TEST REPORT

REPORT NUMBER: I11GC0421-FCC-BT-3

ON

Type of Equipment:	**GSM/GPRS/EGPRS mobile phone**
Model Number:	**Sonim XP3300-A-X1**
Type Number:	**P25C005AJ**
Manufacturer:	**Sonim Technologies, Inc**

ACCORDING TO

FCC Part 15, Subpart C, Oct-1-2010:
15.205 Restricted bands of operation,
15.209 Radiated emission limits; general requirements,
15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz

ANSI C63.4-2003, Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

FCC Public Notice DA 00-705,March-2000, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

China Telecommunication Technology Labs.

Month date, year
Sep 30, 2011

Signature

He Guili
Director

FCC ID:	WYPP25C005AJ
Report Date:	2011-09-30

Test Firm Name:	China Telecommunication Technology Labs
Registration Number:	840587

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC Parts 15, subpart C. The sample tested was found to comply with the requirements defined in the applied rules.

CONTENTS

1 General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC Parts 15, subpart C and ANSI C63.4-2003 and FCC DA 00-705.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

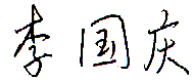
The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

1.2 Testers

Name: Li Guoqing

Position: Engineer

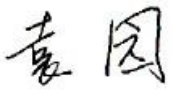
Department: Department of EMC test

Signature: 

Name: Yuan Yuan

Position: Engineer

Department: Department of EMC test

Signature: 

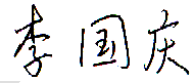
Editor of this test report:

Name: Li Guoqing

Position: Engineer

Department: Department of EMC test

Date: 2011-09-30

Signature: 

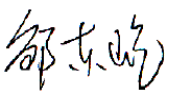
Technical responsibility for area of testing:

Name: Zou Dongyi

Position: Manager

Department: Department of EMC test

Date: 2011-09-30

Signature: 

1.3 Testing Laboratory information

1.3.1 Location

Name:	China Telecommunication Technology Labs.
Address:	No. 11, Yue Tan Nan Jie, Xi Cheng District BEIJING P. R. CHINA, 100083
Tel:	+86 10 68094053
Fax:	+86 10 68011404
Email:	emc@chinattl.com

1.3.2 Details of accreditation status

Accredited by:	China National Accreditation Service for Conformity Assessment (CNAS)
Registration number:	CNAL Registration No.L0570
Standard:	ISO/IEC 17025:2005

1.3.3 Test location, where different from section 1.3.1

Name:	------
Street:	------
City:	------
Country:	------
Telephone:	------
Fax:	------
Postcode:	------

1.4 Details of applicant or manufacturer

1.4.1 Applicant

Name:	Sonim Technologies, Inc
Address:	1875 S. Grant Street, Suite 800 San Mateo, CA 94402
Country:	United States
Telephone:	+1 650 504 4411
Fax:	+1 650 378 8190
Contact:	Jasen Kolev
Telephone:	+1 650 504 4411
Email:	jasen@sonimtech.com

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name:	----
Address:	----

1.4.3 Manufactory (if different from applicant in section 1.4.1)

Name:	----
Address:	----

2 Test Item

2.1 General Information

Manufacturer:	Sonim Technologies, Inc
Name:	GSM/GPRS/EGPRS mobile phone
Model Number:	Sonim XP3300-A-X1
Type Number:	P25C005AJ
Serial Number:	--
Production Status:	Production
Receipt date of test item:	2011-06-27

2.2 Outline of EUT

E.U.T. is a GSM850/ PCS1900 Dual-band Terminal Equipment with Bluetooth.

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Mobile phone	Sonim Technologies, Inc	Sonim XP3300-A-X1	--	None
B	Battery	Sunwoda Electronic Co., Ltd.	XP-0001100	--	None
C	Adaptor	Dee Van Enterprises Co., Ltd.	DSA-3RNA-05 FUS 050065	--	None

2.5 Other Information

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3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

	Name of Test	Result
1、	Peak power	Pass
2、	Band edge (conducted)	Pass
3、	Frequency separation	Pass
4、	Number of hopping frequency	Pass
5、	Time of occupancy	Pass
6、	Spurious emission (conducted)	Pass
7、	Spurious emission (radiated)	Pass
8、	Power line Conducted Emissions	Pass
Note: none		

4 Test Results

4.1 Peak power

Specifications:	15.247 (b)(3)(i),(ii)and(iii)
Date of Tests	2011-09-30
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Fix channel transmit
Test Results:	Pass

Test equipment Used:

Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2012-02-15	Normal
7330	BLUETOOTH TESTER	R/S	CBT	100657	2012-01-28	Normal

LIMIT

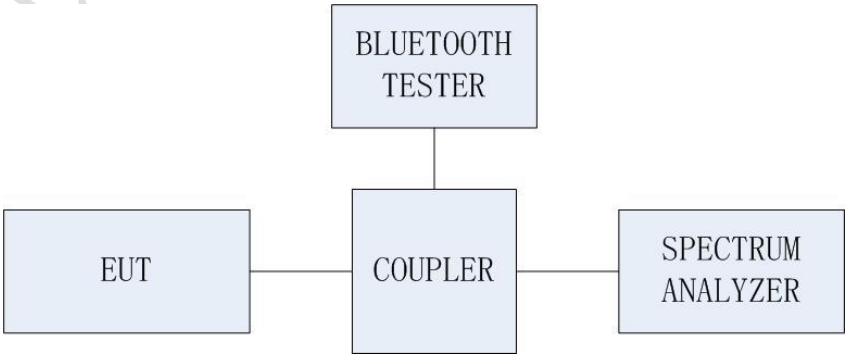
The maximum peak output power of the intentional radiator shall not exceed the following:

1. For systems using digital modulation in the bands of 902 ~ 928 MHz, 2400 ~ 2483.5 MHz, and 5725 ~ 5850 MHz: 1 watt.

2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Setup:

The BLUETOOTH TESTER was used to set the TX channel and power level. The transmitter output is connected to Spectrum analyzer through a coupler.



Test procedure:

The transmitter output is connected to the Spectrum Analyzer. The Spectrum Analyzer is set to the peak detector mode. The RBW is set to 3MHz. The VBW is set to 3MHz.

The measurement is made according to Public notice FCC Public Notice DA 00-705, March 2000, and ANSI C63.4-2003.

Test Results:

GFSK:

channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Result
Low: 0	2402.11022	-4.12	30	Pass
Middle: 39	2440.68938	-2.02	30	Pass
High: 78	2479.98998	-4.61	30	pass

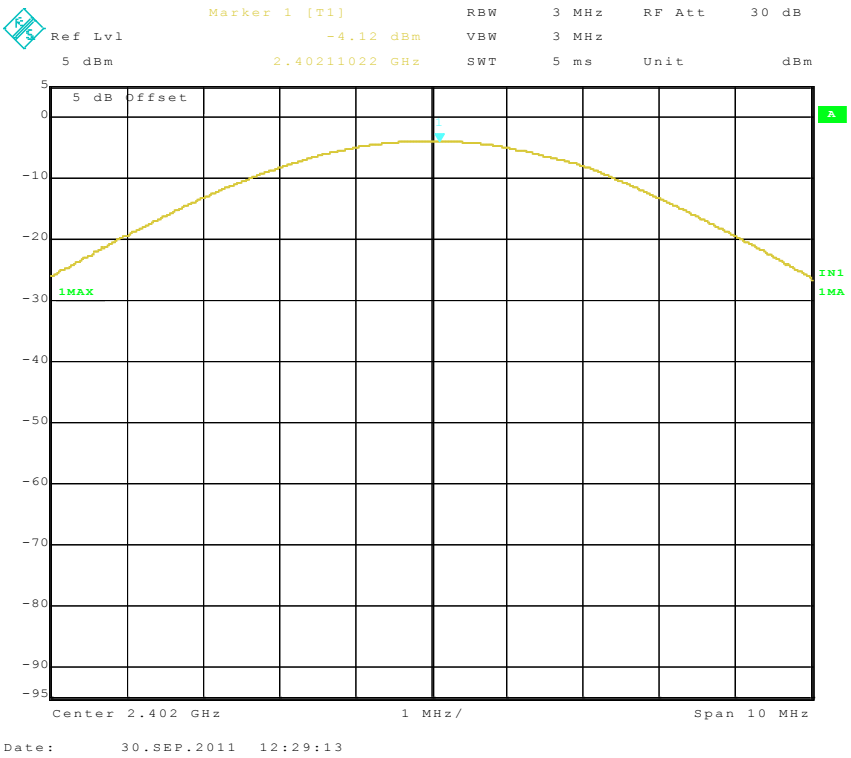
Pi/4 DQPSK:

channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Result
Low: 0	2402.13026	-4.76	30	Pass
Middle: 39	2440.96994	-2.49	30	Pass
High: 78	2480.07014	-5.19	30	pass

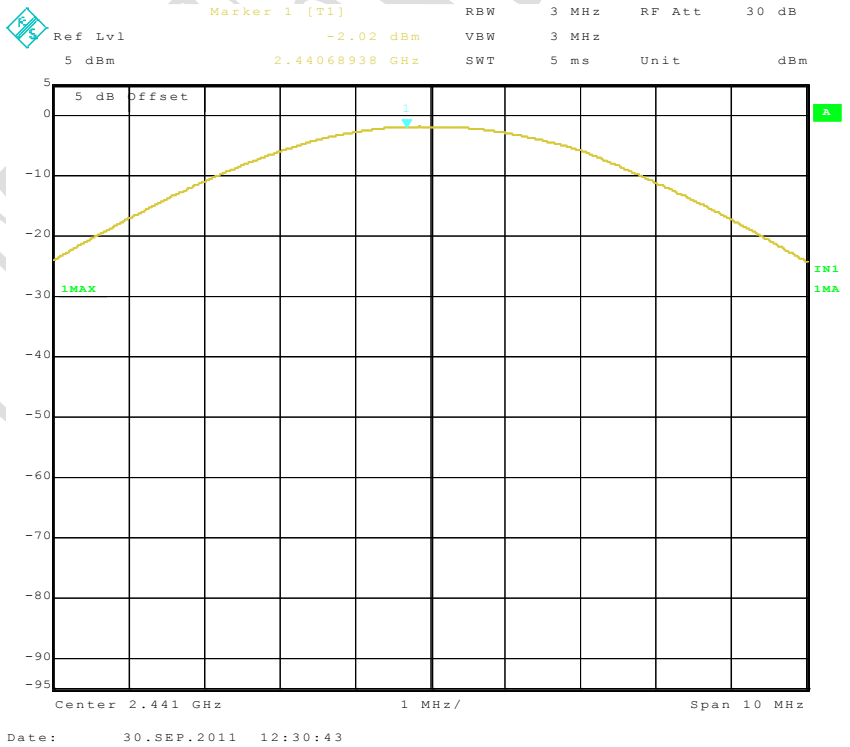
8DPSK:

channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Result
Low: 0	2401.82966	-5.00	30	Pass
Middle: 39	2441.01002	-2.83	30	Pass
High: 78	2479.92986	-5.51	30	pass

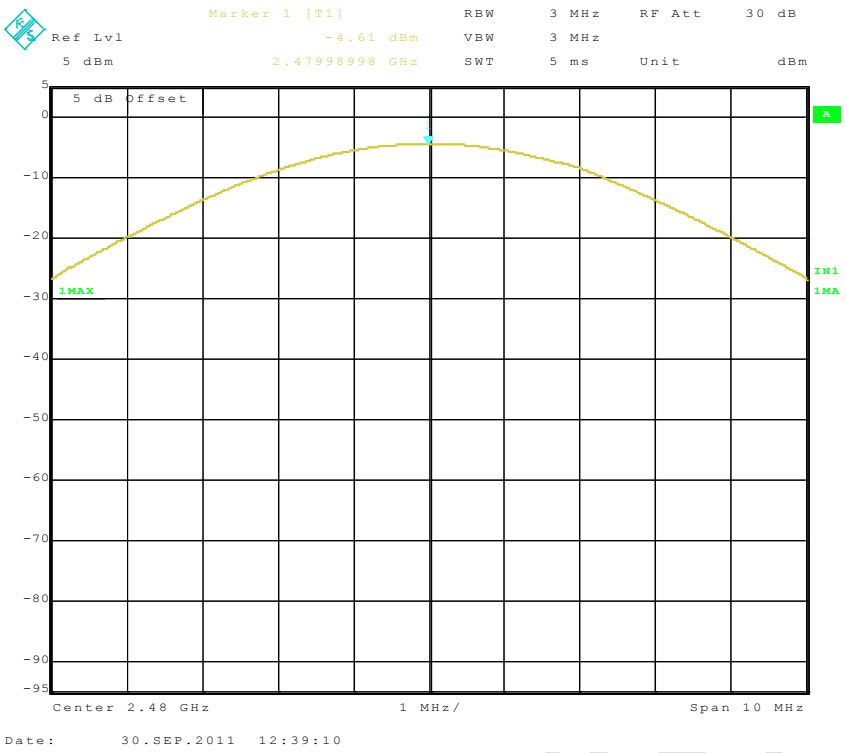
Test plots:



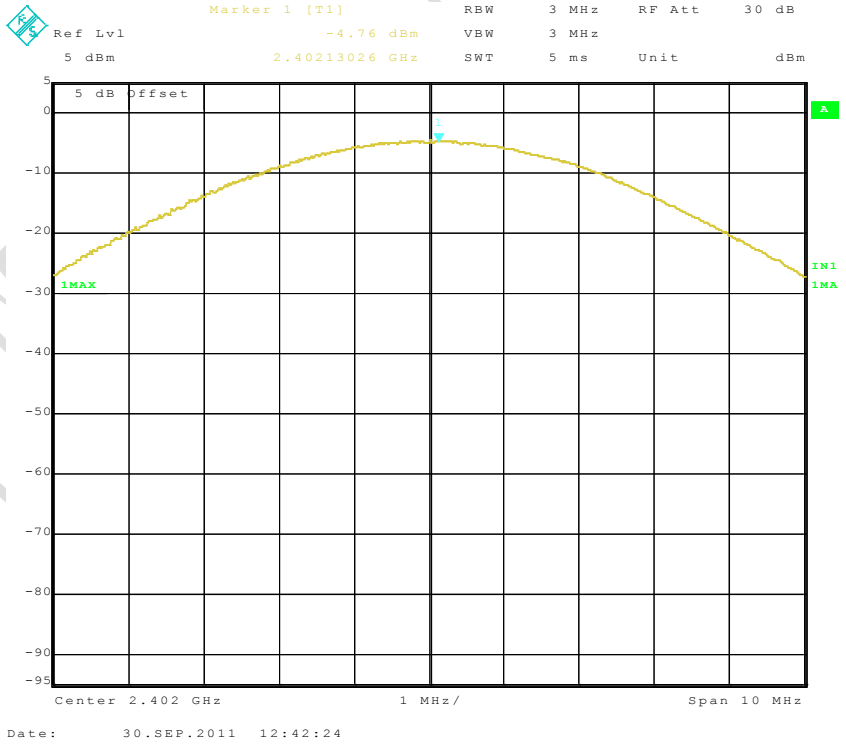
GFSK Channel 0



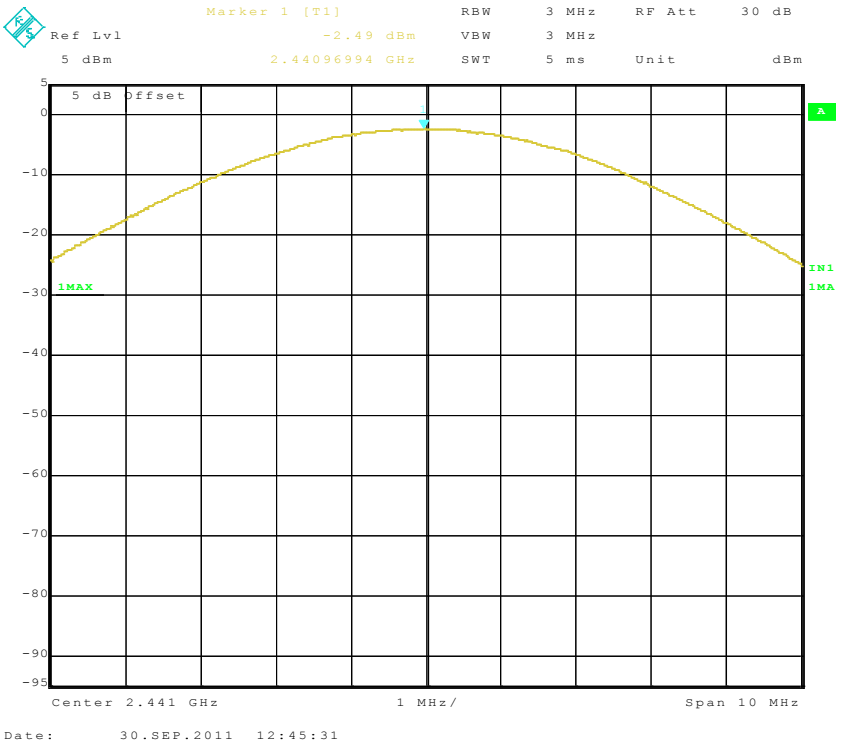
GFSK Channel 39



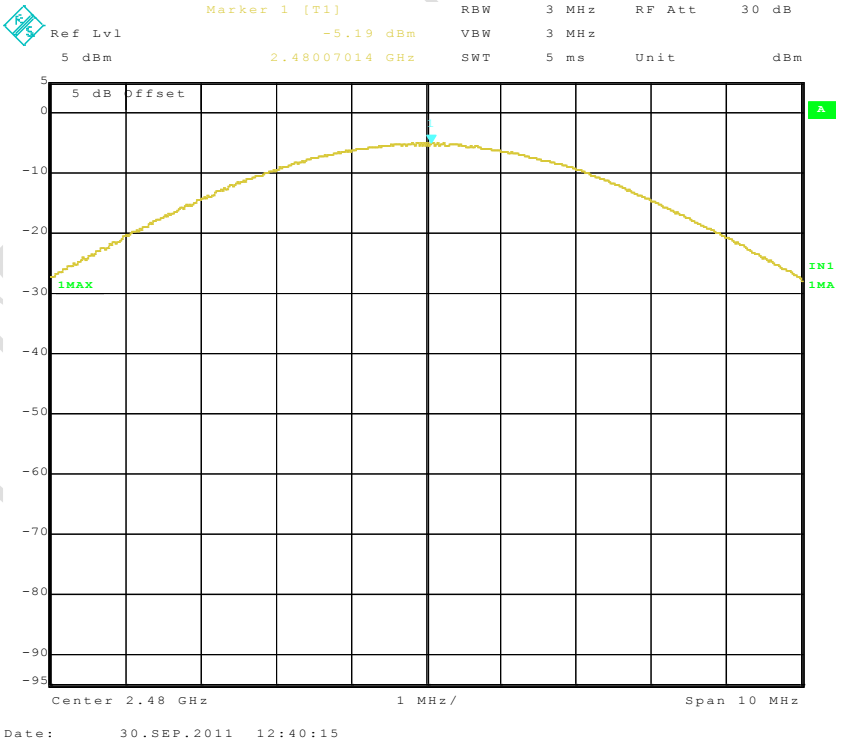
GFSK Channel 78



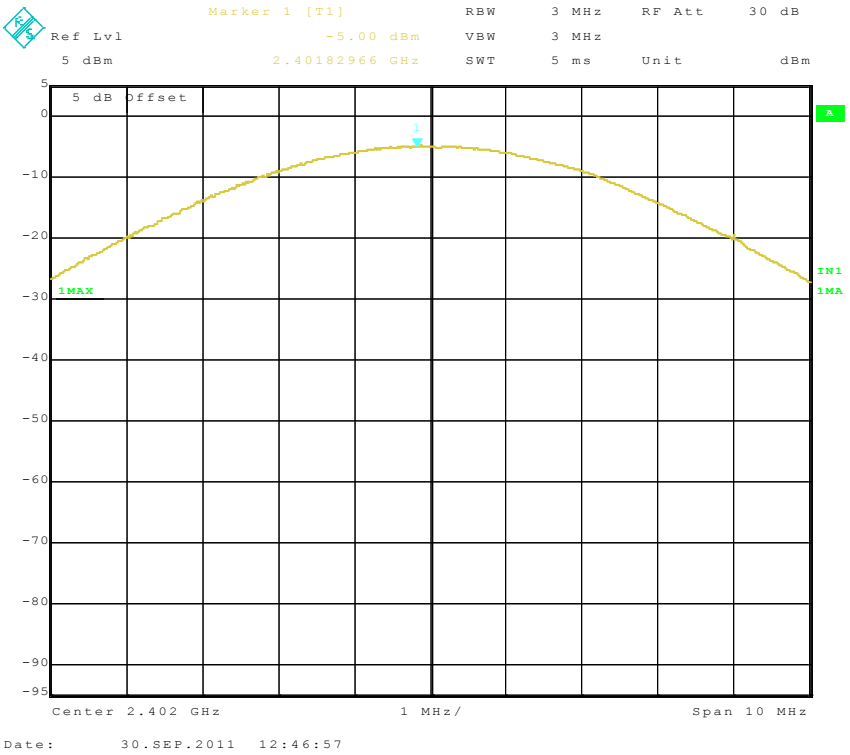
Pi/4 DQPSK Channel 0



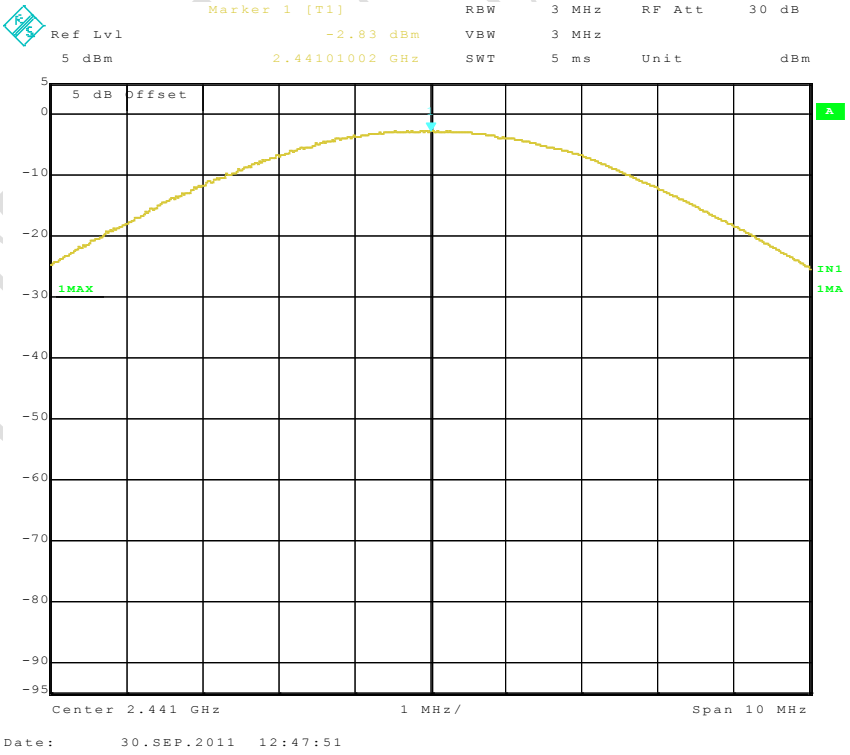
Pi/4 DQPSK Channel 39



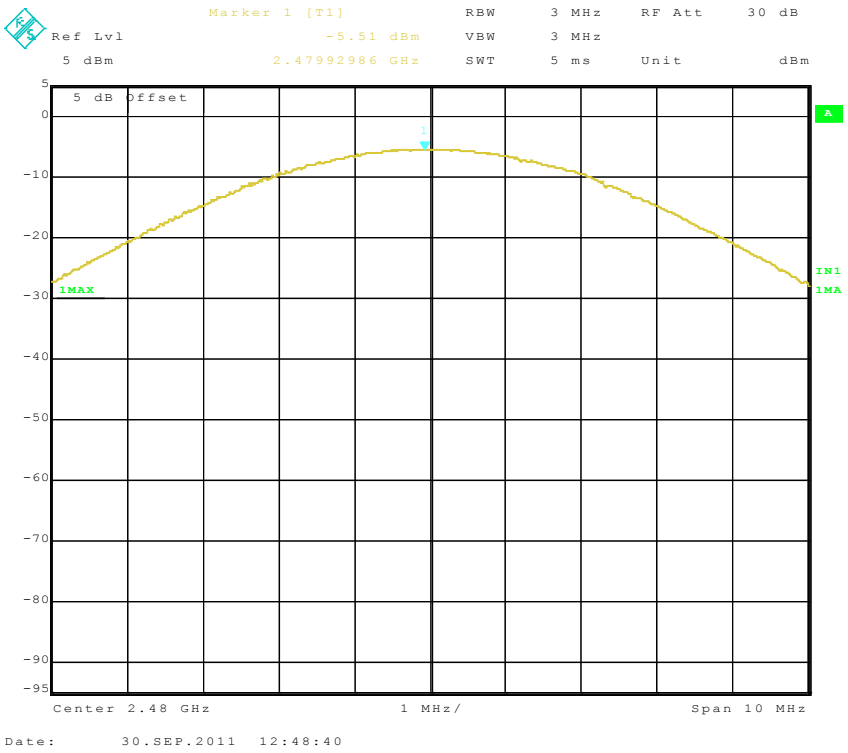
Pi/4 DQPSK Channel 78



8DPSK Channel 0



8DPSK Channel 39



8DPSK Channel 78

4.2 Band edges (conducted)

Specifications:	15.247 (d)
Date of Tests	2011-09-26
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Maximum transmit
Test Results:	Pass

