FCC TEST REPORT

FCC ID: 2AS8O-EP-T1

Product Name	:	ULTRA-PORTABLEACTIVE SPEAKER
Model Name	:	EP-T1
Brand Name	:	EDISON PROFESSIONAL
Report No.	:	PTC19061903101E-FC01
Prepared for		
BLT'S		
11901 SANTA MONICA BLVD., SUITE 413, LOS ANGELES, CA 90025		
Prepared by		
Dongguan Precise Testing & Certification Corp., Ltd.		
Building D, Baoding Technology Park, Guangming Road 2, Guangming Community, Dongcheng District, Dongguan, Guangdong, China		

1TEST RESULT CERTIFICATION

Applicant's name	:	BLT'S
Address	:	11901 SANTA MONICA BLVD., SUITE 413, LOS ANGELES, CA 90025
Manufacture's name	:	NINGBO RIXING ELECTRONICS CO.,LTD
Address	:	NO.1-2, ZHONGYI ROAD, INDUSTRIAL ZONE, WUXIANG TOWN, NINGBO,CHINA
Product name	:	ULTRA-PORTABLEACTIVE SPEAKER
Model name	:	EP-T1
Standards	:	FCC CFR47 Part 15 Section 15.247
Test procedure	:	ANSI C63.10:2013
Test Date	:	July 5, 2019 to July 15, 2019
Date of Issue	:	July 16, 2019
Test Result	:	Pass

This device described above has been tested by PTC, and 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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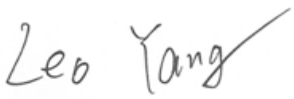
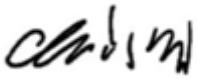
Test Engineer:



Leo Yang / Engineer

Technical Manager:



Chris Du / Manager

Contents

2 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions	15.205(a) 15.209 15.247(d)	PASS
Band edge	15.247(d) 15.205(a)	PASS
Conduct Emission	15.207	PASS
20dB Bandwidth	15.247(a)(1)	PASS
Maximum Peak Output Power	15.247(b)(1)	PASS
Frequency Separation	15.247(a)(1)	PASS
Number of Hopping Frequency	15.247(a)(1)(iii)	PASS
Dwell time	15.247(a)(1)(iii)	PASS
Antenna Requirement	15.203	PASS

3 TEST FACILITY

Dongguan Precise Testing & Certification Corp., Ltd.

Address: Building D, Baoding Technology Park, Guangming Road2, Dongcheng District, Dongguan, Guangdong, China

FCC Registration Number: 790290

A2LA Certificate No.: 4408.01

IC Registration Number: 12191A-1

Test Lab: Shenzhen BCTC Testing Co., Ltd.

Address: BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China

FCC Registered No.: 712850

Test items: Radiated Spurious Emission(18GHz to 25GHz)

4 General Information

4.1 General Description of E.U.T.

Product Name	:	ULTRA-PORTABLEACTIVE SPEAKER
Model Name	:	EP-T1
Bluetooth Version	:	BT 5.0
Operating frequency	:	2402-2480MHz
Numbers of Channel	:	79 channels
Antenna Type	:	Internal PCB Antenna
Antenna Gain	:	-0.58 dBi
Type of Modulation	:	GFSK, Π/4-DQPSK, 8DPSK
Power supply	:	AC 120V/60Hz
Hardware Version	:	V1.0
Software Version	:	V1.0

4.2 Test Mode

The EUT has been tested under its typical operating condition. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2013 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

The EUT has been tested under TX operating condition.

This EUT is a FHSS system, were conducted to determine the final configuration from all possible combinations. We use software control the EUT, Let EUT hopping on and transmit with highest power, all the modes GFSK, Π/4-DQPSK, 8DPSK have been tested. 79 Channels are provided by EUT. The 3 channels of lower, medium and higher were chosen for test.

Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	-	-

Channel	**Frequency(MHz)**
0	2402
39	2441
78	2480

5 Equipment During Test

5.1 Equipments List

RF Conducted Test

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Calibration Due
MXG Signal Analyzer	Agilent	N9020A	MY56070279	10Hz-30GHz	Apr 07, 2020
Coaxial Cable	CDS	79254	46107086	10Hz-30GHz	Oct 09, 2019
Antenna Connector	Florida RF Labs	N/A	RF01#	N/A	Aug. 26, 2019

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

Radiated Emissions(Test Frequency from 9KHz-18GHz)

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	9KHz-3GHz	Sep. 03, 2019
Loop Antenna	Schwarzbeck	FMZB 1519	012	9 KHz -30MHz	Aug 31, 2019
Bilog Antenna	SCHWARZBECK	VULB9160	9160-3355	25MHz-2GHz	Aug 31, 2019
Preamplifier (low frequency)	SCHWARZBECK	BBV 9475	9745-0013	1MHz-1GHz	Sep. 03, 2019
Cable	Schwarzbeck	PLF-100	549489	9KHz-3GHz	Sep. 03, 2019
Spectrum Analyzer	Agilent	E4407B	MY45109572	9KHz-40GHz	Oct. 13, 2019
Horn Antenna	SCHWARZBECK	9120D	9120D-1246	1GHz-18GHz	Aug. 31, 2019
Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	1GHz-26.5GHz	Aug. 31, 2019
Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	Sep. 03, 2019

Radiated Emission (Test Frequency from 18GHz-25GHz)

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Calibration Due
Spectrum Analyzer	Agilent	E4407B	MY45109572	9KHz-26.5GHz	2019.08.26
Test Receiver	R&S	ESPI	101396	9KHz-7GHz	2019.08.26
Horn Antenna	SCHWARZBECK	BBHA 9170	9170-181	14GHz-40GHz	2019.09.02
Amplifier	SCHWARZBECK	BBV 9721	9721-205	18GHz-40GHz	2019.08.26
RF Cable	R&S	R204	R21X	1GHz-40GHz	2019.08.26

Conducted Emissions

Name of Equipment	Manufacturer	Model	Serial No.	Characteristics	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	9KHz-3GHz	Sep. 03, 2019
Artificial Mains Network	Rohde&Schwarz	L2-16B	000WX31025	9KHz-300MHz	Sep. 03, 2019
Artificial Mains Network	Rohde&Schwarz	ENV216	101342	9KHz-300MHz	Sep. 03, 2019

5.2 Measurement Uncertainty

Parameter	**Uncertainty**
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%	

5.3 Description of Support Units

Equipment	Model No.	Series No.
N/A	N/A	N/A

6 Conducted Emission

Test Requirement:	:	FCC CFR 47 Part 15 Section 15.207
Test Method:	:	ANSI C63.10:2013
Test Result:	:	PASS
Frequency Range:	:	150kHz to 30MHz
Class/Severity:	:	Class B
Detector:	:	Peak for pre-scan (9kHz Resolution Bandwidth)

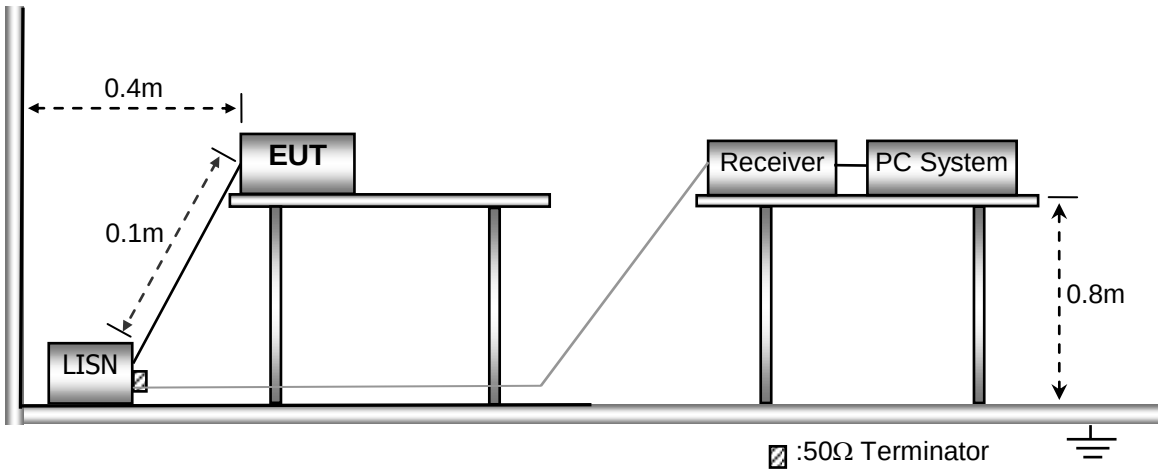
6.1 E.U.T. Operation

Operating Environment **:**

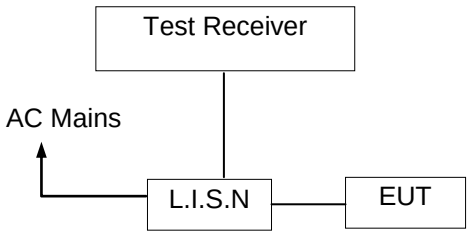
Temperature:	:	23.8 °C
Humidity:	:	50 % RH
Atmospheric Pressure:	:	101.21kPa
Test Voltage	:	AC 120V/60Hz

6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10: 2013



6.3 Test SET-UP (Block Diagram of Configuration)



6.4 Measurement Procedure:

1. The EUT was placed on a table, which is 0.1m above ground plane.

2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

3. Repeat above procedures until all frequency measured was complete.

6.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:
1. The lower limit shall apply at the transition frequencies
2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

6.6 Measurement Description

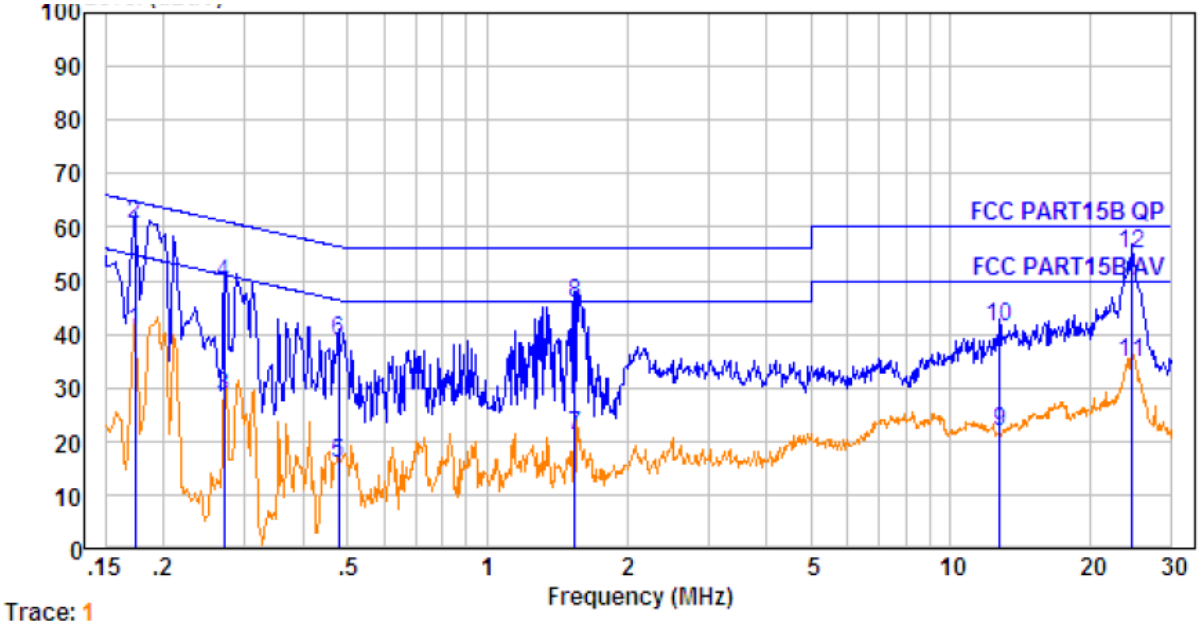
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.7 Conducted Emission Test Result

Pass.

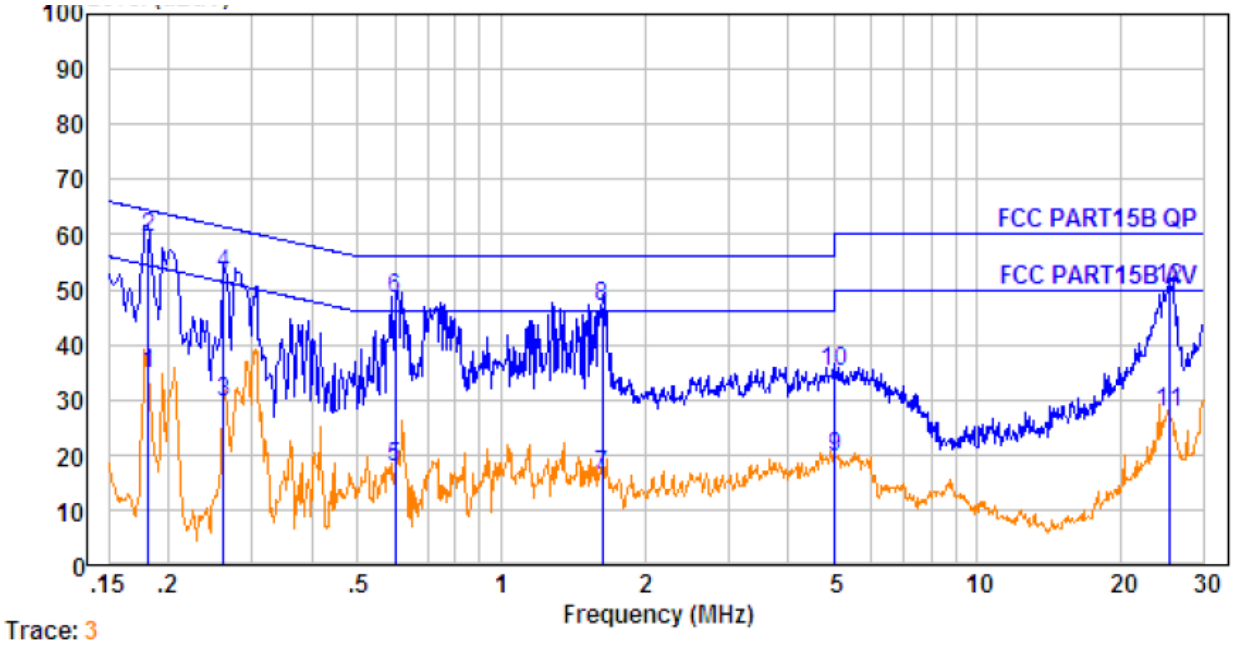
All the modulation modes were tested the data of the worst mode (AC 120V/60Hz, GFSK TX 2402MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.

Line -120V/60Hz:



No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBµV	Emission Level dBµV	Limit dBµV	Over Limit dB	Remark
1.	0.174	0.24	9.54	30.92	40.70	54.77	-14.07	Average
2.	0.174	0.24	9.54	50.70	60.48	64.77	-4.29	QP
3.	0.270	0.35	9.65	18.44	28.44	51.12	-22.68	Average
4.	0.270	0.35	9.65	39.52	49.52	61.12	-11.60	QP
5.	0.479	0.42	9.77	5.59	15.78	46.36	-30.58	Average
6.	0.479	0.42	9.77	28.64	38.83	56.36	-17.53	QP
7.	1.544	0.47	9.84	10.77	21.08	46.00	-24.92	Average
8.	1.544	0.47	9.84	35.63	45.94	56.00	-10.06	QP
9.	12.784	0.56	9.99	11.12	21.67	50.00	-28.33	Average
10.	12.784	0.56	9.99	30.65	41.20	60.00	-18.80	QP
11.	24.659	0.53	9.89	24.42	34.84	50.00	-15.16	Average
12.	24.659	0.53	9.89	44.66	55.08	60.00	-4.92	QP

Neutral -120V/60Hz:



No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBµV	Emission Level dBµV	Limit dBµV	Over Limit dB	Remark
1.	0.182	0.25	9.59	24.74	34.58	54.42	-19.84	Average
2.	0.182	0.25	9.59	49.70	59.54	64.42	-4.88	QP
3.	0.262	0.34	9.68	19.53	29.55	51.38	-21.83	Average
4.	0.262	0.34	9.68	42.63	52.65	61.38	-8.73	QP
5.	0.598	0.44	9.82	7.46	17.72	46.00	-28.28	Average
6.	0.598	0.44	9.82	37.96	48.22	56.00	-7.78	QP
7.	1.628	0.47	9.87	5.88	16.22	46.00	-29.78	Average
8.	1.628	0.47	9.87	36.52	46.86	56.00	-9.14	QP
9.	5.031	0.50	9.96	9.06	19.52	50.00	-30.48	Average
10.	5.031	0.50	9.96	24.63	35.09	60.00	-24.91	QP
11.	25.456	0.53	10.07	17.20	27.80	50.00	-22.20	Average
12.	25.456	0.53	10.07	39.52	50.12	60.00	-9.88	QP

7 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method : ANSI C63.10:2013

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.1 EUT Operation

Operating Environment :

