



# RADIO TEST REPORT

Report No.: SHATBL2203003W03

Applicant:

Shenzhen LINGDU Auto Electronics Co., Ltd.

Address:

1801-1808 Haiyun Building, No. 468 Minzhi Avenue Longhua,  
Shenzhen, China

Product Name : Dash Camera, Driving Recorder  
Brand Name : N/A  
Model Name : LS01D  
Series Model : LS01A, LS01B, LS01N, LS07D, LS07A,  
LS07B, LS07N M300S M300  
Test Standard : FCC Part15.247  
FCC ID : 2ASWLS01D

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**TEST RESULT CERTIFICATION**

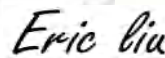
Applicant's Name.....: Shenzhen LINGDU Auto Electronics Co., Ltd.  
Address.....: 1801-1808 Haiyun Building, No. 468 Minzhi Avenue Longhua,  
Shenzhen, China  
Manufacturer's Name.....: DONGGUANG LINGDU TECHNOLOGY CO.,LTD  
Address.....: No. 1, Longcheng street, Qingxi Town, Dongguan  
Product Description  
Product Name.....: Dash Camera, Driving Recorder  
Brand Name.....: N/A  
Model Name.....: LS01D  
Series Model.....: LS01A, LS01B, LS01N, LS07D, LS07A, LS07B, LS07N M300S  
M300  
Test Standards.....: FCC Part15.247  
Test Procedure.....: ANSI C63.10-2013

This device described above has been tested by ATBL, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....:  
Date of receipt of test item.....: 23 Mar. 2022  
Date (s) of performance of tests.....: 23 Mar. 2022 ~ 10 Apr. 2022  
Date of Issue.....: 10 Apr. 2022  
Test Result.....: Pass

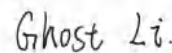
Report Prepared by :



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(Eric liu)

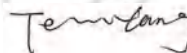
Report Approved by :



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(Ghost.Li)

Authorized Signatory :



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(Terry yang)



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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	10 Apr. 2022	SHATBL2203003W03	ALL	Initial Issue
01	05 Aug.2022	SHATBL2203003W03	ALL	Initial Issue
02	15 Aug.2022	SHATBL2203003W03	1、 2、 7	Product Name

### 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

KDB 558074 D01 15.247 Meas Guidance v05r02.

FCC Part 15.247			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	--
15.247 (a)(2)	6dB&99% Bandwidth	PASS	--
15.247 (b)(3)	Output Power	PASS	--
15.247(d) & 15.209 & 15.205	Radiated Spurious Emission	PASS	--
15.247(d) & 15.205	Conducted Spurious & Band Edge Emission	PASS	--
15.247 (e)	Power Spectral Density	PASS	--
15.205	Restricted bands of operation	PASS	--
15.203	Antenna Requirement	PASS	--

**NOTE:**

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2013.



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Dash Camera, Driving Recorder	
Trade Name	N/A	
Model Name	LS01D	
Series Model	LS01A, LS01B, LS01N, LS07D, LS07A, LS07B, LS07N M300S M300	
Model Difference	Sensors are different	
Product Description	The EUT is a Dash Camera, Driving Recorder	
	Operation Frequency:	802.11 b/g/n20: 2412~2462 MHz 802.11 n 40: 2422~2452 MHz
	Modulation Type:	802.11b(DSSS):CCK,DQPSK,DBPSK 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM
	Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n(20MHz): 65/58.5/52/39/26/19.5/13/6.5Mbps 802.11n(40MHz): 135/121.5/108/81/54/40.5/37/13.5Mbps
	Number of Channel:	802.11b/g/n20: 11CH 802.11n 40: 7CH
	Antenna Designation:	Please refer to the Note 3.
	Antenna Gain (dBi):	2 dBi
	Duty Cycle:	<98%
	Channel List	Please refer to the Note 2.
Adapter	N/A	
Battery	N/A	
Hardware version number	DT680_M17_MAIN_V0.2	
Software version number	N/A	
Connecting I/O Port(s)	Please refer to the User Manual.	

Note:

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

2. Operation Frequency of channel

802.11b/g/n(20MHz)		Channel List for 802.11n(40MHz)	
Channel	Frequency	Channel	Frequency
01	2412	03	2422
02	2417	04	2427
03	2422	05	2432
04	2427	06	2437
05	2432	07	2442
06	2437	08	2447
07	2442	09	2452
08	2447		
09	2452		
10	2457		
11	2462		

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:

Carrier Frequency Channel

2.4GHz Test Frequency:

For 802.11b/g/n (HT20)		For 802.11n (HT40)	
Channel	Freq.(MHz)	Channel	Freq.(MHz)
01	2412	03	2422
06	2437	06	2437
11	2462	09	2452

3.

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	LS01D	FPC	N/A	2 dBi	WLAN ANT



### 2.2 DESCRIPTION OF THE TEST MODES

Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Worst Mode	Description	Data Rate
Mode 1	TX IEEE 802.11b CH1	1 Mbps
Mode 2	TX IEEE 802.11b CH6	1 Mbps
Mode 3	TX IEEE 802.11 b CH11	1 Mbps
Mode 4	TX IEEE 802.11g CH1	6 Mbps
Mode 5	TX IEEE 802.11g CH6	6 Mbps
Mode 6	TX IEEE 802.11g CH11	6 Mbps
Mode 7	TX IEEE 802.11n HT20 CH1	MCS 0
Mode 8	TX IEEE 802.11n HT20 CH6	MCS 0
Mode 9	TX IEEE 802.11n HT20 CH11	MCS 0
Mode 10	TX IEEE 802.11n HT40 CH3	MCS 0
Mode 11	TX IEEE 802.11n HT40 CH6	MCS 0
Mode 12	TX IEEE 802.11n HT40 CH9	MCS 0

Note:

- (1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.
- (2) We have be tested for all available U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V /60Hz is shown in the report.

### Conducted Emission

Test Case	
Conducted Emission	Mode13: Keeping WIFI TX

### 2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

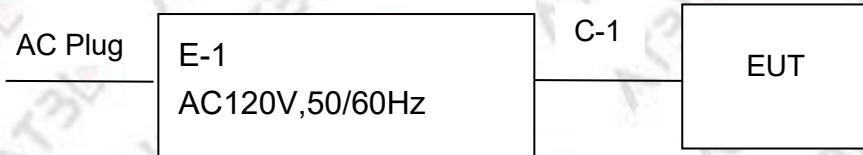
RF Function	Type	Mode Or Modulation type	Ant Gain(dBi)	Power Class	Software For Testing
WIFI(2.4G)	2.4G WIFI	802.11b	2	default	ADS_serial_tool
		802.11g		default	
		802.11n(HT20)		default	
		802.11n(HT40)		default	

### 2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

#### Radiation Test Set



#### Conduction Test Set



2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Type No.	Note
E-2	Notebook	Lenovo	DESKTOP-USDEO09	00326-10000-00000-AA636	N/A
C-1	USB Cable	N/A	100cm	N/A	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.6 LABORATORY INFORMATION

Company Name:	Shanghai ATBL Technology Co., Ltd.
Address:	Building 8, No. 160, Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone:	+86(0)21-51298625
The FCC Registration Number (FRN):	0031025281
A2LA Number:	6184.01
CNAS Number:	CNAS L14531



## 2.7 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 %.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.962\text{dB}$
2	Conducted spurious emissions	$\pm 2.986\text{dB}$
3	All emissions, radiated 30MHz-1GHz	$\pm 2.49\text{dB}$
4	All emissions, radiated 1GHz-18GHz	$\pm 3.50\text{dB}$
5	Occupied bandwidth	$\pm 23.36\text{dB}$
6	Power spectral density	$\pm 0.866\text{dB}$

## 2.8 EQUIPMENTS LIST

### 2.8.1 Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Calibrated until
Test Receiver	R&S	ESCI	100469	SHATBL-E003	2022.07.13
Spectrum Analyzer	Agilent	N9020A	MY50200811	SHATBL-E017	2022.07.13
Bilog Antenna	SCHWARZBECK	VLUB 9168	01174	SHATBL-E008	2023.09.27
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	SHATBL-E009	2023.09.27
Pre-Amplifier (0.1M-3GHz)	JPT	JPA-10M1G35	21010100035001	SHATBL-E005	2022.10.08
Pre-Amplifier (1G-18GHz)	JPT	JPA0118-55-303A	1910001800055000	SHATBL-E006	2022.07.13
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E016	2022.10.08
Antenna/Turntable Controller	Brilliant	N/A	N/A	SHATBL-E007	N/A
Test SW	FALA	EMC-RI(Ver.4A2)		SHATBL-E046	N/A

### 2.8.2 RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	equipment number	Calibrated until
MIMO Power measurement test Set	DARE	RPR3006W	16I00054SN016	SHATBL-W006	2022.10.07
			RPR6W-20001005	SHATBL-W013	2022.10.07
Signal Analyzer	Agilent	N9020A	MY57300196	SHATBL-W004	2022.10.07
Signal Generator	Agilent	N5182B	MY46240556	SHATBL-W005	2022.10.07
Wireless Communications Test Set	R&S	CMW500	101331	SHATBL-W007	2022.10.07
Temperature & Humidity	Deli	deli	N/A	SHATBL-W011	2022.10.07
Attenuator	Agilent	8494B	DC-18G	SHATBL-W009	2022.10.07
Attenuator	Agilent	8496B	DC-18G	SHATBL-W010	2022.10.07
power splitter	MNK	MPD-DC/6-2S	62315 G51	SHATBL-W015	2022.10.07
			62315 G52	SHATBL-W016	2022.10.07
Filter	Chengdu kangmaiwei	ZBSF-C2400-2483.5-T3	N/A	SHATBL-W021	N/A
Constant temperature and humidity box	KSON	THS-B6C-150	6159K	SHATBL-W019	2023.01.17
Test SW	FALA	LZ-RF(Ver.LzRF-03A3.1)		SHATBL-W020	N/A

### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

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

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ \* ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

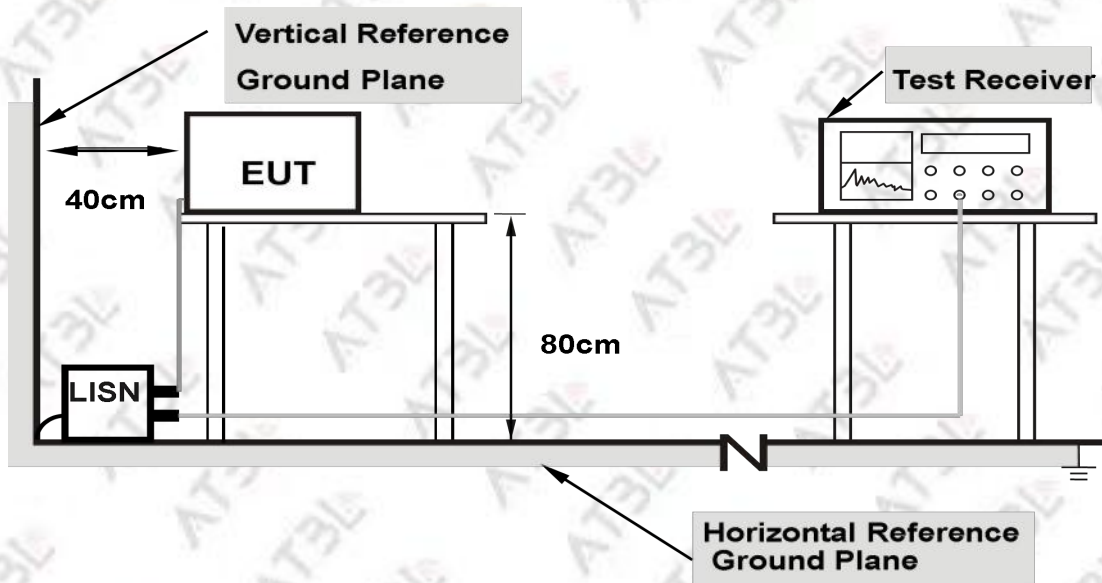
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



### 3.1.2 TEST PROCEDURE

- a. The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 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 is at least 80 cm from the nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 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 cm from other units and other metal planes support units.

### 3.1.4 EUT OPERATING CONDITIONS

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

3.1.5 TEST RESULT

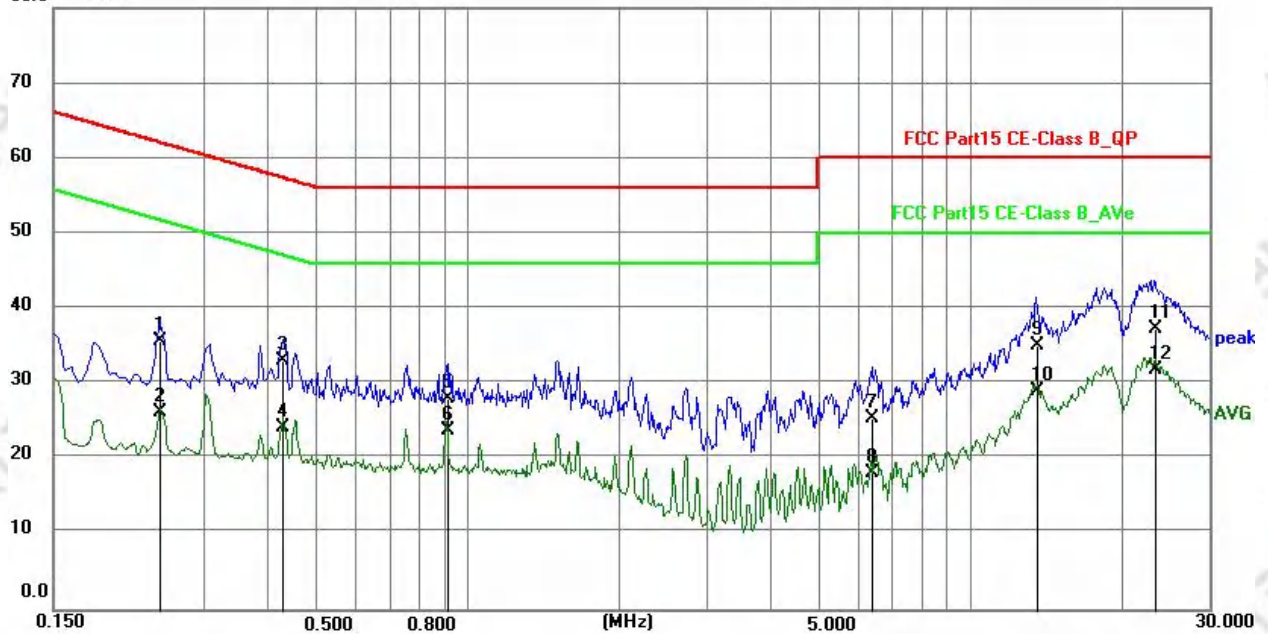
Temperature:	25°C	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	TX Mode		

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2450	24.10	10.08	34.18	61.92	-27.74	QP
2	0.2450	14.91	10.08	24.99	51.92	-26.93	AVG
3	0.4310	21.54	10.07	31.61	57.23	-25.62	QP
4	0.4310	13.16	10.07	23.23	47.23	-24.00	AVG
5	1.5210	17.75	9.96	27.71	56.00	-28.29	QP
6	1.5210	9.57	9.96	19.53	46.00	-26.47	AVG
7	6.4010	14.32	10.08	24.40	60.00	-35.60	QP
8	6.4010	4.80	10.08	14.88	50.00	-35.12	AVG
9	13.7240	25.42	10.59	36.01	60.00	-23.99	QP
10	13.7240	19.68	10.59	30.27	50.00	-19.73	AVG
11	19.8100	31.21	10.86	42.07	60.00	-17.93	QP
12	19.8100	25.82	10.86	36.68	50.00	-13.32	AVG

Remark:

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

80.0 dBuV

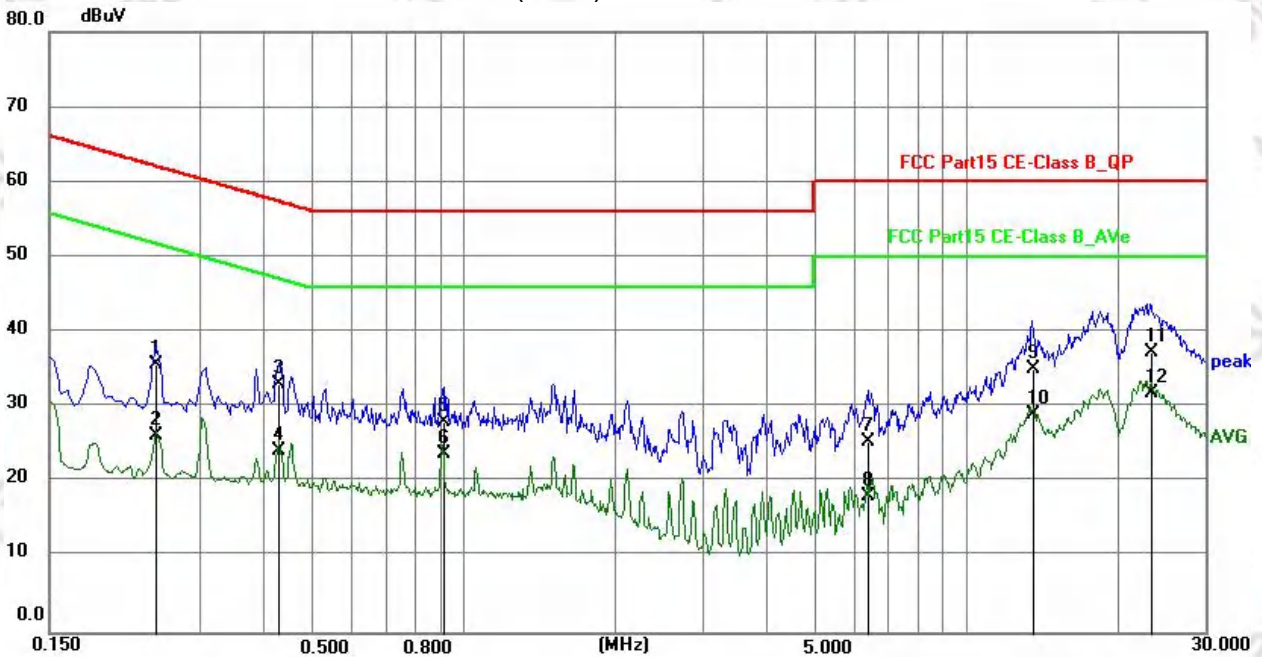


Temperature:	25°C	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	TX Mode		

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2450	25.42	10.35	35.77	61.92	-26.15	QP
2	0.2450	15.99	10.35	26.34	51.92	-25.58	AVG
3	0.4300	22.80	10.25	33.05	57.25	-24.20	QP
4	0.4300	14.12	10.25	24.37	47.25	-22.88	AVG
5	0.9110	17.94	10.15	28.09	56.00	-27.91	QP
6	0.9110	13.78	10.15	23.93	46.00	-22.07	AVG
7	6.3910	15.37	10.17	25.54	60.00	-34.46	QP
8	6.3910	8.08	10.17	18.25	50.00	-31.75	AVG
9	13.5570	24.84	10.26	35.10	60.00	-24.90	QP
10	13.5570	18.95	10.26	29.21	50.00	-20.79	AVG
11	23.3650	26.49	10.81	37.30	60.00	-22.70	QP
12	23.3650	21.10	10.81	31.91	50.00	-18.09	AVG

Remark:

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





### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed.

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Frequency Range 9kHz-1000MHz)

Frequencies (MHz)	Field Strength (micovolts/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 (Above 1000MHz)

FREQUENCY (MHz)	(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).

#### LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

## For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP/AV
Start Frequency	9 KHz/150KHz(Peak/QP/AV)
Stop Frequency	150KHz/30MHz(Peak/QP/AV)
RB / VB (emission in restricted band)	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz); 200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP
Start Frequency	30 MHz(Peak/QP)
Stop Frequency	1000 MHz (Peak/QP)
RB / VB (emission in restricted band)	120 KHz / 300 KHz

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)

## For Restricted band

Spectrum Parameter	Setting
Detector	Peak/AV
Start/Stop Frequency	Lower Band Edge: 2310 to 2430 MHz Upper Band Edge: 2445 to 2500 MHz
RB / VB	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)

Receiver Parameter	Setting
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

- a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- d. 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 QuasiPeak detector mode will be re-measured.
- e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

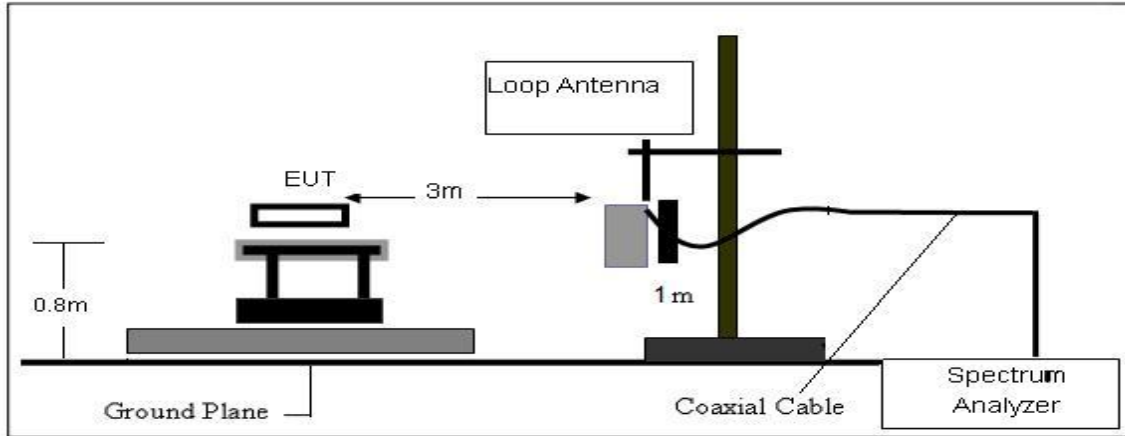
Note:

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

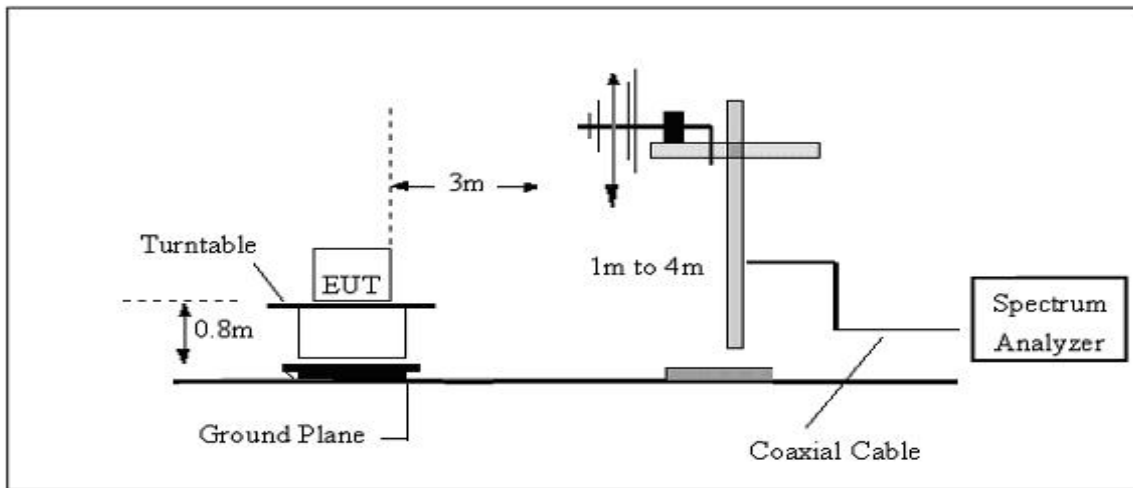


### 3.2.3 TEST SETUP

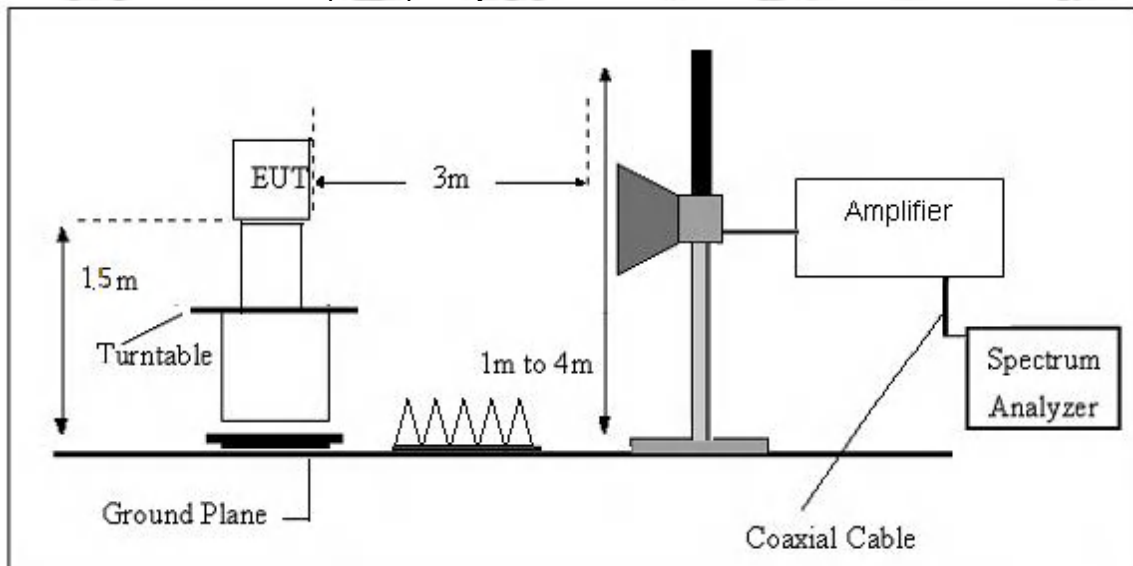
(A) Radiated Emission Test-Up Frequency Below 30MHz



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



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



### 3.2.4 EUT OPERATING CONDITIONS

Please refer to section 3.1.4 of this report.

### 3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency (MHz)	FS (dB $\mu$ V/m)	RA (dB $\mu$ V/m)	AF (dB)	CL (dB)	AG (dB)	Factor (dB)
300	40	58.1	12.2	1.6	31.9	-18.1

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$

3.2.6 TEST RESULTS(RADIATED SPURIOUS EMISSIONS)

Temperature:	26.0°C	Relative Humidity:	59%RH
Test Voltage:	AC 120V/60Hz	Polarization:	--
Test Mode:	TX Mode		

Note:

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

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

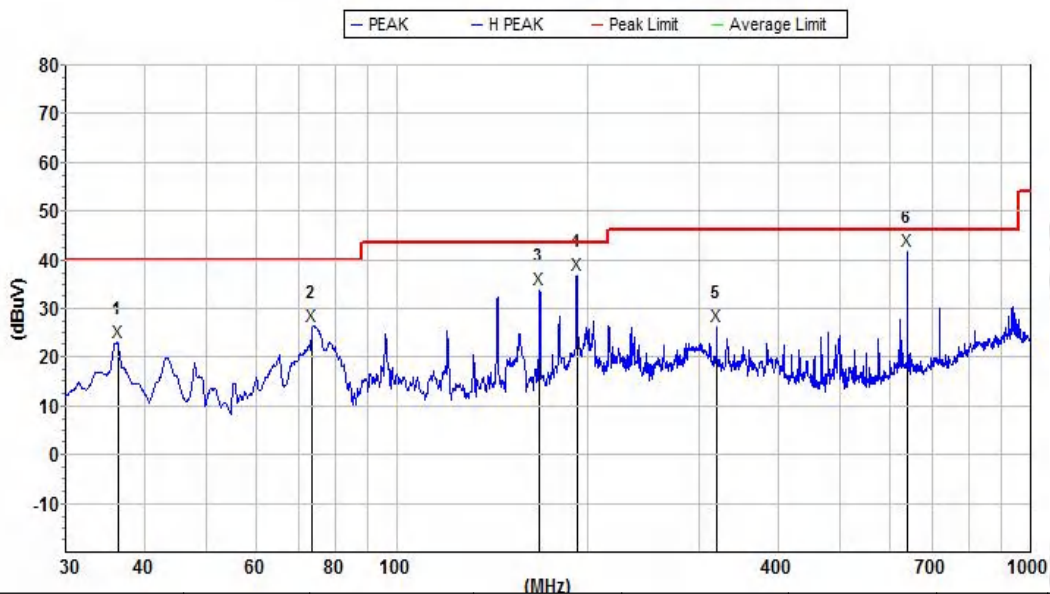
Limit line = specific limits(dBuv) + distance extrapolation factor.

