

APPLICATION CERTIFICATION FCC Part 15C

On Behalf of
Modern Marketing Concepts, Inc.

DISCOVERY

Model No.: CR8009A-DU,
CR8009X-XX("X" can be replaced by letter from "A" to "Z" or blank)

FCC ID: AUSCR8009A

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. : ATE20190551
Date of Test : Apr. 21, 2019--May 06, 2019
Date of Report : May 07, 2019

TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT).....	5
1.2. Accessory and Auxiliary Equipment	6
1.3. Model difference declaration.....	6
1.4. Description of Test Facility	6
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	44
9.1. Block Diagram of Test Setup.....	44
9.2. The Requirement For Section 15.247(b)(1).....	44

9.3.	EUT Configuration on Measurement	44
9.4.	Operating Condition of EUT	44
9.5.	Test Procedure	44
9.6.	Test Result	45
10.	RADIATED EMISSION TEST	51
10.1.	Block Diagram of Test Setup.....	51
10.2.	The Limit For Section 15.247(d)	53
10.3.	Restricted bands of operation	53
10.4.	Configuration of EUT on Measurement	54
10.5.	Test Procedure	54
10.6.	Data Sample.....	55
10.7.	The Field Strength of Radiation Emission Measurement Results	55
11.	BAND EDGE COMPLIANCE TEST	68
11.1.	Block Diagram of Test Setup.....	68
11.2.	The Requirement For Section 15.247(d)	68
11.3.	EUT Configuration on Measurement	68
11.4.	Operating Condition of EUT	68
11.5.	Test Procedure	69
11.6.	Test Result	69
12.	AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A) ..	92
12.1.	Block Diagram of Test Setup.....	92
12.2.	Power Line Conducted Emission Measurement Limits.....	92
12.3.	Configuration of EUT on Measurement	92
12.4.	Operating Condition of EUT	93
12.5.	Test Procedure	93
12.6.	Data Sample.....	93
12.7.	Power Line Conducted Emission Measurement Results	94
13.	ANTENNA REQUIREMENT.....	100
13.1.	The Requirement	100
13.2.	Antenna Construction	100

Test Report Certification

Applicant : Modern Marketing Concepts, Inc.
Address : 1220 E Oak, St. Louisville, Kentucky, United States 40204
Manufacturer : TIMSEN DEVELOPMENT LIMITED
Address : 5F, 447# Tianhebei Road, Guangzhou, China
Product : DISCOVERY
Model No. : CR8009A-DU
Trade name : CROSLEY

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
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 : Apr. 21, 2019--May 06, 2019
Date of Report: May 07, 2019

Prepared by :

(Tim Zhang, Engineer)

Approved &
Authorized Signer :

(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	DISCOVERY
Model Number	:	CR8009A-DU, CR8009X-XX("X" can be replaced by letter from "A" to "Z" or blank) (Note: We hereby state that these models are identical in interior structure, electrical circuits and components, Just model name is different, Therefore, only model CR8009A-DU is tested for EMC tests.)
Rating	:	DC 12V (Powered by adapter)
Adapter information	:	Model:SW1200500-F04 Input: 100-240V~50/60Hz Max. 200mA Output: DC 12V/500mA
Bluetooth version	:	BT V5.0 This report is for BT classic mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	1.2dBi
Antenna type	:	PCB Antenna
Trade Name	:	CROSLEY
Modulation mode	:	GFSK, $\pi/4$ DQPSK, 8DPSK
Applicant	:	Modern Marketing Concepts, Inc.
Address	:	1220 E Oak, St. Louisville, Kentucky, United States 40204
Manufacturer	:	TIMSEN DEVELOPMENT LIMITED
Address	:	5F, 447# Tianhebei Road, Guangzhou, China
Date of sample received	:	Apr. 20, 2019
Date of Test	:	Apr. 21, 2019--May 06, 2019

1.2. Accessory and Auxiliary Equipment

PC (provided by laboratory)	:	Manufacturer: LENOVO
		M/N: 4290-RT8
		S/N: R9-FW93G 11/08

1.3. Model difference declaration

CR8009X-XX("X" can be replaced by letter from "A" to "Z" or blank)

They are identical in PCB motherboard, driver IC, RF module and Enclosure except the model number is different.

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 = 3.08dB, k=2
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2
(Above 1GHz)

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. 05, 2019	Jan. 04, 2020
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 05, 2019	Jan. 04, 2020
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 05, 2019	Jan. 04, 2020
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 05, 2019	Jan. 04, 2020
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 05, 2019	Jan. 04, 2020
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 05, 2019	Jan. 04, 2020
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 05, 2019	Jan. 04, 2020
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 05, 2019	Jan. 04, 2020
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 05, 2019	Jan. 04, 2020
Open Switch and Control Unit	Rohde&Schwarz	OSP120 + OSP-B157	101244 + 100866	Jan. 05, 2019	Jan. 04, 2020
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 05, 2019	Jan. 04, 2020
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 05, 2019	Jan. 04, 2020
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 05, 2019	Jan. 04, 2020
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 05, 2019	Jan. 04, 2020

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode

Low Channel: 2402MHz

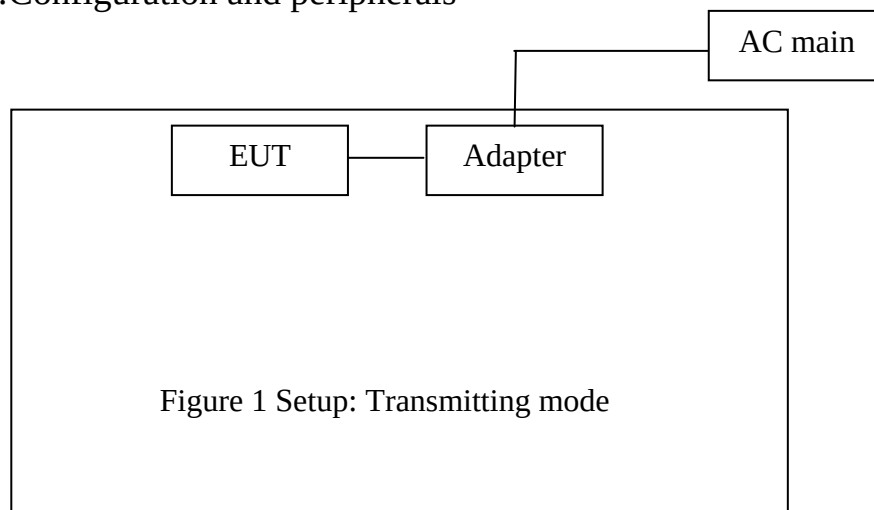
Middle Channel: 2441MHz

High Channel: 2480MHz

Hopping

Note: The Bluetooth has been tested under continuous transmission mode.

3.2.Configuration and peripherals

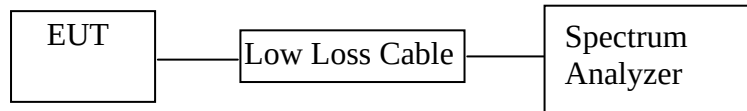


4. TEST PROCEDURES AND RESULTS

FCC&IC Rules	Description of Test	Result
Section 15.207	AC Power Line 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: DISCOVERY)

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

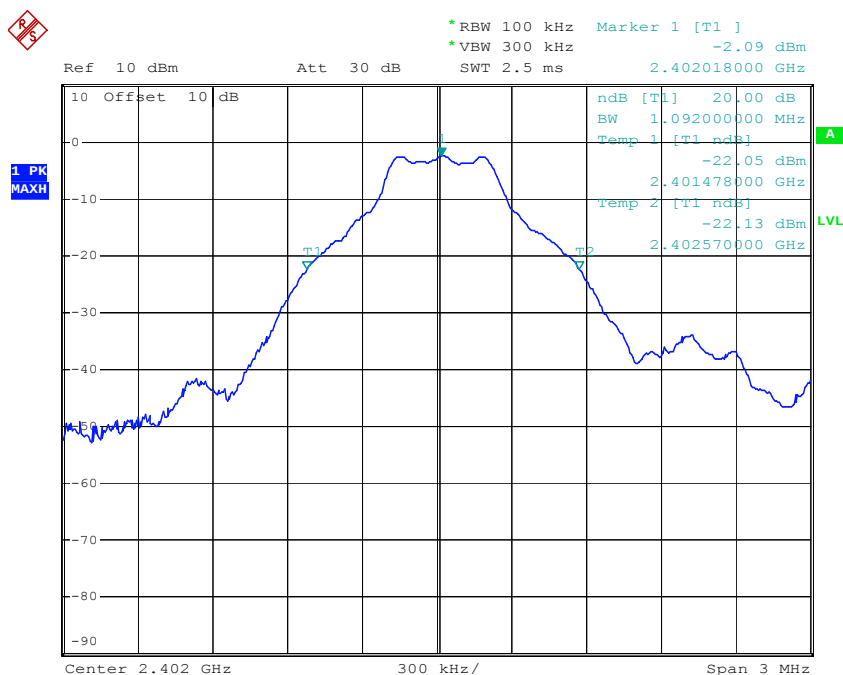
5.6.Test Result

Channel	Frequency (MHz)	GFSK mode 20dB Bandwidth (MHz)	$\pi/4$ DQPSK mode 20dB Bandwidth (MHz)	8DPSK mode 20dB Bandwidth (MHz)	Result
Low	2402	1.092	1.350	1.332	Pass
Middle	2441	1.098	1.356	1.344	Pass
High	2480	1.092	1.356	1.344	Pass

The spectrum analyzer plots are attached as below.

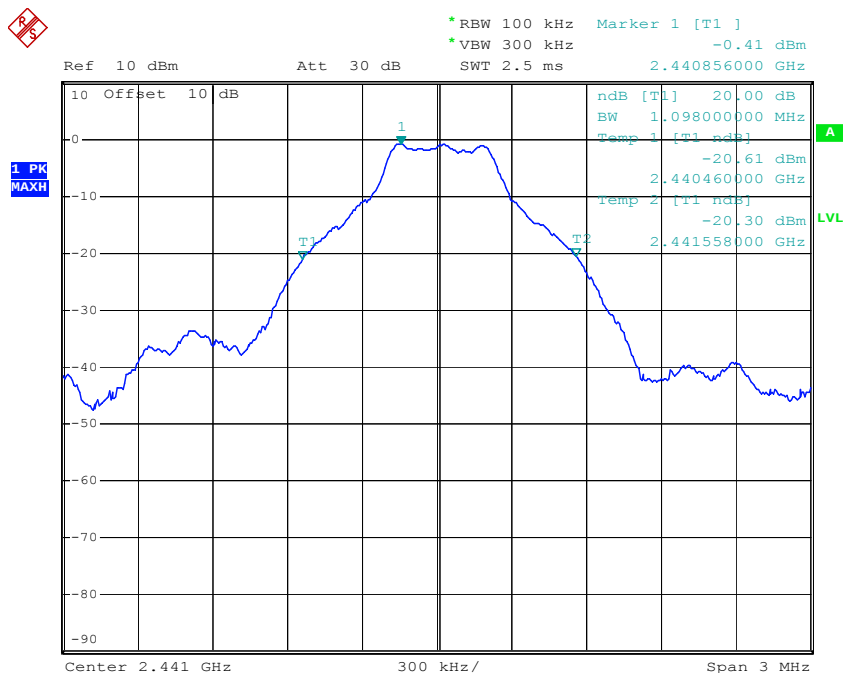
GFSK Mode

Low channel



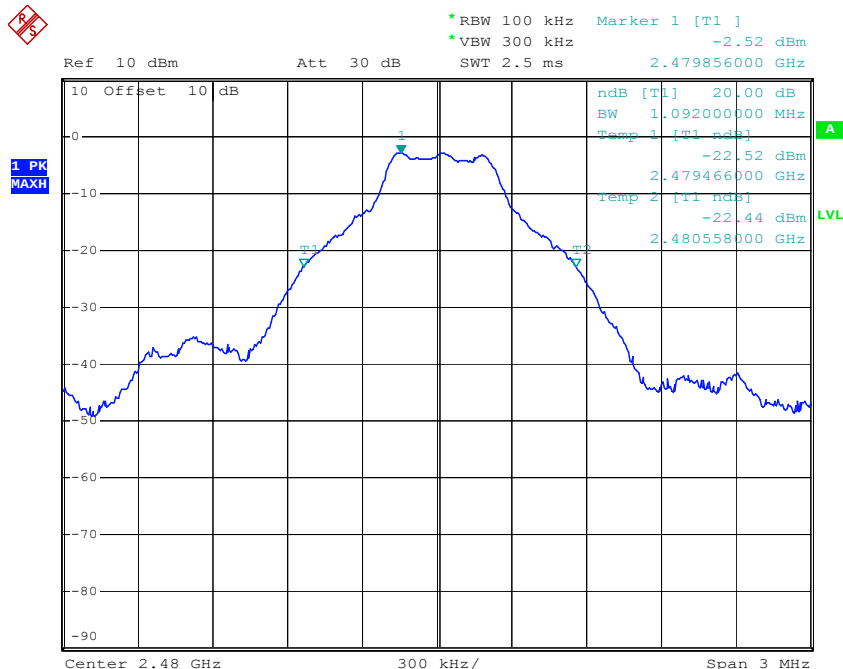
Comment A:
Date: 27.APR.2019 10:18:21

Middle channel



Comment A:
Date: 27.APR.2019 10:19:13

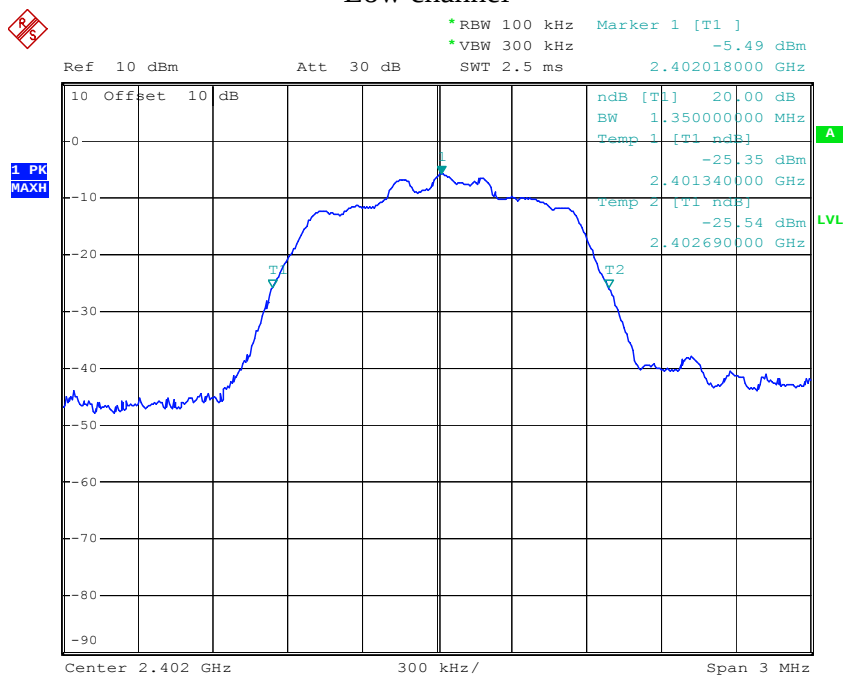
High channel



Comment A:
Date: 27.APR.2019 10:20:11

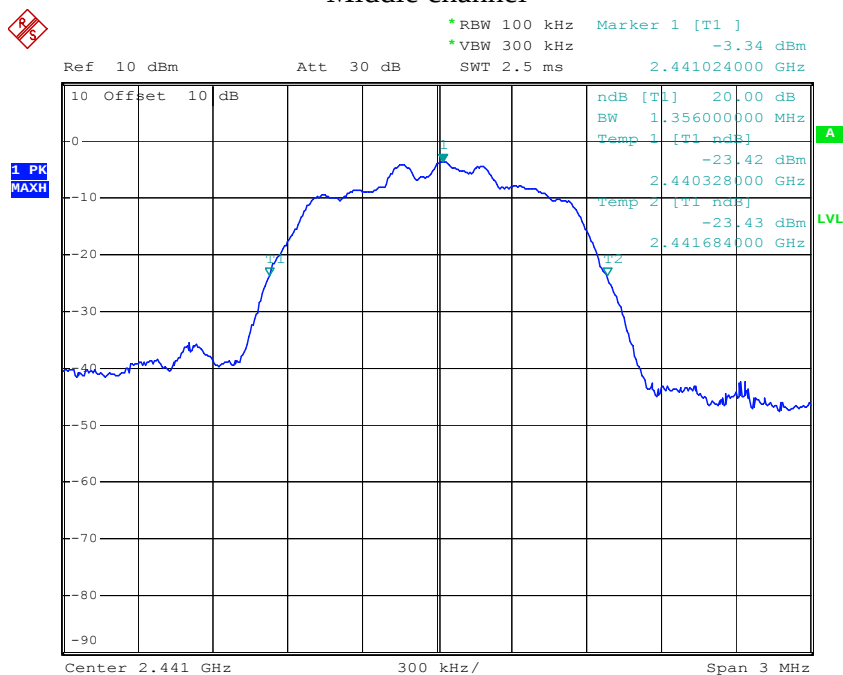
$\pi/4$ DQPSK Mode

Low channel



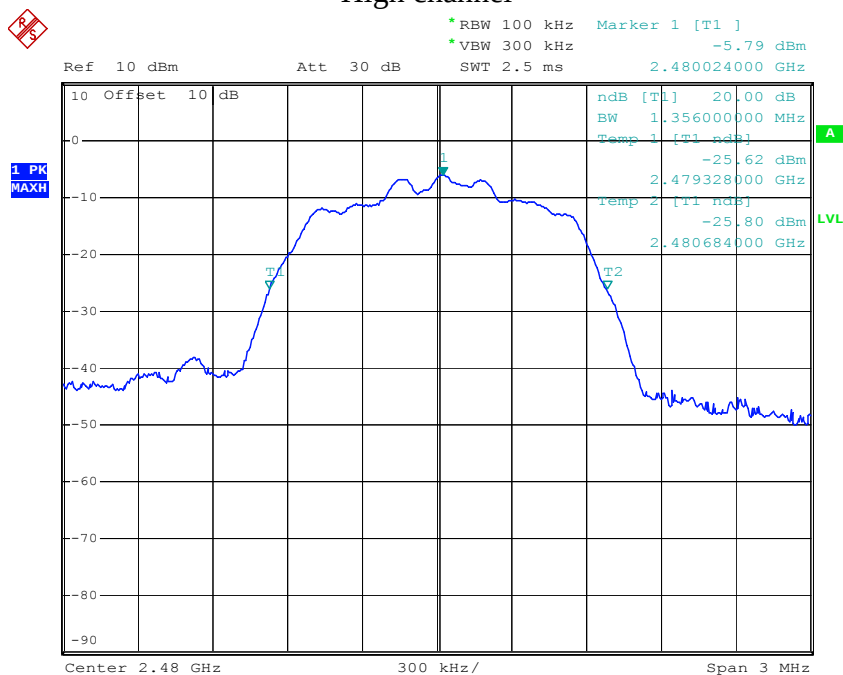
Comment A:
Date: 27.APR.2019 10:24:28

Middle channel



Comment A:
Date: 27.APR.2019 10:23:22

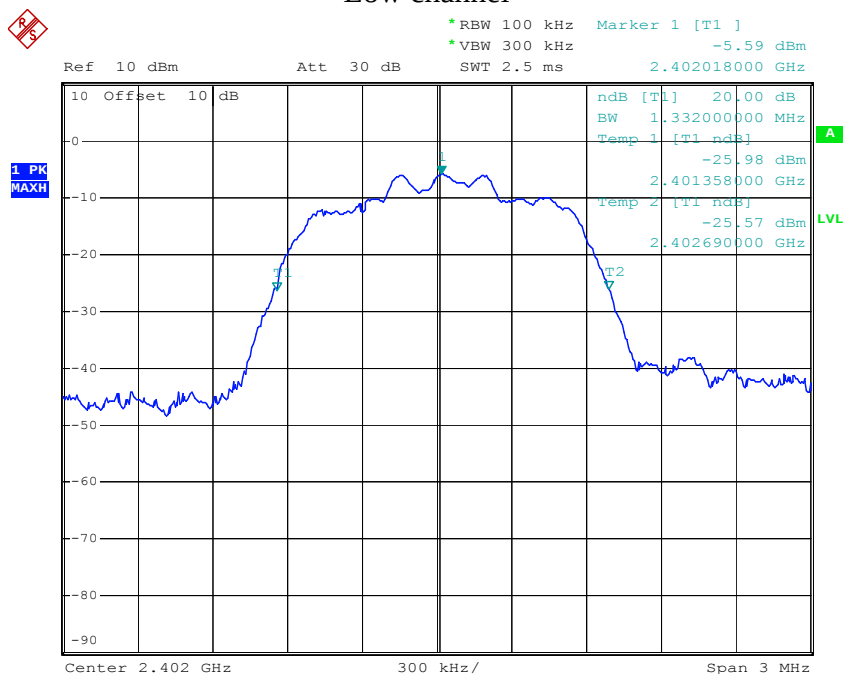
High channel



Comment A:
 Date: 27.APR.2019 10:22:14

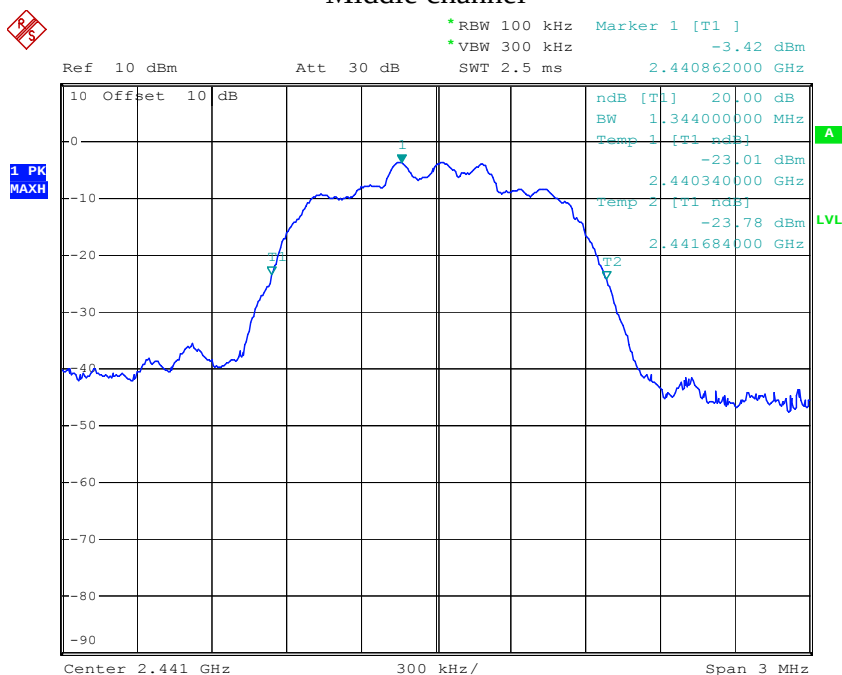
8DPSK Mode

Low channel



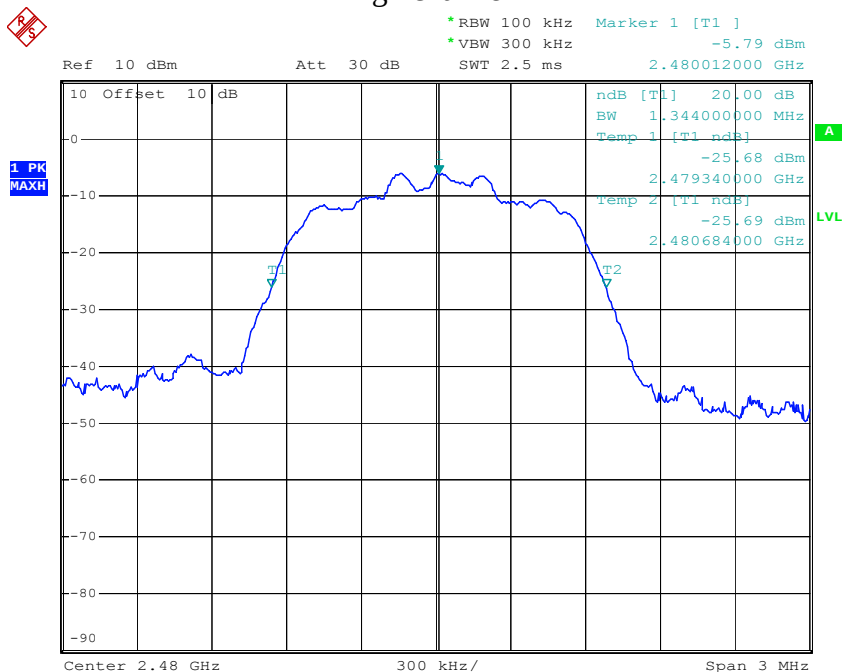
Comment A:
 Date: 27.APR.2019 10:26:03

Middle channel



Comment A:
Date: 27.APR.2019 10:27:02

High channel



Comment A:
Date: 27.APR.2019 10:28:11

6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: DISCOVERY)

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 100 kHz and VBW to 300 kHz. Adjust Span to 3MHz.

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 mode

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit	Result
Low	2402	1.002	25KHz or 0.784 MHz	PASS
	2403			
Middle	2440	0.996	25KHz or 0.772 MHz	PASS
	2441			
High	2479	1.002	25KHz or 0.788 MHz	PASS
	2480			

$\pi/4$ DQPSK mode

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit	Result
Low	2402	1.008	25KHz or 0.892 MHz	PASS
	2403			
Middle	2440	1.002	25KHz or 0.904 MHz	PASS
	2441			
High	2479	1.002	25KHz or 0.884 MHz	PASS
	2480			

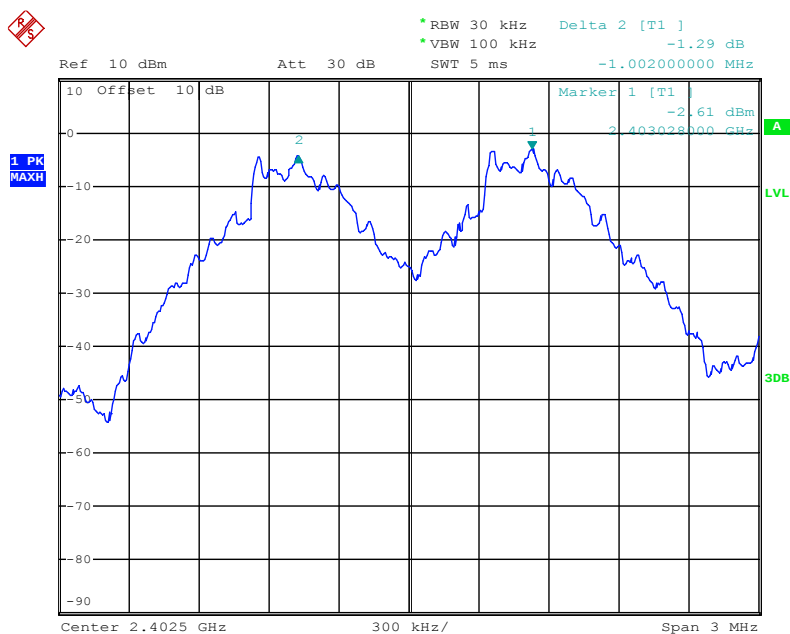
8DPSK mode

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit	Result
Low	2402	1.008	25KHz or 0.928 MHz	PASS
	2403			
Middle	2440	1.002	25KHz or 0.920 MHz	PASS
	2441			
High	2479	0.996	25KHz or 0.936 MHz	PASS
	2480			

The spectrum analyzer plots are attached as below.

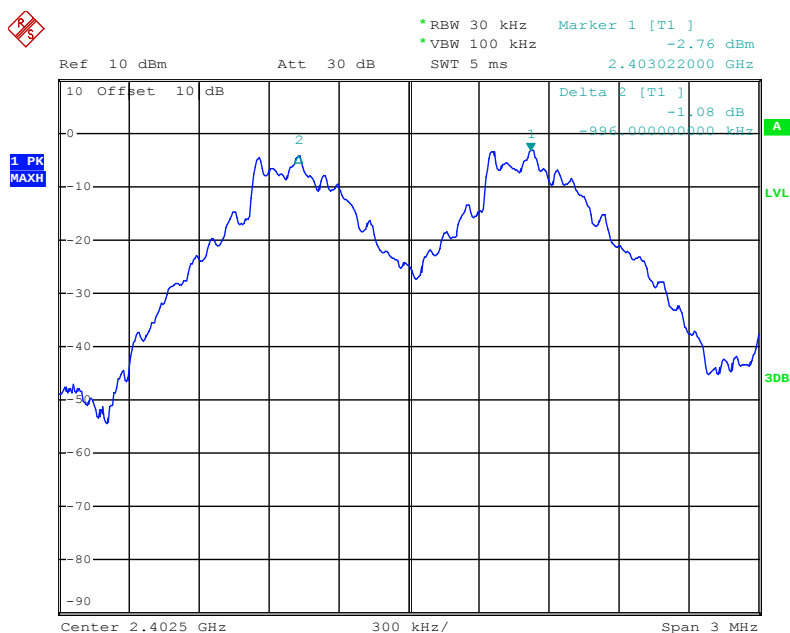
GFSK Mode

Low channel



Date: 28.APR.2019 09:13:56

Middle channel



Date: 28.APR.2019 09:13:18

shenzhen Accurate Technology Co., Ltd.

