 5745MHz



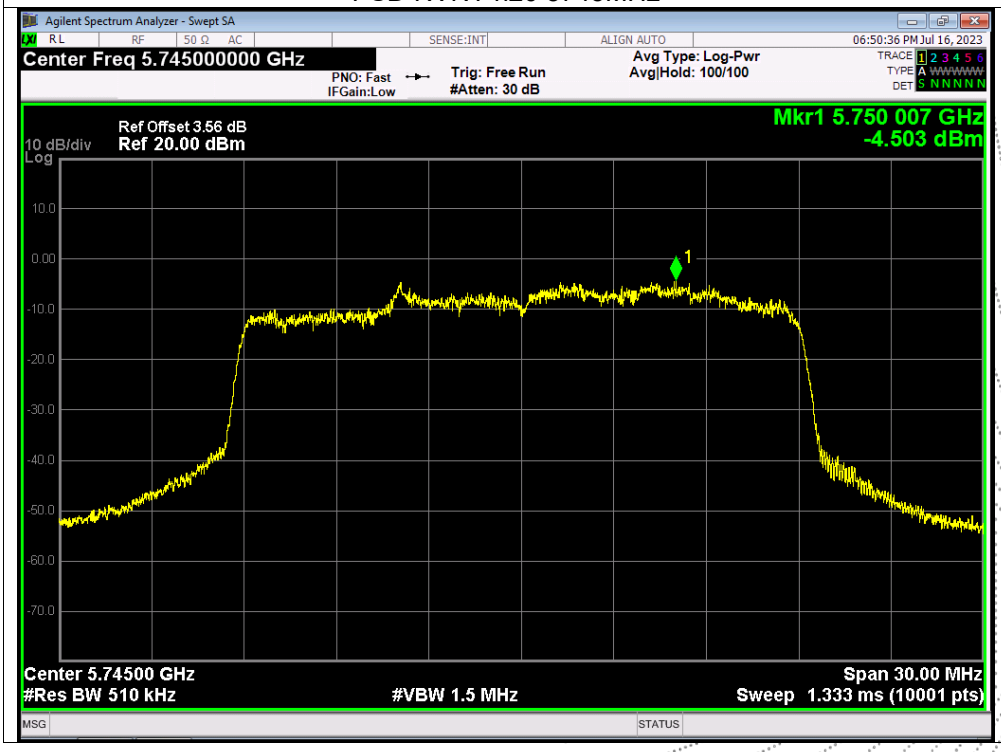
PSD NVNT a 5785MHz



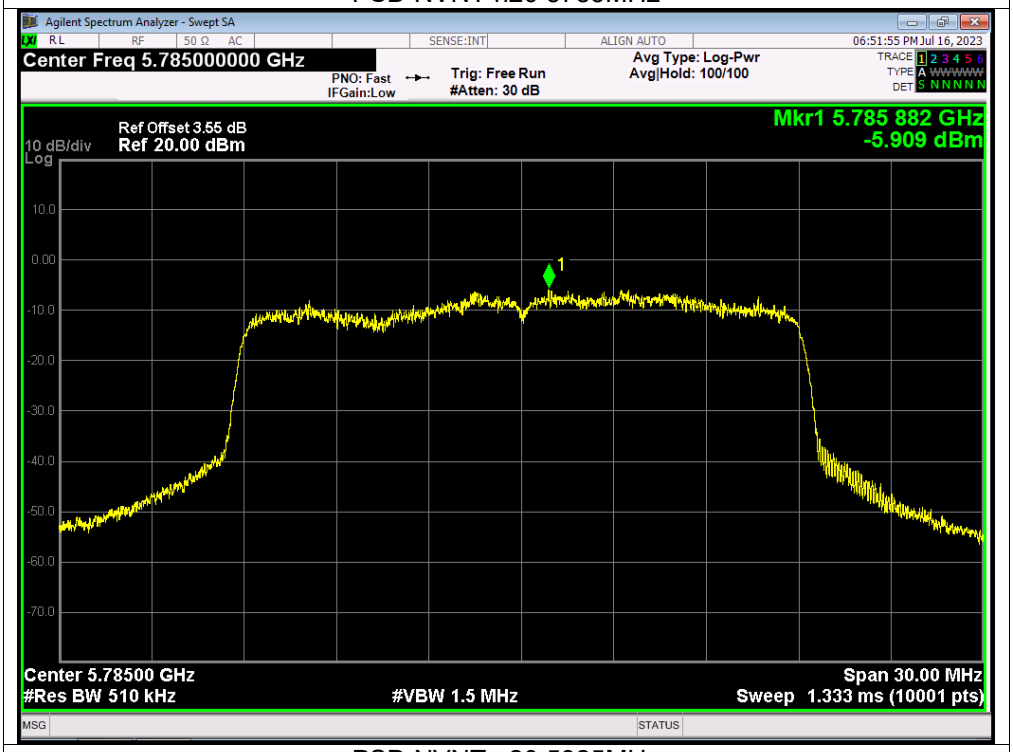
PSD NVNT a 5825MHz



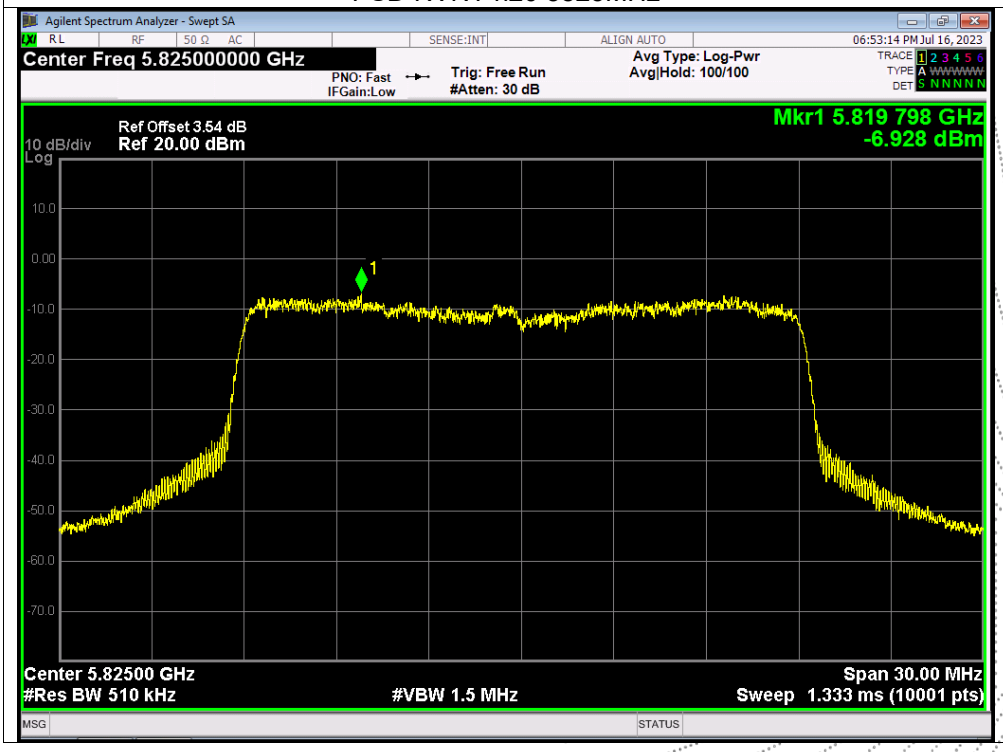
PSD NVNT n20 5745MHz



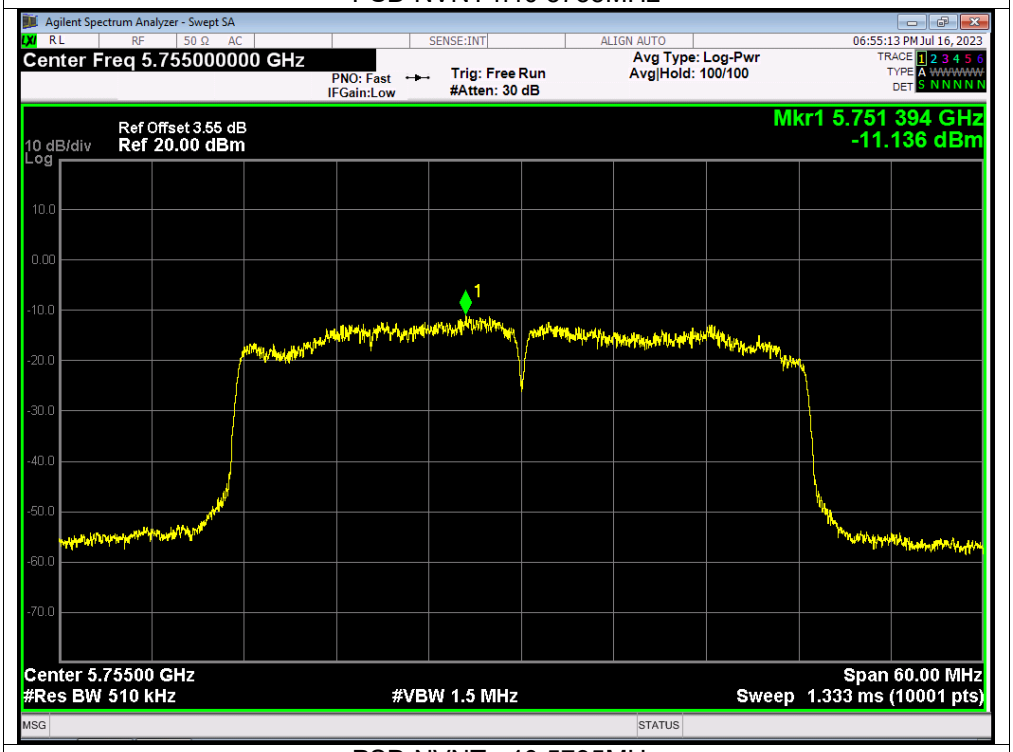
PSD NVNT n20 5785MHz



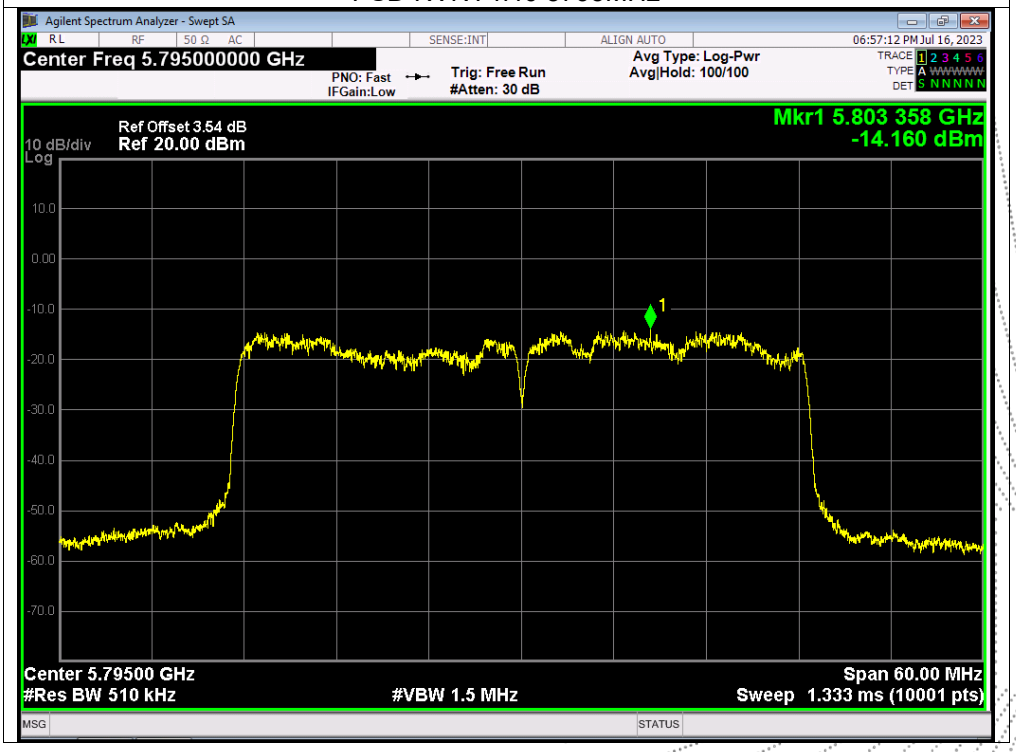
PSD NVNT n20 5825MHz



PSD NVNT n40 5755MHz

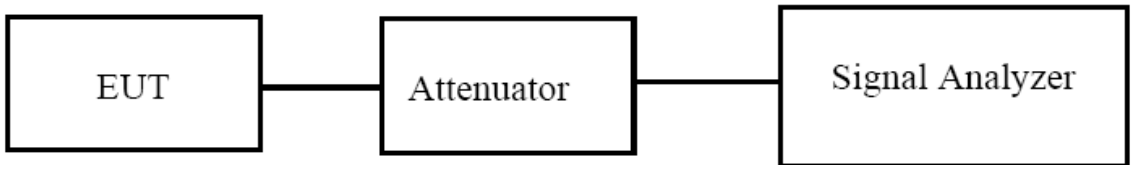


PSD NVNT n40 5795MHz



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

9.1 Block Diagram Of Test Setup



9.2 Limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power
is integrated over the full reference bandwidth.
(6dB bandwidth)>500kHz

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.

