

FCC Radio Test Report

FCC ID: 2AZ8T-BRM00803

Original Grant

Report No. : TB-FCC179078
Applicant : S&F Corporation
Equipment Under Test (EUT)
EUT Name : Wi-Fi Control Door & Window Alarm Sensor
Model No. : BRM00803
Series Model No. : N/A
Brand Name : BRAUMM
Sample ID : TBBJ-20210128-02-1#& TBBJ-20210128-02-2#
Receipt Date : 2021-03-12
Test Date : 2021-03-12 to 2021-06-16
Issue Date : 2021-06-16
Standards : FCC Part 15, Subpart C 15.247
Test Method : ANSI C63.10: 2013
Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above,
The EUT technically complies with the FCC and IC requirements

Test/Witness Engineer : 

Seven Wu

Engineer Supervisor : 

Ivan Su

Engineer Manager : 

Ray Lai

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History

Report No.	Version	Description	Issued Date
TB-FCC179078	Rev.01	Initial issue of report	2021-06-16

1. General Information about EUT

1.1 Client Information

Applicant	:	S&F Corporation
Address	:	375 Rivertown Dr #500 Woodbury MN 55125, USA
Manufacturer	:	Shenzhen Kerui Smart Technology Co., Ltd
Address	:	Room 1501-1504, Building 2, Foresea Life Center, No. 1100, Xingye Road, Xin'an Street, Bao'an District, Shenzhen, Guangdong, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Wi-Fi Control Door & Window Alarm Sensor	
Models No.	:	BRM00803	
Model Different	:	----	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
		Number of Channel:	802.11b/g/n(HT20):11 channels see note(3)
		RF Output Power:	802.11b:8.962dBm 802.11g: 8.954dBm 802.11n (HT20): 8.940dBm
		Antenna Gain:	-3 dBi PCB Antenna
		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM)
Power Rating	:	AAA battery*2pcs	
Software Version	:	V2.1.0	
Hardware Version	:	Kr-WD31-E	

Note:

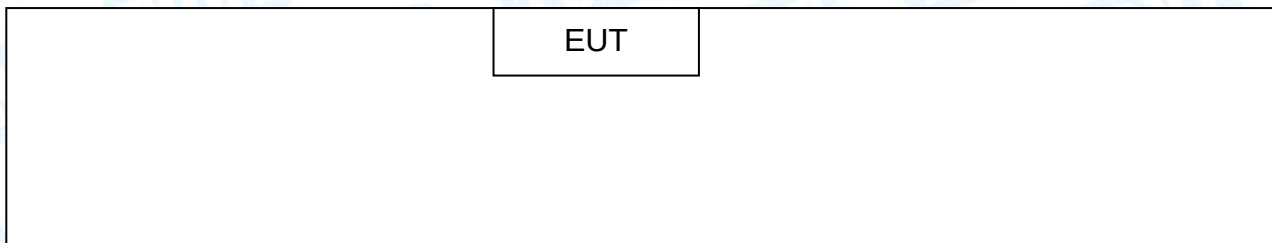
- (1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 v05r02.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		
Note: CH 01~CH 11 for 802.11b/g/n(HT20)					

(4) The Antenna information about the equipment is provided by the applicant.

1.3 Block Diagram Showing the Configuration of System Tested



1.4 Description of Support Units

Equipment Information				
Name	Model	FCC ID/VOC	Manufacturer	Used “√”
----	-----	----	----	√
Cable Information				
Number	Shielded Type	Ferrite Core	Length	Note
----	-----	----	----	----

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	Description
Mode 1	Charging+TX B Mode
For Radiated and RF Conducted Test	
Final Test Mode	Description
Mode 2	TX Mode B Mode Channel 01/06/11
Mode 3	TX Mode G Mode Channel 01/06/11
Mode 4	TX Mode N(HT20) Mode Channel 01/06/11
Note : The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.	

Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.
According to ANSI C63.10 standards, the measurements are performed at the highest, Middle, lowest available channels, and the worst case data rate as follows:
802.11b Mode: CCK (1 Mbps)
802.11g Mode: OFDM (6 Mbps)
802.11n (HT20) Mode: MCS 0 (6.5 Mbps)
- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a Mobile device; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

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

Test Software: ESP_RF_test_tool_v2.3			
Test Mode: Continuously transmitting			
Mode	Data Rate	Channel	Parameters
802.11b	CCK/ 1Mbps	01	24
	CCK/ 1Mbps	06	24
	CCK/ 1Mbps	11	24
802.11g	OFDM/ 6Mbps	01	28
	OFDM/ 6Mbps	06	28
	OFDM/ 6Mbps	11	28
802.11n(HT20)	MCS 0	01	30
	MCS 0	06	30
	MCS 0	11	30

1.7 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 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	± 3.50 dB ± 3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB

1.8 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at: 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Bao'an, Shenzhen, Guangdong, China.

At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A.

2. Test Summary

FCC Part 15 Subpart C(15.247)				
Standard Section	Test Item	Test Sample(s)	Judgment	Remark
FCC				
15.203	Antenna Requirement	TBBJ-20210128-02-2#	PASS	N/A
15.207	Conducted Emission	TBBJ-20210128-02-2#	N/A	N/A
15.205	Restricted Bands	TBBJ-20210128-02-2#	PASS	N/A
15.247(a)(2)	6dB Bandwidth	TBBJ-20210128-02-2#	PASS	N/A
15.247(b)	Peak Output Power	TBBJ-20210128-02-2#	PASS	N/A
15.247(e)	Power Spectral Density	TBBJ-20210128-02-2#	PASS	N/A
15.247(d)	Band Edge	TBBJ-20210128-02-2#	PASS	N/A
15.247(d)&15.209	Transmitter Spurious Emission	TBBJ-20210128-02-2#	PASS	N/A
Note: “/” for no requirement for this test item. N/A is an abbreviation for Not Applicable.				

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted Measurement	MTS-8310	MWRFTest	V2.0.0.0

4. Test Equipment

Conducted Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 06, 2020	Jul. 05, 2021
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 06, 2020	Jul. 05, 2021
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 06, 2020	Jul. 05, 2021
LISN	Rohde & Schwarz	ENV216	101131	Jul. 06, 2020	Jul. 05, 2021
Radiation Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 06, 2020	Jul. 05, 2021
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 06, 2020	Jul. 05, 2021
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.01, 2020	Feb. 28, 2022
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.01, 2020	Feb. 28, 2022
Horn Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Mar.01, 2020	Feb. 28, 2022
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 07, 2020	Jul. 06, 2021
Pre-amplifier	Sonoma	310N	185903	Feb.25, 2021	Feb. 24, 2022
Pre-amplifier	HP	8449B	3008A00849	Feb.25, 2021	Feb. 24, 2022
Pre-amplifier	SKET	LNPA_1840G-50	SK201904032	Febr.25, 2021	Feb. 24, 2022
Cable	HUBER+SUHNER	100	SUCOFLEX	Feb .25, 2021	Feb. 24, 2022
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021
Spectrum Analyzer	Rohde & Schwarz	ESPI	100010/007	Jul. 06, 2020	Jul. 05, 2021
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 11, 2020	Sep. 10, 2021
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 11, 2020	Sep. 10, 2021
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 11, 2020	Sep. 10, 2021
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 11, 2020	Sep. 10, 2021
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 11, 2020	Sep. 10, 2021
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 11, 2020	Sep. 10, 2021
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 11, 2020	Sep. 10, 2021

5. Conducted Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC Part 15.207

5.1.2 Test Limit

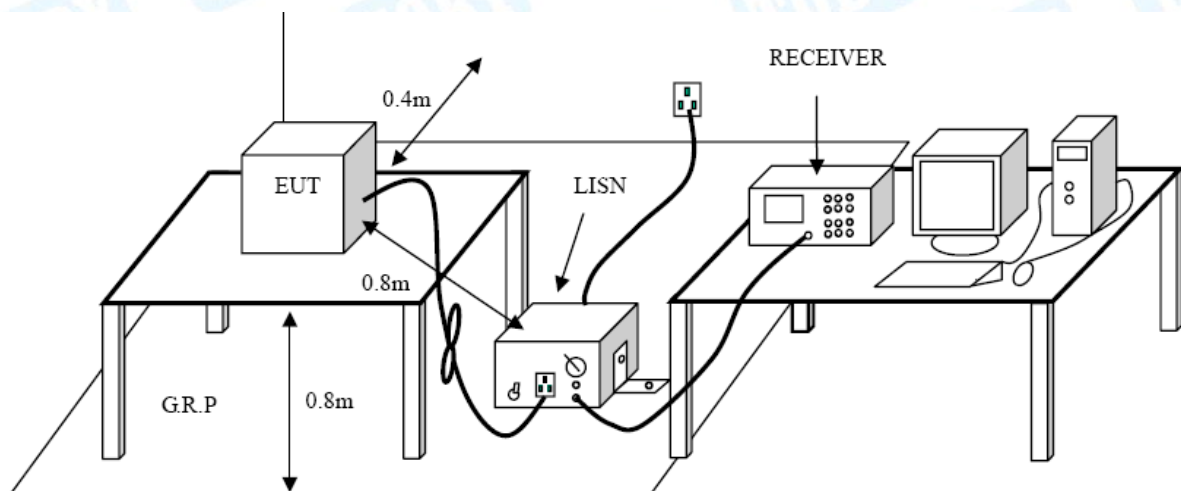
Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

- (1) The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- (2) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (3) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (4) LISN at least 80 cm from nearest part of EUT chassis.
- (5) The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Not applicable.

6. Radiated Emission Test

6.1 Test Standard and Limit

6.1.1 Test Standard

FCC Part 15.209

6.1.2 Test Limit

Radiated Emission Limits (9 kHz~1000 MHz)

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

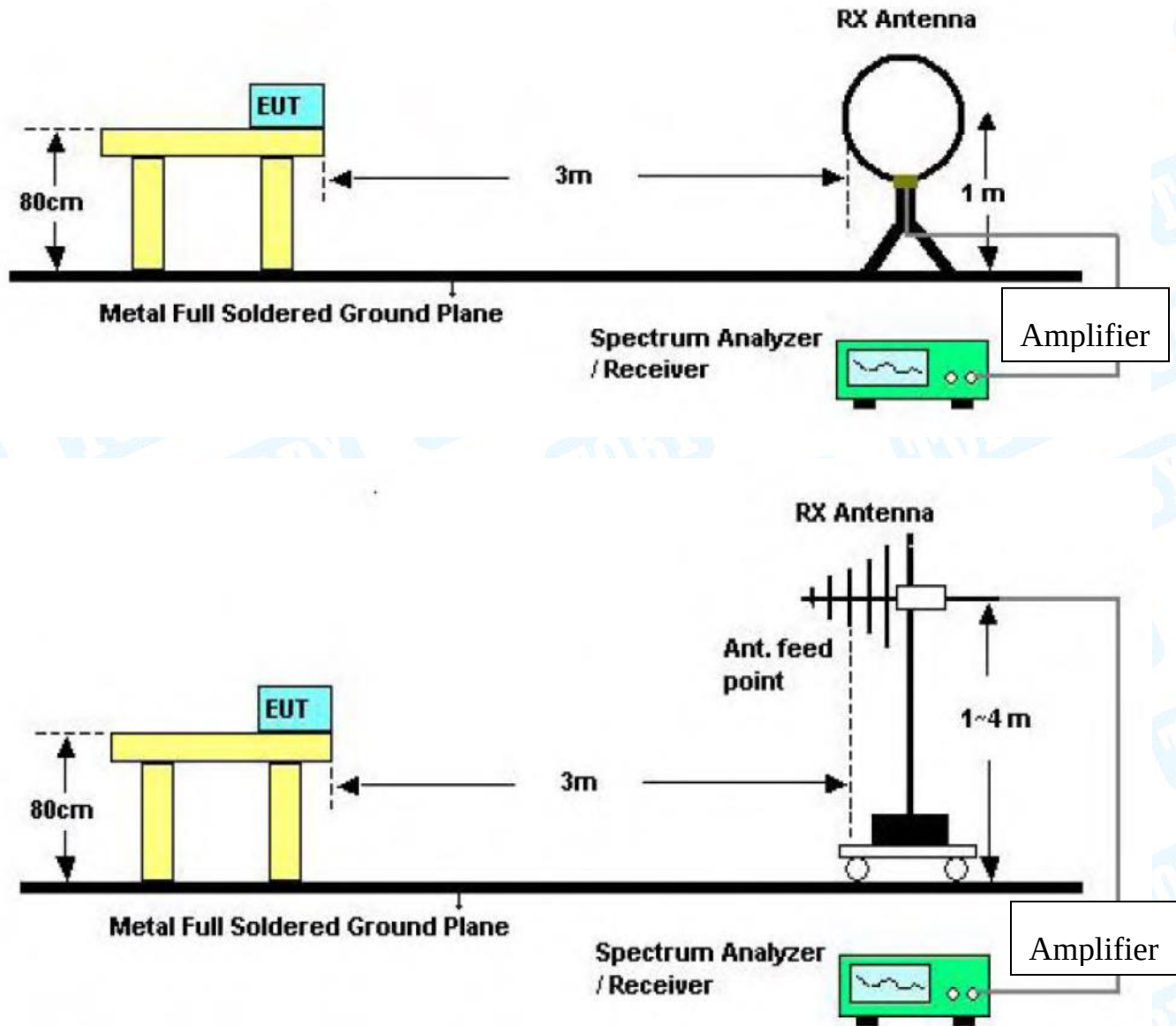
Radiated Emission Limit (Above 1000MHz)

Frequency (MHz)	Distance of 3m (dBuV/m)	
	Peak	Average
Above 1000	74	54

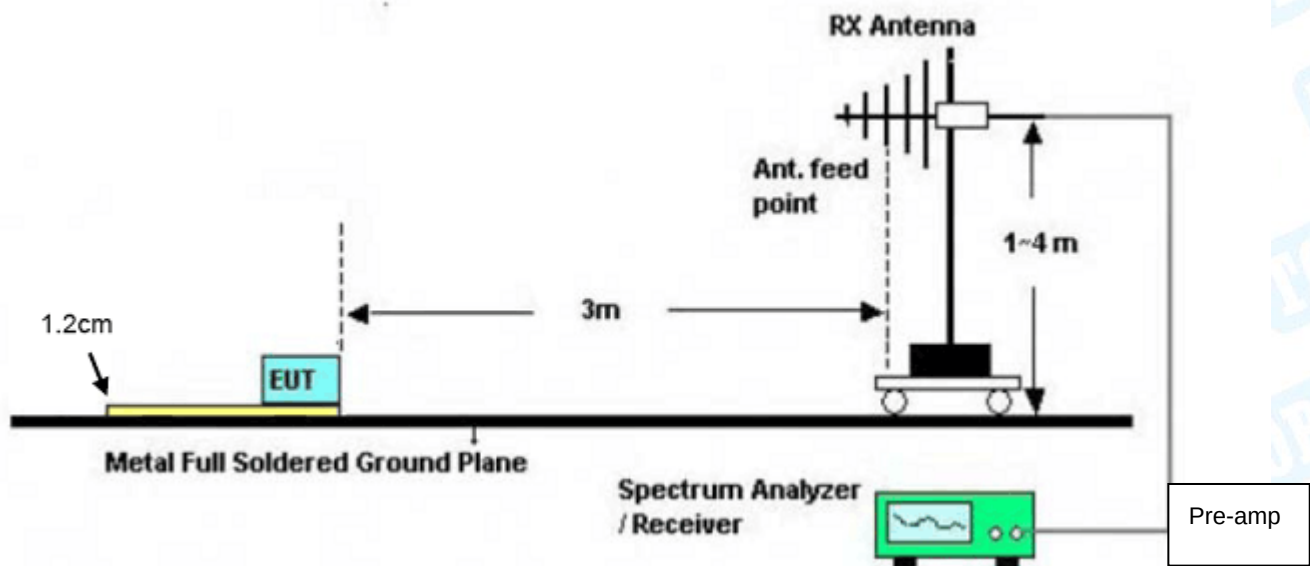
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

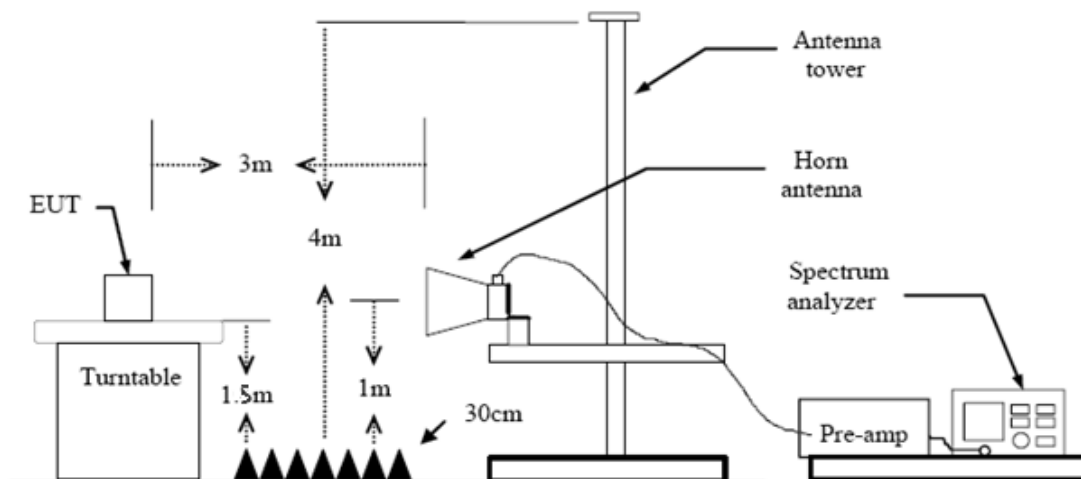
6.2 Test Setup



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

6.3 Test Procedure

- (1) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency Below 1GHz. The EUT was placed on a rotating 0.8m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.6 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Please refer to the Attachment A.

7. Restricted Bands Requirement

7.1 Test Standard and Limit

7.1.1 Test Standard

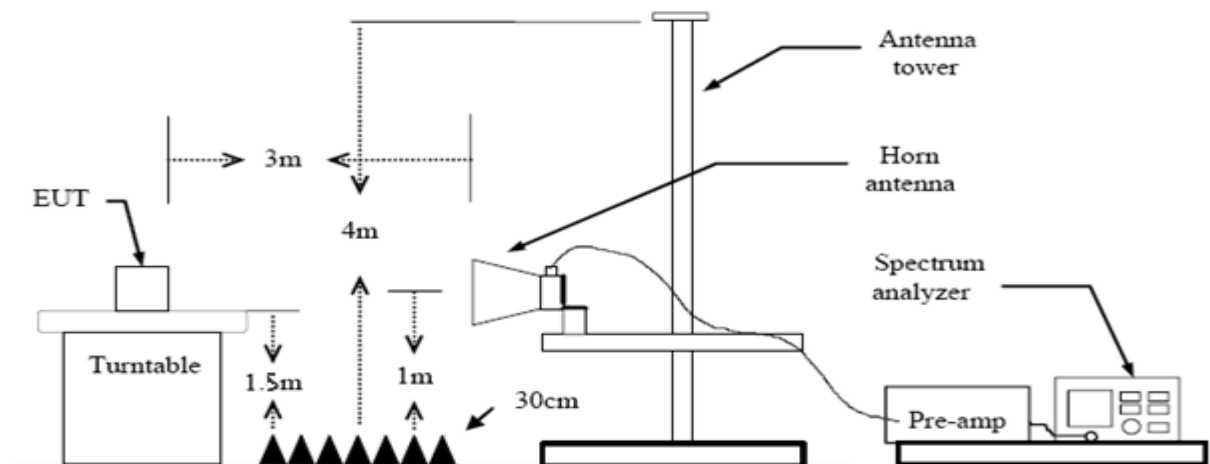
FCC Part 15.247(d)
FCC Part 15.209
FCC Part 15.205

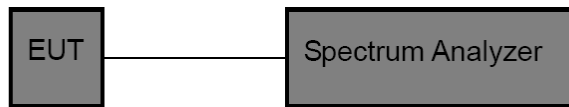
7.1.2 Test Limit

Radiated measurement		
Restricted Frequency Band (MHz)	Distance Meters(at 3m)	
	Peak (dBuV/m)	Average (dBuV/m)
2310 ~2390	74	54
2483.5 ~2500	74	54
Conducted measurement		
	Peak (dBm) _{see 7.3 e)}	Average (dBm) _{see 7.3 e)}
2310 ~2390	-41.20	-21.20
2483.5 ~2500	-41.20	-21.20
Note: According the ANSI C63.10 11.12.2 antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions is required.		

7.2 Test Setup

Radiated measurement



Conducted measurement**7.3 Test Procedure****---Radiated measurement**

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

---Conducted measurement

- a) Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain).
- c) Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies ≤ 30 MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies > 1000 MHz).
- d) For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW).

e) Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log d + 104.8$$

where

E is the electric field strength in dBuV/m

EIRP is the equivalent isotropically radiated power in dBm

d is the specified measurement distance in m

f) Compare the resultant electric field strength level with the applicable regulatory limit.

g) Perform the radiated spurious emission test.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

7.6 Test Data

Remark: The test uses antenna-port conducted measurements as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements.

Please refer to the Attachment B.

8. Bandwidth Test

8.1 Test Standard and Limit

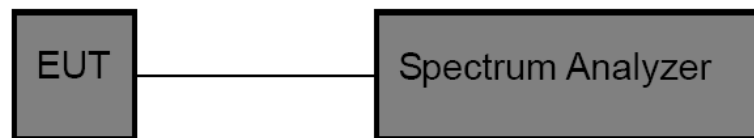
8.1.1 Test Standard

FCC Part 15.247 (a)(2)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range(MHz)
Bandwidth	≥ 500 KHz (6dB bandwidth)	2400~2483.5

8.2 Test Setup



8.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (3) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

8.6 Test Data

Please refer to the Attachment C.

9. Peak Output Power Test

9.1 Test Standard and Limit

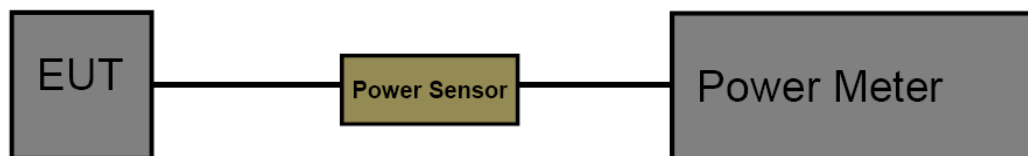
9.1.1 Test Standard

FCC Part 15.247 (b)

9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range(MHz)
Peak Output Power	1 Watt or 30 dBm	2400~2483.5

9.2 Test Setup



9.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 v05r02.

