



JAPAN RADIO TEST REPORT

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Manufacturer: SHENZHEN XGRIDS-INNOVATION CO., LTD
Address: 2403&2404, 24 Floor, Building 1B, Shenzhen International Innovation Valley,
Liuxiandong, Nanshan District, Shenzhen, Guangdong, China
Product Name: Mobile Lidar Scanner
Trademark: XGRIDS、XGRIDS Lixel、Lixel
Model Number: Lixel K2
Date of Receipt: Mar. 12, 2026
Test Date: Mar. 12, 2026 - Apr. 17, 2026
Date of Report: Apr. 17, 2026
Prepared By: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area,
No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District,
Shenzhen, China
Applicable Standards: ARIB STD T-66 Ver.3.7
Article2 Paragraph 1, item 19
MIC Notice No.88 Appendix No.43
Test Result: Pass
Report Number: DLE-260312012R

Prepared (Test Engineer): Ken Tan
Reviewer (Supervisor): Jack Bu
Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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1. TECHNICAL INFORMATION

Note: the following data is based on the information by the applicant.

1.1 EUT DESCRIPTION

Product Name:	Mobile Lidar Scanner
Trademark:	XGRIDS、XGRIDS Lixel、Lixel
Model Number:	Lixel K2
Test Model:	Lixel K2
Model Difference:	N/A
Bit Rate of Transmitter:	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: 6M/9M/12M/18M/24M/36M/48M/65M
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n (HT20): DSSS (CCK, DQPSK, DBPSK)+802.11n (HT40): OFDM(QPSK, BPSK, 16-QAM, 64-QAM)
Operation Frequency:	2412~2472 MHz for 802.11b/g/n HT20 2422~2462 MHz for 802.11n HT40
Antenna Designation:	Internal Antenna1 (Antenna Gain: 0.13dBi) Internal Antenna2 (Antenna Gain: 0.13dBi)
Channel No.:	13 Channels for 802.11b/g/n HT20 9 channels for 802.11n HT40
channel space	5MHz
Rated RF Output Power Density:	802.11b:5mW/MHz, 802.11g:5mW/MHz 802.11nHT20:5mW/MHz, 802.11nHT40:4mW/MHz
Power supply:	DC 14.4V from battery DC 5V from TYPE-C Port
Battery Charger:	Model: FY1681200 Input: 100-240V~50/60Hz, 1.5A Output: 16.8V  1.2A Manufacturer: Dongguan Fuyuan Electronic Co., Ltd.
Test Channel:	For 802.11b/g/nHT20:2.412GHz (CH01)/2.442GHz (CH07)/2.472GHz (CH13) For 802.11nHT40:2.422GHz (CH03)/2.442GHz (CH07)/2.462GHz (CH11)
Hardware Version:	HV01
Software Version:	SV01

Note:

1. Only the WIFI was tested according the standard requirement.
2. CH01~CH13 are Operating within 2412~2472MHz.
3. Please refer to Appendix I for the photographs of the EUT. For more details, please refer to the User's manual of the EUT.

**1.2 CHANNEL LIST(802.11 b/g/n HT20)**

Channel	Frequency (GHz)	Channel	Frequency (GHz)
01	2.412	08	2.447
02	2.417	09	2.452
03	2.422	10	2.457
04	2.427	11	2.462
05	2.432	12	2.467
06	2.437	13	2.472
07	2.442		
		--	--

CHANNEL LIST (802.11 n HT40)

Channel	Frequency (GHz)	Channel	Frequency (GHz)
03	2.422	08	2.447
04	2.427	09	2.452
05	2.432	10	2.457
06	2.437	11	2.462
07	2.442		

1.3 DESCRIPTION OF TEST MODES

The WIFI module was tested while in a continuous transmitter/receiver mode.

The EUT was tuned to a low, middle, and high channel for all tests. For all test case pre/scans were completed in all

Modes to determine worst case levels.

The EUT was tuned to a low, middle, and high channel for all tests. For all test case pre/scans were completed in all Modes to determine worst case levels.

Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input DC Power	14.4V	15.84V	12.96V
RF Chip	3.3V	3.3V	3.3V
Voltage Variation (%)	0	0	0

NOTE:

Voltage Variation (%)

= (Output high or Low Voltage - Output Normal Voltage) / Output Normal Voltage * 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/-1%. Exempt extremely high and low supply voltage condition test, EUT only operated in normal voltage to test all regulations.

The RF Chip voltage on the motherboard inside the product does not change more than 1%.



2.TEST ITEMS AND THE RESULTS

Part	Rule Section	Description of Test	Result
4.1	3	Frequency Error	Complies
4.2	4	Occupied Bandwidth (99%) and Spread-spectrum Bandwidth (90%)	Complies
4.3	5	Unwanted Emission Intensity	Complies
4.4	6	Antenna Power Error	Complies
4.5	7	Limitation of Collateral Emission of Receiver	Complies
4.6	8	Transmission Antenna Gain (EIRP Antenna Power)	N/A
4.7	9	Transmission Radiation Angle Width (3dB Beamwidth)	N/A
4.8	10	Radio Interference Prevention Capability	Complies
4.9	Note1	Carrier Sense Capability 1	N/A
4.9	Note2	Carrier Sense Capability 2	Complies
4.10	Note3	Construction Protection Confirmation	Complies

Note 1: Application to transmitting devices which EIRP is less than (2.14dBi+ antenna power limit) and the shortage of EIRP is compensated by the antenna power. Not applicable to this product.

Note 2: Apply for 802.11n40 which the Occupied bandwidth within 26MHz-40MHz.

Note 3: MIC Ordinance Regulating Radio Equipment Section 4.17 of Article 49.20

2.1 TEST FACILITY

Shenzhen DL Testing Technology Co., Ltd.

Add.: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118

CNAS: L11567



2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 3.2\text{dB}$
2	Radiated Emission Test	$\pm 4.7\text{dB}$
3	RF power, conducted	$\pm 0.16\text{dB}$
4	Spurious emissions, conducted	$\pm 0.21\text{dB}$
5	All emissions, radiated (<1G)	$\pm 4.68\text{dB}$
6	All emissions, radiated(>1G)	$\pm 5.0\text{dB}$
7	frequency error ppm	$\pm 0.5\text{ppm}$
8	Occupied Bandwidth	$\pm 0.32\text{MHz}$



3. DETAILS OF TEST

3.1 LIST OF TEST EQUIPMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated until
1	SPECTRUM ANALYZER	AGILENT	E4407B	160400005	Oct. 25, 2025	Oct. 24, 2026
2	TEST RECEIVER	R&S	ESPI	101318	Oct. 25, 2025	Oct. 24, 2026
3	BILOG ANTENNA	TESEQ	CBL6111D	31216	Oct. 25, 2025	Oct. 24, 2026
4	50Ω COAXIAL SWITCH	ANRITSU	MP59B	6200264416	Oct. 25, 2025	Oct. 24, 2026
5	SPECTRUM ANALYZER	ADVANTEST	R3132	150900201	Oct. 25, 2025	Oct. 24, 2026
6	HORN ANTENNA	EM	EM-AH-10180	2011071402	Oct. 25, 2025	Oct. 24, 2026
7	HORN ANT	SCHWARZBECK	BBHA 9170	9170-181	Oct. 25, 2025	Oct. 24, 2026
8	AMPLIFIER	EM	EM-30180	060538	Oct. 25, 2025	Oct. 24, 2026
9	LOOP ANTENNA	ARA	PLA-1030/B	1029	Oct. 25, 2025	Oct. 24, 2026
10	POWER METER	R&S	NRVS	100696	Oct. 25, 2025	Oct. 24, 2026
11	TEST RECEIVER	R&S	ESCI	101160	Oct. 25, 2025	Oct. 24, 2026
12	SPECTRUM ANALYZER	AGILENT	N9020A	MY55370280	Oct. 25, 2025	Oct. 24, 2026
13	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	106504	Oct. 25, 2025	Oct. 24, 2026
14	50Ω COAXIAL SWITCH	ANRITSU	MP59B	6200264417	Oct. 25, 2025	Oct. 24, 2026

Note: All Equipments Calibration In Guangzhou GRE Metrology & Test Co., Ltd

(a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) in Japan (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1) in JRL.

(b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No. 51 of 1992) .

(c) Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

(d) Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc. listed above from (a) to (C) From JRL Article 24-2, paragraph 4, Item 2

3.2 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 24.6°C
- Humidity: 55.4%
- Atmospheric pressure: 101 kPa



4. TEST RESULTS

4.1 FREQUENCY ERROR MEASUREMENT

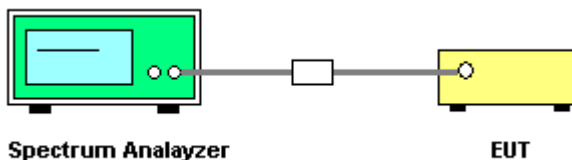
4.1.1. LIMIT

Item	Limits
Frequency Tolerance (2402~2483.5MHz)	$\leq \pm 50\text{ppm}$

4.1.2. TEST PROCEDURES

1. Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm)
2. Setting of SA is following as: RB:10kHz / VB:10kHz / SPAN: auto/
AT: 10dB / Ref: 0dBm
3. Center Frequency: The center frequency of testing for EUT
4. Sweep time: Auto
5. Sweep mode: Continuous sweep
6. Detect mode: Positive peak
7. Mark function: Frequency Counter (Resolution 100Hz)
8. EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value, f_c is declaring of channel frequency.
Then the frequency error formula is $(f_c - f) / f_c \times 10^6$ ppm and the limit is less than $\pm 50\text{ppm}$

4.1.3. TEST SETUP LAYOUT



4.1.4. TEST DEVIATION

There is no deviation with the original standard.

4.1.5. EUT OPERATION DURING TEST

The EUT was placed on the test table and programmed in un-modulation function.

**4.1.6. RESULTS OF FREQUENCY ERROR**

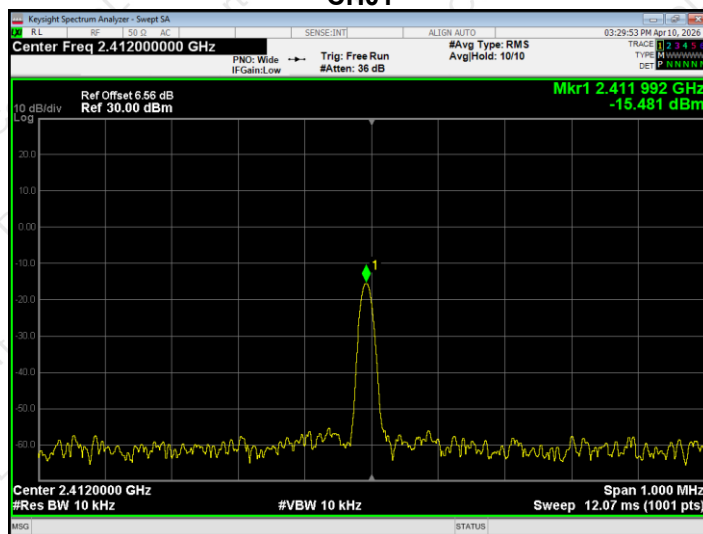
Temperature:	25.6 °C	Relative Humidity:	55.8%	Pressure:	1010mbar
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Operation Mode:	Normal Voltage
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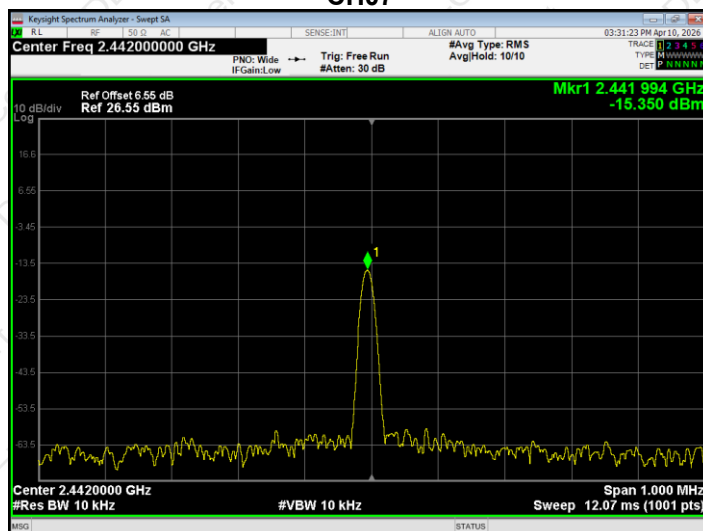
Test Voltage	Test Frequency (MHz)	Measured Frequency (MHz)	Frequency Error(ppm)	Limit (ppm)	P/F
Normal Voltage	2412	2411.992	-3.32	$\leq \pm 50$	PASS
	2442	2441.994	-2.46	$\leq \pm 50$	PASS
	2472	2471.995	-2.02	$\leq \pm 50$	PASS
	2422	2421.995	-2.06	$\leq \pm 50$	PASS
	2462	2461.995	-2.03	$\leq \pm 50$	PASS



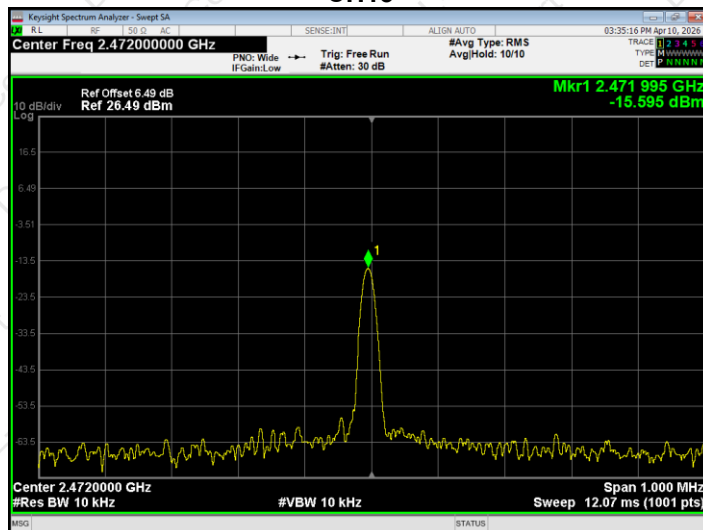
CH01



CH07

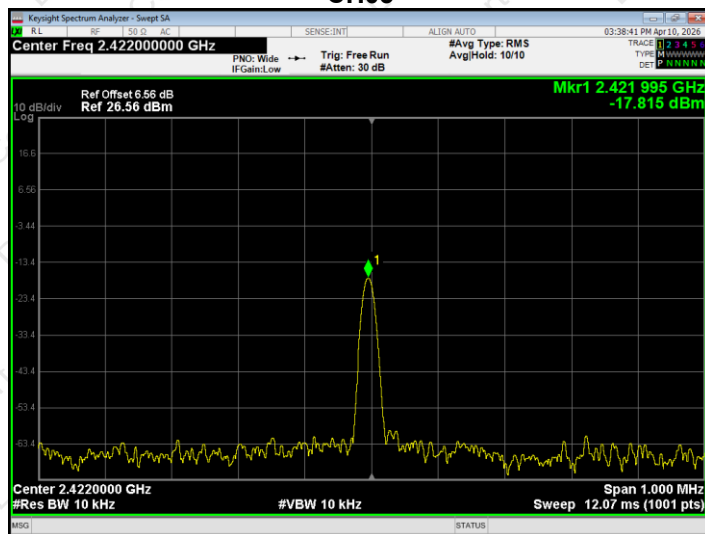


CH13

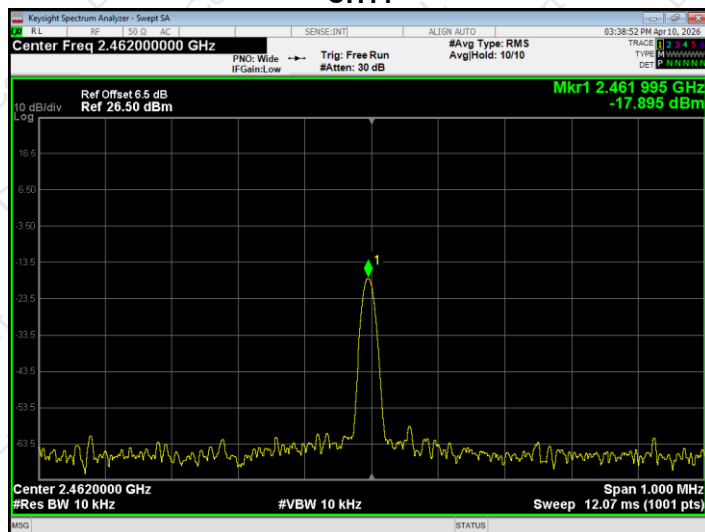




CH03



CH11



4.2. OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH MEASUREMENT

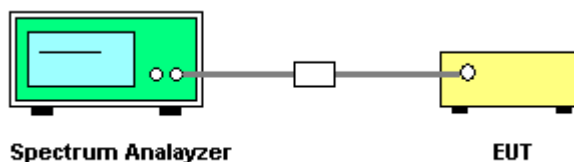
4.2.1. LIMIT

Item	Limits
Occupied Bandwidth:	$\leq 26\text{MHz DSSS}(802.11\text{b/g/n20})$ $\geq 26 \leq 40\text{MHz OFDM}(802.11\text{n40}),$

4.2.2. TEST PROCEDURES

- Setting of SA is following as: RB: 300kHz / VB:300kHz / SPAN: 40MHz(802.11n40 is 80MHz) / AT: 10dB Ref:-20dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- EUT have transmitted the maximum modulation signal and fixed channelize (For DSSS or OFDM Device) or continuous maximum power of hopping mode(For FHSS Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz(For DSSS or OFDM Device) or 83.5MHz(For FHSS Device).

4.2.3. TEST SETUP LAYOUT



4.2.4. TEST DEVIATION

There is no deviation with the original standard.

4.2.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

**4.2.7. RESULTS OF OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH**

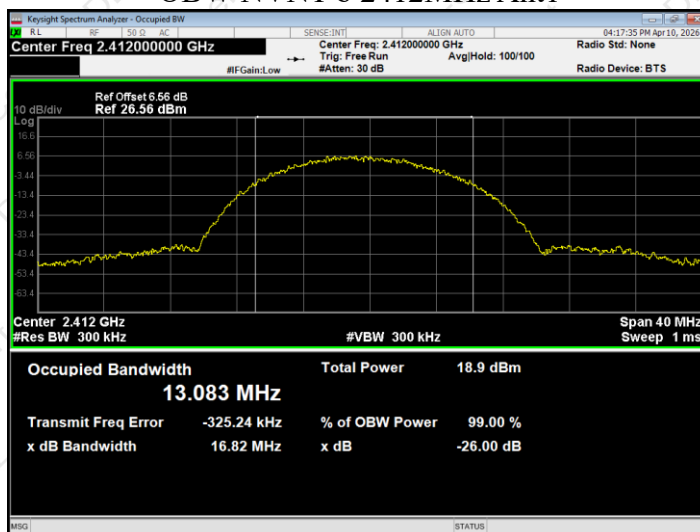
Temperature:	25.6 °C	Relative Humidity:	55.8%	Pressure:	1010mbar
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Test Voltage	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)		Limit (MHz)	Result
		ANT1	ANT2		
Normal Voltage 802.11b	2412	13.083	13.16	≤26MHz	Pass
	2442	12.638	12.585	≤26MHz	Pass
	2472	12.201	12.266	≤26MHz	Pass
Normal Voltage 802.11g	2412	19.762	19.589	≤26MHz	Pass
	2442	16.462	16.439	≤26MHz	Pass
	2472	16.393	16.402	≤26MHz	Pass
Normal Voltage 802.11n(HT20)	2412	18.454	18.362	≤26MHz	Pass
	2442	17.605	17.586	≤26MHz	Pass
	2472	17.602	17.592	≤26MHz	Pass
Normal Voltage 802.11n(HT40)	2422	36.265	36.25	≥ 26 ≤40MHz	Pass
	2442	35.466	35.491	≥ 26 ≤40MHz	Pass
	2462	36.168	36.122	≥ 26 ≤40MHz	Pass

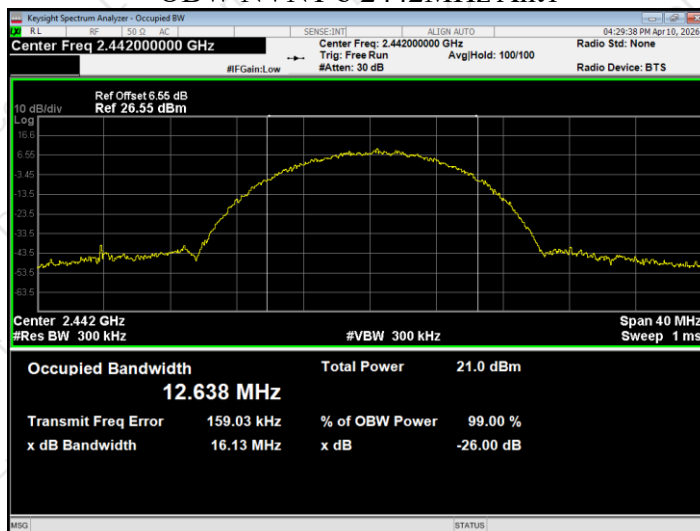
Test Voltage	Test Frequency (MHz)	90% Occupied Bandwidth(Spreading Bandwidth) (MHz)		Result
		ANT1	ANT2	
Normal Voltage 802.11b	2412	8.6863	8.7582	Pass
	2442	8.3999	8.3387	Pass
	2472	7.9477	7.9369	Pass
Normal Voltage 802.11g	2412	14.741	14.897	Pass
	2442	13.948	14.068	Pass
	2472	13.732	13.745	Pass
Normal Voltage 802.11n(HT20)	2412	15.807	15.705	Pass
	2442	14.672	14.736	Pass
	2472	14.519	14.606	Pass
Normal Voltage 802.11n(HT40)	2422	32.477	32.433	Pass
	2442	28.586	28.418	Pass
	2462	31.577	31.528	Pass



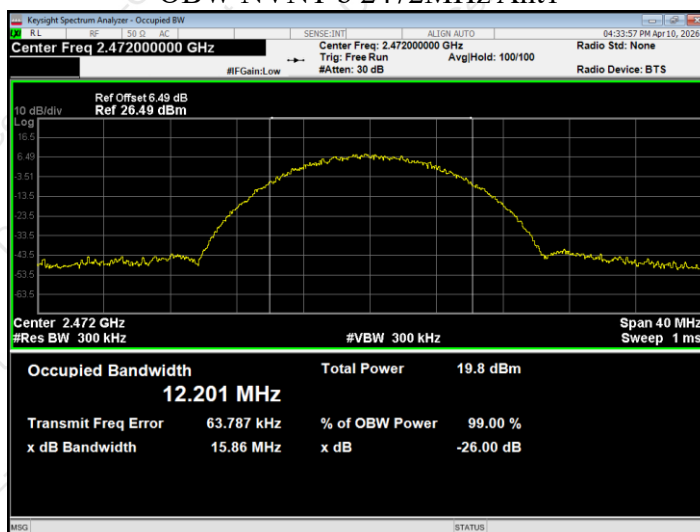
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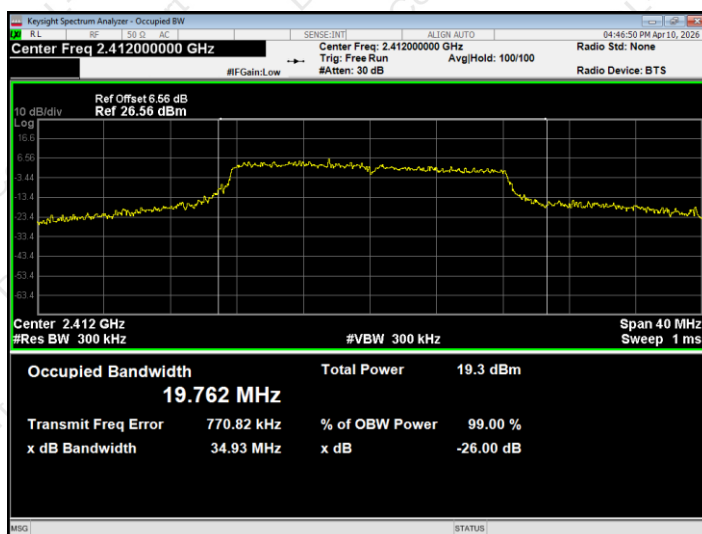
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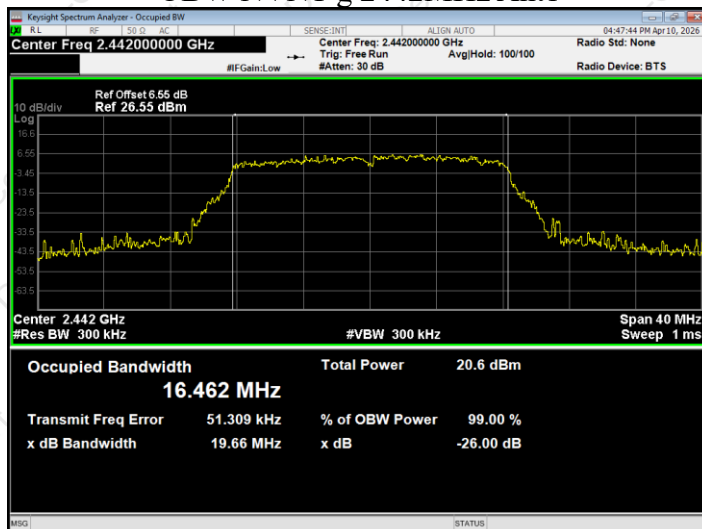
OBW NVNT b 2472MHz Ant1



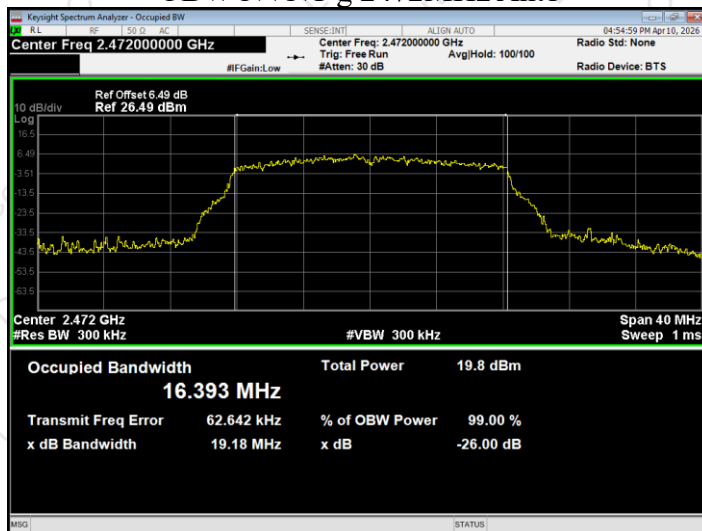
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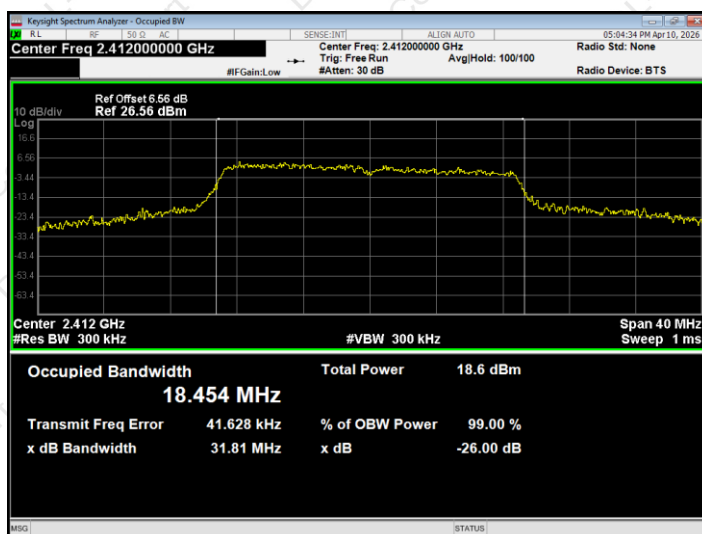
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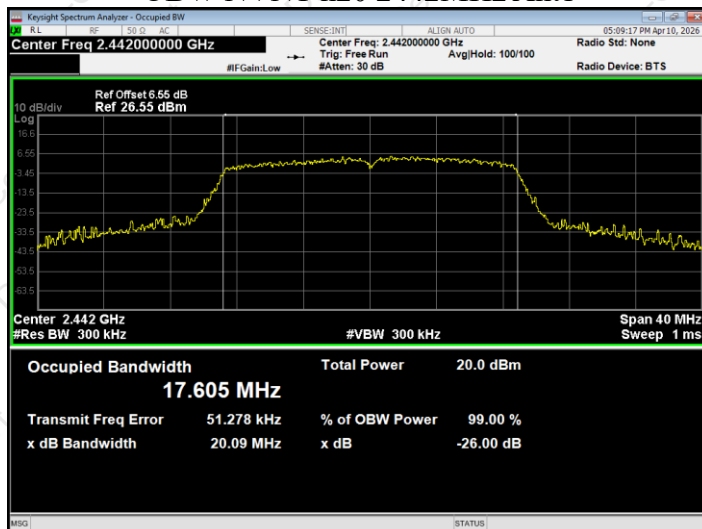
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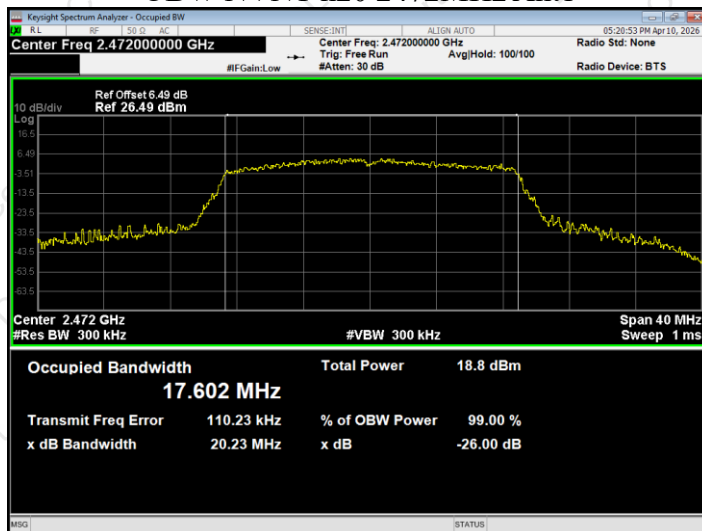
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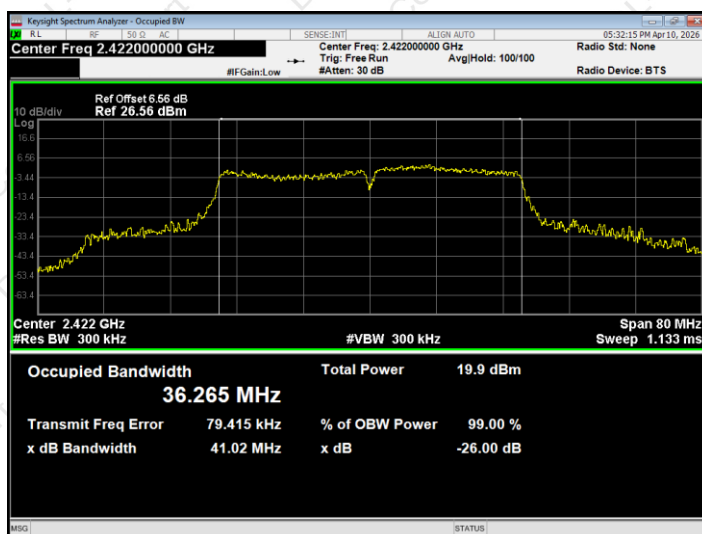
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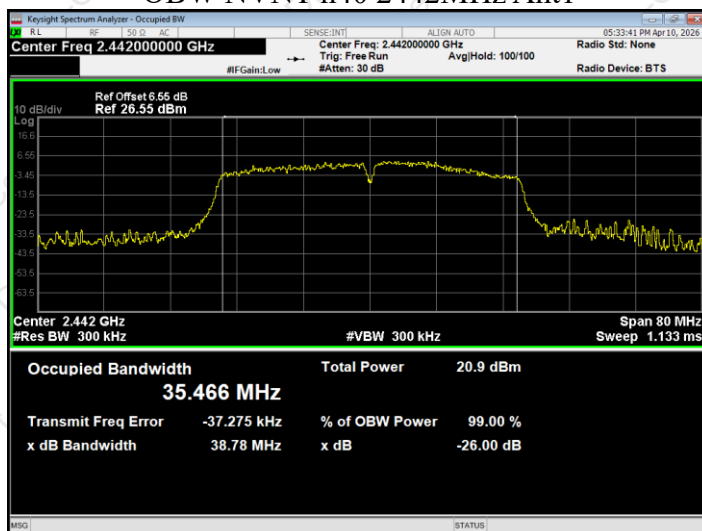
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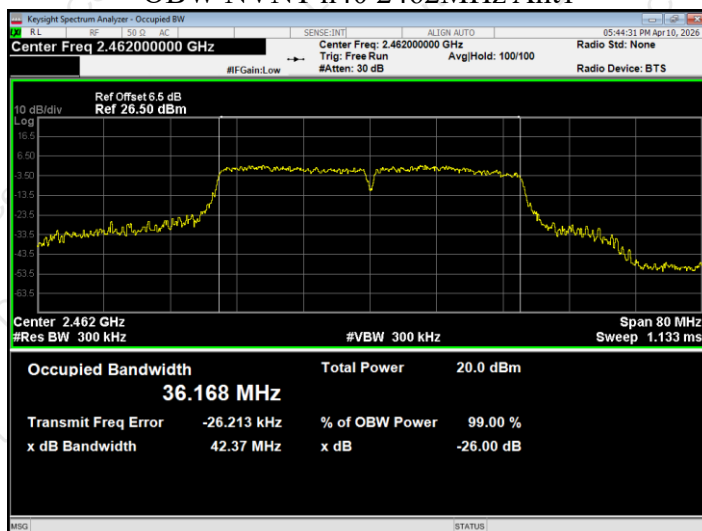
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OBW NVNT n40 2442MHz Ant1

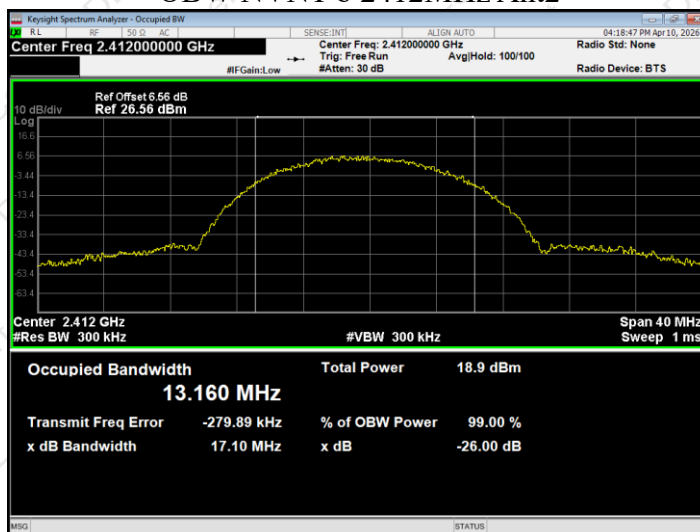


OBW NVNT n40 2462MHz Ant1

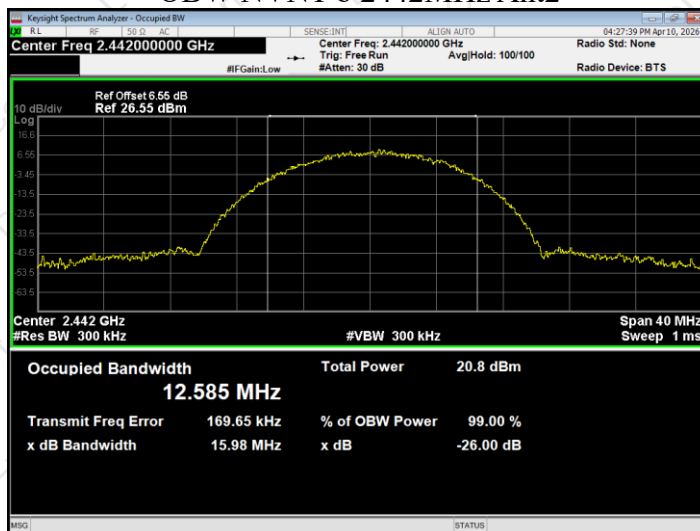




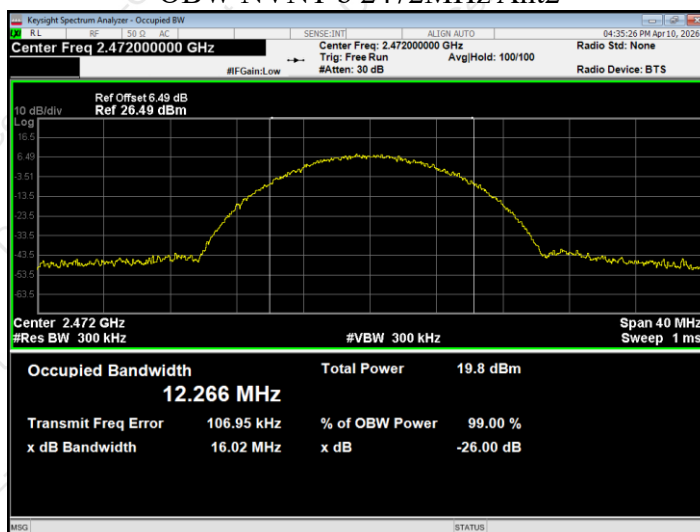
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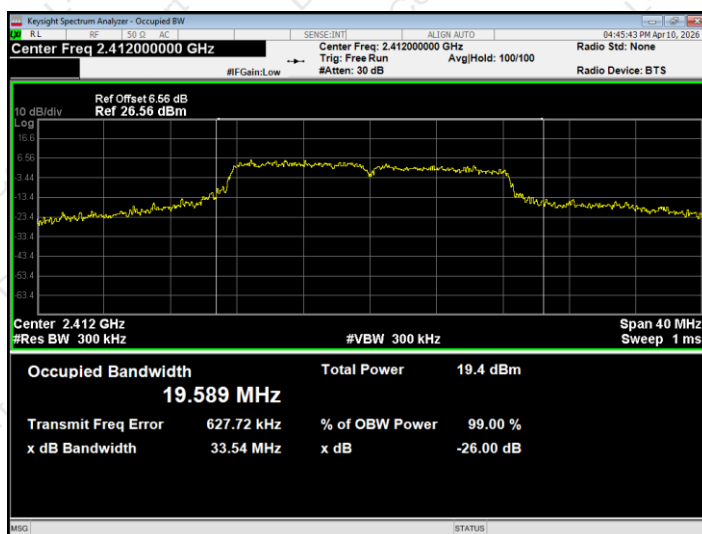
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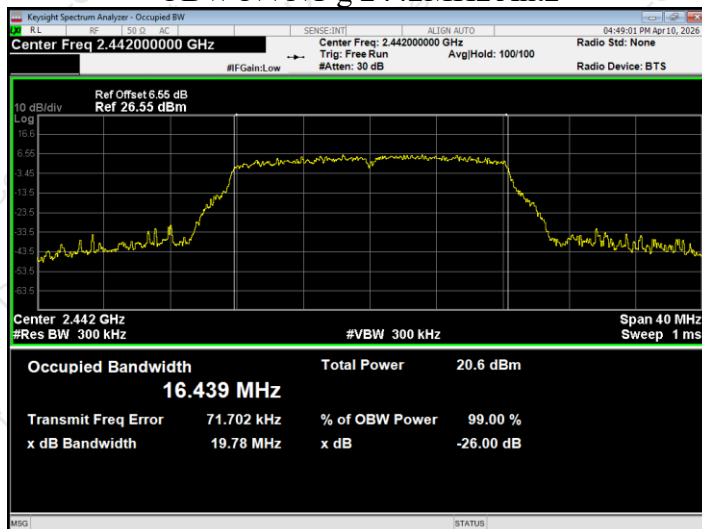
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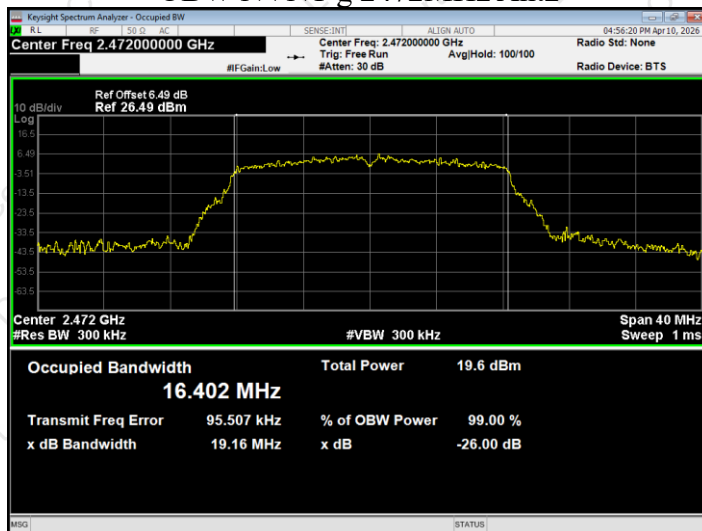
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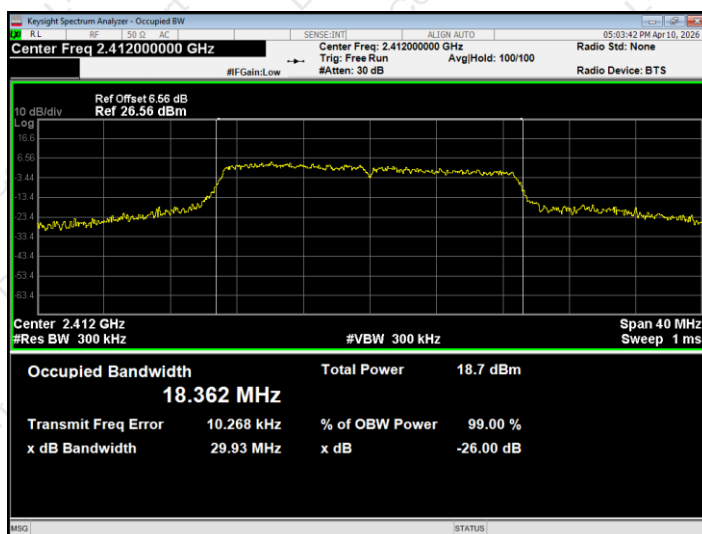
OBW NVNT g 2442MHz Ant2



