FCC PART 15C
Measurement and Test Report
For
Shenzhen Yilu Changxing Automotive Electronics Co.,Ltd.

FCC ID: 2BMUT-M2

FCC Rule(s)/Methods:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10:2013
Product Description:	CAR BLACK BOX
Trademark	N/A
Model/Type reference.:	M2, F22, L2, L3, L6, L8, L9, F6, F8, F9, F26, F28, F29, F30, F31, F32, F35, F36, F38, F39, F60, F62, F66, F67, F68, F69, F80, F82, F86, F88, F89, F90, F92, F96, F98, F99, M8, M9, M1, M6
Report No.:	BSL24121702750014F-1
Date of receipt of test item:	Nov 24, 2024
Date of sampling:	Nov 25, 2024
Tested Date:	Nov 29, 2024 to Dec 5, 2024
Issued Date:	Dec 10, 2024
Tested By:	Lris Yao/ Engineer
Reviewed By:	Levi Xiao/ EMC Manager
Approved & Authorized By:	Salon Ouyang / PSQ Manager

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1. VERSION

ReportNo.	Version	Description	Approved
BSL24121702750014F-1	Rev.01	Initial issue of report	Dec 10, 2024

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C KDB 558074 D01			
Standard Section	Test Item	Result	Remark
FCC part 15.203/15.247 (c)	Antenna requirement	PASS	
FCC part 15.207	AC Power Line Conducted Emission	PASS	
FCC part 15.247 (b)(3)	Conducted Peak Output Power	PASS	
FCC part 15.247 (a)(2)	Channel Bandwidth&	PASS	
FCC part 15.247 (e)	Power Spectral Density	PASS	
FCC part 15.247(d)	Band Edge	PASS	
FCC part 15.247(d)	Conducted Spurious Emission	PASS	
FCC part 15.205/15.209	Spurious Emission	PASS	

NOTE:

(1)” N/A” denotes test is not applicable in this Test Report

2.1 TEST FACILITY

BSL TESTING CO., LTD
Add. : 1/F, Building B, Xinshidai GR Park, Shiyan Street, Bao'an District, Shenzhen, Shiyan Street, Bao'an District, Shenzhen, Guangdong, 518052, People's Republic of China

FCC Test Firm Registration Number: 562200
Designation Number: CN1338
IC Registered No.: 11093A
Designation Number: CN0019

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± 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 %。

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-6GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(6GHz-40GHz)	U=5.0dB
5	Conducted disturbance	U=3.2dB
6	RF Band Edge	U=1.68dB
7	RF power conducted	U=1.86dB
8	RF conducted Spurious Emission	U=2.2dB
9	RF Occupied Bandwidth	U=1.8dB
10	RF Power Spectral Density	U=1.75dB
11	humidity uncertainty	U=5.3%
12	Temperature uncertainty	U=0.59℃

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Applicant:	Shenzhen Yilu Changxing Automotive Electronics Co.,Ltd.
Address of applicant:	A1 Building,No.55 Pinshun Road, Guixiang Community, Guanlan Street, Longhua District,Shenzhen
Manufacturer:	Shenzhen Yilu Changxing Automotive Electronics Co.,Ltd.
Address of manufacturer:	A1 Building,No.55 Pinshun Road, Guixiang Community, Guanlan Street, Longhua District,Shenzhen
Product Name:	CAR BLACK BOX
Model No.:	M2, F22, L2, L3, L6, L8, L9, F6, F8, F9, F26, F28, F29, F30, F31, F32, F35, F36, F38, F39, F60, F62, F66, F67, F68, F69, F80, F82, F86, F88, F89, F90, F92, F96, F98, F99, M8, M9, M1, M6
Test Model:	M2
Model Different.:	All the models are electrical identical including the same software parameter and hardware design (i.e., circuit design, PCB Layout, RF module/circuit, antenna type(s) and antenna location, components on PCB, etc.,), same mechanical structure and design (including product enclosure, materials, etc.,), the only difference is the model name.
Serial No.:	N/A
HVIN/Hardware version:	V1.0
FVIN/Software version:	V1.0
Sample(s) Status:	Engineer sample
Channel numbers:	802.11b/802.11g /802.11n(HT20):11
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum(DSSS) 802.11g/802.11n(H20) Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	Chip antenna
Antenna gain:	+3.12dBi
Adapter:	N/A
Power supply:	DC 5V, 500mA

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)	
	802.11b/802.11g/802.11n(HT20)	/
Lowest channel	2412MHz	/
Middle channel	2437MHz	/
Highest channel	2462MHz	/

3.2 DESCRIPTION OF TEST MODES

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test,the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

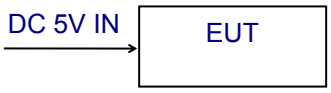
Mode	802.11b	802.11g	802.11n(HT20)	/
Data rate	1Mbps	6Mbps	6.5Mbps	/

Test Software	TROLiNIK
Power level setup	<13dBm

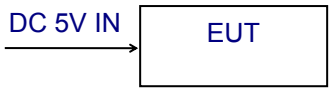
3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission

Radiated Emission



Conducted Spurious



3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1	AC/DC ADAPTOR	YinLi	YLJXA-E050100	/	Input: 100-240V~, 50/60Hz, 0.5A Max Output: 5VDC, 1A, 5.0W

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	BSL252	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	BSL552	2024-10-27	2025-10-26
Coaxial Switch	ANRITSU CORP	MP59B	BSL225	2024-10-27	2025-10-26
ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	BSL226	2024-10-27	2025-10-26
Coaxial Cable	BSL	N/A	BSL227	N/A	N/A
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Thermo meter	KTJ	TA328	BSL233	2024-10-27	2025-10-26
Absorbing clamp	Elektronik-Feinmechanik	MDS21	BSL229	2024-10-27	2025-10-26
LISN	R&S	ENV216	308	2024-10-27	2025-10-26
LISN	R&S	ENV216	314	2024-10-27	2025-10-26

Radiation Test equipment					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)*6.4(H)	BSL250	2024-10-27	2025-10-26
Control Room	ZhongYu Electron	6.2(L)*2.5(W)*2.4(H)	BSL251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	BSL203	2024-10-27	2025-10-26
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	BSL214	2024-10-27	2025-10-26
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	BSL208	2024-10-27	2025-10-26
Horn Antenna	ETS-LINDGREN	3160	BSL217	2024-10-27	2025-10-26
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Coaxial Cable	BSL	N/A	BSL213	2024-10-27	2025-10-26
Coaxial Cable	BSL	N/A	BSL211	2024-10-27	2025-10-26
Coaxial cable	BSL	N/A	BSL210	2024-10-27	2025-10-26
Coaxial Cable	BSL	N/A	BSL212	2024-10-27	2025-10-26
Amplifier(100kHz-3 GHz)	HP	8347A	BSL204	2024-10-27	2025-10-26
Amplifier(2GHz-20 GHz)	HP	84722A	BSL206	2024-10-27	2025-10-26
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	BSL218	2024-10-27	2025-10-26
Band filter	Amindeon	82346	BSL219	2024-10-27	2025-10-26
Power Meter	Anritsu	ML2495A	BSL540	2024-10-27	2025-10-26
Power Sensor	Anritsu	MA2411B	BSL541	2024-10-27	2025-10-26
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	BSL575	2024-10-27	2025-10-26
Splitter	Agilent	11636B	BSL237	2024-10-27	2025-10-26
Loop Antenna	ZHINAN	ZN30900A	BSL534	2024-10-27	2025-10-26
Breitband hornantenne	SCHWARZBECK	BBHA 9170	BSL579	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-02	BSL574	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-03	BSL576	2024-10-27	2025-10-26
PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	BSL578	2024-10-27	2025-10-26

RF Conducted Test:					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
MXA Signal Analyzer	Agilent	N9020A	BSL566	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	BSL552	2024-10-27	2025-10-26
Spectrum Analyzer	Agilent	E4440A	BSL533	2024-10-27	2025-10-26
MXG vector Signal Generator	Agilent	N5182A	BSL567	2024-10-27	2025-10-26
ESG Analog Signal Generator	Agilent	E4428C	BSL568	2024-10-27	2025-10-26
USB RF Power Sensor	DARE	RPR3006W	BSL569	2024-10-27	2025-10-26
RF Switch Box	Shongyi	RFSW3003328	BSL571	2024-10-27	2025-10-26
Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	BSL572	2024-10-27	2025-10-26

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

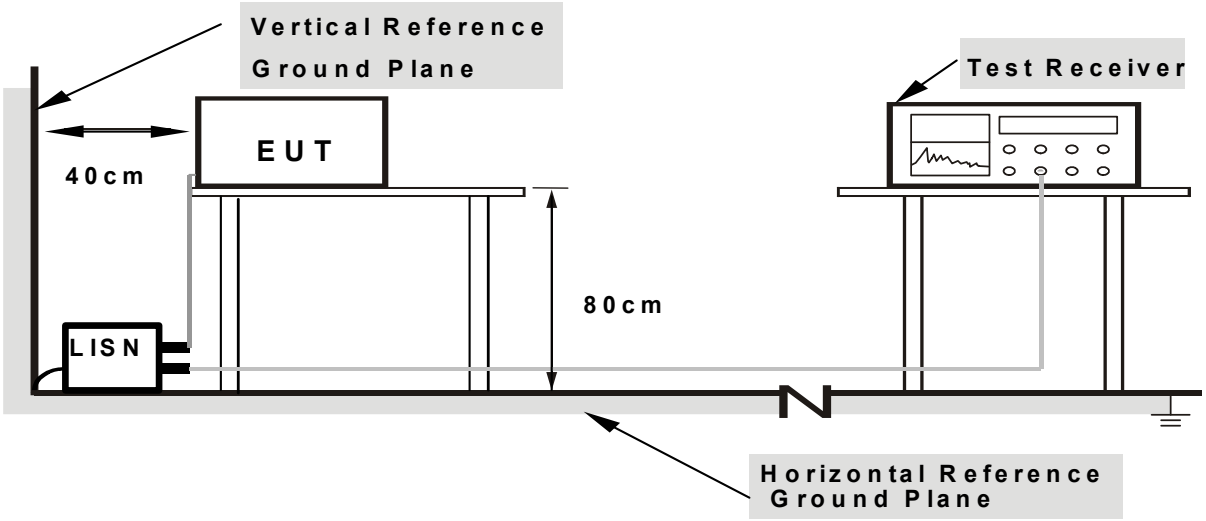
4.1.2 TEST PROCEDURE

a. 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

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

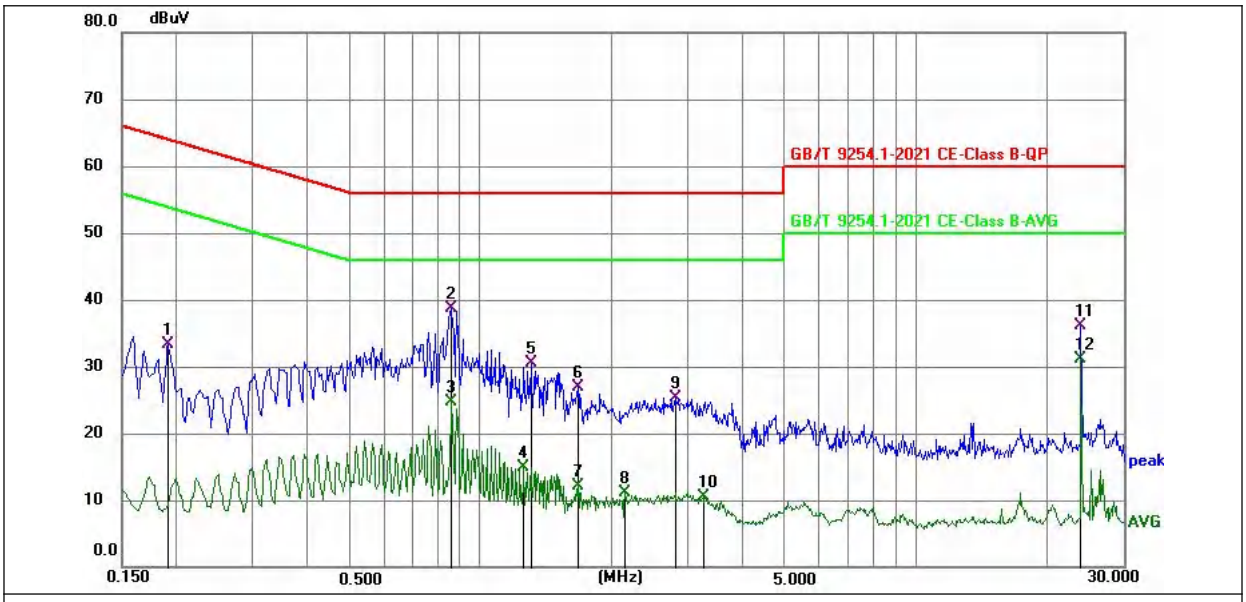
We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULTS

PASS

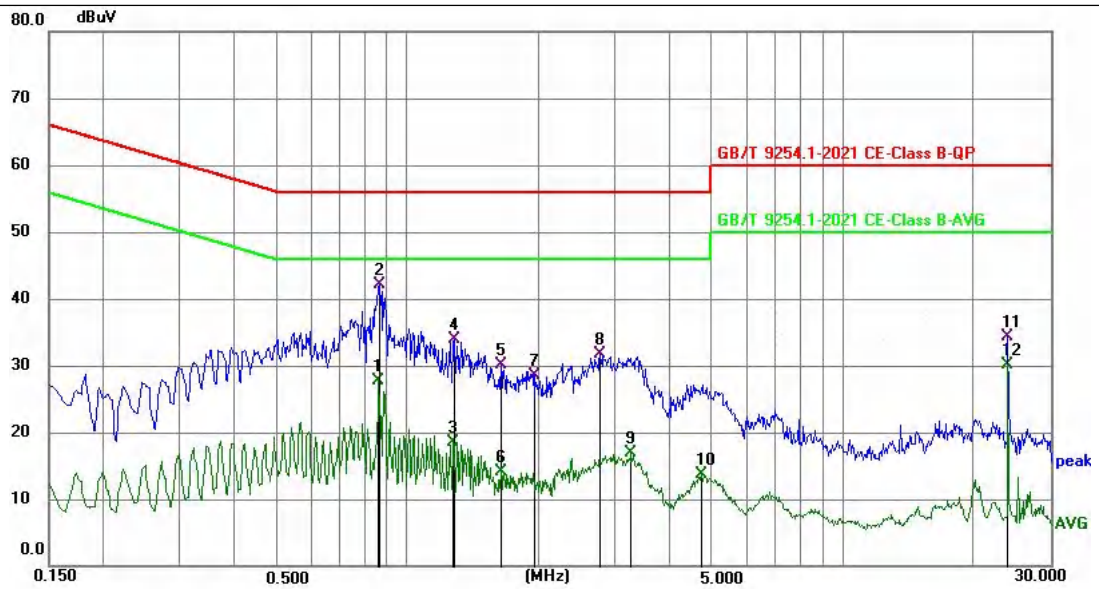
Note：Worst case is 802.11b 2412MHz TX

Temperature :	23℃	Relative Humidity:	51%
Pressure :	101 kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test channel	802.11b 2412MHz TX (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1905	23.57	9.67	33.24	64.01	-30.77	QP	P	
2 *	0.8565	29.10	9.62	38.72	56.00	-17.28	QP	P	
3	0.8609	15.18	9.61	24.79	46.00	-21.21	AVG	P	
4	1.2569	5.38	9.57	14.95	46.00	-31.05	AVG	P	
5	1.3064	21.00	9.58	30.58	56.00	-25.42	QP	P	
6	1.6754	17.29	9.65	26.94	56.00	-29.06	QP	P	
7	1.6754	2.37	9.65	12.02	46.00	-33.98	AVG	P	
8	2.1480	1.44	9.70	11.14	46.00	-34.86	AVG	P	
9	2.8184	15.61	9.64	25.25	56.00	-30.75	QP	P	
10	3.2505	0.88	9.60	10.48	46.00	-35.52	AVG	P	
11	24.0045	26.45	9.64	36.09	60.00	-23.91	QP	P	
12	24.0045	21.54	9.64	31.18	50.00	-18.82	AVG	P	

Temperature :	23℃	Relative Humidity:	51%
Pressure :	101 kPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test channel	802.11b 2412MHz TX (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.8610	18.16	9.61	27.77	46.00	-18.23	AVG	P	
2 *	0.8655	32.45	9.61	42.06	56.00	-13.94	QP	P	
3	1.2750	8.97	9.57	18.54	46.00	-27.46	AVG	P	
4	1.2839	24.26	9.58	33.84	56.00	-22.16	QP	P	
5	1.6440	20.49	9.65	30.14	56.00	-25.86	QP	P	
6	1.6440	4.51	9.65	14.16	46.00	-31.84	AVG	P	
7	1.9635	18.72	9.71	28.43	56.00	-27.57	QP	P	
8	2.7735	22.06	9.64	31.70	56.00	-24.30	QP	P	
9	3.2595	7.36	9.60	16.96	46.00	-29.04	AVG	P	
10	4.7355	4.22	9.53	13.75	46.00	-32.25	AVG	P	
11	24.0045	24.67	9.64	34.31	60.00	-25.69	QP	P	
12	24.0045	20.55	9.64	30.19	50.00	-19.81	AVG	P	

4.2 RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 25GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

4.2.1 RADIATED EMISSION LIMITS

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

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

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoiccamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of avariable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum valueof the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned toheights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could bestopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber andchange form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

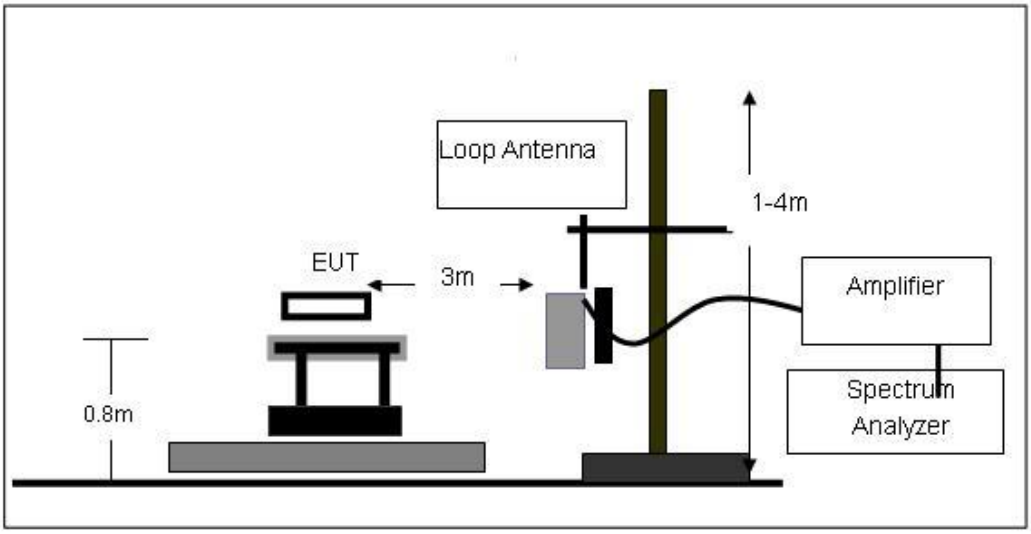
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

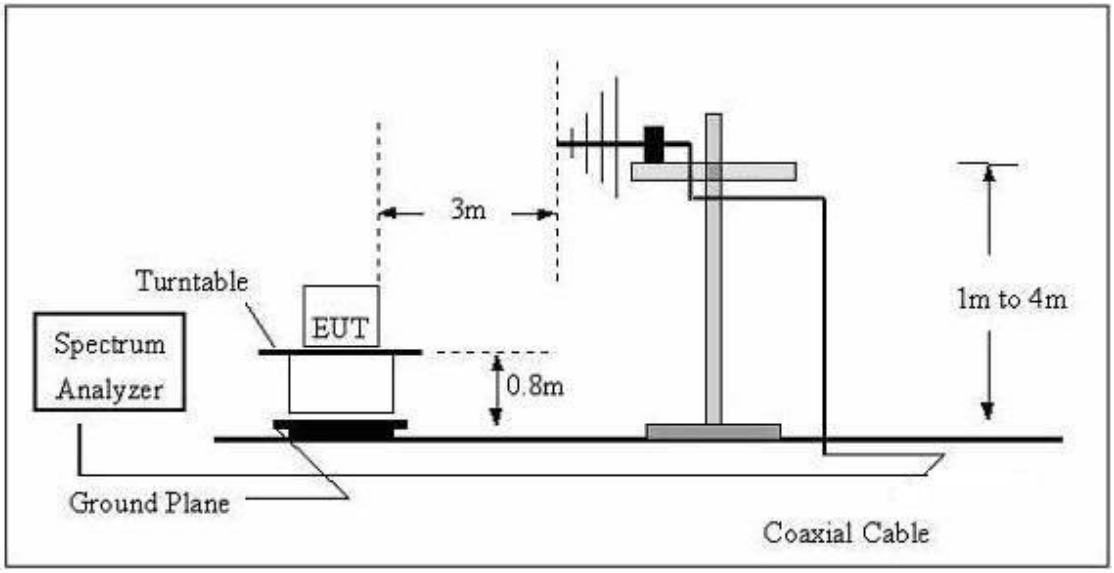
No deviation

4.2.4 TEST SETUP

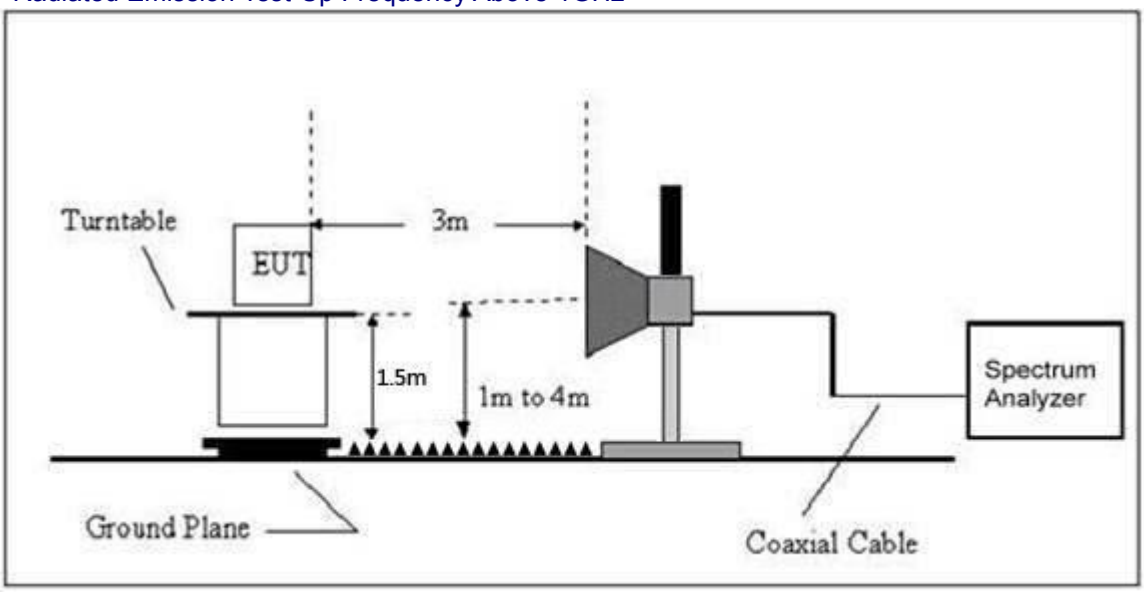
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

