



A Test Lab Techno Corp.

No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
Tel : +886-3-2710188 / Fax : +886-3-2710190

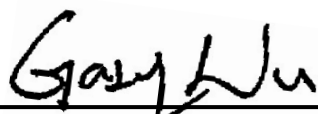
Part 15 C Measurement Report



Report No.	: 0912FR14-02
Applicant	: HTC Corporation
Product Type	: Smartphone
Trade Name	: HTC
Model No.	: PB65100
FCC ID	: NM8PB65100
Dates of Test	: Dec. 21 ~ 27, 2009
Test Specification	: FCC CFR Title 47 Part 15 Subpart C (15.247) (2008-10) PUBLIC NOTICE :DA 00-705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full. This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp.
4. This document may be altered or revised by A Test Lab Techno. Corp. personnel only, and shall be noted in the revision section of the document.


Miller Lee 20100322
Approve Signer


Gary Wu 20100322
Testing Engineer



VERIFICATION

We hereby verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2003. All test were conducted by A Test Lab Techno Corp. No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.) Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart C (15.247).

Product Type : Smartphone
Applicant : HTC Corporation
Applicant Address : No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Manufacturer : HTC Corporation
Manufacturer Address : No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Trade Name : HTC
Model No. : PB65100
FCC ID : NM8PB65100
EUT Rating Voltage : 100-240Vac, 0.2A, 50/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C (15.247) (2008-10)
Test Result : Complied

Approved by : Miller Lee
Miller Lee 2010/03/22

Prepared by : Gary Wu
Gary Wu 2010/03/22

A Test Lab Techno Corp.

No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
Tel : 03-2710188 / Fax : 03-2710190



Contents

1. General.....	4
2. Conducted Emissions Requirements	7
3. Radiated Emissions Requirements	17
4. Maximum Conducted Output Power Requirements.....	30
5. Minimum 20dB RF Bandwidth Requirements	42
6. Carrier Frequency Separation Requirements	46
7. Number of Hopping Requirements.....	50
8. Time of Occupancy (Dwell Time) Requirements	54
9. Out of Band Conducted Emissions Requirements.....	59
10. Band Edges Requirements	67
11. Antenna Requirements.....	77



1. General

1.1 Description of Equipment under Test (EUT)

Applicant	:	HTC Corporation
Applicant Address	:	No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Manufacturer	:	HTC Corporation
Manufacturer Address	:	No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Product Type	:	Smartphone
Trade Name	:	HTC
Model No.	:	PB65100
Frequency Range	:	2402-2480 MHz
Type of Modulation	:	GFSK, $\pi/4$ -DPSK, 8DPSK
Antenna Type	:	PIFA
Antenna Gain	:	0.87 dBi
Max. RF Output Power	:	GFSK: 0.775 dBm / 1.195 mW $\pi/4$ -DPSK: 0.970 dBm / 1.250 mW 8DPSK: 0.979 dBm / 1.253 mW

1.2 Summary of Tests

FCC CFR Title 47 Part 15 Subpart C (15.247)			
Reference	Test	Results	Note
15.207	AC Power Conducted Emission	PASS	-----
15.247(c)	Transmitter Radiated Emissions	PASS	-----
15.247(b)	Max. Output Power	PASS	-----
15.247(a)(1)	20dB RF Bandwidth	PASS	-----
15.247(a)(1)(ii)	Carrier Frequency Separation	PASS	-----
15.247(a)(1)(i)	Number of Hopping	PASS	-----
15.247(a)(1)(i)	Time of Occupancy (Dwell Time)	PASS	-----
15.247(c)	Out of Band Conducted Spurious Emission	PASS	-----
15.247(c)	Band Edge Measurement	PASS	-----
15.203	Antenna Requirement	PASS	-----



1.3 Description of Test Modes

Preliminary tests were performed in different modulation to find the worst case. The modulation shown in the table below is the worst-case. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

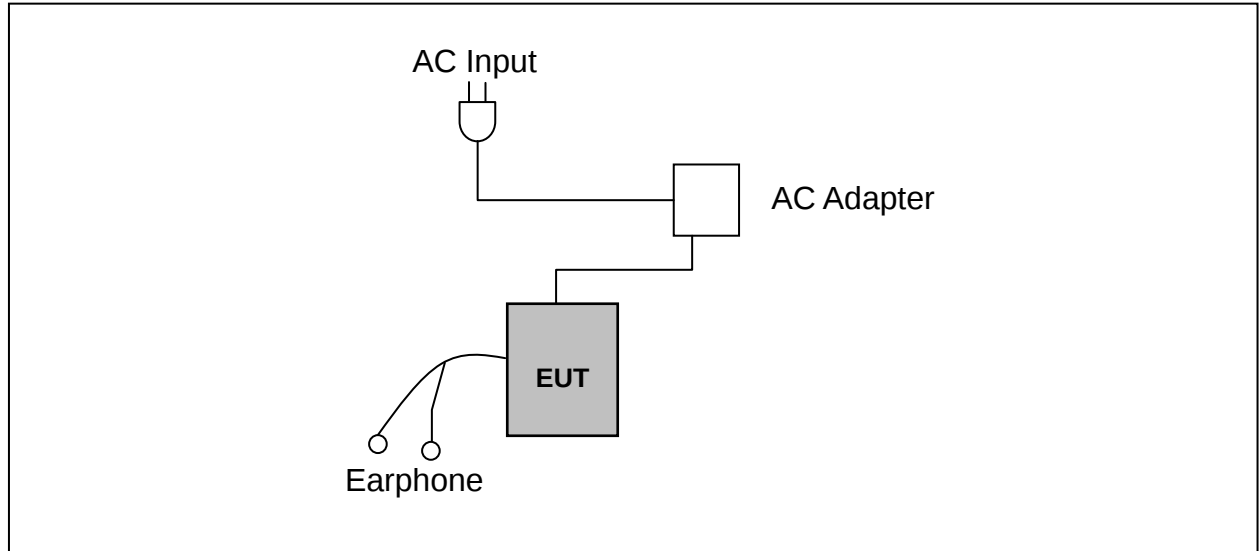
Modulation Type	Channel	Frequency (MHz)	Packet Type	Conducted Power (dBm)	Worst Case
GFSK	Low	2402	DH1	0.775	☐
	Low	2402	DH3	0.661	☐
	Low	2402	DH5	0.637	☐
	Middle	2441	DH1	0.367	☐
	Middle	2441	DH3	0.330	☐
	Middle	2441	DH5	0.370	☐
	High	2480	DH1	0.645	☐
	High	2480	DH3	0.582	☐
	High	2480	DH5	0.551	☐
$\pi/4$ -DQPSK	Low	2402	2DH1	0.912	☐
	Low	2402	2DH3	0.869	☐
	Low	2402	2DH5	0.970	☐
	Middle	2441	2DH1	0.418	☐
	Middle	2441	2DH3	0.381	☐
	Middle	2441	2DH5	0.455	☐
	High	2480	2DH1	0.685	☐
	High	2480	2DH3	0.655	☐
	High	2480	2DH5	0.746	☐
8DPSK	Low	2402	3DH1	0.401	☐
	Low	2402	3DH3	0.499	☐
	Low	2402	3DH5	0.412	☐
	Middle	2441	3DH1	0.930	☐
	Middle	2441	3DH3	0.979	☒
	Middle	2441	3DH5	0.736	☐
	High	2480	3DH1	0.257	☐
	High	2480	3DH3	0.330	☐
	High	2480	3DH5	0.097	☐

1.4 Description of Support Equipment

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Bluetooth Tester	R&S	CBT	100350	Mar. 11, 2009	Mar. 11, 2010

1.5 Configuration of System under Test

Conducted Emission



During testing the EUT's Power port was connected to AC Adapter. EUT 's ear port connected to Earphone.

1.6 Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	ANSI C63.4 CE	15-35	25
Humidity (%RH)		30-60	50
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	ANSI C63.4 RE	15-35	25
Humidity (%RH)		30-60	50
Barometric pressure (mbar)		860-1060	950-1000

Registration Number : 854525

Designation Number : TW1330

Test Site Name: A Test Lab Techno Corp.

Test Site Location: No. 140 -1, Changan Street, Bade City, Taoyuan County, Taiwan R.O.C.

TEL: 886-3-271-0188 FAX: 886-3-271-0190

The chamber meets the characteristics of ANSI C63.4-2003. This site is on file with the FCC.



2. Conducted Emissions Requirements

2.1 Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

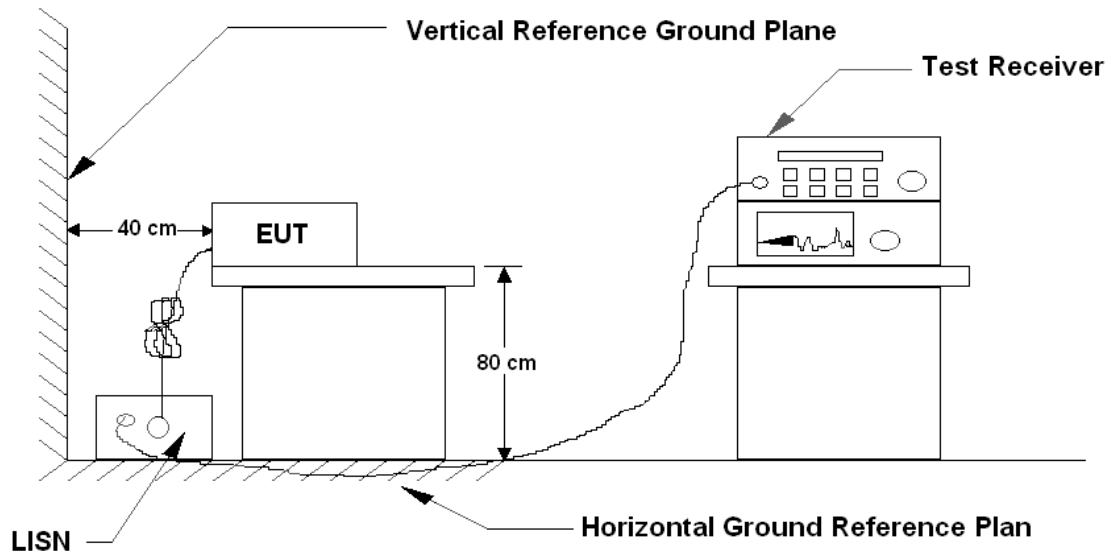
2.2 Limits

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

2.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Test Receiver	R&S	ESCI	100722	Oct. 08, 2009	Oct. 08, 2010
LISN	EMCO	3816/2 SH	00060110	Jun. 17, 2009	Jun. 17, 2010
LISN	EMCO	3816/2 SH	00060111	Jun. 29, 2009	Jun. 29, 2010
Transient Limiter	ELECTRO-METRICS	EM-7600	777	Sep. 22, 2009	Sep. 22, 2010

2.4 Test Instruments Configuration



2.5 Test Results

EUT : Smartphone

Model No. : PB65100

Test Mode : #1 Idle Mode

#2 Normal Operation Mode

Test Date : 12/21~12/22/2009

Please refer to next page of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.

