RF Test Report

for FHSS System

Test in accordance with
Federal Communications Commission(FCC)
CFR TITLE 47, Part 15 Subpart C

Product Name: PPM 360 Meter

Model No. : DA120

FCC ID: IGKDA120

Applicant : Nielsen Audio, inc.
Address : 7000 Columbia Gateway Drive, Suite 200,
Columbia Maryland, USA 21046.

Date of Receipt : 05-20-2017

Test Date : 05-25-2017~06-14-2017

Issued Date : 06-15-2017

Report No. : UL05420170520FCC019-3

Report Version : V1.0

Notes :

The test resultsonly relate to these samples which have been tested.
Partly using this report will not be admitted unless been allowed by Unilab.
Unilab is only responsible for the complete report with the reported stamp of Unilab.

Applicant:	Nielsen Audio, inc. 7000 Columbia Gateway Drive, Suite 200, Columbia Maryland, USA 21046.
Manufacturer:	Nielsen Audio, inc. 7000 Columbia Gateway Drive, Suite 200, Columbia Maryland, USA 21046.
Product Name:	PPM 360 Meter
Brand Name:	Nielsen
Model Name:	DA120
FCC ID:	IGKDA120
EUT Voltage:	Extreme Low:3.5V Nominal:3.7V Extreme High:4.2V
Date of Receipt:	05-20-2017
Test Standard:	FCC CFR Title 47 Part 15 Subpart C ANSI C 63.4: 2014 DA00705
Test Result:	PASS
Date of Test	05-25-2017~06-14-2017

Prepared by : Wayne Wu
(Technical Engineer: Wayne Wu)

Reviewed by : Forest Cao
(Senior Engineer: Forest Cao)

Approved by : Eva Wang
(Supervisor: Eva Wang)

TABLE OF CONTENTS

1. GENERAL INFORMATION 5
1.1 EUT DESCRIPTION 5
1.2 TEST MODE 6
2. TEST METHODOLOGY 6
2.1 EUT CONFIGURATION 6
2.2 EUT EXERCISE 6
2.3 GENERAL TEST PROCEDURES 6
2.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS 7
2.5 DESCRIPTION OF TEST MODES 7
3. TECHNIACL SUMMARY 8
3.1 SUMMARY OF STANDARDS AND TEST RESULTS 8
3.2 TEST UNCERTAINTY 8
3.3 TEST EQUIPMENT LIST 8
3.4 SUPPORT EQUIPMENT 9
3.5 TEST FACILITY 9
3.6 TEST SETUP CONFIGURATION 9
4. CHANNEL SEPARATION 10
4.1 TEST SETUP 10
4.2 LIMITS 10
4.3 TEST PROCEDURE 10
4.4 TEST RESULT 11
5. MINIMUM HOPPING CHANNELS 13
5.1 TEST SETUP 13
5.2 LIMITS 13
5.3 TEST PROCEDURE 13
5.4 TEST RESULT 14
6. OCCUPIED BANDWIDTH 16
6.1 TEST SETUP 16
6.2 LIMITS 16
6.3 TEST PROCEDURE 16
6.4 TEST RESULTS 17
7. DWELL TIME 22
7.1 TEST SETUP 22
7.2 LIMITS 22
7.3 TEST PROCEDURE 22
7.4 TEST RESULTS 23
8. PEAK OUTPUT POWER (CONDUCTION) 29
8.1 TEST SETUP 29
8.2 LIMITS 29
8.3 TEST PROCEDURE 29
8.4 RESULTS & PERFORMANCE 30
9. SPURIOUS EMISSIONS (CONDUCTION) 31
9.1 TEST SETUP 31
9.2 LIMITS 31
9.3 TEST PROCEDURE 31
9.4 RESULTS & PERFORMANCE 32
10. BAND EDGE MEASUREMENT 41

10.1 TEST SETUP 41
10.2 LIMITS 41
10.3 TEST PROCEDURE 42
10.4 RESULTS & PERFORMANCE 43
GFSK CH0 43
GFSK CH78 43
11. SPURIOUS EMISSIONS (RADIATION) **74**
11.1 TEST SETUP 74
11.2 LIMITS 75
11.3 TEST PROCEDURE 75
11.4 RESULTS & PERFORMANCE 77
12. AC POWER LINE CONDUCTED EMISSIONS **96**
12.1 TEST SETUP 96
12.2 LIMITS 96
12.3 TEST PROCEDURE 96
12.4 RESULTS & PERFORMANCE 97
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP **115**
APPENDIX 2 PHOTOGRAPHS OF EUT **115**

1. GENERAL INFORMATION

1.1 EUT DESCRIPTION

Product Name:	PPM 360 Meter
Model Name:	DA120
Hardware Version:	8420439T000
Software Version:	TF_QCT1050_G2V2_VER_2.10C_ PP_20161212
RF Exposure Environment:	Uncontrolled
Bluetooth	
Frequency Range:	2402MHz~2480MHz
Carrier Frequency of Each Channel	2402+N*1MHz(N=0~78)
Type of Modulation:	GFSK, π /4-DQPSK, 8-DPSK
Channel Separation:	1MHz
Channel Number:	79
Antenna Type:	Internal
Antenna Peak Gain:	-3.4dBi

1.2 TEST MODE

Unilab has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: GFSK CH0
Mode 2: GFSK CH39
Mode 3: GFSK CH78
Mode 4: 8-DPSK CH0
Mode 5: 8-DPSK CH39
Mode 6: 8-DPSK CH78
Mode 7: Π/4-DQPSK CH0
Mode 8: Π/4-DQPSK CH39
Mode 9: Π/4-DQPSK CH78

Note:
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For radiated emission test, every axis (X, Y, Z) was verified, and show the worst result on this report.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application

2.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.3 of ANSI C63.4: 2014 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m

away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.4 of ANSI C63.4: 2014.

2.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]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	2655 - 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	([2])
13.36 - 13.41			

1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

2 Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

2.5 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

After verification, all tests were carried out with the worst case test modes as shown below GFSK(1Mbps), Π/4-DQPSK (2Mbps)and 8-DPSK(3 Mbps) Channel Low (2402MHz),Mid (2441MHz) and High (2480MHz), these were chosen for full testing.

3. TECHNIACL SUMMARY

3.1 SUMMARY OF STANDARDS AND TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below:

Test Item	FCC	Result
Channel Separation	§15.247 (a)	P
Minimum Hopping Channel	§15.247 (a)	P
Occupied Bandwidth	§15.247 (a)	P
Dwell Time	§15.247 (a)	P
Peak Output Power (Conduction)	§15.247 (b)	P
Spurious Emissions (Conduction)	§15.247 (d)	P
Band edge measurement	§15.247 (d)	P
Spurious Emissions (Radiation)	§15.247 (d) §15.35 (b) §15.209 (a)	P
AC Power Line Conducted Emissions	§15.207 (a)	P

Note: P means pass, F means failure, N/A means not applicable

3.2 TEST UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted disturbance	3.4
Radiated disturbance	4.2

3.3 TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	Agilent	N9038A	MY51210142	11/10/2017
Wireless Connectivity Test Set	Agilent	N4010A	MY49080305	10/22/2017
Loop Antenna	Schwarzbeck	FMZB1519	1519-020	03/23/2018
LISN	R&S	ENV216	100069	08/21/2017
3m Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	CT-0000336	11/26/2017
Microwave Preamplifier	EM Electronics	EM30180	3008A02425	02/25/2018
Power Splitter	Agilent	11667C/ 52401	MY53806148	02/25/2018

Bilog Antenna	Schwarzbeck	VULB9160	9160-3316	09/18/2017
VHF-UHF-Biconical Antenna	Schwarzbeck	VUBA9117	9117-263	09/18/2017
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-942	09/18/2017
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-943	09/18/2017
Horn Antenna(18-40GHz)	ETS	3116	00070497	09/18/2017

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and has been calibrated by accredited calibration laboratories.

3.4 SUPPORT EQUIPMENT

Equipment	Manufacturer	Model	Serial No.	Due Date
Signal Generator	Agilent	N4010A	MY50140938	10/22/2017

3.5 TEST FACILITY

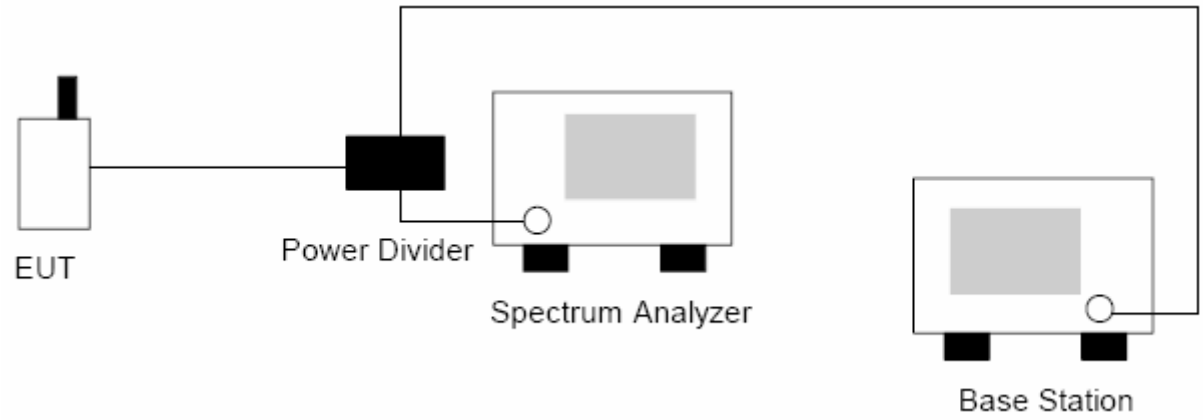
All test facilities used to collect the test data are located at Shanghai Institute of Measurement and Testing Technology EMC Lab., Shanghai, China.
The site and apparatus are constructed in conformance with the requirements of ANSI C63.4: 2014, CISPR 16-1-1 and other equivalent standards. The laboratory is compliance with the requirements of the ISO/IEC/E 17025.

3.6 TEST SETUP CONFIGURATION

The information contained within this report is intended to show verification of compliance of the EUT to the requirements of CFR 47 FCC Part 15.247.
Unilab has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report .

4. CHANNEL SEPARATION

4.1 TEST SETUP



4.2 LIMITS

Limits	⩾25 kHz or 20 dB bandwidth of hopping channel

4.3 TEST PROCEDURE

The EUT have its hopping function enabled. Use the following spectrum analyzer settings:
Span = wide enough to capture the peaks of two adjacent channels
Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span
Video (or Average) Bandwidth (VBW) ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

4.4 TEST RESULT

GFSK

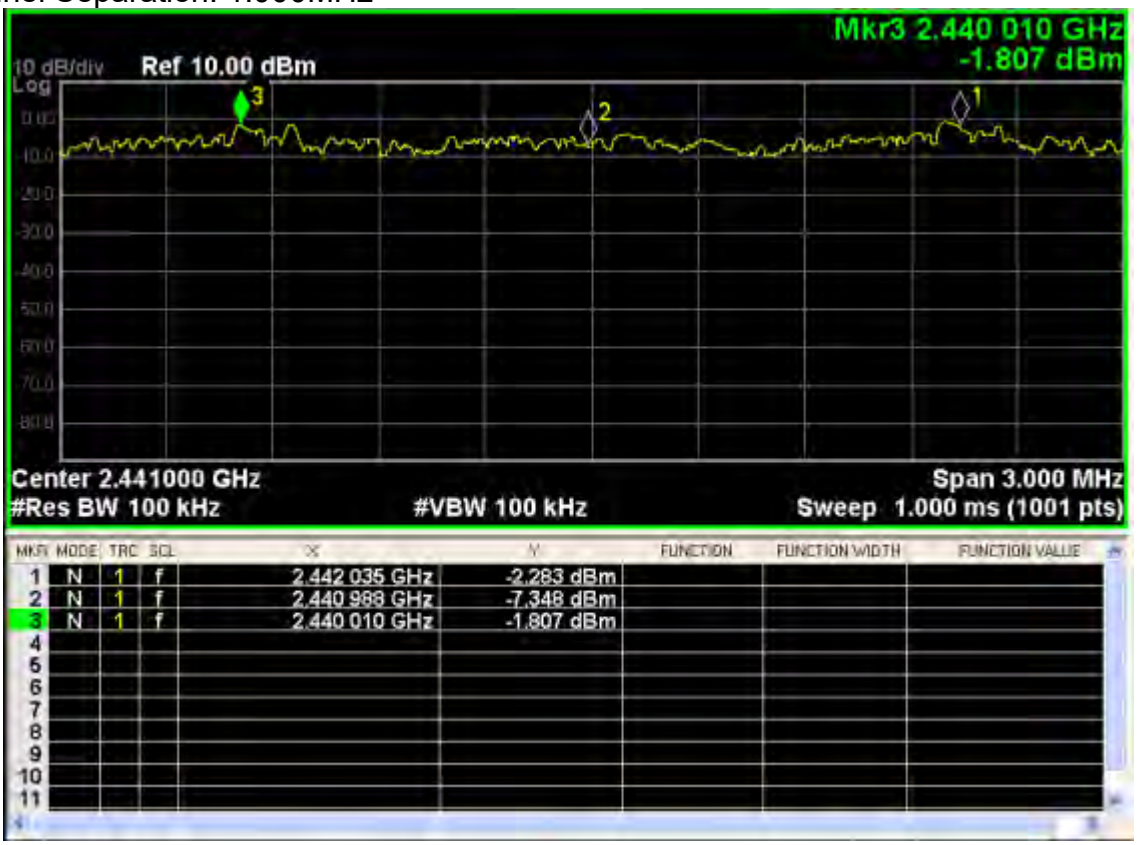
Channel Separation: 1.000MHz

Π /4-DQPSK

Channel Separation: 1.000MHz

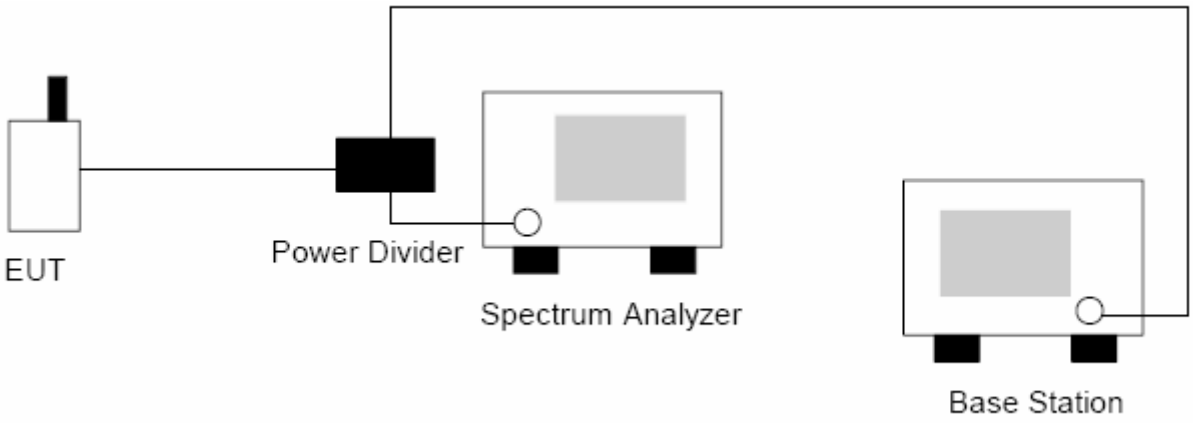
8-DPSK

Channel Separation: 1.000MHz



5. MINIMUM HOPPING CHANNELS

5.1 TEST SETUP



5.2 LIMITS

Limits	⩾15 Channels

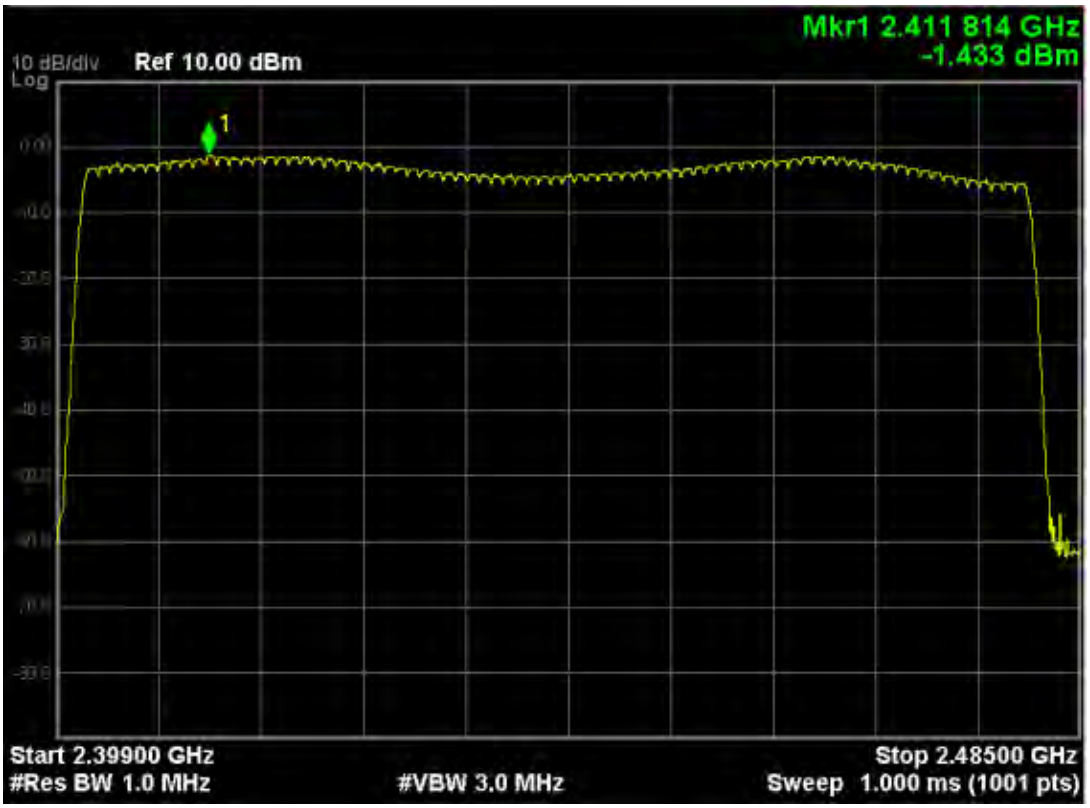
5.3 TEST PROCEDURE

The EUT have its hopping function enabled.
Use the following spectrum analyzer settings:
Span = the frequency band of operation
RBW ≥ 1% of the span
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
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.

5.4 TEST RESULT

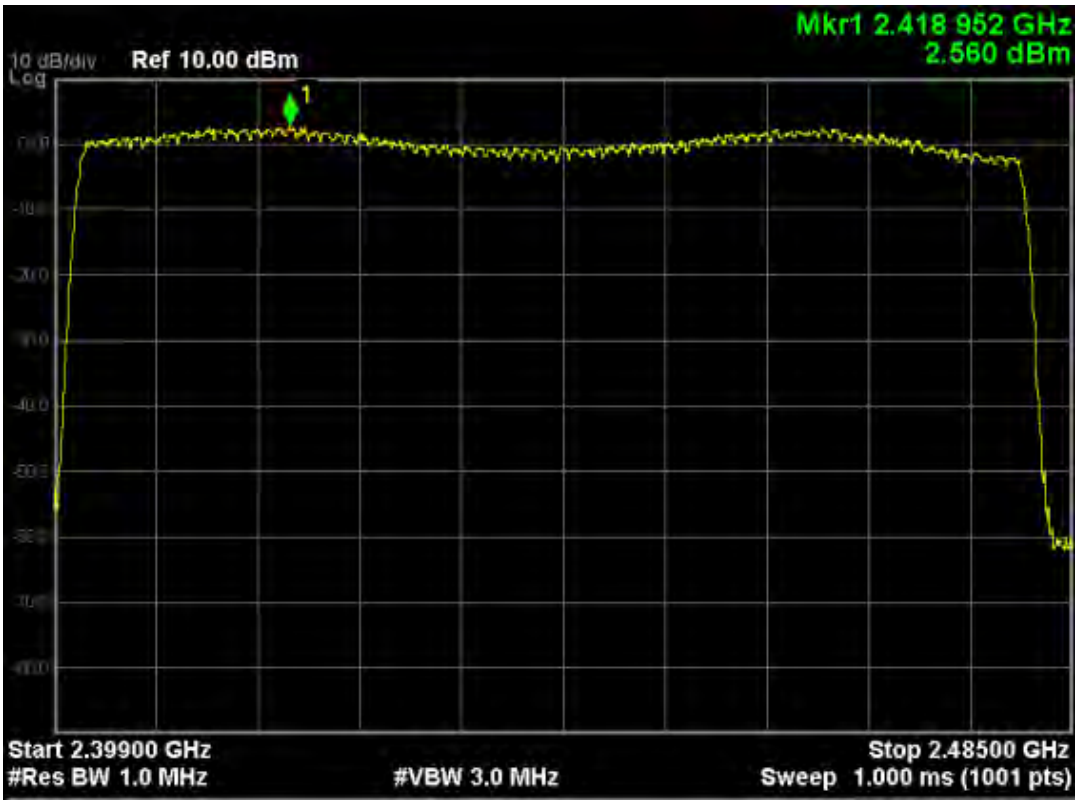
GFSK

Hopping Channel: 79 channels



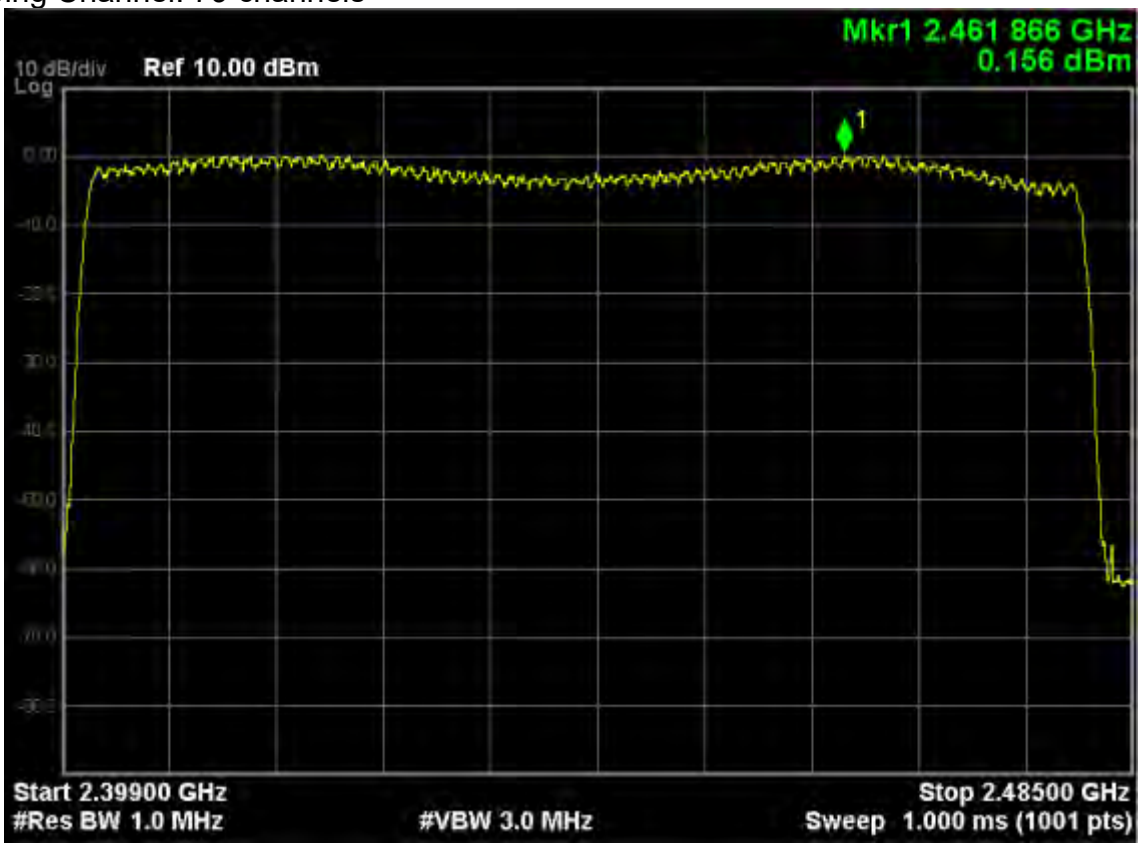
Π /4-DQPSK

Hopping Channel: 79 channels



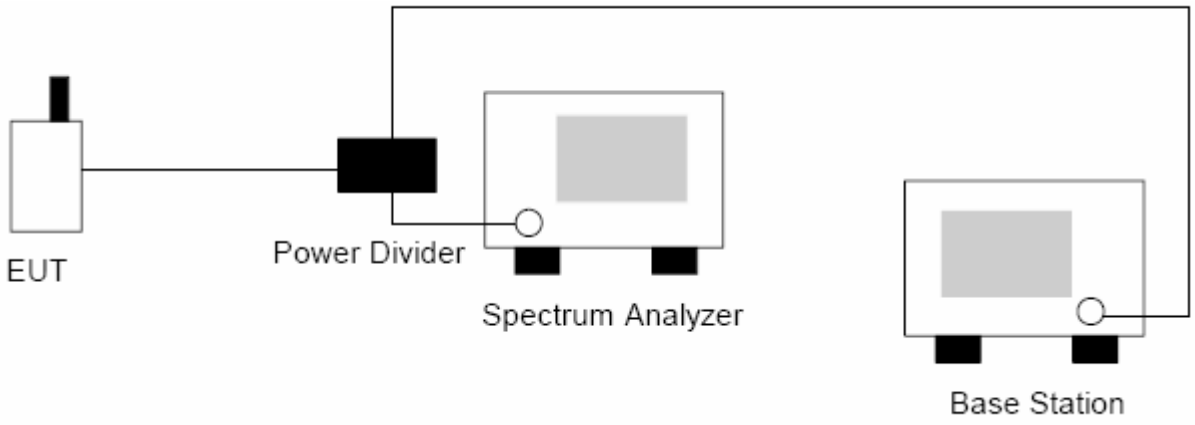
8-DPSK

Hopping Channel: 79 channels



6. OCCUPIED BANDWIDTH

6.1 TEST SETUP



6.2 LIMITS

Limits	≥25 kHz or 2 to 3 times the 20 dB bandwidth

6.3 TEST PROCEDURE

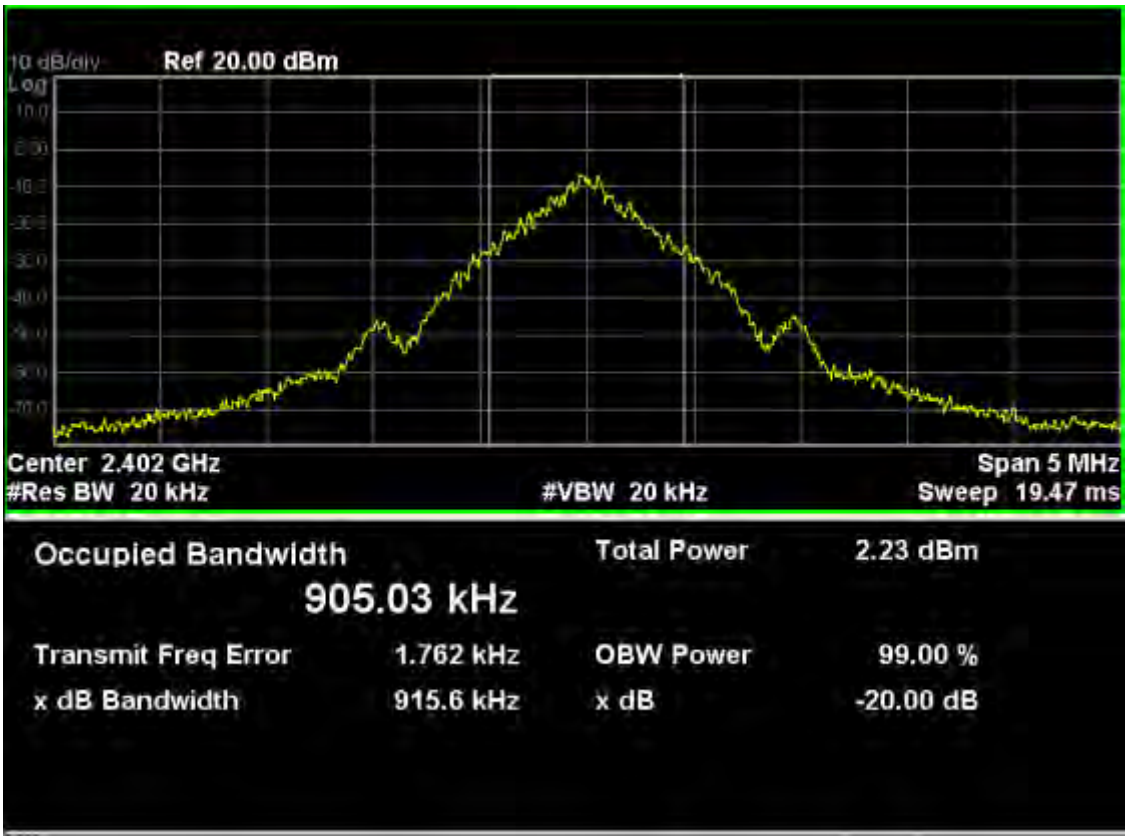
Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum analyzer. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels.
Bluetooth: Low(0), Middle(39) and High (78).
Using occupied BW measurement function of spectrum analyzer and settings are:
XdB = -20dB
RBW =20KHz
VBW ≥RBW
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a channel
Sweep = auto
Detector function = peak
Trace = max hold

6.4 TEST RESULTS

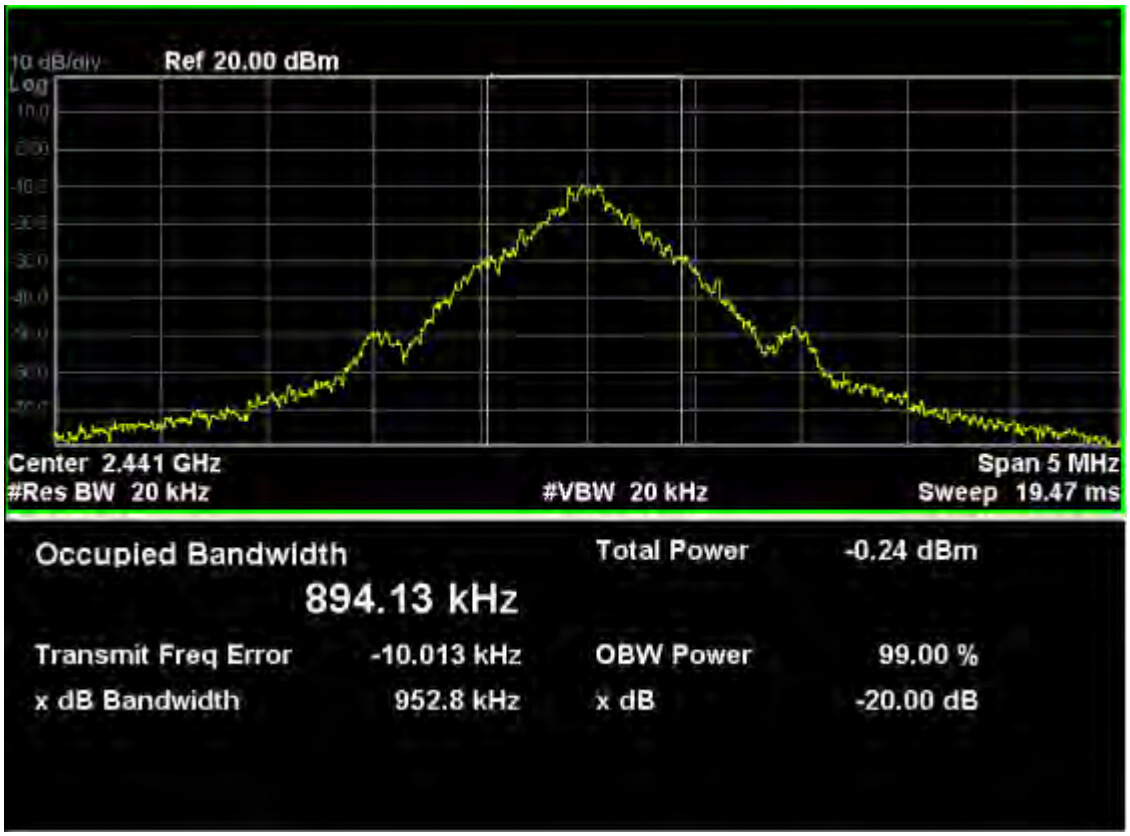
Channel	20dB bandwidth (kHz)	99% bandwidth (kHz)
GFSK		
BT CH0	915.6	905.03
BT CH39	952.8	894.13
BT CH79	1003	958.88
Π /4-DQPSK		
BT CH0	1340	1211.4
BT CH39	1330	1194.5
BT CH79	1340	1196.2
8-DPSK		
BT CH0	1334	1207.3
BT CH39	1326	1197.9
BT CH79	1340	1220.4

