FCC TEST REPORT(Bluetooth)

for

Dongguan Lidi Electronic Technology Co.,Ltd

Bluetooth Audio Transmitter

Model Number : H366T

FCC ID: 2AJYKH366T

Prepared for	:	Dongguan Lidi Electronic Technology Co.,Ltd
Address	:	3F,B2 Bldg,Anda industrial Park,Amproad No.6, Youganpu village, Fenggang Town, Dongguan City China
Prepared by	:	Keyway Testing Technology Co., Ltd.
Address	:	Building 1, Baishun Industrial Zone, Zhangmutou Town, Dongguan, Guangdong, China
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Report No.	:	16KWE114706F
Date of Test	:	Nov. 14~21, 2016
Date of Report	:	Nov. 22, 2016

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Keyway Testing Technology Co., Ltd.

Applicant: **Address:**	Dongguan Lidi Electronic Technology Co.,Ltd 3F,B2 Bldg,Anda industrial Park,Amproad No.6, Youganpu village, Fenggang Town, Dongguan City China		
Manufacturer: **Address:**	Dongguan Lidi Electronic Technology Co.,Ltd 3F,B2 Bldg,Anda industrial Park,Amproad No.6, Youganpu village, Fenggang Town, Dongguan City China		
E.U.T:	Bluetooth Audio Transmitter		
Model Number:	H366T		
Trade Name:	------	**Serial No.:**	------
Date of Receipt:	Nov. 11, 2016	**Date of Test:**	Nov. 14~21, 2016
Test Specification:	FCC Part 15, Subpart C Section 15.247: 2015 ANSI C63.10:2013		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied. **Issue Date: Nov. 22, 2016**		

Tested by:	Reviewed by:	Approved by:
Keven Wu / Engineer	Mike Xu / Supervisor	Andy Gao / Supervisor

Other Aspects:

None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

1. TEST SUMMARY

Test Items	Test Requirement	Result
Conducted Emissions	15.207	PASS
Radiated Emissions	15.205(a)/15.209	PASS
20dB Bandwidth	15.247(a)(1)	PASS
Frequency Separation	15.247(a)(1)	PASS
Maximum Peak Output Power	15.247(b)(1)	PASS
Number of Hopping Frequency	15.247(a)(1)(iii)	PASS
Dwell time	15.247(a)(1)(iii)	PASS
Emissions from out of band	15.247(d)	PASS
Antenna Requirement	15.203	PASS

2.GENERAL PRODUCT INFORMATION

2.1. Product Function

Refer to Technical Construction Form and User Manual.

2.2. Description of Device (EUT)

Product Name:	Bluetooth Audio Transmitter
Model No.:	H366T
Operation Frequency:	2402MHz ~2480MHz
Channel numbers:	79 Channels
Channel spacing	1MHz
Modulation technology:	BT(1Mbps): GFSK BT EDR(2Mbps): π/4-DQPSK BT EDR(3Mbps): 8-DPSK
Bit Rate of Transmitter	1Mbps/2Mbps/3Mbps
Antenna Type:	PCB
Antenna gain:	1.2dBi
Power supply:	DC 3.7V or DC 5V from adapter

2.3. Difference between Model Numbers

None.

2.4. Independent Operation Modes

The basic operation modes are:

2.4.1. EUT work BT mode and Test mode as below:

Pretest Mode	Description
Mode 1	CH00
Mode 2	CH39
Mode 3	CH78
Mode 4	BT link

2.5. Test Supporting System

N/A

2.6. Test Facilities

Lab Qualifications : 944 Shielded Room built by ETS-Lindgren, USA
Date of completion: March 28, 2011

966 Chamber built by ETS-Lindgren, USA
Date of completion: March 28, 2011

Certificated by TUV Rheinland, Germany.
Registration No.: UA 50207153
Date of registration: July 13, 2011

Certificated by UL, USA
Registration No.: 100567-237
Date of registration: September 1, 2011

Certificated by Intertek
Registration No.: 2011-RTL-L1-31
Date of registration: October 11, 2011

Certificated by Industry Canada
Registration No.: 9868A
Date of registration: December 8, 2011

Certificated by FCC, USA
Registration No.: 370994
Date of registration: February 21, 2012

Certificated by CNAS China
Registration No.: CNAS L5783
Date of registration: August 8, 2012

Name of Firm : Keyway Testing Technology Co., Ltd.

Site Location : Building 1, Baishun Industrial Zone, Zhangmutou Town, Dongguan, Guangdong, China

2.7. List of Test and Measurement Instruments

2.7.1. For conducted emission at the mains terminals test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr. 09,16	Apr. 09,17
Artificial Mains Network	Rohde&Schwarz	ENV216	101315	Apr. 09,16	Apr. 09,17
RF Cable	FUJIKURA	3D-2W	944 Cable	Apr. 09,16	Apr. 09,17

2.7.2. For radiated emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr. 09,16	Apr. 09,17
Bilog Antenna	ETS-LINDGREEN	3142D	135452	Apr. 09,16	Apr. 09,17
Spectrum Analyzer	Agilent	E4411B	MY4511304	Apr. 09,16	Apr. 09,17
3m Semi-anechoic Chamber	ETS-LINDGREEN	966	KW01	Apr. 09,16	Apr. 09,17
Signal Amplifier	SONOMA	310	187016	Apr. 09,16	Apr. 09,17
Signal Amplifier	Agilent	8449B	3008A00251	Apr. 09,16	Apr. 09,17
RF Cable	IMRO	IMRO-400	966 Cable 1#	N/A	N/A
MULTI-DEVICE Controller	ETS-LINDGREEN	2090	126913	N/A	N/A
Horn Antenna	SCHWARZBECK	BBHA9170	9170-068	Apr. 09,16	Apr. 09,17
Spectrum Analyzer	Agilent	E4408B	MY44211125	Apr. 09,16	Apr. 09,17
High Pass filter	Micro	HPM50111	324216	Apr. 09,16	Apr. 09,17
Constant temperature and humidity box	GF	GTH-800-40-1P	MAA9906-005	Apr. 09,16	Apr. 09,17
Attenuation	MCE	24-10-34	BN9258	Apr. 02,16	Apr. 02,17
Loop Antenna	ARA	PLA-1030/B	1029	Apr. 02,16	Apr. 02,17

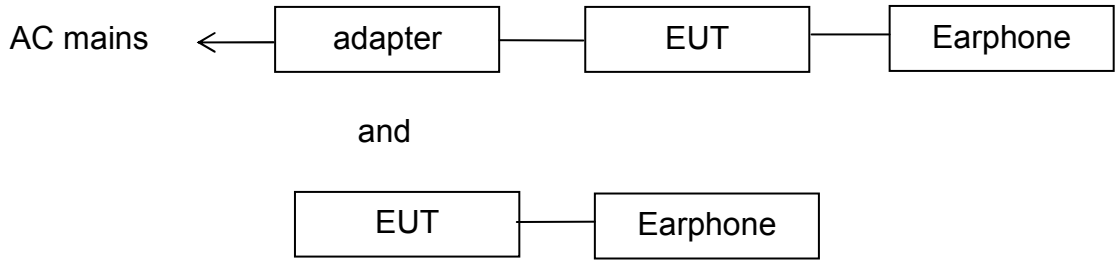
3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

3.2. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: Bluetooth Audio Transmitter)

3.3. Test Operation Mode and Test Software

None.

3.4. Special Accessories and Auxiliary Equipment

Adapter:	Model:BSY012U050200U U1USB INPUT:AC 100-240V, 50/60Hz, 0.3A OUTPUT:DC 5V/2A
Earphone:	Manufacturer:HUAWEI Unshielded, Undetachable 1.2m

3.5. Countermeasures to Achieve EMC Compliance

None.

3.6. Test Environment:

Ambient conditions in the test laboratory:

Items	Actual
Temperature (℃)	21~23
Humidity (%RH)	50~65

4. MAXIMUM PEAK OUTPUT POWER

4.1. Limits

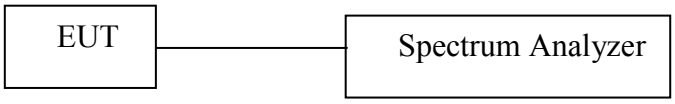
For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

4.2. Test Procedure

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below

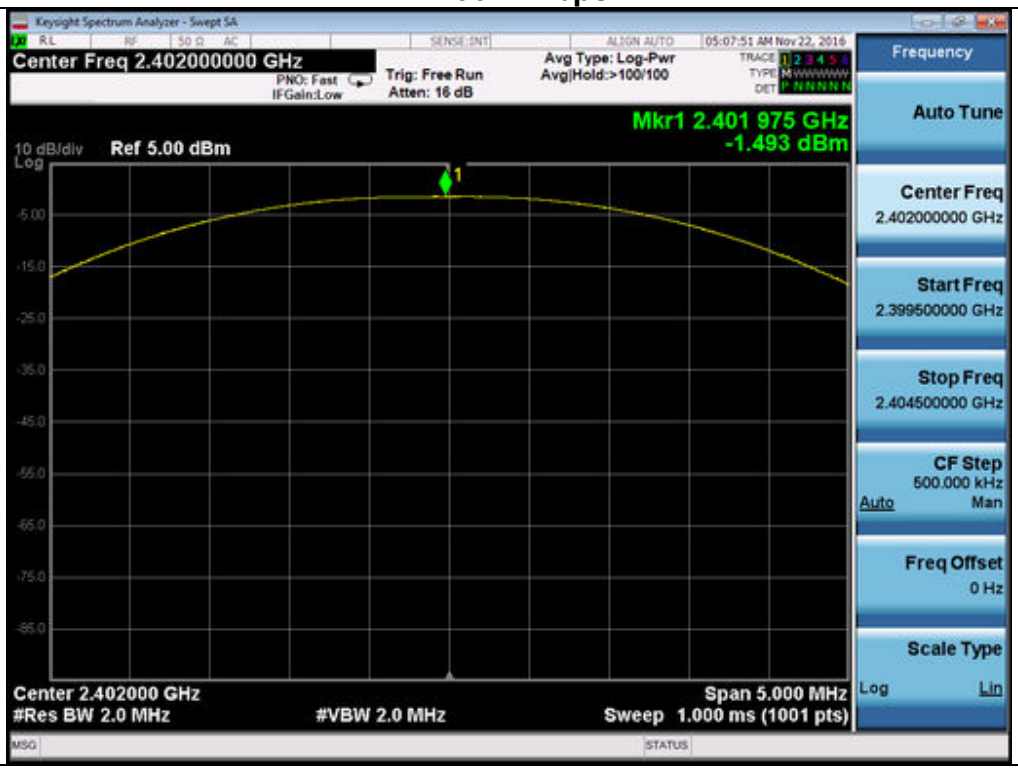
b. Spectrum Setting : RBW > the 20 dB bandwidth of the emission being measured
Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

4.3. Test setup

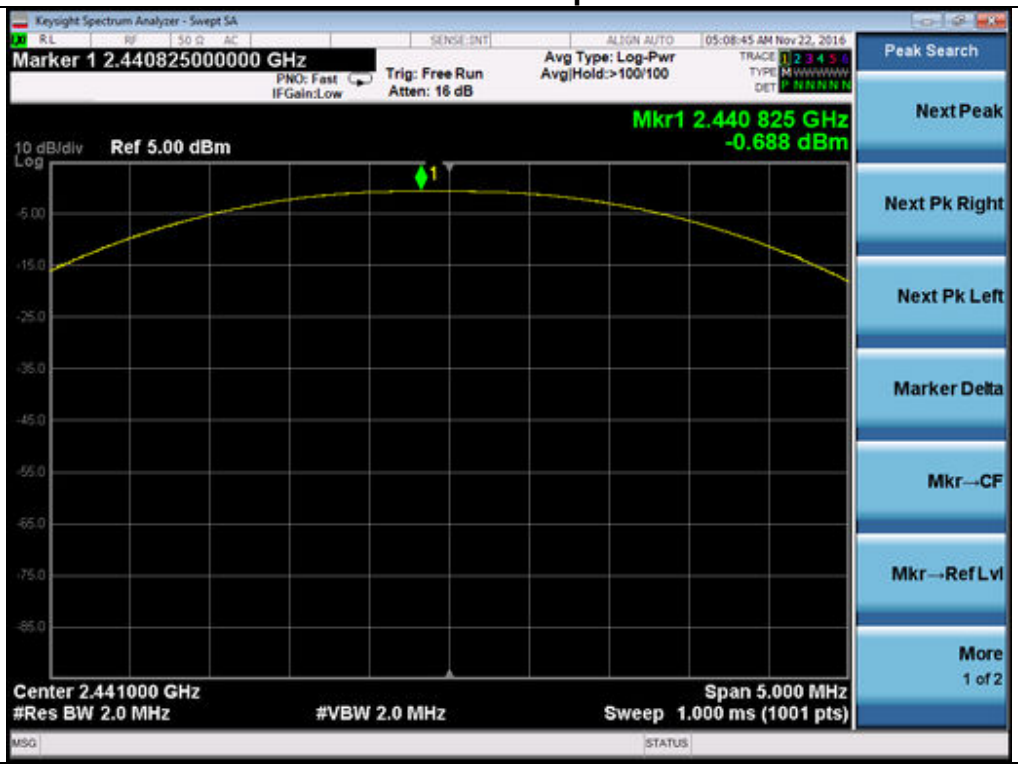


Test data			
1Mbps			
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)
CH00	2402	-1.493	30
CH39	2441	-0.688	30
CH78	2480	-0.642	30
2Mbps			
CH00	2402	-0.360	20.96
CH39	2441	-0.834	20.96
CH78	2480	-1.263	20.96
3Mbps			
CH00	2402	-0.212	20.96
CH39	2441	-0.693	20.96
CH78	2480	-0.957	20.96

