

TEST REPORT

Report No.: BCTC2509897850-3E

Applicant: Shenzhen Ipetmon Creative Technology Co., Ltd.

Product Name: Smart Pet Feeder

Test Model: PTM-20A1

Tested Date: 2025-09-04 to 2025-10-24

Issued Date: 2025-10-27

Shenzhen **BCTC** Testing Co., Ltd.



FCC ID: 2A4A7-PN-CF01

Product Name: Smart Pet Feeder

Trademark: N/A

Model/Type reference: PTM-20A1
PN-CF01

Prepared For: Shenzhen Ipetmon Creative Technology Co., Ltd.

Address: 101, No. 93 Boguang Second Road, Shangcun Community, Gongming Street,
Guangming District, Shenzhen, China

Manufacturer: Shenzhen Ipetmon Creative Technology Co., Ltd.

Address: 101, No. 93 Boguang Second Road, Shangcun Community, Gongming Street,
Guangming District, Shenzhen, China

Prepared By: Shenzhen BCTC Testing Co., Ltd.

Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng,
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Sample Received Date: 2025-09-04

Sample tested Date: 2025-09-04 to 2025-10-24

Issue Date: 2025-10-27

Report No.: BCTC2509897850-3E

Test Standards: CFR 47 FCC Part 15.407
ANSI C63.10-2020

Reference KDB: KDB 789033 D02 v02r01

Test Results: PASS

Tested by:



Lei Chen/Project Handler

Approved by:



Zero Zhou/Reviewer

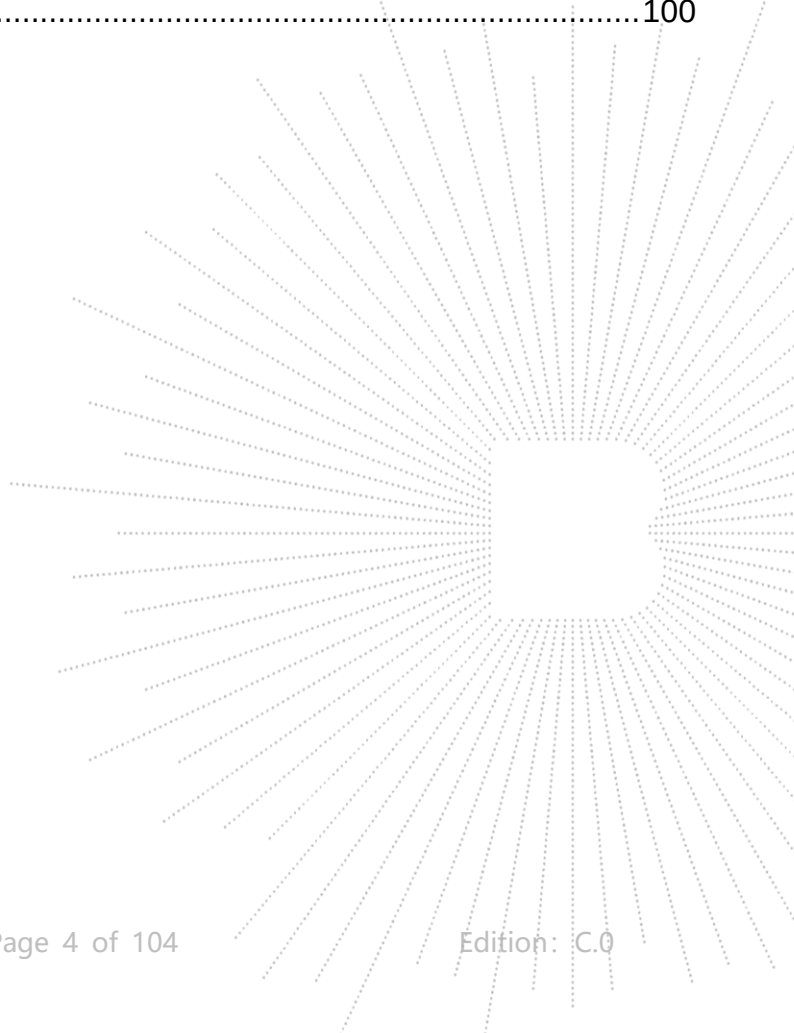
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(Note: N/A Means Not Applicable)



1. Version

Report No.	Issue Date	Description	Approved
BCTC2509897850-3E	2025-10-27	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°C

4. Product Information And Test Setup

4.1 Product Information

Model/Type reference:	PTM-20A1 PN-CF01
Model differences:	All the model are the same circuit and RF module, except model names. The test model is PTM-20A1.
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) 5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11n(HT40);
Operation Frequency:	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15;
Data Rate	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n;
Type of Modulation:	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 ;
Number Of Channel	PCB antenna 5.1GHz: 1.97 dBi 5.8GHz: -0.76 dBi
Antenna installation:	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.
Antenna Gain:	
Ratings:	DC 6V (1.5V*4) from battery, DC 5V from adapter Manufacture: SHENZHEN TIANYIN ELECTRONICS CO.,LTD.
Adapter Information 1:	Model No.: TPA-418G050100UU01 Input: AC 100-240V 50/60Hz 0.3A Output: 5V---1A 5W
Adapter Information 2:	Model No.: YMK-10W050100 Input: AC 100-240V 50/60Hz 0.3A Output: 5V---1A Manufacture: Guangdong Qingliu Electronics Co.,LTD
Adapter Information 3:	Model No.: QL010-0501000UU Input: AC 100-240V 50/60Hz 0.45A Output: 5V---1A

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	Smart Pet Feeder	N/A	PTM-20A1	N/A	EUT
E-2	Adapter	N/A	TPA-418G050100 UU01	N/A	Auxiliary
E-2	Adapter	N/A	YMK-10W050100	N/A	Auxiliary
E-2	Adapter	N/A	QL010-0501000U U	N/A	Auxiliary

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

5.8G

802.11a/n (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 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 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 2	802.11n 40 CH38/ CH 46 802.11n 40 CH 151 / CH 159
Mode 3	WIFI Linking

Note:

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

4.6 Table Of Parameters Of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Test software Version	AmebaD_mptool		
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

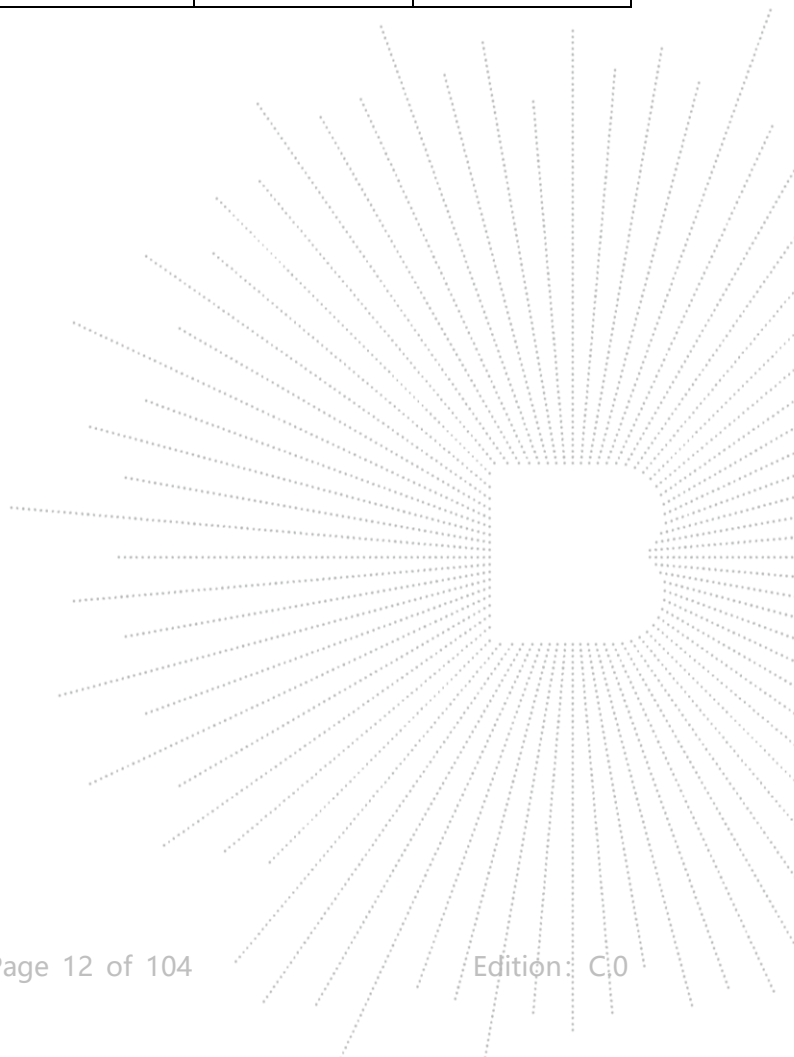
ISED CAB identifier: CN0017

5.2 Test Instrument Used

Conducted Emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	May 08, 2025	May 07, 2026
LISN	R&S	ENV216	101375	May 14, 2025	May 13, 2026
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Pulse limiter	Schwarzbeck	VTSD9561-F	01323	May 14, 2025	May 13, 2026

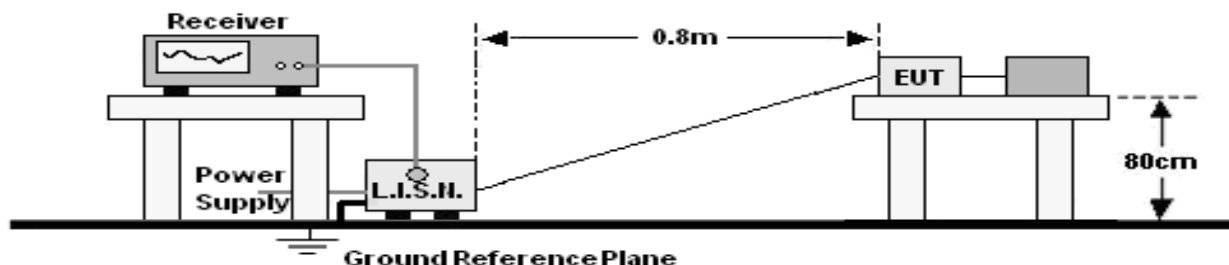
RF Conducted Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power meter	Keysight	E4419	\	May 14, 2025	May 13, 2026
Power Sensor (AV)	Keysight	E9300A	\	May 14, 2025	May 13, 2026
Signal Analyzer20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 14, 2025	May 13, 2026
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 14, 2025	May 13, 2026
Radio frequency control box	MAIWEI	MW100-RFC B	\	\	\
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 08, 2025	May 07, 2026
Receiver	R&S	ESR3P	101154	May 14, 2025	May 13, 2026
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 14, 2025	May 13, 2026
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 24, 2025	May 23, 2026
Loop Antenna(9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	May 24, 2025	May 23, 2026
Amplifier	SKET	LAPA_01G18 G-45dB	SK2021040901	May 14, 2025	May 13, 2026
Horn Antenna	Schwarzbeck	BBHA9120D	1541	May 24, 2025	May 23, 2026
Amplifier(18G Hz-40GHz)	MITEQ	TTA1840-35-HG	2034381	May 24, 2025	May 23, 2026
Horn Antenna(18G Hz-40GHz)	Schwarzbeck	BBHA9170	00822	May 24, 2025	May 23, 2026
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 14, 2025	May 13, 2026
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:

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

6.3 Test Procedure

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

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

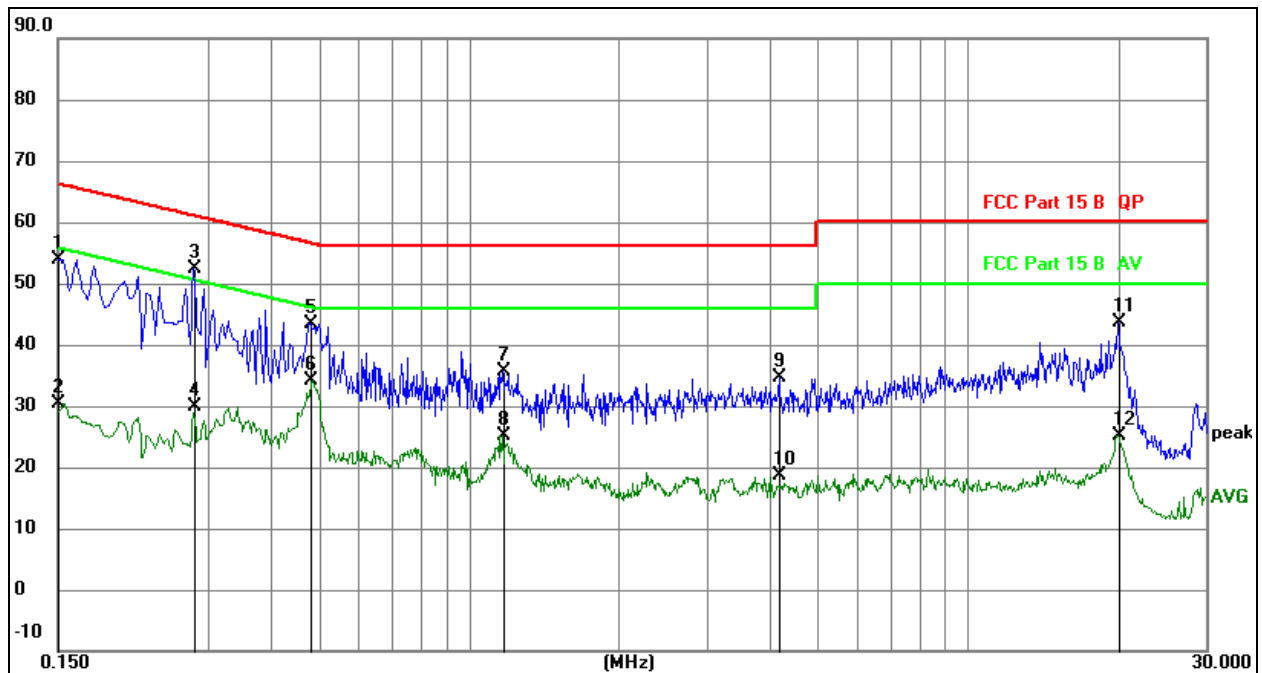
6.4 EUT Operating Conditions

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

Adapter Model: TPA-418G050100UU01

Temperature:	26 °C	Relative Humidity:	54 %
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz

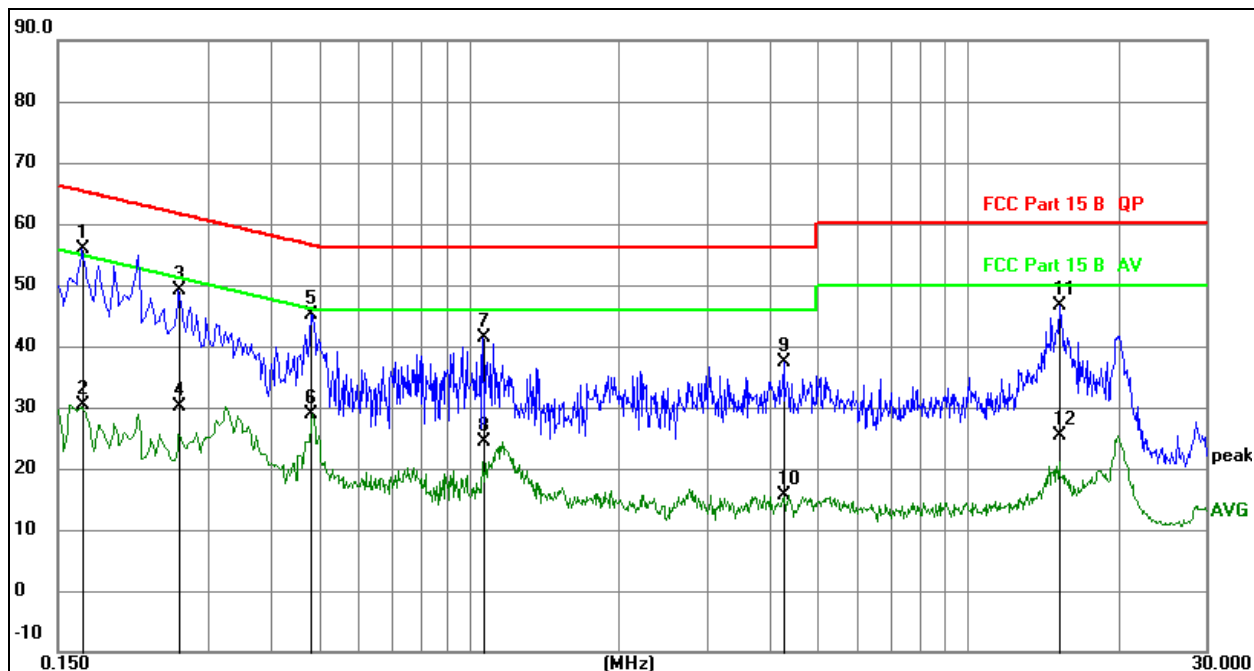


Remark:

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. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1500	33.96	20.04	54.00	66.00	-12.00	QP
2		0.1500	10.46	20.04	30.50	56.00	-25.50	AVG
3	*	0.2805	32.30	20.05	52.35	60.80	-8.45	QP
4		0.2805	9.79	20.05	29.84	50.80	-20.96	AVG
5		0.4830	23.36	20.06	43.42	56.29	-12.87	QP
6		0.4830	14.12	20.06	34.18	46.29	-12.11	AVG
7		1.1669	15.29	20.25	35.54	56.00	-20.46	QP
8		1.1669	4.86	20.25	25.11	46.00	-20.89	AVG
9		4.1955	13.88	20.63	34.51	56.00	-21.49	QP
10		4.1955	-2.03	20.63	18.60	46.00	-27.40	AVG
11		19.9950	19.95	23.59	43.54	60.00	-16.46	QP
12		19.9950	1.64	23.59	25.23	50.00	-24.77	AVG

Temperature:	26 °C	Relative Humidity:	54 %
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz



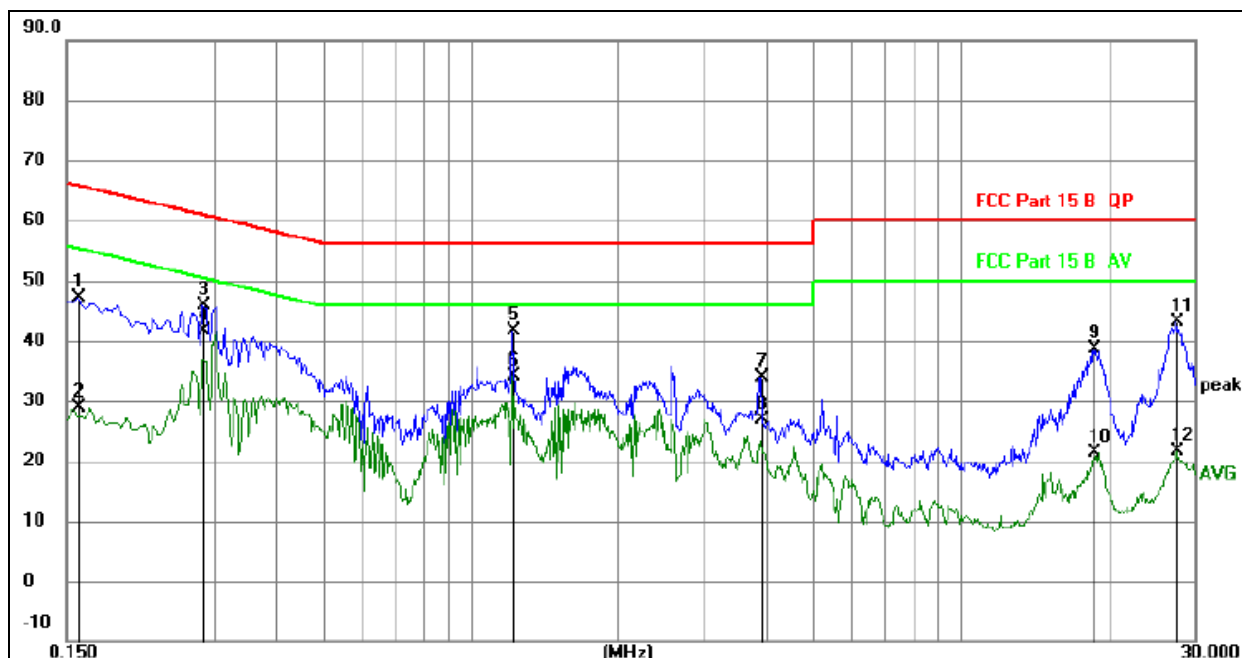
Remark:

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. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.1680	35.73	20.04	55.77	65.06	-9.29	QP
2		0.1680	10.27	20.04	30.31	55.06	-24.75	AVG
3		0.2625	29.05	20.04	49.09	61.35	-12.26	QP
4		0.2625	9.98	20.04	30.02	51.35	-21.33	AVG
5		0.4830	25.05	20.06	45.11	56.29	-11.18	QP
6		0.4830	8.72	20.06	28.78	46.29	-17.51	AVG
7		1.0680	21.10	20.26	41.36	56.00	-14.64	QP
8		1.0680	4.05	20.26	24.31	46.00	-21.69	AVG
9		4.2720	16.82	20.64	37.46	56.00	-18.54	QP
10		4.2720	-5.09	20.64	15.55	46.00	-30.45	AVG
11		15.2925	24.20	22.54	46.74	60.00	-13.26	QP
12		15.2925	2.88	22.54	25.42	50.00	-24.58	AVG

Adapter Model: YMK-10W050100

Temperature:	26 °C	Relative Humidity:	54 %
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz

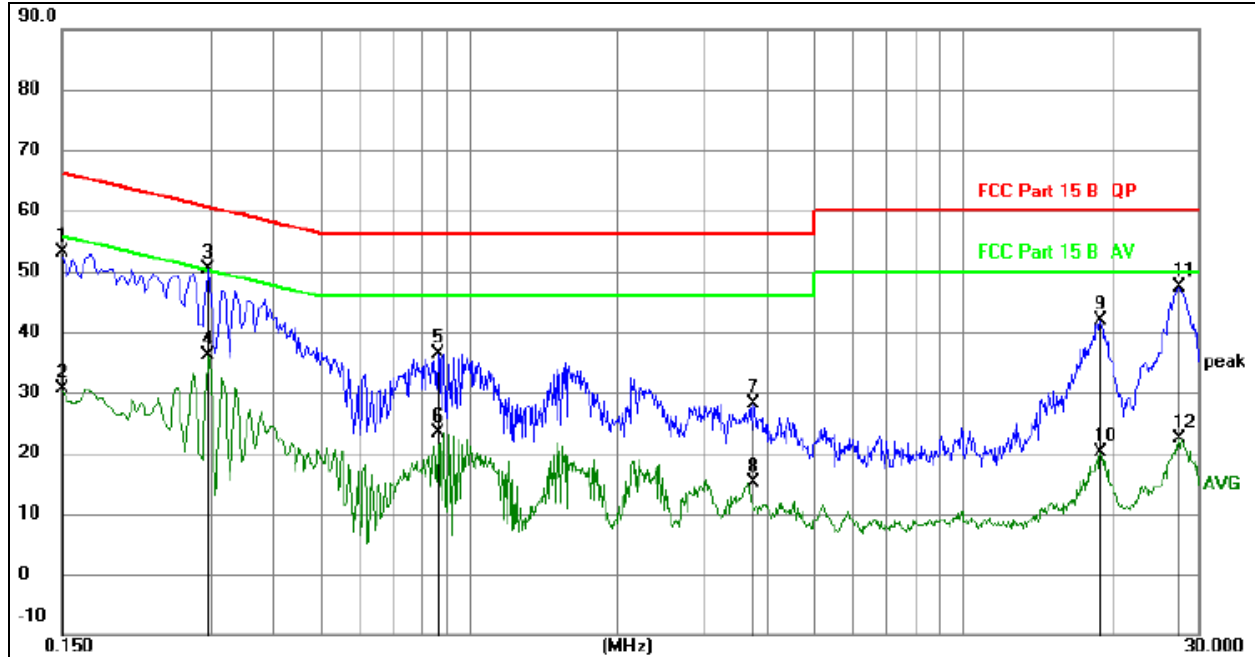


Remark:

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. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	0.1590	27.09	20.04	47.13	65.52	-18.39	QP
2	0.1590	8.88	20.04	28.92	55.52	-26.60	AVG
3	0.2850	25.84	20.05	45.89	60.67	-14.78	QP
4 *	0.2850	21.59	20.05	41.64	50.67	-9.03	AVG
5	1.2209	21.27	20.25	41.52	56.00	-14.48	QP
6	1.2209	14.00	20.25	34.25	46.00	-11.75	AVG
7	3.9030	13.27	20.59	33.86	56.00	-22.14	QP
8	3.9030	6.24	20.59	26.83	46.00	-19.17	AVG
9	18.6990	15.34	23.30	38.64	60.00	-21.36	QP
10	18.6990	-1.83	23.30	21.47	50.00	-28.53	AVG
11	27.5055	18.65	24.50	43.15	60.00	-16.85	QP
12	27.5055	-2.92	24.50	21.58	50.00	-28.42	AVG