GFSK

Bluetooth Channel 0



Bluetooth Channel 39

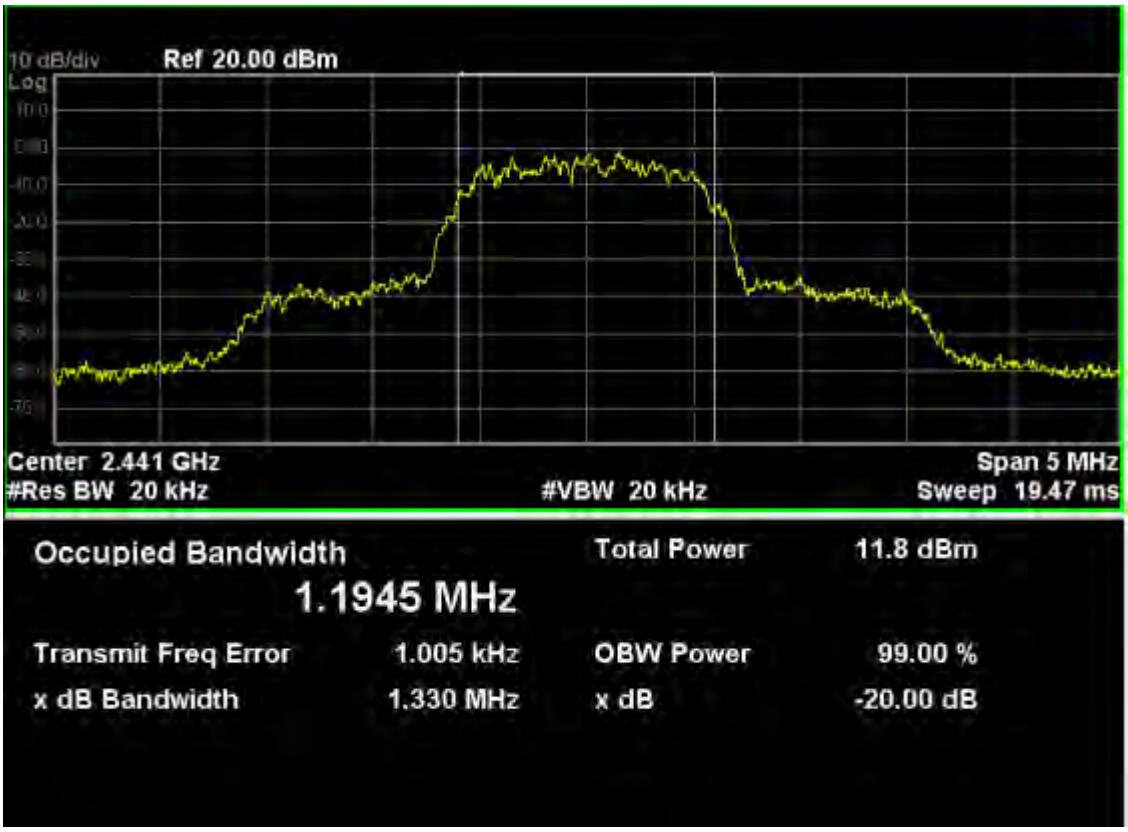


Bluetooth Channel 78

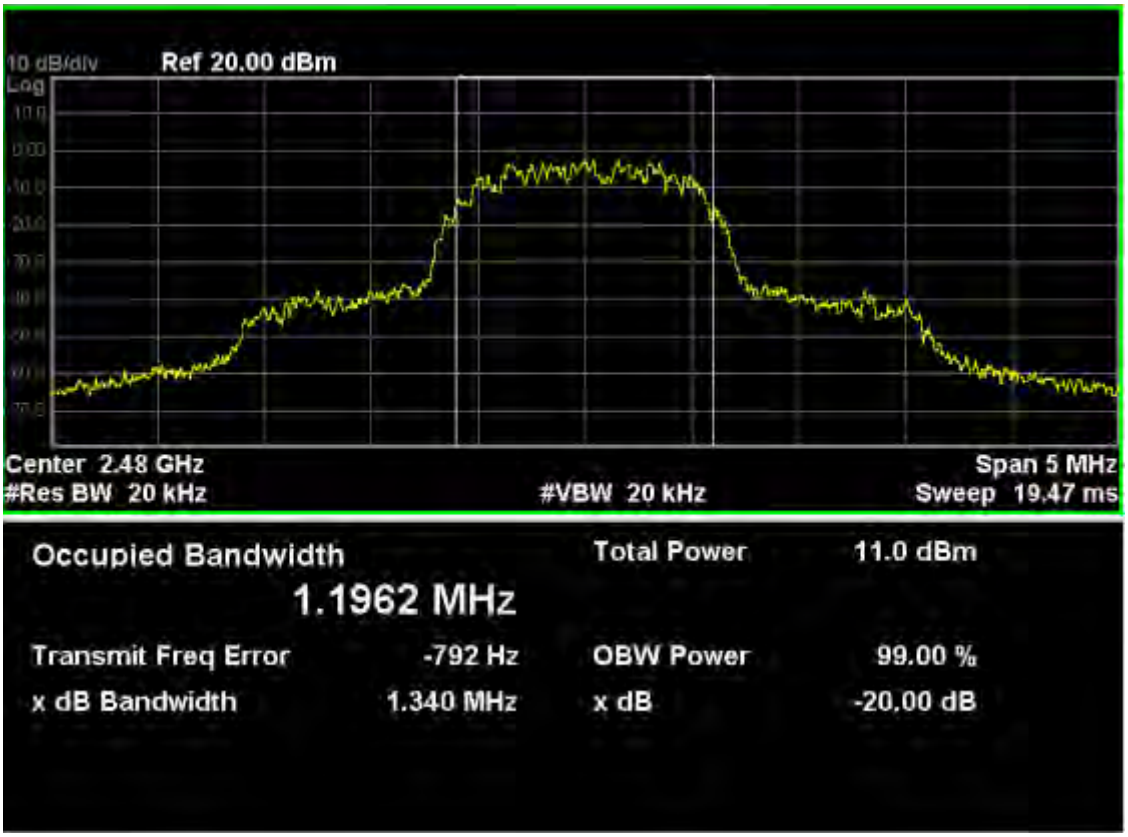
Π /4-DQPSK

Bluetooth Channel 0

Bluetooth Channel 39

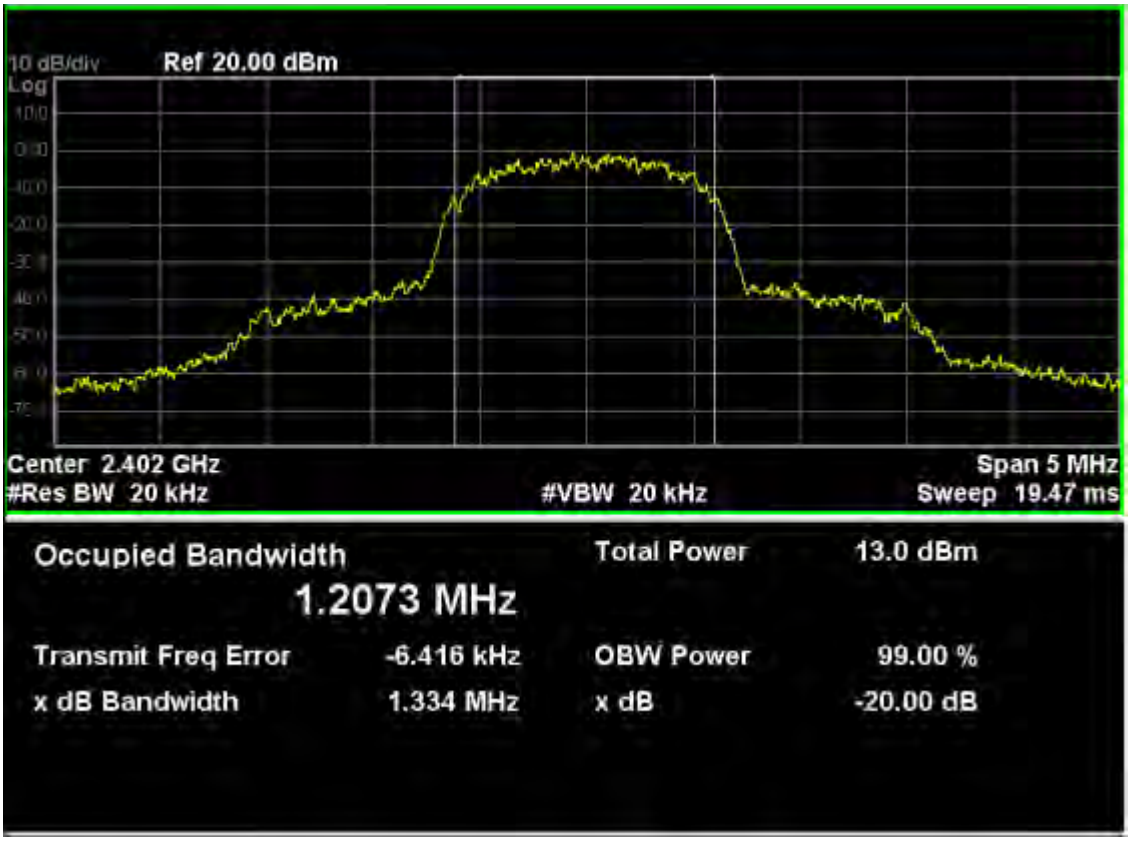


Bluetooth Channel 78

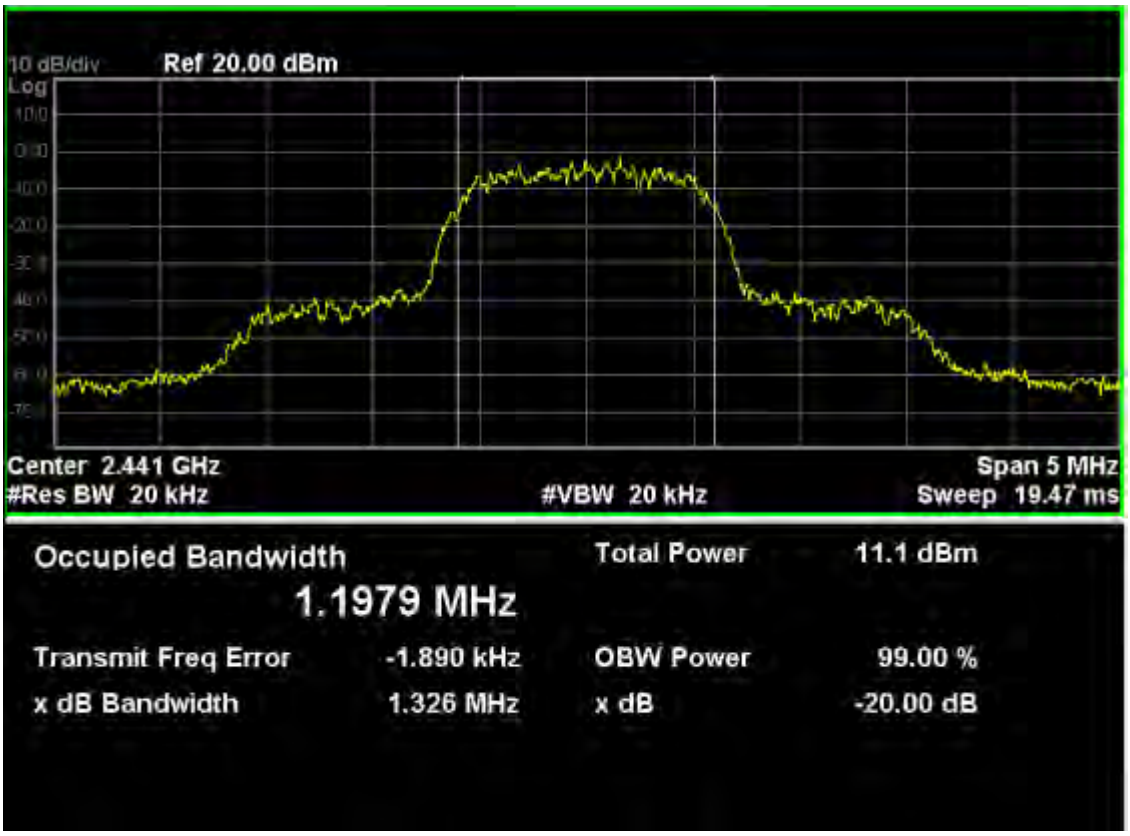


8-DPSK

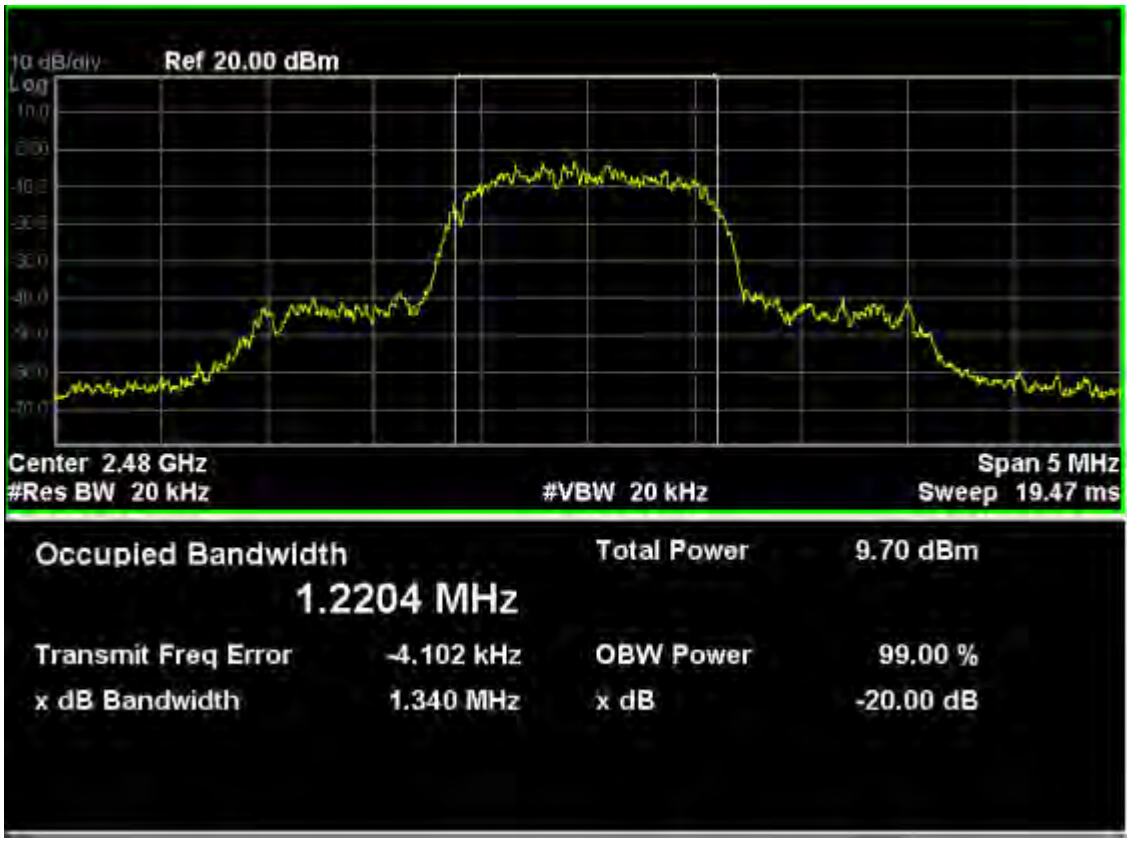
Bluetooth Channel 0



Bluetooth Channel 39

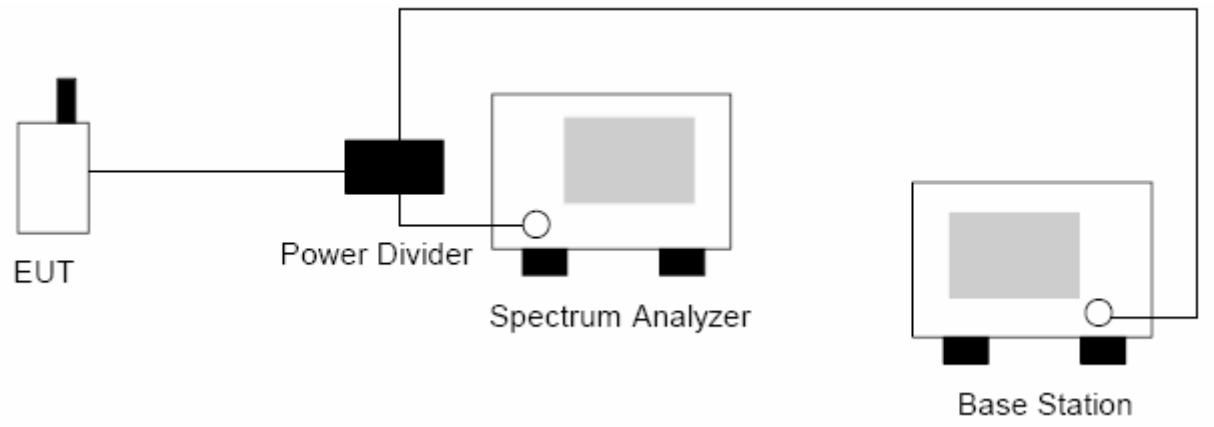


Bluetooth Channel 78



7. DWELL TIME

7.1 TEST SETUP



7.2 LIMITS

Limits	<400.00ms

7.3 TEST PROCEDURE

The EUT must have its hopping function enabled.
Use the following spectrum analyzer settings:
Span = zero span, centered on a hopping channel
RBW ≤ Channel Separation

VBW ≥ RBW

Sweep = as necessary to capture the entire dwell time per hopping channel
Detector function = peak
Trace = max hold
If possible, 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.

7.4 TEST RESULTS

GFSK

Packet	N	x(ms)	Calculation formula	Result(T)(ms)
DH1	2	0.386	$T=\frac{1600}{79\times N}\times x\times(0.4\times 79)=\frac{1600}{79\times N}\times x\times 31.6$	123.52
DH3	4	1.635	DH1, N=2;	261.60
DH5	6	2.875	DH3, N=4; DH5, N=6	306.67

Π /4-DQPSK

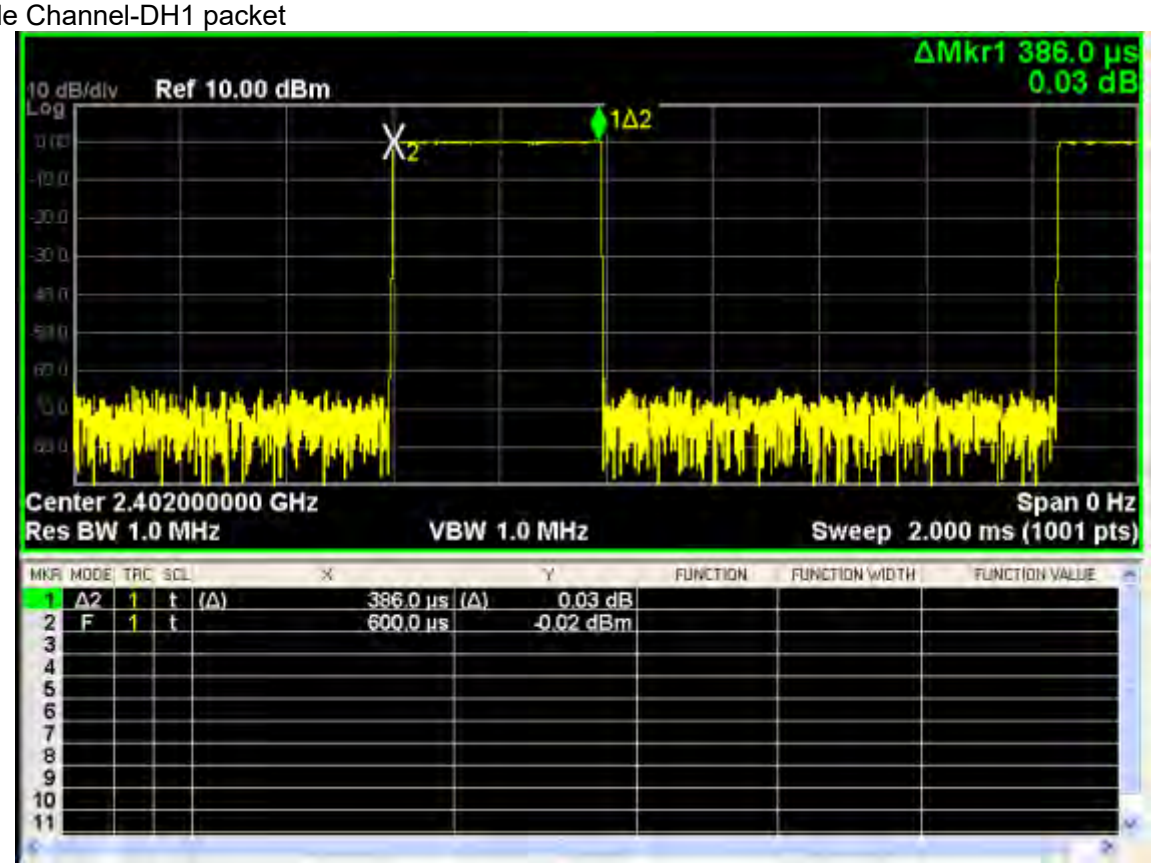
Packet	N	x(ms)	Calculation formula	Result(T)(ms)
DH1	2	0.384	$T=\frac{1600}{79\times N}\times x\times(0.4\times 79)=\frac{1600}{79\times N}\times x\times 31.6$	122.88
DH3	4	1.630	DH1, N=2;	260.80
DH5	6	2.885	DH3, N=4; DH5, N=6	307.73

8-DPSK

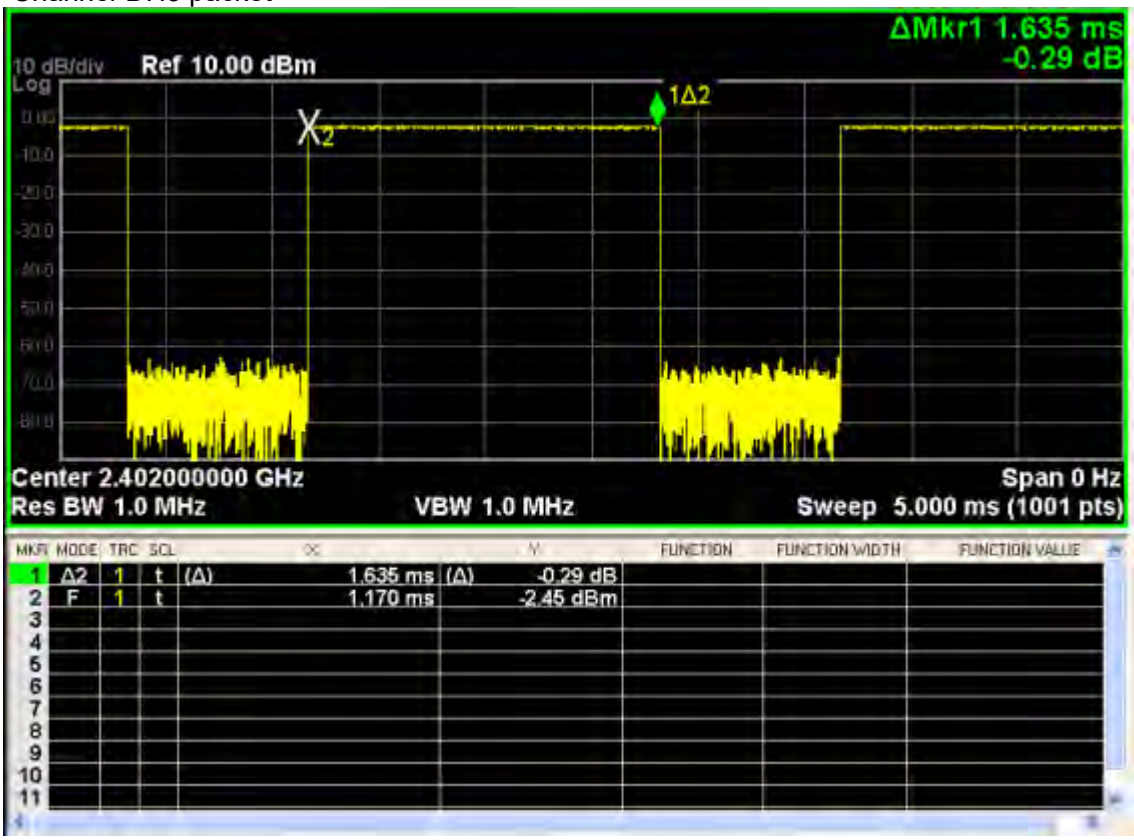
Packet	N	x(ms)	Calculation formula	Result(T)(ms)
DH1	2	0.392	$T=\frac{1600}{79\times N}\times x\times(0.4\times 79)=\frac{1600}{79\times N}\times x\times 31.6$	125.44
DH3	4	1.625	DH1, N=2;	260.00
DH5	6	2.890	DH3, N=4; DH5, N=6	308.27

GFSK

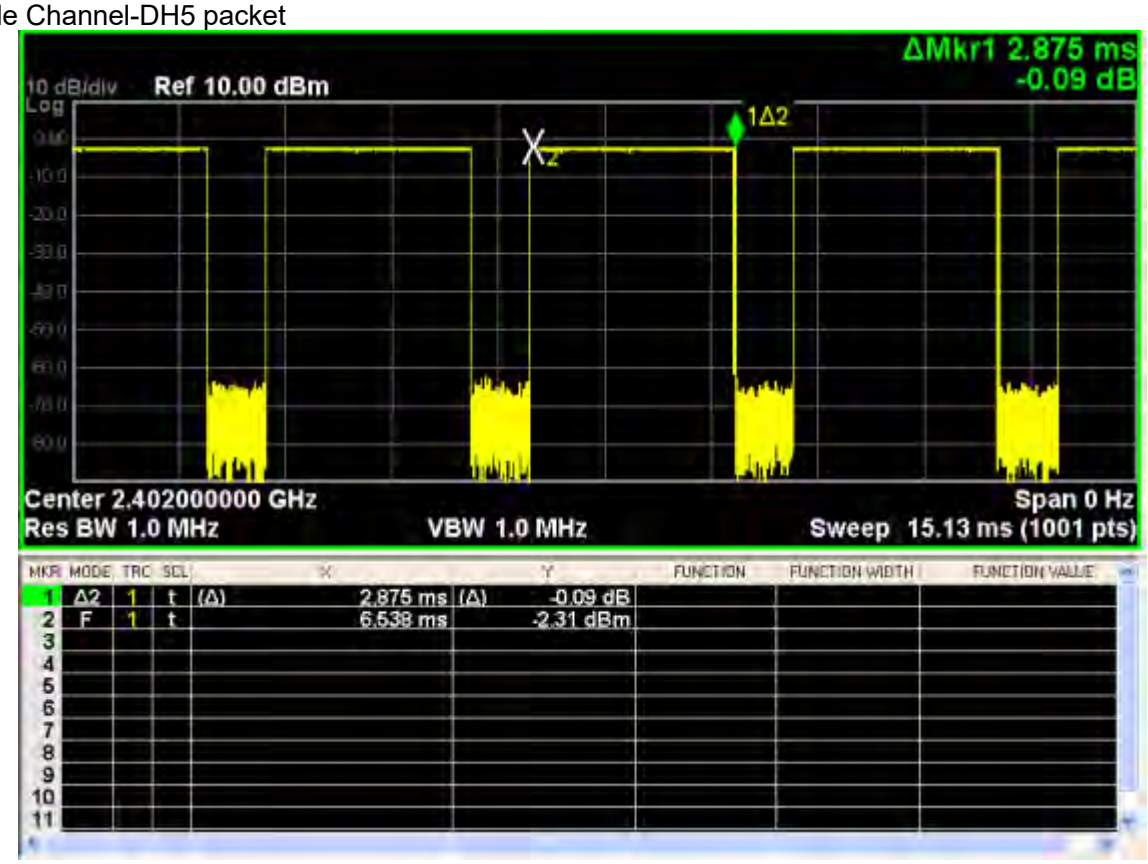
Single Channel-DH1 packet



Single Channel-DH3 packet

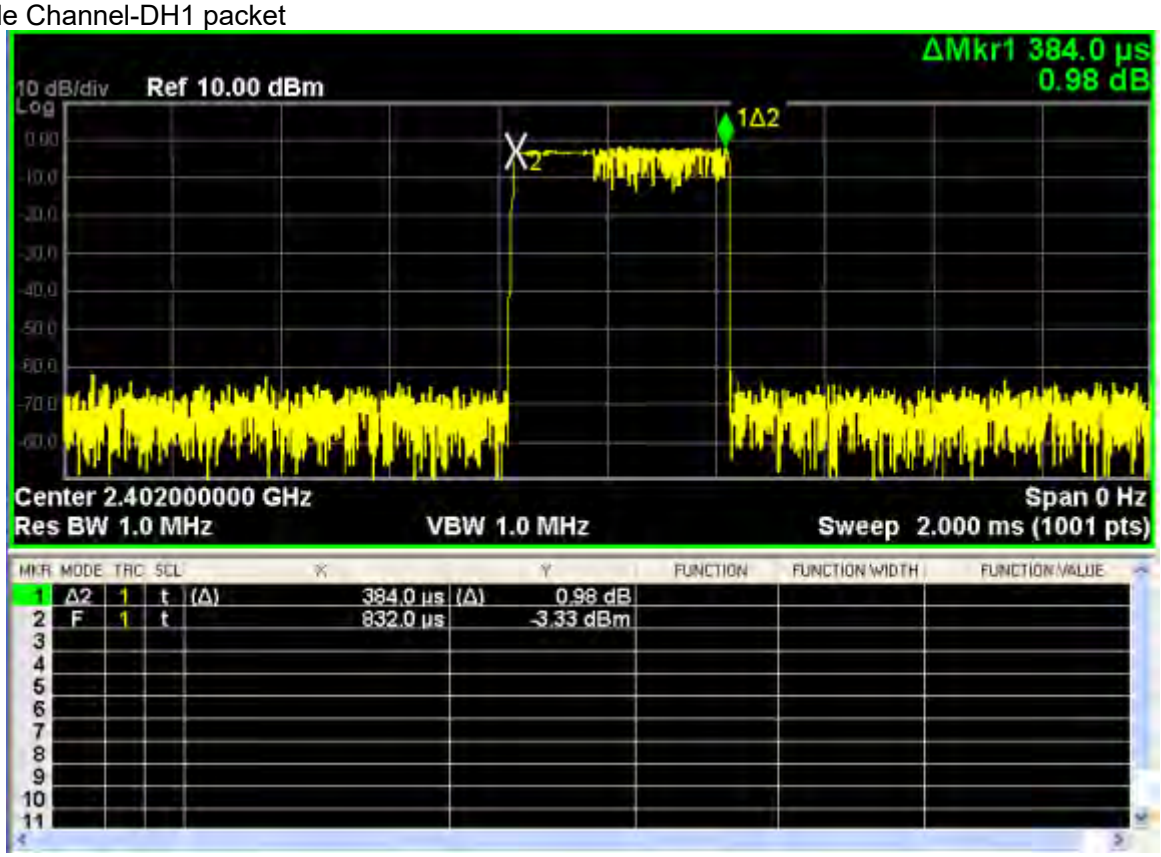


Single Channel-DH5 packet

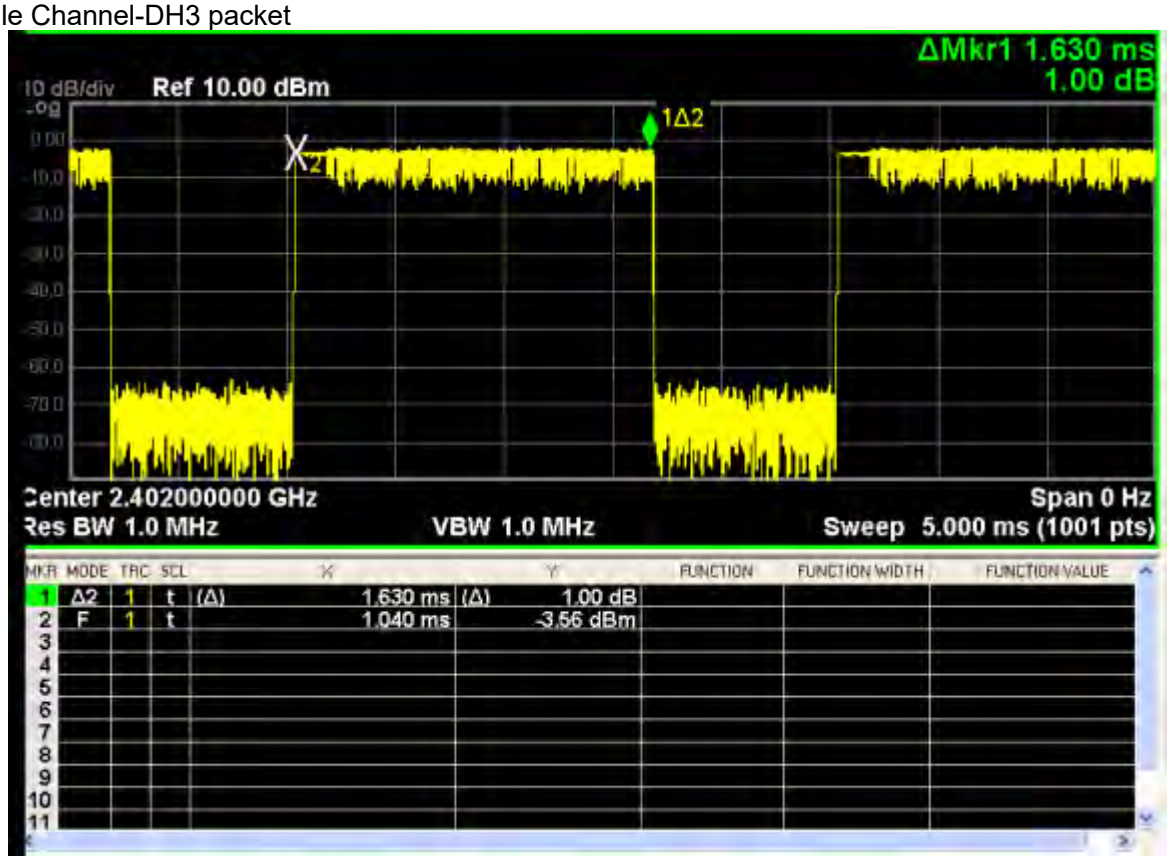


Π /4-DQPSK

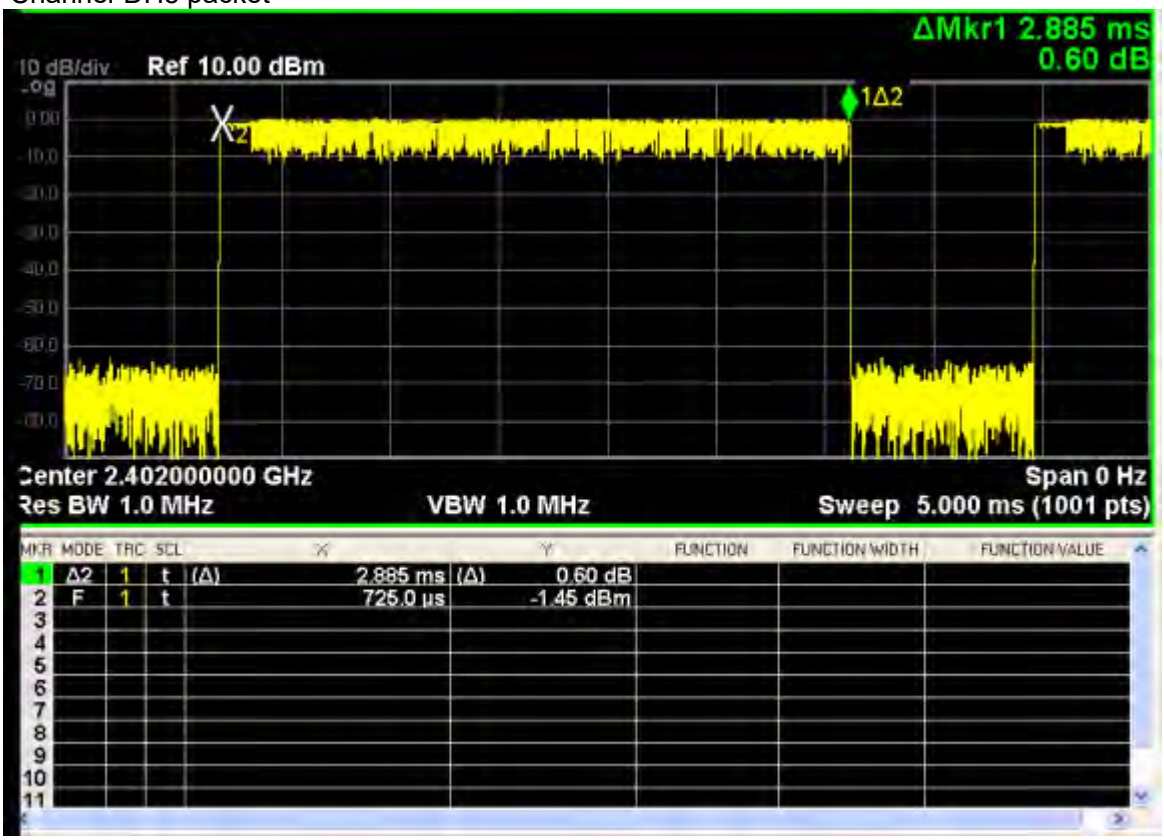
Single Channel-DH1 packet



Single Channel-DH3 packet

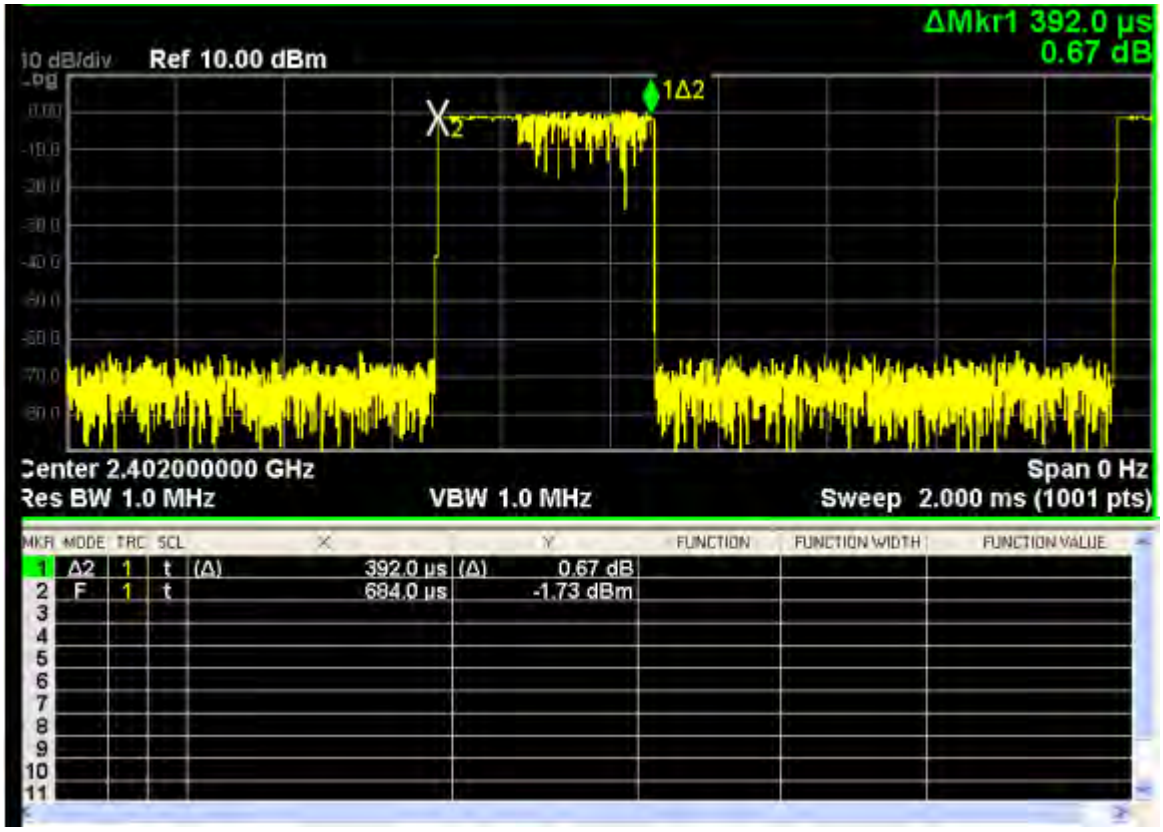


Single Channel-DH5 packet

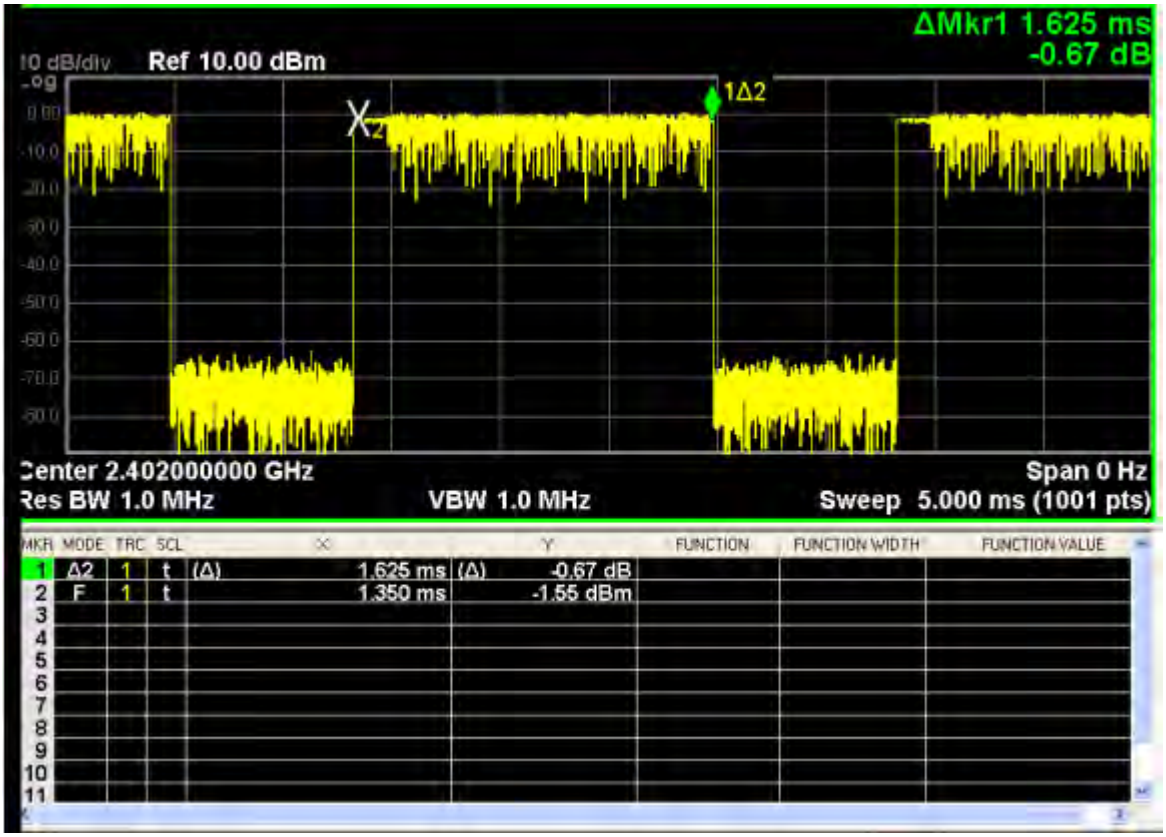


8-DPSK

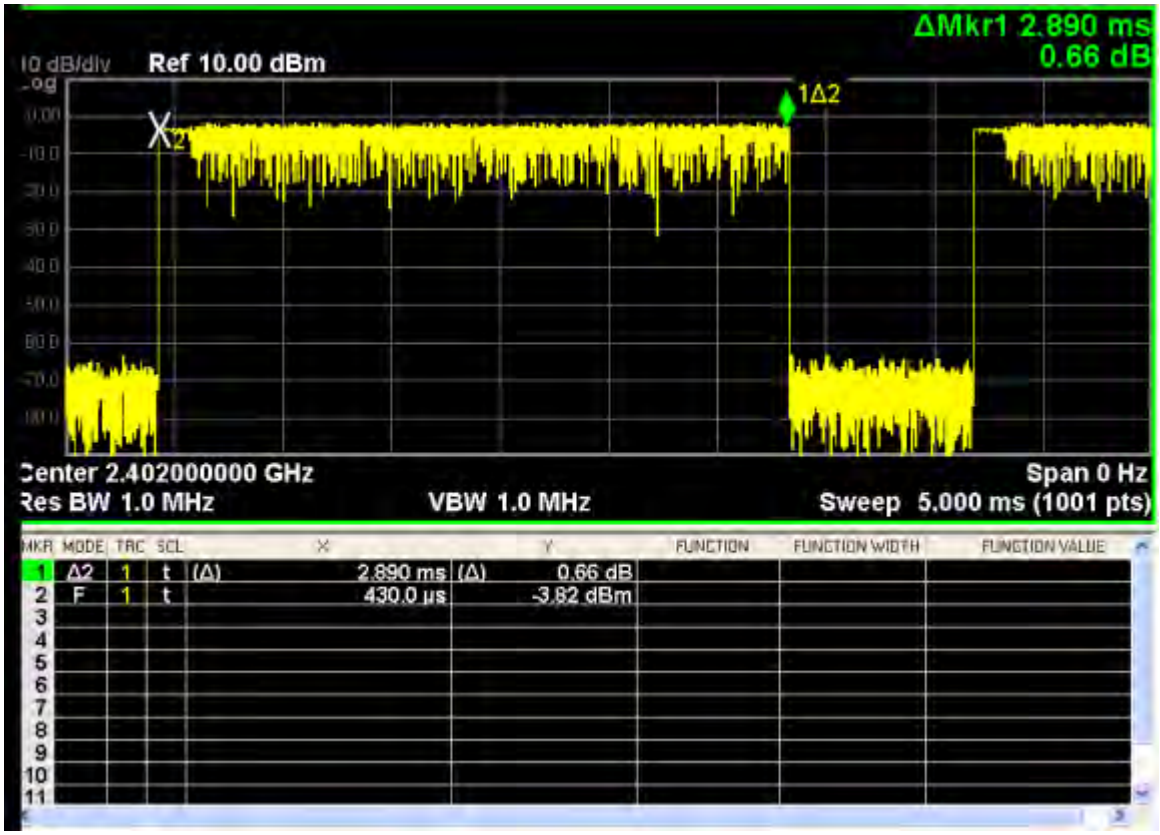
Single Channel-DH1 packet



Single Channel-DH3 packet

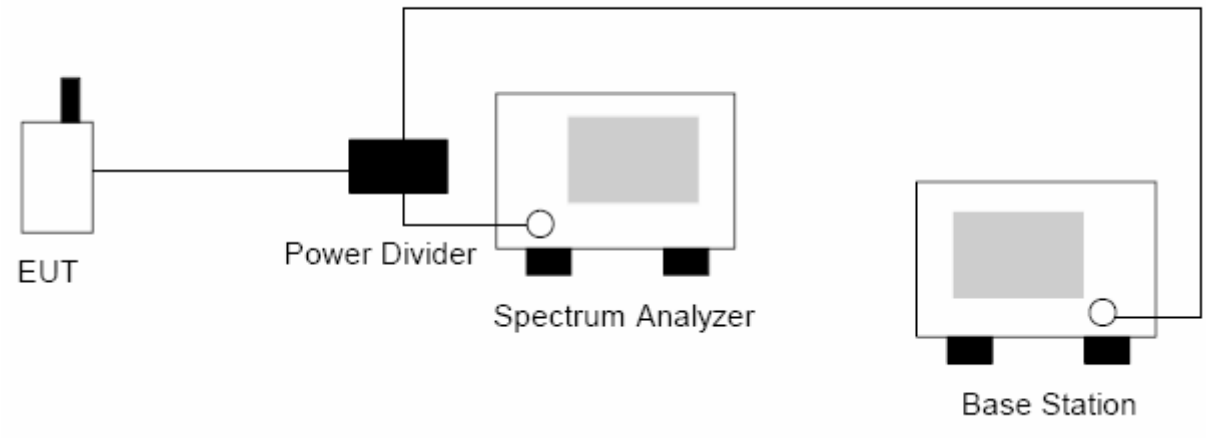


Single Channel-DH5 packet



8. PEAK OUTPUT POWER (CONDUCTION)

8.1 TEST SETUP



8.2 LIMITS

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §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 2400-2483.5 MHz 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 125 mW.
2. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
3. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.3 TEST PROCEDURE

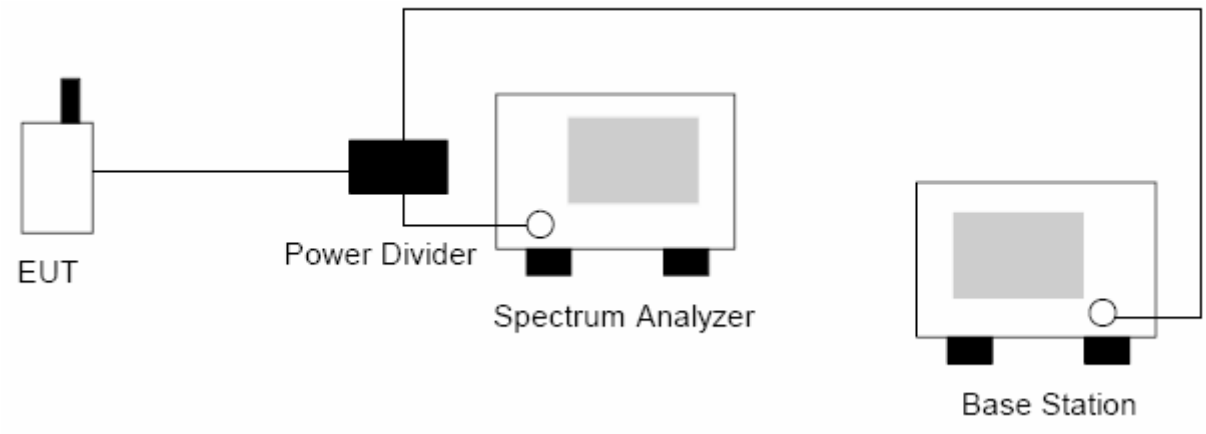
After a radio link has been established between EUT and Base station, using spectrum analyzer to measure the output power of the cell signal of the EUT, and record the max. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels:
Bluetooth: Low(0), middle(39) and High (78),
Set the spectrum analyzer as RBW = 3MHz, VBW = 3MHz, Span = 10MHz, Sweep = auto
Detector = Peak, Trace mode = max hold

8.4 RESULTS & PERFORMANCE

GFSK				
Channel	Peak power (dBm)	Peak power (mW)	Limit (mW)	Result
0 (2402MHz)	4.7	2.9	125	Pass
39 (2441MHz)	4.9	3.1		Pass
78 (2480MHz)	5.0	3.2		Pass
Π /4-DQPSK				
Channel	Peak power (dBm)	Peak power (mW)	Limit (mW)	Result
0 (2402MHz)	5.4	3.5	125	Pass
39 (2441MHz)	5.2	3.3		Pass
78 (2480MHz)	5.0	3.2		Pass
8-DPSK				
Channel	Peak power (dBm)	Peak power (mW)	Limit (dBm)	Result
0 (2402MHz)	4.9	3.1	125	Pass
39 (2441MHz)	5.1	3.2		Pass
78 (2480MHz)	5.1	3.2		Pass