30MHz - 1000MHz

Temperature:	26.0°C	Relative Humidity:	59%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3/4/5/6/7/8/9/10/11/12 (Mode 1/2/3 worst mode)		

30MHz~1GHz

Mode 1 Horizontal

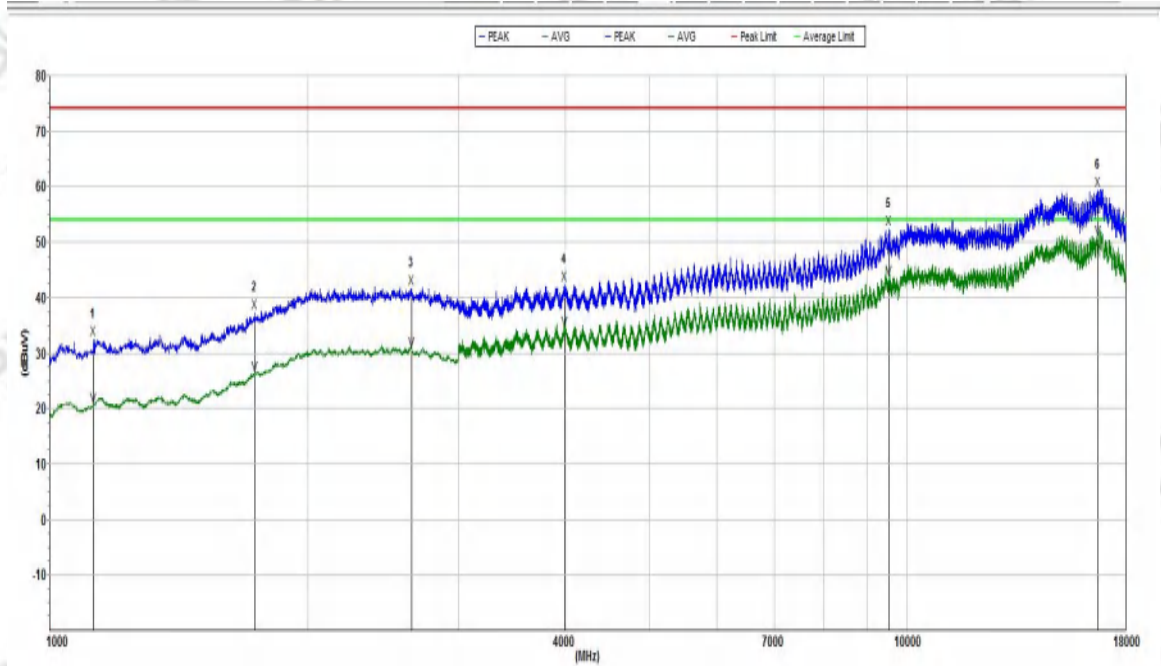


Mk.	Freq.(MHz)	Level(dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
1	36.254065	23.1	40.0	16.9	13.6	32.3	0.8	H
2	73.617017	26.5	40.0	13.5	10.3	32.9	0.9	H
3	168.118752	34.0	43.5	9.5	13.4	32.9	1.7	H
4	192.418573	37.0	43.5	6.5	10.3	32.8	2.2	H
5	319.936956	26.3	46.0	19.7	13.1	32.6	2.7	H
6	639.488826	41.8	46.0	4.2	16.2	32.3	3.4	H



1GHz~18GHz

Mode 1 Horizontal

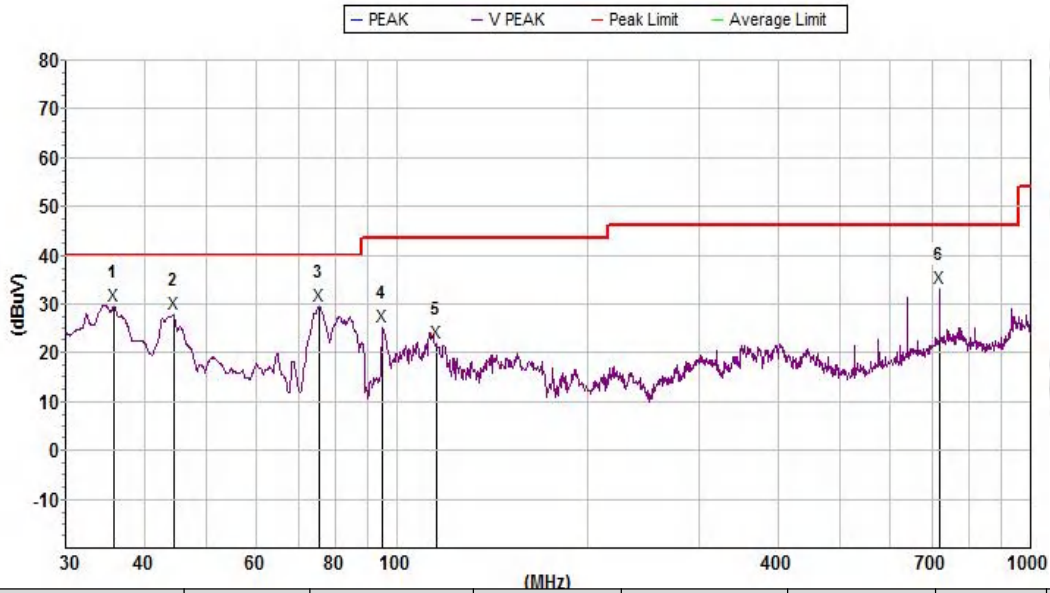


Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	1126.000000	32.6	74.0	41.4	20.6	57.3	2.2	H
2	1736.000000	37.4	74.0	36.6	21.5	53.9	2.6	H
3	2642.000000	41.7	74.0	32.3	23.2	50.7	2.9	H
4	3984.000000	42.4	74.0	31.6	24.3	50.1	3.3	H
5	9536.250000	52.5	74.0	21.5	27.2	48.5	5.4	H
6	16704.000000	59.5	74.0	14.5	30.9	47.6	6.8	H
Avg								
1	1126.000000	20.5	54.0	33.5	20.6	57.3	2.2	H
2	1736.000000	26.2	54.0	27.8	21.5	53.9	2.6	H
3	2642.000000	30.6	54.0	23.4	23.2	50.7	2.9	H
4	3984.000000	34.3	54.0	19.7	24.3	50.1	3.3	H
5	9536.250000	43.5	54.0	10.5	27.2	48.5	5.4	H
6	16704.000000	50.6	54.0	3.4	30.9	47.6	6.8	H

Temperature:	26.0°C	Relative Humidity:	59%RH
Test Voltage:	AC120V	Phase:	Vertical
Test Mode:	Mode 1/2/3/4/5/6/7/8/9/10/11/12(Mode 1/2/3 worst mode)		

30MHz~1GHz

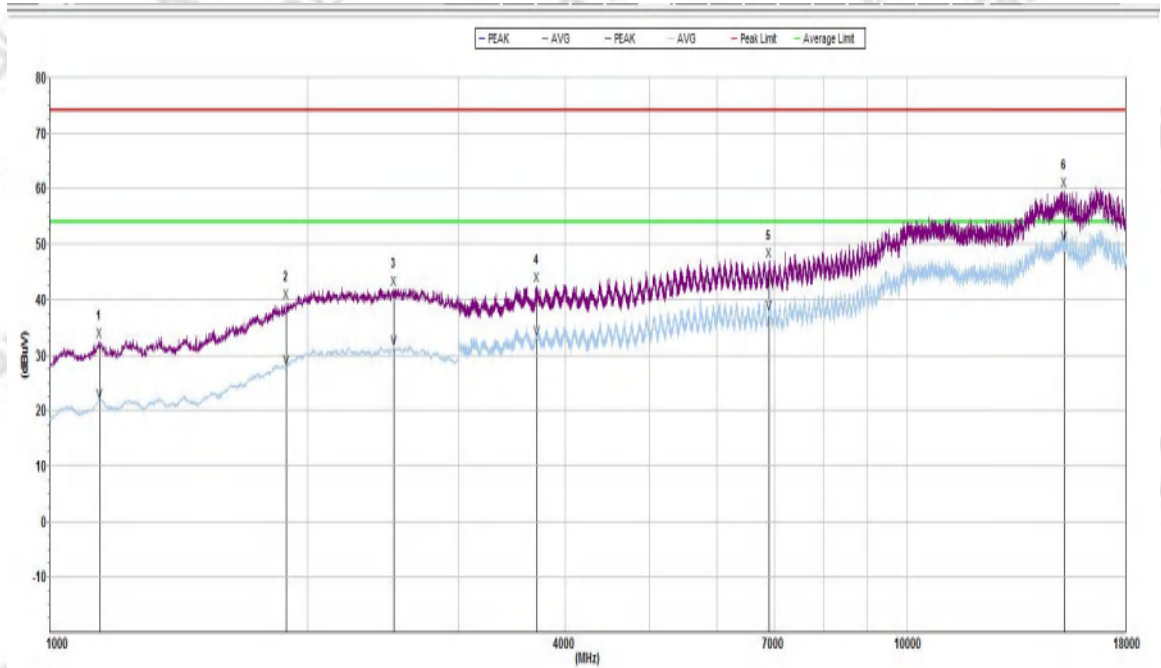
Mode 1 Vertical



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	35.811840	29.8	40.0	10.2	13.5	32.3	0.8	V
2	44.508721	27.9	40.0	12.1	13.8	32.5	0.8	V
3	75.578767	29.7	40.0	10.3	10.0	32.9	0.9	V
4	94.926381	25.5	43.5	18.0	9.8	32.9	1.3	V
5	115.320547	22.1	43.5	21.4	11.7	32.9	1.4	V
6	719.199535	33.3	46.0	12.7	19.9	32.2	3.6	V

1GHz~18GHz

Mode 1 Vertical



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak :								
1	1143.000000	32.6	74.0	41.4	20.7	57.3	2.2	V
2	1890.000000	39.5	74.0	34.5	21.8	51.7	2.6	V
3	2521.000000	42.0	74.0	32.0	23.4	50.3	2.8	V
4	3702.000000	42.6	74.0	31.4	24.7	50.3	3.2	V
5	6905.250000	47.0	74.0	27.0	26.1	48.9	4.3	V
6	15258.000000	59.7	74.0	14.3	31.1	47.2	6.4	V
Avg								
1	1143.000000	21.5	54.0	32.5	20.7	57.3	2.2	V
2	1890.000000	27.7	54.0	26.3	21.8	51.7	2.6	V
3	2521.000000	31.1	54.0	22.9	23.4	50.3	2.8	V
4	3702.000000	33.0	54.0	21.0	24.7	50.3	3.2	V
5	6905.250000	37.5	54.0	16.5	26.1	48.9	4.3	V
6	15258.000000	50.1	54.0	3.9	31.1	47.2	6.4	V

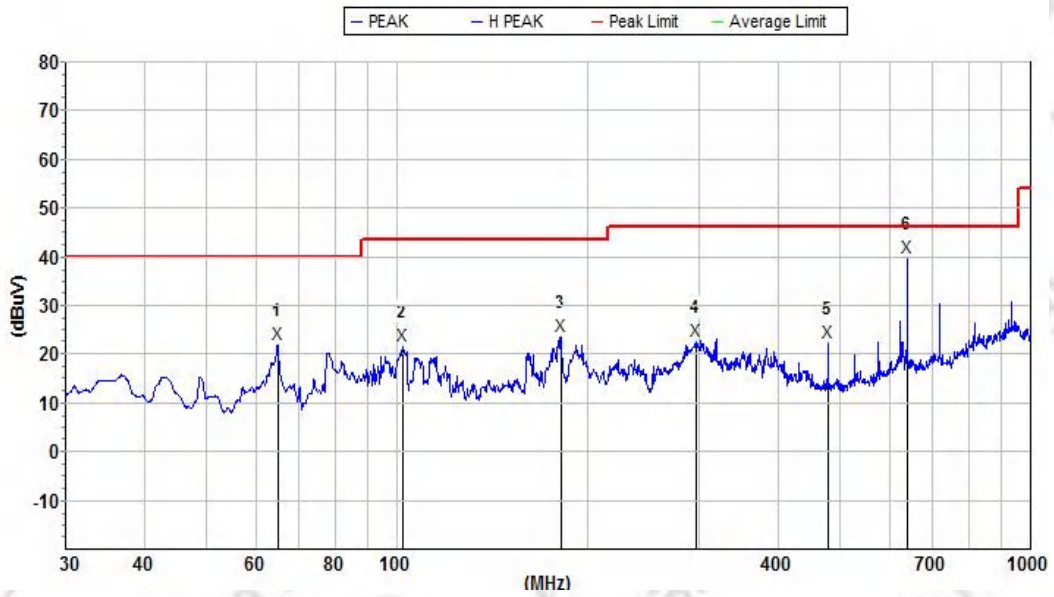


30MHz - 1000MHz

Temperature:	26.0℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3/4/5/6/7/8/9/10/11/12 (Mode 1/2/3 worst mode)		

30MHz~1GHz

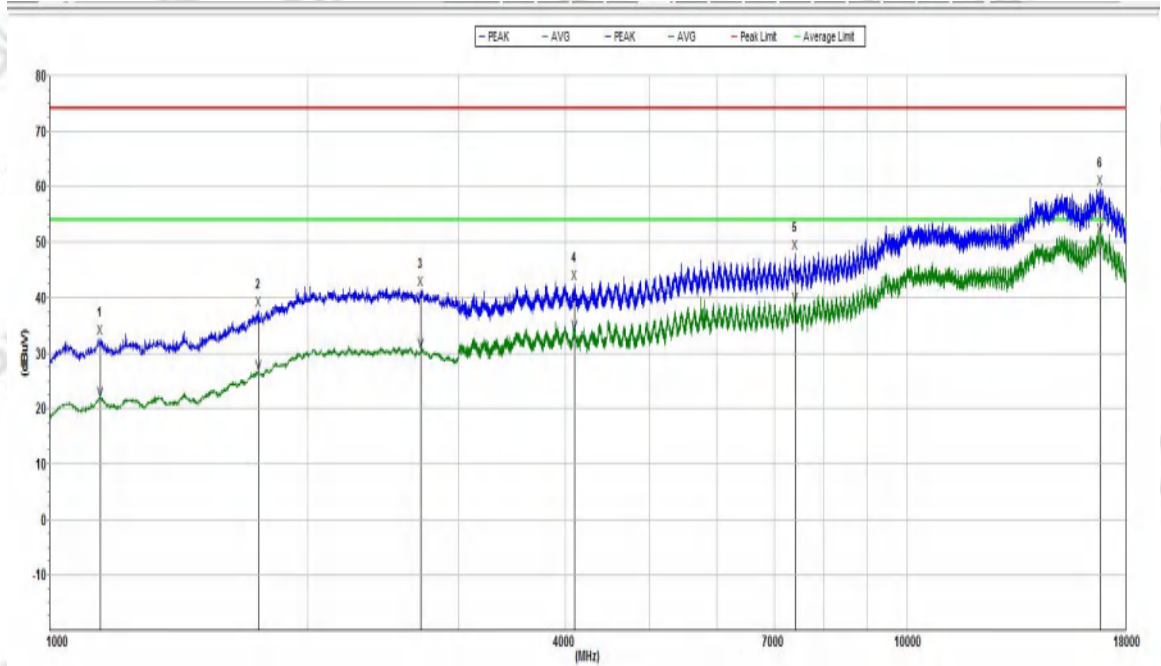
Mode 2 Horizontal



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	64.886534	22.0	40.0	18.0	11.8	32.8	0.8	H
2	102.180348	21.9	43.5	21.6	10.4	32.9	1.4	H
3	181.283406	23.6	43.5	19.9	11.5	32.8	2.0	H
4	296.703394	22.8	46.0	23.2	12.7	32.7	2.7	H
5	479.685845	22.5	46.0	23.5	14.6	32.4	2.8	H
6	639.488826	39.8	46.0	6.2	16.2	32.3	3.4	H

1GHz~18GHz

Mode 2 Horizontal

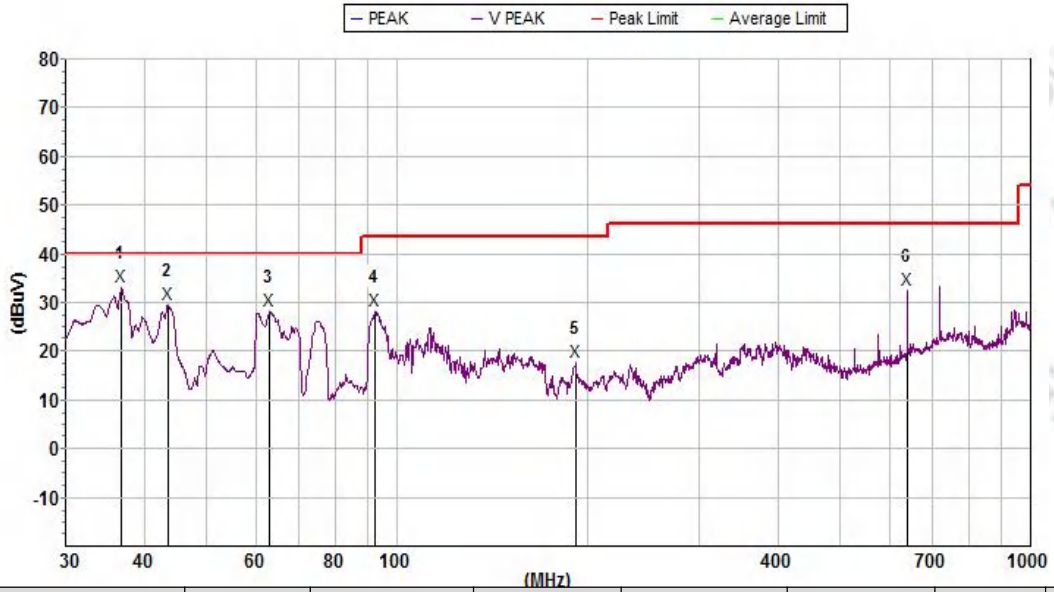


Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	1147.000000	32.7	74.0	41.3	20.8	57.3	2.2	H
2	1753.000000	37.8	74.0	36.2	21.6	53.7	2.6	H
3	2713.000000	41.5	74.0	32.5	23.4	50.9	2.9	H
4	4095.750000	42.5	74.0	31.5	24.4	50.1	3.3	H
5	7410.750000	48.1	74.0	25.9	25.7	48.8	4.6	H
6	16821.000000	59.7	74.0	14.3	30.9	47.4	6.8	H
Avg								
1	1147.000000	21.5	54.0	32.5	20.8	57.3	2.2	H
2	1753.000000	26.4	54.0	27.6	21.6	53.7	2.6	H
3	2713.000000	30.4	54.0	23.6	23.4	50.9	2.9	H
4	4095.750000	33.7	54.0	20.3	24.4	50.1	3.3	H
5	7410.750000	38.6	54.0	15.4	25.7	48.8	4.6	H
6	16821.000000	51.2	54.0	2.8	30.9	47.4	6.8	H

Temperature:	26.0°C	Relative Humidity:	50%RH
Test Voltage:	AC120V	Phase:	Vertical
Test Mode:	Mode 1/2/3/4/5/6/7/8/9/10/11/12 (Mode 1/2/3 worst mode)		

30MHz~1GHz

Mode 2 Vertical

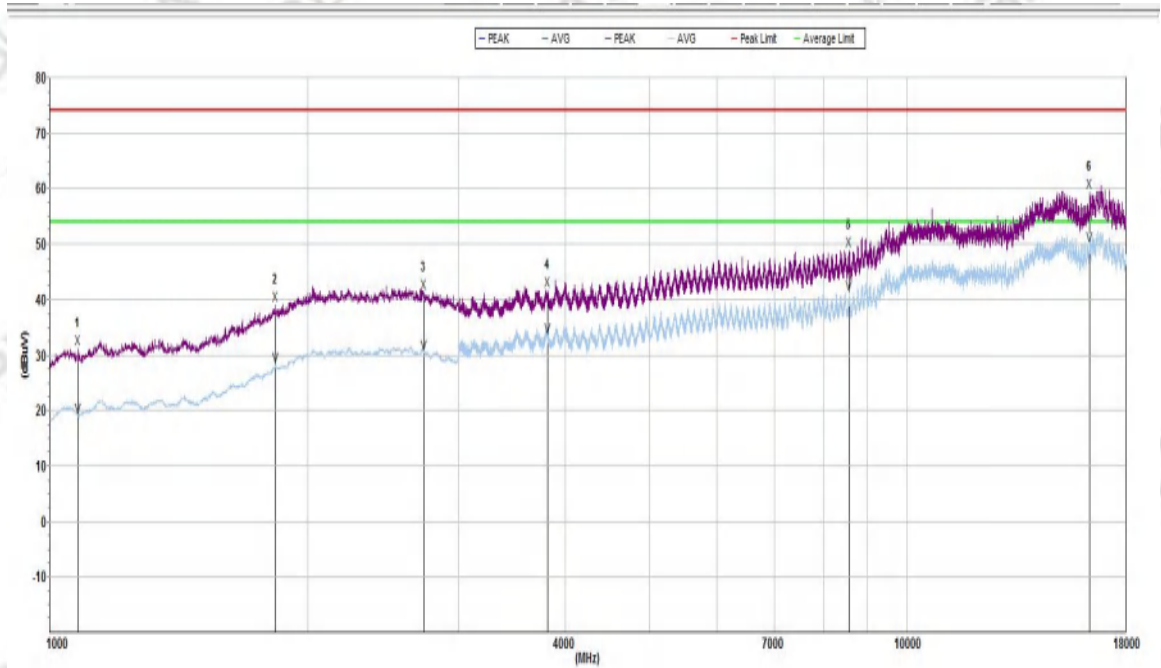


Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	36.766156	33.4	40.0	6.6	13.6	32.3	0.8	V
2	43.505724	29.6	40.0	10.4	13.9	32.5	0.8	V
3	62.870754	28.2	40.0	11.8	12.2	32.8	0.8	V
4	92.462436	28.4	43.5	15.1	9.6	32.9	1.2	V
5	191.745028	17.9	43.5	25.6	10.4	32.8	2.2	V
6	639.488826	32.6	46.0	13.4	19.2	32.3	3.4	V



1GHz~18GHz

Mode 1 Vertical



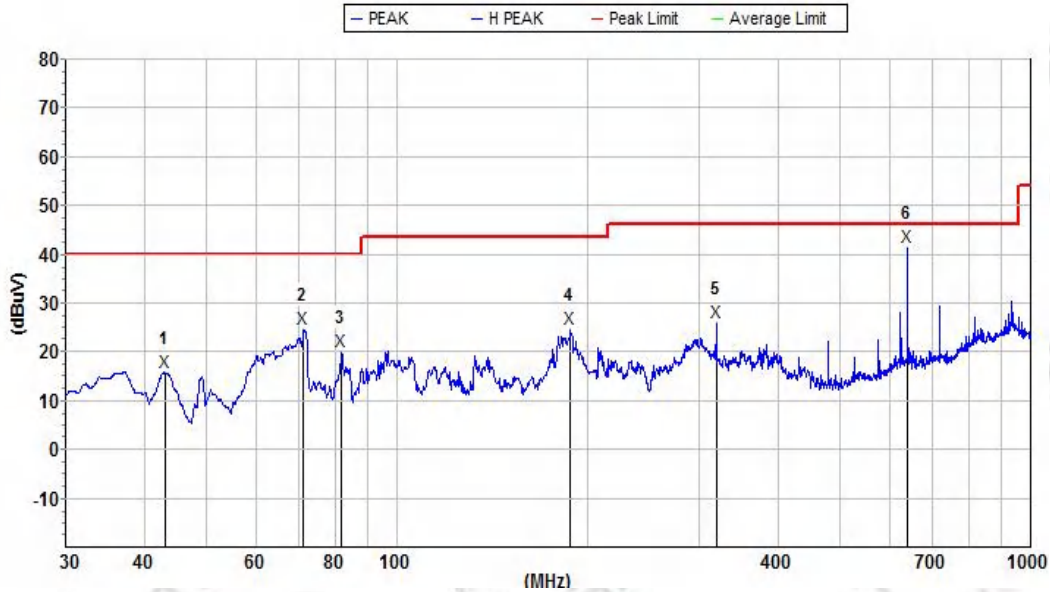
Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	1080.000000	31.3	74.0	42.7	20.3	57.3	2.2	V
2	1835.000000	39.1	74.0	34.9	21.7	52.5	2.6	V
3	2733.000000	41.2	74.0	32.8	23.8	50.9	2.9	V
4	3809.250000	41.8	74.0	32.2	24.7	50.3	3.2	V
5	8564.250000	48.9	74.0	25.1	27.2	48.6	5.1	V
6	16350.000000	59.5	74.0	14.5	31.4	48.0	6.7	V
Avg								
1	1080.000000	19.0	54.0	35.0	20.3	57.3	2.2	V
2	1835.000000	28.2	54.0	25.8	21.7	52.5	2.6	V
3	2733.000000	30.3	54.0	23.7	23.8	50.9	2.9	V
4	3809.250000	33.4	54.0	20.6	24.7	50.3	3.2	V
5	8564.250000	41.0	54.0	13.0	27.2	48.6	5.1	V
6	16350.000000	49.9	54.0	4.1	31.4	48.0	6.7	V

30MHz - 1000MHz

Temperature:	26.0°C	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3/4/5/6/7/8/9/10/11/12 (Mode 1/2/3 worst mode)		

30MHz~1GHz

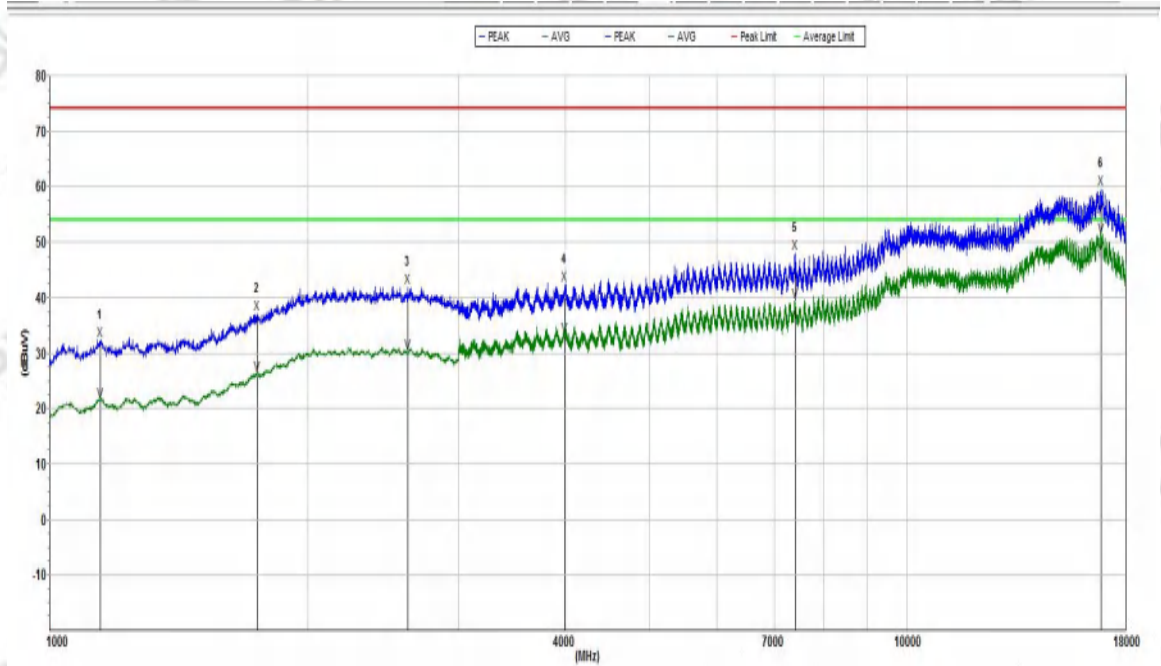
Mode 3 Horizontal



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	43.050457	15.8	40.0	24.2	13.9	32.5	0.8	H
2	71.205061	24.8	40.0	15.2	10.6	32.8	0.8	H
3	81.783290	20.2	40.0	19.8	9.3	32.9	1.0	H
4	188.082452	24.9	43.5	18.6	10.7	32.8	2.1	H
5	319.936956	25.9	46.0	20.1	13.1	32.6	2.7	H
6	639.488826	41.5	46.0	4.5	16.2	32.3	3.4	H

1GHz~18GHz

Mode 3 Horizontal



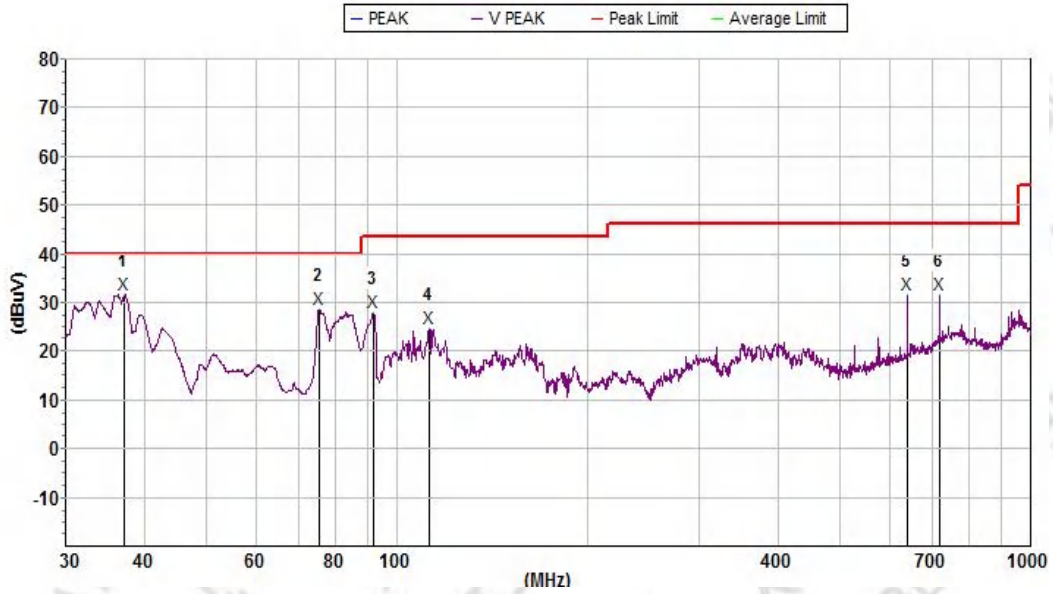
Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/ m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	1145.000000	32.4	74.0	41.6	20.7	57.3	2.2	H
2	1746.000000	37.1	74.0	36.9	21.6	53.8	2.6	H
3	2615.000000	42.0	74.0	32.0	23.2	50.6	2.9	H
4	3985.500000	42.3	74.0	31.7	24.3	50.1	3.3	H
5	7402.500000	48.0	74.0	26.0	25.7	48.8	4.6	H
6	16834.500000	59.7	74.0	14.3	30.9	47.4	6.8	H
Avg								
1	1145.000000	21.3	54.0	32.7	20.7	57.3	2.2	H
2	1746.000000	26.2	54.0	27.8	21.6	53.8	2.6	H
3	2615.000000	30.2	54.0	23.8	23.2	50.6	2.9	H
4	3985.500000	33.2	54.0	20.8	24.3	50.1	3.3	H
5	7402.500000	39.4	54.0	14.6	25.7	48.8	4.6	H
6	16834.500000	51.1	54.0	2.9	30.9	47.4	6.8	H