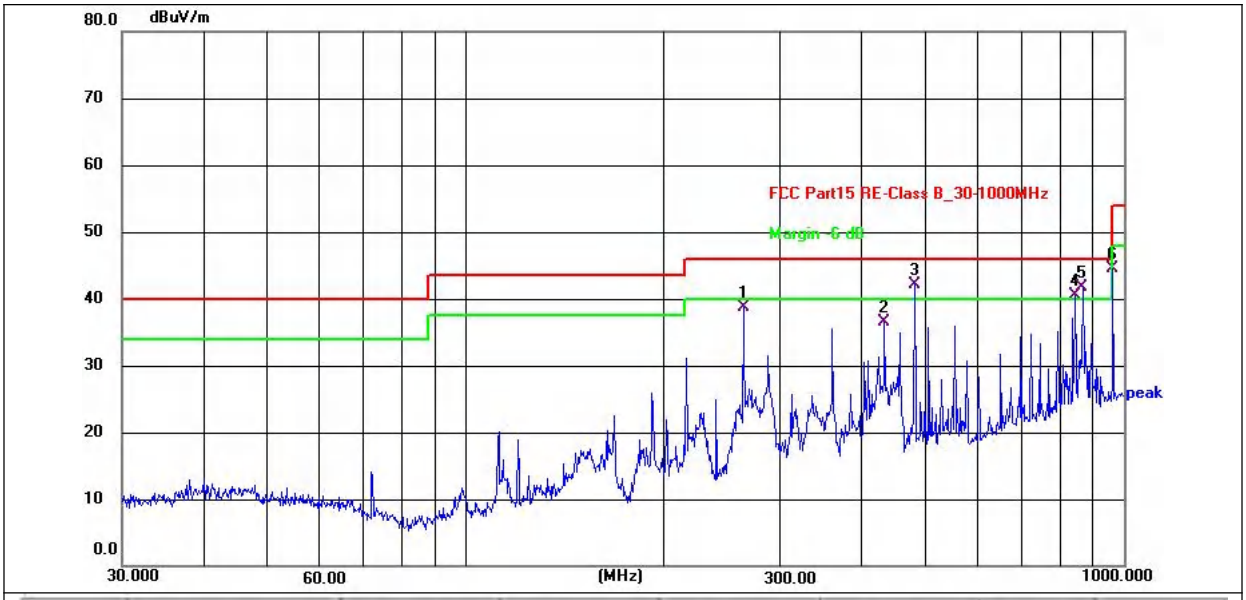
4.2.6 TEST RESULTS

Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

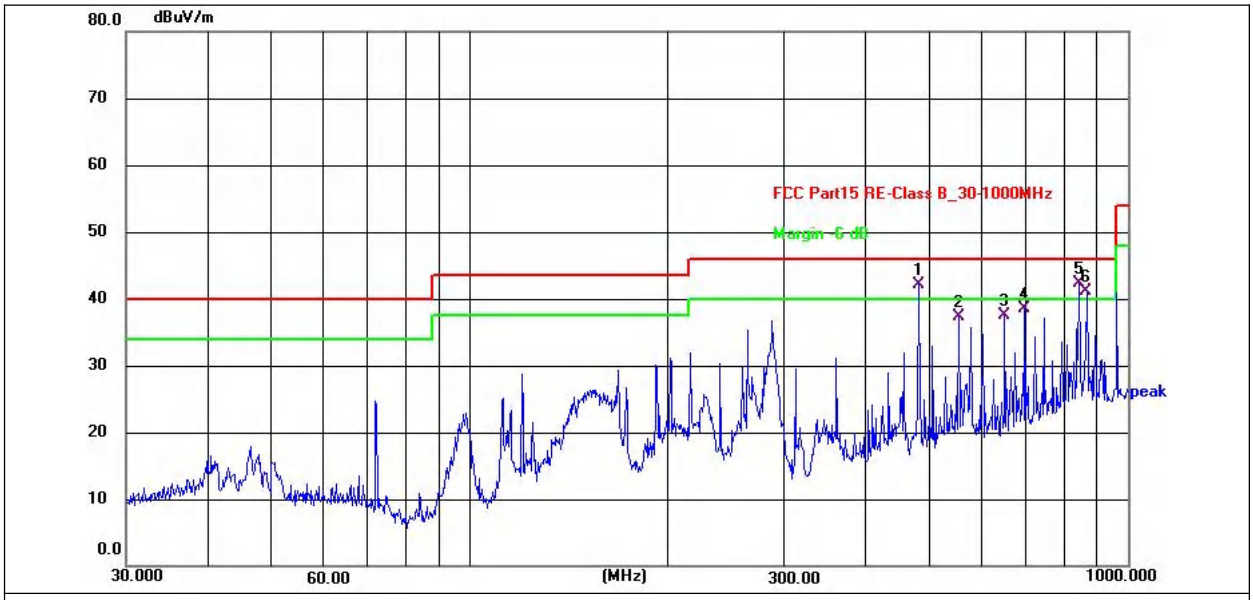
Between 30MHz – 1GHz

Temperature:	23℃	Relative Humidity:	51%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 5V	Test Mode	802.11b 2412MHz TX (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	263.8190	56.18	-17.45	38.73	46.00	-7.27	QP
2	432.5457	48.77	-12.32	36.45	46.00	-9.55	QP
3 *	480.5276	53.38	-11.26	42.12	46.00	-3.88	QP
4 !	842.1296	44.83	-4.32	40.51	46.00	-5.49	QP
5 !	866.0879	45.83	-4.09	41.74	46.00	-4.26	QP
6	962.1623	47.00	-2.47	44.53	54.00	-9.47	QP

Temperature:	23℃	Relative Humidity:	51%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 5V	Test Mode	802.11b 2412MHz TX (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 !	480.5276	53.42	-11.26	42.16	46.00	-3.84	QP
2	552.8832	46.95	-9.69	37.26	46.00	-8.74	QP
3	649.6597	45.22	-7.75	37.47	46.00	-8.53	QP
4	696.8567	45.35	-6.76	38.59	46.00	-7.41	QP
5 *	842.1296	46.71	-4.32	42.39	46.00	-3.61	QP
6 !	866.0879	45.10	-4.09	41.01	46.00	-4.99	QP

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case 802.11b mode

1GHz~25GHz

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824.00	54.83	30.55	5.77	24.66	54.71	74.00	-19.29	Pk
V	4824.00	43.34	30.55	5.77	24.66	43.22	54.00	-10.78	AV
V	7236.00	53.58	30.33	6.32	24.55	54.12	74.00	-19.88	Pk
V	7236.00	43.20	30.33	6.32	24.55	43.74	54.00	-10.26	AV
V	9648.00	53.97	30.85	7.45	24.69	55.26	74.00	-18.74	Pk
V	9648.00	43.38	30.85	7.45	24.69	44.67	54.00	-9.33	AV
V	12060.00	52.49	31.02	8.99	25.57	56.03	74.00	-17.97	Pk
V	12060.00	43.42	31.02	8.99	25.57	46.96	54.00	-7.04	AV
H	4824.00	51.12	30.55	5.77	24.66	51.00	74.00	-23.00	Pk
H	4824.00	43.51	30.55	5.77	24.66	43.39	54.00	-10.61	AV
H	7236.00	54.55	30.33	6.32	24.55	55.09	74.00	-18.91	Pk
H	7236.00	43.43	30.33	6.32	24.55	43.97	54.00	-10.03	AV
H	9648.00	52.96	30.85	7.45	24.69	54.25	74.00	-19.75	Pk
H	9648.00	43.64	30.85	7.45	24.69	44.93	54.00	-9.07	AV
H	12060.00	52.30	31.02	8.99	25.57	55.84	74.00	-18.16	Pk
H	12060.00	43.91	31.02	8.99	25.57	47.45	54.00	-6.55	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874.00	53.86	30.55	5.77	24.66	53.74	74.00	-20.26	Pk
V	4874.00	43.96	30.55	5.77	24.66	43.84	54.00	-10.16	AV
V	7311.00	52.79	30.33	6.32	24.55	53.33	74.00	-20.67	Pk
V	7311.00	43.38	30.33	6.32	24.55	43.92	54.00	-10.08	AV
V	9748.00	52.83	30.85	7.45	24.69	54.12	74.00	-19.88	Pk
V	9748.00	43.56	30.85	7.45	24.69	44.85	54.00	-9.15	AV
V	12185.00	53.28	31.02	8.99	25.57	56.82	74.00	-17.18	Pk
V	12185.00	43.38	31.02	8.99	25.57	46.92	54.00	-7.08	AV
H	4874.00	51.48	30.55	5.77	24.66	51.36	74.00	-22.64	Pk
H	4874.00	43.85	30.55	5.77	24.66	43.73	54.00	-10.27	AV
H	7311.00	52.30	30.33	6.32	24.55	52.84	74.00	-21.16	Pk
H	7311.00	43.36	30.33	6.32	24.55	43.90	54.00	-10.10	AV
H	9748.00	53.45	30.85	7.45	24.69	54.74	74.00	-19.26	Pk
H	9748.00	43.14	30.85	7.45	24.69	44.43	54.00	-9.57	AV
H	12185.00	53.93	31.02	8.99	25.57	57.47	74.00	-16.53	Pk
H	12185.00	43.25	31.02	8.99	25.57	46.79	54.00	-7.21	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924.00	54.95	30.55	5.77	24.66	54.83	74.00	-19.17	Pk
V	4924.00	43.71	30.55	5.77	24.66	43.59	54.00	-10.41	AV
V	7386.00	52.50	30.33	6.32	24.55	53.04	74.00	-20.96	Pk
V	7386.00	43.66	30.33	6.32	24.55	44.20	54.00	-9.80	AV
V	9848.00	50.46	30.85	7.45	24.69	51.75	74.00	-22.25	Pk
V	9848.00	43.08	30.85	7.45	24.69	44.37	54.00	-9.63	AV
V	12310.00	51.44	31.02	8.99	25.57	54.98	74.00	-19.02	Pk
V	12310.00	43.25	31.02	8.99	25.57	46.79	54.00	-7.21	AV
H	4924.00	50.38	30.55	5.77	24.66	50.26	74.00	-23.74	Pk
H	4924.00	43.96	30.55	5.77	24.66	43.84	54.00	-10.16	AV
H	7386.00	50.85	30.33	6.32	24.55	51.39	74.00	-22.61	Pk
H	7386.00	43.78	30.33	6.32	24.55	44.32	54.00	-9.68	AV
H	9848.00	50.57	30.85	7.45	24.69	51.86	74.00	-22.14	Pk
H	9848.00	43.98	30.85	7.45	24.69	45.27	54.00	-8.73	AV
H	12310.00	52.65	31.02	8.99	25.57	56.19	74.00	-17.81	Pk
H	12310.00	43.83	31.02	8.99	25.57	47.37	54.00	-6.63	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11g

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824.00	52.18	30.55	5.77	24.66	52.06	74.00	-21.94	Pk
V	4824.00	43.10	30.55	5.77	24.66	42.98	54.00	-11.02	AV
V	7236.00	51.62	30.33	6.32	24.55	52.16	74.00	-21.84	Pk
V	7236.00	43.17	30.33	6.32	24.55	43.71	54.00	-10.29	AV
V	9648.00	54.71	30.85	7.45	24.69	56.00	74.00	-18.00	Pk
V	9648.00	43.03	30.85	7.45	24.69	44.32	54.00	-9.68	AV
V	12060.00	51.78	31.02	8.99	25.57	55.32	74.00	-18.68	Pk
V	12060.00	43.89	31.02	8.99	25.57	47.43	54.00	-6.57	AV
H	4824.00	50.82	30.55	5.77	24.66	50.70	74.00	-23.30	Pk
H	4824.00	43.47	30.55	5.77	24.66	43.35	54.00	-10.65	AV
H	7236.00	53.98	30.33	6.32	24.55	54.52	74.00	-19.48	Pk
H	7236.00	43.64	30.33	6.32	24.55	44.18	54.00	-9.82	AV
H	9648.00	53.03	30.85	7.45	24.69	54.32	74.00	-19.68	Pk
H	9648.00	43.39	30.85	7.45	24.69	44.68	54.00	-9.32	AV
H	12060.00	52.22	31.02	8.99	25.57	55.76	74.00	-18.24	Pk
H	12060.00	43.99	31.02	8.99	25.57	47.53	54.00	-6.47	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874.00	51.40	30.55	5.77	24.66	51.28	74.00	-22.72	Pk
V	4874.00	43.61	30.55	5.77	24.66	43.49	54.00	-10.51	AV
V	7311.00	50.71	30.33	6.32	24.55	51.25	74.00	-22.75	Pk
V	7311.00	43.30	30.33	6.32	24.55	43.84	54.00	-10.16	AV
V	9748.00	54.15	30.85	7.45	24.69	55.44	74.00	-18.56	Pk
V	9748.00	43.34	30.85	7.45	24.69	44.63	54.00	-9.37	AV
V	12185.00	53.27	31.02	8.99	25.57	56.81	74.00	-17.19	Pk
V	12185.00	43.34	31.02	8.99	25.57	46.88	54.00	-7.12	AV
H	4874.00	53.82	30.55	5.77	24.66	53.70	74.00	-20.30	Pk
H	4874.00	43.87	30.55	5.77	24.66	43.75	54.00	-10.25	AV
H	7311.00	54.90	30.33	6.32	24.55	55.44	74.00	-18.56	Pk
H	7311.00	43.52	30.33	6.32	24.55	44.06	54.00	-9.94	AV
H	9748.00	51.40	30.85	7.45	24.69	52.69	74.00	-21.31	Pk
H	9748.00	43.65	30.85	7.45	24.69	44.94	54.00	-9.06	AV
H	12185.00	52.39	31.02	8.99	25.57	55.93	74.00	-18.07	Pk
H	12185.00	43.12	31.02	8.99	25.57	46.66	54.00	-7.34	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924.00	50.60	30.55	5.77	24.66	50.48	74.00	-23.52	Pk
V	4924.00	43.36	30.55	5.77	24.66	43.24	54.00	-10.76	AV
V	7386.00	54.47	30.33	6.32	24.55	55.01	74.00	-18.99	Pk
V	7386.00	43.86	30.33	6.32	24.55	44.40	54.00	-9.60	AV
V	9848.00	52.02	30.85	7.45	24.69	53.31	74.00	-20.69	Pk
V	9848.00	43.05	30.85	7.45	24.69	44.34	54.00	-9.66	AV
V	12310.00	50.67	31.02	8.99	25.57	54.21	74.00	-19.79	Pk
V	12310.00	43.78	31.02	8.99	25.57	47.32	54.00	-6.68	AV
H	4924.00	53.50	30.55	5.77	24.66	53.38	74.00	-20.62	Pk
H	4924.00	43.86	30.55	5.77	24.66	43.74	54.00	-10.26	AV
H	7386.00	50.51	30.33	6.32	24.55	51.05	74.00	-22.95	Pk
H	7386.00	43.36	30.33	6.32	24.55	43.90	54.00	-10.10	AV
H	9848.00	50.03	30.85	7.45	24.69	51.32	74.00	-22.68	Pk
H	9848.00	43.03	30.85	7.45	24.69	44.32	54.00	-9.68	AV
H	12310.00	51.32	31.02	8.99	25.57	54.86	74.00	-19.14	Pk
H	12310.00	43.25	31.02	8.99	25.57	46.79	54.00	-7.21	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4924.00	53.25	30.55	5.77	24.66	53.13	74.00	-20.87	Pk
V	4924.00	43.24	30.55	5.77	24.66	43.12	54.00	-10.88	AV
V	7386.00	54.15	30.33	6.32	24.55	54.69	74.00	-19.31	Pk
V	7386.00	43.34	30.33	6.32	24.55	43.88	54.00	-10.12	AV
V	9848.00	51.88	30.85	7.45	24.69	53.17	74.00	-20.83	Pk
V	9848.00	43.02	30.85	7.45	24.69	44.31	54.00	-9.69	AV
V	12310.00	50.84	31.02	8.99	25.57	54.38	74.00	-19.62	Pk
V	12310.00	43.55	31.02	8.99	25.57	47.09	54.00	-6.91	AV
H	4924.00	50.07	30.55	5.77	24.66	49.95	74.00	-24.05	Pk
H	4924.00	43.08	30.55	5.77	24.66	42.96	54.00	-11.04	AV
H	7386.00	52.44	30.33	6.32	24.55	52.98	74.00	-21.02	Pk
H	7386.00	43.32	30.33	6.32	24.55	43.86	54.00	-10.14	AV
H	9848.00	53.33	30.85	7.45	24.69	54.62	74.00	-19.38	Pk
H	9848.00	43.61	30.85	7.45	24.69	44.90	54.00	-9.10	AV
H	12310.00	51.80	31.02	8.99	25.57	55.34	74.00	-18.66	Pk
H	12310.00	43.97	31.02	8.99	25.57	47.51	54.00	-6.49	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874.00	53.07	30.55	5.77	24.66	52.95	74.00	-21.05	Pk
V	4874.00	43.73	30.55	5.77	24.66	43.61	54.00	-10.39	AV
V	7311.00	53.50	30.33	6.32	24.55	54.04	74.00	-19.96	Pk
V	7311.00	43.06	30.33	6.32	24.55	43.60	54.00	-10.40	AV
V	9748.00	52.84	30.85	7.45	24.69	54.13	74.00	-19.87	Pk
V	9748.00	43.33	30.85	7.45	24.69	44.62	54.00	-9.38	AV
V	12185.00	52.13	31.02	8.99	25.57	55.67	74.00	-18.33	Pk
V	12185.00	43.35	31.02	8.99	25.57	46.89	54.00	-7.11	AV
H	4874.00	51.14	30.55	5.77	24.66	51.02	74.00	-22.98	Pk
H	4874.00	43.26	30.55	5.77	24.66	43.14	54.00	-10.86	AV
H	7311.00	54.50	30.33	6.32	24.55	55.04	74.00	-18.96	Pk
H	7311.00	43.92	30.33	6.32	24.55	44.46	54.00	-9.54	AV
H	9748.00	52.59	30.85	7.45	24.69	53.88	74.00	-20.12	Pk
H	9748.00	43.40	30.85	7.45	24.69	44.69	54.00	-9.31	AV
H	12185.00	51.18	31.02	8.99	25.57	54.72	74.00	-19.28	Pk
H	12185.00	43.14	31.02	8.99	25.57	46.68	54.00	-7.32	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924.00	51.55	30.55	5.77	24.66	51.43	74.00	-22.57	Pk
V	4924.00	43.67	30.55	5.77	24.66	43.55	54.00	-10.45	AV
V	7386.00	52.12	30.33	6.32	24.55	52.66	74.00	-21.34	Pk
V	7386.00	43.43	30.33	6.32	24.55	43.97	54.00	-10.03	AV
V	9848.00	51.82	30.85	7.45	24.69	53.11	74.00	-20.89	Pk
V	9848.00	43.38	30.85	7.45	24.69	44.67	54.00	-9.33	AV
V	12310.00	50.65	31.02	8.99	25.57	54.19	74.00	-19.81	Pk
V	12310.00	43.77	31.02	8.99	25.57	47.31	54.00	-6.69	AV
H	4924.00	51.87	30.55	5.77	24.66	51.75	74.00	-22.25	Pk
H	4924.00	43.94	30.55	5.77	24.66	43.82	54.00	-10.18	AV
H	7386.00	50.54	30.33	6.32	24.55	51.08	74.00	-22.92	Pk
H	7386.00	43.64	30.33	6.32	24.55	44.18	54.00	-9.82	AV
H	9848.00	52.12	30.85	7.45	24.69	53.41	74.00	-20.59	Pk
H	9848.00	43.16	30.85	7.45	24.69	44.45	54.00	-9.55	AV
H	12310.00	52.89	31.02	8.99	25.57	56.43	74.00	-17.57	Pk
H	12310.00	43.73	31.02	8.99	25.57	47.27	54.00	-6.73	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

5.RADIATED BAND EMISSIONMEASUREMENT

5.1 TEST REQUIREMENT:

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2013
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

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

5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could bestopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

g. Test the EUT in the lowest channel,the Highest channel

Note:

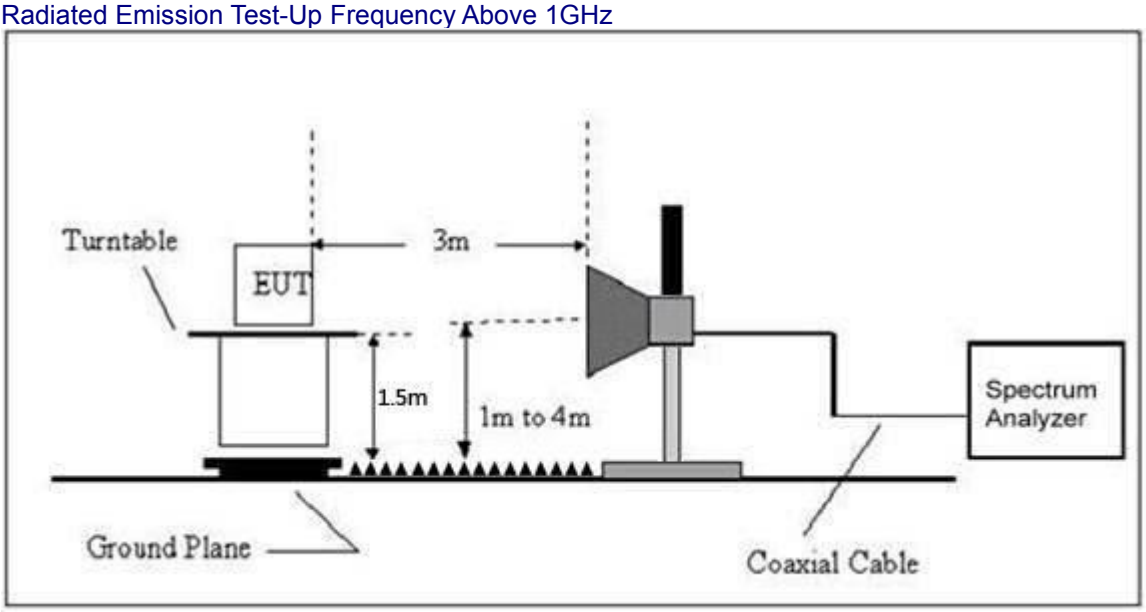
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



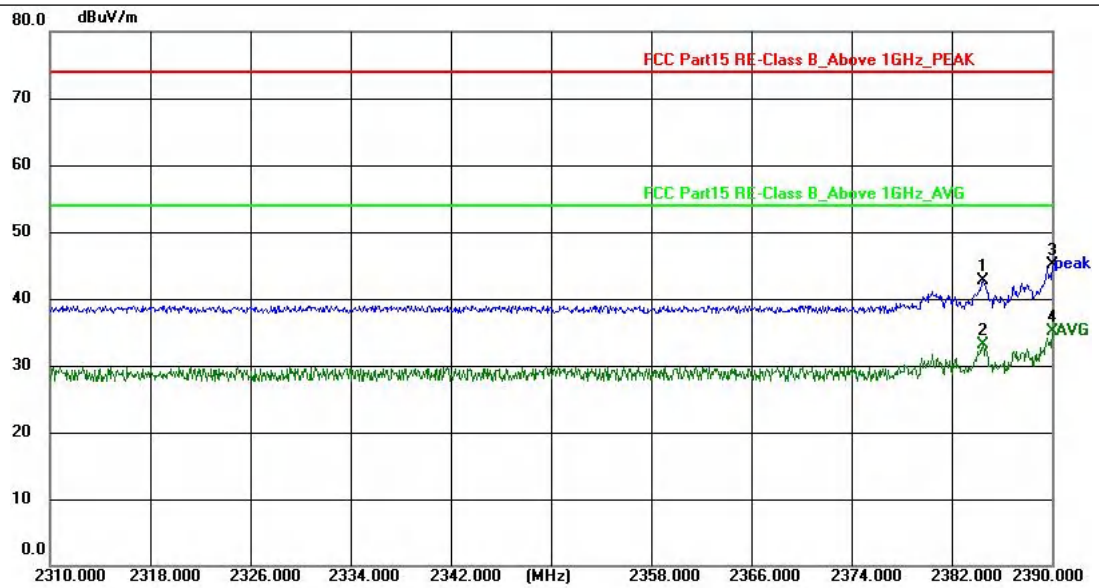
5.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULT

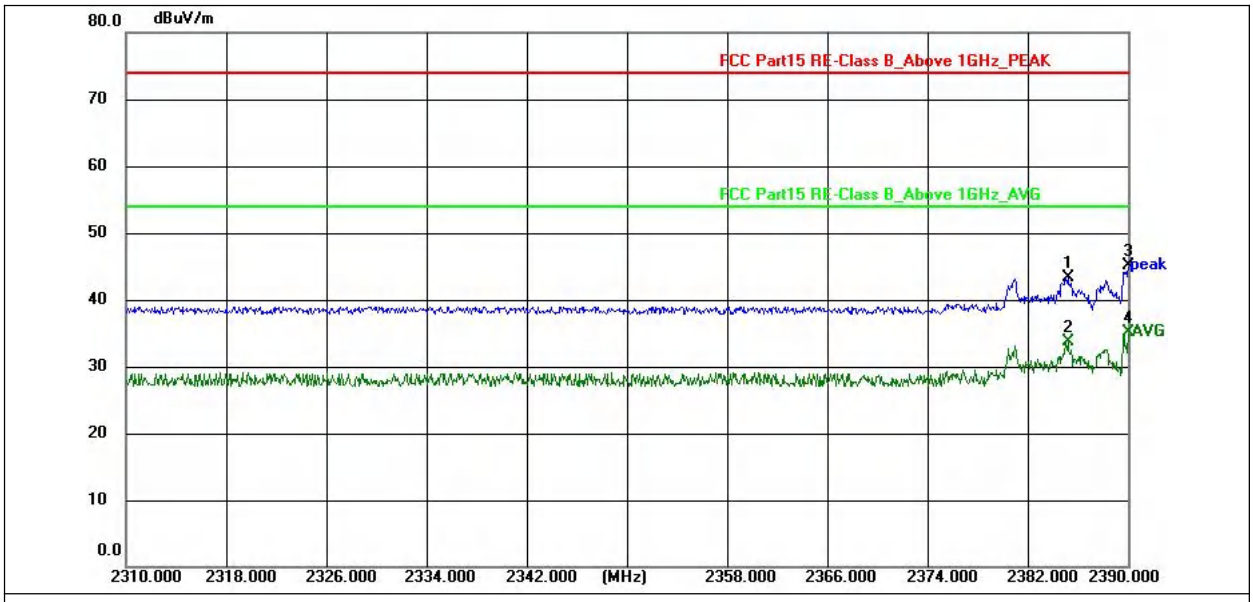
All modes were tested (Worst case 802.11b)

Temperature:	23℃	Relative Humidity:	51%
Pressure:	101kPa	Polarization:	Horizontal
Test Voltage:	DC 5V	Test channel	2412MHz (Worst case)



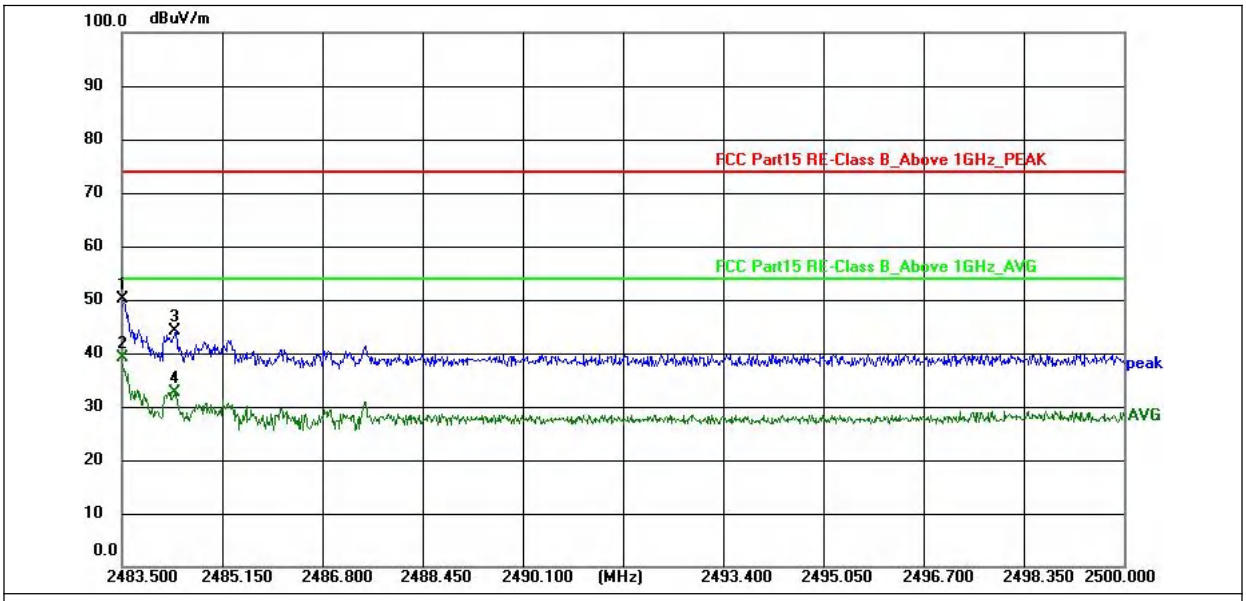
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2384.480	46.73	-3.99	42.74	74.00	-31.26	peak
2	2384.480	37.01	-3.99	33.02	54.00	-20.98	AVG
3	2390.000	49.15	-3.96	45.19	74.00	-28.81	peak
4 *	2390.000	39.07	-3.96	35.11	54.00	-18.89	AVG

Temperature:	23℃	Relative Humidity:	51%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 5V	Test channel	2412MHz (Worst case)



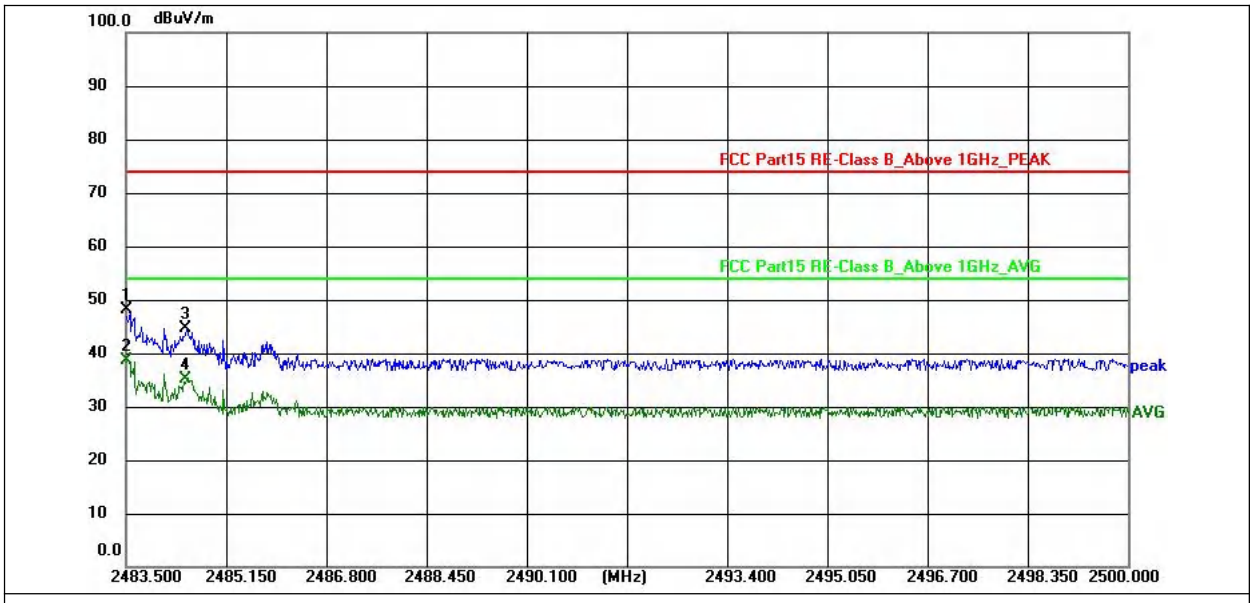
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2385.200	47.39	-3.99	43.40	74.00	-30.60	peak
2	2385.200	37.67	-3.99	33.68	54.00	-20.32	AVG
3	2390.000	49.15	-3.96	45.19	74.00	-28.81	peak
4 *	2390.000	39.07	-3.96	35.11	54.00	-18.89	AVG

Temperature:	23℃	Relative Humidity:	51%
Pressure:	101kPa	Polarization:	Horizontal
Test Voltage:	DC 5V	Test channel	2462MHz (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	53.65	-3.58	50.07	74.00	-23.93	peak
2 *	2483.500	42.73	-3.58	39.15	54.00	-14.85	AVG
3	2484.406	47.64	-3.57	44.07	74.00	-29.93	peak
4	2484.406	36.08	-3.57	32.51	54.00	-21.49	AVG

Temperature:	23℃	Relative Humidity:	51%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 5V	Test channel	2462MHz (Worst case)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	51.65	-3.58	48.07	74.00	-25.93	peak
2 *	2483.500	42.23	-3.58	38.65	54.00	-15.35	AVG
3	2484.512	48.17	-3.57	44.60	74.00	-29.40	peak
4	2484.512	38.75	-3.57	35.18	54.00	-18.82	AVG

6.POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

6.1 APPLIED PROCEDURES / LIMIT

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

6.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3 DEVIATION FROM STANDARD

No deviation.

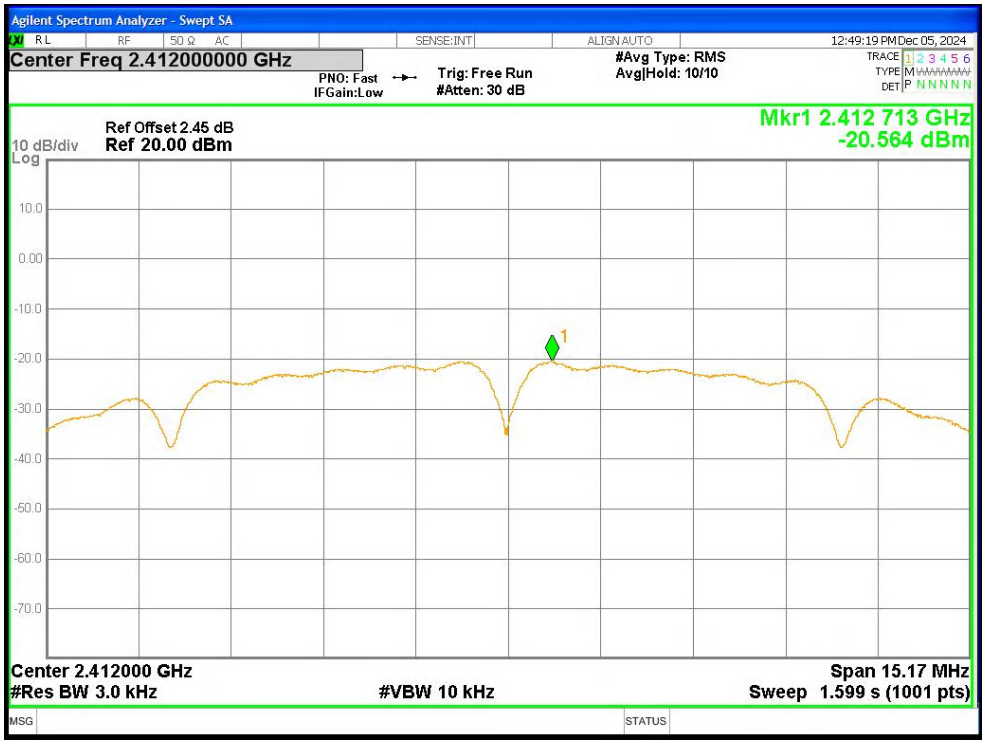
6.4 TEST SETUP

6.5 EUT OPERATION CONDITIONS

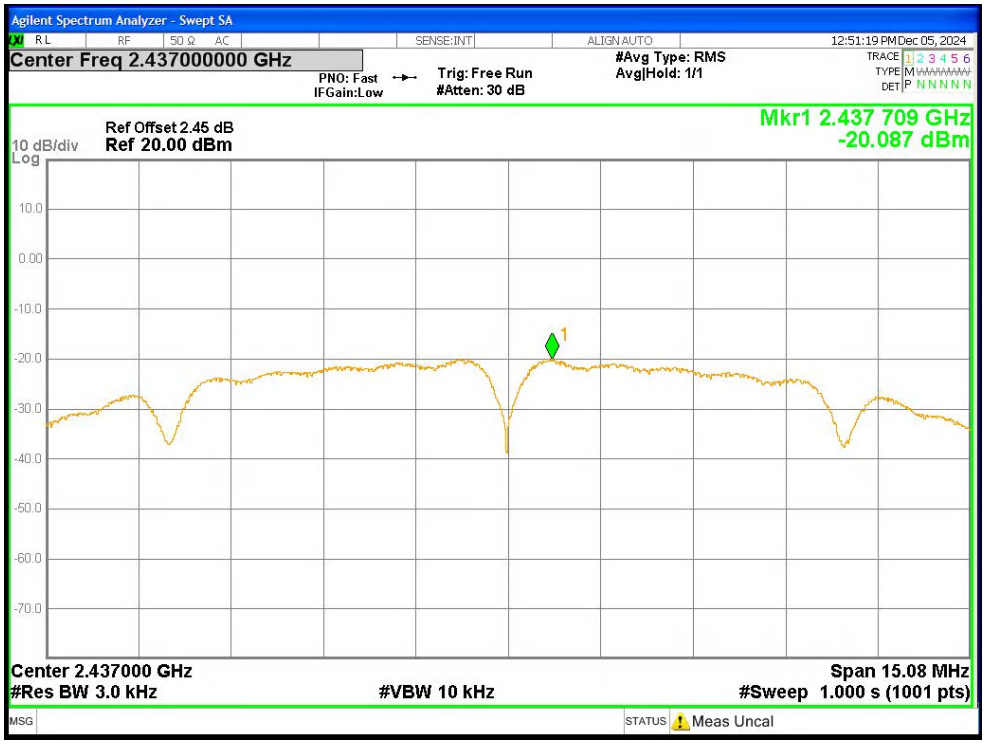
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

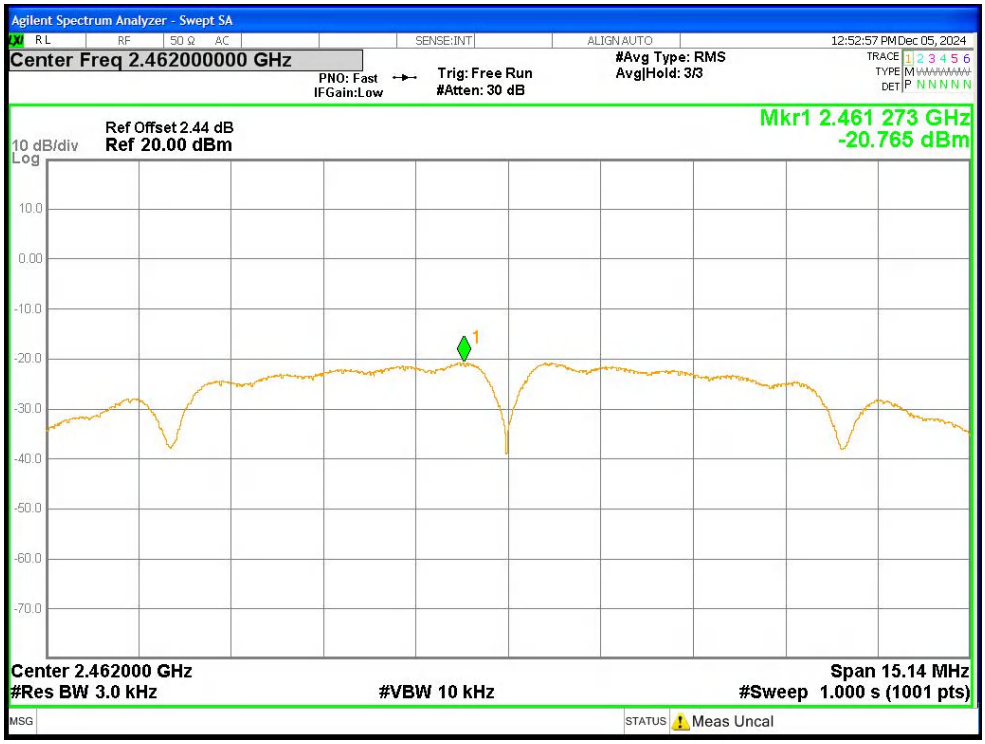
Mode	Frequency (MHz)	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz) <=	Verdict
b	2412	-20.56	8	Pass
b	2437	-20.09	8	Pass
b	2462	-20.77	8	Pass
g	2412	-19.05	8	Pass
g	2437	-19.52	8	Pass
g	2462	-20.09	8	Pass
n20	2412	-18.03	8	Pass
n20	2437	-17.76	8	Pass
n20	2462	-19.15	8	Pass



