TEST REPORT

Report No.:	BCTC2501911609-2E
Applicant:	NEXXT SOLUTIONS
Product Name:	CAMERA
Test Model:	NHC-B200 ST
Tested Date:	2025-01-07 to 2025-03-19
Issued Date:	2025-03-19

Shenzhen BCTC Testing Co., Ltd.

FCC ID: X4YHACB200

Product Name:	CAMERA
Trademark:	N/A
Model/Type reference:	NHC-B200 ST
Prepared For:	NEXXT SOLUTIONS
Address:	3505 N.W 107TH AVE. MIAMI, Florida 33178, United States
Manufacturer:	Sungale Electronics (Shenzhen) Limited
Address:	No. 1302, DaHong High-Tech Park, No. 6-18, Xinhe Road, Xinqiao, BaoAn, Shenzhen 518125, 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:	2025-01-07
Sample tested Date:	2025-01-07 to 2025-03-19
Issue Date:	2025-03-19
Report No.:	BCTC2501911609-2E
Test Standards:	FCC Part15 15.407 ANSI C63.10-2013 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

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2501911609-2E	2025-03-19	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)(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 reference:	NHC-B200 ST
Model differences:	N/A
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);
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;
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 ;
Antenna installation:	Internal antenna
Antenna Gain:	4.33 dBi Remark: ☒ The antenna gain of the product comes from the antenna report provided by the customer, and the test data is affected by the customer information. ☐ The antenna gain of the product is provided by the customer, and the test data is affected by the customer information.
Ratings:	DC 5V from adapter
Adapter Information:	MODEL: XED-UL050100CU INPUT: 100-240V~50/60Hz 0.2A OUTPUT: DC 5V 1.0A

4.2 Test Setup Configuration

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

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	CAMERA	N/A	NHC-B200 ST	N/A	EUT
E-2	ADAPTER	---	XED-UL050100CU	---	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0M	DC cable unshielded

Notes:

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

4.4 Channel List

5.1G

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

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 / n20 CH36/ CH40/ CH48
Mode 2	802.11n40 CH38/ CH46
Mode 3	WIFI Link

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	**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

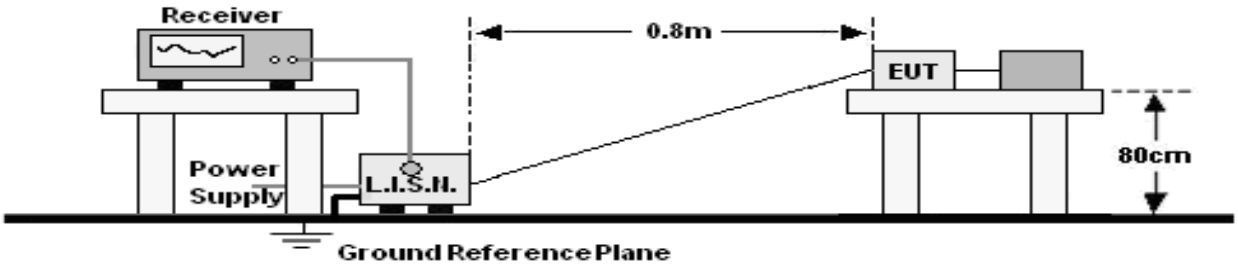
Conducted Emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025
LISN	R&S	ENV216	101375	May 16, 2024	May 15, 2025
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Pulse limiter	Schwarzbeck	VTSD9561-F	01323	May 16, 2024	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
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 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 Antenna(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

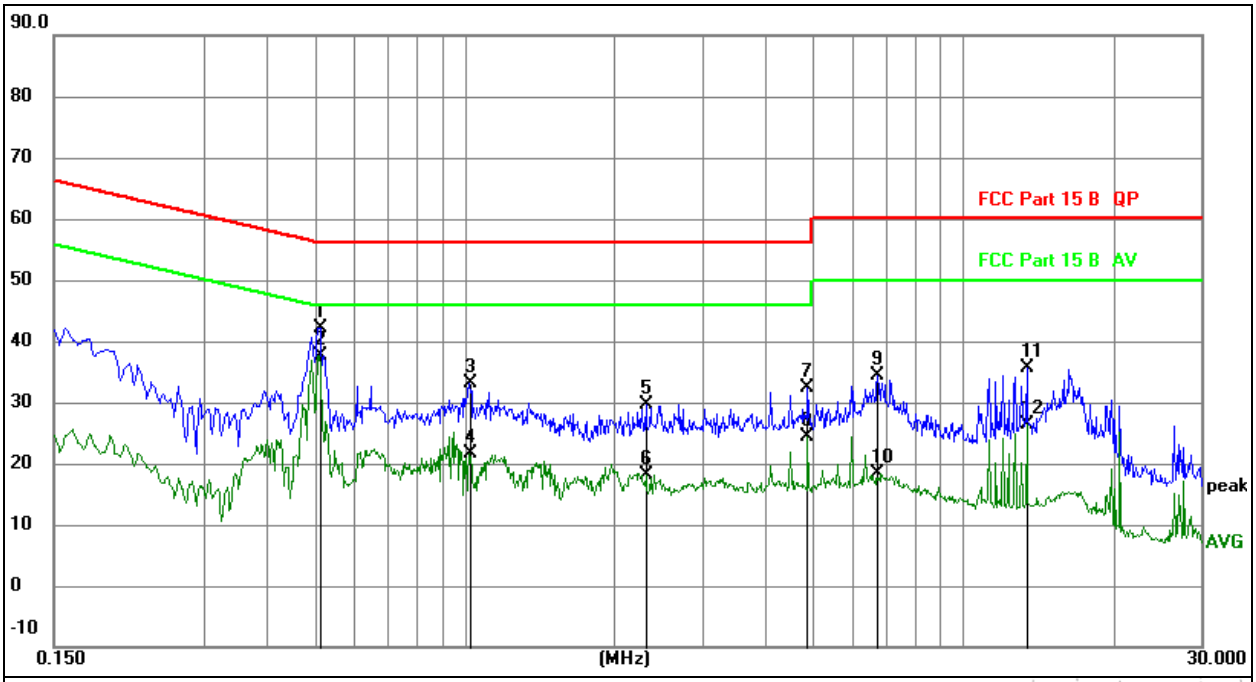
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak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

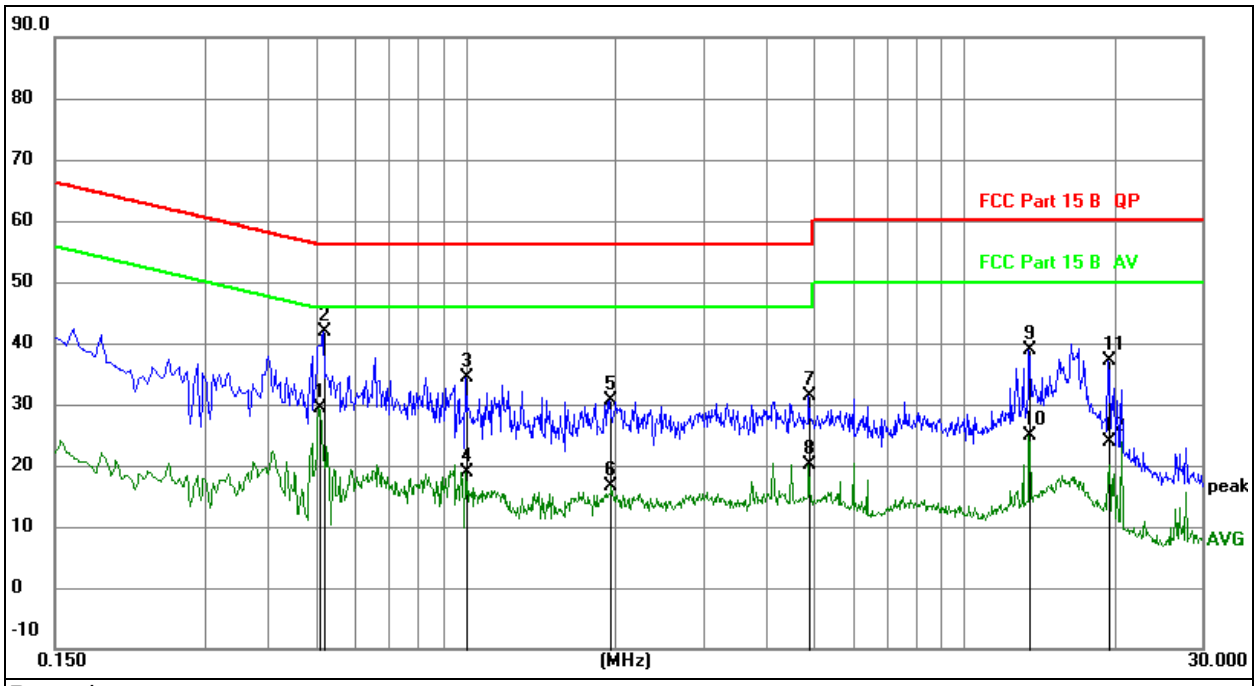
Temperature:	24 ℃	Relative Humidity:	55%
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.5128	22.00	20.08	42.08	56.00	-13.92	QP
2	*	0.5128	17.54	20.08	37.62	46.00	-8.38	AVG
3		1.0211	12.97	20.09	33.06	56.00	-22.94	QP
4		1.0211	1.44	20.09	21.53	46.00	-24.47	AVG
5		2.3090	9.52	20.11	29.63	56.00	-26.37	QP
6		2.3090	-1.96	20.11	18.15	46.00	-27.85	AVG
7		4.8738	12.13	20.15	32.28	56.00	-23.72	QP
8		4.8738	4.20	20.15	24.35	46.00	-21.65	AVG
9		6.7333	14.22	20.16	34.38	60.00	-25.62	QP
10		6.7333	-1.90	20.16	18.26	50.00	-31.74	AVG
11		13.4080	15.42	20.27	35.69	60.00	-24.31	QP
12		13.4080	6.16	20.27	26.43	50.00	-23.57	AVG

Temperature:	24 ℃	Relative Humidity:	55%
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz



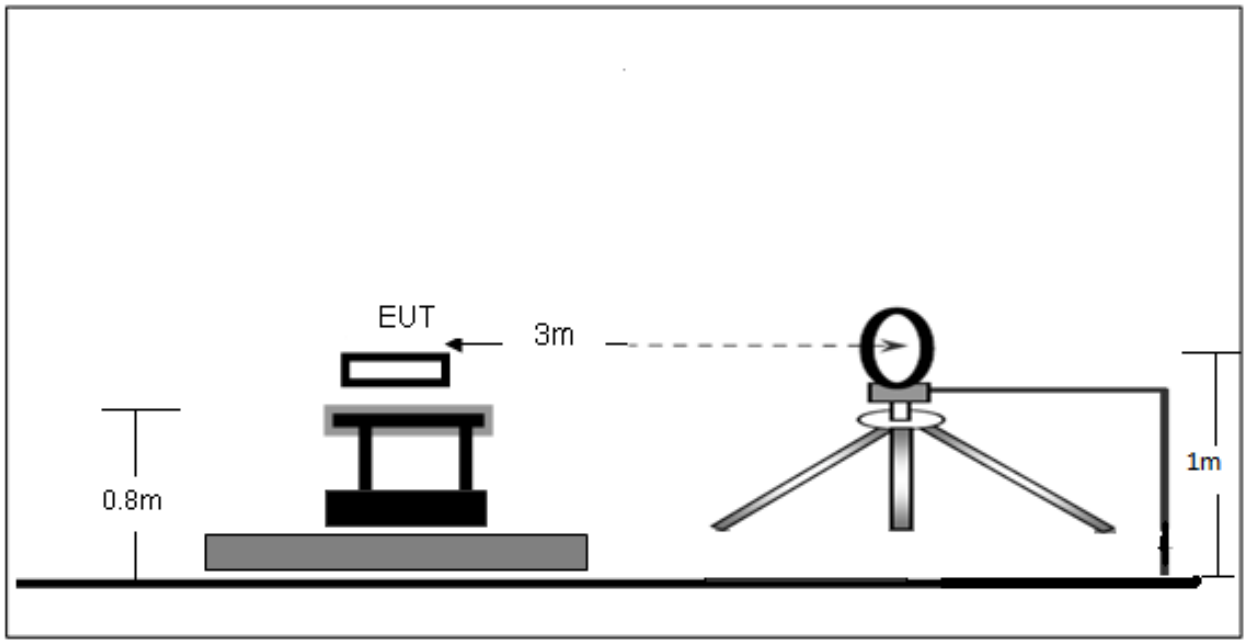
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over1 Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.5100	9.21	20.08	29.29	46.00	-16.71	AVG
2	*	0.5190	21.78	20.08	41.86	56.00	-14.14	QP
3		1.0005	14.35	20.09	34.44	56.00	-21.56	QP
4		1.0005	-1.16	20.09	18.93	46.00	-27.07	AVG
5		1.9410	10.43	20.10	30.53	56.00	-25.47	QP
6		1.9410	-3.48	20.10	16.62	46.00	-29.38	AVG
7		4.8975	11.29	20.15	31.44	56.00	-24.56	QP
8		4.8975	-0.03	20.15	20.12	46.00	-25.88	AVG
9		13.5465	18.51	20.27	38.78	60.00	-21.22	QP
10		13.5465	4.61	20.27	24.88	50.00	-25.12	AVG
11		19.4730	16.85	20.33	37.18	60.00	-22.82	QP
12		19.4730	3.50	20.33	23.83	50.00	-26.17	AVG

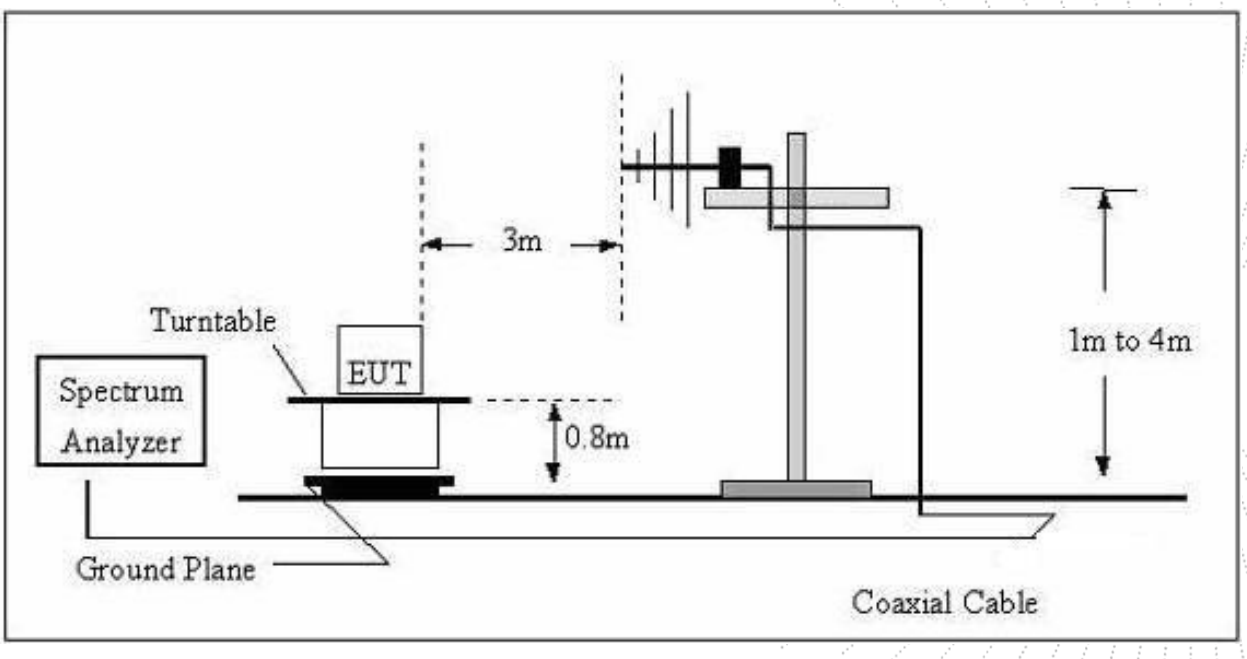
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

