

APPLICATION CERTIFICATION FCC Part 15C  
On Behalf of

Modern Marketing Concepts, Inc.

Stereo Turntable System

Model No.: T150X-XX

("X" can be replaced by letter from "A" to "Z" or blank)

FCC ID: AUST150A

Prepared for : Modern Marketing Concepts, Inc.  
Address : 1220 E Oak, St. Louisville, Kentucky, United States 40204

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Report No. : ATE20171878  
Date of Test : Sep. 9-Sep. 12, 2017  
Date of Report : Sep. 13, 2017

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## Test Report Certification

Applicant : Modern Marketing Concepts, Inc.  
Manufacturer : TIMSEN INTERNATIONAL LIMITED  
EUT Description : Stereo Turntable System  
Model No. : T150X-XX (Note: "X" can be replaced by letter from "A" to "Z" or blank.)  
Trade Name : CROSLEY

Measurement Procedure Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247:2016  
ANSI C63.10: 2013**

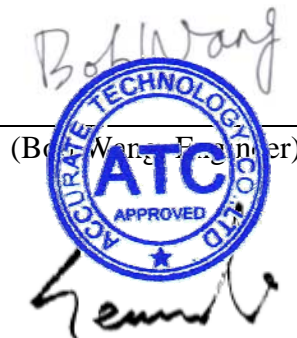
The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and Shenzhen 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 Shenzhen Accurate Technology Co., Ltd.

Date of Test : Sep. 9-Sep. 12, 2017  
Date of Report: Sep. 13, 2017

Prepared by : \_\_\_\_\_  
(Bob Wang, Engineer)

Approved & Authorized Signer : \_\_\_\_\_  
(Sean Liu, Manager)



## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT	:	Stereo Turntable System
Model Number	:	T150X-XX (Note: "X" can be replaced by letter from "A" to "Z" or blank. We hereby state that these models are identical in interior structure, electrical circuits and components, Except for the appearance different. So we prepare the T150A-CG for test.)
Bluetooth version	:	BT V4.2 Single mode This report is for BT classic mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain	:	2 dBi
Modulation mode	:	GFSK, $\pi/4$ DQPSK, 8DPSK
Antenna type	:	PCB Antenna
Power Supply	:	DC 12V (Powered by adapter)
Adapter 1	:	Model: RHD20W120150 Input: AC 100-240V 50/60Hz 1.5A Output: DC 12V 1500mA
Adapter 2	:	Model: SW1201500-N04 Input: 100-240V~50/60Hz Max.500mA Output: 12V $\approx$ 1500mA
Applicant	:	Modern Marketing Concepts, Inc.
Address	:	1220 E Oak, St. Louisville, Kentucky, United States 40204
Manufacturer	:	TIMSEN INTERNATIONAL LIMITED
Address	:	5F, 447# Tianhebei Road, Guangzhou, China

Note: Manufacturer provides two adapters. Both adapters were tested for conducted emission and radiated spurious emission, In measuring the radiated spurious emission, The adapter 2 was tested only in the 30MHz-1GHz frequency band, because the work frequency of the adapter does not affect more than 1GHz frequency. so no test data of more than 1 GHz.

### 1.2.Carrier Frequency of Channels

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

### 1.3.Accessory and Auxiliary Equipment

PC :                                 Manufacturer: LENOVO  
M/N: 4290-RT8  
S/N: R9-FW93G 11/08

#### 1.4. Description of Test Facility

- EMC Lab : Recognition of accreditation by Federal Communications Commission (FCC)  
The Designation Number is CN1189  
The Registration Number is 708358
- Listed by Innovation, Science and Economic Development Canada (ISED)  
The Registration Number is 5077A-2
- Accredited by China National Accreditation Service for Conformity Assessment (CNAS)  
The Registration Number is CNAS L3193
- Accredited by American Association for Laboratory Accreditation (A2LA)  
The Certificate Number is 4297.01
- Name of Firm : Shenzhen Accurate Technology Co., Ltd.  
Site Location : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

#### 1.5. 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. 07, 2017	1 Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 07, 2017	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 07, 2017	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 07, 2017	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 13, 2017	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 13, 2017	1 Year
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 07, 2017	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 07, 2017	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 07, 2017	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 07, 2017	1 Year

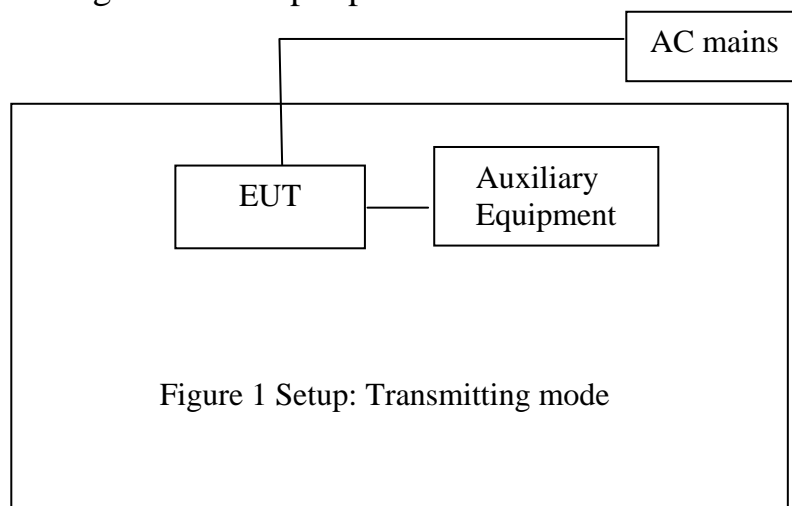


### 3. OPERATION OF EUT DURING TESTING

#### 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

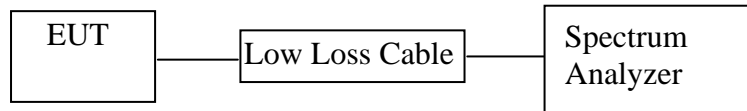


#### 4. TEST PROCEDURES AND RESULTS

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
Section 15.207	Conducted Emission Test	Compliant
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: Stereo Turntable System)

### 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 100 kHz and VBW to 300 kHz.

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

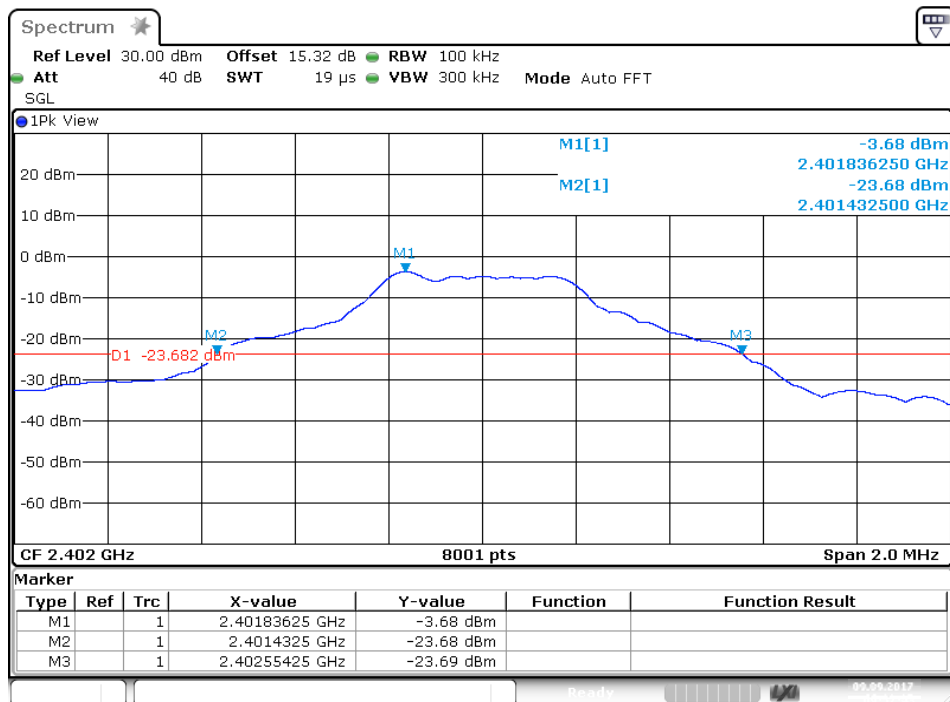
### 5.6. Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	1.122	1.344	1.316	Pass
Middle	2441	1.127	1.341	1.308	Pass
High	2480	1.114	1.338	1.312	Pass

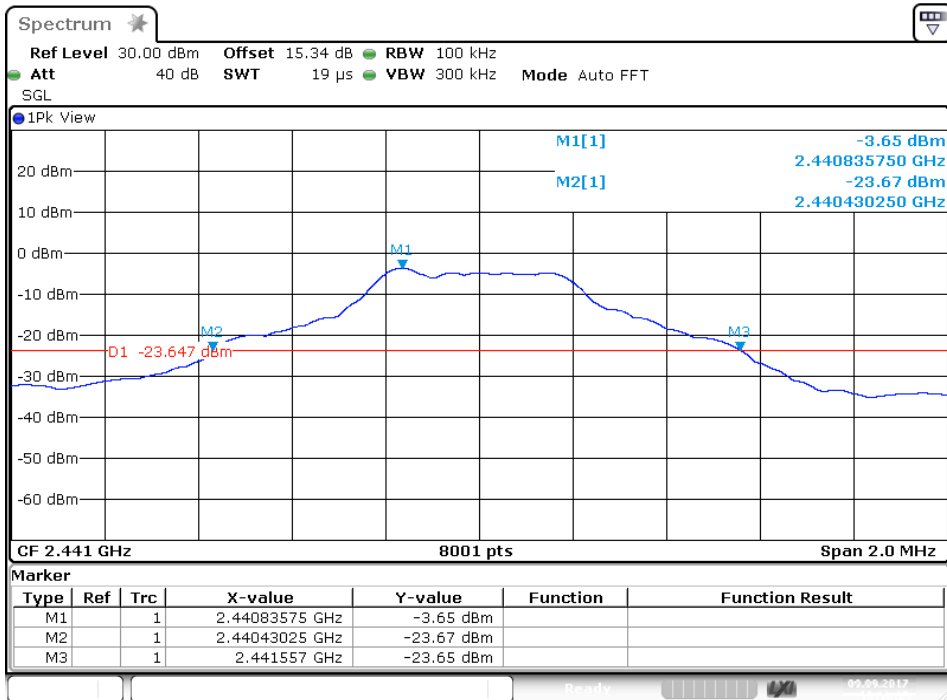
The spectrum analyzer plots are attached as below.

#### GFSK Mode

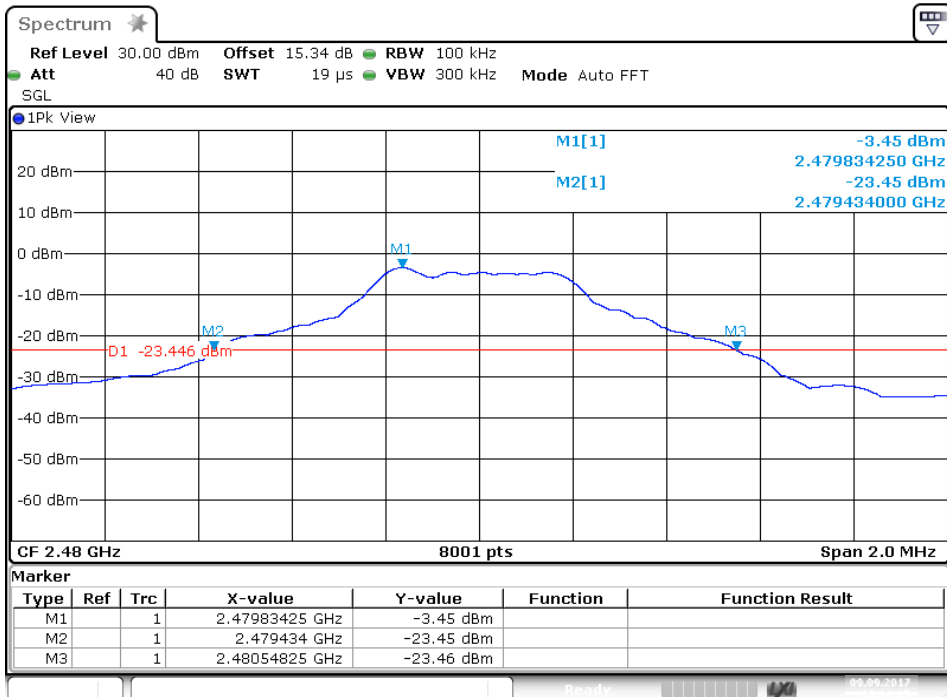
#### Low channel



### Middle channel

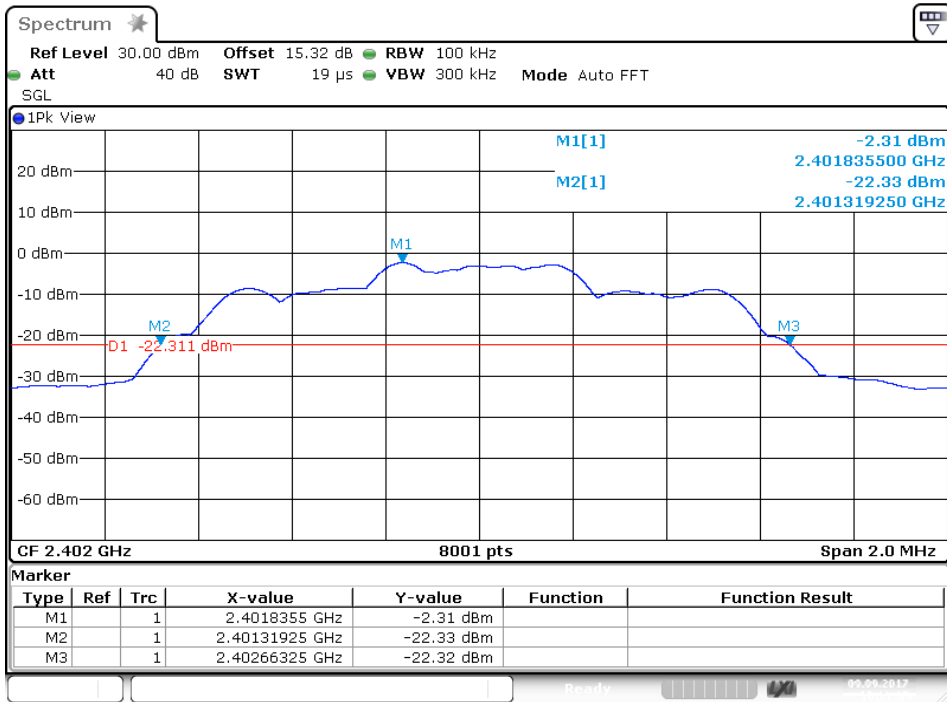


### High channel

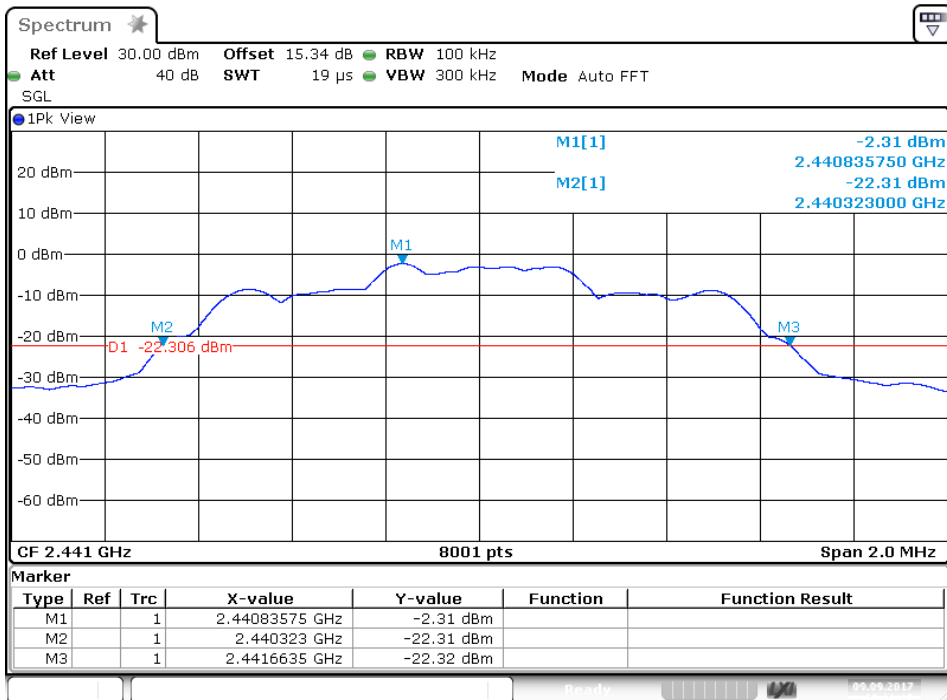


Π/4-DQPSK Mode

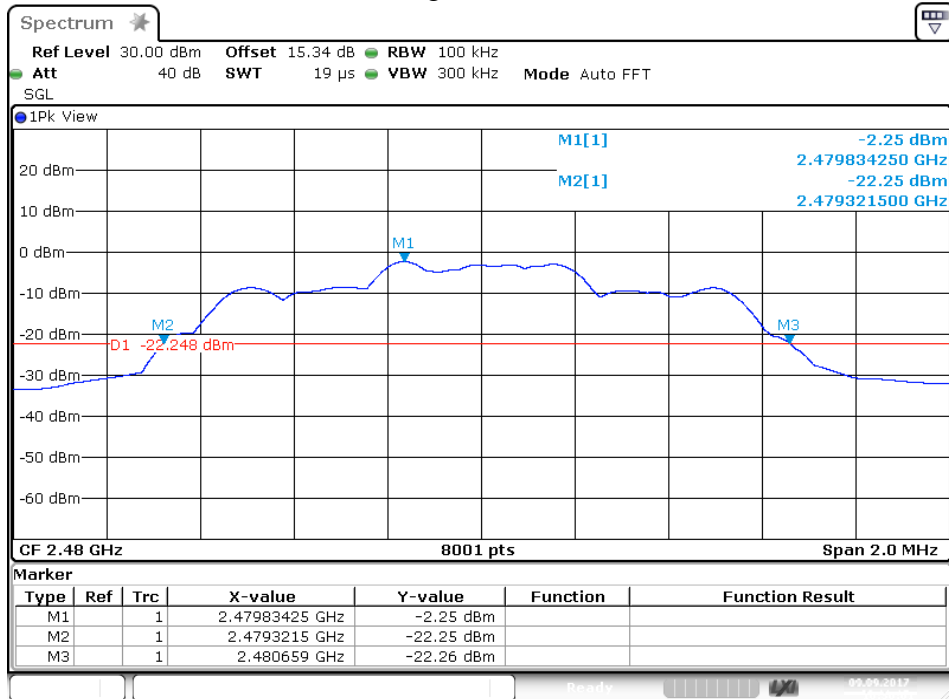
Low channel



Middle channel

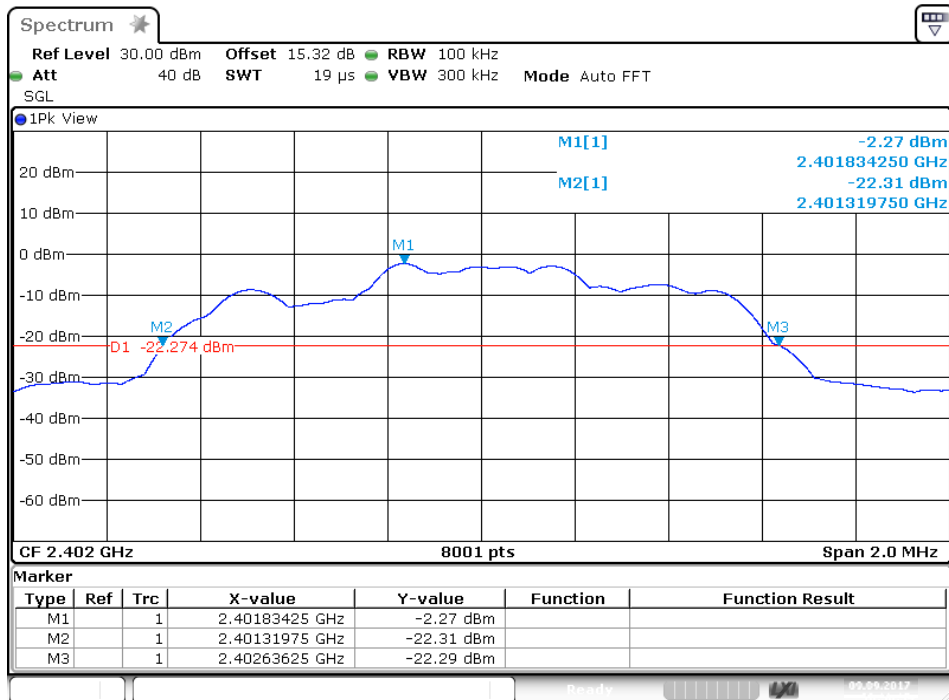


### High channel

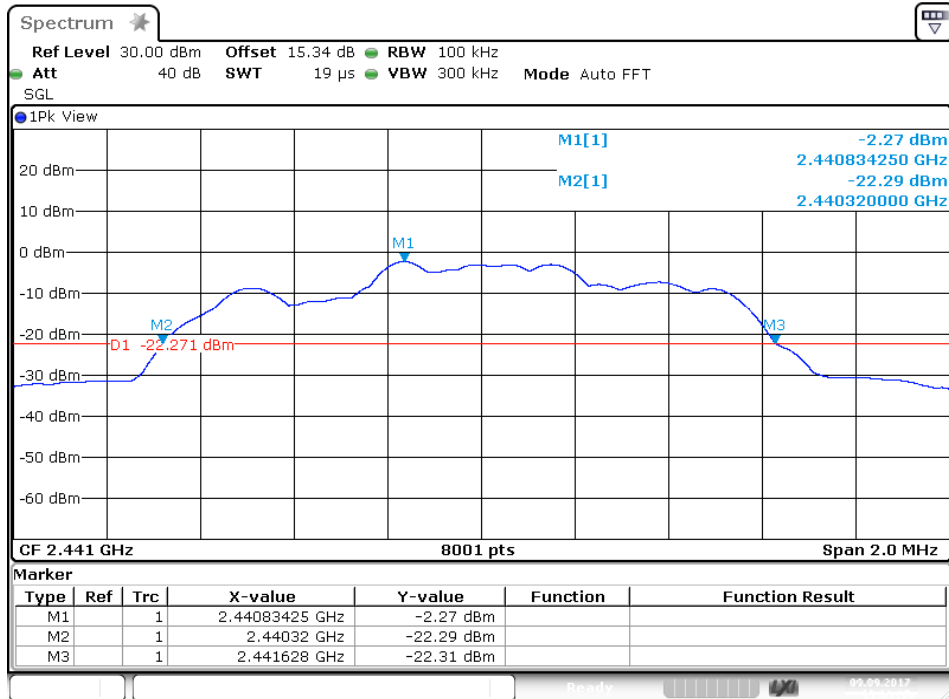


### 8DPSK Mode

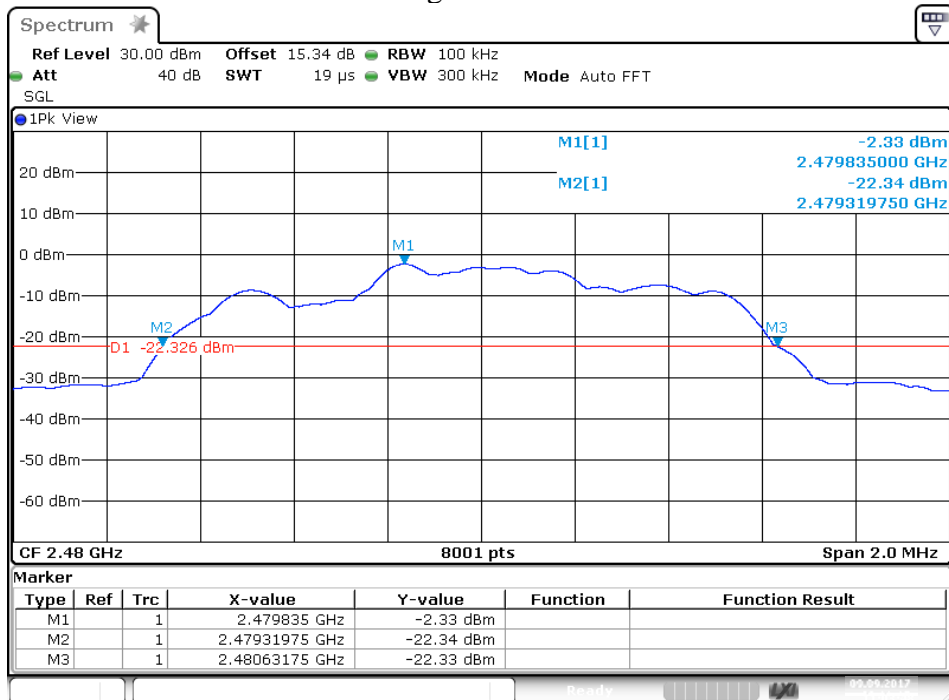
### Low channel



### Middle channel



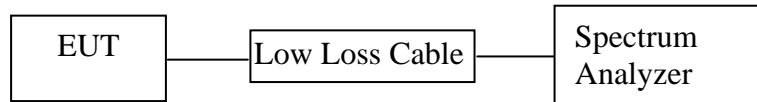
### High channel





## 6. CARRIER FREQUENCY SEPARATION TEST

### 6.1. Block Diagram of Test Setup



(EUT: Stereo Turntable System)

