



RF TEST REPORT

Product Name: SmartKid8

Model Name: M-SP8KID, PK81R

Issued For : Datamatic S.p.A.

Via Agordat n° 34 20127 Milano - Italia

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park,
No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan
District, Shenzhen, Guangdong, China

Report Number: LGT23H029RF02

Sample Received Date: Aug. 10, 2023

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TEST REPORT CERTIFICATION

Applicant: Datamatic S.p.A.
Address: Via Agordat n° 34 20127 Milano - Italia
Manufacturer: Shenzhen HommPro Technology Co.,Ltd
Address: 10th Building, Huaide Cuihu Industrial Park, Xintian Community,
Fuhai Str., Bao'an Dist., Shenzhen, China
Product Name: SmartKid8
Trademark: MEDIACOM
Model Name: M-SP8KID, PK81R
Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
ETSI EN 300 328 V2.2.2	PASS

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Revision History

Rev.	Issue Date	Revisions
00	Sep. 05, 2023	Initial Issue



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

ETSI EN 300 328 V2.2.2			
Test Item	Limit	Frequency Range (MHz)	Applicable (Yes/No)
TRANSMITTER PARAMETERS			
RF output power	Clause 4.3.2.2.3	2400-2483.5	Y
Power Spectral Density	Clause 4.3.2.3.3		Y
Duty Cycle, Tx-sequence, Tx-gap	Clause 4.3.2.4.3		Y
Medium Utilization	Clause 4.3.2.5.3		N
Adaptivity(adaptive equipment using modulations other than FHSS)	Clause 4.3.2.6		Y
Occupied Channel Bandwidth	Clause 4.3.2.7.3		Y
Transmitter unwanted emissions in the OOB domain	Clause 4.3.2.8.3	FL=2400-2BW FH=2483.5+2BW	Y
Transmitter unwanted emissions in the spurious domain (Conducted)	Clause 4.3.2.9.3	30-12750	Y
Transmitter unwanted emissions in the spurious domain (Radiated)			Y
RECEIVER PARAMETERS			
Spurious emissions(Conducted)	Clause 4.3.2.10.3	30-12750	Y
Spurious emissions (Radiated)			Y
Receiver Blocking	Clause 4.3.2.11.3	2400-2483.5	Y
Geo-location capability	Clause 4.3.2.12.3	--	N



1.1 TEST FACTORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Occupied Channel Bandwidth	$\pm 3.2 \%$
RF Output Power, Conducted	$\pm 0.71\text{dB}$
Power Spectral Density, Conducted	$\pm 1.57 \text{ dB}$
Unwanted Emission, Conducted	$\pm 0.63\text{dB}$
All Emissions, Radiated (0.009-30MHz)	$\pm 2.16\text{dB}$
All Emissions, Radiated (30MHz-1GHz)	$\pm 4.40\text{dB}$
All Emissions, Radiated (1GHz-18GHz)	$\pm 5.49\text{dB}$
Temperature	$\pm 0.5^{\circ}\text{C}$
Humidity	$\pm 2\%$
Duty Cycle	$\pm 2.3\%$

Note:

- 1.The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.
- 2.The measurement uncertainty is not included in the test result.



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	SmartKid8	
Trademark:	MEDIACOM	
Model Name:	M-SP8KID	
Series Model:	PK81R	
Model Difference:	The difference between the series of models is only the name of the model is different, the rest are the same, does not affect the safety and electromagnetic compatibility performance of the product.	
Product Description:	Operation Frequency:	802.11b/g/n(20MHz): 2412~2472MHz 802.11n(40MHz):2422~2462MHz
	Modulation Type:	802.11b(DSSS): CCK, DQPSK, DBPSK 802.11g(OFDM): BPSK, QPSK, 16-QAM, 64-QAM 802.11n(OFDM): BPSK, QPSK, 16-QAM, 64-QAM
	Number Of Channel:	13CH
	Antenna Type:	FPC Antenna
	Antenna Gain (Peak):	2.11dBi
	Based on the application, features, or specification exhibited in User Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User Manual.	
Channel List:	Please see Note 2.	
Adapter:	Input: AC100-240V 50/60HZ 0.3A Output: 5V, 2A	
Battery:	Capacity: 4000mAh Rated Voltage: 3.7V	
Hardware Version:	BND-B863-JLS	
Software Version:	Android 13	
Connecting I/O Port(s):	Please see Note 1.	

Note:

1.For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.

2.The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.



3.

Channel List for 802.11b/g/n(20MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452	13	2472
02	2417	06	2437	10	2457		
03	2422	07	2442	11	2462		
04	2427	08	2447	12	2467		

Channel List for 802.11n(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	06	2437	09	2452		
04	2427	07	2442	10	2457		
05	2432	08	2447	11	2462		

a) The type of modulation used by the equipment:

☐ FHSS

☒ non-FHSS

b) In case of FHSS:

• In case of non-Adaptive FHSS equipment:

The number of Hopping Frequencies:

• In case of Adaptive FHSS equipment:

The maximum number of Hopping Frequencies:

The minimum number of Hopping Frequencies:

• The (average) Dwell Time:

c) Adaptive / non-adaptive equipment:

☐ non-adaptive Equipment

☒ adaptive Equipment without the possibility to switch to a non-adaptive mode

☐ adaptive Equipment which can also operate in a non-adaptive mode

d) In case of adaptive equipment:

The maximum Channel Occupancy Time implemented by the equipment:..... ms

☐ The equipment has implemented an LBT mechanism

• In case of non-FHSS equipment:

☐ The equipment is Frame Based equipment

☒ The equipment is Load Based equipment

☐ The equipment can switch dynamically between Frame Based and Load Based equipment

The CCA time implemented by the equipment: μ s

☐ The equipment has implemented a DAA mechanism

☐ The equipment can operate in more than one adaptive mode

e) In case of non-adaptive Equipment:

The maximum RF Output Power (e.i.r.p.):..... dBm

The maximum (corresponding) Duty Cycle:.....%

Equipment with dynamic behavior, that behavior is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared):

f) The worst case operational mode for each of the following tests:



- RF Output Power
802.11b, 802.11g, 802.11n
- Power Spectral Density
802.11b, 802.11g, 802.11n
- Occupied Channel Bandwidth
802.11b, 802.11g, 802.11n
- Transmitter unwanted emissions in the OOB domain
802.11b, 802.11g, 802.11n
- Transmitter unwanted emissions in the spurious domain
802.11b
- Adaptivity (adaptive equipment using modulations other than FHSS)
802.11b, 802.11g, 802.11n
- Receiver Blocking
802.11b

g) The different transmit operating modes (tick all that apply):

- Operating mode 1: Single Antenna Equipment
- Equipment with only one antenna
- ☐ Equipment with two diversity antennas but only one antenna active at any moment in time
- ☐ Smart Antenna Systems with two or more antennas, but operating in a (legacy) mode where only one antenna is used (e.g. IEEE 802.11™ legacy mode in smart antenna systems)
- ☐ Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming
- ☐ Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ legacy mode)
- ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
- ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2
- NOTE: Add more lines if more channel bandwidths are supported.
- ☐ Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming
- ☐ Single spatial stream / Standard throughput (e.g. IEEE 802.11™ legacy mode)
- ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
- ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2
- NOTE: Add more lines if more channel bandwidths are supported.

h) In case of Smart Antenna Systems:

- The number of Receive chains:
- The number of Transmit chains:
 - ☐ symmetrical power distribution
 - ☐ asymmetrical power distribution
- In case of beam forming, the maximum beam forming gain:
- NOTE: Beam forming gain does not include the basic gain of a single antenna.

i) Operating Frequency Range(s) of the equipment:

- Operating Frequency Range 1: 2412 MHz to 2472 MHz
- Operating Frequency Range 2: 2422 MHz to 2462 MHz
- NOTE: Add more lines if more Frequency Ranges are supported.

j) Occupied Channel Bandwidth(s):

- Occupied Channel Bandwidth :13.203MHz
- Occupied Channel Bandwidth :36.234MHz
- NOTE: Add more lines if more channel bandwidths are supported.

k) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

- Stand-alone
- ☐ Combined Equipment
- ☐ Plug-in radio device
- Other



l) The extreme operating conditions that apply to the equipment:

Operating temperature range: -0°C - 50°C

Operating voltage range: DC 3.3V ~ DC 4.2V(Normal: DC 3.7V)

☐Details provided are for the:

■stand-alone equipment

☐combined (or host) equipment

☐test jig

m) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:

• Antenna Type

■FPC Antenna

Antenna Gain: 2.11dBi

If applicable, additional beamforming gain (excluding basic antenna gain): dB

☐Temporary RF connector provided

☐No temporary RF connector provided

☐Dedicated Antennas (equipment with antenna connector)

☐Single power level with corresponding antenna(s)

☐Multiple power settings and corresponding antenna(s)

Number of different Power Levels:

Power Level 1: dBm

Power Level 2: dBm

Power Level 3: dBm

NOTE 1: Add more lines in case the equipment has more power levels.

NOTE 2: These power levels are conducted power levels (at antenna connector).

•For each of the Power Levels, provide the intended antenna assemblies, their, corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable

Power Level 1: dBm

Number of antenna assemblies provided for this power level:

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1	2.11	12.75	M-SP8KID
2			
3			
4			

NOTE: Add more rows in case more antenna assemblies are supported for this power level.

Power Level 2: dBm

Number of antenna assemblies provided for this power level:

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

NOTE: Add more rows in case more antenna assemblies are supported for this power level.

Power Level 3: dBm

Number of antenna assemblies provided for this power level:

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

NOTE: Add more rows in case more antenna assemblies are supported for this power level.



n) The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:

Details provided are for the: ☒stand-alone equipment

☐combined (or host) equipment

☐test jig Supply Voltage

☐AC mains State AC voltage:

☐DC State DC voltage:

In case of DC, indicate the type of power source

☐Internal Power Supply

☒External Power Supply or AC/DC adapter

☒Battery: 3.7V

☐Other:

o) Describe the test modes available which can facilitate testing:

Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
2.4G WIFI	802.11b	2.11	Default	CMD Command
	802.11g		Default	
	802.11n(HT20)		Default	
	802.11n(HT40)		Default	

p) The equipment type (e.g. Bluetooth®, IEEE 802.11™, IEEE 802.15.4™, proprietary, etc.):
WLAN

q) If applicable, the statistical analysis referred to in clause 5.4.1 q)
(to be provided as separate attachment)

r) If applicable, the statistical analysis referred to in clause 5.4.1 r)
(to be provided as separate attachment)

s) Geo-location capability supported by the equipment:

☐ Yes

☐The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user

☒ No



2.2 ENVIRONMENTAL CONDITIONS FOR TESTING

Test Condition	Temperature(°C)	Voltage(V)	Relative Humidity(%)
NT/NV	25	3.7V	54
LT/NV	0	3.7V	/
HT/NV	50	3.7V	/

Note:

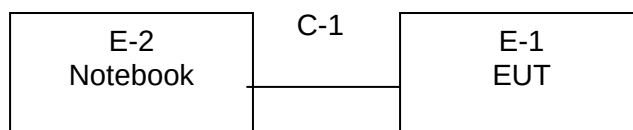
(1) The EUT can only work from LT -0°C to HT 40°C which is declared by the manufacturer and the EUT can't operate normally at higher or lower temperature than the declared range.

(2) NV: Normal Voltage; NT: Normal Temperature.

(3) LT: Low Extreme Test Temperature; HT: High Extreme Test Temperature.

(4) The measurements are performed at the highest, middle, lowest available channels.

2.3 TEST MODE



The EUT was programmed to be in continuously transmitting mode.

Channel List for b/g/n(20MHz)		
Test Channel	EUT Channel	Test Frequency (MHz)
lowest	CH01	2412
middle	CH07	2442
highest	CH13	2472

Channel List for 802.11n(40MHz)		
Test Channel	EUT Channel	Test Frequency (MHz)
lowest	CH03	2422
middle	CH07	2442
highest	CH11	2462



2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	SHENZHEN SNROX ELECTRONIC CO LTD	SR-D505	N/A	Input: 100-240V ~ 50/60Hz 0.3A Output: 5V, 2A
USB-A to USB-C Cable	N/A	N/A	N/A	1m, shielded, without ferrite core

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	HUAWEI	HKF-16	N/A	N/A

Note: For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.5 EQUIPMENTS LIST

RF Radiated Test equipment					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2023.04.13	2024.04.12
Active loop Antenna	ETS	6502	00049544	2022.06.02	2025.06.01
Spectrum Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
Bilog Antenna	Schwarzbeck	VULB 9168	01447	2022.12.12	2025.12.11
Horn Antenna	Schwarzbeck	3115	10SL0060	2022.06.02	2025.06.01
Pre-amplifier (9kHz-1GHz)	EMtrace	RP01A	02017	2023.04.07	2024.04.06
Pre-amplifier (1-26.5G)	Agilent	8449B	3008A4722	2023.04.07	2024.04.06
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Testing Software	EMC-I_V1.4.0.3_SKET				

RF Conducted Test equipment					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
Signal Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
Signal Analyzer	Keysight	N9020A	MY50530994	2022.12.09	2023.12.08
RF Automatic Test system	MW	MW200-RFCB	MW220322LG	2023.04.13	2024.04.12
MXG Vector Signal Generator	Keysight	N5182B	MY59100717	2023.04.07	2024.04.06
Temperature & Humidity test chamber	AISRY	LX-1000L	171200018	2023.05.10	2024.05.09
Attenuator	eastsheep	90db	N.A	2023.04.10	2024.04.09
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Digital multimeter	MASTECH	MS8261	MBGBC83053	2023.05.09	2024.05.08
Testing Software	MTS8310_V2.0.0.0_MW				



3. RF OUTPUT POWER

3.1 LIMIT

FHSS:

The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20 dBm. The maximum RF output power for non-adaptive Frequency Hopping equipment shall be declared by the manufacturer. See clause 5.4.1 m). The maximum RF output power for this equipment shall be equal to or less than the value declared by the manufacturer. This declared value shall be equal to or less than 20 dBm.

Other than FHSS:

For adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be 20 dBm. The maximum RF output power for non-adaptive equipment shall be declared by the supplier and shall not exceed 20 dBm. See clause 5.4.1 m). For non-adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be equal to or less than the value declared by the supplier.

This limit shall apply for any combination of power level and intended antenna assembly.

Limit
20 dBm

Between the start and stop times of each individual burst calculate the RMS power over the burst using the formula below. The start and stop points shall be included. Save these P_{burst} values, as well as the start and stop times for each burst.

$$P_{burst} = \frac{1}{k} \sum_{n=1}^k P_{sample}(n)$$

with k being the total number of samples and n the actual sample number.

3.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.2 for the measurement method.
 - a) Use a fast power sensor suitable for 2.4 GHz and capable of 1 MS/s.
Use the following settings:
 - Sample speed 1 MS/s or faster.
 - The samples must represent the power of the signal.
 - Measurement duration: For non-adaptive equipment: equal to the observation period defined in b)
 - b) Clause 4.3.1.3.2 or clause 4.3.2.4.2. For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) is captured
 - c) Print the plots from power sensor by used power sensor on PC, select the max result and record it.

3.3 TEST SETUP



3.4 TEST RESULTS

For the measurement records, refer to the appendix I.



4. POWER SPECTRAL DENSITY

4.1 LIMIT

For equipment using wide band modulations other than FHSS, the maximum Power Spectral Density is limited to 10 dBm per MHz.

4.2 TEST PROCEDURES

The measurement shall be repeated for the equipment being configured to operate at the lowest, the middle, and the highest frequency of the stated frequency range.

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.3.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.3.2 for the measurement method.

a). Connect the UUT to the spectrum analyzer and use the following settings:

Frequency range	2400MHz-2483.5MHz
RBW/VBW	10KHz/30KHz
Sweep points	>8350 (Set as 10000)
Sweep time	For non-continuous transmissions: $2 \times \text{Channel Occupancy Time} \times \text{number of sweep points}$
	For continuous transmissions: 10 s; the sweep time may be increased further until a value where the sweep time has no further impact anymore on the RMS value of the signal.
Detector	RMS
Trace	Max hold

b). For conducted measurements on smart antenna systems using either operating mode 2 or 3 (see clause 5.3.2.2), repeat the measurement for each of the transmit ports. For each frequency point, add up the amplitude (power) values for the different transmit chains and use this as the new data set.

c). Add up the values for amplitude (power) for all the samples in the file.

d). Normalize the individual values for amplitude so that the sum is equal to the RF Output Power (e.i.r.p.)

e). Starting from the first sample in the file (lowest frequency), add up the power of the following samples representing a 1 MHz segment and record the results for power and position (i.e. sample #1 to #100). This is the Power Spectral Density (e.i.r.p.) for the first 1 MHz segment which shall be recorded.

f). Shift the start point of the samples added up in step 5 by 1 sample and repeat the procedure in step e (i.e. sample #2 to #101).

g). Repeat step 6 until the end of the data set and record the radiated Power Spectral Density values for each of the 1 MHz segments.

h). From all the recorded results, the highest value is the maximum Power Spectral Density for the UUT.



4.3 TEST SETUP



4.4 TEST RESULTS

For the measurement records, refer to the appendix I.



5. OCCUPIED CHANNEL BANDWIDTH

5.1 LIMIT

The Occupied Channel Bandwidth shall fall completely within the band 2400 MHz to 2483.5 MHz. In addition, for non-adaptive equipment using wide band modulations other than FHSS and with e.i.r.p. greater than 10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

5.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.7.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.7.2 for the measurement method.

-- Centre Frequency: The centre frequency of the channel under test

-- Resolution BW: $\sim 1\%$ of the span without going below 1%

-- Video BW: $3 \times \text{RBW}$

-- Frequency Span: $2 \times \text{Nominal Channel Bandwidth}$

-- Detector Mode: RMS

-- Trace Mode: Max Hold

-- Sweep time: 1S

5.3 TEST SETUP



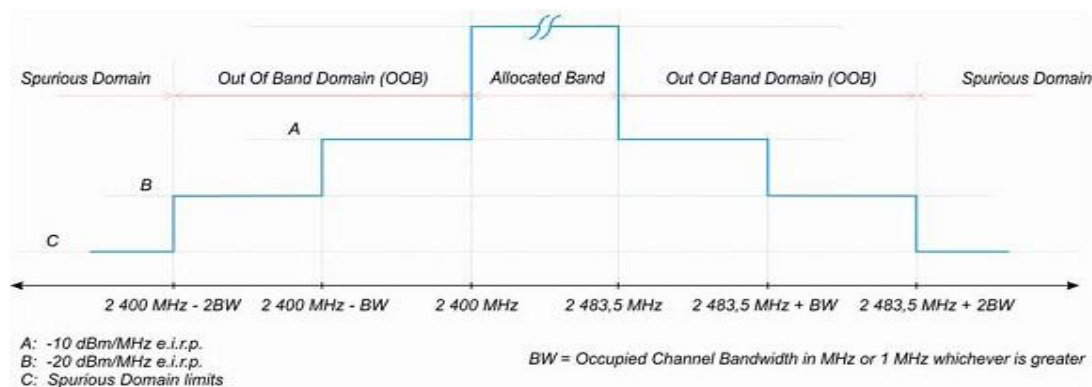
5.4 TEST RESULTS

For the measurement records, refer to the appendix I.

6. TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

6.1 LIMIT

Clause	Frequency	Limit
4.3.2.8.3	2400-BW~2400 2483.5~2483.5+BW	-10dBm/MHz
	2400-2BW~2400-BW 2483.5+BW~2483.5+2BW	-20dBm/MHz
	<2400-2BW >2483.5+2BW	-30dBm/MHz



6.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.8.1 for the test conditions.
 2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.8.2 for the measurement method.
- Connect the UUT to the spectrum analyser and use the following settings:
- Centre Frequency: 2484 MHz
 - Span: 0 Hz
 - Resolution BW: 1 MHz
 - Filter mode: Channel filter
 - Video BW: 3 MHz
 - Detector Mode: RMS
 - Trace Mode: Max Hold
 - Sweep Mode: Continuous
 - Sweep Points: Sweep Time [s] / (1μs) or 5 000 whichever is greater
 - Trigger Mode: Video trigger; in case video triggering is not possible, an external trigger source may be used
 - Sweep Time: > 120 % of the duration of the longest burst detected during the measurement of the RF Output Power



6.3 TEST SETUP



6.4 TEST RESULTS

For the measurement records, refer to the appendix I.



7. ADAPTIVE (CHANNEL ACCESS MECHANISM)

7.1 LIMIT

The frequency range of the equipment is determined by the lowest and highest

Non-LBT based Detect and Avoid:

1. The channel shall remain unavailable for a minimum time equal to 1 s after which the channel may be considered again as an 'available' channel.
2. $COT \leq 40\text{ms}$;
3. Idle Period = 5% of COT;
4. Detection threshold level = $-70 \text{ dBm/MHz} + (20 \text{ dBm} - P_{\text{out e.i.r.p.}})/1 \text{ MHz}$ (P_{out} in dBm).

LBT based Detect and Avoid:

1. CCA observation time declared by the supplier:
 - a. If the equipment shall perform a Clear Channel Assessment (CCA) check using energy detect. The equipment shall observe the operating channel for the duration of the CCA observation time which shall be not less than 18 μs .
2. $COT = 1\sim 10 \text{ ms}$;
3. Idle Period = 5% of COT;
4. Detection threshold level = $-70 \text{ dBm/MHz} + (20 \text{ dBm} - P_{\text{out e.i.r.p.}})/1 \text{ MHz}$ (P_{out} in dBm).

LBT based Detect and Avoid (Load Based Equipment):

1. CCA declared by the manufacturer:
 - a. If the equipment shall perform a Clear Channel Assessment (CCA) check using energy detect. The equipment shall observe the operating channel for the duration of the CCA observation time which shall be not less than 18 μs .
 - b. If the equipment finds the channel occupied, it shall not transmit on this channel, The equipment shall perform an Extended CCA check in which the channel is observed for a random duration in the range between 18 μs and at least 160 μs .
2. $COT \leq 13 \text{ ms}$;
3. Detection threshold level = $-70 \text{ dBm/MHz} + (20 \text{ dBm} - P_{\text{out e.i.r.p.}})/1 \text{ MHz}$ (P_{out} in dBm).

