

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of

Modern Marketing Concepts, Inc.

Switch II Turntable

Model No.: CR6034A-NA, CR6034X-XX
("X" can be replaced by letter from "A" to "Z" or blank)

FCC ID: AUSCR6034A

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

Prepared by : Shenzhen Accurate Technology Co., Ltd.
Address : 1/F., Building A, Changyuan New Material Port, Science &
Industry Park, Nanshan District, Shenzhen, Guangdong, P.R.
China

Tel: (0755) 26503290
Fax: (0755) 26503396

Report No. : ATE20172606
Date of Test : January 2-12, 2018
Date of Report : January 16, 2018

TABLE OF CONTENTS

Description	Page
 Test Report Certification	
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT).....	5
1.2. Carrier Frequency of Channels	6
1.3. Accessory and Auxiliary Equipment	6
1.4. Description of Test Facility	7
1.5. Measurement Uncertainty	7
2. MEASURING DEVICE AND TEST EQUIPMENT	8
3. OPERATION OF EUT DURING TESTING	9
3.1. Operating Mode	9
3.2. Configuration and peripherals	9
4. TEST PROCEDURES AND RESULTS	10
5. 20DB BANDWIDTH TEST	11
5.1. Block Diagram of Test Setup.....	11
5.2. The Requirement For Section 15.247(a)(1).....	11
5.3. EUT Configuration on Measurement	11
5.4. Operating Condition of EUT	11
5.5. Test Procedure	11
5.6. Test Result	12
6. CARRIER FREQUENCY SEPARATION TEST.....	17
6.1. Block Diagram of Test Setup.....	17
6.2. The Requirement For Section 15.247(a)(1).....	17
6.3. EUT Configuration on Measurement	17
6.4. Operating Condition of EUT	17
6.5. Test Procedure	18
6.6. Test Result	18
7. NUMBER OF HOPPING FREQUENCY TEST	24
7.1. Block Diagram of Test Setup.....	24
7.2. The Requirement For Section 15.247(a)(1)(iii).....	24
7.3. EUT Configuration on Measurement	24
7.4. Operating Condition of EUT	24
7.5. Test Procedure	24
7.6. Test Result	25
8. DWELL TIME TEST	27
8.1. Block Diagram of Test Setup.....	27
8.2. The Requirement For Section 15.247(a)(1)(iii).....	27
8.3. EUT Configuration on Measurement	27
8.4. Operating Condition of EUT	27
8.5. Test Procedure	27
8.6. Test Result	28
9. MAXIMUM PEAK OUTPUT POWER TEST	43
9.1. Block Diagram of Test Setup.....	43
9.2. The Requirement For Section 15.247(b)(1).....	43
9.3. EUT Configuration on Measurement	43

9.4.	Operating Condition of EUT	43
9.5.	Test Procedure	43
9.6.	Test Result	44
10.	RADIATED EMISSION TEST	50
10.1.	Block Diagram of Test Setup.....	50
10.2.	The Limit For Section 15.247(d)	51
10.3.	Restricted bands of operation	52
10.4.	Configuration of EUT on Measurement	52
10.5.	Test Procedure	53
10.6.	Data Sample.....	54
10.7.	The Field Strength of Radiation Emission Measurement Results	54
11.	BAND EDGE COMPLIANCE TEST	67
11.1.	Block Diagram of Test Setup.....	67
11.2.	The Requirement For Section 15.247(d)	67
11.3.	EUT Configuration on Measurement	67
11.4.	Operating Condition of EUT	67
11.5.	Test Procedure	68
11.6.	Test Result	68
12.	AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A) ..	91
12.1.	Block Diagram of Test Setup.....	91
12.2.	Power Line Conducted Emission Measurement Limits.....	92
12.3.	Configuration of EUT on Measurement	92
12.4.	Operating Condition of EUT	92
12.5.	Test Procedure	92
12.6.	Data Sample.....	93
12.7.	Power Line Conducted Emission Measurement Results	94
13.	ANTENNA REQUIREMENT.....	97
13.1.	The Requirement	97
13.2.	Antenna Construction	97

Test Report Certification

Applicant : Modern Marketing Concepts, Inc.
Manufacturer : TIMSEN INTERNATIONAL LIMITED
EUT Description : Switch II Turntable
Model No. : CR6034A-NA, CR6034X-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 15.247:2017
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 : January 2-12, 2018

Date of Report: January 16, 2018

Prepared by :



(Bob Wang, Engineer)

Approved & Authorized Signer :


(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Switch II Turntable
Model Number	:	CR6034A-NA, CR6034X-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 CR6034A-NA 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 (Power by Adapter)
Adapter	:	Model: RHD48-1201500 Input: AC 120V; 60Hz Output: DC 12V; 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
Date of sample receiver	:	December 29, 2017
Date of Test	:	January 2-12, 2018
Sample No.	:	1702113

1.2.Carrier Frequency of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	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

N/A

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. 06, 2018	1 Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 06, 2018	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 06, 2018	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 06, 2018	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. 06, 2018	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 06, 2018	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 06, 2018	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 06, 2018	1 Year

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode

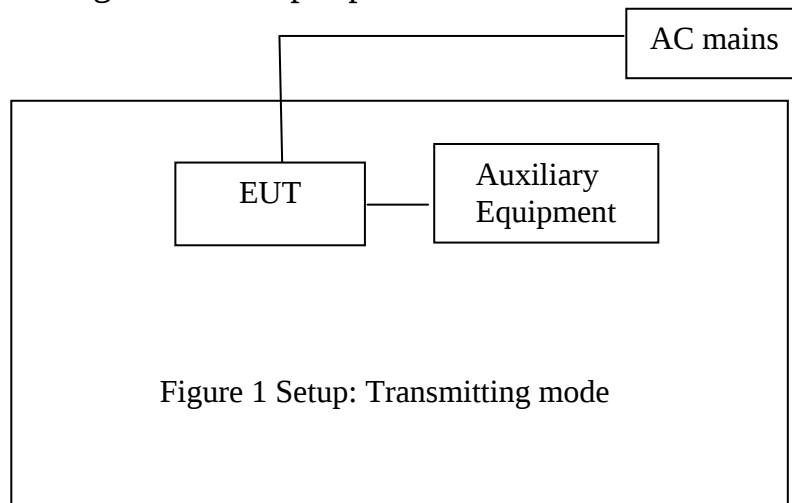
Low Channel: 2402MHz

Middle Channel: 2441MHz

High Channel: 2480MHz

Hopping

3.2.Configuration and peripherals

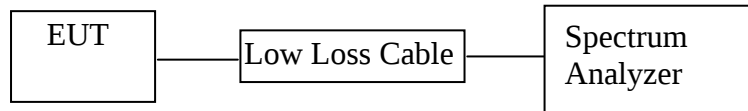


4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
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: Switch II Turntable)

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.

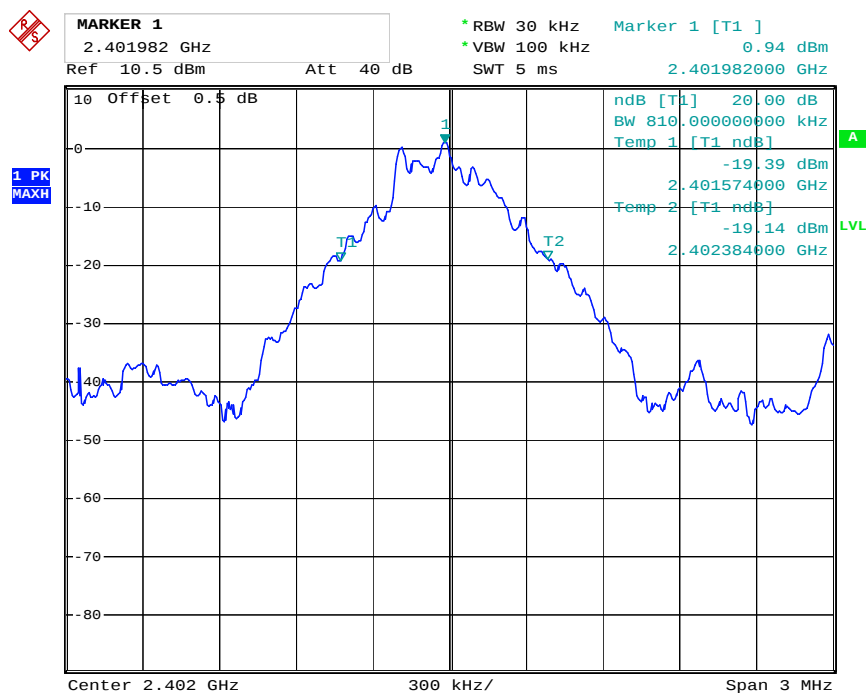
5.6. Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	$\Pi/4$ -DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	0.810	1.260	1.272	Pass
Middle	2441	0.810	1.260	1.266	Pass
High	2480	0.882	1.260	1.266	Pass

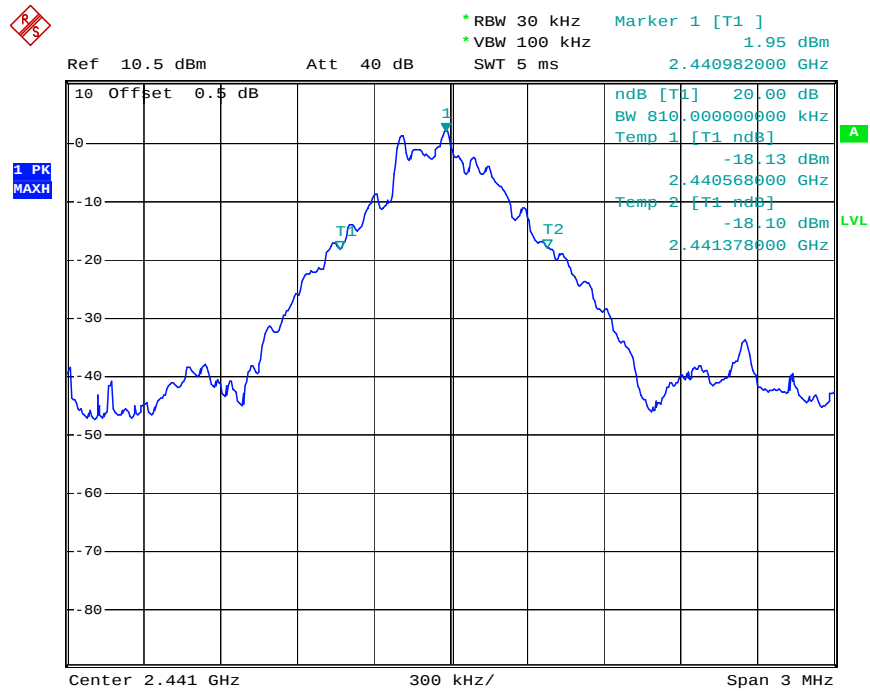
The spectrum analyzer plots are attached as below.

GFSK Mode

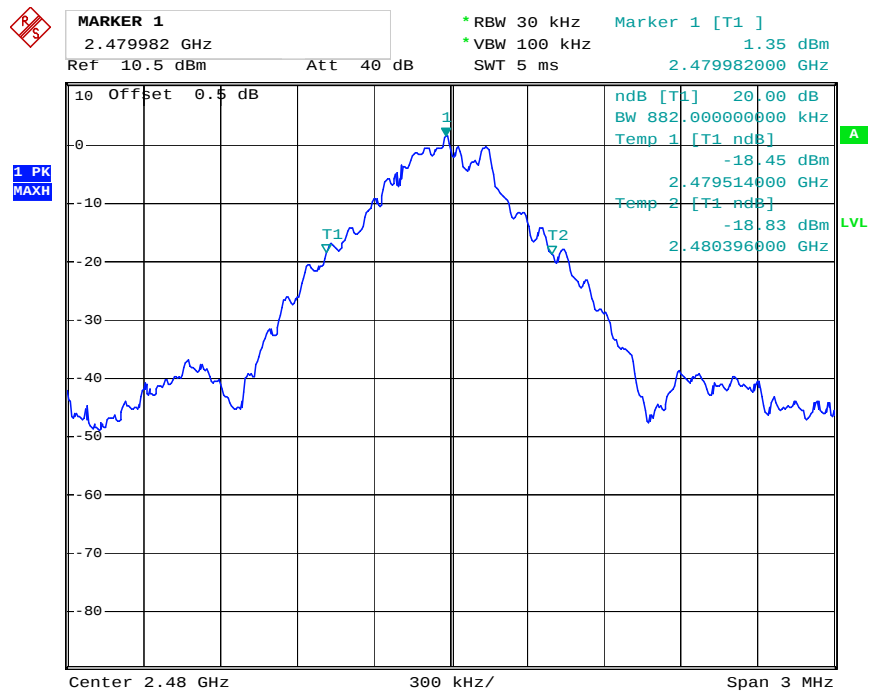
Low channel



Middle channel

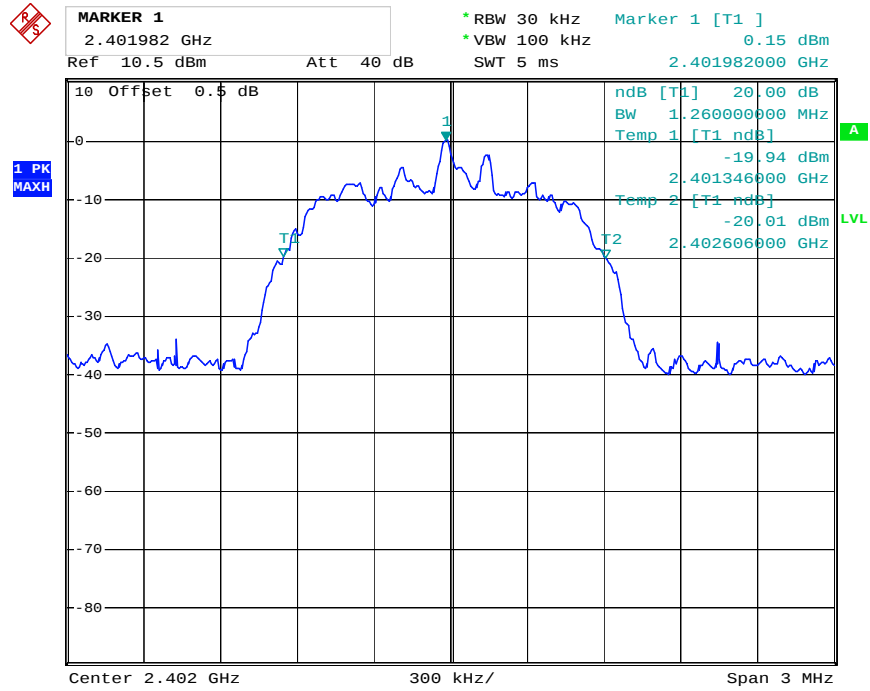


High channel

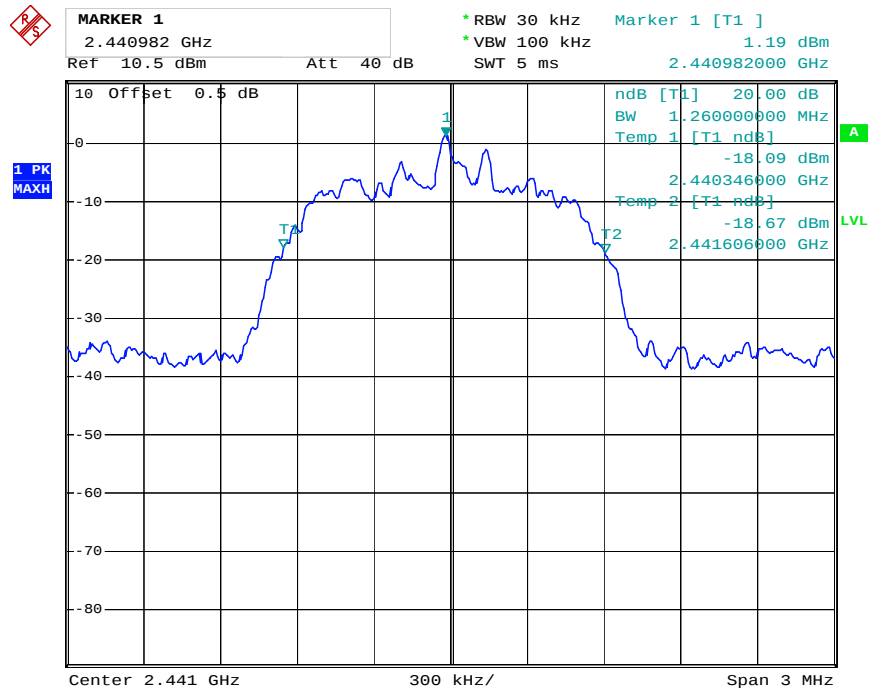


Π/4-DQPSK Mode

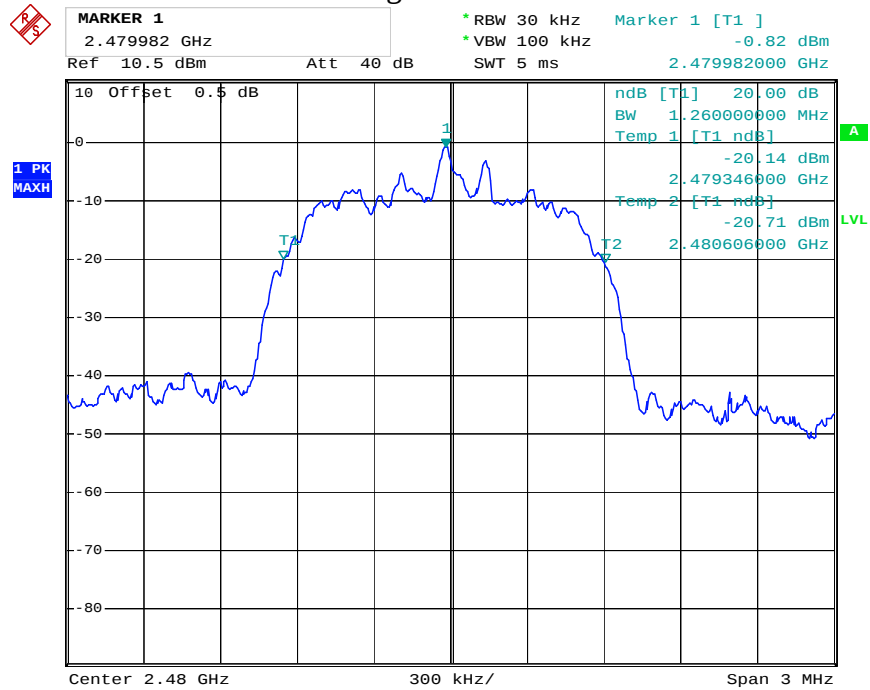
Low channel



Middle channel

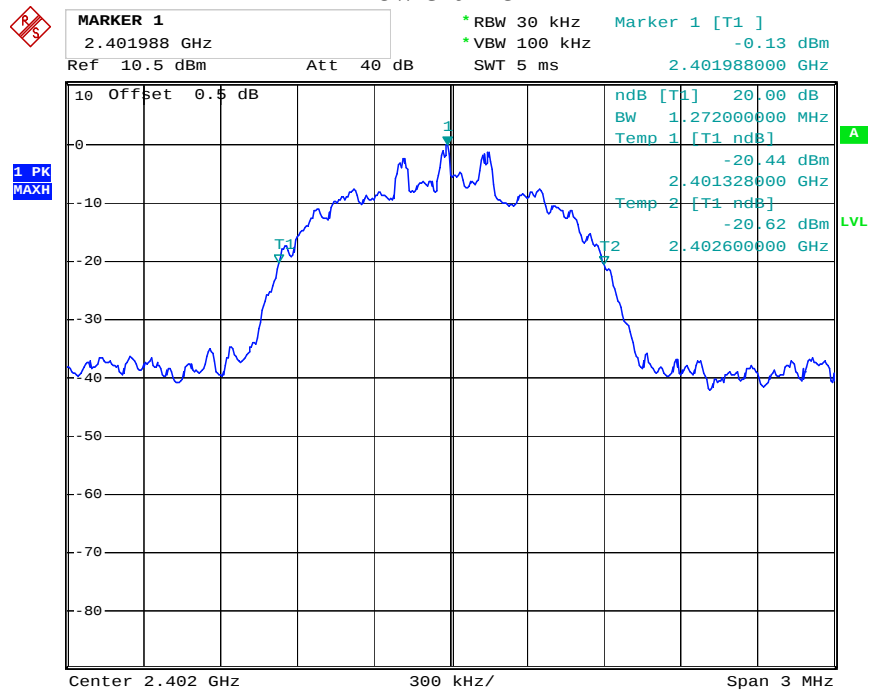


High channel

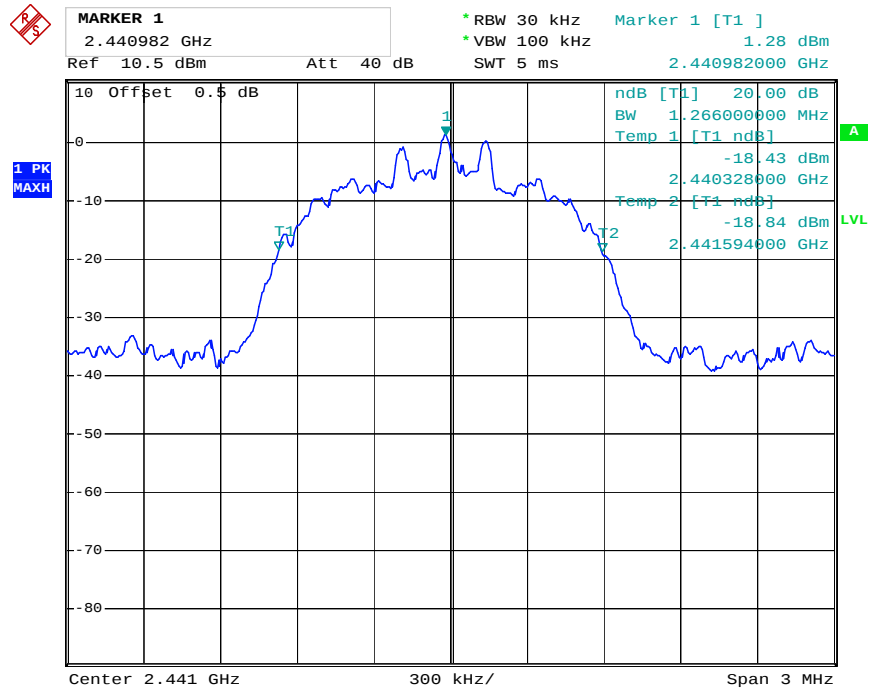


8DPSK Mode

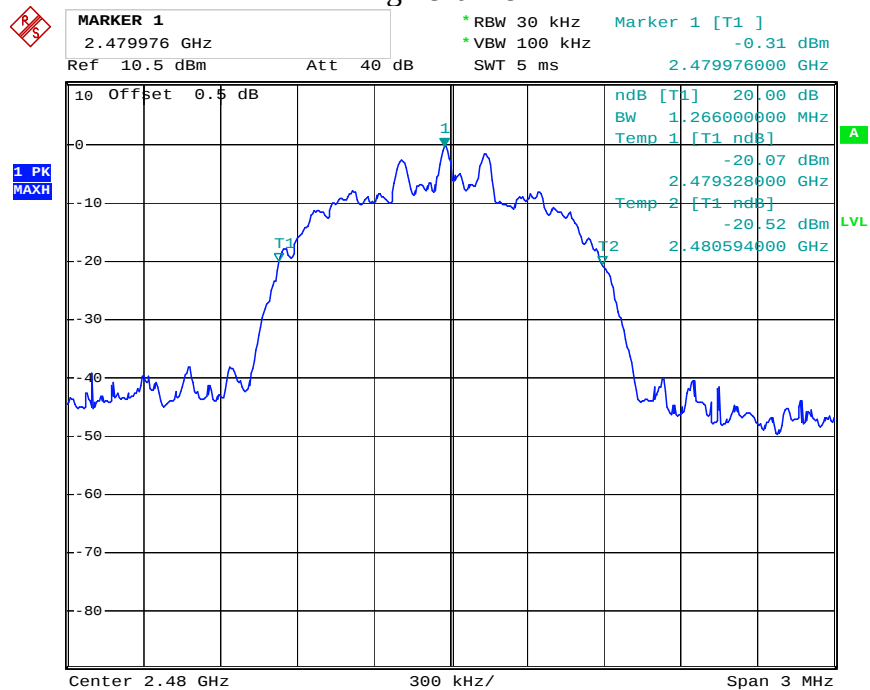
Low channel



Middle channel

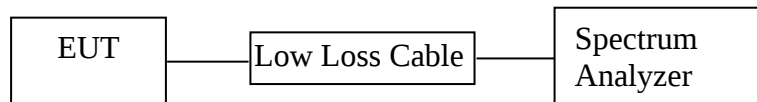


High channel



6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: Switch II Turntable)

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	1.000	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.004	25KHz or 20dB bandwidth	PASS
	2441			
High	2479	1.008	25KHz or 20dB bandwidth	PASS
	2480			

Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.014	25KHz or 2/3*20dB bandwidth	PASS
	2480			

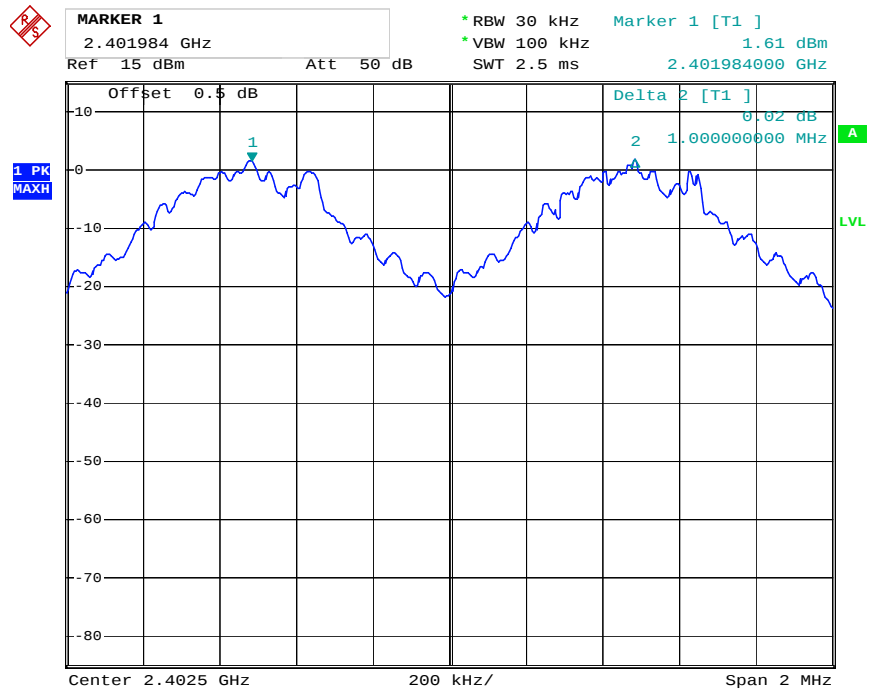
8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.014	25KHz or 2/3*20dB bandwidth	PASS
	2480			

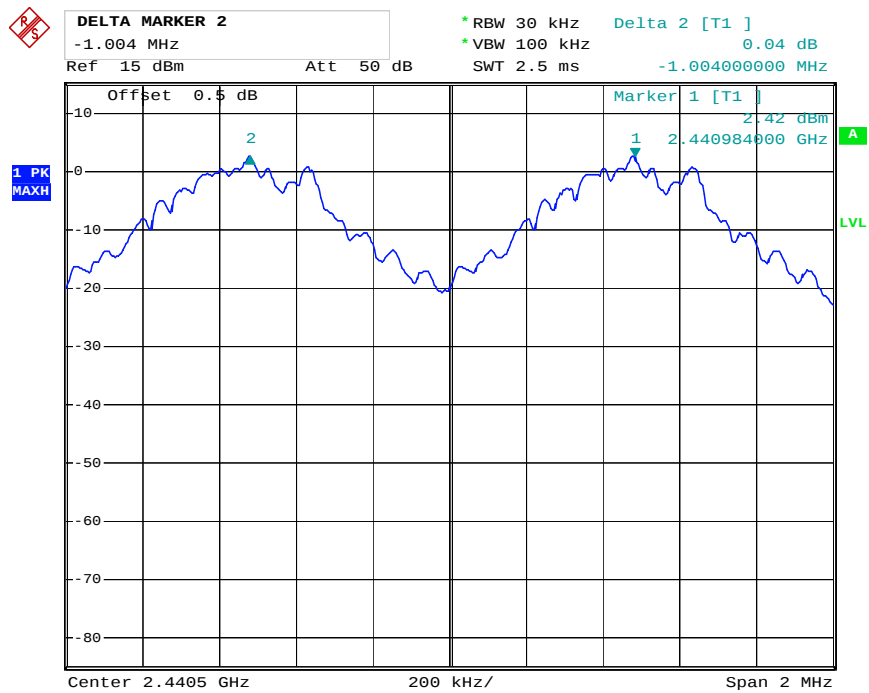
The spectrum analyzer plots are attached as below.