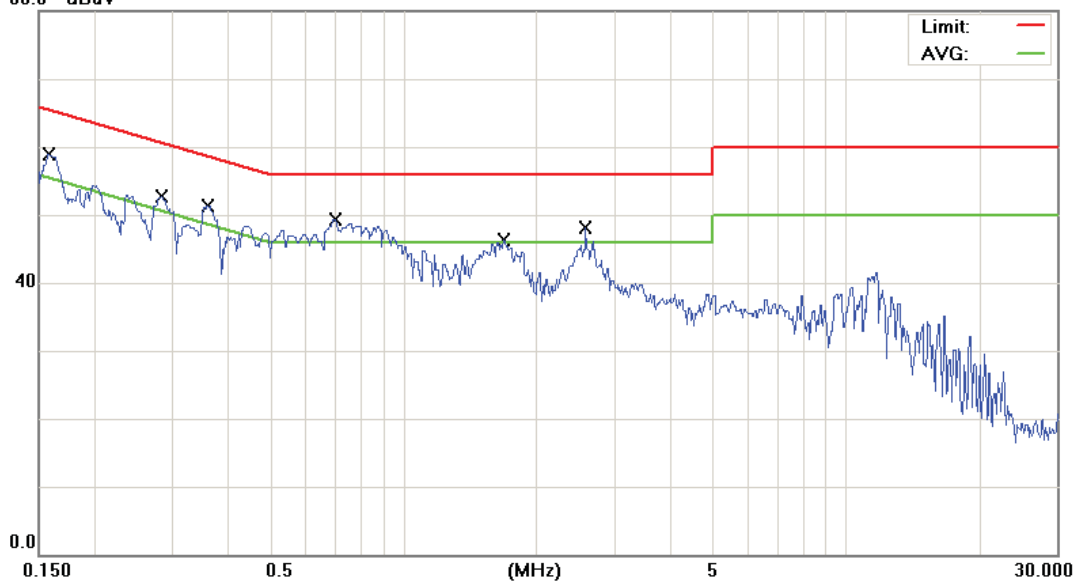


File :09-0355-SE(IDLE)MAIN

Data :#1

Date: 2009/12/21

80.0 dBuV



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode: Idle Mode

Note: Battery Model #1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1577	33.48	9.73	43.21	65.58	-22.37	QP	
2		0.1577	18.39	9.73	28.12	55.58	-27.46	AVG	
3		0.2837	29.21	9.76	38.97	60.71	-21.74	QP	
4		0.2837	14.42	9.76	24.18	50.71	-26.53	AVG	
5		0.3600	27.77	9.78	37.55	58.73	-21.18	QP	
6		0.3600	13.98	9.78	23.76	48.73	-24.97	AVG	
7	*	0.6980	26.06	9.79	35.85	56.00	-20.15	QP	
8		0.6980	10.28	9.79	20.07	46.00	-25.93	AVG	
9		1.6880	22.72	9.83	32.55	56.00	-23.45	QP	
10		1.6880	9.28	9.83	19.11	46.00	-26.89	AVG	
11		2.5790	22.48	9.93	32.41	56.00	-23.59	QP	
12		2.5790	10.65	9.93	20.58	46.00	-25.42	AVG	

*:Maximum data x:Over limit !:over margin

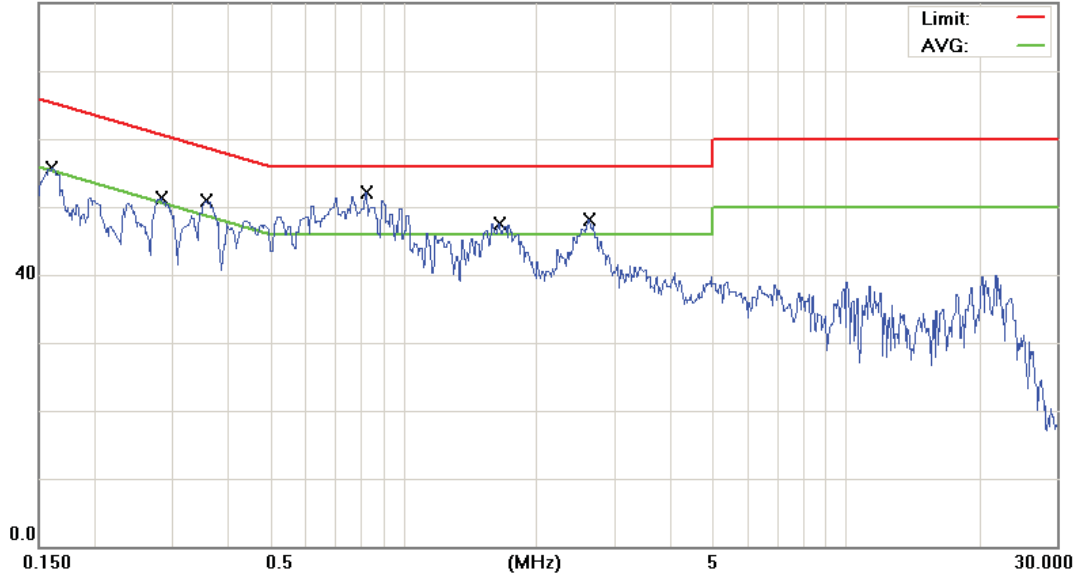


File :09-0355-SE(IDLE)MAIN

Data :#2

Date: 2009/12/21

80.0 dBuV



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode:Idle Mode

Note: Battery Model #10

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1604	31.77	9.73	41.50	65.44	-23.94	QP	
2		0.1604	17.73	9.73	27.46	55.44	-27.98	AVG	
3		0.2830	27.82	9.76	37.58	60.73	-23.15	QP	
4		0.2830	17.65	9.76	27.41	50.73	-23.32	AVG	
5		0.3580	27.46	9.78	37.24	58.77	-21.53	QP	
6		0.3580	16.56	9.78	26.34	48.77	-22.43	AVG	
7	*	0.8240	25.18	9.80	34.98	56.00	-21.02	QP	
8		0.8240	13.37	9.80	23.17	46.00	-22.83	AVG	
9		1.6430	23.88	9.83	33.71	56.00	-22.29	QP	
10		1.6430	13.58	9.83	23.41	46.00	-22.59	AVG	
11		2.6150	20.10	9.93	30.03	56.00	-25.97	QP	
12		2.6150	13.36	9.93	23.29	46.00	-22.71	AVG	

*:Maximum data x:Over limit !:over margin

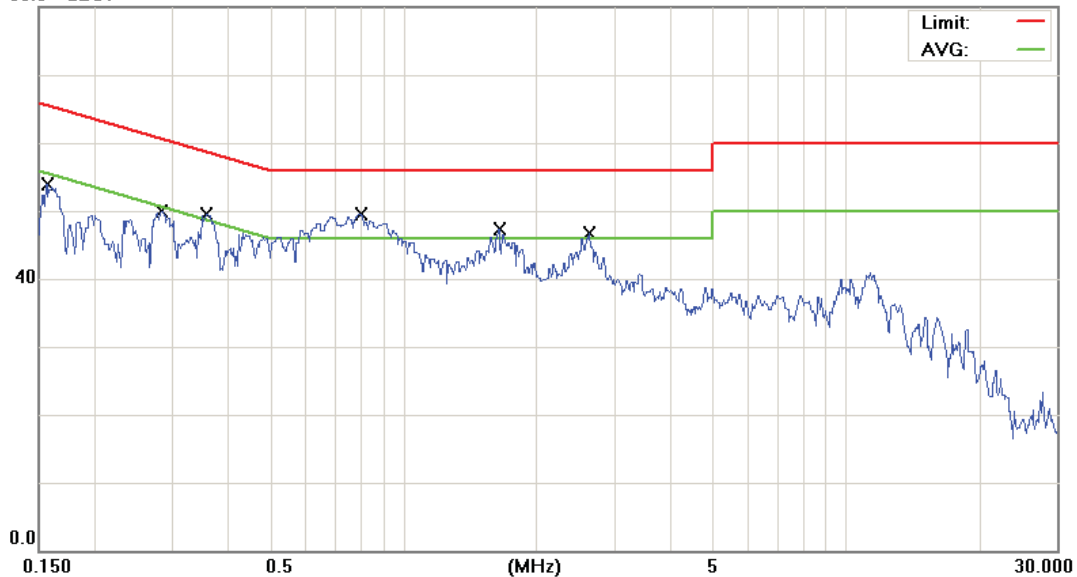


File :09-0355-SE(IDLE)2ND

Data :#1

Date: 2009/12/21

80.0 dBuV



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode:Idle Mode

Note: Battery Mode #2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1563	28.44	9.73	38.17	65.66	-27.49	QP	
2		0.1563	14.86	9.73	24.59	55.66	-31.07	AVG	
3		0.2830	27.55	9.76	37.31	60.73	-23.42	QP	
4		0.2830	14.19	9.76	23.95	50.73	-26.78	AVG	
5		0.3580	25.96	9.78	35.74	58.77	-23.03	QP	
6		0.3580	14.09	9.78	23.87	48.77	-24.90	AVG	
7	*	0.7970	26.42	9.80	36.22	56.00	-19.78	QP	
8		0.7970	13.27	9.80	23.07	46.00	-22.93	AVG	
9		1.6430	23.11	9.83	32.94	56.00	-23.06	QP	
10		1.6430	11.56	9.83	21.39	46.00	-24.61	AVG	
11		2.6240	23.49	9.93	33.42	56.00	-22.58	QP	
12		2.6240	10.39	9.93	20.32	46.00	-25.68	AVG	