Temperature : 23.9 °C

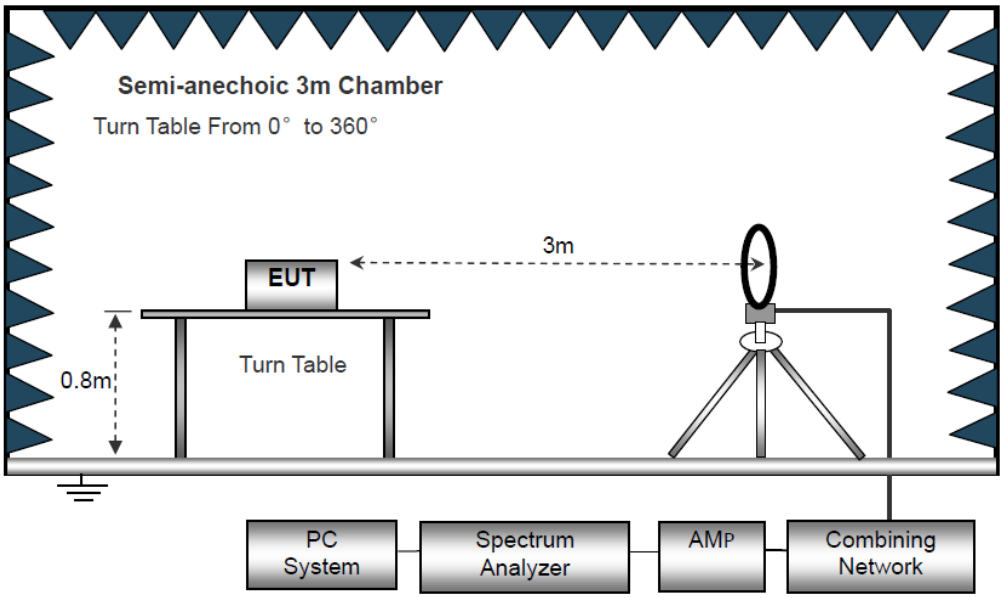
Humidity : 51.32 % RH

Atmospheric Pressure : 101.12kPa

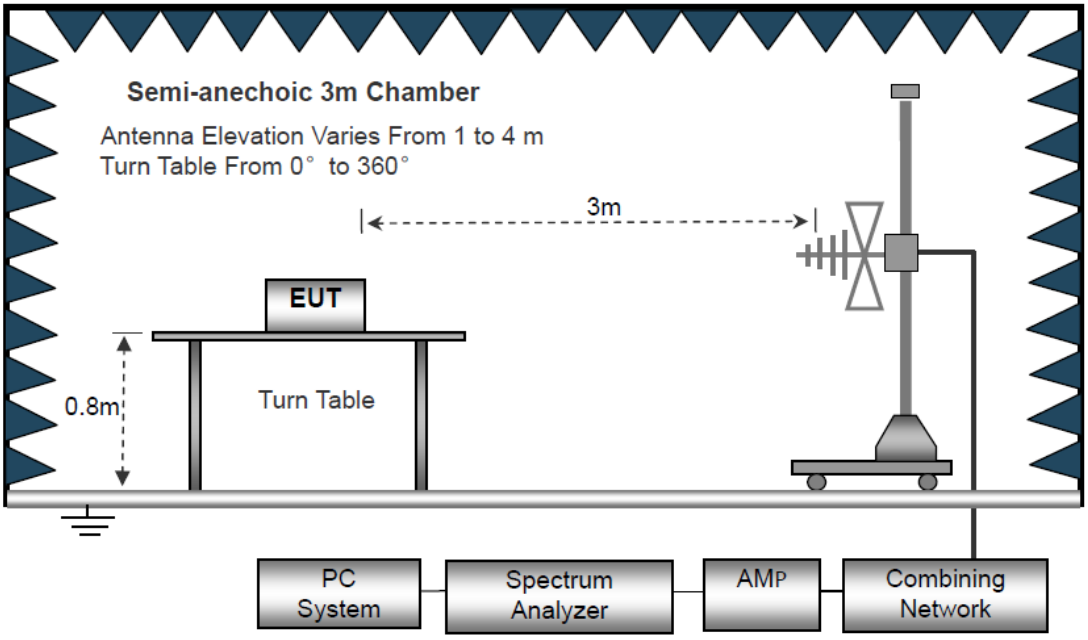
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

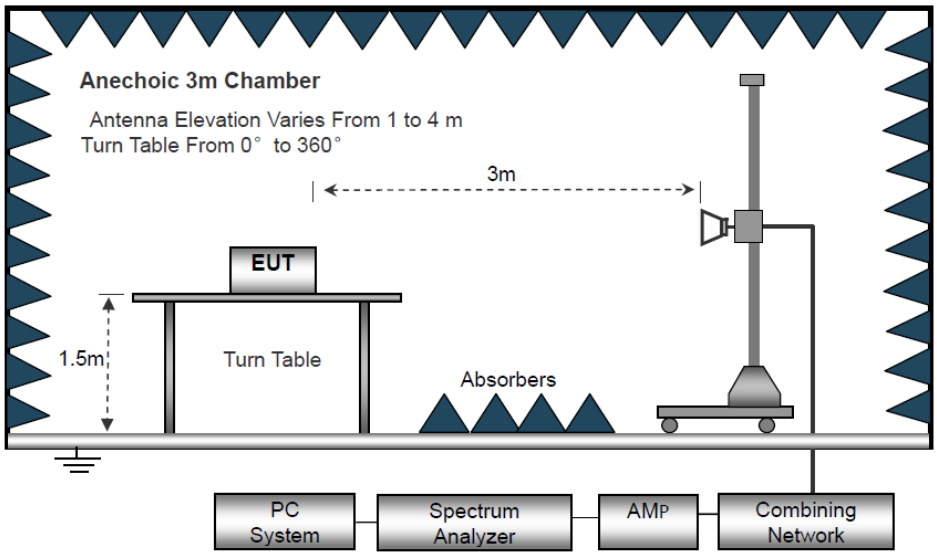
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz			
IF Bandwidth	:	10kHz	
Resolution Bandwidth	:	10kHz	
Video Bandwidth	:	10kHz	
30MHz ~ 1GHz			
Detector	:	PK	QP
Resolution Bandwidth	:	100kHz	120kHz
Video Bandwidth	:	300kHz	300kHz
Above 1GHz			
Detector	:	PK	AV
Resolution Bandwidth	:	1MHz	1MHz
Video Bandwidth	:	3MHz	10Hz

7.4 Test Procedure

1. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane, And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

6. Repeat above procedures until the measurements for all frequencies are complete.

7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

8. The test above 1GHz must be use the fully anechoic room, and the test below 1GHz use the half anechoic room

7.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

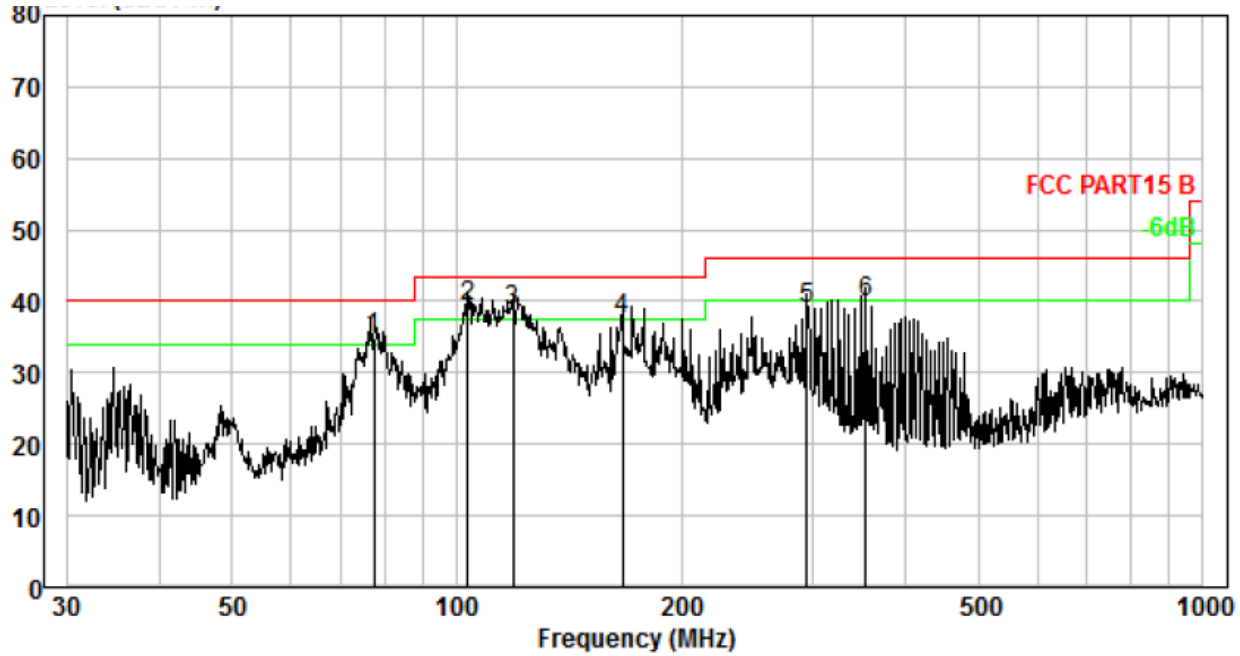
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

Please refer to the following test plots:

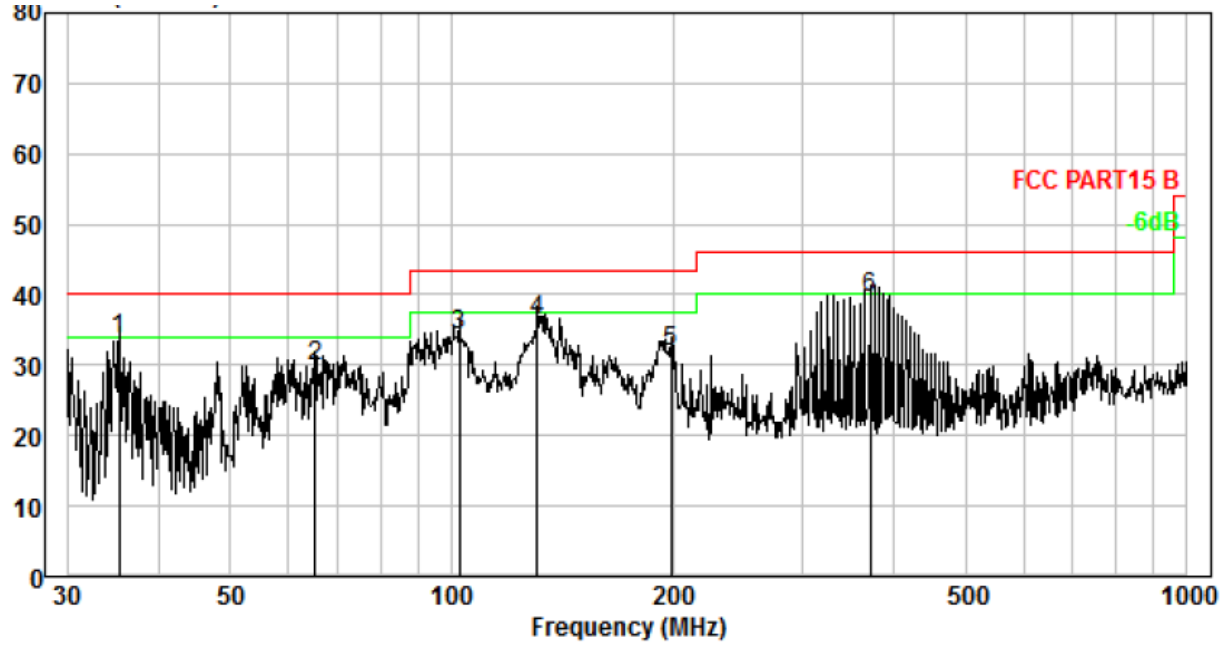
All the modulation modes were tested the data of the worst mode (AC 120V/60Hz, GFSK TX 2402MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.

Test plot for Horizontal: GFSK(2402MHz)



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	77.593	2.84	9.29	52.87	30.30	34.70	40.00	-5.30	QP
2.	103.442	3.33	10.53	55.78	30.40	39.24	43.50	-4.26	QP
3.	119.018	3.58	11.94	53.72	30.45	38.79	43.50	-4.71	QP
4.	166.651	4.15	13.51	50.39	30.57	37.48	43.50	-6.02	QP
5.	295.147	5.13	13.10	51.51	30.77	38.97	46.00	-7.03	QP
6.	352.943	5.44	14.29	51.07	30.83	39.97	46.00	-6.03	QP

Test plot for Vertical: GFSK(2402MHz)



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	35.251	1.48	13.41	48.69	30.03	33.55	40.00	-6.45	QP
2.	65.114	2.53	11.80	45.79	30.24	29.88	40.00	-10.12	QP
3.	102.360	3.31	10.44	50.87	30.40	34.22	43.50	-9.28	QP
4.	130.837	3.74	12.69	50.42	30.48	36.37	43.50	-7.13	QP
5.	198.588	4.45	10.48	47.54	30.63	31.84	43.50	-11.66	QP
6.	370.702	5.53	14.66	50.09	30.84	39.44	46.00	-6.56	QP

Test Frequency 1GHz-18GHz

Low Channel (2402MHz) Worst case GFSK

Frequency (MHz)	S.A Reading (dBuV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4804	28.43	AV	V	7.69	10.13	10.43	35.82	54	-18.18
4804	29.05	AV	H	7.69	10.13	10.43	36.44	54	-17.56
4804	30.45	PK	V	7.69	10.13	10.43	37.84	74	-36.16
4804	31.29	PK	H	7.69	10.13	10.43	38.68	74	-35.32
15425	28.43	AV	V	8.26	12.48	8.29	40.88	54	-13.12
15425	29.57	AV	H	8.26	12.48	8.29	42.02	54	-11.98
15425	31.69	PK	V	8.26	12.48	8.29	44.14	74	-29.86
15425	32.48	PK	H	8.26	12.48	8.29	44.93	74	-29.07

Middle Channel (2441MHz) Worst case π/4-DQPSK

Frequency (MHz)	S.A Reading (dBuV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4882	29.35	AV	V	8.45	9.24	8.13	38.91	54	-15.09
4882	30.11	AV	H	8.45	9.24	8.13	39.67	54	-14.33
4882	30.46	PK	V	8.45	9.24	8.13	38.02	74	-35.98
4882	31.26	PK	H	8.45	9.24	8.13	40.82	74	-33.18
16518	29.85	AV	V	7.96	9.55	10.27	37.09	54	-16.91
16518	30.45	AV	H	7.96	9.55	10.27	37.69	54	-16.31
16518	32.58	PK	V	7.96	9.55	10.27	39.82	74	-34.18
16518	31.69	PK	H	7.96	9.55	10.27	38.93	74	-35.07

High Channel (2480MHz) Worst case GFSK

Frequency (MHz)	S.A Reading (dBuV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4960	31.26	AV	V	8.09	9.85	10.49	38.71	54	-15.29
4960	29.54	AV	H	8.09	9.85	10.49	36.99	54	-17.01
4960	33.04	PK	V	8.09	9.85	10.49	35.49	74	-38.51
4960	30.48	PK	H	8.09	9.85	10.49	37.93	74	-36.07
17125	32.65	AV	V	9.51	10.24	8.67	43.73	54	-10.27
17125	33.24	AV	H	9.51	10.24	8.67	44.32	54	-9.68
17125	34.26	PK	V	9.51	10.24	8.67	42.34	74	-31.66
17125	35.54	PK	H	9.51	10.24	8.67	40.62	74	-33.38

Note: 1. The testing has been conformed to 10*2480MHz=24800MHz.

2. All other emissions more than 30dB below the limit.

3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Emission Level = Reading + Factor
Margin=Emission Level-Limit

Test Frequency: From 18GHz to 25GHz

The measurements were more than 20dB below the limit and not reported.

8 CONDUCTED BAND EDGE EMISSION

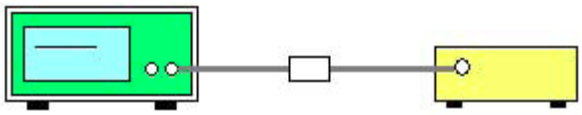
8.1 REQUIREMENT

Regulation 15.247 (d),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)).

8.2 TEST PROCEDURE

. 1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold

8.3 TEST SETUP



1. The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100KHz. The video bandwidth is set to 300KHz.

2. The spectrum from 30MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

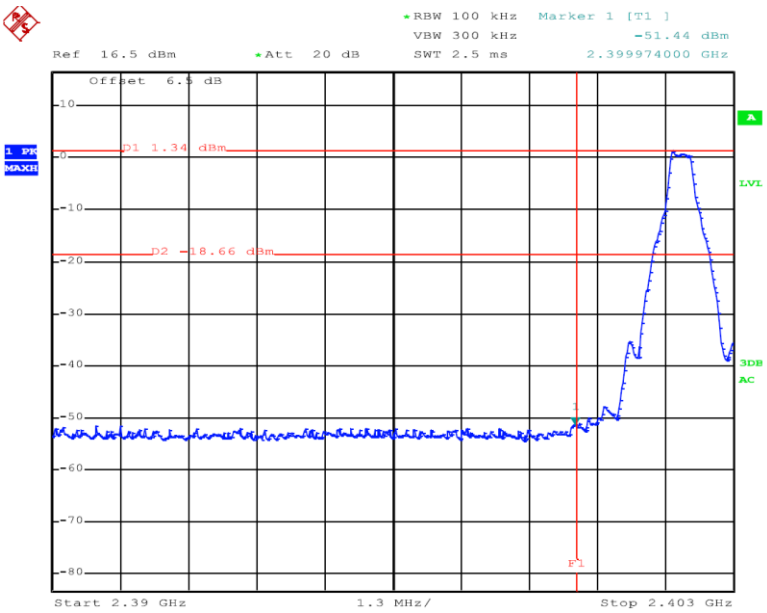
8.4 EUT OPERATION CONDITIONS

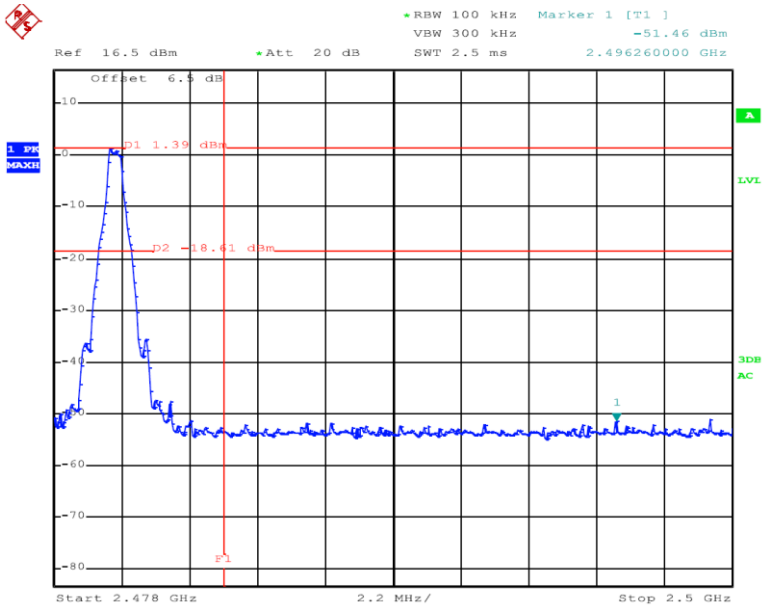
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

8.5 TEST RESULTS

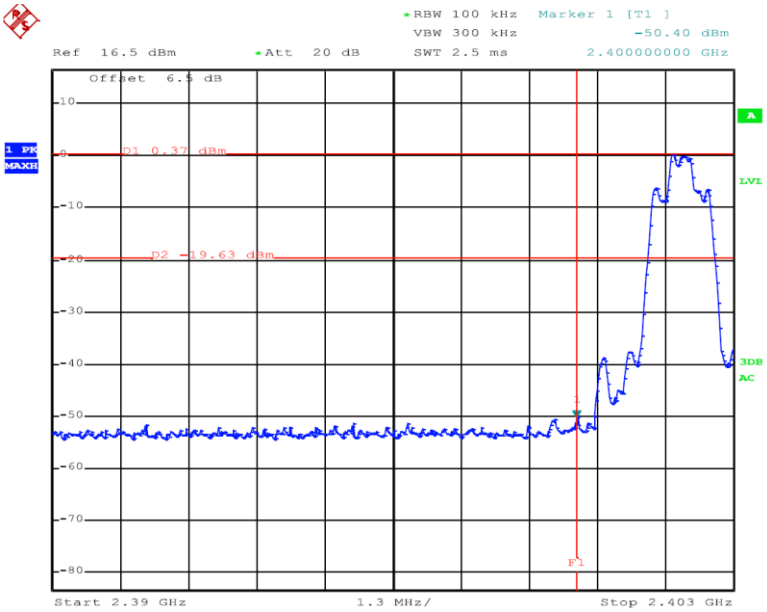
For Non-Hopping Mode:

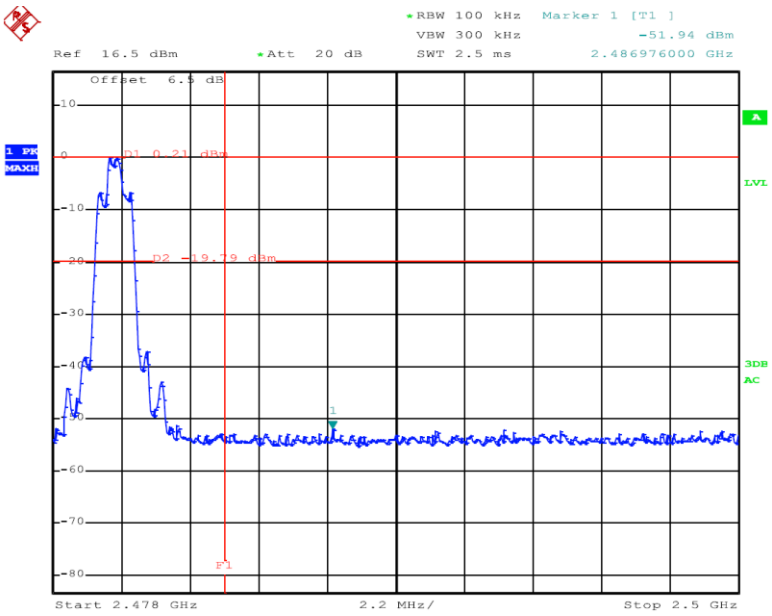
GFSK



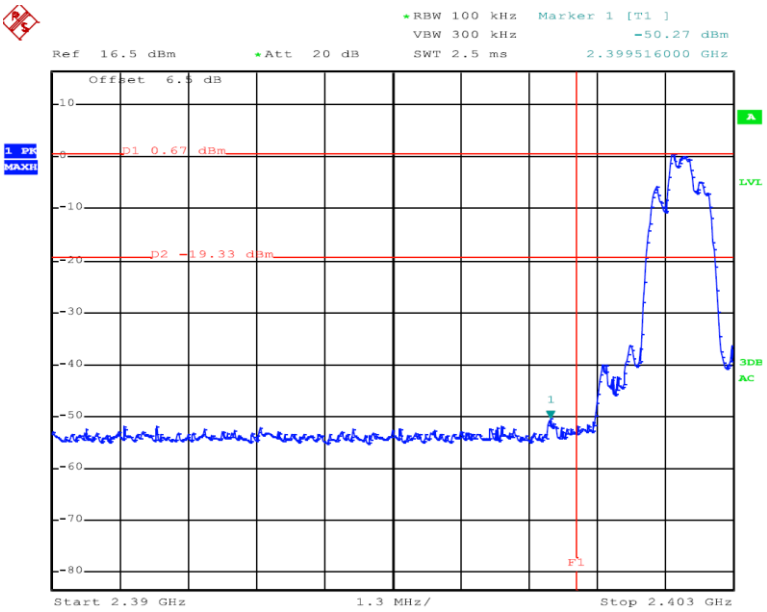

RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-51.46 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.496260000 GHz
Offset 6.5 dB
D1 1.39 dBm
D2 -18.61 dBm
LVL
3DB
AC
Start 2.478 GHz
2.2 MHz/
Stop 2.5 GHz

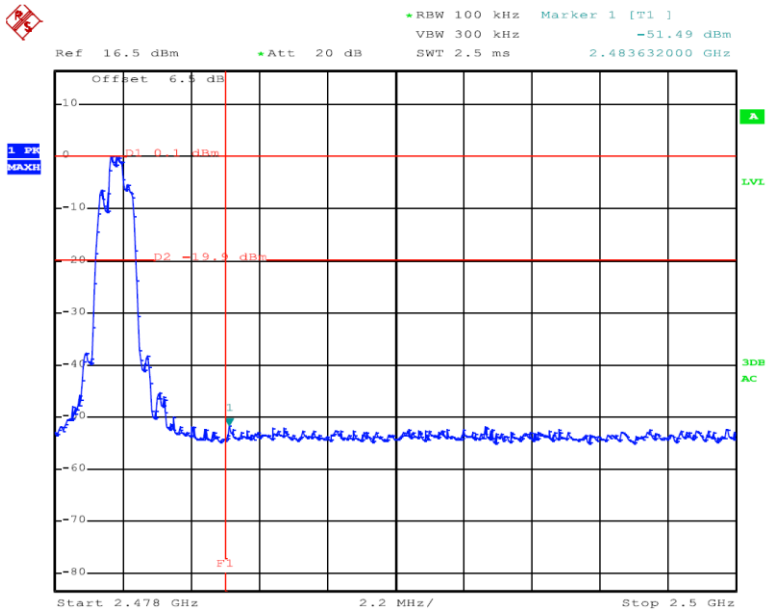
π/4-DQPSK


RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-50.40 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.400000000 GHz
Offset 6.5 dB
D1 0.37 dBm
D2 -19.63 dBm
LVL
3DB
AC
Start 2.39 GHz
1.3 MHz/
Stop 2.403 GHz


RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-51.94 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.486976000 GHz
Offset 6.5 dB
D1 0.21 dBm
D2 -19.79 dBm
LVL
3DB
AC
F1
Start 2.478 GHz
2.2 MHz/
Stop 2.5 GHz

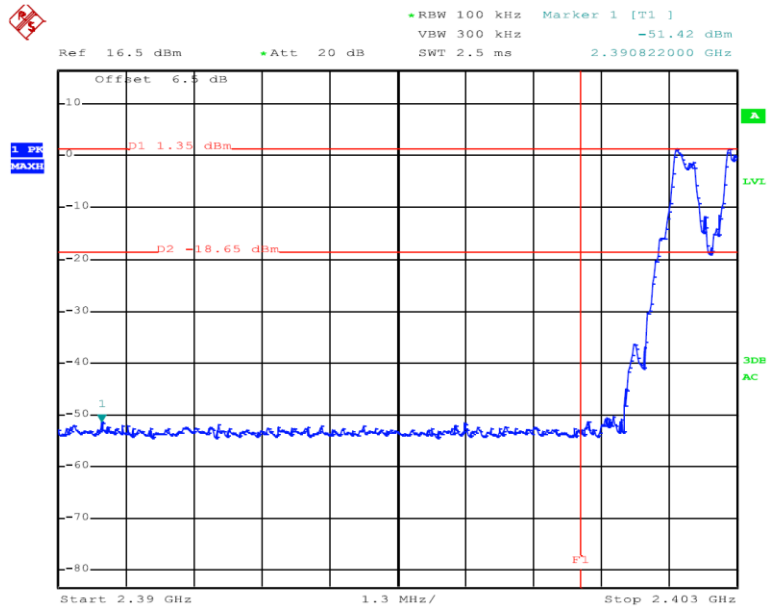
8DPSK

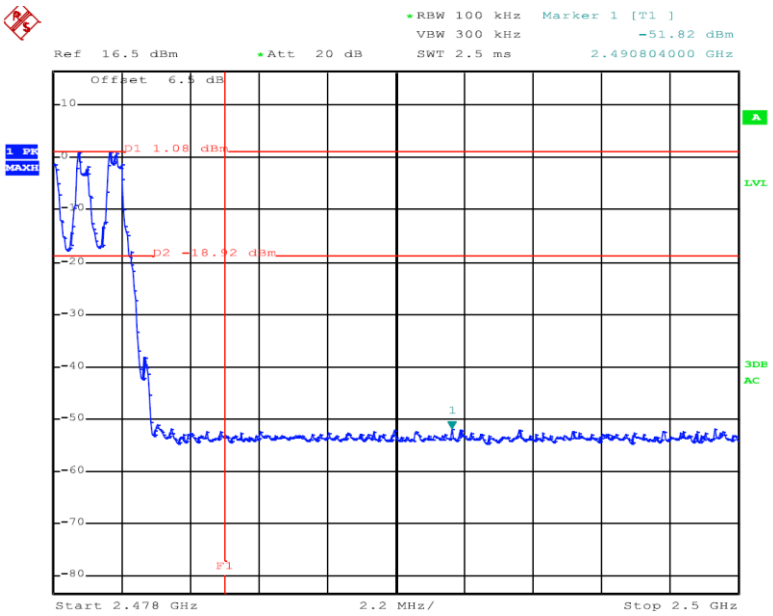

RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-50.27 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.399516000 GHz
Offset 6.5 dB
D1 0.67 dBm
D2 -19.33 dBm
LVL
3DB
AC
F1
Start 2.39 GHz
1.3 MHz/
Stop 2.403 GHz



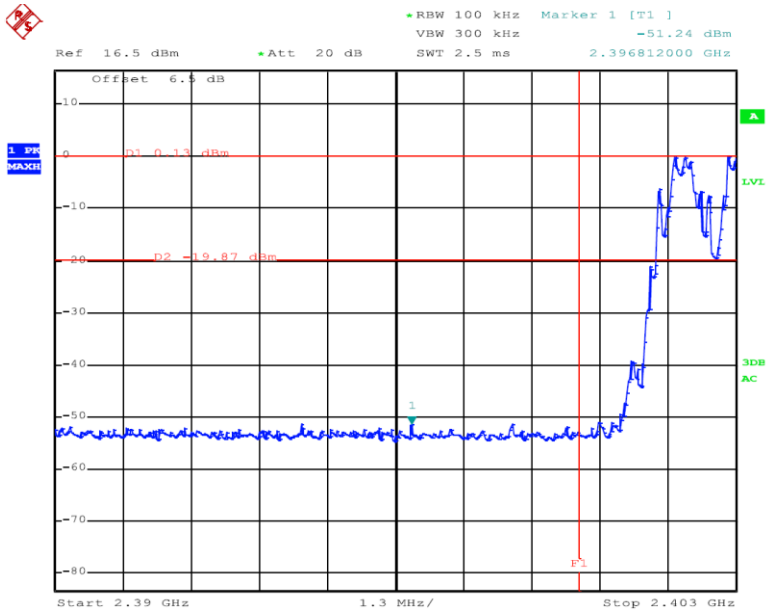
For Hopping Mode:

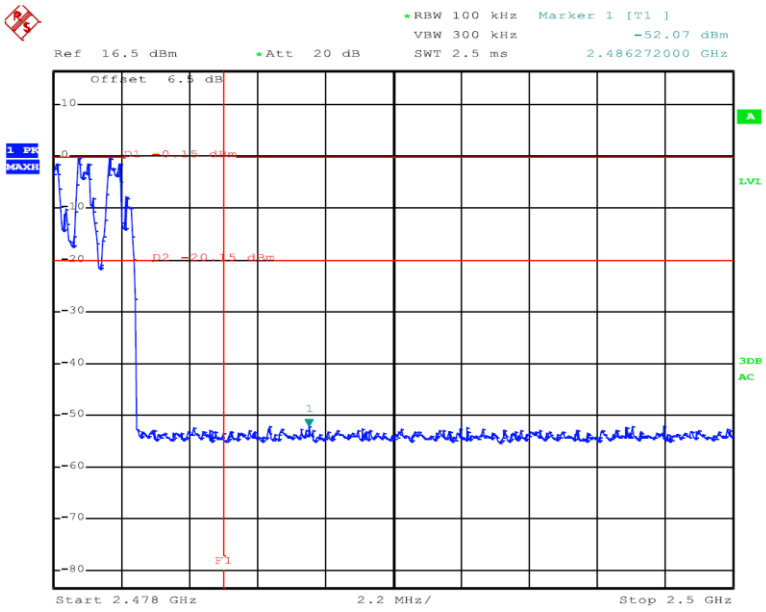
GFSK



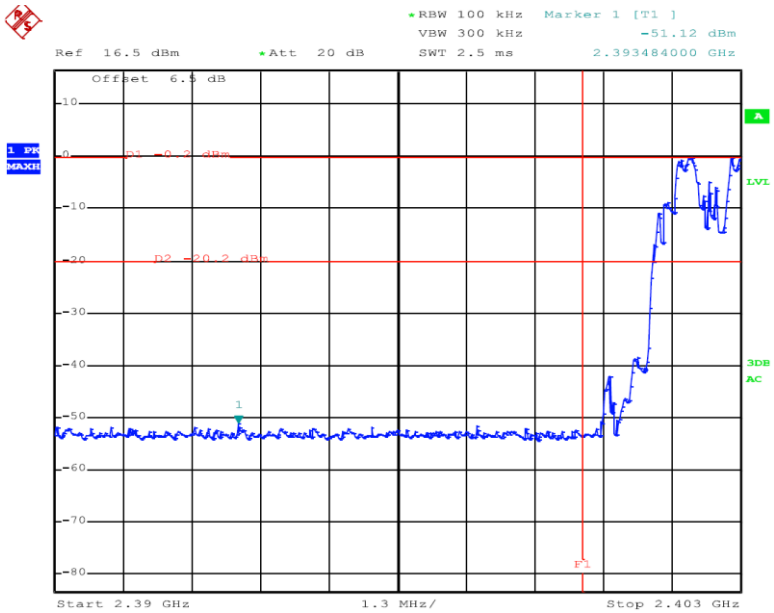

RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-51.82 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.490804000 GHz
Offset 6.5 dB
D1 1.08 dBm
D2 -18.92 dBm
Start 2.478 GHz
2.2 MHz/
Stop 2.5 GHz

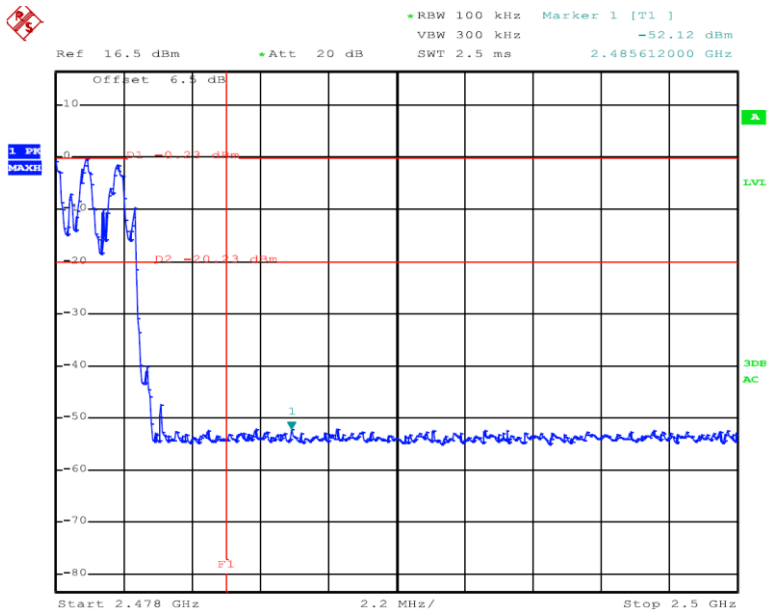
π/4-DQPSK


RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-51.24 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.396812000 GHz
Offset 6.5 dB
D1 0.13 dBm
D2 -19.87 dBm
Start 2.39 GHz
1.3 MHz/
Stop 2.403 GHz


RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-52.07 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.486272000 GHz
Offset 6.5 dB
D1 -0.15 dBm
D2 -20.15 dBm
LVL
3DB
AC
Start 2.478 GHz
2.2 MHz/
Stop 2.5 GHz

8DPSK

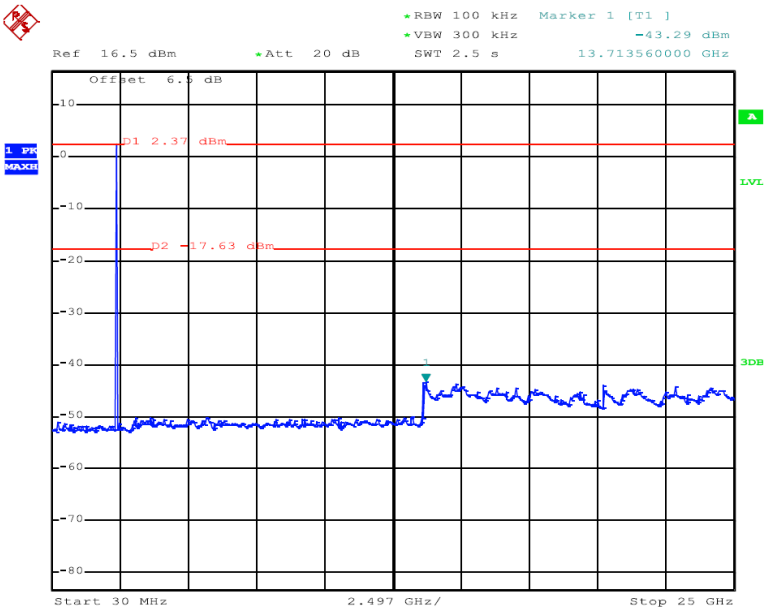

RBW 100 kHz
Marker 1 [T1]
VBW 300 kHz
-51.12 dBm
Ref 16.5 dBm
Att 20 dB
SWT 2.5 ms
2.393484000 GHz
Offset 6.5 dB
D1 -0.2 dBm
D2 -20.2 dBm
LVL
3DB
AC
Start 2.39 GHz
1.3 MHz/
Stop 2.403 GHz