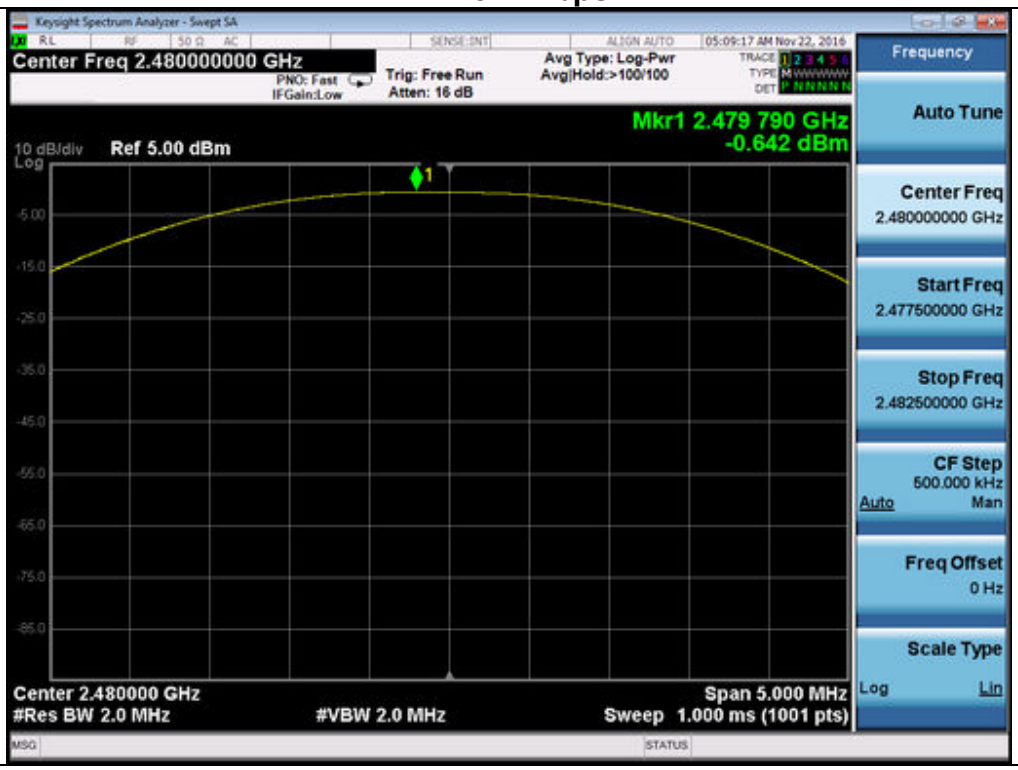
CH00 -1Mbps



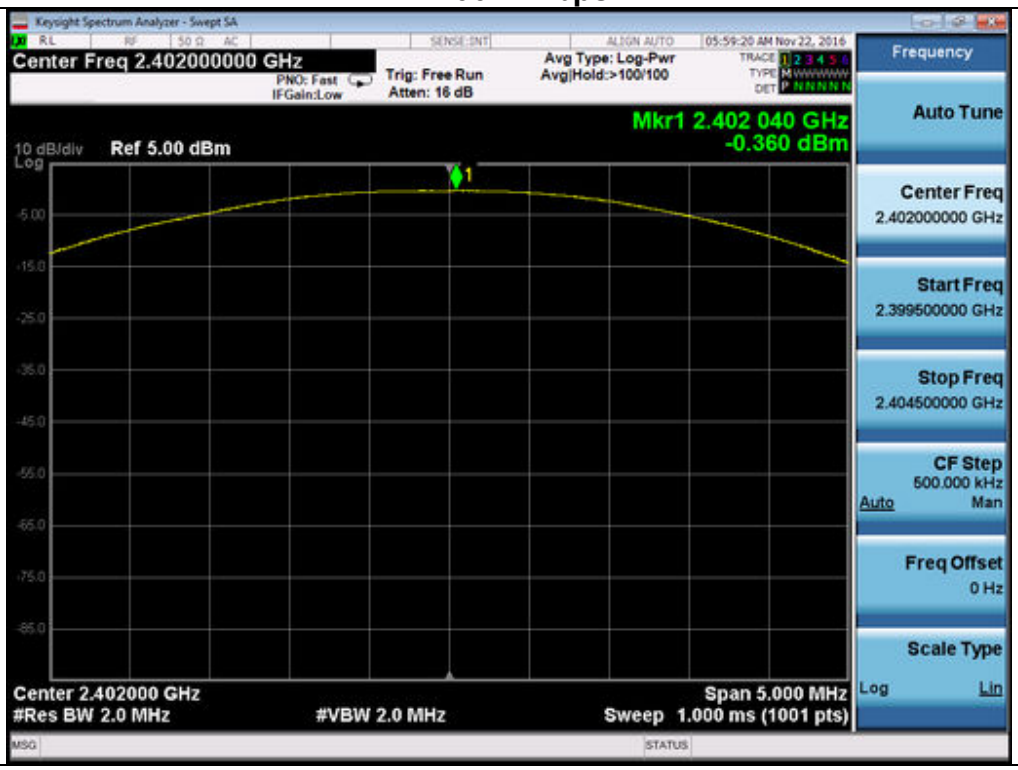
CH39 -1Mbps



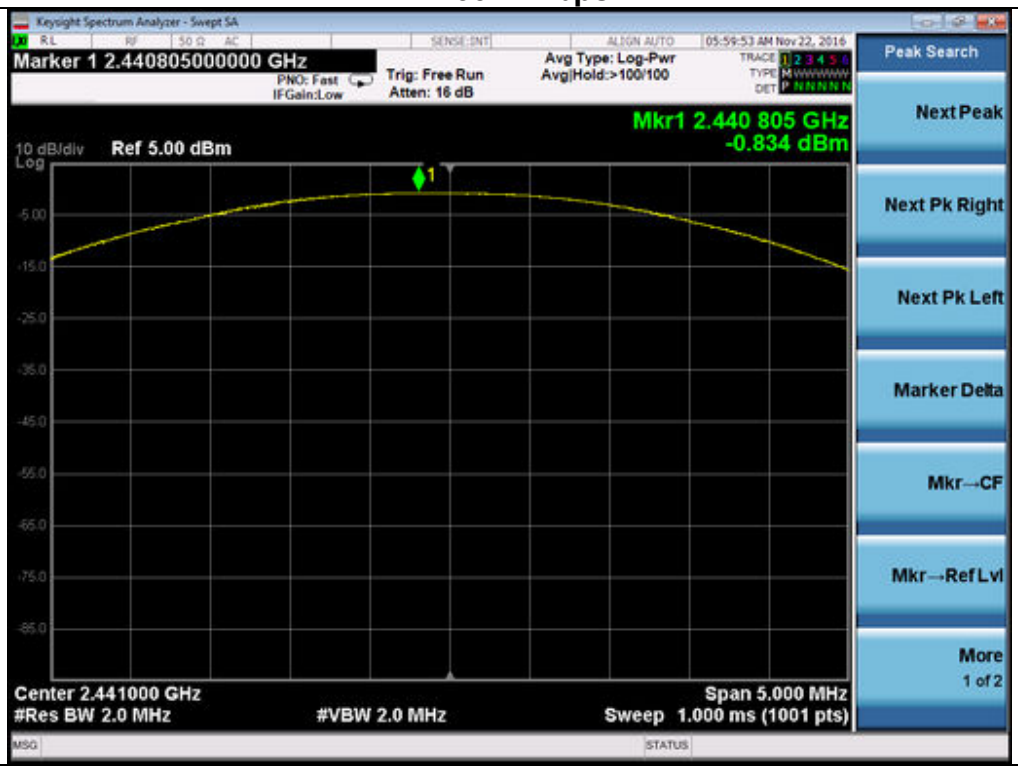
CH78 -1Mbps



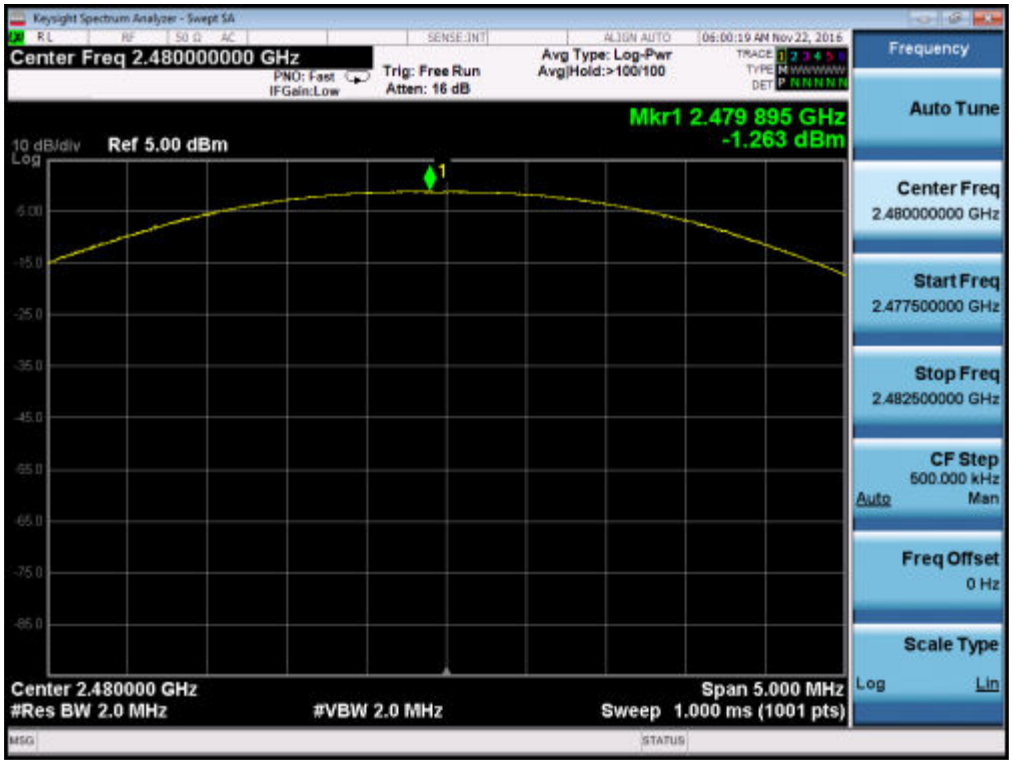
CH00 -2Mbps



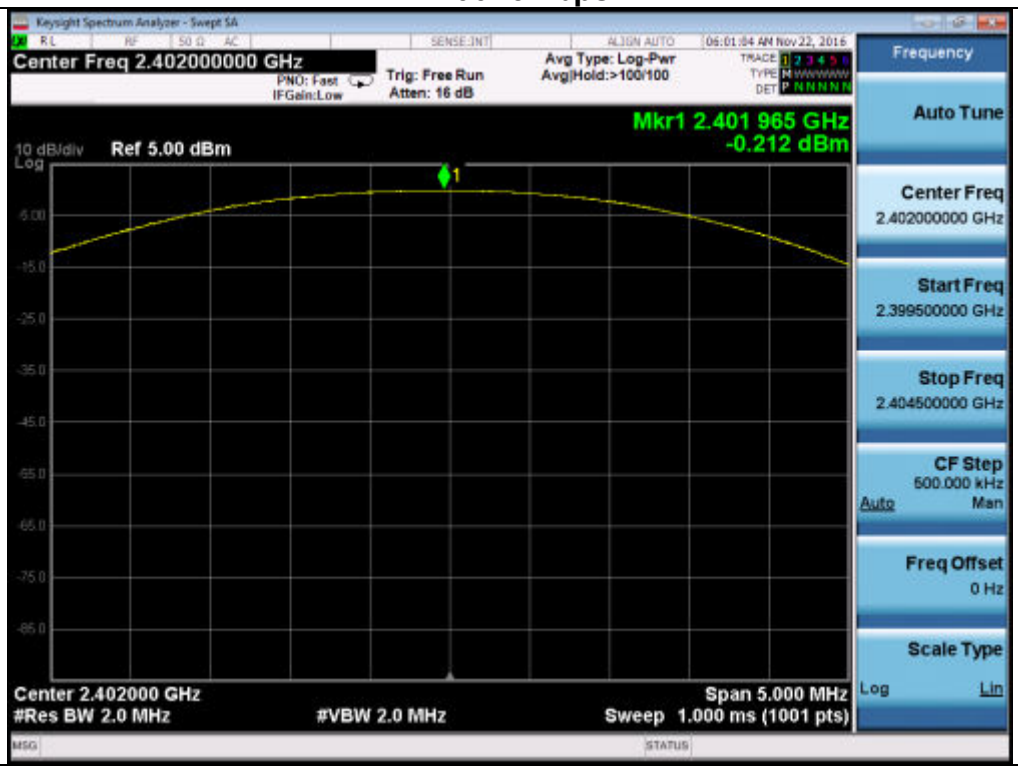
CH39 -2Mbps



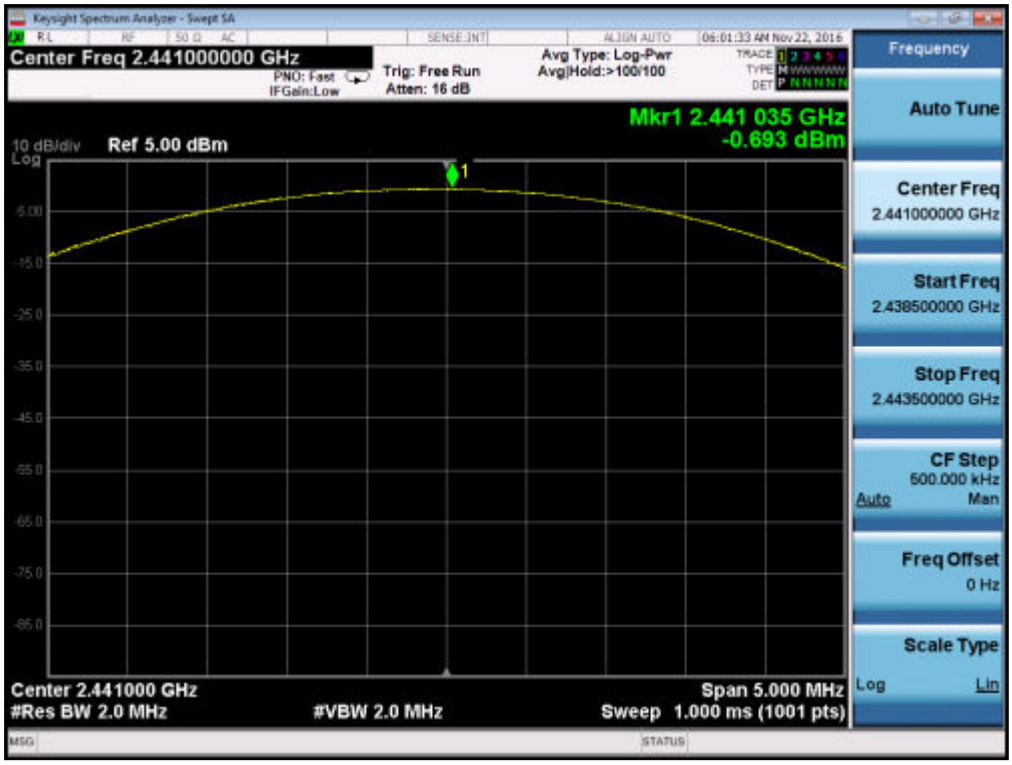
CH78 -2Mbps

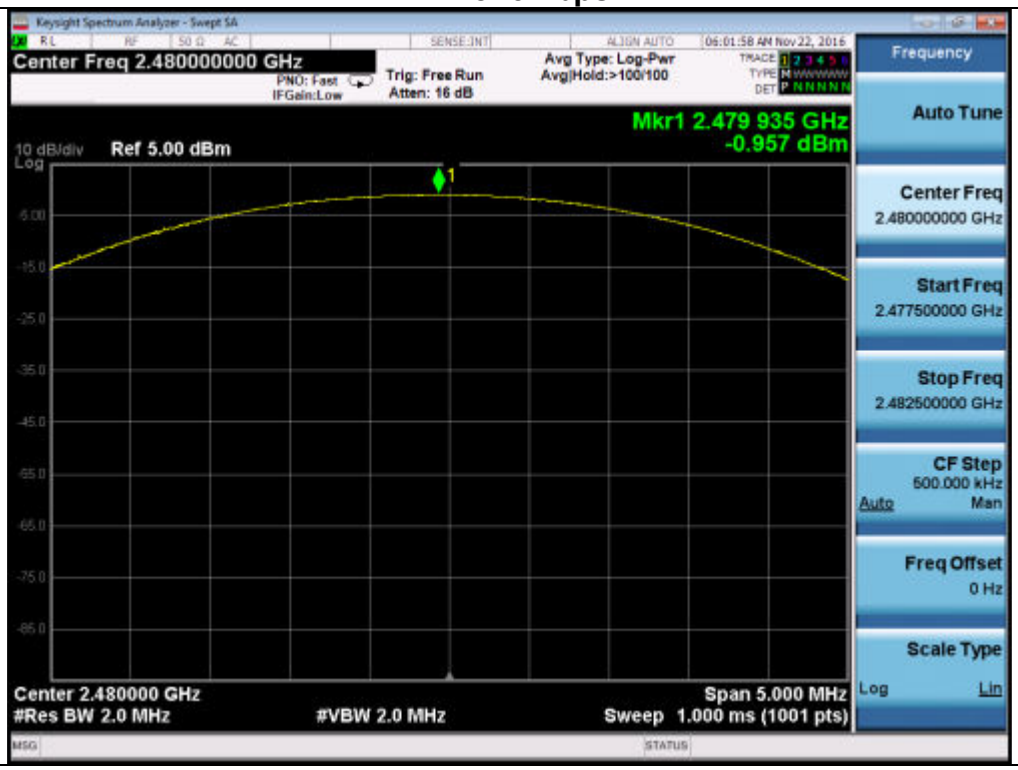


CH00 -3Mbps



CH39 -3Mbps



CH78 -3Mbps


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:01:58 AM Nov 22, 2016
Mkr1 2.479 935 GHz
-0.957 dBm
10 dB/div
Log
Ref 5.00 dBm
Center 2.480000 GHz
#Res BW 2.0 MHz
#VBW 2.0 MHz
Span 5.000 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.477500000 GHz
Stop Freq
2.482500000 GHz
CF Step
500.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

5. EMISSION TEST RESULTS

5.1. Conducted Emission at the Mains Terminals Test

5.1.1. Limit 15.207 limits

Frequency	Limit (dBuV)	
MHz	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
NOTE: 1.The lower limit shall apply at the transition frequencies. 2.The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

5.1.2. Test Setup

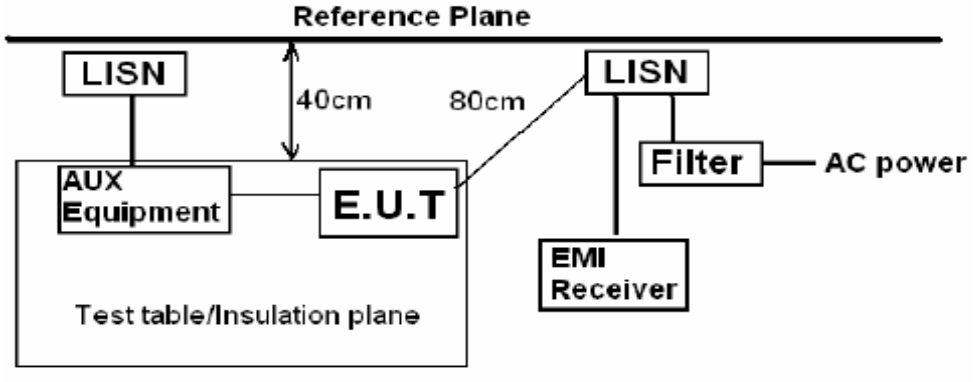
The EUT was put on a wooden table which was 0.8 m high above the ground and connected to the AC mains through the Artificial Mains Network (AMN). Where the mains cable supplied by the manufacture was longer than 0.8 m, the excess was folded back and forth parallel to the cable at the center so as to form a bundle no longer than 0.4 m.

The EUT was kept 0.4 m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during the conducted emission test.

The frequency range from 150 kHz to 30 MHz was investigated.

The bandwidth of the test receiver was set at 9 kHz.

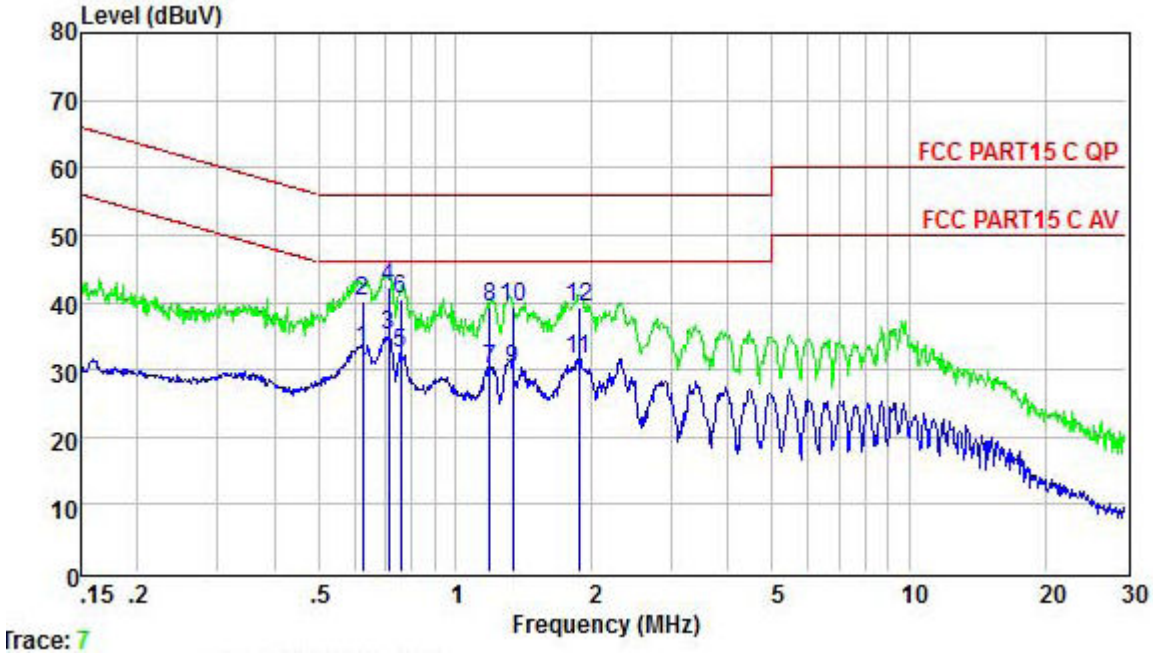
Pretest for all mode, The test data of the worst case condition(s) was reported on the following page.



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

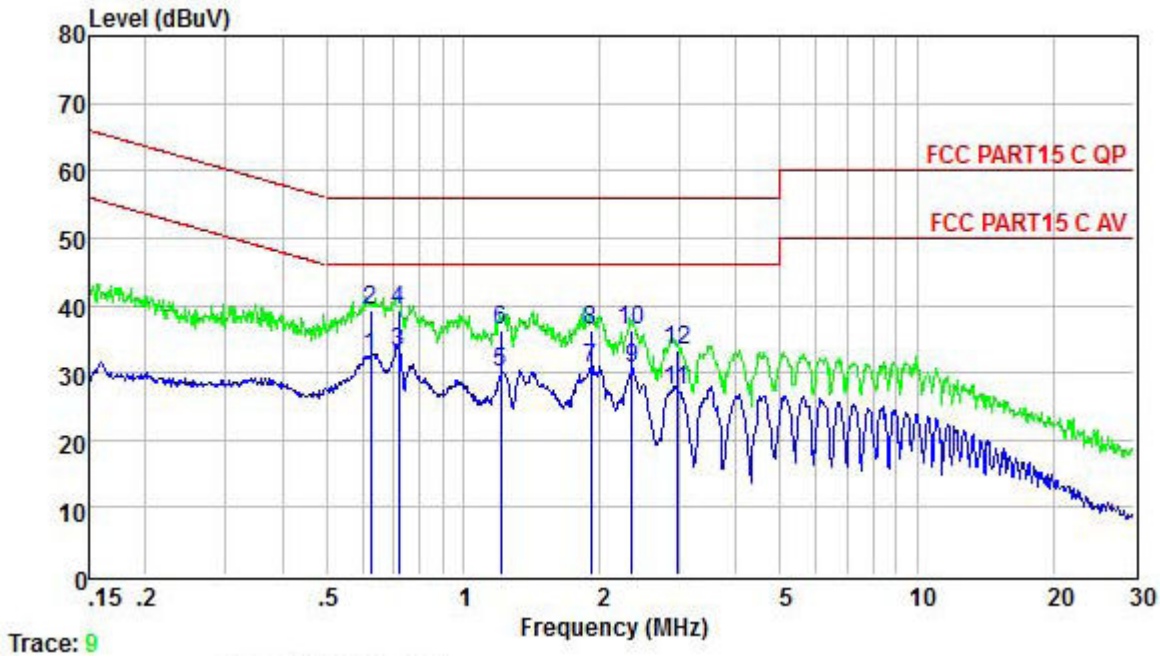
5.1.3. Test result

EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode :	Mode 4



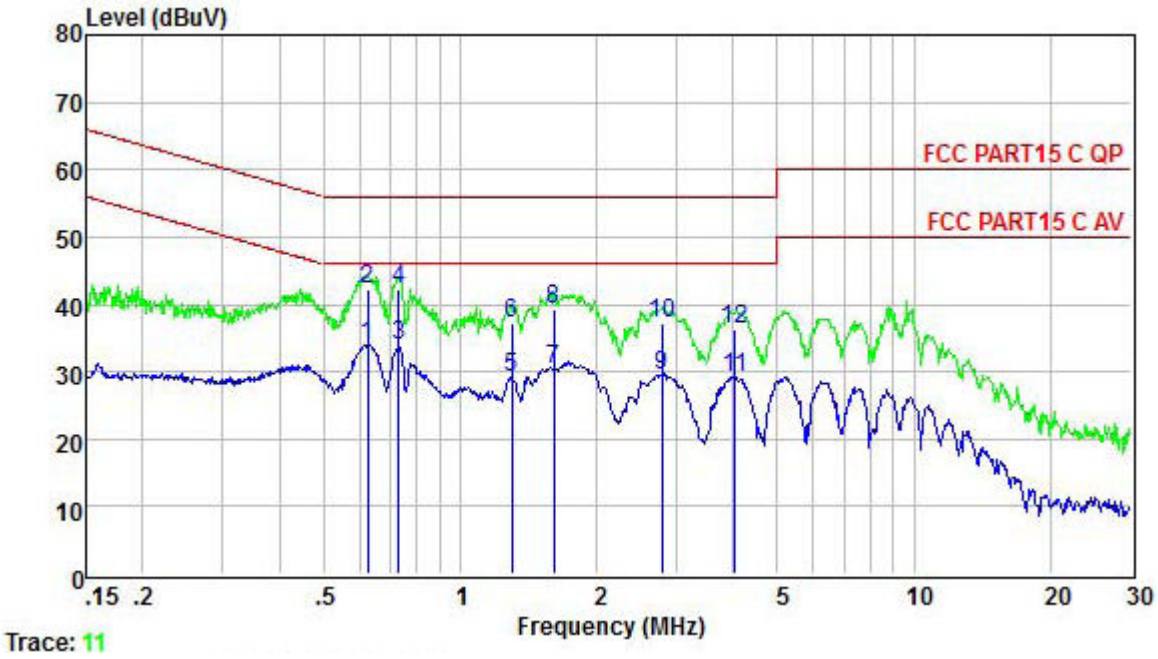
	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.627	33.10	46.00	-12.90	Average
2	0.627	40.11	56.00	-15.89	QP
3	0.716	34.95	46.00	-11.05	Average
4	0.716	42.33	56.00	-13.67	QP
5	0.759	32.34	46.00	-13.66	Average
6	0.759	40.33	56.00	-15.67	QP
7	1.191	30.10	46.00	-15.90	Average
8	1.191	39.33	56.00	-16.67	QP
9	1.338	30.16	46.00	-15.84	Average
10	1.338	39.33	56.00	-16.67	QP
11	1.878	31.53	46.00	-14.47	Average
12	1.878	39.33	56.00	-16.67	QP

EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode :	Mode 4



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.627	32.48	46.00	-13.52	Average
2	0.627	39.33	56.00	-16.67	QP
3	0.720	33.00	46.00	-13.00	Average
4	0.720	39.22	56.00	-16.78	QP
5	1.210	30.10	46.00	-15.90	Average
6	1.210	36.33	56.00	-19.67	QP
7	1.908	30.73	46.00	-15.27	Average
8	1.908	36.33	56.00	-19.67	QP
9	2.358	30.66	46.00	-15.34	Average
10	2.358	36.33	56.00	-19.67	QP
11	2.962	27.32	46.00	-18.68	Average
12	2.962	33.33	56.00	-22.67	QP

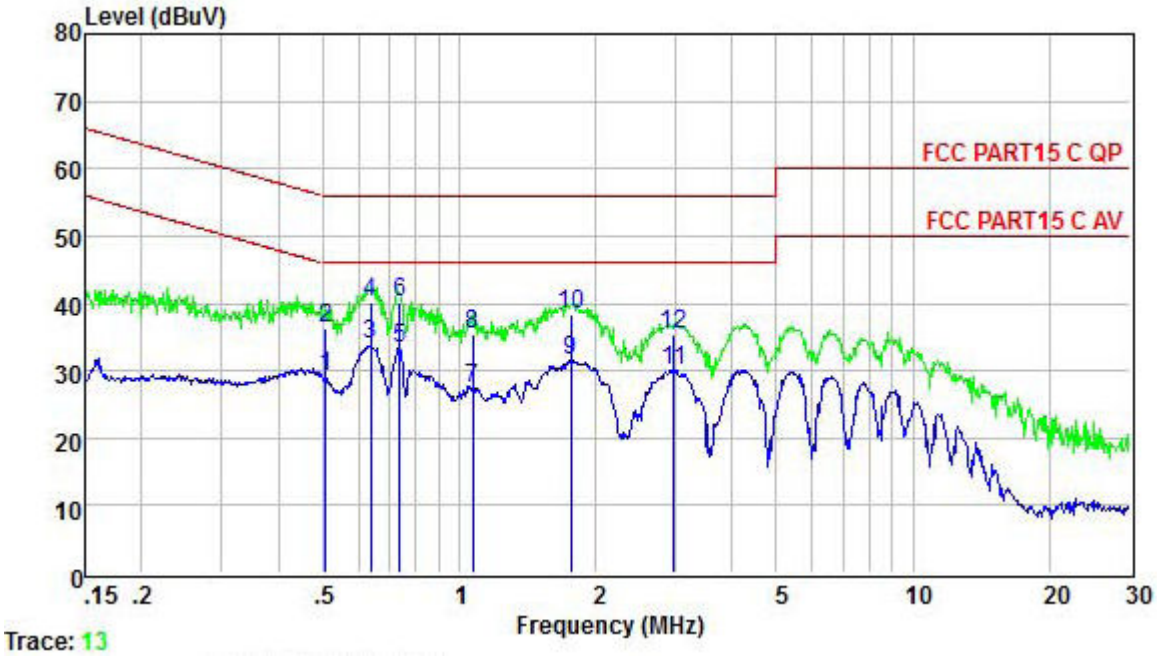
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 5.0V form Adapter AC 240V/60Hz	Test Mode：	Mode 4



Trace: 11

	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.627	33.99	46.00	-12.01	Average
2	0.627	42.25	56.00	-13.75	QP
3	0.731	33.88	46.00	-12.12	Average
4	0.731	42.25	56.00	-13.75	QP
5	1.303	29.11	46.00	-16.89	Average
6	1.303	37.25	56.00	-18.75	QP
7	1.610	30.42	46.00	-15.58	Average
8	1.610	39.25	56.00	-16.75	QP
9	2.779	29.33	46.00	-16.67	Average
10	2.779	37.25	56.00	-18.75	QP
11	4.027	29.05	46.00	-16.95	Average
12	4.027	36.25	56.00	-19.75	QP

EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode :	Mode 4



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.507	29.17	46.00	-16.83	Average
2	0.507	36.25	56.00	-19.75	QP
3	0.637	33.88	46.00	-12.12	Average
4	0.637	40.25	56.00	-15.75	QP
5	0.739	33.38	46.00	-12.62	Average
6	0.739	40.25	56.00	-15.75	QP
7	1.071	27.22	46.00	-18.78	Average
8	1.071	35.25	56.00	-20.75	QP
9	1.762	31.42	46.00	-14.58	Average
10	1.762	38.25	56.00	-17.75	QP
11	2.978	29.97	46.00	-16.03	Average
12	2.978	35.25	56.00	-20.75	QP

5.2. Radiated Emission Test

5.2.1. Limit 15.209 limits

Frequency MHZ	Distance Meters	Filed Strengths Limit	
		μV/m	dB(μV)/m
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0
Above 1000	3	74.0dB(μV)/m(Peak) 54.0dB(μV)/m(Average)	

5.2.2. Restricted bands of operation

MHz	MHz	MHz	GHz
0.009-0.110	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	
All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209,all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.			