9. SPURIOUS EMISSIONS (CONDUCTION)

9.1 TEST SETUP



9.2 LIMITS

Limit	<(P-20dB)
Note: P is the highest level of the desired power	

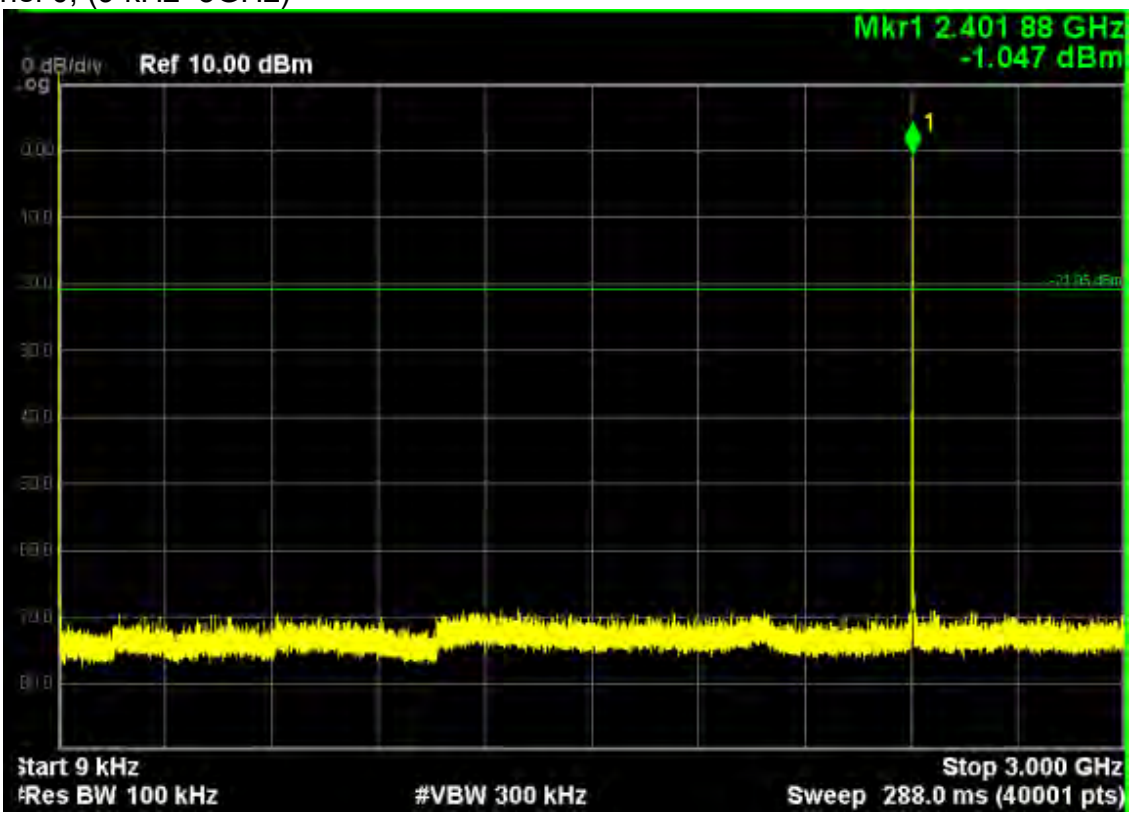
9.3 TEST PROCEDURE

The EUT was connected to Spectrum Analyzer and Base Station via power divider. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz; VBW=300 kHz; Sweep = auto; Detector function = peak; Trace = max hold
Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

9.4 RESULTS & PERFORMANCE

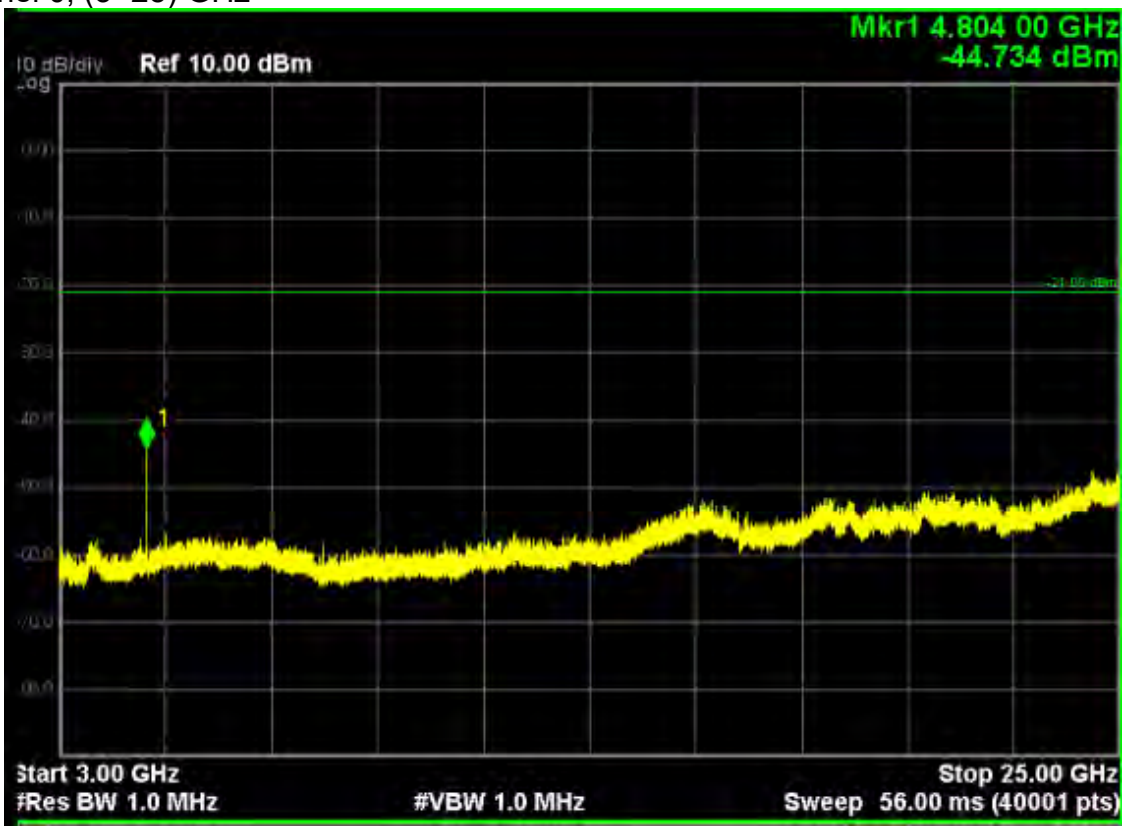
Bluetooth traffic mode GFSK

Channel 0; (9 kHz~3GHz)

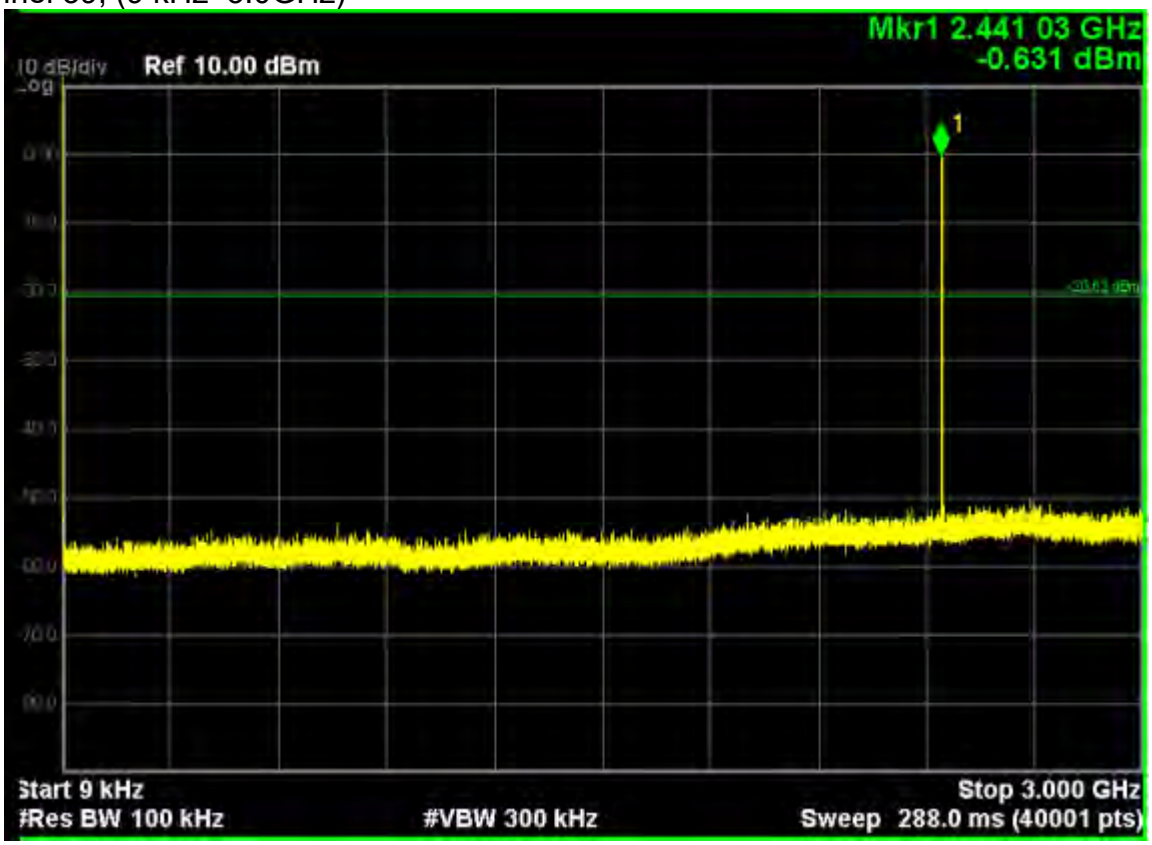


Note: The point mark1 is carrier.

Channel 0; (3~25) GHz

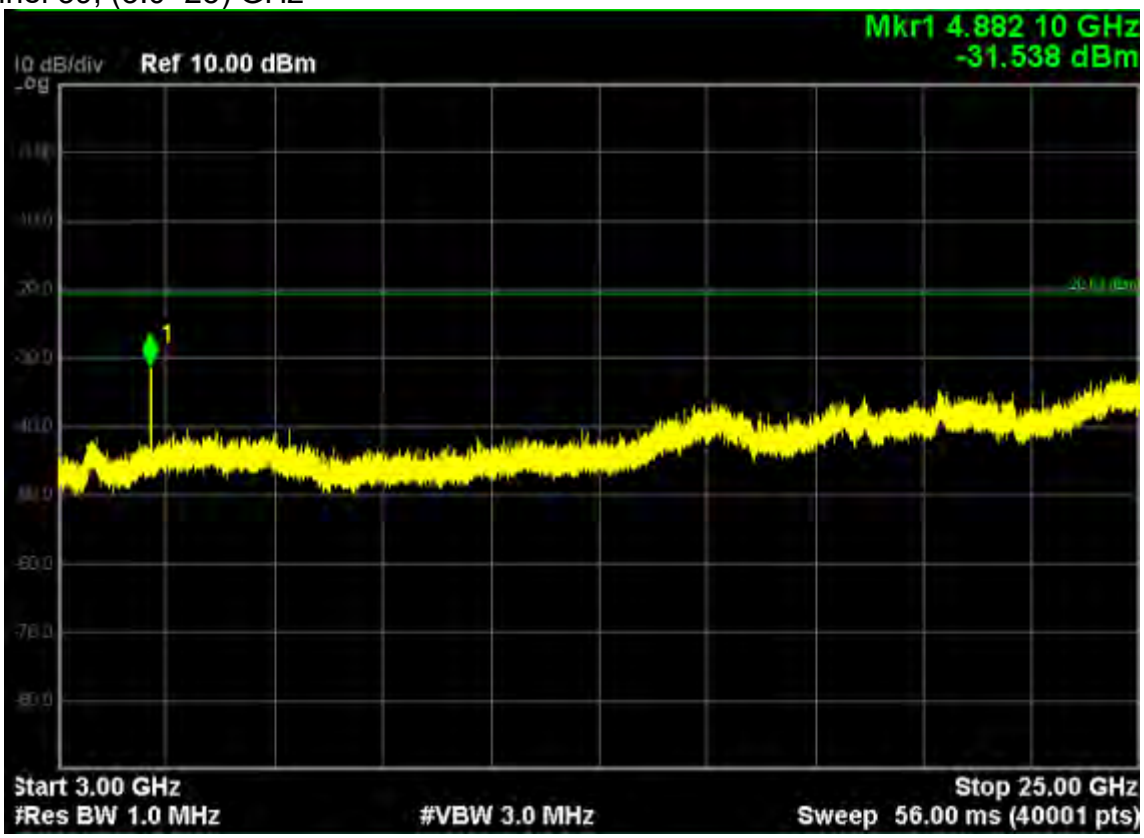


Channel 39; (9 kHz~3.0GHz)

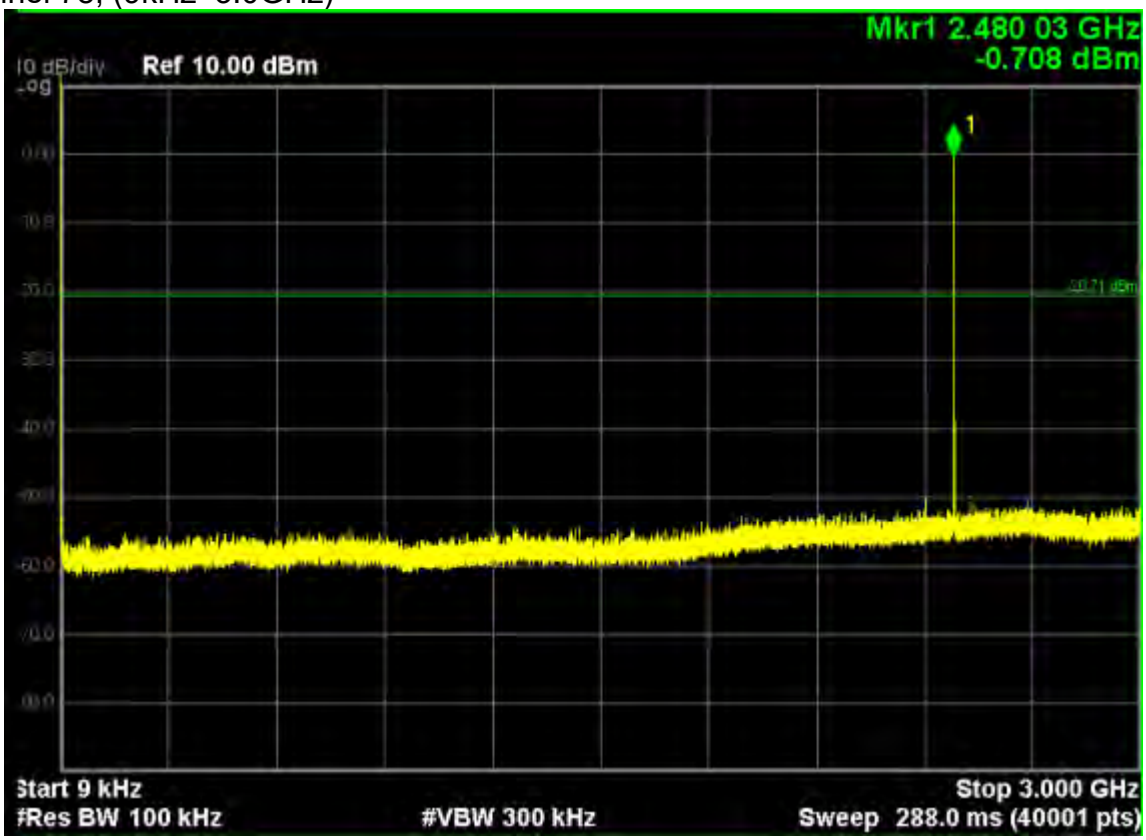


Note: The point mark1 is carrier.

Channel 39; (3.0~25) GHz

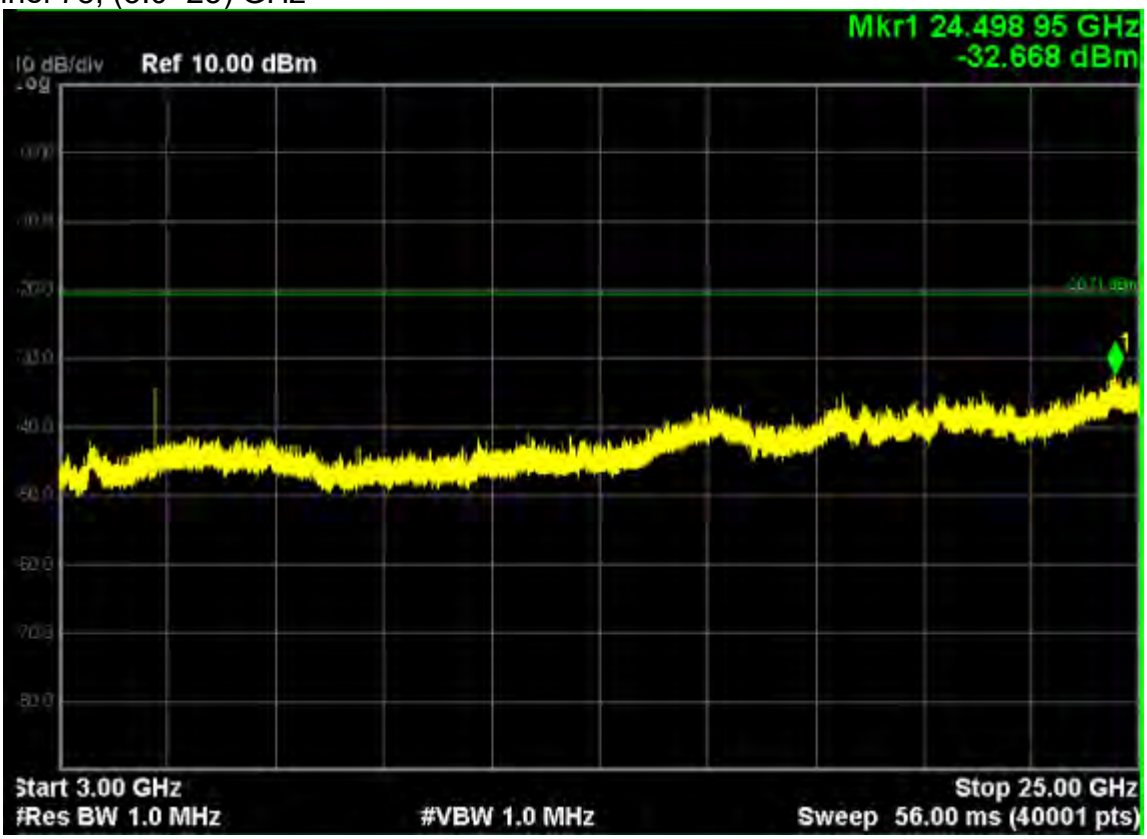


Channel 78; (9kHz~3.0GHz)



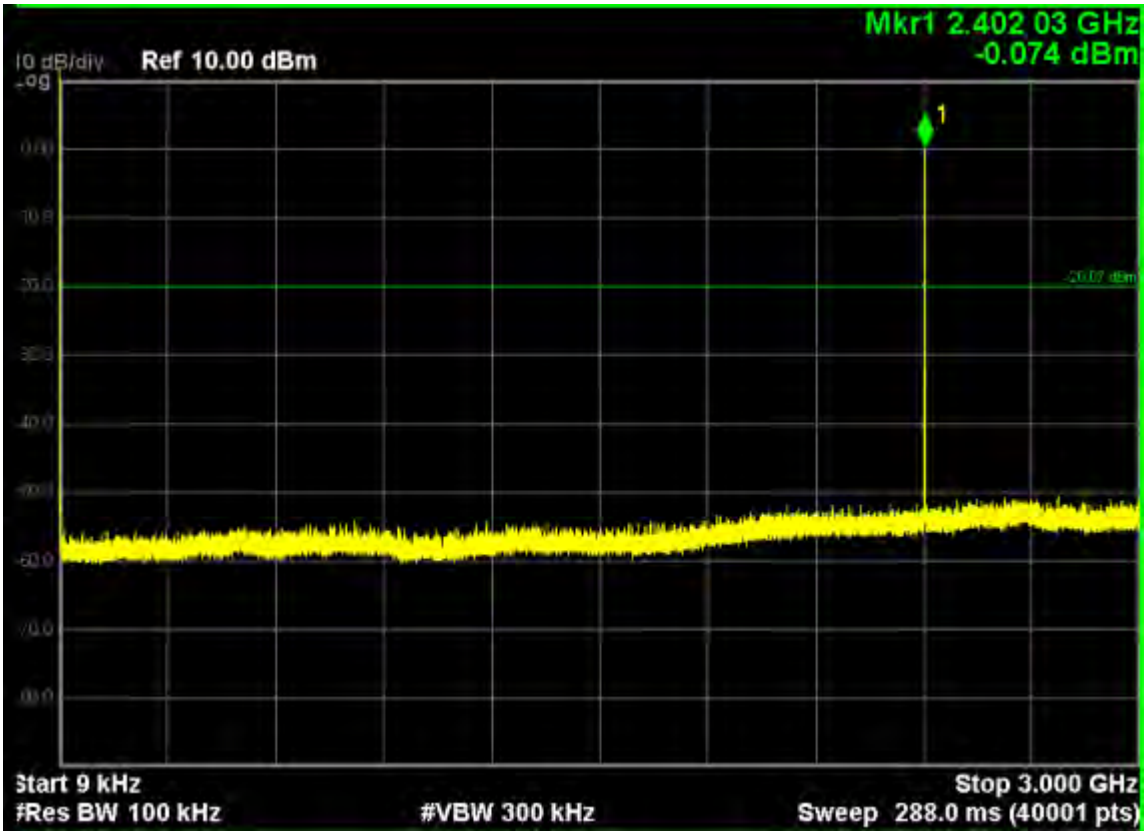
Note:The point mark1 is carrier.

Channel 78; (3.0~25) GHz



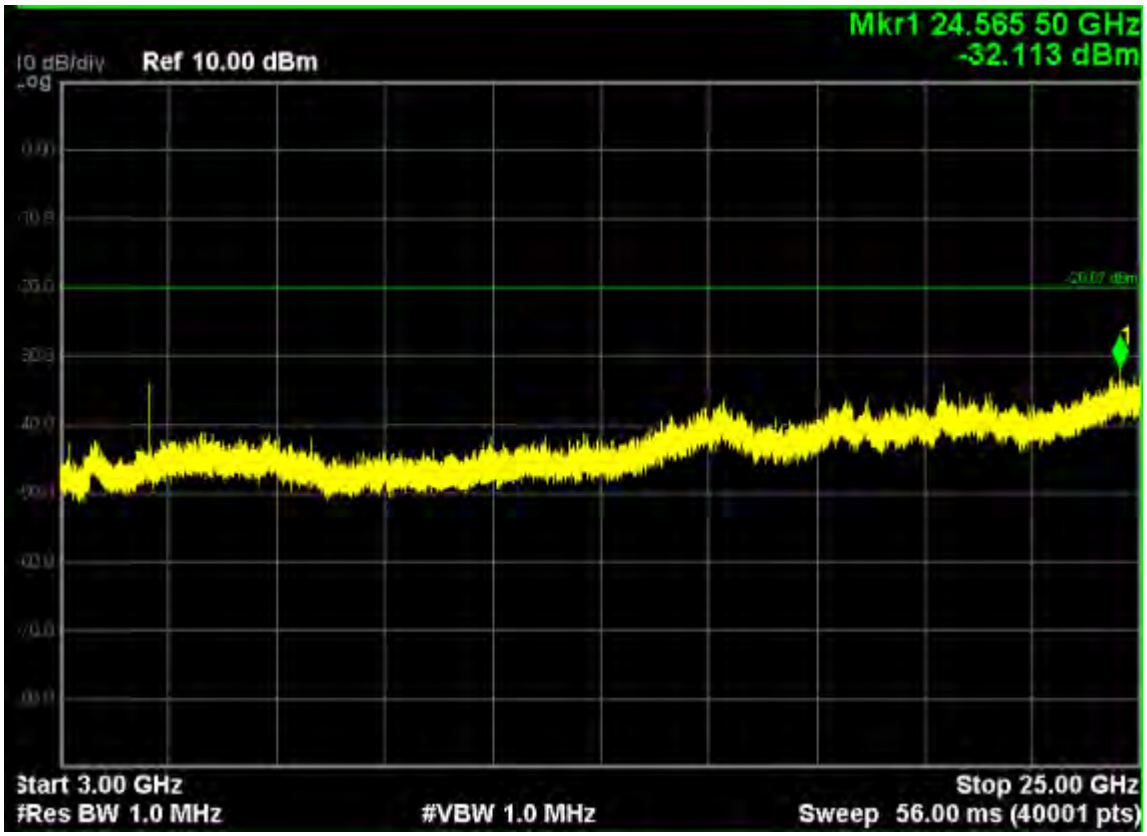
Bluetooth; traffic mode; Π /4-DQPSK

Channel 0 (9 kHz~3.0GHz)

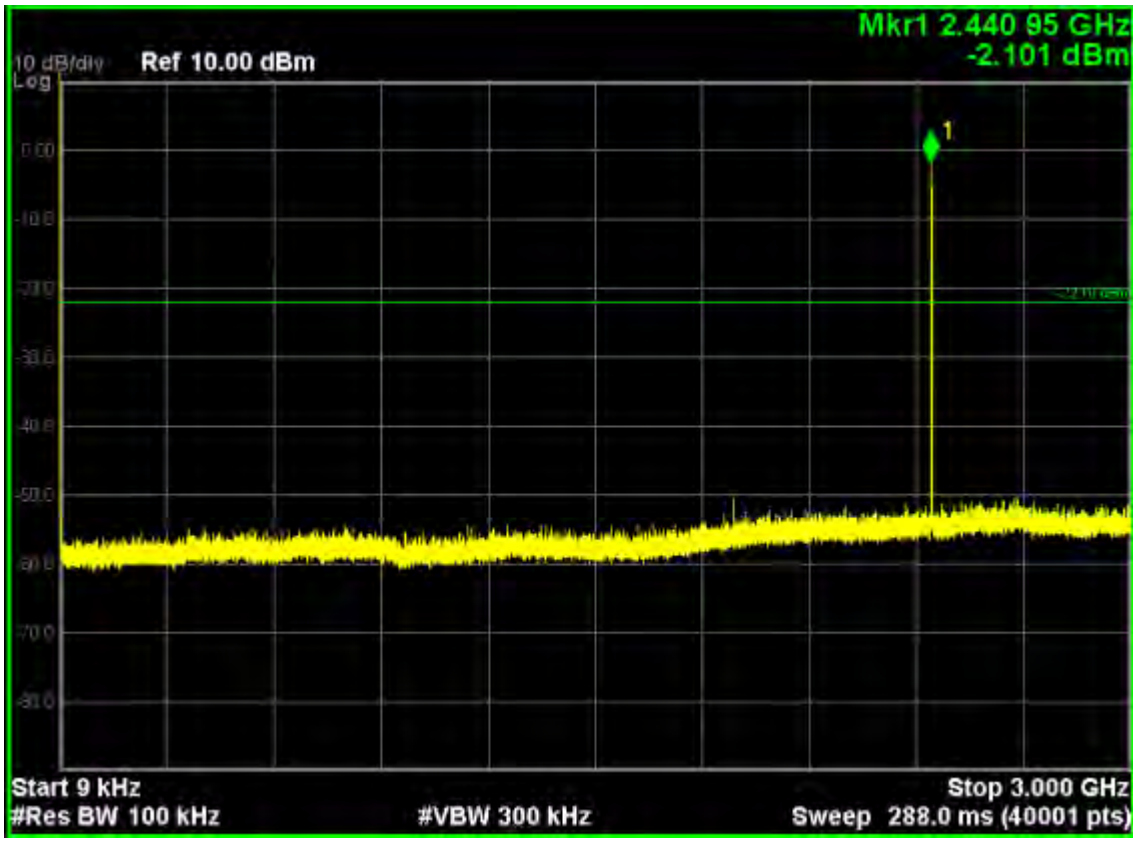


Note:The point mark1 is carrier.

Channel 0 (3GHz~25GHz)

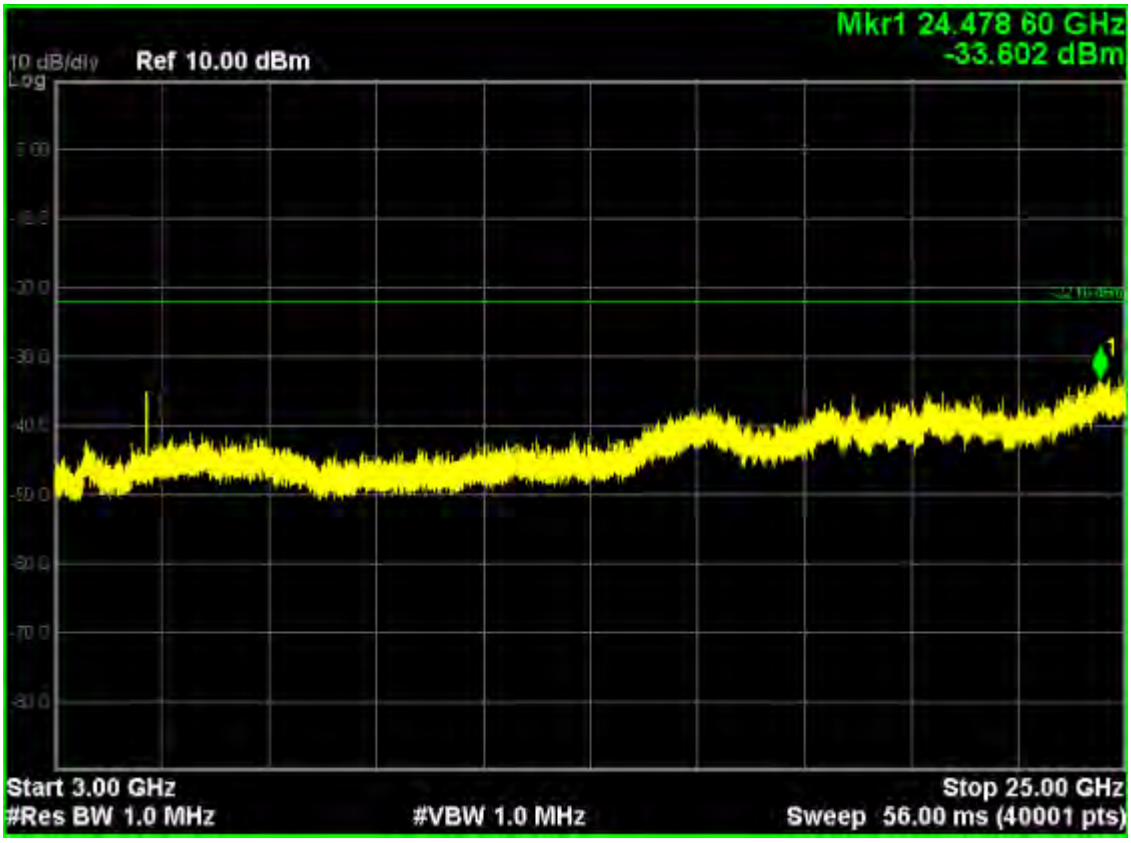


Channel 39 (9 kHz~3.0GHz)

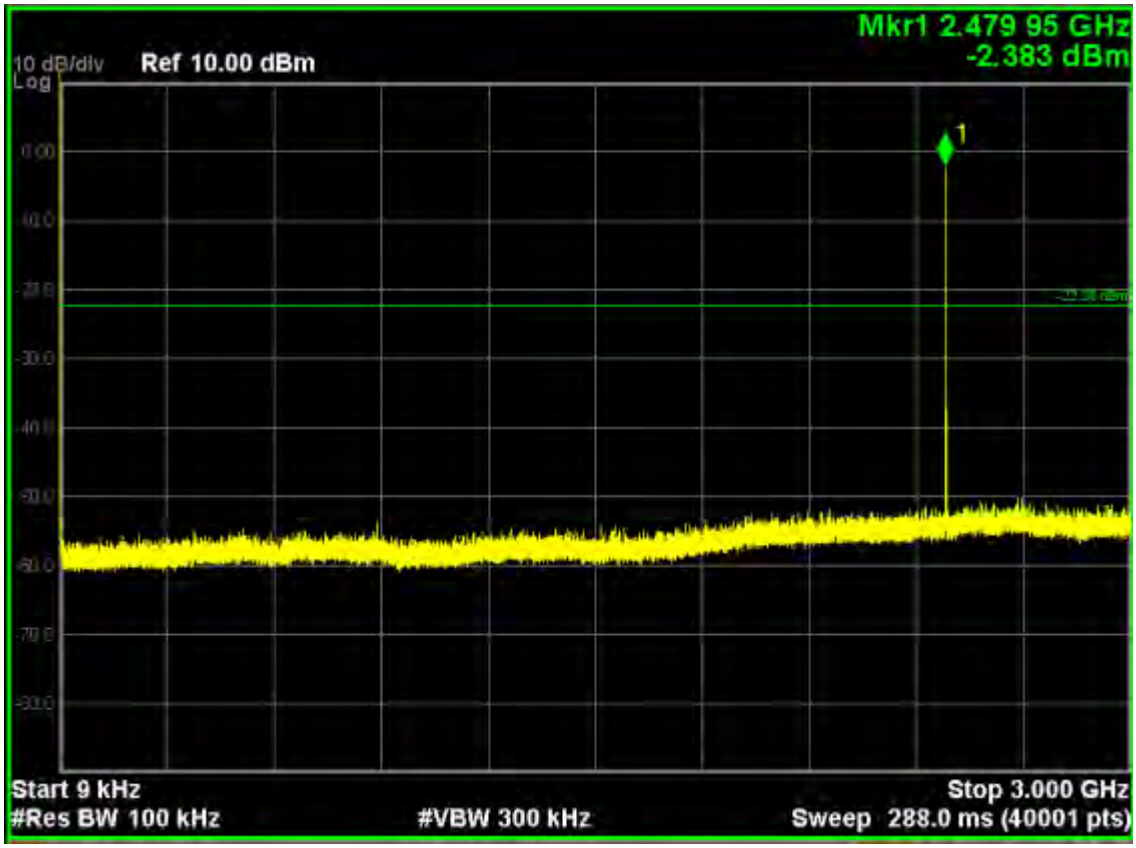


Note:The point mark1 is carrier.

Channel 39 (3.0GHz ~25GHz)

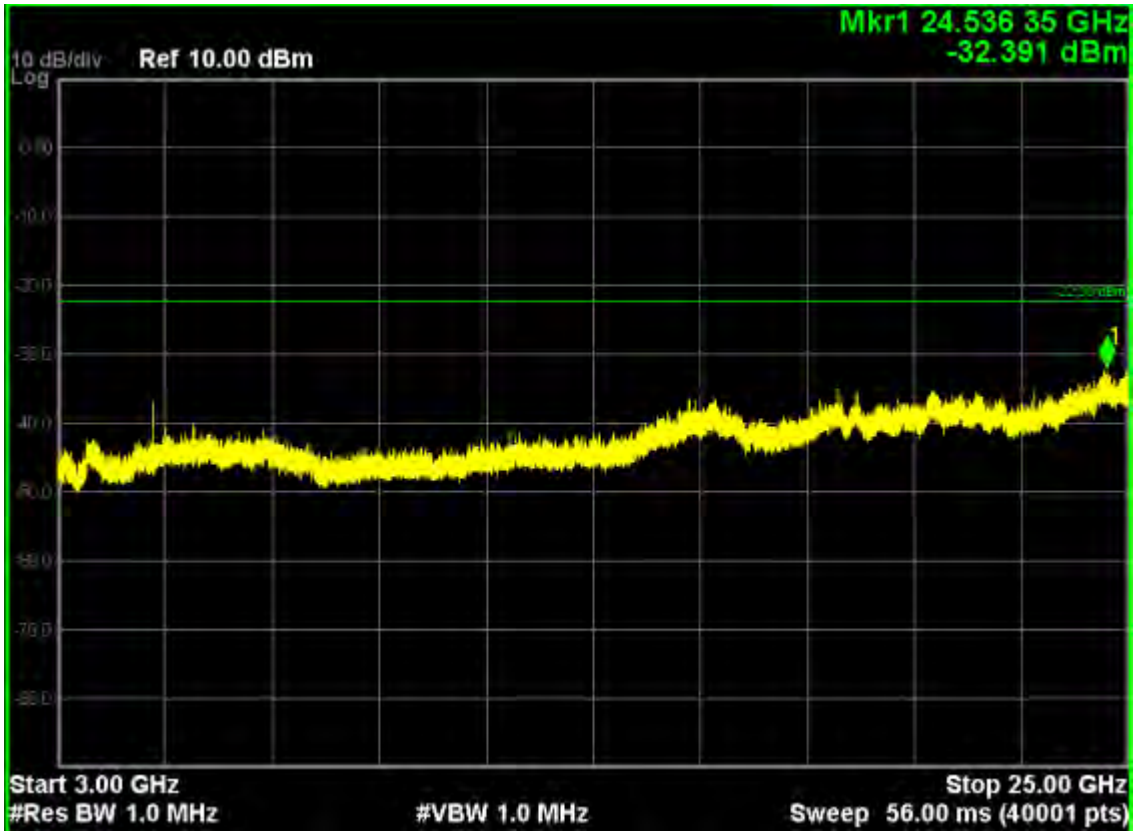


Channel 78 (9 kHz~3.0GHz)



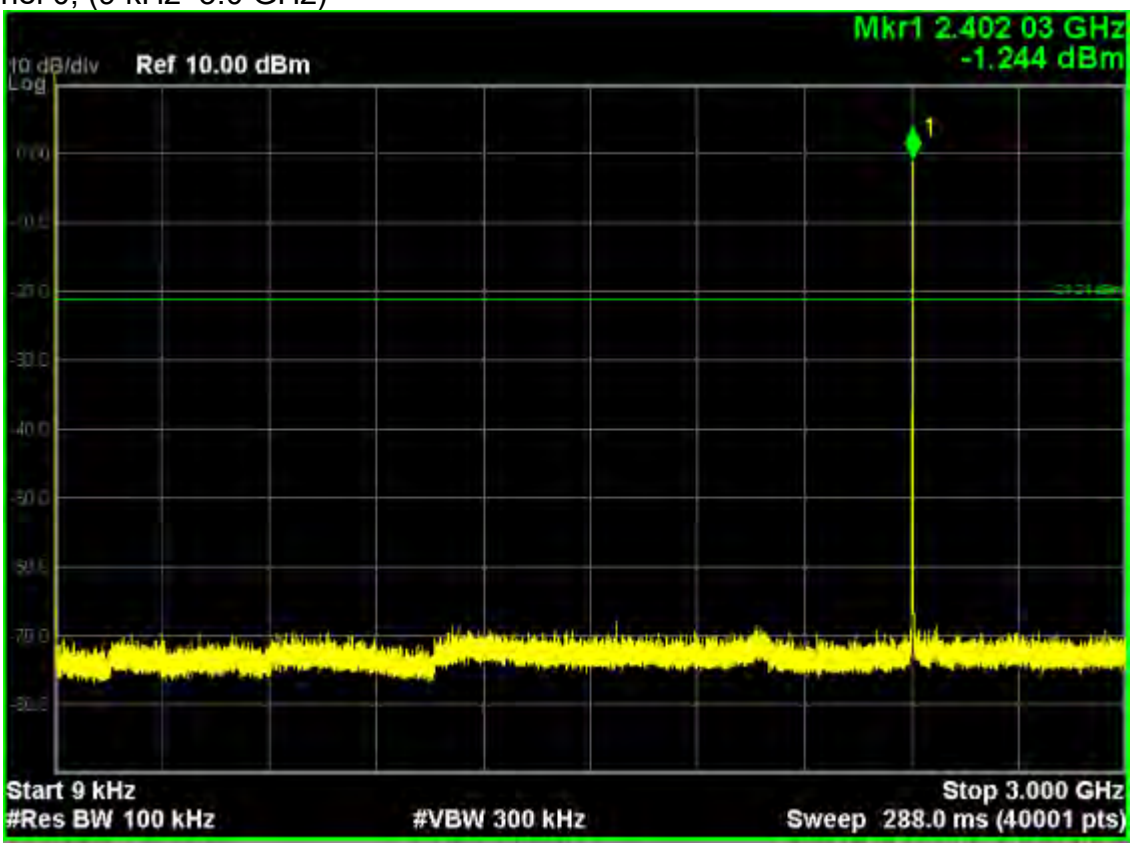
Note:The point mark1 is carrier.