GFSK Mode

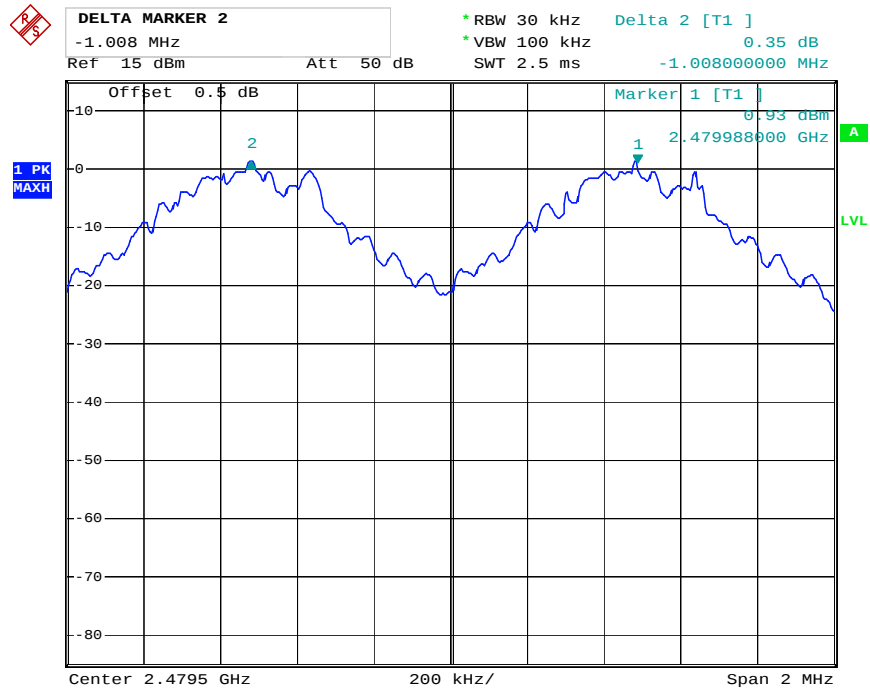
Low channel



Middle channel

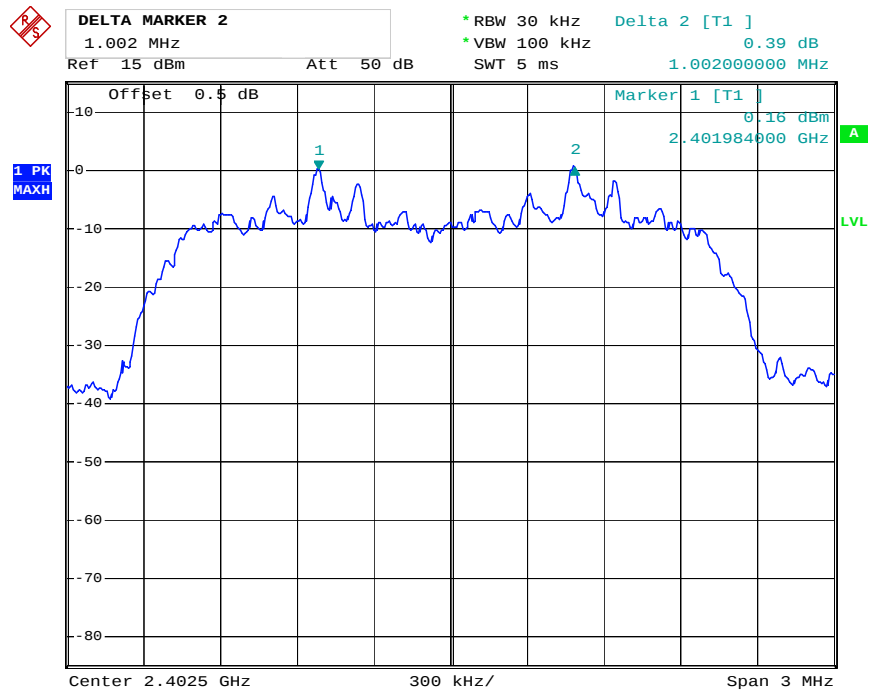


High channel

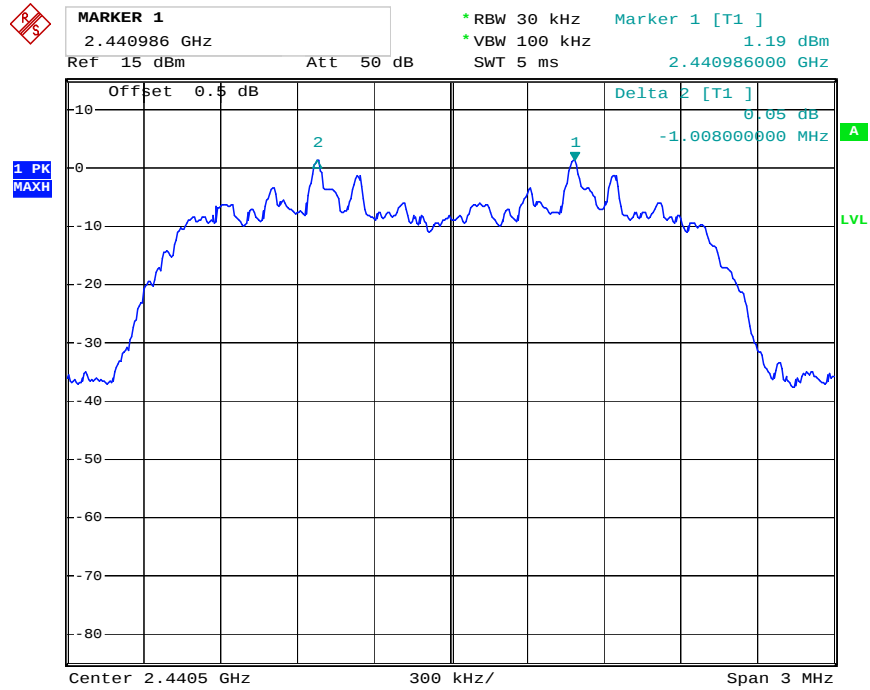


Π/4-DQPSK Mode

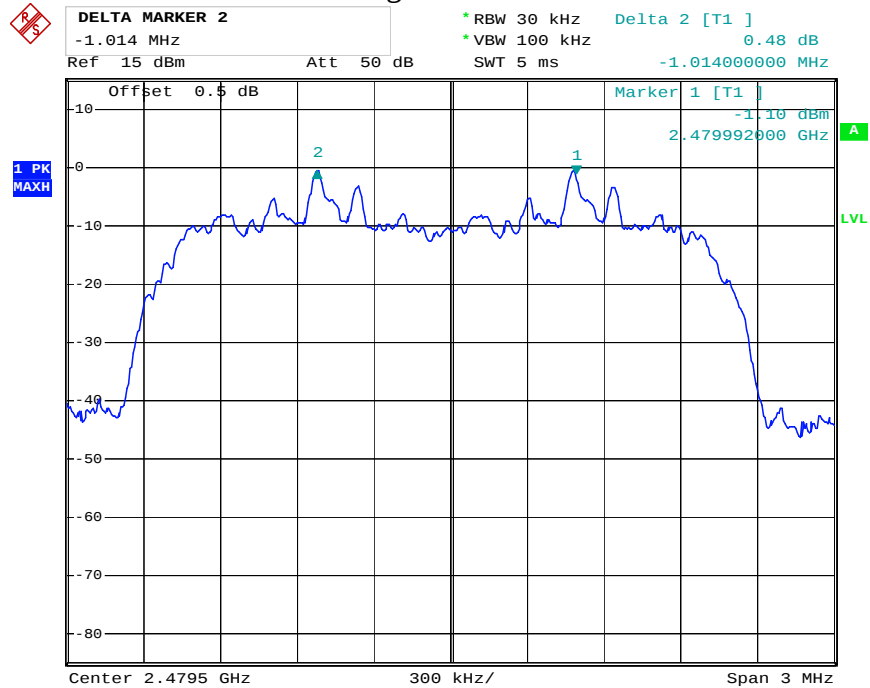
Low channel



Middle channel

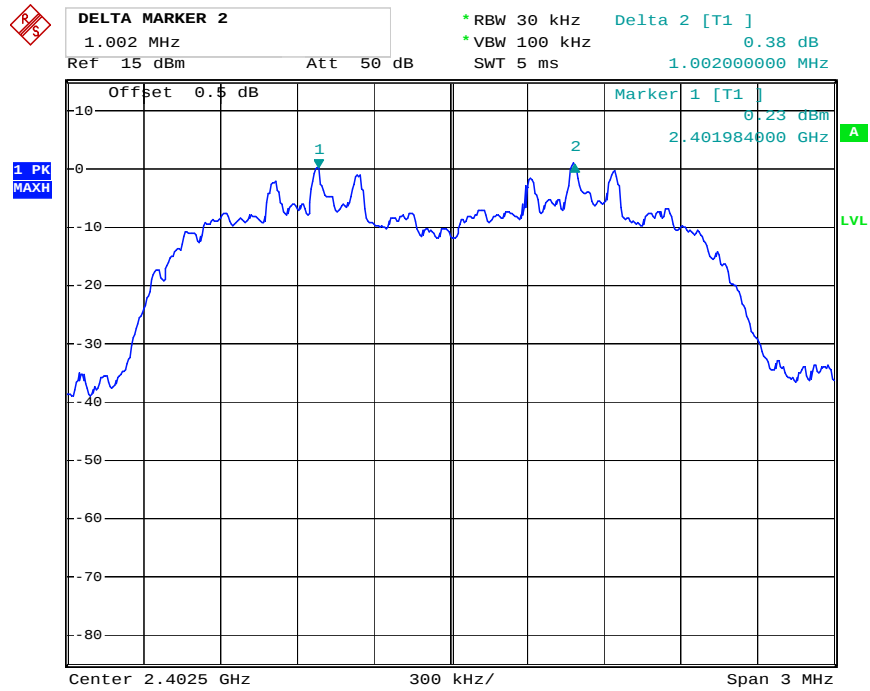


High channel

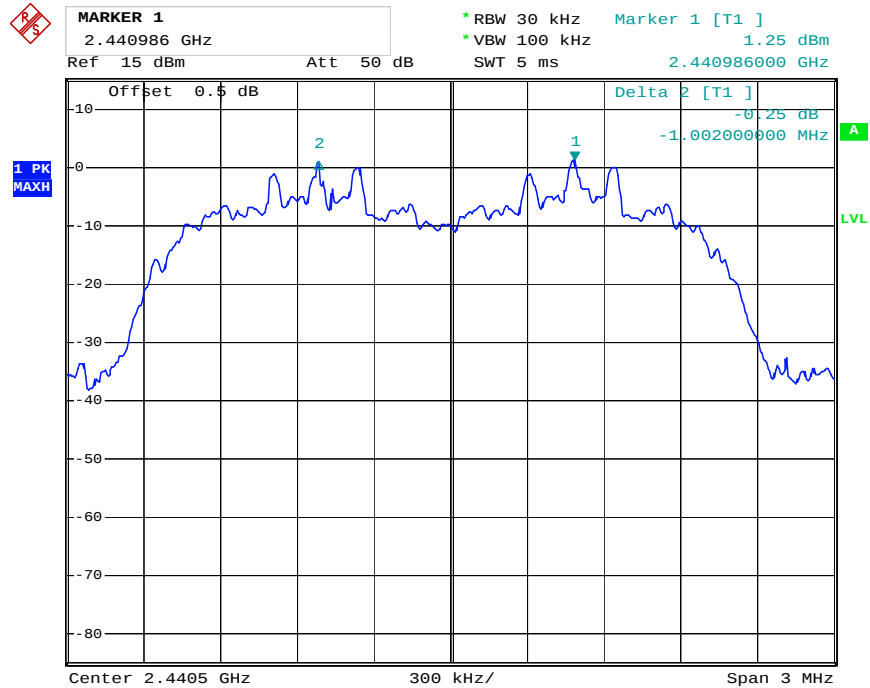


8DPSK Mode

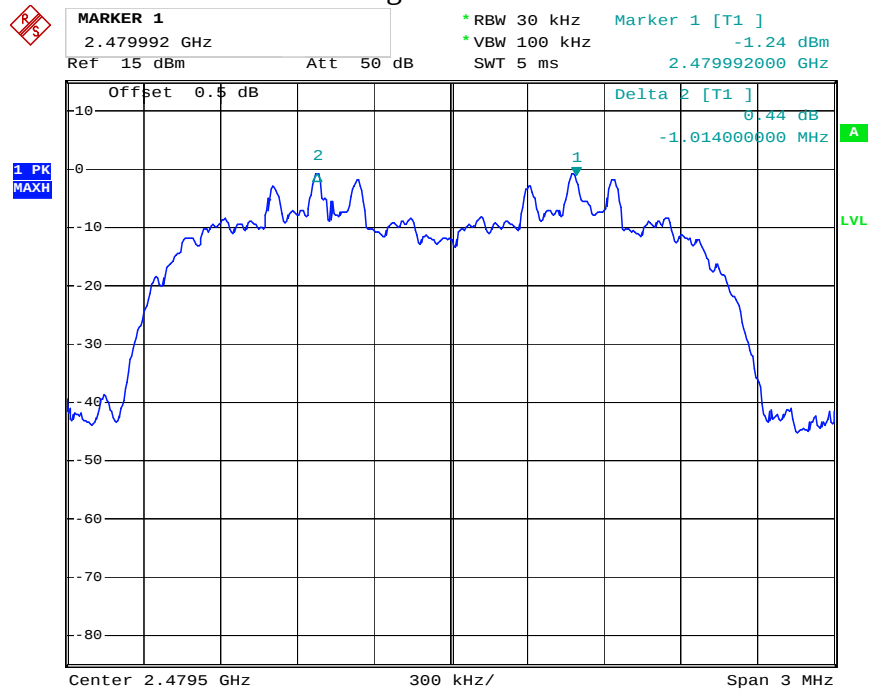
Low channel



Middle channel

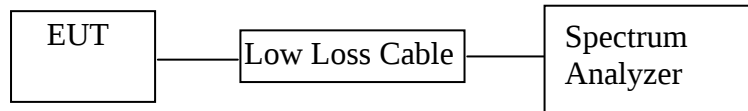


High channel



7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: Switch II Turntable)

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.

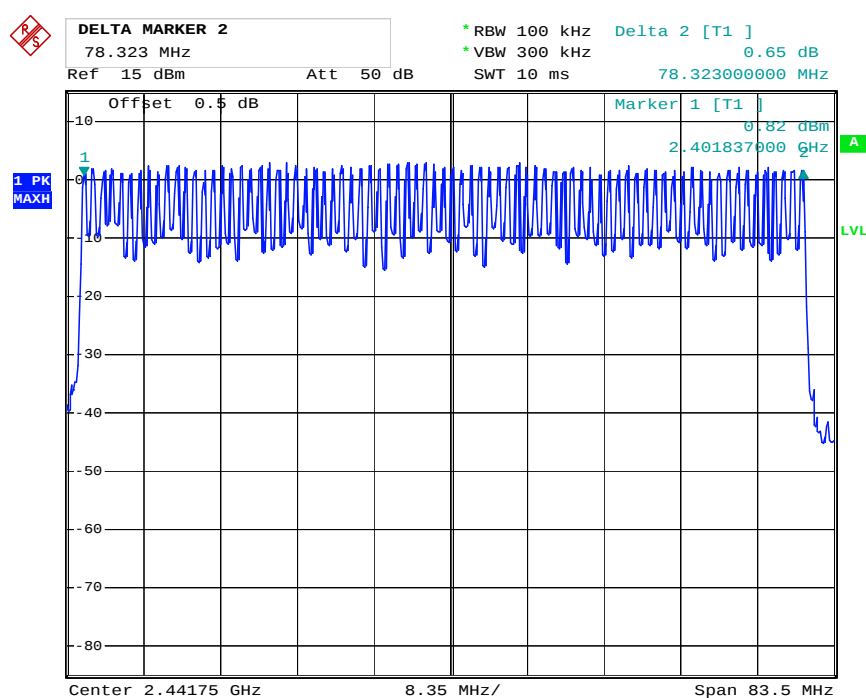
7.5.3. Max hold, view and count how many channel in the band.

7.6.Test Result

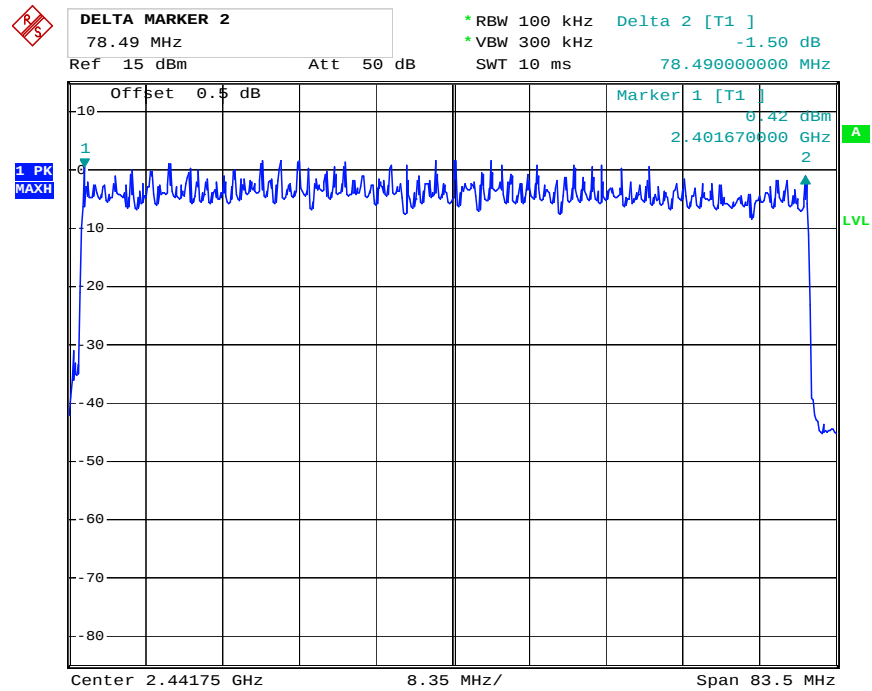
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	≥ 15

The spectrum analyzer plots are attached as below.

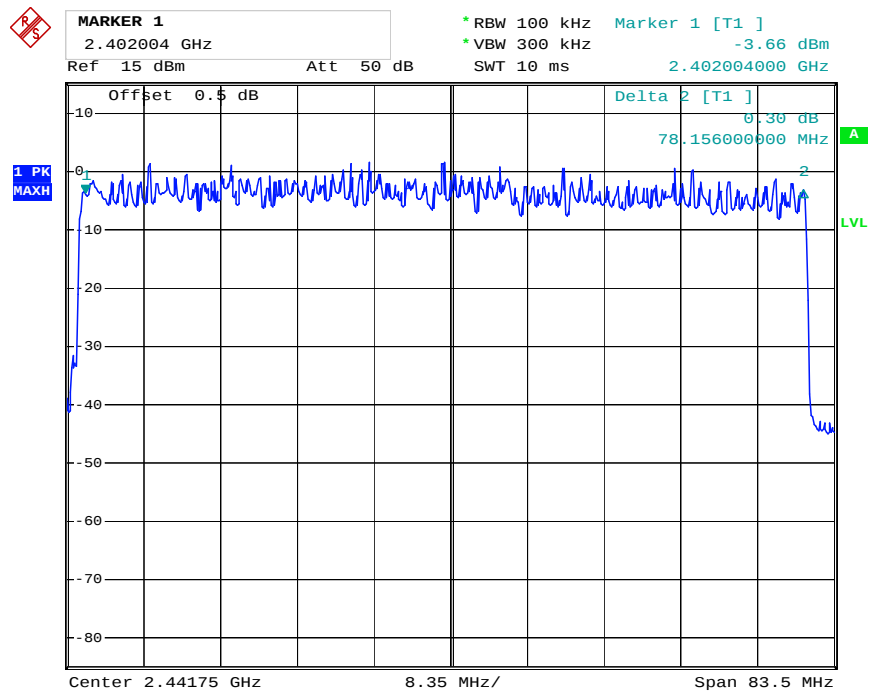
Number of hopping channels(GFSK)



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

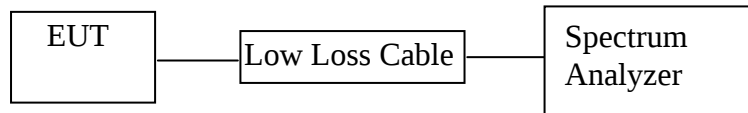


Number of hopping channels(8DPSK)



8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: Switch II Turntable)

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	0.442	141.44	400
	2441	0.442	141.44	400
	2480	0.438	140.16	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.728	276.48	400
	2441	1.757	281.12	400
	2480	1.743	278.88	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	3.004	320.43	400
	2441	3.025	322.67	400
	2480	2.960	315.73	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

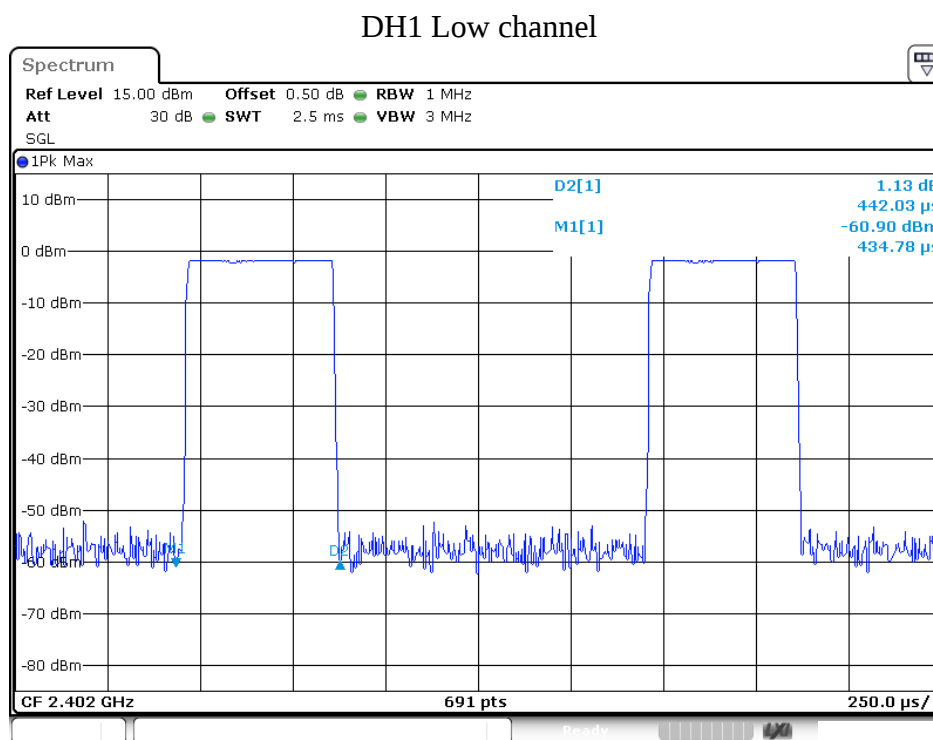
Π/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.442	141.44	400
	2441	0.449	143.68	400
	2480	0.442	141.44	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.746	279.36	400
	2441	1.775	284.00	400
	2480	1.732	277.12	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	3.058	326.19	400
	2441	3.058	326.19	400
	2480	3.058	326.19	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

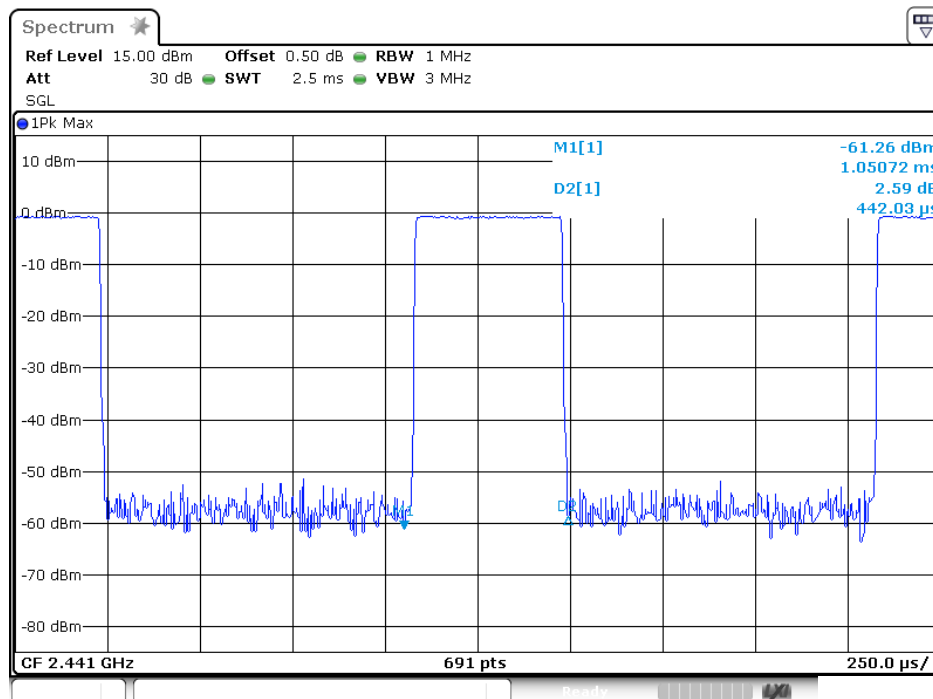
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.449	143.68	400
	2441	0.463	148.16	400
	2480	0.449	143.68	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.732	277.12	400
	2441	1.732	277.12	400
	2480	1.746	279.36	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	3.036	323.84	400
	2441	2.993	319.25	400
	2480	3.036	323.84	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

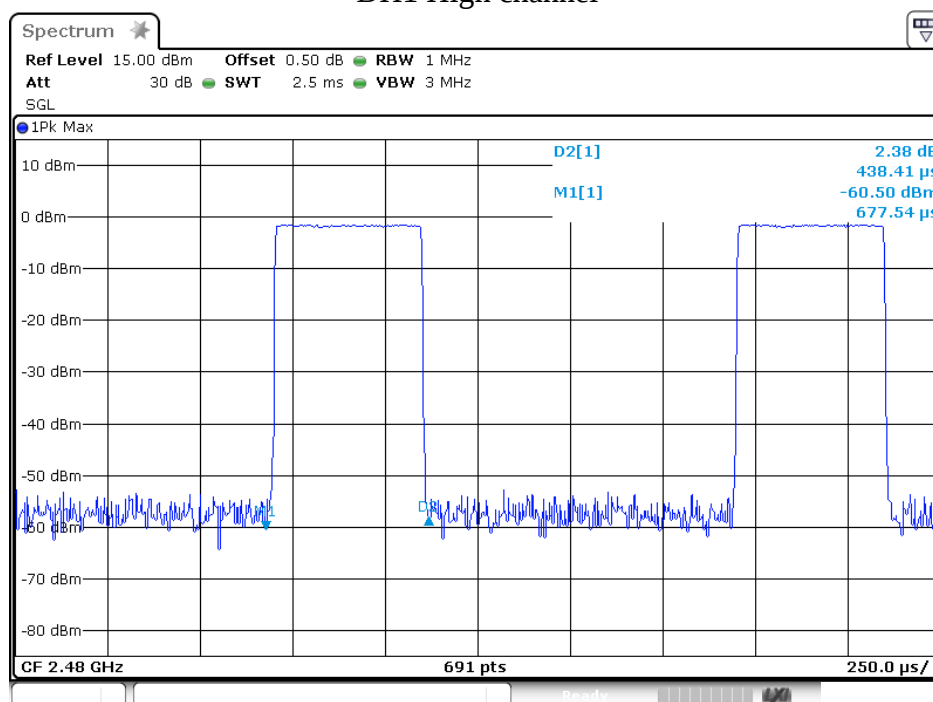
The spectrum analyzer plots are attached as below.