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

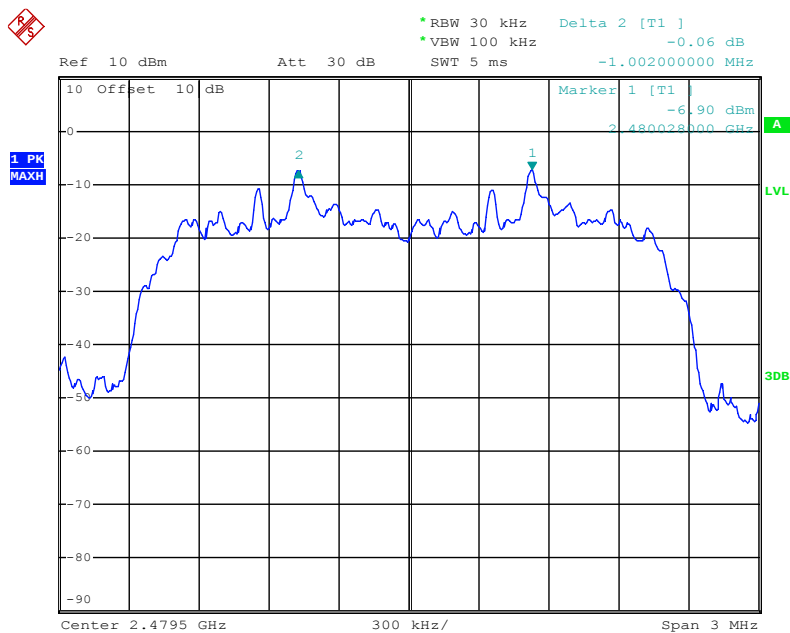
Tel: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

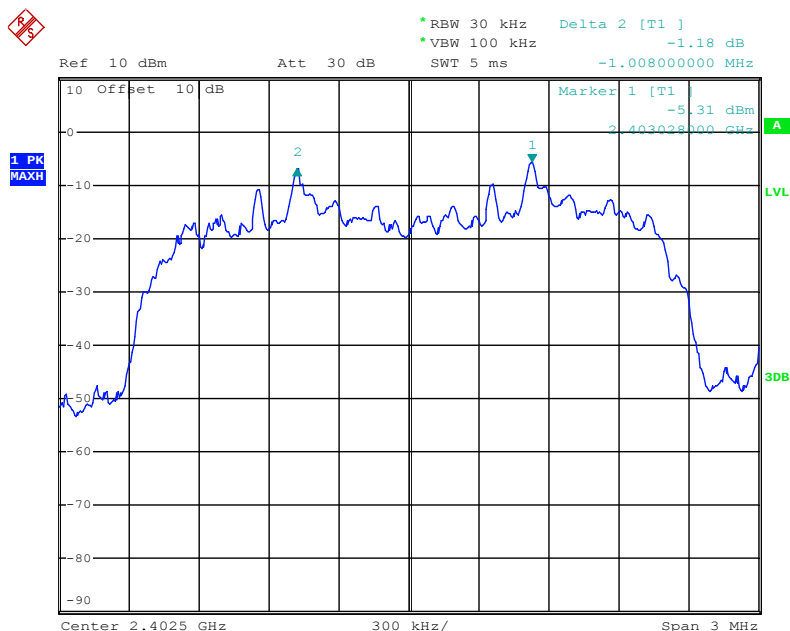
High channel



Date: 28.APR.2019 09:16:38

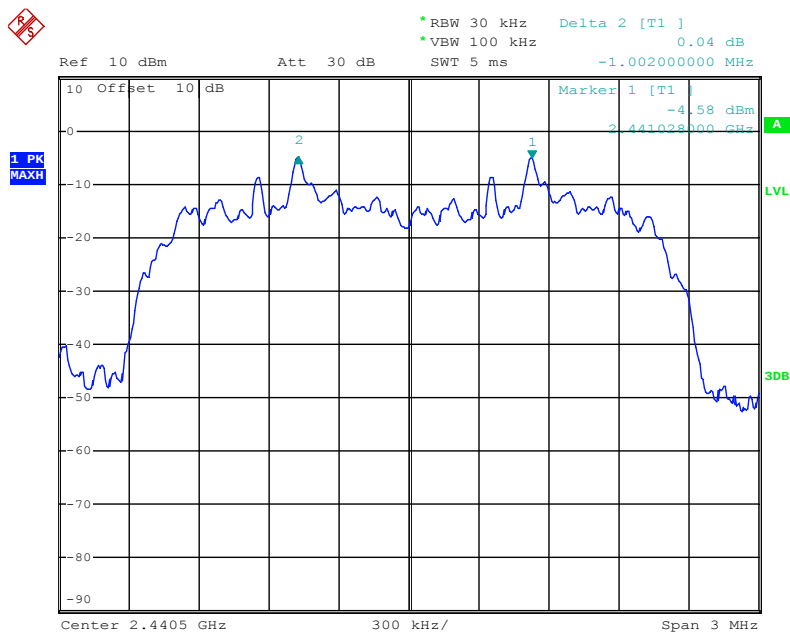
$\pi/4$ DQPSK Mode

Low channel



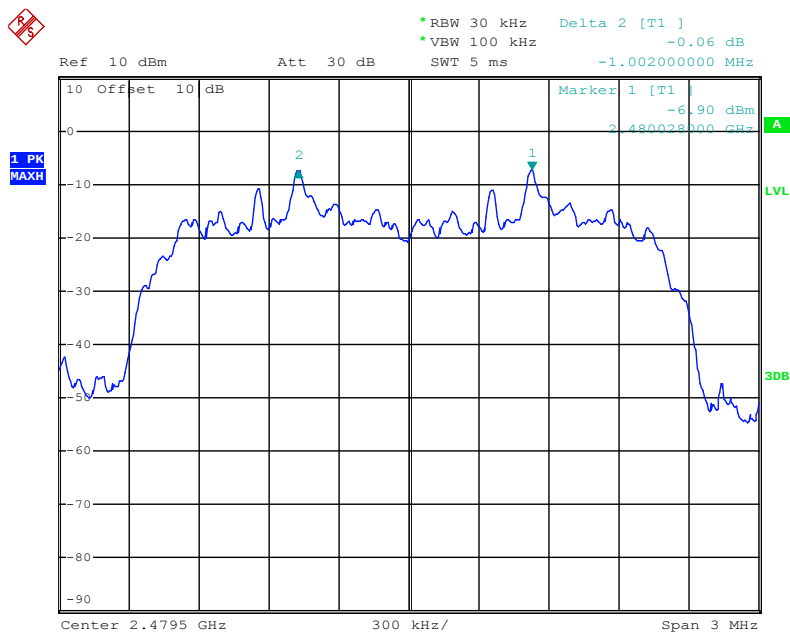
Date: 28.APR.2019 09:18:34

Middle channel



Date: 28.APR.2019 09:17:42

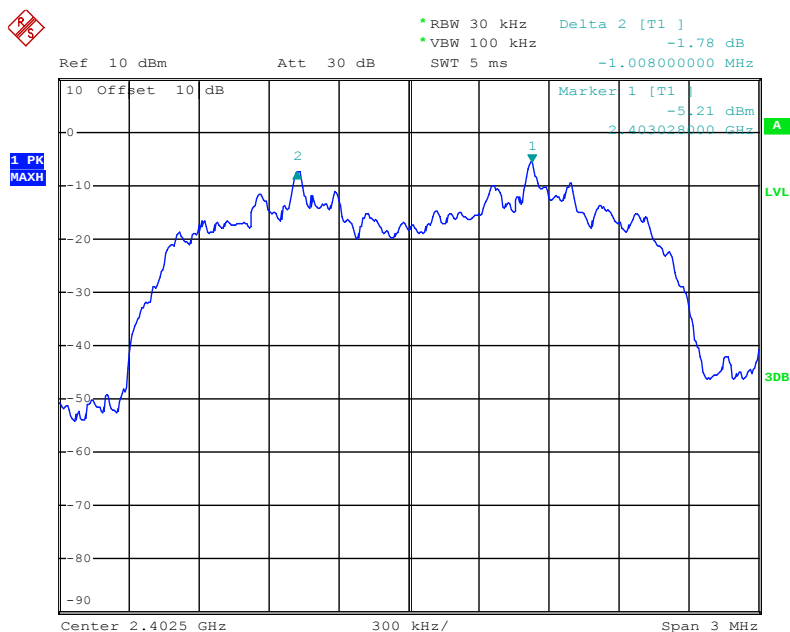
High channel



Date: 28.APR.2019 09:16:38

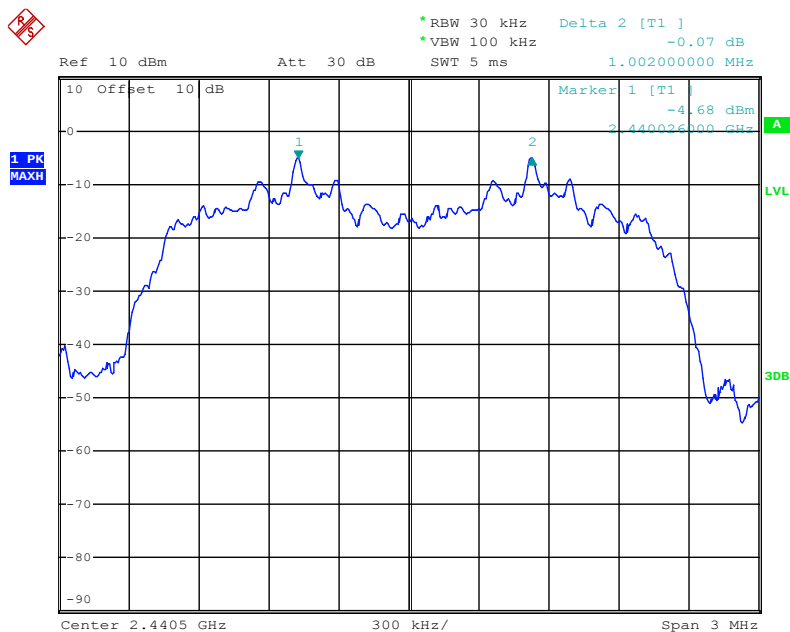
8DPSK Mode

Low channel



Date: 28.APR.2019 09:20:19

Middle channel



Date: 28.APR.2019 09:21:17

shenzhen Accurate Technology Co., Ltd.

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

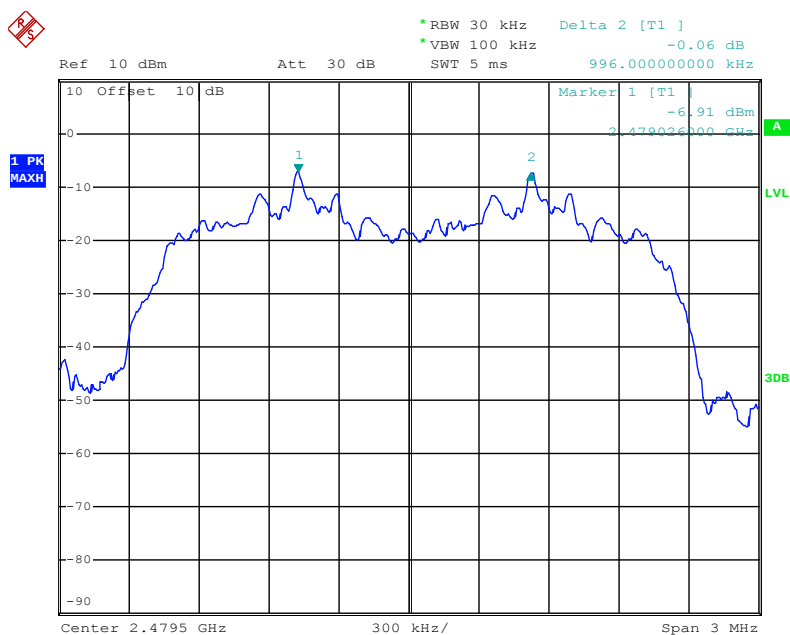
Tel: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

High channel



Date: 28.APR.2019 09:22:24

7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: DISCOVERY)

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

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

7.3. EUT Configuration on Measurement

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

7.4. Operating Condition of EUT

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

7.4.2. Turn on the power of all equipment.

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

7.5. Test Procedure

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

7.5.2. Set the spectrum analyzer as Span=85MHz, RBW=100 kHz, VBW=300 kHz.

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

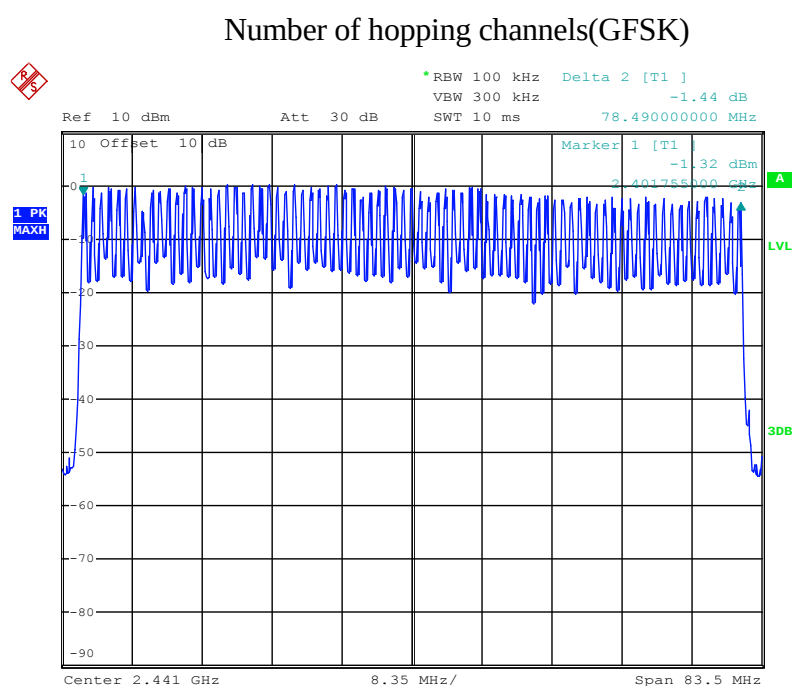
7.6.Test Result

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

Total number of hopping channel ($\pi/4$ DQPSK mode)	Measurement result(CH)	Limit(CH)
	79	≥ 15

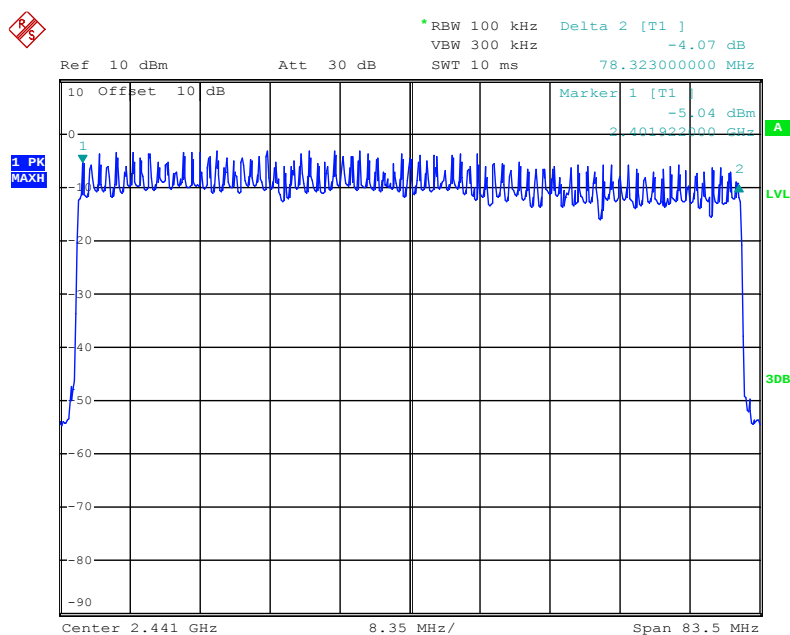
Total number of hopping channel (8DPSK mode)	Measurement result(CH)	Limit(CH)
	79	≥ 15

The spectrum analyzer plots are attached as below.



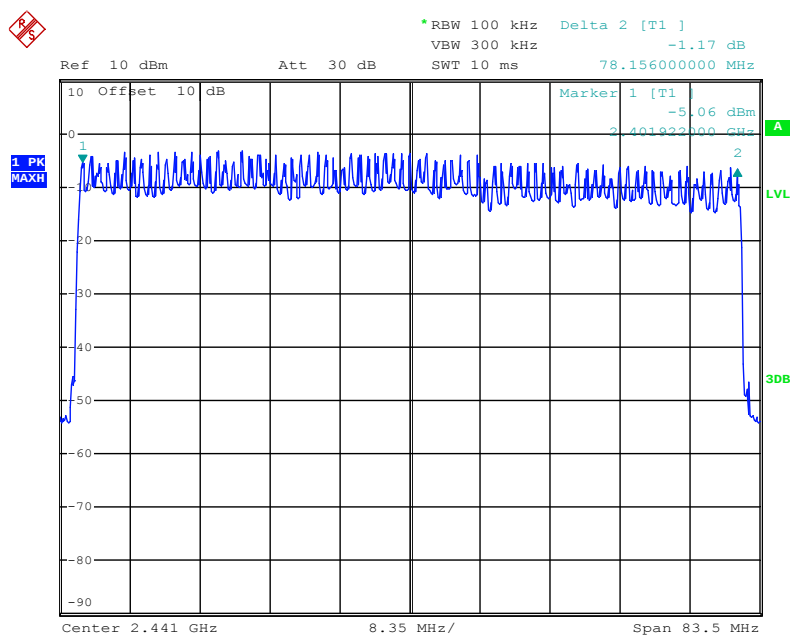
Date: 27.APR.2019 13:48:38

Number of hopping channels($\pi/4$ DQPSK)



Date: 27.APR.2019 13:53:09

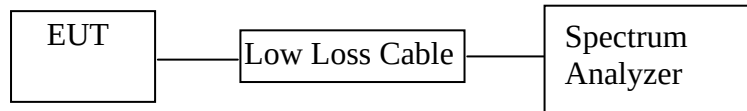
Number of hopping channels(8DPSK)



Date: 27.APR.2019 13:55:04

8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: DISCOVERY)

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	0.430	137.60	400
	2441	0.430	137.60	400
	2480	0.430	137.60	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.710	273.60	400
	2441	1.690	270.40	400
	2480	1.710	273.60	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	2.980	317.87	400
	2441	2.980	317.87	400
	2480	2.960	315.73	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

$\pi/4$ DQPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
2DH1	2402	0.440	140.80	400
	2441	0.450	144.00	400
	2480	0.450	144.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
2DH3	2402	1.730	276.80	400
	2441	1.730	276.80	400
	2480	1.730	276.80	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
2DH5	2402	3.020	322.13	400
	2441	2.990	318.93	400
	2480	3.000	320.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

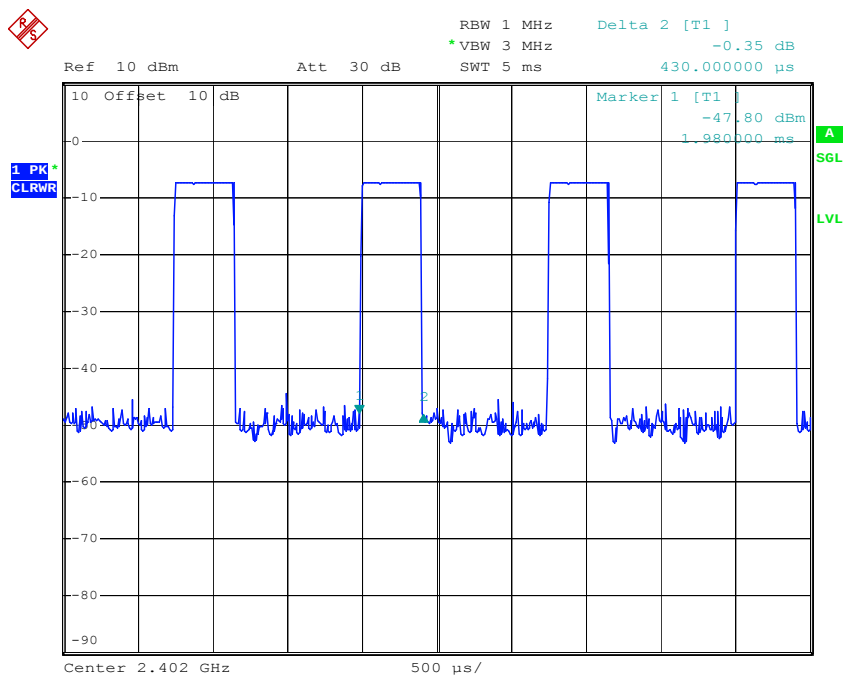
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
3DH1	2402	0.440	140.80	400
	2441	0.450	144.00	400
	2480	0.450	144.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
3DH3	2402	1.710	273.60	400
	2441	1.670	267.20	400
	2480	1.720	275.20	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
3DH5	2402	3.000	320.00	400
	2441	2.950	314.67	400
	2480	2.990	318.93	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.