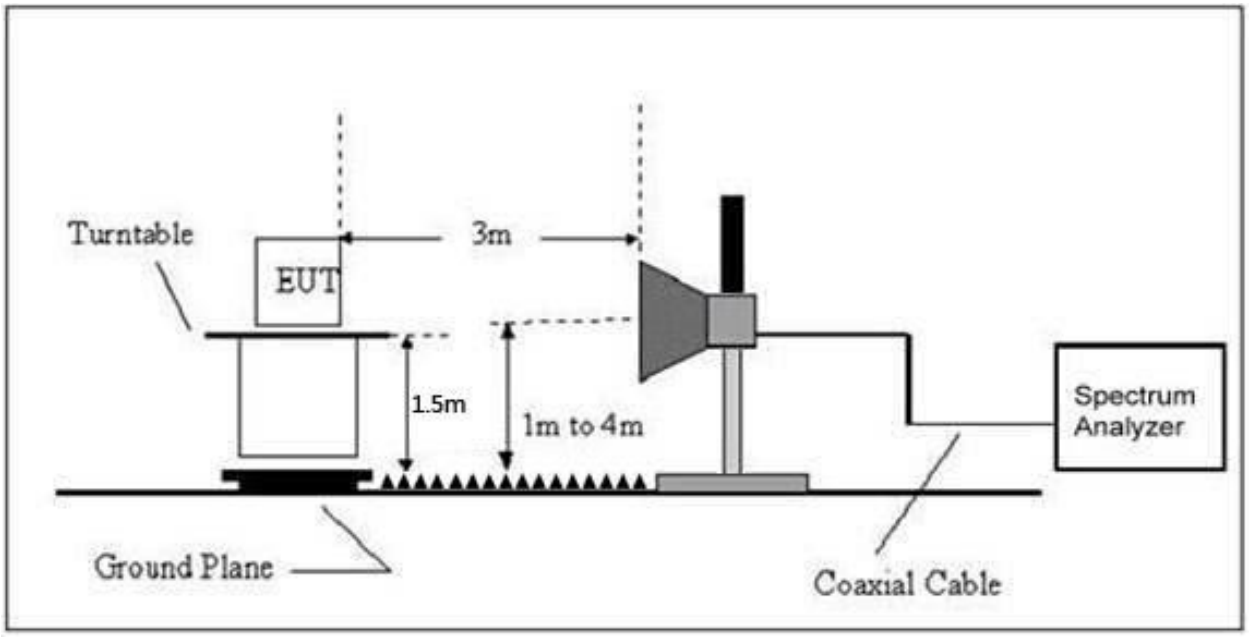
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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

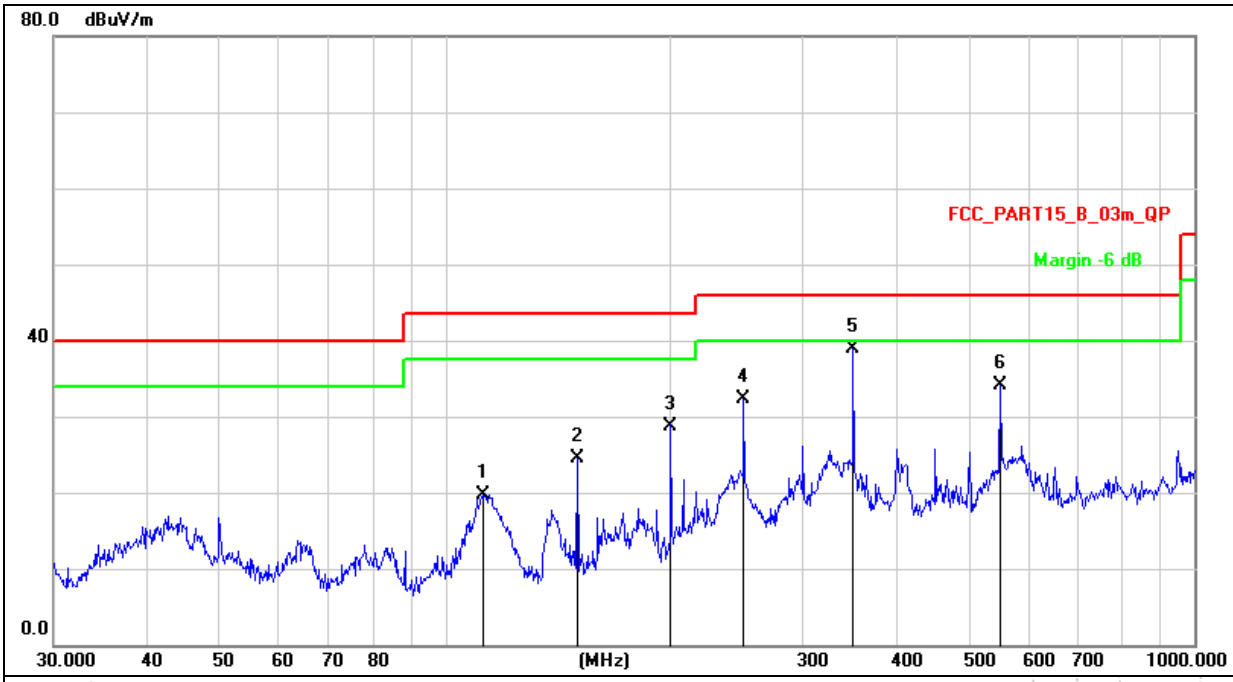
Temperature:	24.5℃	Relative Humidity:	49%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Mode 3	Polarization :	--

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

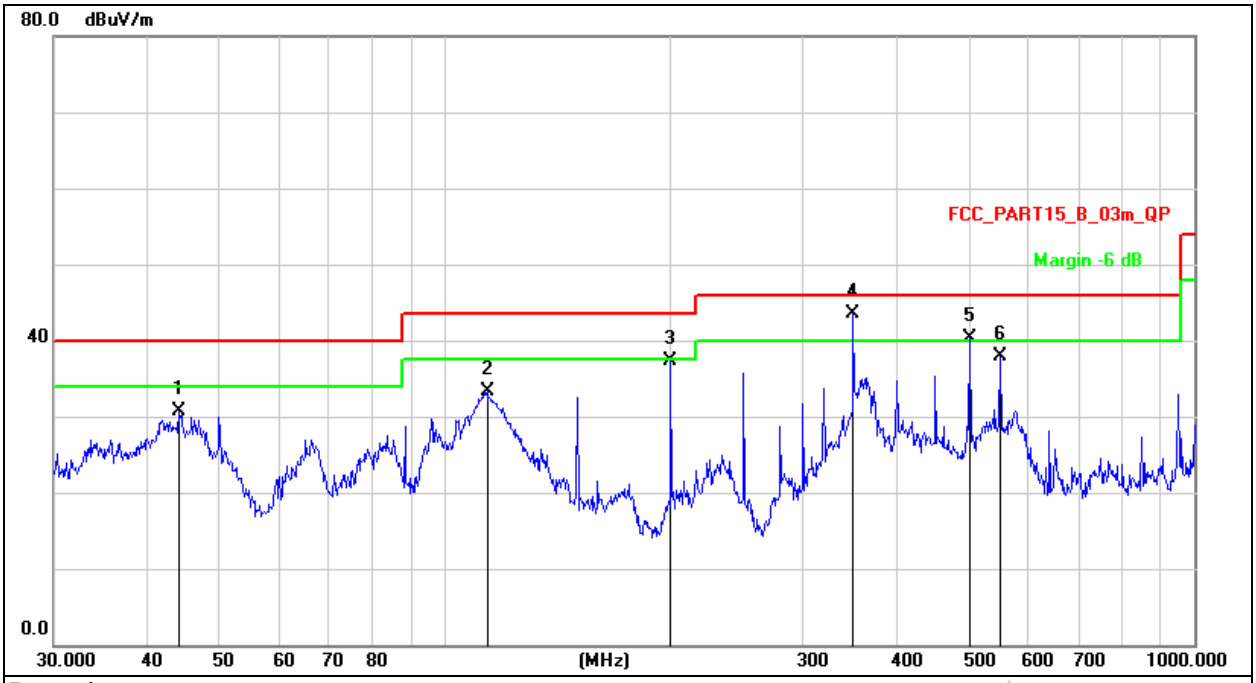
Temperature:	24.5℃	Relative Humidity:	49%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		112.1305	36.56	-16.78	19.78	43.50	-23.72	QP
2		150.0108	43.89	-19.43	24.46	43.50	-19.04	QP
3		199.9856	44.52	-15.72	28.80	43.50	-14.70	QP
4		250.3012	46.66	-14.28	32.38	46.00	-13.62	QP
5	*	350.4768	50.45	-11.47	38.98	46.00	-7.02	QP
6		550.9480	44.45	-10.32	34.13	46.00	-11.87	QP

Temperature:	24.5℃	Relative Humidity:	49%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 3	Test Voltage :	AC 120V/60Hz



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		44.1202	45.04	-14.38	30.66	40.00	-9.34	QP
2		113.7143	50.19	-16.89	33.30	43.50	-10.20	QP
3		199.9856	53.06	-15.72	37.34	43.50	-6.16	QP
4	*	350.4768	55.00	-11.47	43.53	46.00	-2.47	QP
5	!	501.1790	49.02	-8.65	40.37	46.00	-5.63	QP
6		550.9480	48.22	-10.32	37.90	46.00	-8.10	QP

Between 1GHz – 40GHz

Test Mode:	TX(5.1G) - 802.11a

Polar	Frequency	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	4434.192	71.94	-20.73	51.20	68.2	-17.00	PK
Vertical	4434.192	59.68	-20.73	38.95	54	-15.05	AV
Vertical	10360.020	62.10	-9.36	52.74	68.2	-15.46	PK
Vertical	10360.020	49.13	-9.36	39.77	54	-14.23	AV
Vertical	15540.055	61.95	-7.84	54.11	74	-19.89	PK
Vertical	15540.055	49.23	-7.84	41.39	54	-12.61	AV
Horizontal	4434.060	70.43	-20.73	49.70	68.2	-18.50	PK
Horizontal	4434.060	59.93	-20.73	39.20	54	-14.80	AV
Horizontal	10360.170	62.32	-9.36	52.96	68.2	-15.24	PK
Horizontal	10360.170	49.86	-9.36	40.50	54	-13.50	AV
Horizontal	15540.060	61.63	-7.84	53.79	74	-20.21	PK
Horizontal	15540.060	49.65	-7.84	41.81	54	-12.19	AV
Middle Channel (5200 MHz)-Above 1G							
Vertical	4592.199	73.64	-20.42	53.22	74	-20.78	PK
Vertical	4592.199	59.08	-20.42	38.66	54	-15.34	AV
Vertical	10400.089	63.55	-9.30	54.25	68.2	-13.95	PK
Vertical	10400.089	49.09	-9.30	39.79	54	-14.21	AV
Vertical	15600.170	60.20	-7.82	52.38	74	-21.62	PK
Vertical	15600.170	49.03	-7.82	41.21	54	-12.79	AV
Horizontal	4592.150	72.80	-20.42	52.39	74	-21.61	PK
Horizontal	4592.150	59.91	-20.42	39.49	54	-14.51	AV
Horizontal	10400.127	63.17	-9.30	53.87	68.2	-14.33	PK
Horizontal	10400.127	49.01	-9.30	39.71	54	-14.29	AV
Horizontal	15600.097	61.54	-7.82	53.72	74	-20.28	PK
Horizontal	15600.097	49.52	-7.82	41.70	54	-12.30	AV
High Channel (5240 MHz)-Above 1G							
Vertical	4739.186	73.38	-20.12	53.26	74	-20.74	PK
Vertical	4739.186	59.34	-20.12	39.22	54	-14.78	AV
Vertical	10480.096	62.69	-9.18	53.51	68.2	-14.69	PK
Vertical	10480.096	49.19	-9.18	40.01	54	-13.99	AV
Vertical	15720.008	63.81	-7.78	56.03	74	-17.97	PK
Vertical	15720.008	49.46	-7.78	41.68	54	-12.32	AV
Horizontal	4739.113	72.13	-20.12	52.01	74	-21.99	PK
Horizontal	4739.113	59.76	-20.12	39.63	54	-14.37	AV
Horizontal	10480.011	60.95	-9.18	51.77	68.2	-16.43	PK
Horizontal	10480.011	49.98	-9.18	40.80	54	-13.20	AV
Horizontal	15720.105	61.98	-7.78	54.20	74	-19.80	PK
Horizontal	15720.105	49.07	-7.78	41.29	54	-12.71	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	Frequency	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	4434.057	72.62	-20.73	51.89	68.2	-16.31	PK
Vertical	4434.057	59.05	-20.73	38.32	54	-15.68	AV
Vertical	10360.003	61.76	-9.36	52.40	68.2	-15.80	PK
Vertical	10360.003	49.34	-9.36	39.98	54	-14.02	AV
Vertical	15540.055	62.47	-7.84	54.63	74	-19.37	PK
Vertical	15540.055	49.65	-7.84	41.81	54	-12.19	AV
Horizontal	4434.132	73.86	-20.73	53.13	68.2	-15.07	PK
Horizontal	4434.132	59.86	-20.73	39.13	54	-14.87	AV
Horizontal	10360.072	64.97	-9.36	55.61	68.2	-12.59	PK
Horizontal	10360.072	49.45	-9.36	40.09	54	-13.91	AV
Horizontal	15540.199	60.51	-7.84	52.67	74	-21.33	PK
Horizontal	15540.199	49.43	-7.84	41.59	54	-12.41	AV
Middle Channel (5200 MHz)-Above 1G							
Vertical	4592.019	72.33	-20.42	51.92	74	-22.08	PK
Vertical	4592.019	59.45	-20.42	39.03	54	-14.97	AV
Vertical	10400.176	62.62	-9.30	53.32	68.2	-14.88	PK
Vertical	10400.176	49.47	-9.30	40.17	54	-13.83	AV
Vertical	15600.039	60.66	-7.82	52.84	74	-21.16	PK
Vertical	15600.039	49.07	-7.82	41.25	54	-12.75	AV
Horizontal	4592.166	74.97	-20.42	54.55	74	-19.45	PK
Horizontal	4592.166	59.38	-20.42	38.96	54	-15.04	AV
Horizontal	10400.002	61.91	-9.30	52.61	68.2	-15.59	PK
Horizontal	10400.002	49.20	-9.30	39.90	54	-14.10	AV
Horizontal	15600.098	63.71	-7.82	55.89	74	-18.11	PK
Horizontal	15600.098	49.54	-7.82	41.72	54	-12.28	AV
High Channel (5240 MHz)-Above 1G							
Vertical	4739.123	72.09	-20.12	51.97	74	-22.03	PK
Vertical	4739.123	59.41	-20.12	39.28	54	-14.72	AV
Vertical	10480.108	64.55	-9.18	55.37	68.2	-12.83	PK
Vertical	10480.108	49.93	-9.18	40.75	54	-13.25	AV
Vertical	15720.036	61.94	-7.78	54.16	74	-19.84	PK
Vertical	15720.036	49.32	-7.78	41.54	54	-12.46	AV
Horizontal	4739.123	71.75	-20.12	51.63	74	-22.37	PK
Horizontal	4739.123	59.67	-20.12	39.55	54	-14.45	AV
Horizontal	10480.004	63.56	-9.18	54.38	68.2	-13.82	PK
Horizontal	10480.004	49.41	-9.18	40.23	54	-13.77	AV
Horizontal	15720.035	60.40	-7.78	52.62	74	-21.38	PK
Horizontal	15720.035	49.98	-7.78	42.20	54	-11.80	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.