Temperature:	26.0°C	Relative Humidity:	50%RH
Test Voltage:	AC120V	Phase:	Vertical
Test Mode:	Mode 1/2/3/4/5/6/7/8/9/10/11/12 (Mode 1/2/3 worst mode)		

30MHz~1GHz

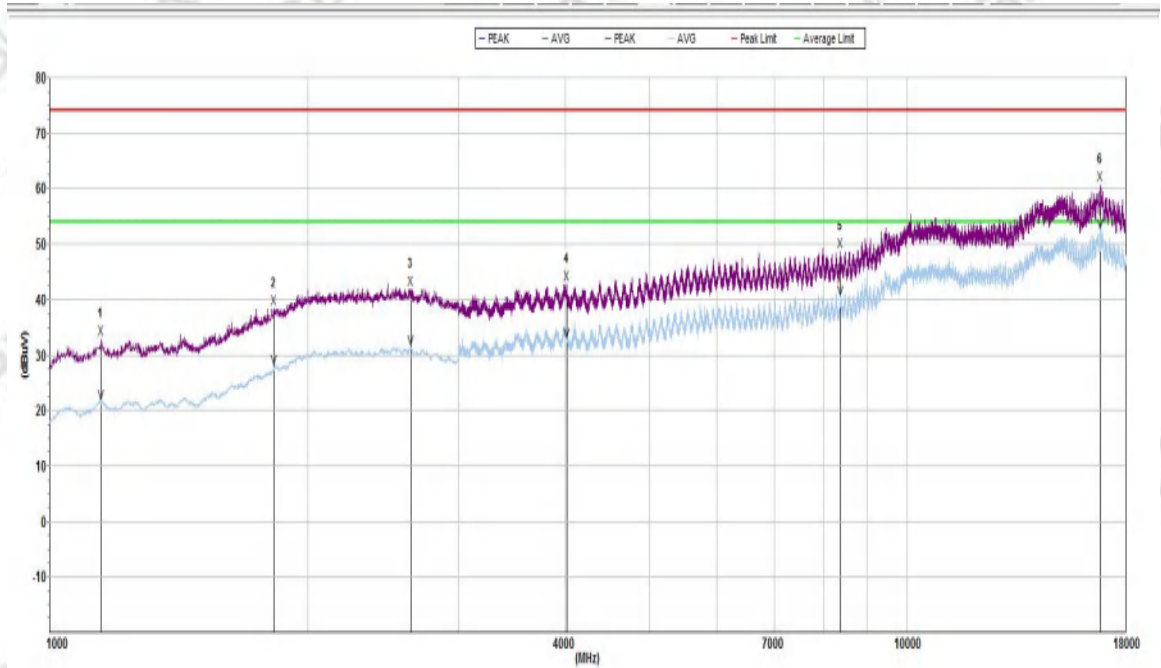
Mode 3 Vertical



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	37.220165	31.8	40.0	8.2	13.7	32.3	0.8	V
2	75.578767	28.6	40.0	11.4	10.0	32.9	0.9	V
3	91.816255	28.0	43.5	15.5	9.6	32.9	1.2	V
4	112.327244	24.8	43.5	18.7	11.4	32.9	1.4	V
5	639.488826	31.7	46.0	14.3	19.2	32.3	3.4	V
6	719.199535	31.5	46.0	14.5	19.9	32.2	3.6	V

1GHz~18GHz

Mode 3 Vertical



Mk.	Freq.(MHz)	Level (dBU V/m)	Limit (dBUV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	1148.000000	33.0	74.0	41.0	20.8	57.3	2.2	V
2	1829.000000	38.5	74.0	35.5	21.7	52.6	2.6	V
3	2640.000000	42.0	74.0	32.0	23.7	50.6	2.9	V
4	4011.750000	42.8	74.0	31.2	24.8	50.1	3.3	V
5	8365.500000	48.6	74.0	25.4	27.1	48.6	5.0	V
6	16829.250000	60.7	74.0	13.3	31.4	47.4	6.8	V
Avg								
1	1148.000000	21.4	54.0	32.6	20.8	57.3	2.2	V
2	1829.000000	27.6	54.0	26.4	21.7	52.6	2.6	V
3	2640.000000	31.2	54.0	22.8	23.7	50.6	2.9	V
4	4011.750000	32.6	54.0	21.4	24.8	50.1	3.3	V
5	8365.500000	40.1	54.0	13.9	27.1	48.6	5.0	V
6	16829.250000	52.2	54.0	1.8	31.4	47.4	6.8	V

Note:

1. Factor=Ant.Factor+cable loss-Amp.Gain .

2. Level contains the factor; Margin=Limit-Level.

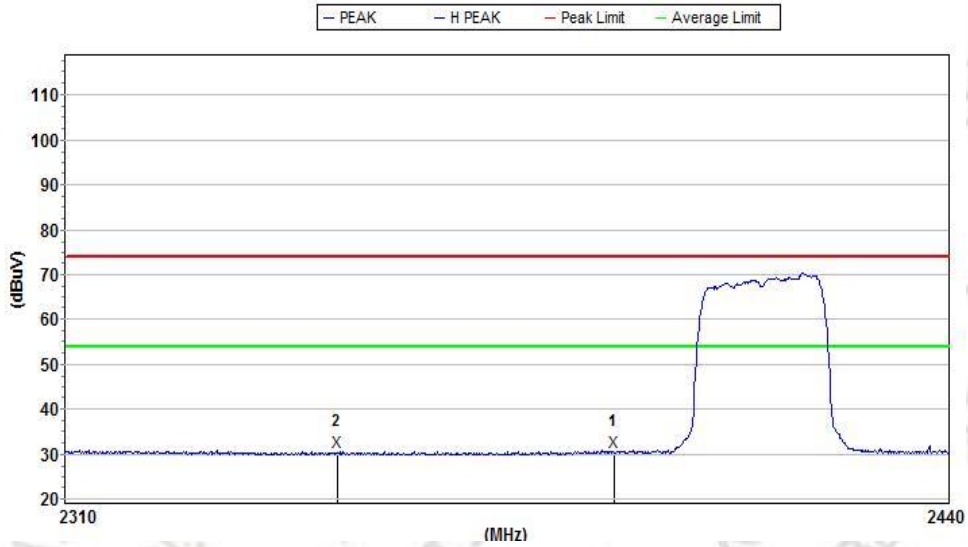
3. 802.11b, 802.11g, 802.11n (HT-20), mode all have been tested, the worst case is 802.11b, only show the worst case.

4. Other 18G-25G Emission detected are more than 20dB below the limit.

3.2.6 TEST RESULTS (BAND EDGE REQUIREMENTS)

802.11n20-Low

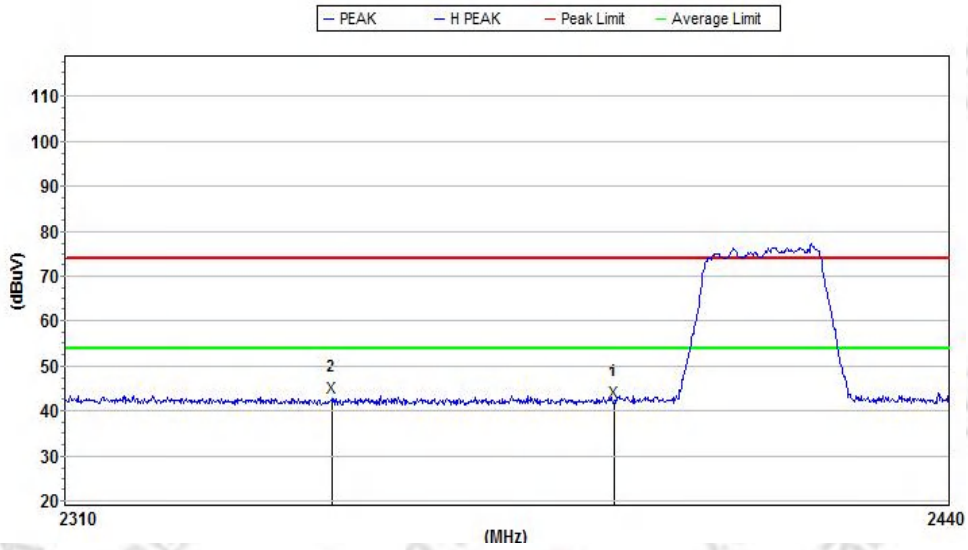
Horizontal



Mk.	Frequency (MHz)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2390.000000	30.4	54.0	23.6	22.8	50.2	2.8	H
2	2349.412821	30.5	54.0	23.5	22.7	50.2	2.8	H



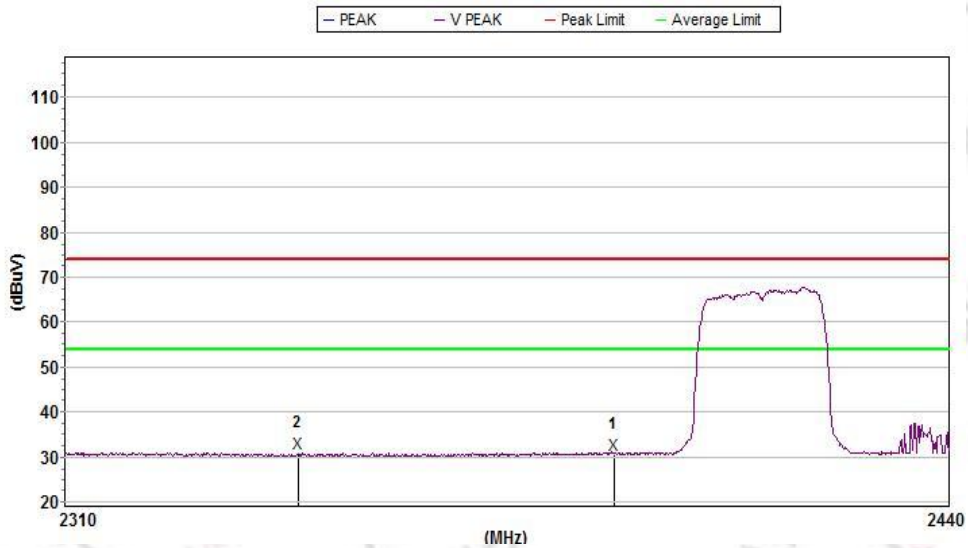
Horizontal



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2390.000000	42.1	74.0	31.9	22.8	50.2	2.8	H
2	2348.641159	43.0	74.0	31.0	22.7	50.2	2.8	H

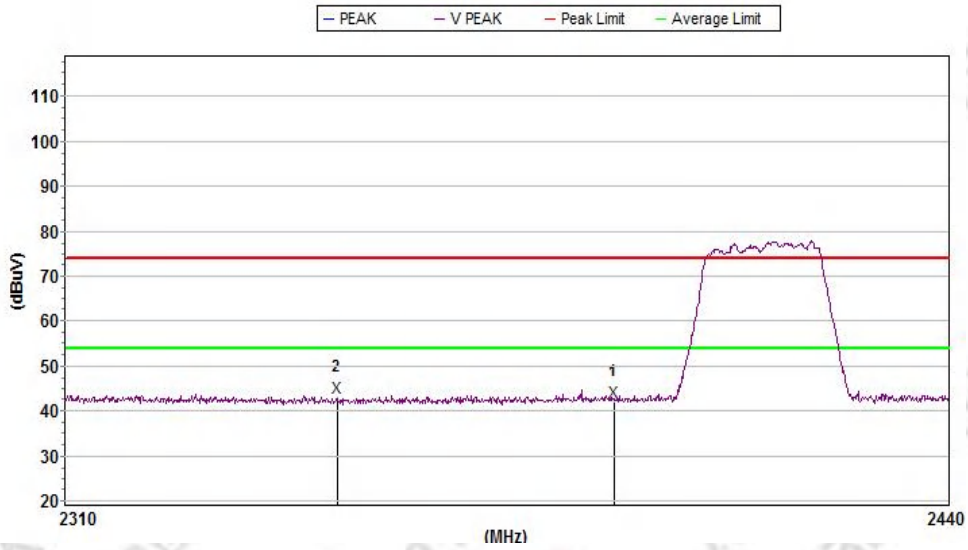
802.11n20-Low

Vertical



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2390.000000	30.5	54.0	23.5	23.1	50.2	2.8	V
2	2343.631526	30.7	54.0	23.3	23.0	50.2	2.8	V

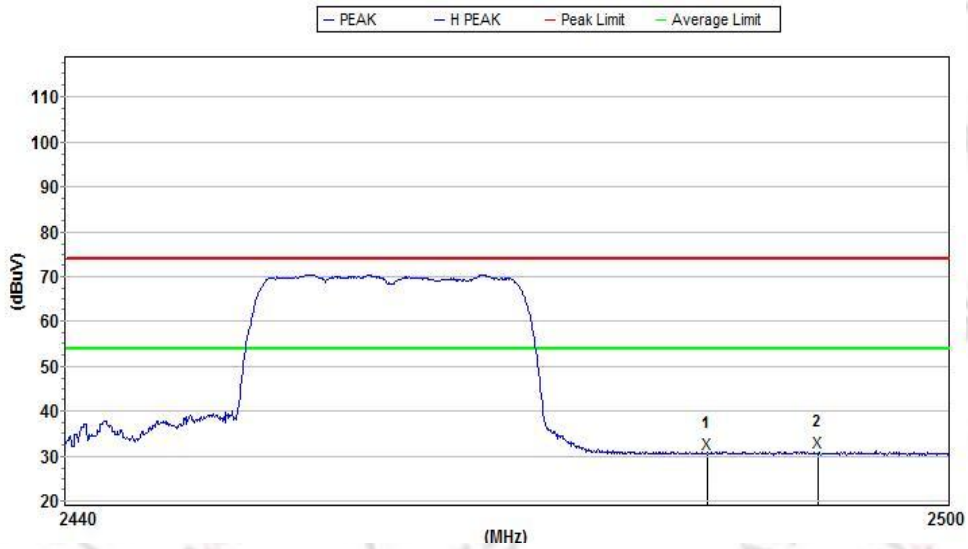
Vertical



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2390.000000	42.1	74.0	31.9	23.1	50.2	2.8	V
2	2349.284193	43.0	74.0	31.0	23.0	50.2	2.8	V

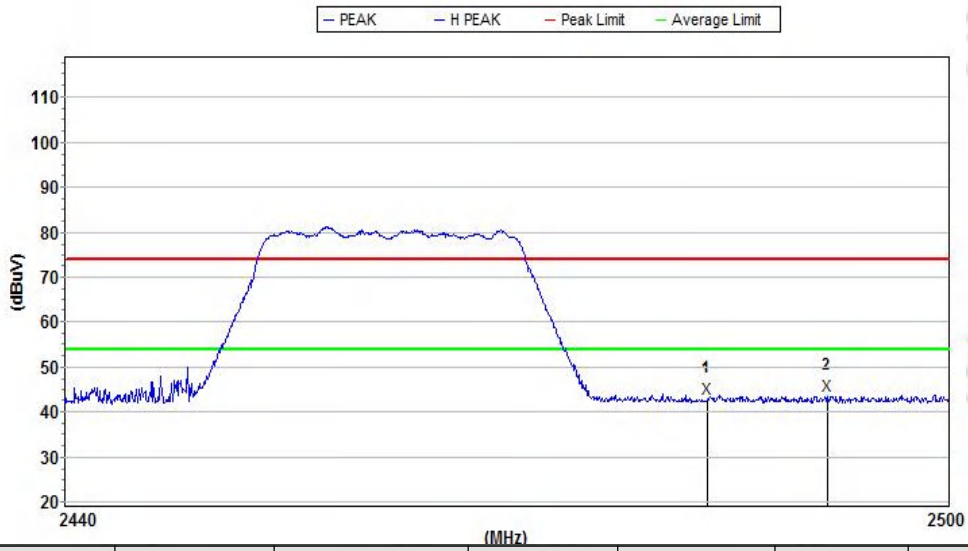
802.11n20-High

Horizontal



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2483.500000	30.5	54.0	23.5	22.9	50.2	2.8	H
2	2491.027842	31.0	54.0	23.0	22.9	50.2	2.8	H

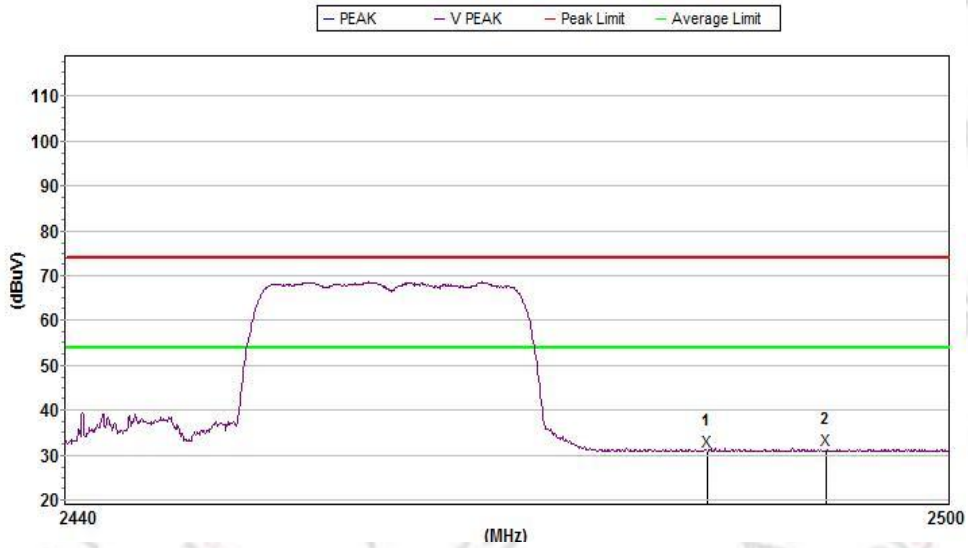
Horizontal



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2483.500000	43.1	74.0	30.9	22.9	50.2	2.8	H
2	2491.633054	43.7	74.0	30.3	22.9	50.2	2.8	H

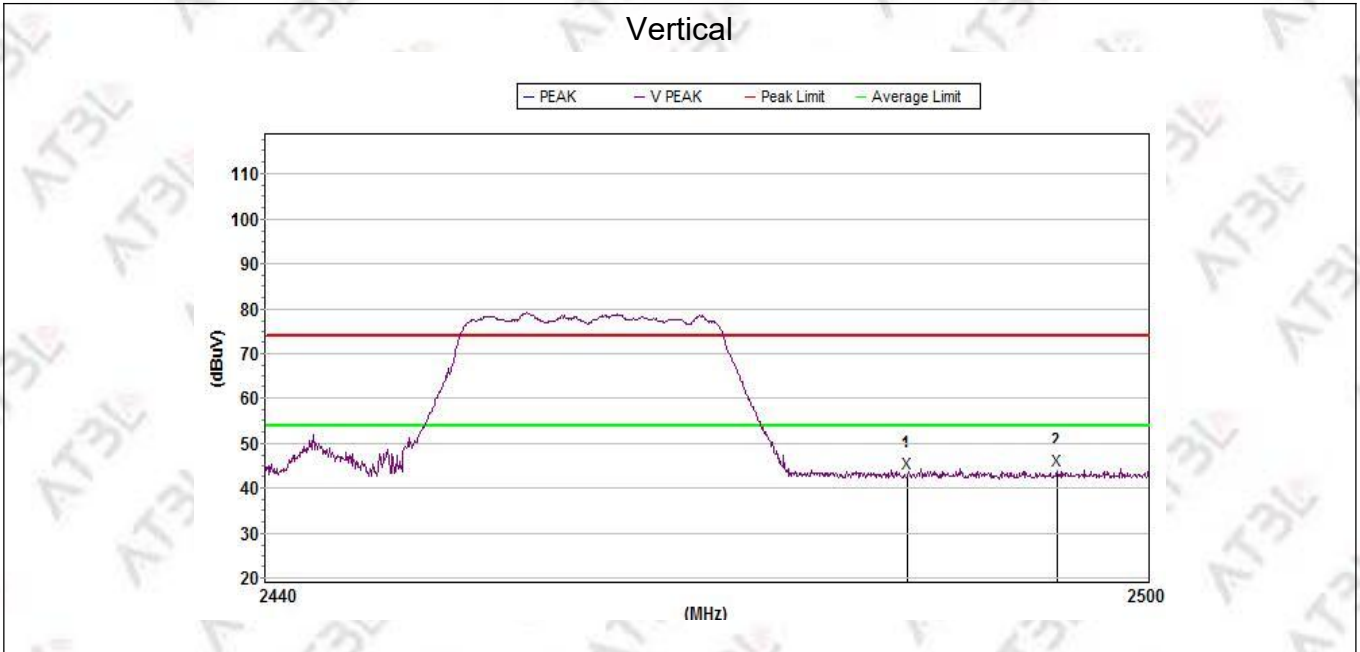
802.11n20-Low

Vertical



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2483.500000	30.8	54.0	23.2	23.3	50.2	2.8	V
2	2491.572526	31.2	54.0	22.8	23.3	50.2	2.8	V





Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2483.500000	43.4	74.0	30.6	23.3	50.2	2.8	V
2	2493.691872	44.0	74.0	30.0	23.3	50.2	2.8	V

Note: 802.11b, 802.11g, 802.11n (HT-20), 802.11n (HT-40), mode all have been tested, the worst case is 802.11n20, only show the worst case.

#### 4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

##### 4.1 LIMIT

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is 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, based on either an RF conducted or a radiated measurement.

##### 4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2300 to 2432 MHz Upper Band Edge: 2442 to 2500 MHz

RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

#### 4.3 DEVIATION FROM STANDARD

No deviation.

#### 4.4 TEST SETUP



The EUT which is powered by the Battery, is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

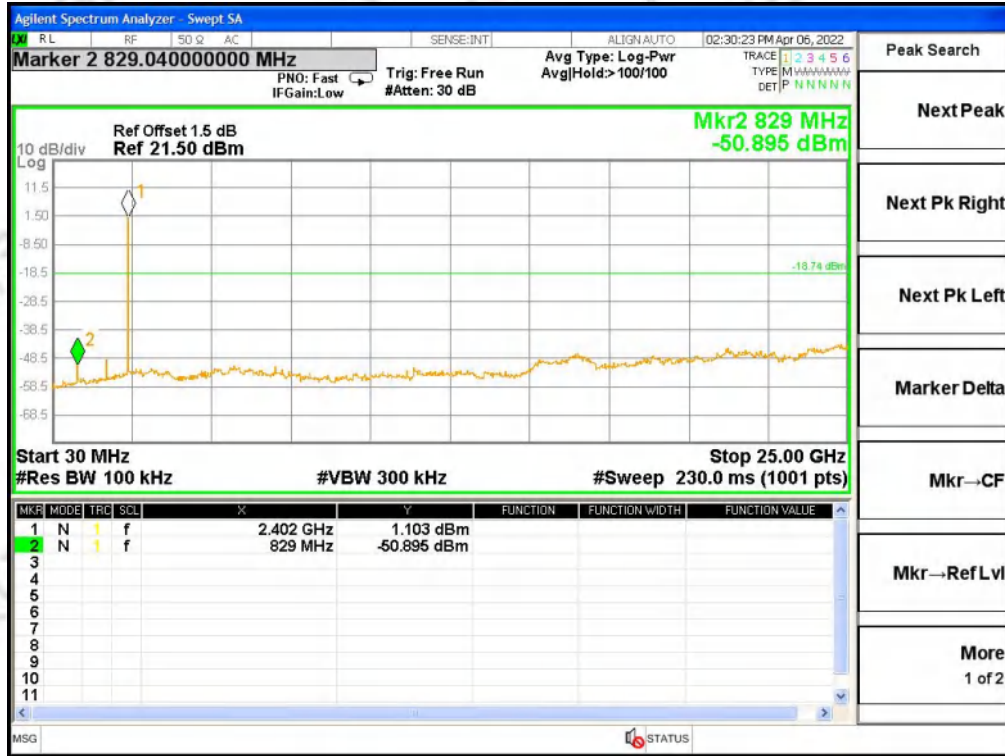
#### 4.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

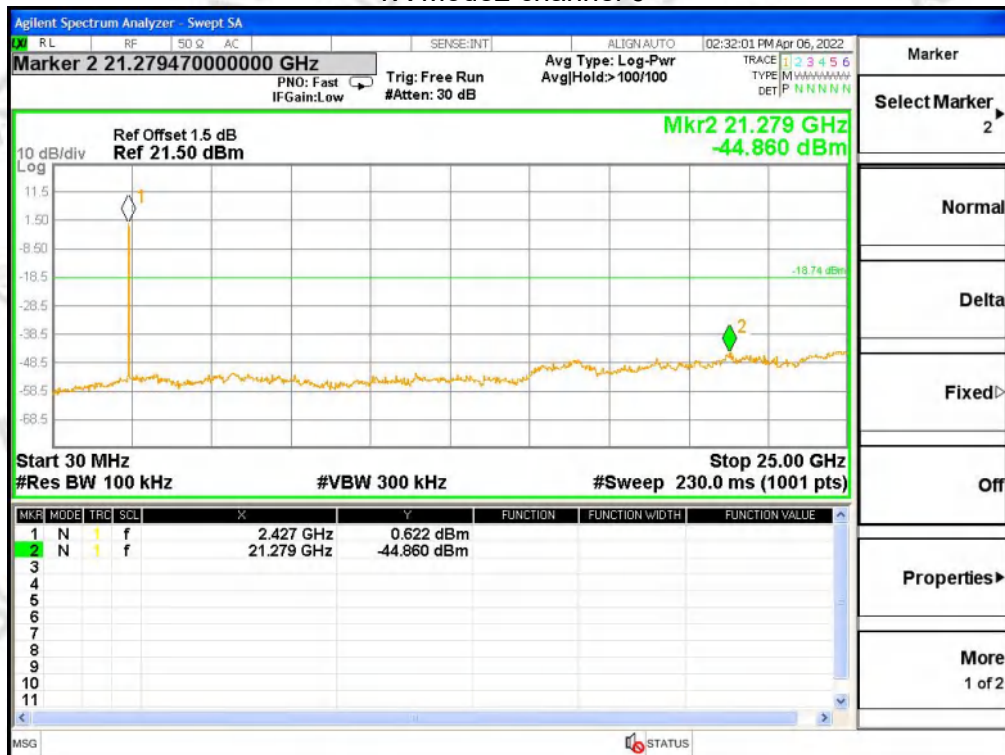
4.6 TEST RESULTS

Temperature:	25°C	Relative Humidity:	60%RH
Test Voltage:	AC 120V	Test Mode:	TX Mode1/2/3/4/5/6/7/8/9/10/11/12