The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

9.6 Test Data

Please refer to the Attachment D.

10. Power Spectral Density Test

10.1 Test Standard and Limit

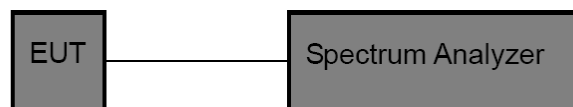
10.1.1 Test Standard

FCC Part 15.247 (e)

10.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

10.2 Test Setup



10.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 D01 v05r02.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser centre frequency to DTS channel centre frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz
- (5) Set the VBW to: 10 kHz
- (6) Detector: peak
- (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

10.4 Deviation From Test Standard

No deviation

10.5 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

10.6 Test Data

Please refer to the Attachment E.

11. Antenna Requirement

11.1 Standard Requirement

11.1.1 Standard

FCC Part 15.203

11.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

11.2 Deviation From Test Standard

No deviation

11.3 Antenna Connected Construction

The gains of the antenna used for transmitting is -3 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type
☒ Permanent attached antenna
☐ Unique connector antenna
☐ Professional installation antenna

Attachment A-- Radiated Emission Test Data

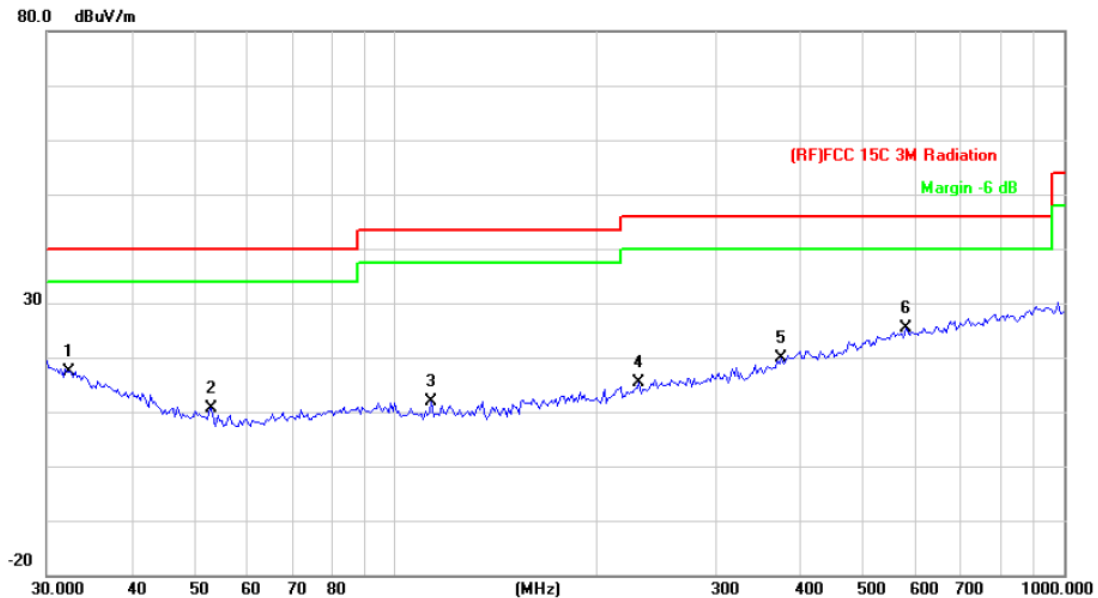
9KHz~30MHz

From 9KHz to 30MHz: Conclusion: PASS

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

30MHz~1GHz

Temperature:	23.2℃	Relative Humidity:	41%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worst case is reported.		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		32.4059	32.21	-14.74	17.47	40.00	-22.53	peak
2		52.9453	34.00	-23.39	10.61	40.00	-29.39	peak
3		112.9196	34.24	-22.26	11.98	43.50	-31.52	peak
4		230.9068	33.64	-18.26	15.38	46.00	-30.62	peak
5		377.2591	33.28	-13.35	19.93	46.00	-26.07	peak
6	*	578.6699	34.04	-8.57	25.47	46.00	-20.53	peak

*:Maximum data x:Over limit !:over margin

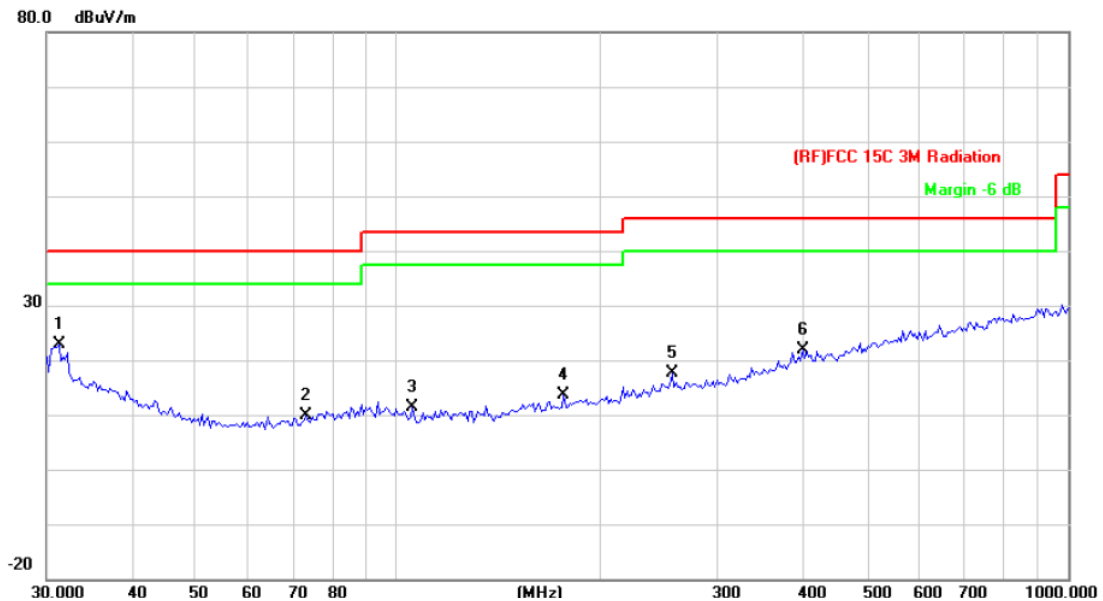
Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = QuasiPeak (dBμV/m)-Limit QPK(dBμV/m)

Temperature:	23.2°C	Relative Humidity:	41%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHZ		
Remark:	Only worst case is reported.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	31.2893	36.71	-13.91	22.80	40.00	-17.20	peak
2		73.1025	32.90	-23.11	9.79	40.00	-30.21	peak
3		105.2717	33.42	-22.13	11.29	43.50	-32.21	peak
4		176.8877	33.90	-20.23	13.67	43.50	-29.83	peak
5		256.5210	34.62	-17.11	17.51	46.00	-28.49	peak
6		401.8385	34.25	-12.28	21.97	46.00	-24.03	peak

*:Maximum data x:Over limit !:over margin

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = QuasiPeak (dBμV/m)-Limit QPK(dBμV/m)

Above 1GHz

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.982	37.18	13.16	50.34	54.00	-3.66	AVG
2		4824.032	45.01	13.16	58.17	74.00	-15.83	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.882	34.57	13.16	47.73	54.00	-6.27	AVG
2		4824.080	43.36	13.16	56.52	74.00	-17.48	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.004	36.16	13.53	49.69	54.00	-4.31	AVG
2		4874.066	44.47	13.53	58.00	74.00	-16.00	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1		4873.772	43.30	13.53	56.83	74.00	-17.17 peak
2	*	4873.944	32.55	13.53	46.08	54.00	-7.92 AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)

3. Margin (dB) = Peak/AVG (dBµV/m)-Limit PK/AVG(dBµV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.984	33.32	13.89	47.21	54.00	-6.79	AVG
2		4924.180	43.91	13.89	57.80	74.00	-16.20	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.958	42.84	13.89	56.73	74.00	-17.27	peak
2	*	4924.104	32.25	13.89	46.14	54.00	-7.86	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.860	28.94	13.16	42.10	54.00	-11.90	AVG
2		4824.172	40.89	13.16	54.05	74.00	-19.95	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.624	40.84	13.16	54.00	74.00	-20.00	peak
2	*	4823.914	28.56	13.16	41.72	54.00	-12.28	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.662	42.27	13.53	55.80	74.00	-18.20	peak
2	*	4873.946	29.26	13.53	42.79	54.00	-11.21	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.740	41.62	13.53	55.15	74.00	-18.85	peak
2	*	4873.998	27.89	13.53	41.42	54.00	-12.58	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.908	28.84	13.89	42.73	54.00	-11.27	AVG
2		4923.912	42.33	13.89	56.22	74.00	-17.78	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.972	27.99	13.89	41.88	54.00	-12.12	AVG
2		4923.978	41.48	13.89	55.37	74.00	-18.63	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX n(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.774	41.24	13.16	54.40	74.00	-19.60	peak
2	*	4823.904	29.46	13.16	42.62	54.00	-11.38	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7℃	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX n(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.020	28.51	13.16	41.67	54.00	-12.33	AVG
2		4824.472	41.01	13.16	54.17	74.00	-19.83	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX n(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.042	28.92	13.53	42.45	54.00	-11.55	AVG
2		4874.060	42.40	13.53	55.93	74.00	-18.07	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX n(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.636	41.64	13.53	55.17	74.00	-18.83	peak
2	*	4874.094	28.29	13.53	41.82	54.00	-12.18	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX n(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.718	42.07	13.89	55.96	74.00	-18.04	peak
2	*	4923.958	28.56	13.89	42.45	54.00	-11.55	AVG

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

Temperature:	23.7°C	Relative Humidity:	43%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX n(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 20dB below the prescribed limit.		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.894	27.17	13.89	41.06	54.00	-12.94	AVG
2		4924.388	41.57	13.89	55.46	74.00	-18.54	peak

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)

---Conducted Unwanted Emissions

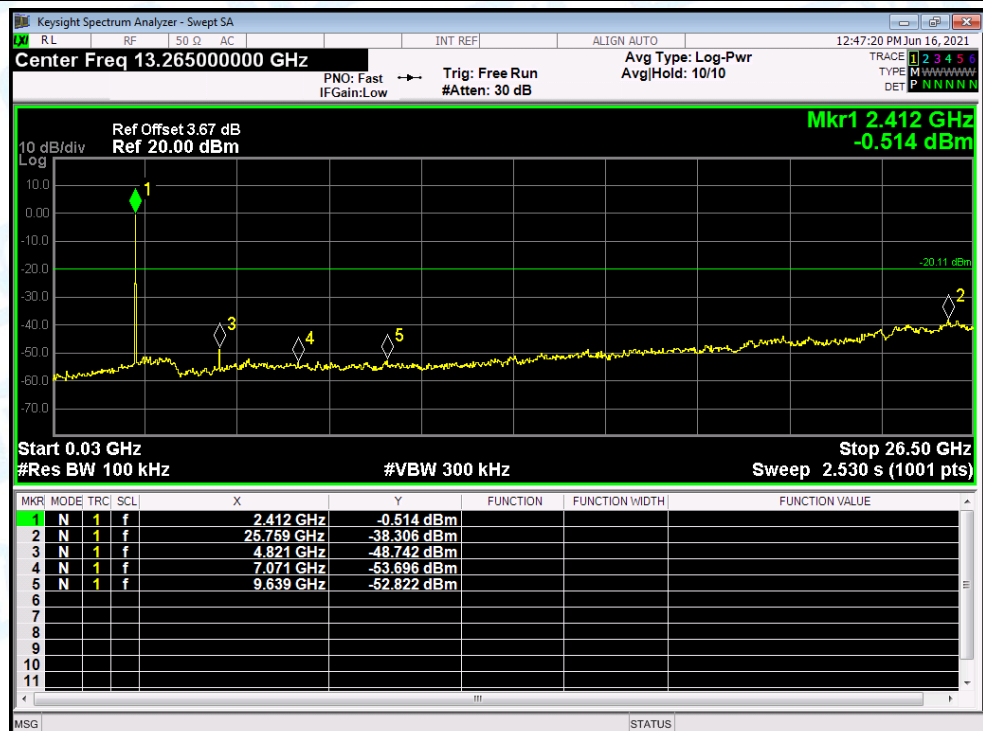
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-38.19	-20	Pass
NVNT	b	2437	Ant1	-38.9	-20	Pass
NVNT	b	2462	Ant1	-38.87	-20	Pass
NVNT	g	2412	Ant1	-36.78	-20	Pass
NVNT	g	2437	Ant1	-35.46	-20	Pass
NVNT	g	2462	Ant1	-35.52	-20	Pass
NVNT	n(HT20)	2412	Ant1	-37.59	-20	Pass
NVNT	n(HT20)	2437	Ant1	-36.54	-20	Pass
NVNT	n(HT20)	2462	Ant1	-35.28	-20	Pass

Test Graphs

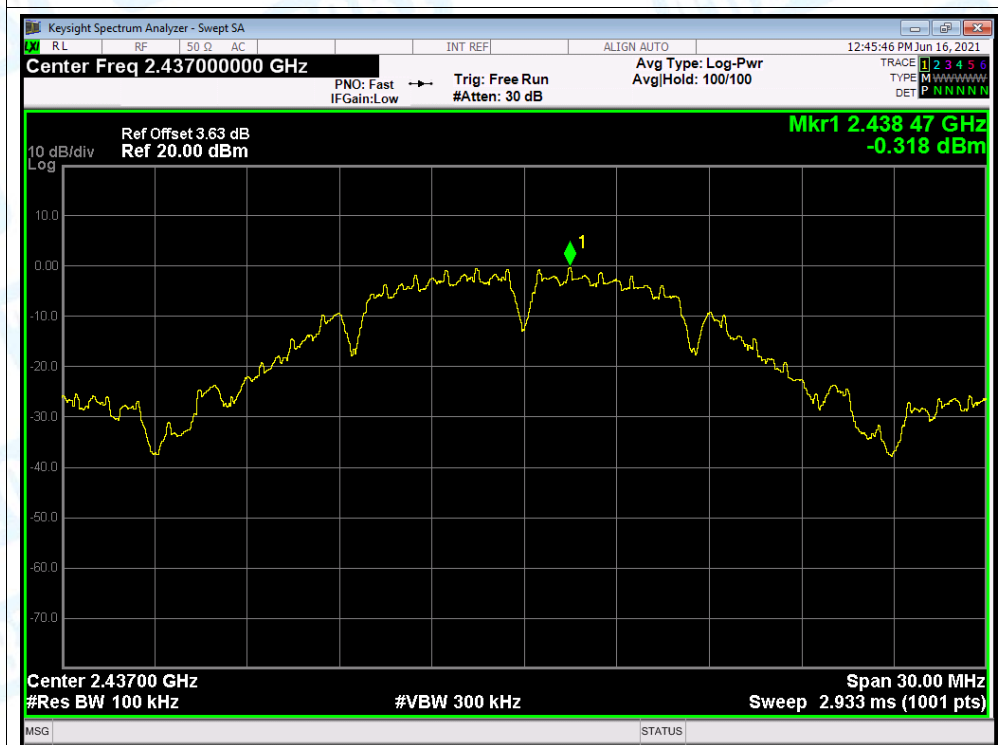
Tx. Spurious NVNT b 2412MHz Ant1 Ref



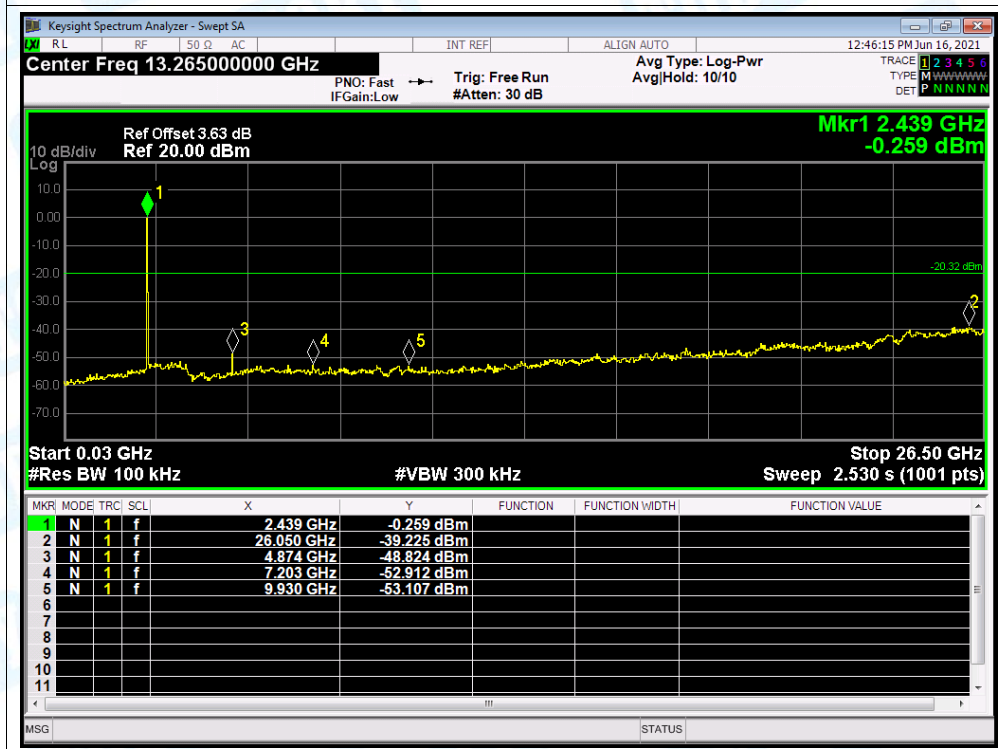
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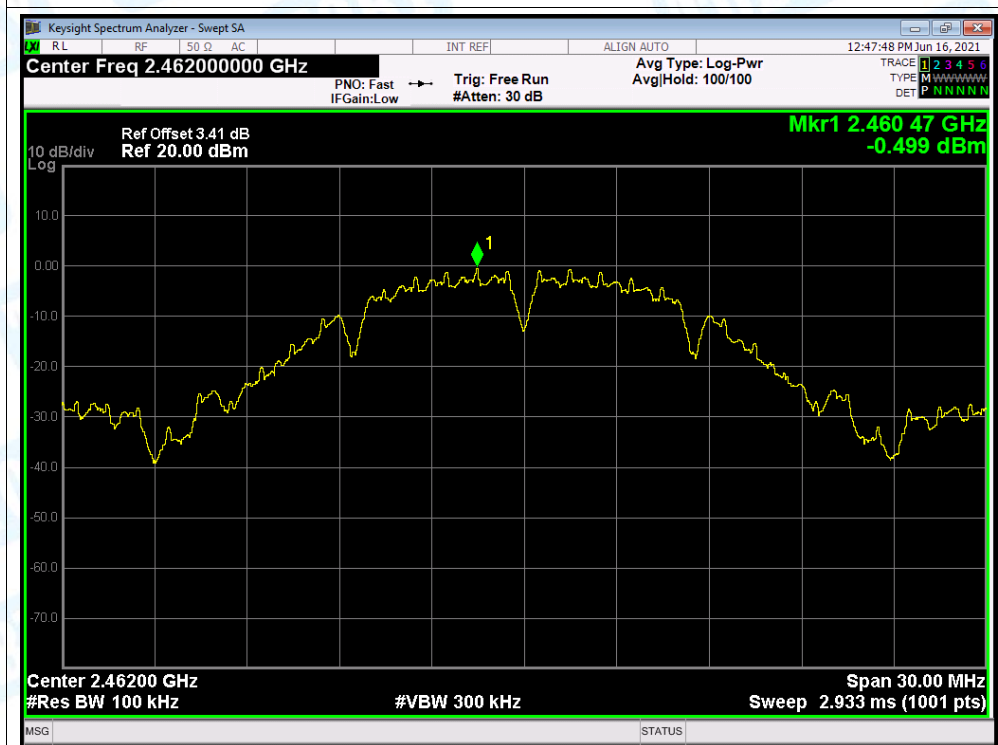
Tx. Spurious NVNT b 2437MHz Ant1 Ref



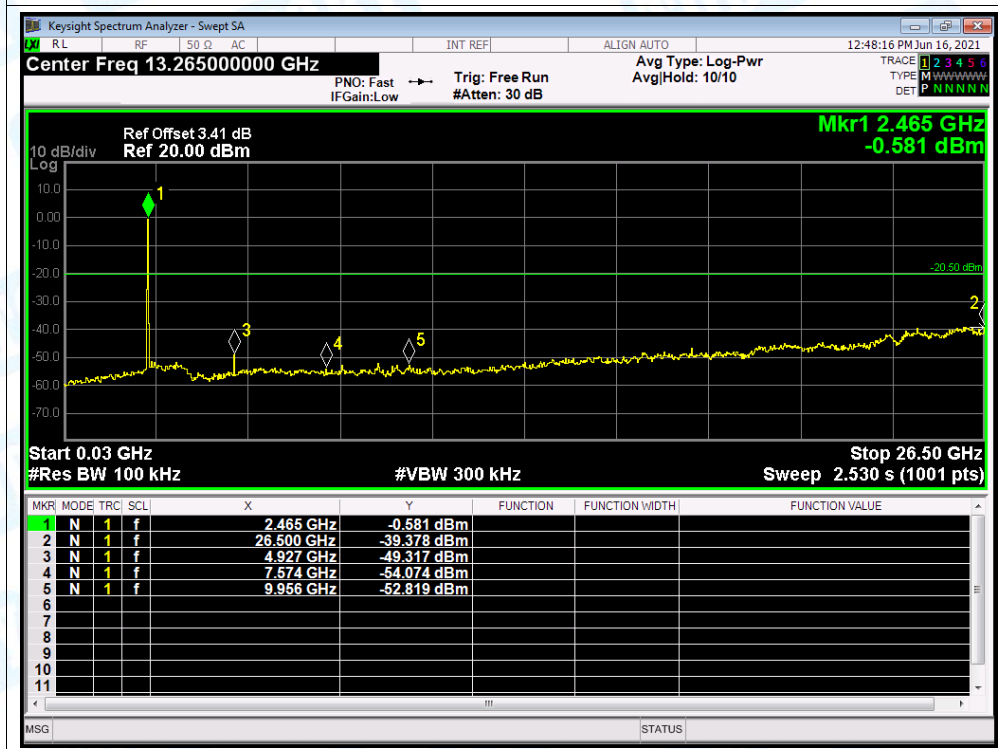
Tx. Spurious NVNT b 2437MHz Ant1 Emission