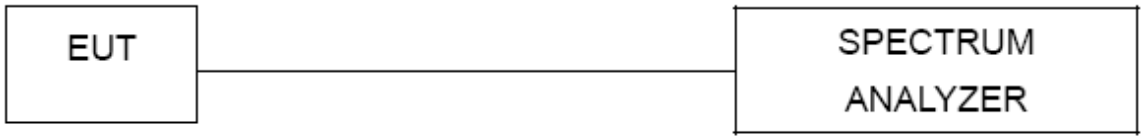
Test Mode:	TX(5.1G) - 802.11n-HT40

Polar	Frequency	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	4434.175	73.29	-20.73	52.56	68.2	-15.64	PK
Vertical	4434.175	59.99	-20.73	39.25	54	-14.75	AV
Vertical	10380.038	64.20	-9.33	54.87	68.2	-13.33	PK
Vertical	10380.038	49.62	-9.33	40.29	54	-13.71	AV
Vertical	15570.088	60.89	-7.83	53.06	74	-20.94	PK
Vertical	15570.088	49.62	-7.83	41.79	54	-12.21	AV
Horizontal	4434.135	72.22	-20.73	51.49	74	-22.51	PK
Horizontal	4434.135	59.35	-20.73	38.62	54	-15.38	AV
Horizontal	10380.173	63.94	-9.33	54.61	68.2	-13.59	PK
Horizontal	10380.173	49.13	-9.33	39.80	54	-14.20	AV
Horizontal	15570.024	62.30	-7.83	54.47	74	-19.53	PK
Horizontal	15570.024	49.85	-7.83	42.02	54	-11.98	AV
Middle Channel (5230 MHz)-Above 1G							
Vertical	4739.079	72.44	-20.12	52.32	68.2	-15.88	PK
Vertical	4739.079	59.69	-20.12	39.57	54	-14.43	AV
Vertical	10460.109	60.89	-9.21	51.68	68.2	-16.52	PK
Vertical	10460.109	49.61	-9.21	40.40	54	-13.60	AV
Vertical	15690.060	61.95	-7.79	54.16	74	-19.84	PK
Vertical	15690.060	49.07	-7.79	41.28	54	-12.72	AV
Horizontal	4739.164	74.75	-20.12	54.63	68.2	-13.57	PK
Horizontal	4739.164	59.95	-20.12	39.82	54	-14.18	AV
Horizontal	10460.121	60.33	-9.21	51.12	68.2	-17.08	PK
Horizontal	10460.121	49.64	-9.21	40.43	54	-13.57	AV
Horizontal	15690.105	60.67	-7.79	52.88	74	-21.12	PK
Horizontal	15690.105	49.48	-7.79	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.

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

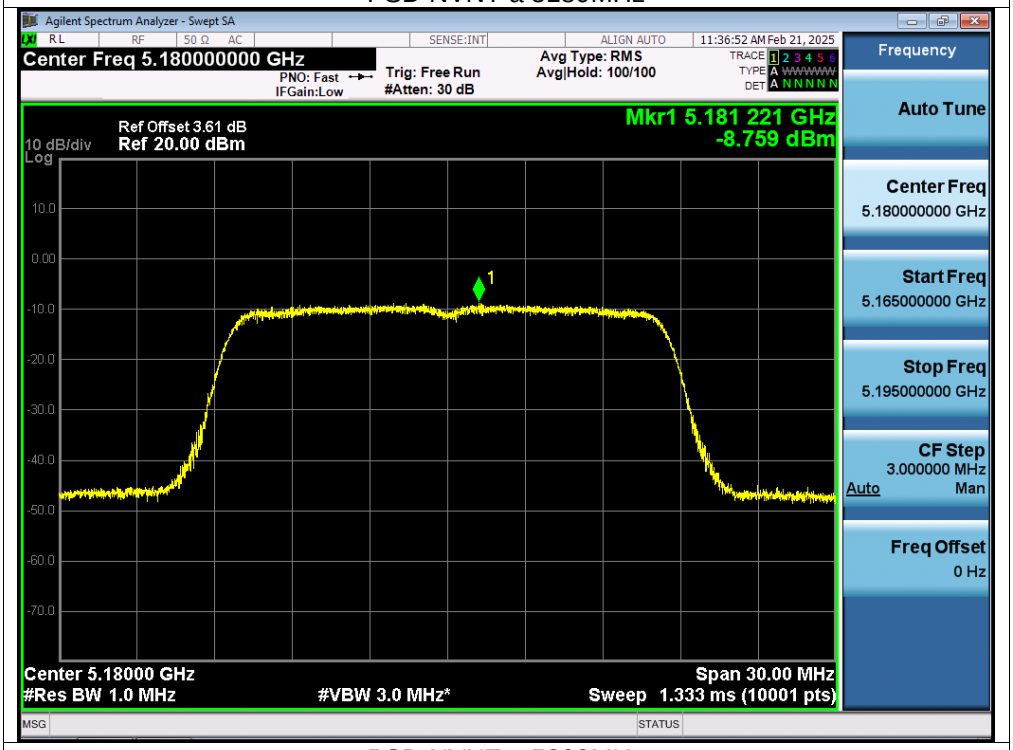
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

8.5 Test Result

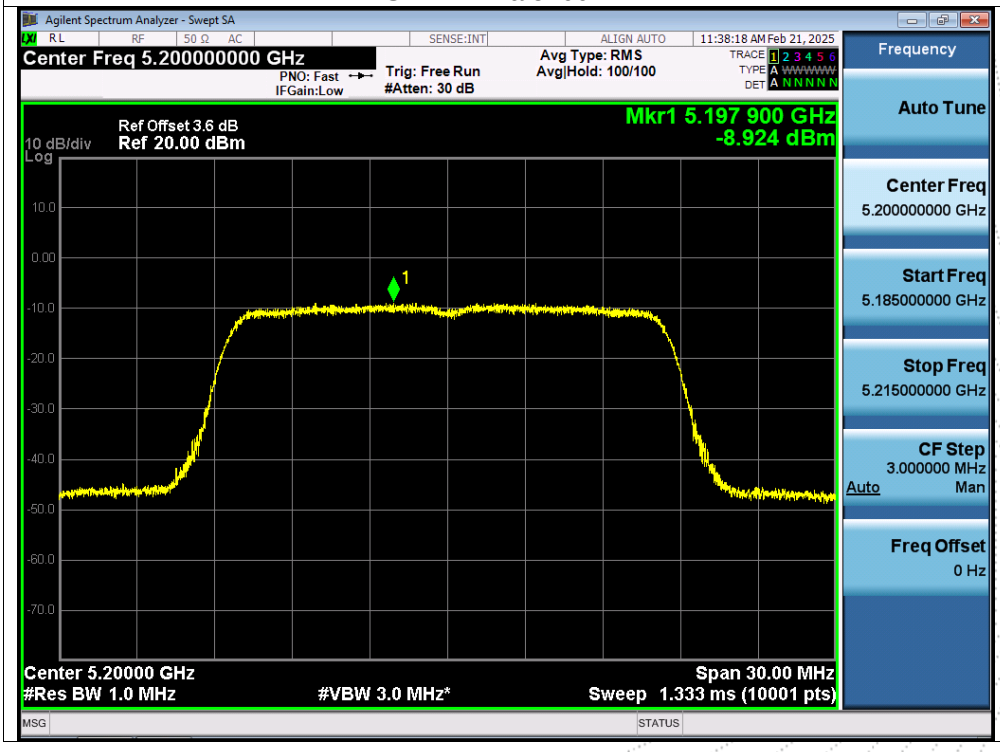
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5180-5240MHz)		

Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/1MHz)	Limit (dBm/1MHz)	Verdict
NVNT	a	5180	-8.76	11	Pass
NVNT	a	5200	-8.92	11	Pass
NVNT	a	5240	-9.5	11	Pass
NVNT	n20	5180	-8.88	11	Pass
NVNT	n20	5200	-9.42	11	Pass
NVNT	n20	5240	-9.86	11	Pass
NVNT	n40	5190	-12.22	11	Pass
NVNT	n40	5230	-12.6	11	Pass

Test Graphs
PSD NVNT a 5180MHz



PSD NVNT a 5200MHz



PSD NVNT a 5240MHz

PSD NVNT n20 5180MHz

PSD NVNT n20 5200MHz

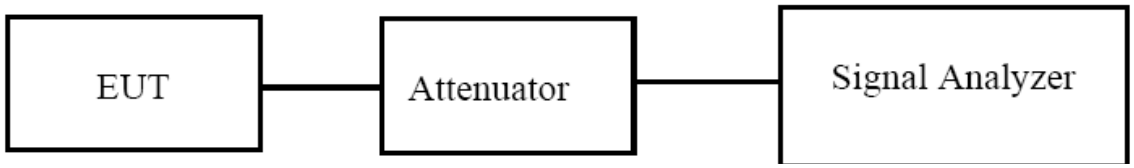
PSD NVNT n20 5240MHz

PSD NVNT n40 5190MHz

PSD NVNT n40 5230MHz

9. 26dB & 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.

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.

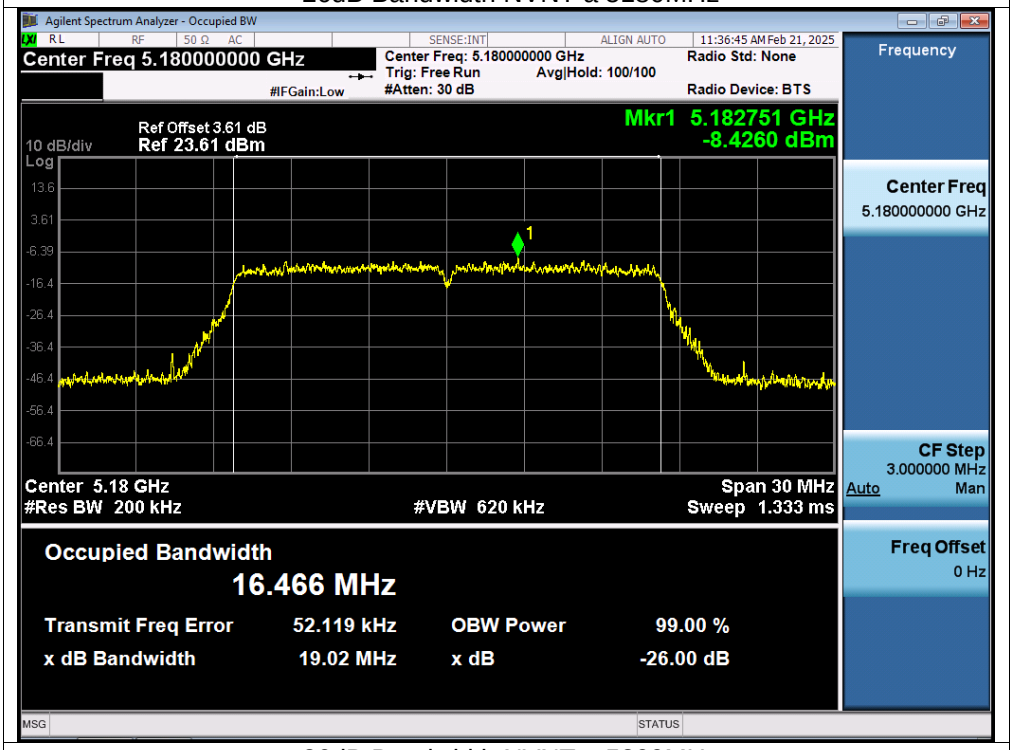
9.5 Test Result

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

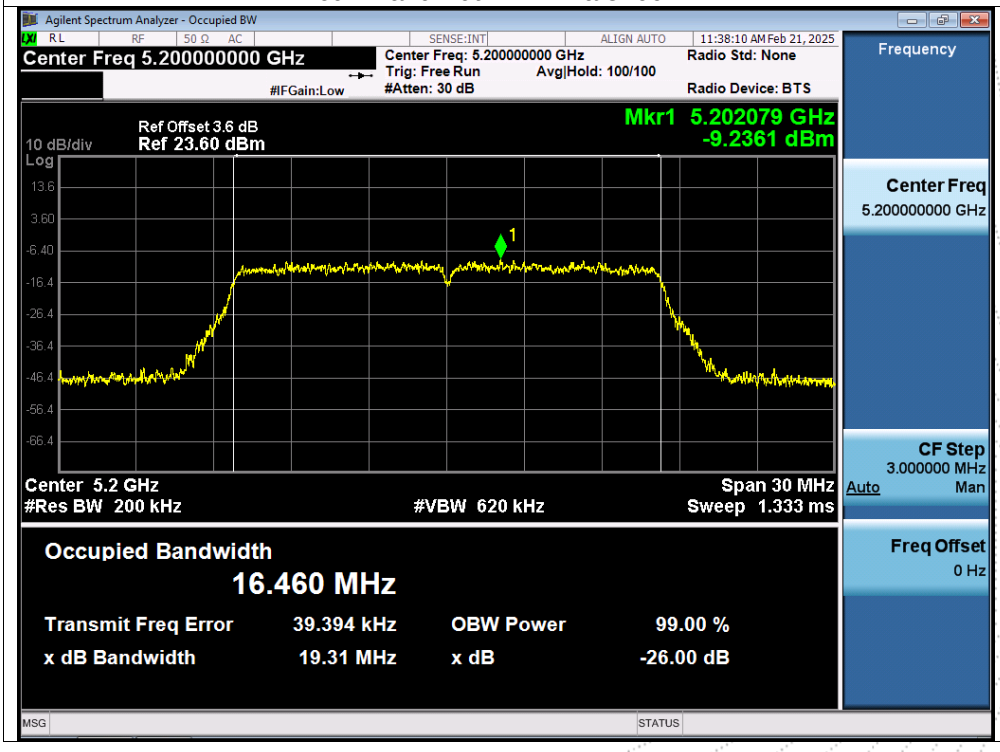
Condition	Mode	Frequency (MHz)	99% bandwidth (MHz)	-26dB bandwidth (MHz)	Result
NVNT	a	5180	16.459	19.024	Pass
NVNT	a	5200	16.458	19.307	Pass
NVNT	a	5240	16.47	19.18	Pass
NVNT	n20	5180	17.486	19.563	Pass
NVNT	n20	5200	17.513	19.482	Pass
NVNT	n20	5240	17.481	19.616	Pass
NVNT	n40	5190	35.708	38.907	Pass
NVNT	n40	5230	35.686	38.999	Pass