Temperature:	26 °C	Relative Humidity:	54 %
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz



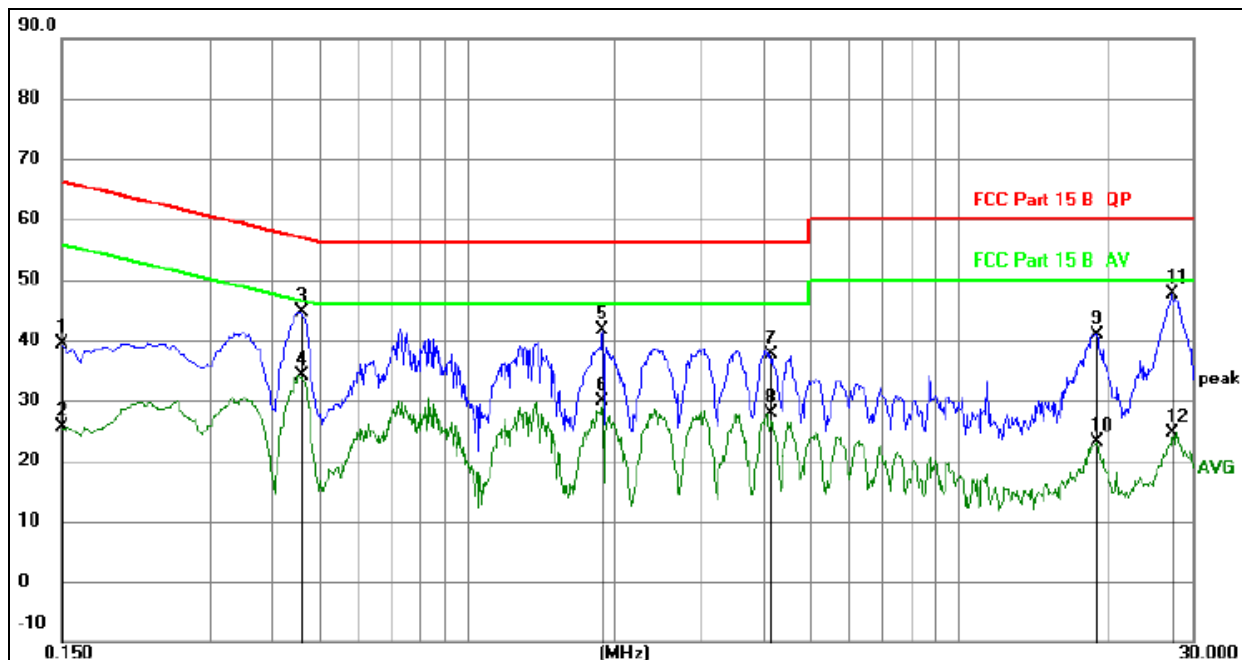
Remark:

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. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1500	33.16	20.04	53.20	66.00	-12.80	QP
2		0.1500	10.52	20.04	30.56	56.00	-25.44	AVG
3	*	0.2971	30.40	20.05	50.45	60.32	-9.87	QP
4		0.2971	16.03	20.05	36.08	50.32	-14.24	AVG
5		0.8664	16.22	20.27	36.49	56.00	-19.51	QP
6		0.8664	3.03	20.27	23.30	46.00	-22.70	AVG
7		3.7793	7.60	20.56	28.16	56.00	-27.84	QP
8		3.7793	-5.54	20.56	15.02	46.00	-30.98	AVG
9		19.0209	18.58	23.37	41.95	60.00	-18.05	QP
10		19.0209	-3.19	23.37	20.18	50.00	-29.82	AVG
11		27.4159	22.96	24.49	47.45	60.00	-12.55	QP
12		27.4159	-2.07	24.49	22.42	50.00	-27.58	AVG

Adapter Model: QL010-0501000UU

Temperature:	26 °C	Relative Humidity:	54 %
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz

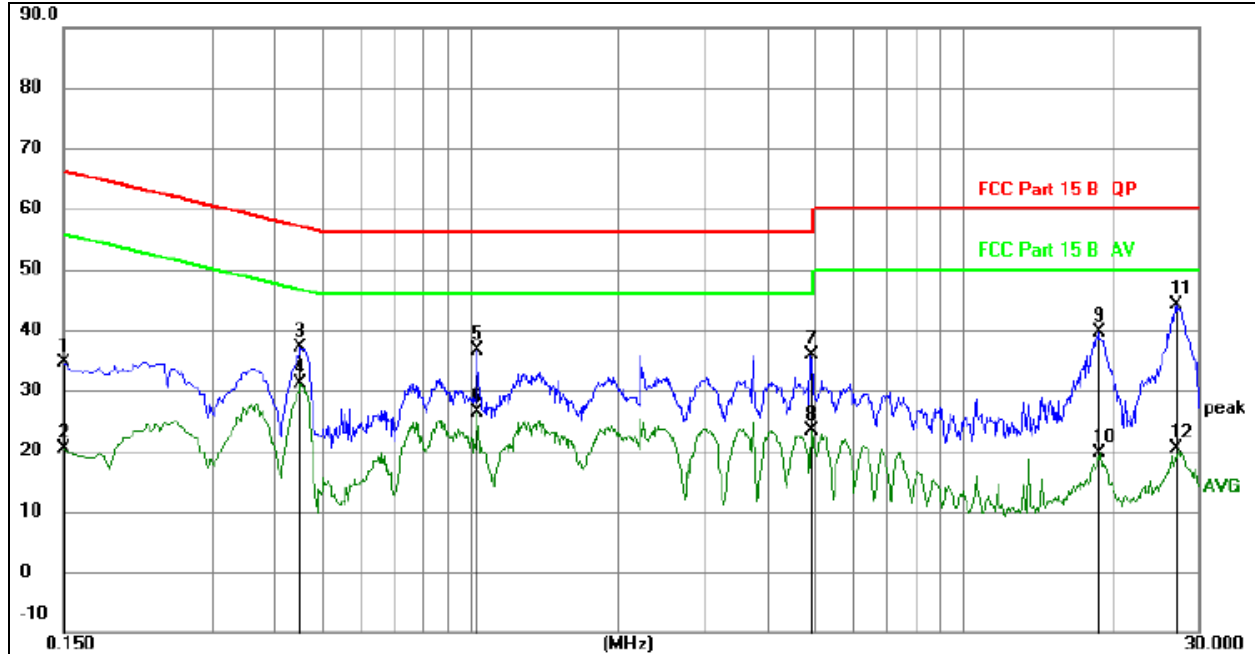


Remark:

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. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	0.1500	19.43	20.04	39.47	66.00	-26.53	QP
2	0.1500	5.56	20.04	25.60	56.00	-30.40	AVG
3 *	0.4588	24.59	20.06	44.65	56.71	-12.06	QP
4	0.4588	14.13	20.06	34.19	46.71	-12.52	AVG
5	1.8879	21.40	20.19	41.59	56.00	-14.41	QP
6	1.8879	9.62	20.19	29.81	46.00	-16.19	AVG
7	4.1356	17.00	20.62	37.62	56.00	-18.38	QP
8	4.1356	7.34	20.62	27.96	46.00	-18.04	AVG
9	19.1220	17.59	23.40	40.99	60.00	-19.01	QP
10	19.1220	-0.35	23.40	23.05	50.00	-26.95	AVG
11	27.1270	23.20	24.45	47.65	60.00	-12.35	QP
12	27.1270	0.21	24.45	24.66	50.00	-25.34	AVG

Temperature:	26 °C	Relative Humidity:	54 %
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz



Remark:

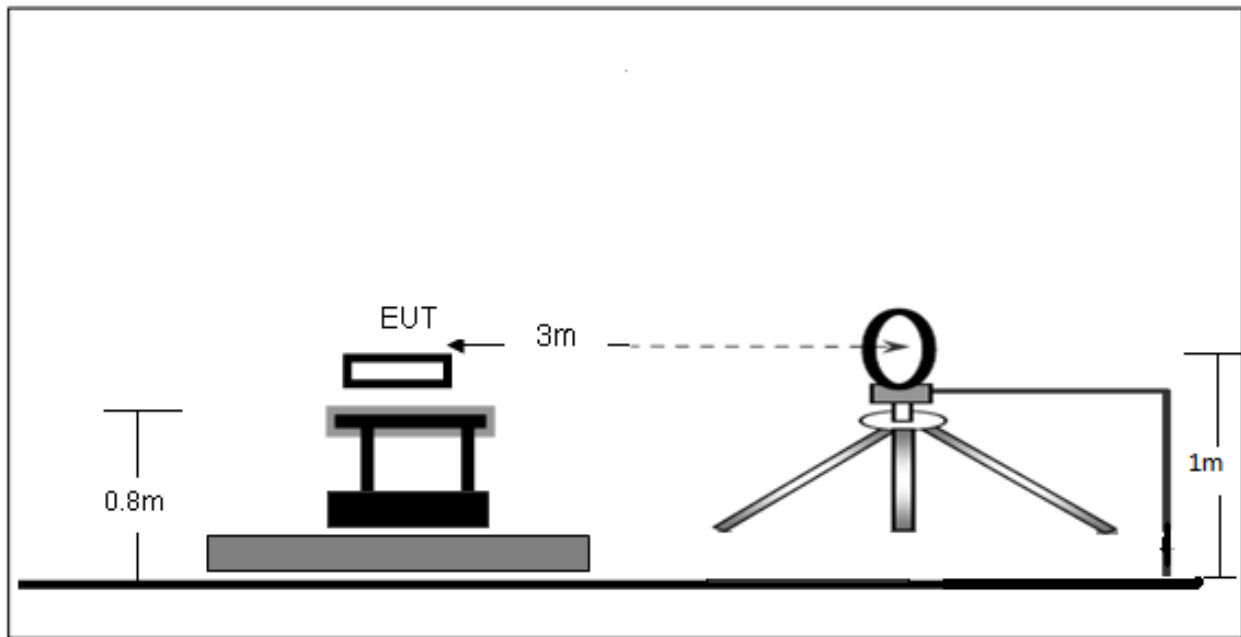
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over=Measurement-Limit

No.	Mk.	Freq. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1500	14.68	20.04	34.72	66.00	-31.28	QP
2		0.1500	0.46	20.04	20.50	56.00	-35.50	AVG
3		0.4539	17.05	20.06	37.11	56.80	-19.69	QP
4	*	0.4539	11.06	20.06	31.12	46.80	-15.68	AVG
5		1.0320	16.31	20.27	36.58	56.00	-19.42	QP
6		1.0320	6.01	20.27	26.28	46.00	-19.72	AVG
7		4.8997	15.20	20.71	35.91	56.00	-20.09	QP
8		4.8997	2.70	20.71	23.41	46.00	-22.59	AVG
9		18.8205	16.38	23.33	39.71	60.00	-20.29	QP
10		18.8205	-3.72	23.33	19.61	50.00	-30.39	AVG
11		26.9836	19.71	24.43	44.14	60.00	-15.86	QP
12		26.9836	-3.99	24.43	20.44	50.00	-29.56	AVG

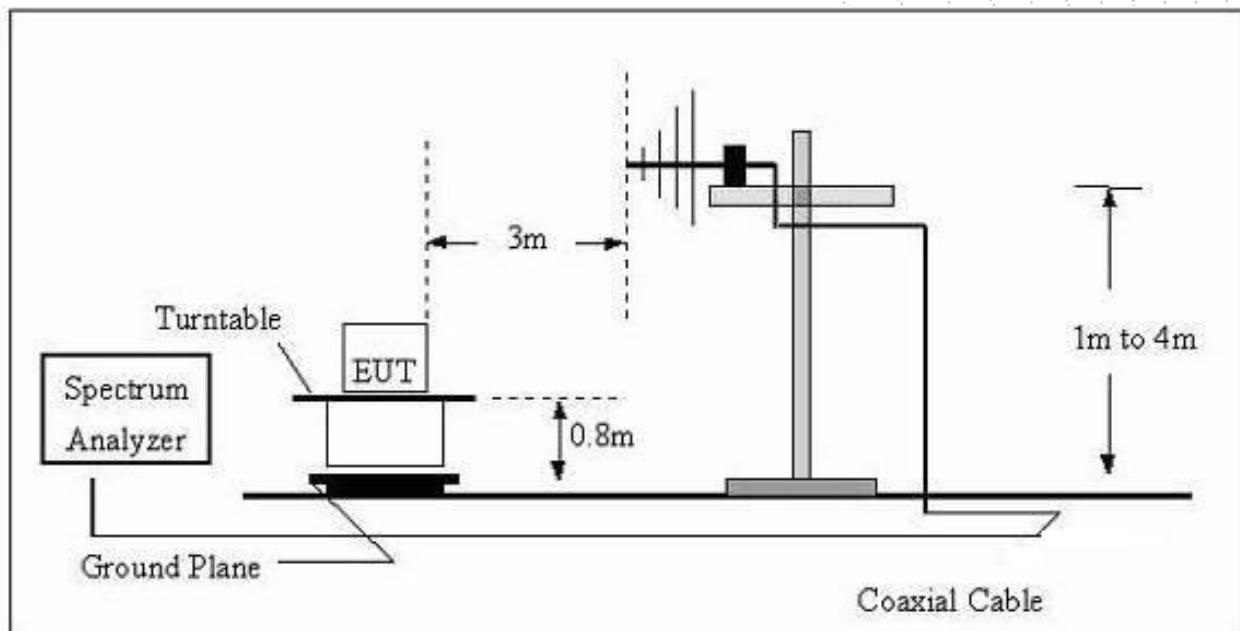
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

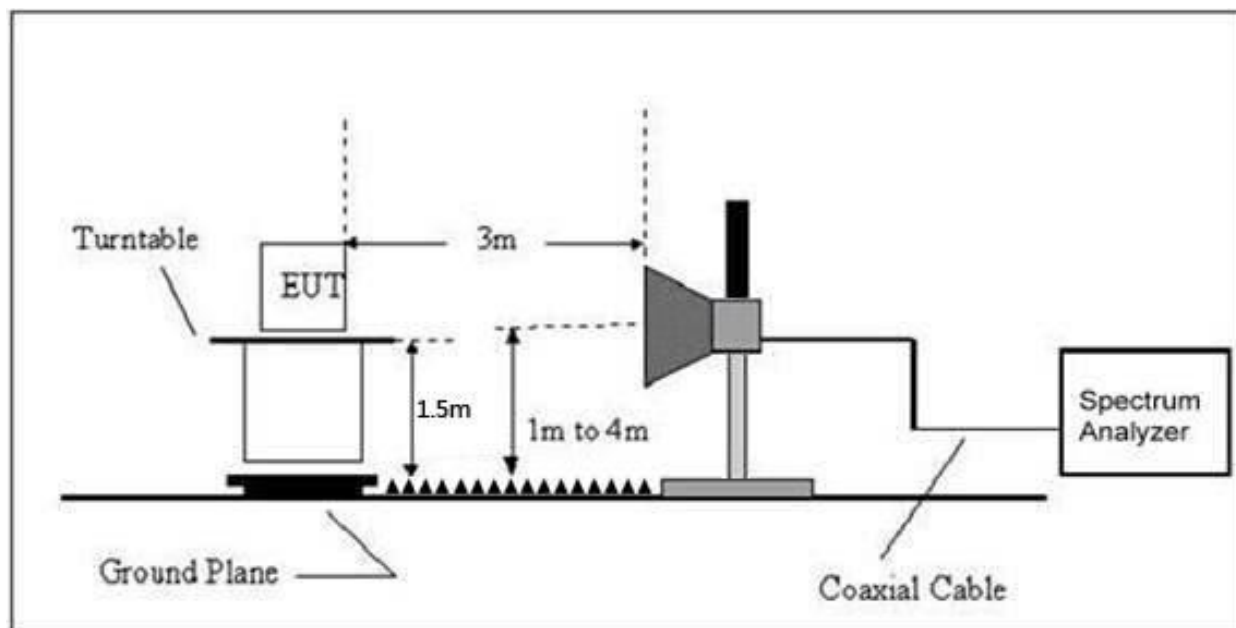
(A) Radiated Emission Test-Up Frequency Below 30MHz



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

Limits Of Radiated Emission Measurement (Above 1000MHz)

Frequency (MHz)	Limit (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 C63.10-2020. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2020 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.

Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

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

Note:

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

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

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

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

7.4 EUT Operating Conditions

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

7.5 Test Result

Below 30MHz

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

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

Note:

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

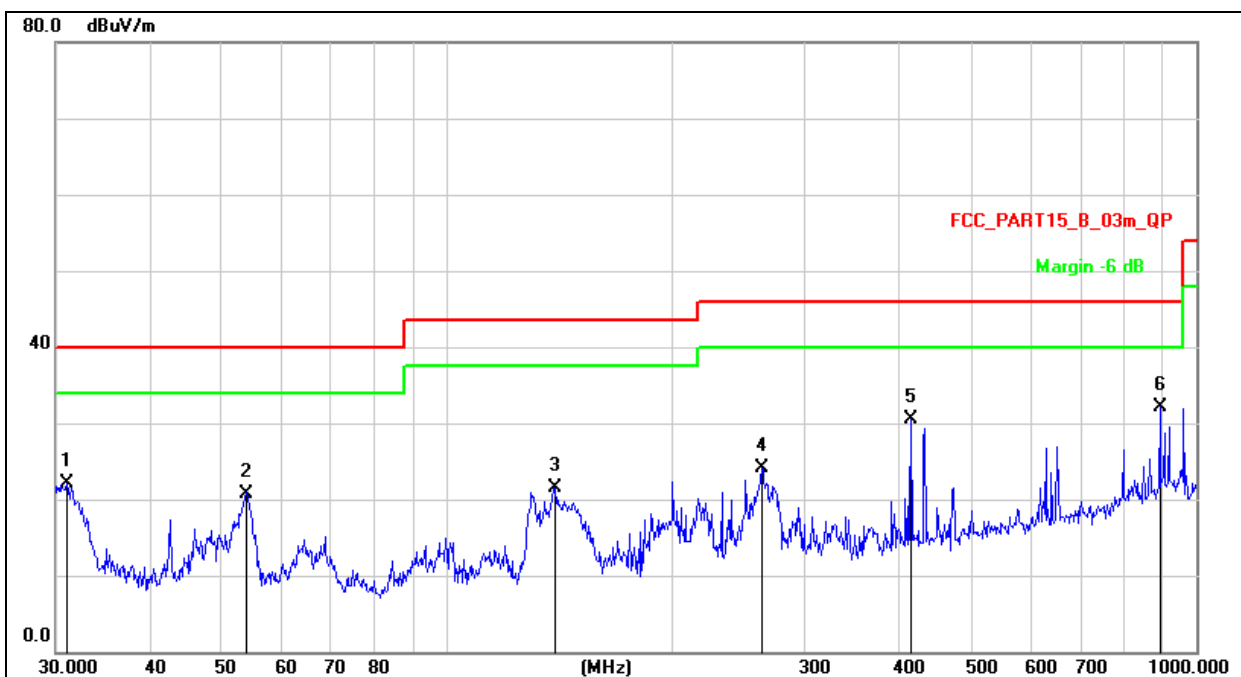
Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

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

Between 30MHz – 1GHz

Adapter Model: TPA-418G050100UU01

Temperature:	24.4 °C	Relative Humidity:	52 %
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz

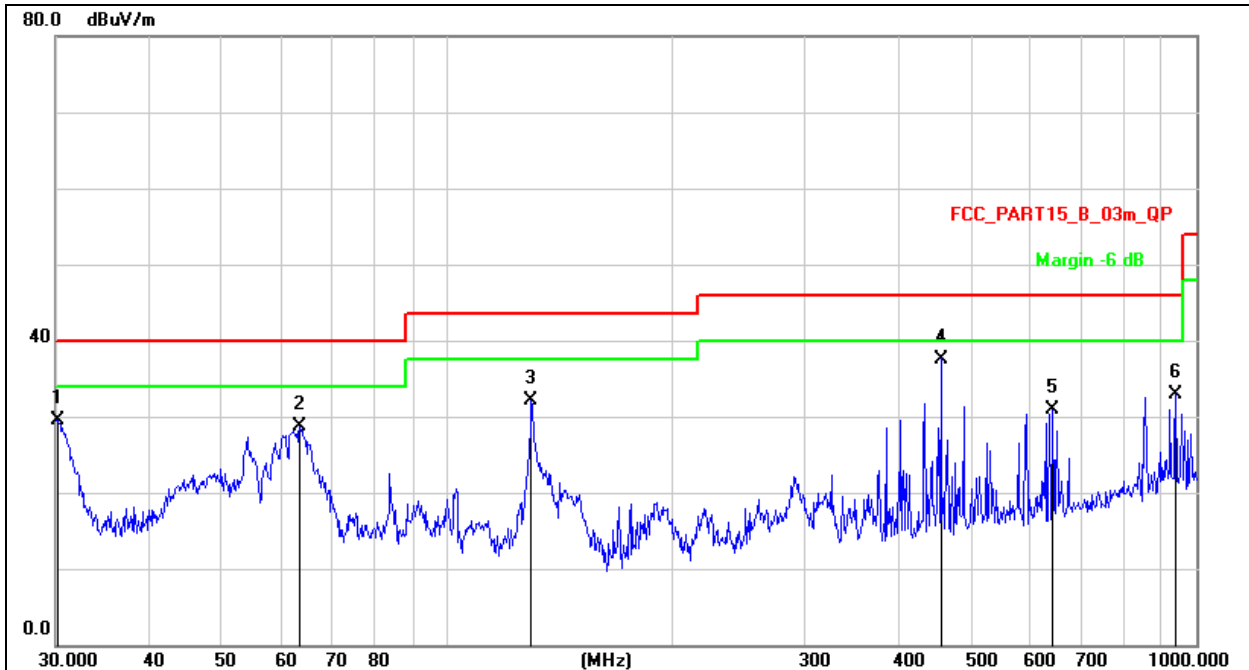


Remark:

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	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		31.0706	37.12	-15.08	22.04	40.00	-17.96	QP
2		53.8818	34.40	-13.60	20.80	40.00	-19.20	QP
3		139.3613	38.49	-17.00	21.49	43.50	-22.01	QP
4		262.8955	36.91	-12.89	24.02	46.00	-21.98	QP
5		416.1791	39.59	-9.08	30.51	46.00	-15.49	QP
6	*	893.8567	33.53	-1.38	32.15	46.00	-13.85	QP

Temperature:	24.4 °C	Relative Humidity:	52 %
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz



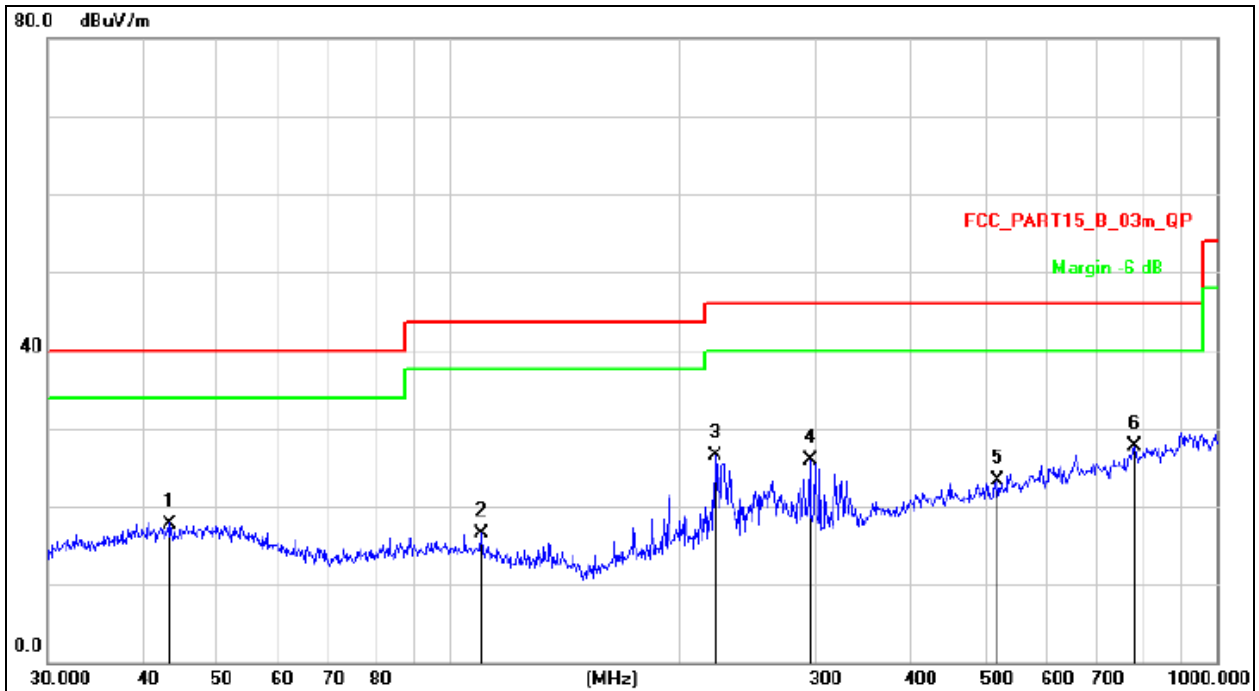
Remark:

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	30.2111	44.67	-15.18	29.49	40.00	-10.51	QP
2	63.5356	44.10	-15.34	28.76	40.00	-11.24	QP
3	129.4677	48.52	-16.44	32.08	43.50	-11.42	QP
4 *	455.9058	45.88	-8.28	37.60	46.00	-8.40	QP
5	642.8613	36.03	-5.19	30.84	46.00	-15.16	QP
6	938.8326	33.81	-0.95	32.86	46.00	-13.14	QP

Adapter Model: YMK-10W050100

Temperature:	24.4 °C	Relative Humidity:	52 %
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz

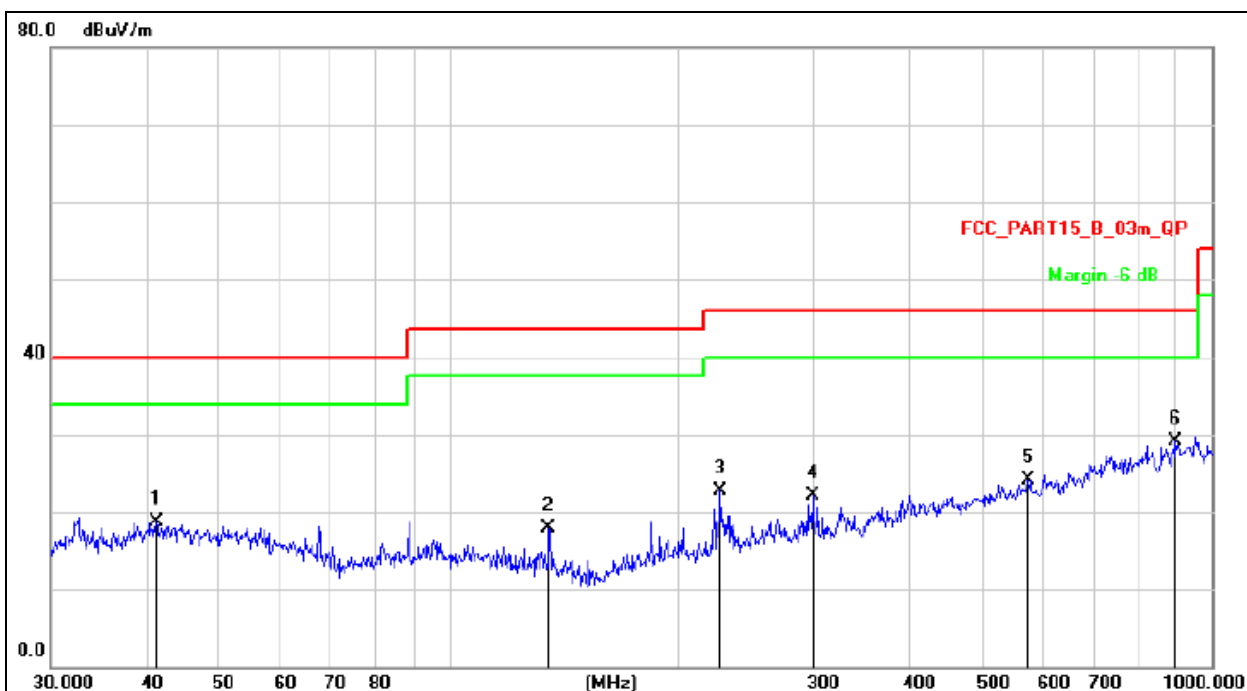


Remark:

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

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	43.3534	25.23	-7.43	17.80	40.00	-22.20	QP
2	110.1816	25.51	-9.07	16.44	43.50	-27.06	QP
3	222.1698	34.22	-7.63	26.59	46.00	-19.41	QP
4	295.1469	31.77	-5.87	25.90	46.00	-20.10	QP
5	519.0649	24.15	-0.78	23.37	46.00	-22.63	QP
6 *	782.3453	24.40	3.24	27.64	46.00	-18.36	QP

Temperature:	24.4 °C	Relative Humidity:	52 %
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz



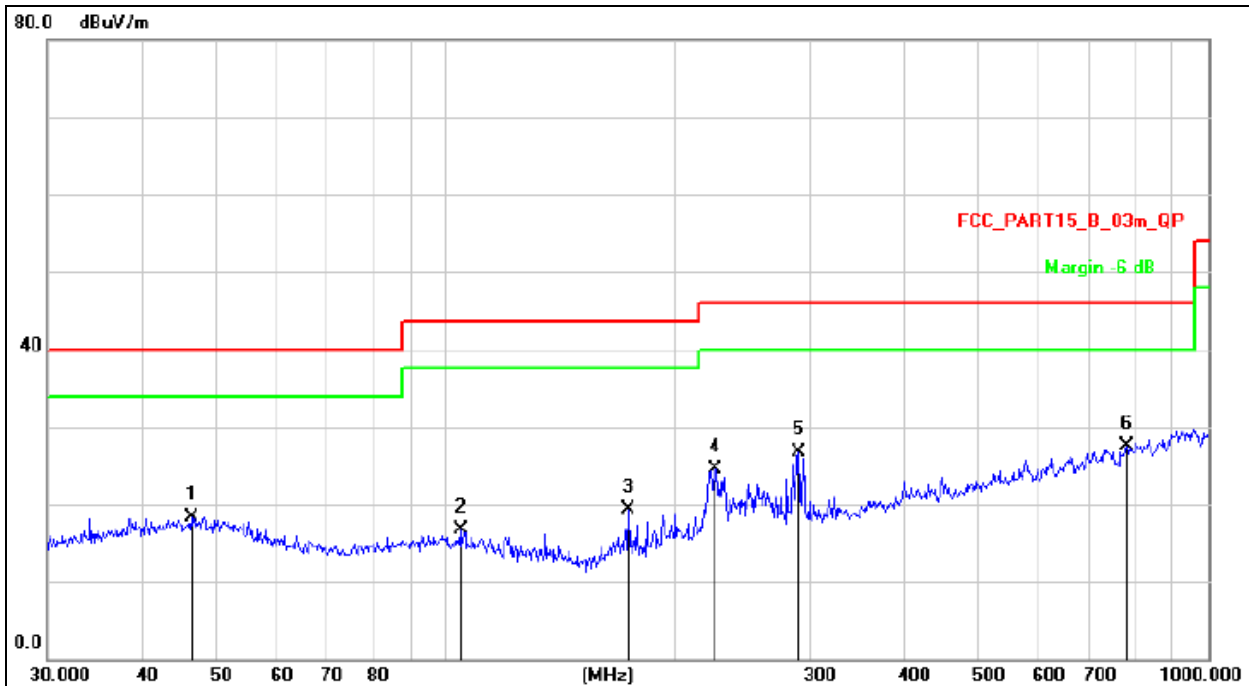
Remark:

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

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		41.2765	26.45	-7.67	18.78	40.00	-21.22	QP
2		135.0319	28.38	-10.51	17.87	43.50	-25.63	QP
3		226.8936	30.19	-7.51	22.68	46.00	-23.32	QP
4		299.3158	27.87	-5.77	22.10	46.00	-23.90	QP
5		574.6258	23.81	0.33	24.14	46.00	-21.86	QP
6	*	896.9965	24.29	4.90	29.19	46.00	-16.81	QP

Adapter Model: QL010-0501000UU

Temperature:	24.4 °C	Relative Humidity:	52 %
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Mode 7	Test Voltage :	AC 120V/60Hz

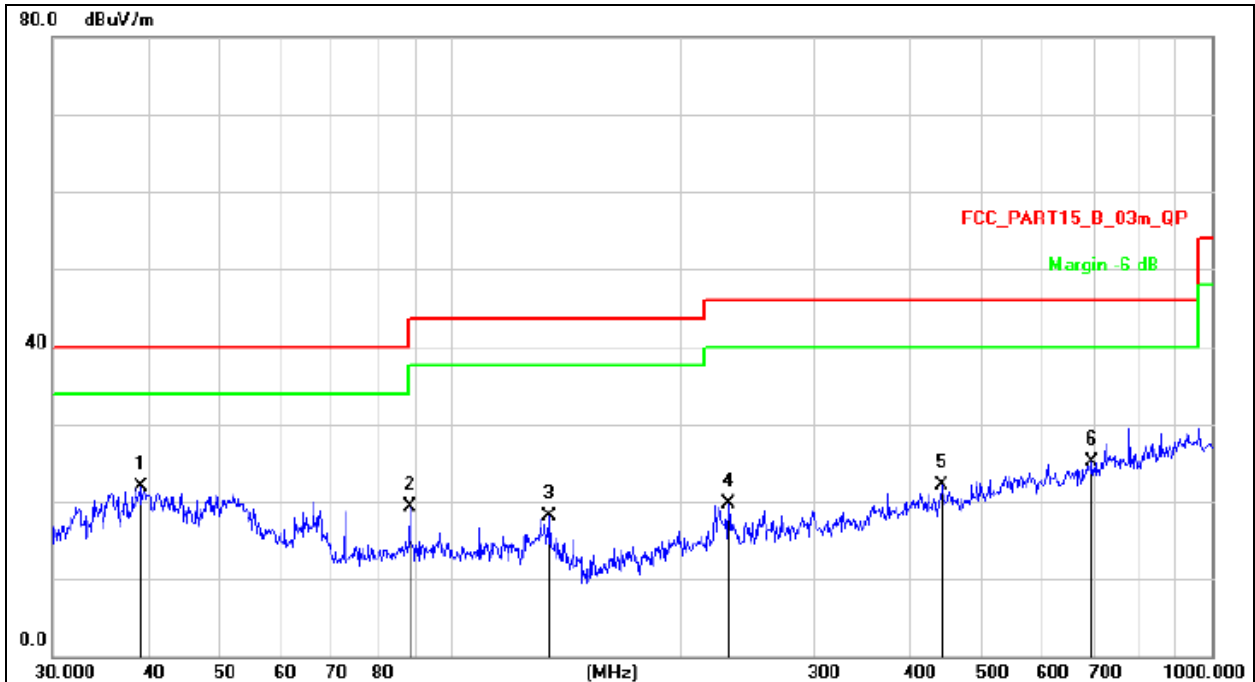


Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Measurement=Reading Level+ Correct Factor
- Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		46.3402	25.37	-7.08	18.29	40.00	-21.71	QP
2		104.5361	25.42	-8.73	16.69	43.50	-26.81	QP
3		173.2051	29.28	-9.88	19.40	43.50	-24.10	QP
4		225.3080	32.14	-7.55	24.59	46.00	-21.41	QP
5		290.0172	32.60	-5.99	26.61	46.00	-19.39	QP
6	*	782.3453	24.35	3.24	27.59	46.00	-18.41	QP

Temperature:	24.4 °C	Relative Humidity:	52 %
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Mode 7	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. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	*	39.1616	29.89	-7.91	21.98	40.00	-18.02	QP
2		88.3421	28.41	-9.16	19.25	43.50	-24.25	QP
3		135.0319	28.61	-10.51	18.10	43.50	-25.40	QP
4		231.7179	27.04	-7.40	19.64	46.00	-26.36	QP
5		441.7426	24.40	-2.33	22.07	46.00	-23.93	QP
6		696.8567	23.87	1.31	25.18	46.00	-20.82	QP

Between 1GHz – 40GHz

Test Mode:	TX(5.1G) - 802.11a
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Polar	Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G							
Vertical	4434.157	72.66	-20.73	51.93	68.20	-16.27	PK
Vertical	4434.157	59.20	-20.73	38.47	54.00	-15.53	AV
Vertical	10360.016	62.38	-9.36	53.02	68.20	-15.18	PK
Vertical	10360.016	49.76	-9.36	40.40	54.00	-13.60	AV
Vertical	15540.080	62.01	-7.84	54.17	74.00	-19.83	PK
Vertical	15540.080	49.13	-7.84	41.29	54.00	-12.71	AV
Horizontal	4434.188	73.26	-20.73	52.53	68.20	-15.67	PK
Horizontal	4434.188	59.21	-20.73	38.48	54.00	-15.52	AV
Horizontal	10360.134	61.45	-9.36	52.09	68.20	-16.11	PK
Horizontal	10360.134	49.23	-9.36	39.87	54.00	-14.13	AV
Horizontal	15540.161	62.44	-7.84	54.60	74.00	-19.40	PK
Horizontal	15540.161	49.97	-7.84	42.13	54.00	-11.87	AV
Middle Channel (5200 MHz)-Above 1G							
Vertical	4592.003	70.26	-20.42	49.85	74.00	-24.15	PK
Vertical	4592.003	59.80	-20.42	39.38	54.00	-14.62	AV
Vertical	10400.043	62.45	-9.30	53.15	68.20	-15.05	PK
Vertical	10400.043	49.67	-9.30	40.37	54.00	-13.63	AV
Vertical	15600.133	63.94	-7.82	56.12	74.00	-17.88	PK
Vertical	15600.133	49.36	-7.82	41.54	54.00	-12.46	AV
Horizontal	4592.025	74.03	-20.42	53.61	74.00	-20.39	PK
Horizontal	4592.025	59.19	-20.42	38.78	54.00	-15.22	AV
Horizontal	10400.057	60.48	-9.30	51.18	68.20	-17.02	PK
Horizontal	10400.057	49.61	-9.30	40.31	54.00	-13.69	AV
Horizontal	15600.096	60.18	-7.82	52.36	74.00	-21.64	PK
Horizontal	15600.096	49.11	-7.82	41.29	54.00	-12.71	AV
High Channel (5240 MHz)-Above 1G							
Vertical	4739.099	70.54	-20.12	50.41	74.00	-23.59	PK
Vertical	4739.099	59.48	-20.12	39.36	54.00	-14.64	AV
Vertical	10480.173	60.94	-9.18	51.76	68.20	-16.44	PK
Vertical	10480.173	49.43	-9.18	40.25	54.00	-13.75	AV
Vertical	15720.153	61.48	-7.78	53.70	74.00	-20.30	PK
Vertical	15720.153	49.94	-7.78	42.16	54.00	-11.84	AV
Horizontal	4739.093	74.19	-20.12	54.06	74.00	-19.94	PK
Horizontal	4739.093	59.63	-20.12	39.50	54.00	-14.50	AV
Horizontal	10480.055	64.02	-9.18	54.84	68.20	-13.36	PK
Horizontal	10480.055	49.69	-9.18	40.51	54.00	-13.49	AV
Horizontal	15720.018	61.63	-7.78	53.85	74.00	-20.15	PK
Horizontal	15720.018	49.20	-7.78	41.42	54.00	-12.58	AV

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

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

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

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

Test Mode:	TX(5.1G) - 802.11n-HT20
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Polar	Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G							
Vertical	4434.023	72.22	-20.73	51.48	68.20	-16.72	PK
Vertical	4434.023	59.57	-20.73	38.83	54.00	-15.17	AV
Vertical	10360.102	60.70	-9.36	51.34	68.20	-16.86	PK
Vertical	10360.102	49.13	-9.36	39.77	54.00	-14.23	AV
Vertical	15540.075	63.13	-7.84	55.29	74.00	-18.71	PK
Vertical	15540.075	49.22	-7.84	41.38	54.00	-12.62	AV
Horizontal	4434.140	73.78	-20.73	53.05	68.20	-15.15	PK
Horizontal	4434.140	59.85	-20.73	39.12	54.00	-14.88	AV
Horizontal	10360.106	62.11	-9.36	52.75	68.20	-15.45	PK
Horizontal	10360.106	49.24	-9.36	39.88	54.00	-14.12	AV
Horizontal	15540.167	61.73	-7.84	53.89	74.00	-20.11	PK
Horizontal	15540.167	49.57	-7.84	41.73	54.00	-12.27	AV
Middle Channel (5200 MHz)-Above 1G							
Vertical	4592.015	70.90	-20.42	50.48	74.00	-23.52	PK
Vertical	4592.015	59.08	-20.42	38.67	54.00	-15.33	AV
Vertical	10400.126	60.13	-9.30	50.83	68.20	-17.37	PK
Vertical	10400.126	49.06	-9.30	39.76	54.00	-14.24	AV
Vertical	15600.192	62.51	-7.82	54.69	74.00	-19.31	PK
Vertical	15600.192	49.93	-7.82	42.11	54.00	-11.89	AV
Horizontal	4592.026	74.95	-20.42	54.54	74.00	-19.46	PK
Horizontal	4592.026	59.74	-20.42	39.33	54.00	-14.67	AV
Horizontal	10400.068	60.55	-9.30	51.25	68.20	-16.95	PK
Horizontal	10400.068	49.75	-9.30	40.45	54.00	-13.55	AV
Horizontal	15600.081	61.04	-7.82	53.22	74.00	-20.78	PK
Horizontal	15600.081	49.56	-7.82	41.74	54.00	-12.26	AV
High Channel (5240 MHz)-Above 1G							
Vertical	4739.169	70.03	-20.12	49.91	74.00	-24.09	PK
Vertical	4739.169	59.09	-20.12	38.97	54.00	-15.03	AV
Vertical	10480.007	62.64	-9.18	53.46	68.20	-14.74	PK
Vertical	10480.007	49.31	-9.18	40.13	54.00	-13.87	AV
Vertical	15720.163	64.15	-7.78	56.37	74.00	-17.63	PK
Vertical	15720.163	49.46	-7.78	41.68	54.00	-12.32	AV
Horizontal	4739.145	71.56	-20.12	51.43	74.00	-22.57	PK
Horizontal	4739.145	59.24	-20.12	39.12	54.00	-14.88	AV
Horizontal	10480.138	62.14	-9.18	52.96	68.20	-15.24	PK
Horizontal	10480.138	49.48	-9.18	40.30	54.00	-13.70	AV
Horizontal	15720.064	62.02	-7.78	54.24	74.00	-19.76	PK
Horizontal	15720.064	49.67	-7.78	41.89	54.00	-12.11	AV

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

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

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

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

Test Mode:	TX(5.1G) - 802.11n-HT40
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Polar	Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5190 MHz)-Above 1G							
Vertical	4434.002	74.82	-20.73	54.09	68.20	-14.11	PK
Vertical	4434.002	59.26	-20.73	38.53	54.00	-15.47	AV
Vertical	10380.106	61.96	-9.33	52.63	68.20	-15.57	PK
Vertical	10380.106	49.51	-9.33	40.18	54.00	-13.82	AV
Vertical	15570.154	60.12	-7.83	52.29	74.00	-21.71	PK
Vertical	15570.154	49.19	-7.83	41.36	54.00	-12.64	AV
Horizontal	4434.196	74.65	-20.73	53.92	74.00	-20.08	PK
Horizontal	4434.196	59.07	-20.73	38.34	54.00	-15.66	AV
Horizontal	10380.000	61.21	-9.33	51.88	68.20	-16.32	PK
Horizontal	10380.000	49.73	-9.33	40.40	54.00	-13.60	AV
Horizontal	15570.200	61.46	-7.83	53.63	74.00	-20.37	PK
Horizontal	15570.200	49.83	-7.83	42.00	54.00	-12.00	AV
Middle Channel (5230 MHz)-Above 1G							
Vertical	4739.154	70.64	-20.12	50.52	68.20	-17.68	PK
Vertical	4739.154	59.81	-20.12	39.69	54.00	-14.31	AV
Vertical	10460.107	64.39	-9.21	55.18	68.20	-13.02	PK
Vertical	10460.107	49.67	-9.21	40.46	54.00	-13.54	AV
Vertical	15690.111	60.14	-7.79	52.35	74.00	-21.65	PK
Vertical	15690.111	49.98	-7.79	42.19	54.00	-11.81	AV
Horizontal	4739.087	72.37	-20.12	52.24	68.20	-15.96	PK
Horizontal	4739.087	59.22	-20.12	39.10	54.00	-14.90	AV
Horizontal	10460.149	60.05	-9.21	50.84	68.20	-17.36	PK
Horizontal	10460.149	49.56	-9.21	40.35	54.00	-13.65	AV
Horizontal	15690.160	62.53	-7.79	54.74	74.00	-19.26	PK
Horizontal	15690.160	49.05	-7.79	41.26	54.00	-12.74	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
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Polar	Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G							
Vertical	4679.171	70.33	-20.24	50.09	74.00	-23.91	PK
Vertical	4679.171	59.88	-20.24	39.63	54.00	-14.37	AV
Vertical	11490.113	60.06	-8.79	51.27	68.20	-16.93	PK
Vertical	11490.113	49.12	-8.79	40.33	54.00	-13.67	AV
Vertical	17235.013	57.63	-3.18	54.45	68.20	-13.75	PK
Vertical	17235.013	44.53	-3.18	41.35	54.00	-12.65	AV
Horizontal	4679.157	70.28	-20.73	49.55	74.00	-24.45	PK
Horizontal	4679.157	59.01	-20.73	38.28	54.00	-15.72	AV
Horizontal	11490.064	62.98	-8.79	54.19	68.20	-14.01	PK
Horizontal	11490.064	49.04	-8.79	40.25	54.00	-13.75	AV
Horizontal	17235.170	58.91	-3.18	55.73	68.20	-12.47	PK
Horizontal	17235.170	44.87	-3.18	41.69	54.00	-12.31	AV
Middle Channel (5785 MHz)-Above 1G							
Vertical	4592.076	73.84	-20.42	53.42	74.00	-20.58	PK
Vertical	4592.076	59.49	-20.42	39.07	54.00	-14.93	AV
Vertical	11570.006	64.45	-8.86	55.59	68.20	-12.61	PK
Vertical	11570.006	49.57	-8.86	40.71	54.00	-13.29	AV
Vertical	17355.024	59.18	-2.52	56.66	68.20	-11.54	PK
Vertical	17355.024	44.85	-2.52	42.33	54.00	-11.67	AV
Horizontal	4592.047	74.92	-20.42	54.50	74.00	-19.50	PK
Horizontal	4592.047	59.01	-20.42	38.60	54.00	-15.40	AV
Horizontal	11570.104	63.39	-8.86	54.53	68.20	-13.67	PK
Horizontal	11570.104	49.35	-8.86	40.49	54.00	-13.51	AV
Horizontal	17355.092	56.28	-2.52	53.76	68.20	-14.44	PK
Horizontal	17355.092	44.62	-2.52	42.10	54.00	-11.90	AV
High Channel (5825 MHz)-Above 1G							
Vertical	6039.075	71.81	-18.93	52.88	68.20	-15.32	PK
Vertical	6039.075	59.63	-18.93	40.70	54.00	-13.30	AV
Vertical	11650.049	63.07	-8.92	54.15	74.00	-19.85	PK
Vertical	11650.049	49.91	-8.92	40.99	54.00	-13.01	AV
Vertical	17475.032	59.54	-1.86	57.68	68.20	-10.52	PK
Vertical	17475.032	44.52	-1.86	42.66	54.00	-11.34	AV
Horizontal	6039.094	73.80	-18.93	54.87	68.20	-13.33	PK
Horizontal	6039.094	59.15	-18.93	40.22	54.00	-13.78	AV
Horizontal	11650.038	64.48	-8.92	55.56	74.00	-18.44	PK
Horizontal	11650.038	49.63	-8.92	40.71	54.00	-13.29	AV
Horizontal	17475.151	58.51	-1.86	56.65	68.20	-11.55	PK
Horizontal	17475.151	44.85	-1.86	42.99	54.00	-11.01	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	Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G							
Vertical	4679.056	73.80	-20.24	53.55	74.00	-20.45	PK
Vertical	4679.056	59.82	-20.24	39.58	54.00	-14.42	AV
Vertical	11490.135	62.49	-8.79	53.70	68.20	-14.50	PK
Vertical	11490.135	49.04	-8.79	40.25	54.00	-13.75	AV
Vertical	17235.142	59.47	-3.18	56.29	68.20	-11.91	PK
Vertical	17235.142	44.83	-3.18	41.65	54.00	-12.35	AV
Horizontal	4679.086	71.32	-20.24	51.08	74.00	-22.92	PK
Horizontal	4679.086	59.16	-20.24	38.91	54.00	-15.09	AV
Horizontal	11490.082	63.53	-8.79	54.74	68.20	-13.46	PK
Horizontal	11490.082	49.55	-8.79	40.76	54.00	-13.24	AV
Horizontal	17235.047	55.85	-3.18	52.67	68.20	-15.53	PK
Horizontal	17235.047	44.93	-3.18	41.75	54.00	-12.25	AV
Middle Channel (5785 MHz)-Above 1G							
Vertical	4592.065	71.26	-20.42	50.84	74.00	-23.16	PK
Vertical	4592.065	59.15	-20.42	38.74	54.00	-15.26	AV
Vertical	11570.166	61.93	-8.86	53.07	68.20	-15.13	PK
Vertical	11570.166	49.63	-8.86	40.77	54.00	-13.23	AV
Vertical	17355.052	58.68	-2.52	56.16	68.20	-12.04	PK
Vertical	17355.052	44.68	-2.52	42.16	54.00	-11.84	AV
Horizontal	4592.185	73.99	-20.42	53.58	74.00	-20.42	PK
Horizontal	4592.185	59.41	-20.42	39.00	54.00	-15.00	AV
Horizontal	11570.041	61.27	-8.86	52.41	68.20	-15.79	PK
Horizontal	11570.041	49.95	-8.86	41.09	54.00	-12.91	AV
Horizontal	17355.134	56.35	-2.52	53.83	68.20	-14.37	PK
Horizontal	17355.134	44.50	-2.52	41.98	54.00	-12.02	AV
High Channel (5825 MHz)-Above 1G							
Vertical	6039.144	72.35	-18.93	53.42	68.20	-14.78	PK
Vertical	6039.144	59.64	-18.93	40.71	54.00	-13.29	AV
Vertical	11650.180	60.12	-8.92	51.20	74.00	-22.80	PK
Vertical	11650.180	49.68	-8.92	40.76	54.00	-13.24	AV
Vertical	17475.137	55.70	-1.86	53.84	68.20	-14.36	PK
Vertical	17475.137	44.08	-1.86	42.22	54.00	-11.78	AV
Horizontal	6039.134	72.30	-18.93	53.37	68.20	-14.83	PK
Horizontal	6039.134	59.55	-18.93	40.61	54.00	-13.39	AV
Horizontal	11650.106	60.03	-8.92	51.11	74.00	-22.89	PK
Horizontal	11650.106	49.88	-8.92	40.96	54.00	-13.04	AV
Horizontal	17475.097	57.84	-1.86	55.98	68.20	-12.22	PK
Horizontal	17475.097	44.24	-1.86	42.38	54.00	-11.62	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) -- 802.11n-HT40
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Polar	Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector Type
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5755 MHz)-Above 1G							
Vertical	4679.062	74.59	-20.24	54.35	74.00	-19.65	PK
Vertical	4679.062	59.10	-20.24	38.86	54.00	-15.14	AV
Vertical	11510.145	61.82	-8.81	53.01	74.00	-20.99	PK
Vertical	11510.145	49.09	-8.81	40.28	54.00	-13.72	AV
Vertical	17265.197	55.52	-3.01	52.51	68.20	-15.69	PK
Vertical	17265.197	44.82	-3.01	41.81	54.00	-12.19	AV
Horizontal	4679.096	74.78	-20.24	54.54	74.00	-19.46	PK
Horizontal	4679.096	59.76	-20.24	39.52	54.00	-14.48	AV
Horizontal	11510.162	63.34	-8.81	54.53	74.00	-19.47	PK
Horizontal	11510.162	49.66	-8.81	40.85	54.00	-13.15	AV
Horizontal	17265.165	57.06	-3.01	54.05	68.20	-14.15	PK
Horizontal	17265.165	44.77	-3.01	41.76	54.00	-12.24	AV
Middle Channel (5795 MHz)-Above 1G							
Vertical	6039.116	73.84	-18.93	54.91	68.20	-13.29	PK
Vertical	6039.116	59.80	-18.93	40.87	54.00	-13.13	AV
Vertical	11590.126	60.30	-8.87	51.43	74.00	-22.57	PK
Vertical	11590.126	49.83	-8.87	40.96	54.00	-13.04	AV
Vertical	17385.096	59.86	-2.35	57.51	68.20	-10.69	PK
Vertical	17385.096	44.48	-2.35	42.13	54.00	-11.87	AV
Horizontal	6039.016	73.98	-18.93	55.05	68.20	-13.15	PK
Horizontal	6039.016	59.85	-18.93	40.92	54.00	-13.08	AV
Horizontal	11590.112	60.13	-8.87	51.26	74.00	-22.74	PK
Horizontal	11590.112	49.76	-8.87	40.89	54.00	-13.11	AV
Horizontal	17385.072	56.71	-2.35	54.36	68.20	-13.84	PK
Horizontal	17385.072	44.51	-2.35	42.16	54.00	-11.84	AV