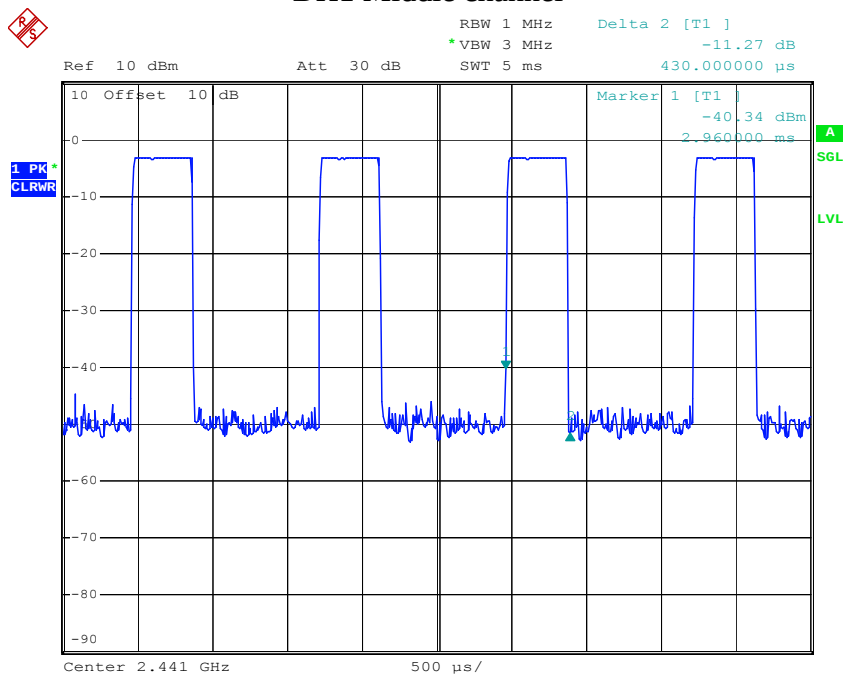
GFSK Mode

DH1 Low channel



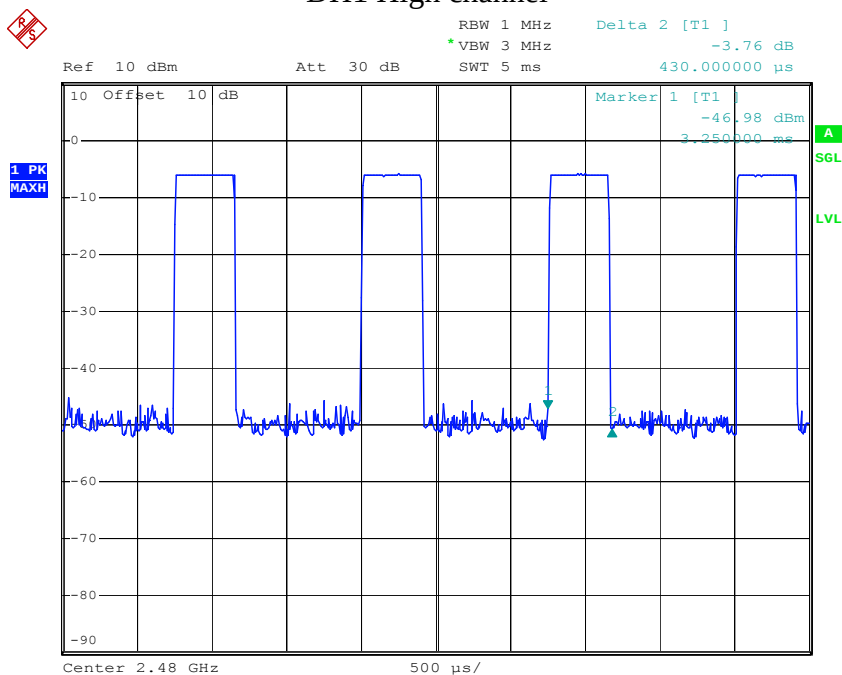
Comment A:
 Date: 27.APR.2019 16:36:56

DH1 Middle channel



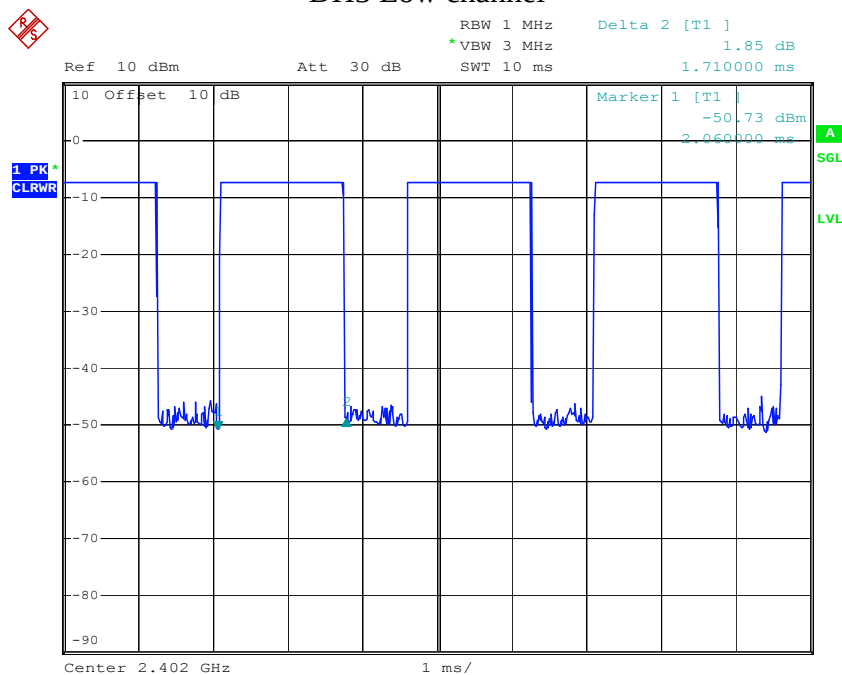
Comment A:
 Date: 27.APR.2019 16:48:33

DH1 High channel



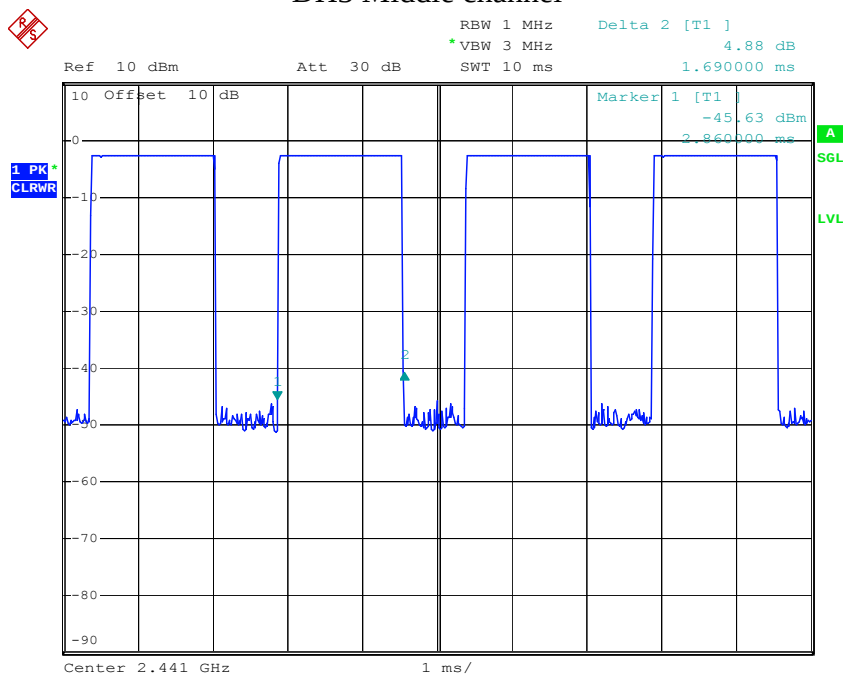
Comment A:
 Date: 27.APR.2019 17:17:22

DH3 Low channel



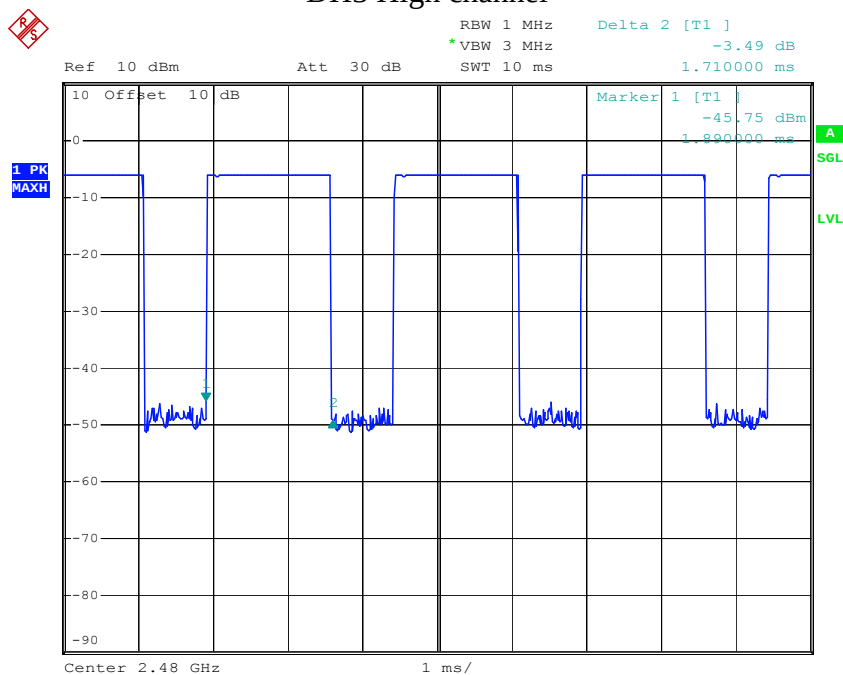
Comment A:
 Date: 27.APR.2019 16:38:05

DH3 Middle channel



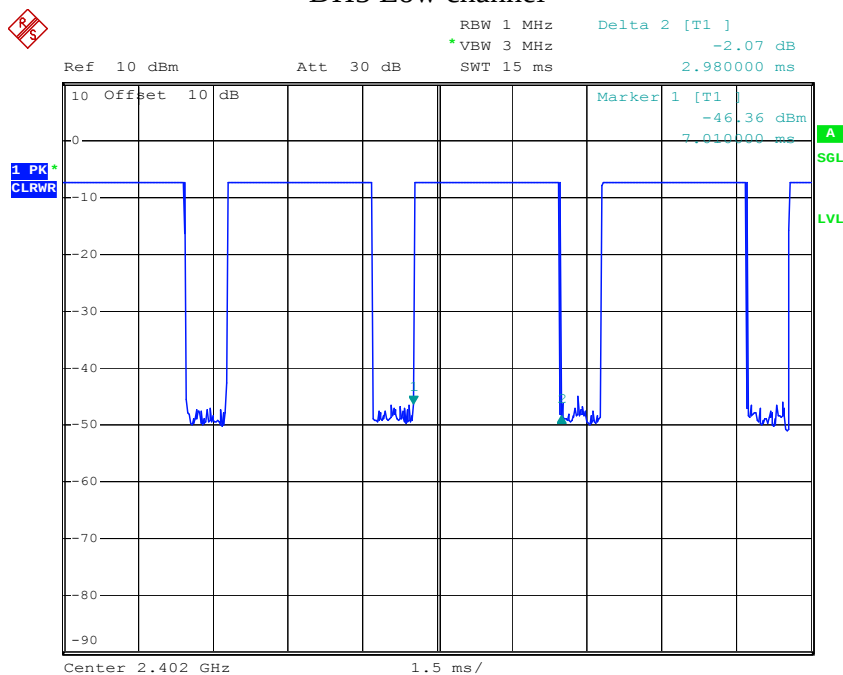
Comment A:
 Date: 27.APR.2019 16:50:10

DH3 High channel



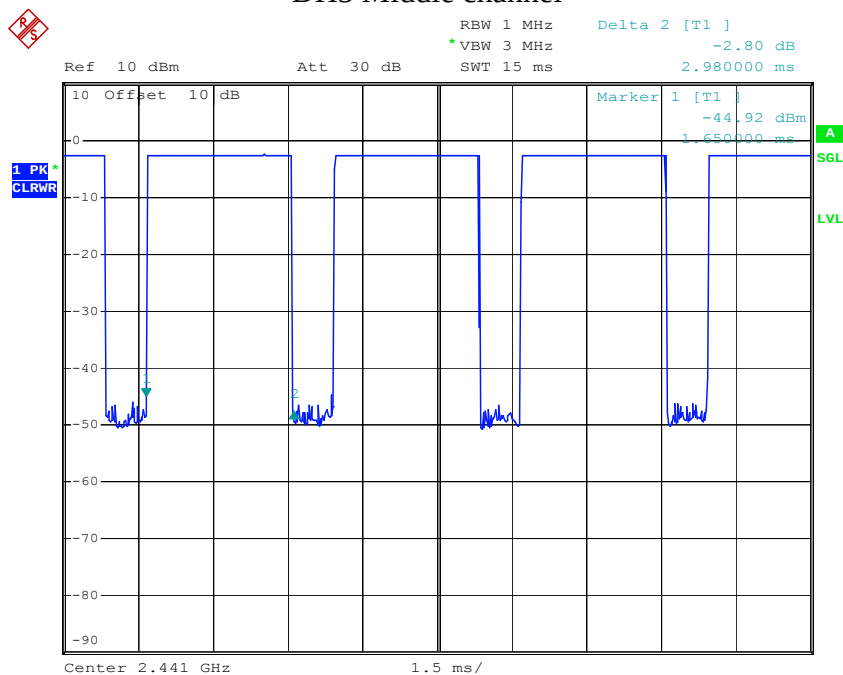
Comment A:
 Date: 27.APR.2019 17:18:20

DH5 Low channel



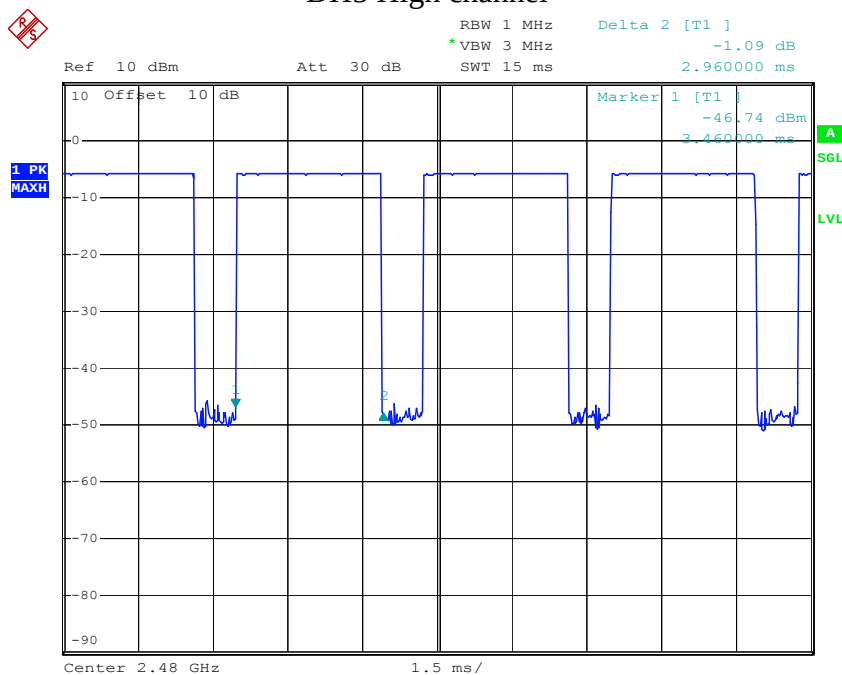
Comment A:
 Date: 27.APR.2019 16:39:08

DH5 Middle channel



Comment A:
 Date: 27.APR.2019 16:51:07

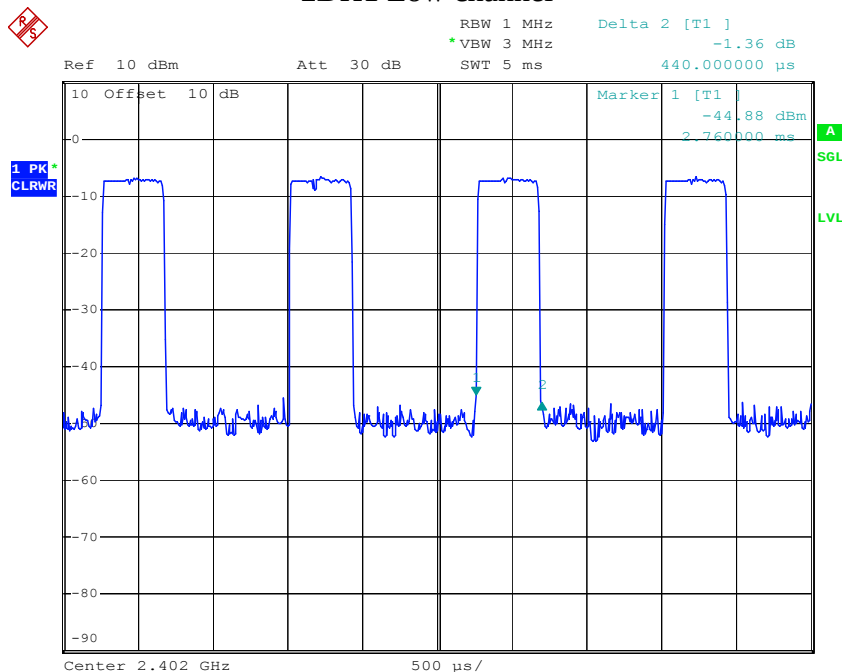
DH5 High channel



Comment A:
Date: 27.APR.2019 17:19:17

$\pi/4$ DQPSK Mode

2DH1 Low channel



Comment A:
Date: 27.APR.2019 16:40:40

shenzhen Accurate Technology Co., Ltd.

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

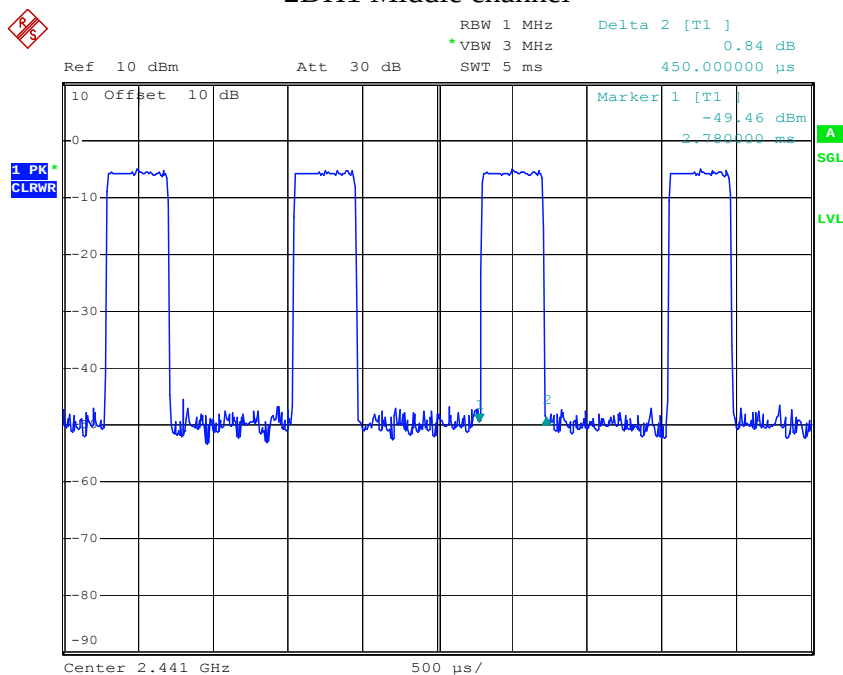
Tel: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

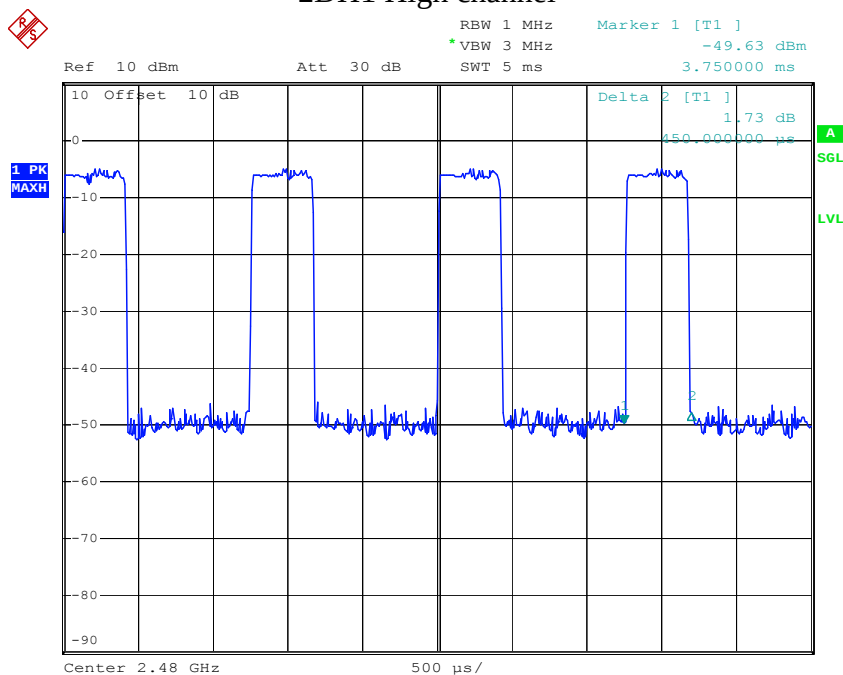
[Http://www.atc-lab.com](http://www.atc-lab.com)