*:Maximum data x:Over limit !:over margin

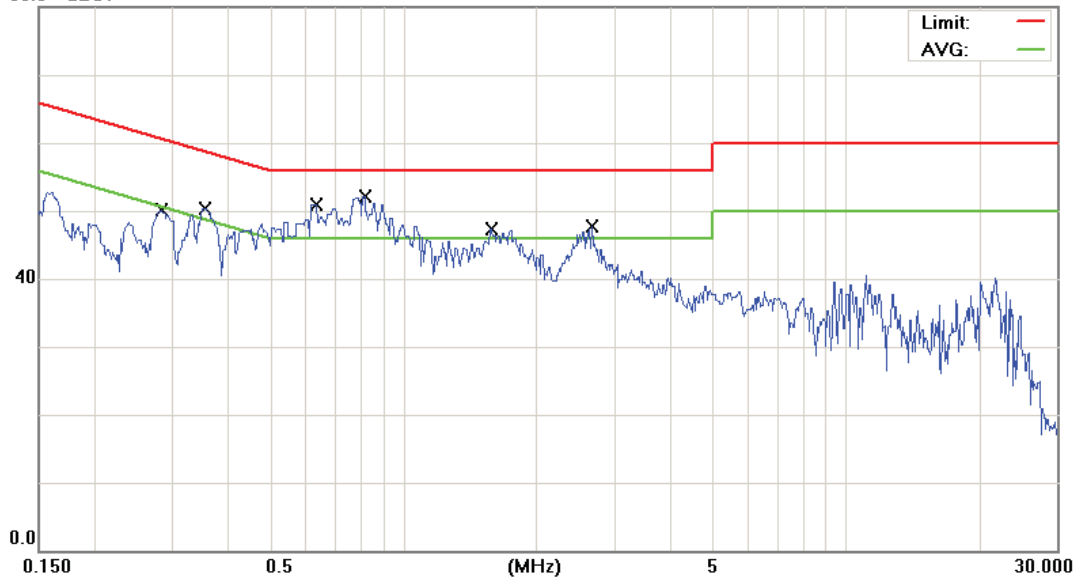


File :09-0355-SE(IDLE)2ND

Data :#2

Date: 2009/12/21

80.0 dBuV



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode: Idle Mode

Note: Battery Mode #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2844	27.10	9.76	36.86	60.69	-23.83	QP	
2		0.2844	17.66	9.76	27.42	50.69	-23.27	AVG	
3		0.3558	27.90	9.78	37.68	58.83	-21.15	QP	
4		0.3558	13.74	9.78	23.52	48.83	-25.31	AVG	
5	*	0.6350	27.74	9.79	37.53	56.00	-18.47	QP	
6		0.6350	13.93	9.79	23.72	46.00	-22.28	AVG	
7		0.8150	25.55	9.80	35.35	56.00	-20.65	QP	
8		0.8150	13.76	9.80	23.56	46.00	-22.44	AVG	
9		1.5710	22.46	9.81	32.27	56.00	-23.73	QP	
10		1.5710	14.54	9.81	24.35	46.00	-21.65	AVG	
11		2.6600	21.37	9.93	31.30	56.00	-24.70	QP	
12		2.6600	12.51	9.93	22.44	46.00	-23.56	AVG	

*:Maximum data x:Over limit !:over margin

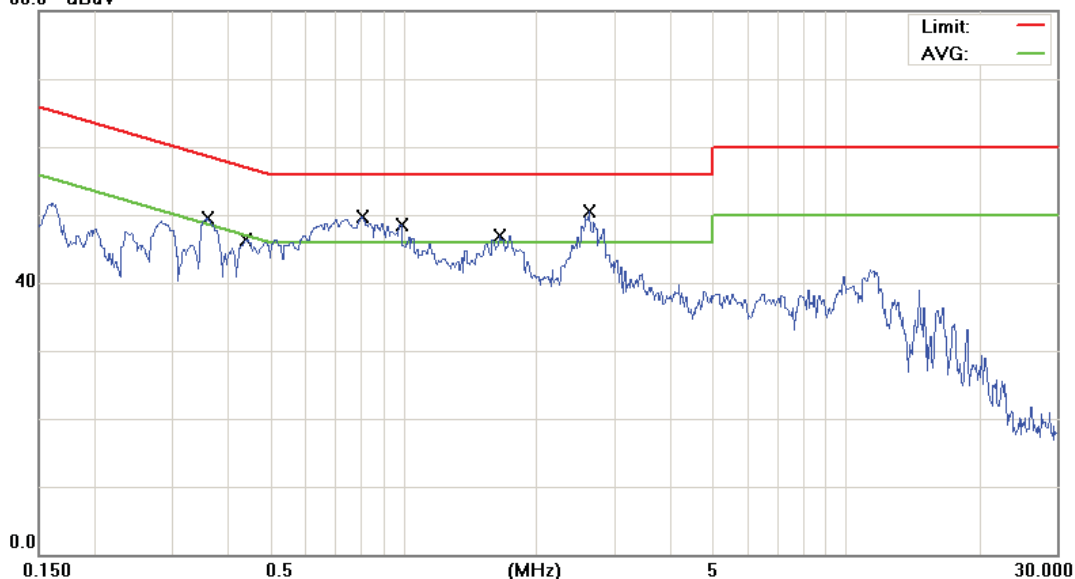


File :09-0355-SE(GSM850)MAIN

Data :#1

Date: 2009/12/22

80.0 dBuV



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.3600	26.22	9.78	36.00	58.73	-22.73	QP	
2		0.3600	14.85	9.78	24.63	48.73	-24.10	AVG	
3		0.4391	23.11	9.78	32.89	57.08	-24.19	QP	
4		0.4391	11.56	9.78	21.34	47.08	-25.74	AVG	
5	*	0.8060	27.68	9.80	37.48	56.00	-18.52	QP	
6		0.8060	14.95	9.80	24.75	46.00	-21.25	AVG	
7		0.9860	22.66	9.81	32.47	56.00	-23.53	QP	
8		0.9860	9.07	9.81	18.88	46.00	-27.12	AVG	
9		1.6520	23.37	9.83	33.20	56.00	-22.80	QP	
10		1.6520	12.08	9.83	21.91	46.00	-24.09	AVG	
11		2.6330	24.25	9.93	34.18	56.00	-21.82	QP	
12		2.6330	16.12	9.93	26.05	46.00	-19.95	AVG	

*:Maximum data x:Over limit !:over margin

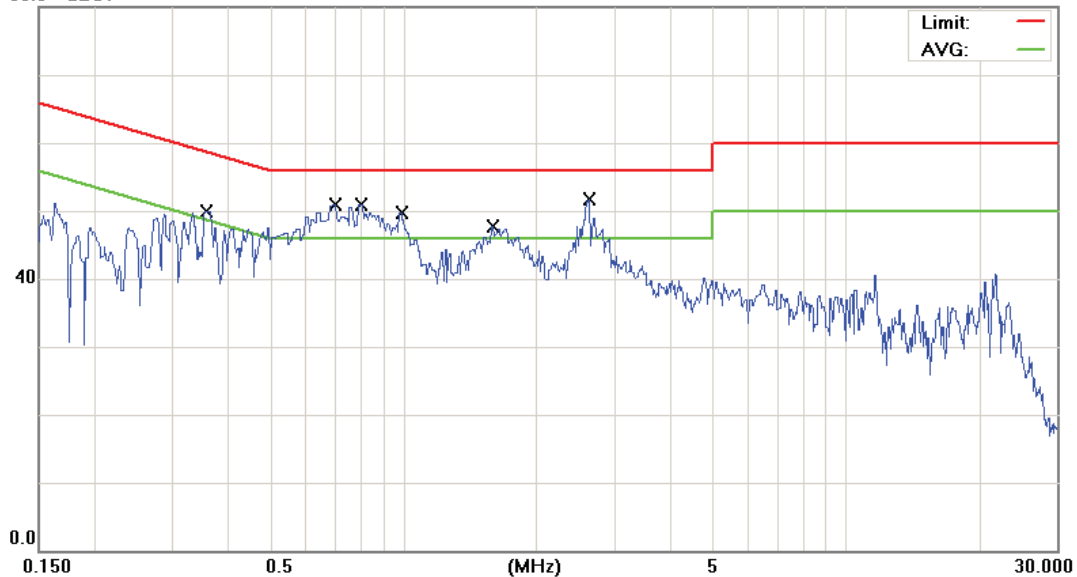


File :09-0355-SE(GSM850)MAIN

Data :#2

Date: 2009/12/22

80.0 dBuV



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #1

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3571	25.67	9.78	35.45	58.80	-23.35	QP	
2		0.3571	13.35	9.78	23.13	48.80	-25.67	AVG	
3	*	0.6980	29.08	9.79	38.87	56.00	-17.13	QP	
4		0.6980	15.42	9.79	25.21	46.00	-20.79	AVG	
5		0.7970	27.20	9.80	37.00	56.00	-19.00	QP	
6		0.7970	15.12	9.80	24.92	46.00	-21.08	AVG	
7		0.9860	23.89	9.81	33.70	56.00	-22.30	QP	
8		0.9860	11.80	9.81	21.61	46.00	-24.39	AVG	
9		1.5890	23.02	9.82	32.84	56.00	-23.16	QP	
10		1.5890	14.24	9.82	24.06	46.00	-21.94	AVG	
11		2.6240	27.39	9.93	37.32	56.00	-18.68	QP	
12		2.6240	15.88	9.93	25.81	46.00	-20.19	AVG	

*:Maximum data x:Over limit !:over margin

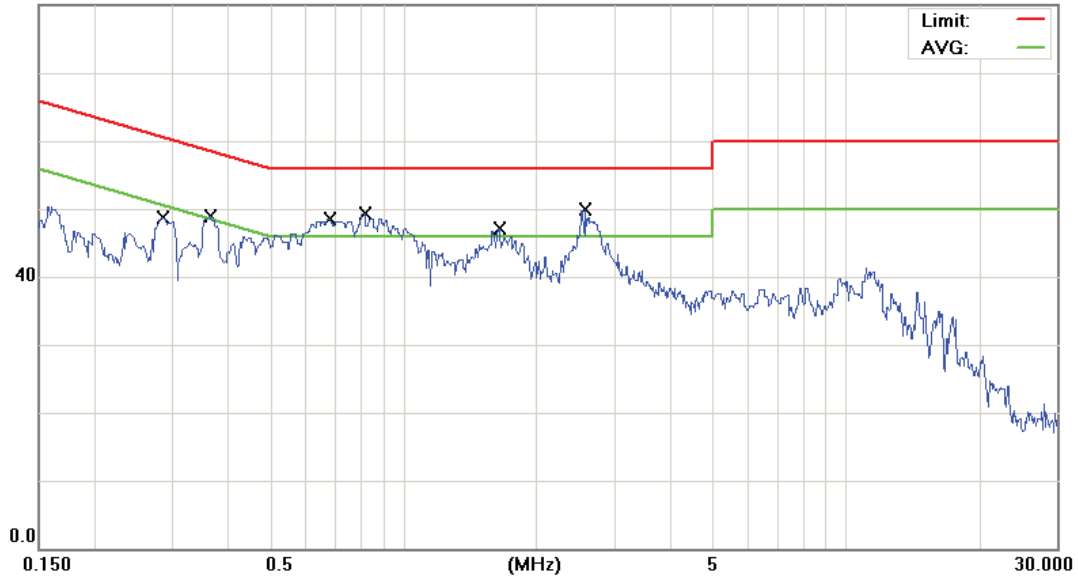


File :09-0355-SE(GSM850)2ND

Data :#1

Date: 2009/12/22

80.0 dBuV



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2858	25.83	9.76	35.59	60.65	-25.06	QP	
2		0.2858	13.29	9.76	23.05	50.65	-27.60	AVG	
3		0.3635	25.99	9.78	35.77	58.65	-22.88	QP	
4		0.3635	15.52	9.78	25.30	48.65	-23.35	AVG	
5		0.6800	24.88	9.79	34.67	56.00	-21.33	QP	
6		0.6800	10.11	9.79	19.90	46.00	-26.10	AVG	
7	*	0.8150	25.72	9.80	35.52	56.00	-20.48	QP	
8		0.8150	13.78	9.80	23.58	46.00	-22.42	AVG	
9		1.6430	21.23	9.83	31.06	56.00	-24.94	QP	
10		1.6430	9.56	9.83	19.39	46.00	-26.61	AVG	
11		2.5790	24.82	9.93	34.75	56.00	-21.25	QP	
12		2.5790	13.25	9.93	23.18	46.00	-22.82	AVG	