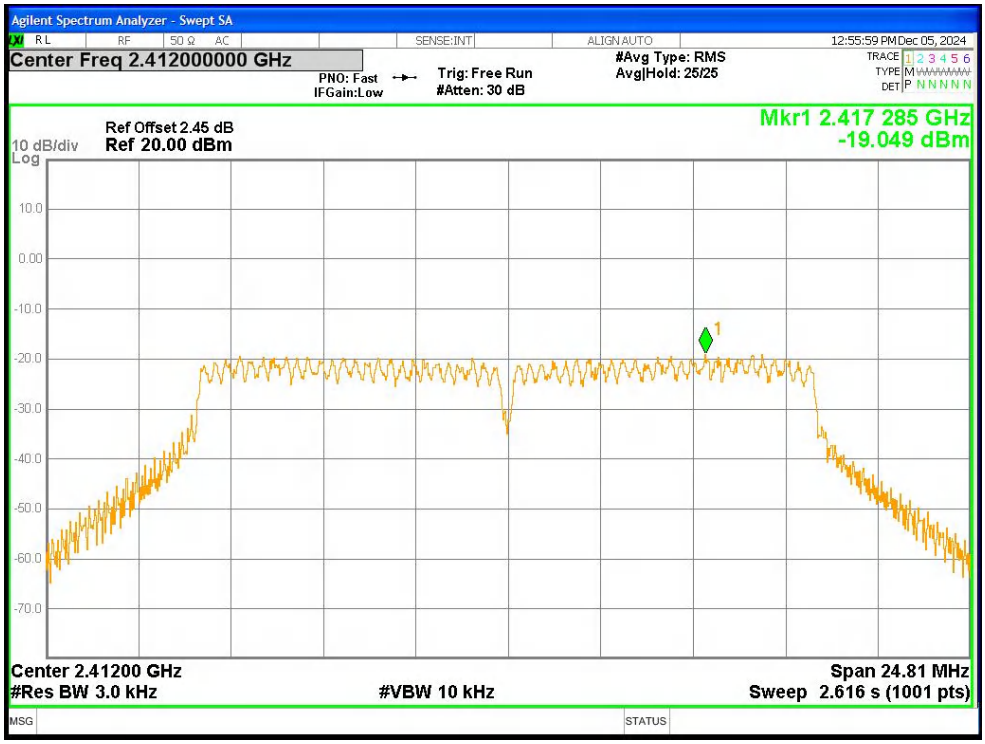
PSD NVNT b 2412MHz Ant1



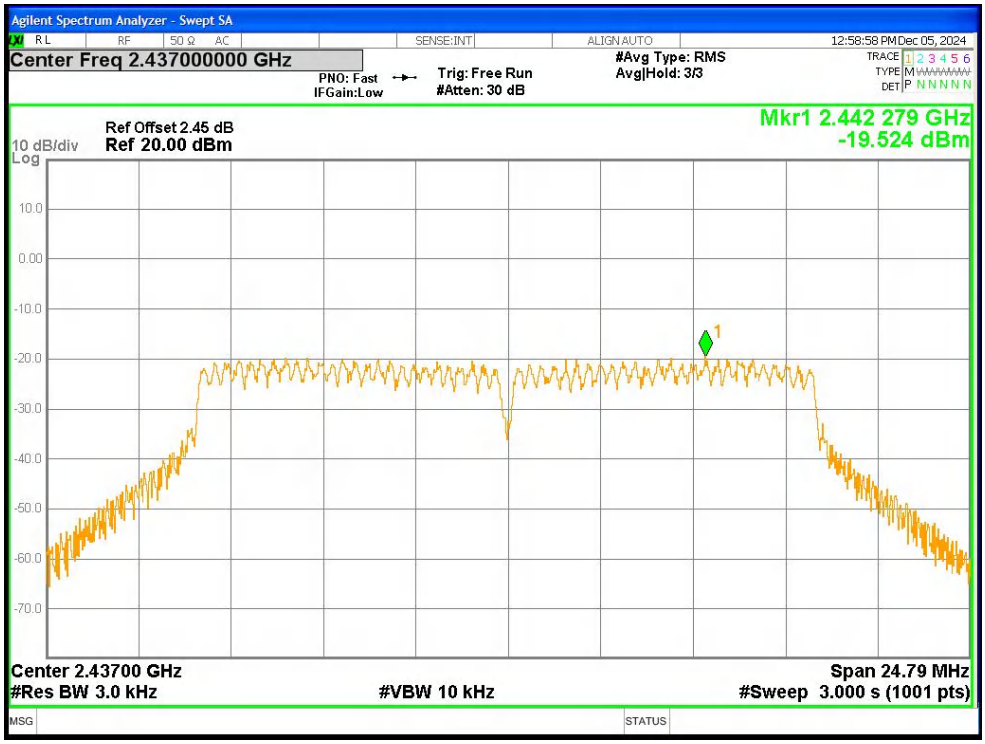
PSD NVNT b 2437MHz Ant1



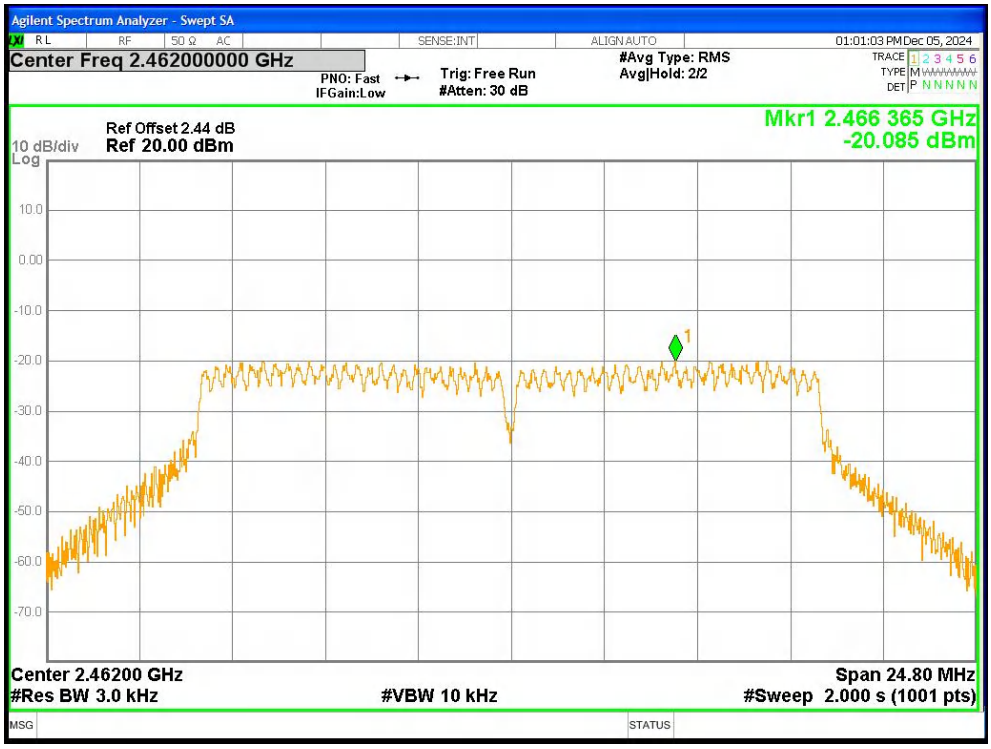
PSD NVNT b 2462MHz Ant1



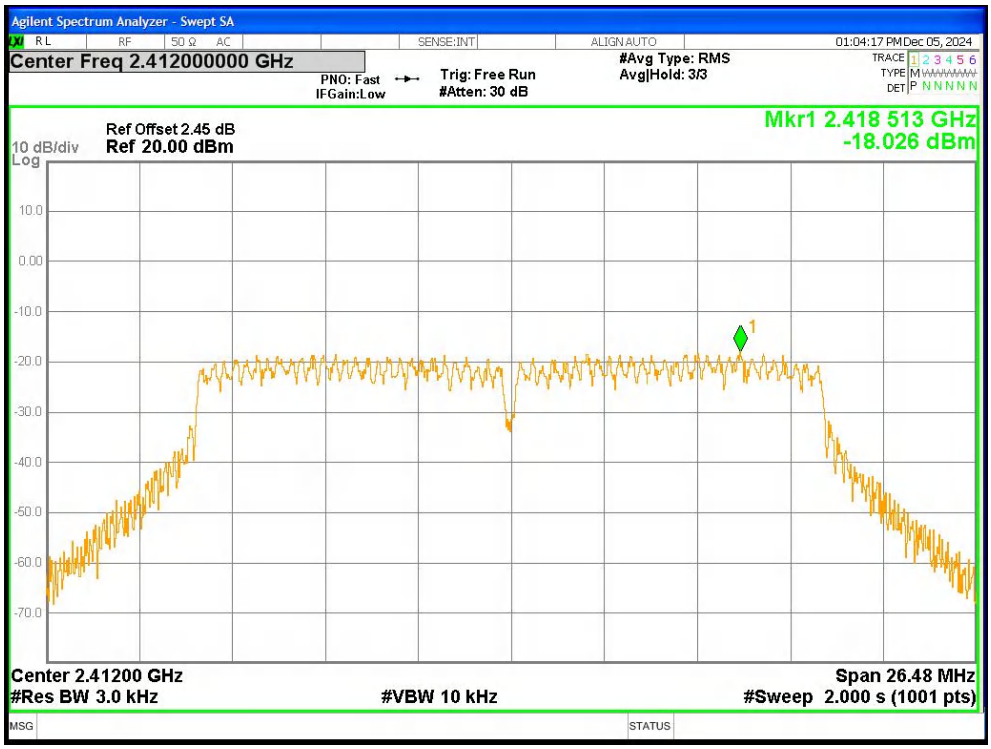
PSD NVNT g 2412MHz Ant1



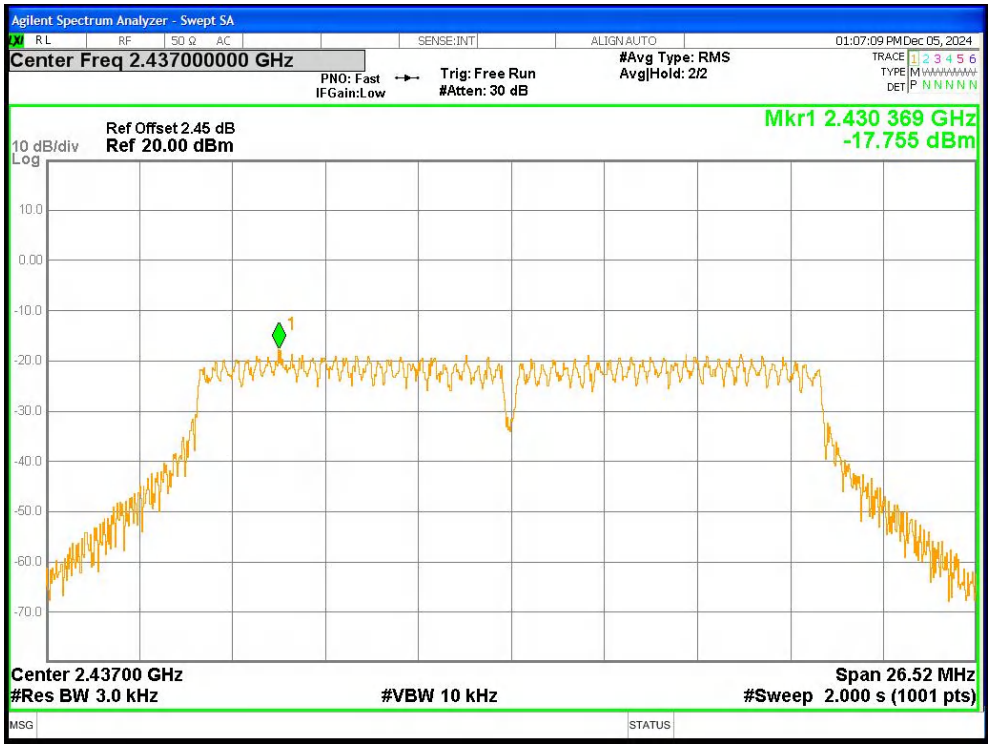
PSD NVNT g 2437MHz Ant1



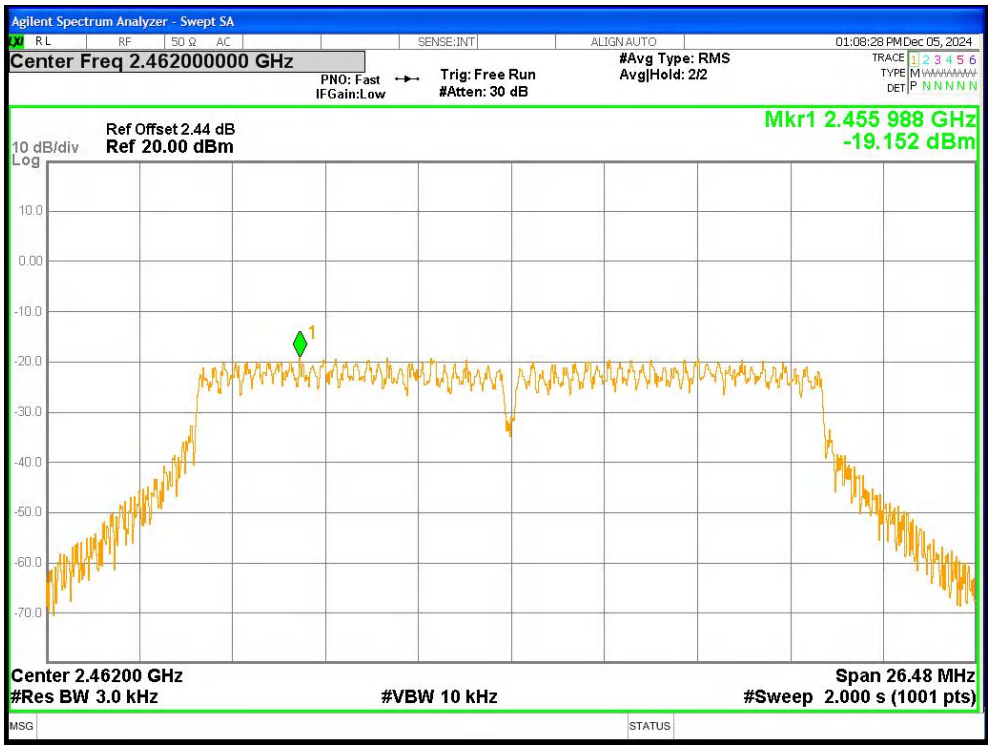
PSD NVNT g 2462MHz Ant1



PSD NVNT n20 2412MHz Ant1



PSD NVNT n20 2437MHz Ant1



PSD NVNT n20 2462MHz Ant1

7. CHANNEL BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

7.2 TEST PROCEDURE

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

7.3 DEVIATION FROM STANDARD

No deviation.

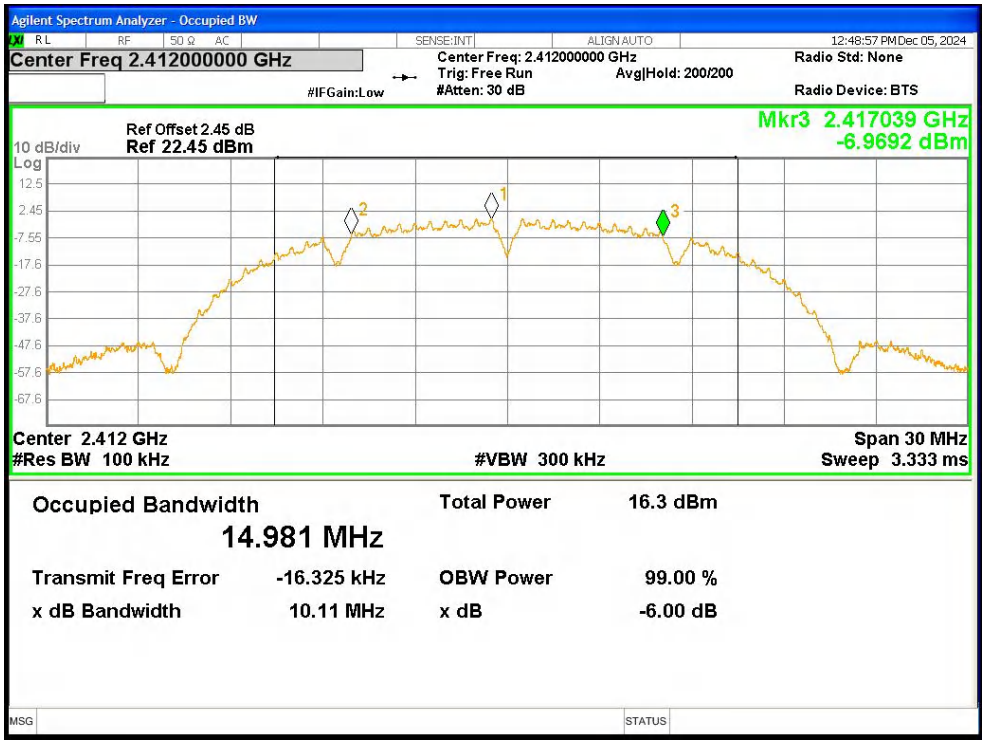
7.4 TEST SETUP

7.5 EUT OPERATION CONDITIONS

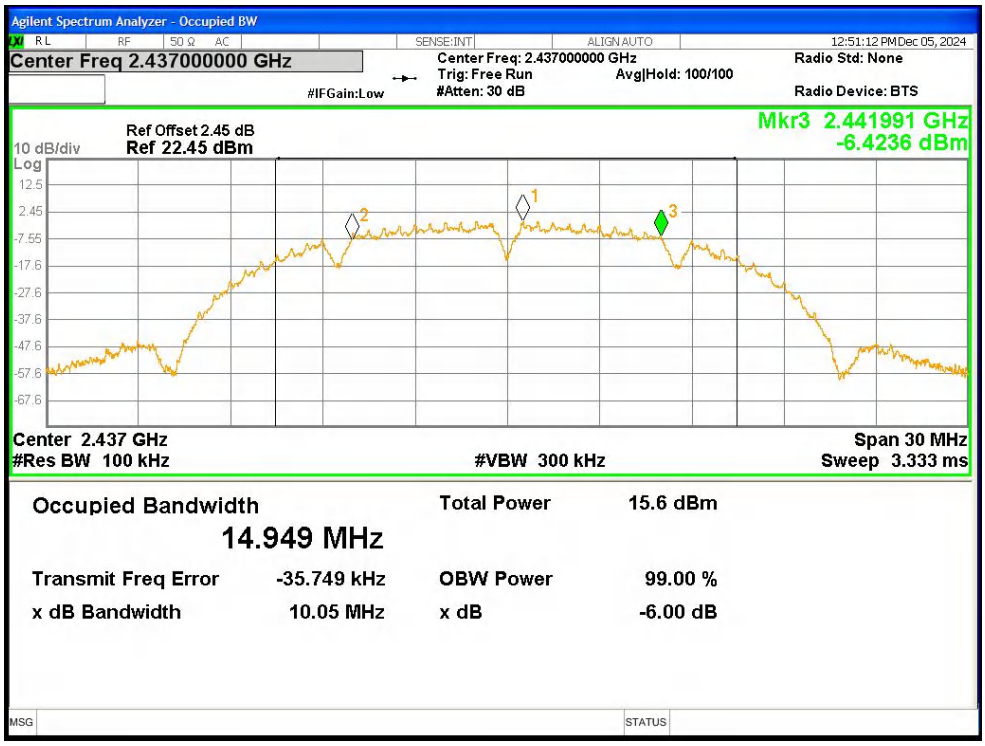
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULT

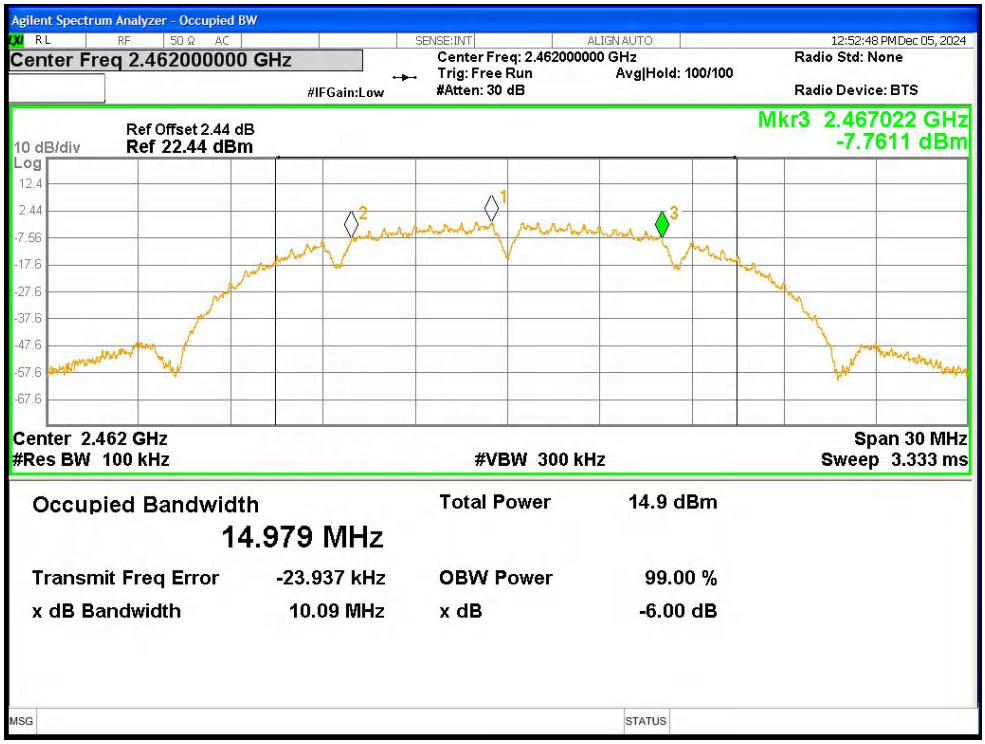
Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	10.111	0.5	Pass
b	2437	10.053	0.5	Pass
b	2462	10.092	0.5	Pass
g	2412	16.540	0.5	Pass
g	2437	16.524	0.5	Pass
g	2462	16.533	0.5	Pass
n20	2412	17.650	0.5	Pass
n20	2437	17.682	0.5	Pass
n20	2462	17.656	0.5	Pass