Channel 78 (3.0GHz ~25GHz)



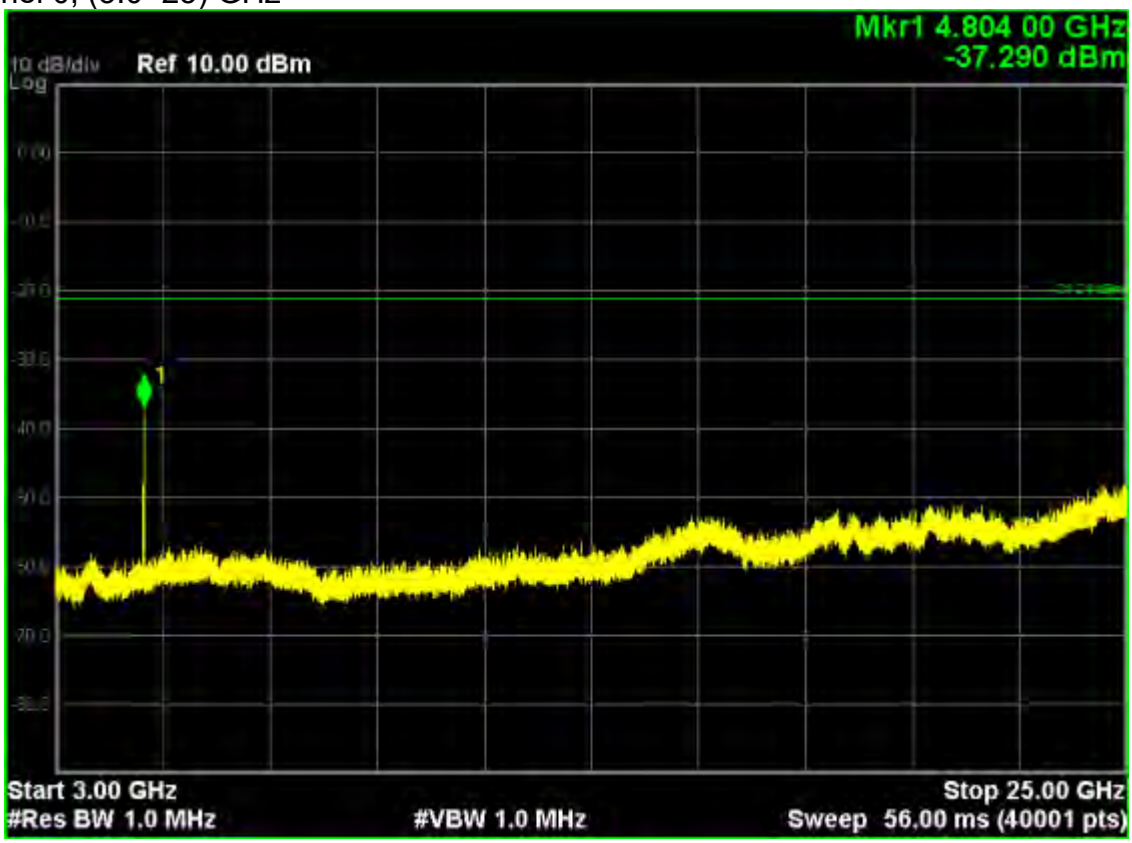
Bluetooth traffic mode 8-DPSK

Channel 0; (9 kHz~3.0 GHz)

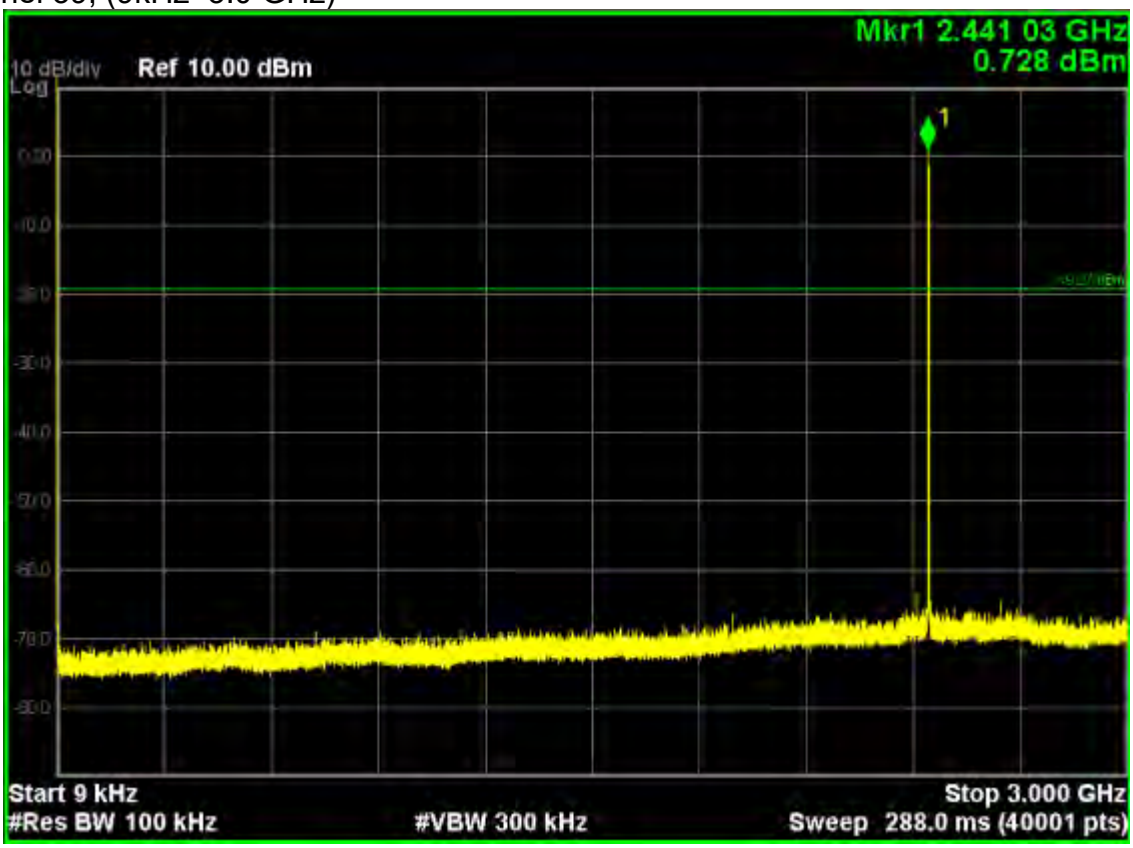


Note:The point mark1 is carrier.

Channel 0; (3.0~25) GHz

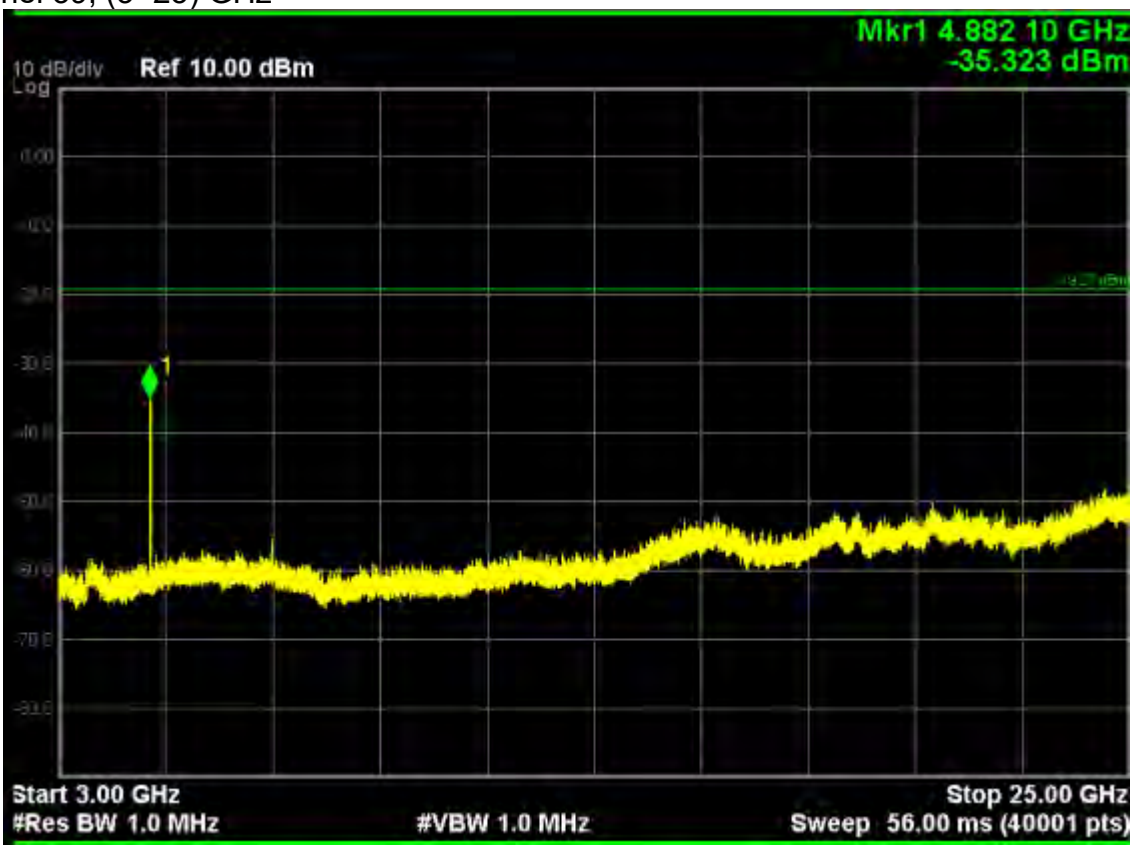


Channel 39; (9kHz~3.0 GHz)

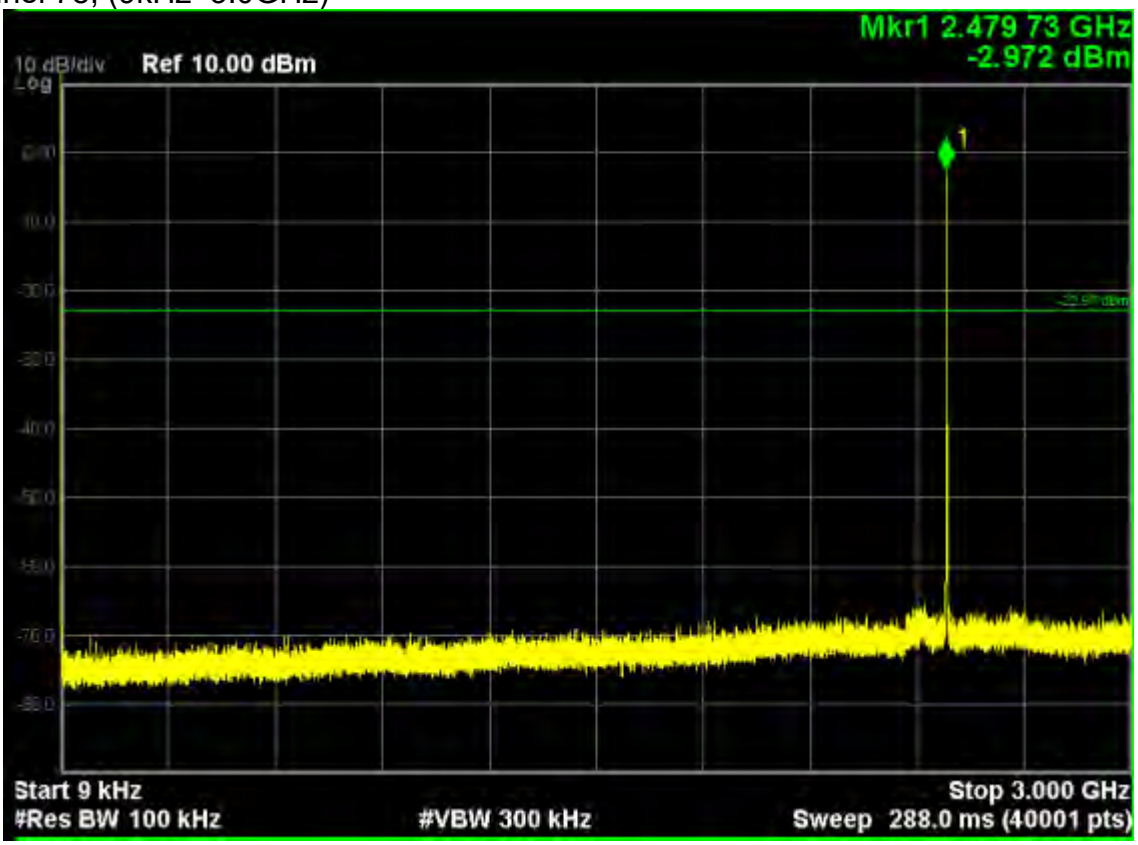


Note: The point mark1 is carrier.

Channel 39; (3~25) GHz



Channel 78; (9kHz~3.0GHz)



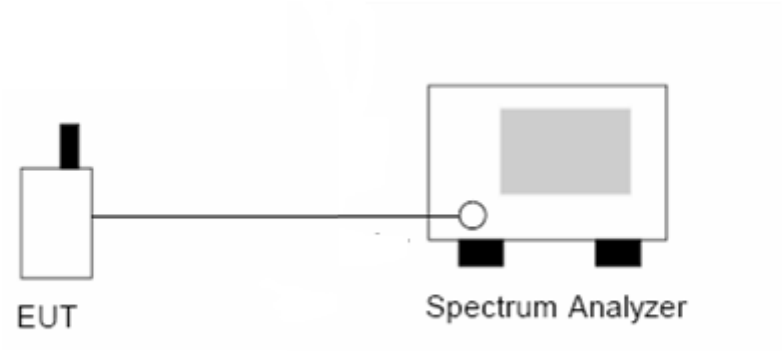
Note: The point mark1 is carrier.

Channel 78; (3~25) GHz

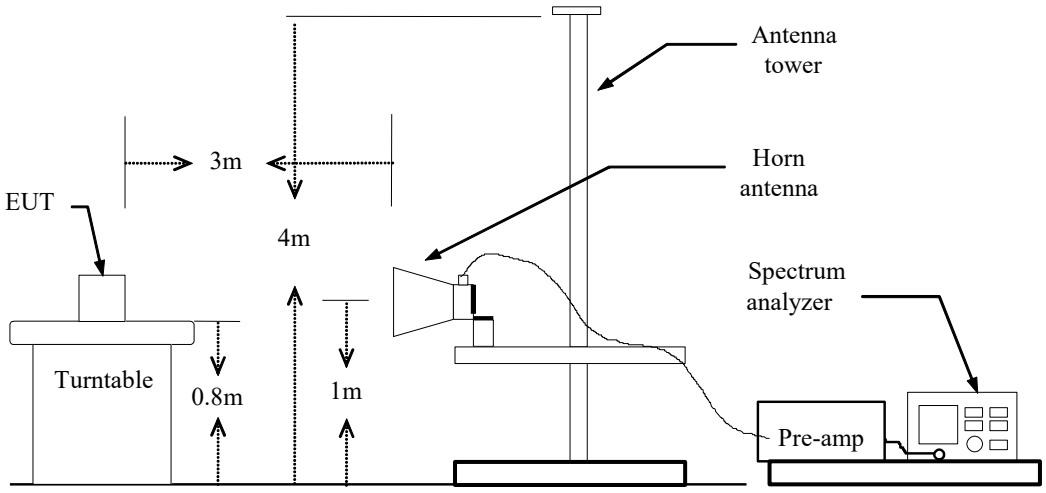
10. BAND EDGE MEASUREMENT

10.1 TEST SETUP

Conducted test:



Radiated test:



10.2 LIMITS

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

10.3 TEST PROCEDURE

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output.
Set the EUT to the lowest and highest frequency channel, operate at maximum output power and 100%duty cycle.
IF using radiated method, then use the applicable procedure(s) of 6.4,6.5or 6.6,and orient the EUT and measurement antenna positions to produce the highest emission level.
Set as follows:
Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation

RBW ⩾ 1% of the span

VBW ⩾ RBW

Sweep = auto

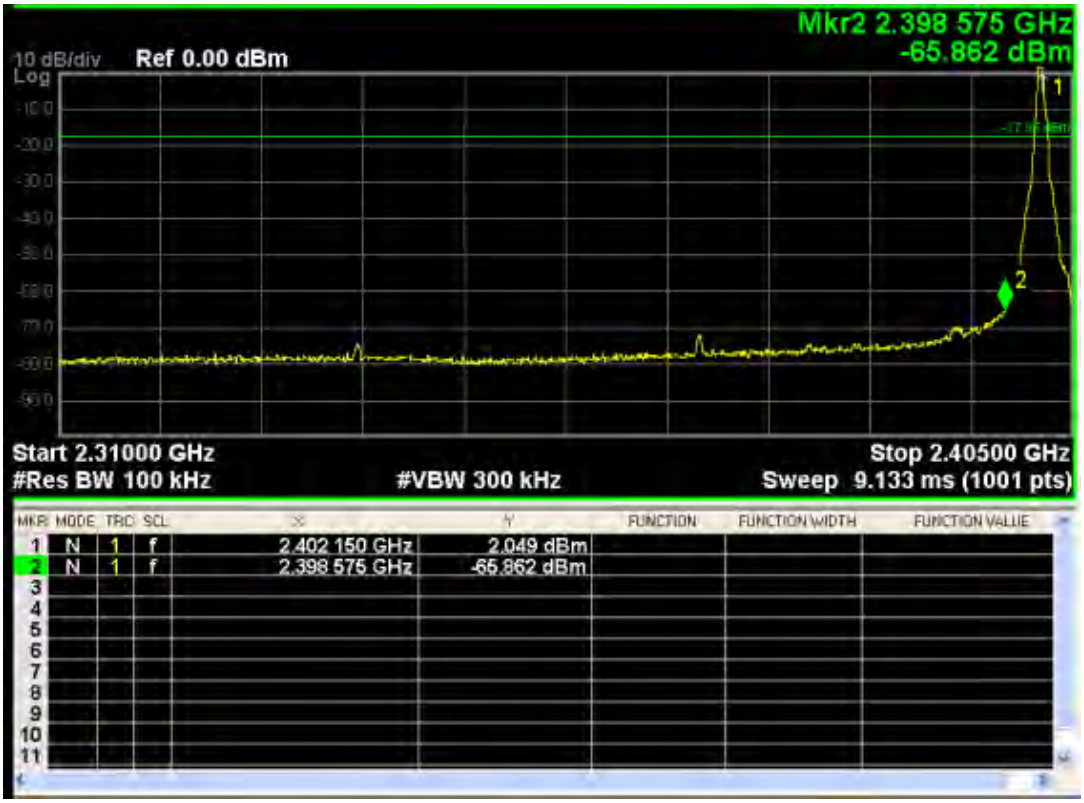
Detector function = peak

Trace = max hold

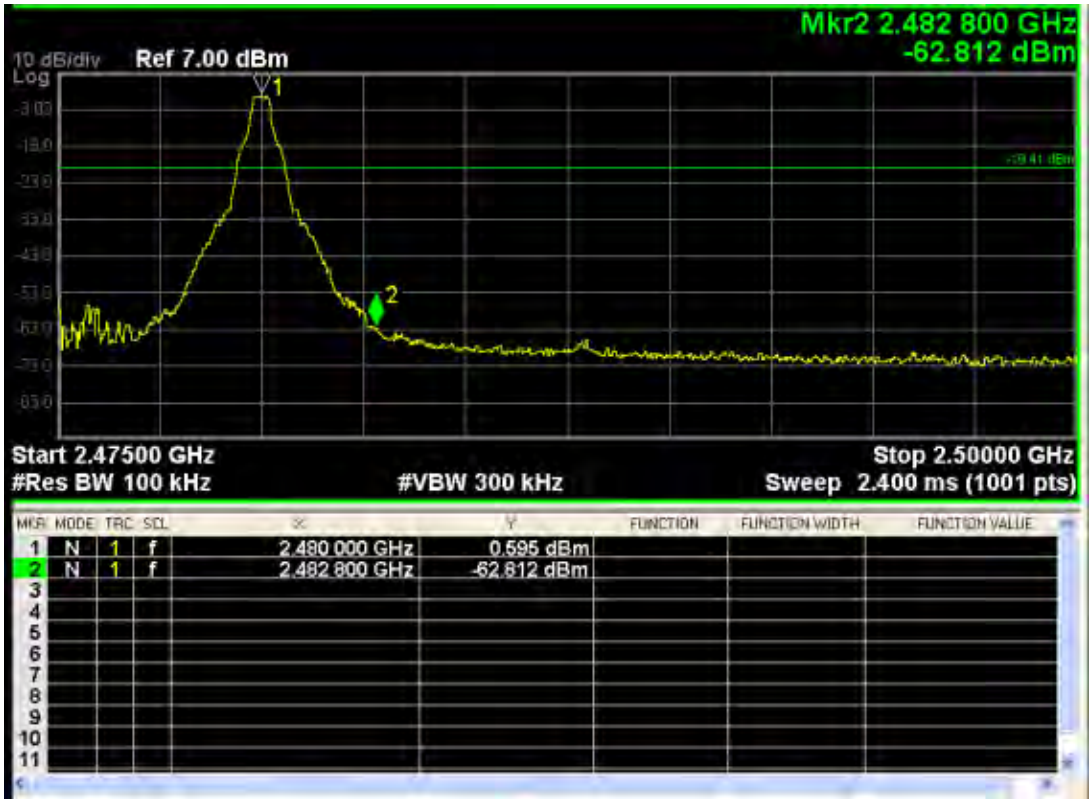
10.4 RESULTS & PERFORMANCE

Conducted Band Edge:

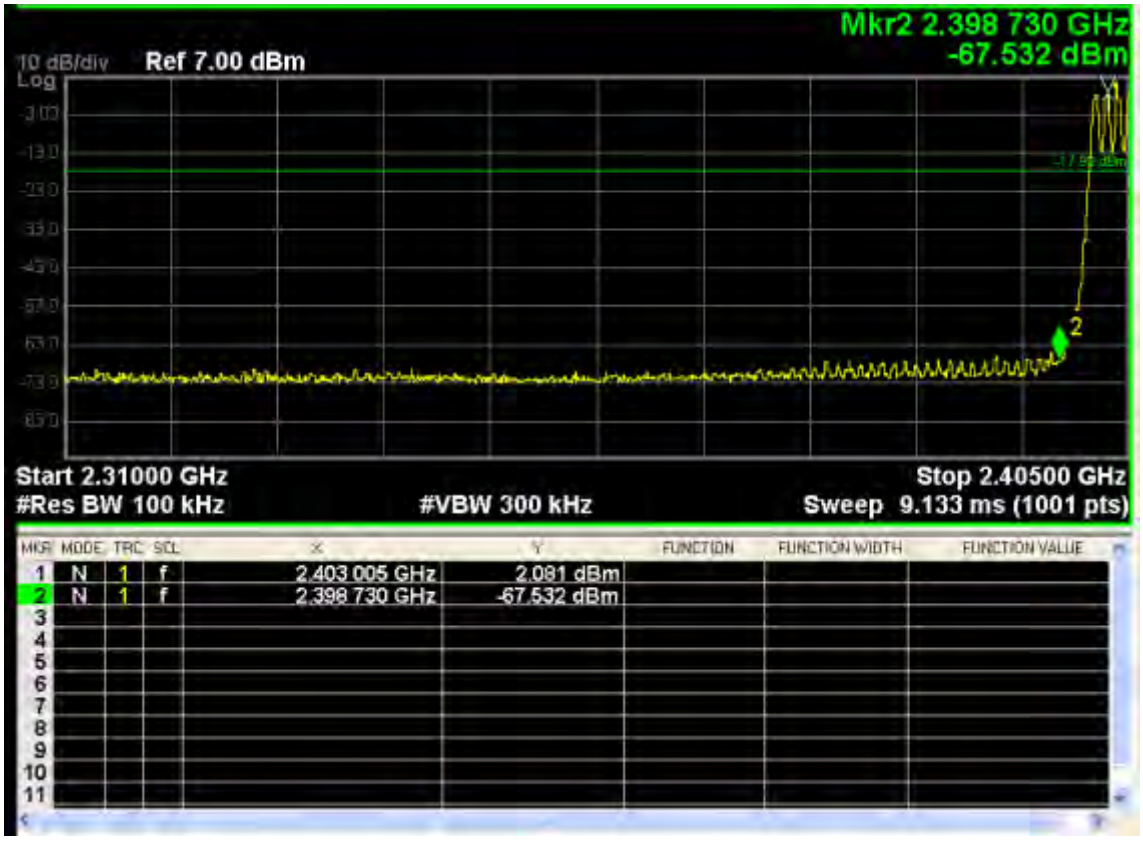
GFSK CH0

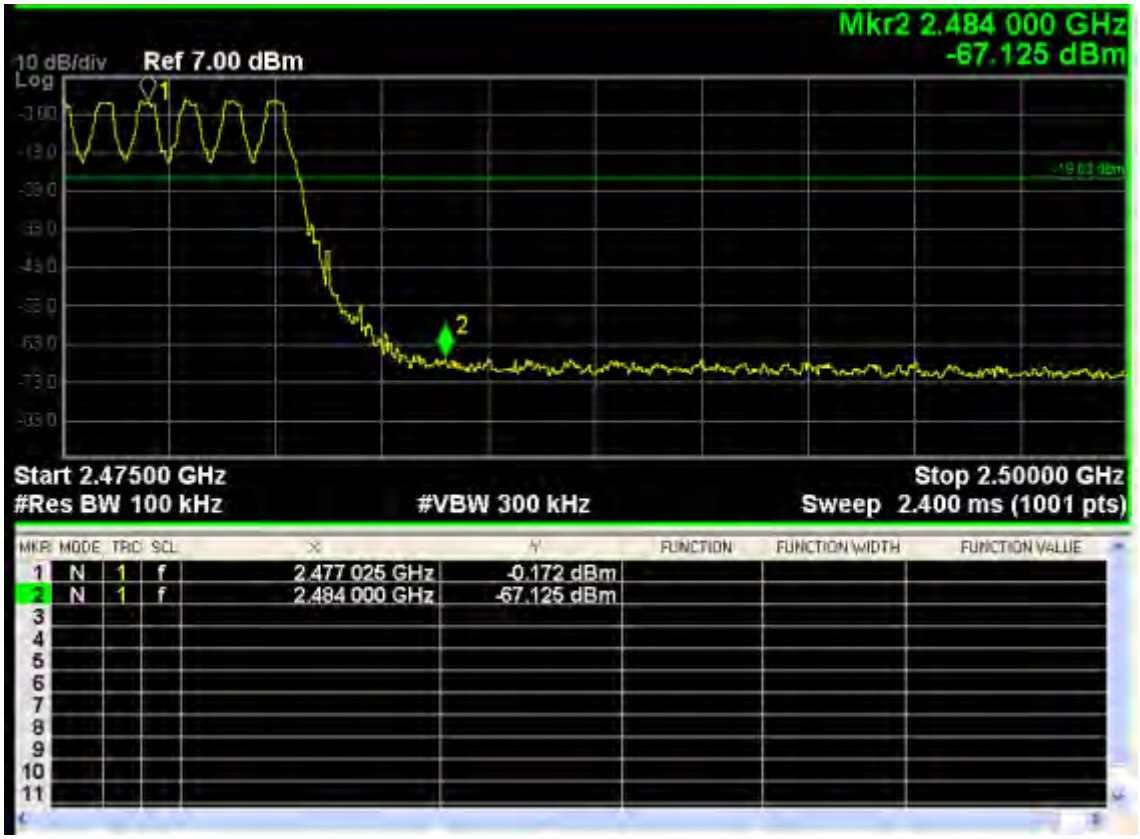


GFSK CH78

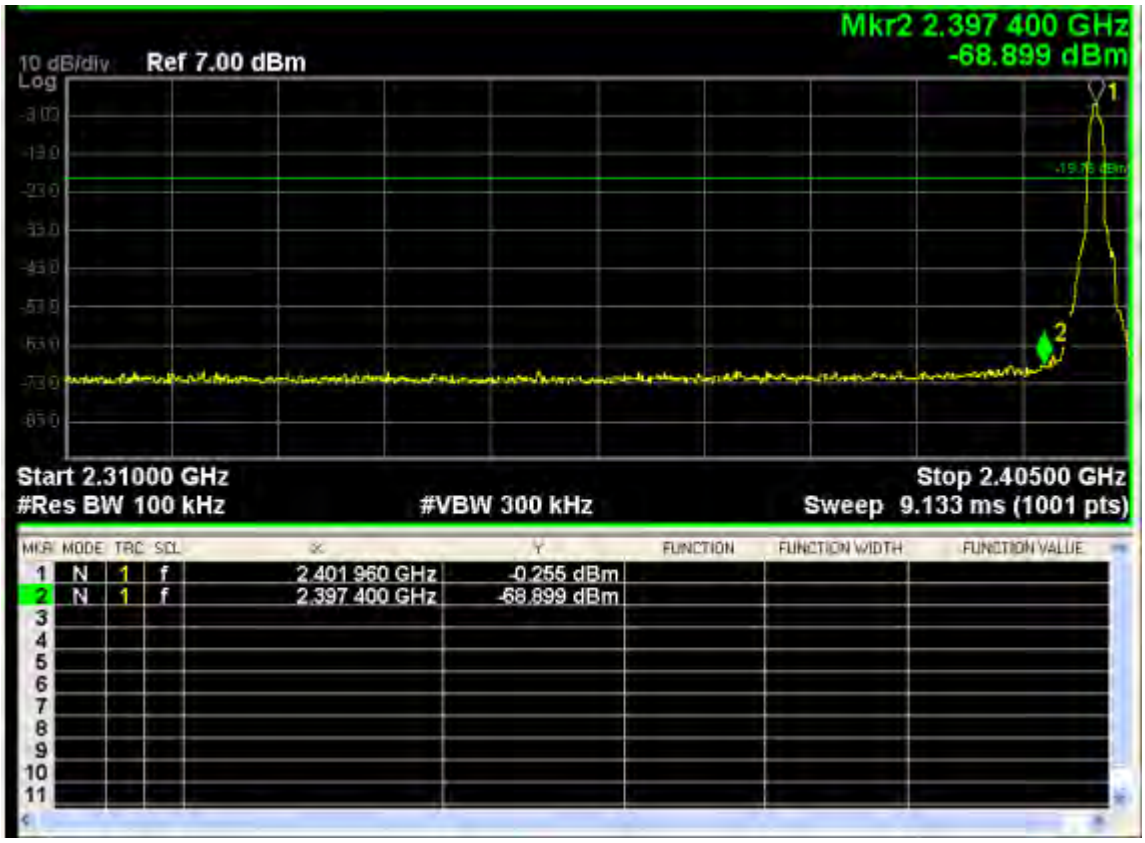


GFSK（Hopping Mode）

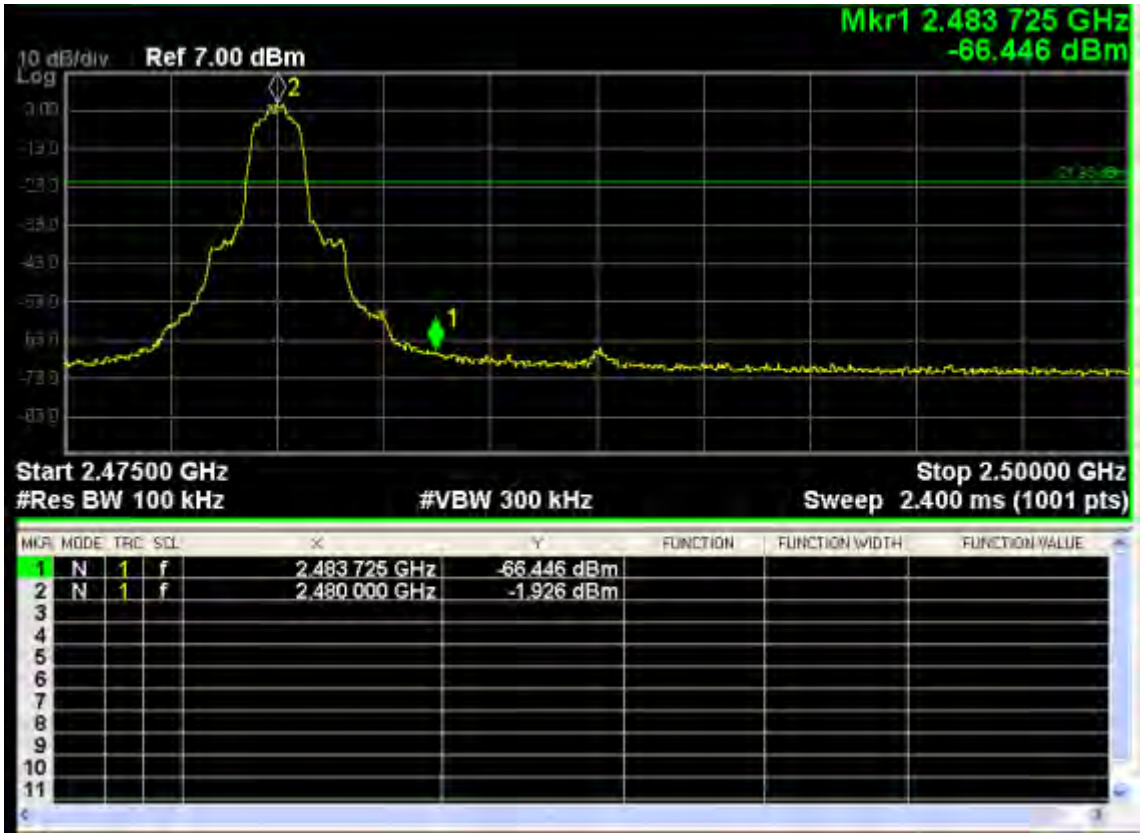



Mkr2 2.484 000 GHz
-67.125 dBm
10 dB/div
Ref 7.00 dBm
Log
Start 2.47500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 2.400 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.477 025 GHz -0.172 dBm
2 N 1 f 2.484 000 GHz -67.125 dBm

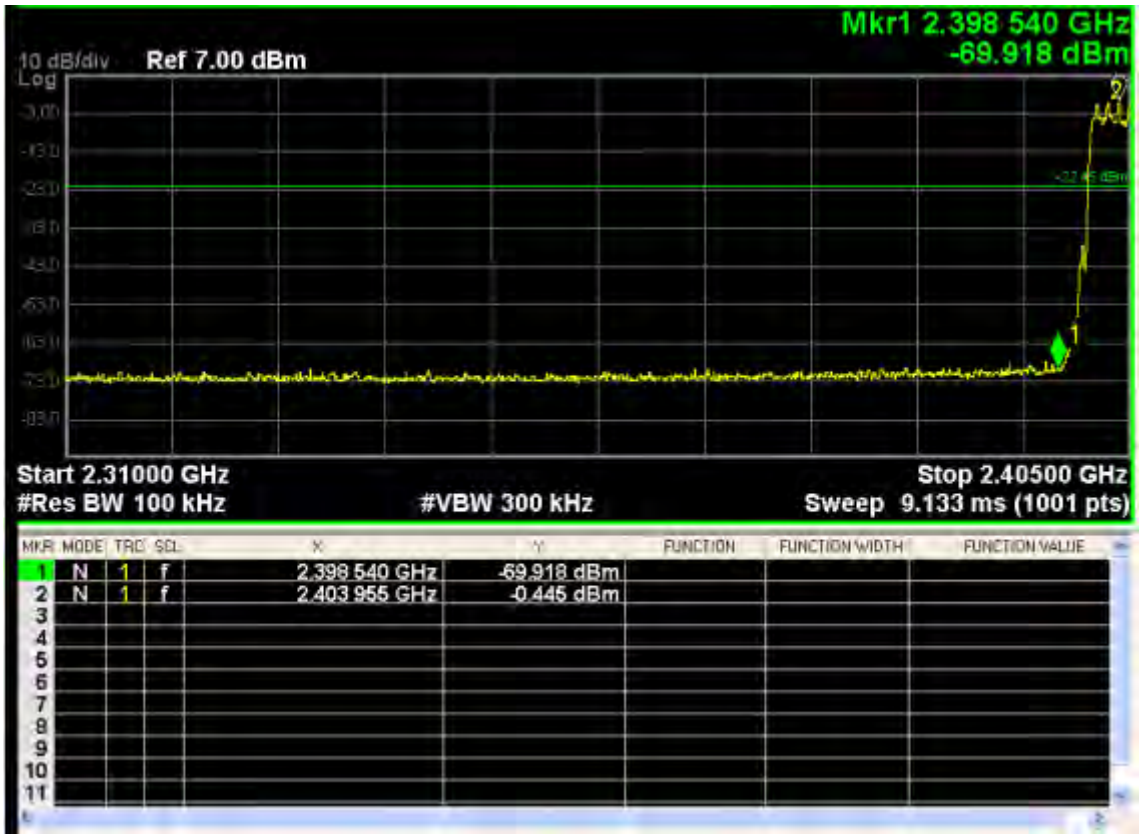
Π /4-DQPSK CH0

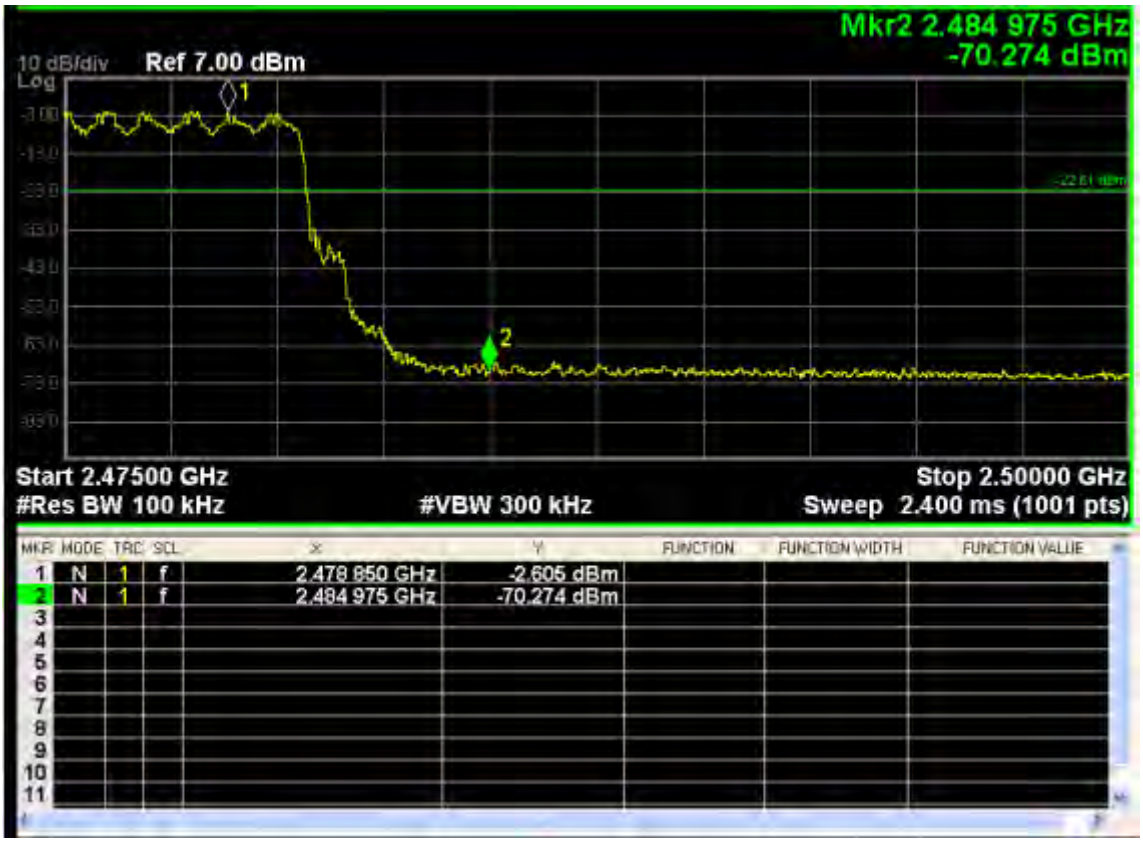

Mkr2 2.397 400 GHz
-68.899 dBm
10 dB/div
Ref 7.00 dBm
Log
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.40500 GHz
Sweep 9.133 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.401 960 GHz -0.255 dBm
2 N 1 f 2.397 400 GHz -68.899 dBm

Π /4-DQPSK CH78

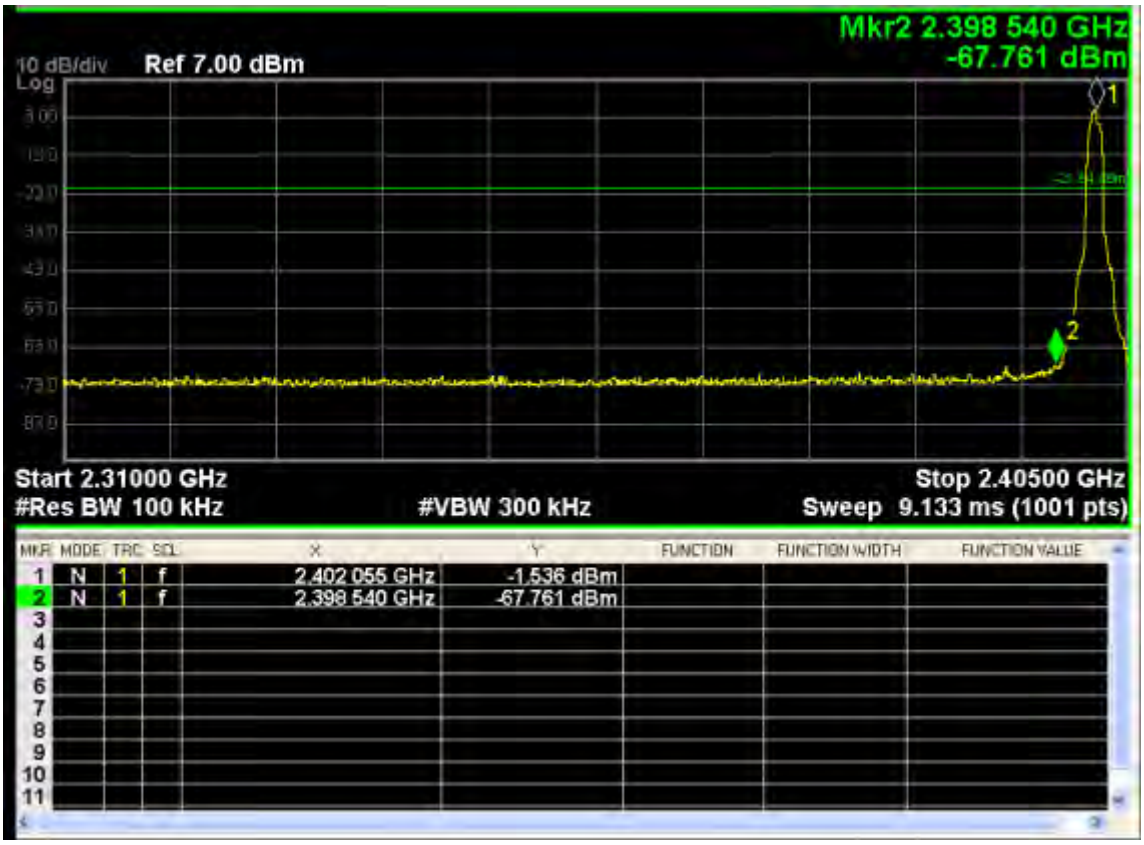


Π /4-DQPSK(Hopping Mode)