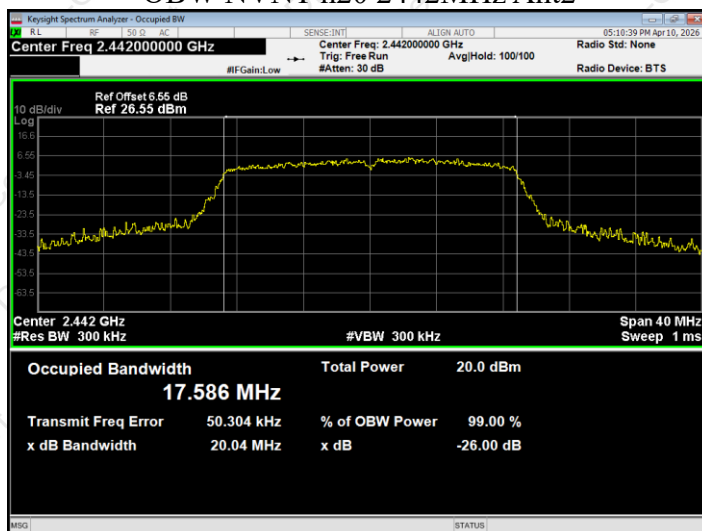
OBW NVNT g 2472MHz Ant2



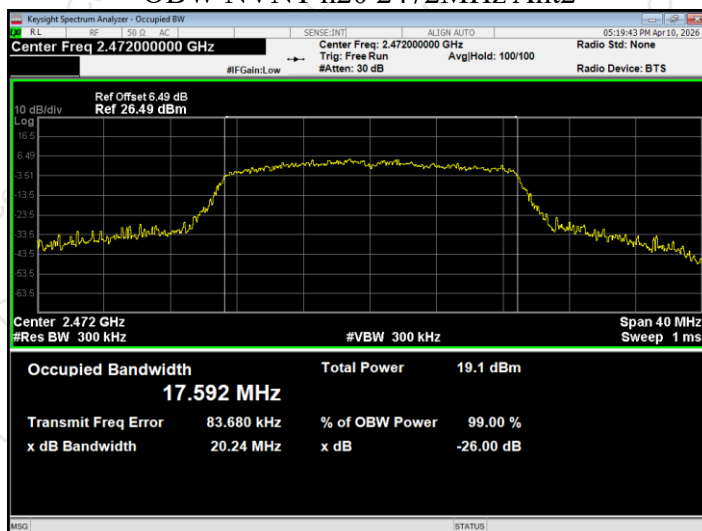
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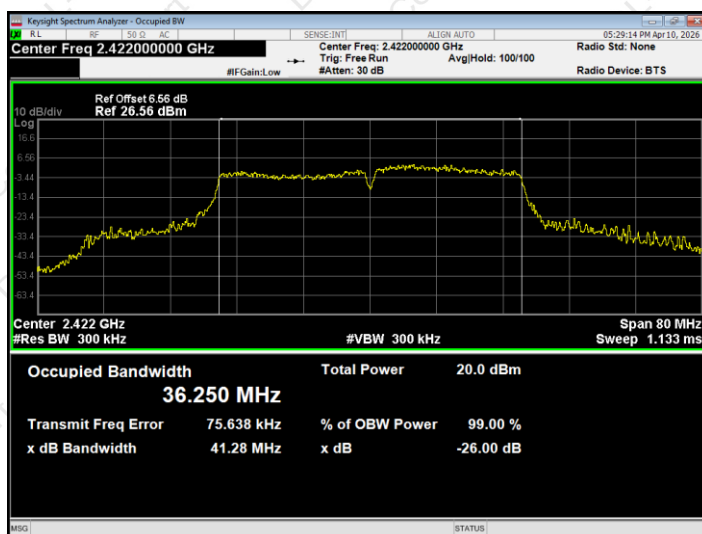
OBW NVNT n20 2442MHz Ant2



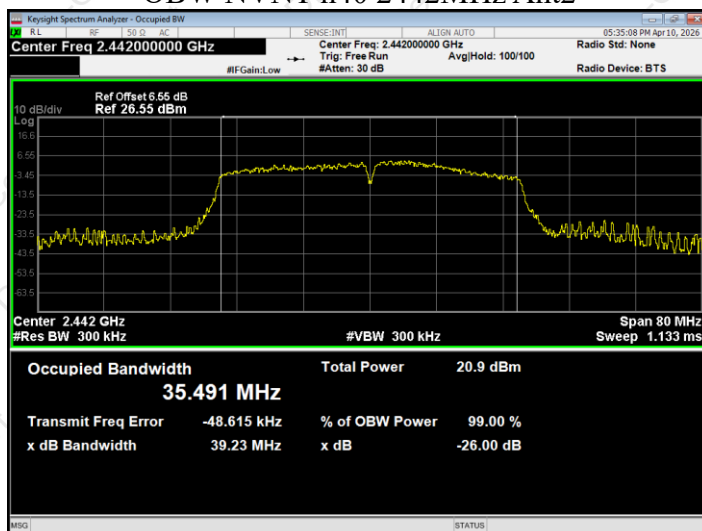
OBW NVNT n20 2472MHz Ant2



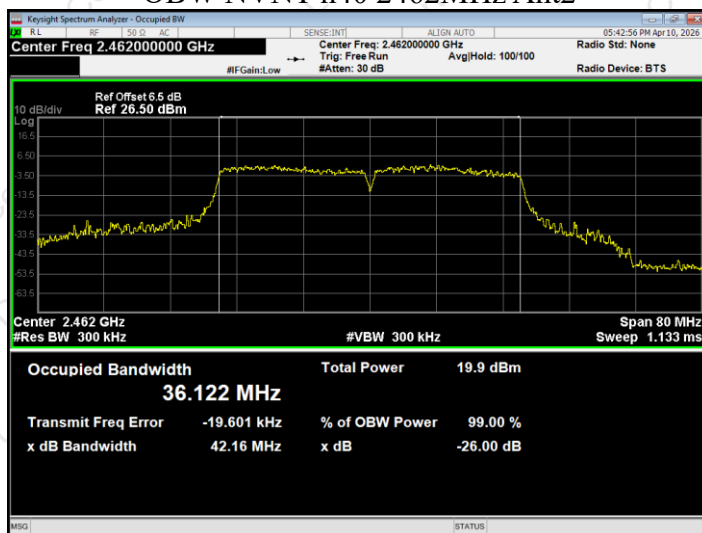
OBW NVNT n40 2422MHz Ant2



OBW NVNT n40 2442MHz Ant2

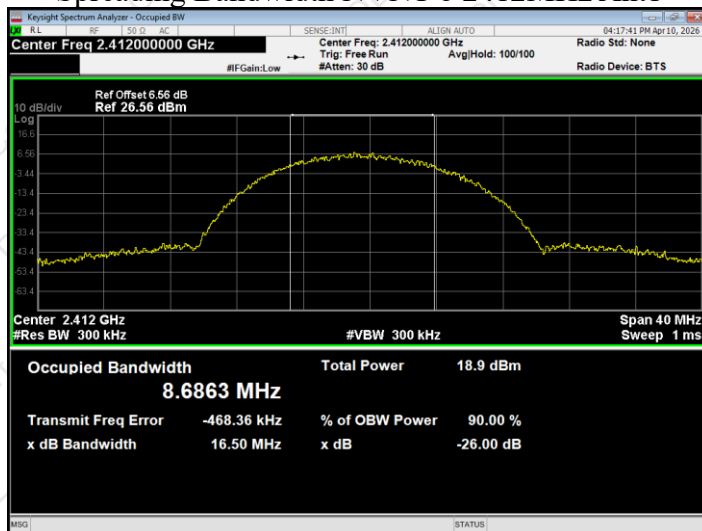


OBW NVNT n40 2462MHz Ant2

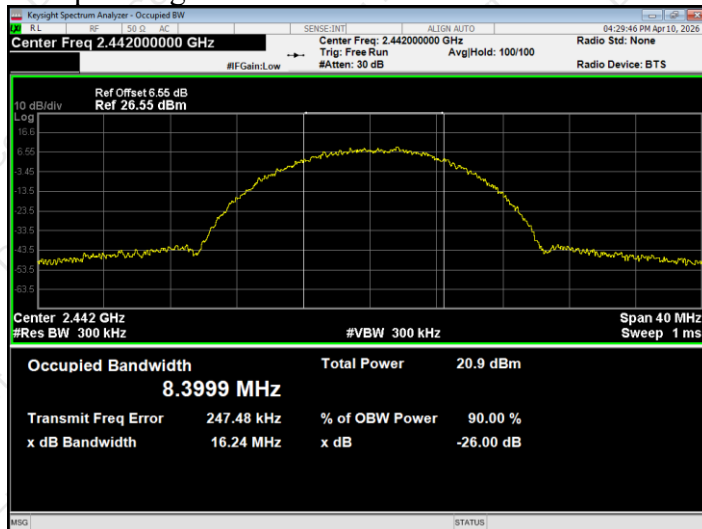




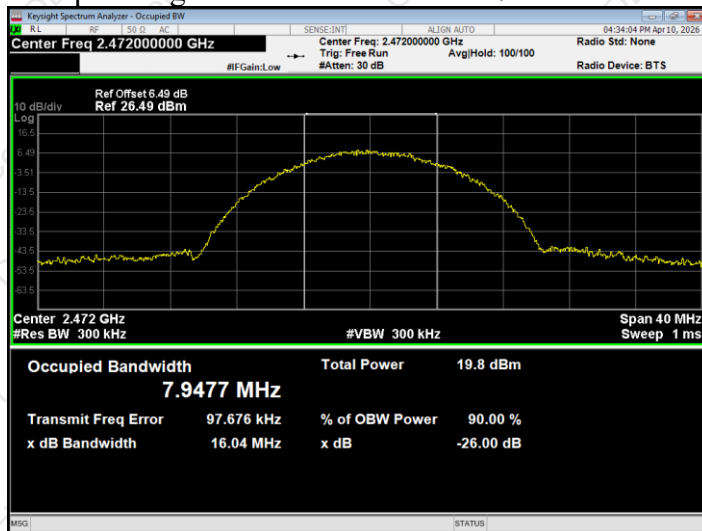
Spreading Bandwidth NVNT b 2412MHz Ant1



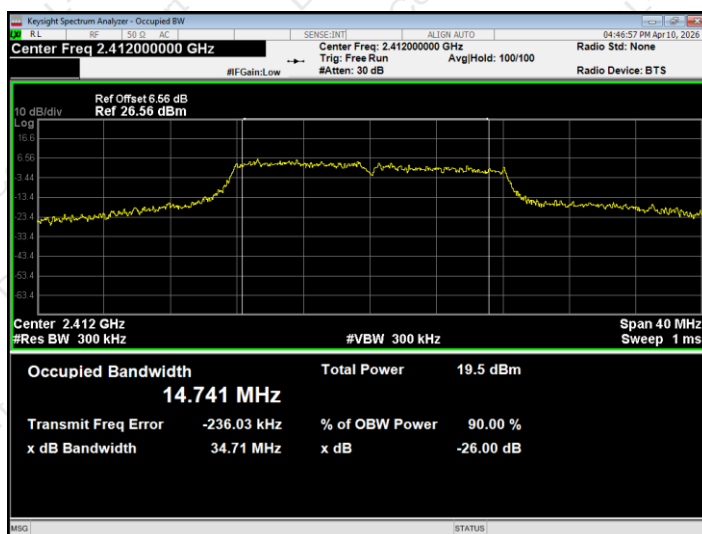
Spreading Bandwidth NVNT b 2442MHz Ant1



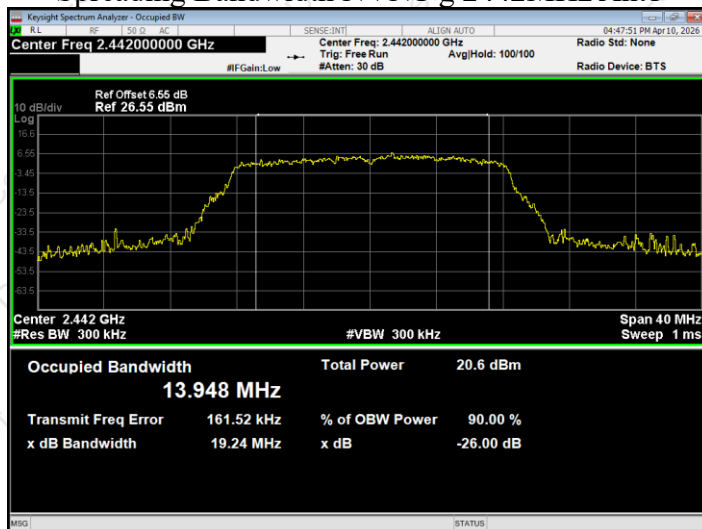
Spreading Bandwidth NVNT b 2472MHz Ant1



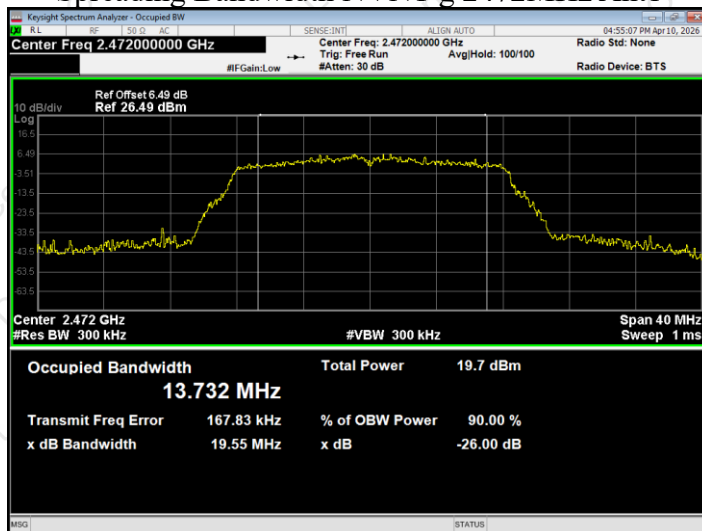
Spreading Bandwidth NVNT g 2412MHz Ant1



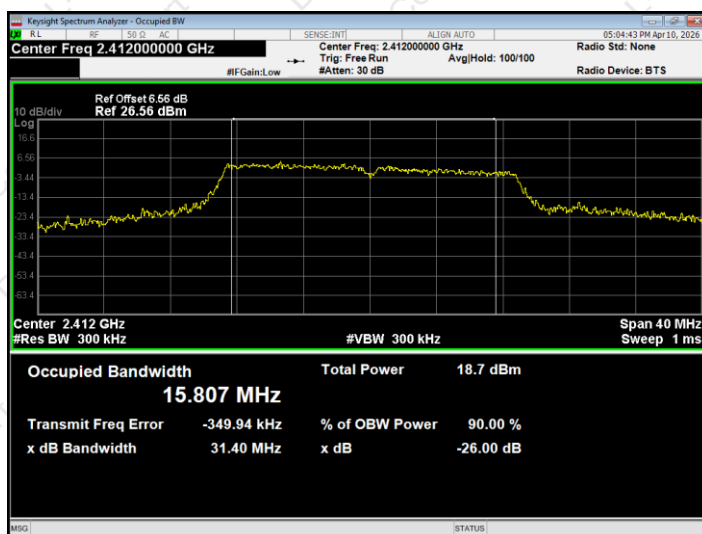
Spreading Bandwidth NVNT g 2442MHz Ant1



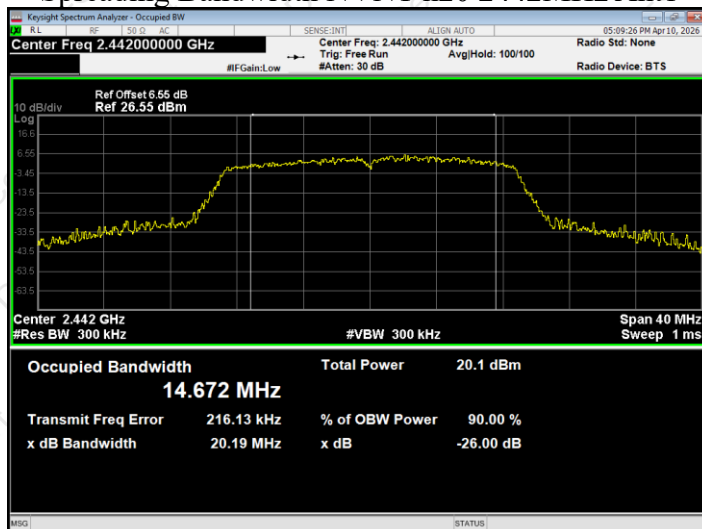
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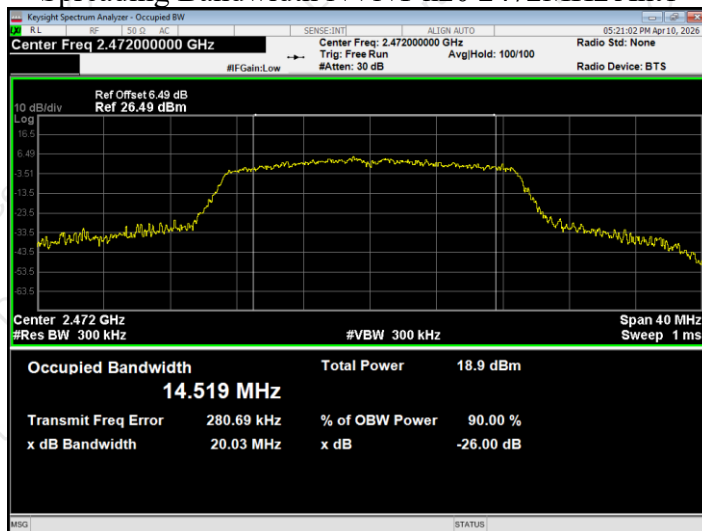
Spreading Bandwidth NVNT n20 2412MHz Ant1



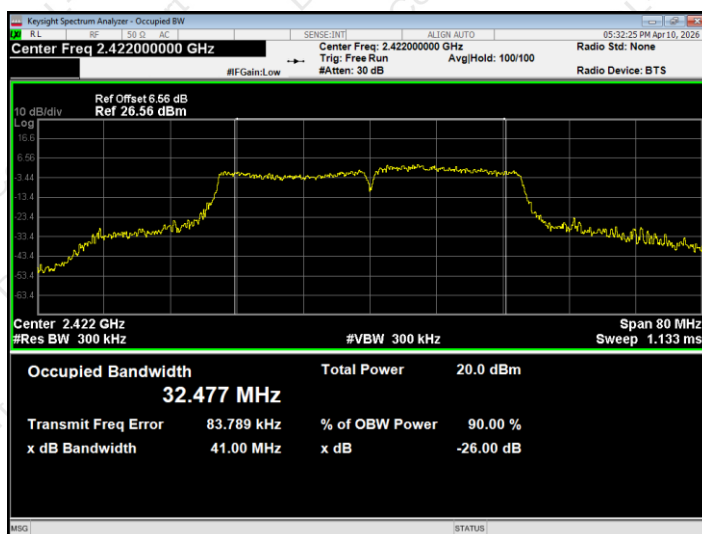
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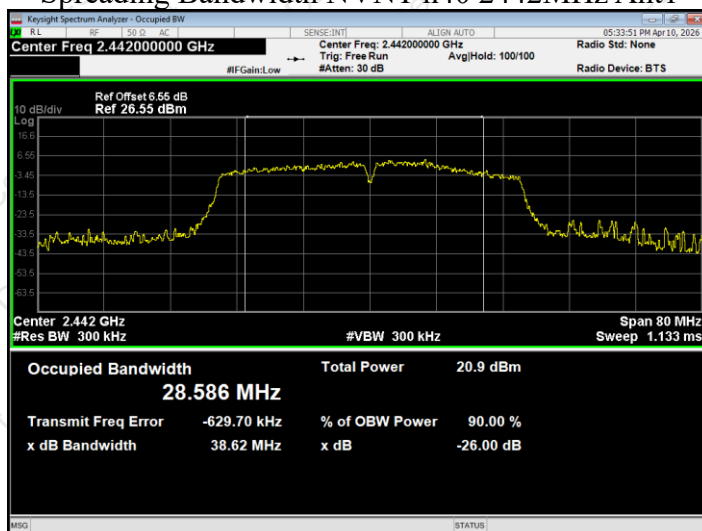
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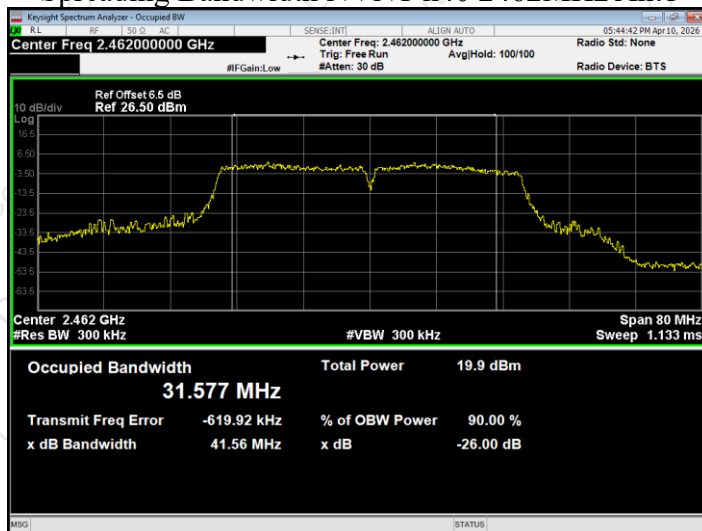
Spreading Bandwidth NVNT n40 2422MHz Ant1



Spreading Bandwidth NVNT n40 2442MHz Ant1

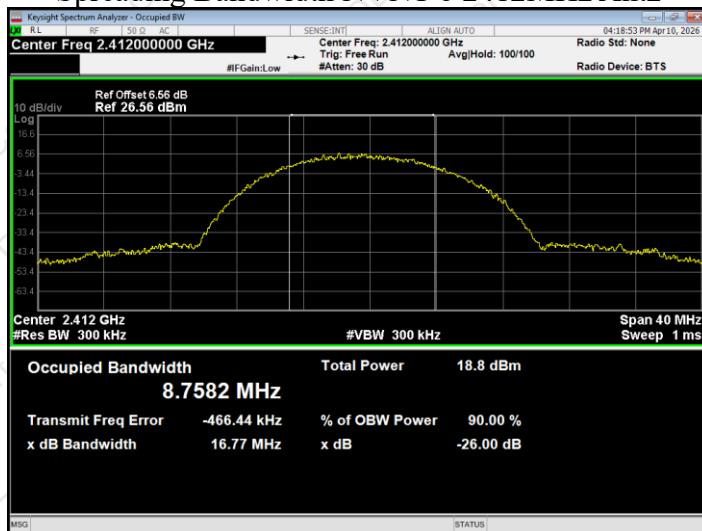


Spreading Bandwidth NVNT n40 2462MHz Ant1

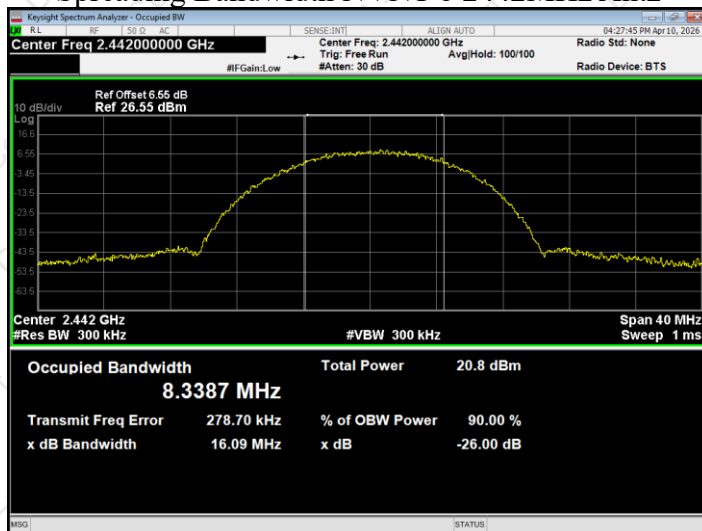




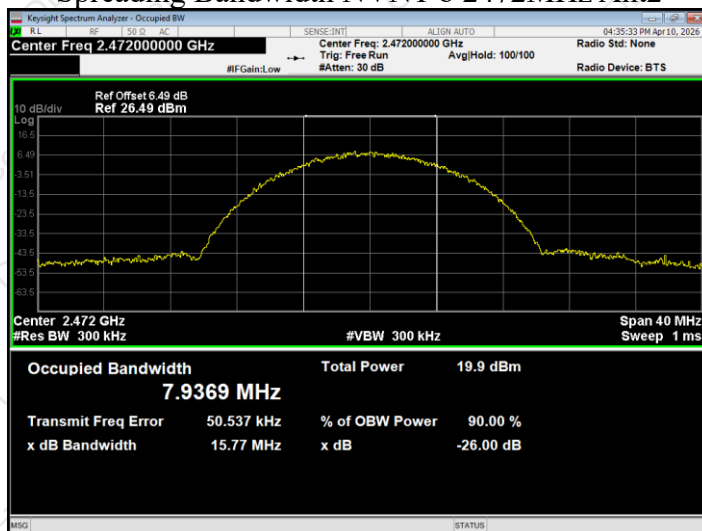
Spreading Bandwidth NVNT b 2412MHz Ant2



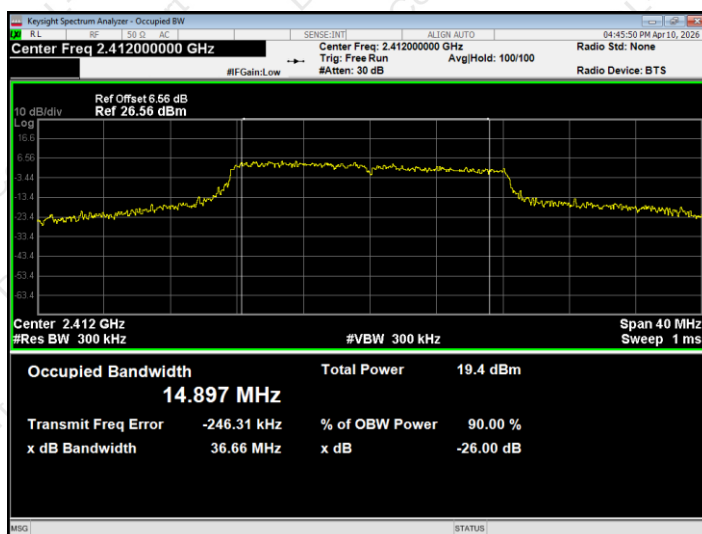
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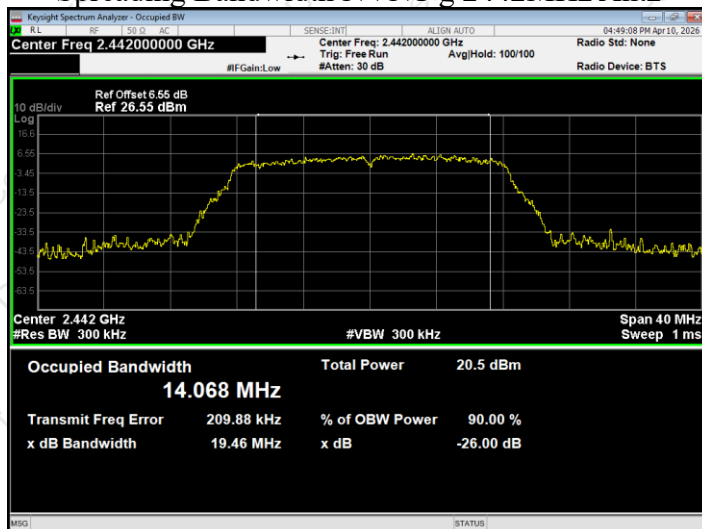
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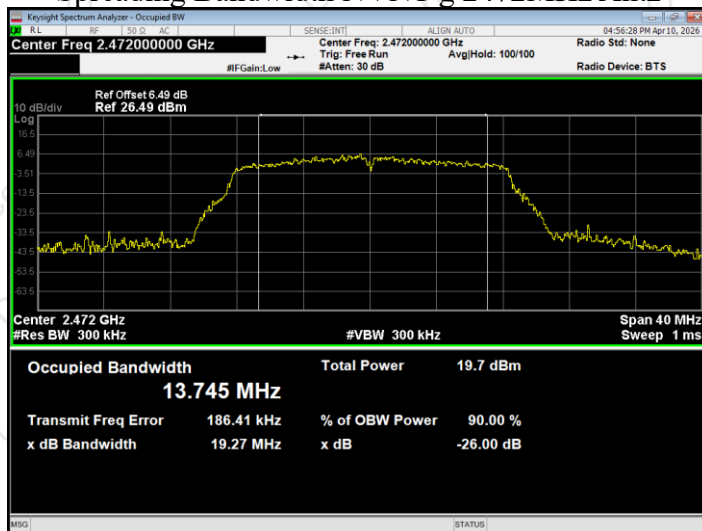
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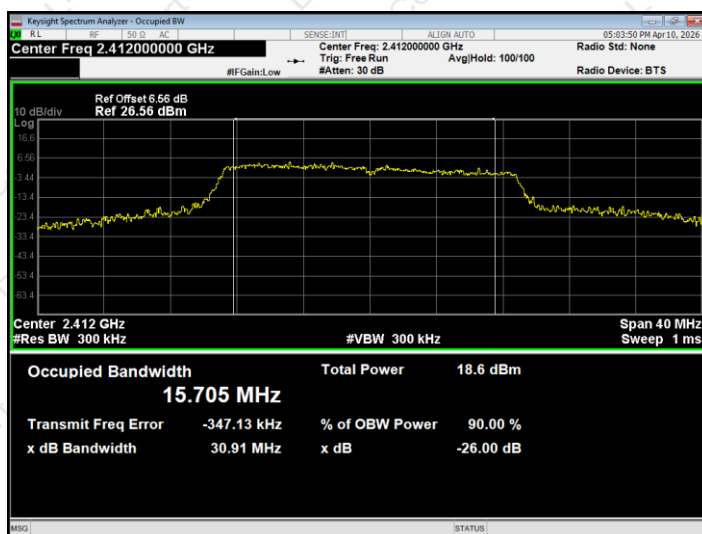
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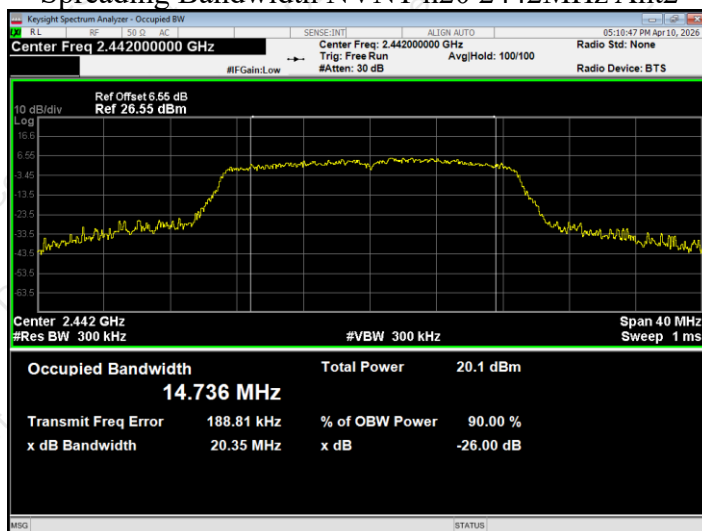
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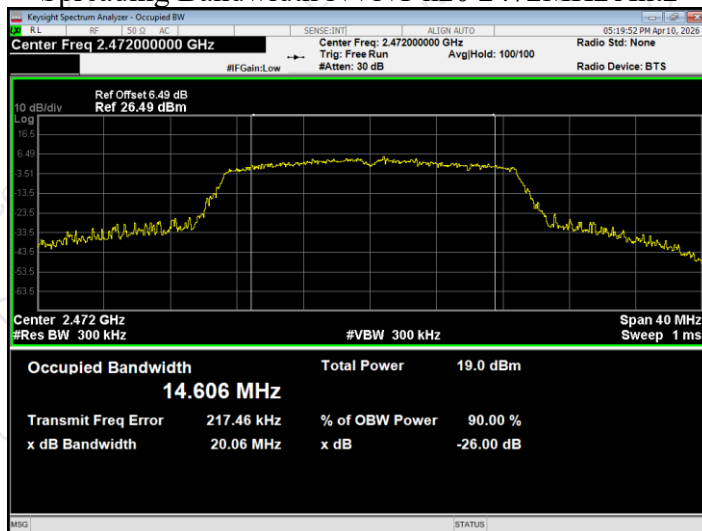
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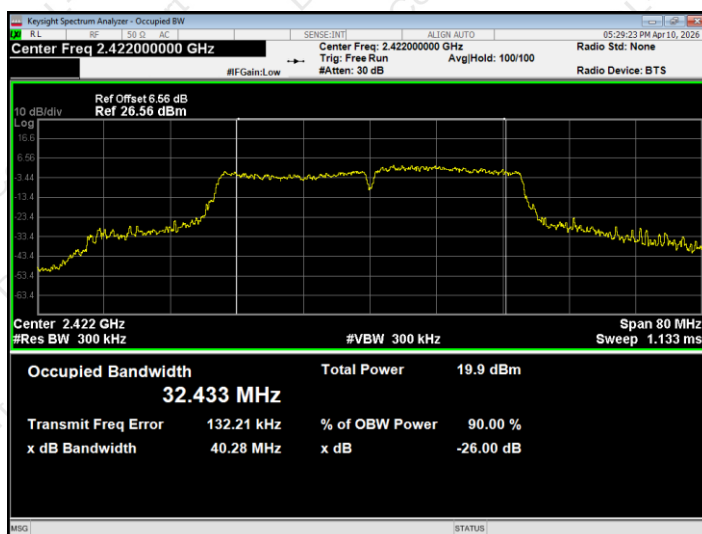
Spreading Bandwidth NVNT n20 2442MHz Ant2



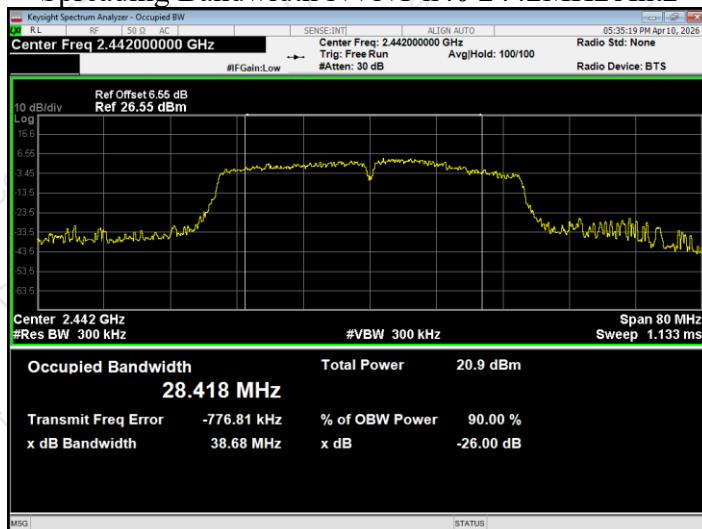
Spreading Bandwidth NVNT n20 2472MHz Ant2



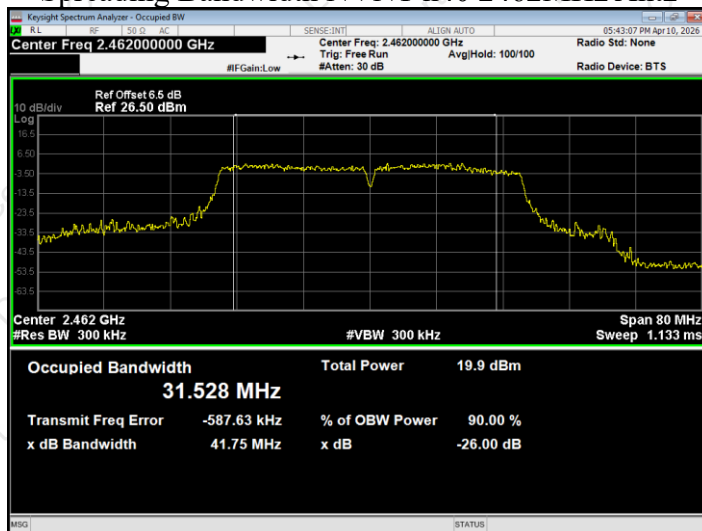
Spreading Bandwidth NVNT n40 2422MHz Ant2



Spreading Bandwidth NVNT n40 2442MHz Ant2



Spreading Bandwidth NVNT n40 2462MHz Ant2





4.3. UNWANTED EMISSION INTENSITY MEASUREMENT

4.3.1 LIMIT

Item	Limits
TX Spurious Emission(2402~2483.5MHz)	$\leq 2.5 \mu\text{W}$ ($30\text{MHz} \leq f \leq 1000\text{MHz}$)
	$\leq -26 \text{ dBm}/100\text{kHz}$ ($30\text{MHz} \leq f \leq 1000\text{MHz}$)
	$\leq 2.5 \mu\text{W}$ ($1000\text{MHz} < f \leq 2387\text{MHz}$)
	$\leq -26 \text{ dBm}$ ($1000\text{MHz} < f \leq 2387\text{MHz}$)
	$\leq 25 \mu\text{W}$ ($2387\text{MHz} < f \leq 2400\text{MHz}$)
	$\leq -16 \text{ dBm}$ ($2387\text{MHz} < f \leq 2400\text{MHz}$)
	$\leq 25 \mu\text{W}$ ($2483.5\text{MHz} \leq f < 2496.5\text{MHz}$)
	$\leq -16 \text{ dBm}$ ($2483.5\text{MHz} \leq f < 2496.5\text{MHz}$)
	$\leq 2.5 \mu\text{W}$ ($2496.5\text{MHz} \leq f < 12500\text{MHz}$)
	$\leq -26 \text{ dBm}$ ($2496.5\text{MHz} \leq f < 12500\text{MHz}$)

4.3.2. MEASURING INSTRUMENTS AND SETTING

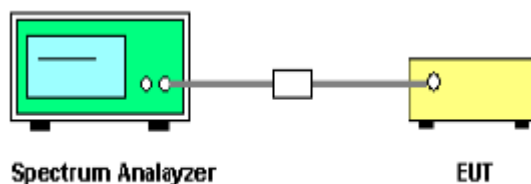
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	1 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. TEST PROCEDURES

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: Below 1GHz RB:1MHz / VB:1MHz
Above 1GHz RB:1MHz / VB:1MHz / AT: 10dB Ref: 0dBm / Sweep time: Auto
Sweep Mode: Continuous sweep / Detect mode: Positive peak
Trace mode: Max hold
3. Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 2.5 μ W.
4. Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5 μ W.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25 μ W.
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25 μ W
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5 μ W
8. Measure side band spurious as follows: For 2.4GHz band: 2374MHz~2400MHz and 2483.5MHz~2509.5MHz RBW = VBW = 30kHz, Result_Value = Measured_Value + 15.2 [dBm]
9. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

4.3.4. TEST SETUP LAYOUT



4.3.5. TEST DEVIATION

There is no deviation with the original standard.

