APPLICATION CERTIFICATION
On Behalf of
Poly-Planar Group LLC

Audio Amplifier with Bluetooth and wired control keypad
Model No.: ME60BT-BWG

FCC ID: 2ACUKME60BT-BWG

Prepared for	:	Poly-Planar Group LLC
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Prepared by	:	ACCURATE TECHNOLOGY CO. LTD
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Report Number	:	ATE20141341
Date of Test	:	July 16-24,2014
Date of Report	:	July 25,2014

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Test Report Certification

Applicant	:	Poly-Planar Group LLC
Manufacturer	:	EVERVICTORY ELECTRONIC COMPANY LIMITED
EUT Description	:	Audio Amplifier with Bluetooth and wired control keypad
		(A) MODEL NO.: ME60BT-BWG
		(B) POWER SUPPLY: DC 12V
		(C) Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4- 2009

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test :	July 16-24,2014
Date of Report :	July 25,2014

Prepared by :

(Engineer)

Approved & Authorized Signer :

(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Audio Amplifier with Bluetooth and wired control keypad
Model Number	:	ME60BT-BWG
Frequency Band	:	2402MHz-2480MHz
Number of Channels	:	79
Bluetooth Version	:	2.1+EDR
Modulation type	:	GFSK, Π/4-DQPSK, 8DPSK
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Power Supply	:	DC 12V
Applicant	:	Poly-Planar Group LLC
Address	:	1352 Charwood Road Suite D Hanover MD 21076 U.S.A
Manufacturer	:	EVERVICTORY ELECTRONIC COMPANY LIMITED
Address	:	Chu Chi Management District, Hu Men Town, Dong-Guan City, Guang-Dong Province, P.R.China
Date of sample received	:	July 16, 2014
Date of Test	:	July 16-24,2014

1.2.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.3.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 11, 2014	Jan. 10, 2015
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 11, 2014	Jan. 10, 2015
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 11, 2014	Jan. 10, 2015
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 11, 2014	Jan. 10, 2015
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 15, 2014	Jan. 14, 2015
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan. 15, 2014	Jan. 14, 2015
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 11, 2014	Jan. 10, 2015
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 11, 2014	Jan. 10, 2015

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode
Low Channel: 2402MHz
Middle Channel: 2441MHz
High Channel: 2480MHz
Hopping

3.2.Configuration and peripherals

EUT

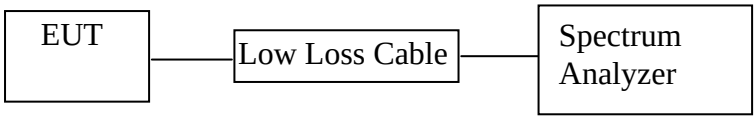
(EUT: Audio Amplifier with Bluetooth and wired control keypad)

4. TEST PROCEDURES AND RESULTS

FCC Rules	**Description of Test**	**Result**
Section 15.207	Conducted Emission Test	N/A
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1.Block Diagram of Test Setup



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

5.2.The Requirement For Section 15.247(a)(1)

Section 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.

5.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

5.5.Test Procedure

5.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2.Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz.

5.5.3.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

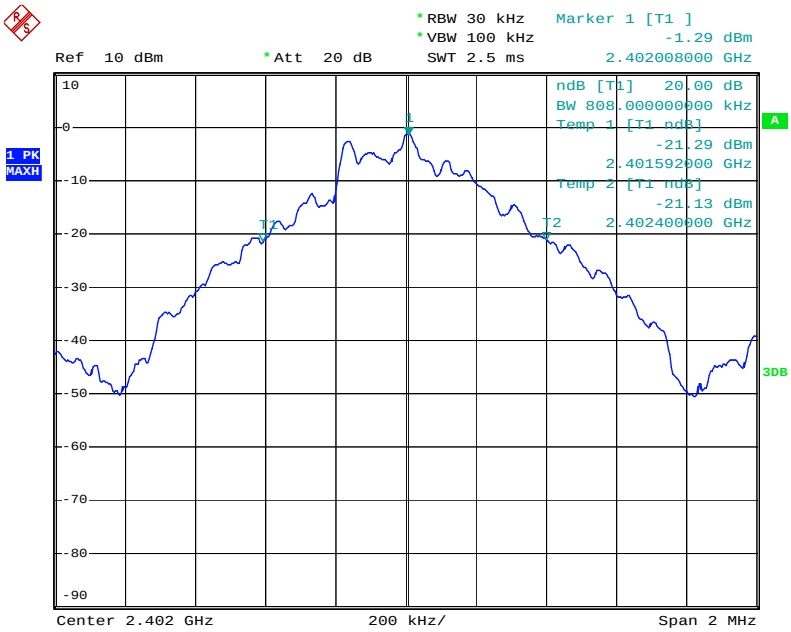
5.6.Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	0.808	1.228	1.152	Pass
Middle	2441	0.808	1.224	1.152	Pass
High	2480	0.844	1.224	1.148	Pass

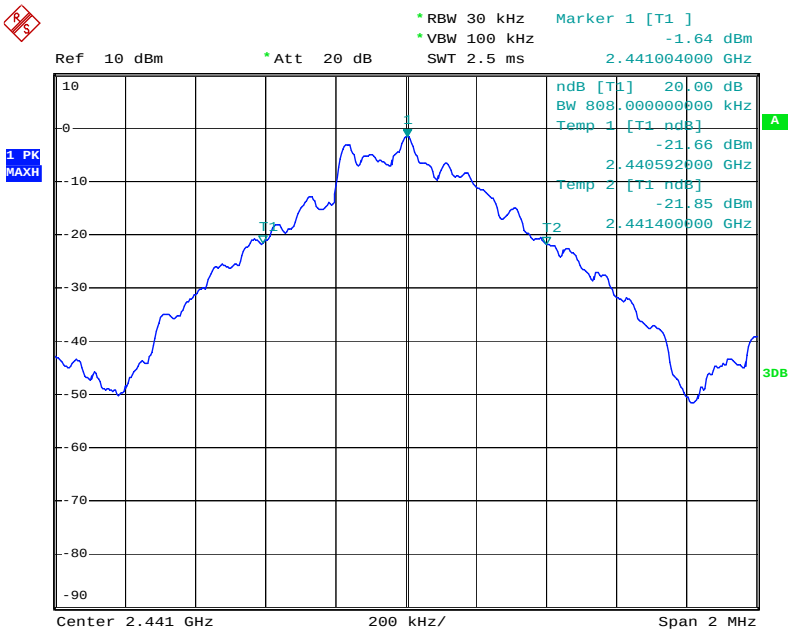
The spectrum analyzer plots are attached as below.

GFSK Mode

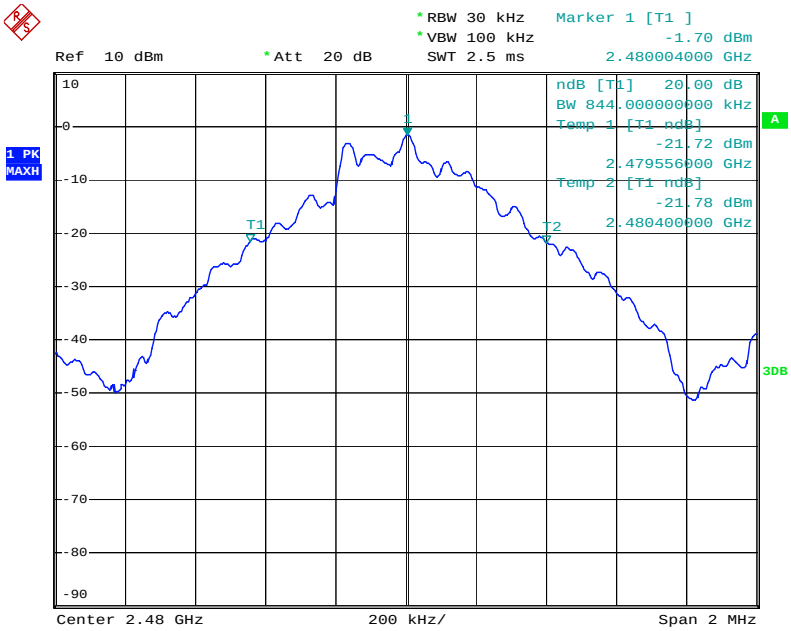
Low channel



Middle channel

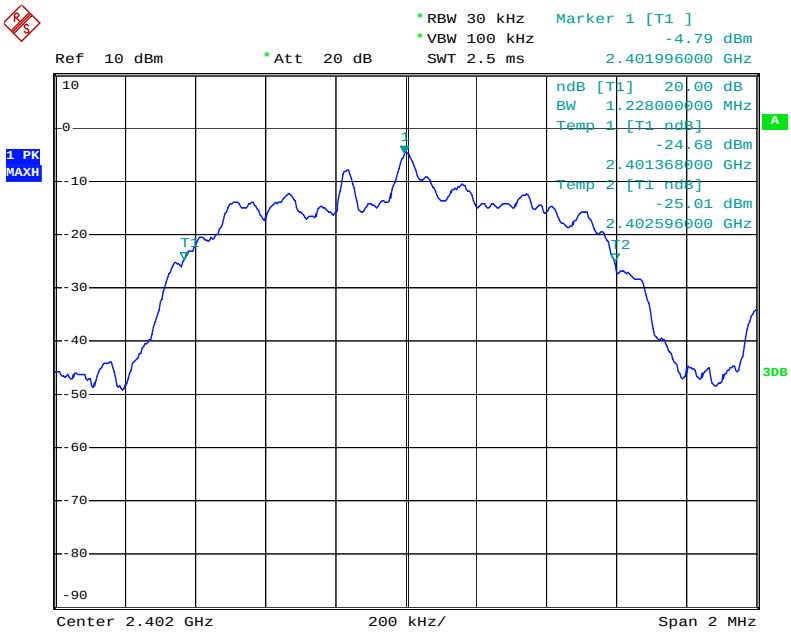


High channel

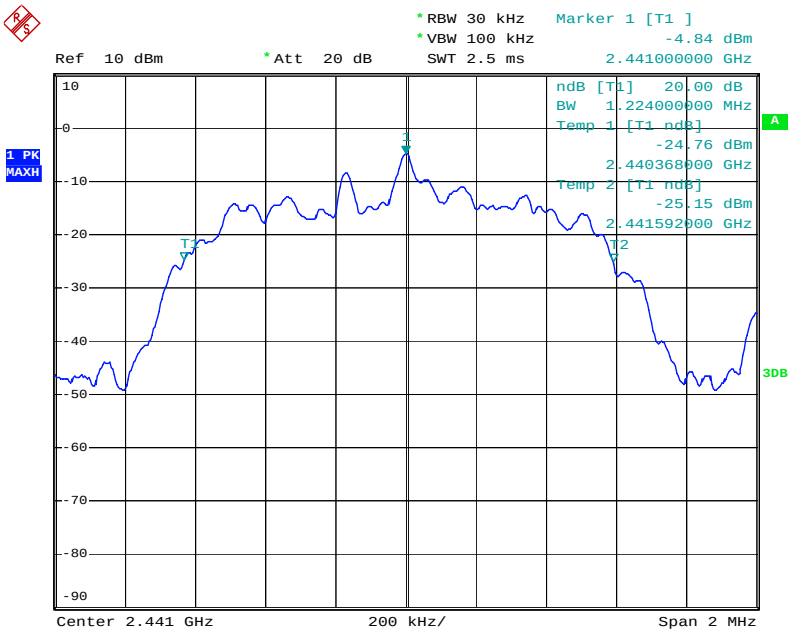


Π/4-DQPSK Mode

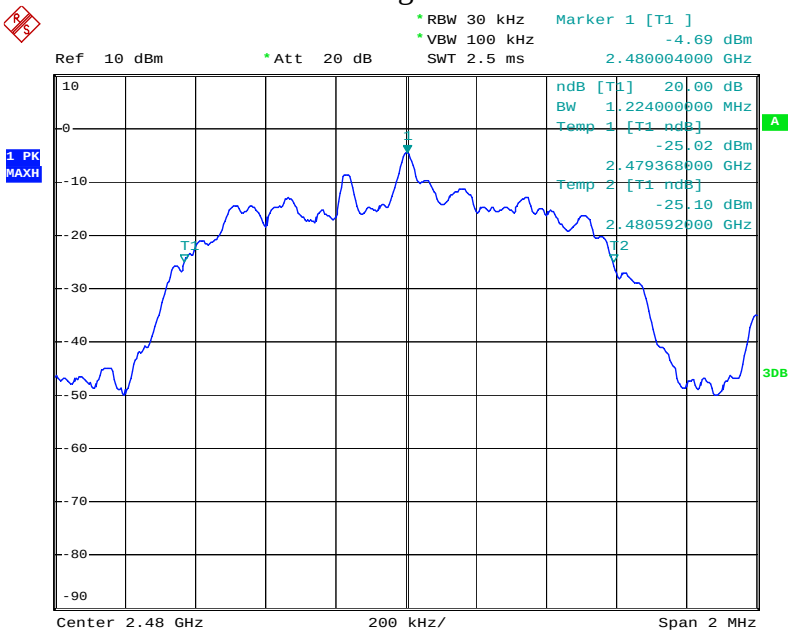
Low channel



Middle channel

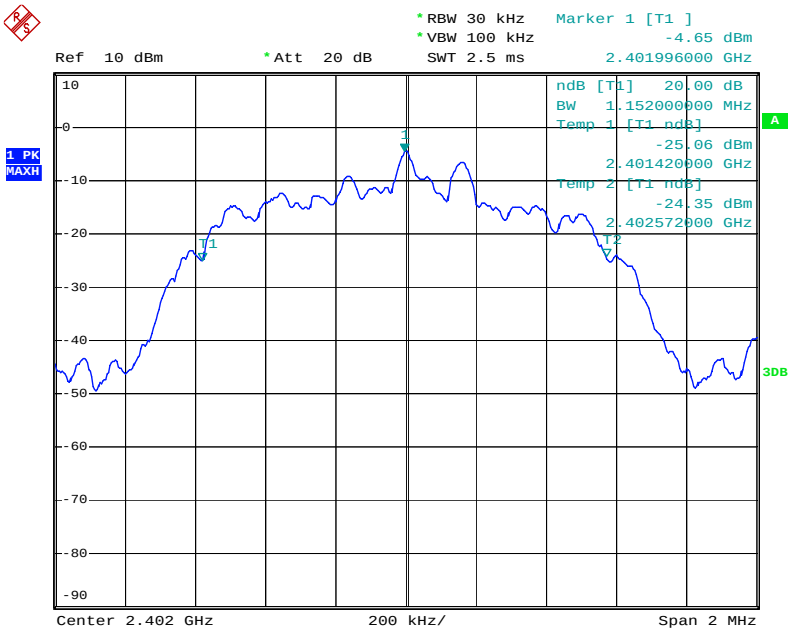


High channel

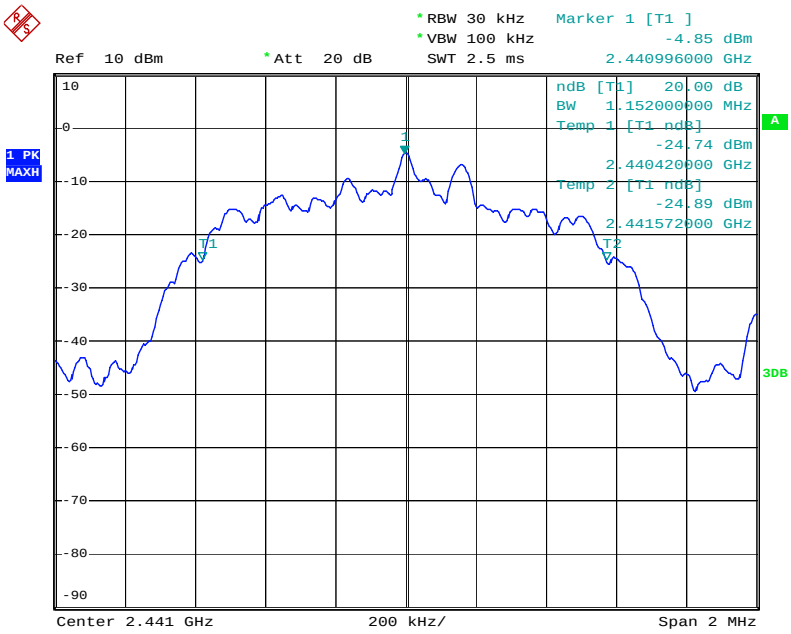


8DPSK Mode

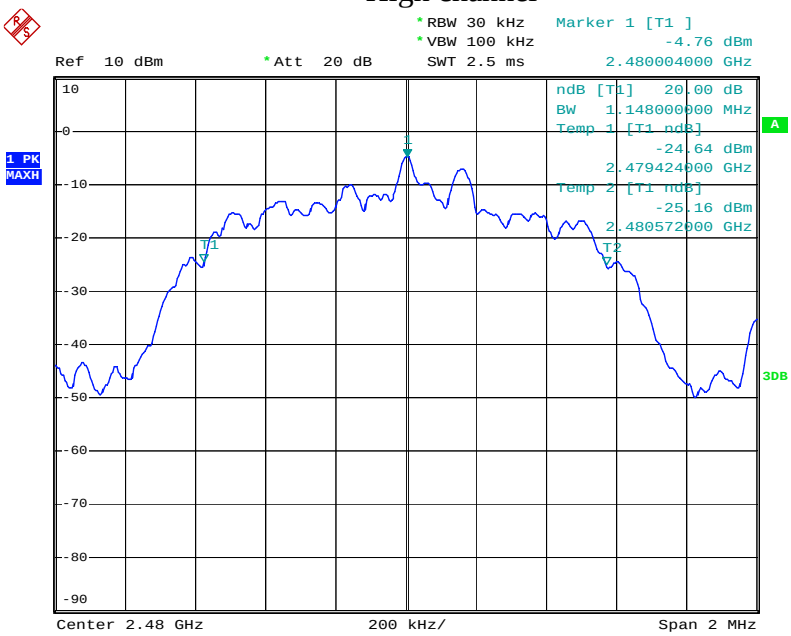
Low channel



Middle channel

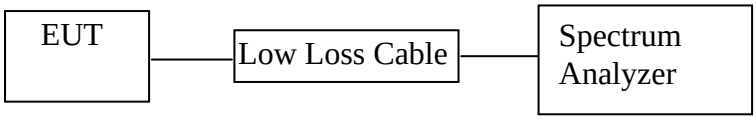


High channel



6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

6.2.The Requirement For Section 15.247(a)(1)

Section 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

6.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4.Operating Condition of EUT

6.4.1.Setup the EUT and simulator as shown as Section 6.1.

6.4.2.Turn on the power of all equipment.

6.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

6.5.Test Procedure

6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2.Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz. Adjust Span to 3 MHz.

6.5.3.Set the adjacent channel of the EUT maxhold another trace.

6.5.4.Measurement the channel separation

6.6.Test Result

GFSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.000	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.000	25KHz or20dB bandwidth	PASS
	2441			
High	2479	1.000	25KHz or 20dB bandwidth	PASS
	2480			

Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.010	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

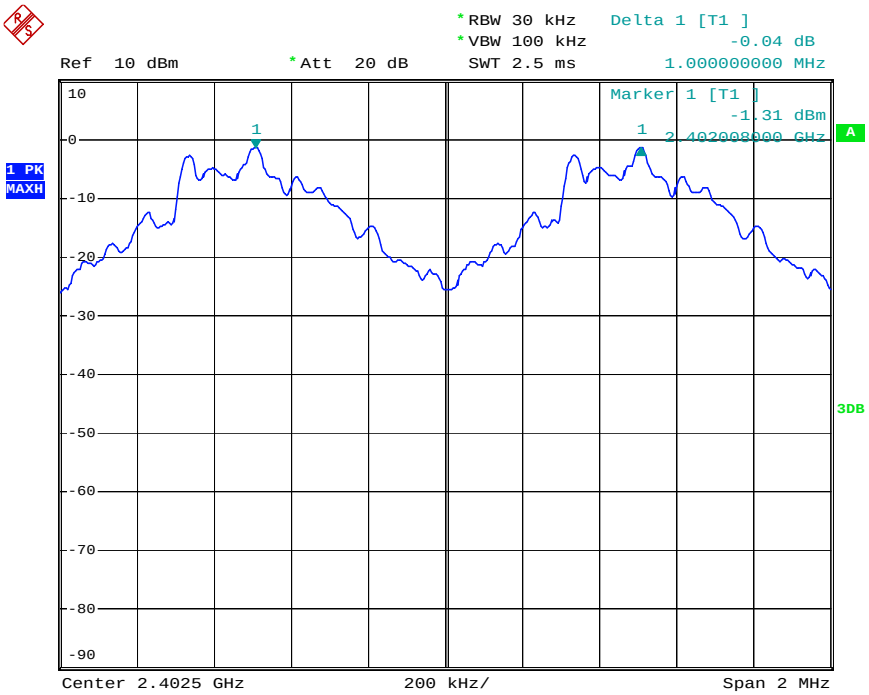
8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.000	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

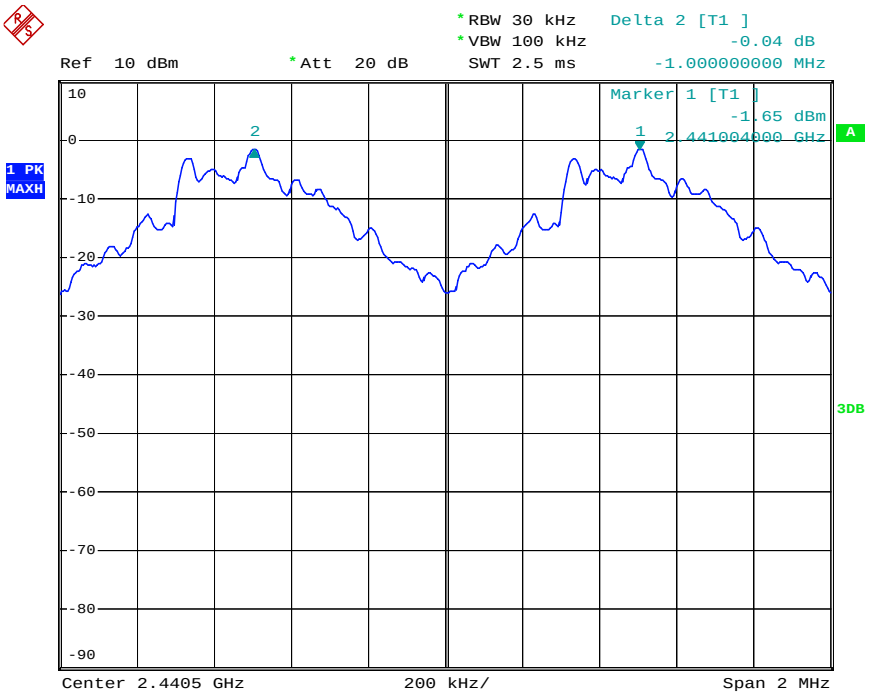
The spectrum analyzer plots are attached as below.