2DH1 Middle channel



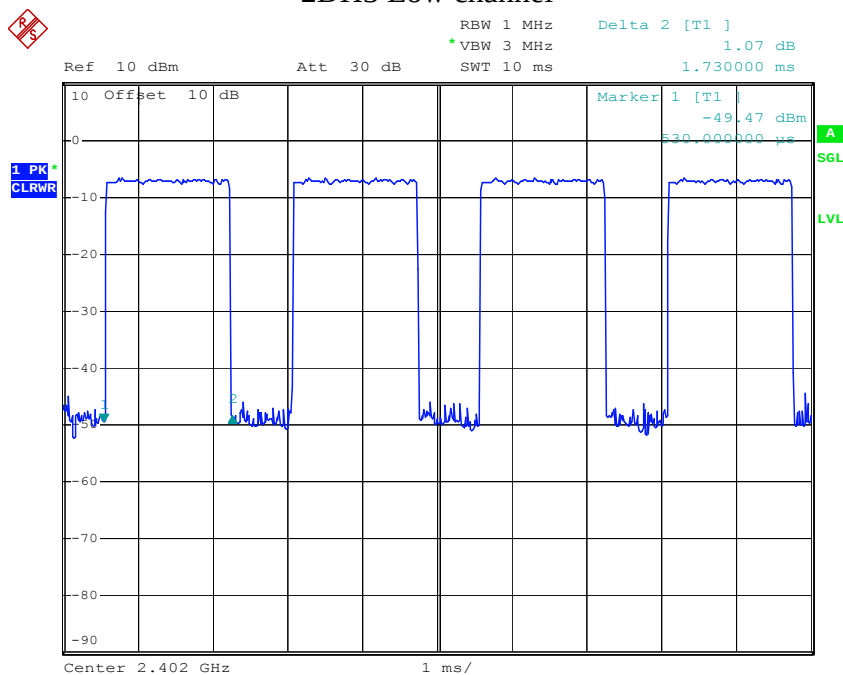
Comment A:
 Date: 27.APR.2019 16:52:06

2DH1 High channel



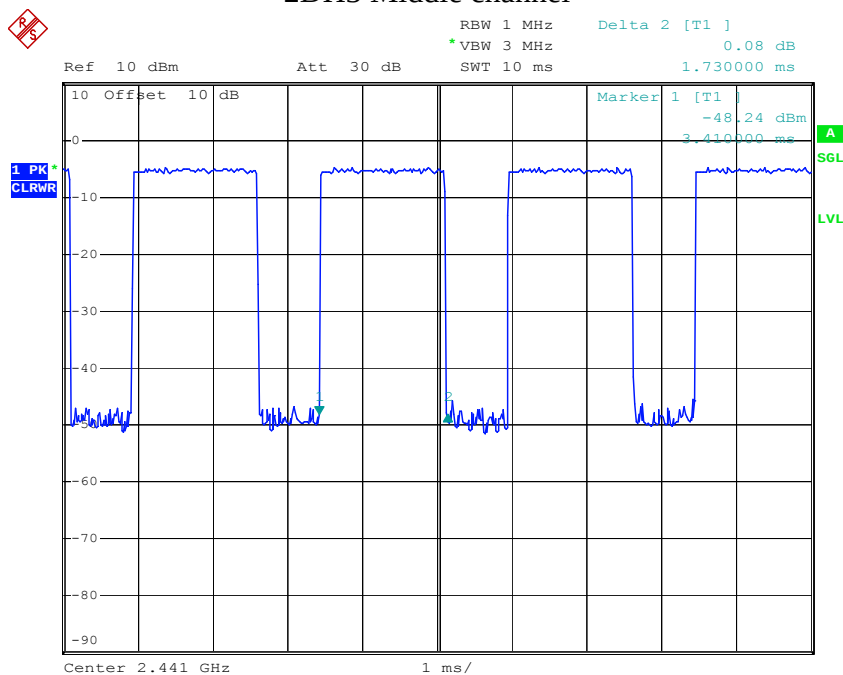
Comment A:
 Date: 27.APR.2019 17:15:09

2DH3 Low channel



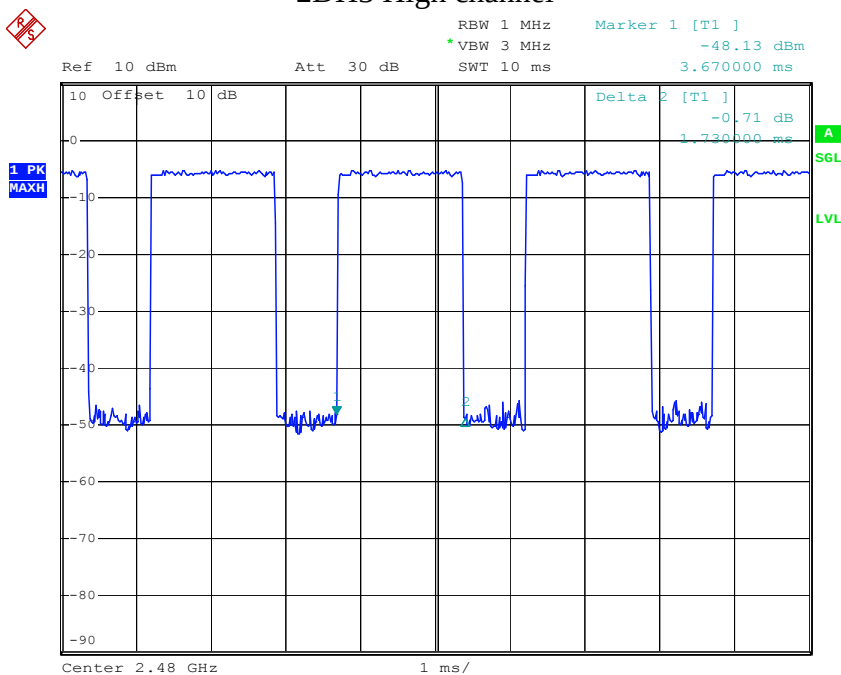
Comment A:
 Date: 27.APR.2019 16:41:38

2DH3 Middle channel



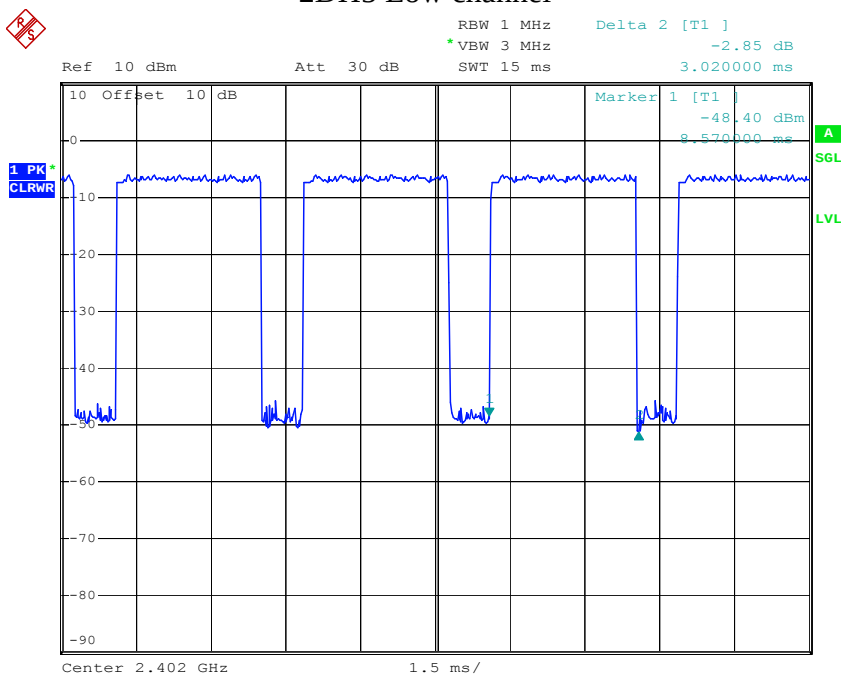
Comment A:
 Date: 27.APR.2019 16:52:59

2DH3 High channel



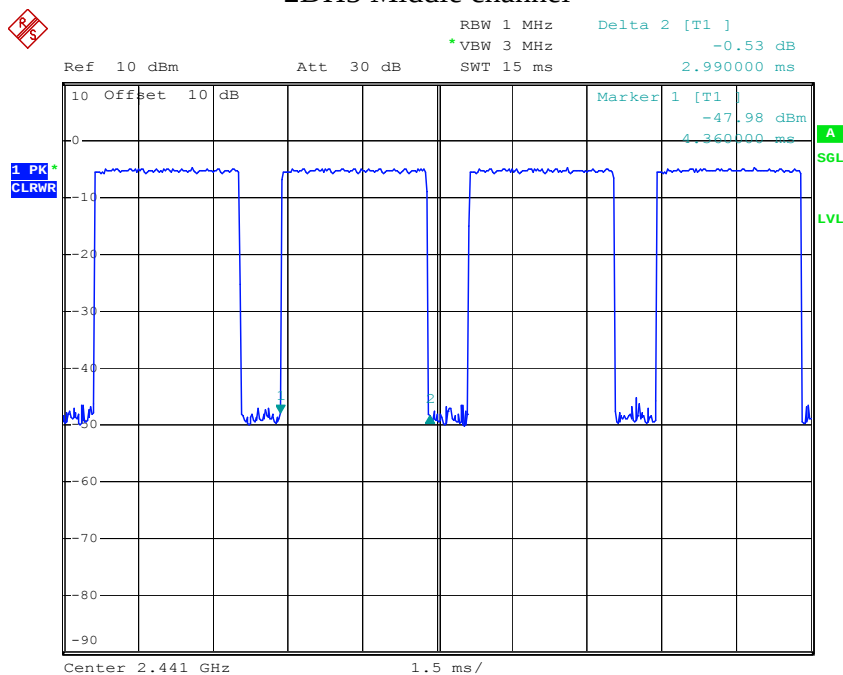
Comment A:
Date: 27.APR.2019 17:14:15

2DH5 Low channel



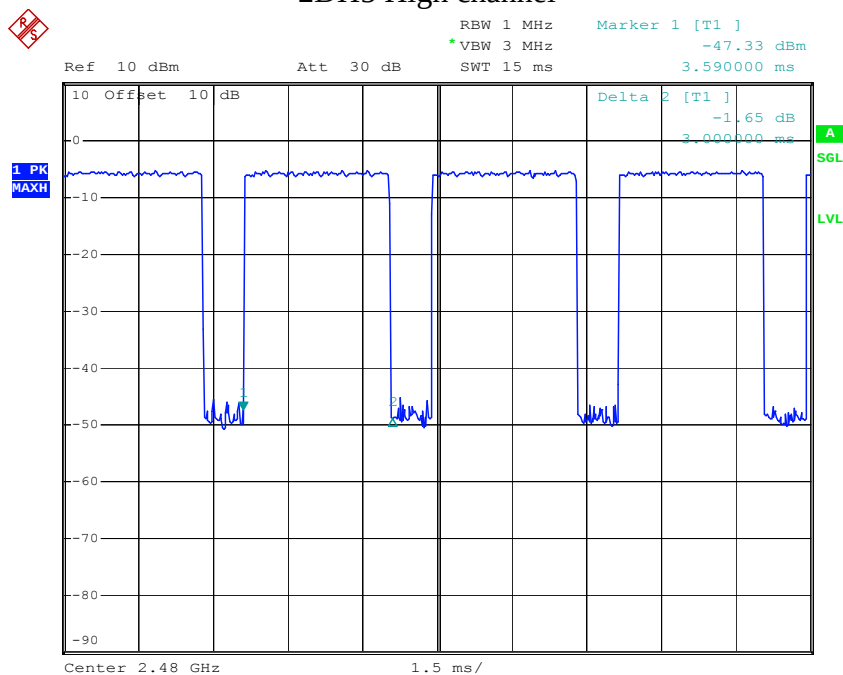
Comment A:
Date: 27.APR.2019 16:42:59

2DH5 Middle channel



Comment A:
Date: 27.APR.2019 16:54:03

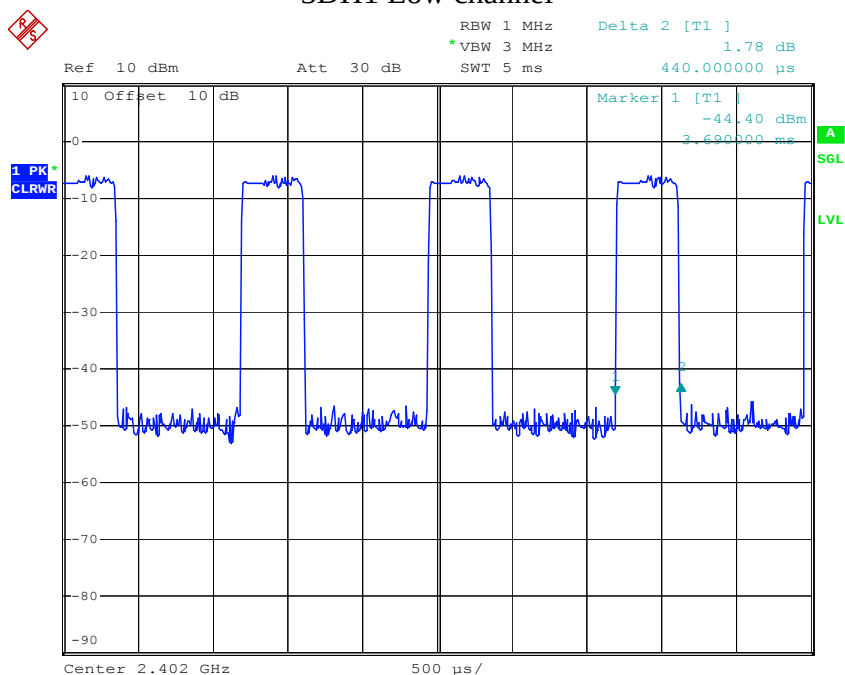
2DH5 High channel



Comment A:
Date: 27.APR.2019 17:13:18

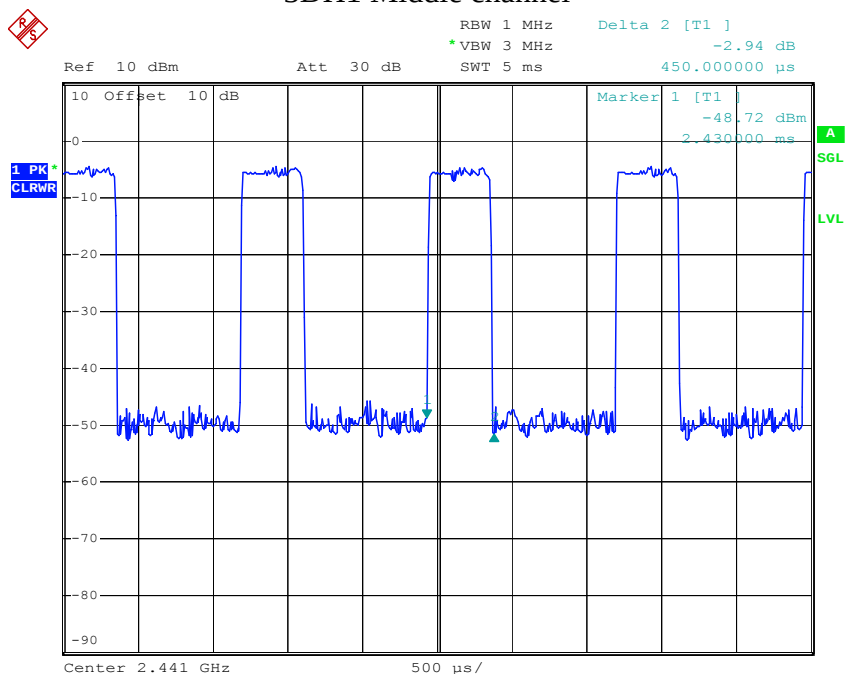
8DPSK Mode

3DH1 Low channel



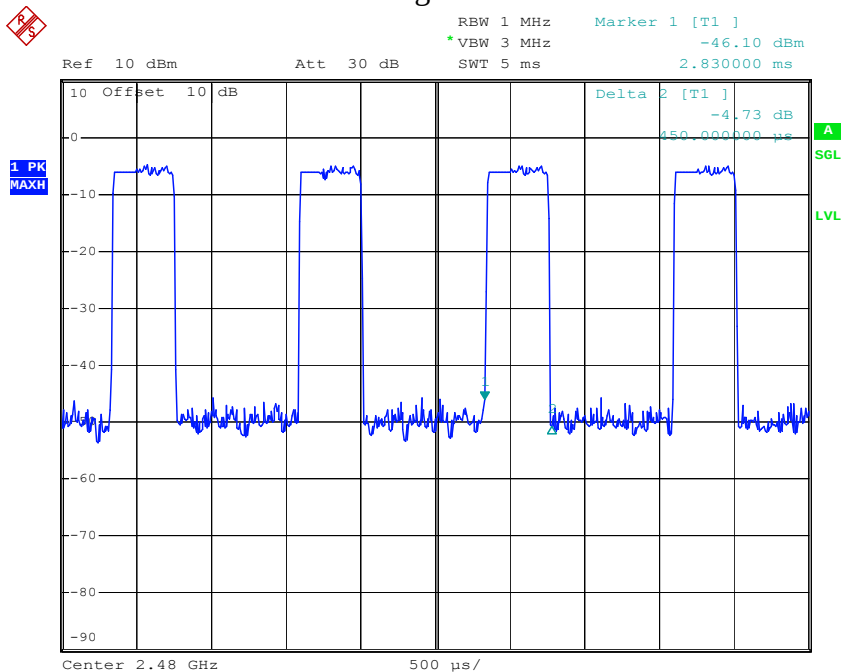
Comment A:
 Date: 27.APR.2019 16:43:54

3DH1 Middle channel

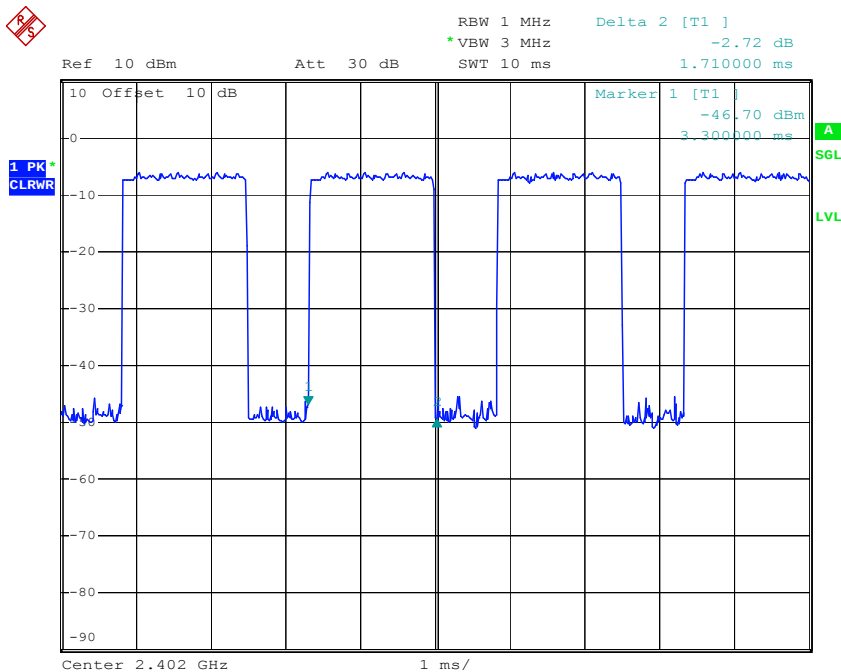


Comment A:
 Date: 27.APR.2019 16:55:04

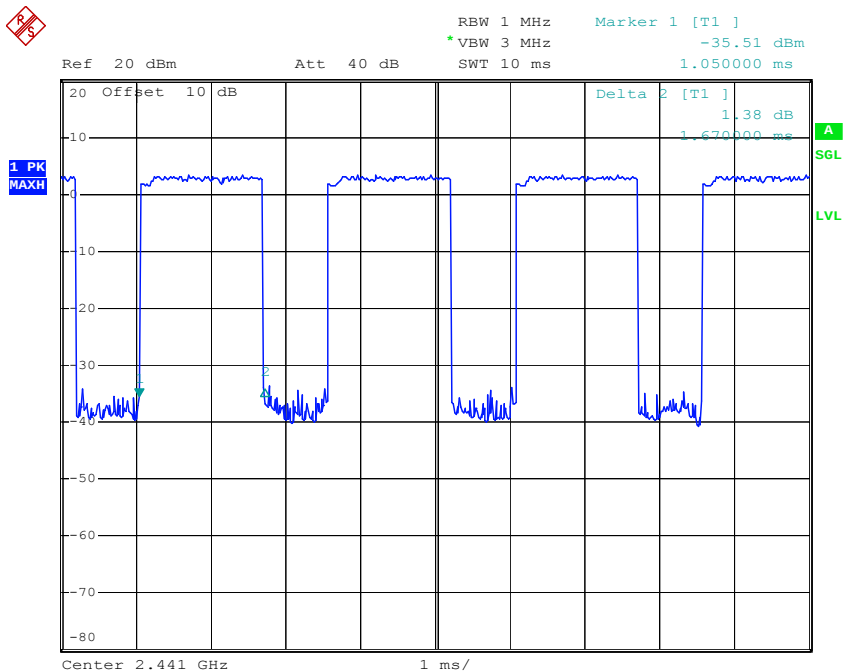
3DH1 High channel



3DH3 Low channel

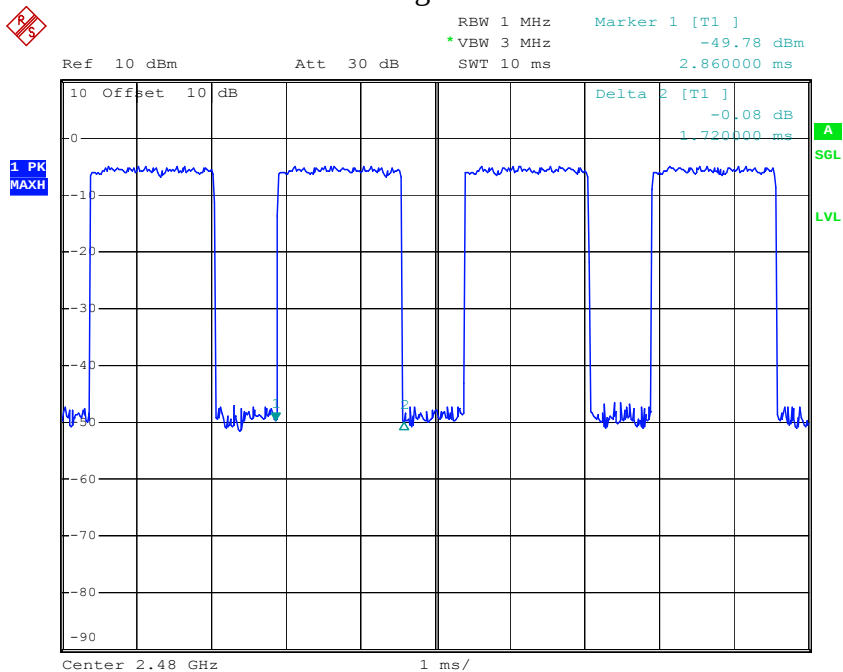


3DH3 Middle channel



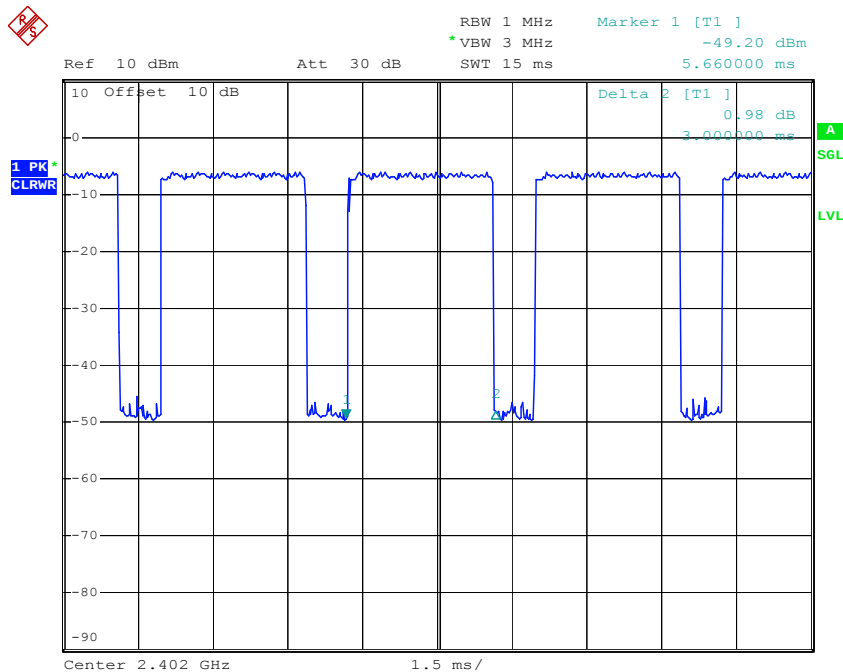
Comment A:
Date: 27.APR.2019 20:14:46

3DH3 High channel



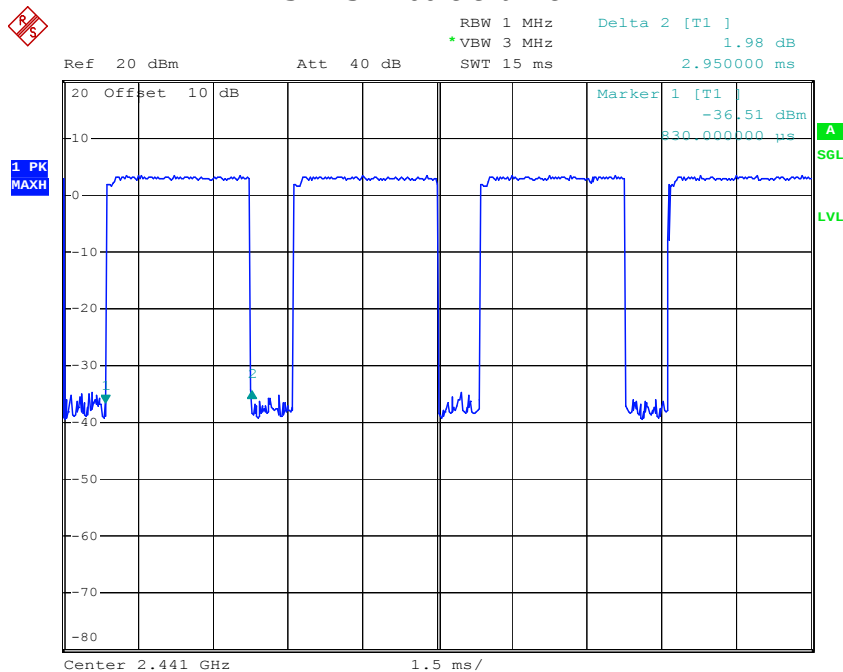
Comment A:
Date: 27.APR.2019 17:11:09

3DH5 Low channel



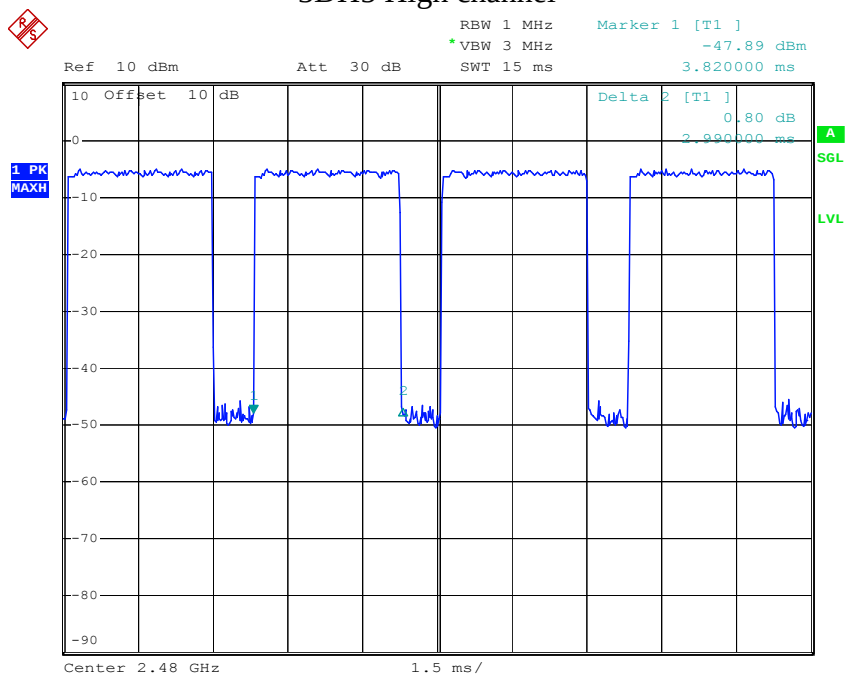
Comment A:
Date: 27.APR.2019 16:46:00

3DH5 Middle channel



Comment A:
Date: 27.APR.2019 20:14:17

3DH5 High channel



Comment A:
Date: 27.APR.2019 17:09:36

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: DISCOVERY)

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 10MHz for BDR mode

9.5.3. Set RBW of spectrum analyzer to 3MHz and VBW to 10MHz for EDR mode

9.5.4. Measurement the maximum peak output power.

9.6.Test Result

GFSK Mode

Frequency (MHz)	Maximum peak conducted output power (dBm)	Maximum peak conducted output power (W)	Limits dBm / W
2402	-2.18	0.000605	21 / 0.125
2441	-0.53	0.000885	21 / 0.125
2480	-2.73	0.000533	21 / 0.125

$\pi/4$ DQPSK Mode

Frequency (MHz)	Maximum peak conducted output power (dBm)	Maximum peak conducted output power (W)	Limits dBm / W
2402	-4.56	0.000350	21 / 0.125
2441	-2.73	0.000533	21 / 0.125
2480	-5.05	0.000313	21 / 0.125

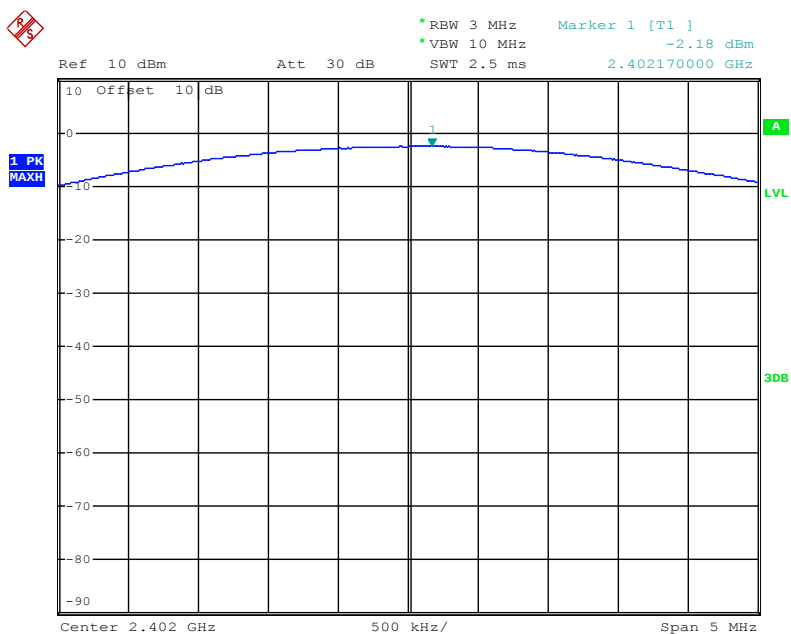
8DPSK Mode

Frequency (MHz)	Maximum peak conducted output power (dBm)	Maximum peak conducted output power (W)	Limits dBm / W
2402	-3.86	0.000411	21 / 0.125
2441	-2.18	0.000605	21 / 0.125
2480	-4.74	0.000336	21 / 0.125

The spectrum analyzer plots are attached as below.

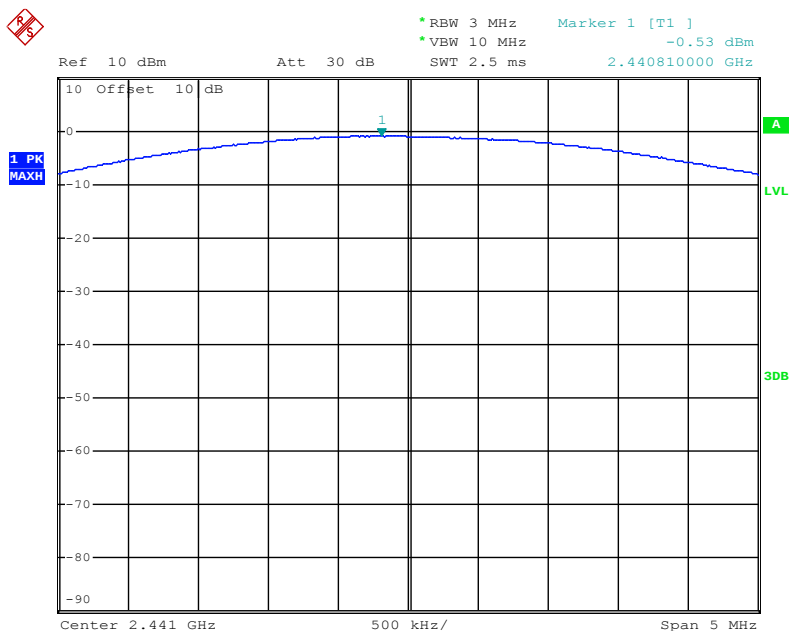
GFSK Mode

Low channel



Date: 28.APR.2019 08:57:15

Middle channel



Date: 28.APR.2019 08:58:01

shenzhen Accurate Technology Co., Ltd.

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

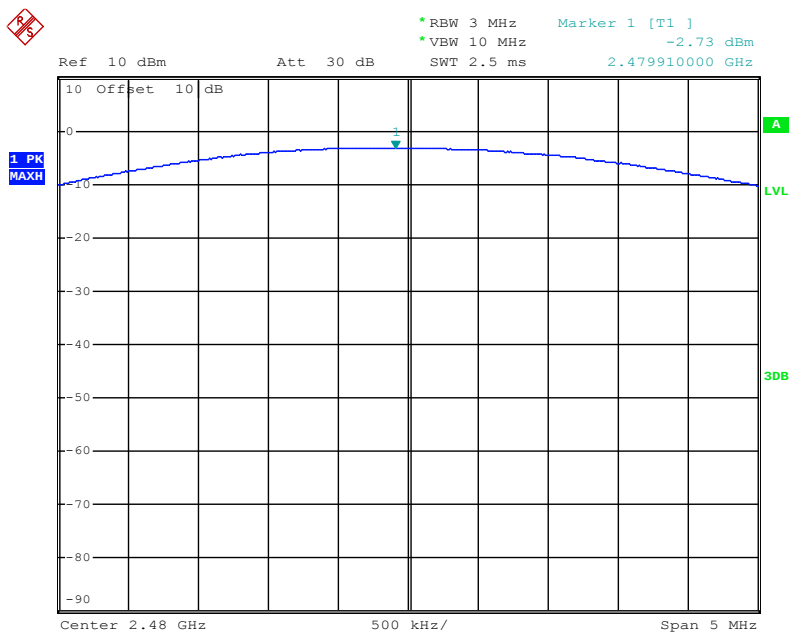
Tel: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

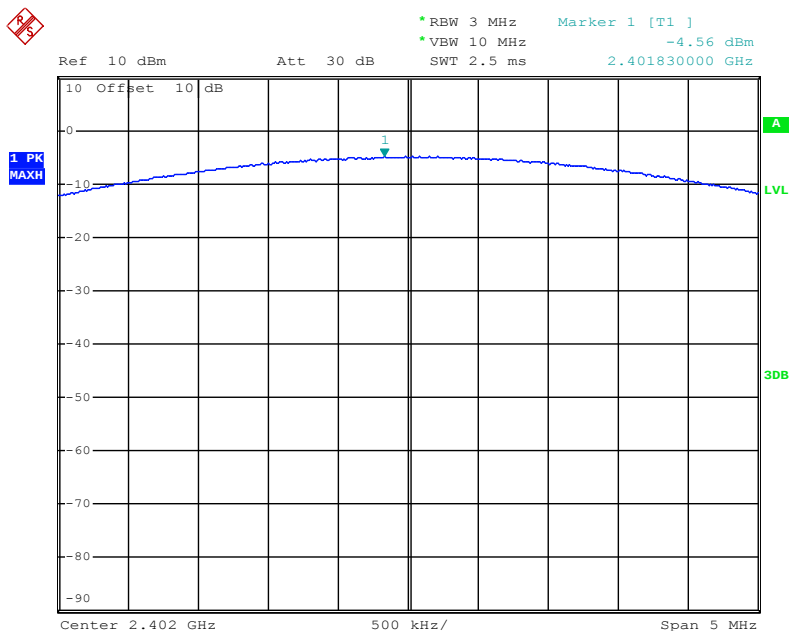
High channel



Date: 28.APR.2019 08:58:40

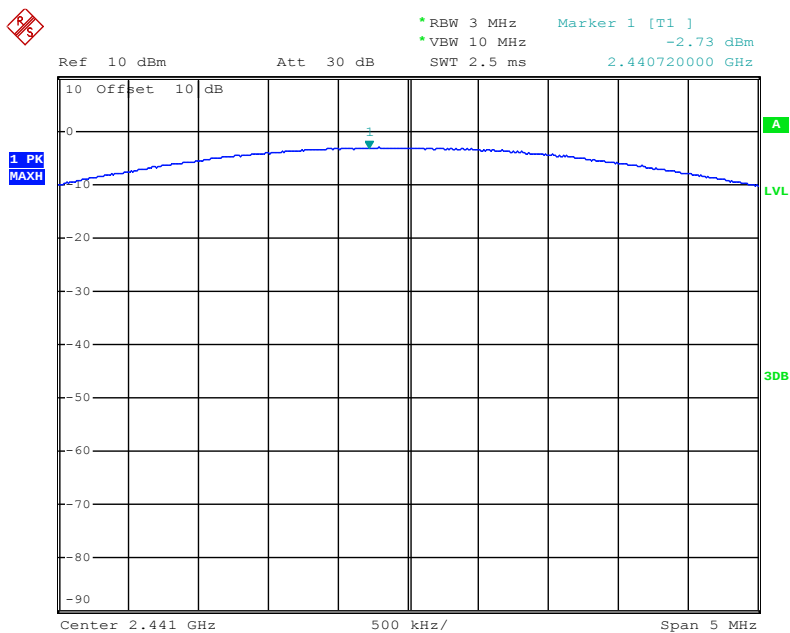
$\pi/4$ DQPSK Mode

Low channel



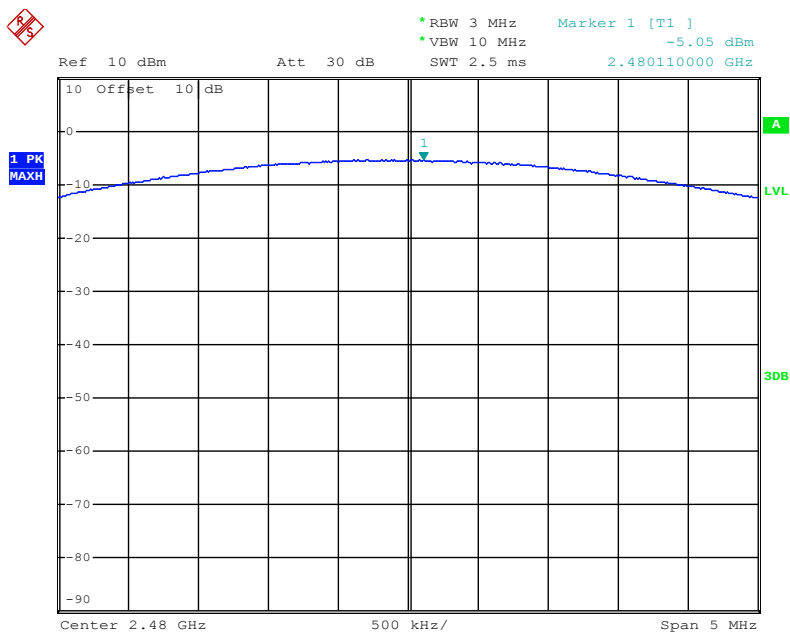
Date: 28.APR.2019 09:00:38

Middle channel



Date: 28.APR.2019 09:00:09

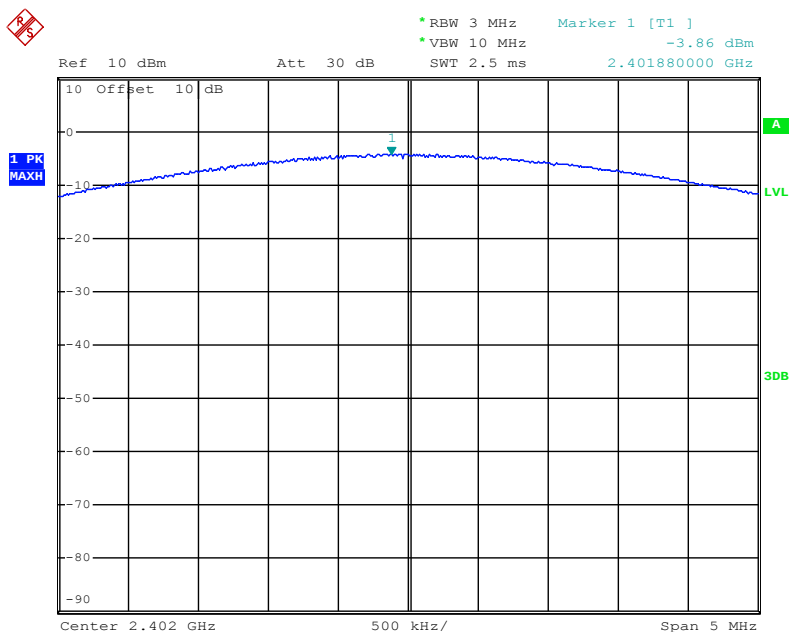
High channel



Date: 28.APR.2019 08:59:33

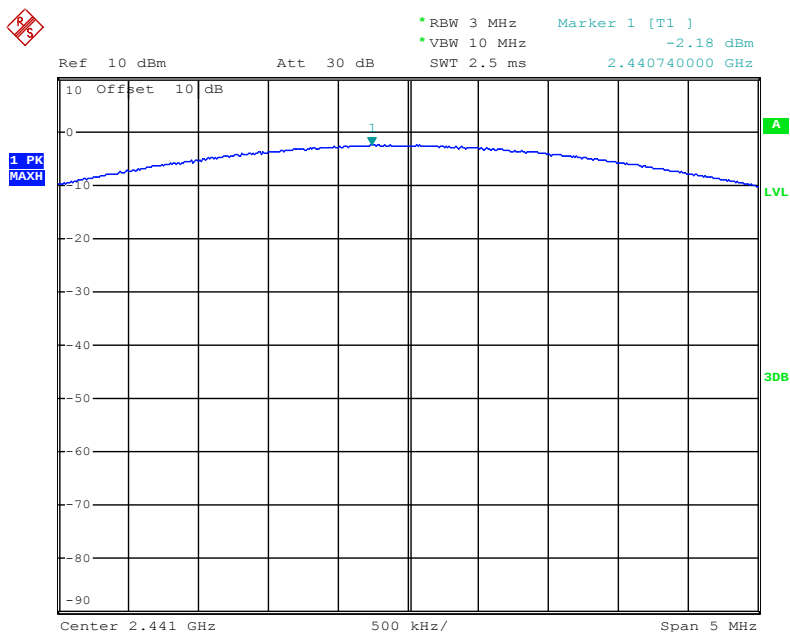
8DPSK Mode

Low channel



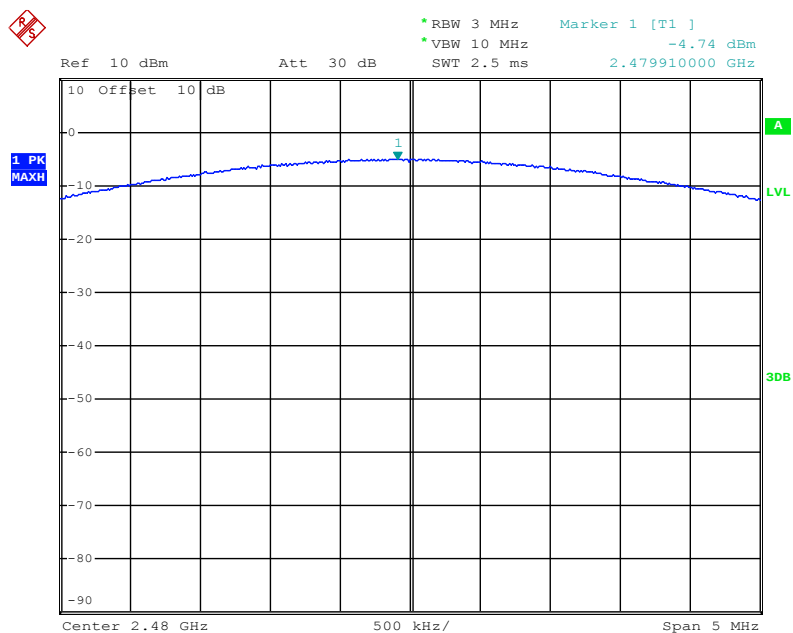
Date: 28.APR.2019 09:01:38

Middle channel



Date: 28.APR.2019 09:02:12

High channel

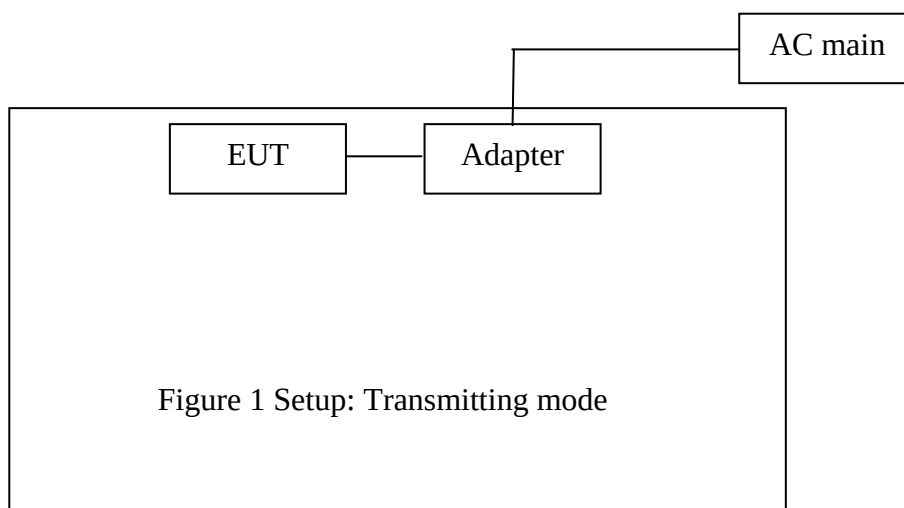


Date: 28.APR.2019 09:03:42

10.RADIATED EMISSION TEST

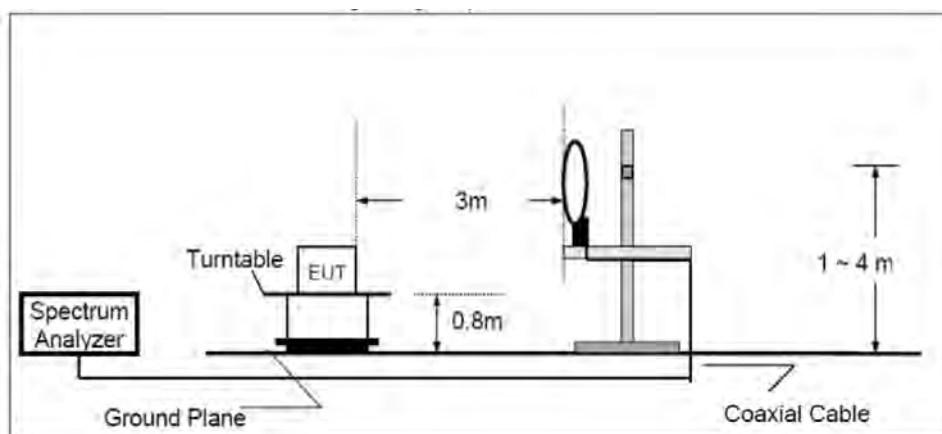
10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

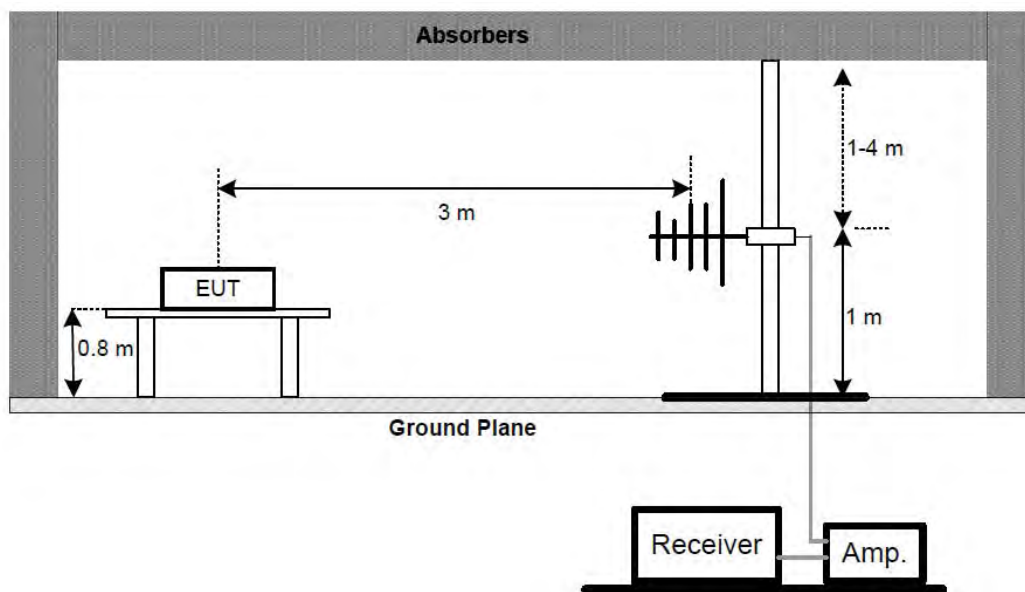


10.1.2.Semi-Anechoic Chamber Test Setup Diagram

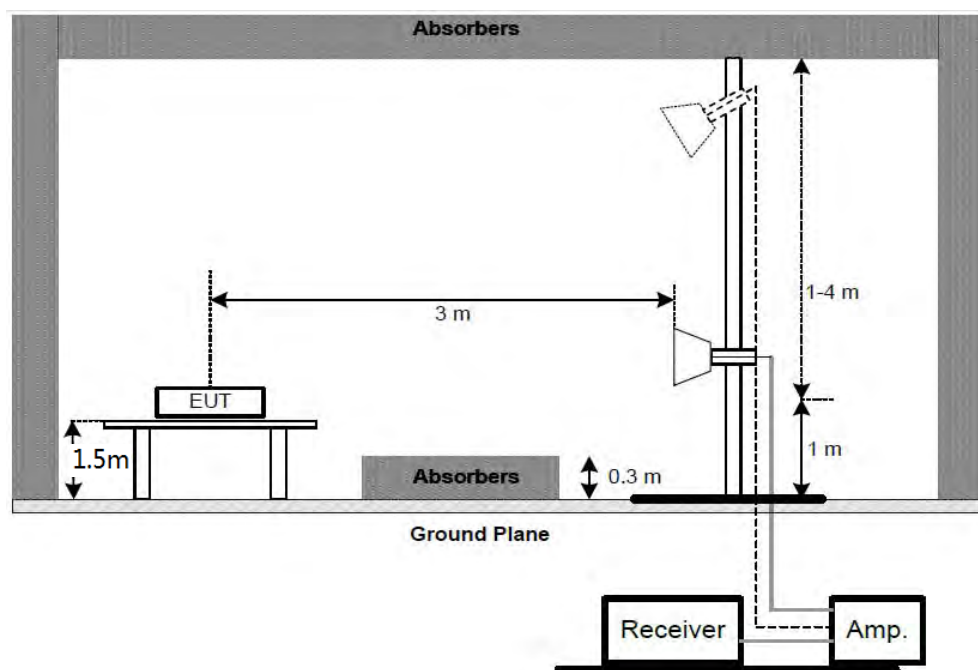
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



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



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
X.XX	48.69	-13.35	35.34	46	-10.66	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

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.The radiation emissions from 9kHz-30MHz and 18-25GHz are not reported, because the test values lower than the limits of 20dB.