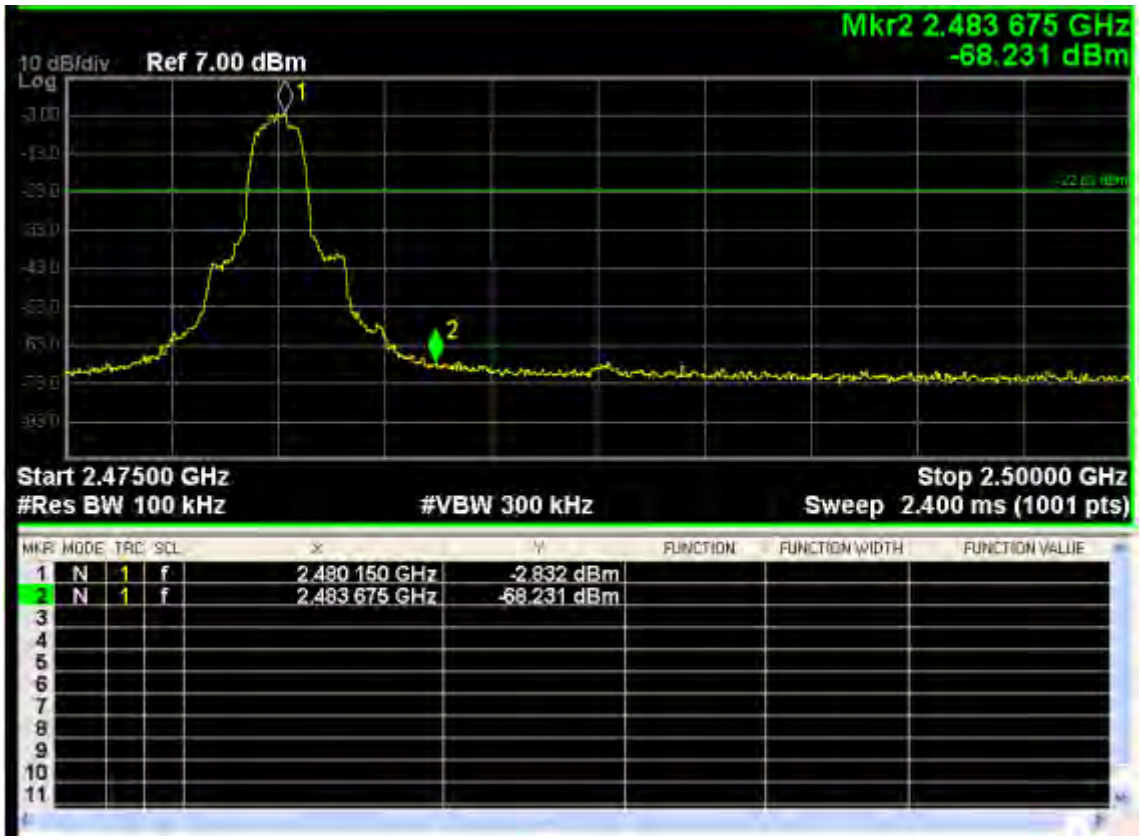




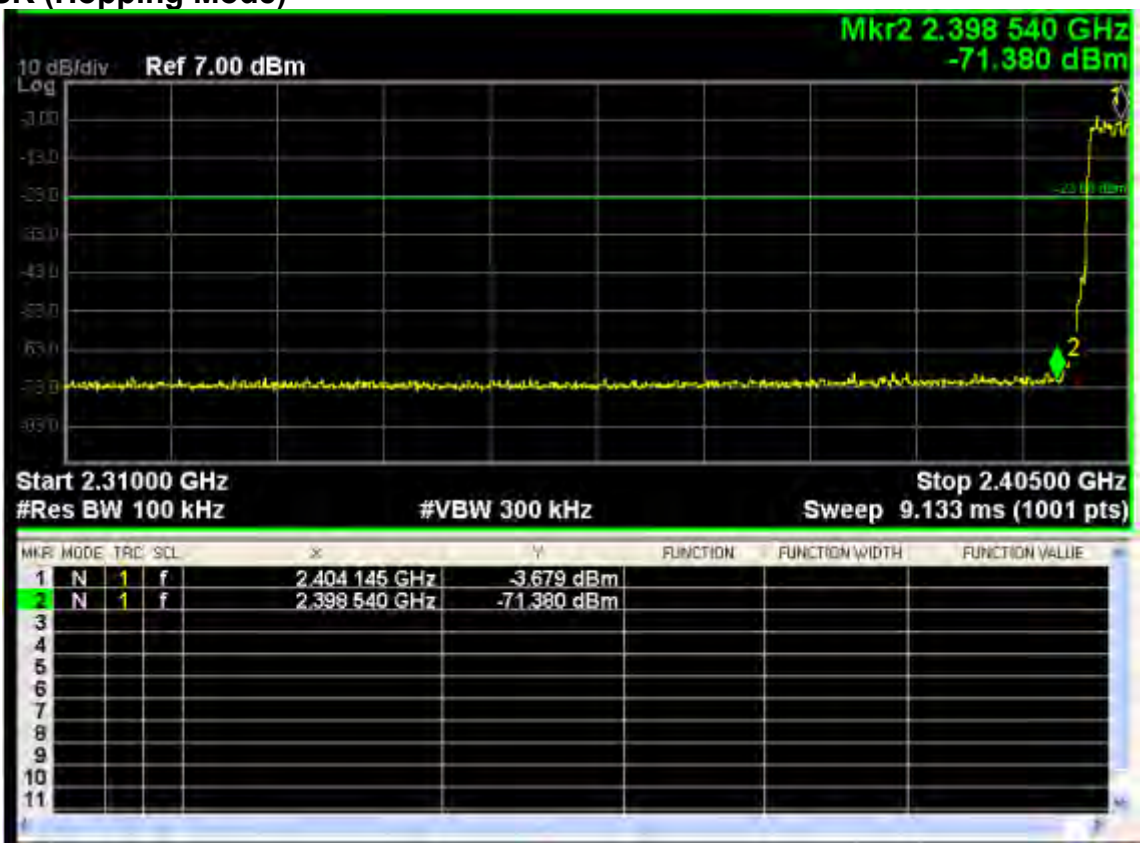
8DPSK CH0

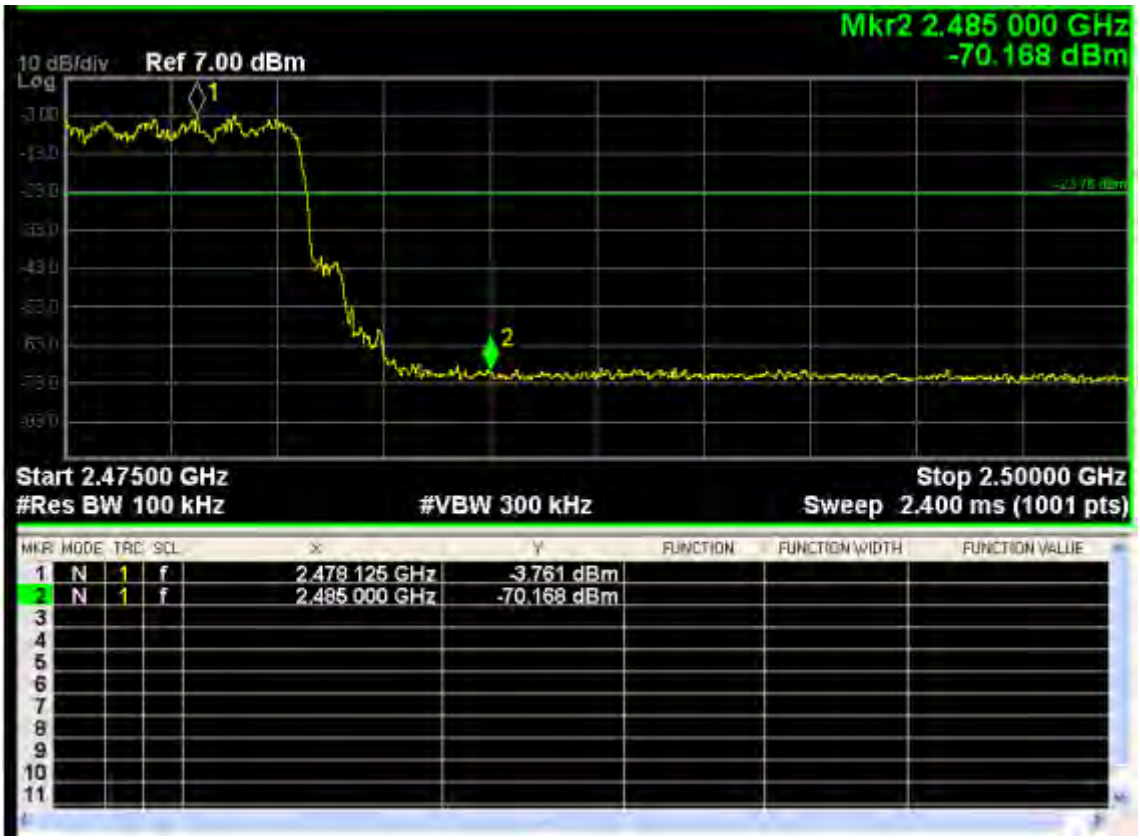


8DPSK CH78



8DPSK (Hopping Mode)

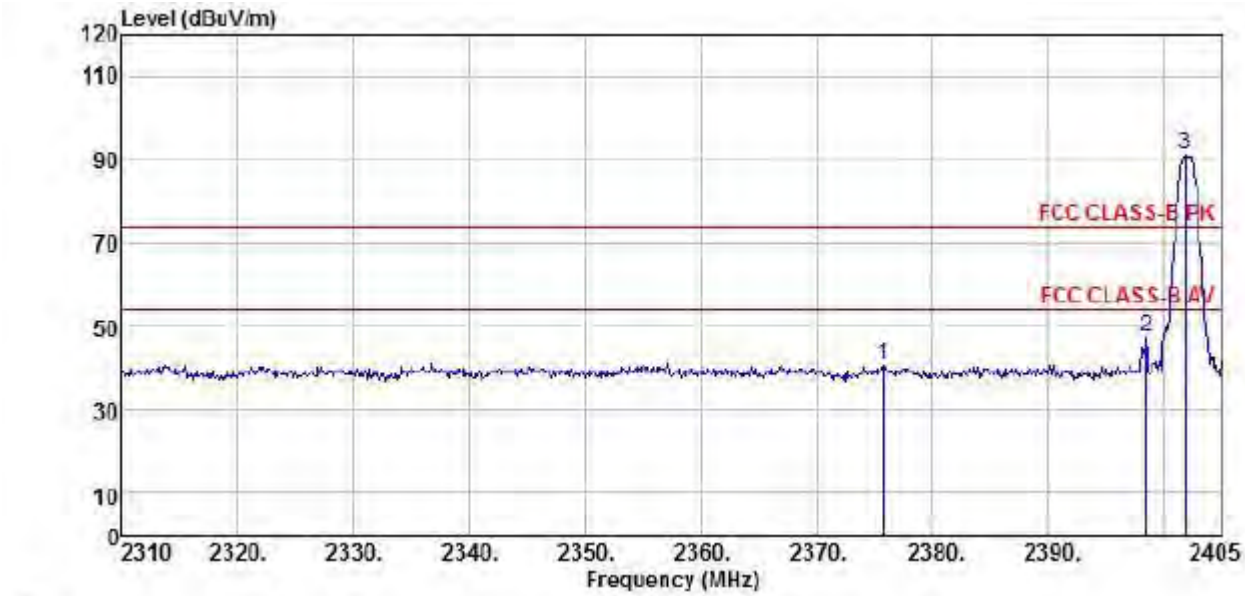




Radiated Band Edge:

BT GFSK (Low Channel)

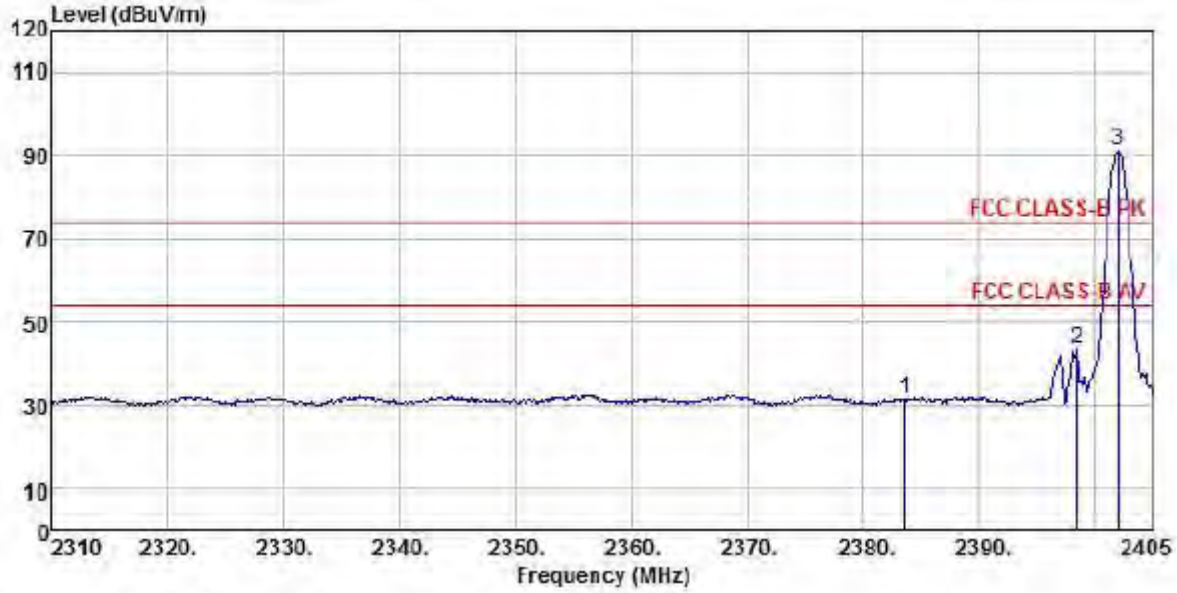
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH0 PEAK
Memo :

	Freq	Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2375.74	44.26	27.65	7.16	38.53	40.54	74.00	-33.46	Peak
2	2398.45	51.19	27.58	7.13	38.52	47.38	74.00	-26.62	Peak
3 pp	2401.87	94.87	27.54	7.13	38.52	91.02	74.00	17.02	Peak

Detector mode: Peak Polarity: Vertical

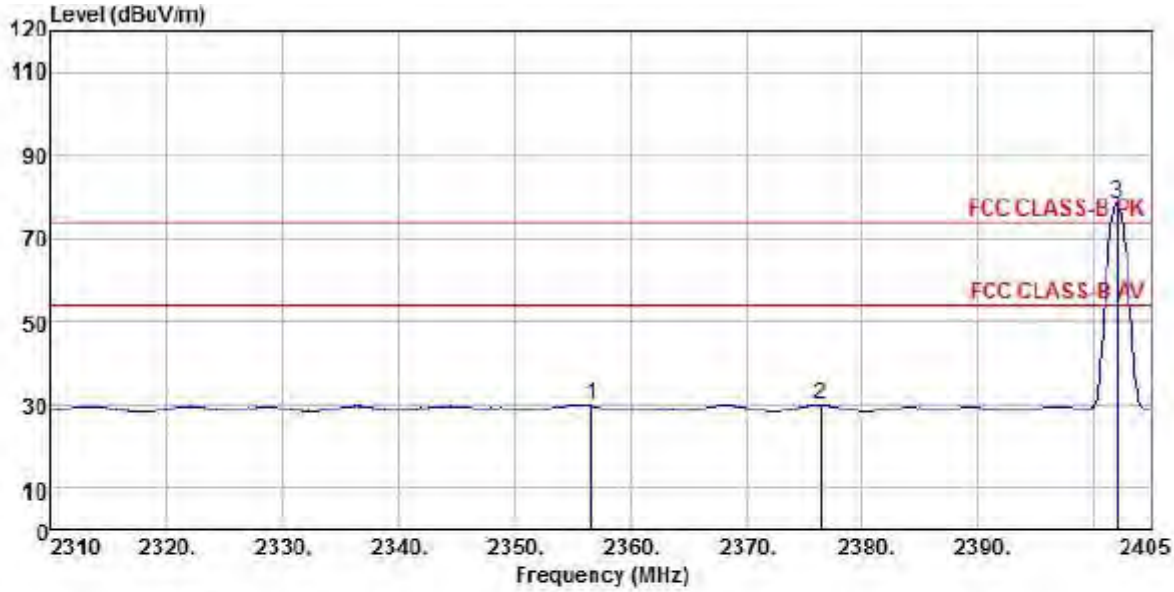


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH0 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m dB	
1	2383.63	34.98	27.65	7.16	38.53	31.26	74.00 -42.74	Peak
2	2398.45	47.03	27.58	7.13	38.52	43.22	74.00 -30.78	Peak
3 pp	2402.06	94.86	27.54	7.13	38.52	91.01	74.00 17.01	Peak

Detector mode: Average

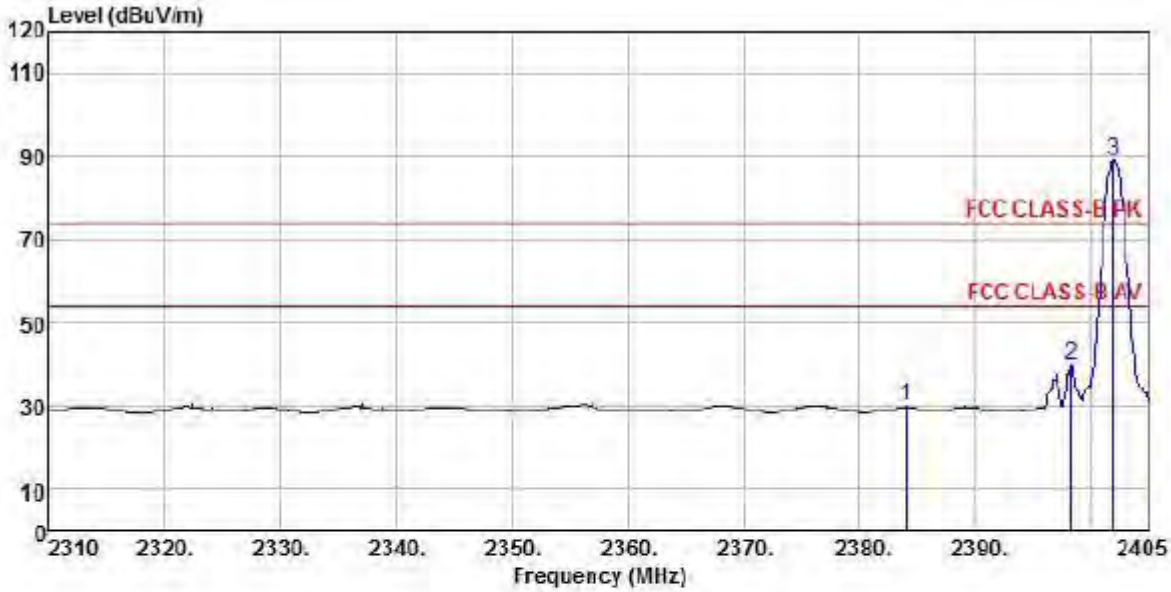
Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH0 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2356.55	33.93	27.71	7.19	38.54	30.29	74.00	-43.71	Peak
2	2376.41	33.78	27.65	7.16	38.53	30.06	74.00	-43.94	Peak
3 pp	2402.06	82.12	27.54	7.13	38.52	78.27	74.00	4.27	Peak

Detector mode: Average Polarity: Vertical

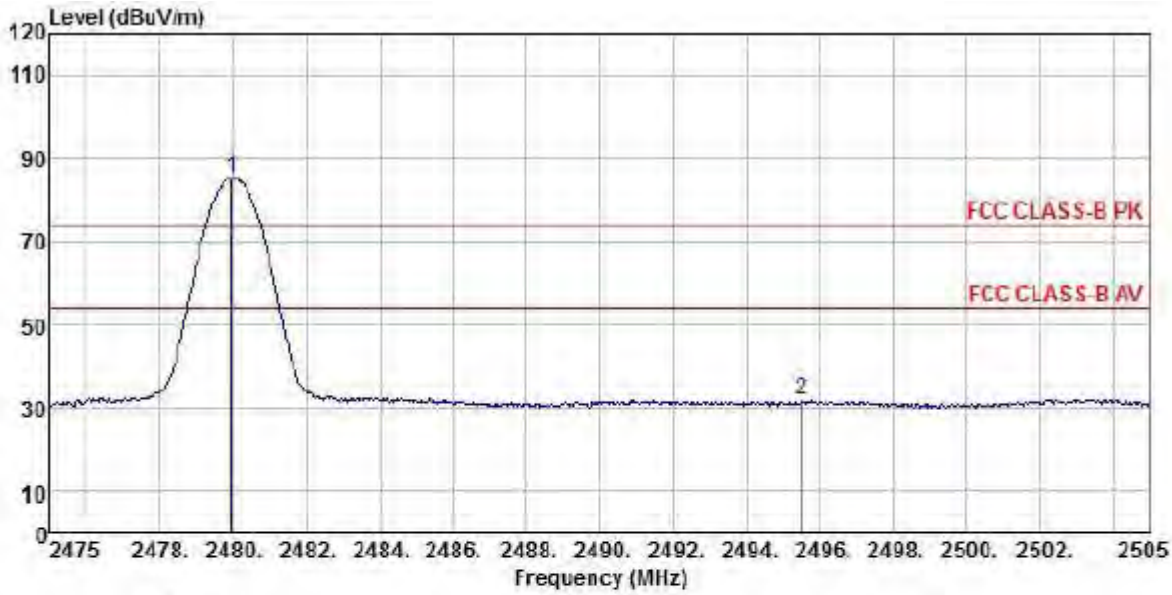


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH0 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2384.01	33.98	27.65	7.16	38.53	30.26	74.00	-43.74	Peak
2	2398.26	43.45	27.58	7.13	38.52	39.64	74.00	-34.36	Peak
3 pp	2401.96	93.05	27.54	7.13	38.52	89.20	74.00	15.20	Peak

BT GFSK (High Channel)

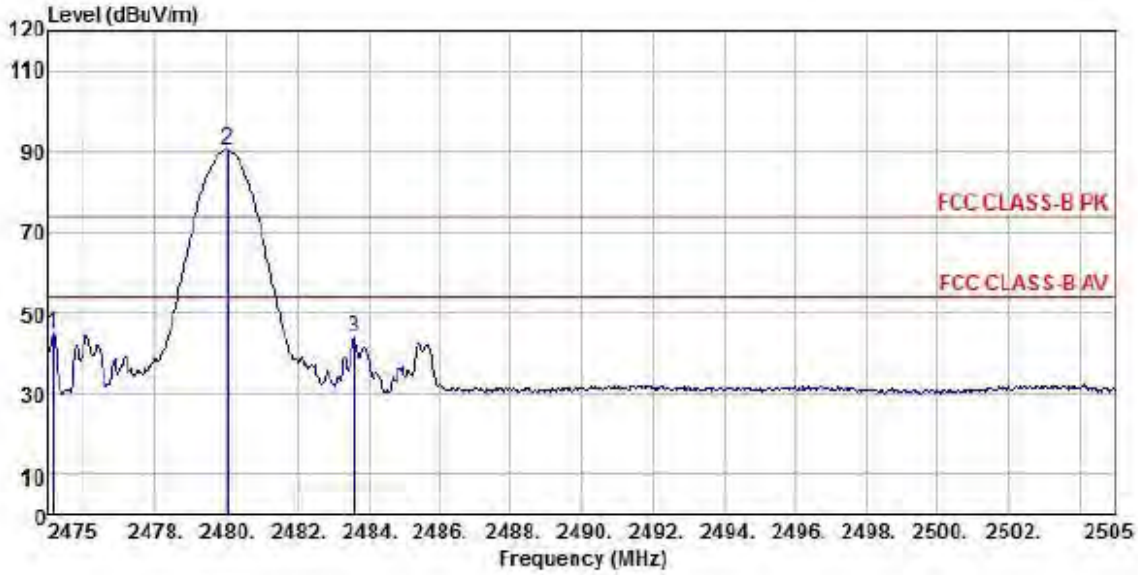
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH78 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2479.95	88.70	27.52	7.41	38.49	85.14	74.00	11.14	Peak
2	2495.49	35.20	27.55	7.43	38.49	31.69	74.00	-42.31	Peak

Detector mode: Peak Polarity: Vertical

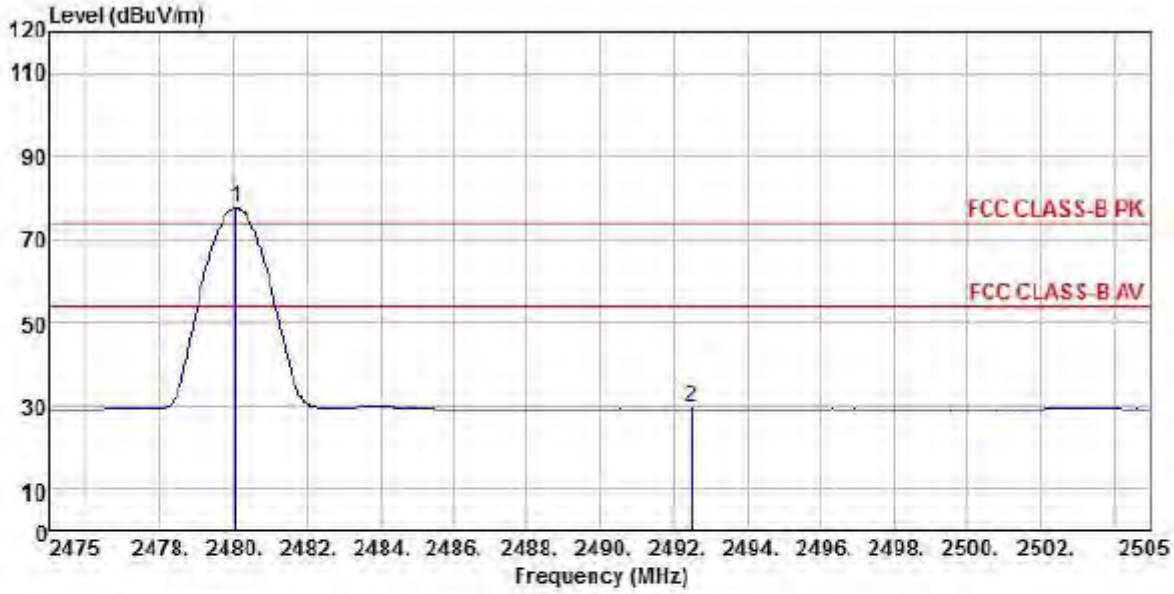


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH78 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2475.12	48.27	27.52	7.41	38.50	44.70	74.00	-29.30	Peak
2 pp	2480.04	93.78	27.52	7.41	38.49	90.22	74.00	16.22	Peak
3	2483.61	47.24	27.52	7.41	38.49	43.68	74.00	-30.32	Peak

Detector mode: Average

Polarity: Horizontal

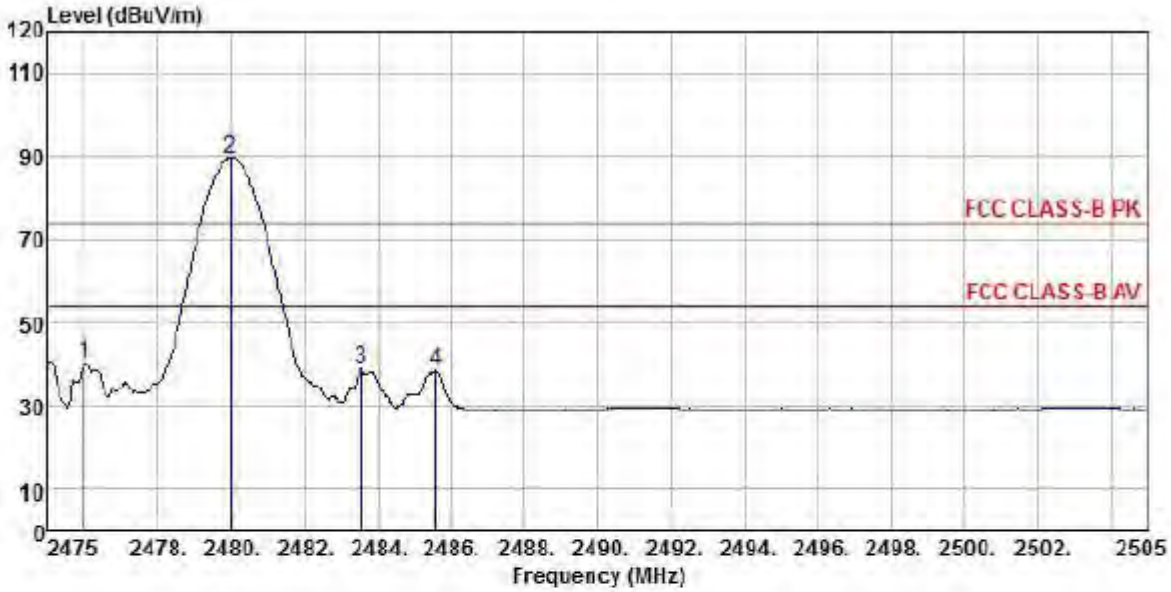


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH78 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2480.07	81.01	27.52	7.41	38.49	77.45	74.00	3.45	Peak
2	2492.49	32.97	27.55	7.43	38.49	29.46	74.00	-44.54	Peak

Detector mode: Average

Polarity: Vertical

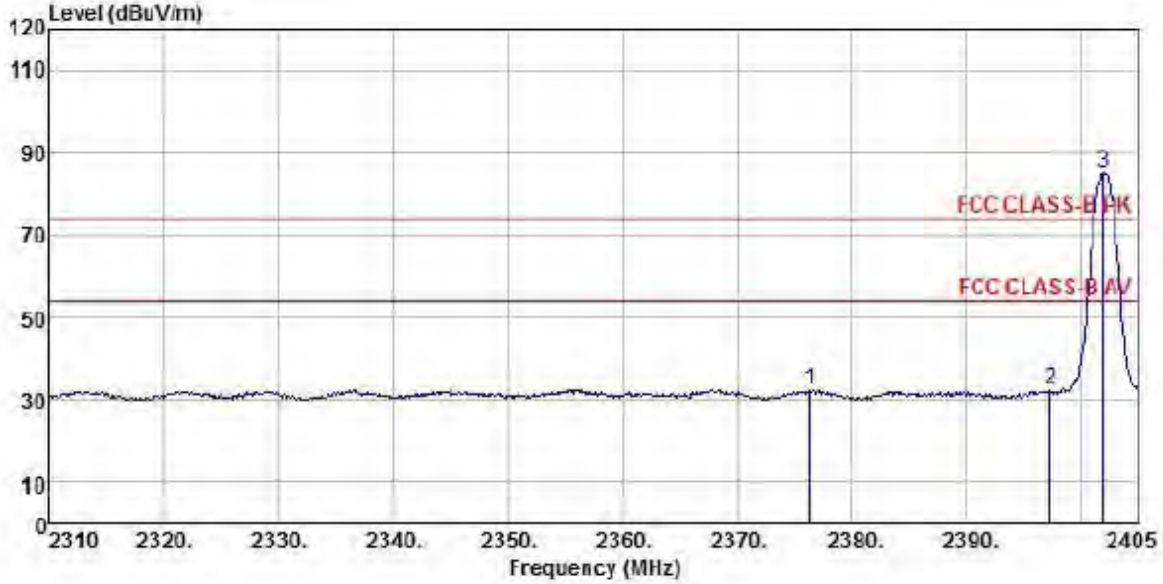


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT GFSK CH78 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m dB	
1	2475.99	43.72	27.52	7.41	38.50	40.15	74.00 -33.85	Peak
2 pp	2479.98	93.03	27.52	7.41	38.49	89.47	74.00 15.47	Peak
3	2483.55	42.43	27.52	7.41	38.49	38.87	74.00 -35.13	Peak
4	2485.59	41.93	27.52	7.41	38.49	38.37	74.00 -35.63	Peak

BT Π/4-DQPSK (Low Channel)

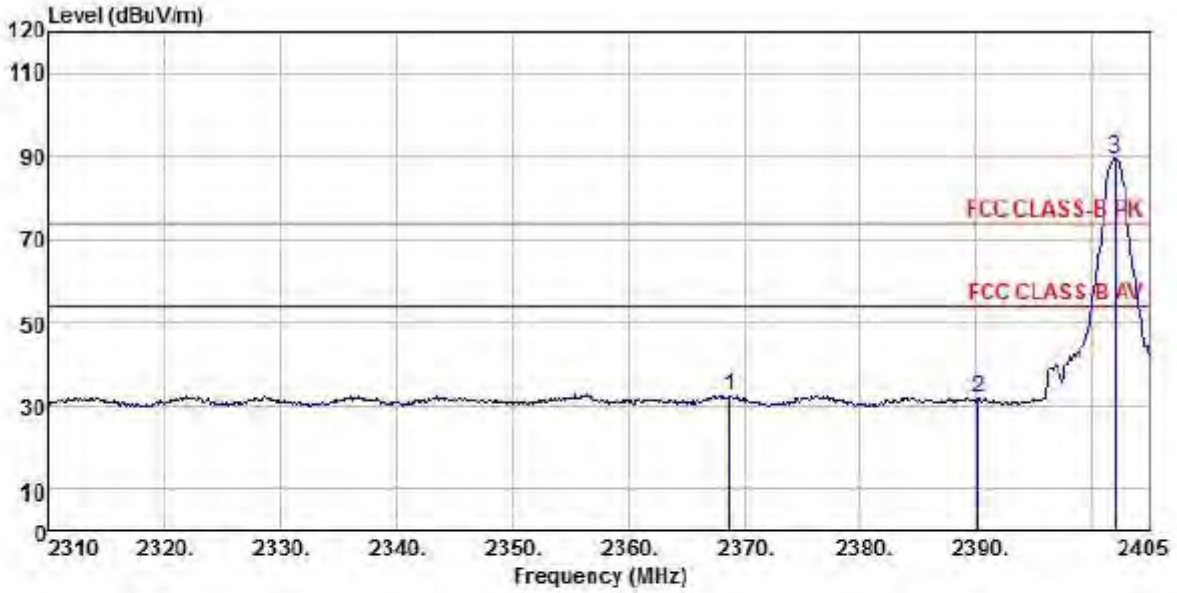
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT Π/4-DQPSK CH0 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2376.31	35.92	27.65	7.16	38.53	32.20	74.00	-41.80	Peak
2	2397.31	35.98	27.58	7.13	38.52	32.17	74.00	-41.83	Peak
3 pp	2401.96	88.80	27.54	7.13	38.52	84.95	74.00	10.95	Peak

Detector mode: Peak Polarity: Vertical

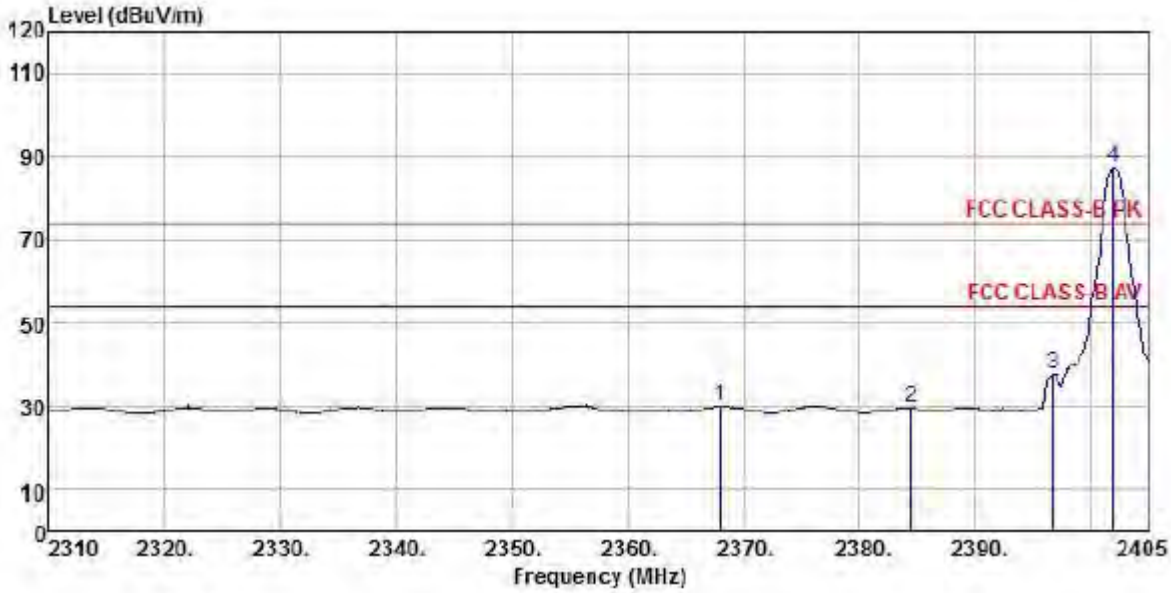


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT π/4-DQPSK CH0 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2368.71	36.03	27.65	7.16	38.53	32.31	74.00	-41.69	Peak
2	2390.18	35.56	27.58	7.13	38.53	31.74	74.00	-42.26	Peak
3 pp	2402.06	93.40	27.54	7.13	38.52	89.55	74.00	15.55	Peak

Detector mode: Average

Polarity: Horizontal

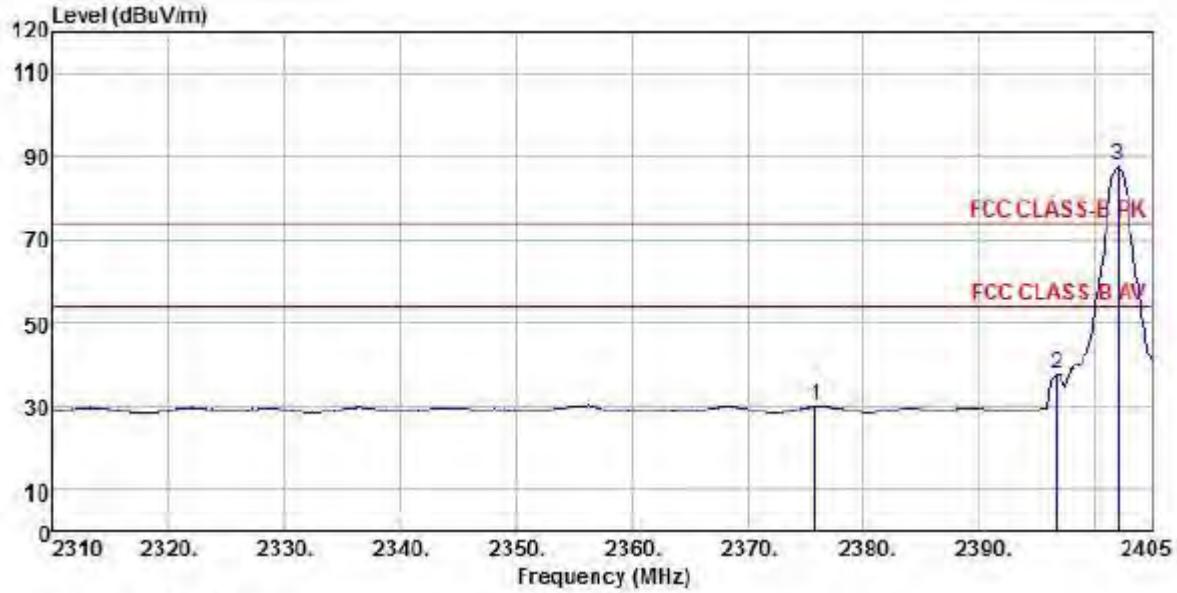


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT π/4-DQPSK CH0 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2367.95	33.72	27.65	7.19	38.53	30.03	74.00	-43.97	Peak
2	2384.48	33.38	27.58	7.16	38.53	29.59	74.00	-44.41	Peak
3	2396.74	41.60	27.58	7.13	38.52	37.79	74.00	-36.21	Peak
4 pp	2401.96	91.29	27.54	7.13	38.52	87.44	74.00	13.44	Peak

Detector mode: Average

Polarity: Vertical

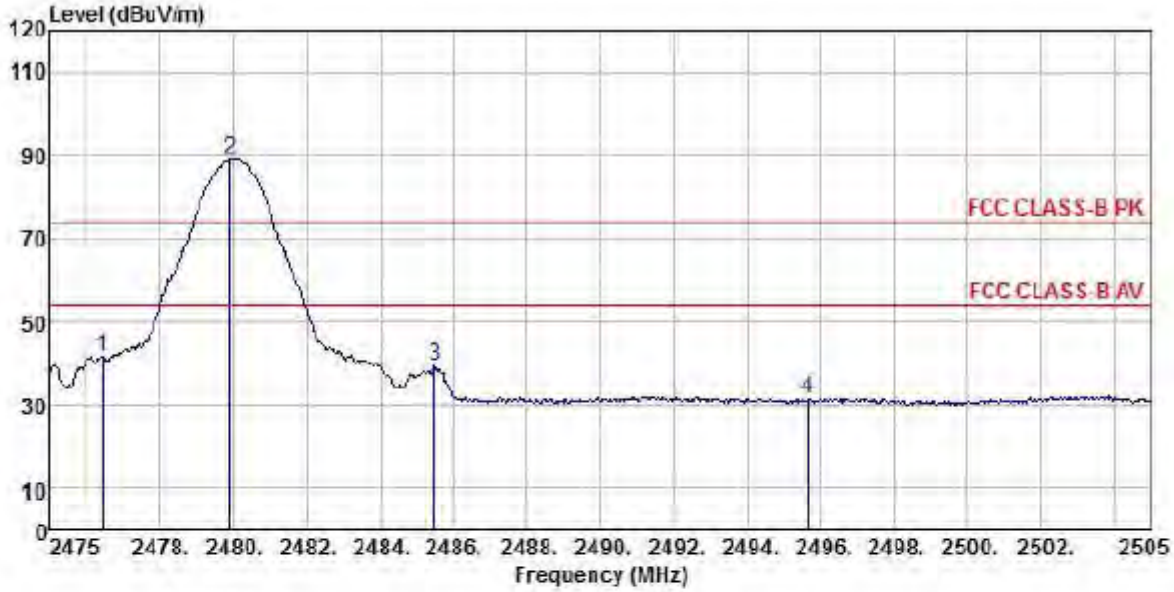


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT π/4-DQPSK CH0 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2375.84	33.83	27.65	7.16	38.53	30.11	74.00	-43.89	Peak
2	2396.74	41.62	27.58	7.13	38.52	37.81	74.00	-36.19	Peak
3 pp	2402.06	91.30	27.54	7.13	38.52	87.45	74.00	13.45	Peak

BT Π/4-DQPSK (High Channel)