GFSK Mode

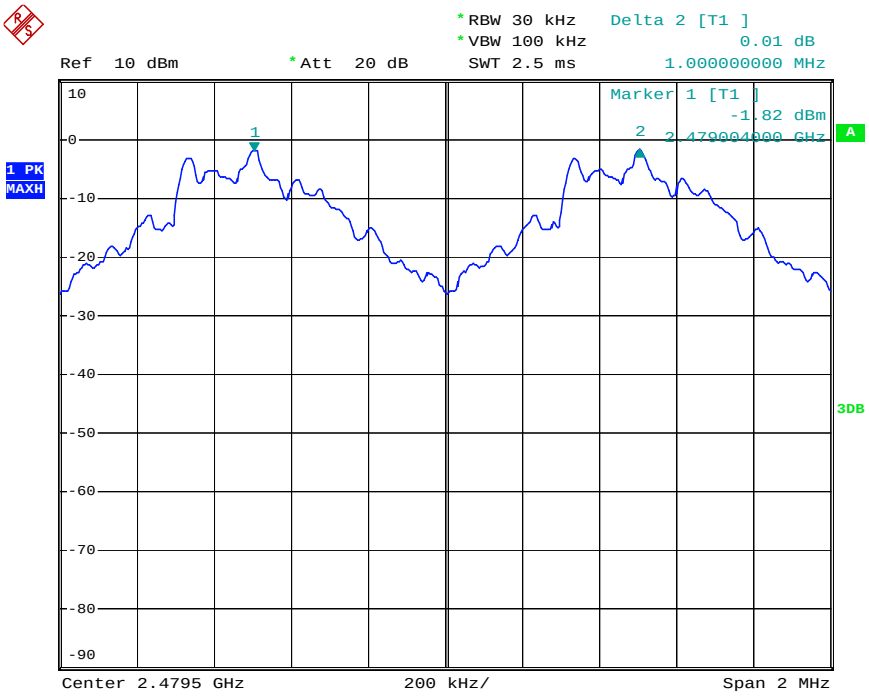
Low channel



Middle channel

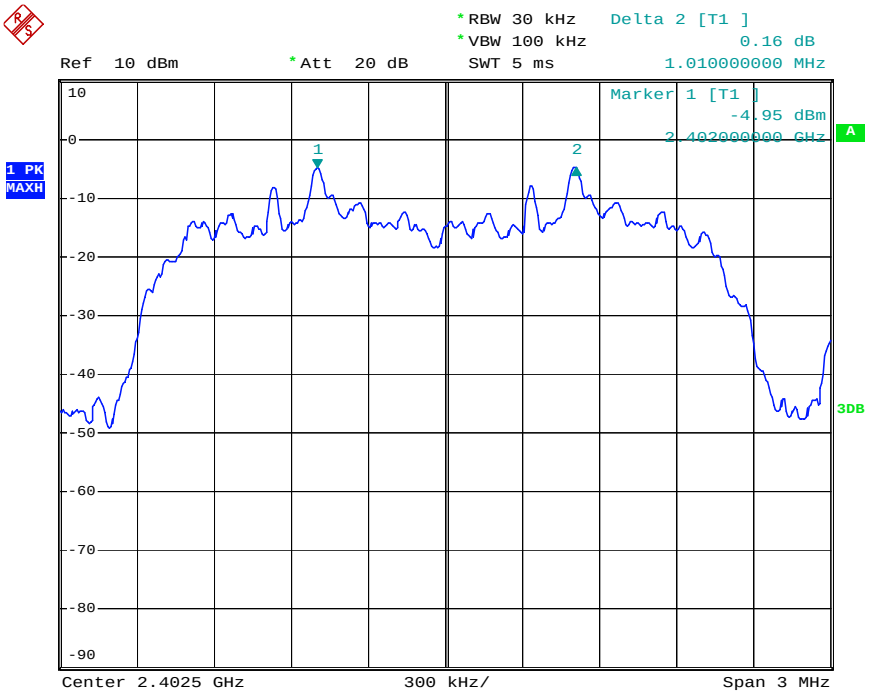


High channel

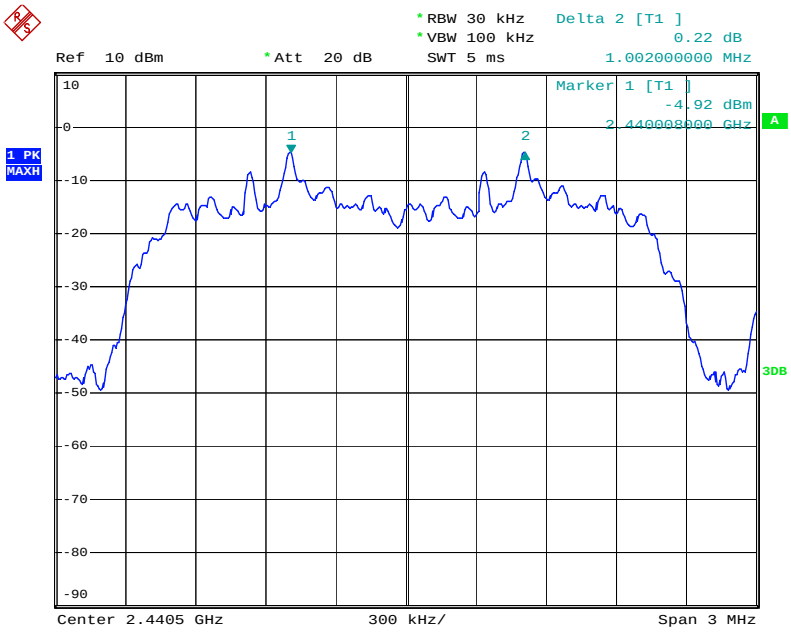


Π/4-DQPSK Mode

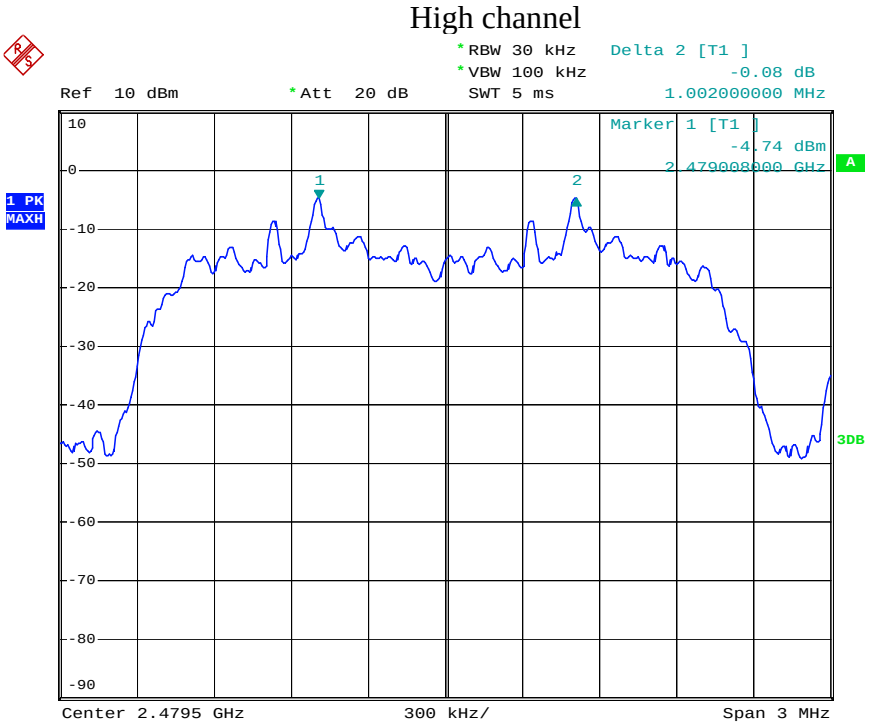
Low channel



Middle channel

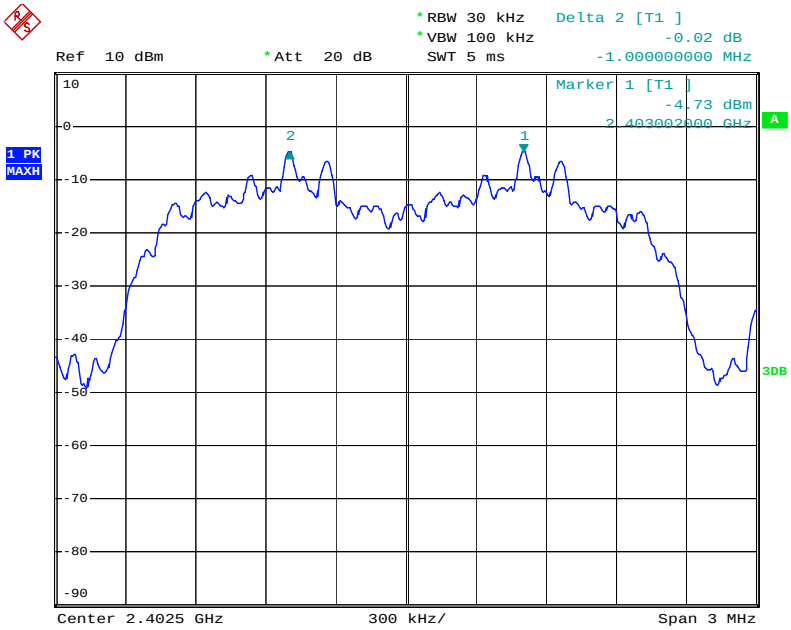


High channel

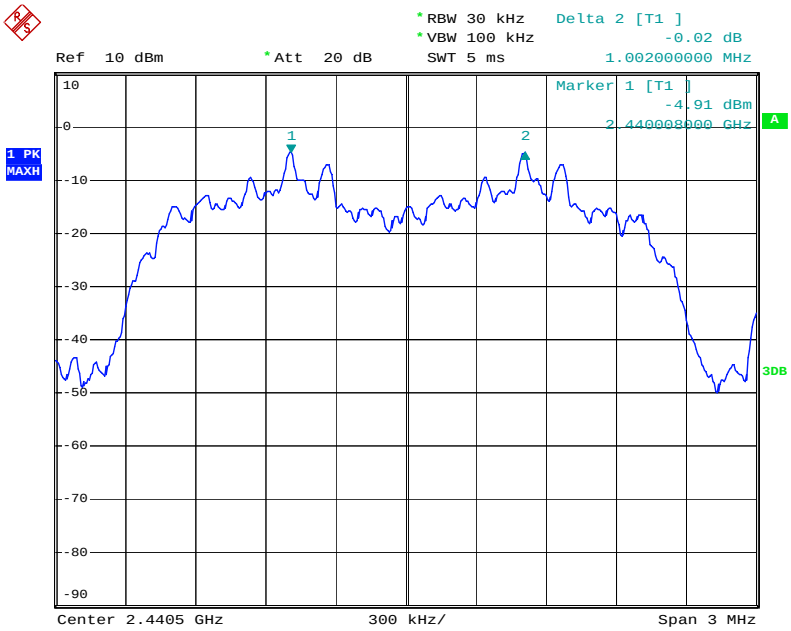


8DPSK Mode

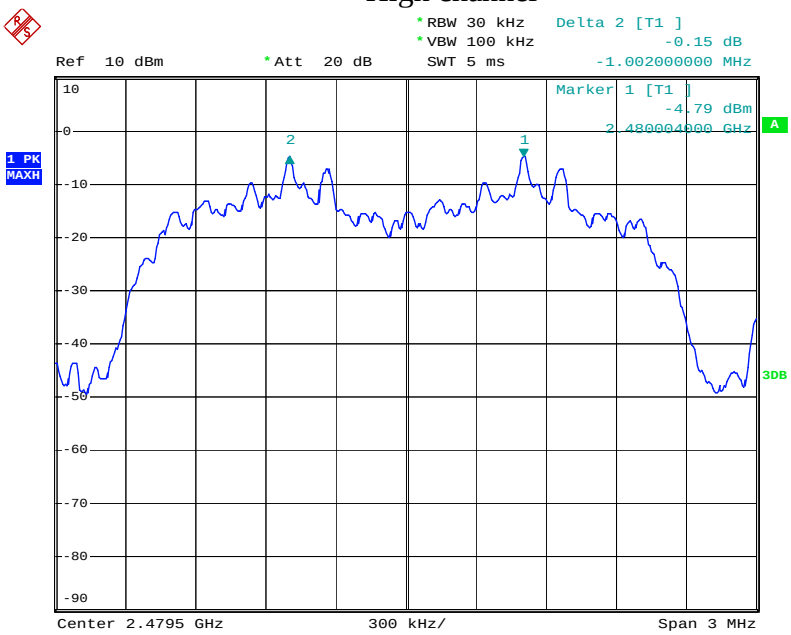
Low channel



Middle channel

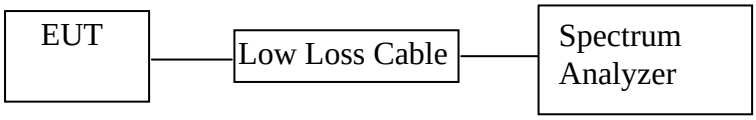


High channel



7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

7.2.The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

7.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 7.1.

7.4.2.Turn on the power of all equipment.

7.4.3.Let the EUT work in TX (Hopping on) modes measure it.

7.5.Test Procedure

7.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2.Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.

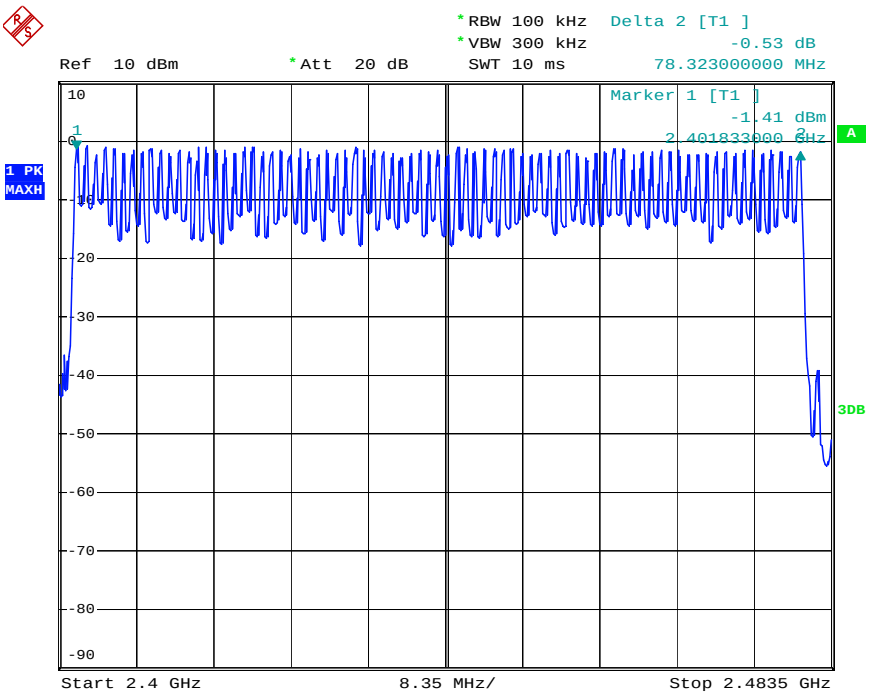
7.5.3.Max hold, view and count how many channel in the band.

7.6.Test Result

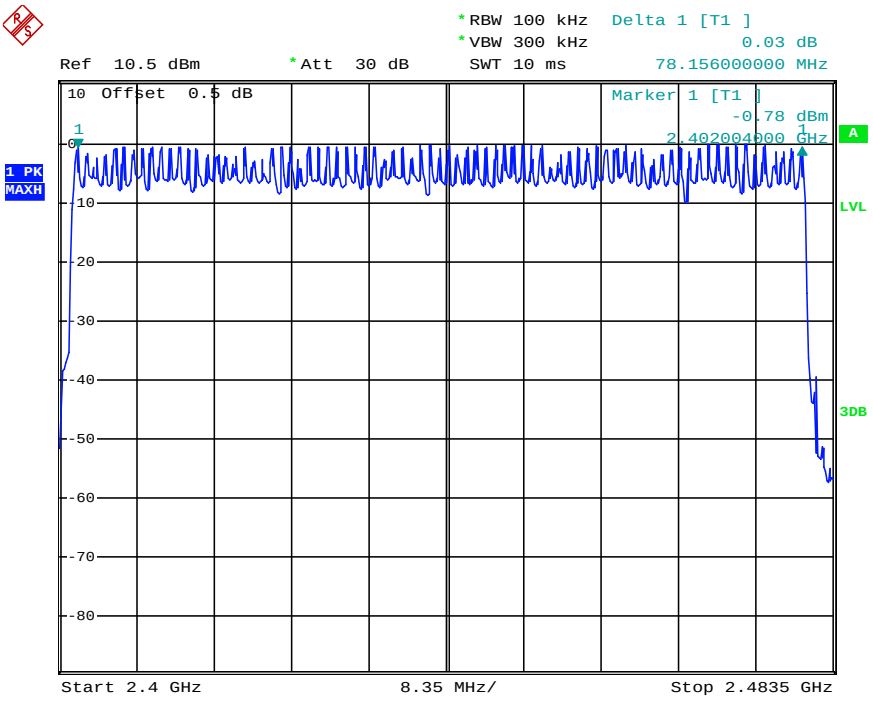
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	⩾15

The spectrum analyzer plots are attached as below.

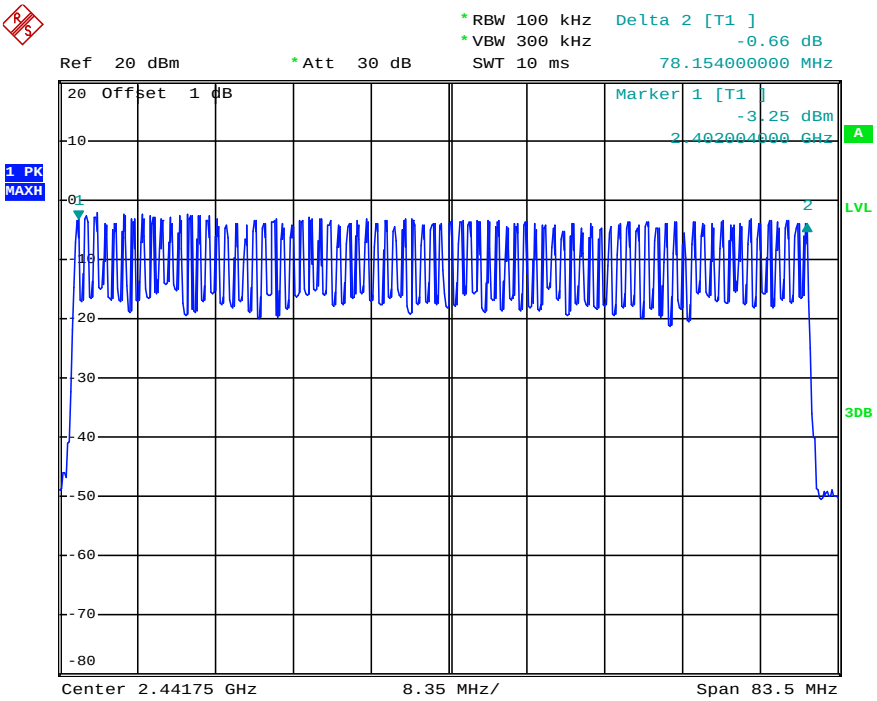
Number of hopping channels(GFSK)



Number of hopping channels(Π/4-DQPSK)

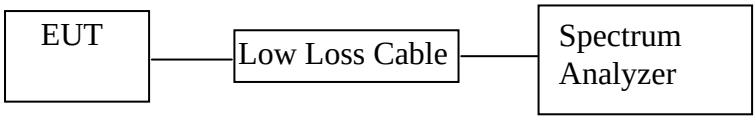


Number of hopping channels(8DPSK)



8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

8.2.The Requirement For Section 15.247(a)(1)(iii)

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

8.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4.Operating Condition of EUT

8.4.1.Setup the EUT and simulator as shown as Section 8.1.

8.4.2.Turn on the power of all equipment.

8.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

8.5.Test Procedure

8.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2.Set center frequency of spectrum analyzer = operating frequency.

8.5.3.Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz.

8.5.4.Repeat above procedures until all frequency measured were complete.

8.6.Test Result

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.530	169.60	400
	2441	0.530	169.60	400
	2480	0.530	169.60	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.790	286.40	400
	2441	1.800	288.00	400
	2480	1.790	286.40	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.070	327.47	400
	2441	3.070	327.47	400
	2480	3.070	327.47	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

Π/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.545	174.40	400
	2441	0.545	174.40	400
	2480	0.545	174.40	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.315	210.40	400
	2441	1.325	212.00	400
	2480	1.325	212.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.495	372.80	400
	2441	3.075	328.00	400
	2480	3.075	328.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

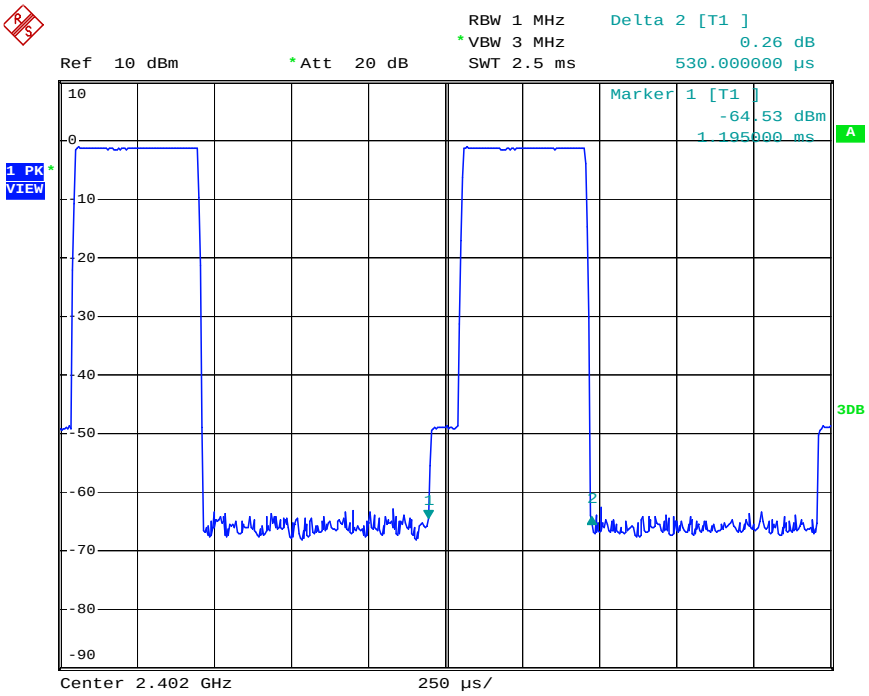
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.540	172.80	400
	2441	0.540	172.80	400
	2480	0.545	174.40	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.890	302.40	400
	2441	1.815	290.40	400
	2480	1.805	288.80	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.075	328.00	400
	2441	3.095	330.13	400
	2480	3.080	328.53	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

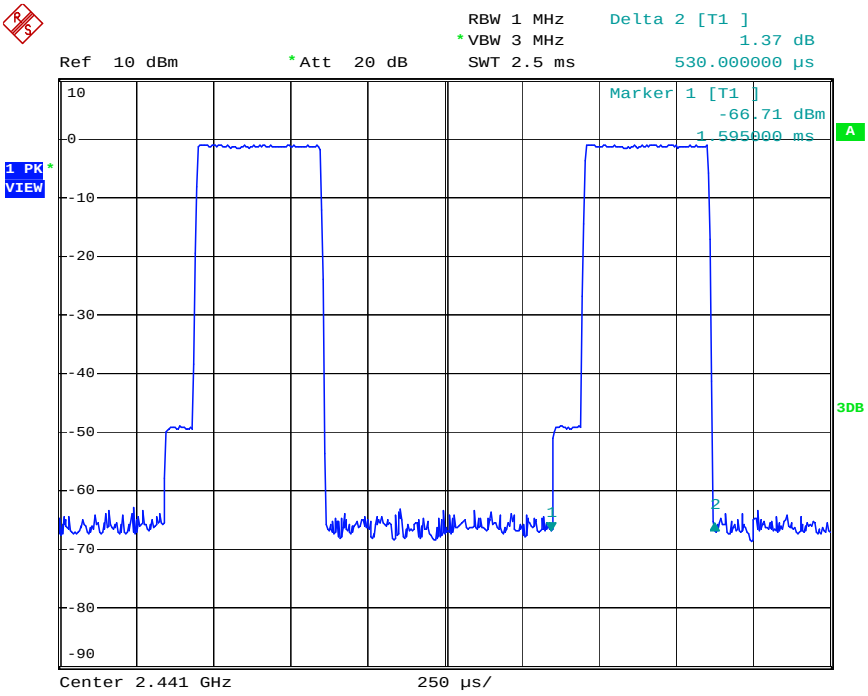
The spectrum analyzer plots are attached as below.