30MHz-1000MHz test data



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.: FRANK2019 #958

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

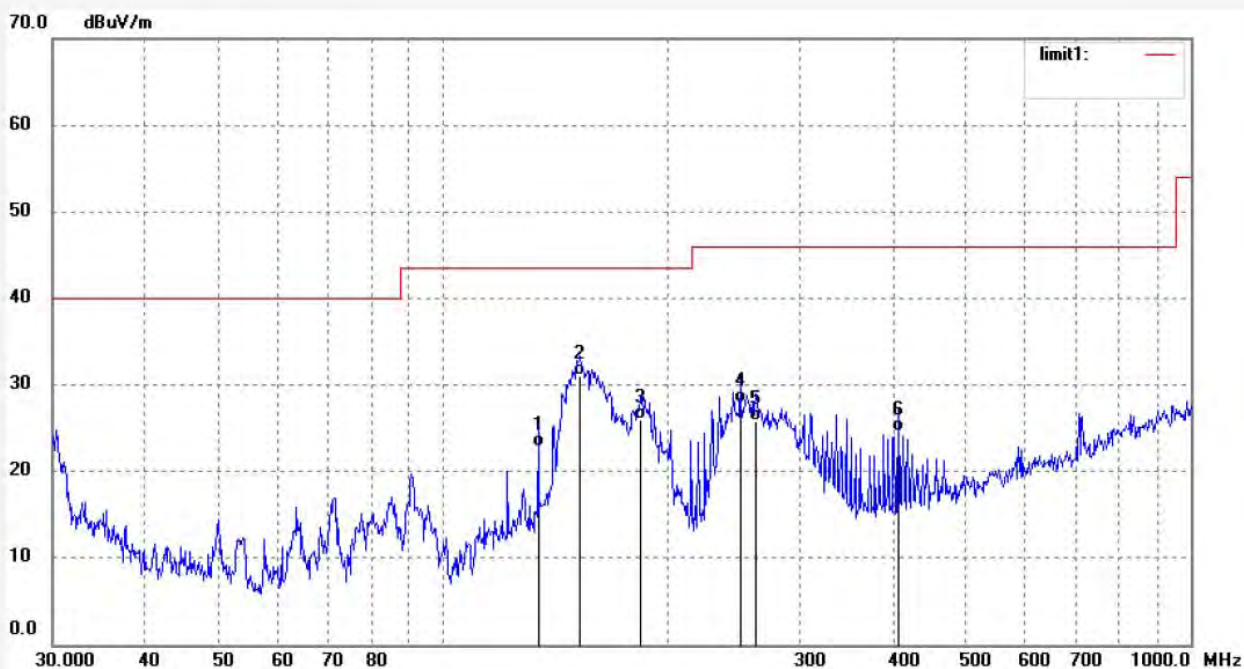
Date: 19/05/06/

Time: 9/22/48

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	134.0193	50.67	-27.83	22.84	43.50	-20.66	QP	100	195	
2	152.6254	58.97	-27.83	31.14	43.50	-12.36	QP	100	66	
3	183.8660	51.64	-25.65	25.99	43.50	-17.51	QP	100	115	
4	249.6074	51.63	-23.63	28.00	46.00	-18.00	QP	100	214	
5	262.1926	48.67	-22.91	25.76	46.00	-20.24	QP	100	95	
6	406.7819	42.78	-18.19	24.59	46.00	-21.41	QP	100	44	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #957

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 19/05/06/

Time: 9/21/59

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	51.97	-20.20	31.77	40.00	-8.23	QP	200	198	
2	31.4021	50.67	-20.55	30.12	40.00	-9.88	QP	200	85	
3	142.7692	55.98	-28.01	27.97	43.50	-15.53	QP	200	110	
4	161.4515	56.67	-26.91	29.76	43.50	-13.74	QP	200	33	
5	183.2211	53.32	-25.71	27.61	43.50	-15.89	QP	200	145	
6	456.7909	42.99	-17.06	25.93	46.00	-20.07	QP	200	56	



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.: FRANK2019 #960

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2441MHz

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 19/05/06/

Time: 9/34/13

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	151.0252	58.69	-27.96	30.73	43.50	-12.77	QP	200	92	
2	152.0902	57.62	-27.87	29.75	43.50	-13.75	QP	200	119	
3	159.7586	57.64	-27.09	30.55	43.50	-12.95	QP	200	312	
4	234.3098	49.78	-23.81	25.97	46.00	-20.03	QP	200	41	
5	254.0312	49.69	-23.41	26.28	46.00	-19.72	QP	200	65	
6	278.3308	48.67	-22.21	26.46	46.00	-19.54	QP	200	196	



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.: FRANK2019 #959

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2441MHz

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

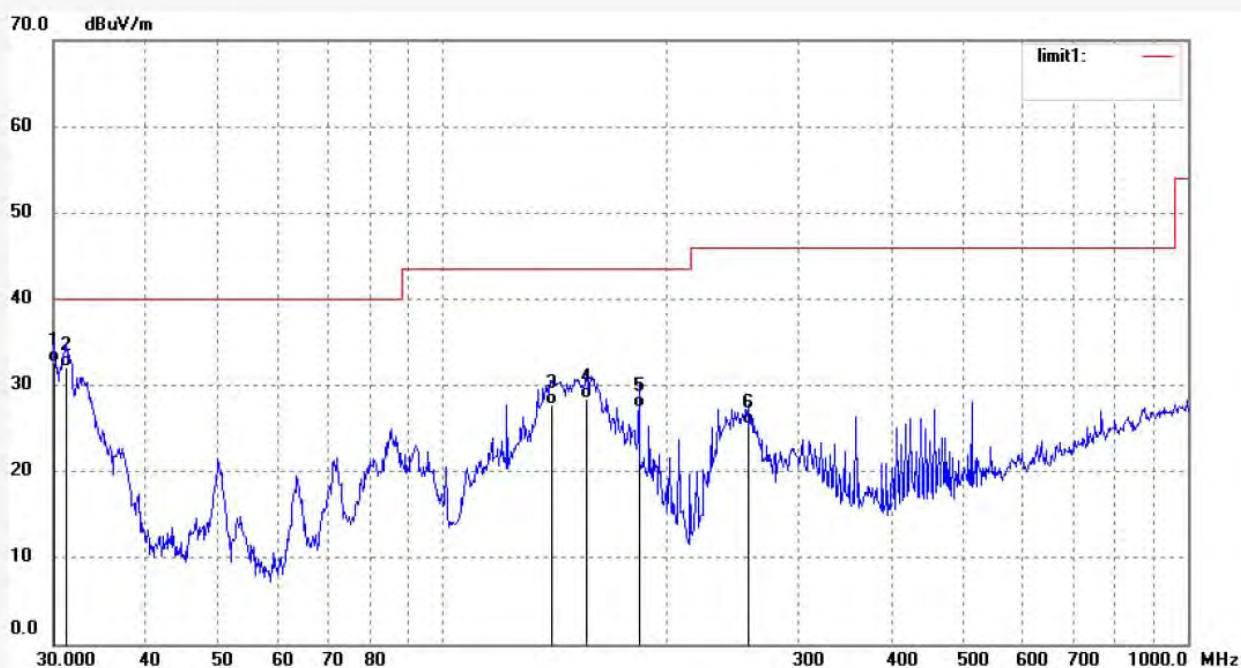
Date: 19/05/06/

Time: 9/33/11

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	52.78	-20.20	32.58	40.00	-7.42	QP	100	210	
2	31.1822	52.67	-20.49	32.18	40.00	-7.82	QP	100	55	
3	140.2829	55.68	-27.95	27.73	43.50	-15.77	QP	100	114	
4	155.8771	55.98	-27.52	28.46	43.50	-15.04	QP	100	201	
5	183.2211	53.02	-25.71	27.31	43.50	-16.19	QP	100	331	
6	256.7230	48.67	-23.25	25.42	46.00	-20.58	QP	100	196	

Job No.: FRANK2019 #961

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

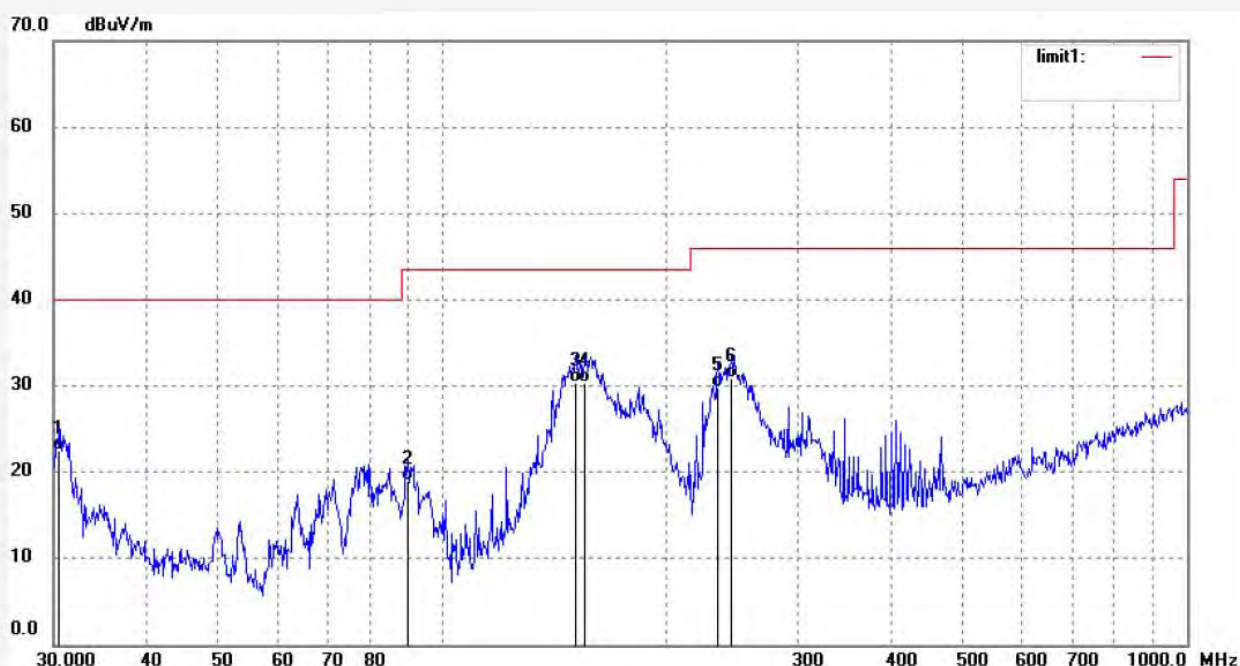
Date: 19/05/06/

Time: 9/38/16

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.5317	42.79	-20.33	22.46	40.00	-17.54	QP	200	221	
2	89.7866	46.34	-27.41	18.93	43.50	-24.57	QP	200	114	
3	151.0252	58.35	-27.96	30.39	43.50	-13.11	QP	200	56	
4	155.3305	57.98	-27.58	30.40	43.50	-13.10	QP	200	92	
5	234.3098	53.68	-23.81	29.87	46.00	-16.13	QP	200	129	
6	244.4003	54.65	-23.68	30.97	46.00	-15.03	QP	200	103	

Job No.: FRANK2019 #962

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

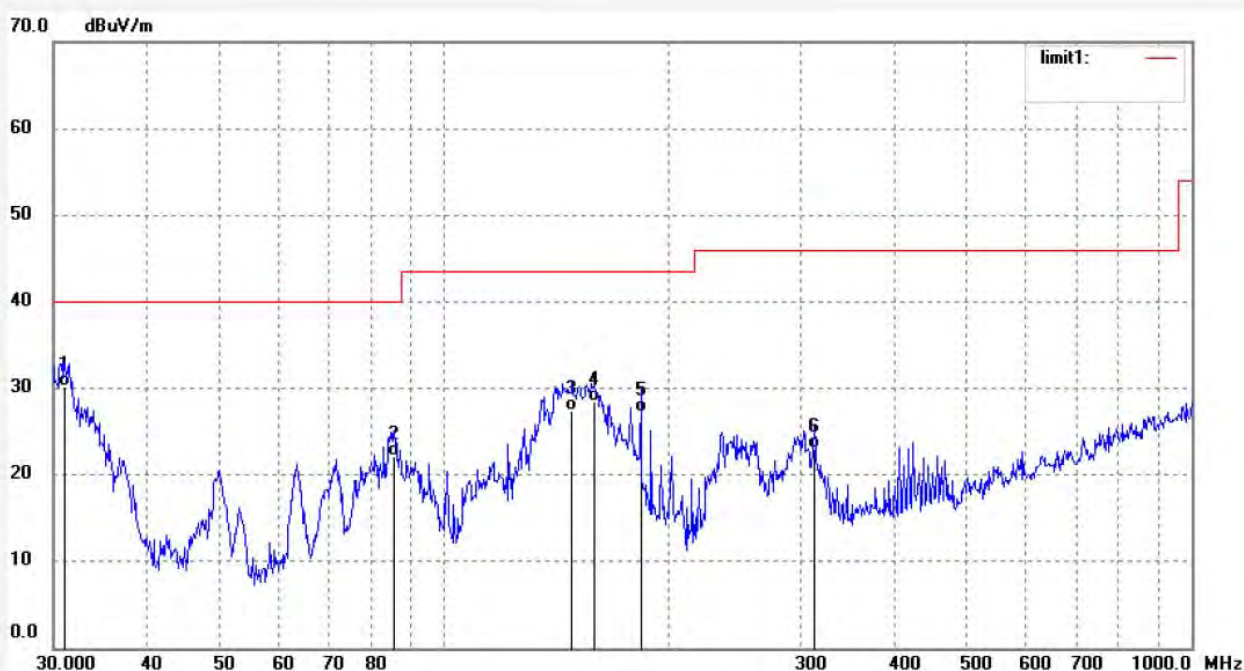
Date: 19/05/06/

Time: 9/39/12

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.0728	50.67	-20.47	30.20	40.00	-9.80	QP	100	21	
2	85.7776	49.67	-27.45	22.22	40.00	-17.78	QP	100	95	
3	148.3951	55.45	-28.05	27.40	43.50	-16.10	QP	100	221	
4	159.1982	55.62	-27.15	28.47	43.50	-15.03	QP	100	321	
5	183.2211	52.99	-25.71	27.28	43.50	-16.22	QP	100	216	
6	312.5482	43.90	-20.86	23.04	46.00	-22.96	QP	100	196	

1GHz-18GHz test data



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.: FRANK2019 #963

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz(GSFK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

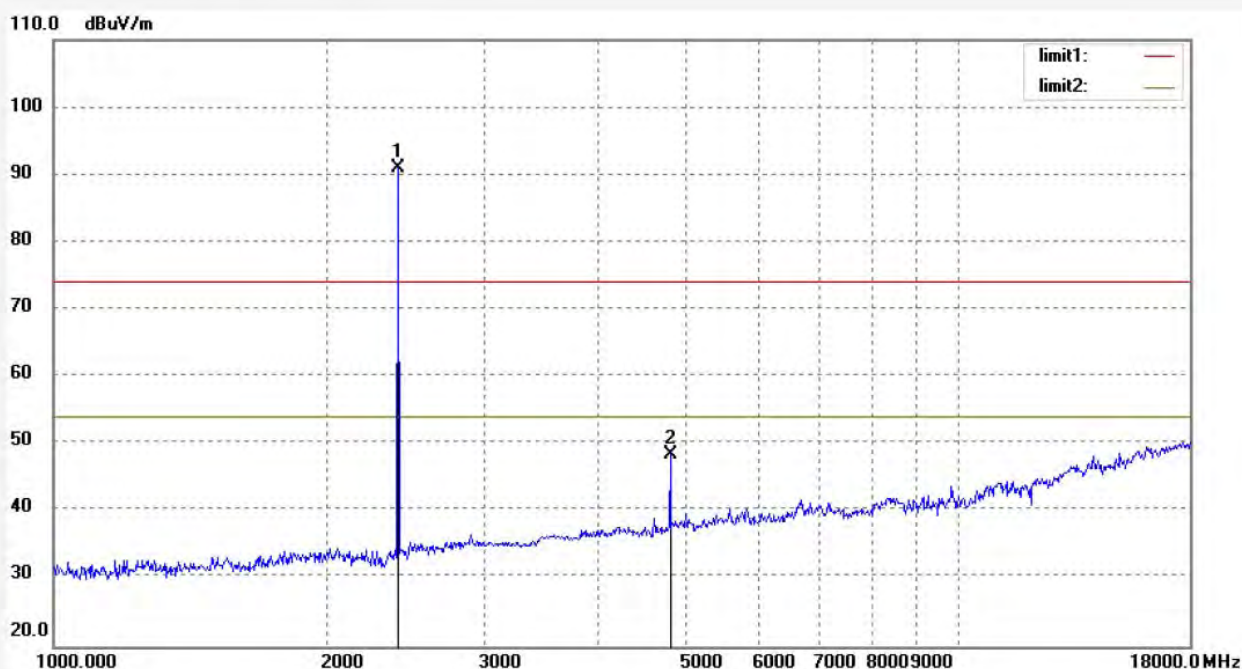
Date: 19/05/06/

Time: 9/53/00

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.199	97.20	-6.27	90.93			peak	150	89	
2	4804.328	47.42	1.00	48.42	74.00	-25.58	peak	150	144	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #964

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz(GSKF)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

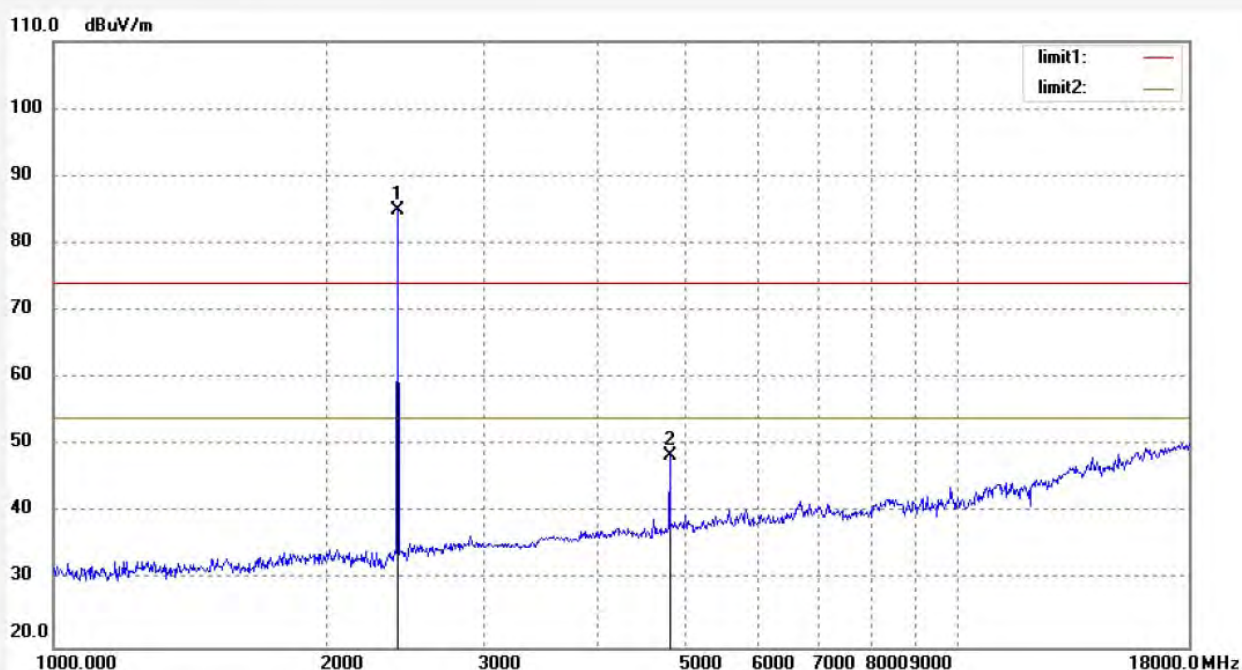
Date: 19/05/06/

Time: 9/56/12

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.199	91.20	-6.27	84.93			peak	150	255	
2	4804.328	47.42	1.00	48.42	74.00	-25.58	peak	150	198	



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.: FRANK2019 #966

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2441MHz(GSFK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

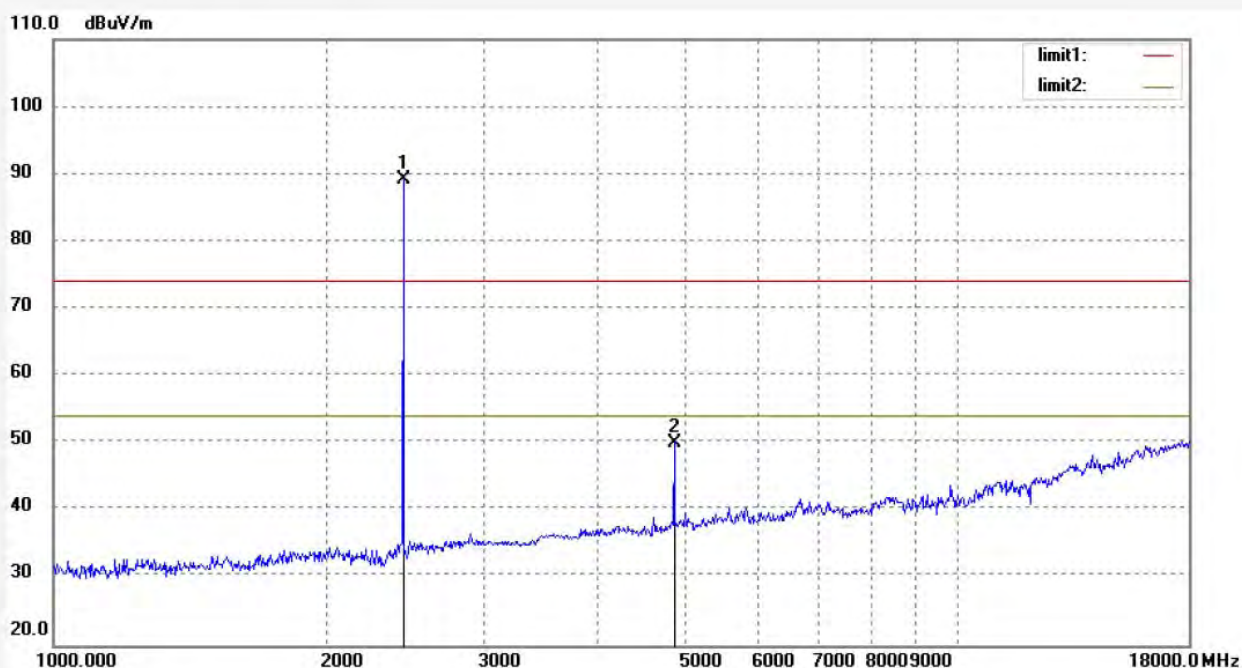
Date: 19/05/06/

Time: 10/05/34

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.407	95.30	-6.10	89.20			peak	250	225	
2	4880.917	48.76	1.25	50.01	74.00	-23.99	peak	250	136	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #965

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2441MHz(GSFK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

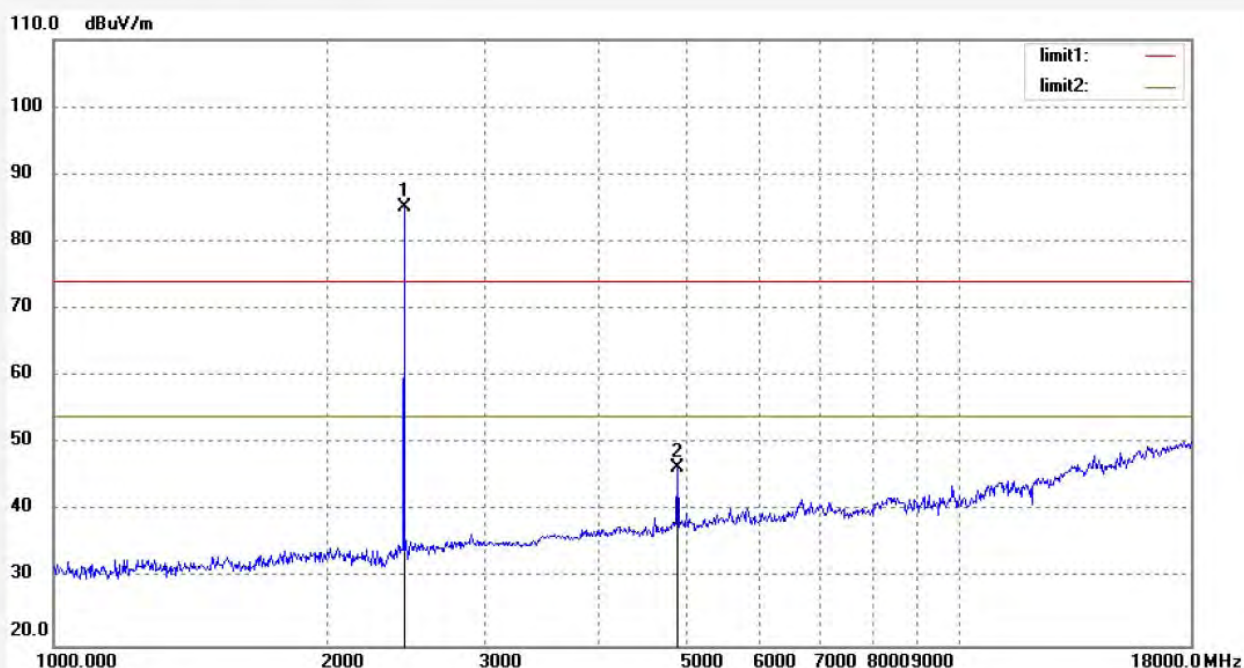
Date: 19/05/06/

Time: 10/01/21

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.407	91.30	-6.10	85.20			peak	150	58	
2	4880.917	45.15	1.36	46.51	74.00	-27.49	peak	150	196	

Job No.: FRANK2019 #967

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz(GSFK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

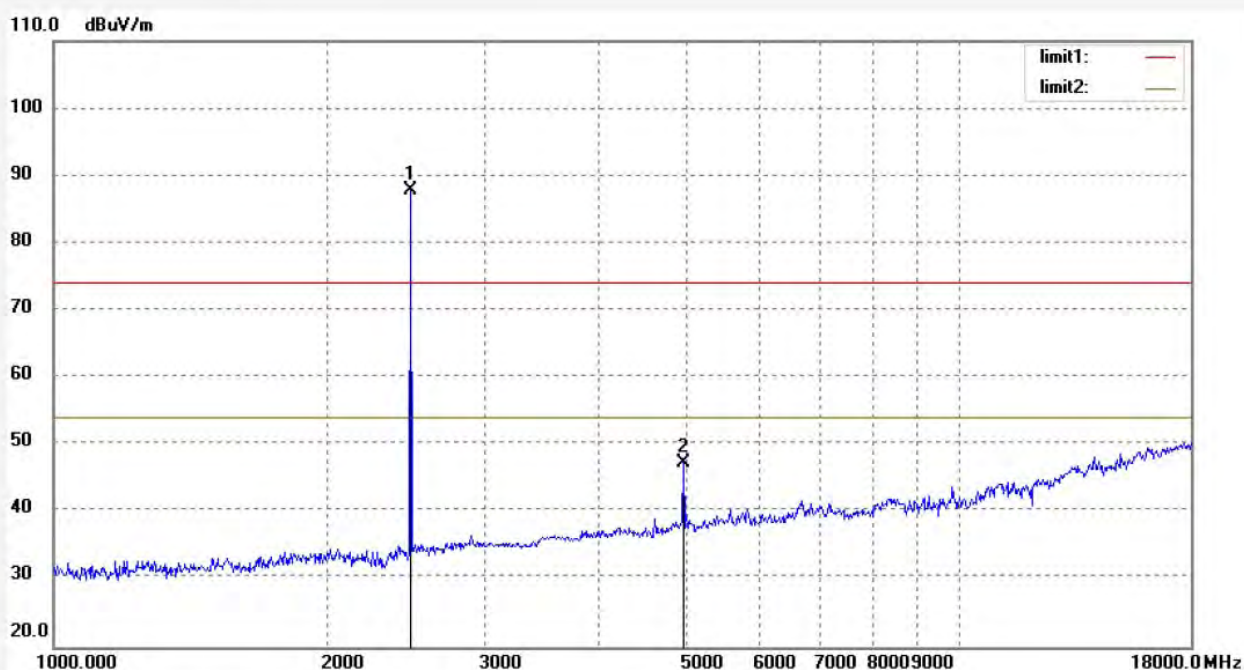
Date: 19/05/06/

Time: 10/09/14

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.238	94.78	-5.90	88.88			peak	250	116	
2	4960.546	45.70	1.68	47.38	74.00	-26.62	peak	250	162	

Job No.: FRANK2019 #969

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz(GSKF)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

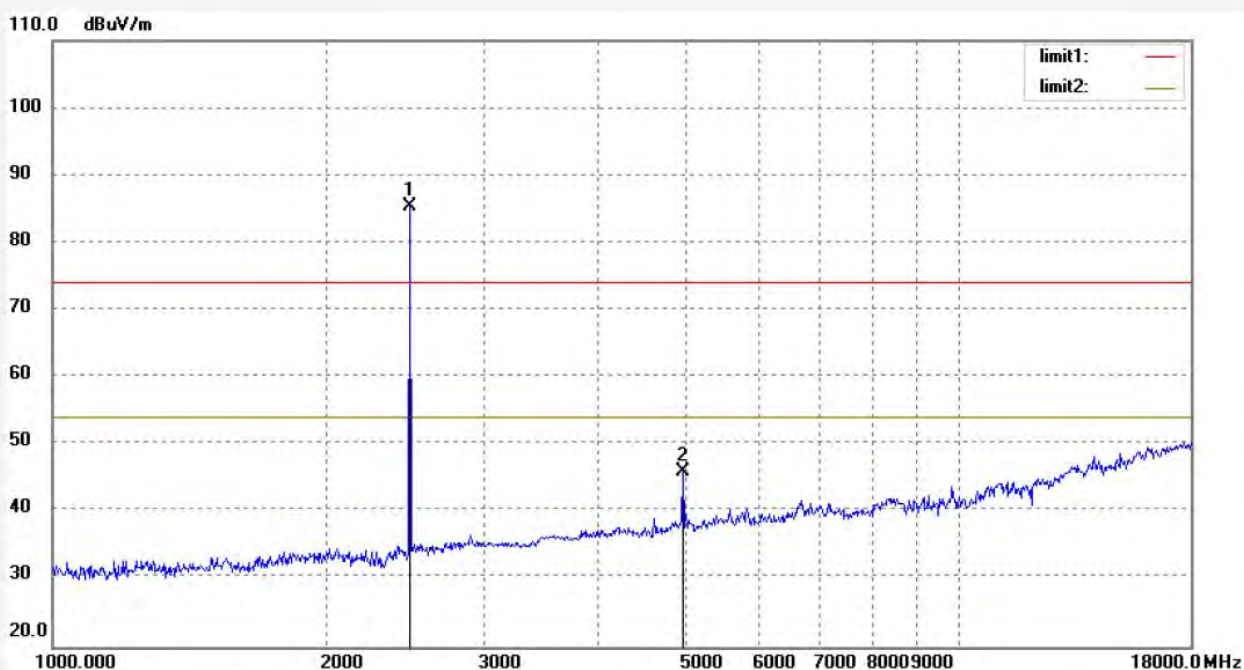
Date: 19/05/06/

Time: 10/14/32

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.238	91.28	-5.90	85.38			peak	150	22	
2	4960.546	44.20	1.68	45.88	74.00	-28.12	peak	150	196	

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: DISCOVERY)

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 were measured and recorded.