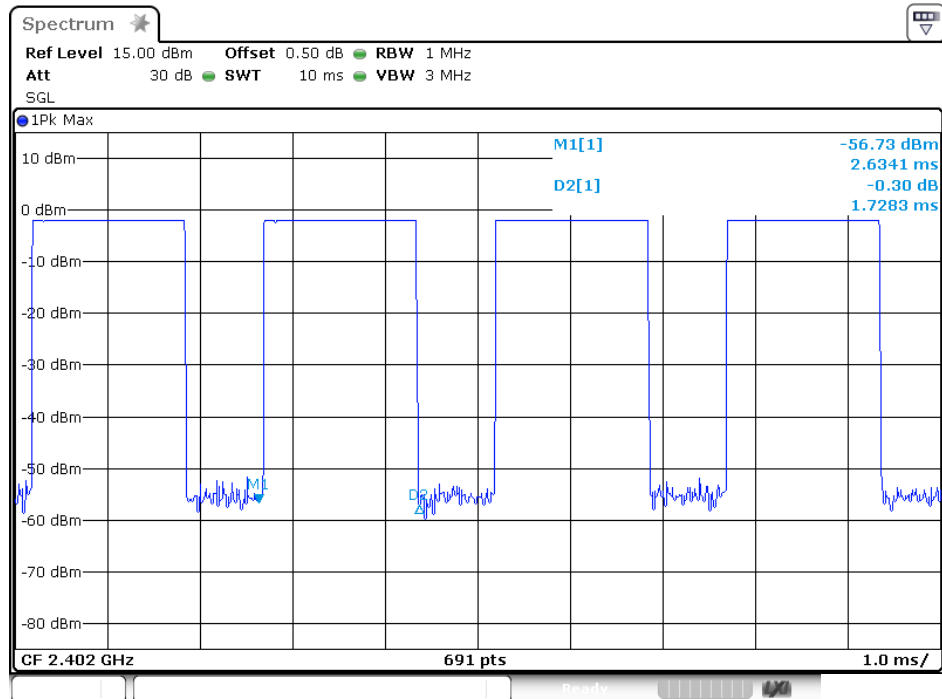
DH1 Middle channel



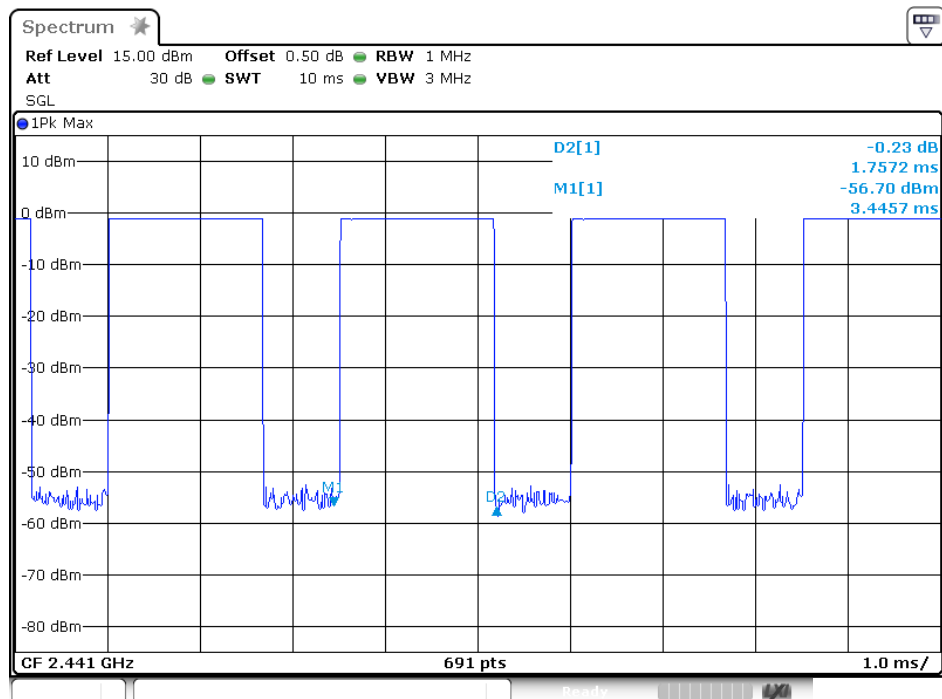
DH1 High channel



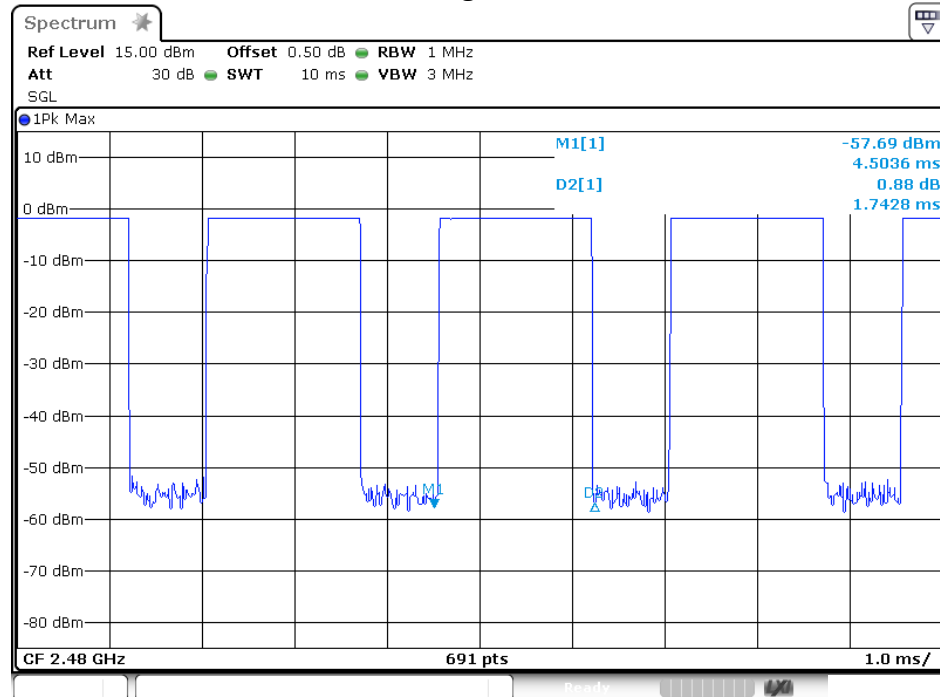
DH3 Low channel



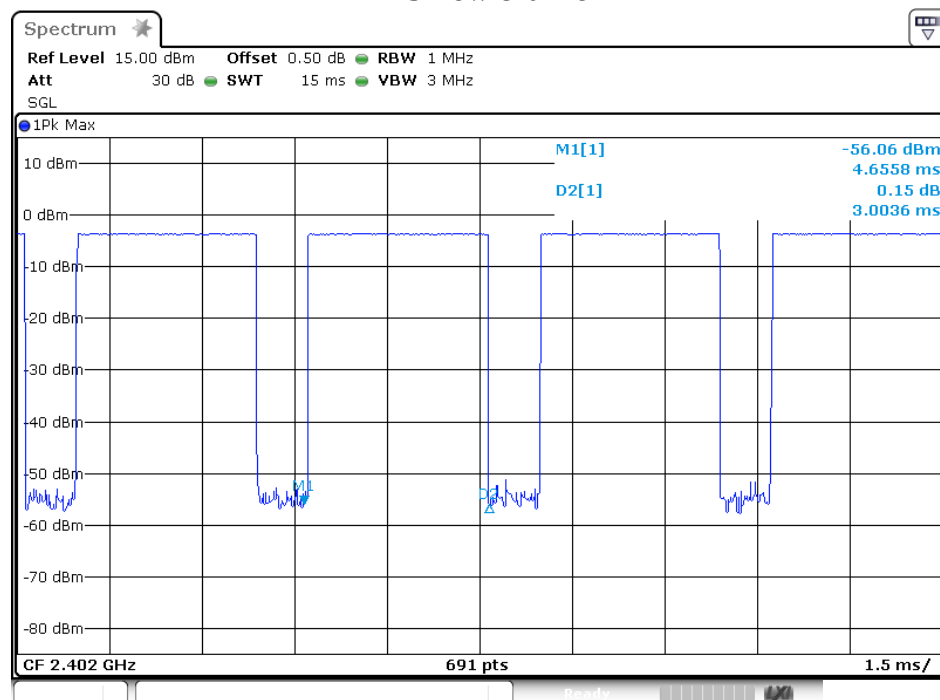
DH3 Middle channel



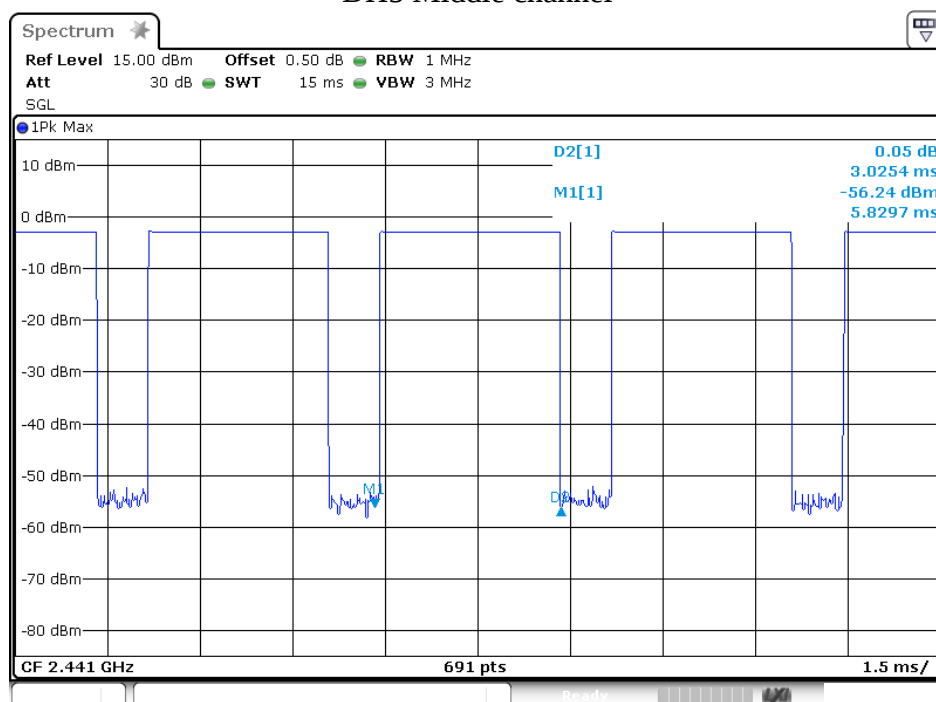
DH3 High channel



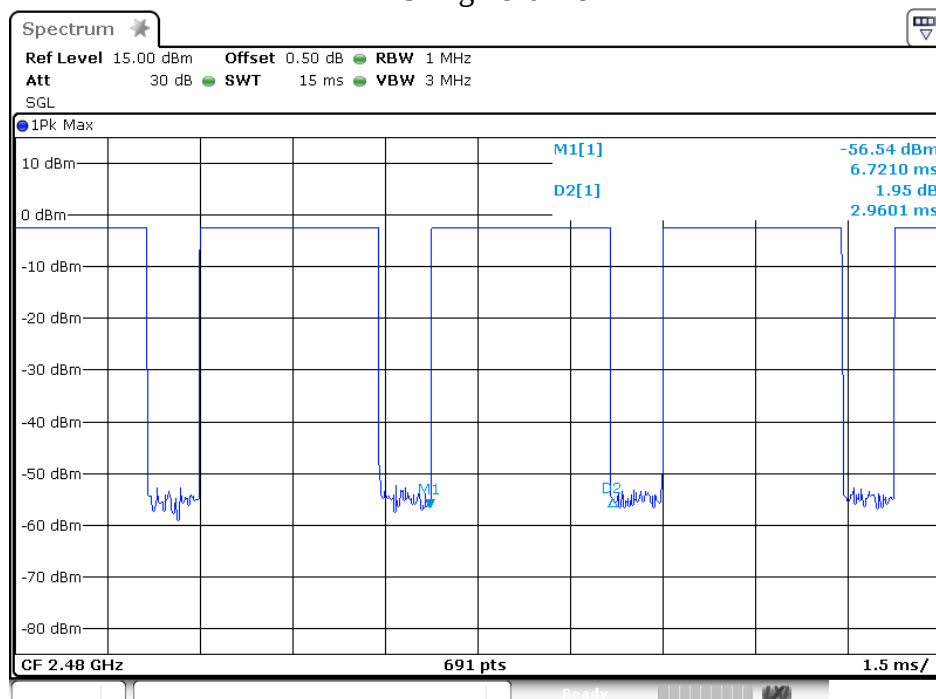
DH5 Low channel



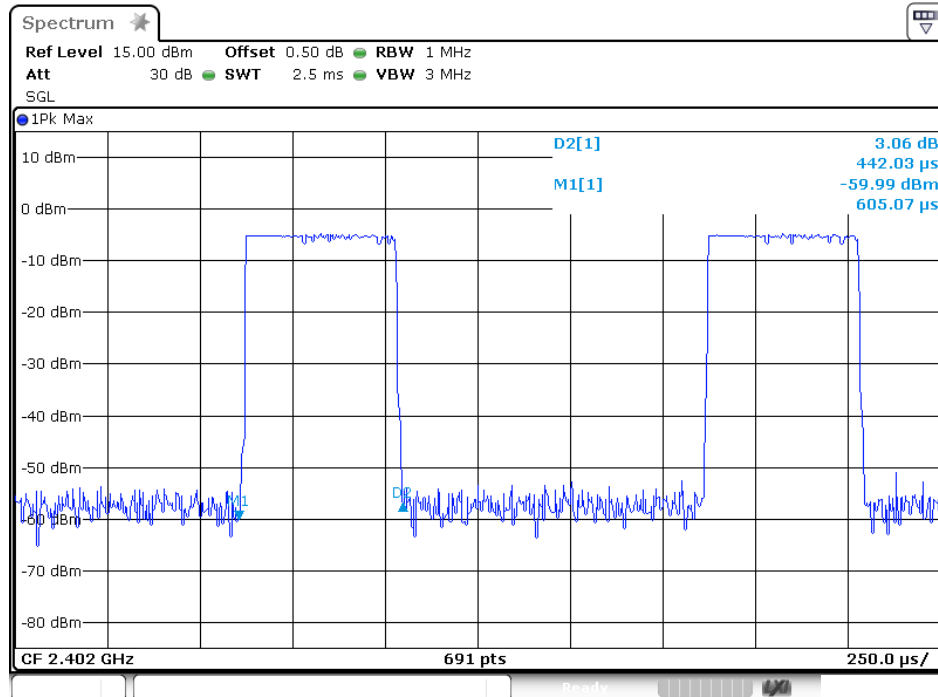
DH5 Middle channel



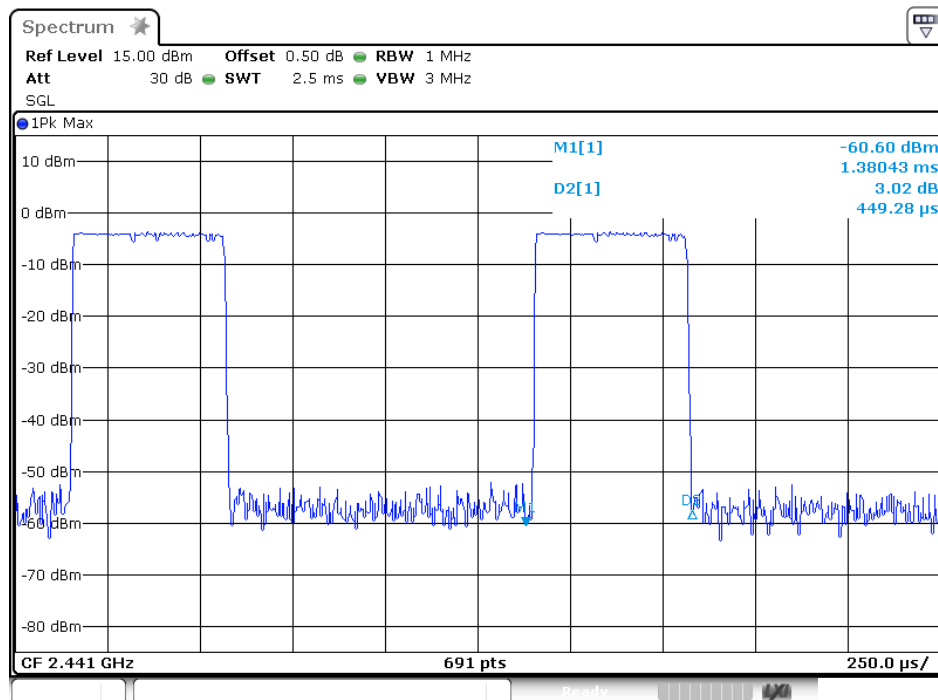
DH5 High channel



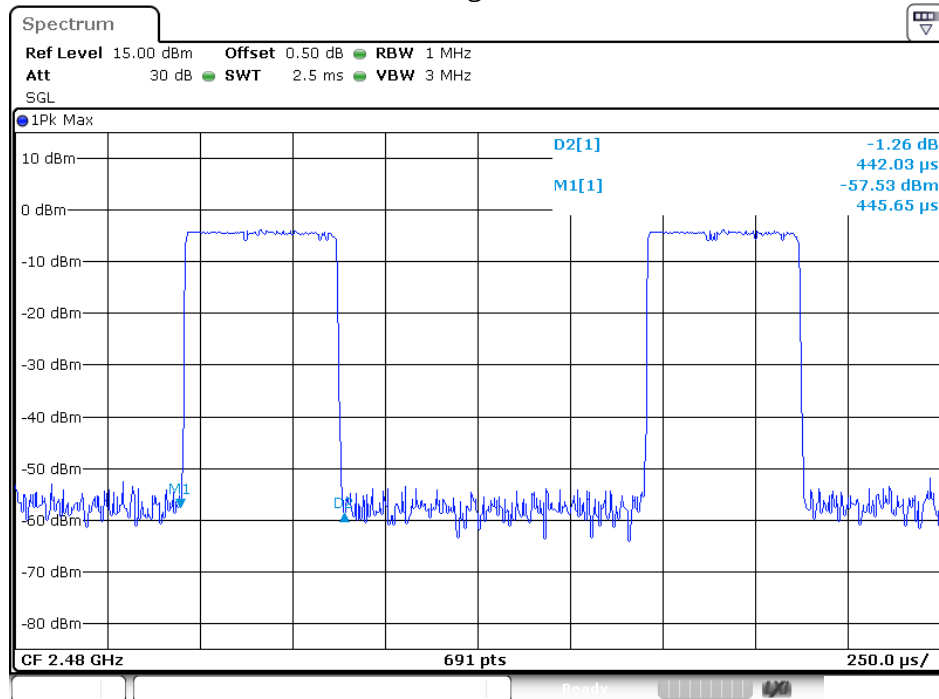
2DH1 Low channel



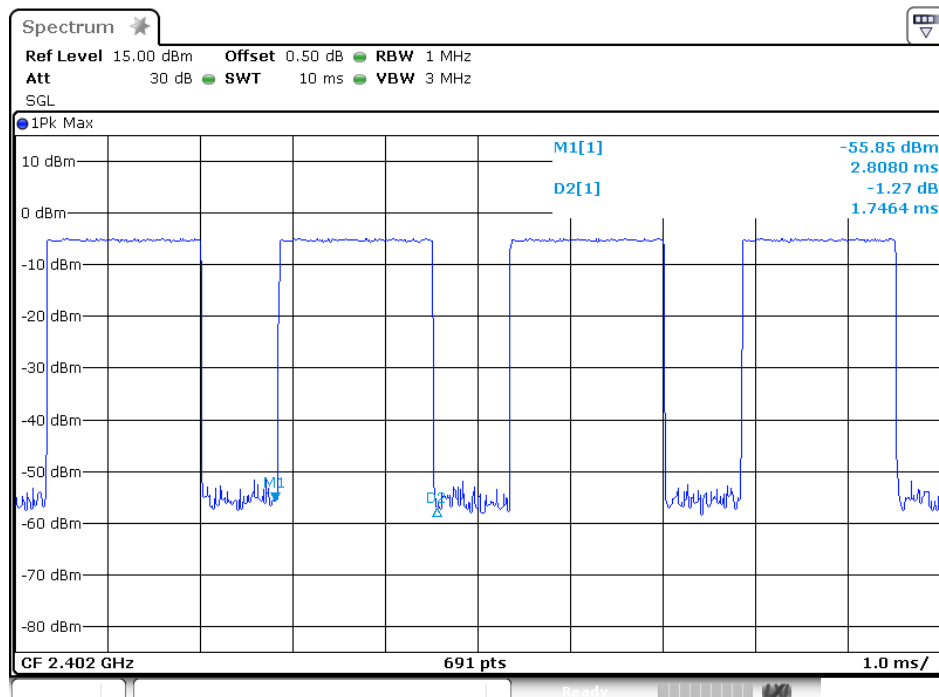
2DH1 Middle channel



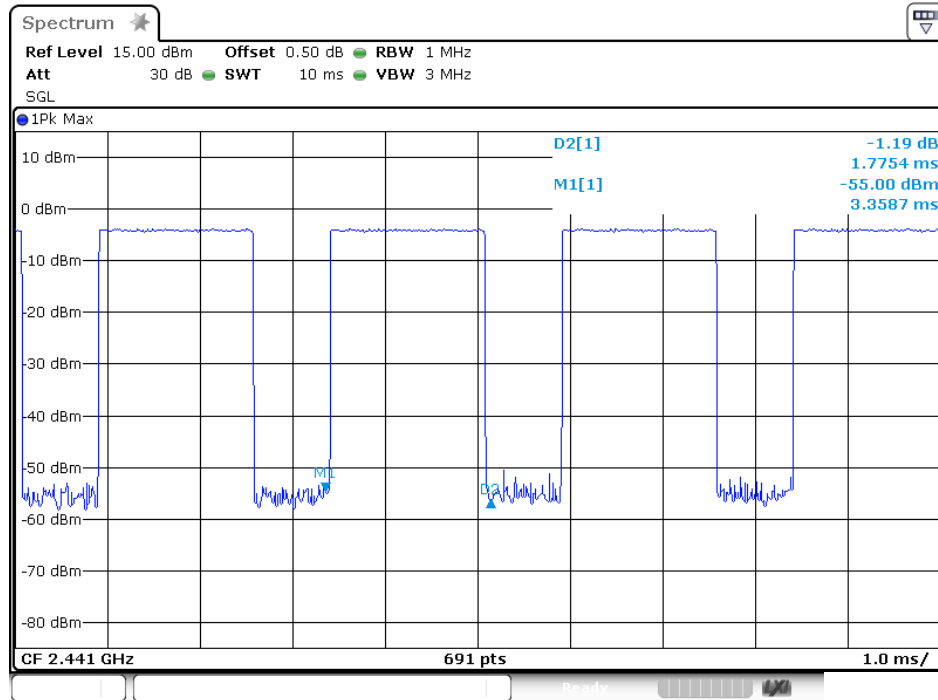
2DH1 High channel



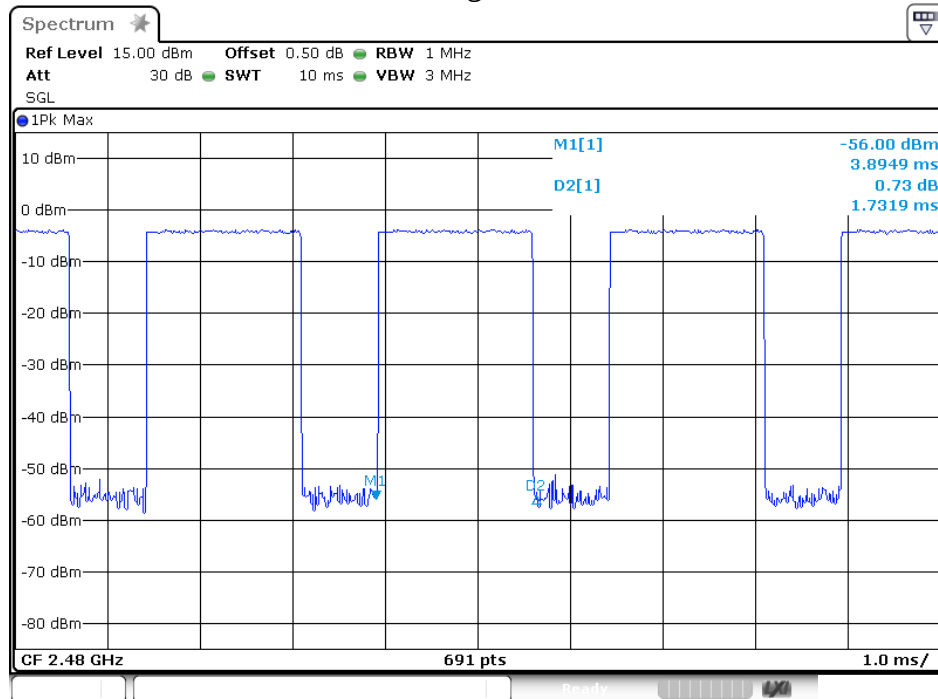
2DH3 Low channel



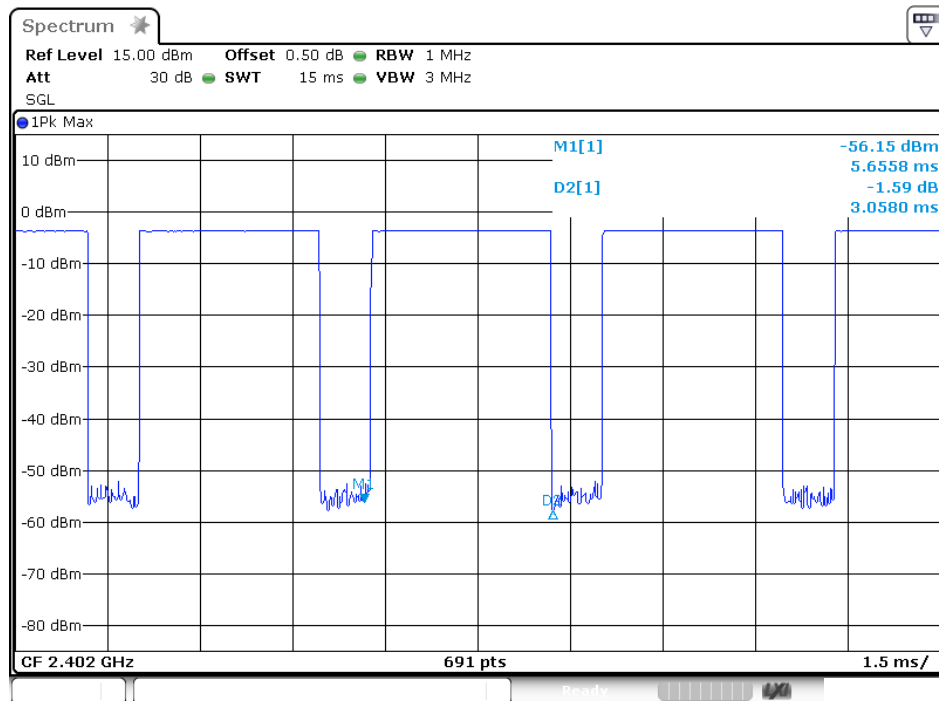
2DH3 Middle channel



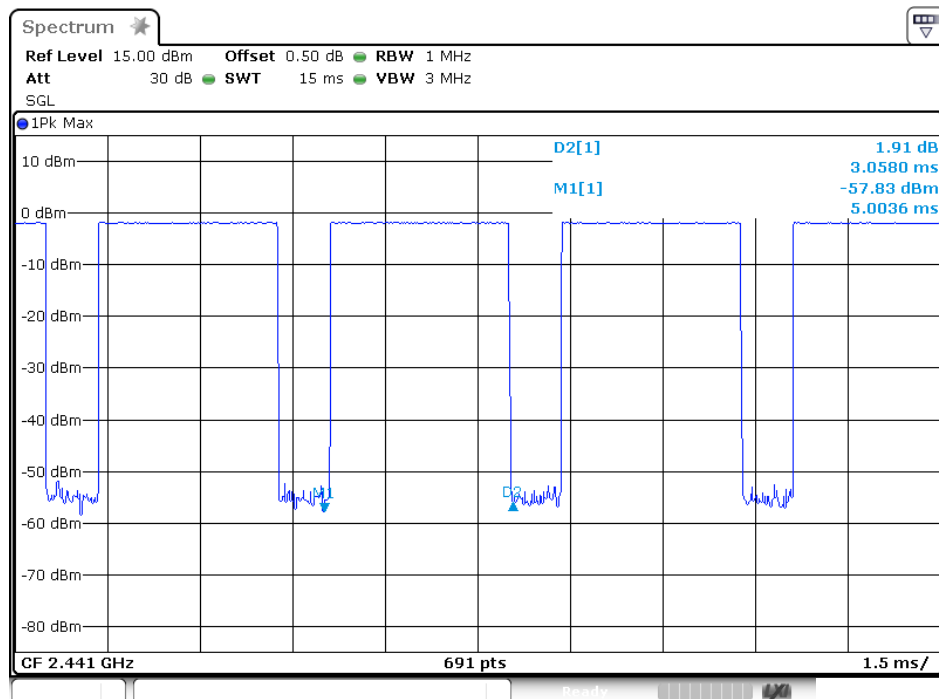
2DH3 High channel



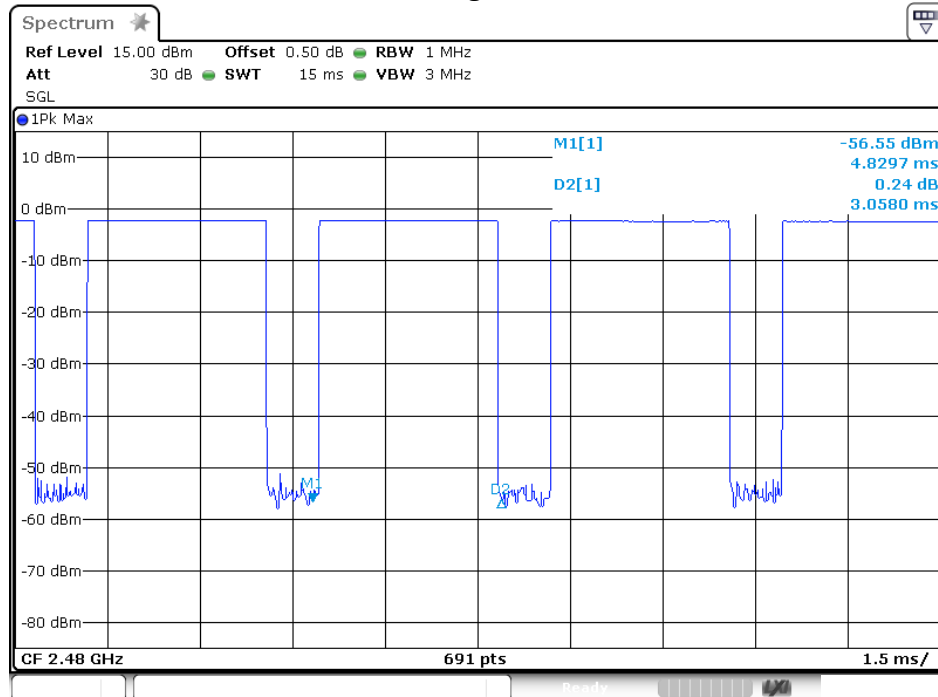
2DH5 Low channel



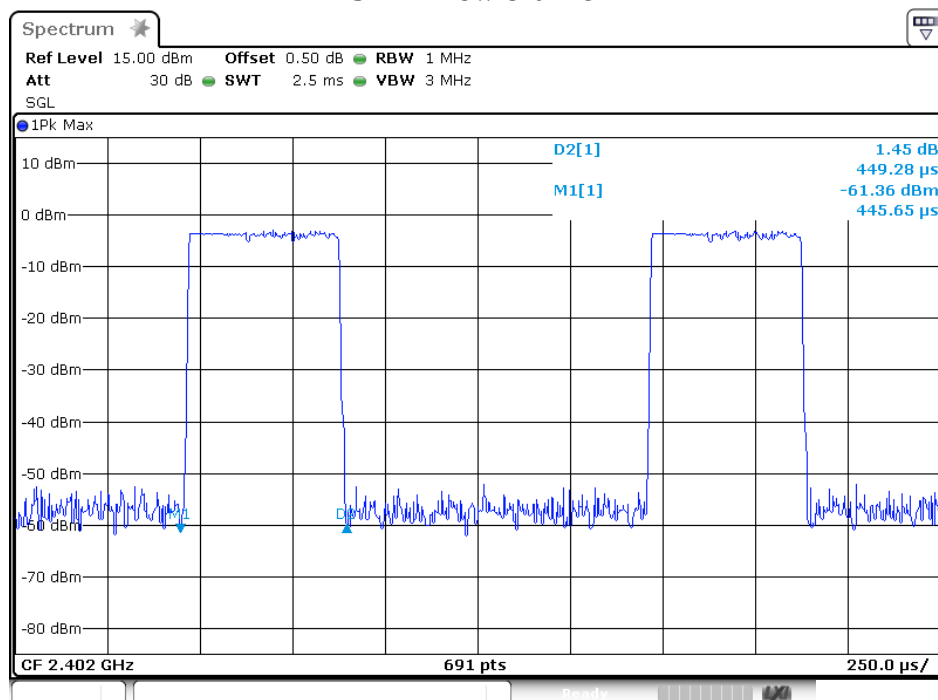
2DH5 Middle channel



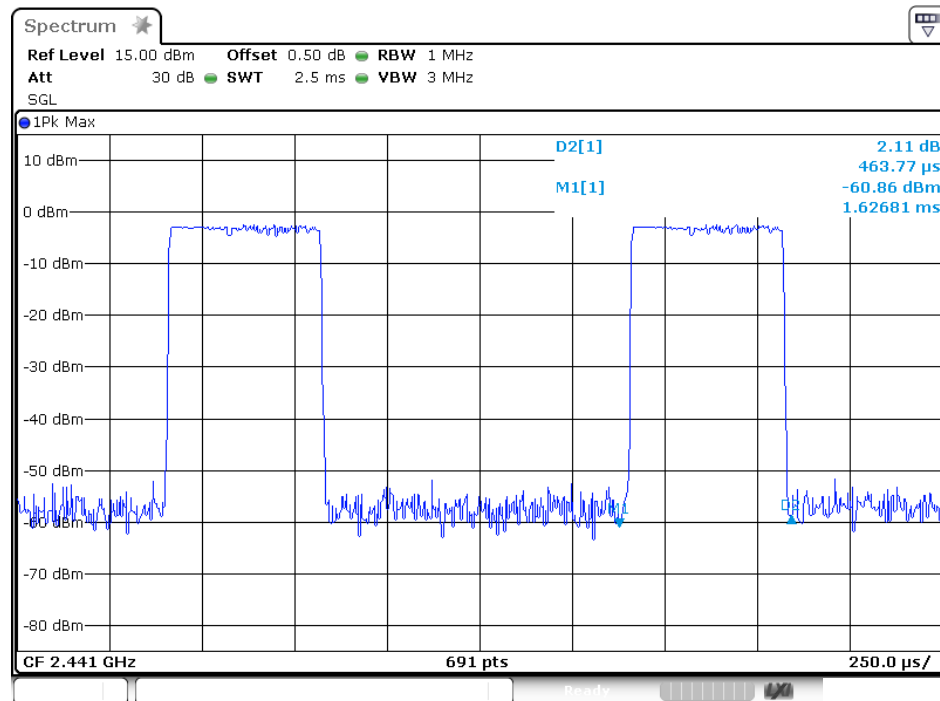
2DH5 High channel



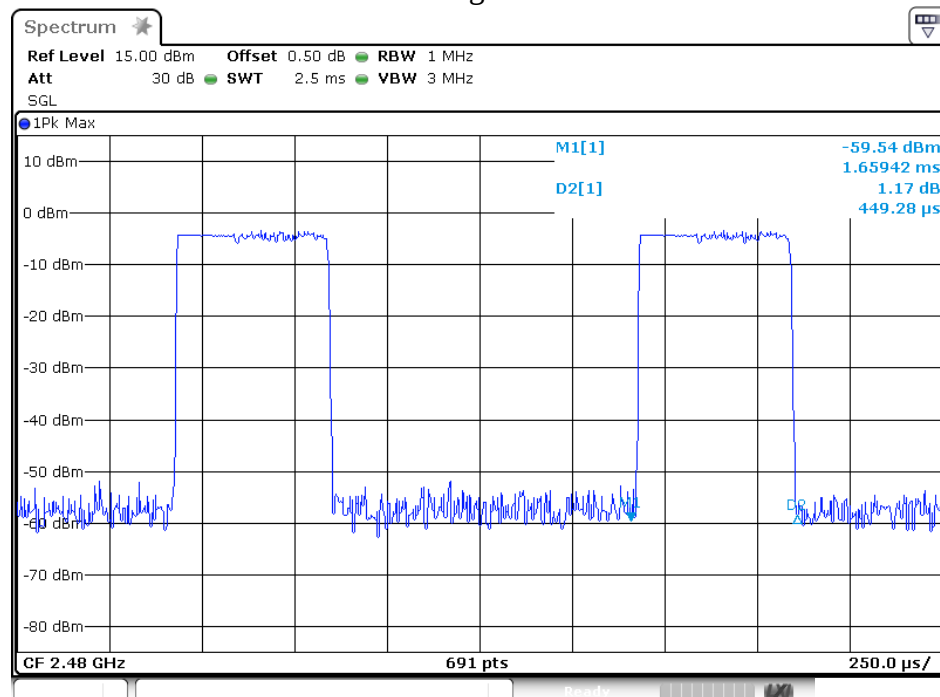
3DH1 Low channel



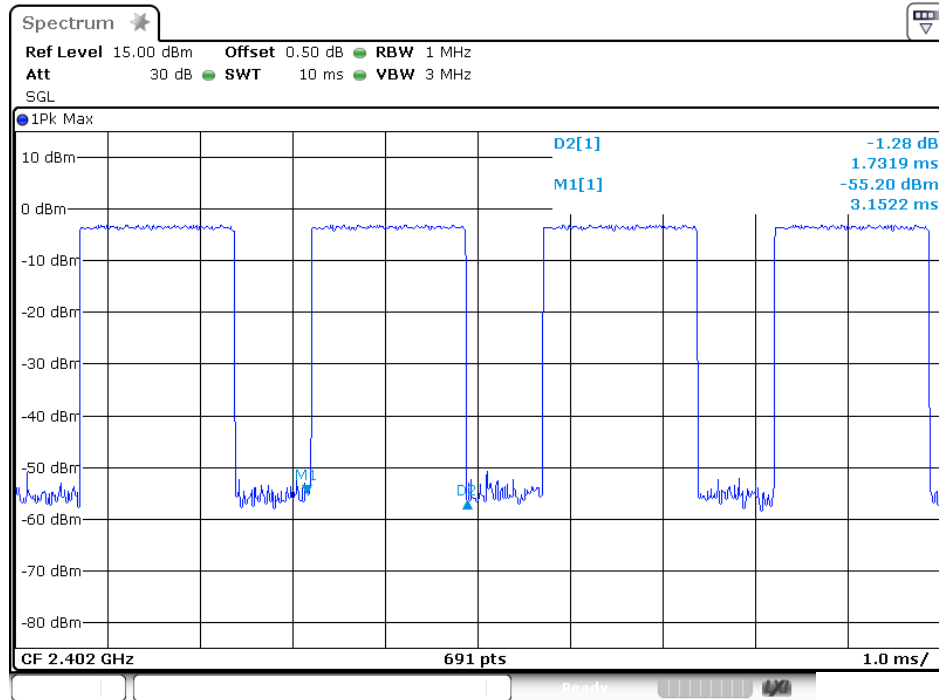
3DH1 Middle channel



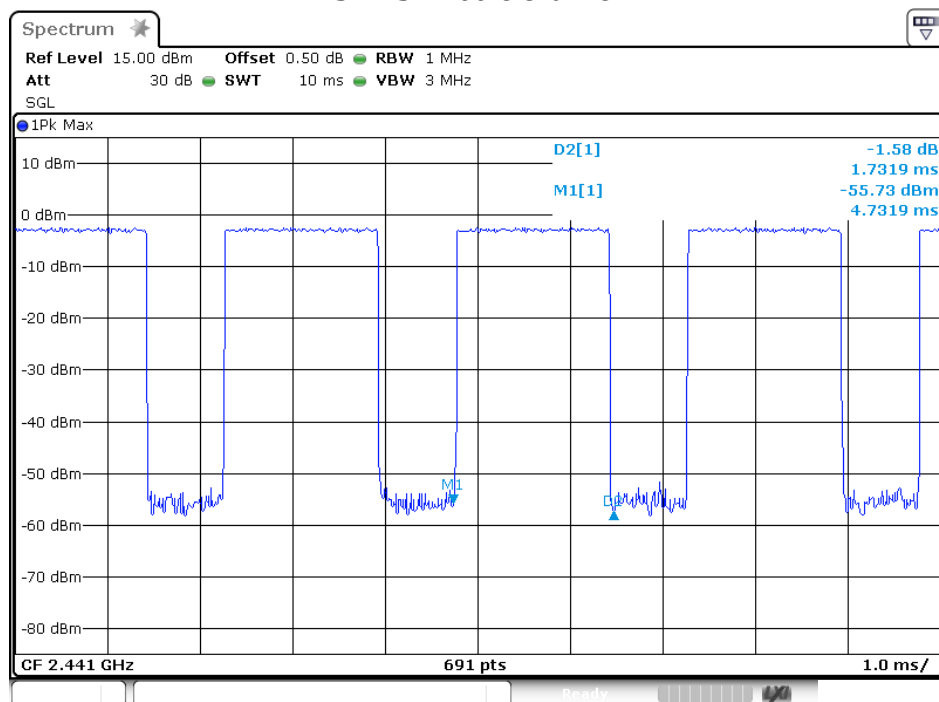
3DH1 High channel



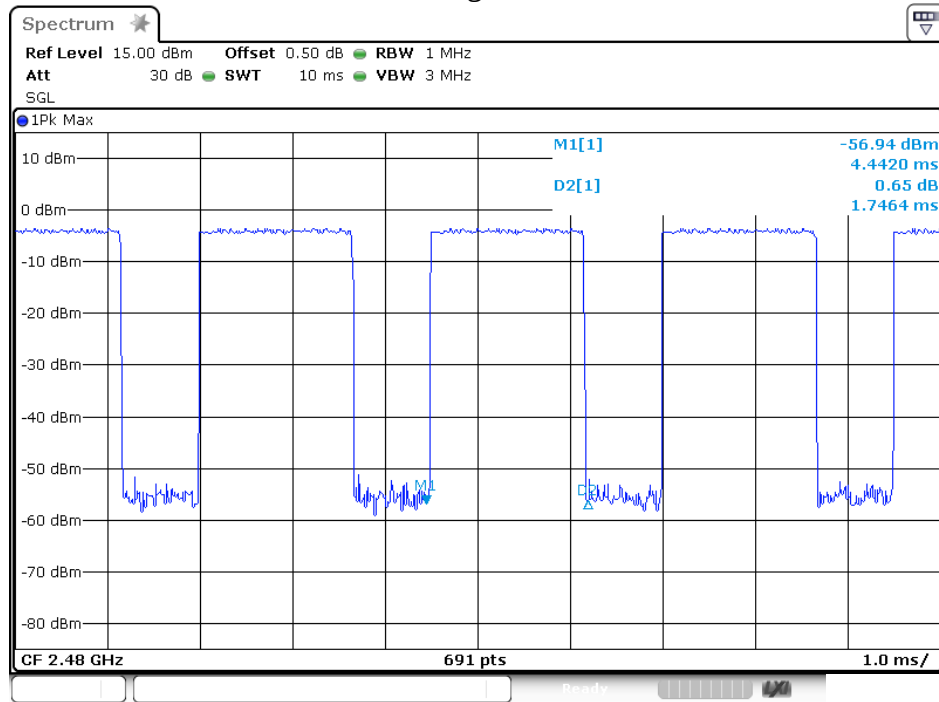
3DH3 Low channel



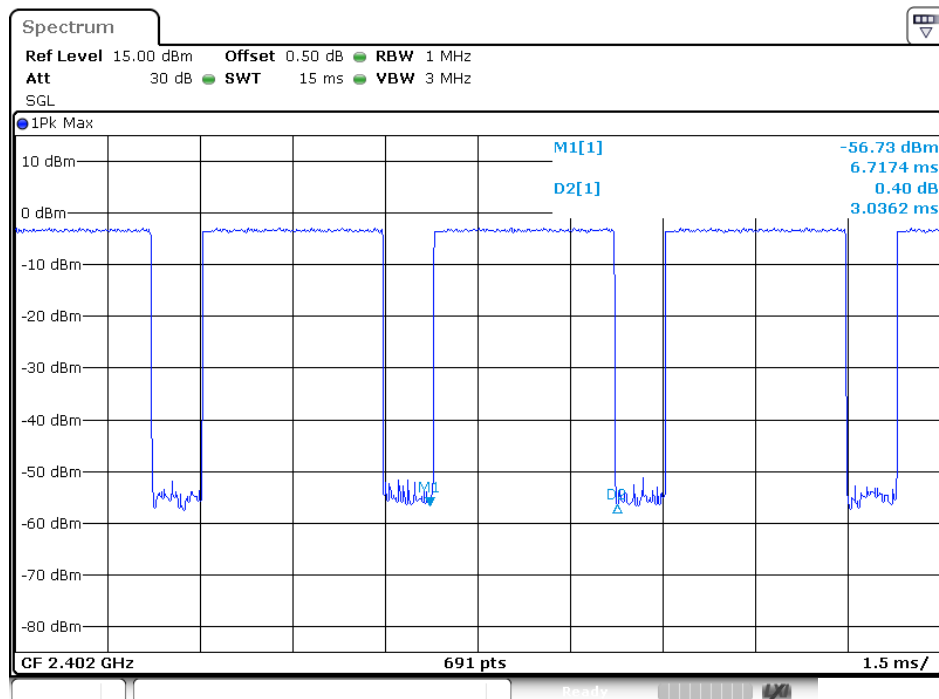
3DH3 Middle channel



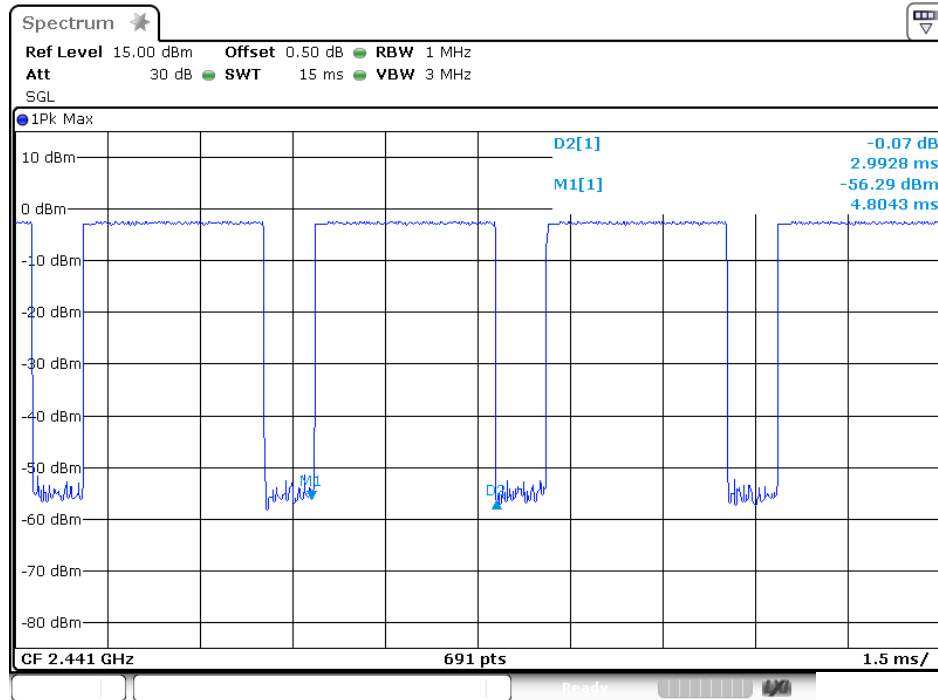
3DH3 High channel