### 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 2MHz.

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	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2480			

#### Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.000	25KHz or 2/3*20dB bandwidth	PASS
	2480			

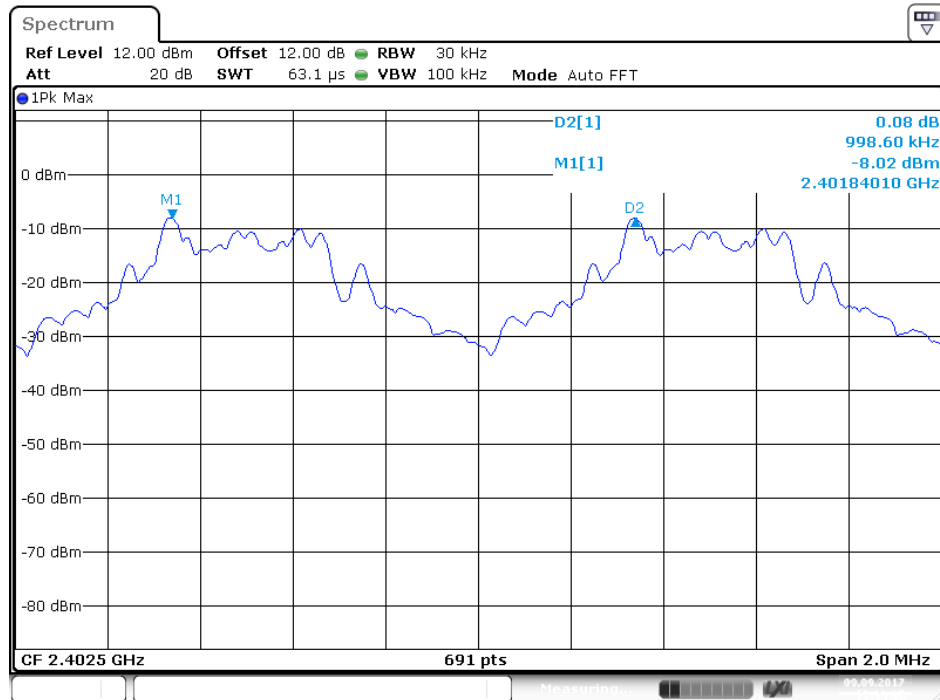
#### 8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	0.999	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.003	25KHz or 2/3*20dB bandwidth	PASS
	2480			

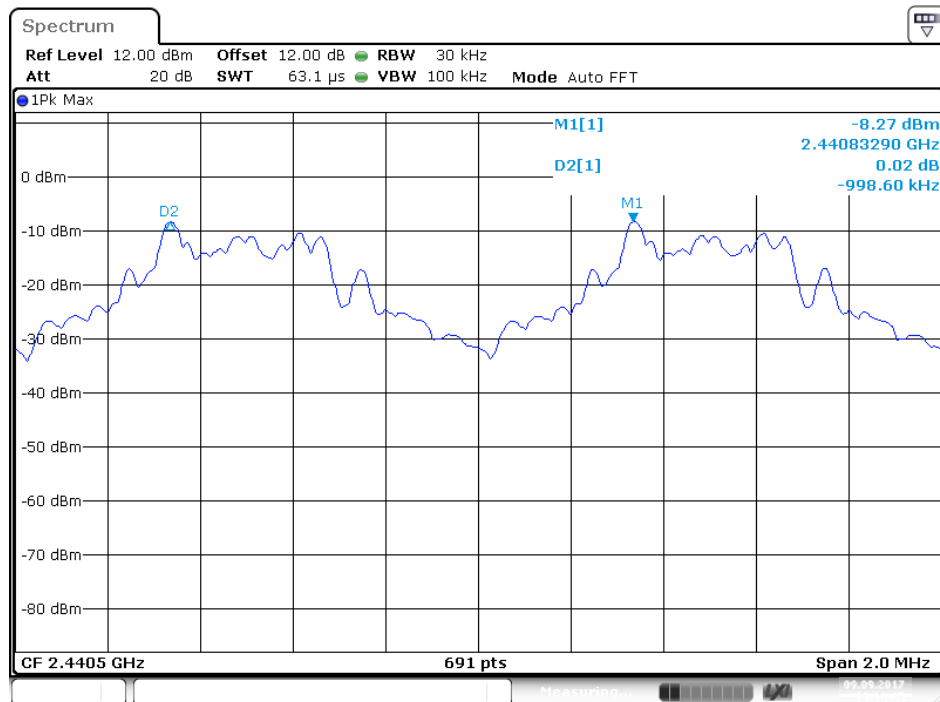
The spectrum analyzer plots are attached as below.

GFSK Mode

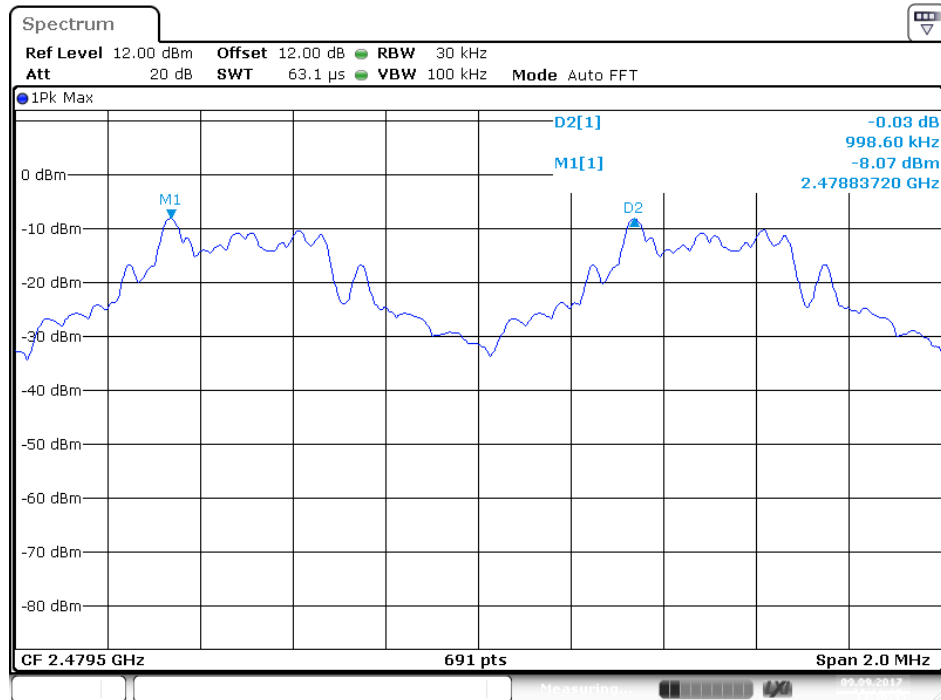
Low channel



Middle channel

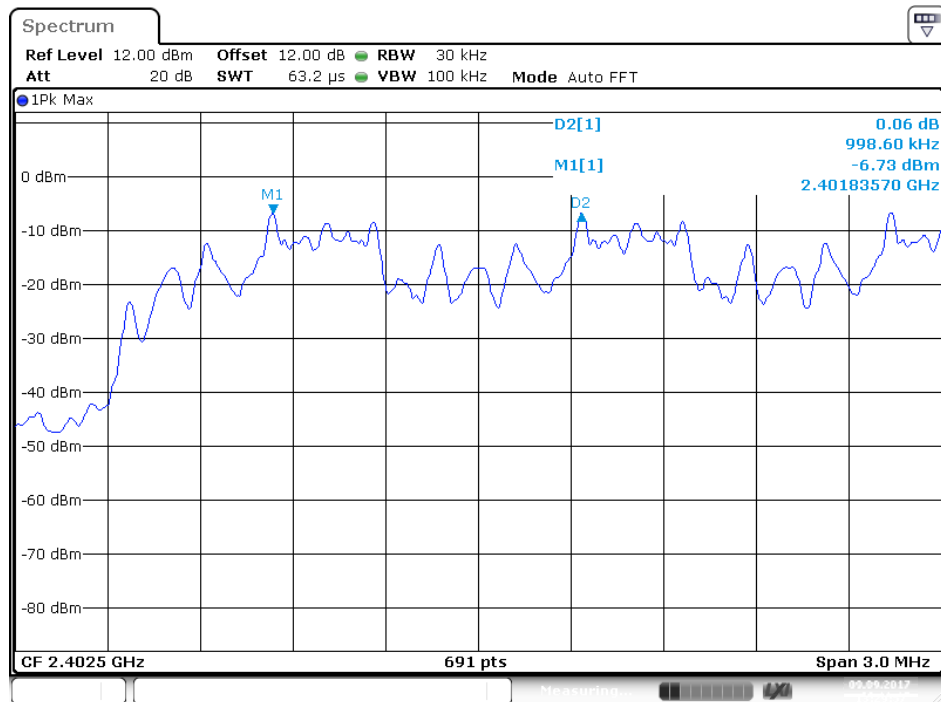


### High channel

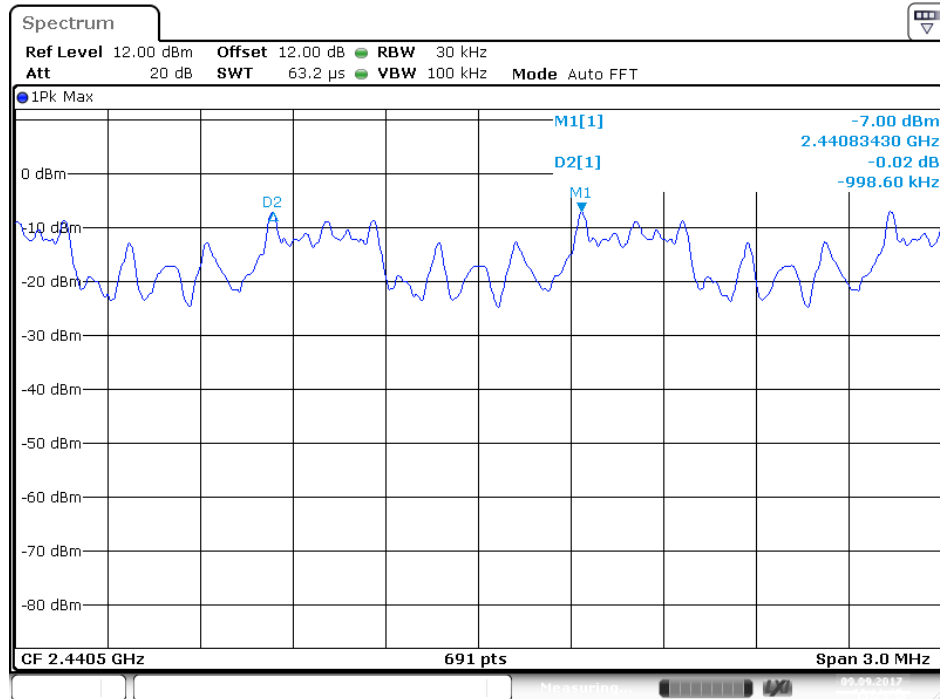


### $\Pi/4$ -DQPSK Mode

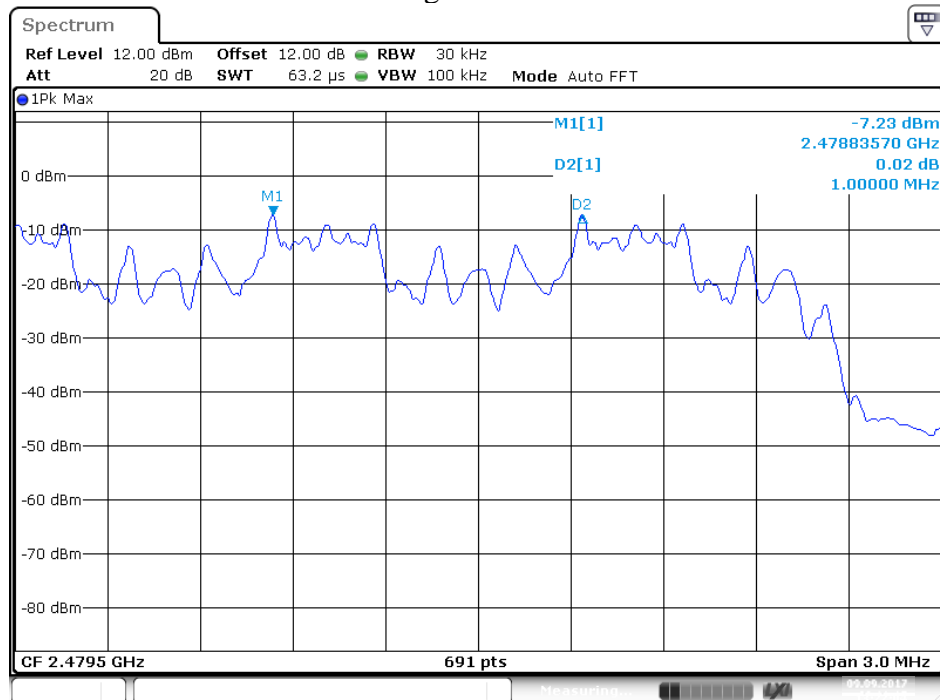
### Low channel



### Middle channel

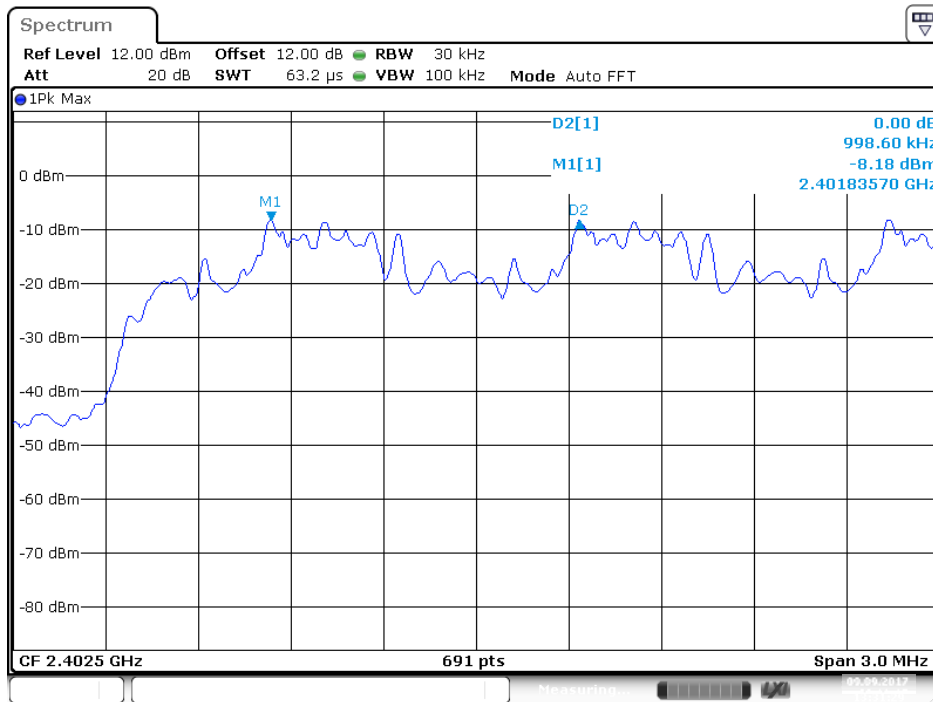


### High channel

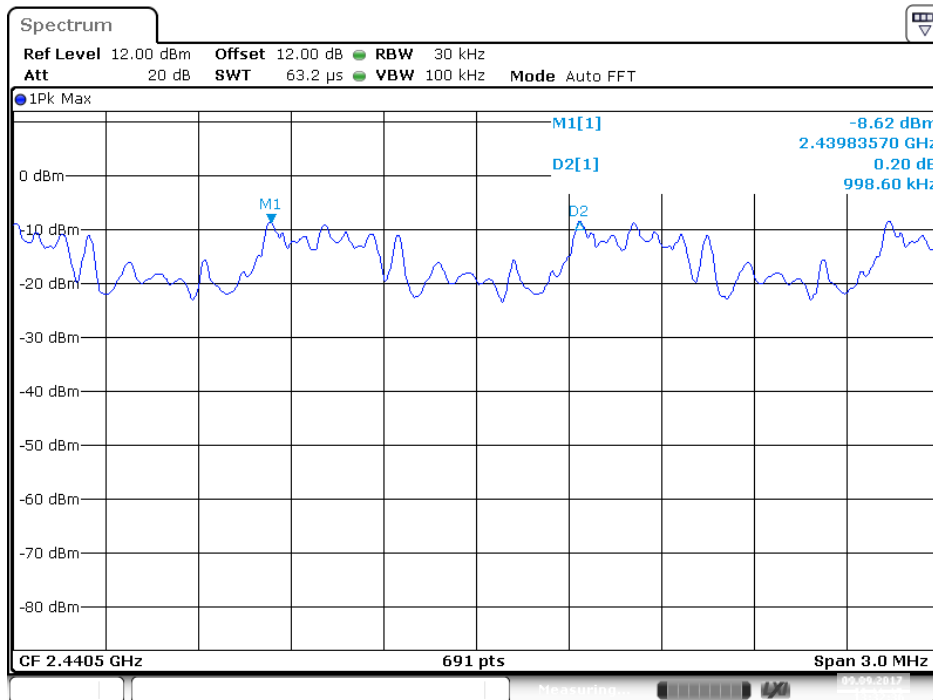


8DPSK Mode

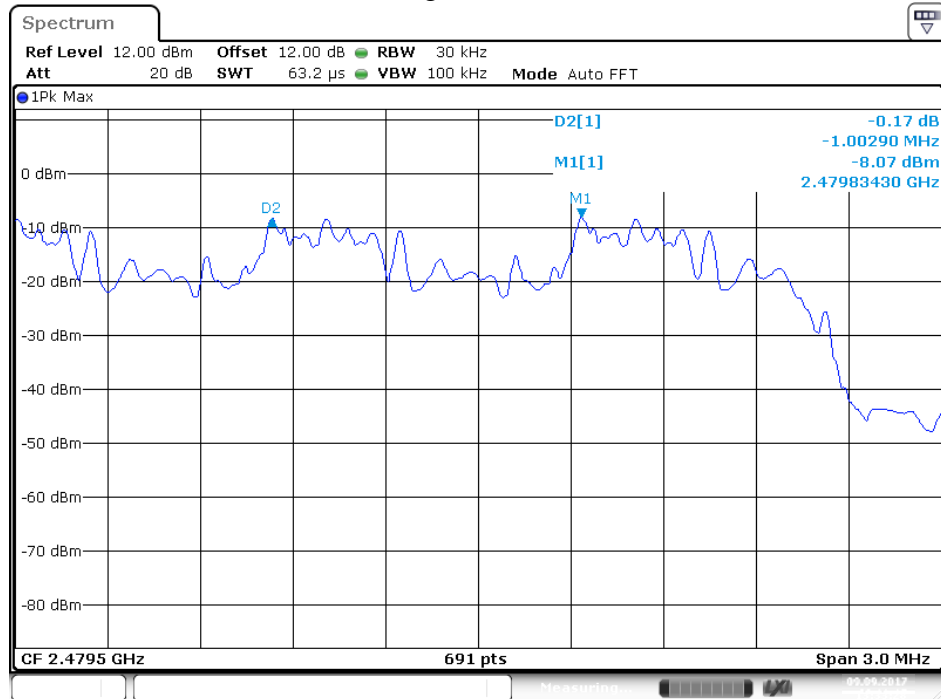
Low channel



Middle channel

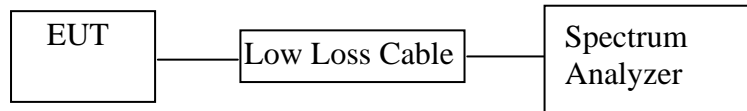


### High channel



## 7. NUMBER OF HOPPING FREQUENCY TEST

### 7.1. Block Diagram of Test Setup



(EUT: Stereo Turntable System)

### 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 RBW=100 kHz, VBW=300 kHz.

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

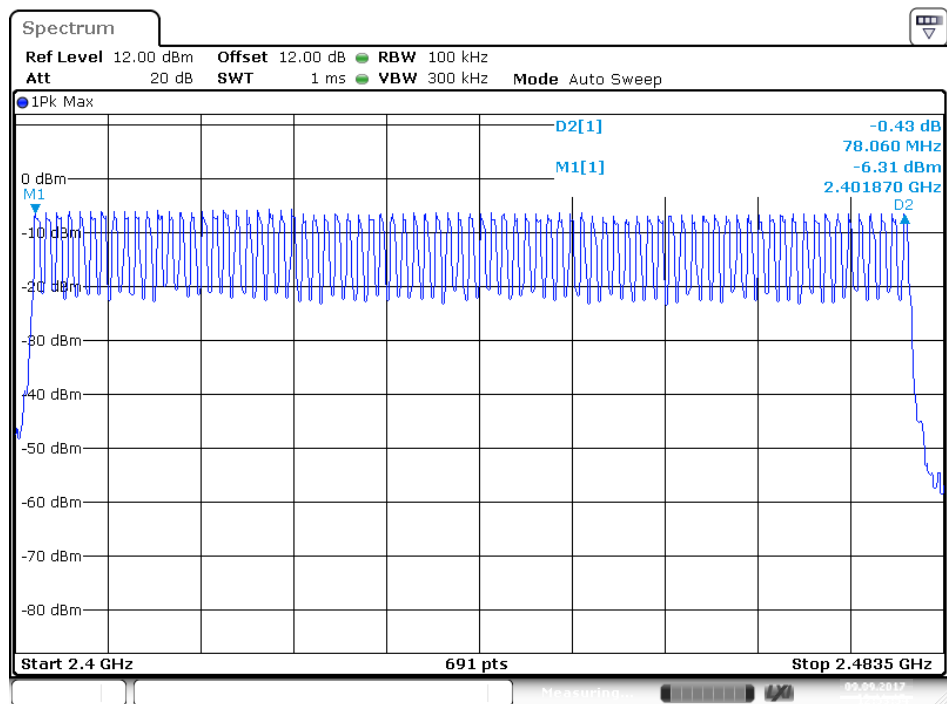


### 7.6. Test Result

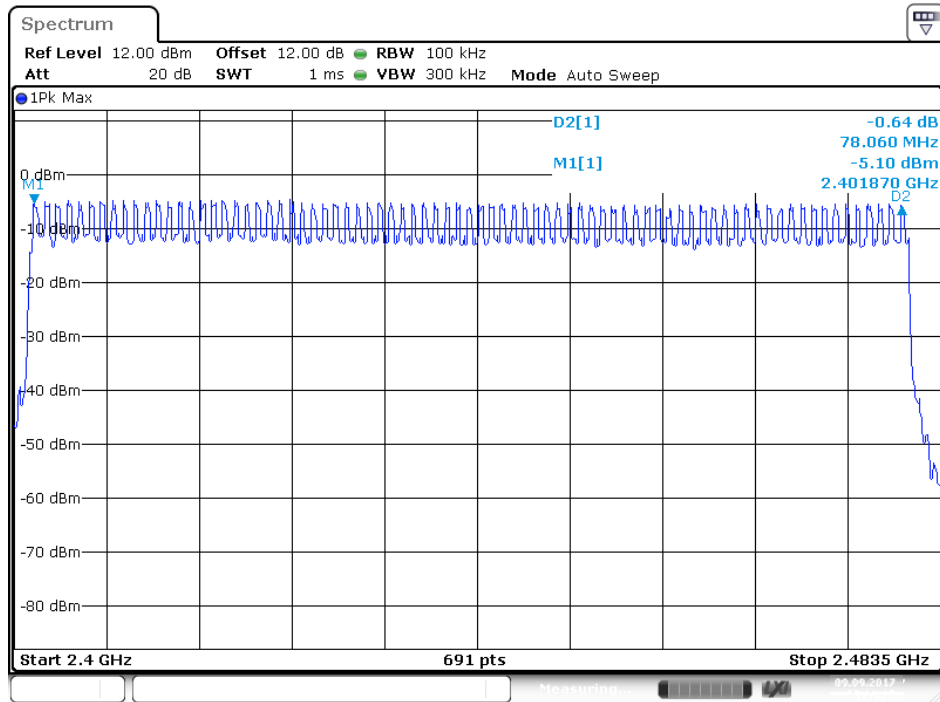
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	$\geq 15$

The spectrum analyzer plots are attached as below.