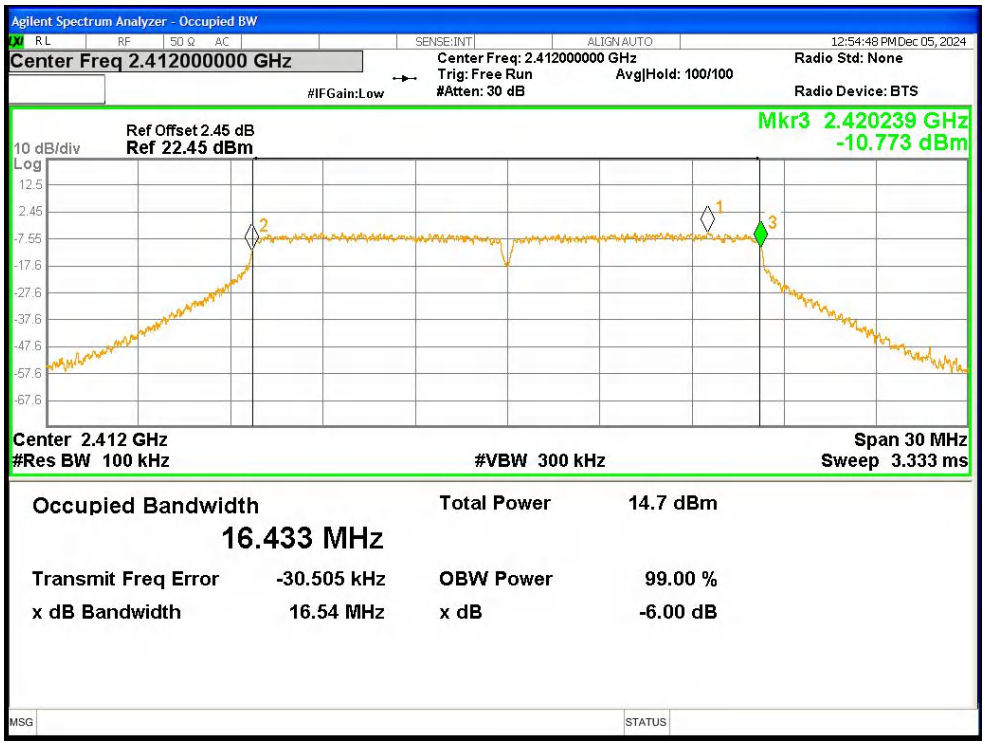
-6dB Bandwidth NVNT b 2412MHz Ant1



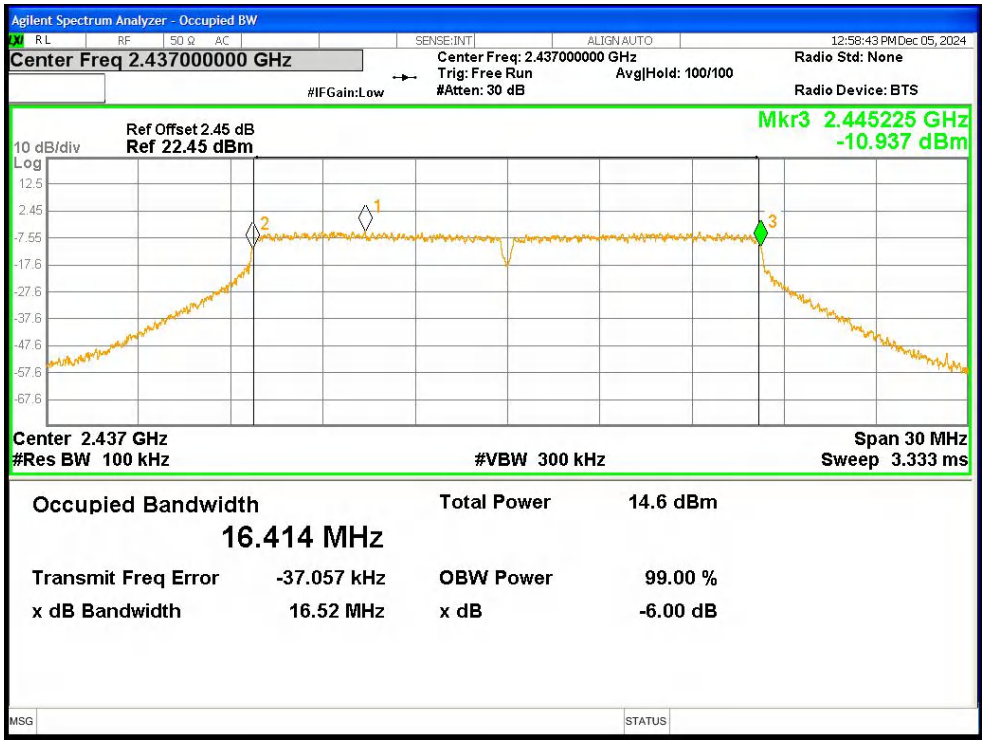
-6dB Bandwidth NVNT b 2437MHz Ant1



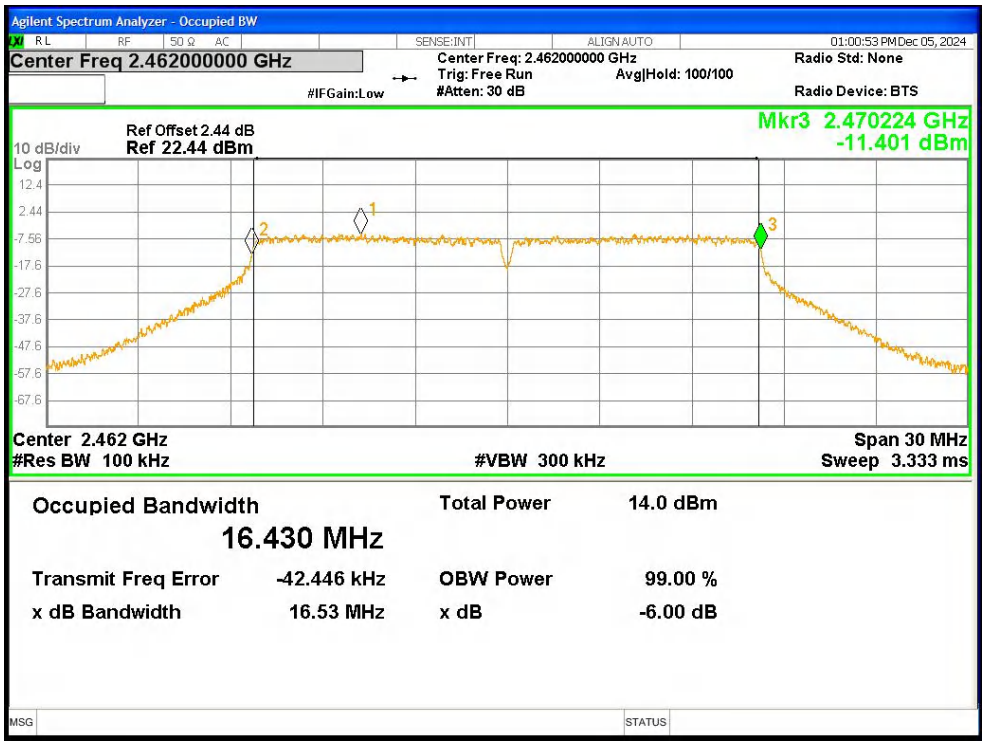
-6dB Bandwidth NVNT b 2462MHz Ant1



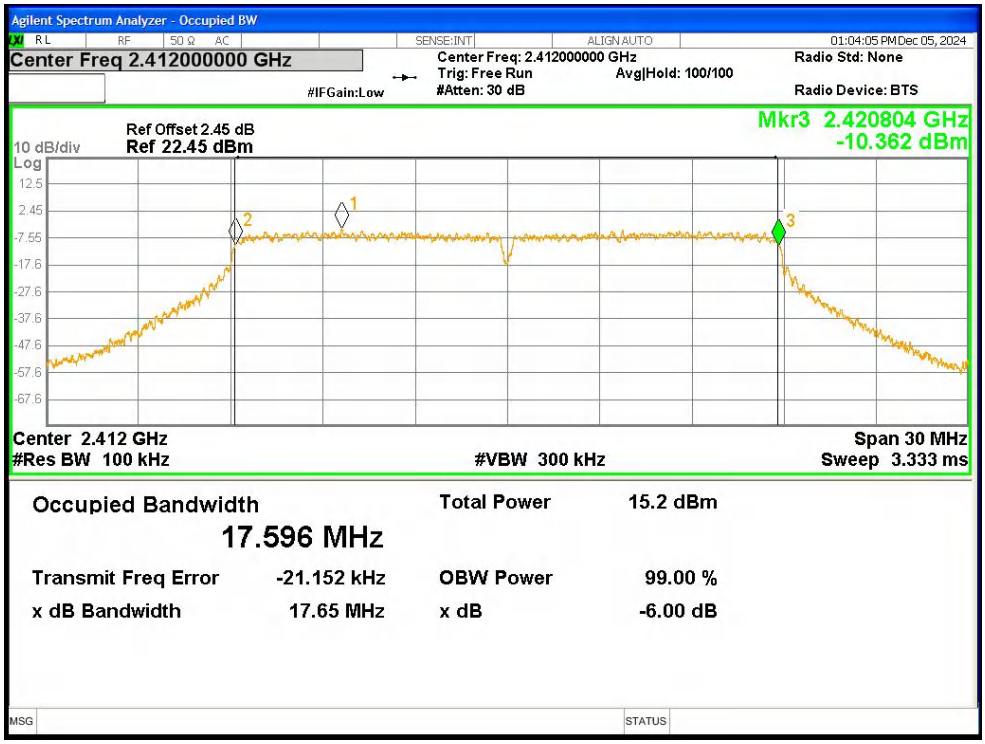
-6dB Bandwidth NVNT g 2412MHz Ant1



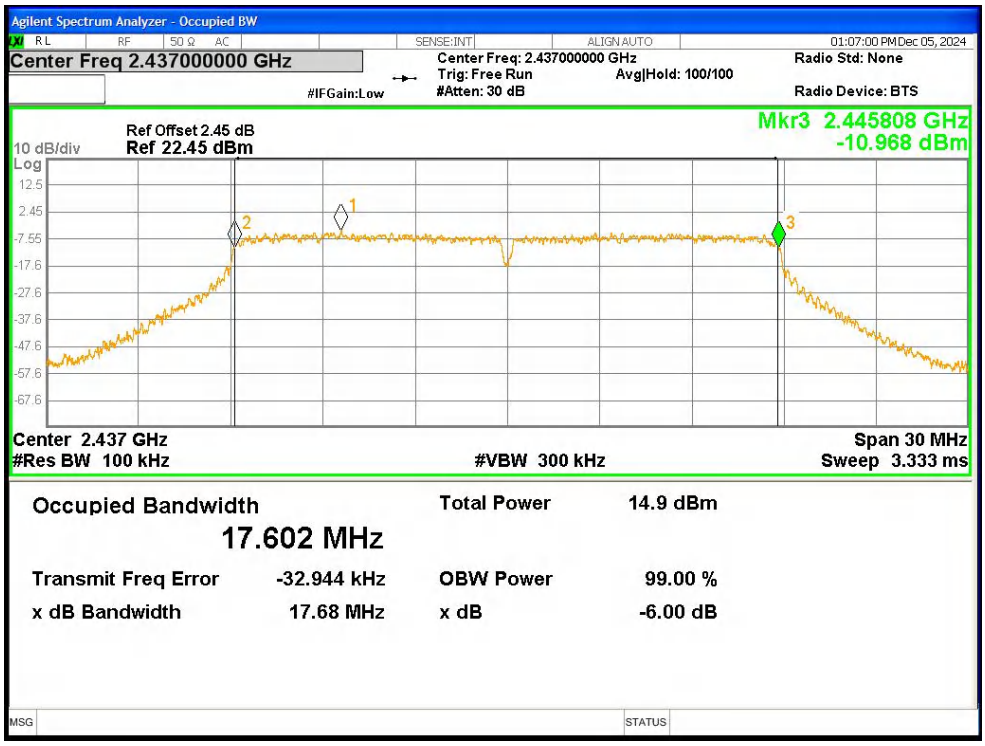
-6dB Bandwidth NVNT g 2437MHz Ant1



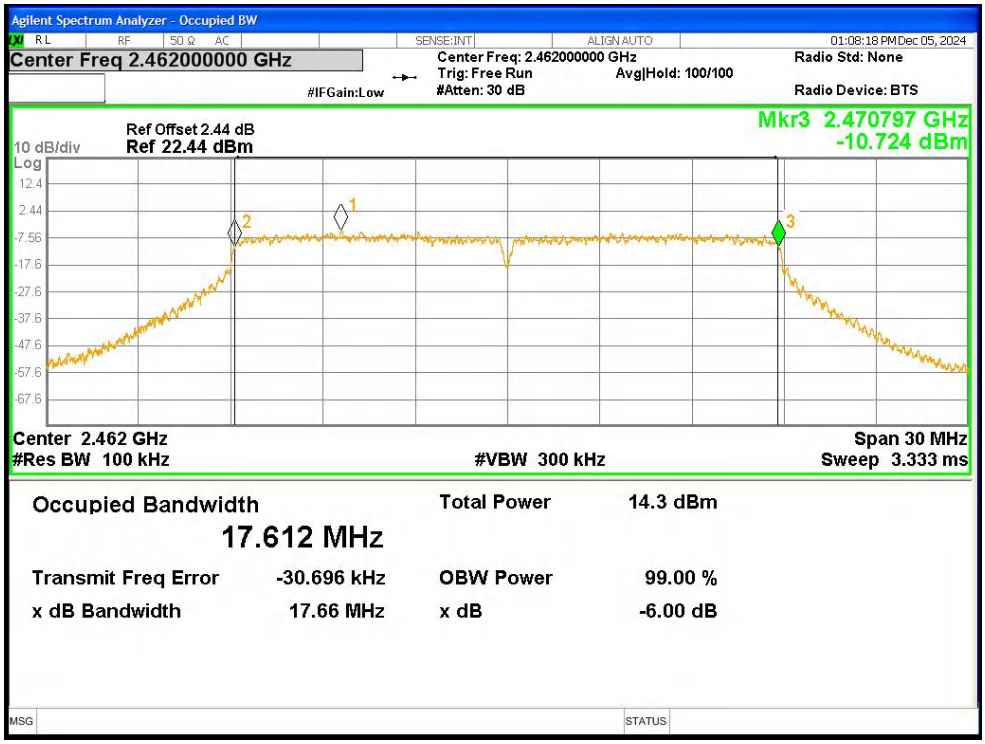
-6dB Bandwidth NVNT g 2462MHz Ant1



-6dB Bandwidth NVNT n20 2412MHz Ant1



-6dB Bandwidth NVNT n20 2437MHz Ant1



-6dB Bandwidth NVNT n20 2462MHz Ant1

8.PEAK OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

8.1 APPLIED PROCEDURES/LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power(SISO)	1 watt or 30dBm	2400-2483.5	PASS

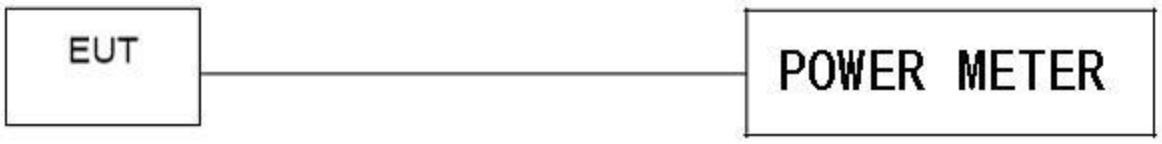
8.2 TEST PROCEDURE

a. The EUT was directly connected to the Power meter

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULT

Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	12.30	30	Pass
b	2437	11.74	30	Pass
b	2462	11.02	30	Pass
g	2412	11.89	30	Pass
g	2437	11.78	30	Pass
g	2462	11.18	30	Pass
n20	2412	12.47	30	Pass
n20	2437	12.19	30	Pass
n20	2462	11.59	30	Pass

9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in15.209(a).

9.2 TEST PROCEDURE

Using the following spectrum analyzer setting:

A) Set the RBW = 100KHz.
B) Set the VBW = 300KHz.
C) Sweep time = auto couple.
D) Detector function = peak.
E) Trace mode = max hold.
F) Allow trace to fully stabilize.

9.3 DEVIATION FROM STANDARD

No deviation.

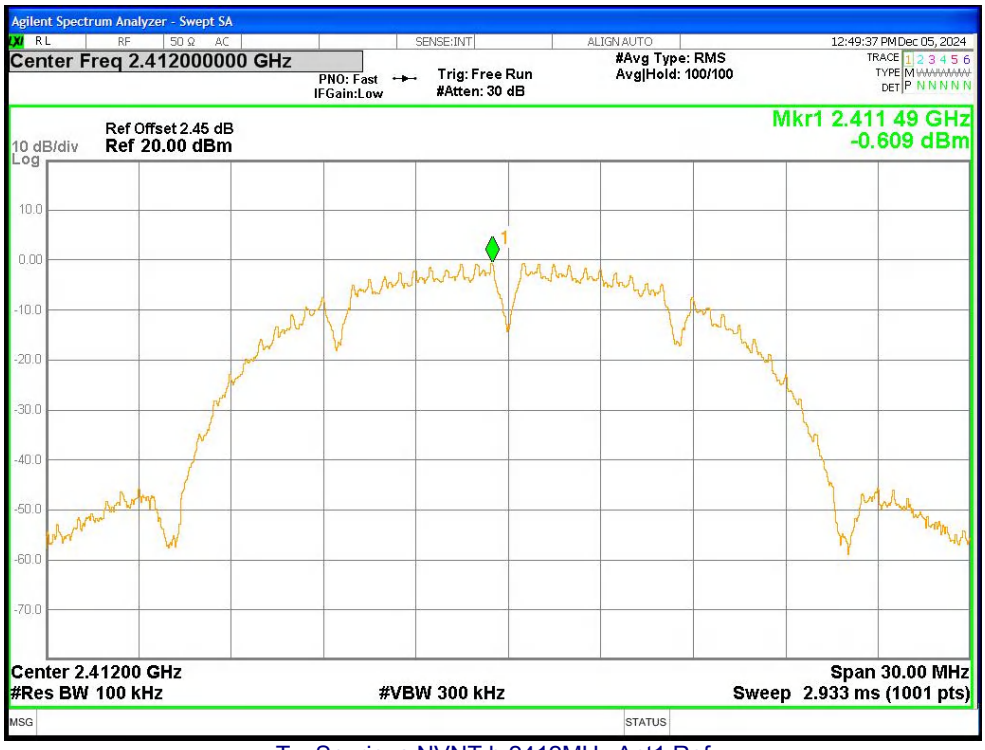
9.4 TEST SETUP

9.5 EUT OPERATION CONDITIONS

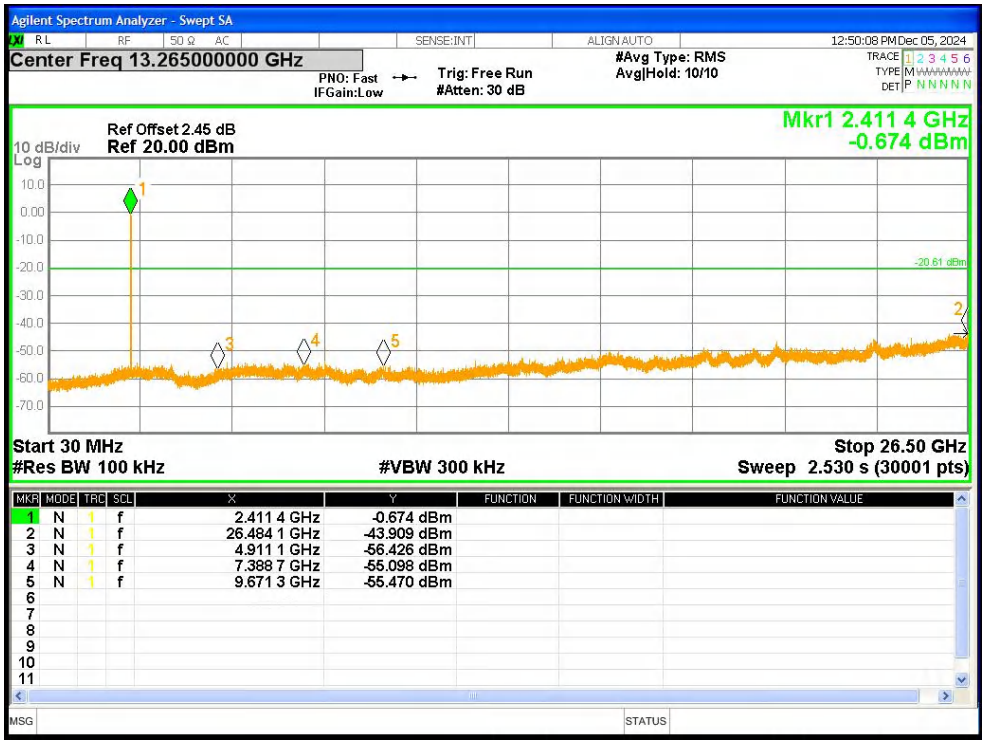
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

9.6 TEST RESULTS

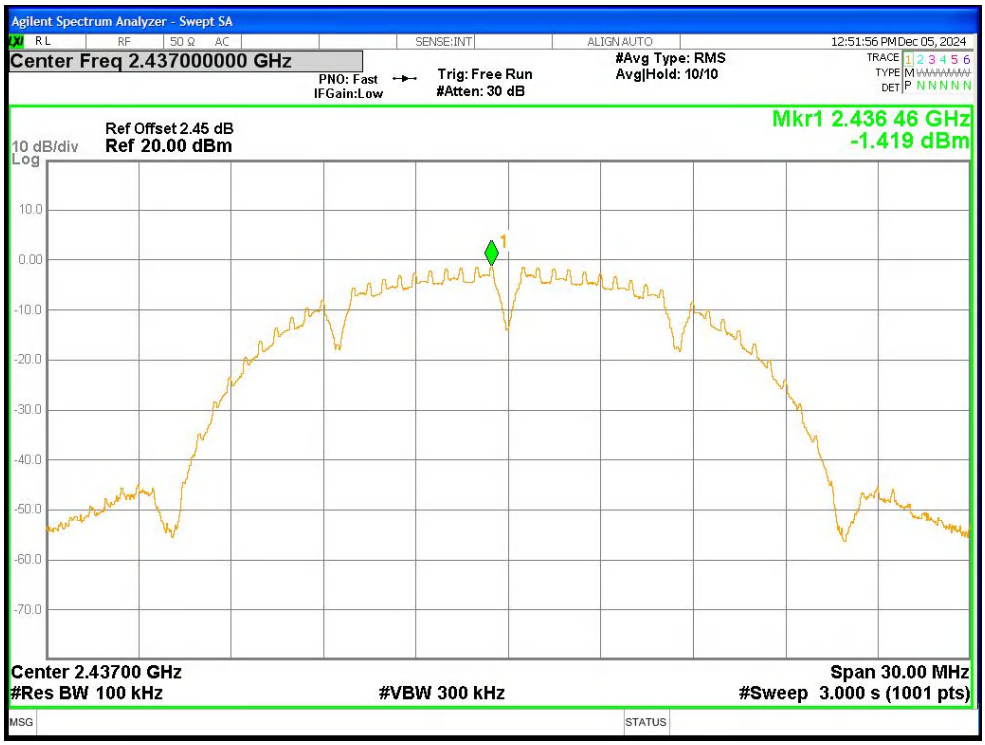
Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	-43.29	-20	Pass
b	2437	-43.22	-20	Pass
b	2462	-42.10	-20	Pass
g	2412	-38.58	-20	Pass
g	2437	-38.84	-20	Pass
g	2462	-37.40	-20	Pass
n20	2412	-40.09	-20	Pass
n20	2437	-40.12	-20	Pass
n20	2462	-39.85	-20	Pass