Mode 1: GFSK Link Mode

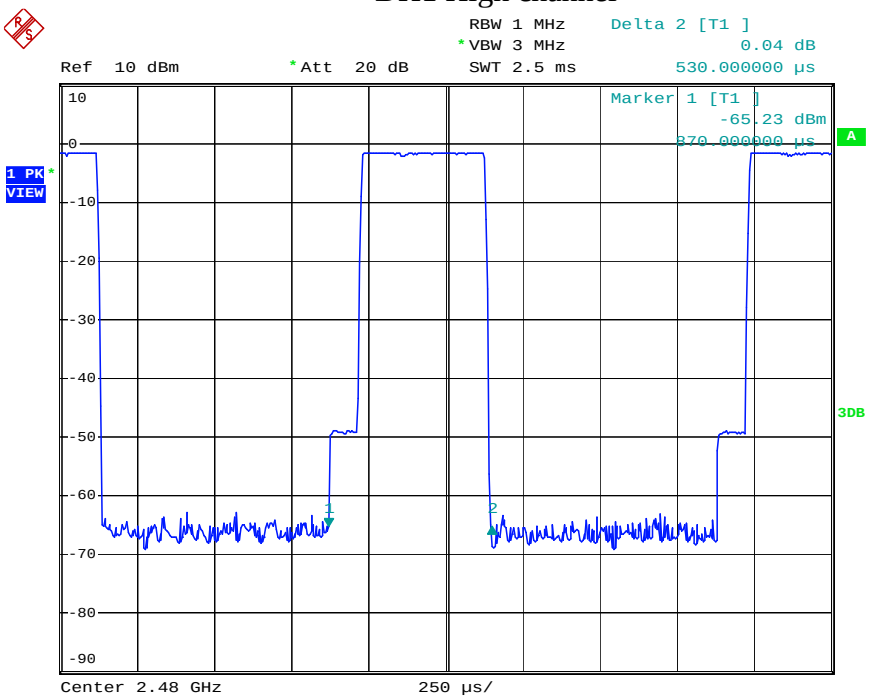
DH1 Low channel



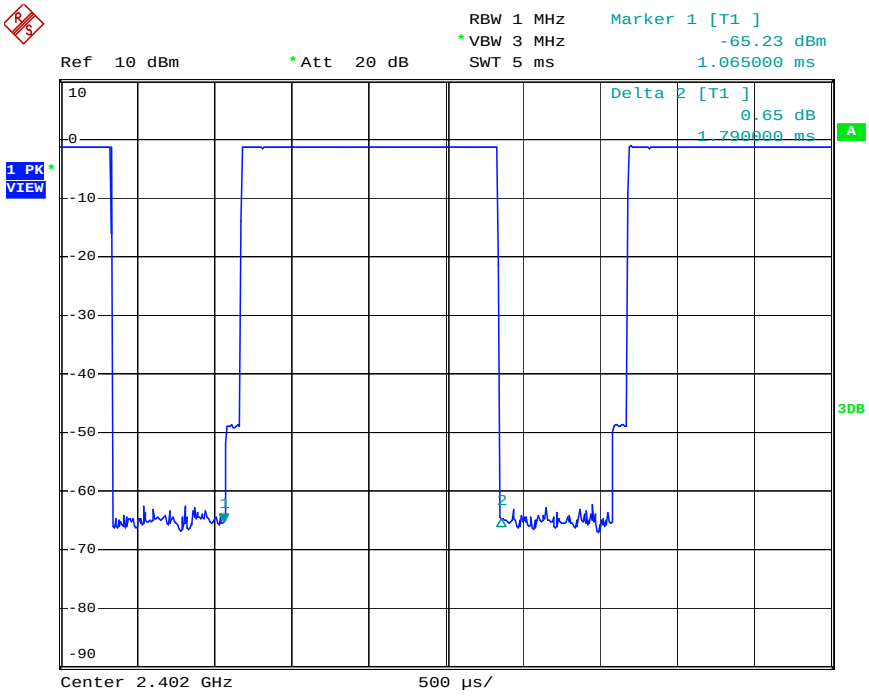
DH1 Middle channel



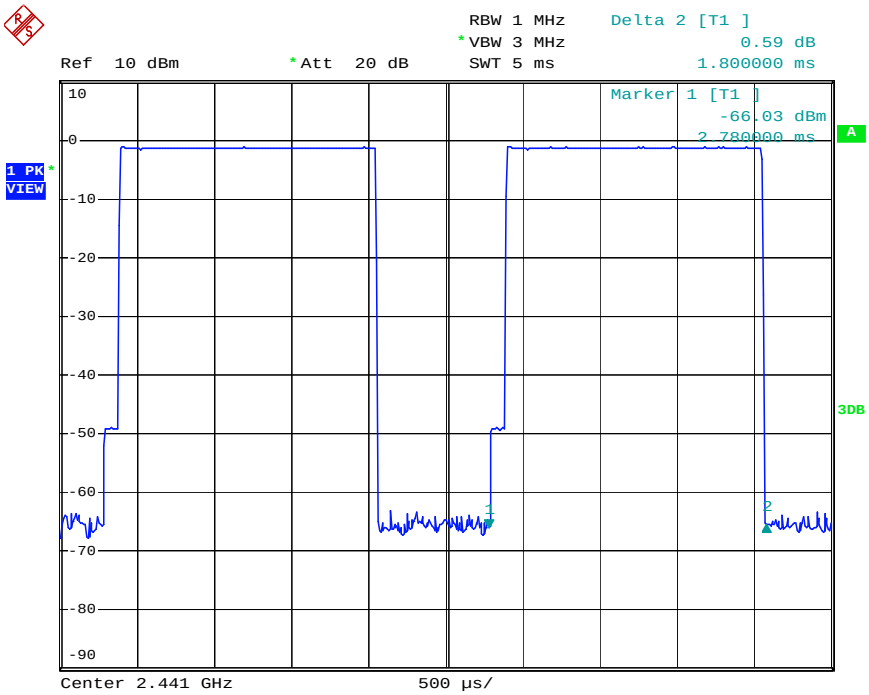
DH1 High channel



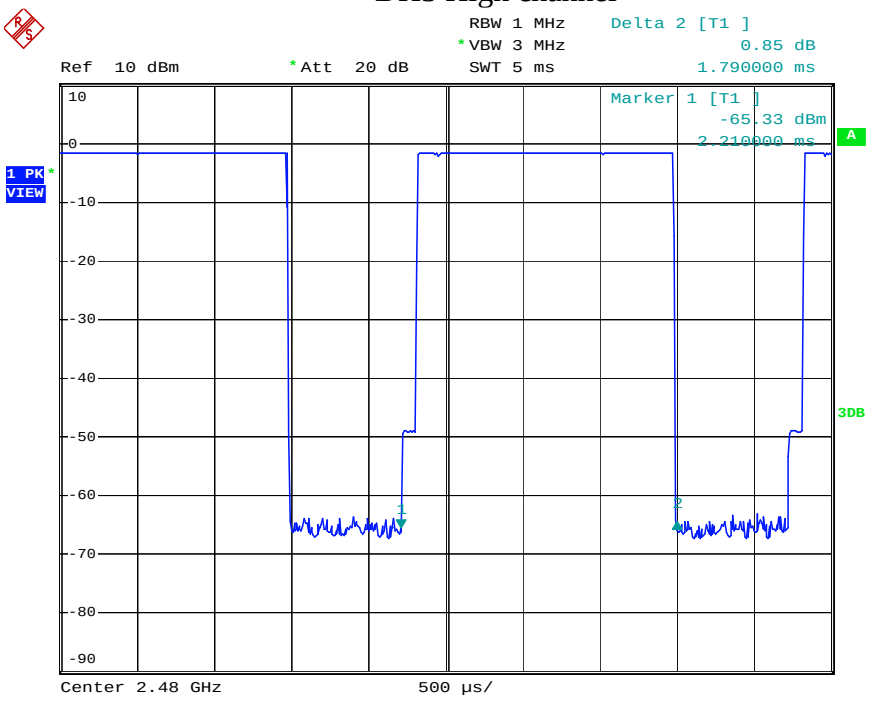
DH3 Low channel



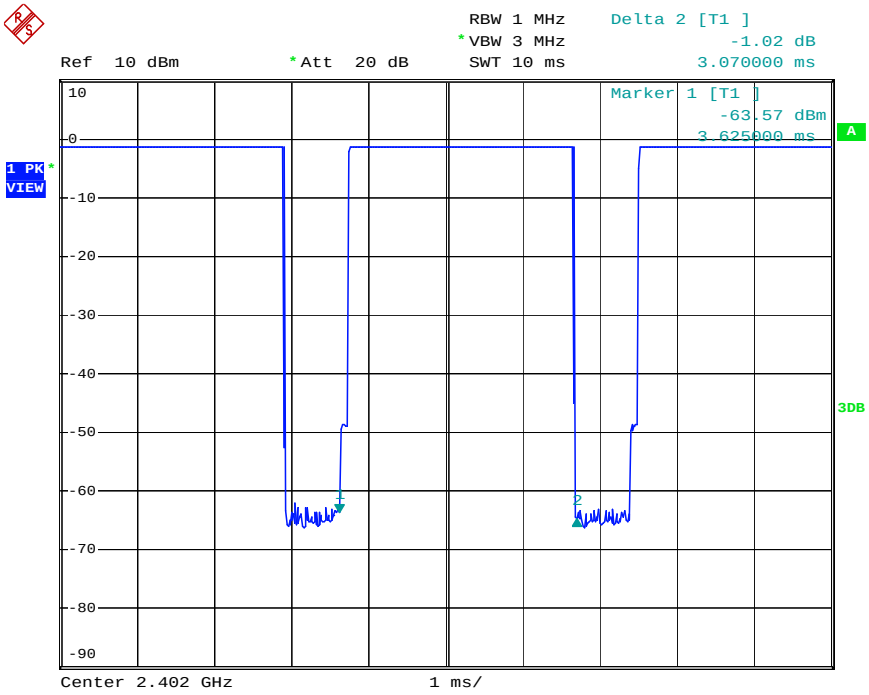
DH3 Middle channel



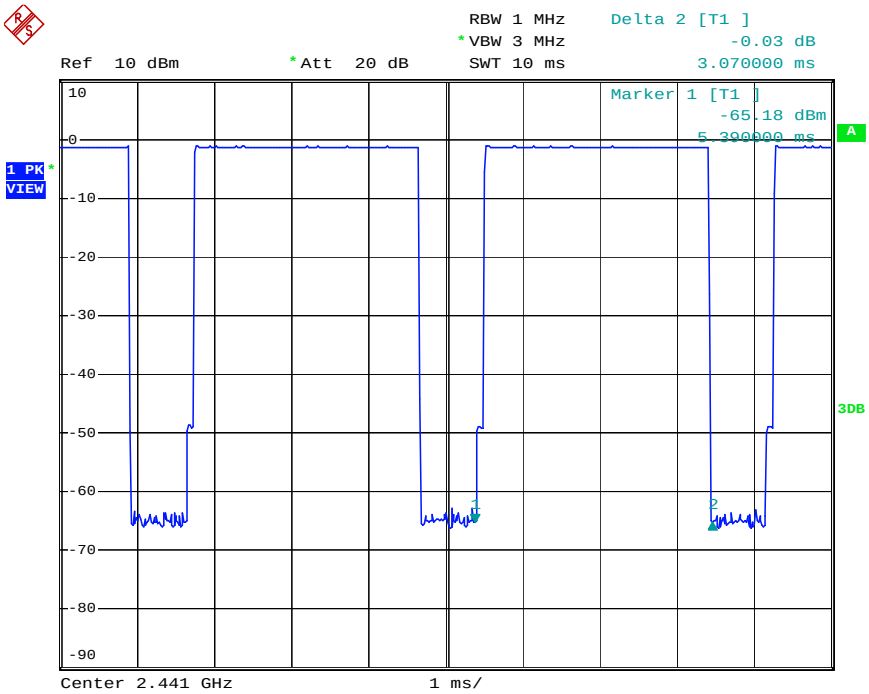
DH3 High channel



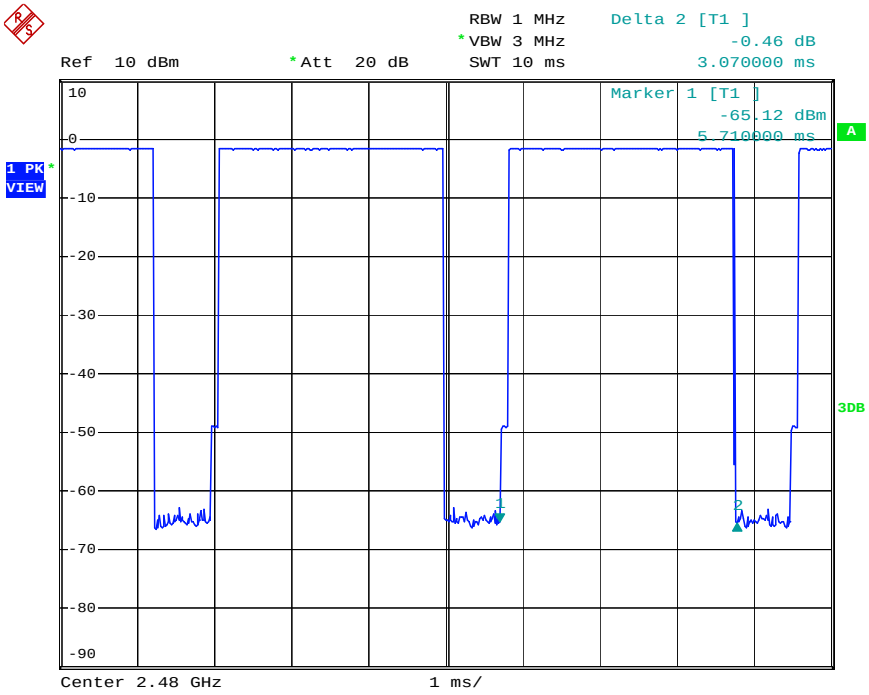
DH5 Low channel



DH5 Middle channel

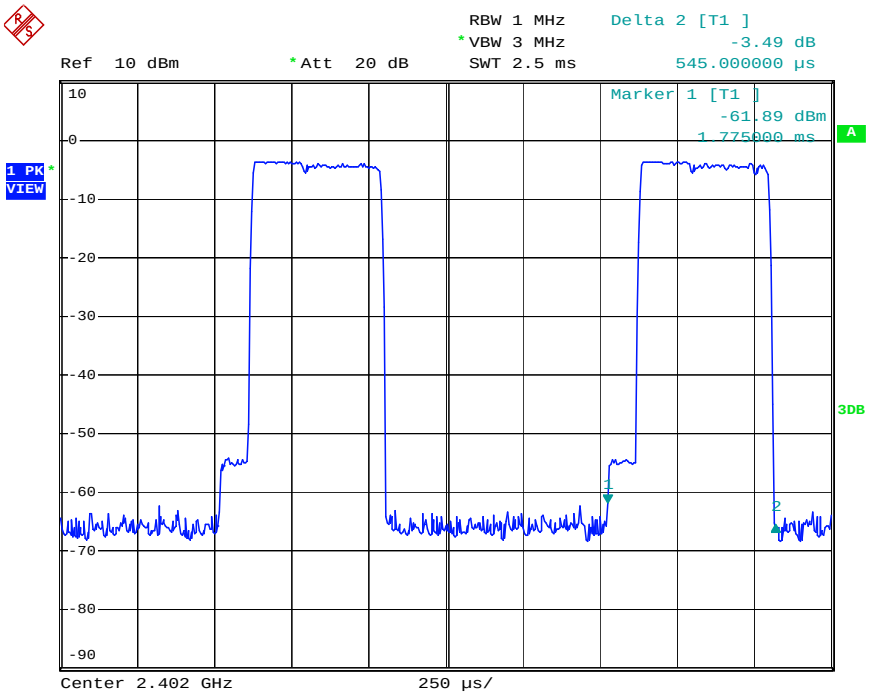


DH5 High channel

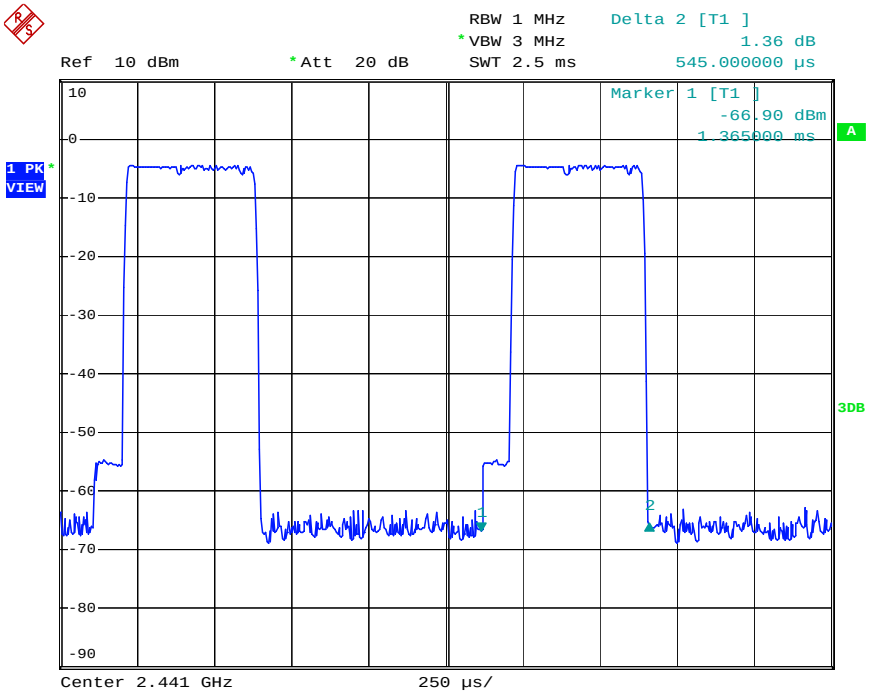


Mode 2: π /4 DQPSK Link Mode

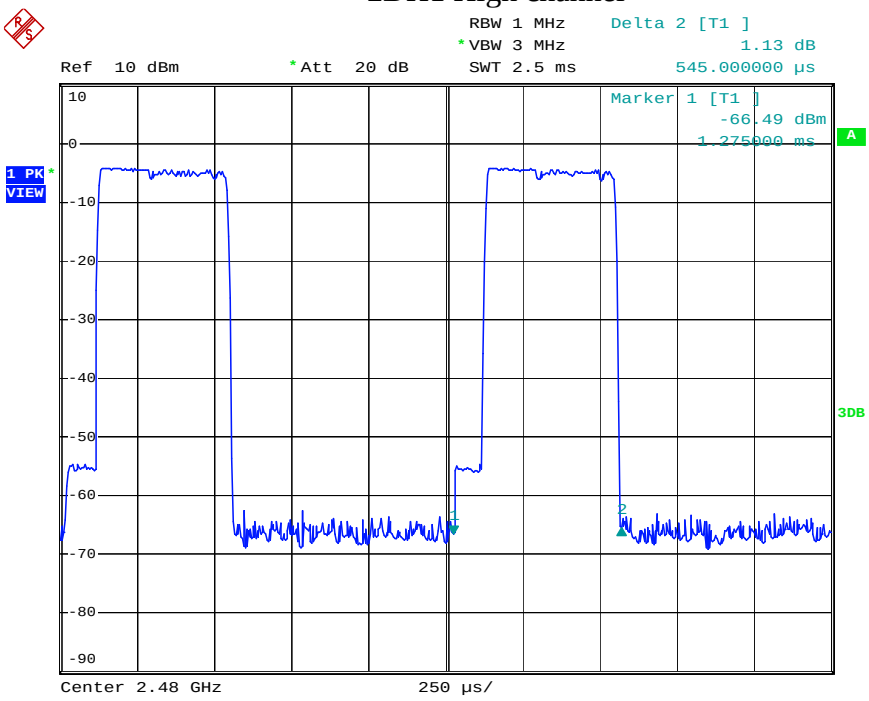
2DH1 Low channel



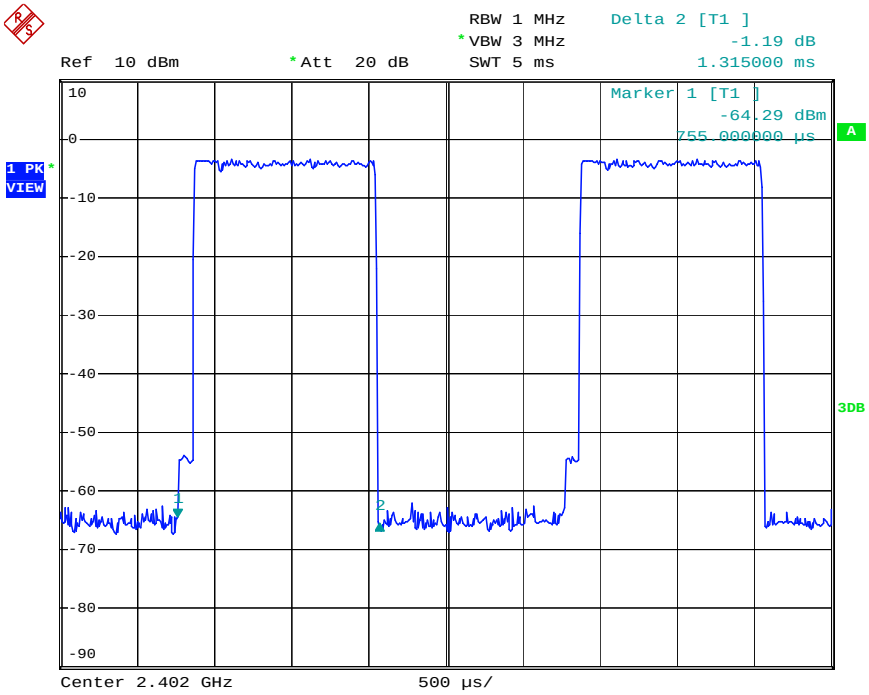
2DH1 Middle channel



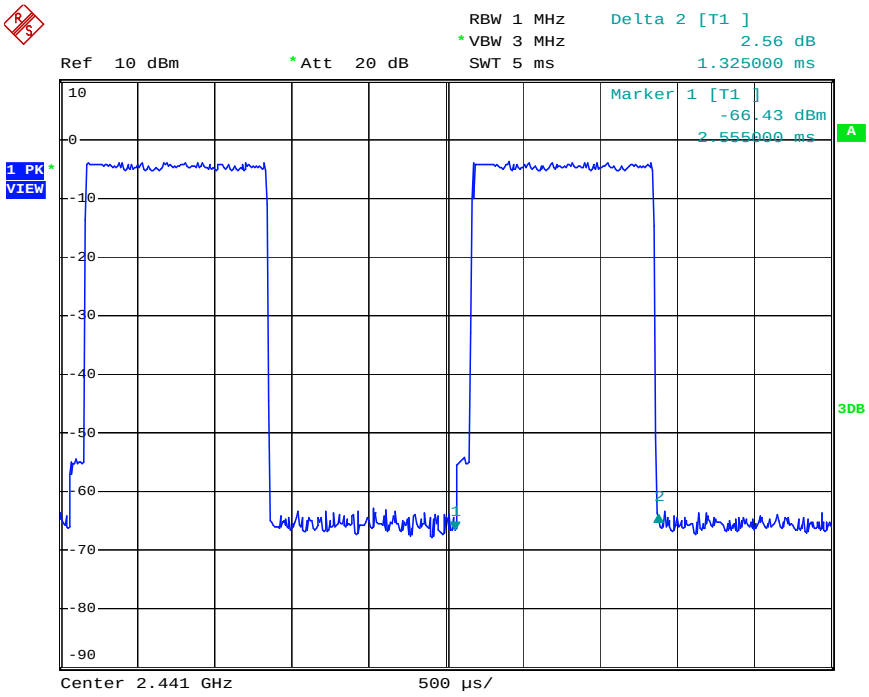
2DH1 High channel



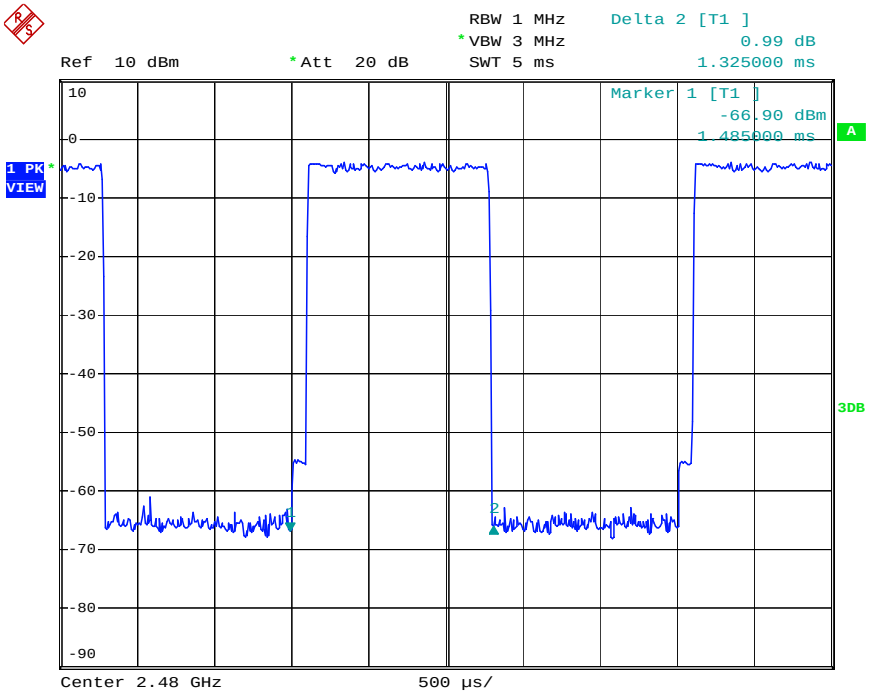
2DH3 Low channel



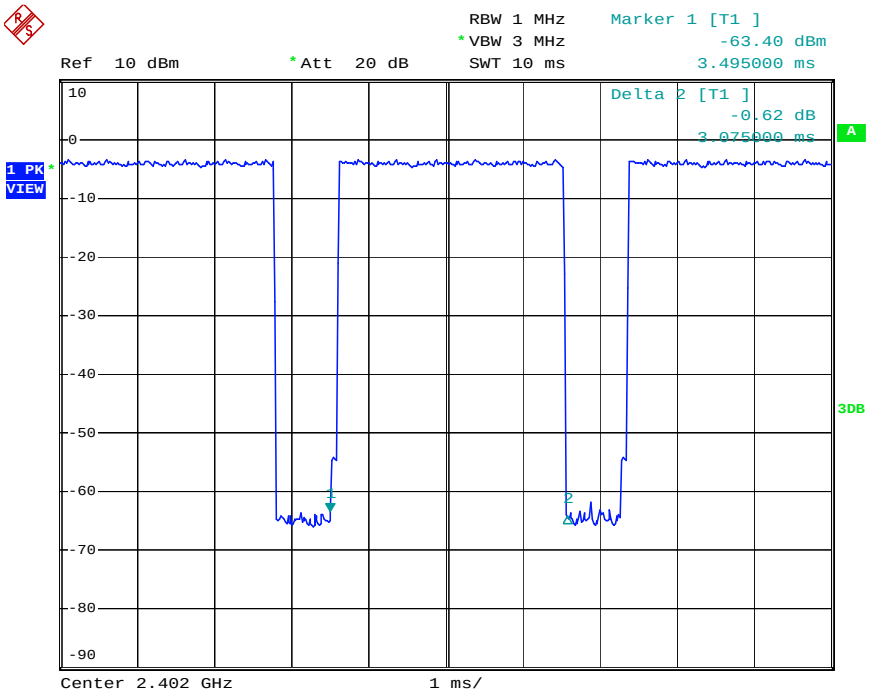
2DH3 Middle channel



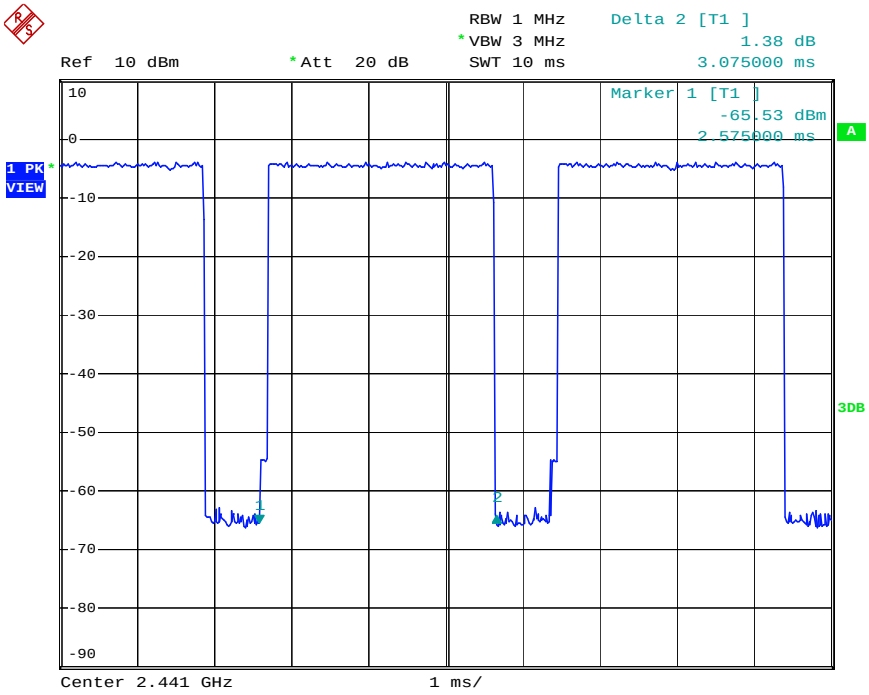
2DH3 High channel



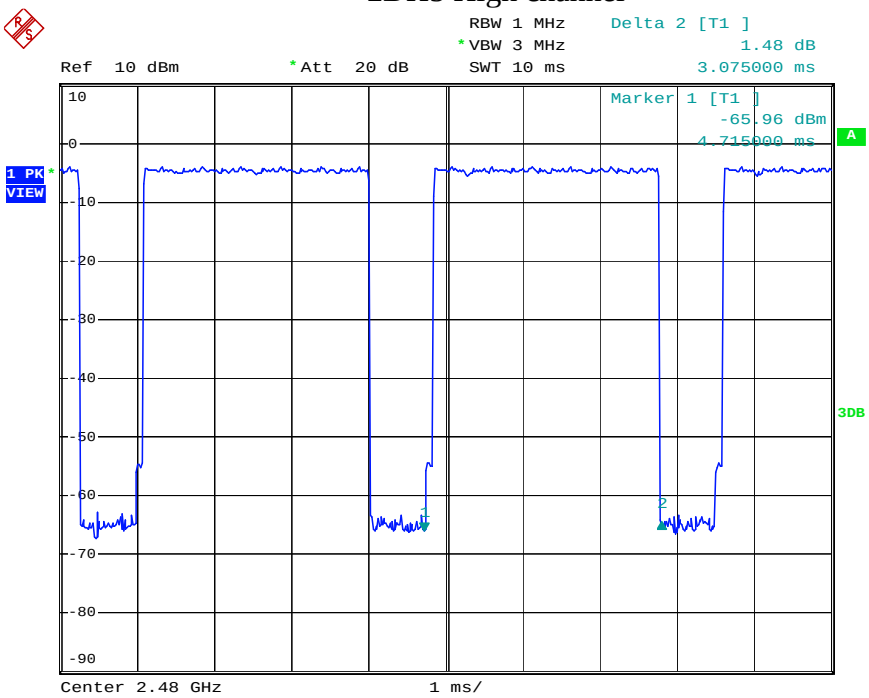
2DH5 Low channel



2DH5 Middle channel

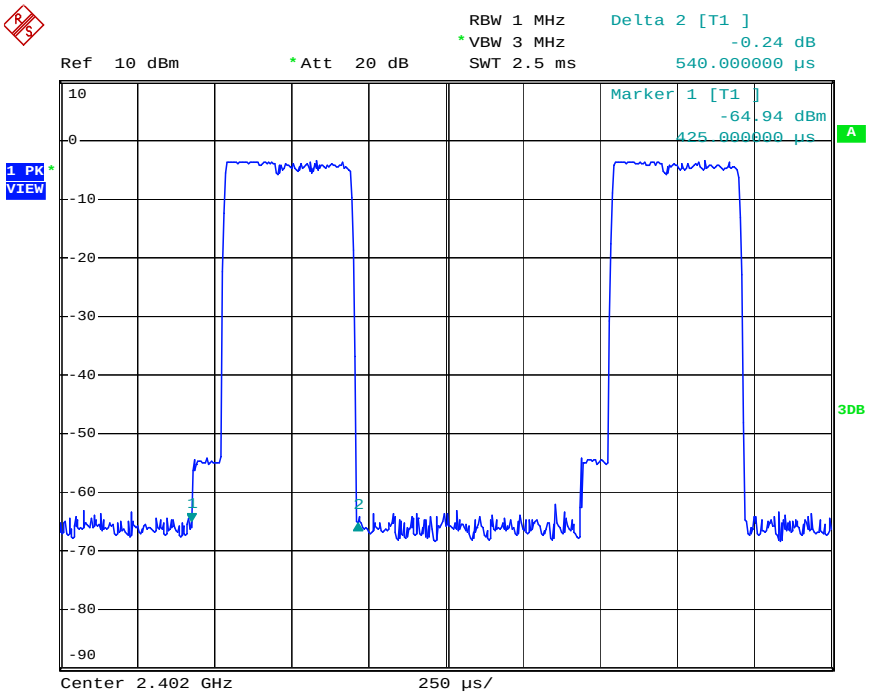


2DH5 High channel

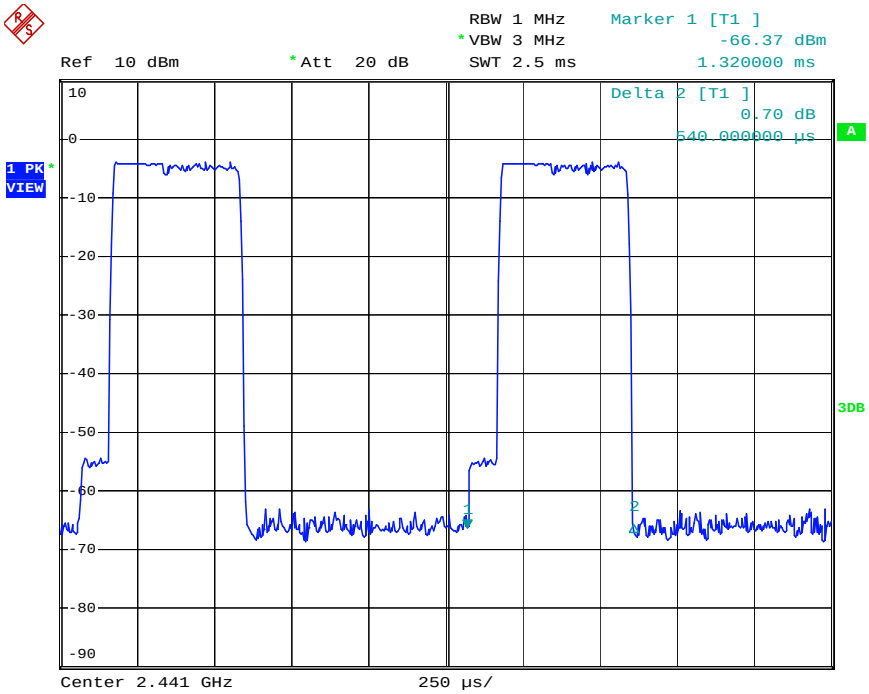


Mode 3: 8DPSK Link Mode

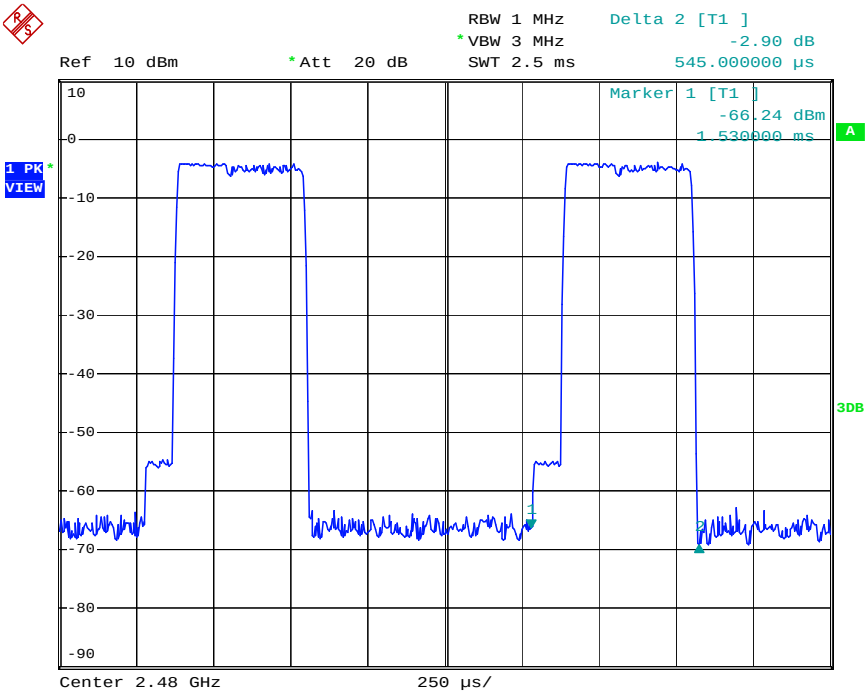
3DH1 Low channel



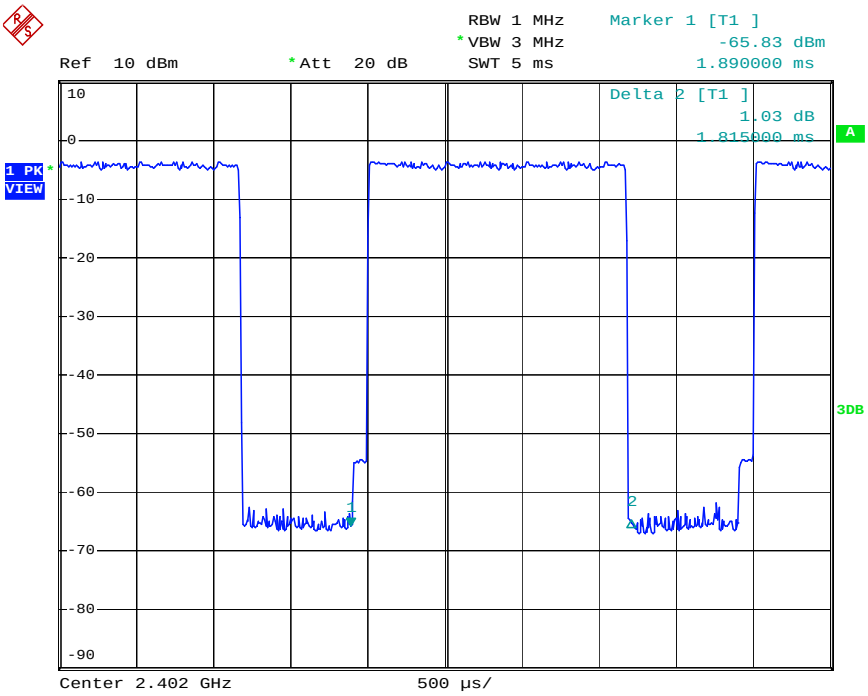
3DH1 Middle channel



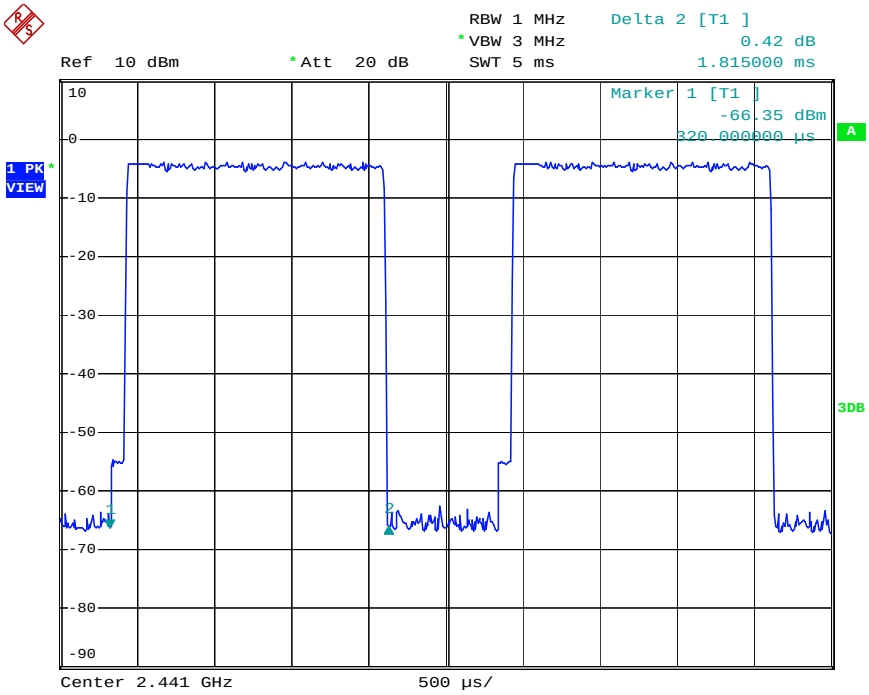
3DH1 High channel



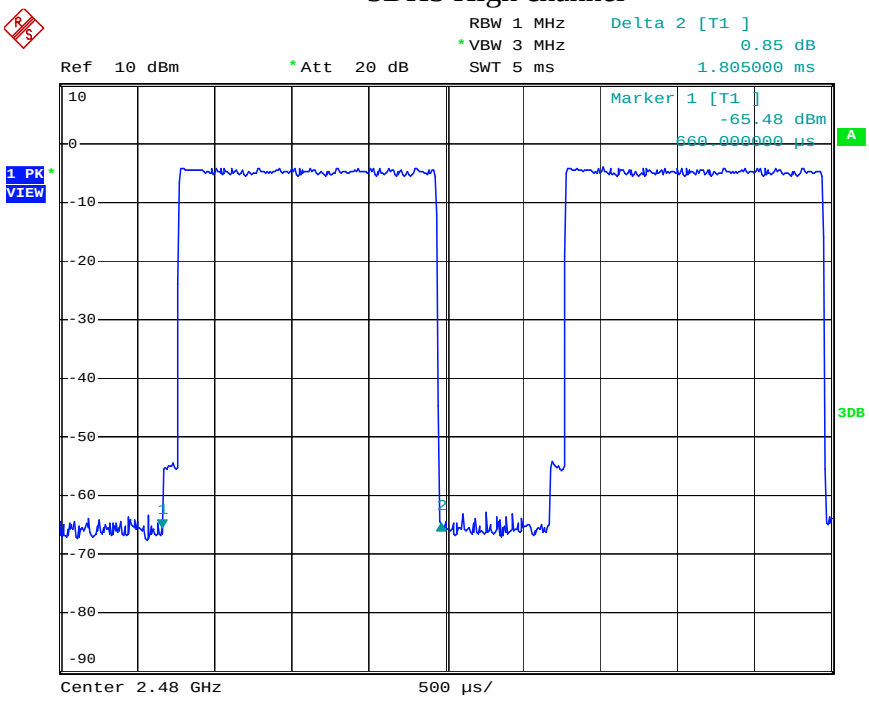
3DH3 Low channel



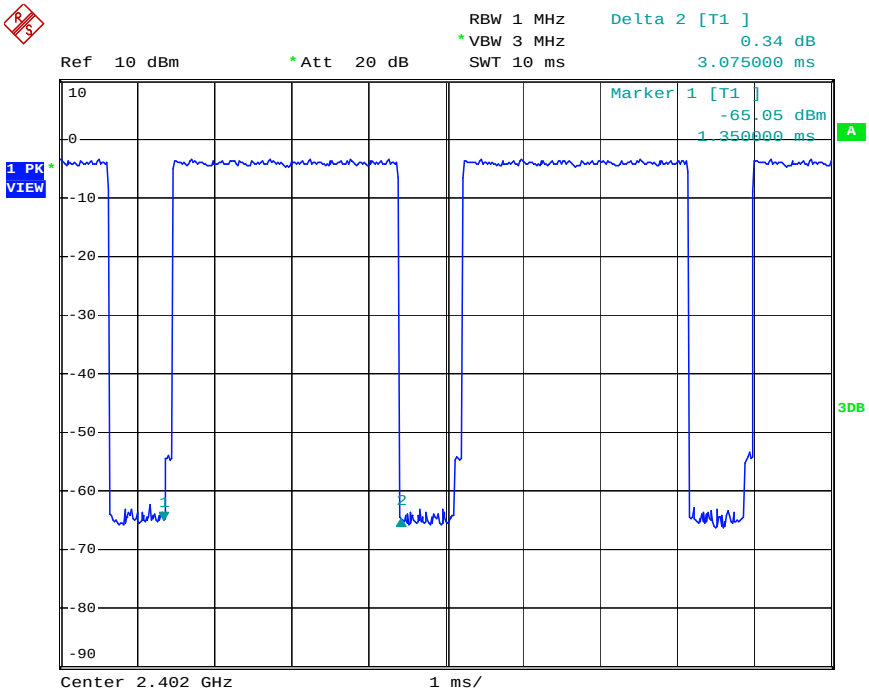
3DH3 Middle channel



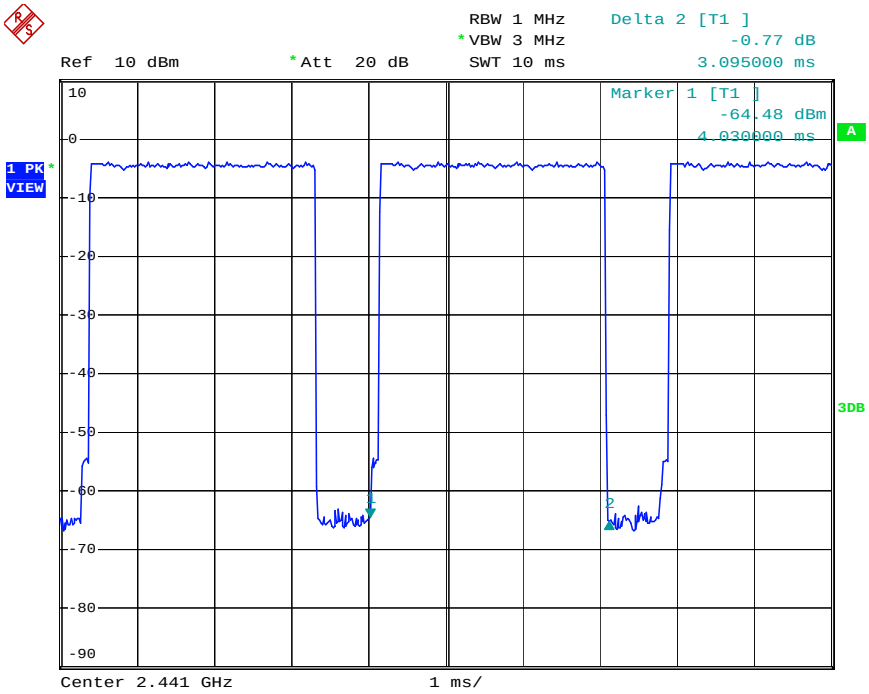
3DH3 High channel



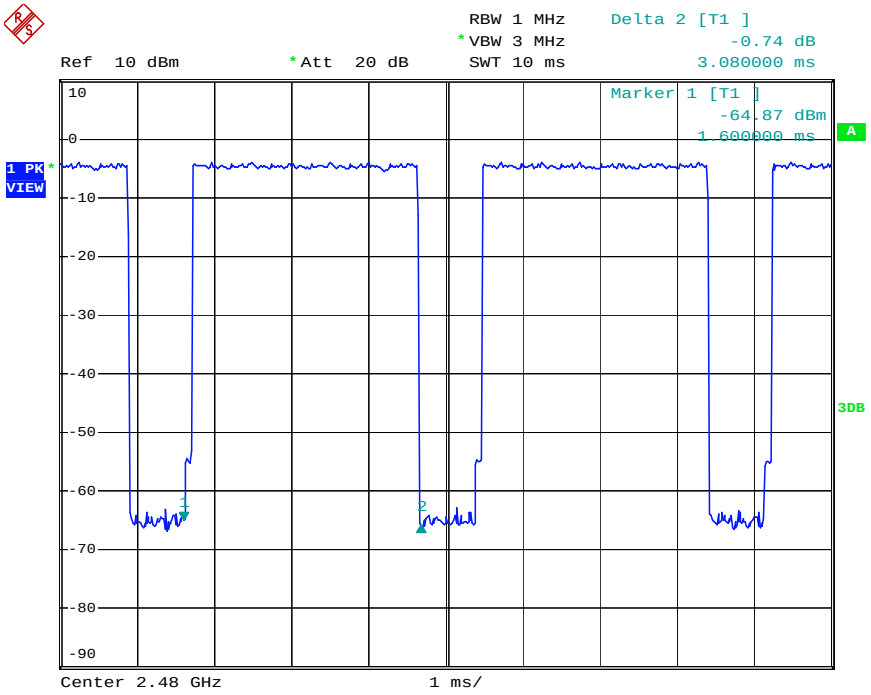
3DH5 Low channel



3DH5 Middle channel

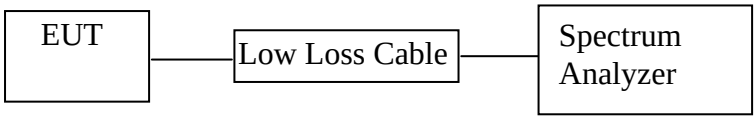


3DH5 High channel


RBW 1 MHz
*VBW 3 MHz
SWT 10 ms
Delta 2 [T1]
-0.74 dB
3.080000 ms
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-64.87 dBm
1.600000 ms
1 PK
VIEW
A
3DB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Center 2.48 GHz
1 ms/

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

9.2.The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.4.Operating Condition of EUT

9.4.1.Setup the EUT and simulator as shown as Section 9.1.

9.4.2.Turn on the power of all equipment.

9.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

9.5.Test Procedure