11.6. Test Result

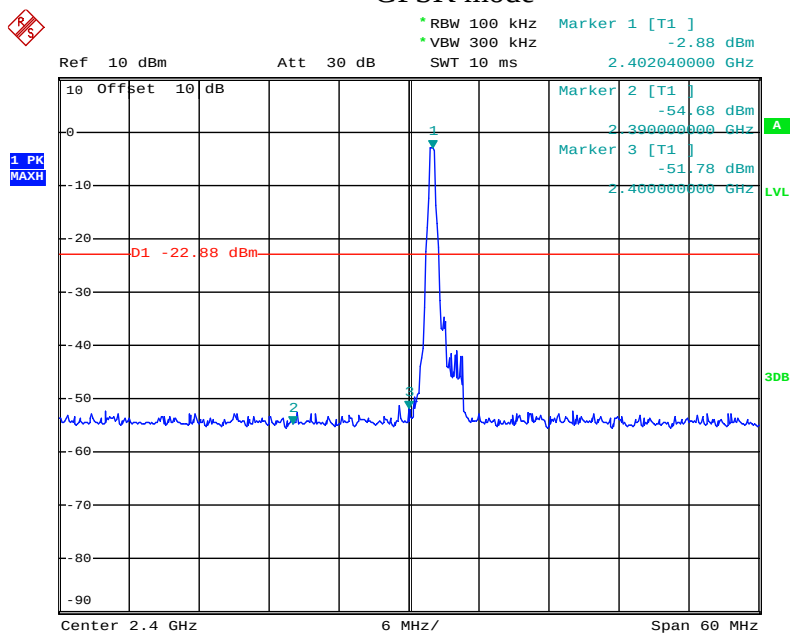
Non-hopping mode

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK mode		
2400.00	48.90	> 20dBc
2483.50	50.79	> 20dBc
$\pi/4$ DQPSK		
2400.00	48.45	> 20dBc
2483.5	48.00	> 20dBc
8DPSK mode		
2400.00	47.12	> 20dBc
2483.5	47.15	> 20dBc

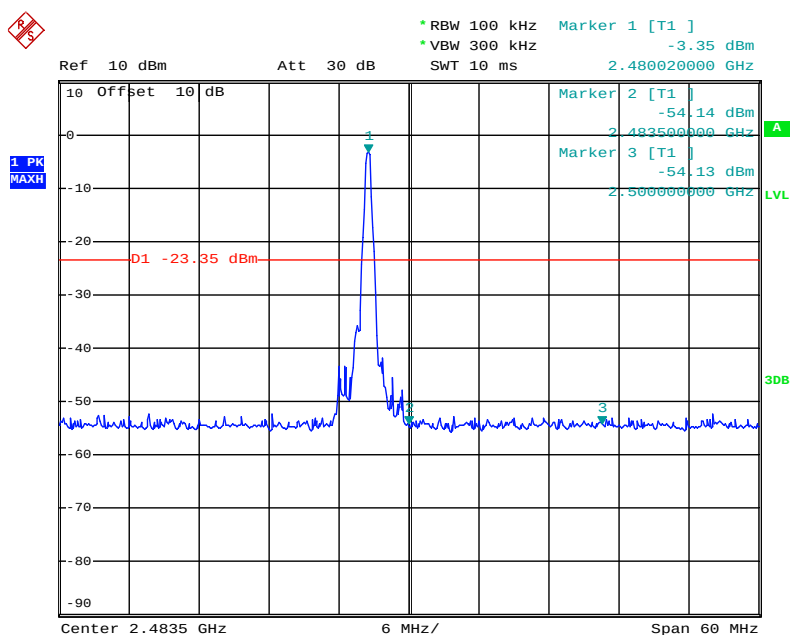
The spectrum analyzer plots are attached as below.

Non-hopping mode

GFSK mode

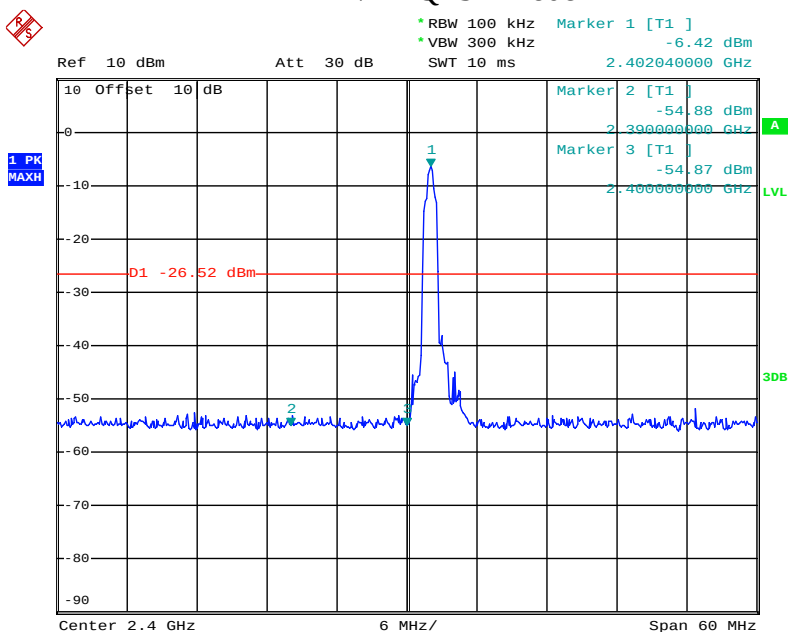


Date: 28.MAR.2019 09:11:32

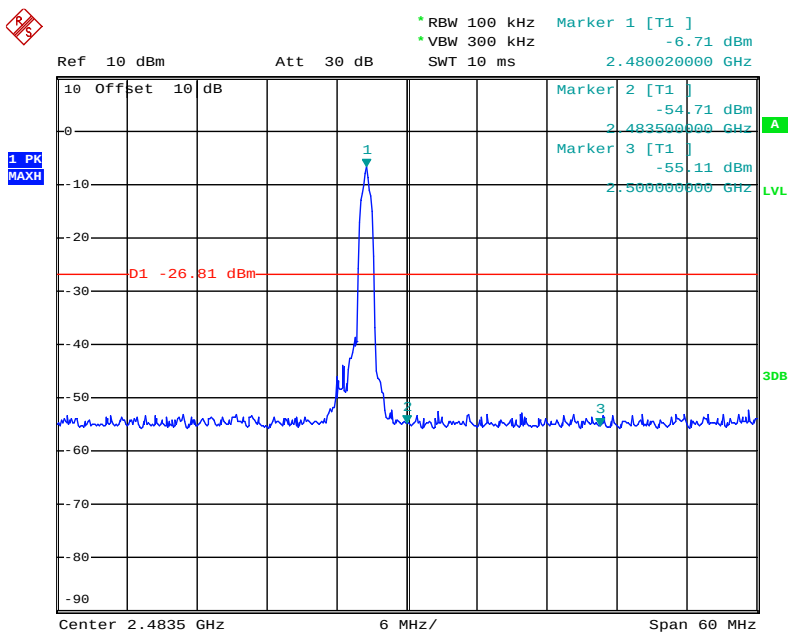


Date: 28.MAR.2019 09:10:10

$\pi/4$ DQPSK mode

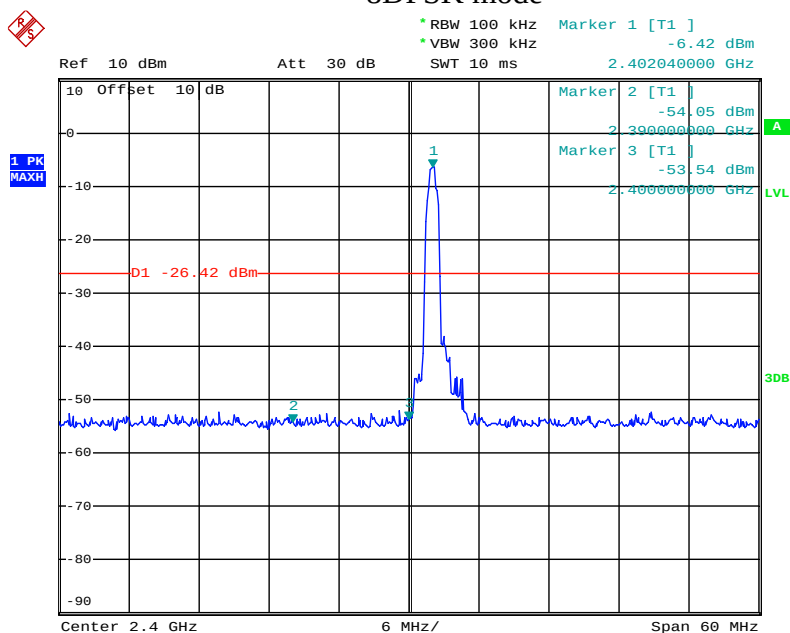


Date: 28.MAR.2019 09:08:16

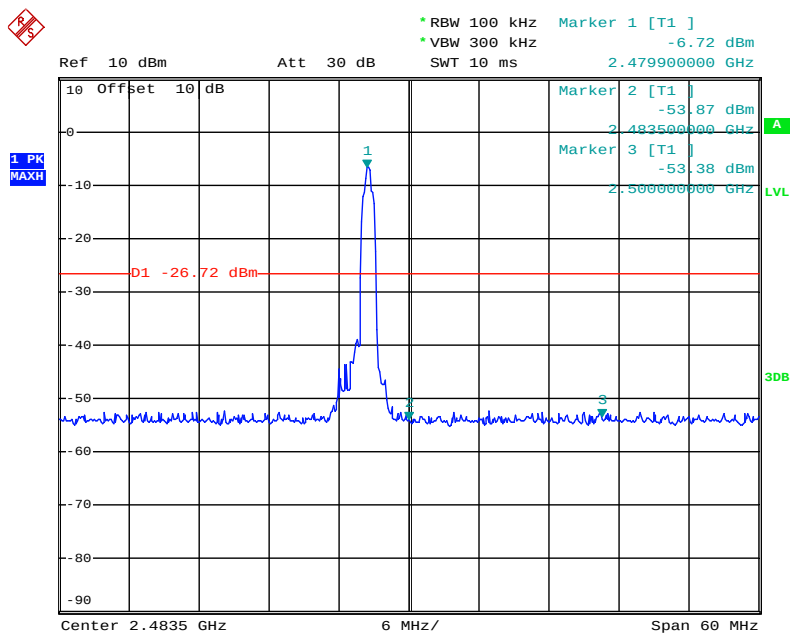


Date: 28.MAR.2019 09:09:16

8DPSK mode



Date: 28.MAR.2019 09:06:42



Date: 28.MAR.2019 09:05:32

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

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(GFSK)



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.: FRANK2019 #970

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz(GFSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

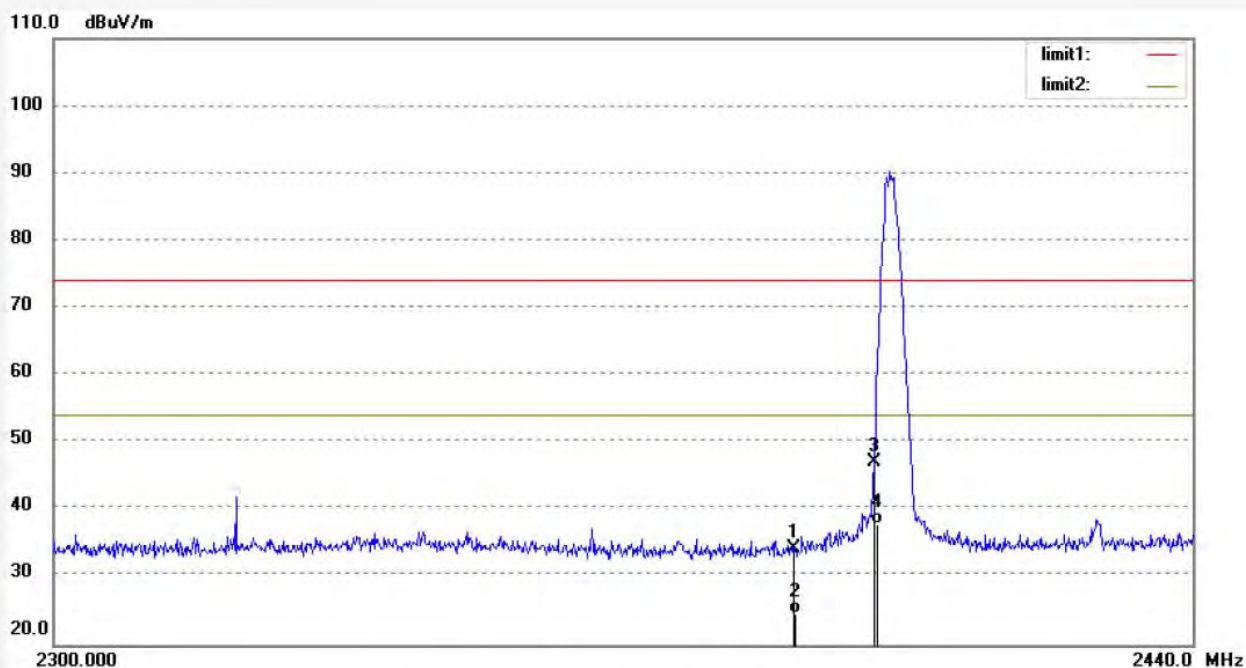
Date: 19/05/06/

Time: 10/18/24

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	40.57	-6.32	34.25	74.00	-39.75	peak	200	146	
2	2390.000	31.00	-6.32	24.68	54.00	-29.32	AVG	200	69	
3	2400.000	53.35	-6.27	47.08	74.00	-26.92	peak	200	218	
4	2400.000	44.11	-6.27	37.84	54.00	-16.16	AVG	250	103	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #971

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz(GFSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

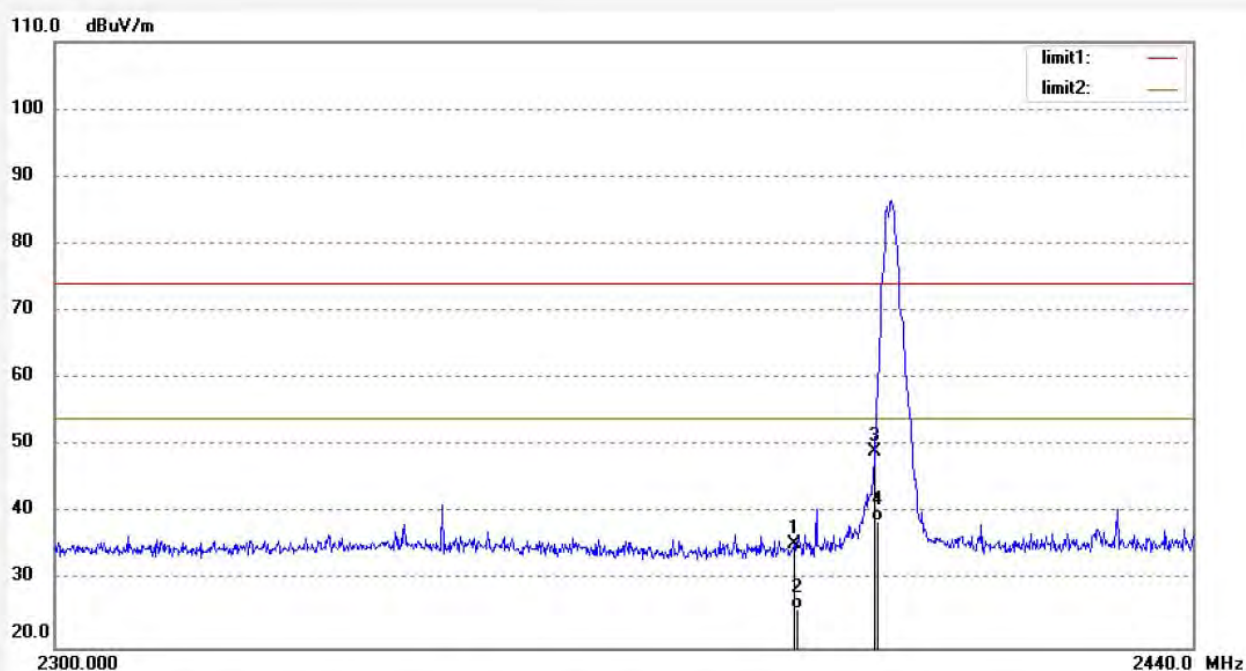
Date: 19/05/06/

Time: 10/22/15

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	41.77	-6.32	35.45	74.00	-38.55	peak	150	69	
2	2390.000	32.12	-6.32	25.80	54.00	-28.20	AVG	150	116	
3	2400.000	55.42	-6.27	49.15	74.00	-24.85	peak	150	103	
4	2400.000	45.14	-6.27	38.87	54.00	-15.13	AVG	150	54	

Job No.: FRANK2019 #981

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz(GFSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

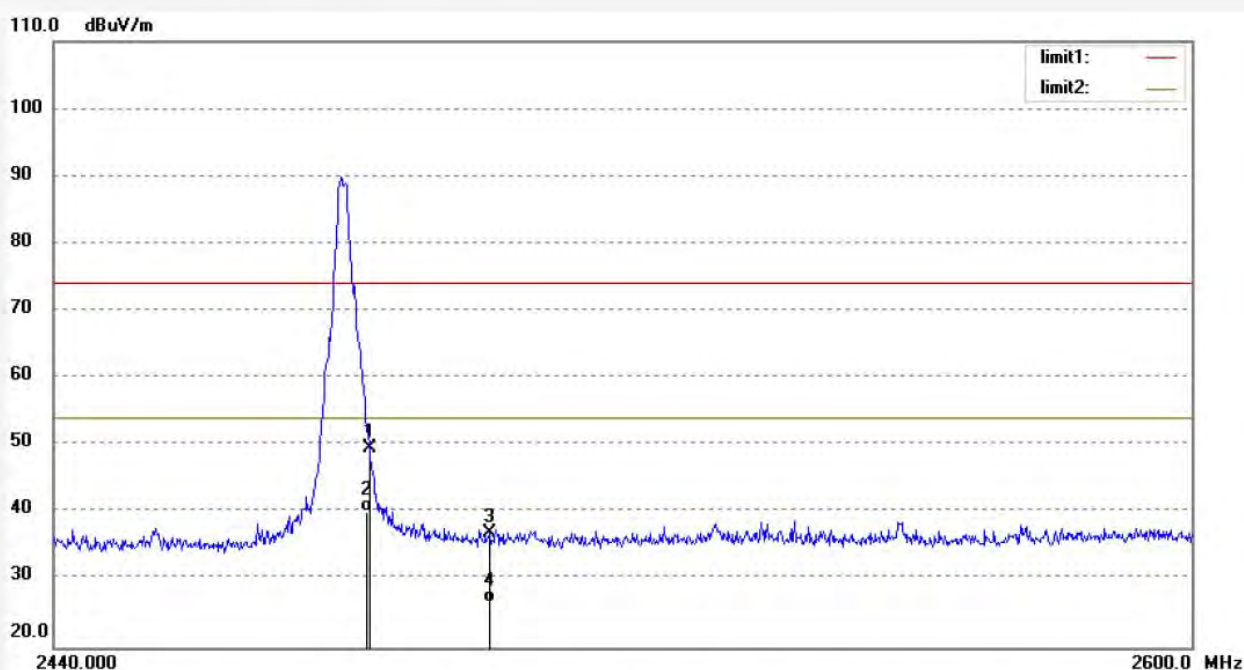
Date: 19/05/06/

Time: 11/06/02

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	55.44	-5.89	49.55	74.00	-24.45	peak	200	102	
2	2483.500	46.12	-5.89	40.23	54.00	-13.77	AVG	200	311	
3	2500.000	42.75	-5.81	36.94	74.00	-37.06	peak	200	201	
4	2500.000	32.48	-5.81	26.67	54.00	-27.33	AVG	200	312	

Job No.: FRANK2019 #980

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz(GFSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

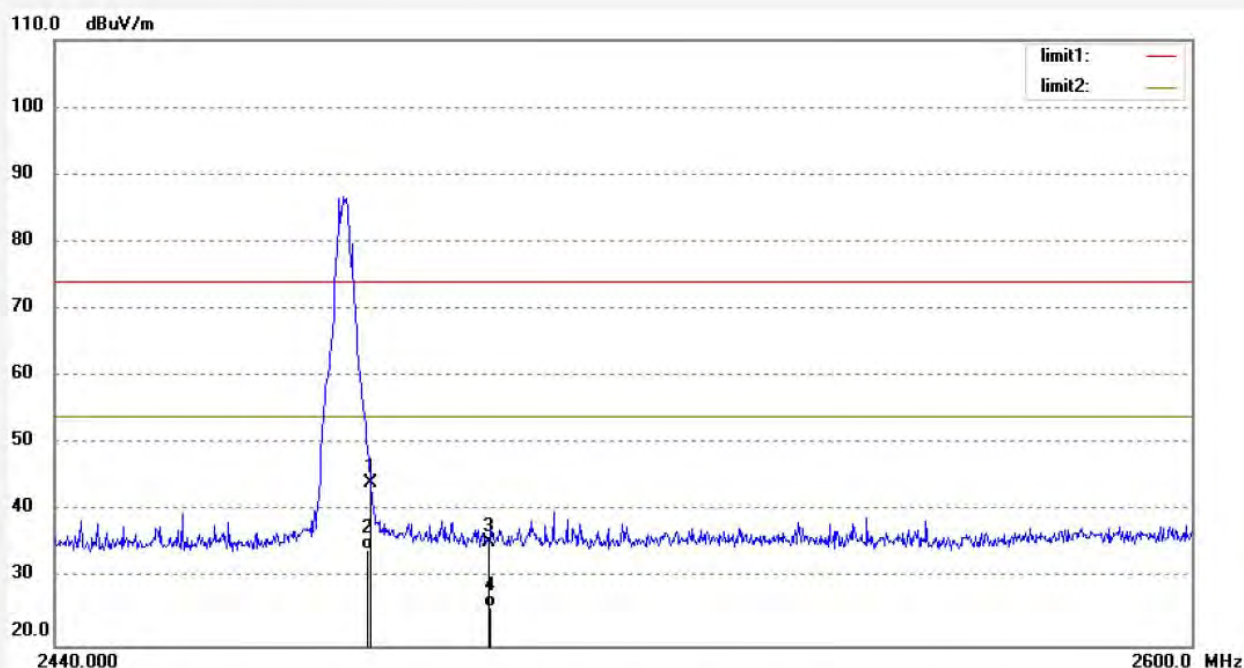
Date: 19/05/06/

Time: 11/03/16

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	50.02	-5.89	44.13	74.00	-29.87	peak	150	302	
2	2483.500	40.12	-5.89	34.23	54.00	-19.77	AVG	150	66	
3	2500.000	41.23	-5.81	35.42	74.00	-38.58	peak	150	211	
4	2500.000	31.45	-5.81	25.64	54.00	-28.36	AVG	150	96	

Non-hopping mode($\pi/4$ DQPSK)



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.: FRANK2019 #973

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

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

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

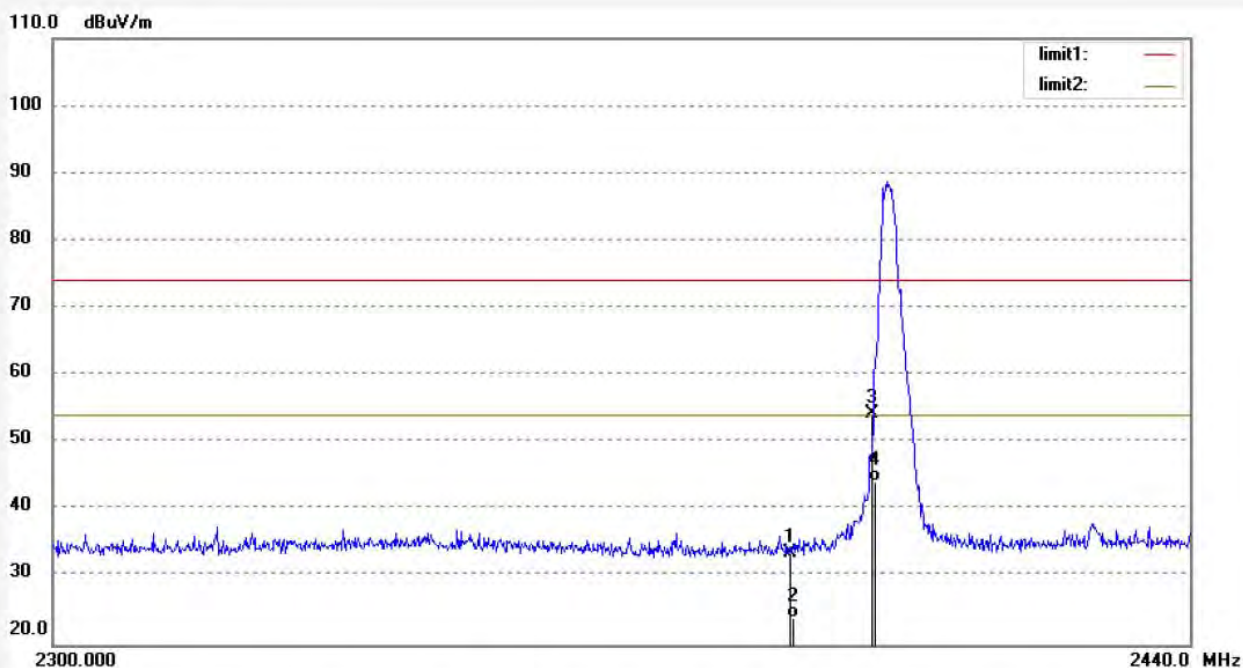
Date: 19/05/06/

Time: 10/30/45

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	39.98	-6.32	33.66	74.00	-40.34	peak	200	302	
2	2390.000	30.15	-6.32	23.83	54.00	-30.17	AVG	200	106	
3	2400.000	60.55	-6.27	54.28	74.00	-19.72	peak	200	221	
4	2400.000	50.48	-6.27	44.21	54.00	-9.79	AVG	200	102	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #972