Test equipment Used:

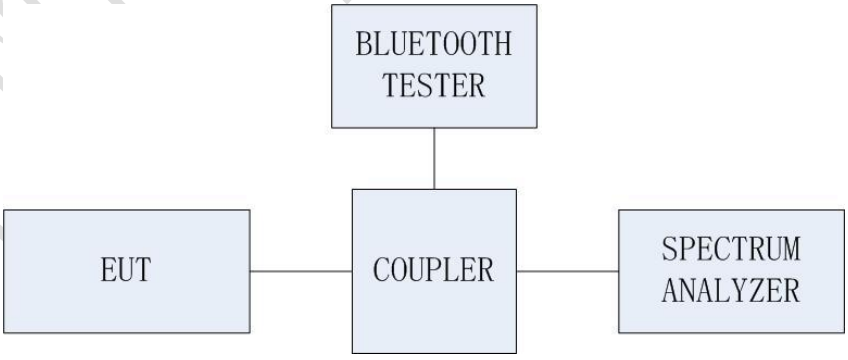
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2012-02-15	Normal
7330	BLUETOOTH TESTER	R/S	CBT	100657	2012-01-28	Normal

LIMIT

According to §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.

Test Setup:

The BLUETOOTH TESTER was used to set the TX channel and power level. The transmitter output is connected to Spectrum analyzer through a coupling.



Test procedure:

The transmitter output is connected to the Spectrum Analyzer. The Spectrum Analyzer is set to the peak detector mode. The spectrum analyzer is set to:

1. Span = 10 MHz
2. RBW = 100 KHz
3. VBW = 300 KHz
4. Sweep = auto

The measurement is made according to Public notice FCC Public Notice

DA 00-705, March 2000, and ANSI C63.4-2003.

GFSK

Hopping mode	Channel	Band-edge Freq.[MHz]	Delta dB	Results
Hopping OFF	0, Left band-edge	2399.98597	-51.35	Pass
Hopping ON	--, Left band-edge	2399.90581	-52.76	Pass
Hopping OFF	78, Right band-edge	2484.01804	-53.28	Pass
Hopping ON	--, Right band-edge	2483.83768	-53.93	Pass

Pi/4 DQPSK

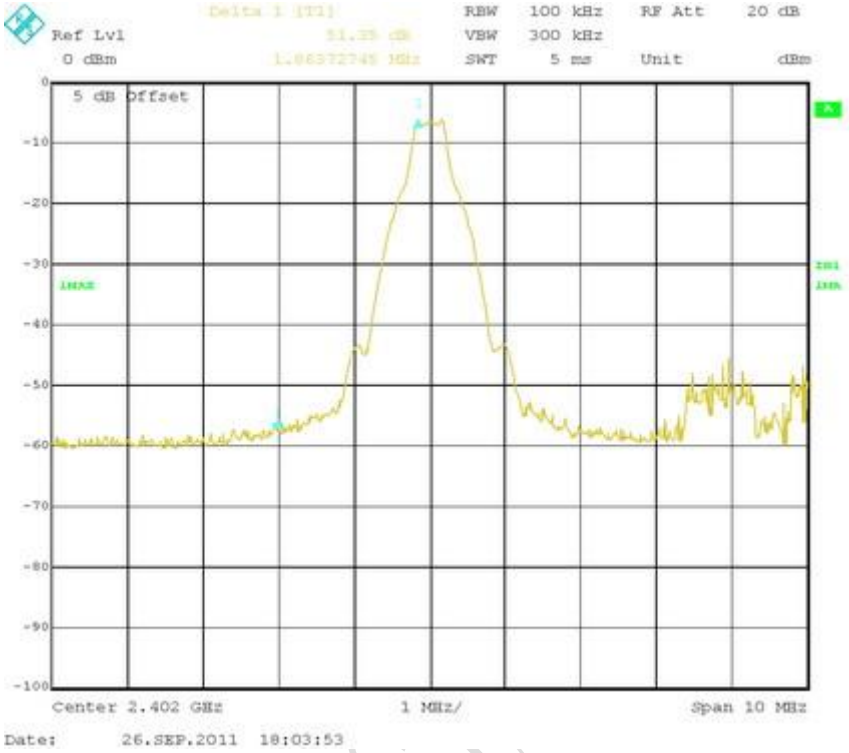
Hopping mode	Channel	Band-edge Freq.[MHz]	Delta dB	Results
Hopping OFF	0, Left band-edge	2399.96593	-50.44	Pass
Hopping ON	--, Left band-edge	2399.90581	-51.18	Pass
Hopping OFF	78, Right band-edge	2483.57715	-52.67	Pass
Hopping ON	--, Right band-edge	2483.69739	-52.47	Pass

8DPSK

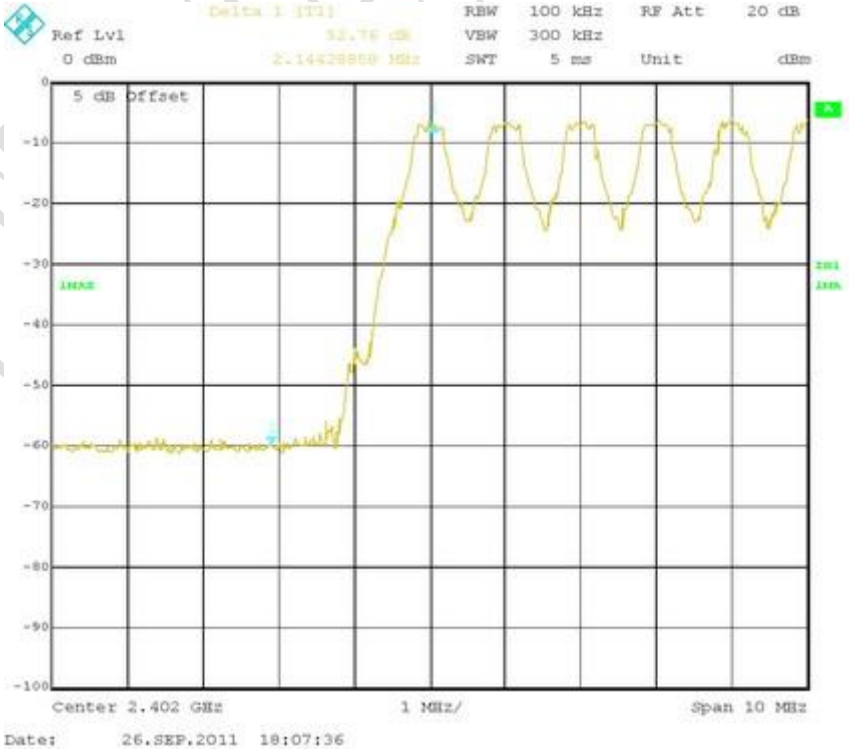
Hopping mode	Channel	Band-edge Freq.[MHz]	Delta dB	Results
Hopping OFF	0, Left band-edge	2399.845691	-51.22	Pass
Hopping ON	--, Left band-edge	2399.92585	-52.64	Pass
Hopping OFF	78, Right band-edge	2484.39880	-53.54	Pass
Hopping ON	--, Right band-edge	2483.57715	-50.90	Pass

Test plots:

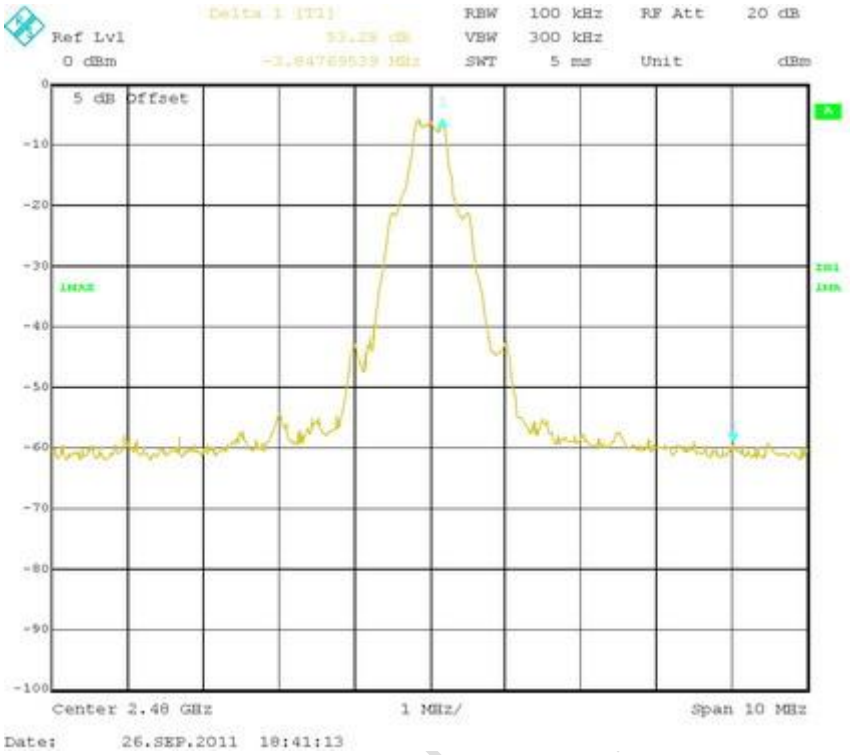
GFSK Channel 0, fixed mode, left band-edge