9.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

9.5.2.Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for GFSK mode

9.5.3.Set RBW of spectrum analyzer to 3MHz and VBW to 3MHz for other mode

9.5.4.Measurement the maximum peak output power.

9.6.Test Result

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Limits dBm / W
Low	2402	-0.84	30/1.0
Middle	2441	-1.22	30/1.0
High	2480	-1.27	30/1.0

Π/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Limits dBm / W
Low	2402	-3.25	21 / 0.125
Middle	2441	-3.77	21 / 0.125
High	2480	-3.86	21 / 0.125

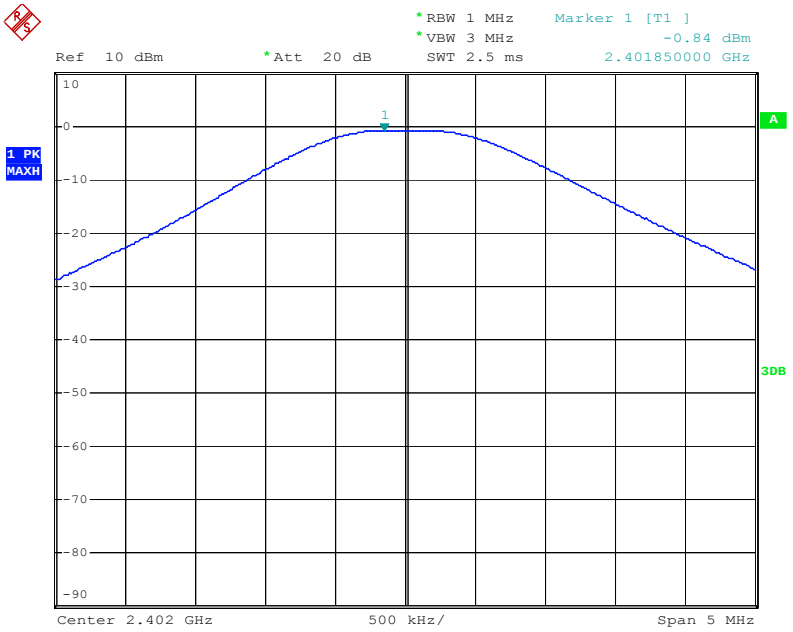
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Limits dBm / W
Low	2402	-3.15	21 / 0.125
Middle	2441	-3.47	21 / 0.125
High	2480	-3.81	21 / 0.125

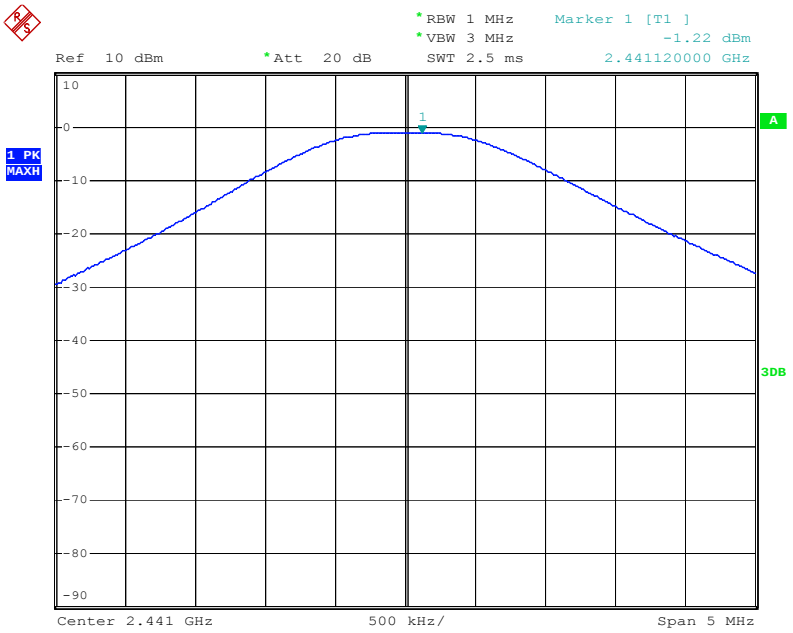
The spectrum analyzer plots are attached as below.

GFSK Mode

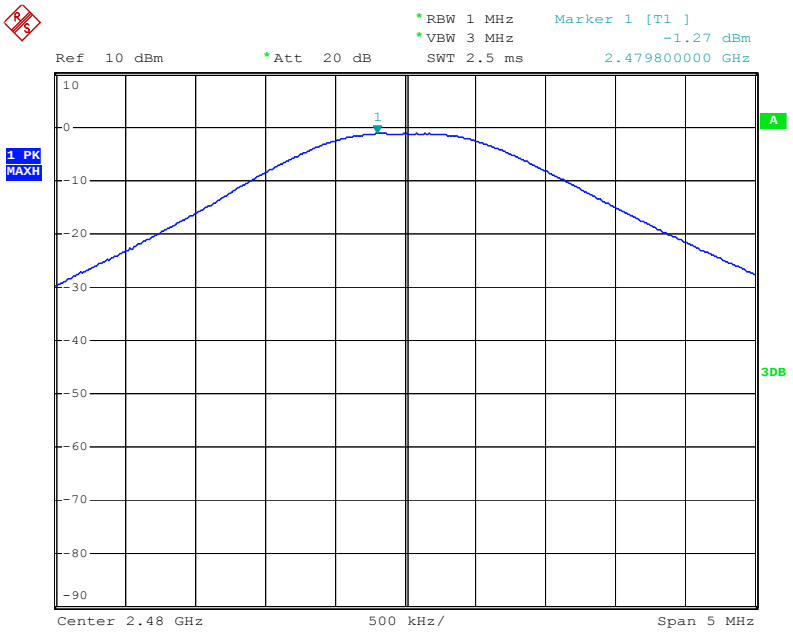
Low channel



Middle channel

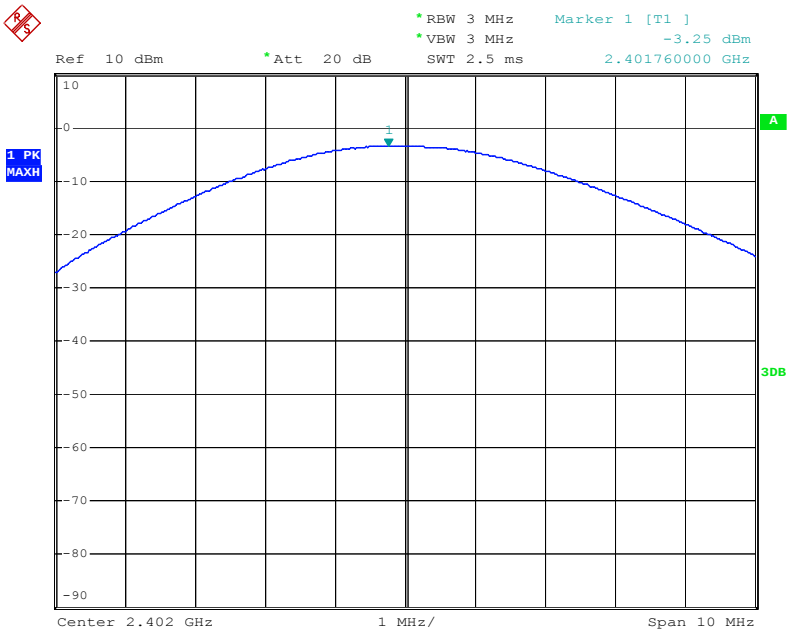


High channel

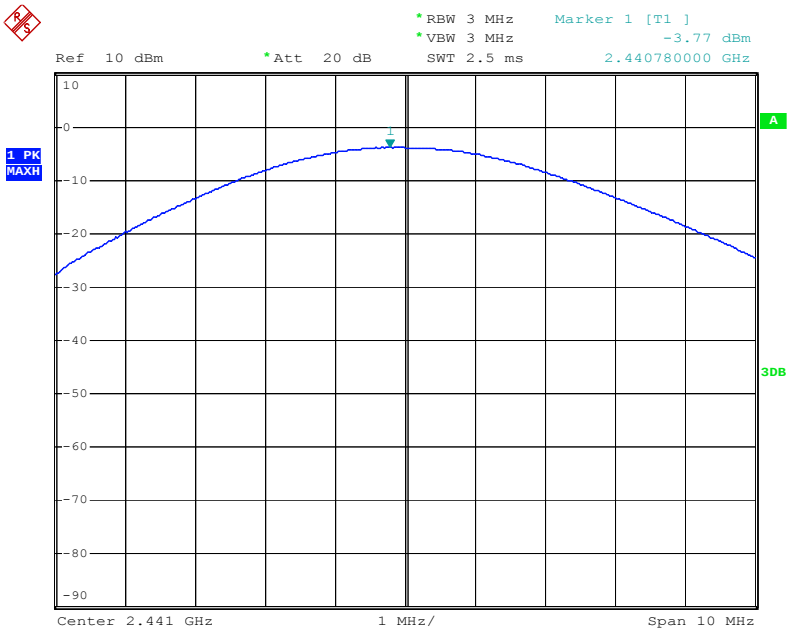


Π/4-DQPSK Mode

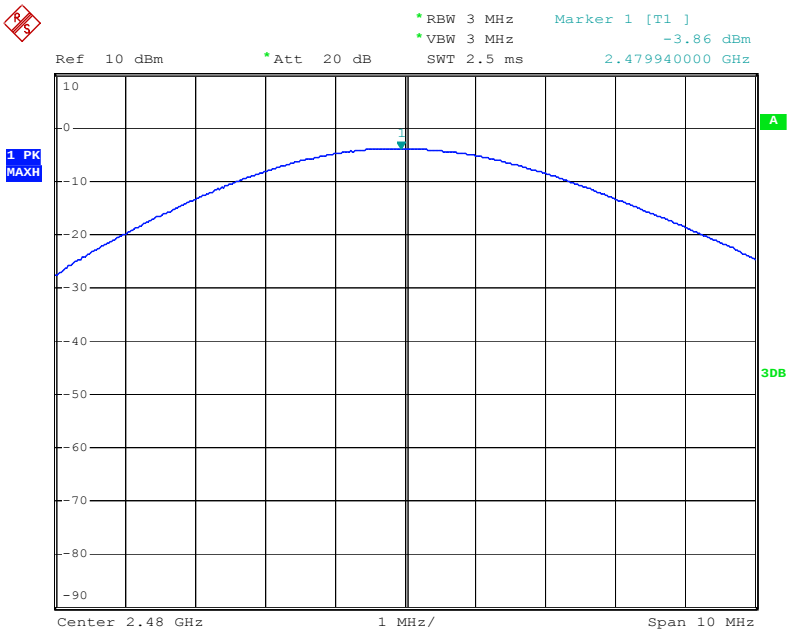
Low channel



Middle channel

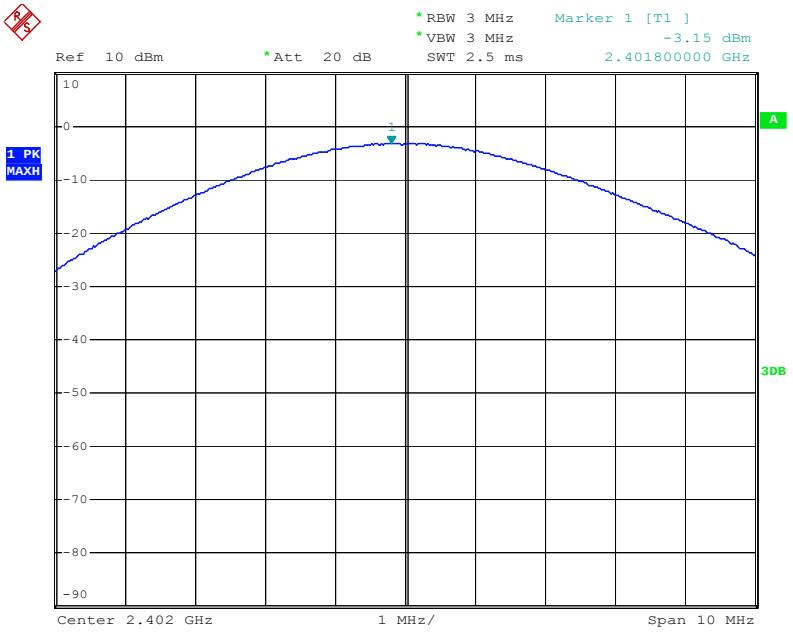


High channel

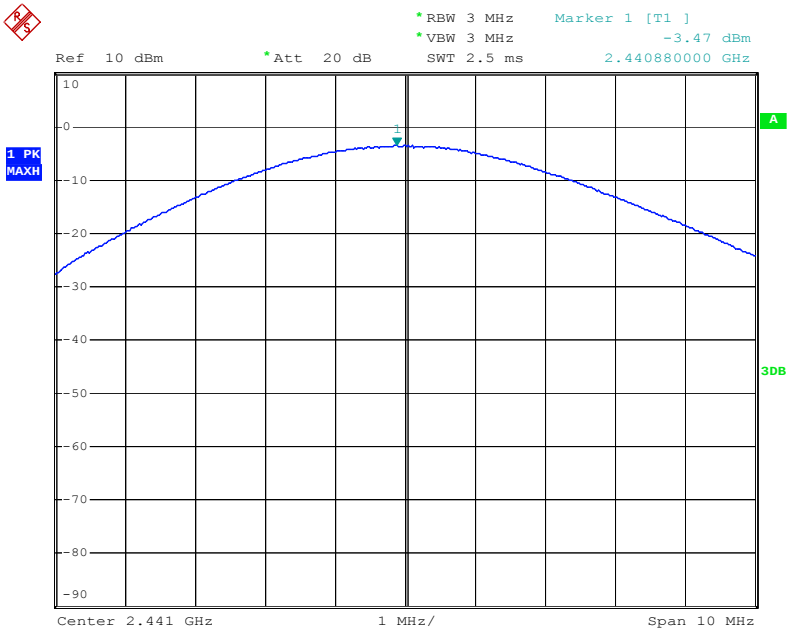


8DPSK Mode

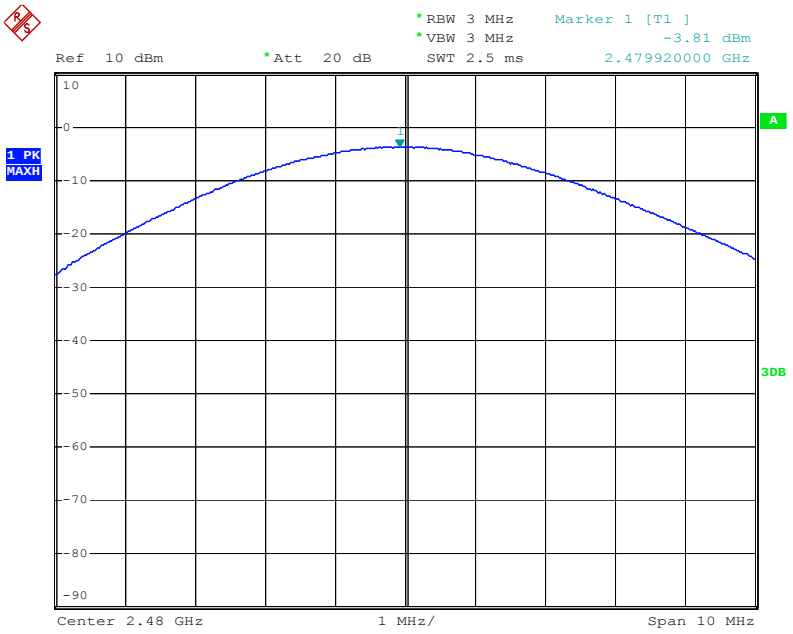
Low channel



Middle channel



High channel



10. RADIATED EMISSION TEST

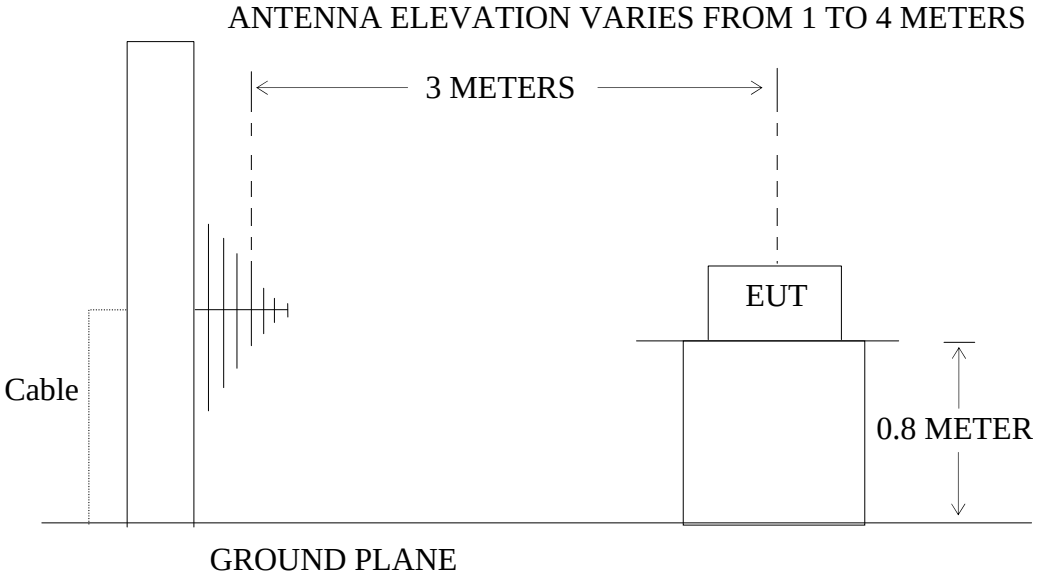
10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and simulators

EUT

(EUT: Audio Amplifier with Bluetooth and wired control keypad)

10.1.2. Anechoic Chamber Test Setup Diagram



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

10.2. The Limit For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(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	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4- 2009 on radiated emission measurement.
The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz
RBW (1 MHz), VBW (3MHz) for Peak detector above 1GHz
RBW (1 MHz), VBW (10Hz) for AV detector above 1GHz

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

10.6.The Field Strength of Radiation Emission Measurement Results

Note: 1.We tested GFSK mode, Π/4-DQPSK Mode & 8DPSK mode and recorded the worst case data (GFSK mode) for all test mode.

2. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots.

3. The 18-25GHz emissions are not reported, because the levels are too low against the limit.

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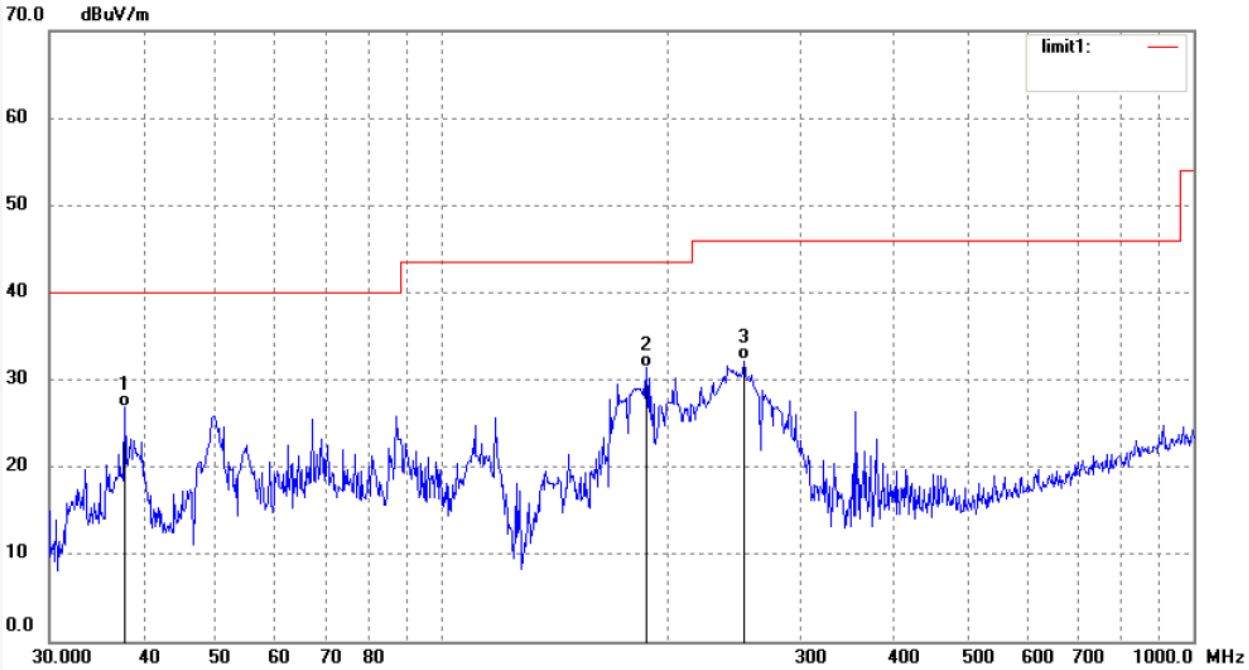
Job No.: RICKY #2033	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/04/24
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	37.8121	46.72	-19.84	26.88	40.00	-13.12	QP			
2	187.0956	52.62	-21.21	31.41	43.50	-12.09	QP			
3	252.0627	51.82	-19.62	32.20	46.00	-13.80	QP			

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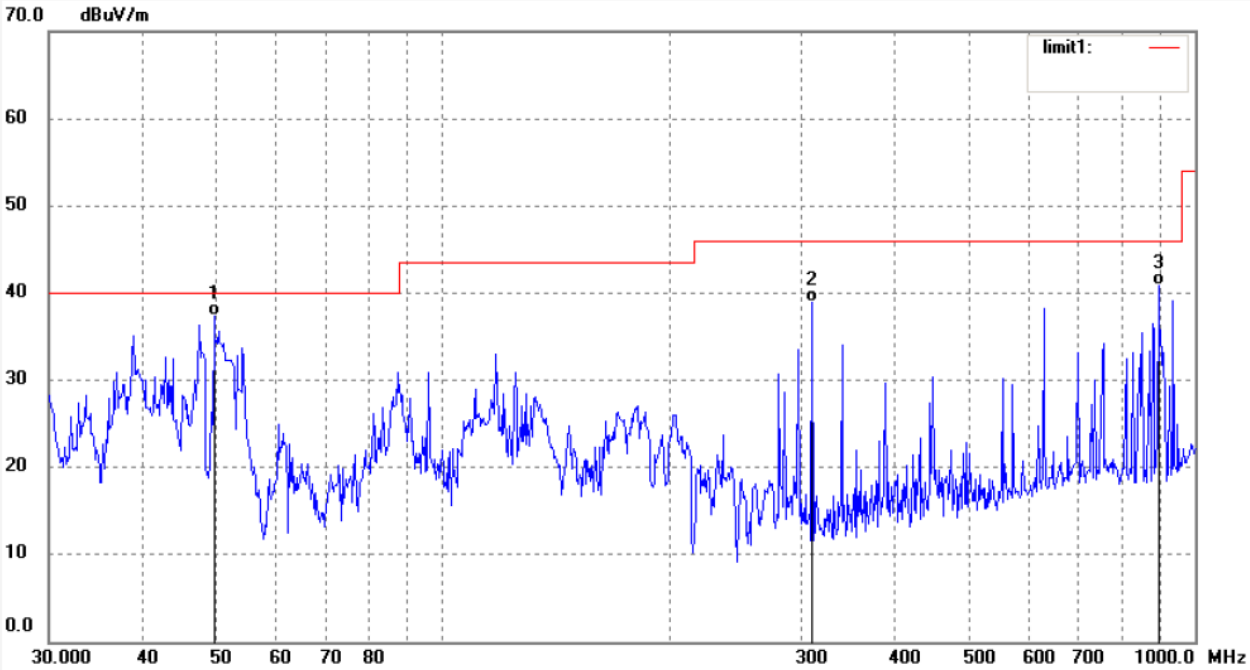
Job No.: RICKY #2034	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/05/15
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	49.7068	58.10	-20.70	37.40	40.00	-2.60	QP			
2	309.9977	56.66	-17.67	38.99	46.00	-7.01	QP			
3	893.8567	47.04	-6.22	40.82	46.00	-5.18	QP			

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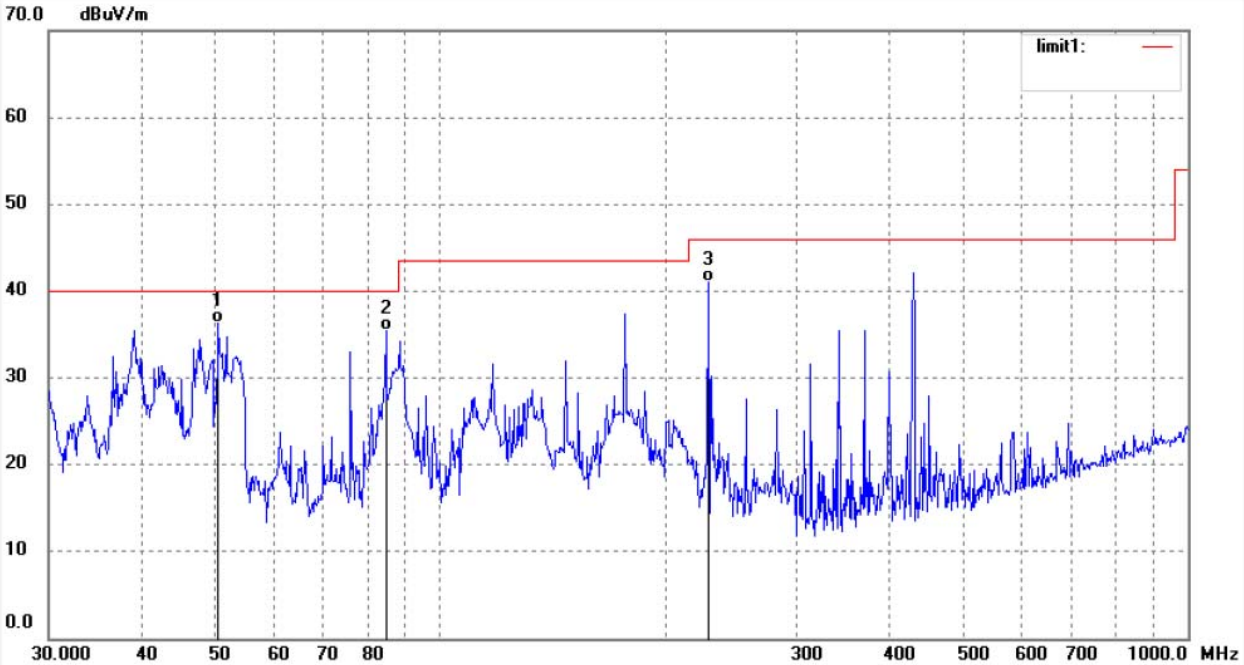
Job No.: RICKY #2035	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/07/40
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	50.5860	57.05	-20.74	36.31	40.00	-3.69	QP			
2	84.7019	56.95	-21.54	35.41	40.00	-4.59	QP			
3	228.4904	60.89	-19.87	41.02	46.00	-4.98	QP			

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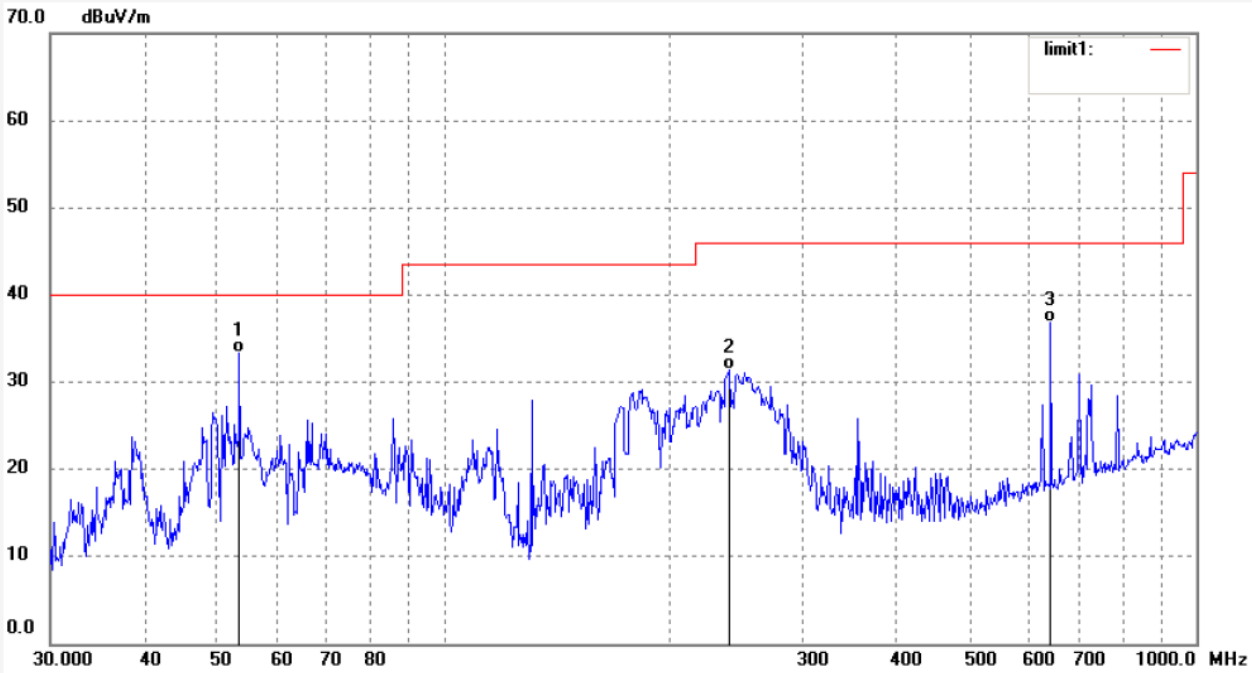
Job No.: RICKY #2036	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/08/48
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	53.5052	54.25	-20.86	33.39	40.00	-6.61	QP			
2	239.9874	51.13	-19.80	31.33	46.00	-14.67	QP			
3	640.6110	47.66	-10.82	36.84	46.00	-9.16	QP			

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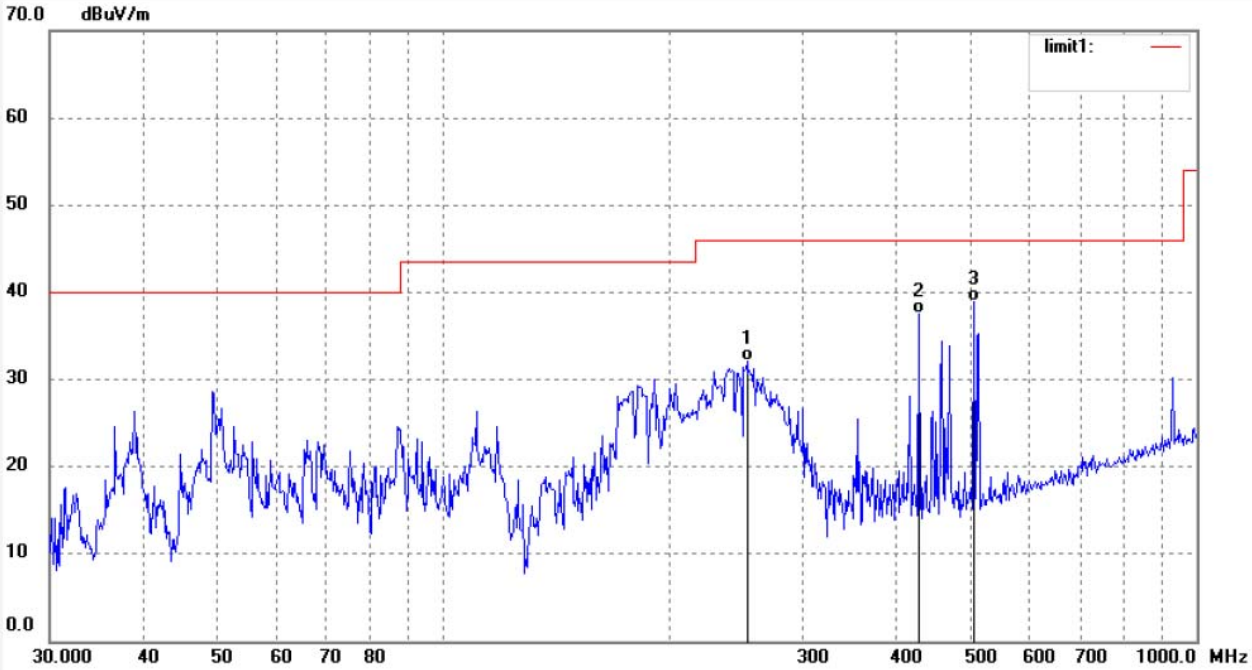
Job No.: RICKY #2037	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/09/50
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	252.9482	51.61	-19.57	32.04	46.00	-13.96	QP			
2	428.0193	52.79	-15.22	37.57	46.00	-8.43	QP			
3	506.4791	52.67	-13.80	38.87	46.00	-7.13	QP			

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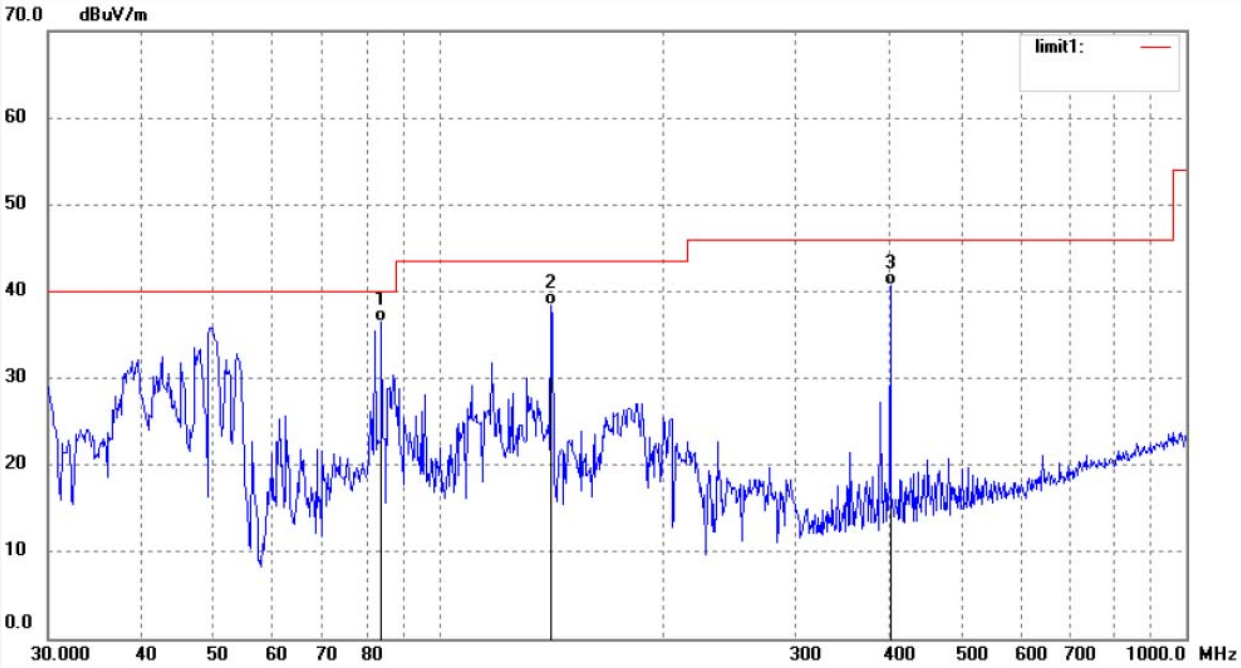
Job No.: RICKY #2038	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/10/33
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	83.8156	57.97	-21.51	36.46	40.00	-3.54	QP			
2	141.3298	61.96	-23.54	38.42	43.50	-5.08	QP			
3	401.8385	56.31	-15.61	40.70	46.00	-5.30	QP			

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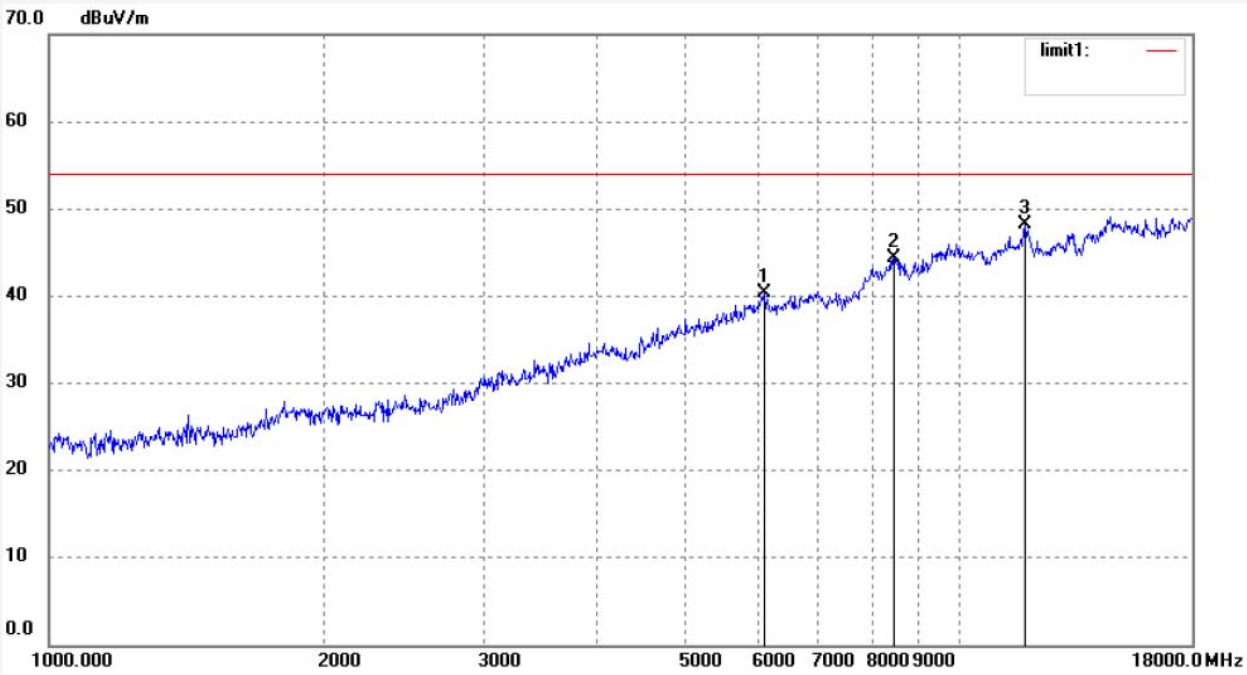
Job No.: RICKY #2063	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/07
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	6106.616	36.73	3.54	40.27	54.00	-13.73	peak			
2	8465.379	35.37	8.95	44.32	54.00	-9.68	peak			
3	11803.280	34.89	13.33	48.22	54.00	-5.78	peak			

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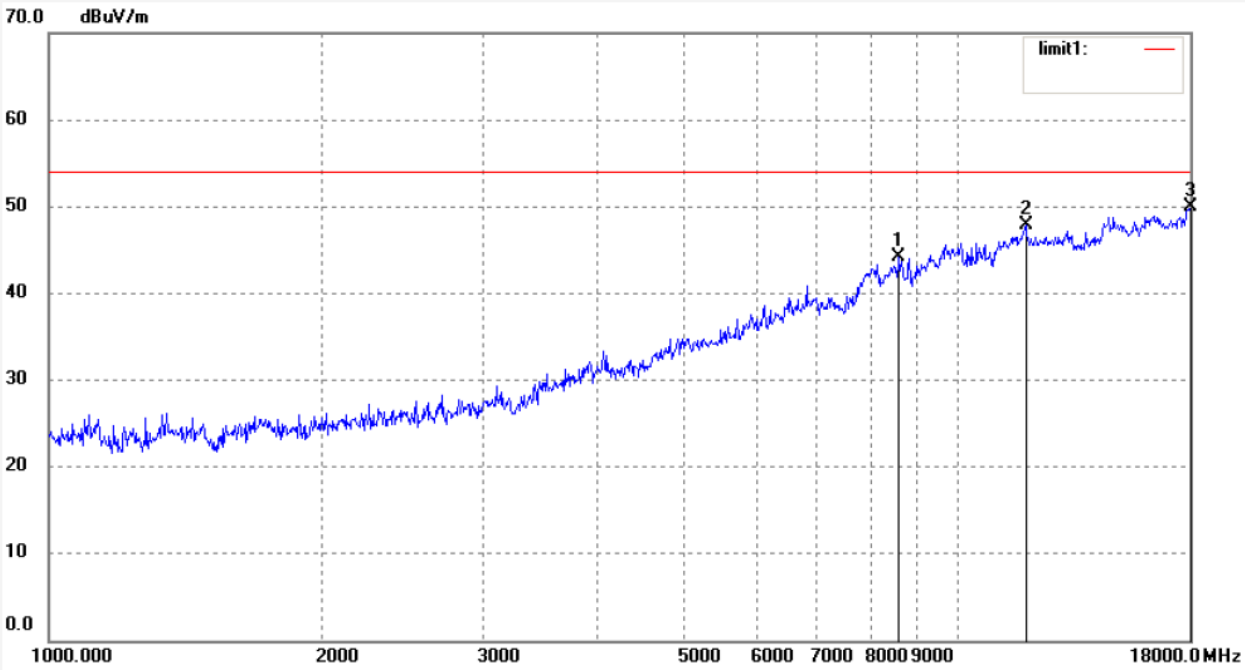
Job No.: RICKY #2064	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/58
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	8613.467	35.56	8.68	44.24	54.00	-9.76	peak			
2	11871.710	35.03	12.84	47.87	54.00	-6.13	peak			
3	18000.000	-1.67	51.60	49.93	54.00	-4.07	peak			