5.2.3. Test setup

The EUT was placed on a turn table which was 0.8 m above the ground blow 1G and 1.5m above 1G. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth of the EMI test receiver is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz, the EUT was placed on a turn table which was 1.5 m above the ground, for all test, used peak detector.

The frequency range from 30MHz to 10^{th} harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

Notes: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading-Preamp Factor.

2. Measurement Uncertainty: ±3.2 dB at a level of confidence of 95%.

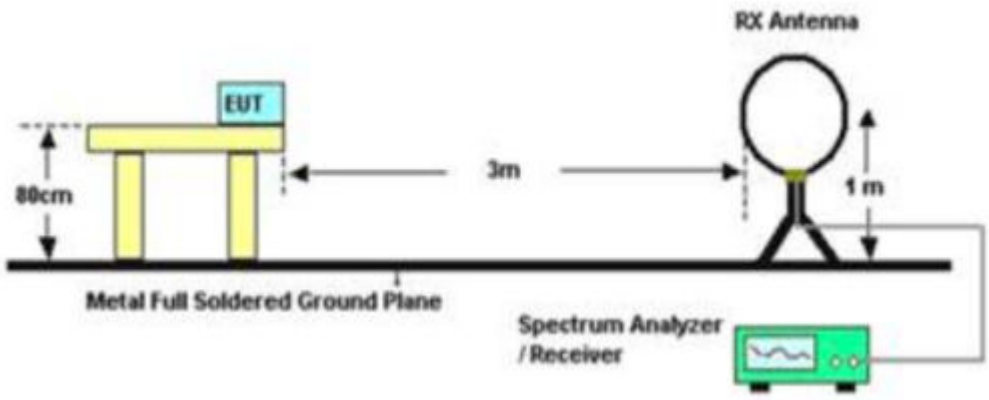
3. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

4. For emissions below 1GHz, pretest for all mode, The test data of the worst case condition(s) was reported on the following pages.

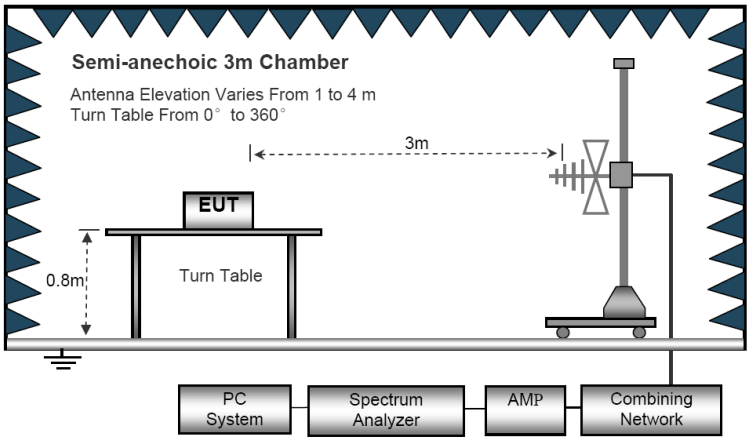
5.EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report (Z orientation).

6.We pretest all modulation, The worst was GFSK, the worst data was show in the report.

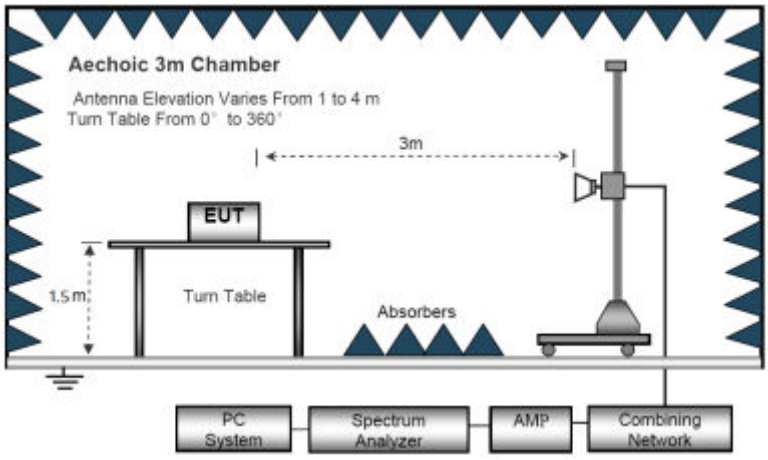
Radiated Emission Test-Up Frequency Below 30MHz



30MHz- 1GHz



Above 1GHz



EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	TX
Test Voltage ：	DC 3.7V		

Below 30MHz

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

Note:

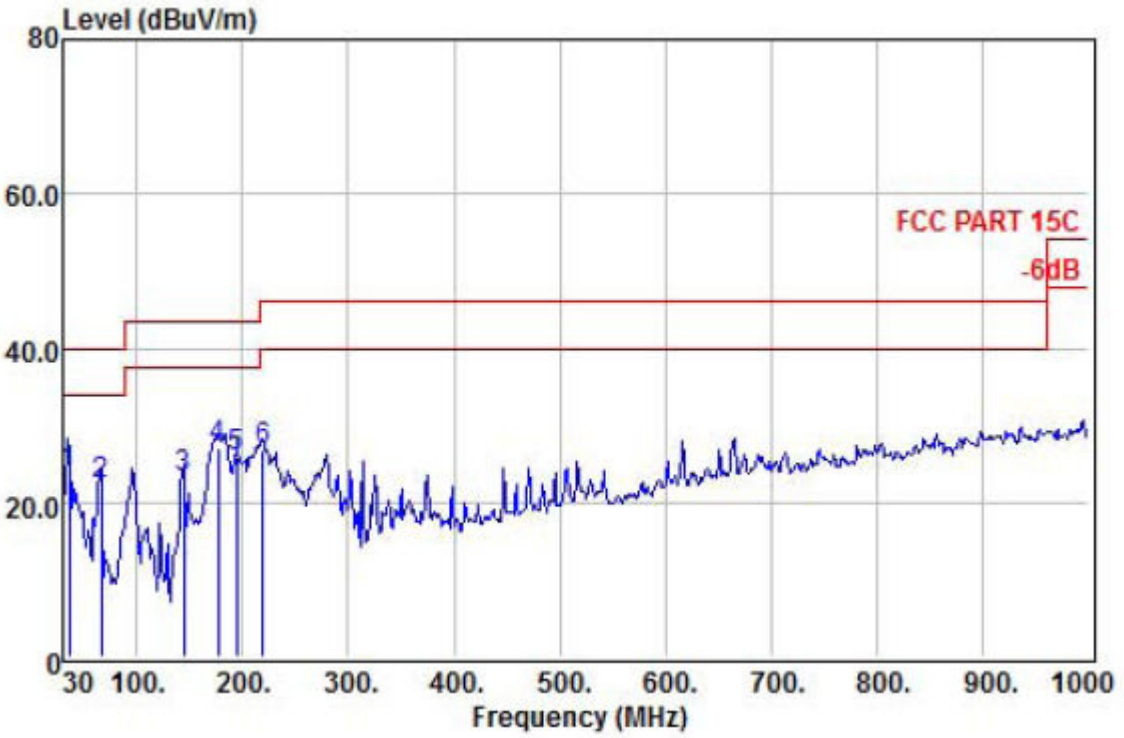
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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

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

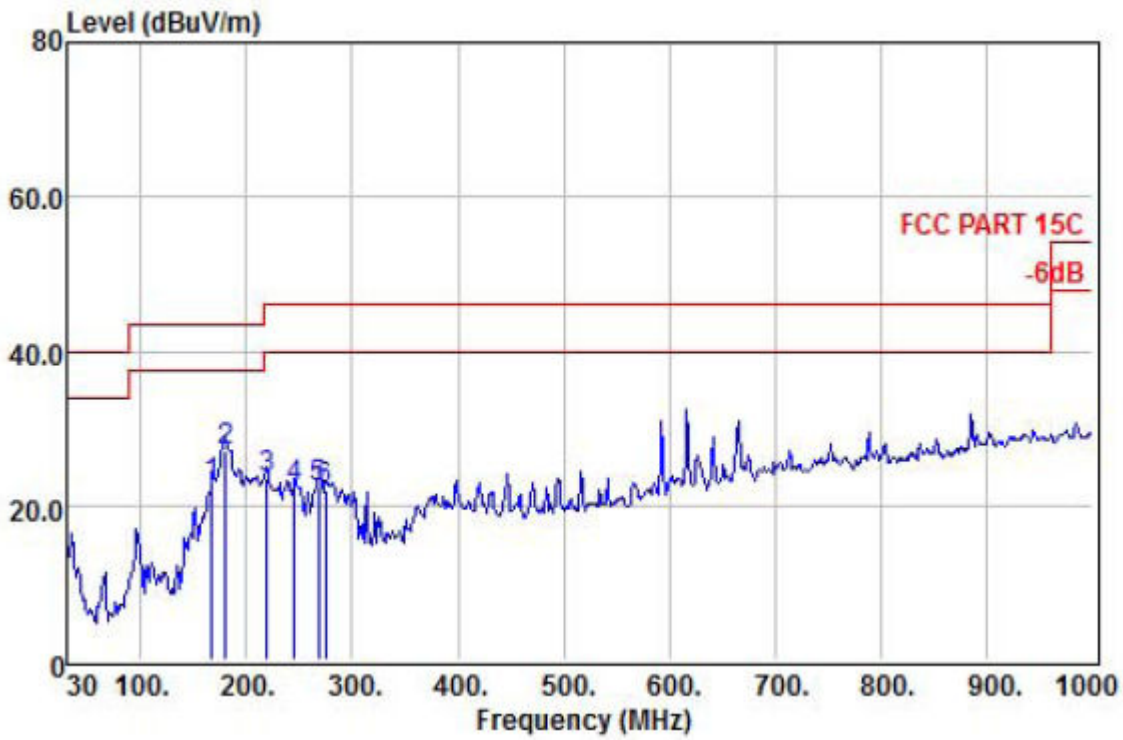
30MHz - 1GHz			
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	TX-GFSK-2480
Test Voltage ：	DC 3.7V		

Vertical



	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	35.82	31.37	39.08	0.56	15.37	23.64	40.00	-16.36	QP
2	66.86	31.31	45.40	0.85	7.44	22.38	40.00	-17.62	QP
3	144.46	31.23	44.50	1.22	8.67	23.16	43.50	-20.34	QP
4	177.44	31.17	46.64	1.39	10.32	27.18	43.50	-16.32	QP
5	194.90	31.11	45.09	1.46	10.54	25.98	43.50	-17.52	QP
6	219.15	30.99	44.18	1.53	11.92	26.64	46.00	-19.36	QP

Horizontal

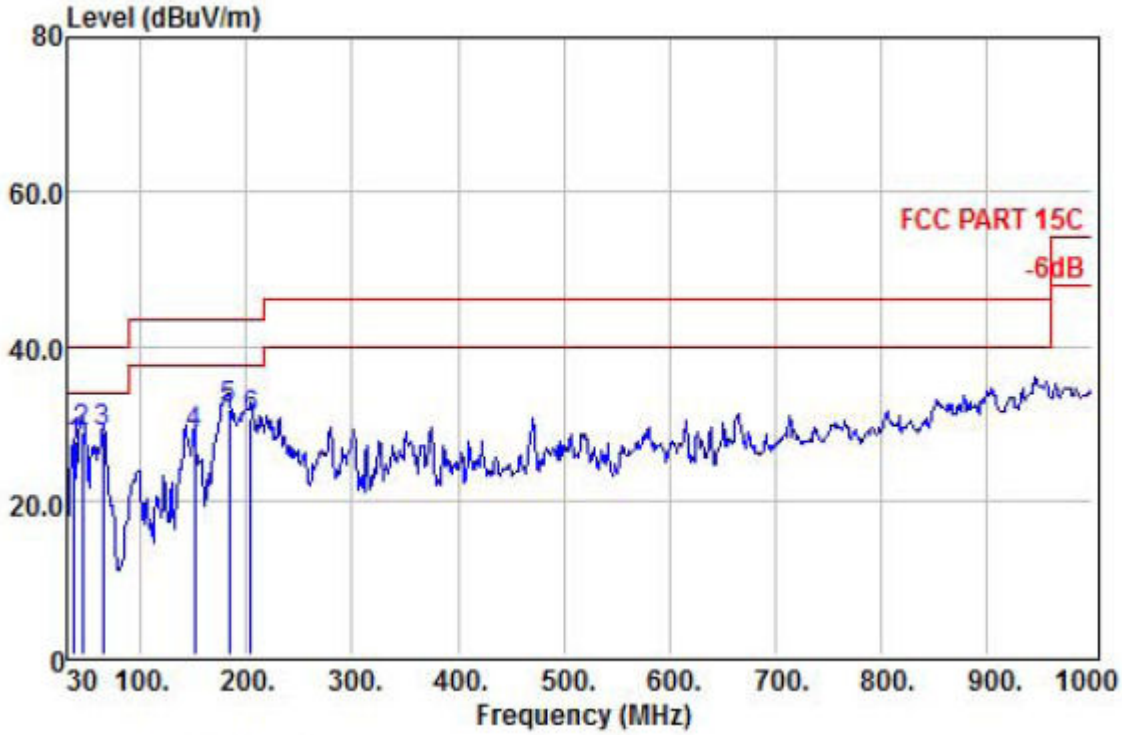


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	167.74	31.20	42.74	1.30	9.90	22.74	43.50	-20.76	QP
2	180.35	31.16	46.59	1.39	10.39	27.21	43.50	-16.29	QP
3	219.15	30.99	40.96	1.53	11.92	23.42	46.00	-22.58	QP
4	245.34	30.96	38.82	1.70	12.77	22.33	46.00	-23.67	QP
5	267.65	30.95	38.49	1.78	12.97	22.29	46.00	-23.71	QP
6	274.44	30.95	38.18	1.78	13.00	22.01	46.00	-23.99	QP

NOTE: 1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor.
2. Over Limit= Absolute Level – Limit.
3. GFSK (CH78 channel) is the worst mode, only worst data is presented in the report.

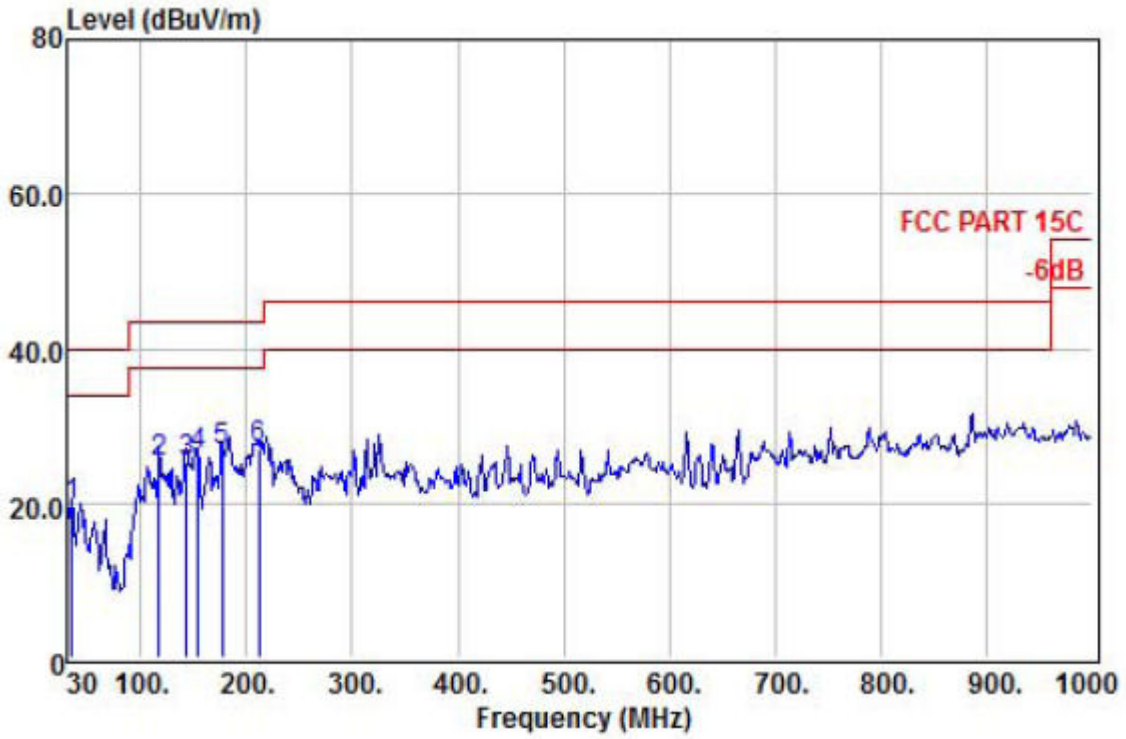
30MHz - 1GHz			
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	TX-Pi/4-DQPSK-2402
Test Voltage ：	DC 3.7V		

Vertical



	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	36.79	31.36	42.96	0.56	14.79	26.95	40.00	-13.05	QP
2	44.55	31.40	48.69	0.56	11.03	28.88	40.00	-11.12	QP
3	63.95	31.32	51.90	0.75	7.38	28.71	40.00	-11.29	QP
4	151.25	31.25	49.67	1.22	9.02	28.66	43.50	-14.84	QP
5	183.26	31.15	51.41	1.39	10.30	31.95	43.50	-11.55	QP
6	203.63	31.09	49.23	1.46	11.17	30.77	43.50	-12.73	QP

Horizontal

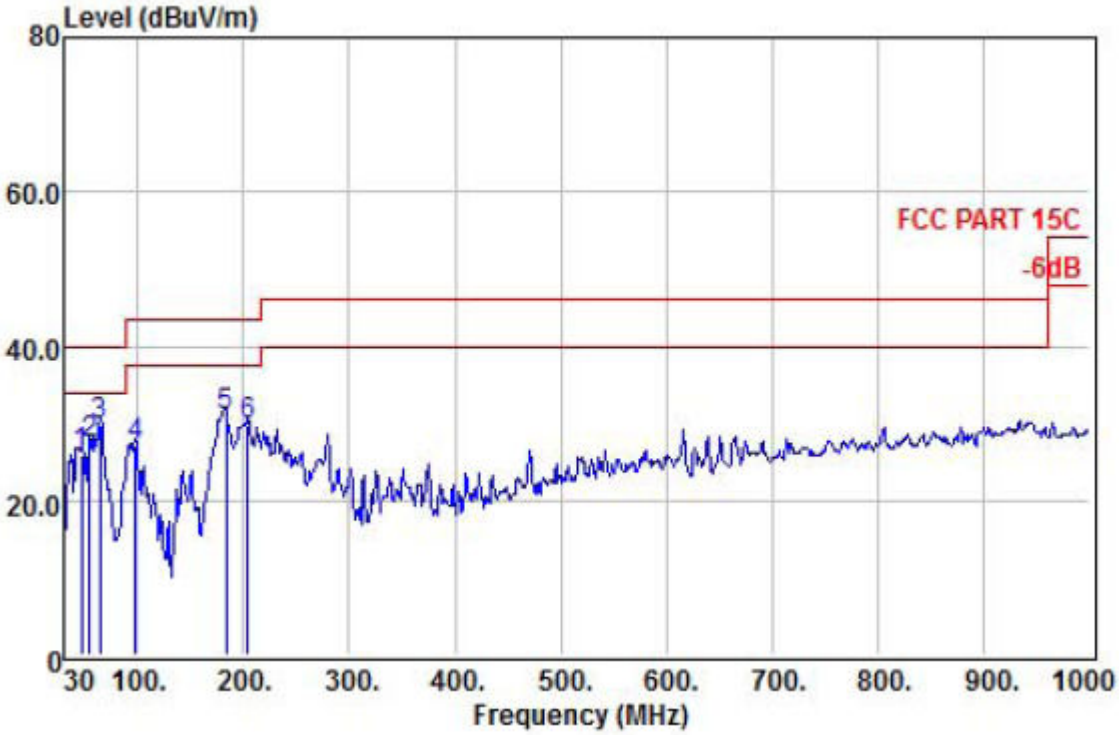


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	34.85	31.38	34.54	0.56	15.94	19.66	40.00	-20.34	QP
2	117.30	31.25	46.73	1.03	8.72	25.23	43.50	-18.27	QP
3	143.49	31.22	46.52	1.22	8.61	25.13	43.50	-18.37	QP
4	154.16	31.25	47.03	1.22	9.08	26.08	43.50	-17.42	QP
5	177.44	31.17	46.35	1.39	10.32	26.89	43.50	-16.61	QP
6	211.39	31.07	45.05	1.53	11.55	27.06	43.50	-16.44	QP

NOTE: 1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor.
2. Over Limit= Absolute Level – Limit.
3. Pi/4-DQPSK (CH00 channel) is the worst mode, only worst data is presented in the report.

