

TEST REPORT

Report No.: BCTC2606051300-3E

Applicant: Alpaca Tec Inc

Product Name: Computer

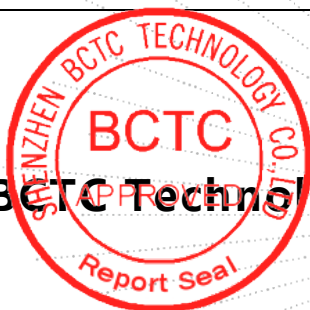
Test Model: TK-E180

Tested Date: 2026-06-26 to 2026-08-07

Issued Date: 2026-08-07



Shenzhen BCTC Technology Co., Ltd.



FCC ID: 2BWWJ-TK-E180

Product Name: Computer

Trademark: ALPACATEC

Model/Type Reference: TK-E180,AL11,AL14, AL15,AL16,AL17,AL18,AL21,AL11A,AL14A,AL15A,AL16A,AL17A,AL18A,AL21A,TK-E140i,TK-E156,TK-E160,TK-E150U,TK-E140U

Prepared For: Alpaca Tec Inc

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Address: 3rd Floor, Building 5, Gonglian Fuji Innovation Park, No. 58 Ping'an Road,Dafu Community, Guanlan, Longhua District, Shenzhen

Prepared By: Shenzhen BCTC Technology Co., Ltd.

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Sample Received Date: 2026-06-26

Sample Tested Date: 2026-06-26 to 2026-08-07

Report No.: BCTC2606051300-3E

Test Standards: 47 CFR Part 15 Subpart C (clause 15.247)
ANSI C63.10-2020

Test Results: PASS

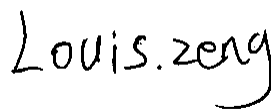
Remark: This is WIFI-2.4GHz band radio test report.

Prepared by :



Mike Zheng

Reviewer by :



Louis Zeng

Approved by:



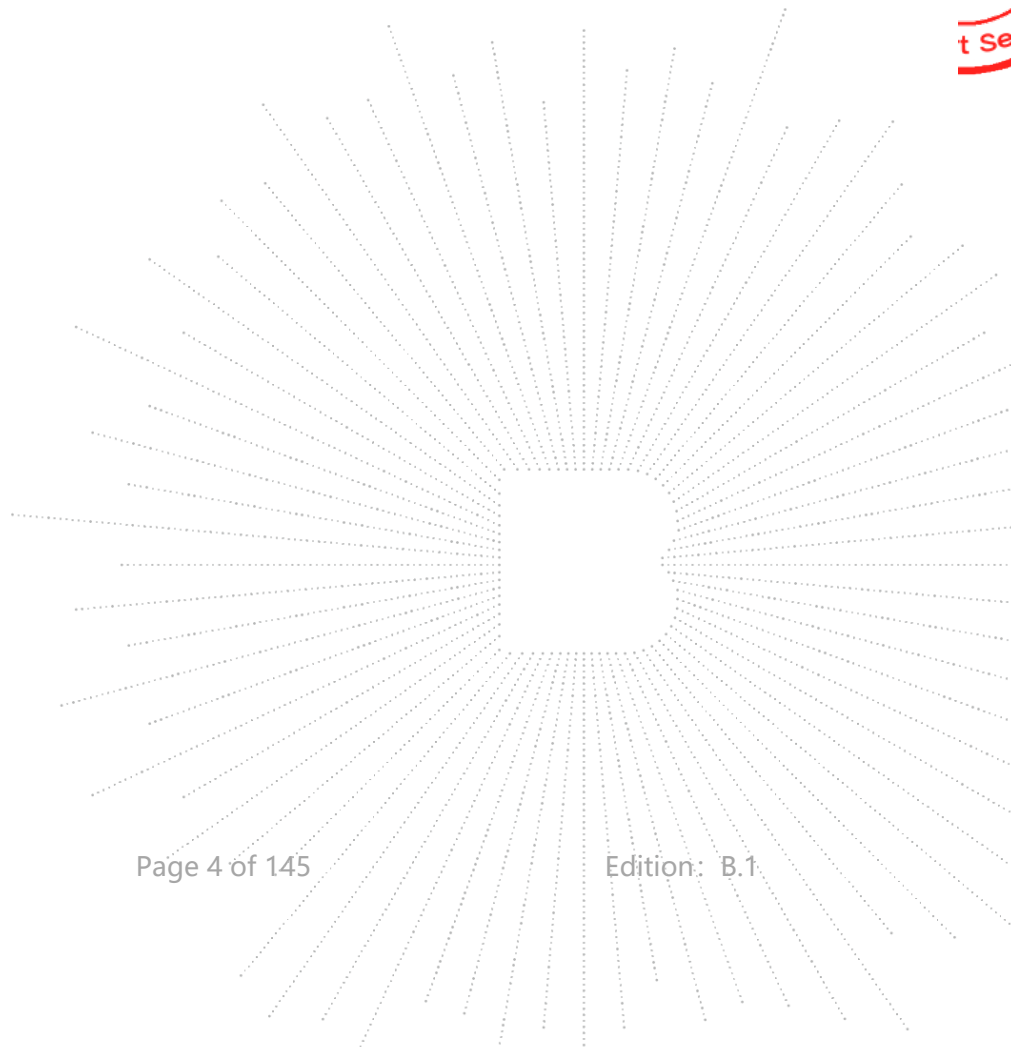
Sewen Guo

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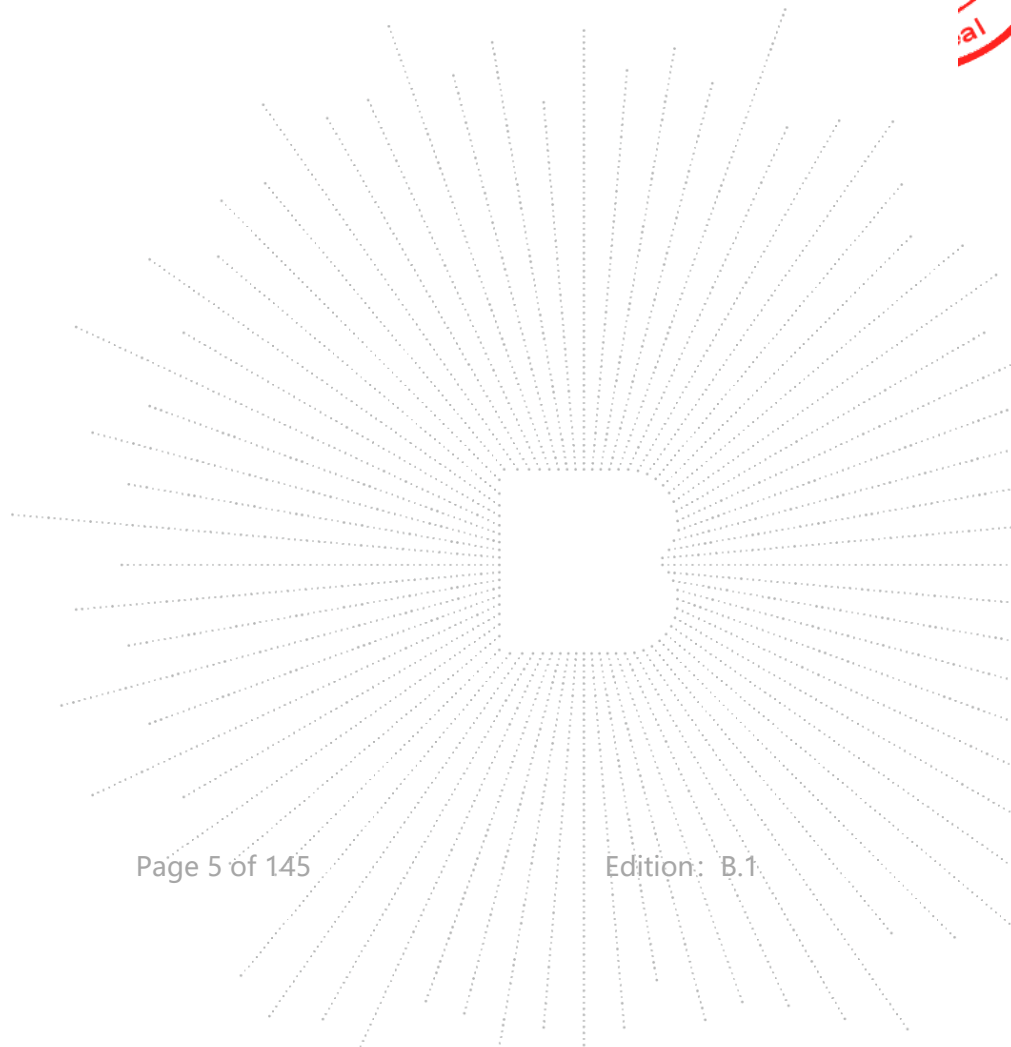
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1. Version

Report No.	Issue Date	Description	Approved
BCTC2606051300-3E	2026-08-07	Original	Valid



2. Test Summary

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No.	Results
1	Conducted Emission	15.207	PASS*
2	6dB Bandwidth	15.247 (a)(2)	PASS*
3	Peak Output Power	15.247 (b)(3)	PASS*
4	Radiated Spurious Emission	15.247 (d)	PASS*
5	Power Spectral Density	15.247 (e)	PASS*
6	Restricted Band of Operation	15.205	PASS*
7	Band Edge (Out of Band Emissions)	15.247 (d)	PASS*
8	Antenna Requirement	15.203	PASS

NOTE1: N/A (Not Applicable)

NOTE2: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

Note 3: "*" indicates that the test results are determined base on 47 CFR Part 15 Subpart C (clause 15.247). And the test results are took into account measurement uncertainty(see section 3 for measurement uncertainty information)

BCTC CO., LTD

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2:2011/AMD2:2018. 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=4.8dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=5.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=5.0dB
5	Conducted Emission(150kHz-30MHz)	U=3.0dB
6	Power Spectral Density	U=3.46dB
7	Peak Power	U=0.31dB
8	Occupied Bandwidth/Frequency Range	U=3.46%
9	Conducted output power uncertainty	U=0.55dB
10	Frequency Error	U= 53.50 Hz
11	Frequency Drift	U=0.64 KHz
12	Temperature	U= 0.59 °C
13	Humidity	U= 5.3 %

4. Product Information and Test Setup

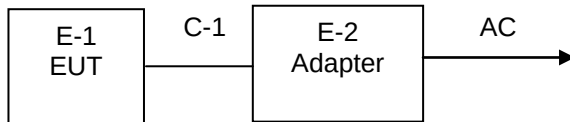
4.1 Product Information

Model/Type Ref.	TK-E180,AL11,AL14, AL15,AL16,AL17,AL18,AL21,AL11A,AL14A,AL15A,AL16A,AL17A,AL18A,AL21A,TK-E140i,TK-E156,TK-E160,TK-E150U,TK-E140U
Model differences:	The following models of units we produce are identical in electrical, mechanical and physical structure; The difference is only in the model name and color, we finally have TK-E180 as test model.
Hardware Version:	N/A
Software Version:	N/A
IEEE 802.11 WLAN Mode Supported	802.11b 802.11g 802.11n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth) 802.11ax(20MHz channel bandwidth) 802.11ax(40MHz channel bandwidth)
Operation Frequency:	802.11b/g/n/ax 20MHz:2412~2462 MHz 802.11n/ax 40MHz:2422~2452 MHz
Type of Modulation:	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n; OFDMA with 1024QAM for 802.11AX HE
Number Of Channel:	11 channels for 802.11b/g/n/ax(HT20); 7 Channels for 802.11n/ax(HT40)
Antenna installation:	Internal antenna*2
Antenna Gain:	Antenna A:2.21dBi Antenna B:1.8dBi
	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. Antenna gain information is provided by the client and the laboratory is not responsible for its authenticity ☐ The antenna gain of the product is provided by the customer, and the test data is affected by the customer information. Antenna gain information is provided by the client and the laboratory is not responsible for its authenticity
Ratings:	DC 20V,3.25A
Battery:	DC 11.4V,5000mAh
Adapter:	Model: PD-UL65W Input: AC 100-240V,50/60Hz,1.5A Output: DC 5V/3.0A,9V/3.0A,12V/3.0A,15V/3.0A,20V/3.25A(65W Max)

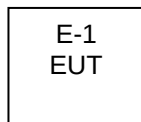
4.2 Test Setup Configuration

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

Conducted Emission:



Radiated Spurious Emission:



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	Computer	ALPACATEC	TK-E180	N/A	EUT
E-2	Adapter	N/A	PD-UL65W	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
N/A	Charging cable	N/A	N/A	EUT

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

Channel List for 802.11b/g/n/ax (20)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	02	2417	03	2422
04	2427	05	2432	06	2437
07	2442	08	2447	09	2452
10	2457	11	2462		

Channel List for 802.11n/ax (40)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	04	2427	05	2432
06	2437	07	2442	08	2447
09	2452				

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.

For All Mode	Description	Modulation Type
Mode 1	CH 01	802.11b
Mode 2	CH 06	
Mode 3	CH 11	
Mode 4	CH 01	802.11g
Mode 5	CH 06	
Mode 6	CH 11	
Mode 7	CH 01	802.11n20
Mode 8	CH 06	
Mode 9	CH 11	
Mode 10	CH 03	802.11n 40
Mode 11	CH 06	
Mode 12	CH 09	
Mode 13	CH 01	802.11ax 20
Mode 14	CH 06	
Mode 15	CH 11	
Mode 16	CH 03	802.11ax 40
Mode 17	CH 06	
Mode 18	CH 09	
Mode 19	Transmitting (Conducted emission & Radiated emission)	

Notes:

1. The measurements are performed at the highest, middle, lowest available channels.
2. The measurements are performed at all Bit Rate of Transmitter, the worst data was reported
3. According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b,6Mbps for 802.11g,13Mbps for 802.11n/ax 20 , 54Mbps for 802.11 n/ax 40

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

RF Function	Mode Or Modulation type	ANT A Power Class	ANT B Power Class	Software For Testing
WIFI 2.4G	802.11b	1.75	2	AX series MP Toolkit
	802.11g	-0.75	-0.75	
	802.11n20	-0.75	-0.75	
	802.11n40	-1.5	-1.75	
	802.11ax20	-2	-2	
	802.11ax40	-2	-2	

4.7 Antenna

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For power measurements on IEEE 802.11 devices,

Directional gain = GANT + Array Gain, where Array Gain is as follows:

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

GANT is set equal to the gain of the antenna having the highest gain.

For PSD measurements, the directional gain calculation follows F)2)f)ii) of KDB 662911 D01 v02r01.

$$\bullet \quad \text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the k th antenna is being fed by spatial stream j , or zero if it is not;
 G_k is the gain in dBi of the k th antenna.

As minimum $N_{SS}=1$ is supported by EUT, the formula can be simplified as:

$$\text{Directional gain} = 10 \cdot \log \left[\left(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20} \right)^2 / N_{ANT} \right] \text{ dBi}$$

Where $G_1, G_2, \dots, G_N$ denotes single antenna gain.

If a device has two antenna, $G_{ANT A} = 2.21 \text{ dBi}$; $G_{ANT B} = 1.8 \text{ dBi}$;

Directional gain of power measurement = $\max(2.21, 1.8) + 0 = 2.21 \text{ dBi}$

Directional gain of PSD measurement = $10 \cdot \log \left[\left(10^{2.21/20} + 10^{1.8/20} \right)^2 / 2 \right] = 5.02 \text{ dBi}$

Antenna A (dBi)	Antenna B (dBi)	Directional gain for Power (dBi)	Directional gain for PSD (dBi)
2.21	1.8	2.21	5.02

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 Technology Co., Ltd.

Address: Room 101M, Unit 1, Building1, Pengyuan, No.18, Lilang Road, Shanglilang, Nanwan Subdistrict, Longgang District, Shenzhen, Guangdong, China.

The site and apparatus are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-1:2019 other equivalent standards.

FCC Test Firm Registration Number: 754702

ANAB certificate registration number is: CN3479

5.2 Test Instrument Used

Conducted emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESCI	101421	2025.08.30	2026.08.29
AMN	SCHWHRZBECK	NSLK8128	05152	2026.01.22	2027.01.21
AMN	SCHWHRZBECK	NSLK8127	8127739	2025.09.16	2026.09.15
Pulse Limiter	SCHWHRZBECK	VTSD 9561-F-N	00547	2025.08.30	2026.08.29
Temperature & Humidity	Wetest	HTC-1	/	2025.09.01	2026.08.31
Software	EZ-EMC	Ver.EMC-CON 3A1	/	/	/

Radiated disturbance 1#					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Shielded room	CRT	9*6*6	/	2023.08.02	2026.08.01
				2026.07.24	2029.07.23
Broadband antenna	Schwarzbeck	VULB9160	3369	2026.05.16	2027.05.15
Receiver	R&S	ESPI	101396	2025.08.30	2026.08.29
Preamplifier	Schwarzbeck	BBV9744	00342	2025.08.30	2026.08.29
Loop Antenna	Schwarzbeck	FMZB1519B	00014	2026.01.05	2027.01.04
RF cable 5# (9kHz-6GHz)	Yunyi	3M	/	2025.08.30	2026.08.29
RF cable 8# (9kHz-1GHz)	Yunyi	7M	/	2025.10.28	2026.10.27
Temperature & Humidity	Wetest	HTC-1	/	2025.09.01	2026.08.31

Software	EZ-EMC	Ver.FA-03A2	/	/	/
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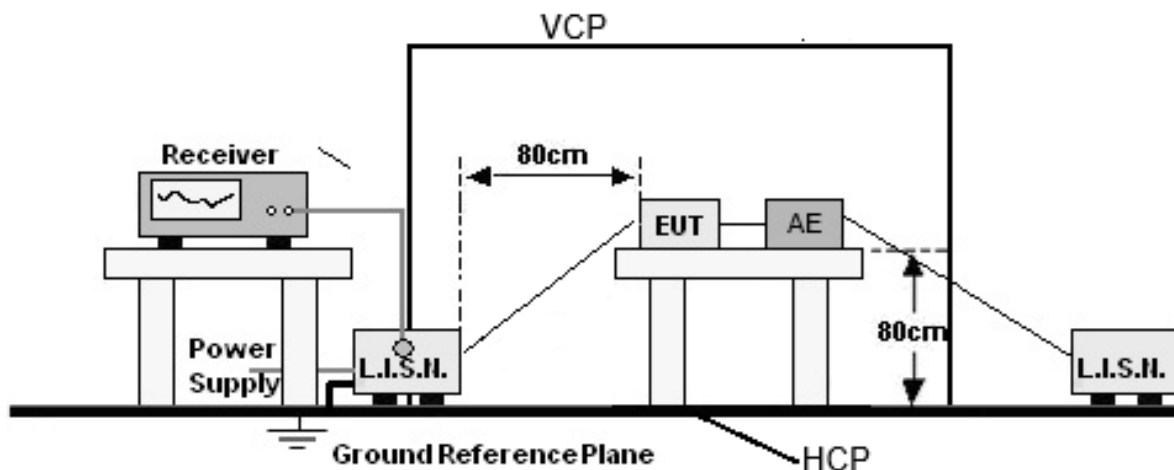
Radiated disturbance 2#					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Shielded room	ChengYu	9*6*6	/	2023.09.25	2026.09.24
Loop Antenna	Schwarzbeck	FMZB1519B	00014	2026.01.05	2027.01.04
Broadband antenna	SCHWHRZBECK	VULB9168	01620	2025.08.29	2026.08.28
Horn antenna(1 GHz -18GHz)	SCHWARZBECK	BBHA 9120 D	2792	2025.08.29	2026.08.28
Horn antenna (18 GHz -40GHz)	SCHWARZBECK	BBHA9170	00822	2025.12.29	2026.12.28
Receiver	R&S	ESR	1316	2025.08.30	2026.08.29
Spectrum Analyzer	R&S	FSV40	101328	2026.01.22	2027.01.21
Amplifier	SCHWHRZBECK	BBV9744	568	2025.08.30	2026.08.29
Amplifier	EMC INSTRUMENTS CORPORATION	EMC0518A45SE E	EMT-SZ2 233	2025.08.30	2026.08.29
Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	2026.05.09	2027.05.08
RF cable 3# (9kHz-6GHz)	Yunyi	10M	/	2025.08.30	2026.08.29
RF cable 9# (9kHz-1GHz)	Yunyi	2M	/	2025.10.28	2026.10.27
RF cable 5# (1GHz -18GHz)	SKET	9M	18038626	2025.08.30	2026.08.29
RF cable 6# (1GHz -18GHz)	SKET	5M	#10	2025.09.05	2026.09.04
RF cable 10# (18GHz-40GHz)	/	2M	2M	2026.05.09	2027.05.08
RF cable 11# (18GHz-40GHz)	/	2.5M	2.5M	2026.05.09	2027.05.08
Temperature & Humidity	Wetest	HTC-1	/	2025.09.05	2026.09.04
Software	EZ-EMC	Ver.FA-03A2	/	/	/

RF Conducted Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Spectrum Analyzer	Keysight	N9020A	MY51287403	2025.08.30	2026.08.29
Signal Generator	Keysight	N5182A	MY50144088	2025.08.30	2026.08.29
Power Sensor	Keysight	U2001	MY51250006	2025.10.28	2026.10.27
Temperature & Humidity	Wetest	HTC-1	/	2025.09.01	2026.08.31
Communication test set	R&S	CMW500	157483	2025.08.30	2026.08.29
Radio frequency control box	MWRFtest	MW100-RFCB	\	\	\
Software	MWRFtest	MTS 8310	V 3.0.0.0	\	\
D.C. Power Supply	Elektro-Automatik GmbH & Co.KG	D-41747 Viersen	6230316	2025.09.30	2026.08.29
Temperature and humidity test chamber	Auchno	OJN-9606-408 L	19120183	2025.07.09	2026.07.08
				2026.07.07	2027.07.06

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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

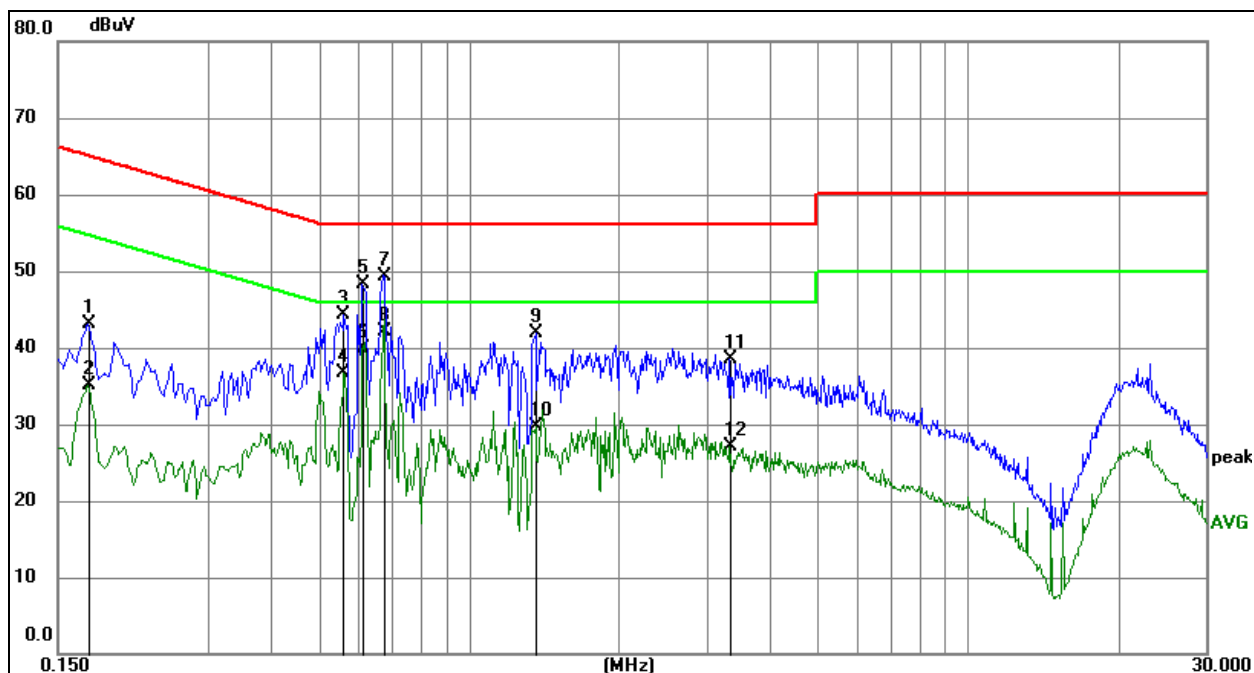
- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak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

Temperature:	25.8 °C	Relative Humidity:	49%
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 19	Test Voltage :	AC 120V/60Hz



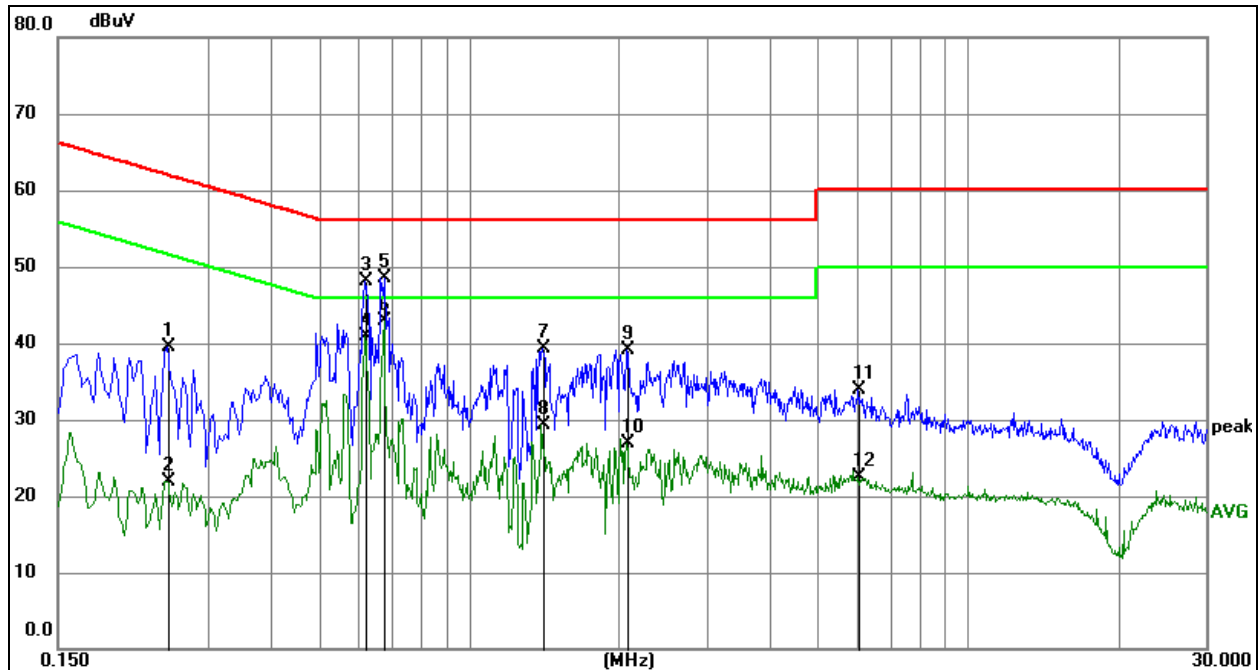
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = LISN factor + Cable Loss+ Limiter (10dB).
3. Margin = (Reading+ Factor)-Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1722	32.50	10.57	43.07	64.85	-21.78	QP
2	0.1722	24.57	10.57	35.14	54.85	-19.71	AVG
3	0.5611	33.77	10.53	44.30	56.00	-11.70	QP
4	0.5611	26.10	10.53	36.63	46.00	-9.37	AVG
5	0.6108	37.68	10.53	48.21	56.00	-7.79	QP
6	0.6108	29.37	10.53	39.90	46.00	-6.10	AVG
7	0.6720	38.87	10.53	49.40	56.00	-6.60	QP
8 *	0.6720	31.48	10.53	42.01	46.00	-3.99	AVG
9	1.3593	31.33	10.53	41.86	56.00	-14.14	QP
10	1.3593	19.26	10.53	29.79	46.00	-16.21	AVG
11	3.3281	27.98	10.58	38.56	56.00	-17.44	QP
12	3.3281	16.48	10.58	27.06	46.00	-18.94	AVG

* Indicates the worst data.