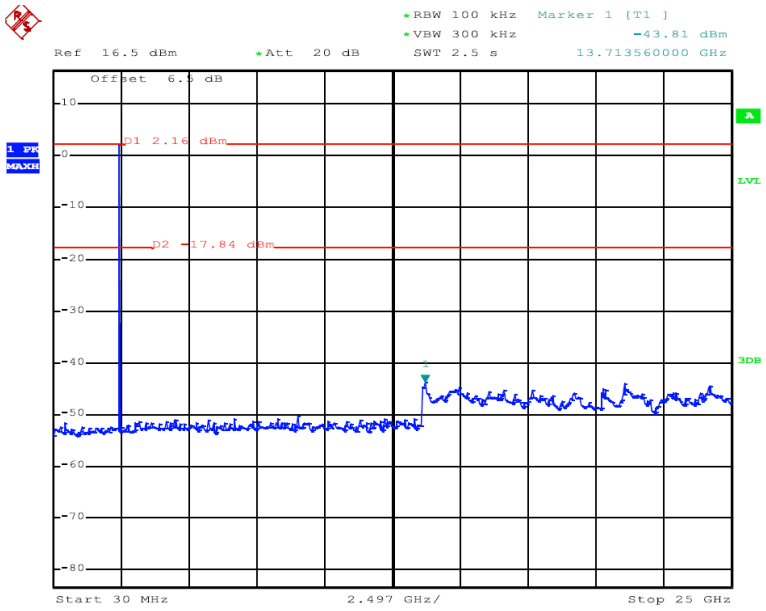
For Conduct spurious emissions

GFSK

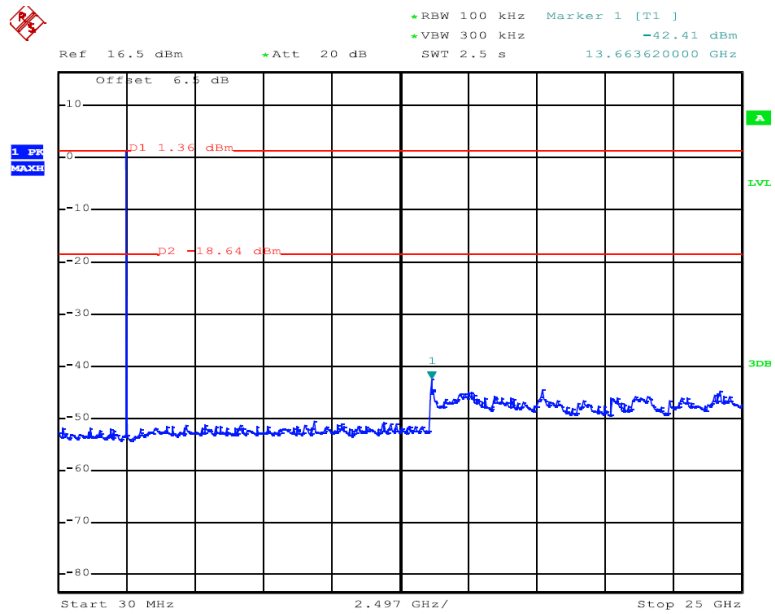
Low Channel



Middle Channel

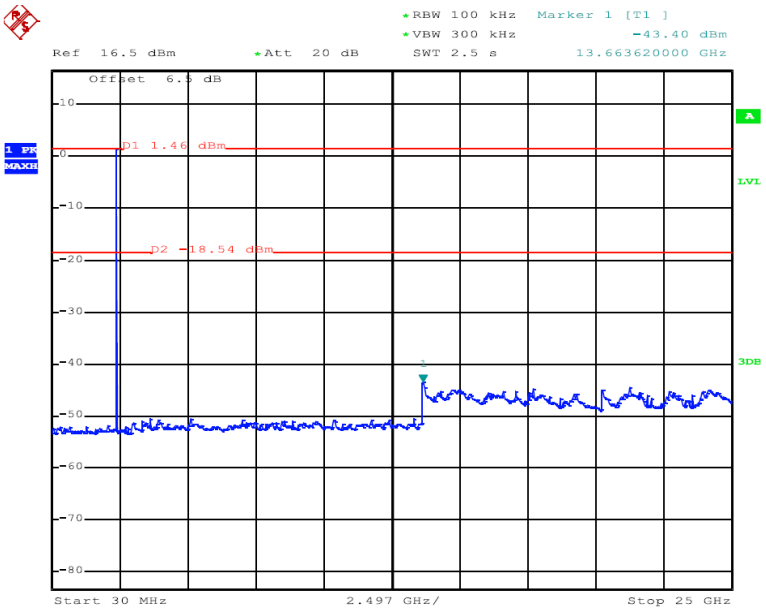


High Channel

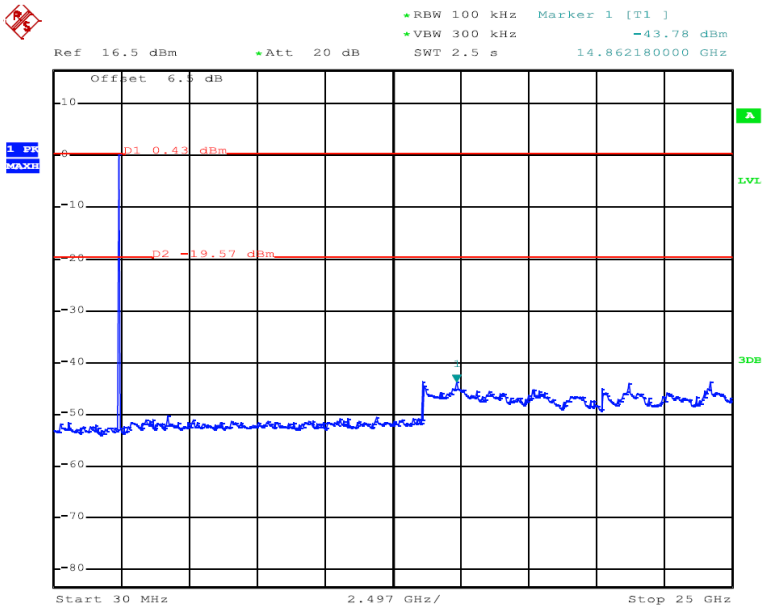


π/4-DQPSK

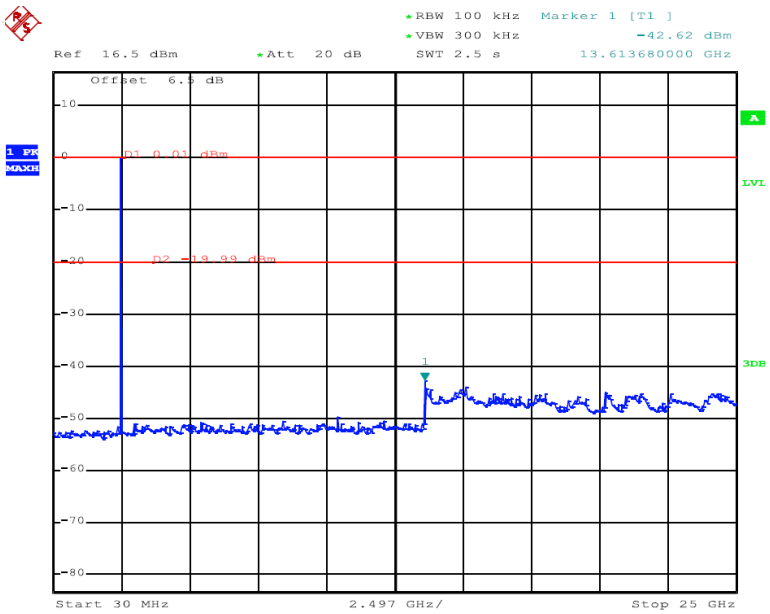
Low Channel



Middle Channel

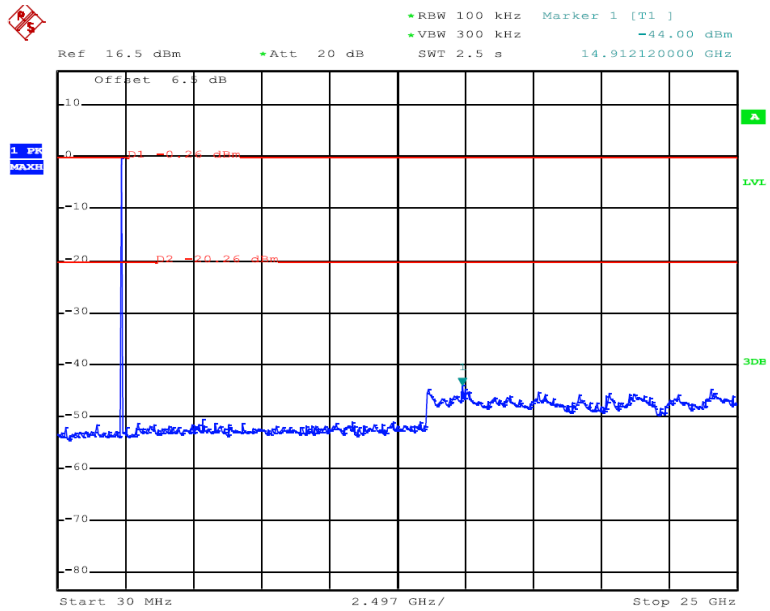


High Channel

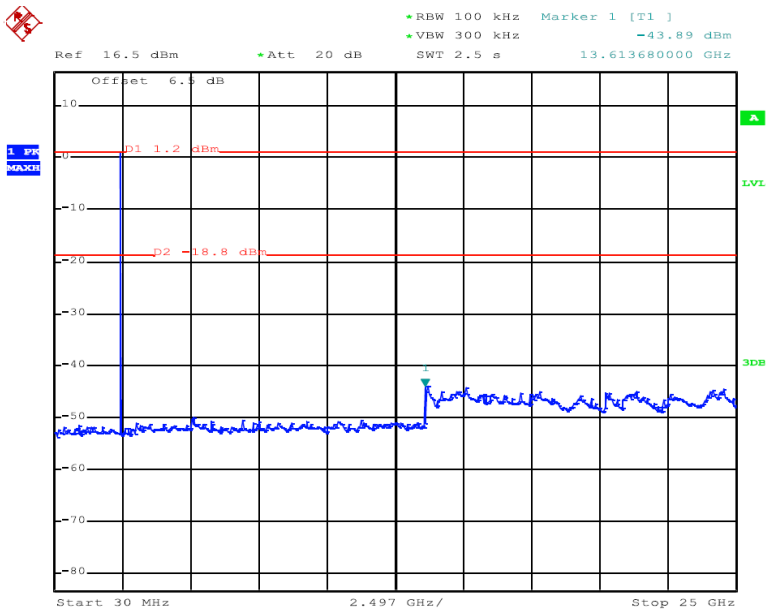


8DPSK

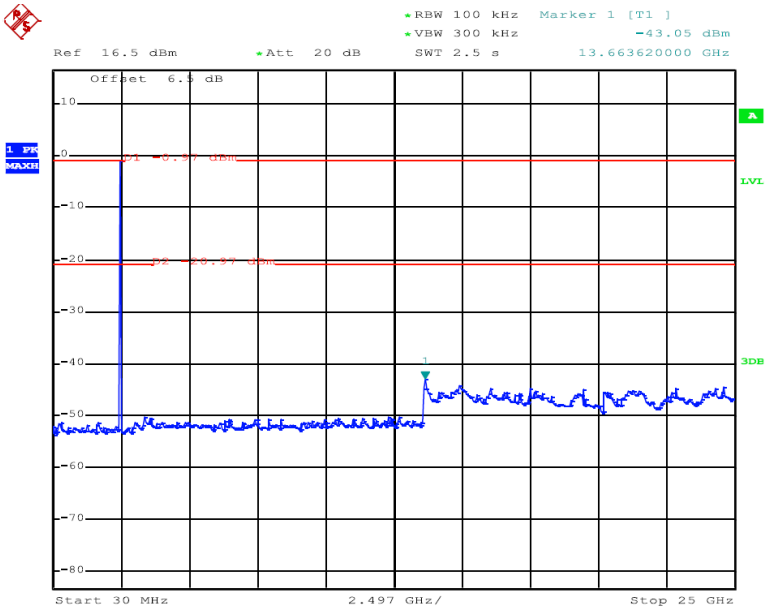
Low Channel



Middle Channel



High Channel



9 20 dB Bandwidth Measurement

Test Requirement : FCC CFR47 Part 15 Section 15.247

Test Method : ANSI C63.10:2013

9.1 Test Procedure

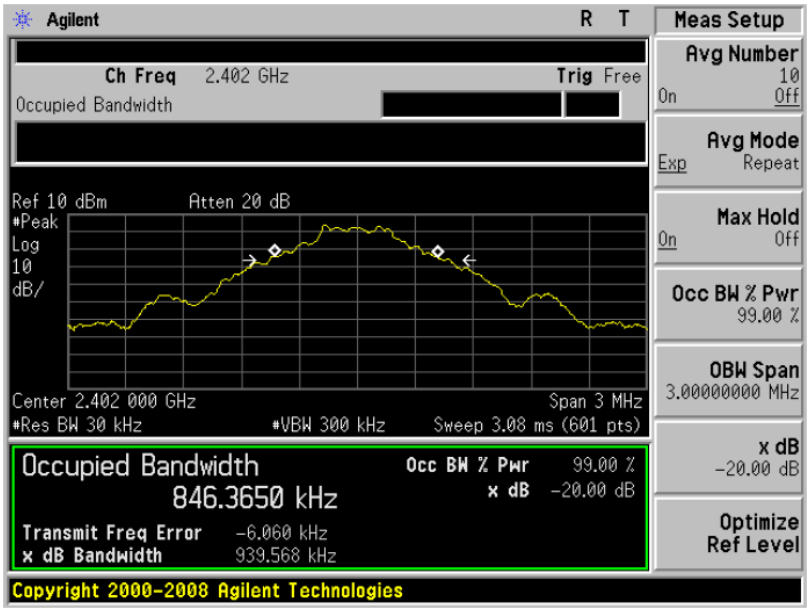
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

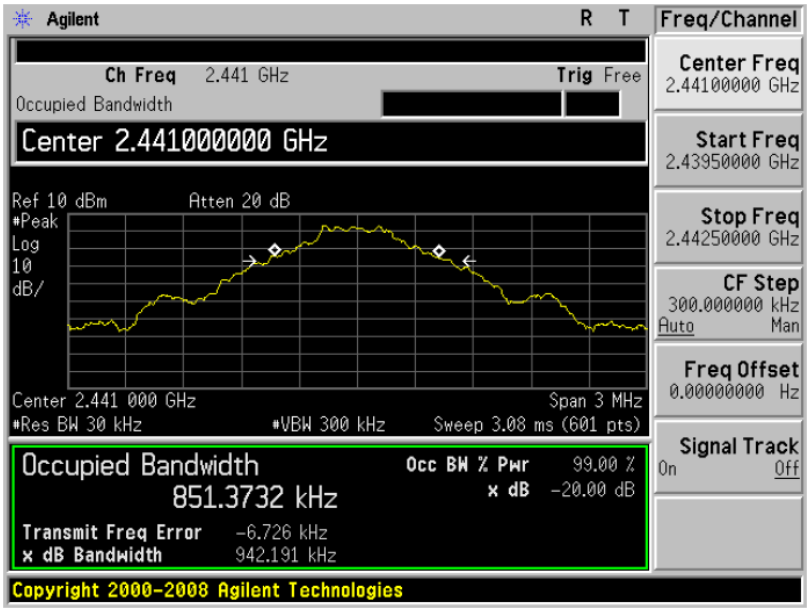
2. Set the spectrum analyzer: RBW =30kHz, VBW = 300kHz

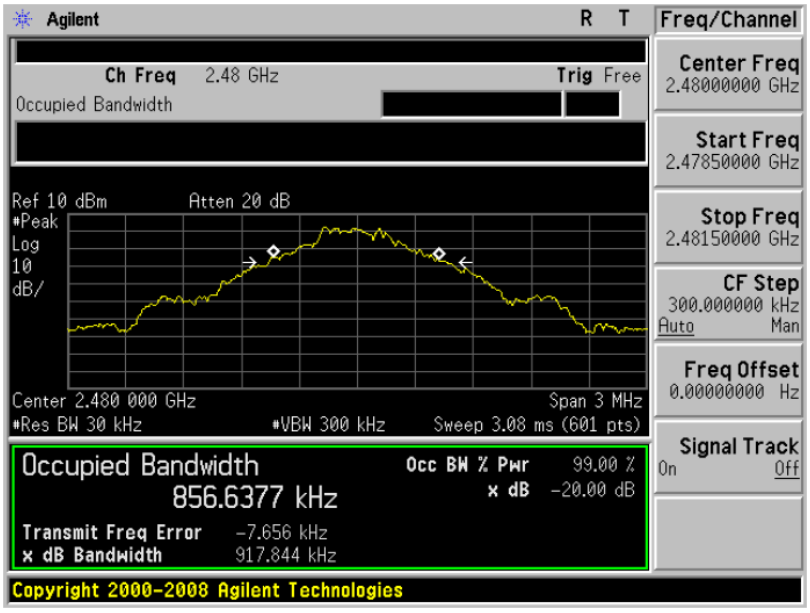
9.2 Test Result

Test Mode: CH00 / CH39 / CH78 (GFSK/(1Mbps)Mode)

Channel number	Channel frequency (MHz)	20dB Down BW(kHz)
00	2402	939.568
39	2441	942.191
78	2480	917.844

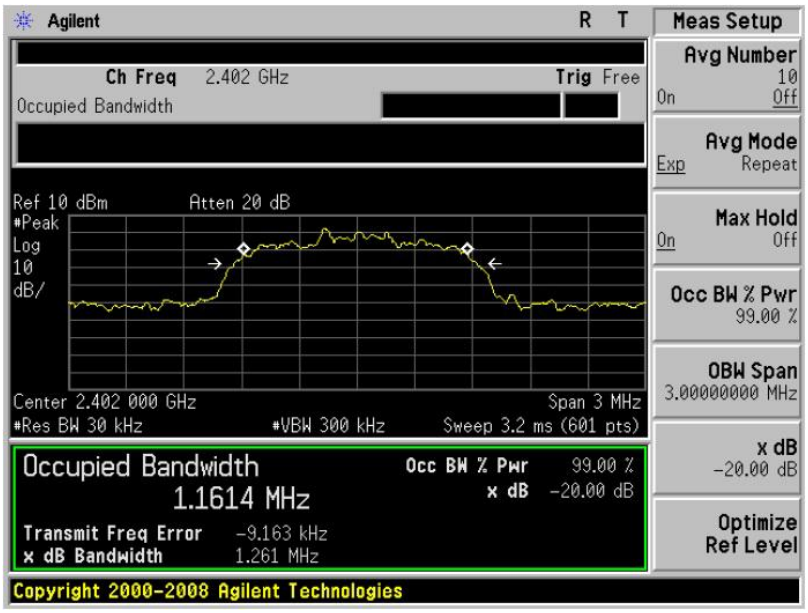


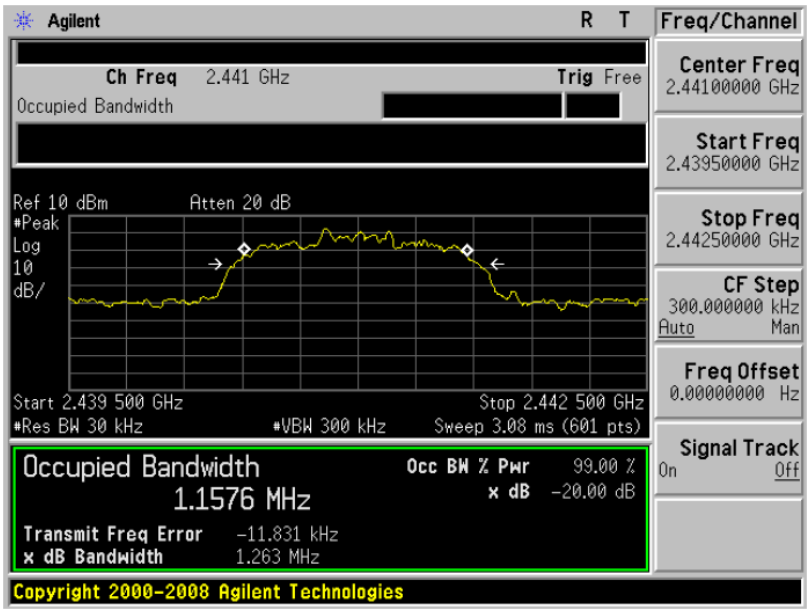

Agilent
R T
Freq/Channel
Ch Freq 2.441 GHz
Trig Free
Occupied Bandwidth
Center 2.441000000 GHz
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Center 2.441 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 3.08 ms (601 pts)
Occupied Bandwidth
851.3732 kHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -6.726 kHz
x dB Bandwidth 942.191 kHz
Center Freq
2.44100000 GHz
Start Freq
2.43950000 GHz
Stop Freq
2.44250000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Copyright 2000-2008 Agilent Technologies