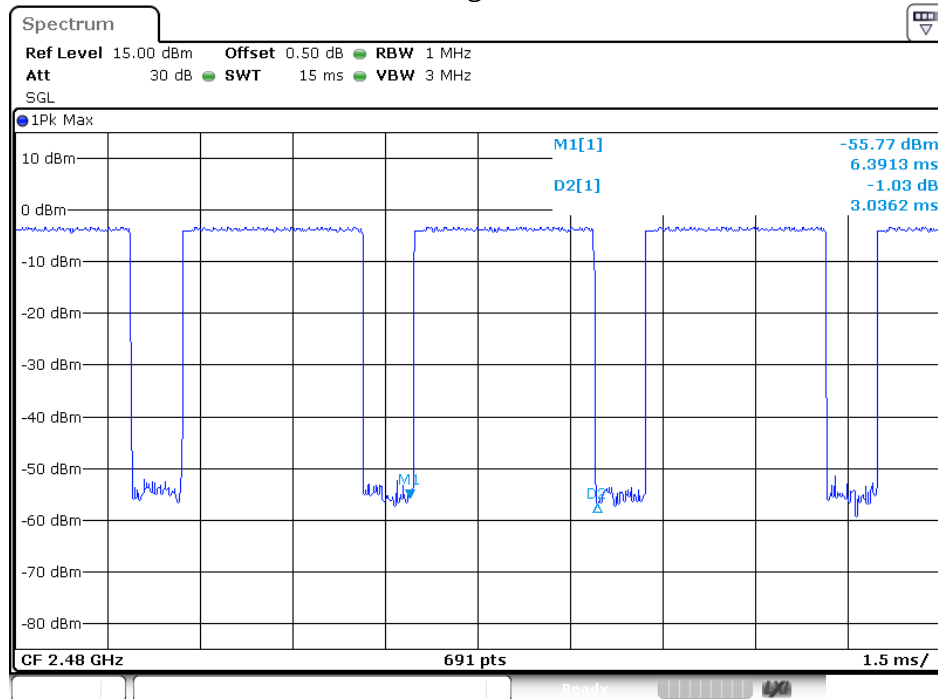
3DH5 Low channel



3DH5 Middle channel



3DH5 High channel



9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: Switch II Turntable)

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/W)	Limits dBm / W
Low	2402	2.22/0.0017	30 / 1.0
Middle	2441	2.85/0.0019	30 / 1.0
High	2480	1.71/0.0015	30 / 1.0

II/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	0.32/0.0011	21 / 0.125
Middle	2441	1.72/0.0015	21 / 0.125
High	2480	-0.20/0.0010	21 / 0.125

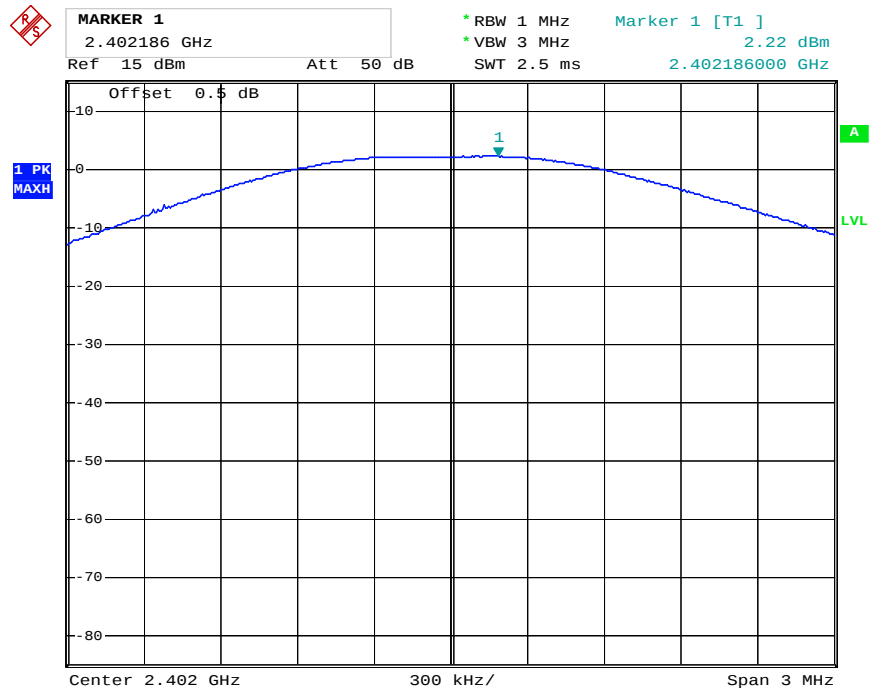
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	0.70/0.0012	21 / 0.125
Middle	2441	1.42/0.0014	21 / 0.125
High	2480	0.13/0.0010	21 / 0.125

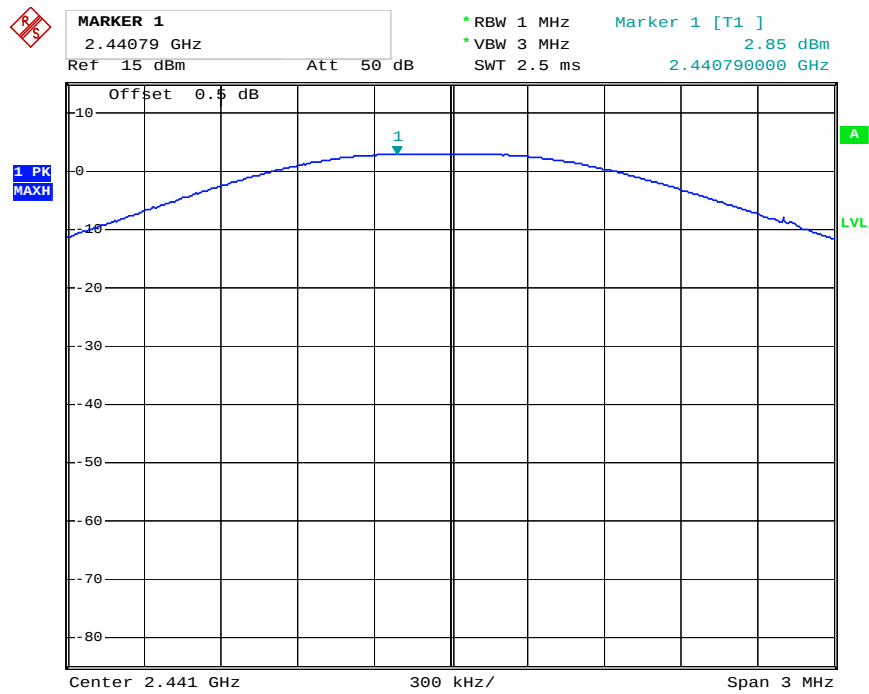
The spectrum analyzer plots are attached as below.

GFSK Mode

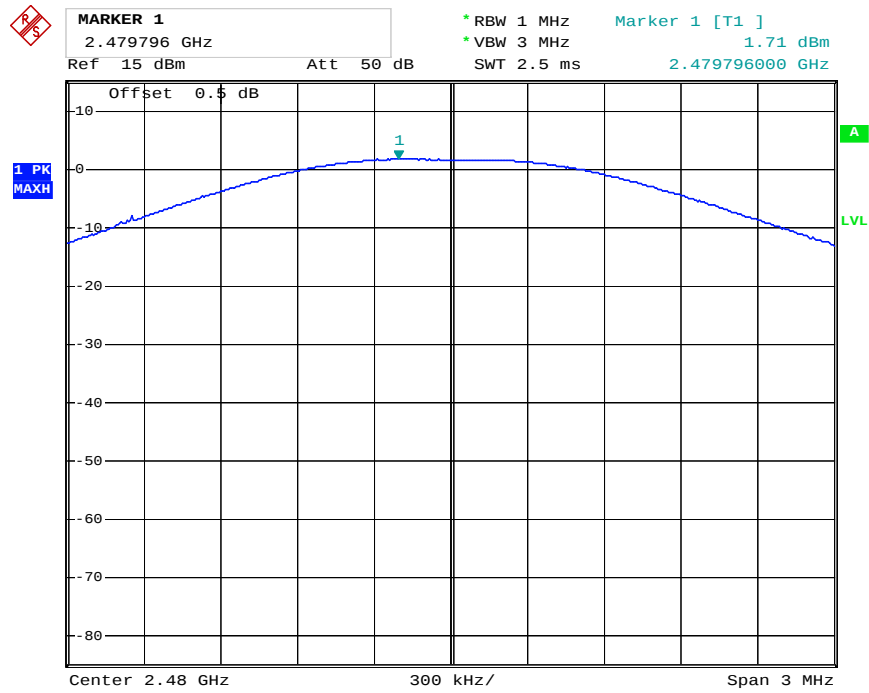
Low channel



Middle channel

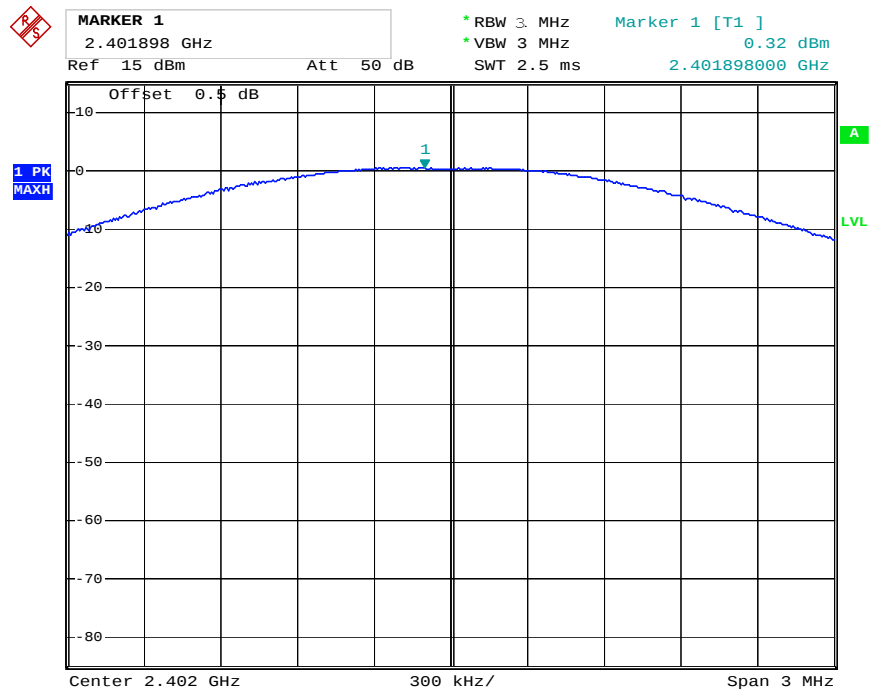


High channel

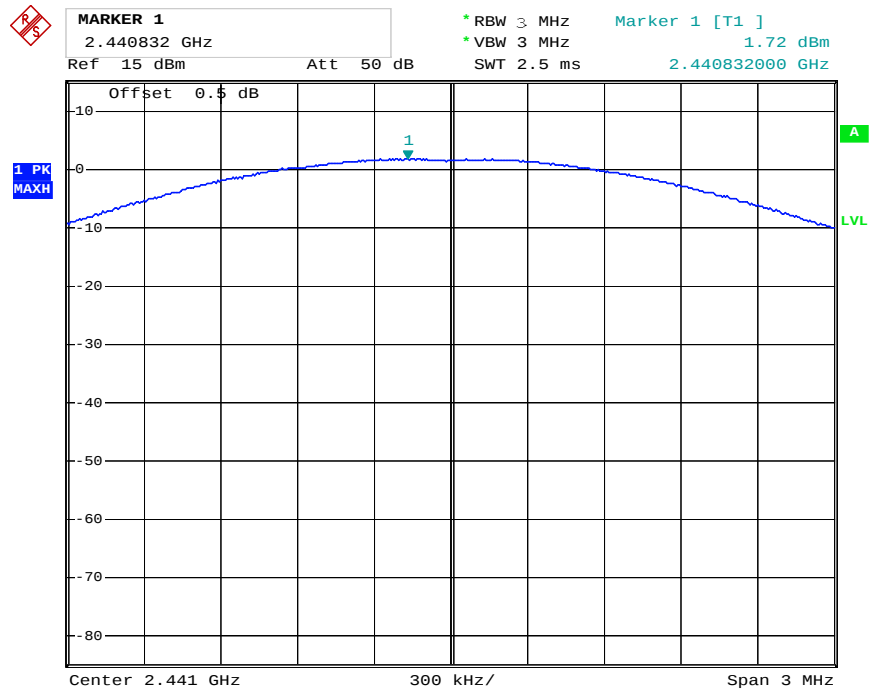


Π/4-DQPSK Mode

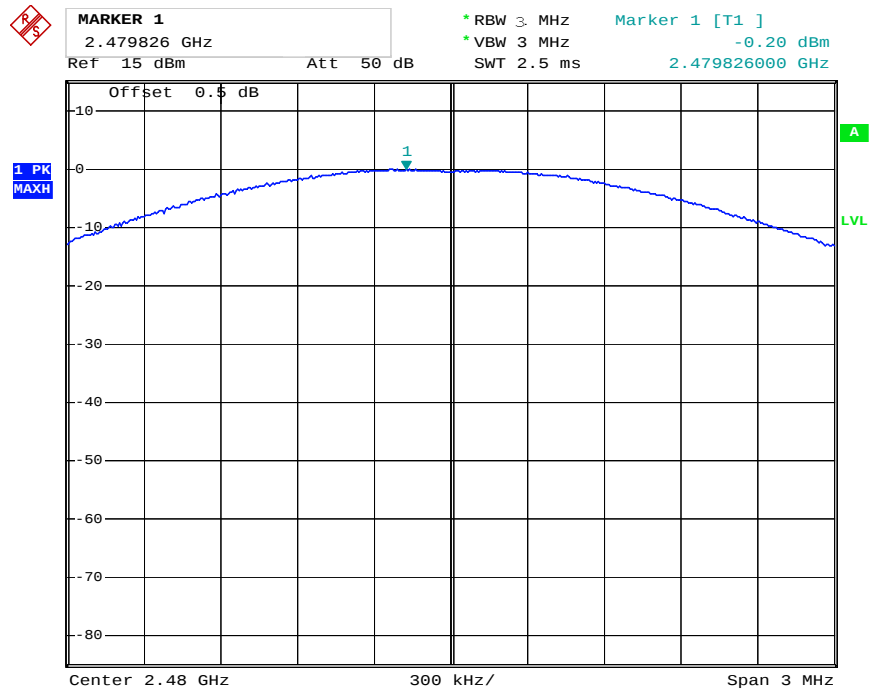
Low channel



Middle channel

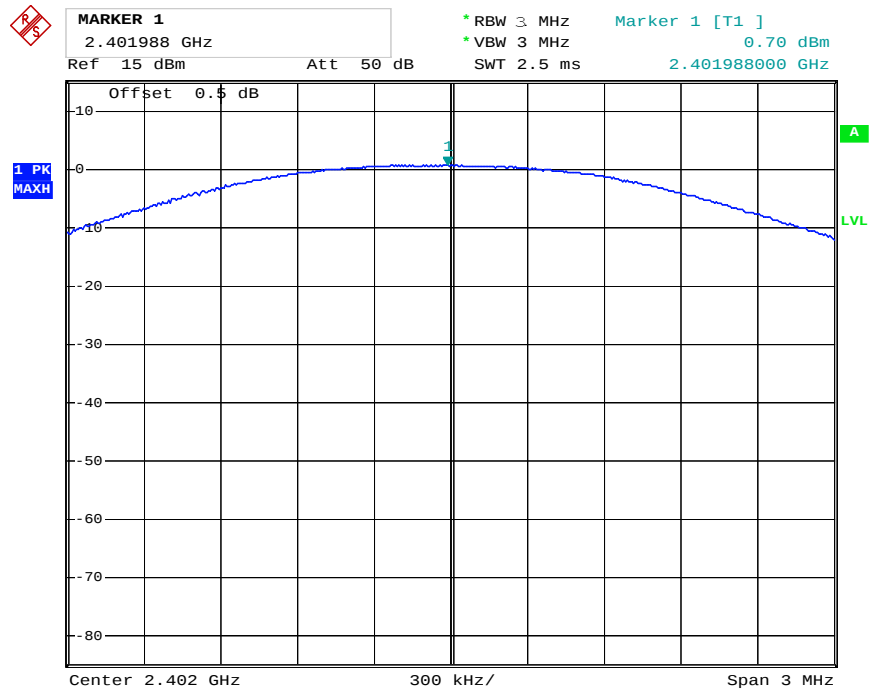


High channel

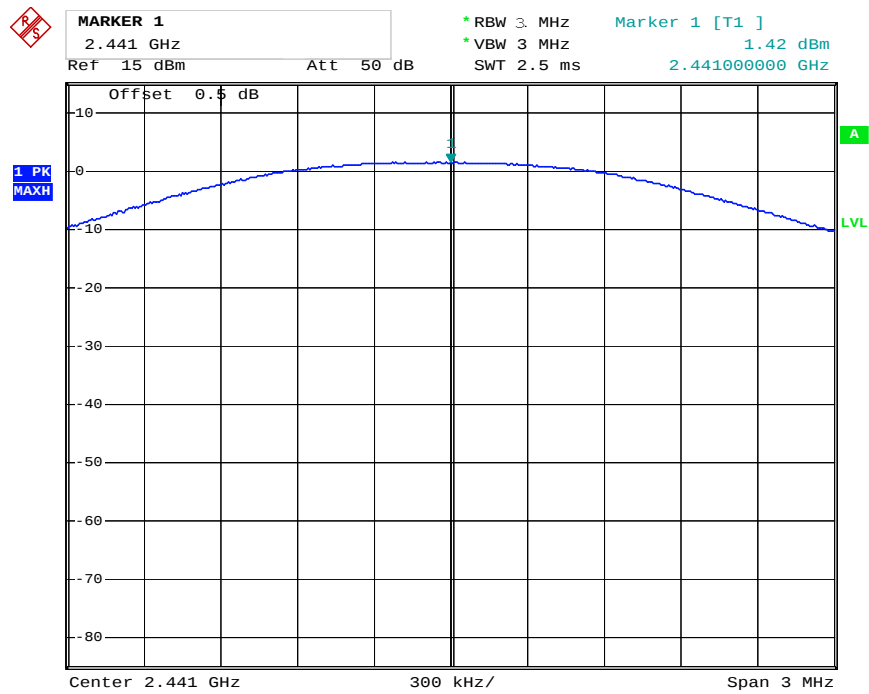


8DPSK Mode

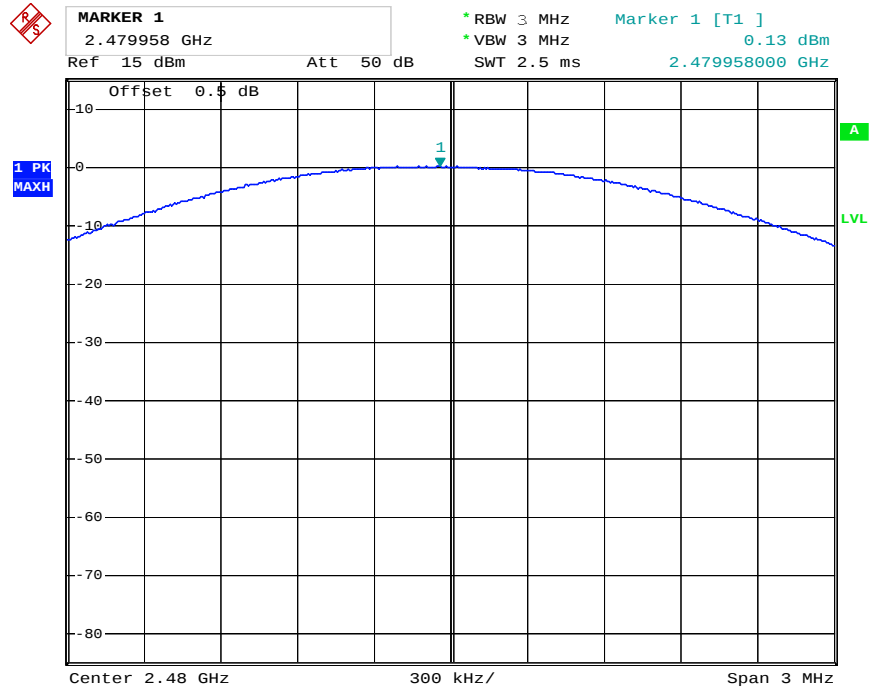
Low channel



Middle channel



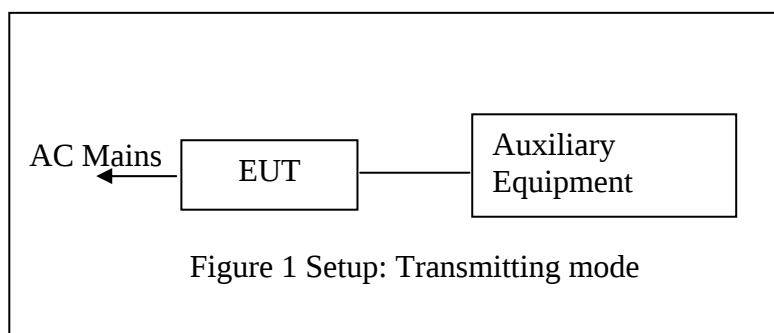
High channel



10.RADIATED EMISSION TEST

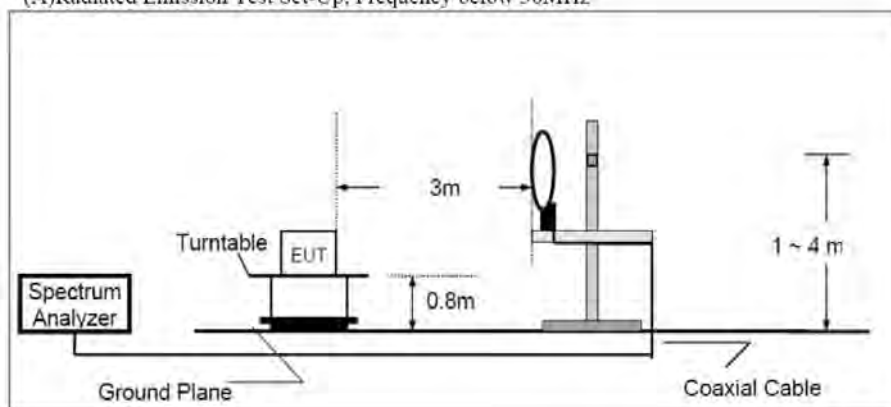
10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