Temperature:	25.8 °C	Relative Humidity:	49%
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 19	Test Voltage :	AC 120V/60Hz


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = LISN factor + Cable Loss+ Limiter (10dB).
3. Margin = (Reading+ Factor)–Limit

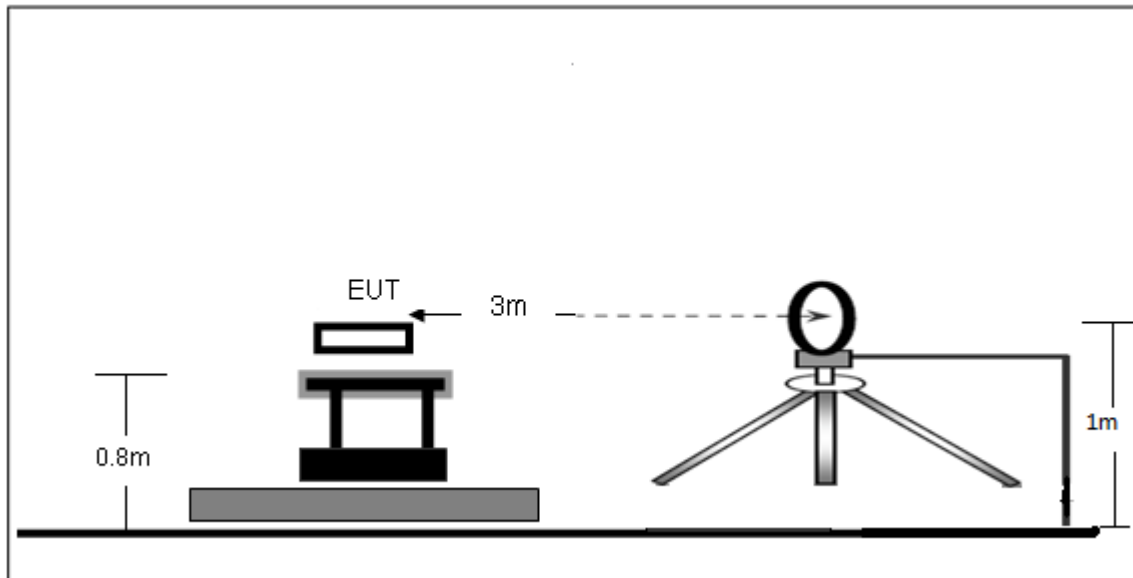
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2490	28.97	10.51	39.48	61.79	-22.31	QP
2	0.2490	11.49	10.51	22.00	51.79	-29.79	AVG
3	0.6180	37.61	10.53	48.14	56.00	-7.86	QP
4	0.6180	30.28	10.53	40.81	46.00	-5.19	AVG
5	0.6765	38.07	10.53	48.60	56.00	-7.40	QP
6 *	0.6765	32.37	10.53	42.90	46.00	-3.10	AVG
7	1.4055	28.69	10.53	39.22	56.00	-16.78	QP
8	1.4055	18.75	10.53	29.28	46.00	-16.72	AVG
9	2.0760	28.60	10.55	39.15	56.00	-16.85	QP
10	2.0760	16.30	10.55	26.85	46.00	-19.15	AVG
11	6.0270	22.98	10.89	33.87	60.00	-26.13	QP
12	6.0270	11.55	10.89	22.44	50.00	-27.56	AVG

* Indicates the worst data.

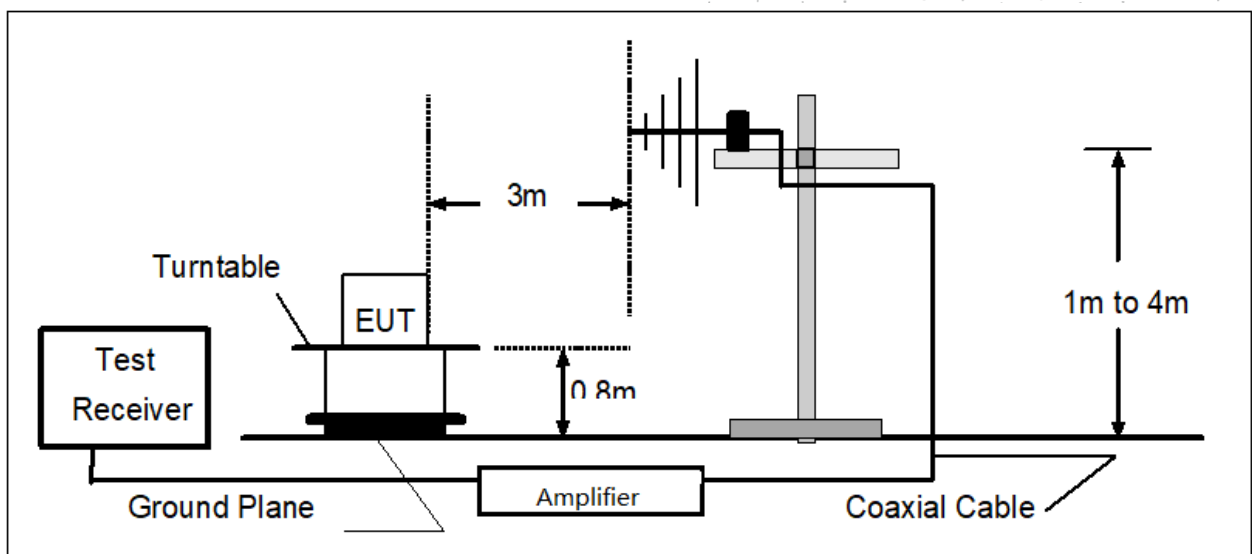
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

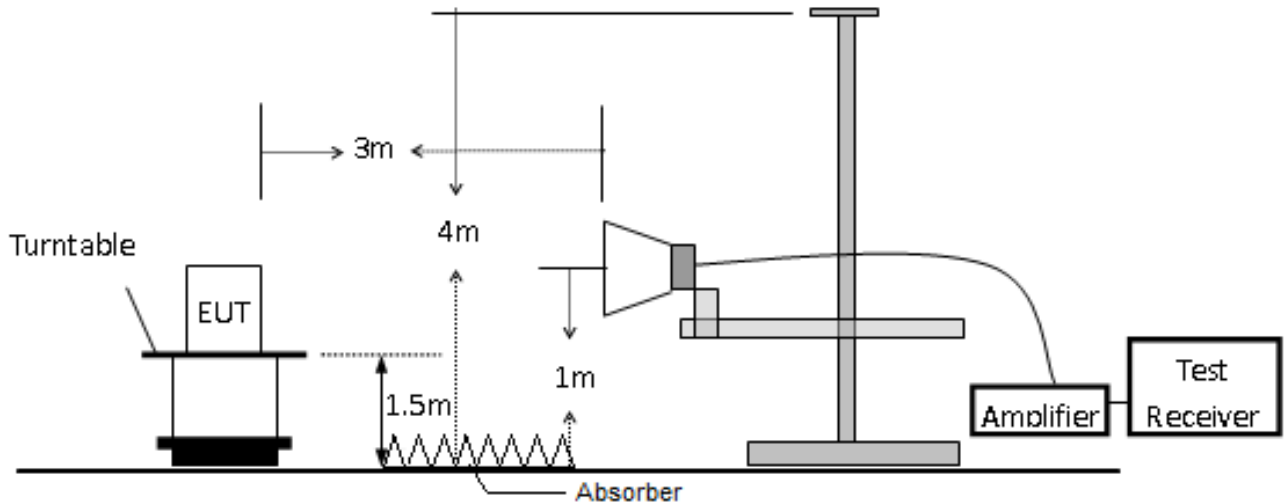
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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(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).

Frequency Range Of Radiated Measurement

(a) For an intentional radiator the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator operates at or above 95 GHz: To the third harmonic of the highest fundamental frequency or to 750 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (5) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a) (1) through (4) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation.

7.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
9kHz~150kHz	RBW 200Hz for QP
150kHz~30MHz	RBW 9kHz for QP
30MHz~1000MHz	RBW 120kHz for QP

Spectrum Parameter	Setting
1-25GHz	RBW 1 MHz /VBW 1 MHz for Peak, RBW 1 MHz / VBW 10Hz for Average

Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middlest channel, the Highest channel.

Note:

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

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:	23.1 °C	Relative Humidity:	55%
Pressure:	101KPa	Test Voltage :	DC 11.4V
Test Mode:	Mode 19	Polarization:	---

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

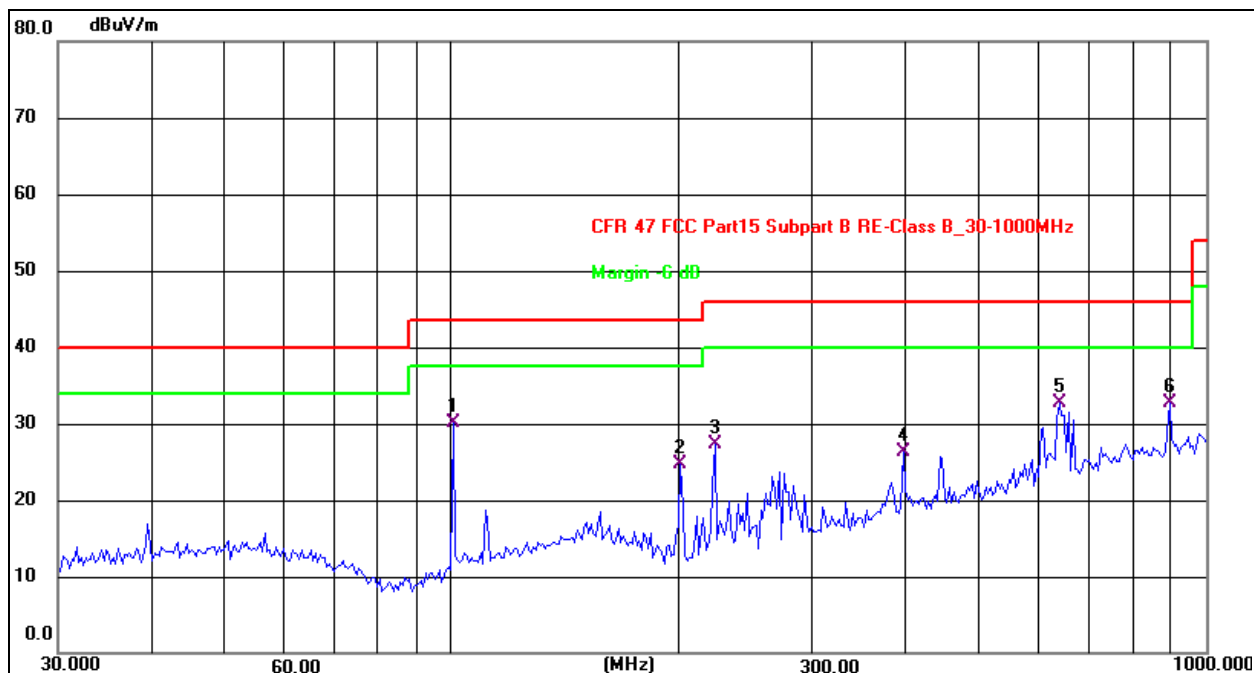
Note:

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

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

Temperature:	23.1 °C	Relative Humidity:	55%
Pressure:	101KPa	Test Voltage :	DC 11.4V
Test Mode:	Mode 19	Polarization :	Horizontal



Remark:

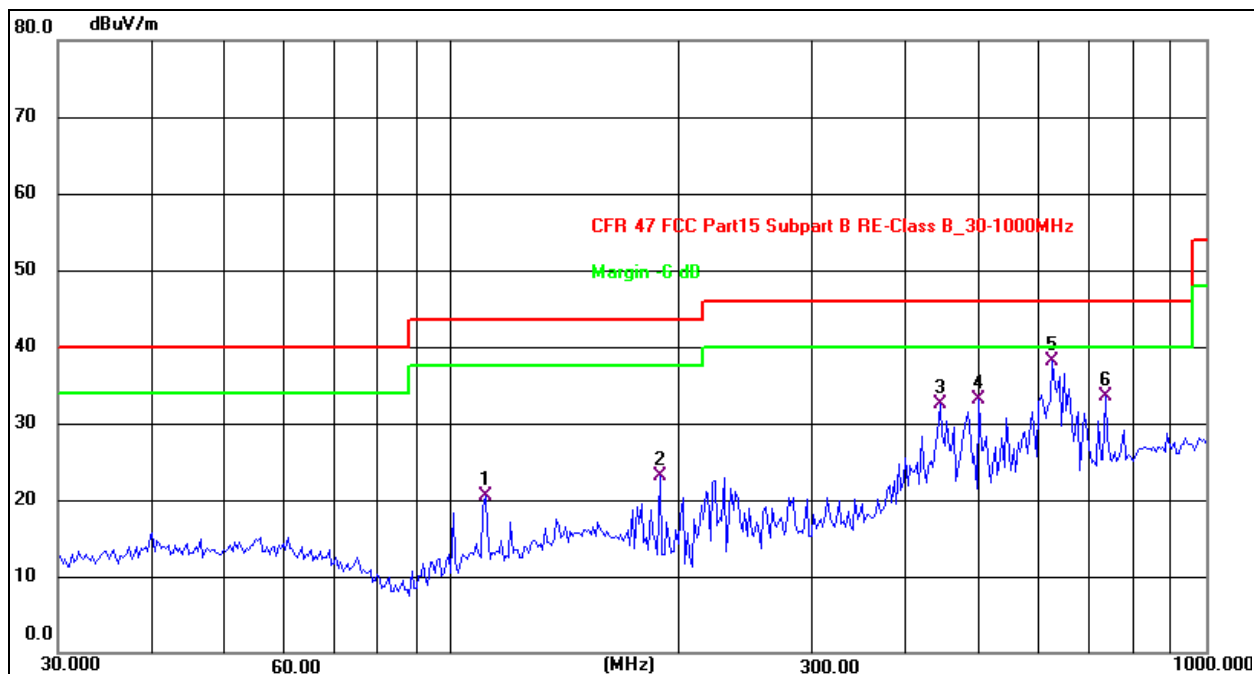
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Margin = (Reading + Factor) – Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	100.2285	44.59	-14.58	30.01	43.50	-13.49	QP
2	200.6880	38.92	-14.22	24.70	43.50	-18.80	QP
3	222.9502	40.02	-12.74	27.28	46.00	-18.72	QP
4	396.2415	33.92	-7.70	26.22	46.00	-19.78	QP
5	638.3686	34.47	-1.69	32.78	46.00	-13.22	QP
6 *	893.8566	31.05	1.75	32.80	46.00	-13.20	QP

* Indicates the worst data.

Temperature:	23.1 °C	Relative Humidity:	55%
Pressure:	101KPa	Test Voltage :	DC 11.4V
Test Mode:	Mode 19	Polarization :	Vertical



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Margin = (Reading + Factor) – Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	110.5686	33.62	-13.14	20.48	43.50	-23.02	QP
2	188.4124	36.40	-13.26	23.14	43.50	-20.36	QP
3	443.2941	38.59	-6.01	32.58	46.00	-13.42	QP
4	499.4245	38.09	-4.92	33.17	46.00	-12.83	QP
5 *	625.0779	39.80	-1.77	38.03	46.00	-7.97	QP
6	734.4913	33.38	0.21	33.59	46.00	-12.41	QP

* Indicates the worst data.

Between 1GHz – 25GHz

802.11b

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector Type
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low channel:2412MHz							
V	4824.00	69.49	-9.32	60.17	74.00	-13.83	PK
V	4824.00	58.56	-9.32	49.24	54.00	-4.76	AV
V	7236.00	58.65	-3.49	55.16	74.00	-18.84	PK
V	7236.00	47.84	-3.49	44.35	54.00	-9.65	AV
H	4824.00	64.82	-9.32	55.50	74.00	-18.50	PK
H	4824.00	55.15	-9.32	45.83	54.00	-8.17	AV
H	7236.00	56.20	-3.49	52.71	74.00	-21.29	PK
H	7236.00	48.25	-3.49	44.76	54.00	-9.24	AV
Middle channel:2437MHz							
V	4874.00	65.98	-8.86	57.12	74.00	-16.88	PK
V	4874.00	57.56	-8.86	48.70	54.00	-5.30	AV
V	7311.00	56.39	-3.27	53.12	74.00	-20.88	PK
V	7311.00	47.52	-3.27	44.25	54.00	-9.75	AV
H	4874.00	64.57	-8.86	55.71	74.00	-18.29	PK
H	4874.00	54.54	-8.86	45.68	54.00	-8.32	AV
H	7311.00	54.31	-3.27	51.04	74.00	-22.96	PK
H	7311.00	45.42	-3.27	42.15	54.00	-11.85	AV
High channel:2462MHz							
V	4924.00	67.72	-8.72	59.00	74.00	-15.00	PK
V	4924.00	58.33	-8.72	49.61	54.00	-4.39	AV
V	7386.00	58.79	-3.74	55.05	74.00	-18.95	PK
V	7386.00	48.43	-3.74	44.69	54.00	-9.31	AV
H	4924.00	65.73	-8.72	57.01	74.00	-16.99	PK
H	4924.00	55.08	-8.72	46.36	54.00	-7.64	AV
H	7386.00	56.17	-3.74	52.43	74.00	-21.57	PK
H	7386.00	47.92	-3.74	44.18	54.00	-9.82	AV

Remark:

- 1.Emission Level = Meter Reading + Factor, Factor = Antenna Factor + Cable Loss – Pre-amplifier. Over= Emission Level - Limit
2. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst case is Antenna MIMO.

802.11g

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector Type
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low channel:2412MHz							
V	4824.00	69.69	-9.32	60.37	74.00	-13.63	PK
V	4824.00	61.64	-9.32	52.32	54.00	-1.68	AV
V	7236.00	59.07	-3.49	55.58	74.00	-18.42	PK
V	7236.00	50.07	-3.49	46.58	54.00	-7.42	AV
H	4824.00	67.60	-9.32	58.28	74.00	-15.72	PK
H	4824.00	57.73	-9.32	48.41	54.00	-5.59	AV
H	7236.00	57.71	-3.49	54.22	74.00	-19.78	PK
H	7236.00	49.05	-3.49	45.56	54.00	-8.44	AV
Middle channel:2437MHz							
V	4874.00	66.79	-8.86	57.93	74.00	-16.07	PK
V	4874.00	57.89	-8.86	49.03	54.00	-4.97	AV
V	7311.00	56.08	-3.27	52.81	74.00	-21.19	PK
V	7311.00	48.04	-3.27	44.77	54.00	-9.23	AV
H	4874.00	64.97	-8.86	56.11	74.00	-17.89	PK
H	4874.00	54.84	-8.86	45.98	54.00	-8.02	AV
H	7311.00	53.68	-3.27	50.41	74.00	-23.59	PK
H	7311.00	46.39	-3.27	43.12	54.00	-10.88	AV
High channel:2462MHz							
V	4924.00	68.65	-8.72	59.93	74.00	-14.07	PK
V	4924.00	58.57	-8.72	49.85	54.00	-4.15	AV
V	7386.00	59.74	-3.74	56.00	74.00	-18.00	PK
V	7386.00	50.17	-3.74	46.43	54.00	-7.57	AV
H	4924.00	66.76	-8.72	58.04	74.00	-15.96	PK
H	4924.00	56.76	-8.72	48.04	54.00	-5.96	AV
H	7386.00	56.85	-3.74	53.11	74.00	-20.89	PK
H	7386.00	48.83	-3.74	45.09	54.00	-8.91	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Over= Emission Level - Limit
2. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst case is Antenna MIMO.

802.11n20

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector Type
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low channel:2412MHz							
V	4824.00	68.27	-9.32	58.95	74.00	-15.05	PK
V	4824.00	57.55	-9.32	48.23	54.00	-5.77	AV
V	7236.00	57.31	-3.49	53.82	74.00	-20.18	PK
V	7236.00	48.19	-3.49	44.70	54.00	-9.30	AV
H	4824.00	63.36	-9.32	54.04	74.00	-19.96	PK
H	4824.00	53.93	-9.32	44.61	54.00	-9.39	AV
H	7236.00	55.06	-3.49	51.57	74.00	-22.43	PK
H	7236.00	47.81	-3.49	44.32	54.00	-9.68	AV
Middle channel:2437MHz							
V	4874.00	65.00	-8.86	56.14	74.00	-17.86	PK
V	4874.00	58.09	-8.86	49.23	54.00	-4.77	AV
V	7311.00	55.43	-3.27	52.16	74.00	-21.84	PK
V	7311.00	46.69	-3.27	43.42	54.00	-10.58	AV
H	4874.00	60.52	-8.86	51.66	74.00	-22.34	PK
H	4874.00	49.92	-8.86	41.06	54.00	-12.94	AV
H	7311.00	52.97	-3.27	49.70	74.00	-24.30	PK
H	7311.00	44.74	-3.27	41.47	54.00	-12.53	AV
High channel:2462MHz							
V	4924.00	66.88	-8.72	58.16	74.00	-15.84	PK
V	4924.00	58.56	-8.72	49.84	54.00	-4.16	AV
V	7386.00	59.37	-3.74	55.63	74.00	-18.37	PK
V	7386.00	48.63	-3.74	44.89	54.00	-9.11	AV
H	4924.00	64.82	-8.72	56.10	74.00	-17.90	PK
H	4924.00	55.29	-8.72	46.57	54.00	-7.43	AV
H	7386.00	56.67	-3.74	52.93	74.00	-21.07	PK
H	7386.00	48.72	-3.74	44.98	54.00	-9.02	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Over= Emission Level - Limit
2. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst case is Antenna MIMO.

802.11n40

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector Type
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low channel:2422MHz							
V	4844.00	67.73	-9.02	58.71	74.00	-15.29	PK
V	4844.00	59.17	-9.02	50.15	54.00	-3.85	AV
V	7266.00	58.70	-3.19	55.51	74.00	-18.49	PK
V	7266.00	49.19	-3.19	46.00	54.00	-8.00	AV
H	4844.00	65.69	-9.02	56.67	74.00	-17.33	PK
H	4844.00	56.44	-9.02	47.42	54.00	-6.58	AV
H	7266.00	56.91	-3.19	53.72	74.00	-20.28	PK
H	7266.00	49.81	-3.19	46.62	54.00	-7.38	AV
Middle channel:2437MHz							
V	4874.00	65.60	-8.86	56.74	74.00	-17.26	PK
V	4874.00	57.85	-8.86	48.99	54.00	-5.01	AV
V	7311.00	55.45	-3.27	52.18	74.00	-21.82	PK
V	7311.00	45.87	-3.27	42.60	54.00	-11.40	AV
H	4874.00	64.33	-8.86	55.47	74.00	-18.53	PK
H	4874.00	54.07	-8.86	45.21	54.00	-8.79	AV
H	7311.00	53.54	-3.27	50.27	74.00	-23.73	PK
H	7311.00	45.98	-3.27	42.71	54.00	-11.29	AV
High channel:2452MHz							
V	4904.00	67.30	-8.77	58.53	74.00	-15.47	PK
V	4904.00	57.99	-8.77	49.22	54.00	-4.78	AV
V	7356.00	59.01	-3.71	55.30	74.00	-18.70	PK
V	7356.00	49.09	-3.71	45.38	54.00	-8.62	AV
H	4904.00	65.16	-8.77	56.39	74.00	-17.61	PK
H	4904.00	54.61	-8.77	45.84	54.00	-8.16	AV
H	7356.00	56.78	-3.71	53.07	74.00	-20.93	PK
H	7356.00	49.25	-3.71	45.54	54.00	-8.46	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Over= Emission Level - Limit
2. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst case is Antenna MIMO.

802.11ax20

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector Type
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low channel:2412MHz							
V	4824.00	69.22	-9.32	59.90	74.00	-14.10	PK
V	4824.00	59.07	-9.32	49.75	54.00	-4.25	AV
V	7236.00	60.36	-3.49	56.87	74.00	-17.13	PK
V	7236.00	50.97	-3.49	47.48	54.00	-6.52	AV
H	4824.00	64.82	-9.32	55.50	74.00	-18.50	PK
H	4824.00	55.04	-9.32	45.72	54.00	-8.28	AV
H	7236.00	57.83	-3.49	54.34	74.00	-19.66	PK
H	7236.00	50.80	-3.49	47.31	54.00	-6.69	AV
Middle channel:2437MHz							
V	4874.00	65.87	-8.86	57.01	74.00	-16.99	PK
V	4874.00	57.73	-8.86	48.87	54.00	-5.13	AV
V	7311.00	57.18	-3.27	53.91	74.00	-20.09	PK
V	7311.00	48.50	-3.27	45.23	54.00	-8.77	AV
H	4874.00	62.43	-8.86	53.57	74.00	-20.43	PK
H	4874.00	52.06	-8.86	43.20	54.00	-10.80	AV
H	7311.00	54.36	-3.27	51.09	74.00	-22.91	PK
H	7311.00	47.10	-3.27	43.83	54.00	-10.17	AV
High channel:2462MHz							
V	4924.00	68.50	-8.72	59.78	74.00	-14.22	PK
V	4924.00	58.63	-8.72	49.91	54.00	-4.09	AV
V	7386.00	59.97	-3.74	56.23	74.00	-17.77	PK
V	7386.00	49.45	-3.74	45.71	54.00	-8.29	AV
H	4924.00	66.88	-8.72	58.16	74.00	-15.84	PK
H	4924.00	56.15	-8.72	47.43	54.00	-6.57	AV
H	7386.00	58.36	-3.74	54.62	74.00	-19.38	PK
H	7386.00	51.13	-3.74	47.39	54.00	-6.61	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Over= Emission Level - Limit
2. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst case is Antenna MIMO.