Tx. Spurious NVNT b 2412MHz Ant1 Ref



Tx. Spurious NVNT b 2412MHz Ant1 Emission



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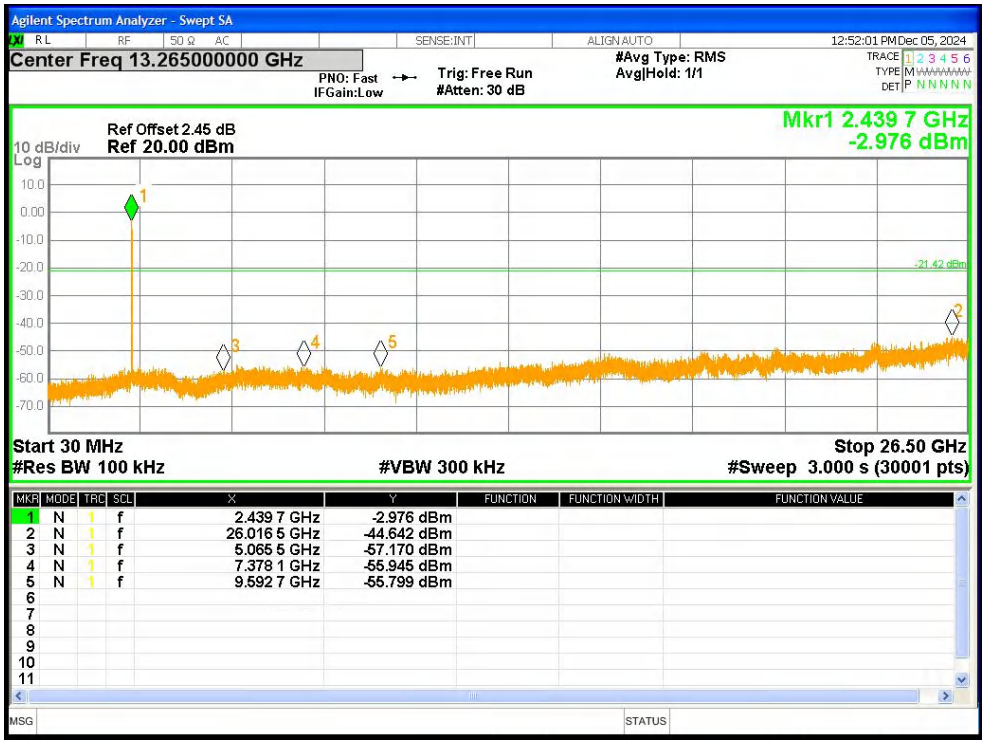
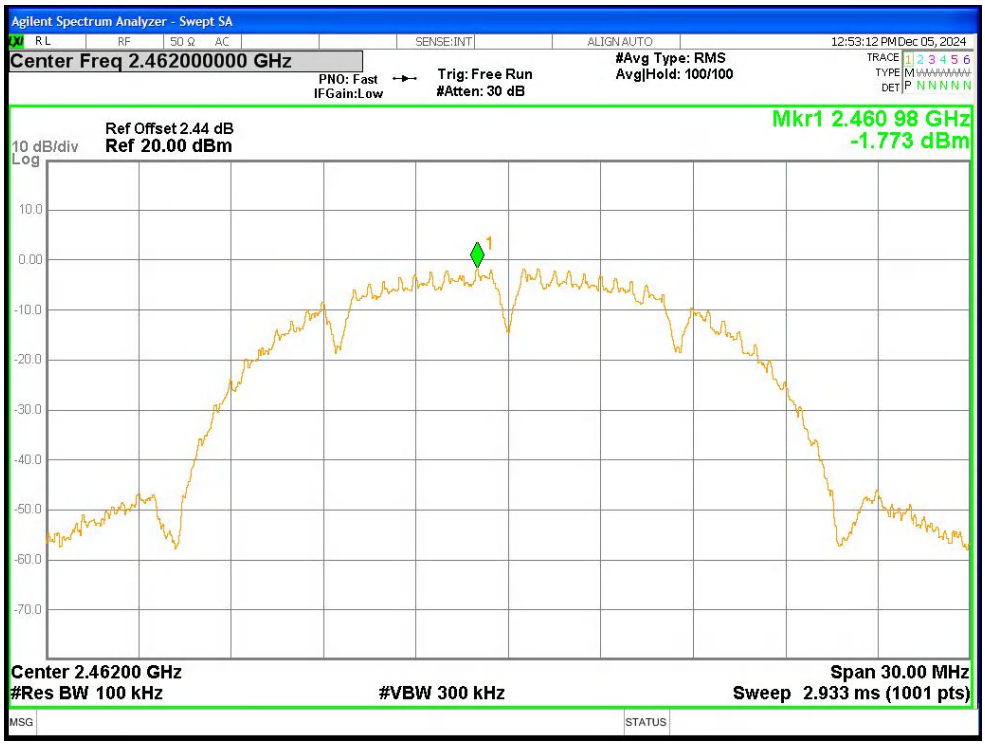
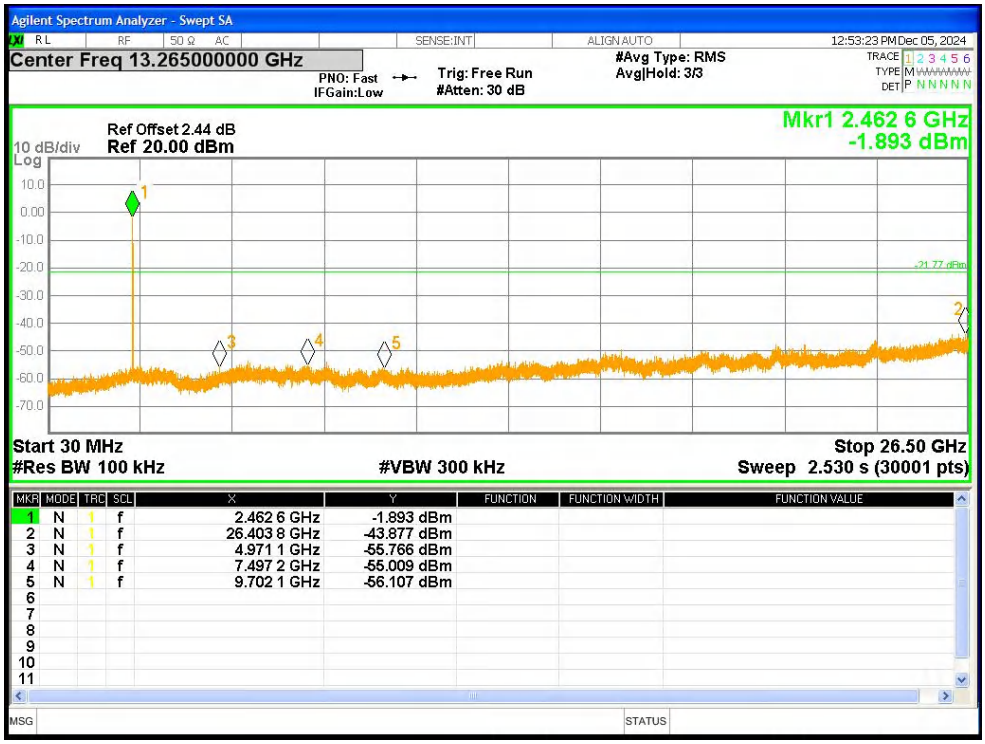


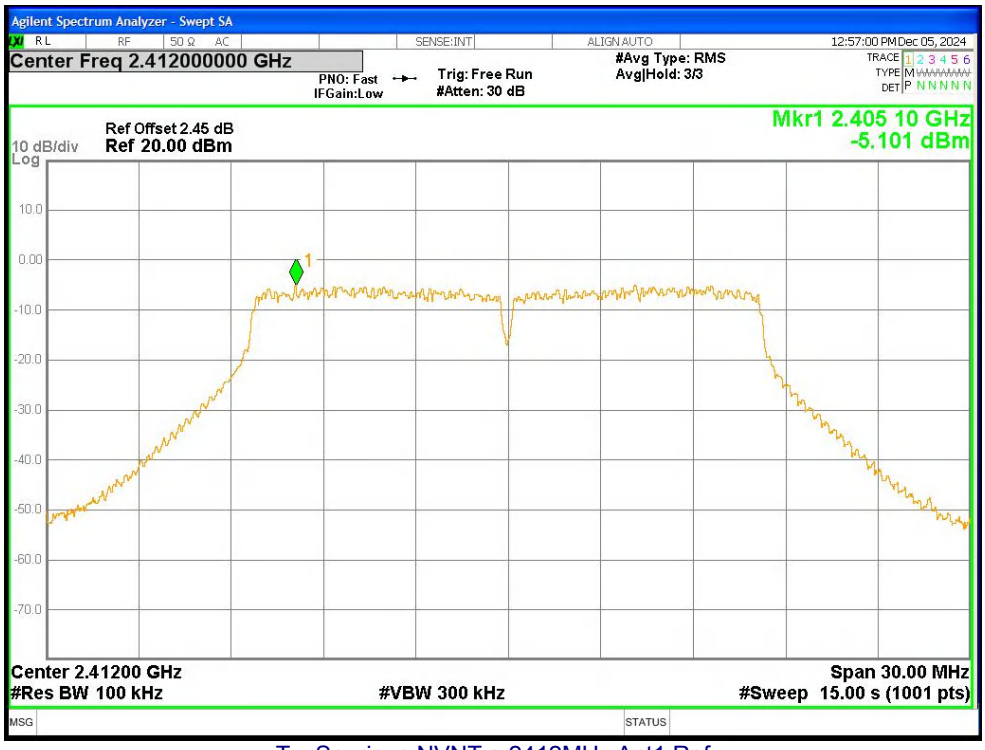
Tx. Spurious NVNT b 2437MHz Ant1 Emission



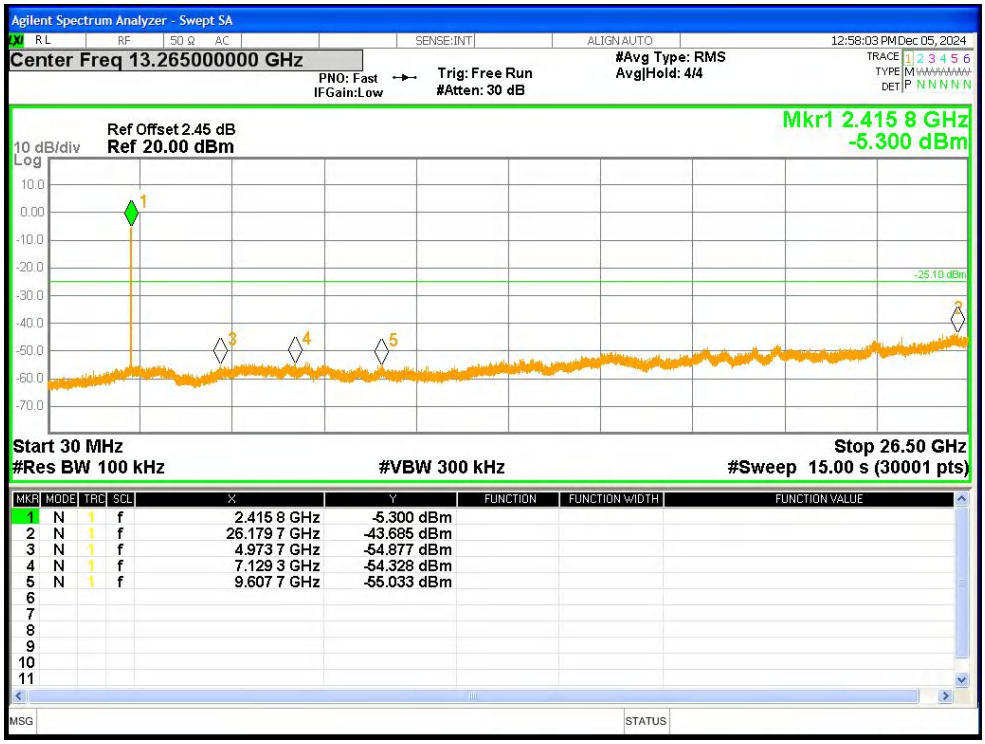
Tx. Spurious NVNT b 2462MHz Ant1 Ref



Tx. Spurious NVNT b 2462MHz Ant1 Emission



Tx. Spurious NVNT g 2412MHz Ant1 Ref



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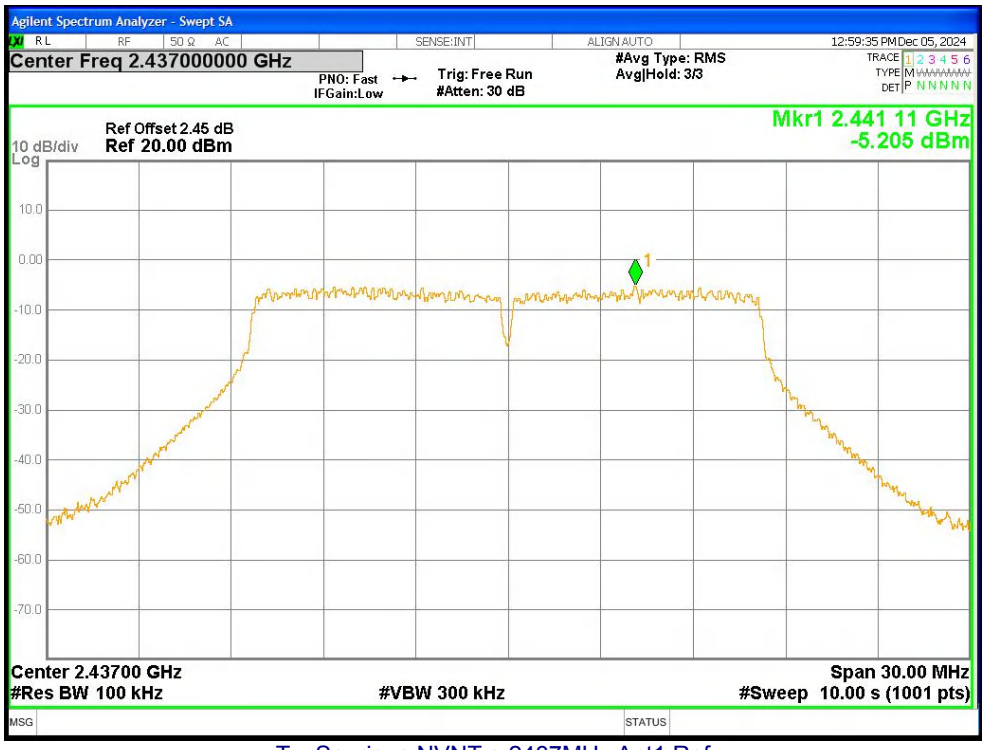

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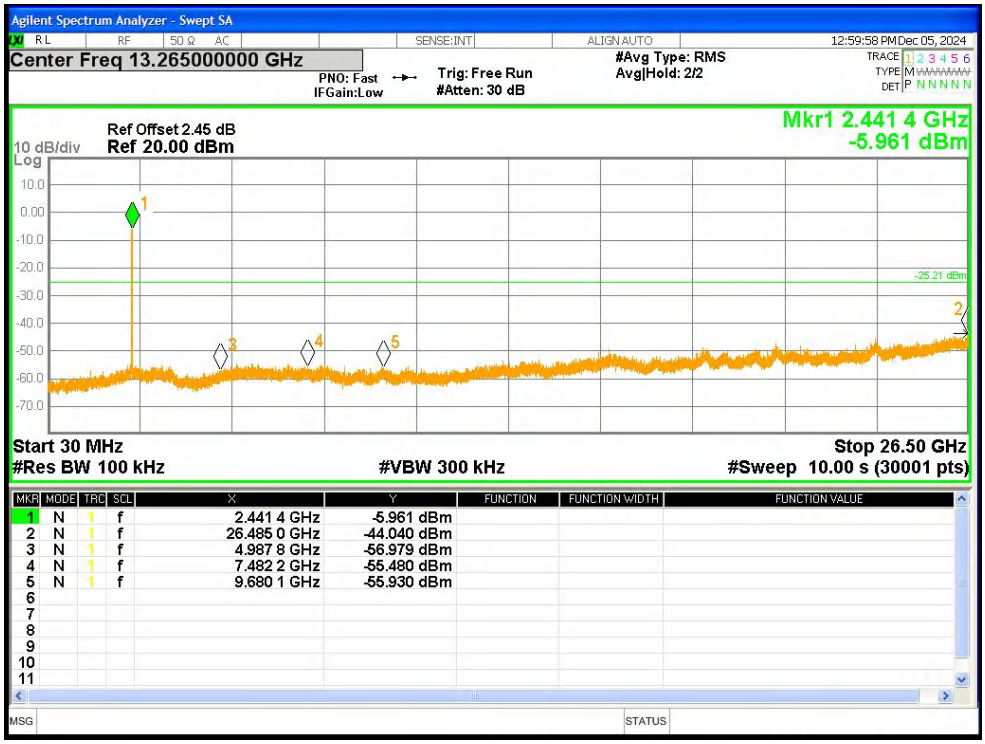

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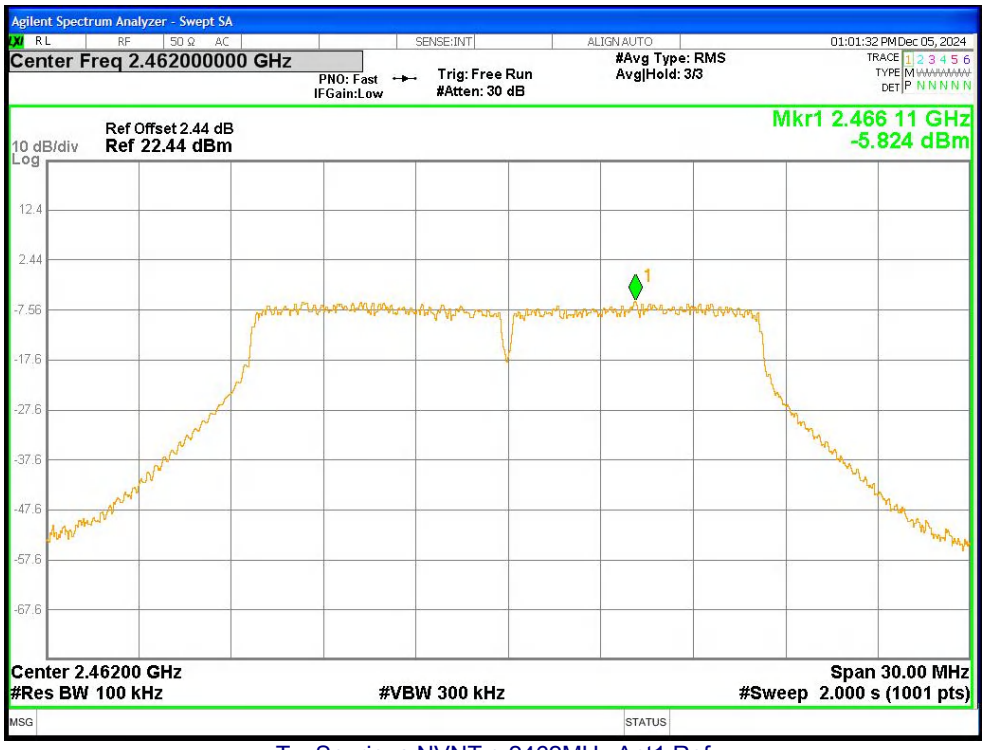