4.3.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

**4.3.7. TEST RESULT OF UNWANTED EMISSION INTENSITY**

Temperature:	25.6 °C	Relative Humidity:	55.8%	Pressure:	1010mbar
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Condition	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm/MHz)	Max Value (uW/MHz)	Limit Start (uW/MHz)	Limit Stop (uW/MHz)	Verdict
NVNT	b	2412	30-1000	726.46	-53.84	0.0041	2.5	2.5	Pass
NVNT	b	2412	1000-2387	2309.33	-51.7	0.0068	2.5	2.5	Pass
NVNT	b	2412	2387-2400	2399.87	-34.98	0.3177	25	25	Pass
NVNT	b	2412	2483.5-2496.5	2484.28	-47.47	0.0179	25	25	Pass
NVNT	b	2412	2496.5-13000	12695.4	-48.57	0.0139	2.5	2.5	Pass
NVNT	b	2442	30-1000	825.4	-54.22	0.0038	2.5	2.5	Pass
NVNT	b	2442	1000-2387	2004.19	-52.26	0.0059	2.5	2.5	Pass
NVNT	b	2442	2387-2400	2394.62	-48.23	0.015	25	25	Pass
NVNT	b	2442	2483.5-2496.5	2485.84	-46.76	0.0211	25	25	Pass
NVNT	b	2442	2496.5-13000	3431.31	-32.69	0.5383	2.5	2.5	Pass
NVNT	b	2472	30-1000	927.25	-54.28	0.0037	2.5	2.5	Pass
NVNT	b	2472	1000-2387	1944.55	-51.29	0.0074	2.5	2.5	Pass
NVNT	b	2472	2387-2400	2391.38	-48.55	0.014	25	25	Pass
NVNT	b	2472	2483.5-2496.5	2483.58	-35.69	0.2698	25	25	Pass
NVNT	b	2472	2496.5-13000	2496.5	-48.35	0.0146	2.5	2.5	Pass
NVNT	g	2412	30-1000	985.45	-54.67	0.0034	2.5	2.5	Pass
NVNT	g	2412	1000-2387	2387	-43.5	0.0447	2.5	2.5	Pass
NVNT	g	2412	2387-2400	2399.09	-17.44	18.0302	25	25	Pass
NVNT	g	2412	2483.5-2496.5	2484.01	-46.98	0.02	25	25	Pass
NVNT	g	2412	2496.5-13000	3494.33	-39.11	0.1227	2.5	2.5	Pass
NVNT	g	2442	30-1000	882.63	-53.92	0.0041	2.5	2.5	Pass
NVNT	g	2442	1000-2387	2381.45	-51.79	0.0066	2.5	2.5	Pass
NVNT	g	2442	2387-2400	2397.43	-43.21	0.0478	25	25	Pass
NVNT	g	2442	2483.5-2496.5	2484.11	-44.76	0.0334	25	25	Pass
NVNT	g	2442	2496.5-13000	3441.82	-42.96	0.0506	2.5	2.5	Pass
NVNT	g	2472	30-1000	874.87	-54.31	0.0037	2.5	2.5	Pass
NVNT	g	2472	1000-2387	2335.68	-51.57	0.007	2.5	2.5	Pass
NVNT	g	2472	2387-2400	2399.09	-46.42	0.0228	25	25	Pass
NVNT	g	2472	2483.5-2496.5	2484.76	-22.9	5.1286	25	25	Pass
NVNT	g	2472	2496.5-13000	2496.5	-34.73	0.3365	2.5	2.5	Pass
NVNT	n20	2412	30-1000	531.49	-54.31	0.0037	2.5	2.5	Pass
NVNT	n20	2412	1000-2387	2387	-43.65	0.0432	2.5	2.5	Pass
NVNT	n20	2412	2387-2400	2399.48	-18.27	14.8936	25	25	Pass
NVNT	n20	2412	2483.5-2496.5	2484.21	-45.78	0.0264	25	25	Pass
NVNT	n20	2412	2496.5-13000	3483.83	-33.74	0.4227	2.5	2.5	Pass
NVNT	n20	2442	30-1000	337.49	-53.53	0.0044	2.5	2.5	Pass
NVNT	n20	2442	1000-2387	2140.11	-51.13	0.0077	2.5	2.5	Pass
NVNT	n20	2442	2387-2400	2400	-43.04	0.0497	25	25	Pass
NVNT	n20	2442	2483.5-2496.5	2486.79	-44.27	0.0374	25	25	Pass
NVNT	n20	2442	2496.5-13000	3420.81	-32.19	0.6039	2.5	2.5	Pass
NVNT	n20	2472	30-1000	811.82	-54.38	0.0036	2.5	2.5	Pass
NVNT	n20	2472	1000-2387	2012.51	-51.63	0.0069	2.5	2.5	Pass
NVNT	n20	2472	2387-2400	2390.85	-48.71	0.0135	25	25	Pass
NVNT	n20	2472	2483.5-2496.5	2483.5	-27.34	1.845	25	25	Pass
NVNT	n20	2472	2496.5-13000	2496.5	-46.21	0.0239	2.5	2.5	Pass
NVNT	n40	2422	30-1000	924.34	-54.3	0.0037	2.5	2.5	Pass
NVNT	n40	2422	1000-2387	2387	-33.61	0.4355	2.5	2.5	Pass
NVNT	n40	2422	2387-2400	2399.94	-17.52	17.7011	25	25	Pass
NVNT	n40	2422	2483.5-2496.5	2485.16	-42.67	0.0541	25	25	Pass
NVNT	n40	2422	2496.5-13000	7233.58	-48.3	0.0148	2.5	2.5	Pass
NVNT	n40	2442	30-1000	742.95	-54.4	0.0036	2.5	2.5	Pass



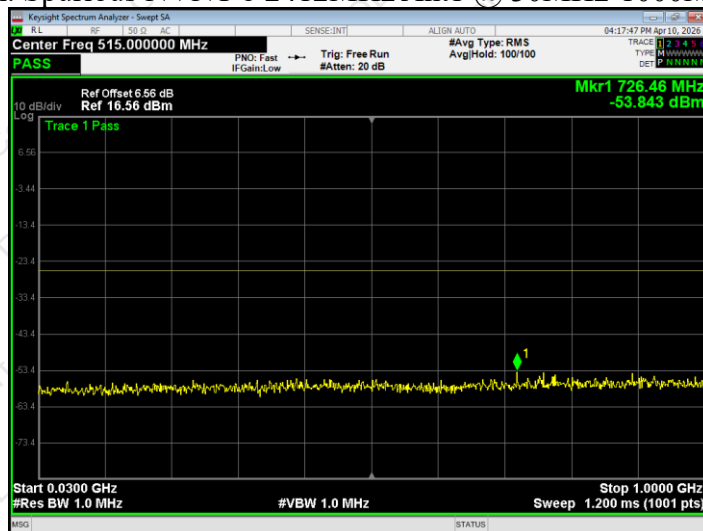
NVNT	n40	2442	1000-2387	2387	-51.89	0.0065	2.5	2.5	Pass
NVNT	n40	2442	2387-2400	2399.49	-30.91	0.811	25	25	Pass
NVNT	n40	2442	2483.5-2496.5	2483.63	-30.84	0.8241	25	25	Pass
NVNT	n40	2442	2496.5-13000	2496.5	-48.46	0.0143	2.5	2.5	Pass
NVNT	n40	2462	30-1000	890.39	-54.1	0.0039	2.5	2.5	Pass
NVNT	n40	2462	1000-2387	2081.86	-52.31	0.0059	2.5	2.5	Pass
NVNT	n40	2462	2387-2400	2396.22	-39.65	0.1084	25	25	Pass
NVNT	n40	2462	2483.5-2496.5	2486.37	-19.67	10.7895	25	25	Pass
NVNT	n40	2462	2496.5-13000	2496.5	-28.1	1.5488	2.5	2.5	Pass

Note: 1. 802.11b Mode: We test all antenna's data, the data only show the antenna1 worst mode.

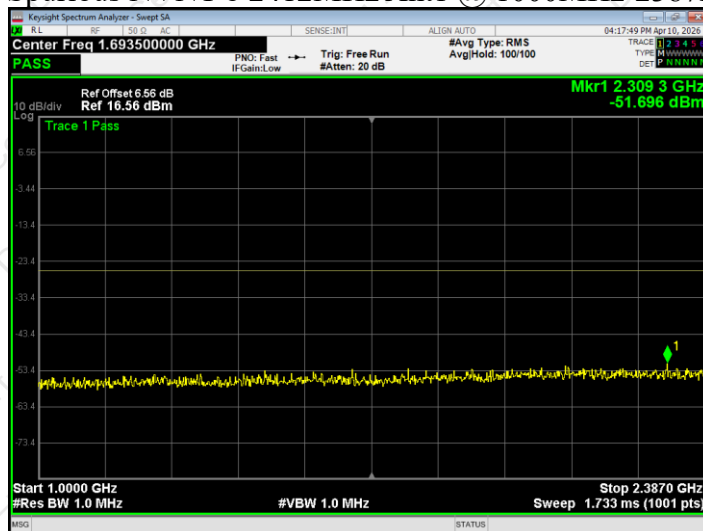
2. 802.11g/n Mode: We test all antenna's data, the data only show the mode MIMO worst mode.



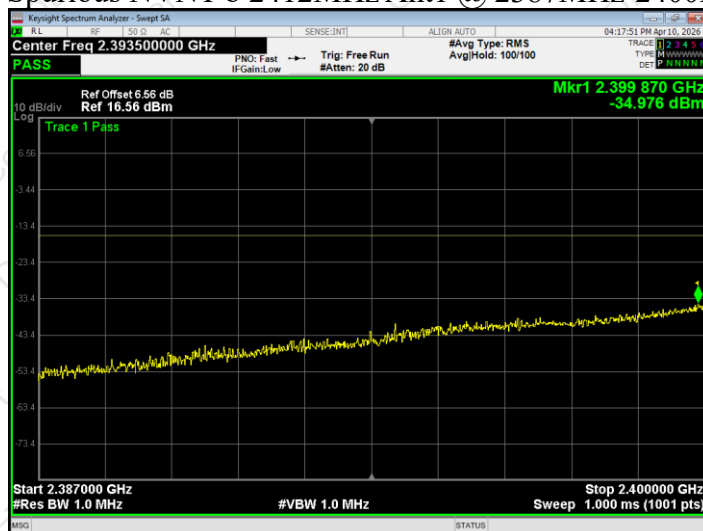
Tx. Spurious NVNT b 2412MHz Ant1 @ 30MHz-1000MHz



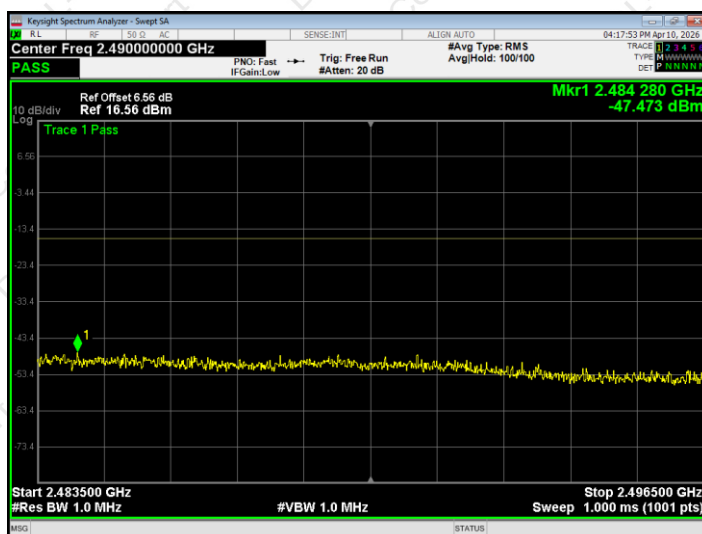
Tx. Spurious NVNT b 2412MHz Ant1 @ 1000MHz-2387MHz



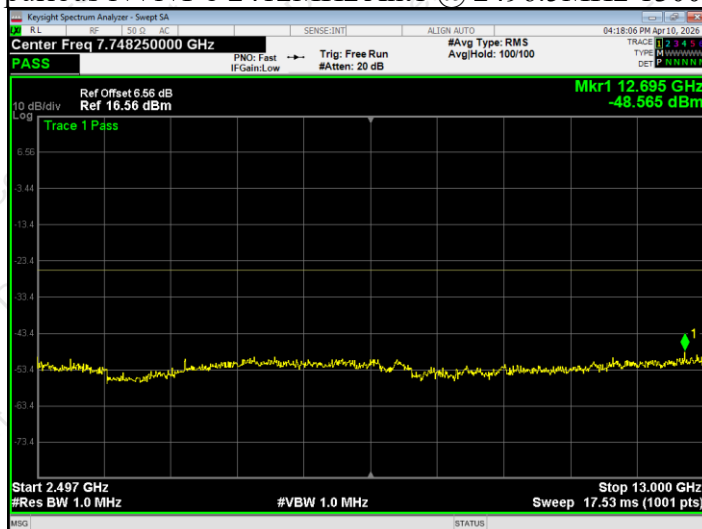
Tx. Spurious NVNT b 2412MHz Ant1 @ 2387MHz-2400MHz



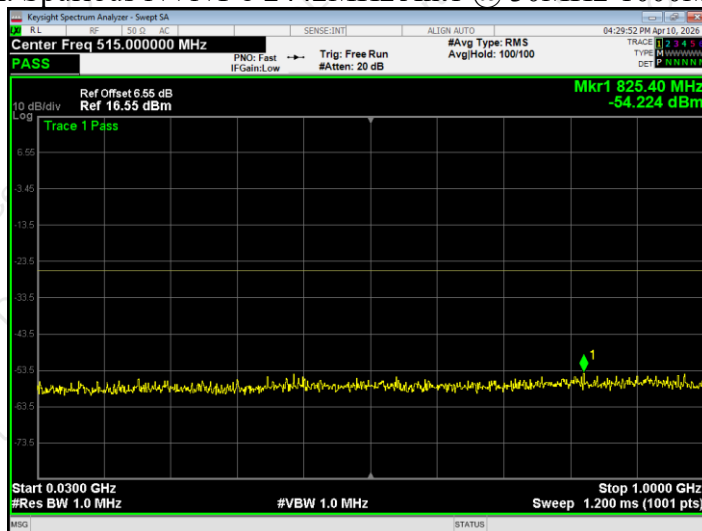
Tx. Spurious NVNT b 2412MHz Ant1 @ 2483.5MHz-2496.5MHz



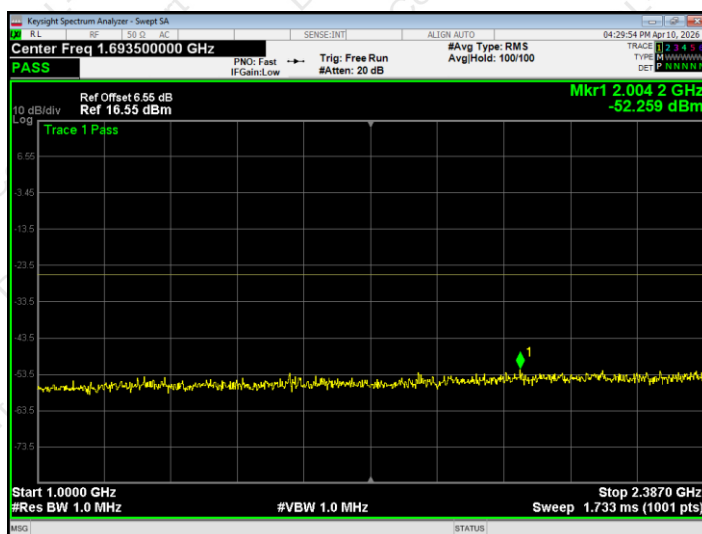
Tx. Spurious NVNT b 2412MHz Ant1 @ 2496.5MHz-13000MHz



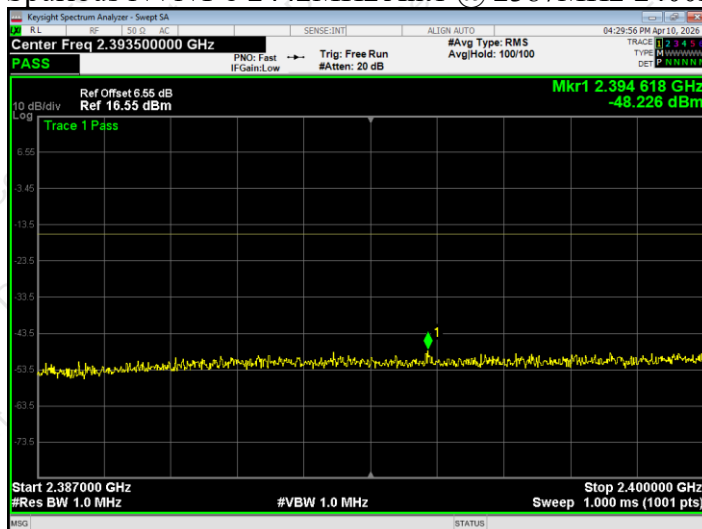
Tx. Spurious NVNT b 2442MHz Ant1 @ 30MHz-1000MHz



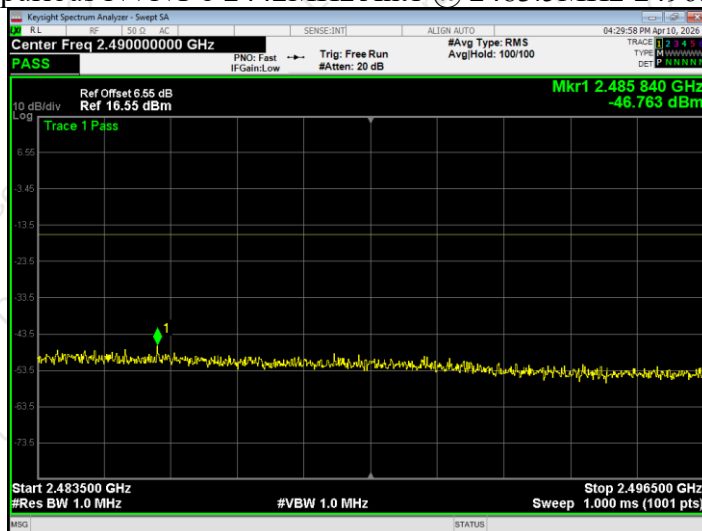
Tx. Spurious NVNT b 2442MHz Ant1 @ 1000MHz-2387MHz



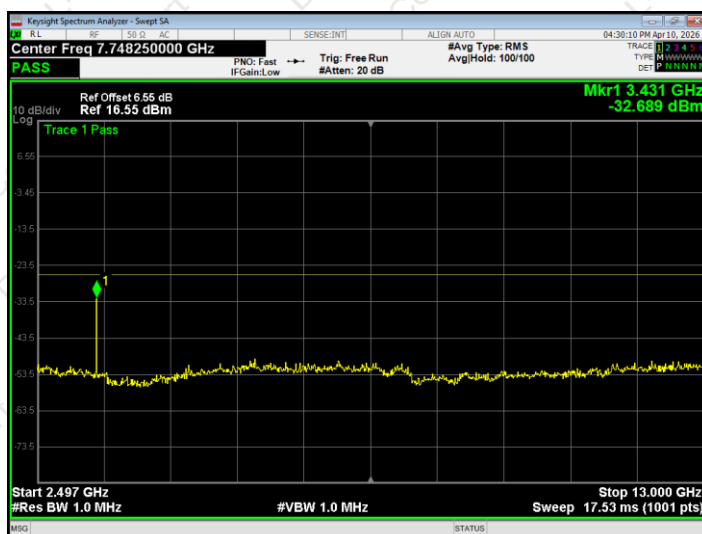
Tx. Spurious NVNT b 2442MHz Ant1 @ 2387MHz-2400MHz



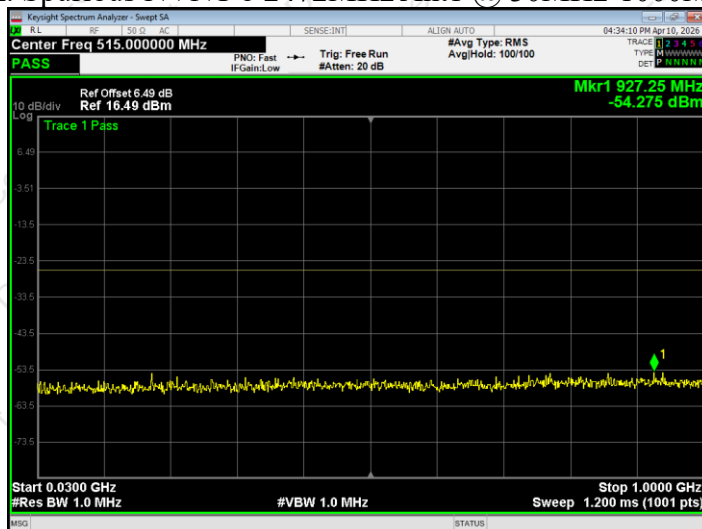
Tx. Spurious NVNT b 2442MHz Ant1 @ 2483.5MHz-2496.5MHz



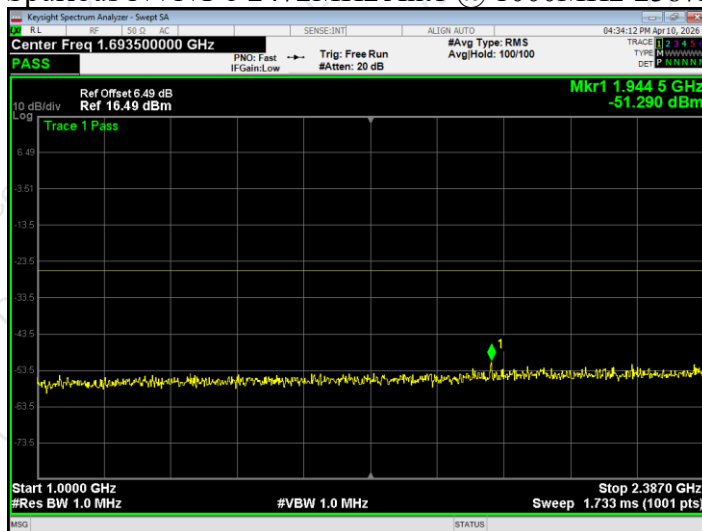
Tx. Spurious NVNT b 2442MHz Ant1 @ 2496.5MHz-13000MHz



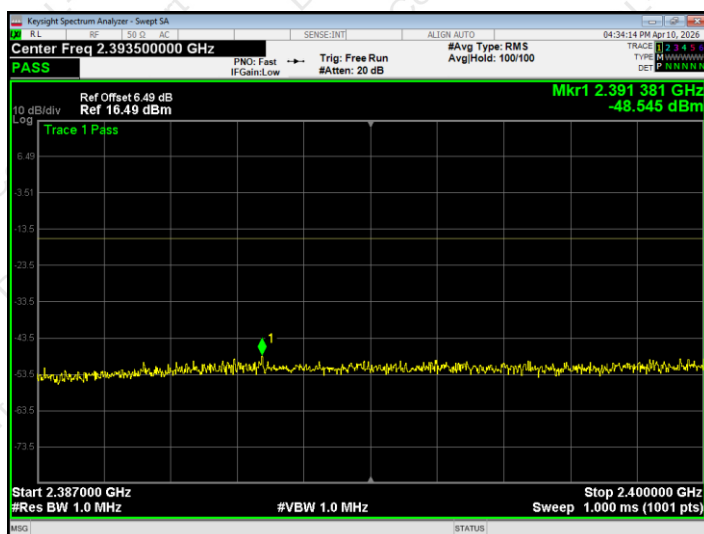
Tx. Spurious NVNT b 2472MHz Ant1 @ 30MHz-1000MHz



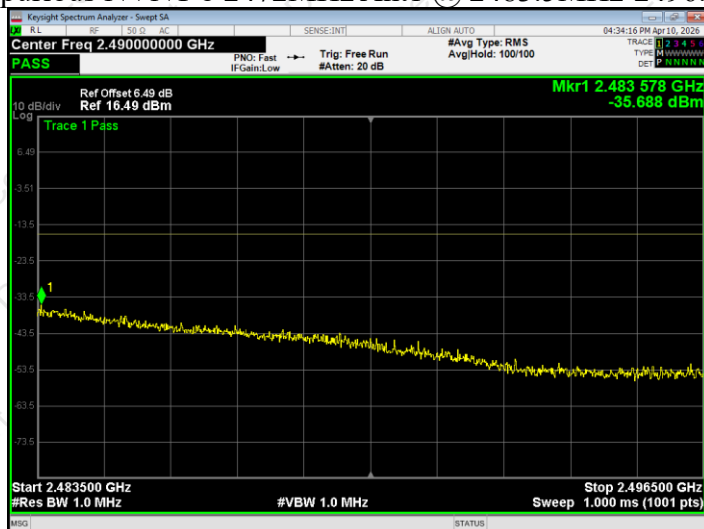
Tx. Spurious NVNT b 2472MHz Ant1 @ 1000MHz-2387MHz



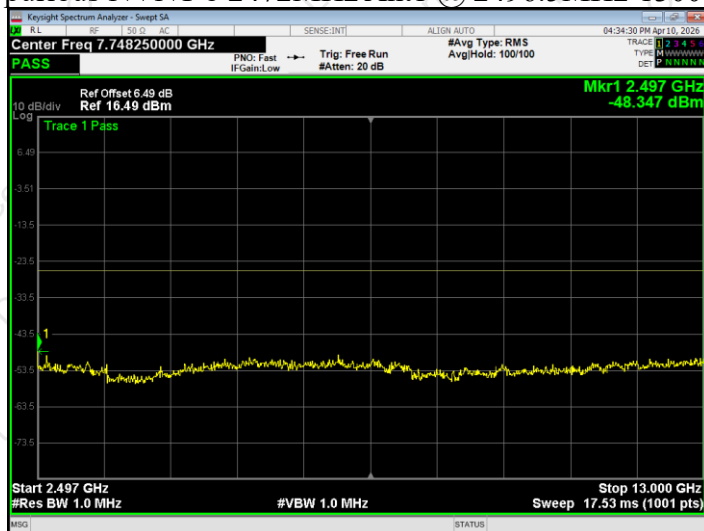
Tx. Spurious NVNT b 2472MHz Ant1 @ 2387MHz-2400MHz



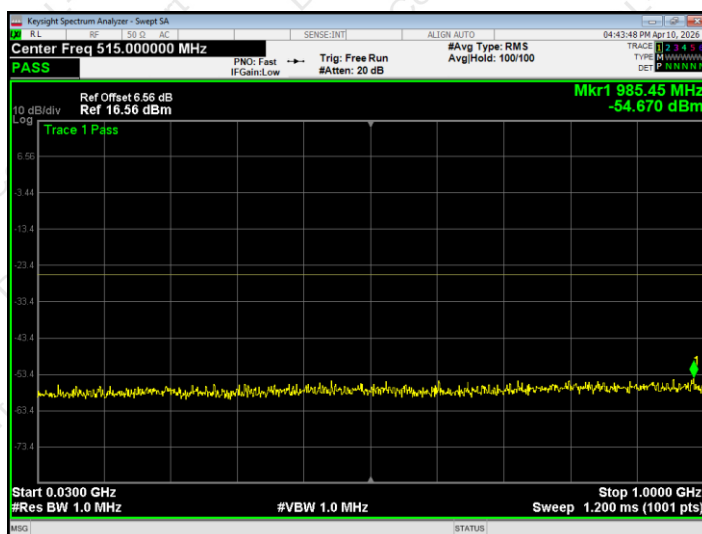
Tx. Spurious NVNT b 2472MHz Ant1 @ 2483.5MHz-2496.5MHz



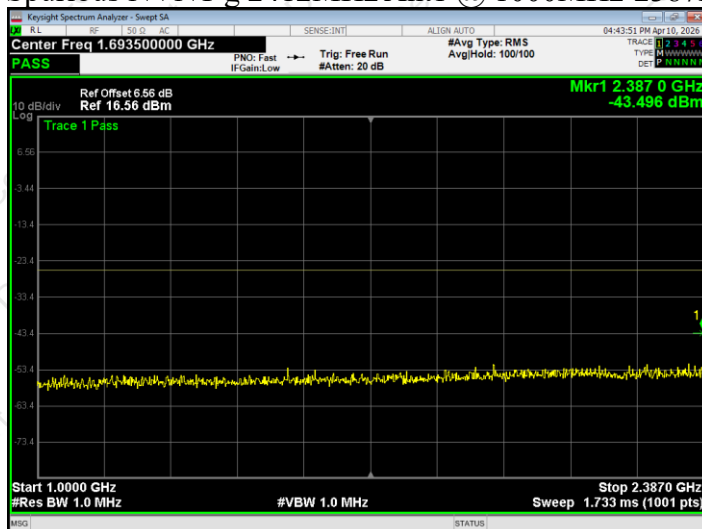
Tx. Spurious NVNT b 2472MHz Ant1 @ 2496.5MHz-13000MHz



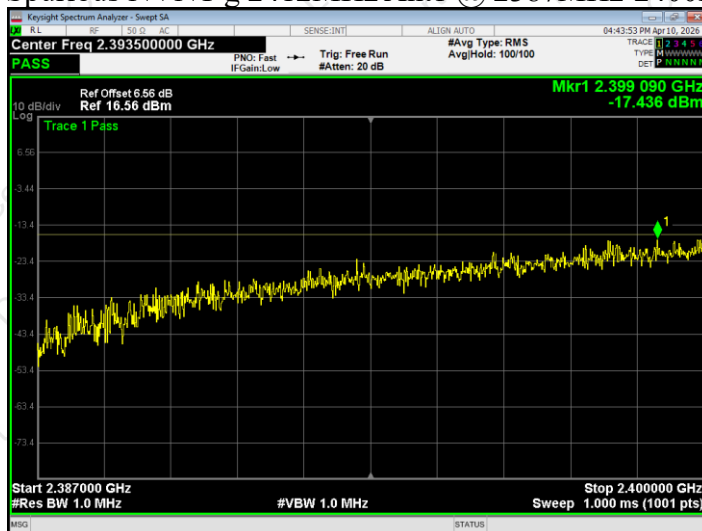
Tx. Spurious NVNT g 2412MHz Ant1 @ 30MHz-1000MHz



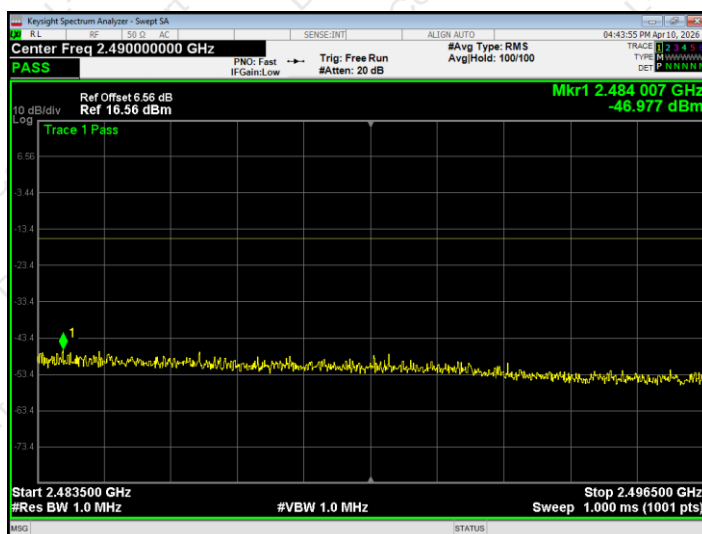
Tx. Spurious NVNT g 2412MHz Ant1 @ 1000MHz-2387MHz



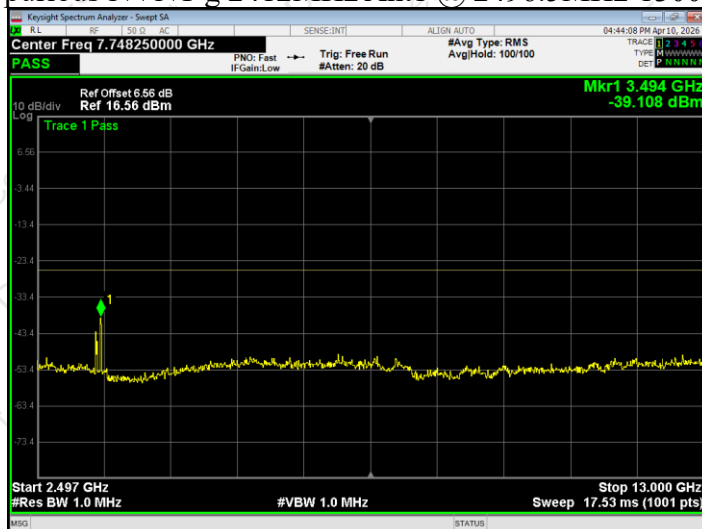
Tx. Spurious NVNT g 2412MHz Ant1 @ 2387MHz-2400MHz



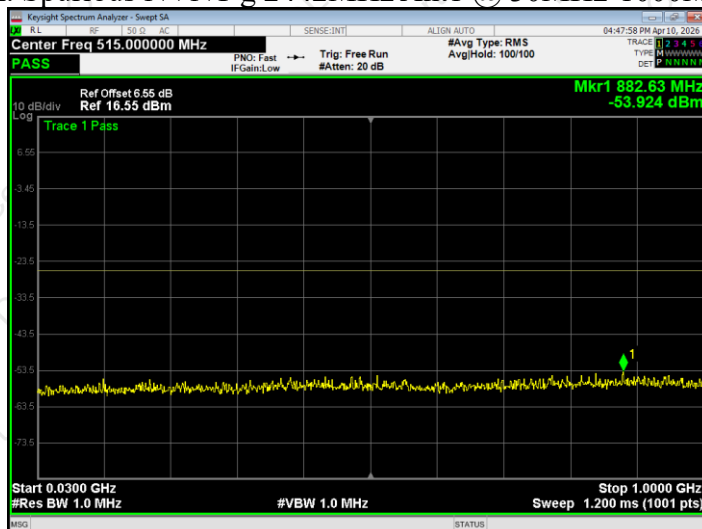
Tx. Spurious NVNT g 2412MHz Ant1 @ 2483.5MHz-2496.5MHz