6dB
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.

6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

9.4 EUT Operating Conditions

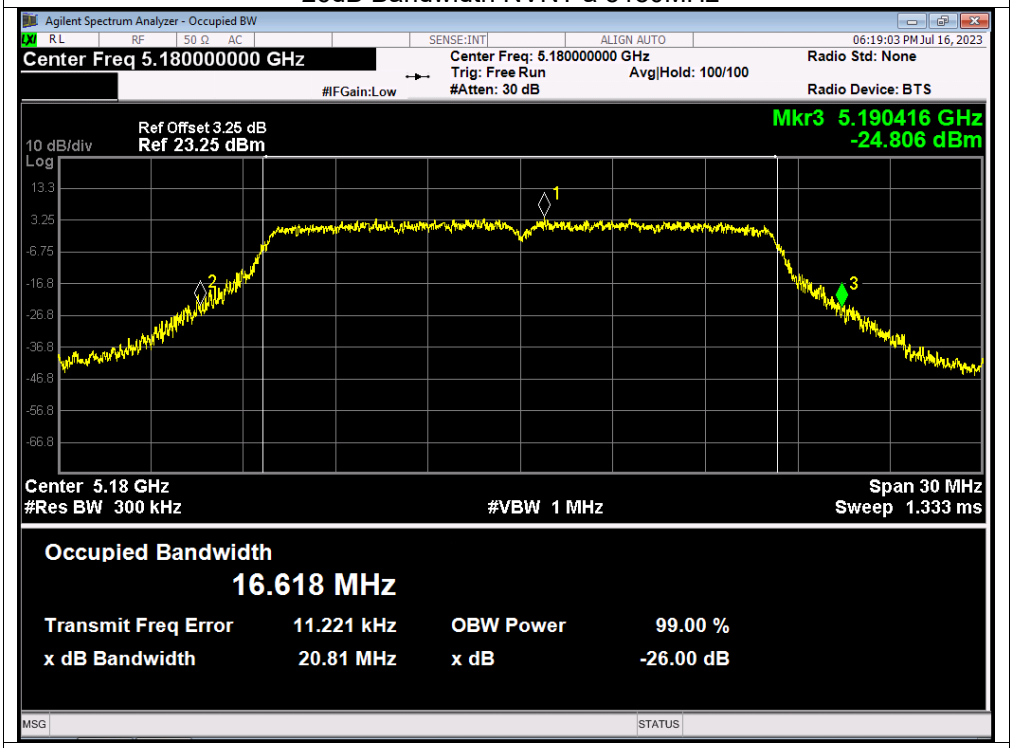
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

9.5 Test Result

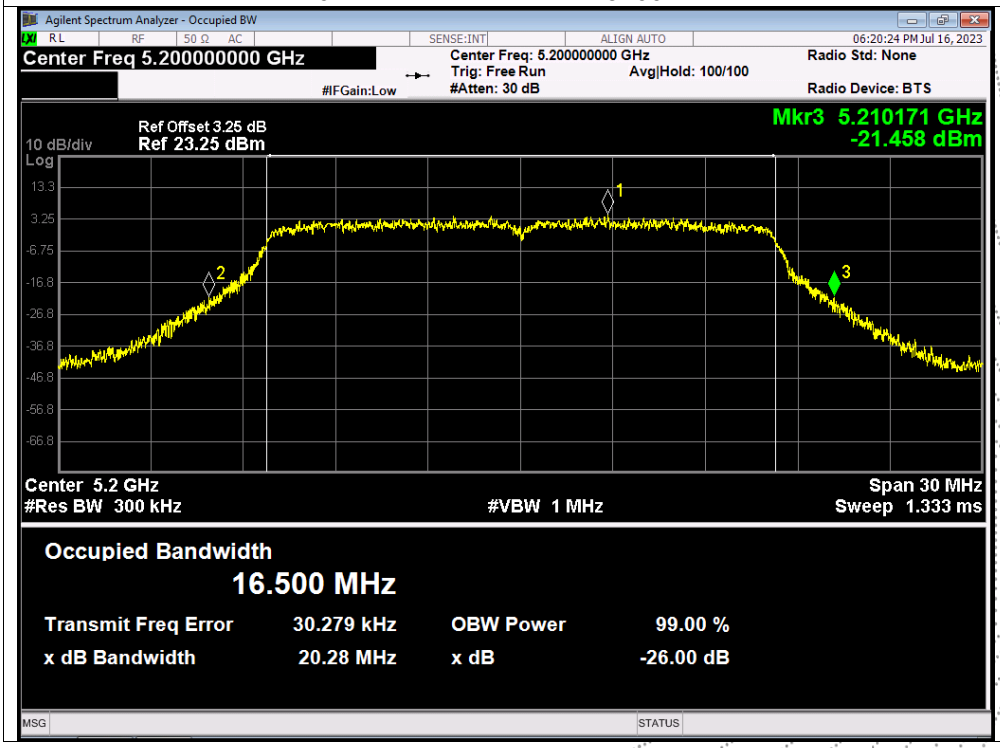
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	AC 120V/60Hz form adapter to AC 24V output
Test Mode ：	TX Frequency U-NII-1 (5180-5240MHz)		

Condition	Mode	**Frequency (MHz)**	**99% bandwidth (MHz)**	**-26dB bandwidth (MHz)**	**Result**
NVNT	a	5180	16.46	20.81	Pass
NVNT	a	5200	16.401	20.28	Pass
NVNT	a	5240	16.407	20.355	Pass
NVNT	n20	5180	17.559	20.952	Pass
NVNT	n20	5200	17.562	21.522	Pass
NVNT	n20	5240	17.585	21.372	Pass
NVNT	n40	5190	35.735	39.168	Pass
NVNT	n40	5230	35.71	39.076	Pass