*:Maximum data x:Over limit !:over margin

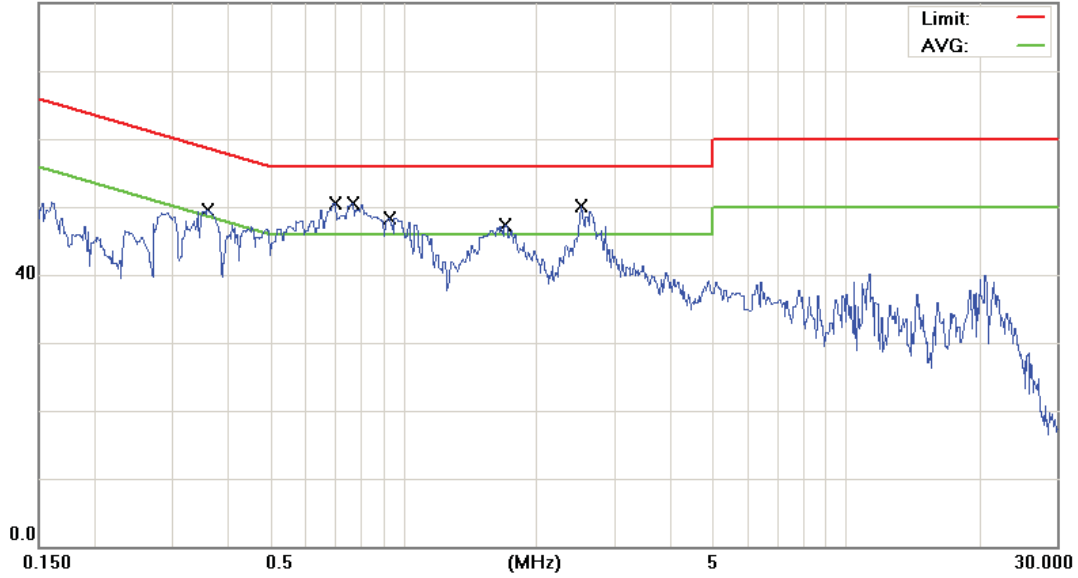


File :09-0355-SE(GSM850)2ND

Data :#2

Date: 2009/12/22

80.0 dBuV



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3600	25.08	9.78	34.86	58.73	-23.87	QP	
2		0.3600	13.42	9.78	23.20	48.73	-25.53	AVG	
3		0.6980	26.56	9.79	36.35	56.00	-19.65	QP	
4	*	0.6980	17.07	9.79	26.86	46.00	-19.14	AVG	
5		0.7700	26.26	9.80	36.06	56.00	-19.94	QP	
6		0.7700	16.02	9.80	25.82	46.00	-20.18	AVG	
7		0.9320	23.98	9.81	33.79	56.00	-22.21	QP	
8		0.9320	14.22	9.81	24.03	46.00	-21.97	AVG	
9		1.7060	24.56	9.82	34.38	56.00	-21.62	QP	
10		1.7060	14.91	9.82	24.73	46.00	-21.27	AVG	
11		2.5160	23.36	9.90	33.26	56.00	-22.74	QP	
12		2.5160	13.36	9.90	23.26	46.00	-22.74	AVG	

*:Maximum data x:Over limit !:over margin

3. Radiated Emissions Requirements

3.1 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The EUT was positioned such that the distance from antenna to the EUT was 10 meters for the frequency under 1GHz and 3 meters for the frequency above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

3.2 Radiated Emissions Limits

Frequency range (MHz)	Field strength (microvolts/meter)	Measure-ment dis-tance (meters)
0.009 to 0.490	2400/F(kHz)	300
0.490 to 1.705	24000/F(kHz)	30
1.705 to 30.0	30	30
30 to 88	100**	3
88 to 216	150**	3
216 to 960	200**	3
Above 960	500**	3

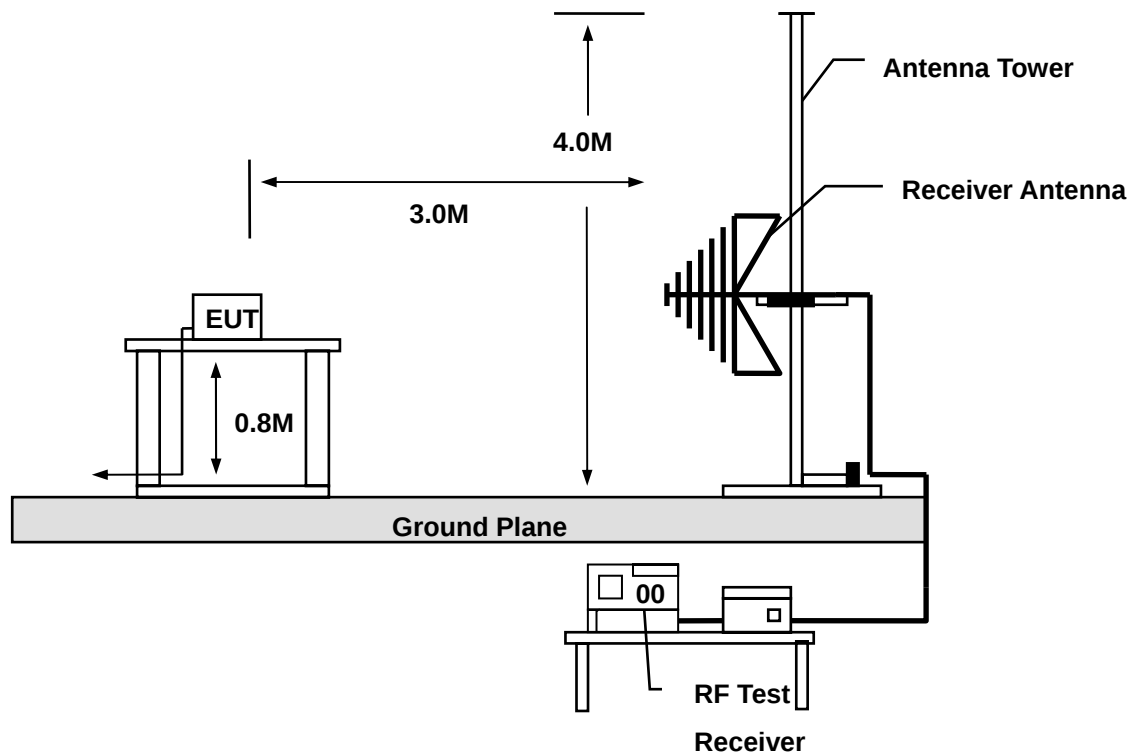
**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76– 88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

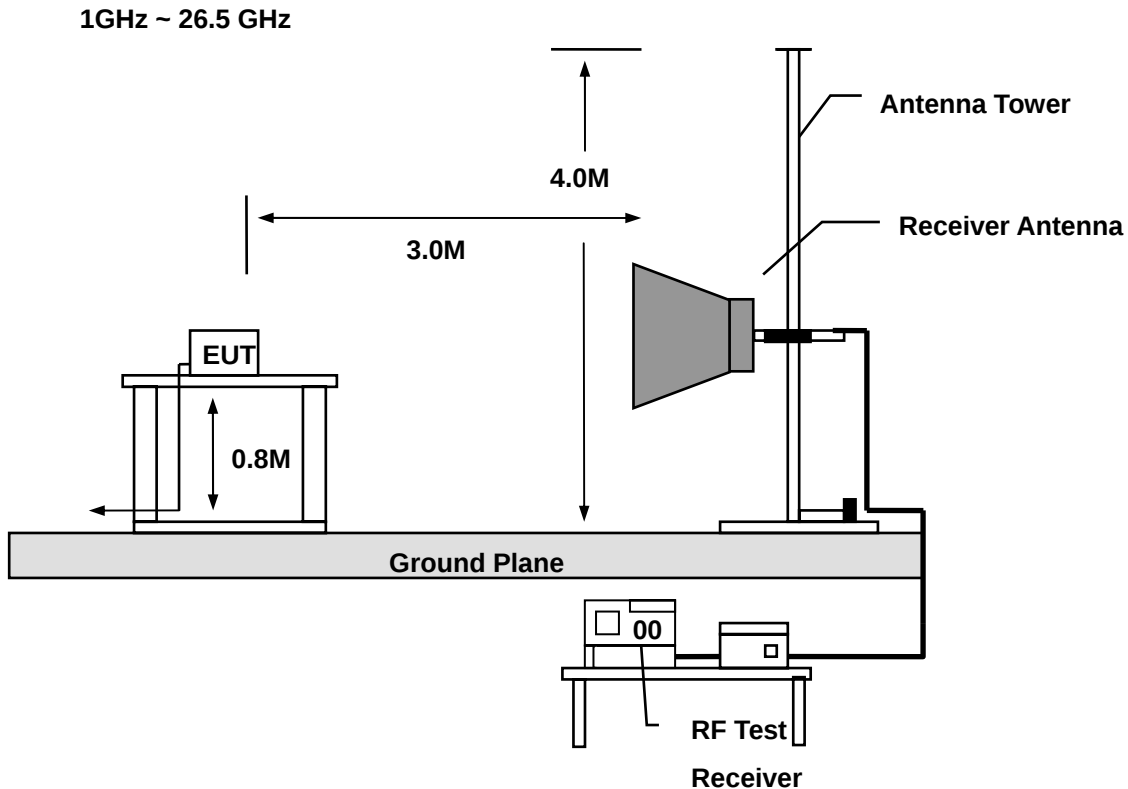
3.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
RF Pre-selector	Agilent	N9039A	MY46520256	Jan. 27, 2009	Jan. 27, 2010
Spectrum Analyzer	Agilent	E4446A	MY46180578	Jan. 20, 2009	Jan. 20, 2010
Pre Amplifier	Agilent	8449B	3008A02457	Mar. 04, 2009	Mar. 04, 2010
Pre Amplifier	Agilent	8447D	2944A11119	Jan. 19, 2009	Jan. 19, 2010
Biconilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	Aug. 04, 2009	Aug. 04, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jul. 01, 2009	Jul. 01, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	Jun. 30, 2009	Jun. 30, 2010

3.4 Test Instruments Configuration

30 MHz ~ 1 GHz





3.5 Test Results

EUT : Smartphone

Model No. : PB65100

Test Mode : #1 Normal Operation Mode (30 MHz – 1 GHz)
 #2 8DPSK Link Mode (1 GHz – 26.5 GHz, CH Low / CH Middle / CH High)

Test Date : 12/25/2009

Please refer to next page of detail testing data.