Tx. Spurious NVNT b 2462MHz Ant1 Ref



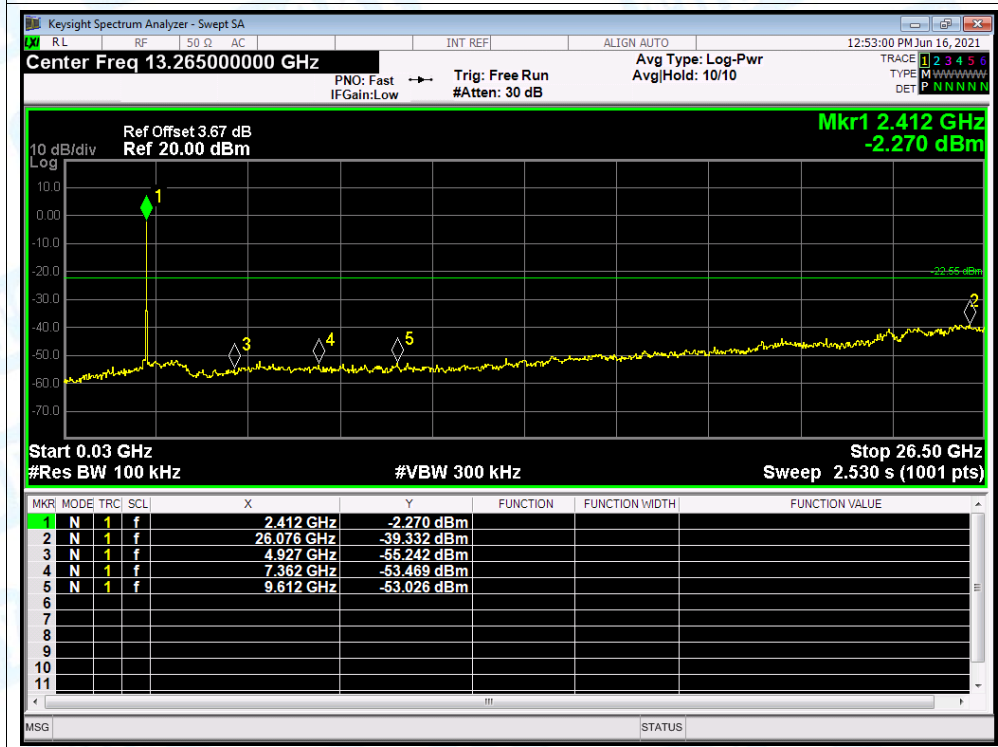
Tx. Spurious NVNT b 2462MHz Ant1 Emission



Tx. Spurious NVNT g 2412MHz Ant1 Ref



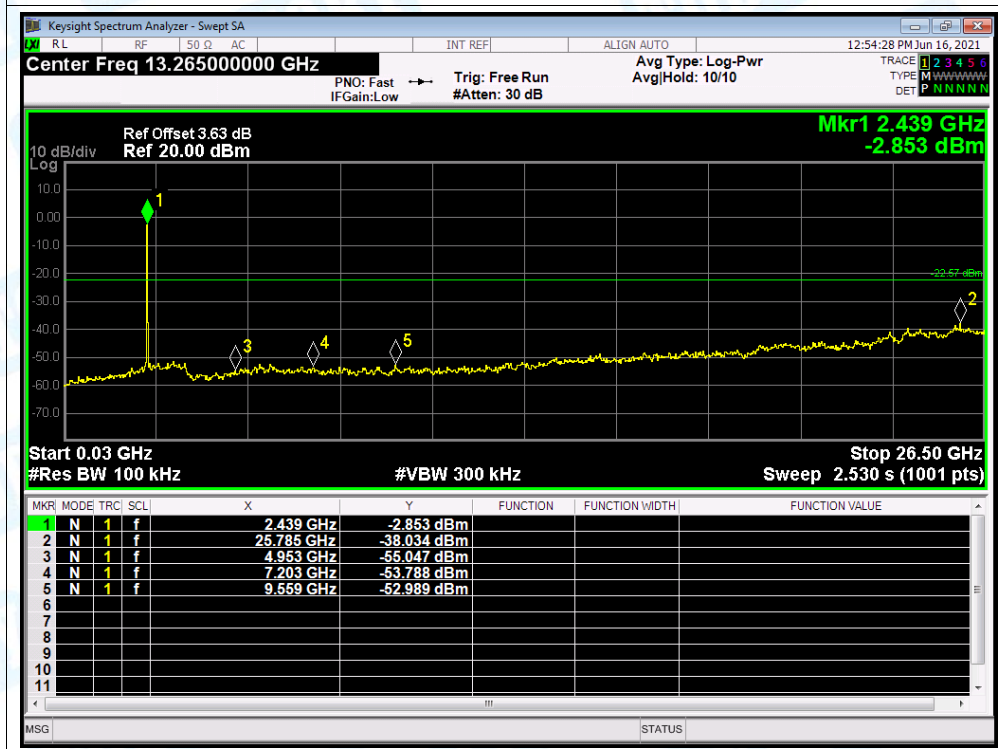
Tx. Spurious NVNT g 2412MHz Ant1 Emission



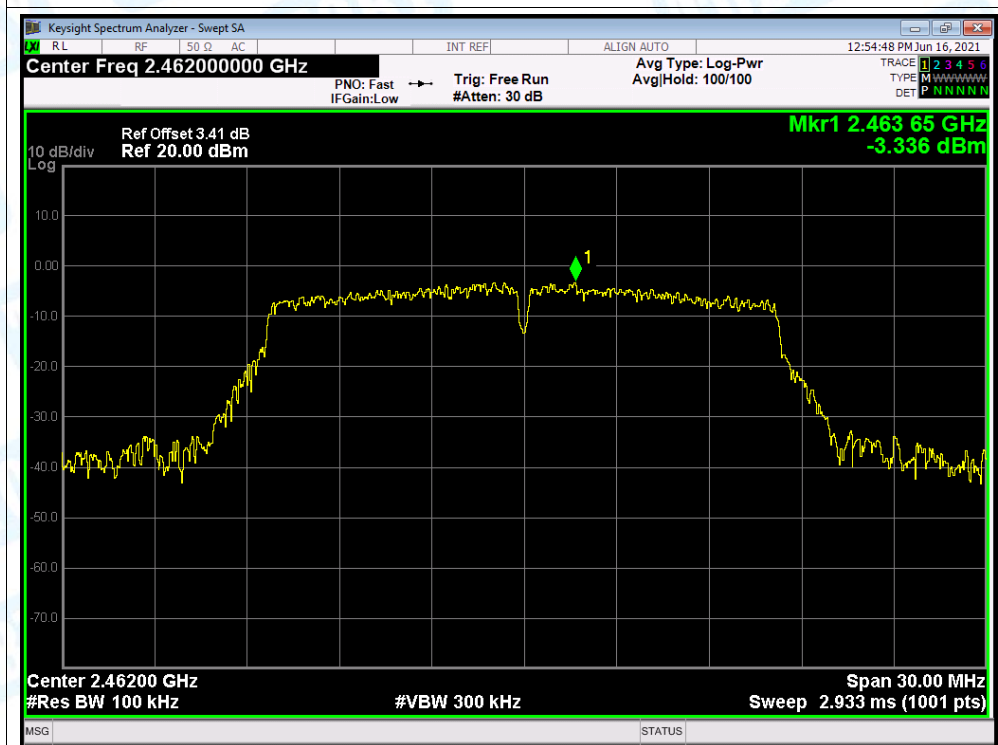
Tx. Spurious NVNT g 2437MHz Ant1 Ref



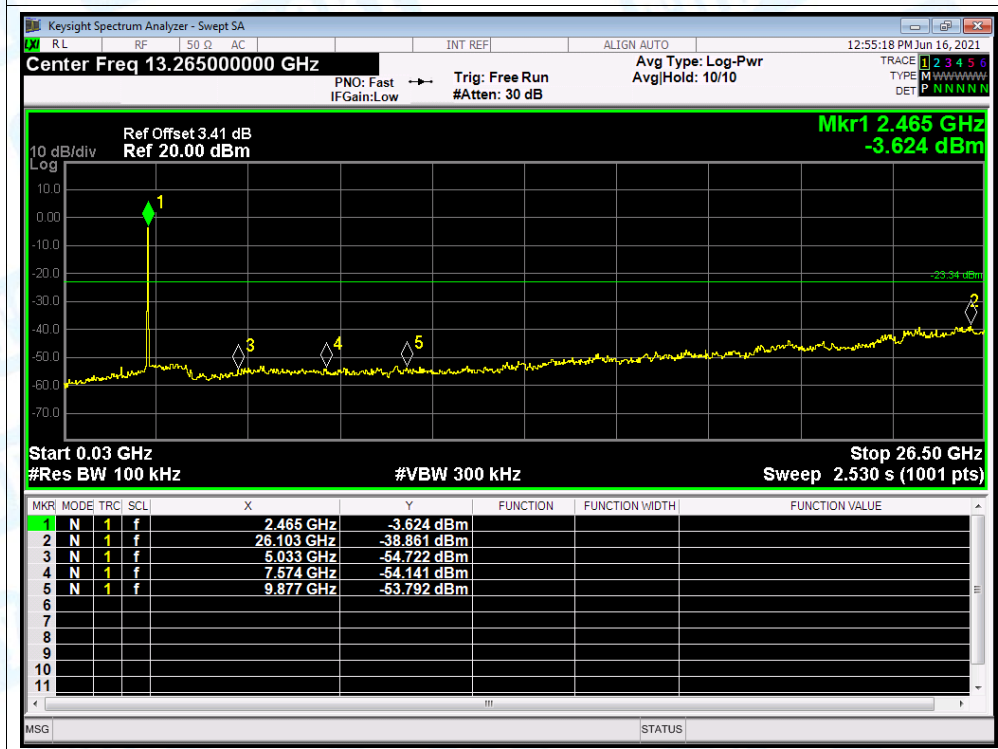
Tx. Spurious NVNT g 2437MHz Ant1 Emission



Tx. Spurious NVNT g 2462MHz Ant1 Ref



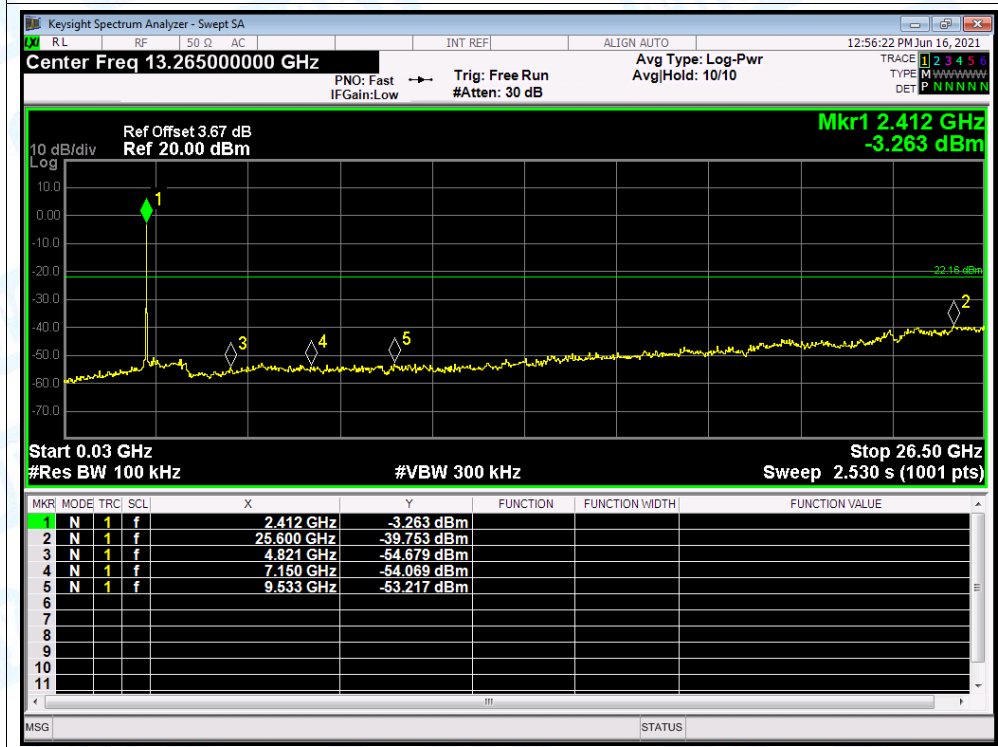
Tx. Spurious NVNT g 2462MHz Ant1 Emission

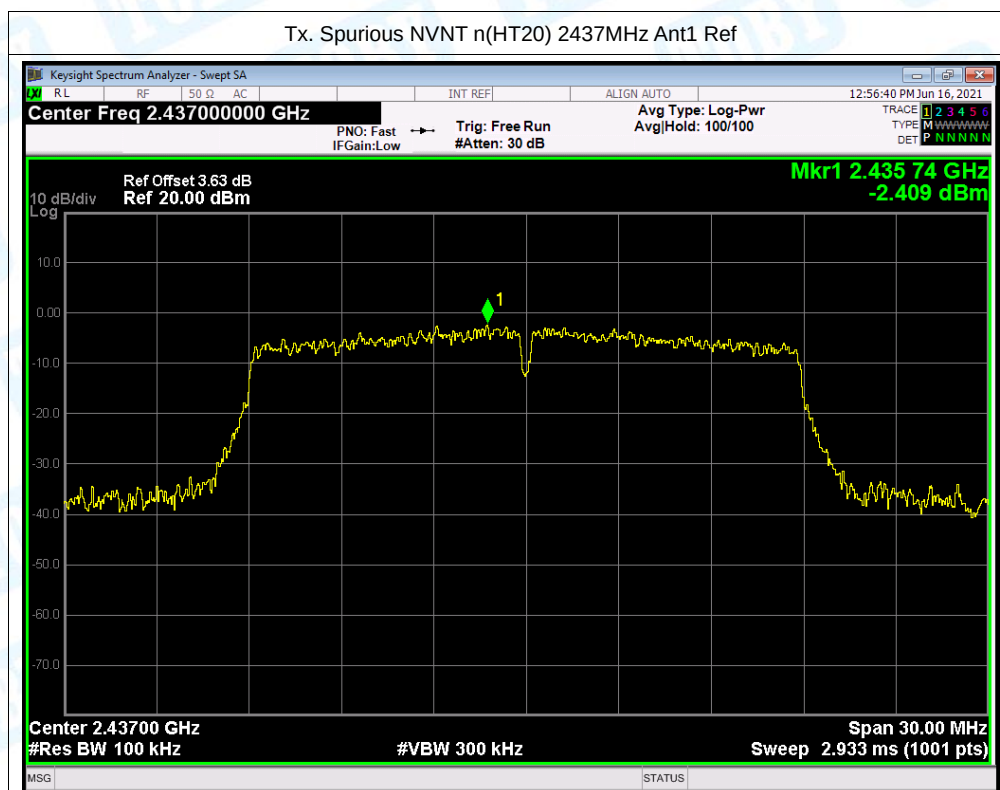


Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Ref

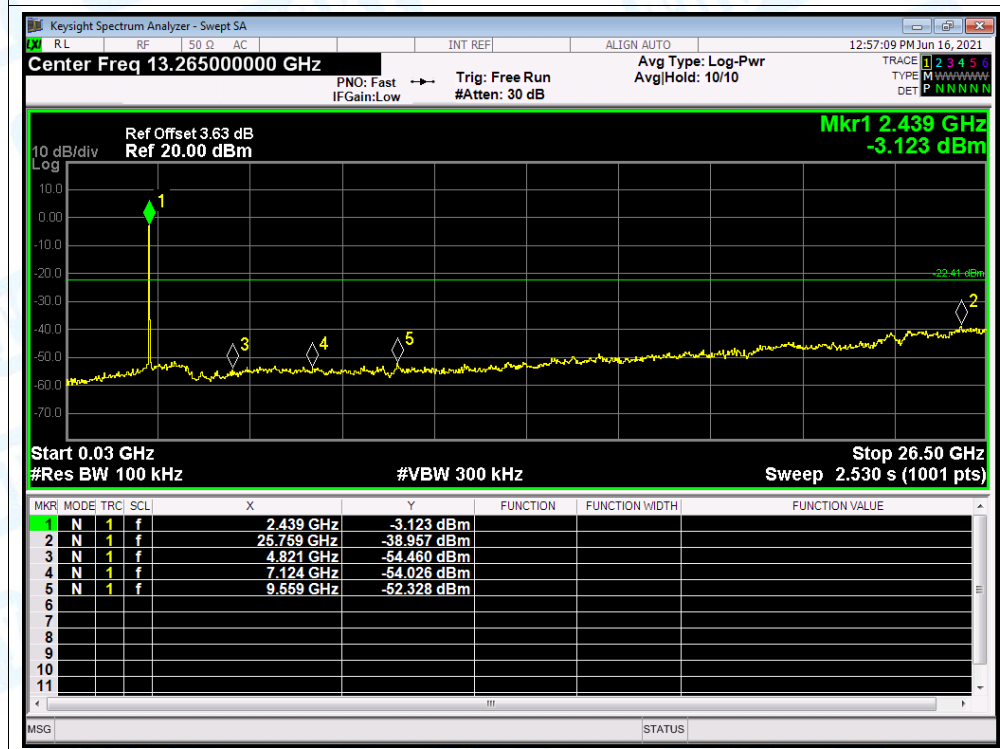


Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Emission

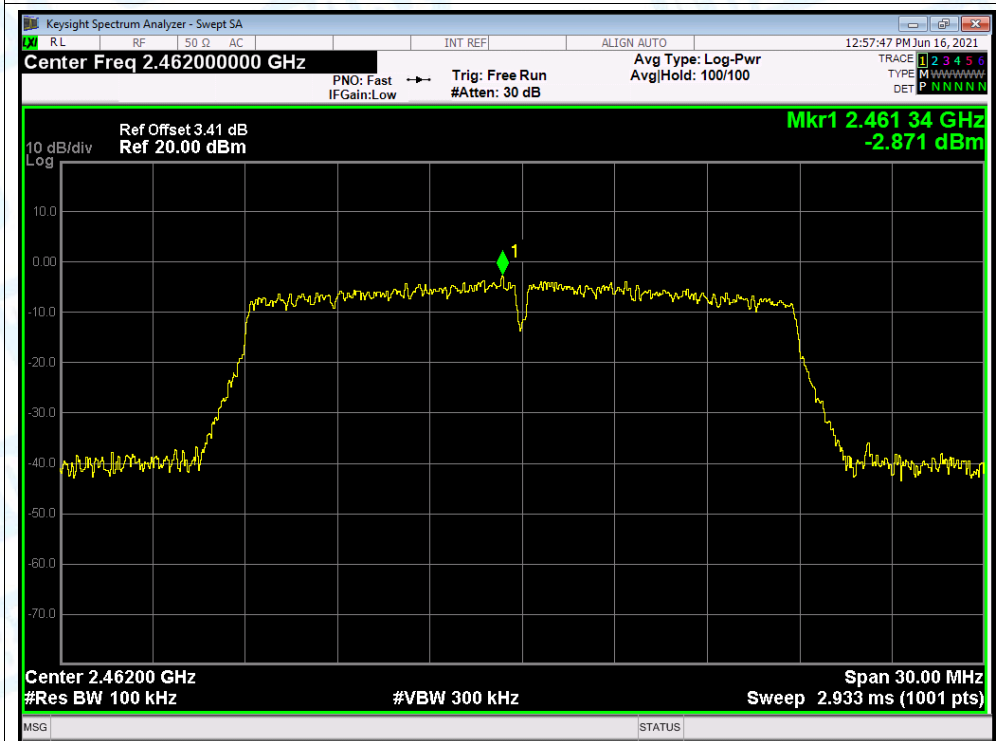




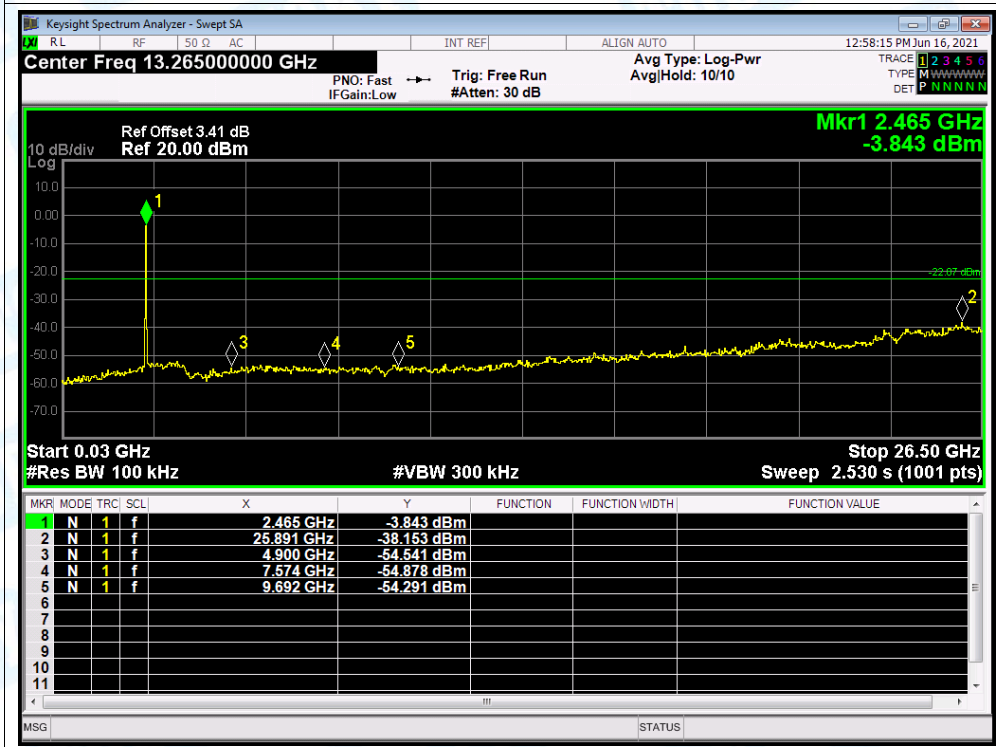
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Emission



Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Ref



Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Emission



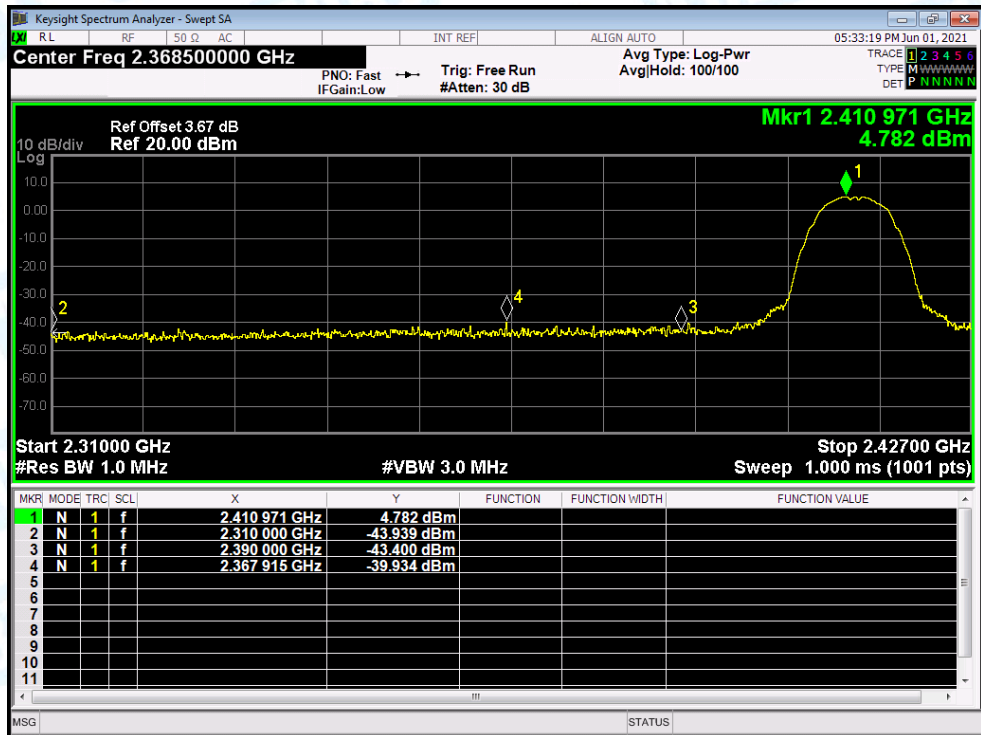
Attachment B-- Restricted Bands Requirement and Band-edge Test Data

(1) Conducted Measurements for Restricted Bands

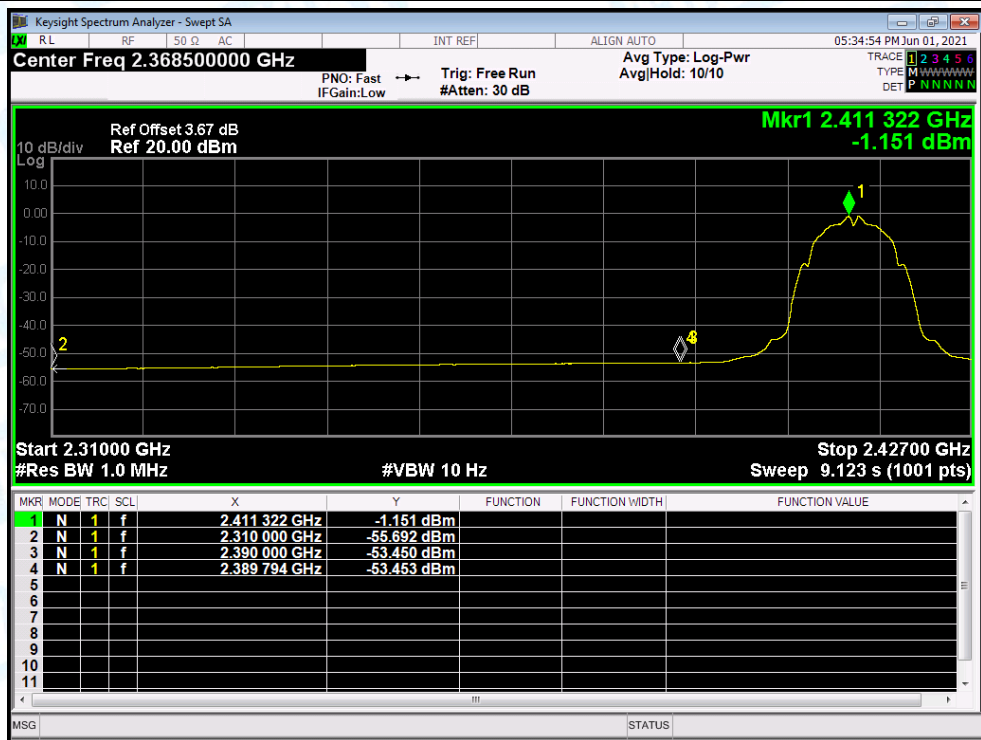
Condition	Mode	Frequency (MHz)	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	2310	-44.63	-3	47.63	Peak	74	Pass
NVNT	b	2412	2310	-55.68	-3	36.58	Average	54	Pass
NVNT	b	2412	2367.915	-39.93	-3	52.33	Peak	74	Pass
NVNT	b	2412	2389.794	-53.45	-3	38.81	Average	54	Pass
NVNT	b	2412	2390	-43.4	-3	48.86	Peak	74	Pass
NVNT	b	2412	2390	-53.45	-3	38.81	Average	54	Pass
NVNT	b	2462	2483.5	-42.92	-3	49.34	Peak	74	Pass
NVNT	b	2462	2483.5	-53.92	-3	38.34	Average	54	Pass
NVNT	b	2462	2489.135	-41.53	-3	50.73	Peak	74	Pass
NVNT	b	2462	2483.517	-53.92	-3	38.34	Average	54	Pass
NVNT	b	2462	2500	-44.51	-3	47.75	Peak	74	Pass
NVNT	b	2462	2500	-54.19	-3	38.07	Average	54	Pass
NVNT	g	2412	2310	-45.07	-3	47.19	Peak	74	Pass
NVNT	g	2412	2310	-55.72	-3	36.54	Average	54	Pass
NVNT	g	2412	2376.924	-41.4	-3	50.86	Peak	74	Pass
NVNT	g	2412	2389.911	-53.15	-3	39.11	Average	54	Pass
NVNT	g	2412	2390	-42.79	-3	49.47	Peak	74	Pass
NVNT	g	2412	2390	-53.12	-3	39.14	Average	54	Pass
NVNT	g	2462	2483.5	-43.1	-3	49.16	Peak	74	Pass
NVNT	g	2462	2483.5	-52.87	-3	39.39	Average	54	Pass
NVNT	g	2462	2493.958	-39.95	-3	52.31	Peak	74	Pass
NVNT	g	2462	2483.517	-52.87	-3	39.39	Average	54	Pass
NVNT	g	2462	2500	-44.39	-3	47.87	Peak	74	Pass
NVNT	g	2462	2500	-54.15	-3	38.11	Average	54	Pass
NVNT	n(HT20)	2412	2310	-45.67	-3	46.59	Peak	74	Pass
NVNT	n(HT20)	2412	2310	-55.68	-3	36.58	Average	54	Pass
NVNT	n(HT20)	2412	2368.383	-41.21	-3	51.05	Peak	74	Pass
NVNT	n(HT20)	2412	2389.911	-53.18	-3	39.08	Average	54	Pass
NVNT	n(HT20)	2412	2390	-42.34	-3	49.92	Peak	74	Pass
NVNT	n(HT20)	2412	2390	-53.17	-3	39.09	Average	54	Pass
NVNT	n(HT20)	2462	2483.5	-42.31	-3	49.95	Peak	74	Pass
NVNT	n(HT20)	2462	2483.5	-52.99	-3	39.27	Average	54	Pass
NVNT	n(HT20)	2462	2488.499	-40.9	-3	51.36	Peak	74	Pass
NVNT	n(HT20)	2462	2483.517	-52.99	-3	39.27	Average	54	Pass
NVNT	n(HT20)	2462	2500	-43.96	-3	48.30	Peak	74	Pass
NVNT	n(HT20)	2462	2500	-54.12	-3	38.14	Average	54	Pass

Test Graphs

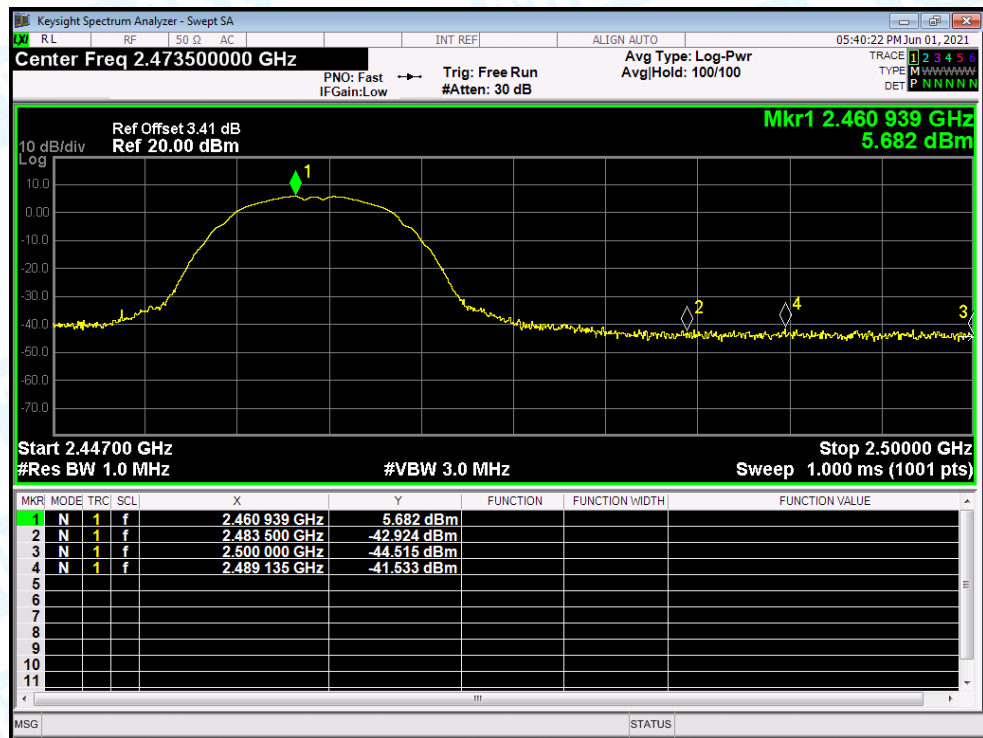
Restrict Band NVNT b 2412MHz Ant1 Peak



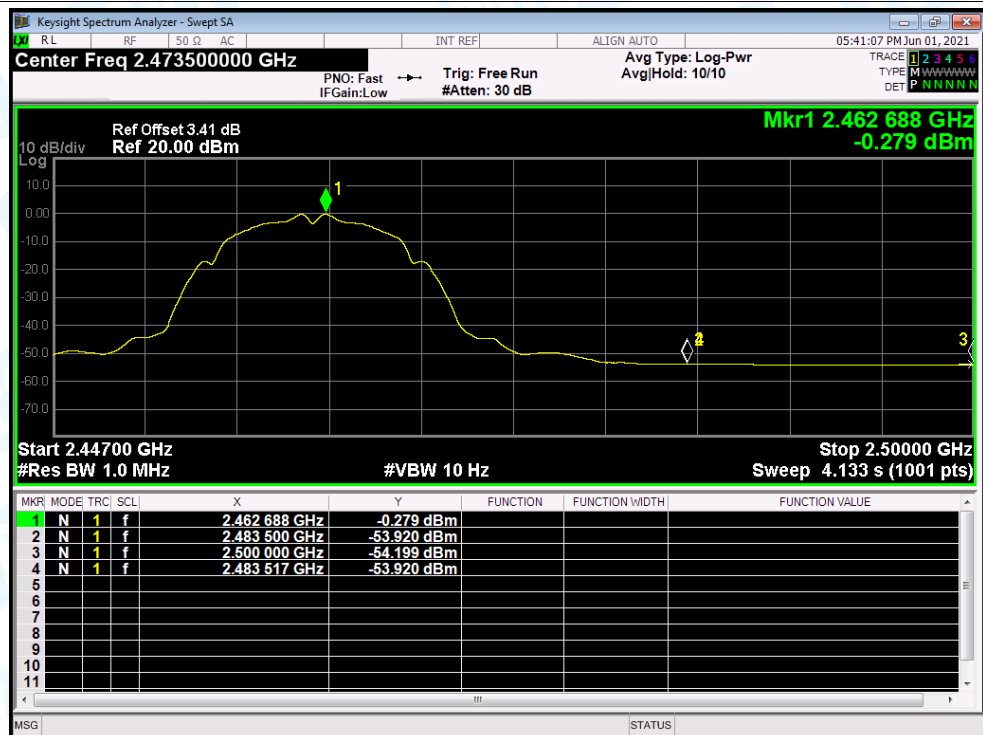
Restrict Band NVNT b 2412MHz Ant1 Average



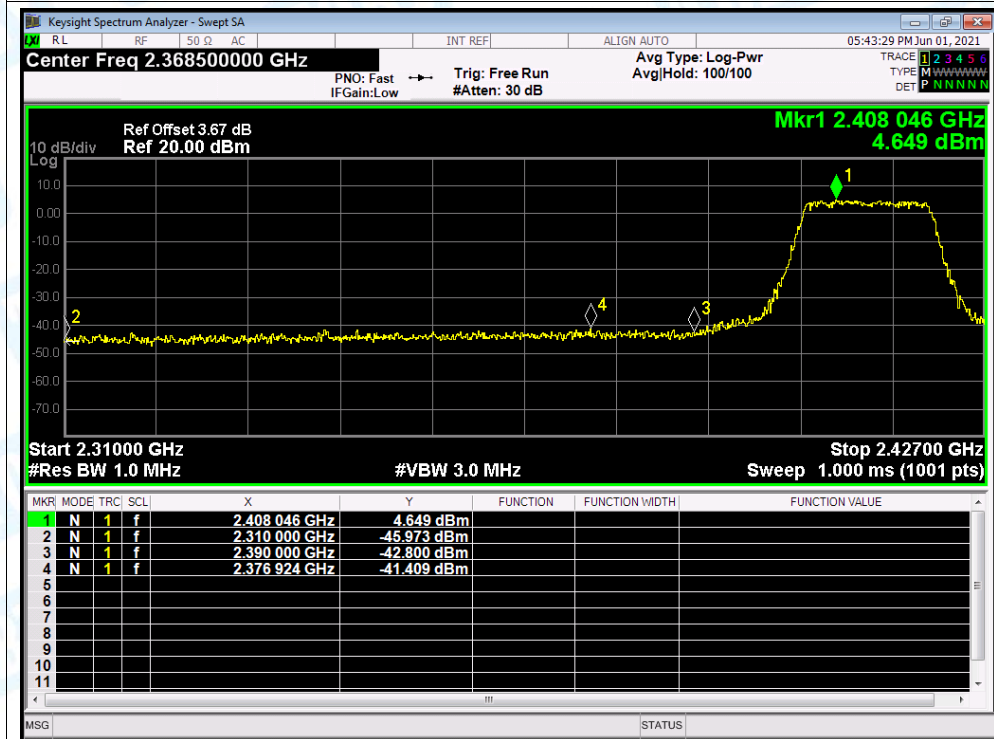
Restrict Band NVNT b 2462MHz Ant1 Peak



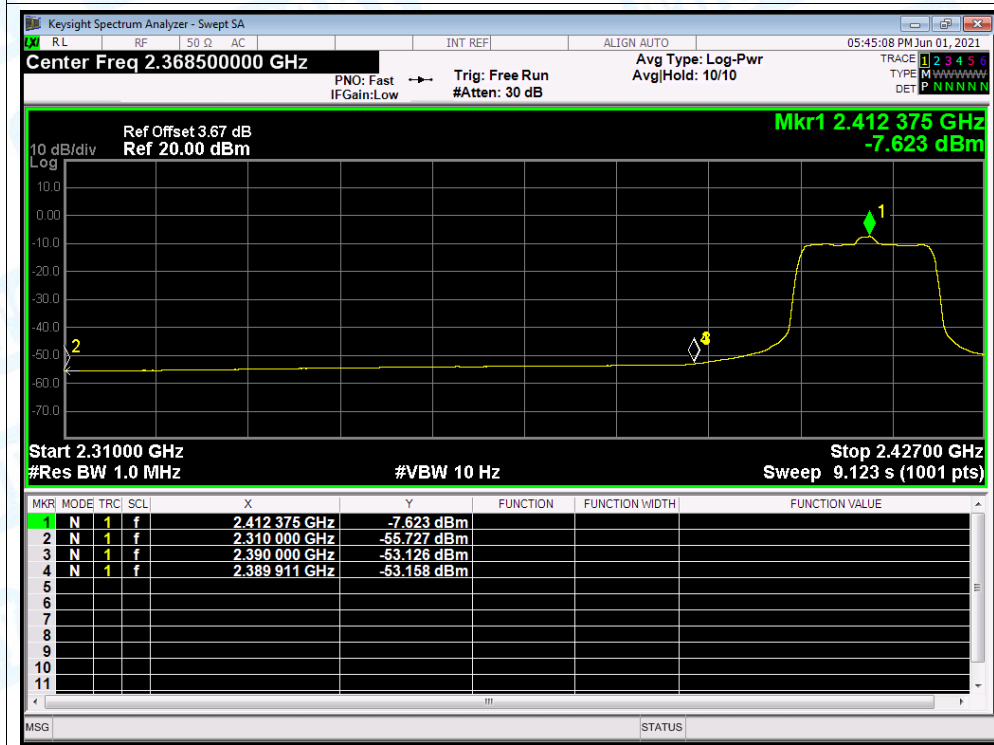
Restrict Band NVNT b 2462MHz Ant1 Average



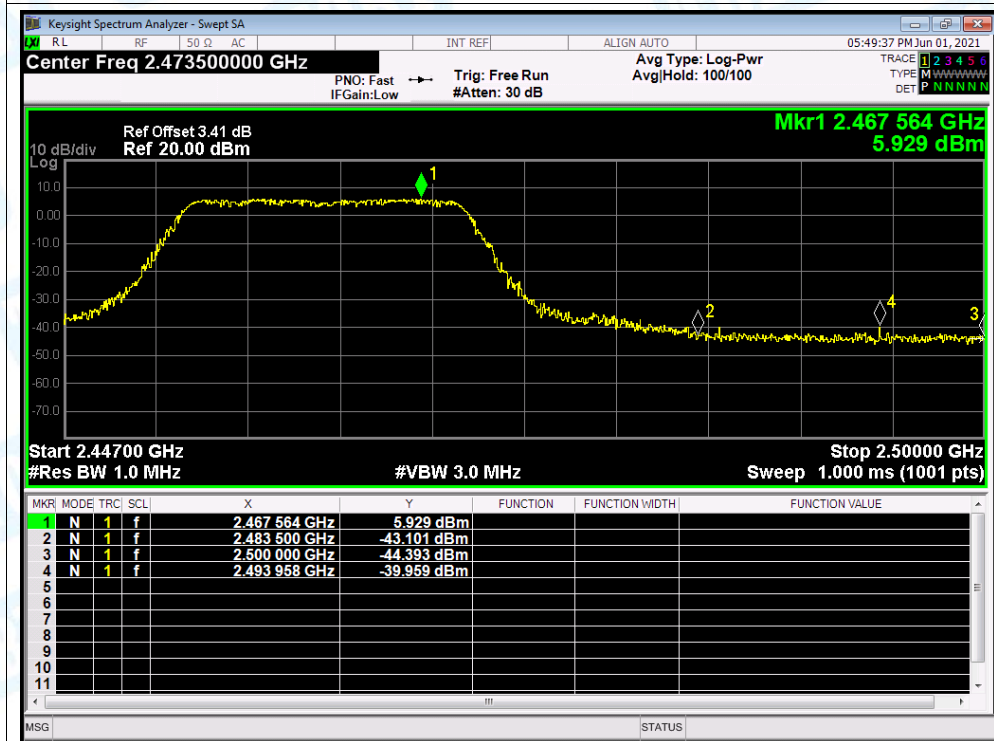
Restrict Band NVNT g 2412MHz Ant1 Peak



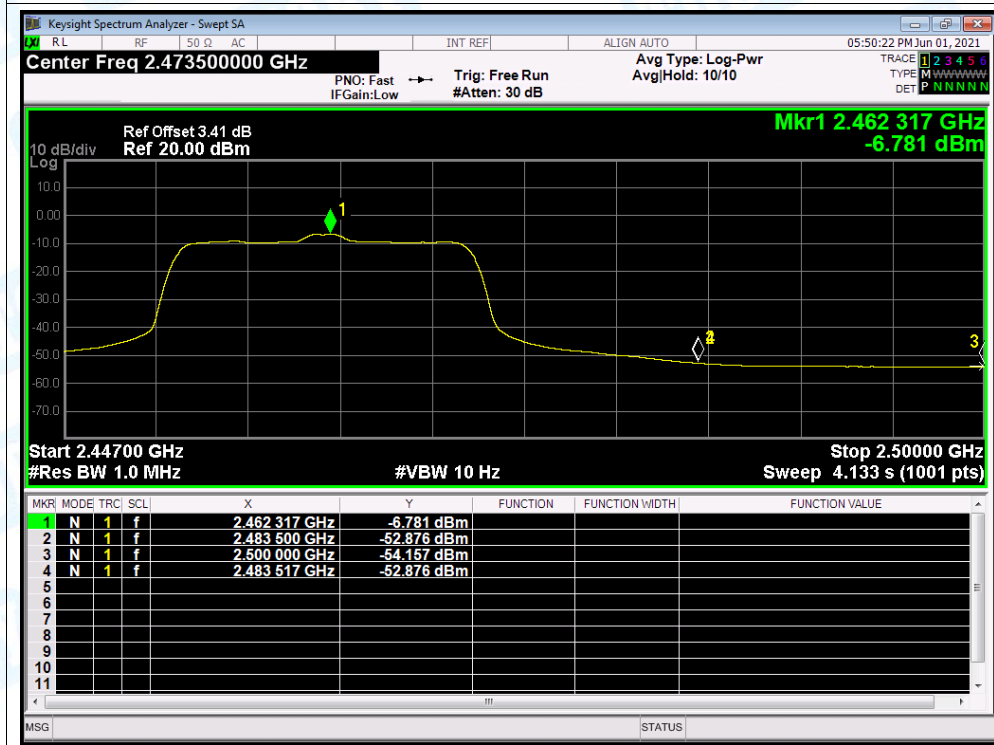
Restrict Band NVNT g 2412MHz Ant1 Average