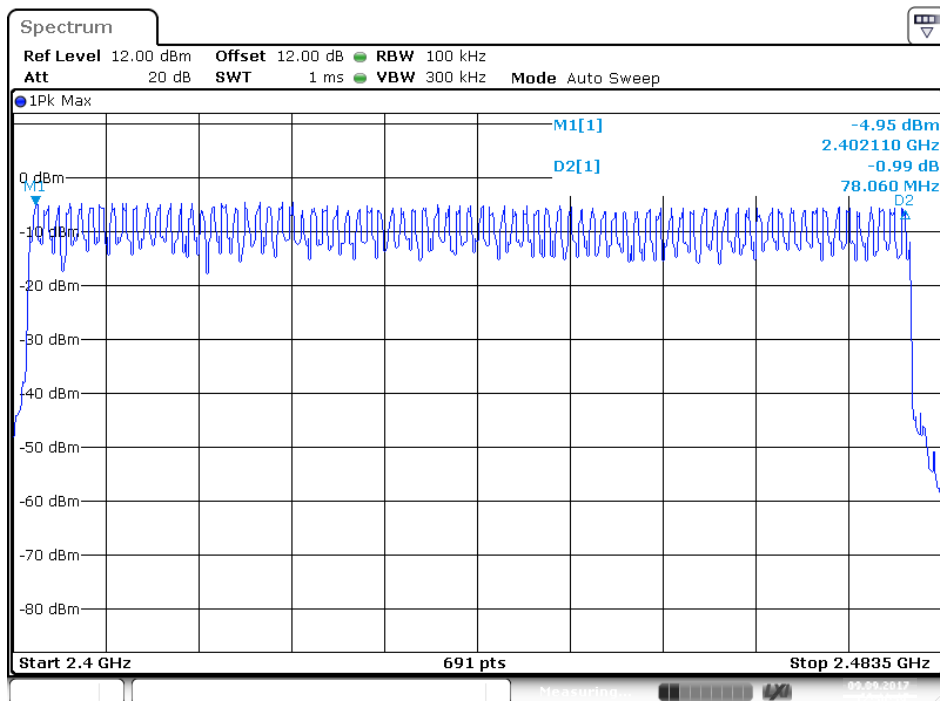
Number of hopping channels(GFSK)



### Number of hopping channels( $\Pi/4$ -DQPSK)

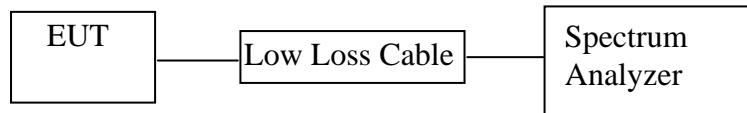


### Number of hopping channels(8DPSK)



## 8. DWELL TIME TEST

### 8.1. Block Diagram of Test Setup



(EUT: Stereo Turntable System)

### 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, Adjust Sweep=5ms, 10ms, 15ms. Get the pulse time.

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	0.406	129.92	400
	2441	0.406	129.92	400
	2480	0.406	129.92	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.681	268.96	400
	2441	1.681	268.96	400
	2480	1.681	268.96	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	2.986	318.51	400
	2441	2.986	318.51	400
	2480	2.986	318.51	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

### $\Pi/4$ -DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.406	129.92	400
	2441	0.406	129.92	400
	2480	0.406	129.92	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.667	266.72	400
	2441	1.681	268.96	400
	2480	1.681	268.96	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	2.986	318.51	400
	2441	2.986	318.51	400
	2480	2.986	318.51	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

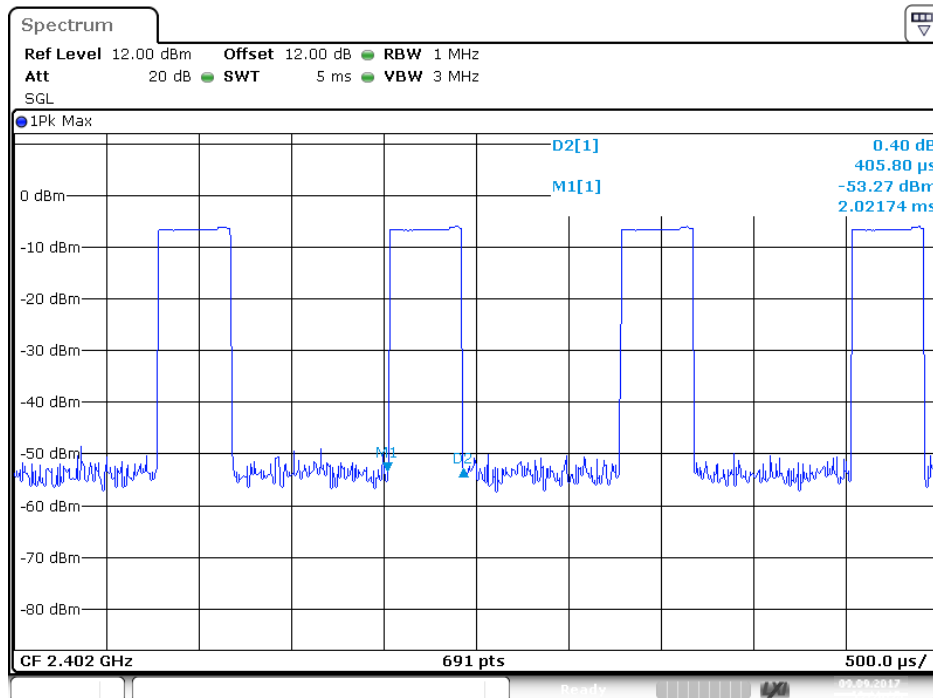
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.406	129.92	400
	2441	0.406	129.92	400
	2480	0.406	129.92	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.681	268.96	400
	2441	1.681	268.96	400
	2480	1.681	268.96	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	2.986	318.51	400
	2441	2.986	318.51	400
	2480	2.986	318.51	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

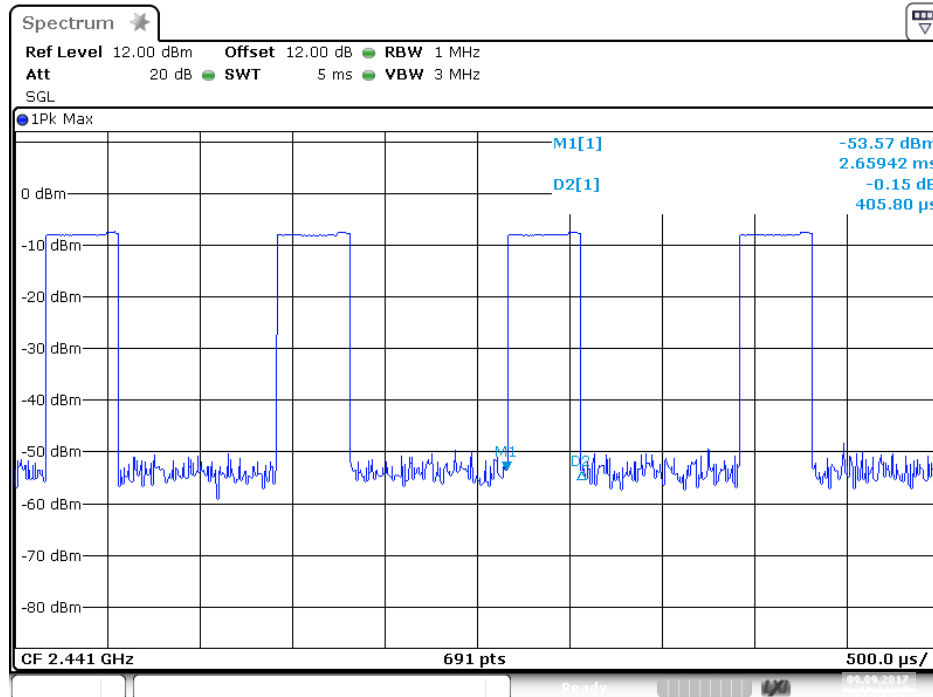
The spectrum analyzer plots are attached as below.