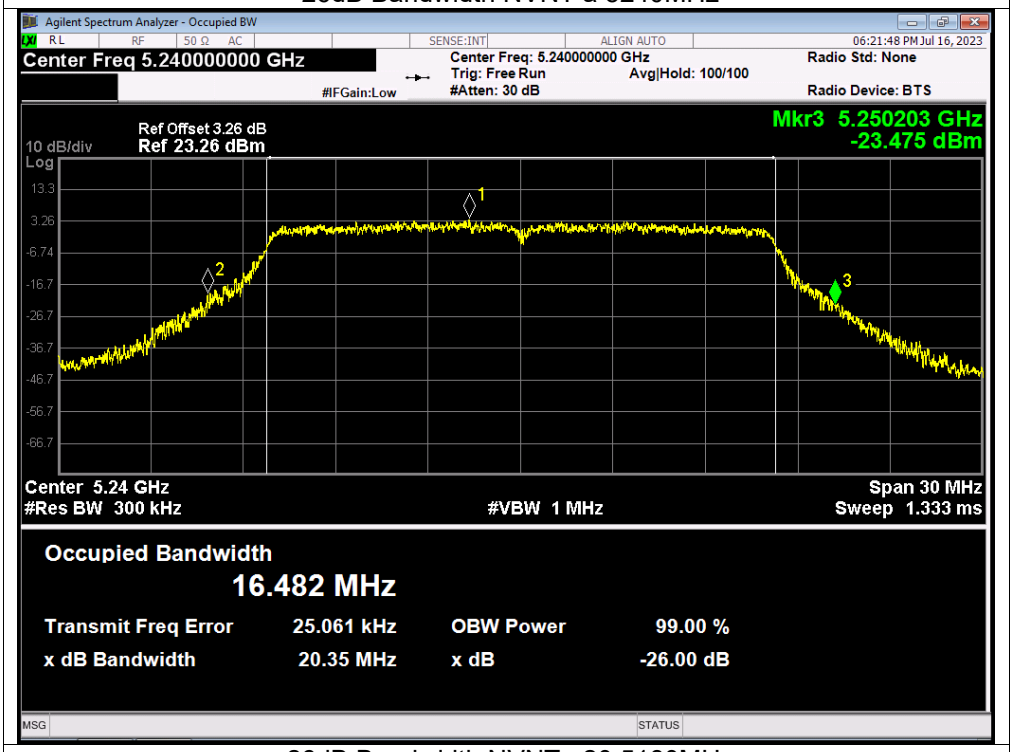
Test Graphs
-26dB Bandwidth NVNT a 5180MHz