802.11ax40

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector Type
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low channel:2422MHz							
V	4844.00	68.11	-9.02	59.09	74.00	-14.91	PK
V	4844.00	57.85	-9.02	48.83	54.00	-5.17	AV
V	7266.00	59.37	-3.19	56.18	74.00	-17.82	PK
V	7266.00	48.99	-3.19	45.80	54.00	-8.20	AV
H	4844.00	63.42	-9.02	54.40	74.00	-19.60	PK
H	4844.00	53.96	-9.02	44.94	54.00	-9.06	AV
H	7266.00	56.51	-3.19	53.32	74.00	-20.68	PK
H	7266.00	48.26	-3.19	45.07	54.00	-8.93	AV
Middle channel:2437MHz							
V	4874.00	64.64	-8.86	55.78	74.00	-18.22	PK
V	4874.00	56.19	-8.86	47.33	54.00	-6.67	AV
V	7311.00	54.11	-3.27	50.84	74.00	-23.16	PK
V	7311.00	44.39	-3.27	41.12	54.00	-12.88	AV
H	4874.00	61.27	-8.86	52.41	74.00	-21.59	PK
H	4874.00	52.18	-8.86	43.32	54.00	-10.68	AV
H	7311.00	52.45	-3.27	49.18	74.00	-24.82	PK
H	7311.00	43.75	-3.27	40.48	54.00	-13.52	AV
High channel:2452MHz							
V	4904.00	67.25	-8.77	58.48	74.00	-15.52	PK
V	4904.00	57.81	-8.77	49.04	54.00	-4.96	AV
V	7356.00	60.44	-3.71	56.73	74.00	-17.27	PK
V	7356.00	49.93	-3.71	46.22	54.00	-7.78	AV
H	4904.00	64.83	-8.77	56.06	74.00	-17.94	PK
H	4904.00	55.12	-8.77	46.35	54.00	-7.65	AV
H	7356.00	59.37	-3.71	55.66	74.00	-18.34	PK
H	7356.00	52.34	-3.71	48.63	54.00	-5.37	AV

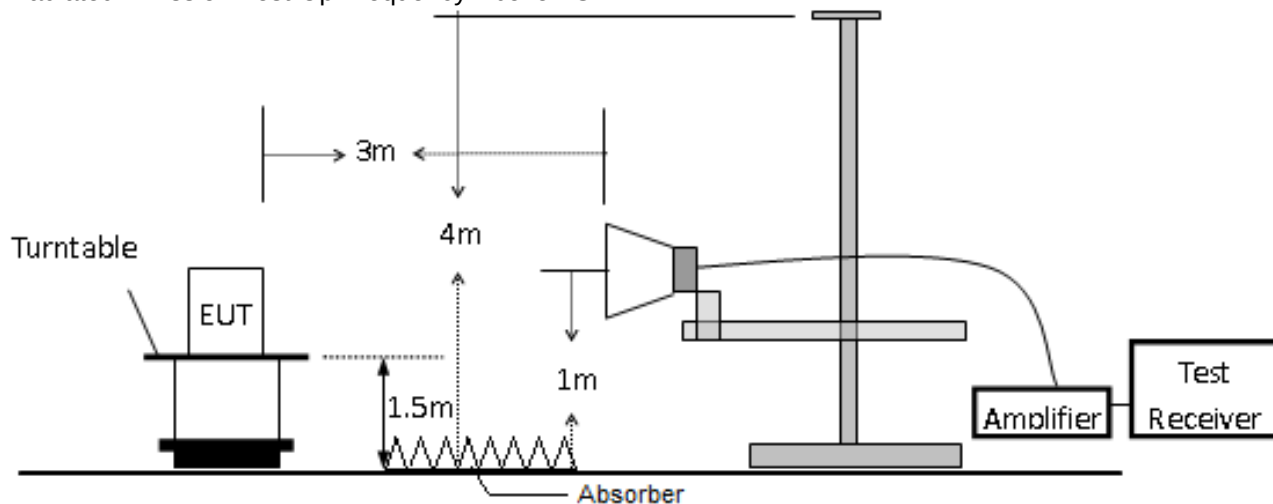
Remark:

1. Emission Level = Meter Reading + Factor,
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Over= Emission Level - Limit
2. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst case is Antenna MIMO.

8. Radiated Band Emission Measurement and Restricted Bands Of Operation

8.1 Block Diagram Of Test Setup

Radiated Emission Test-Up Frequency Above 1GHz



8.2 Limit

FCC Part15 C Section 15.209 and 15.205

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

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).

8.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Above 1GHz test procedure as below:

- a.The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b.The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middlest channel, the Highest channel.

Note:

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

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

Test mode	Polar (H/V)	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measurement (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
802.11b	Low Channel 2412MHz							
	H	2390.00	72.13	-17.27	54.86	74.00	-19.14	PK
	H	2390.00	62.47	-17.27	45.20	54.00	-8.80	AV
	H	2400.00	76.49	-17.23	59.26	74.00	-14.74	PK
	H	2400.00	66.88	-17.23	49.65	54.00	-4.35	AV
	V	2390.00	71.57	-17.27	54.30	74.00	-19.70	PK
	V	2390.00	63.02	-17.27	45.75	54.00	-8.25	AV
	V	2400.00	77.01	-17.23	59.78	74.00	-14.22	PK
	V	2400.00	66.46	-17.23	49.23	54.00	-4.77	AV
	High Channel 2462MHz							
	H	2483.50	72.22	-16.91	55.31	74.00	-18.69	PK
	H	2483.50	62.11	-16.91	45.20	54.00	-8.80	AV
	H	2500.00	76.21	-16.71	59.50	74.00	-14.50	PK
	H	2500.00	66.57	-16.71	49.86	54.00	-4.14	AV
	V	2483.50	70.53	-16.91	53.62	74.00	-20.38	PK
	V	2483.50	62.22	-16.91	45.31	54.00	-8.69	AV
	V	2500.00	78.44	-16.71	61.73	74.00	-12.27	PK
	V	2500.00	67.57	-16.71	50.86	54.00	-3.14	AV
802.11g	Low Channel 2412MHz							
	H	2390.00	71.29	-17.27	54.02	74.00	-19.98	PK
	H	2390.00	62.84	-17.27	45.57	54.00	-8.43	AV
	H	2400.00	77.11	-17.23	59.88	74.00	-14.12	PK
	H	2400.00	66.46	-17.23	49.23	54.00	-4.77	AV
	V	2390.00	71.60	-17.27	54.33	74.00	-19.67	PK
	V	2390.00	62.90	-17.27	45.63	54.00	-8.37	AV
	V	2400.00	76.68	-17.23	59.45	74.00	-14.55	PK
	V	2400.00	67.46	-17.23	50.23	54.00	-3.77	AV
	High Channel 2462MHz							
	H	2483.50	71.09	-16.91	54.18	74.00	-19.82	PK
	H	2483.50	60.14	-16.91	43.23	54.00	-10.77	AV
	H	2500.00	77.02	-16.71	60.31	74.00	-13.69	PK
	H	2500.00	66.20	-16.71	49.49	54.00	-4.51	AV
	V	2483.50	72.75	-16.91	55.84	74.00	-18.16	PK
	V	2483.50	63.80	-16.91	46.89	54.00	-7.11	AV
	V	2500.00	76.80	-16.71	60.09	74.00	-13.91	PK
	V	2500.00	66.31	-16.71	49.60	54.00	-4.40	AV
Remark: 1. Emission Level = Meter Reading + Factor, Factor = Antenna Factor + Cable Loss – Pre-amplifier. Over= Emission Level – Limit 2. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit. 3 In restricted bands of operation, The spurious emissions below the permissible value more than 20dB 4.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. 5. The worst case is Antenna MIMO.								

Test mode	Polar (H/V)	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measurement (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
802.11n20	Low Channel 2412MHz							
	H	2390.00	70.39	-17.27	53.12	74.00	-20.88	PK
	H	2390.00	60.15	-17.27	42.88	54.00	-11.12	AV
	H	2400.00	77.05	-17.23	59.82	74.00	-14.18	PK
	H	2400.00	68.02	-17.23	50.79	54.00	-3.21	AV
	V	2390.00	71.40	-17.27	54.13	74.00	-19.87	PK
	V	2390.00	61.13	-17.27	43.86	54.00	-10.14	AV
	V	2400.00	77.88	-17.23	60.65	74.00	-13.35	PK
	V	2400.00	67.67	-17.23	50.44	54.00	-3.56	AV
	High Channel 2462MHz							
	H	2483.50	71.54	-16.91	54.63	74.00	-19.37	PK
	H	2483.50	61.11	-16.91	44.20	54.00	-9.80	AV
	H	2500.00	76.71	-16.71	60.00	74.00	-14.00	PK
	H	2500.00	66.24	-16.71	49.53	54.00	-4.47	AV
	V	2483.50	72.00	-16.91	55.09	74.00	-18.91	PK
	V	2483.50	62.34	-16.91	45.43	54.00	-8.57	AV
	V	2500.00	76.10	-16.71	59.39	74.00	-14.61	PK
	V	2500.00	65.73	-16.71	49.02	54.00	-4.98	AV
802.11n40	Low Channel 2422MHz							
	H	2390.00	72.06	-17.27	54.79	74.00	-19.21	PK
	H	2390.00	61.39	-17.27	44.12	54.00	-9.88	AV
	H	2400.00	77.98	-17.23	60.75	74.00	-13.25	PK
	H	2400.00	67.55	-17.23	50.32	54.00	-3.68	AV
	V	2390.00	71.74	-17.27	54.47	74.00	-19.53	PK
	V	2390.00	63.12	-17.27	45.85	54.00	-8.15	AV
	V	2400.00	76.45	-17.23	59.22	74.00	-14.78	PK
	V	2400.00	68.09	-17.23	50.86	54.00	-3.14	AV
	High Channel 2452MHz							
	H	2483.50	71.27	-16.91	54.36	74.00	-19.64	PK
	H	2483.50	62.64	-16.91	45.73	54.00	-8.27	AV
	H	2500.00	77.32	-16.71	60.61	74.00	-13.39	PK
	H	2500.00	67.38	-16.71	50.67	54.00	-3.33	AV
	V	2483.50	72.51	-16.91	55.60	74.00	-18.40	PK
	V	2483.50	61.61	-16.91	44.70	54.00	-9.30	AV
	V	2500.00	76.41	-16.71	59.70	74.00	-14.30	PK
	V	2500.00	65.76	-16.71	49.05	54.00	-4.95	AV
Remark: 1. Emission Level = Meter Reading + Factor, Factor = Antenna Factor + Cable Loss – Pre-amplifier. Over= Emission Level – Limit 2. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit. 3 In restricted bands of operation, The spurious emissions below the permissible value more than 20dB 4.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. 5. The worst case is Antenna MIMO.								

Test mode	Polar (H/V)	Frequency (MHz)	Reading Level (dBuV/m)	Correct Factor (dB)	Measurement (dBuV/m)	Limits (dBuV/m)	Over (dB)	Detector Type
802.11ax20	Low Channel 2412MHz							
	H	2390.00	71.50	-17.27	54.23	74.00	-19.77	PK
	H	2390.00	60.70	-17.27	43.43	54.00	-10.57	AV
	H	2400.00	76.50	-17.23	59.27	74.00	-14.73	PK
	H	2400.00	67.70	-17.23	50.47	54.00	-3.53	AV
	V	2390.00	72.96	-17.27	55.69	74.00	-18.31	PK
	V	2390.00	64.66	-17.27	47.39	54.00	-6.61	AV
	V	2400.00	77.64	-17.23	60.41	74.00	-13.59	PK
	V	2400.00	67.85	-17.23	50.62	54.00	-3.38	AV
	High Channel 2462MHz							
	H	2483.50	70.21	-16.91	53.30	74.00	-20.70	PK
	H	2483.50	61.79	-16.91	44.88	54.00	-9.12	AV
	H	2500.00	76.14	-16.71	59.43	74.00	-14.57	PK
	H	2500.00	65.80	-16.71	49.09	54.00	-4.91	AV
	V	2483.50	71.52	-16.91	54.61	74.00	-19.39	PK
	V	2483.50	61.02	-16.91	44.11	54.00	-9.89	AV
	V	2500.00	76.48	-16.71	59.77	74.00	-14.23	PK
	V	2500.00	67.97	-16.71	51.26	54.00	-2.74	AV
802.11ax40	Low Channel 2422MHz							
	H	2390.00	71.48	-17.27	54.21	74.00	-19.79	PK
	H	2390.00	61.48	-17.27	44.21	54.00	-9.79	AV
	H	2400.00	76.88	-17.23	59.65	74.00	-14.35	PK
	H	2400.00	67.43	-17.23	50.20	54.00	-3.80	AV
	V	2390.00	72.15	-17.27	54.88	74.00	-19.12	PK
	V	2390.00	64.04	-17.27	46.77	54.00	-7.23	AV
	V	2400.00	76.23	-17.23	59.00	74.00	-15.00	PK
	V	2400.00	67.30	-17.23	50.07	54.00	-3.93	AV
	High Channel 2452MHz							
	H	2483.50	72.85	-16.91	55.94	74.00	-18.06	PK
	H	2483.50	64.27	-16.91	47.36	54.00	-6.64	AV
	H	2500.00	78.23	-16.71	61.52	74.00	-12.48	PK
	H	2500.00	69.00	-16.71	52.29	54.00	-1.71	AV
	V	2483.50	70.31	-16.91	53.40	74.00	-20.60	PK
	V	2483.50	62.17	-16.91	45.26	54.00	-8.74	AV
	V	2500.00	78.42	-16.71	61.71	74.00	-12.29	PK
	V	2500.00	68.24	-16.71	51.53	54.00	-2.47	AV
Remark: 1. Emission Level = Meter Reading + Factor, Factor = Antenna Factor + Cable Loss – Pre-amplifier. Over= Emission Level – Limit 2. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit. 3 In restricted bands of operation, The spurious emissions below the permissible value more than 20dB 4.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. 5. The worst case is Antenna MIMO.								

9. Power Spectral Density Test

9.1 Block Diagram Of Test Setup



9.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

Limits Of Radiated Emission Measurement (Above 1000MHz)

9.3 Test procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz
4. Set the VBW $\geq 3 \times$ RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

9.4 EUT Operating Conditions

The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

Note: Power Spectral Density(dBm)=Reading+Cable Loss

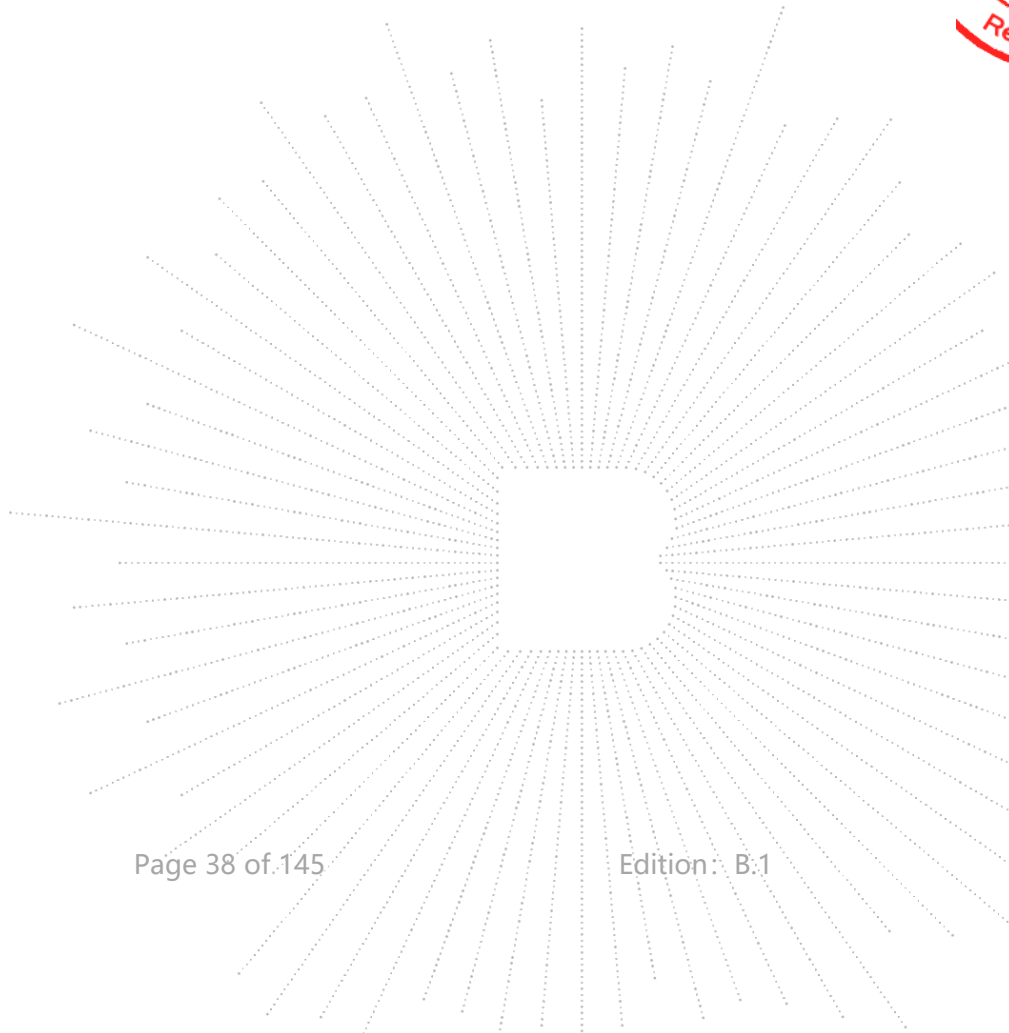
9.5 Test Result

Temperature:	23.6℃	Relative Humidity:	50%
Pressure:	101KPa	Test Voltage:	DC 11.4V

Test Mode	Frequency	Ant A Power Spectral Density (dBm/3kHz)	Ant B Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
TX b Mode	2412 MHz	-22.76	-22.3	8	PASS
	2437 MHz	-22.21	-22.14	8	PASS
	2462 MHz	-23.11	-22.75	8	PASS
TX g Mode	2412 MHz	-29.46	-29.53	8	PASS
	2437 MHz	-28.12	-29.91	8	PASS
	2462 MHz	-28.18	-29.56	8	PASS
TX n Mode(20M)	2412 MHz	-28.68	-29.49	8	PASS
	2437 MHz	-28.69	-29.65	8	PASS
	2462 MHz	-28.29	-29.86	8	PASS
TX n Mode(40M)	2422 MHz	-30.66	-32.16	8	PASS
	2437 MHz	-30.72	-31.14	8	PASS
	2452 MHz	-31.33	-32.39	8	PASS
TX ax Mode(20M)	2437 MHz	-27.36	-29.45	8	PASS
	2462 MHz	-27.19	-30.25	8	PASS
	2437 MHz	-27.68	-30.03	8	PASS
TX ax Mode(40M)	2452 MHz	-30.89	-31.88	8	PASS
	2437 MHz	-30.62	-30.95	8	PASS
	2452 MHz	-30.99	-32.88	8	PASS

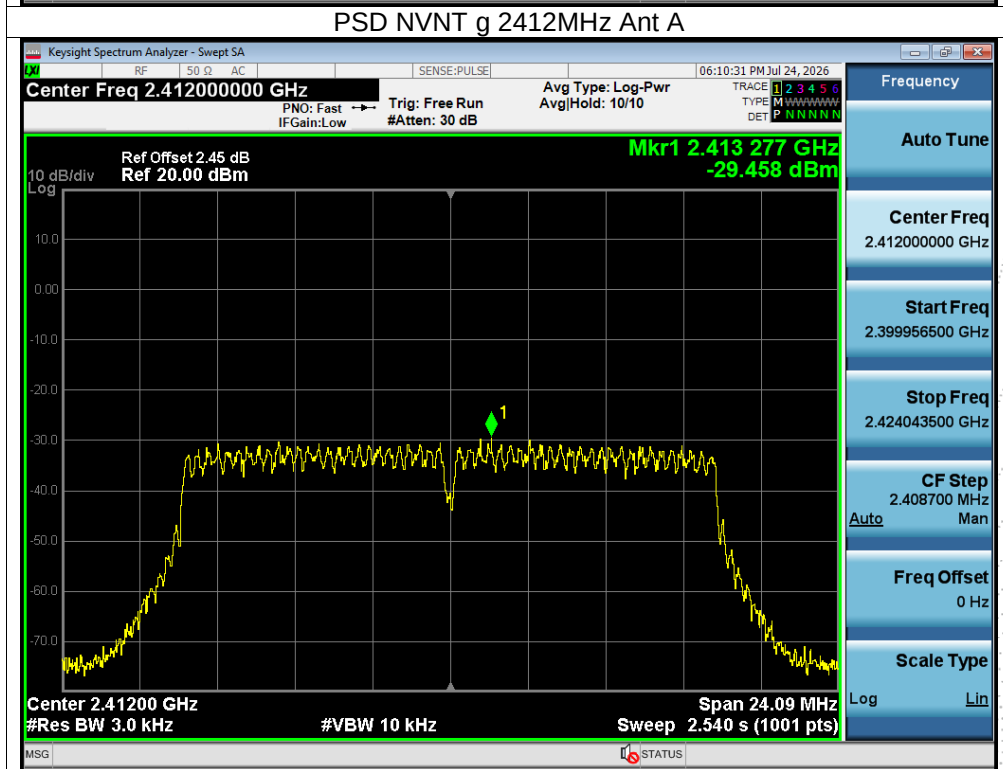
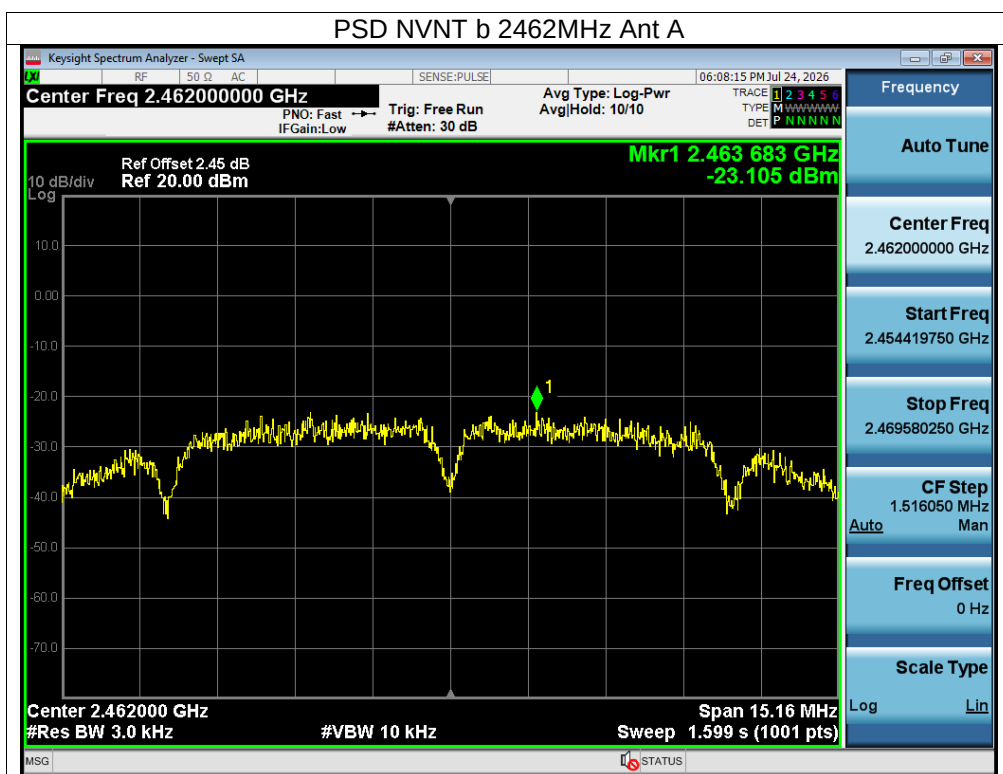
For 2T2R

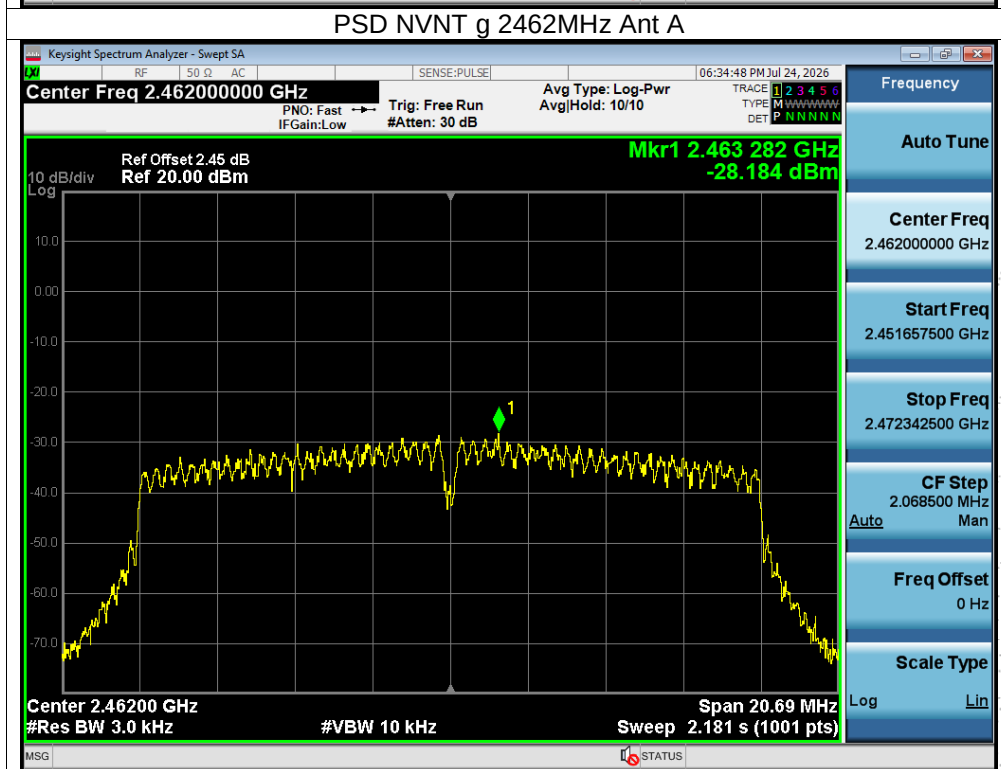
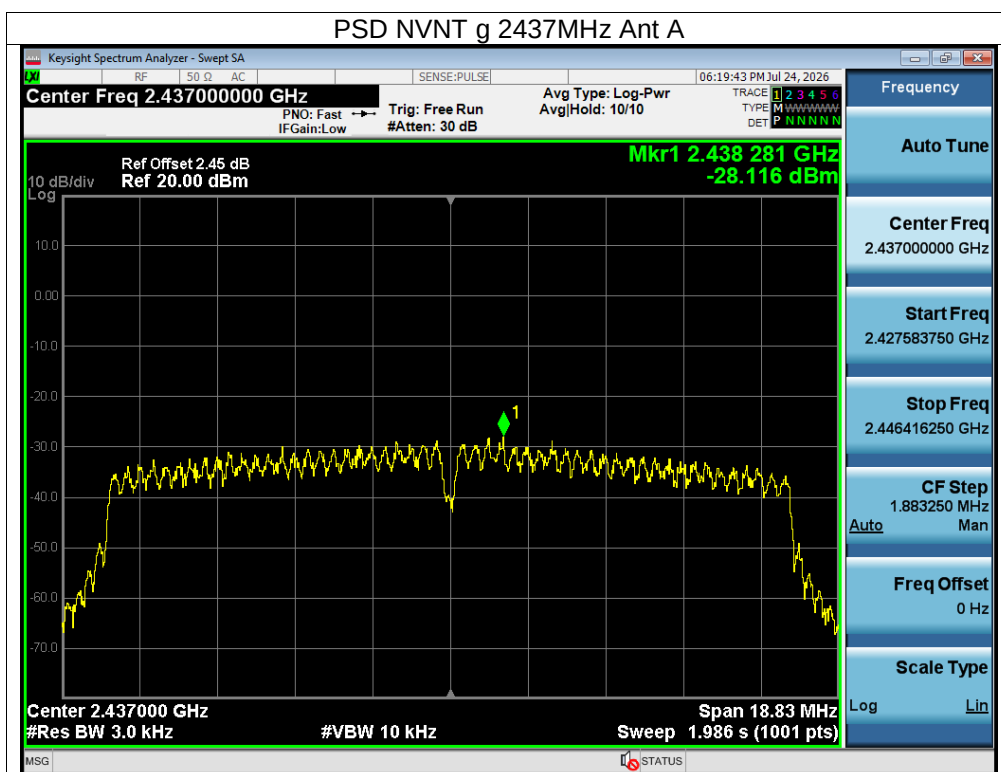
Test Mode	Frequency	Power Spectral Density(dBm/3kHz)	Limit (dBm/3kHz)	Result
TX n Mode(20M)	2412 MHz	-25.67	8	PASS
	2437 MHz	-25.68	8	PASS
	2462 MHz	-25.28	8	PASS
TX n Mode(40M)	2422 MHz	-27.65	8	PASS
	2437 MHz	-27.71	8	PASS
	2452 MHz	-28.32	8	PASS
TX ax Mode(20M)	2412 MHz	-24.35	8	PASS
	2437 MHz	-24.18	8	PASS
	2462 MHz	-24.67	8	PASS
TX ax Mode(40M)	2422 MHz	-27.88	8	PASS
	2437 MHz	-27.61	8	PASS
	2452 MHz	-27.98	8	PASS