TX Mode1 channel 1

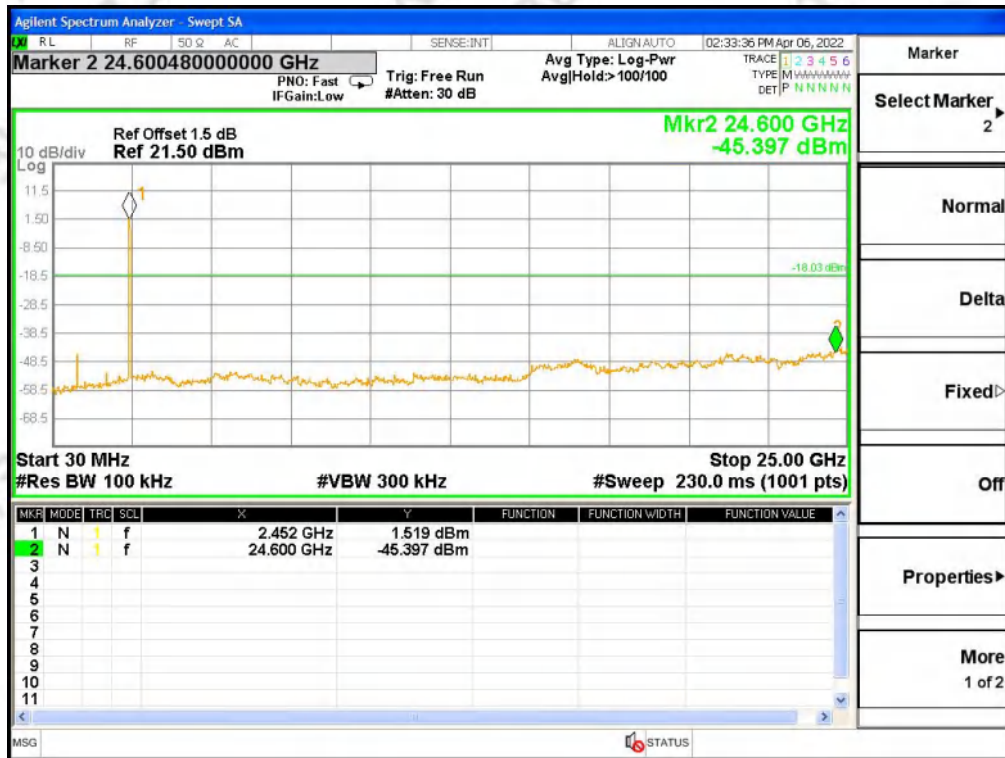


TX Mode2 channel 6

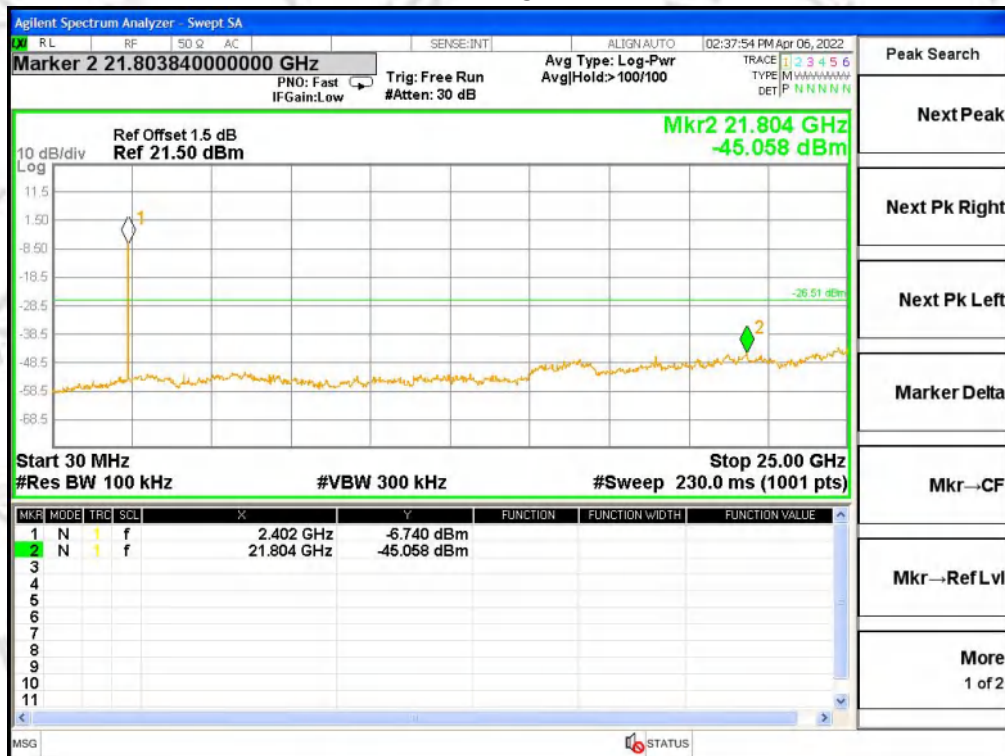




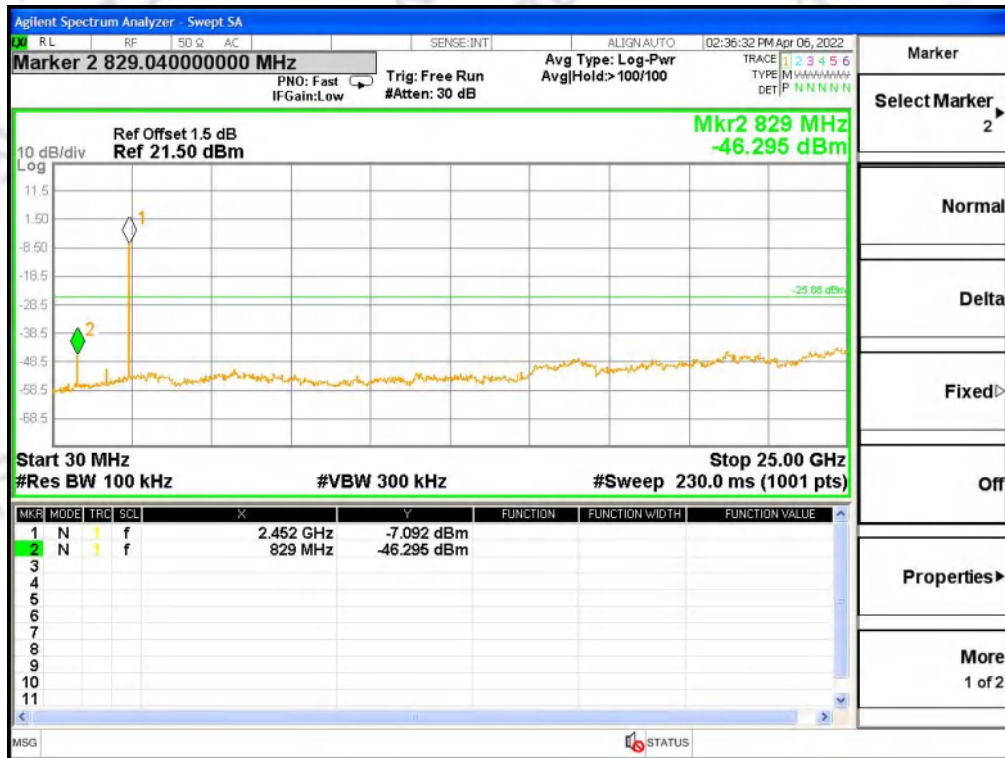
TX Mode3 channel 11



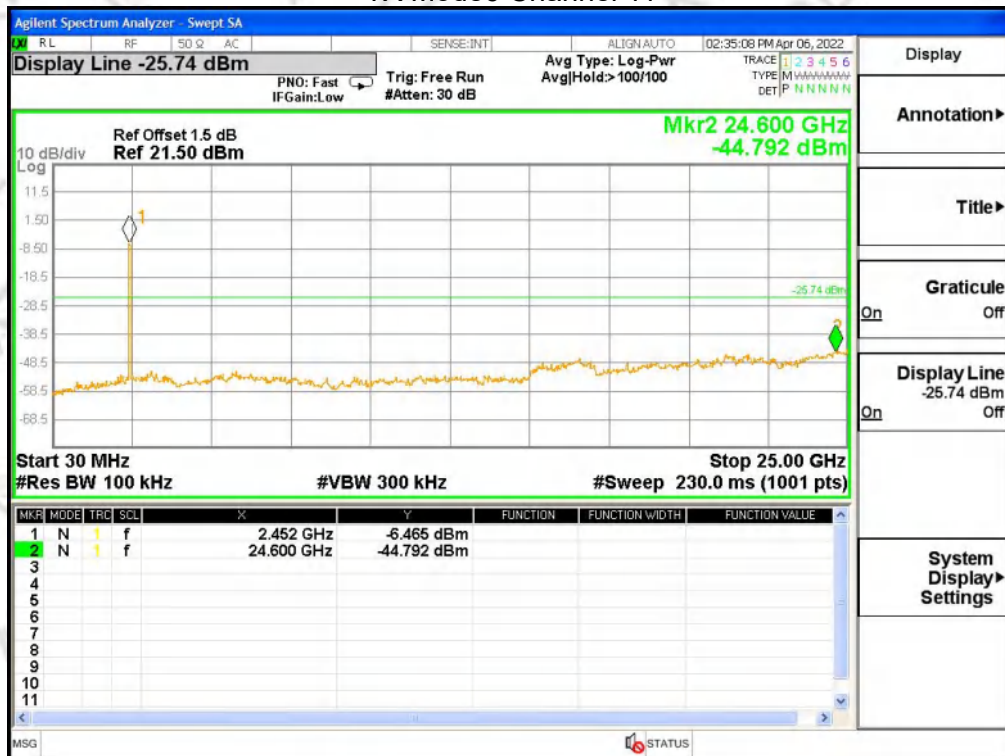
TX Mode4 Channel 1



TX Mode5 channel 6

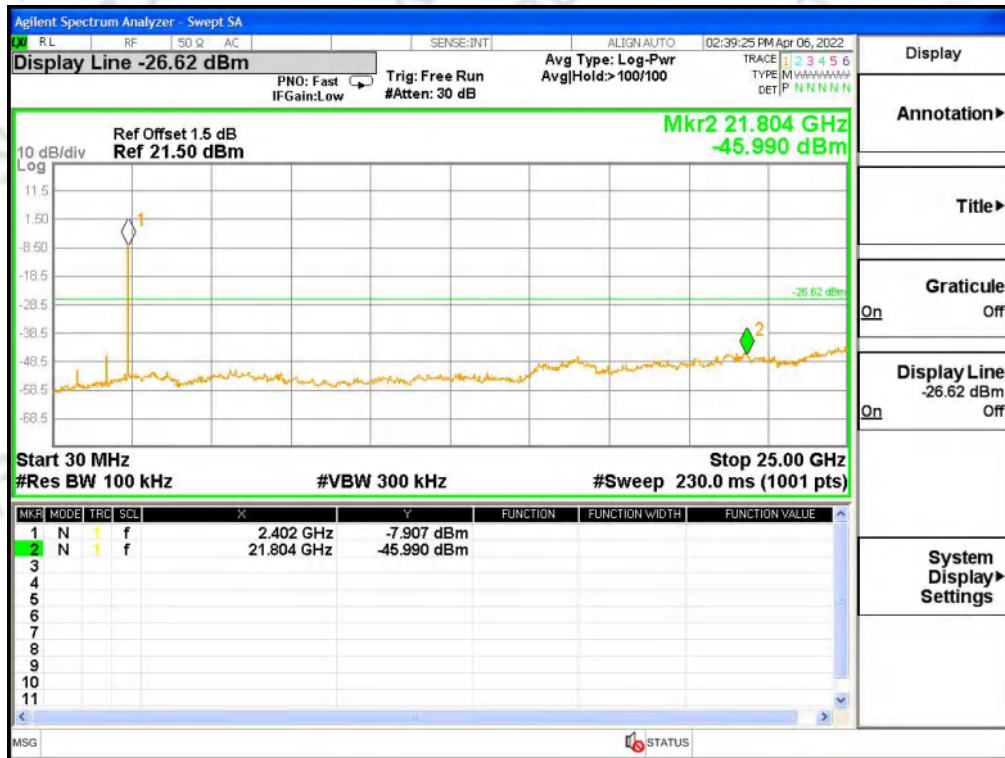


TX Mode6 Channel 11

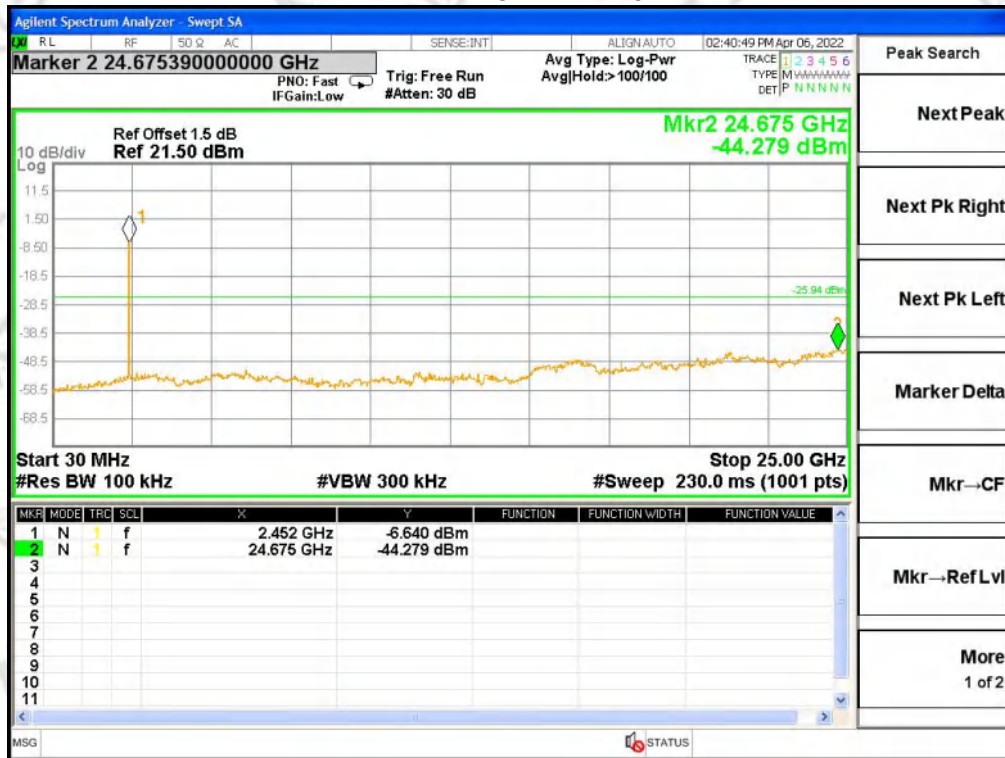




TX Mode7 Channel 1

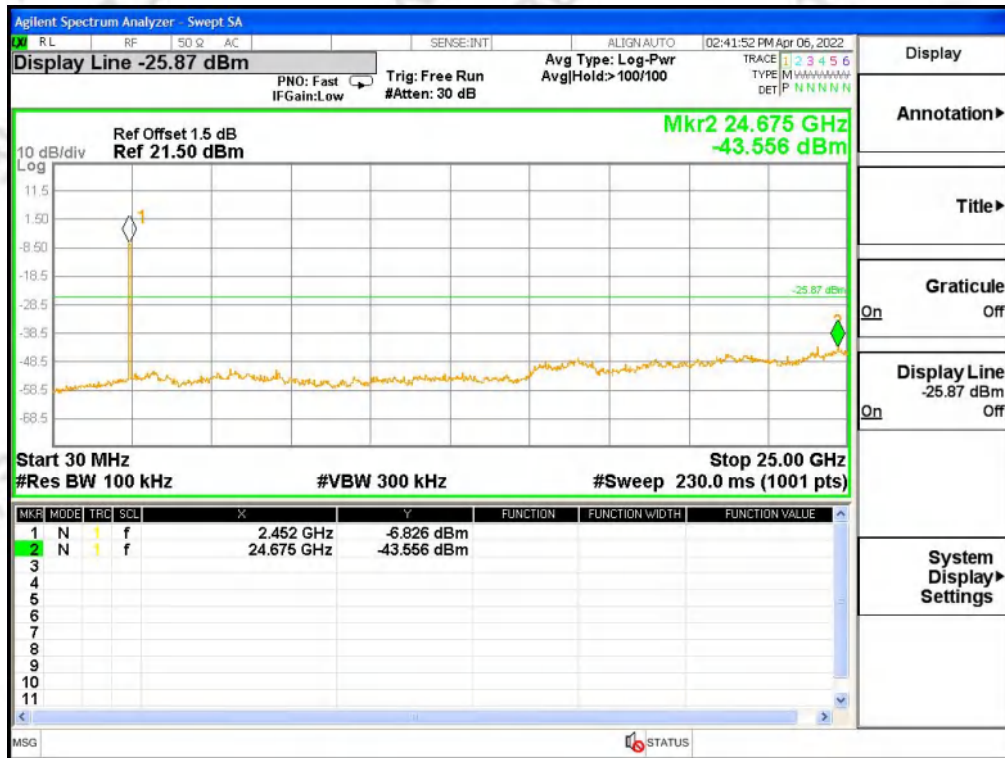


TX Mode8 channel 6

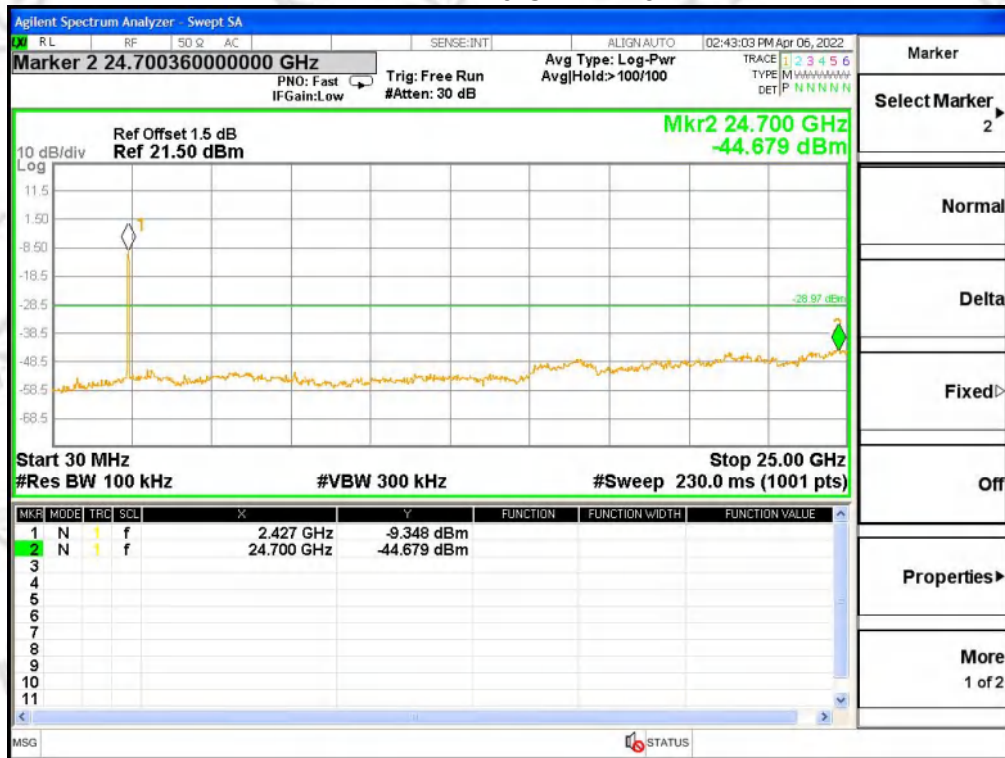




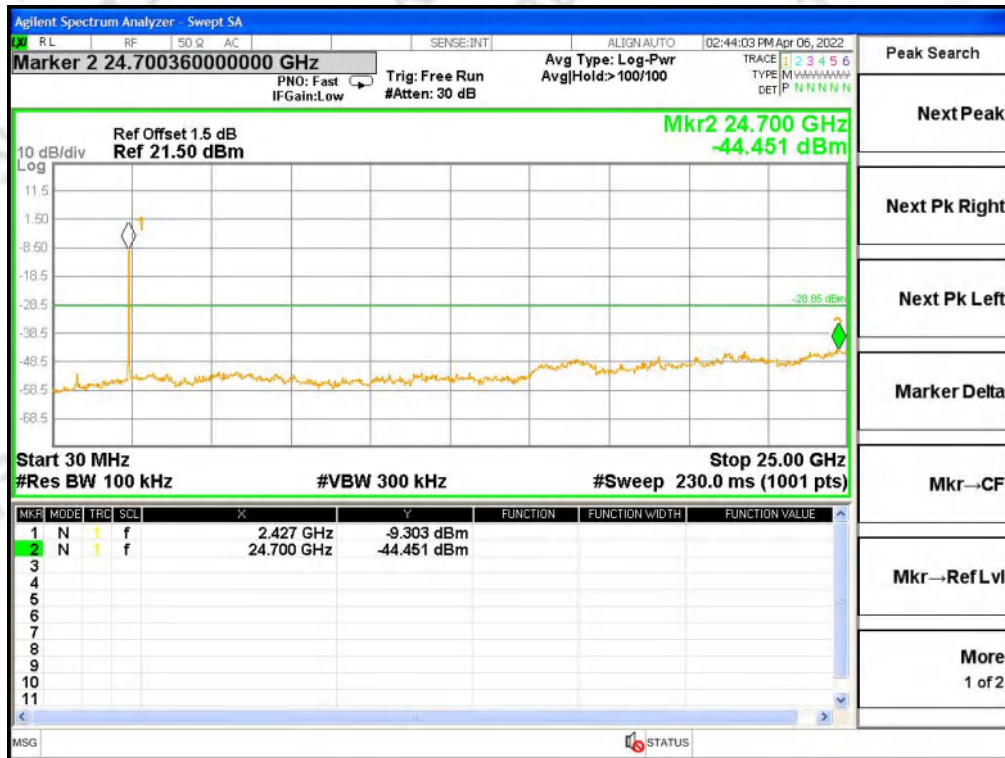
TX Mode9 Channel 11



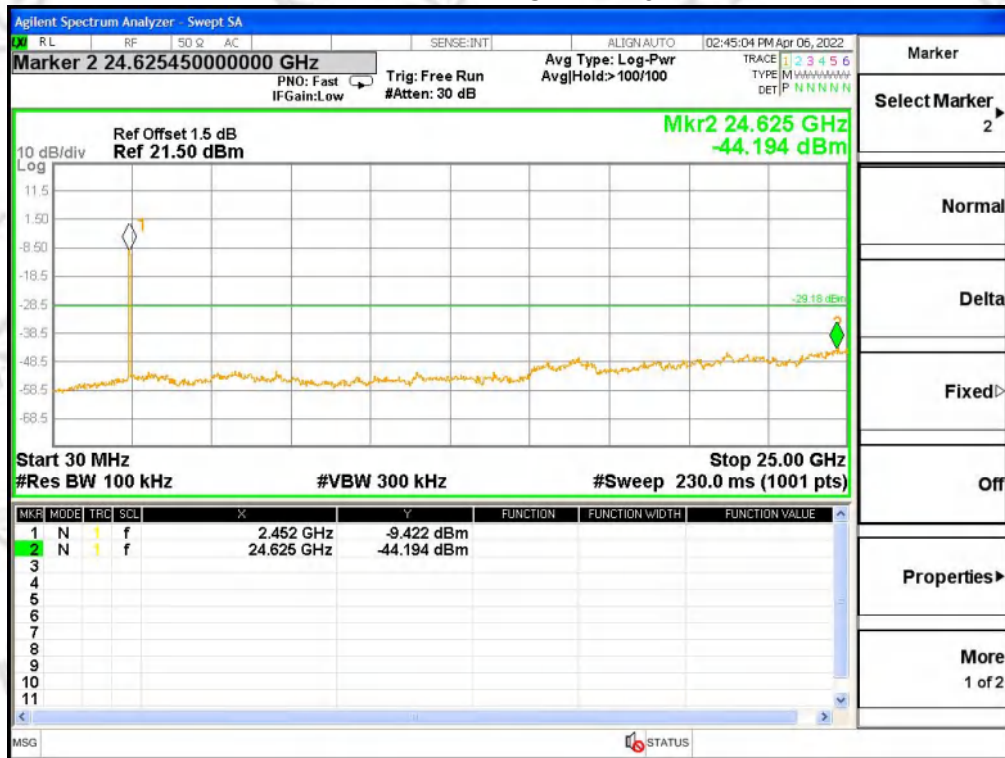
TX Mode10 Channel 3



TX Mode11 Channel 6

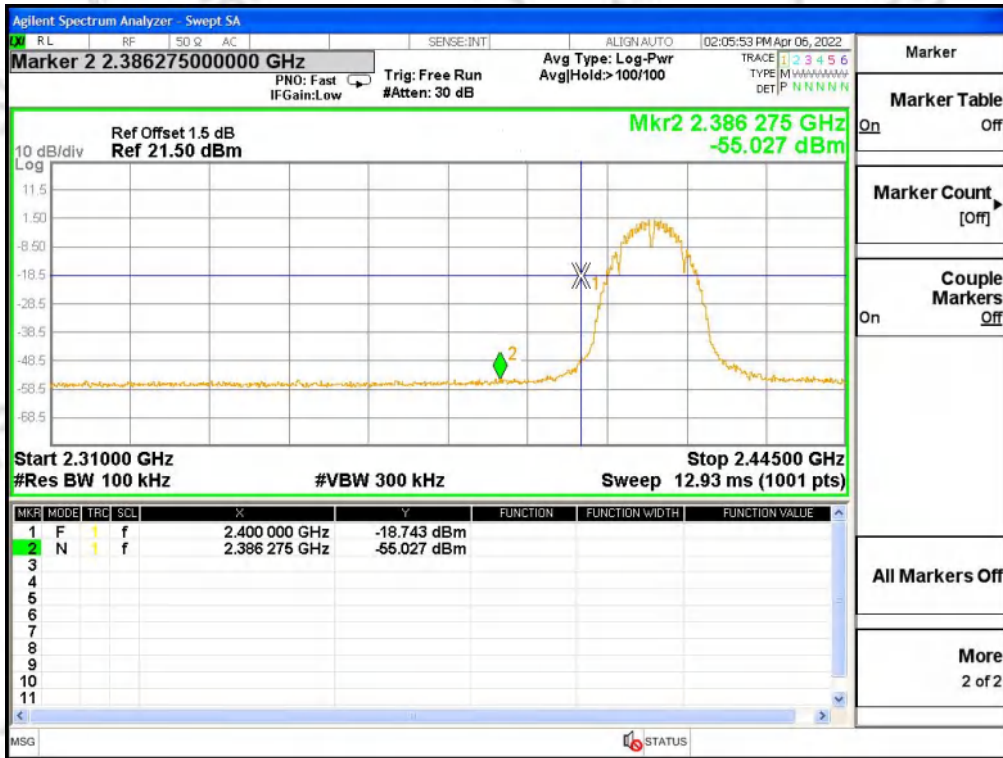


TX Mode12 Channel 9

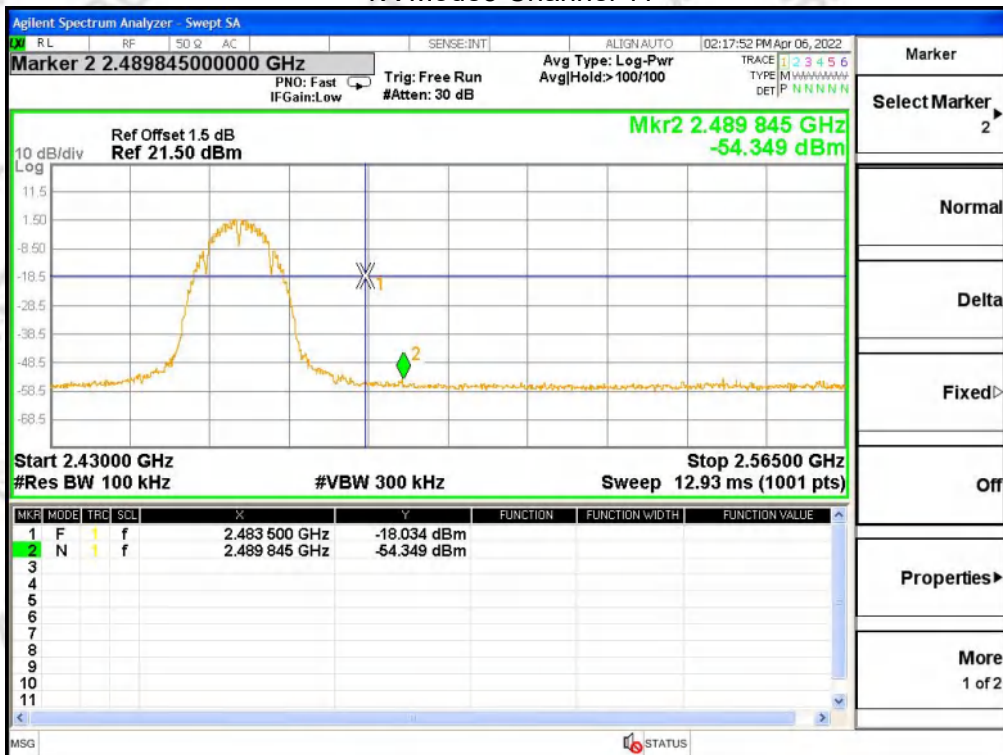




For Band edge(it's also the reference level for conducted spurious emission)  
TX Mode1 Channel 1