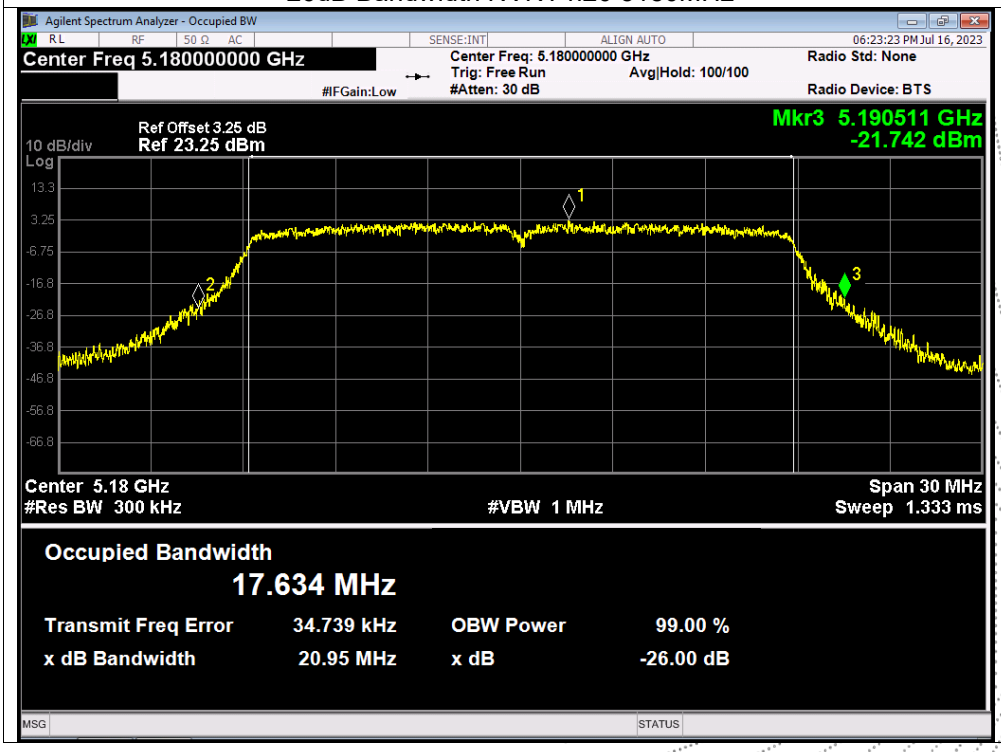
-26dB Bandwidth NVNT a 5200MHz



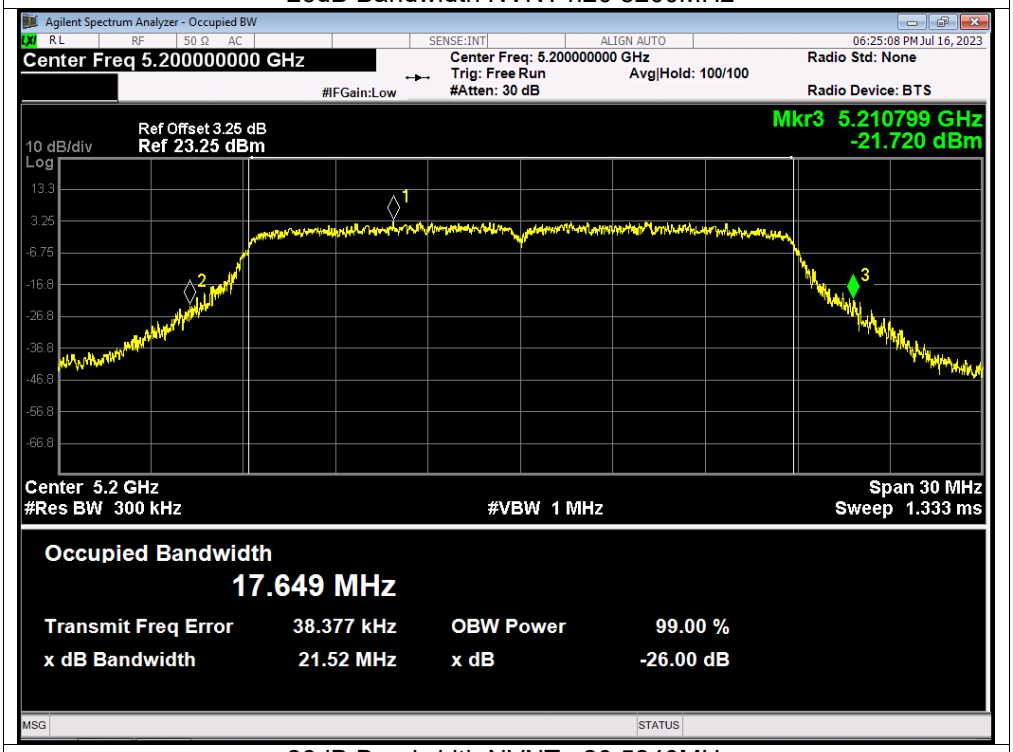
-26dB Bandwidth NVNT a 5240MHz



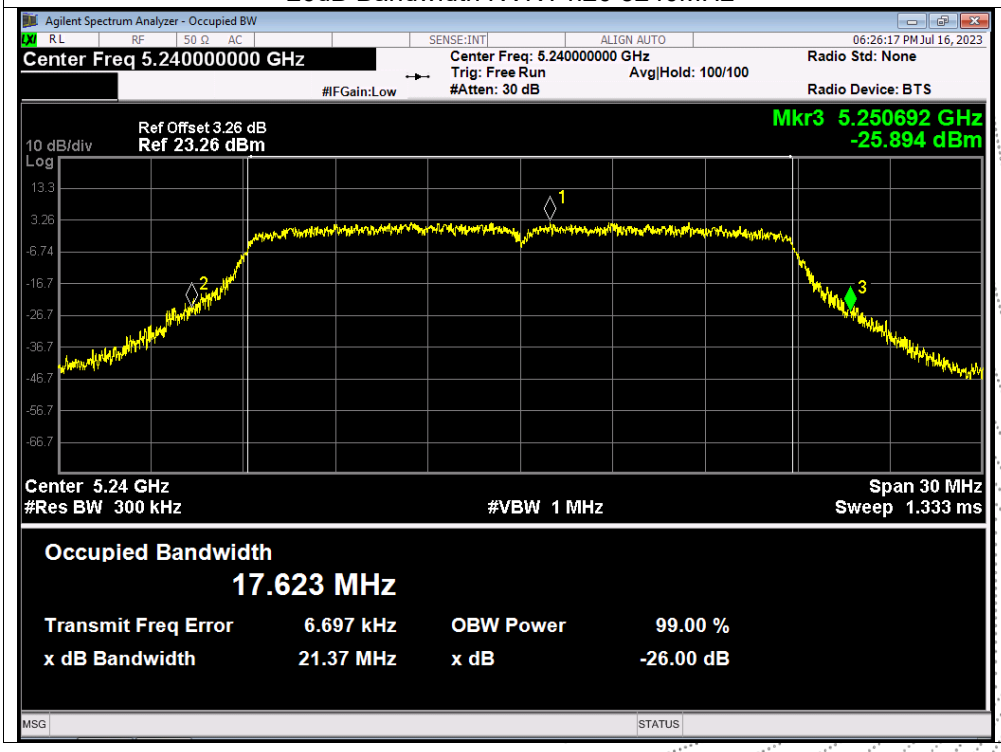
-26dB Bandwidth NVNT n20 5180MHz