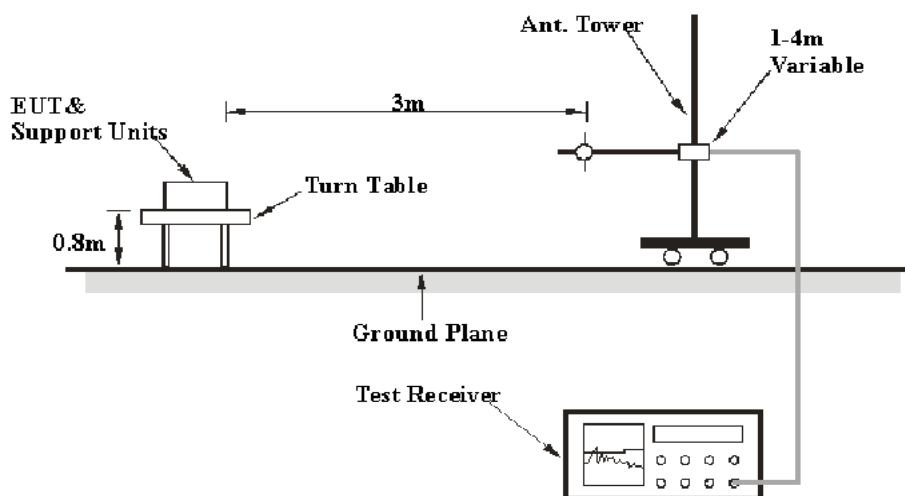


10.1.2.Semi-Anechoic Chamber Test Setup Diagram

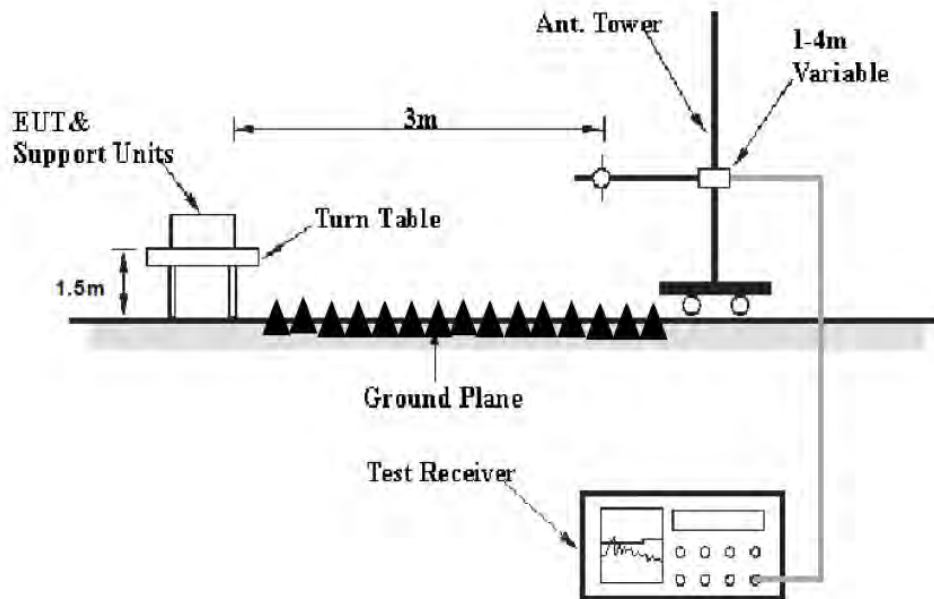
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(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
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			

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

²Above 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 μ v)	Factor (dB/m)	Result (dB μ v/m)	Limit (dB μ v/m)	Margin (dB)	Remark
36.8952	27.83	-10.84	16.99	40.00	-23.01	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ v) = Uncorrected Analyzer/Receiver reading

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

Result(dB μ v/m) = Reading(dB μ v) + Factor(dB/m)

Limit (dB μ v/m) = Limit stated in standard

Margin (dB) = Result(dB μ v/m) - Limit (dB μ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ 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. We tested GFSK mode, $\Pi/4$ -DQPSK Mode & 8DPSK mode and recorded the worst case data (GFSK mode) for all test mode.
2. Emissions attenuated more than 20 dB below the permissible value are not reported.
3. *: Denotes restricted band of operation.
4. The radiation emissions from 9kHz-30MHz and 18-26.5GHz are not reported, because the test values lower than the limits of 20dB.

Below 1GHz



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #364

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Switch II Turntable

Mode: TX 2402Hz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

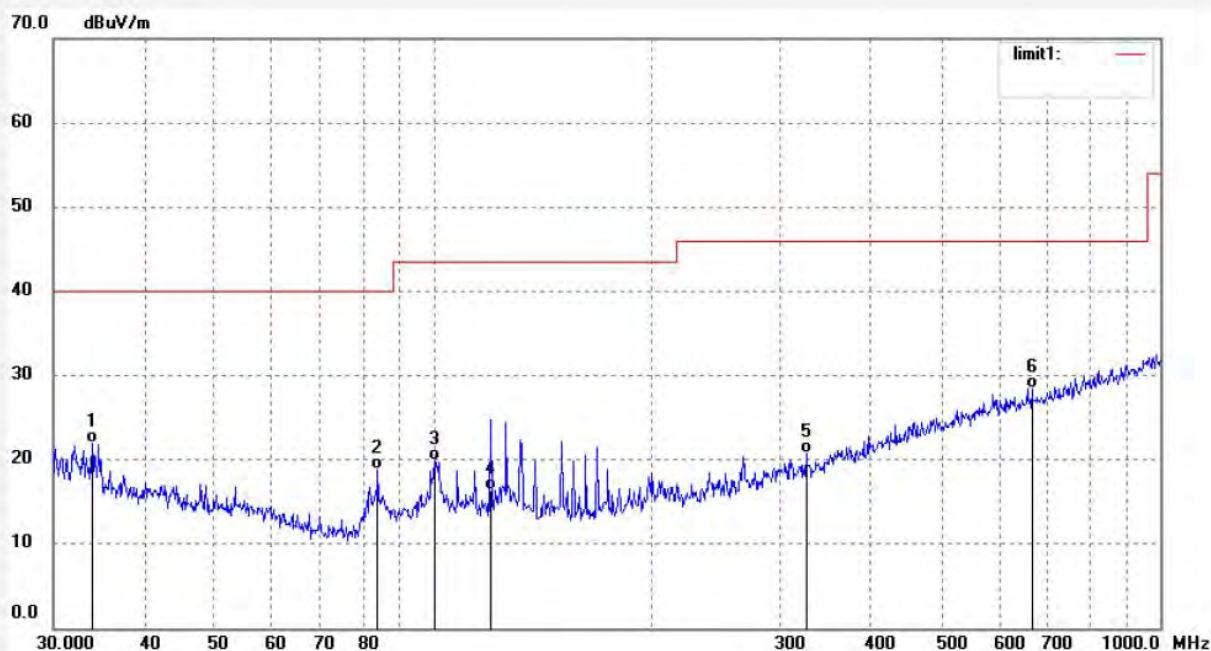
Date: 2018/01/10

Time: 17:30:04

Engineer Signature: star

Distance: 3m

Note: Report NO.:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.9174	32.05	-10.10	21.95	40.00	-18.05	QP	100	89	
2	83.8156	34.45	-15.59	18.86	40.00	-21.14	QP	100	65	
3	100.2286	32.94	-13.09	19.85	43.50	-23.65	QP	100	49	
4	119.8555	29.37	-13.06	16.31	43.50	-27.19	QP	100	165	
5	325.5957	28.96	-8.21	20.75	46.00	-25.25	QP	100	258	
6	665.8034	30.05	-1.53	28.52	46.00	-17.48	QP	200	65	



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #365

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Switch II Turntable

Mode: TX 2402Hz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

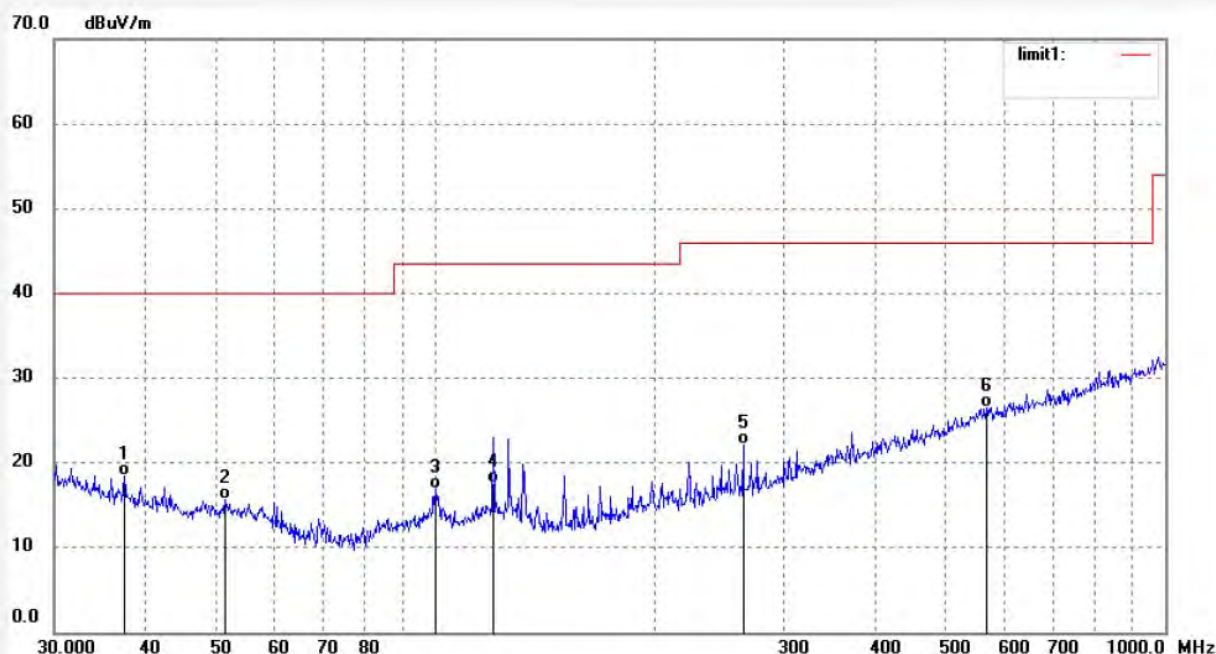
Date: 2018/01/10

Time: 17:31:02

Engineer Signature: star

Distance: 3m

Note: Report NO.:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	37.4164	29.35	-10.95	18.40	40.00	-21.60	QP	100	245	
2	51.4806	28.42	-12.69	15.73	40.00	-24.27	QP	100	96	
3	99.8777	29.98	-13.09	16.89	43.50	-26.61	QP	100	126	
4	119.8555	30.65	-13.06	17.59	43.50	-25.91	QP	100	56	
5	263.8190	32.46	-10.26	22.20	46.00	-23.80	QP	200	325	
6	568.6127	29.37	-2.78	26.59	46.00	-19.41	QP	100	196	



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #366

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Switch II Turntable

Mode: TX 2441Hz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

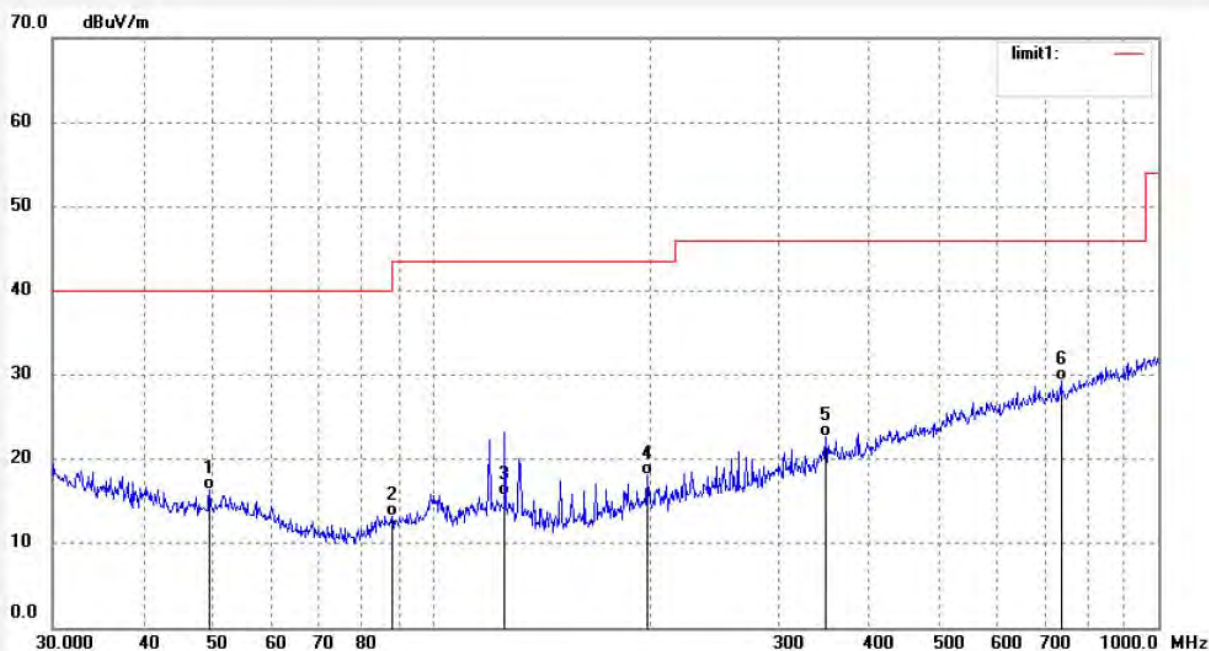
Date: 2018/01/10

Time: 17:31:57

Engineer Signature: star

Distance: 3m

Note: Report NO.:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	49.3594	28.88	-12.58	16.30	40.00	-23.70	QP	100	69	
2	88.0328	28.40	-15.13	13.27	43.50	-30.23	QP	100	356	
3	125.8863	29.36	-13.66	15.70	43.50	-27.80	QP	200	45	
4	197.8926	30.33	-12.28	18.05	43.50	-25.45	QP	200	267	
5	348.0274	30.06	-7.47	22.59	46.00	-23.41	QP	100	164	
6	734.4913	29.94	-0.56	29.38	46.00	-16.62	QP	100	87	



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: JC #367

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Switch II Turntable

Mode: TX 2441Hz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

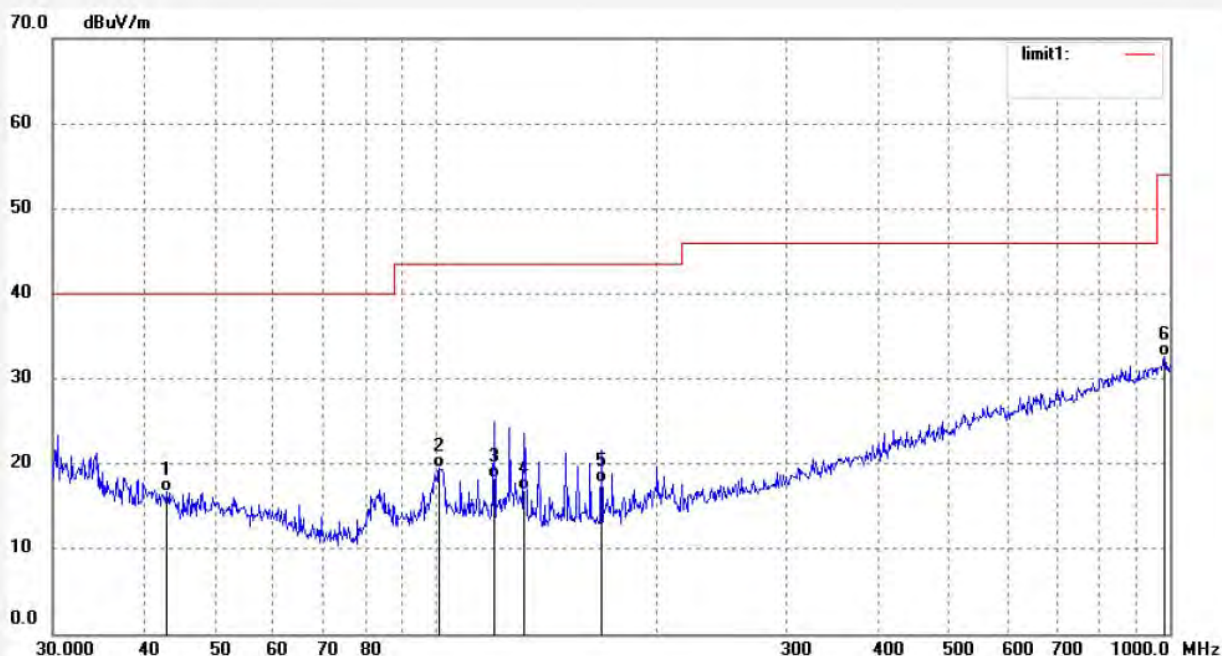
Date: 2018/01/10

Time: 17:32:50

Engineer Signature: star

Distance: 3m

Note: Report NO.:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	42.8997	28.90	-12.16	16.74	40.00	-23.26	QP	100	298	
2	100.9339	32.70	-13.21	19.49	43.50	-24.01	QP	100	321	
3	119.8555	31.36	-13.06	18.30	43.50	-25.20	QP	100	225	
4	131.7576	30.70	-13.84	16.86	43.50	-26.64	QP	200	96	
5	167.8242	31.69	-13.88	17.81	43.50	-25.69	QP	200	36	
6	982.6200	28.97	3.61	32.58	54.00	-21.42	QP	100	99	



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #368

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Switch II Turntable

Mode: TX 2480Hz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

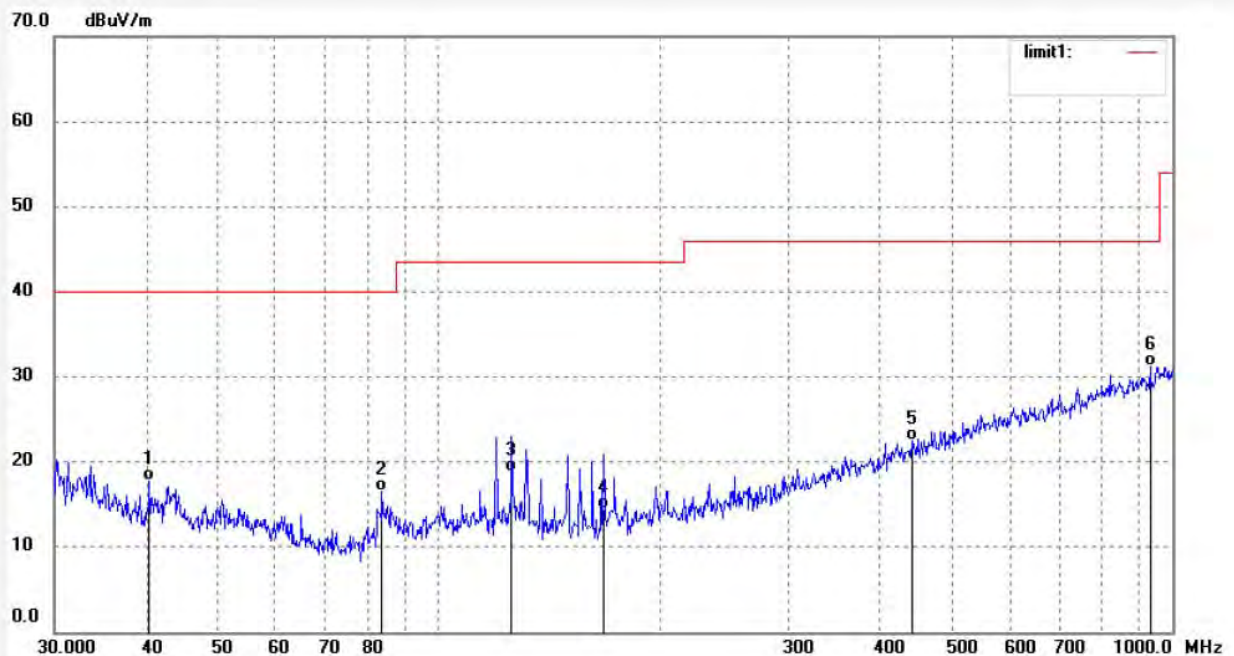
Date: 2018/01/10

Time: 17:33:07

Engineer Signature: star

Distance: 3m

Note: Report NO.:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	40.4172	29.32	-11.62	17.70	40.00	-22.30	QP	100	65	
2	83.8156	32.19	-15.59	16.60	40.00	-23.40	QP	100	321	
3	125.8863	32.54	-13.66	18.88	43.50	-24.62	QP	100	296	
4	167.8242	28.36	-13.88	14.48	43.50	-29.02	QP	100	97	
5	441.7425	28.00	-5.46	22.54	46.00	-23.46	QP	100	45	
6	932.2714	28.46	2.78	31.24	46.00	-14.76	QP	100	89	



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #369

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Switch II Turntable

Mode: TX 2480Hz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

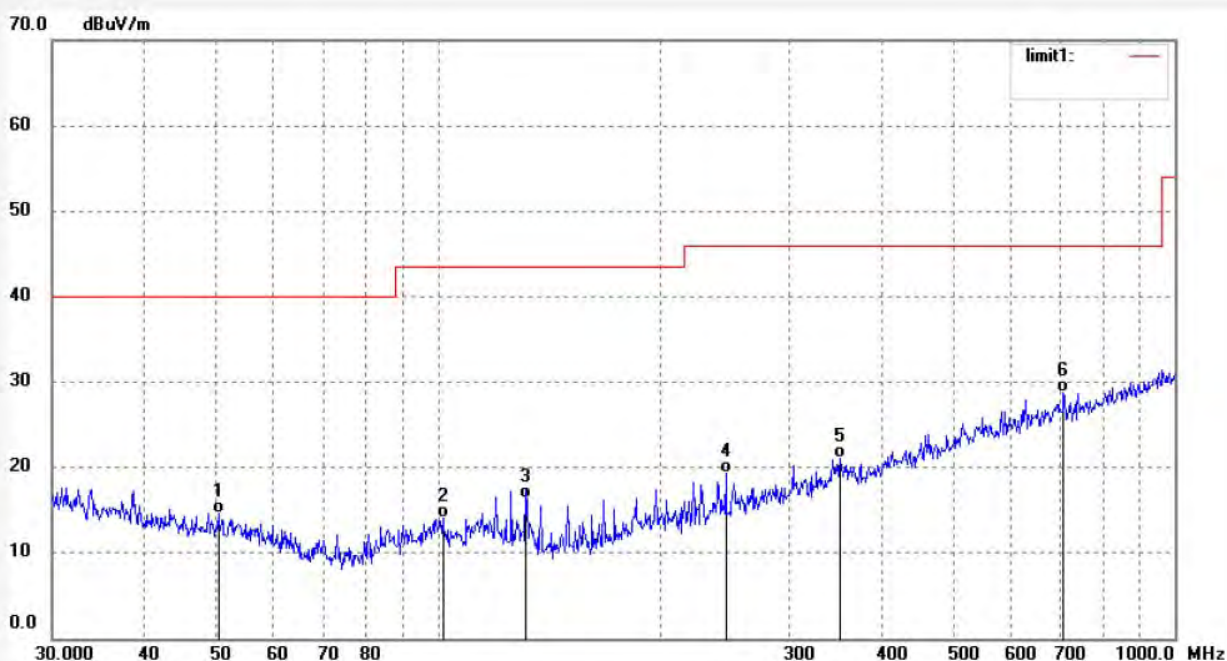
Date: 2018/01/10

Time: 17:33:16

Engineer Signature: star

Distance: 3m

Note: Report NO.:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	50.4089	27.32	-12.62	14.70	40.00	-25.30	QP	100	326	
2	101.6443	27.46	-13.32	14.14	43.50	-29.36	QP	100	286	
3	131.7576	30.26	-13.84	16.42	43.50	-27.08	QP	100	196	
4	245.9508	29.94	-10.58	19.36	46.00	-26.64	QP	200	99	
5	351.7078	28.47	-7.40	21.07	46.00	-24.93	QP	100	329	
6	706.6998	29.69	-0.92	28.77	46.00	-17.23	QP	100	196	

Above 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.: JC #91

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

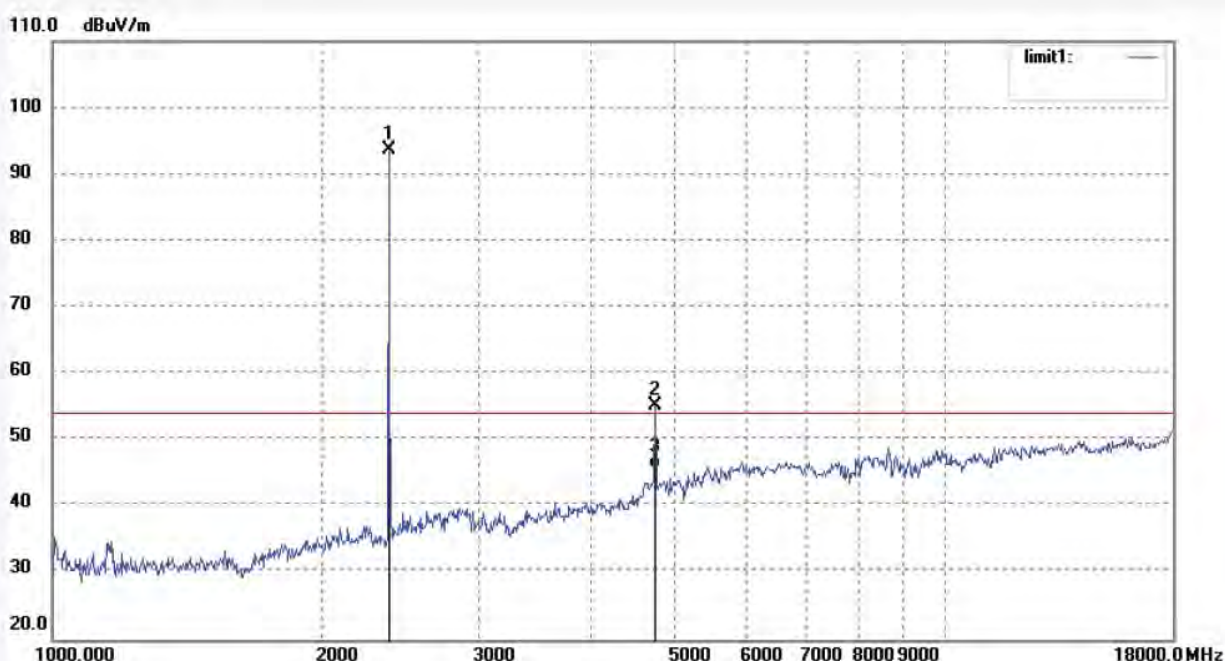
Date: 18/01/12/

Time: 10/52/15

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	99.77	-5.98	93.79			peak	150	213	
2	4804.000	52.08	3.15	55.23	74.00	-18.77	peak	150	154	
3	4804.000	42.69	3.15	45.84	54.00	-8.16	AVG	150	154	



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.: JC #92

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

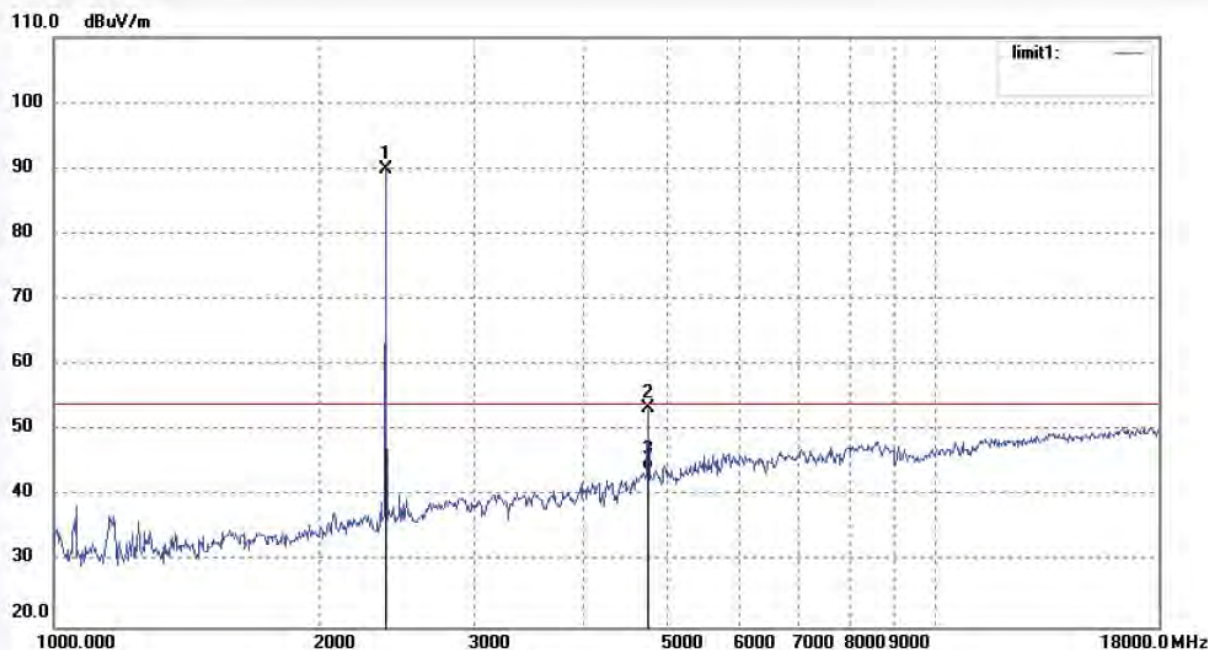
Date: 18/01/12/

Time: 10/54/28

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	95.95	-5.98	89.97			peak	150	100	
2	4804.000	50.26	3.15	53.41	74.00	-20.59	peak	150	98	
3	4804.000	40.86	3.15	44.01	54.00	-9.99	AVG	150	98	



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.: JC #93

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2441MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