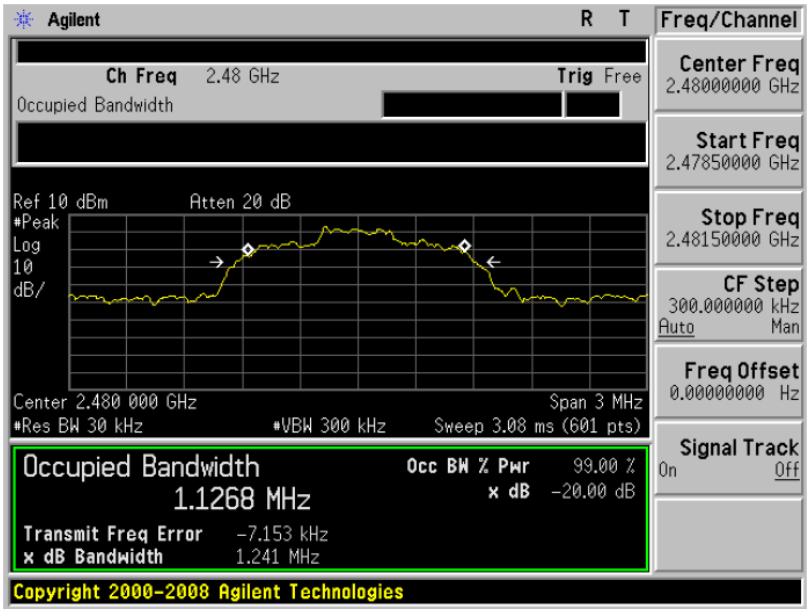

Agilent
R T
Freq/Channel
Ch Freq 2.48 GHz
Trig Free
Occupied Bandwidth
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Center 2.480 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 3.08 ms (601 pts)
Occupied Bandwidth
856.6377 kHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -7.656 kHz
x dB Bandwidth 917.844 kHz
Center Freq
2.48000000 GHz
Start Freq
2.47850000 GHz
Stop Freq
2.48150000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Copyright 2000-2008 Agilent Technologies

Test Mode: CH00 / CH39 / CH78 (Π/4-DQPSK /(2Mbps)Mode)

Channel number	Channel frequency (MHz)	20dB Down BW(kHz)
00	2402	1261
39	2441	1263
78	2480	1241




Agilent
R T
Freq/Channel
Ch Freq 2.441 GHz
Trig Free
Occupied Bandwidth
Center Freq
2.44100000 GHz
Start Freq
2.43950000 GHz
Stop Freq
2.44250000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Start 2.439 500 GHz
Stop 2.442 500 GHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 3.08 ms (601 pts)
Occupied Bandwidth
1.1576 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -11.831 kHz
x dB Bandwidth 1.263 MHz
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Freq/Channel
Ch Freq 2.48 GHz
Trig Free
Occupied Bandwidth
Center Freq
2.48000000 GHz
Start Freq
2.47850000 GHz
Stop Freq
2.48150000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Center 2.480 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 3.08 ms (601 pts)
Occupied Bandwidth
1.1268 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -7.153 kHz
x dB Bandwidth 1.241 MHz
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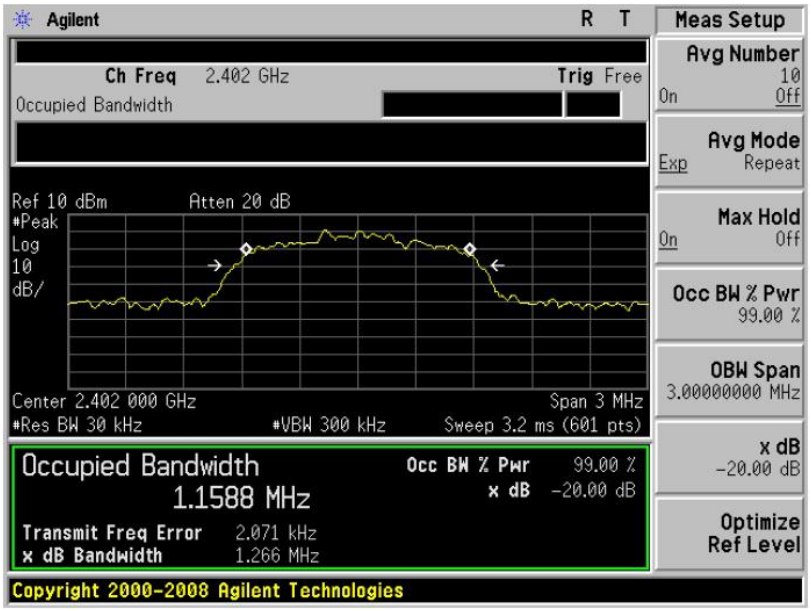
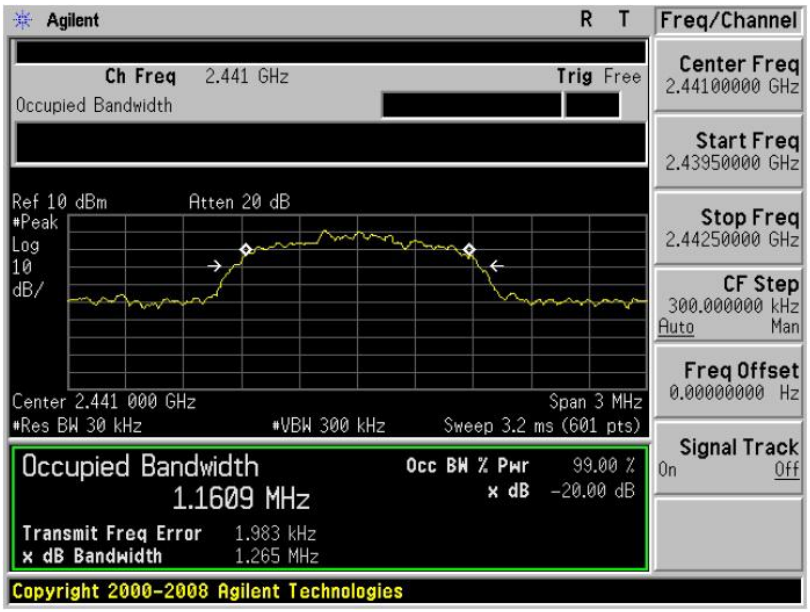
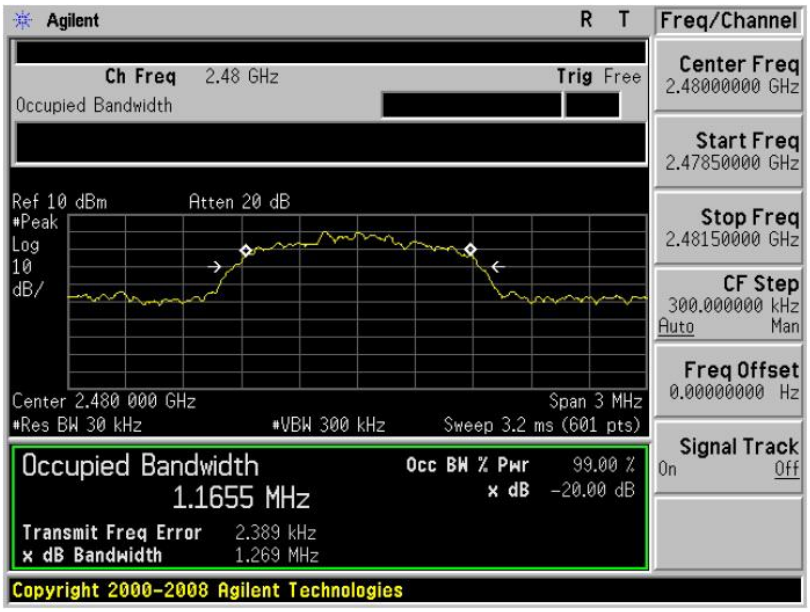
Test Mode: CH00 / CH39 / CH78 (8DPSK(3Mbps)Mode)

Channel number	Channel frequency (MHz)	20dB Down BW(kHz)
00	2402	1266
39	2441	1265
78	2480	1269




Agilent
R T
Freq/Channel
Ch Freq 2.441 GHz
Trig Free
Occupied Bandwidth
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Center 2.441 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 3.2 ms (601 pts)
Occupied Bandwidth
1.1609 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 1.983 kHz
x dB Bandwidth 1.265 MHz
Center Freq
2.44100000 GHz
Start Freq
2.43950000 GHz
Stop Freq
2.44250000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Freq/Channel
Ch Freq 2.48 GHz
Trig Free
Occupied Bandwidth
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Center 2.480 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 300 kHz
Sweep 3.2 ms (601 pts)
Occupied Bandwidth
1.1655 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 2.389 kHz
x dB Bandwidth 1.269 MHz
Center Freq
2.48000000 GHz
Start Freq
2.47850000 GHz
Stop Freq
2.48150000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Copyright 2000-2008 Agilent Technologies

10 Maximum Peak Output Power

Test Requirement : FCC CFR47 Part 15 Section 15.247

Test Method : ANSI C63.10:2013

Test Limit : Regulation 15.247 (b)(1), For frequency hopping systems operating in the 2400-2483.5 MHz band eploying at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt (30dBm). For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
Refer to the result “Number of Hopping Frequency” of this document. The 0.125watts (20.97 dBm) limit applies.

10.1Test Procedure

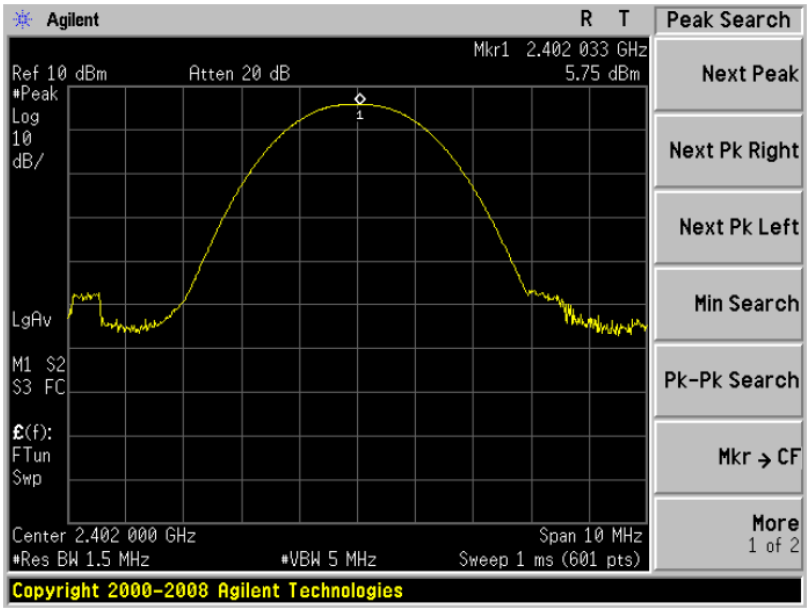
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

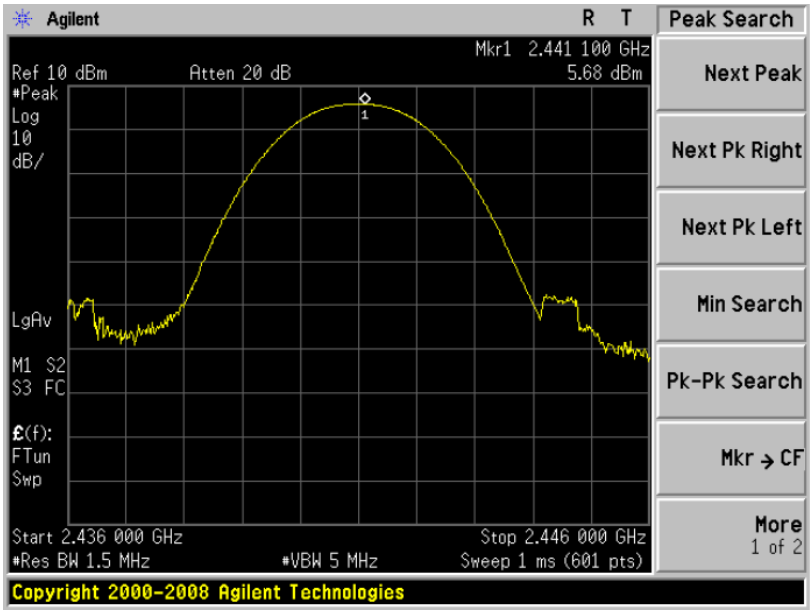
2. Set the spectrum analyser: RBW = 1.5 MHz. VBW =5 MHz. Sweep = auto; Detector Function = Peak.

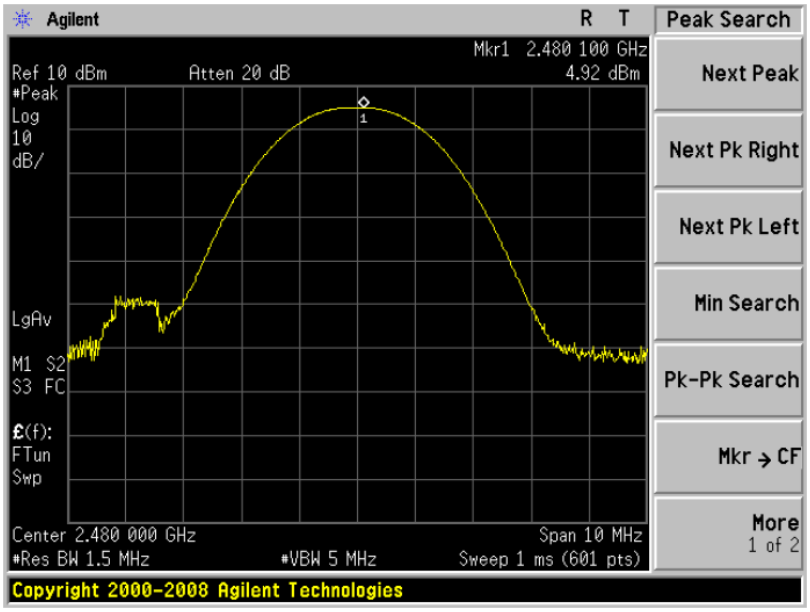
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

10.2Test Result

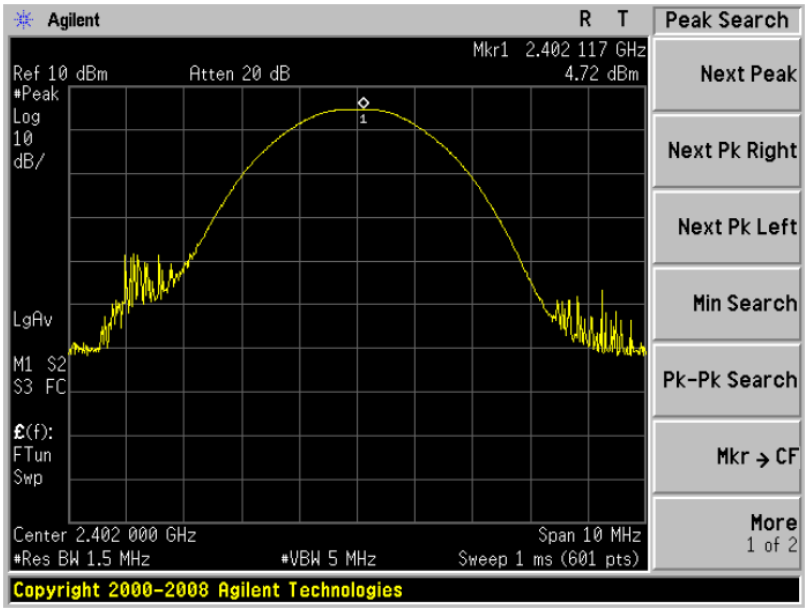
GFSK(1Mbps)					
Test Channel	Frequency	Conducted Output Peak Power	Conducted Output Peak Power	LIMIT	Pass/Fail
	(MHz)	(dBm)	(W)	(W)	
CH00	2402	5.75	0.00376	1	Pass
CH39	2441	5.68	0.00370	1	Pass
CH78	2480	4.92	0.00310	1	Pass

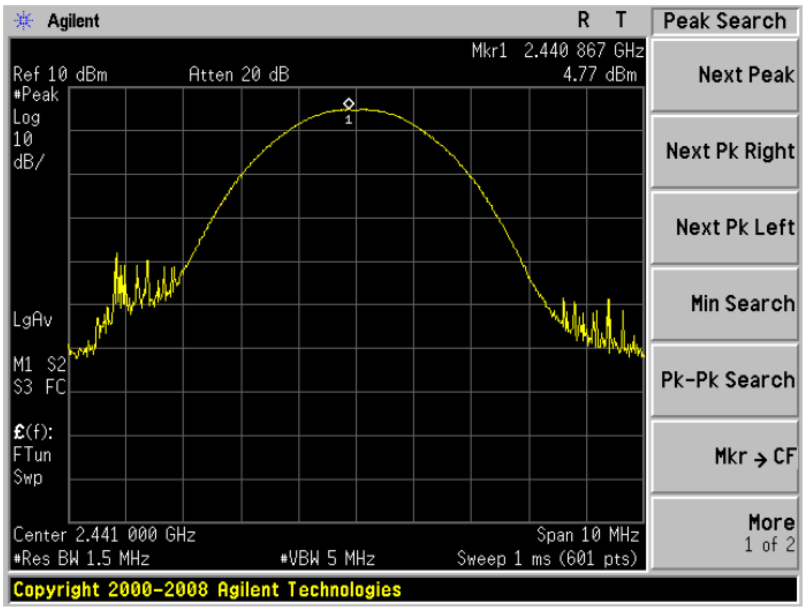

Agilent
R T
Peak Search
Mkr1 2.402 033 GHz
Ref 10 dBm
Atten 20 dB
5.75 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Center 2.402 000 GHz
Span 10 MHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