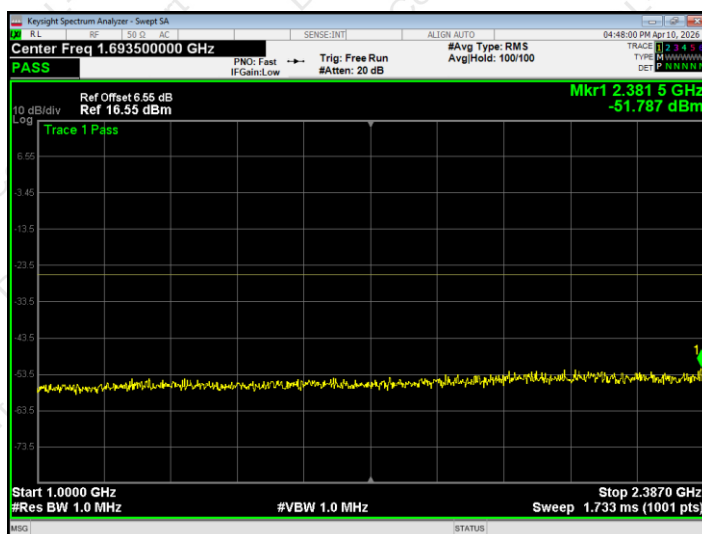
Tx. Spurious NVNT g 2412MHz Ant1 @ 2496.5MHz-13000MHz



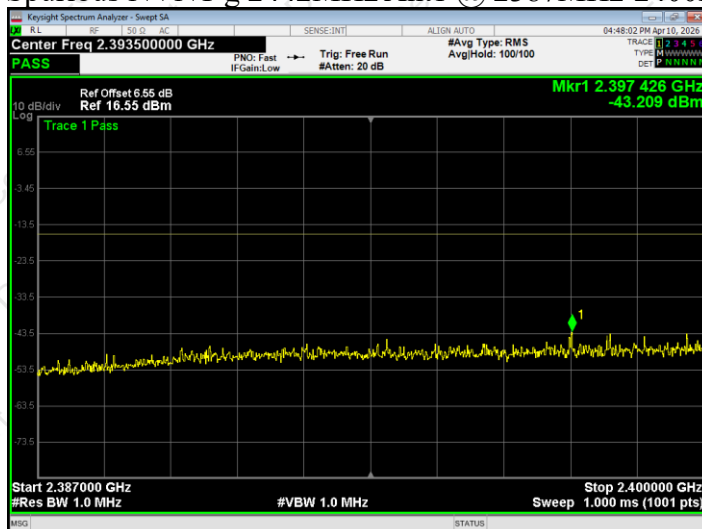
Tx. Spurious NVNT g 2442MHz Ant1 @ 30MHz-1000MHz



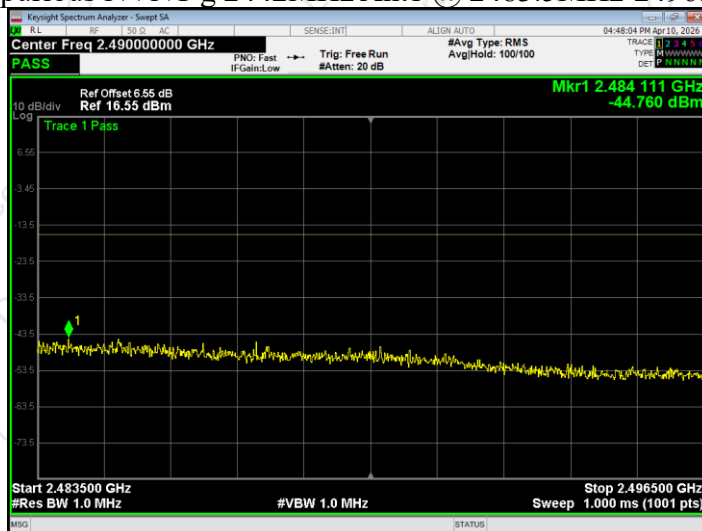
Tx. Spurious NVNT g 2442MHz Ant1 @ 1000MHz-2387MHz



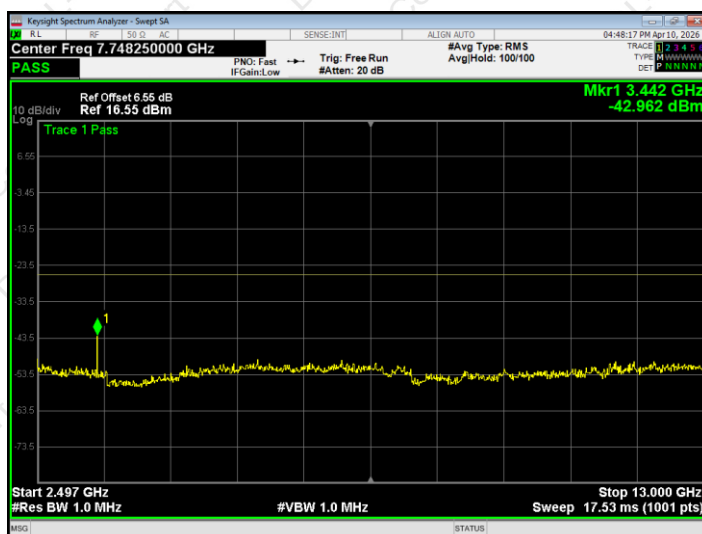
Tx. Spurious NVNT g 2442MHz Ant1 @ 2387MHz-2400MHz



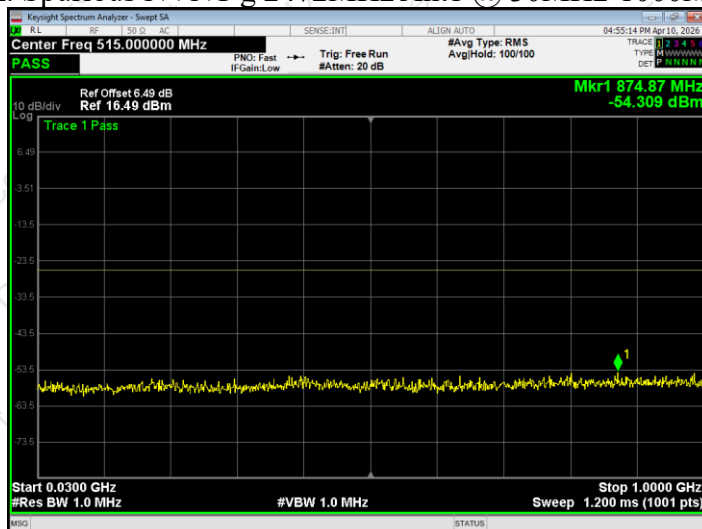
Tx. Spurious NVNT g 2442MHz Ant1 @ 2483.5MHz-2496.5MHz



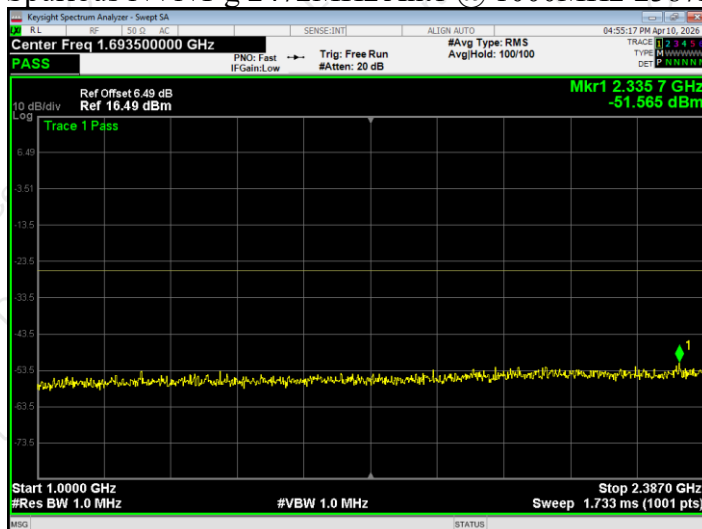
Tx. Spurious NVNT g 2442MHz Ant1 @ 2496.5MHz-13000MHz



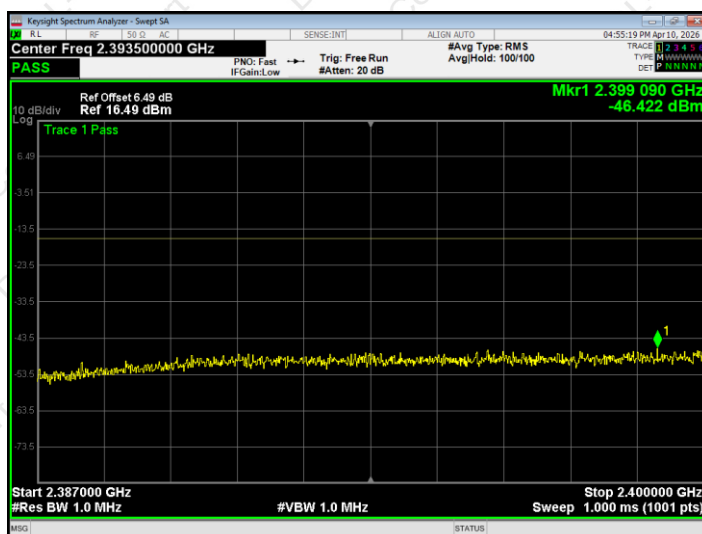
Tx. Spurious NVNT g 2472MHz Ant1 @ 30MHz-1000MHz



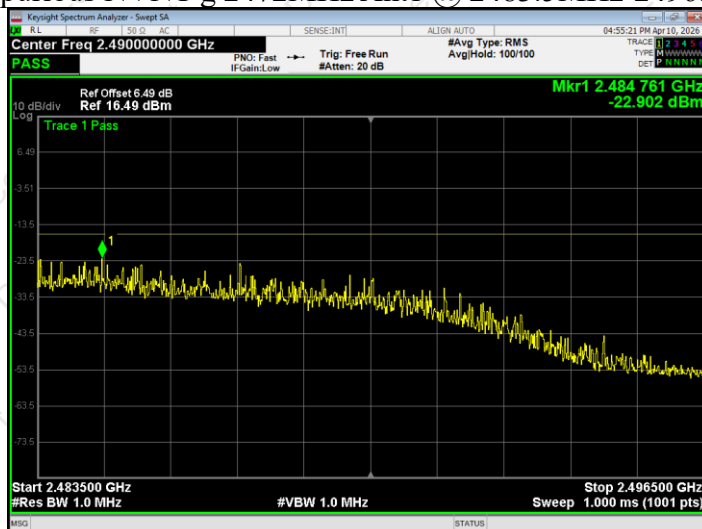
Tx. Spurious NVNT g 2472MHz Ant1 @ 1000MHz-2387MHz



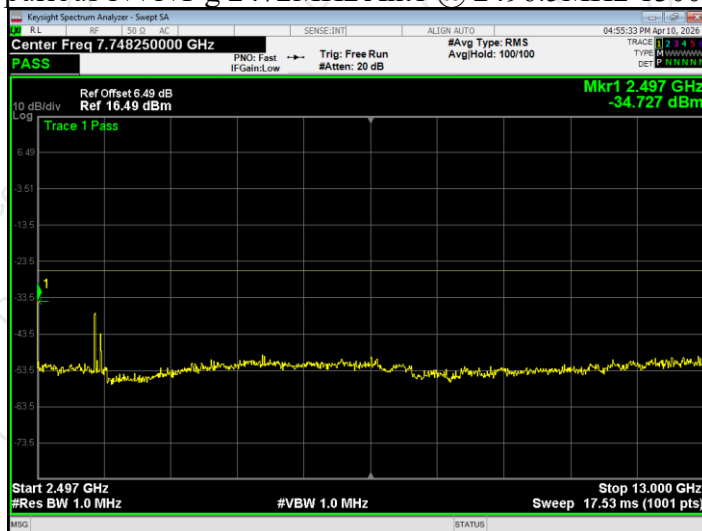
Tx. Spurious NVNT g 2472MHz Ant1 @ 2387MHz-2400MHz



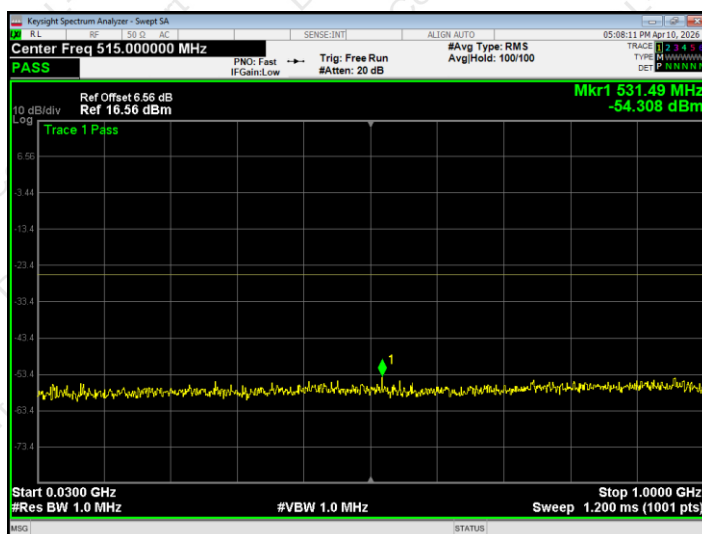
Tx. Spurious NVNT g 2472MHz Ant1 @ 2483.5MHz-2496.5MHz



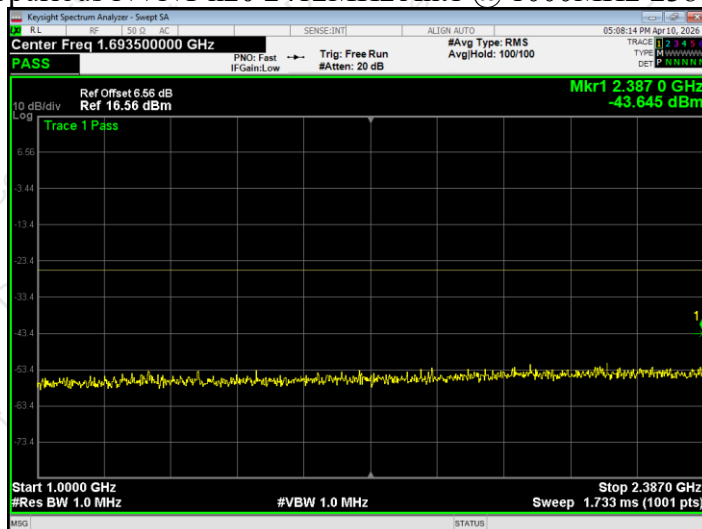
Tx. Spurious NVNT g 2472MHz Ant1 @ 2496.5MHz-13000MHz



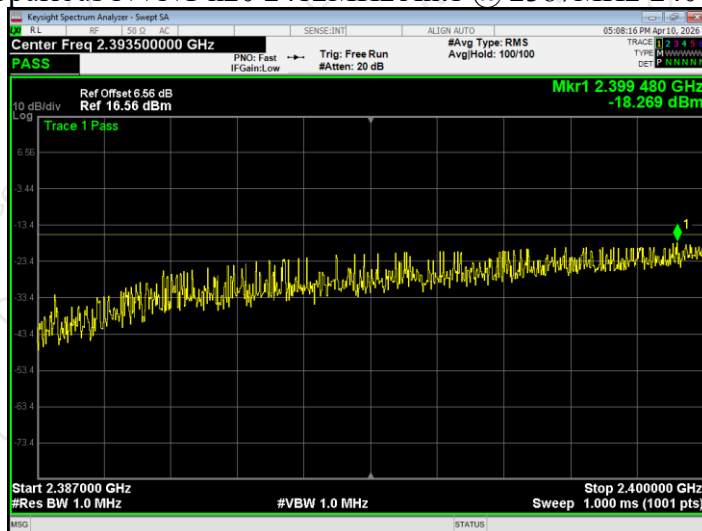
Tx. Spurious NVNT n20 2412MHz Ant1 @ 30MHz-1000MHz



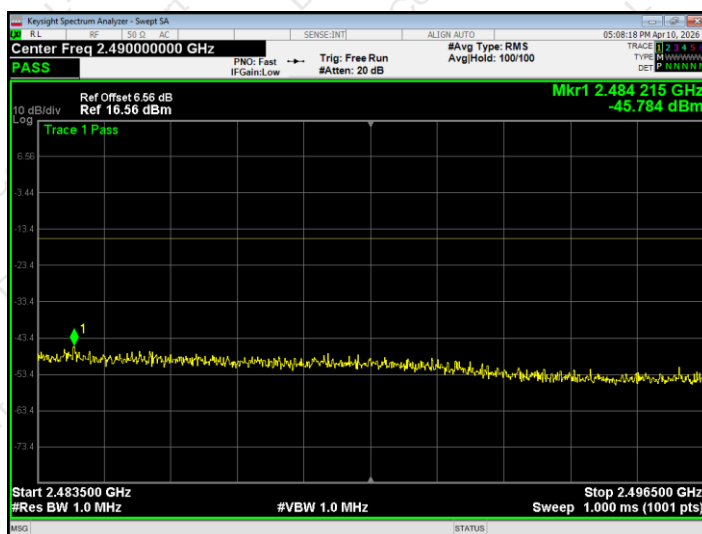
Tx. Spurious NVNT n20 2412MHz Ant1 @ 1000MHz-2387MHz



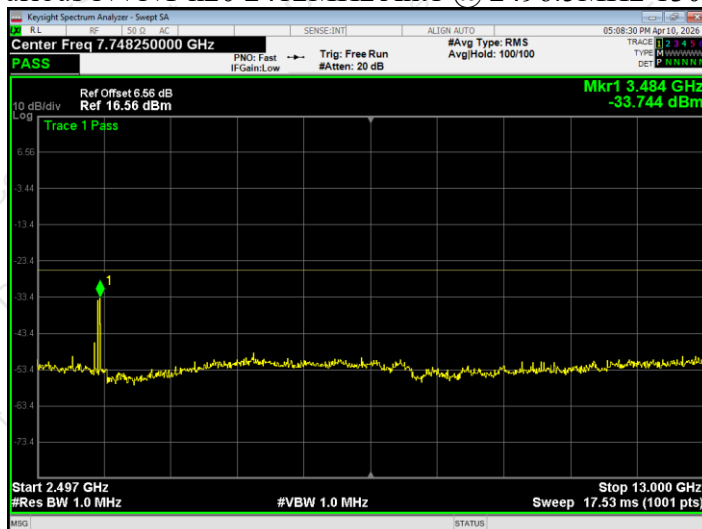
Tx. Spurious NVNT n20 2412MHz Ant1 @ 2387MHz-2400MHz



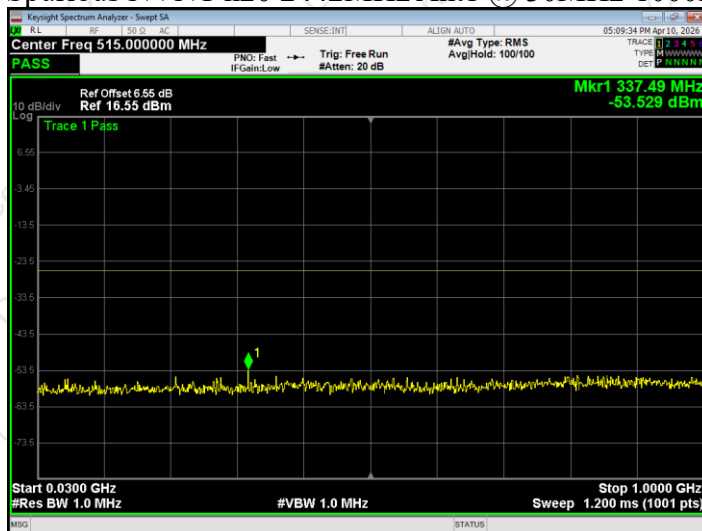
Tx. Spurious NVNT n20 2412MHz Ant1 @ 2483.5MHz-2496.5MHz



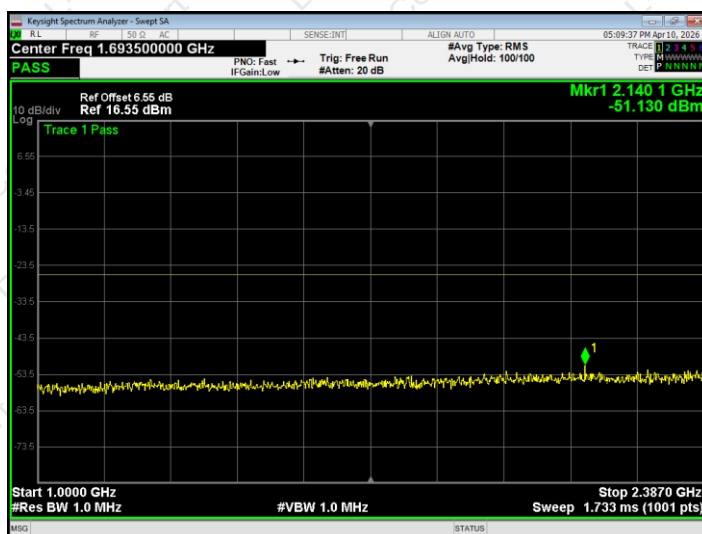
Tx. Spurious NVNT n20 2412MHz Ant1 @ 2496.5MHz-13000MHz



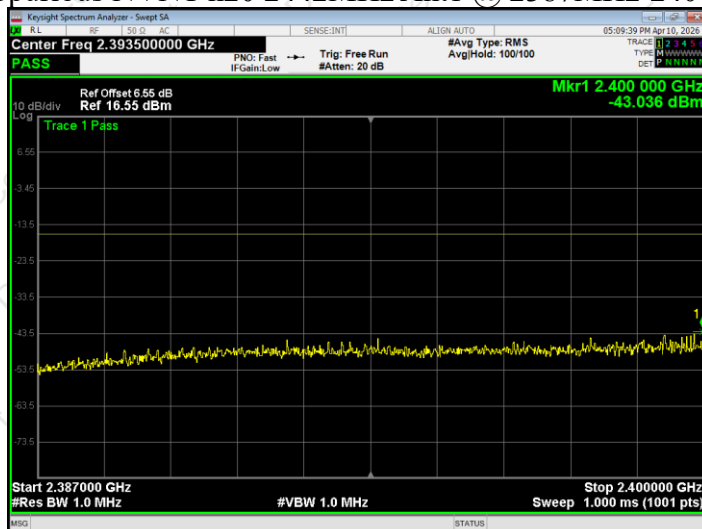
Tx. Spurious NVNT n20 2442MHz Ant1 @ 30MHz-1000MHz



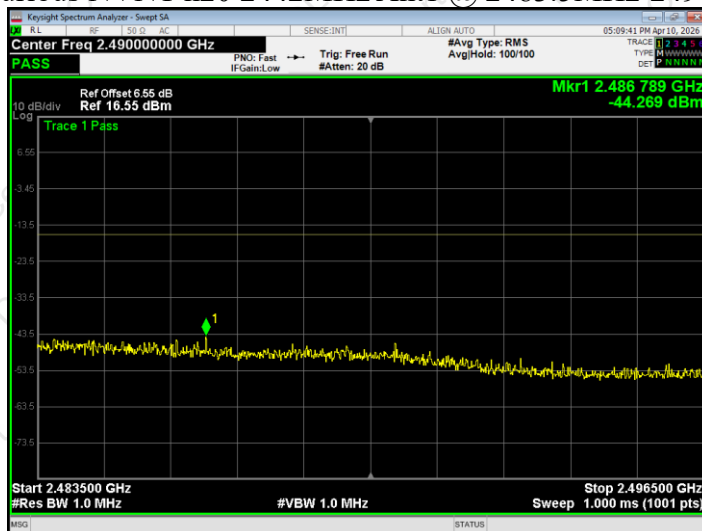
Tx. Spurious NVNT n20 2442MHz Ant1 @ 1000MHz-2387MHz



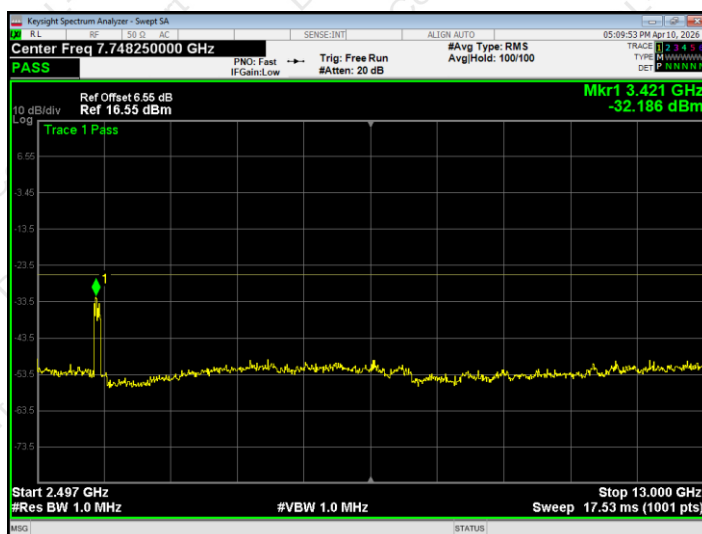
Tx. Spurious NVNT n20 2442MHz Ant1 @ 2387MHz-2400MHz



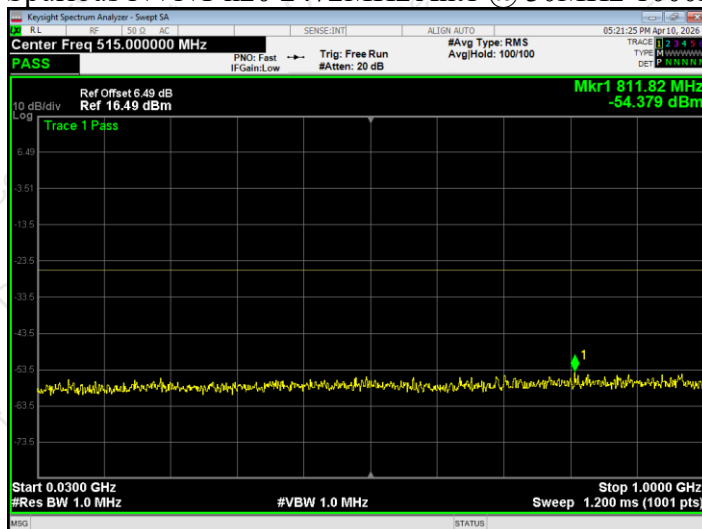
Tx. Spurious NVNT n20 2442MHz Ant1 @ 2483.5MHz-2496.5MHz



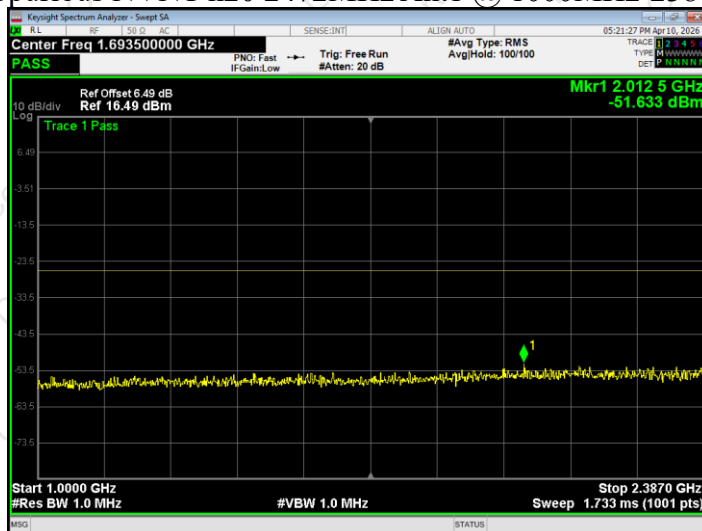
Tx. Spurious NVNT n20 2442MHz Ant1 @ 2496.5MHz-13000MHz



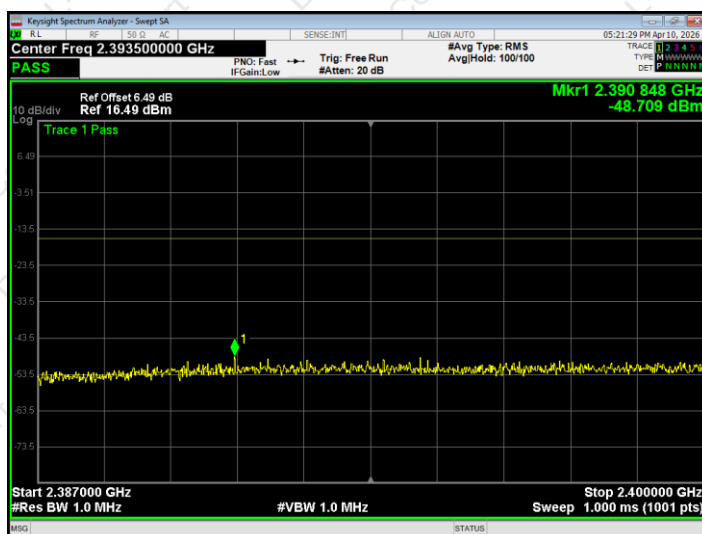
Tx. Spurious NVNT n20 2472MHz Ant1 @ 30MHz-1000MHz



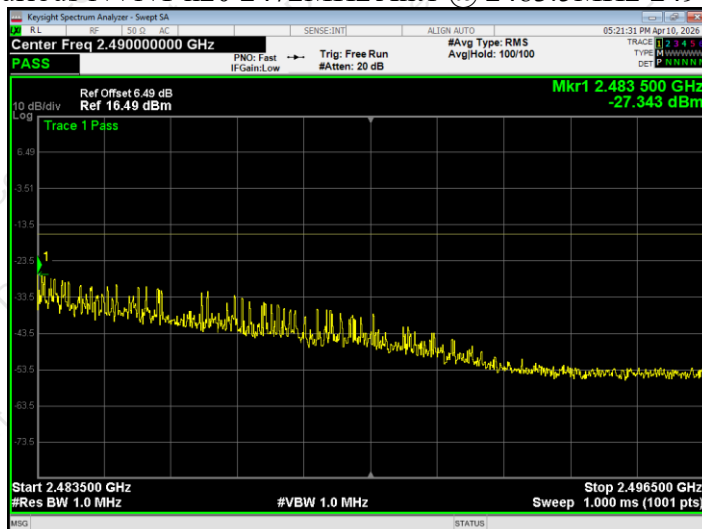
Tx. Spurious NVNT n20 2472MHz Ant1 @ 1000MHz-2387MHz



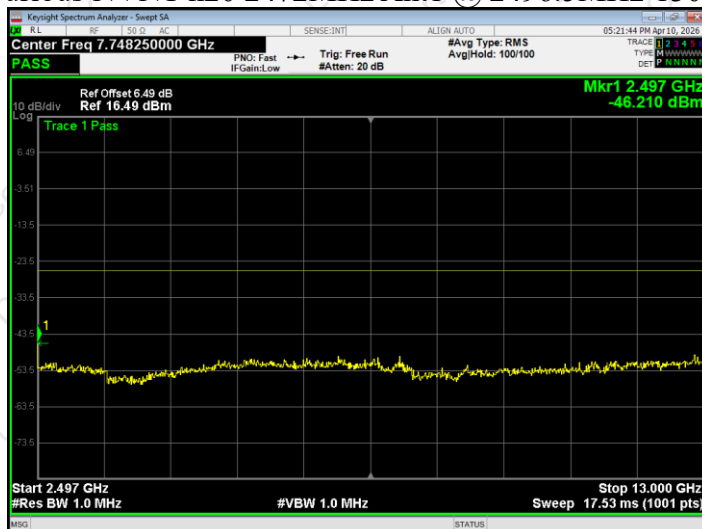
Tx. Spurious NVNT n20 2472MHz Ant1 @ 2387MHz-2400MHz



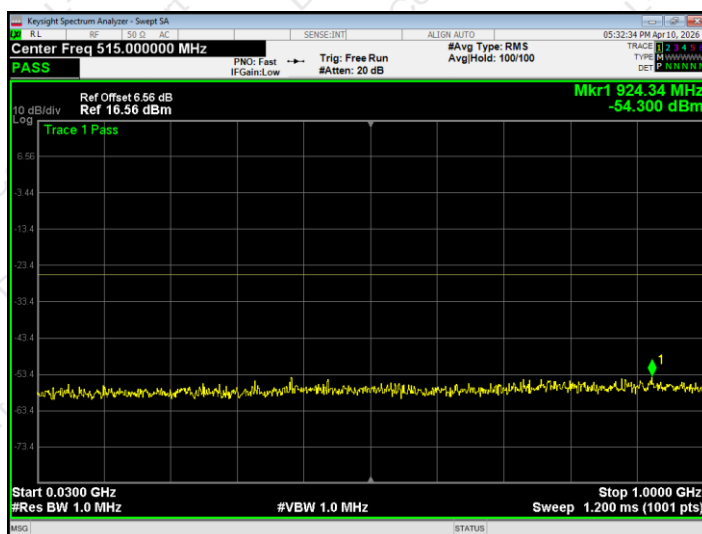
Tx. Spurious NVNT n20 2472MHz Ant1 @ 2483.5MHz-2496.5MHz



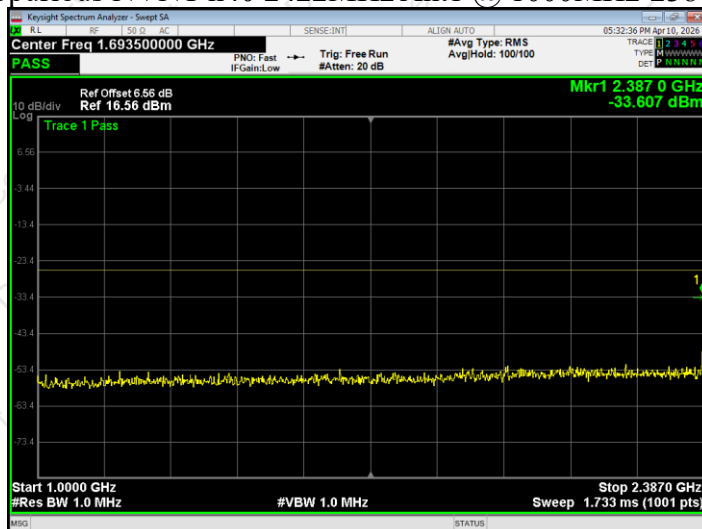
Tx. Spurious NVNT n20 2472MHz Ant1 @ 2496.5MHz-13000MHz



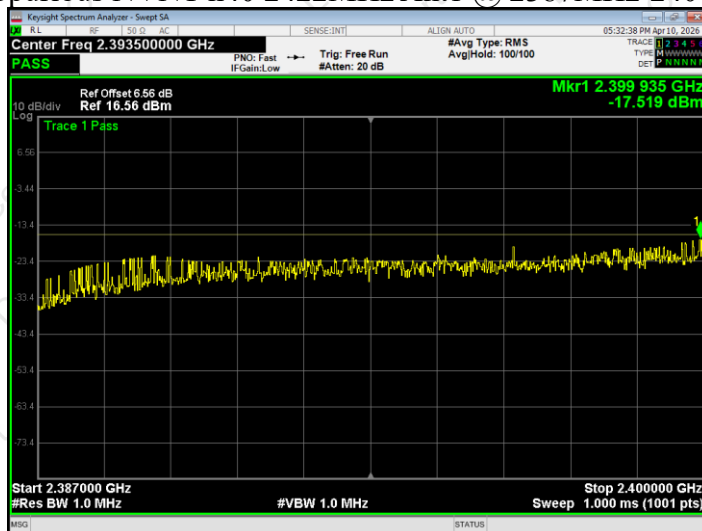
Tx. Spurious NVNT n40 2422MHz Ant1 @ 30MHz-1000MHz



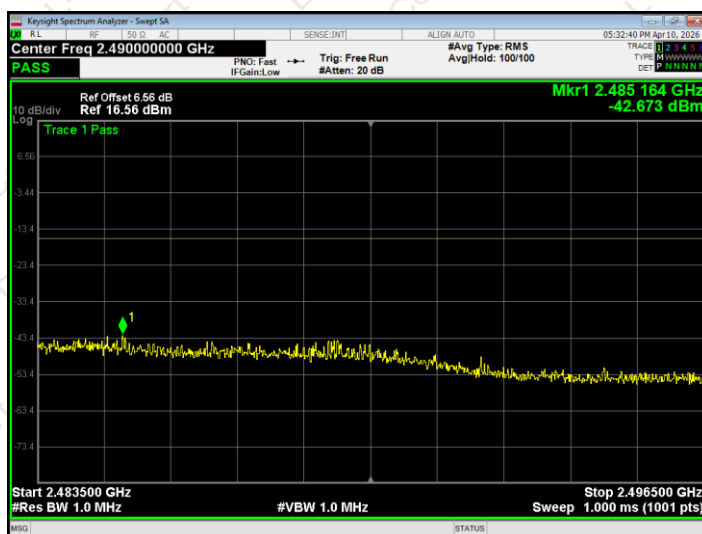
Tx. Spurious NVNT n40 2422MHz Ant1 @ 1000MHz-2387MHz



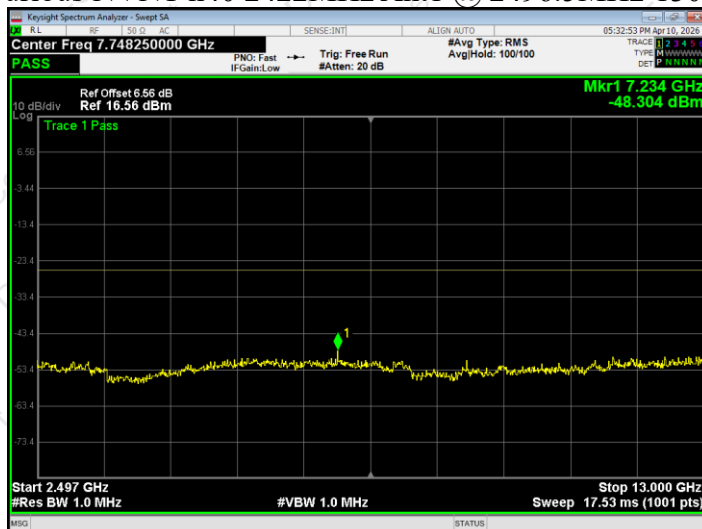
Tx. Spurious NVNT n40 2422MHz Ant1 @ 2387MHz-2400MHz