Short Control Signaling Transmissions:

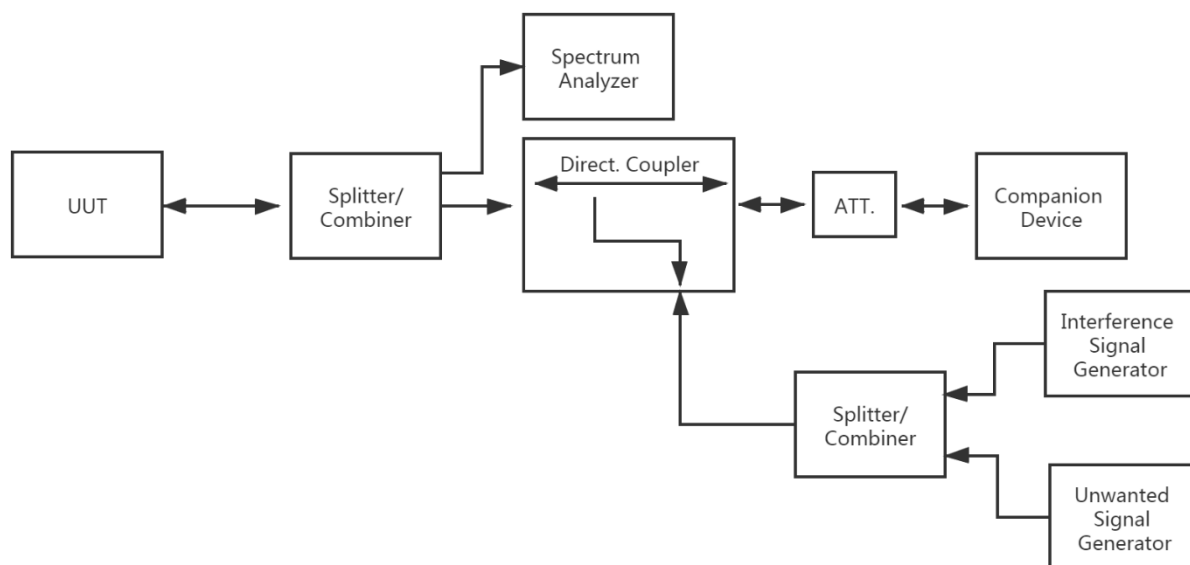
Short Control Signaling Transmissions shall have a maximum duty cycle $T_{\text{xOn}} / (T_{\text{xOn}} + T_{\text{xOff}})$ ratio of 10 % within any observation period of 50 ms.

7.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.6.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.6.2 for the measurement method.
3. The spectrum analyzer sweep was triggered by the start of the interfering signal, with the interfering signal present, a 100 % duty cycle CW signal is inserted as the blocking signal.
 - RBW: $\geq$ Occupied Channel Bandwidth (if the analyser does not support this setting, the highest available setting shall be used)
 - VBW: $3 \times \text{RBW}$ (if the analyser does not support this setting, the highest available setting shall be used)
 - Detector Mode: RMS
 - Centre Frequency: Equal to the centre frequency of the operating channel
 - Span: 0 Hz
 - Sweep time: $>$ maximum Channel Occupancy Time
 - Trace Mode: Clear Write
 - Trigger Mode: Video



7.3 TEST SETUP



- WLAN is normal transmission
- Interference shall be injected -> WLAN shall stop transmission.
- Blocking shall be injected -> WLAN does not resume any normal transmission
- Removing the interference signal

7.4 TEST RESULT

For the measurement records, refer to the appendix I.



8. SPURIOUS EMISSIONS – TRANSMITTER

8.1 LIMIT

Frequency range	Maximum power, e.r.p(≤1 GHz) e.i.r.p(> 1 GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 KHz
47 MHz to 74 MHz	-54 dBm	100 KHz
74 MHz to 87.5 MHz	-36 dBm	100 KHz
87.5 MHz to 118 MHz	-54 dBm	100 KHz
118 MHz to 174 MHz	-36 dBm	100 KHz
174 MHz to 230 MHz	-54 dBm	100 KHz
230 MHz to 470 MHz	-36 dBm	100 KHz
470 MHz to 694 MHz	-54 dBm	100 KHz
694 MHz to 1 GHz	-36 dBm	100 KHz
1 GHz to 12.75 GHz	-30 dBm	1 MHz

8.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.9.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.9.2 for the measurement method.

Spectrum analyser settings:

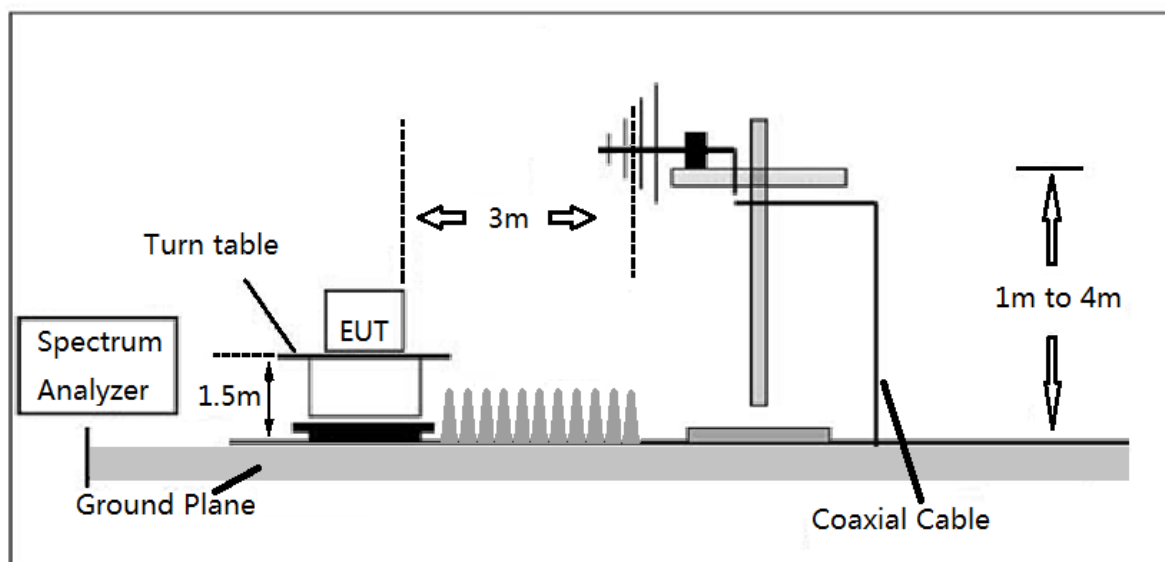
Spectrum Analyzer	Setting	
Frequency Start to Stop	30 MHz to 1000 MHz	1000 MHz to 12750MHz
Resolution Bandwidth	100 kHz	1 MHz
Video Bandwidth	300 kHz	3 MHz
Filter Type	3 dB (Gaussian)	
Detector Mode	Peak	
Trace Mode	Max Hold	
Sweep Points	≥ 19 400 (Set as 20000)	≥ 23 500 (Set as 24000)
Sweep Time	For non-continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, below 1GHz such that for each 100 kHz frequency step, Above 1GHz such that for each 1MHz frequency step, the measurement time is greater than two transmissions of the UUT, on any channel.	



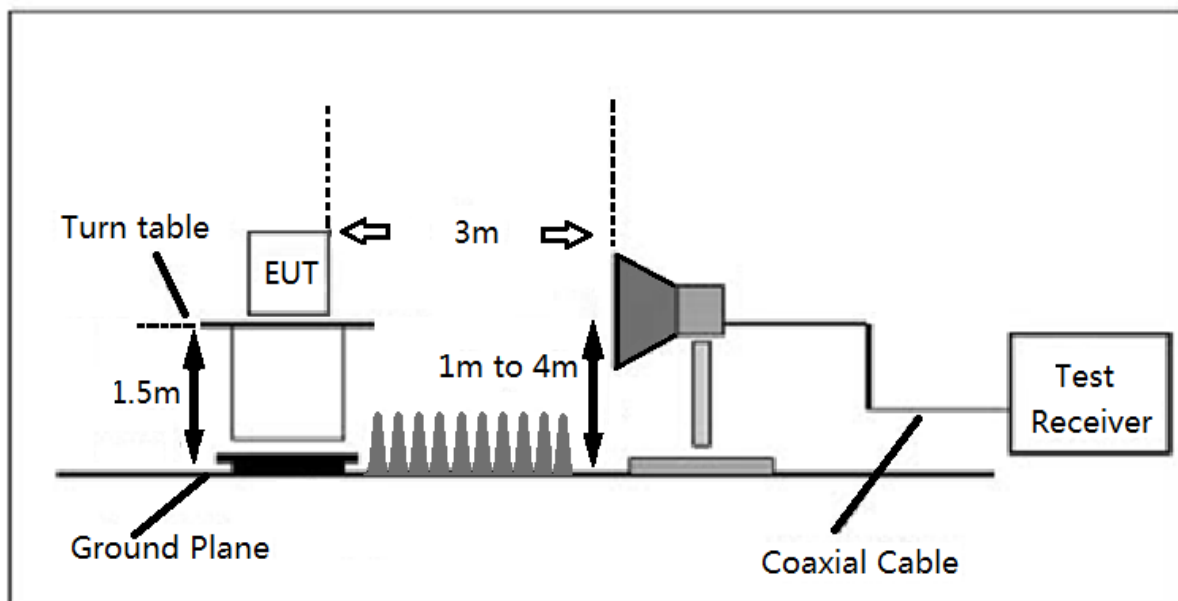
- a. The EUT was placed on the top of the turntable in Semi Anechoic Room.
- b. The test shall be made in the transmitting mode. The turntable was rotated by 360 degree to determine the position of the highest radiation.
- c. This measurement shall be repeated with the transmitter in standby mode where applicable.
- d. For 30~12750MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable.
- e. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
- f. Replace the EUT by standard antenna and feed the RF port by signal generator.
- g. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
- h. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
- i. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
- j. If the level calculated in (9) is higher than limit by more than 6dB, then lower the RBW of the spectrum analyzer to 30KHz. If the level of this emission does not change by more than 2dB, then it is taken as narrowband emission, otherwise, wideband emission.
- k. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.
- l. EUT Orthogonal Axis:
"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand.

8.3 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz.



(B) Radiated Emission Test Set-Up Frequency Above 1GHz.



8.4 EUT OPERATION DURING TEST

1. The EUT was programmed to be in continuous transmitting mode.
2. For the initial investigation on the highest, lowest frequency, no significant differences in spurious emissions were observed between these 2 channels. The worst test data was shown in report.
3. There is a filter used during the test, the fundamental signals will be not shown in the plot.



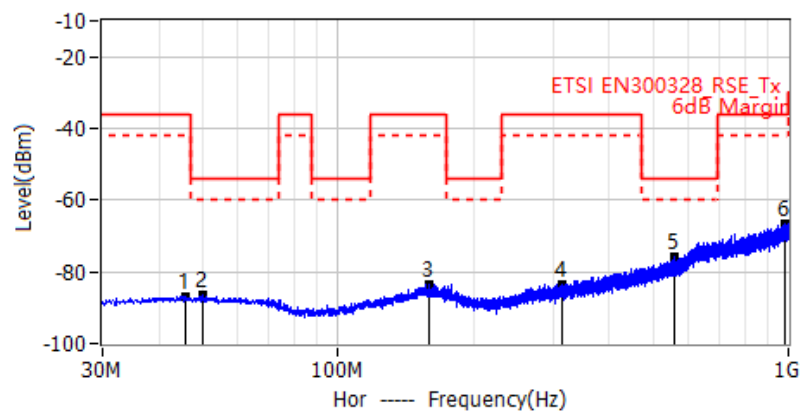
8.5 TEST RESULTS

Remark: 1. All data rate modes had been test, but only worse test data was recorded in the test report.

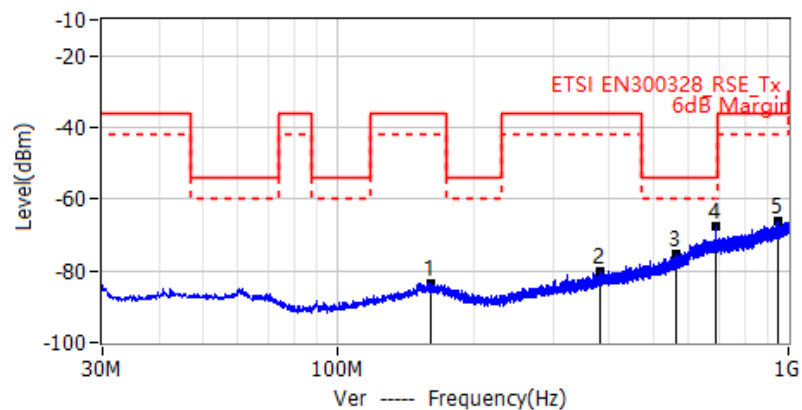
2. The emissions above 6GHz and below 12.75GHz are too small to be measured and are at least 10 dB below the limit. The signal is mainly from the environmental noise.

Radiated Emissions:

Project: LGT23H029	Test Engineer: Xiangdong Ma
EUT: SmartKid8	Temperature: 27.6°C
M/N: M-SP8KID	Humidity: 44%RH
Test Voltage: Battery	Test Data: 2023-08-14
Test Mode: 802.11b 2412	
Note: Worst Case	



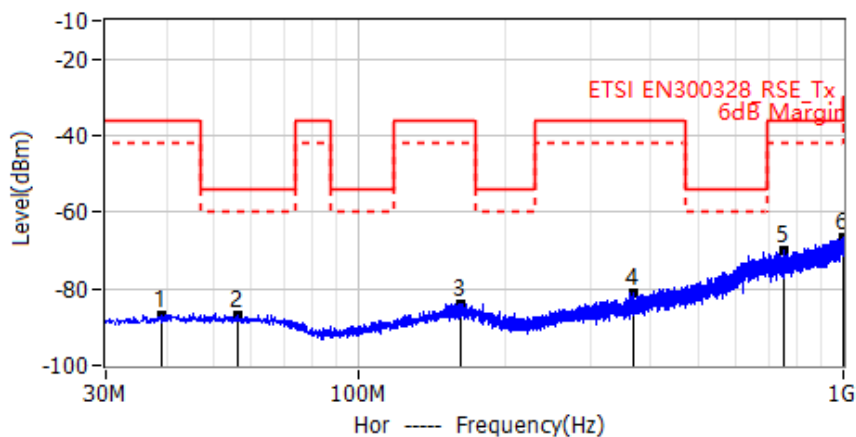
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	45.8838MHz	-86.89	-36.00	-50.89	RMS	Hor
2*	50.0063MHz	-86.27	-54.00	-32.27	RMS	Hor
3*	159.6163MHz	-83.59	-36.00	-47.59	RMS	Hor
4*	313.1188MHz	-83.37	-36.00	-47.37	RMS	Hor
5*	555.8613MHz	-75.94	-54.00	-21.94	RMS	Hor
6*	982.2975MHz	-66.58	-36.00	-30.58	RMS	Hor



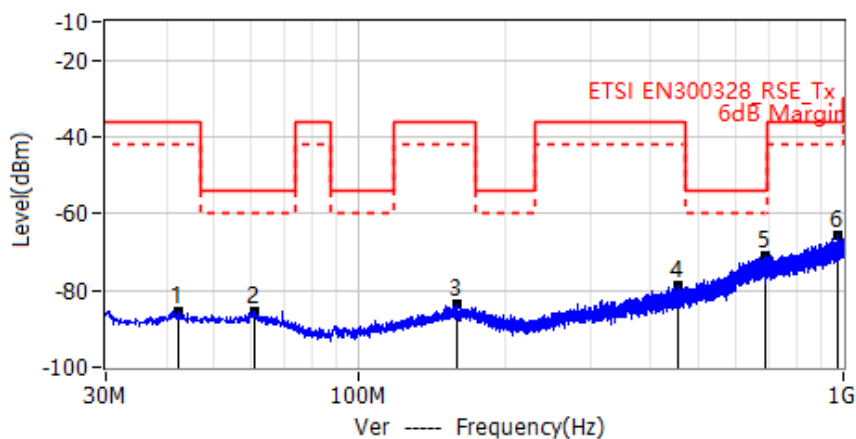
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	161.0713MHz	-83.59	-36.00	-47.59	RMS	Ver
2*	381.0188MHz	-80.01	-36.00	-44.01	RMS	Ver
3*	564.7125MHz	-75.48	-54.00	-21.48	RMS	Ver
4*	687.5388MHz	-67.72	-54.00	-13.72	RMS	Ver
5*	946.0438MHz	-66.05	-36.00	-30.05	RMS	Ver



Project: LGT23H029	Test Engineer: Xiangdong Ma
EUT: SmartKid8	Temperature: 27.6°C
M/N: M-SP8KID	Humidity: 44%RH
Test Voltage: Battery	Test Data: 2023-08-14
Test Mode: 802.11b 2472	
Note: Worst Case	



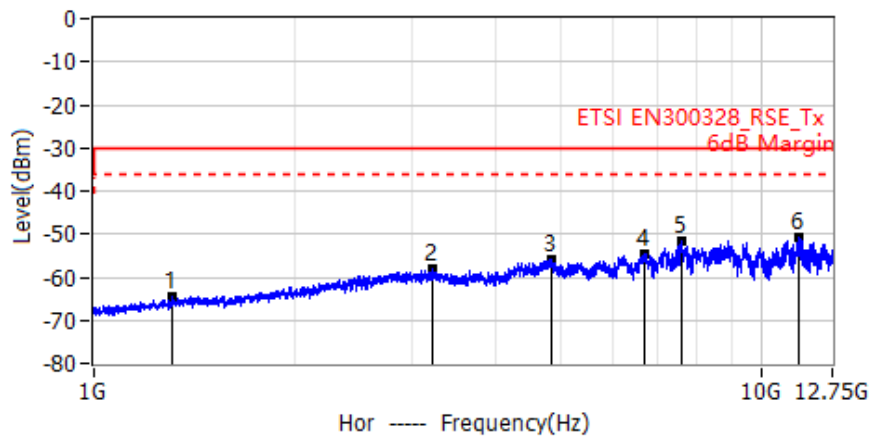
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	38.9725MHz	-86.70	-36.00	-50.70	RMS	Hor
2*	56.1900MHz	-86.86	-54.00	-32.86	RMS	Hor
3*	162.1625MHz	-83.81	-36.00	-47.81	RMS	Hor
4*	369.2575MHz	-80.97	-36.00	-44.97	RMS	Hor
5*	754.5900MHz	-70.15	-36.00	-34.15	RMS	Hor
6*	997.0900MHz	-66.68	-36.00	-30.68	RMS	Hor



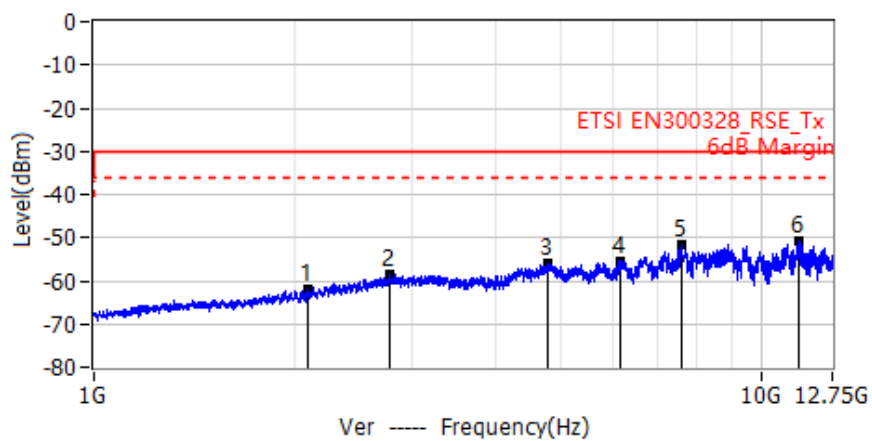
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	42.4888MHz	-85.38	-36.00	-49.38	RMS	Ver
2*	61.0400MHz	-85.50	-54.00	-31.50	RMS	Ver
3*	159.1313MHz	-83.44	-36.00	-47.44	RMS	Ver
4*	456.6788MHz	-78.83	-36.00	-42.83	RMS	Ver
5*	687.4175MHz	-70.77	-54.00	-16.77	RMS	Ver
6*	971.6275MHz	-65.73	-36.00	-29.73	RMS	Ver



Project: LGT23H029	Test Engineer: Xiangdong Ma
EUT: SmartKid8	Temperature: 27.2°C
M/N: M-SP8KID	Humidity: 43%RH
Test Voltage: Battery	Test Data: 2023-08-17
Test Mode: 802.11b 2412	
Note: Worst Case	



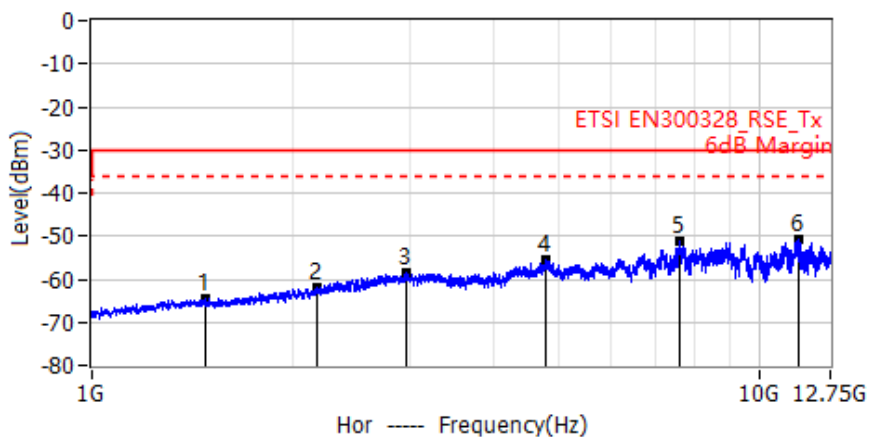
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.3084GHz	-64.33	-30.00	-34.33	RMS	Hor
2*	3.2163GHz	-58.22	-30.00	-28.22	RMS	Hor
3*	4.8349GHz	-55.88	-30.00	-25.88	RMS	Hor
4*	6.6591GHz	-54.63	-30.00	-24.63	RMS	Hor
5*	7.5888GHz	-51.63	-30.00	-21.63	RMS	Hor
6*	11.3929GHz	-50.86	-30.00	-20.86	RMS	Hor



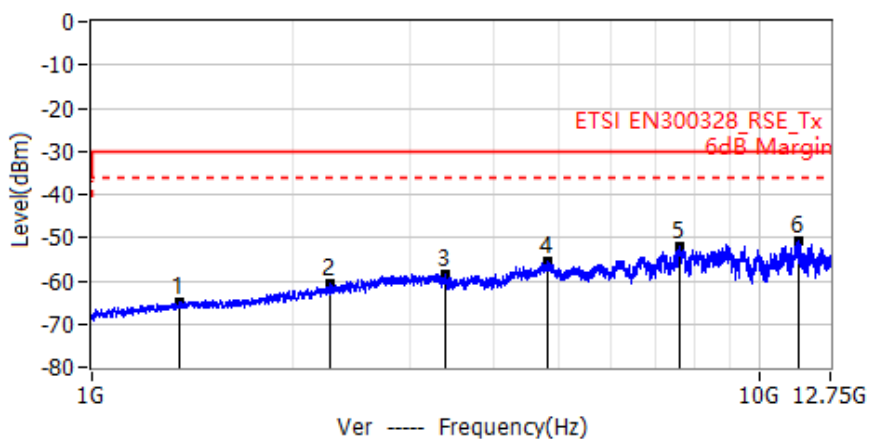
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	2.0942GHz	-62.04	-30.00	-32.04	RMS	Ver
2*	2.7684GHz	-58.63	-30.00	-28.63	RMS	Ver
3*	4.7894GHz	-55.88	-30.00	-25.88	RMS	Ver
4*	6.1289GHz	-55.34	-30.00	-25.34	RMS	Ver
5*	7.5947GHz	-51.67	-30.00	-21.67	RMS	Ver
6*	11.3929GHz	-50.82	-30.00	-20.82	RMS	Ver



Project: LGT23H029	Test Engineer: Xiangdong Ma
EUT: SmartKid8	Temperature: 27.2°C
M/N: M-SP8KID	Humidity: 43%RH
Test Voltage: Battery	Test Data: 2023-08-17
Test Mode: 802.11b 2472	
Note: Worst Case	



No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.4773GHz	-64.62	-30.00	-34.62	RMS	Hor
2*	2.1677GHz	-62.04	-30.00	-32.04	RMS	Hor
3*	2.9461GHz	-58.68	-30.00	-28.68	RMS	Hor
4*	4.7879GHz	-55.64	-30.00	-25.64	RMS	Hor
5*	7.5844GHz	-51.17	-30.00	-21.17	RMS	Hor
6*	11.3973GHz	-50.57	-30.00	-20.57	RMS	Hor



No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.3496GHz	-64.88	-30.00	-34.88	RMS	Ver
2*	2.2705GHz	-60.72	-30.00	-30.72	RMS	Ver
3*	3.3867GHz	-58.36	-30.00	-28.36	RMS	Ver
4*	4.7982GHz	-55.50	-30.00	-25.50	RMS	Ver
5*	7.5903GHz	-52.15	-30.00	-22.15	RMS	Ver
6*	11.3987GHz	-50.80	-30.00	-20.80	RMS	Ver



9. SPURIOUS EMISSIONS – RECEIVER

9.1 LIMIT

Clause	Test Item	Frequency (MHz)	Limit
4.3.2.10.3	Spurious emissions (radiated)	30-1000	-57dBm
		1000-12750	-47dBm

9.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.10.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.10.2 for the measurement method.