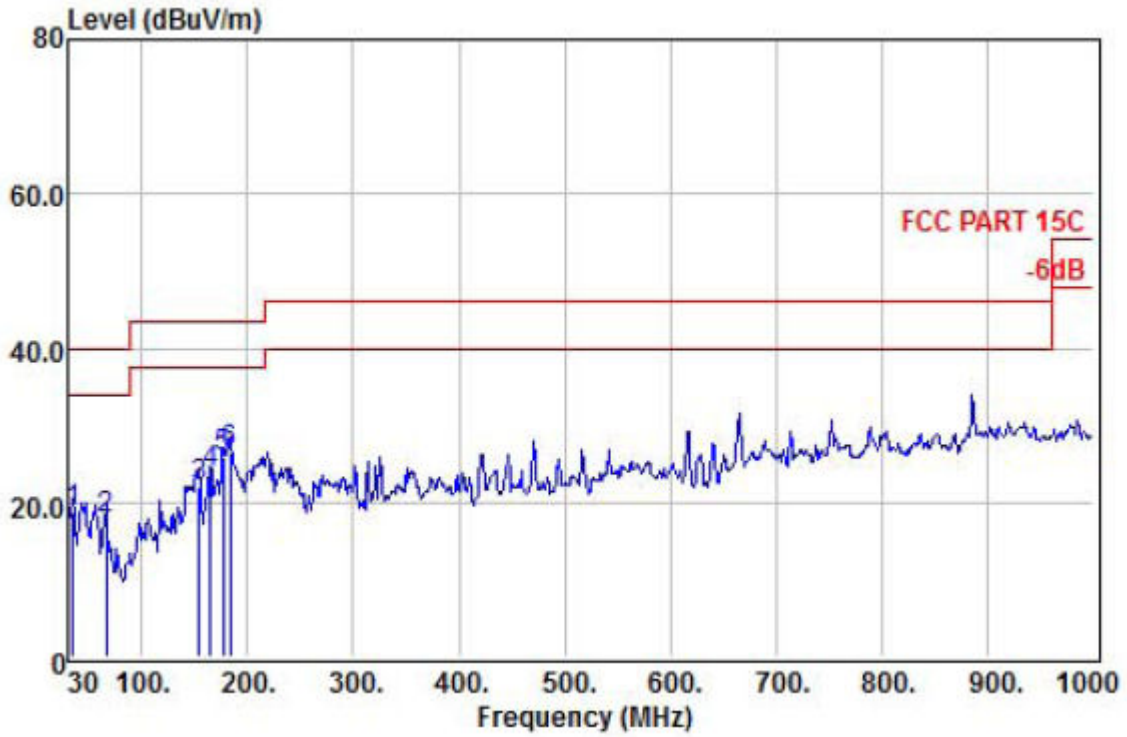
30MHz - 1GHz			
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	TX-8-DPSK-2402
Test Voltage ：	DC 3.7V		

Vertical



	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	46.49	31.39	46.47	0.56	10.24	25.88	40.00	-14.12	QP
2	54.25	31.37	49.89	0.75	8.16	27.43	40.00	-12.57	QP
3	63.95	31.32	52.90	0.75	7.38	29.71	40.00	-10.29	QP
4	97.90	31.35	47.83	0.94	9.50	26.92	43.50	-16.58	QP
5	183.26	31.15	50.41	1.39	10.30	30.95	43.50	-12.55	QP
6	203.63	31.09	48.23	1.46	11.17	29.77	43.50	-13.73	QP

Horizontal



	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	34.85	31.38	33.54	0.56	15.94	18.66	40.00	-21.34	QP
2	66.86	31.31	40.84	0.85	7.44	17.82	40.00	-22.18	QP
3	154.16	31.25	43.03	1.22	9.08	22.08	43.50	-21.42	QP
4	164.83	31.21	44.10	1.30	9.63	23.82	43.50	-19.68	QP
5	177.44	31.17	45.35	1.39	10.32	25.89	43.50	-17.61	QP
6	183.26	31.15	46.08	1.39	10.30	26.62	43.50	-16.88	QP

NOTE: 1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor.
2. Over Limit= Absolute Level – Limit.
3. 8-DPSK (CH00 channel) is the worst mode, only worst data is presented in the report.

Above 1GHz			
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	1Mbps
Test Voltage ：	DC 3.7V		

Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
TX-2402									
4804	29.86	32.94	11.94	27.49	47.25	54	-6.75	Average	Vertical
4804	39.67	32.94	11.94	27.49	57.06	74	-16.94	peak	Vertical
7206	30.12	25.28	18.04	27.94	45.50	54	-8.50	Average	Vertical
7206	41.67	25.28	18.04	27.94	57.05	74	-16.95	peak	Vertical
4804	29.87	32.94	11.94	27.49	47.26	54	-6.74	Average	Horizontal
4804	40.28	32.94	11.94	27.49	57.67	74	-16.33	peak	Horizontal
7206	29.88	25.28	18.04	27.94	45.26	54	-8.74	Average	Horizontal
7206	41.58	25.28	18.04	27.94	56.96	74	-17.04	peak	Horizontal
TX-2441									
4882	29.89	32.11	12.15	27.53	46.62	54	-7.38	Average	Vertical
4882	39.97	32.11	12.15	27.53	56.70	74	-17.30	peak	Vertical
7323	30.66	24.33	18.09	27.96	45.12	54	-8.88	Average	Vertical
7323	41.67	24.33	18.09	27.96	56.13	74	-17.87	peak	Vertical
4882	30.67	32.11	12.15	27.53	47.40	54	-6.60	Average	Horizontal
4882	40.65	32.11	12.15	27.53	57.38	74	-16.62	peak	Horizontal
7323	29.45	24.33	18.09	27.96	43.91	54	-10.09	Average	Horizontal
7323	39.86	24.33	18.09	27.96	54.32	74	-19.68	peak	Horizontal
TX-2480									
4960	30.08	31.32	12.31	27.58	46.13	54	-7.87	Average	Vertical
4960	40.82	31.32	12.31	27.58	56.87	74	-17.13	peak	Vertical
7440	30.01	24.38	18.16	27.99	44.56	54	-9.44	Average	Vertical
7440	40.29	24.38	18.16	27.99	54.84	74	-19.16	peak	Vertical
4960	29.68	31.32	12.31	27.58	45.73	54	-8.27	Average	Horizontal
4960	40.78	31.32	12.31	27.58	56.83	74	-17.17	peak	Horizontal
7440	30.21	24.38	18.16	27.99	44.76	54	-9.24	Average	Horizontal
7440	40.44	24.38	18.16	27.99	54.99	74	-19.01	peak	Horizontal

NOTE:1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor.

2.Over Limit= Absolute Level – Limit.

3.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has not to be reported.

4.EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report (Z orientation)

Above 1GHz			
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	2Mbps
Test Voltage ：	DC 3.7V		

Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
TX-2402									
4804	29.54	32.94	11.94	27.49	46.93	54	-7.07	Average	Vertical
4804	39.56	32.94	11.94	27.49	56.95	74	-17.05	peak	Vertical
7206	30.48	25.28	18.04	27.94	45.86	54	-8.14	Average	Vertical
7206	41.51	25.28	18.04	27.94	56.89	74	-17.11	peak	Vertical
4804	29.68	32.94	11.94	27.49	47.07	54	-6.93	Average	Horizontal
4804	40.34	32.94	11.94	27.49	57.73	74	-16.27	peak	Horizontal
7206	29.65	25.28	18.04	27.94	45.03	54	-8.97	Average	Horizontal
7206	41.49	25.28	18.04	27.94	56.87	74	-17.13	peak	Horizontal
TX-2441									
4882	29.75	32.11	12.15	27.53	46.48	54	-7.52	Average	Vertical
4882	39.91	32.11	12.15	27.53	56.64	74	-17.36	peak	Vertical
7323	30.27	24.33	18.09	27.96	44.73	54	-9.27	Average	Vertical
7323	40.57	24.33	18.09	27.96	55.03	74	-18.97	peak	Vertical
4882	31.28	32.11	12.15	27.53	48.01	54	-5.99	Average	Horizontal
4882	39.88	32.11	12.15	27.53	56.61	74	-17.39	peak	Horizontal
7323	28.90	24.33	18.09	27.96	43.36	54	-10.64	Average	Horizontal
7323	40.27	24.33	18.09	27.96	54.73	74	-19.27	peak	Horizontal
TX-2480									
4960	30.56	31.32	12.31	27.58	46.61	54	-7.39	Average	Vertical
4960	40.82	31.32	12.31	27.58	56.87	74	-17.13	peak	Vertical
7440	30.45	24.38	18.16	27.99	45.00	54	-9.00	Average	Vertical
7440	40.66	24.38	18.16	27.99	55.21	74	-18.79	peak	Vertical
4960	29.12	31.32	12.31	27.58	45.17	54	-8.83	Average	Horizontal
4960	40.97	31.32	12.31	27.58	57.02	74	-16.98	peak	Horizontal
7440	30.35	24.38	18.16	27.99	44.90	54	-9.10	Average	Horizontal
7440	40.86	24.38	18.16	27.99	55.41	74	-18.59	peak	Horizontal

NOTE:1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor.

2.Over Limit= Absolute Level – Limit.

3.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has not to be reported.

4.EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report (Z orientation)

Above 1GHz			
EUT：	Bluetooth Audio Transmitter	Model Name ：	H366T
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	3Mbps
Test Voltage ：	DC 3.7V		

Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
TX-2402									
4804	30.45	32.94	11.94	27.49	47.84	54	-6.16	Average	Vertical
4804	39.01	32.94	11.94	27.49	56.40	74	-17.60	peak	Vertical
7206	31.43	25.28	18.04	27.94	46.81	54	-7.19	Average	Vertical
7206	42.37	25.28	18.04	27.94	57.75	74	-16.25	peak	Vertical
4804	30.11	32.94	11.94	27.49	47.50	54	-6.50	Average	Horizontal
4804	41.26	32.94	11.94	27.49	58.65	74	-15.35	peak	Horizontal
7206	30.34	25.28	18.04	27.94	45.72	54	-8.28	Average	Horizontal
7206	40.59	25.28	18.04	27.94	55.97	74	-18.03	peak	Horizontal
TX-2441									
4882	30.23	32.11	12.15	27.53	46.96	54	-7.04	Average	Vertical
4882	40.27	32.11	12.15	27.53	57.00	74	-17.00	peak	Vertical
7323	31.26	24.33	18.09	27.96	45.72	54	-8.28	Average	Vertical
7323	42.43	24.33	18.09	27.96	56.89	74	-17.11	peak	Vertical
4882	29.89	32.11	12.15	27.53	46.62	54	-7.38	Average	Horizontal
4882	39.85	32.11	12.15	27.53	56.58	74	-17.42	peak	Horizontal
7323	29.87	24.33	18.09	27.96	44.33	54	-9.67	Average	Horizontal
7323	39.16	24.33	18.09	27.96	53.62	74	-20.38	peak	Horizontal
TX-2480									
4960	29.98	31.32	12.31	27.58	46.03	54	-7.97	Average	Vertical
4960	40.29	31.32	12.31	27.58	56.34	74	-17.66	peak	Vertical
7440	30.47	24.38	18.16	27.99	45.02	54	-8.98	Average	Vertical
7440	41.65	24.38	18.16	27.99	56.20	74	-17.80	peak	Vertical
4960	29.53	31.32	12.31	27.58	45.58	54	-8.42	Average	Horizontal
4960	41.29	31.32	12.31	27.58	57.34	74	-16.66	peak	Horizontal
7440	31.38	24.38	18.16	27.99	45.93	54	-8.07	Average	Horizontal
7440	41.76	24.38	18.16	27.99	56.31	74	-17.69	peak	Horizontal

NOTE:1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor.

2.Over Limit= Absolute Level – Limit.

3.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has not to be reported.

4.EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report (Z orientation)

For radiated test as follows:

Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
1Mbps Non-hopping									
2390	35.89	30.44	8.94	26.32	48.95	74	-25.05	peak	Vertical
2390	36.62	30.44	8.94	26.32	49.68	74	-24.32	peak	Horizontal
2483.5	37.25	30.05	9.07	26.34	50.03	74	-23.97	peak	Vertical
2483.5	37.59	30.05	9.07	26.34	50.37	74	-23.63	peak	Horizontal
1Mbps hopping									
2390	36.28	30.44	8.94	26.32	49.34	74	-24.66	peak	Vertical
2390	36.36	30.44	8.94	26.32	49.42	74	-24.58	peak	Horizontal
2483.5	37.48	30.05	9.07	26.34	50.26	74	-23.74	peak	Vertical
2483.5	37.42	30.05	9.07	26.34	50.20	74	-23.8	peak	Horizontal
2Mbps Non-hopping									
2390	36.33	30.44	8.94	26.32	49.39	74	-24.61	peak	Vertical
2390	36.12	30.44	8.94	26.32	49.18	74	-24.82	peak	Horizontal
2483.5	37.45	30.05	9.07	26.34	50.23	74	-23.77	peak	Vertical
2483.5	37.38	30.05	9.07	26.34	50.16	74	-23.84	peak	Horizontal
2Mbps hopping									
2390	36.54	30.44	8.94	26.32	49.60	74	-24.4	peak	Vertical
2390	35.26	30.44	8.94	26.32	48.32	74	-25.68	peak	Horizontal
2483.5	36.28	30.05	9.07	26.34	49.06	74	-24.94	peak	Vertical
2483.5	37.45	30.05	9.07	26.34	50.23	74	-23.77	peak	Horizontal
3Mbps Non-hopping									
2390	36.65	30.44	8.94	26.32	49.71	74	-24.29	peak	Vertical
2390	34.38	30.44	8.94	26.32	47.44	74	-26.56	peak	Horizontal
2483.5	35.26	30.05	9.07	26.34	48.04	74	-25.96	peak	Vertical
2483.5	36.56	30.05	9.07	26.34	49.34	74	-24.66	peak	Horizontal
3Mbps hopping									
2390	36.25	30.44	8.94	26.32	49.31	74	-24.69	peak	Vertical
2390	34.56	30.44	8.94	26.32	47.62	74	-26.38	peak	Horizontal
2483.5	35.34	30.05	9.07	26.34	48.12	74	-25.88	peak	Vertical
2483.5	36.48	30.05	9.07	26.34	49.26	74	-24.74	peak	Horizontal

If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

Spurious Emission in Restricted Band:(1-25G)

All the modulation modes have been tested and all other emissions more than 20dB below the limit, the worst result was report as below:

Polar (H/V)	Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1Mbps Non-hopping									
Vertical	3262	36.56	30.26	10.68	26.63	50.87	74	-23.13	Pk
Horizontal	3262	37.87	30.26	10.68	26.63	52.18	74	-21.82	PK
Vertical	4032	35.58	31.55	10.52	27.02	50.63	74	-23.37	Pk
Horizontal	4032	34.65	31.55	10.52	27.02	49.70	74	-24.30	PK
1Mbps hopping									
Vertical	3351	34.43	30.34	10.78	26.67	48.88	74	-25.12	Pk
Horizontal	3351	35.57	30.34	10.78	26.67	50.02	74	-23.98	PK
Vertical	4130	36.33	30.69	10.95	27.08	50.89	74	-23.11	Pk
Horizontal	4130	35.78	30.69	10.95	27.08	50.34	74	-23.66	PK

6. 20DB BANDWIDTH

6.1. Limits

According to FCC Section 15.247(a)(1), the 20dB bandwidth is known as the 99% emission bandwidth, or 20dB bandwidth(10*log1%=20dB)taking the RF output power

6.2. Test setup

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum, During the measurement, the Bluetooth module of the EUT is activated and controlled by the software, and is set to operate under test mode transmitting.

2. Set the spectrum analyzer:

Span: approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel

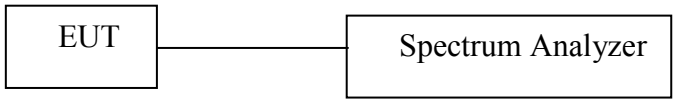
RBW ≥1% of the 20dB bandwidth

VBW ≥ RBW

Sweep=auto

Detector function=peak

Trace=max hold



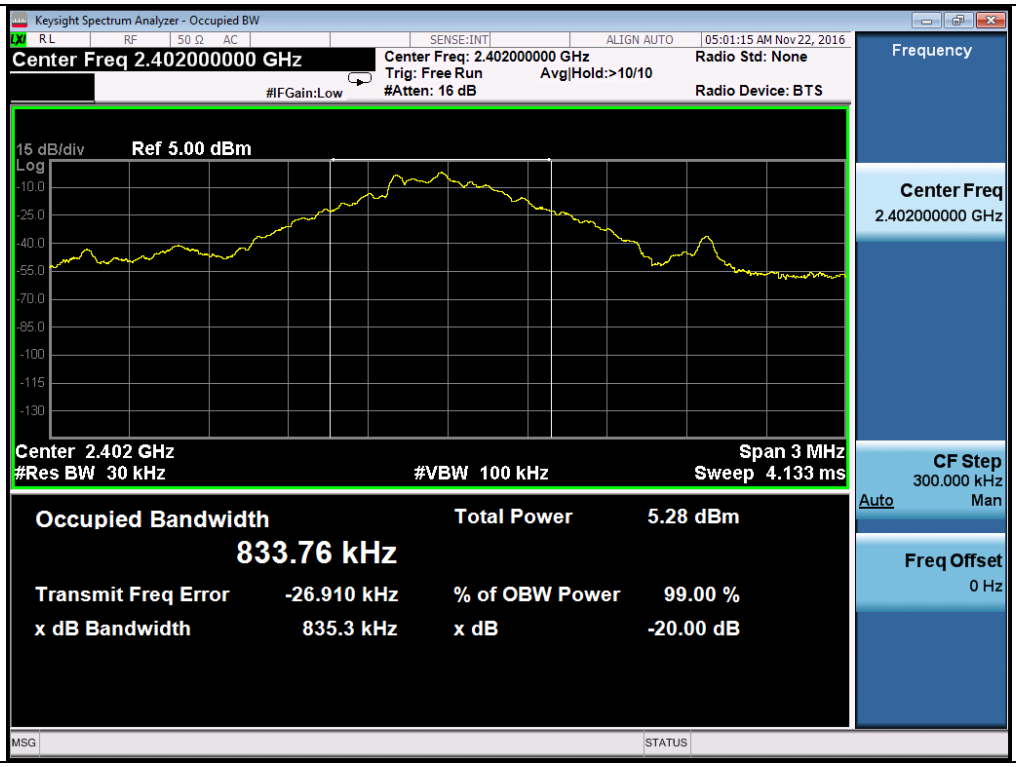
Test data:

EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00 / CH39 /C78**(1Mbps)**		

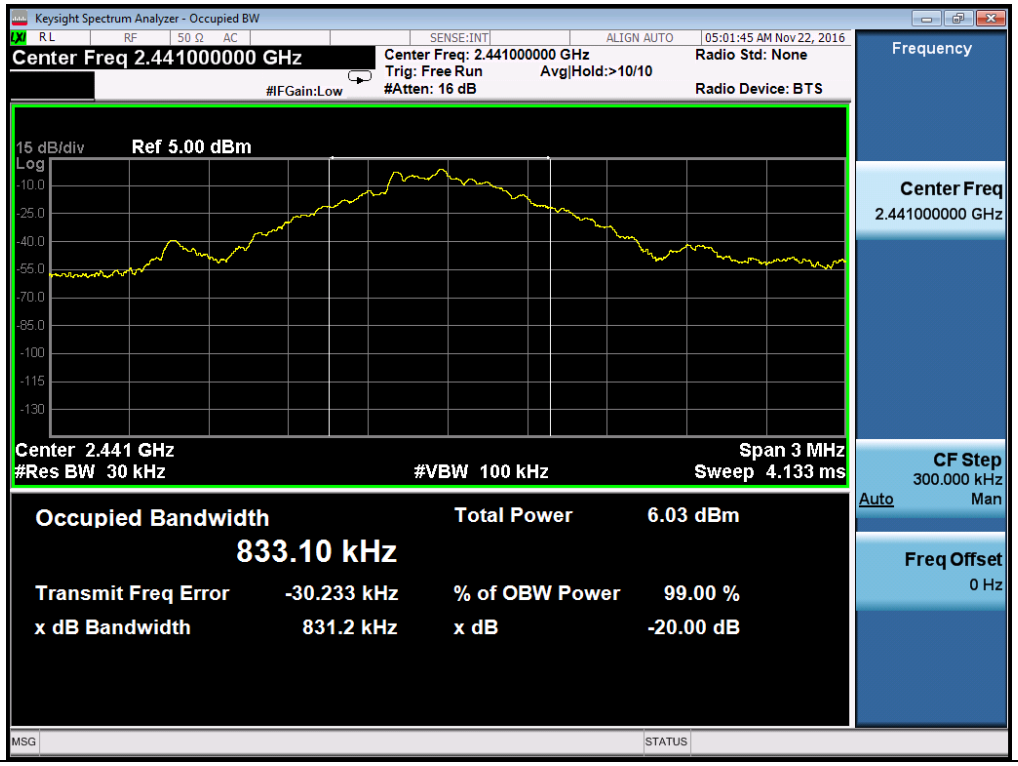
Frequency	20dB Bandwidth (kHz)	Result
2402 MHz	835.3	**PASS**
2441 MHz	831.2	**PASS**
2480 MHz	837.6	**PASS**

Test plot as follows:

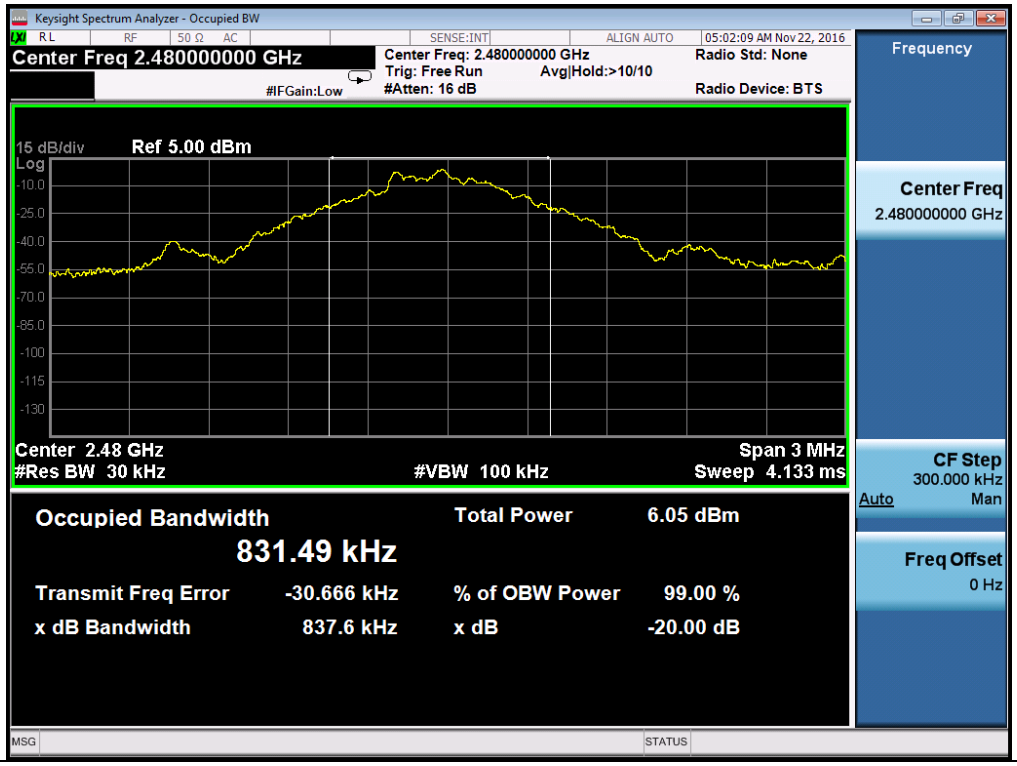
CH00



CH39 -1Mbps



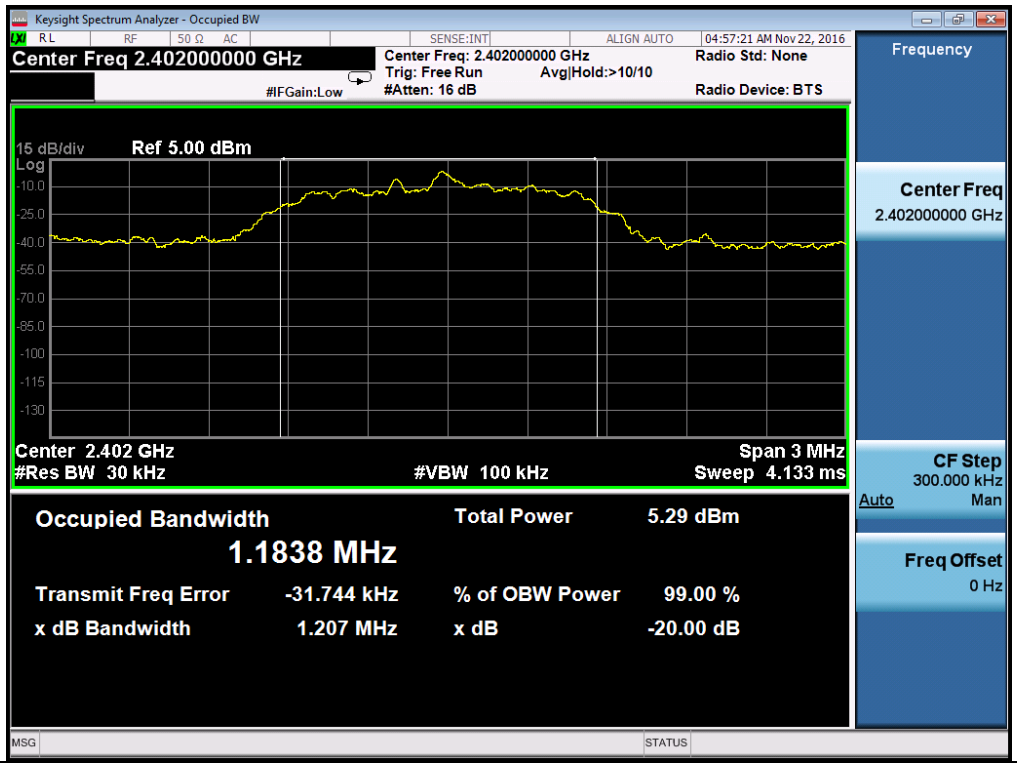
CH78 -1Mbps



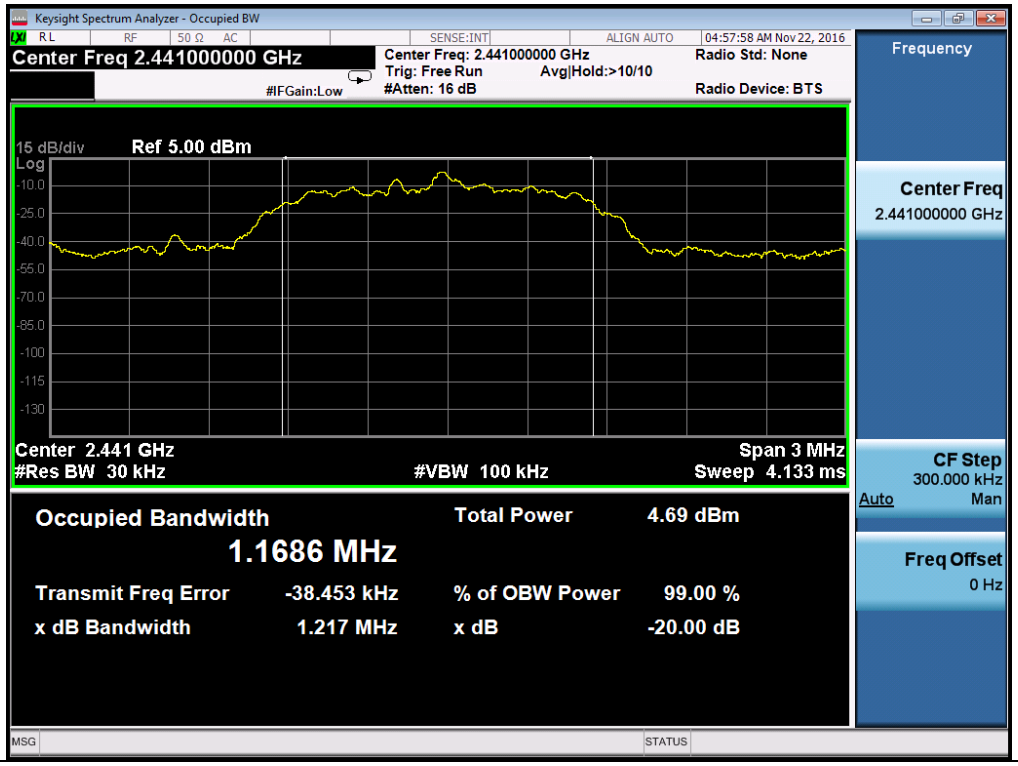
EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00 / CH39 /C78**(2Mbps)**		

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	1.207	**PASS**
2441 MHz	1.217	**PASS**
2480 MHz	1.216	**PASS**

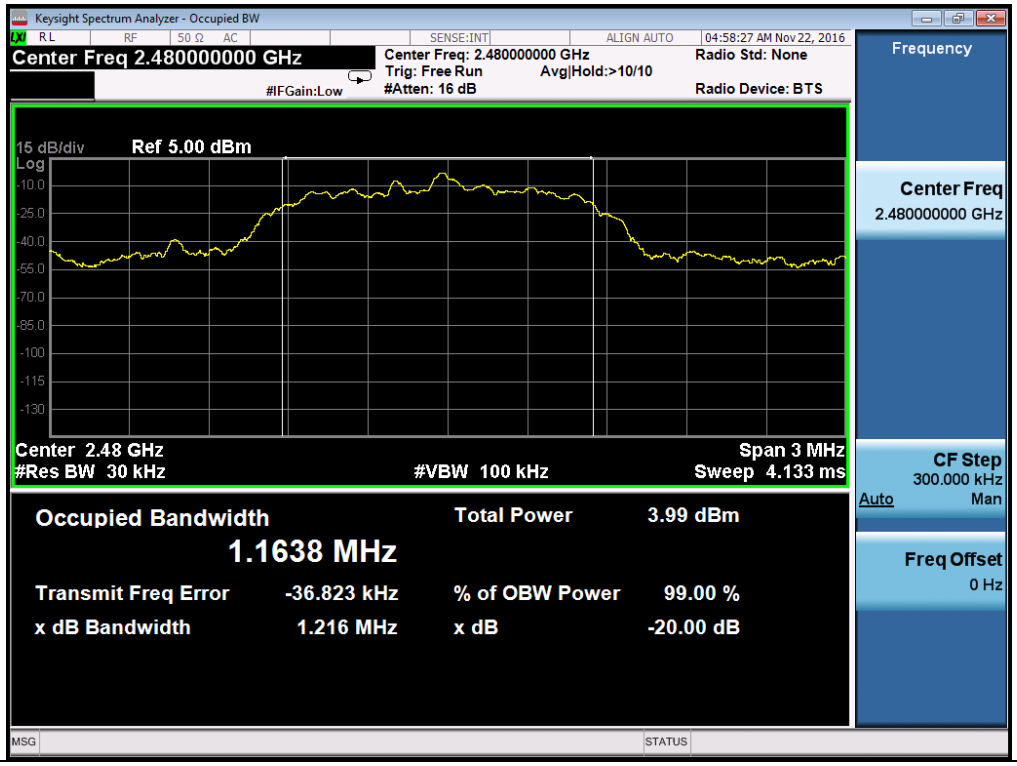
CH00



CH39


Keysight Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
04:57:58 AM Nov 22, 2016
Center Freq 2.441000000 GHz
Center Freq: 2.441000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 16 dB
Radio Std: None
Radio Device: BTS
Frequency
15 dB/div
Ref 5.00 dBm
Log
-10.0
-25.0
-40.0
-55.0
-70.0
-85.0
-100
-115
-130
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3 MHz
Sweep 4.133 ms
Occupied Bandwidth
1.1686 MHz
Total Power 4.69 dBm
Transmit Freq Error -38.453 kHz
% of OBW Power 99.00 %
x dB Bandwidth 1.217 MHz
x dB -20.00 dB
Center Freq
2.441000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

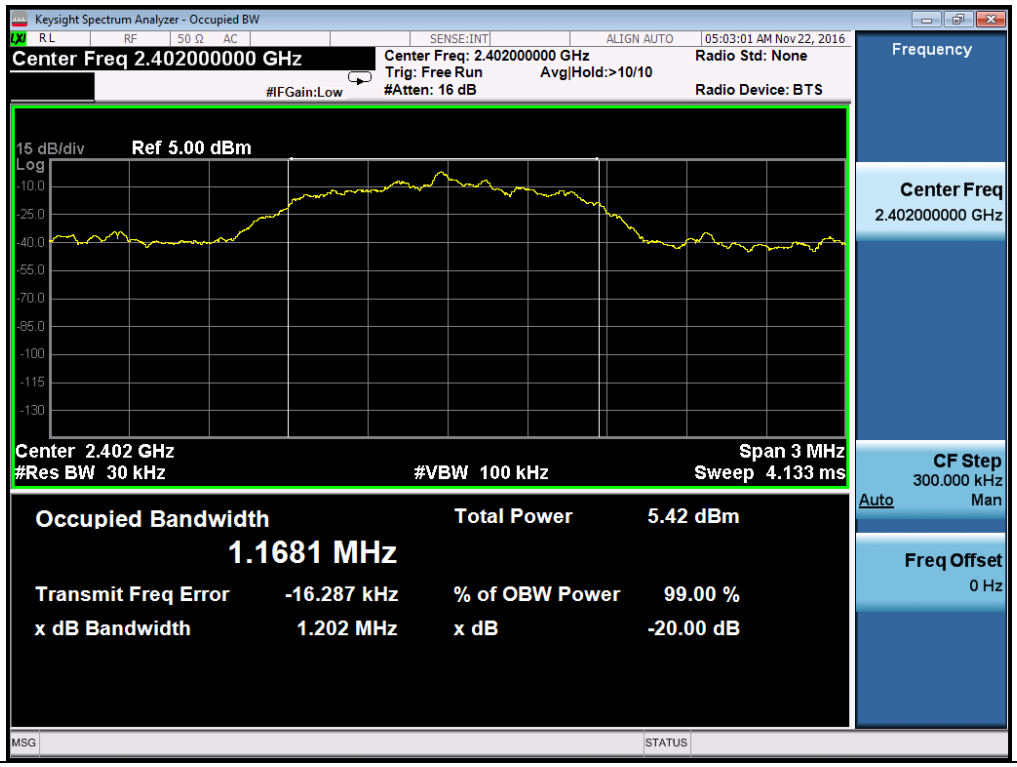
CH78


Keysight Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
04:58:27 AM Nov 22, 2016
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 16 dB
Radio Std: None
Radio Device: BTS
Frequency
15 dB/div
Ref 5.00 dBm
Log
-10.0
-25.0
-40.0
-55.0
-70.0
-85.0
-100
-115
-130
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3 MHz
Sweep 4.133 ms
Occupied Bandwidth
1.1638 MHz
Total Power 3.99 dBm
Transmit Freq Error -36.823 kHz
% of OBW Power 99.00 %
x dB Bandwidth 1.216 MHz
x dB -20.00 dB
Center Freq
2.480000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

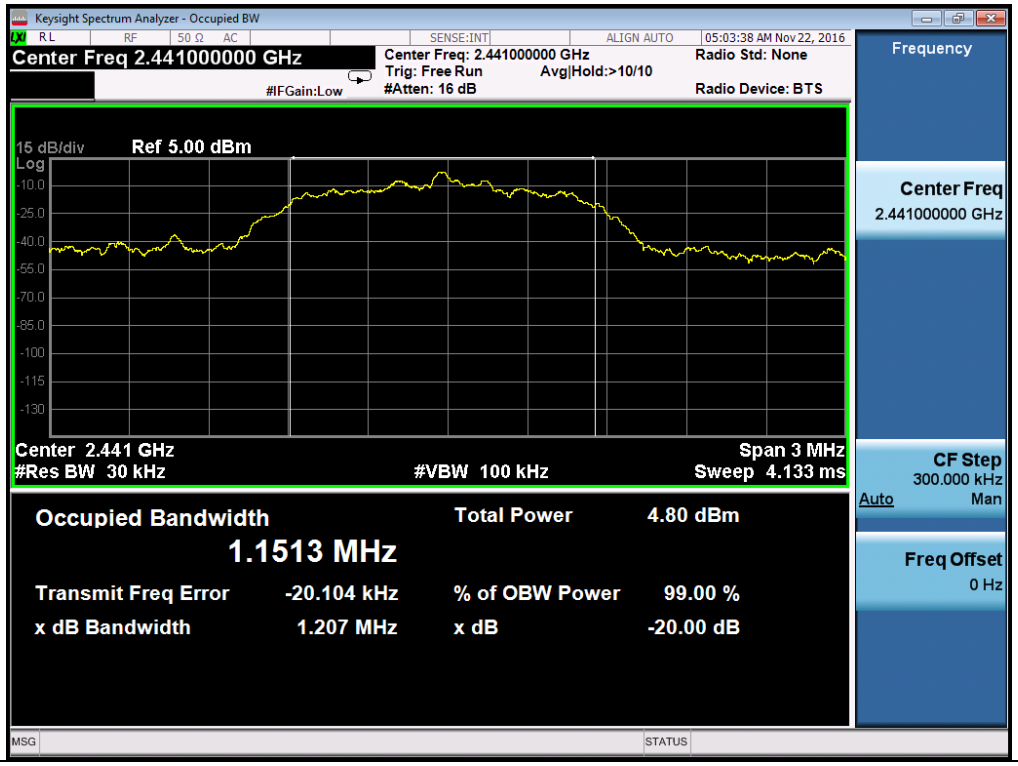
EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00 / CH39 /CH78**(3Mbps)**		

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	1.202	**PASS**
2441 MHz	1.207	**PASS**
2480 MHz	1.200	**PASS**

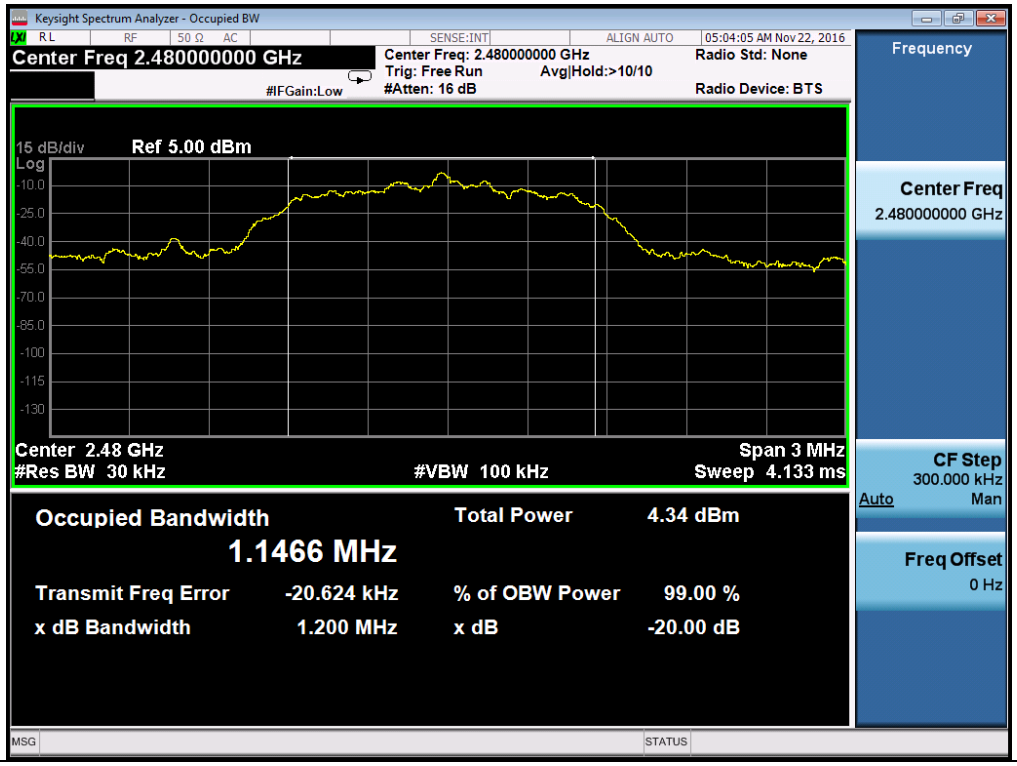
CH00



CH39


Keysight Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
05:03:38 AM Nov 22, 2016
Center Freq 2.441000000 GHz
Center Freq: 2.441000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 16 dB
Radio Std: None
Radio Device: BTS
Frequency
15 dB/div
Ref 5.00 dBm
Log
-10.0
-25.0
-40.0
-55.0
-70.0
-85.0
-100
-115
-130
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3 MHz
Sweep 4.133 ms
Occupied Bandwidth
1.1513 MHz
Total Power
4.80 dBm
Transmit Freq Error
-20.104 kHz
% of OBW Power
99.00 %
x dB Bandwidth
1.207 MHz
x dB
-20.00 dB
Center Freq
2.441000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

CH78


Keysight Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
05:04:05 AM Nov 22, 2016
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 16 dB
Radio Std: None
Radio Device: BTS
Frequency
15 dB/div
Ref 5.00 dBm
Log
-10.0
-25.0
-40.0
-55.0
-70.0
-85.0
-100
-115
-130
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3 MHz
Sweep 4.133 ms
Occupied Bandwidth
1.1466 MHz
Total Power
4.34 dBm
Transmit Freq Error
-20.624 kHz
% of OBW Power
99.00 %
x dB Bandwidth
1.200 MHz
x dB
-20.00 dB
Center Freq
2.480000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

7. FREQUENCY SEPARATION

7.1. Limits

According to FCC Section 15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

7.2. Test setup

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum, During the measurement, the Bluetooth module of the EUT is activated and controlled by the software, and is set to operate under test mode .