Test Graphs

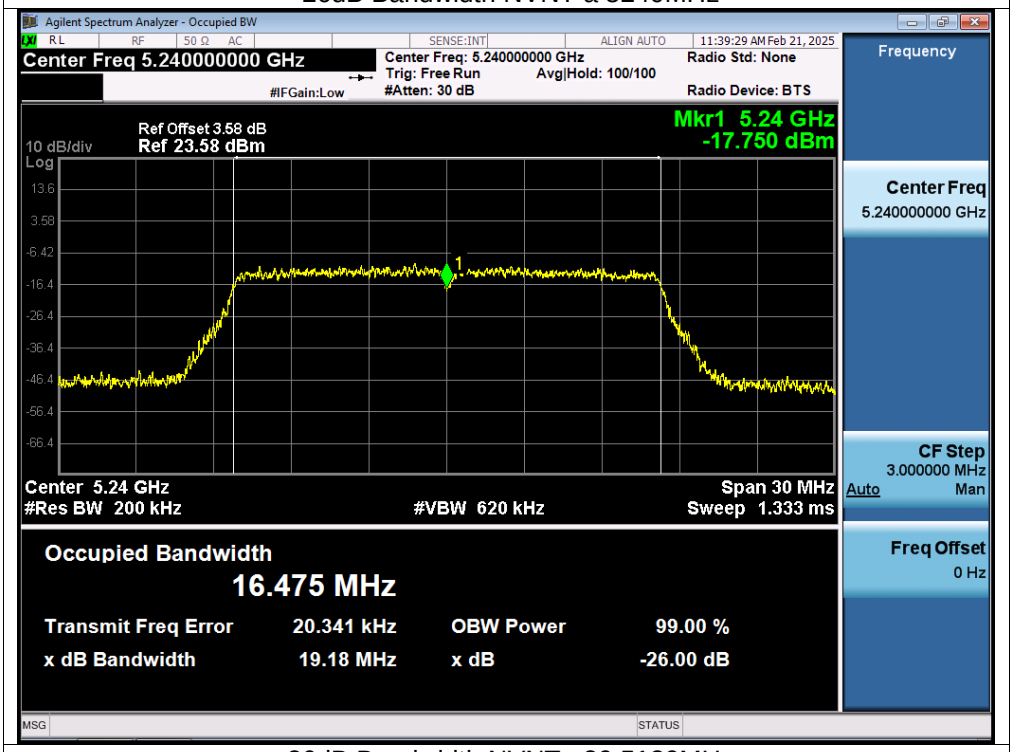
-26dB Bandwidth NVNT a 5180MHz



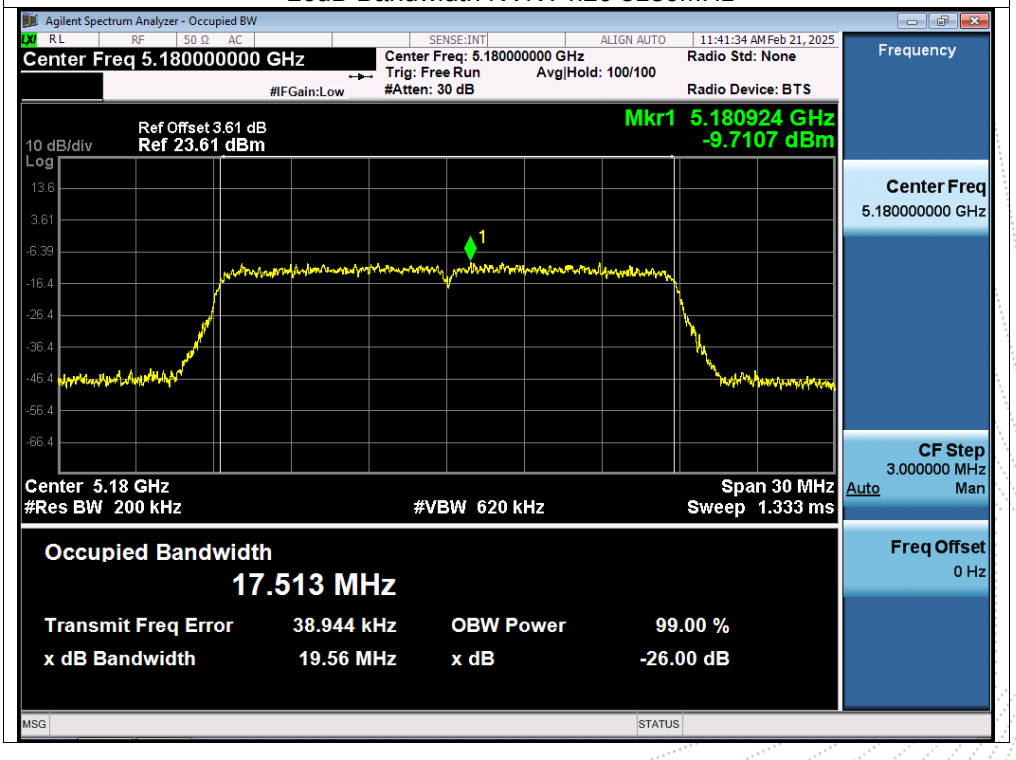
-26dB Bandwidth NVNT a 5200MHz



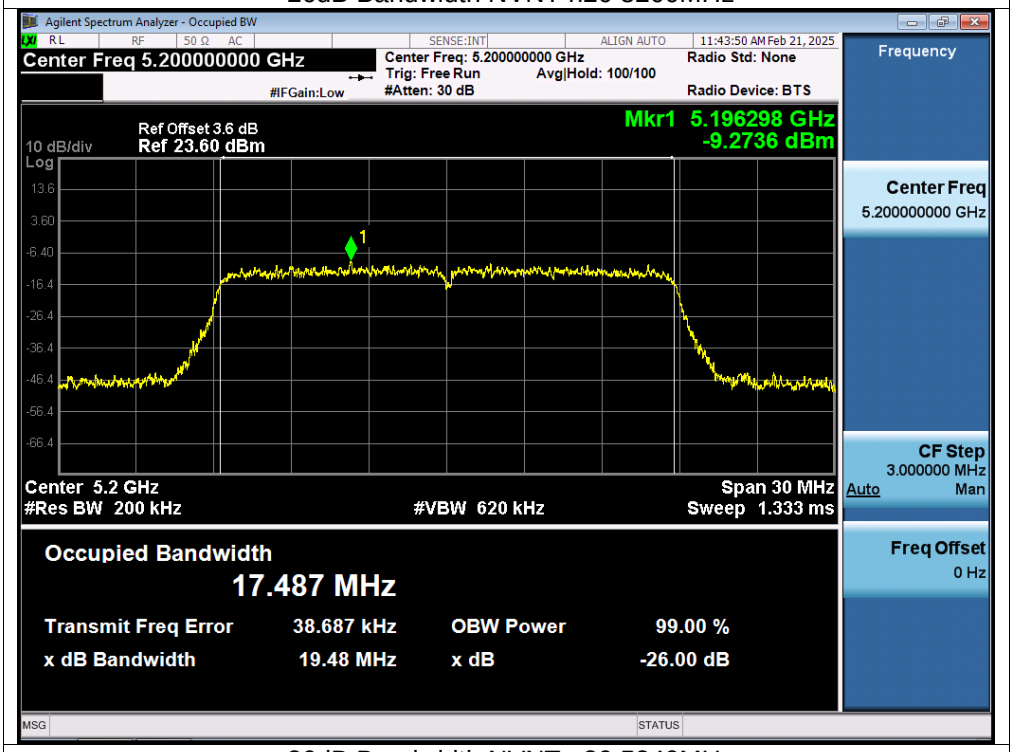
-26dB Bandwidth NVNT a 5240MHz



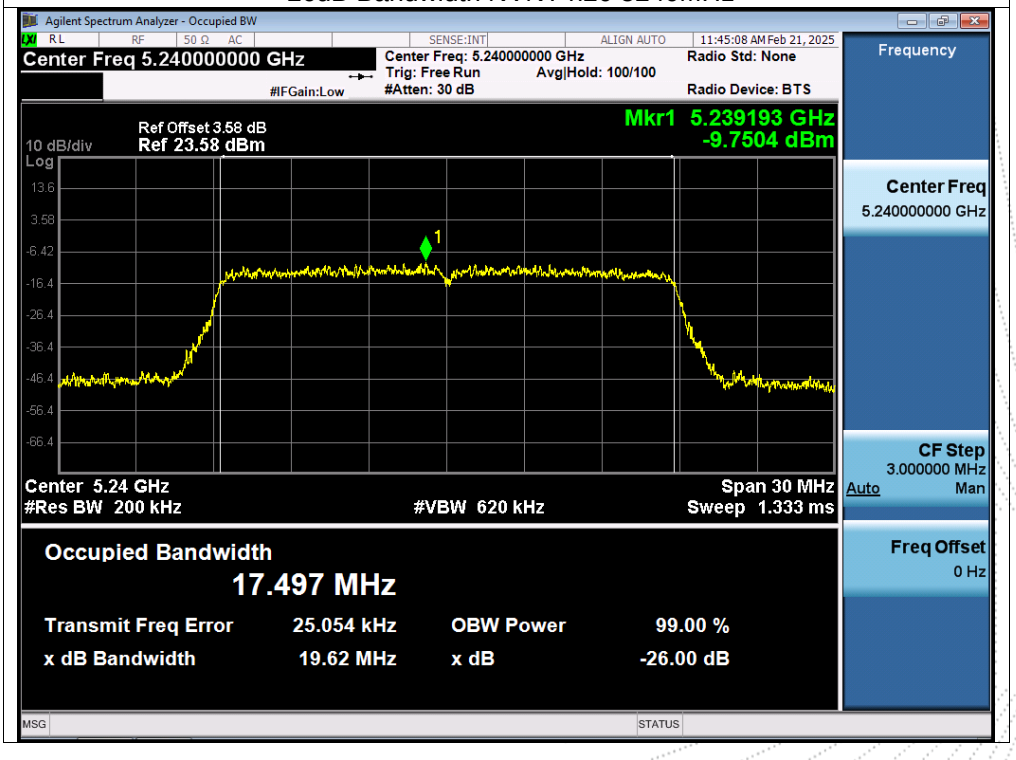
-26dB Bandwidth NVNT n20 5180MHz



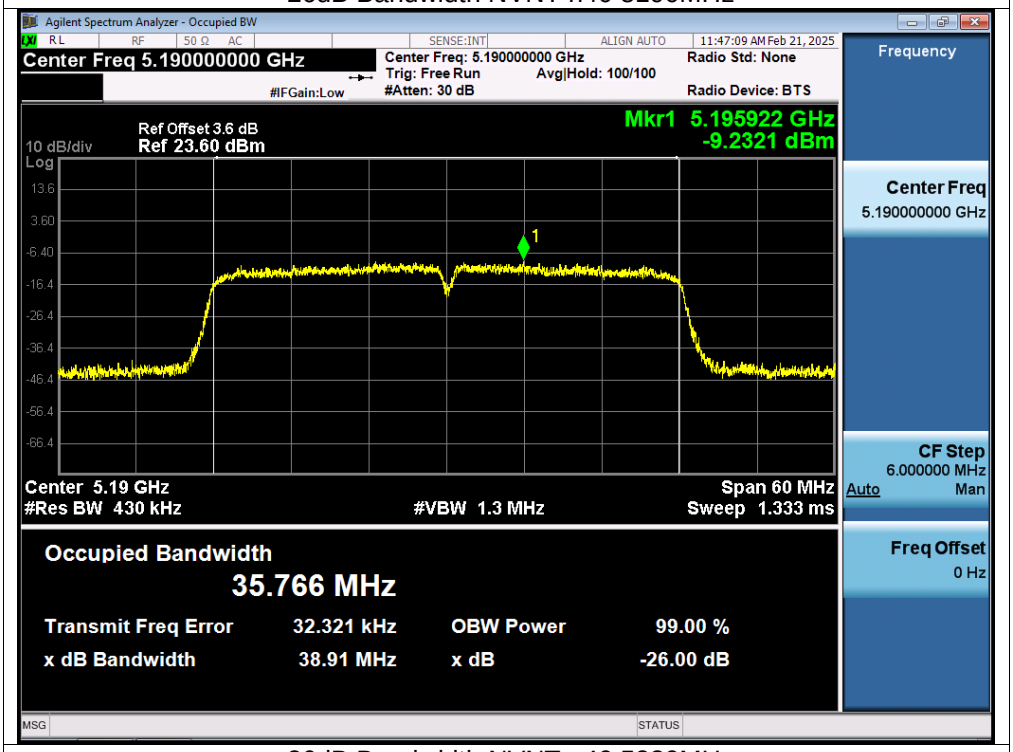
-26dB Bandwidth NVNT n20 5200MHz



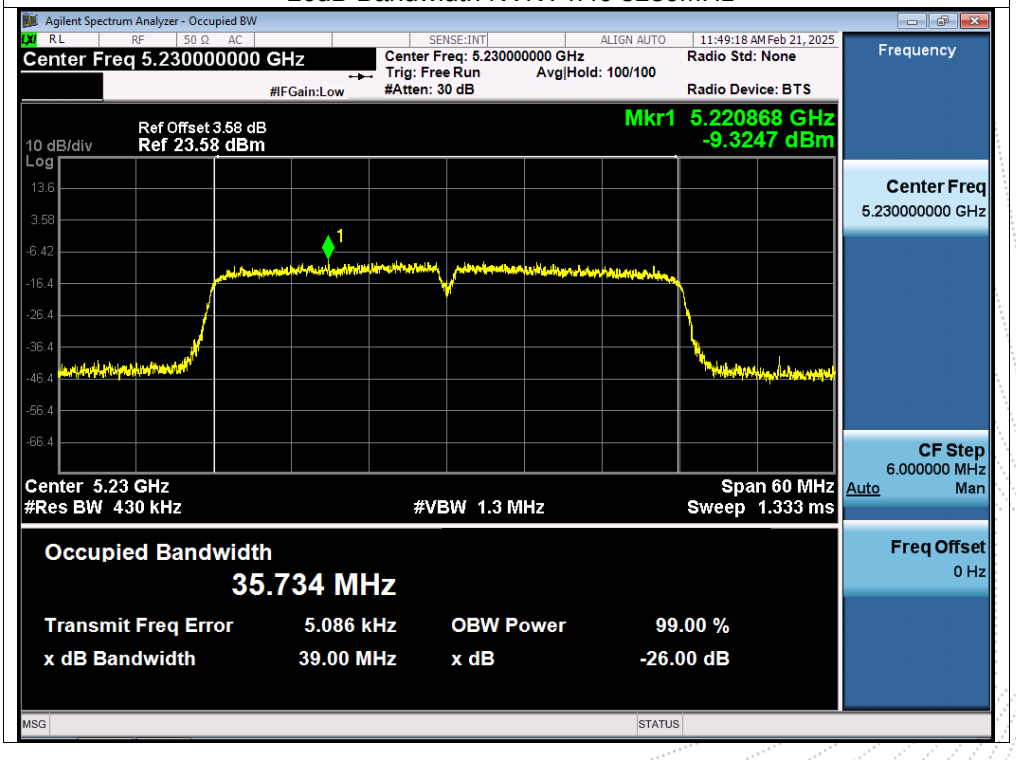
-26dB Bandwidth NVNT n20 5240MHz



-26dB Bandwidth NVNT n40 5190MHz

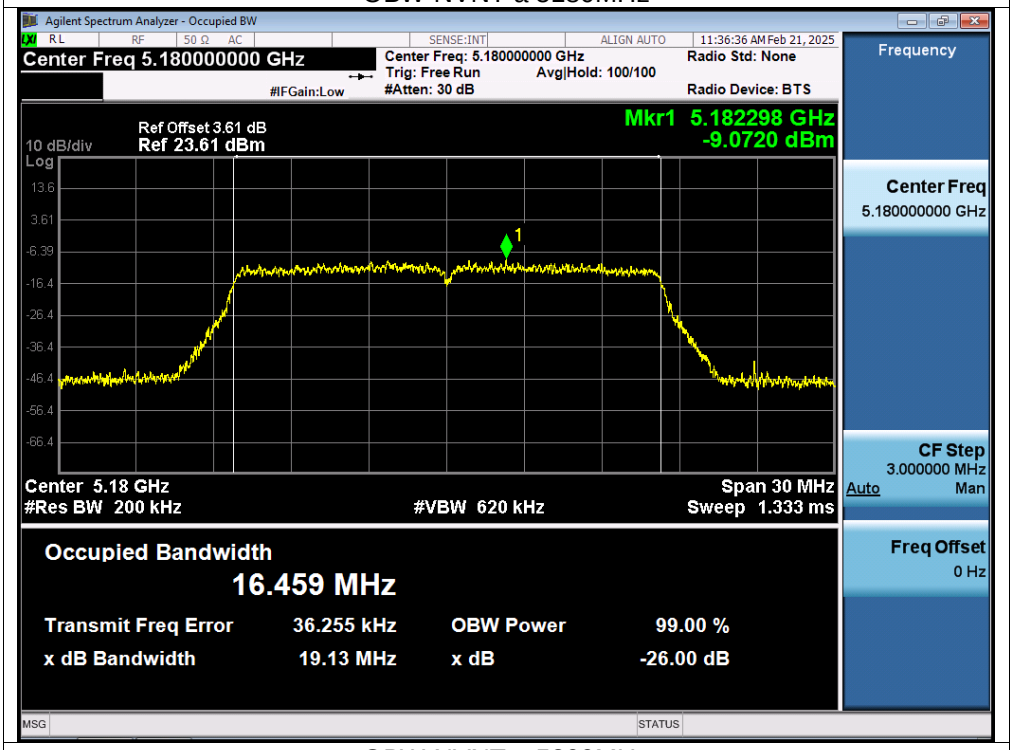


-26dB Bandwidth NVNT n40 5230MHz

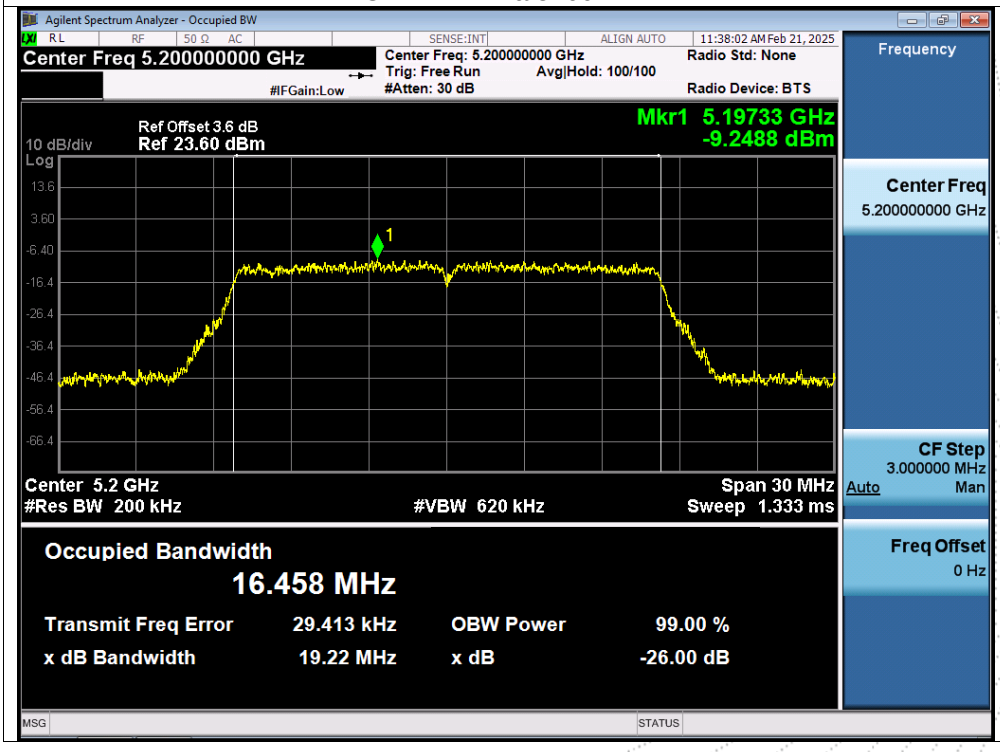


Test Graphs

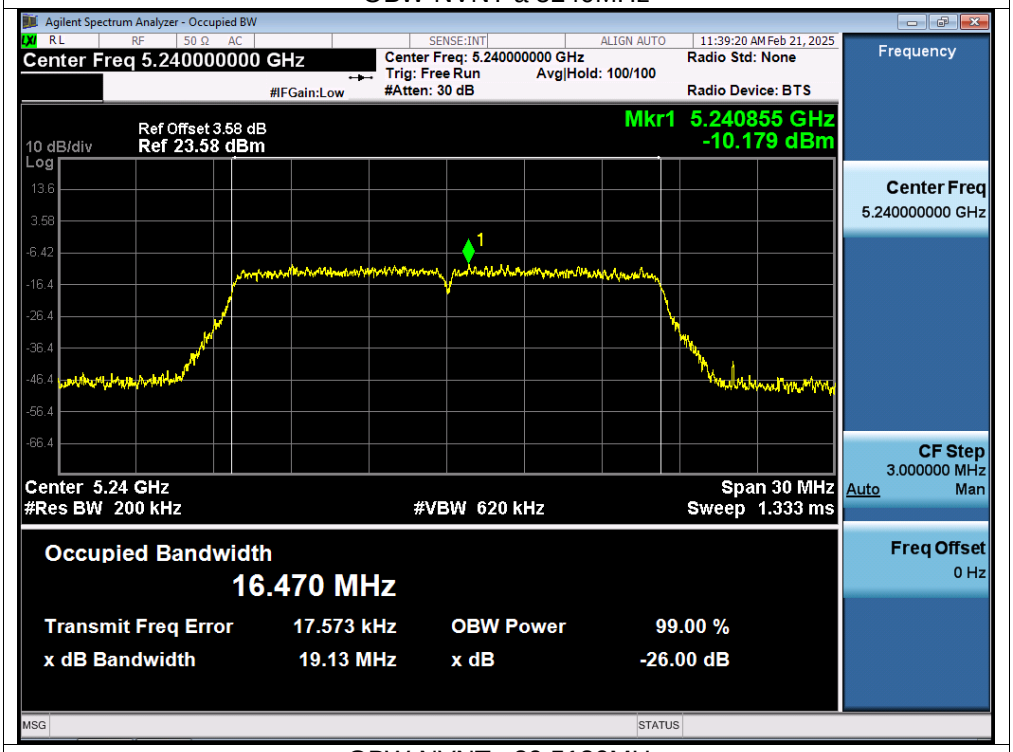
OBW NVNT a 5180MHz



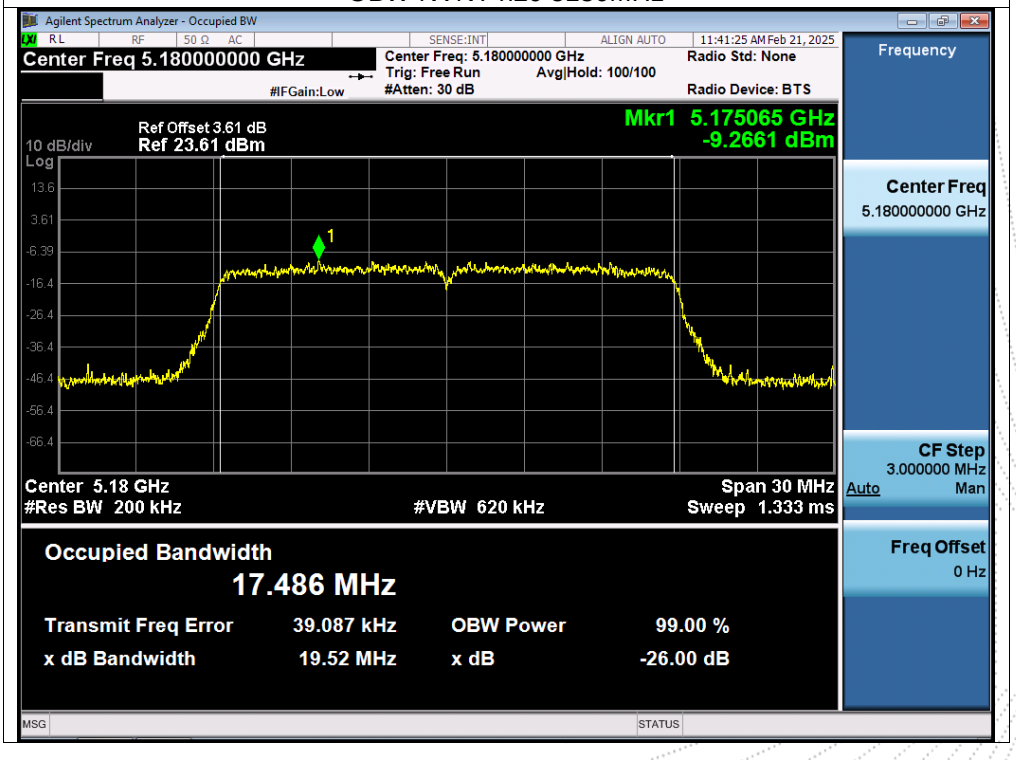
OBW NVNT a 5200MHz



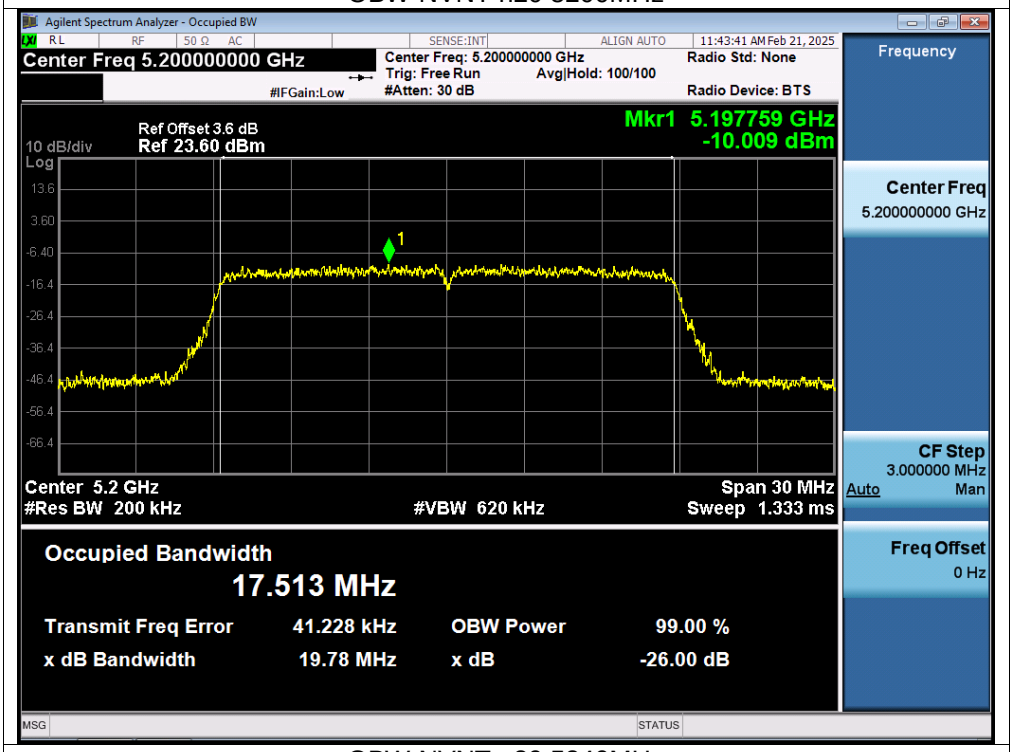
OBW NVNT a 5240MHz



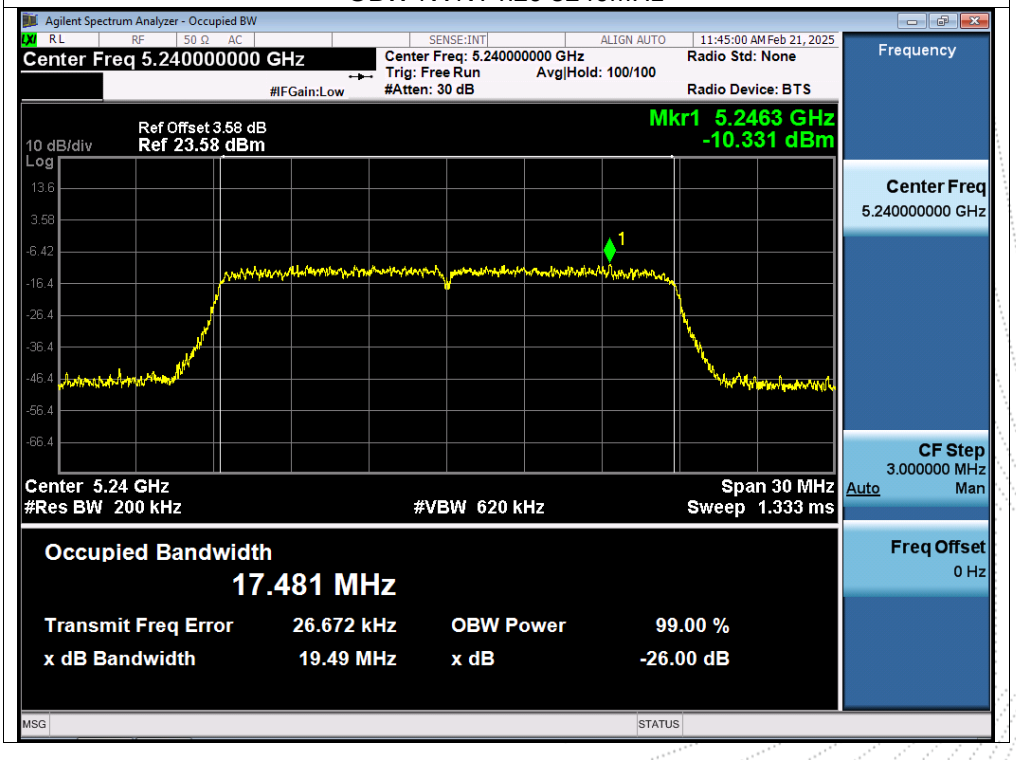
OBW NVNT n20 5180MHz



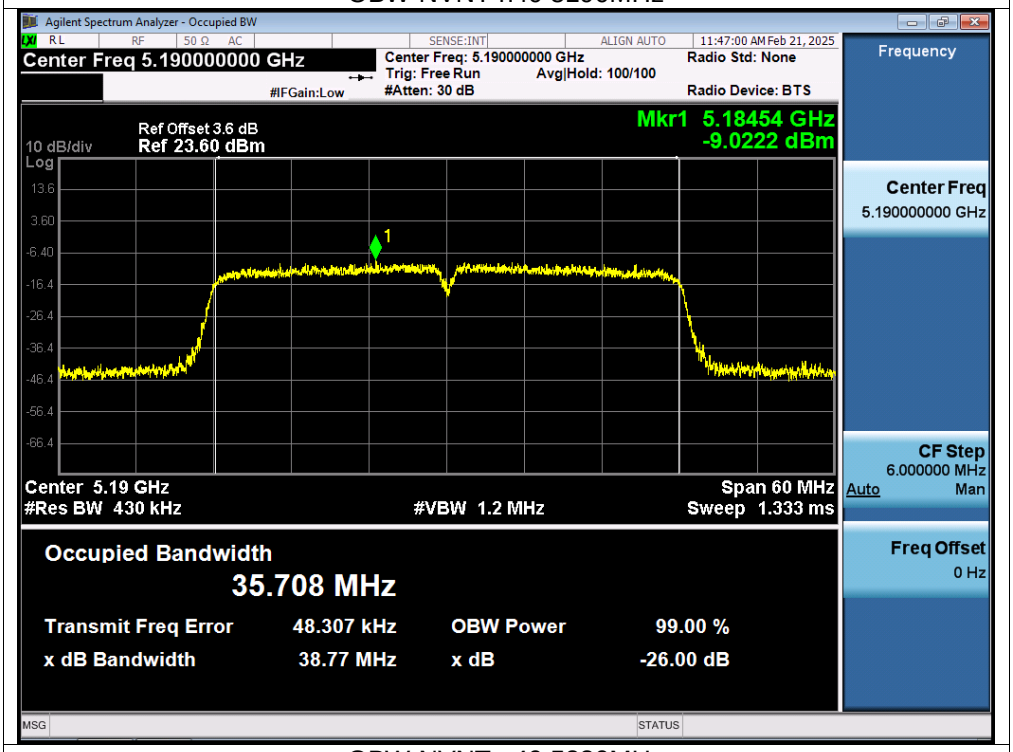
OBW NVNT n20 5200MHz



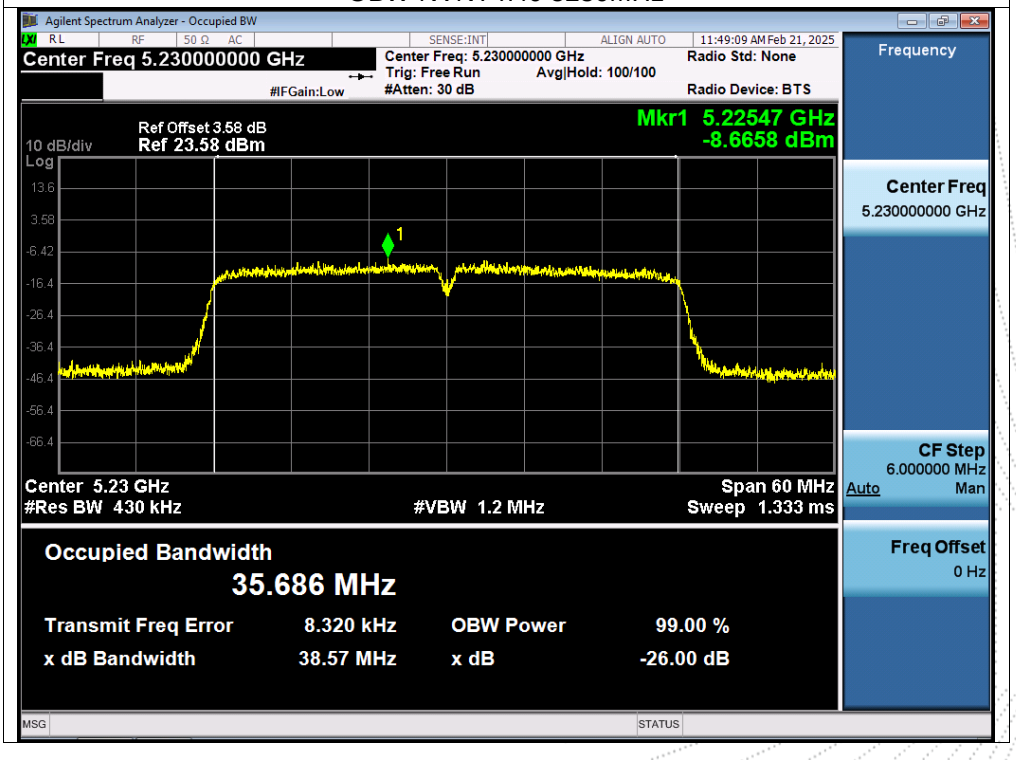
OBW NVNT n20 5240MHz



OBW NVNT n40 5190MHz

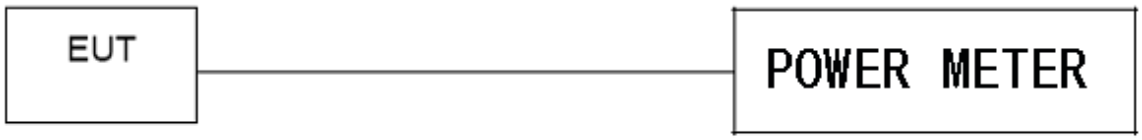


OBW NVNT n40 5230MHz



10. Maximum Conducted Output Power

10.1 Block Diagram Of Test Setup



10.2 Limit

According to FCC §15.407
The maximum conduced output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	250mW
5725~5850	1W

10.3 Test Procedure

Maximum conducted output power may be measured using a spectrum analyzer/EMI receiver or an RF power meter.

1. Device Configuration
If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).
a) The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.
b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