Spectrum analyser settings:

Spectrum Analyzer	Setting	
Frequency Start to Stop	30 MHz to 1000 MHz	1000 MHz to 12750MHz
Resolution Bandwidth	100 kHz	1 MHz
Video Bandwidth	300 kHz	3 MHz
Filter Type	3 dB (Gaussian)	
Detector Mode	Peak	
Trace Mode	Max Hold	
Sweep Points	≥ 19 400 (Set as 20000)	≥ 23 500 (Set as 24000)
Sweep Time	For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, below 1GHz such that for each 100 kHz frequency step, Above 1GHz such that for each 1MHz frequency step, the measurement time is greater than two transmissions of the UUT, on any channel.	



- a. The EUT was placed on the top of the turntable (1.5m) in Semi Anechoic Room.
- b. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- c. This measurement shall be repeated with the transmitter in standby mode where applicable.
- d. For 30~12750MHz spurious emissions measurement, the receiving antenna was placed 3 meters far away from the EUT.
- e. The antenna shall vary between 1 m to 4 m to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level.
- f. Replace the EUT by standard antenna and feed the RF port by signal generator.
- g. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
- h. Adjust the power level of the signal generator to reach the same reading with Read Level.
- i. The level of the spurious emission is the power level of generator plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
- j. Any emissions identified during the sweeps above that fall within the 6 dB range below the applicable limit or above, shall be individually measured using the procedure in ETSI EN 300 328 (V2.2.2) clause 5.4.9.2.1.3 and compared to the limits.
- k. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.
- l. EUT Orthogonal Axis:
“X” - denotes Laid on Table; “Y” - denotes Vertical Stand; “Z” - denotes Side Stand.

9.3 TEST SETUP

This test setup layout is the same as that shown in section 8.3.

9.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously receiving mode.



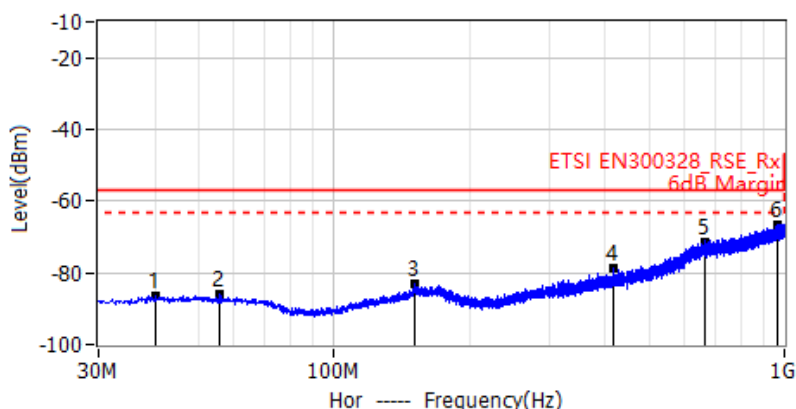
9.5 TEST RESULTS

Remark: 1. All data rate modes had been test, but only worse test data was recorded in the test report.

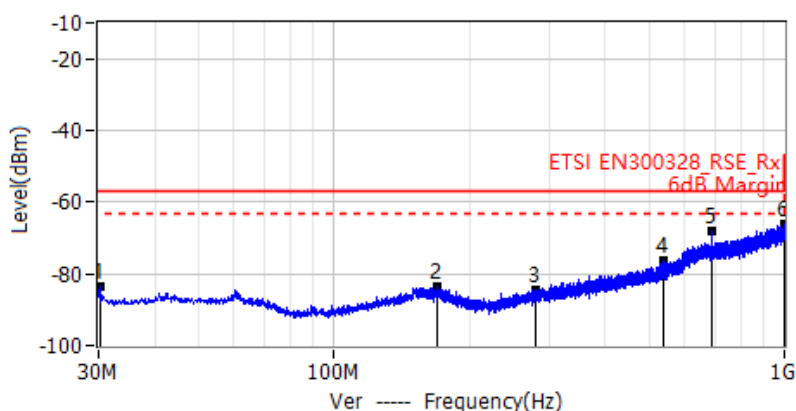
2. The emissions above 6GHz and below 12.75GHz are too small to be measured and are at least 10 dB below the limit. The signal is mainly from the environmental noise.

Radiated Emissions:

Project: LGT23H029	Test Engineer: Xiangdong Ma
EUT: SmartKid8	Temperature: 27.6°C
M/N: M-SP8KID	Humidity: 44%RH
Test Voltage: Battery	Test Data: 2023-08-14
Test Mode: 802.11b 2412	
Note: Worst Case	



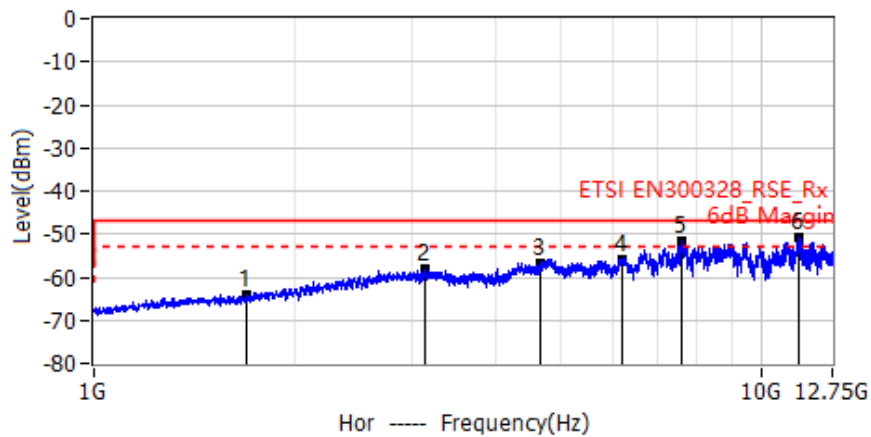
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	40.3063MHz	-86.51	-57.00	-29.51	RMS	Hor
2*	55.4625MHz	-86.01	-57.00	-29.01	RMS	Hor
3*	150.5225MHz	-83.30	-57.00	-26.30	RMS	Hor
4*	416.0600MHz	-78.90	-57.00	-21.90	RMS	Hor
5*	664.0163MHz	-71.37	-57.00	-14.37	RMS	Hor
6*	967.9900MHz	-66.40	-57.00	-9.40	RMS	Hor



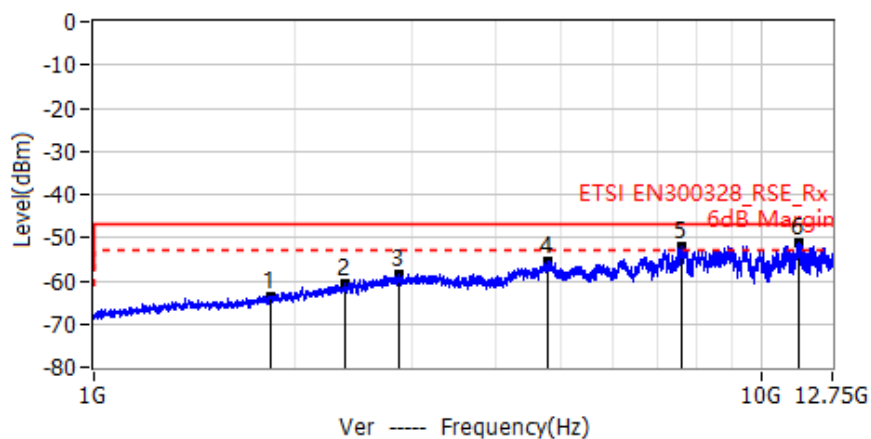
No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	30.2425MHz	-83.59	-57.00	-26.59	RMS	Ver
2*	169.3163MHz	-83.34	-57.00	-26.34	RMS	Ver
3*	280.1388MHz	-84.45	-57.00	-27.45	RMS	Ver
4*	536.7038MHz	-76.21	-57.00	-19.21	RMS	Ver
5*	687.5388MHz	-67.85	-57.00	-10.85	RMS	Ver
6*	997.5750MHz	-66.00	-57.00	-9.00	RMS	Ver



Project: LGT23H029	Test Engineer: Xiangdong Ma
EUT: SmartKid8	Temperature: 27.2°C
M/N: M-SP8KID	Humidity: 43%RH
Test Voltage: Battery	Test Data: 2023-08-17
Test Mode: 802.11b 2412	
Note: Worst Case	



No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.6932GHz	-64.04	-47.00	-17.04	RMS	Hor
2*	3.1356GHz	-57.93	-47.00	-10.93	RMS	Hor
3*	4.6719GHz	-56.63	-47.00	-9.63	RMS	Hor
4*	6.1759GHz	-55.75	-47.00	-8.75	RMS	Hor
5*	7.5888GHz	-51.68	-47.00	-4.68	RMS	Hor
6*	11.3899GHz	-50.91	-47.00	-3.91	RMS	Hor



No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.8357GHz	-63.45	-47.00	-16.45	RMS	Ver
2*	2.3733GHz	-60.81	-47.00	-13.81	RMS	Ver
3*	2.8609GHz	-58.47	-47.00	-11.47	RMS	Ver
4*	4.7879GHz	-55.38	-47.00	-8.38	RMS	Ver
5*	7.5815GHz	-51.92	-47.00	-4.92	RMS	Ver
6*	11.3885GHz	-51.11	-47.00	-4.11	RMS	Ver



10. RECEIVER BLOCKING

10.1 LIMIT

While maintaining the minimum performance criteria as defined in clause 4.3.1.12.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined for the applicable receiver category provided in below.

Receiver Category 1

Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 4)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 4)	Type of blocking signal
$(-133 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}))$ or -68 dBm whichever is less (see note 2)	2 380 2 504	-34	CW
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}))$ or -74 dBm whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 584 2 674		

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{\min} + 26 \text{ dB}$ where $P_{\min}$ is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{\min} + 20 \text{ dB}$ where $P_{\min}$ is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.



Receiver Category 2

Receiver Blocking parameters receiver Category 2 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}) + 10 \text{ dB})$ or $(-74 \text{ dBm} + 10 \text{ dB})$ whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{\min} + 26 \text{ dB}$ where $P_{\min}$ is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

Receiver Category 3

Receiver Blocking parameters receiver Category 3 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking Signal
$(-139 \text{ dBm} + 10 \times \log_{10}(\text{OCBW}) + 20 \text{ dB})$ or $(-74 \text{ dBm} + 20 \text{ dB})$ whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative the test may be performed using a wanted signal up to $P_{\min} + 30 \text{ dB}$ where $P_{\min}$ is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

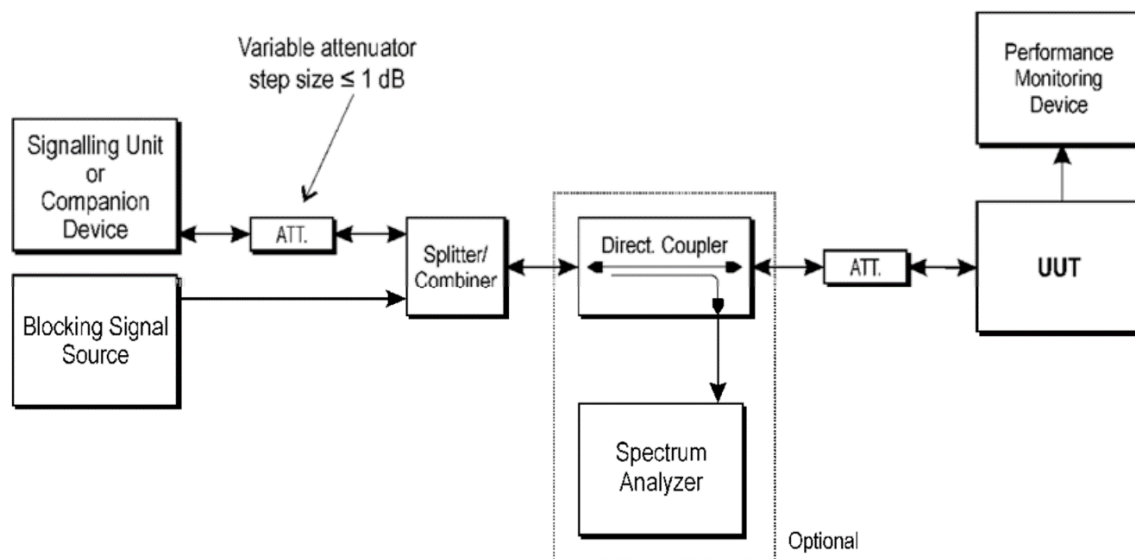
NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

10.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.2 for the measurement method.



10.3 TEST SETUP





10.4 TEST RESULTS

Note: 1. The power more than 10dBm, belong to category 1.

2. Measurement of smallest channel bandwidth and the lowest rate according to EN 300328 V2.2.2, section 5.4.11.1, so, 40MHz mode is not measured.

802.11b

Wanted signal meanpower from companion device (dBm)	Test Channel	Blocking signal frequency (MHz)	Blocking signal power(dBm) CW	PER	Limit	Results
-65.89	Low	2380	-34	1.00%	≤10%	PASS
	High	2504		0.99%		
-71.89	Low	2300		1.02%		
		2330		0.87%		
		2360		1.11%		
	High	2524		0.62%		
		2584		0.83%		
		2674		0.64%		

NOTE 1: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{min} + 26$ dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{min} + 20$ dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.



APPENDIX I - TEST RESULTS

Duty Cycle, Tx Sequence, Tx Gap, Medium Utilisation

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Tx-sequence (ms)	Tx Gap (ms)	MU (%)
NVNT	b	2412	Ant1	92.74	1.31	0.03	10.75
NVNT	b	2442	Ant1	93.17	1.31	0.03	8.13
NVNT	b	2472	Ant1	93.14	1.31	0.03	6.64
NVNT	g	2412	Ant1	69.43	0.25	0.03	3.89
NVNT	g	2442	Ant1	71.13	0.25	0.03	3.84
NVNT	g	2472	Ant1	72.28	0.25	0.03	4.1
NVNT	n20	2412	Ant1	68.53	0.23	0.03	3.7
NVNT	n20	2442	Ant1	70.02	0.23	0.03	3.85
NVNT	n20	2472	Ant1	69.32	0.23	0.03	3.92
NVNT	n40	2422	Ant1	56.45	0.13	0.03	3.12
NVNT	n40	2442	Ant1	54.83	0.13	0.03	3.34
NVNT	n40	2462	Ant1	56.33	0.13	0.03	3.14



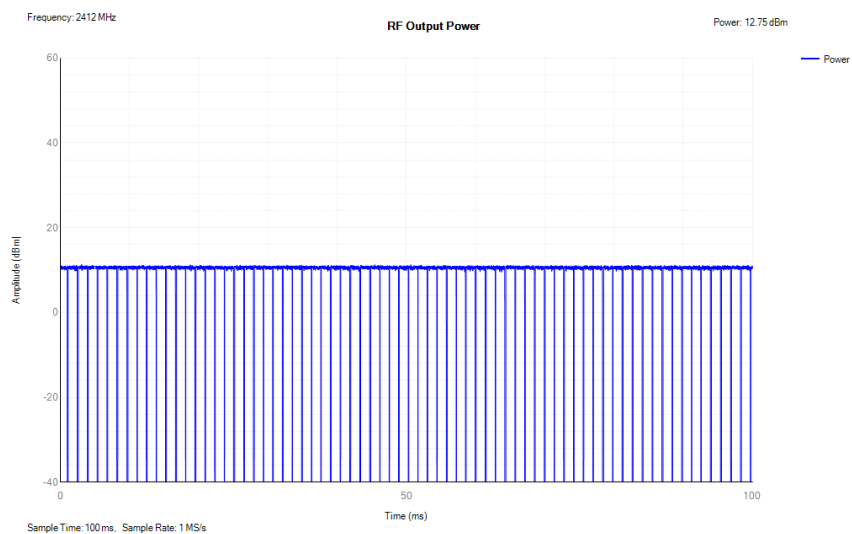
RF Output Power

Condition	Mode	Frequency (MHz)	Antenna	Max Burst RMS Power (dBm)	Burst Number	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	10.64	72	12.75	20	Pass
NVLT	b	2412	Ant1	10.26	72	12.37	20	Pass
NVHT	b	2412	Ant1	10.49	72	12.60	20	Pass
NVNT	b	2442	Ant1	9.41	73	11.52	20	Pass
NVLT	b	2442	Ant1	9.16	73	11.27	20	Pass
NVHT	b	2442	Ant1	8.95	73	11.06	20	Pass
NVNT	b	2472	Ant1	8.53	72	10.64	20	Pass
NVLT	b	2472	Ant1	8.41	72	10.52	20	Pass
NVHT	b	2472	Ant1	8.51	72	10.62	20	Pass
NVNT	g	2412	Ant1	7.48	277	9.59	20	Pass
NVLT	g	2412	Ant1	7.20	277	9.31	20	Pass
NVHT	g	2412	Ant1	7.13	277	9.24	20	Pass
NVNT	g	2442	Ant1	7.32	284	9.43	20	Pass
NVLT	g	2442	Ant1	6.97	284	9.08	20	Pass
NVHT	g	2442	Ant1	6.83	284	8.94	20	Pass
NVNT	g	2472	Ant1	7.54	289	9.65	20	Pass
NVLT	g	2472	Ant1	7.35	289	9.46	20	Pass
NVHT	g	2472	Ant1	7.52	289	9.63	20	Pass
NVNT	n20	2412	Ant1	7.32	297	9.43	20	Pass
NVLT	n20	2412	Ant1	7.13	297	9.24	20	Pass
NVHT	n20	2412	Ant1	7.11	297	9.22	20	Pass
NVNT	n20	2442	Ant1	7.40	305	9.51	20	Pass
NVLT	n20	2442	Ant1	7.15	305	9.26	20	Pass
NVHT	n20	2442	Ant1	7.28	305	9.39	20	Pass
NVNT	n20	2472	Ant1	7.52	302	9.63	20	Pass
NVLT	n20	2472	Ant1	7.26	302	9.37	20	Pass
NVHT	n20	2472	Ant1	7.17	302	9.28	20	Pass
NVNT	n40	2422	Ant1	7.43	432	9.54	20	Pass
NVLT	n40	2422	Ant1	7.02	432	9.13	20	Pass
NVHT	n40	2422	Ant1	7.20	432	9.31	20	Pass
NVNT	n40	2442	Ant1	7.85	419	9.96	20	Pass
NVLT	n40	2442	Ant1	7.81	419	9.92	20	Pass
NVHT	n40	2442	Ant1	7.47	419	9.58	20	Pass
NVNT	n40	2462	Ant1	7.46	431	9.57	20	Pass
NVLT	n40	2462	Ant1	7.12	431	9.23	20	Pass
NVHT	n40	2462	Ant1	7.21	431	9.32	20	Pass