2. Set the spectrum analyzer:

Span: wide enough to capture the peaks of two adjacent channels

RBW ≥1% of the span(30KHz)

VBW ≥ RBW(100KHz)

Sweep=auto

Detector function=peak

Trace=max hold

Test data:

EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	24 ℃	Relative Humidity :	58%
Pressure :	1010hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00 / CH39 /CH78**(1Mbps)**		

Frequency	Ch. Separation (MHz)	Limit (KHz)	Result
2402 MHz	1.000	835.3	**Complies**
2441 MHz	1.004	831.2	**Complies**
2480 MHz	0.996	837.6	**Complies**

Ch. Separation Limits: > 20dB bandwidth
Test plot as follows:

CH00

CH39


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:04:59 AM Nov 22, 2016
ΔMkr1 1.004 MHz
-0.022 dB
10 dB/div
Log
Ref 5.00 dBm
Center 2.441500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.000 MHz
Sweep 2.133 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

CH78


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.479500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 16 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:05:48 AM Nov 22, 2016
ΔMkr1 996 kHz
-0.040 dB
10 dB/div
Log
Ref 5.00 dBm
Center 2.479500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.000 MHz
Sweep 2.133 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

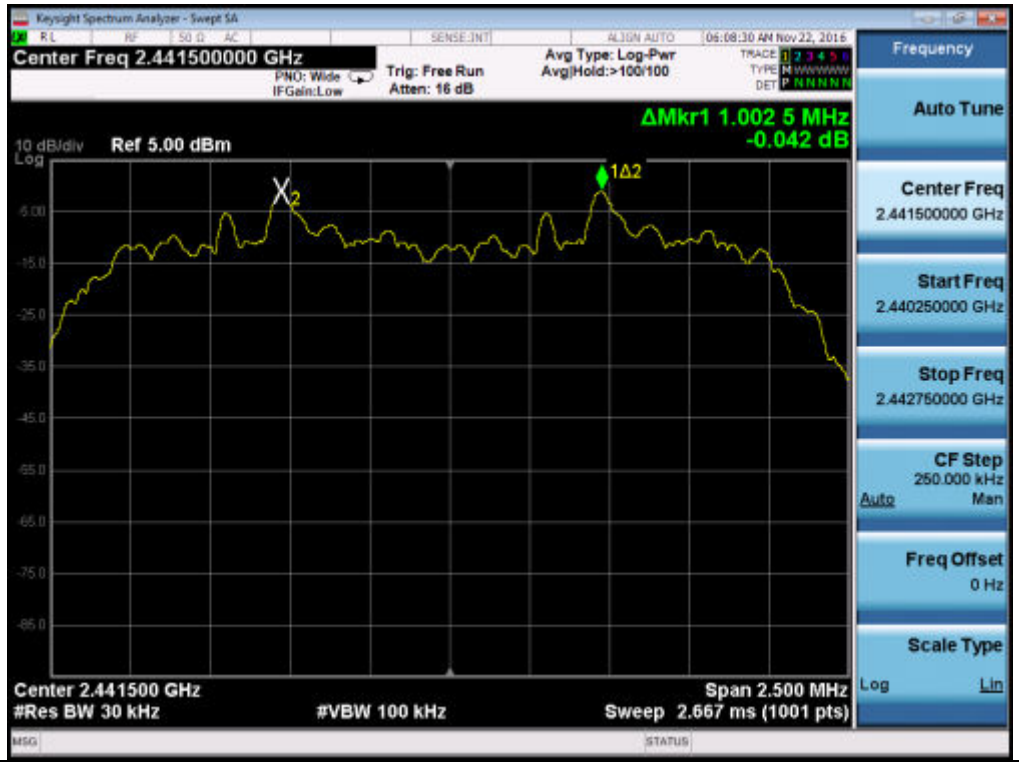
EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	24 ℃	Relative Humidity :	58%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00 / CH39 /CH78**(2Mbps)**		

Frequency	Ch. Separation (MHz)	Limit (KHz)	Result
2402 MHz	1.000	804.667	**Complies**
2441 MHz	1.003	811.333	**Complies**
2480 MHz	0.998	810.667	**Complies**

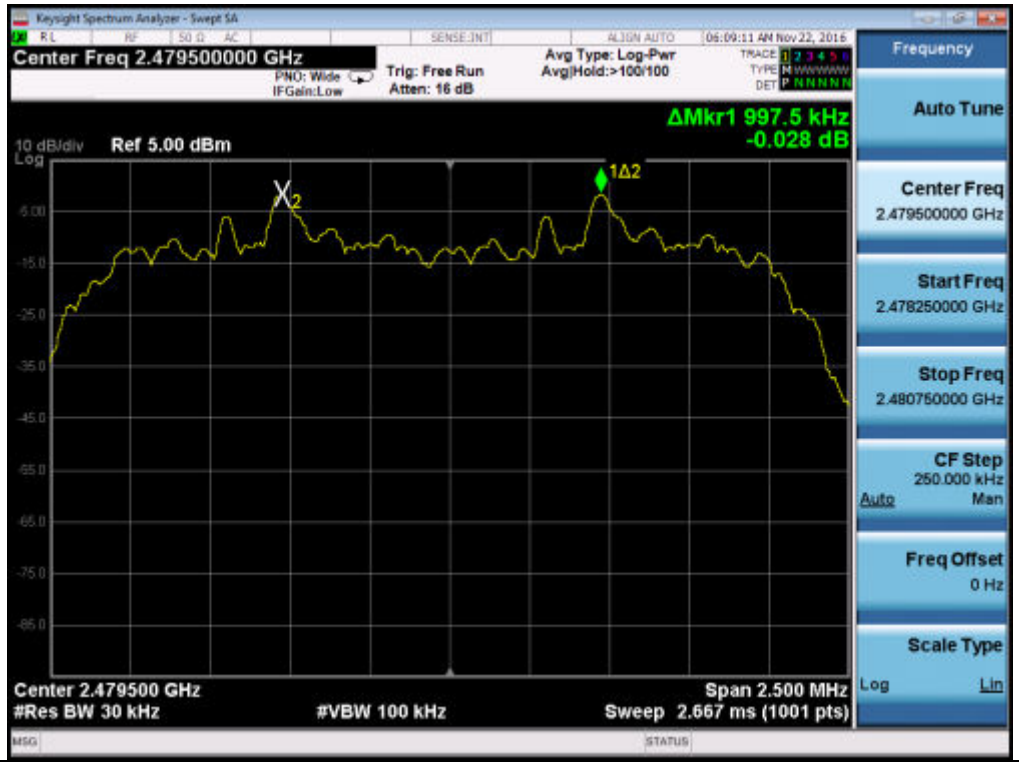
Ch. Separation Limits: >2/3 of 20dB bandwidth

CH00 -2Mbps

CH39 -2Mbps



CH78 -2Mbps



EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	24 ℃	Relative Humidity :	58%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00 / CH39 /CH78**(3Mbps)**		

Frequency	Ch. Separation (MHz)	Limit (KHz)	Result
2402 MHz	0.998	801.333	**Complies**
2441 MHz	1.000	804.667	**Complies**
2480 MHz	1.000	800.000	Complies

Ch. Separation Limits: >2/3 of 20dB bandwidth

CH00 -3Mbps

CH39 -3Mbps

CH78 -3Mbps

8. NUMBER OF HOPPING FREQUENCY

8.1. Limits

According to FCC Section 15.247(a)(1)(iii), Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

8.2. Test setup

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum, During the measurement, the Bluetooth module of the EUT is activated and controlled by the software, and is set to operate under test mode .

2. Set the spectrum analyzer:

Span: the frequency band of operation

RBW =100KHz

VBW=300KHz

Sweep=auto

Detector function=peak

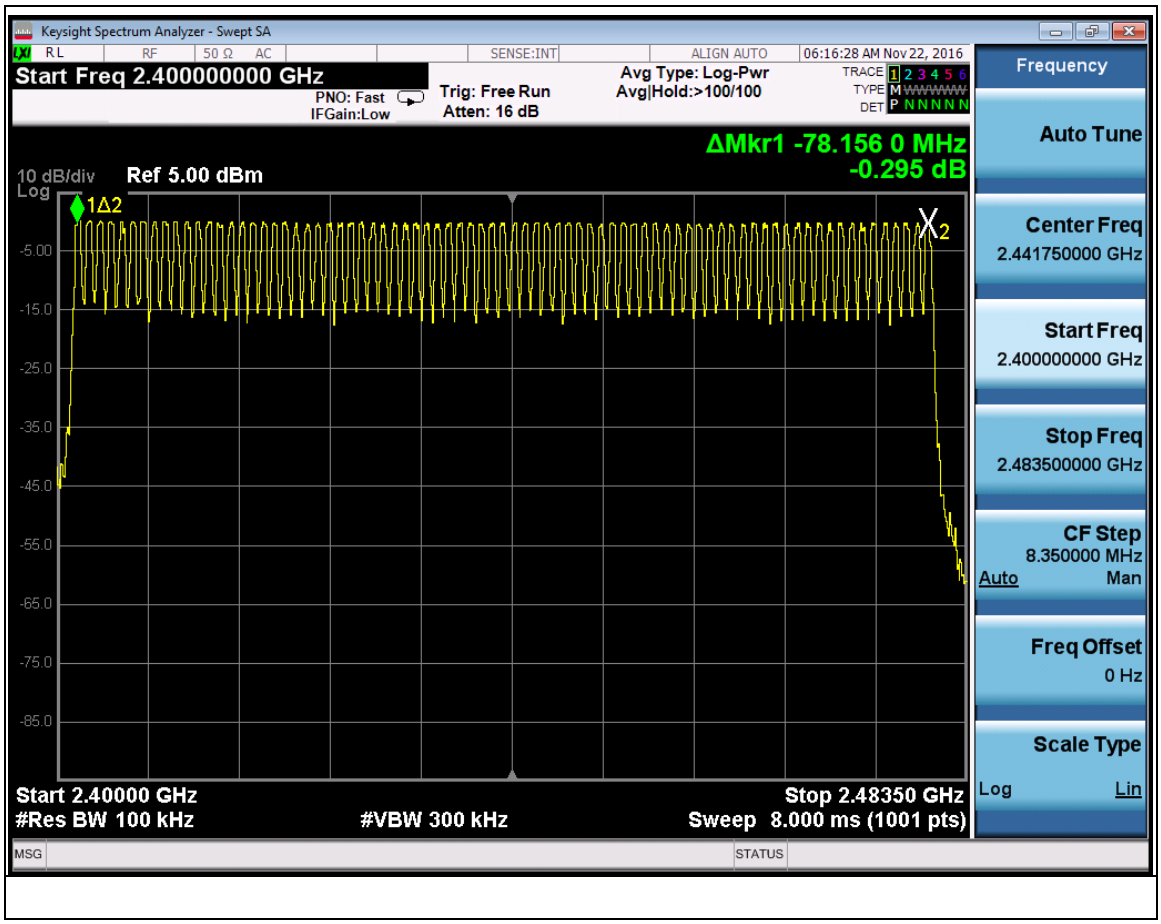
Trace=max hold

EUT :	Bluetooth Audio Transmitter	Model Name :	H366T
Temperature :	24 ℃	Relative Humidity :	58%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	1M		

Test data:

Measured channel numbers	Limit	Result
79	⩾15	PASS

Test plot as follows:



9. DWELL TIME

9.1. Limits

According to FCC Section 15.247(a)(1)(iii), Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

9.2. Test setup

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum, During the measurement, the Bluetooth module of the EUT is activated and controlled by the software, and is set to operate under test mode power.

2. Set the spectrum analyzer:

Span= 0Hz,RBW =1000 kHz,VBW = 3000 kHz

Use a video trigger with the trigger level set to enable triggering only on full pulses.

Detector function=peak, Sweep Time is more than once pulse time.

Set the EUT for DH5, DH3 and DH1 packet transmitting

Measure the maximum time duration of one single pulse.

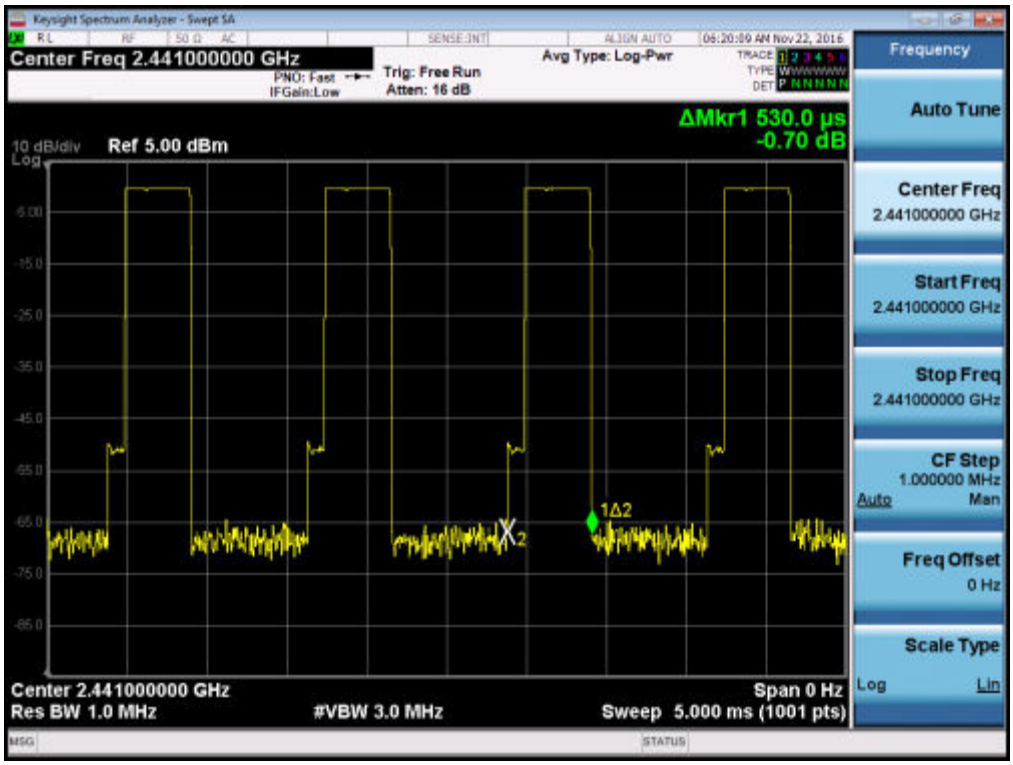
A Period Time = (channel number)*0.4
DH1 Time Slot: Reading * (1600/2)*31.6/(channel number)
DH3 Time Slot: Reading * (1600/4)*31.6/(channel number)
DH5 Time Slot: Reading * (1600/6)*31.6/(channel number)
For Example:
BT hopping rate is 1600 hops/s with 6 slots in 79 hopping channels.
With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s),
Hops Over Occupancy Time comes to (1600 / 6 / 79) x (0.4 x 79) = 106.67 hops.
Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

Test data:

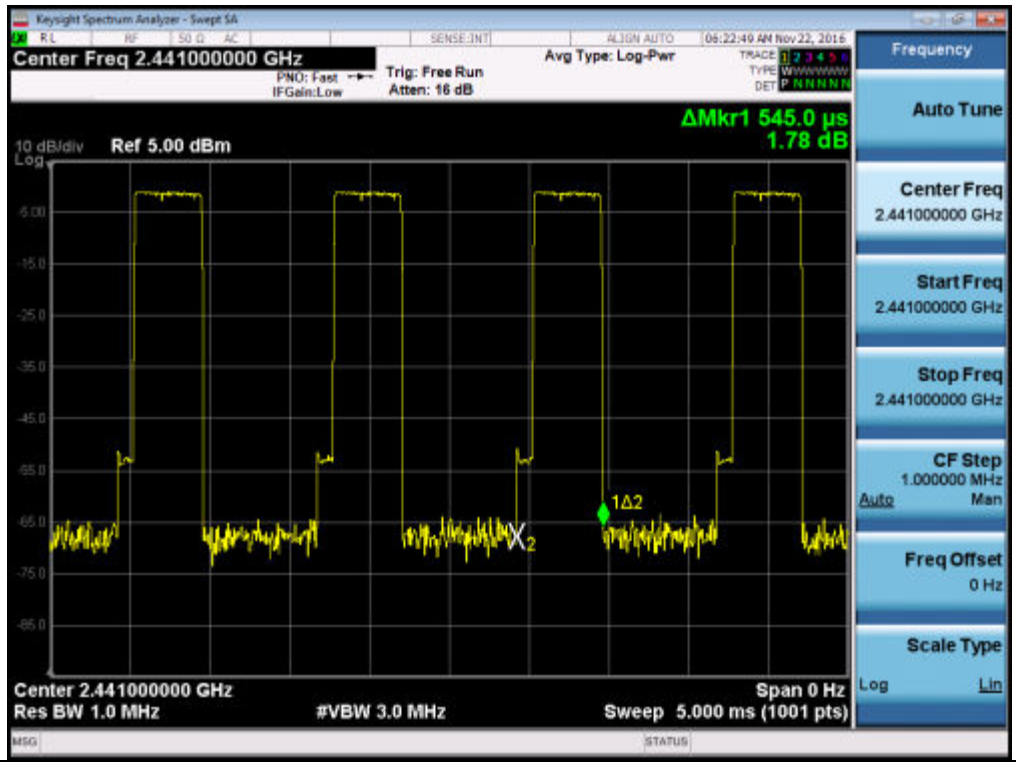
Data Packet	Frequency	Pulse Duration	Dwell Time	Limits
		(ms)	(s)	(s)
DH1	2441 MHz	0.530	0.17	0.4
2DH1	2441 MHz	0.545	0.17	0.4
3DH1	2441 MHz	0.545	0.17	0.4

Test plot as follows as below:

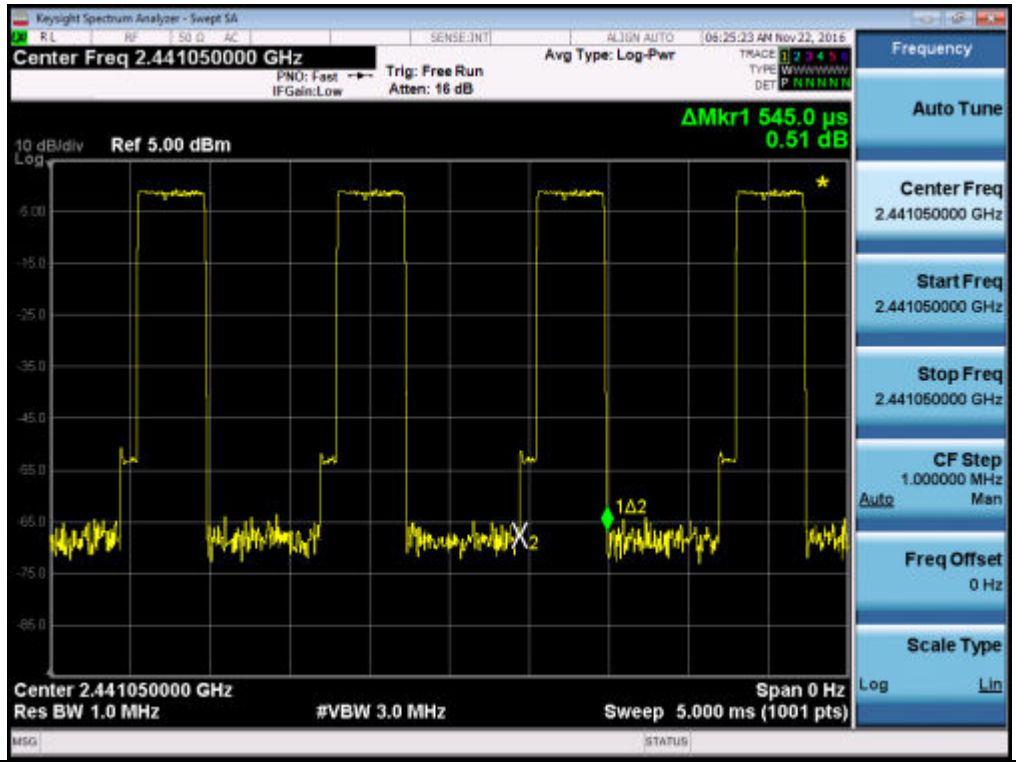
CH39-DH1



CH39-2DH1

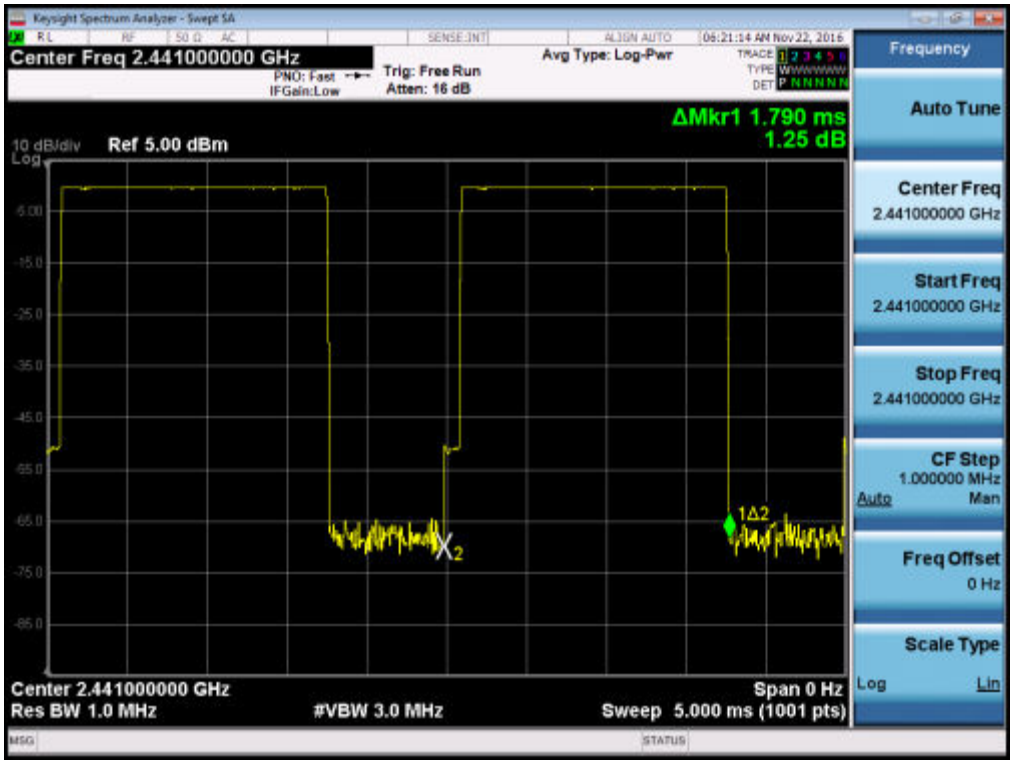


CH39-3DH1

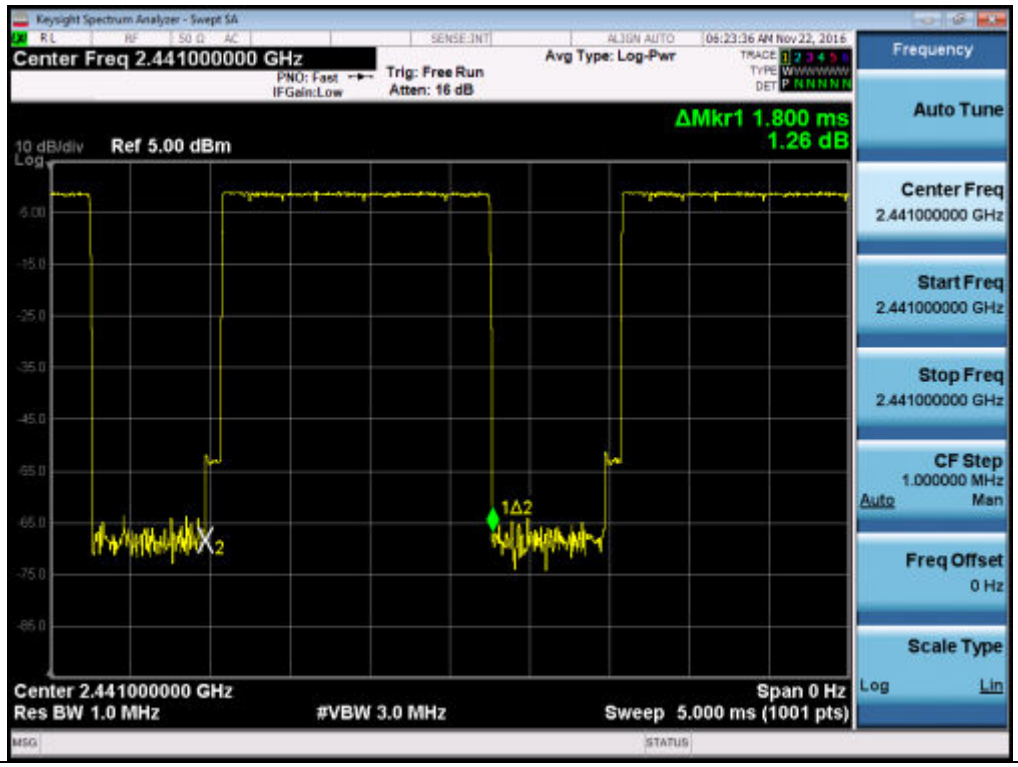


Data Packet	Frequency	Pulse Duration	Dwell Time	Limits
		(ms)	(s)	(s)
DH3	2441 MHz	1.79	0.29	0.4
2DH3	2441 MHz	1.80	0.29	0.4
3DH3	2441 MHz	1.79	0.29	0.4