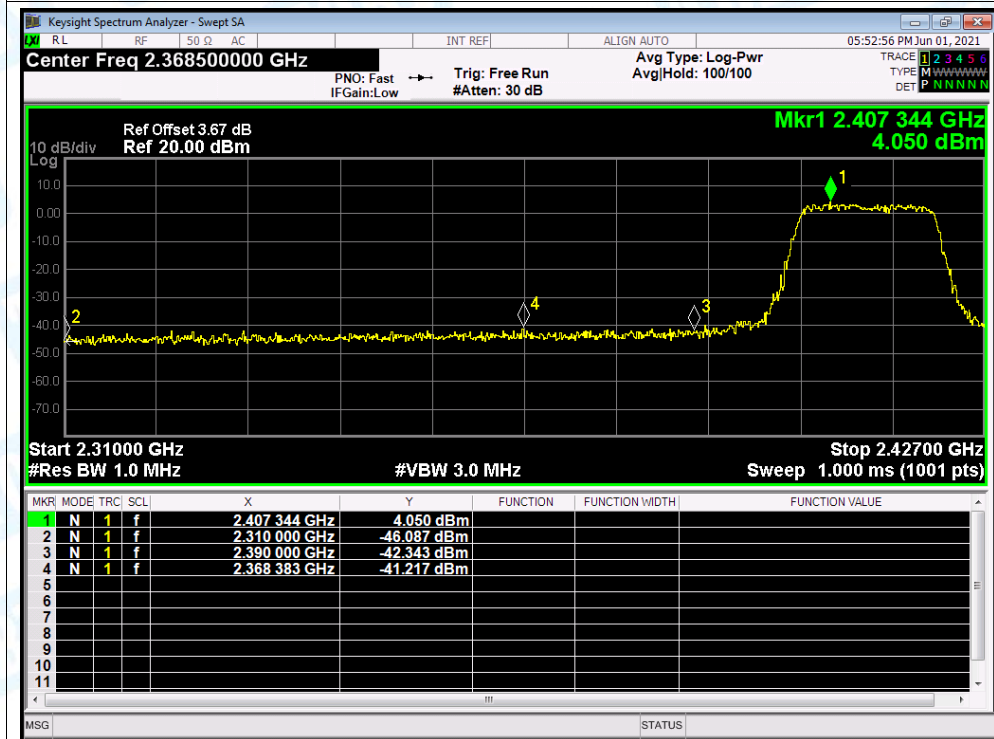
Restrict Band NVNT g 2462MHz Ant1 Peak



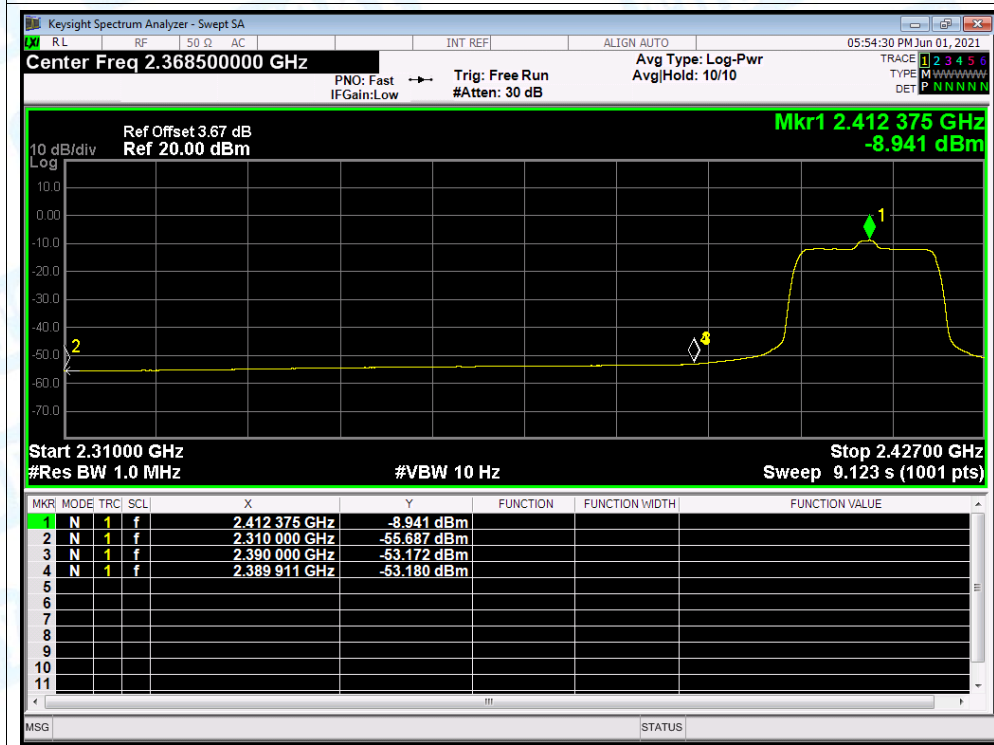
Restrict Band NVNT g 2462MHz Ant1 Average



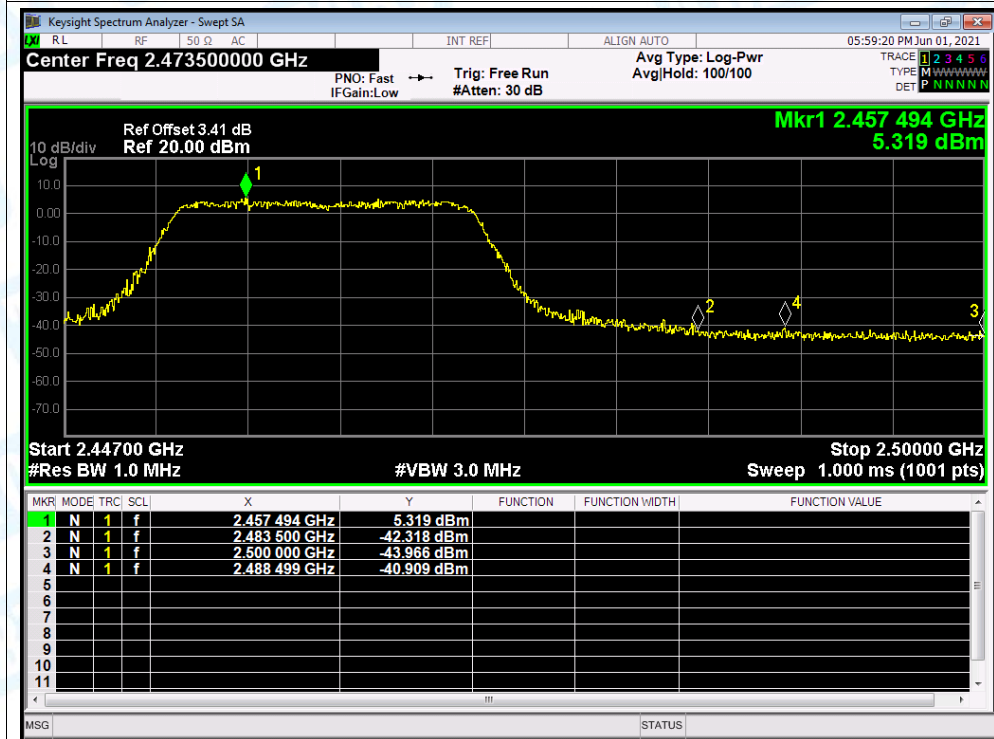
Restrict Band NVNT n(HT20) 2412MHz Ant1 Peak



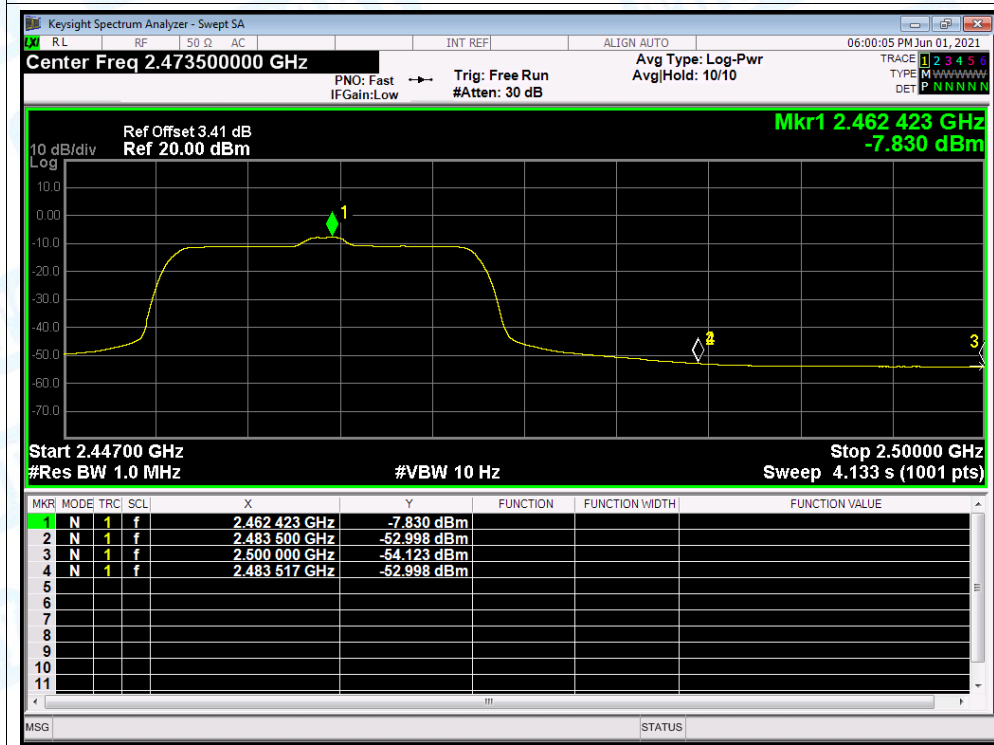
Restrict Band NVNT n(HT20) 2412MHz Ant1 Average



Restrict Band NVNT n(HT20) 2462MHz Ant1 Peak

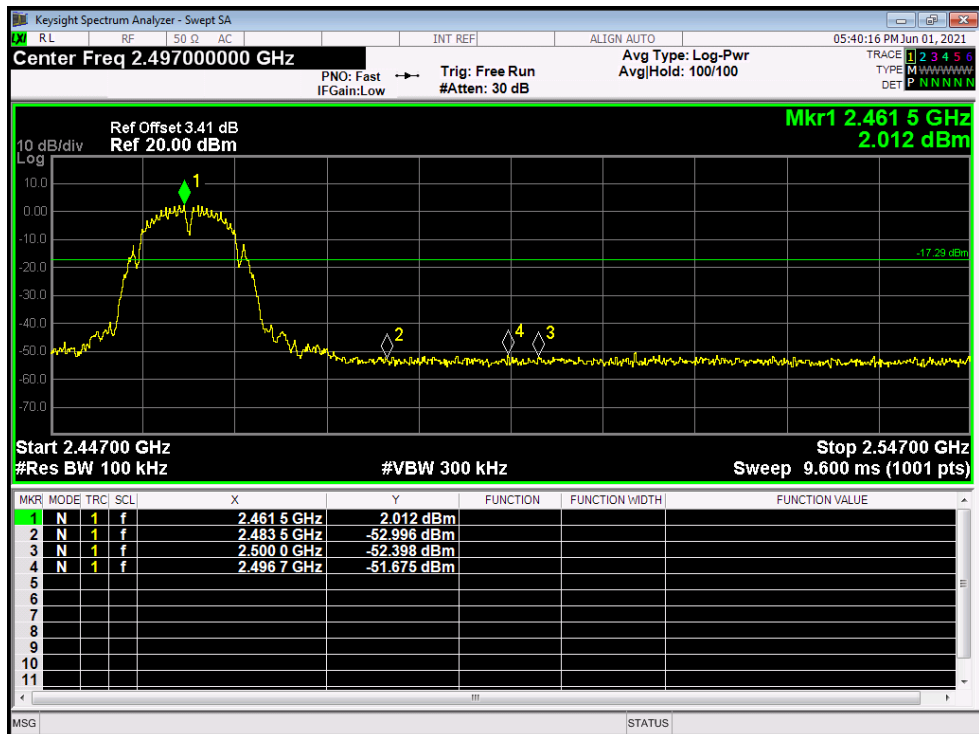
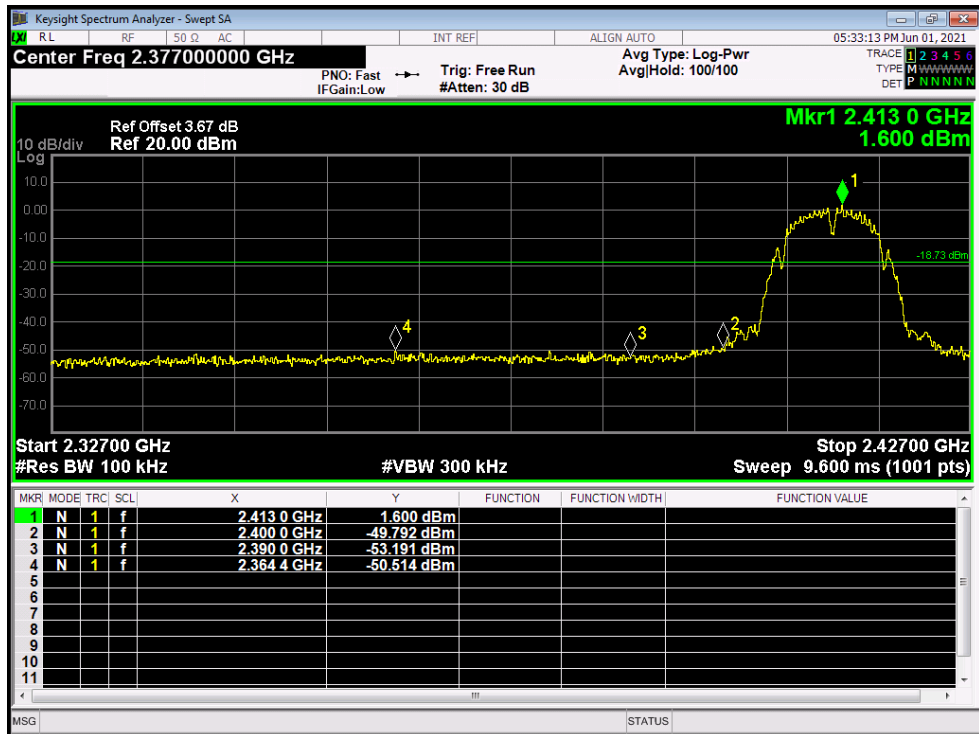


Restrict Band NVNT n(HT20) 2462MHz Ant1 Average

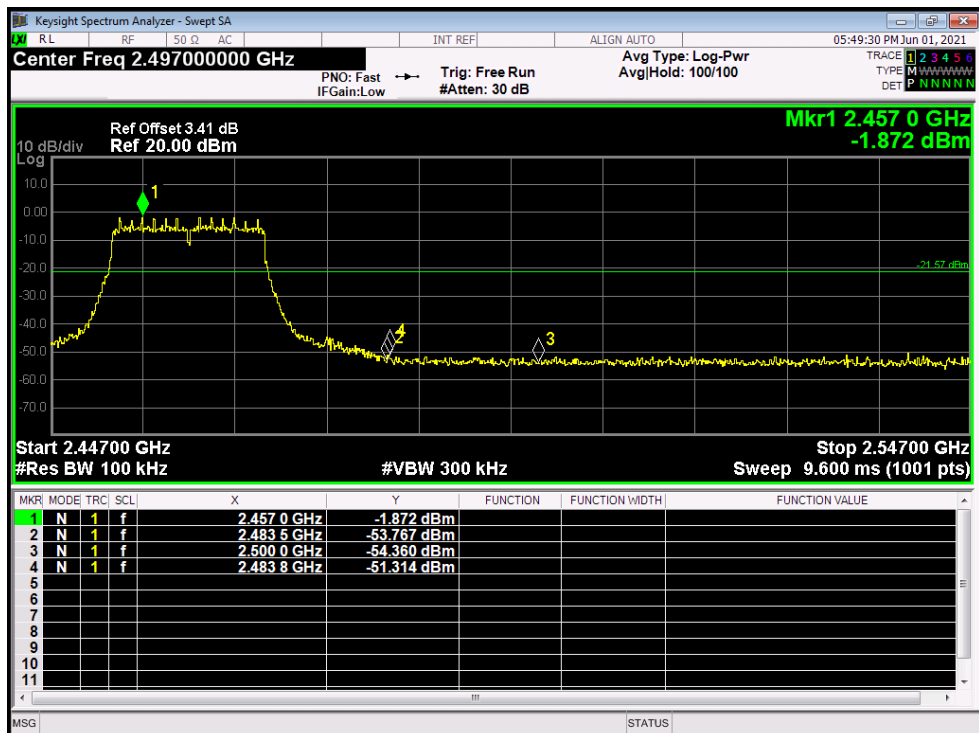
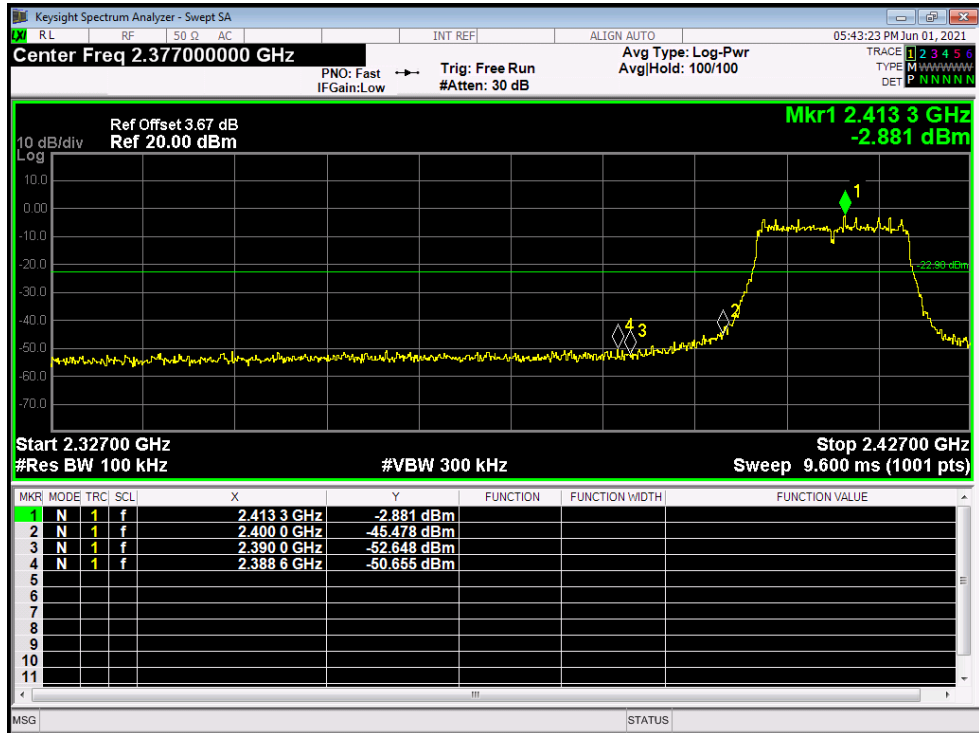


(2) Conducted Test

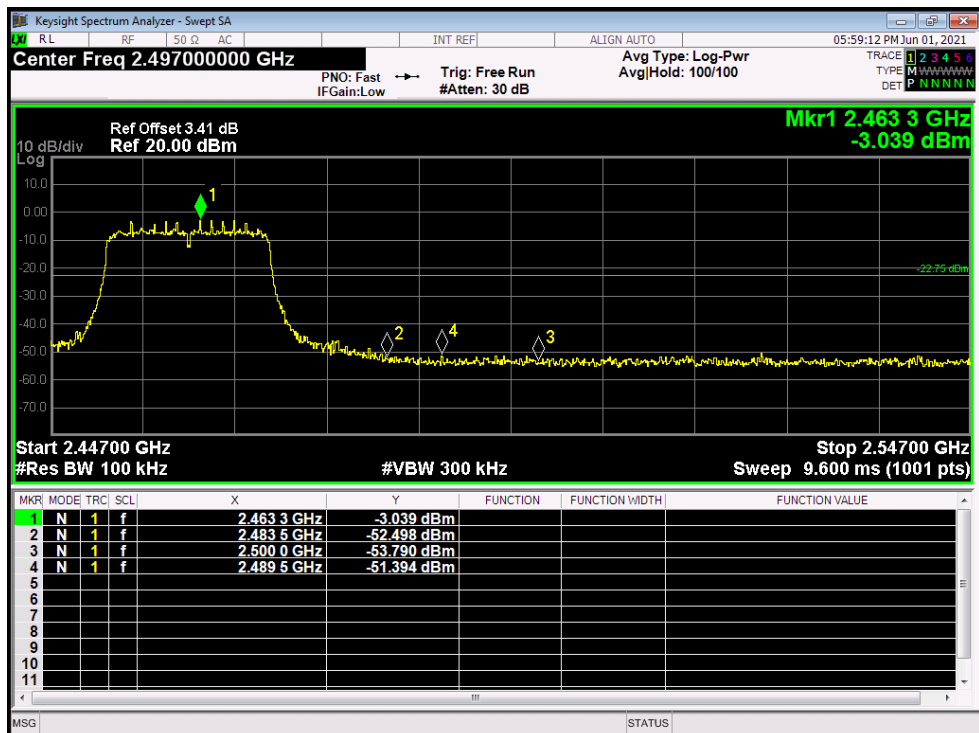
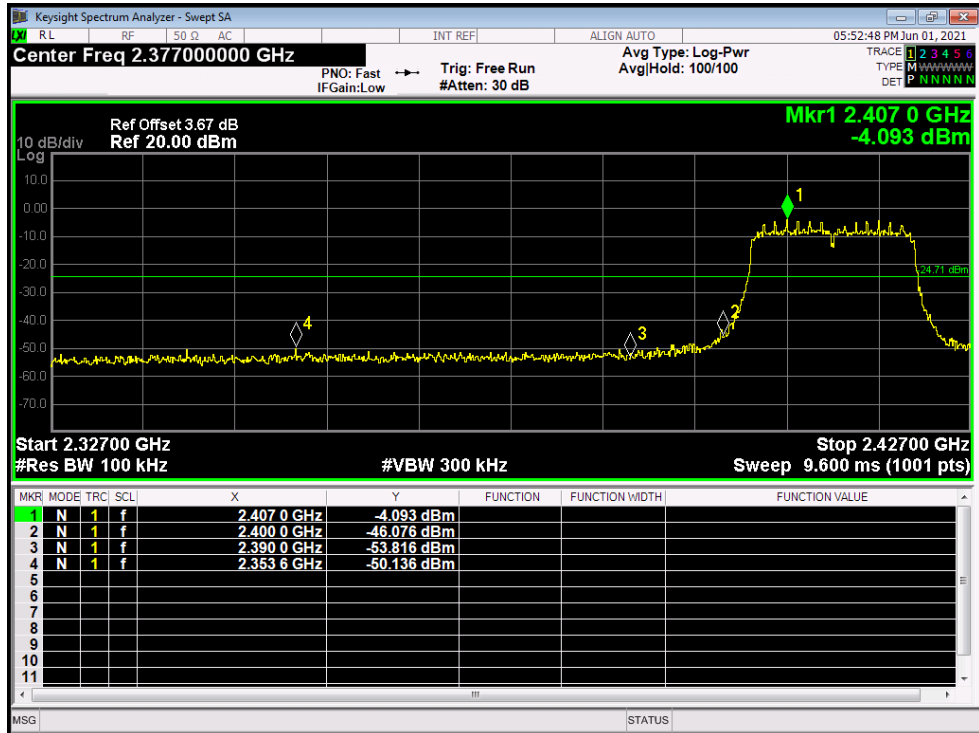
Temperature:	25°C	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX B Mode 2412MHz / TX B Mode 2462MHz		
Remark:	The EUT is programmed in continuously transmitting mode		