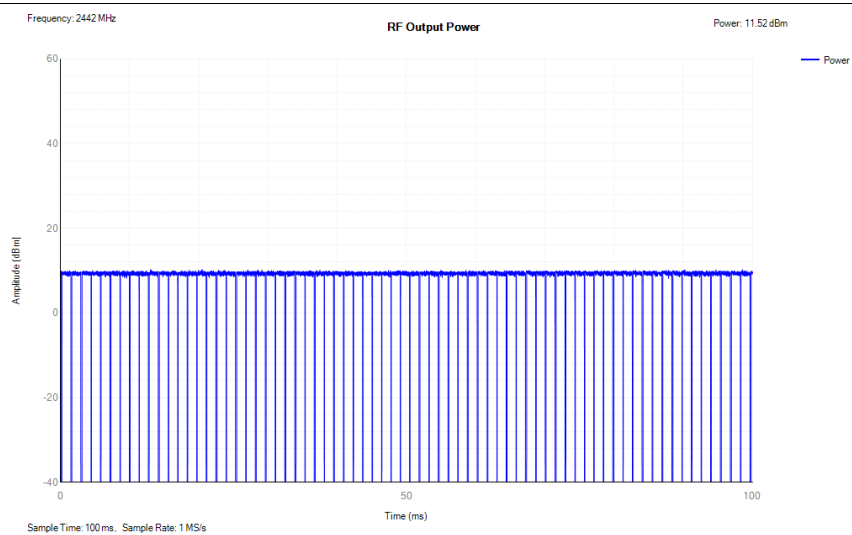


Test Graphs

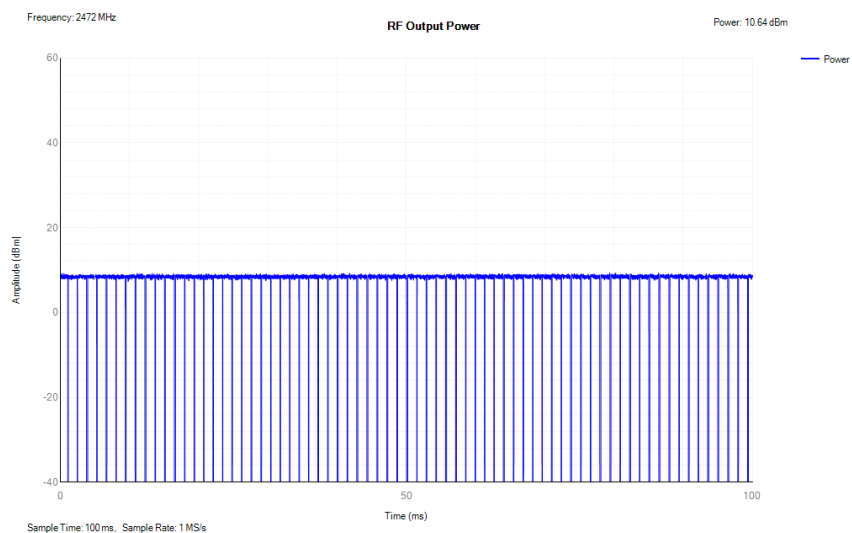
Power NVNT b 2412MHz Ant1

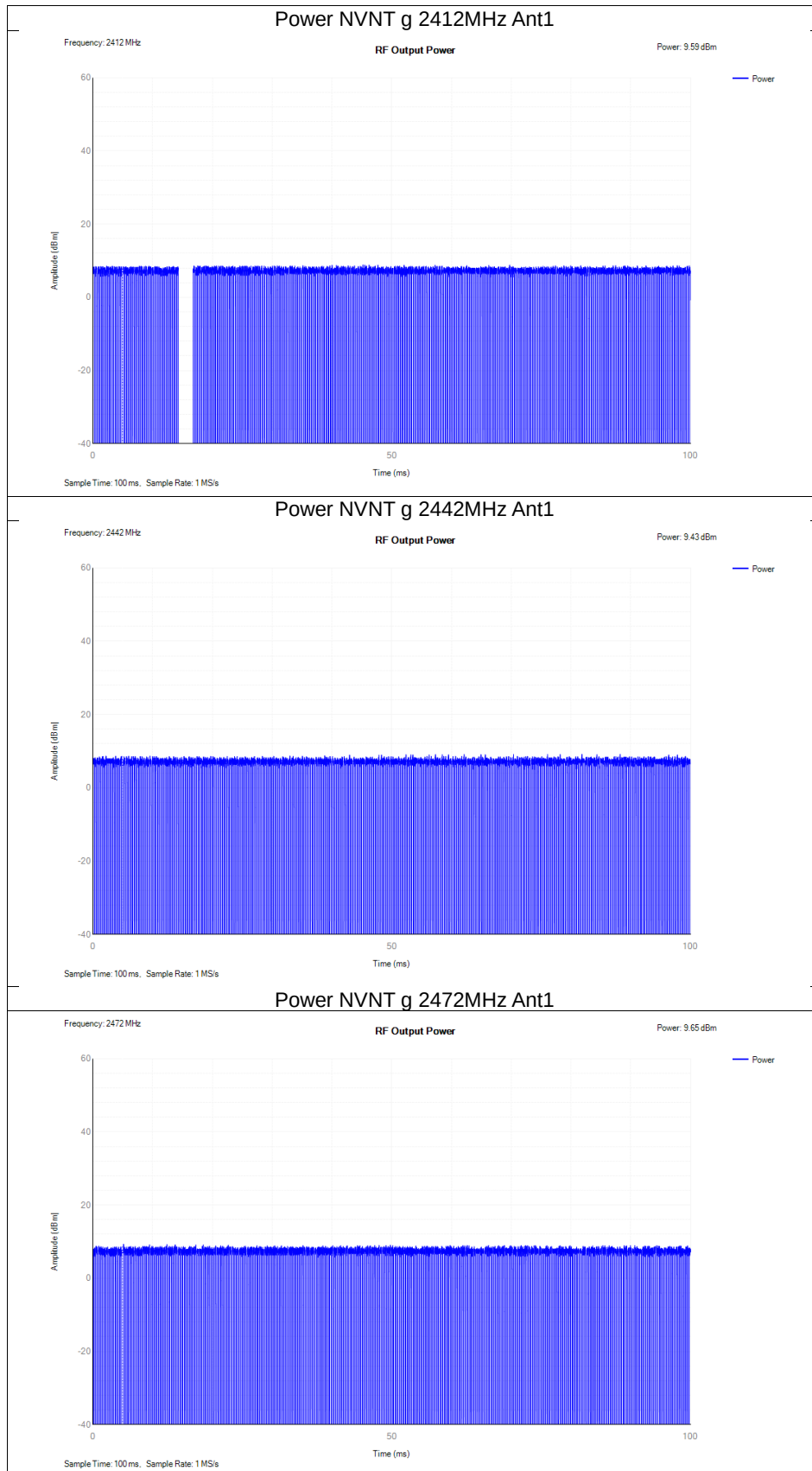


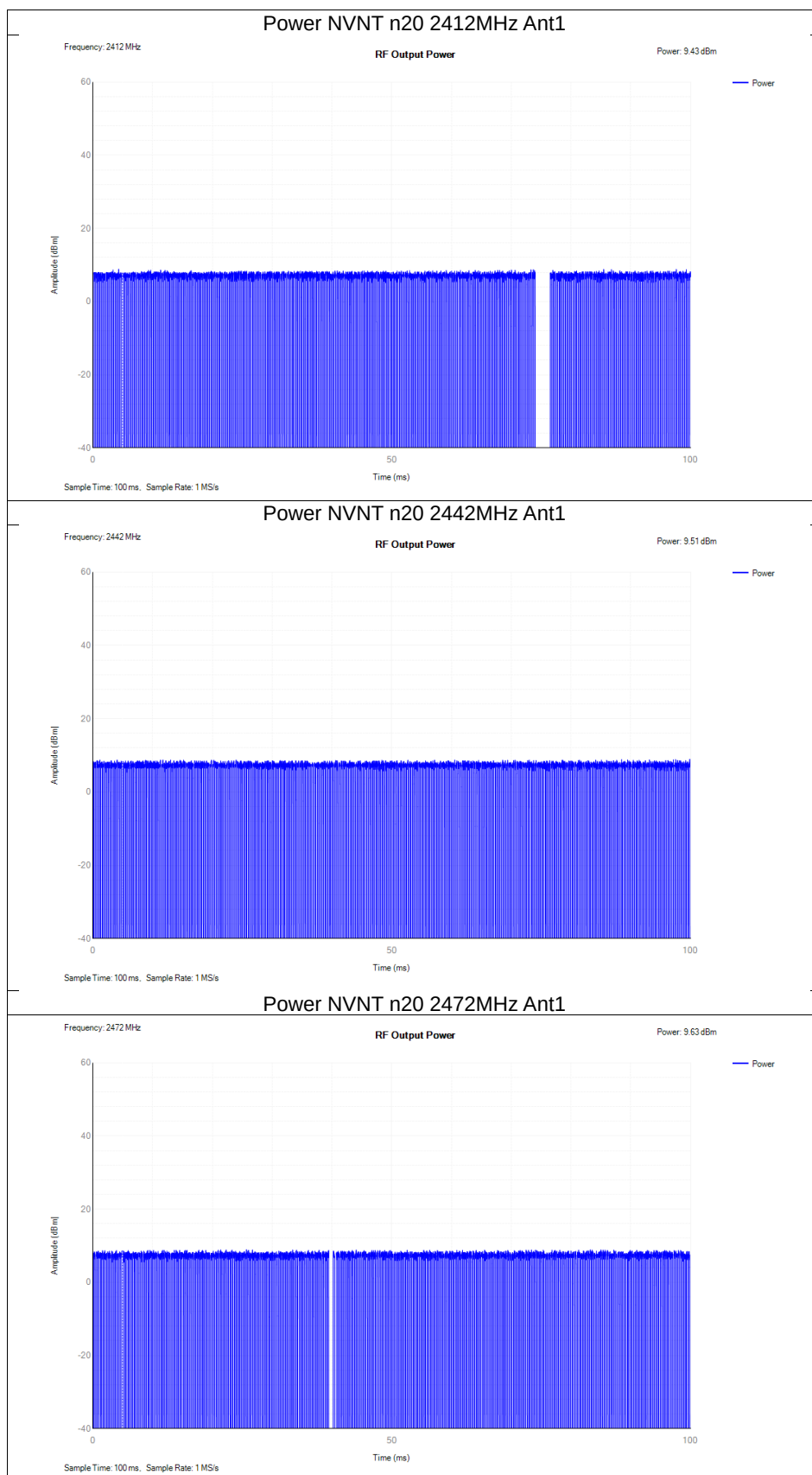
Power NVNT b 2442MHz Ant1

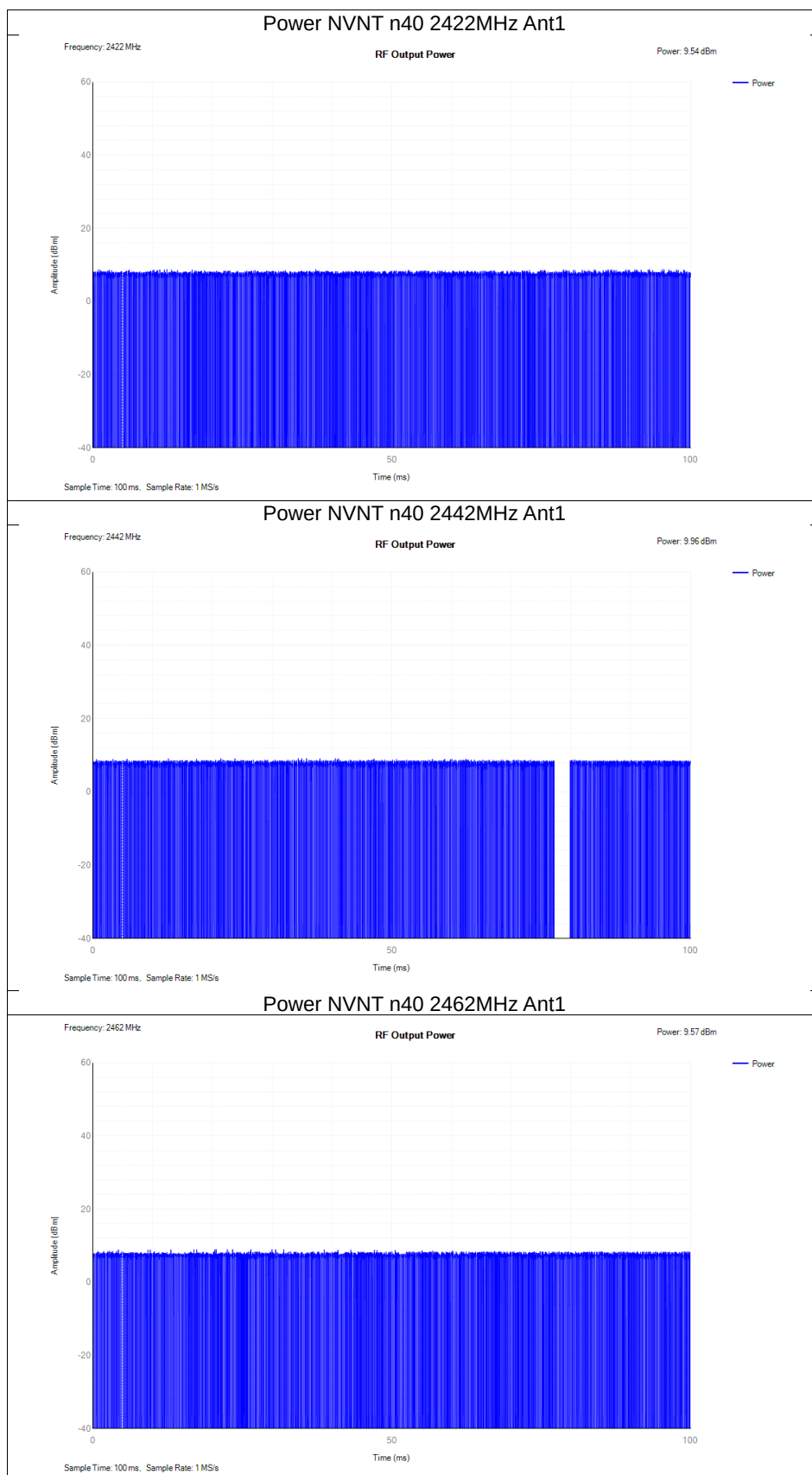


Power NVNT b 2472MHz Ant1





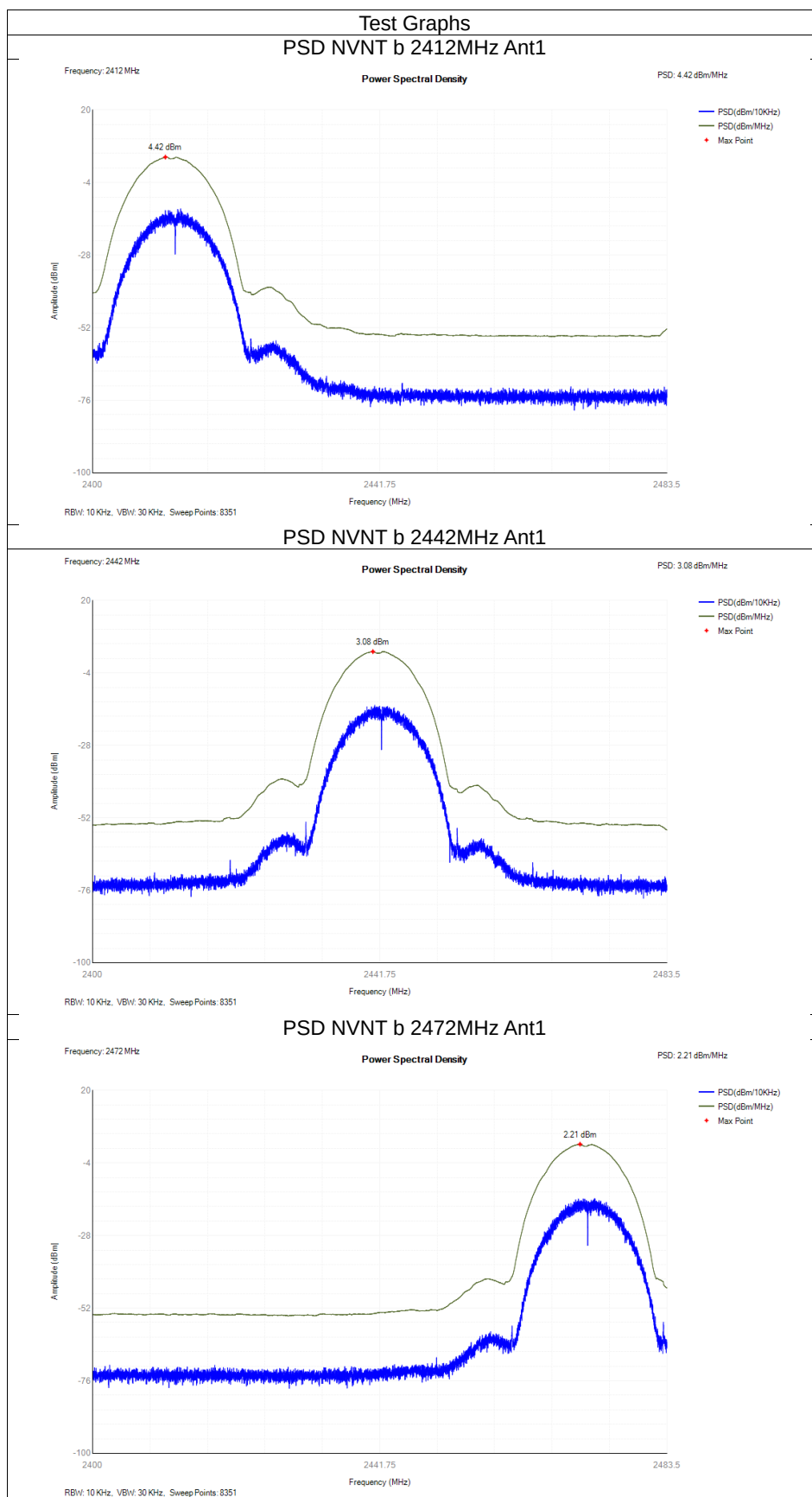


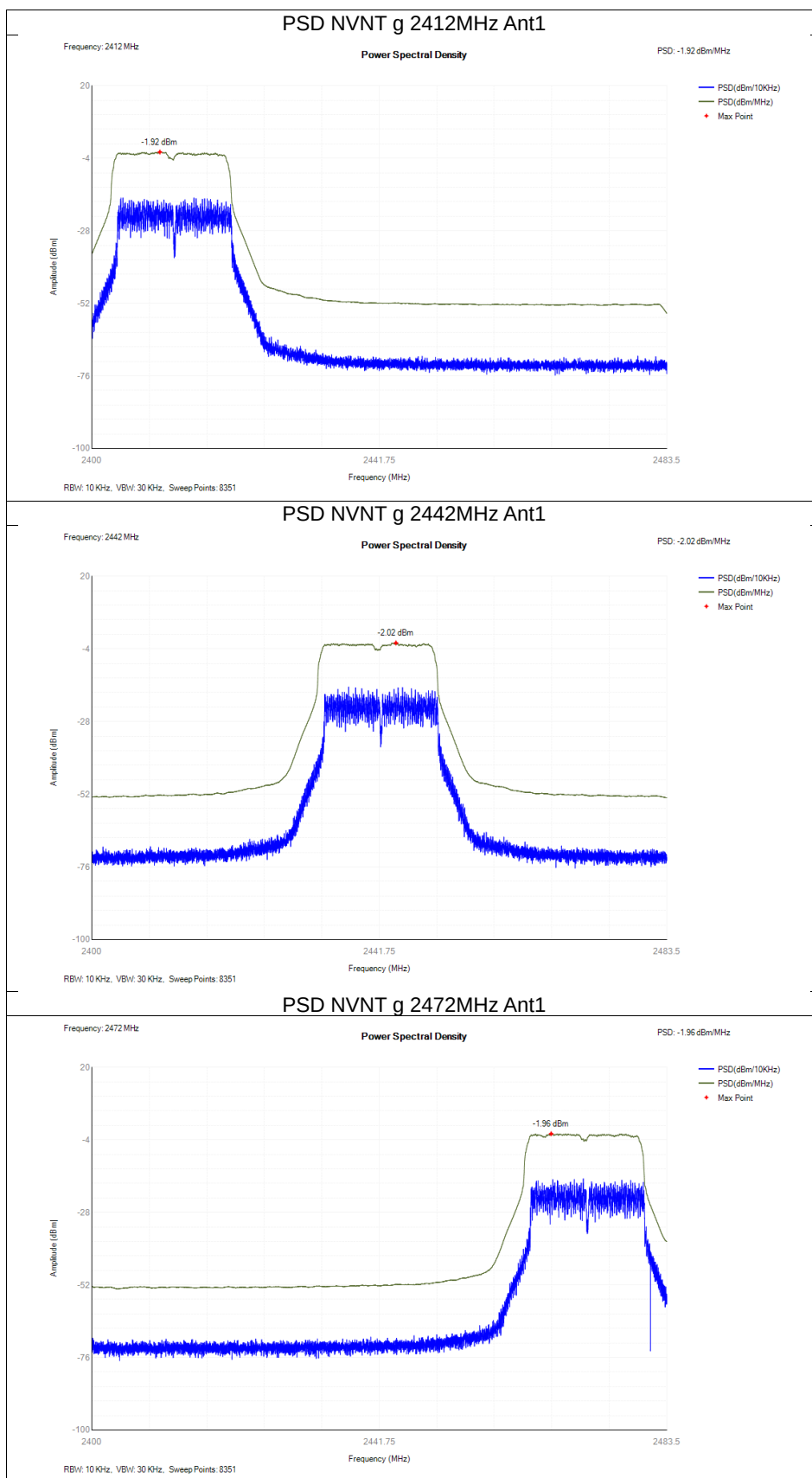


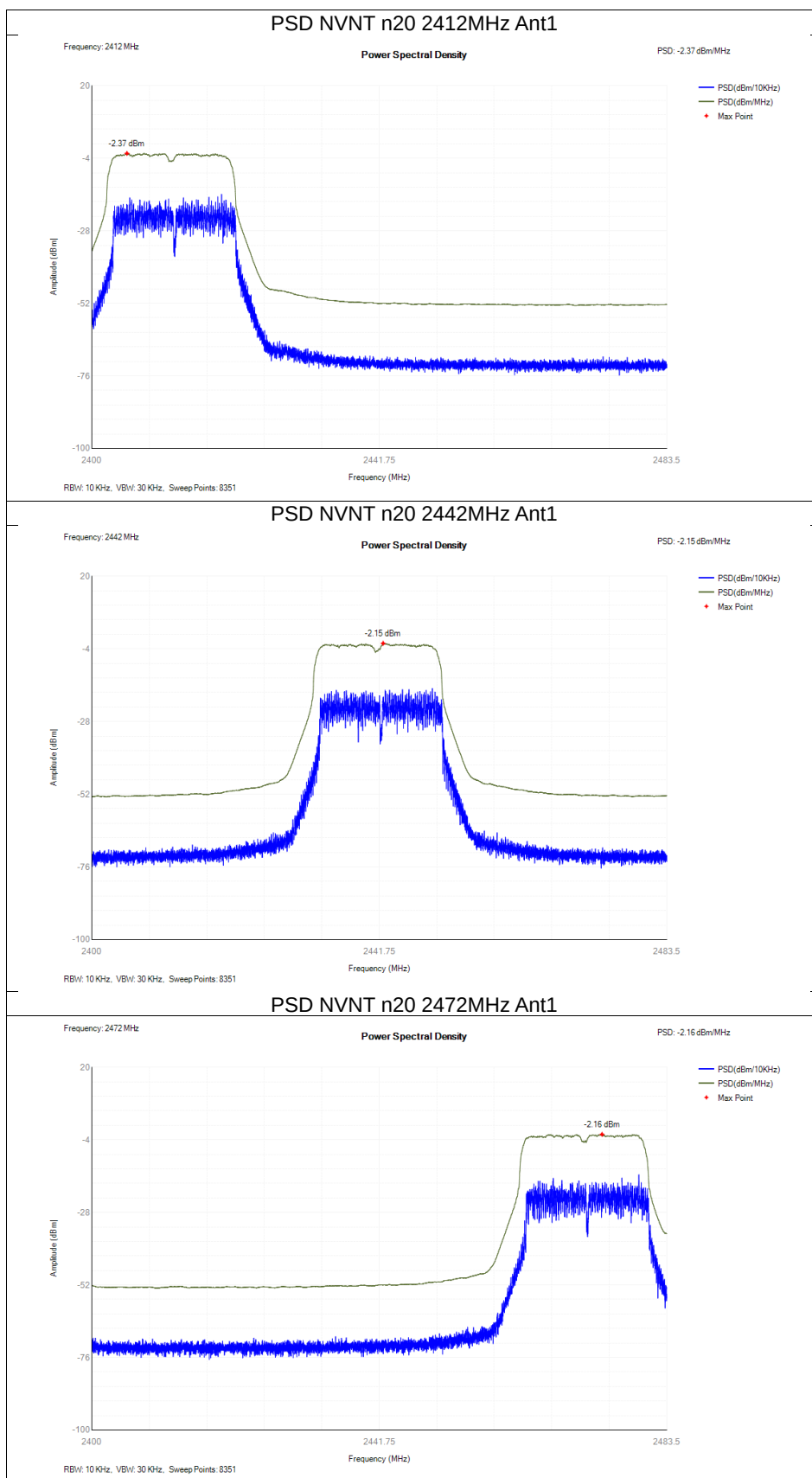


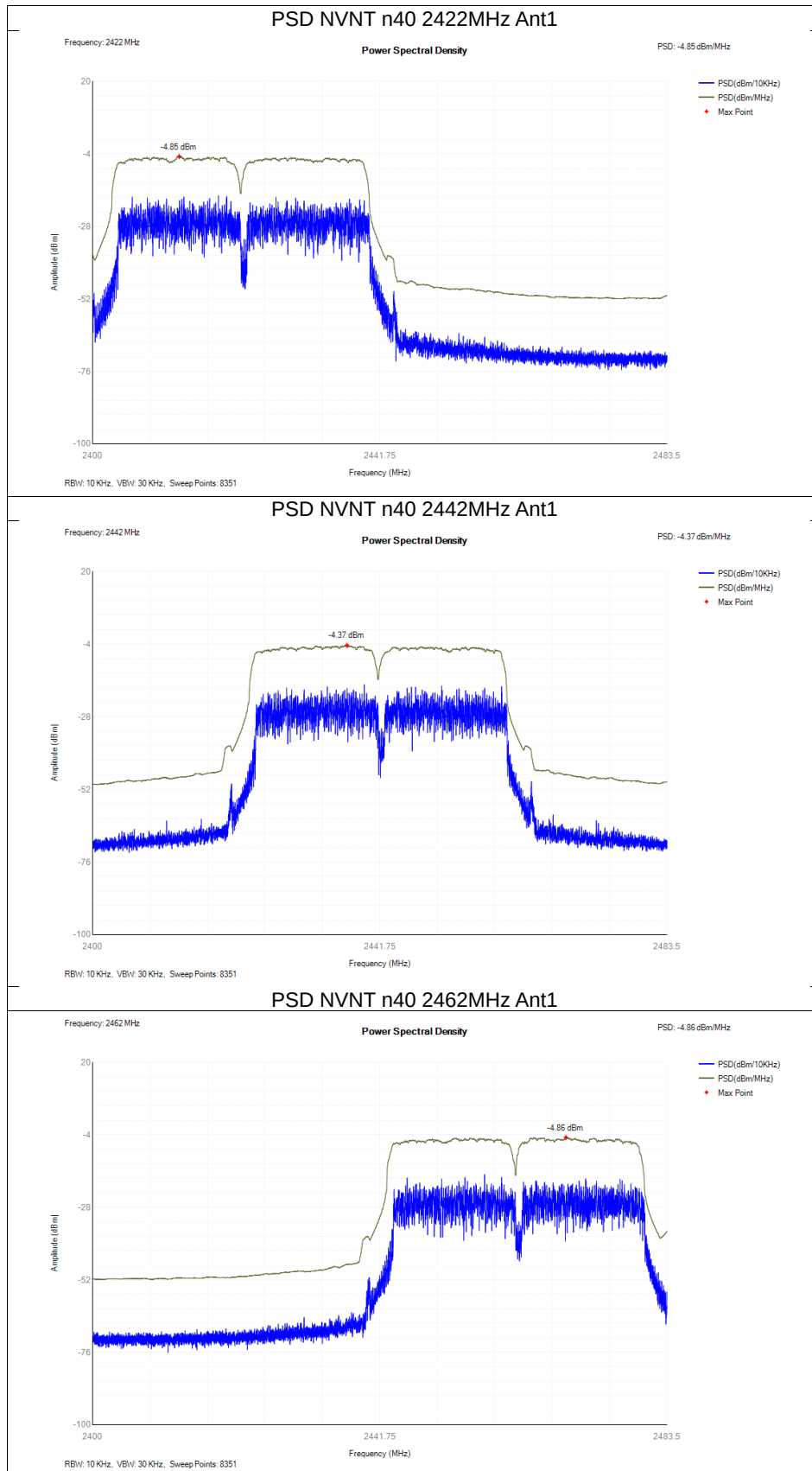
Power Spectral Density

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	b	2412	Ant1	4.42	10	Pass
NVNT	b	2442	Ant1	3.08	10	Pass
NVNT	b	2472	Ant1	2.21	10	Pass
NVNT	g	2412	Ant1	-1.92	10	Pass
NVNT	g	2442	Ant1	-2.02	10	Pass
NVNT	g	2472	Ant1	-1.96	10	Pass
NVNT	n20	2412	Ant1	-2.37	10	Pass
NVNT	n20	2442	Ant1	-2.15	10	Pass
NVNT	n20	2472	Ant1	-2.16	10	Pass
NVNT	n40	2422	Ant1	-4.85	10	Pass
NVNT	n40	2442	Ant1	-4.37	10	Pass
NVNT	n40	2462	Ant1	-4.86	10	Pass











Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Center Frequency (MHz)	OBW (MHz)	Lower Edge (MHz)	Upper Edge (MHz)	Limit OBW (MHz)	Verdict
NVNT	b	2412	2411.961	13.203	2405.359	2418.562	2400 - 2483.5MHz	Pass