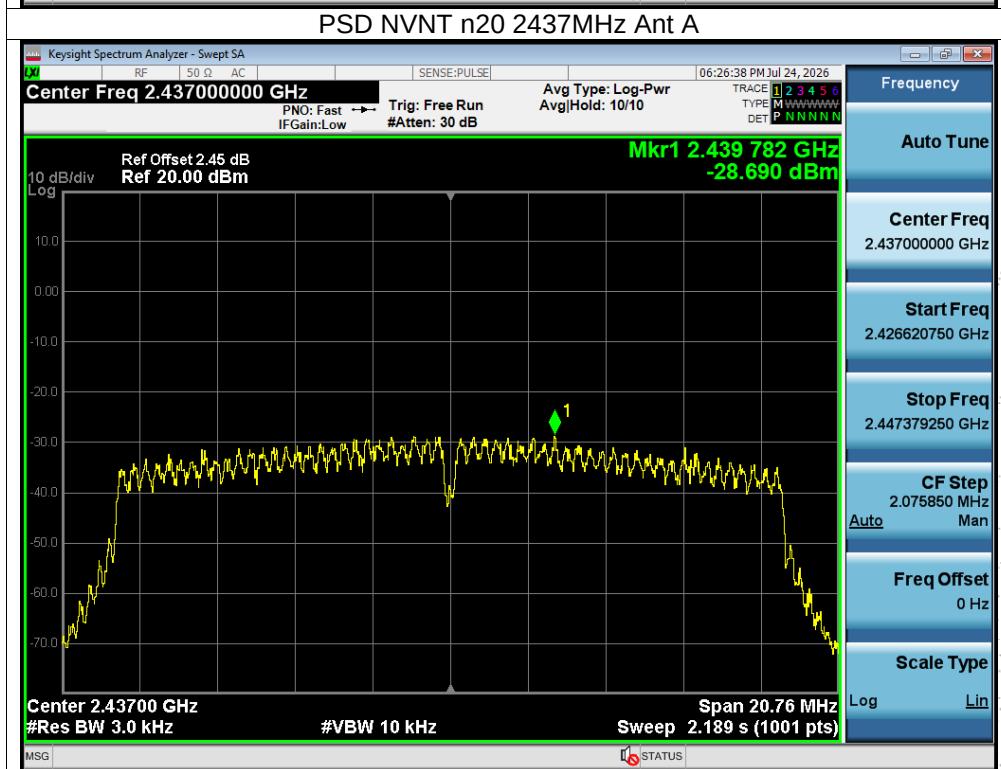
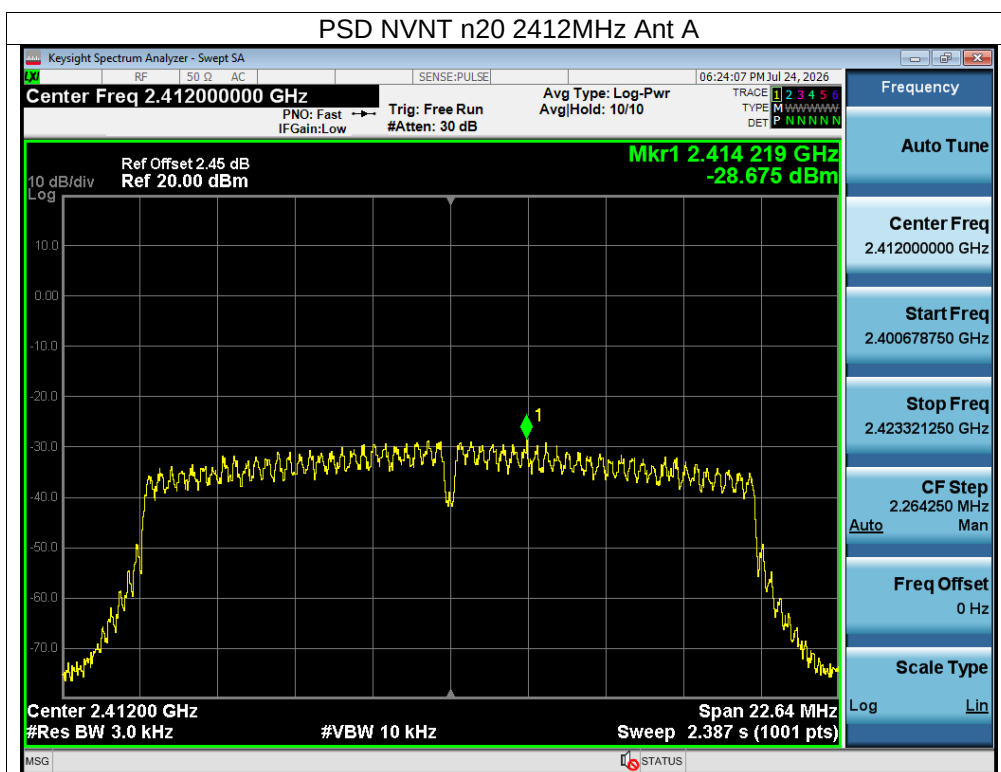


Ant A:

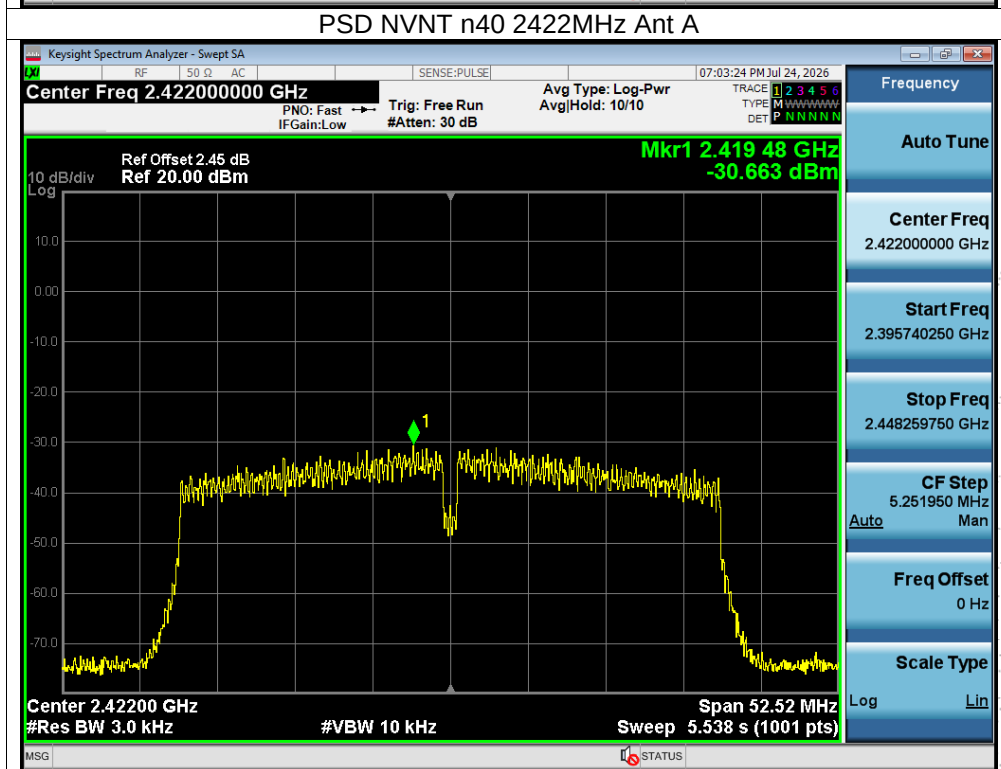
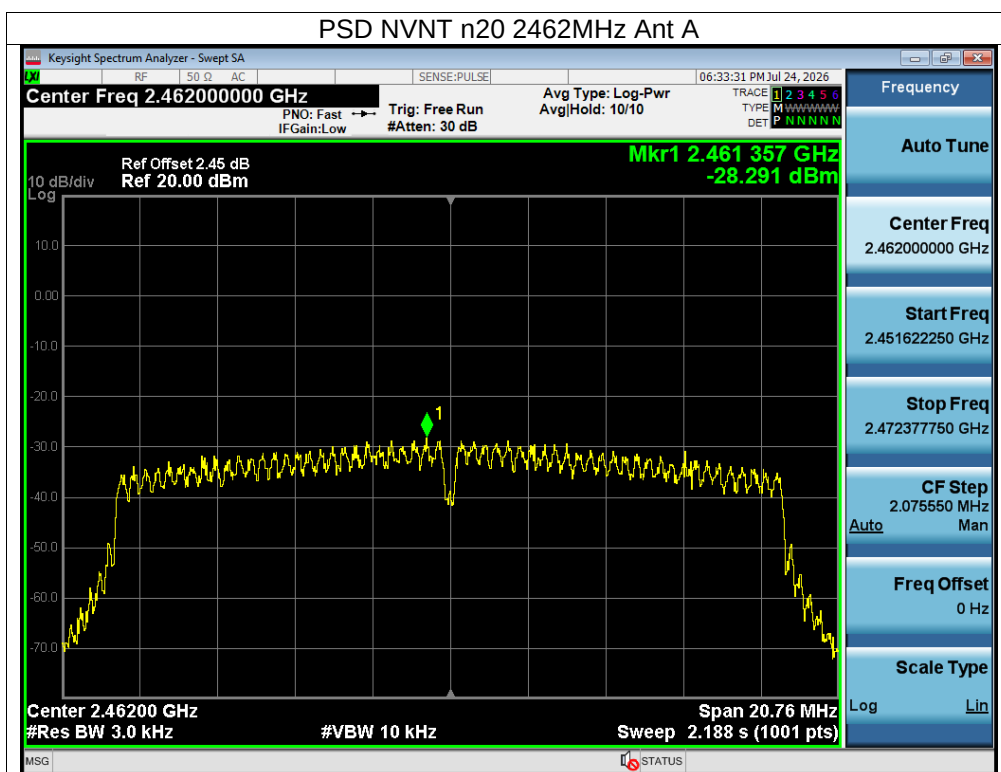




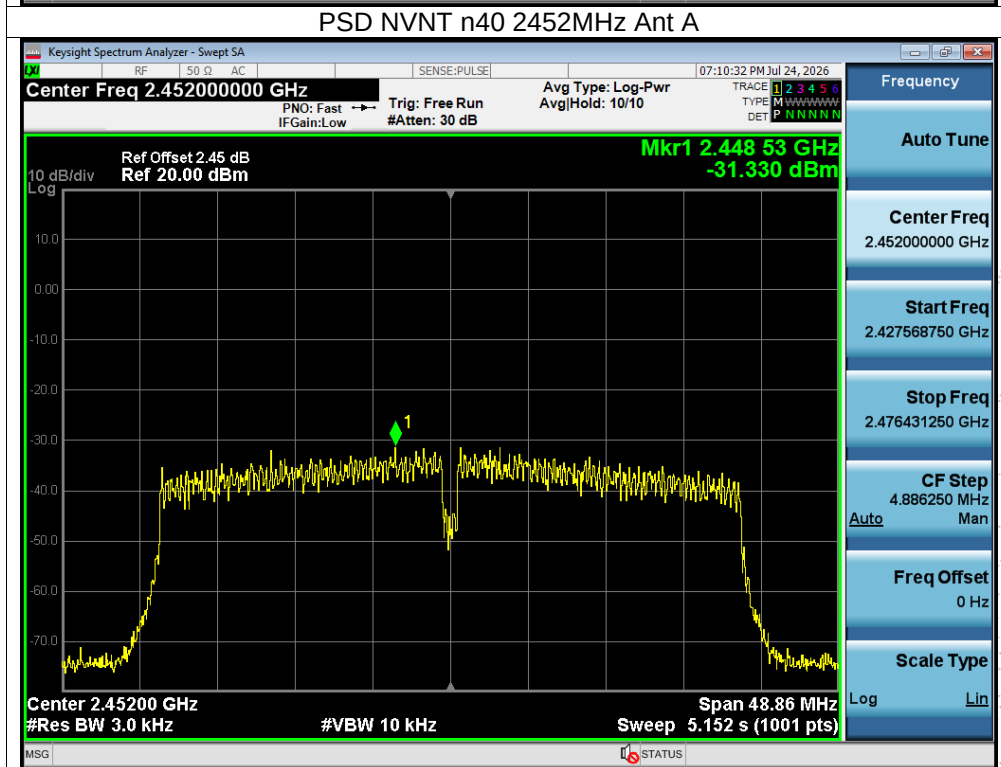
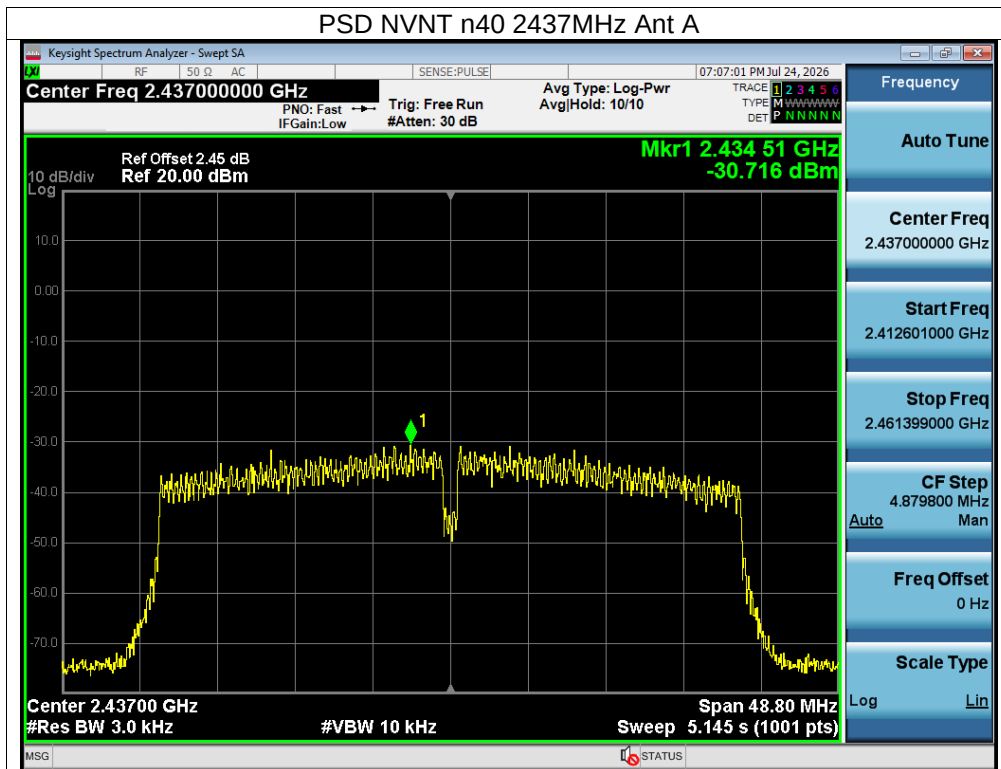


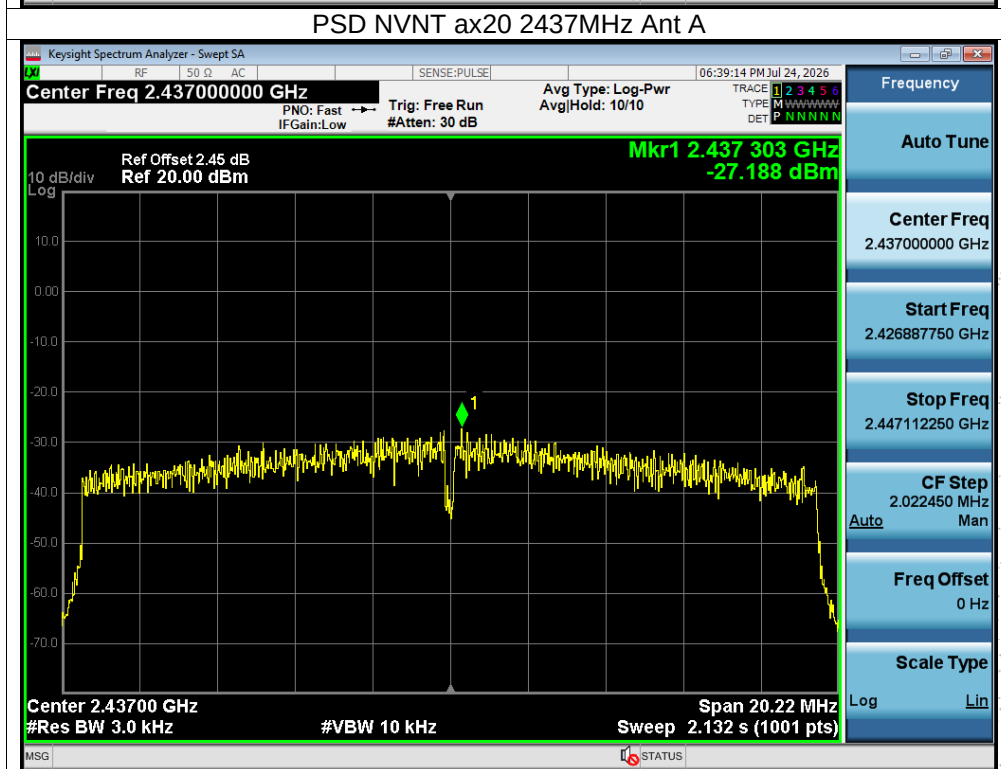
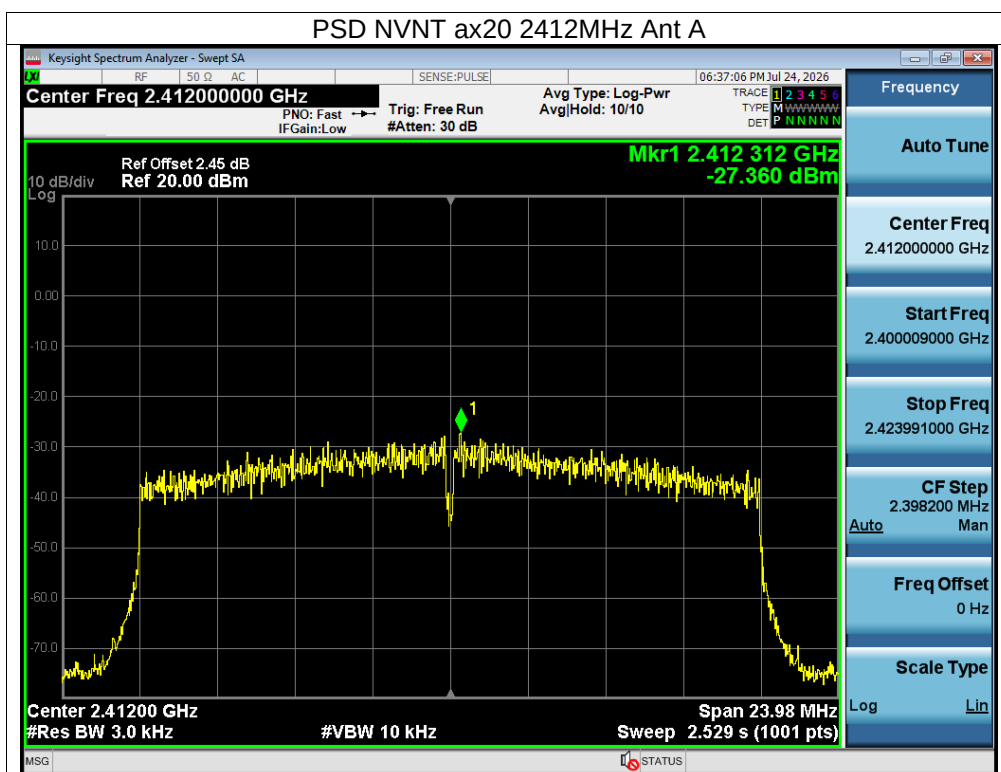


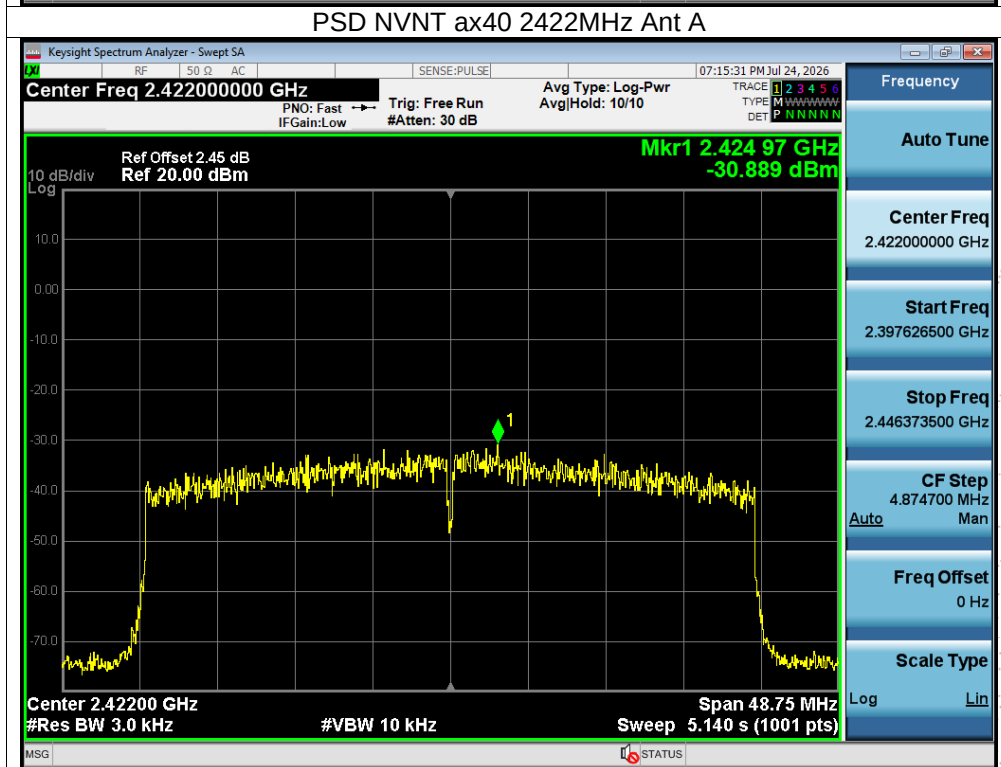
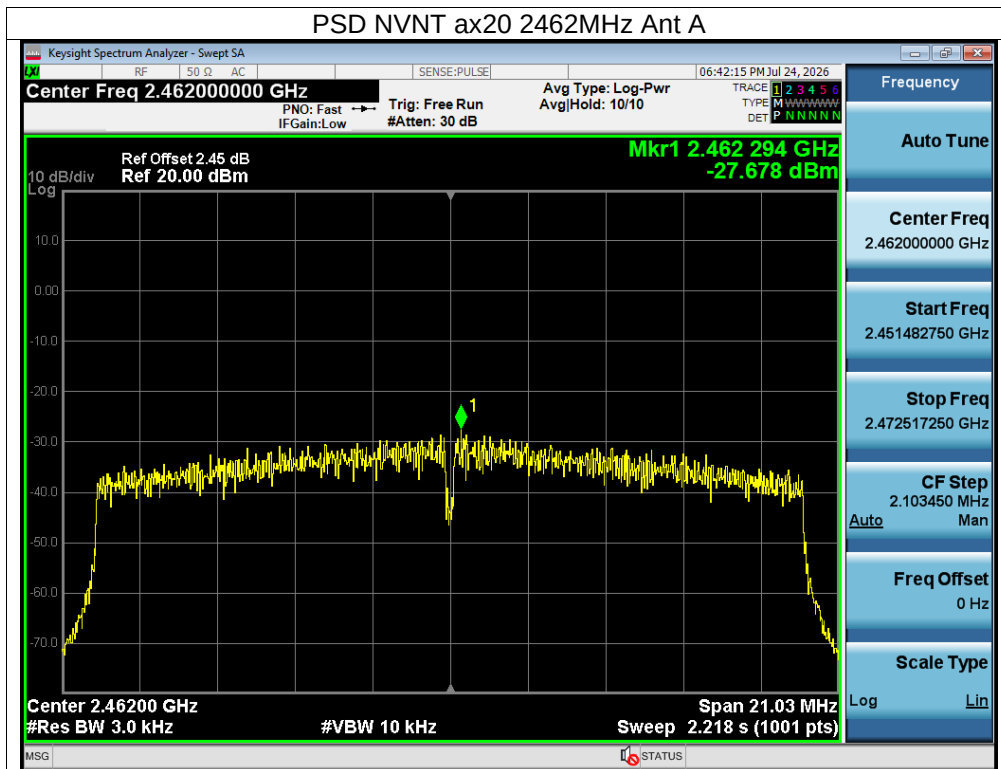
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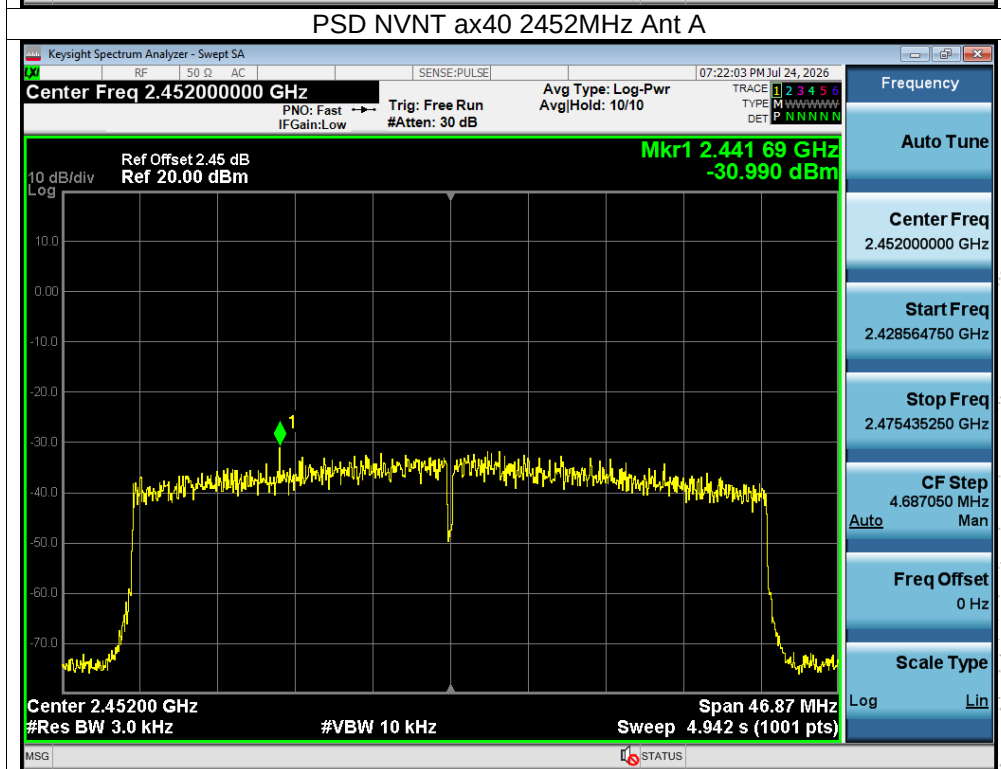
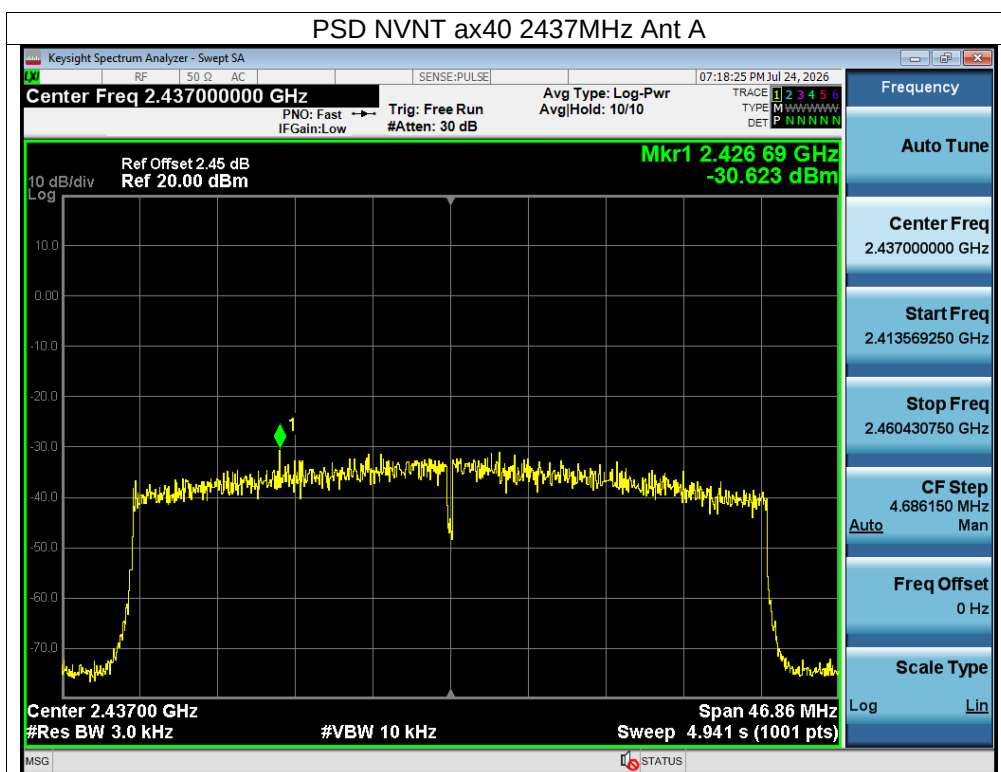