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30MHz-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor
 (Auto calculate in spectrum analyzer)



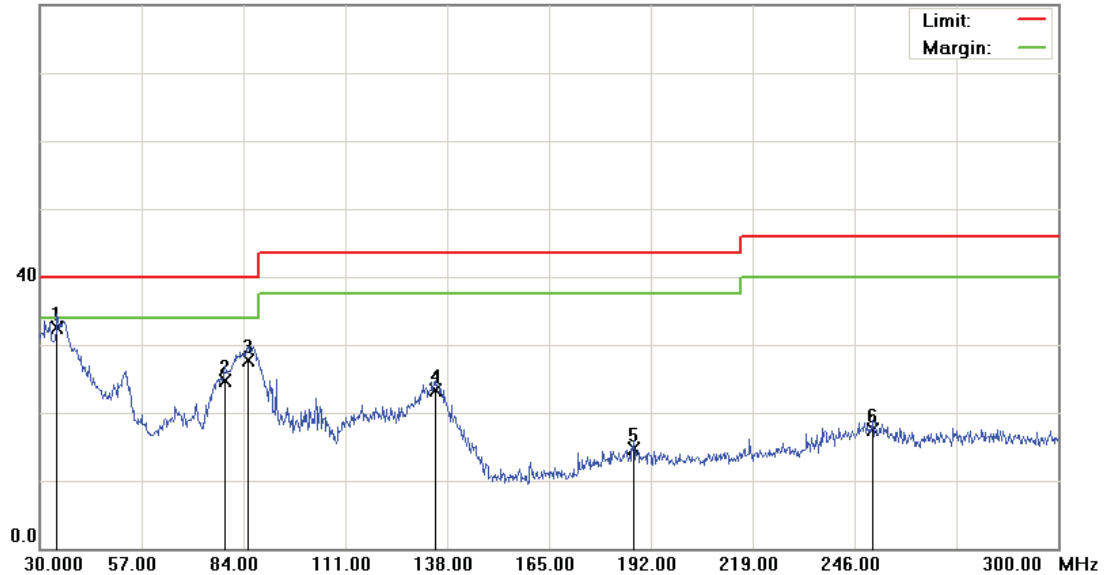
File : PB65100(Normal link)

Data : #1

Date: 2009/12/25

Time: 上午 02:36:49

80.0 dBuV



Site : 966 Chamber

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	34.5900	45.62	-13.20	32.42	40.00	-7.58	QP		
2		79.1400	41.39	-16.66	24.73	40.00	-15.27	QP		
3		85.0800	42.48	-14.70	27.78	40.00	-12.22	QP		
4		134.7600	39.28	-15.95	23.33	43.50	-20.17	QP		
5		187.4100	28.38	-13.60	14.78	43.50	-28.72	QP		
6		250.8600	28.47	-10.88	17.59	46.00	-28.41	QP		

*:Maximum data x:Over limit !:over margin



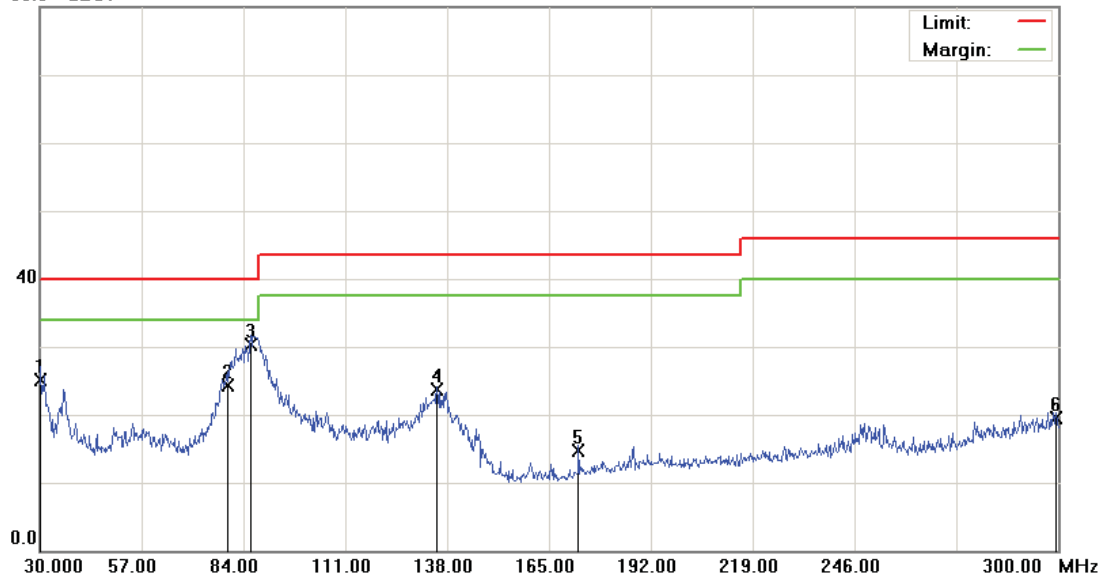
File : PB65100(Normal link)

Data : #3

Date: 2009/12/25

Time: 上午 02:42:36

80.0 dBuV



Site : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		30.0000	38.42	-13.32	25.10	40.00	-14.90	QP		
2		79.6800	40.92	-16.59	24.33	40.00	-15.67	QP		
3	*	85.8900	44.83	-14.46	30.37	40.00	-9.63	QP		
4		135.3000	39.78	-15.99	23.79	43.50	-19.71	QP		
5		172.8300	29.62	-14.98	14.64	43.50	-28.86	QP		
6		299.4600	29.47	-10.00	19.47	46.00	-26.53	QP		

*:Maximum data x:Over limit !:over margin



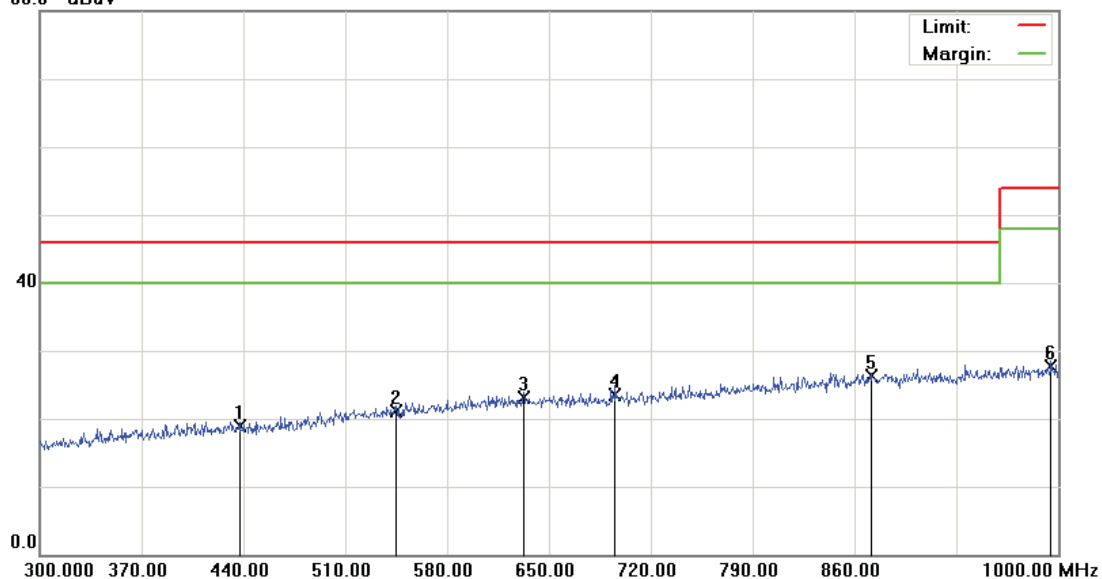
File : PB65100(Normal link)

Data : #2

Date: 2009/12/25

Time: 上午 02:39:43

80.0 dBuV



Site: : 966 Chamber

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		437.2000	26.83	-7.99	18.84	46.00	-27.16	QP		
2		545.0000	27.18	-6.06	21.12	46.00	-24.88	QP		
3		632.5000	27.42	-4.36	23.06	46.00	-22.94	QP		
4		695.5000	27.37	-3.85	23.52	46.00	-22.48	QP		
5	*	871.2000	27.17	-0.87	26.30	46.00	-19.70	QP		
6		995.1000	26.89	0.78	27.67	54.00	-26.33	QP		