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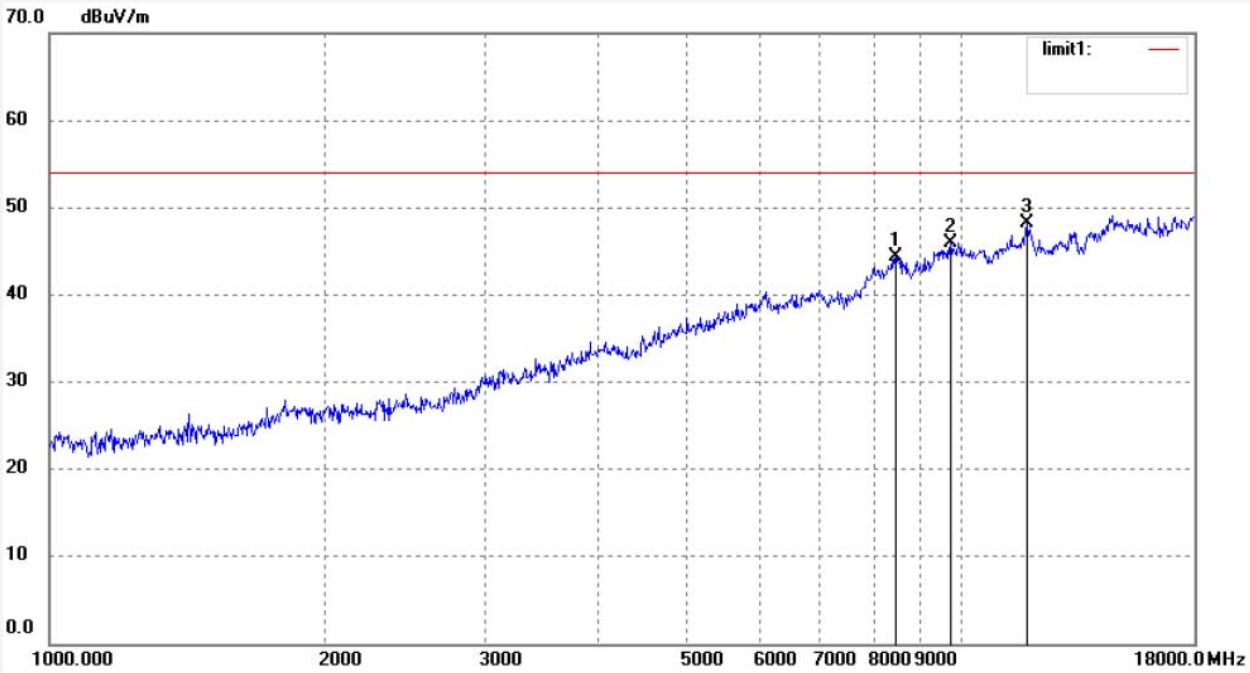
Job No.: RICKY #2065	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/07
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	8465.379	35.37	8.95	44.32	54.00	-9.68	peak			
2	9725.221	35.16	10.76	45.92	54.00	-8.08	peak			
3	11803.280	34.89	13.33	48.22	54.00	-5.78	peak			

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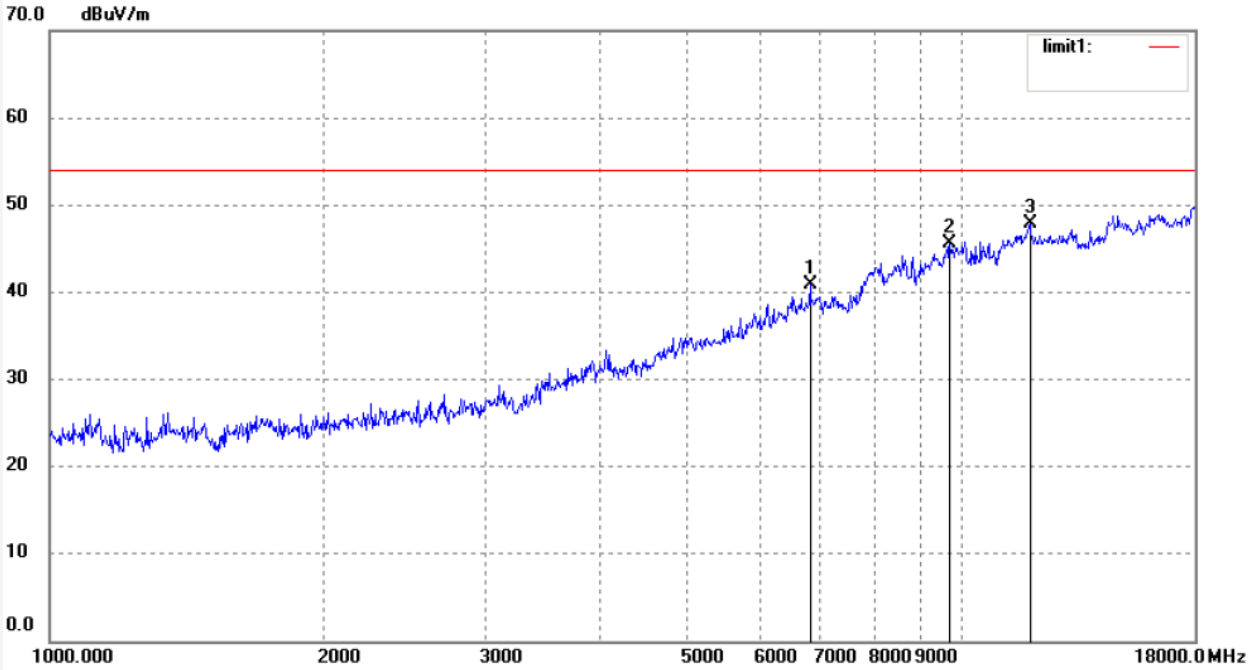
Job No.: RICKY #2066	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/58
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	6815.551	35.69	5.25	40.94	54.00	-13.06	peak			
2	9697.152	34.83	10.71	45.54	54.00	-8.46	peak			
3	11871.710	35.03	12.84	47.87	54.00	-6.13	peak			

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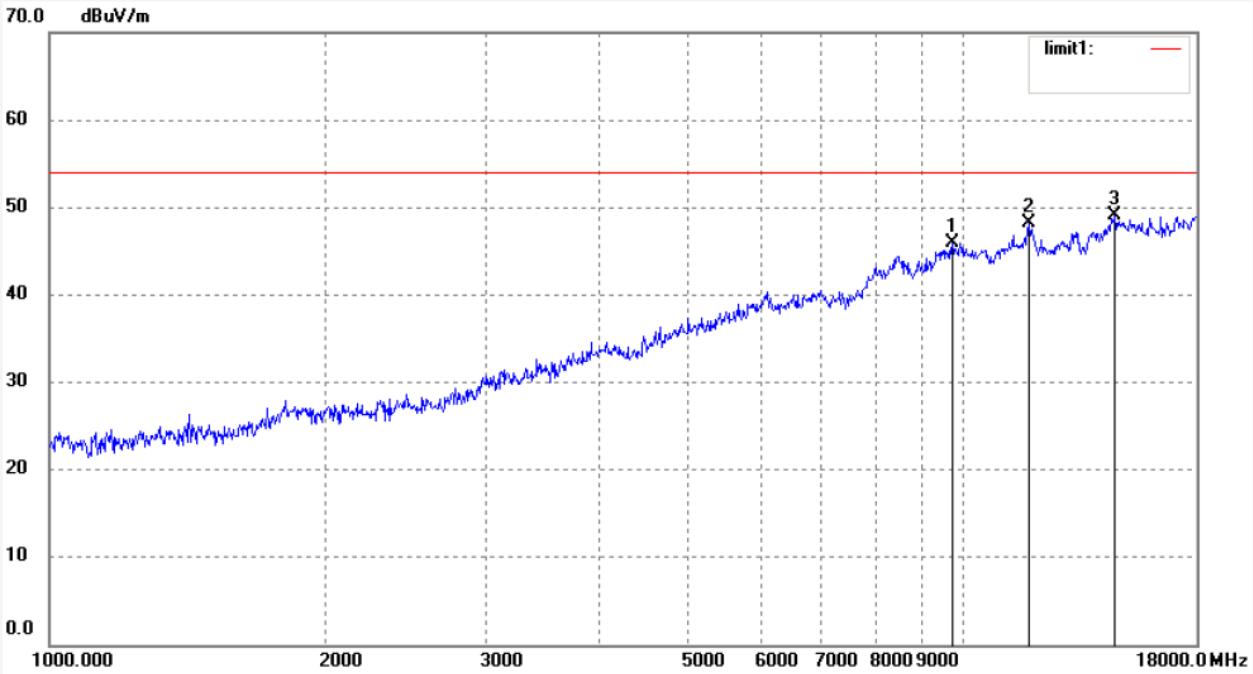
Job No.: RICKY #2067	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/07
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9725.221	35.16	10.76	45.92	54.00	-8.08	peak			
2	11803.280	34.89	13.33	48.22	54.00	-5.78	peak			
3	14660.479	-1.02	50.08	49.06	54.00	-4.94	peak			

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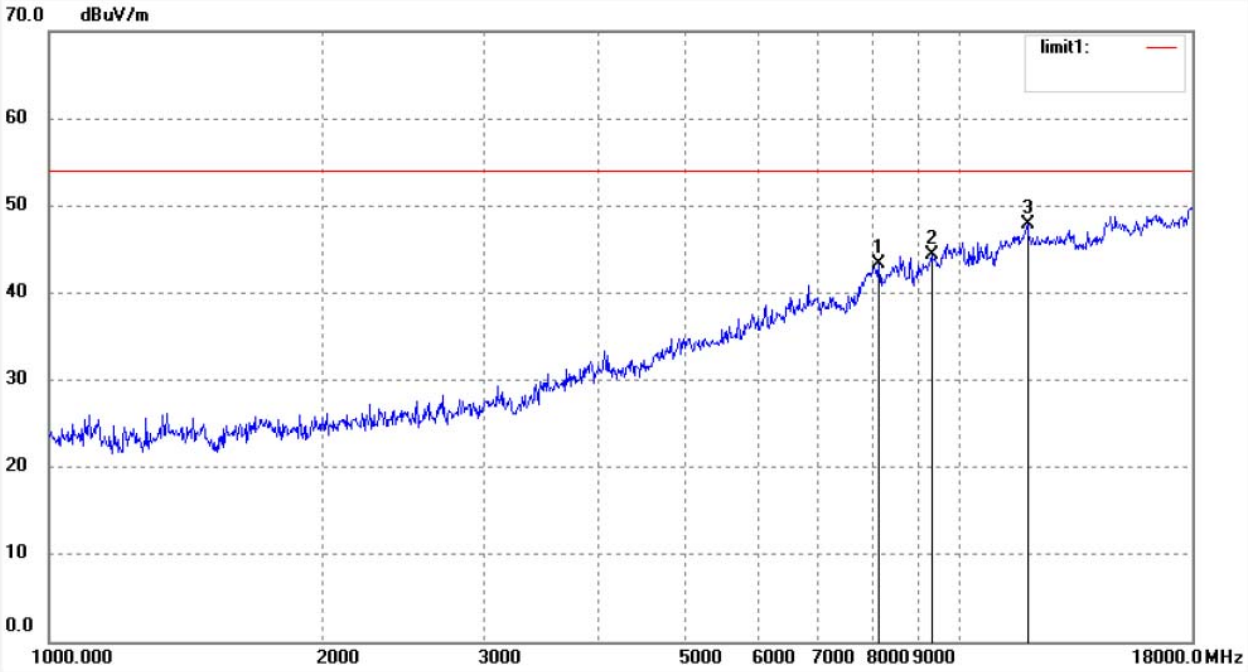
Job No.: RICKY #2068	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/58
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

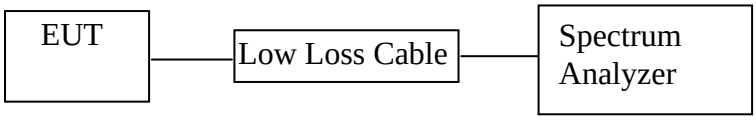
Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	8153.195	34.67	8.62	43.29	54.00	-10.71	peak			
2	9312.588	34.50	9.93	44.43	54.00	-9.57	peak			
3	11871.710	35.03	12.84	47.87	54.00	-6.13	peak			

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

11.2.The Requirement For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5.Test Procedure

11.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

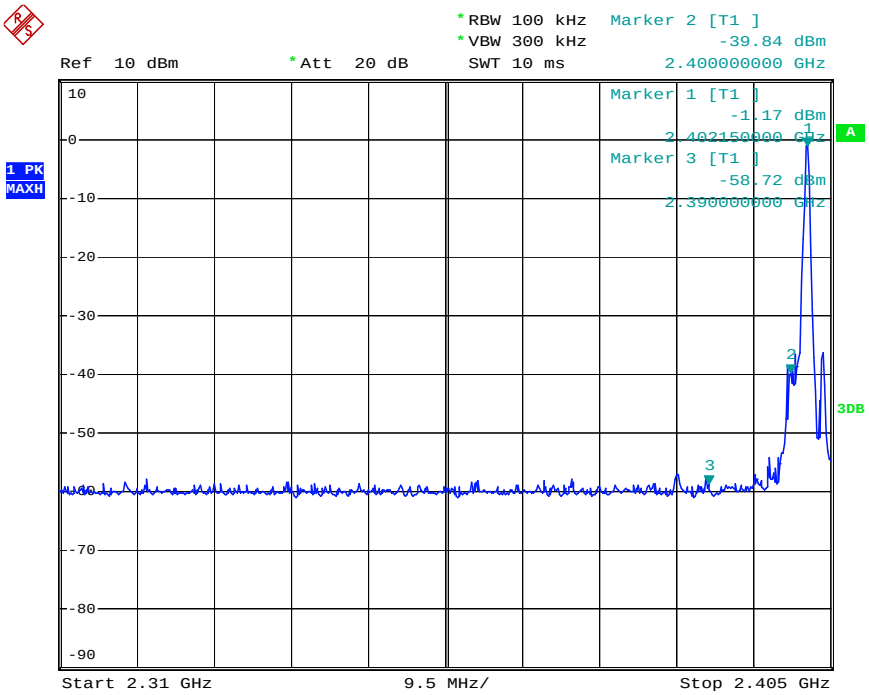
11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

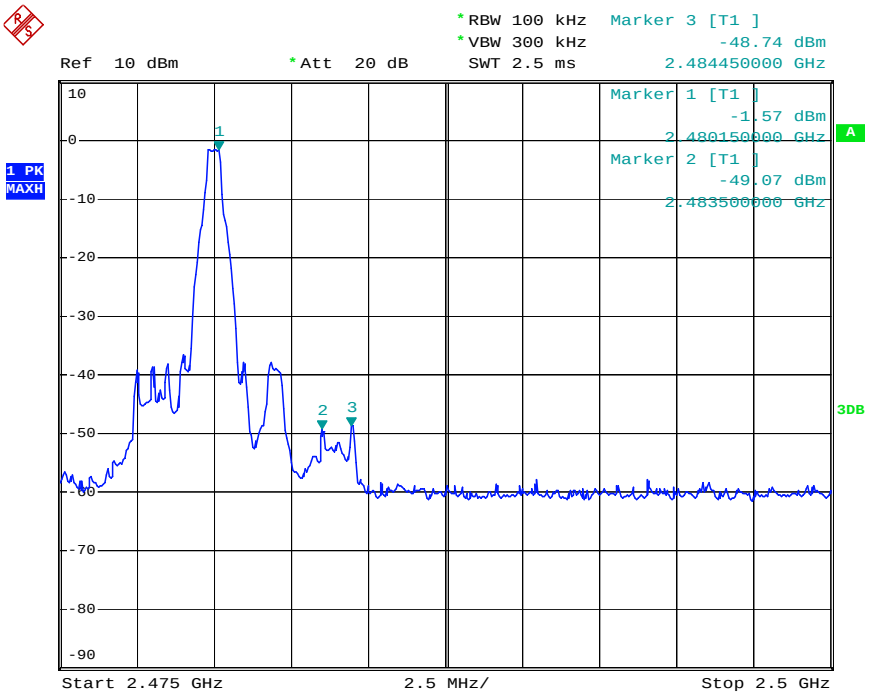
11.5.3.The band edges was measured and recorded.

11.6.Test Result

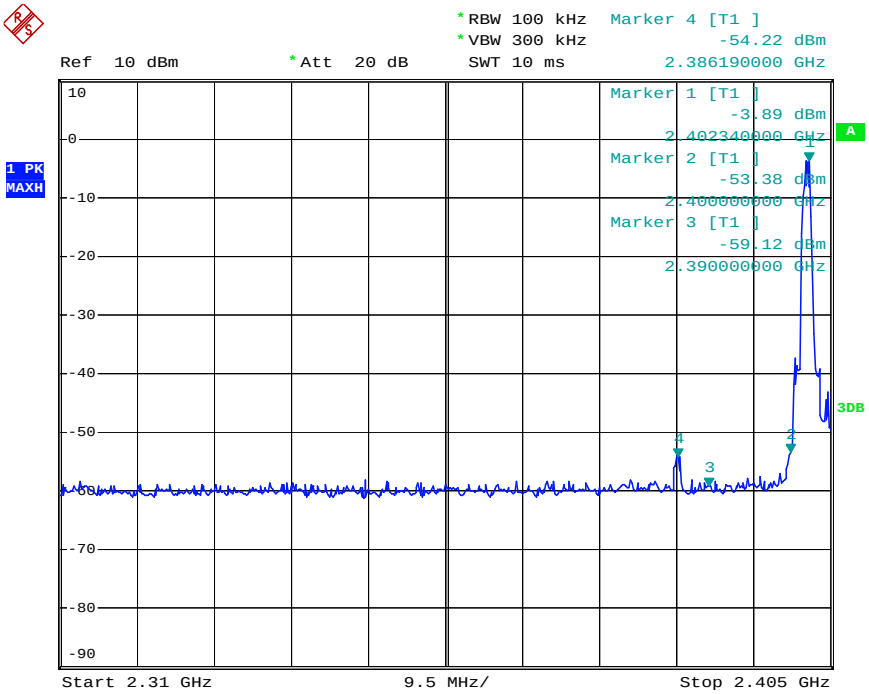
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2399.880	57.55	> 20dBc
2483.998	47.17	> 20dBc
Π/4-DQPSK Mode		
2399.802	50.33	> 20dBc
2484.838	43.41	> 20dBc
8DPSK		
2399.750	49.50	> 20dBc
2483.788	43.41	> 20dBc

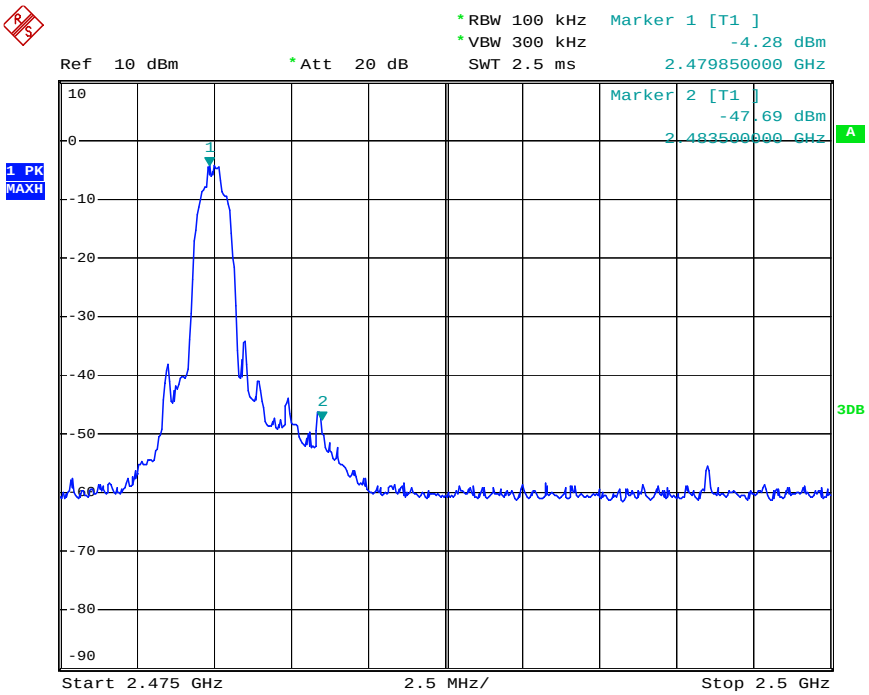
GFSK


*RBW 100 kHz
*VBW 300 kHz
Ref 10 dBm
*Att 20 dB
SWT 10 ms
Marker 2 [T1]
-39.84 dBm
2.400000000 GHz
Marker 1 [T1]
-1.17 dBm
2.402150000 GHz
Marker 3 [T1]
-58.72 dBm
2.390000000 GHz
1 PK
MAXH
A
3DB
Start 2.31 GHz
9.5 MHz/
Stop 2.405 GHz

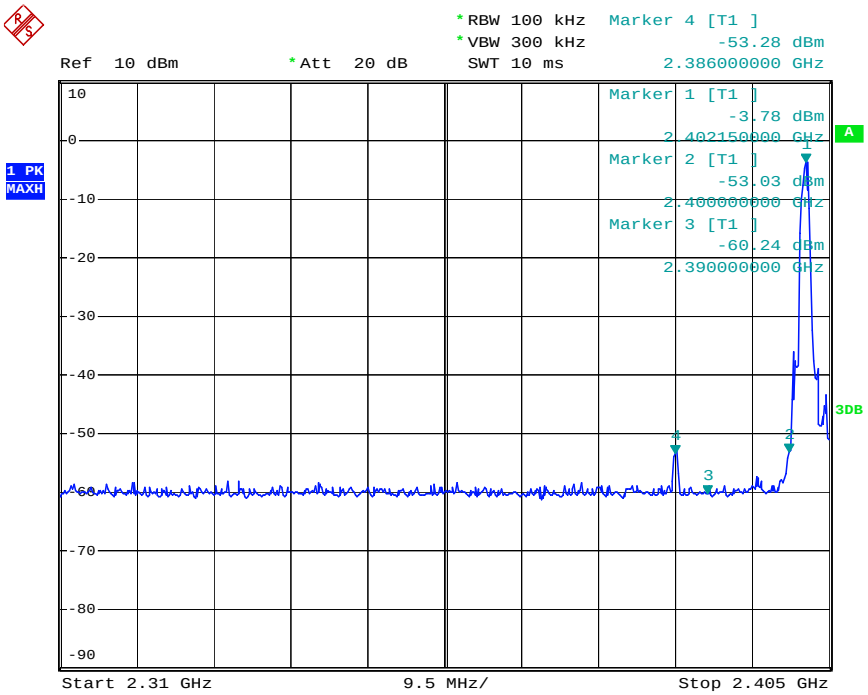

*RBW 100 kHz
*VBW 300 kHz
Ref 10 dBm
*Att 20 dB
SWT 2.5 ms
Marker 3 [T1]
-48.74 dBm
2.484450000 GHz
Marker 1 [T1]
-1.57 dBm
2.480150000 GHz
Marker 2 [T1]
-49.07 dBm
2.483500000 GHz
1 PK
MAXH
A
3DB
Start 2.475 GHz
2.5 MHz/
Stop 2.5 GHz

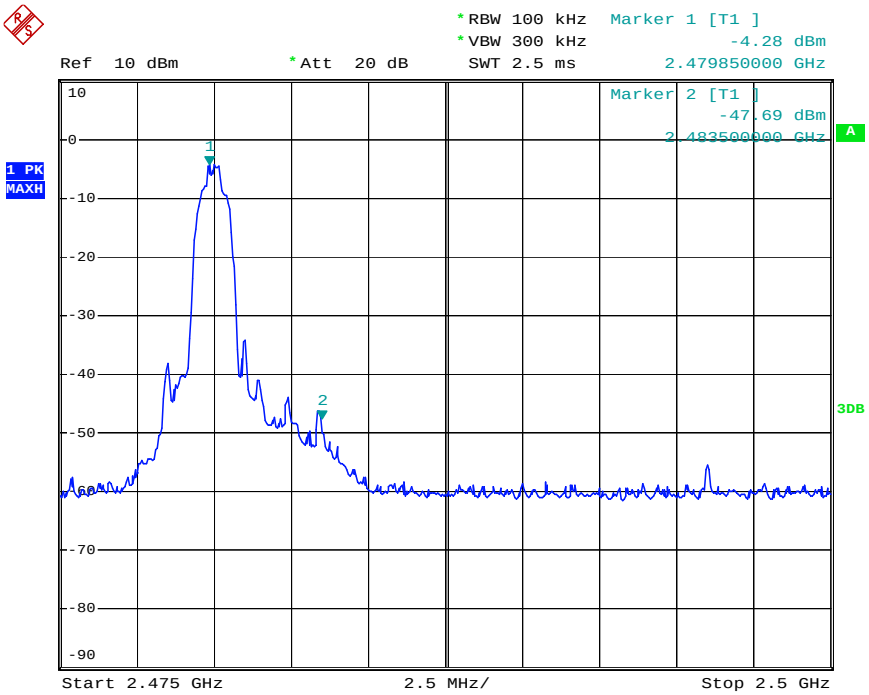
Π/4-DQPSK Mode





8DPSK


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
Marker 4 [T1]
-53.28 dBm
2.386000000 GHz
Ref 10 dBm
Att 20 dB
Marker 1 [T1]
-3.78 dBm
2.402150000 GHz
Marker 2 [T1]
-53.03 dBm
2.400000000 GHz
Marker 3 [T1]
-60.24 dBm
2.390000000 GHz
1 PK
MAXH
A
3DB
Start 2.31 GHz
9.5 MHz/
Stop 2.405 GHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
-4.28 dBm
2.479850000 GHz
Ref 10 dBm
Att 20 dB
Marker 2 [T1]
-47.69 dBm
2.483500000 GHz
1 PK
MAXH
A
3DB
Start 2.475 GHz
2.5 MHz/
Stop 2.5 GHz

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

   Result = Reading + Corrected Factor
3. Display the measurement of peak values.