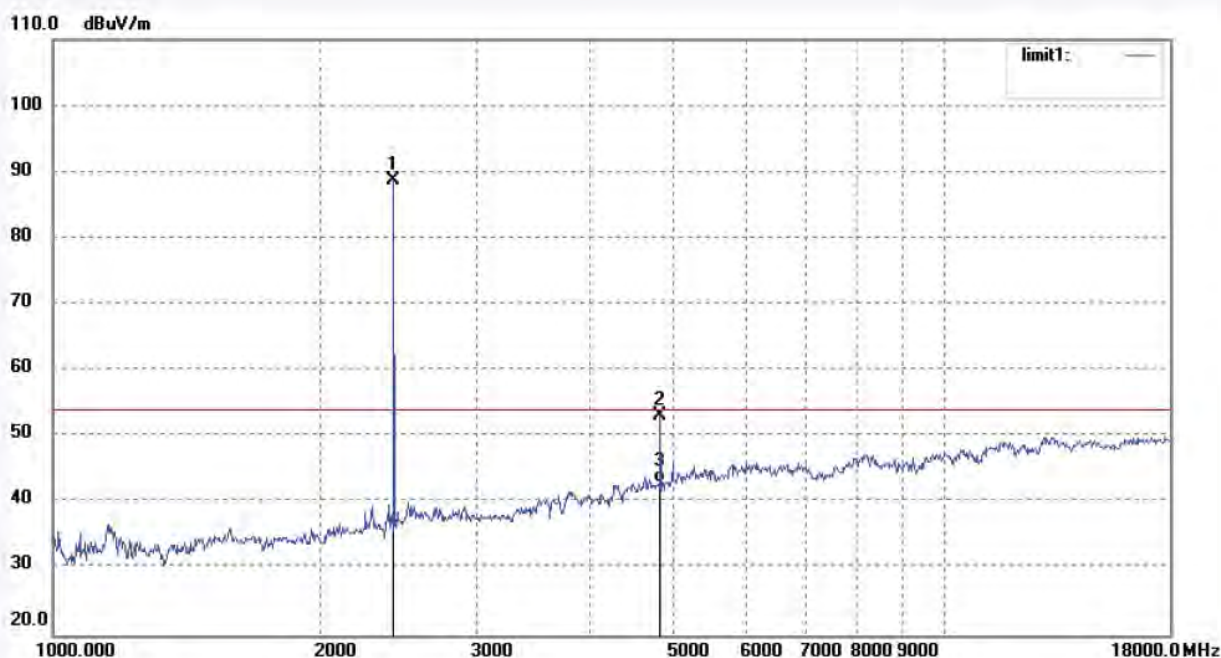
Date: 18/01/12/

Time: 10/57/24

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	94.44	-5.72	88.72			peak	150	149	
2	4882.000	49.59	3.67	53.26	74.00	-20.74	peak	150	106	
3	4882.000	39.48	3.67	43.15	54.00	-10.85	AVG	150	106	



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.: JC #94

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2441MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

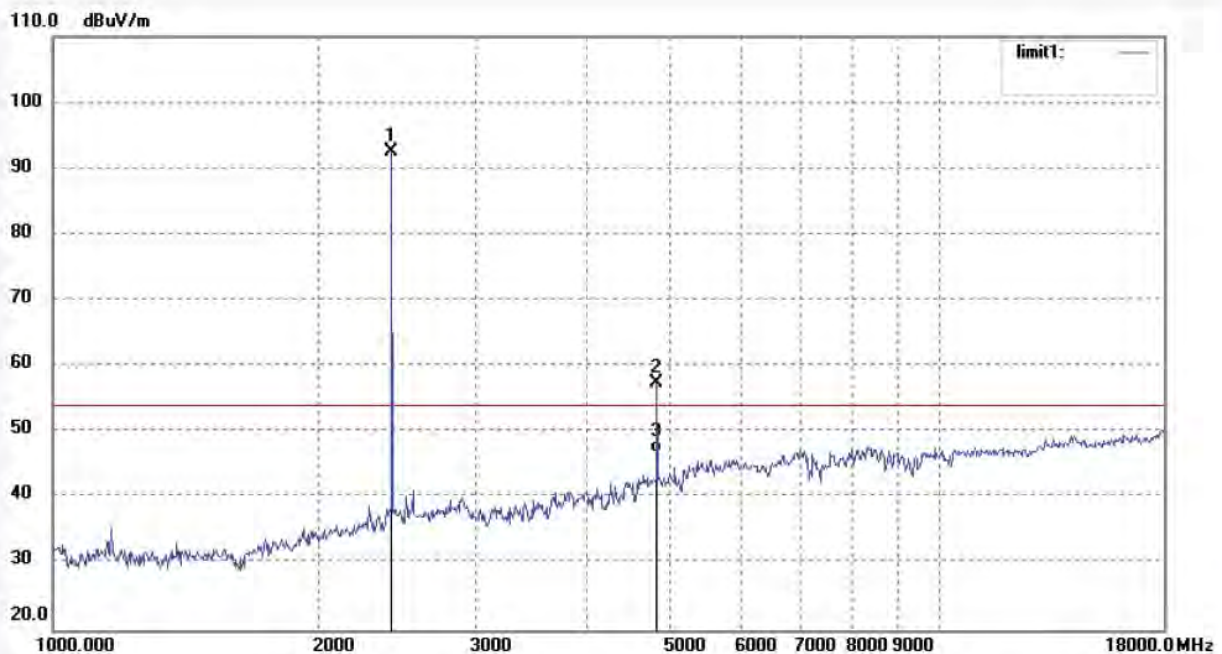
Date: 18/01/12/

Time: 10/59/29

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	98.34	-5.72	92.62			peak	150	123	
2	4884.000	53.90	3.67	57.57	74.00	-16.43	peak	150	106	
3	4884.000	43.26	3.67	46.93	54.00	-7.07	AVG	150	106	



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.: JC #95

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

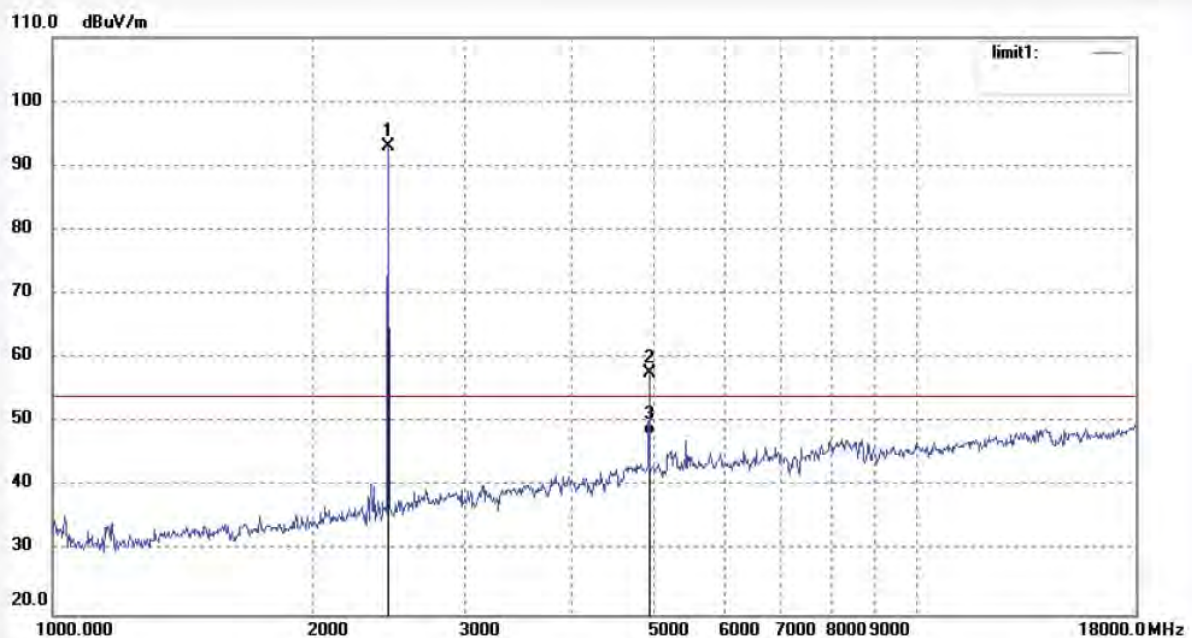
Date: 18/01/12/

Time: 11/00/59

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	98.62	-5.55	93.07			peak	150	99	
2	4960.000	53.04	4.54	57.58	74.00	-16.42	peak	150	111	
3	4960.000	43.46	4.54	48.00	54.00	-6.00	AVG	150	111	



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.: JC #96

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

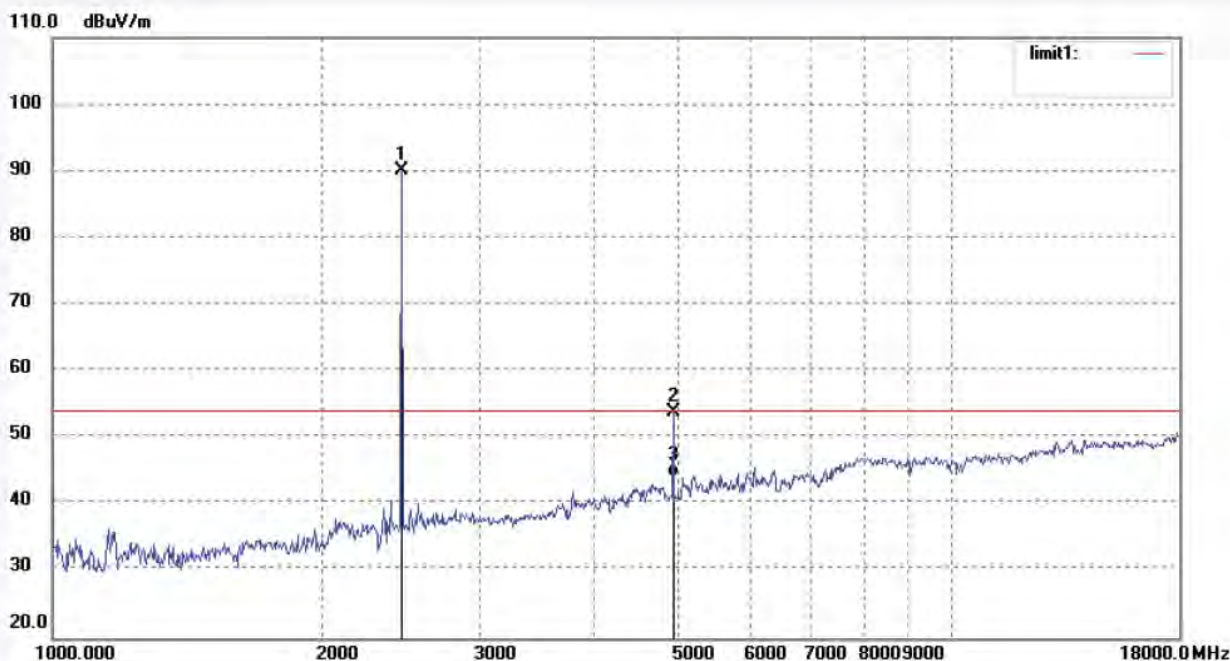
Date: 18/01/12/

Time: 11/02/16

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	95.53	-5.55	89.98			peak	150	295	
2	4960.000	49.41	4.54	53.95	74.00	-20.05	peak	150	195	
3	4960.000	39.56	4.54	44.10	54.00	-9.90	AVG	150	195	

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Switch II Turntable)

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.

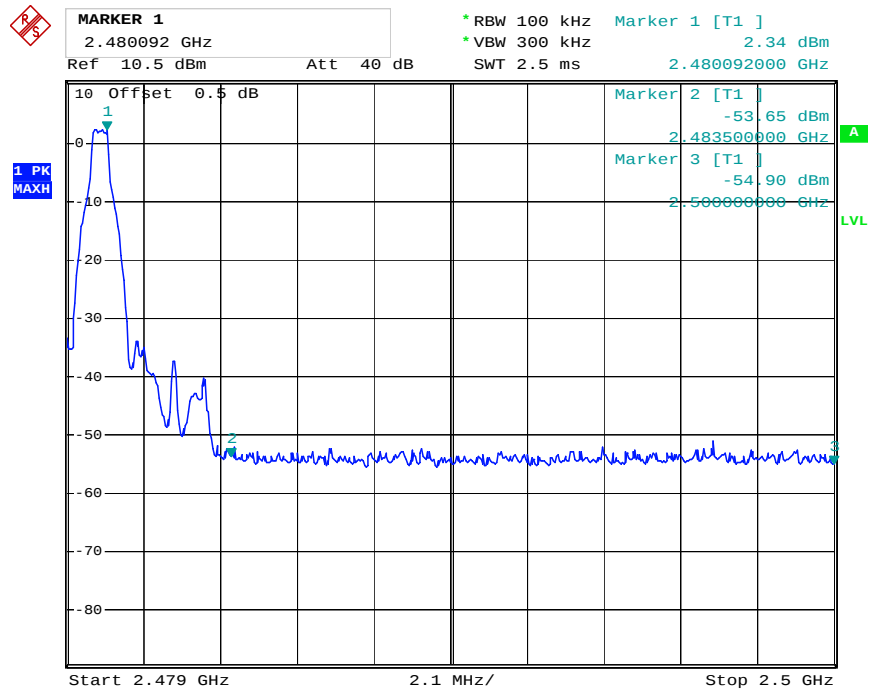
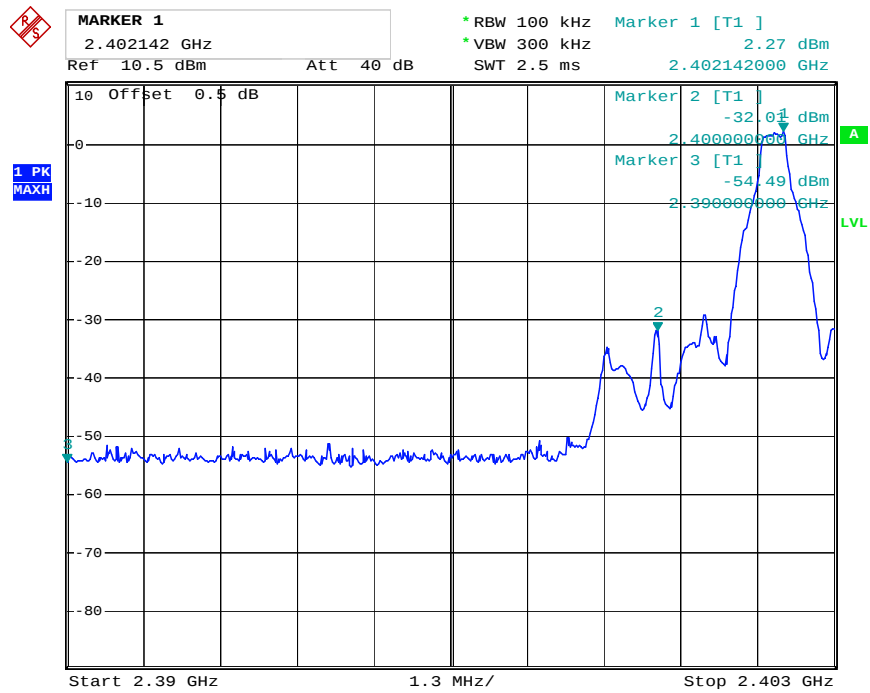
11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3. The band edges was measured and recorded.

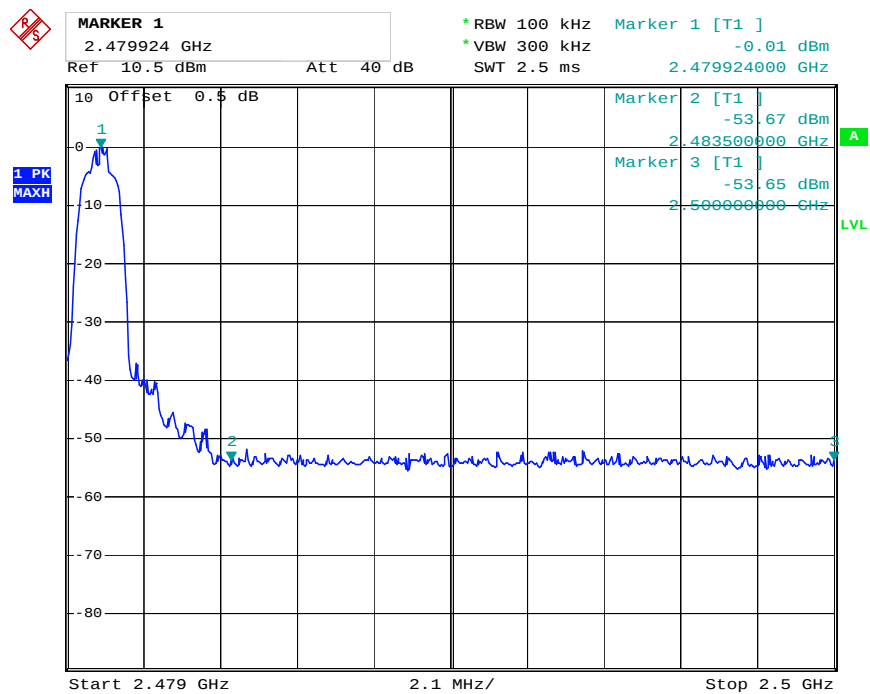
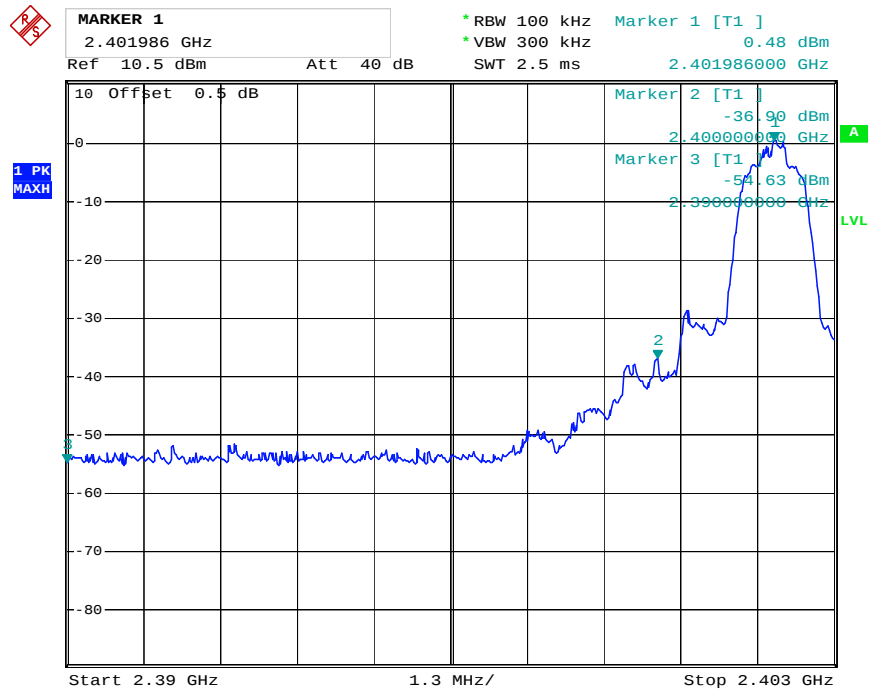
11.6. Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.00	34.28	> 20dBc
2483.50	55.99	> 20dBc
Π/4-DQPSK Mode		
2400.00	37.38	> 20dBc
2483.50	53.66	> 20dBc
8DPSK		
2400.00	37.33	> 20dBc
2483.50	54.21	> 20dBc

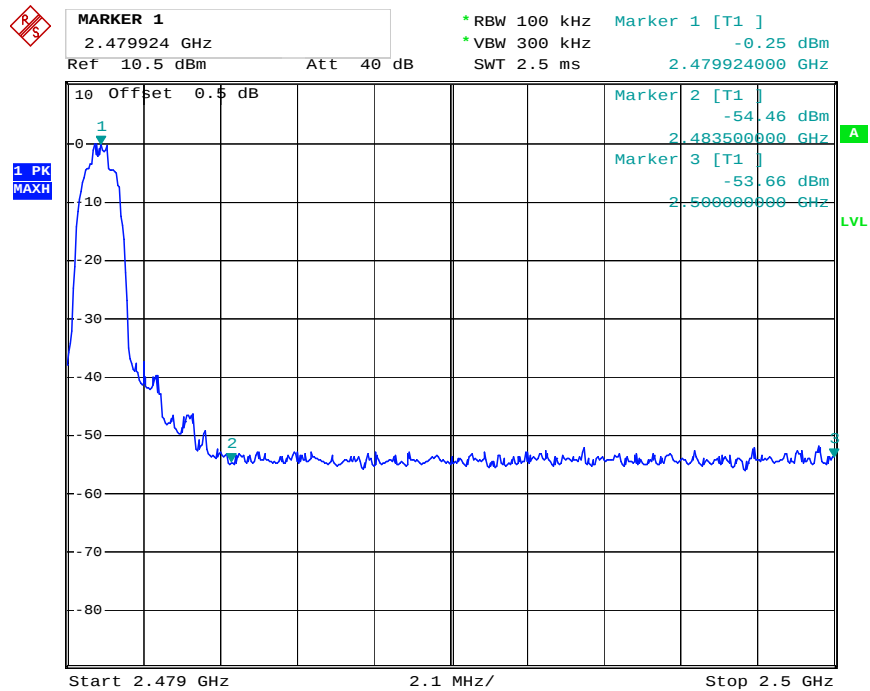
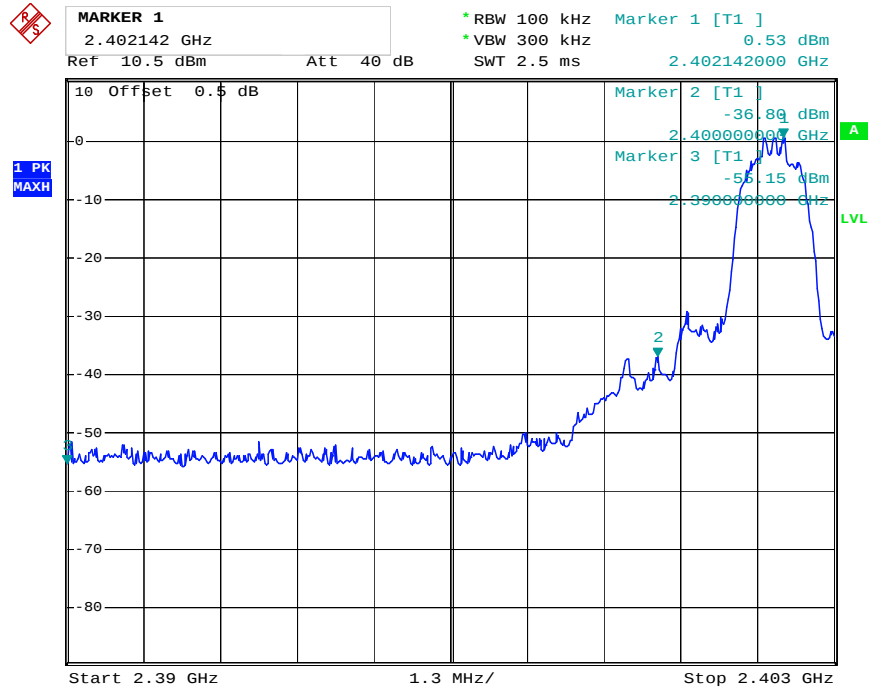
GFSK



Π/4-DQPSK Mode



8DPSK



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.

Test Procedure:

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.

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

We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode).

We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

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

- 1.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.
- 2.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.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Non-hopping mode



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.: JC #97

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

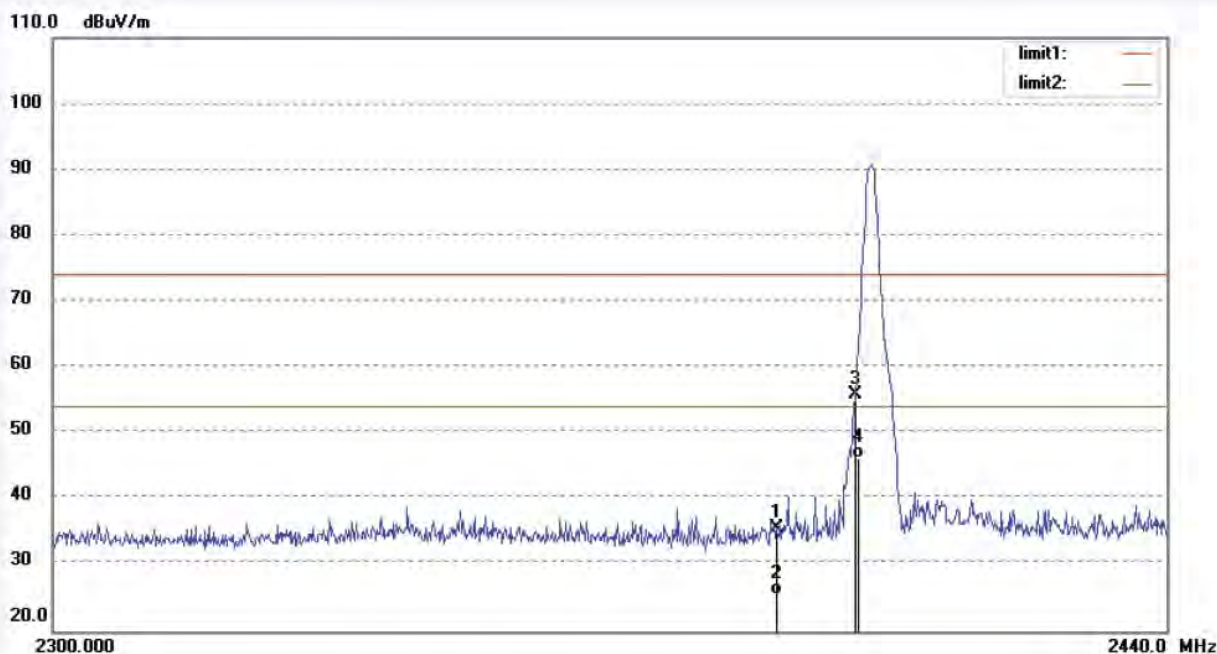
Date: 18/01/12/

Time: 11/03/56

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.58	-5.89	35.69	74.00	-38.31	peak	150	136	
2	2390.000	31.46	-5.89	25.57	54.00	-28.43	AVG	150	136	
3	2400.000	61.67	-5.80	55.87	74.00	-18.13	peak	150	46	
4	2400.000	52.01	-5.80	46.21	54.00	-7.79	AVG	150	46	

Note: Average measurement with peak detection at No.2&4



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.: JC #98

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

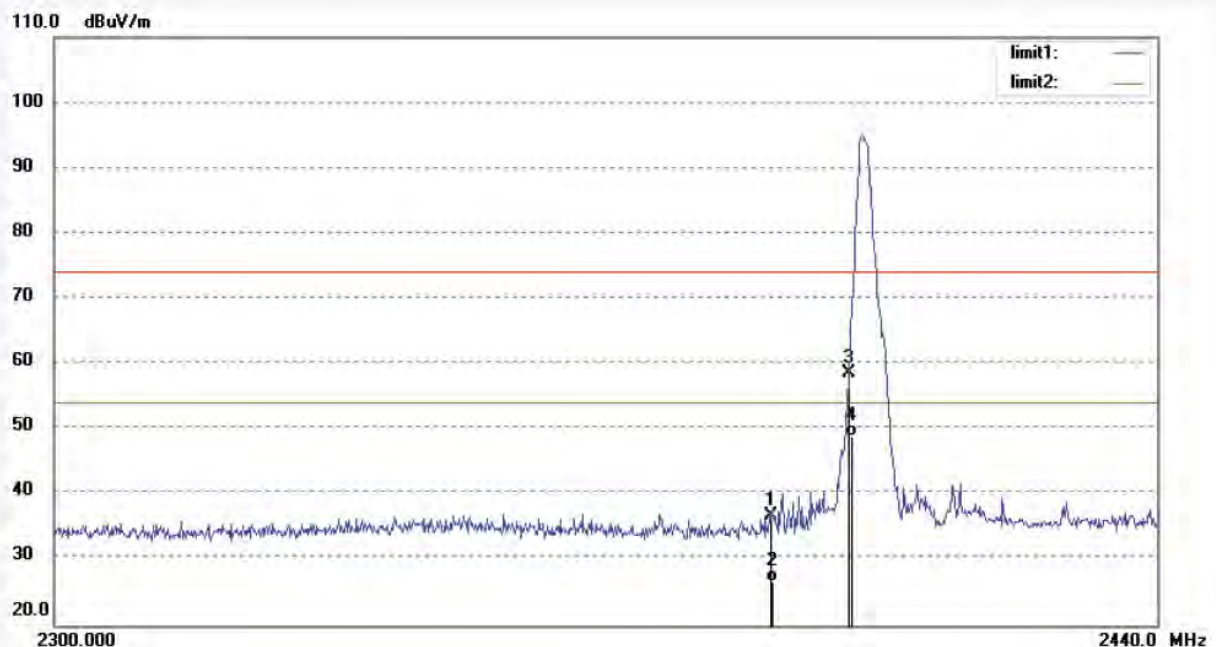
Date: 18/01/12/

Time: 11/05/32

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	42.73	-5.89	36.84	74.00	-37.16	peak	150	111	
2	2390.000	32.48	-5.89	26.59	54.00	-27.41	AVG	150	123	
3	2400.000	64.47	-5.80	58.67	74.00	-15.33	peak	150	32	
4	2400.000	54.69	-5.80	48.89	54.00	-5.11	AVG	150	32	

Note: Average measurement with peak detection at No.2&4



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.: JC #99

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

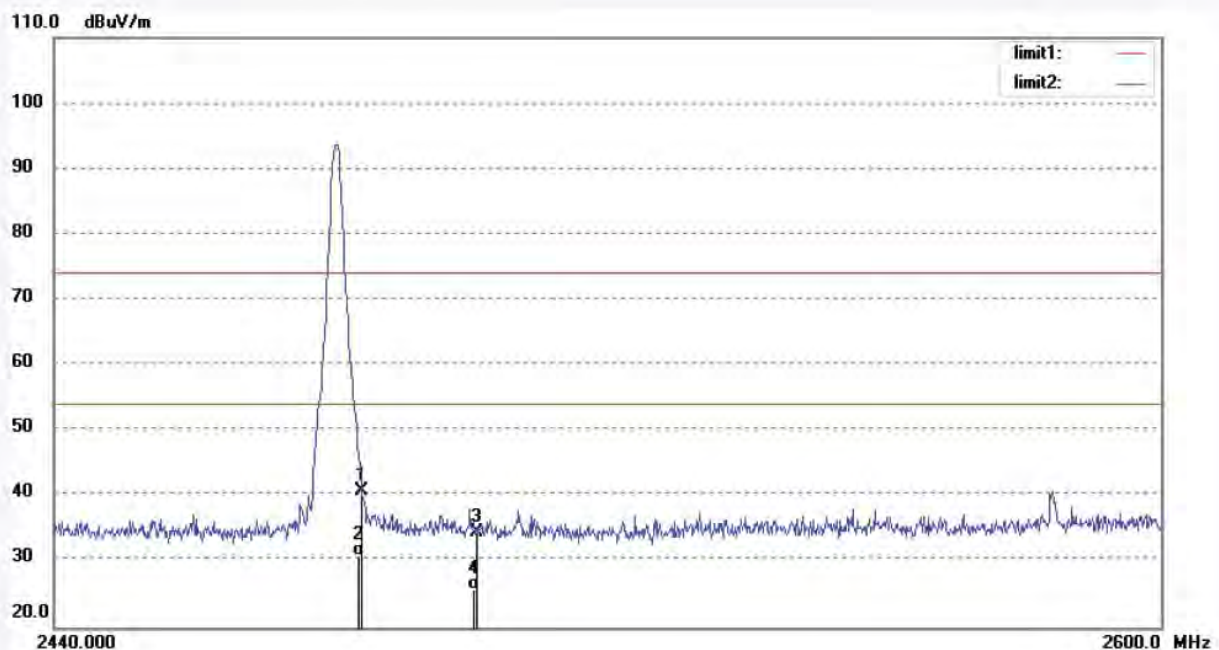
Date: 18/01/12/

Time: 11/07/33

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	46.43	-5.51	40.92	74.00	-33.08	peak	150	146	
2	2483.500	36.48	-5.51	30.97	54.00	-23.03	AVG	150	146	
3	2500.000	40.00	-5.50	34.50	74.00	-39.50	peak	150	123	
4	2500.000	31.22	-5.50	25.72	54.00	-28.28	AVG	150	123	