GFSK Mode

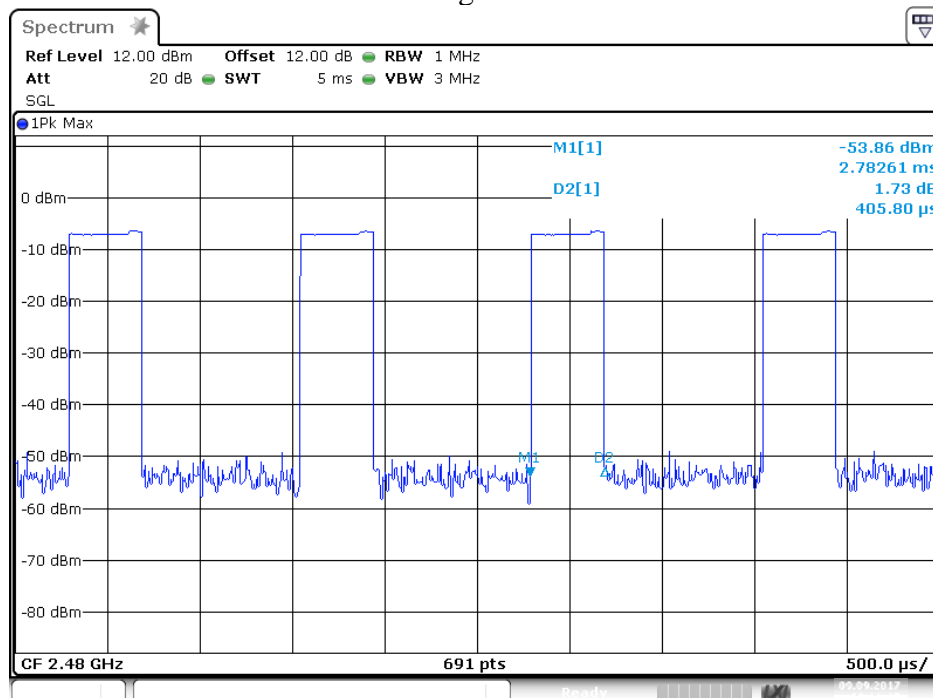
DH1 Low channel



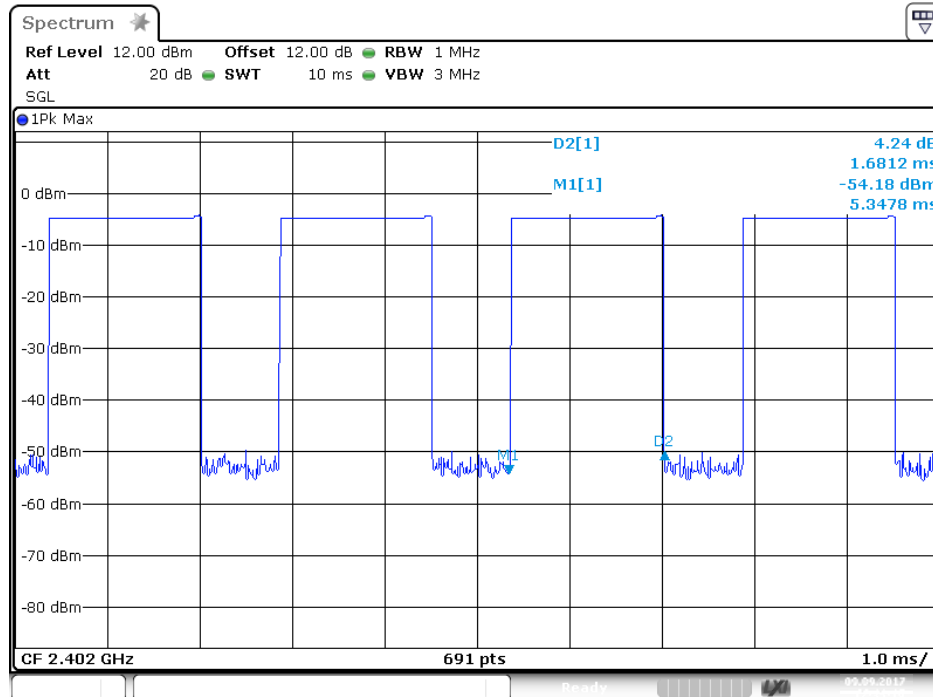
### DH1 Middle channel



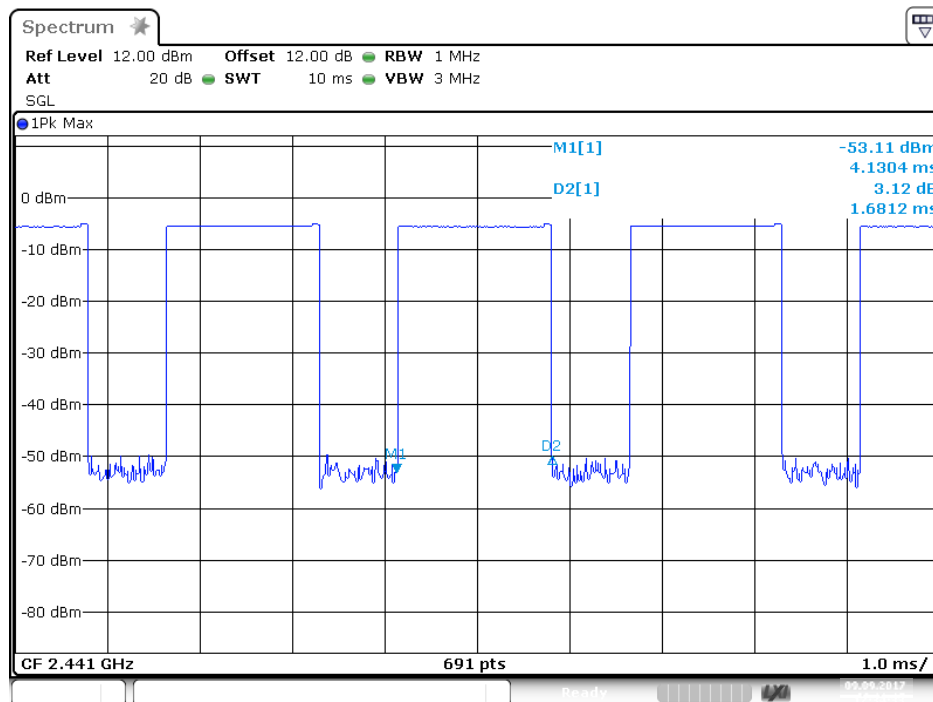
### DH1 High channel



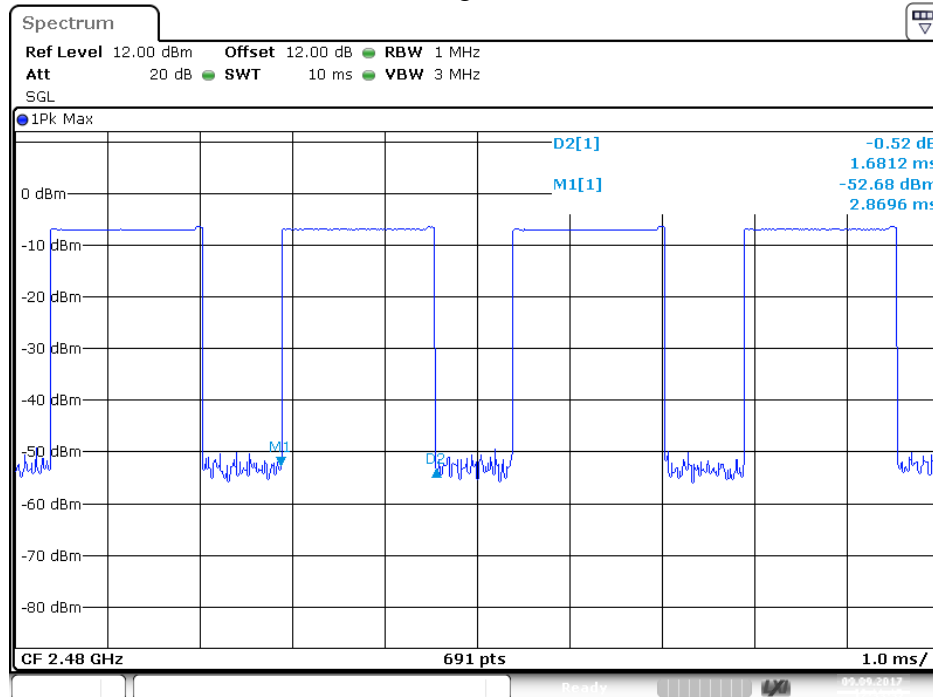
### DH3 Low channel



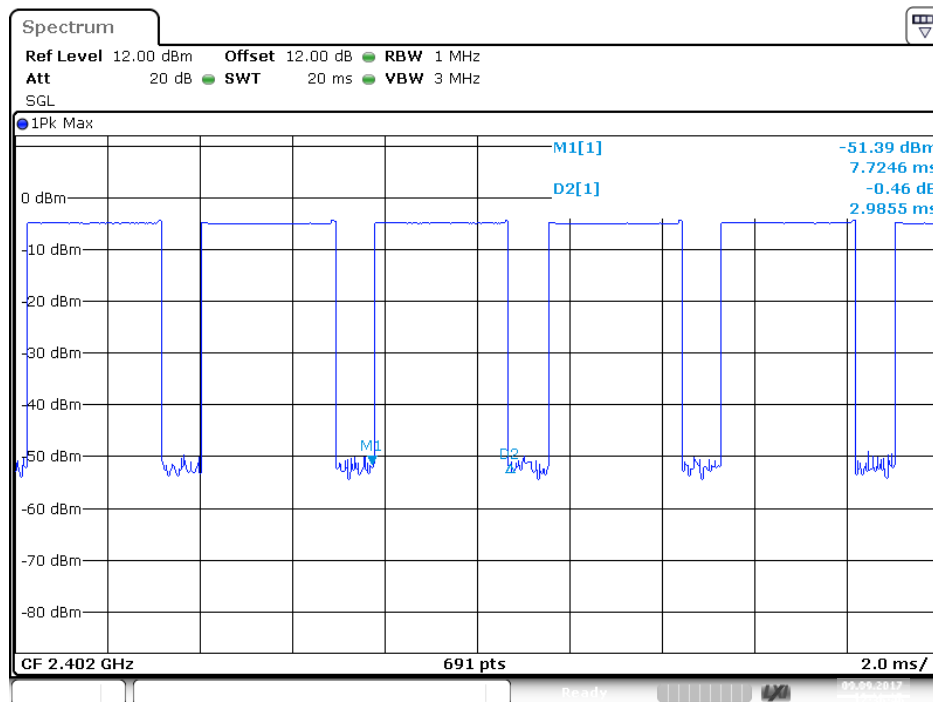
### DH3 Middle channel



### DH3 High channel

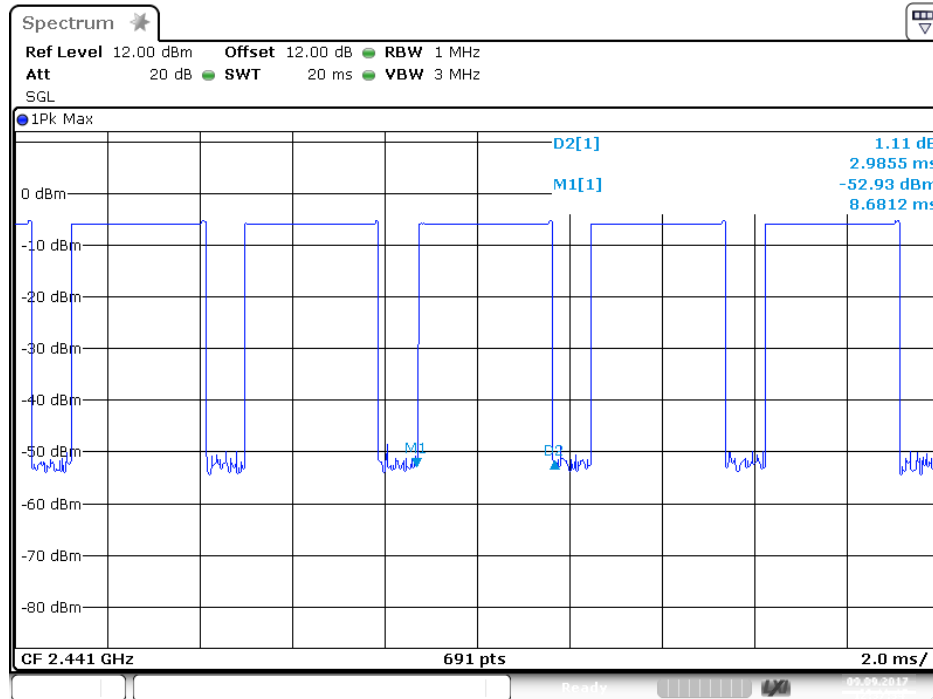


### DH5 Low channel

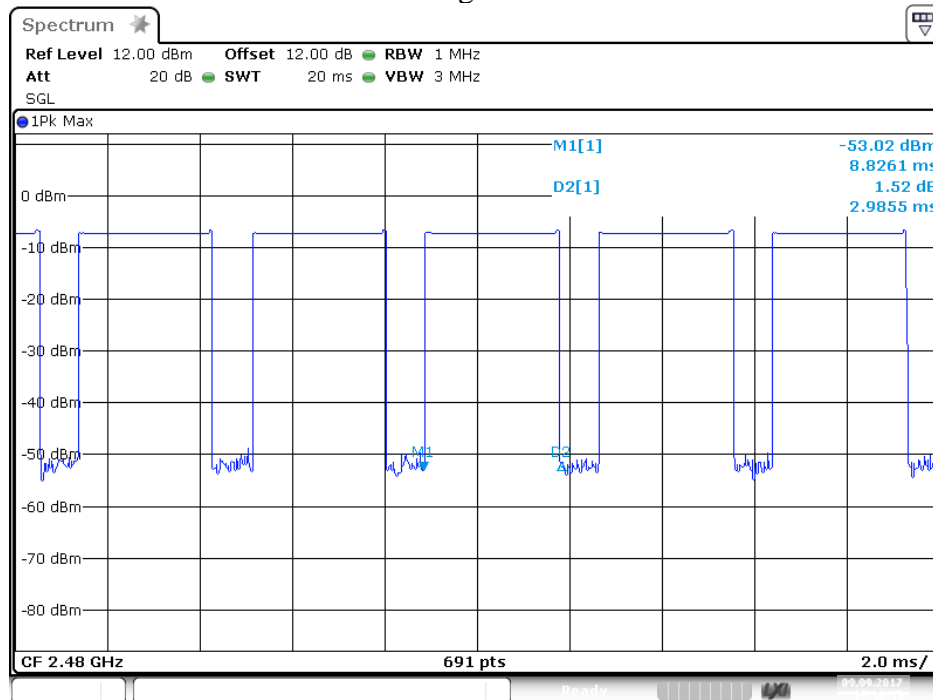




### DH5 Middle channel

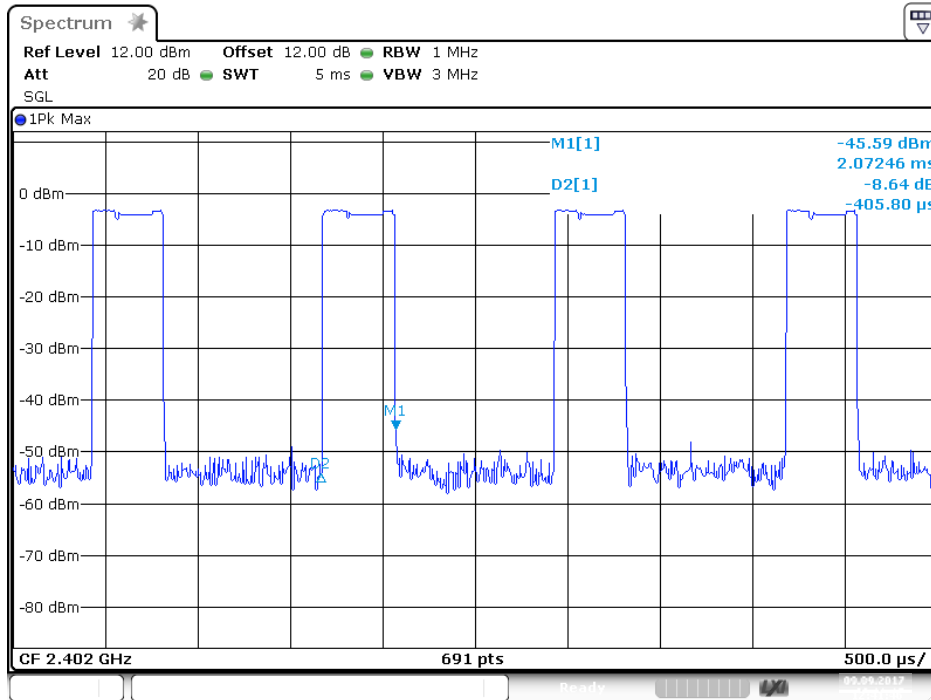


### DH5 High channel

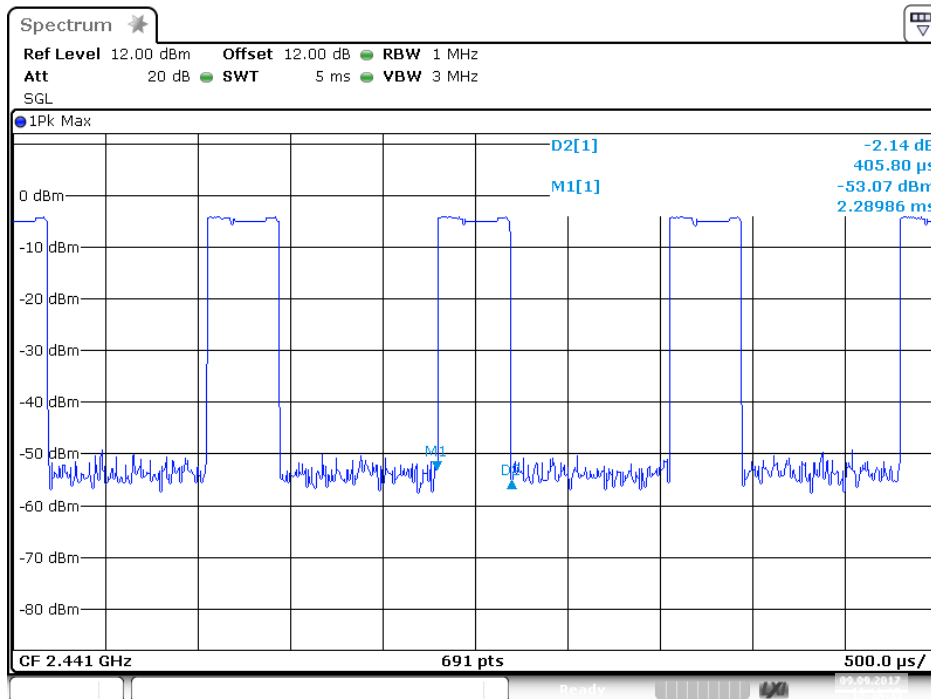


Π/4-DQPSK

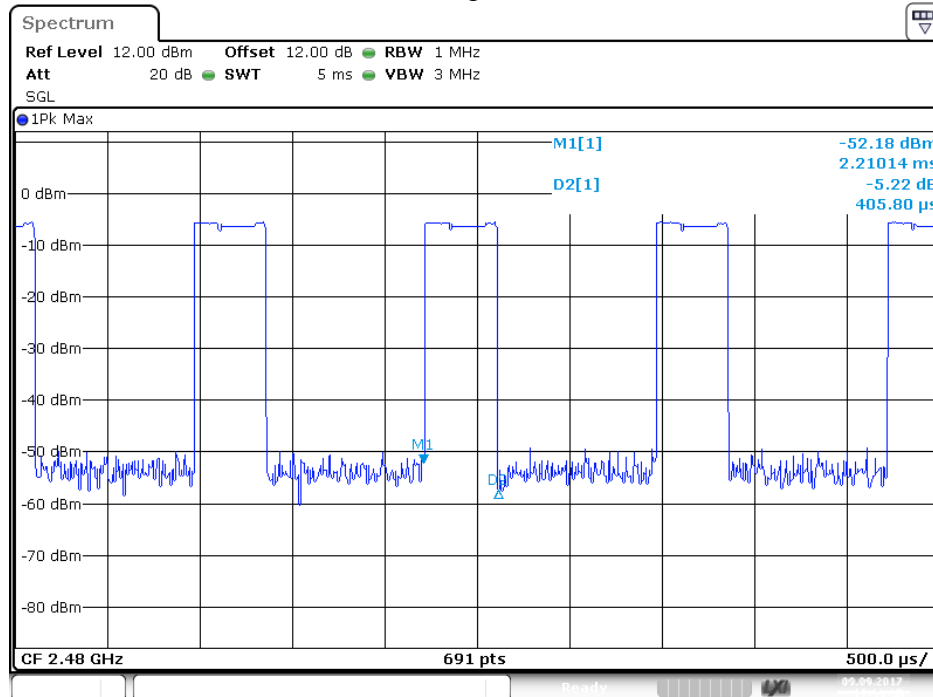
2DH1 Low channel



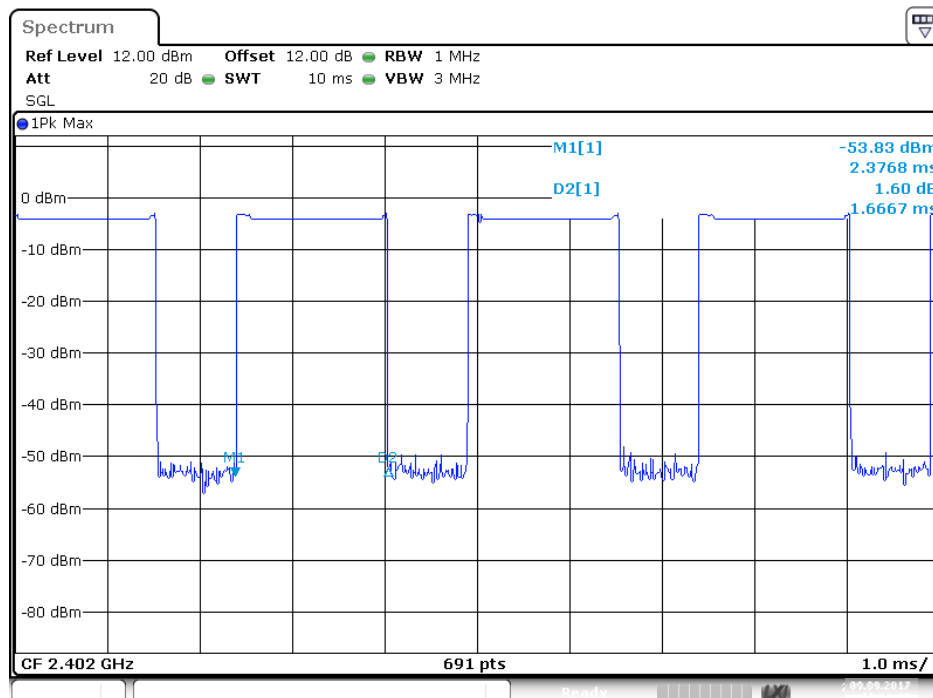
2DH1 Middle channel



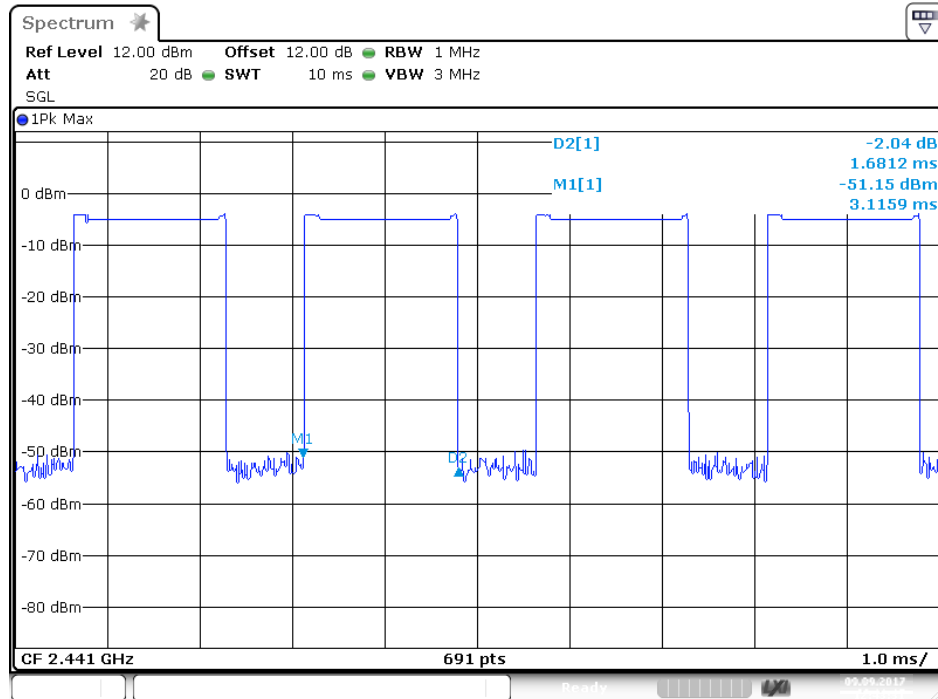
### 2DH1 High channel



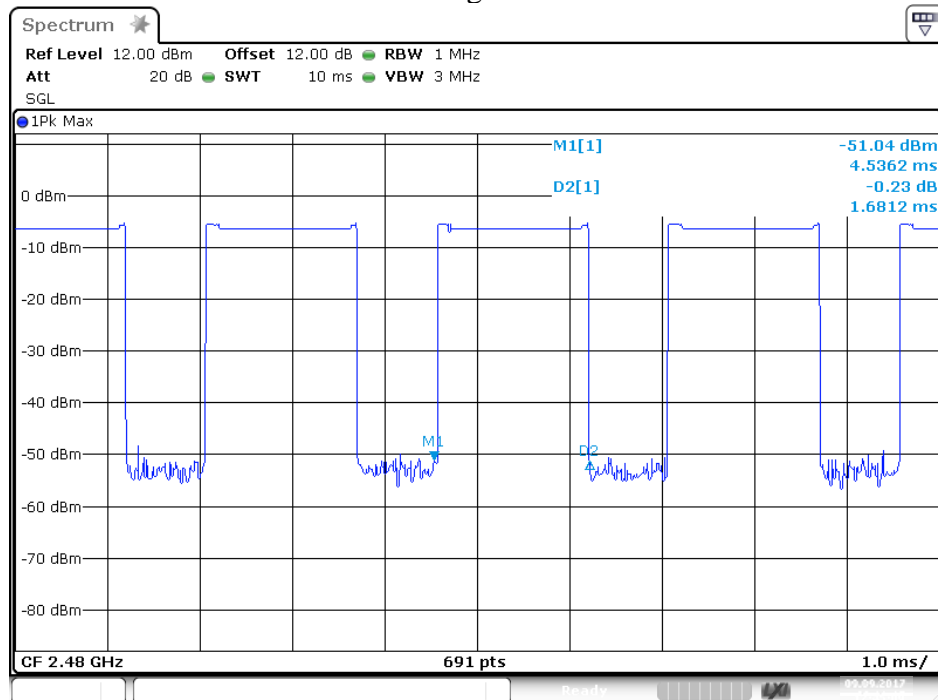
### 2DH3 Low channel



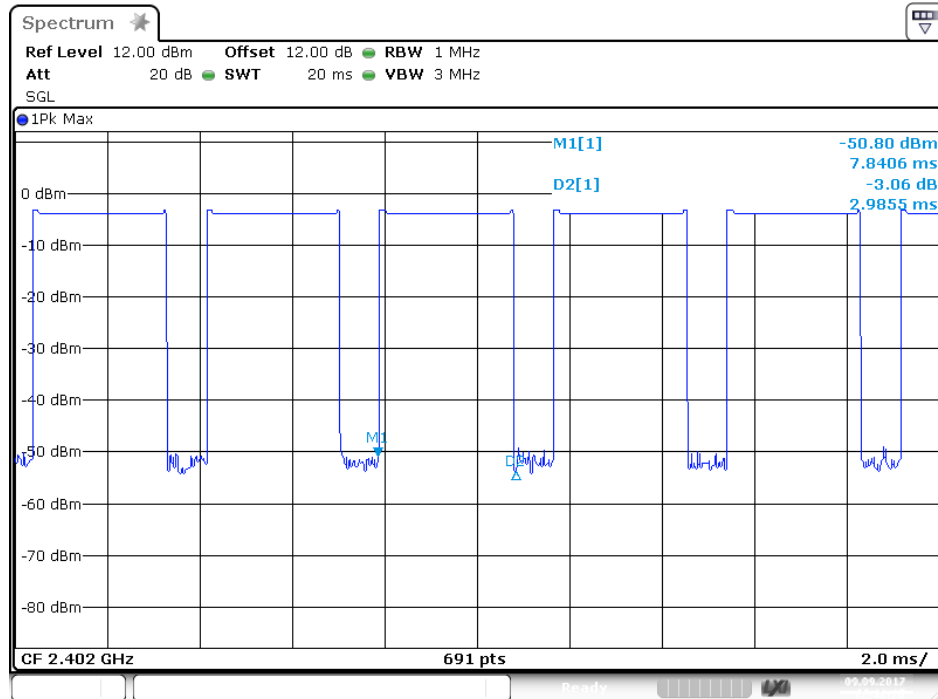
### 2DH3 Middle channel



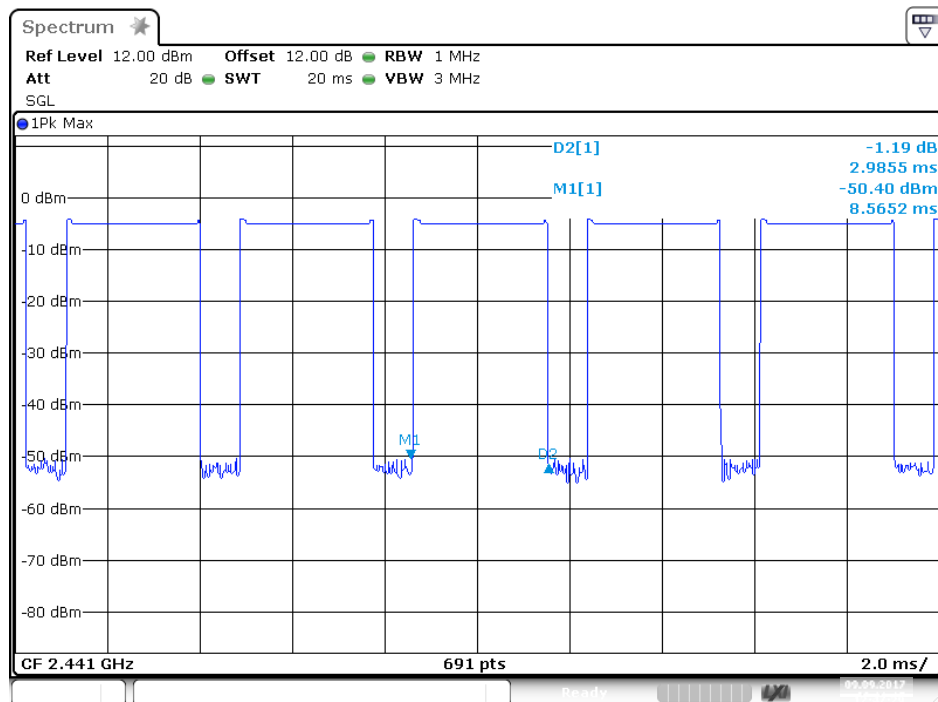
### 2DH3 High channel



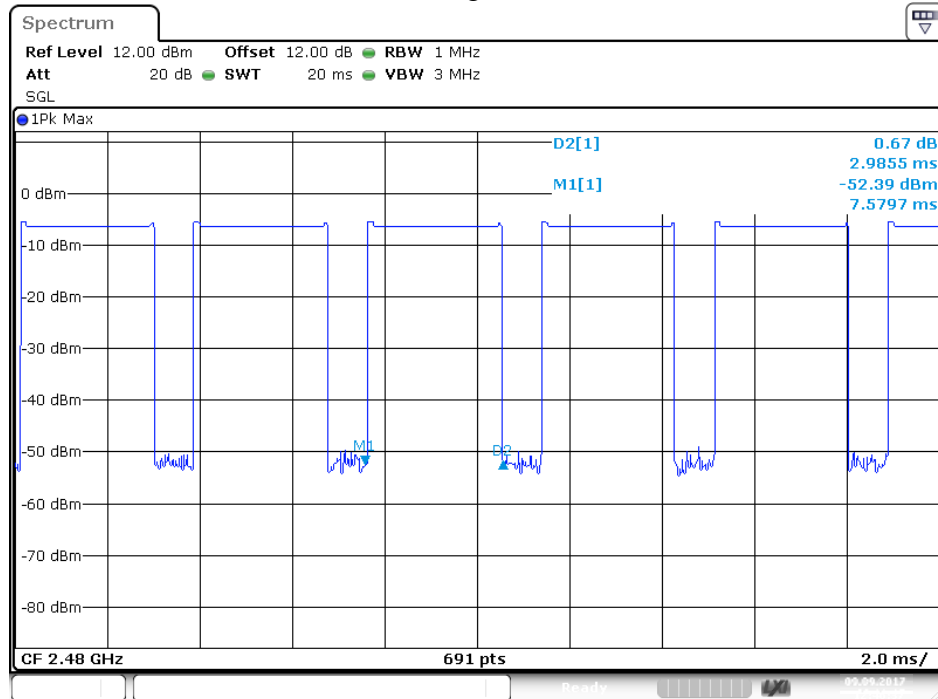
### 2DH5 Low channel



### 2DH5 Middle channel

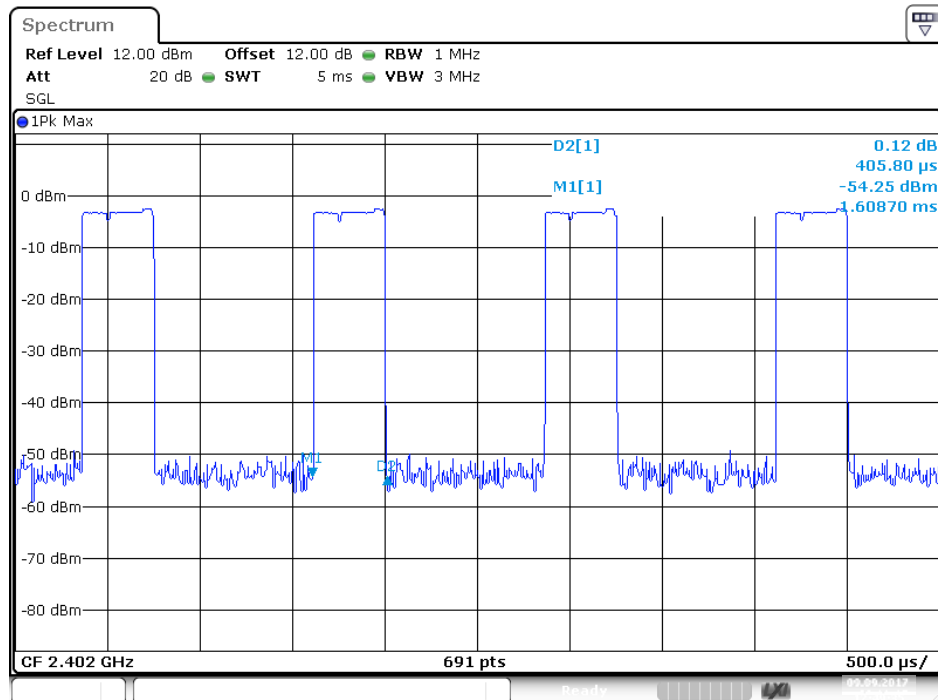


### 2DH5 High channel

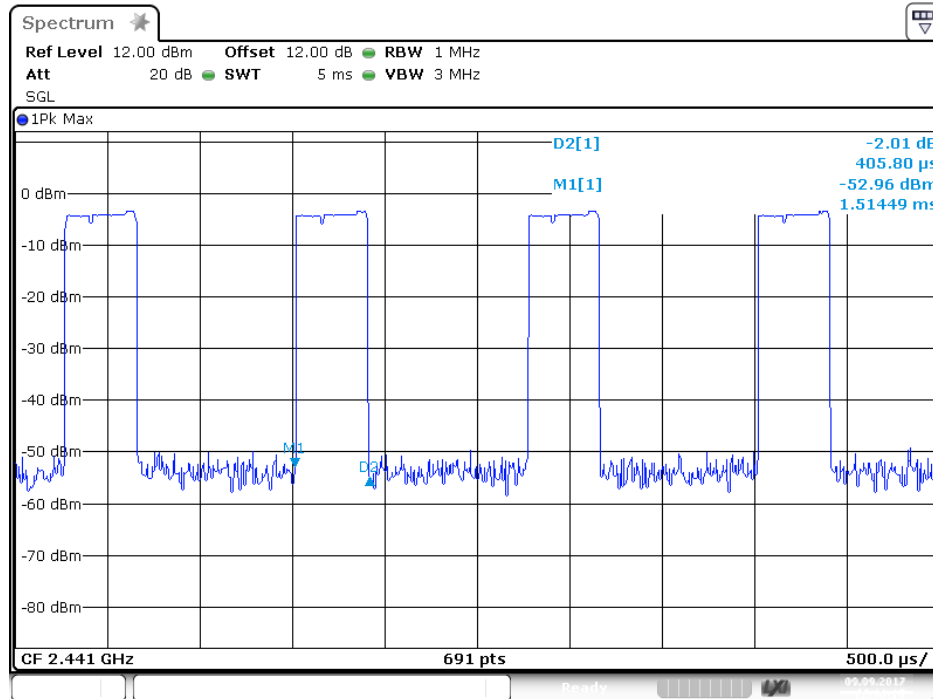


### 8DPSK Mode

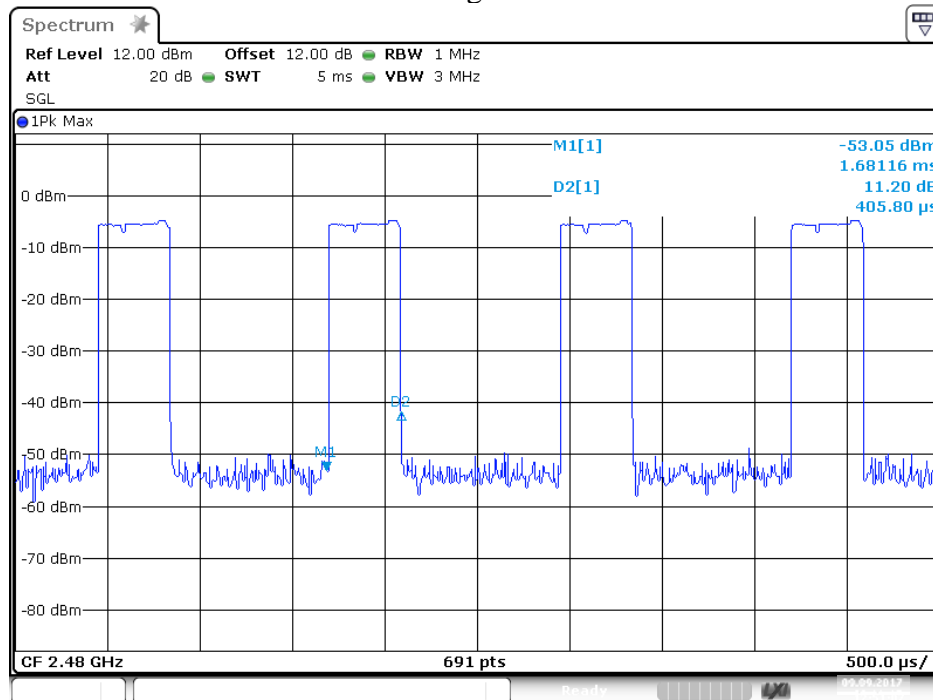
### 3DH1 Low channel



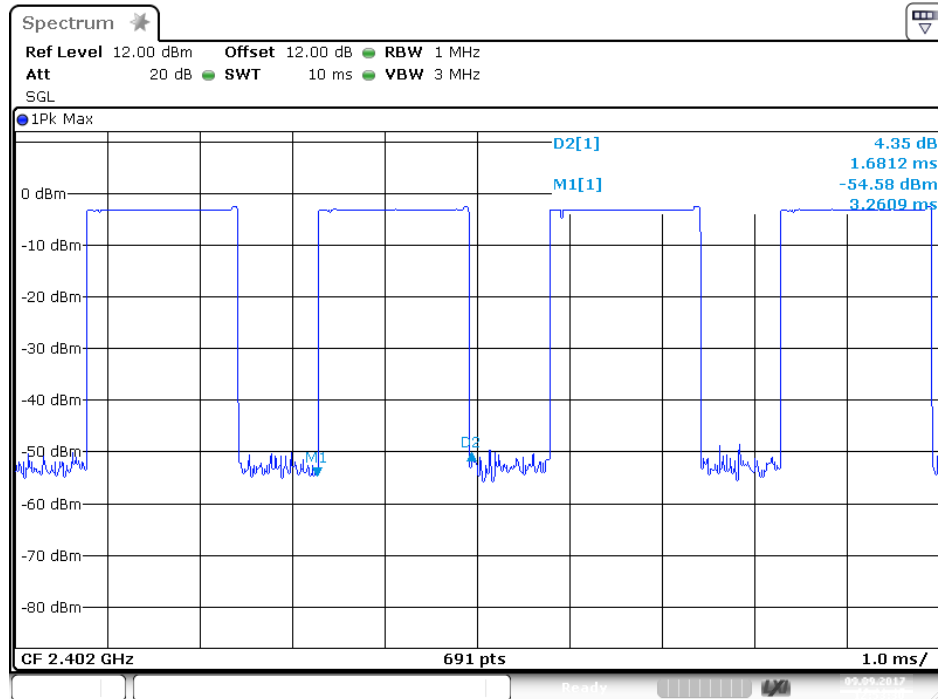