Non-hopping mode

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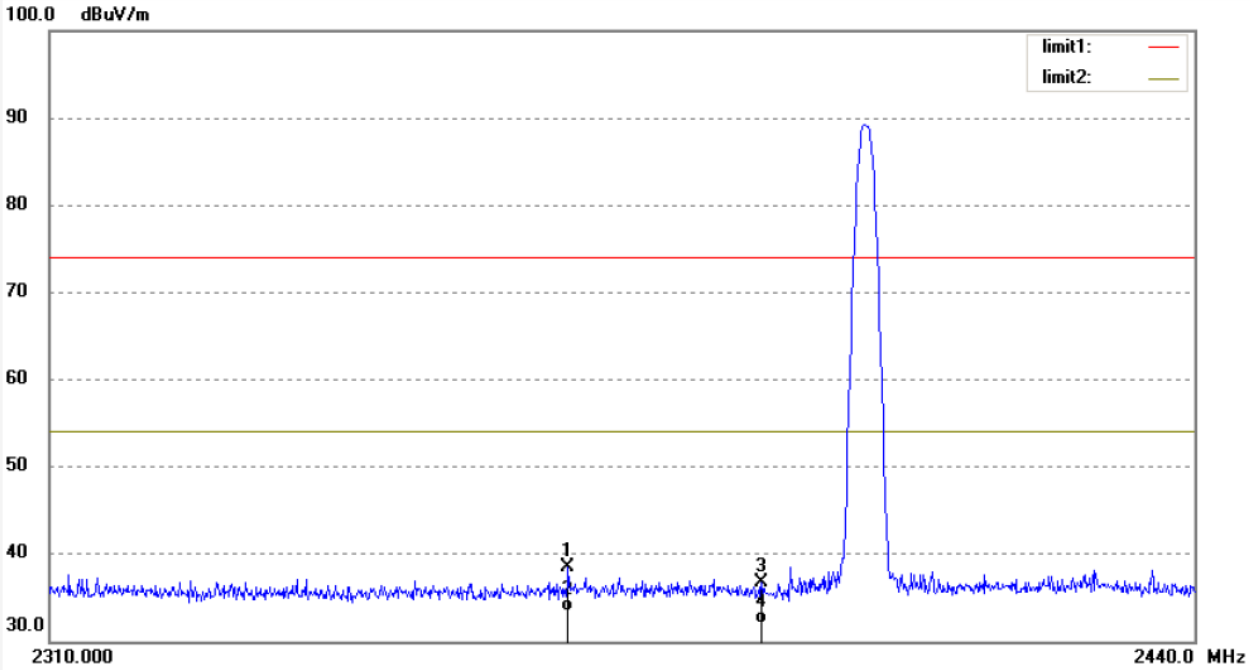
Job No.: RICKY #2062	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/28/27
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz(GFSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2368.110	46.24	-7.72	38.52	74.00	-35.48	peak			
2	2368.110	41.22	-7.72	33.50	54.00	-20.50	AVG			
3	2390.000	44.24	-7.57	36.67	74.00	-37.33	peak			
4	2390.000	39.53	-7.57	31.96	54.00	-22.04	AVG			

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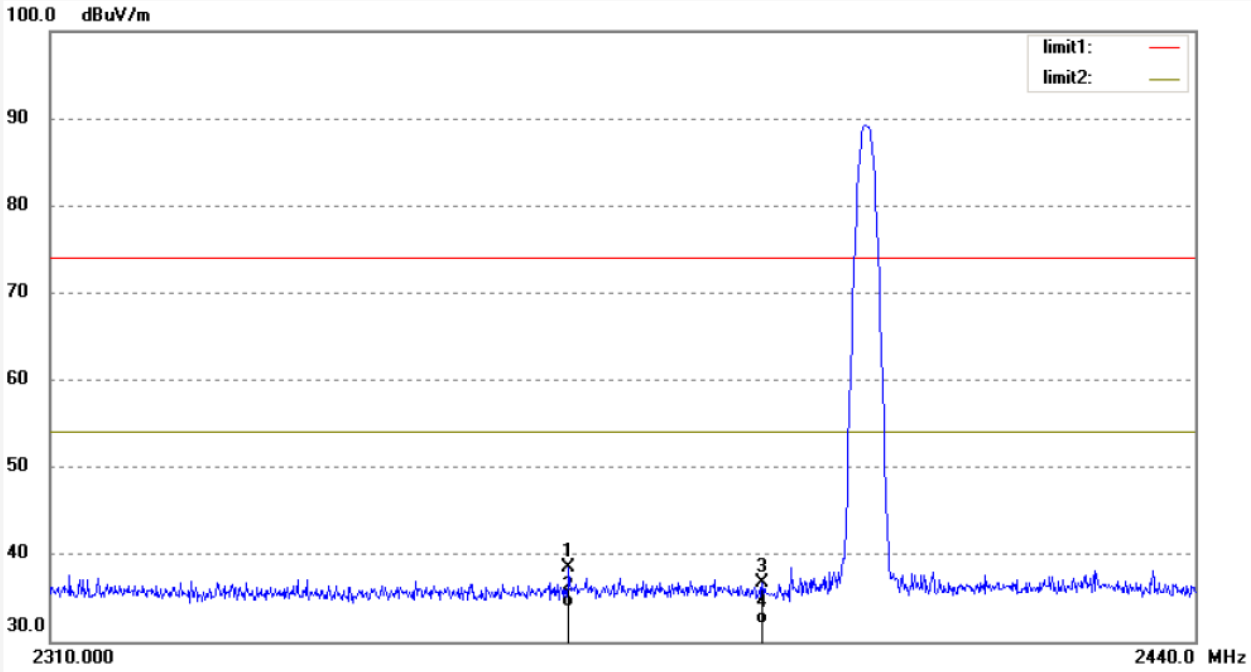
Job No.: RICKY #2061	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/27/41
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz(GFSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2368.110	46.21	-7.72	38.49	74.00	-35.51	peak			
2	2368.110	41.58	-7.72	33.86	54.00	-20.14	AVG			
3	2390.000	44.26	-7.57	36.69	74.00	-37.31	peak			
4	2390.000	39.61	-7.57	32.04	54.00	-21.96	AVG			

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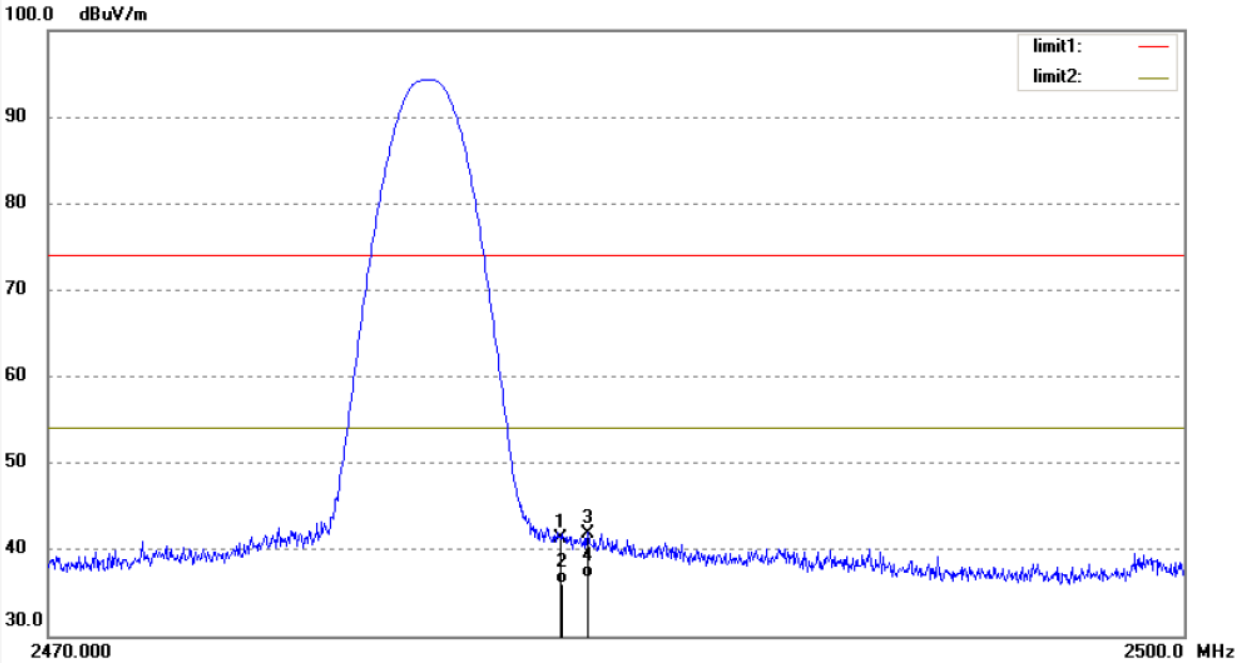
Job No.: RICKY #2060	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/26/28
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz(GFSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.67	-7.38	41.29	74.00	-32.71	peak			
2	2483.500	43.35	-7.38	35.97	54.00	-18.03	AVG			
3	2484.220	49.29	-7.39	41.90	74.00	-32.10	peak			
4	2484.220	44.08	-7.39	36.69	54.00	-17.31	AVG			

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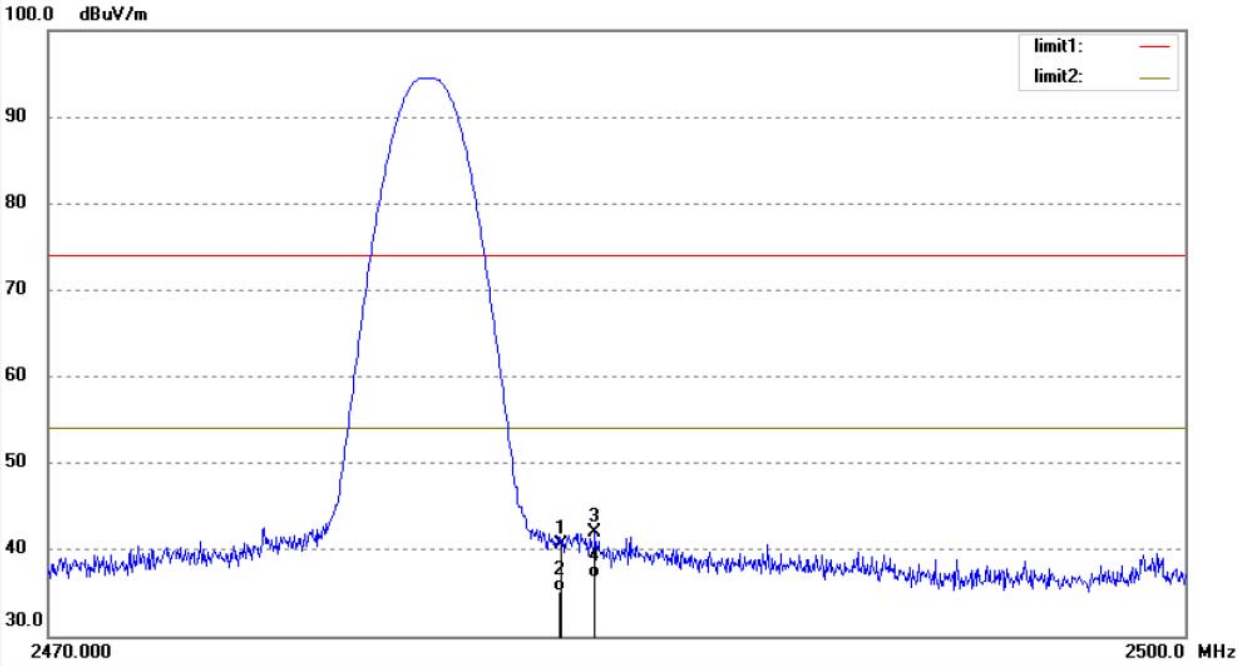
Job No.: RICKY #2059	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/25/38
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz(GFSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.05	-7.38	40.67	74.00	-33.33	peak			
2	2483.500	42.58	-7.38	35.20	54.00	-18.80	AVG			
3	2484.400	49.45	-7.39	42.06	74.00	-31.94	peak			
4	2484.400	44.09	-7.39	36.70	54.00	-17.30	AVG			

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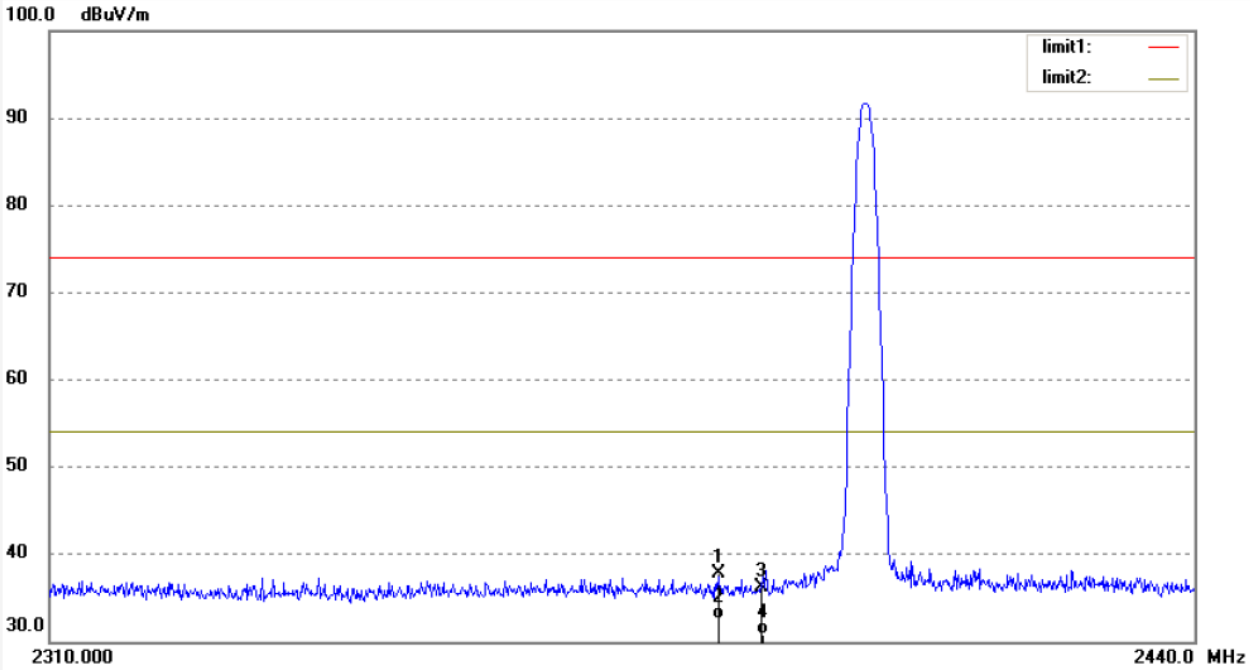
Job No.: RICKY #2058	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/24/24
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz(PI/4 DQPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2385.140	45.34	-7.61	37.73	74.00	-36.27	peak			
2	2385.140	40.18	-7.61	32.57	54.00	-21.43	AVG			
3	2390.000	43.73	-7.57	36.16	74.00	-37.84	peak			
4	2390.000	38.36	-7.57	30.79	54.00	-23.21	AVG			

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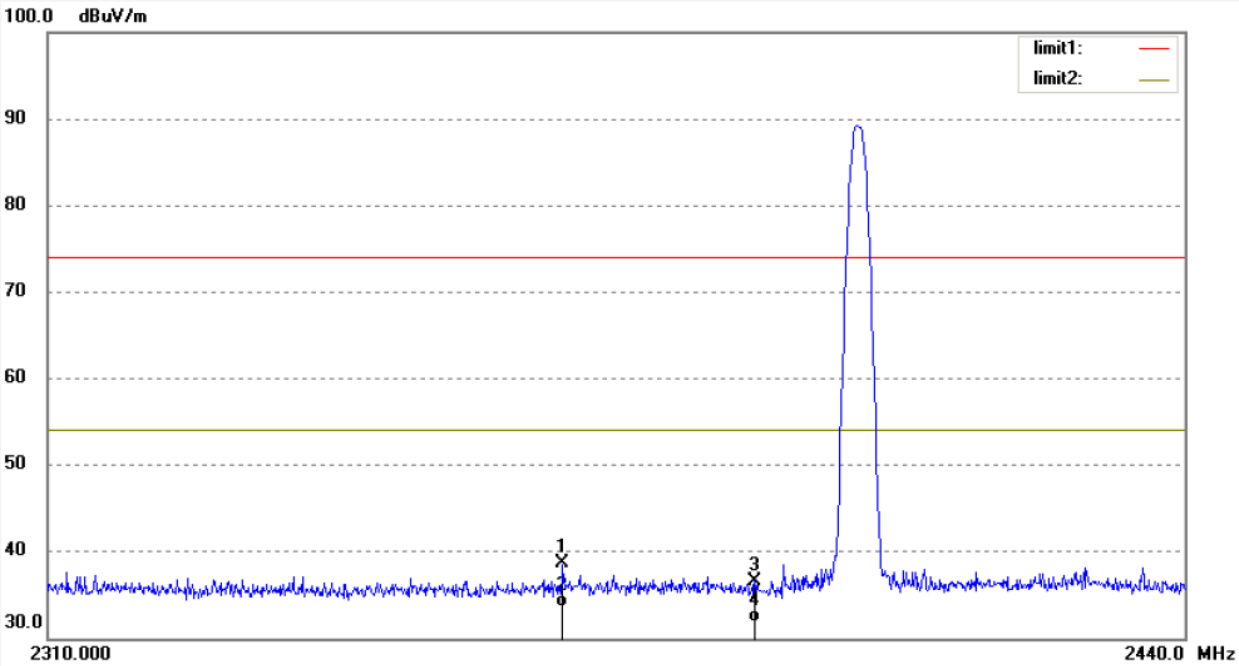
Job No.: RICKY #2057	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/23/37
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz(PI/4 DQPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2368.110	46.37	-7.72	38.65	74.00	-35.35	peak			
2	2368.110	41.38	-7.72	33.66	54.00	-20.34	AVG			
3	2390.000	44.19	-7.57	36.62	74.00	-37.38	peak			
4	2390.000	39.49	-7.57	31.92	54.00	-22.08	AVG			

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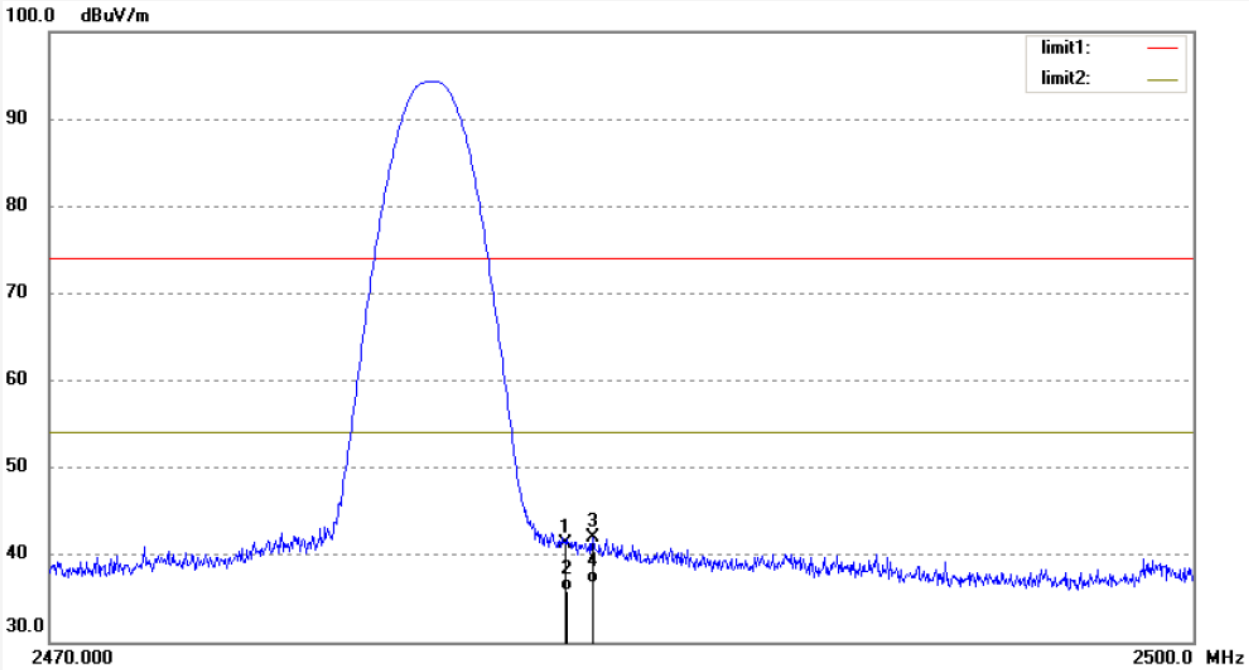
Job No.: RICKY #2056	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/22/15
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz(PI/4 DQPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.69	-7.38	41.31	74.00	-32.69	peak			
2	2483.500	43.30	-7.38	35.92	54.00	-18.08	AVG			
3	2484.220	49.31	-7.39	41.92	74.00	-32.08	peak			
4	2484.220	44.16	-7.39	36.77	54.00	-17.23	AVG			

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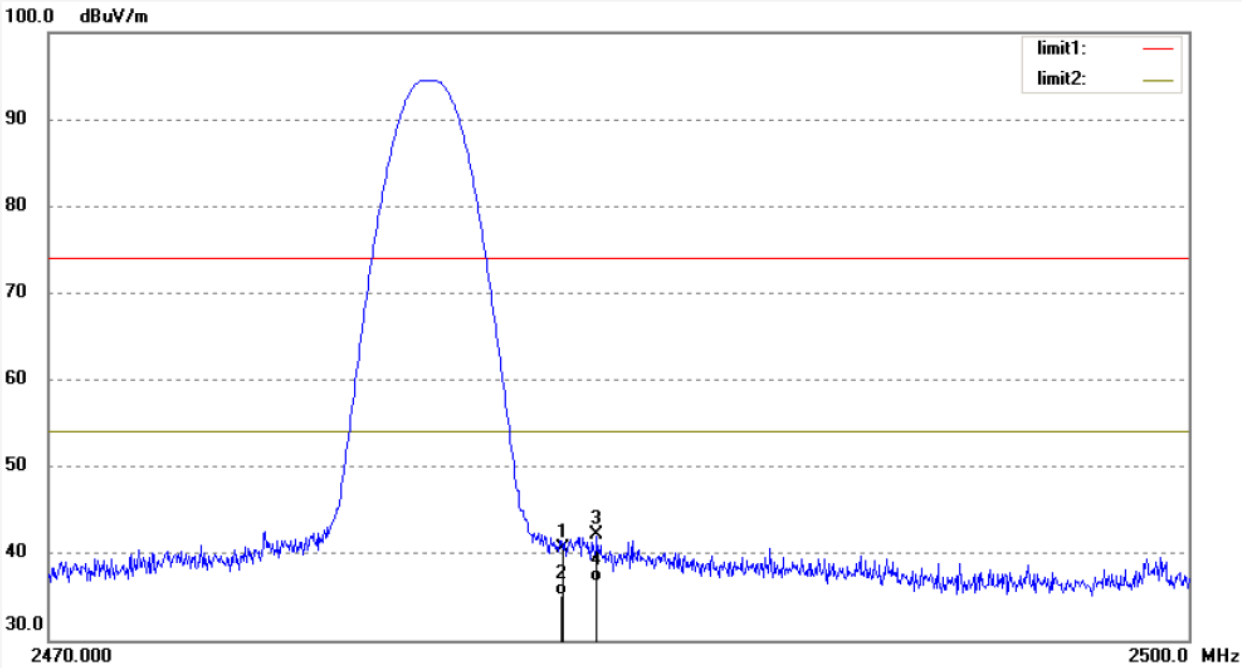
Job No.: RICKY #2055	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/21/21
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz(PI/4 DQPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.01	-7.38	40.63	74.00	-33.37	peak			
2	2483.500	42.53	-7.38	35.15	54.00	-18.85	AVG			
3	2484.400	49.55	-7.39	42.16	74.00	-31.84	peak			
4	2484.400	44.19	-7.39	36.80	54.00	-17.20	AVG			

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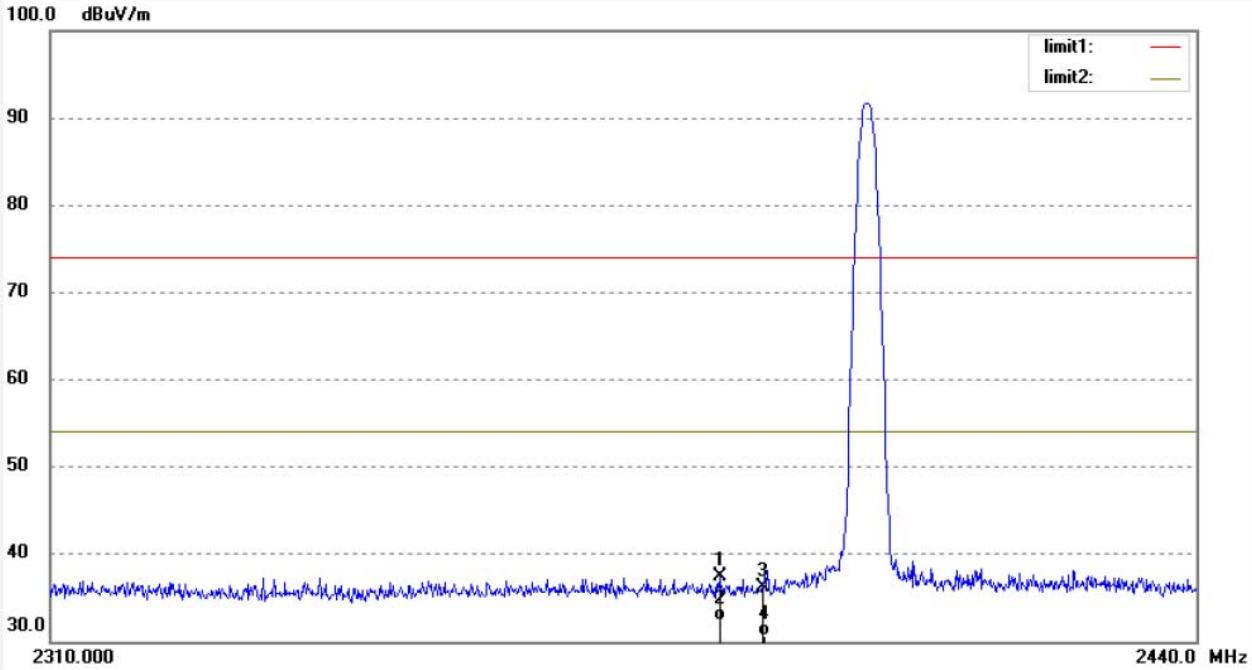
Job No.: RICKY #2054	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/20/30
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz(8DPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2385.140	45.01	-7.61	37.40	74.00	-36.60	peak			
2	2385.140	40.00	-7.61	32.39	54.00	-21.61	AVG			
3	2390.000	43.70	-7.57	36.13	74.00	-37.87	peak			
4	2390.000	38.27	-7.57	30.70	54.00	-23.30	AVG			

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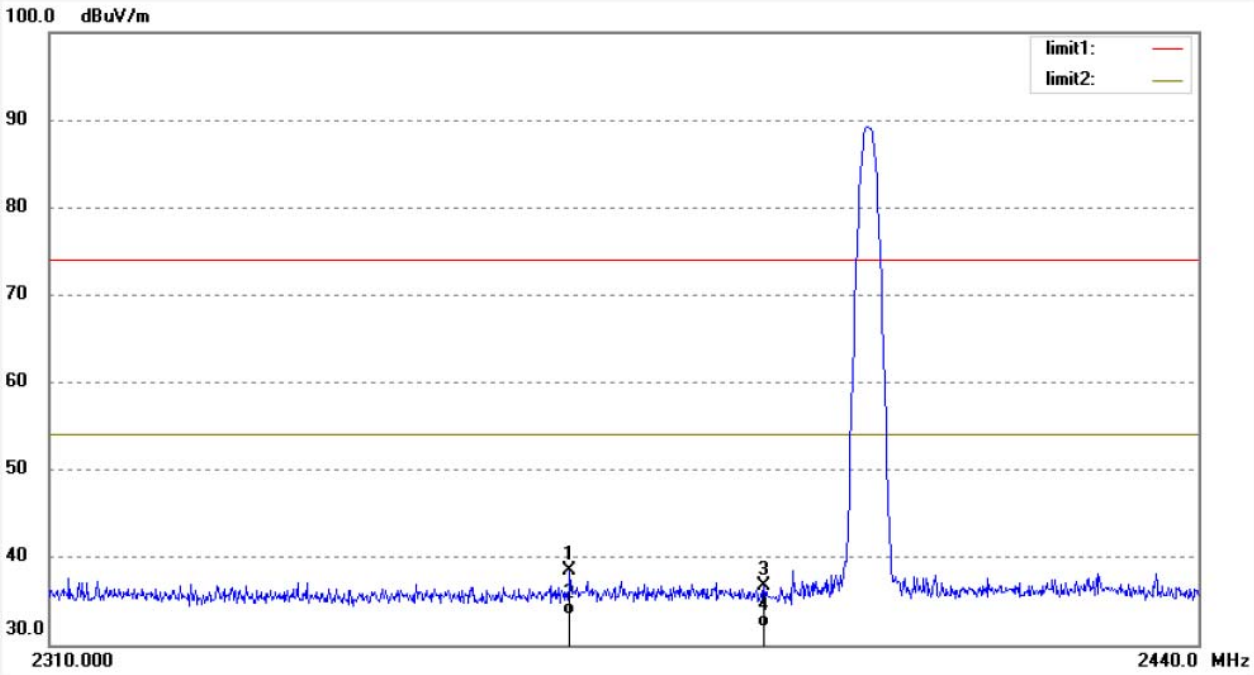
Job No.: RICKY #2053	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/19/30
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2402MHz(8DPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2368.110	46.24	-7.72	38.52	74.00	-35.48	peak			
2	2368.110	41.22	-7.72	33.50	54.00	-20.50	AVG			
3	2390.000	44.24	-7.57	36.67	74.00	-37.33	peak			
4	2390.000	39.53	-7.57	31.96	54.00	-22.04	AVG			