*:Maximum data x:Over limit !:over margin



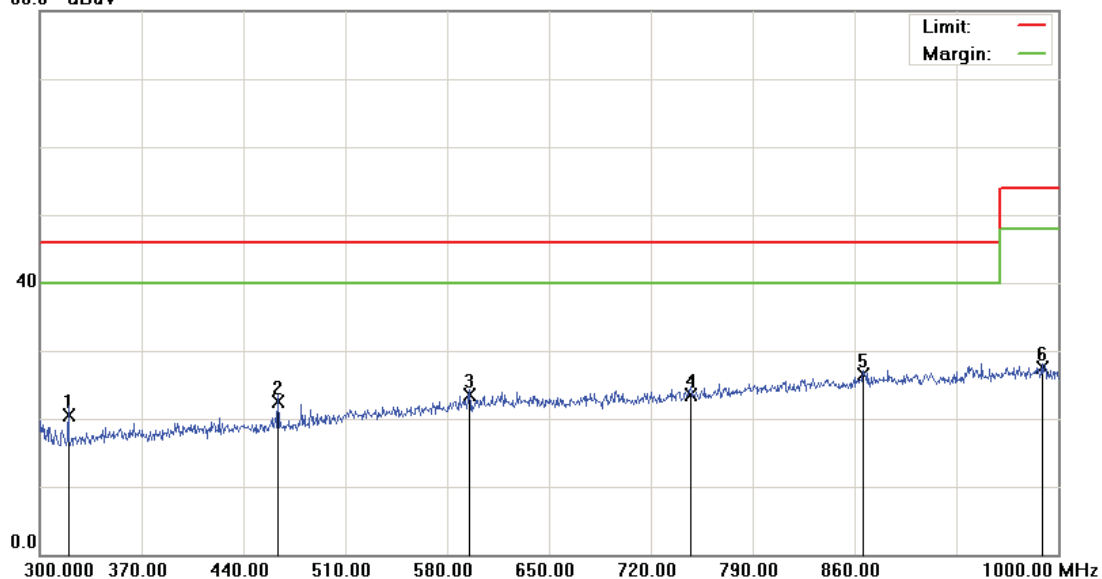
File : PB65100(Normal link)

Data : #4

Date: 2009/12/25

Time: 上午 02:45:31

80.0 dBuV



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: PB65100

Mode: Normal Operation Mode

Note: Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		319.6000	30.41	-9.82	20.59	46.00	-25.41	QP		
2		463.8000	30.33	-7.85	22.48	46.00	-23.52	QP		
3		595.4000	28.47	-4.87	23.60	46.00	-22.40	QP		
4		747.3000	26.53	-3.11	23.42	46.00	-22.58	QP		
5	*	865.6000	26.97	-0.56	26.41	46.00	-19.59	QP		
6		988.8000	26.66	0.84	27.50	54.00	-26.50	QP		

*:Maximum data x:Over limit !:over margin



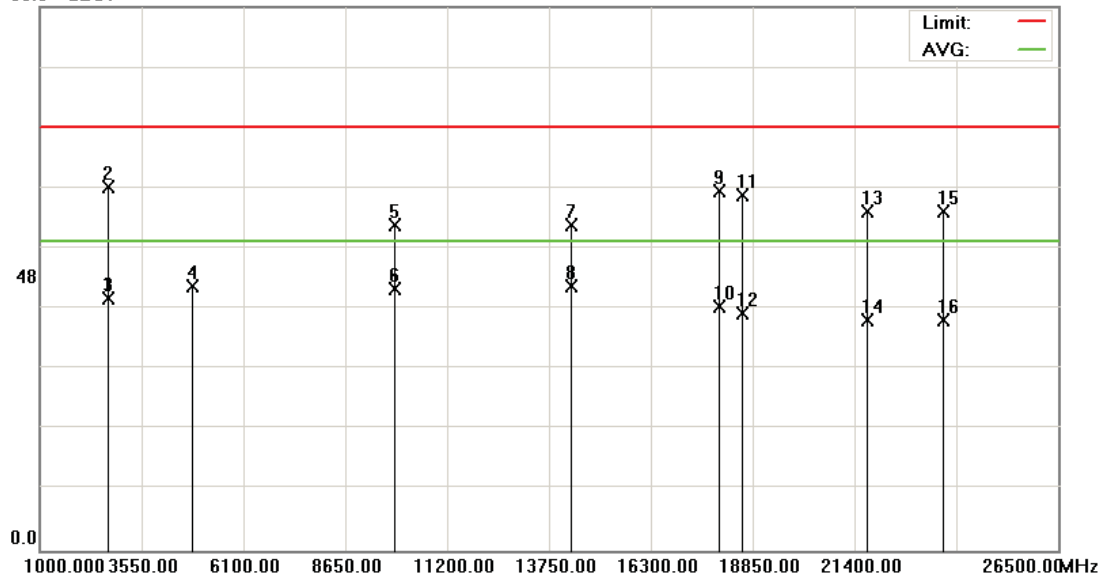
File : PB65100(2402MHZ)

Data : #17

Date: 2009/12/25

Time: 上午 12:49:13

95.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2402MHz

Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2686.400	43.13	1.02	44.15	74.00	-29.85	peak		
2		2700.000	40.84	22.58	63.42	74.00	-10.58	peak		
3		2700.000	21.49	22.58	44.07	54.00	-9.93	AVG		
4		4804.000	38.76	7.32	46.08	74.00	-27.92	peak		
5		9890.500	39.14	17.80	56.94	74.00	-17.06	peak		
6		9890.500	27.82	17.80	45.62	54.00	-8.38	AVG		
7		14300.000	38.37	18.61	56.98	74.00	-17.02	peak		
8	*	14300.000	27.60	18.61	46.21	54.00	-7.79	AVG		
9		18000.000	37.20	25.57	62.77	74.00	-11.23	peak		
10		18000.000	16.95	25.57	42.52	54.00	-11.48	AVG		
11		18595.000	39.01	23.07	62.08	74.00	-11.92	peak		
12		18595.000	18.32	23.07	41.39	54.00	-12.61	AVG		
13		21697.500	38.11	21.24	59.35	74.00	-14.65	peak		
14		21697.500	19.04	21.24	40.28	54.00	-13.72	AVG		
15		23610.000	38.75	20.44	59.19	74.00	-14.81	peak		
16		23610.000	19.93	20.44	40.37	54.00	-13.63	AVG		

*:Maximum data x:Over limit !:over margin



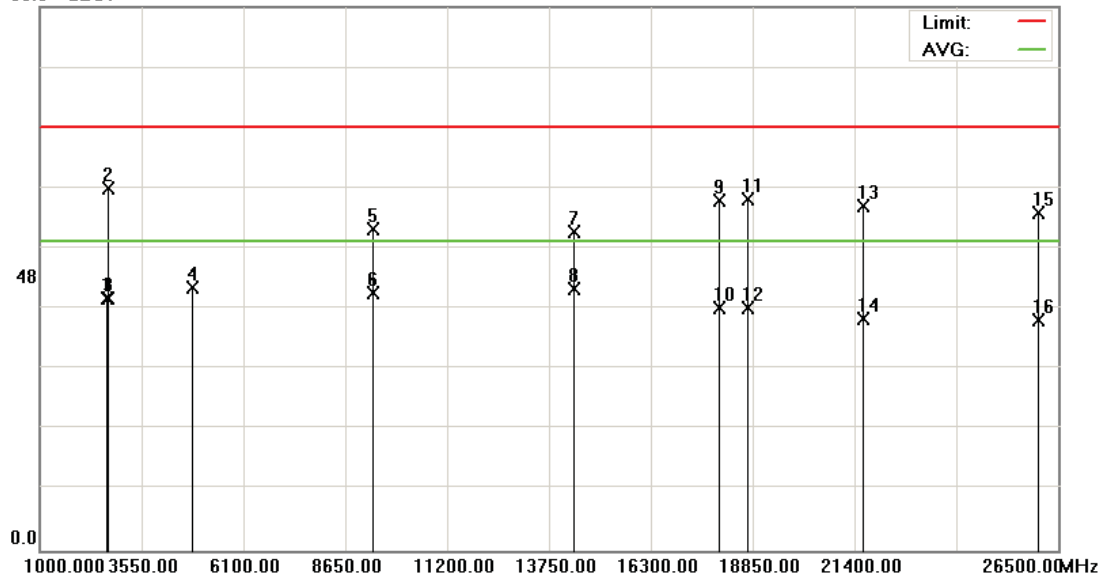
File : PB65100(2402MHZ)

Data : #18

Date: 2009/12/25

Time: 上午 12:50:40

95.0 dBuV



Site : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2402MHz

Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2669.400	43.14	1.02	44.16	74.00	-29.84	peak		
2		2700.000	40.82	22.58	63.40	74.00	-10.60	peak		
3		2700.000	21.47	22.58	44.05	54.00	-9.95	AVG		
4		4804.000	38.55	7.32	45.87	74.00	-28.13	peak		
5		9324.750	39.17	16.91	56.08	74.00	-17.92	peak		
6		9324.750	28.21	16.91	45.12	54.00	-8.88	AVG		
7		14340.000	37.20	18.54	55.74	74.00	-18.26	peak		
8	*	14340.000	27.27	18.54	45.81	54.00	-8.19	AVG		
9		18000.000	35.69	25.57	61.26	74.00	-12.74	peak		
10		18000.000	16.90	25.57	42.47	54.00	-11.53	AVG		
11		18722.500	38.22	23.12	61.34	74.00	-12.66	peak		
12		18722.500	19.31	23.12	42.43	54.00	-11.57	AVG		
13		21591.250	38.95	21.30	60.25	74.00	-13.75	peak		
14		21591.250	19.22	21.30	40.52	54.00	-13.48	AVG		
15		25968.750	40.39	18.58	58.97	74.00	-15.03	peak		
16		25968.750	21.79	18.58	40.37	54.00	-13.63	AVG		

*:Maximum data x:Over limit !:over margin



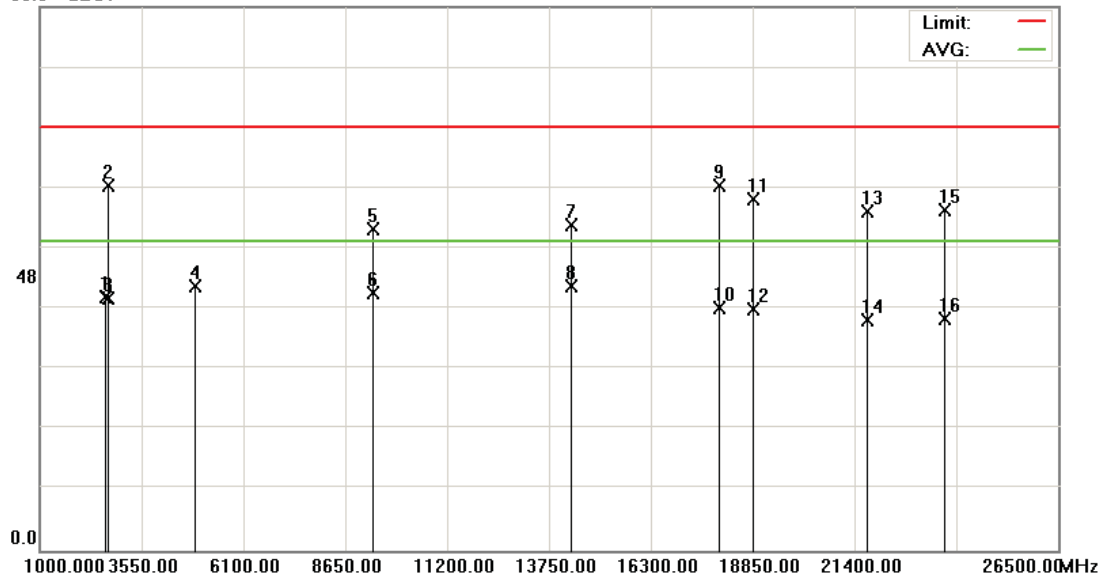
File : PB65100(2441MHZ)