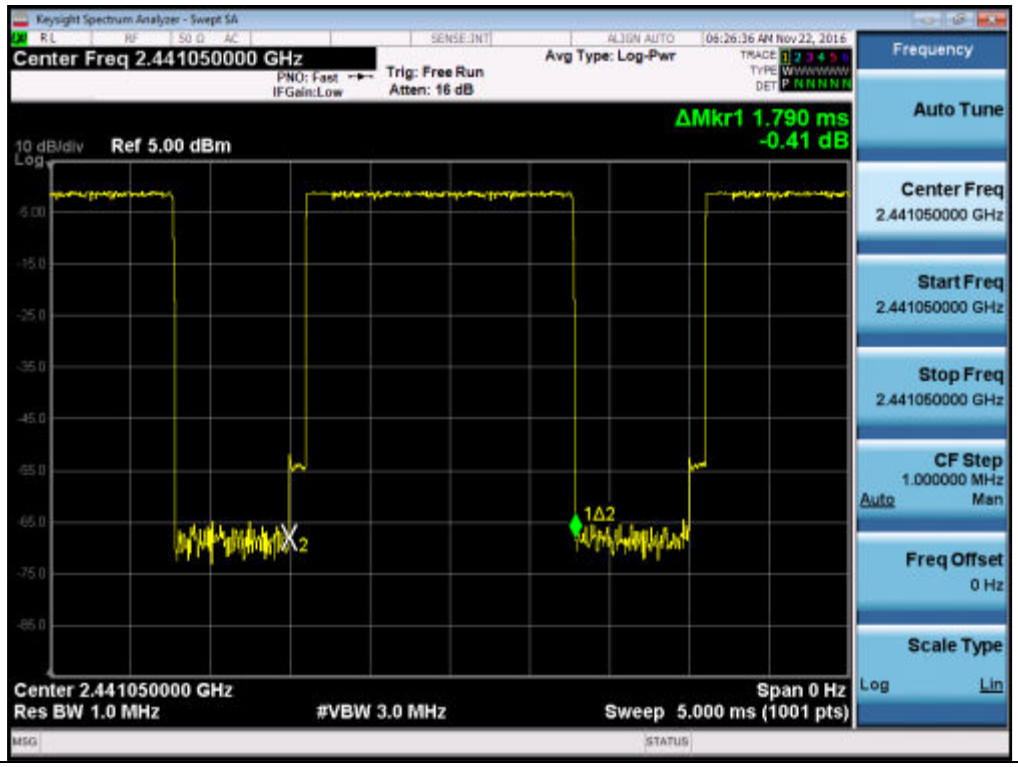
CH39-DH3



CH39-2DH3

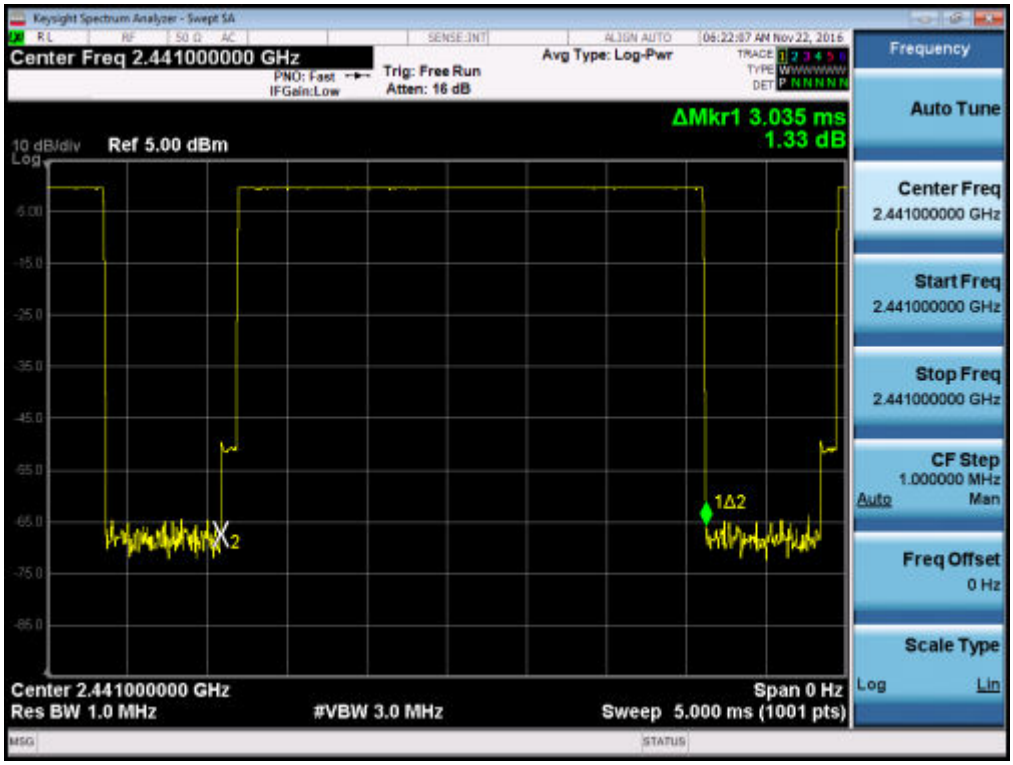


CH39-3DH3

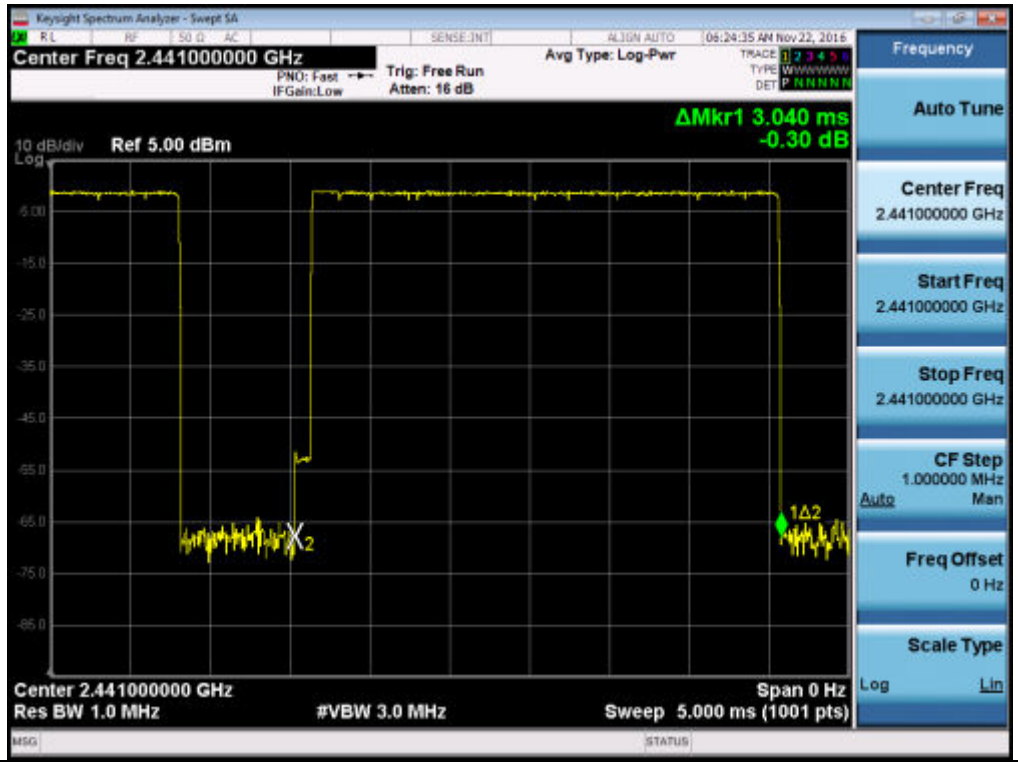


Data Packet	Frequency	Pulse Duration	Dwell Time	Limits
		(ms)	(s)	(s)
DH5	2441 MHz	3.04	0.32	0.4
2DH5	2441 MHz	3.04	0.32	0.4
3DH5	2441 MHz	3.05	0.33	0.4

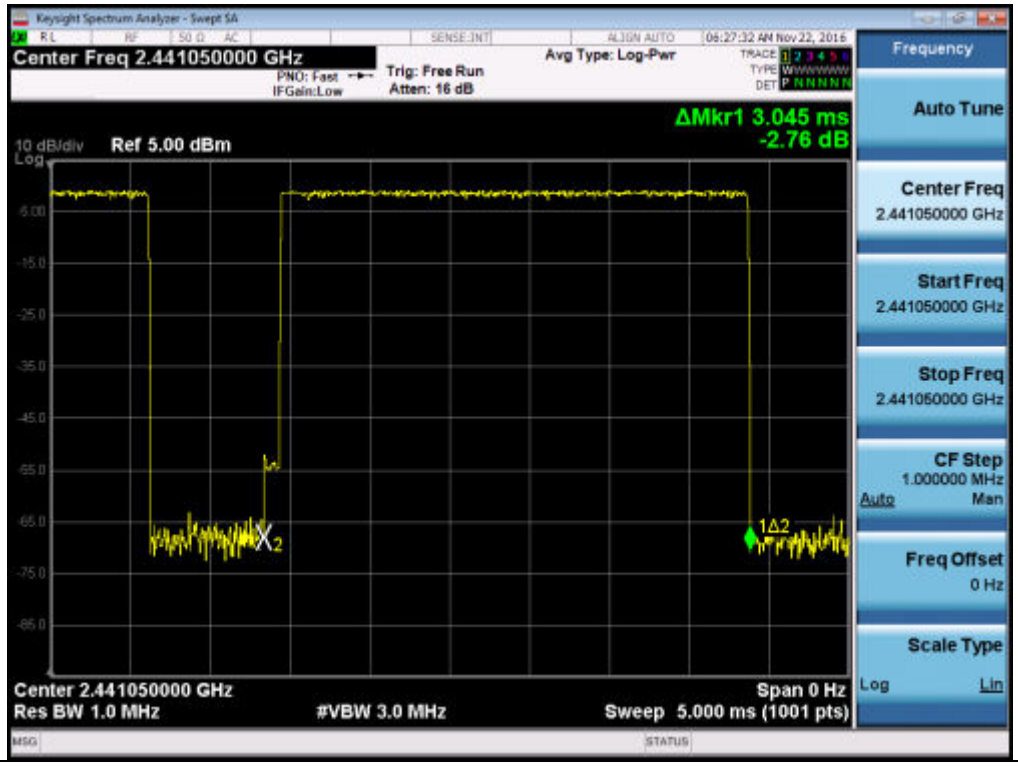
CH39-DH5



CH39-2DH5



CH39-3DH5

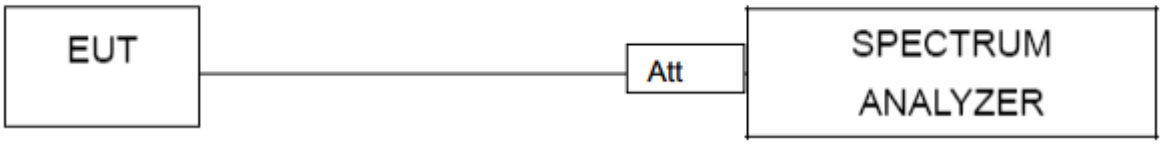


10. BAND EDGE COMPLIANCE TEST

10.1. Limits

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. 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 in § 15.209(a) (see §15.205(c)).

10.2. Test setup



10.3. TEST Procedure

a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.

c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.

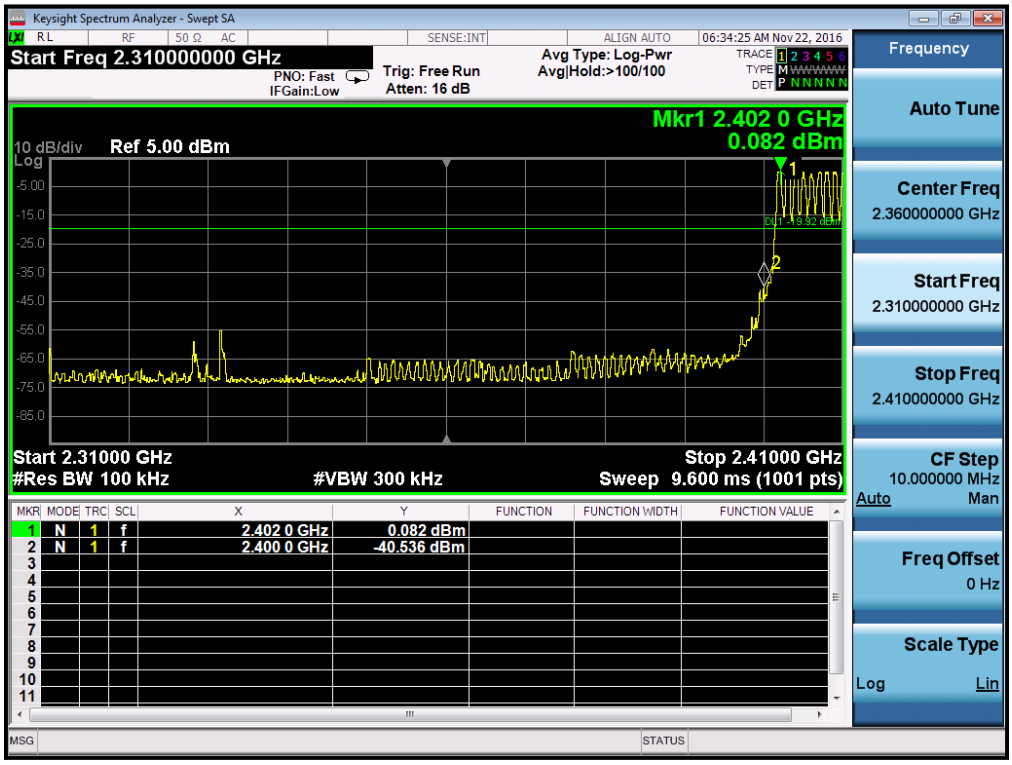
d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

e) Repeat above procedures until all measured frequencies were complete.

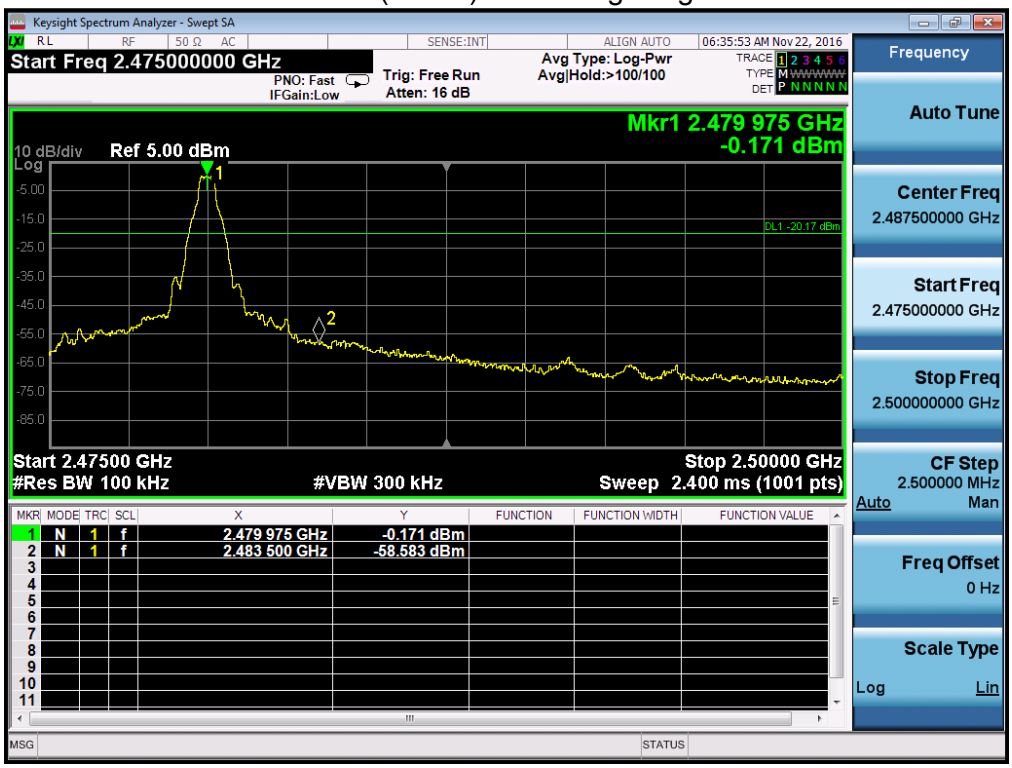
For conducted test:

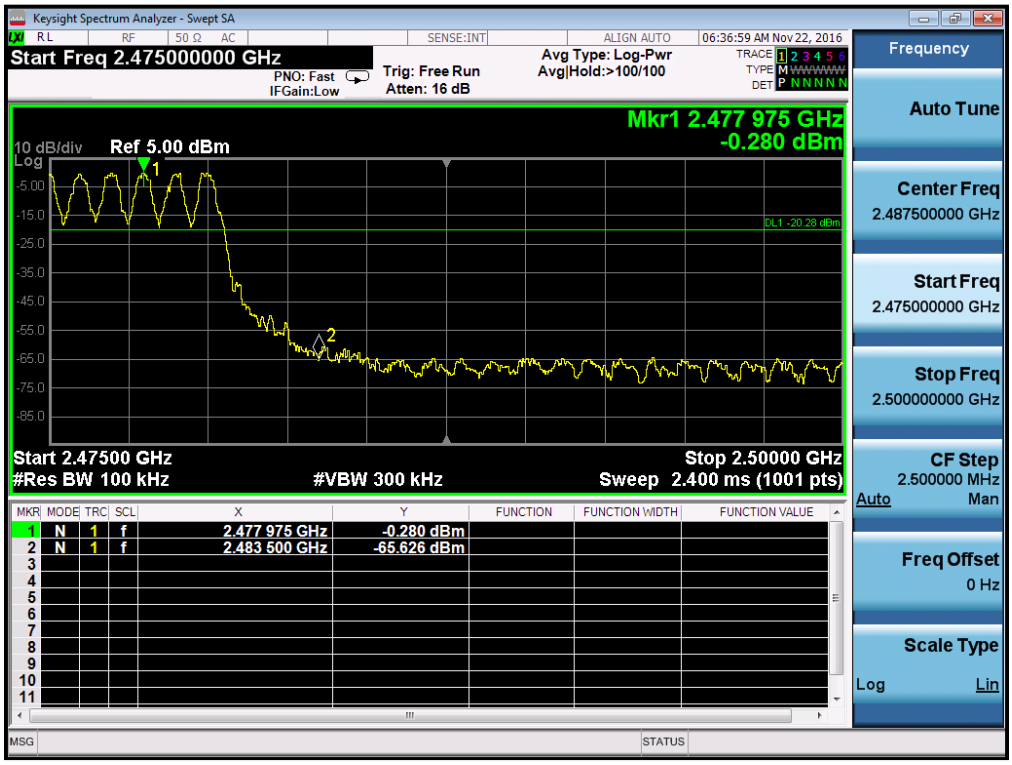
Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
GFSK Non-hopping			
Left Band	40.58	20	Pass
Right Band	40.62	20	Pass
π/4-DQPSK Non-hopping			
Left Band	58.41	20	Pass
Right Band	65.35	20	Pass
8DPSK Non-hopping			
Left Band	40.52	20	Pass
Right Band	45.14	20	Pass
GFSK hopping			
Left Band	55.29	20	Pass
Right Band	60.58	20	Pass
π/4-DQPSK hopping			
Left Band	44.00	20	Pass
Right Band	44.03	20	Pass
8DPSK hopping			
Left Band	54.04	20	Pass
Right Band	58.98	20	Pass