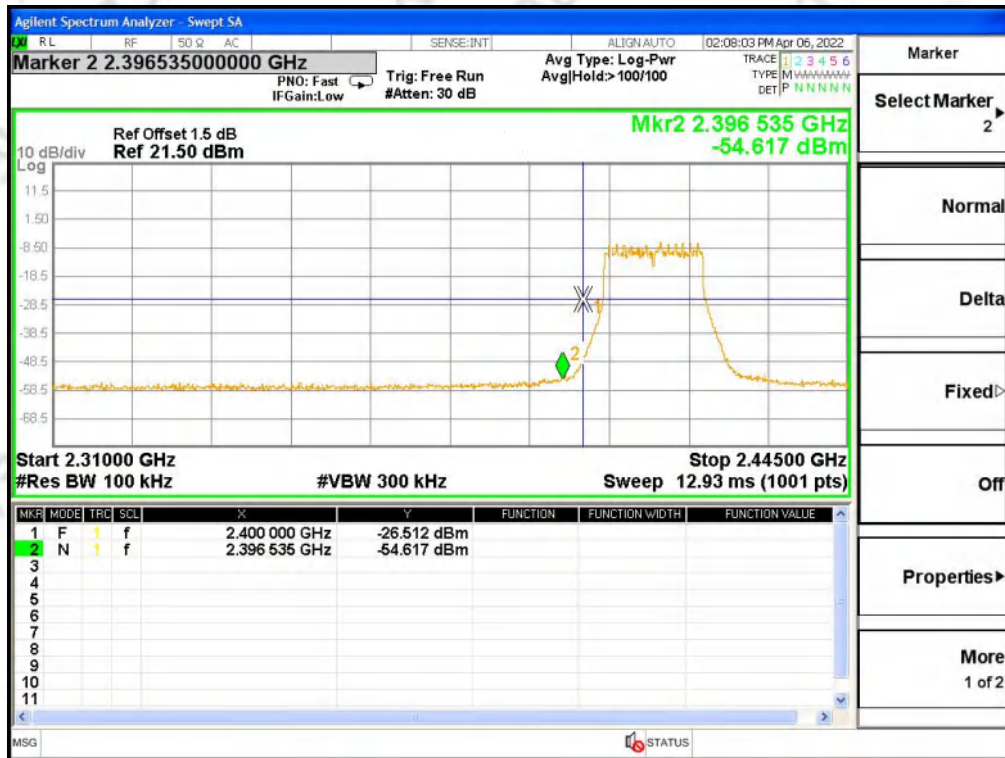


TX Mode3 Channel 11

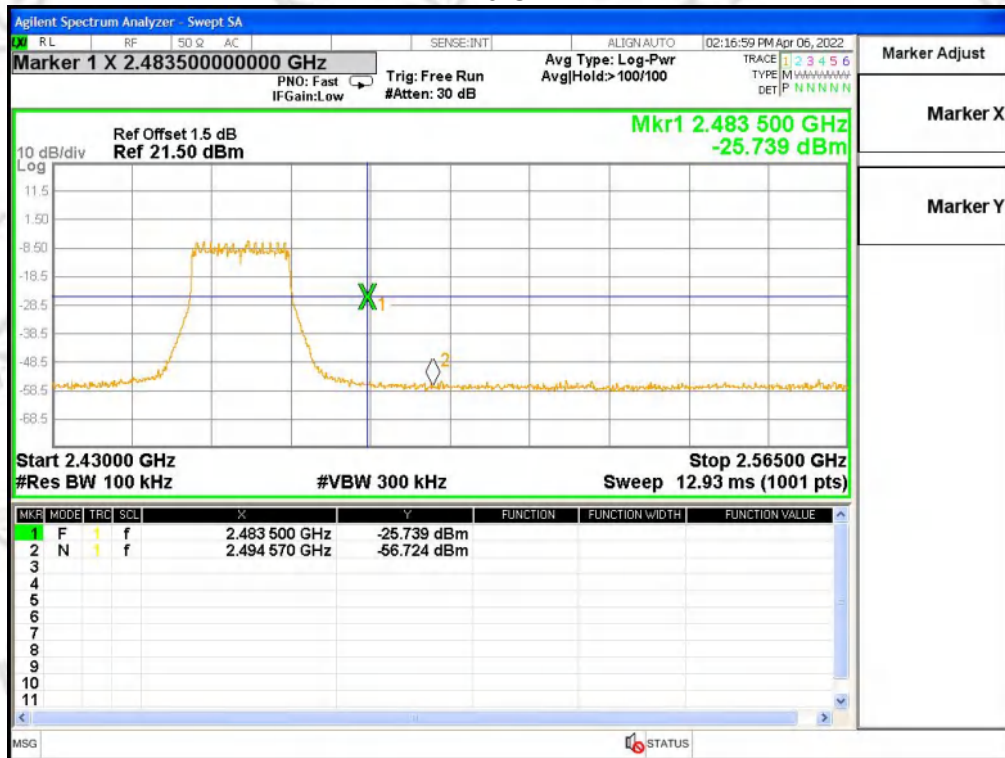




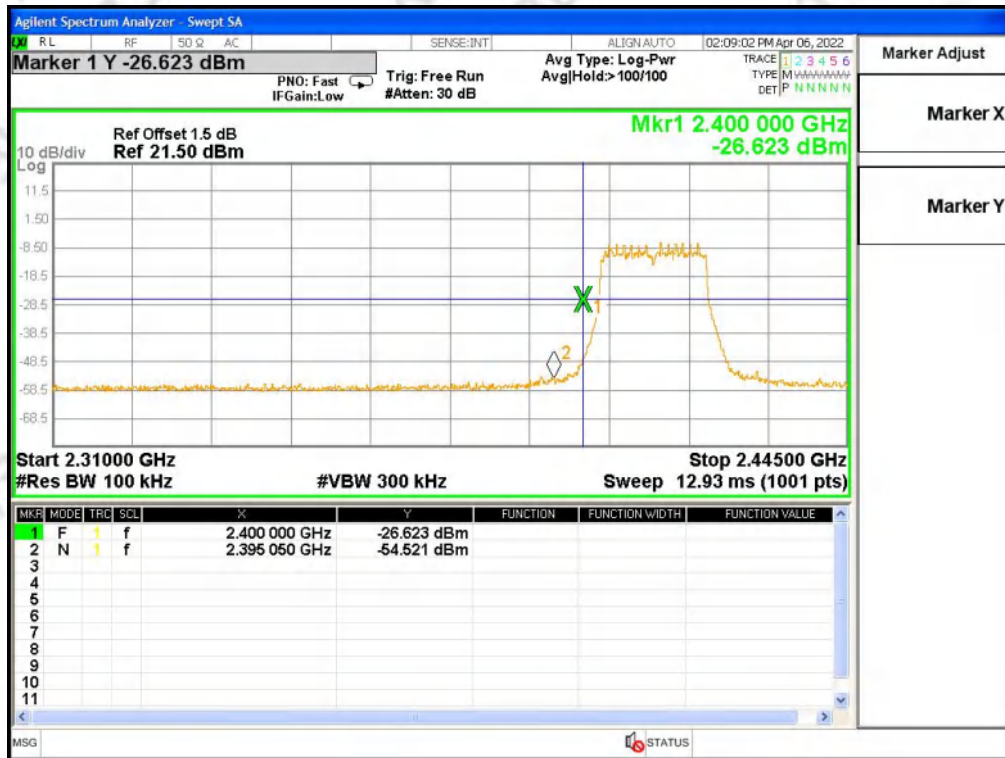
TX Mode4 Channel 1



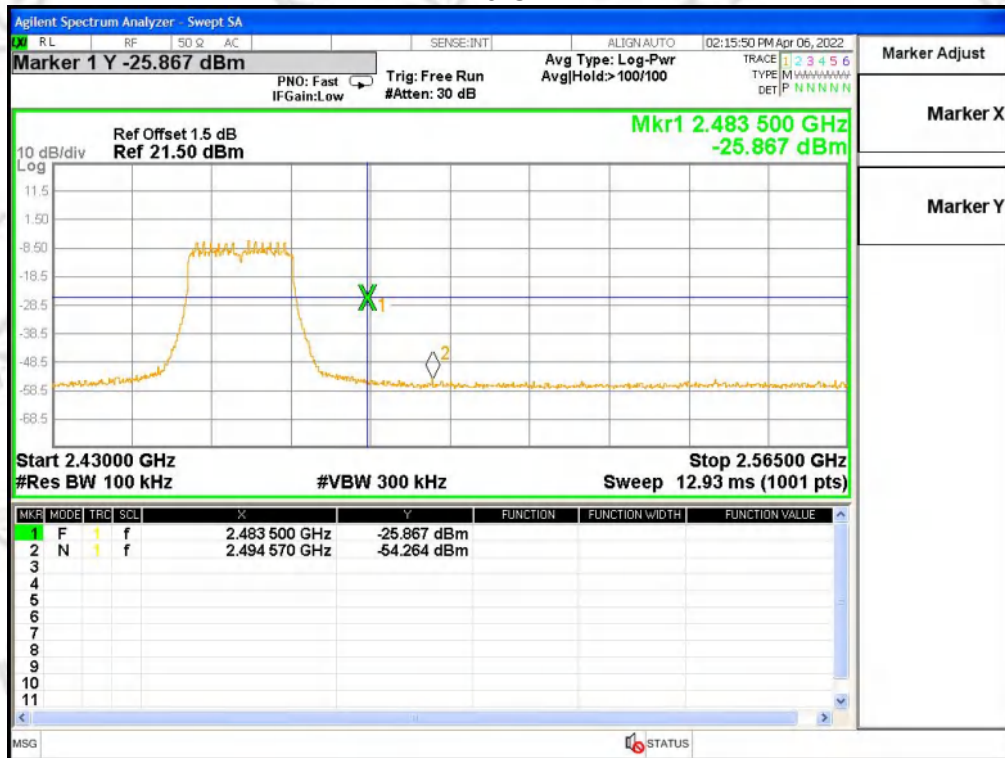
TX Mode6 Channel 11



TX Mode7 Channel 1

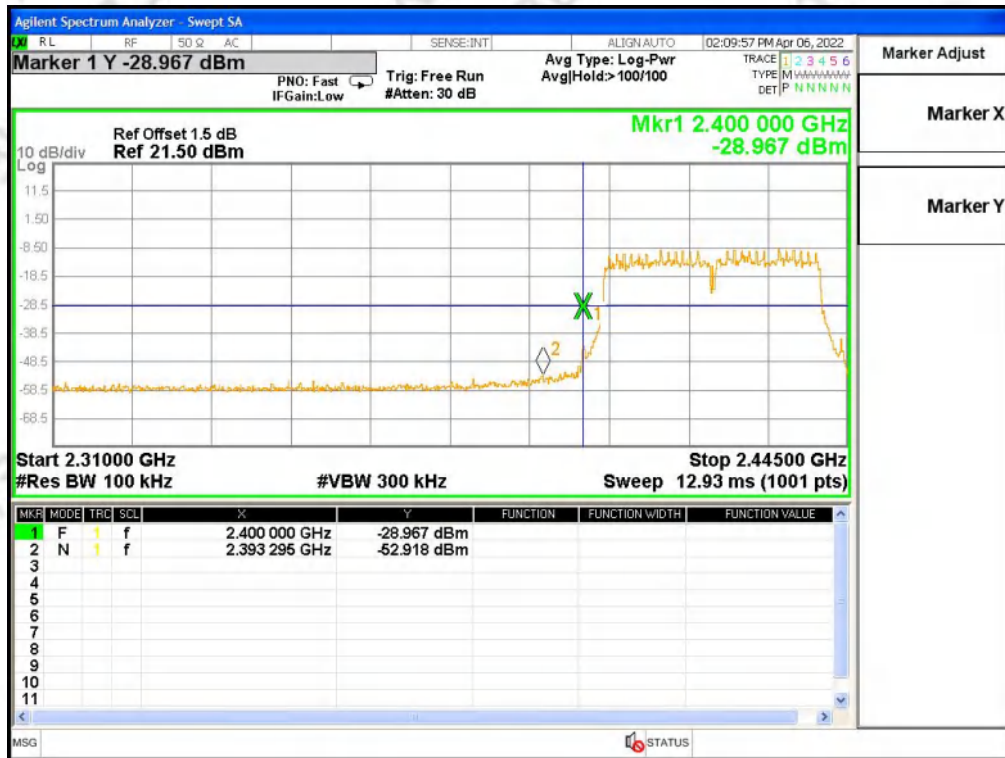


TX Mode9 Channel 11

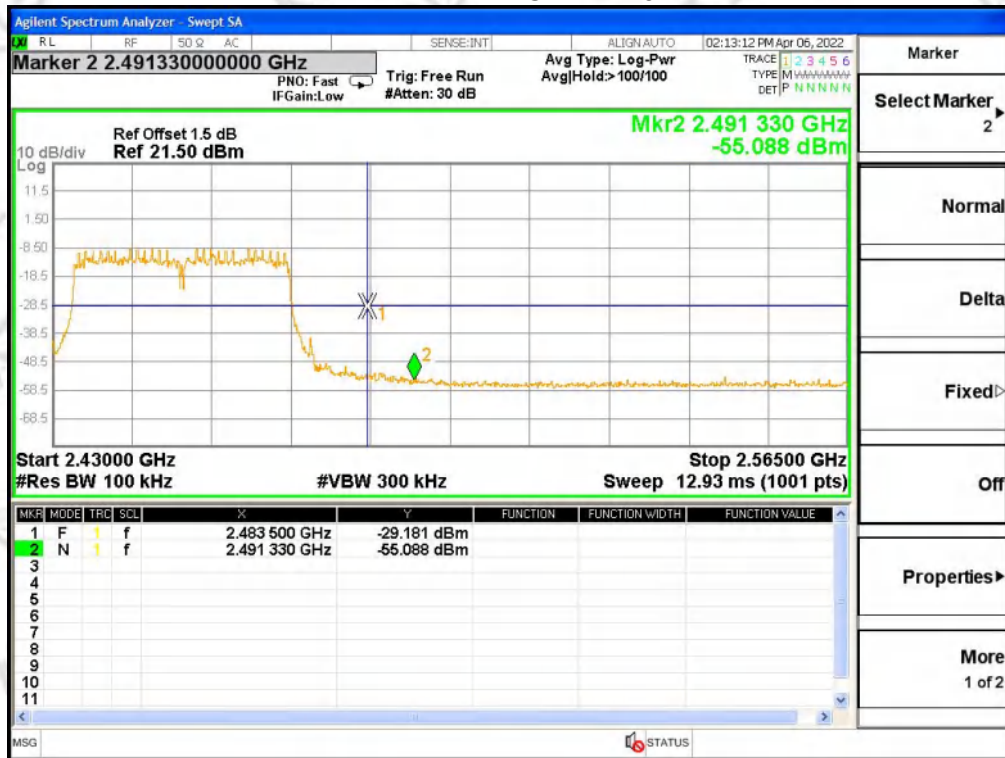




TX Mode10 Channel 3



TX Mode12 Channel 9





## 5. POWER SPECTRAL DENSITY TEST

### 5.1 LIMIT

FCC Part15.247 , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	≤8 dBm (RBW ≥3KHz)	2400-2483.5	PASS

### 5.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the 100 kHz ≥ RBW ≥3 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.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 5.3 DEVIATION FROM STANDARD

No deviation.

### 5.4 TEST SETUP



### 5.5 EUT OPERATION CONDITIONS

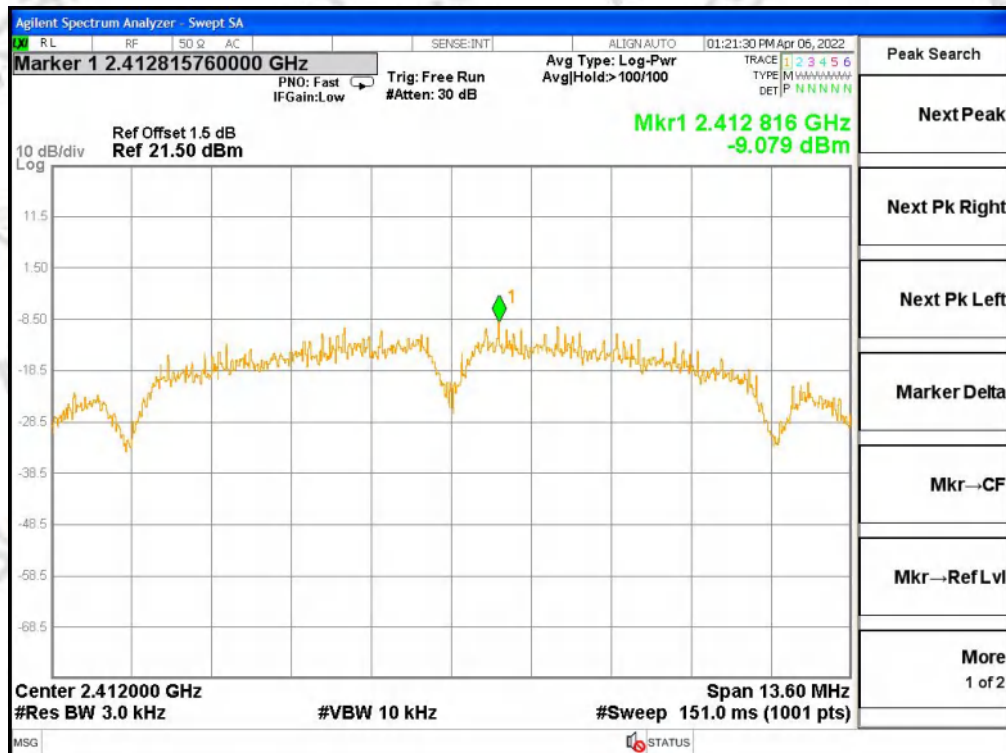
Please refer to section 3.1.4 of this report.

5.6 TEST RESULTS

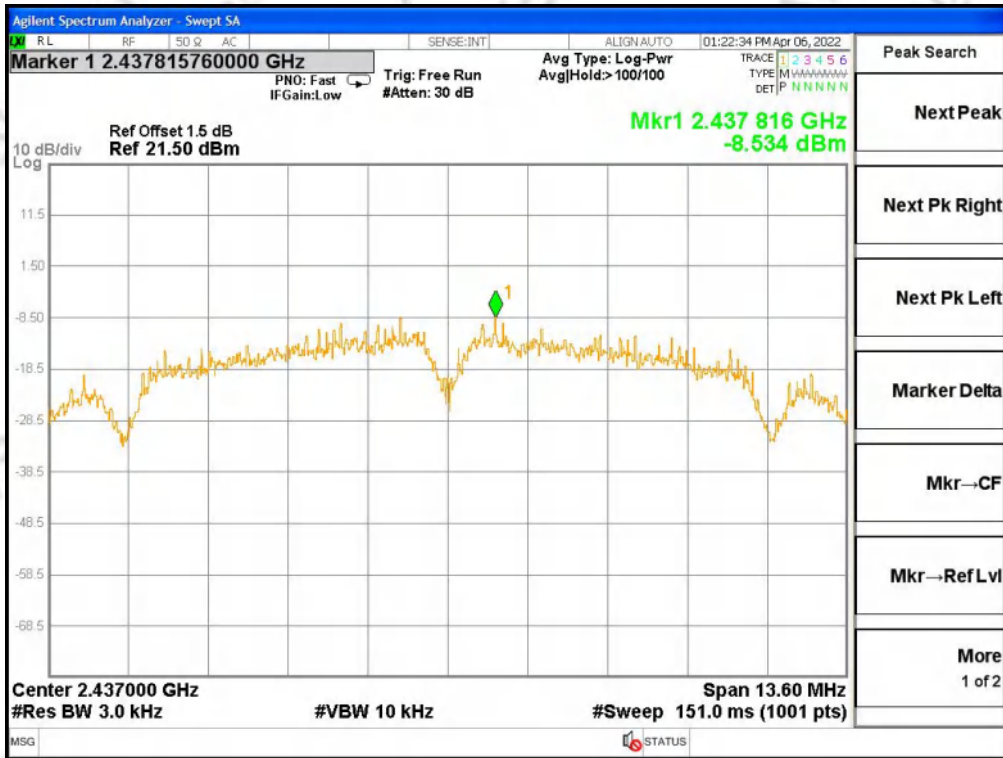
Temperature:	25°C	Relative Humidity:	60%RH
Test Voltage:	AC120V	Test Mode:	TX Mode1/2/3/4/5/6/7/8/9/10/11/12

Test mode	Frequency	Power Density	Limit (3KHz/dBm)	Result
		(dBm/3kHz)		
Mode1	2412 MHz	-9.079	≤8	PASS
Mode2	2437 MHz	-8.534	≤8	PASS
Mode3	2462 MHz	-8.639	≤8	PASS
Mode4	2412 MHz	-20.013	≤8	PASS
Mode5	2437 MHz	-19.224	≤8	PASS
Mode6	2462 MHz	-19.440	≤8	PASS
Mode7	2412 MHz	-19.849	≤8	PASS
Mode8	2437 MHz	-19.128	≤8	PASS
Mode9	2462 MHz	-19.122	≤8	PASS
Mode10	2422 MHz	-23.338	≤8	PASS
Mode11	2437 MHz	-22.856	≤8	PASS
Mode12	2452 MHz	-22.544	≤8	PASS