### 3DH1 Middle channel



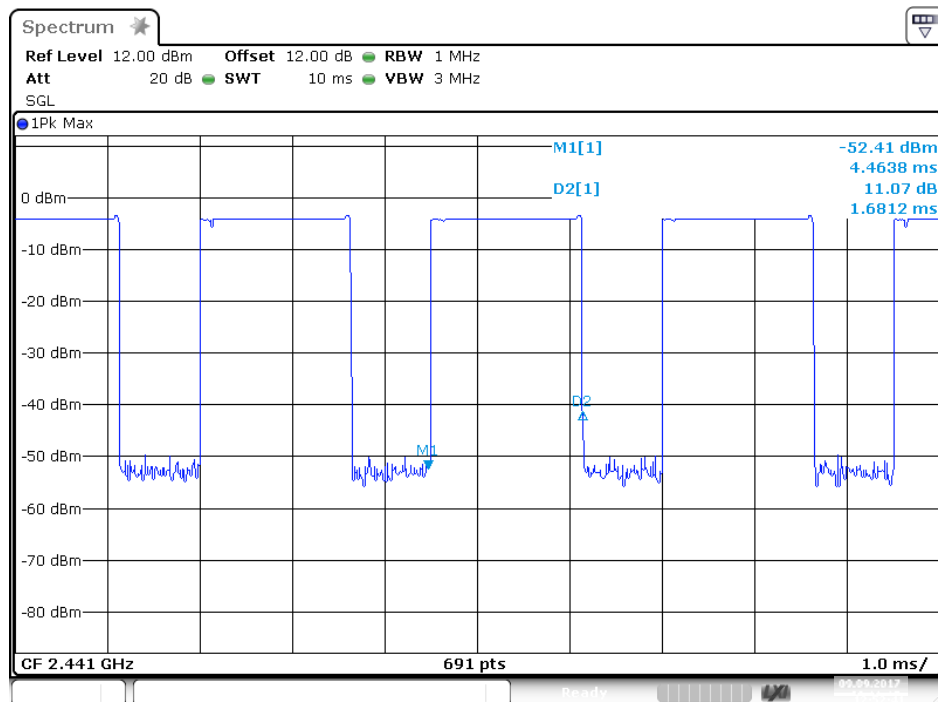
### 3DH1 High channel



### 3DH3 Low channel

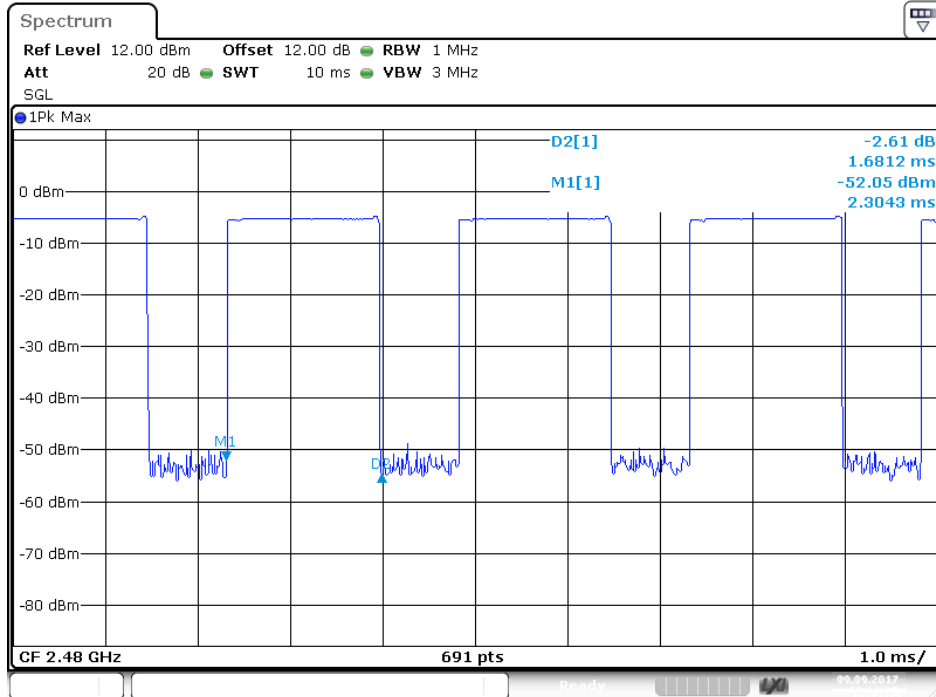


### 3DH3 Middle channel

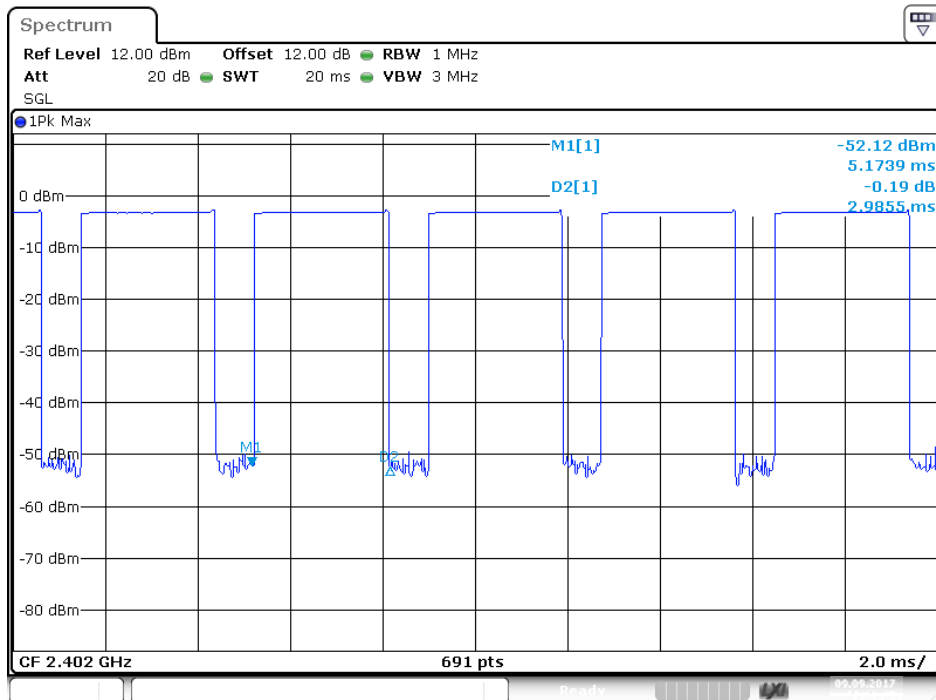




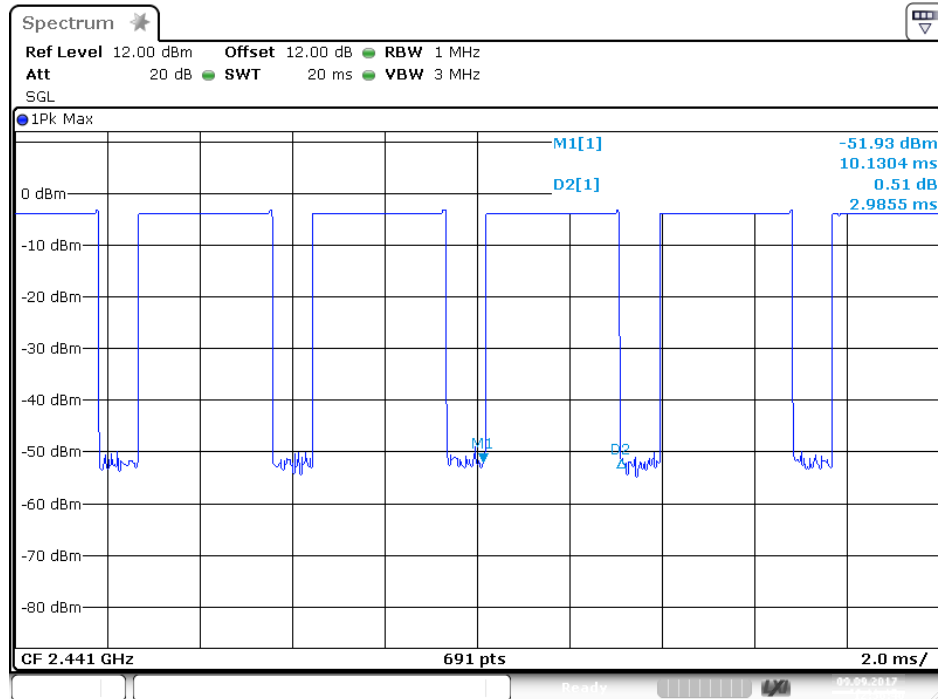
### 3DH3 High channel



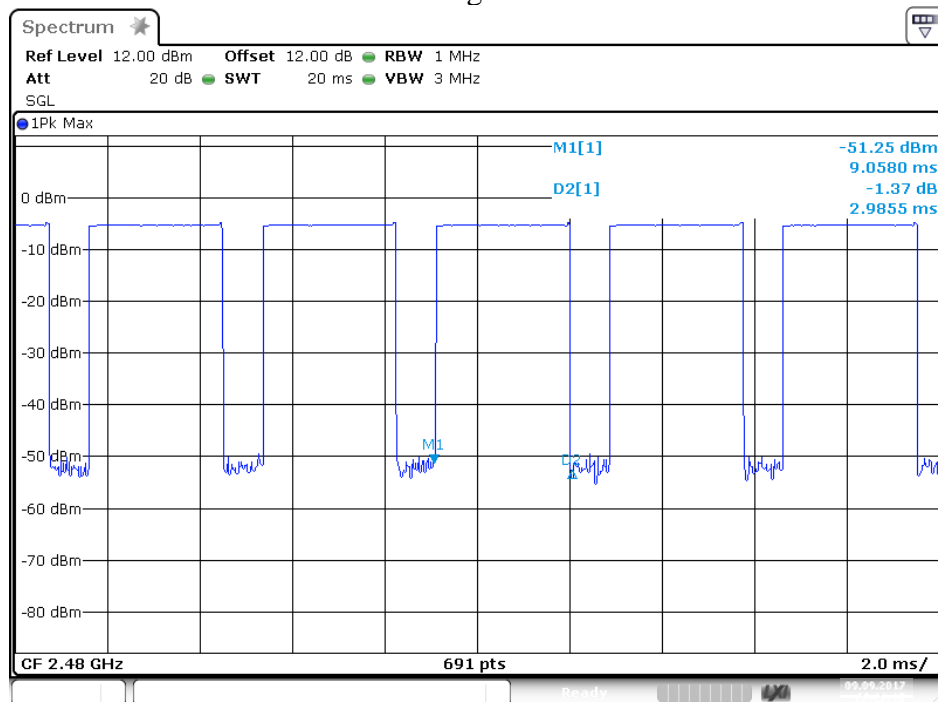
### 3DH5 Low channel



### 3DH5 Middle channel

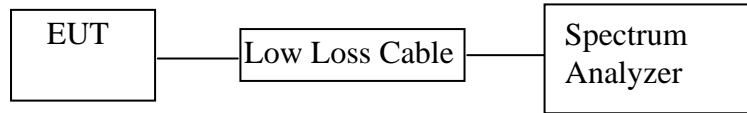


### 3DH5 High channel



## 9. MAXIMUM PEAK OUTPUT POWER TEST

### 9.1. Block Diagram of Test Setup



(EUT: Stereo Turntable System)

### 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 3MHz and VBW to 3MHz.

9.5.3. Measurement the maximum peak output power.

## 9.6. Test Result

### GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	0.37/0.0011	21 / 0.125
Middle	2441	0.23/0.0011	21 / 0.125
High	2480	0.34/0.0011	21 / 0.125

### Π/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-0.85/0.0008	21 / 0.125
Middle	2441	-0.87/0.0008	21 / 0.125
High	2480	-0.81/0.0008	21 / 0.125

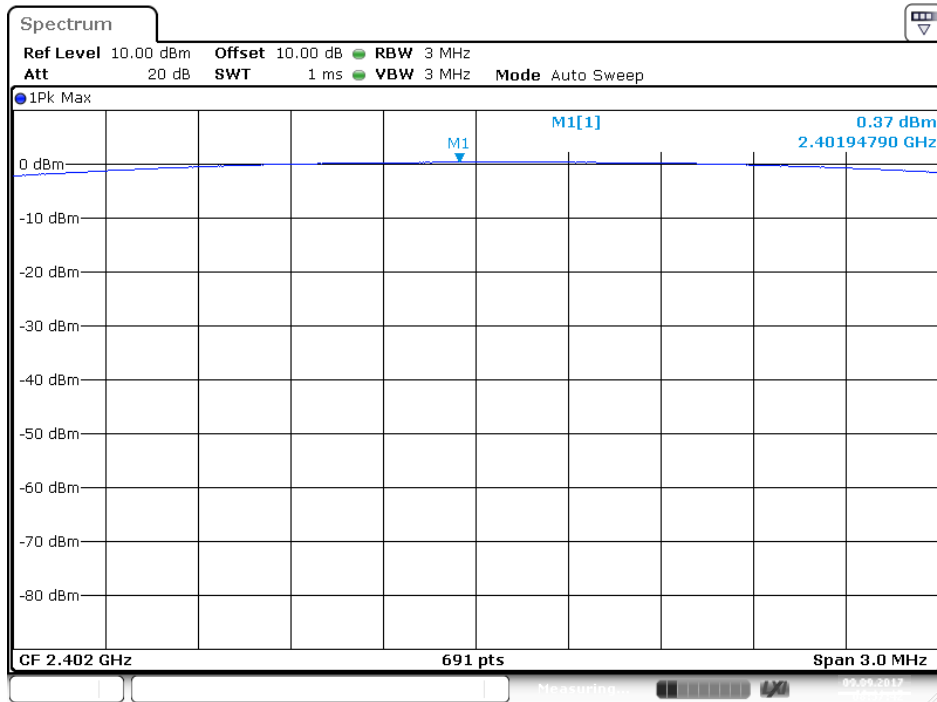
### 8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-0.34/0.0009	21 / 0.125
Middle	2441	-0.29/0.0009	21 / 0.125
High	2480	-0.45/0.0009	21 / 0.125

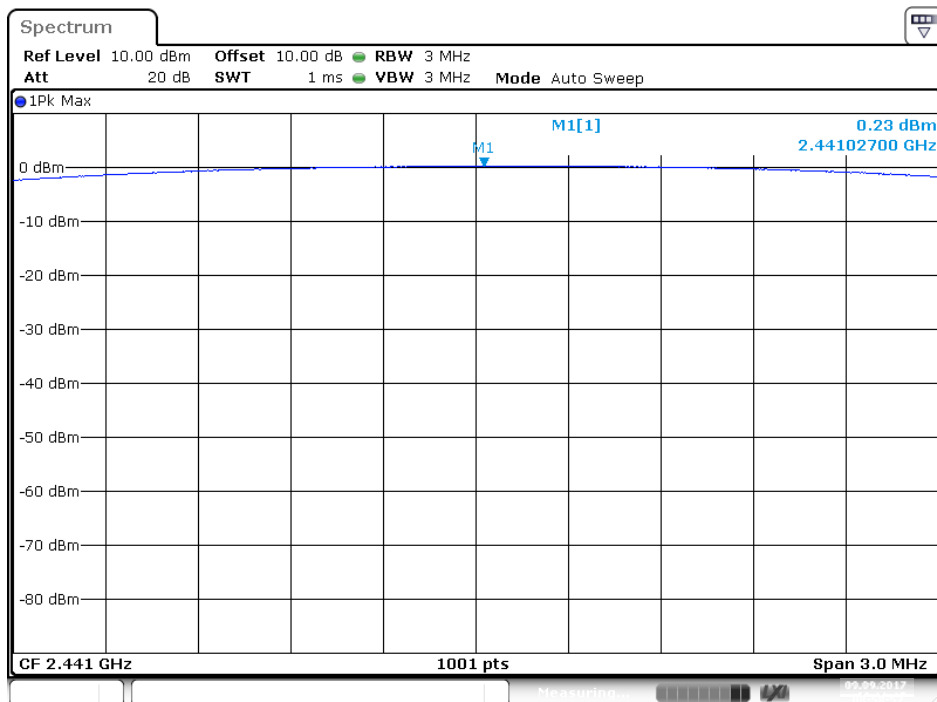
The spectrum analyzer plots are attached as below.