BDR mode (GFSK): Band Edge-Left Side

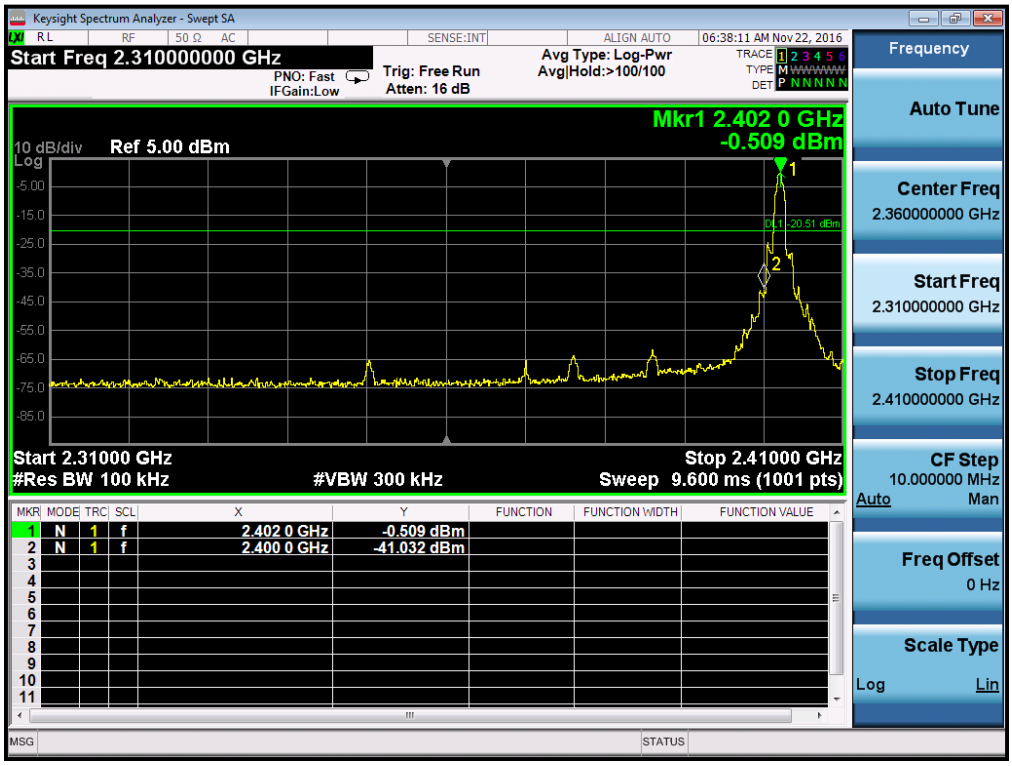


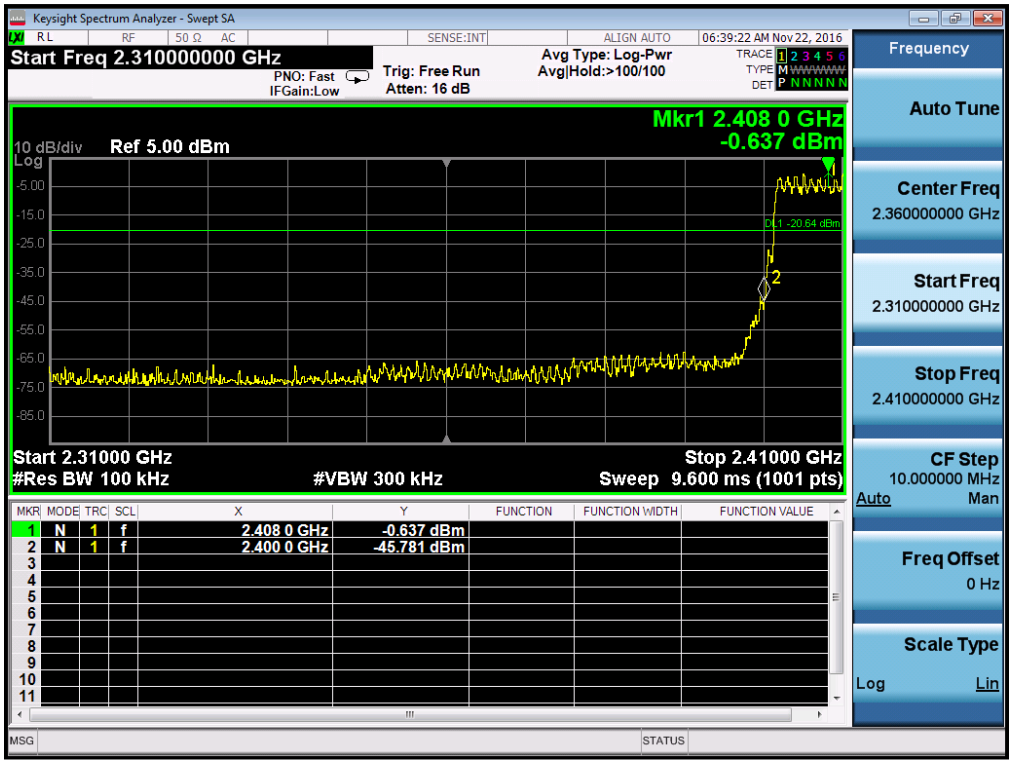
BDR mode (GFSK): Band Edge-Right Side



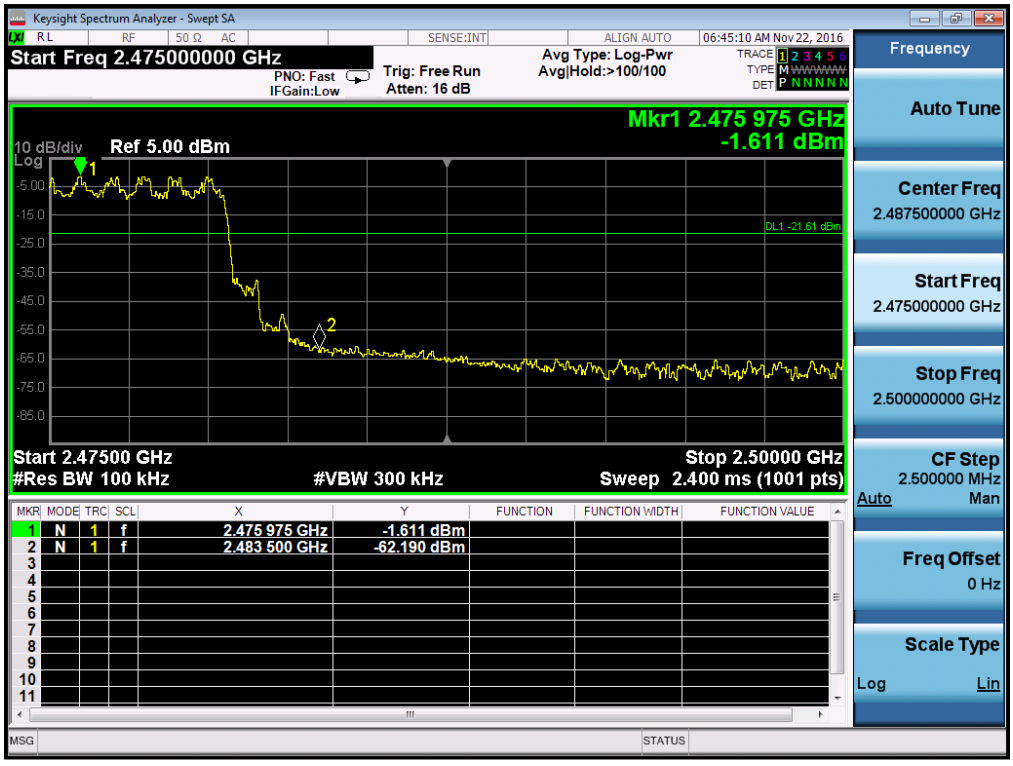


EDR mode (π/4-DQPSK): Band Edge-Left Side

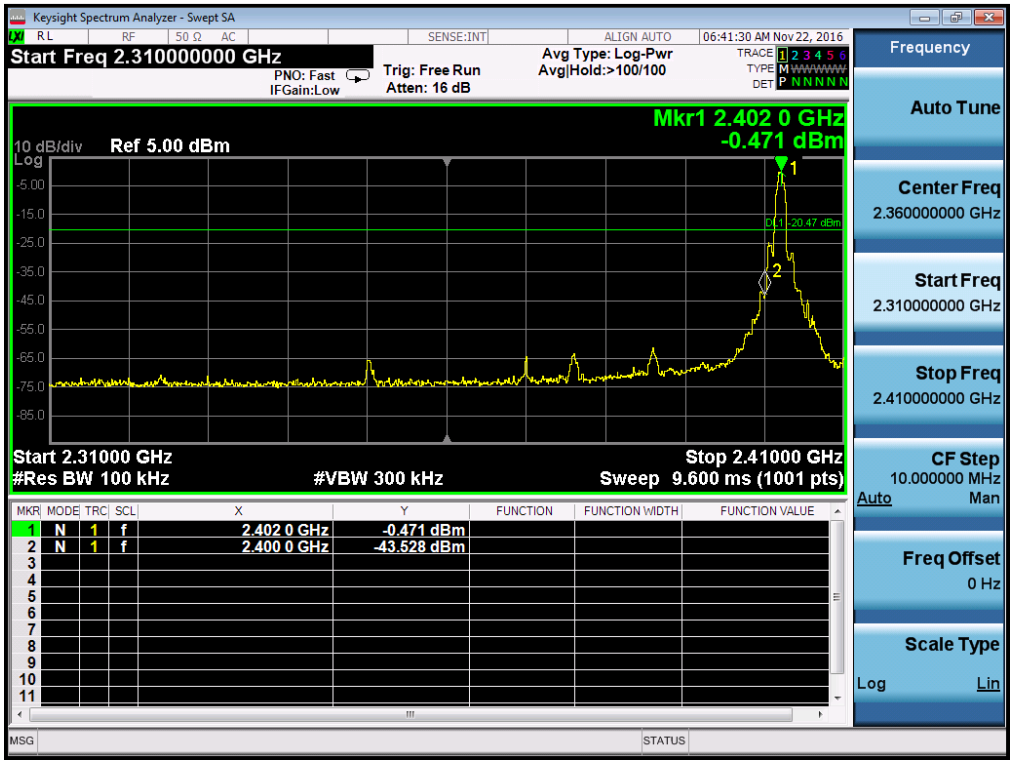


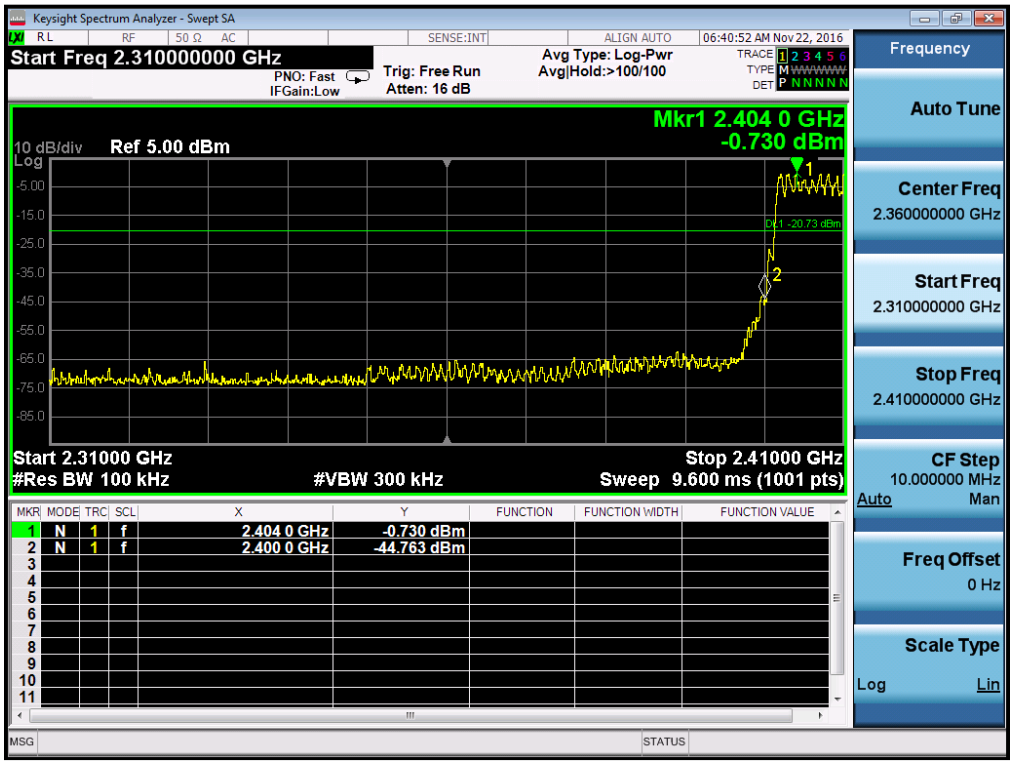


EDR mode (π/4-DQPSK): Band Edge- Right Side

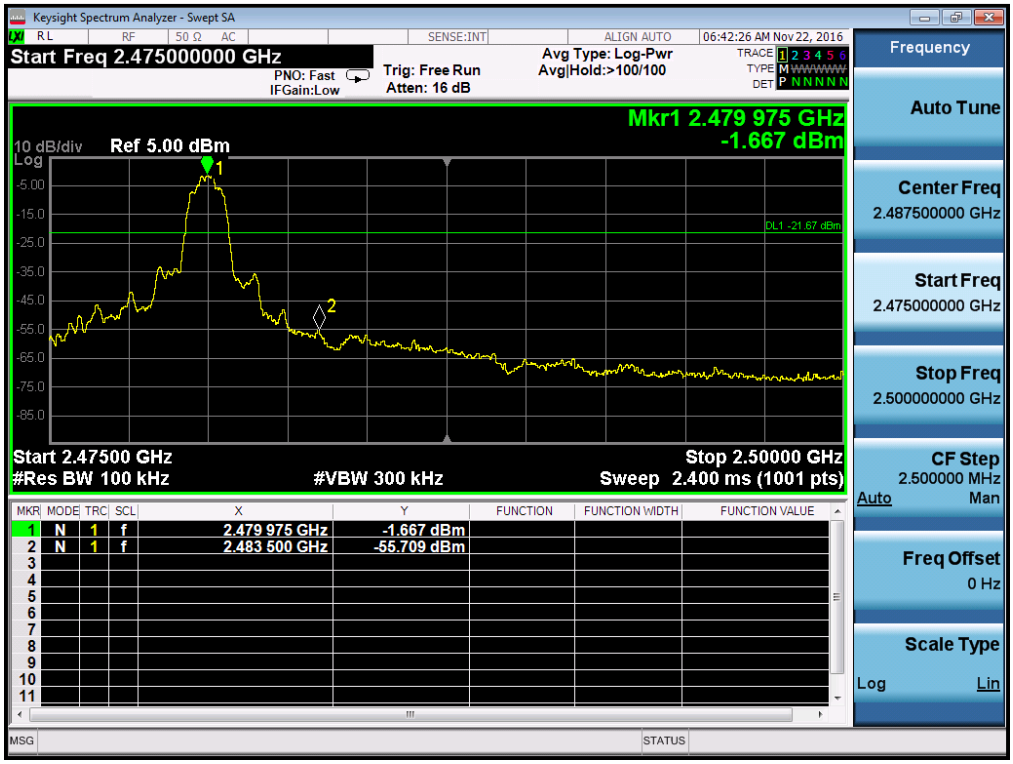


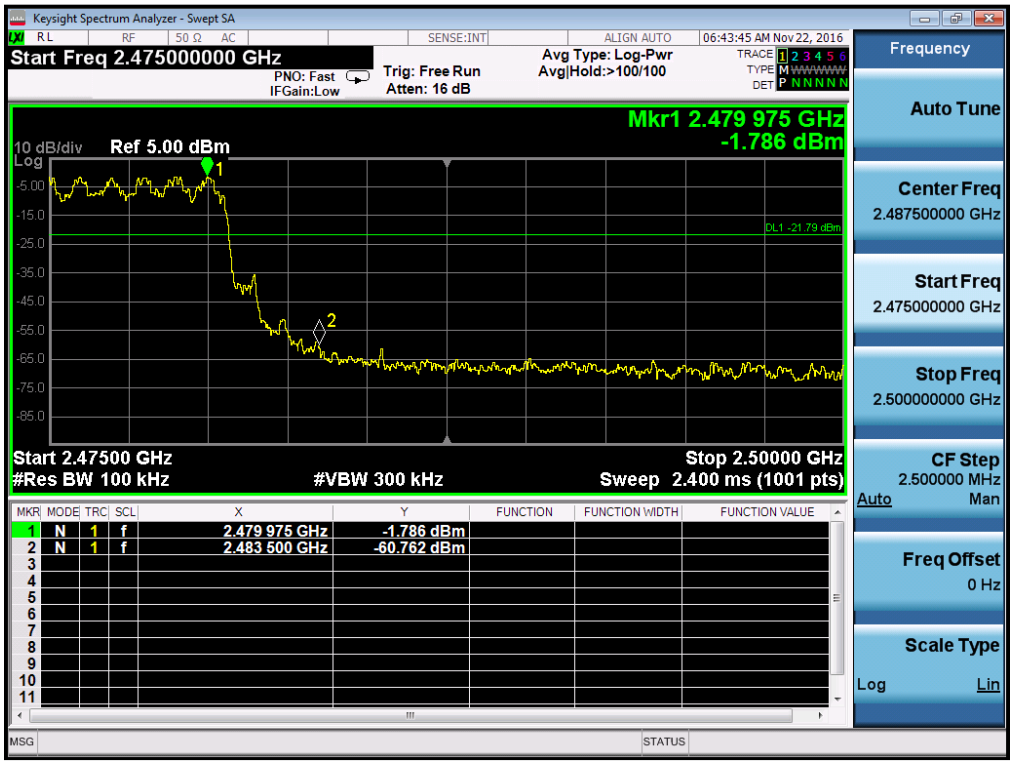
EDR mode(8DPSK): Band Edge-Left Side





EDR mode(8DPSK): Band Edge-Right Side





NOTE: Hopping enabled and disabled have evaluated,and the worst data was reported.

11. ANTENNA REQUIREMENTS

11.1. Limits

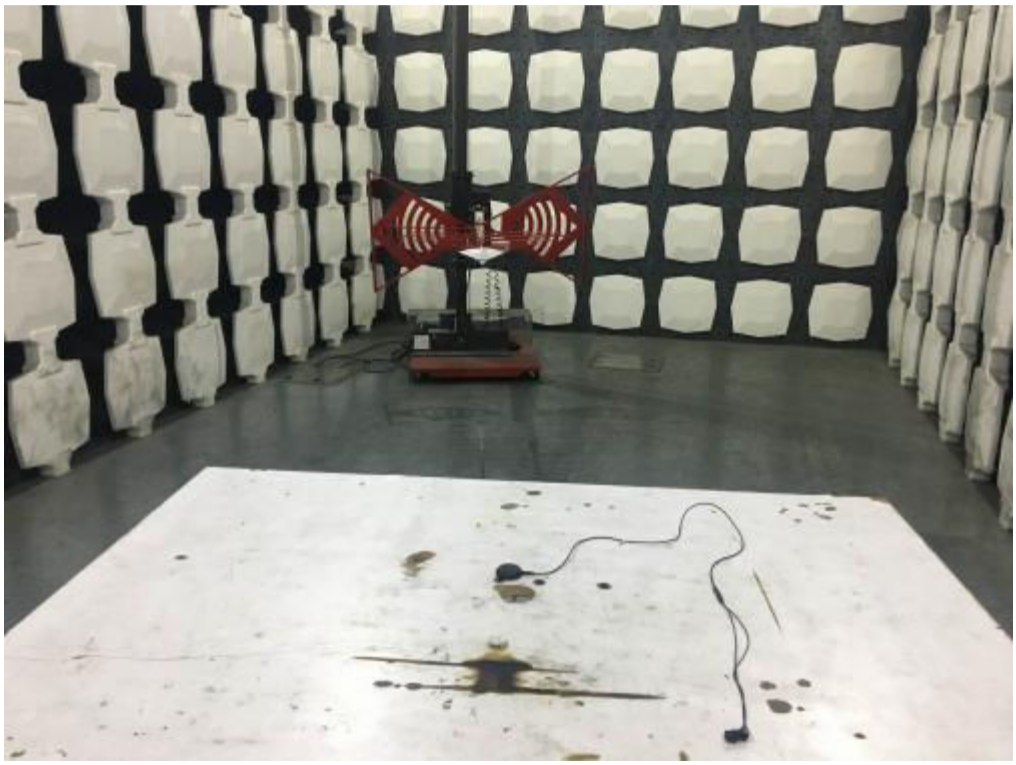
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Result

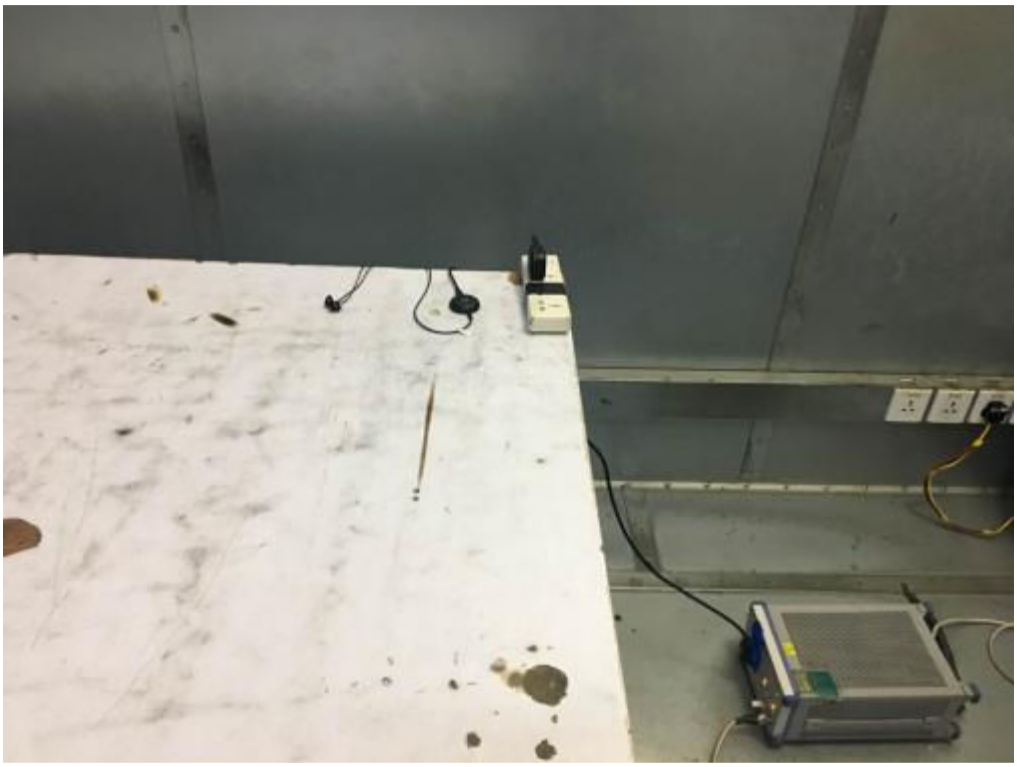
The antennas used for this product is PCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.2dBi.

12. PHOTOGRAPHS OF TEST SET-UP

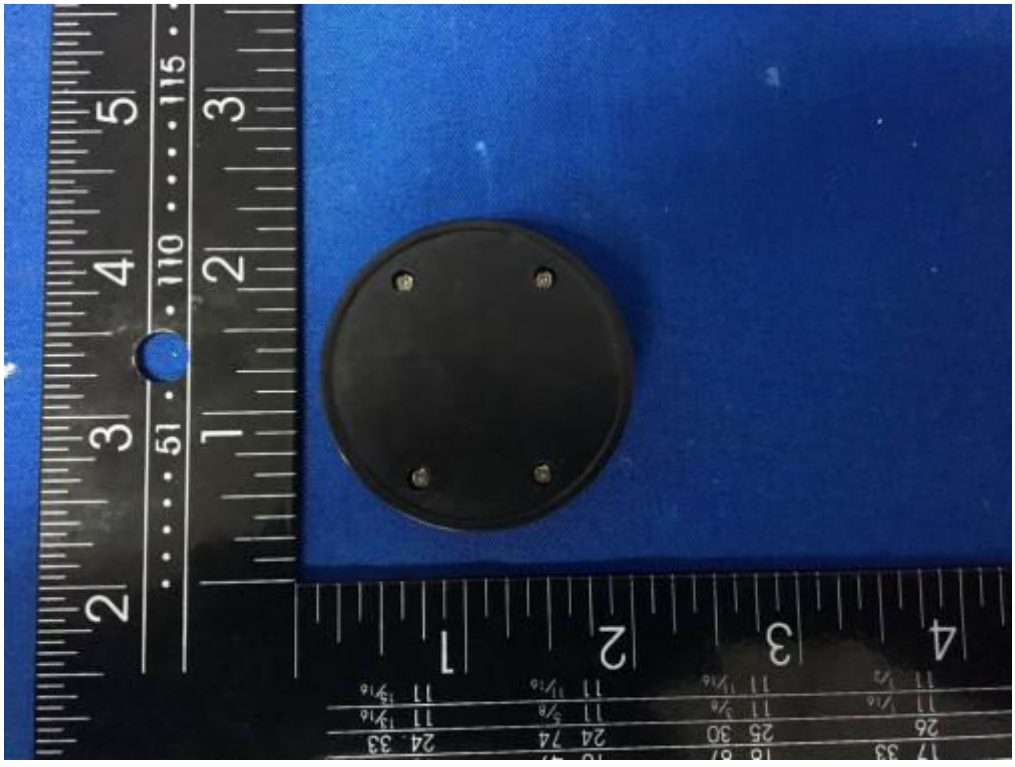
Radiated Emission Test



Conducted Emission



13. PHOTOGRAPHS OF THE EUT



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