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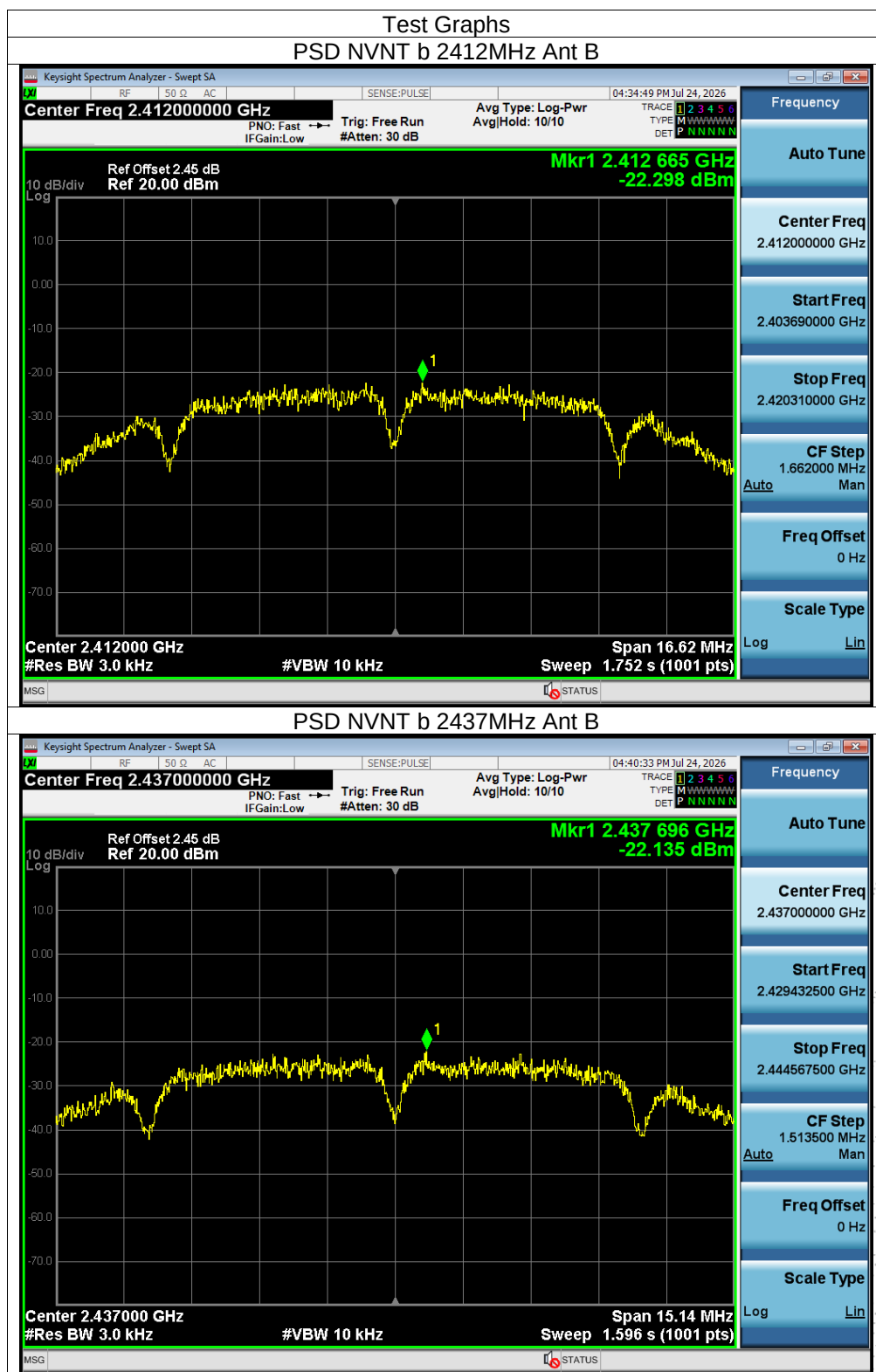


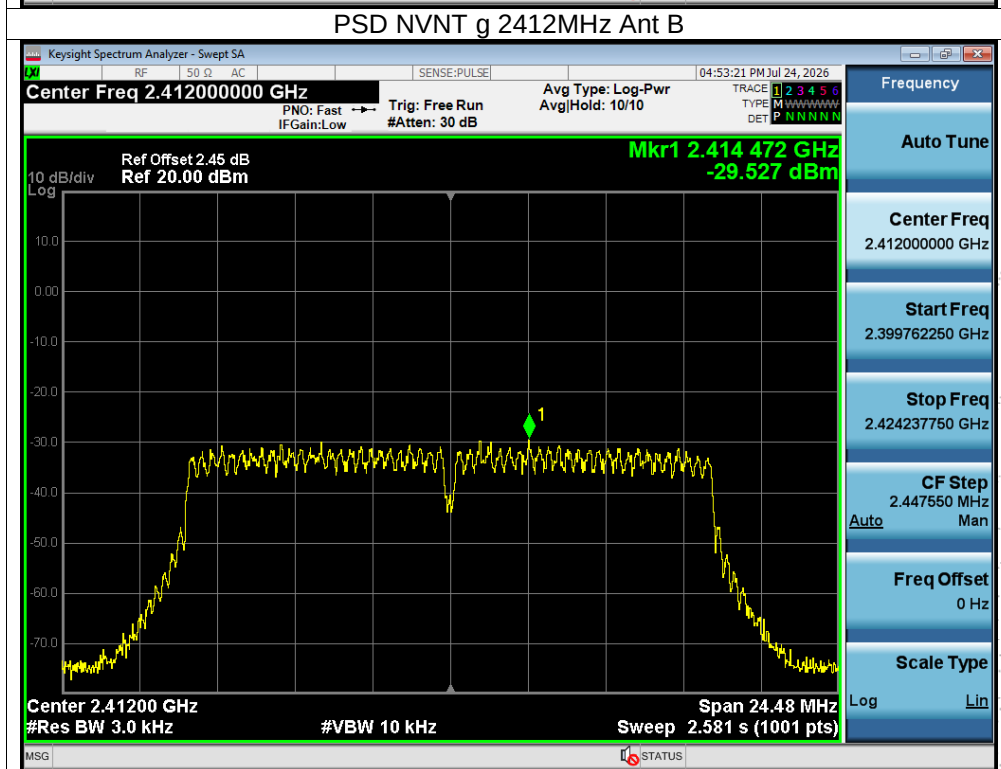
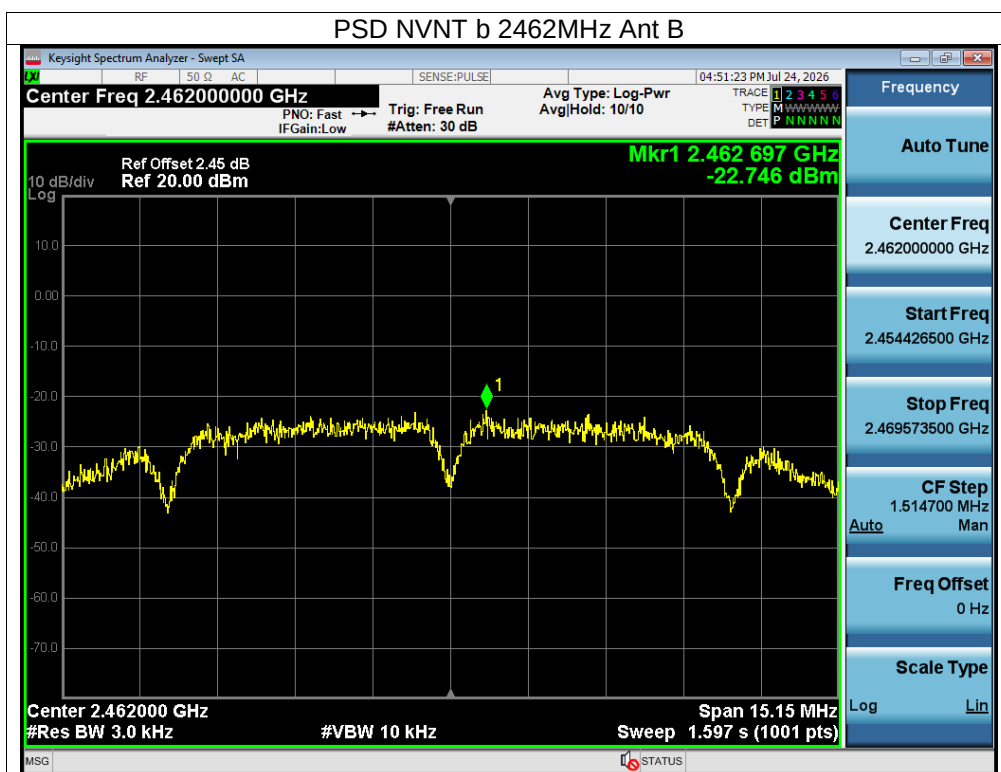




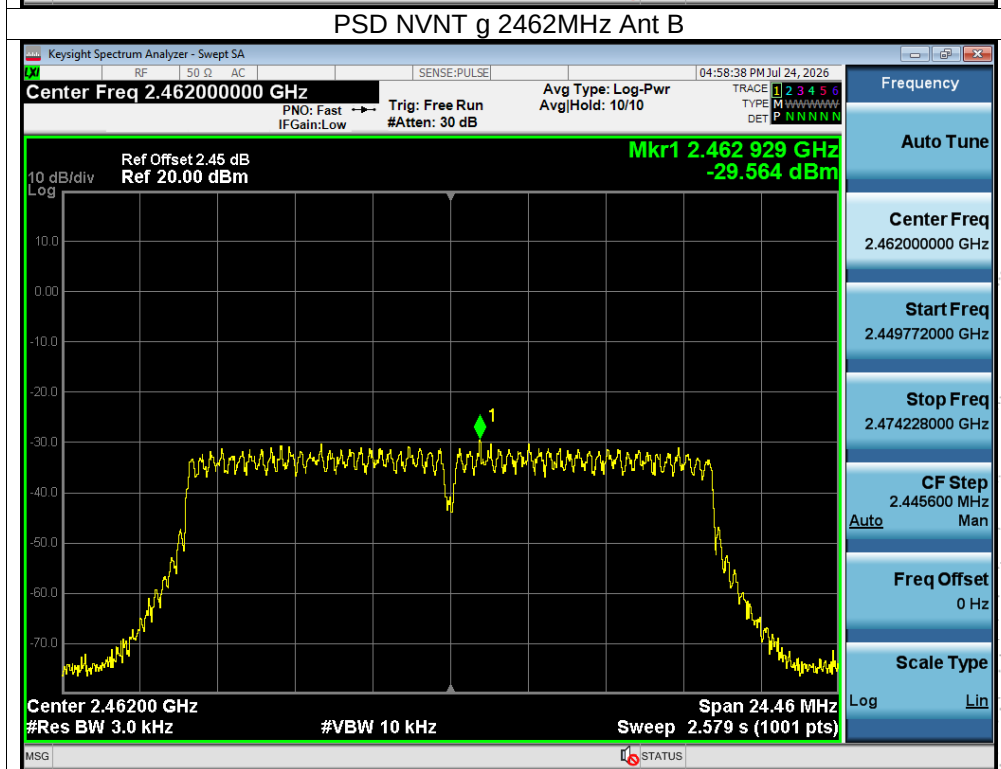
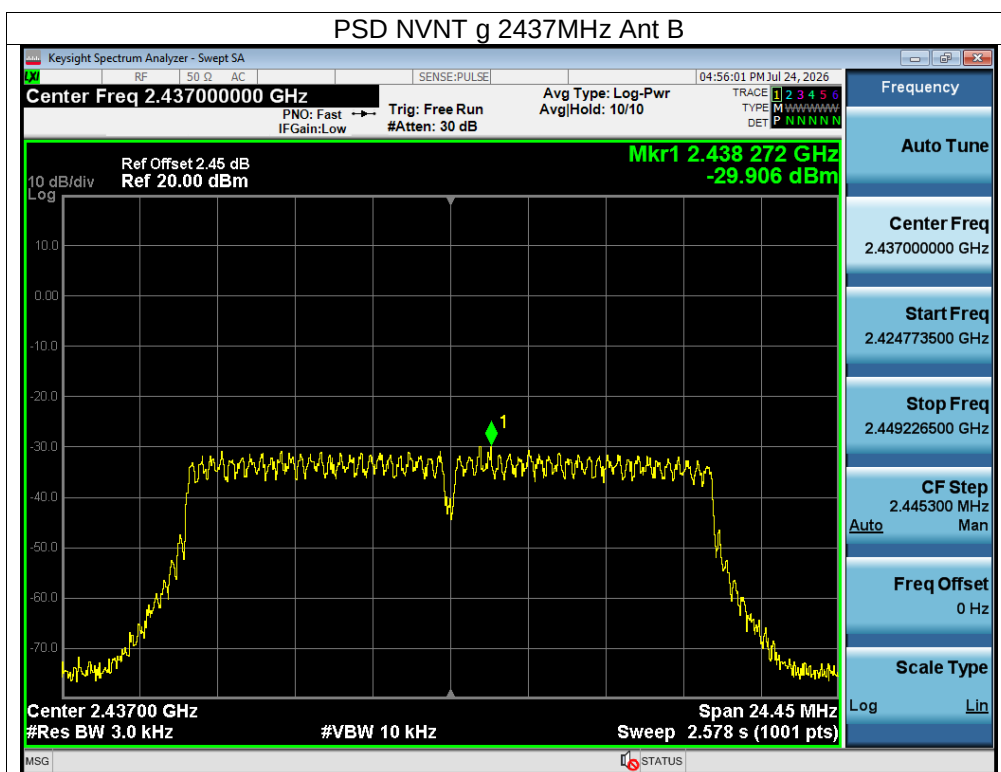


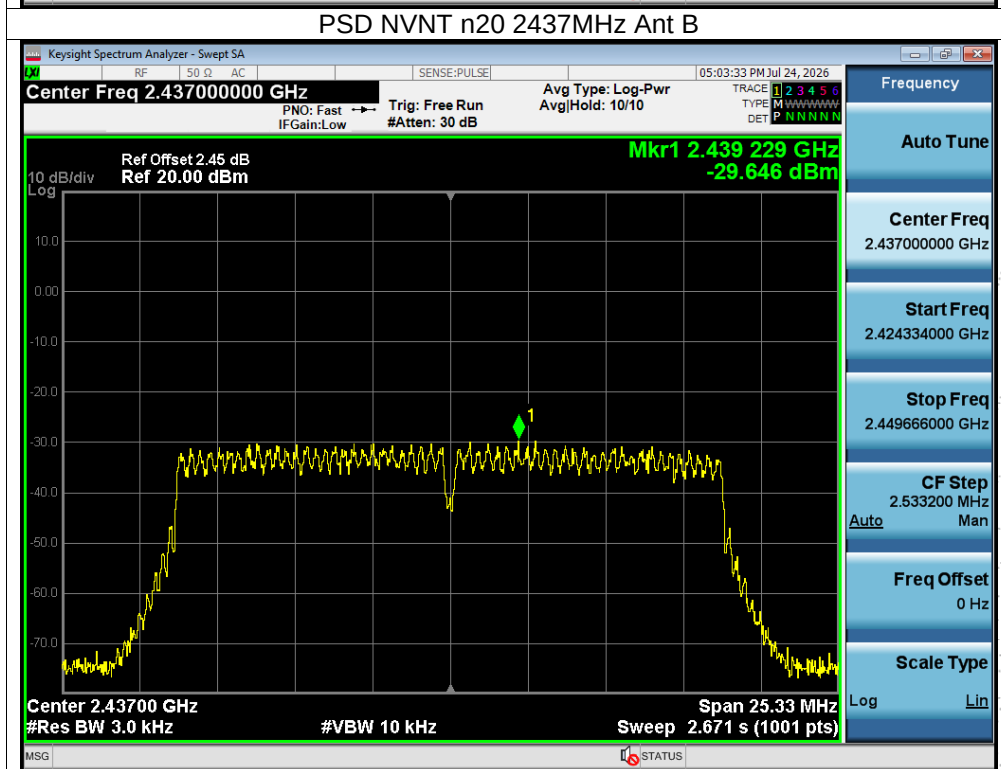
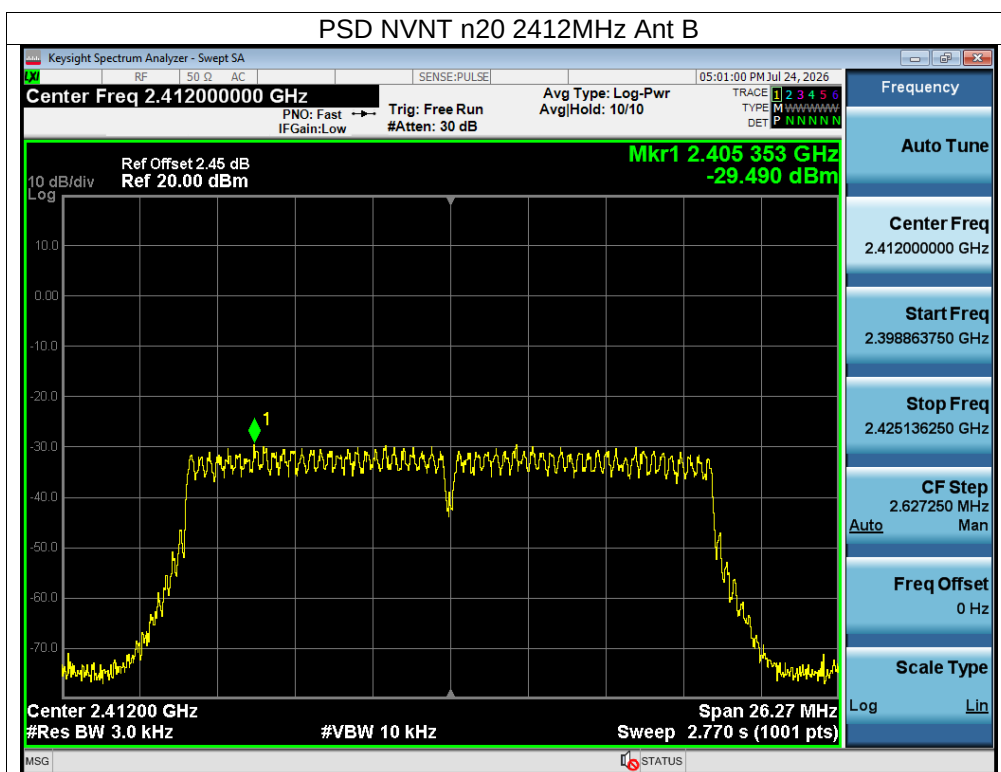
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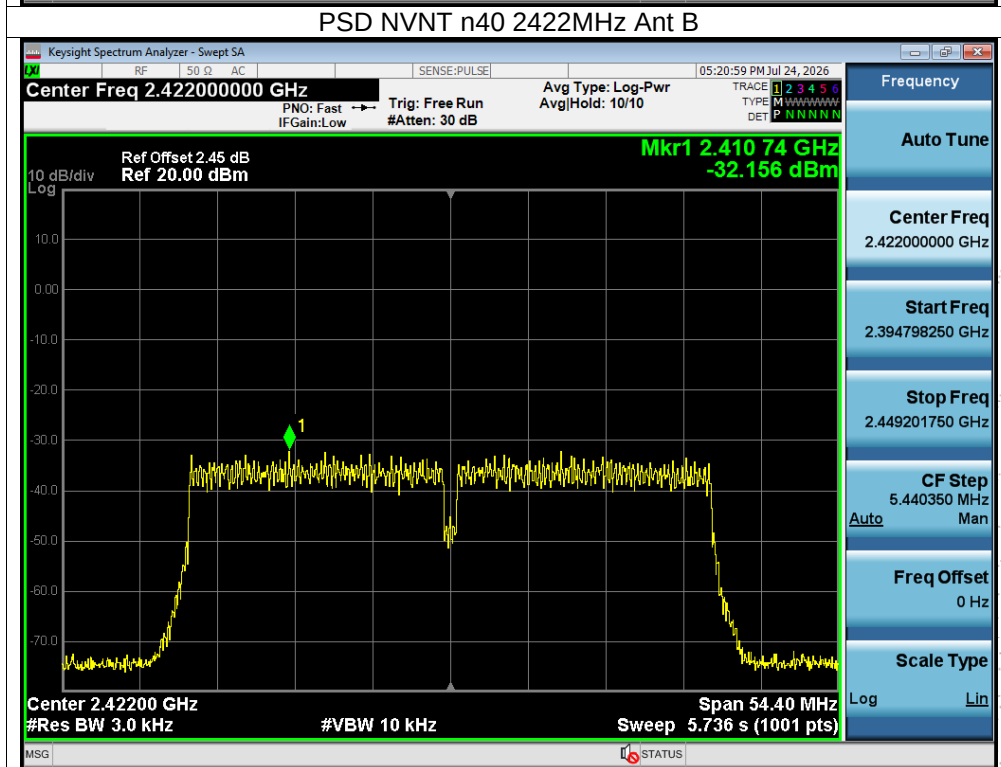
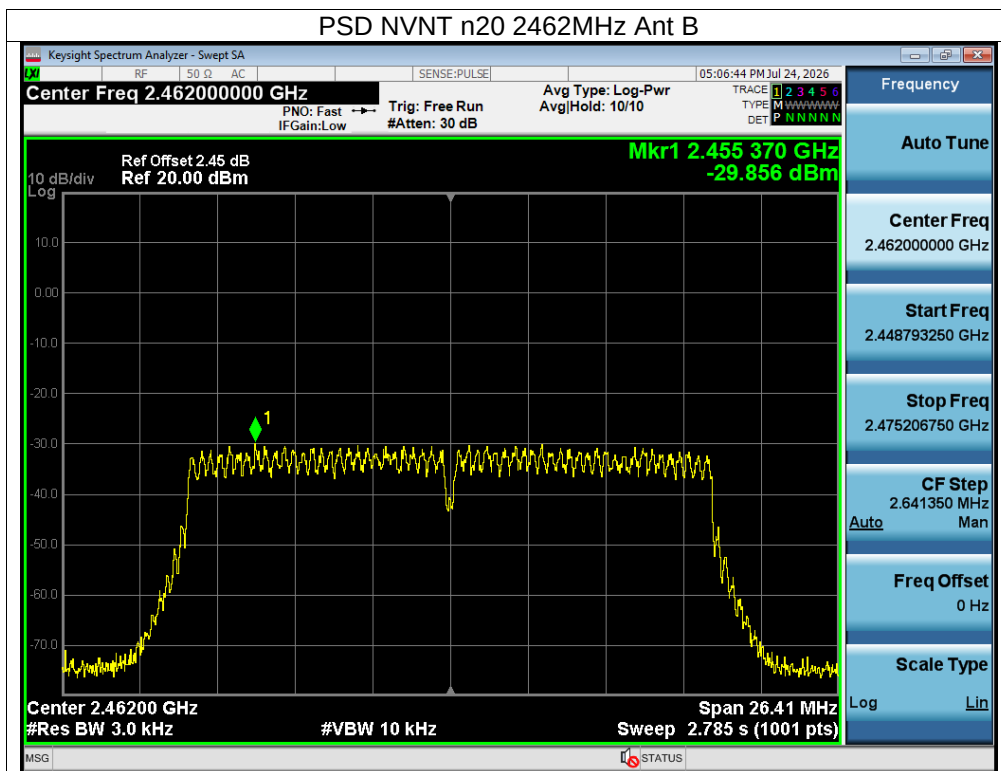


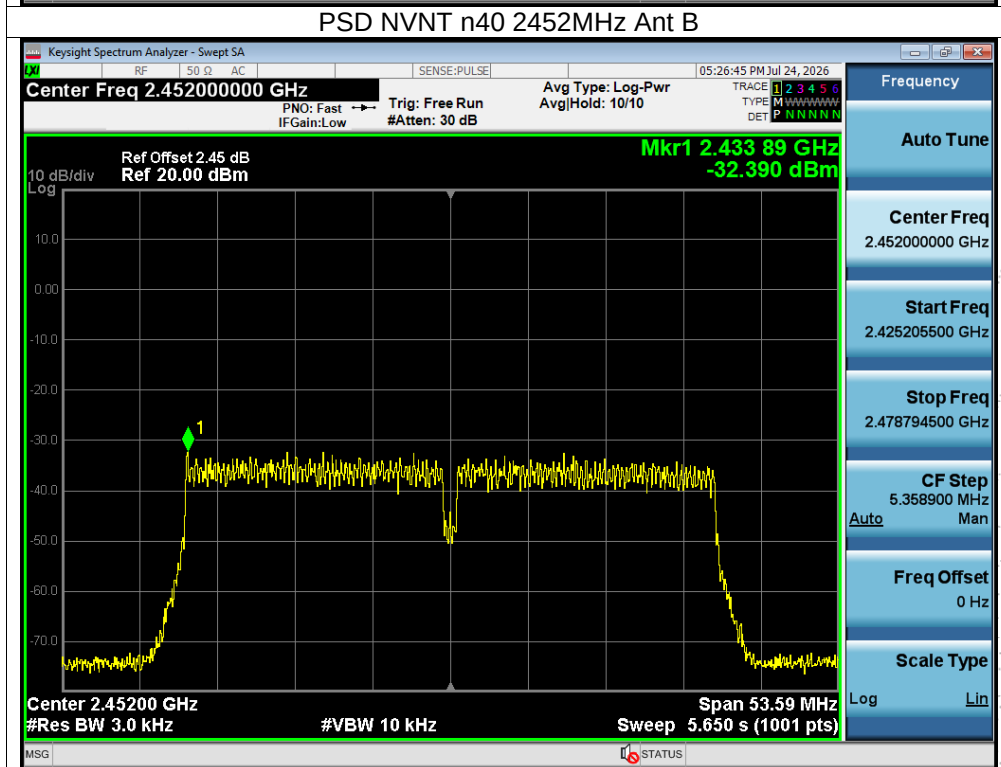
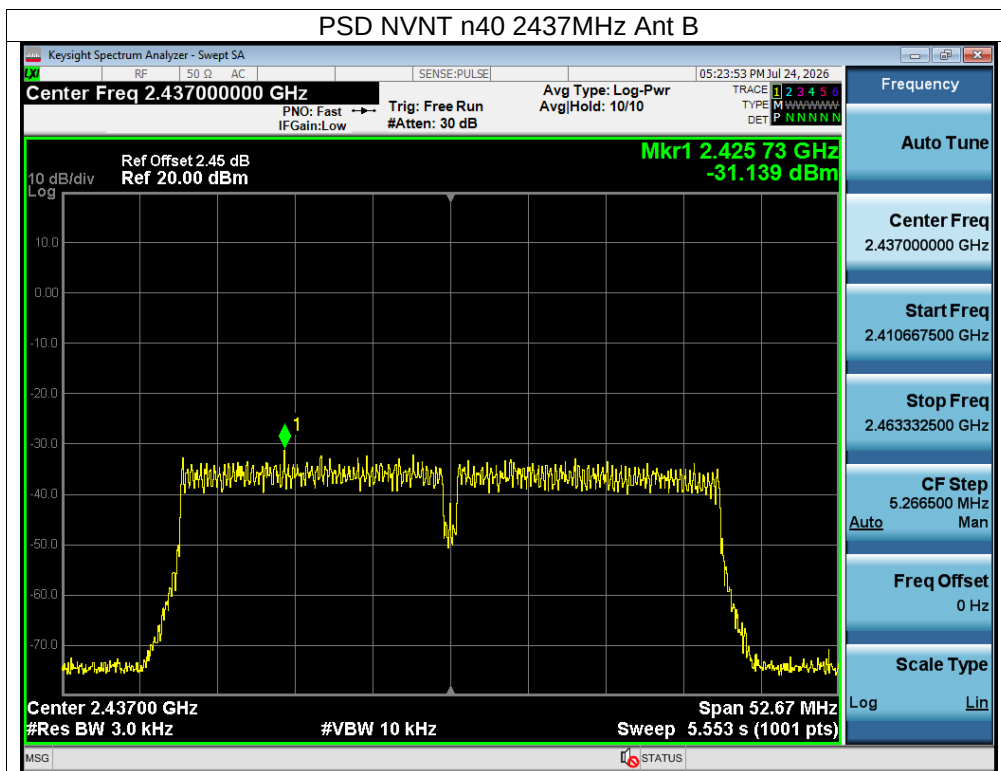