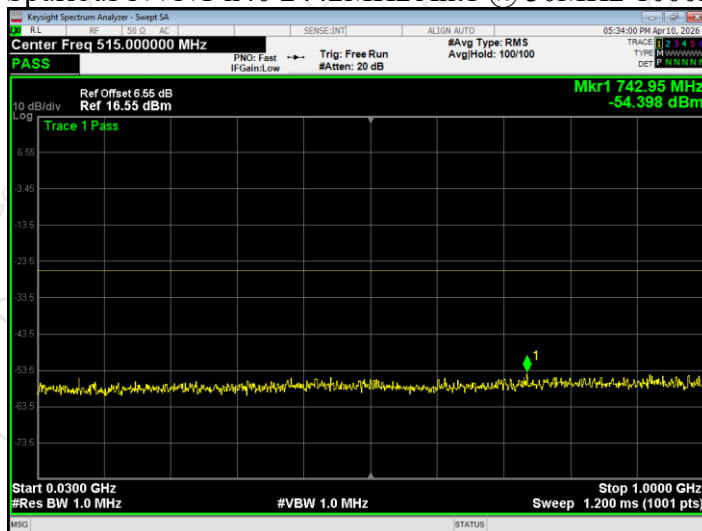
Tx. Spurious NVNT n40 2422MHz Ant1 @ 2483.5MHz-2496.5MHz



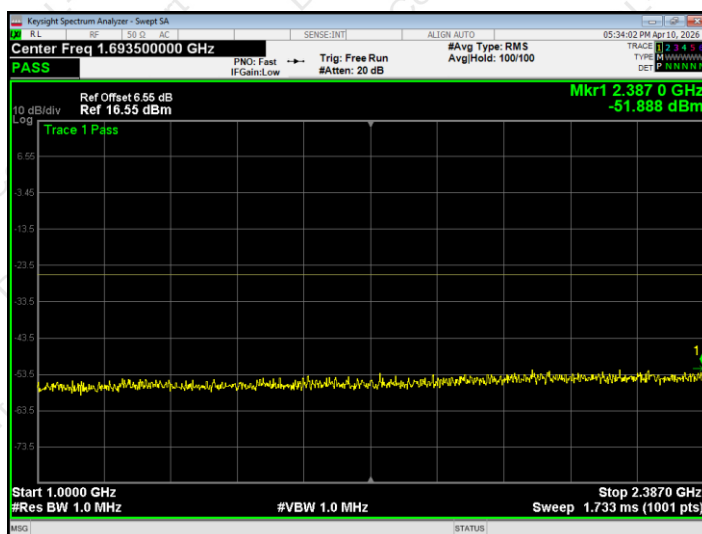
Tx. Spurious NVNT n40 2422MHz Ant1 @ 2496.5MHz-13000MHz



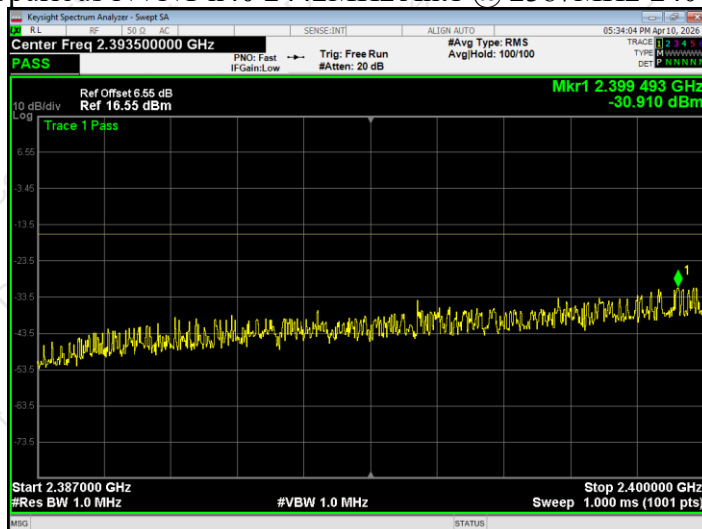
Tx. Spurious NVNT n40 2442MHz Ant1 @ 30MHz-1000MHz



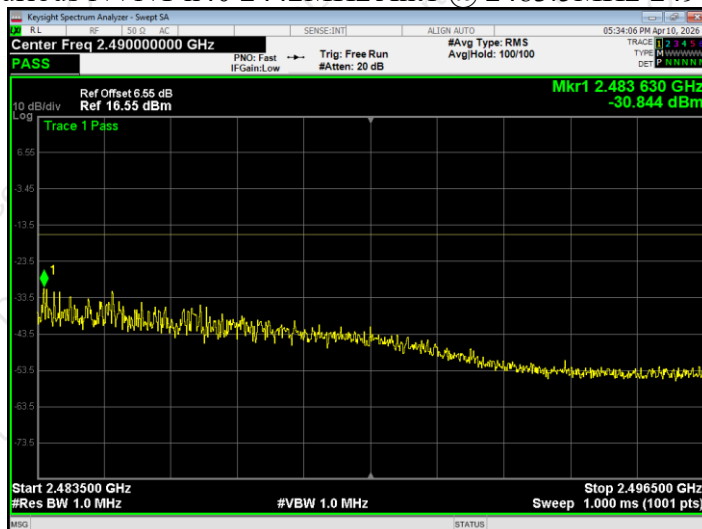
Tx. Spurious NVNT n40 2442MHz Ant1 @ 1000MHz-2387MHz



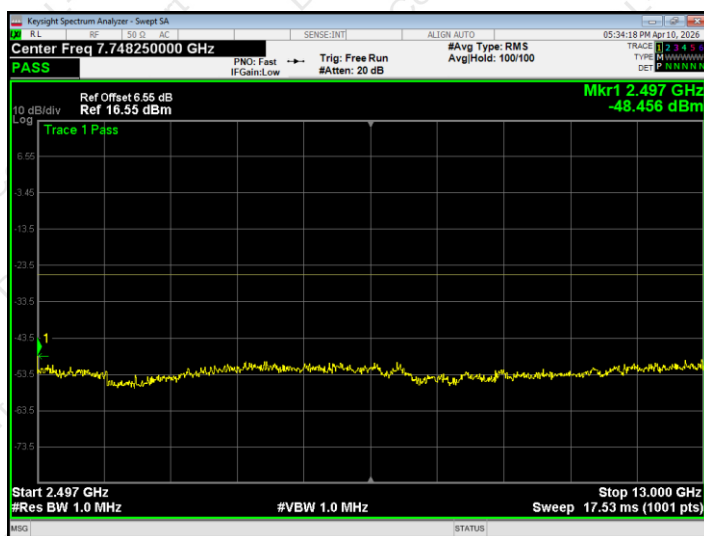
Tx. Spurious NVNT n40 2442MHz Ant1 @ 2387MHz-2400MHz



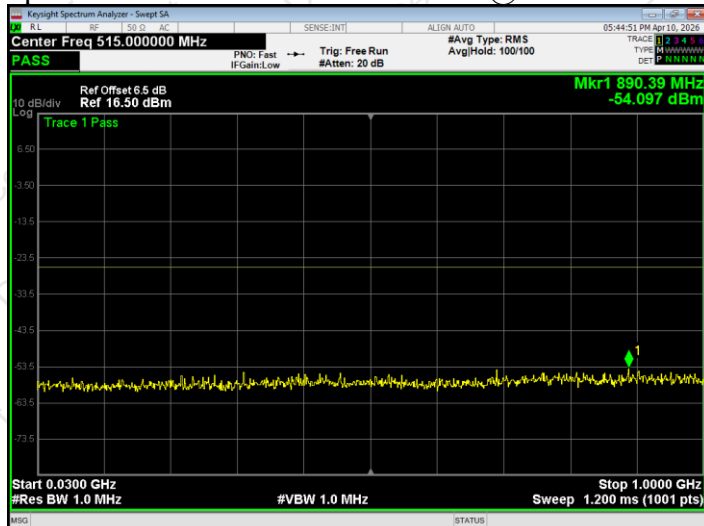
Tx. Spurious NVNT n40 2442MHz Ant1 @ 2483.5MHz-2496.5MHz



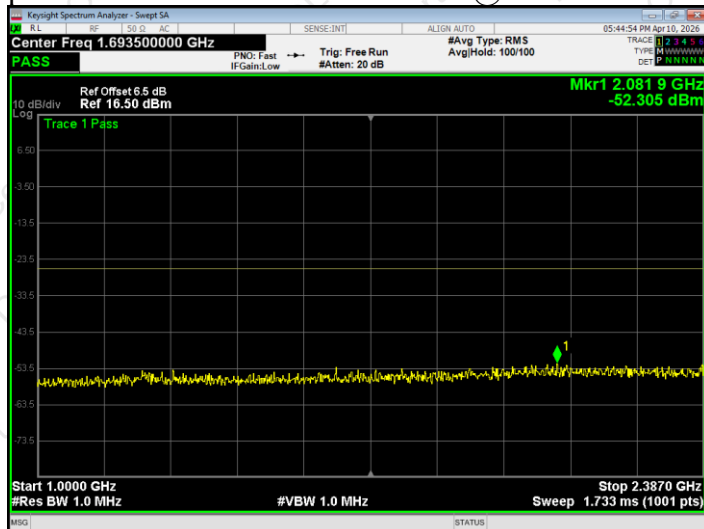
Tx. Spurious NVNT n40 2442MHz Ant1 @ 2496.5MHz-13000MHz



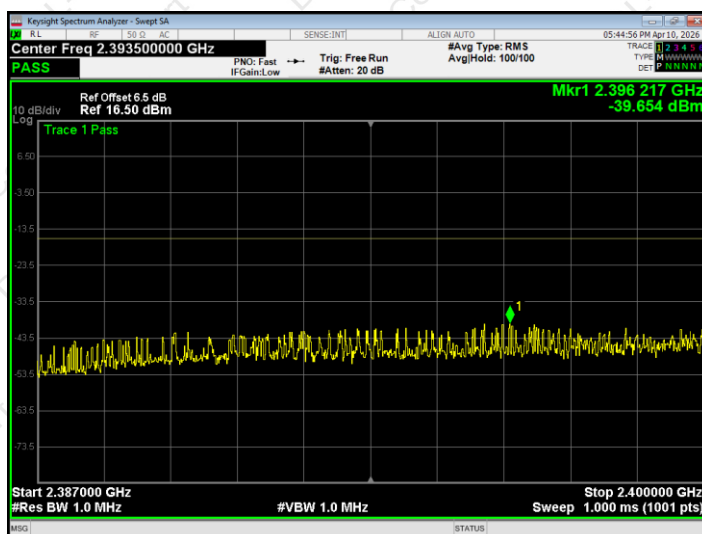
Tx. Spurious NVNT n40 2462MHz Ant1 @ 30MHz-1000MHz



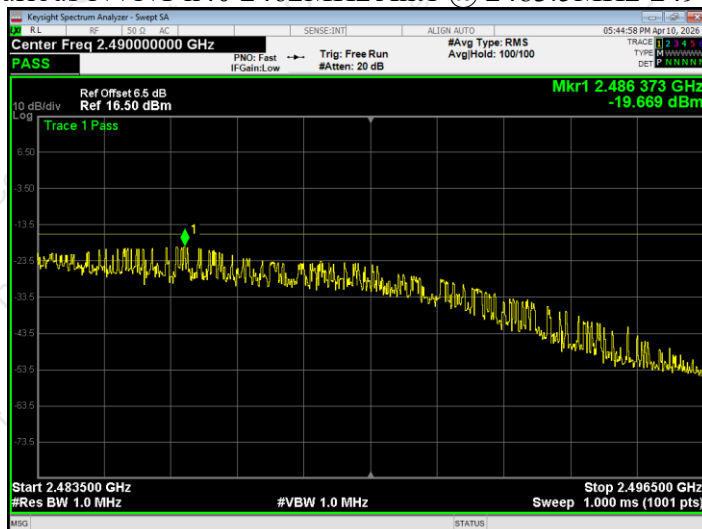
Tx. Spurious NVNT n40 2462MHz Ant1 @ 1000MHz-2387MHz



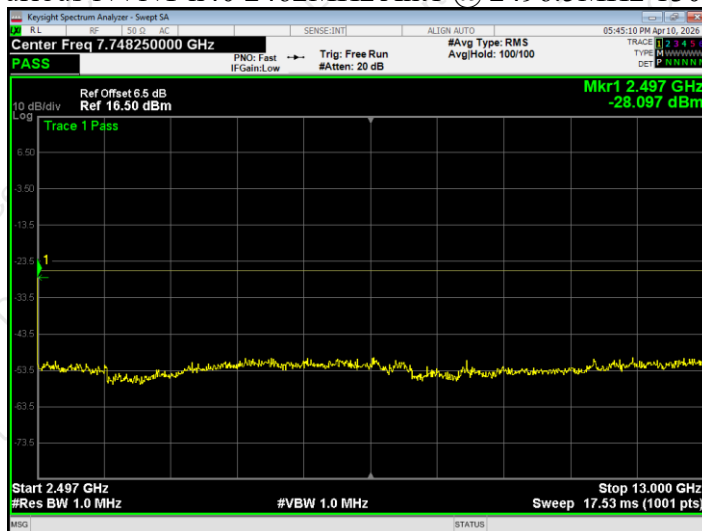
Tx. Spurious NVNT n40 2462MHz Ant1 @ 2387MHz-2400MHz



Tx. Spurious NVNT n40 2462MHz Ant1 @ 2483.5MHz-2496.5MHz



Tx. Spurious NVNT n40 2462MHz Ant1 @ 2496.5MHz-13000MHz



4.4. ANTENNA POWER ERROR MEASUREMENT

4.4.1. LIMIT

Item	Limits
Antenna Power Density	$\leq 3\text{mW/MHz}$ (FHSS, form 2427 - 2470.75 MHz) $\leq 10\text{mW/MHz}$ (OFDM, DSSS from 2400~2483.5MHz) $\leq 10\text{mW}$ (Other from 2400~2483.5MHz)
Antenna Power Error	+20%(Base on manufacturer declare antenna power density)

4.4.3. TEST PROCEDURES

Step 1

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency: The center frequency of the UUT test channel

RBW: 1MHz

VBW: 1MHz

Span: Wide enough to cover the total power envelope of the signal of the UUT

Detector: Peak

Trace Mode: Max Hold

Find the Peak value for the power envelope and record the frequency.

Step 2

Change the spectrum analyzer and use the following settings:

Center Frequency: Record frequency of step 1.

RBW: 1MHz

VBW: 1MHz

Span: 0Hz

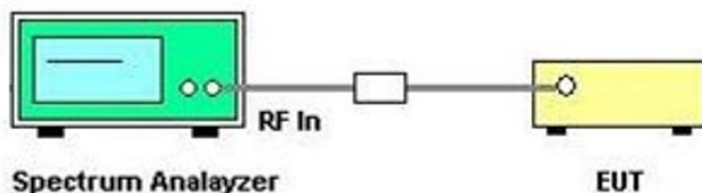
Sweep time: enough to capture the signal burst.

Detector: RMS

Trace Mode: Single

Capture the burst signal power and record it.

4.4.4. TEST SETUP LAYOUT



4.4.5. EST DEVIATION

There is no deviation with the original standard.

4.4.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

**4.4.7. TEST RESULT OF ANTENNA POWER ERROR**

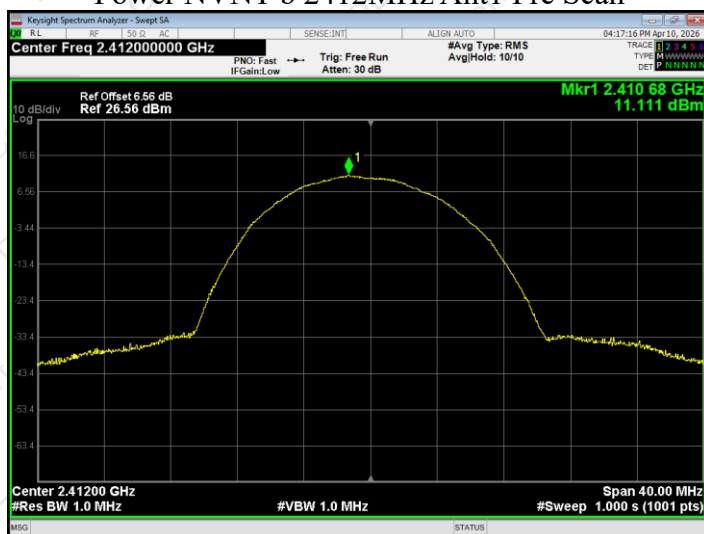
Temperature:	25.6 °C	Relative Humidity:	55.8%	Pressure:	1010mbar
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Condition	Mode	Frequency (MHz)	Antenna Power (mW/MHz)		Declared Power (mW/MHz)	Tolerance (%)		Upper Limit (%)	Verdict
			ANT1	ANT2		ANT1	ANT2		
NVNT	b	2412	2.778	2.827	5	-44.44	-43.46	20	Pass
NVNT	b	2442	4.448	4.414	5	-11.04	-11.72	20	Pass
NVNT	b	2472	3.804	3.823	5	-23.92	-23.54	20	Pass
NVNT	g	2412	1.674	1.428	5	-66.52	-71.44	20	Pass
NVNT	g	2442	2.278	2.085	5	-54.44	-58.3	20	Pass
NVNT	g	2472	1.891	2.066	5	-62.18	-58.68	20	Pass
NVNT	n20	2412	1.736	1.711	5	-65.28	-65.78	20	Pass
NVNT	n20	2442	2.293	2.361	5	-54.14	-52.78	20	Pass
NVNT	n20	2472	2.054	2.112	5	-58.92	-57.76	20	Pass
NVNT	n40	2422	1.279	1.248	4	-68.03	-68.8	20	Pass
NVNT	n40	2442	1.606	1.606	4	-59.85	-59.85	20	Pass
NVNT	n40	2462	0.817	0.898	4	-79.57	-77.55	20	Pass

Condition	Mode	Frequency (MHz)	Antenna Power (mW/MHz)		ANT1&ANT2 MIMO Antenna Power (mW/MHz)	Declared Power (mW/MHz)	ANT1&ANT2 MIMO Tolerance (%)	Upper Limit (%)	Verdict
			ANT1	ANT2					
NVNT	g	2412	1.674	1.428	4.56	5	-8.8	20	Pass
NVNT	g	2442	2.278	2.085	5.19	5	3.8	20	Pass
NVNT	g	2472	1.891	2.066	4.99	5	-0.2	20	Pass
NVNT	n20	2412	1.736	1.711	4.73	5	-5.4	20	Pass
NVNT	n20	2442	2.293	2.361	5.34	5	6.8	20	Pass
NVNT	n20	2472	2.054	2.112	5.09	5	1.8	20	Pass
NVNT	n40	2422	1.279	1.248	4.27	4	6.75	20	Pass
NVNT	n40	2442	1.606	1.606	4.62	4	15.5	20	Pass
NVNT	n40	2462	0.817	0.898	3.87	4	-3.25	20	Pass