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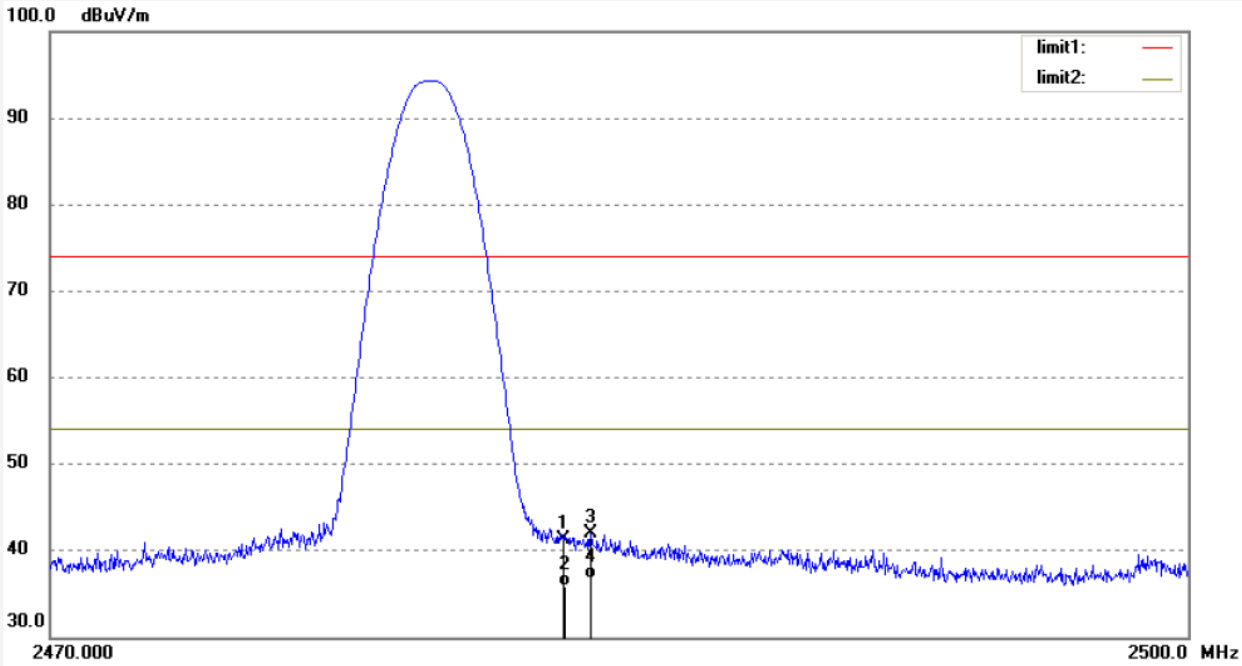
Job No.: RICKY #2052	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/18/29
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz(8DPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.71	-7.38	41.33	74.00	-32.67	peak			
2	2483.500	43.27	-7.38	35.89	54.00	-18.11	AVG			
3	2484.220	49.32	-7.39	41.93	74.00	-32.07	peak			
4	2484.220	44.18	-7.39	36.79	54.00	-17.21	AVG			

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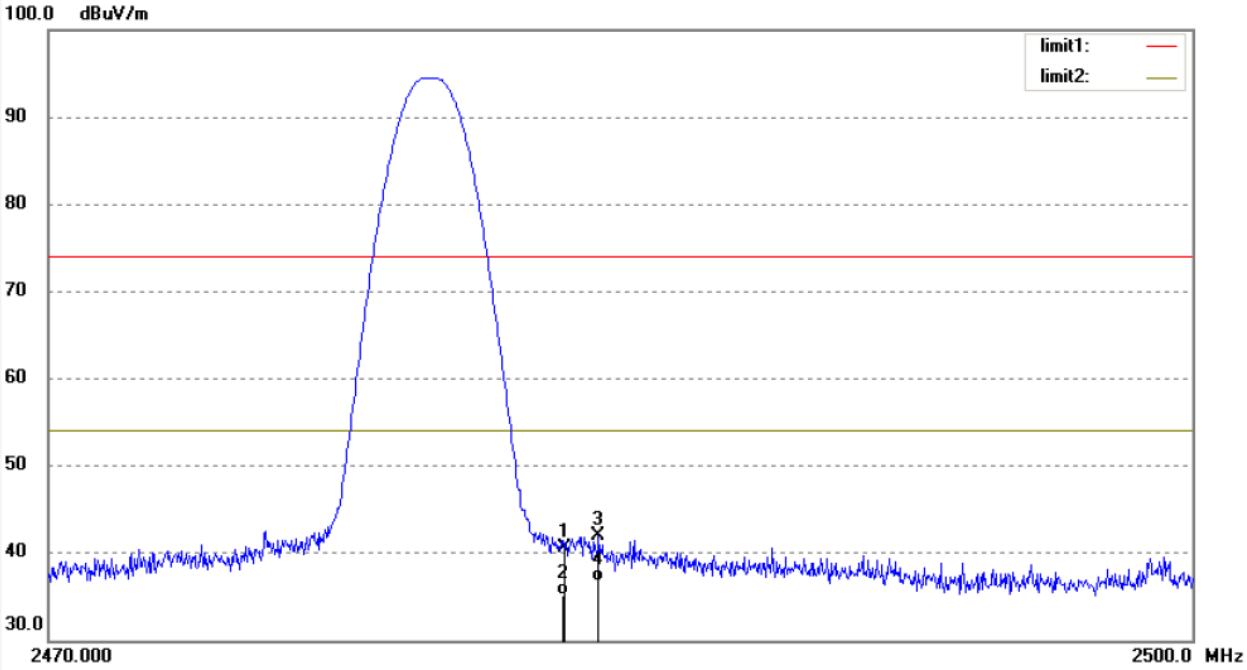
Job No.: RICKY #2051	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/17/00
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: TX 2480MHz(8DPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.90	-7.38	40.52	74.00	-33.48	peak			
2	2483.500	42.61	-7.38	35.23	54.00	-18.77	AVG			
3	2484.400	49.45	-7.39	42.06	74.00	-31.94	peak			
4	2484.400	44.13	-7.39	36.74	54.00	-17.26	AVG			

Hopping mode

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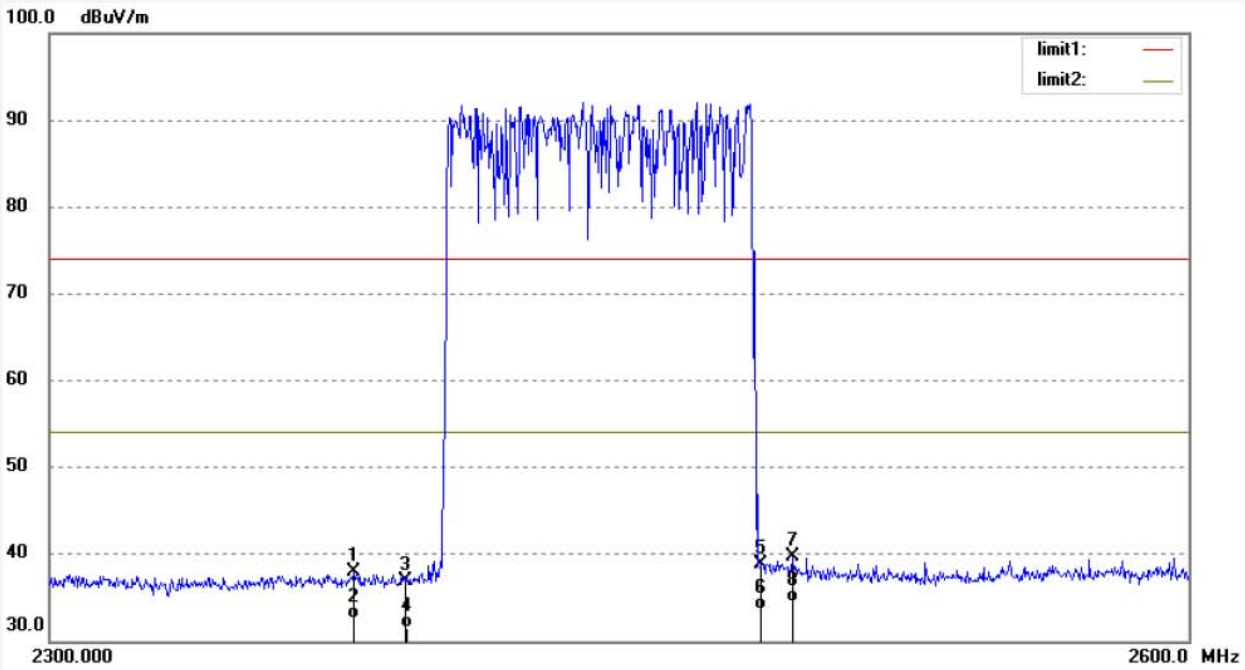
Job No.: RICKY #2039	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/11/37
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: HOPPING(GFSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2376.800	45.59	-7.66	37.93	74.00	-36.07	peak			
2	2376.800	40.21	-7.66	32.55	54.00	-21.45	AVG			
3	2390.000	44.48	-7.57	36.91	74.00	-37.09	peak			
4	2390.000	39.11	-7.57	31.54	54.00	-22.46	AVG			
5	2483.500	46.20	-7.38	38.82	74.00	-35.18	peak			
6	2483.500	41.02	-7.38	33.64	54.00	-20.36	AVG			
7	2491.700	47.05	-7.39	39.66	74.00	-34.34	peak			
8	2491.700	41.93	-7.39	34.54	54.00	-19.46	AVG			

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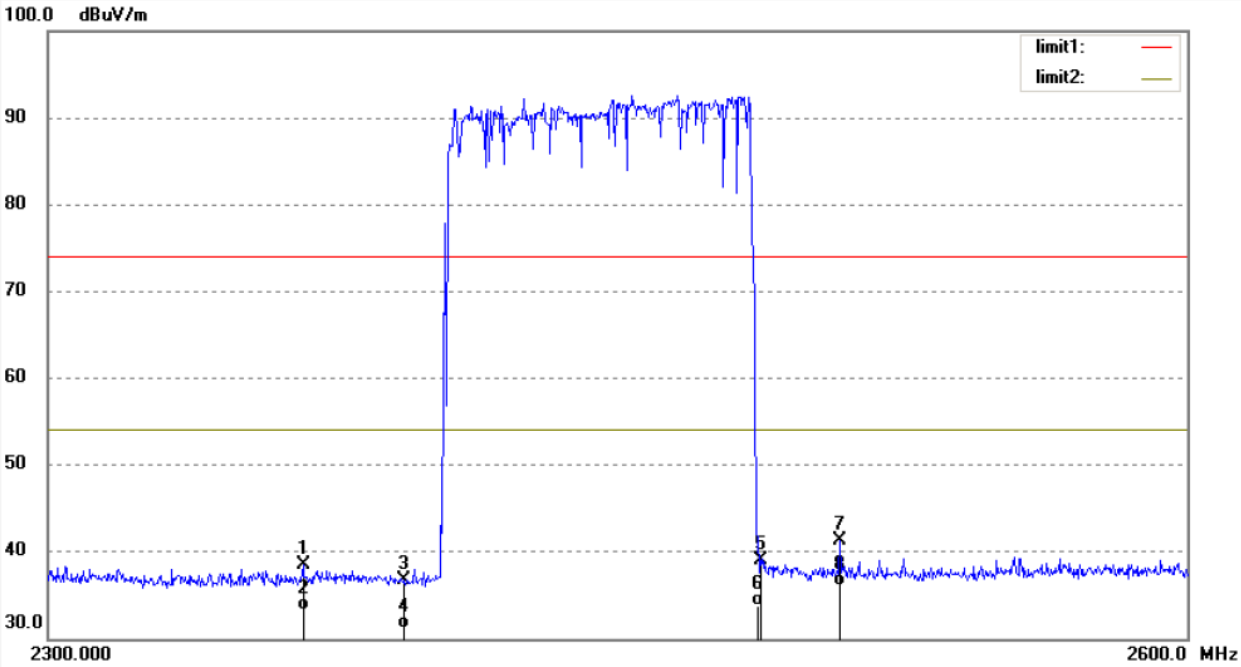
Job No.: RICKY #2040	Polarization: Vertical
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/12/50
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: HOPPING(GFSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2364.200	46.29	-7.74	38.55	74.00	-35.45	peak			
2	2364.200	41.03	-7.74	33.29	54.00	-20.71	AVG			
3	2390.000	44.26	-7.57	36.69	74.00	-37.31	peak			
4	2390.000	38.67	-7.57	31.10	54.00	-22.90	AVG			
5	2483.500	46.34	-7.38	38.96	74.00	-35.04	peak			
6	2483.500	41.21	-7.38	33.83	54.00	-20.17	AVG			
7	2504.600	48.72	-7.37	41.35	74.00	-32.65	peak			
8	2504.600	43.38	-7.37	36.01	54.00	-17.99	AVG			

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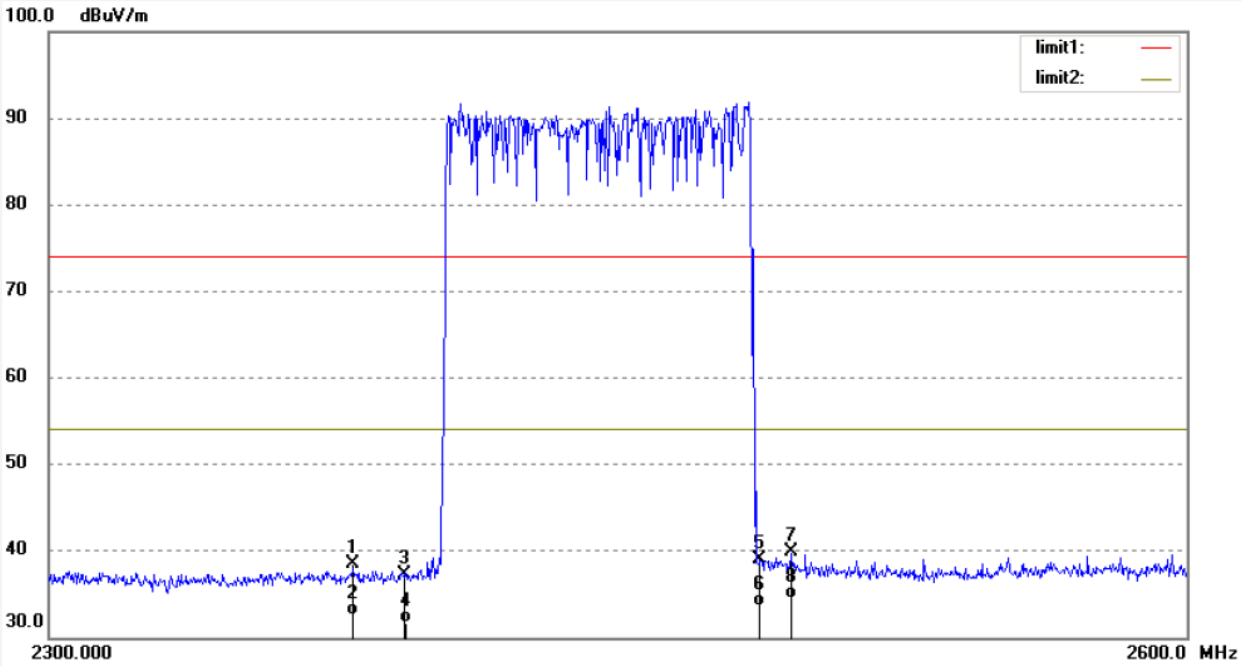
Job No.: RICKY #2041	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/13/32
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: HOPPING(PI/4DQPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2376.800	46.10	-7.66	38.44	74.00	-35.56	peak			
2	2376.800	40.19	-7.66	32.53	54.00	-21.47	AVG			
3	2390.000	44.85	-7.57	37.28	74.00	-36.72	peak			
4	2390.000	39.17	-7.57	31.60	54.00	-22.40	AVG			
5	2483.500	46.37	-7.38	38.99	74.00	-35.01	peak			
6	2483.500	40.97	-7.38	33.59	54.00	-20.41	AVG			
7	2491.700	47.23	-7.39	39.84	74.00	-34.16	peak			
8	2491.700	41.86	-7.39	34.47	54.00	-19.53	AVG			

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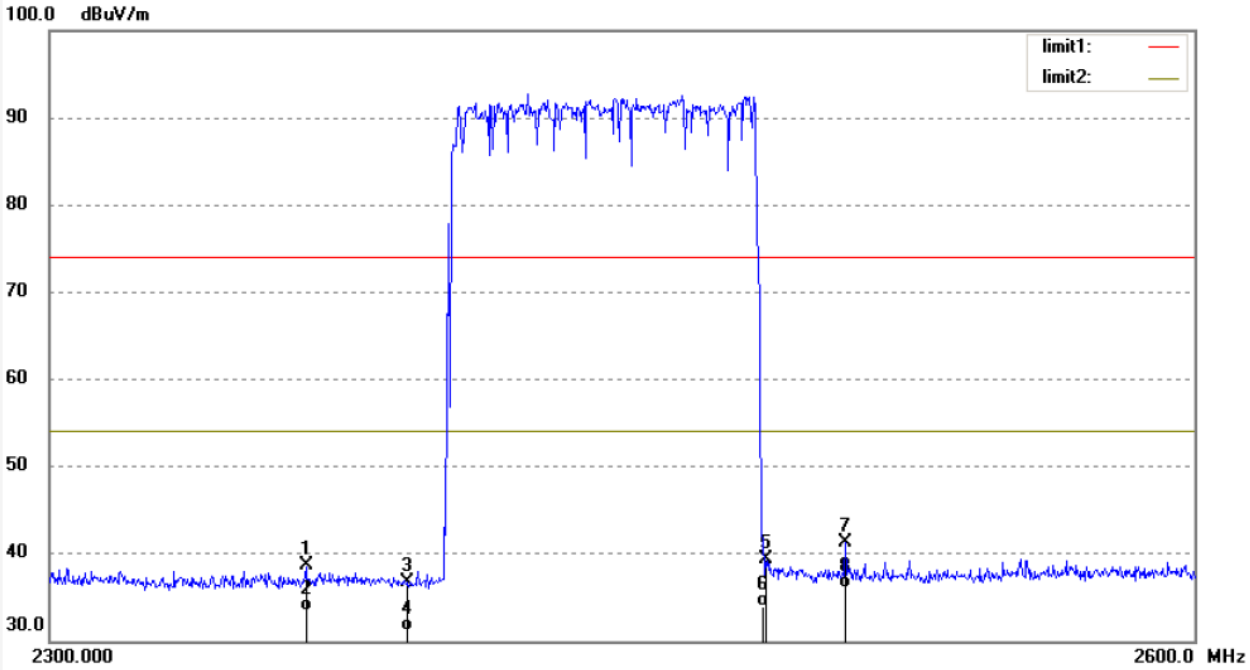
Job No.: RICKY #2042
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Audio Amolifier with Bluetooth and wired control keypad
Mode: HOPPING(PI/4DQPSK)
Model: ME60BT-BWG
Manufacturer: Poly-Planar

Polarization: Vertical
Power Source: DC 12V
Date: 14/07/23/
Time: 11/14/28
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2364.200	46.37	-7.74	38.63	74.00	-35.37	peak			
2	2364.200	41.10	-7.74	33.36	54.00	-20.64	AVG			
3	2390.000	44.31	-7.57	36.74	74.00	-37.26	peak			
4	2390.000	38.72	-7.57	31.15	54.00	-22.85	AVG			
5	2483.500	46.67	-7.38	39.29	74.00	-34.71	peak			
6	2483.500	41.30	-7.38	33.92	54.00	-20.08	AVG			
7	2504.600	48.62	-7.37	41.25	74.00	-32.75	peak			
8	2504.600	43.35	-7.37	35.98	54.00	-18.02	AVG			

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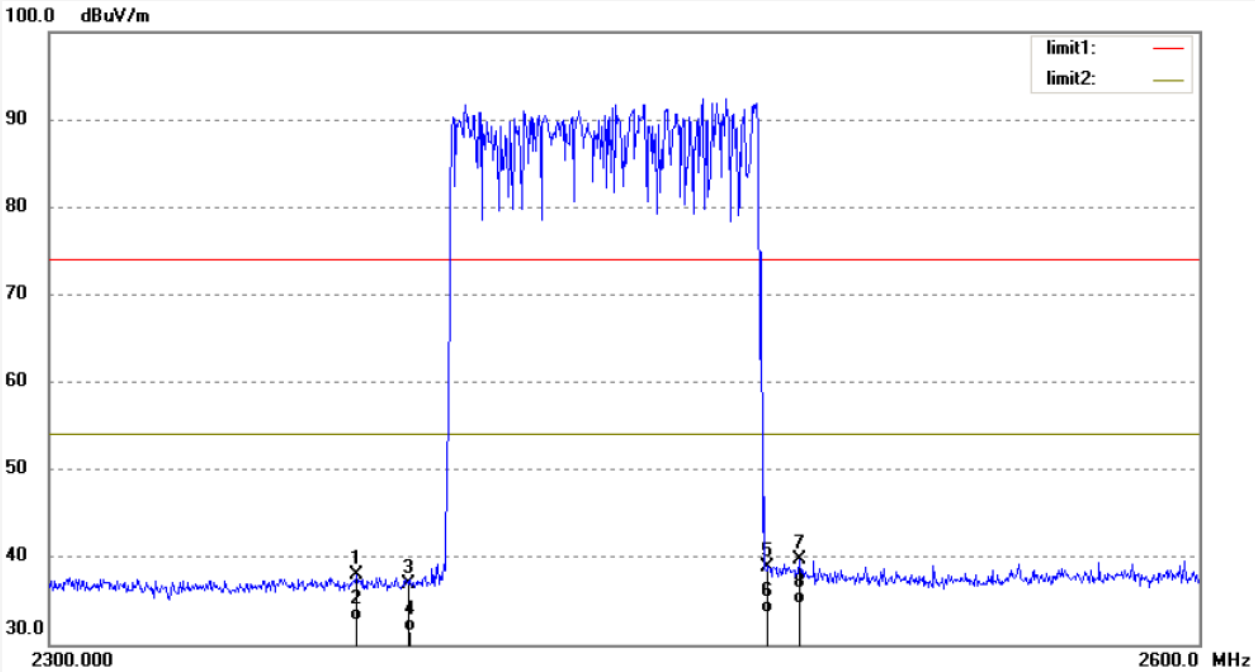
Job No.: RICKY #2043	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 12V
Test item: Radiation Test	Date: 14/07/23/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/15/25
EUT: Audio Amolifier with Bluetooth and wired control keypad	Engineer Signature:
Mode: HOPPING(8DPSK)	Distance: 3m
Model: ME60BT-BWG	
Manufacturer: Poly-Planar	

Note: Report No:ATE20141341



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2376.800	45.62	-7.66	37.96	74.00	-36.04	peak			
2	2376.800	40.30	-7.66	32.64	54.00	-21.36	AVG			
3	2390.000	44.51	-7.57	36.94	74.00	-37.06	peak			
4	2390.000	39.14	-7.57	31.57	54.00	-22.43	AVG			
5	2483.500	46.19	-7.38	38.81	74.00	-35.19	peak			
6	2483.500	41.00	-7.38	33.62	54.00	-20.38	AVG			
7	2491.700	47.12	-7.39	39.73	74.00	-34.27	peak			
8	2491.700	42.01	-7.39	34.62	54.00	-19.38	AVG			

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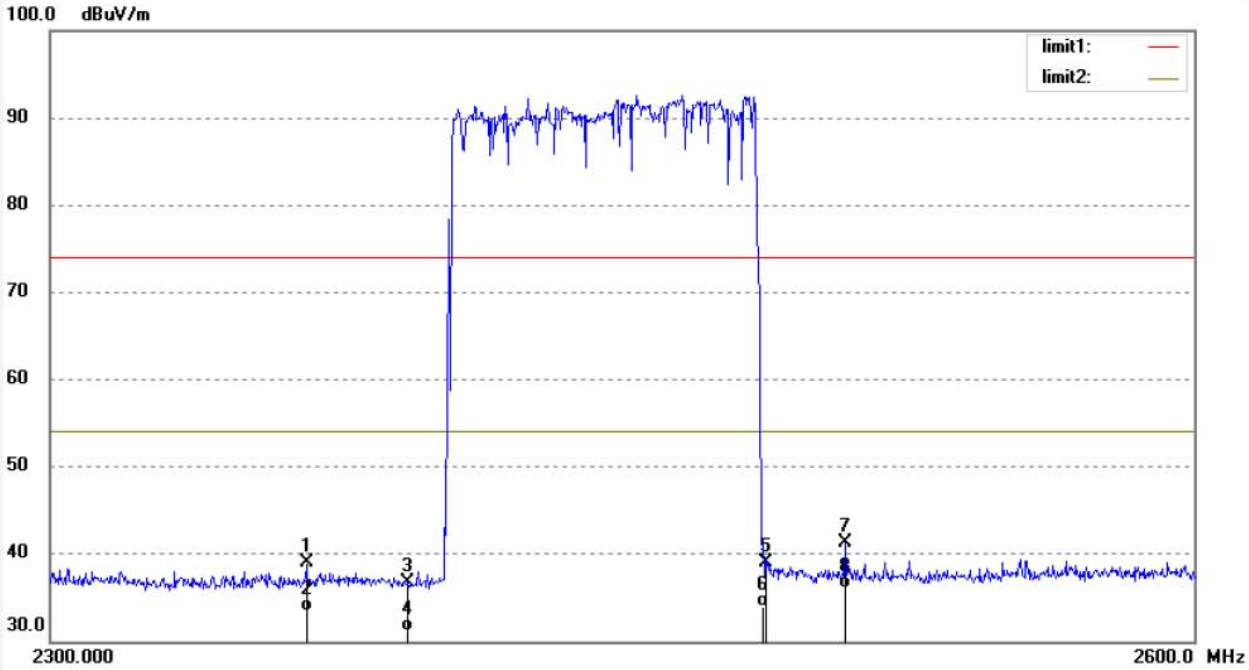
Job No.: RICKY #2044
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Audio Amolifier with Bluetooth and wired control keypad
Mode: HOPPING(8DPSK)
Model: ME60BT-BWG
Manufacturer: Poly-Planar

Polarization: Vertical
Power Source: DC 12V
Date: 14/07/23/
Time: 11/16/52
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141341



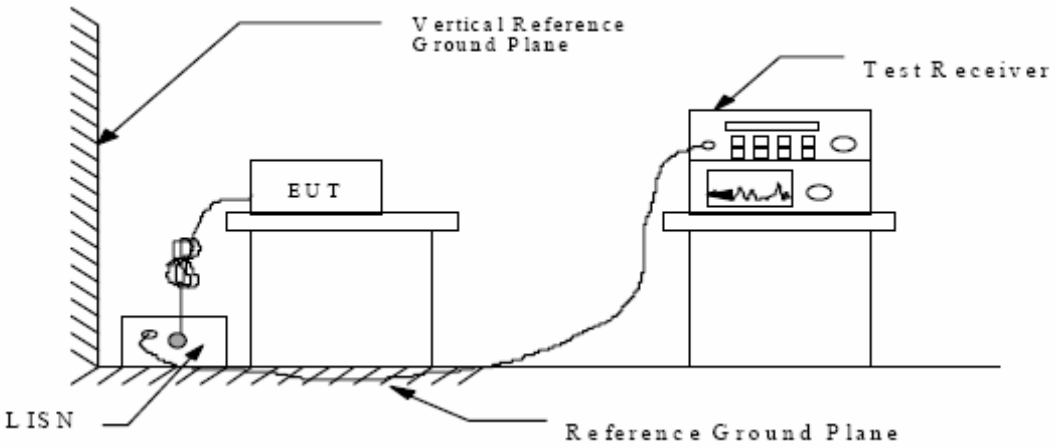
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2364.200	46.68	-7.74	38.94	74.00	-35.06	peak			
2	2364.200	41.11	-7.74	33.37	54.00	-20.63	AVG			
3	2390.000	44.33	-7.57	36.76	74.00	-37.24	peak			
4	2390.000	38.72	-7.57	31.15	54.00	-22.85	AVG			
5	2483.500	46.38	-7.38	39.00	74.00	-35.00	peak			
6	2483.500	41.23	-7.38	33.85	54.00	-20.15	AVG			
7	2504.600	48.61	-7.37	41.24	74.00	-32.76	peak			
8	2504.600	43.35	-7.37	35.98	54.00	-18.02	AVG			

12. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

12.1. Block Diagram of Test Setup

12.1.1. Block diagram of connection between the EUT and simulators

12.1.2. Shielding Room Test Setup Diagram



(EUT: Audio Amplifier with Bluetooth and wired control keypad)

12.2. The Emission Limit

12.2.1. Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

12.3.Configuration of EUT on Measurement

The equipment are installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 11.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in TX (Operation) mode measure it.

12.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4- 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

The frequency range from 150 kHz to 30MHz is checked.

12.6.Power Line Conducted Emission Measurement Results

The EUT contains not AC ports. Therefore, the test is not applicable and skipped.

13. ANTENNA REQUIREMENT

13.1. The Requirement

According to 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.

13.2. Antenna Construction

The antenna is PCB antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.

Antenna