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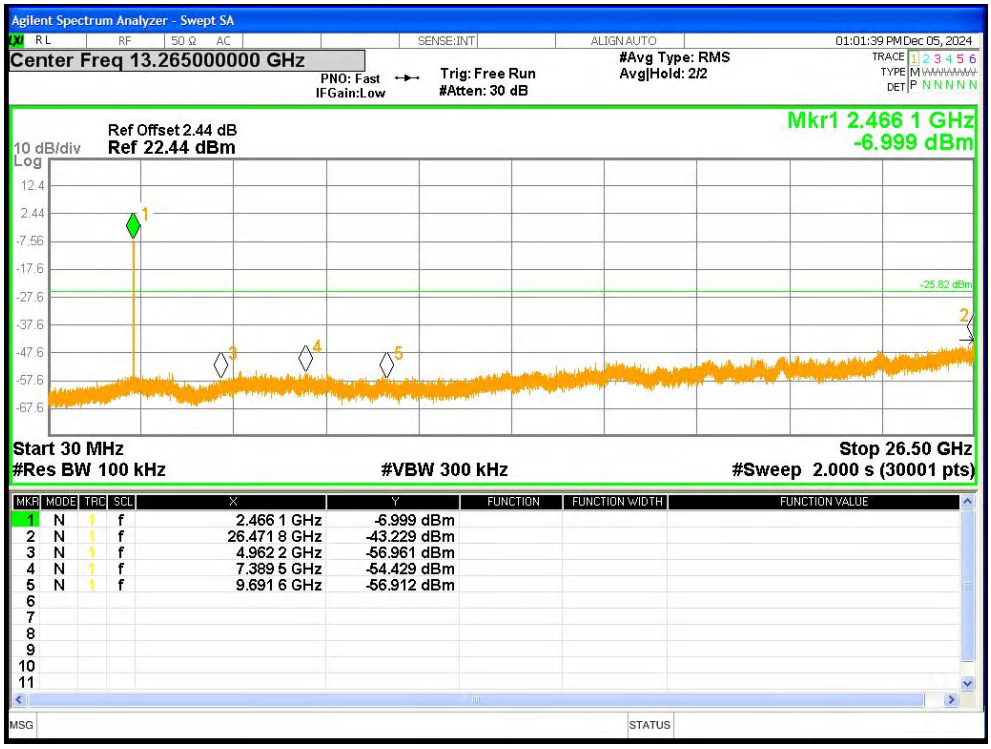
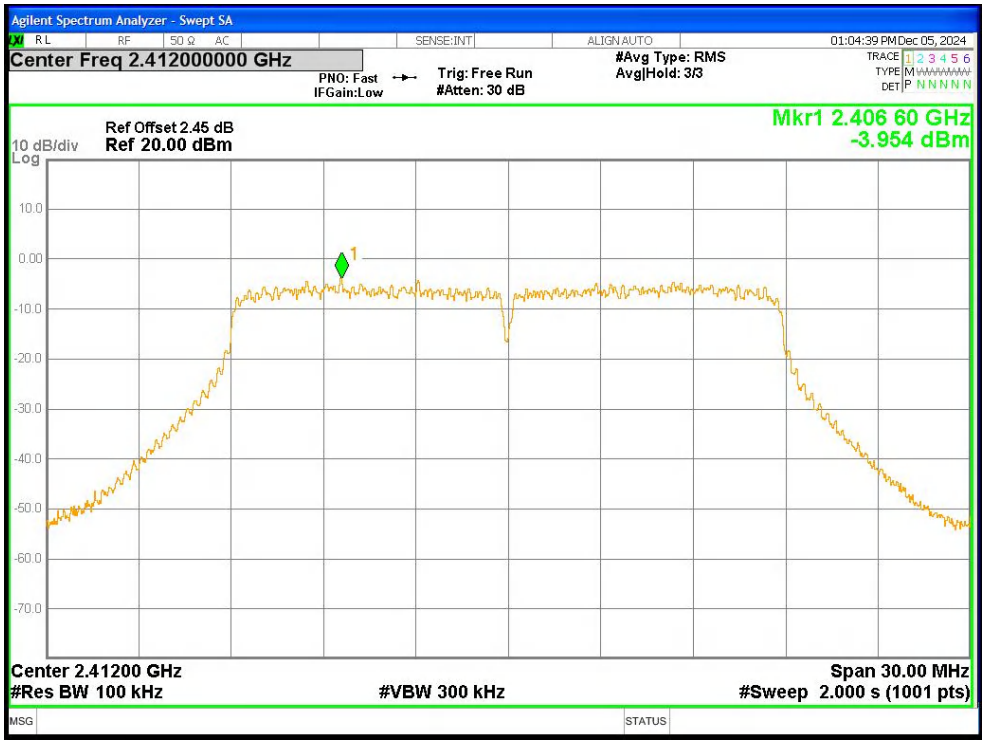
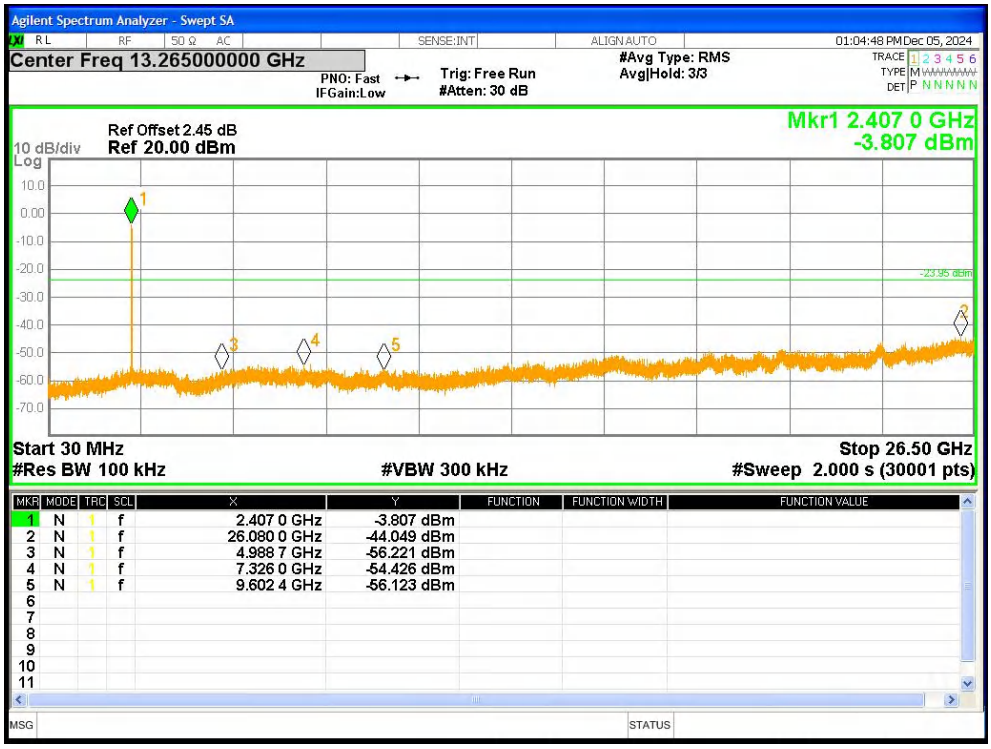


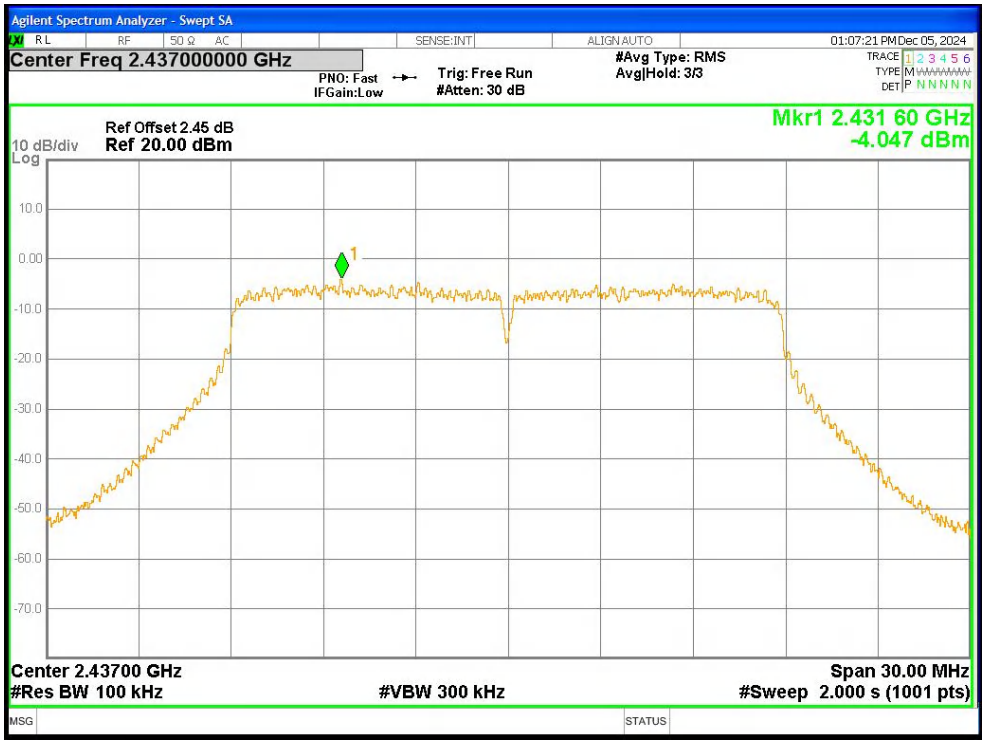
Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n20 2412MHz Ant1 Ref



Tx. Spurious NVNT n20 2412MHz Ant1 Emission



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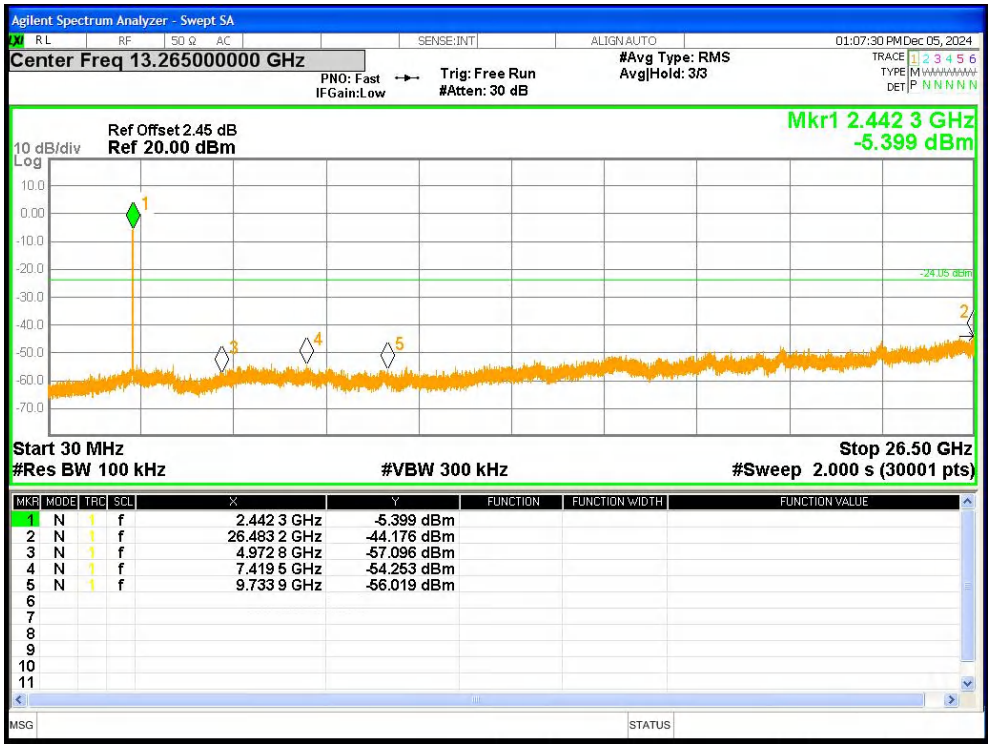
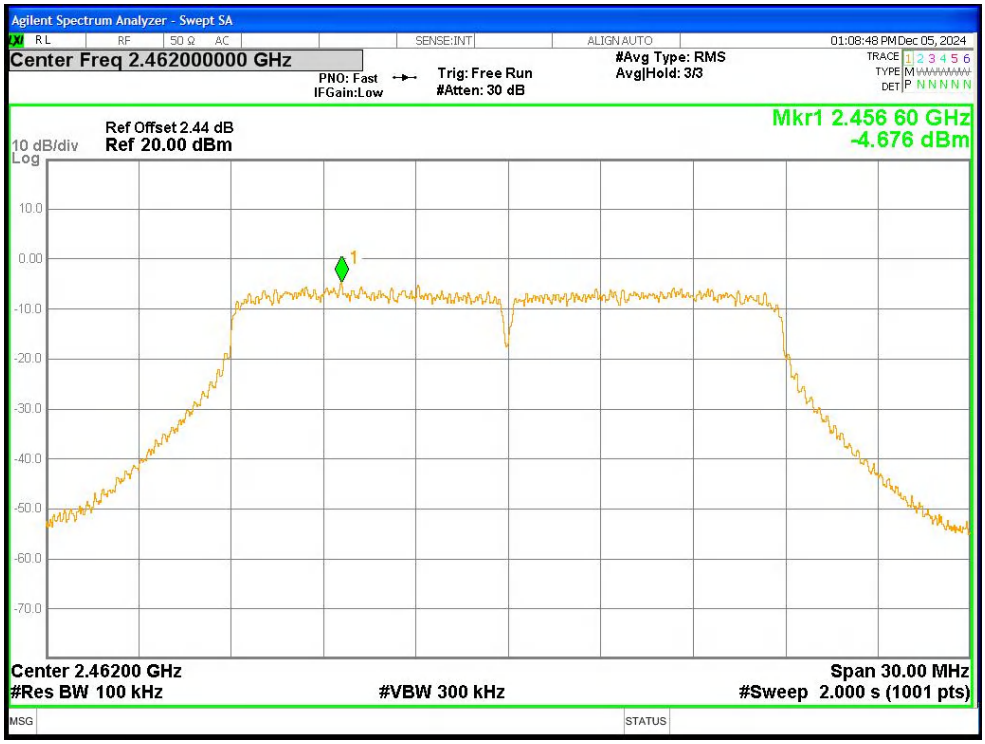
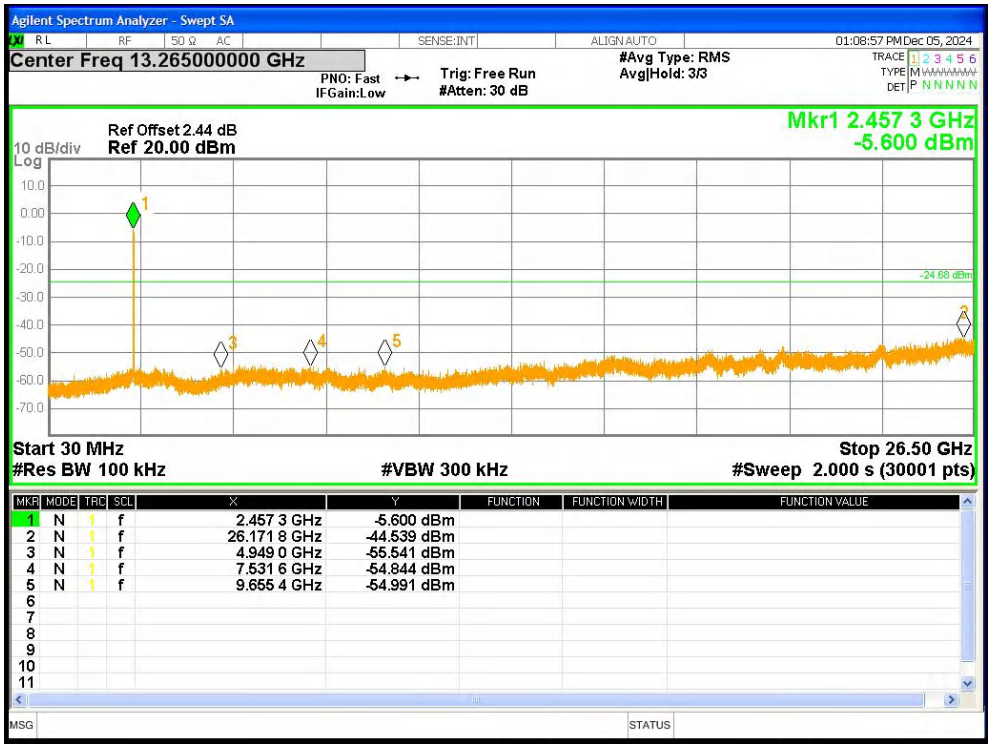


Tx. Spurious NVNT n20 2437MHz Ant1 Emission

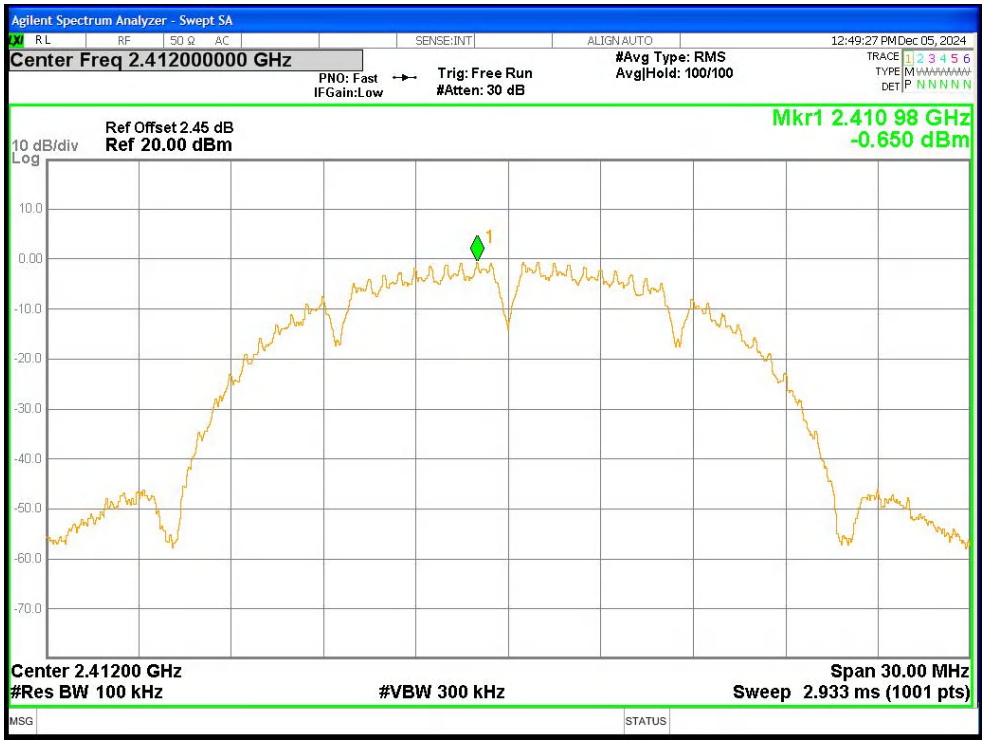


Tx. Spurious NVNT n20 2462MHz Ant1 Ref

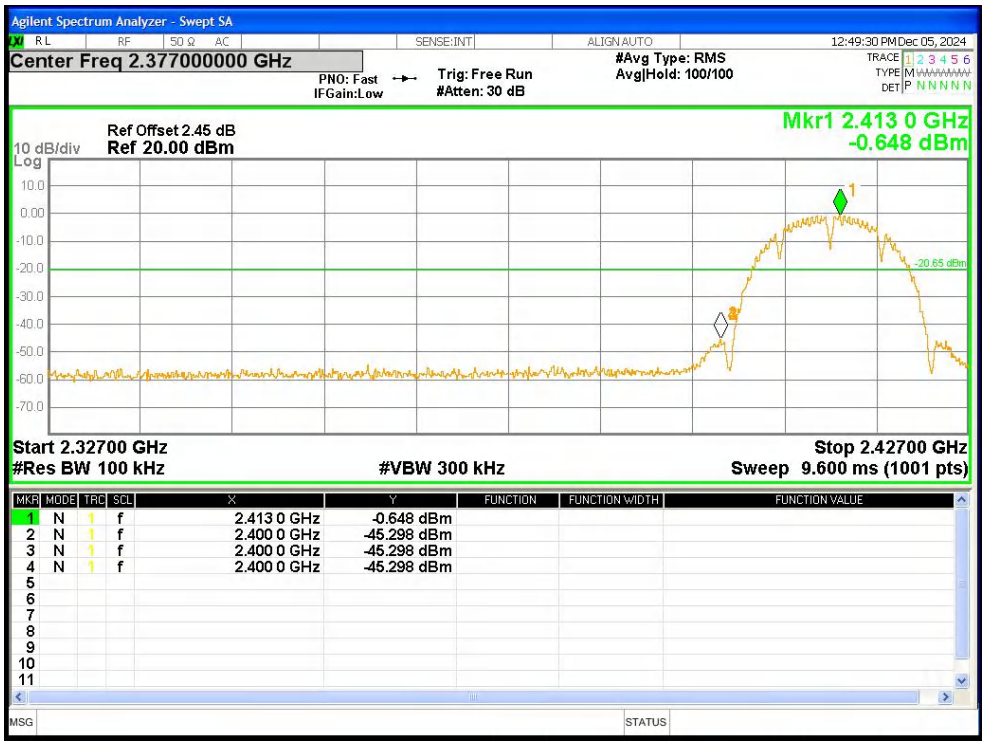


Tx. Spurious NVNT n20 2462MHz Ant1 Emission

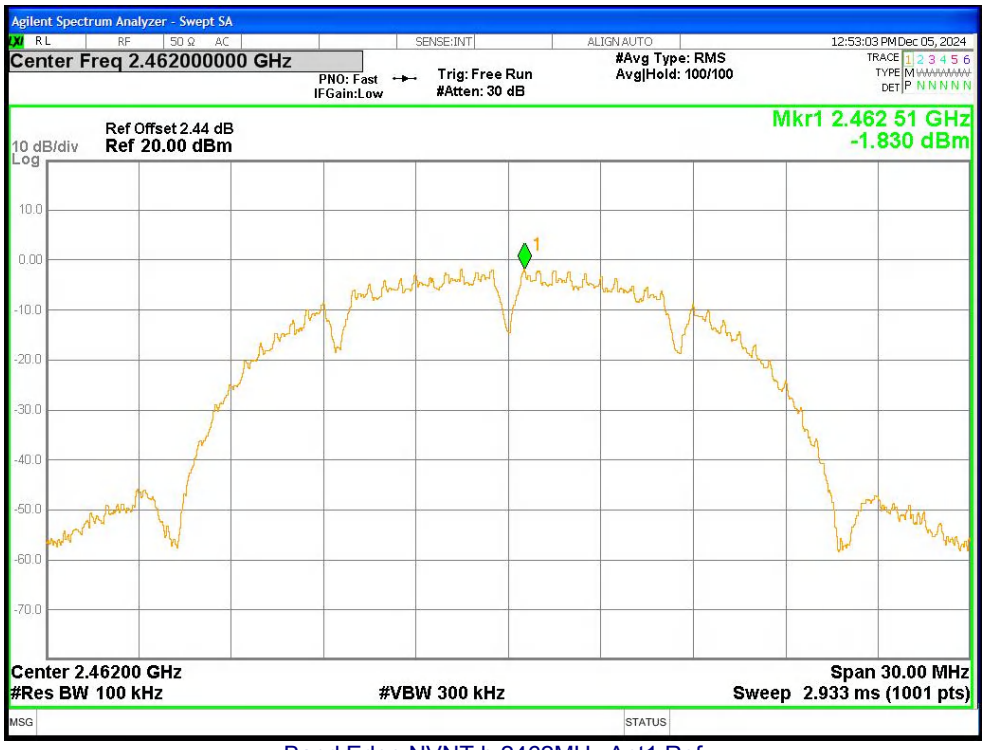
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-44.64	-20	Pass
b	2462	Ant1	-54.31	-20	Pass
g	2412	Ant1	-38.96	-20	Pass
g	2462	Ant1	-51.01	-20	Pass
n20	2412	Ant1	-37.63	-20	Pass
n20	2462	Ant1	-50.51	-20	Pass