2. Measurement using a Spectrum Analyzer or EMI Receiver (SA)
Measurement of maximum conducted output power using a spectrum analyzer requires integrating the spectrum across a frequency span that encompasses, at a minimum, either the EBW or the 99-percent occupied bandwidth of the signal.1 However, the EBW must be used to determine bandwidth dependent limits on maximum conducted output power in accordance with § 15.407(a).
a) The test method shall be selected as follows: (i) Method SA-1 or SA-1 Alternative (averaging with the EUT transmitting at full power throughout each sweep) shall be applied if either of the following conditions can be satisfied:
• The EUT transmits continuously (or with a duty cycle ≥ 98 percent).
• Sweep triggering or gating can be implemented in a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the analyzer configured as in Method SA-1, below) is equal to or shorter than the duration T of each transmission from the EUT and if those transmissions exhibit full power throughout their durations.

(ii) Method SA-2 or SA-2 Alternative (averaging across on and off times of the EUT transmissions, followed by duty cycle correction) shall be applied if the conditions of (i) cannot be achieved and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

(iii) Method SA-3 (RMS detection with max hold) or SA-3 Alternative (reduced VBW with max hold) shall be applied if the conditions of (i) and (ii) cannot be achieved.

b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep): (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
(ii) Set RBW = 1 MHz.
(iii) Set VBW ≥ 3 MHz.