GFSK Mode

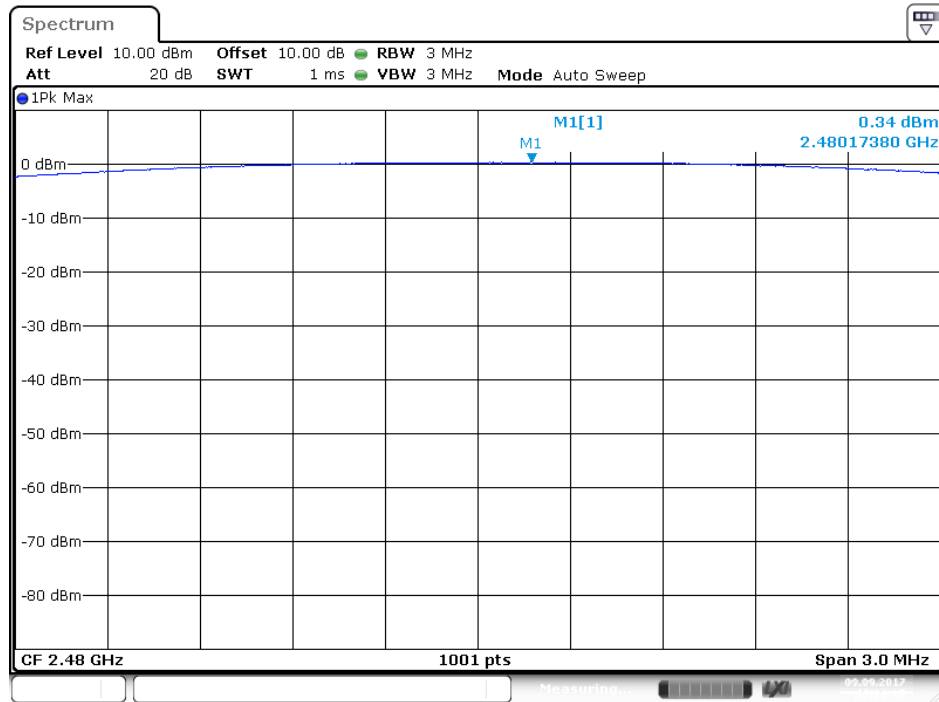
Low channel



Middle channel

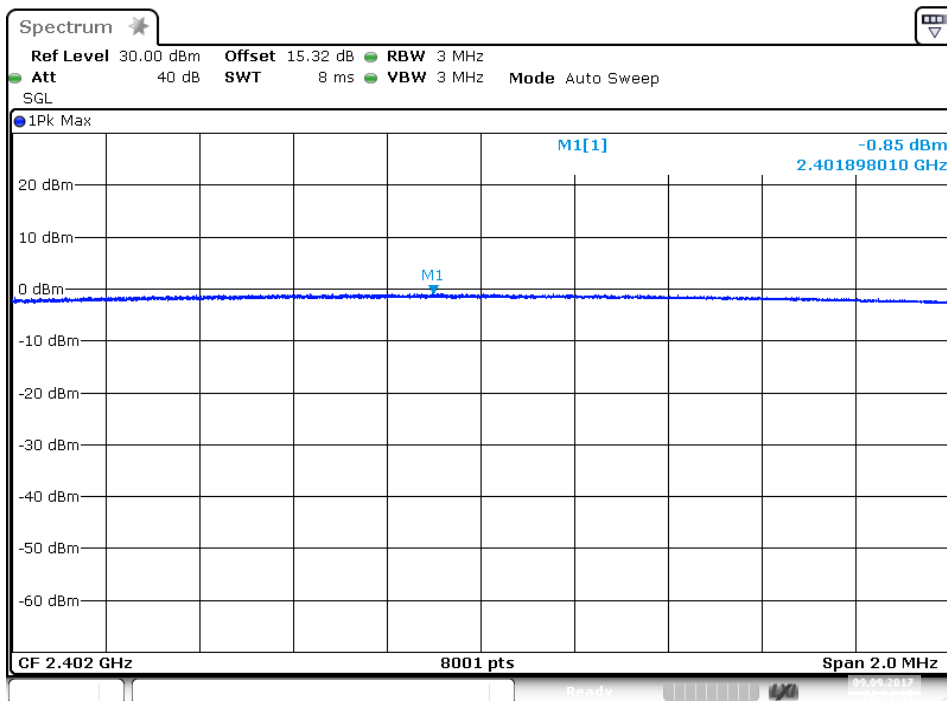


### High channel

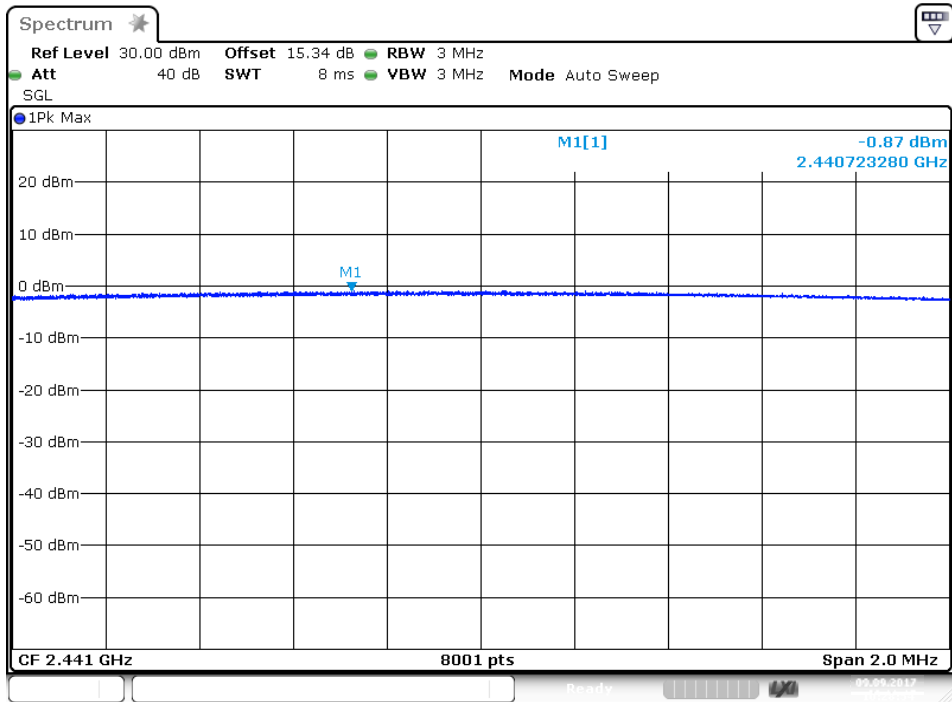


### Π/4-DQPSK Mode

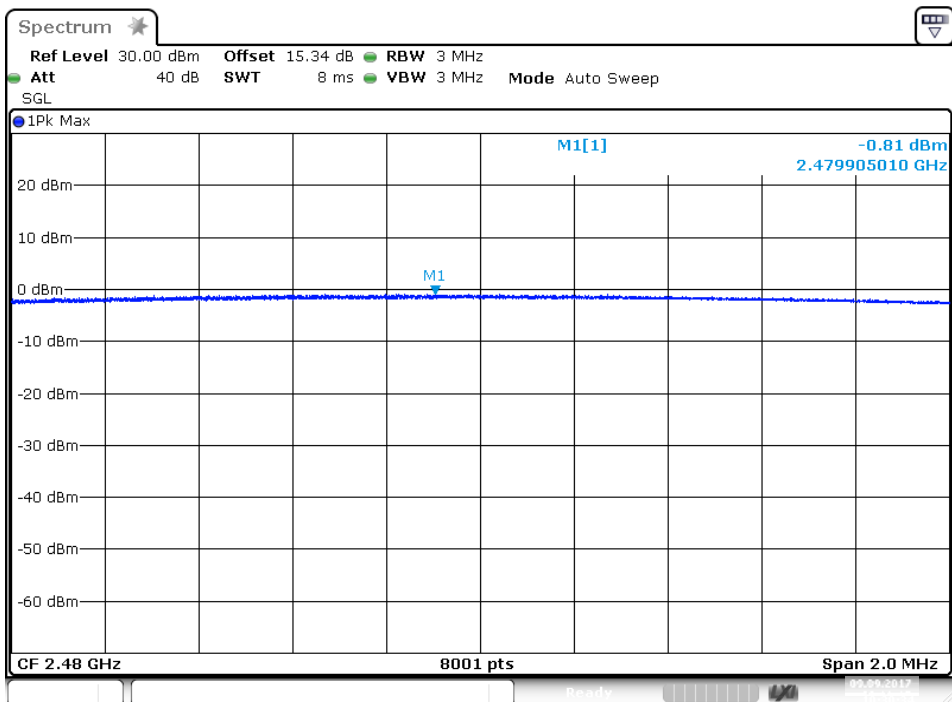
### Low channel



### Middle channel

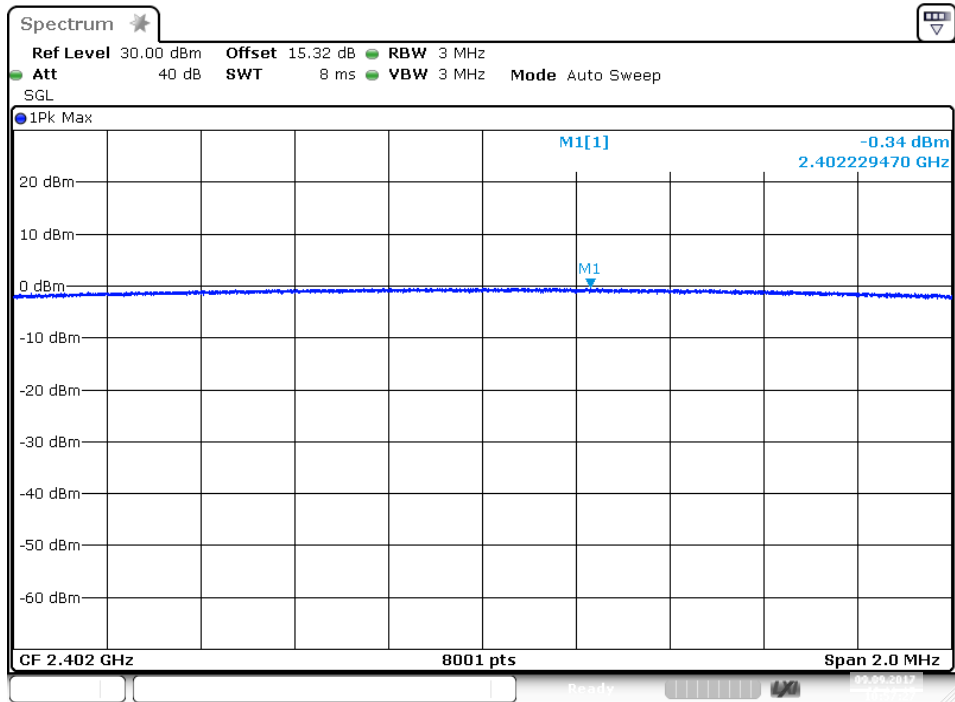


### High channel

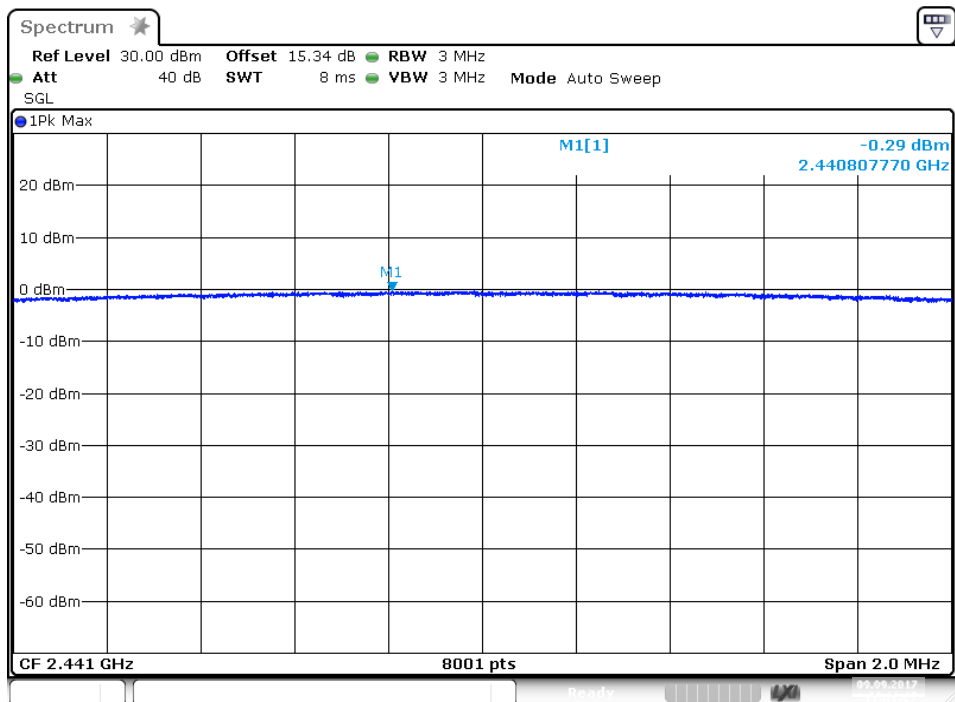


## 8DPSK Mode

### Low channel

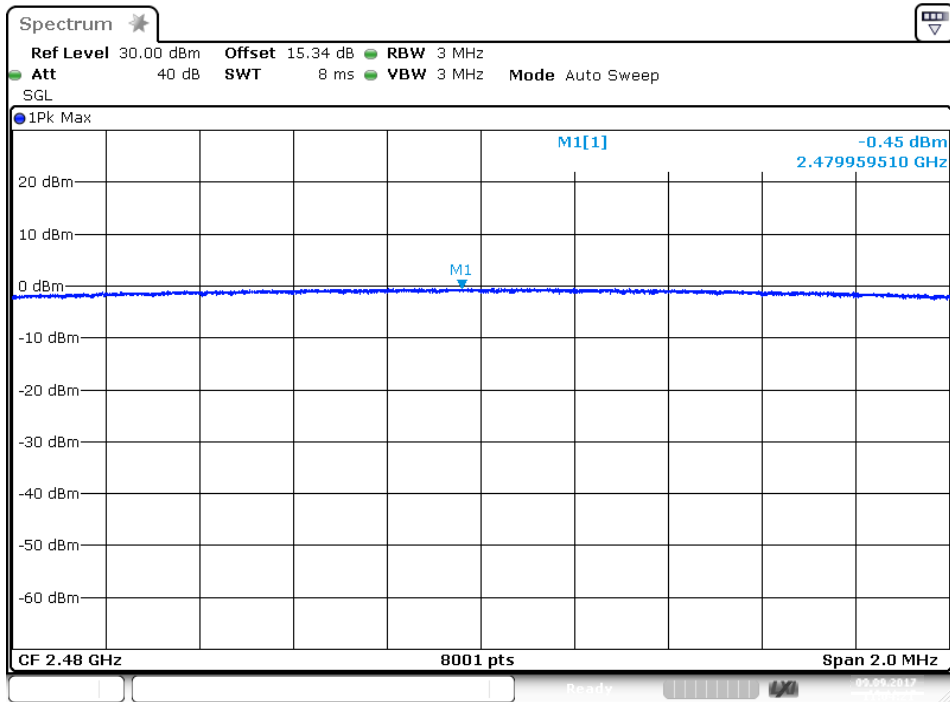


### Middle channel





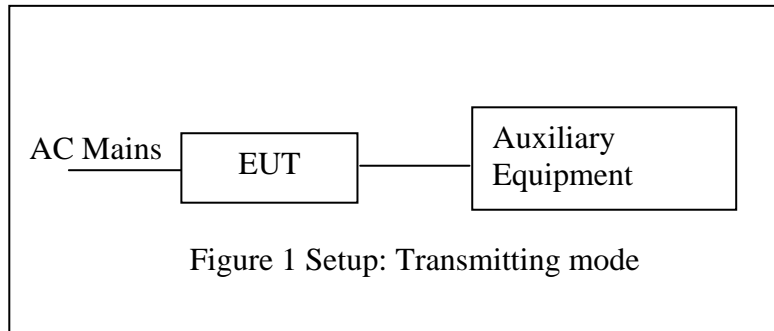
### High channel



## 10. RADIATED EMISSION TEST

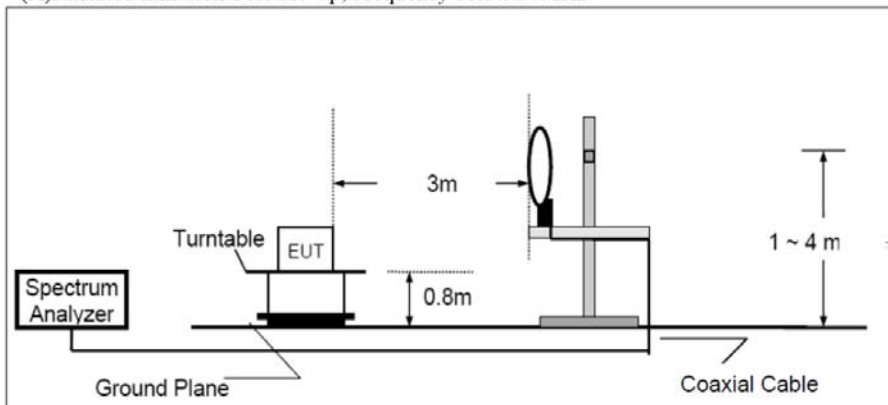
### 10.1. Block Diagram of Test Setup

#### 10.1.1. Block diagram of connection between the EUT and peripherals

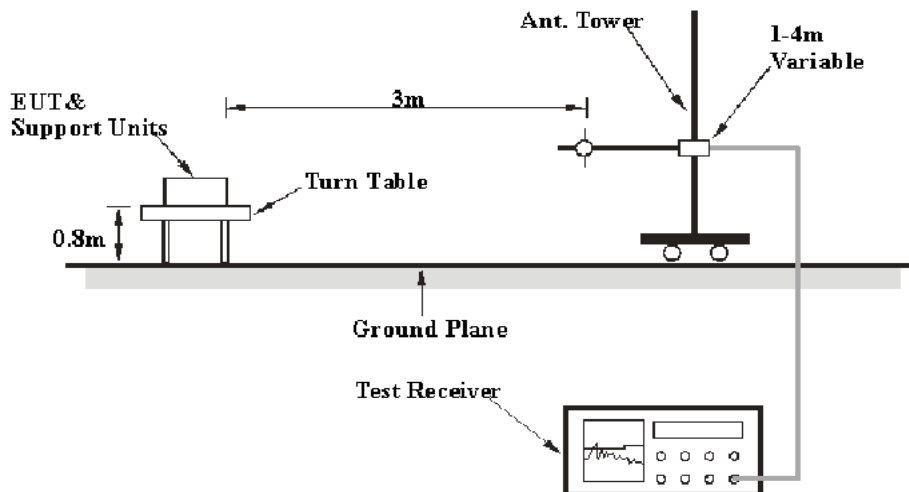


#### 10.1.2. Semi-Anechoic Chamber Test Setup Diagram

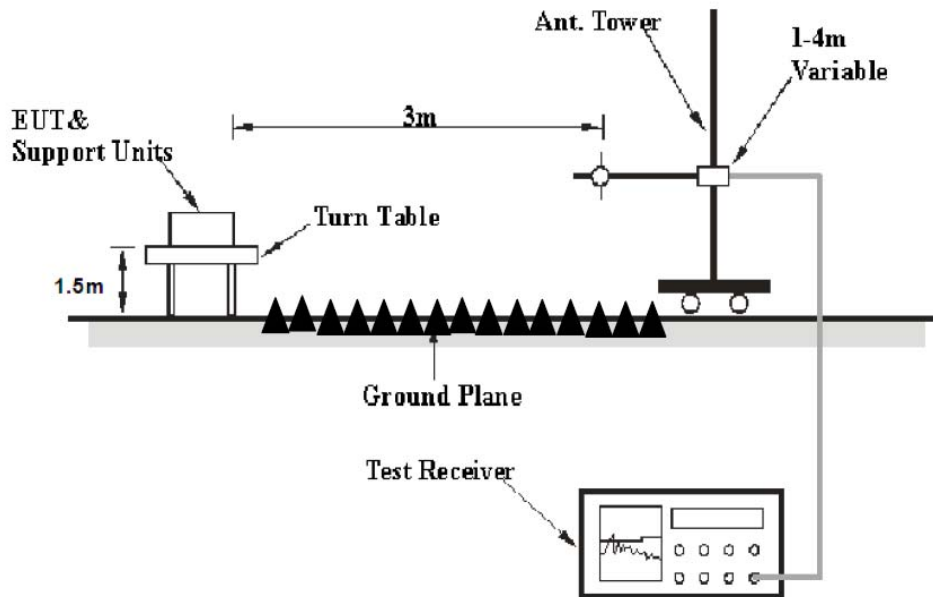
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



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



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



## 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
<sup>1</sup> 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	( <sup>2</sup> )
13.36-13.41			

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510

<sup>2</sup>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 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.

### 10.4.Configuration of EUT on Measurement

The equipment is 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 (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). 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 bi-log 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 EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

### 10.6.Data Sample

Frequency(MHz)	Reading (dB $\mu$ v)	Factor (dB/m)	Result (dB $\mu$ v/m)	Limit (dB $\mu$ v/m)	Margin (dB)	Remark
31.5125	32.71	-15.07	17.64	40.00	-22.36	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB $\mu$ v) = Uncorrected Analyzer/Receiver reading

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

Result(dB $\mu$ v/m) = Reading(dB $\mu$ v) + Factor(dB/m)

Limit (dB $\mu$ v/m) = Limit stated in standard

Margin (dB) = Result(dB $\mu$ v/m) - Limit (dB $\mu$ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB $\mu$ V/m)–Limit(dB $\mu$ V/m)

Result(dB $\mu$ V/m)= Reading(dB $\mu$ V)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

### 10.7.The Field Strength of Radiation Emission Measurement Results

**PASS.**

**Note: 1. The adapter 2 was tested only in the 30MHz-1GHz frequency band, because the work frequency of the adapter does not affect more than 1GHz frequency. so no test data of more than 1 GHz.**

**2. We tested GFSK mode,  $\Pi$ /4-DQPSK Mode & 8QPSK mode and recorded the worst case data**

**(GFSK mode) for all test mode.**

**3. Emissions attenuated more than 20 dB below the permissible value are not reported.**

**4. \*: Denotes restricted band of operation.**

**5. The radiation emissions from 9kHz-30MHz and 18-26.5GHz are not reported, because the test values lower than the limits of 20dB.**

Adapter 1 test data: Below 1GHz



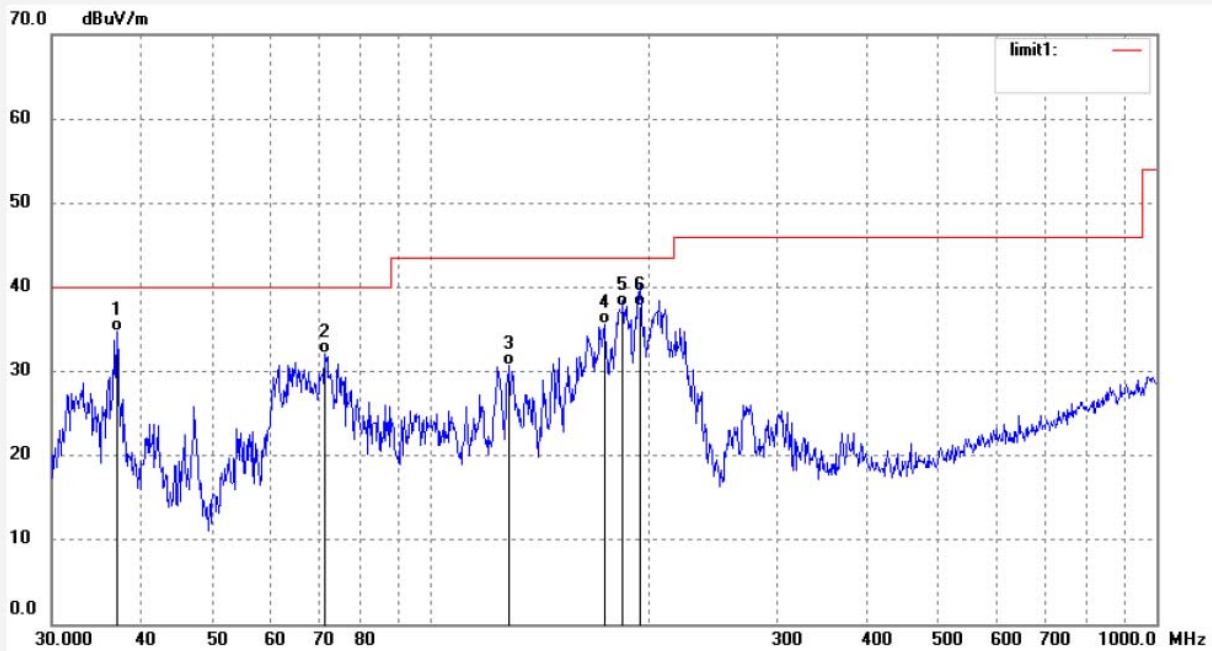
**ACCURATE TECHNOLOGY CO., LTD.**

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1455	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 9/01/20
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2402MHz (GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878 Adapter 1



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	36.9106	51.44	-16.77	34.67	40.00	-5.33	QP	100	157	
2	71.4539	54.18	-22.14	32.04	40.00	-7.96	QP	100	214	
3	128.0356	52.81	-22.09	30.72	43.50	-12.78	QP	100	209	
4	173.2051	56.27	-20.62	35.65	43.50	-7.85	QP	100	144	
5	183.8660	57.64	-19.95	37.69	43.50	-5.81	QP	100	291	
6	194.4985	56.74	-18.99	37.75	43.50	-5.75	QP	100	148	



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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: ding1 #1456

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Stereo Turntable System

Mode: TX 2402MHz (GFSK)

Model: T150A-CG

Manufacturer: TIMSEN

Polarization: Vertical

Power Source: AC 120V/60Hz

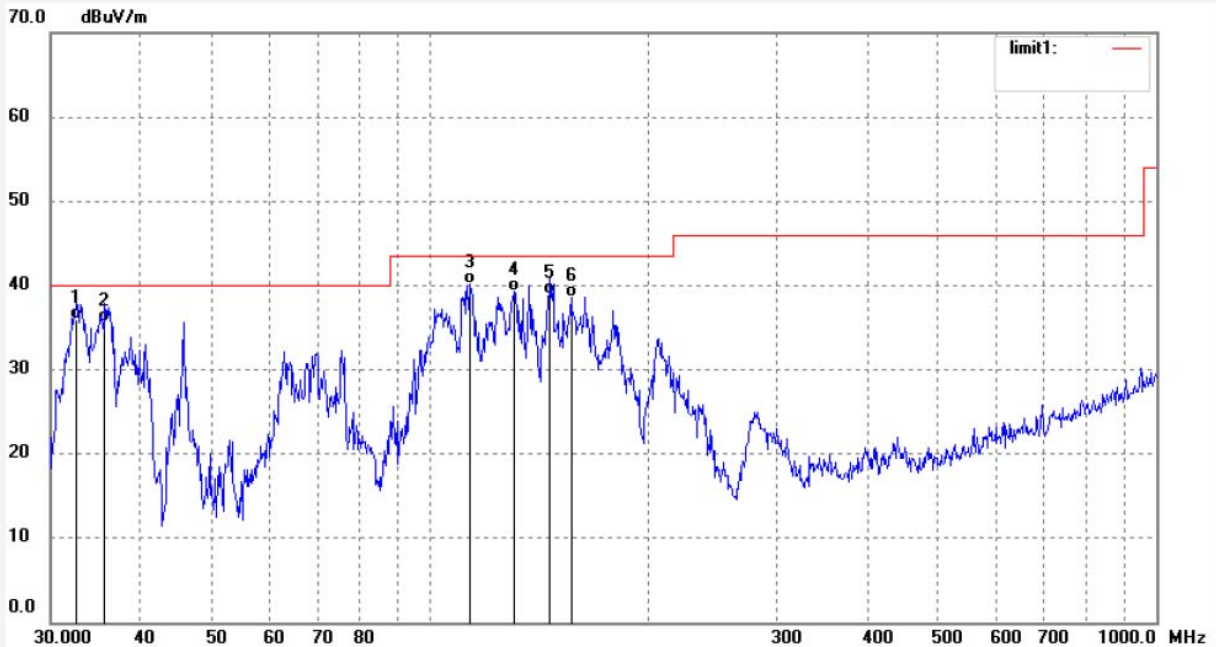
Date: 17/09/12/

Time: 9/02/16

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171878 Adapter 1



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.5250	51.24	-15.32	35.92	40.00	-4.08	QP	100	251	
2	35.6362	51.75	-16.22	35.53	40.00	-4.47	QP	100	114	
3	113.2200	62.03	-21.84	40.19	43.50	-3.31	QP	100	257	
4	130.7634	61.36	-22.15	39.21	43.50	-4.29	QP	100	211	
5	146.3241	61.32	-22.38	38.94	43.50	-4.56	QP	100	336	
6	156.4259	60.41	-21.76	38.65	43.50	-4.85	QP	100	254	





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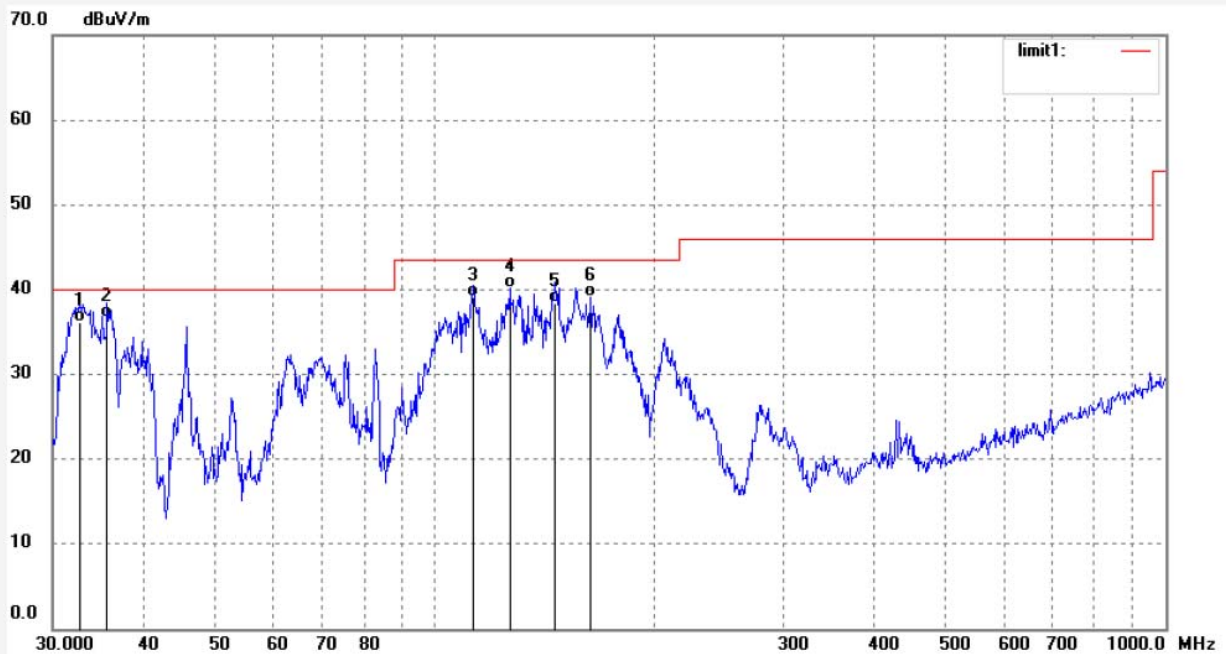
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1457  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Stereo Turntable System  
Mode: TX 2441MHz (GFSK)  
Model: T150A-CG  
Manufacturer: TIMSEN

Polarization: Vertical  
Power Source: AC 120V/60Hz  
Date: 17/09/12/  
Time: 9/03/11  
Engineer Signature: DING  
Distance: 3m

Note: Report NO.:ATE20171878 Adapter 1



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.6395	51.49	-15.36	36.13	40.00	-3.87	QP	100	302	
2	35.6362	52.97	-16.22	36.75	40.00	-3.25	QP	100	101	
3	112.8229	61.04	-21.85	39.19	43.50	-4.31	QP	100	246	
4	126.6931	62.30	-22.08	40.22	43.50	-3.28	QP	100	214	
5	146.3241	60.79	-22.38	38.41	43.50	-5.09	QP	100	201	
6	163.7366	60.05	-20.98	39.07	43.50	-4.43	QP	100	177	