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

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

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

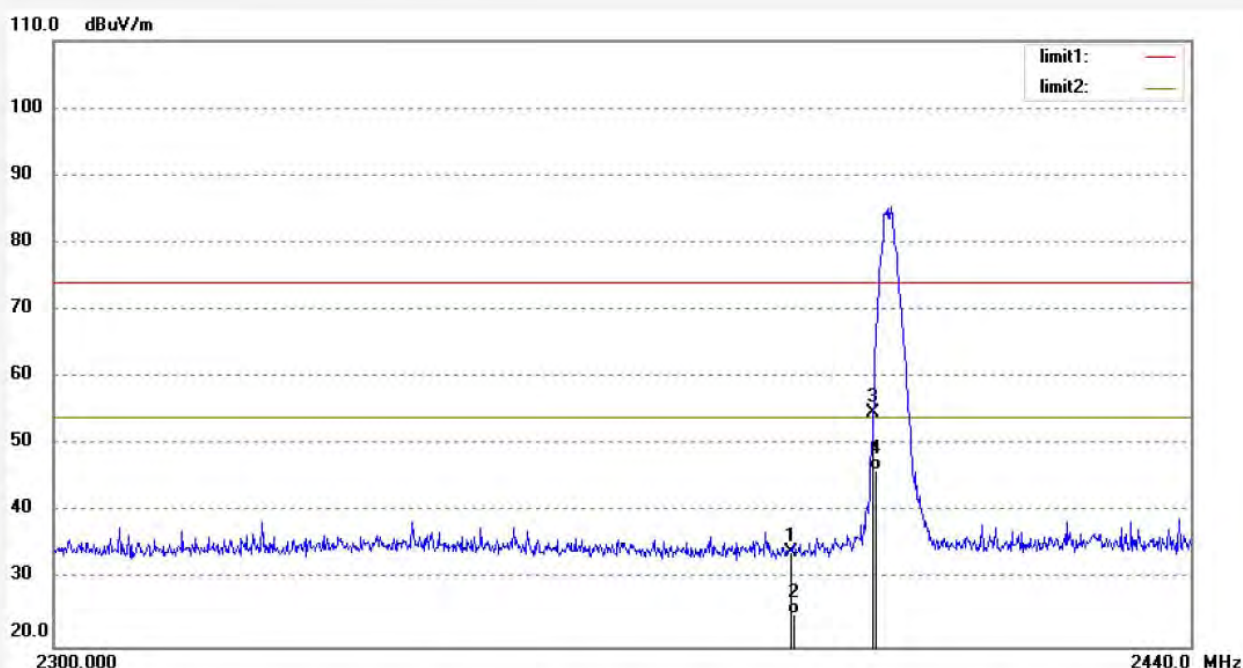
Date: 19/05/06/

Time: 10/26/26

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	40.48	-6.32	34.16	74.00	-39.84	peak	150	301	
2	2390.000	31.14	-6.32	24.82	54.00	-29.18	AVG	150	126	
3	2400.000	61.02	-6.27	54.75	74.00	-19.25	peak	150	254	
4	2400.000	52.48	-6.27	46.21	54.00	-7.79	AVG	150	169	

Job No.: FRANK2019 #978

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

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

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

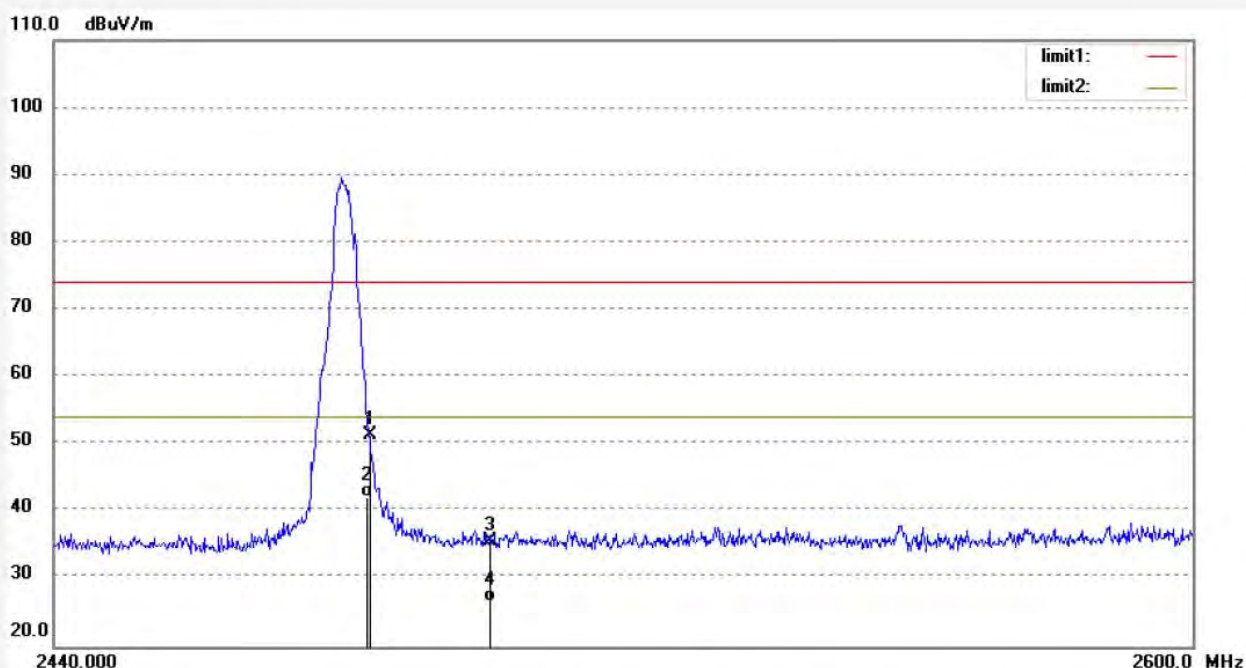
Date: 19/05/06/

Time: 10/51/53

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	57.19	-5.89	51.30	74.00	-22.70	peak	200	302	
2	2483.500	48.15	-5.89	42.26	54.00	-11.74	AVG	200	201	
3	2500.000	41.54	-5.81	35.73	74.00	-38.27	peak	200	115	
4	2500.000	32.45	-5.81	26.64	54.00	-27.36	AVG	200	92	

Job No.: FRANK2019 #979

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

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

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

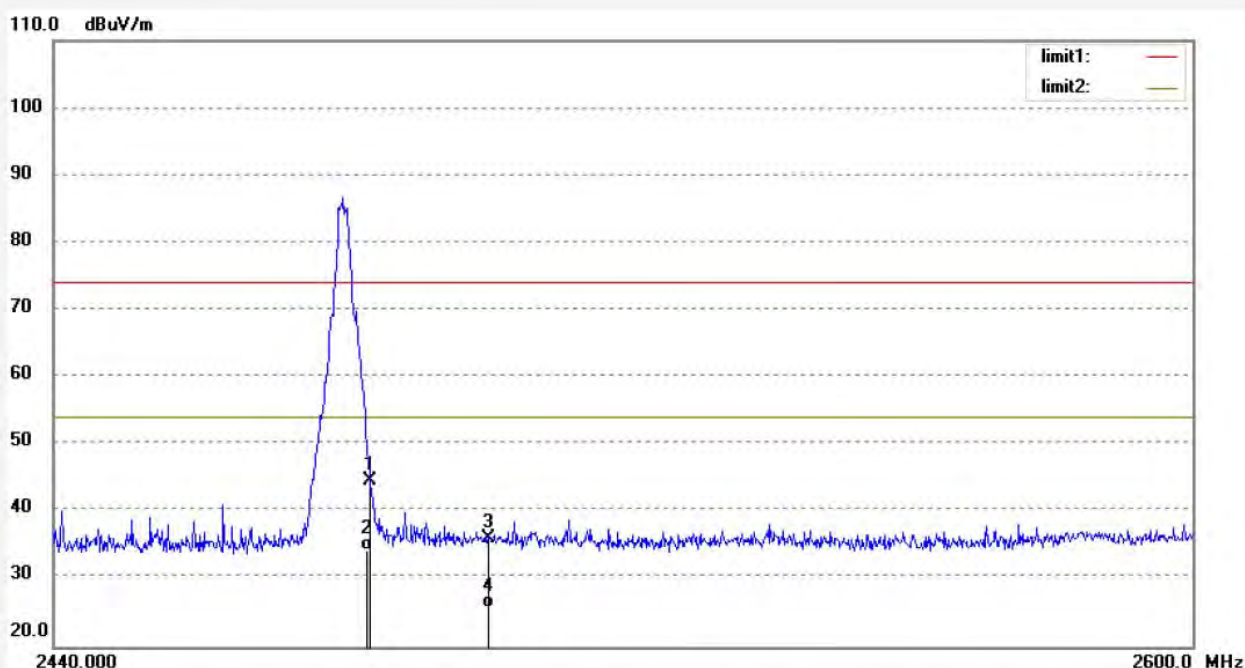
Date: 19/05/06/

Time: 10/57/13

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	50.63	-5.89	44.74	74.00	-29.26	peak	150	96	
2	2483.500	40.12	-5.89	34.23	54.00	-19.77	AVG	150	289	
3	2500.000	41.84	-5.81	36.03	74.00	-37.97	peak	150	115	
4	2500.000	31.45	-5.81	25.64	54.00	-28.36	AVG	150	302	

Non-hopping mode(8DPSK)



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.: FRANK2019 #974

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz(8DPSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

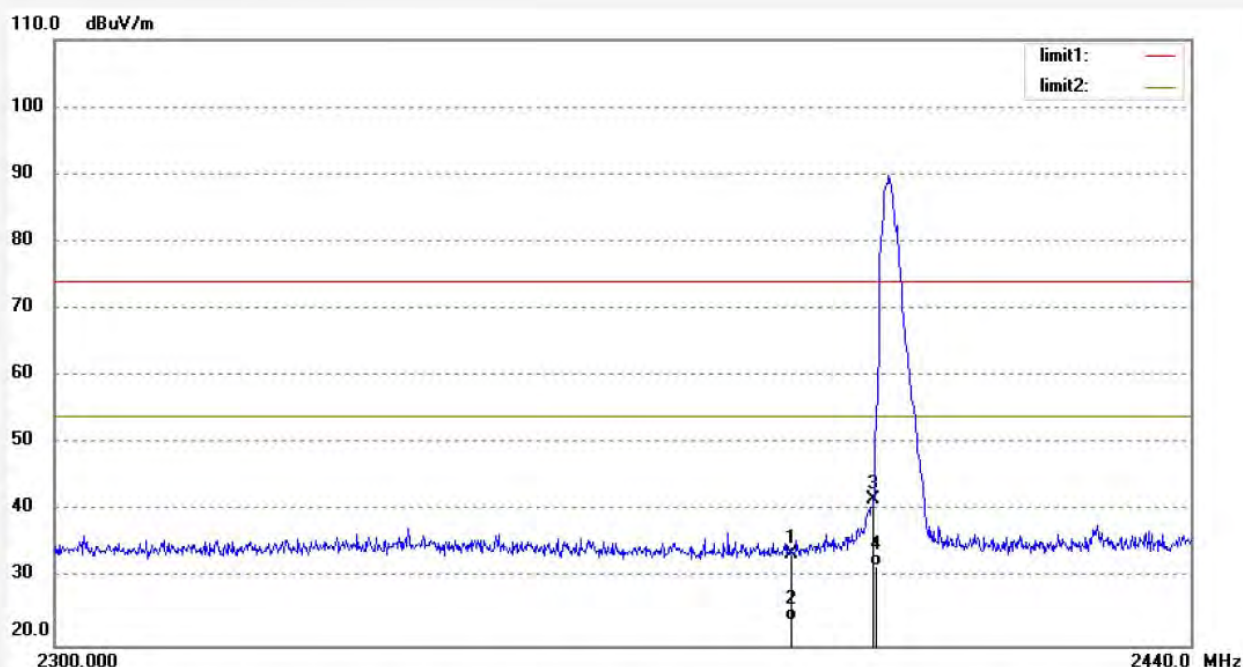
Date: 19/05/06/

Time: 10/34/29

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	39.86	-6.32	33.54	74.00	-40.46	peak	200	302	
2	2390.000	30.12	-6.32	23.80	54.00	-30.20	AVG	200	185	
3	2400.000	47.99	-6.27	41.72	74.00	-32.28	peak	200	62	
4	2400.000	38.12	-6.27	31.85	54.00	-22.15	AVG	200	52	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)



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.: FRANK2019 #975

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2402MHz(8DPSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

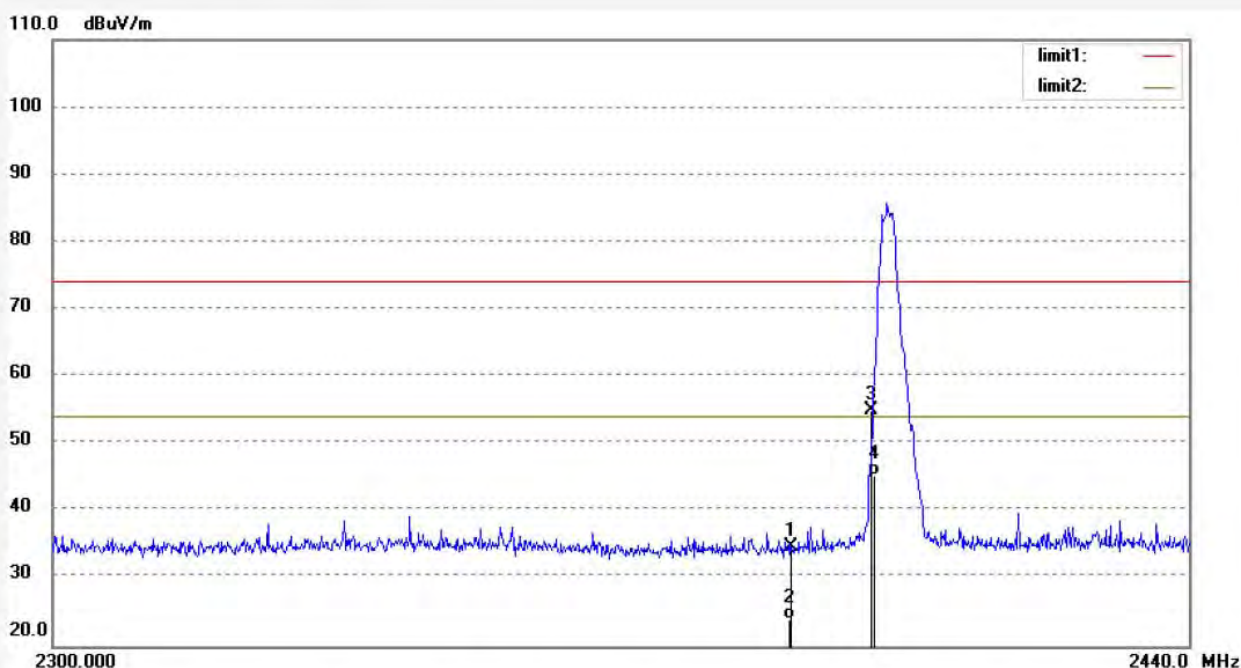
Date: 19/05/06/

Time: 10/38/00

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	40.97	-6.32	34.65	74.00	-39.35	peak	150	163	
2	2390.000	30.15	-6.32	23.83	54.00	-30.17	AVG	150	48	
3	2400.000	61.35	-6.27	55.08	74.00	-18.92	peak	150	201	
4	2400.000	51.49	-6.27	45.22	54.00	-8.78	AVG	150	93	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #977

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz(8DPSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

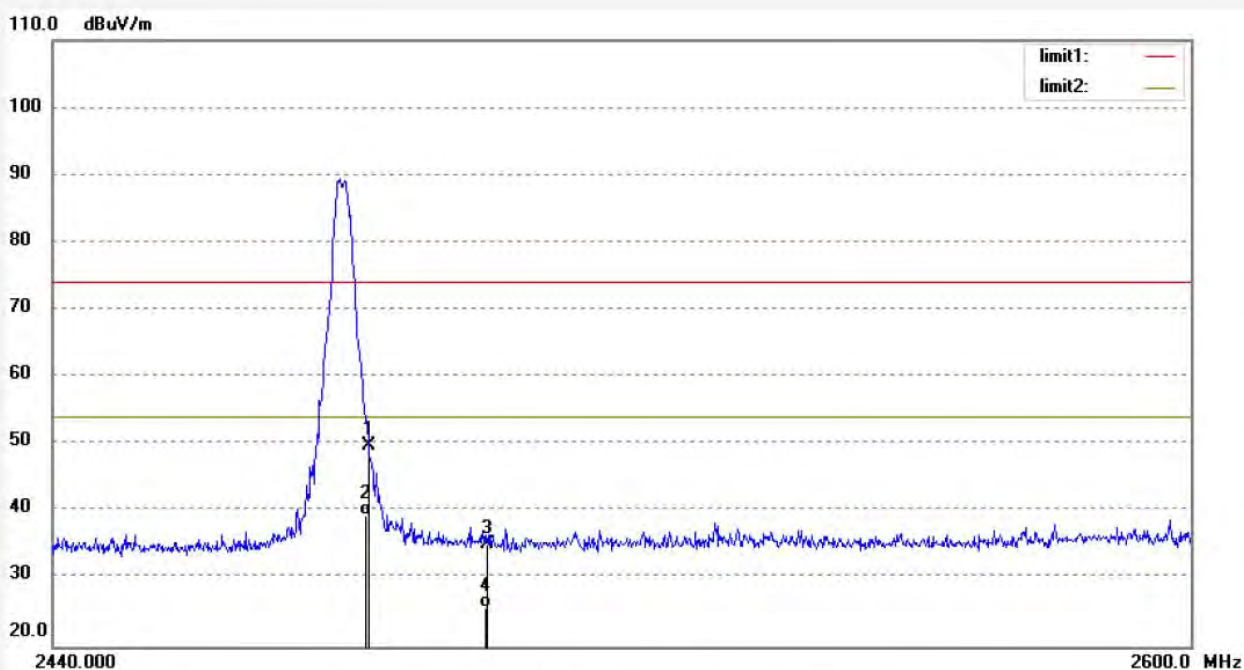
Date: 19/05/06/

Time: 10/48/00

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	55.75	-5.89	49.86	74.00	-24.14	peak	200	302	
2	2483.500	45.45	-5.89	39.56	54.00	-14.44	AVG	200	62	
3	2500.000	41.00	-5.81	35.19	74.00	-38.81	peak	200	121	
4	2500.000	31.45	-5.81	25.64	54.00	-28.36	AVG	200	101	



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.: FRANK2019 #976

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: TX 2480MHz(8DPSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

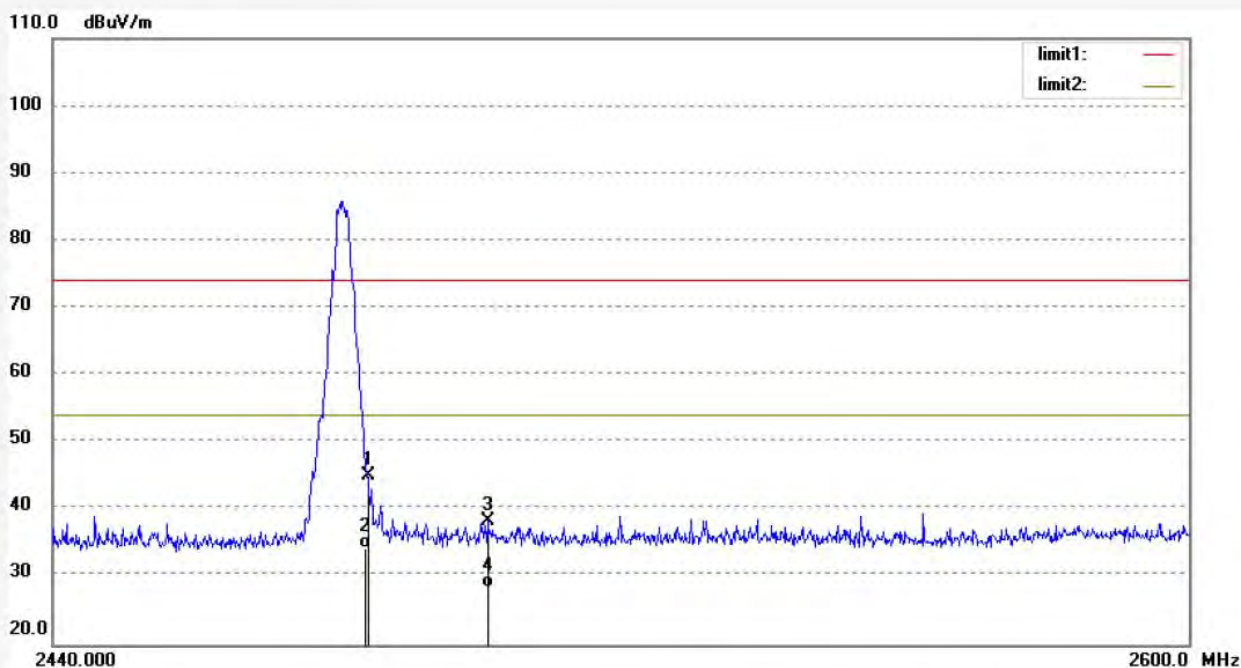
Date: 19/05/06/

Time: 10/42/52

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	50.87	-5.89	44.98	74.00	-29.02	peak	150	99	
2	2483.500	40.12	-5.89	34.23	54.00	-19.77	AVG	150	204	
3	2500.000	44.15	-5.81	38.34	74.00	-35.66	peak	150	115	
4	2500.000	34.15	-5.81	28.34	54.00	-25.66	AVG	150	302	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Hopping mode(GFSK)



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.: FRANK2019 #982

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: HOPPING(GFSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

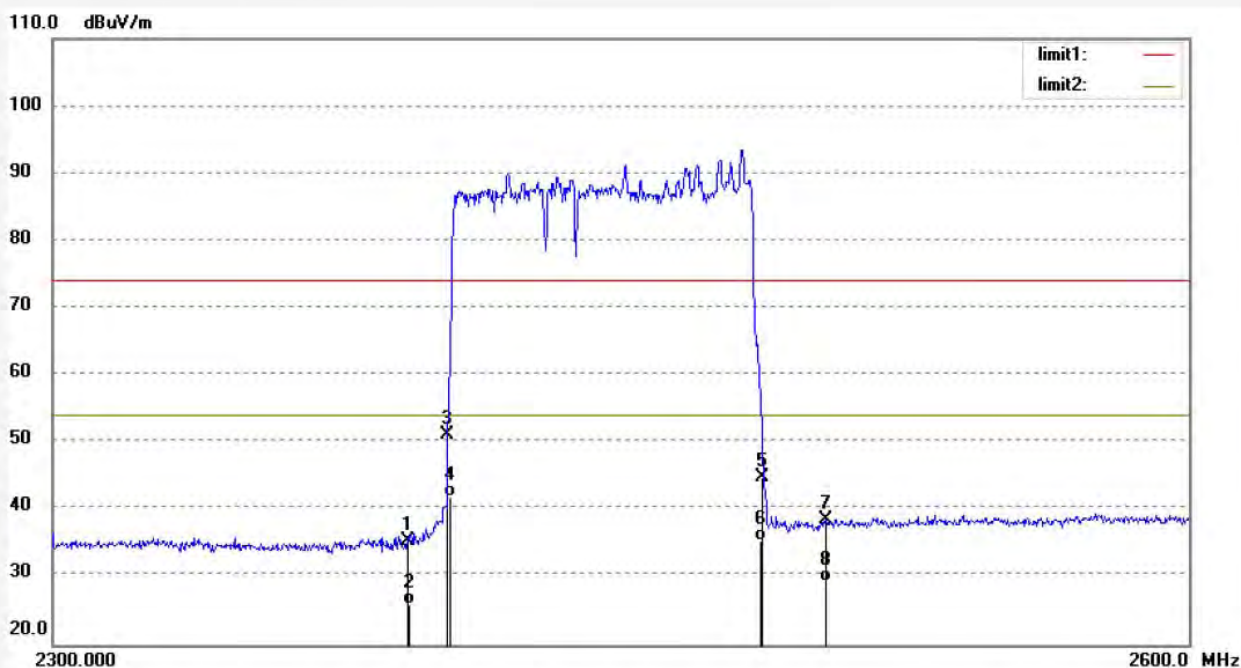
Date: 19/05/06/

Time: 11/10/57

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	41.64	-6.32	35.32	74.00	-38.68	peak	200	302	
2	2390.000	32.19	-6.32	25.87	54.00	-28.13	AVG	200	92	
3	2400.000	57.36	-6.27	51.09	74.00	-22.91	peak	200	221	
4	2400.000	48.31	-6.27	42.04	54.00	-11.96	AVG	200	201	
5	2483.500	50.72	-5.89	44.83	74.00	-29.17	peak	200	332	
6	2483.500	41.38	-5.89	35.49	54.00	-18.51	AVG	200	201	
7	2500.000	44.30	-5.81	38.49	74.00	-35.51	peak	200	23	
8	2500.000	35.21	-5.81	29.40	54.00	-24.60	AVG	200	96	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #983

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: HOPPING(GFSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

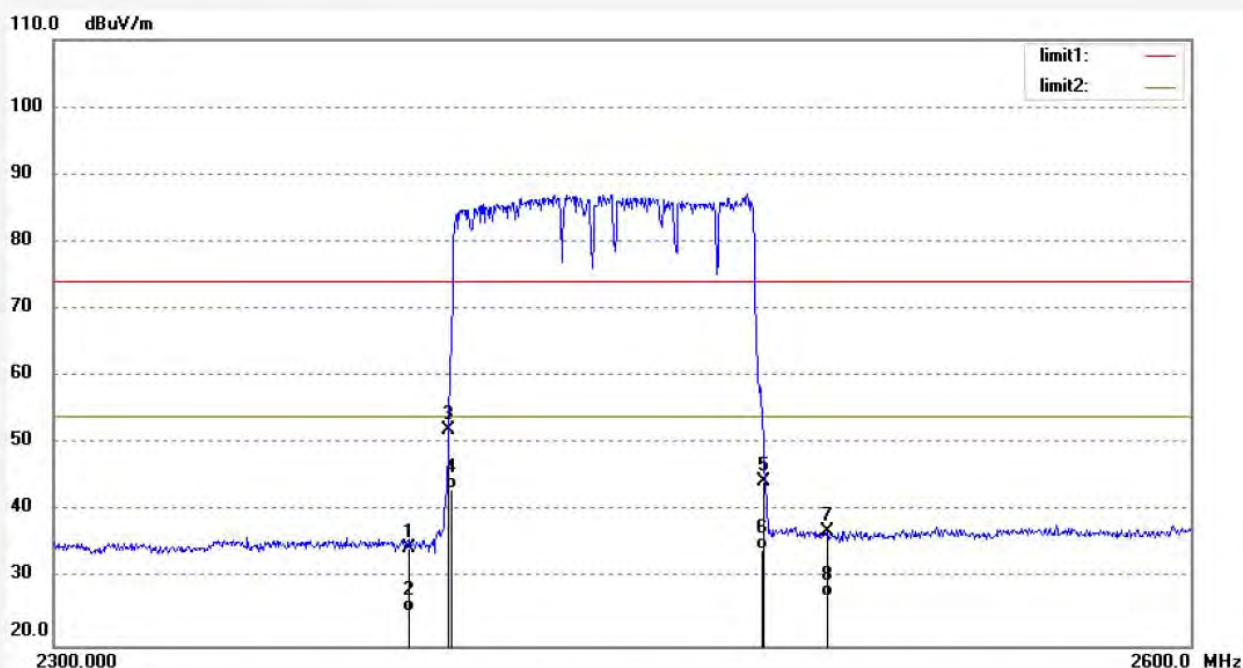
Date: 19/05/06/

Time: 11/16/18

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	40.88	-6.32	34.56	74.00	-39.44	peak	150	102	
2	2390.000	31.45	-6.32	25.13	54.00	-28.87	AVG	150	206	
3	2400.000	58.30	-6.27	52.03	74.00	-21.97	peak	150	112	
4	2400.000	49.46	-6.27	43.19	54.00	-10.81	AVG	150	95	
5	2483.500	50.32	-5.89	44.43	74.00	-29.57	peak	150	301	
6	2483.500	40.16	-5.89	34.27	54.00	-19.73	AVG	150	201	
7	2500.000	42.72	-5.81	36.91	74.00	-37.09	peak	150	332	
8	2500.000	33.15	-5.81	27.34	54.00	-26.66	AVG	150	209	

Hopping mode($\pi/4$ DQPSK)



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.: FRANK2019 #985

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

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

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

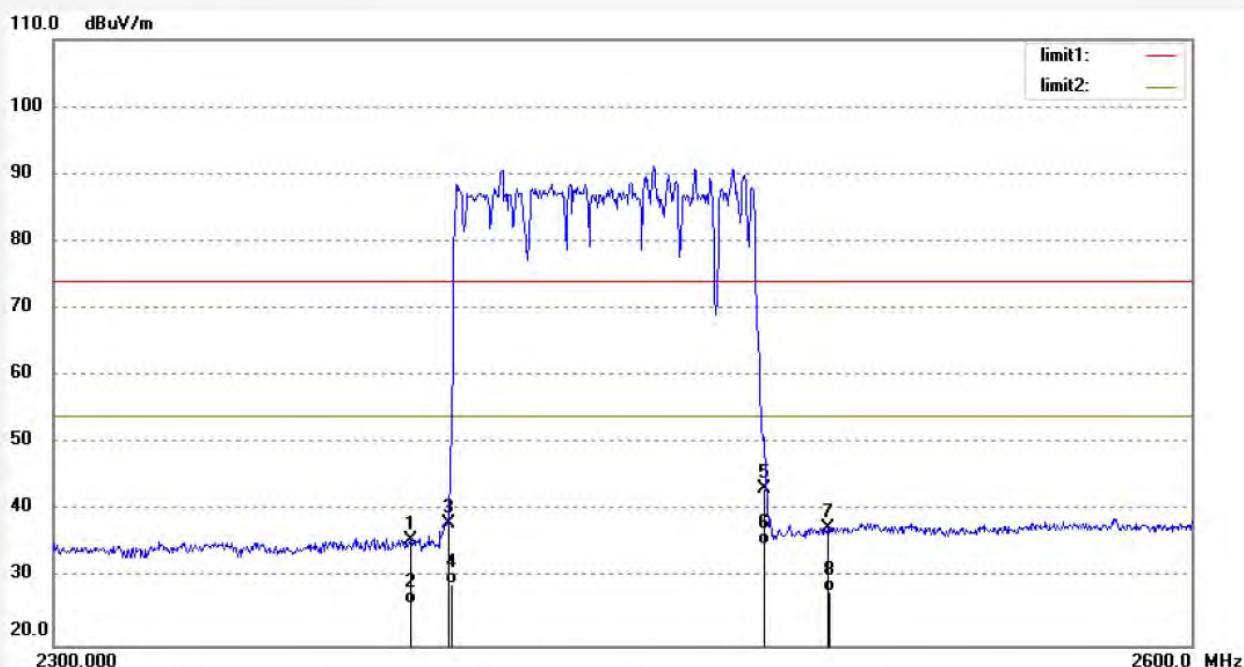
Date: 19/05/06/

Time: 11/26/41

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	41.89	-6.32	35.57	74.00	-38.43	peak	200	233	
2	2390.000	32.45	-6.32	26.13	54.00	-27.87	AVG	200	201	
3	2400.000	44.38	-6.27	38.11	74.00	-35.89	peak	200	136	
4	2400.000	35.48	-6.27	29.21	54.00	-24.79	AVG	200	95	
5	2483.500	49.08	-5.89	43.19	74.00	-30.81	peak	200	141	
6	2483.500	40.87	-5.89	34.98	54.00	-19.02	AVG	200	210	
7	2500.000	43.23	-5.81	37.42	74.00	-36.58	peak	200	66	
8	2500.000	33.78	-5.81	27.97	54.00	-26.03	AVG	200	103	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