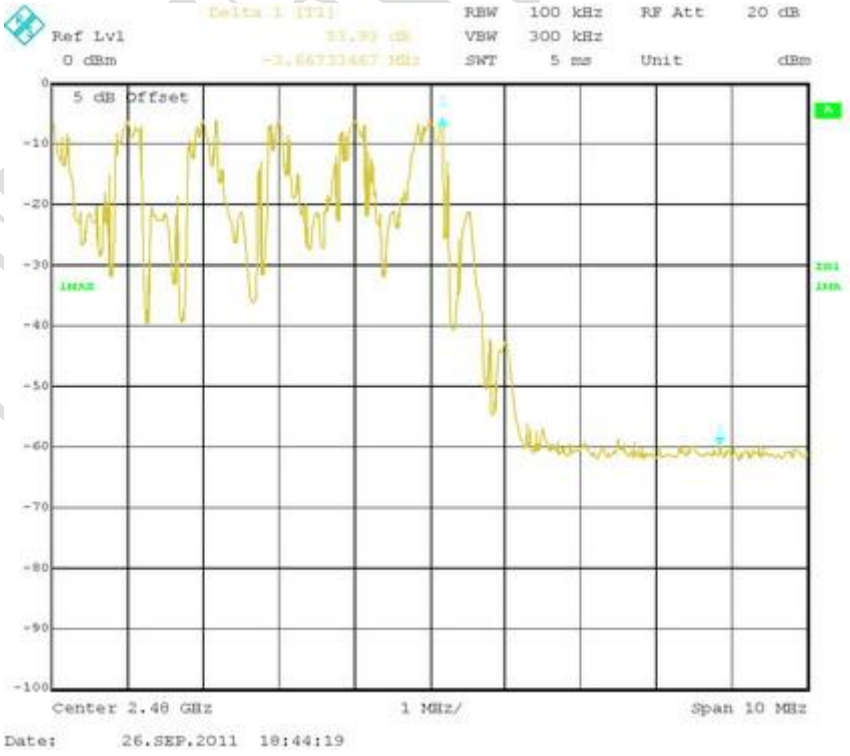
GFSK Hopping mode, left band-edge



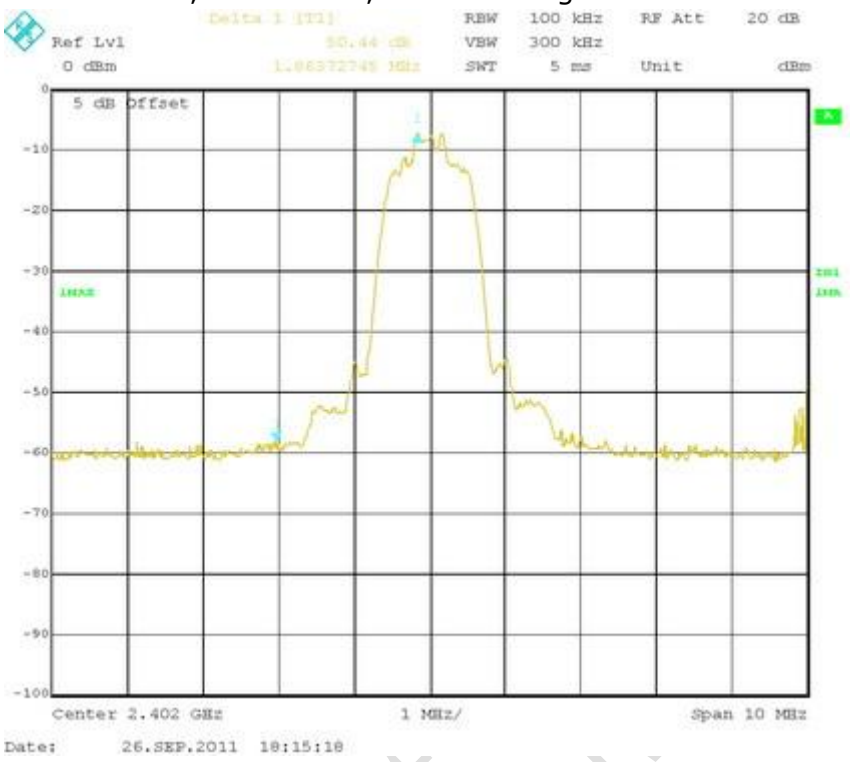
GFSK Channel 78, fixed mode, right band-edge



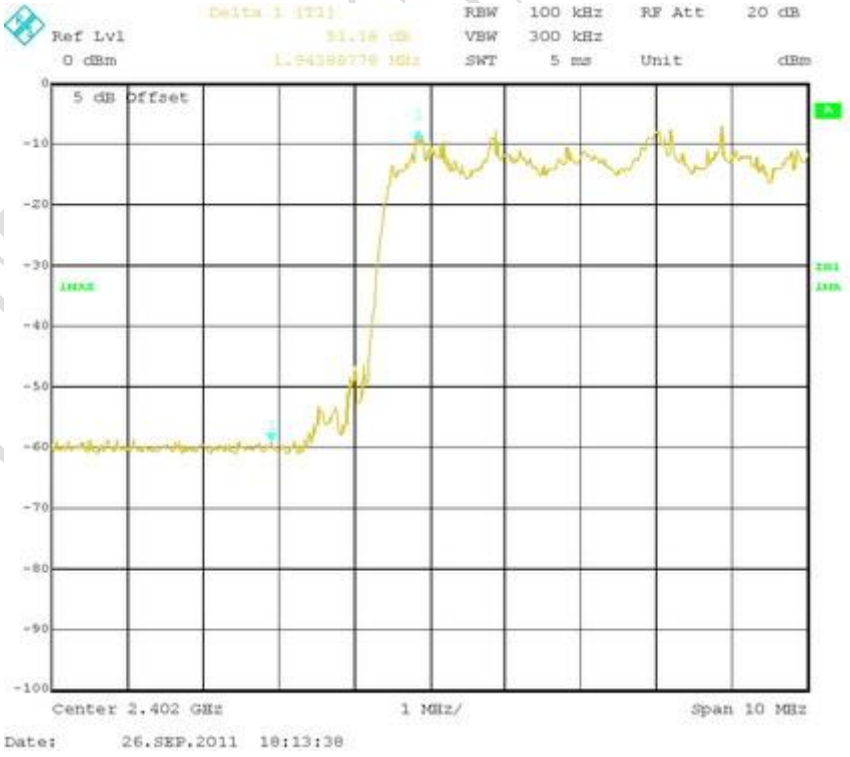
GFSK Hopping mode, right band-edge



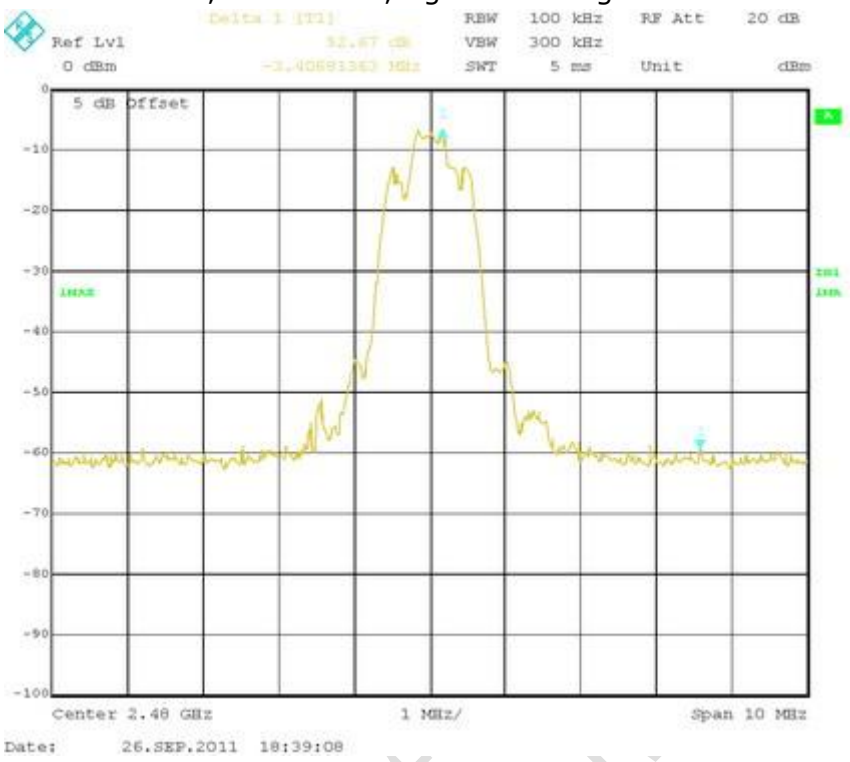
Pi/4 DQPSK Channel 0, fixed mode, left band-edge



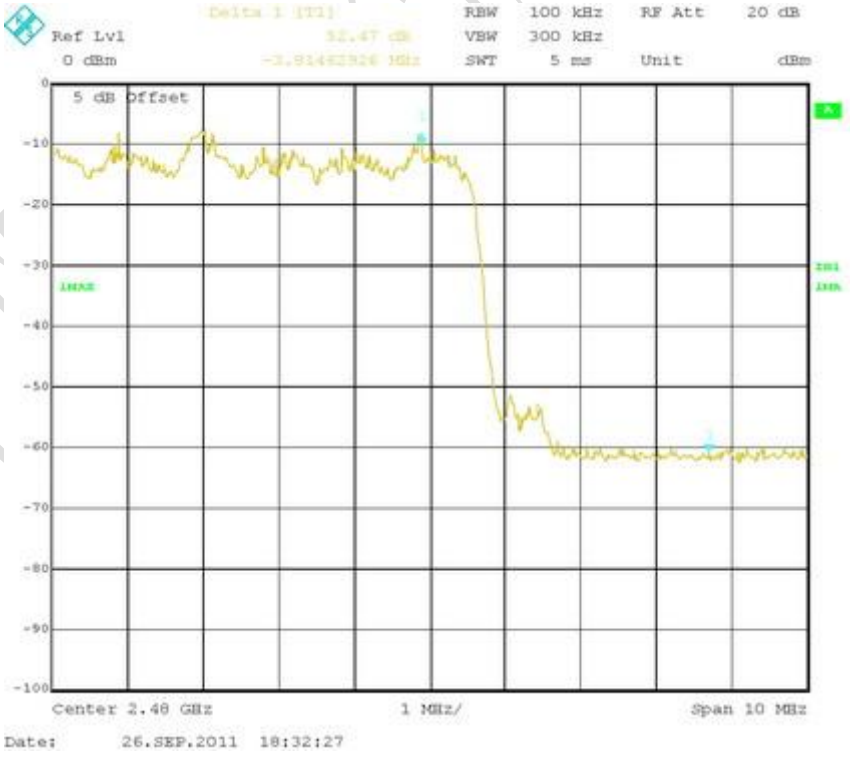
Pi/4 DQPSK Hopping mode, left band-edge



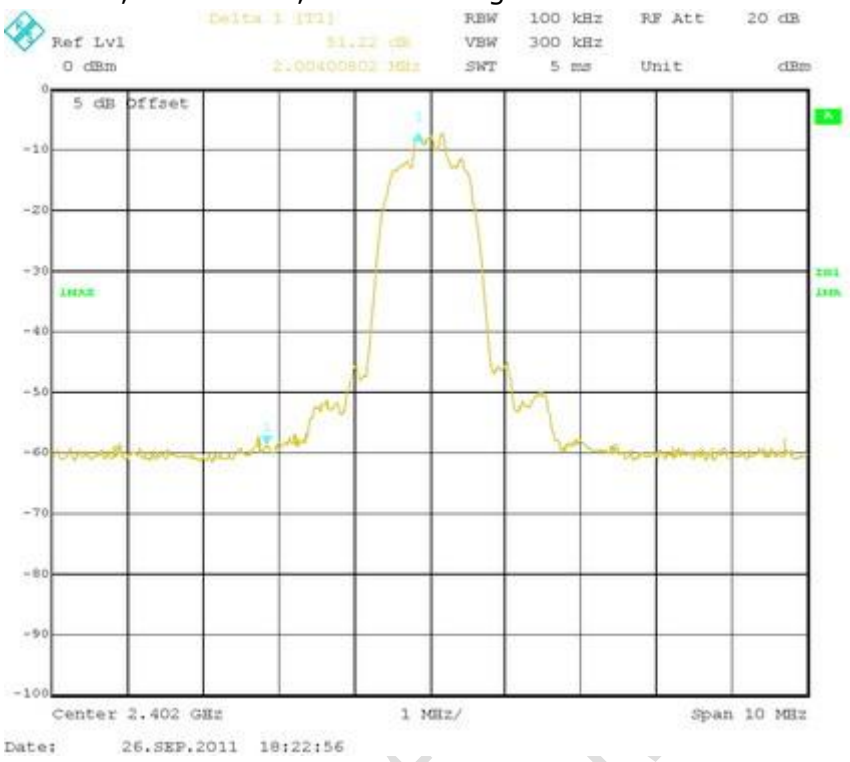
Pi/4 DQPSK Channel 78, fixed mode, right band-edge