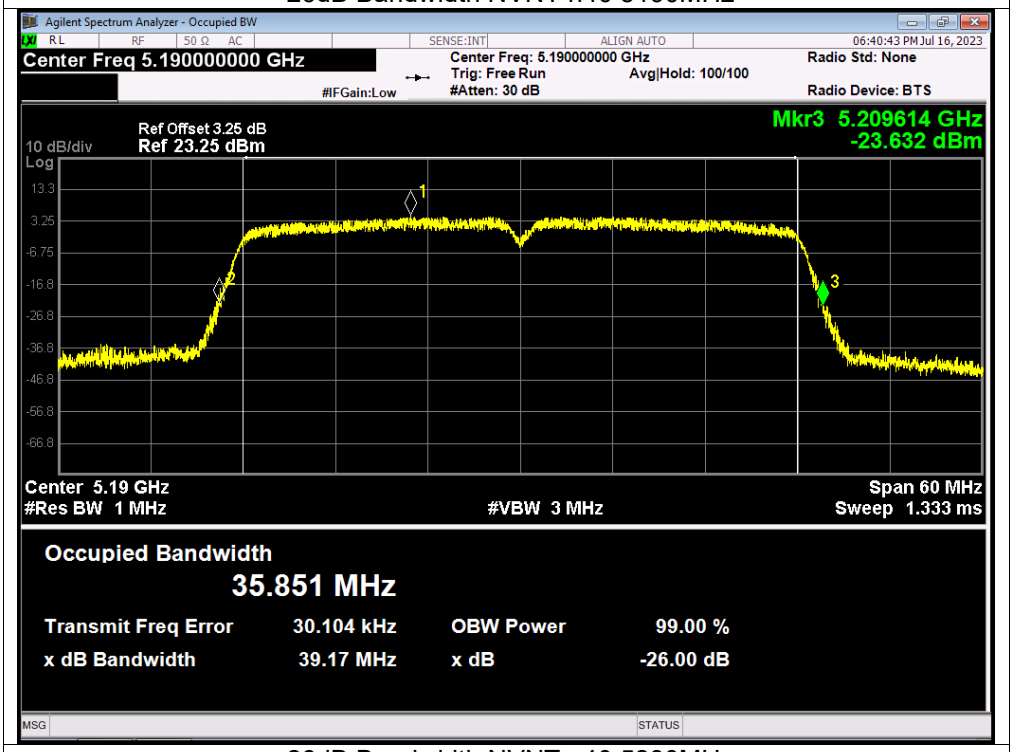
-26dB Bandwidth NVNT n20 5200MHz



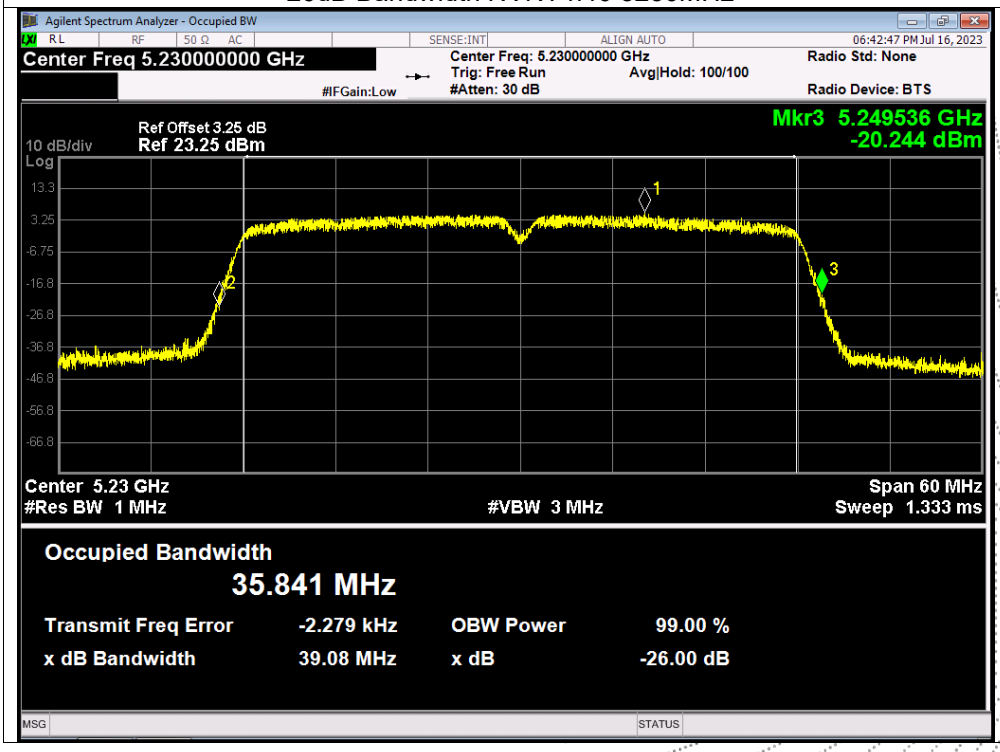
-26dB Bandwidth NVNT n20 5240MHz



-26dB Bandwidth NVNT n40 5190MHz

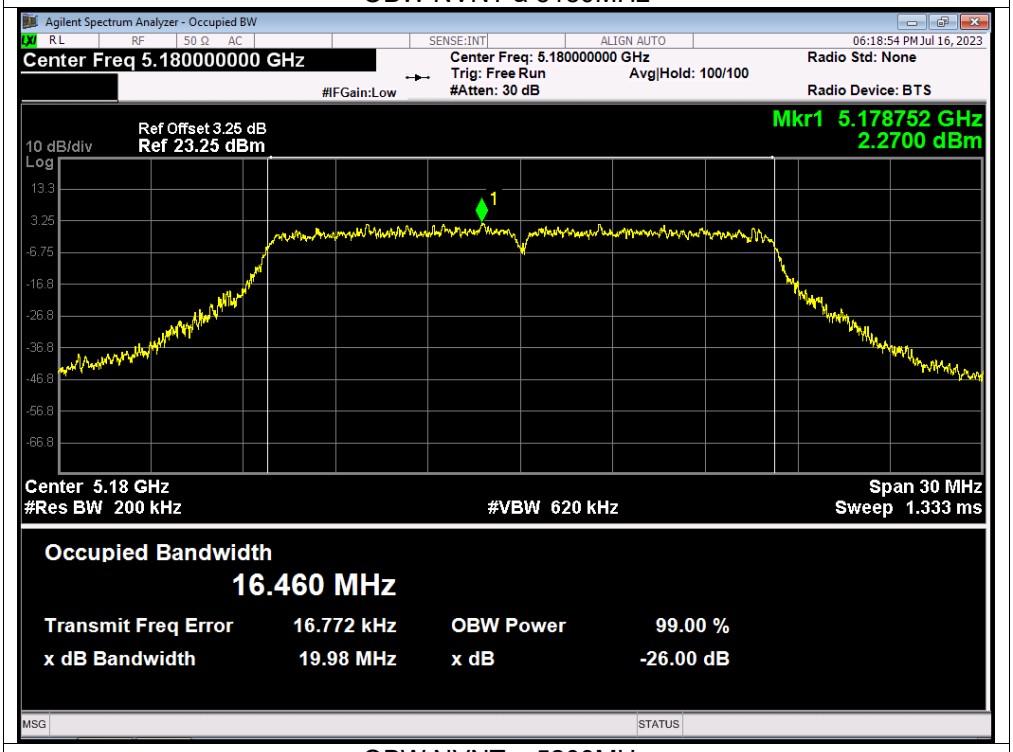