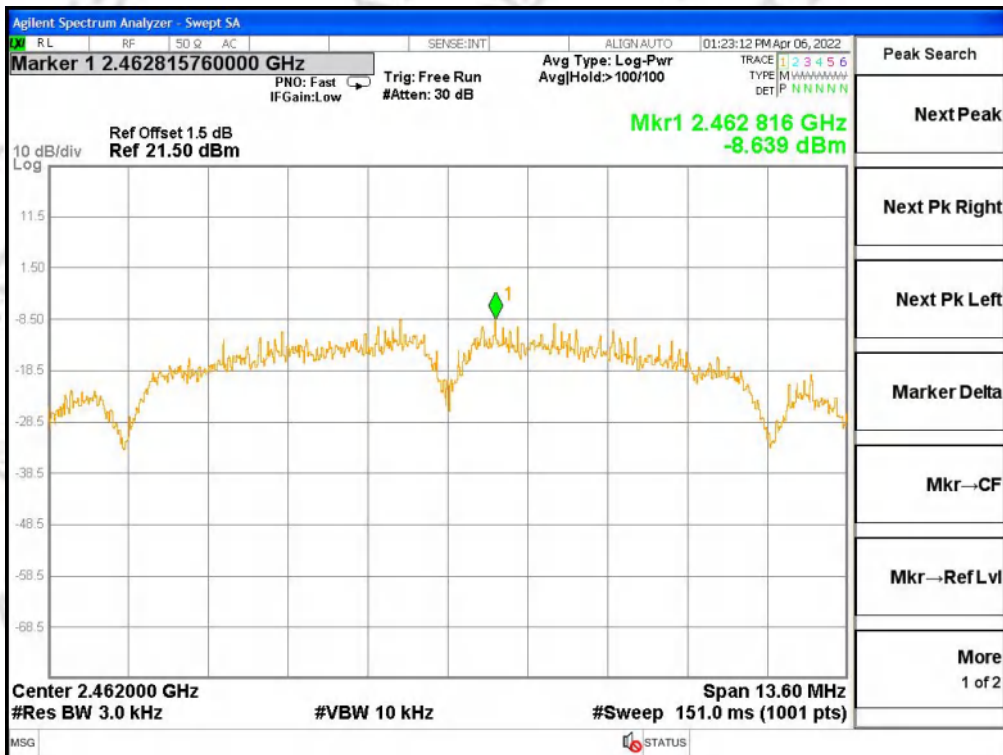
TX Mode1 channel 1



TX Mode2 channel 6

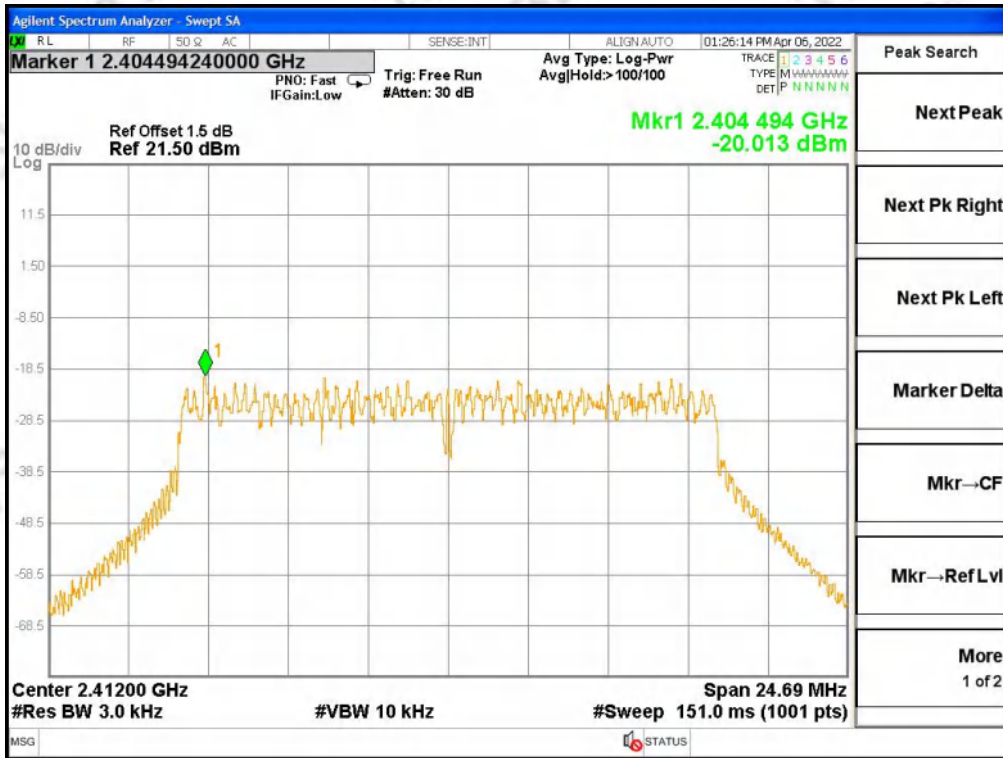


TX Mode3 channel 11

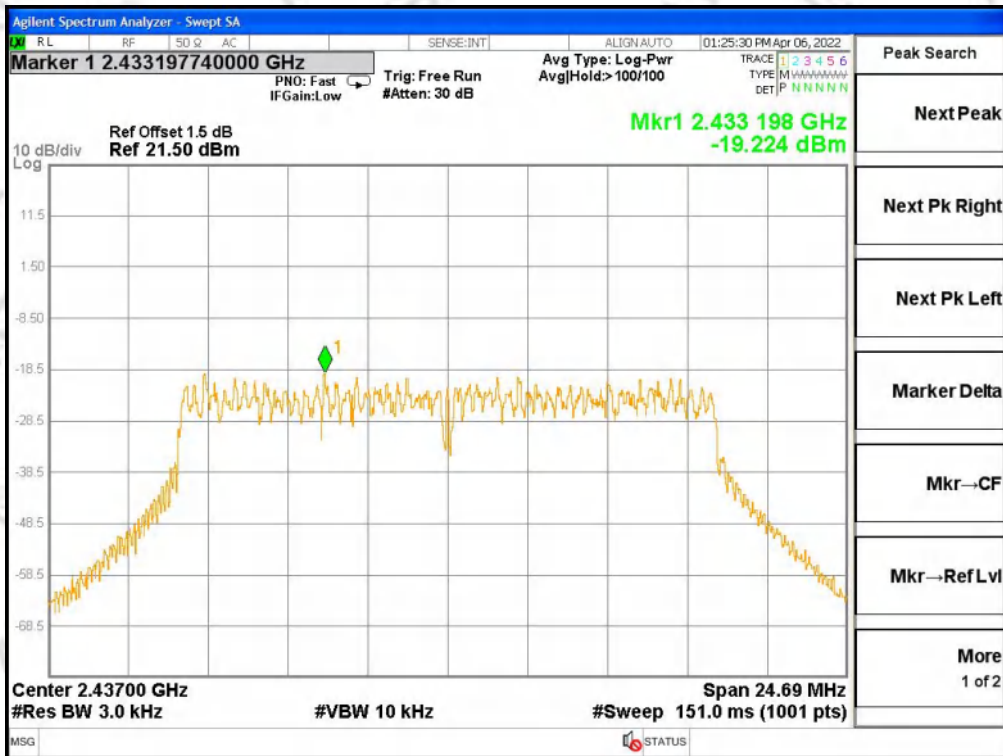




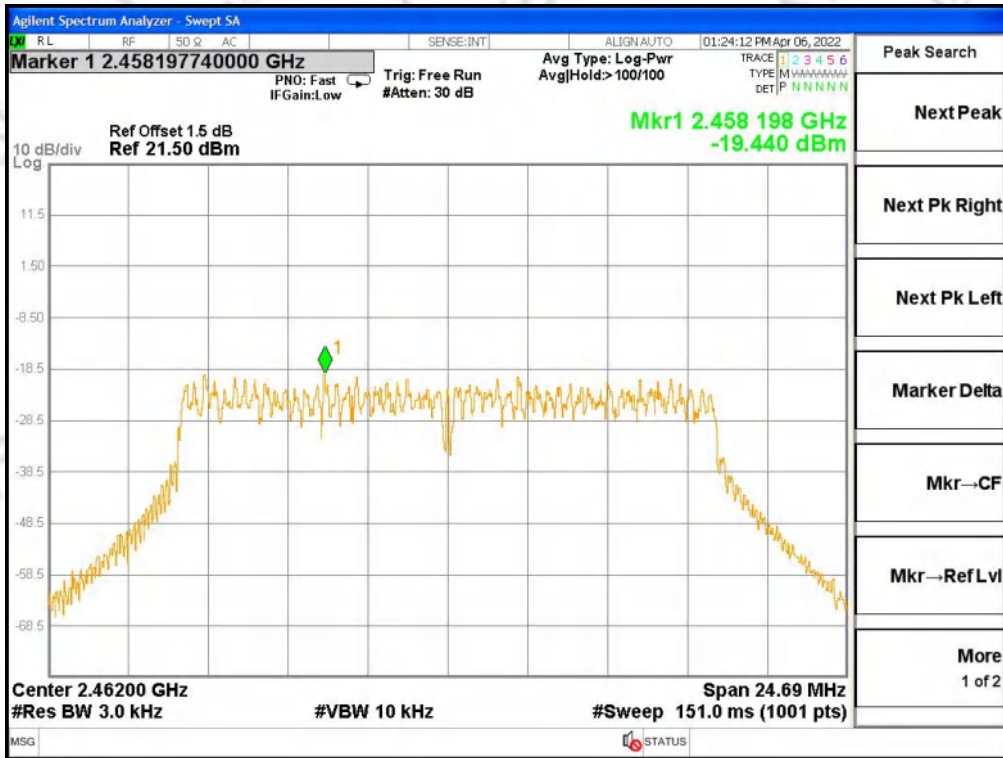
TX Mode4 channel 1



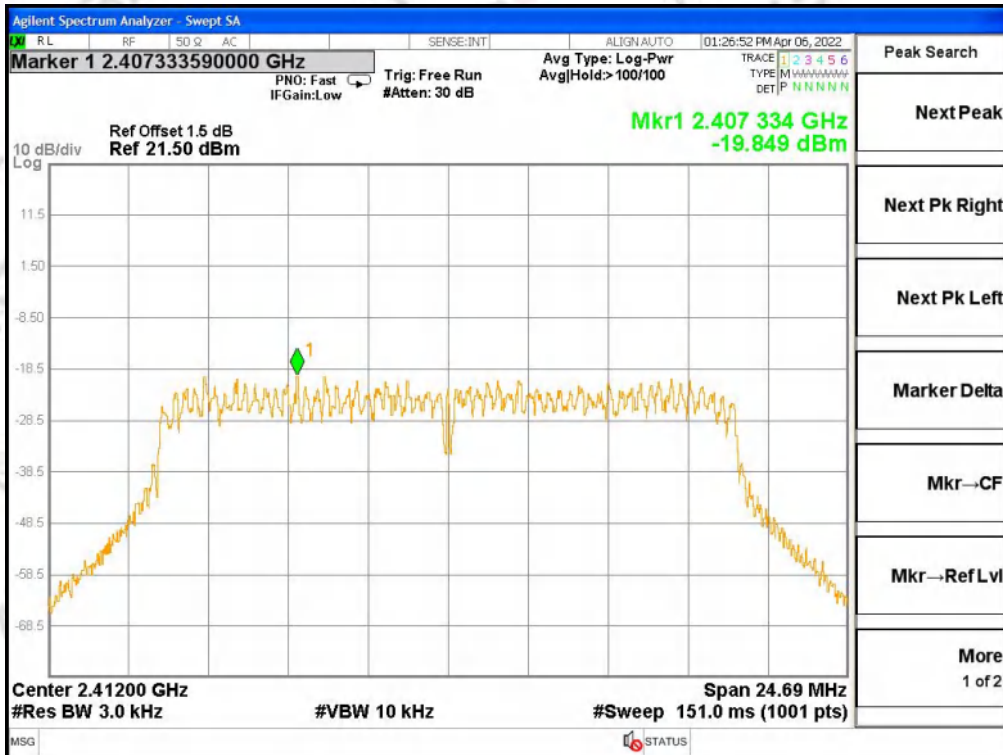
TX Mode5 channel 6



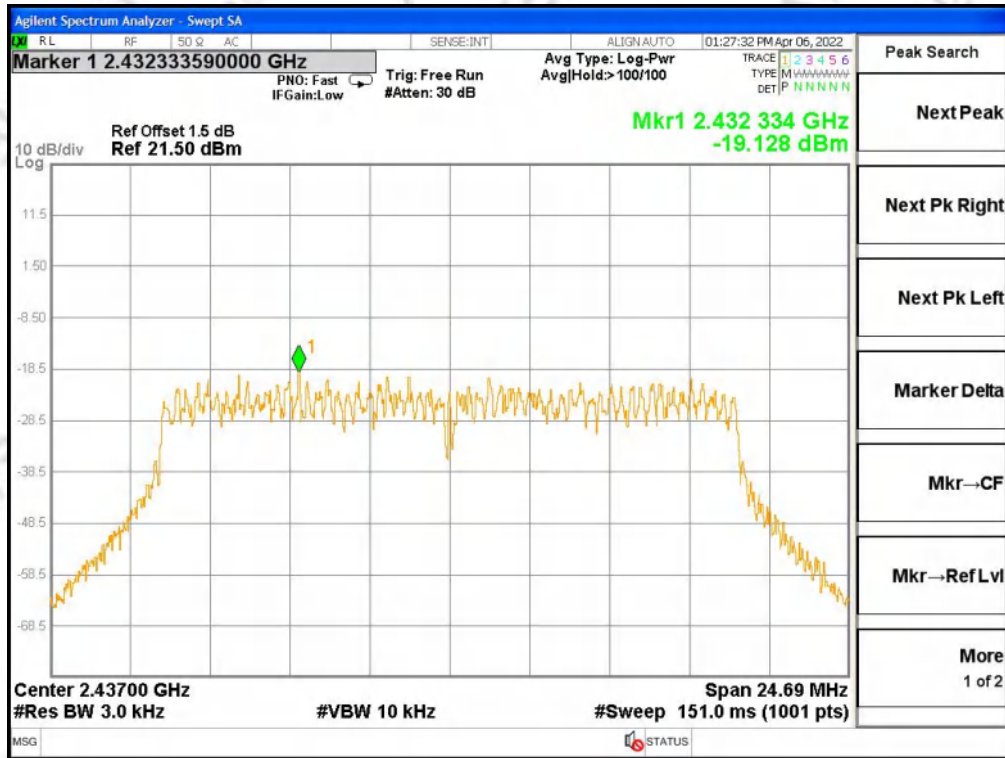
TX Mode6 channel 11



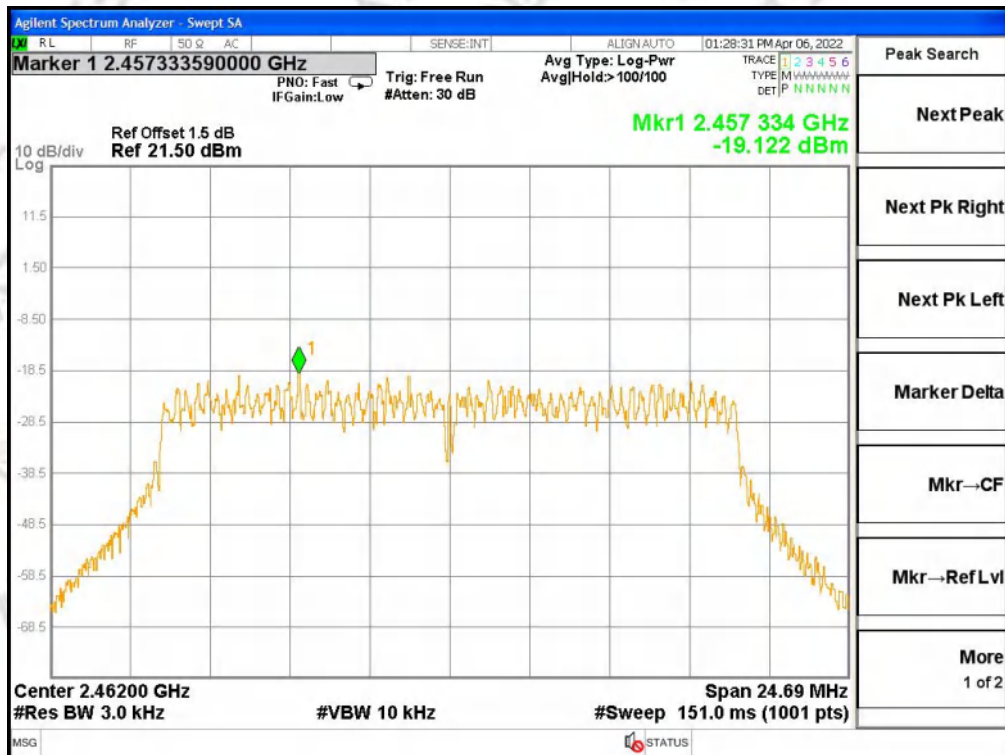
TX Mode7 channel 1



TX Mode8 channel 6

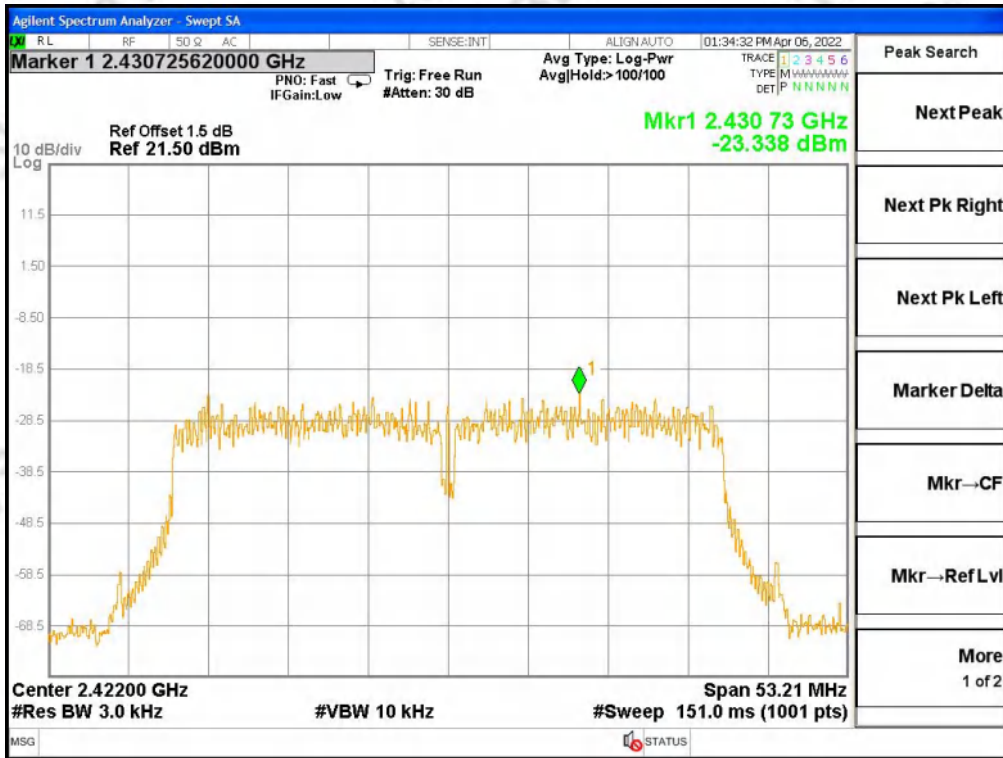


TX Mode9 channel 11

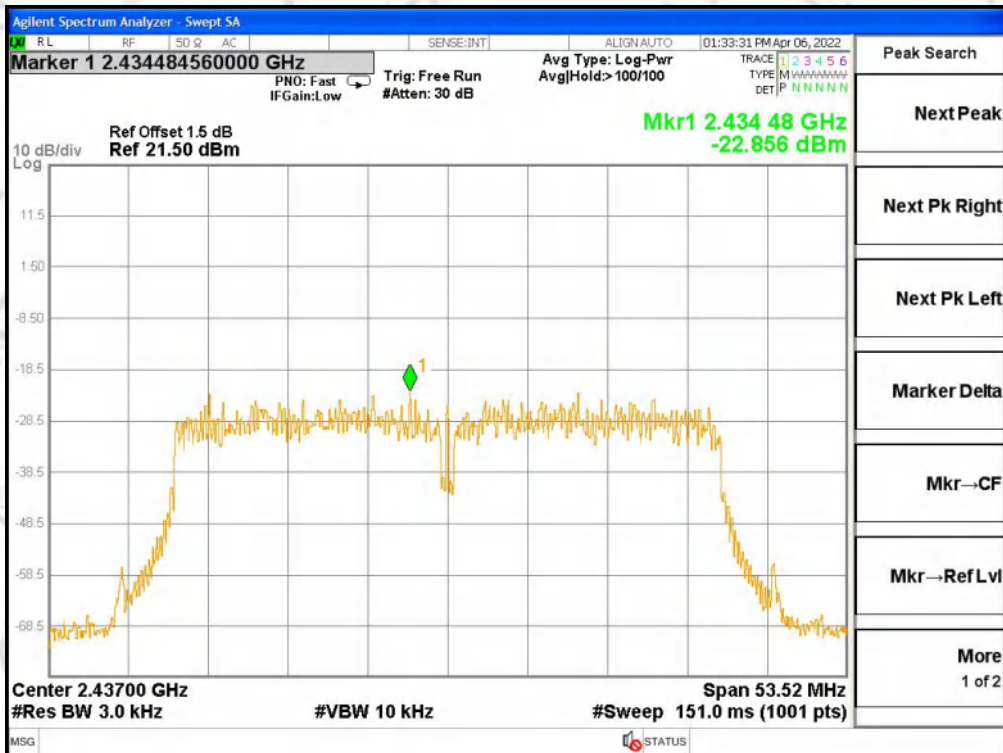




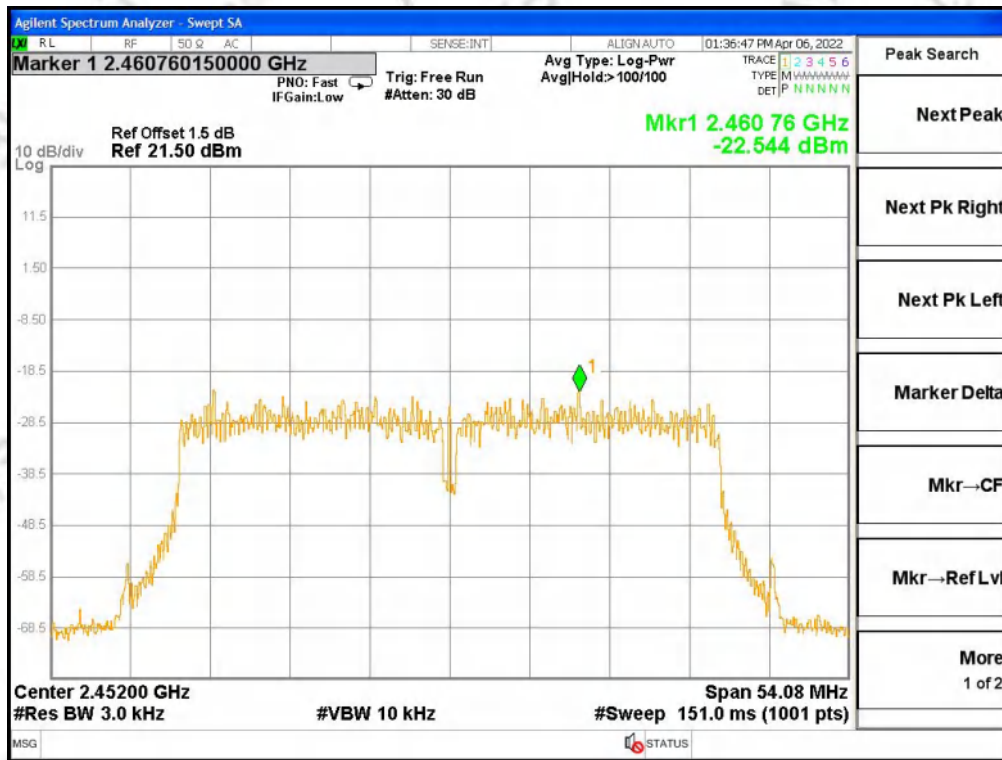
TX Mode10 channel 3



TX Mode11 channel 6



TX Mode12 channel 9



6. BANDWIDTH TEST

6.1 LIMIT

FCC Part15.247,Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	≥500KHz (6dB bandwidth)	2400-2483.5	PASS
15.247	99% Bandwidth	For reporting purposes only.	2400-2483.5	PASS

6.2 TEST PROCEDURE

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW≥3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥6 dB.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

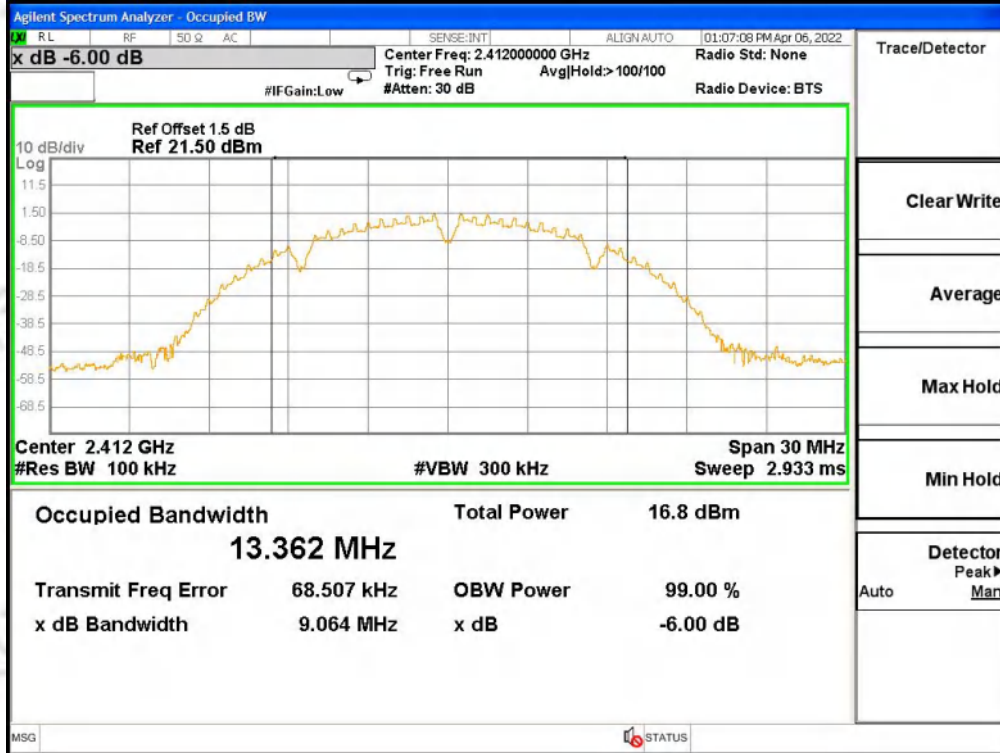
6.6 TEST RESULTS

Temperature:	25°C	Relative Humidity:	60%RH
Test Voltage:	AC120V	Test Mode:	TX Mode1/2/3/4/5/6/7/8/9/10/11/12

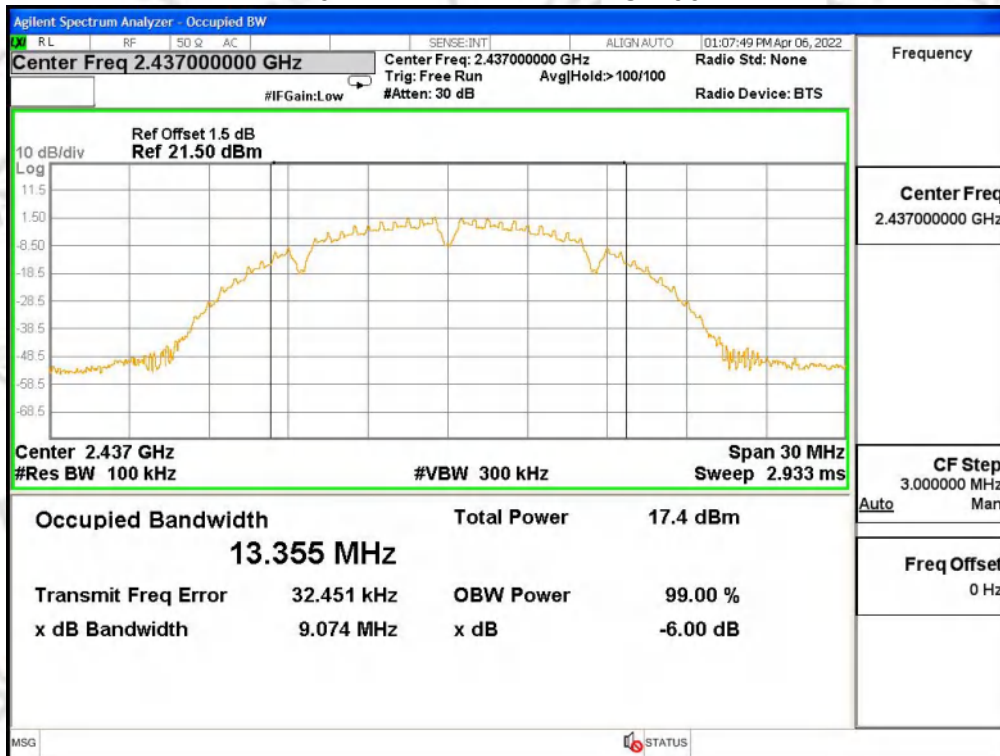
Test mode	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	6dB Bandwidth Limit(KHz)	Result
Mode1	2412 MHz	9.064	13.583	≥500KHz	PASS
Mode2	2437 MHz	9.074	13.609	≥500KHz	PASS
Mode3	2462 MHz	9.072	13.672	≥500KHz	PASS
Mode4	2412 MHz	16.460	17.415	≥500KHz	PASS
Mode5	2437 MHz	16.460	17.393	≥500KHz	PASS
Mode6	2462 MHz	16.460	17.371	≥500KHz	PASS
Mode7	2412 MHz	17.570	18.338	≥500KHz	PASS
Mode8	2437 MHz	17.570	18.327	≥500KHz	PASS
Mode9	2462 MHz	17.660	18.319	≥500KHz	PASS
Mode10	2422 MHz	35.470	36.379	≥500KHz	PASS
Mode11	2437 MHz	35.680	36.387	≥500KHz	PASS
Mode12	2452 MHz	36.050	36.377	≥500KHz	PASS