(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
(v) Sweep time = auto.
(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum

10.4 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.

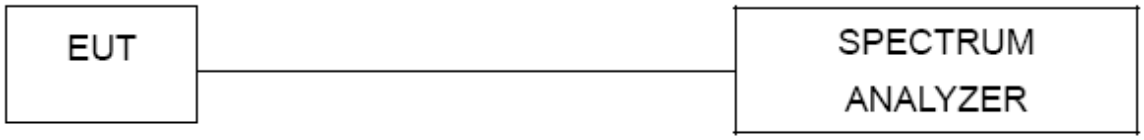
10.5 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX (5.1G) Mode Frequency U-NII-1 (5180-5240MHz)		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	4.42	24	Pass
NVNT	a	5200	4.42	24	Pass
NVNT	a	5240	3.62	24	Pass
NVNT	n20	5180	4.35	24	Pass
NVNT	n20	5200	4.05	24	Pass
NVNT	n20	5240	3.59	24	Pass
NVNT	n40	5190	4.03	24	Pass
NVNT	n40	5230	3.34	24	Pass

11. Out Of Band Emissions

11.1 Block Diagram Of Test Setup



11.2 Limit

According to FCC §15.407(b)
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

11.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

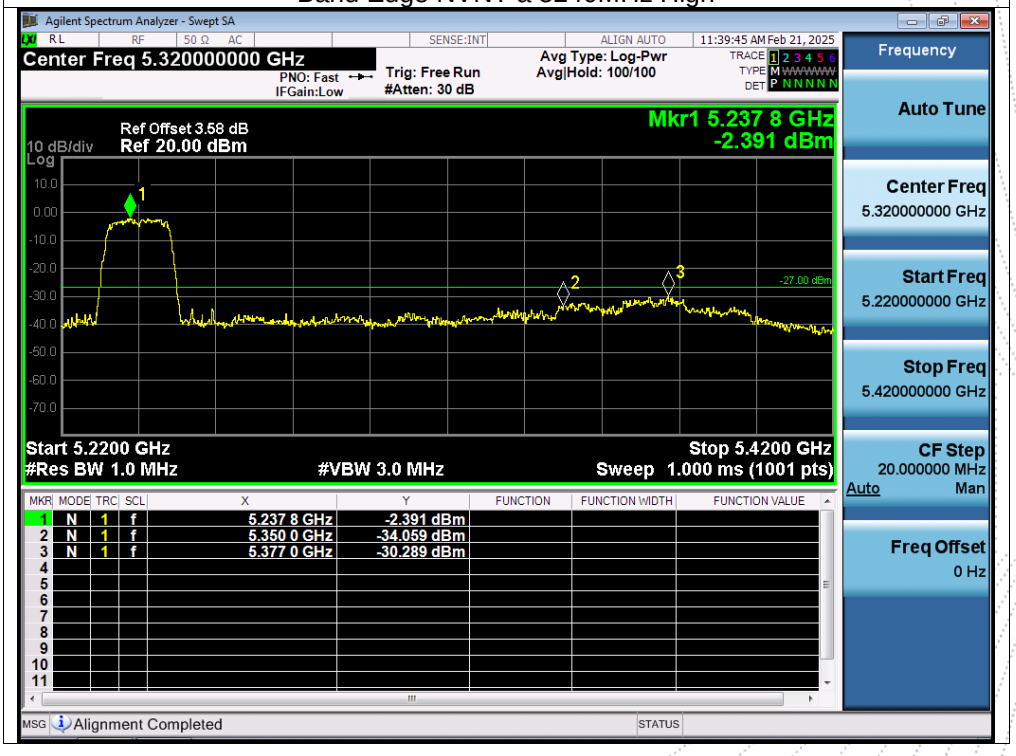
11.4 EUT Operating Conditions

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

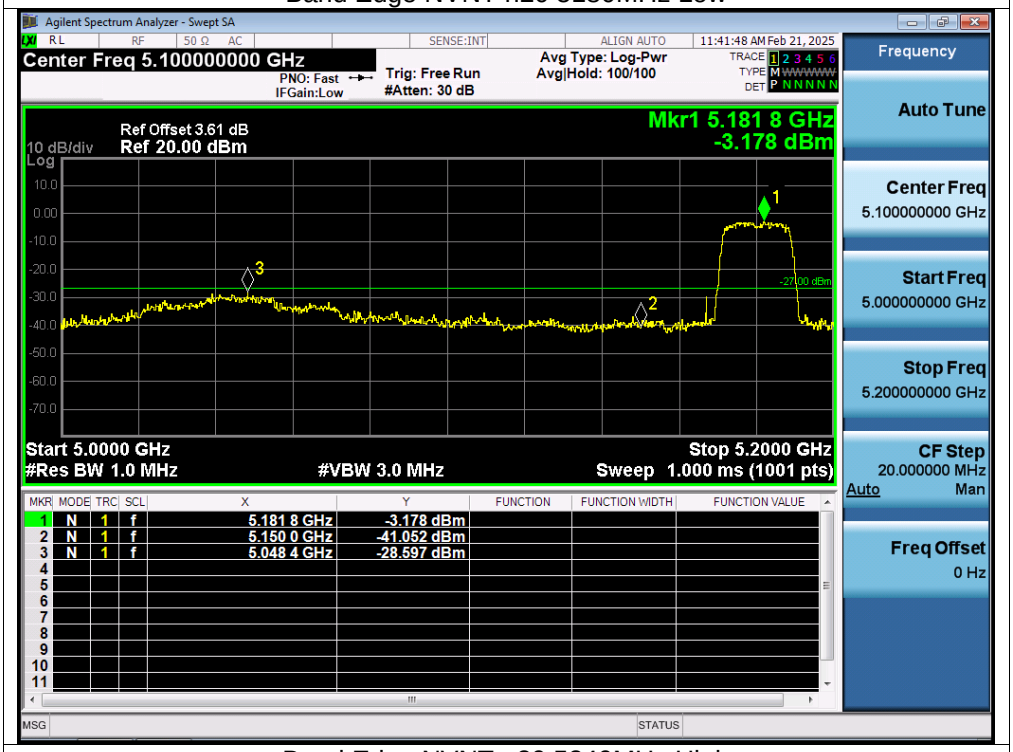
11.5 Test Result

Test Graphs
Band Edge NVNT a 5180MHz Low

Band Edge NVNT a 5240MHz High

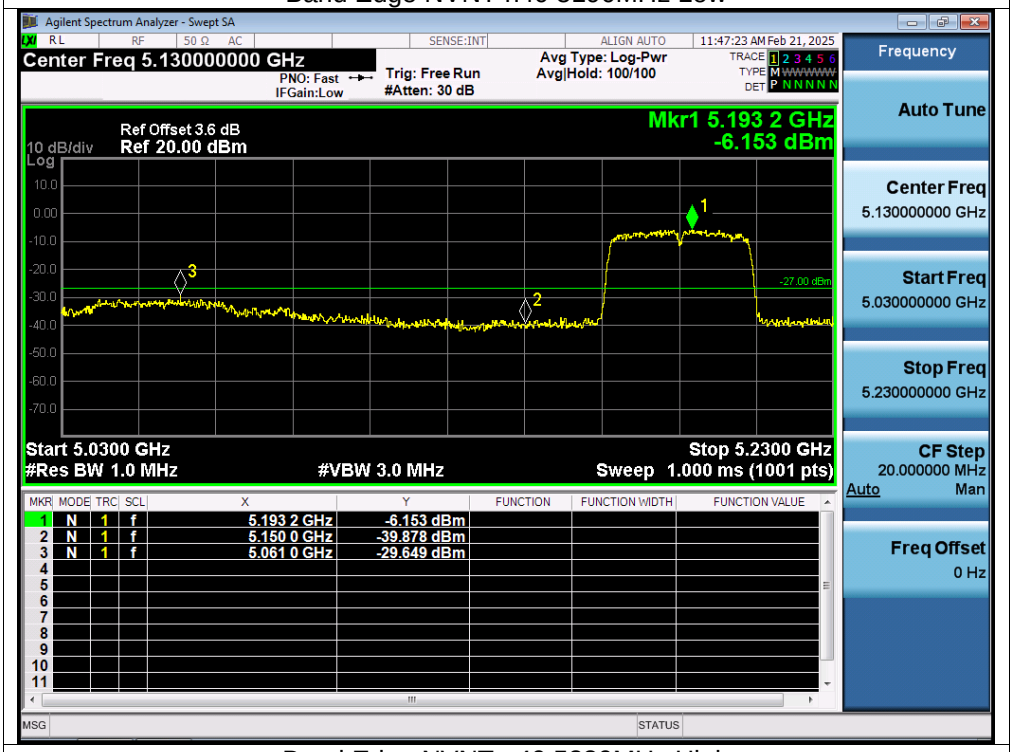


Band Edge NVNT n20 5180MHz Low

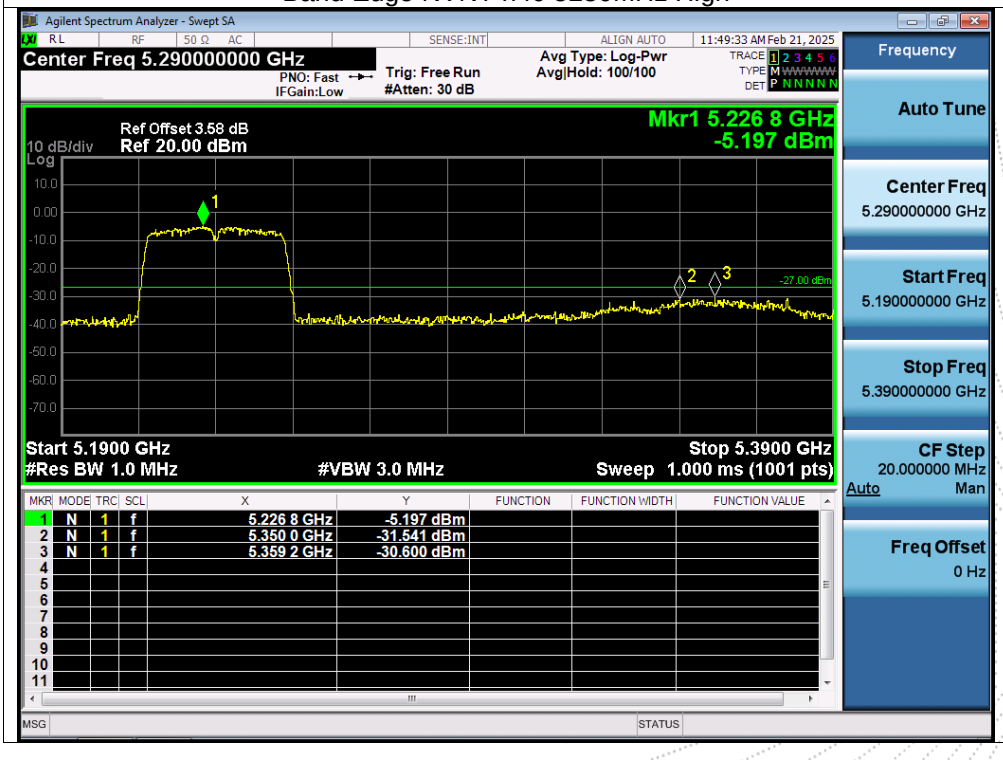


Band Edge NVNT n20 5240MHz High

Band Edge NVNT n40 5190MHz Low

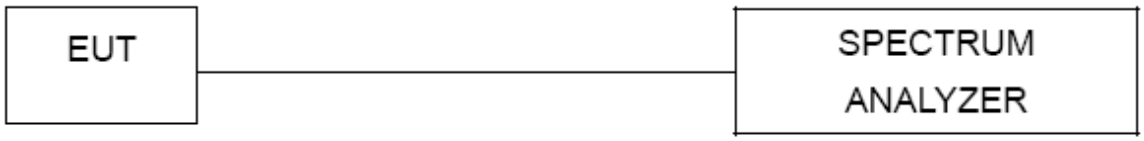


Band Edge NVNT n40 5230MHz High



12. Spurious RF Conducted Emissions

12.1 Block Diagram Of Test Setup



12.2 Limit

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1)For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2)For transmitters operating in the 5.725-5.85 GHz band(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge..