Data : #17

Date: 2009/12/25

Time: 上午 12:53:14

95.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2441MHz

Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2652.400	43.46	0.95	44.41	74.00	-29.59	peak			
2		2700.000	41.16	22.58	63.74	74.00	-10.26	peak			
3		2700.000	21.42	22.58	44.00	54.00	-10.00	AVG			
4		4882.000	38.43	7.74	46.17	74.00	-27.83	peak			
5		9324.750	39.19	16.91	56.10	74.00	-17.90	peak			
6		9324.750	28.18	16.91	45.09	54.00	-8.91	AVG			
7		14300.000	38.29	18.61	56.90	74.00	-17.10	peak			
8	*	14300.000	27.58	18.61	46.19	54.00	-7.81	AVG			
9		18000.000	38.27	25.57	63.84	74.00	-10.16	peak			
10		18000.000	16.92	25.57	42.49	54.00	-11.51	AVG			
11		18828.750	38.16	23.15	61.31	74.00	-12.69	peak			
12		18828.750	19.03	23.15	42.18	54.00	-11.82	AVG			
13		21718.750	38.06	21.23	59.29	74.00	-14.71	peak			
14		21718.750	19.14	21.23	40.37	54.00	-13.63	AVG			
15		23652.500	39.04	20.39	59.43	74.00	-14.57	peak			
16		23652.500	20.09	20.39	40.48	54.00	-13.52	AVG			

*:Maximum data x:Over limit !:over margin



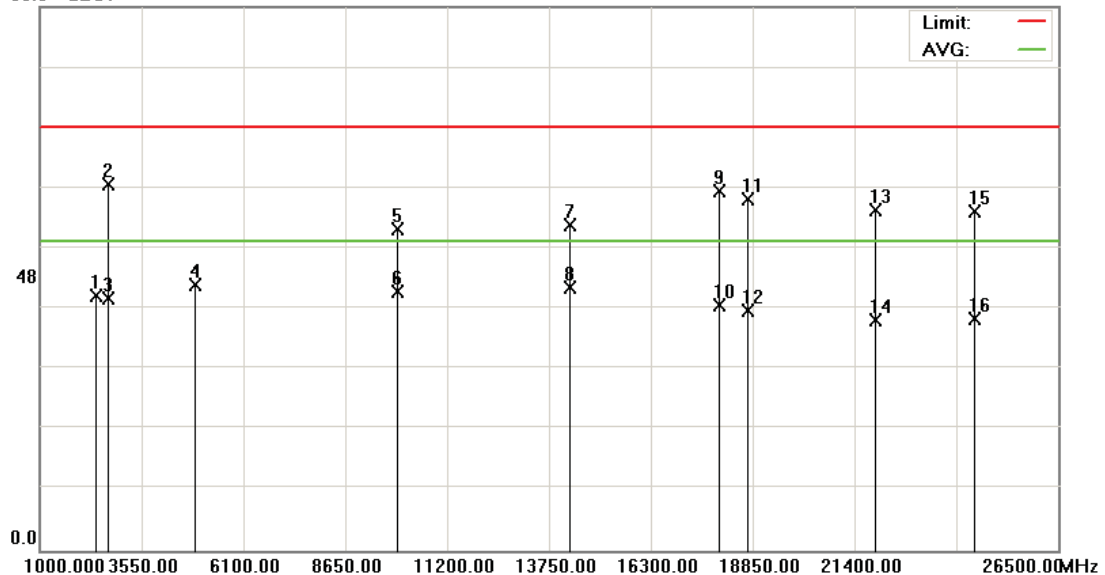
File : PB65100(2441MHZ)

Data : #18

Date: 2009/12/25

Time: 上午 12:54:29

95.0 dBuV



Site : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2441MHz

Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2390.600	44.45	0.16	44.61	74.00	-29.39	peak			
2		2700.000	41.34	22.58	63.92	74.00	-10.08	peak			
3		2700.000	21.36	22.58	43.94	54.00	-10.06	AVG			
4		4882.000	38.71	7.74	46.45	74.00	-27.55	peak			
5		9927.000	38.32	17.78	56.10	74.00	-17.90	peak			
6		9927.000	27.39	17.78	45.17	54.00	-8.83	AVG			
7		14260.000	38.20	18.66	56.86	74.00	-17.14	peak			
8	*	14260.000	27.34	18.66	46.00	54.00	-8.00	AVG			
9		18000.000	37.31	25.57	62.88	74.00	-11.12	peak			
10		18000.000	17.20	25.57	42.77	54.00	-11.23	AVG			
11		18722.500	38.35	23.12	61.47	74.00	-12.53	peak			
12		18722.500	18.71	23.12	41.83	54.00	-12.17	AVG			
13		21910.000	38.26	21.16	59.42	74.00	-14.58	peak			
14		21910.000	19.09	21.16	40.25	54.00	-13.75	AVG			
15		24396.250	39.58	19.72	59.30	74.00	-14.70	peak			
16		24396.250	20.67	19.72	40.39	54.00	-13.61	AVG			

*:Maximum data x:Over limit !:over margin



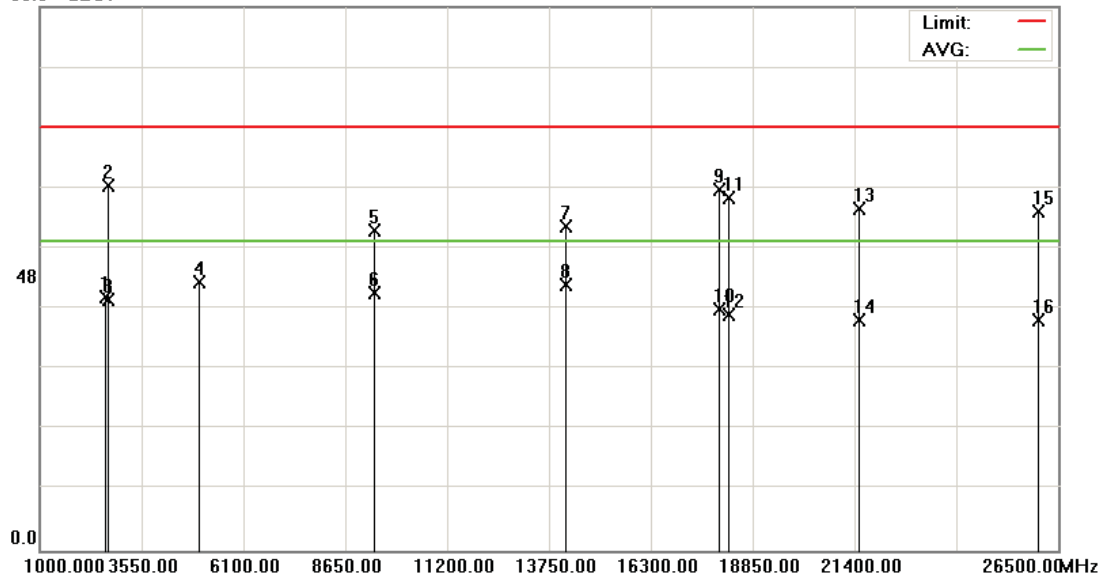
File : PB65100(2480MHZ)

Data : #16

Date: 2009/12/25

Time: 上午 12:56:24

95.0 dBuV



Site : 966 Chamber

Polarization: Vertical

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2480MHz

Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2637.100	43.34	0.95	44.29	74.00	-29.71	peak			
2		2700.000	41.10	22.58	63.68	74.00	-10.32	peak			
3		2700.000	21.27	22.58	43.85	54.00	-10.15	AVG			
4		4960.000	39.18	7.80	46.98	74.00	-27.02	peak			
5		9343.000	38.99	16.93	55.92	74.00	-18.08	peak			
6		9343.000	28.10	16.93	45.03	54.00	-8.97	AVG			
7		14140.000	37.85	18.84	56.69	74.00	-17.31	peak			
8	*	14140.000	27.69	18.84	46.53	54.00	-7.47	AVG			
9		18000.000	37.41	25.57	62.98	74.00	-11.02	peak			
10		18000.000	16.64	25.57	42.21	54.00	-11.79	AVG			
11		18255.000	38.45	23.20	61.65	74.00	-12.35	peak			
12		18255.000	17.97	23.20	41.17	54.00	-12.83	AVG			
13		21527.500	38.39	21.35	59.74	74.00	-14.26	peak			
14		21527.500	18.83	21.35	40.18	54.00	-13.82	AVG			
15		25968.750	40.71	18.58	59.29	74.00	-14.71	peak			
16		25968.750	21.66	18.58	40.24	54.00	-13.76	AVG			

*:Maximum data x:Over limit !:over margin



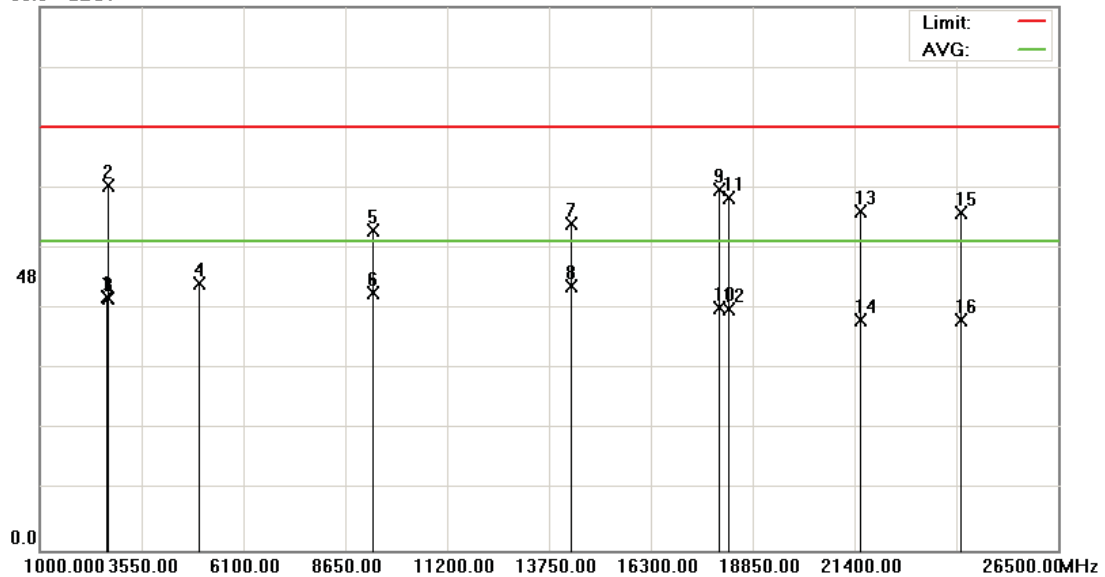
File : PB65100(2480MHZ)