Note: Average measurement with peak detection at No.2&4



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.: JC #100

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

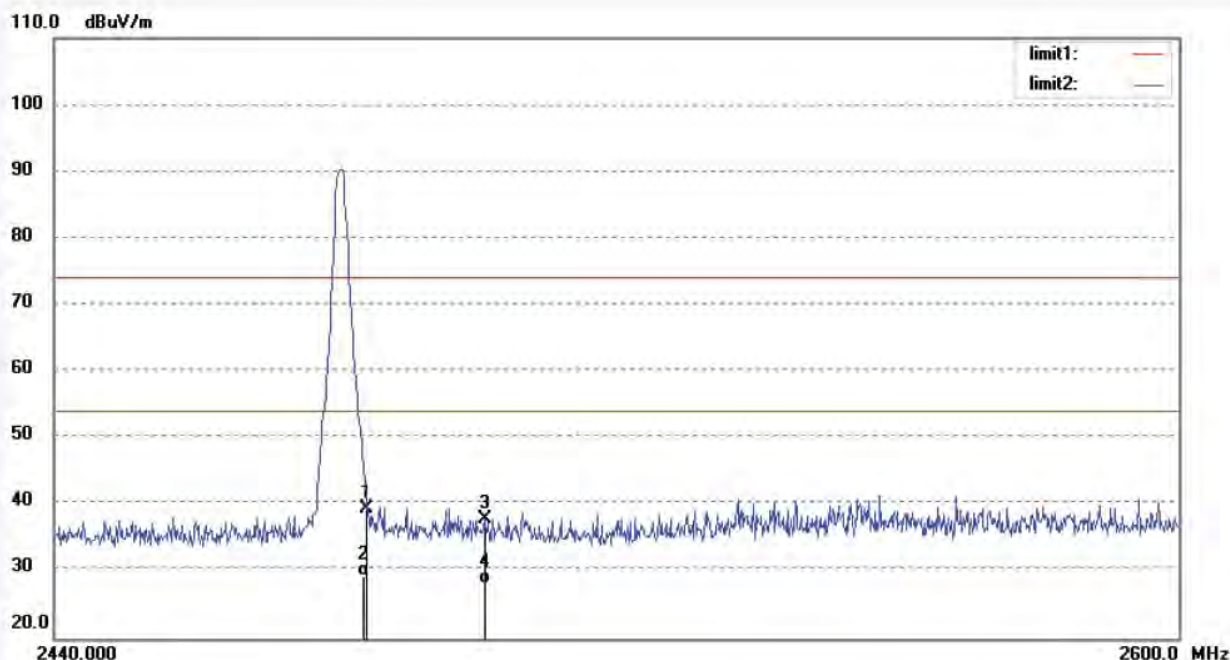
Date: 18/01/12/

Time: 11/08/50

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	44.90	-5.51	39.39	74.00	-34.61	peak	150	32	
2	2483.500	34.84	-5.51	29.33	54.00	-24.67	AVG	150	32	
3	2500.000	43.29	-5.50	37.79	74.00	-36.21	peak	150	111	
4	2500.000	33.62	-5.50	28.12	54.00	-25.88	AVG	150	111	

Note: Average measurement with peak detection at No.2&4



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.: JC #101

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz($\pi/4$ DQPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

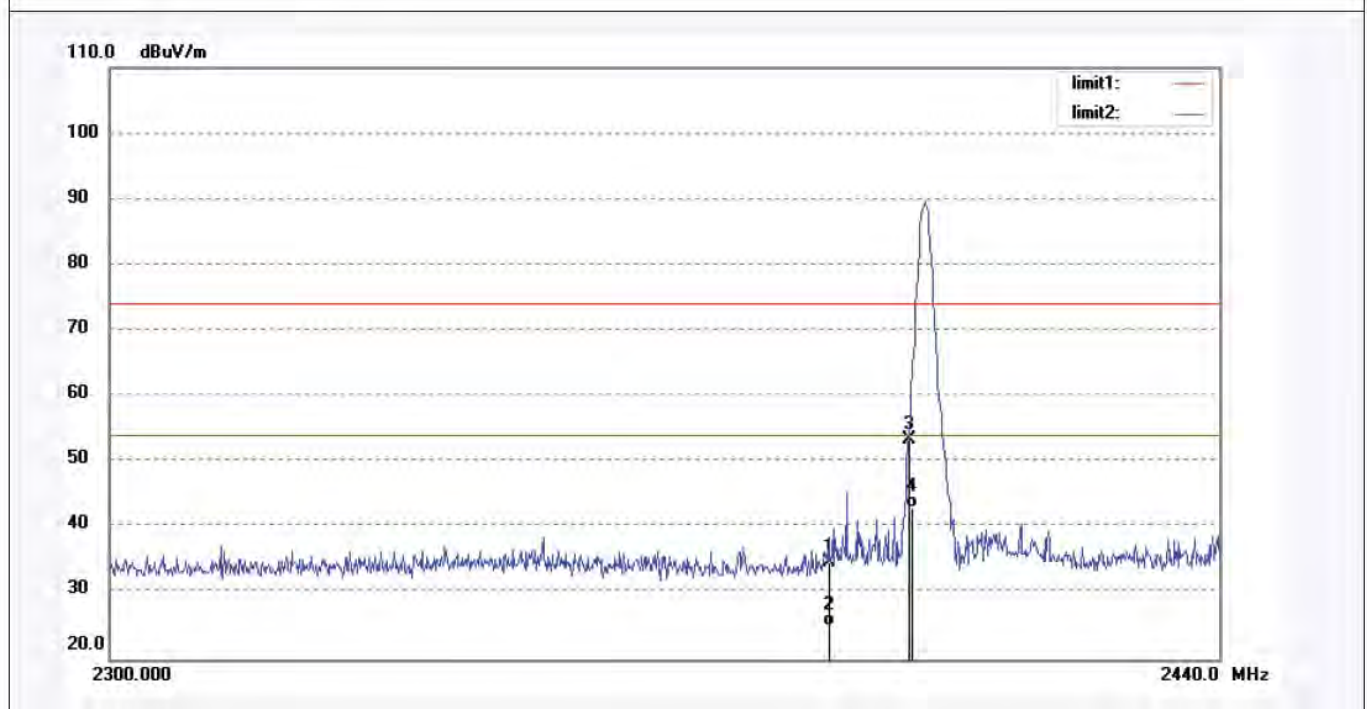
Date: 18/01/12/

Time: 11/13/18

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.70	-5.89	34.81	74.00	-39.19	peak	150	32	
2	2390.000	30.88	-5.89	24.99	54.00	-29.01	AVG	150	32	
3	2400.000	59.13	-5.80	53.33	74.00	-20.67	peak	150	222	
4	2400.000	48.96	-5.80	43.16	54.00	-10.84	AVG	150	222	

Note: Average measurement with peak detection at No.2&4



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.: JC #102

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz($\pi/4$ DQPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

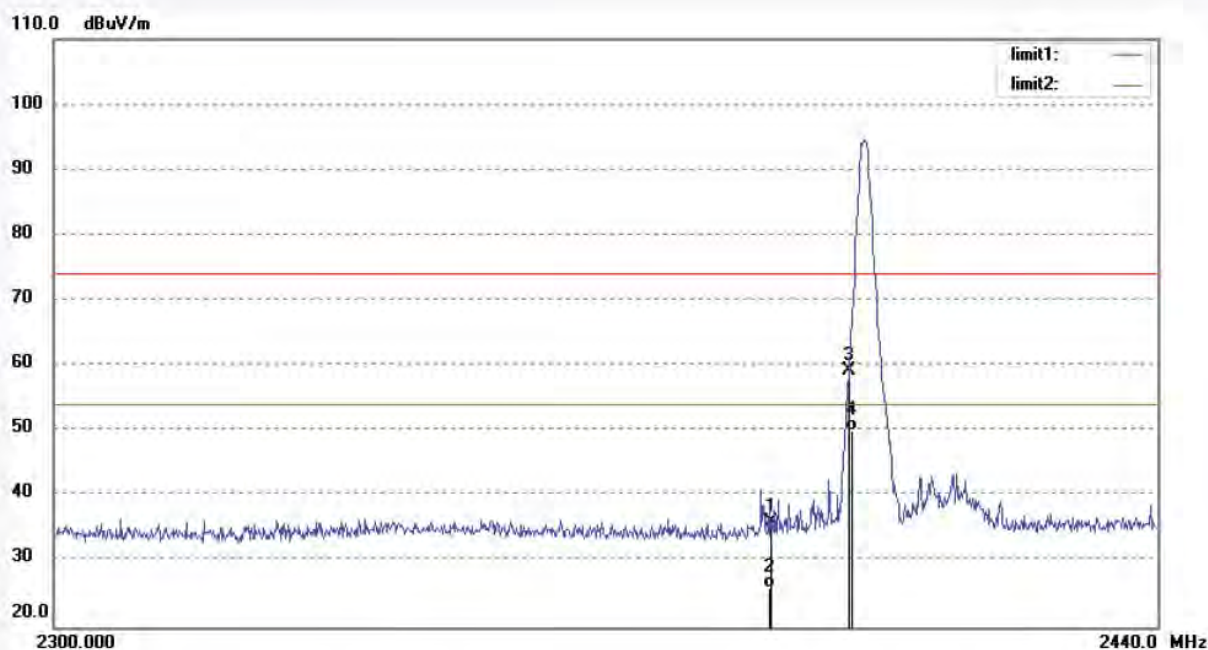
Date: 18/01/12/

Time: 11/15/12

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.94	-5.89	36.05	74.00	-37.95	peak	150	67	
2	2390.000	31.87	-5.89	25.98	54.00	-28.02	AVG	150	67	
3	2400.000	65.14	-5.80	59.34	74.00	-14.66	peak	150	113	
4	2400.000	55.73	-5.80	49.93	54.00	-4.07	AVG	150	113	

Note: Average measurement with peak detection at No.2&4



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.: JC #103

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz($\pi/4$ DQPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

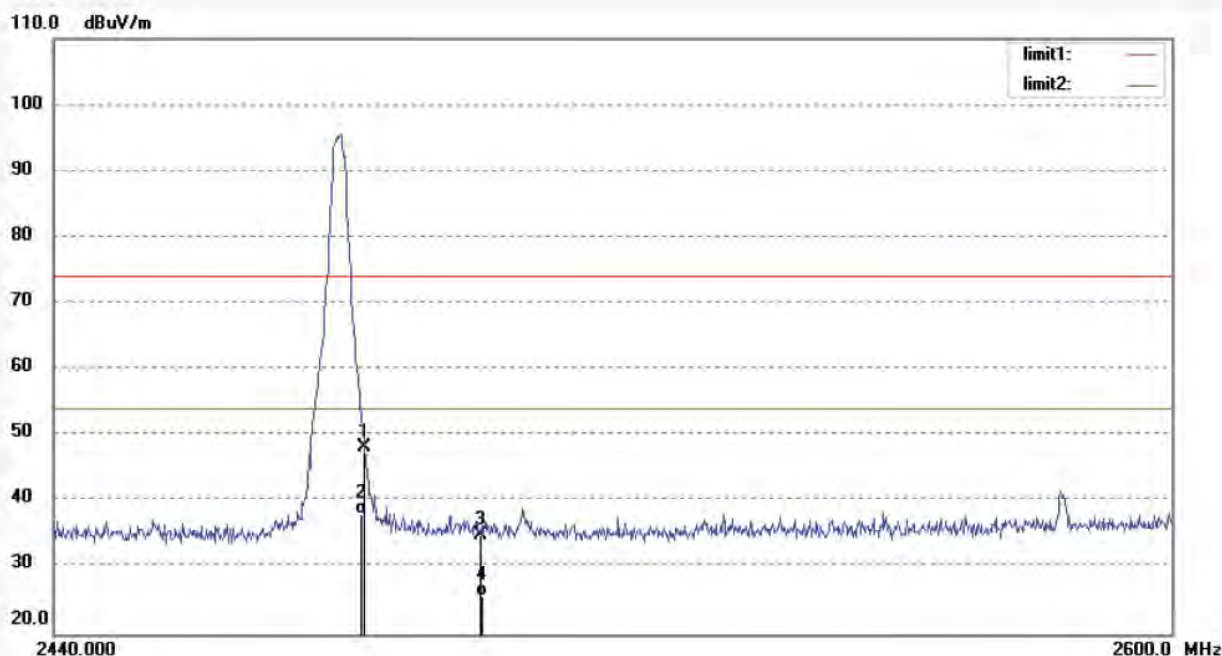
Date: 18/01/12/

Time: 11/17/04

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	53.71	-5.51	48.20	74.00	-25.80	peak	150	246	
2	2483.500	43.68	-5.51	38.17	54.00	-15.83	AVG	150	246	
3	2500.000	40.49	-5.50	34.99	74.00	-39.01	peak	150	136	
4	2500.000	31.24	-5.50	25.74	54.00	-28.26	AVG	150	136	

Note: Average measurement with peak detection at No.2&4



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.: JC #104

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz($\pi/4$ DQPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

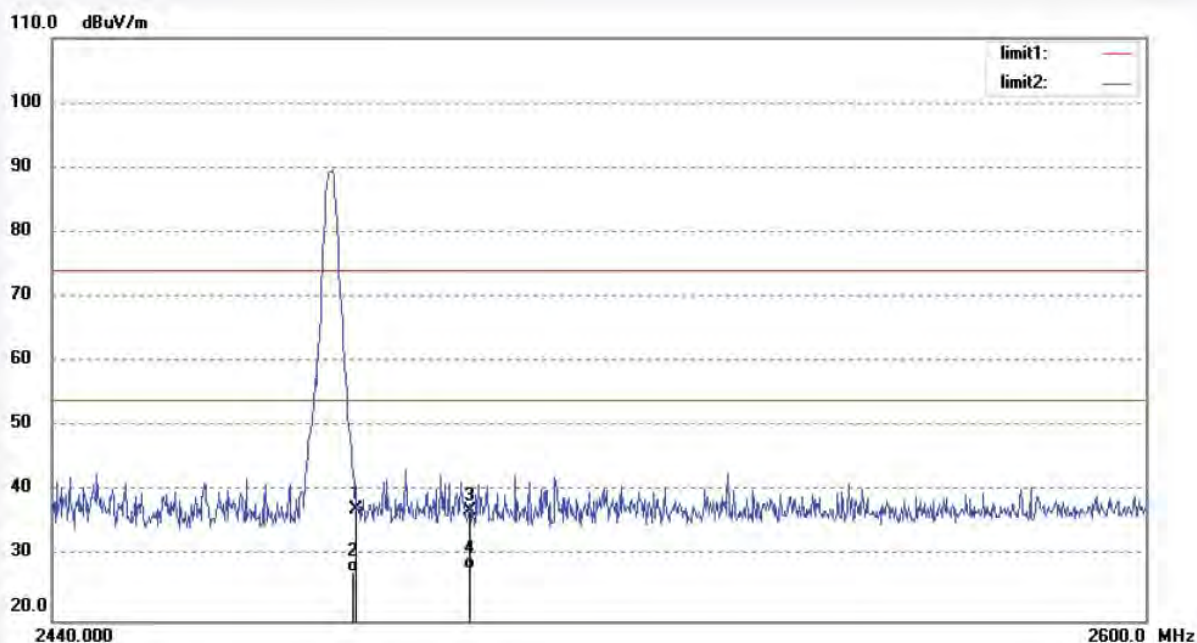
Date: 18/01/12/

Time: 11/18/32

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	42.71	-5.51	37.20	74.00	-36.80	peak	150	101	
2	2483.500	32.94	-5.51	27.43	54.00	-26.57	AVG	150	101	
3	2500.000	42.47	-5.50	36.97	74.00	-37.03	peak	150	204	
4	2500.000	33.47	-5.50	27.97	54.00	-26.03	AVG	150	204	

Note: Average measurement with peak detection at No.2&4



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.: JC #105

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz(8QPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

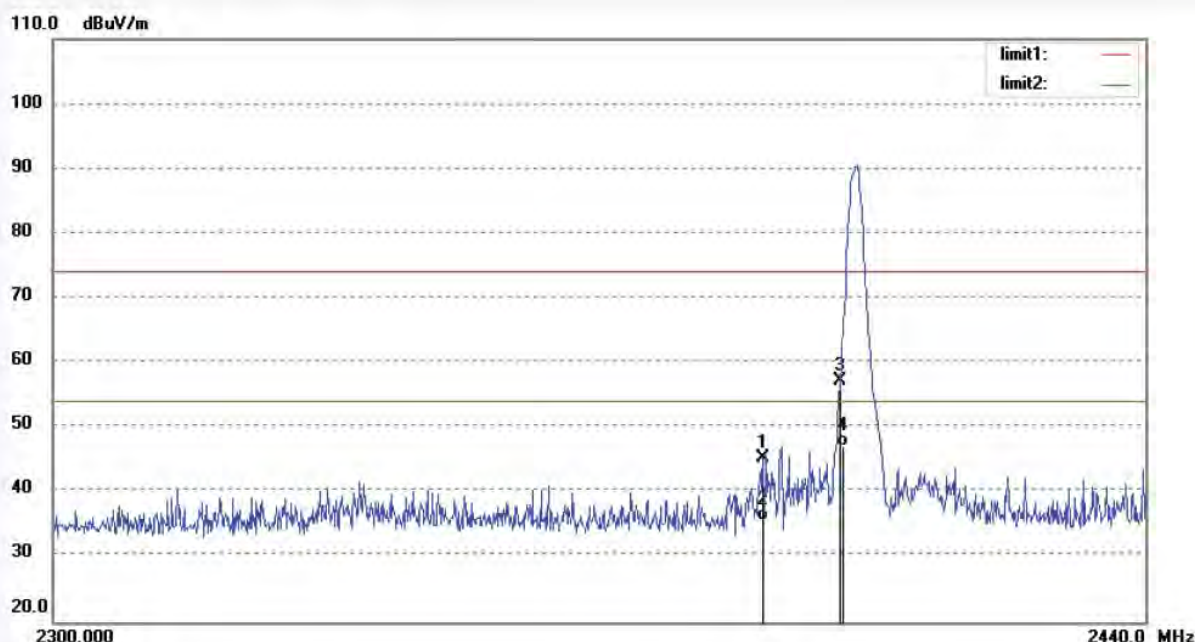
Date: 18/01/12/

Time: 11/22/11

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	51.25	-5.89	45.36	74.00	-28.64	peak	150	38	
2	2390.000	41.59	-5.89	35.70	54.00	-18.30	AVG	150	38	
3	2400.000	63.00	-5.80	57.20	74.00	-16.80	peak	150	246	
4	2400.000	53.02	-5.80	47.22	54.00	-6.78	AVG	150	246	

Note: Average measurement with peak detection at No.2&4



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.: JC #106

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2402MHz(8QPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

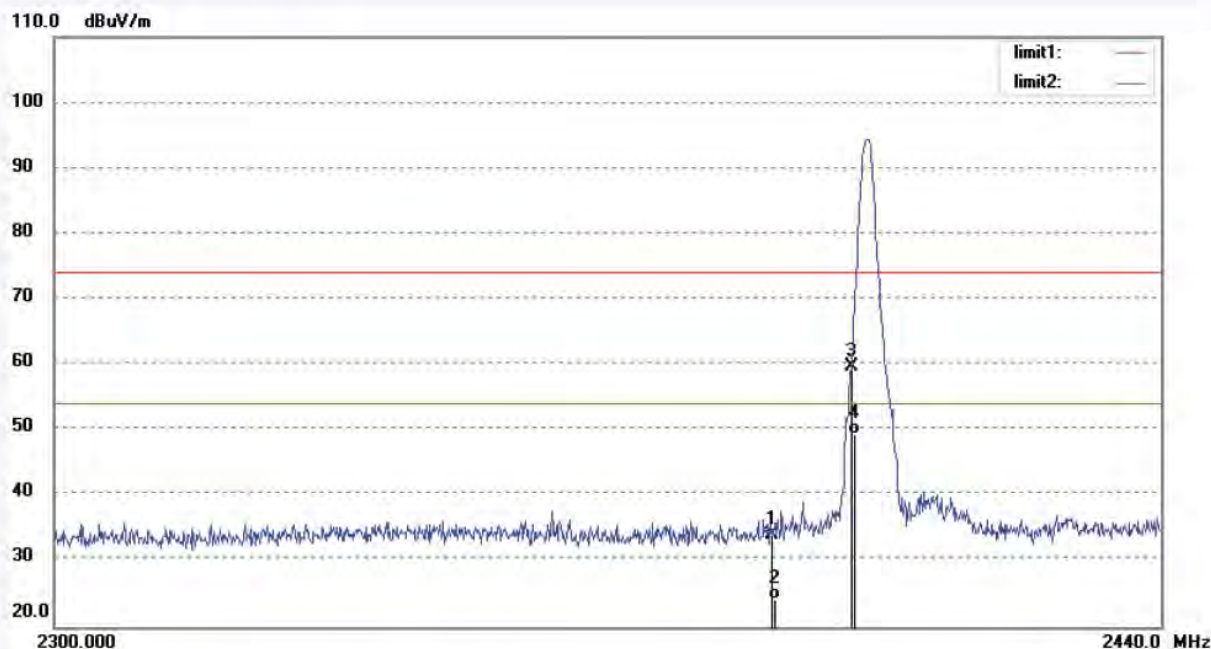
Date: 18/01/12/

Time: 11/23/14

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	39.88	-5.89	33.99	74.00	-40.01	peak	150	134	
2	2390.000	30.14	-5.89	24.25	54.00	-29.75	AVG	150	134	
3	2400.000	65.53	-5.80	59.73	74.00	-14.27	peak	150	321	
4	2400.000	55.27	-5.80	49.47	54.00	-4.53	AVG	150	321	

Note: Average measurement with peak detection at No.2&4



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.: JC #107

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz(8QPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

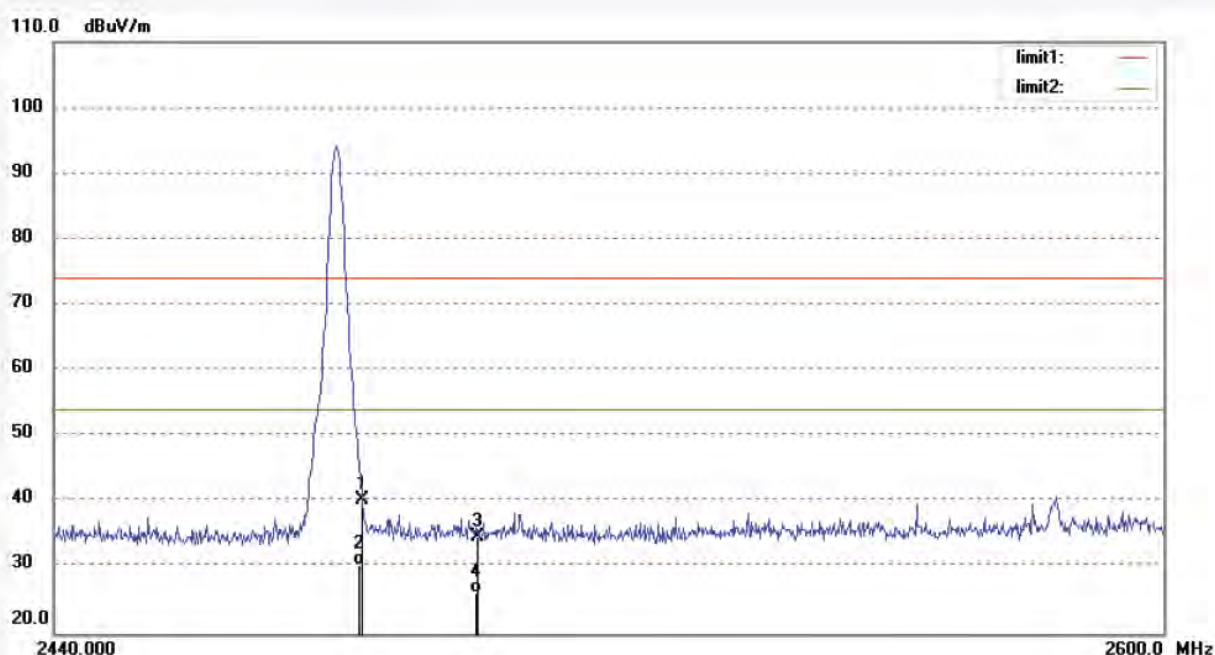
Date: 18/01/12/

Time: 11/24/30

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	45.77	-5.51	40.26	74.00	-33.74	peak	150	178	
2	2483.500	35.86	-5.51	30.35	54.00	-23.65	AVG	150	178	
3	2500.000	40.28	-5.50	34.78	74.00	-39.22	peak	150	216	
4	2500.000	31.67	-5.50	26.17	54.00	-27.83	AVG	150	216	

Note: Average measurement with peak detection at No.2&4



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.: JC #108

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: TX 2480MHz(8QPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

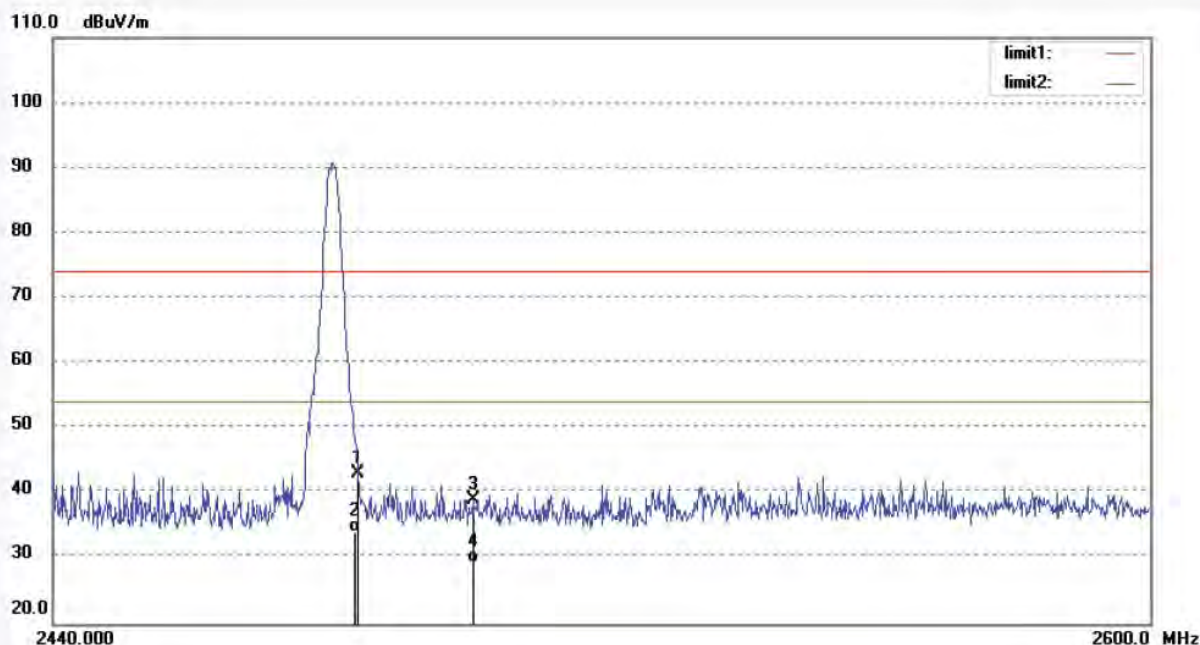
Date: 18/01/12/

Time: 11/25/54

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



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	48.50	-5.51	42.99	74.00	-31.01	peak	150	311	
2	2483.500	39.64	-5.51	34.13	54.00	-19.87	AVG	150	311	
3	2500.000	44.59	-5.50	39.09	74.00	-34.91	peak	150	234	
4	2500.000	34.77	-5.50	29.27	54.00	-24.73	AVG	150	234	

Note: Average measurement with peak detection at No.2&4

Hopping mode



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.: JC #109

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: HOPPING(GFSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

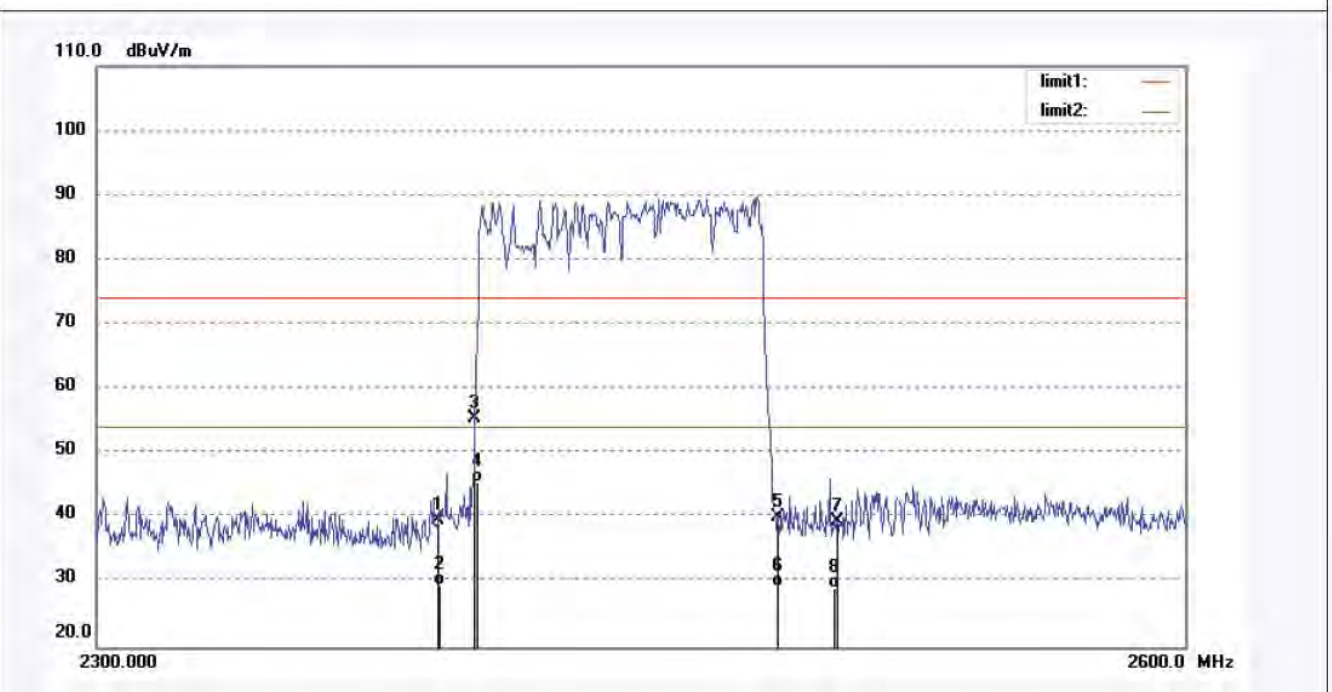
Date: 18/01/12/

Time: 11/29/42

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.62	-5.89	39.73	74.00	-34.27	peak	150	123	
2	2390.000	35.48	-5.89	29.59	54.00	-24.41	AVG	150	123	
3	2400.000	61.13	-5.80	55.33	74.00	-18.67	peak	150	246	
4	2400.000	51.36	-5.80	45.56	54.00	-8.44	AVG	150	246	
5	2483.500	45.58	-5.51	40.07	74.00	-33.93	peak	150	101	
6	2483.500	34.92	-5.51	29.41	54.00	-24.59	AVG	150	101	
7	2500.000	44.98	-5.50	39.48	74.00	-34.52	peak	150	36	
8	2500.000	34.55	-5.50	29.05	54.00	-24.95	AVG	150	36	