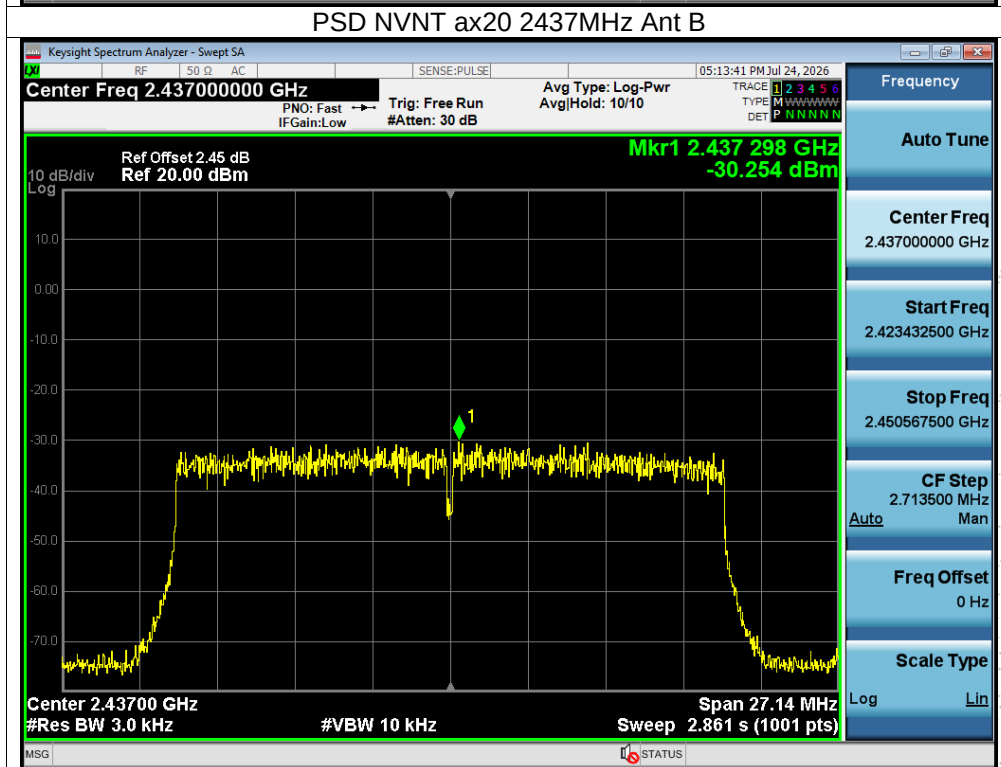
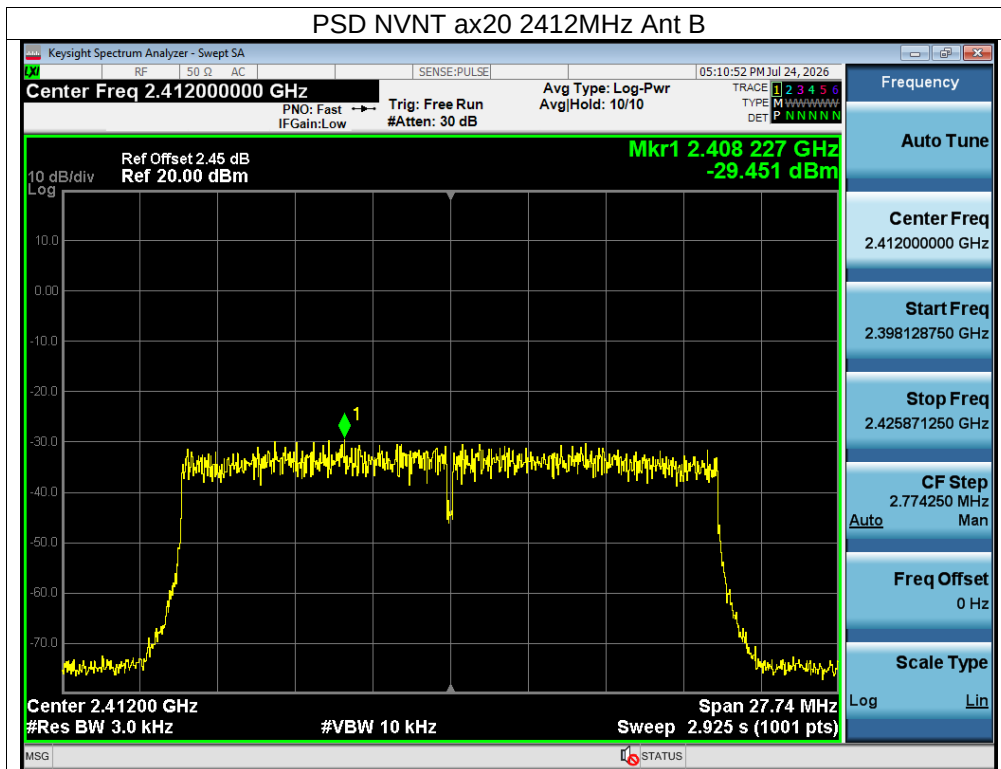
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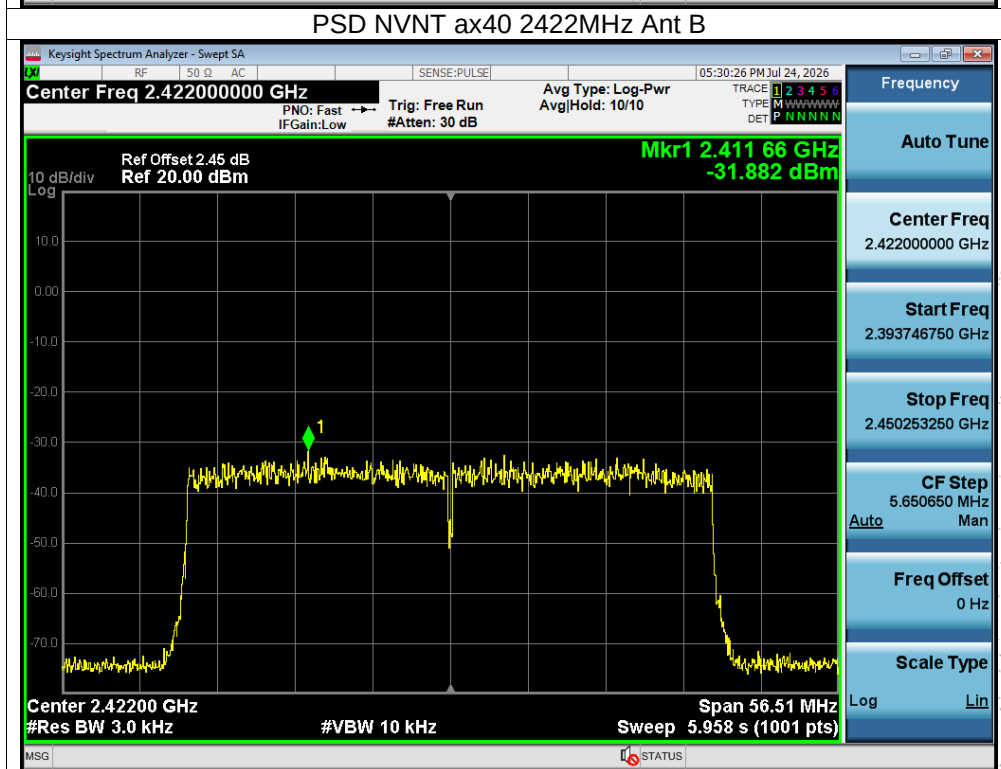
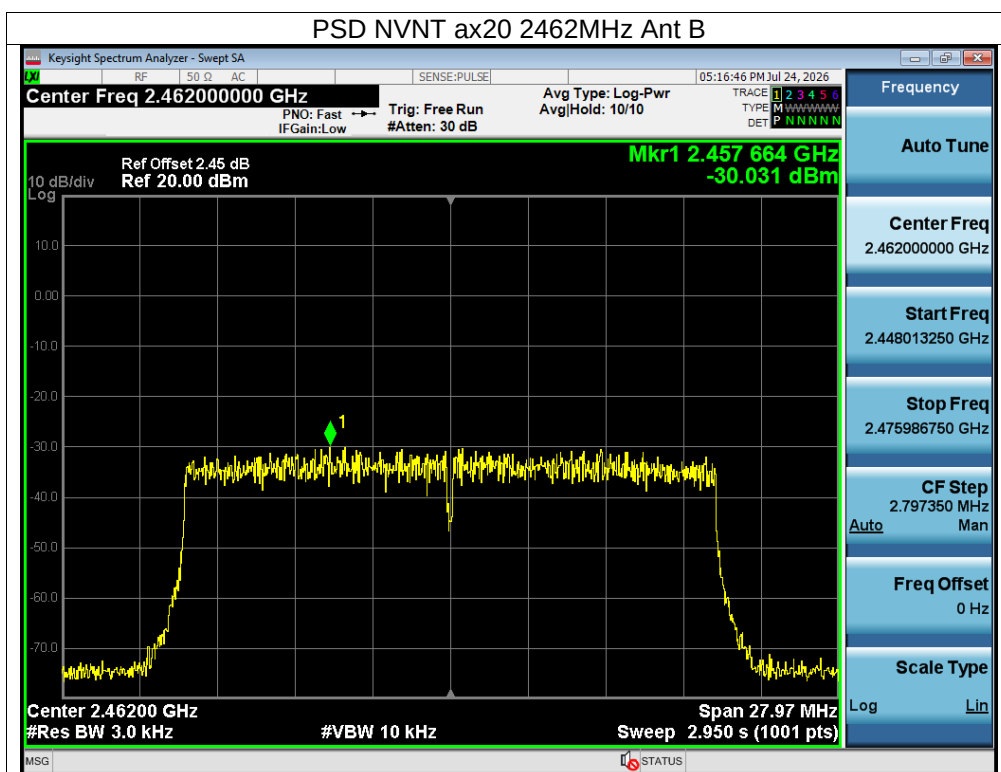


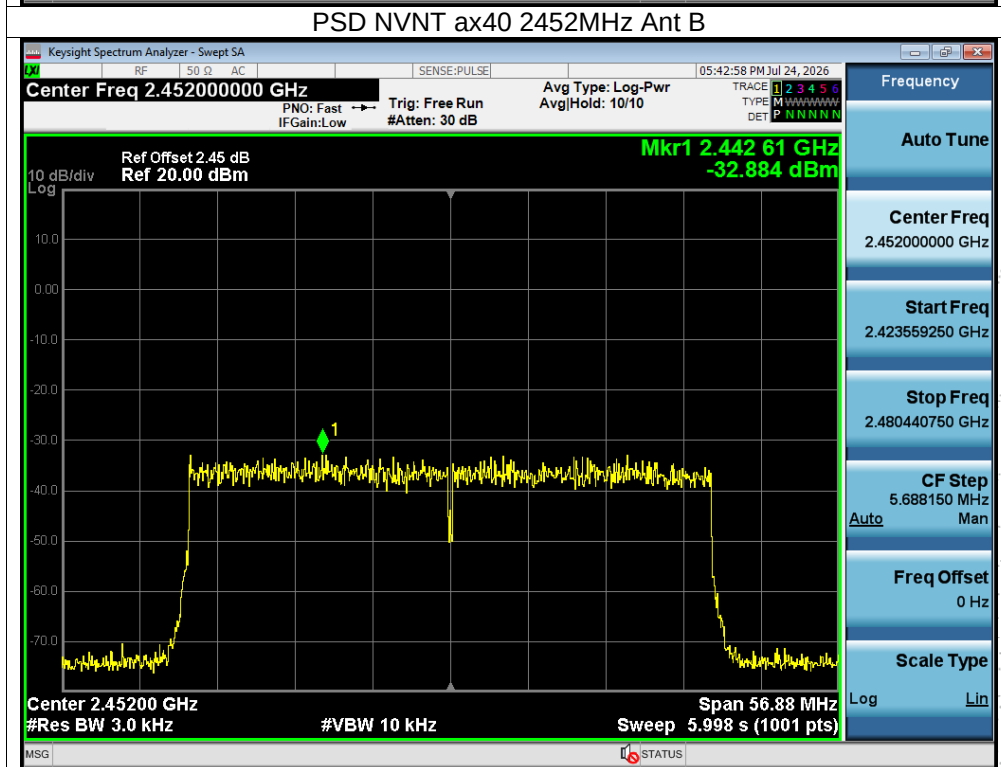
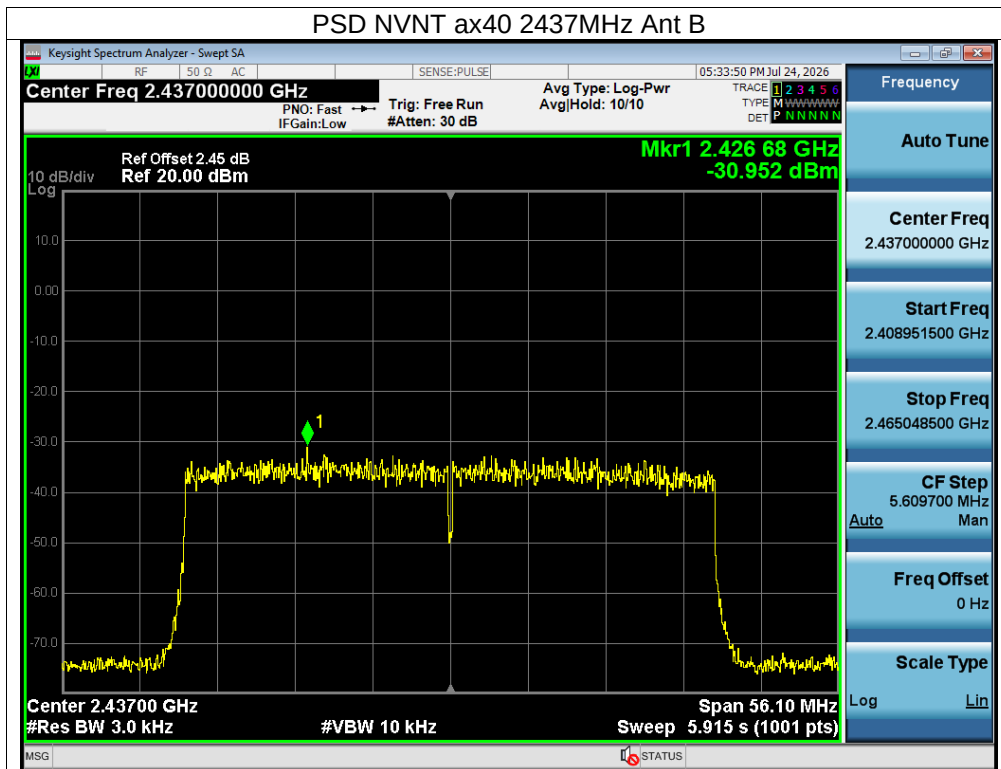












10. -6dB Bandwidth Test

10.1 Block Diagram Of Test Setup



10.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (-6dB bandwidth)	2400-2483.5	PASS

10.3 Test procedure

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

10.4 EUT Operating Conditions

The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

Note: Power Spectral Density(dBm)=Reading+Cable Loss

10.5 Test Result

Temperature:	23.6℃	Relative Humidity:	50%
Pressure:	101KPa	Test Voltage:	DC 11.4V

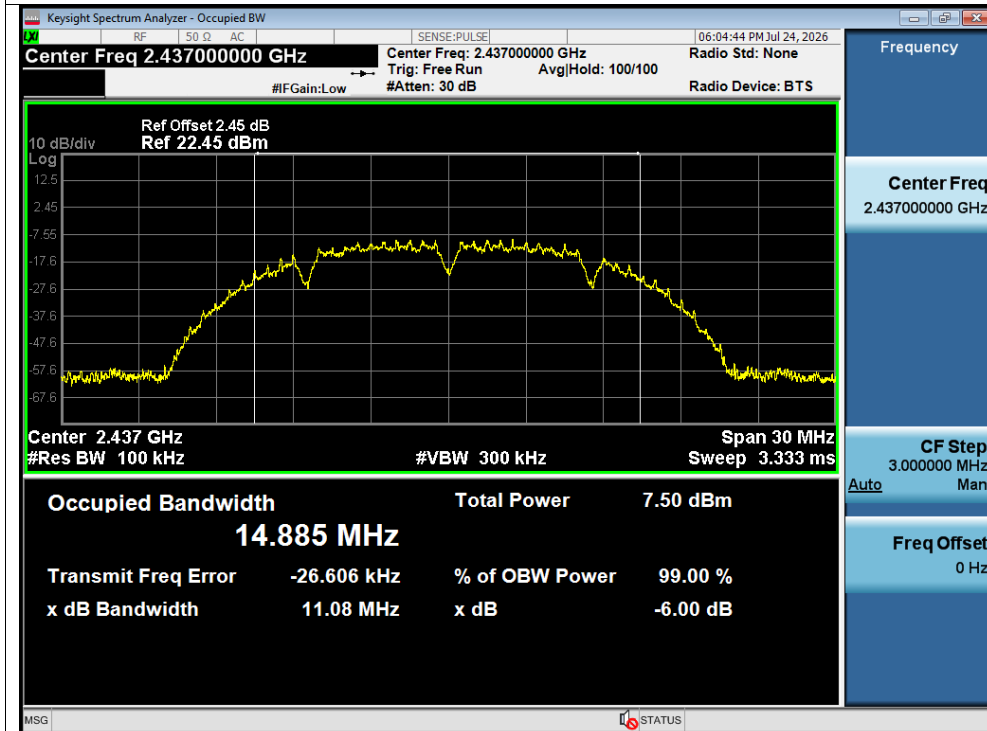
Test Mode	Frequency (MHz)	Ant A -6dB bandwidth (MHz)	Ant B -6dB bandwidth (MHz)	Limit (kHz)	Result
TX b Mode	2412	10.095	11.08	500	Pass
	2437	11.084	10.09	500	Pass
	2462	10.107	10.098	500	Pass
TX g Mode	2412	16.058	16.317	500	Pass
	2437	12.555	16.302	500	Pass
	2462	13.79	16.304	500	Pass
TX n Mode(20M)	2412	15.095	17.515	500	Pass
	2437	13.839	16.888	500	Pass
	2462	13.837	17.609	500	Pass
TX n Mode(40M)	2422	35.013	36.269	500	Pass
	2437	32.532	35.11	500	Pass
	2452	32.575	35.726	500	Pass
TX ax Mode(20M)	2412	15.988	18.495	500	Pass
	2437	13.483	18.09	500	Pass
	2462	14.023	18.649	500	Pass
TX ax Mode(40M)	2422	32.498	37.671	500	Pass
	2437	31.241	37.398	500	Pass
	2452	31.247	37.921	500	Pass

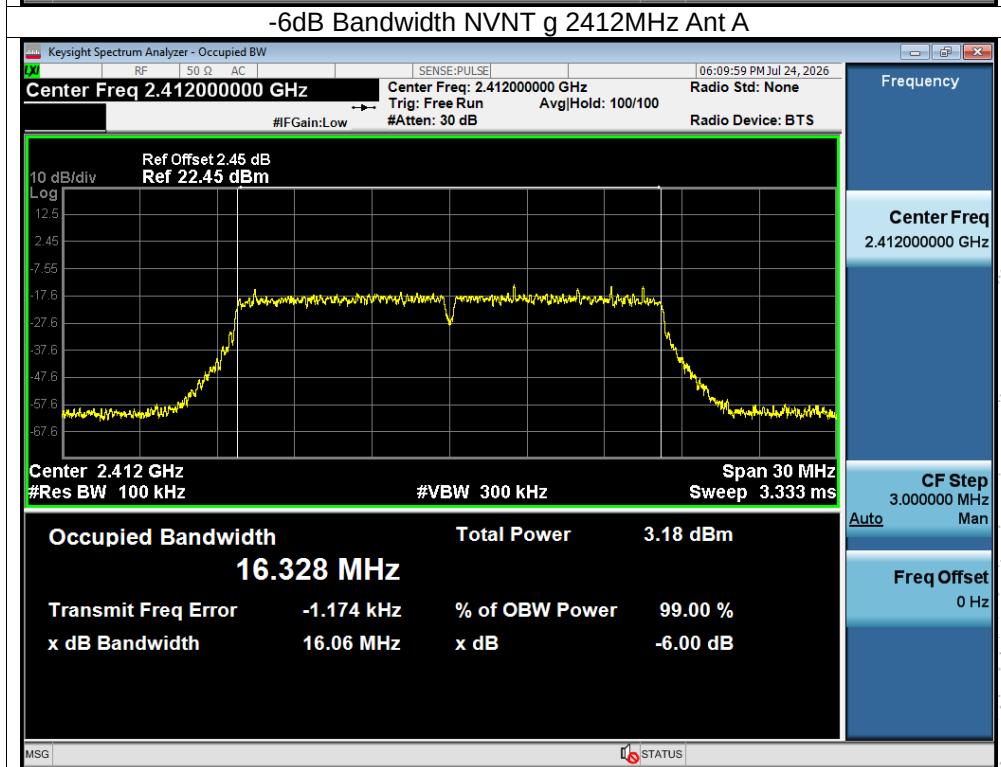
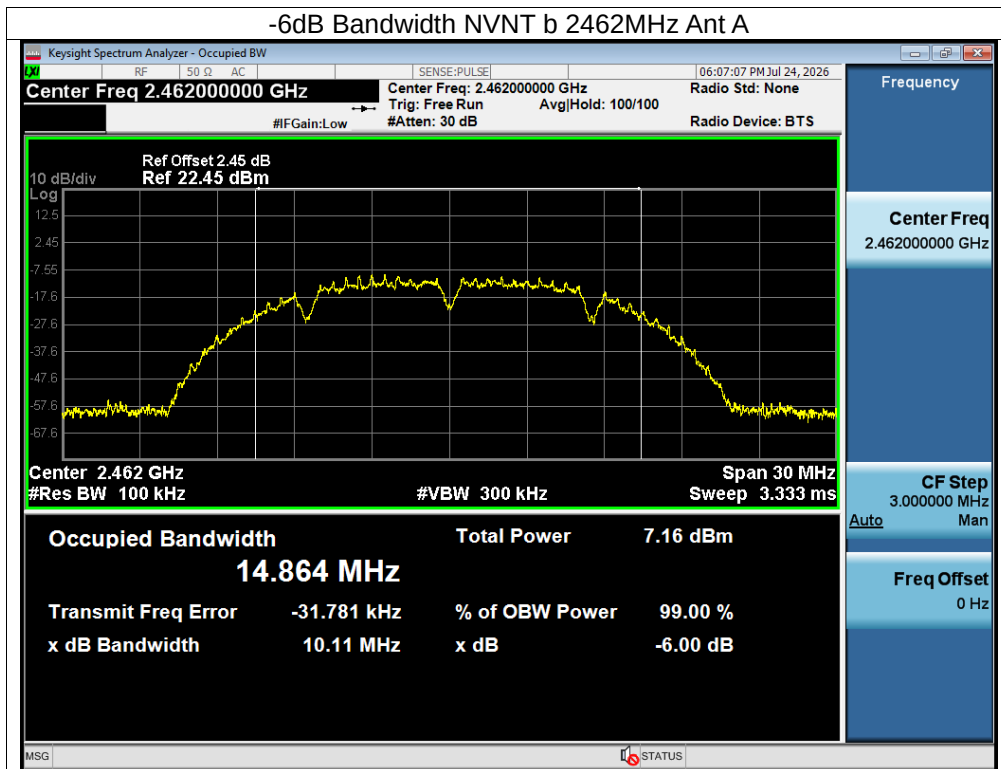
Test Graphs