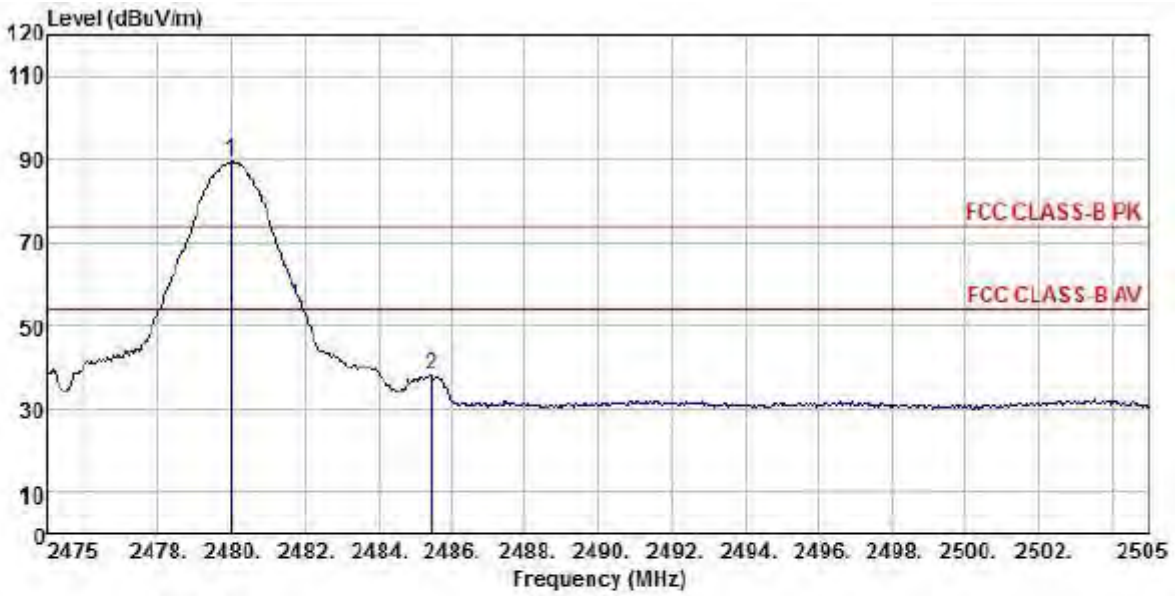
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT Π/4-DQPSK CH78 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2476.41	45.24	27.52	7.41	38.50	41.67	74.00	-32.33	Peak
2 pp	2479.92	92.72	27.52	7.41	38.49	89.16	74.00	15.16	Peak
3	2485.50	43.02	27.52	7.41	38.49	39.46	74.00	-34.54	Peak
4	2495.67	35.02	27.55	7.43	38.49	31.51	74.00	-42.49	Peak

Detector mode: Peak Polarity: Vertical

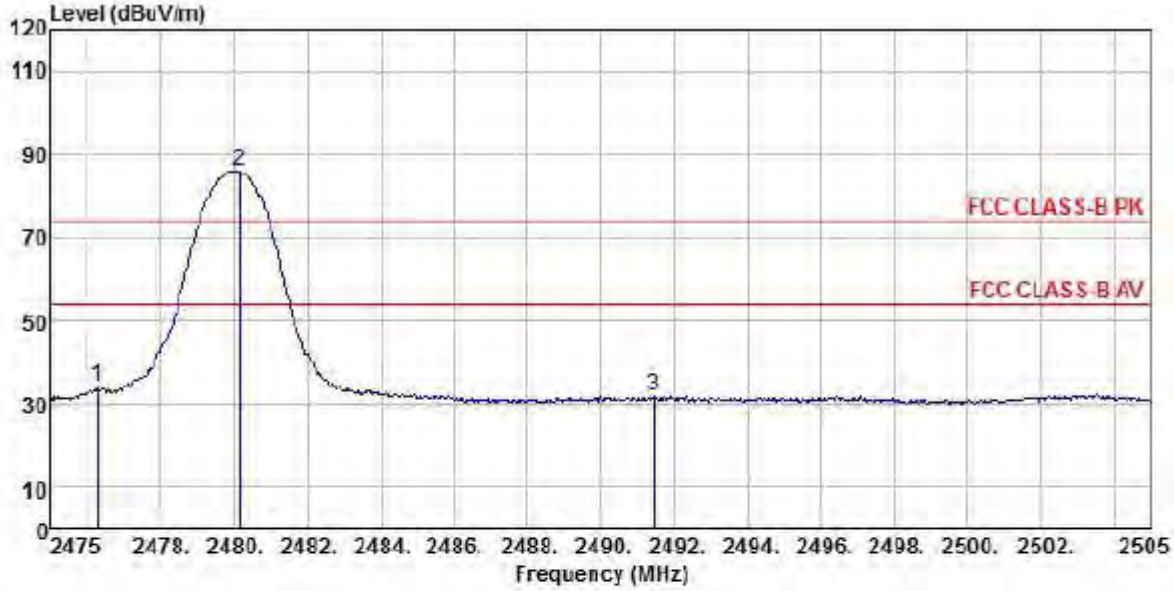


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT π/4-DQPSK CH78 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m dB	
1 pp	2479.98	92.83	27.52	7.41	38.49	89.27	74.00 15.27	Peak
2	2485.47	41.49	27.52	7.41	38.49	37.93	74.00 -36.07	Peak

Detector mode: Average

Polarity: Horizontal

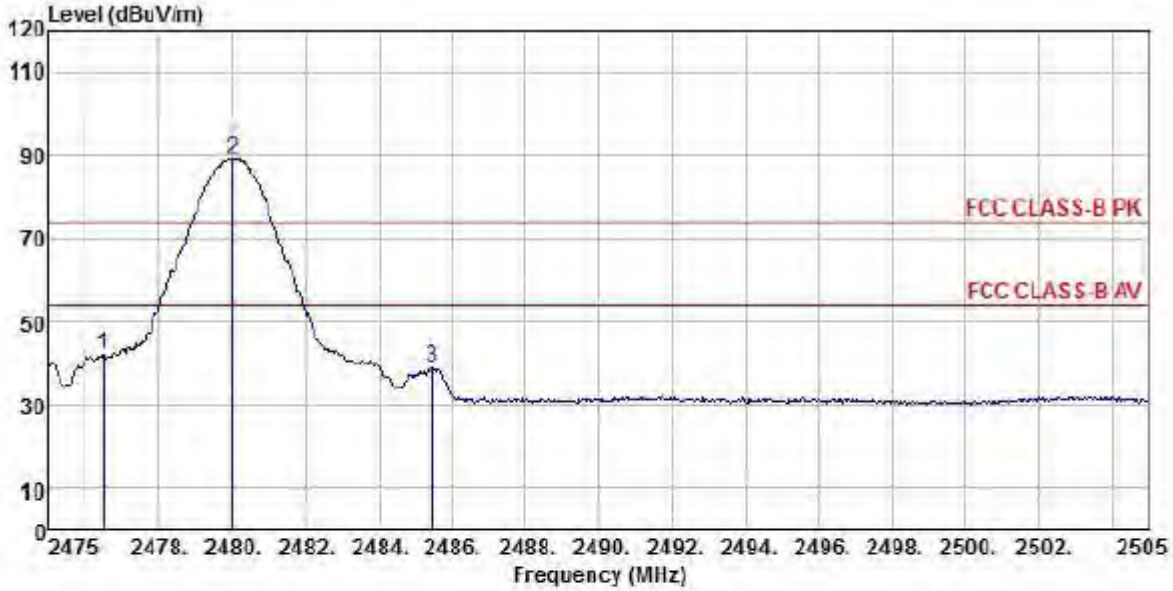


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT π/4-DQPSK CH78 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2476.26	37.53	27.52	7.41	38.50	33.96	74.00	-40.04	Peak
2 pp	2480.13	89.50	27.52	7.41	38.49	85.94	74.00	11.94	Peak
3	2491.44	35.49	27.55	7.43	38.49	31.98	74.00	-42.02	Peak

Detector mode: Average

Polarity: Vertical

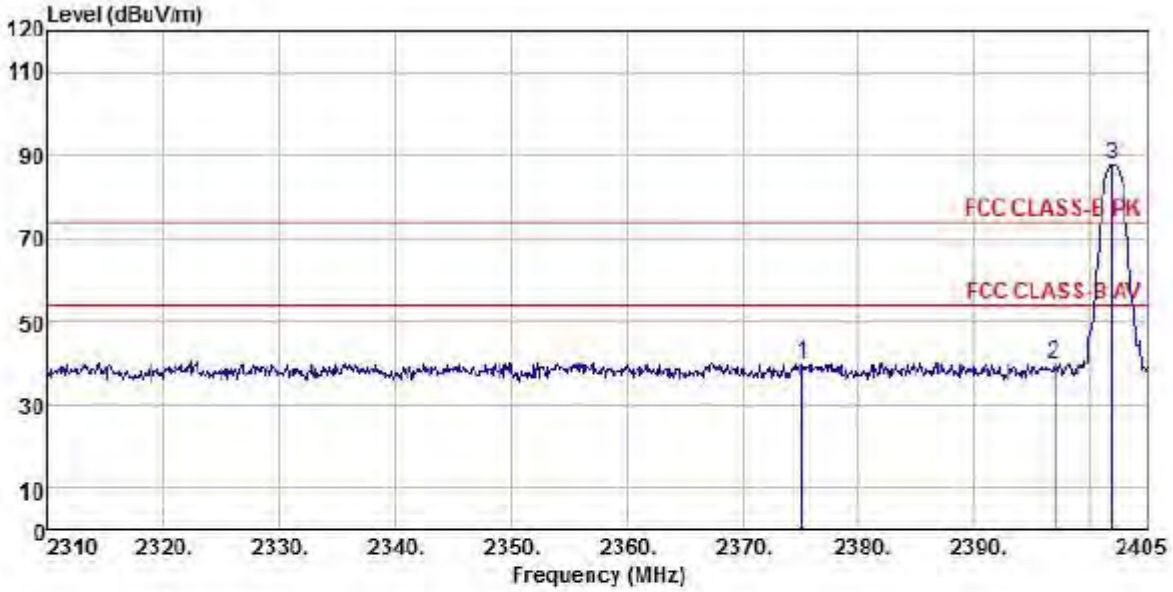


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT π/4-DQPSK CH78 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m dB	
1	2476.47	45.55	27.52	7.41	38.50	41.98	74.00 -32.02	Peak
2 pp	2480.01	92.78	27.52	7.41	38.49	89.22	74.00 15.22	Peak
3	2485.47	42.58	27.52	7.41	38.49	39.02	74.00 -34.98	Peak

BT 8-DPSK (Low Channel)

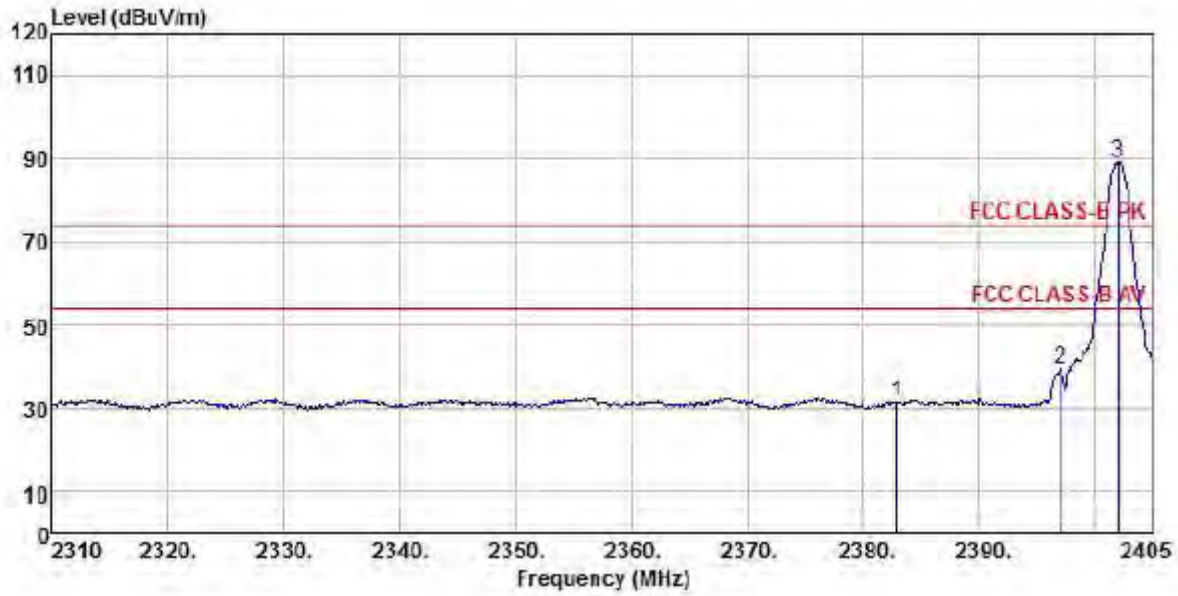
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH0 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2375.17	43.47	27.65	7.16	38.53	39.75	74.00	-34.25	Peak
2	2396.93	43.80	27.58	7.13	38.52	39.99	74.00	-34.01	Peak
3 pp	2401.96	91.67	27.54	7.13	38.52	87.82	74.00	13.82	Peak

Detector mode: Peak Polarity: Vertical

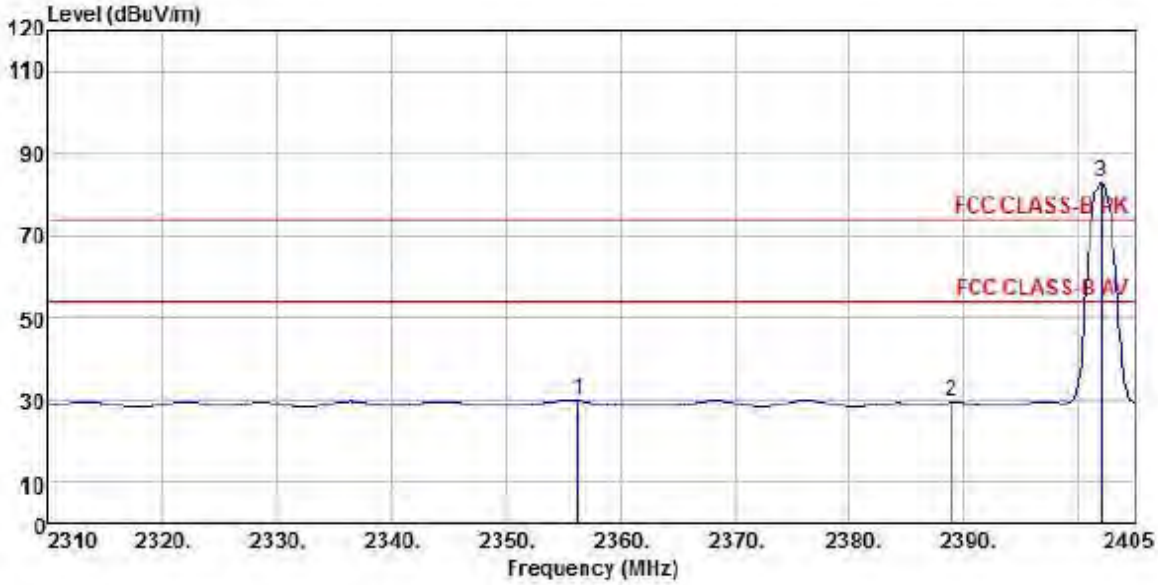


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH0 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2382.87	35.22	27.65	7.16	38.53	31.50	74.00	-42.50	Peak
2	2397.12	43.35	27.58	7.13	38.52	39.54	74.00	-34.46	Peak
3 pp	2402.06	93.05	27.54	7.13	38.52	89.20	74.00	15.20	Peak

Detector mode: Average

Polarity: Horizontal

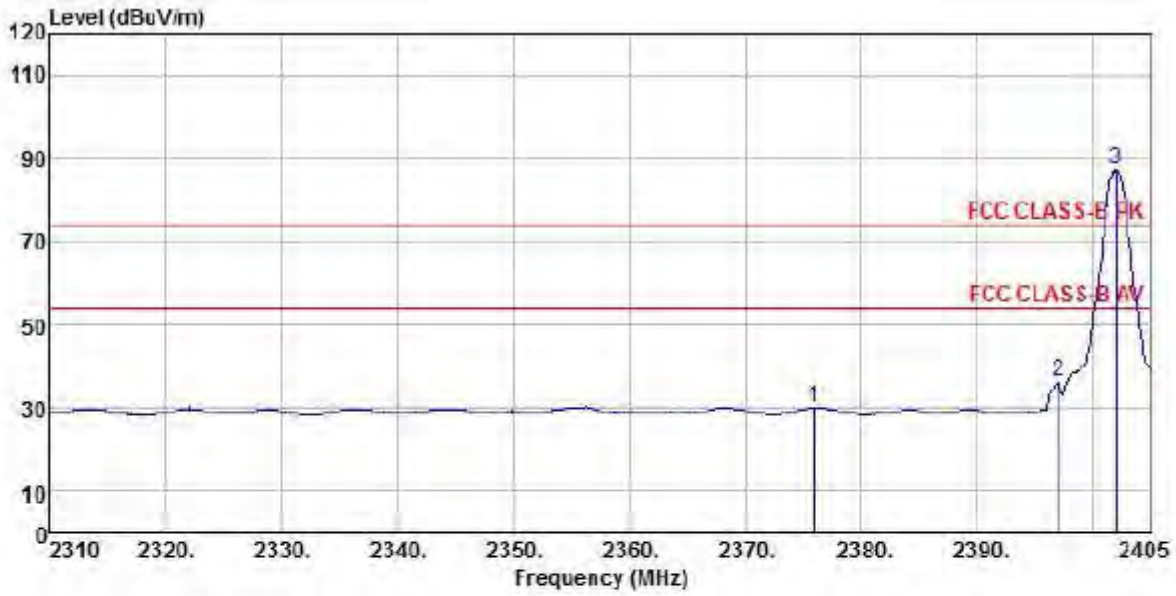


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH0 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2356.27	33.68	27.71	7.19	38.54	30.04	74.00	-43.96	Peak
2	2388.95	33.36	27.58	7.13	38.53	29.54	74.00	-44.46	Peak
3 pp	2402.06	86.47	27.54	7.13	38.52	82.62	74.00	8.62	Peak

Detector mode: Average

Polarity: Vertical

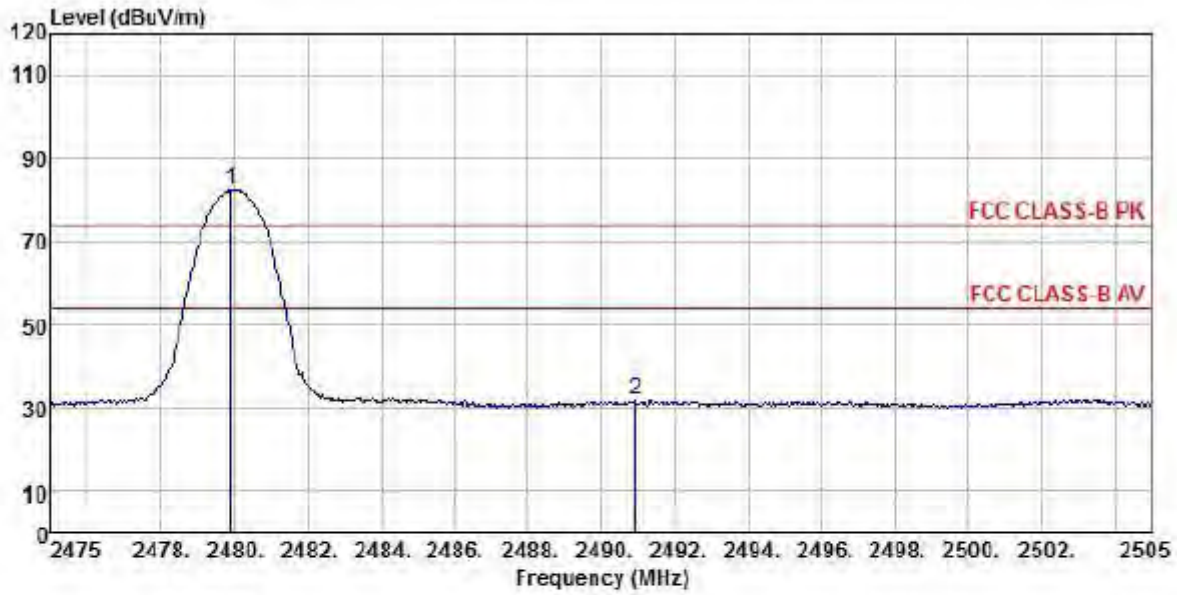


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH0 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m dB	
1	2375.93	33.78	27.65	7.16	38.53	30.06	74.00 -43.94	Peak
2	2397.02	40.08	27.58	7.13	38.52	36.27	74.00 -37.73	Peak
3 pp	2402.06	90.97	27.54	7.13	38.52	87.12	74.00 13.12	Peak

BT 8-DPSK (High Channel)

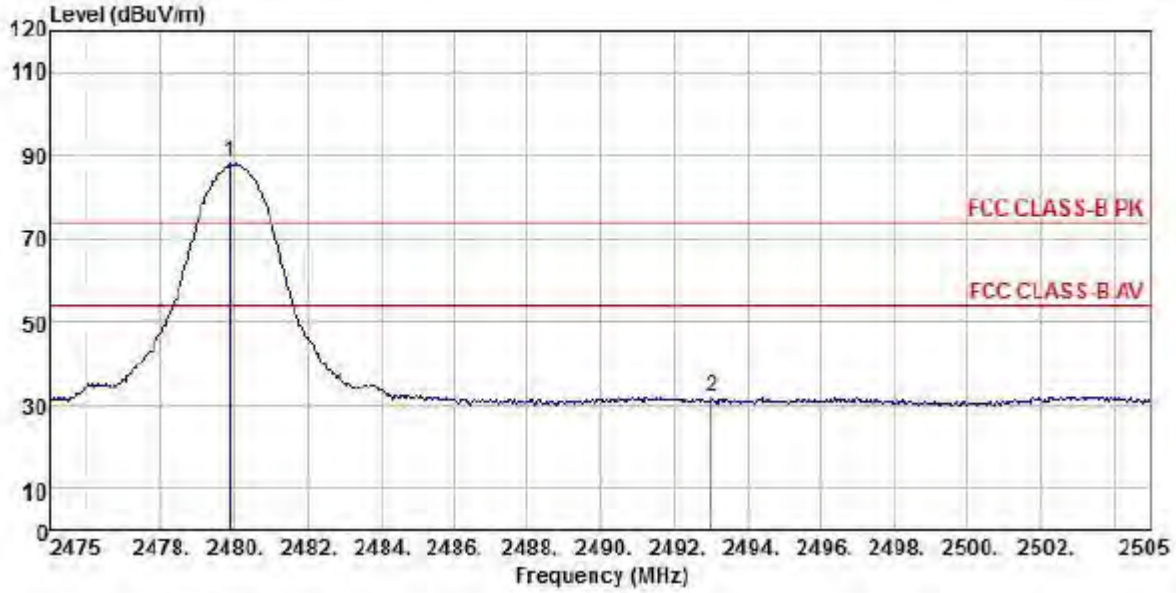
Detector mode: Peak Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH78 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2479.92	86.02	27.52	7.41	38.49	82.46	74.00	8.46	Peak
2	2490.93	35.21	27.55	7.43	38.49	31.70	74.00	-42.30	Peak

Detector mode: Peak Polarity: Vertical

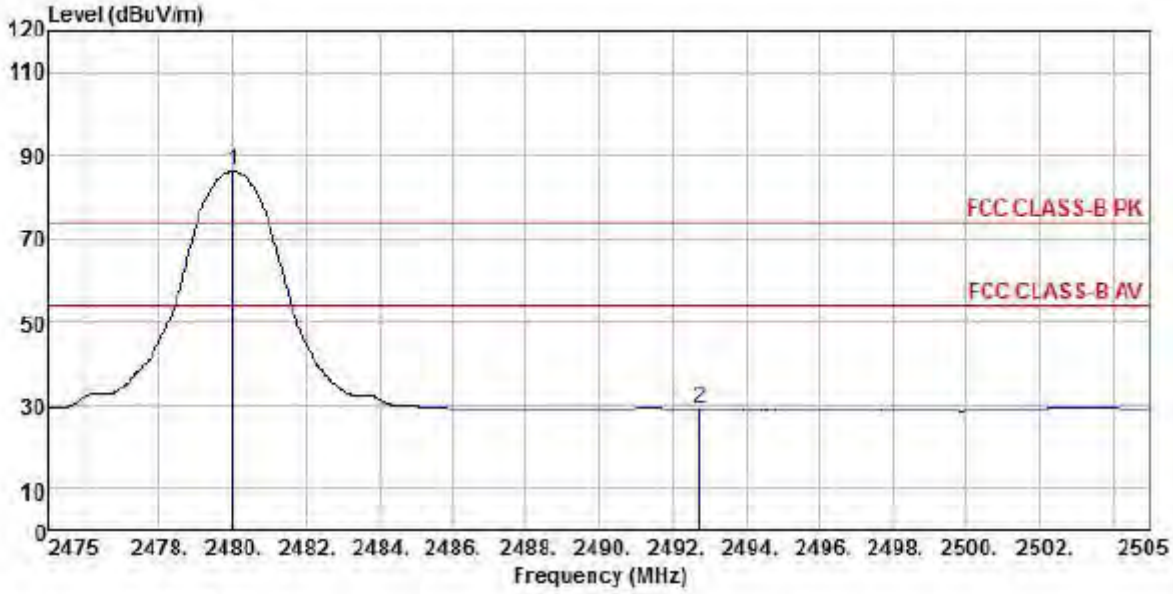


Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH78 PEAK
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2479.89	91.53	27.52	7.41	38.49	87.97	74.00	13.97	Peak
2	2493.03	35.21	27.55	7.43	38.49	31.70	74.00	-42.30	Peak

Detector mode: Average

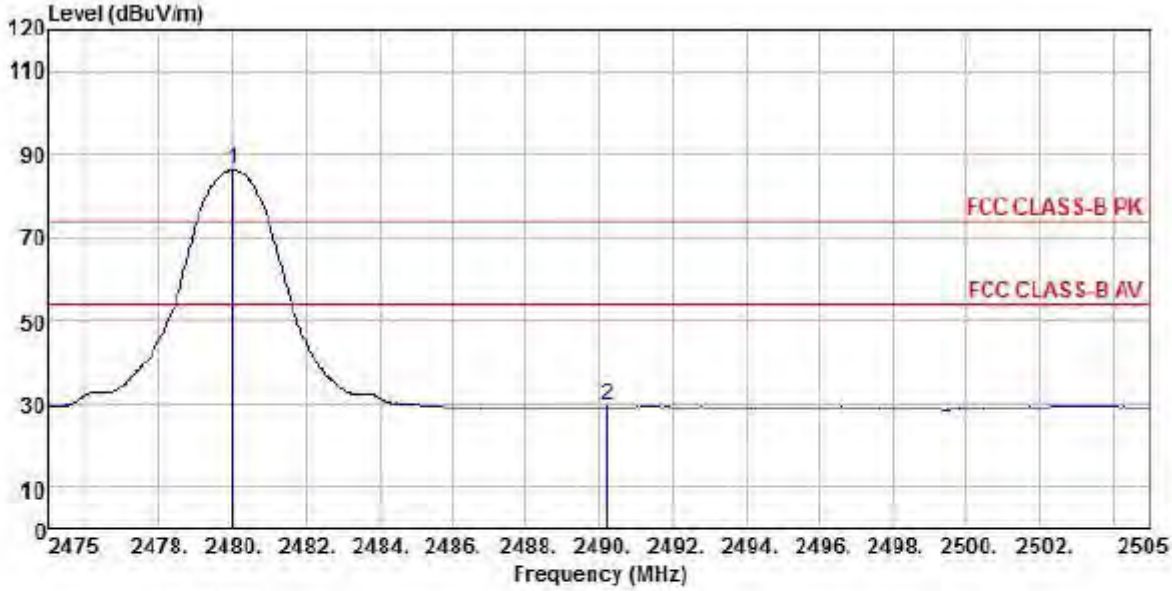
Polarity: Horizontal



Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH78 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2480.01	89.81	27.52	7.41	38.49	86.25	74.00	12.25	Peak
2	2492.73	32.74	27.55	7.43	38.49	29.23	74.00	-44.77	Peak

Detector mode: Average Polarity: Vertical



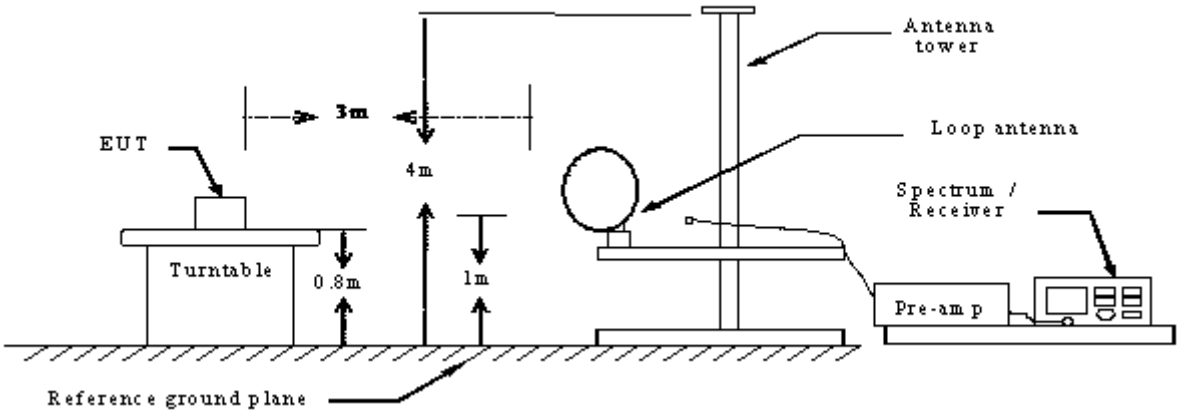
Site : chamber
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 19 ℃ / 58 %
Power Rating:
Mode : BT8DPSK CH78 AV
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2480.01	89.81	27.52	7.41	38.49	86.25	74.00	12.25	Peak
2	2490.21	33.21	27.52	7.43	38.49	29.67	74.00	-44.33	Peak

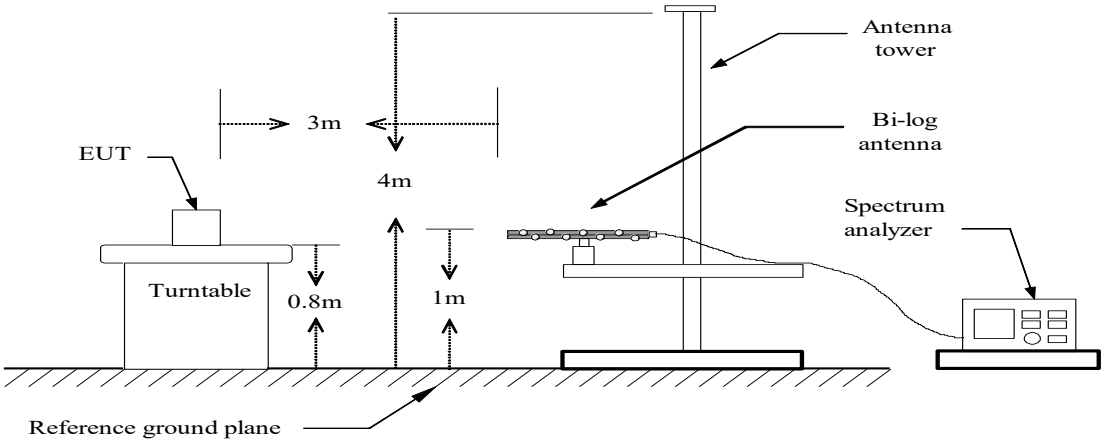
11. SPURIOUS EMISSIONS (RADIATION)

11.1 TEST SETUP

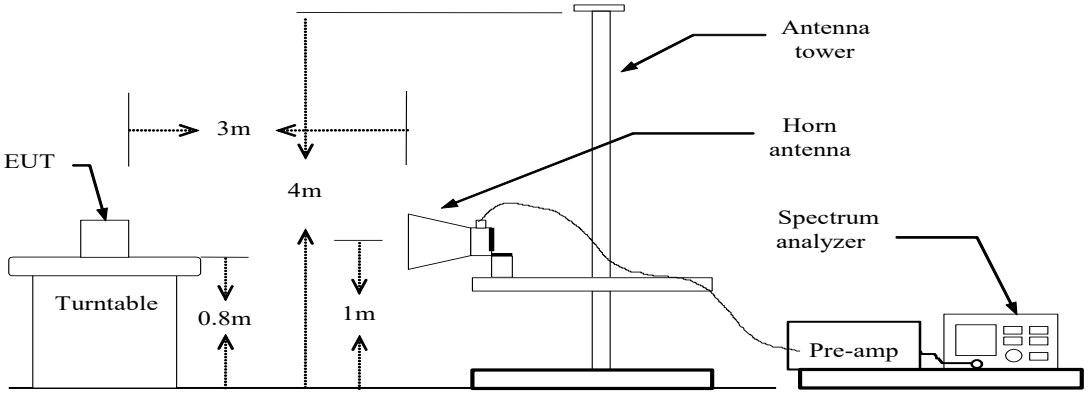
Radiated Spurious Measurement: below 30MHz



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



11.2 LIMITS

Frequency (MHz)	Limits (uV/m)	Limits(dBuV/m) At 3m	Measured Distance (m)
0.009-0.490	2400/F(KHz)	128.5-93.80	300
0.490-1.705	24000/F(KHz)	73.80-63.00	30
1.705-30.0	30	69.5	30
30~88	100	40	3
88~216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Notes: the calculate formula for below 30MHz
L2 = 20lg (L1) + 40lg (d1/d2)
L2: is the specified limit in dB microvolts per metre at distance d2.
L1: is the specified limit in microvolts per metre at distance d1.
For example:
L1 = 2400/9 (μV/m), d1 = 300 (m), d2 = 3 (m), so L2 as follows:
20lg（2400/9）+40lg(300/3) = 128.5(dBμV/m)

11.3 TEST PROCEDURE

Radiated Emission (9 kHz – 30 MHz) :
Spurious emissions from the EUT are measured in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The antenna was positioned 3 meters horizontally from the EUT. The RBW of the spectrum analyzer is set to 200Hz(measured frequency range was 9KHz~150KHz) or 9KHz(measured frequency range was 150KHz~30MHz). Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions. The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz(these two bands employing a average detector)

Radiated Emission (30 MHz – 1000 MHz) :
According to description of ANSI C63.4: 2014 sec.13.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements. The measurement is carried out using a spectrum analyzer or receiver. The Quasi-peak detector is used and RBW is set to 120kHz.The antenna height and turn table rotation is adjusted until the maximum power value is founded on spectrum analyzer or receiver.

Radiated Emission (Above 1 GHz):

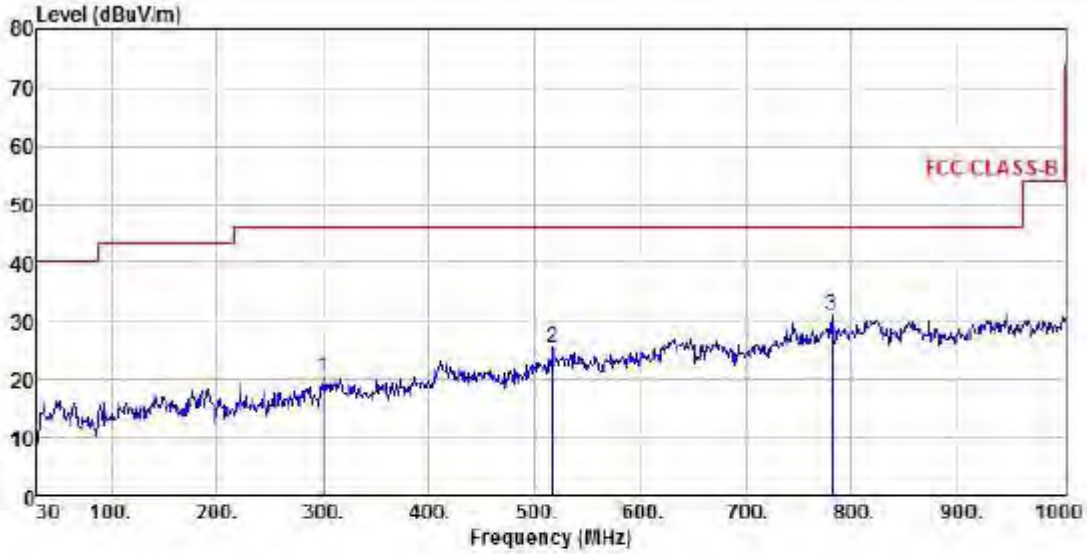
According to description of ANSI C63.4: 2014 sec.13.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements. The measurement is carried out using a spectrum analyzer or receiver. The spectrum analyzer scans from 1GHz to 25GHz (higher than the 10th harmonic of the carrier). The peak detector is used for Peak limit and RBW is set to 1MHz ,VBW ≥ 3RBW. The peak detector is used for Average limit and RBW is set to 1MHz ,VBW=1kHz is not smaller than 1/T, T = to the shortest pulse width. The antenna height and turn table rotation is adjusted until the maximum power value is founded on spectrum analyzer or receiver.

11.4 RESULTS & PERFORMANCE

From 9kHz to 30MHz:
The test data was 20dB lower than the permissible limit was not recorded in the report.

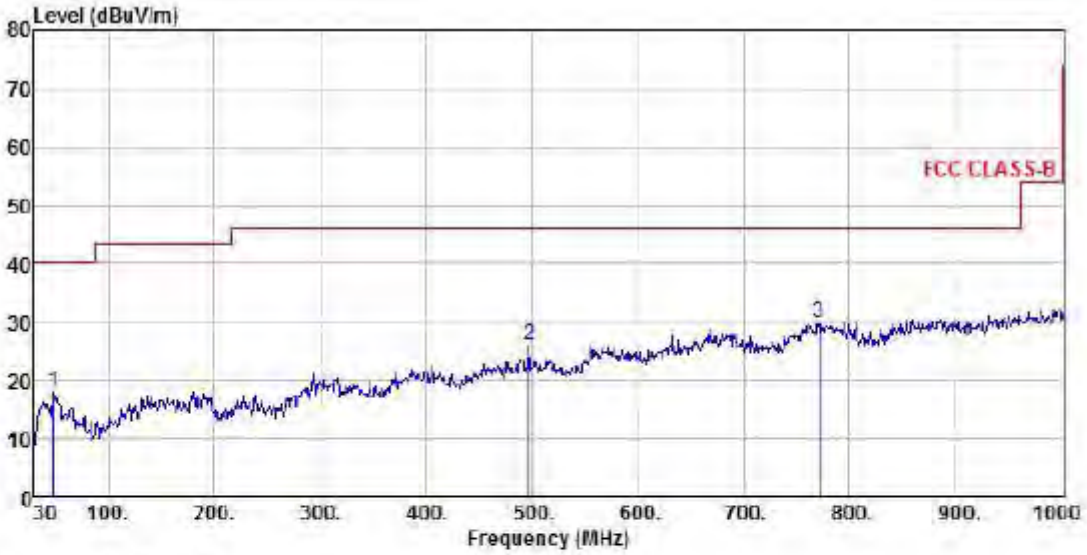
From 30MHz to 1GHz:
Only show the worst test data when EUT was operated on different mode.