Temperature:	25°C	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX G Mode 2412MHz / TX G Mode 2462MHz		
Remark:	The EUT is programmed in continuously transmitting mode		



Temperature:	25°C	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX N(HT20) Mode 2412MHz / TX N(HT20) Mode 2462MHz		
Remark:	The EUT is programmed in continuously transmitting mode		

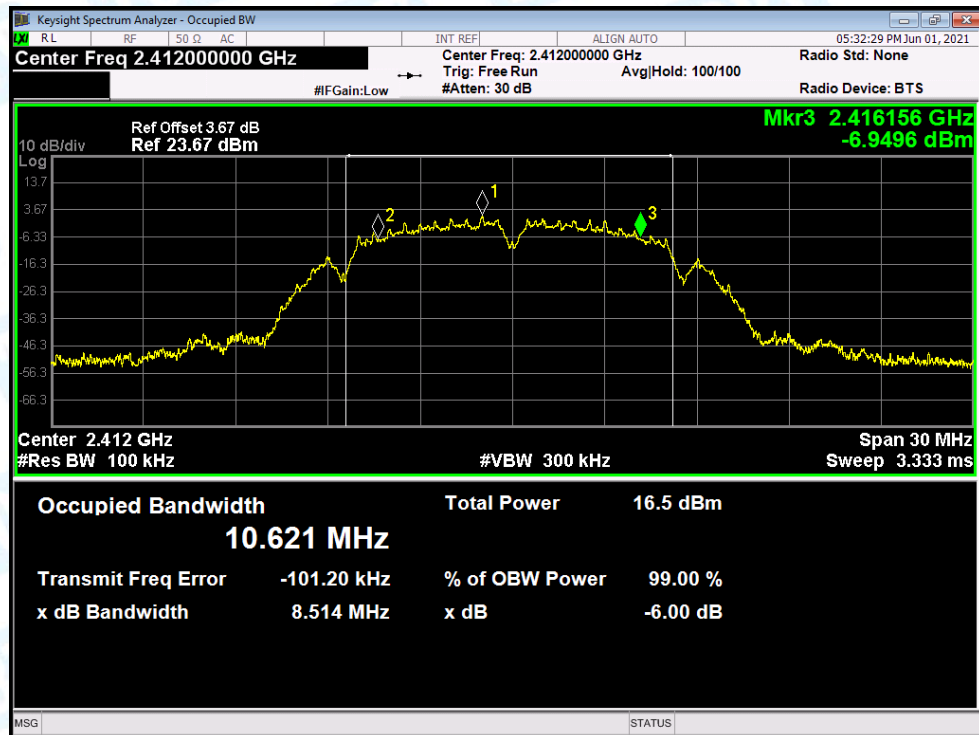


Attachment C-- Bandwidth Test Data

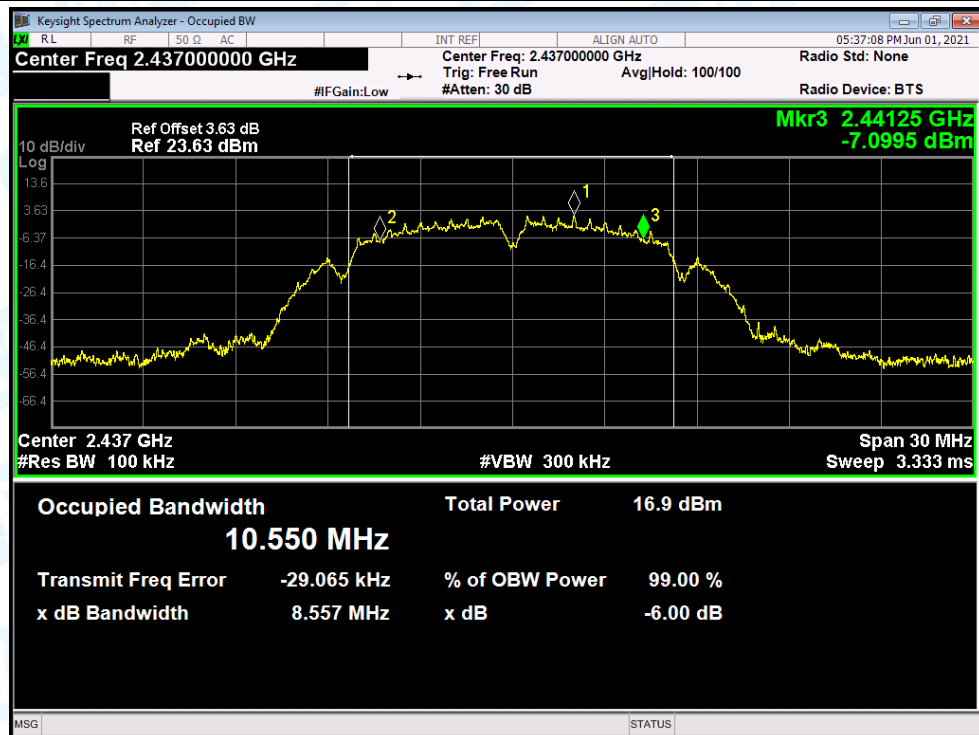
Condition	Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	8.514	0.5	Pass
NVNT	b	2437	8.557	0.5	Pass
NVNT	b	2462	8.529	0.5	Pass
NVNT	g	2412	16.306	0.5	Pass
NVNT	g	2437	16.281	0.5	Pass
NVNT	g	2462	16.308	0.5	Pass
NVNT	n(HT20)	2412	16.381	0.5	Pass
NVNT	n(HT20)	2437	16.858	0.5	Pass
NVNT	n(HT20)	2462	16.981	0.5	Pass