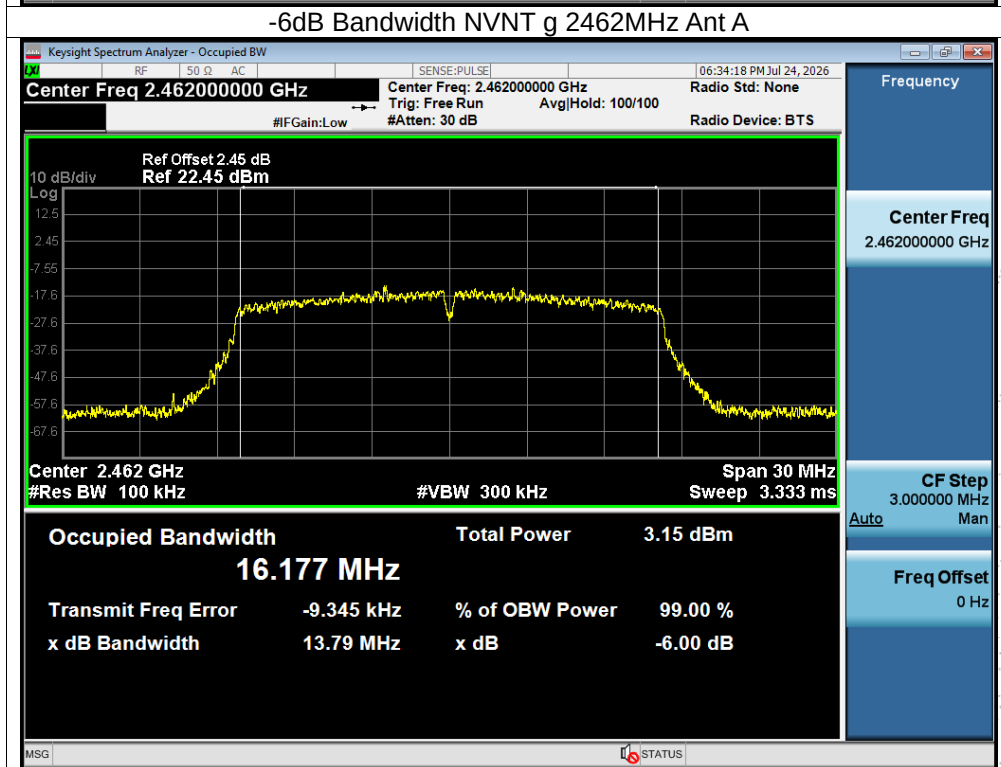
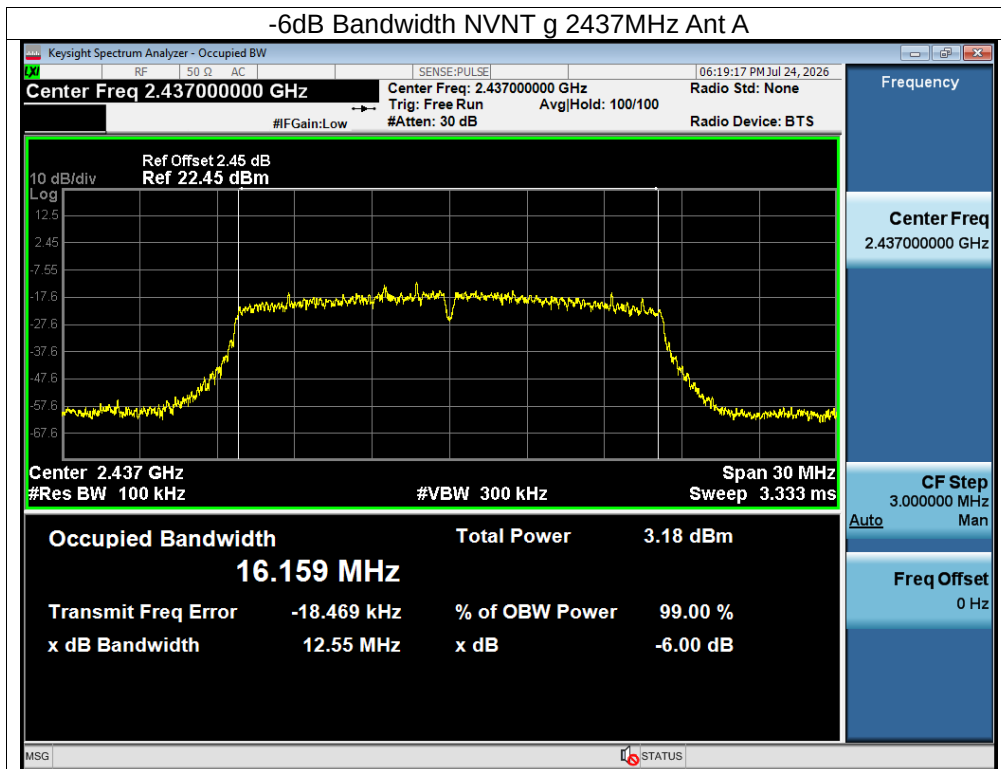
-6dB Bandwidth NVNT b 2412MHz Ant A

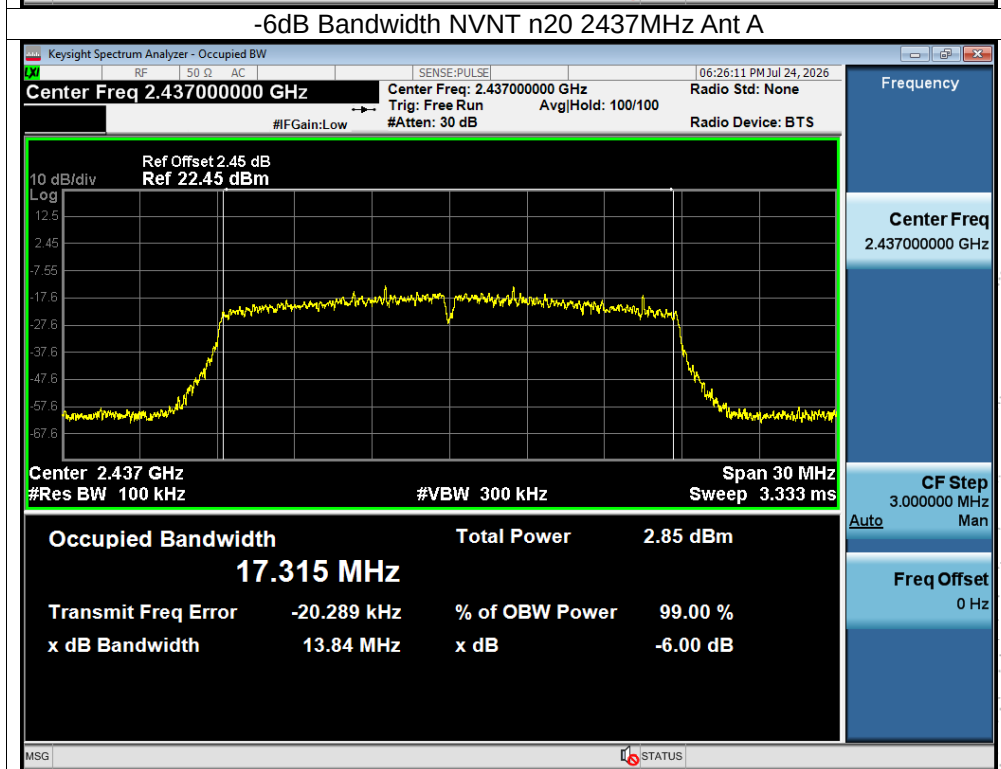
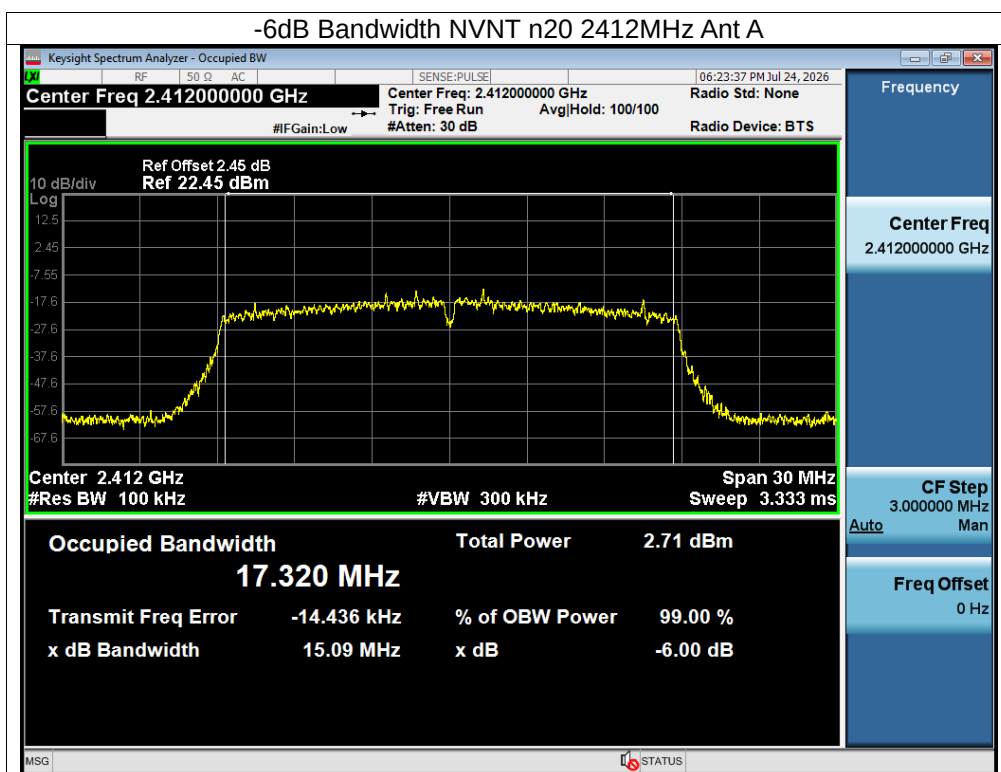


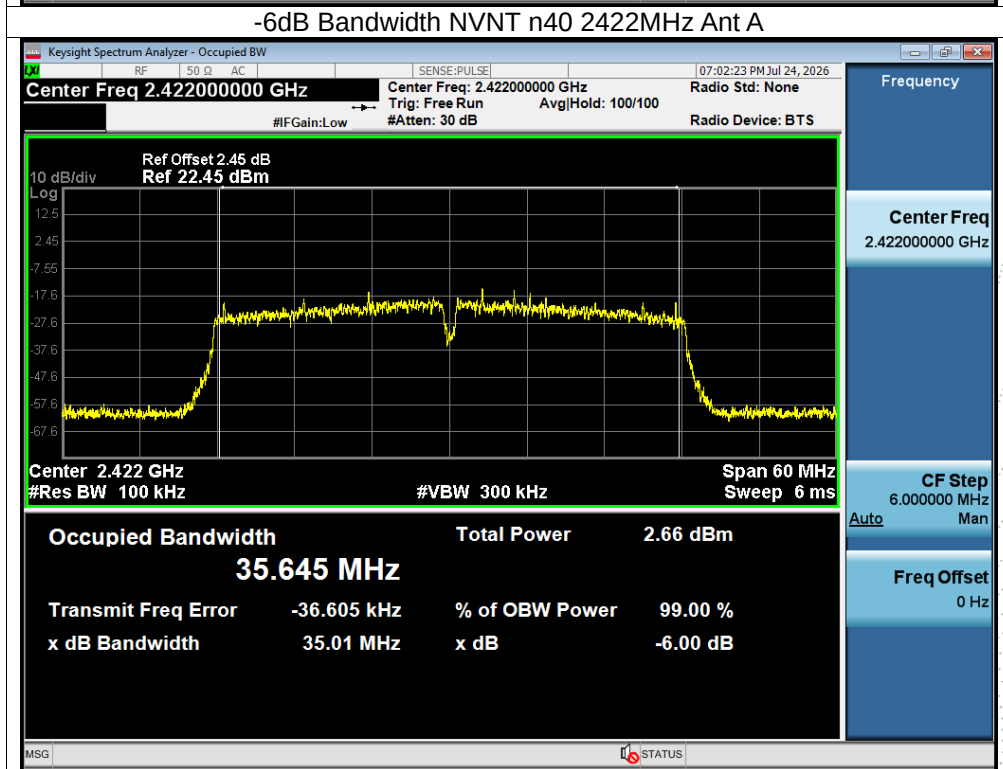
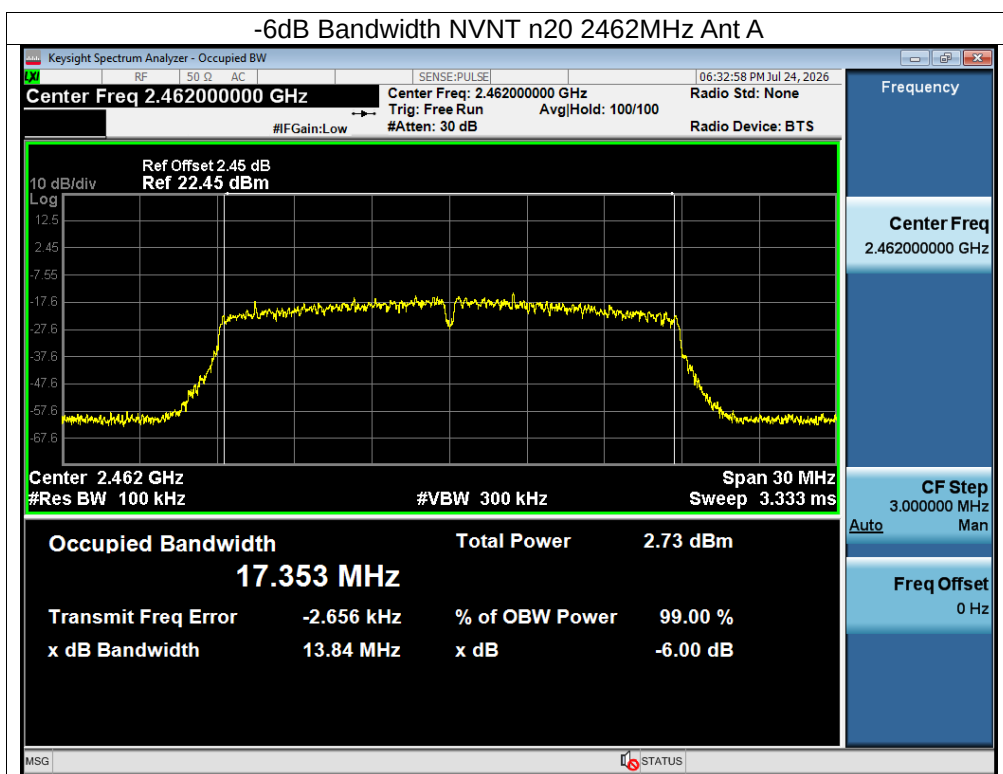
-6dB Bandwidth NVNT b 2437MHz Ant A

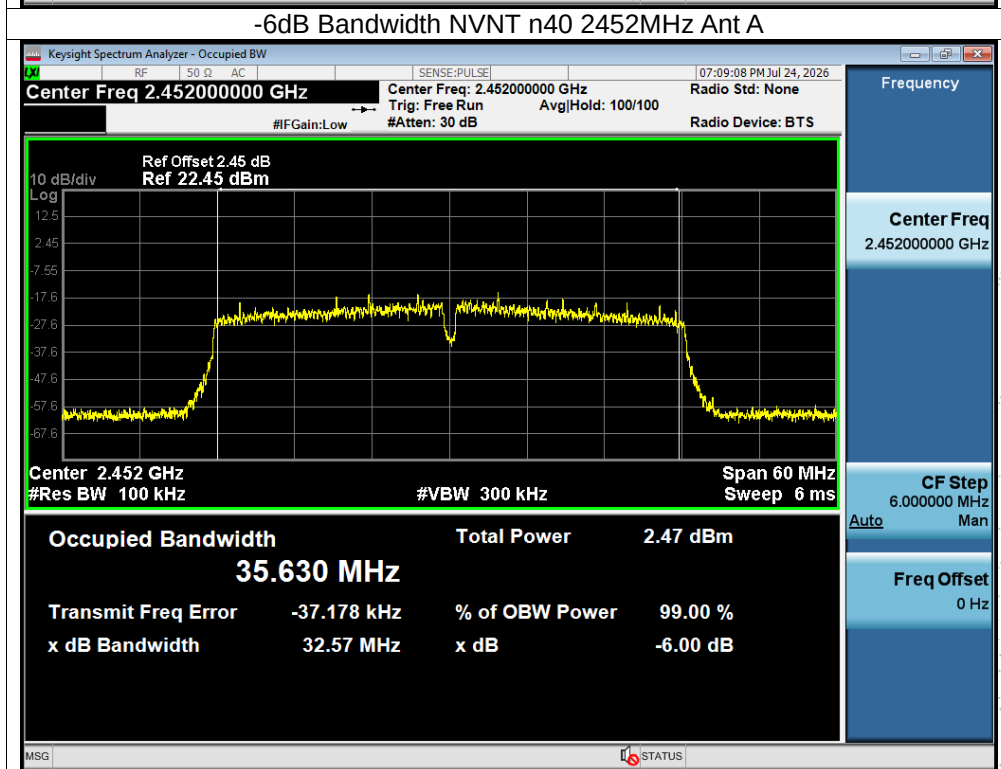
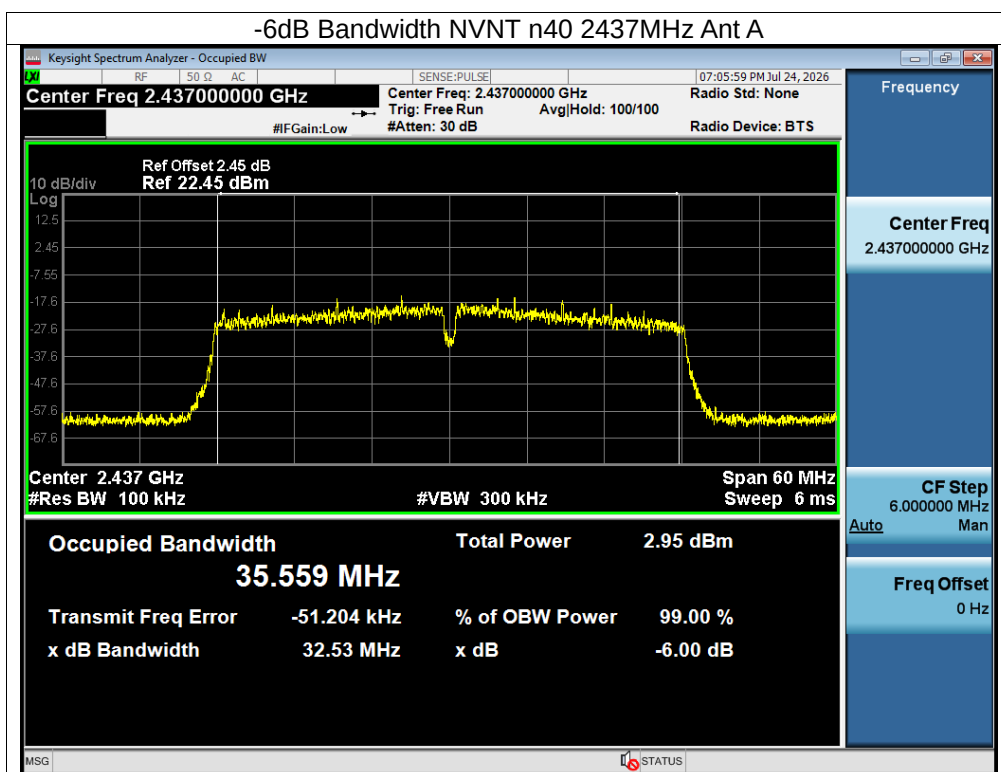


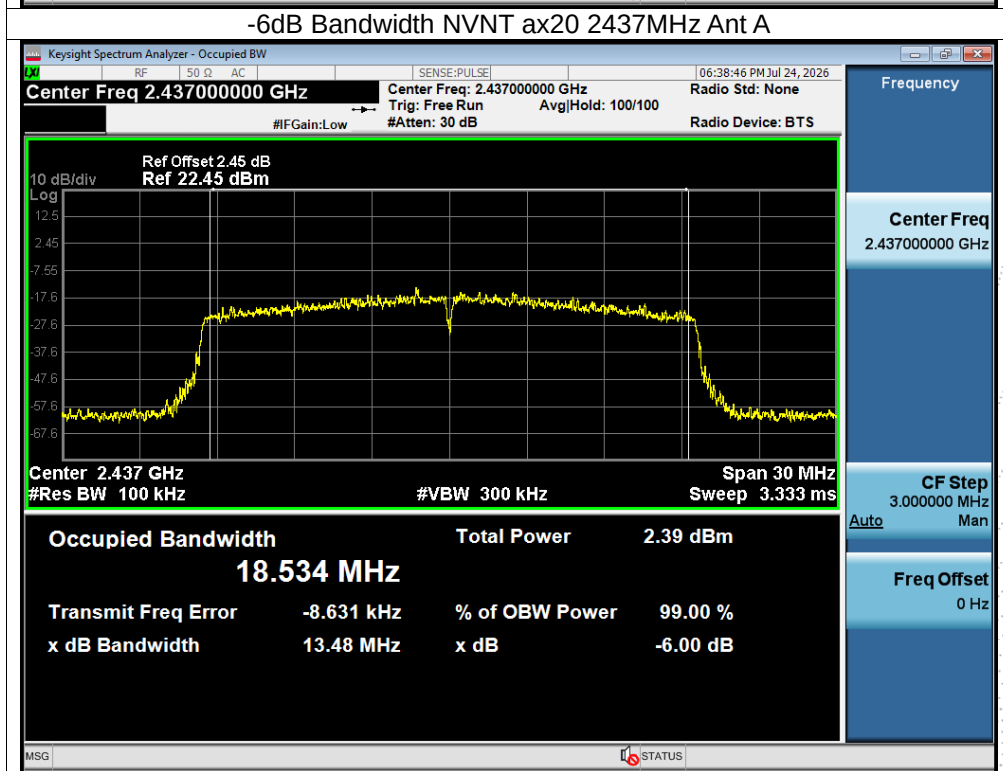
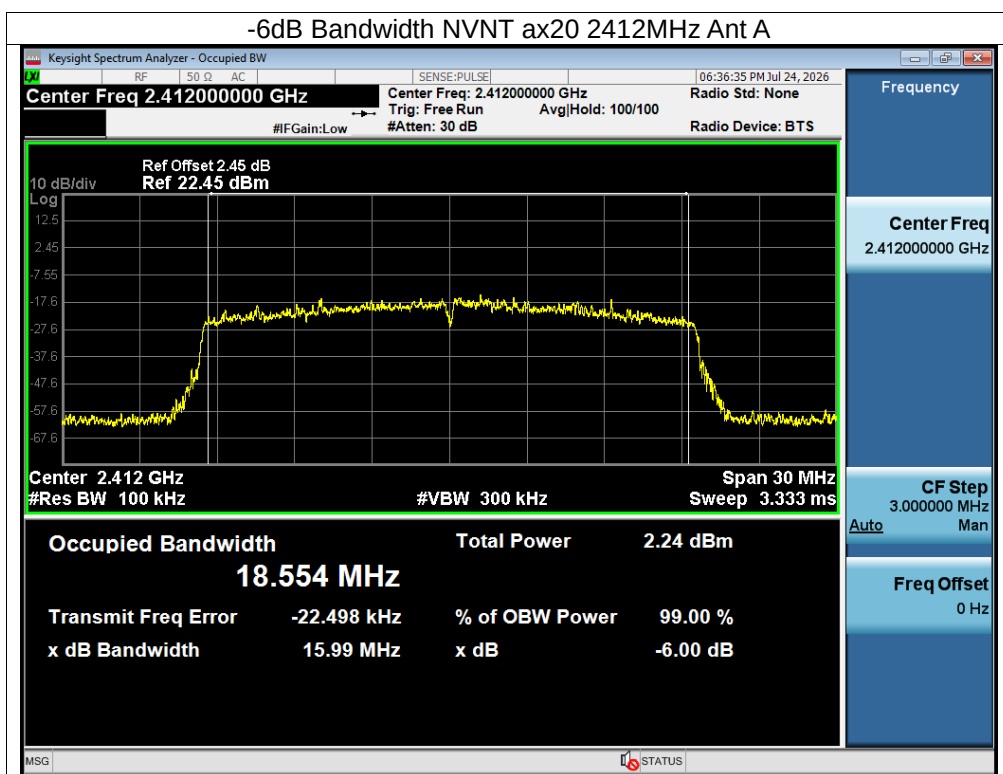


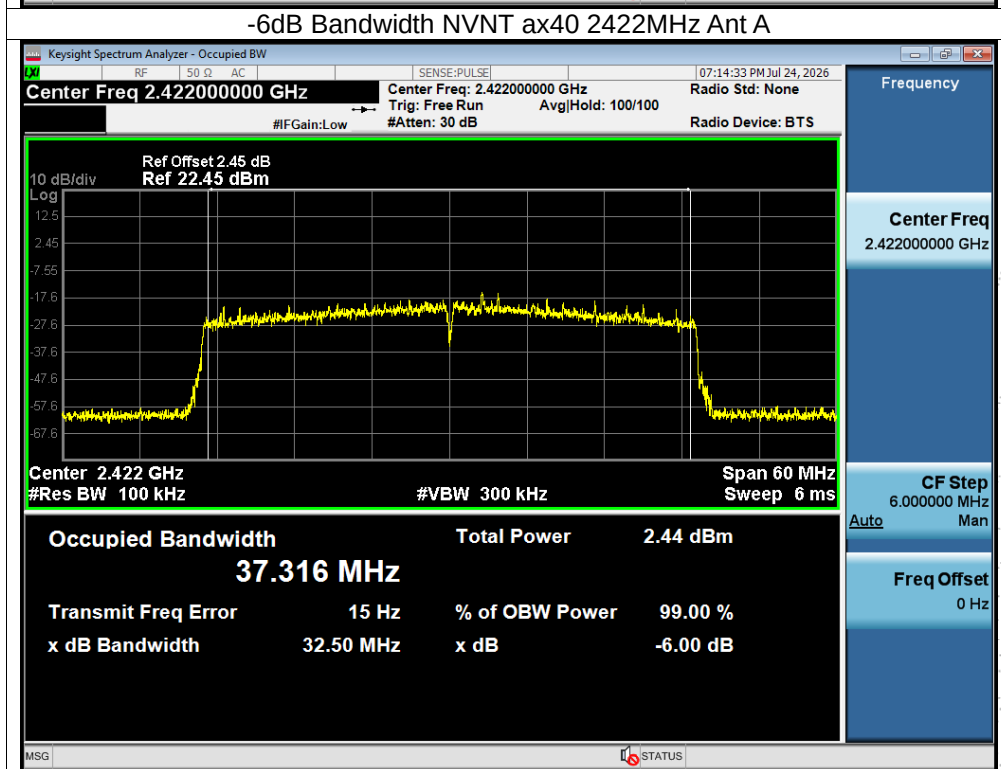
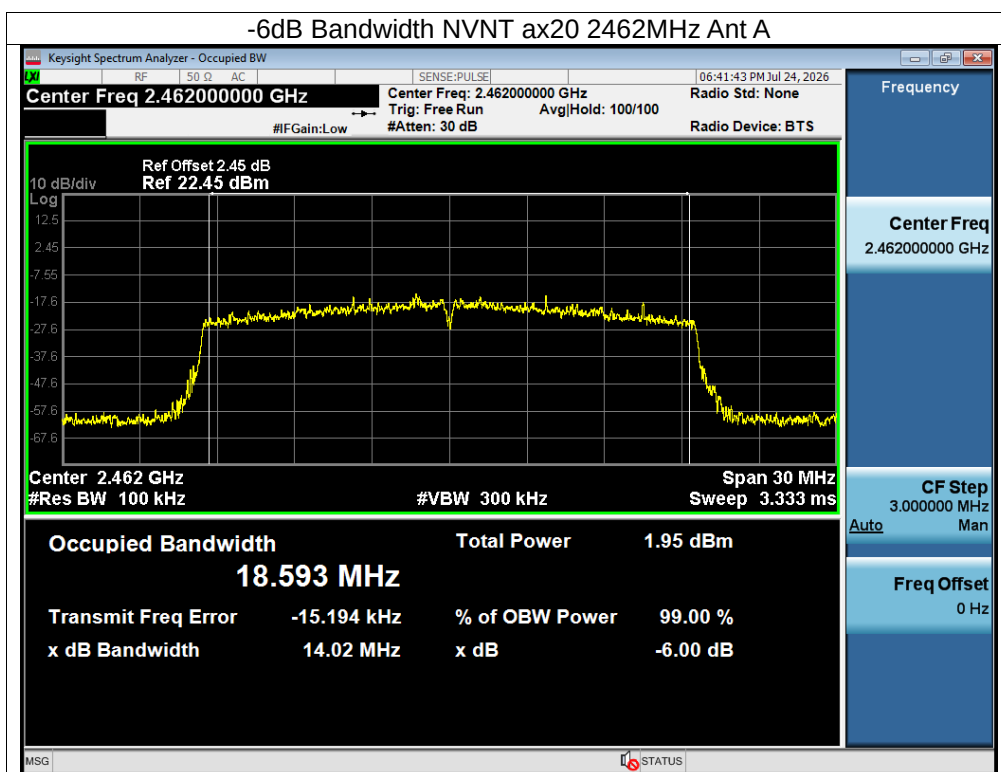