BT GFSK (traffic mode Channel 0)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT GFSK CH0
Memo :

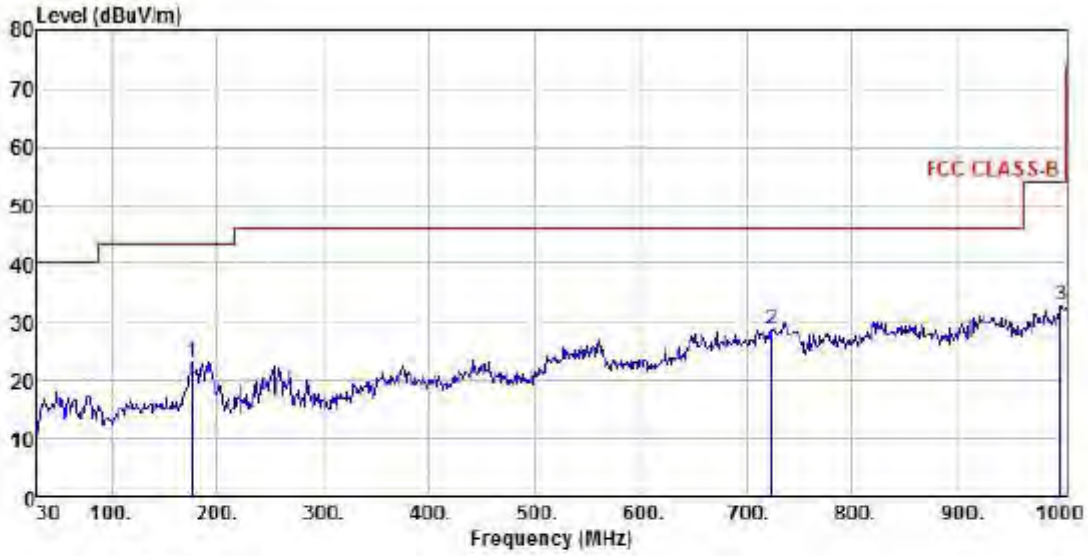
	Freq	Level	ReadAntenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	299.66	4.00	13.98	2.52	0.00	20.50	46.00	-25.50	Peak
2	516.94	4.32	17.84	3.08	0.00	25.24	46.00	-20.76	Peak
3 pp	780.78	4.98	22.09	3.80	0.00	30.87	46.00	-15.13	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT GFSK CH0
Memo :

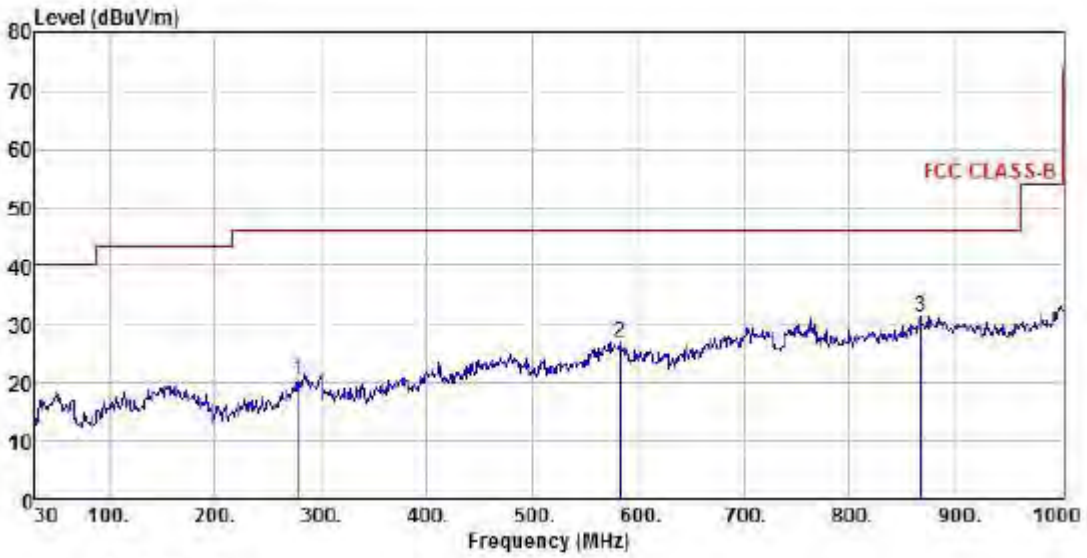
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	47.46	2.15	14.84	0.92	0.00	17.91	40.00	-22.09	Peak
2	497.54	5.41	17.50	3.02	0.00	25.93	46.00	-20.07	Peak
3 pp	771.08	4.05	22.01	3.80	0.00	29.86	46.00	-16.14	Peak

BT GFSK (traffic mode Channel 39)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT GFSK CH39
Memo :

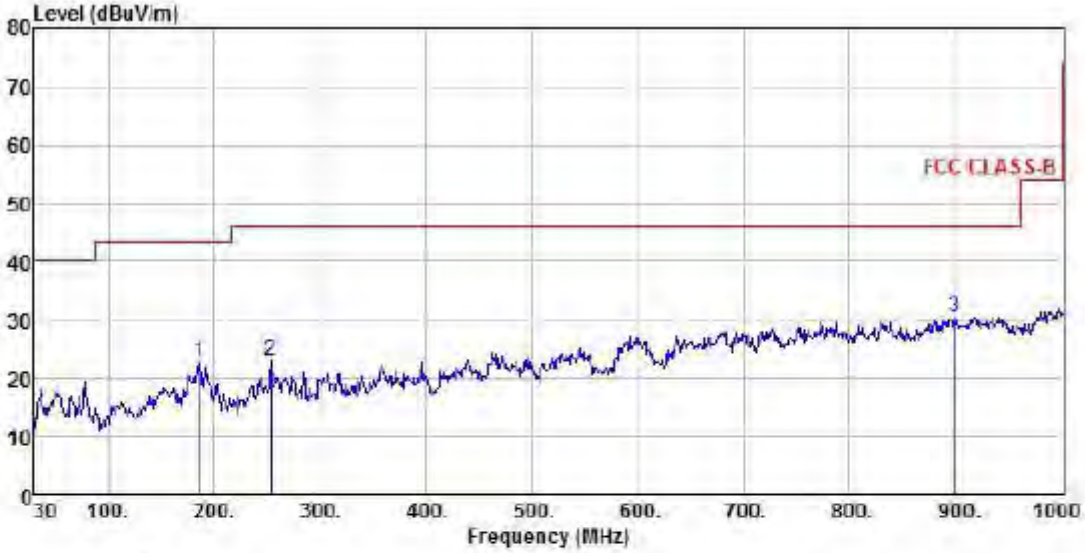
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	176.47	7.94	13.38	1.85	0.00	23.17	43.50	-20.33	Peak
2 pp	723.55	3.80	21.14	3.73	0.00	28.67	46.00	-17.33	Peak
3	995.15	3.95	23.33	5.50	0.00	32.78	54.00	-21.22	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT GFSK CH39
Memo :

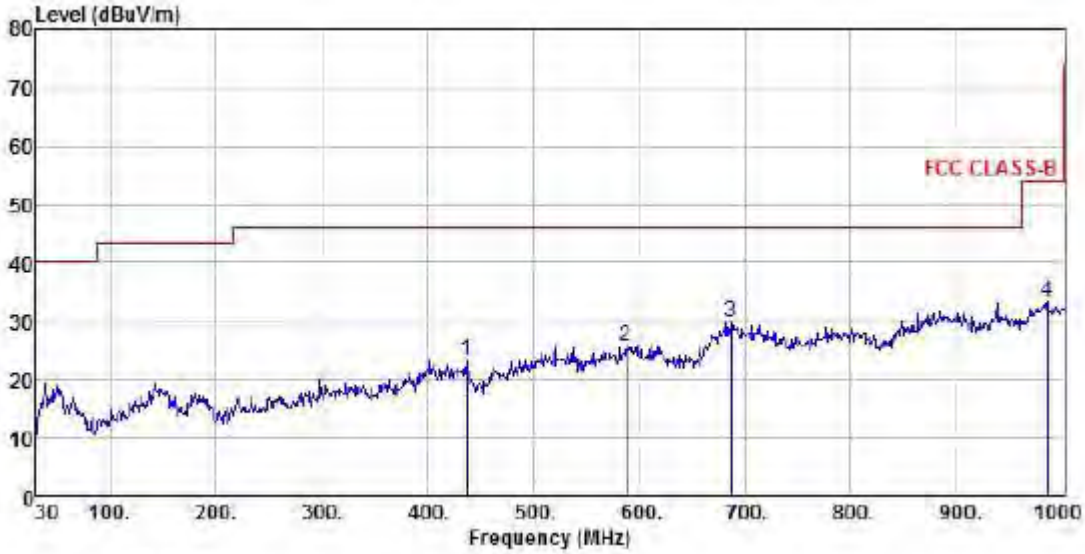
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	279.29	4.39	13.85	2.20	0.00	20.44	46.00	-25.56	Peak
2	582.90	4.70	18.93	3.28	0.00	26.91	46.00	-19.09	Peak
3 pp	867.11	4.90	22.27	4.01	0.00	31.18	46.00	-14.82	Peak

BT GFSK (traffic mode Channel 78)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT GFSK CH78
Memo :

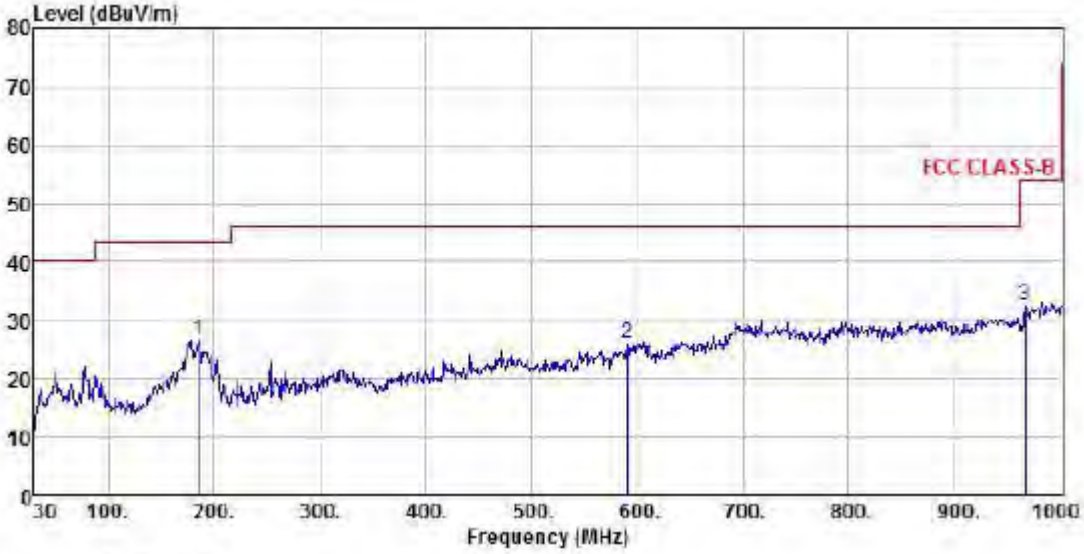
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	185.20	7.72	13.07	1.88	0.00	22.67	43.50	-20.83	Peak
2	253.10	8.28	12.43	2.17	0.00	22.88	46.00	-23.12	Peak
3 pp	899.12	3.66	22.78	4.06	0.00	30.50	46.00	-15.50	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT GFSK CH78
Memo :

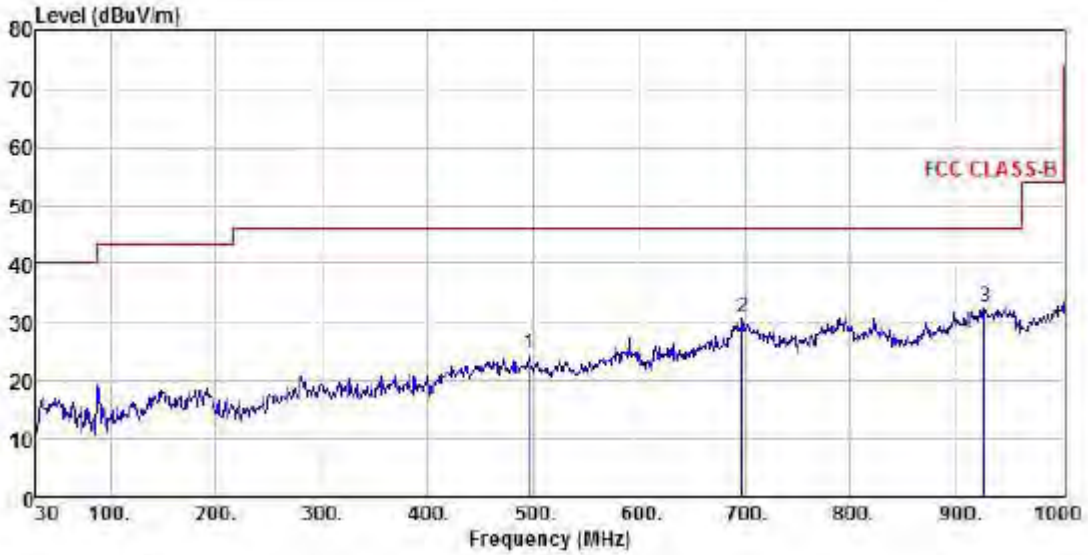
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	436.43	4.09	16.43	2.82	0.00	23.34	46.00	-22.66	Peak
2	587.75	3.43	18.98	3.30	0.00	25.71	46.00	-20.29	Peak
3 pp	686.69	5.00	21.30	3.63	0.00	29.93	46.00	-16.07	Peak
4	984.48	5.00	23.17	5.18	0.00	33.35	54.00	-20.65	Peak

BT Π/4-DQPSK(traffic mode Channel 0)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT Π/4-DQPSK CH 0
Memo :

	Freq	Level	ReadAntenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	186.17	11.88	12.94	1.88	0.00	26.70	43.50	-16.80	Peak
2	590.66	3.56	19.01	3.31	0.00	25.88	46.00	-20.12	Peak
3	965.08	5.12	22.65	4.60	0.00	32.37	54.00	-21.63	Peak

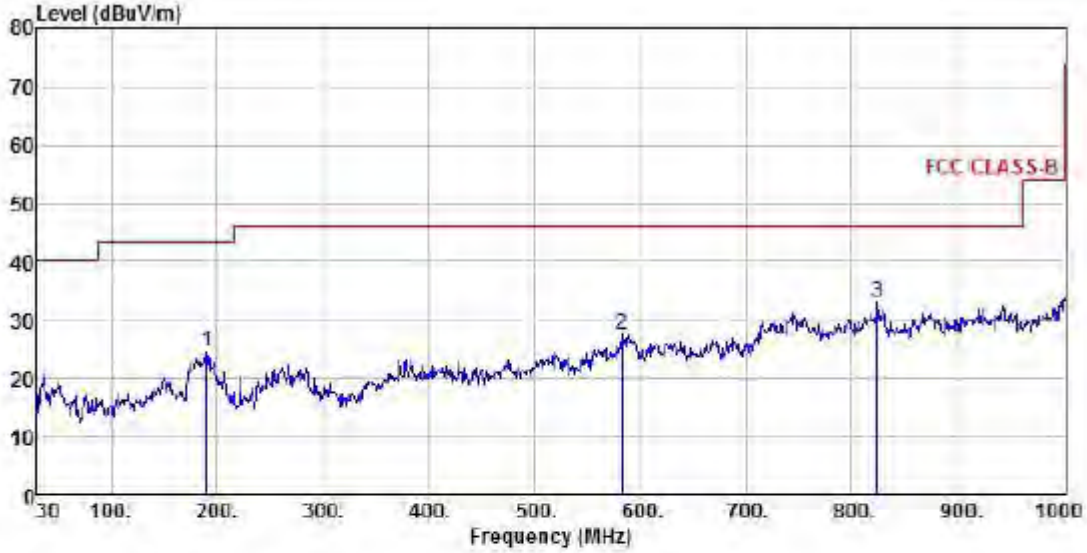


Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT π/4-DQPSK CH 0
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	496.57	3.96	17.50	3.02	0.00	24.48	46.00	-21.52	Peak
2	697.36	5.30	21.62	3.66	0.00	30.58	46.00	-15.42	Peak
3 pp	925.31	5.34	22.98	4.11	0.00	32.43	46.00	-13.57	Peak

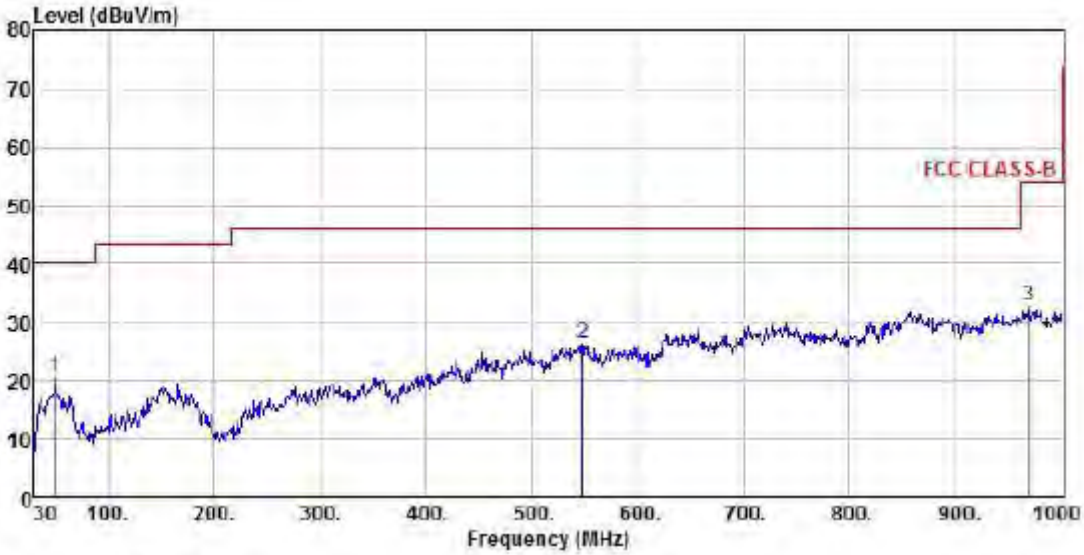
:

BT Π/4-DQPSK(traffic mode Channel 39)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT Π/4-DQPSK CH 39
Memo :

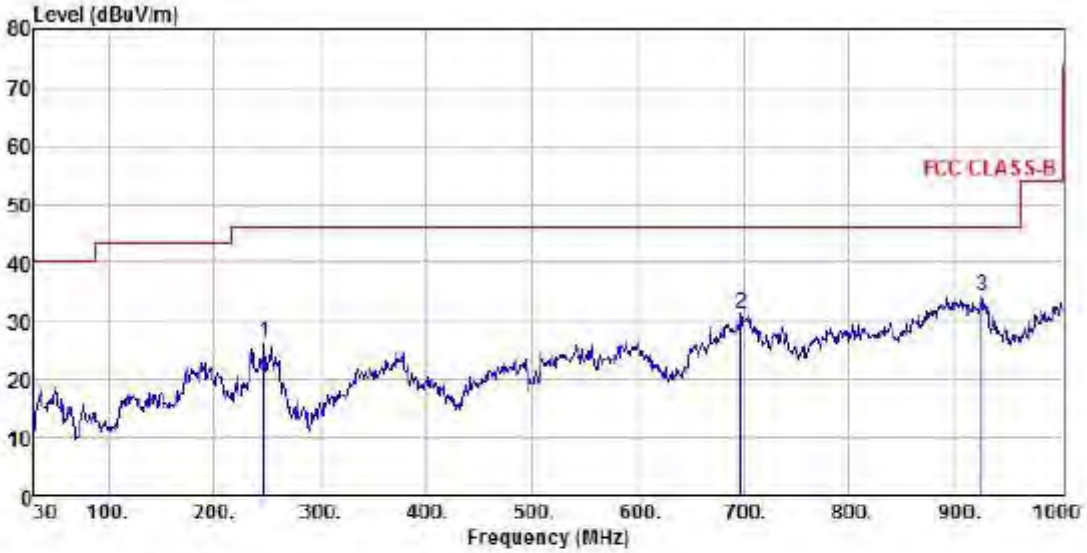
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	190.05	10.27	12.39	1.89	0.00	24.55	43.50	-18.95	Peak
2	582.90	5.17	18.93	3.28	0.00	27.38	46.00	-18.62	Peak
3 pp	824.43	7.50	21.73	3.89	0.00	33.12	46.00	-12.88	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT π/4-DQPSK CH 39
Memo :

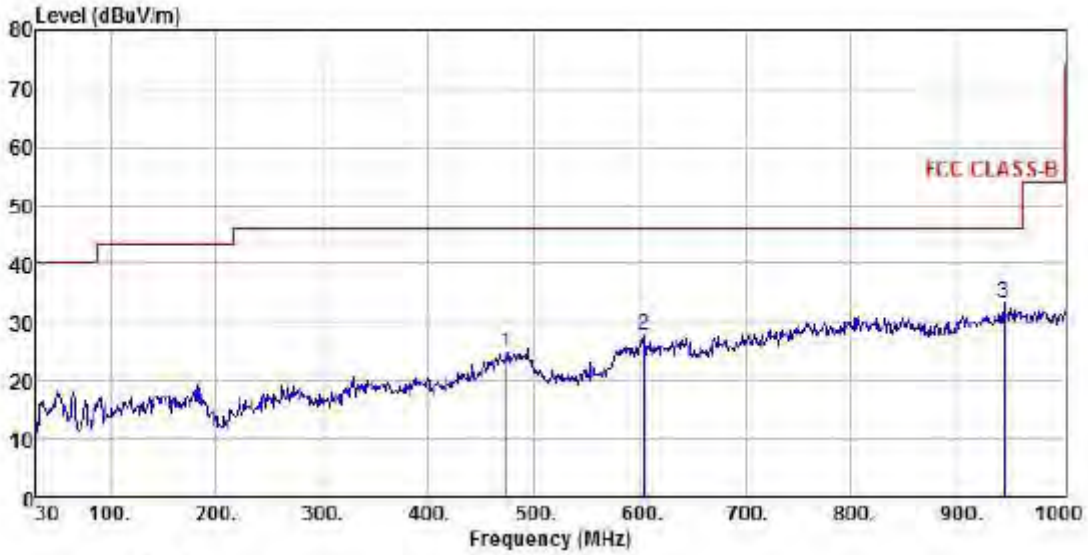
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	49.40	4.26	15.50	0.94	0.00	20.70	40.00	-19.30	Peak
2	547.98	5.19	18.06	3.16	0.00	26.41	46.00	-19.59	Peak
3	967.99	5.36	22.74	4.69	0.00	32.79	54.00	-21.21	Peak

BT Π/4-DQPSK(traffic mode Channel 78)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT Π/4-DQPSK CH 78
Memo :

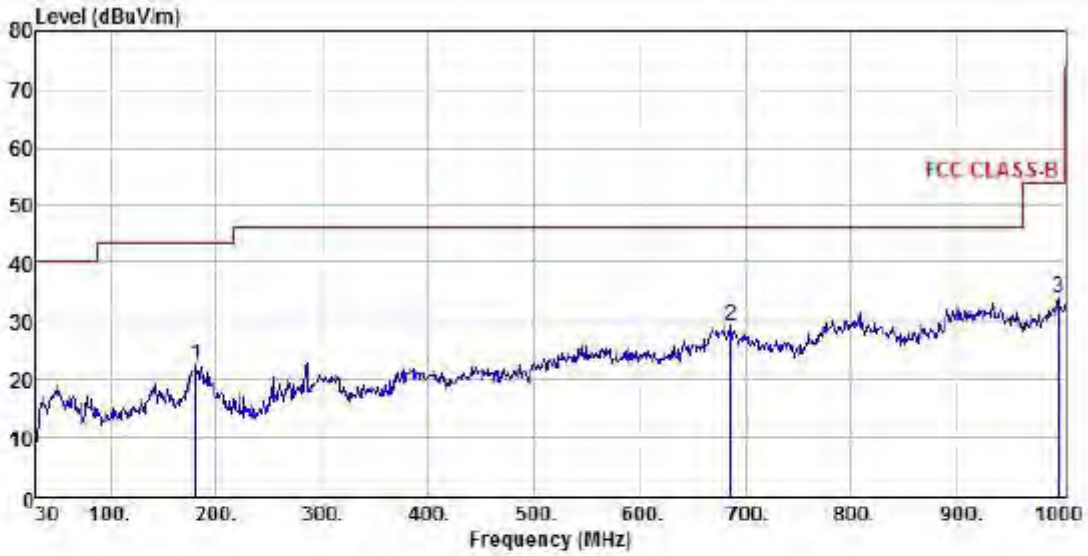
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	247.28	11.88	12.24	2.15	0.00	26.27	46.00	-19.73	Peak
2	697.36	6.08	21.62	3.66	0.00	31.36	46.00	-14.64	Peak
3 pp	923.37	7.20	22.95	4.10	0.00	34.25	46.00	-11.75	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT π/4-DQPSK CH 78
Memo :

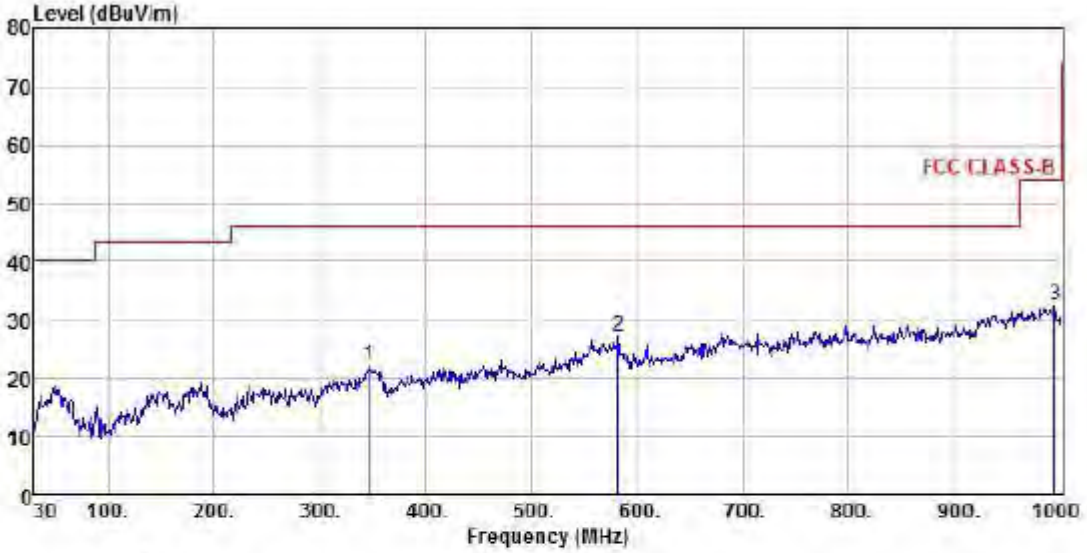
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	473.29	4.34	17.37	2.96	0.00	24.67	46.00	-21.33	Peak
2	604.24	5.15	19.18	3.36	0.00	27.69	46.00	-18.31	Peak
3 pp	941.80	5.94	23.14	4.14	0.00	33.22	46.00	-12.78	Peak

BT 8-DPSK(traffic mode Channel 0)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT 8DPSK CH 0
Memo :

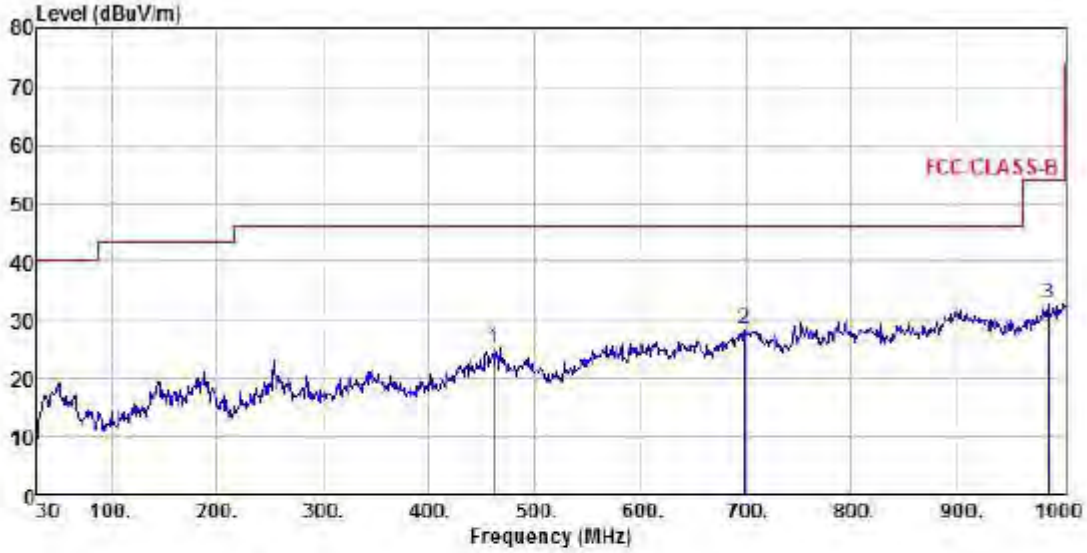
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	180.35	6.81	13.75	1.88	0.00	22.44	43.50	-21.06	Peak
2 pp	685.72	4.45	21.27	3.63	0.00	29.35	46.00	-16.65	Peak
3	994.18	5.03	23.31	5.48	0.00	33.82	54.00	-20.18	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT 8DPSK CH 0
Memo :

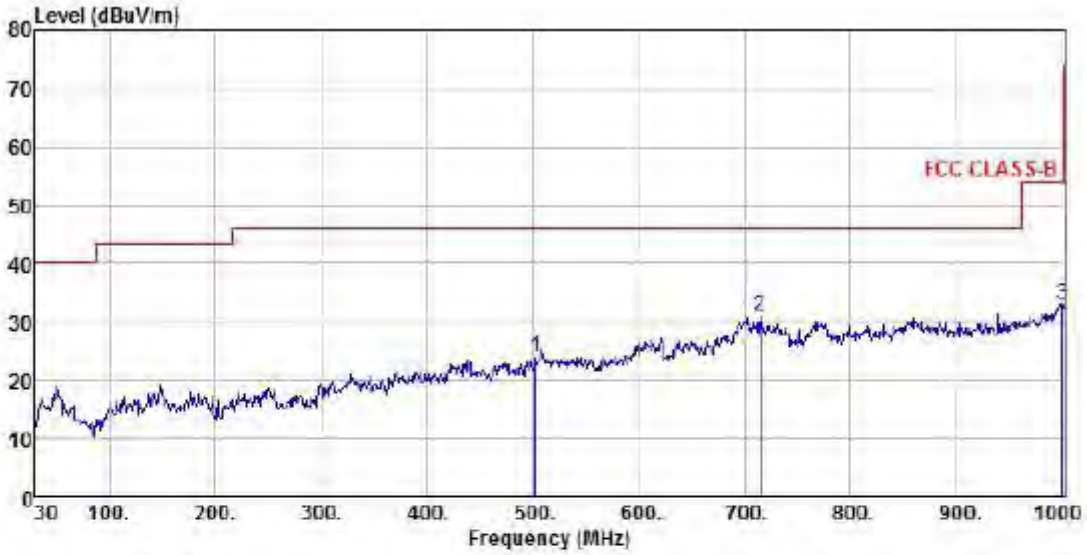
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	347.19	4.66	14.97	2.56	0.00	22.19	46.00	-23.81	Peak
2 pp	581.93	4.81	18.92	3.28	0.00	27.01	46.00	-18.99	Peak
3	993.21	3.74	23.30	5.45	0.00	32.49	54.00	-21.51	Peak

BT 8-DPSK(traffic mode Channel 39)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT 8DPSK CH 39
Memo :

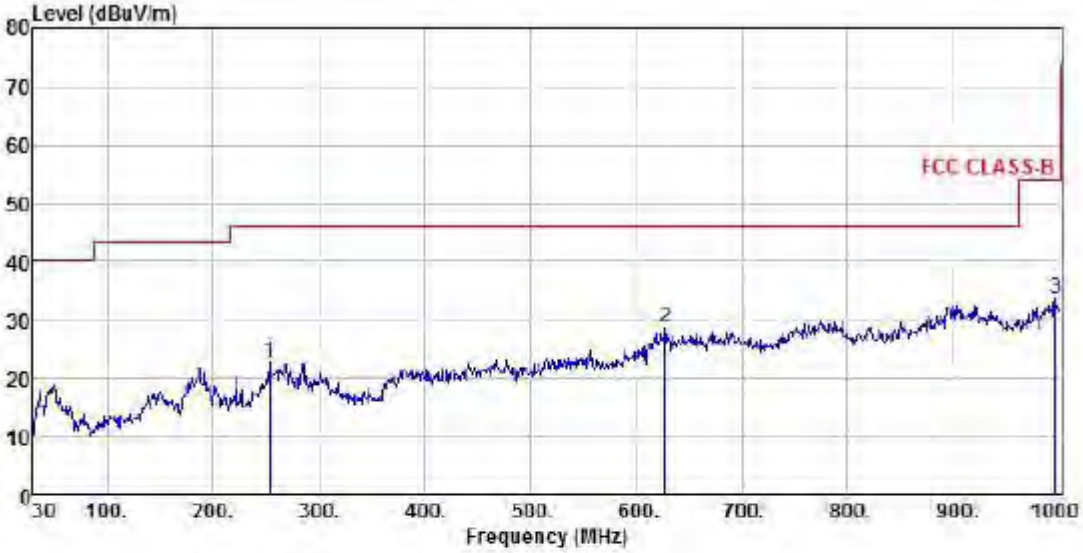
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	460.68	5.05	17.11	2.92	0.00	25.08	46.00	-20.92	Peak
2 pp	698.33	2.89	21.65	3.67	0.00	28.21	46.00	-17.79	Peak
3	984.48	4.33	23.17	5.18	0.00	32.68	54.00	-21.32	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT 8DPSK CH 39
Memo :

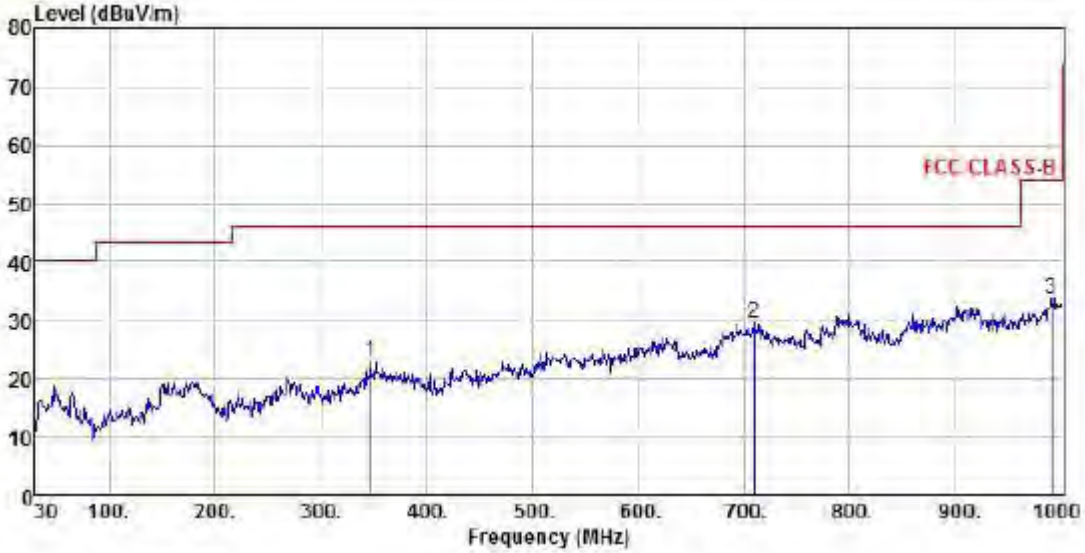
	Freq	Level	Read Factor	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	502.39	3.23	17.55	3.04	0.00		23.82	46.00	-22.18	Peak
2 pp	714.82	6.07	21.26	3.71	0.00		31.04	46.00	-14.96	Peak
3	998.06	4.01	23.37	5.59	0.00		32.97	54.00	-21.03	Peak

BT 8-DPSK(traffic mode Channel 78)



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 HORIZONTAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT 8DPSK CH 78
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	253.10	8.14	12.43	2.17	0.00	22.74	46.00	-23.26	Peak
2 pp	627.52	5.46	19.69	3.44	0.00	28.59	46.00	-17.41	Peak
3	995.15	4.79	23.33	5.50	0.00	33.62	54.00	-20.38	Peak



Site : chamber
Condition : FCC CLASS-B 3m VULB9168 VERTICAL
EUT :
Model Name : DA120
Temp/Humi : 23 ℃ / 55 %
Power Rating:
Mode : BT 8DPSK CH 78
Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	346.22	5.63	14.96	2.56	0.00	23.15	46.00	-22.85	Peak
2 pp	709.97	4.48	21.40	3.70	0.00	29.58	46.00	-16.42	Peak
3	989.33	5.16	23.24	5.33	0.00	33.73	54.00	-20.27	Peak

From 1GHz to 25GHz:
Only show the worst test data when EUT was operated on different mode.
EUT operation mode : BT GFSK(Ch0/Ch39/Ch78); BT Π /4-DQPSK(Ch0/Ch39/Ch78); BT 8-DPSK(Ch0/Ch39/Ch78)

BT GFSK traffic mode Ch78

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Antenna Polarity	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
2480	98.22	-2.88	Horizontal	95.34	/	/	Peak
4960	39.09	5.23	H	44.32	74	29.68	Peak
7440	36.38	13.15	H	49.53	74	24.47	Peak
2480	92.63	-2.88	Vertical	89.75	/	/	Peak
4960	36.64	5.23	V	41.87	74	32.13	Peak
7440	35.97	12.85	V	48.82	74	25.18	Peak

Note: 1, Total=Reading+Correct factor
2, 2480 MHz was fundamental signal which can be ignored.
3, Average measurement was not performed if peak level were lower than the average limit.
4, Other harmonics are lower than background noise.

BT Π/4-DQPSK traffic mode Ch39

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Antenna Polarity	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
2441	97.53	-3.29	Horizontal	94.24	/	/	Peak
4882	35.96	5.02	H	40.98	74	33.02	Peak
7322	35.96	11.86	H	47.82	74	26.18	Peak
2441	93.71	-3.29	Vertical	90.42	/	/	Peak
4882	35.34	5.02	V	40.36	74	33.64	Peak
7322	35.32	12.36	V	47.68	74	26.32	Peak

Note: 1, Total=Reading+Correct factor
2, 2441MHz was fundamental signal which can be ignored.
3, Average measurement was not performed if peak level were lower than the average limit.
4, Other harmonics are lower than background noise.

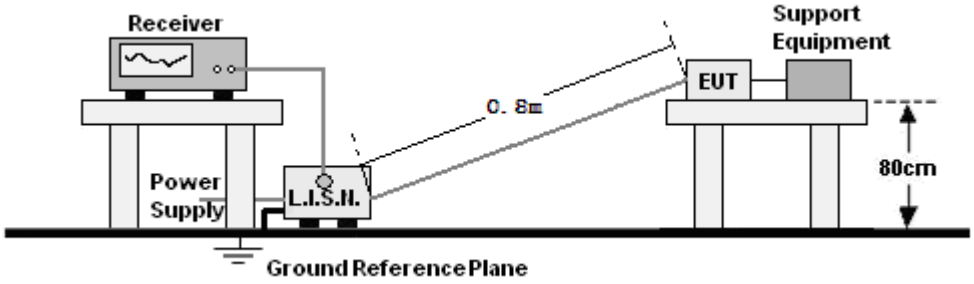
BT 8-DPSK traffic mode Ch39

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Antenna Polarity	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
2441	96.67	-3.29	Horizontal	93.38	/	/	Peak
4882	38.31	5.02	H	43.33	74		Peak
7322	36.83	11.86	H	48.69	74		Peak
2441	94.57	-3.29	Vertical	91.28	/	/	Peak
4882	36.25	5.02	V	41.27	74		Peak
7322	36.87	12.36	V	49.23	74		Peak

Note: 1, Total=Reading+Correct factor
2, 2441MHz was fundamental signal which can be ignored.
3, Average measurement was not performed if peak level were lower than the average limit.
4, Other harmonics are lower than background noise.

12. AC POWER LINE CONDUCTED EMISSIONS

12.1 TEST SETUP



12.2 LIMITS

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 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 to 0.50 MHz.