NVNT	b	2472	2471.928	13.303	2465.277	2478.58	2400 - 2483.5MHz	Pass
NVNT	g	2412	2411.988	16.572	2403.702	2420.274	2400 - 2483.5MHz	Pass
NVNT	g	2472	2471.996	16.58	2463.706	2480.286	2400 - 2483.5MHz	Pass
NVNT	n20	2412	2411.975	17.722	2403.114	2420.836	2400 - 2483.5MHz	Pass
NVNT	n20	2472	2471.968	17.73	2463.103	2480.833	2400 - 2483.5MHz	Pass
NVNT	n40	2422	2421.978	36.234	2403.861	2440.095	2400 - 2483.5MHz	Pass
NVNT	n40	2462	2461.94	36.19	2443.845	2480.035	2400 - 2483.5MHz	Pass



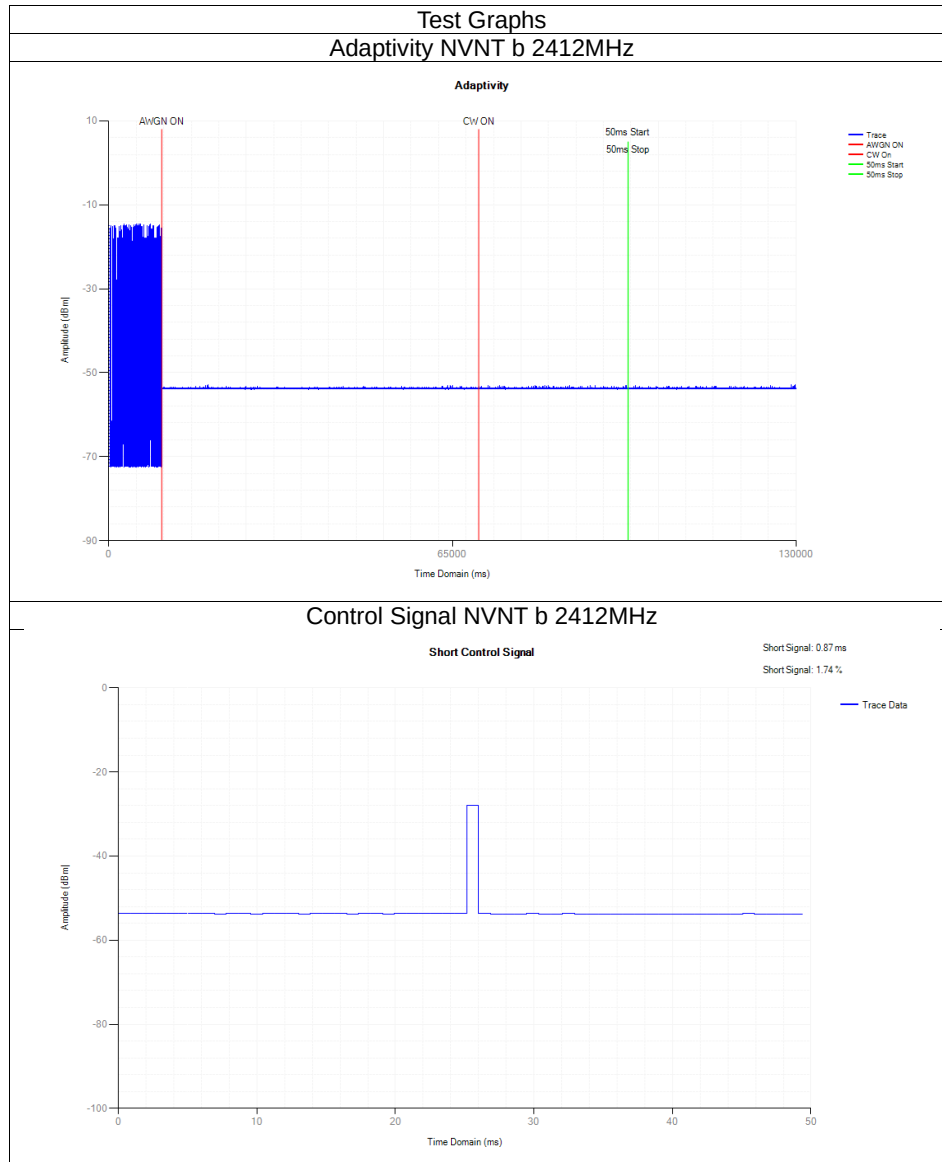


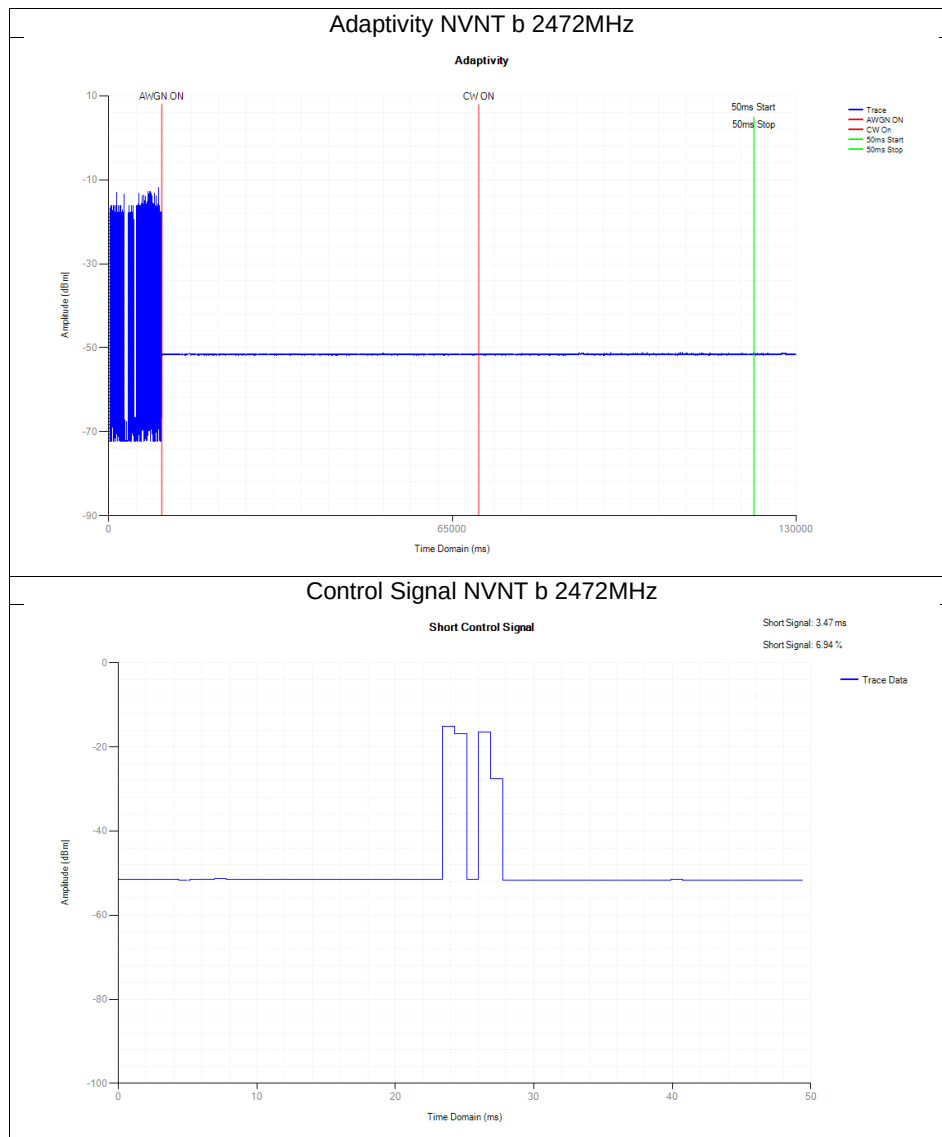




Adaptivity

Condition	Mode	Frequency (MHz)	Antenna	AWGN Level (dBm)	CW Level (dBm)	Short Control Width (ms)	Short Control Ratio(%)	Limit (%)	Verdict
NVNT	b	2412	Ant1	-62.75	-35	0.87	1.74	<=10	Pass
NVNT	b	2472	Ant1	-60.64	-35	3.47	6.94	<=10	Pass

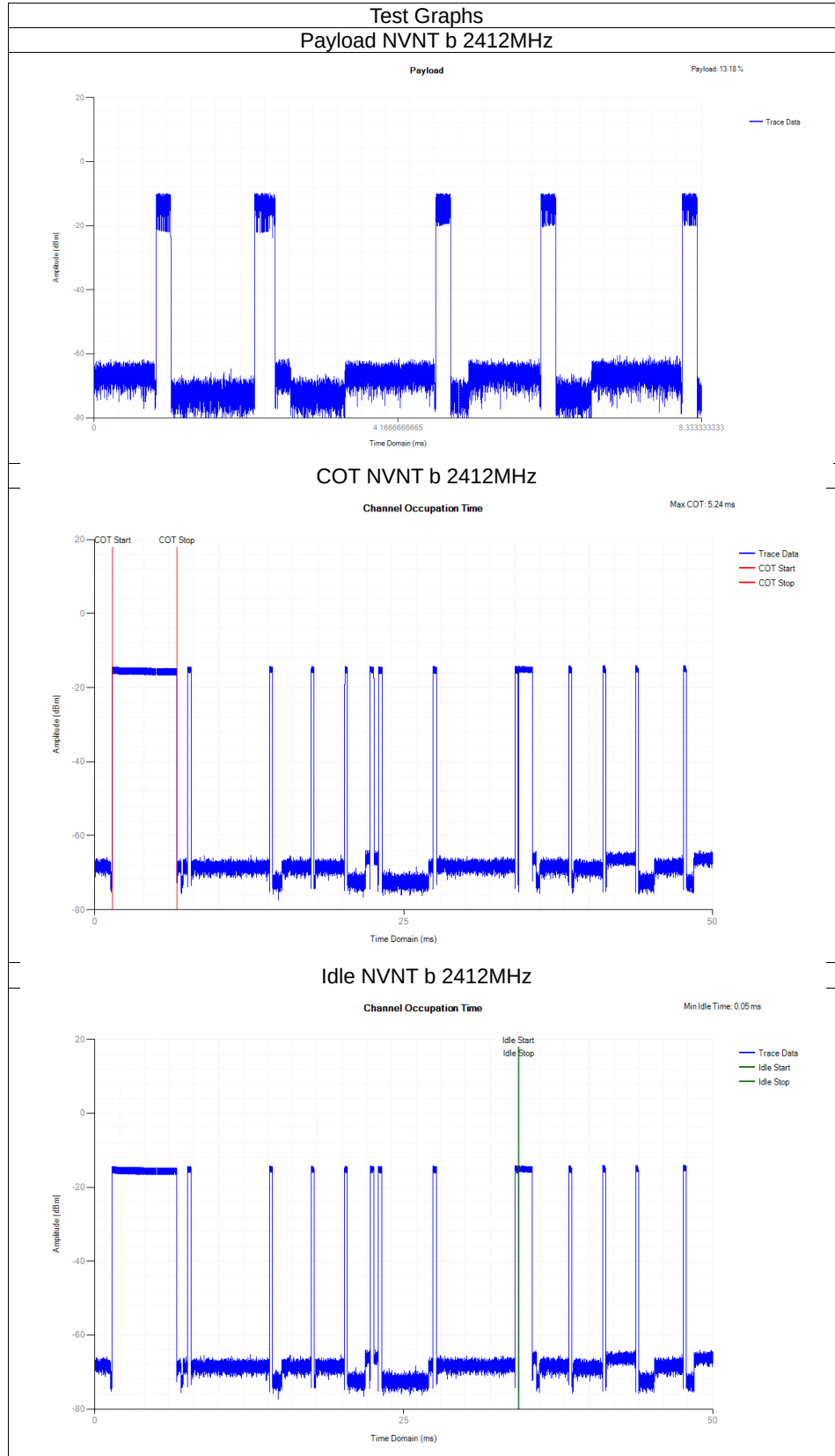


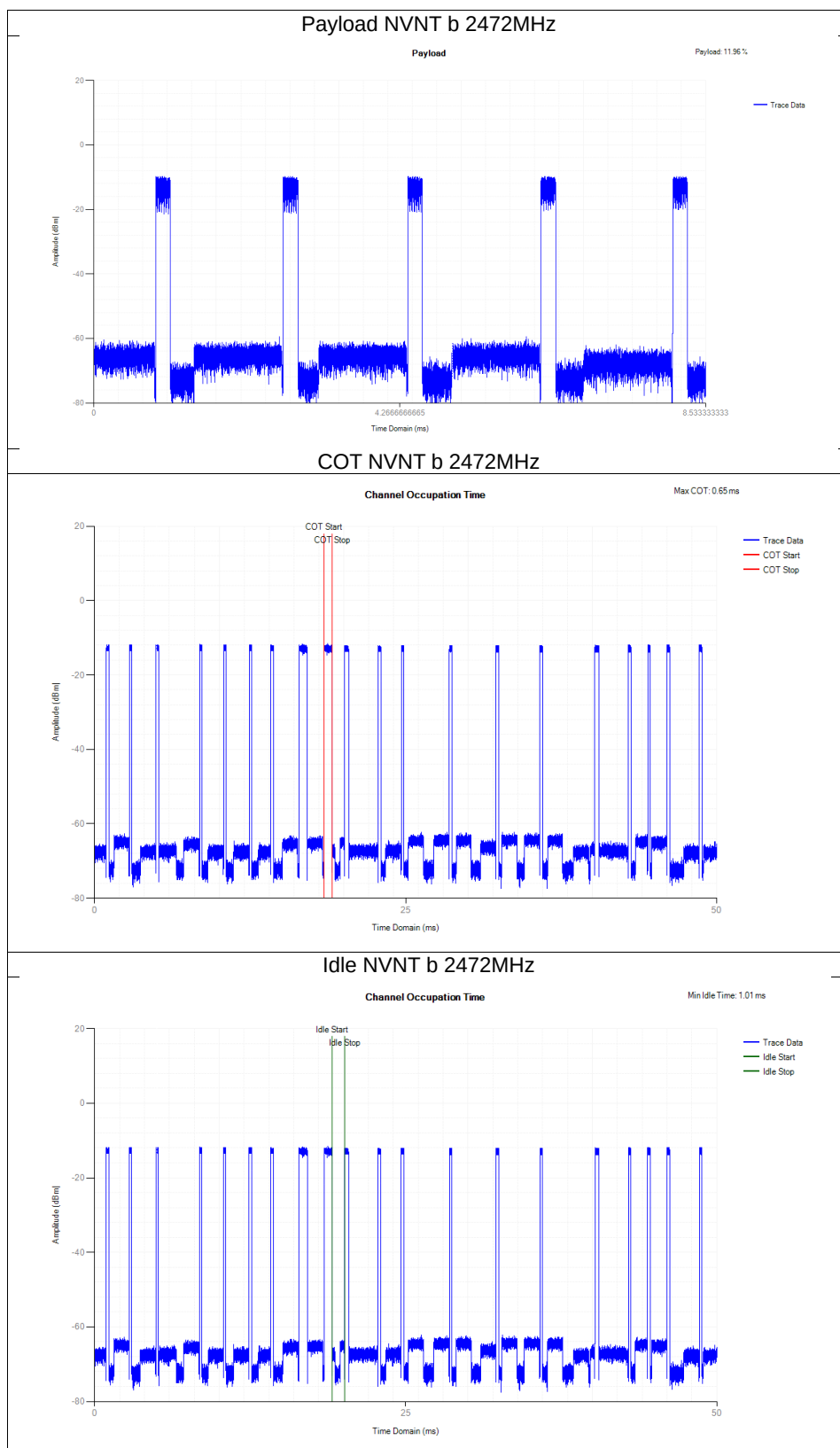




Adaptivity COT

Condition	Mode	Frequency (MHz)	Antenna	Payload	Max COT (ms)	Limit COT (ms)	Min Idle Time (ms)	Limit Idle Time (ms)	Verdict
NVNT	b	2412	Ant1	13.18	5.235	<=13	0.05	>0.018	Pass
NVNT	b	2472	Ant1	11.96	0.652	<=13	1.013	>0.018	Pass