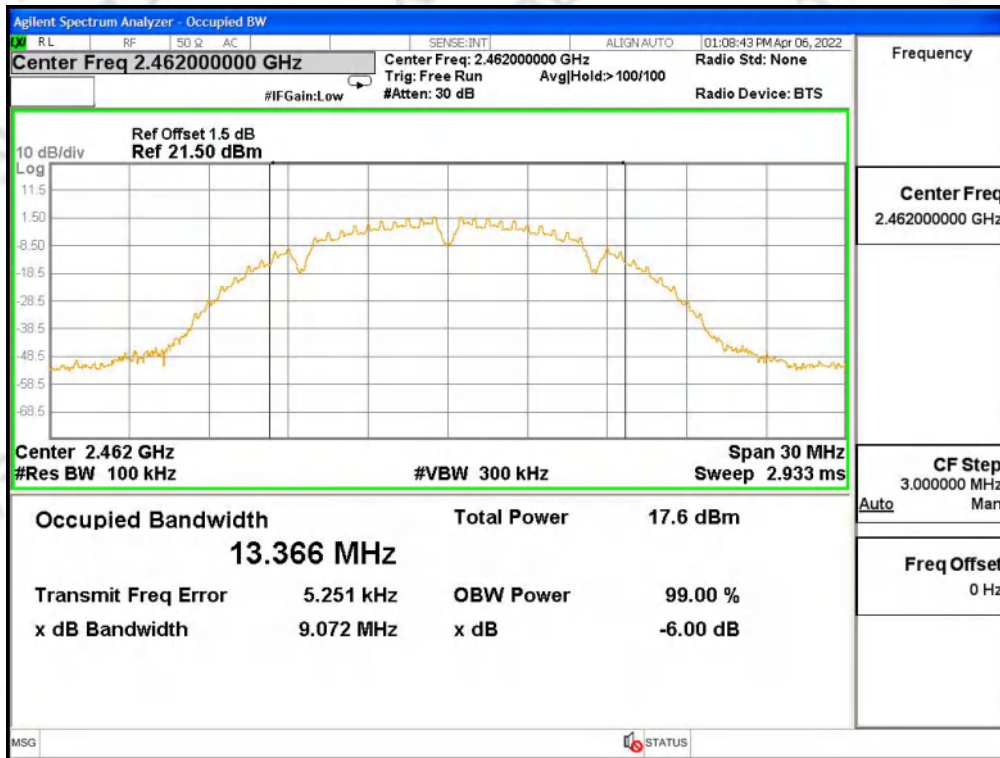
6dB Bandwidth Mode1 CH 01



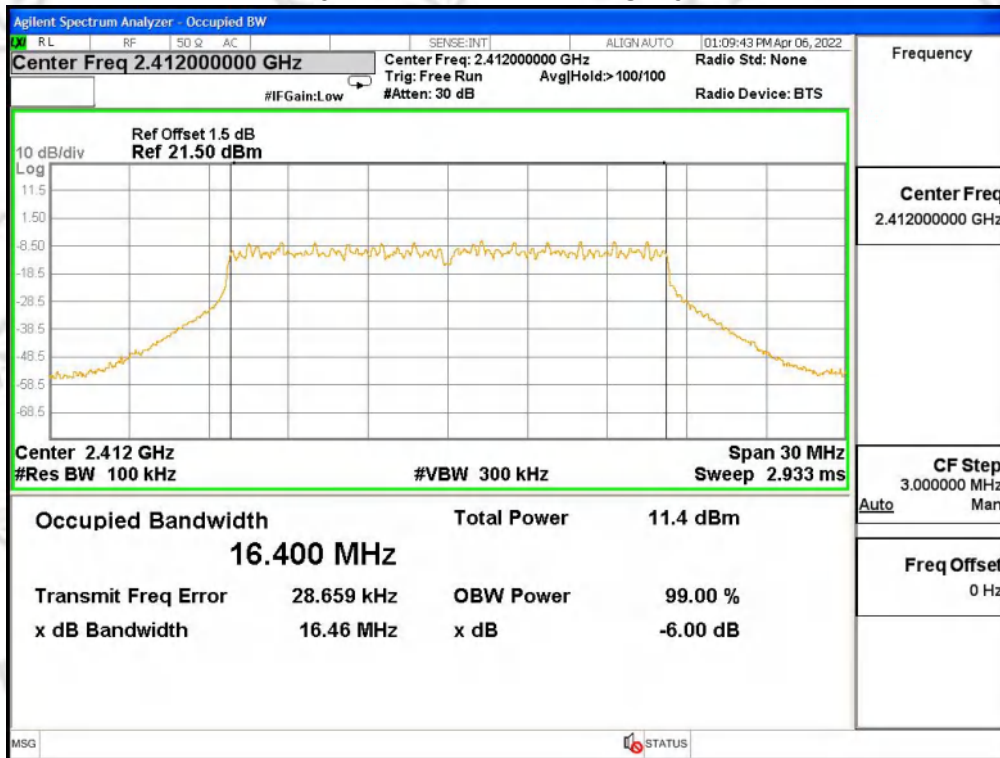
6dB Bandwidth Mode2 CH 06



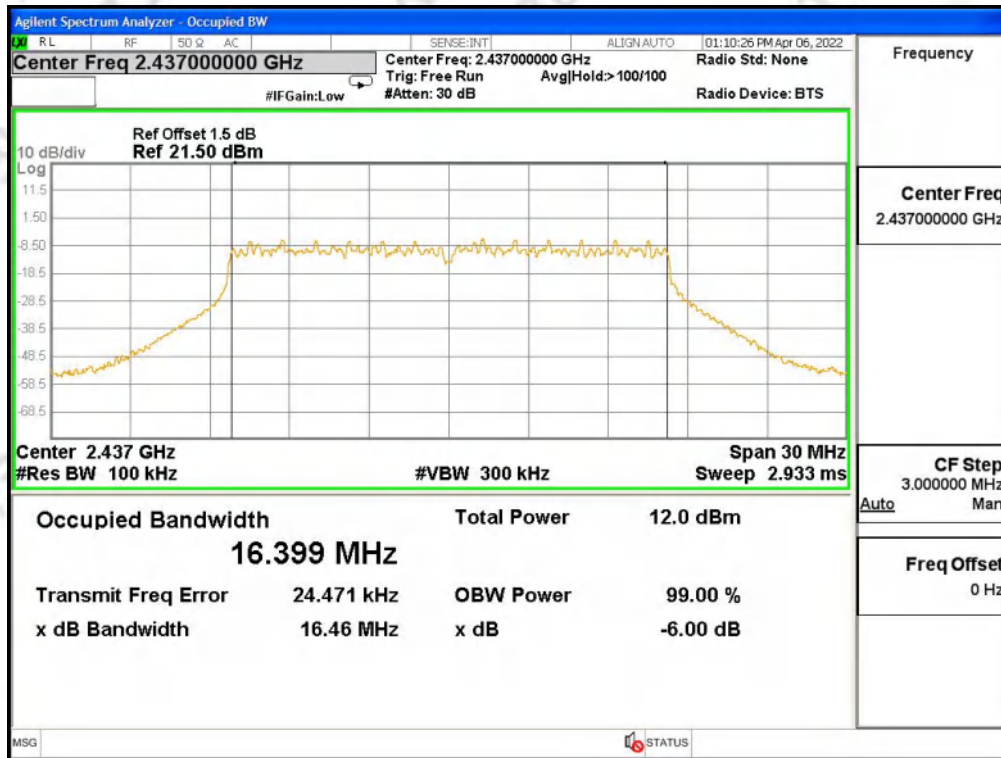
6dB Bandwidth Mode3 CH 11



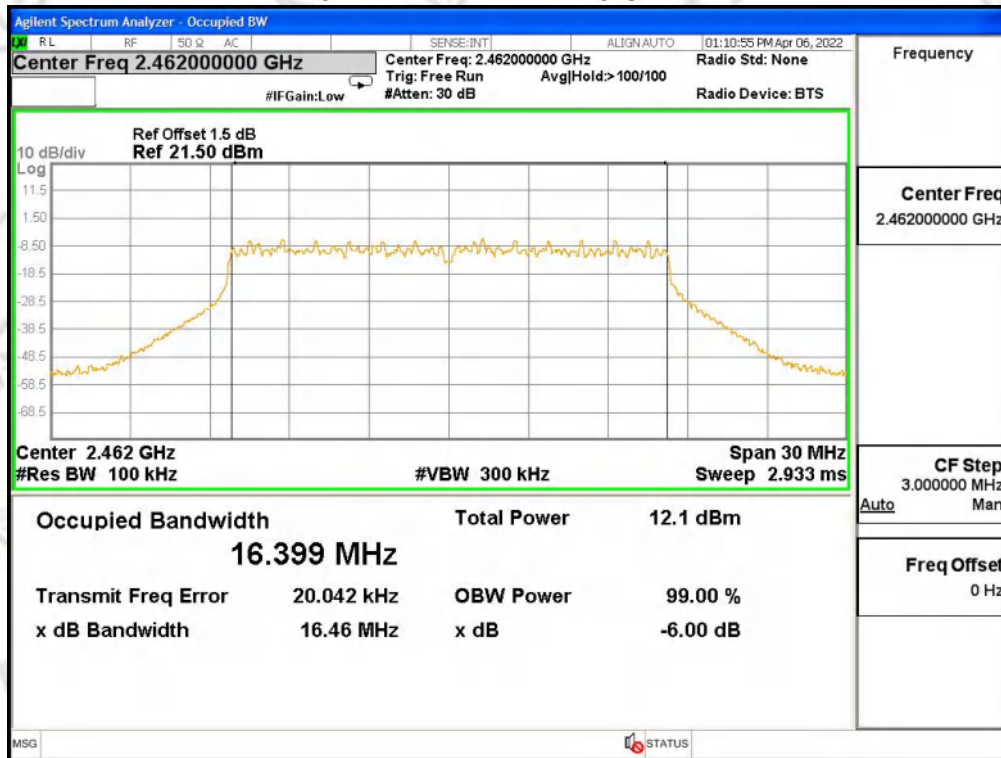
6dB Bandwidth Mode4 CH 01



6dB Bandwidth Mode5 CH 06

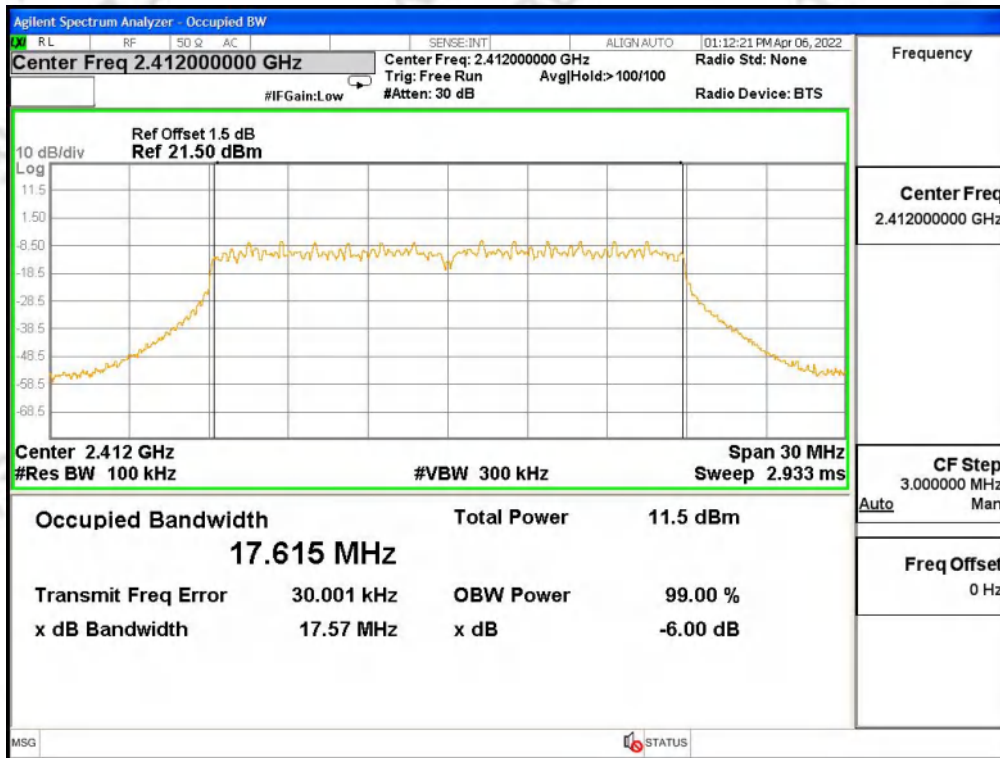


6dB Bandwidth Mode6 CH 11

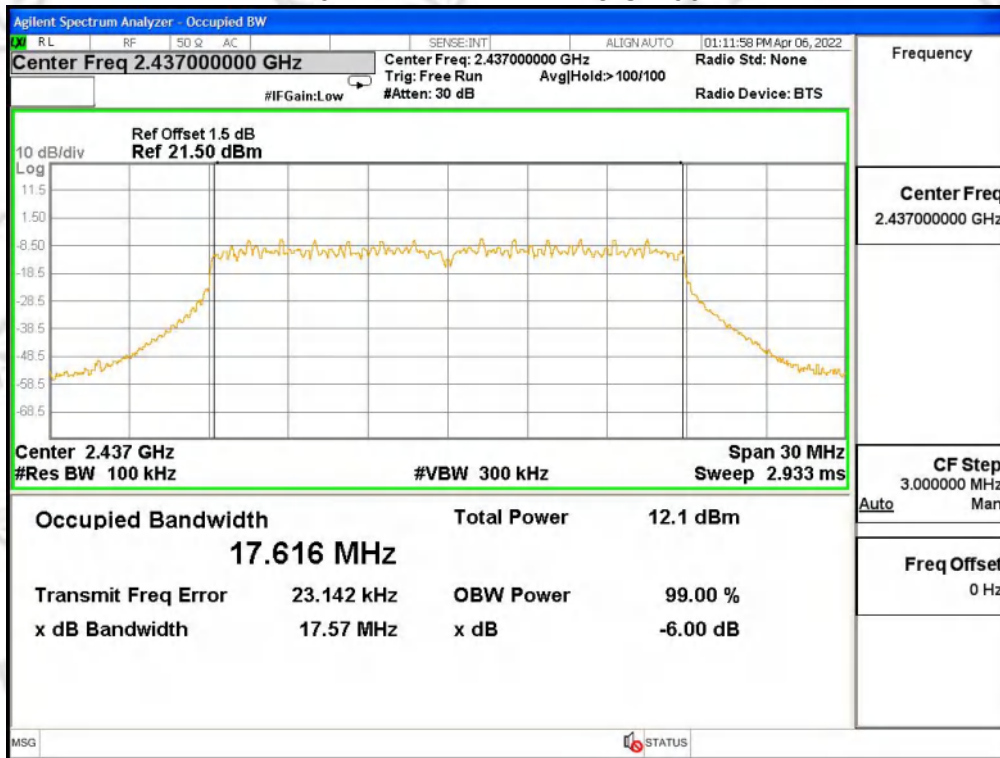




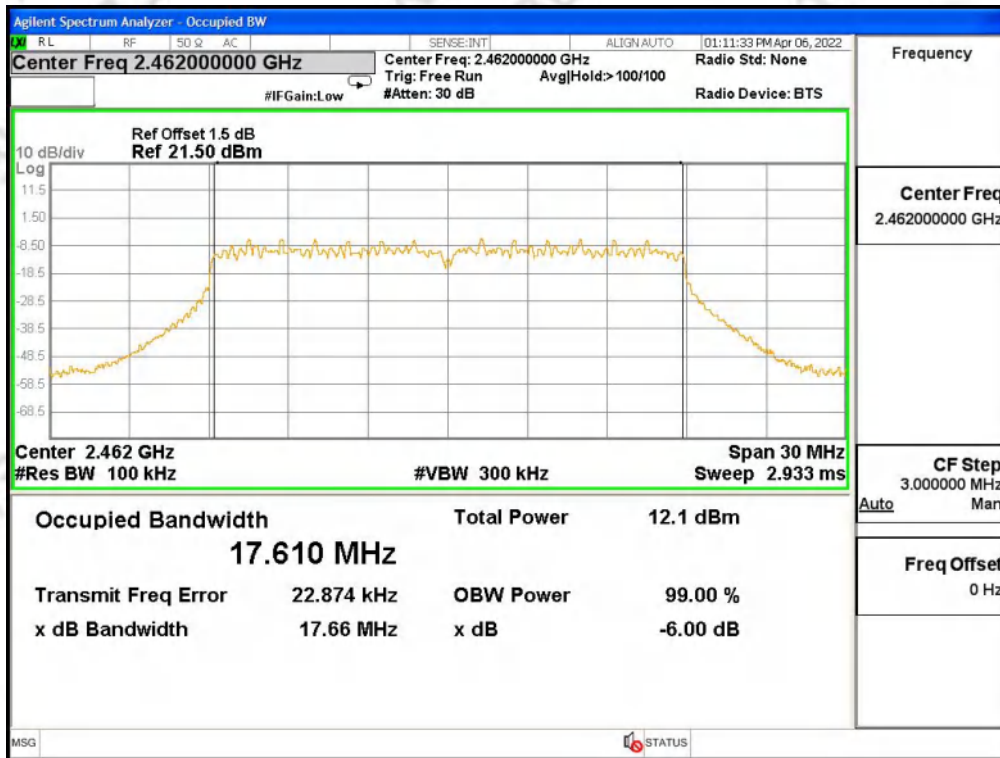
6dB Bandwidth Mode7 CH 01



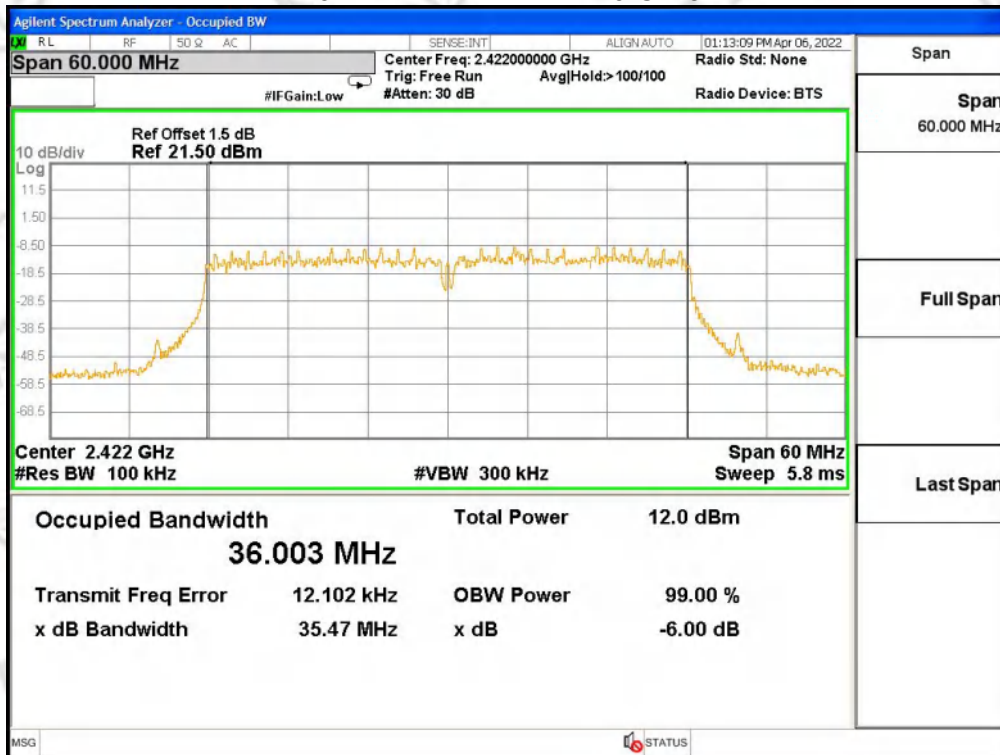
6dB Bandwidth Mode8 CH 06



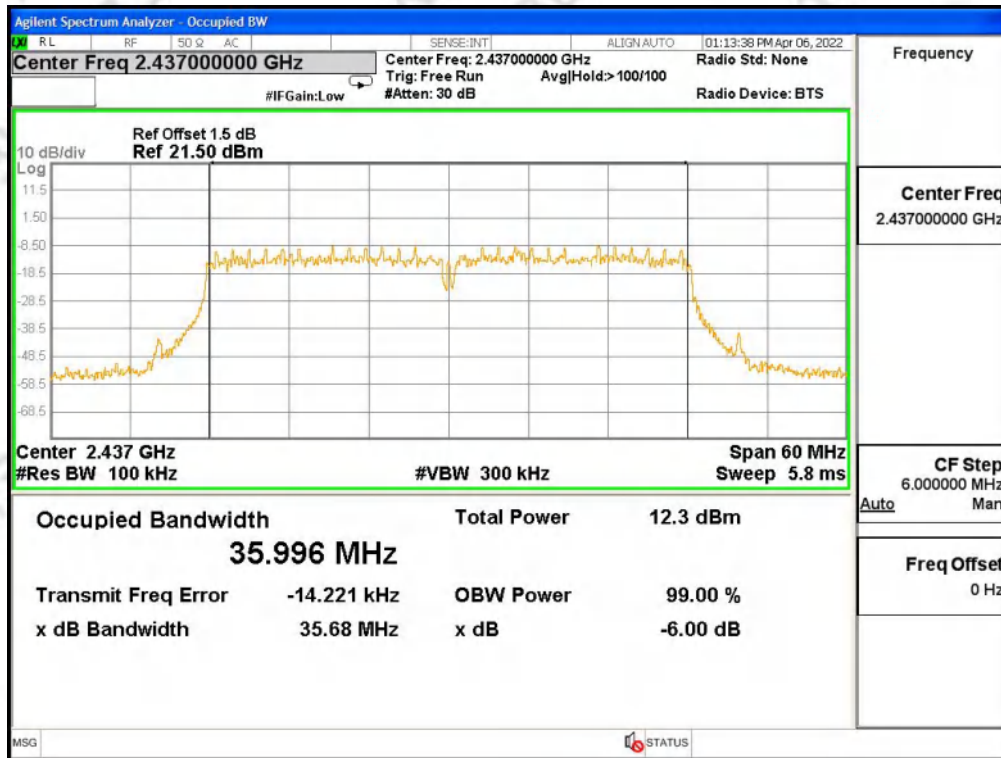
6dB Bandwidth Mode9 CH 11



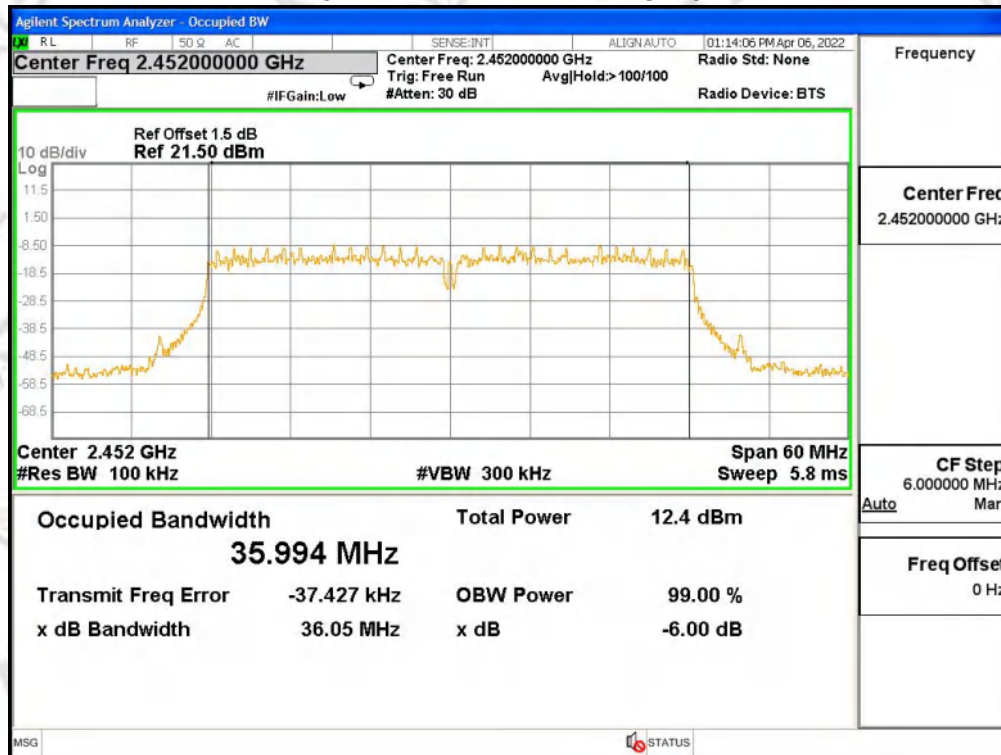
6dB Bandwidth Mode10 CH 3



6dB Bandwidth Mode11 CH 6

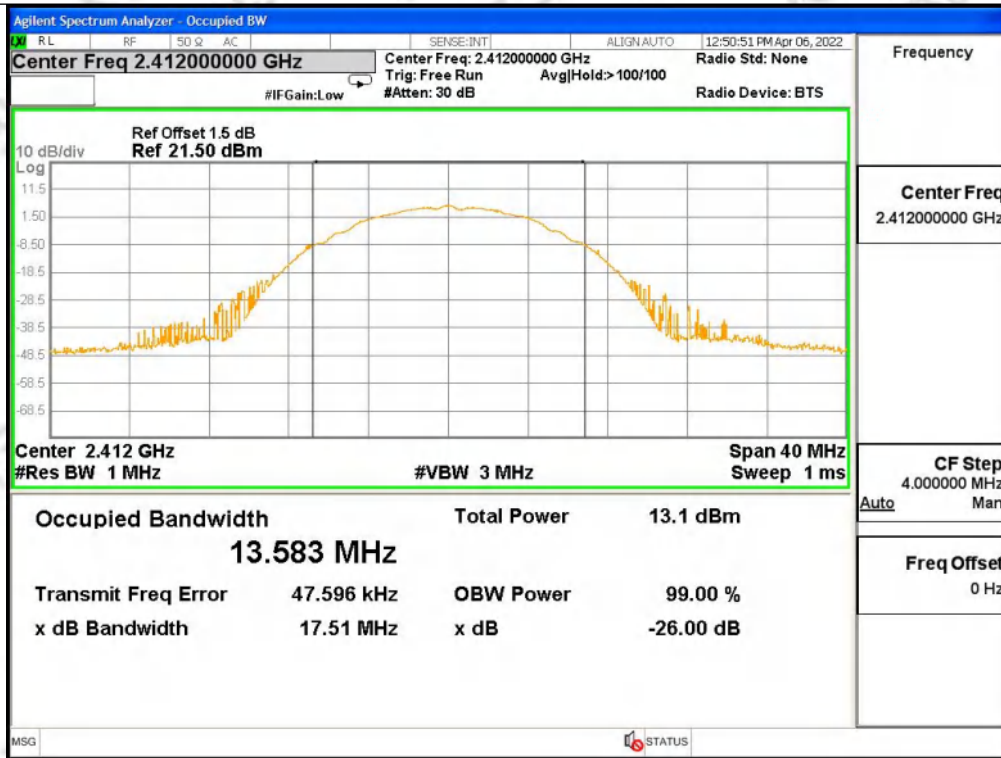


6dB Bandwidth Mode12 CH 9

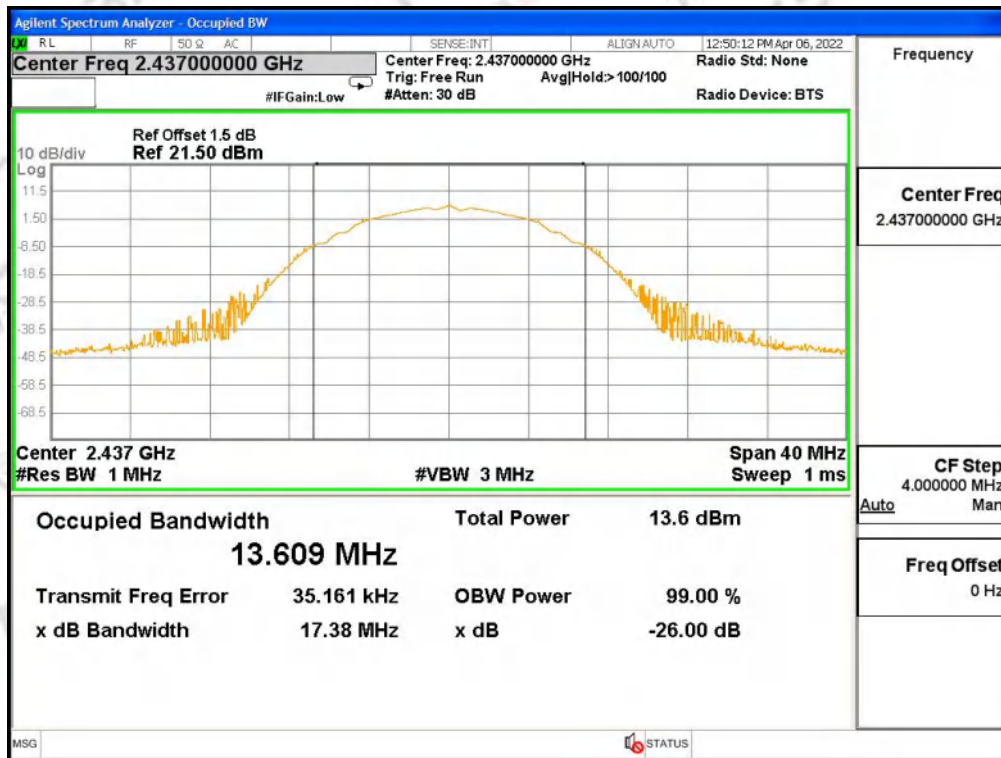




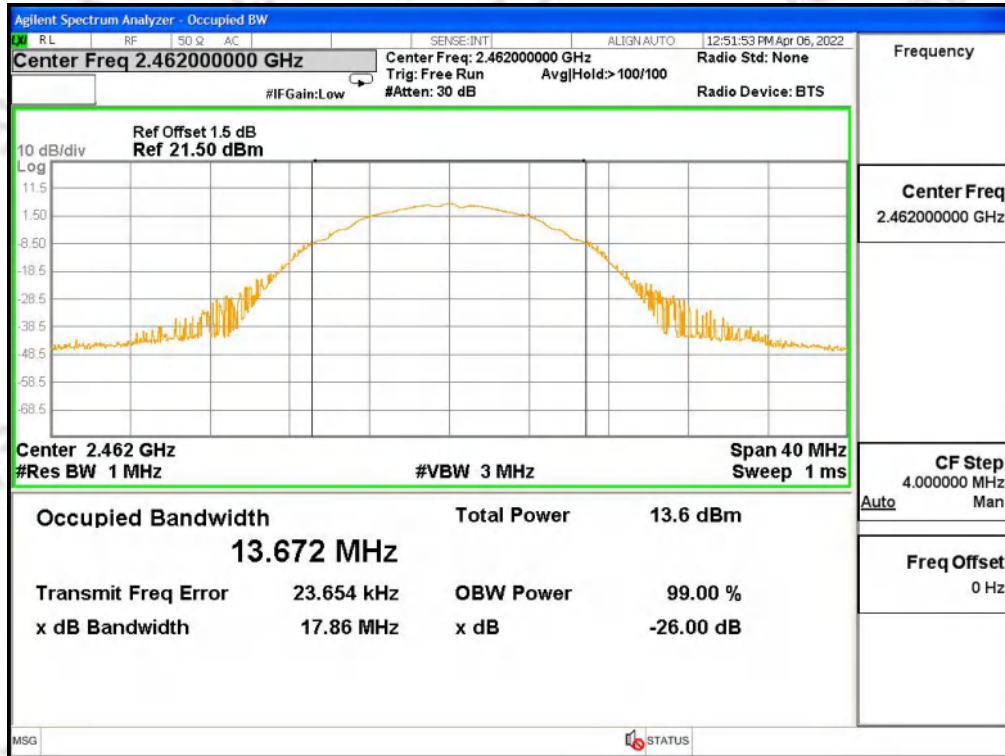
99% Bandwidth Mode1 CH 01



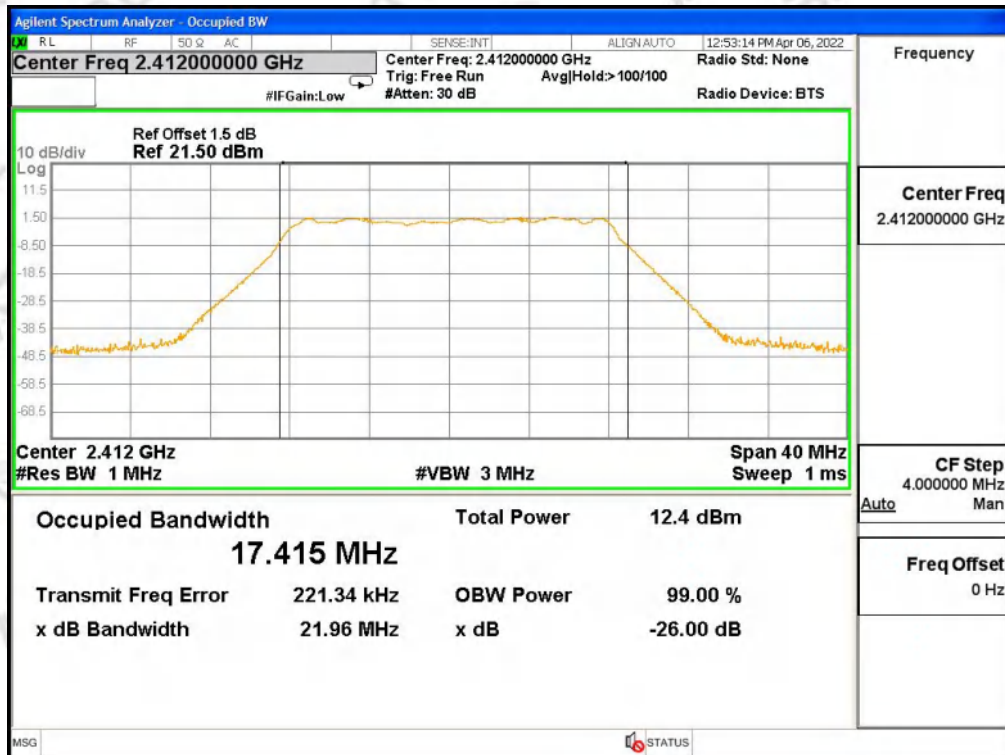
99% Bandwidth Mode2 CH 06



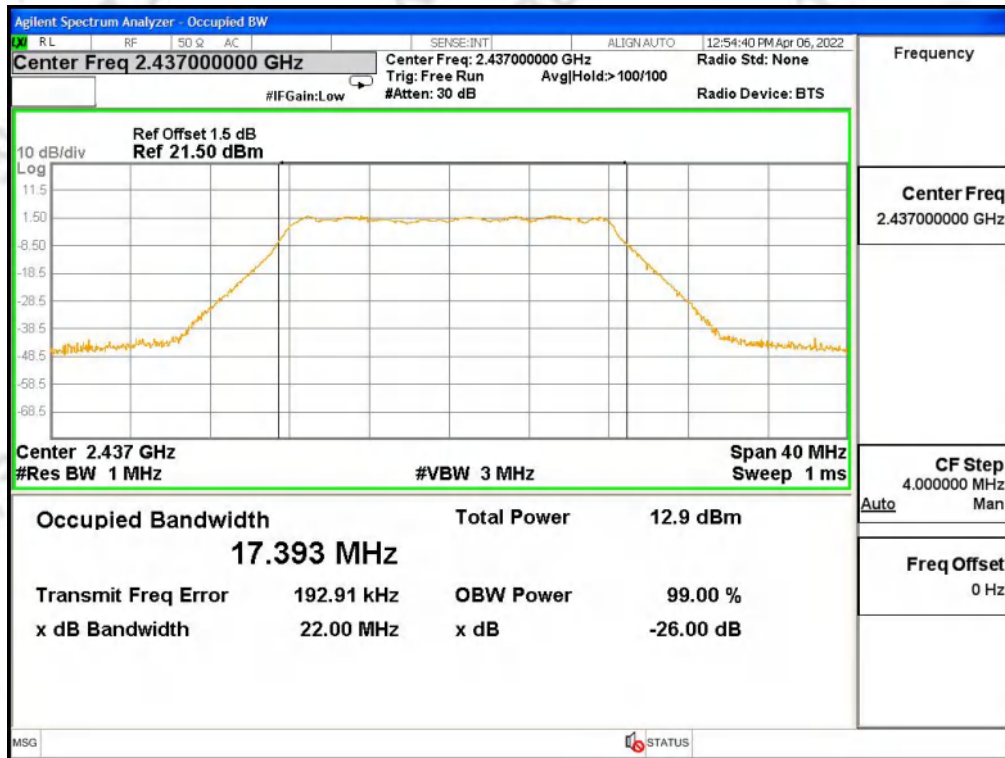
99% Bandwidth Mode3 CH 11



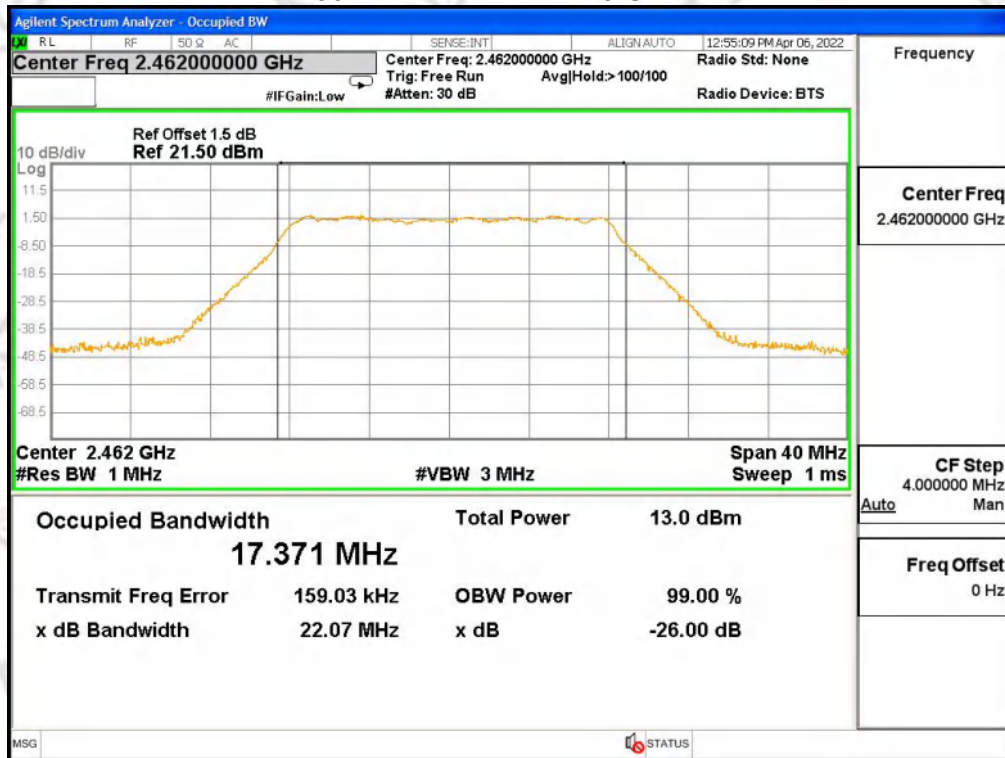
99% Bandwidth Mode4 CH 01



99% Bandwidth Mode5 CH 06

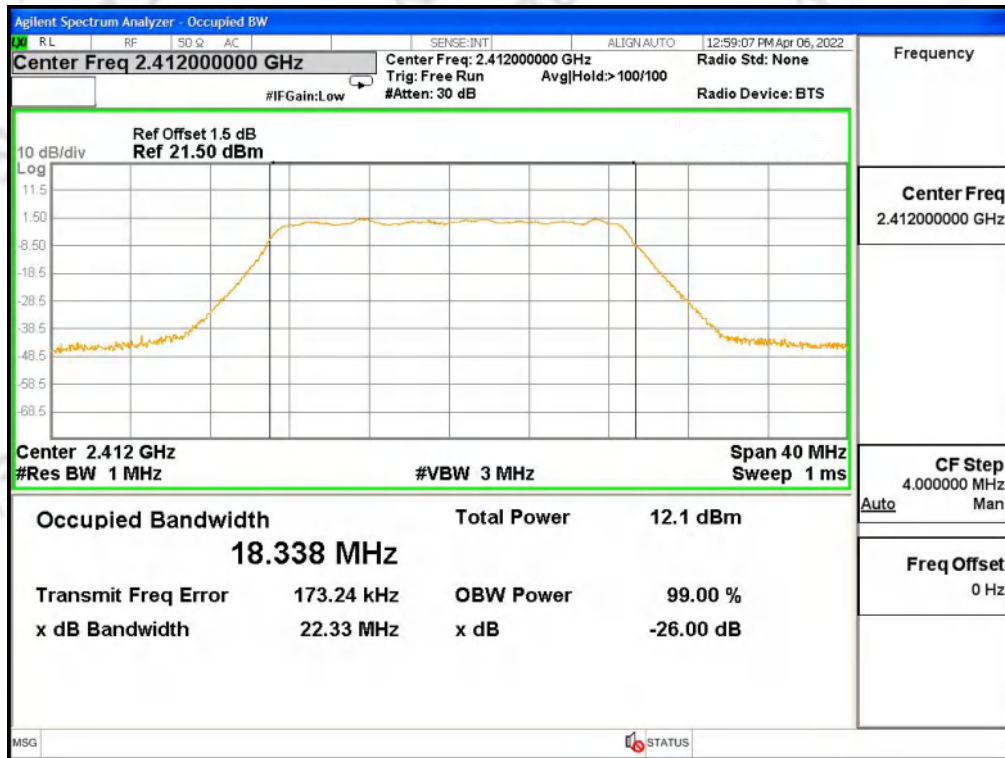


99% Bandwidth Mode6 CH 11

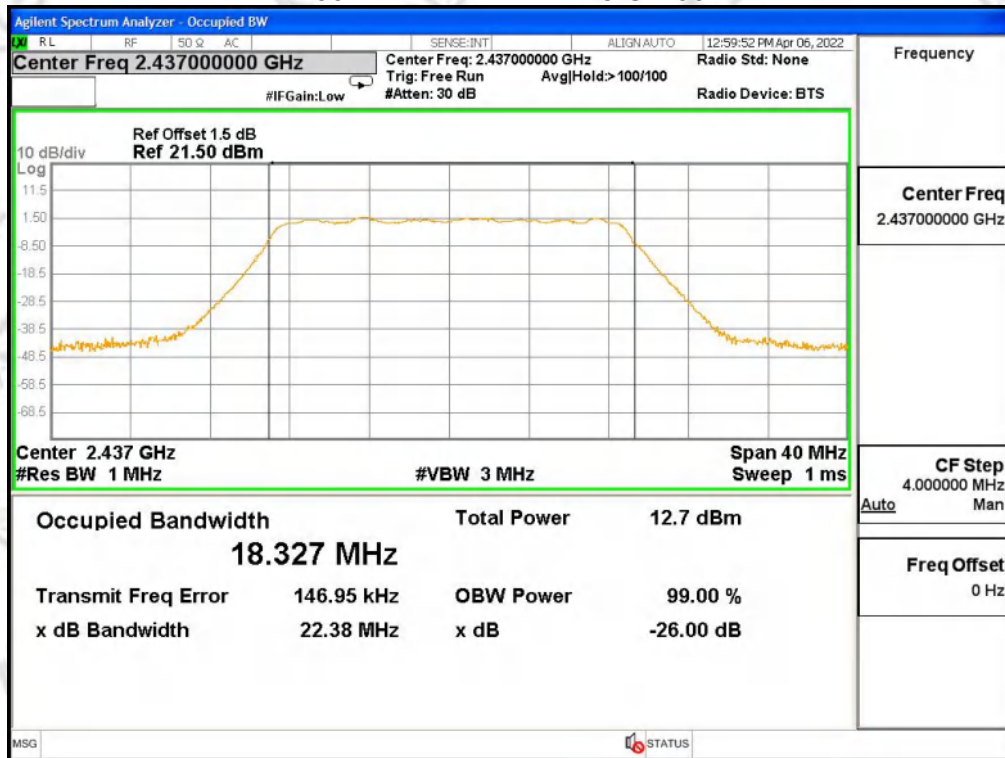




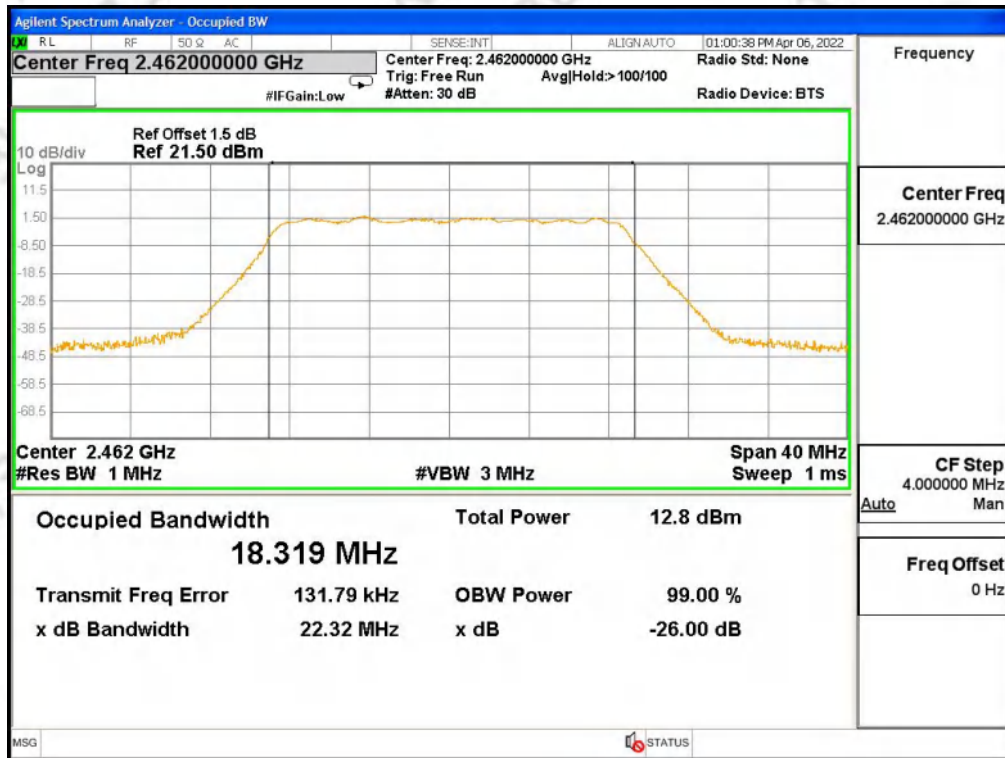
99% Bandwidth Mode7 CH 01



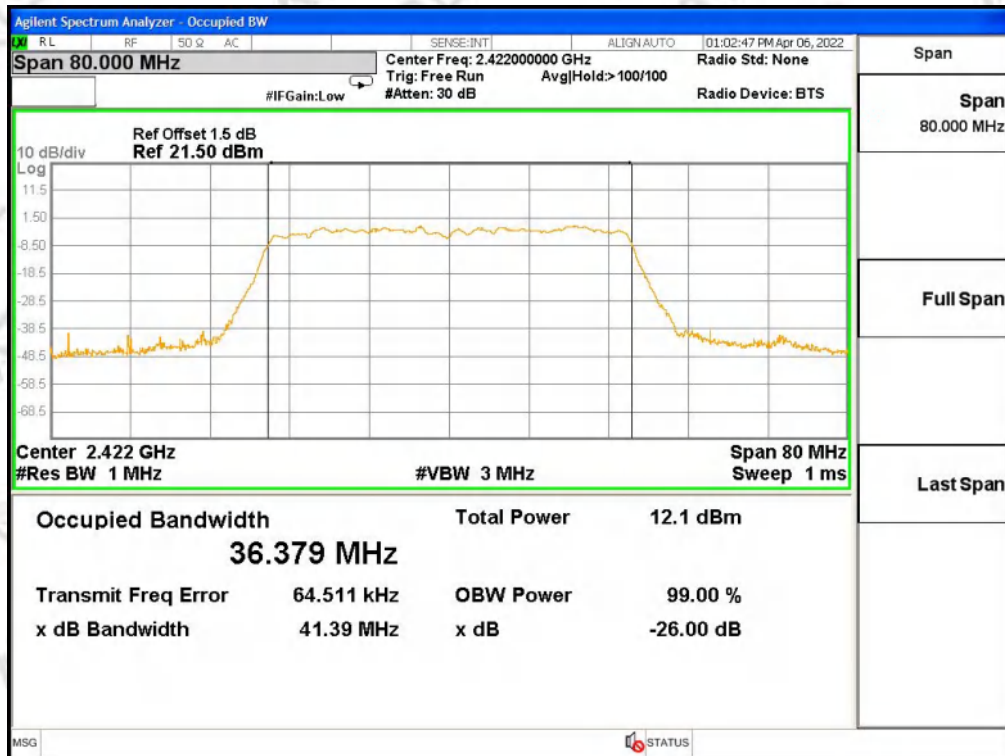
99% Bandwidth Mode8 CH 06



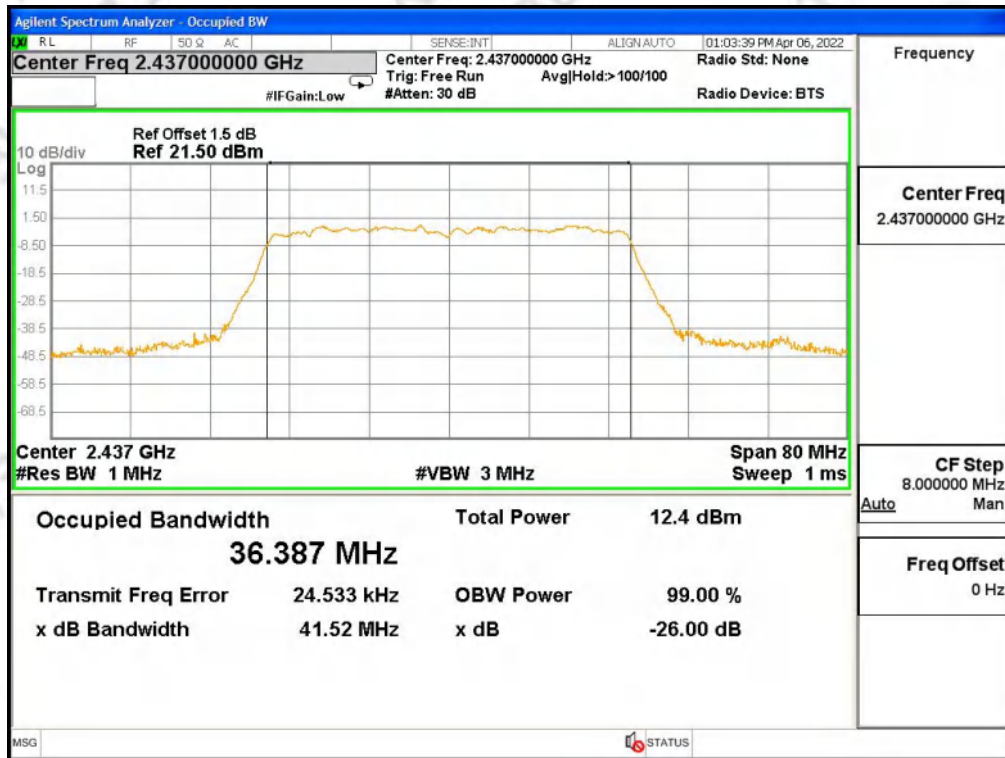
99% Bandwidth Mode9 CH 11



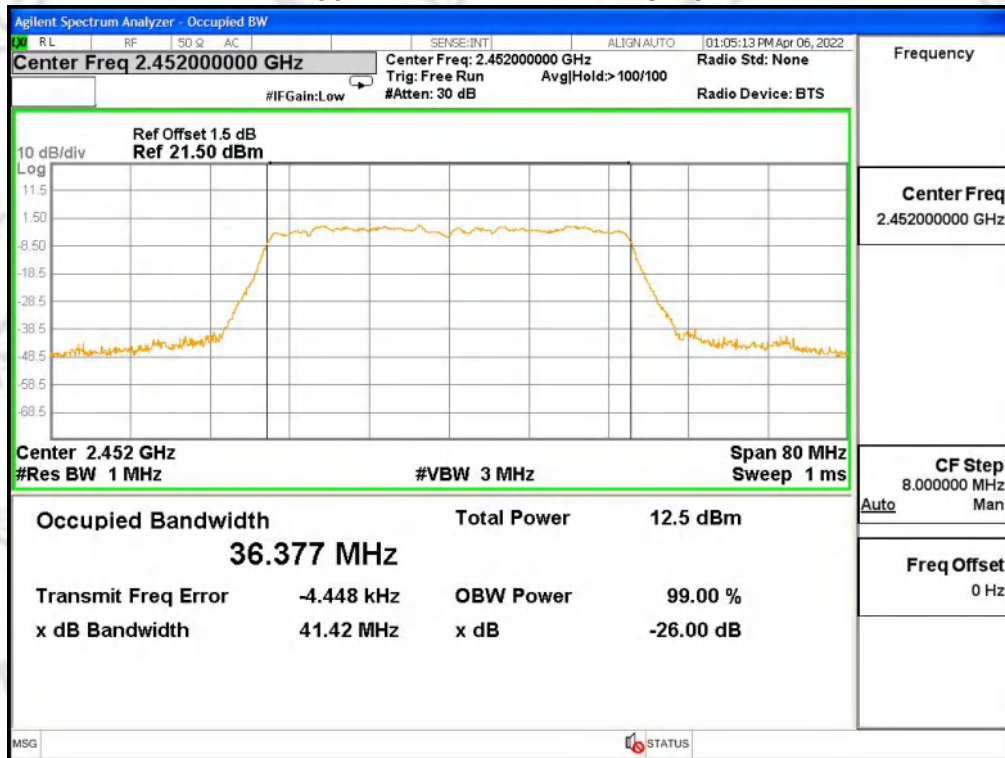
99% Bandwidth Mode10 CH 3



99% Bandwidth Mode11 CH 6



99% Bandwidth Mode12 CH 9





## 7. PEAK OUTPUT POWER TEST

### 7.1 LIMIT

FCC Part15.247				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5	PASS

### 7.2 TEST PROCEDURE

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP



### 7.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

### 7.6 TEST RESULTS

Temperature:	25°C	Relative Humidity:	60%RH