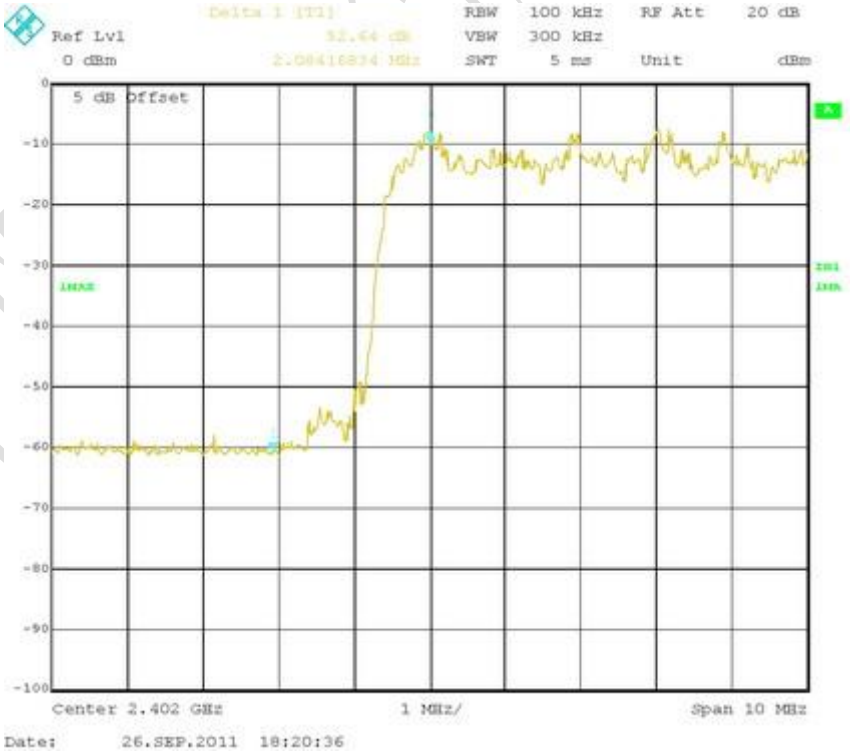
Pi/4 DQPSK Hopping mode, right band-edge



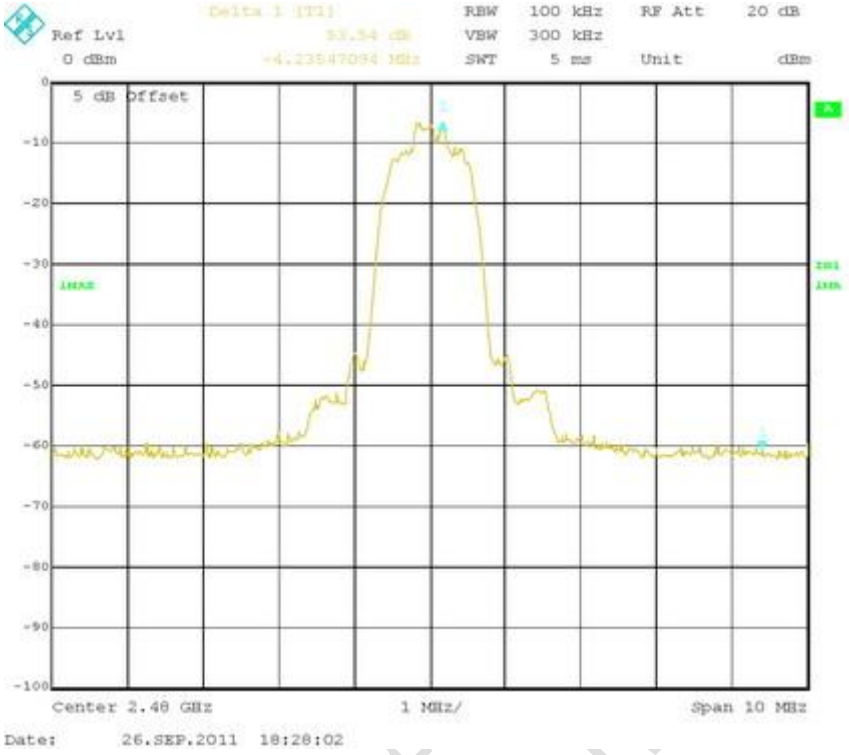
8DPSK Channel 0, fixed mode, left band-edge



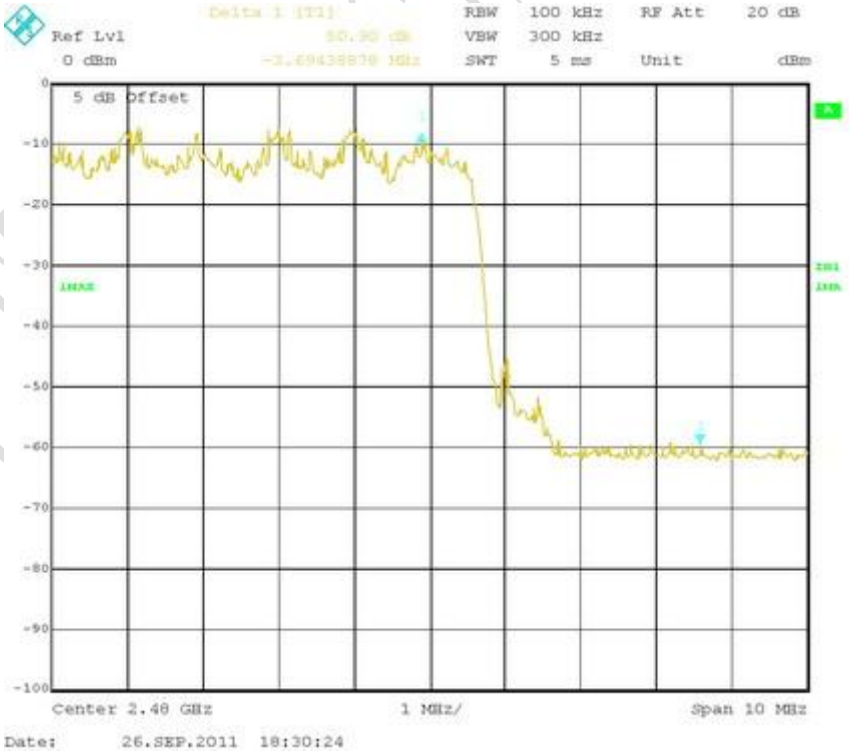
8DPSK Hopping mode, left band-edge



8DPSK Channel 78, fixed mode, right band-edge



8DPSK Hopping mode, right band-edge



4.3 Frequency separation

Specifications:	15.247(a)(1)
Date of Test	2011-09-26
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	maximum transmit
Test Results:	Pass

Test equipment Used:

Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2012-02-15	Normal
7330	BLUETOOTH TESTER	R/S	CBT	100657	2012-01-28	Normal

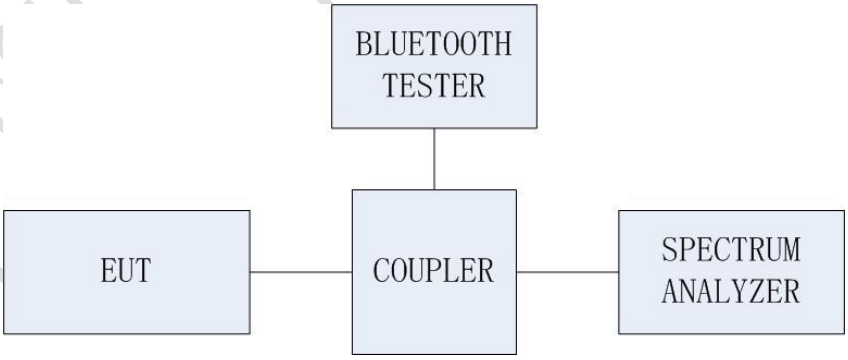
LIMIT

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25 kHz or 2/3 of the 20 dB bandwidth of the hopping channel (note), whichever is greater.

Note: it is for the power of less than 125 mw, and for others it is 20 dB bandwidth of the hopping channel.

Test Setup

The BLUETOOTH TESTER was used to set the TX channel and power level. The transmitter output is connected to Spectrum analyzer through a coupling.



TEST PROCEDURE

The spectrum analyzer is set to:

1. 20dBc Bandwidth: Span = 3 MHz, RBW=20 kHz, VBW=50 kHz, Sweep=auto.
2. Carrier Frequency Separation: Span = 3 MHz, RBW=100 kHz, VBW=300 kHz, Sweep=auto.

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

The measurement is made according to Public notice FCC Public Notice DA 00-705, March 2000, and ANSI C63.4-2003.

Test Result:

20dBc bandwidth

Channel separation	20dB Bandwidth (kHz)		Limit (kHz)	Result
GFSK				
998	Ch 0	1046	>25	Pass
	Ch 39	1040	>25	Pass
	Ch 78	1040	>25	Pass
Pi/4 DQPSK				
991	Ch 0	1106	>25	Pass
	Ch 39	1100	>25	Pass
	Ch 78	1106	>25	Pass
8DPSK				
998	Ch 0	1178	>25	Pass
	Ch 39	1184	>25	Pass
	Ch 78	1178	>25	Pass

Test plots:

Channel Separation (GFSK)

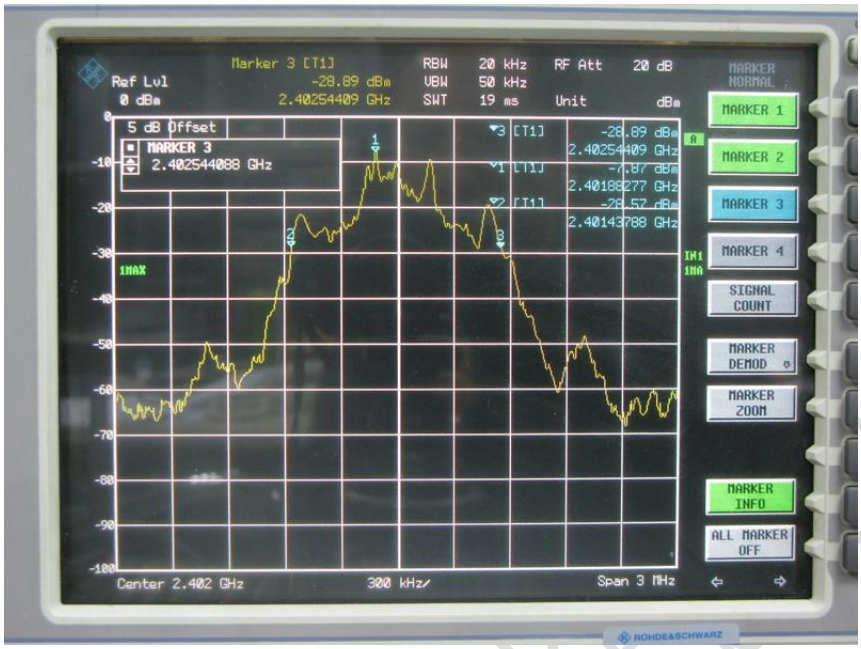
20dB Bandwidth (GFSK Ch 0)

20dB Bandwidth (GFSK Ch 39)

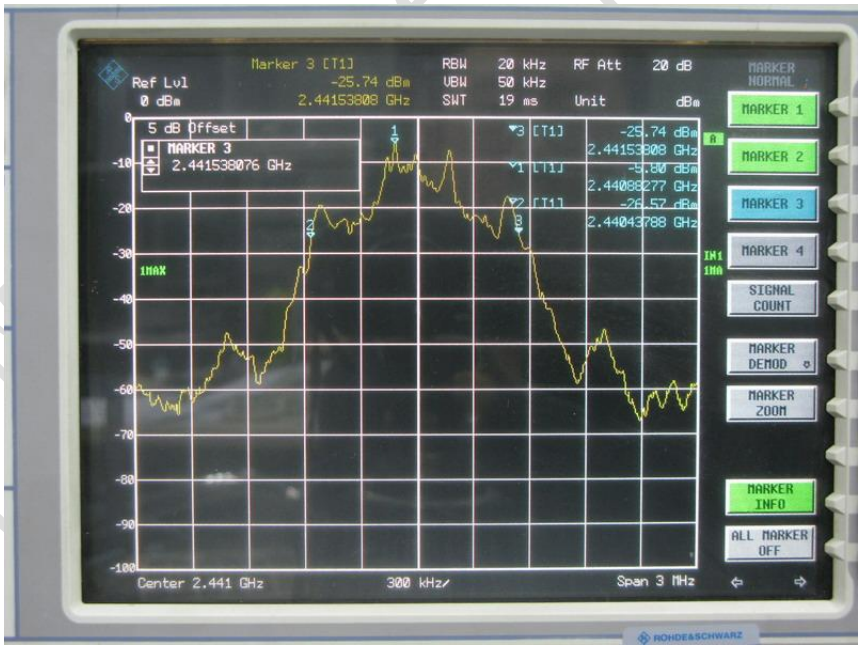
20dB Bandwidth (GFSK Ch 78)

Channel Separation (Pi/4 DQPSK)