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

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

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

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

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

Test mode: 802.11a Frequency(MHz): 5180

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5150.42	H	52.78	74	44.17	54
5149.73	V	48.53	74	38.90	54

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

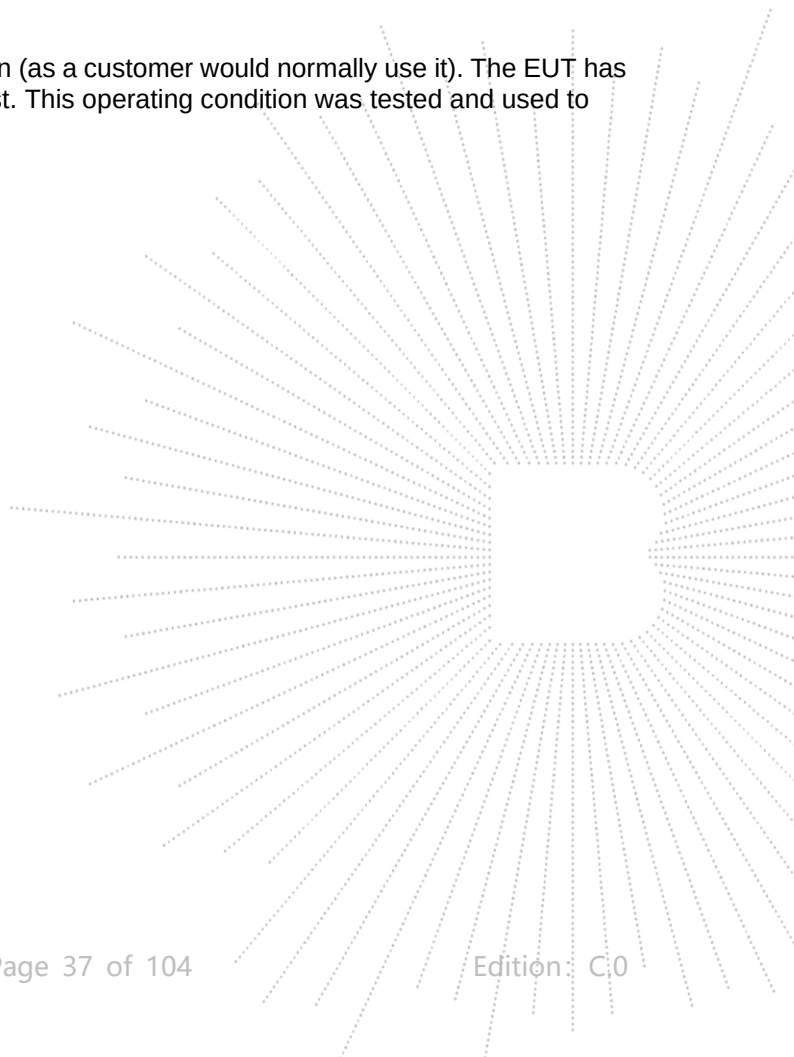
For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 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 $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ 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 $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

8.4 EUT Operating Conditions

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



8.5 Test Result

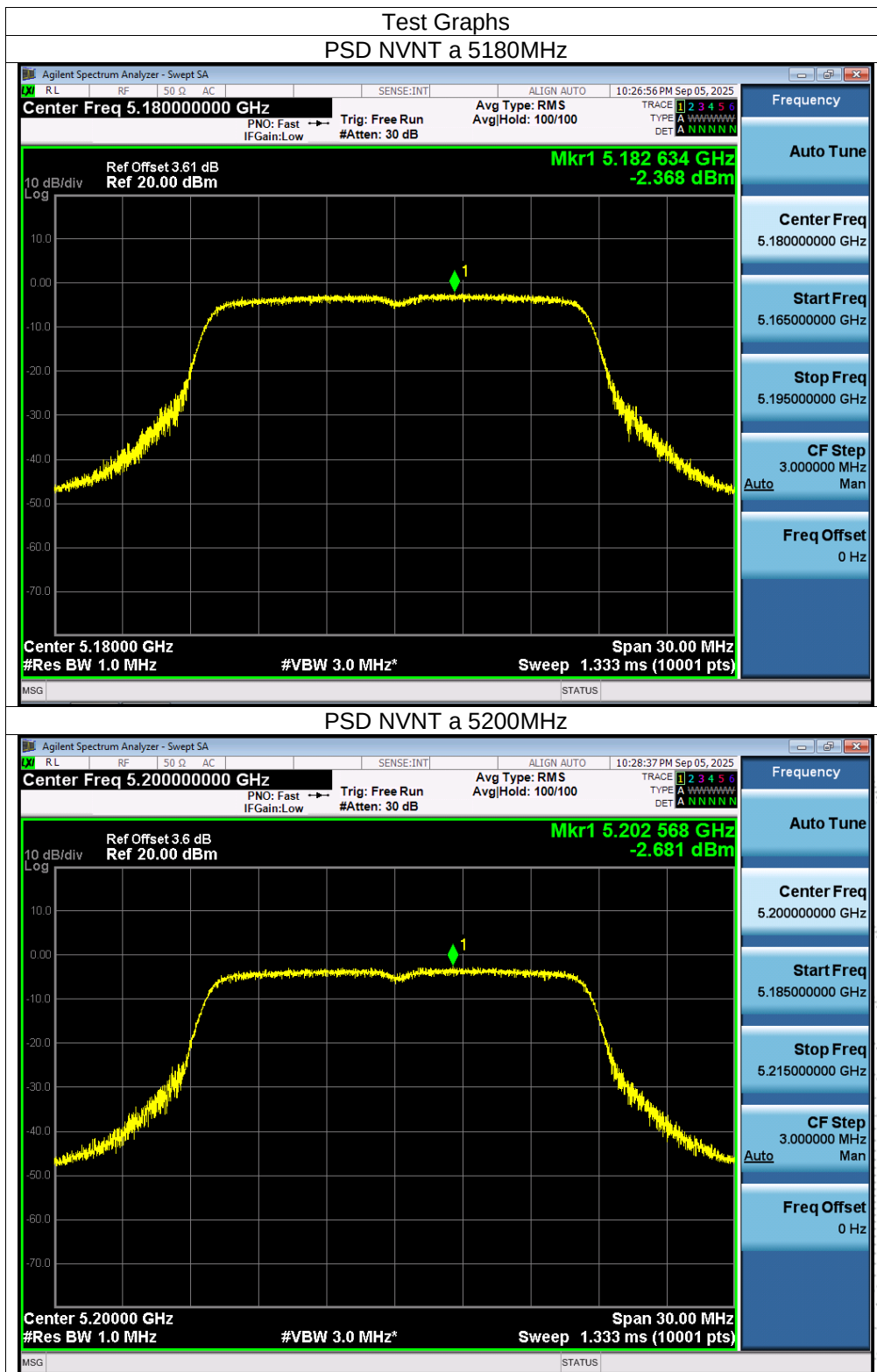
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	DC 6V
Test Mode:	TX Frequency U-NII-1 (5180-5240MHz)		

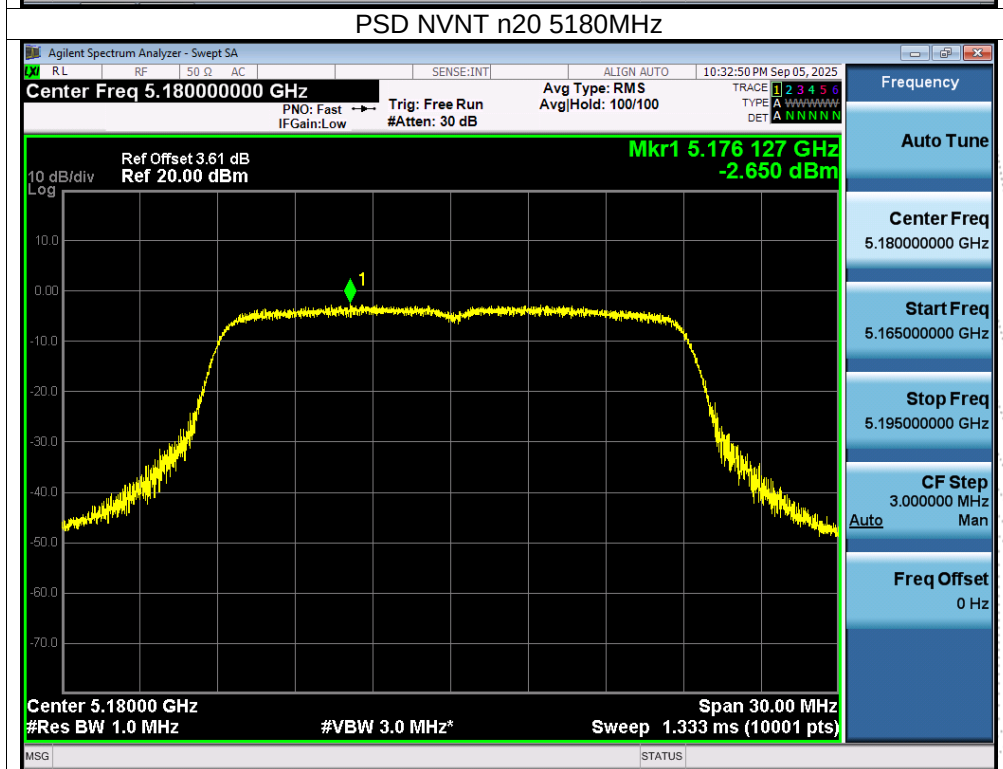
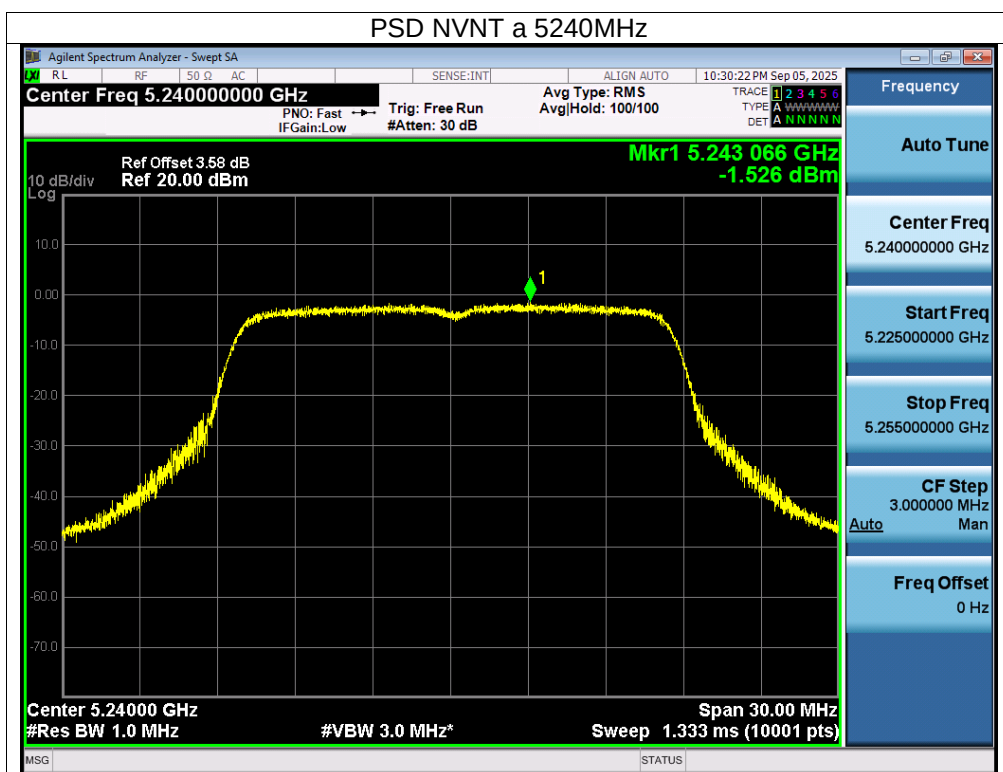
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/1MHz)	Limit (dBm/1MHz)	Verdict
NVNT	a	5180	-2.37	11	Pass
NVNT	a	5200	-2.68	11	Pass
NVNT	a	5240	-1.53	11	Pass
NVNT	n20	5180	-2.65	11	Pass
NVNT	n20	5200	-3.54	11	Pass
NVNT	n20	5240	-2.13	11	Pass
NVNT	n40	5190	-6.56	11	Pass
NVNT	n40	5230	-5.65	11	Pass

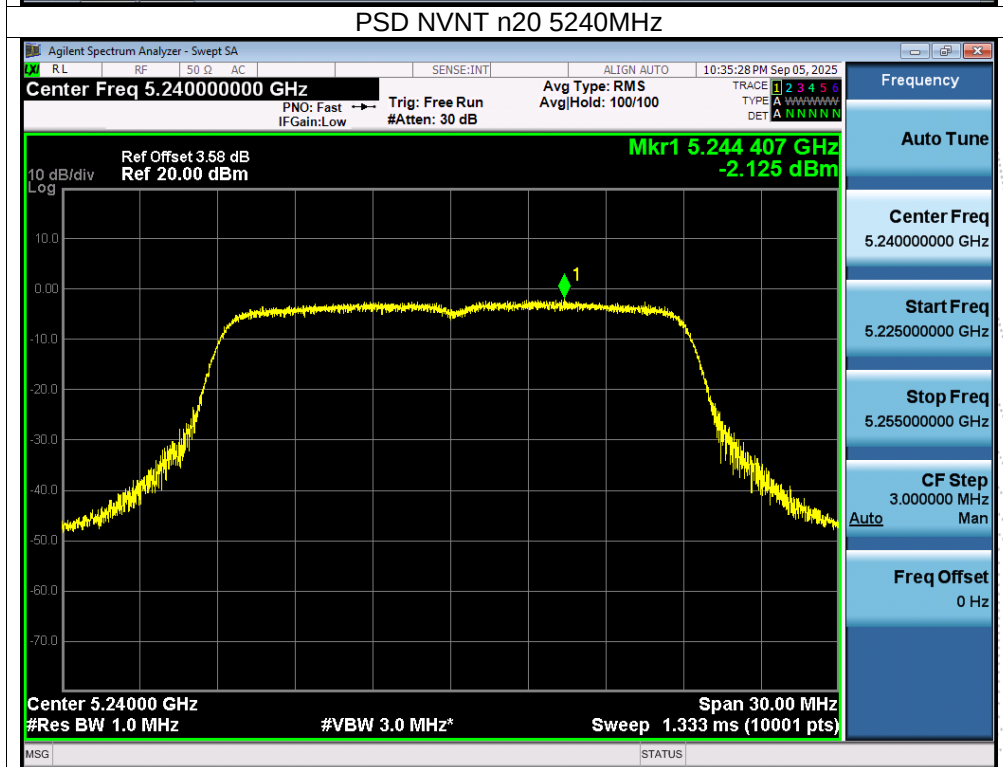
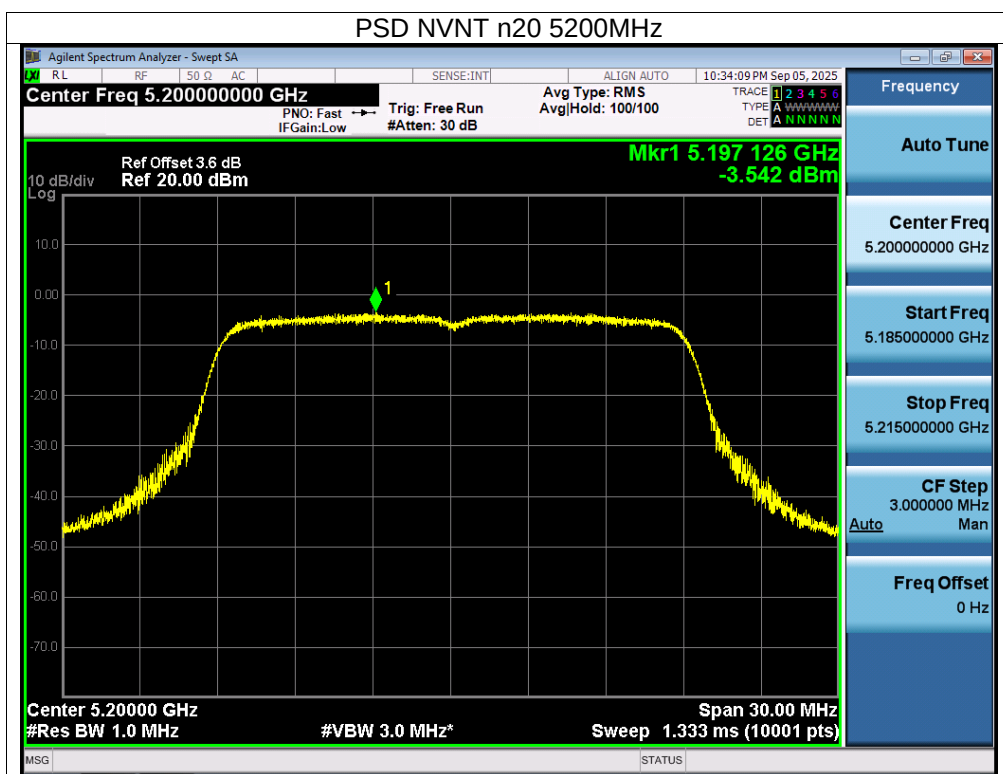
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	DC 6V
Test Mode:	TX Frequency U-NII-3(5745-5825MHz)		

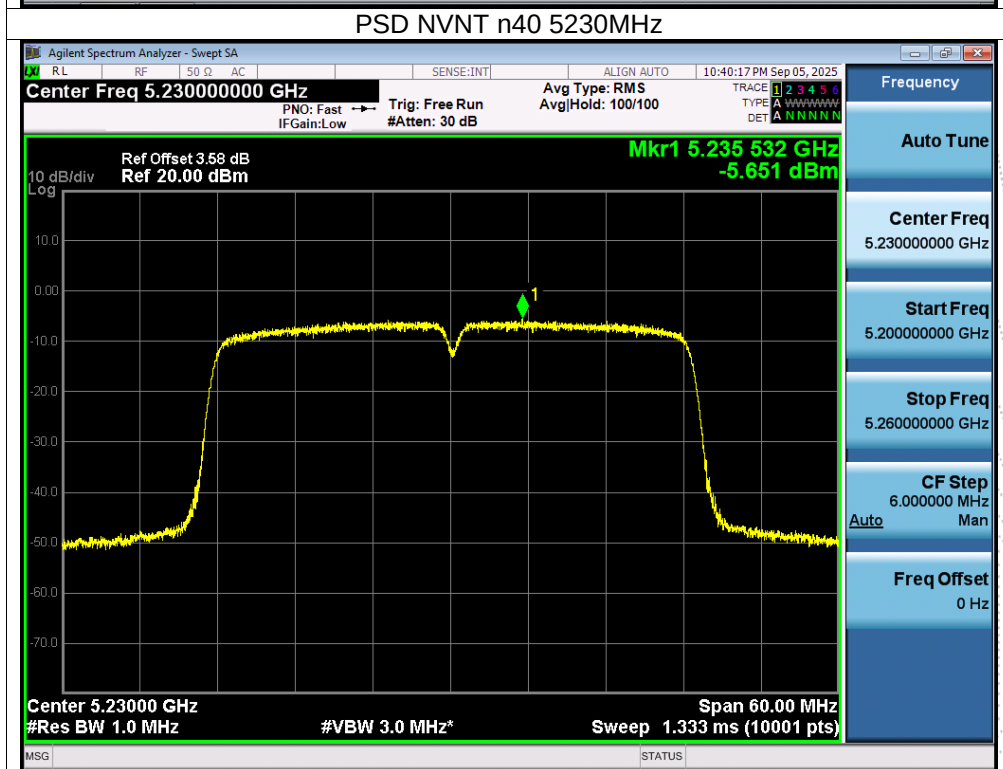
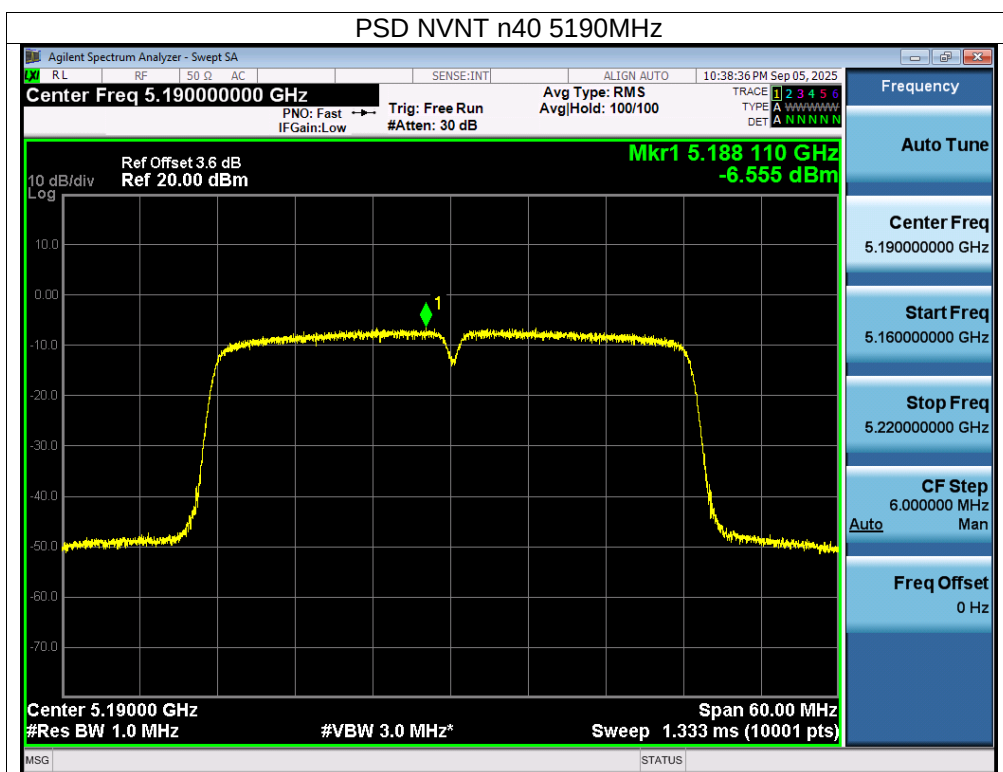
Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/510KHz)	Conducted PSD (dBm/500KHz)	Limit (dBm)	Verdict
NVNT	a	5745	-4.81	-4.896	30	Pass
NVNT	a	5785	-6.21	-6.296	30	Pass
NVNT	a	5825	-6.59	-6.676	30	Pass
NVNT	n20	5745	-5.92	-6.006	30	Pass
NVNT	n20	5785	-7.11	-7.196	30	Pass
NVNT	n20	5825	-7.64	-7.726	30	Pass
NVNT	n40	5755	-9.62	-9.706	30	Pass
NVNT	n40	5795	-10.69	-10.776	30	Pass