Test Voltage:	AC120V	Test Mode:	TX Mode1/2/3/4/5/6/7/8/9/10/11/12

Test mode	Test Channel	Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
		(MHz)	(dBm)	(dBm)	dBm
Mode1	CH01	2412	11.97	8.96	30
Mode2	CH06	2437	11.41	8.60	30
Mode3	CH11	2462	12.13	9.21	30
Mode4	CH01	2412	14.13	4.05	30
Mode5	CH06	2437	13.53	3.78	30
Mode6	CH11	2462	14.35	4.08	30
Mode7	CH01	2412	12.80	3.17	30
Mode8	CH06	2437	12.44	3.01	30
Mode9	CH11	2462	13.22	3.59	30

Mode10	CH03	2422	13.30	5.39	30
Mode12	CH06	2437	13.34	5.37	30
Mode12	CH09	2452	13.64	5.58	30

Test Mode	Frequency	Peak Conducted Output Power	Antenna Gain	EIRP Power	LIMIT
	(MHz)	(dBm)	(dBi)	(dBm)	dBm
Mode1	2412	11.97	2	13.97	36
Mode2	2437	11.41	2	13.41	36
Mode3	2462	12.13	2	14.13	36
Mode4	2412	14.13	2	16.13	36
Mode5	2437	13.53	2	15.53	36
Mode6	2462	14.35	2	16.35	36
Mode7	2412	12.80	2	14.8	36
Mode8	2437	12.44	2	14.44	36
Mode9	2462	13.22	2	15.22	36
Mode10	2422	13.30	2	15.3	36
Mode12	2437	13.34	2	15.34	36
Mode12	2452	13.64	2	15.64	36

Note: Our power sensor test AVG power has no duty cycle display. The power sensor measures AVG power is Burst power. The software has considered the factor of the duty cycle factor, so it is unnecessary to add it again.

## 8. ANTENNA REQUIREMENT

### 8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

### 8.2 EUT ANTENNA

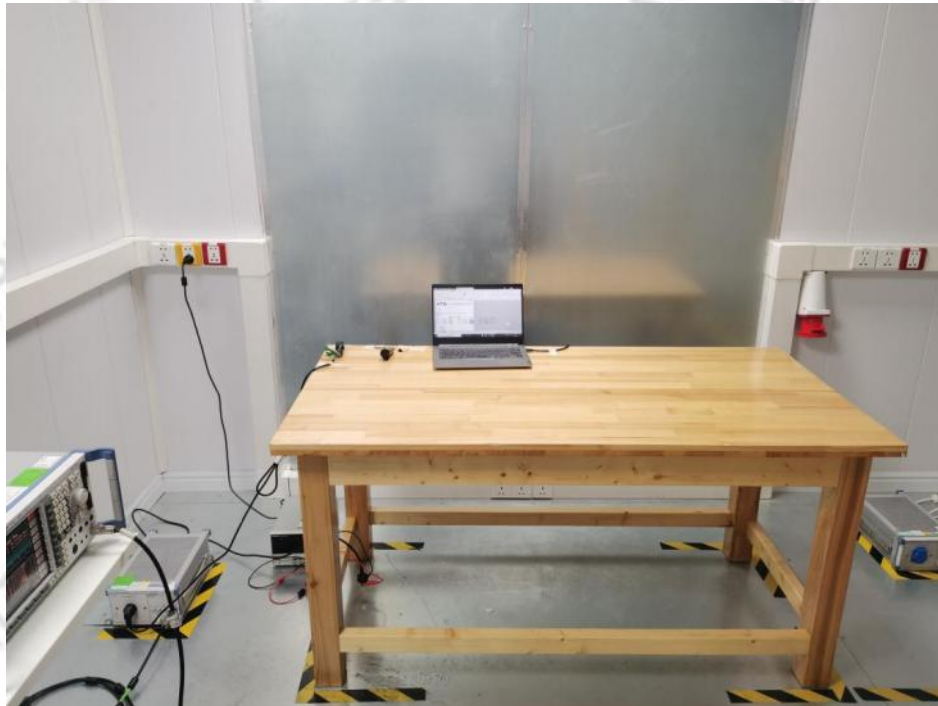
The EUT antenna is FPC. It comply with the standard requirement.

### APPENDIX-PHOTOS OF TEST SETUP

Conducted for RF

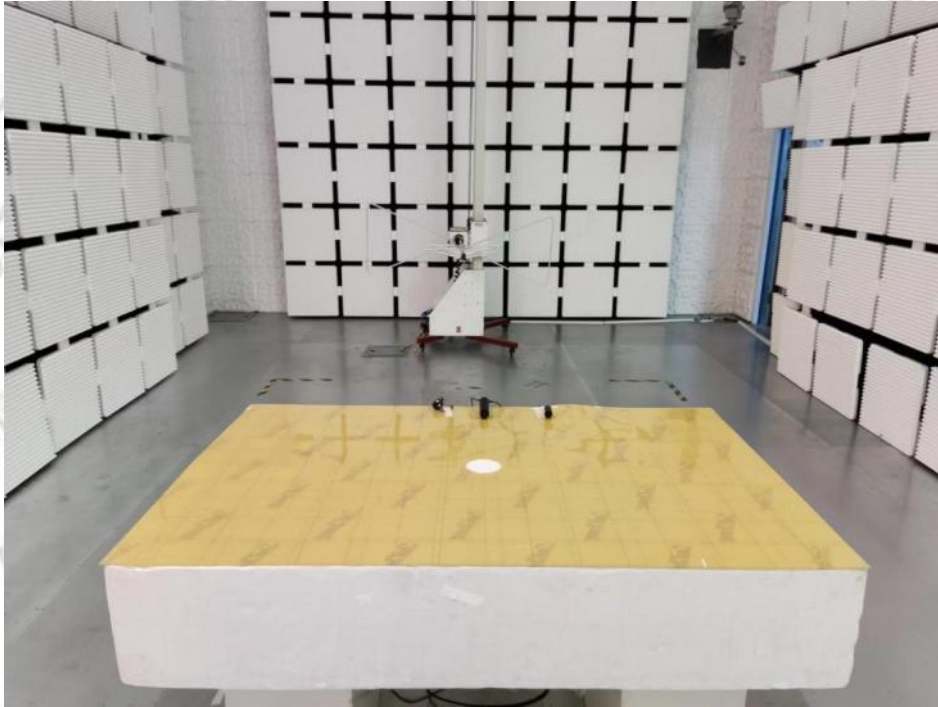


Conduction Emission

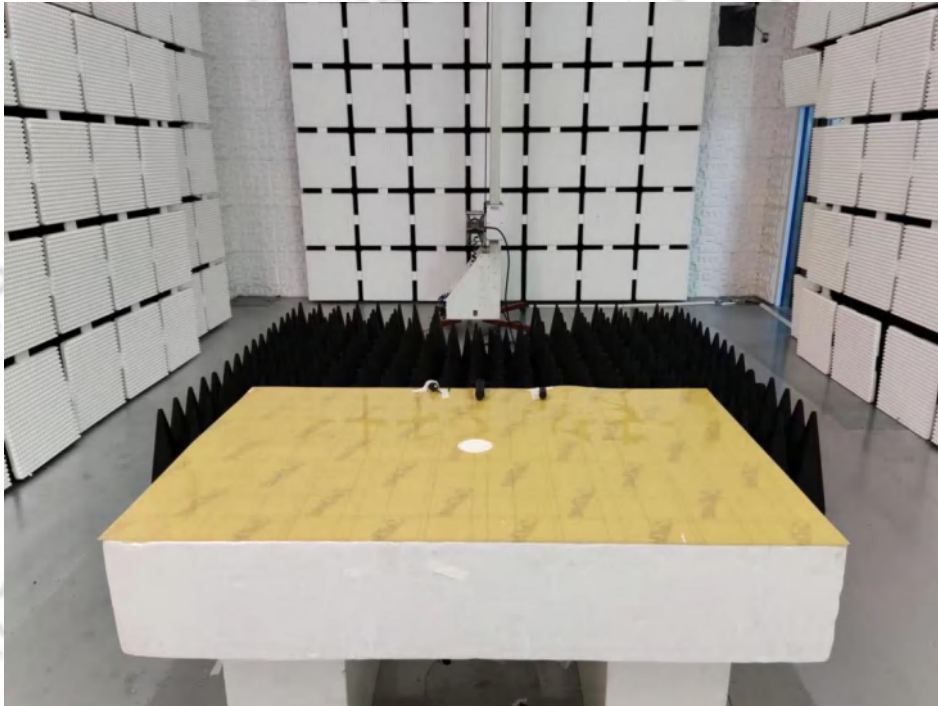




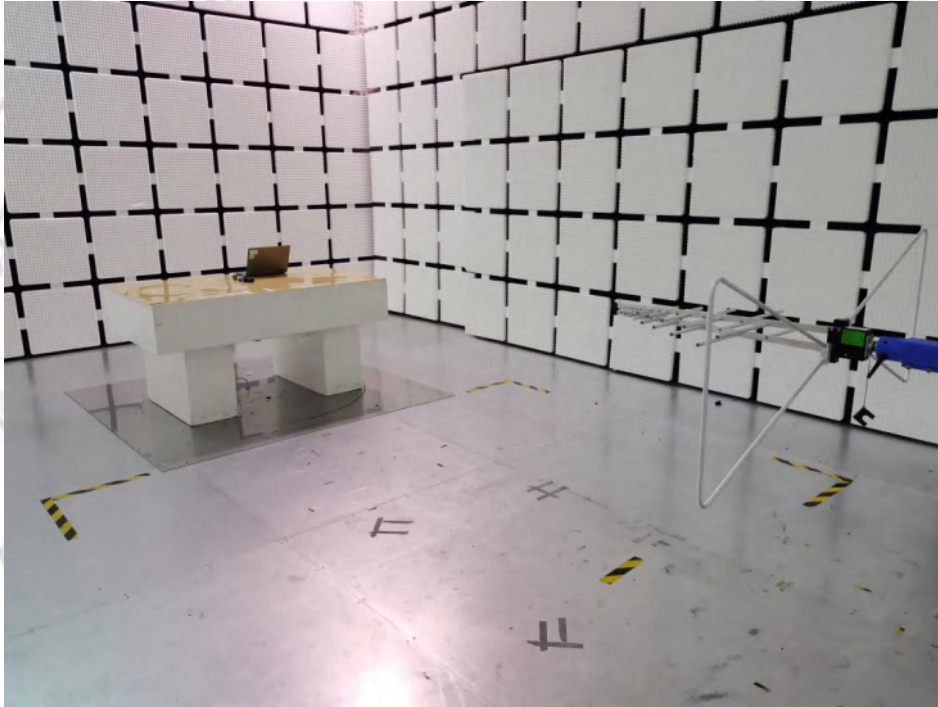
Radiation emission  
30MHz-1000MHz



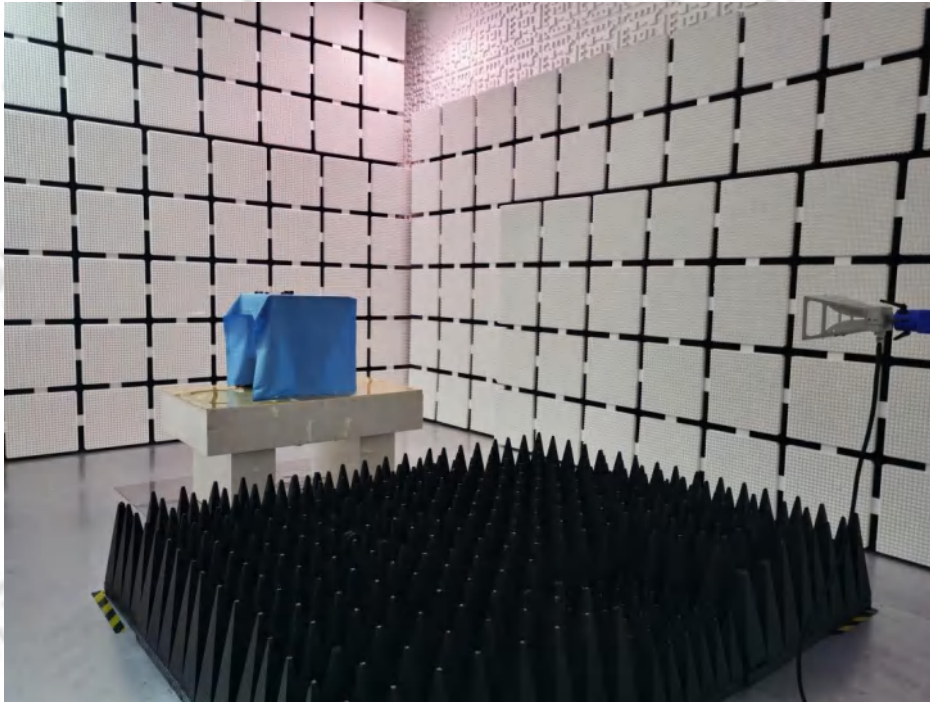
1GHz-18GHz



Radiated Spurious Emission  
30MHz-1000MHz



RSE 1GHz-18GHz



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