-26dB Bandwidth NVNT n40 5230MHz

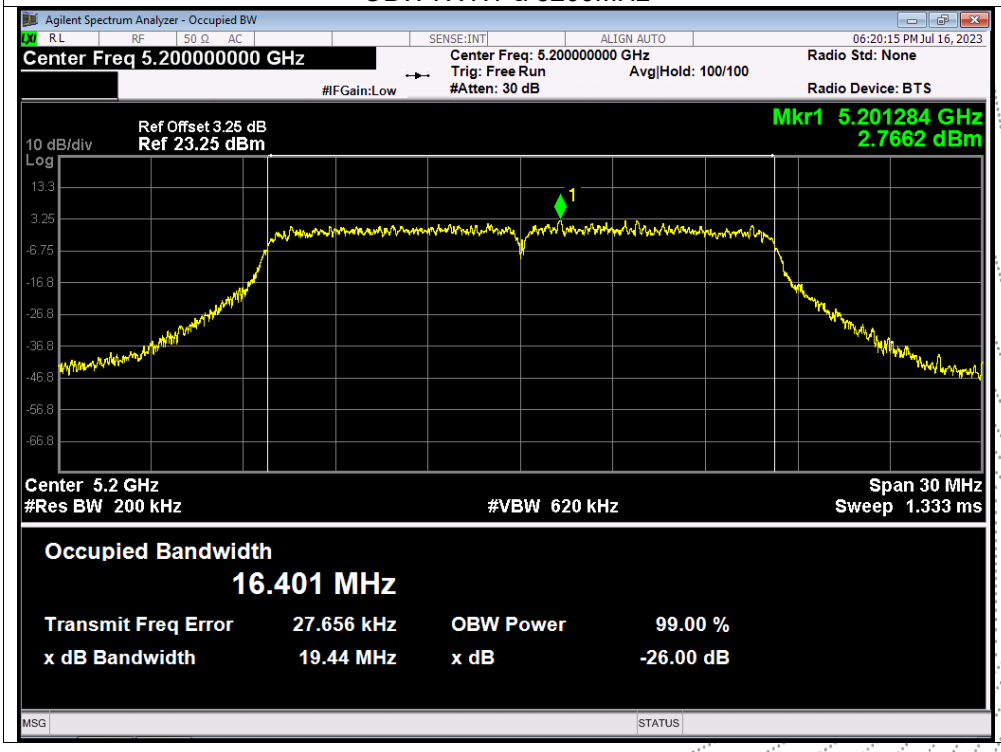


Test Graphs

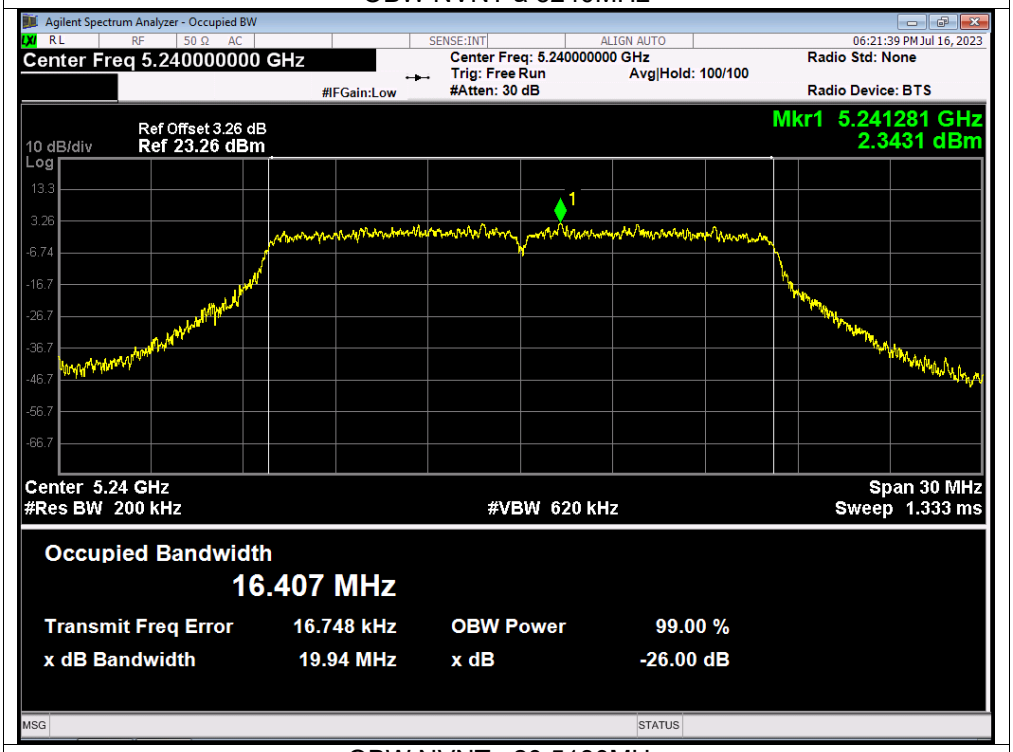
OBW NVNT a 5180MHz



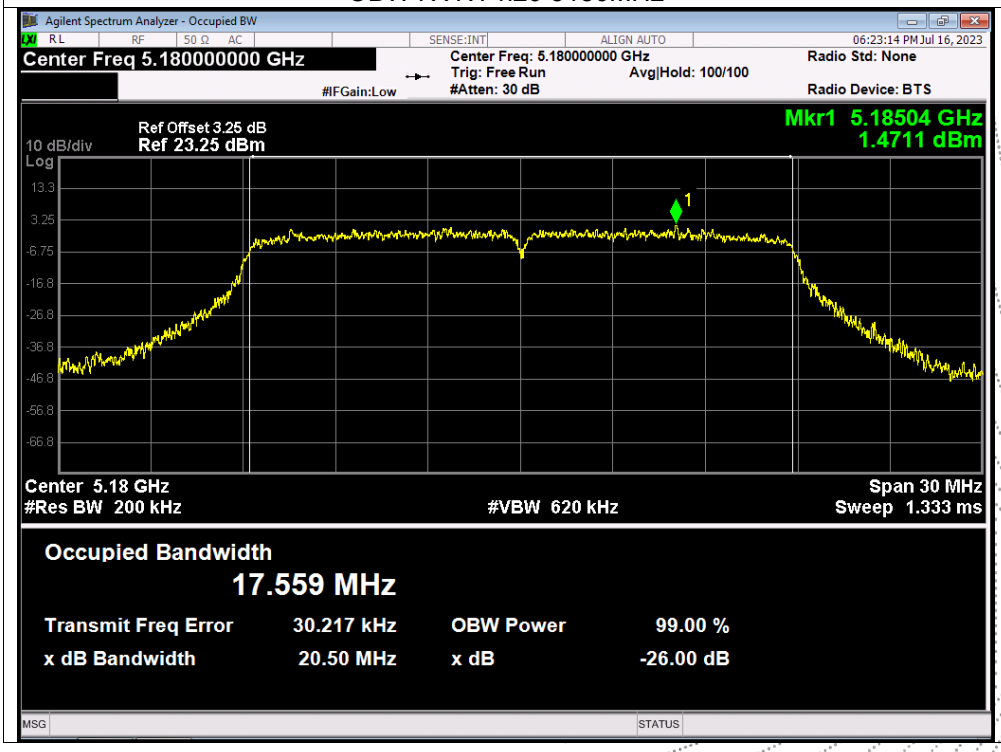
OBW NVNT a 5200MHz



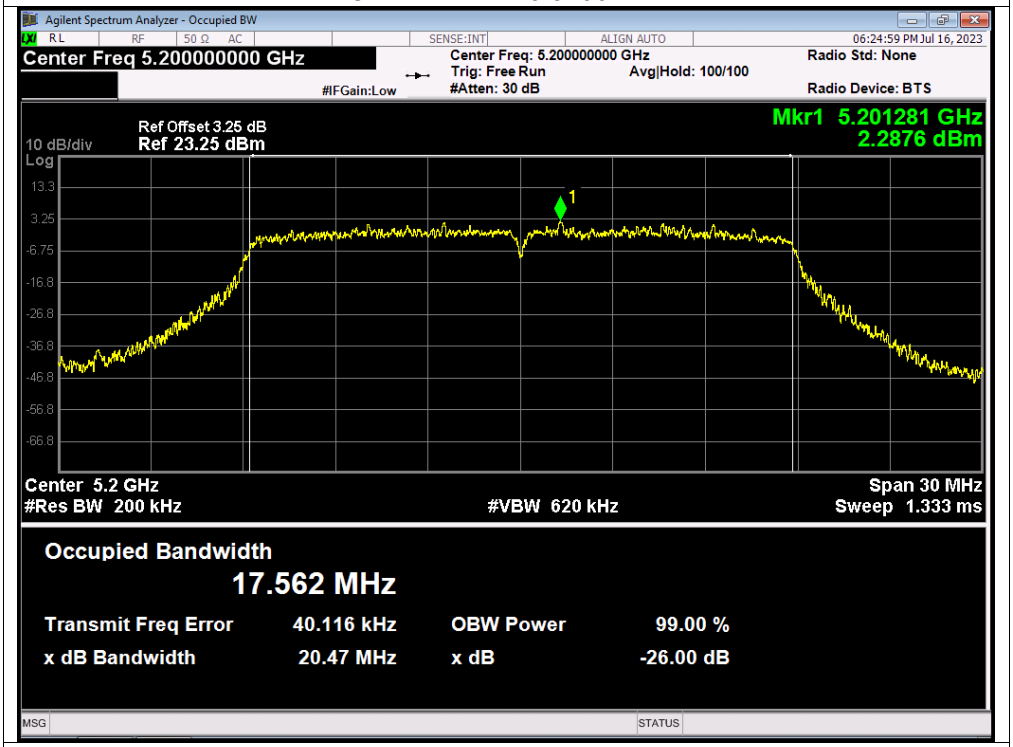