12.3 Test Procedure

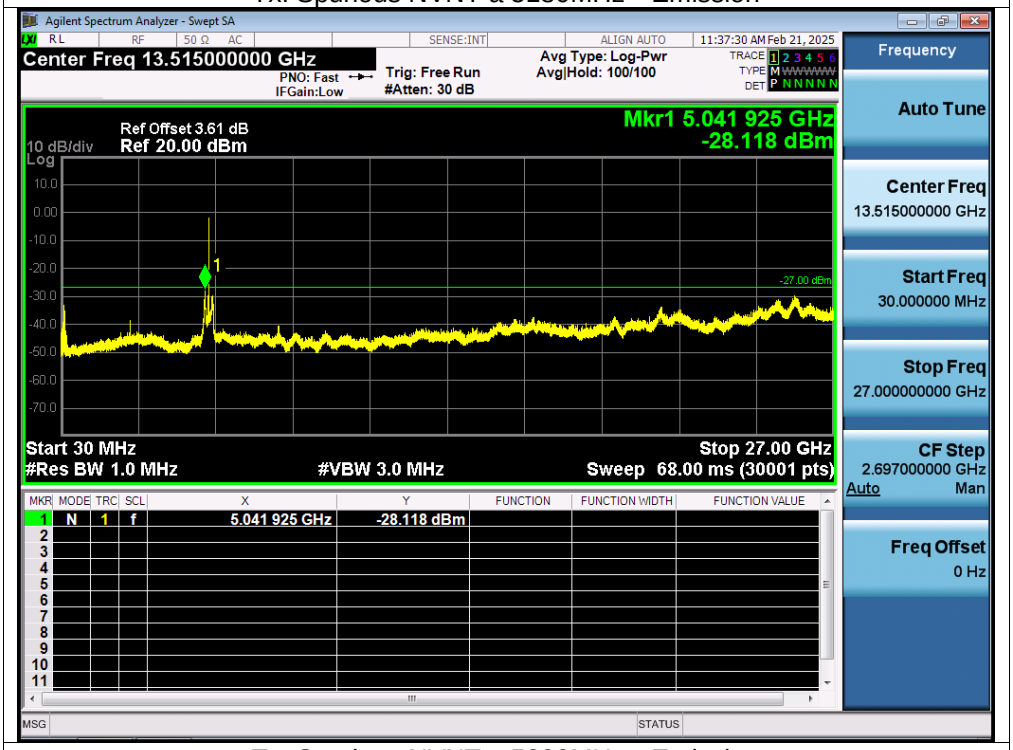
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

12.4 Test Result

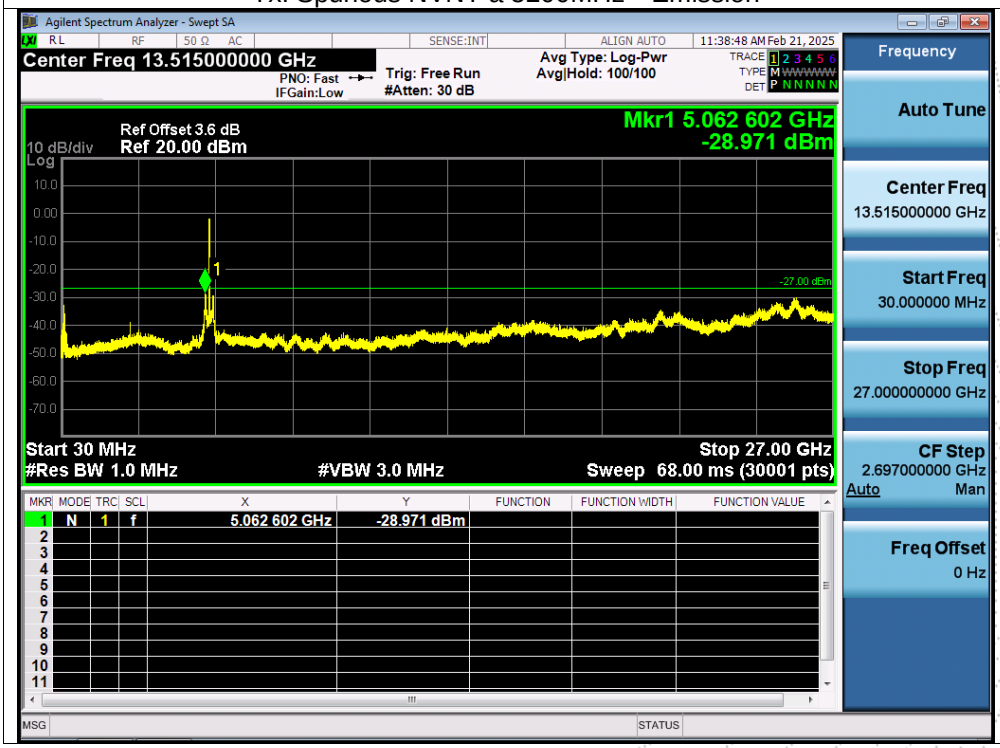
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

About:26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

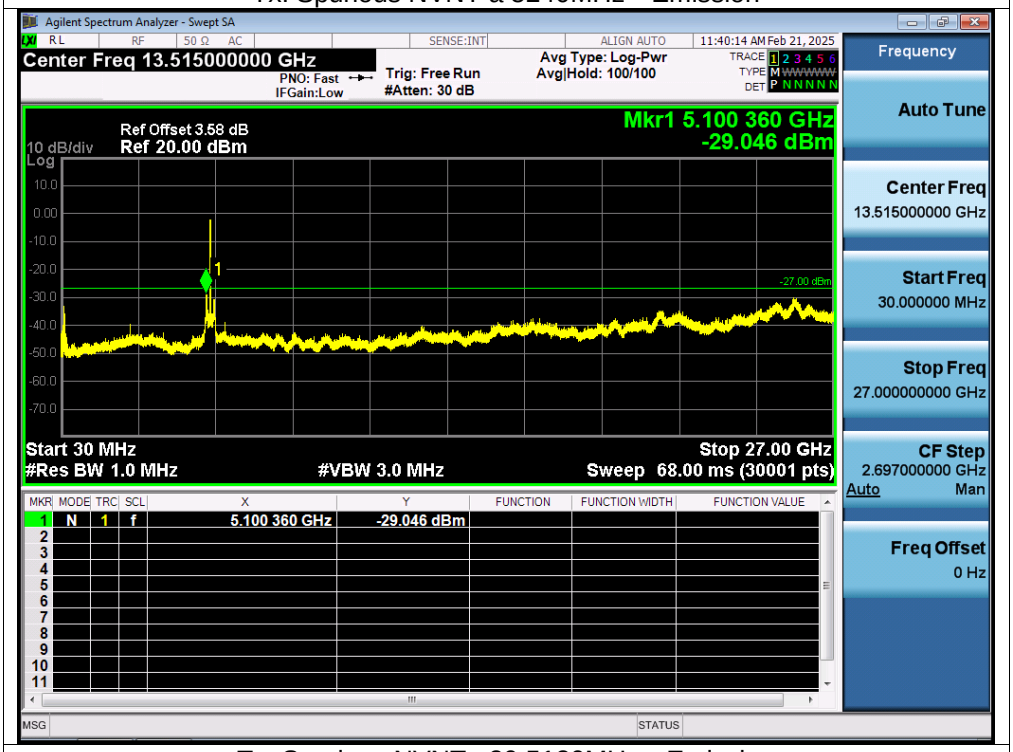
Test Graphs
Tx. Spurious NVNT a 5180MHz Emission



Tx. Spurious NVNT a 5200MHz Emission

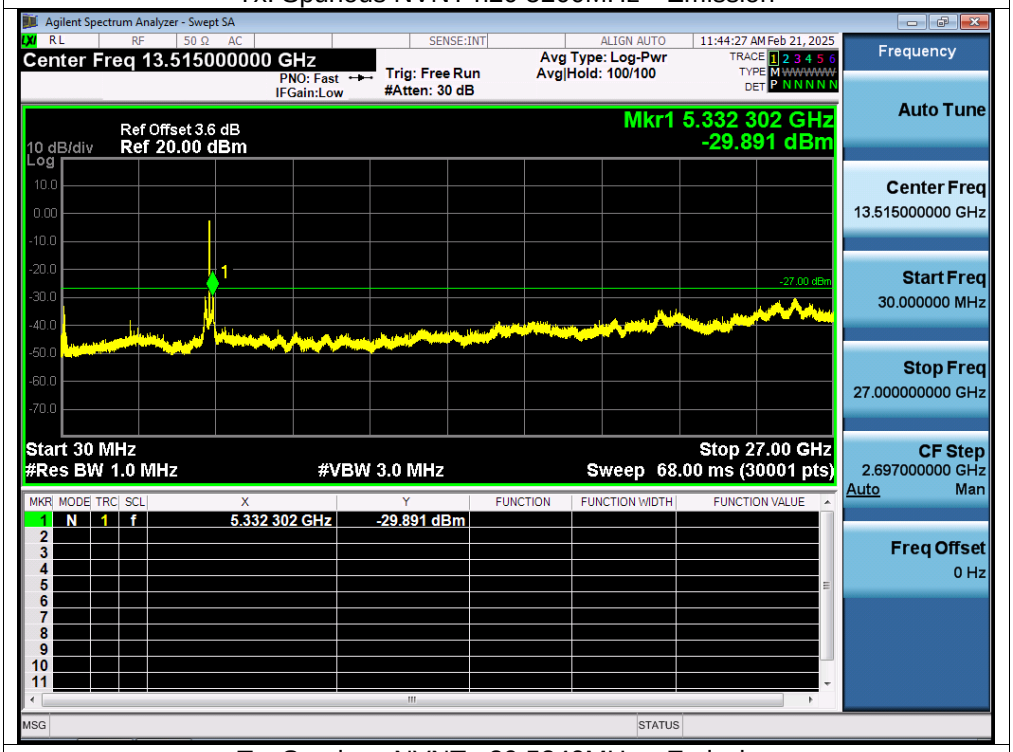


Tx. Spurious NVNT a 5240MHz Emission



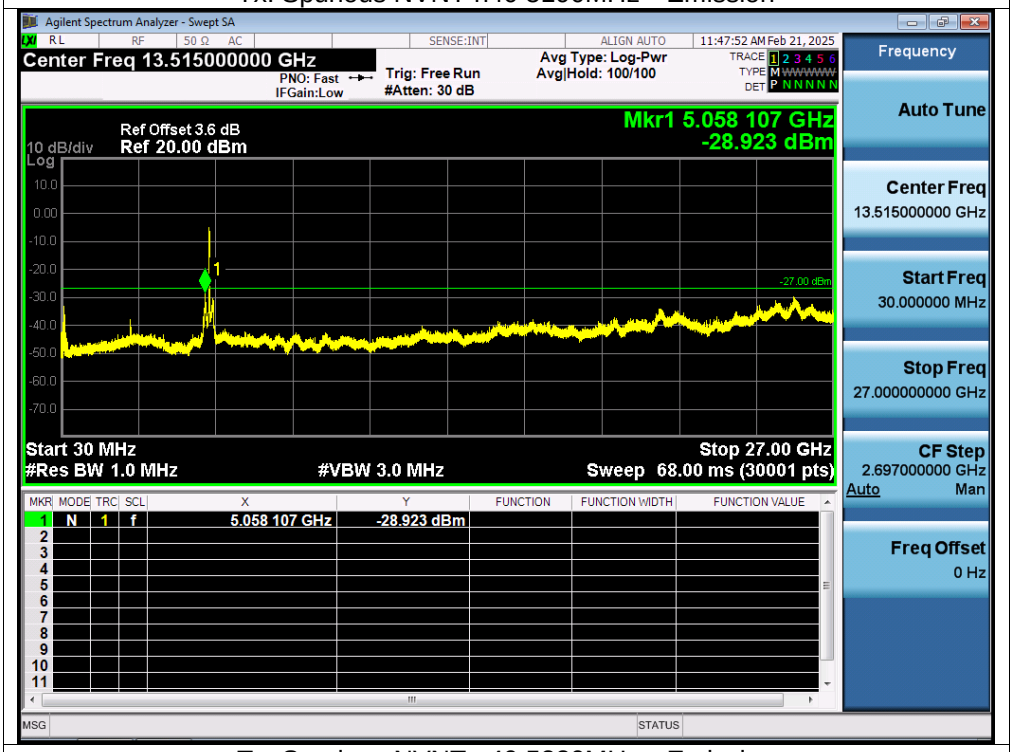
Tx. Spurious NVNT n20 5180MHz Emission

Tx. Spurious NVNT n20 5200MHz Emission



Tx. Spurious NVNT n20 5240MHz Emission

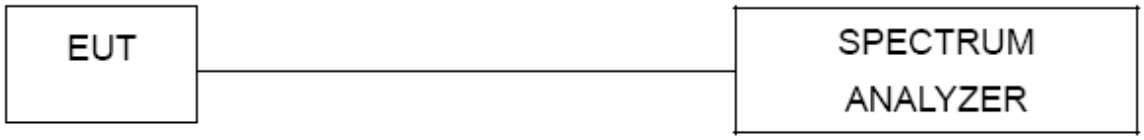
Tx. Spurious NVNT n40 5190MHz Emission



Tx. Spurious NVNT n40 5230MHz Emission

13. Frequency Stability Measurement

13.1 Block Diagram Of Test Setup



13.2 Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification)..

13.3 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 106 ppm and he limit is less than ±20ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is -20°C~70°C.