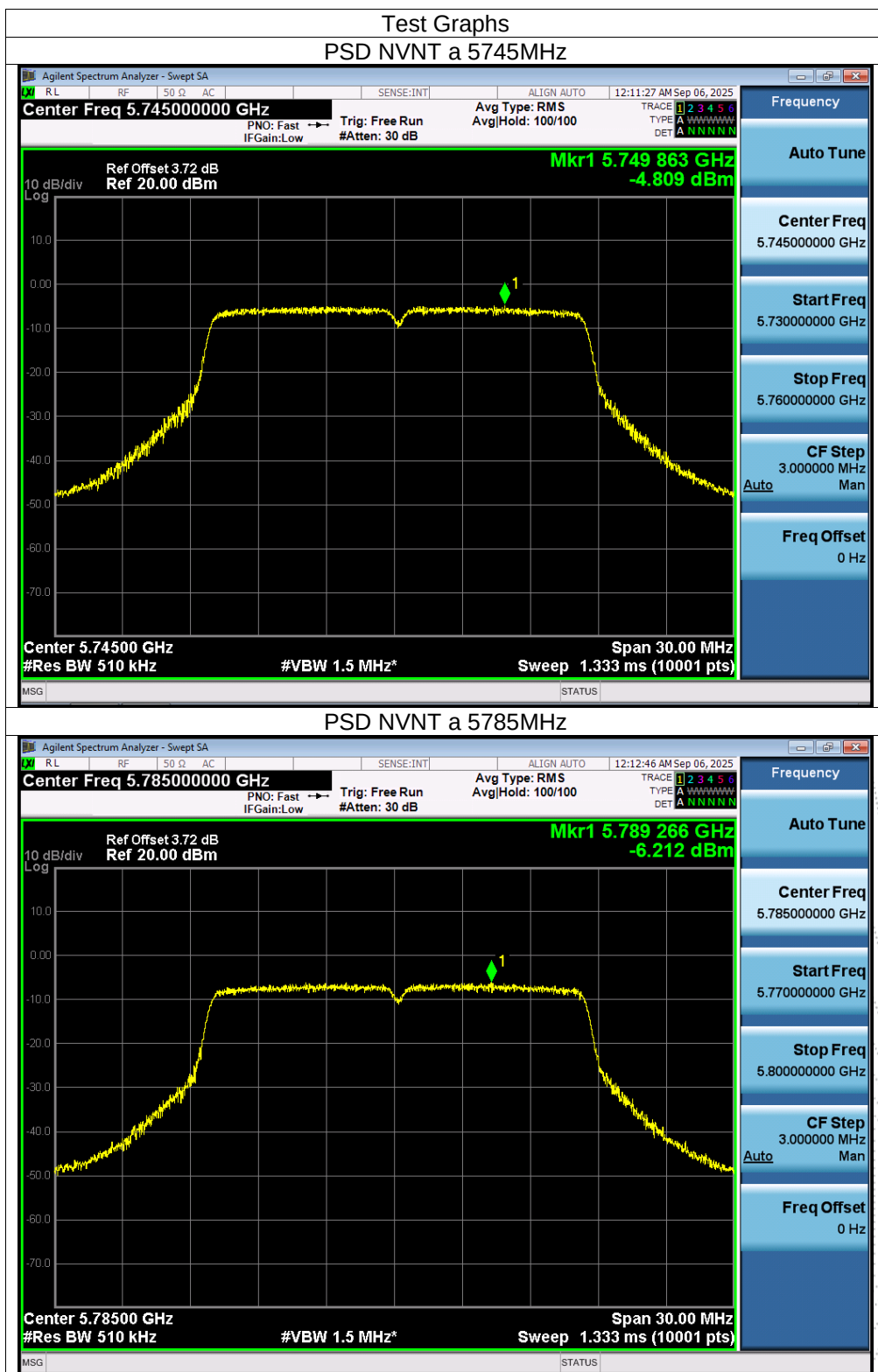
Note: Correction Factor = $10\log(500\text{KHz}/\text{RBW in measurement}) = -0.086$

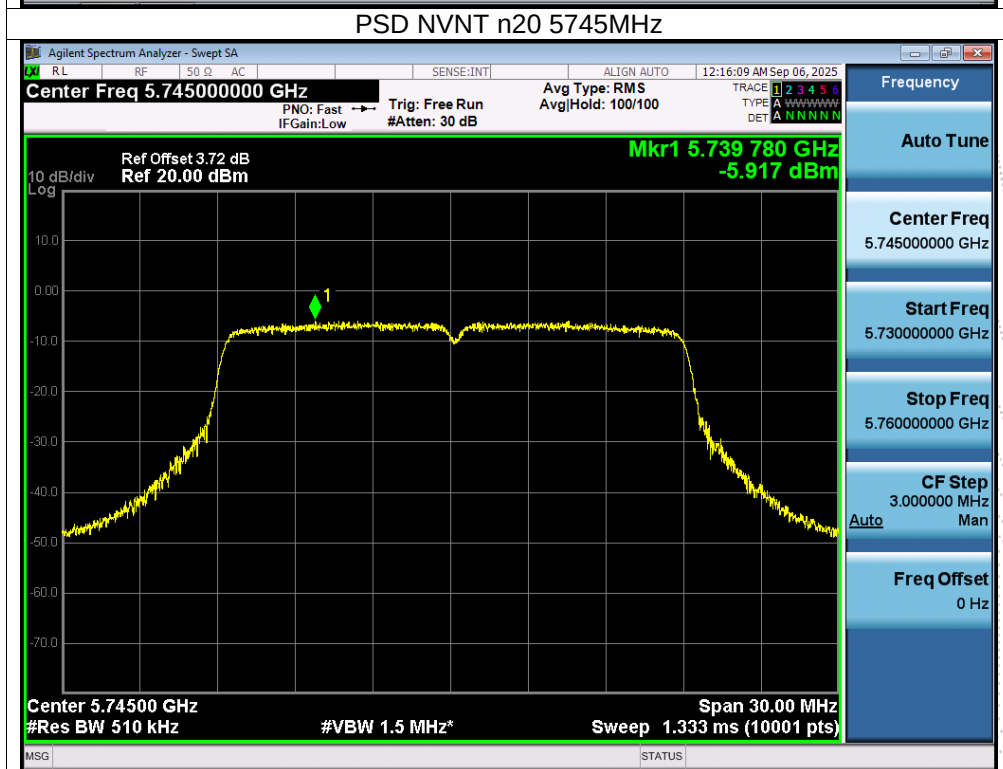
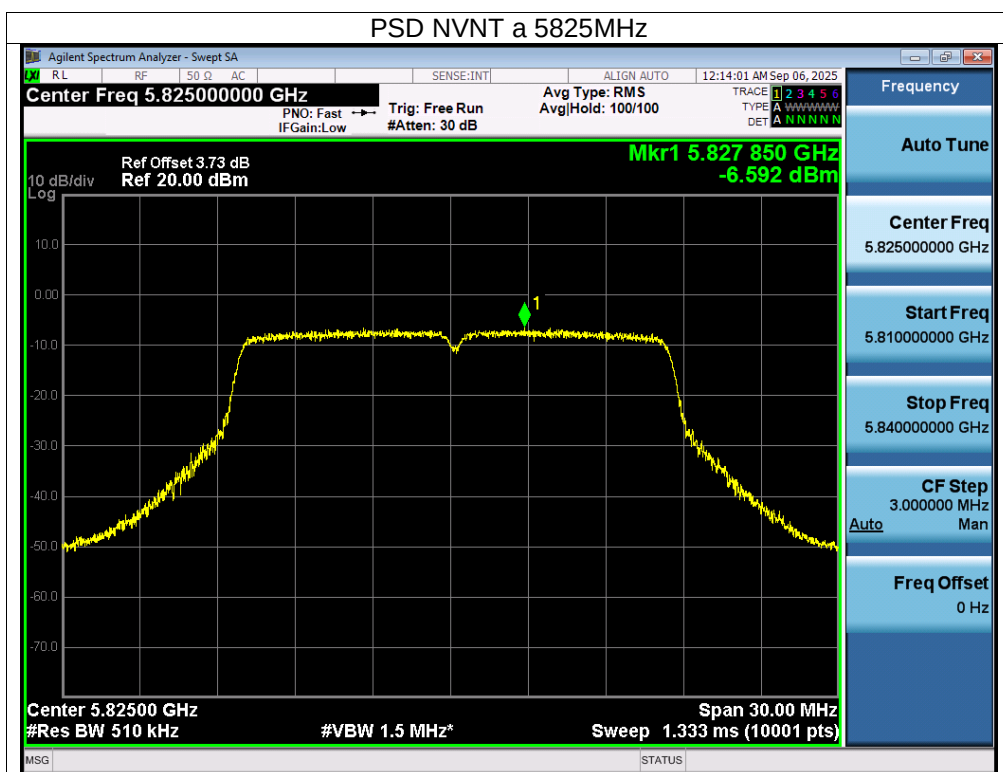


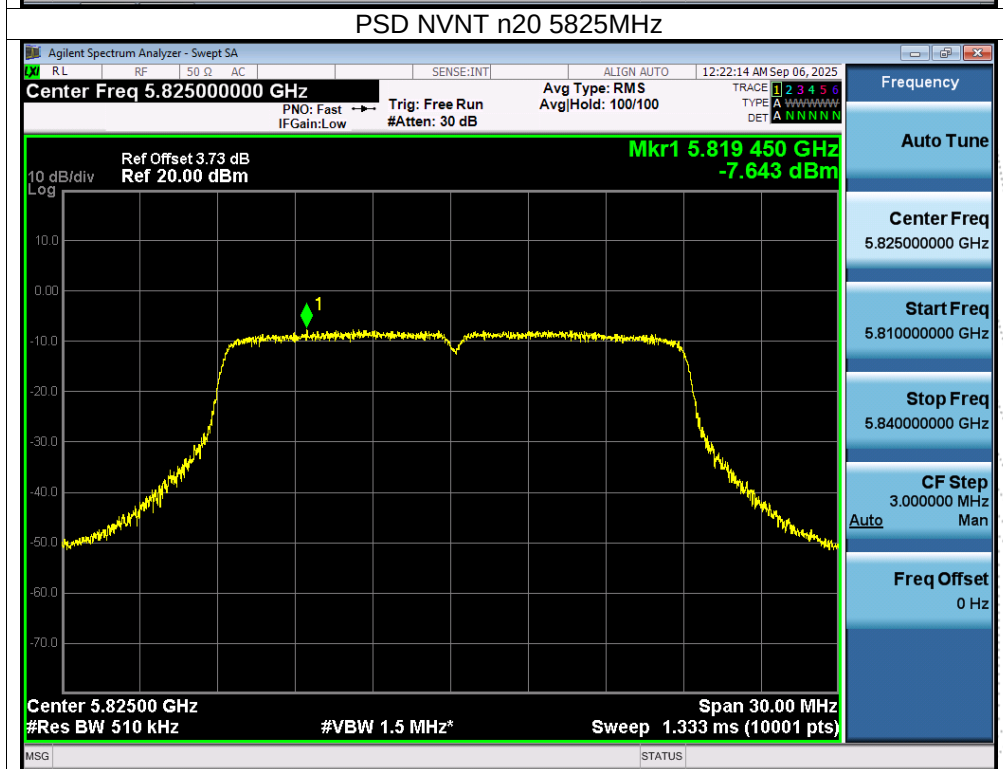
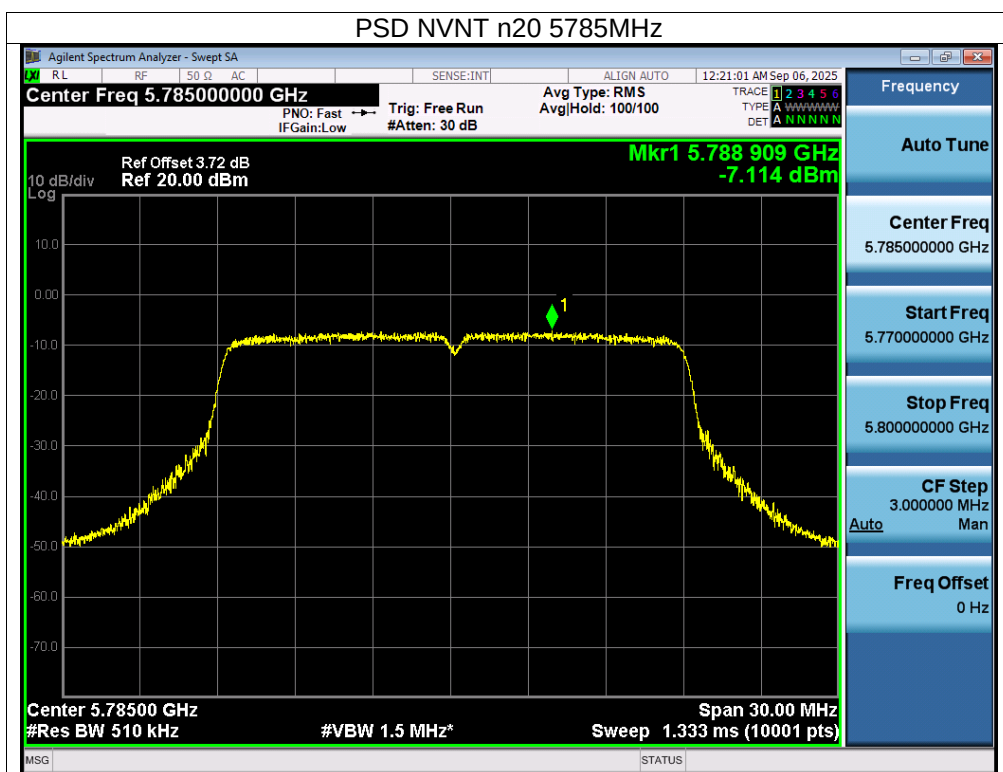


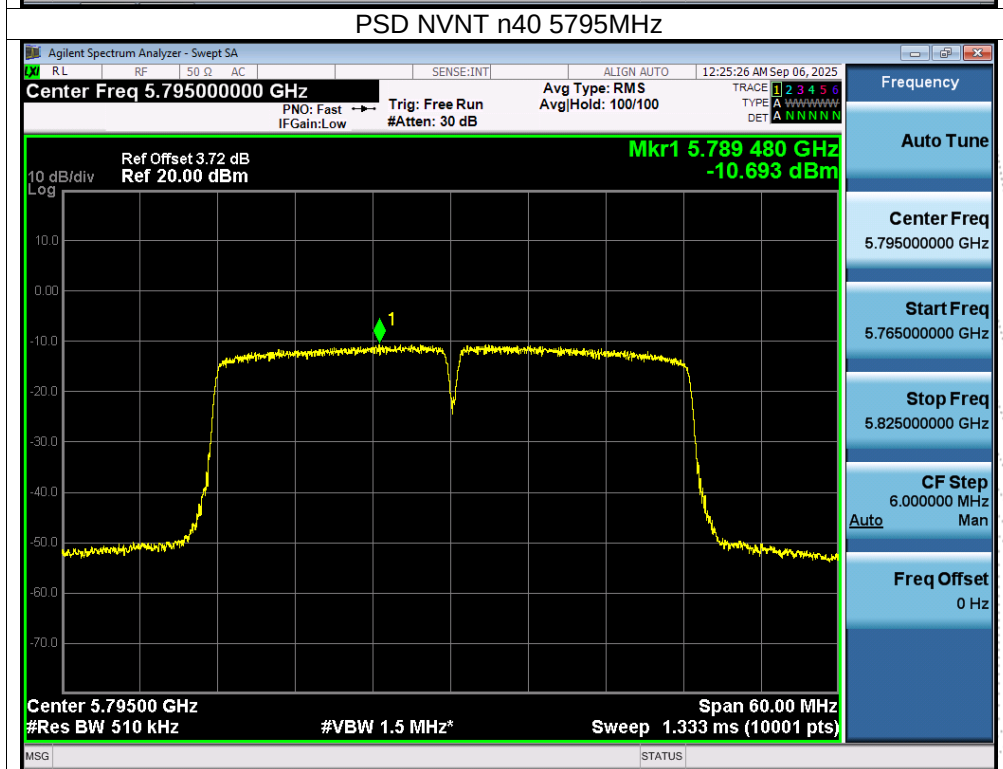
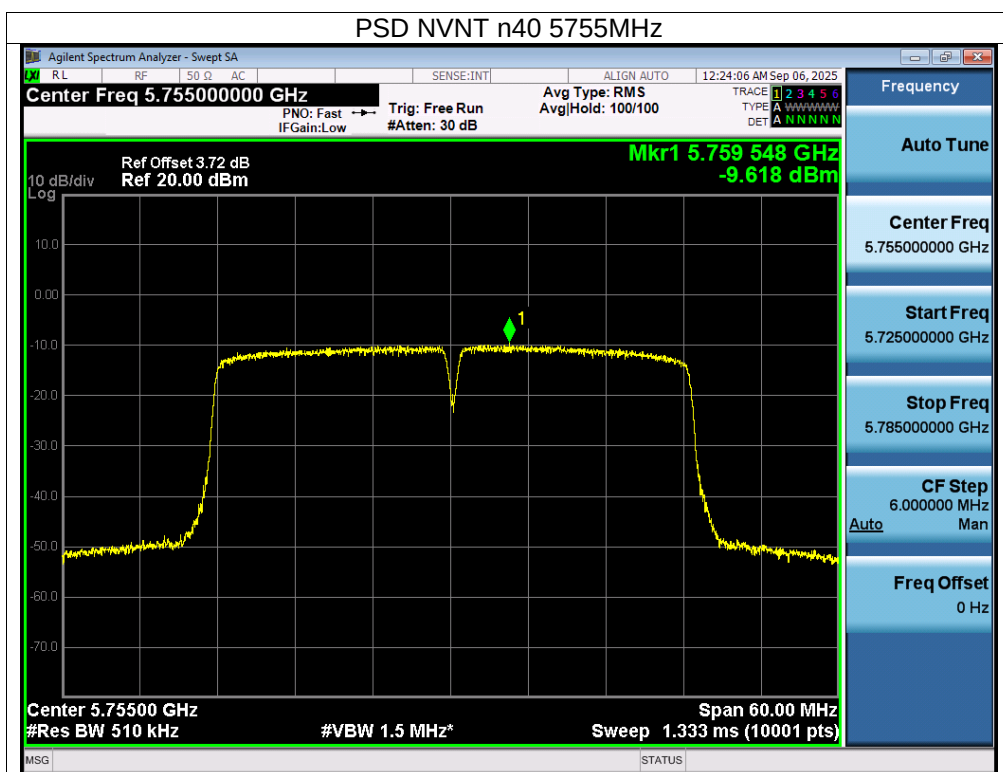






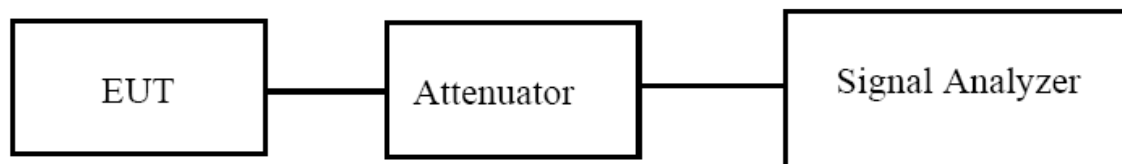






9. 26dB & 6dB & 99% Emission Bandwidth

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

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

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

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

6dB

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times RBW$.
- Detector = Peak.
- Trace mode = max hold.
- 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.