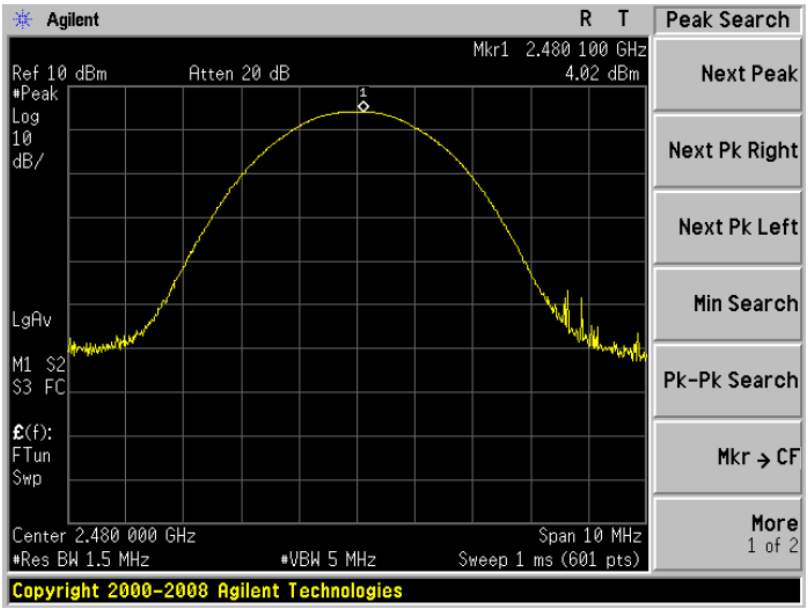

Agilent
R T
Peak Search
Mkr1 2.441 100 GHz
Ref 10 dBm
Atten 20 dB
5.68 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 2.436 000 GHz
Stop 2.446 000 GHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies



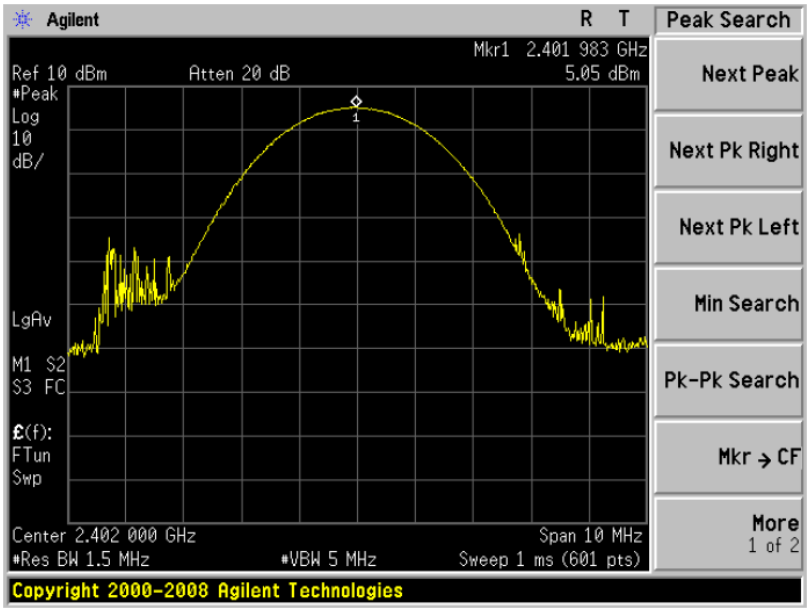
π/4QPSK(2Mbps)					
Test Channel	Frequency	Conducted Output Peak Power	Conducted Output Peak Power	LIMIT	Pass/Fail
	(MHz)	(dBm)	(W)	(W)	
CH00	2402	4.72	0.00296	0.125	Pass
CH39	2441	4.77	0.00300	0.125	Pass
CH78	2480	4.02	0.00252	0.125	Pass

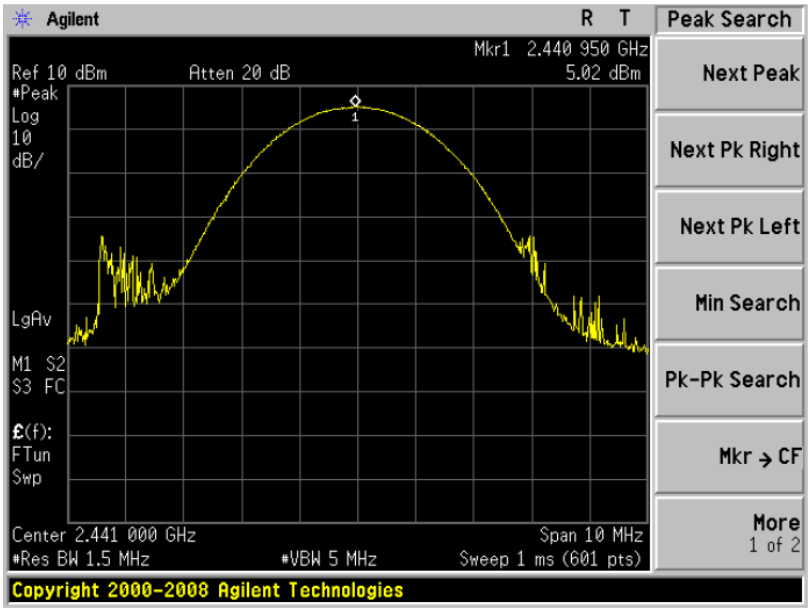

Agilent
R T
Peak Search
Mkr1 2.402 117 GHz
Ref 10 dBm
Atten 20 dB
4.72 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Center 2.402 000 GHz
Span 10 MHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

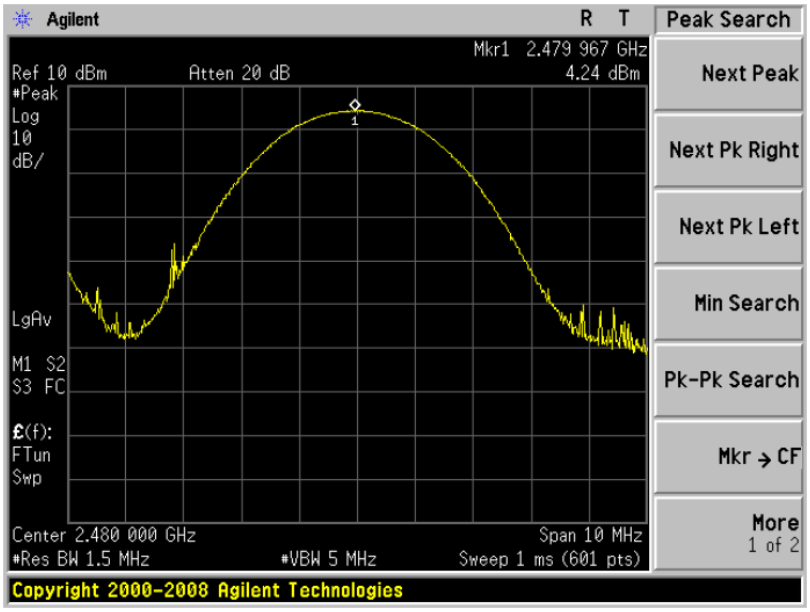

Agilent
R T
Peak Search
Mkr1 2.440 867 GHz
Ref 10 dBm
Atten 20 dB
4.77 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Center 2.441 000 GHz
Span 10 MHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies



8DPSK(3Mbps)					
Test Channel	Frequency	Conducted Output Peak Power	Conducted Output Peak Power	LIMIT	Pass/Fail
	(MHz)	(dBm)	(W)	(W)	
CH00	2402	5.05	0.00320	0.125	Pass
CH39	2441	5.02	0.00318	0.125	Pass
CH78	2480	4.24	0.00265	0.125	Pass


Agilent
R T
Peak Search
Mkr1 2.401 983 GHz
Ref 10 dBm
Atten 20 dB
5.05 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Center 2.402 000 GHz
Span 10 MHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Peak Search
Mkr1 2.440 950 GHz
Ref 10 dBm
Atten 20 dB
5.02 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Center 2.441 000 GHz
Span 10 MHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Peak Search
Mkr1 2.479 967 GHz
Ref 10 dBm
Atten 20 dB
4.24 dBm
#Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Pk-Pk Search
Mkr → CF
More
1 of 2
Center 2.480 000 GHz
Span 10 MHz
#Res BW 1.5 MHz
#VBW 5 MHz
Sweep 1 ms (601 pts)
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11 Hopping Channel Separation

Test Requirement	:	FCC CFR47 Part 15 Section 15.247
Test Method	:	ANSI C63.10:2013
Test Limit	:	Regulation 15.247(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 1W.
Test Mode	:	Hopping

11.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

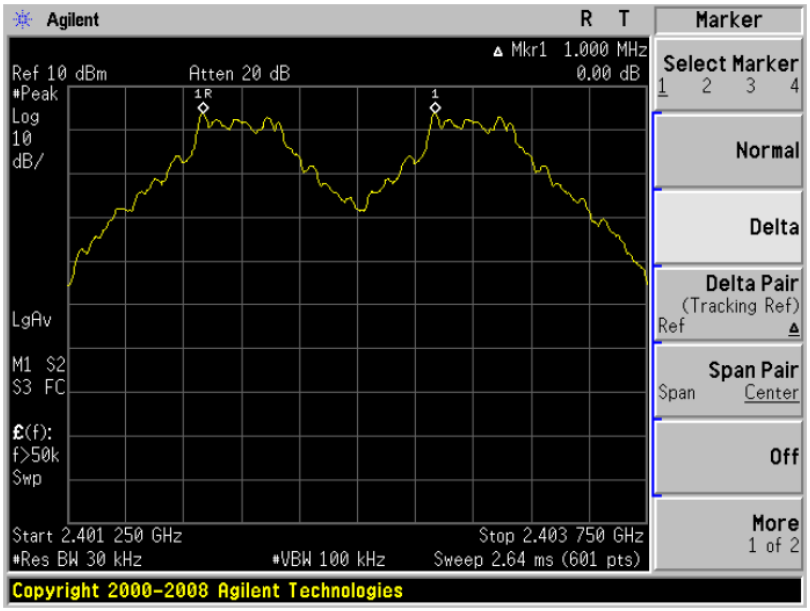
2. Set the spectrum analyzer: RBW = 30KHz. VBW = 100KHz, Sweep = auto; Detector Function = Peak. Trace = Max hold.

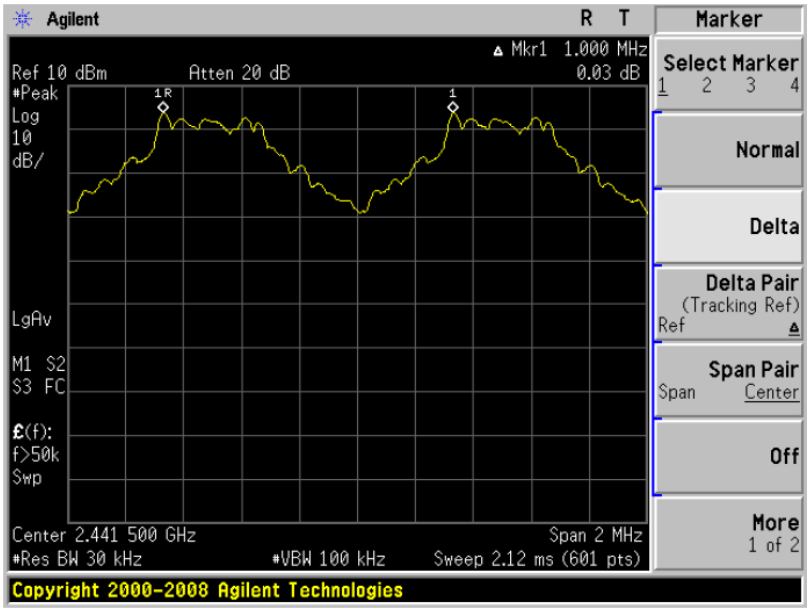
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

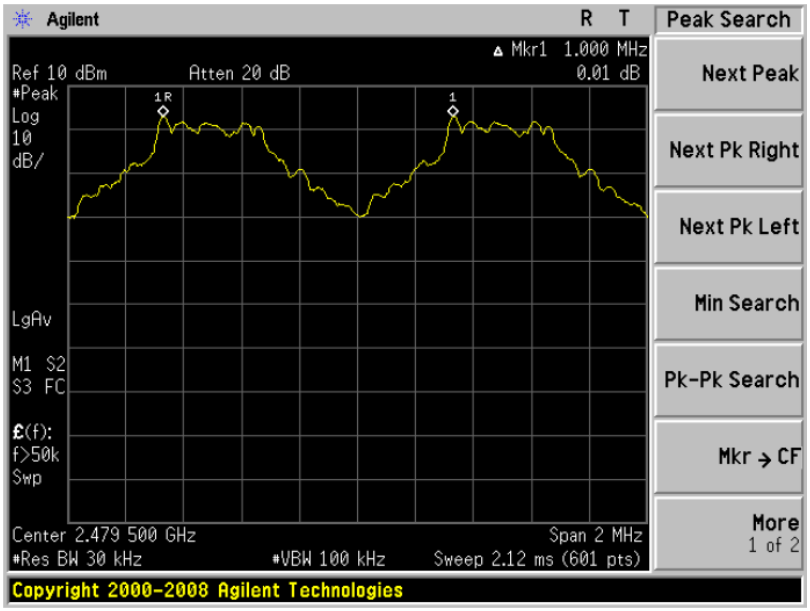
11.2 Test Result

Test Mode:	CH00 / CH39 / CH78 (GFSK(1Mbps) Mode)

Channel number	Channel frequency (MHz)	Separation Read Value (kHz)	Separation Limit 20dB Down BW(kHz)
00	2402	1000	>932
39	2441	1000	>944
78	2480	1000	>944




Agilent
R T
Marker
Mkr1 1.000 MHz
0.03 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
1R
1
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Center 2.441 500 GHz
Span 2 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 2.12 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Peak Search
Mkr1 1.000 MHz
0.01 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
1R
1
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Center 2.479 500 GHz
Span 2 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 2.12 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
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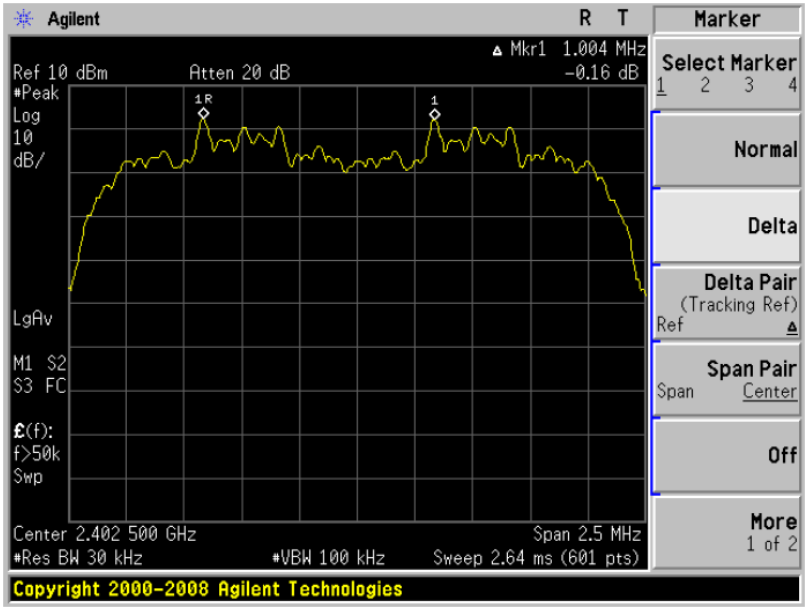
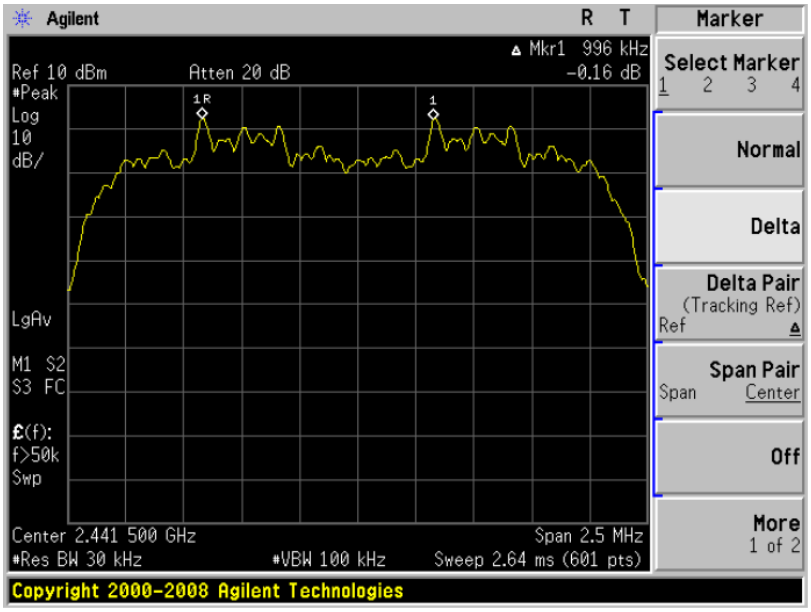
Test Mode:	CH00 / CH39 / CH78 (π/4-DQPSK(2Mbps) Mode)

Channel number	Channel frequency (MHz)	Separation Read Value (kHz)	Separation Limit 2/3 20dB Down BW(kHz)
00	2402	1004	>818.67
39	2441	996	>818.67
78	2480	1000	>818.67