OBW NVNT a 5240MHz



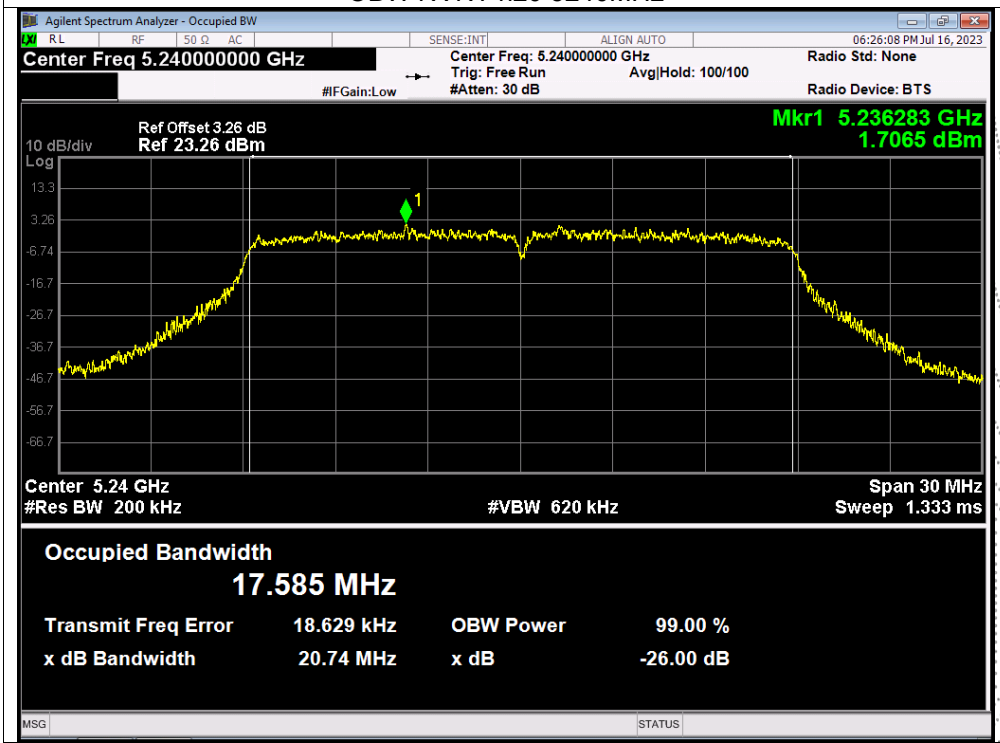
OBW NVNT n20 5180MHz



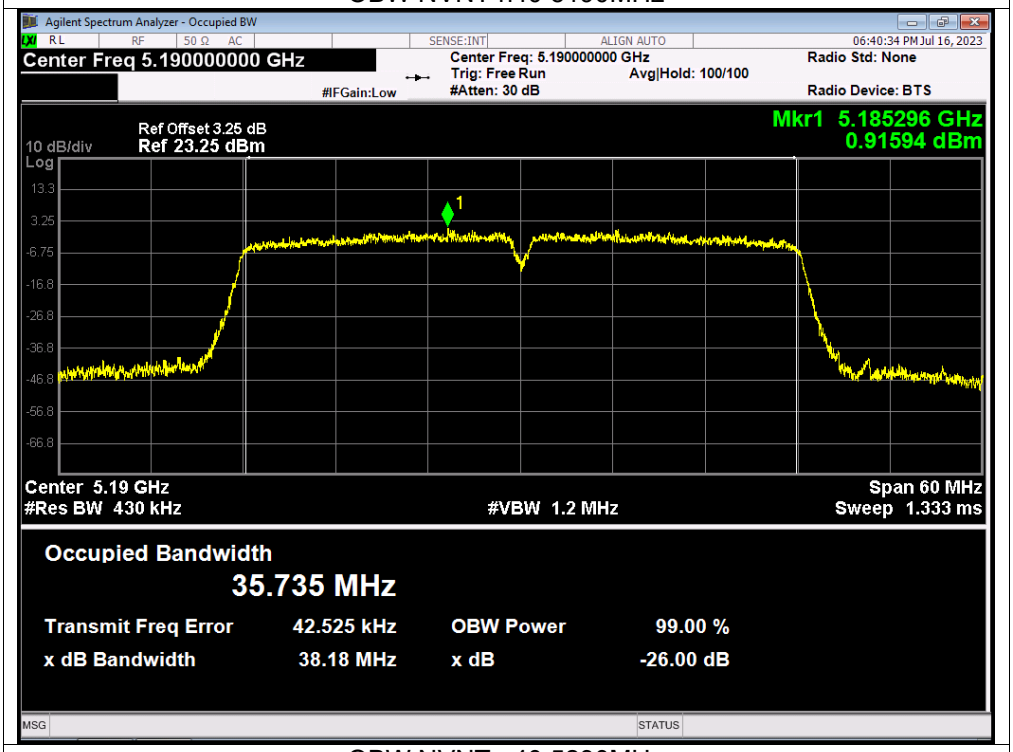
OBW NVNT n20 5200MHz



OBW NVNT n20 5240MHz



OBW NVNT n40 5190MHz



OBW NVNT n40 5230MHz