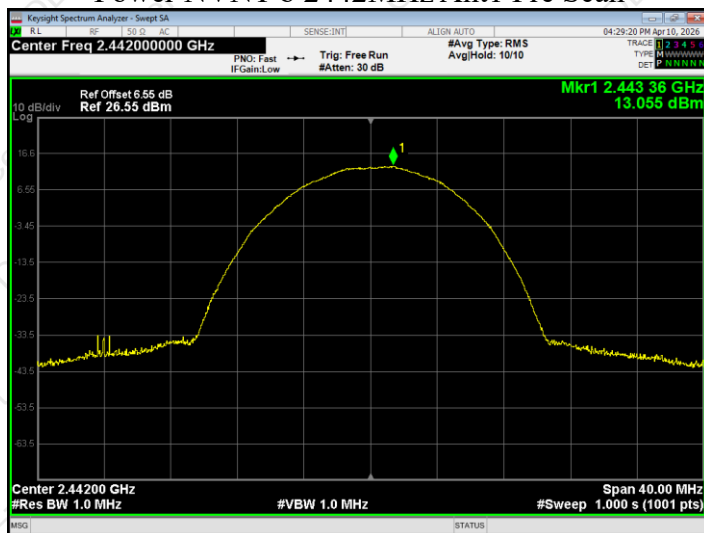
Power NVNT b 2412MHz Ant1 Pre Scan



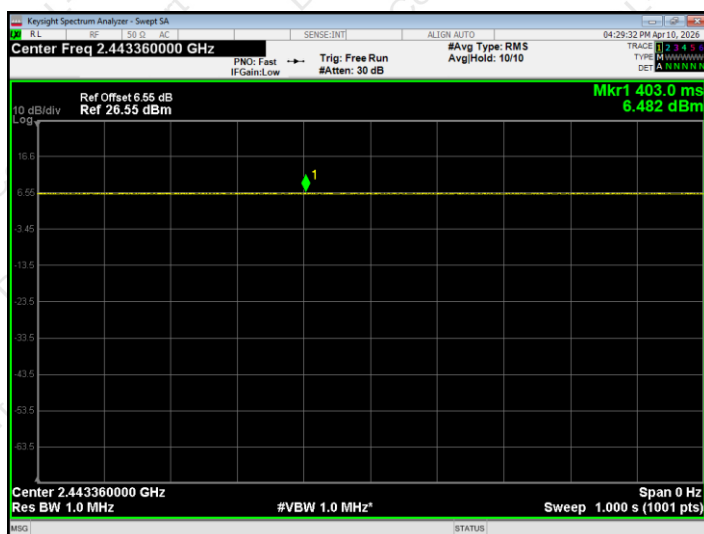
Power NVNT b 2412MHz Ant1 Zero Span



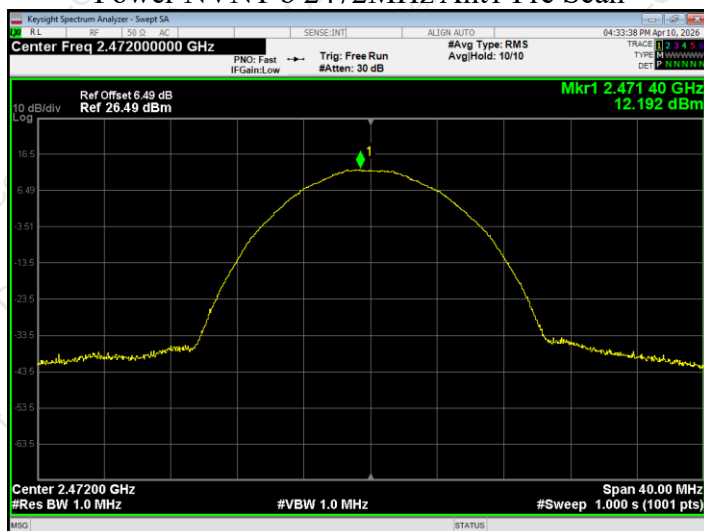
Power NVNT b 2442MHz Ant1 Pre Scan



Power NVNT b 2442MHz Ant1 Zero Span



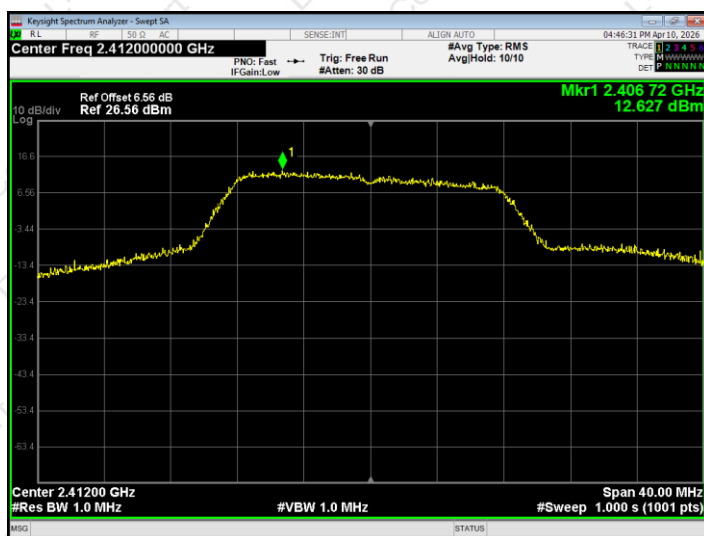
Power NVNT b 2472MHz Ant1 Pre Scan



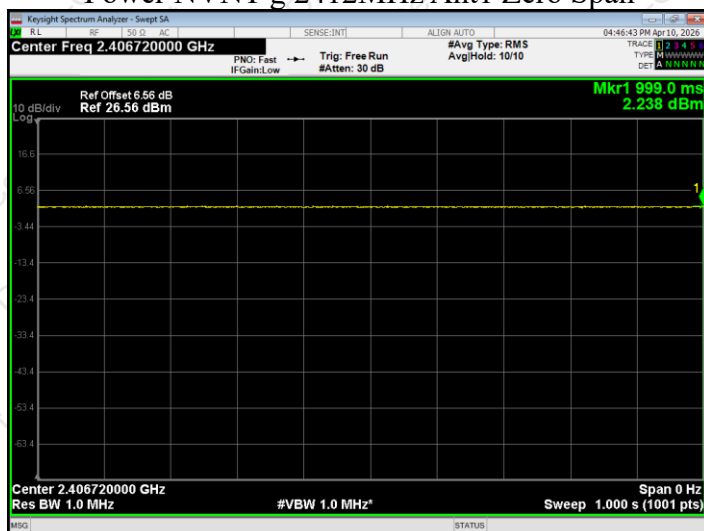
Power NVNT b 2472MHz Ant1 Zero Span



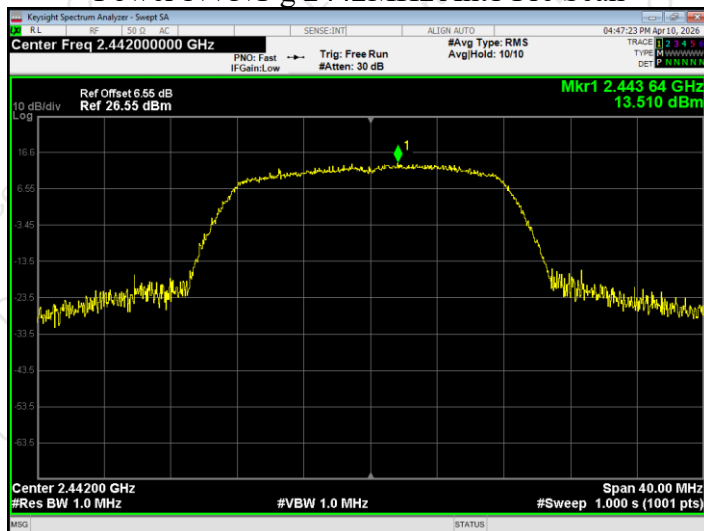
Power NVNT g 2412MHz Ant1 Pre Scan



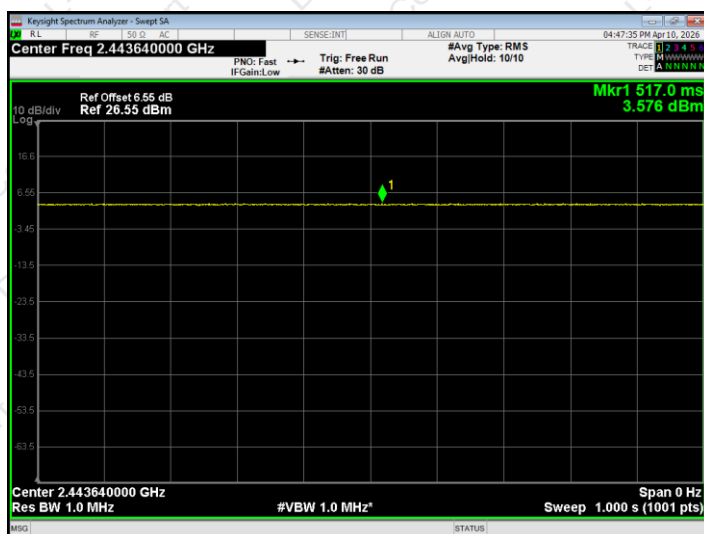
Power NVNT g 2412MHz Ant1 Zero Span



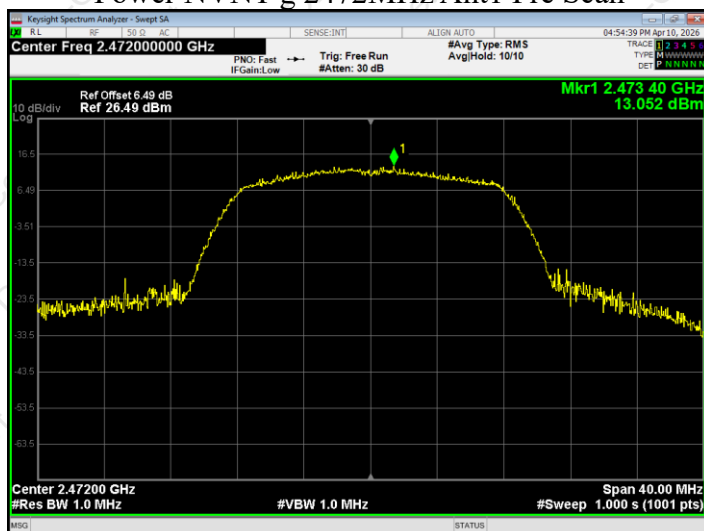
Power NVNT g 2442MHz Ant1 Pre Scan



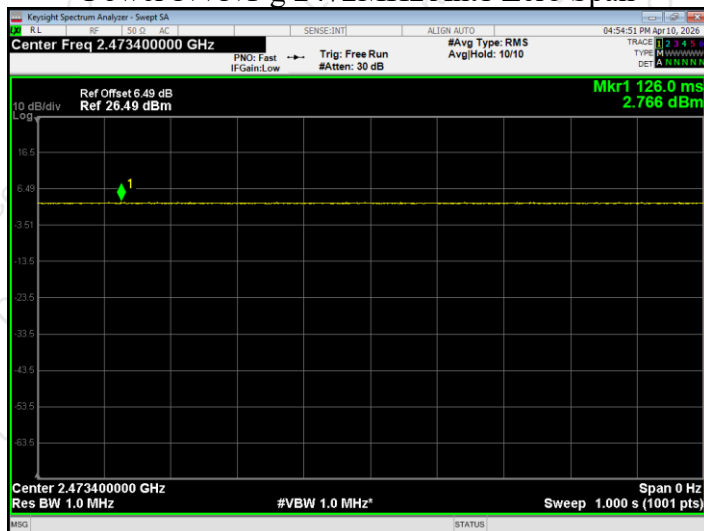
Power NVNT g 2442MHz Ant1 Zero Span



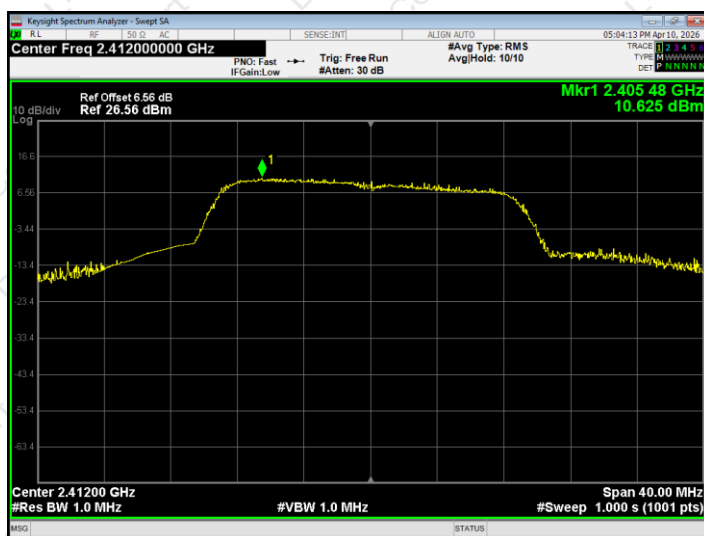
Power NVNT g 2472MHz Ant1 Pre Scan



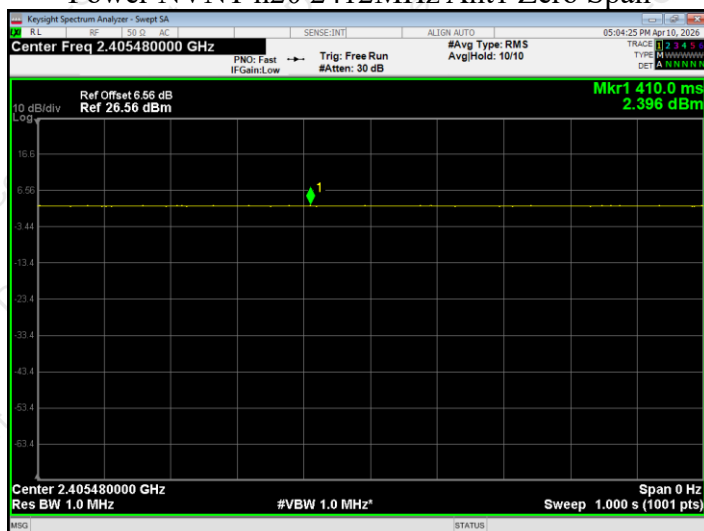
Power NVNT g 2472MHz Ant1 Zero Span



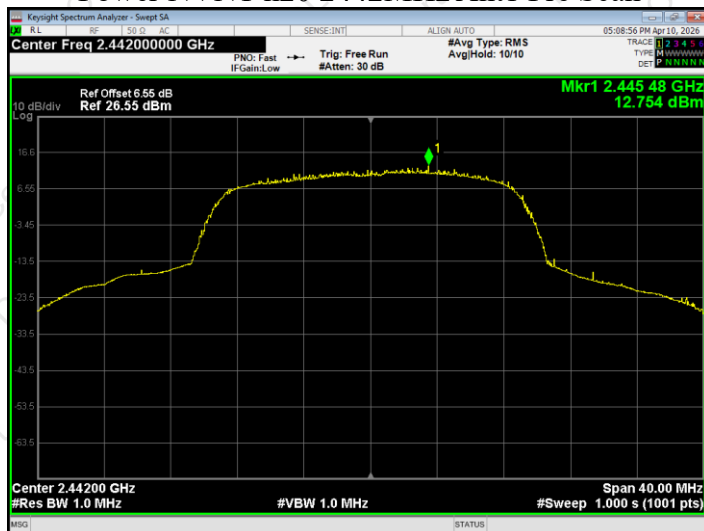
Power NVNT n20 2412MHz Ant1 Pre Scan



Power NVNT n20 2412MHz Ant1 Zero Span



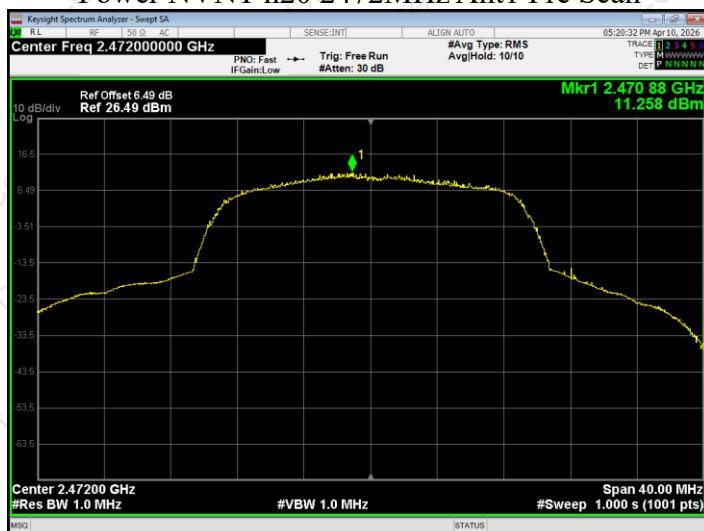
Power NVNT n20 2442MHz Ant1 Pre Scan



Power NVNT n20 2442MHz Ant1 Zero Span



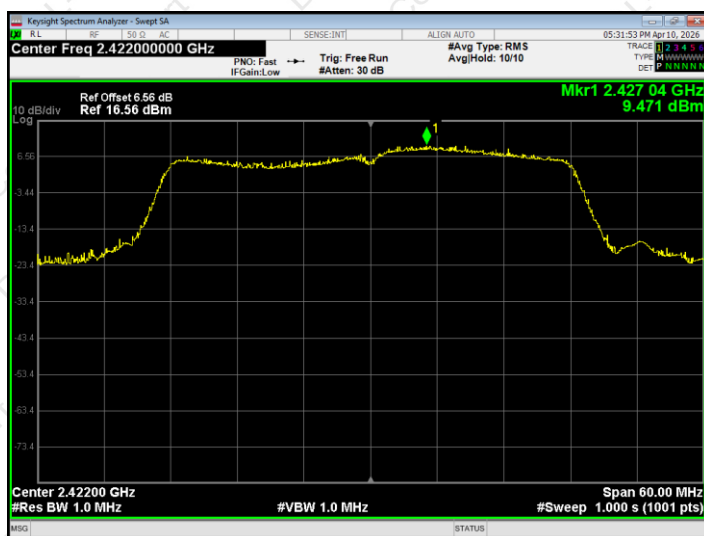
Power NVNT n20 2472MHz Ant1 Pre Scan



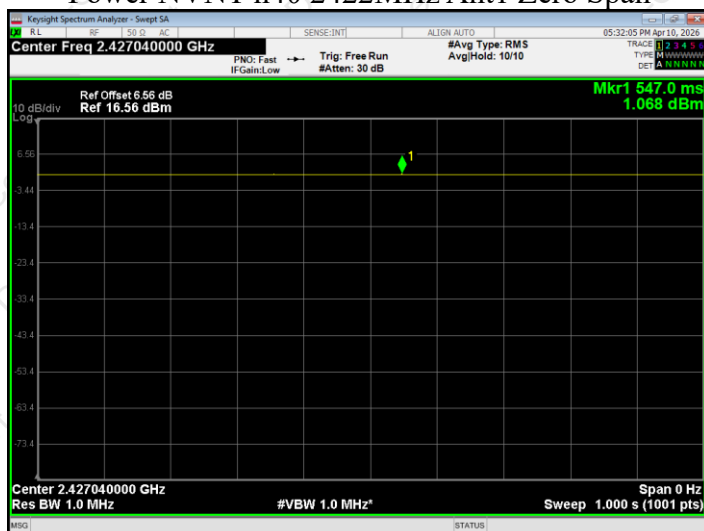
Power NVNT n20 2472MHz Ant1 Zero Span



Power NVNT n40 2422MHz Ant1 Pre Scan



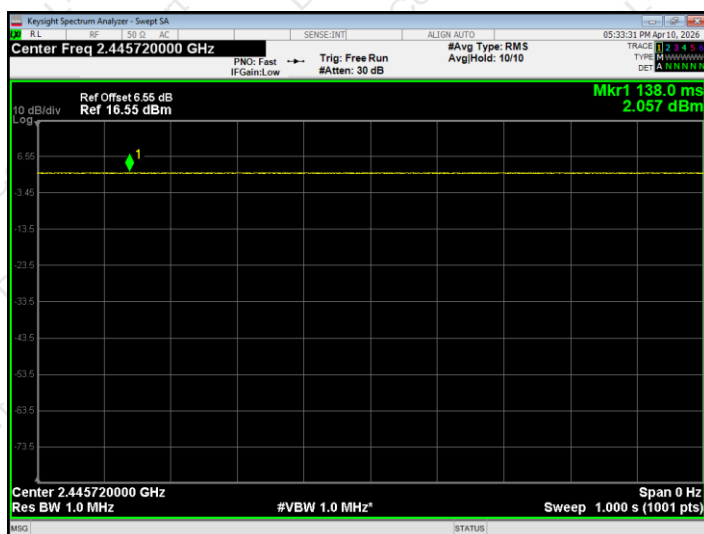
Power NVNT n40 2422MHz Ant1 Zero Span



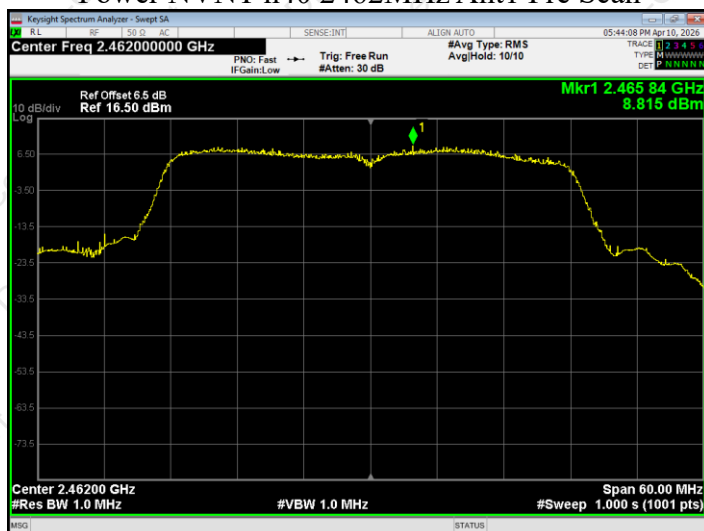
Power NVNT n40 2442MHz Ant1 Pre Scan



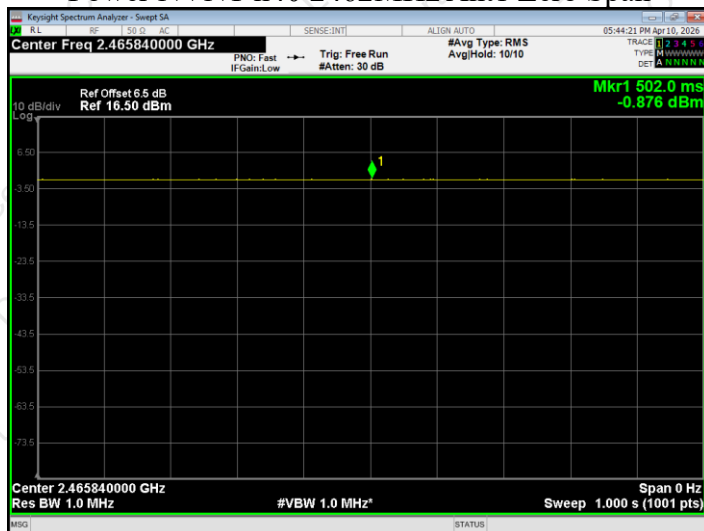
Power NVNT n40 2442MHz Ant1 Zero Span



Power NVNT n40 2462MHz Ant1 Pre Scan

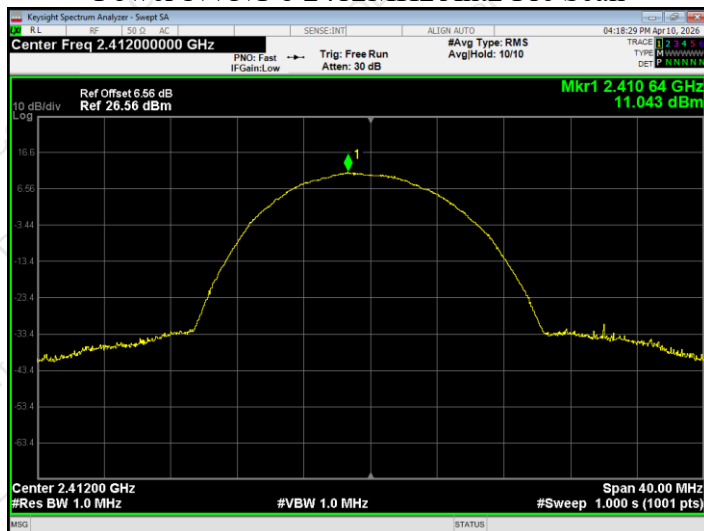


Power NVNT n40 2462MHz Ant1 Zero Span





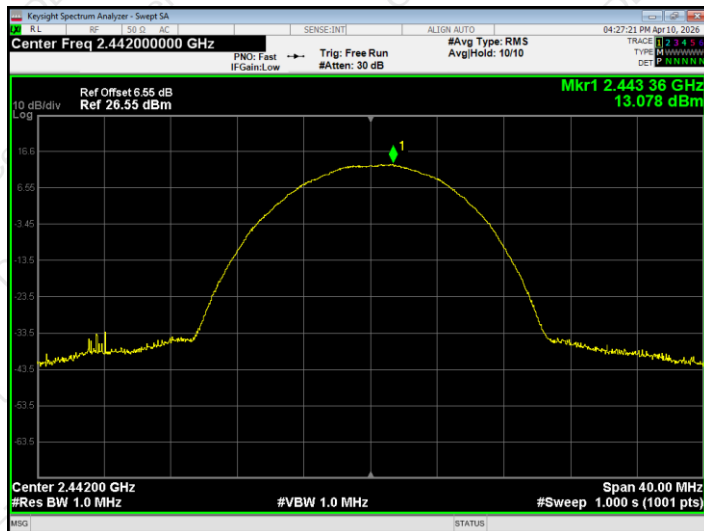
Power NVNT b 2412MHz Ant2 Pre Scan



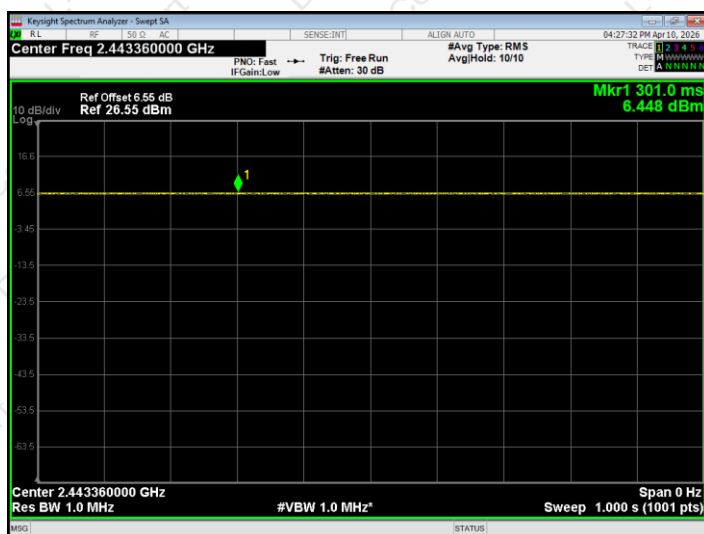
Power NVNT b 2412MHz Ant2 Zero Span



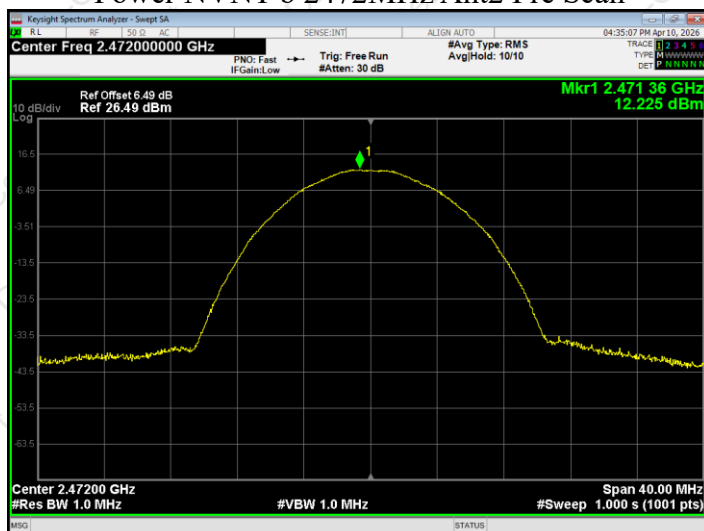
Power NVNT b 2442MHz Ant2 Pre Scan



Power NVNT b 2442MHz Ant2 Zero Span



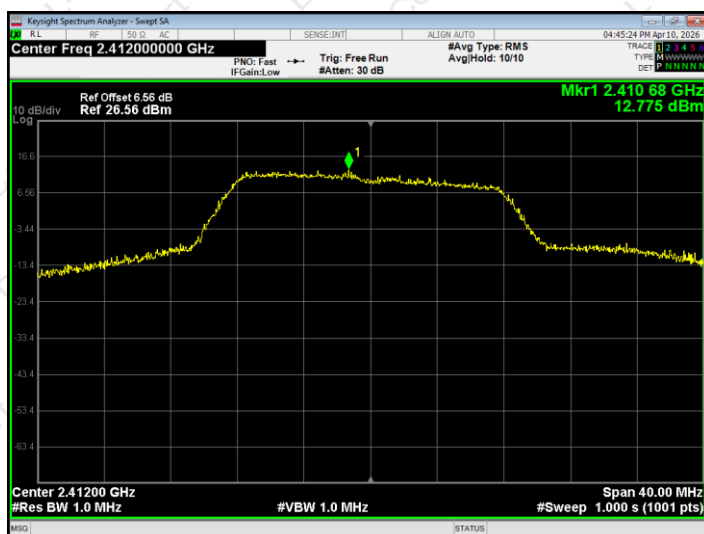
Power NVNT b 2472MHz Ant2 Pre Scan



Power NVNT b 2472MHz Ant2 Zero Span



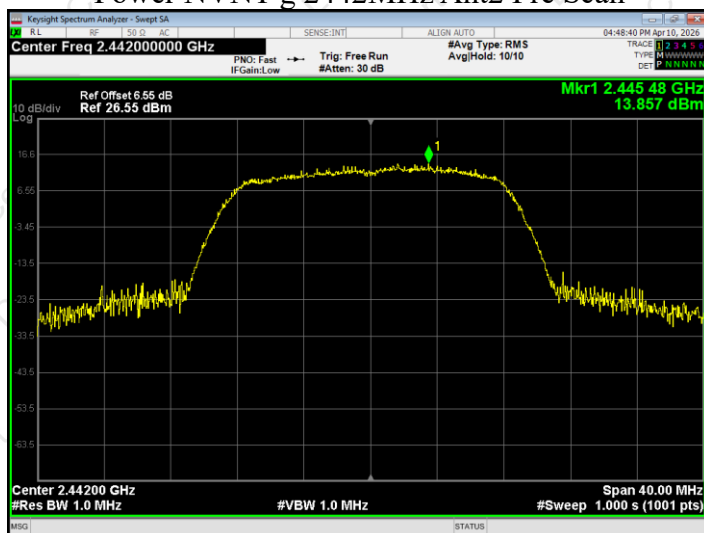
Power NVNT g 2412MHz Ant2 Pre Scan



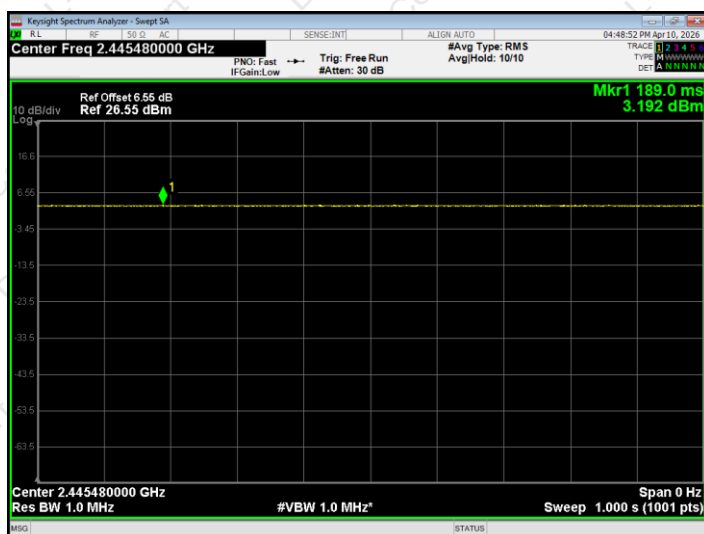
Power NVNT g 2412MHz Ant2 Zero Span



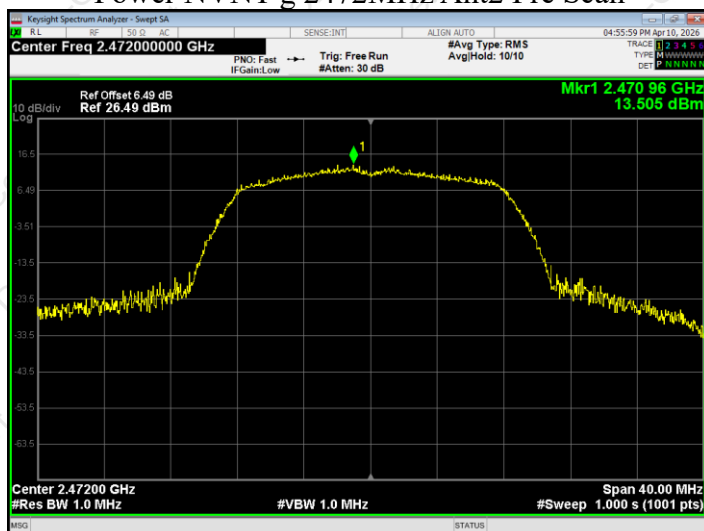
Power NVNT g 2442MHz Ant2 Pre Scan



Power NVNT g 2442MHz Ant2 Zero Span



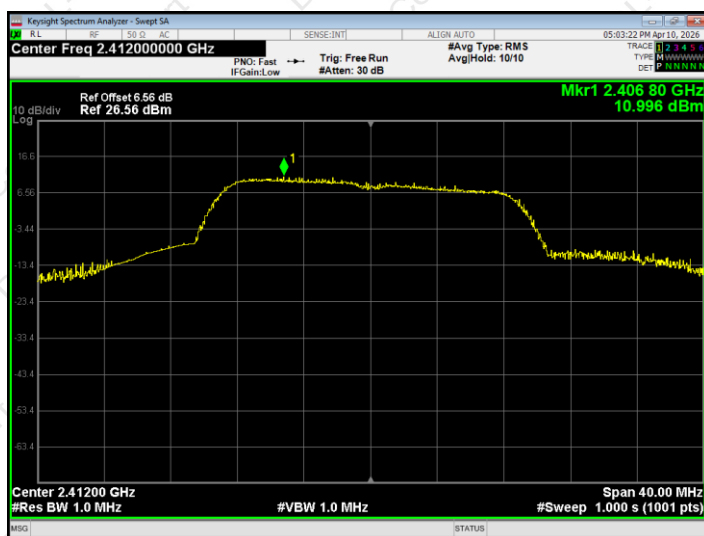
Power NVNT g 2472MHz Ant2 Pre Scan



Power NVNT g 2472MHz Ant2 Zero Span



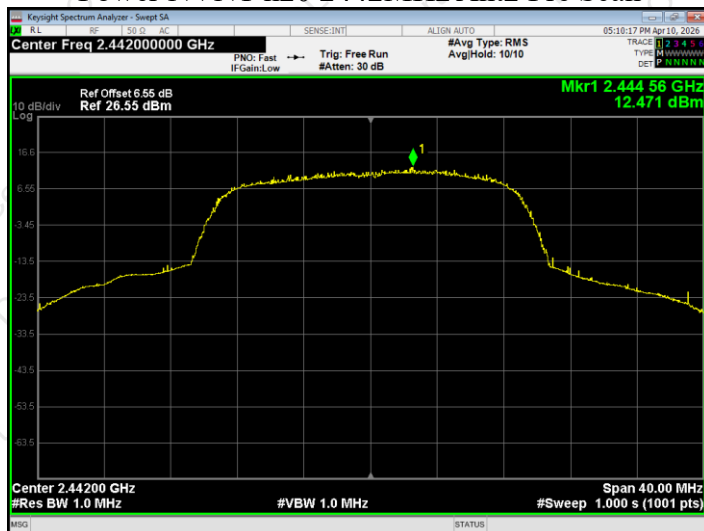
Power NVNT n20 2412MHz Ant2 Pre Scan



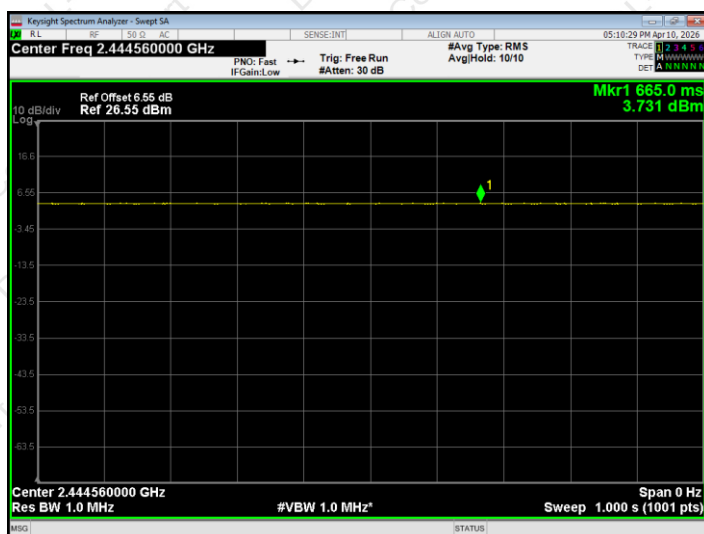
Power NVNT n20 2412MHz Ant2 Zero Span



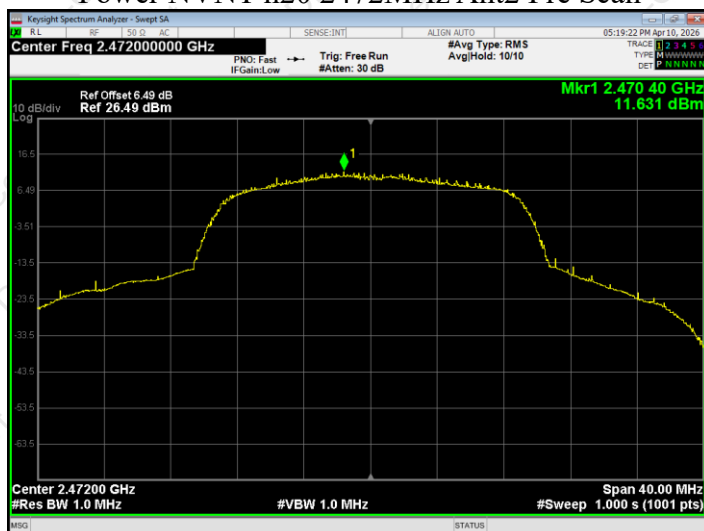
Power NVNT n20 2442MHz Ant2 Pre Scan



Power NVNT n20 2442MHz Ant2 Zero Span



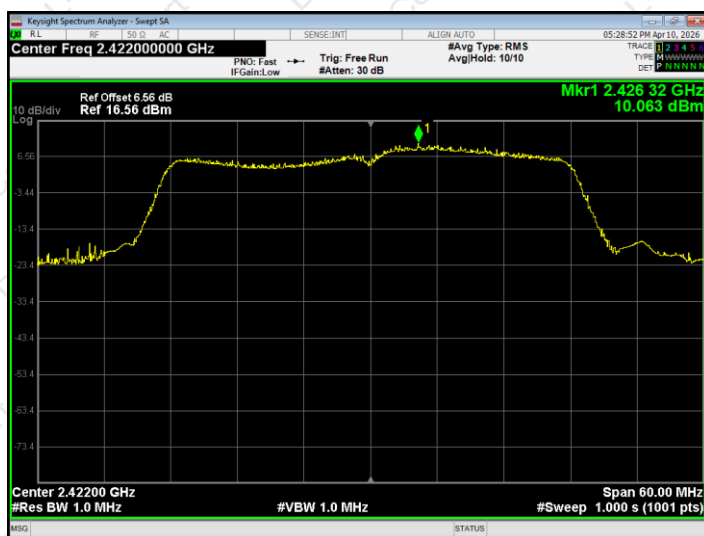
Power NVNT n20 2472MHz Ant2 Pre Scan



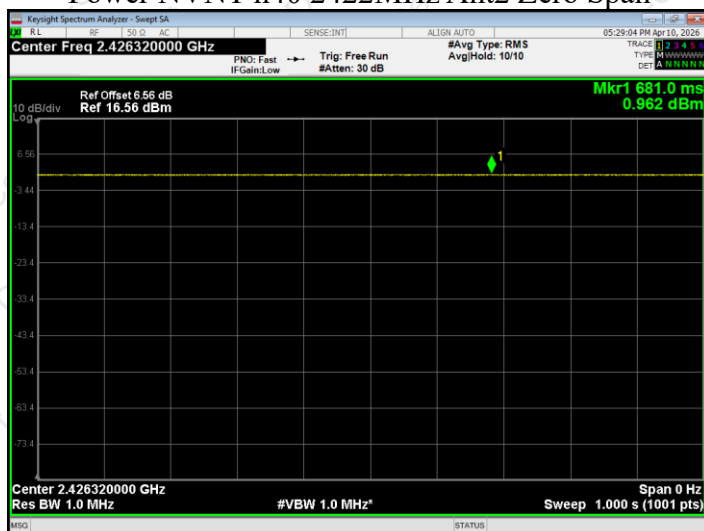
Power NVNT n20 2472MHz Ant2 Zero Span



Power NVNT n40 2422MHz Ant2 Pre Scan



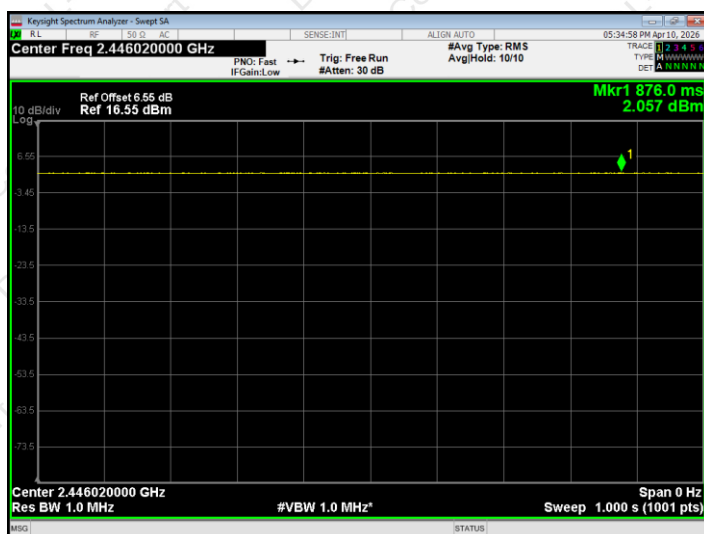
Power NVNT n40 2422MHz Ant2 Zero Span



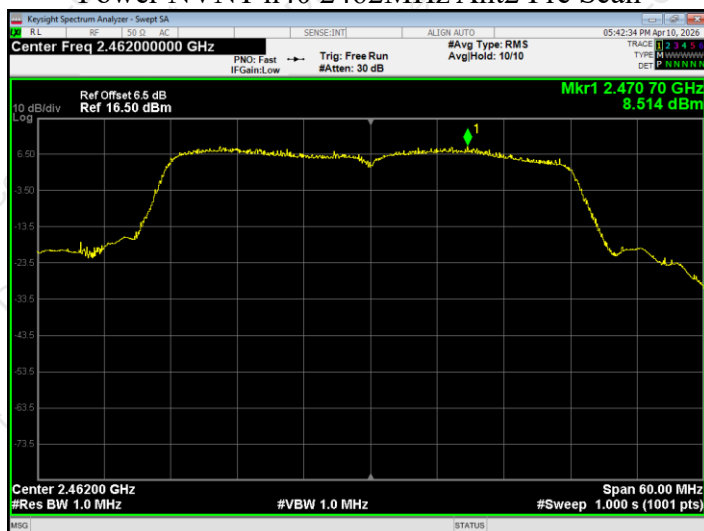
Power NVNT n40 2442MHz Ant2 Pre Scan



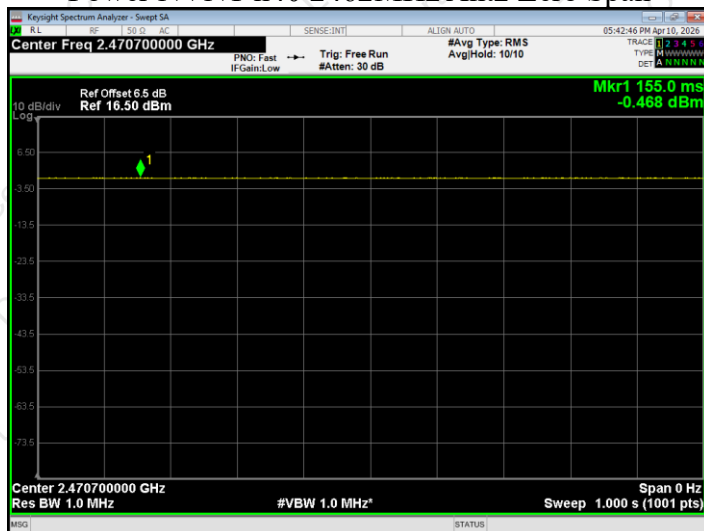
Power NVNT n40 2442MHz Ant2 Zero Span



Power NVNT n40 2462MHz Ant2 Pre Scan



Power NVNT n40 2462MHz Ant2 Zero Span





4.5. SECONDARY RADIATED EMISSIONS TEST

4.5.1. LIMIT

Item	Limits
RX Spurious Emission:	$\leq 4\text{nW}$ ($f < 1\text{GHz}$)
	$\leq -54\text{ dBm}$ ($f < 1\text{GHz}$)
	$\leq 20\text{nW}$ ($1\text{GHz} \leq f$)
	$\leq -47\text{ dBm}$ ($1\text{GHz} \leq f$)

4.5.2. MEASURING INSTRUMENTS AND SETTING

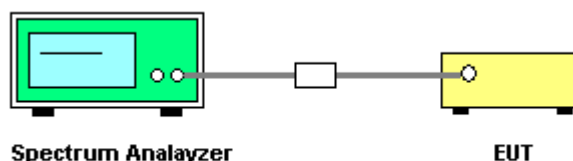
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RB	100 kHz (below 1GHz emissions) 1 MHz (above 1GHz emissions)
VB	100 kHz (below 1GHz emissions) 1 MHz (above 1GHz emissions)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.5.3. TEST PROCEDURES

1. EUT have the continuous reception mode and fixed only one channelize.
2. Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
3. SA set RB: 100kHz and VB: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW
4. SA set RB: 1MHz and VB: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW
5. If power level of lower emissions are more than 1/10 of limit (0.4nW for $f < 1\text{GHz}$, 2nW for $f \geq 1\text{GHz}$), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

4.5.4. TEST SETUP LAYOUT



4.5.6. TEST DEVIATION

There is no deviation with the original standard.



4.5.7. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously reception mode.

4.5.8. TEST RESULT

Temperature:	25.6 °C	Relative Humidity:	55.8%	Pressure:	1010mbar
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We test all antenna's data, the data only show the antenna1 worst mode.

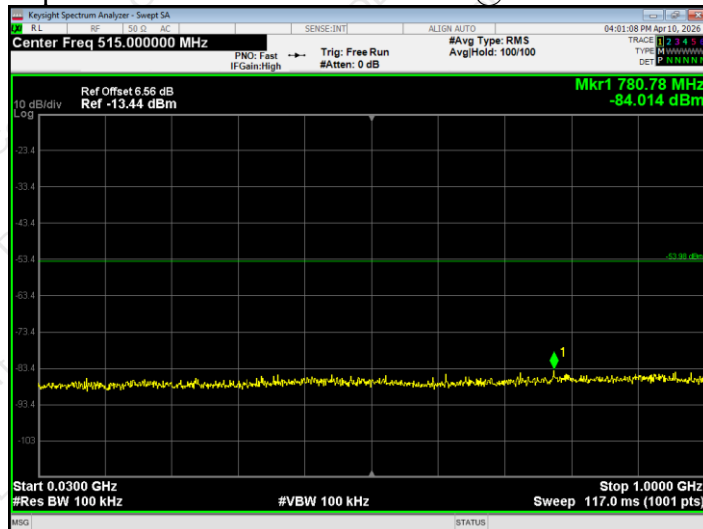
Condition	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm/MHz)	Max Value (nW/MHz)	Limit (nW/MHz)	Verdict
NVNT	b	2412	30-1000	780.78	-84.01	0.004	4	Pass
NVNT	b	2412	1000-13000	3460	-55.27	2.9717	20	Pass
NVNT	b	2442	30-1000	861.29	-84.31	0.0037	4	Pass
NVNT	b	2442	1000-13000	3436	-58.59	1.3836	20	Pass
NVNT	b	2472	30-1000	830.25	-84.76	0.0033	4	Pass
NVNT	b	2472	1000-13000	3424	-59.45	1.135	20	Pass
NVNT	g	2412	30-1000	734.22	-84.75	0.0033	4	Pass
NVNT	g	2412	1000-13000	1780	-59.99	1.0023	20	Pass
NVNT	g	2442	30-1000	936.95	-84.14	0.0039	4	Pass
NVNT	g	2442	1000-13000	1768	-60.99	0.7962	20	Pass
NVNT	g	2472	30-1000	979.63	-83.89	0.0041	4	Pass
NVNT	g	2472	1000-13000	2524	-57.69	1.7022	20	Pass
NVNT	n20	2412	30-1000	855.47	-84.18	0.0038	4	Pass
NVNT	n20	2412	1000-13000	2440	-52.55	5.559	20	Pass
NVNT	n20	2442	30-1000	957.32	-84.15	0.0038	4	Pass
NVNT	n20	2442	1000-13000	2440	-51.89	6.4714	20	Pass
NVNT	n20	2472	30-1000	948.59	-84.64	0.0034	4	Pass
NVNT	n20	2472	1000-13000	3424	-57.74	1.6827	20	Pass
NVNT	n40	2422	30-1000	880.69	-84.84	0.0033	4	Pass
NVNT	n40	2422	1000-13000	2476	-59.5	1.122	20	Pass
NVNT	n40	2442	30-1000	908.82	-84.6	0.0035	4	Pass
NVNT	n40	2442	1000-13000	2428	-58.44	1.4322	20	Pass
NVNT	n40	2462	30-1000	926.28	-84.5	0.0035	4	Pass
NVNT	n40	2462	1000-13000	2476	-59.39	1.1508	20	Pass

Note: 1. 802.11b Mode: We test all antenna's data, the data only show the antenna1 worst mode.

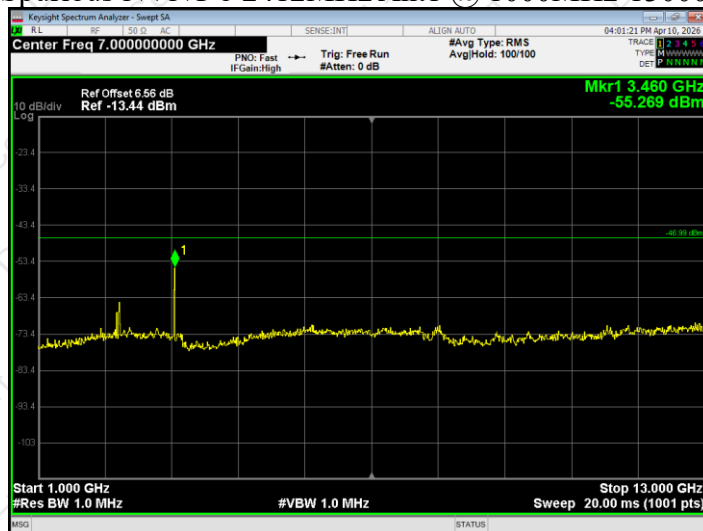
2. 802.11g/n Mode: We test all antenna's data, the data only show the mode MIMO worst mode.



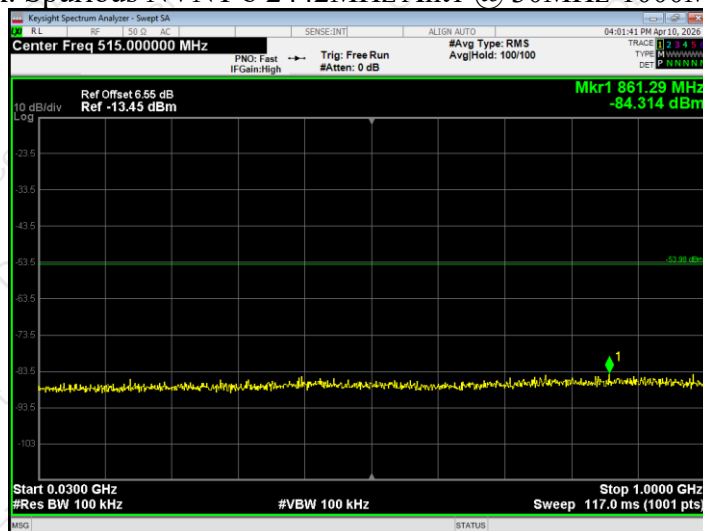
Rx. Spurious NVNT b 2412MHz Ant1 @ 30MHz-1000MHz



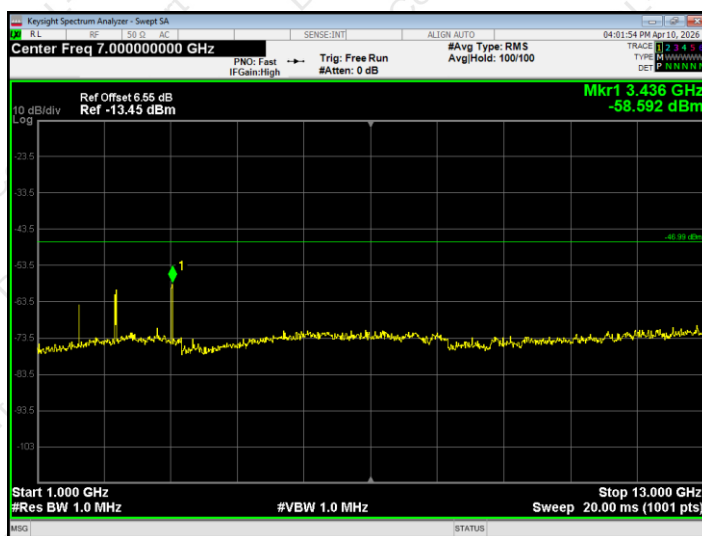
Rx. Spurious NVNT b 2412MHz Ant1 @ 1000MHz-13000MHz



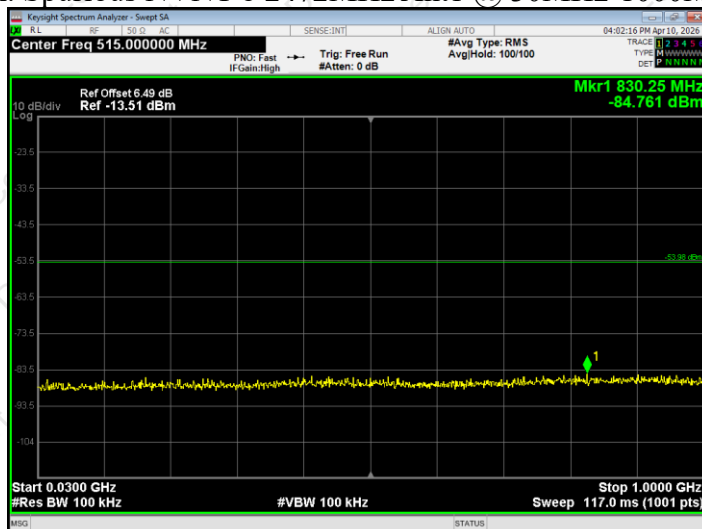
Rx. Spurious NVNT b 2442MHz Ant1 @ 30MHz-1000MHz



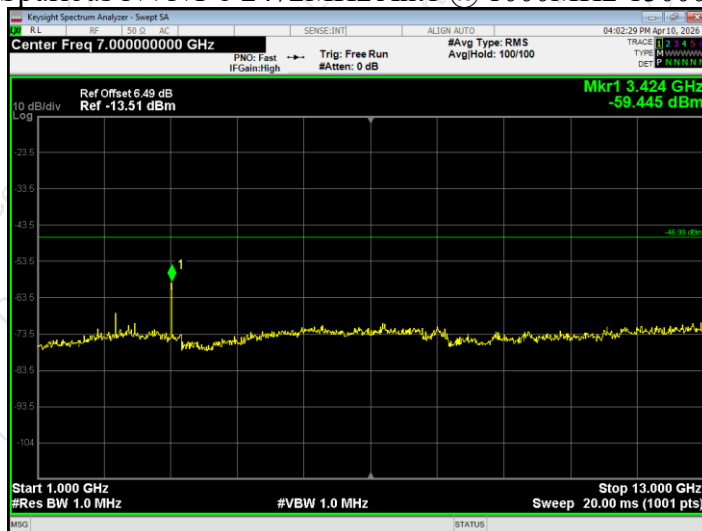
Rx. Spurious NVNT b 2442MHz Ant1 @ 1000MHz-13000MHz



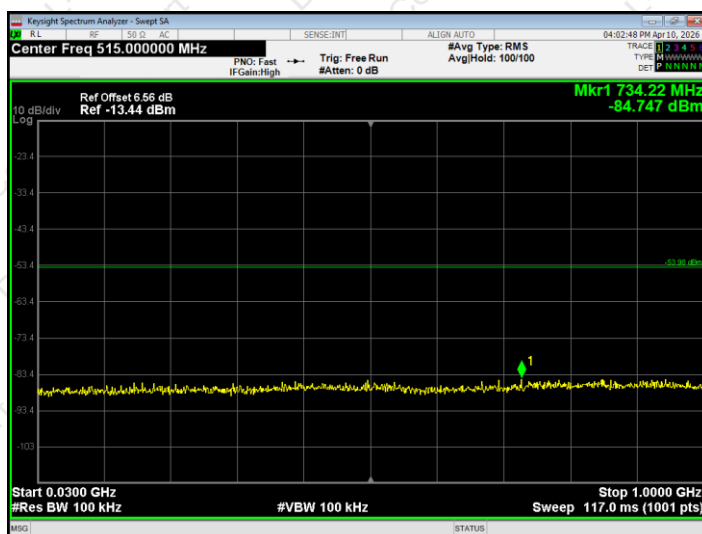
Rx. Spurious NVNT b 2472MHz Ant1 @ 30MHz-1000MHz