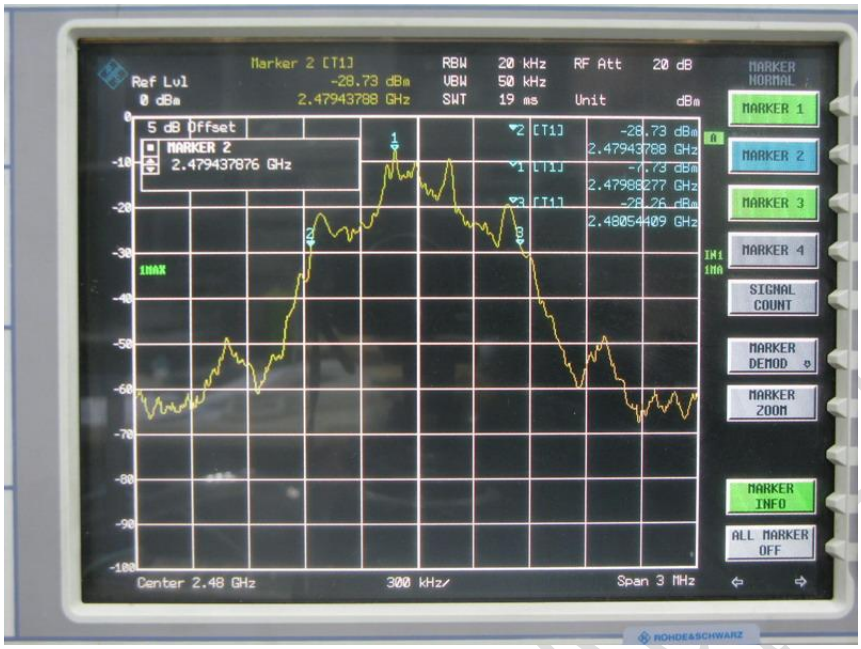
20dB Bandwidth (Pi/4 DQPSK Ch0)



20dB Bandwidth (Pi/4 DQPSK Ch39)

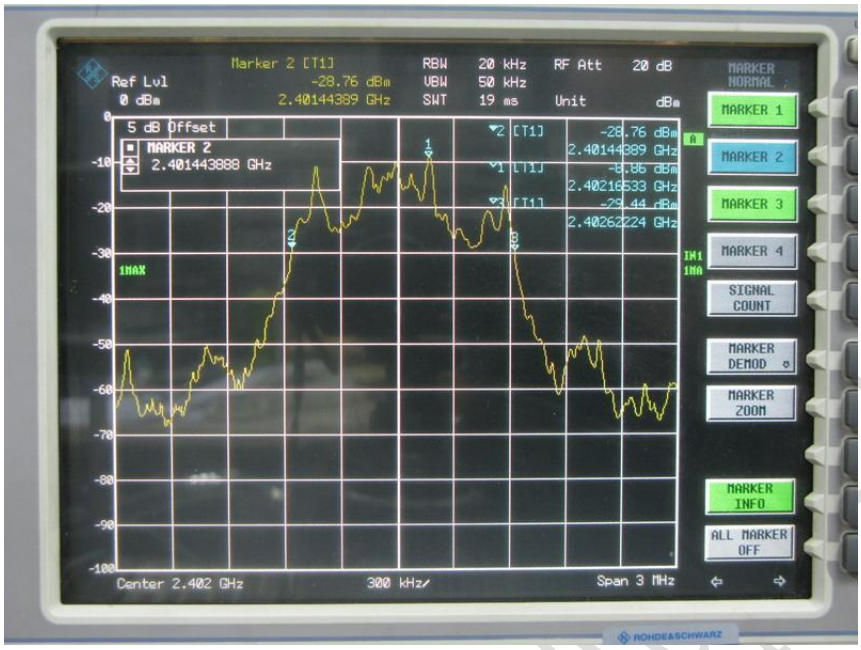


20dB Bandwidth (Pi/4 DQPSK Ch78)



Channel Separation (8DPSK)

20dB Bandwidth (8DPSK Ch0)



20dB Bandwidth (8DPSK Ch39)

20dB Bandwidth (8DPSK Ch78)

4.4 Number of hopping frequency

Specifications:	15.247(a)(1)(ii)
Date of Test	2011-09-26
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	hopping
Test Results:	Pass

Test equipment Used:

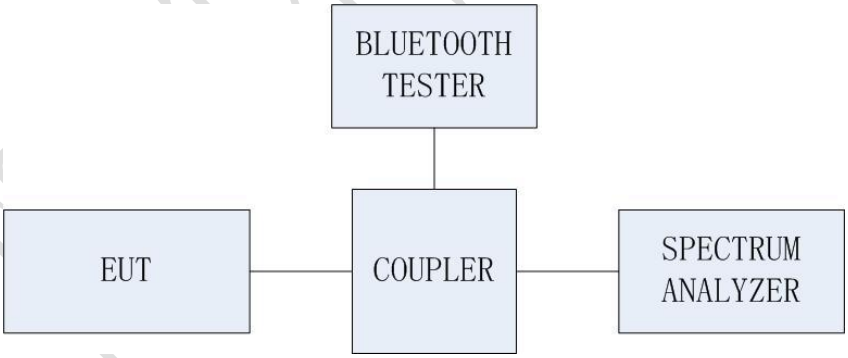
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2012-02-15	Normal
7330	BLUETOOTH TESTER	R/S	CBT	100657	2012-01-28	Normal

LIMIT

According to §15.247(a)(1)(ii), Frequency hopping systems operating in the 2400 MHz ~ 2483.5 MHz bands shall use at least 15 hopping frequencies.

Test Setup

The BLUETOOTH TESTER was used to set the TX channel and power level. The transmitter output is connected to Spectrum analyzer through a coupling.



TEST PROCEDURE

The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer was set to:

1. Span = the frequency band of operation, i.e. 2400~2441MHz and 2441~2484 MHz
2. RBW = 500 KHz
3. VBW = 500 KHz
4. Sweep = auto

The trace was allowed to stabilize.

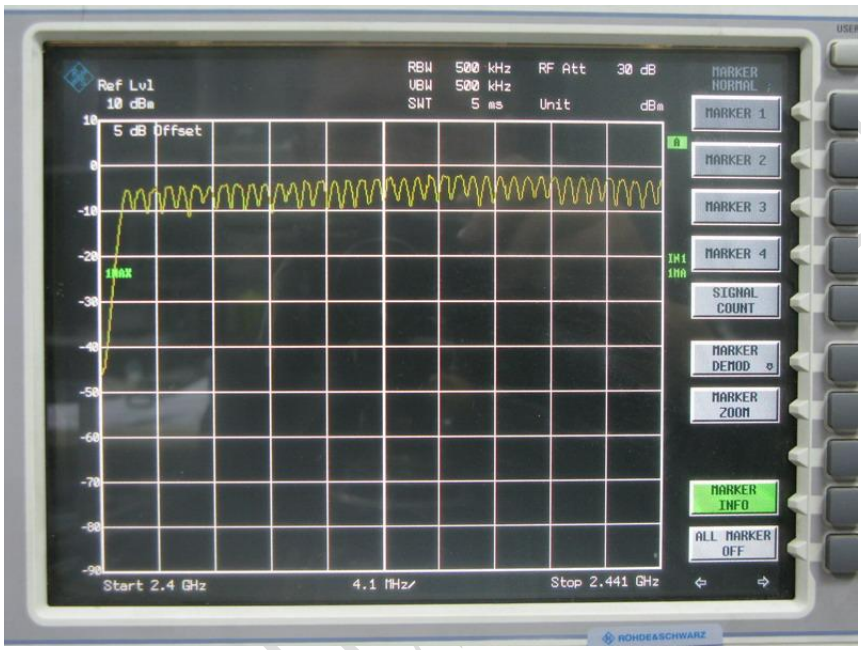
The measurement is made according to Public notice FCC Public Notice DA 00-705, March 2000, and ANSI C63.4-2003.

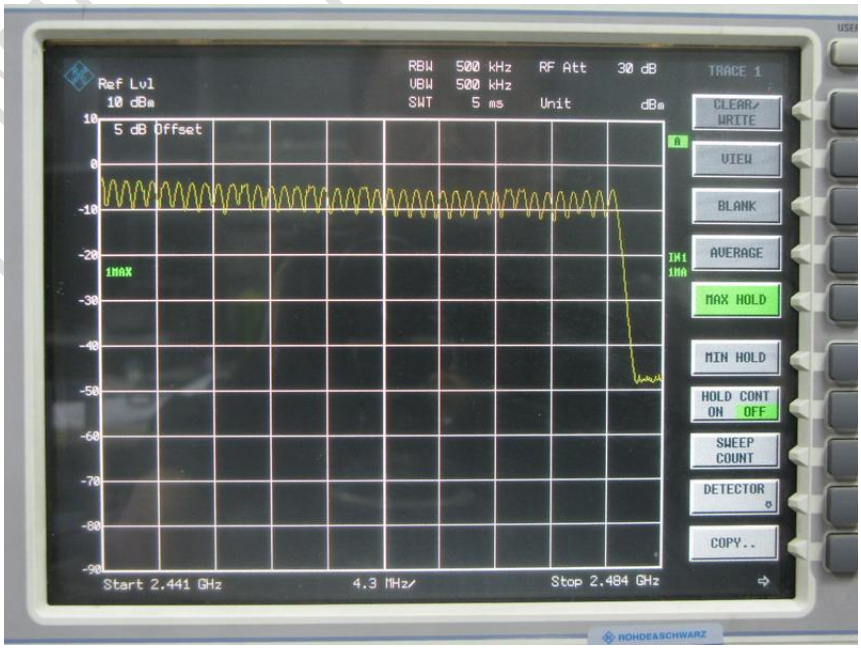
Test Result:

Modulation	No. OF channels	Limit (No. of Ch)	Result
GFSK	79	>75	Pass
Pi/4 DQPSK	79	>75	Pass
8DPSK	79	>75	Pass

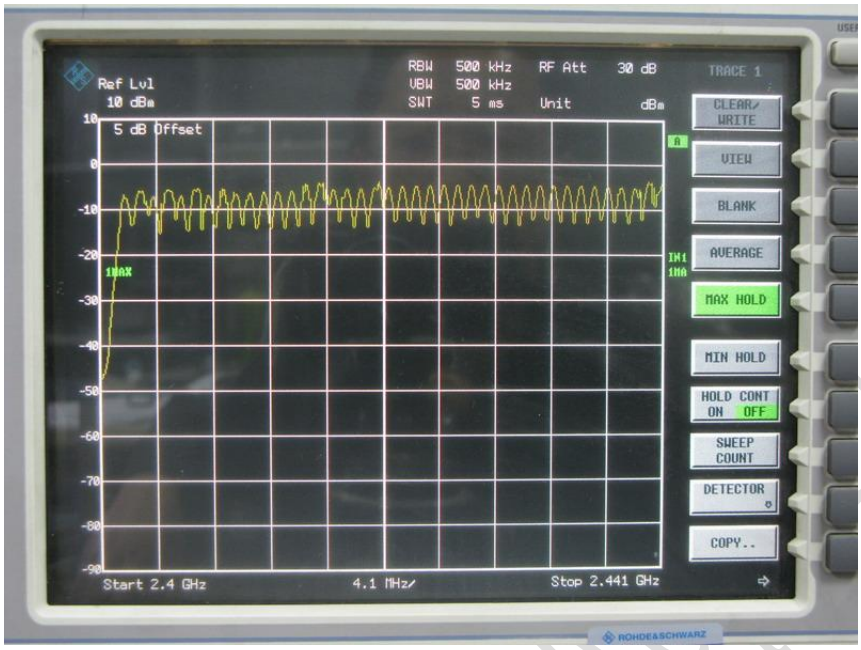
Test plot:

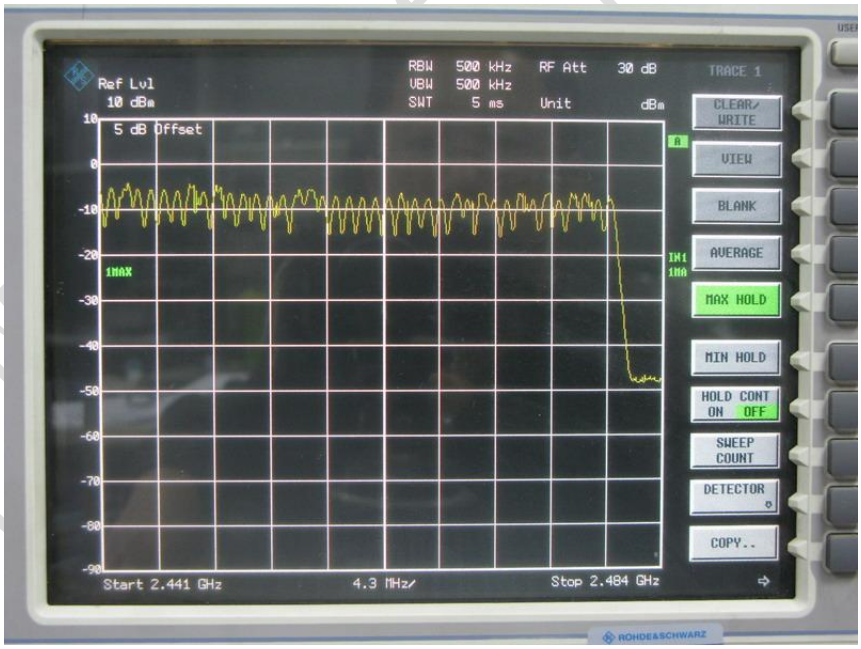
Channel Number(GFSK)



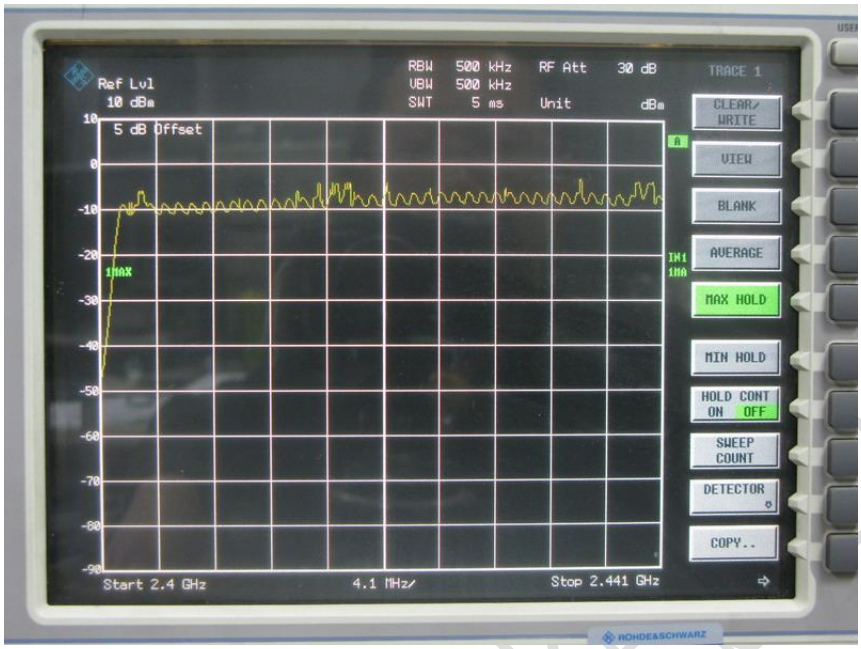


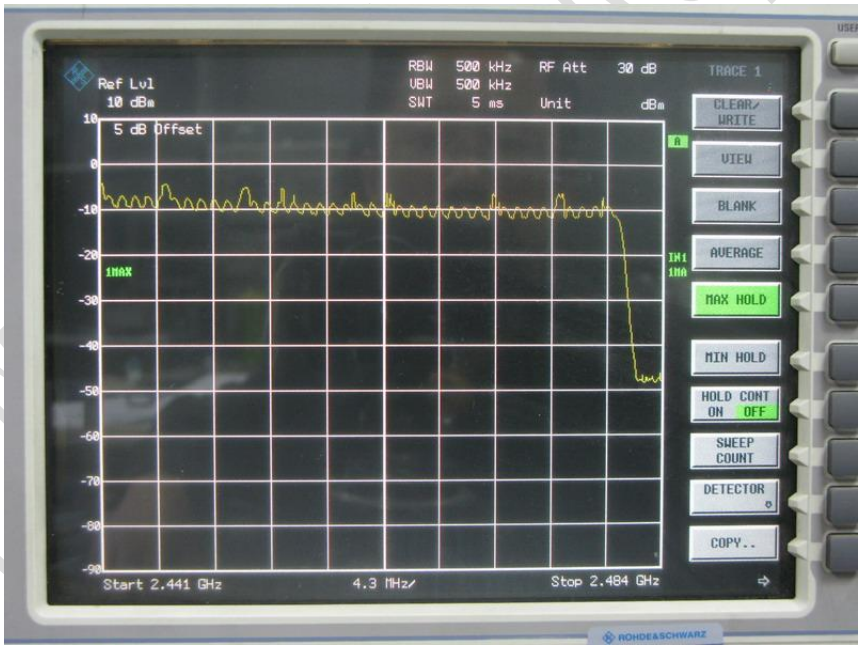
Channel Number(Pi/4 DQPSK)





Channel Number(8DPSK)





4.5 Time of occupancy

Specifications:	15.247(a)(1)(iii)
Date of Test	2011-09-27
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Fix channel
Test Results:	Pass

Test equipment Used:

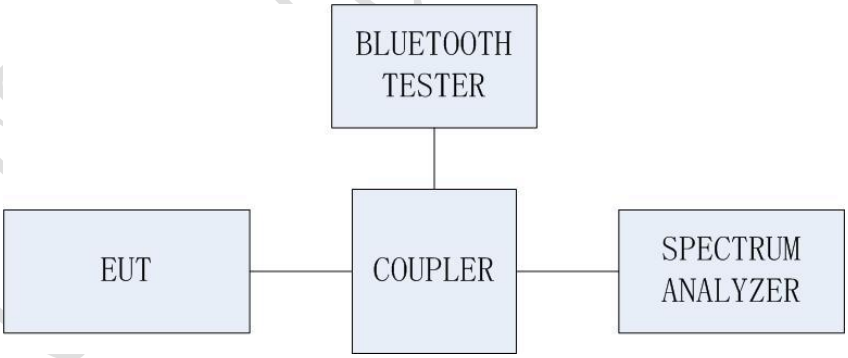
Asset Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
7805	EMI Test Receiver	R/S	ESI40	839283/007	2012-02-15	Normal
7330	BLUETOOTH TESTER	R/S	CBT	100657	2012-01-28	Normal

LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400 MHz ~ 2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

Test Setup

The BLUETOOTH TESTER was used to set the TX channel and power level. The transmitter output is connected to Spectrum analyzer through a coupling.



TEST PROCEDURE

The spectrum analyzer is set to:

1. Span = zero span
2. RBW = 1 MHz
3. VBW = 3 MHz
4. Sweep = as necessary to capture the entire dwell time per channel

The marker-delta function was used to determine the dwell time.

The measurement is made according to Public notice FCC Public Notice DA 00-705, March 2000, and ANSI C63.4-2003.

Test Result:

GFSK DH1:

0.3788*(1600/2)/79*31.6=121ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
0.3788	121	31.6	PASS

GFSK DH3:

1.641*(1600/4)/79*31.6=263ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
1.641	263	31.6	PASS

GFSK DH5:

2.884*(1600/6)/79*31.6=308ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
2.884	308	31.6	PASS

Pi/4 DQPSK DH1:

0.3848*(1600/2)/79*31.6=123ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
0.3848	123	31.6	PASS

Pi/4 DQPSK DH3:

1.639*(1600/4)/79*31.6=262ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
1.639	262	31.6	PASS

Pi/4 DQPSK DH5:

2.886*(1600/6)/79*31.6=308ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
2.886	308	31.6	PASS

8DPSK DH1:

0.3868*(1600/2)/79*31.6=124ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
0.3868	124	31.6	PASS

8DPSK DH3:

1.641*(1600/4)/79*31.6=263ms

Pulse time[ms]	Total dwell[ms]	Period time[s]	result
1.641	263	31.6	PASS

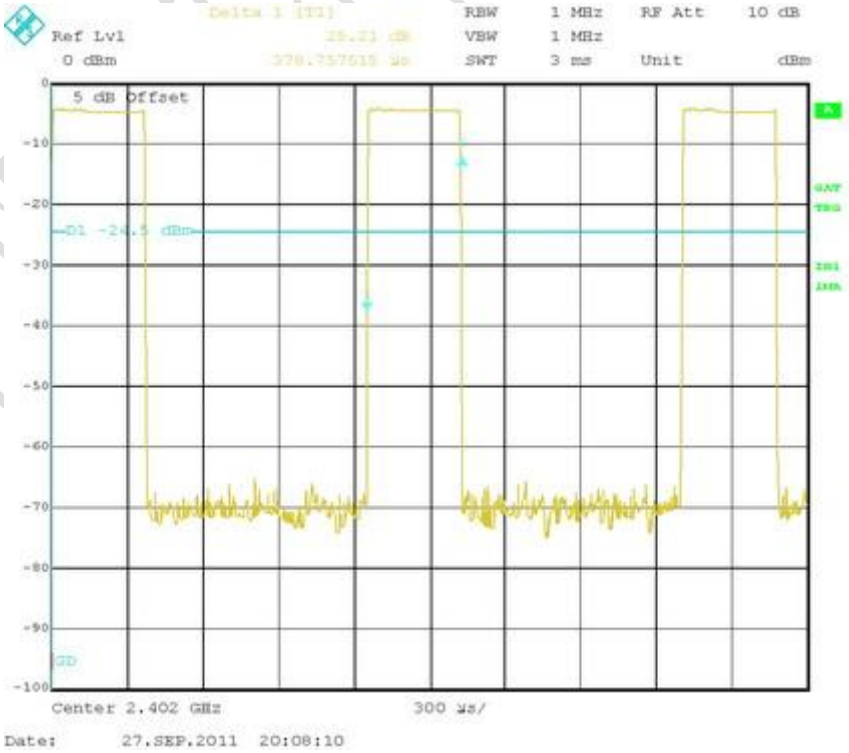
8DPSK DH5:

2.886*(1600/6)/79*31.6=308ms

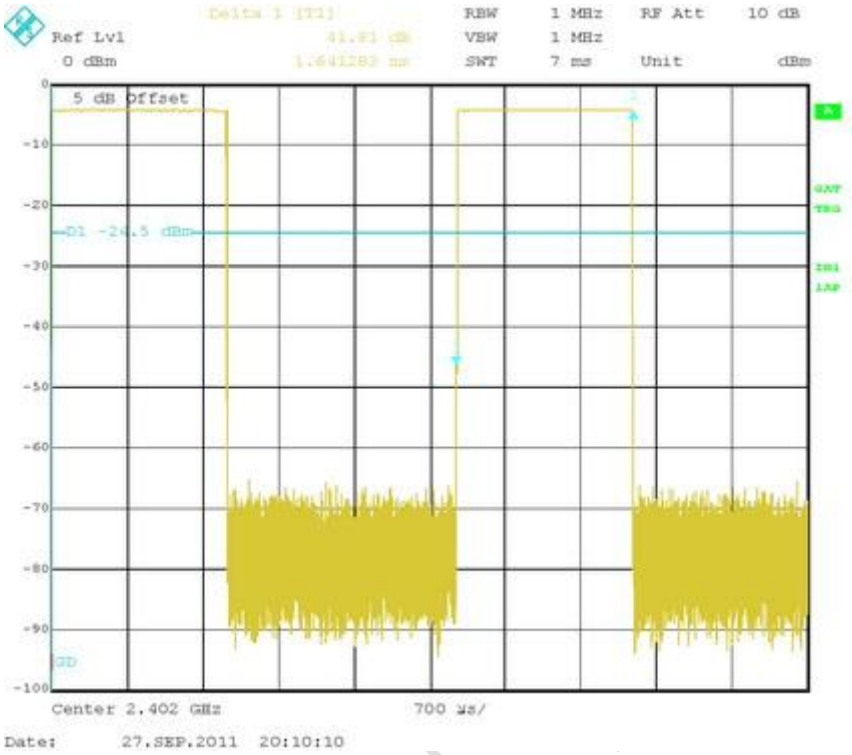
Pulse time[ms]	Total dwell[ms]	Period time[s]	result
2.886	308	31.6	PASS

Test data:

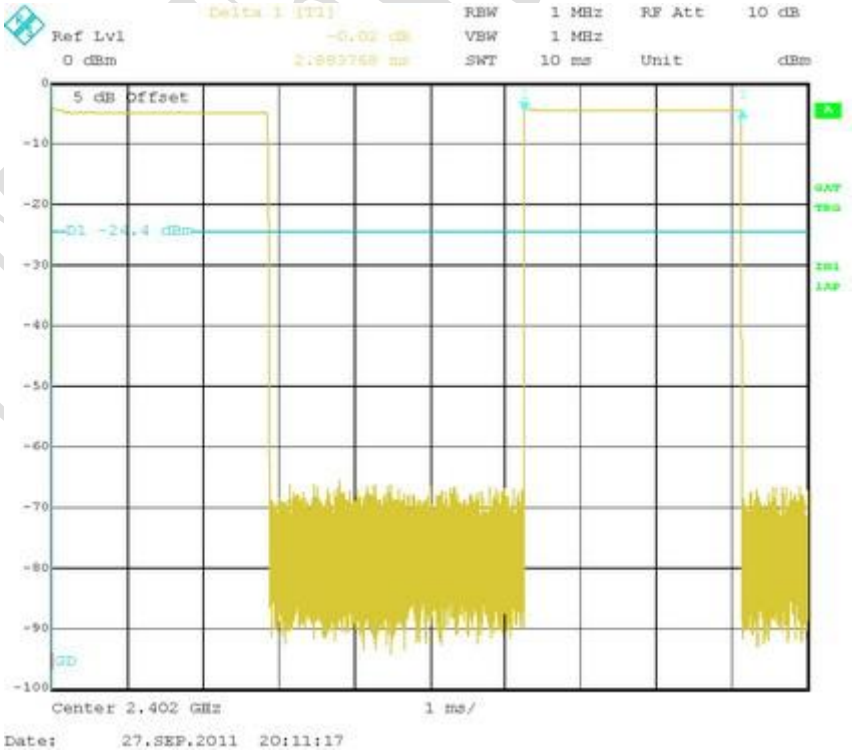
GFSK DH1



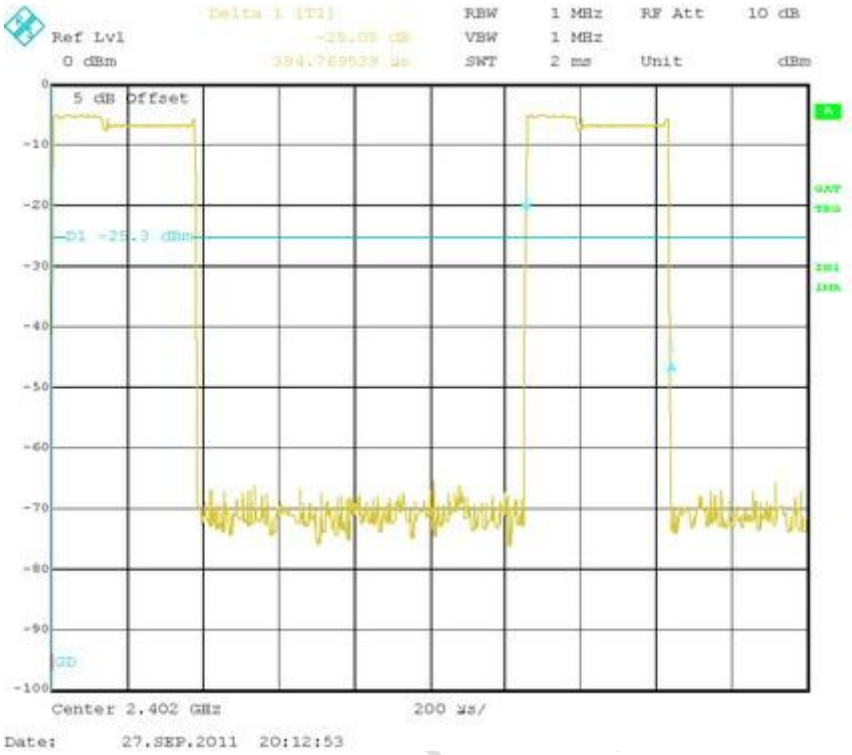
GFSK DH3



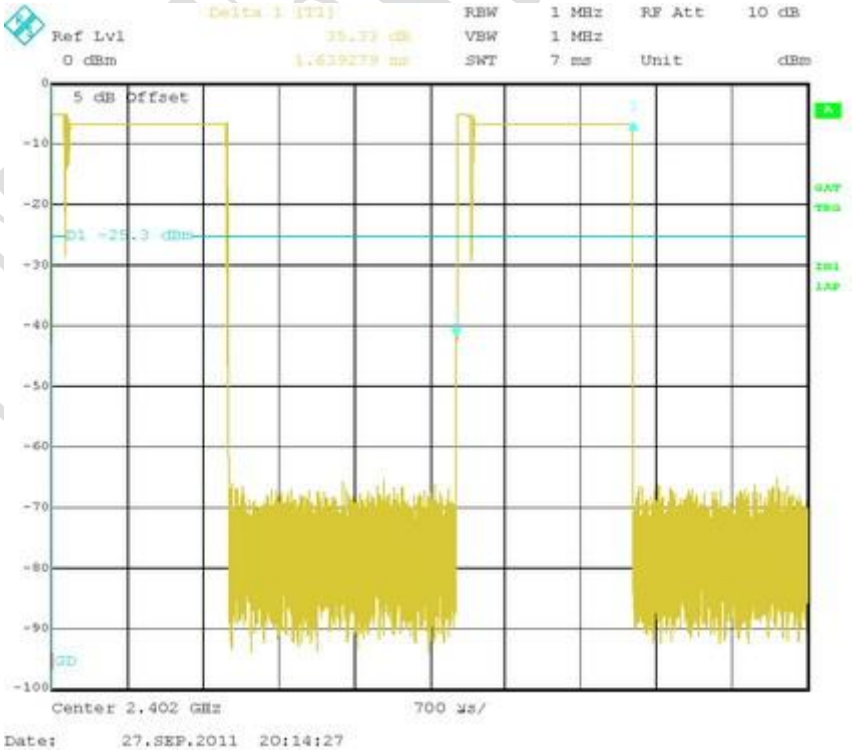
GFSK DH5



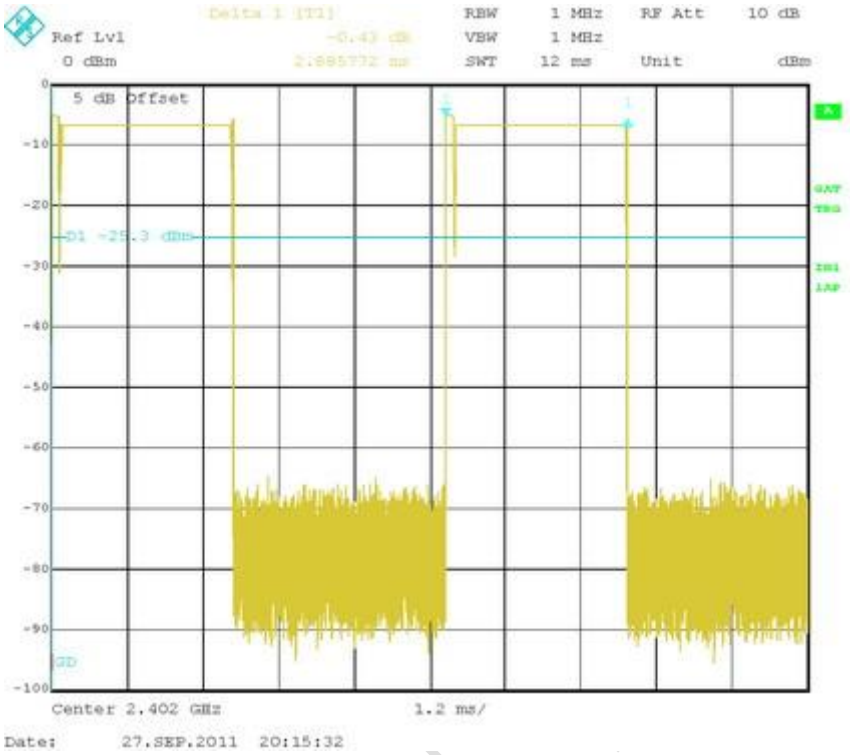
Pi/4 DQPSK DH1



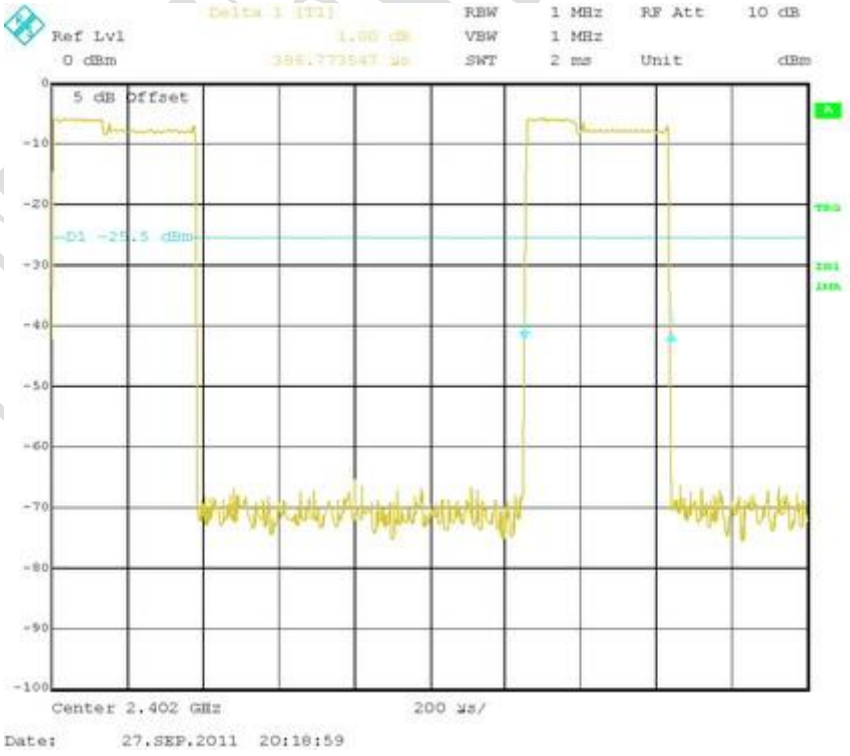
Pi/4 DQPSK DH3



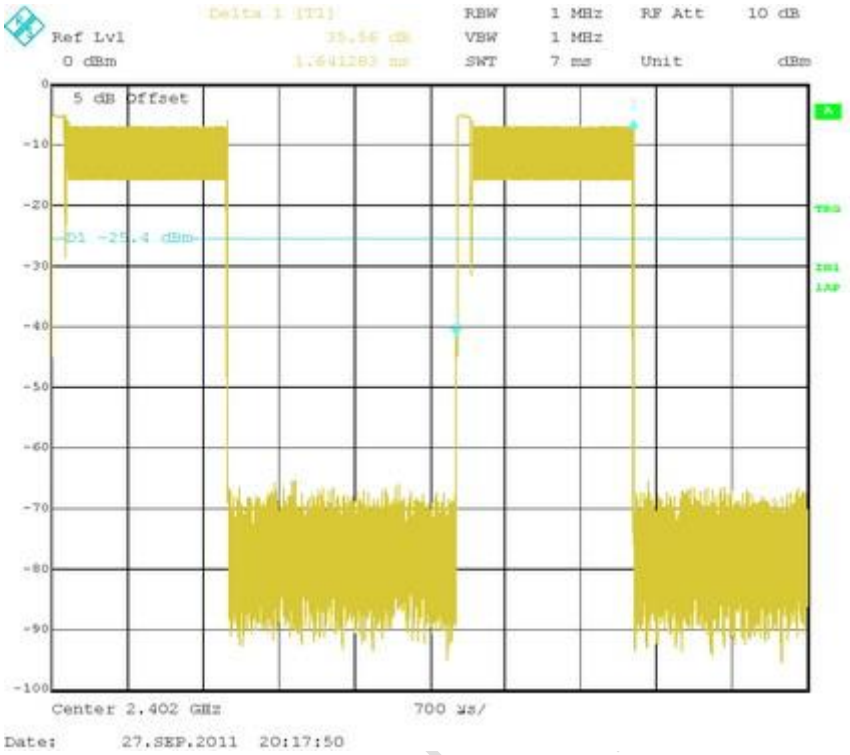
Pi/4 DQPSK DH5



8DPSK DH1



8DPSK DH3



8DPSK DH5