Transmitter unwanted emissions in the out-of-band domain

Condition	Mode	Frequency (MHz)	Antenna	OOB Frequency (MHz)	Level (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	b	2412	Ant1	2399.5	-39.64	-10	Pass
NVNT	b	2412	Ant1	2398.5	-38.33	-10	Pass
NVNT	b	2412	Ant1	2397.5	-38.58	-10	Pass
NVNT	b	2412	Ant1	2396.5	-39.7	-10	Pass
NVNT	b	2412	Ant1	2395.5	-41.78	-10	Pass
NVNT	b	2412	Ant1	2394.5	-43.96	-10	Pass
NVNT	b	2412	Ant1	2393.5	-47.73	-10	Pass
NVNT	b	2412	Ant1	2392.5	-50.84	-10	Pass
NVNT	b	2412	Ant1	2391.5	-53.35	-10	Pass
NVNT	b	2412	Ant1	2390.5	-53.83	-10	Pass
NVNT	b	2412	Ant1	2389.5	-54.59	-10	Pass
NVNT	b	2412	Ant1	2388.5	-55.96	-10	Pass
NVNT	b	2412	Ant1	2387.5	-55.83	-10	Pass
NVNT	b	2412	Ant1	2387.297	-55.92	-10	Pass
NVNT	b	2412	Ant1	2386.297	-56.3	-20	Pass
NVNT	b	2412	Ant1	2385.297	-57.59	-20	Pass
NVNT	b	2412	Ant1	2384.297	-58.93	-20	Pass
NVNT	b	2412	Ant1	2383.297	-58.81	-20	Pass
NVNT	b	2412	Ant1	2382.297	-58.75	-20	Pass
NVNT	b	2412	Ant1	2381.297	-59.44	-20	Pass
NVNT	b	2412	Ant1	2380.297	-60.19	-20	Pass
NVNT	b	2412	Ant1	2379.297	-59.25	-20	Pass
NVNT	b	2412	Ant1	2378.297	-59.06	-20	Pass
NVNT	b	2412	Ant1	2377.297	-59.71	-20	Pass
NVNT	b	2412	Ant1	2376.297	-59.12	-20	Pass
NVNT	b	2412	Ant1	2375.297	-59.65	-20	Pass
NVNT	b	2412	Ant1	2374.297	-59.03	-20	Pass
NVNT	b	2412	Ant1	2374.094	-59.26	-20	Pass
NVNT	b	2472	Ant1	2484	-44.94	-10	Pass
NVNT	b	2472	Ant1	2485	-44	-10	Pass
NVNT	b	2472	Ant1	2486	-43.23	-10	Pass
NVNT	b	2472	Ant1	2487	-44.24	-10	Pass
NVNT	b	2472	Ant1	2488	-46.86	-10	Pass
NVNT	b	2472	Ant1	2489	-49.5	-10	Pass
NVNT	b	2472	Ant1	2490	-51.64	-10	Pass
NVNT	b	2472	Ant1	2491	-54.53	-10	Pass
NVNT	b	2472	Ant1	2492	-56.57	-10	Pass
NVNT	b	2472	Ant1	2493	-57.47	-10	Pass
NVNT	b	2472	Ant1	2494	-57.55	-10	Pass
NVNT	b	2472	Ant1	2495	-58.59	-10	Pass
NVNT	b	2472	Ant1	2496	-59.18	-10	Pass
NVNT	b	2472	Ant1	2496.303	-58.56	-10	Pass
NVNT	b	2472	Ant1	2497.303	-58.14	-20	Pass
NVNT	b	2472	Ant1	2498.303	-58.48	-20	Pass
NVNT	b	2472	Ant1	2499.303	-58.96	-20	Pass
NVNT	b	2472	Ant1	2500.303	-58.81	-20	Pass
NVNT	b	2472	Ant1	2501.303	-59.77	-20	Pass
NVNT	b	2472	Ant1	2502.303	-60.44	-20	Pass
NVNT	b	2472	Ant1	2503.303	-61.46	-20	Pass
NVNT	b	2472	Ant1	2504.303	-61.98	-20	Pass
NVNT	b	2472	Ant1	2505.303	-62.12	-20	Pass
NVNT	b	2472	Ant1	2506.303	-62.56	-20	Pass
NVNT	b	2472	Ant1	2507.303	-62.49	-20	Pass
NVNT	b	2472	Ant1	2508.303	-62.62	-20	Pass
NVNT	b	2472	Ant1	2509.303	-62.6	-20	Pass
NVNT	b	2472	Ant1	2509.606	-62.75	-20	Pass
NVNT	g	2412	Ant1	2399.5	-41.74	-10	Pass
NVNT	g	2412	Ant1	2398.5	-46.43	-10	Pass
NVNT	g	2412	Ant1	2397.5	-49.43	-10	Pass
NVNT	g	2412	Ant1	2396.5	-49.55	-10	Pass
NVNT	g	2412	Ant1	2395.5	-50.97	-10	Pass
NVNT	g	2412	Ant1	2394.5	-51.68	-10	Pass



NVNT	g	2412	Ant1	2393.5	-53.54	-10	Pass
NVNT	g	2412	Ant1	2392.5	-53.91	-10	Pass
NVNT	g	2412	Ant1	2391.5	-53.64	-10	Pass
NVNT	g	2412	Ant1	2390.5	-56.76	-10	Pass
NVNT	g	2412	Ant1	2389.5	-55.56	-10	Pass
NVNT	g	2412	Ant1	2388.5	-56.95	-10	Pass
NVNT	g	2412	Ant1	2387.5	-57.92	-10	Pass
NVNT	g	2412	Ant1	2386.5	-56.36	-10	Pass
NVNT	g	2412	Ant1	2385.5	-56.47	-10	Pass
NVNT	g	2412	Ant1	2384.5	-58.24	-10	Pass
NVNT	g	2412	Ant1	2383.928	-57.63	-10	Pass
NVNT	g	2412	Ant1	2382.928	-58.29	-20	Pass
NVNT	g	2412	Ant1	2381.928	-65.89	-20	Pass
NVNT	g	2412	Ant1	2380.928	-57.04	-20	Pass
NVNT	g	2412	Ant1	2379.928	-58.97	-20	Pass
NVNT	g	2412	Ant1	2378.928	-58.53	-20	Pass
NVNT	g	2412	Ant1	2377.928	-58.46	-20	Pass
NVNT	g	2412	Ant1	2376.928	-59.72	-20	Pass
NVNT	g	2412	Ant1	2375.928	-57.93	-20	Pass
NVNT	g	2412	Ant1	2374.928	-59.81	-20	Pass
NVNT	g	2412	Ant1	2373.928	-59.19	-20	Pass
NVNT	g	2412	Ant1	2372.928	-59.63	-20	Pass
NVNT	g	2412	Ant1	2371.928	-58.5	-20	Pass
NVNT	g	2412	Ant1	2370.928	-59.1	-20	Pass
NVNT	g	2412	Ant1	2369.928	-59.18	-20	Pass
NVNT	g	2412	Ant1	2368.928	-58.5	-20	Pass
NVNT	g	2412	Ant1	2367.928	-59.07	-20	Pass
NVNT	g	2412	Ant1	2367.356	-60.76	-20	Pass
NVNT	g	2472	Ant1	2484	-39.07	-10	Pass
NVNT	g	2472	Ant1	2485	-45.45	-10	Pass
NVNT	g	2472	Ant1	2486	-49.19	-10	Pass
NVNT	g	2472	Ant1	2487	-49.8	-10	Pass
NVNT	g	2472	Ant1	2488	-51.26	-10	Pass
NVNT	g	2472	Ant1	2489	-52.7	-10	Pass
NVNT	g	2472	Ant1	2490	-52.69	-10	Pass
NVNT	g	2472	Ant1	2491	-55.62	-10	Pass
NVNT	g	2472	Ant1	2492	-54.17	-10	Pass
NVNT	g	2472	Ant1	2493	-54.91	-10	Pass
NVNT	g	2472	Ant1	2494	-55.37	-10	Pass
NVNT	g	2472	Ant1	2495	-57.68	-10	Pass
NVNT	g	2472	Ant1	2496	-57.25	-10	Pass
NVNT	g	2472	Ant1	2497	-56.62	-10	Pass
NVNT	g	2472	Ant1	2498	-59.15	-10	Pass
NVNT	g	2472	Ant1	2499	-58.62	-10	Pass
NVNT	g	2472	Ant1	2499.58	-57.75	-10	Pass
NVNT	g	2472	Ant1	2500.58	-57.59	-20	Pass
NVNT	g	2472	Ant1	2501.58	-58.34	-20	Pass
NVNT	g	2472	Ant1	2502.58	-57.33	-20	Pass
NVNT	g	2472	Ant1	2503.58	-59.07	-20	Pass
NVNT	g	2472	Ant1	2504.58	-58.19	-20	Pass
NVNT	g	2472	Ant1	2505.58	-58.6	-20	Pass
NVNT	g	2472	Ant1	2506.58	-58.41	-20	Pass
NVNT	g	2472	Ant1	2507.58	-58.28	-20	Pass
NVNT	g	2472	Ant1	2508.58	-58.33	-20	Pass
NVNT	g	2472	Ant1	2509.58	-58.72	-20	Pass
NVNT	g	2472	Ant1	2510.58	-58.94	-20	Pass
NVNT	g	2472	Ant1	2511.58	-59.04	-20	Pass
NVNT	g	2472	Ant1	2512.58	-59.27	-20	Pass
NVNT	g	2472	Ant1	2513.58	-58.9	-20	Pass
NVNT	g	2472	Ant1	2514.58	-58.6	-20	Pass
NVNT	g	2472	Ant1	2515.58	-59.68	-20	Pass
NVNT	g	2472	Ant1	2516.16	-59.12	-20	Pass
NVNT	n20	2412	Ant1	2399.5	-40.34	-10	Pass
NVNT	n20	2412	Ant1	2398.5	-47.39	-10	Pass
NVNT	n20	2412	Ant1	2397.5	-65.81	-10	Pass
NVNT	n20	2412	Ant1	2396.5	-51.52	-10	Pass



NVNT	n20	2412	Ant1	2395.5	-50.54	-10	Pass
NVNT	n20	2412	Ant1	2394.5	-52.18	-10	Pass
NVNT	n20	2412	Ant1	2393.5	-52.53	-10	Pass
NVNT	n20	2412	Ant1	2392.5	-53.02	-10	Pass
NVNT	n20	2412	Ant1	2391.5	-53.98	-10	Pass
NVNT	n20	2412	Ant1	2390.5	-54.04	-10	Pass
NVNT	n20	2412	Ant1	2389.5	-54.68	-10	Pass
NVNT	n20	2412	Ant1	2388.5	-55.84	-10	Pass
NVNT	n20	2412	Ant1	2387.5	-56.23	-10	Pass
NVNT	n20	2412	Ant1	2386.5	-56.53	-10	Pass
NVNT	n20	2412	Ant1	2385.5	-58.1	-10	Pass
NVNT	n20	2412	Ant1	2384.5	-56.66	-10	Pass
NVNT	n20	2412	Ant1	2383.5	-57.28	-10	Pass
NVNT	n20	2412	Ant1	2382.778	-57.3	-10	Pass
NVNT	n20	2412	Ant1	2381.778	-56.97	-20	Pass
NVNT	n20	2412	Ant1	2380.778	-57.28	-20	Pass
NVNT	n20	2412	Ant1	2379.778	-57.72	-20	Pass
NVNT	n20	2412	Ant1	2378.778	-59.12	-20	Pass
NVNT	n20	2412	Ant1	2377.778	-57.67	-20	Pass
NVNT	n20	2412	Ant1	2376.778	-59.25	-20	Pass
NVNT	n20	2412	Ant1	2375.778	-59.02	-20	Pass
NVNT	n20	2412	Ant1	2374.778	-58.99	-20	Pass
NVNT	n20	2412	Ant1	2373.778	-58.77	-20	Pass
NVNT	n20	2412	Ant1	2372.778	-59.24	-20	Pass
NVNT	n20	2412	Ant1	2371.778	-58.2	-20	Pass
NVNT	n20	2412	Ant1	2370.778	-59.18	-20	Pass
NVNT	n20	2412	Ant1	2369.778	-58.56	-20	Pass
NVNT	n20	2412	Ant1	2368.778	-58.31	-20	Pass
NVNT	n20	2412	Ant1	2367.778	-58.46	-20	Pass
NVNT	n20	2412	Ant1	2366.778	-60.78	-20	Pass
NVNT	n20	2412	Ant1	2365.778	-59.18	-20	Pass
NVNT	n20	2412	Ant1	2365.056	-58.91	-20	Pass
NVNT	n20	2472	Ant1	2484	-36.93	-10	Pass
NVNT	n20	2472	Ant1	2485	-44.5	-10	Pass
NVNT	n20	2472	Ant1	2486	-49.02	-10	Pass
NVNT	n20	2472	Ant1	2487	-50.83	-10	Pass
NVNT	n20	2472	Ant1	2488	-51.03	-10	Pass
NVNT	n20	2472	Ant1	2489	-52.12	-10	Pass
NVNT	n20	2472	Ant1	2490	-51.86	-10	Pass
NVNT	n20	2472	Ant1	2491	-52.47	-10	Pass
NVNT	n20	2472	Ant1	2492	-53.8	-10	Pass
NVNT	n20	2472	Ant1	2493	-53.71	-10	Pass
NVNT	n20	2472	Ant1	2494	-55.09	-10	Pass
NVNT	n20	2472	Ant1	2495	-56.26	-10	Pass
NVNT	n20	2472	Ant1	2496	-55.75	-10	Pass
NVNT	n20	2472	Ant1	2497	-57.84	-10	Pass
NVNT	n20	2472	Ant1	2498	-56.92	-10	Pass
NVNT	n20	2472	Ant1	2499	-56.74	-10	Pass
NVNT	n20	2472	Ant1	2500	-57.74	-10	Pass
NVNT	n20	2472	Ant1	2500.73	-58.1	-10	Pass
NVNT	n20	2472	Ant1	2501.73	-57.61	-20	Pass
NVNT	n20	2472	Ant1	2502.73	-57.81	-20	Pass
NVNT	n20	2472	Ant1	2503.73	-57.97	-20	Pass
NVNT	n20	2472	Ant1	2504.73	-58.11	-20	Pass
NVNT	n20	2472	Ant1	2505.73	-58.61	-20	Pass
NVNT	n20	2472	Ant1	2506.73	-58.66	-20	Pass
NVNT	n20	2472	Ant1	2507.73	-58.64	-20	Pass
NVNT	n20	2472	Ant1	2508.73	-58.7	-20	Pass
NVNT	n20	2472	Ant1	2509.73	-59.8	-20	Pass
NVNT	n20	2472	Ant1	2510.73	-59.09	-20	Pass
NVNT	n20	2472	Ant1	2511.73	-60.73	-20	Pass
NVNT	n20	2472	Ant1	2512.73	-59.49	-20	Pass
NVNT	n20	2472	Ant1	2513.73	-60.36	-20	Pass
NVNT	n20	2472	Ant1	2514.73	-60.4	-20	Pass
NVNT	n20	2472	Ant1	2515.73	-59.69	-20	Pass
NVNT	n20	2472	Ant1	2516.73	-61.17	-20	Pass



NVNT	n20	2472	Ant1	2517.73	-60.4	-20	Pass
NVNT	n20	2472	Ant1	2518.46	-61.41	-20	Pass
NVNT	n40	2422	Ant1	2399.5	-44.26	-10	Pass
NVNT	n40	2422	Ant1	2398.5	-48.8	-10	Pass
NVNT	n40	2422	Ant1	2397.5	-51.22	-10	Pass
NVNT	n40	2422	Ant1	2396.5	-49.07	-10	Pass
NVNT	n40	2422	Ant1	2395.5	-49.49	-10	Pass
NVNT	n40	2422	Ant1	2394.5	-51.08	-10	Pass
NVNT	n40	2422	Ant1	2393.5	-56.42	-10	Pass
NVNT	n40	2422	Ant1	2392.5	-53.88	-10	Pass
NVNT	n40	2422	Ant1	2391.5	-51.15	-10	Pass
NVNT	n40	2422	Ant1	2390.5	-50.64	-10	Pass
NVNT	n40	2422	Ant1	2389.5	-51.97	-10	Pass
NVNT	n40	2422	Ant1	2388.5	-54.2	-10	Pass
NVNT	n40	2422	Ant1	2387.5	-53.01	-10	Pass
NVNT	n40	2422	Ant1	2386.5	-52.19	-10	Pass
NVNT	n40	2422	Ant1	2385.5	-52.68	-10	Pass
NVNT	n40	2422	Ant1	2384.5	-52.88	-10	Pass
NVNT	n40	2422	Ant1	2383.5	-57.94	-10	Pass
NVNT	n40	2422	Ant1	2382.5	-54.64	-10	Pass
NVNT	n40	2422	Ant1	2381.5	-55.55	-10	Pass
NVNT	n40	2422	Ant1	2380.5	-55.71	-10	Pass
NVNT	n40	2422	Ant1	2379.5	-55.59	-10	Pass
NVNT	n40	2422	Ant1	2378.5	-55.2	-10	Pass
NVNT	n40	2422	Ant1	2377.5	-56.17	-10	Pass
NVNT	n40	2422	Ant1	2376.5	-60.4	-10	Pass
NVNT	n40	2422	Ant1	2375.5	-59.65	-10	Pass
NVNT	n40	2422	Ant1	2374.5	-59.97	-10	Pass
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NVNT	n40	2422	Ant1	2372.5	-57.78	-10	Pass
NVNT	n40	2422	Ant1	2371.5	-57.36	-10	Pass
NVNT	n40	2422	Ant1	2370.5	-57.54	-10	Pass
NVNT	n40	2422	Ant1	2369.5	-59.03	-10	Pass
NVNT	n40	2422	Ant1	2368.5	-57.61	-10	Pass
NVNT	n40	2422	Ant1	2367.5	-58.39	-10	Pass
NVNT	n40	2422	Ant1	2366.5	-62.85	-10	Pass
NVNT	n40	2422	Ant1	2365.5	-58.6	-10	Pass
NVNT	n40	2422	Ant1	2364.5	-60.82	-10	Pass
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NVNT	n40	2422	Ant1	2363.266	-57.72	-20	Pass
NVNT	n40	2422	Ant1	2362.266	-57.83	-20	Pass
NVNT	n40	2422	Ant1	2361.266	-59.57	-20	Pass
NVNT	n40	2422	Ant1	2360.266	-59.66	-20	Pass
NVNT	n40	2422	Ant1	2359.266	-58.83	-20	Pass
NVNT	n40	2422	Ant1	2358.266	-58.04	-20	Pass
NVNT	n40	2422	Ant1	2357.266	-58.18	-20	Pass
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NVNT	n40	2422	Ant1	2351.266	-57.92	-20	Pass
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NVNT	n40	2422	Ant1	2349.266	-57.68	-20	Pass
NVNT	n40	2422	Ant1	2348.266	-57.08	-20	Pass
NVNT	n40	2422	Ant1	2347.266	-58.22	-20	Pass
NVNT	n40	2422	Ant1	2346.266	-57.82	-20	Pass
NVNT	n40	2422	Ant1	2345.266	-57.36	-20	Pass
NVNT	n40	2422	Ant1	2344.266	-57.79	-20	Pass
NVNT	n40	2422	Ant1	2343.266	-61.86	-20	Pass
NVNT	n40	2422	Ant1	2342.266	-58.95	-20	Pass
NVNT	n40	2422	Ant1	2341.266	-59.27	-20	Pass
NVNT	n40	2422	Ant1	2340.266	-62.11	-20	Pass
NVNT	n40	2422	Ant1	2339.266	-60.94	-20	Pass
NVNT	n40	2422	Ant1	2338.266	-60.07	-20	Pass
NVNT	n40	2422	Ant1	2337.266	-62.27	-20	Pass



NVNT	n40	2422	Ant1	2336.266	-57.68	-20	Pass
NVNT	n40	2422	Ant1	2335.266	-59.42	-20	Pass
NVNT	n40	2422	Ant1	2334.266	-58.7	-20	Pass
NVNT	n40	2422	Ant1	2333.266	-57.82	-20	Pass
NVNT	n40	2422	Ant1	2332.266	-59.08	-20	Pass
NVNT	n40	2422	Ant1	2331.266	-62.72	-20	Pass
NVNT	n40	2422	Ant1	2330.266	-57.82	-20	Pass
NVNT	n40	2422	Ant1	2329.266	-61.21	-20	Pass
NVNT	n40	2422	Ant1	2328.266	-59.13	-20	Pass
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NVNT	n40	2462	Ant1	2495	-55.99	-10	Pass
NVNT	n40	2462	Ant1	2496	-52.11	-10	Pass
NVNT	n40	2462	Ant1	2497	-53.82	-10	Pass
NVNT	n40	2462	Ant1	2498	-52.36	-10	Pass
NVNT	n40	2462	Ant1	2499	-55.65	-10	Pass
NVNT	n40	2462	Ant1	2500	-55.27	-10	Pass
NVNT	n40	2462	Ant1	2501	-60.35	-10	Pass
NVNT	n40	2462	Ant1	2502	-55.65	-10	Pass
NVNT	n40	2462	Ant1	2503	-56.28	-10	Pass
NVNT	n40	2462	Ant1	2504	-61.13	-10	Pass
NVNT	n40	2462	Ant1	2505	-57.39	-10	Pass
NVNT	n40	2462	Ant1	2506	-57.95	-10	Pass
NVNT	n40	2462	Ant1	2507	-57.03	-10	Pass
NVNT	n40	2462	Ant1	2508	-59.21	-10	Pass
NVNT	n40	2462	Ant1	2509	-61.49	-10	Pass
NVNT	n40	2462	Ant1	2510	-57.12	-10	Pass
NVNT	n40	2462	Ant1	2511	-59.97	-10	Pass
NVNT	n40	2462	Ant1	2512	-58.1	-10	Pass
NVNT	n40	2462	Ant1	2513	-58.26	-10	Pass
NVNT	n40	2462	Ant1	2514	-57.91	-10	Pass
NVNT	n40	2462	Ant1	2515	-58.39	-10	Pass
NVNT	n40	2462	Ant1	2516	-58.86	-10	Pass
NVNT	n40	2462	Ant1	2517	-58.53	-10	Pass
NVNT	n40	2462	Ant1	2518	-58.52	-10	Pass
NVNT	n40	2462	Ant1	2519	-60.01	-10	Pass
NVNT	n40	2462	Ant1	2519.19	-58.7	-10	Pass
NVNT	n40	2462	Ant1	2520.19	-58.99	-20	Pass
NVNT	n40	2462	Ant1	2521.19	-64.44	-20	Pass
NVNT	n40	2462	Ant1	2522.19	-61.06	-20	Pass
NVNT	n40	2462	Ant1	2523.19	-63.6	-20	Pass
NVNT	n40	2462	Ant1	2524.19	-63.36	-20	Pass
NVNT	n40	2462	Ant1	2525.19	-64.23	-20	Pass
NVNT	n40	2462	Ant1	2526.19	-59.67	-20	Pass
NVNT	n40	2462	Ant1	2527.19	-60.85	-20	Pass
NVNT	n40	2462	Ant1	2528.19	-59.31	-20	Pass
NVNT	n40	2462	Ant1	2529.19	-59.44	-20	Pass
NVNT	n40	2462	Ant1	2530.19	-62.91	-20	Pass
NVNT	n40	2462	Ant1	2531.19	-65.59	-20	Pass
NVNT	n40	2462	Ant1	2532.19	-60.95	-20	Pass
NVNT	n40	2462	Ant1	2533.19	-61.02	-20	Pass
NVNT	n40	2462	Ant1	2534.19	-65.95	-20	Pass
NVNT	n40	2462	Ant1	2535.19	-63.61	-20	Pass
NVNT	n40	2462	Ant1	2536.19	-61.1	-20	Pass
NVNT	n40	2462	Ant1	2537.19	-63.55	-20	Pass
NVNT	n40	2462	Ant1	2538.19	-61.58	-20	Pass