Agilent
R T
Marker
Mkr1 996 kHz
-0.16 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Center 2.441 500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.5 MHz
Sweep 2.64 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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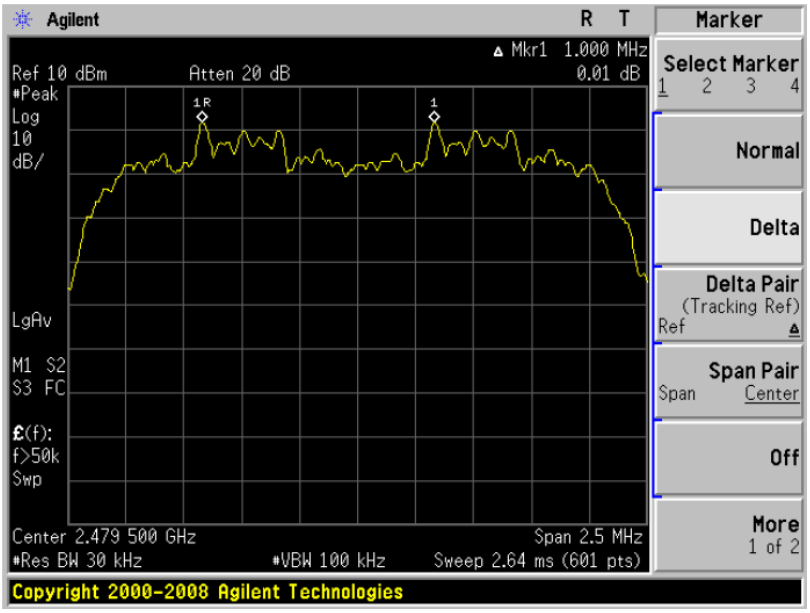
Agilent
R T
Marker
Mkr1 1.000 MHz
0.01 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Center 2.479 500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.5 MHz
Sweep 2.64 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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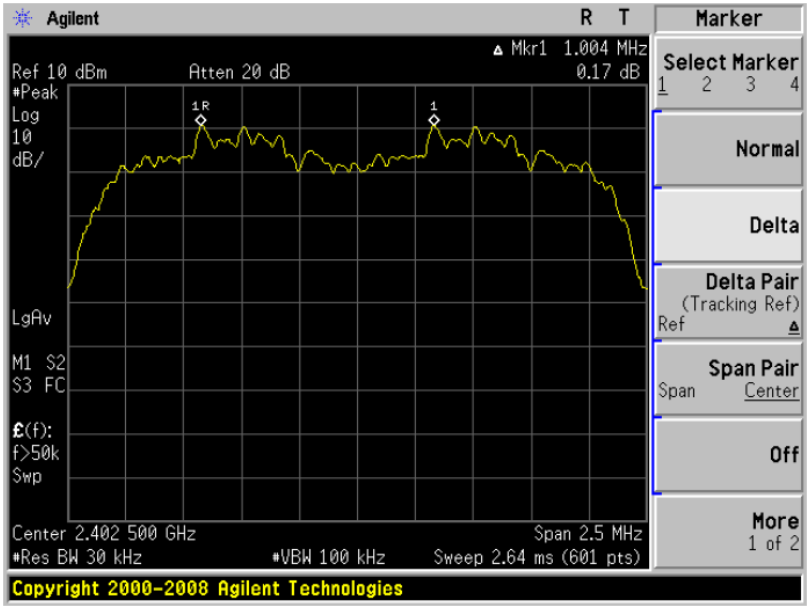
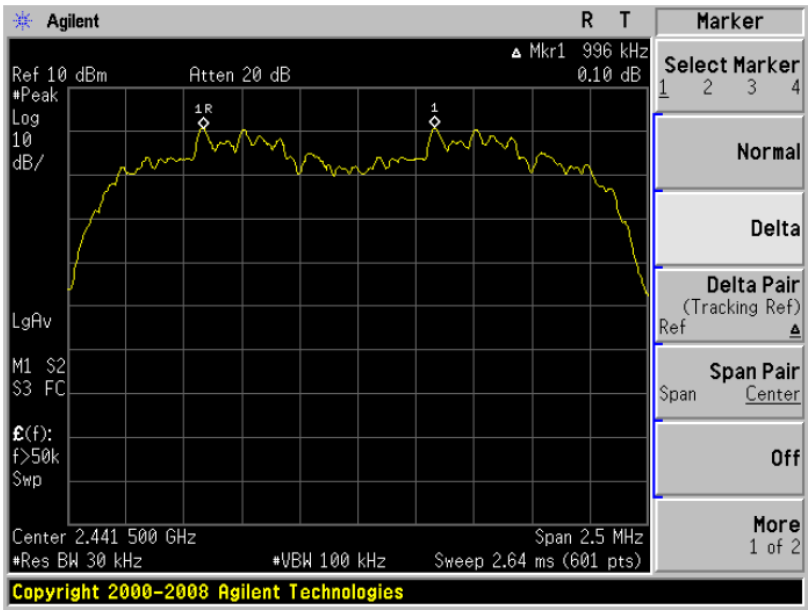
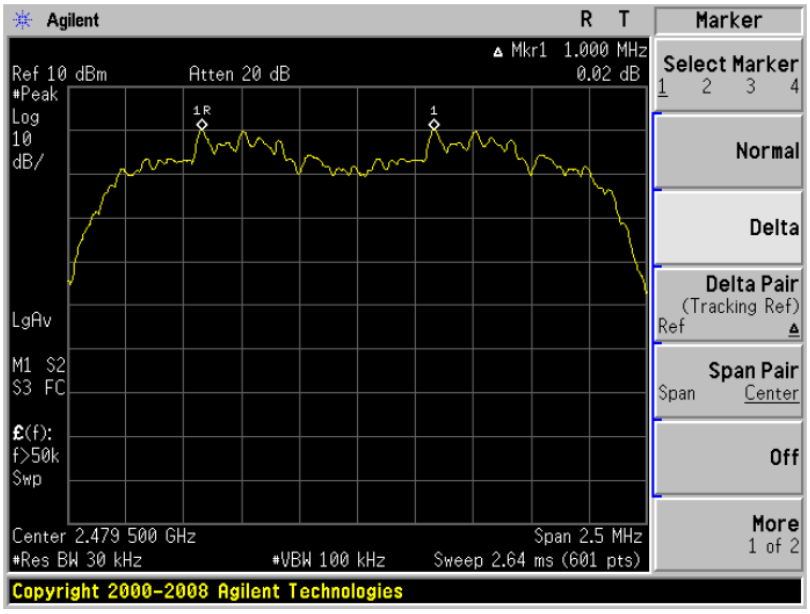
Test Mode:	CH00 / CH39 / CH78 (8DPSK(3Mbps)Mode)

Channel number	Channel frequency (MHz)	Separation Read Value (kHz)	Separation Limit 2/3 20dB Down BW(kHz)
00	2402	1004	>848
39	2441	996	>848
78	2480	1000	>848




Agilent
R T
Marker
Mkr1 996 kHz
0.10 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Center 2.441 500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.5 MHz
Sweep 2.64 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Marker
Mkr1 1.000 MHz
0.02 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
£(f):
f>50k
Swp
Center 2.479 500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.5 MHz
Sweep 2.64 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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12 Number of Hopping Frequency

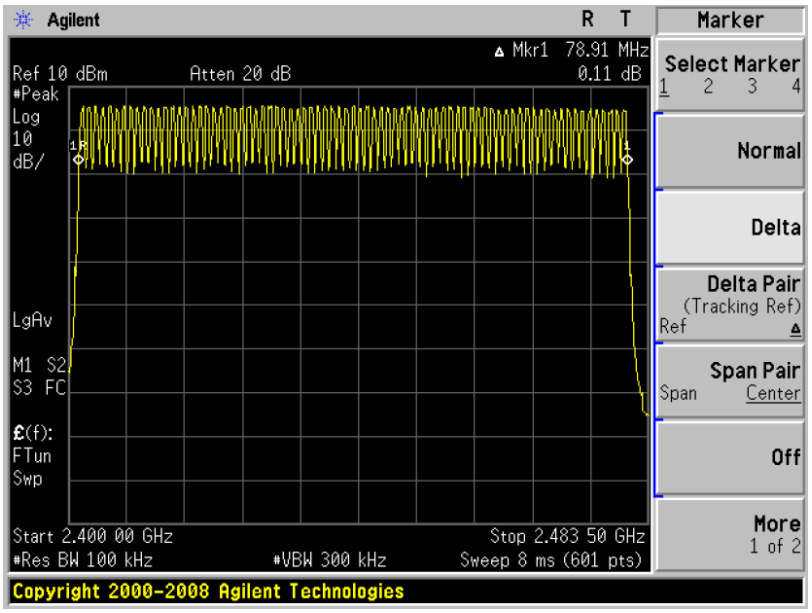
Test Requirement	:	FCC CFR47 Part 15 Section 15.247
Test Method	:	ANSI C63.10:2013
Test Limit	:	Regulation 15.247 (a)(1)(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.
Test Mode	:	Hopping(GFSK)

12.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100KHz. VBW = 300KHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.483GHz. Sweep=auto;

12.2 Test Result

Channel Number	Limit
79	≥15



13 Dwell Time

Test Requirement	:	FCC CFR47 Part 15 Section 15.247
Test Method	:	ANSI C63.10:2013
Test Limit	:	Regulation 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.
Test Mode	:	The worst case(π/4-DQPSK) was recorded

13.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set spectrum analyzer span = 0. Centred on a hopping channel;

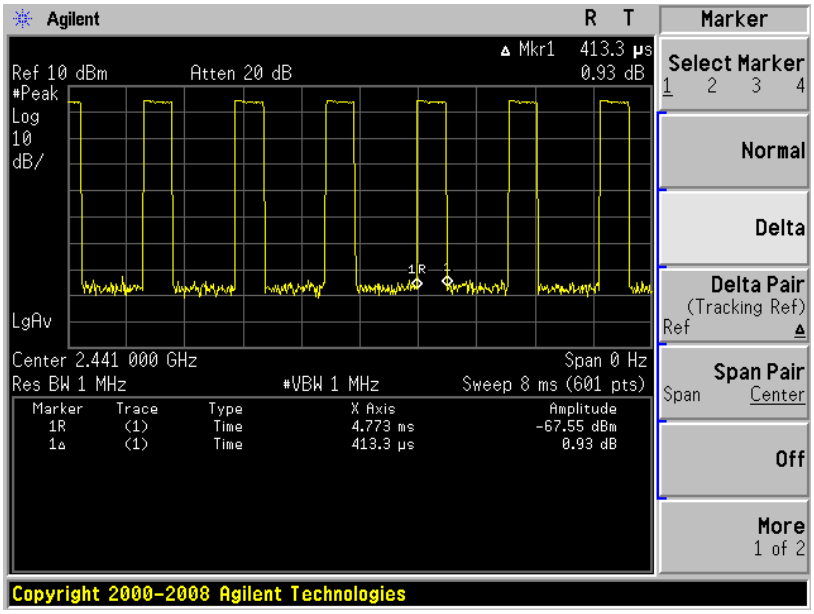
3. Set RBW = 1MHz and VBW = 3MHz.Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.

4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

13.2 Test Result

Test Mode:	π/4-DQPSK(2Mbps) –2DH1/2DH3/2DH5

Mode	Number of transmission in a 31.6(79 Hopping*0.4)	Length of transmissions time(msec)	Result (msec)	Limit (msec)
2DH1	1600/(2*79) x 31.6 = 320	0.413	132.160	400
2DH3	1600/(4*79) x 31.6 =160	1.667	266.720	400
2DH5	1600/(6*79) x 31.6 =106.67	2.920	311.476	400


Agilent
R T
Marker
Mkr1 413.3 µs
0.93 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 1 MHz
Sweep 8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1R (1) Time 4.773 ms -67.55 dBm
1Δ (1) Time 413.3 µs 0.93 dB
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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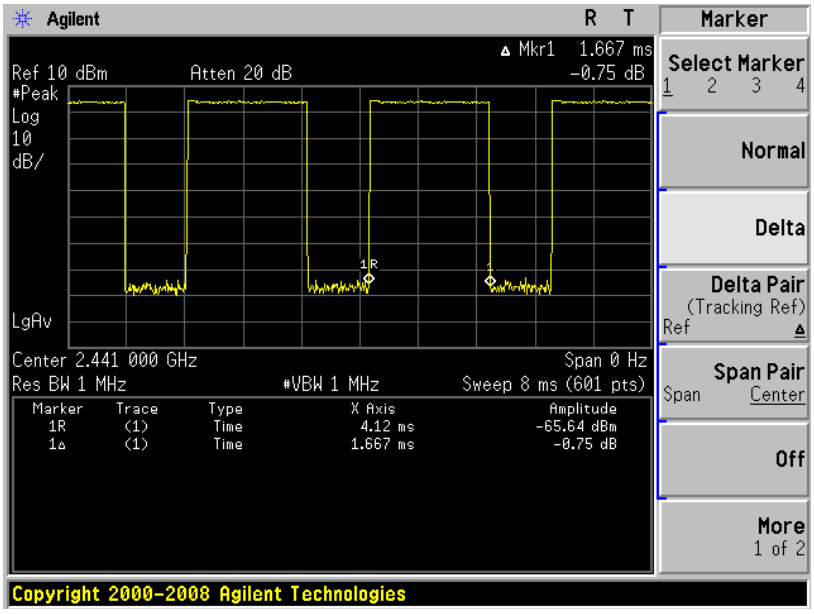
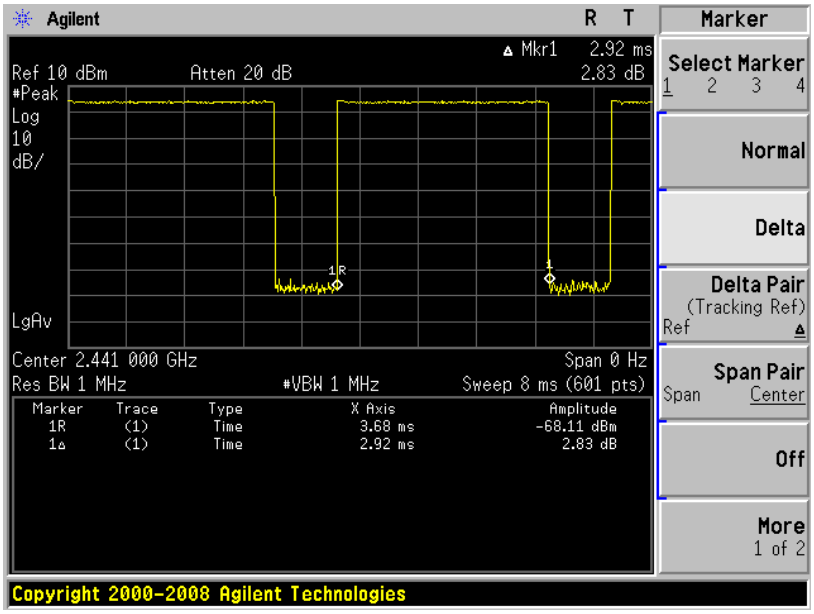

Agilent
R T
Marker
Mkr1 1.667 ms
-0.75 dB
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 1 MHz
Sweep 8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1R (1) Time 4.12 ms -65.64 dBm
1Δ (1) Time 1.667 ms -0.75 dB
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent
R T
Marker
Mkr1 2.92 ms
Ref 10 dBm
Atten 20 dB
2.83 dB
#Peak
Log
10
dB/
LgAv
1R
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 1 MHz
Sweep 8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1R (1) Time 3.68 ms -68.11 dBm
1Δ (1) Time 2.92 ms 2.83 dB
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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14 Antenna Requirement

14.1 Antenna Requirement

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.

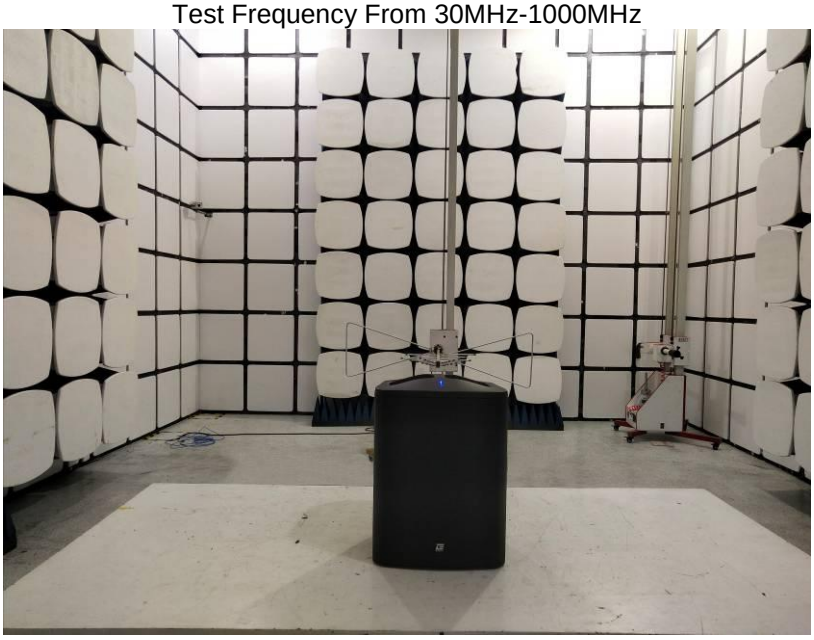
14.2 Result

The EUT'S antenna, permanent attached antenna, is Internal PCB Antenna. The antenna's gain is -0.58dBi and meets the requirement.