Test Graphs

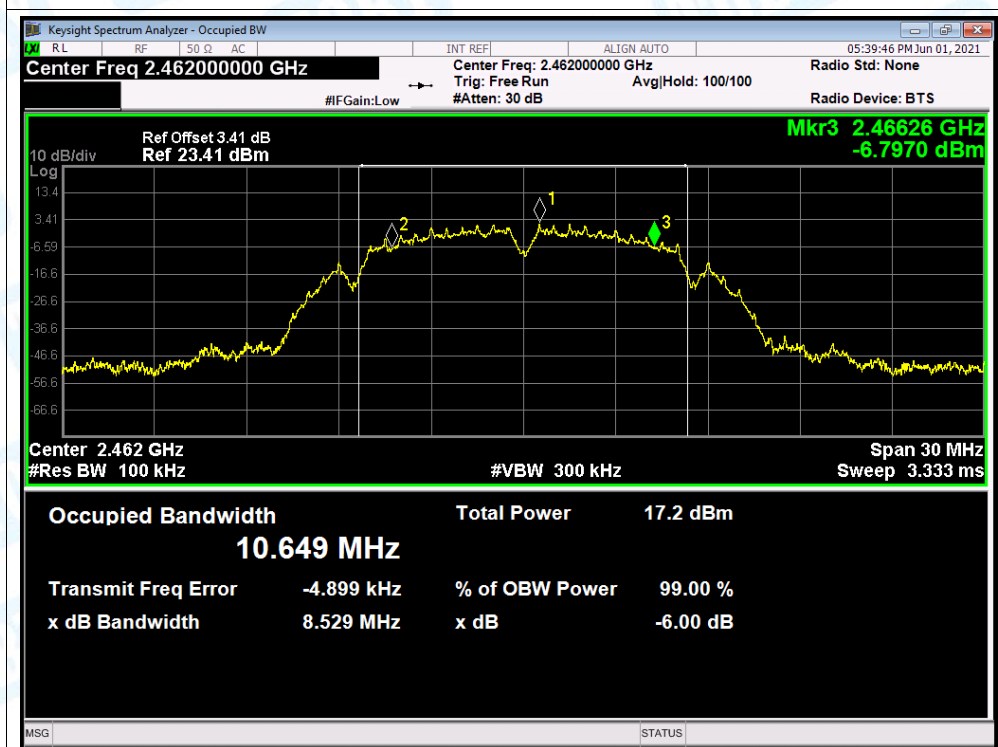
-6dB Bandwidth NVNT b 2412MHz Ant1



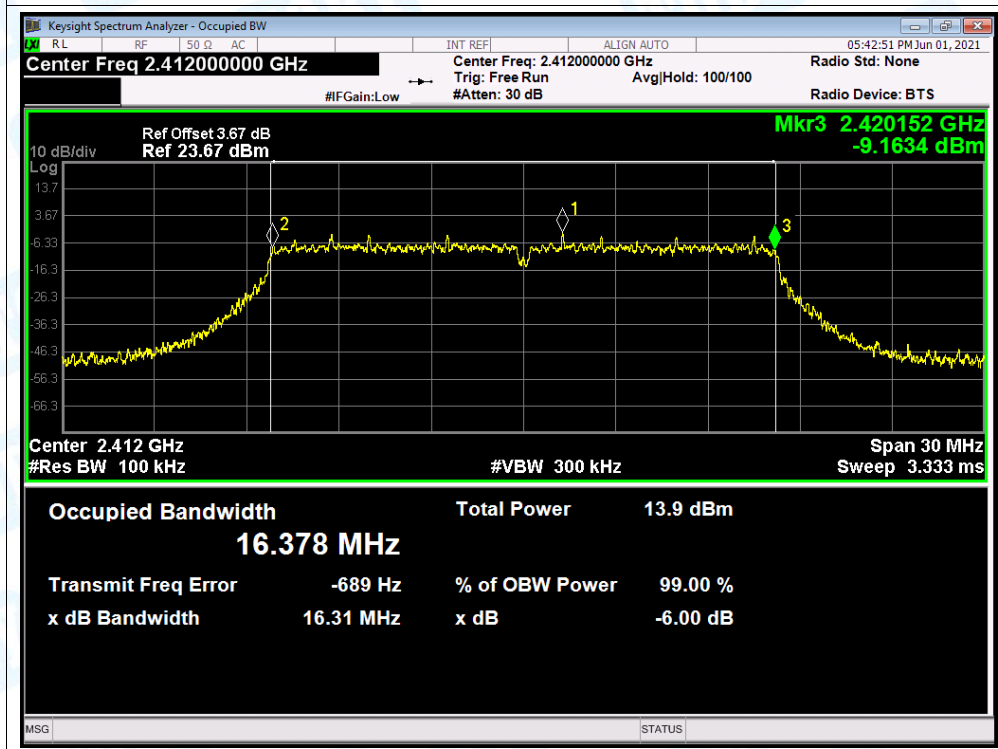
-6dB Bandwidth NVNT b 2437MHz Ant1



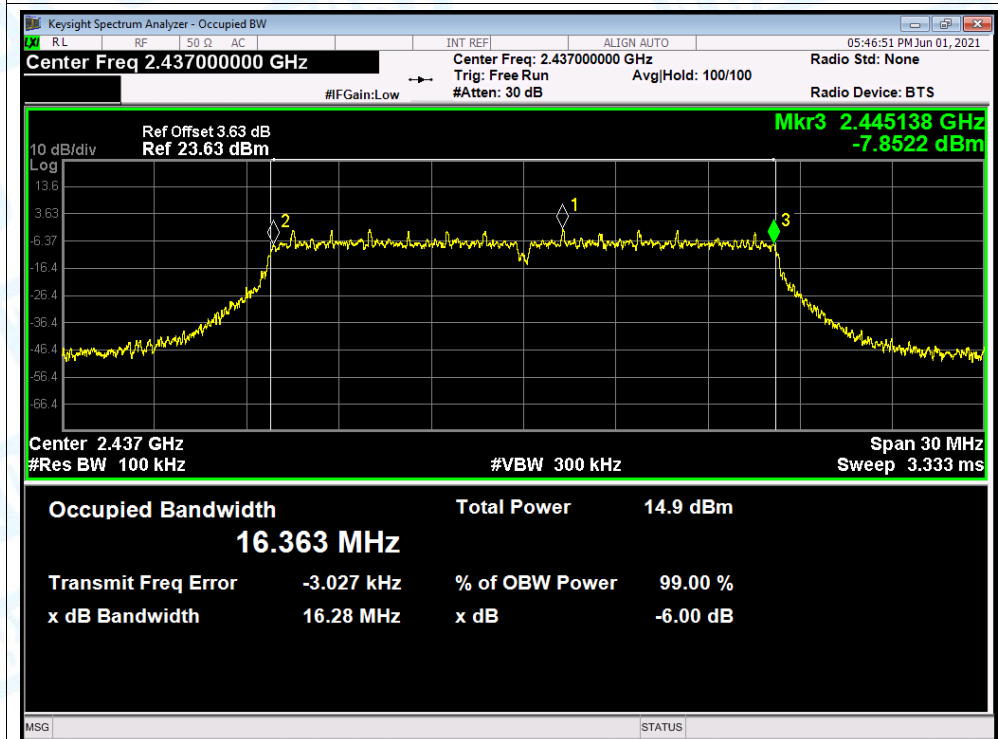
-6dB Bandwidth NVNT b 2462MHz Ant1



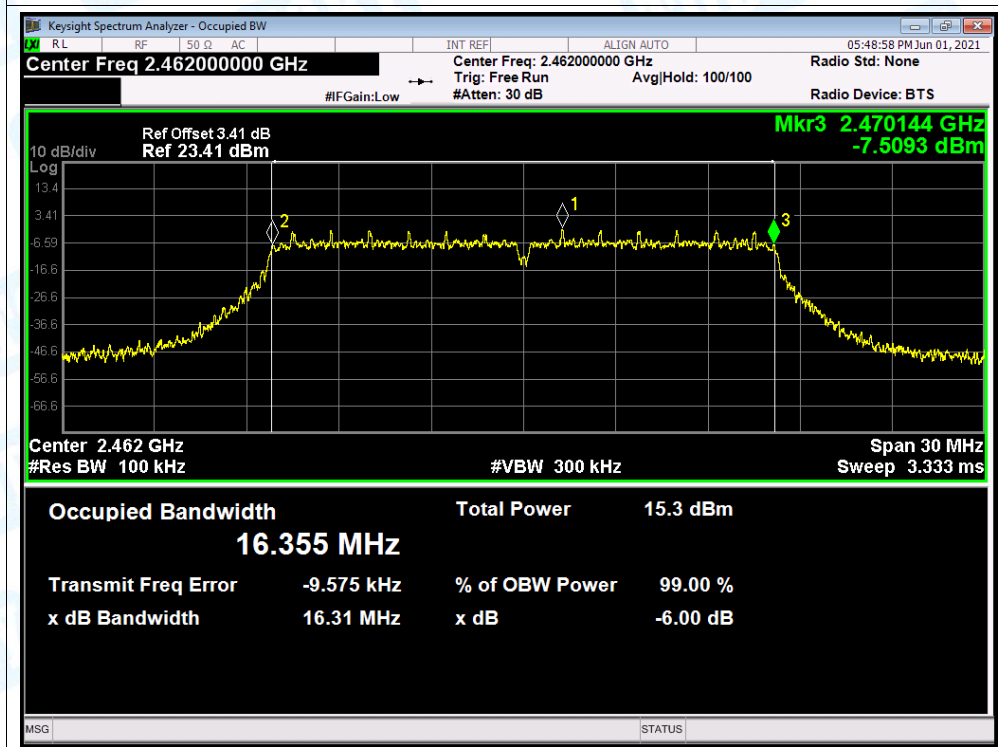
-6dB Bandwidth NVNT g 2412MHz Ant1



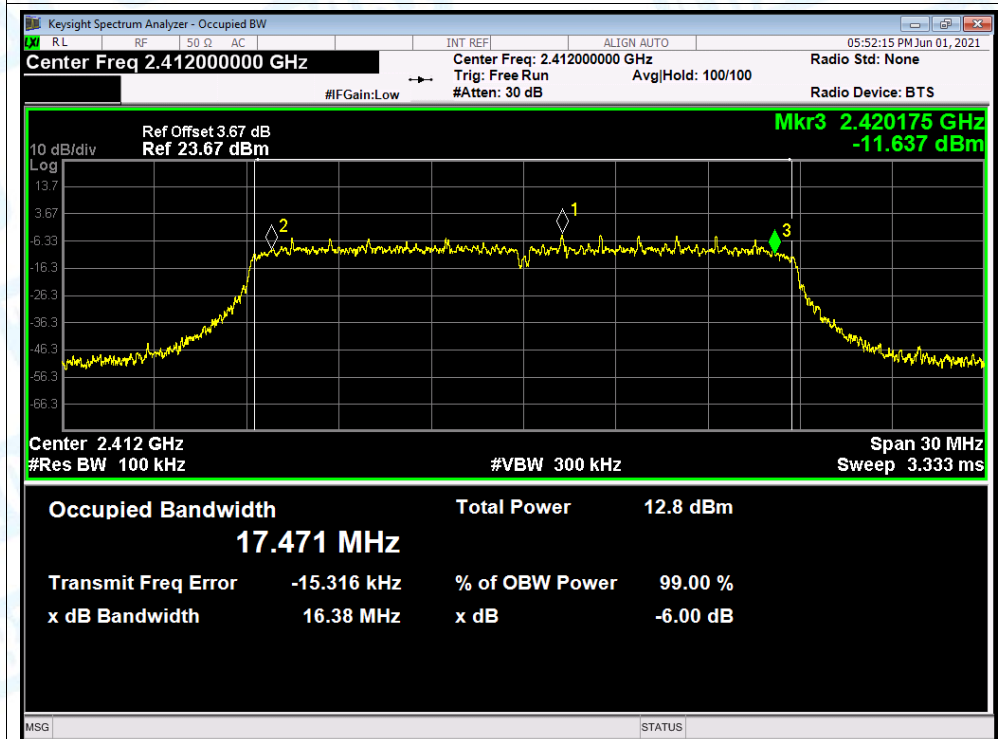
-6dB Bandwidth NVNT g 2437MHz Ant1



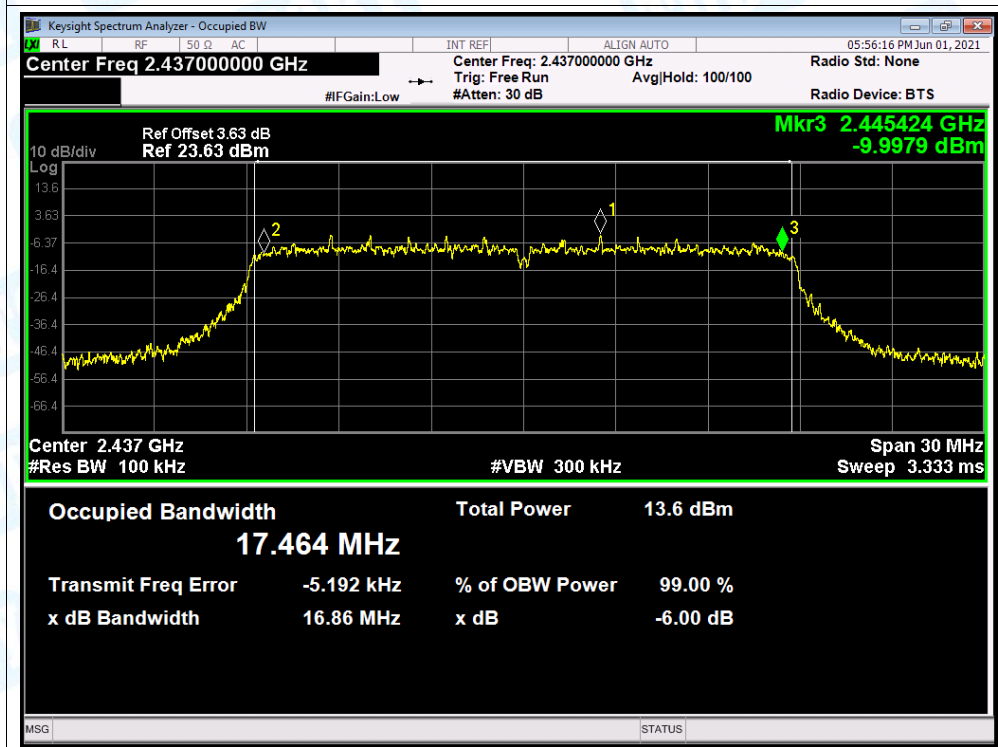
-6dB Bandwidth NVNT g 2462MHz Ant1

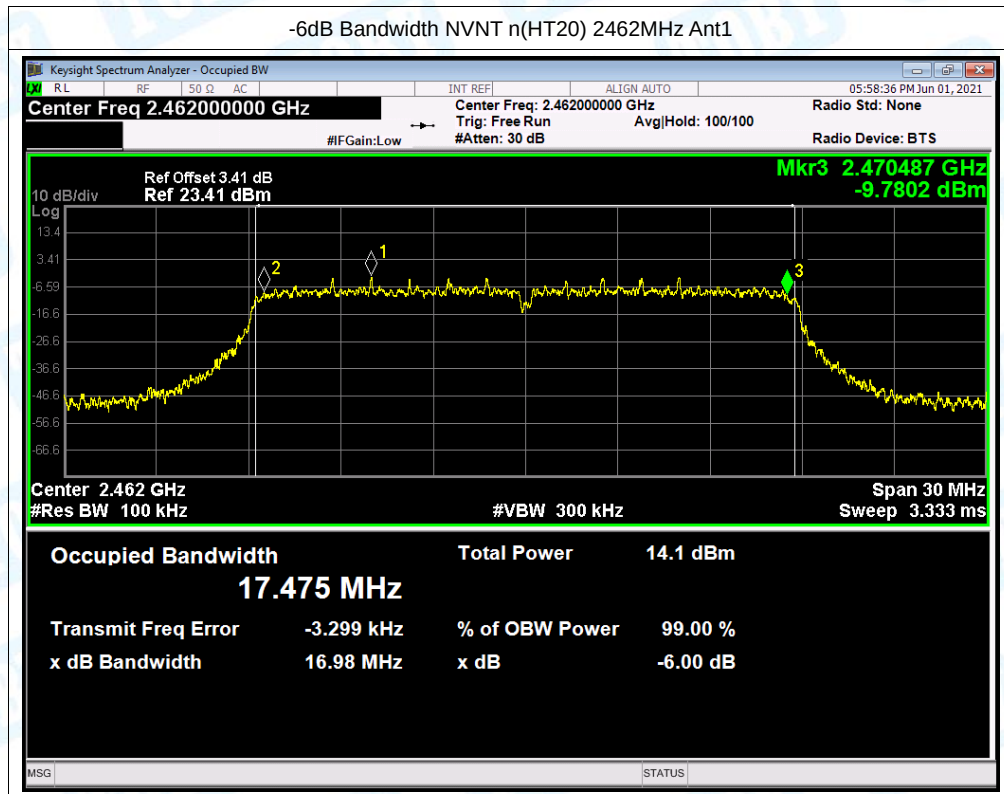


-6dB Bandwidth NVNT n(HT20) 2412MHz Ant1



-6dB Bandwidth NVNT n(HT20) 2437MHz Ant1





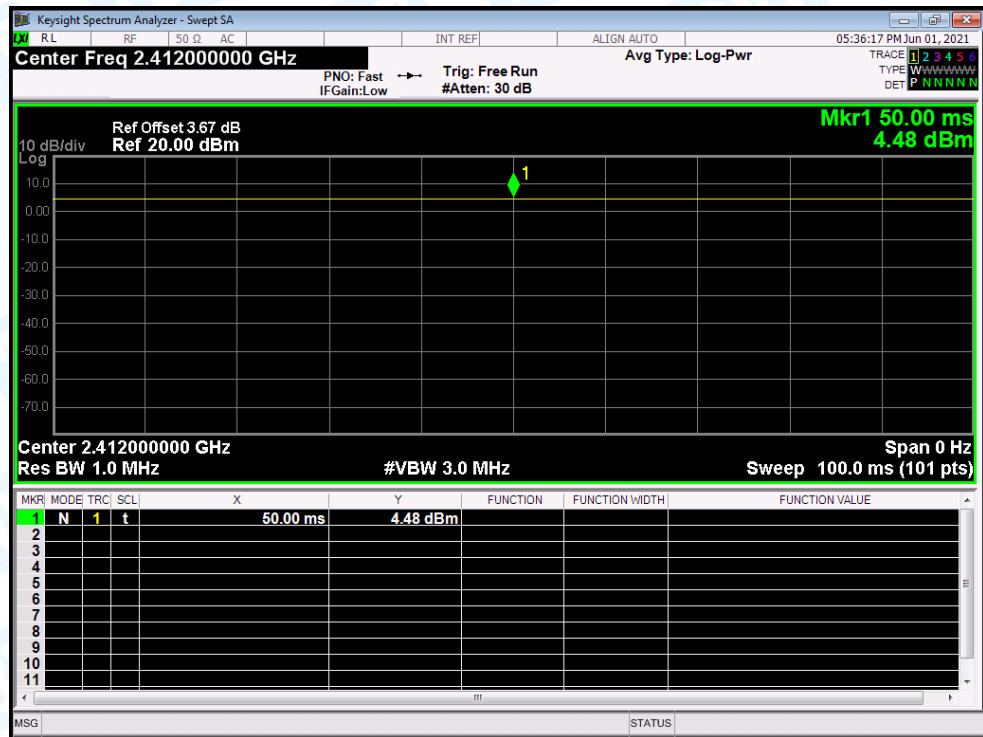
Attachment D-- Peak Output Power Test Data

Mode	Frequency (MHz)	Peak Power (dBm)	Duty Factor (dB)	Averager Power (dBm)	Limit (dBm)	Verdict
b	2412	11.628	0	8.606	30	Pass
b	2437	11.96	0	8.694	30	Pass
b	2462	12.258	0	8.962	30	Pass
g	2412	12.816	0	8.494	30	Pass
g	2437	13.577	0	8.954	30	Pass
g	2462	13.962	0	8.475	30	Pass
n(HT20)	2412	11.509	0	8.940	30	Pass
n(HT20)	2437	12.362	0	8.008	30	Pass
n(HT20)	2462	12.802	0	8.771	30	Pass

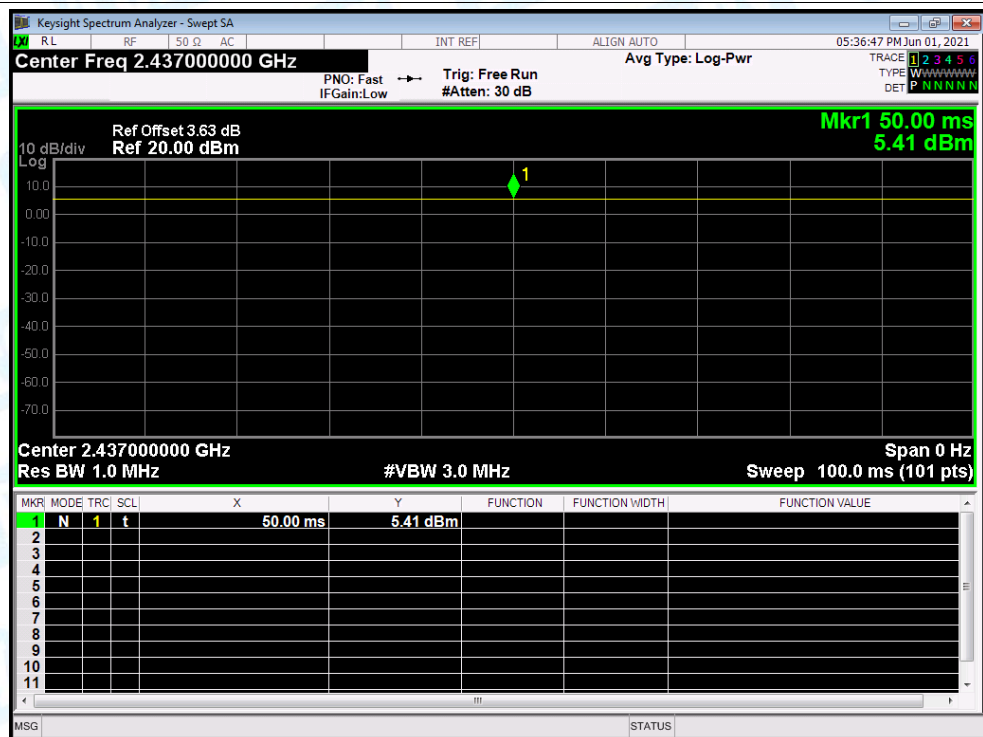
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	100	0	0
NVNT	b	2437	100	0	0
NVNT	b	2462	100	0	0
NVNT	g	2412	100	0	0
NVNT	g	2437	100	0	0
NVNT	g	2462	100	0	0
NVNT	n(HT20)	2412	100	0	0
NVNT	n(HT20)	2437	100	0	0
NVNT	n(HT20)	2462	100	0	0