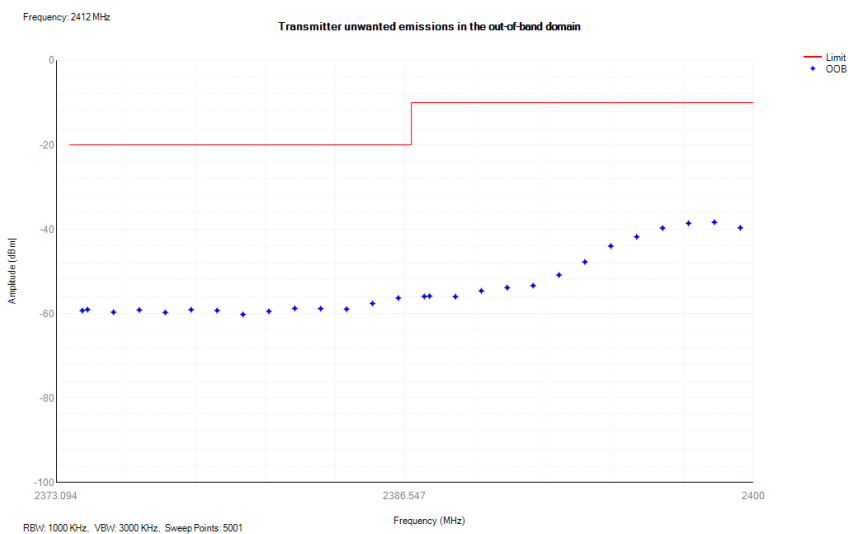


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NVNT	n40	2462	Ant1	2540.19	-64.24	-20	Pass
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NVNT	n40	2462	Ant1	2542.19	-64.46	-20	Pass
NVNT	n40	2462	Ant1	2543.19	-61.85	-20	Pass
NVNT	n40	2462	Ant1	2544.19	-59.94	-20	Pass
NVNT	n40	2462	Ant1	2545.19	-63.59	-20	Pass
NVNT	n40	2462	Ant1	2546.19	-60.64	-20	Pass
NVNT	n40	2462	Ant1	2547.19	-61.72	-20	Pass
NVNT	n40	2462	Ant1	2548.19	-60.4	-20	Pass
NVNT	n40	2462	Ant1	2549.19	-60.38	-20	Pass
NVNT	n40	2462	Ant1	2550.19	-64.36	-20	Pass
NVNT	n40	2462	Ant1	2551.19	-59.9	-20	Pass
NVNT	n40	2462	Ant1	2552.19	-60.95	-20	Pass
NVNT	n40	2462	Ant1	2553.19	-63.39	-20	Pass
NVNT	n40	2462	Ant1	2554.19	-64.92	-20	Pass
NVNT	n40	2462	Ant1	2555.19	-60.51	-20	Pass
NVNT	n40	2462	Ant1	2555.38	-61.55	-20	Pass

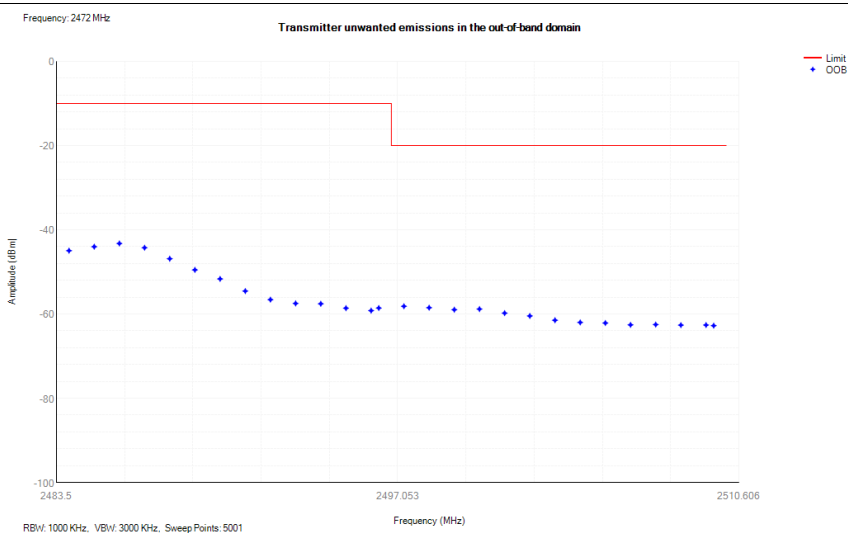


Test Graphs

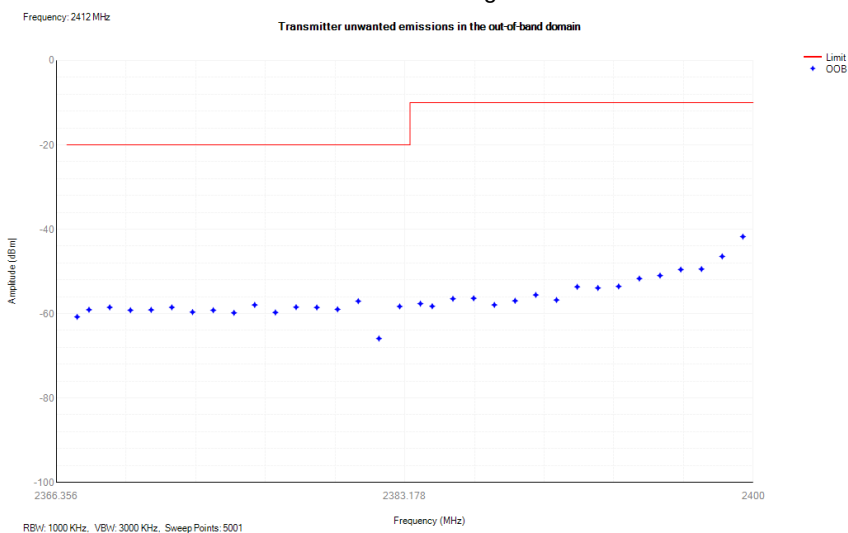
Tx. Emissions OOB NVNT b 2412MHz Ant1



Tx. Emissions OOB NVNT b 2472MHz Ant1

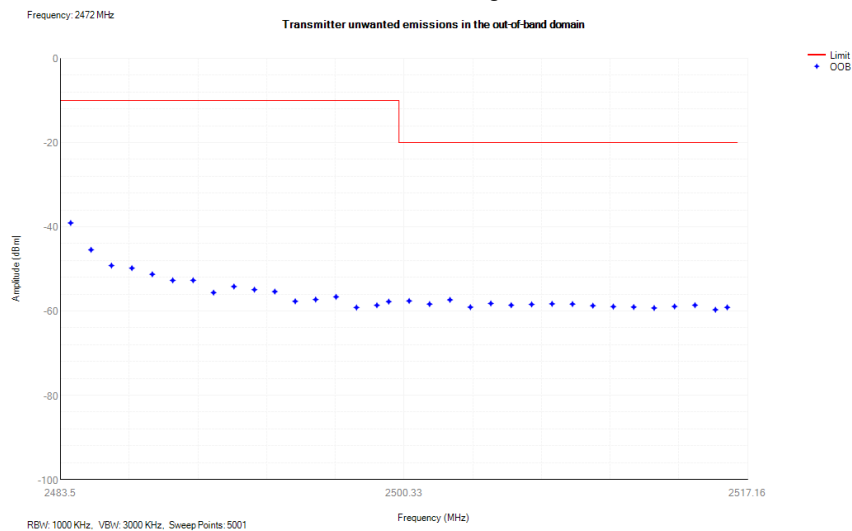


Tx. Emissions OOB NVNT g 2412MHz Ant1

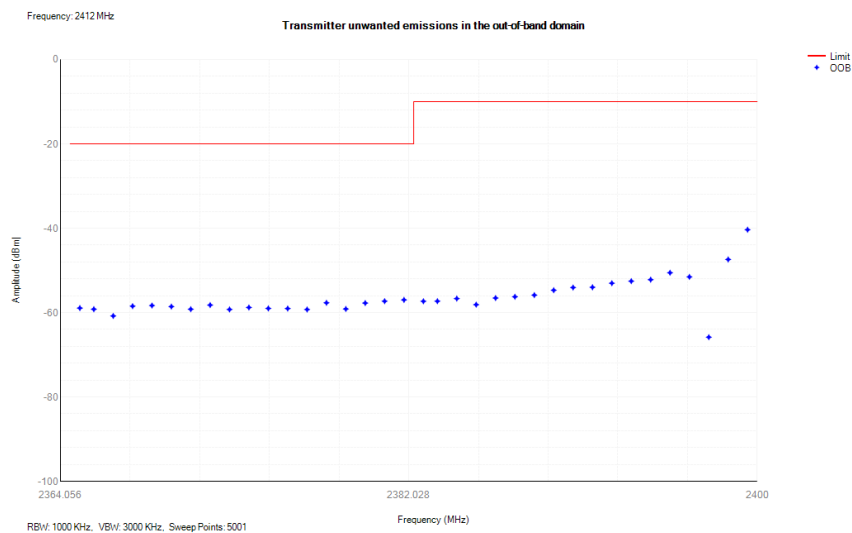




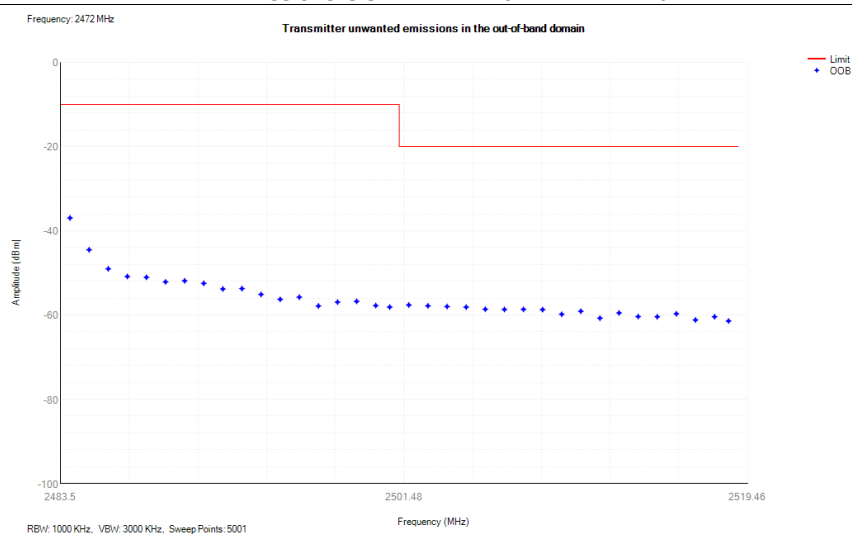
Tx. Emissions OOB NVNT g 2472MHz Ant1

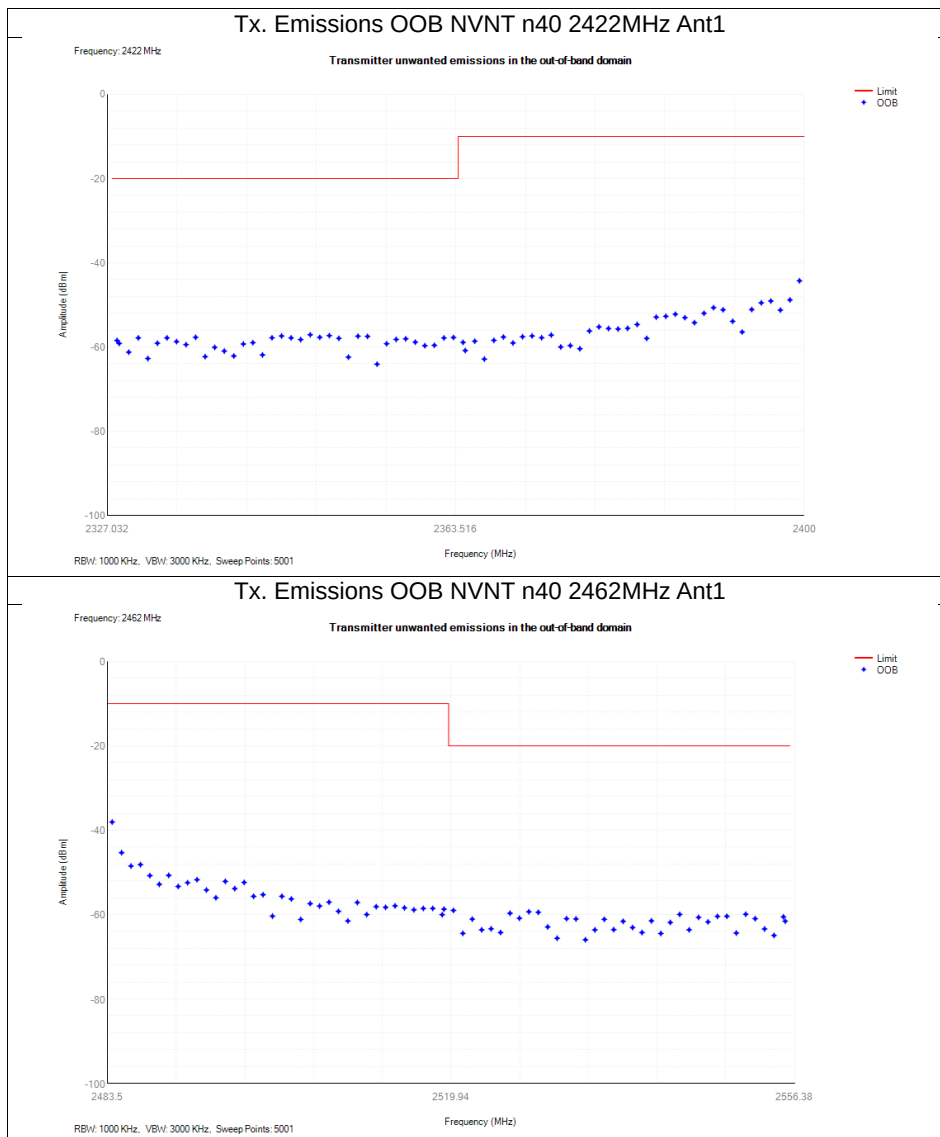


Tx. Emissions OOB NVNT n20 2412MHz Ant1



Tx. Emissions OOB NVNT n20 2472MHz Ant1







Transmitter unwanted emissions in the spurious domain

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	30 -47	32.95	-62.32	NA	-36	Pass
NVNT	b	2412	Ant1	47 -74	55.40	-62.33	NA	-54	Pass
NVNT	b	2412	Ant1	74 -87.5	75.25	-62.53	NA	-36	Pass
NVNT	b	2412	Ant1	87.5 -118	90.90	-61.33	NA	-54	Pass
NVNT	b	2412	Ant1	118 -174	136.80	-61.69	NA	-36	Pass
NVNT	b	2412	Ant1	174 -230	177.80	-61.69	NA	-54	Pass
NVNT	b	2412	Ant1	230 -470	325.10	-60.68	NA	-36	Pass
NVNT	b	2412	Ant1	470 -694	575.10	-59.83	-71.68	-54	Pass
NVNT	b	2412	Ant1	694 -1000	859.45	-58.61	NA	-36	Pass
NVNT	b	2412	Ant1	1000 -2360	2332.50	-44.58	NA	-30	Pass
NVNT	b	2412	Ant1	2523.5 -12750	8982.00	-41.75	NA	-30	Pass
NVNT	b	2472	Ant1	30 -47	43.50	-62.64	NA	-36	Pass
NVNT	b	2472	Ant1	47 -74	57.55	-62.39	NA	-54	Pass
NVNT	b	2472	Ant1	74 -87.5	84.95	-62.25	NA	-36	Pass
NVNT	b	2472	Ant1	87.5 -118	95.30	-62.11	NA	-54	Pass
NVNT	b	2472	Ant1	118 -174	140.65	-62.03	NA	-36	Pass
NVNT	b	2472	Ant1	174 -230	176.65	-61.70	NA	-54	Pass
NVNT	b	2472	Ant1	230 -470	443.20	-60.57	NA	-36	Pass
NVNT	b	2472	Ant1	470 -694	690.75	-60.38	NA	-54	Pass
NVNT	b	2472	Ant1	694 -1000	727.70	-58.19	NA	-36	Pass
NVNT	b	2472	Ant1	1000 -2360	2311.00	-45.05	NA	-30	Pass
NVNT	b	2472	Ant1	2523.5 -12750	8063.50	-42.02	NA	-30	Pass
NVNT	g	2412	Ant1	30 -47	40.75	-62.24	NA	-36	Pass
NVNT	g	2412	Ant1	47 -74	65.60	-62.57	NA	-54	Pass
NVNT	g	2412	Ant1	74 -87.5	80.00	-61.90	NA	-36	Pass
NVNT	g	2412	Ant1	87.5 -118	94.70	-61.27	NA	-54	Pass
NVNT	g	2412	Ant1	118 -174	135.85	-61.54	NA	-36	Pass
NVNT	g	2412	Ant1	174 -230	177.00	-61.72	NA	-54	Pass
NVNT	g	2412	Ant1	230 -470	320.00	-59.40	NA	-36	Pass
NVNT	g	2412	Ant1	470 -694	479.95	-59.75	-67.05	-54	Pass
NVNT	g	2412	Ant1	694 -1000	941.35	-58.74	NA	-36	Pass
NVNT	g	2412	Ant1	1000 -2360	2287.00	-45.15	NA	-30	Pass
NVNT	g	2412	Ant1	2523.5 -12750	11470.50	-41.91	NA	-30	Pass
NVNT	g	2472	Ant1	30 -47	35.50	-62.10	NA	-36	Pass
NVNT	g	2472	Ant1	47 -74	69.00	-61.98	NA	-54	Pass
NVNT	g	2472	Ant1	74 -87.5	80.00	-60.75	NA	-36	Pass



NVNT	g	2472	Ant1	87.5 -118	116.30	-61.99	NA	-54	Pass
NVNT	g	2472	Ant1	118 -174	156.05	-60.90	NA	-36	Pass
NVNT	g	2472	Ant1	174 -230	215.70	-61.59	NA	-54	Pass
NVNT	g	2472	Ant1	230 -470	320.00	-59.92	NA	-36	Pass
NVNT	g	2472	Ant1	470 -694	671.25	-59.87	-73.31	-54	Pass
NVNT	g	2472	Ant1	694 -1000	966.90	-58.46	NA	-36	Pass
NVNT	g	2472	Ant1	1000 -2360	2345.00	-45.99	NA	-30	Pass
NVNT	g	2472	Ant1	2523.5 -12750	10641.50	-41.67	NA	-30	Pass
NVNT	n20	2412	Ant1	30 -47	40.10	-62.39	NA	-36	Pass
NVNT	n20	2412	Ant1	47 -74	62.10	-62.26	NA	-54	Pass
NVNT	n20	2412	Ant1	74 -87.5	80.00	-61.48	NA	-36	Pass
NVNT	n20	2412	Ant1	87.5 -118	91.85	-61.03	NA	-54	Pass
NVNT	n20	2412	Ant1	118 -174	144.50	-61.19	NA	-36	Pass
NVNT	n20	2412	Ant1	174 -230	182.55	-61.89	NA	-54	Pass
NVNT	n20	2412	Ant1	230 -470	320.00	-59.42	NA	-36	Pass
NVNT	n20	2412	Ant1	470 -694	480.00	-59.10	-67.25	-54	Pass
NVNT	n20	2412	Ant1	694 -1000	952.00	-58.81	NA	-36	Pass
NVNT	n20	2412	Ant1	1000 -2360	2338.50	-44.61	NA	-30	Pass
NVNT	n20	2412	Ant1	2523.5 -12750	10697.50	-41.08	NA	-30	Pass
NVNT	n20	2472	Ant1	30 -47	46.45	-62.44	NA	-36	Pass
NVNT	n20	2472	Ant1	47 -74	59.50	-62.11	NA	-54	Pass
NVNT	n20	2472	Ant1	74 -87.5	80.00	-60.63	NA	-36	Pass
NVNT	n20	2472	Ant1	87.5 -118	103.75	-61.90	NA	-54	Pass
NVNT	n20	2472	Ant1	118 -174	154.85	-61.50	NA	-36	Pass
NVNT	n20	2472	Ant1	174 -230	225.60	-62.12	NA	-54	Pass
NVNT	n20	2472	Ant1	230 -470	319.95	-59.51	NA	-36	Pass
NVNT	n20	2472	Ant1	470 -694	480.00	-59.69	-64.36	-54	Pass
NVNT	n20	2472	Ant1	694 -1000	857.75	-58.71	NA	-36	Pass
NVNT	n20	2472	Ant1	1000 -2360	2207.50	-45.56	NA	-30	Pass
NVNT	n20	2472	Ant1	2523.5 -12750	11526.50	-41.41	NA	-30	Pass
NVNT	n40	2422	Ant1	30 -47	37.10	-62.32	NA	-36	Pass
NVNT	n40	2422	Ant1	47 -74	64.05	-61.62	NA	-54	Pass
NVNT	n40	2422	Ant1	74 -87.5	79.95	-61.46	NA	-36	Pass
NVNT	n40	2422	Ant1	87.5 -118	87.80	-62.31	NA	-54	Pass
NVNT	n40	2422	Ant1	118 -174	165.45	-62.05	NA	-36	Pass
NVNT	n40	2422	Ant1	174 -230	224.80	-61.66	NA	-54	Pass
NVNT	n40	2422	Ant1	230 -470	320.00	-59.05	NA	-36	Pass

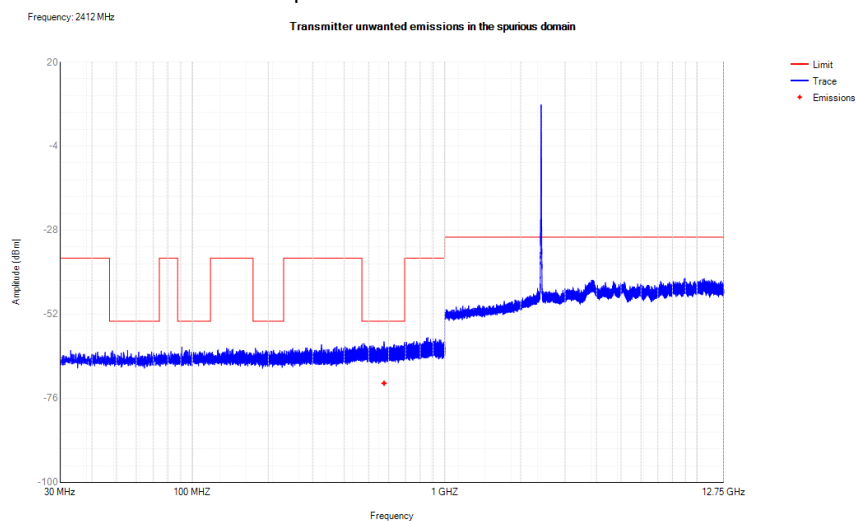


NVNT	n40	2422	Ant1	470 -694	480.05	-59.10	-68.01	-54	Pass
NVNT	n40	2422	Ant1	694 -1000	703.60	-58.28	NA	-36	Pass
NVNT	n40	2422	Ant1	1000 -2320	2275.00	-45.88	NA	-30	Pass
NVNT	n40	2422	Ant1	2563.5 -12750	11470.50	-41.51	NA	-30	Pass
NVNT	n40	2462	Ant1	30 -47	41.05	-62.36	NA	-36	Pass
NVNT	n40	2462	Ant1	47 -74	69.55	-62.42	NA	-54	Pass
NVNT	n40	2462	Ant1	74 -87.5	80.00	-61.48	NA	-36	Pass
NVNT	n40	2462	Ant1	87.5 -118	116.55	-62.35	NA	-54	Pass
NVNT	n40	2462	Ant1	118 -174	159.25	-61.33	NA	-36	Pass
NVNT	n40	2462	Ant1	174 -230	226.10	-62.38	NA	-54	Pass
NVNT	n40	2462	Ant1	230 -470	400.00	-59.21	NA	-36	Pass
NVNT	n40	2462	Ant1	470 -694	479.95	-59.32	-66.61	-54	Pass
NVNT	n40	2462	Ant1	694 -1000	770.60	-59.00	NA	-36	Pass
NVNT	n40	2462	Ant1	1000 -2320	2261.00	-45.18	NA	-30	Pass
NVNT	n40	2462	Ant1	2563.5 -12750	3862.50	-42.04	NA	-30	Pass