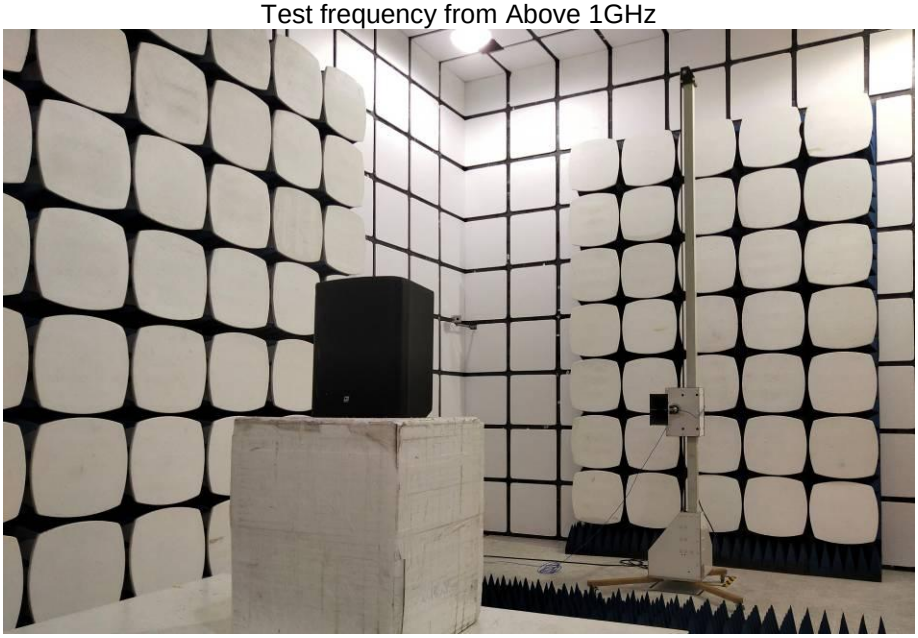
15 TEST PHOTOS

Conducted Emissions

Radiated Spurious Emissions
Test Frequency From 30MHz-1000MHz

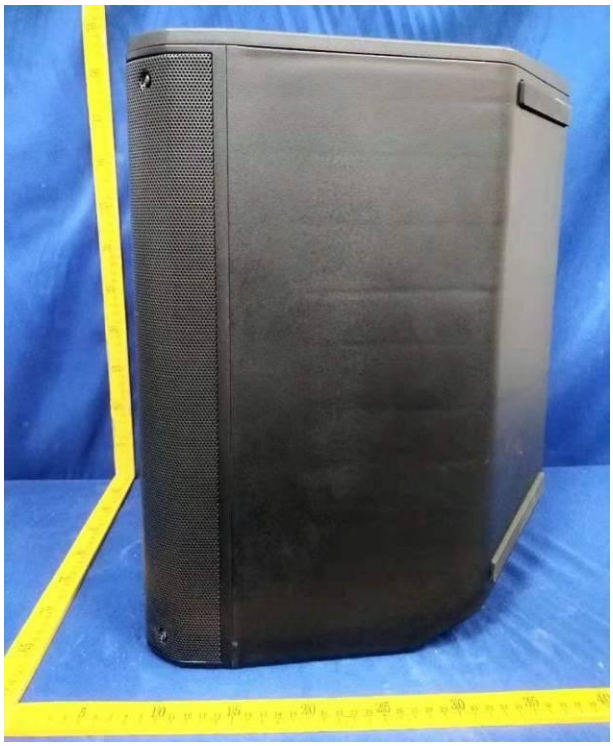


Test frequency from Above 1GHz

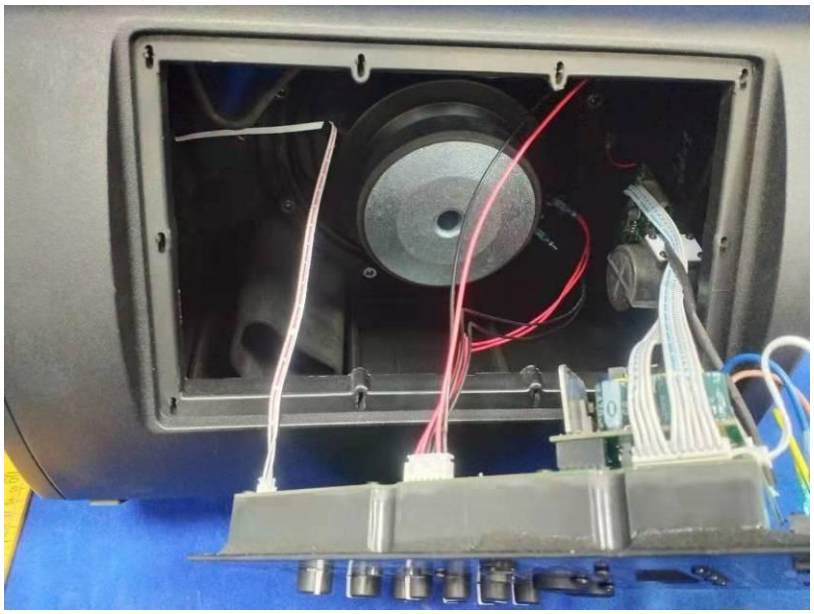


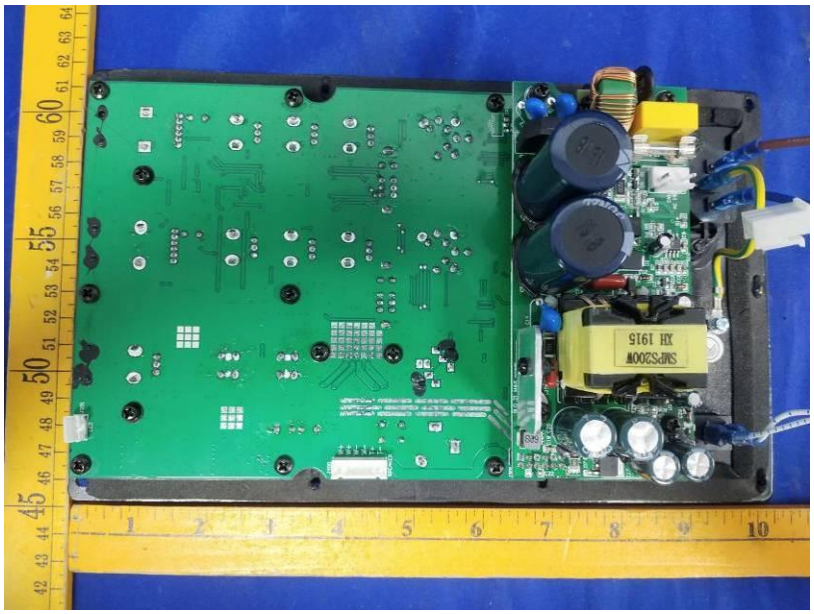
16 EUT PHOTOS

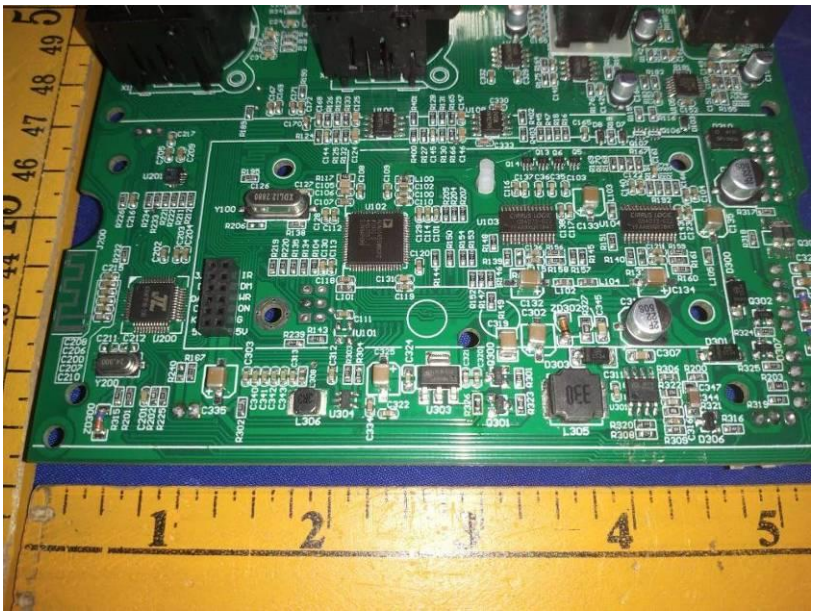

EP-T1

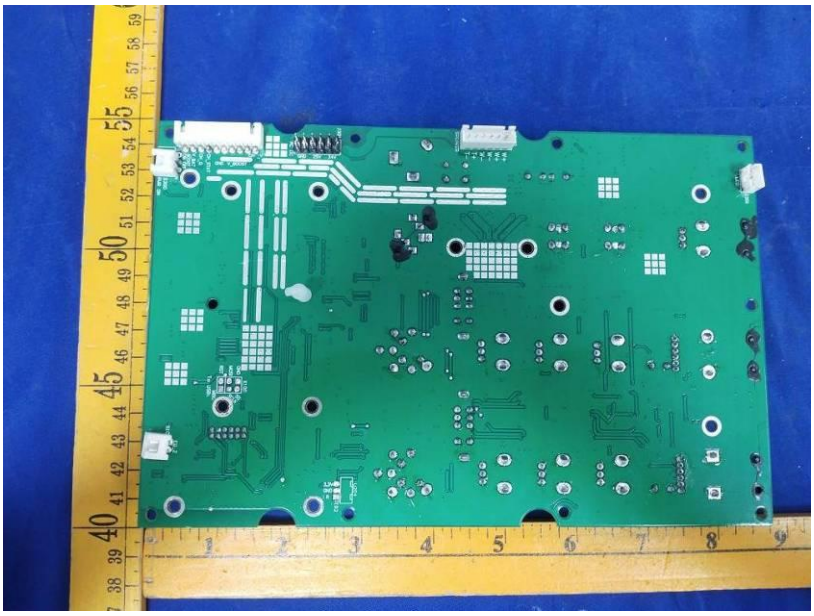



VOLUME
HIGH
BASS
REVERB
PAIR
LINK
EDISON PROFESSIONAL EP-T1
Ultra-Portable Speaker System
INPUT
INPUT
AUX INPUT
LINE OUT
USB
Bluetooth
USB/BT
~100V--240V
MADE IN CHINA




SMPS200W
XH 1915

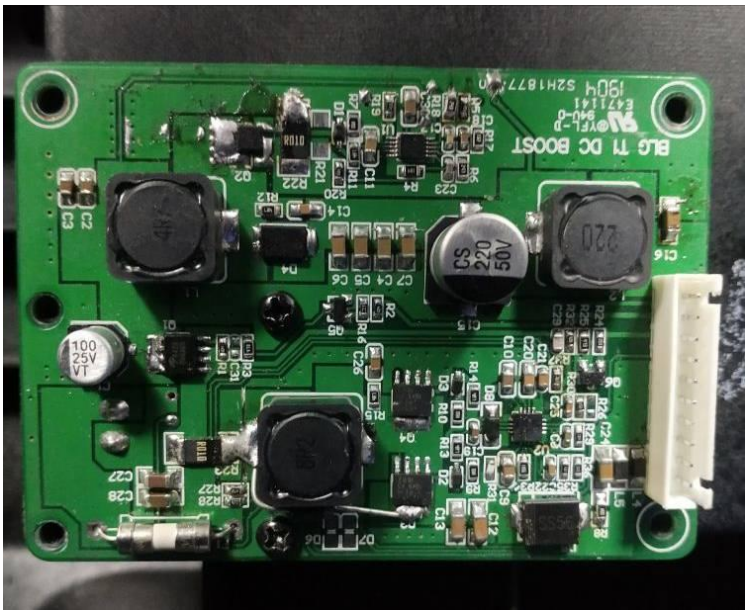


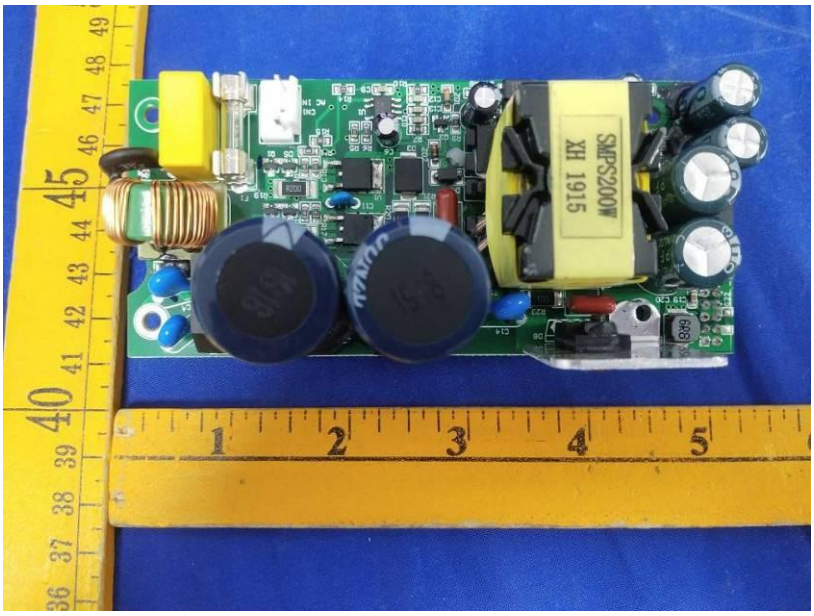


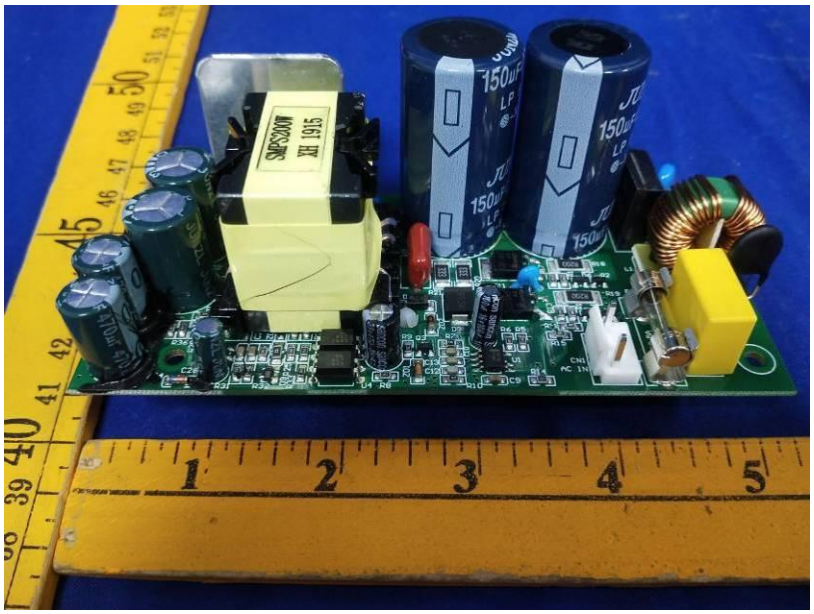

WARNING
UN38.3

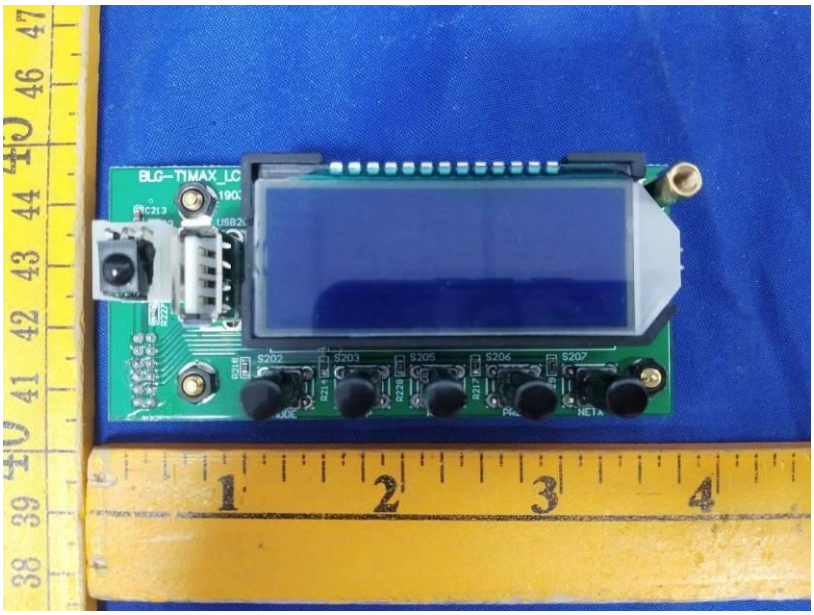

CORPOWER Battery Pack Specification
Produce Model: XH-22-04-18-5.0
Battery Parameters FST-18V5.0AH
Pack Mode: 5S2P
Date : 2019-04-20
SN:

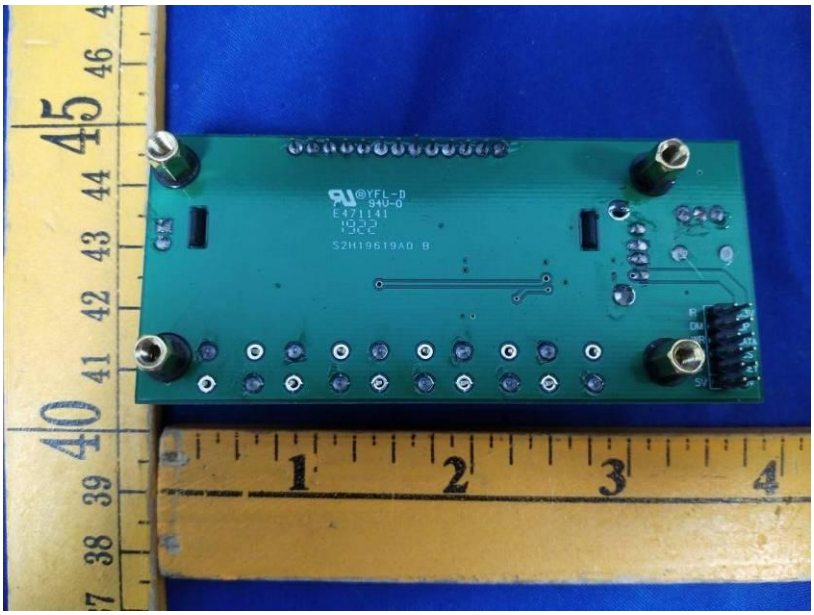

WARNING
UN38.3

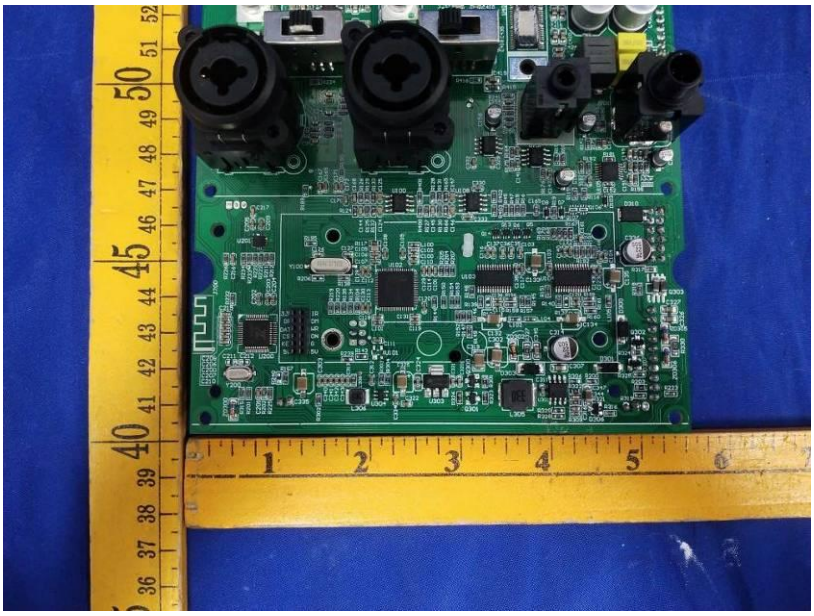

BLG TI DC BOOST
CS
220
50V
100
25V
VT

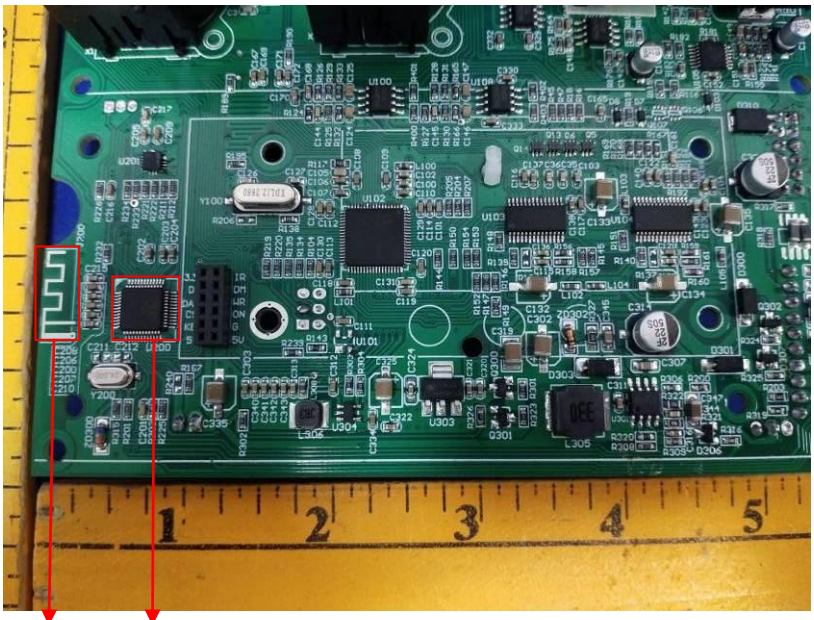

SMPS200W
XH 1915




S202
S203
S205
S206
S207







******THE END REPORT******