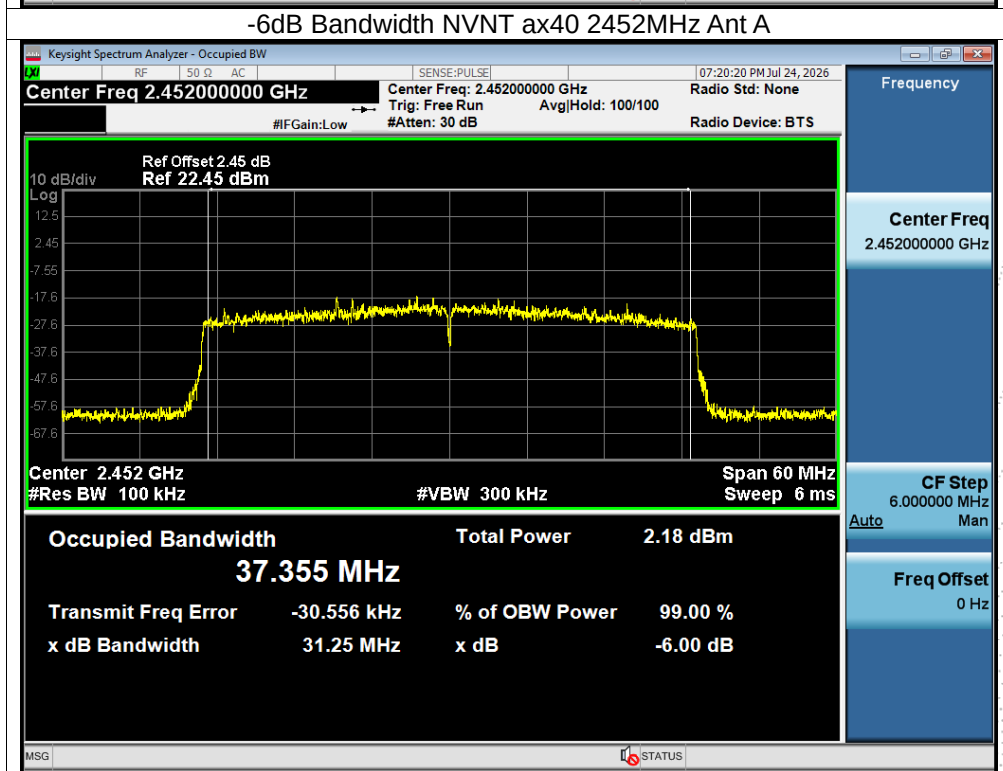
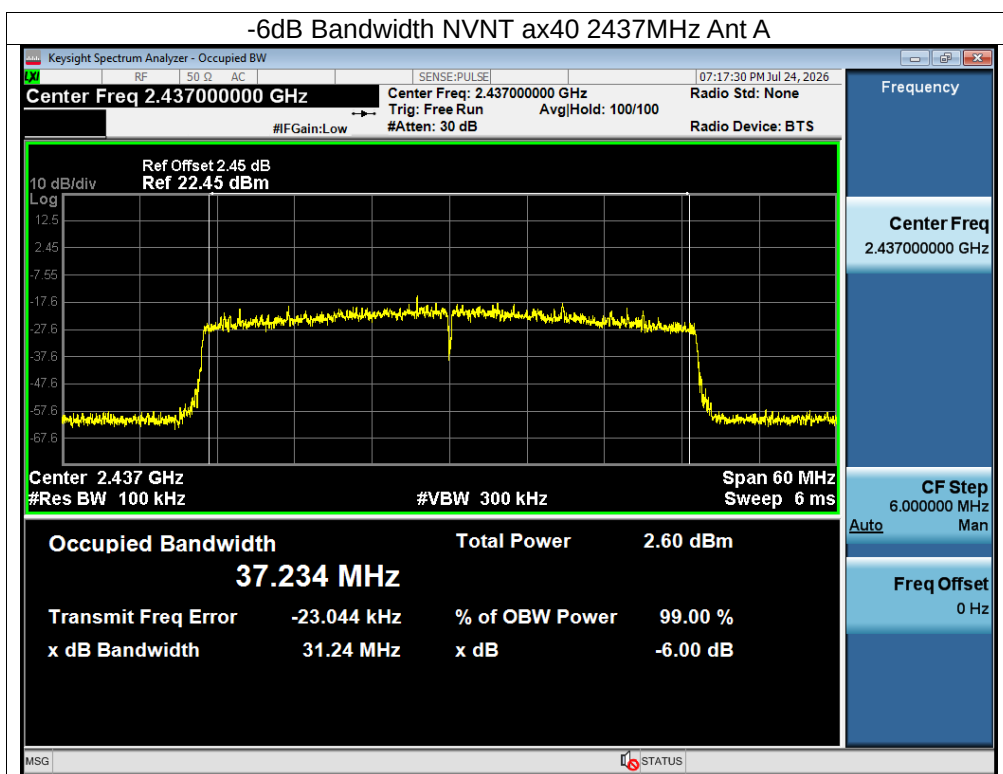








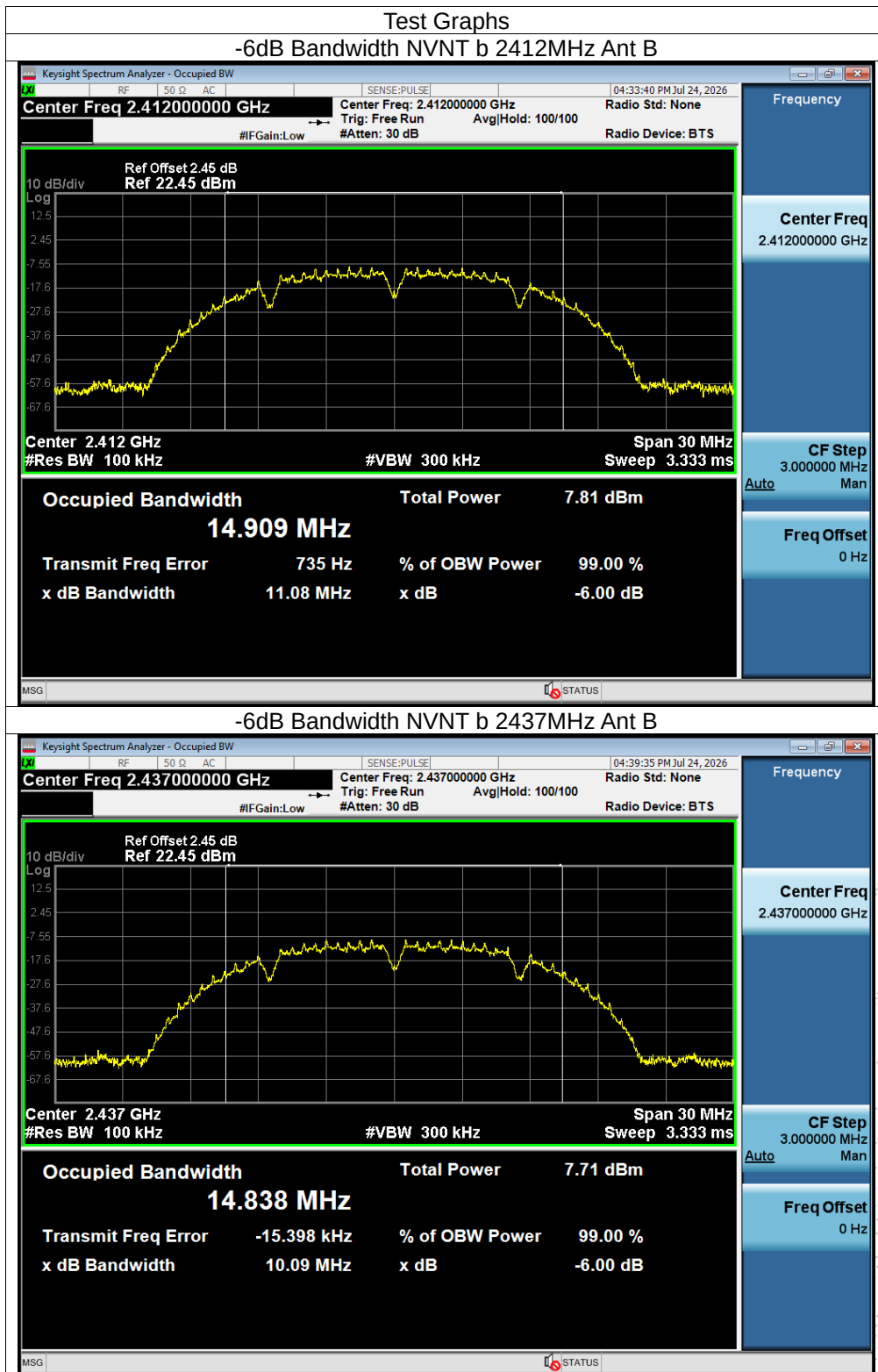
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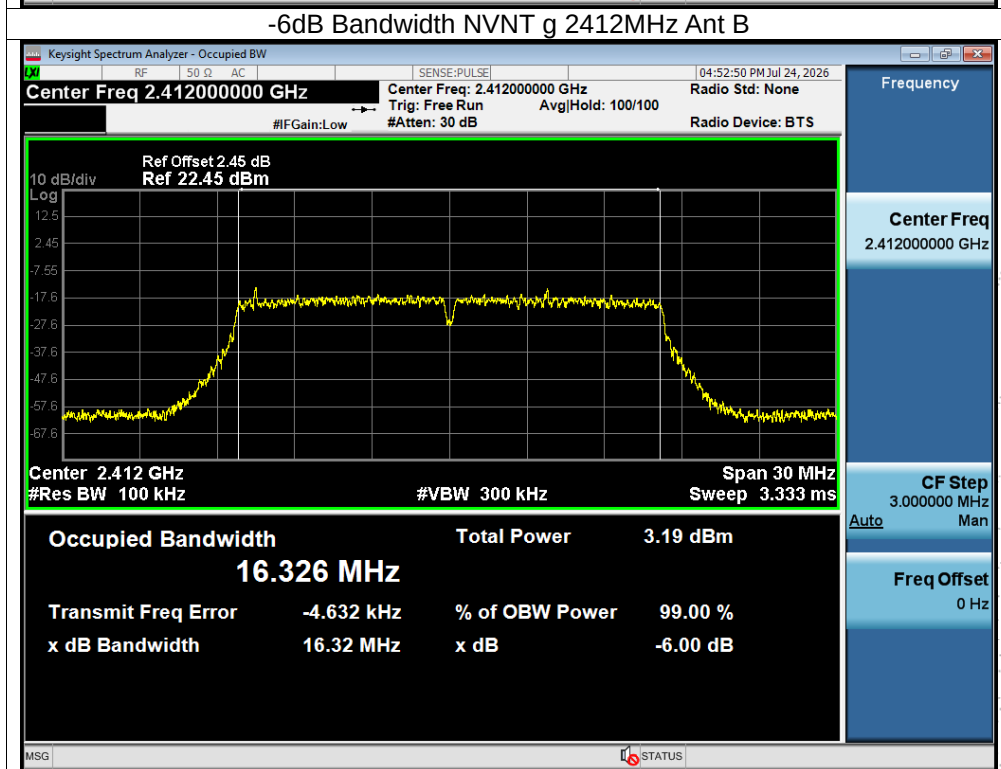
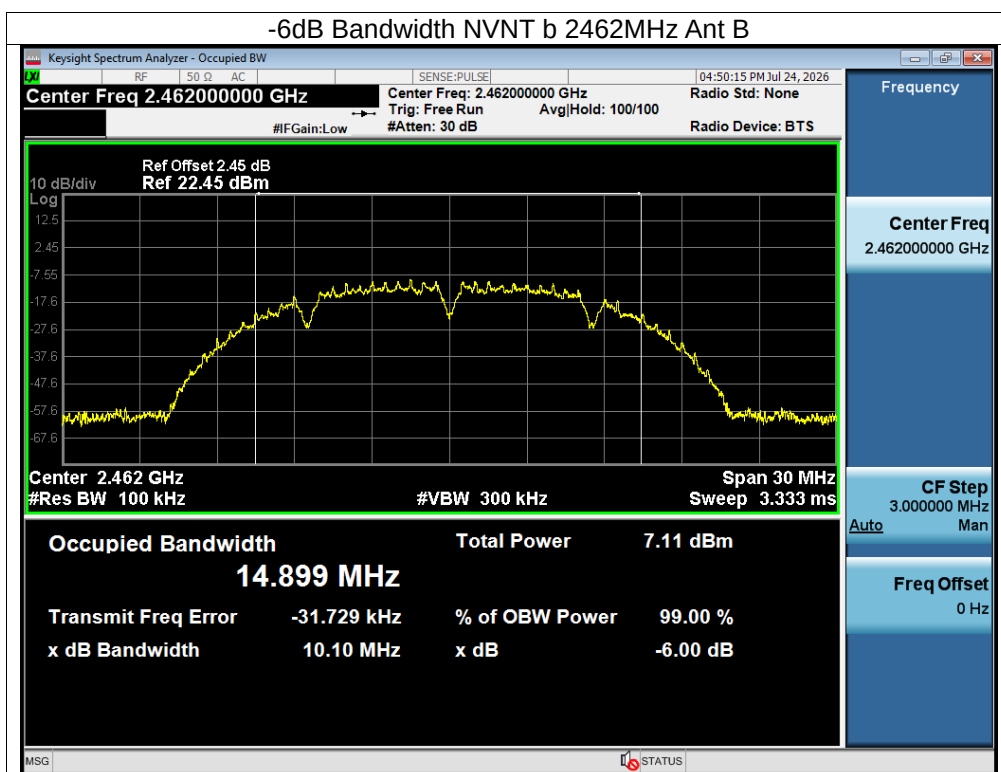


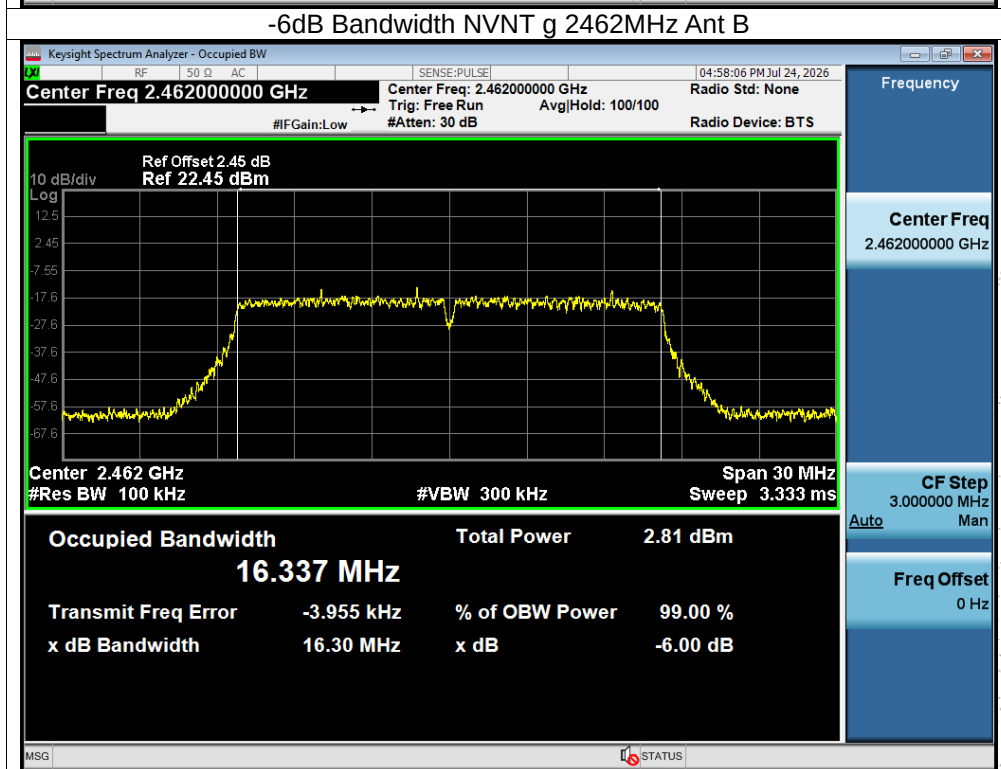
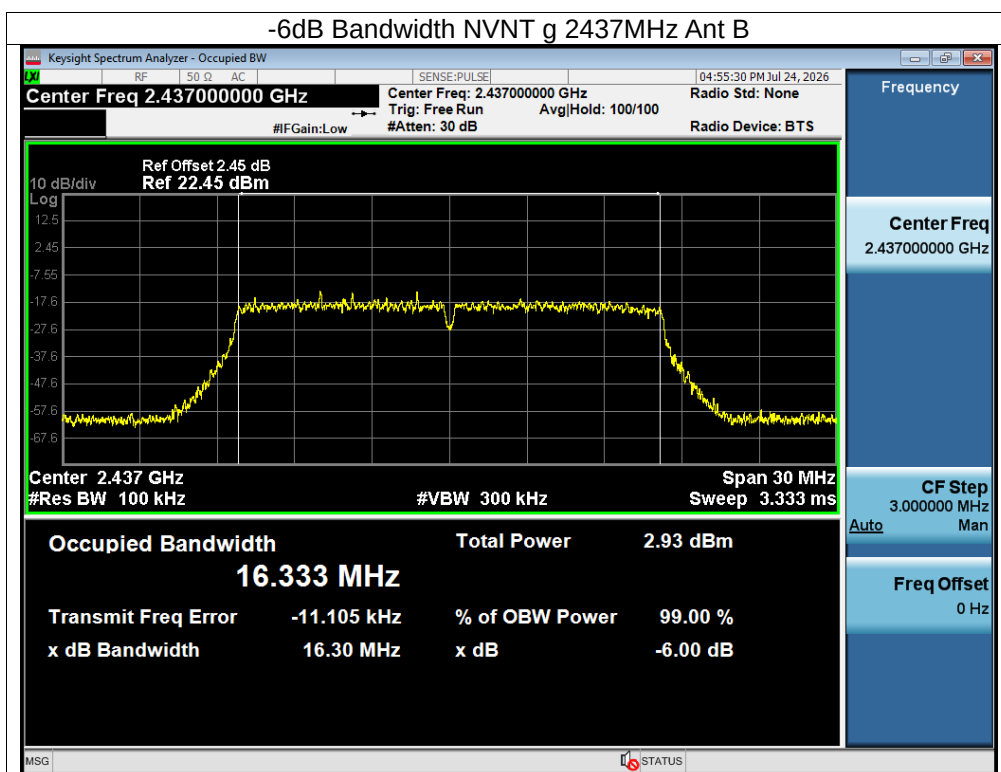
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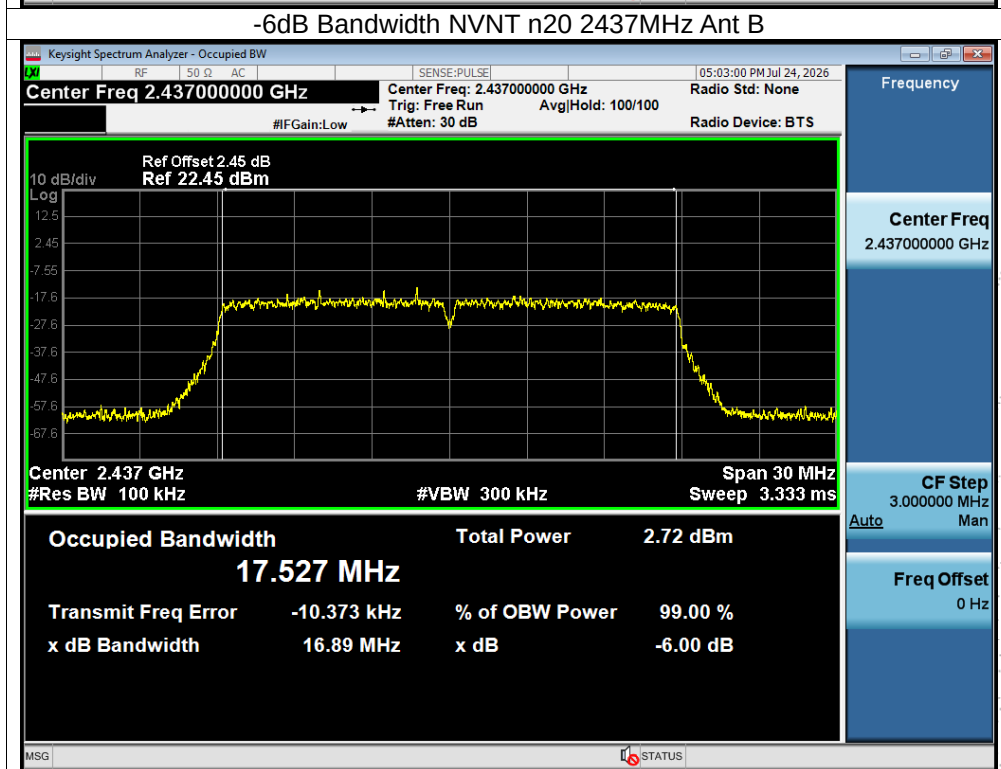
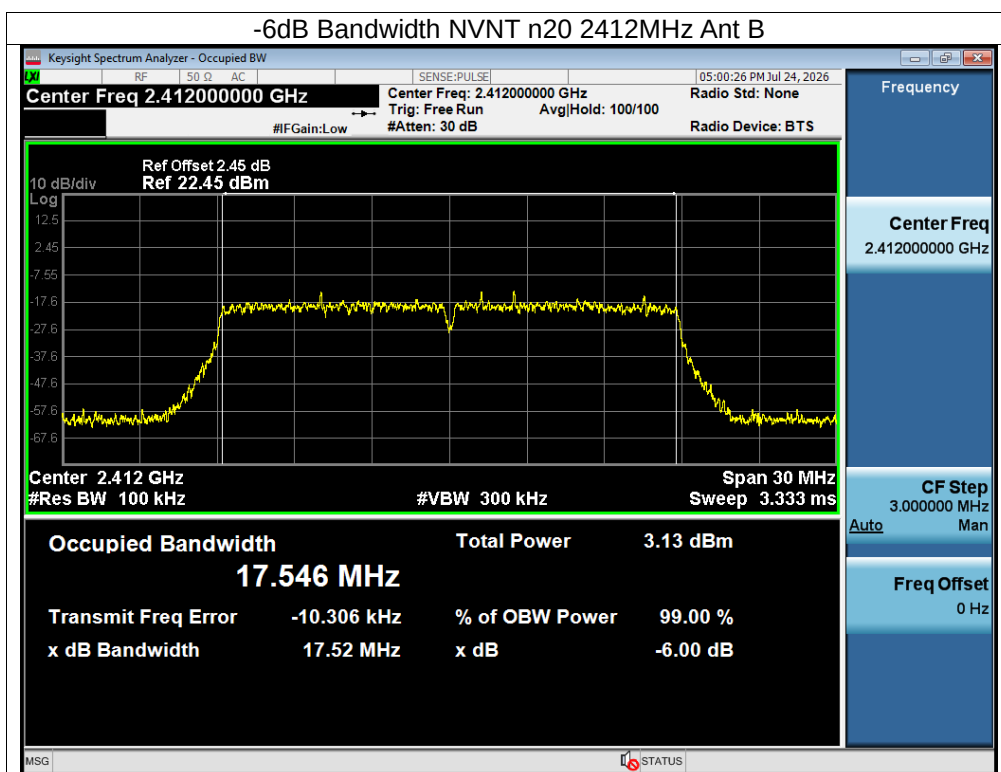


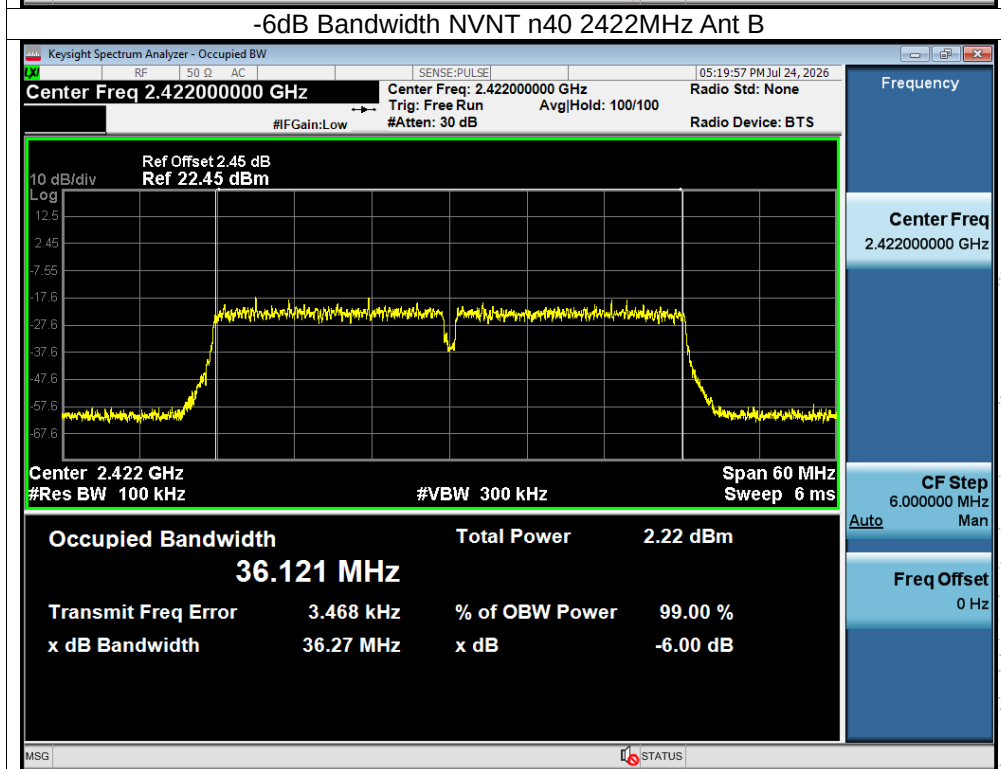
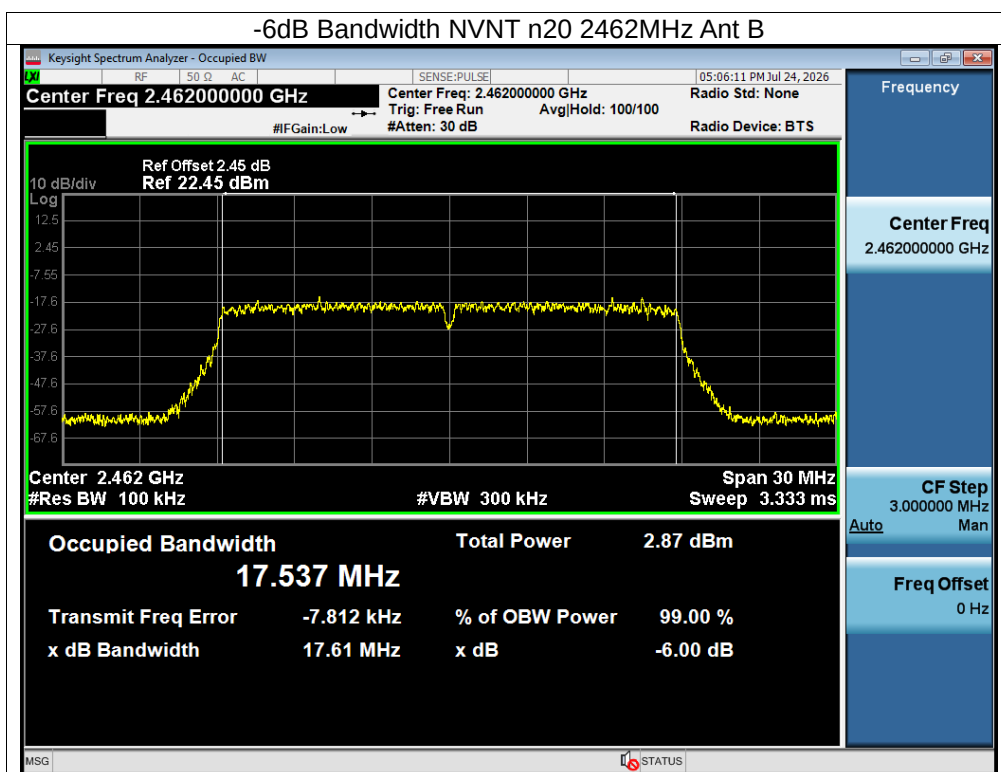
Ant B











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