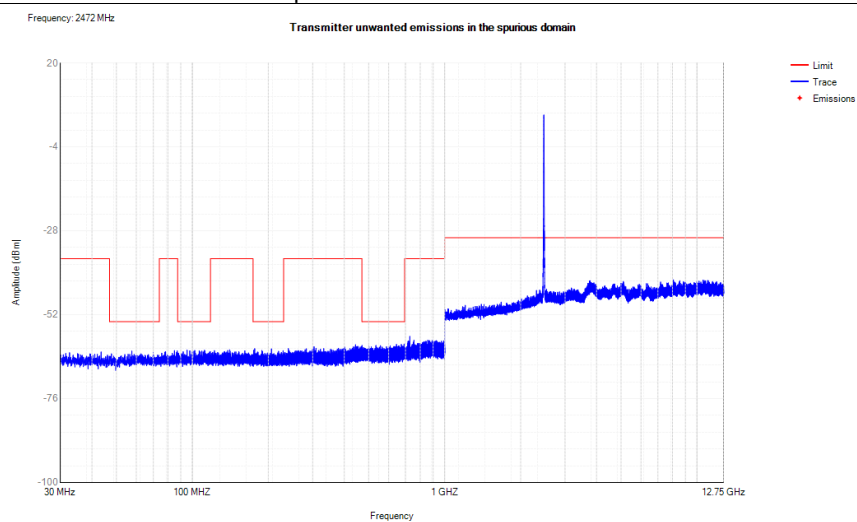


Test Graphs

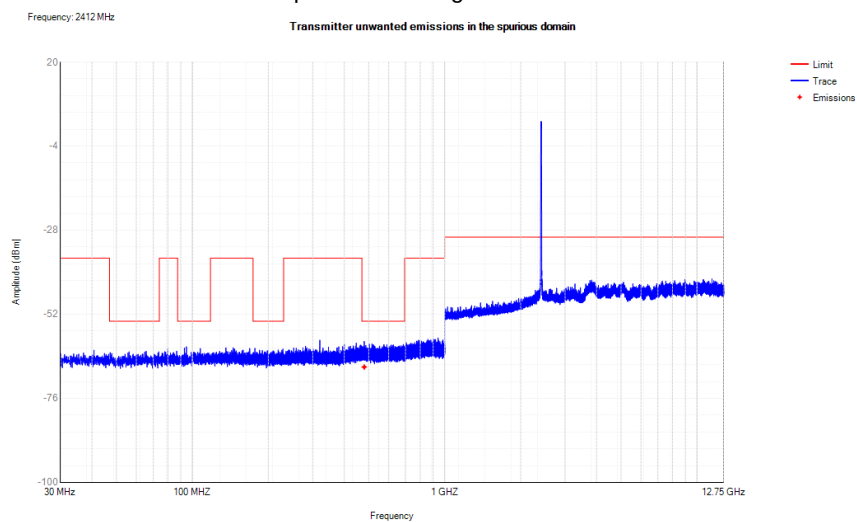
Tx. Spurious NVNT b 2412MHz Ant1



Tx. Spurious NVNT b 2472MHz Ant1

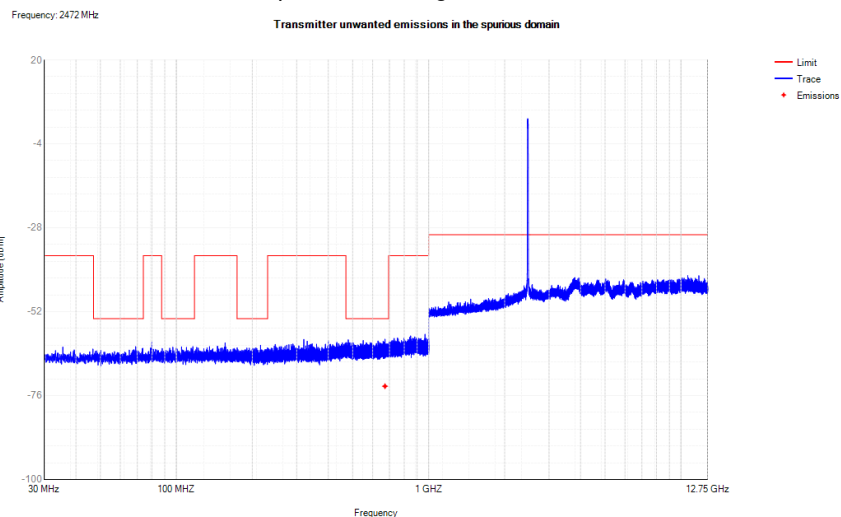


Tx. Spurious NVNT g 2412MHz Ant1

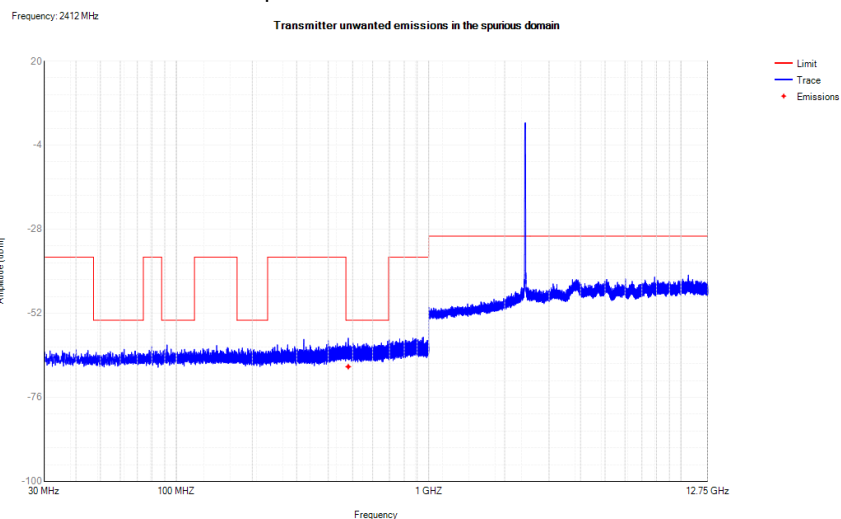




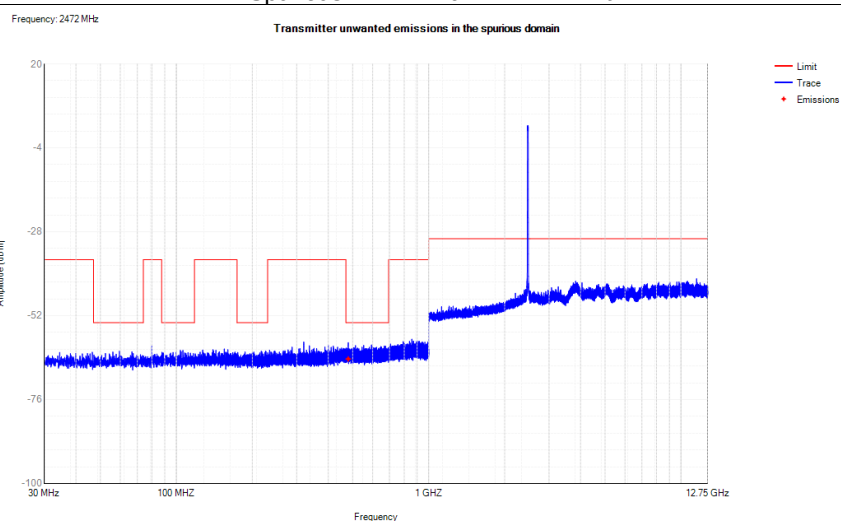
Tx. Spurious NVNT g 2472MHz Ant1



Tx. Spurious NVNT n20 2412MHz Ant1

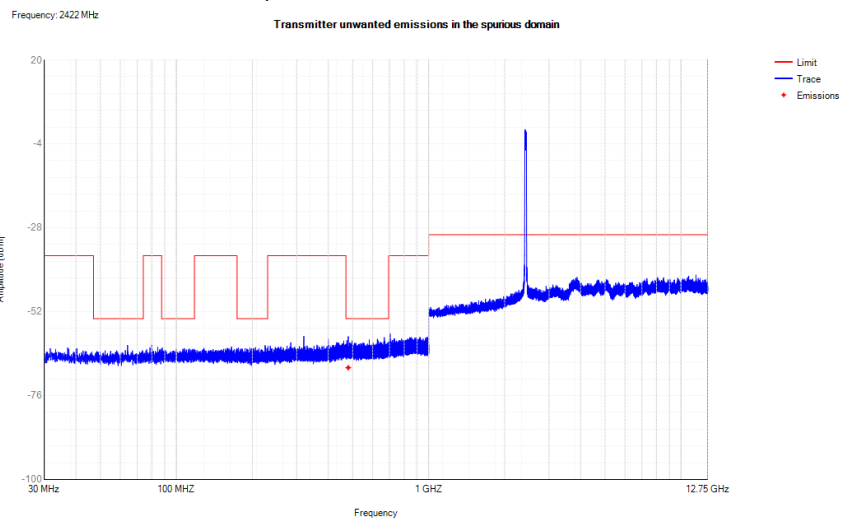


Tx. Spurious NVNT n20 2472MHz Ant1

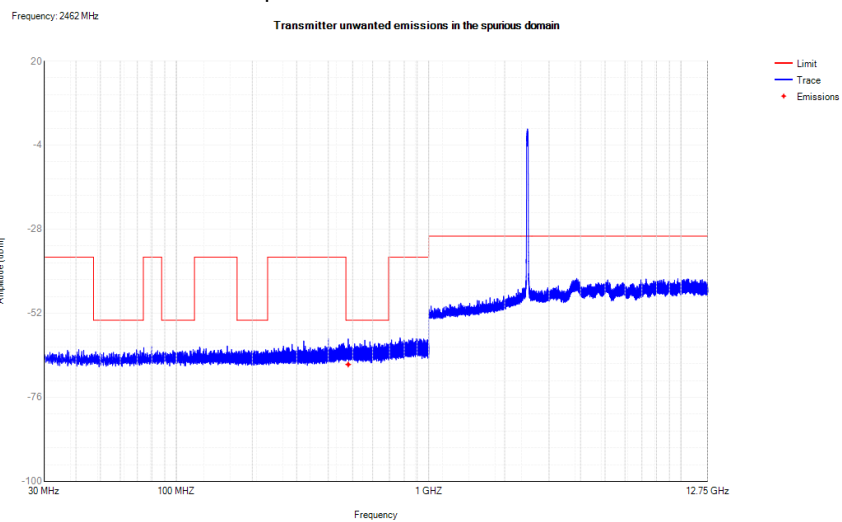




Tx. Spurious NVNT n40 2422MHz Ant1



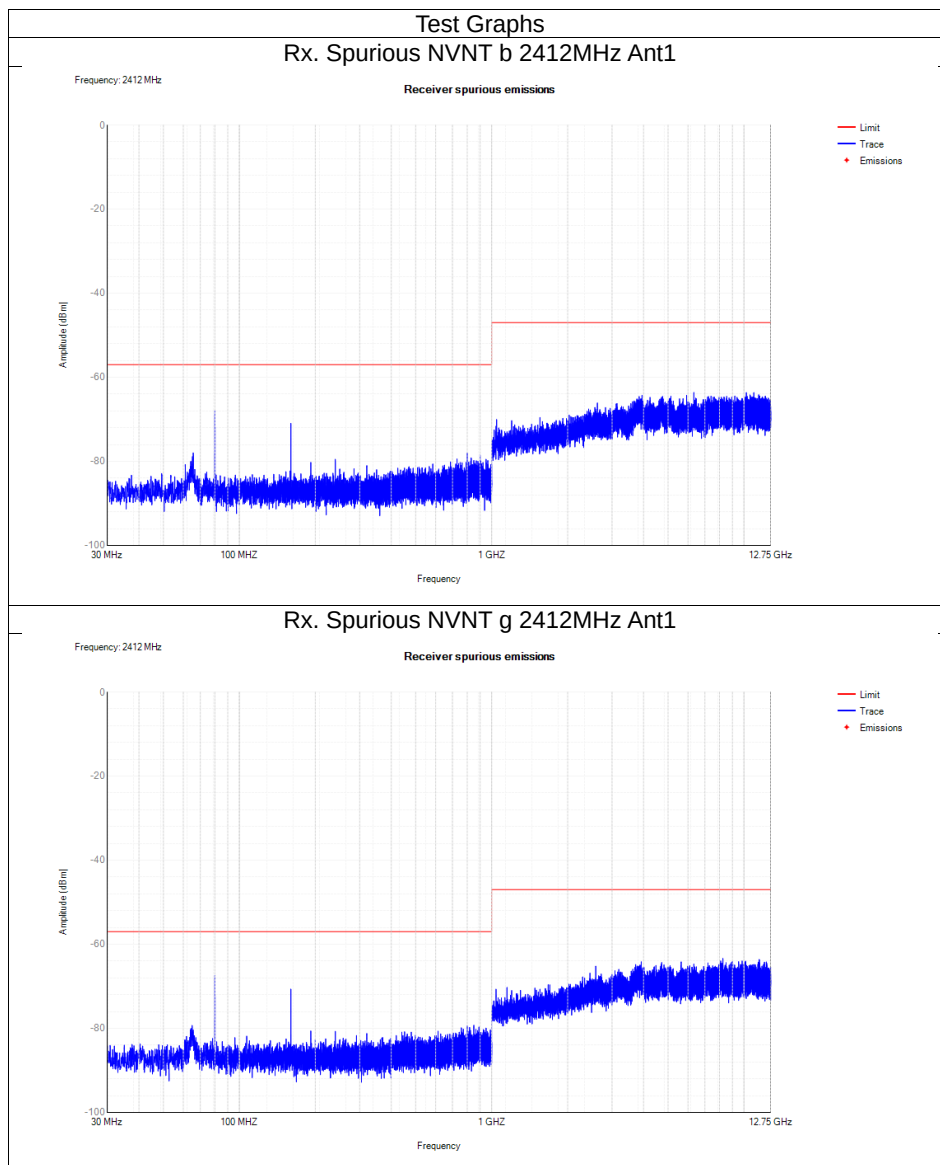
Tx. Spurious NVNT n40 2462MHz Ant1





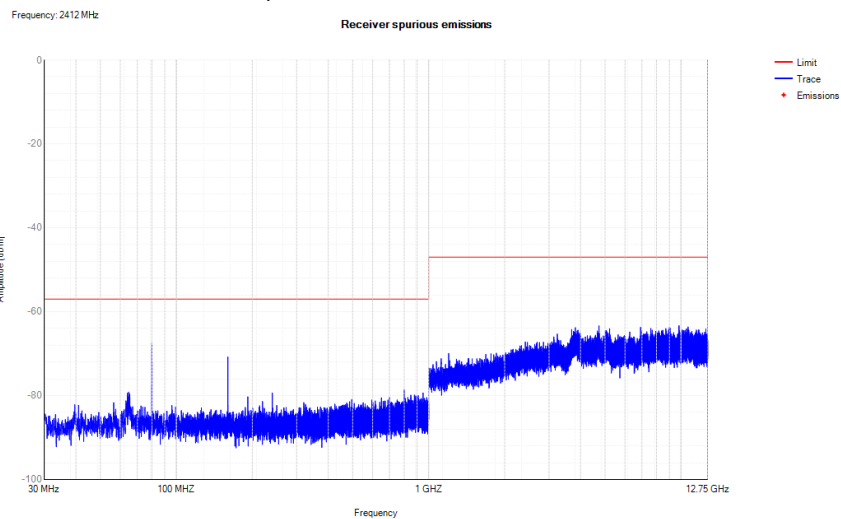
Receiver spurious emissions

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	30 -1000	80	-68.00	NA	-57	Pass
NVNT	b	2412	Ant1	1000 -12750	6331.5	-63.61	NA	-47	Pass
NVNT	g	2412	Ant1	30 -1000	80	-67.47	NA	-57	Pass
NVNT	g	2412	Ant1	1000 -12750	8244.5	-63.37	NA	-47	Pass
NVNT	n20	2412	Ant1	30 -1000	80	-67.52	NA	-57	Pass
NVNT	n20	2412	Ant1	1000 -12750	9817.5	-63.32	NA	-47	Pass
NVNT	n40	2422	Ant1	30 -1000	80	-67.27	NA	-57	Pass
NVNT	n40	2422	Ant1	1000 -12750	11090	-62.90	NA	-47	Pass

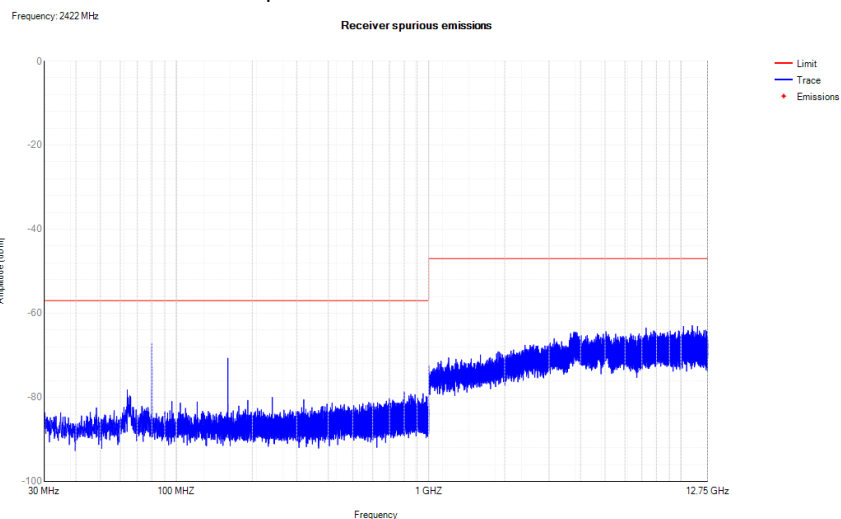




Rx. Spurious NVNT n20 2412MHz Ant1



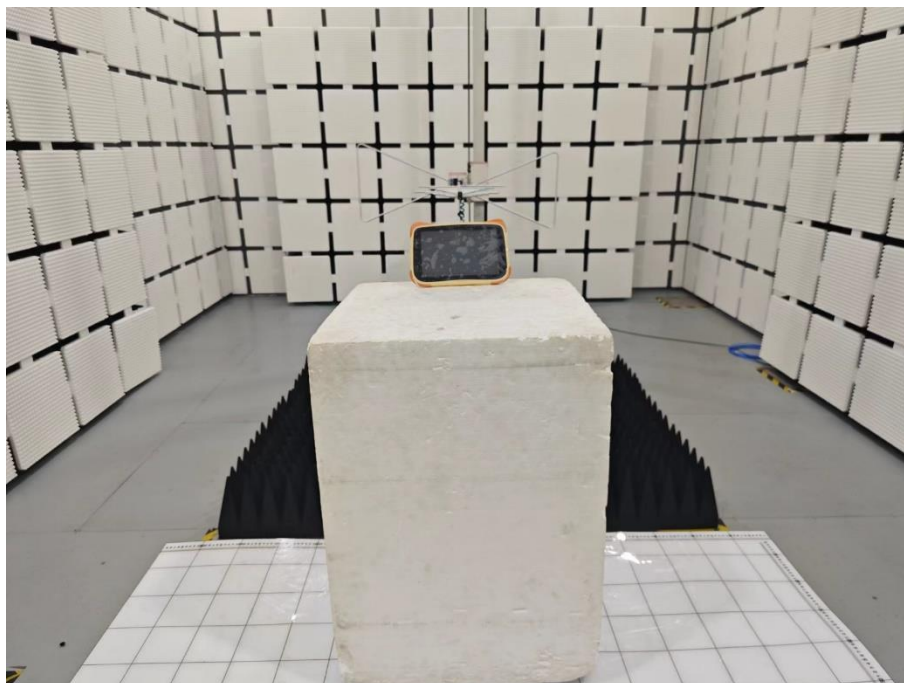
Rx. Spurious NVNT n40 2422MHz Ant1



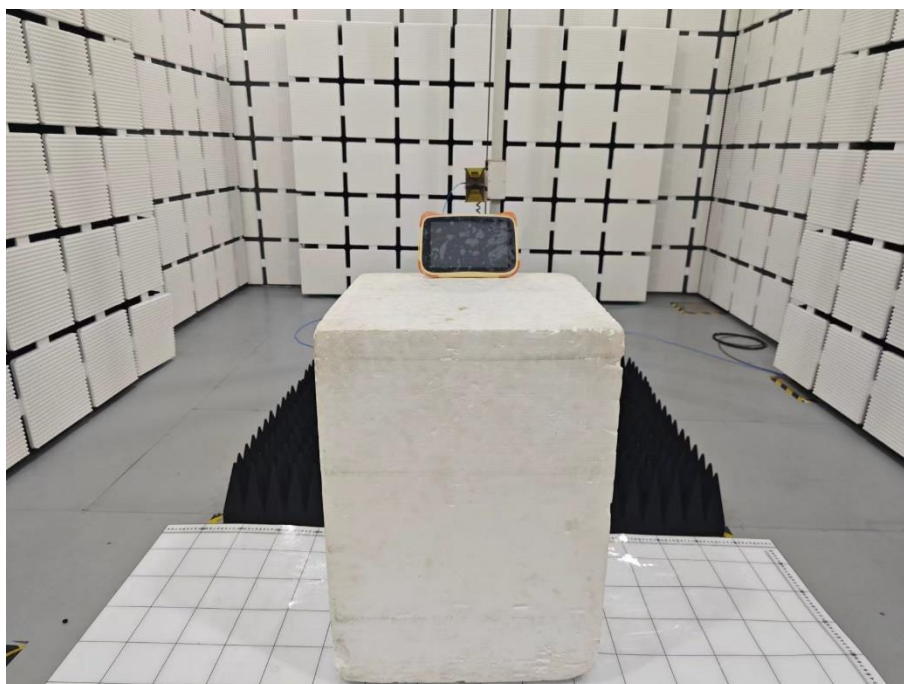


APPENDIX II - MEASUREMENT PHOTOS

Set-up for Transmitter & Receiver Spurious Emissions, Below 1GHz



Set-up for Transmitter & Receiver Spurious Emissions, Above 1GHz



※※※※※END OF THE REPORT※※※※※