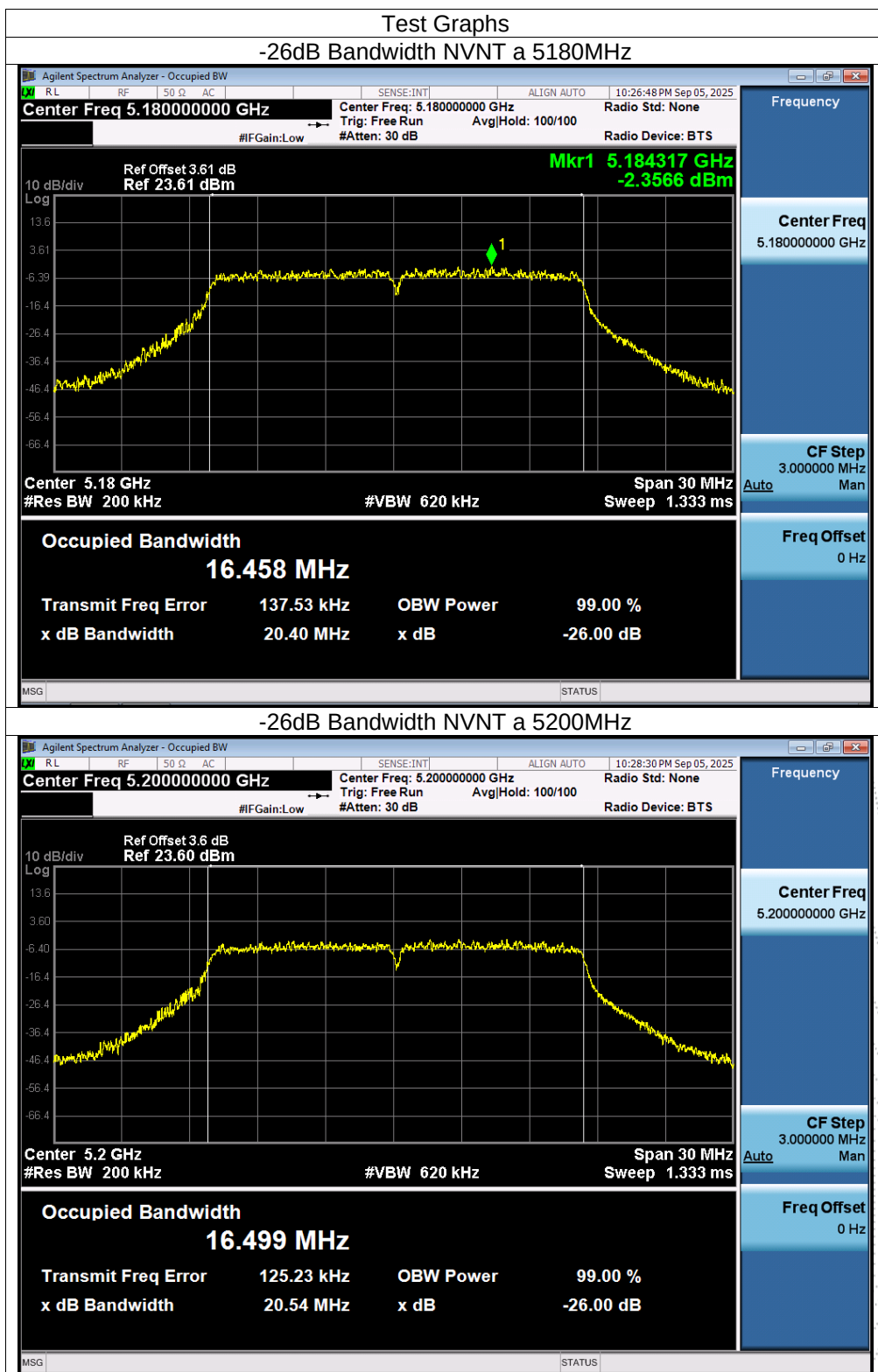
9.4 EUT Operating Conditions

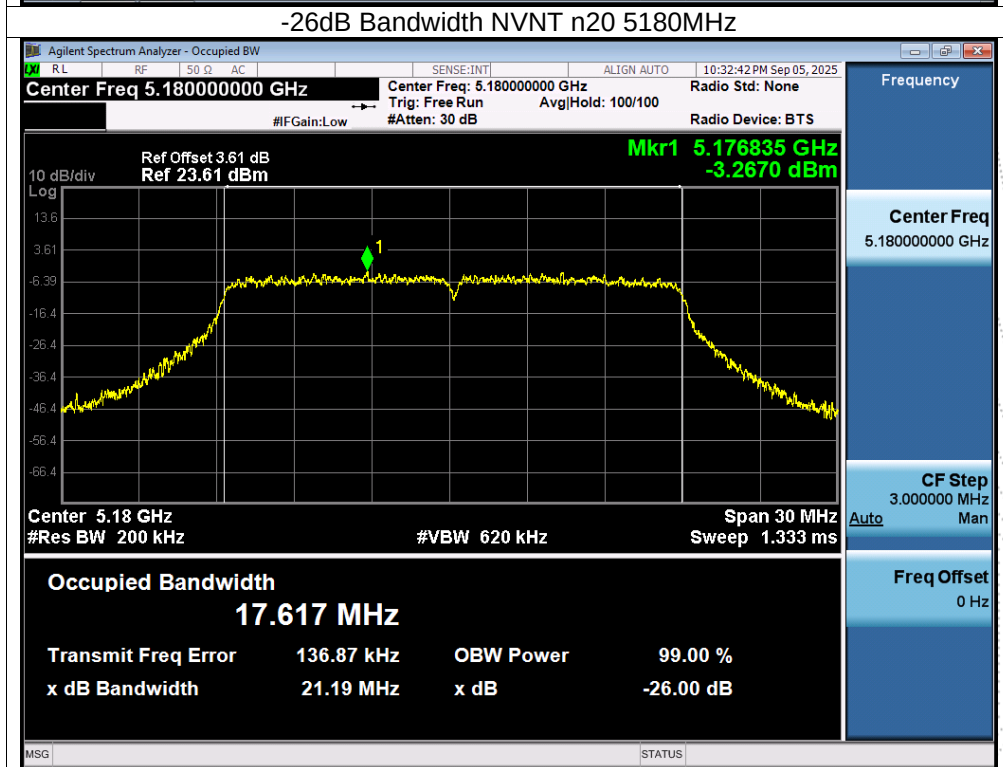
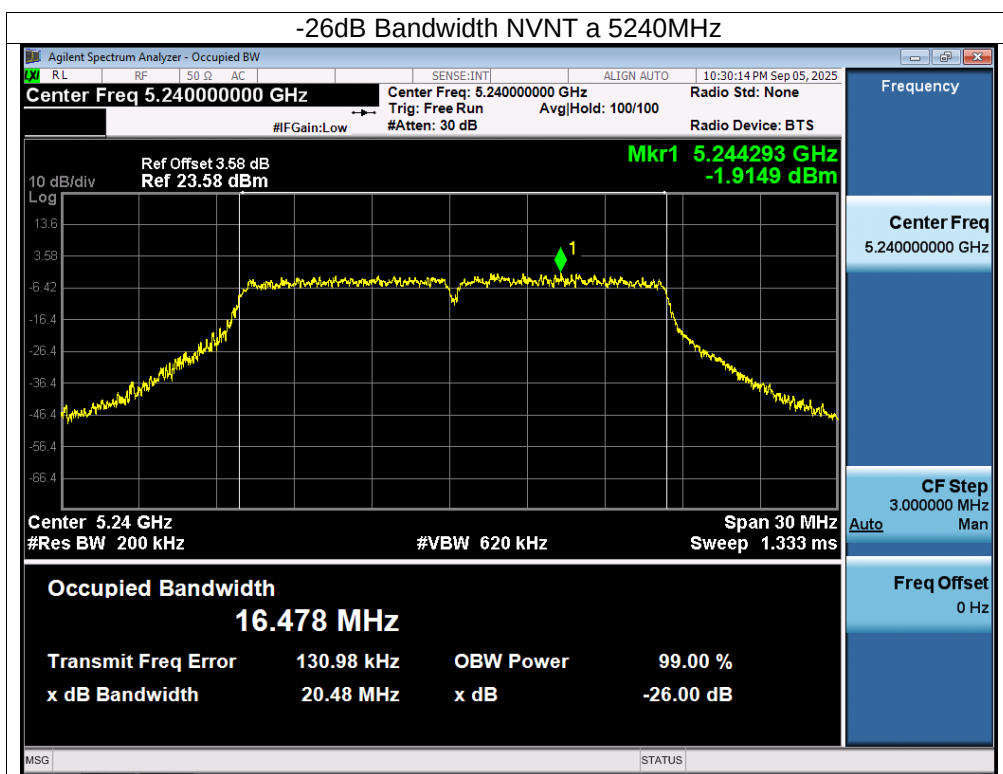
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

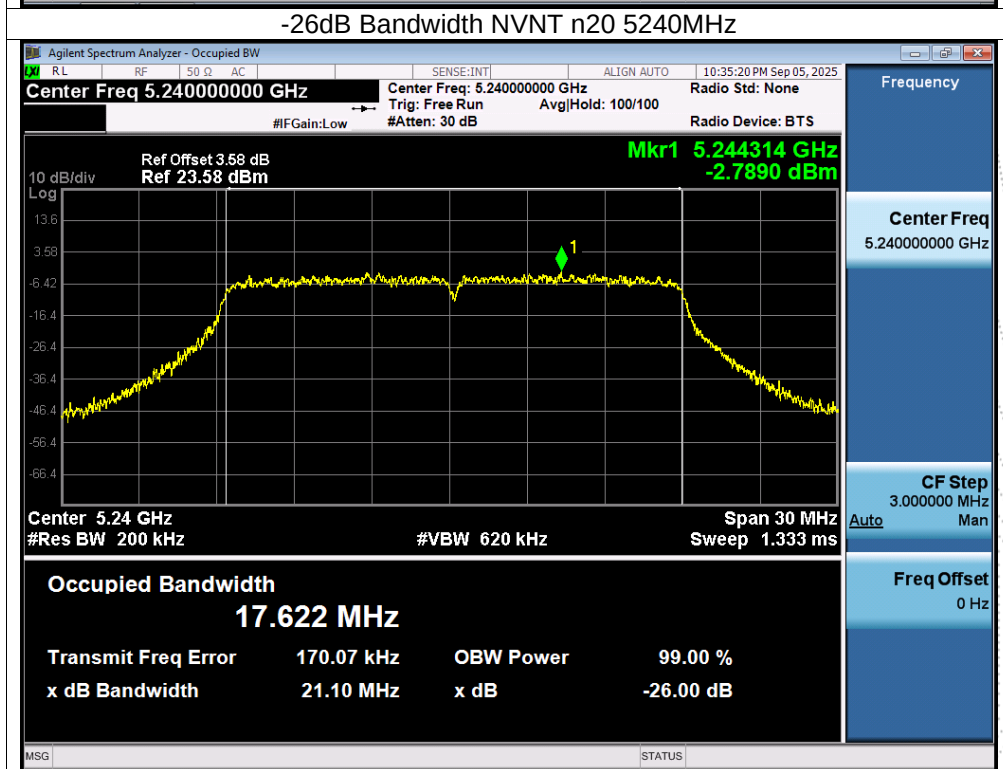
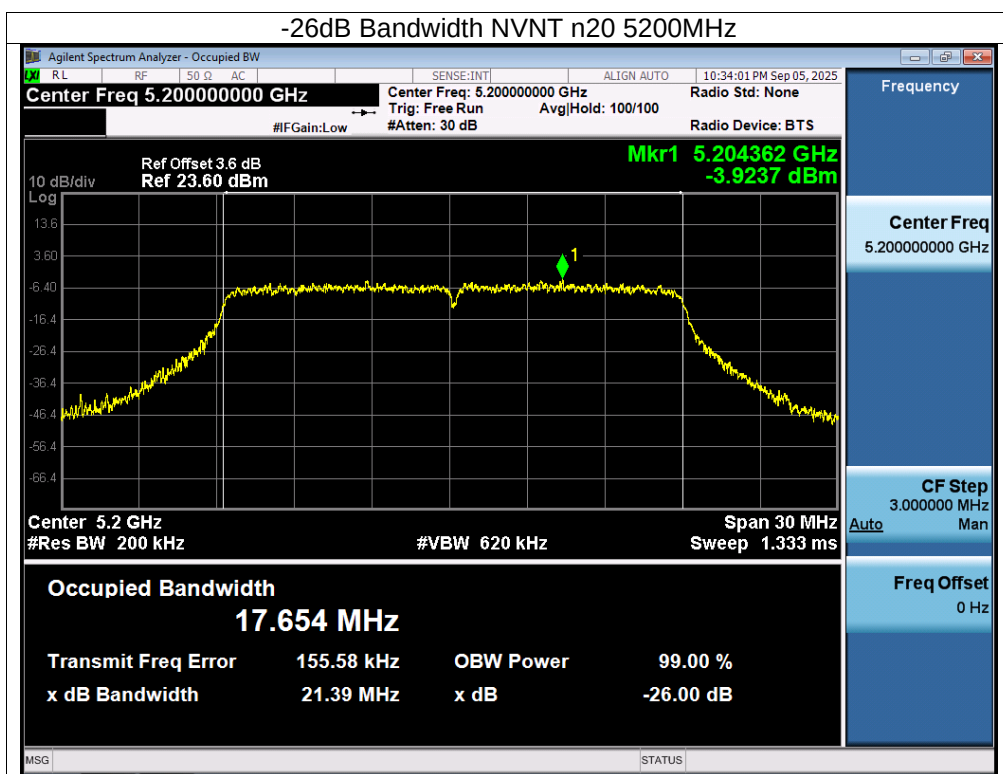
9.5 Test Result

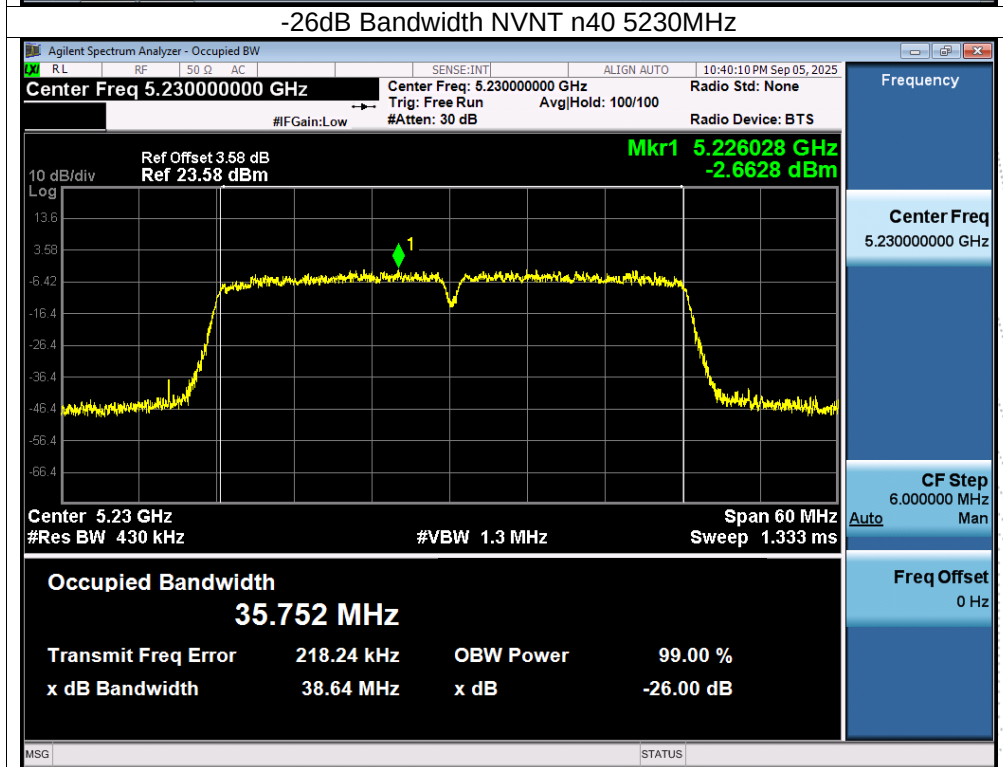
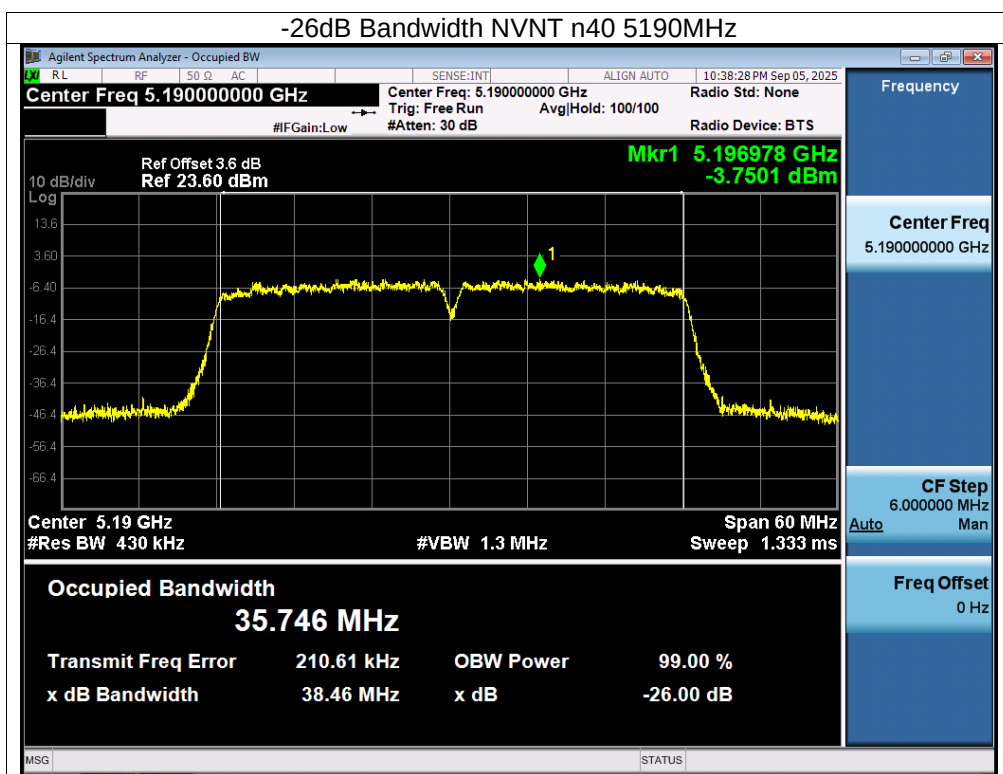
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	DC 6V
Test Mode:	TX Frequency U-NII-1 (5180-5240MHz)		

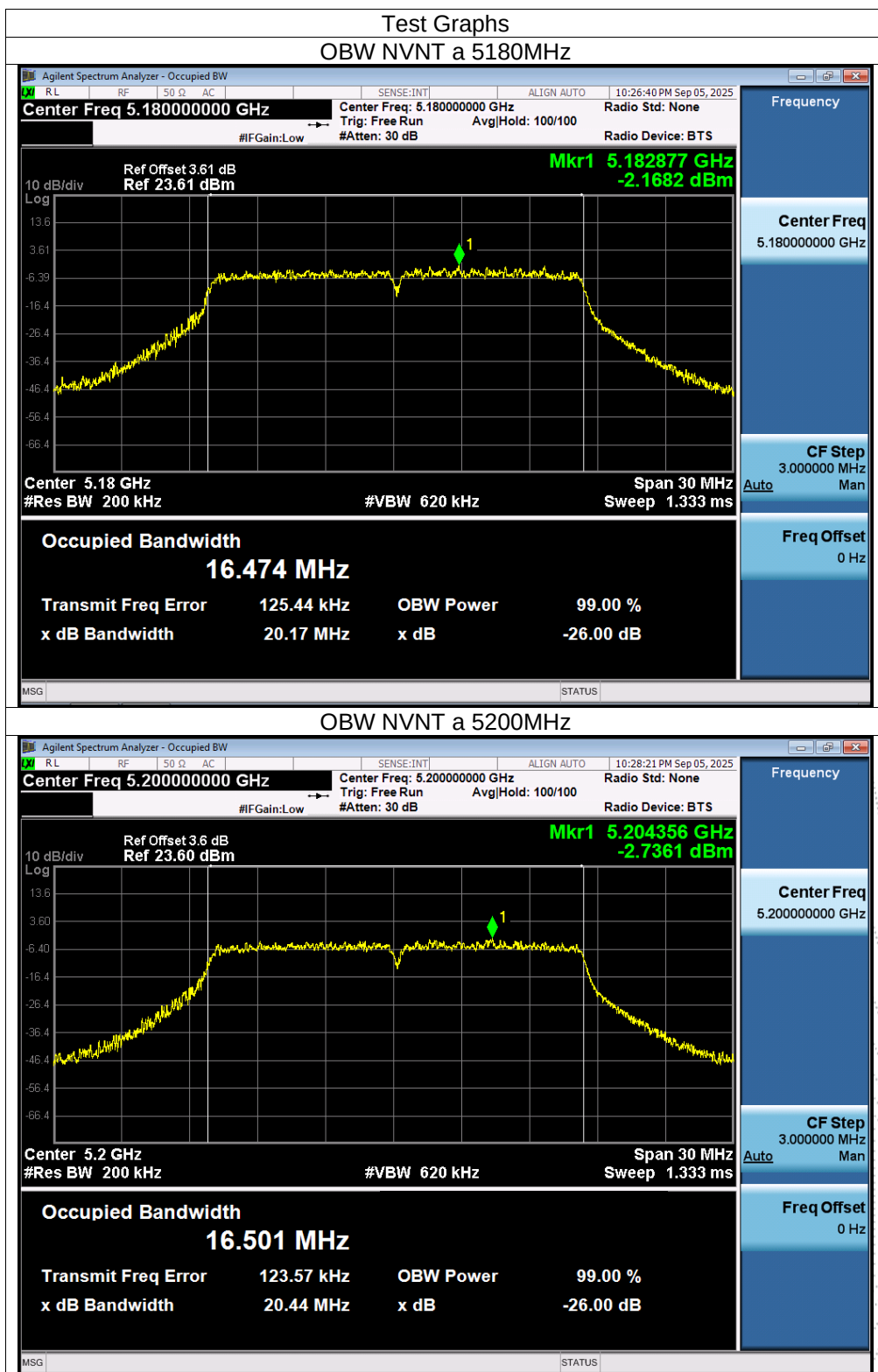
Condition	Mode	Frequency (MHz)	99% bandwidth (MHz)	-26dB bandwidth (MHz)	Result
NVNT	a	5180	16.474	20.395	Pass
NVNT	a	5200	16.501	20.538	Pass
NVNT	a	5240	16.48	20.476	Pass
NVNT	n20	5180	17.644	21.193	Pass
NVNT	n20	5200	17.674	21.387	Pass
NVNT	n20	5240	17.642	21.102	Pass
NVNT	n40	5190	35.737	38.456	Pass
NVNT	n40	5230	35.748	38.637	Pass

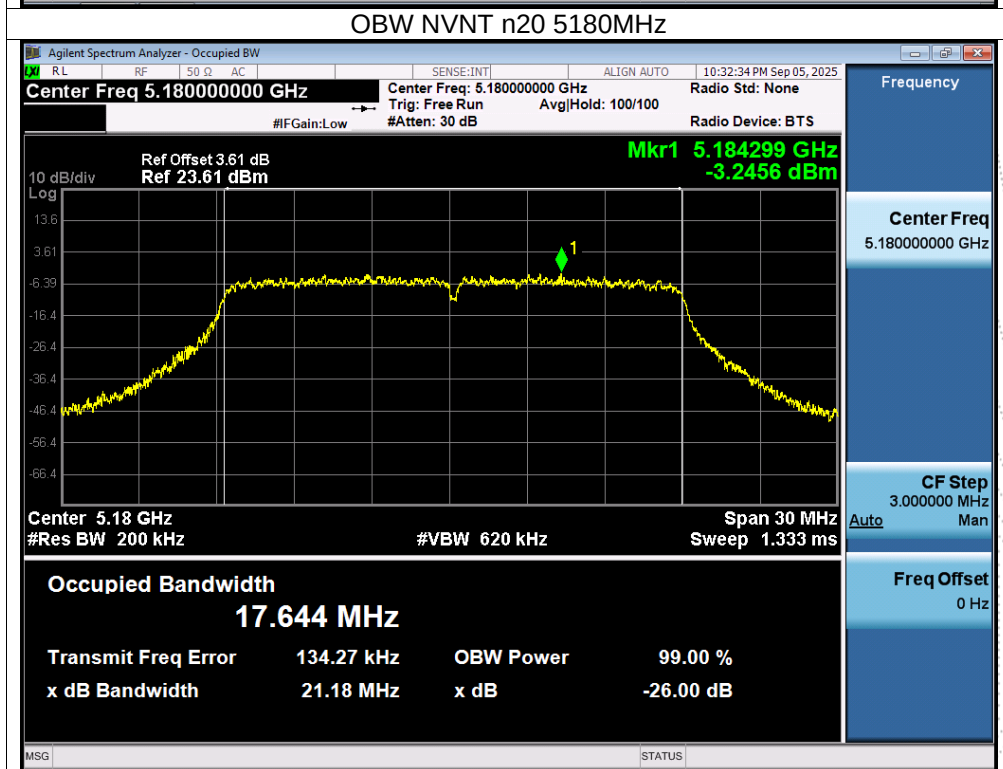
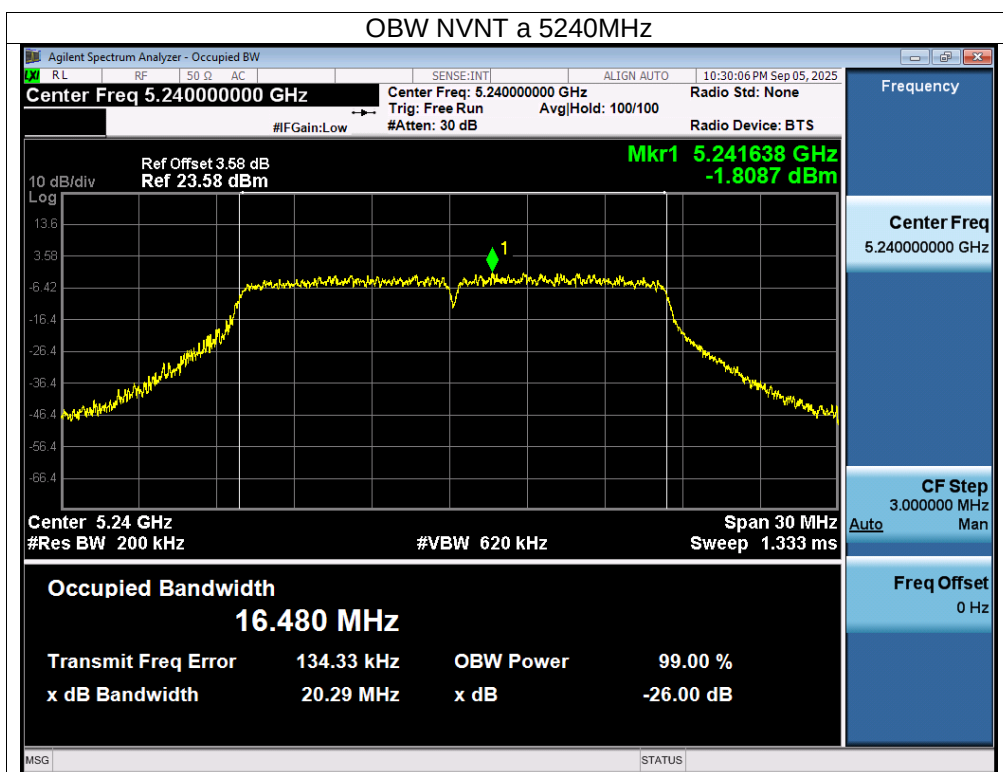