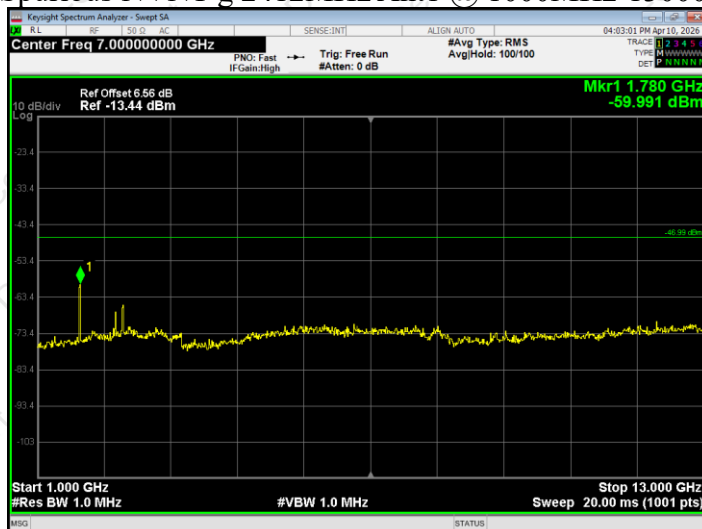
Rx. Spurious NVNT b 2472MHz Ant1 @ 1000MHz-13000MHz



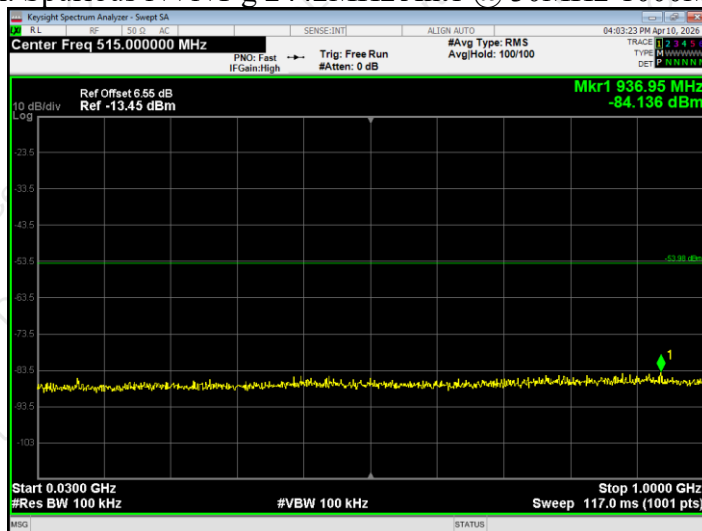
Rx. Spurious NVNT g 2412MHz Ant1 @ 30MHz-1000MHz



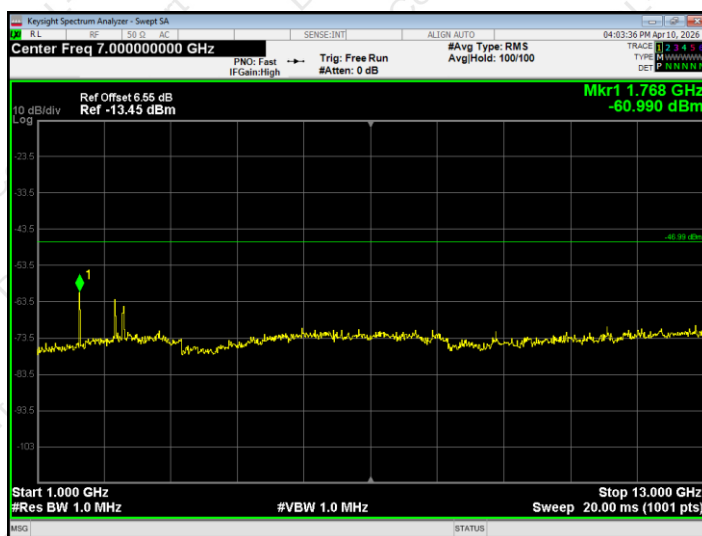
Rx. Spurious NVNT g 2412MHz Ant1 @ 1000MHz-13000MHz



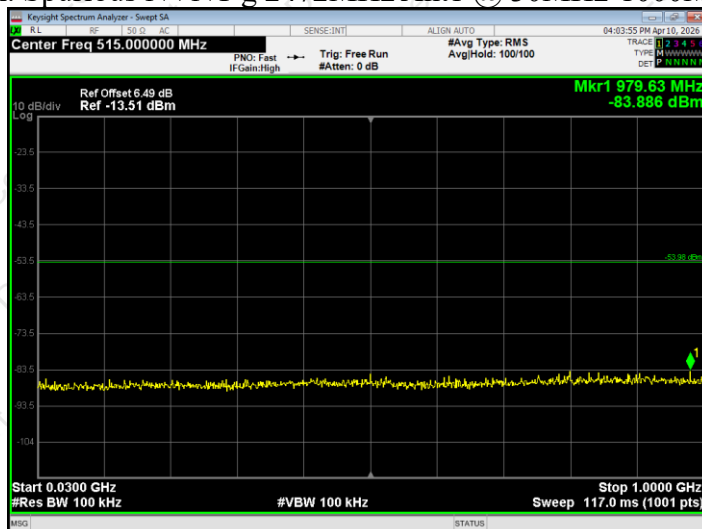
Rx. Spurious NVNT g 2442MHz Ant1 @ 30MHz-1000MHz



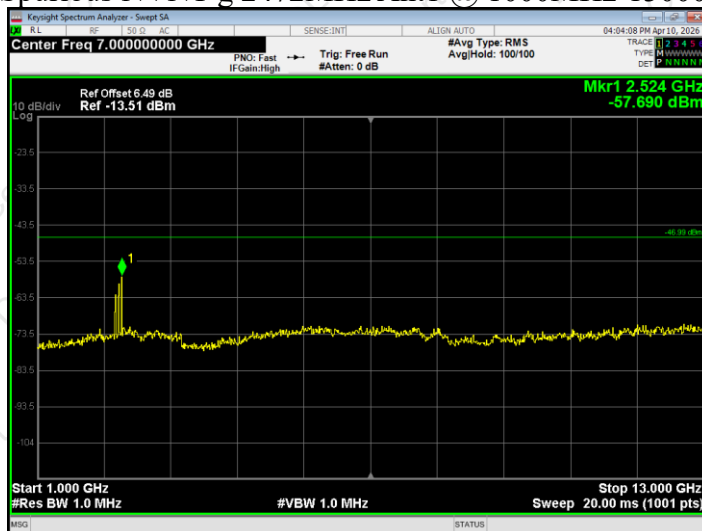
Rx. Spurious NVNT g 2442MHz Ant1 @ 1000MHz-13000MHz



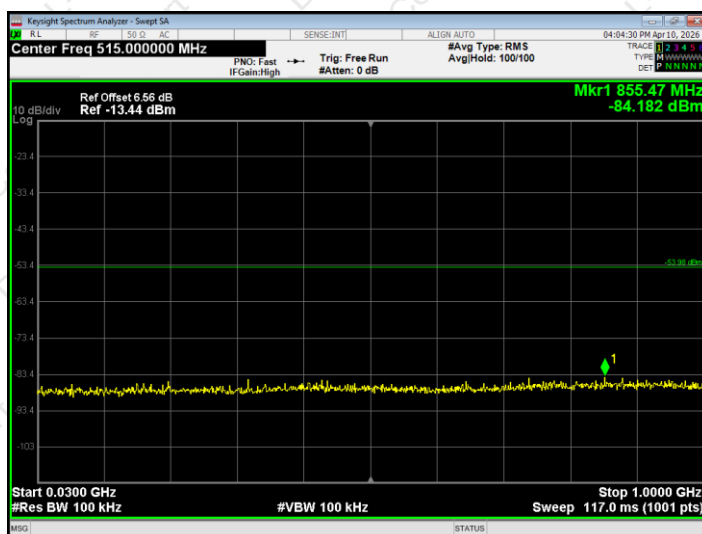
Rx. Spurious NVNT g 2472MHz Ant1 @ 30MHz-1000MHz



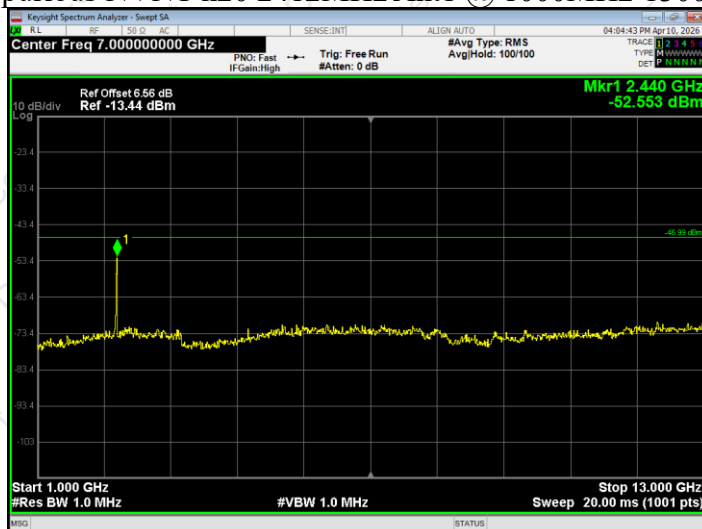
Rx. Spurious NVNT g 2472MHz Ant1 @ 1000MHz-13000MHz



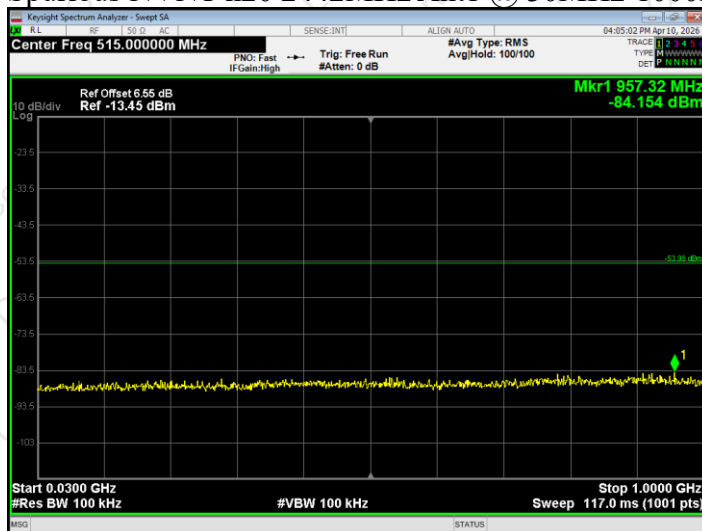
Rx. Spurious NVNT n20 2412MHz Ant1 @ 30MHz-1000MHz



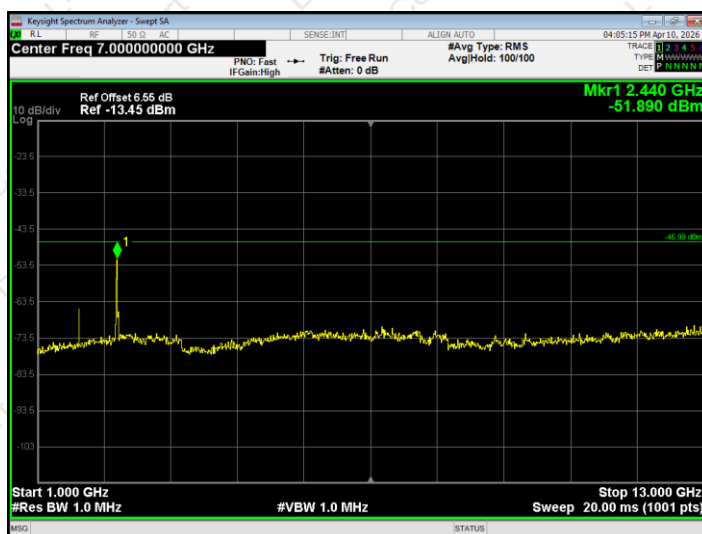
Rx. Spurious NVNT n20 2412MHz Ant1 @ 1000MHz-13000MHz



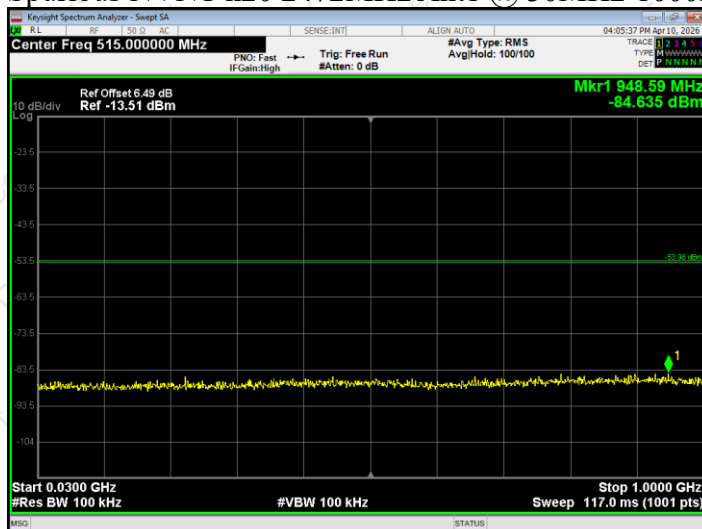
Rx. Spurious NVNT n20 2442MHz Ant1 @ 30MHz-1000MHz



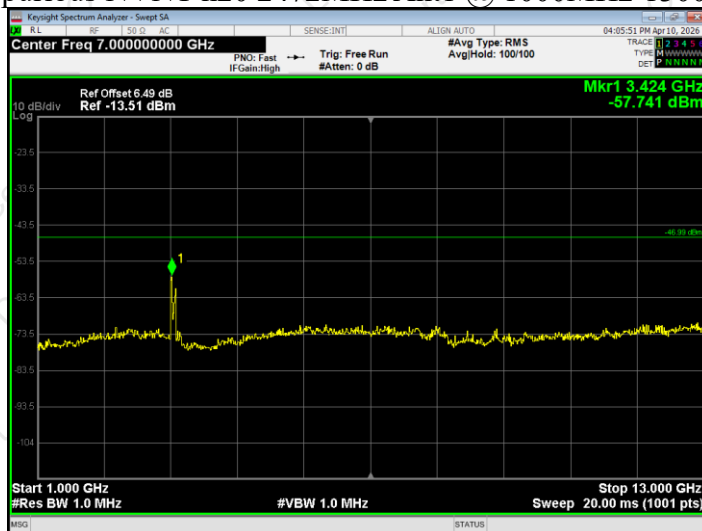
Rx. Spurious NVNT n20 2442MHz Ant1 @ 1000MHz-13000MHz



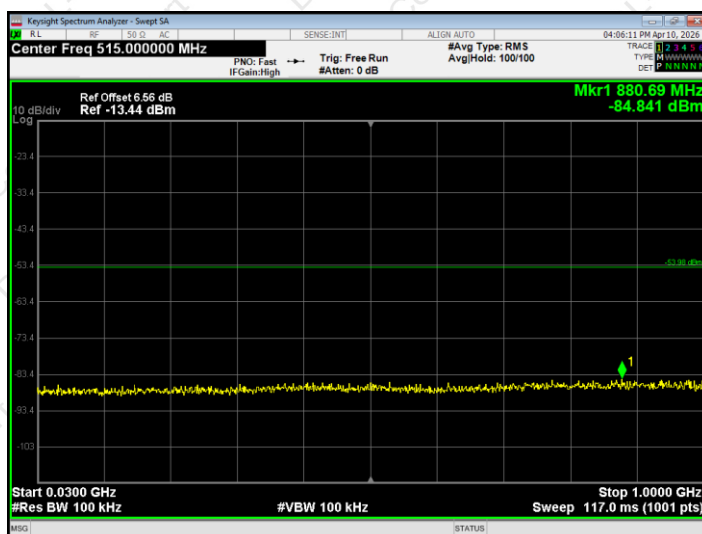
Rx. Spurious NVNT n20 2472MHz Ant1 @ 30MHz-1000MHz



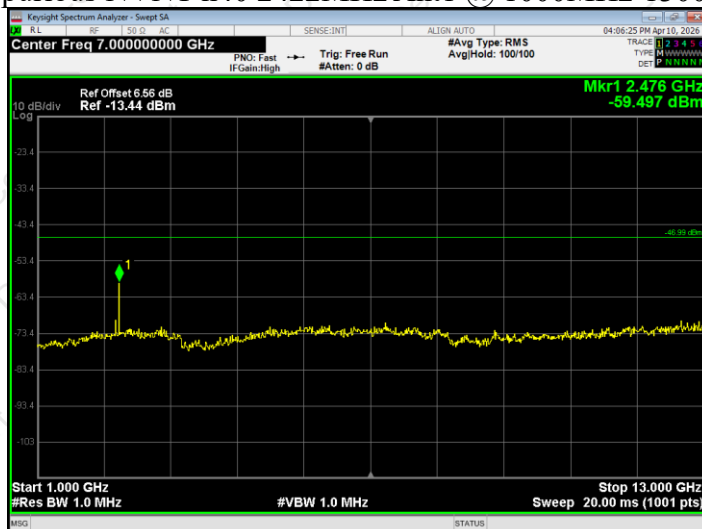
Rx. Spurious NVNT n20 2472MHz Ant1 @ 1000MHz-13000MHz



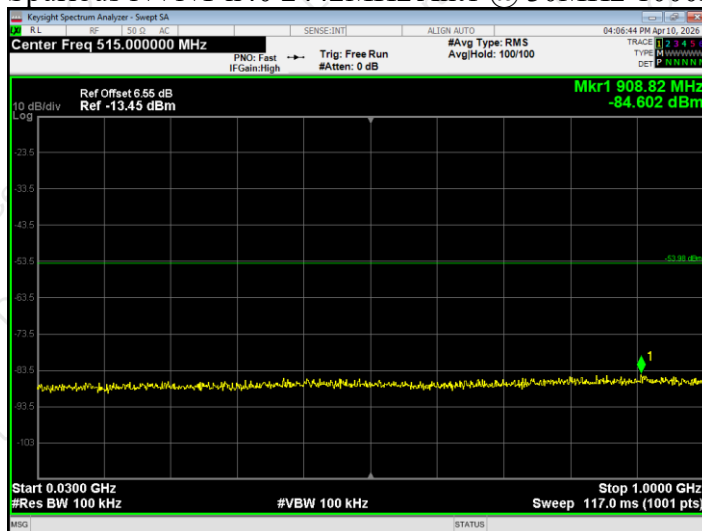
Rx. Spurious NVNT n40 2422MHz Ant1 @ 30MHz-1000MHz



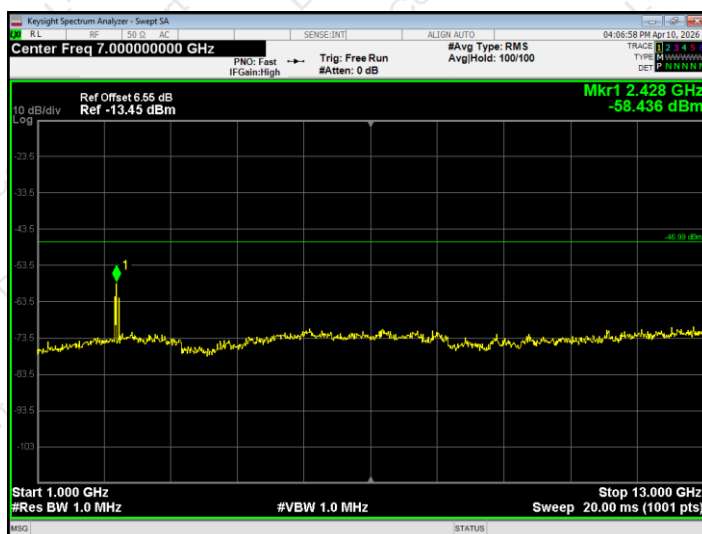
Rx. Spurious NVNT n40 2422MHz Ant1 @ 1000MHz-13000MHz



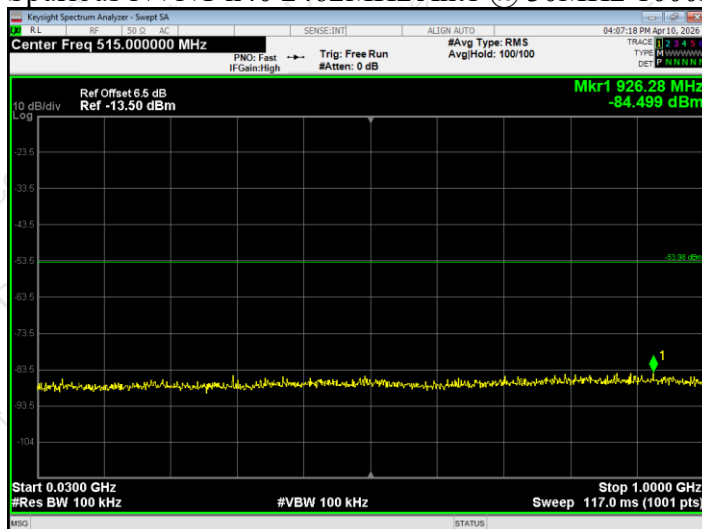
Rx. Spurious NVNT n40 2442MHz Ant1 @ 30MHz-1000MHz



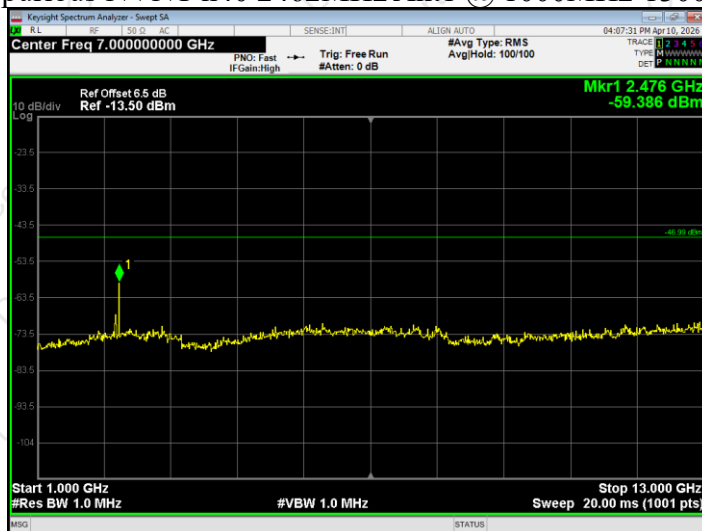
Rx. Spurious NVNT n40 2442MHz Ant1 @ 1000MHz-13000MHz



Rx. Spurious NVNT n40 2462MHz Ant1 @ 30MHz-1000MHz



Rx. Spurious NVNT n40 2462MHz Ant1 @ 1000MHz-13000MHz



**4.6. TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT****4.6.1. LIMIT**

Item	Limits
EIRP Power Density	$\leq 16.91\text{dBm/MHz}$ (FH form 2427 - 2470.75 MHz) $\leq 22.14\text{dBm/MHz}$ (OFDM,DS from 2400~2483.5MHz) $\leq 22.14\text{dBm}$ (Other from 2400~2483.5MHz)

4.6.2. MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of spectrum analyzer.

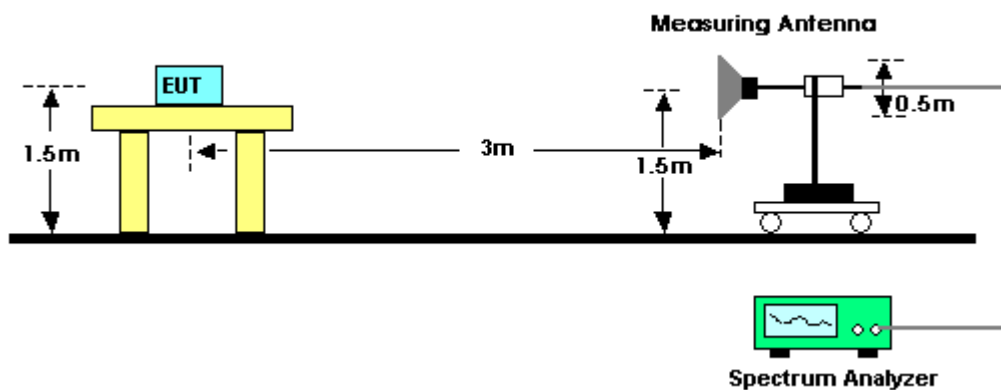
Spectrum Parameter	Setting
Attenuation	Auto
RB/VB	1 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.6.3. TEST PROCEDURES

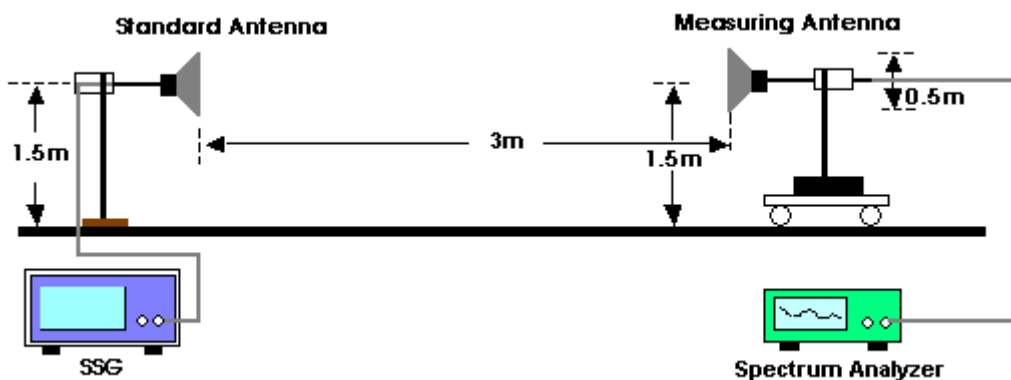
1. Set EUT ad measuring antenna at the same height and roughly facing each other.
2. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of the measuring antenna. The output level at the spectrum analyzer is read sa "E".
3. Remove the EUT from the turn table and put the replacing antenna facing to measuring antenna at same height. Set the standard signal generator (SSG) at same frequency and transmit on then receive the signal
4. Swing the replacing antenna give a maximum receiving level.
5. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of replacing antenna height and swing it to find the maximum receiving level.
6. Set SSG output power at Pt to give the equivalent output level of "E" or caluate Pt with SSG output which gives the nearest of "E" and difference ($\pm 1\text{dB}$). Record the Pt.
7. Calculate EIRP by the formula below $\text{EIRP} = \text{Gt} - \text{L} + \text{Pt}$.
Gt: gain of replacing antenna (dBi)
L: feeder loss between SSG and replacing antenna
Pt: Output power of the SSG
8. If the antenna for the EUT has circular polarization, sum of V-field and H-field will be result if measuring antenna is linear polarization.

4.6.4. TEST SETUP LAYOUT

For EUT radiation measurement



For standard antenna measurement



4.6.5. TEST DEVIATION

There is no deviation with the original standard.

4.6.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

**4.6.7. RESULTS OF TRANSMISSION ANTENNA GAIN**

Condition	Mode	Frequency (MHz)	Antenna Power (mW/MHz)		Antenna Power (dBm/MHz)		EIRP Power (dBm/MHz)		Gain (dBi)	Limit (dBm/MHz)
			ANT1	ANT2	ANT1	ANT2	ANT1	ANT2		
NVNT	b	2412	2.778	2.827	4.437	4.513	4.567	4.643	0.13	12.14
NVNT	b	2442	4.448	4.414	6.482	6.448	6.612	6.578	0.13	12.14
NVNT	b	2472	3.804	3.823	5.802	5.824	5.932	5.954	0.13	12.14
NVNT	g	2412	1.674	1.428	2.238	1.547	2.368	1.677	0.13	12.14
NVNT	g	2442	2.278	2.085	3.576	3.191	3.706	3.321	0.13	12.14
NVNT	g	2472	1.891	2.066	2.767	3.151	2.897	3.281	0.13	12.14
NVNT	n20	2412	1.736	1.711	2.395	2.333	2.525	2.463	0.13	12.14
NVNT	n20	2442	2.293	2.361	3.604	3.731	3.734	3.861	0.13	12.14
NVNT	n20	2472	2.054	2.112	3.126	3.247	3.256	3.377	0.13	12.14
NVNT	n40	2422	1.279	1.248	1.069	0.962	1.199	1.092	0.13	12.14
NVNT	n40	2442	1.606	1.606	2.057	2.057	2.187	2.187	0.13	12.14
NVNT	n40	2462	0.817	0.898	-0.878	-0.467	-0.748	-0.337	0.13	12.14

Condition	Mode	Frequency (MHz)	EIRP Power (dBm/MHz)		ANT1&ANT2 MIMO EIRP Power (dBm/MHz)	Limit (dBm/MHz)	Verdict
			ANT1	ANT2			
NVNT	g	2412	2.368	1.677	5.05	12.14	Pass
NVNT	g	2442	3.706	3.321	6.53	12.14	Pass
NVNT	g	2472	2.897	3.281	6.10	12.14	Pass
NVNT	n20	2412	2.525	2.463	5.50	12.14	Pass
NVNT	n20	2442	3.734	3.861	6.81	12.14	Pass
NVNT	n20	2472	3.256	3.377	6.33	12.14	Pass
NVNT	n40	2422	1.199	1.092	4.16	12.14	Pass
NVNT	n40	2442	2.187	2.187	5.20	12.14	Pass
NVNT	n40	2462	-0.748	-0.337	2.47	12.14	Pass



4.7. TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT

4.7.1. LIMIT

Item	Limits
3dB antenna beam width	$360/A$ (If $A < 1$; then $A = 1$) $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

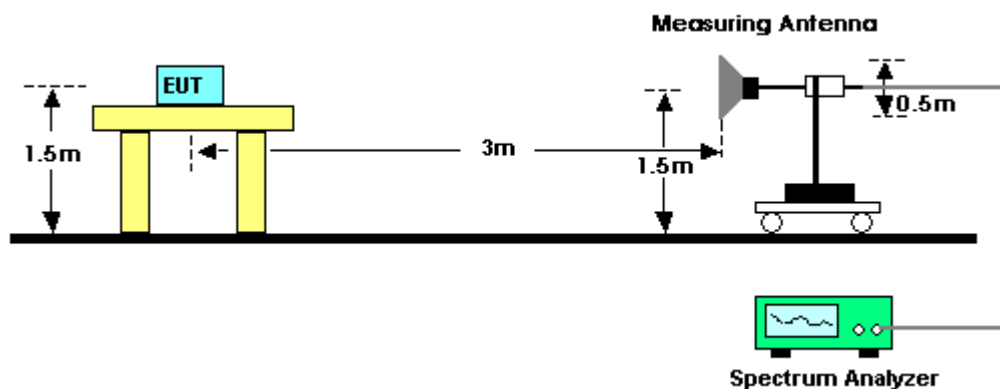
4.7.2. MEASURING INSTRUMENTS AND SETTING

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	0 MHz
RB	1 MHz
VB	1 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.7.3. TEST PROCEDURES

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 4.7.2 and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E"
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$).
 $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or
 $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

4.7.4. TEST SETUP LAYOUT



4.7.5. TEST DEVIATION

There is no deviation with the original standard.

4.7.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

4.7.7. TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

Not applicable since the EIRP Power is less than 12.14dBm/MHz.



4.8. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

4.8.1. LIMIT

Item	Limits
Identification code	≥ 48 bits

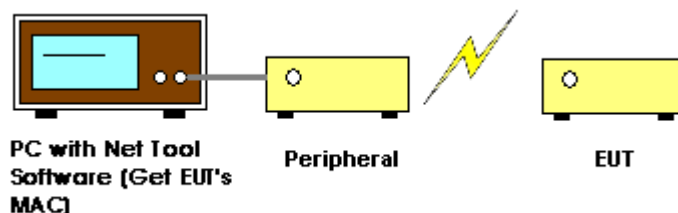
4.8.2. MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

4.8.3. TEST PROCEDURES

1. In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes from EUT. b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification code: a. Transmit the predetermined identification codes from the counterpart. b. Check if communication is normal. c. Transmit the signals other than predetermined ID codes from the counterpart. d. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

4.8.4. TEST SETUP LAYOUT



4.8.5. TEST DEVIATION

There is no deviation with the original standard.

4.8.6. EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

4.8.7. TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILITY

Test result:	CONFORM
MAC address:	00:E0:4E:88:22:56



5.9. CARRIER SENSE CAPABILITY MEASUREMENT

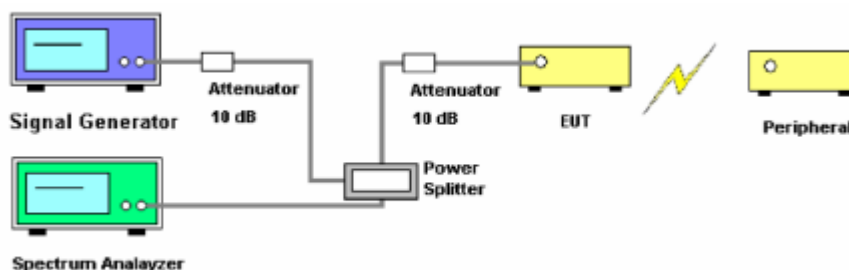
5.9.1. LIMIT

EUT stop RF transmission signal after carrier inject to EUT

5.9.2. TEST PROCEDURES

1. SG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SG and power level is (on $22.79+G-20*\log(f)\text{dBm}$)(G is the antenna gain, f is the test frequency).
2. turn off the RF signal of the SG.
3. EUT have transmitted the maximum modulation signal and fixed channelize.
4. Setting of SA :RBW/VBW=1MHz/1MHz,Span=50MHz,Sweep time=auto, Sweep mode=continuous, Detect mode=positive peak
5. SG RF signal on.
6. EUT shall be stop the transmitted any signal and SG RF signal off, the EUT will be continuous transmitted signal.

5.9.3. TEST SETUP LAYOUT



5.9.4. TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT

Temperature:	25.6 °C	Relative Humidity:	55.8%	Pressure:	1010mbar
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Mode	Frequency (MHz)	Test Result
802.11n40	2422	Pass
	2442	Pass
	2462	Pass

Note: For this test just evaluate the mode which bandwidth $\geq$ 26MHz.

$P_{in}=22.79+G-20*\log(\text{freq_MHz})[\text{dBm}]$

Limit:100mw/m eirp.

Confirmed at -44dBm

4.9. CONSTRUCTION PROTECTION CONFIRMATION METHOD

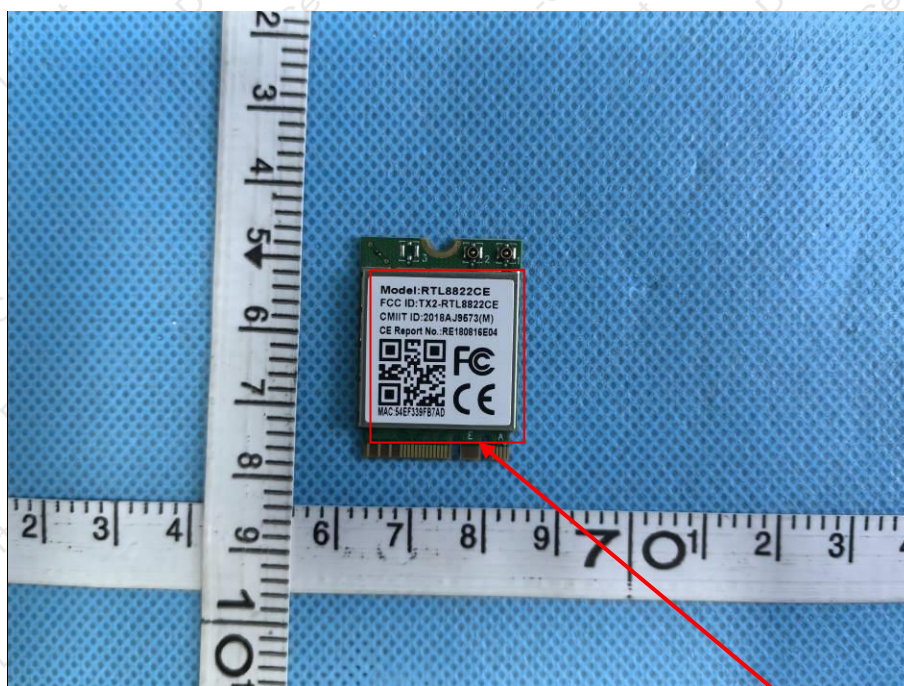
4.9.1. LIMIT

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

4.9.2. CONFIRMATION METHOD

Enclosure:

the product structure is stuck by Special shielding cover, If you do not use a special tool, you will not be able to open it. See below the structure:



Special shielding cover is used on red line for cannot be open easily structure.