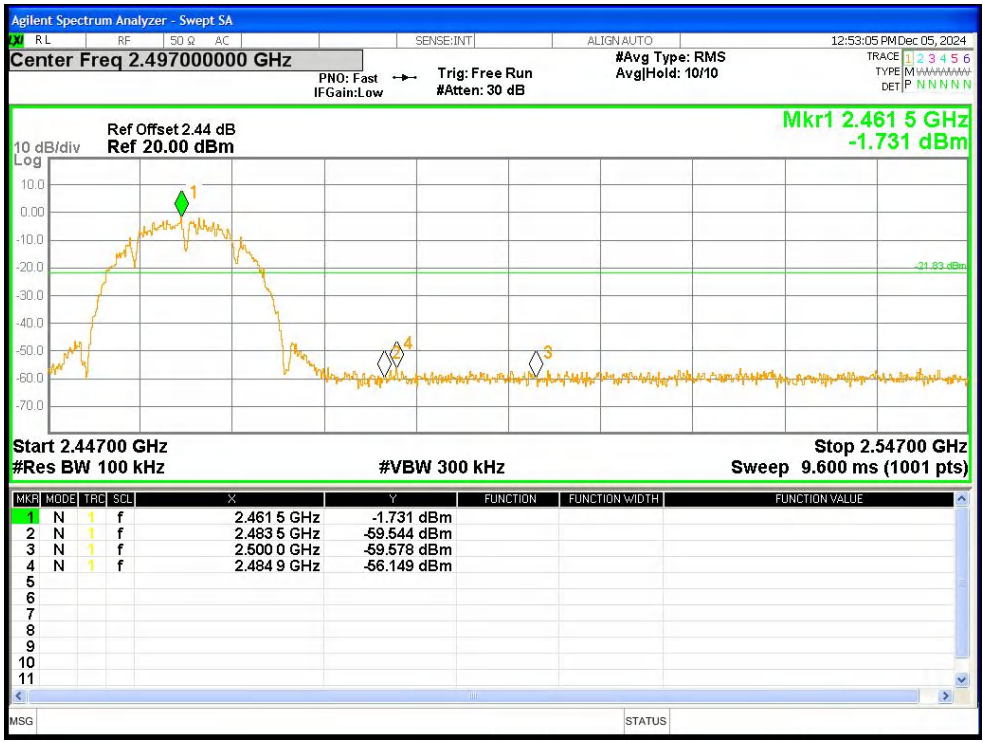
Band Edge NVNT b 2412MHz Ant1 Ref



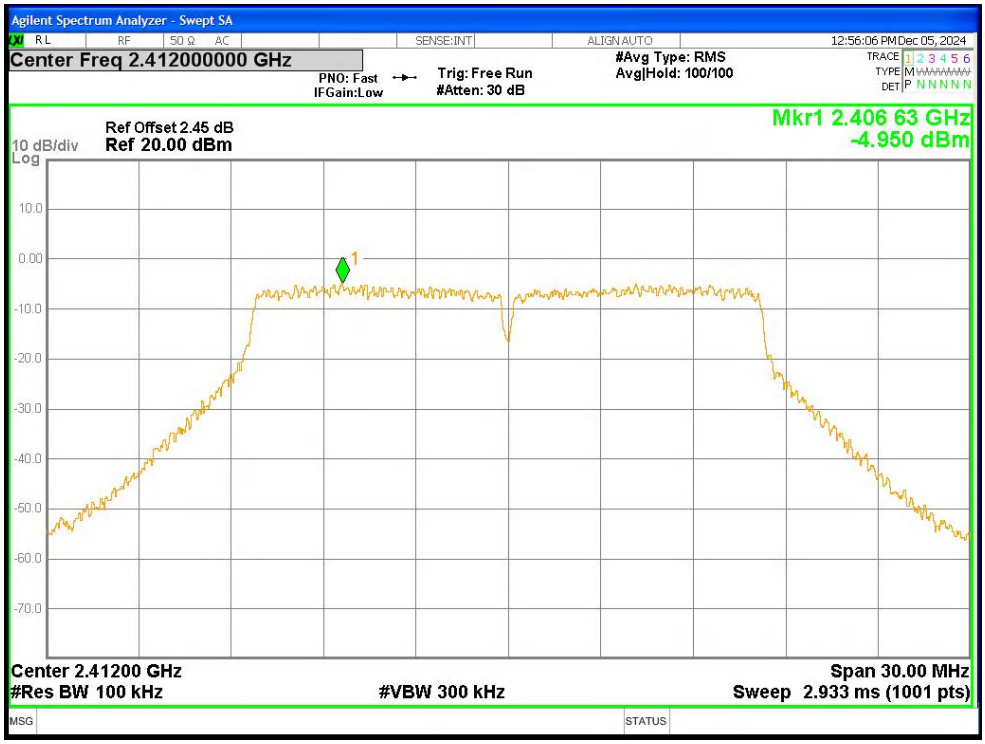
Band Edge NVNT b 2412MHz Ant1 Emission



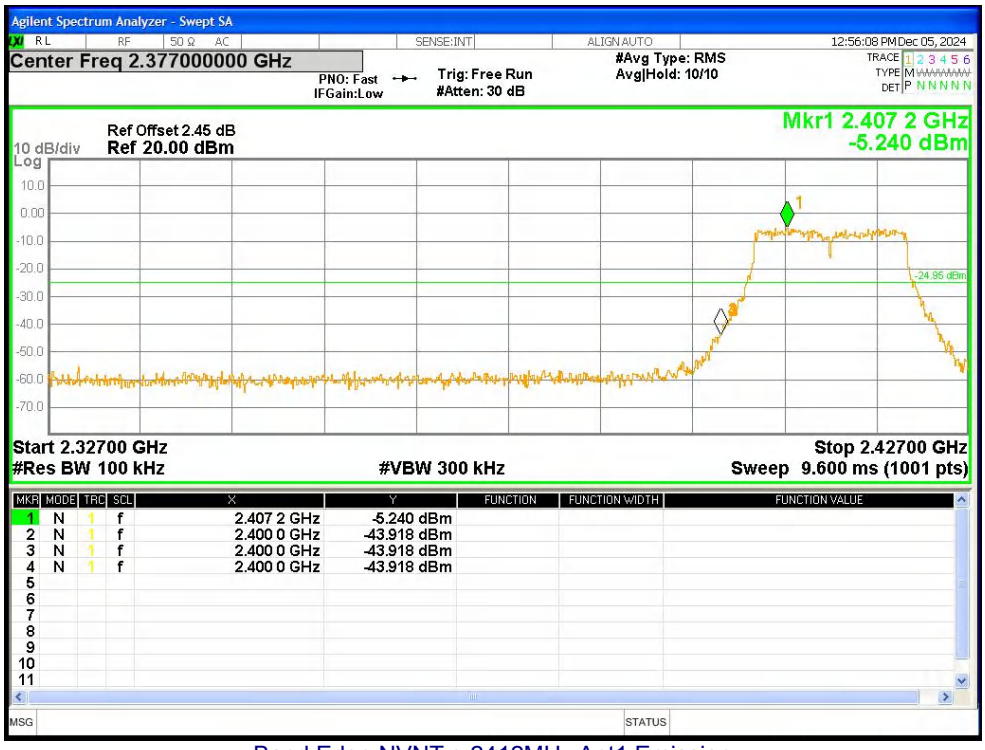
Band Edge NVNT b 2462MHz Ant1 Ref



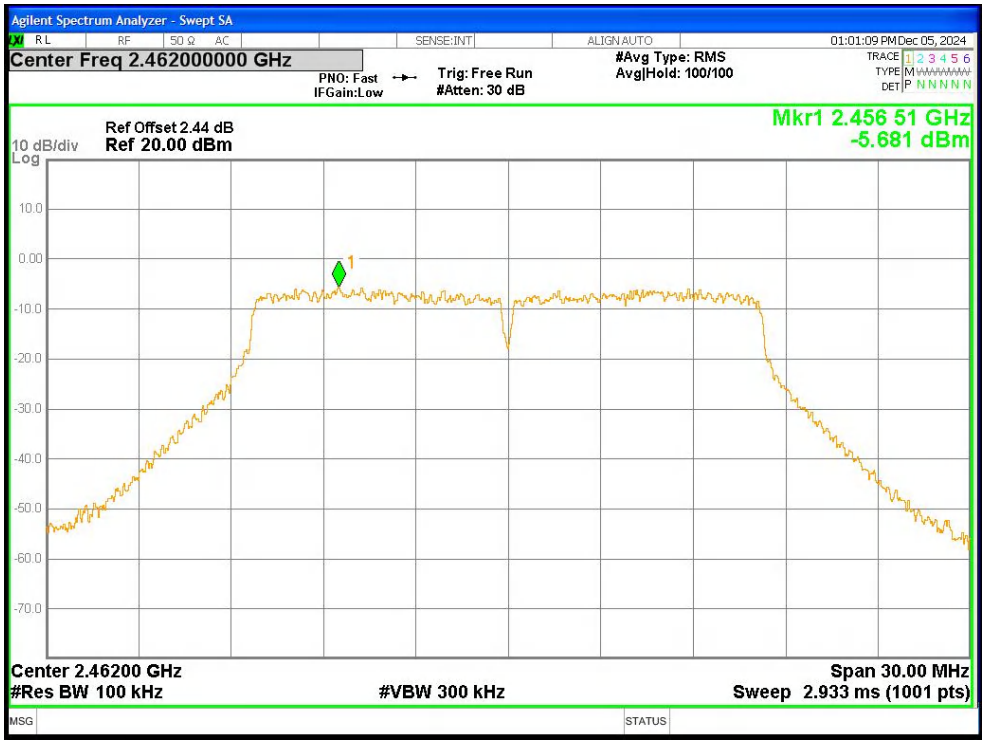
Band Edge NVNT b 2462MHz Ant1 Emission



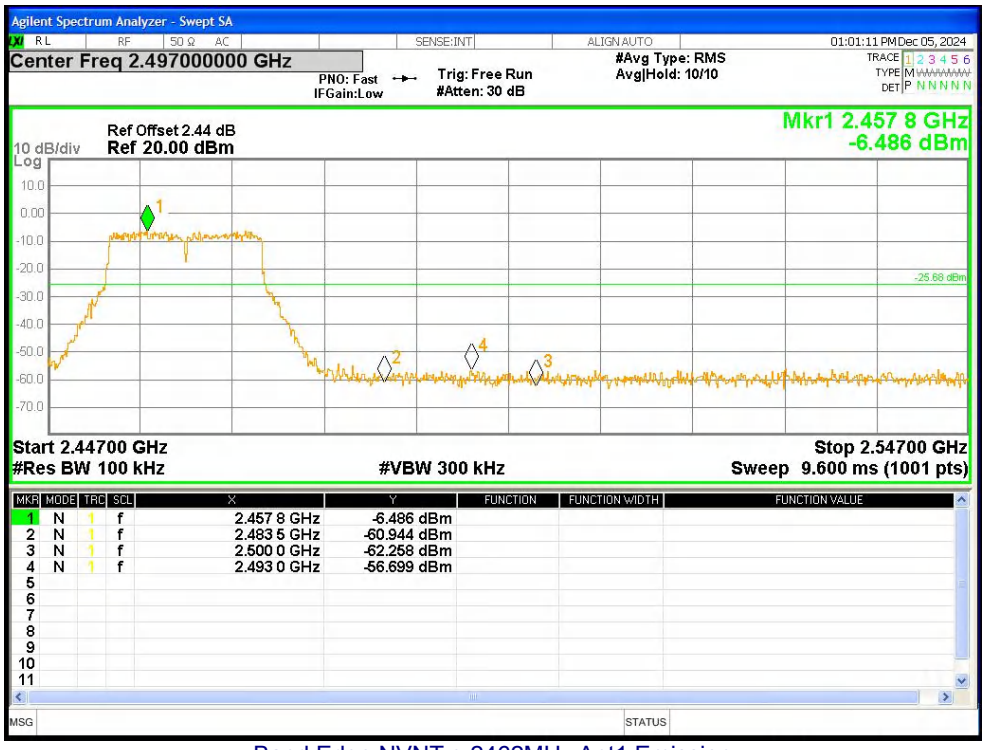
Band Edge NVNT g 2412MHz Ant1 Ref



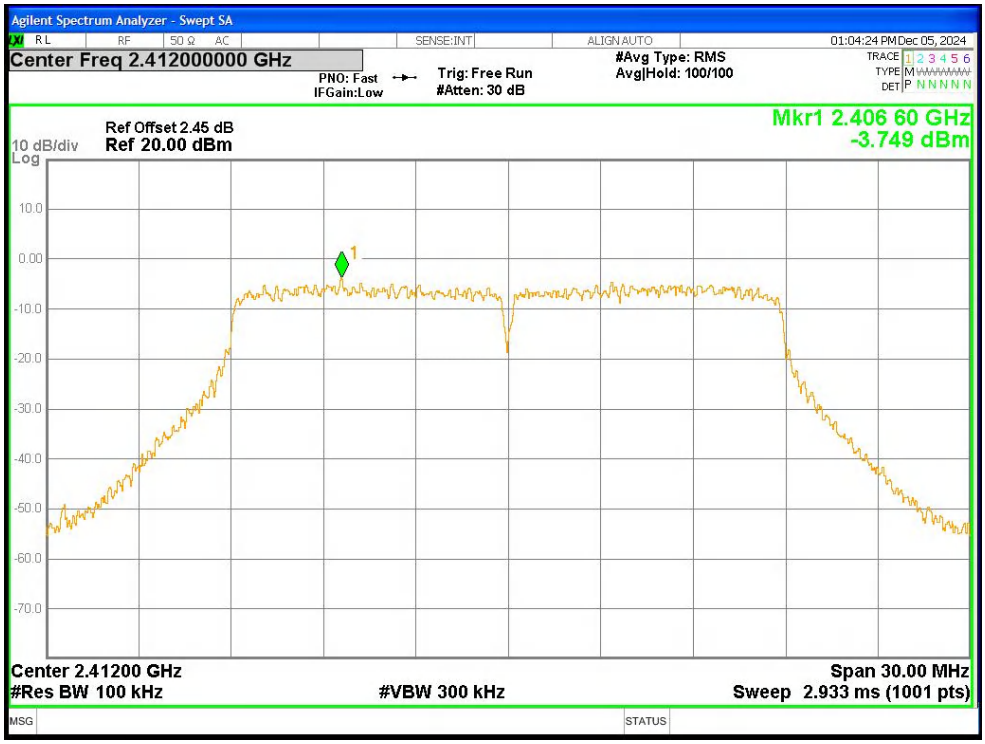
Band Edge NVNT g 2412MHz Ant1 Emission



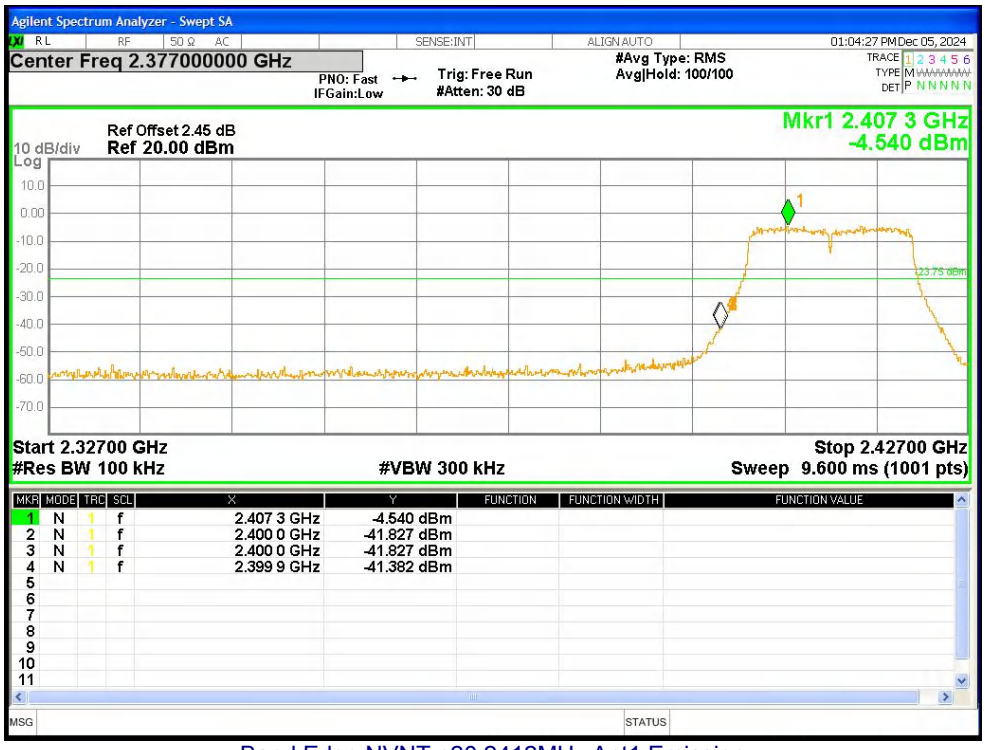
Band Edge NVNT g 2462MHz Ant1 Ref



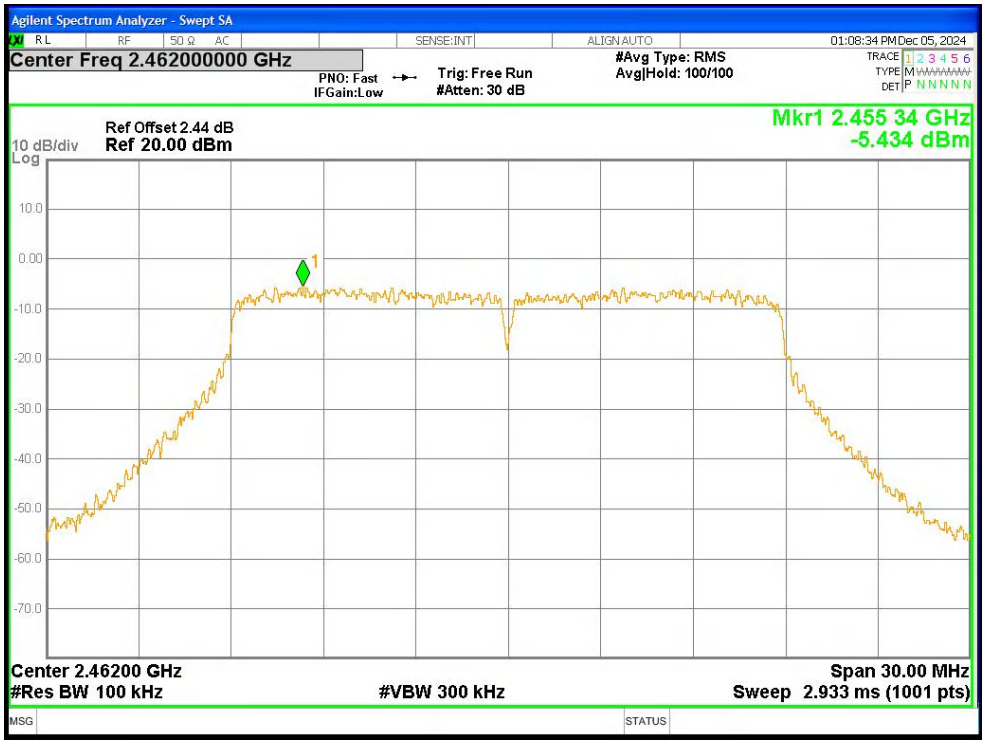
Band Edge NVNT g 2462MHz Ant1 Emission



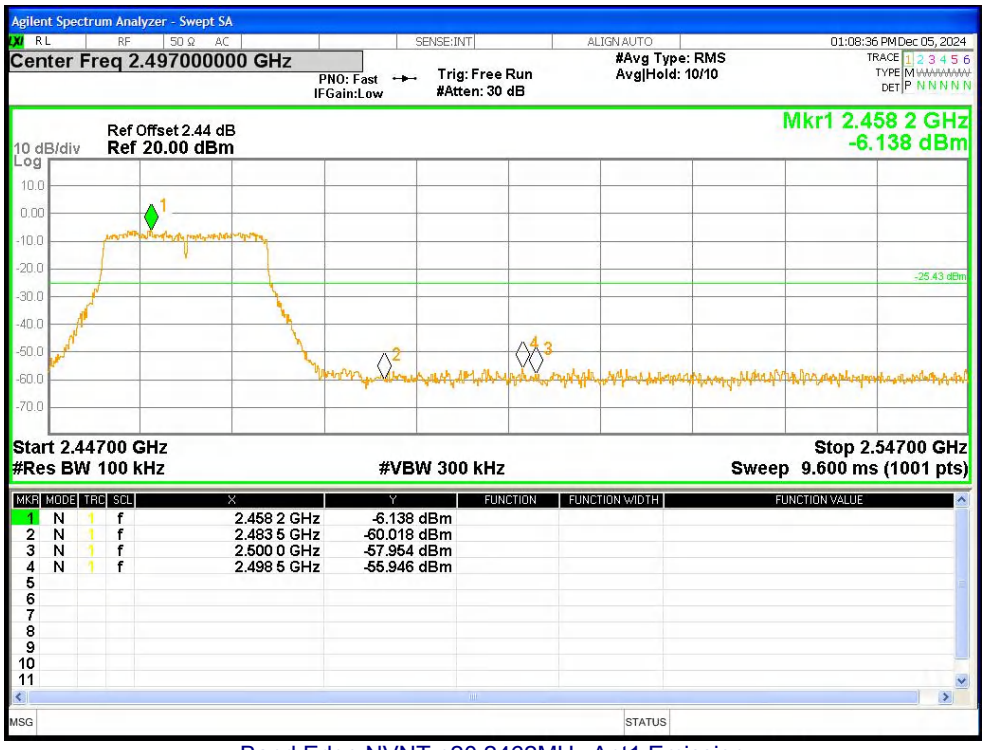
Band Edge NVNT n20 2412MHz Ant1 Ref



Band Edge NVNT n20 2412MHz Ant1 Emission



Band Edge NVNT n20 2462MHz Ant1 Ref



Band Edge NVNT n20 2462MHz Ant1 Emission

10. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 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, 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. 15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
The WIFI 2.4G antenna is Chip antenna, the best case gain for the antenna is +3.12dBi, reference to the appendix II for details	

11. TEST SETUP PHOTO

Reference to the appendix I for details.

12. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※