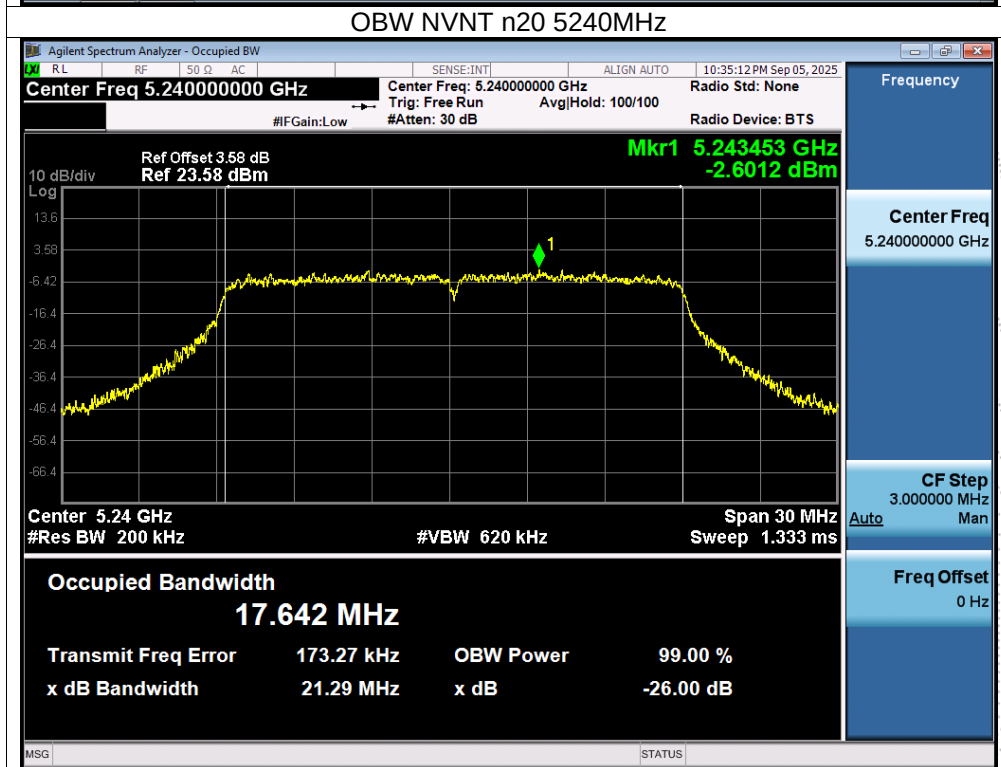
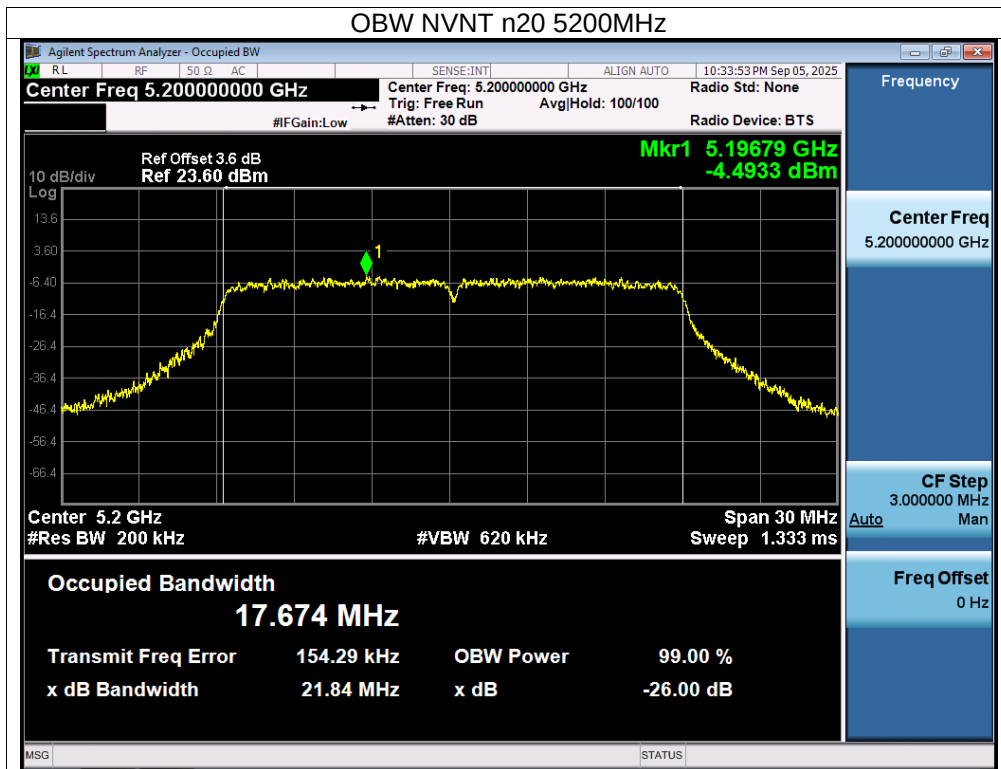


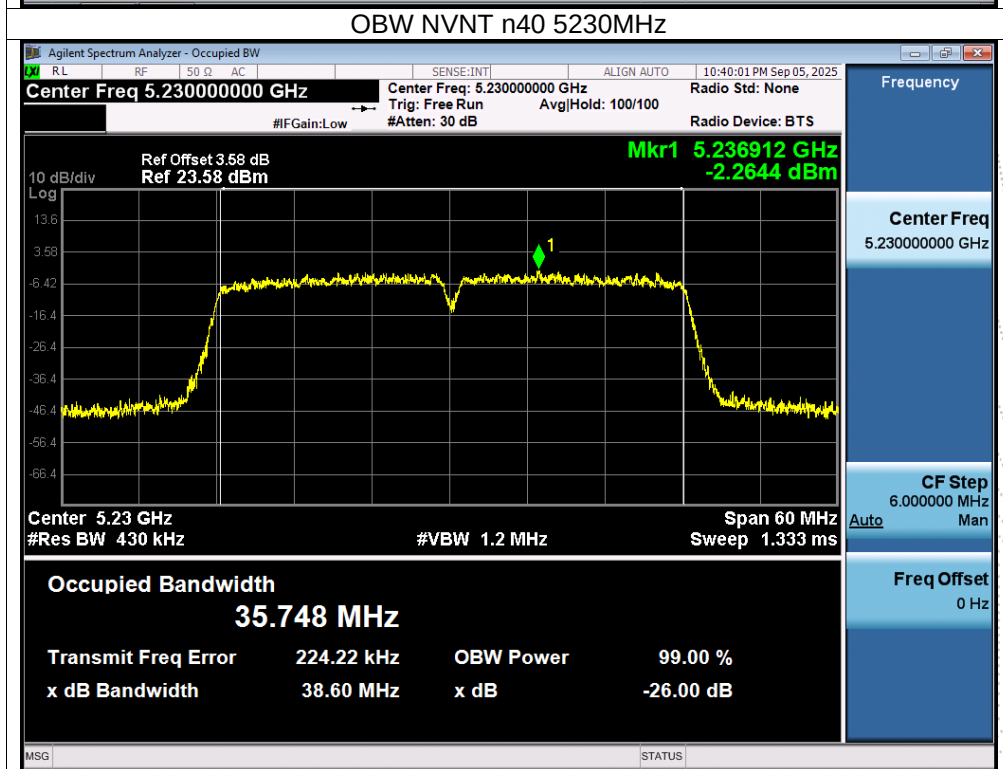
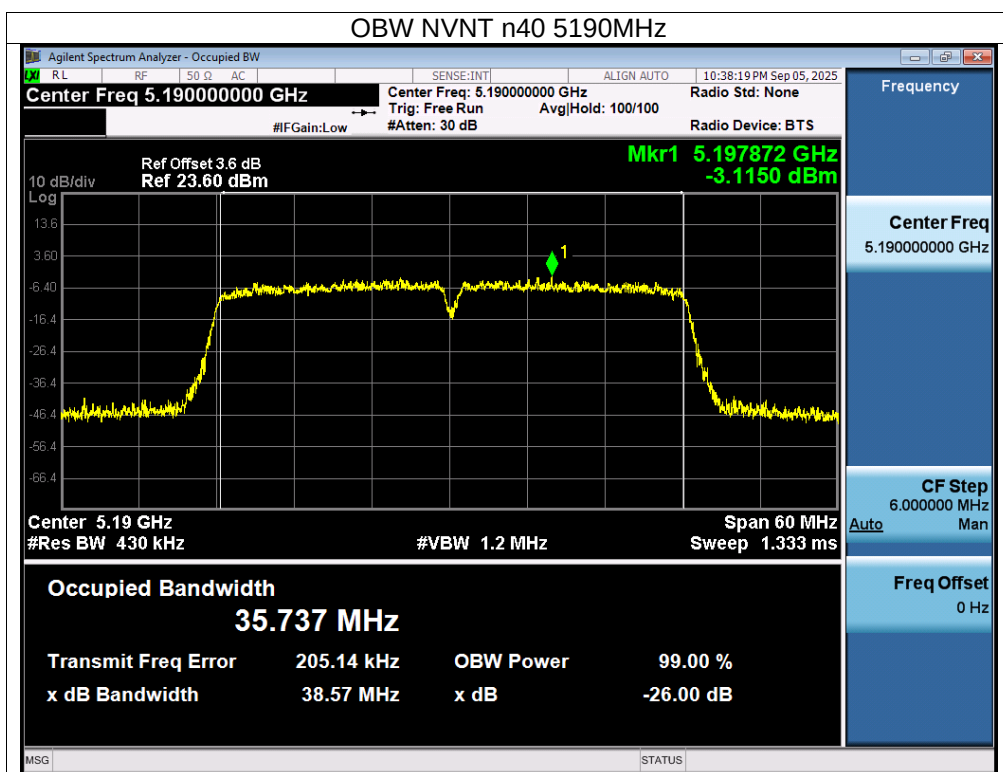






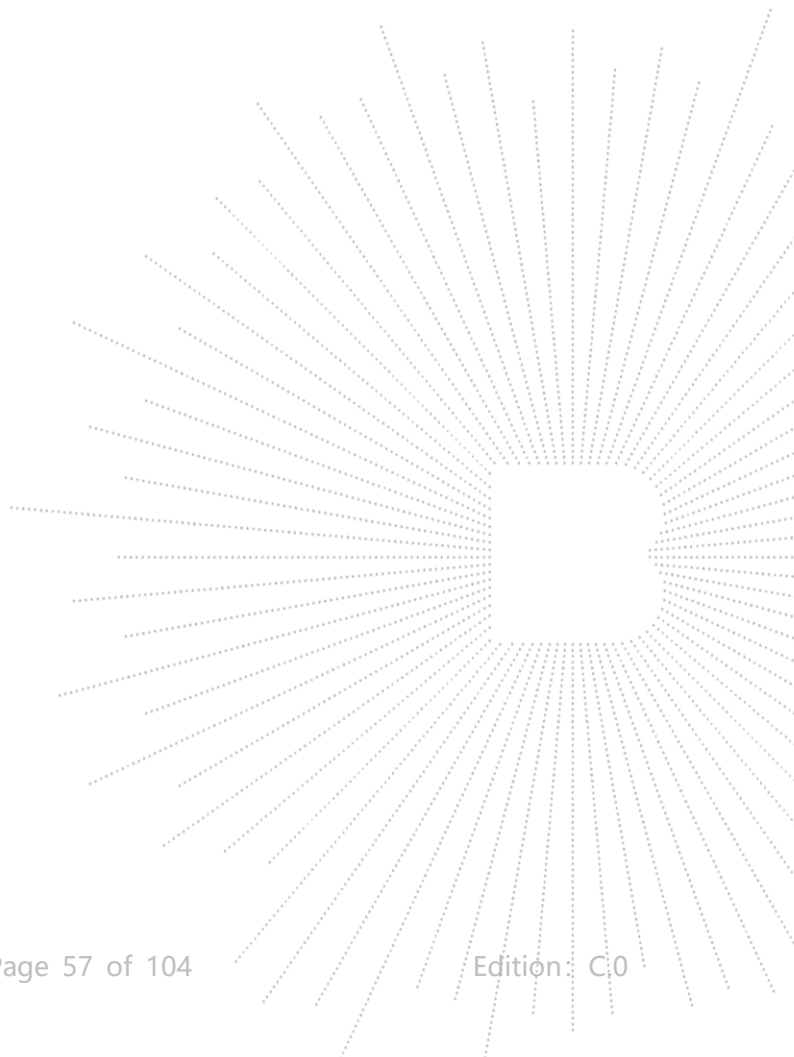


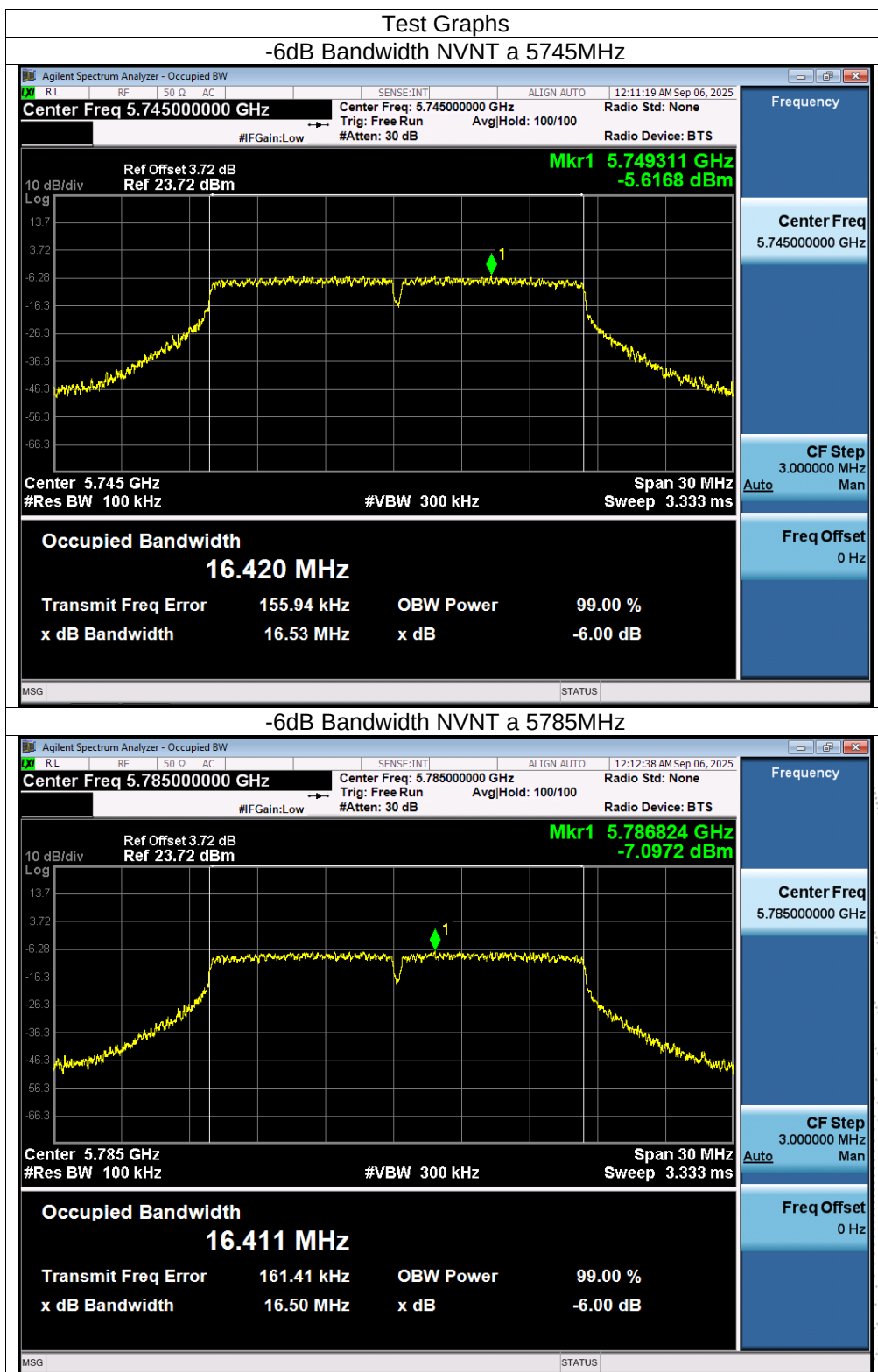


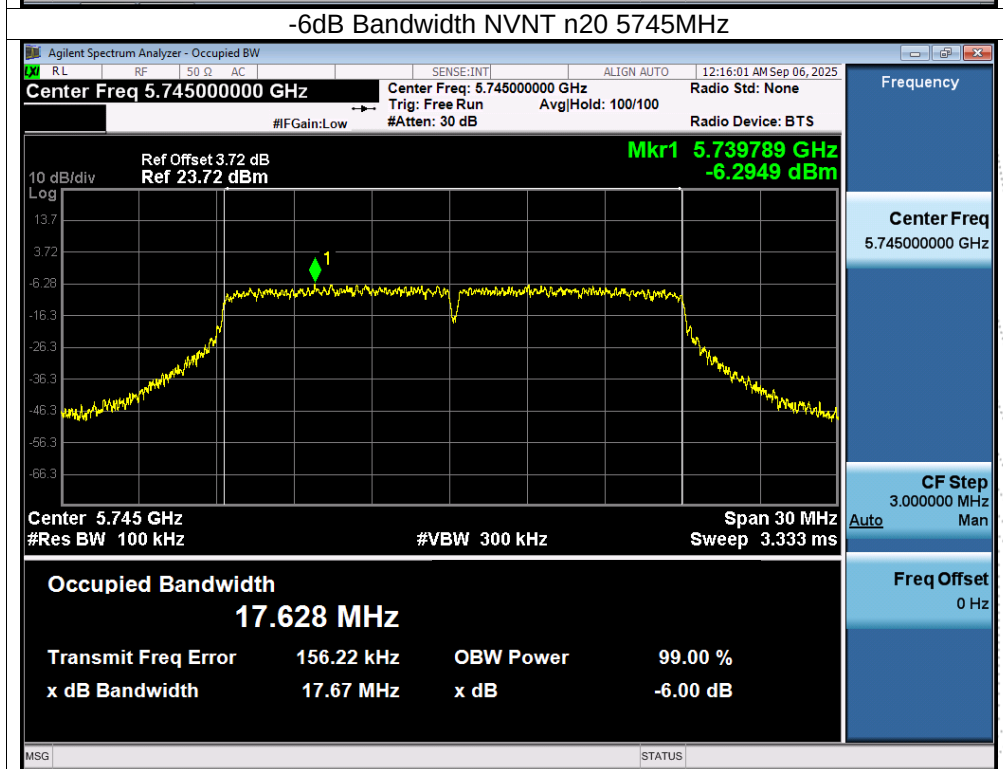
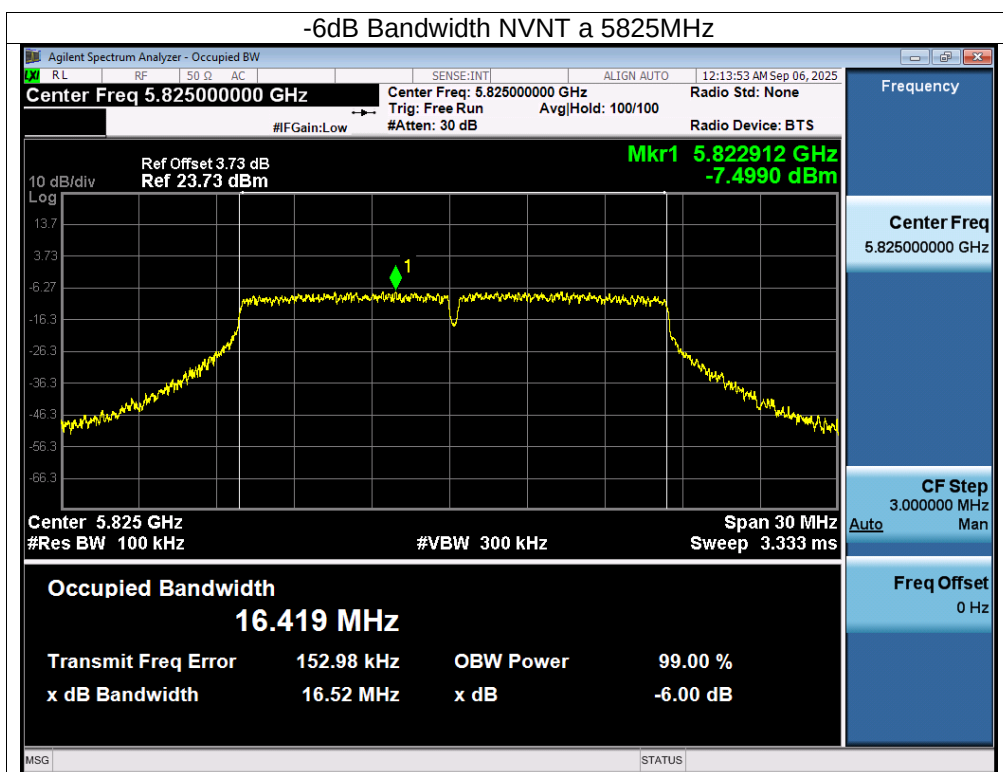


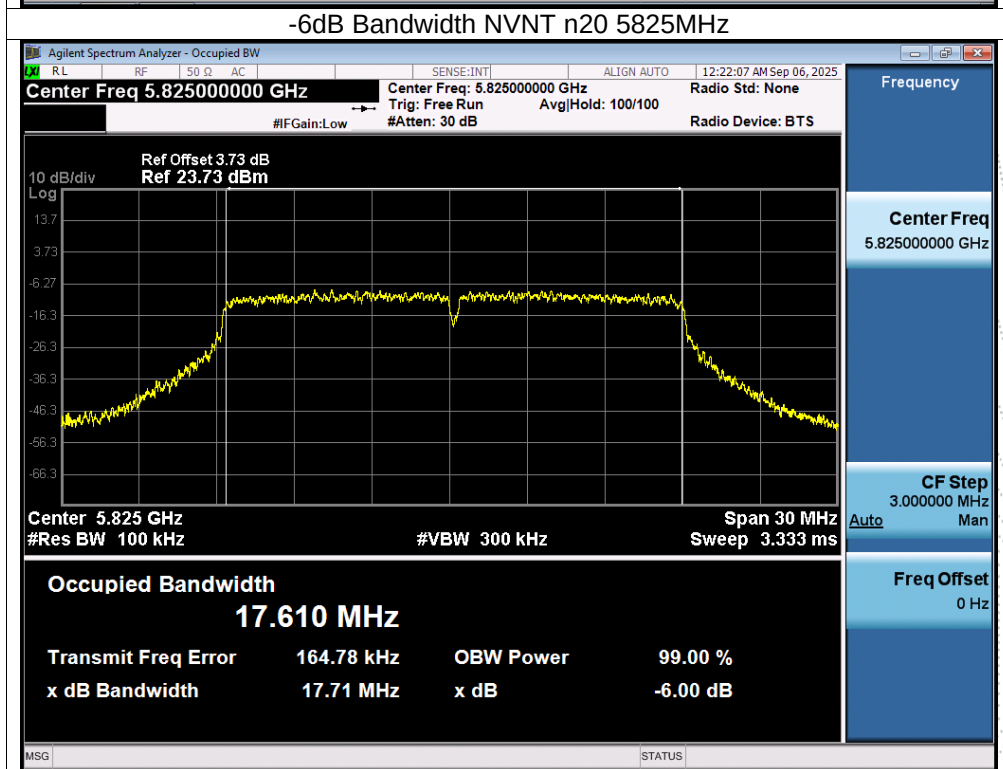
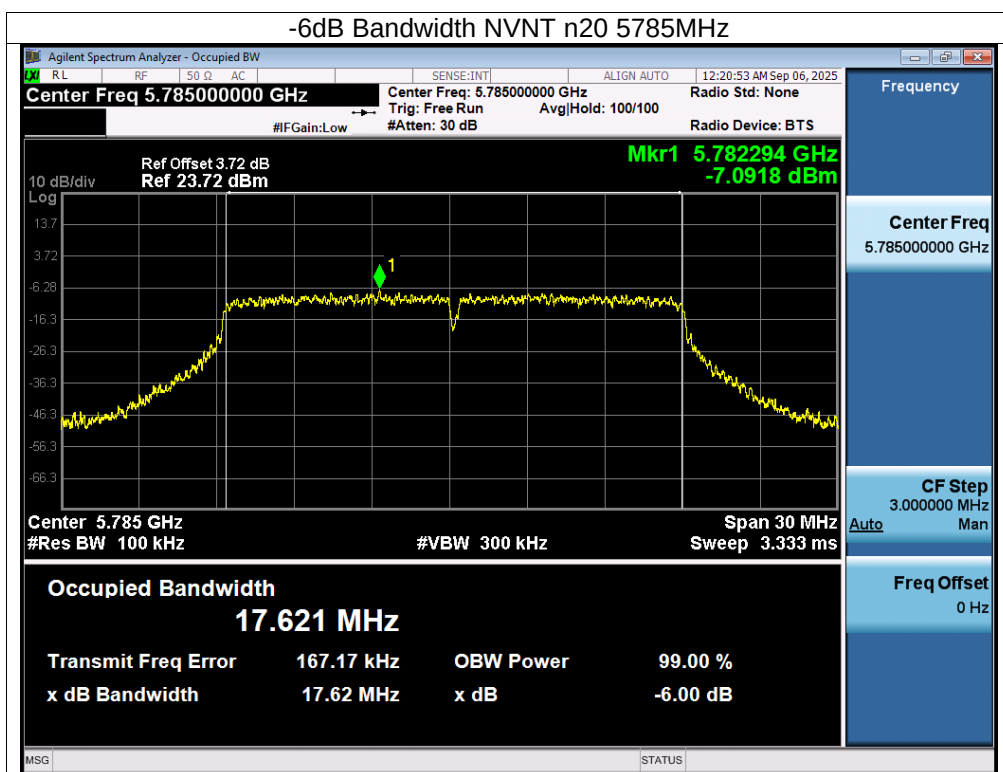
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	DC 6V
Test Mode :	TX Frequency U-NII-3(5745-5825MHz)		