13.4 Test Result

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

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5180.0114	5180	0.0114	2.2008
		V max (V)	138.00	5180.0067	5180	0.0067	1.2934
		V min (V)	102.00	5180.0022	5180	0.0022	0.4247
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5180.0099	5180	0.0099	1.9112
		T (°C)	-10	5180.0006	5180	0.0006	0.1158
		T (°C)	0	5180.0130	5180	0.0130	2.5097
		T (°C)	10	5180.0114	5180	0.0114	2.2008
		T (°C)	20	5180.0081	5180	0.0081	1.5637
		T (°C)	30	5180.0007	5180	0.0007	0.1351
		T (°C)	40	5180.0103	5180	0.0103	1.9884
		T (°C)	50	5180.0041	5180	0.0041	0.7915
		T (°C)	60	5180.0112	5180	0.0112	2.1622
		T (°C)	70	5180.0098	5180	0.0098	1.8919
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5200.0084	5200	0.0084	1.6154
		V max (V)	138.00	5200.0041	5200	0.0041	0.7885
		V min (V)	102.00	5200.0068	5200	0.0068	1.3077
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5200.00260	5200	0.00260	0.5000
		T (°C)	-10	5200.01230	5200	0.01230	2.3654
		T (°C)	0	5200.01150	5200	0.01150	2.2115
		T (°C)	10	5200.00990	5200	0.00990	1.9038
		T (°C)	20	5200.00630	5200	0.00630	1.2115
		T (°C)	30	5200.01240	5200	0.01240	2.3846
		T (°C)	40	5200.00250	5200	0.00250	0.4808
		T (°C)	50	5200.01150	5200	0.01150	2.2115
		T (°C)	60	5200.01180	5200	0.01180	2.2692
		T (°C)	70	5200.00650	5200	0.00650	1.2500
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5240.0045	5240	0.0045	0.8588
		V max (V)	138.00	5240.0077	5240	0.0077	1.4695
		V min (V)	102.00	5240.0060	5240	0.0060	1.1450
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5240.0019	5240	0.0019	0.3626
		T (°C)	-10	5240.0011	5240	0.0011	0.2099
		T (°C)	0	5240.0016	5240	0.0016	0.3053
		T (°C)	10	5240.0091	5240	0.0091	1.7366
		T (°C)	20	5240.0098	5240	0.0098	1.8702
		T (°C)	30	5240.0123	5240	0.0123	2.3473
		T (°C)	40	5240.0021	5240	0.0021	0.4008
		T (°C)	50	5240.0004	5240	0.0004	0.0763
		T (°C)	60	5240.0077	5240	0.0077	1.4695
		T (°C)	70	5240.0132	5240	0.0132	2.5191
Limits				5150-5250 MHz			
Result				Complies			

14. Duty Cycle Of Test Signal

14.1 Standard Requirement

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

14.2 Formula

Duty Cycle = Ton / (Ton+Toff)

14.3 Test Procedure

1.Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

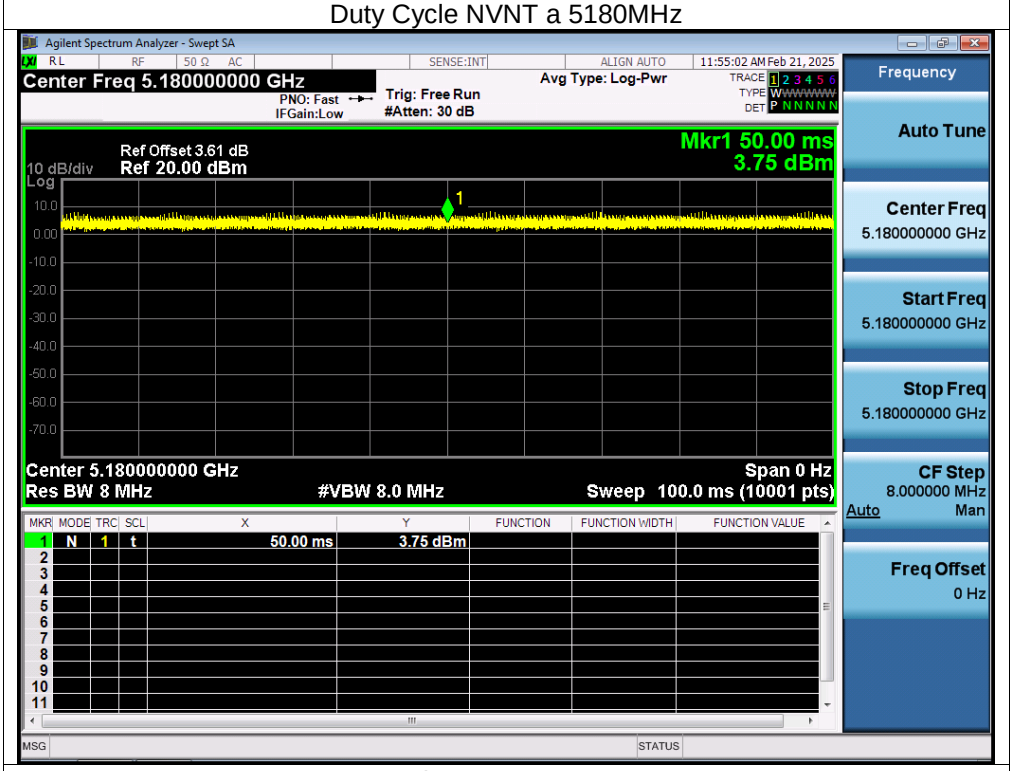
14.4 Test Result

5.1G

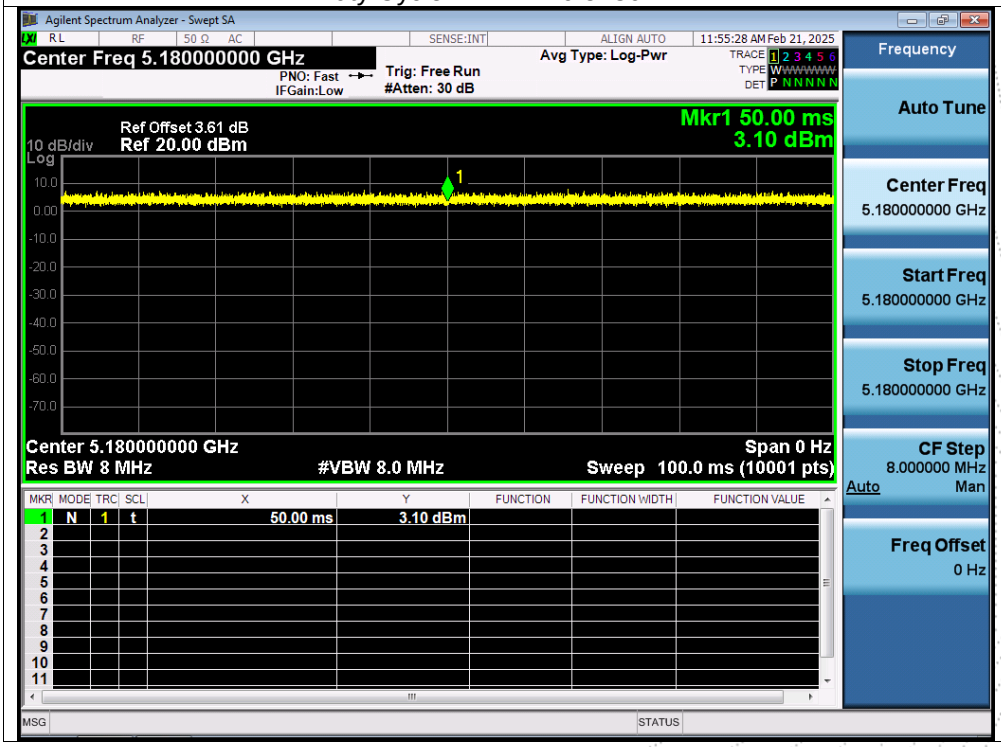
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	100	0	0
NVNT	n20	5180	100	0	0
NVNT	n40	5190	100	0	0

Test Graphs

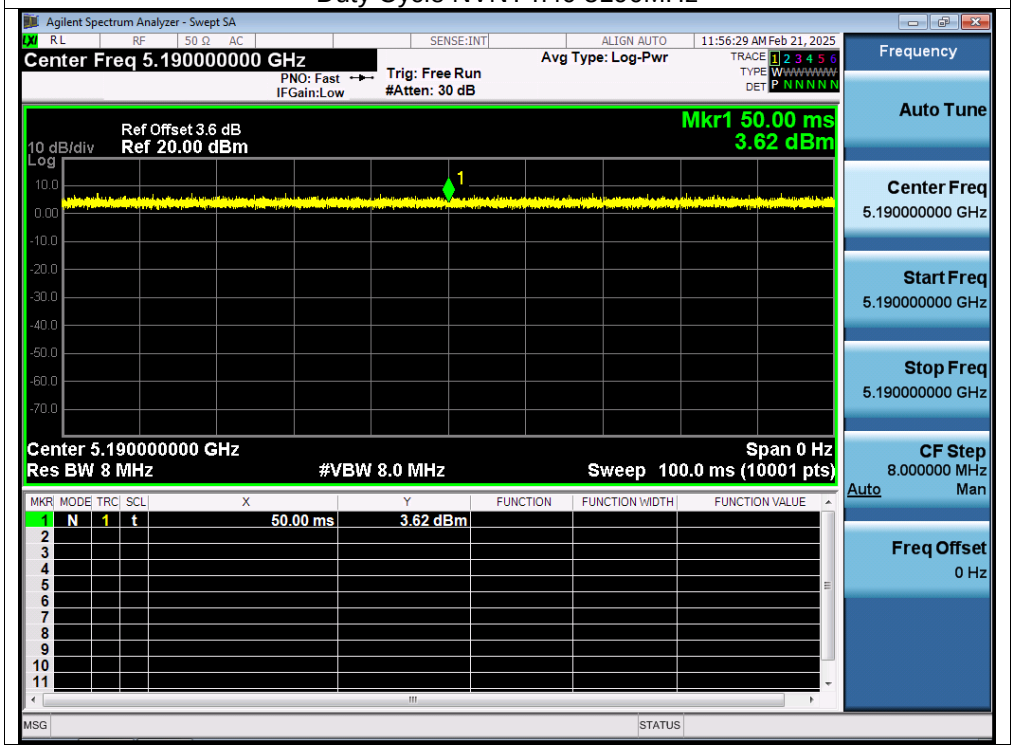
Duty Cycle NVNT a 5180MHz



Duty Cycle NVNT n20 5180MHz



Duty Cycle NVNT n40 5190MHz



15. Antenna Requirement

15.1 Limit

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

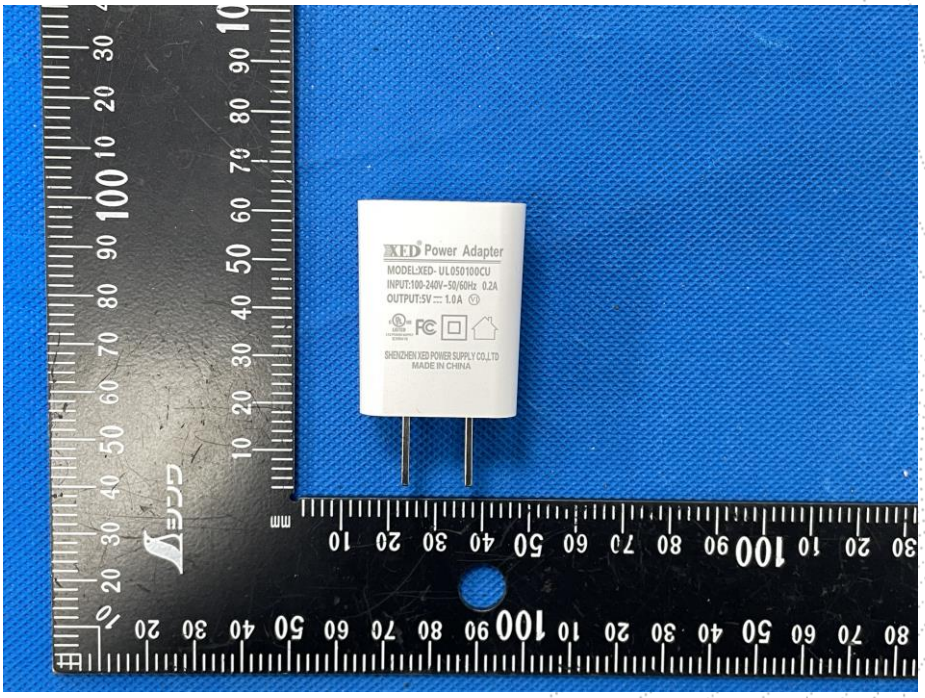
15.2 Test Result

The EUT antenna is Internal antenna (antenna gain: 4.33 dBi). It comply with the standard requirement.

16. EUT Photographs

EUT Photo 1

EUT Photo 2

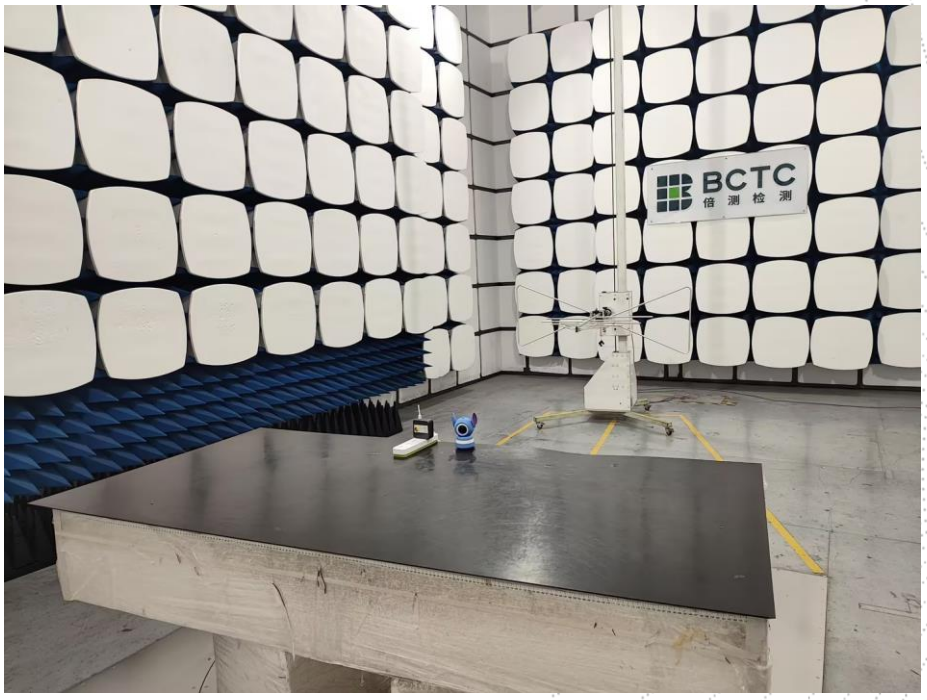


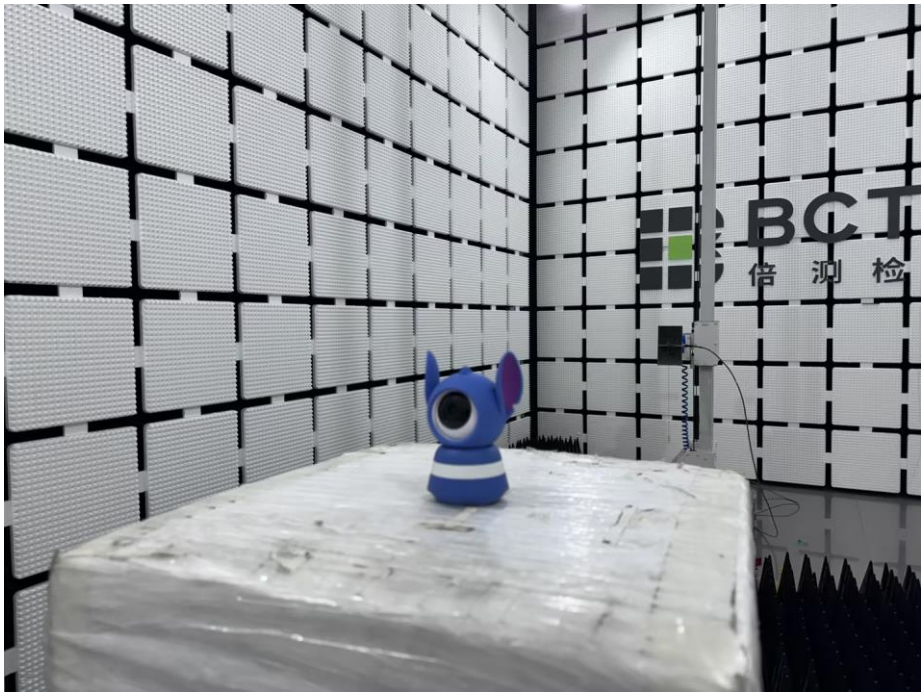
NOTE: Appendix-Photographs Of EUT Constructional Details.

17. EUT Test Setup Photographs

Conducted Emissions Photo

Radiated Measurement Photos




BCT
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STATEMENT

1. The equipment lists are traceable to the national reference standards.

2. The test report can not be partially copied unless prior written approval is issued from our lab.

3. The test report is invalid without the "special seal for inspection and testing".

4. The test report is invalid without the signature of the approver.

5. The test process and test result is only related to the Unit Under Test.

6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.

7. The quality system of our laboratory is in accordance with ISO/IEC17025.

8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:
1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: http://www.chnbctc.com

Consultation E-mail: bctc@bctc-lab.com.cn

Complaint/Advice E-mail: advice@bctc-lab.com.cn

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