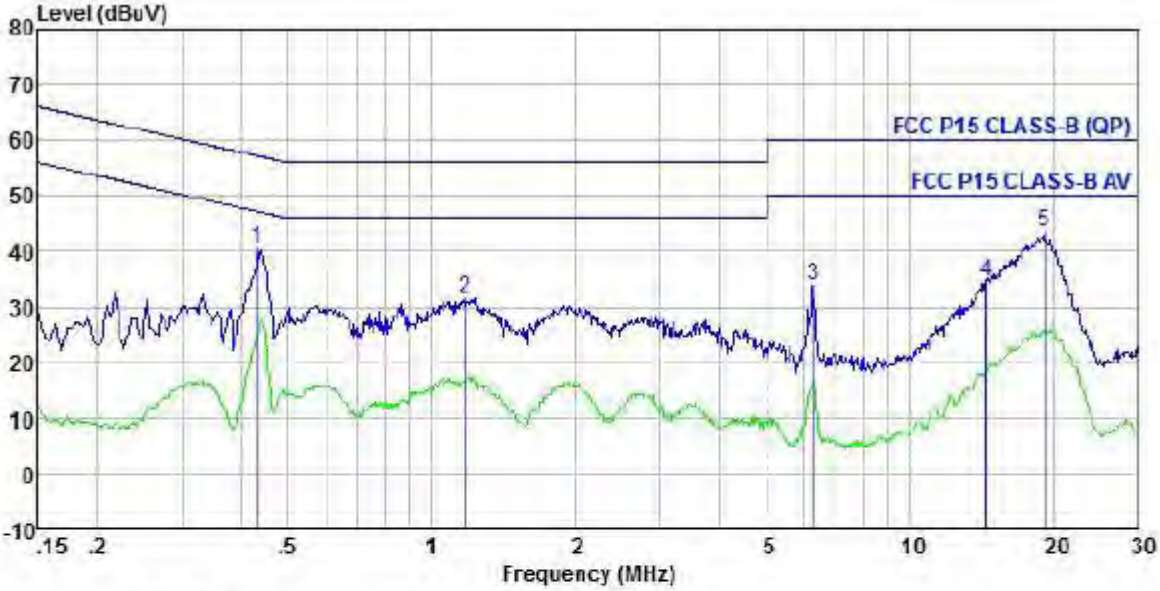
12.3 TEST PROCEDURE

According to description of ANSI C63.4: 2014 sec.13.3, the AC power line preliminary conducted emissions measurements were carried out. The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.
The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT is connected to LISN and LISN is connected to the reference ground. All other supplemental devices are connected with EUT through other LISN. The distance between EUT and LISN is 80cm. A radio link is established between EUT and the tester. The output power of the EUT is controlled by the tester and driven to maximum value. An initial pre-scan was performed on the live L line and neutral line with peak detector (9kHz RBW). Both average detector and qausi-peak detector are performed at the frequencies with maximized peak emission.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

12.4 RESULTS & PERFORMANCE

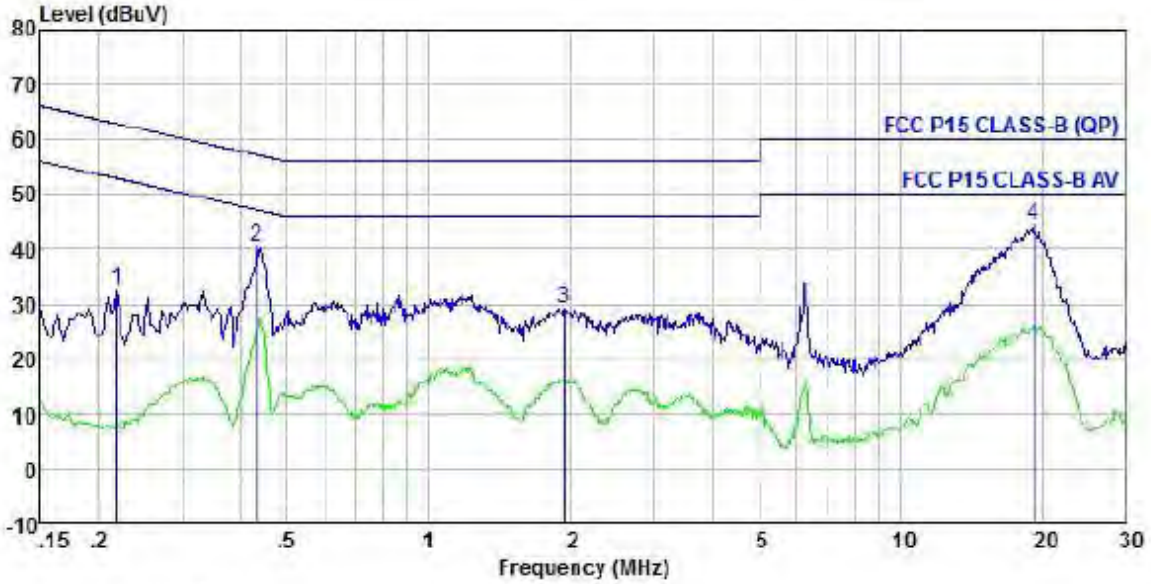
EUT was operated on different mode.EUT work mode: BT GFSK(CH0/39/78); BT Π /4-DQPSK(CH0/39/78); BT 8-DPSK(CH0/39/78)

GFSK traffic mode Ch0



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT GFSK CH 0

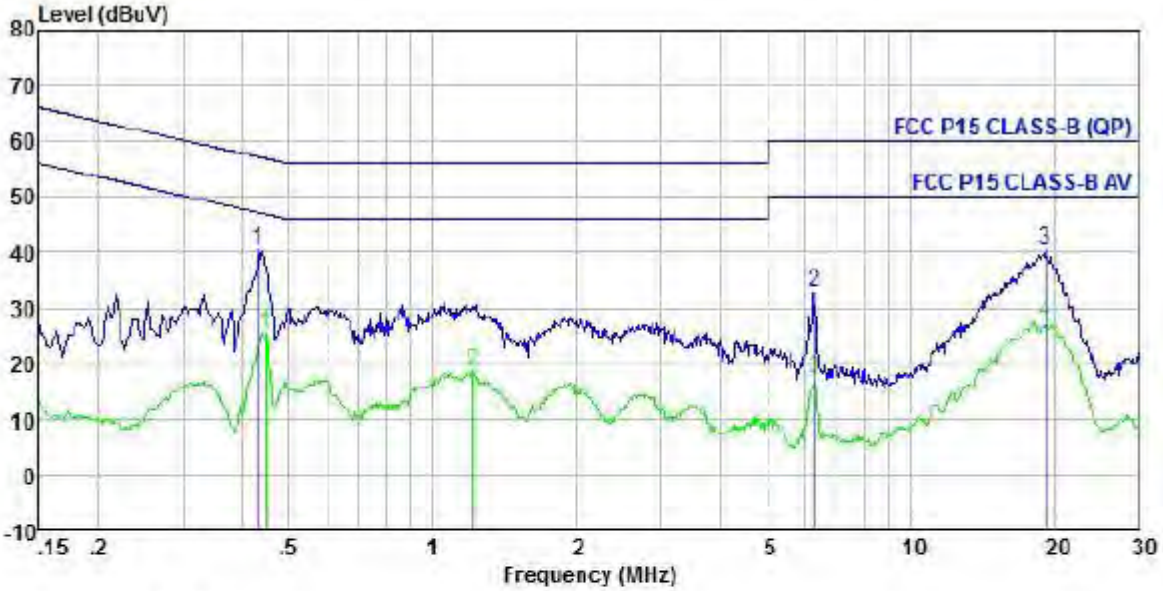
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.43	30.50	9.69	0.13	0.00	40.32	57.20	-16.88	Peak
2	1.18	21.61	9.67	0.14	0.00	31.42	56.00	-24.58	Peak
3	6.29	24.04	9.64	0.26	0.00	33.94	60.00	-26.06	Peak
4	14.44	24.57	9.64	0.16	0.00	34.37	60.00	-25.63	Peak
5 pp	19.12	33.58	9.73	0.11	0.00	43.42	60.00	-16.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT GFSK CH 0

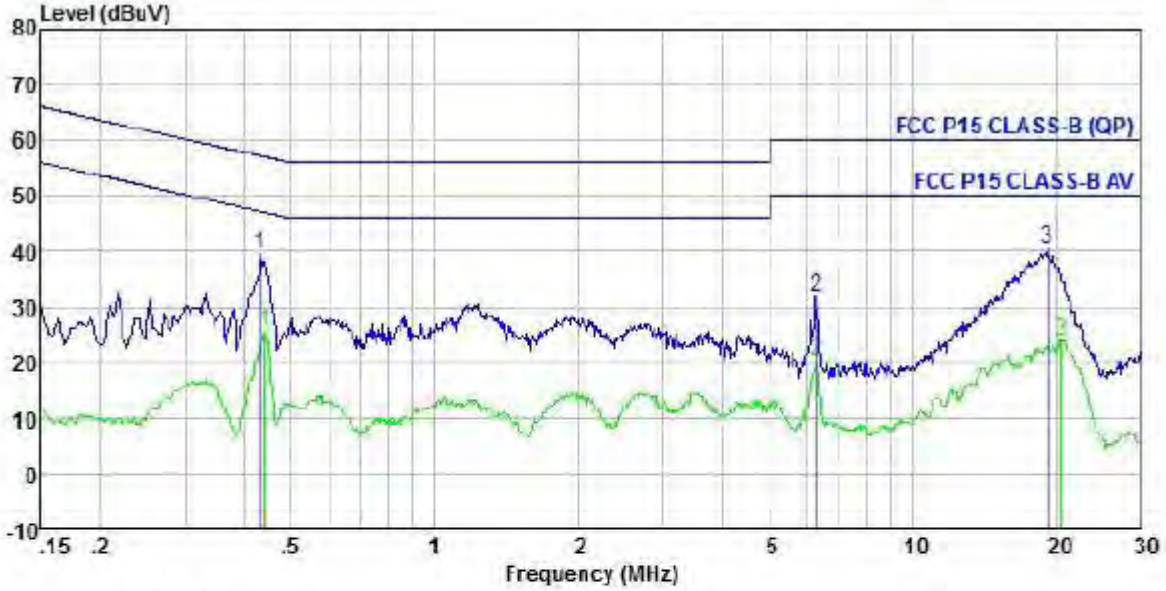
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.22	22.99	9.43	0.22	0.00	32.64	62.92	-30.28	Peak
2	0.43	30.70	9.49	0.13	0.00	40.32	57.20	-16.88	Peak
3	1.94	19.39	9.64	0.15	0.00	29.18	56.00	-26.82	Peak
4 pp	19.12	34.47	9.84	0.11	0.00	44.42	60.00	-15.58	Peak

GFSK traffic mode Ch39



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT GFSK CH 39

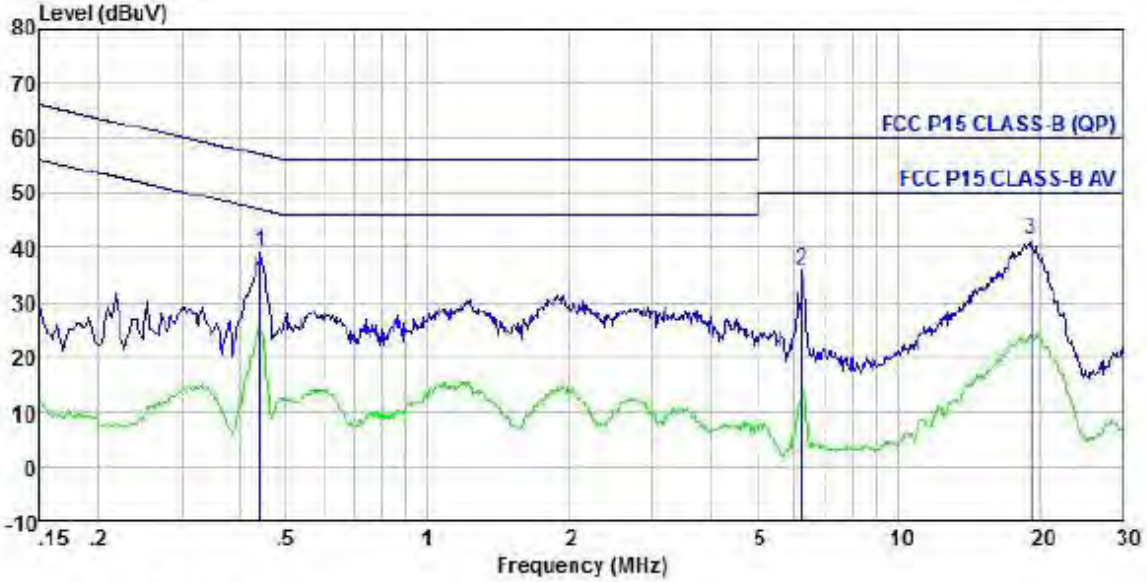
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	30.50	9.69	0.13	0.00	40.32	57.20	-16.88	Peak
2	6.29	23.04	9.64	0.26	0.00	32.94	60.00	-27.06	Peak
3	19.12	30.58	9.73	0.11	0.00	40.42	60.00	-19.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT GFSK CH 39

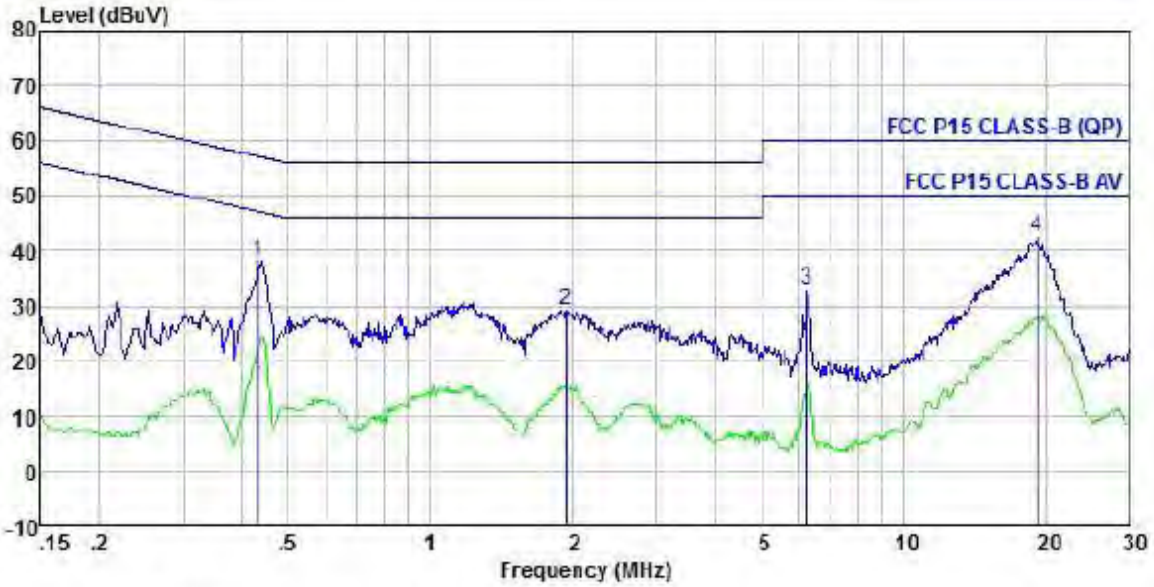
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	29.70	9.49	0.13	0.00	39.32	57.20	-17.88	Peak
2	6.29	22.11	9.57	0.26	0.00	31.94	60.00	-28.06	Peak
3	19.12	30.47	9.84	0.11	0.00	40.42	60.00	-19.58	Peak

GFSK traffic mode Ch78



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT GFSK CH 78

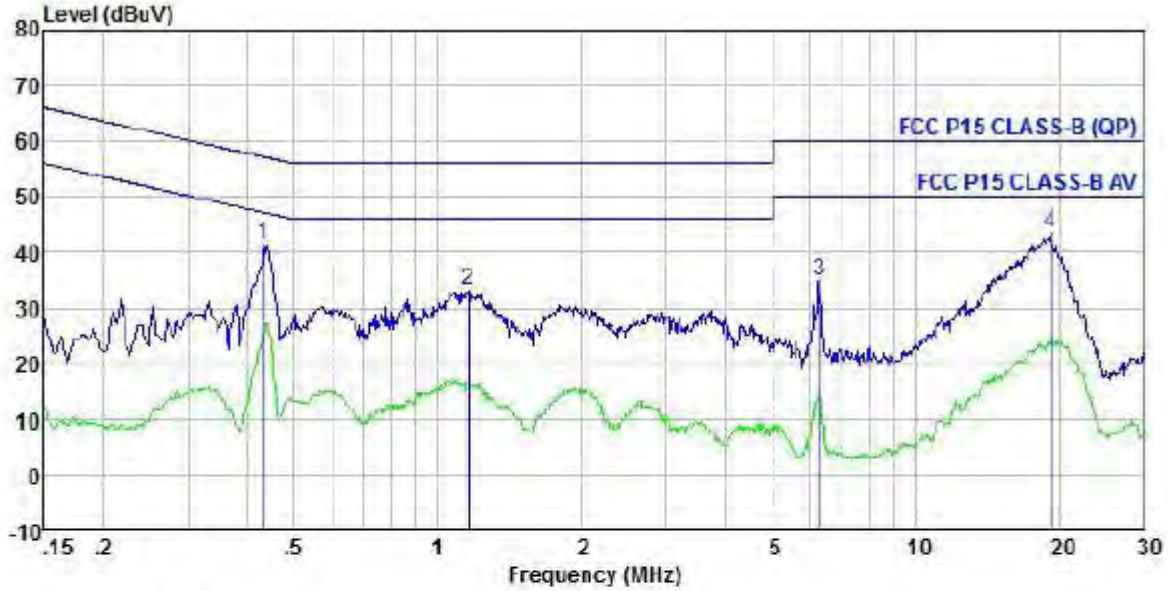
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.44	29.20	9.69	0.13	0.00	39.02	57.02	-18.00	Peak
2	6.22	25.84	9.64	0.25	0.00	35.73	60.00	-24.27	Peak
3	19.12	31.58	9.73	0.11	0.00	41.42	60.00	-18.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT GFSK CH 78

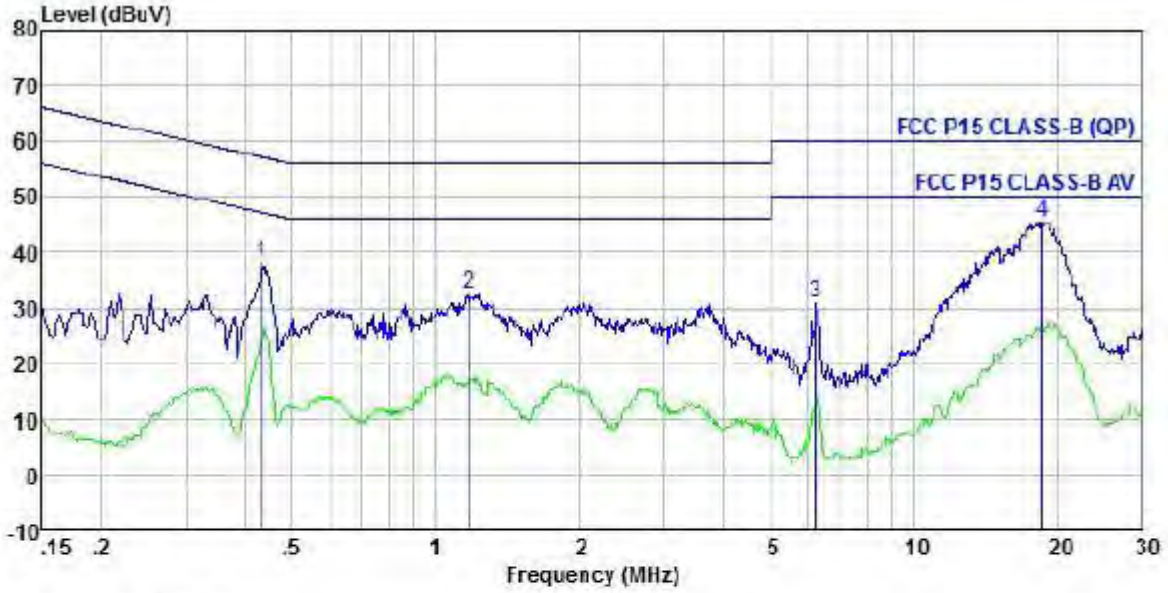
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.43	28.70	9.49	0.13	0.00	38.32	57.20	-18.88	Peak
2	1.94	19.39	9.64	0.15	0.00	29.18	56.00	-26.82	Peak
3	6.22	22.91	9.57	0.25	0.00	32.73	60.00	-27.27	Peak
4 pp	19.12	32.47	9.84	0.11	0.00	42.42	60.00	-17.58	Peak

Π /4-DQPSK traffic mode Ch0



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT Π/4-DQPSK CH 0

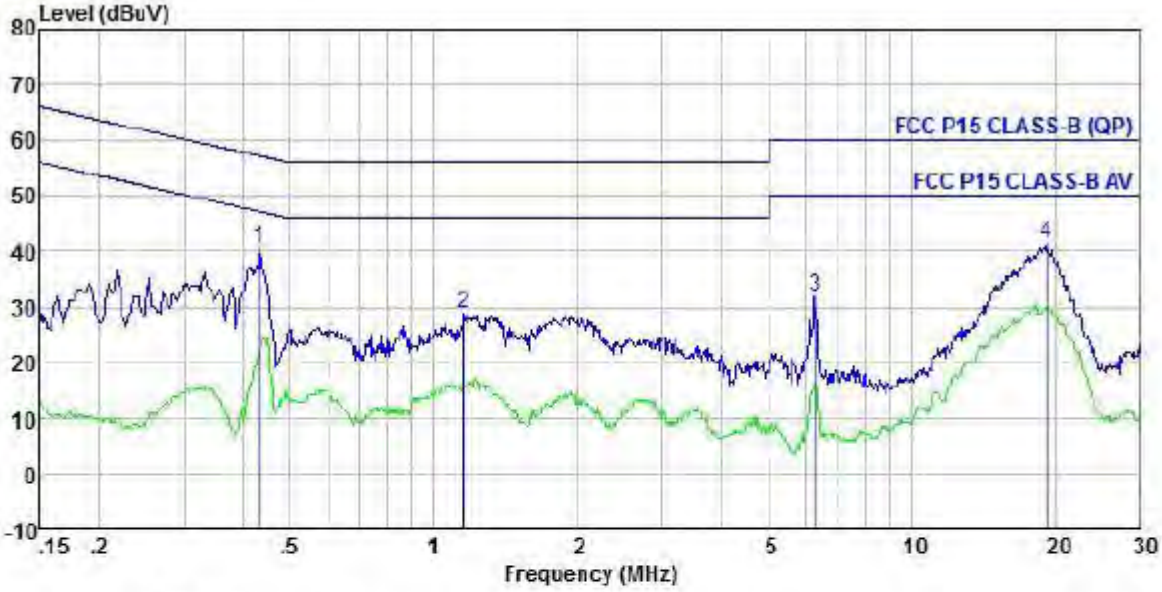
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	31.50	9.69	0.13	0.00	41.32	57.20	-15.88	Peak
2	1.16	23.21	9.67	0.14	0.00	33.02	56.00	-22.98	Peak
3	6.29	25.04	9.64	0.26	0.00	34.94	60.00	-25.06	Peak
4	19.12	33.58	9.73	0.11	0.00	43.42	60.00	-16.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT π/4-DQPSK CH 0

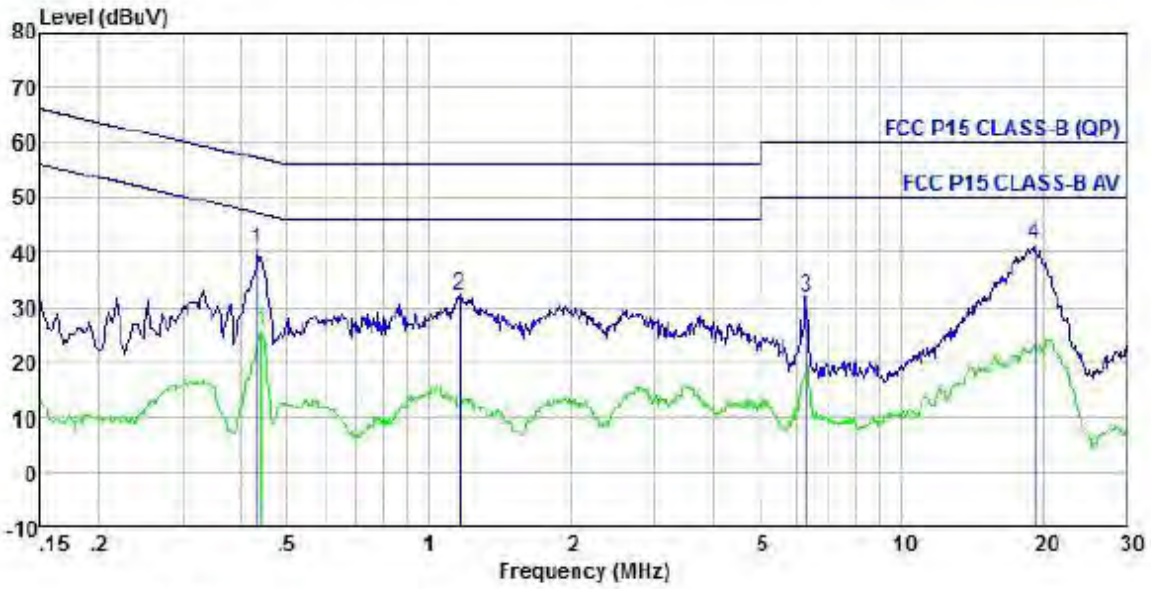
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.43	28.70	9.49	0.13	0.00	38.32	57.20	-18.88	Peak
2	1.18	22.63	9.65	0.14	0.00	32.42	56.00	-23.58	Peak
3	6.22	20.91	9.57	0.25	0.00	30.73	60.00	-29.27	Peak
4 pp	18.52	35.68	9.82	0.11	0.00	45.61	60.00	-14.39	Peak

Π /4-DQPSK traffic mode Ch39



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT Π/4-DQPSK CH 39

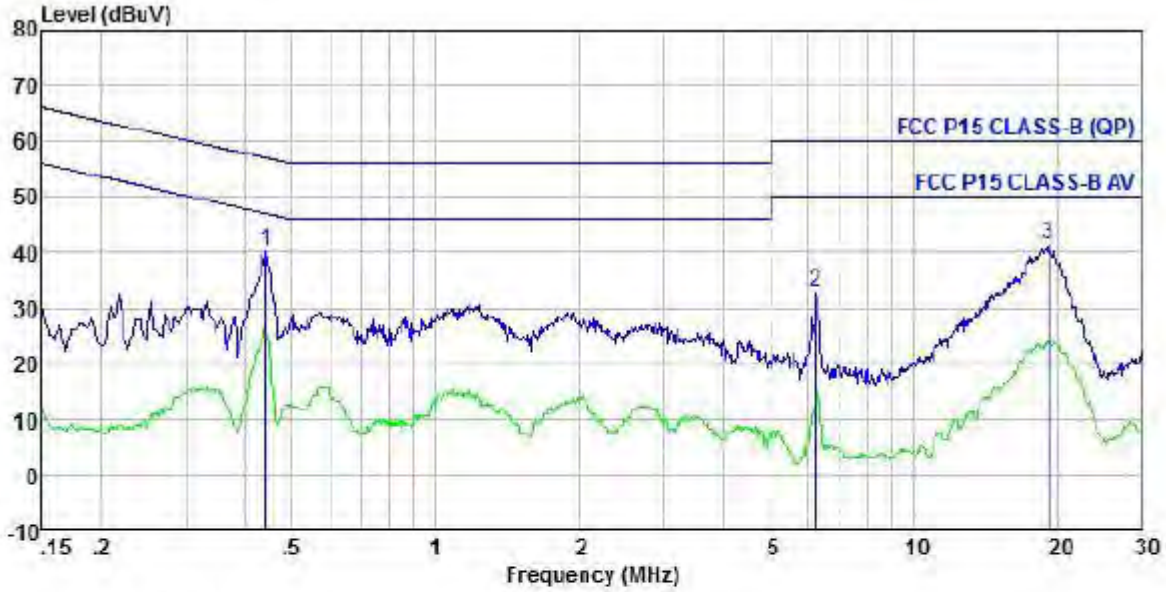
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	30.50	9.69	0.13	0.00	40.32	57.20	-16.88	Peak
2	1.15	18.93	9.67	0.14	0.00	28.74	56.00	-27.26	Peak
3	6.29	22.04	9.64	0.26	0.00	31.94	60.00	-28.06	Peak
4	19.12	31.58	9.73	0.11	0.00	41.42	60.00	-18.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT π/4-DQPSK CH 39

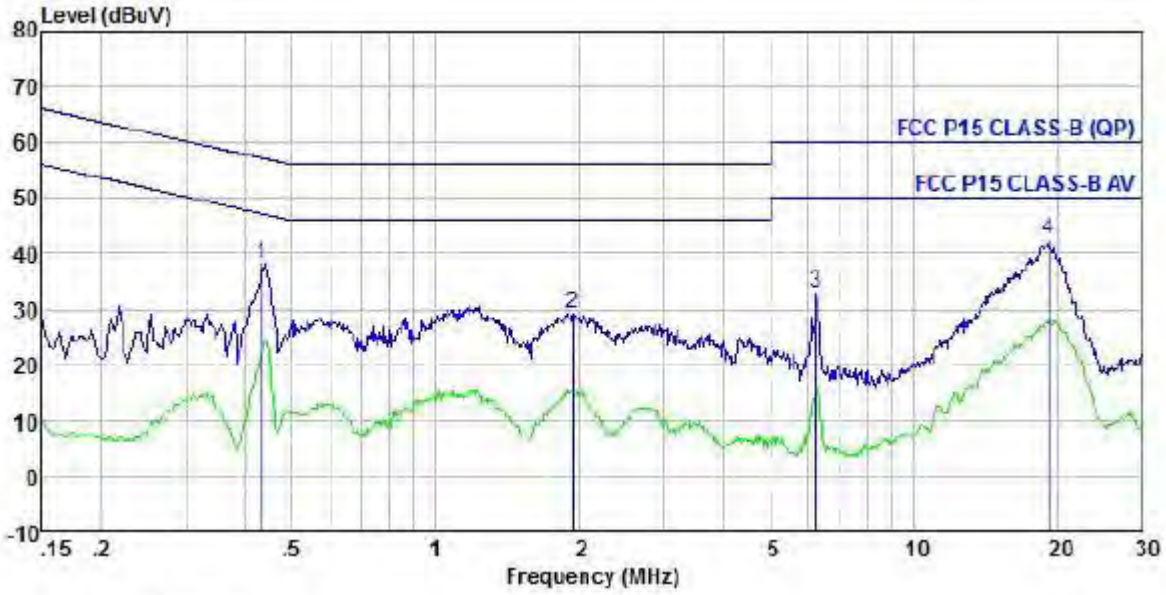
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	30.70	9.49	0.13	0.00	40.32	57.20	-16.88	Peak
2	1.16	22.23	9.65	0.14	0.00	32.02	56.00	-23.98	Peak
3	6.29	22.11	9.57	0.26	0.00	31.94	60.00	-28.06	Peak
4	19.12	31.47	9.84	0.11	0.00	41.42	60.00	-18.58	Peak

Π /4-DQPSK traffic mode Ch78



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT π/4-DQPSK CH 78

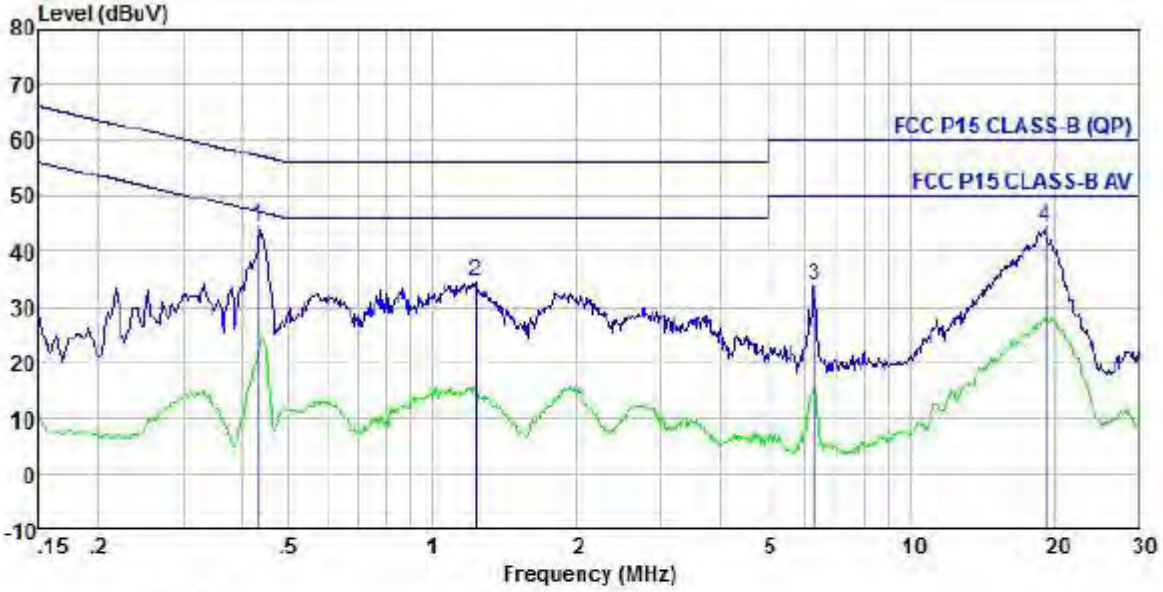
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.44	30.20	9.69	0.13	0.00	40.02	57.02	-17.00	Peak
2	6.22	22.84	9.64	0.25	0.00	32.73	60.00	-27.27	Peak
3	19.12	31.58	9.73	0.11	0.00	41.42	60.00	-18.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT π/4-DQPSK CH 78

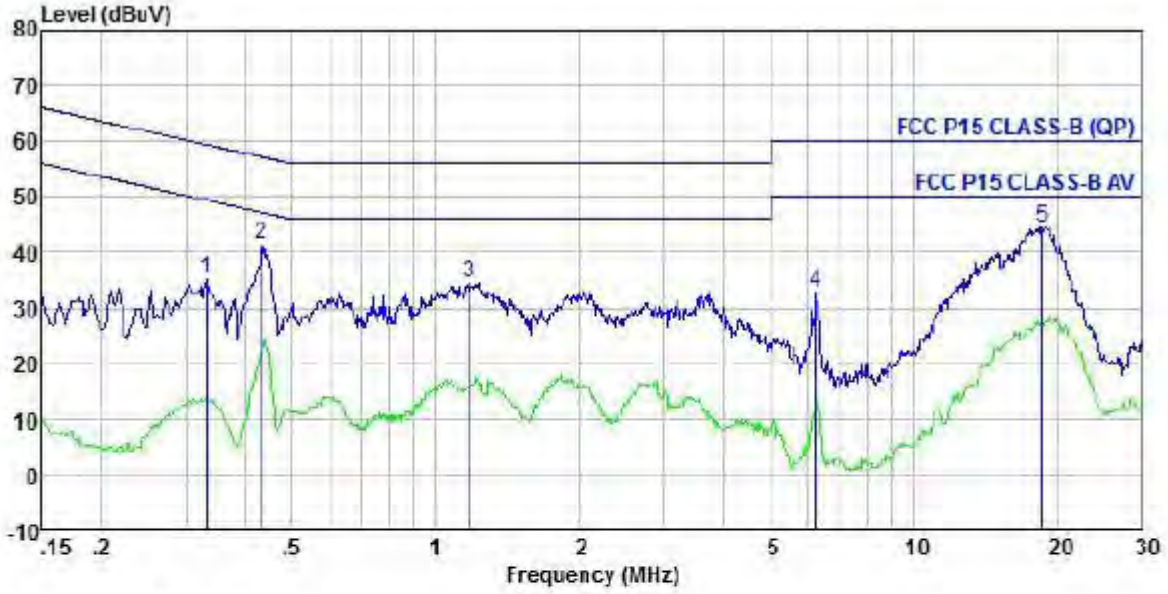
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.43	28.70	9.49	0.13	0.00	38.32	57.20	-18.88	Peak
2	1.94	19.39	9.64	0.15	0.00	29.18	56.00	-26.82	Peak
3	6.22	22.91	9.57	0.25	0.00	32.73	60.00	-27.27	Peak
4 pp	19.12	32.47	9.84	0.11	0.00	42.42	60.00	-17.58	Peak

8-DPSK traffic mode Ch0



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT 8DPSK CH 0

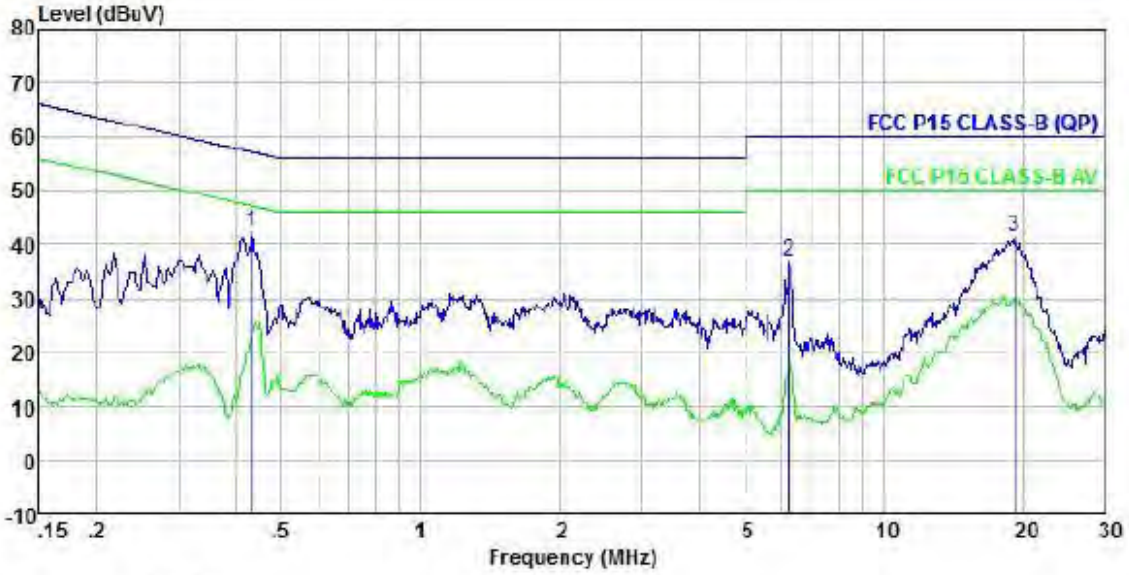
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	34.50	9.69	0.13	0.00	44.32	57.20	-12.88	Peak
2	1.23	24.58	9.67	0.14	0.00	34.39	56.00	-21.61	Peak
3	6.29	24.04	9.64	0.26	0.00	33.94	60.00	-26.06	Peak
4	19.12	34.58	9.73	0.11	0.00	44.42	60.00	-15.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT 8DPSK CH 0

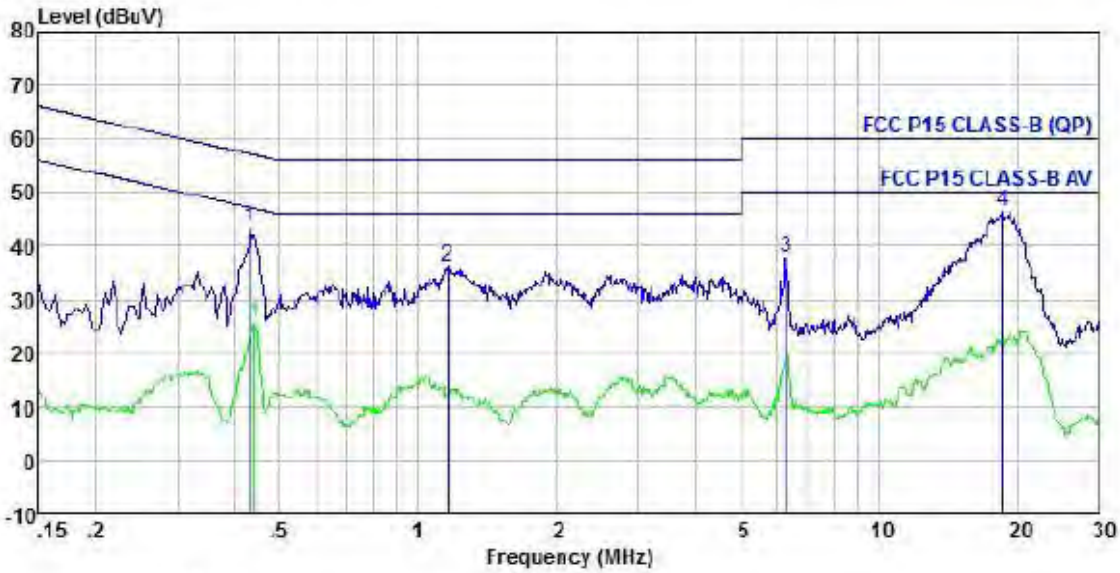
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.33	25.51	9.47	0.17	0.00	35.15	59.44	-24.29	Peak
2	0.43	31.70	9.49	0.13	0.00	41.32	57.20	-15.88	Peak
3	1.18	24.63	9.65	0.14	0.00	34.42	56.00	-21.58	Peak
4	6.22	22.91	9.57	0.25	0.00	32.73	60.00	-27.27	Peak
5 pp	18.52	34.68	9.82	0.11	0.00	44.61	60.00	-15.39	Peak

8-DPSK traffic mode Ch39



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT 8DPSK CH 39

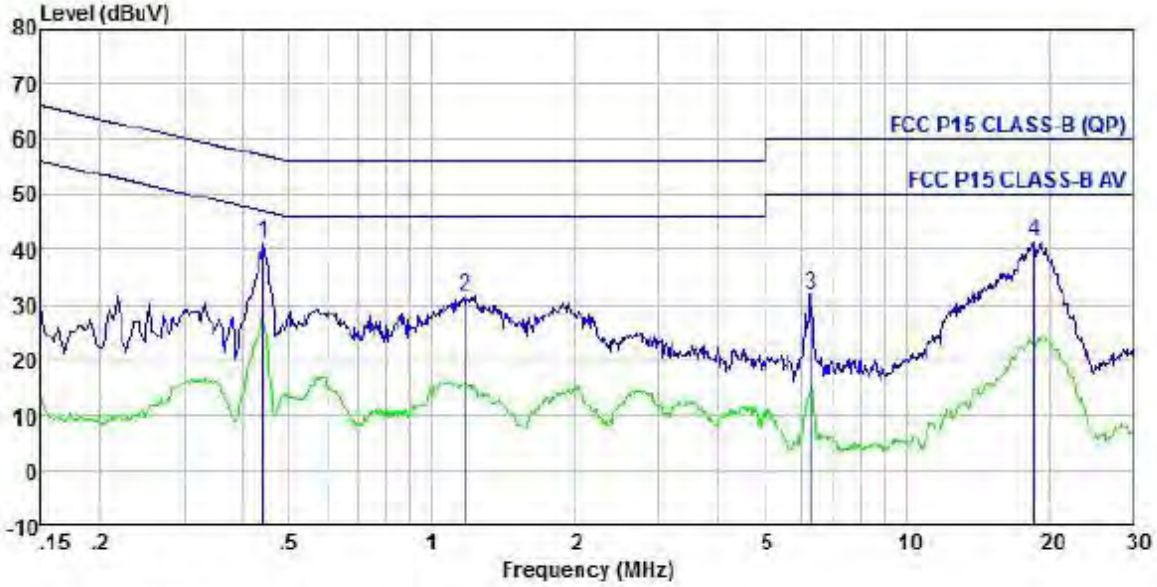
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.43	32.50	9.69	0.13	0.00	42.32	57.20	-14.88	Peak
2	6.22	26.84	9.64	0.25	0.00	36.73	60.00	-23.27	Peak
3	19.12	31.58	9.73	0.11	0.00	41.42	60.00	-18.58	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT 8DPSK CH 39

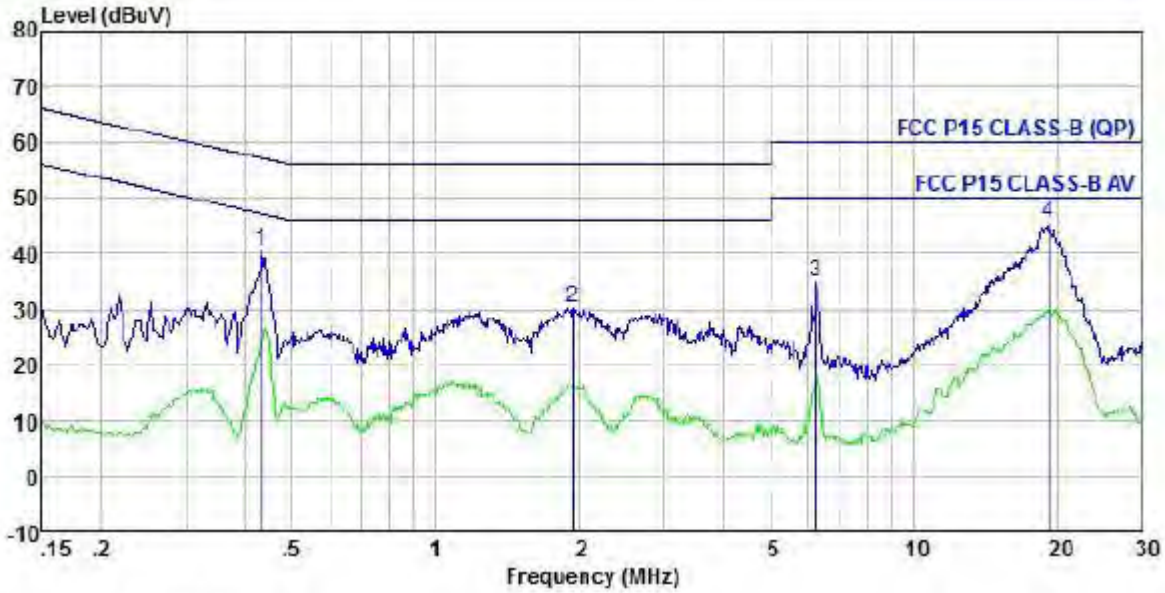
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.43	33.70	9.49	0.13	0.00	43.32	57.20	-13.88	Peak
2	1.16	26.23	9.65	0.14	0.00	36.02	56.00	-19.98	Peak
3	6.29	28.11	9.57	0.26	0.00	37.94	60.00	-22.06	Peak
4pp	18.52	36.68	9.82	0.11	0.00	46.61	60.00	-13.39	Peak

8-DPSK traffic mode Ch78



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(L) LINE
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT 8DPSK CH 78

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Limit Level	Over Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.44	31.20	9.69	0.13	0.00	41.02	57.02	-16.00	Peak
2	1.18	21.61	9.67	0.14	0.00	31.42	56.00	-24.58	Peak
3	6.29	22.04	9.64	0.26	0.00	31.94	60.00	-28.06	Peak
4	18.52	31.77	9.73	0.11	0.00	41.61	60.00	-18.39	Peak



Site : chamber
Condition : FCC P15 CLASS-B (QP) ENV216(N) NEUTRAL
EUT :
Model Name : DA120
Temp/Humi : 23.8 ℃ / 53%
Power Rating: AC220V/50Hz
Mode :
Memo : BT 8DPSK CH 78

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.43	30.70	9.49	0.13	0.00	40.32	57.20	-16.88	Peak
2	1.94	20.39	9.64	0.15	0.00	30.18	56.00	-25.82	Peak
3	6.22	24.91	9.57	0.25	0.00	34.73	60.00	-25.27	Peak
4 pp	19.12	35.47	9.84	0.11	0.00	45.42	60.00	-14.58	Peak

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Please refer to the file named “Test Setup Photos”.

APPENDIX 2 PHOTOGRAPHS OF EUT

Please refer to the files named “EUT External Photos” and “EUT Internal Photos”.

----End of the report----