Test Graphs

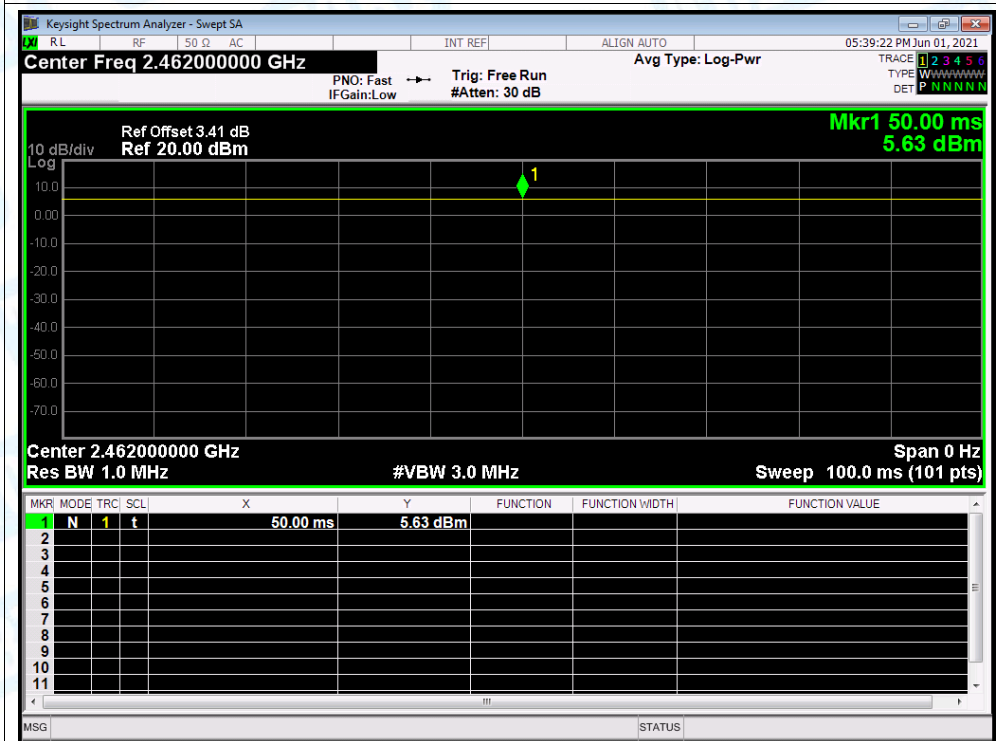
Duty Cycle NVNT b 2412MHz Ant1



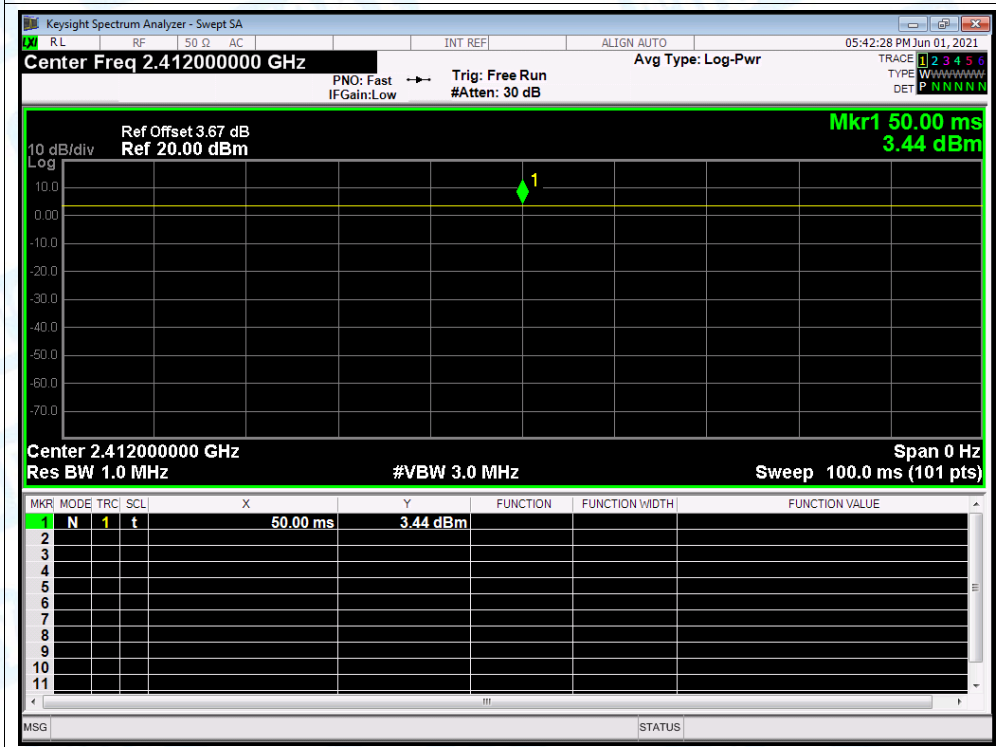
Duty Cycle NVNT b 2437MHz Ant1



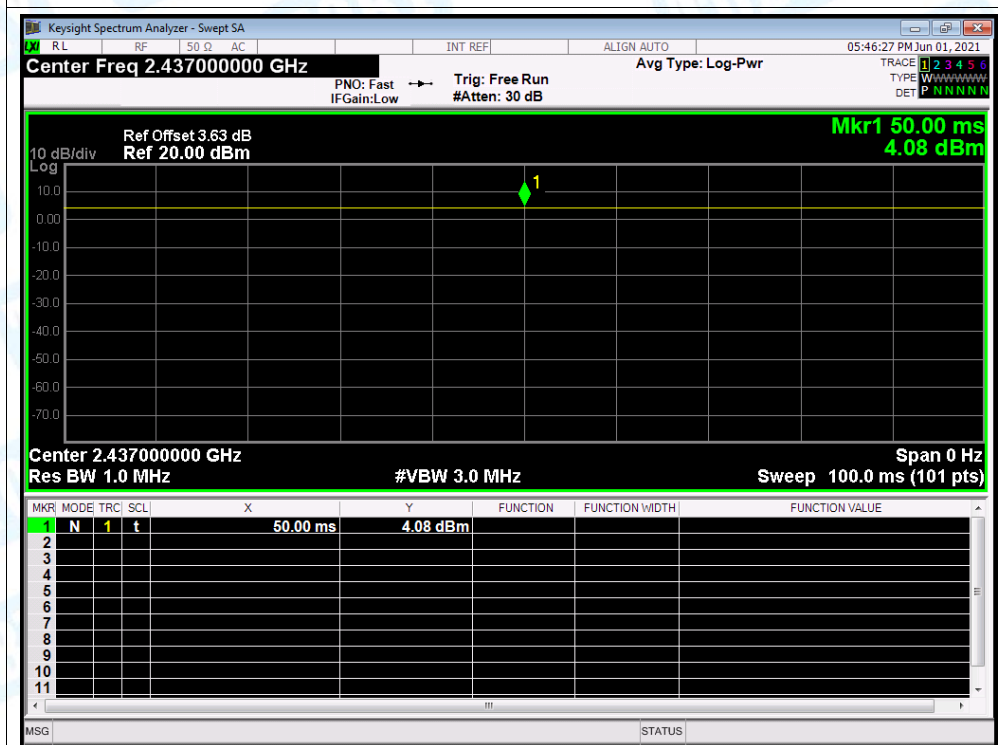
Duty Cycle NVNT b 2462MHz Ant1



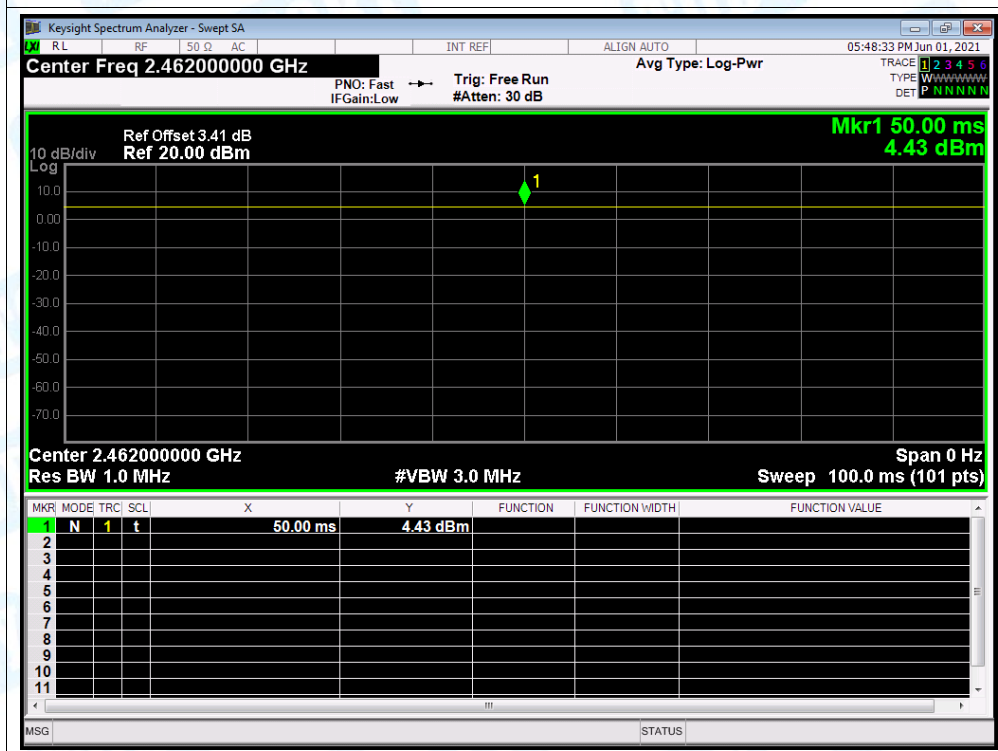
Duty Cycle NVNT g 2412MHz Ant1



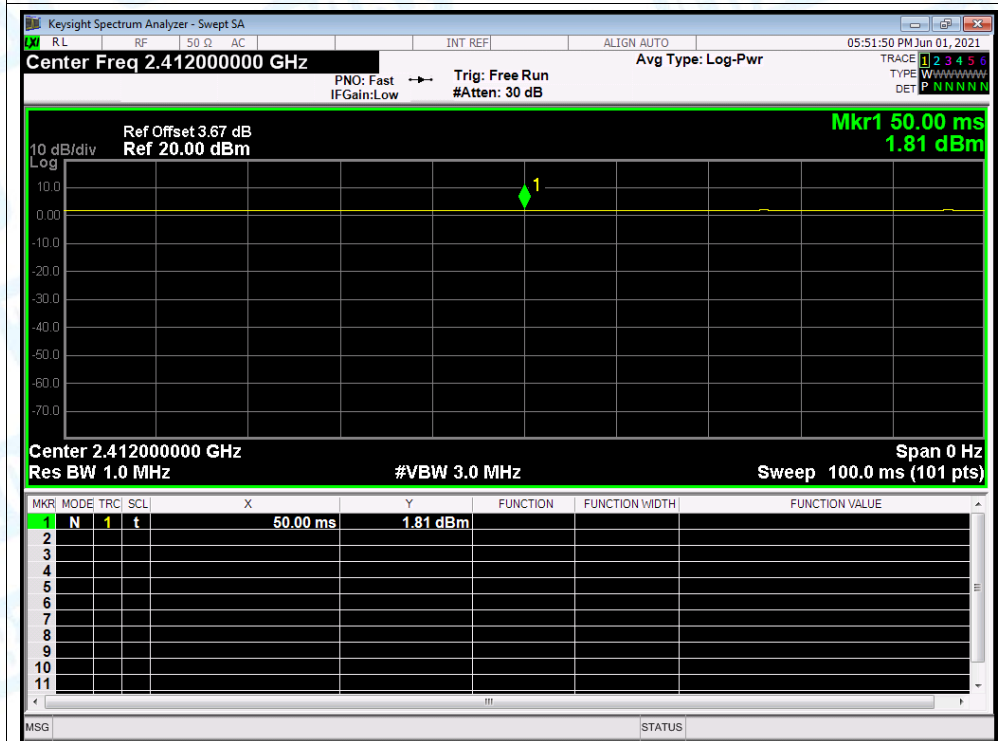
Duty Cycle NVNT g 2437MHz Ant1



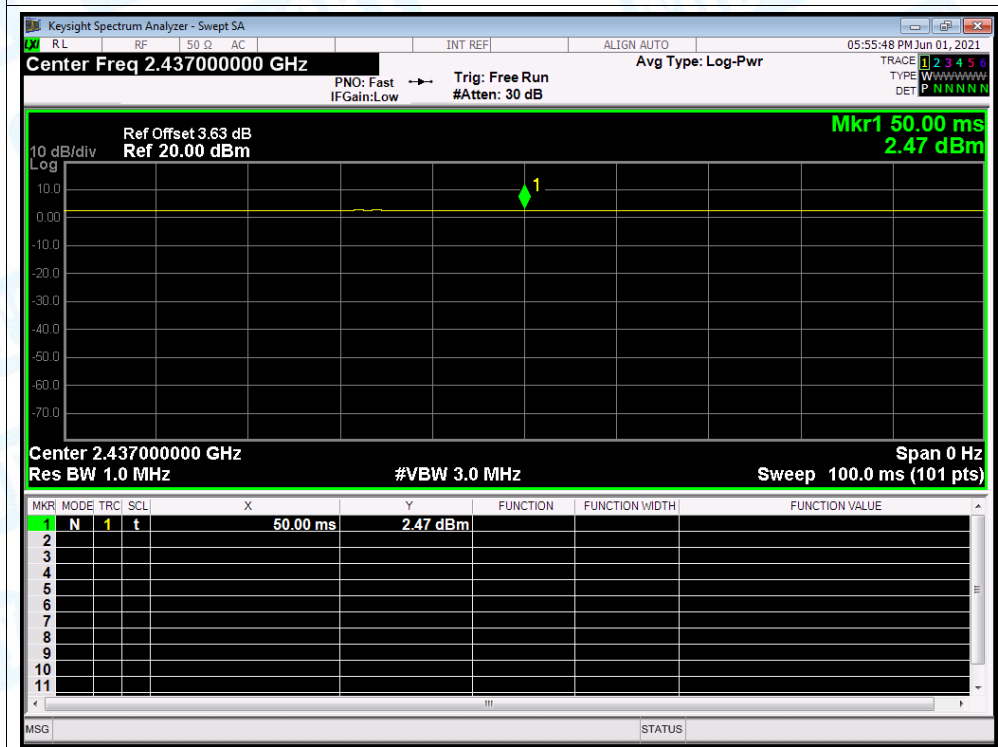
Duty Cycle NVNT g 2462MHz Ant1

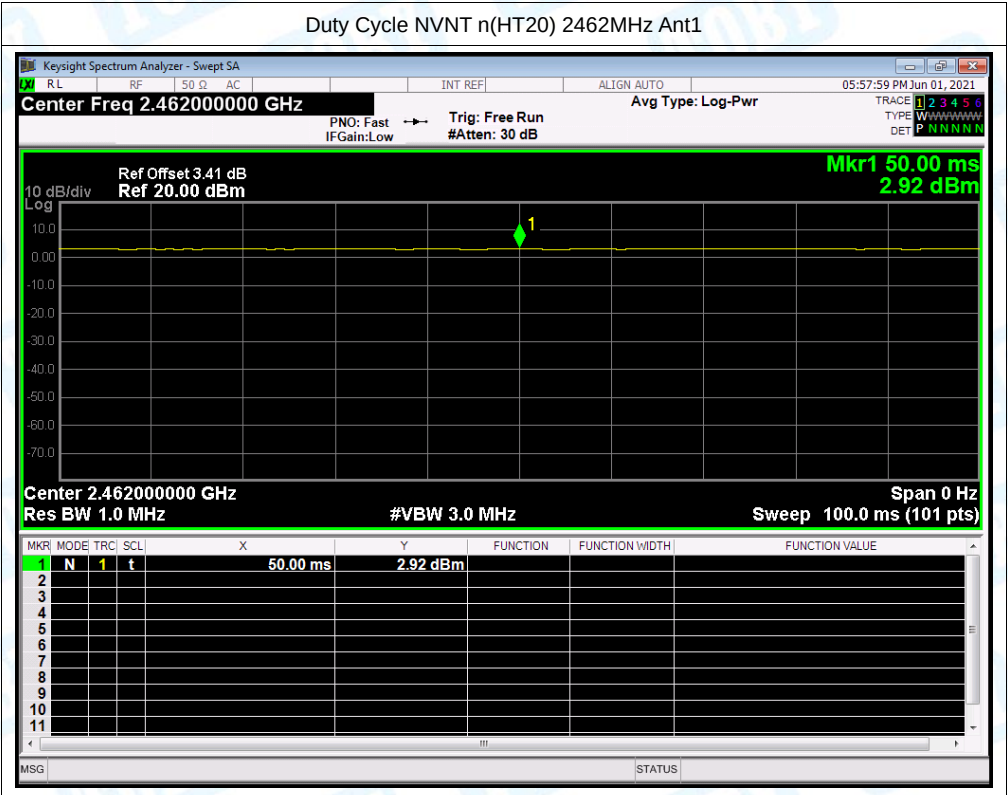


Duty Cycle NVNT n(HT20) 2412MHz Ant1



Duty Cycle NVNT n(HT20) 2437MHz Ant1



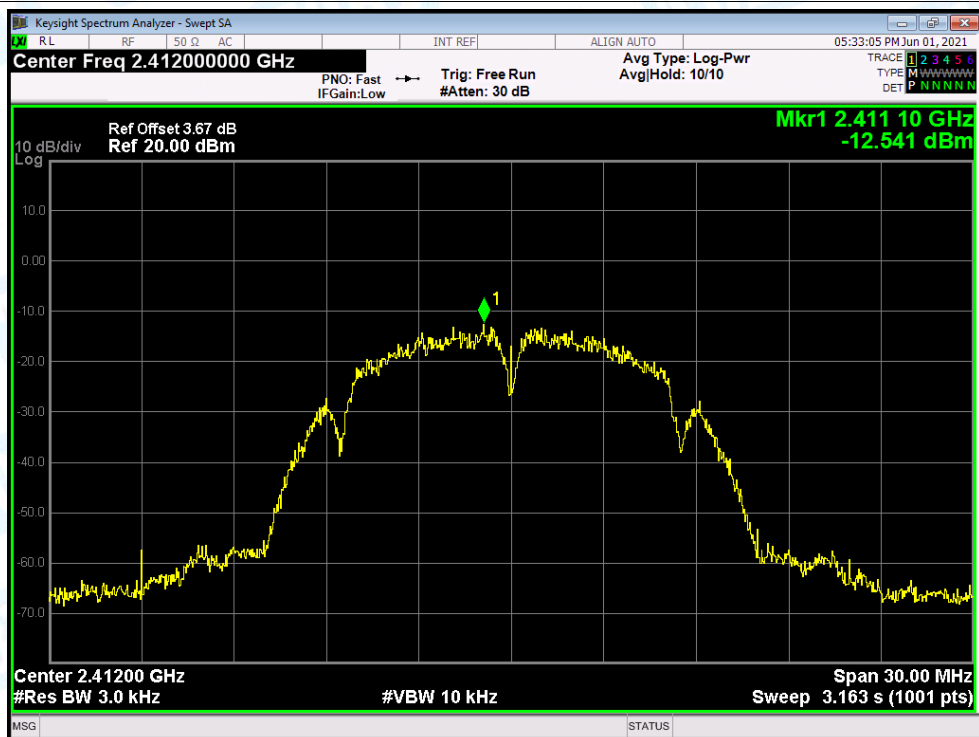


Attachment E-- Power Spectral Density Test Data

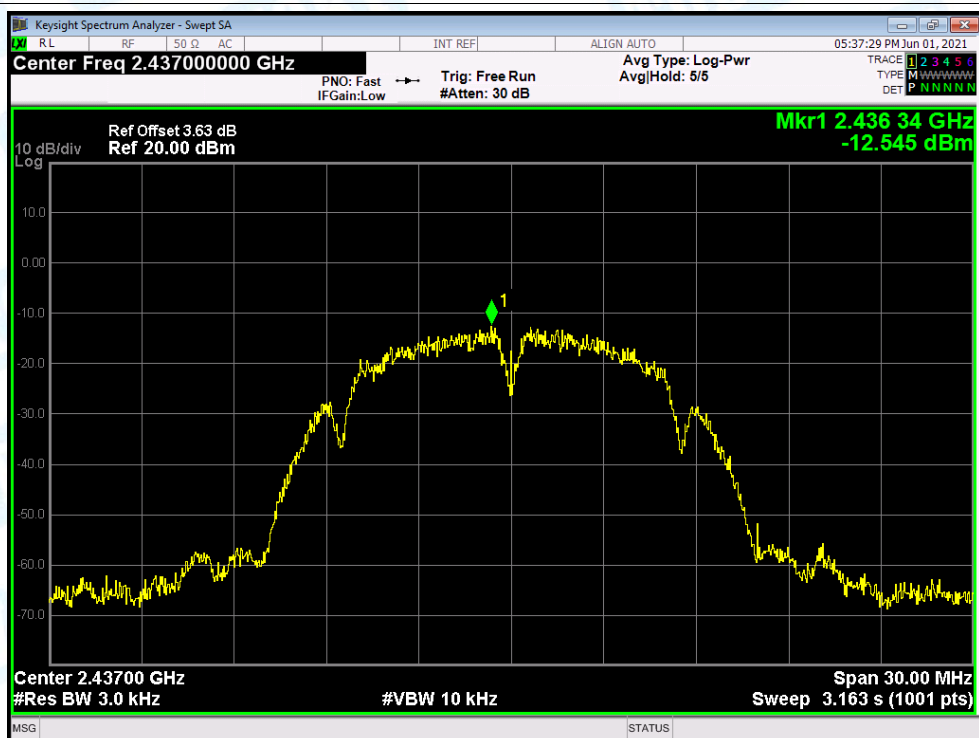
Condition	Mode	Frequency (MHz)	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	-12.541	8	Pass
NVNT	b	2437	-12.545	8	Pass
NVNT	b	2462	-11.865	8	Pass
NVNT	g	2412	-16.565	8	Pass
NVNT	g	2437	-15.813	8	Pass
NVNT	g	2462	-15.466	8	Pass
NVNT	n(HT20)	2412	-16.877	8	Pass
NVNT	n(HT20)	2437	-16.915	8	Pass
NVNT	n(HT20)	2462	-16.594	8	Pass

Test Graphs

PSD NVNT b 2412MHz Ant1



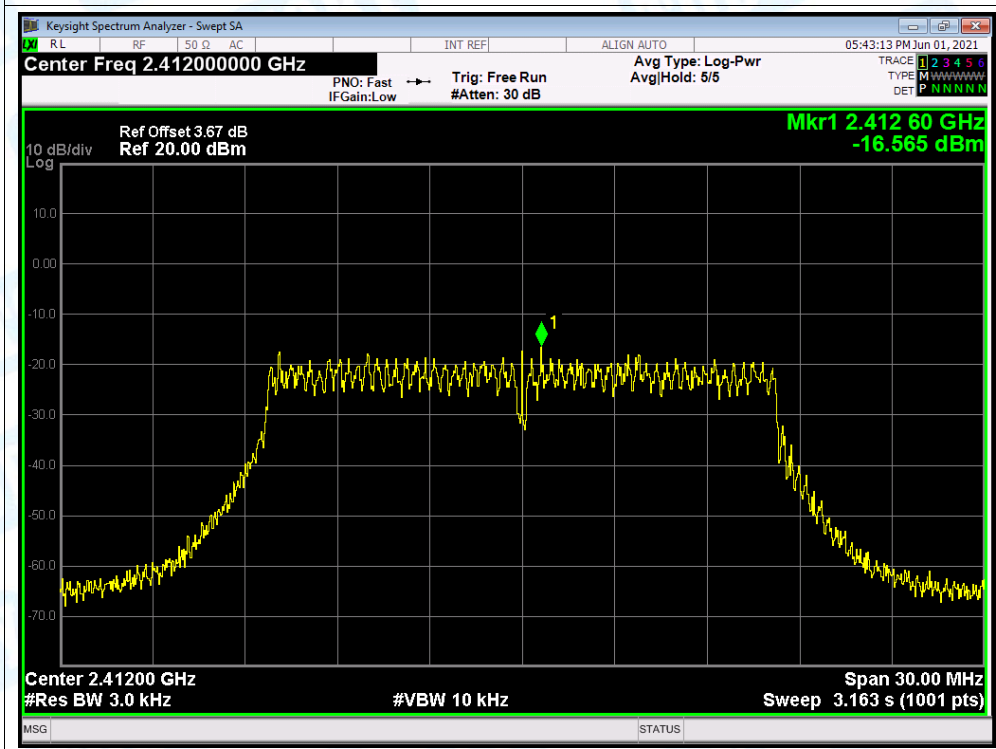
PSD NVNT b 2437MHz Ant1



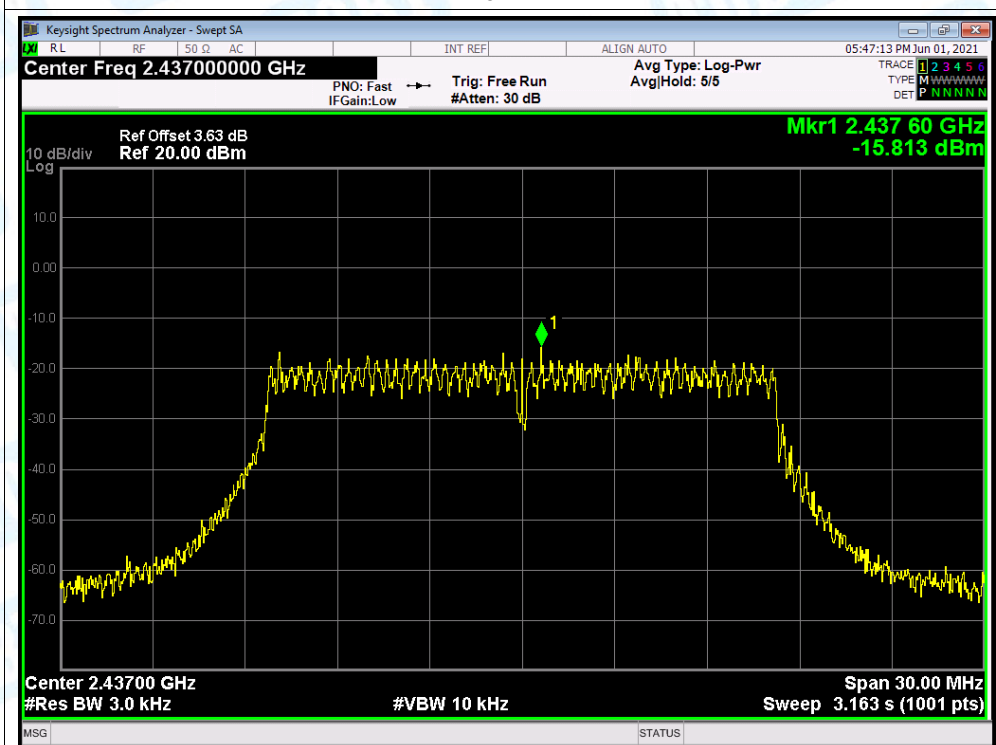
PSD NVNT b 2462MHz Ant1



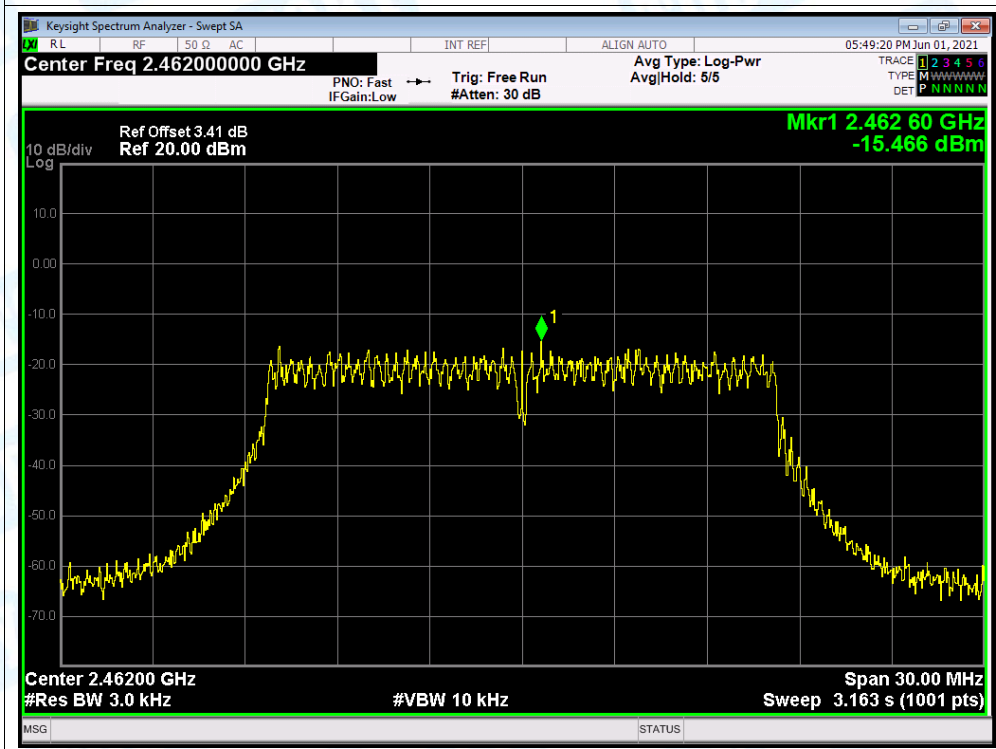
PSD NVNT g 2412MHz Ant1

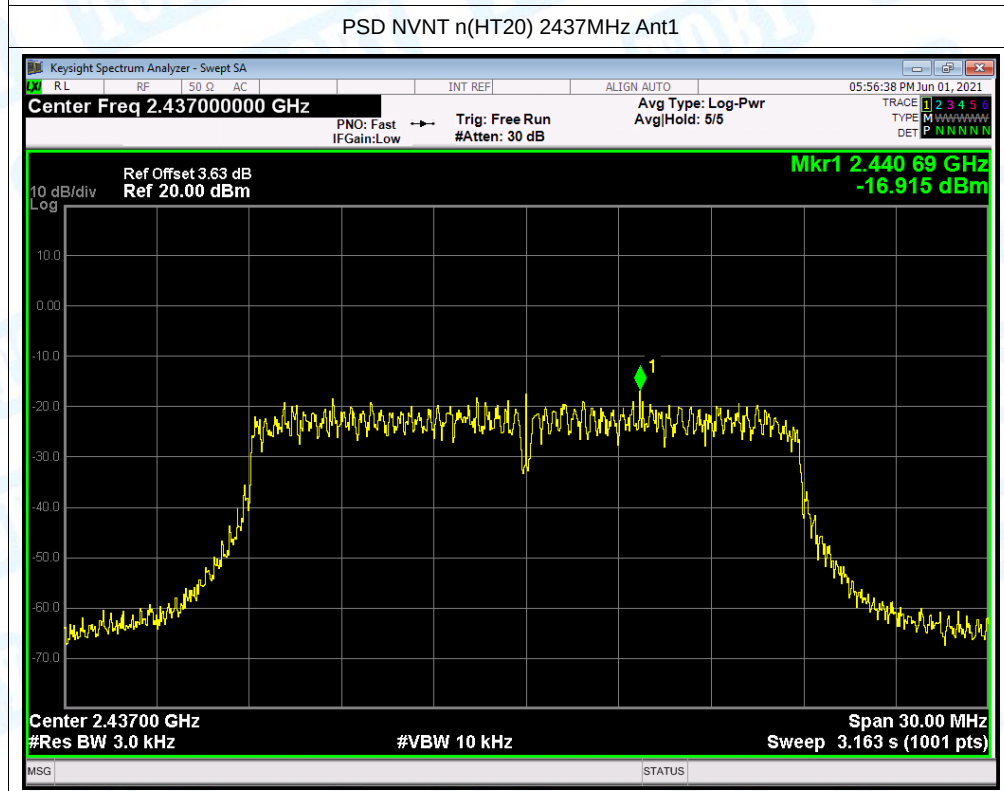
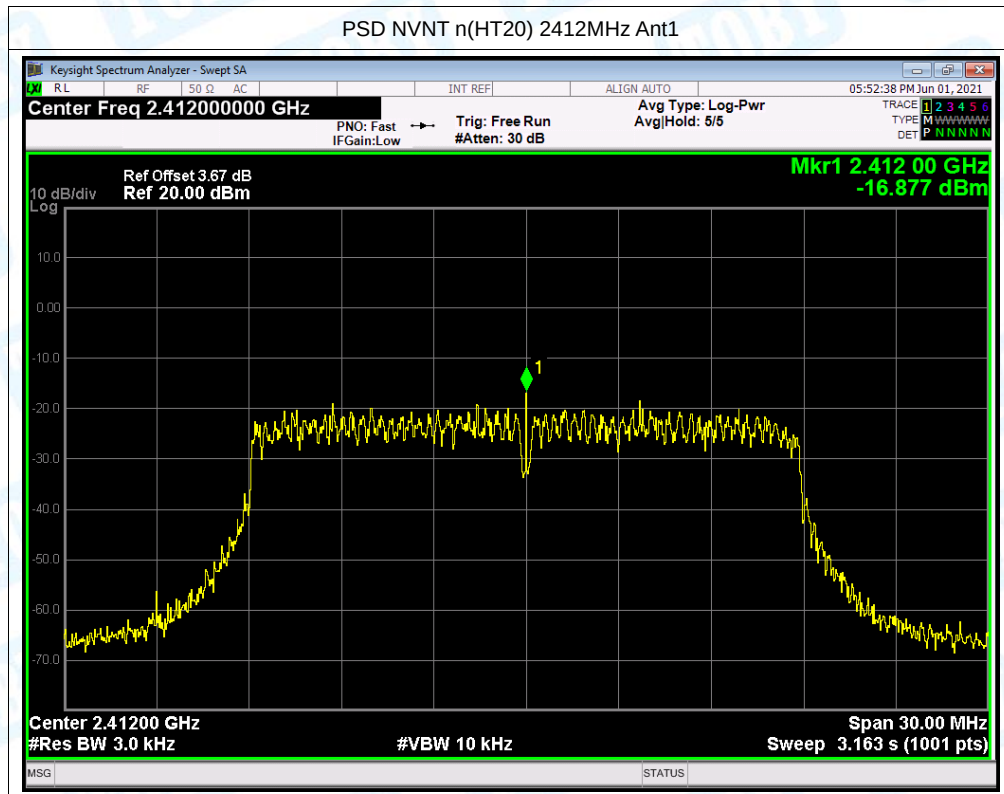


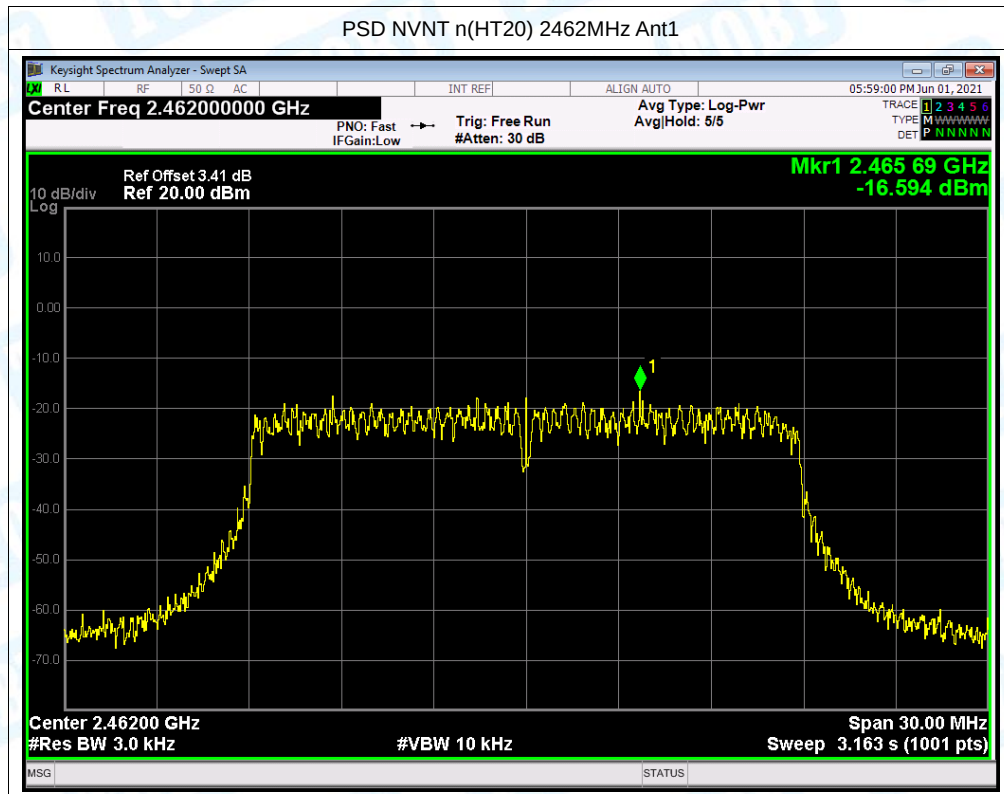
PSD NVNT g 2437MHz Ant1



PSD NVNT g 2462MHz Ant1







-----END OF REPORT-----