Note: Average measurement with peak detection at No.2&4&6&8



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber

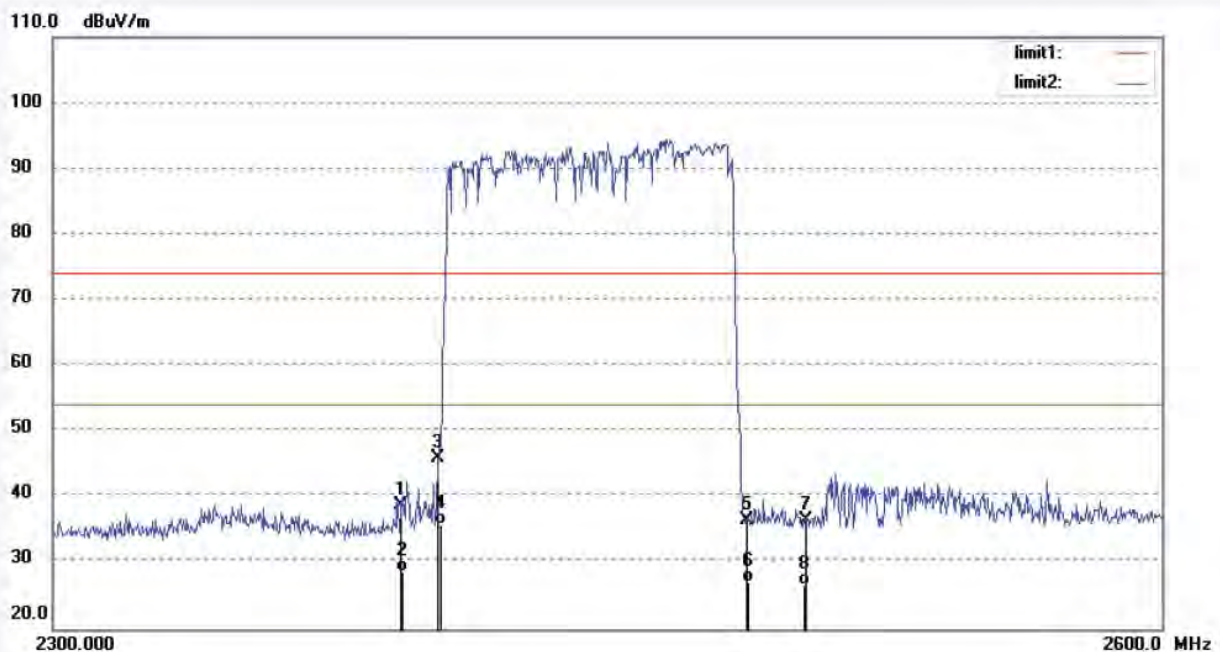
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #110
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Switch II Turntable
Mode: HOPPING(GFSK)
Model: CR6034A-NA
Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 18/01/12/
Time: 11/32/31
Engineer Signature: JAMES
Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	44.60	-5.89	38.71	74.00	-35.29	peak	150	113	
2	2390.000	34.59	-5.89	28.70	54.00	-25.30	AVG	150	113	
3	2400.000	51.81	-5.80	46.01	74.00	-27.99	peak	150	201	
4	2400.000	41.75	-5.80	35.95	54.00	-18.05	AVG	150	201	
5	2483.500	42.07	-5.51	36.56	74.00	-37.44	peak	150	324	
6	2483.500	32.68	-5.51	27.17	54.00	-26.83	AVG	150	324	
7	2500.000	42.09	-5.50	36.59	74.00	-37.41	peak	150	14	
8	2500.000	32.15	-5.50	26.65	54.00	-27.35	AVG	150	14	

Note: Average measurement with peak detection at No.2&4&6&8



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.: JC #111

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: HOPPING($\pi/4$ DQPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

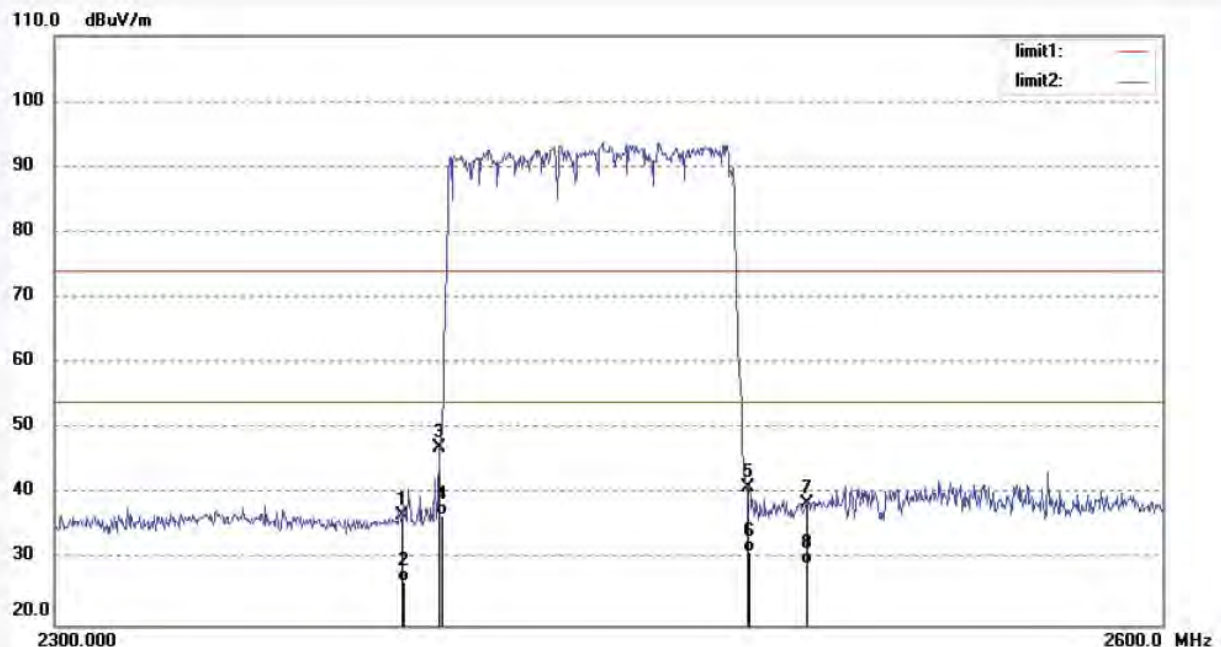
Date: 18/01/12/

Time: 11/35/17

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	42.60	-5.89	36.71	74.00	-37.29	peak	150	254	
2	2390.000	32.49	-5.89	26.60	54.00	-27.40	AVG	150	254	
3	2400.000	52.81	-5.80	47.01	74.00	-26.99	peak	150	100	
4	2400.000	42.67	-5.80	36.87	54.00	-17.13	AVG	150	100	
5	2483.500	46.57	-5.51	41.06	74.00	-32.94	peak	150	333	
6	2483.500	36.54	-5.51	31.03	54.00	-22.97	AVG	150	333	
7	2500.000	44.09	-5.50	38.59	74.00	-35.41	peak	150	169	
8	2500.000	34.86	-5.50	29.36	54.00	-24.64	AVG	150	169	

Note: Average measurement with peak detection at No.2&4&6&8



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.: JC #112

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: HOPPING($\pi/4$ DQPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

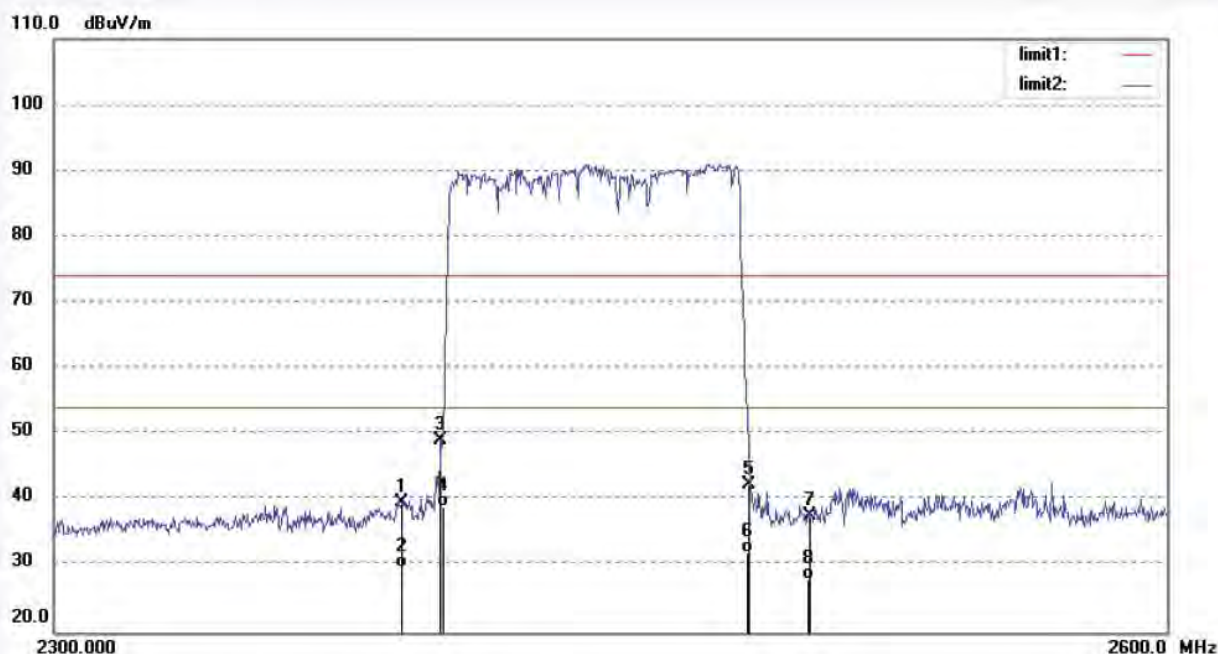
Date: 18/01/12/

Time: 11/38/04

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.60	-5.89	39.71	74.00	-34.29	peak	150	16	
2	2390.000	35.74	-5.89	29.85	54.00	-24.15	AVG	150	16	
3	2400.000	54.88	-5.80	49.08	74.00	-24.92	peak	150	324	
4	2400.000	44.92	-5.80	39.12	54.00	-14.88	AVG	150	324	
5	2483.500	47.97	-5.51	42.46	74.00	-31.54	peak	150	246	
6	2483.500	37.56	-5.51	32.05	54.00	-21.95	AVG	150	246	
7	2500.000	43.09	-5.50	37.59	74.00	-36.41	peak	150	147	
8	2500.000	33.41	-5.50	27.91	54.00	-26.09	AVG	150	147	

Note: Average measurement with peak detection at No.2&4&6&8



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber

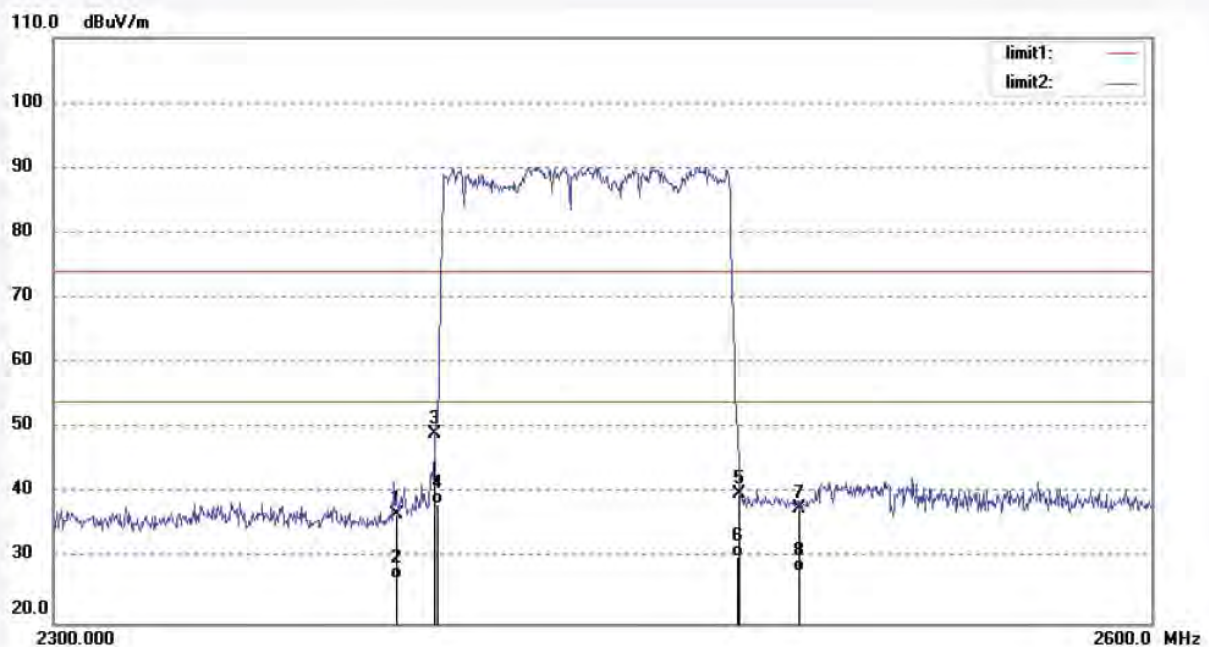
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: JC #113
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Switch II Turntable
Mode: HOPPING(8QPSK)
Model: CR6034A-NA
Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 18/01/12/
Time: 11/41/21
Engineer Signature: JAMES
Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	42.60	-5.89	36.71	74.00	-37.29	peak	150	111	
2	2390.000	32.67	-5.89	26.78	54.00	-27.22	AVG	150	111	
3	2400.000	54.88	-5.80	49.08	74.00	-24.92	peak	150	214	
4	2400.000	44.19	-5.80	38.39	54.00	-15.61	AVG	150	214	
5	2483.500	45.47	-5.51	39.96	74.00	-34.04	peak	150	325	
6	2483.500	35.81	-5.51	30.30	54.00	-23.70	AVG	150	325	
7	2500.000	43.09	-5.50	37.59	74.00	-36.41	peak	150	303	
8	2500.000	33.45	-5.50	27.95	54.00	-26.05	AVG	150	303	

Note: Average measurement with peak detection at No.2&4&6&8



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.: JC #114

Standard: FCC PK

Test item: Radiation Test

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

EUT: Switch II Turntable

Mode: HOPPING(8QPSK)

Model: CR6034A-NA

Manufacturer: TIMSEN INTERNATIONAL LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

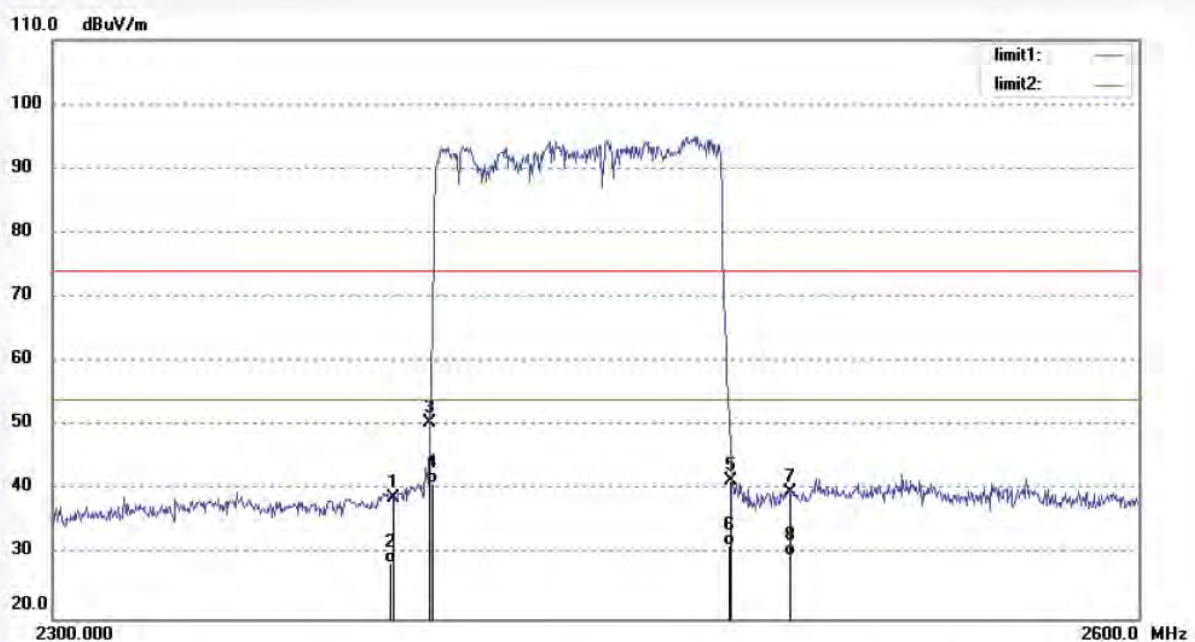
Date: 18/01/12/

Time: 11/45/10

Engineer Signature: JAMES

Distance: 3m

Note: Report NO:ATE20172606



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	44.73	-5.89	38.84	74.00	-35.16	peak	150	111	
2	2390.000	34.59	-5.89	28.70	54.00	-25.30	AVG	150	111	
3	2400.000	56.38	-5.80	50.58	74.00	-23.42	peak	150	201	
4	2400.000	46.82	-5.80	41.02	54.00	-12.98	AVG	150	201	
5	2483.500	46.97	-5.51	41.46	74.00	-32.54	peak	150	324	
6	2483.500	36.78	-5.51	31.27	54.00	-22.73	AVG	150	324	
7	2500.000	45.09	-5.50	39.59	74.00	-34.41	peak	150	16	
8	2500.000	35.27	-5.50	29.77	54.00	-24.23	AVG	150	16	

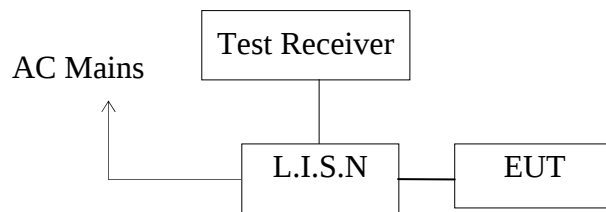
Note: Average measurement with peak detection at No.2&4&6&8

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

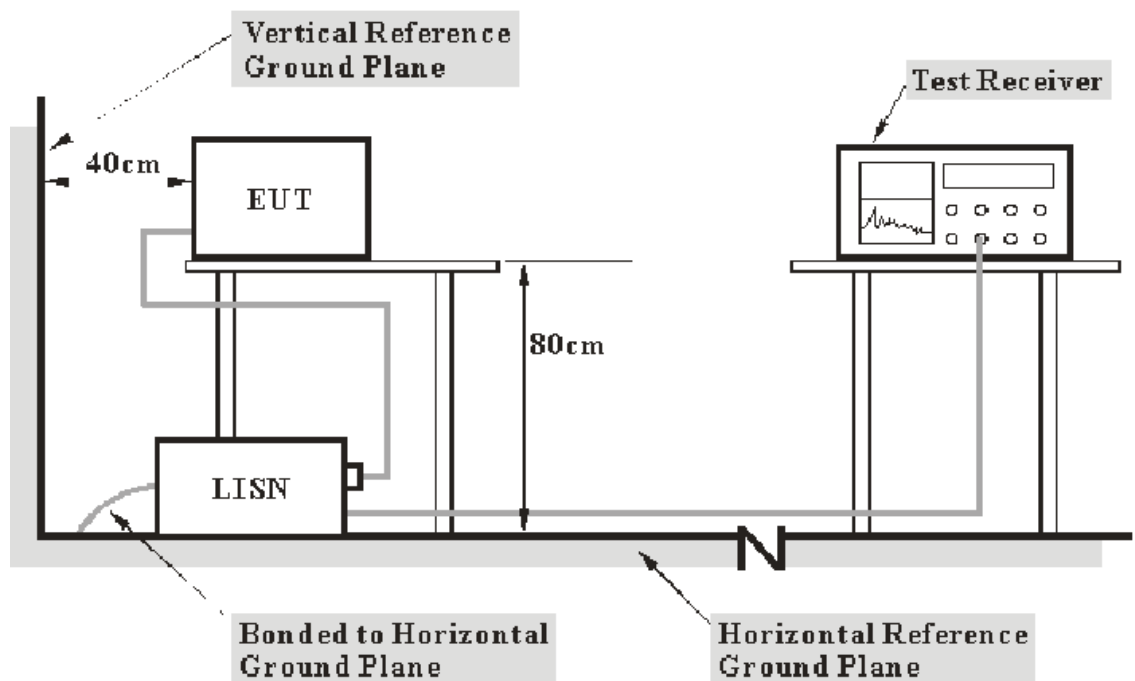
12.1.Block Diagram of Test Setup

12.1.1.Block diagram of connection between the EUT and simulators



(EUT: Switch II Turntable)

12.1.2.Test System Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

12.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μ V)	
	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
NOTE1: The lower limit shall apply at the transition frequencies.		
NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

12.3.Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 12.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in test mode and 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 C63.10: 2013 on Conducted Emission Measurement. The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

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

12.6.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
10.51000	11.6	42.60	27.90	60.0	50.0	-17.4	-22.1	Pass

Frequency(MHz) = Emission frequency in MHz

Transducer value(dB) = Insertion loss of LISN + Cable Loss

Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value

Limit (dBμV) = Limit stated in standard

Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:

Margin = Limit (dBμV) - Level (dBμV)

12.7.Power Line Conducted Emission Measurement Results

PASS.

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

Test mode : BT communicating (AC 120V/60Hz)								
EUT mode : CR6034A-NA								
MEASUREMENT RESULT: "HP-2606-01_fin"								
2018-1-2 17:20								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.204000	45.40	10.8	63	18.0	QP	N	GND	
0.483000	35.90	11.0	56	20.4	QP	N	GND	
0.874500	33.50	11.1	56	22.5	QP	N	GND	
2.890500	23.70	11.3	56	32.3	QP	N	GND	
6.130500	19.40	11.5	60	40.6	QP	N	GND	
19.131000	24.60	11.7	60	35.4	QP	N	GND	
MEASUREMENT RESULT: "HP-2606-01_fin2"								
2018-1-2 17:20								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.285000	30.50	10.9	51	20.2	AV	N	GND	
0.775500	31.70	11.1	46	14.3	AV	N	GND	
1.270500	27.00	11.2	46	19.0	AV	N	GND	
2.292000	22.40	11.3	46	23.6	AV	N	GND	
5.793000	14.10	11.5	50	35.9	AV	N	GND	
19.144500	10.00	11.7	50	40.0	AV	N	GND	
MEASUREMENT RESULT: "HP-2606-02_fin"								
2018-1-2 17:24								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.325500	39.00	10.9	60	20.6	QP	L1	GND	
0.811500	33.40	11.1	56	22.6	QP	L1	GND	
0.861000	32.70	11.1	56	23.3	QP	L1	GND	
2.125500	27.40	11.3	56	28.6	QP	L1	GND	
5.145000	19.50	11.4	60	40.5	QP	L1	GND	
27.334500	16.40	11.8	60	43.6	QP	L1	GND	
MEASUREMENT RESULT: "HP-2606-02_fin2"								
2018-1-2 17:24								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.285000	27.80	10.9	51	22.9	AV	L1	GND	
0.775500	31.60	11.1	46	14.4	AV	L1	GND	
1.329000	27.00	11.2	46	19.0	AV	L1	GND	
2.004000	23.00	11.3	46	23.0	AV	L1	GND	
2.026500	23.00	11.3	46	23.0	AV	L1	GND	
6.031500	15.40	11.5	50	34.6	AV	L1	GND	

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

The spectral diagrams are attached as below.

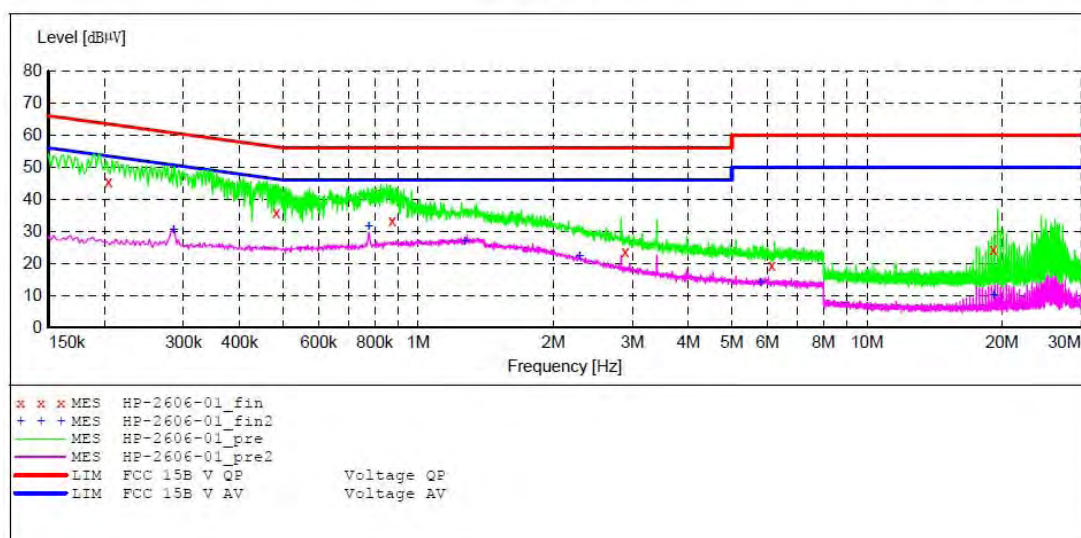
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Switch II Turntable M/N:CR6034A-NA
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: AUX IN
 Test Site: 2#Shielding Room
 Operator: JAMES
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172606
 Start of Test: 2018-1-2 / 17:17:46

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "HP-2606-01_fin"

2018-1-2 17:20

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.204000	45.40	10.8	63	18.0	QP	N	GND
0.483000	35.90	11.0	56	20.4	QP	N	GND
0.874500	33.50	11.1	56	22.5	QP	N	GND
2.890500	23.70	11.3	56	32.3	QP	N	GND
6.130500	19.40	11.5	60	40.6	QP	N	GND
19.131000	24.60	11.7	60	35.4	QP	N	GND

MEASUREMENT RESULT: "HP-2606-01_fin2"

2018-1-2 17:20

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.285000	30.50	10.9	51	20.2	AV	N	GND
0.775500	31.70	11.1	46	14.3	AV	N	GND
1.270500	27.00	11.2	46	19.0	AV	N	GND
2.292000	22.40	11.3	46	23.6	AV	N	GND
5.793000	14.10	11.5	50	35.9	AV	N	GND
19.144500	10.00	11.7	50	40.0	AV	N	GND

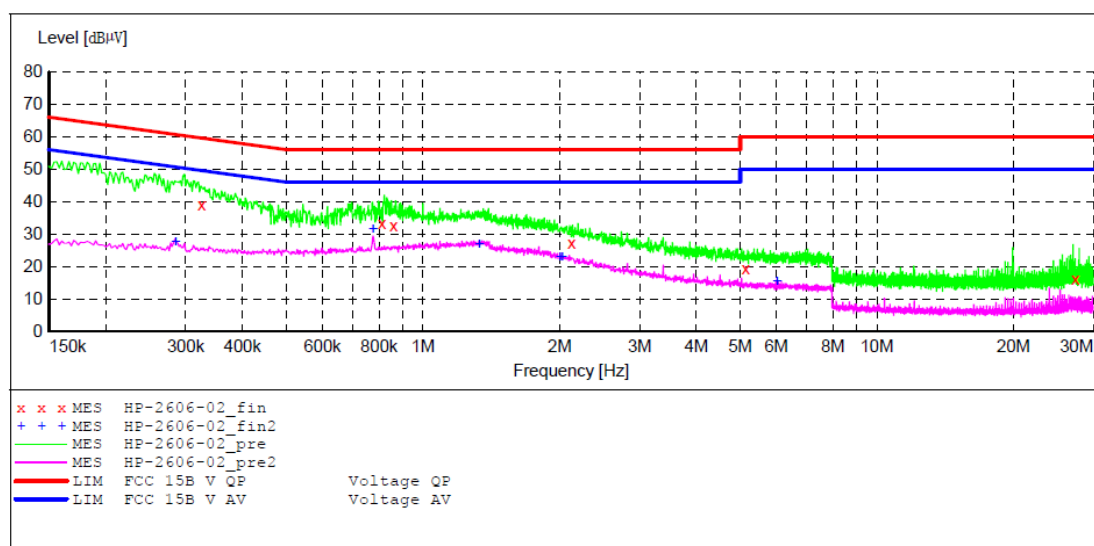
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Switch II Turntable M/N:CR6034A-NA
 Manufacturer: TIMSEN INTERNATIONAL LIMITED
 Operating Condition: AUX IN
 Test Site: 2#Shielding Room
 Operator: JAMES
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172606
 Start of Test: 2018-1-2 / 17:21:11

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "HP-2606-02_fin"

2018-1-2 17:24

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.325500	39.00	10.9	60	20.6	QP	L1	GND
0.811500	33.40	11.1	56	22.6	QP	L1	GND
0.861000	32.70	11.1	56	23.3	QP	L1	GND
2.125500	27.40	11.3	56	28.6	QP	L1	GND
5.145000	19.50	11.4	60	40.5	QP	L1	GND
27.334500	16.40	11.8	60	43.6	QP	L1	GND

MEASUREMENT RESULT: "HP-2606-02_fin2"

2018-1-2 17:24

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.285000	27.80	10.9	51	22.9	AV	L1	GND
0.775500	31.60	11.1	46	14.4	AV	L1	GND
1.329000	27.00	11.2	46	19.0	AV	L1	GND
2.004000	23.00	11.3	46	23.0	AV	L1	GND
2.026500	23.00	11.3	46	23.0	AV	L1	GND
6.031500	15.40	11.5	50	34.6	AV	L1	GND

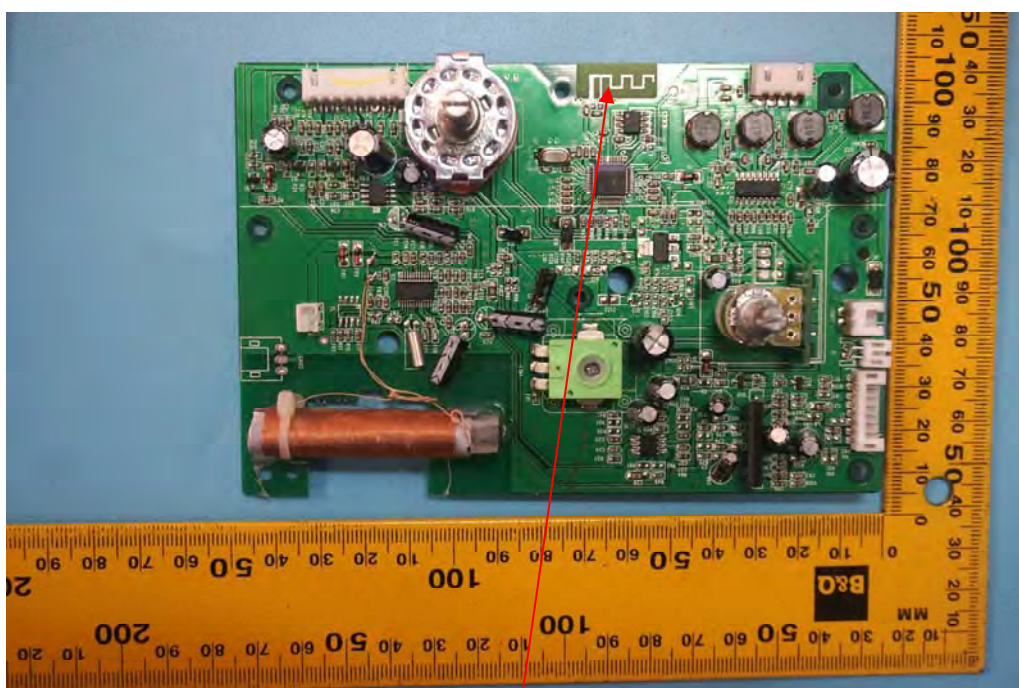
13.ANTENNA REQUIREMENT

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

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 2dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna

***** End of Test Report *****