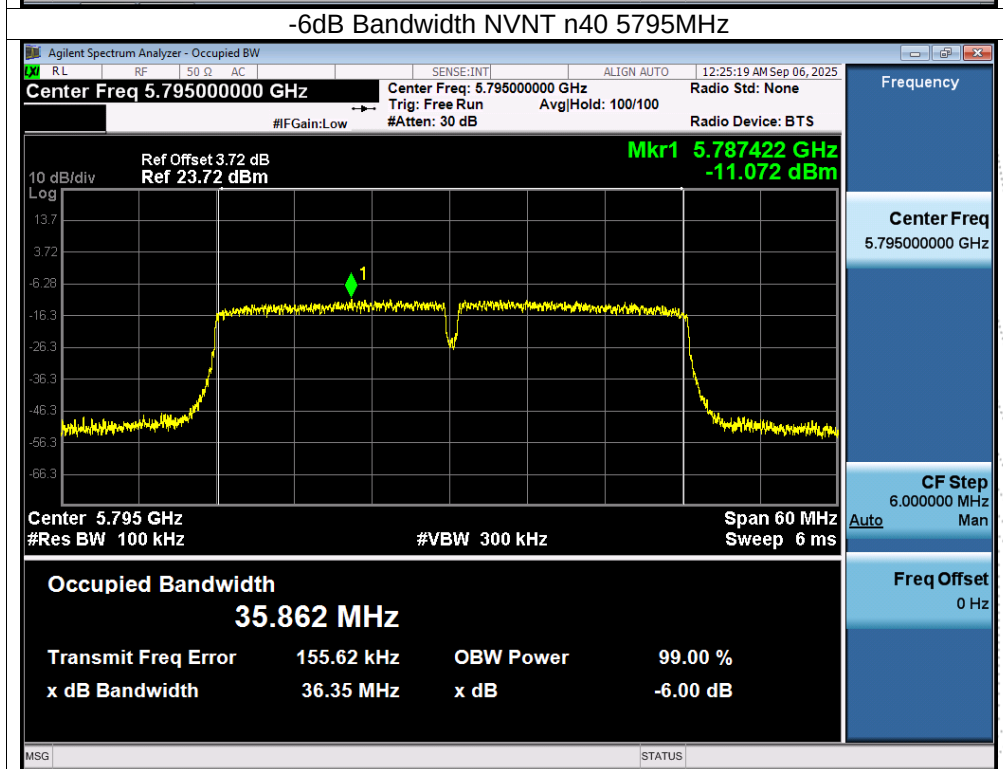
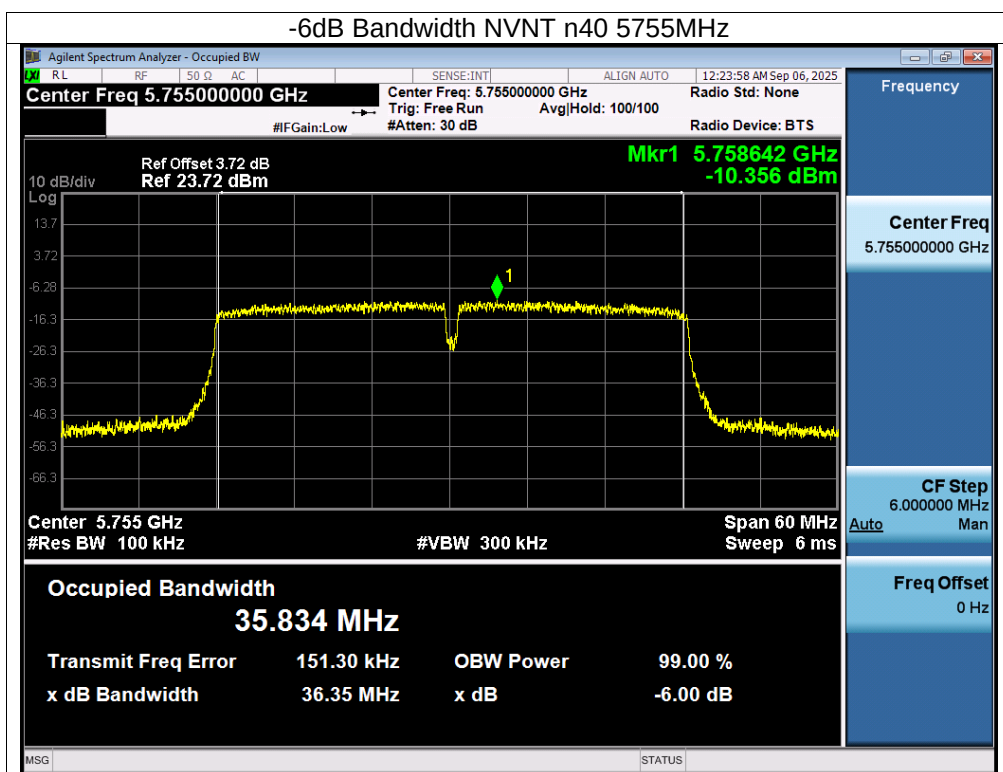
Condition	Mode	Frequency (MHz)	99% bandwidth (MHz)	-6dB bandwidth (MHz)	Limit -6dB bandwidth (MHz)	Result
NVNT	a	5745	16.55	16.528	0.5	Pass
NVNT	a	5785	16.526	16.502	0.5	Pass
NVNT	a	5825	16.523	16.517	0.5	Pass
NVNT	n20	5745	17.688	17.674	0.5	Pass
NVNT	n20	5785	17.69	17.619	0.5	Pass
NVNT	n20	5825	17.679	17.708	0.5	Pass
NVNT	n40	5755	35.788	36.349	0.5	Pass
NVNT	n40	5795	35.767	36.347	0.5	Pass

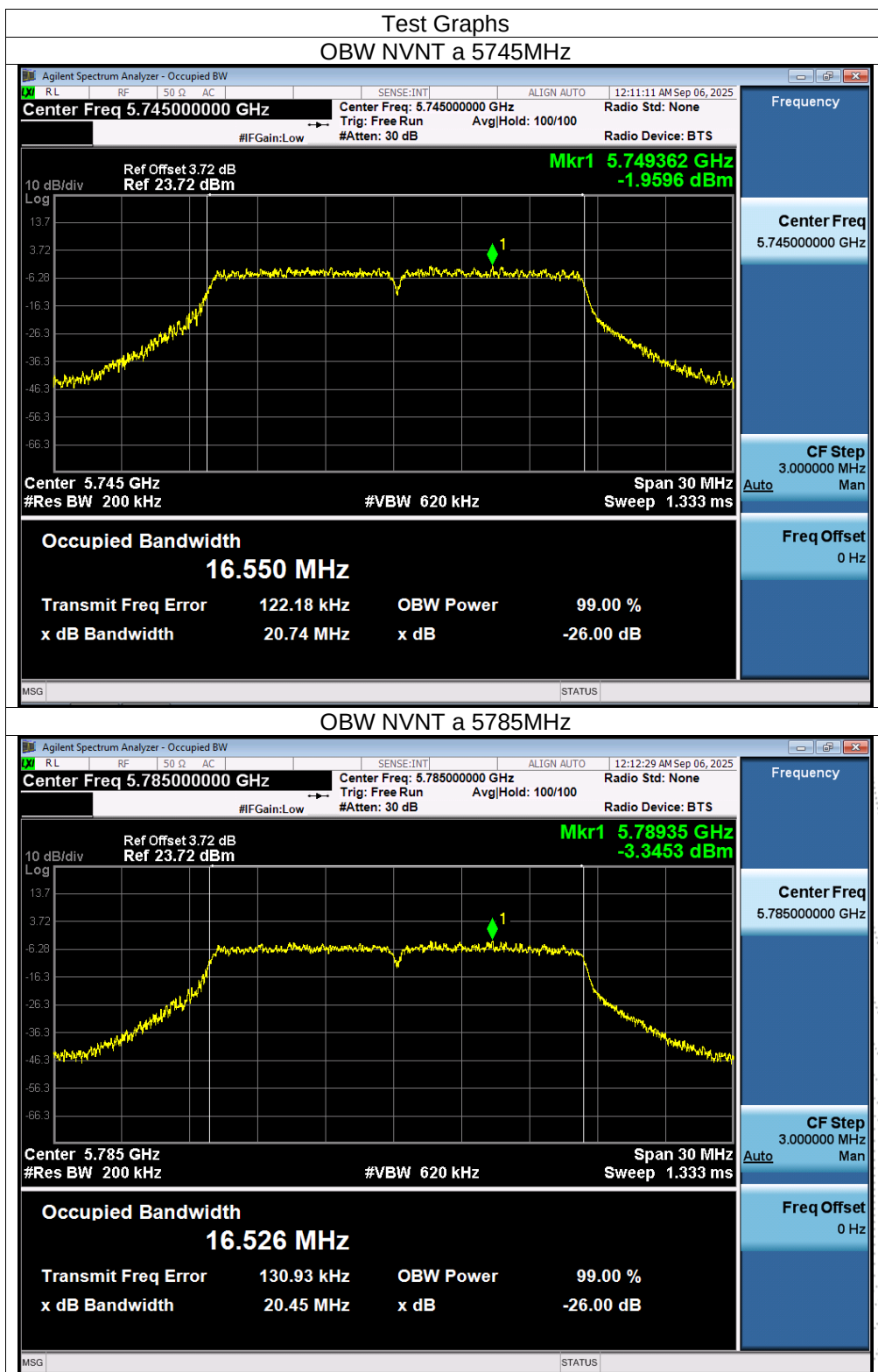


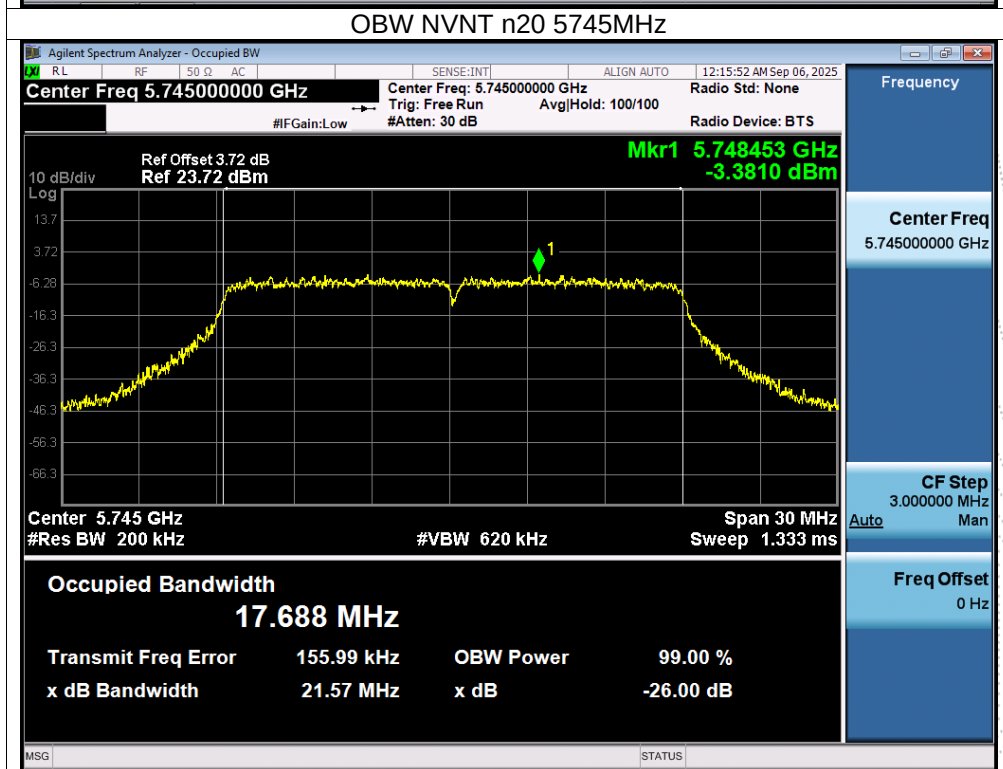
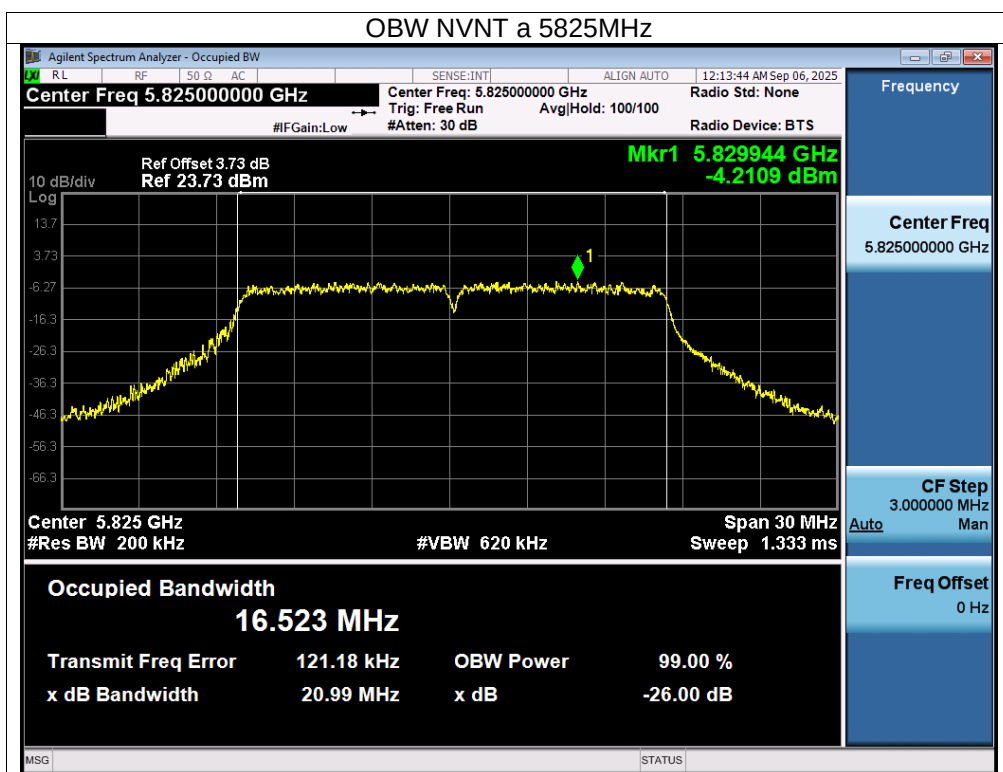


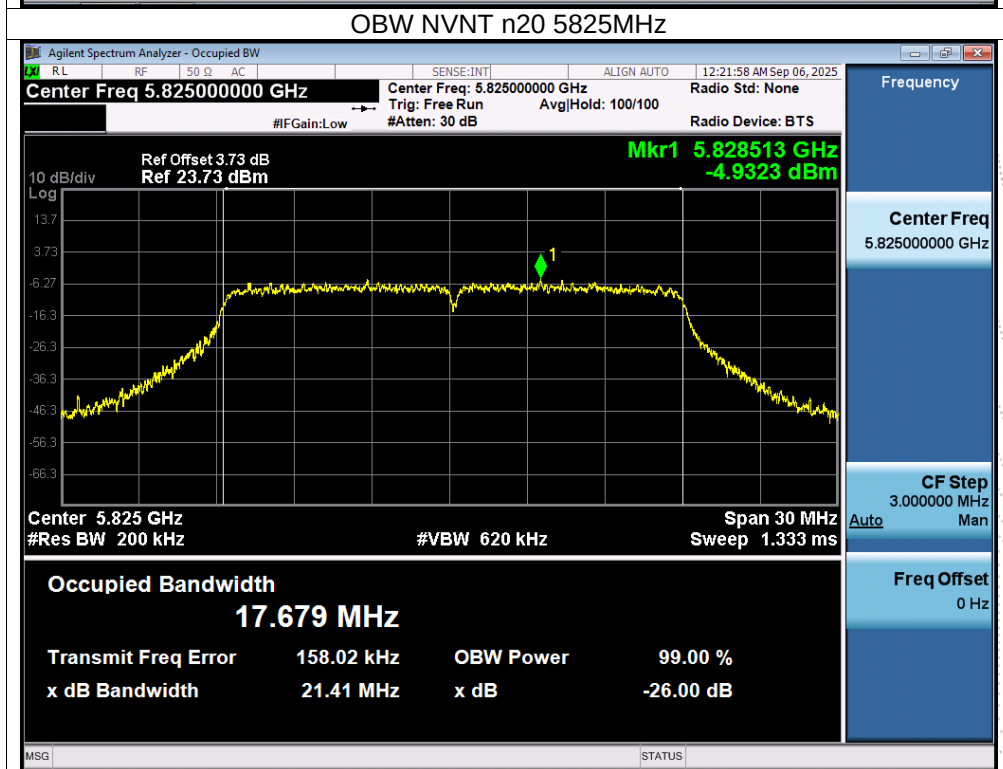
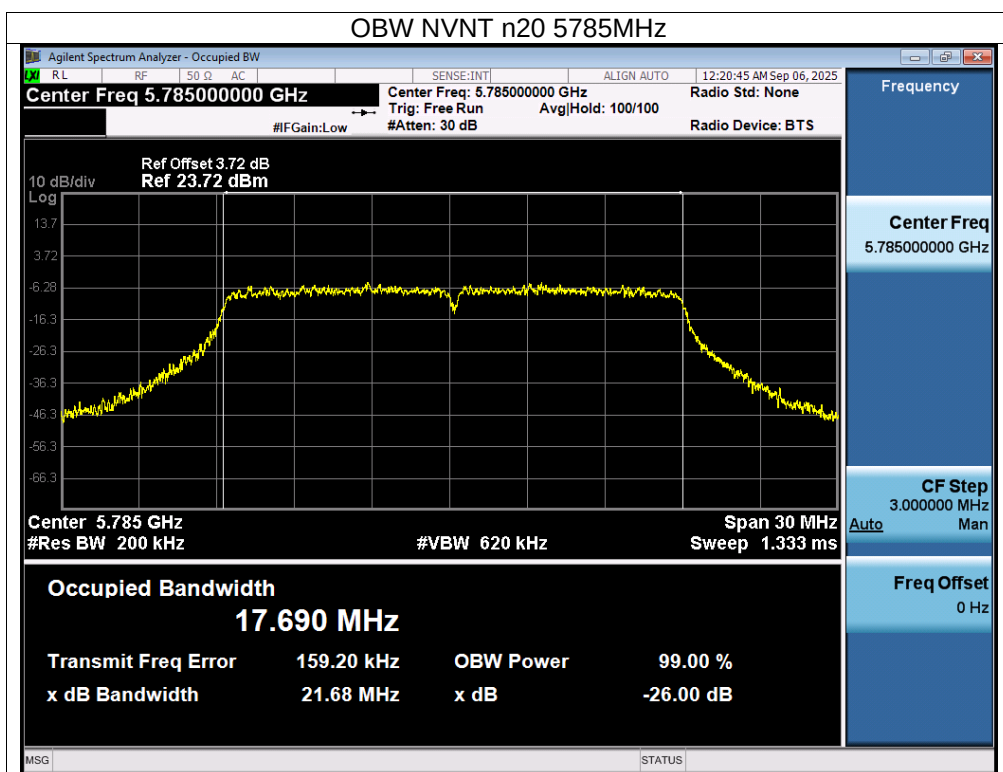


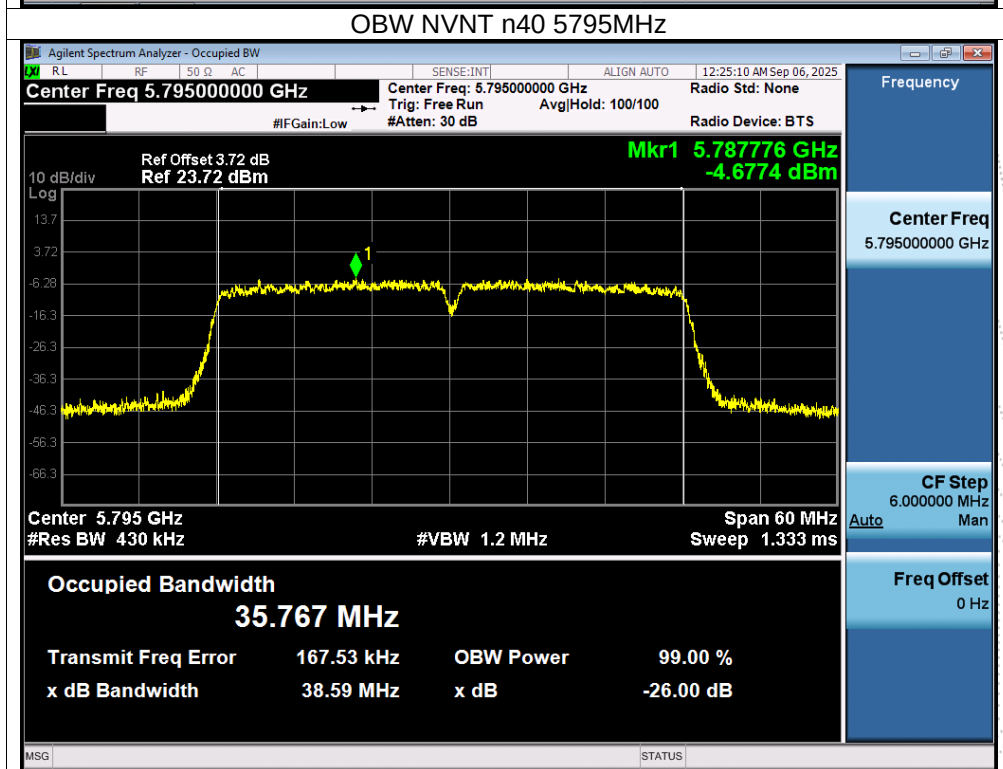
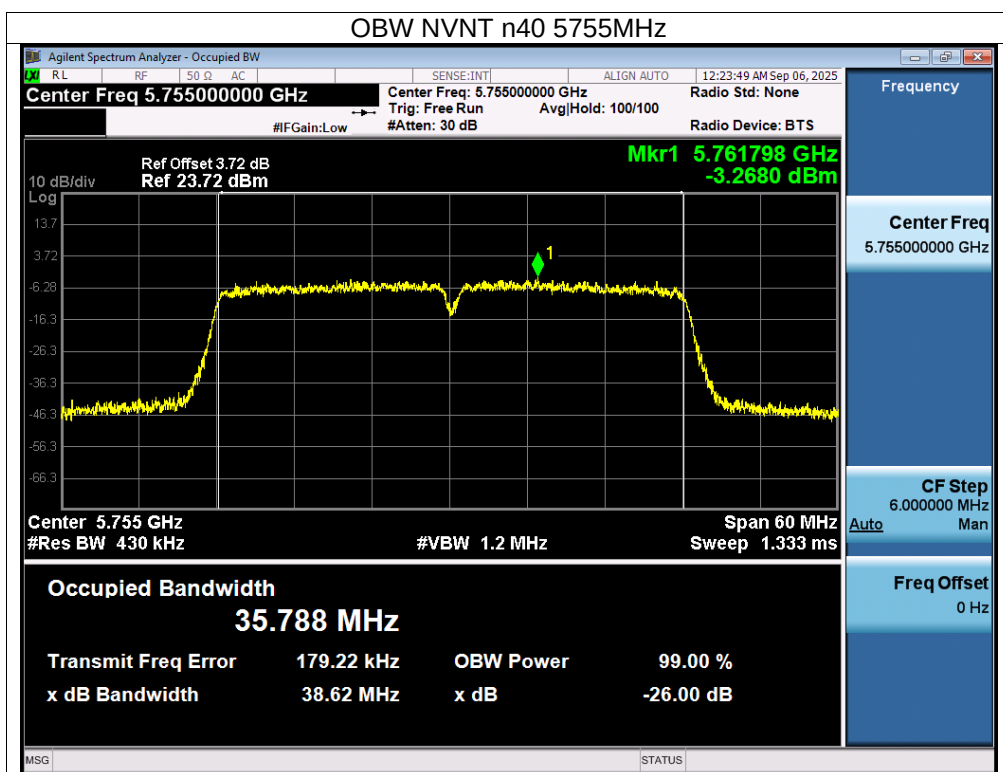












10. Maximum Conducted Output Power

10.1 Block Diagram Of Test Setup



10.2 Limit

According to FCC §15.407

The maximum conducted 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.).

- 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.
- 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 $\leq$ 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 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage :	DC 6V
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	11.6	24	Pass
NVNT	a	5200	10.74	24	Pass
NVNT	a	5240	11.72	24	Pass
NVNT	n20	5180	10.84	24	Pass
NVNT	n20	5200	10.11	24	Pass
NVNT	n20	5240	11.25	24	Pass
NVNT	n40	5190	10.13	24	Pass
NVNT	n40	5230	10.92	24	Pass

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage :	DC 6V
Test Mode :	TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz)		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	11.66	30	Pass
NVNT	a	5785	10.07	30	Pass
NVNT	a	5825	9.66	30	Pass
NVNT	n20	5745	10.84	30	Pass
NVNT	n20	5785	9.31	30	Pass
NVNT	n20	5825	8.86	30	Pass
NVNT	n40	5755	9.82	30	Pass
NVNT	n40	5795	8.78	30	Pass