Special shielding cover name: RTL8822CE

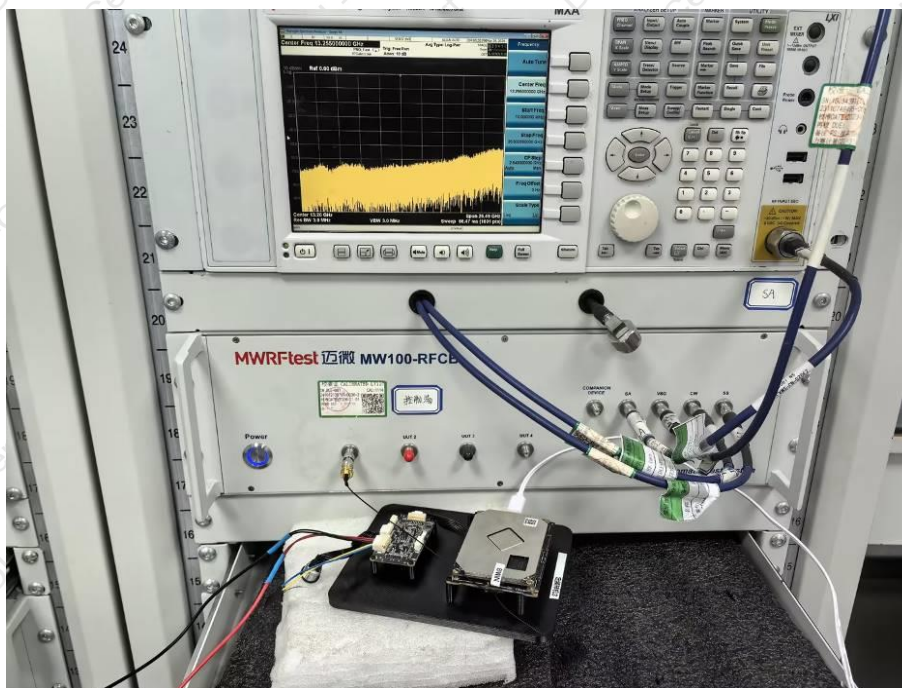
shielding cover type: Aluminum alloy structure

Manufacturer: SHENZHEN XGRIDS-INNOVATION CO., LTD



APPENDIX A

PHOTOGRAPHS OF THE TEST SETUP





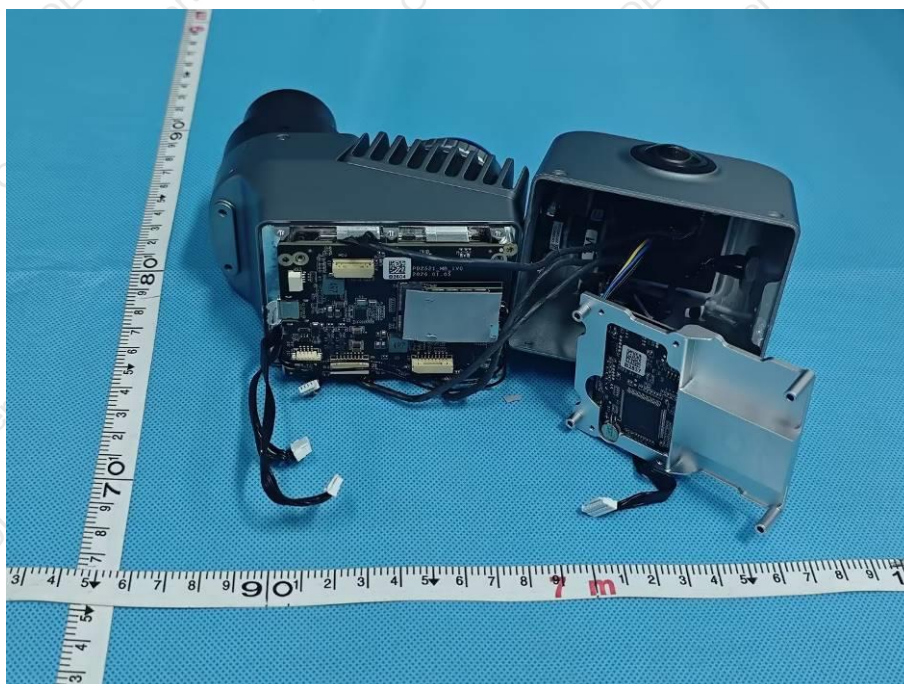
APPENDIX B PHOTOGRAPHS OF THE EUT

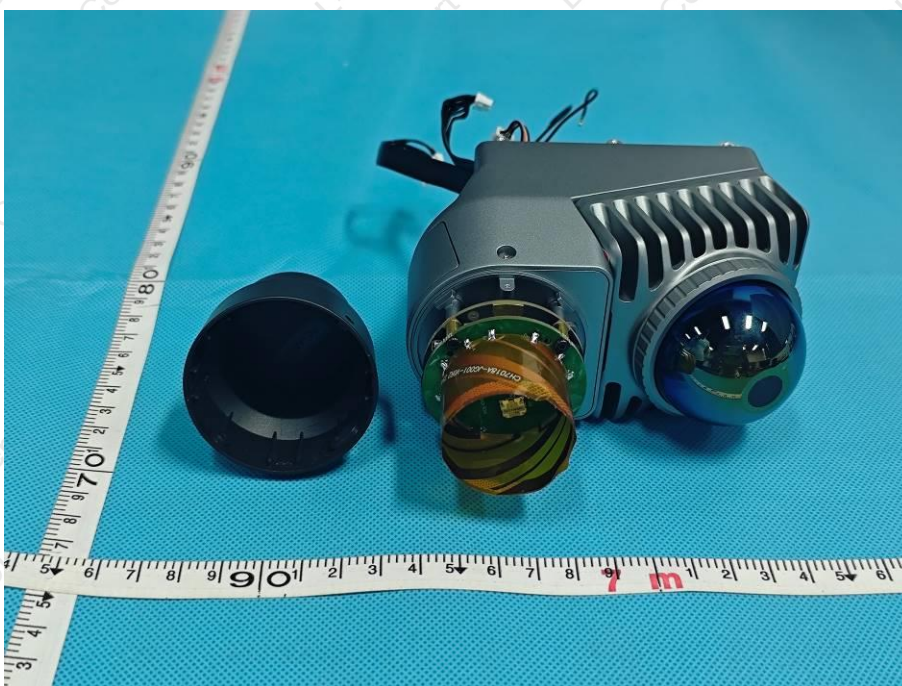


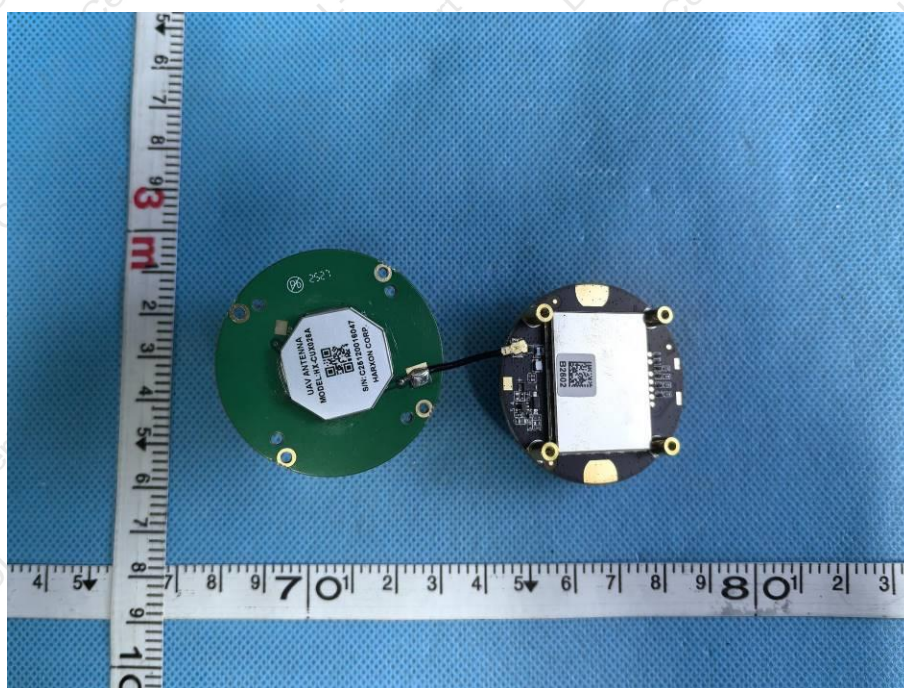


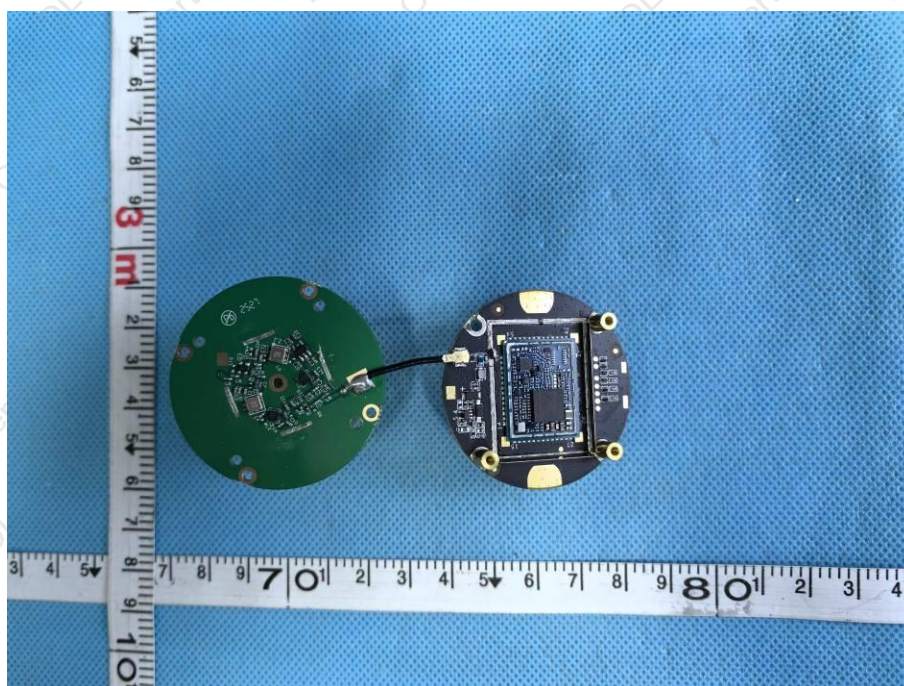
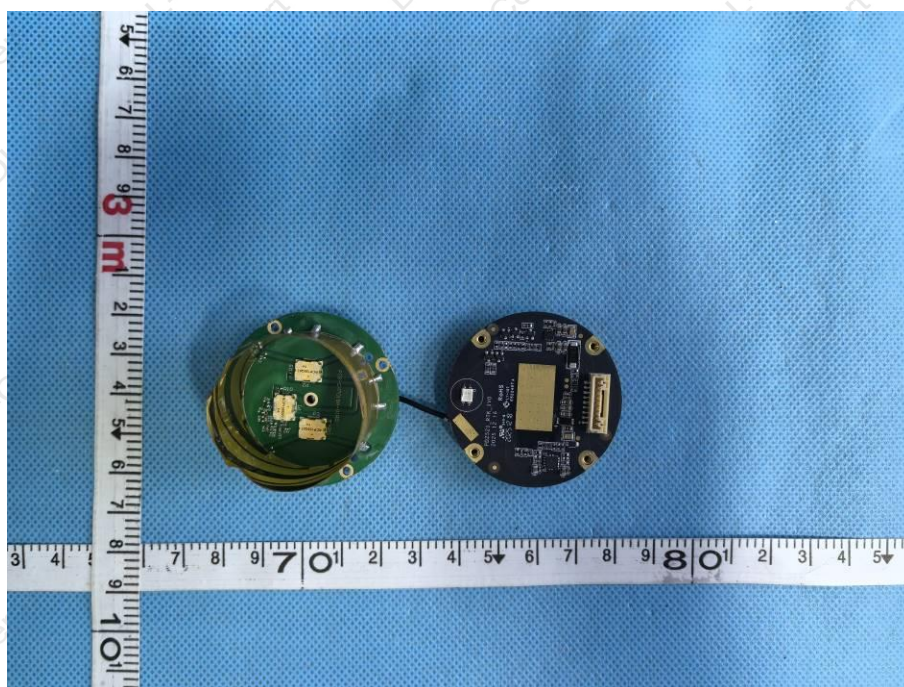


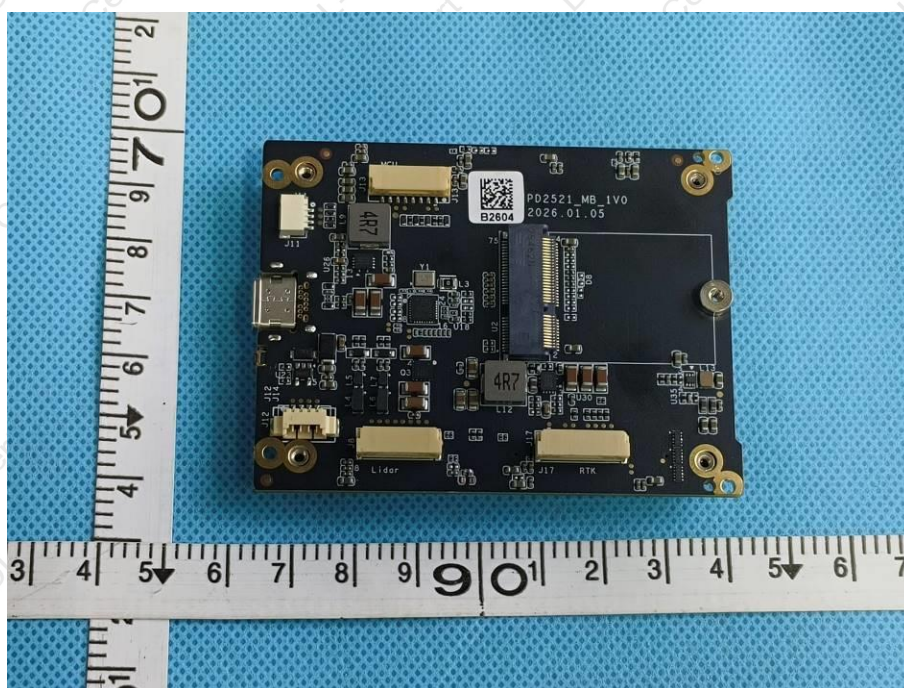
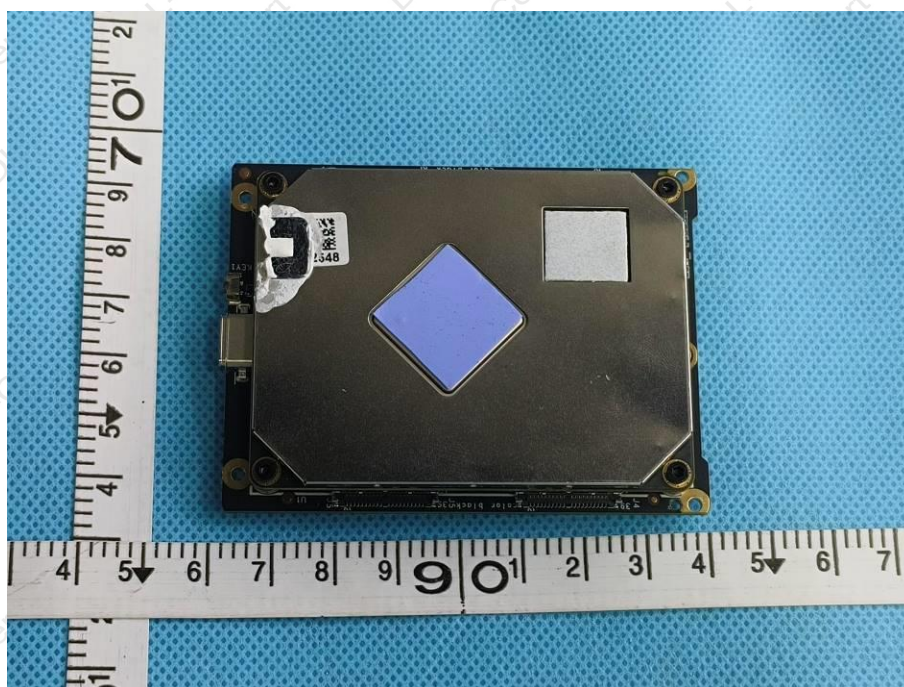


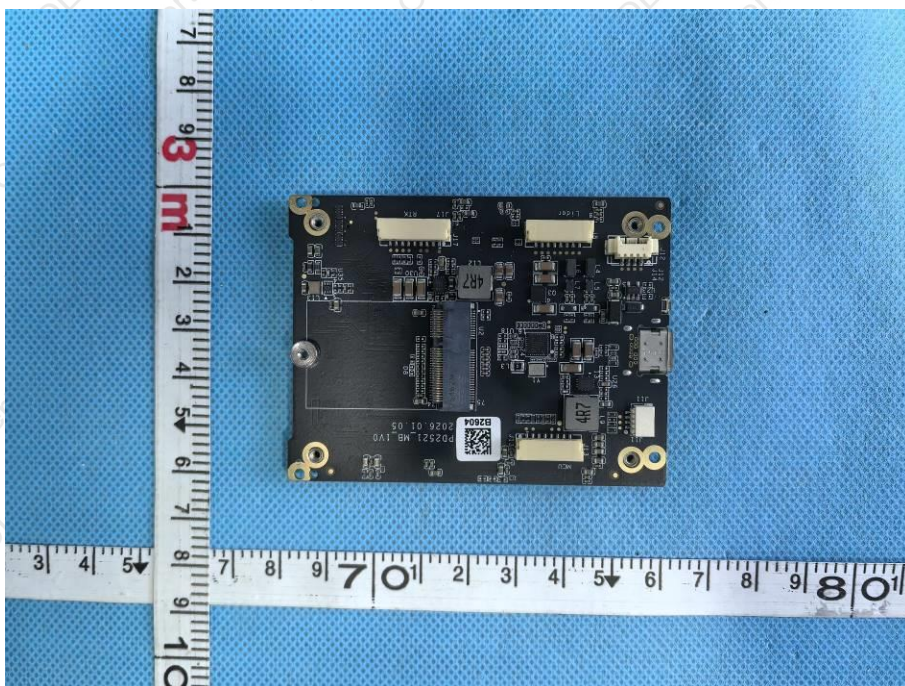
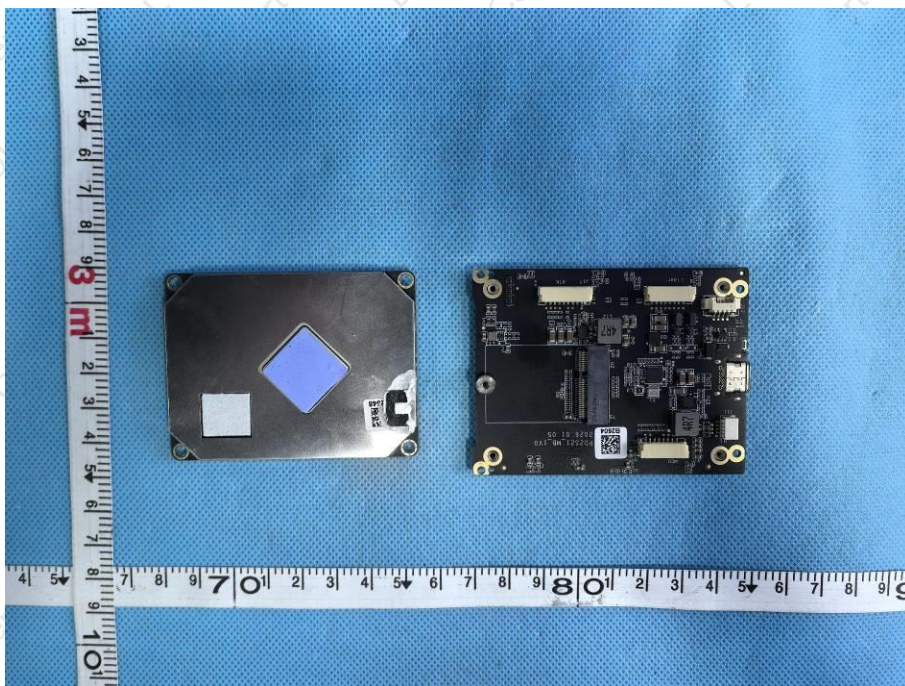


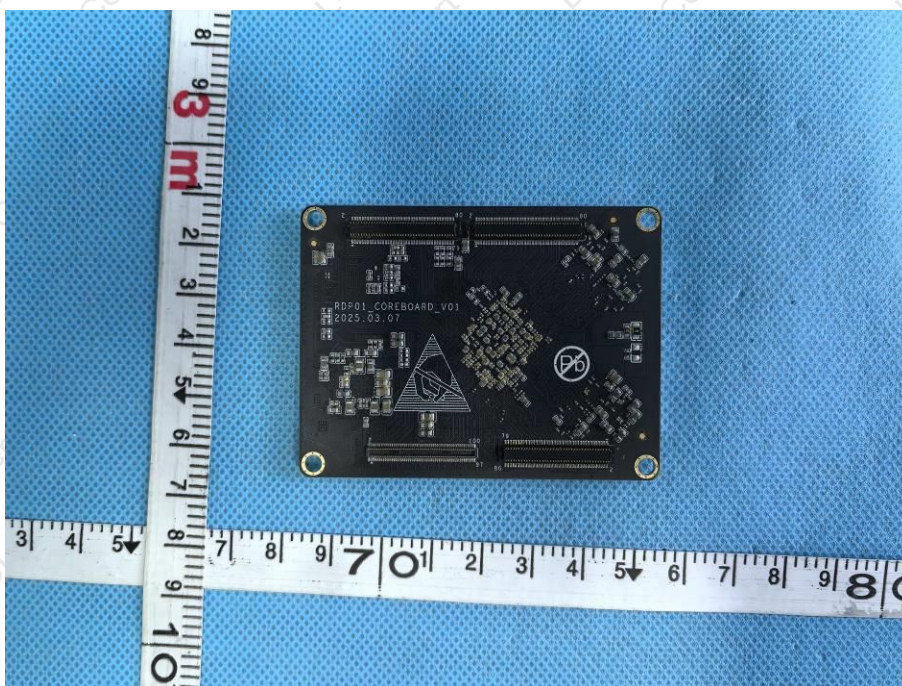
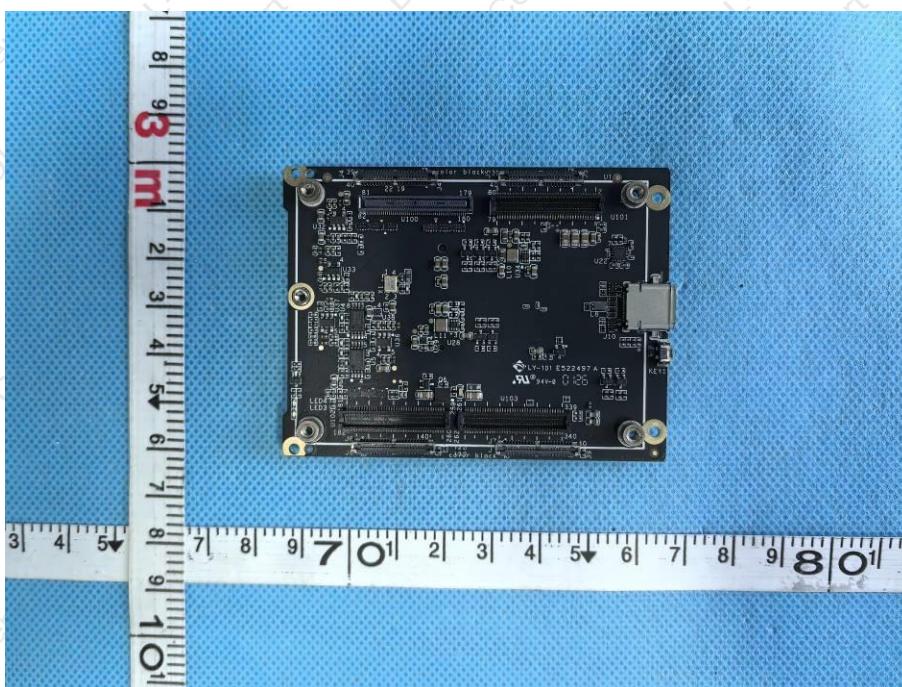


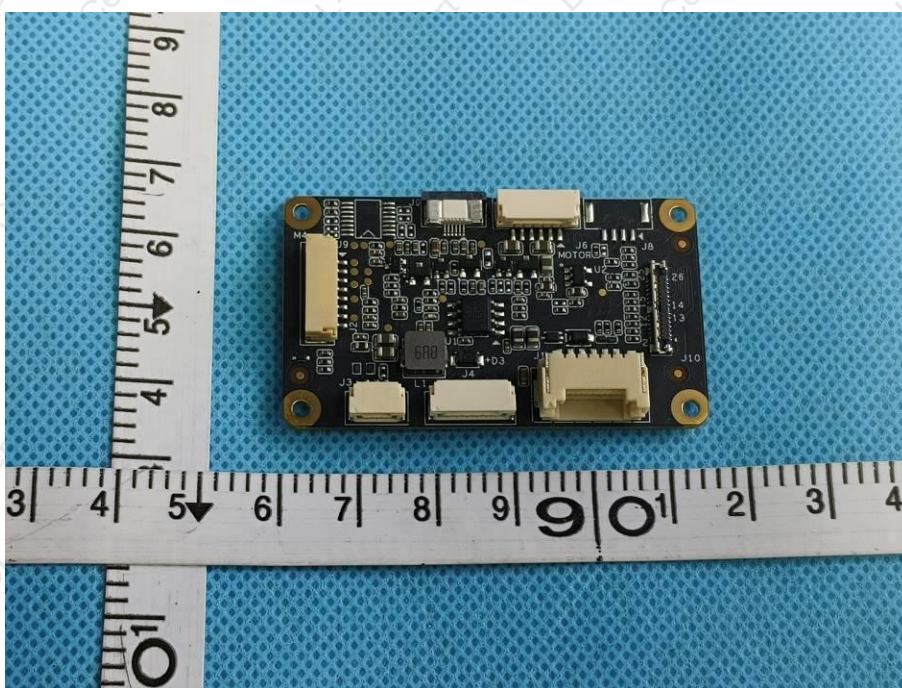
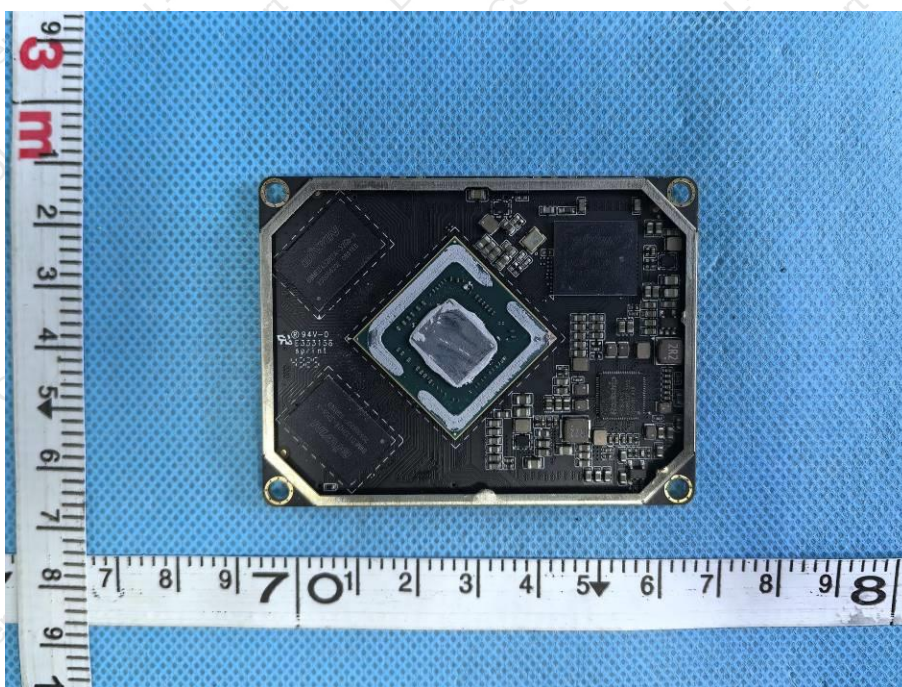


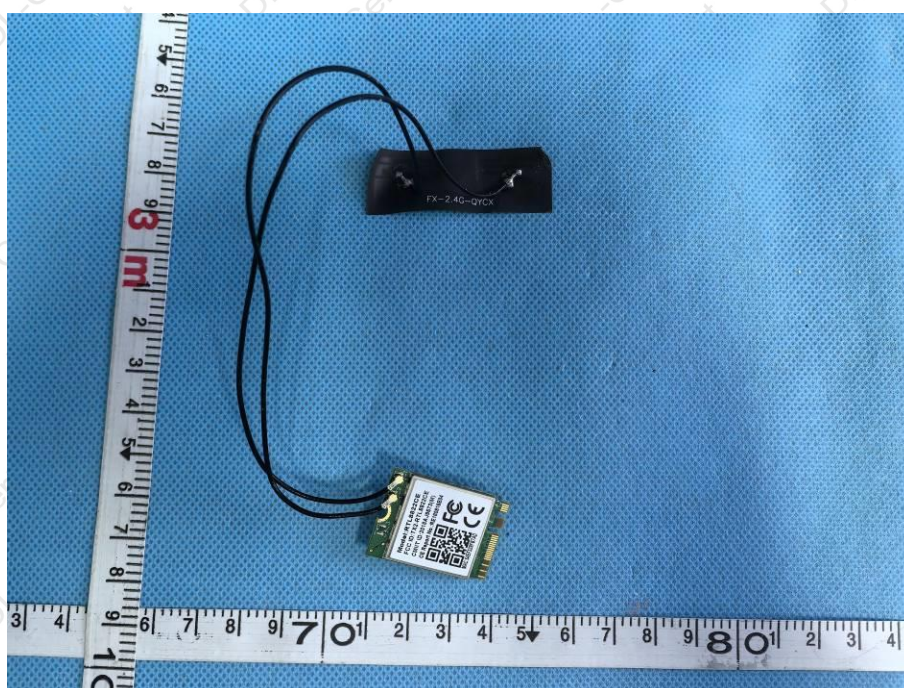
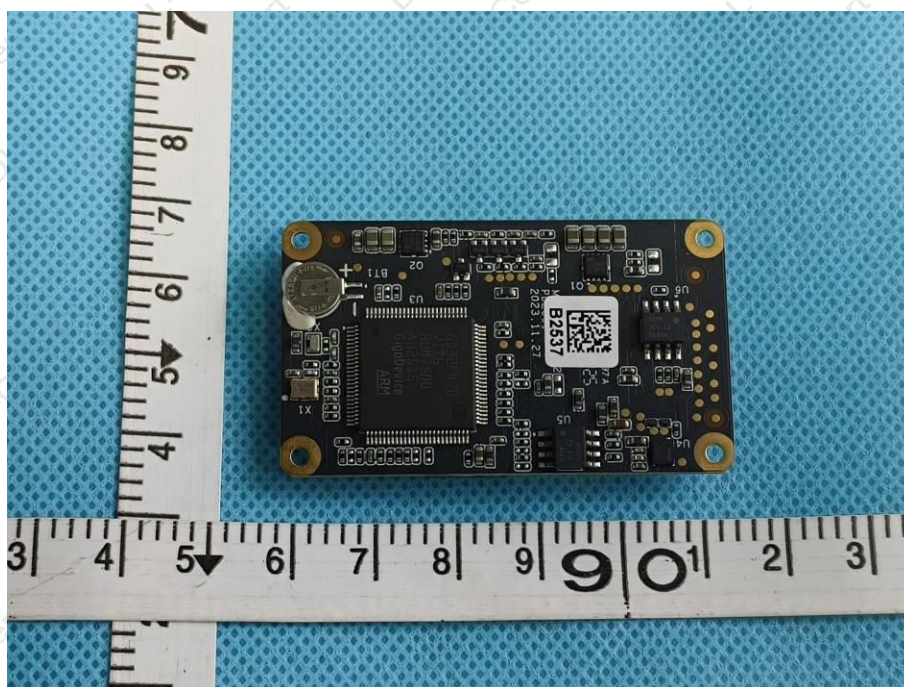


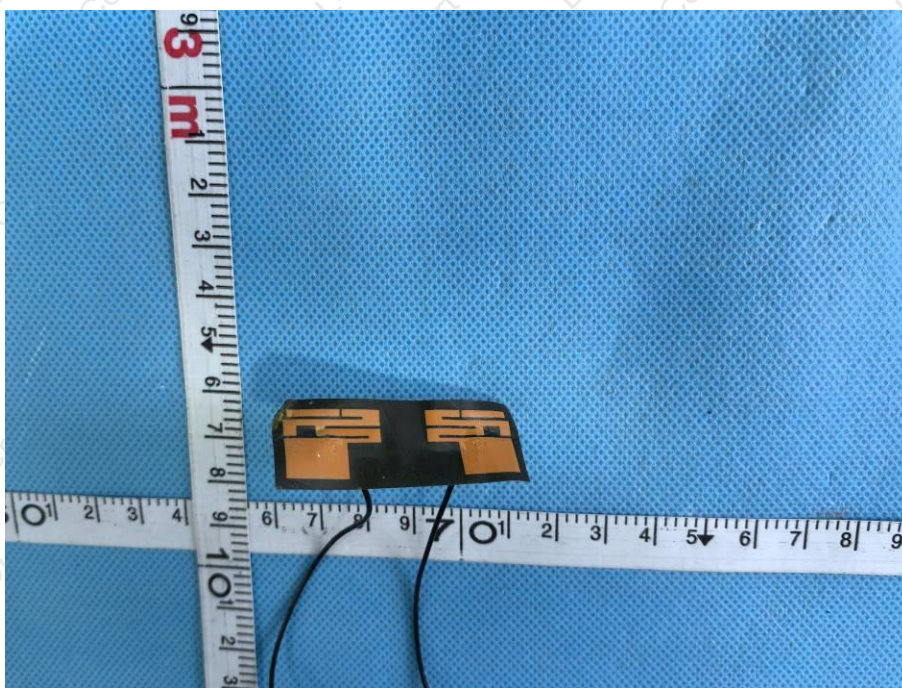


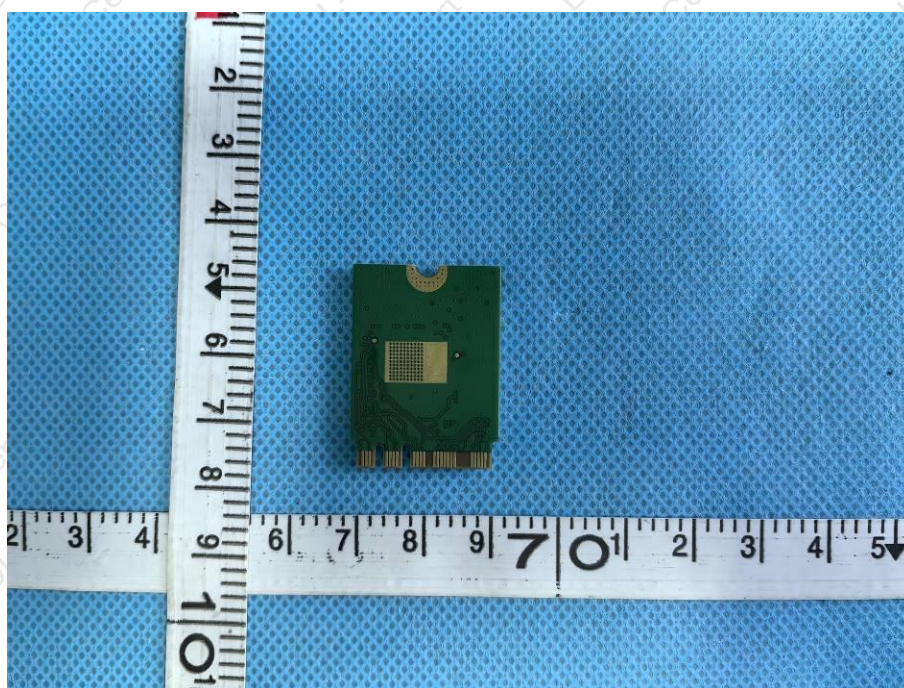
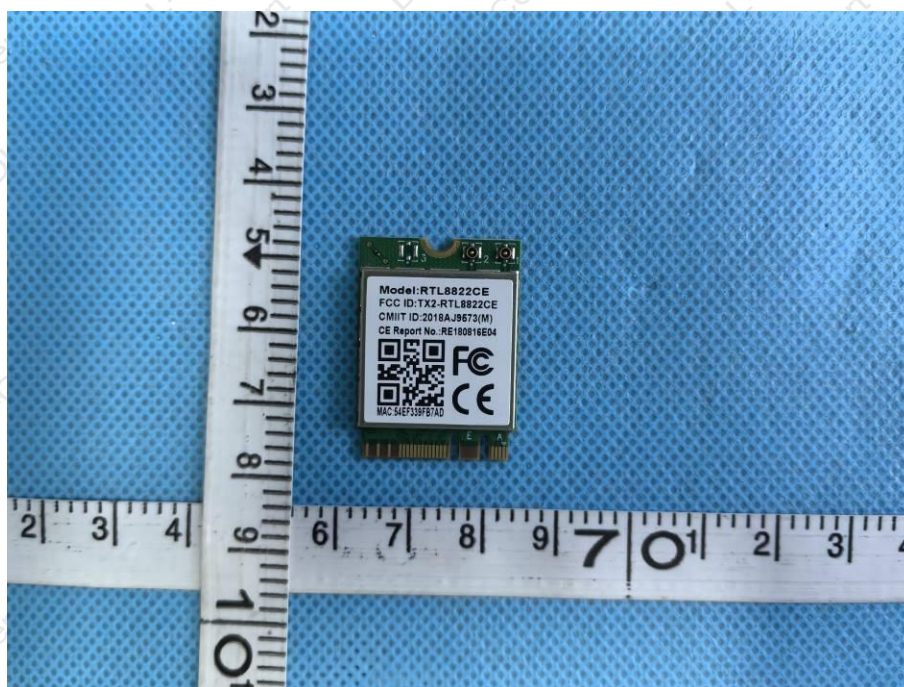


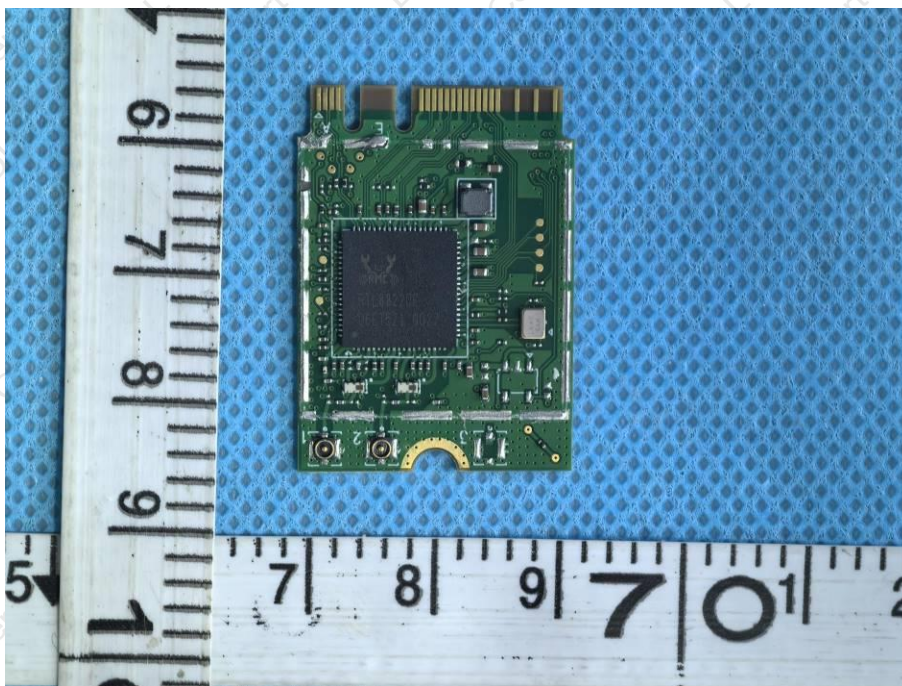














---END OF THE REPORT---