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Site: 1# Chamber

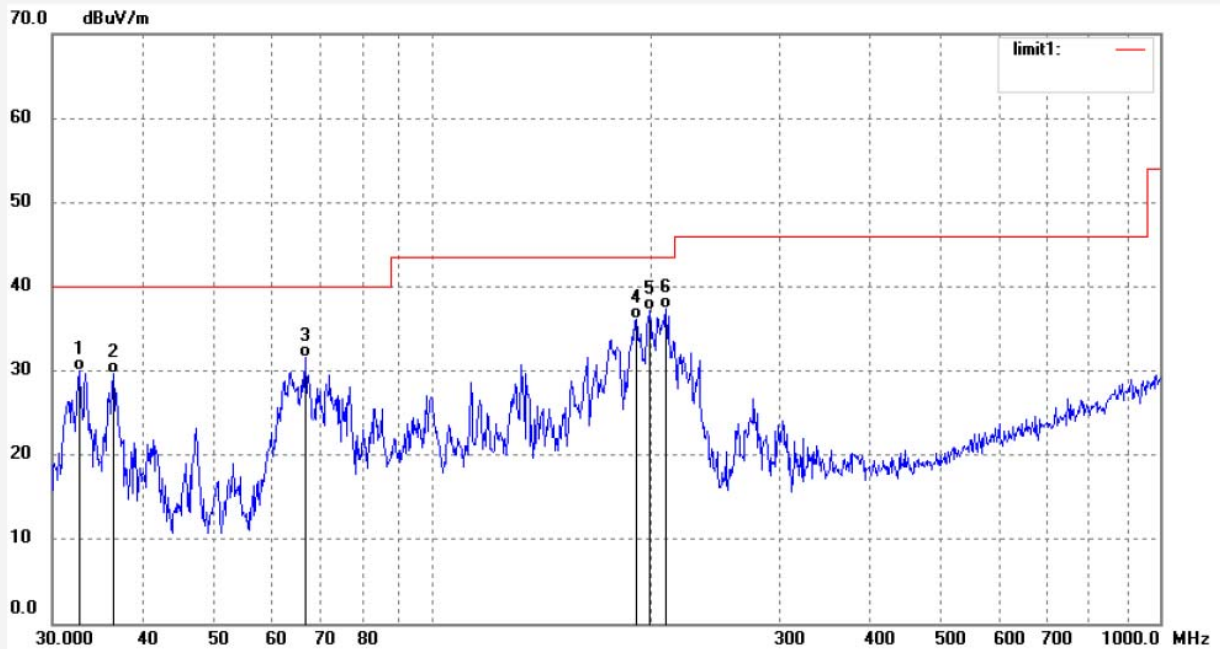
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: ding1 #1458  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Stereo Turntable System  
Mode: TX 2441MHz (GFSK)  
Model: T150A-CG  
Manufacturer: TIMSEN

Polarization: Horizontal  
Power Source: AC 120V/60Hz  
Date: 17/09/12/  
Time: 9/04/55  
Engineer Signature: DING  
Distance: 3m

Note: Report NO.:ATE20171878 Adapter 1



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.6395	45.37	-15.36	30.01	40.00	-9.99	QP			
2	36.3955	46.19	-16.56	29.63	40.00	-10.37	QP			
3	66.8395	53.50	-21.96	31.54	40.00	-8.46	QP			
4	190.4411	55.44	-19.38	36.06	43.50	-7.44	QP			
5	198.6424	55.96	-18.74	37.22	43.50	-6.28	QP			
6	209.3924	55.85	-18.46	37.39	43.50	-6.11	QP			



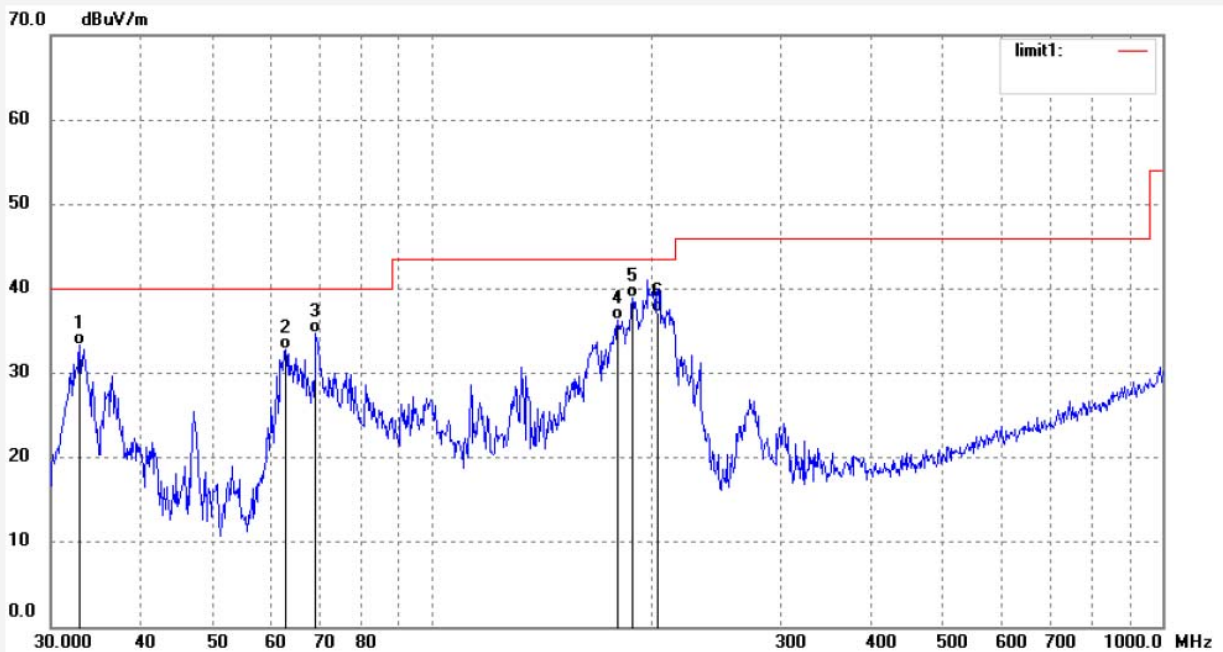
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F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1459	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 9/06/02
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2480MHz (GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878 Adapter 1



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.8697	48.69	-15.41	33.28	40.00	-6.72	QP	100	144	
2	62.9640	54.65	-21.86	32.79	40.00	-7.21	QP	100	222	
3	69.2297	56.71	-22.05	34.66	40.00	-5.34	QP	100	184	
4	179.3989	56.65	-20.38	36.27	43.50	-7.23	QP	100	247	
5	187.7833	58.53	-19.60	38.93	43.50	-4.57	QP	100	100	
6	203.5886	55.67	-18.54	37.13	43.50	-6.37	QP	100	247	



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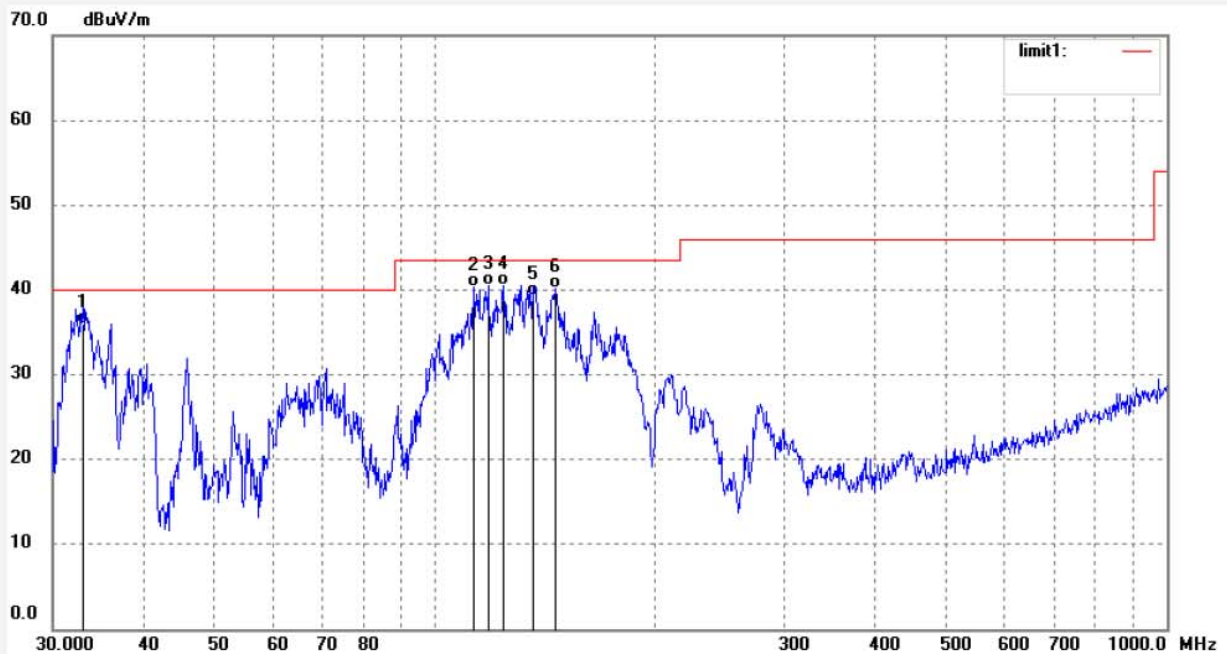
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1460  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Stereo Turntable System  
Mode: TX 2480MHz (GFSK)  
Model: T150A-CG  
Manufacturer: TIMSEN

Polarization: Vertical  
Power Source: AC 120V/60Hz  
Date: 17/09/12/  
Time: 9/07/02  
Engineer Signature: DING  
Distance: 3m

Note: Report NO.:ATE20171878 Adapter 1



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.9854	51.42	-15.45	35.97	40.00	-4.03	QP	100	221	
2	112.8229	62.19	-21.85	40.34	43.50	-3.16	QP	100	116	
3	118.0957	62.36	-21.89	40.47	43.50	-3.03	QP	100	246	
4	124.0501	62.48	-22.01	40.47	43.50	-3.03	QP	100	24	
5	135.9163	61.49	-22.25	39.24	43.50	-4.26	QP	100	140	
6	145.8109	62.60	-22.37	40.23	43.50	-3.27	QP	100	301	

Above 1GHz



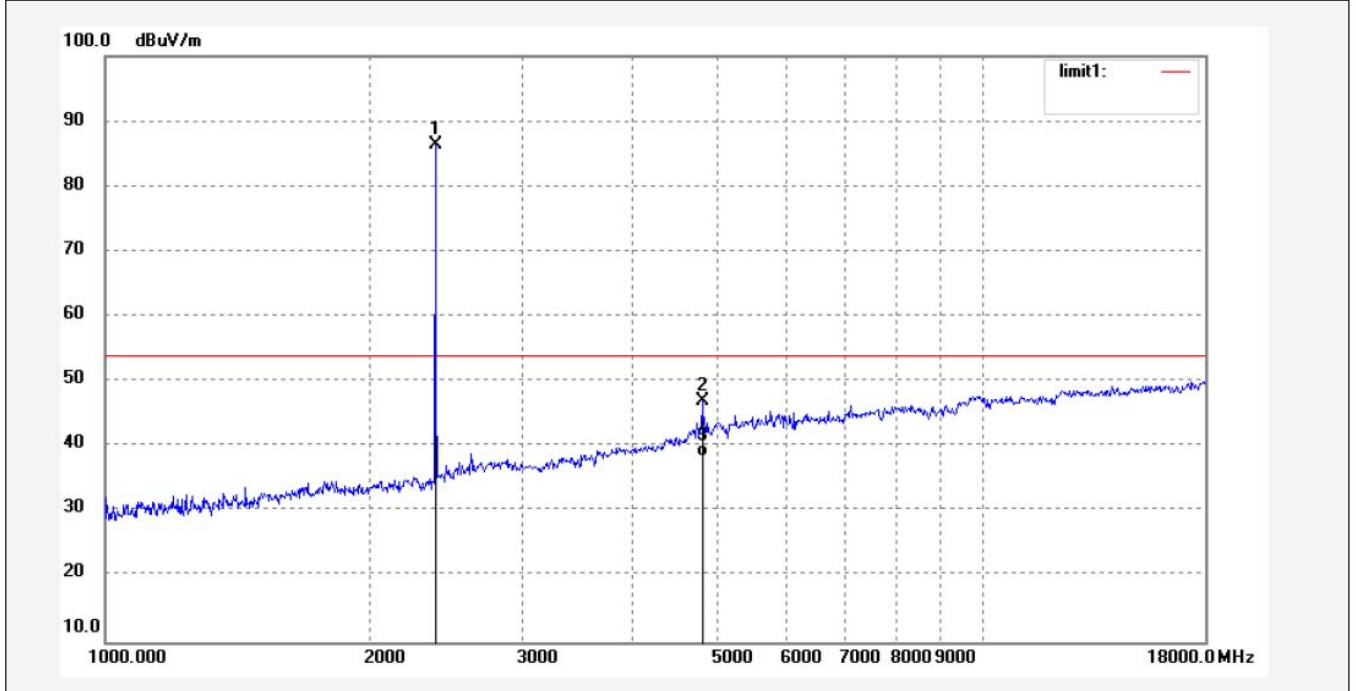
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Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1461	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 9/12/52
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2402MHz (GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	92.26	-5.98	86.28			peak	150	214	
2	4804.000	43.38	3.53	46.91	74.00	-27.09	peak	150	113	
3	4804.000	34.89	3.53	38.42	54.00	-15.58	AVG	150	113	



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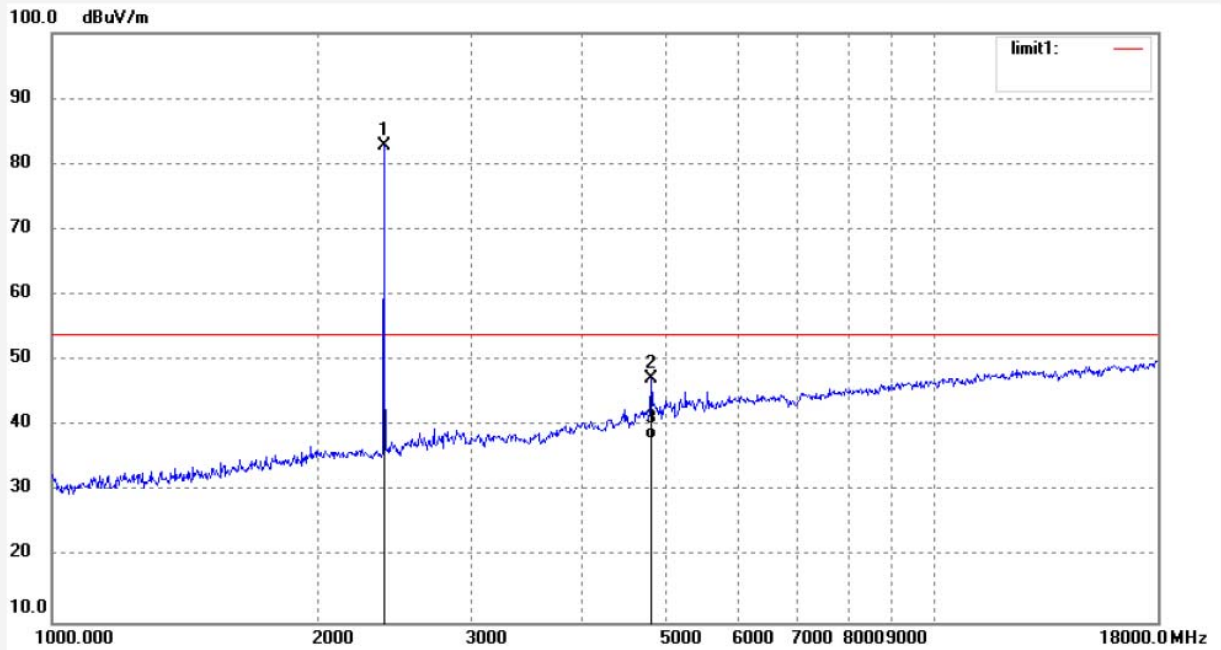
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1462  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Stereo Turntable System  
Mode: TX 2402MHz (GFSK)  
Model: T150A-CG  
Manufacturer: TIMSEN

Polarization: Horizontal  
Power Source: AC 120V/60Hz  
Date: 17/09/12/  
Time: 9/15/08  
Engineer Signature: DING  
Distance: 3m

Note: Report NO.:ATE20171878



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	88.76	-5.98	82.78			peak	150	100	
2	4804.000	43.69	3.46	47.15	74.00	-26.85	peak	150	26	
3	4804.000	34.57	3.46	38.03	54.00	-15.97	AVG	150	26	



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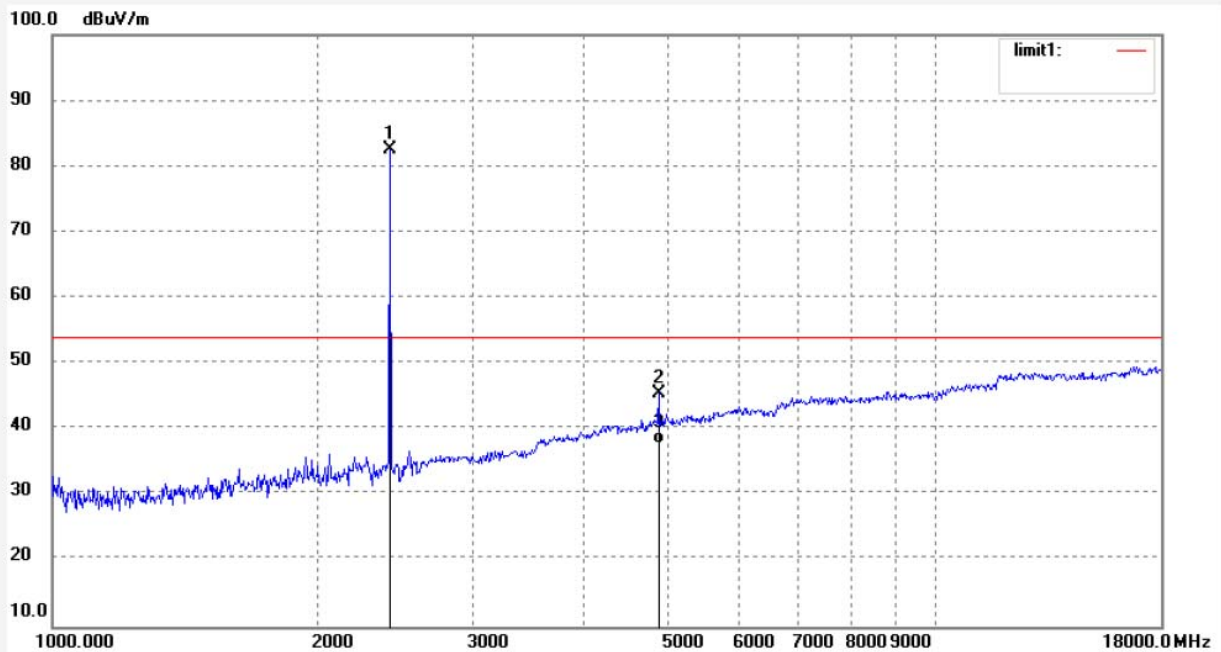
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1463  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Stereo Turntable System  
Mode: TX 2441MHz (GFSK)  
Model: T150A-CG  
Manufacturer: TIMSEN

Polarization: Horizontal  
Power Source: AC 120V/60Hz  
Date: 17/09/12/  
Time: 9/15/41  
Engineer Signature: DING  
Distance: 3m

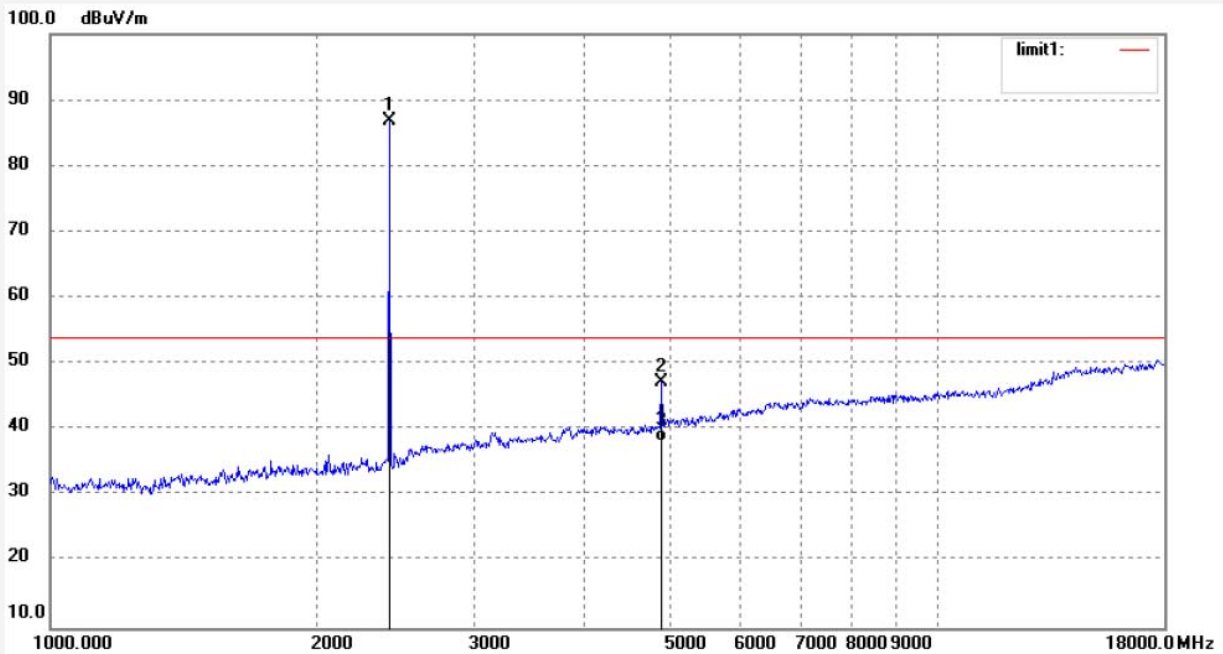
Note: Report NO.:ATE20171878



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	88.22	-5.76	82.46			peak	150	310	
2	4880.000	41.42	4.06	45.48	74.0	-28.52	peak	150	110	
3	4880.000	33.75	4.06	37.81	54.00	-16.19	AVG	150	110	

Job No.: ding1 #1464	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 9/15/55
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2441MHz (GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878



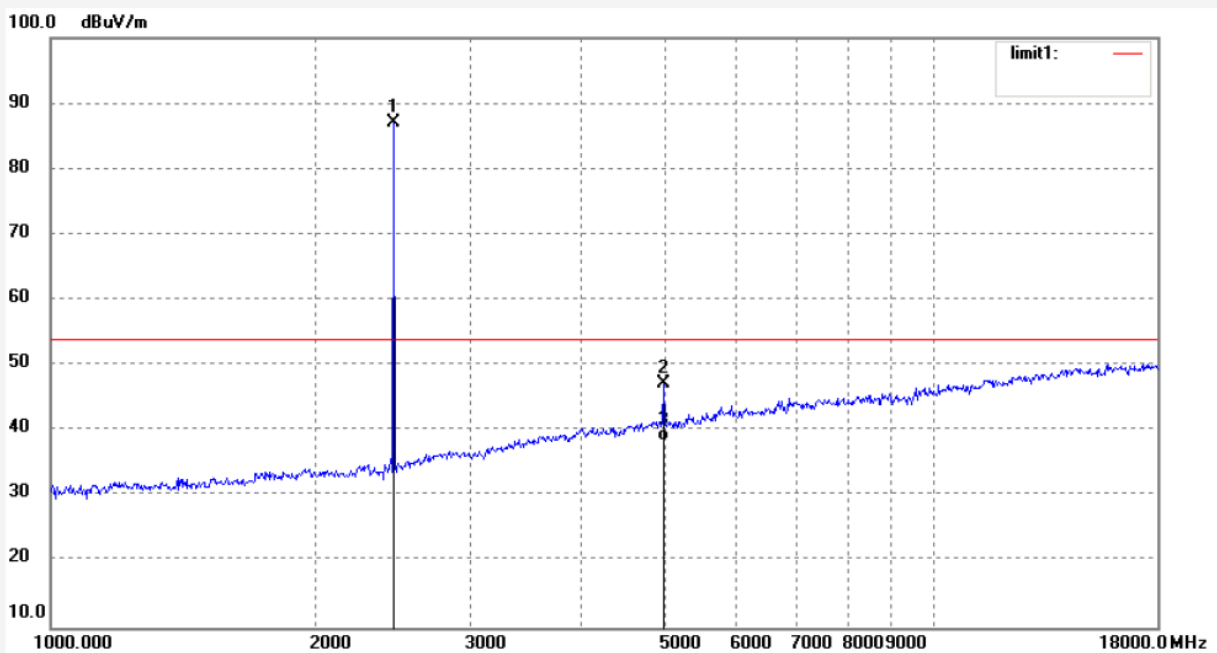
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	92.70	-5.76	86.94			peak	150	117	
2	4880.000	42.99	4.32	47.31	74.00	-26.69	peak	150	300	
3	4880.000	33.87	4.32	38.19	54.00	-15.81	AVG	150	300	