Job No.: FRANK2019 #984

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

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

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

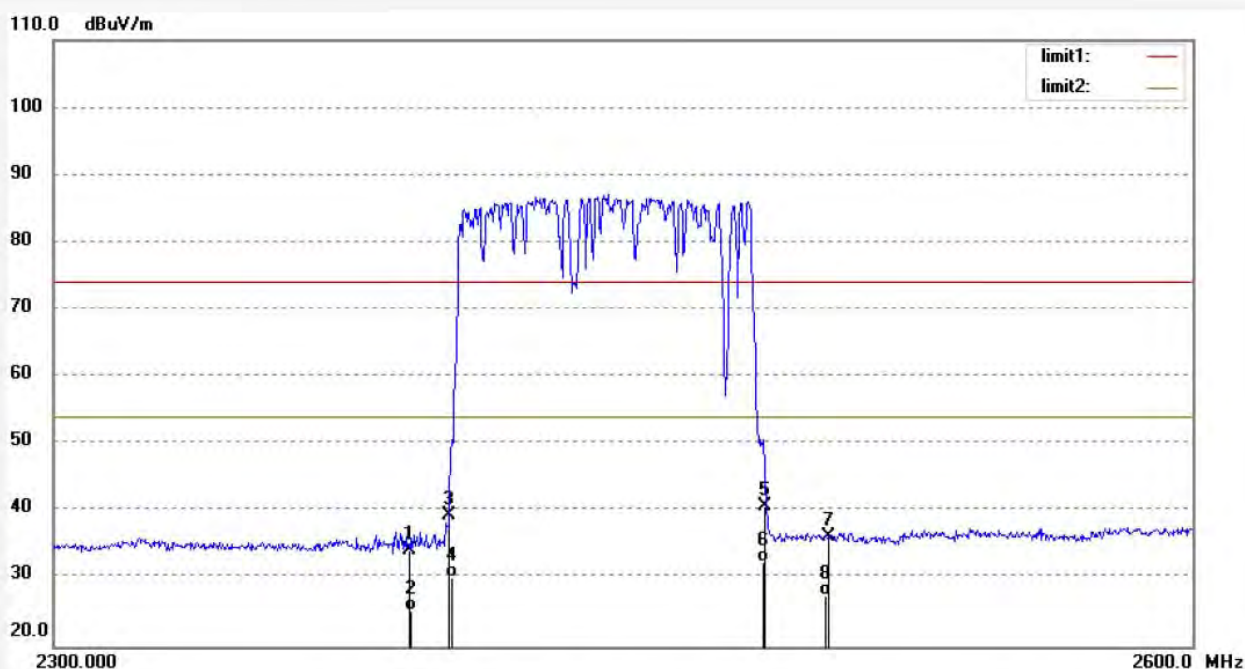
Date: 19/05/06/

Time: 11/20/45

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	40.53	-6.32	34.21	74.00	-39.79	peak	150	103	
2	2390.000	31.54	-6.32	25.22	54.00	-28.78	AVG	150	81	
3	2400.000	45.65	-6.27	39.38	74.00	-34.62	peak	150	69	
4	2400.000	36.48	-6.27	30.21	54.00	-23.79	AVG	150	116	
5	2483.500	46.77	-5.89	40.88	74.00	-33.12	peak	150	302	
6	2483.500	38.48	-5.89	32.59	54.00	-21.41	AVG	150	96	
7	2500.000	42.21	-5.81	36.40	74.00	-37.60	peak	150	165	
8	2500.000	33.45	-5.81	27.64	54.00	-26.36	AVG	150	321	

Hopping mode(8DPSK)



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.: FRANK2019 #986

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: HOPPING(8DPSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

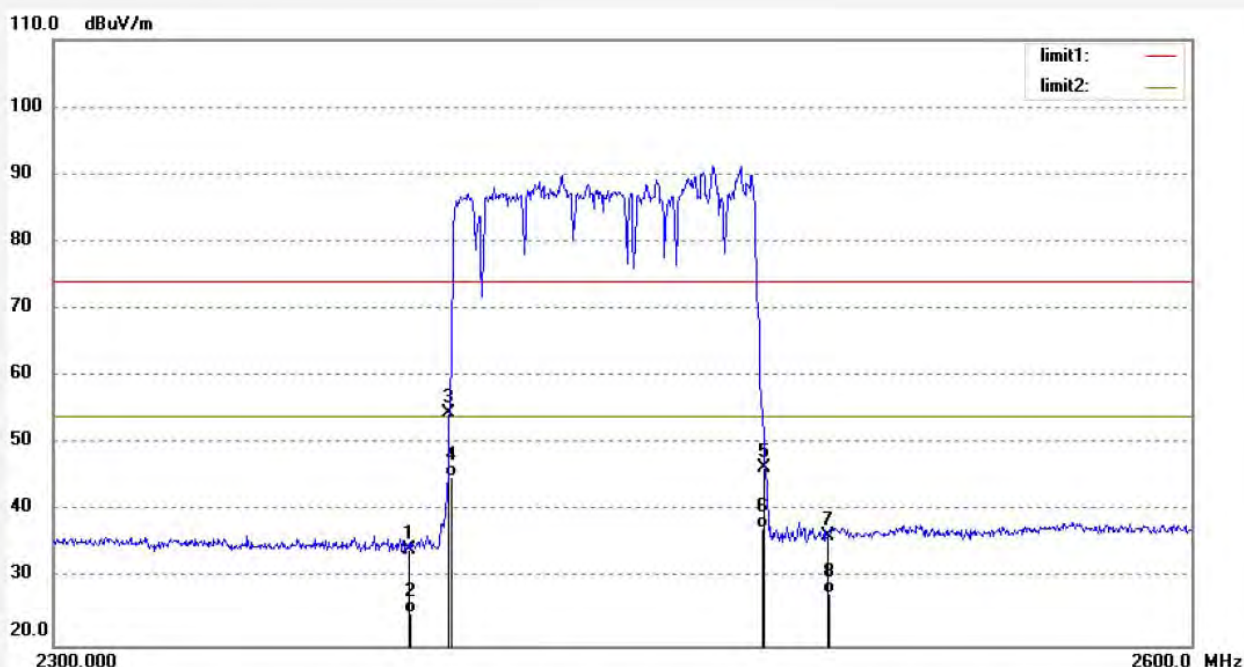
Date: 19/05/06/

Time: 11/31/25

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	40.71	-6.32	34.39	74.00	-39.61	peak	200	194	
2	2390.000	31.12	-6.32	24.80	54.00	-29.20	AVG	200	85	
3	2400.000	60.84	-6.27	54.57	74.00	-19.43	peak	200	201	
4	2400.000	51.37	-6.27	45.10	54.00	-8.90	AVG	200	33	
5	2483.500	52.25	-5.89	46.36	74.00	-27.64	peak	200	200	
6	2483.500	43.26	-5.89	37.37	54.00	-16.63	AVG	200	102	
7	2500.000	42.16	-5.81	36.35	74.00	-37.65	peak	200	35	
8	2500.000	33.67	-5.81	27.86	54.00	-26.14	AVG	200	109	

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)



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.: FRANK2019 #987

Standard: FCC PK

Test item: Radiation Test

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

EUT: DISCOVERY

Mode: HOPPING(8DPSK)

Model: CR8009A-DU

Manufacturer: TIMSEN DEVELOPMENT LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

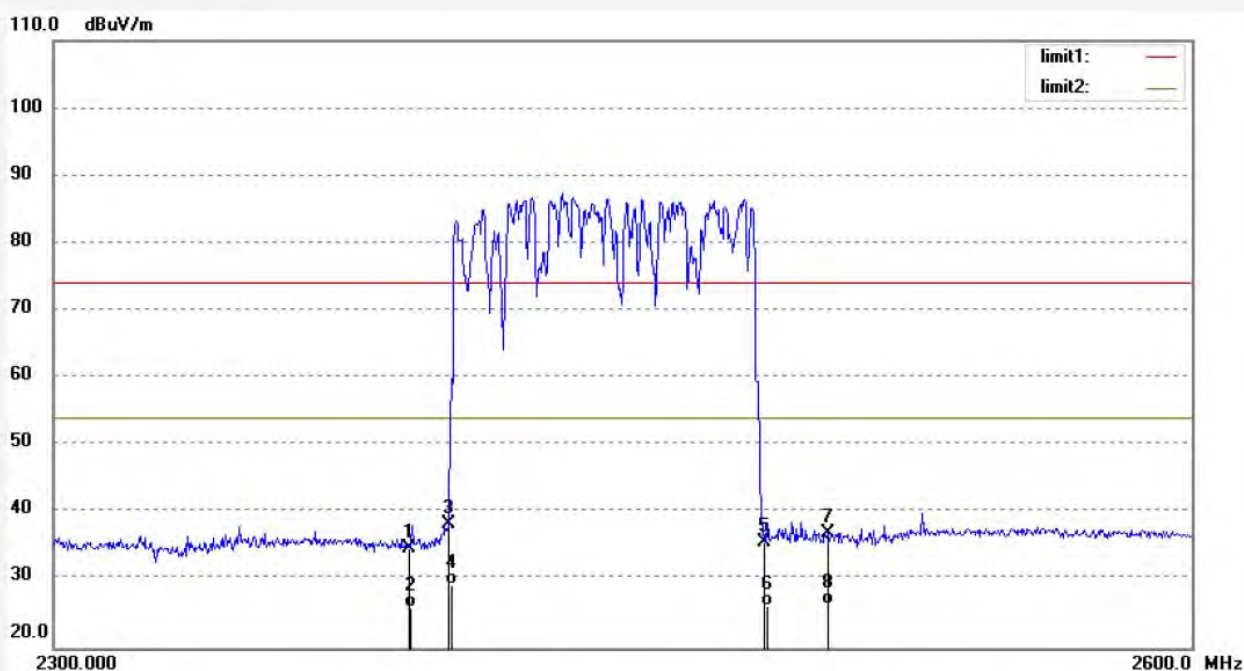
Date: 19/05/06/

Time: 11/38/01

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190551



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	41.06	-6.32	34.74	74.00	-39.26	peak	150	211	
2	2390.000	32.32	-6.32	26.00	54.00	-28.00	AVG	150	33	
3	2400.000	44.70	-6.27	38.43	74.00	-35.57	peak	150	202	
4	2400.000	35.62	-6.27	29.35	54.00	-24.65	AVG	150	94	
5	2483.500	41.42	-5.89	35.53	74.00	-38.47	peak	150	169	
6	2483.500	32.15	-5.89	26.26	54.00	-27.74	AVG	150	52	
7	2500.000	42.80	-5.81	36.99	74.00	-37.01	peak	150	215	
8	2500.000	32.15	-5.81	26.34	54.00	-27.66	AVG	150	103	

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: +86-755-26503290

Fax: +86-755-26503396

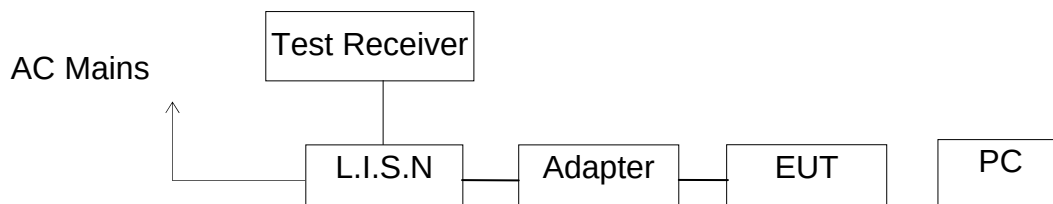
E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup



(EUT: DISCOVERY)

12.2.Power Line Conducted Emission Measurement Limits

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

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 following 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)
X.XX	10.6	25.3	17.0	59.0	49.0	33.4	31.7	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.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

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

We tested the conducted emission of high and low voltage mode and recorded the worst mode data. All data was recorded in the Quasi-peak and average detection mode.

Test mode : CHARGING&BT Operation(AC 120V/60Hz)

MEASUREMENT RESULT: "F-0551-7_fin"

5/5/2019 4:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	42.50	10.6	59	16.2	QP	L1	GND
0.375000	43.70	10.7	58	14.7	QP	L1	GND
1.320000	35.00	10.9	56	21.0	QP	L1	GND
4.980000	43.60	11.2	56	12.4	QP	L1	GND
5.840000	44.40	11.2	60	15.6	QP	L1	GND
23.380000	41.20	11.5	60	18.8	QP	L1	GND

MEASUREMENT RESULT: "F-0551-7_fin2"

5/5/2019 4:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.355000	36.30	10.6	49	12.5	AV	L1	GND
0.380000	38.80	10.7	48	9.5	AV	L1	GND
0.990000	24.30	10.8	46	21.7	AV	L1	GND
4.990000	35.80	11.2	46	10.2	AV	L1	GND
5.370000	37.10	11.2	50	12.9	AV	L1	GND
23.440000	31.20	11.5	50	18.8	AV	L1	GND

MEASUREMENT RESULT: "F-0551-8_fin"

5/5/2019 4:36PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	42.80	10.6	59	15.9	QP	N	GND
0.375000	44.00	10.7	58	14.4	QP	N	GND
0.990000	30.00	10.8	56	26.0	QP	N	GND
4.960000	39.30	11.2	56	16.7	QP	N	GND
5.980000	39.30	11.2	60	20.7	QP	N	GND
24.085000	36.20	11.5	60	23.8	QP	N	GND

MEASUREMENT RESULT: "F-0551-8_fin2"

5/5/2019 4:36PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.355000	37.60	10.6	49	11.2	AV	N	GND
0.375000	39.10	10.7	48	9.3	AV	N	GND
0.905000	22.50	10.8	46	23.5	AV	N	GND
4.990000	32.80	11.2	46	13.2	AV	N	GND
5.460000	33.20	11.2	50	16.8	AV	N	GND
24.265000	24.70	11.5	50	25.3	AV	N	GND

Test mode : BT Operation(AC 240V/60Hz)

MEASUREMENT RESULT: "F-0551-10_fin"

5/5/2019 4:44PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	43.20	10.6	59	15.5	QP	L1	GND
0.825000	37.80	10.8	56	18.2	QP	L1	GND
1.625000	33.60	10.9	56	22.4	QP	L1	GND
4.980000	45.70	11.2	56	10.3	QP	L1	GND
7.160000	42.60	11.2	60	17.4	QP	L1	GND
23.545000	36.70	11.5	60	23.3	QP	L1	GND

MEASUREMENT RESULT: "F-0551-10_fin2"

5/5/2019 4:44PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	37.80	10.6	49	10.9	AV	L1	GND
0.375000	39.20	10.7	48	9.2	AV	L1	GND
2.040000	28.10	11.0	46	17.9	AV	L1	GND
4.890000	38.20	11.1	46	7.8	AV	L1	GND
5.210000	38.60	11.2	50	11.4	AV	L1	GND
23.545000	26.00	11.5	50	24.0	AV	L1	GND

MEASUREMENT RESULT: "F-0551-9_fin"

5/5/2019 4:40PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	42.70	10.6	59	16.0	QP	N	GND
0.365000	43.80	10.6	59	14.8	QP	N	GND
1.590000	33.20	10.9	56	22.8	QP	N	GND
4.920000	37.70	11.2	56	18.3	QP	N	GND
5.780000	37.20	11.2	60	22.8	QP	N	GND
22.210000	27.60	11.4	60	32.4	QP	N	GND

MEASUREMENT RESULT: "F-0551-9_fin2"

5/5/2019 4:40PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	38.20	10.6	49	10.5	AV	N	GND
0.370000	39.70	10.7	49	8.8	AV	N	GND
1.845000	28.50	11.0	46	17.5	AV	N	GND
4.870000	34.30	11.1	46	11.7	AV	N	GND
5.540000	34.60	11.2	50	15.4	AV	N	GND
21.700000	24.00	11.4	50	26.0	AV	N	GND

The spectral diagrams are attached as below.

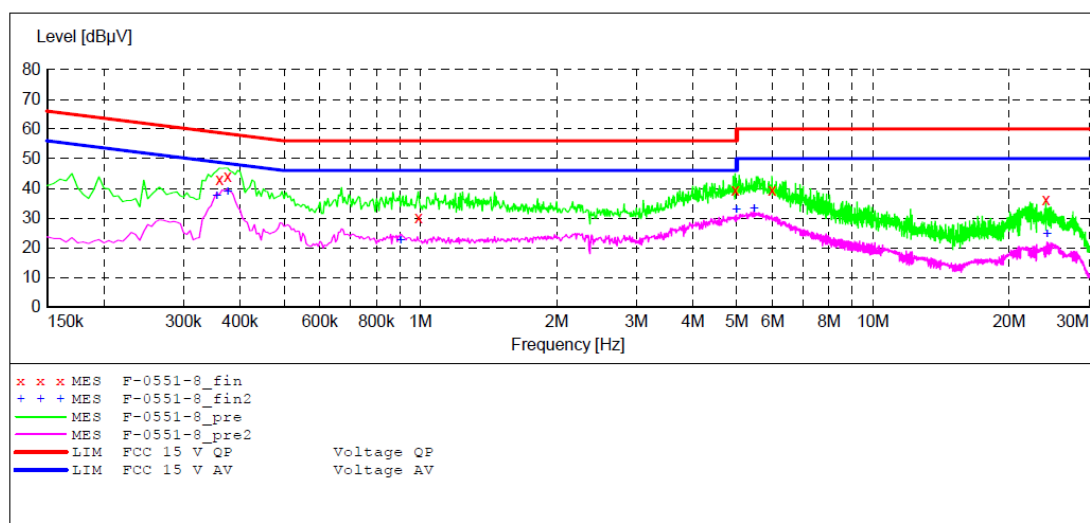
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: DISCOVERY M/N:CR8009A-DU
 Manufacturer: TIMSEN DEVELOPMENT LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20190551
 Start of Test: 5/5/2019 / 4:30:02PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "F-0551-8_fin"

5/5/2019 4:36PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.360000	42.80	10.6	59	15.9	QP	N	GND
0.375000	44.00	10.7	58	14.4	QP	N	GND
0.990000	30.00	10.8	56	26.0	QP	N	GND
4.960000	39.30	11.2	56	16.7	QP	N	GND
5.980000	39.30	11.2	60	20.7	QP	N	GND
24.085000	36.20	11.5	60	23.8	QP	N	GND

MEASUREMENT RESULT: "F-0551-8_fin2"

5/5/2019 4:36PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.355000	37.60	10.6	49	11.2	AV	N	GND
0.375000	39.10	10.7	48	9.3	AV	N	GND
0.905000	22.50	10.8	46	23.5	AV	N	GND
4.990000	32.80	11.2	46	13.2	AV	N	GND
5.460000	33.20	11.2	50	16.8	AV	N	GND
24.265000	24.70	11.5	50	25.3	AV	N	GND

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: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

[Http://www.atc-lab.com](http://www.atc-lab.com)

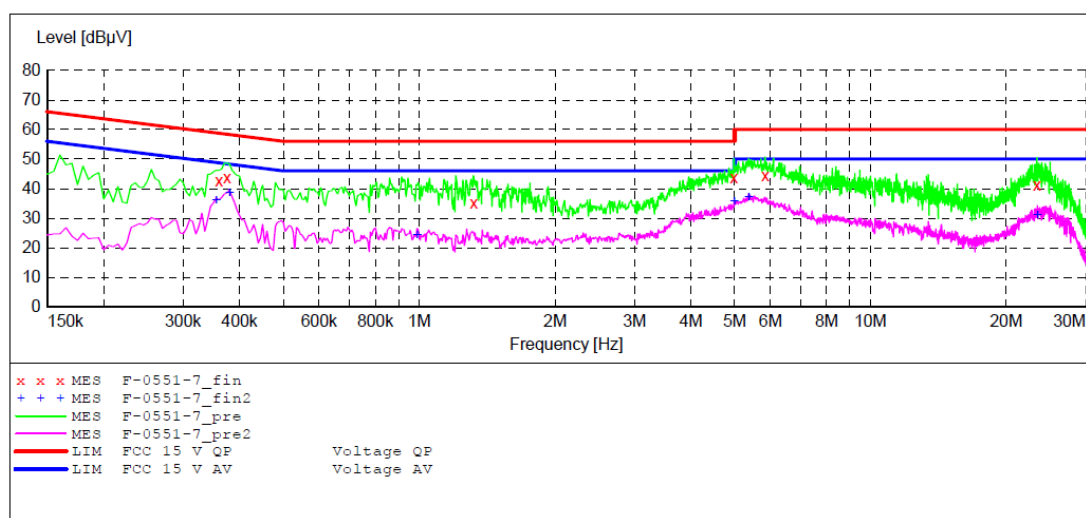
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: DISCOVERY M/N:CR8009A-DU
 Manufacturer: TIMSEN DEVELOPMENT LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20190551
 Start of Test: 5/5/2019 / 4:26:02PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "F-0551-7_fin"

5/5/2019 4:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	42.50	10.6	59	16.2	QP	L1	GND
0.375000	43.70	10.7	58	14.7	QP	L1	GND
1.320000	35.00	10.9	56	21.0	QP	L1	GND
4.980000	43.60	11.2	56	12.4	QP	L1	GND
5.840000	44.40	11.2	60	15.6	QP	L1	GND
23.380000	41.20	11.5	60	18.8	QP	L1	GND

MEASUREMENT RESULT: "F-0551-7_fin2"

5/5/2019 4:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.355000	36.30	10.6	49	12.5	AV	L1	GND
0.380000	38.80	10.7	48	9.5	AV	L1	GND
0.990000	24.30	10.8	46	21.7	AV	L1	GND
4.990000	35.80	11.2	46	10.2	AV	L1	GND
5.370000	37.10	11.2	50	12.9	AV	L1	GND
23.440000	31.20	11.5	50	18.8	AV	L1	GND

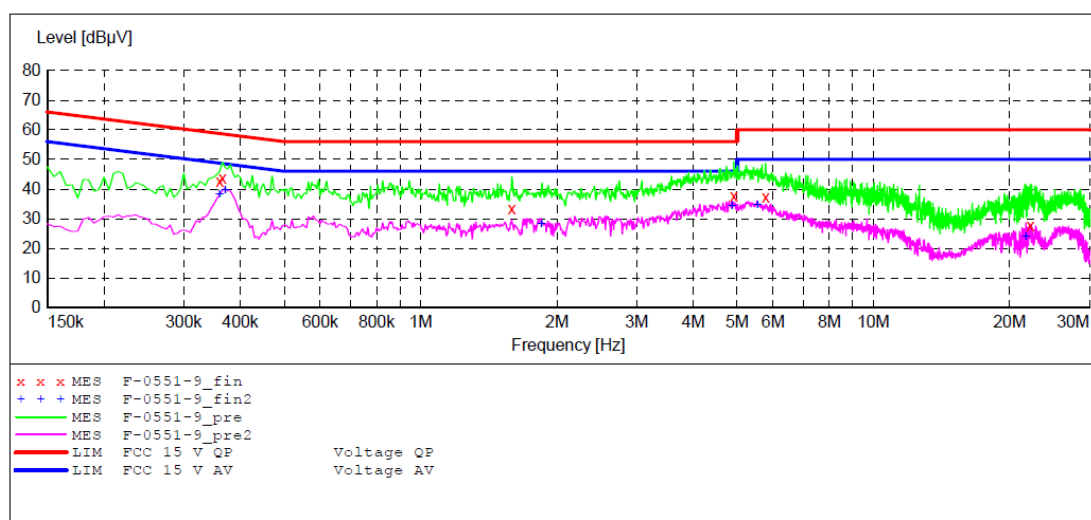
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: DISCOVERY M/N:CR8009A-DU
 Manufacturer: TIMSEN DEVELOPMENT LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20190551
 Start of Test: 5/5/2019 / 4:37:31PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "F-0551-9_fin"

5/5/2019 4:40PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.360000	42.70	10.6	59	16.0	QP	N	GND
0.365000	43.80	10.6	59	14.8	QP	N	GND
1.590000	33.20	10.9	56	22.8	QP	N	GND
4.920000	37.70	11.2	56	18.3	QP	N	GND
5.780000	37.20	11.2	60	22.8	QP	N	GND
22.210000	27.60	11.4	60	32.4	QP	N	GND

MEASUREMENT RESULT: "F-0551-9_fin2"

5/5/2019 4:40PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.360000	38.20	10.6	49	10.5	AV	N	GND
0.370000	39.70	10.7	49	8.8	AV	N	GND
1.845000	28.50	11.0	46	17.5	AV	N	GND
4.870000	34.30	11.1	46	11.7	AV	N	GND
5.540000	34.60	11.2	50	15.4	AV	N	GND
21.700000	24.00	11.4	50	26.0	AV	N	GND

ACCURATE TECHNOLOGY CO., LTD

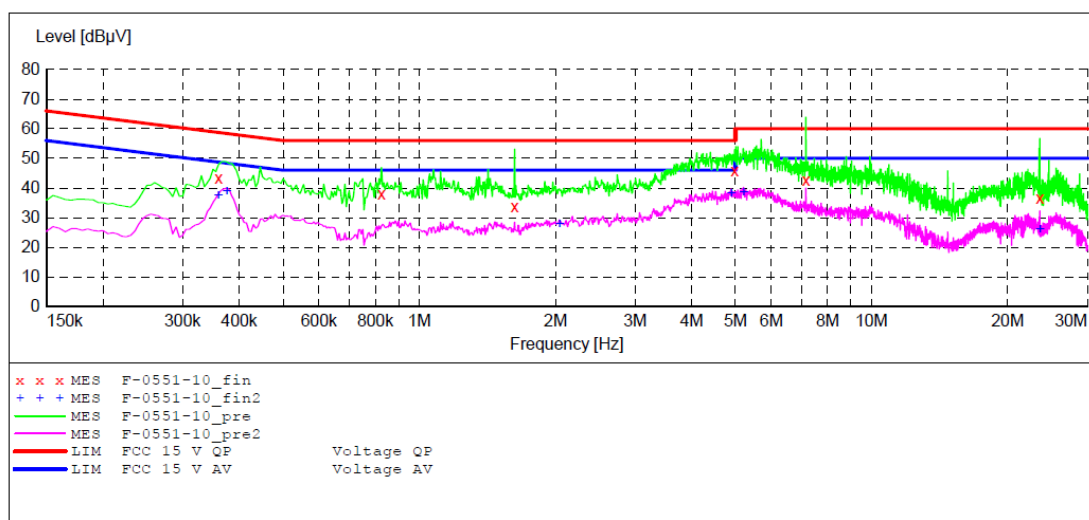
CONDUCTED EMISSION STANDARD FCC PART 15

EUT: DISCOVERY M/N:CR8009A-DU
 Manufacturer: TIMSEN DEVELOPMENT LIMITED
 Operating Condition: BT OPERATION
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20190551
 Start of Test: 5/5/2019 / 4:41:21PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
Average						
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
Average						



MEASUREMENT RESULT: "F-0551-10_fin"

5/5/2019 4:44PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	43.20	10.6	59	15.5	QP	L1	GND
0.825000	37.80	10.8	56	18.2	QP	L1	GND
1.625000	33.60	10.9	56	22.4	QP	L1	GND
4.980000	45.70	11.2	56	10.3	QP	L1	GND
7.160000	42.60	11.2	60	17.4	QP	L1	GND
23.545000	36.70	11.5	60	23.3	QP	L1	GND

MEASUREMENT RESULT: "F-0551-10_fin2"

5/5/2019 4:44PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	37.80	10.6	49	10.9	AV	L1	GND
0.375000	39.20	10.7	48	9.2	AV	L1	GND
2.040000	28.10	11.0	46	17.9	AV	L1	GND
4.890000	38.20	11.1	46	7.8	AV	L1	GND
5.210000	38.60	11.2	50	11.4	AV	L1	GND
23.545000	26.00	11.5	50	24.0	AV	L1	GND

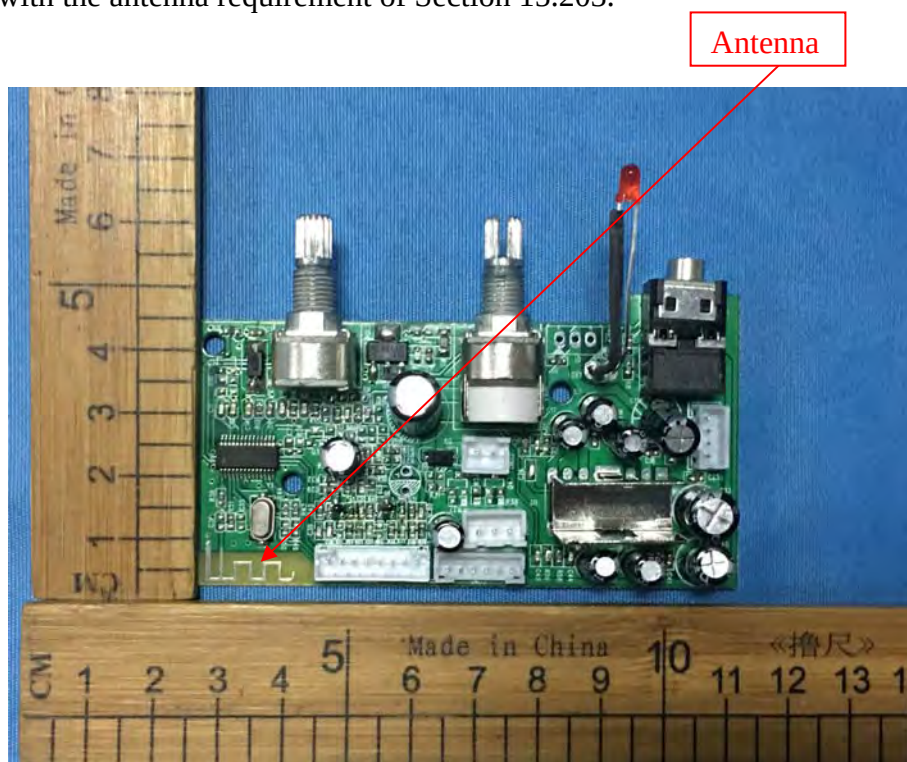
13.ANTENNA REQUIREMENT

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 1.2dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



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