Job No.: ding1 #1465  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 55 %  
 EUT: Stereo Turntable System  
 Mode: TX 2480MHz (GFSK)  
 Model: T150A-CG  
 Manufacturer: TIMSEN

Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 17/09/12/  
 Time: 9/16/25  
 Engineer Signature: DING  
 Distance: 3m

Note: Report NO.:ATE20171878



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	92.59	-5.55	87.04			peak	150	111	
2	4960.000	42.53	4.77	47.30	74.00	-26.70	peak	150	57	
3	4960.000	33.79	4.77	38.56	54.00	-15.44	AVG	150	57	



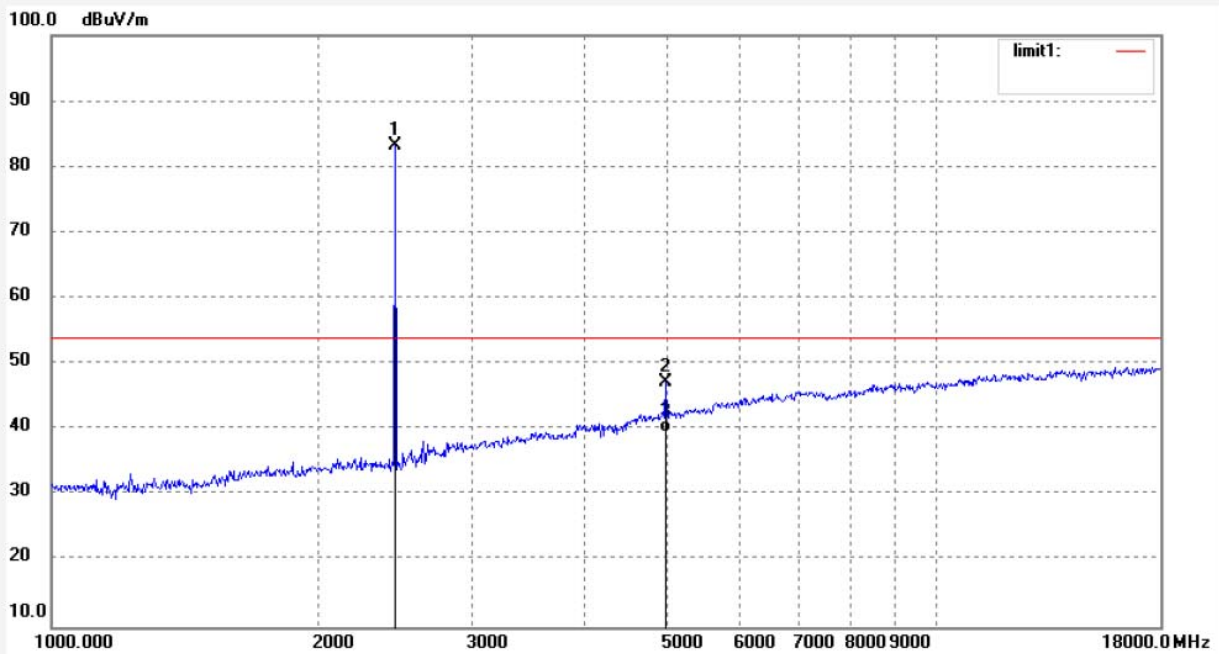
**ACCURATE TECHNOLOGY CO., LTD.**

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: ding1 #1466	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 9/16/40
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2480MHz (GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	88.79	-5.55	83.24			peak	150	20	
2	4960.000	42.37	4.77	47.14	74.00	-26.86	peak	150	110	
3	4960.000	34.79	4.77	39.56	54.00	-14.44	AVG	150	110	

Adapter 2 test data: Below 1GHz



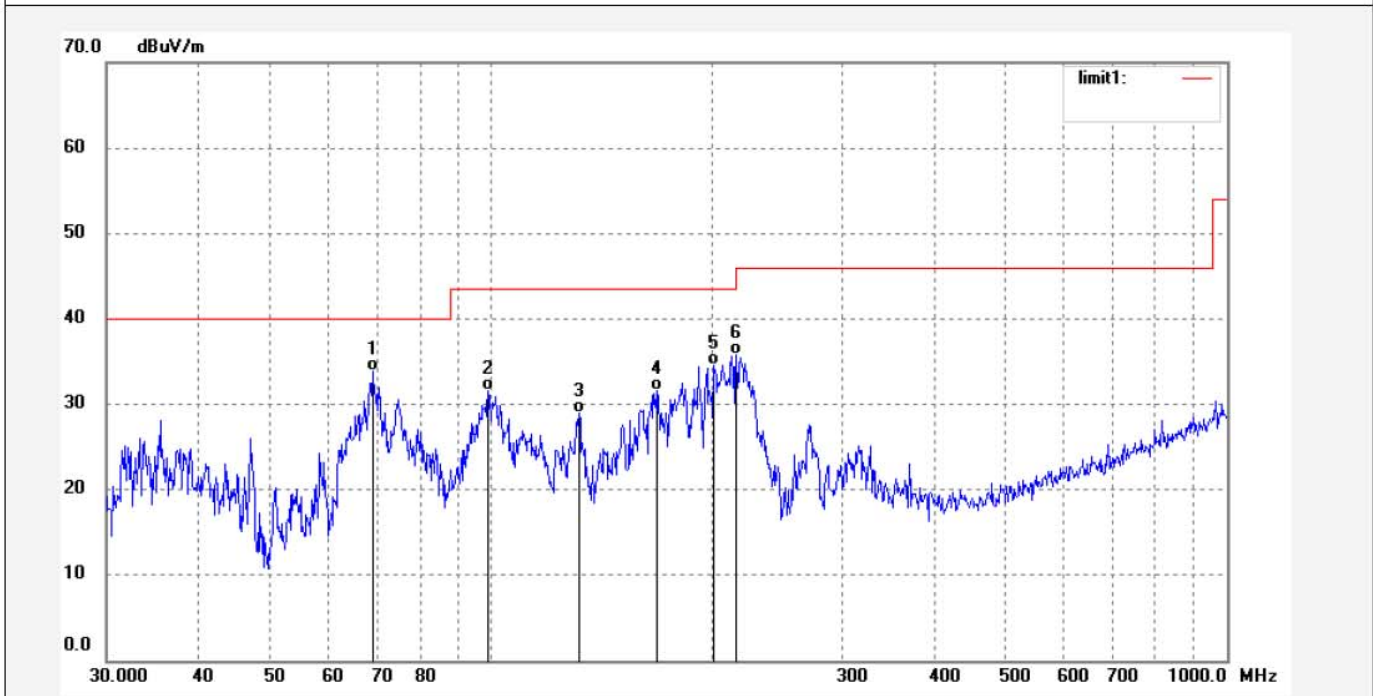
**ACCURATE TECHNOLOGY CO., LTD.**

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: DING1 #1448	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 8/40/53
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2402MHz(GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878 Adapter 2



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	68.9869	55.86	-22.04	33.82	40.00	-6.18	QP	100	158	
2	99.0690	54.12	-22.49	31.63	43.50	-11.87	QP	100	29	
3	131.6855	51.12	-22.16	28.96	43.50	-14.54	QP	100	291	
4	168.4043	51.99	-20.47	31.52	43.50	-11.98	QP	100	301	
5	200.7473	53.18	-18.63	34.55	43.50	-8.95	QP	100	269	
6	215.3616	54.12	-18.41	35.71	43.50	-7.79	QP	100	119	

Job No.: DING1 #1449

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Stereo Turntable System

Mode: TX 2402MHz(GFSK)

Model: T150A-CG

Manufacturer: TIMSEN

Polarization: Vertical

Power Source: AC 120V/60Hz

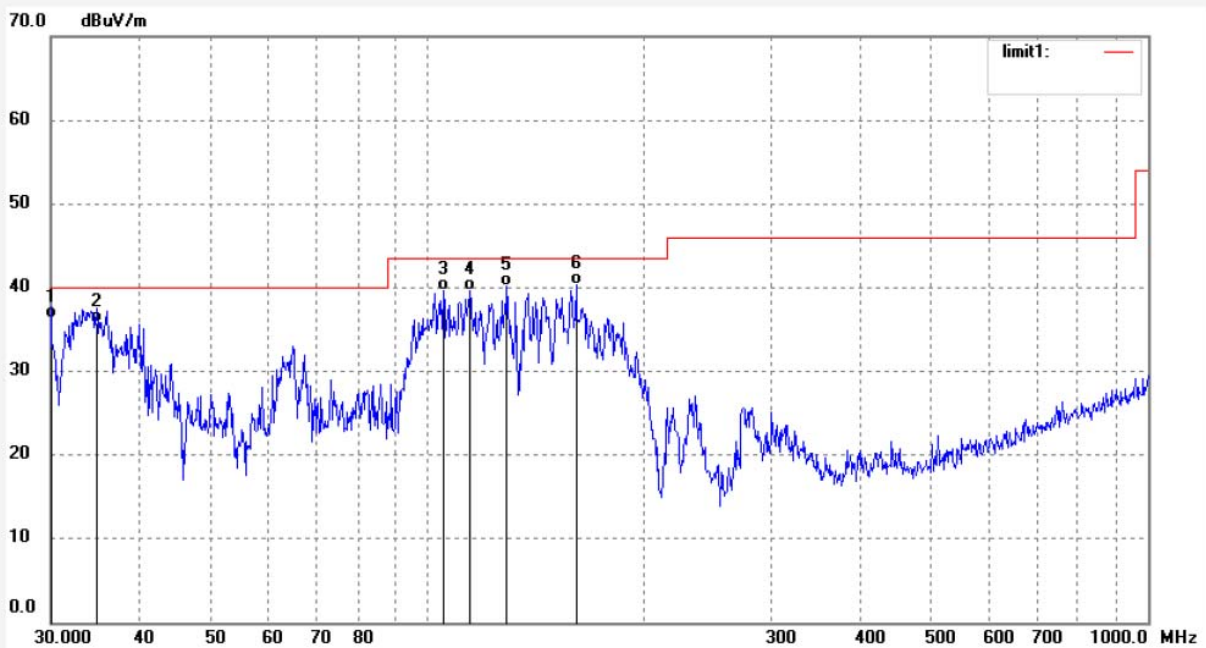
Date: 17/09/12/

Time: 8/43/36

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171878 Adapter 2



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.0000	51.03	-14.70	36.33	40.00	-3.67	QP	100	32	
2	34.7705	51.64	-15.89	35.75	40.00	-4.25	QP	100	44	
3	105.1668	62.33	-22.69	39.64	43.50	-3.86	QP	100	113	
4	114.4197	61.54	-21.86	39.68	43.50	-3.82	QP	100	244	
5	128.9385	62.27	-22.11	40.16	43.50	-3.34	QP	100	261	
6	160.8852	61.66	-21.28	40.38	43.50	-3.12	QP	100	314	



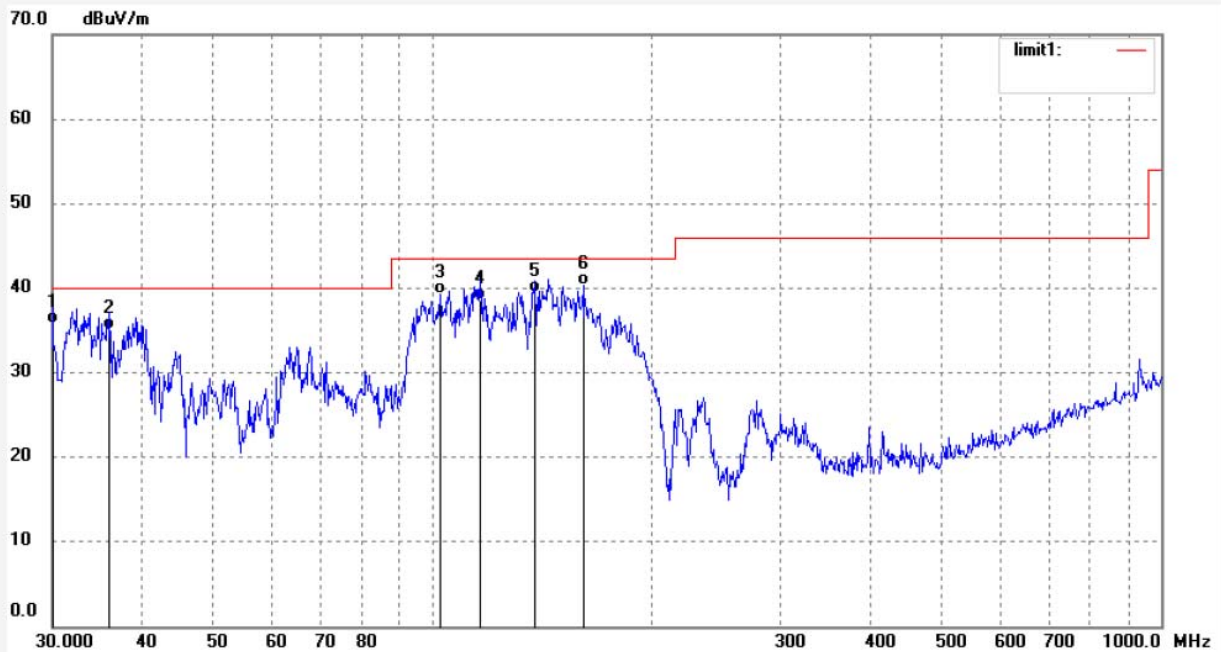
**ACCURATE TECHNOLOGY CO., LTD.**

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: DING1 #1450	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 8/46/32
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2441MHz(GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878 Adapter 2



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.0000	50.47	-14.70	35.77	40.00	-4.23	QP	100	254	
2	35.8875	51.49	-16.33	35.16	40.00	-4.84	QP	100	116	
3	102.2518	61.90	-22.67	39.23	43.50	-4.27	QP	100	147	
4	116.0391	60.51	-21.88	38.63	43.50	-4.87	QP	100	259	
5	138.3251	61.78	-22.28	39.50	43.50	-4.00	QP	100	166	
6	160.8852	61.66	-21.28	40.38	43.50	-3.12	QP	100	46	



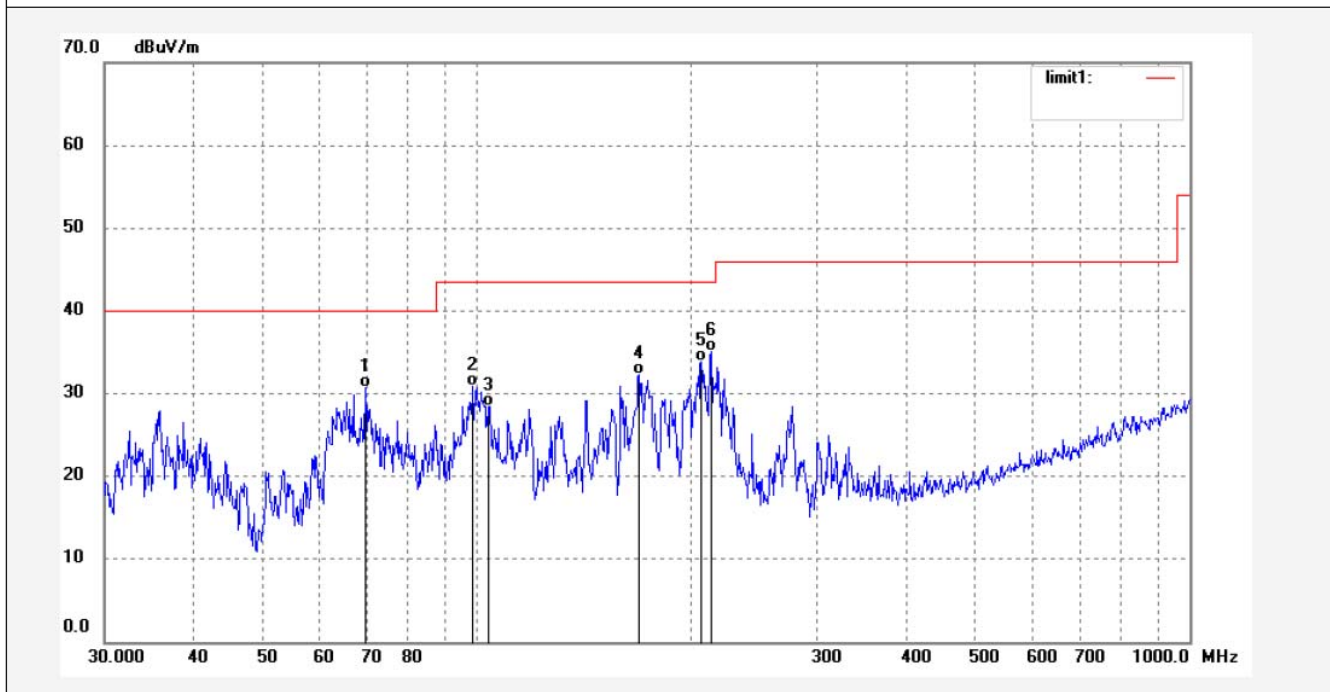
**ACCURATE TECHNOLOGY CO., LTD.**

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: DING1 #1451	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 8/49/31
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2441MHz(GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878 Adapter 2



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	69.7179	52.79	-22.07	30.72	40.00	-9.28	QP	100	315	
2	98.7215	53.32	-22.44	30.88	43.50	-12.62	QP	100	25	
3	104.4303	51.11	-22.71	28.40	43.50	-15.10	QP	100	146	
4	168.9970	52.71	-20.41	32.30	43.50	-11.20	QP	100	191	
5	206.4701	52.41	-18.47	33.94	43.50	-9.56	QP	100	222	
6	213.1035	53.52	-18.43	35.09	43.50	-8.41	QP	100	331	



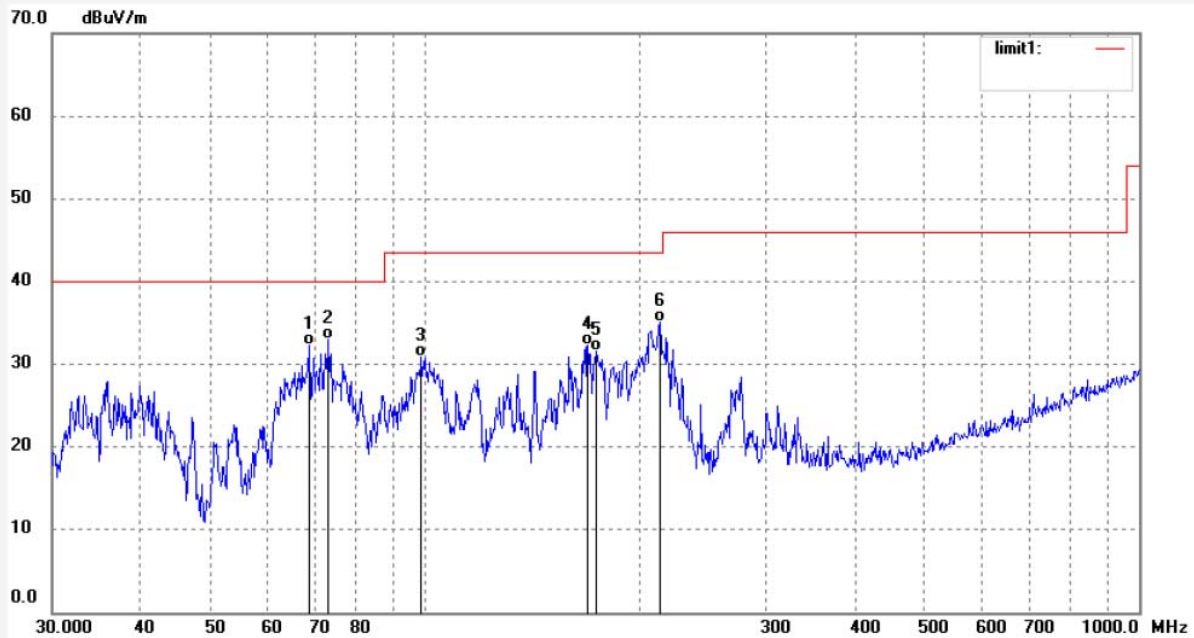
## ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: DING1 #1452	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 8/52/52
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2480MHz(GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

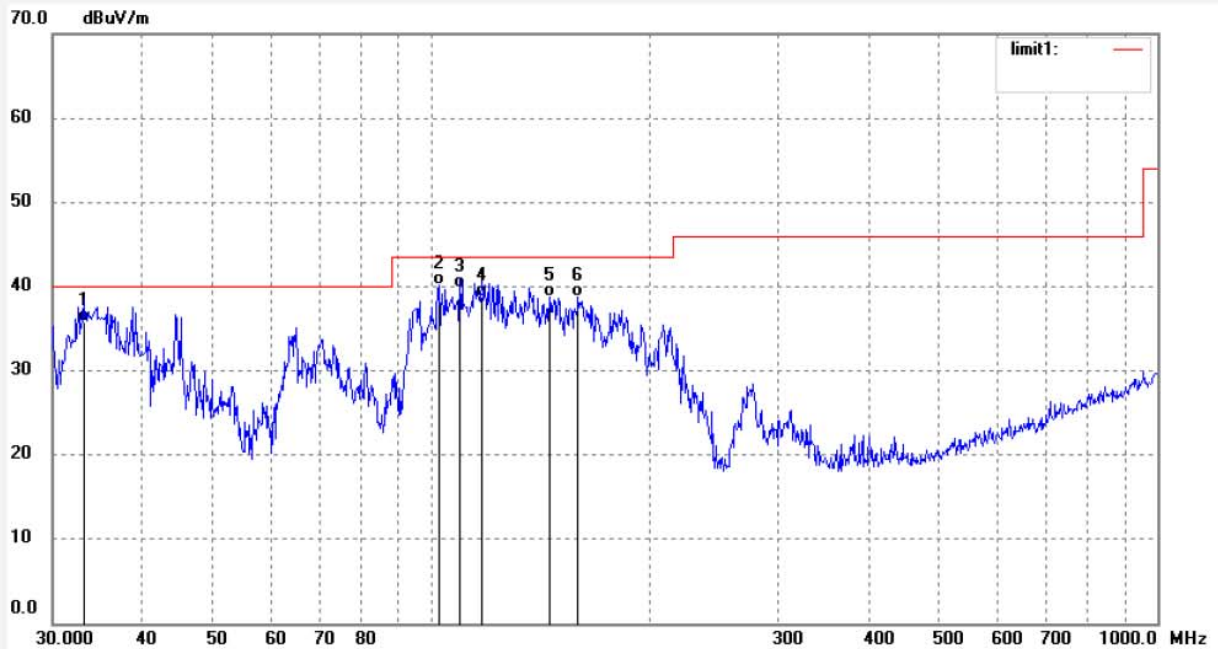
Note: Report NO.:ATE20171878 Adapter 2



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	68.7450	54.29	-22.03	32.26	40.00	-7.74	QP	100	149	
2	73.2331	55.27	-22.23	33.04	40.00	-6.96	QP	100	244	
3	98.7215	53.32	-22.44	30.88	43.50	-12.62	QP	100	333	
4	168.9970	52.71	-20.41	32.30	43.50	-11.20	QP	100	246	
5	173.8146	52.31	-20.69	31.62	43.50	-11.88	QP	100	119	
6	213.1035	53.52	-18.43	35.09	43.50	-8.41	QP	100	264	

Job No.: DING1 #1453	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/09/12/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 8/55/58
EUT: Stereo Turntable System	Engineer Signature: DING
Mode: TX 2480MHz(GFSK)	Distance: 3m
Model: T150A-CG	
Manufacturer: TIMSEN	

Note: Report NO.:ATE20171878 Adapter 2

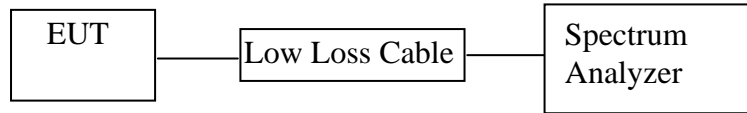


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.1015	51.24	-15.48	35.76	40.00	-4.24	QP	100	124	
2	102.2518	62.86	-22.67	40.19	43.50	-3.31	QP	100	33	
3	109.3110	61.75	-21.93	39.82	43.50	-3.68	QP	100	221	
4	117.2688	60.62	-21.89	38.73	43.50	-4.77	QP	100	226	
5	145.2995	61.14	-22.37	38.77	43.50	-4.73	QP	100	305	
6	159.1983	60.14	-21.45	38.69	43.50	-4.81	QP	100	294	



## 11. BAND EDGE COMPLIANCE TEST

### 11.1. Block Diagram of Test Setup



(EUT: Stereo Turntable System)

### 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.