Data : #17

Date: 2009/12/25

Time: 上午 12:57:38

95.0 dBuV



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2480MHz

Battery Model #1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2676.200	43.36	1.02	44.38	74.00	-29.62	peak			
2		2700.000	41.08	22.58	63.66	74.00	-10.34	peak			
3		2700.000	21.38	22.58	43.96	54.00	-10.04	AVG			
4		4960.000	38.76	7.80	46.56	74.00	-27.44	peak			
5		9324.750	39.13	16.91	56.04	74.00	-17.96	peak			
6		9324.750	28.09	16.91	45.00	54.00	-9.00	AVG			
7		14300.000	38.52	18.61	57.13	74.00	-16.87	peak			
8	*	14300.000	27.48	18.61	46.09	54.00	-7.91	AVG			
9		18000.000	37.43	25.57	63.00	74.00	-11.00	peak			
10		18000.000	16.92	25.57	42.49	54.00	-11.51	AVG			
11		18255.000	38.45	23.20	61.65	74.00	-12.35	peak			
12		18255.000	18.92	23.20	42.12	54.00	-11.88	AVG			
13		21548.750	38.01	21.33	59.34	74.00	-14.66	peak			
14		21548.750	18.98	21.33	40.31	54.00	-13.69	AVG			
15		24035.000	39.01	19.99	59.00	74.00	-15.00	peak			
16		24035.000	20.38	19.99	40.37	54.00	-13.63	AVG			

*:Maximum data x:Over limit !:over margin

4. Maximum Conducted Output Power Requirements

4.1 Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the spectrum Analyzer, for prevent the spectrum analyzer input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to $(\text{GAIN} - 6)/3$ dBm.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

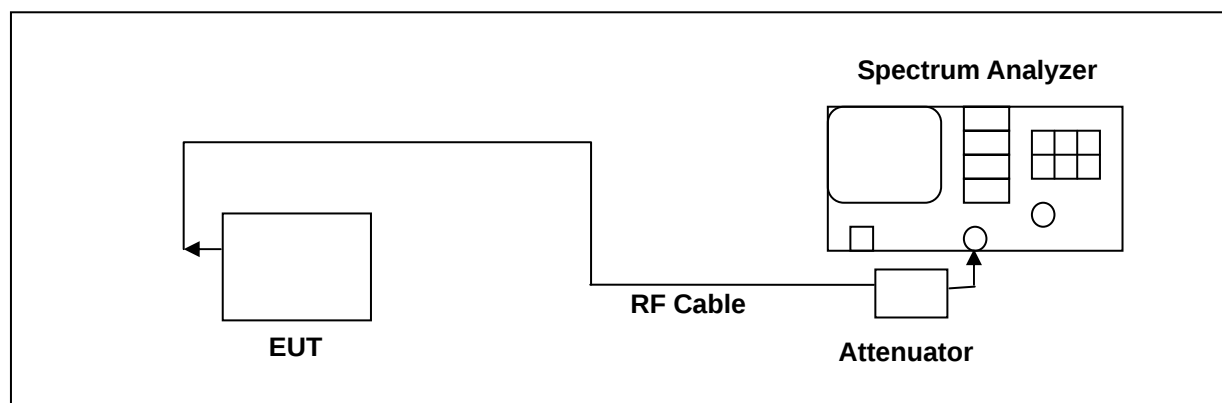
4.2 Limits

For frequency hopping systems in the 2400–2483.5 MHz band < 0.125 watts.

4.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May 14, 2009	May 14, 2010
Attenuator	RADIALL	R415710000	0603033065	NA	NA

4.4 Test Instruments Configuration





4.5 Test Result

EUT : Smartphone
 Model No. : PB65100
 Test Mode : GFSK Link Mode
 Test Date : 12/27/2009

Frequency (MHz)		RF Output Power		Required Limit
		Peak		
		dBm	mW	
2402	DH1	0.775	1.195	< 20.97 dBm
	DH3	0.661	1.164	< 20.97 dBm
	DH5	0.637	1.158	< 20.97 dBm
2441	DH1	0.367	1.088	< 20.97 dBm
	DH3	0.330	1.079	< 20.97 dBm
	DH5	0.370	1.089	< 20.97 dBm
2480	DH1	0.645	1.160	< 20.97 dBm
	DH3	0.582	1.143	< 20.97 dBm
	DH5	0.551	1.135	< 20.97 dBm

EUT : Smartphone
 Model No. : PB65100
 Test Mode : $\pi/4$ -DPSK Link Mode
 Test Date : 12/27/2009

Frequency (MHz)		RF Output Power		Required Limit
		Peak		
		dBm	mW	
2402	2DH1	0.912	1.234	< 20.97 dBm
	2DH3	0.869	1.222	< 20.97 dBm
	2DH5	0.970	1.250	< 20.97 dBm
2441	2DH1	0.418	1.101	< 20.97 dBm
	2DH3	0.381	1.092	< 20.97 dBm
	2DH5	0.455	1.110	< 20.97 dBm
2480	2DH1	0.685	1.171	< 20.97 dBm
	2DH3	0.655	1.163	< 20.97 dBm
	2DH5	0.746	1.187	< 20.97 dBm

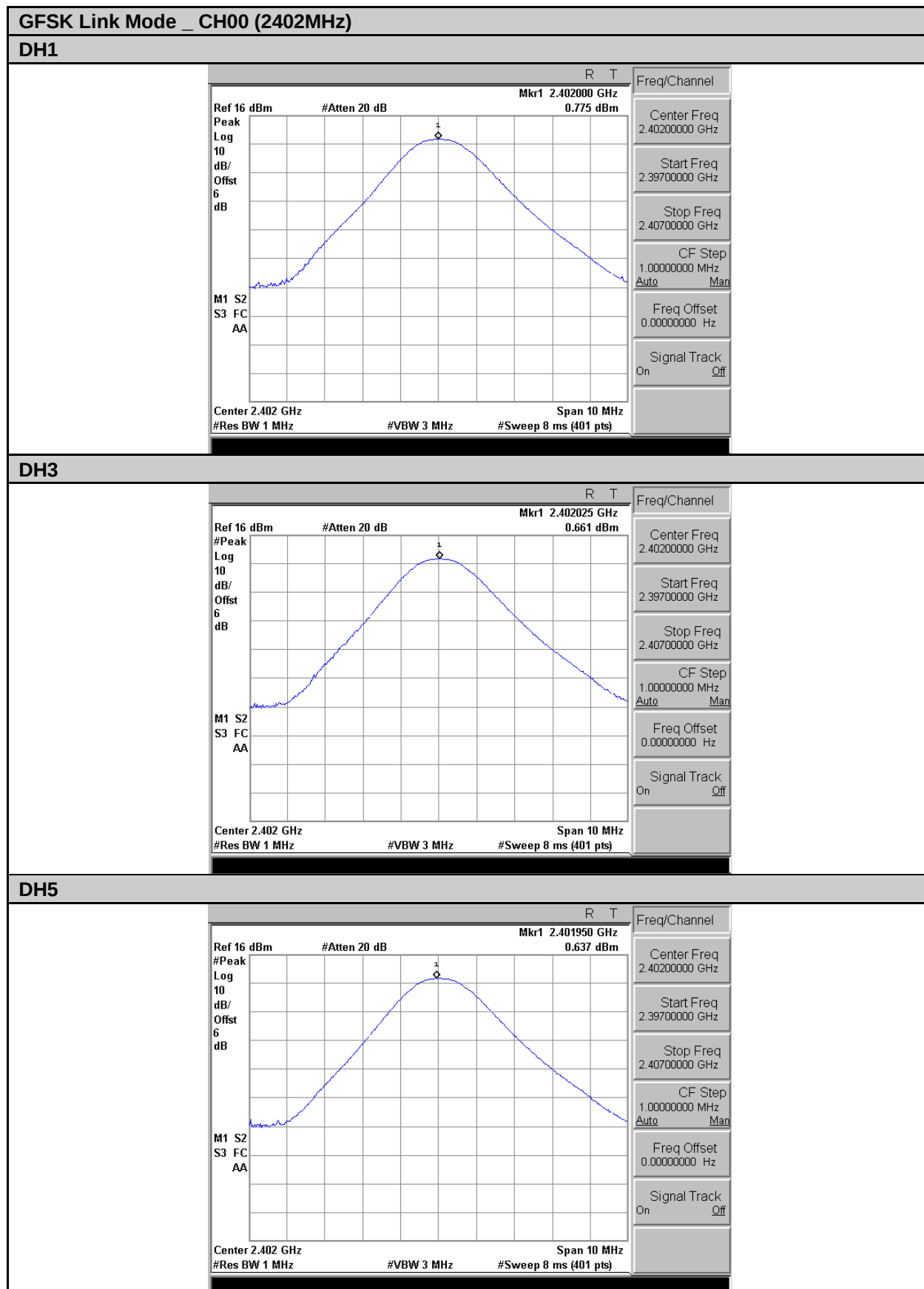


EUT : Smartphone
 Model No. : PB65100
 Test Mode : 8DPSK Link Mode
 Test Date : 12/27/2009

Frequency (MHz)		RF Output Power		Required Limit
		Peak		
		dBm	mW	
2402	3DH1	0.401	1.097	< 20.97 dBm
	3DH3	0.499	1.122	< 20.97 dBm
	3DH5	0.412	1.100	< 20.97 dBm
2441	3DH1	0.930	1.239	< 20.97 dBm
	3DH3	0.979	1.253	< 20.97 dBm
	3DH5	0.736	1.185	< 20.97 dBm
2480	3DH1	0.257	1.061	< 20.97 dBm
	3DH3	0.330	1.079	< 20.97 dBm
	3DH5	0.097	1.023	< 20.97 dBm

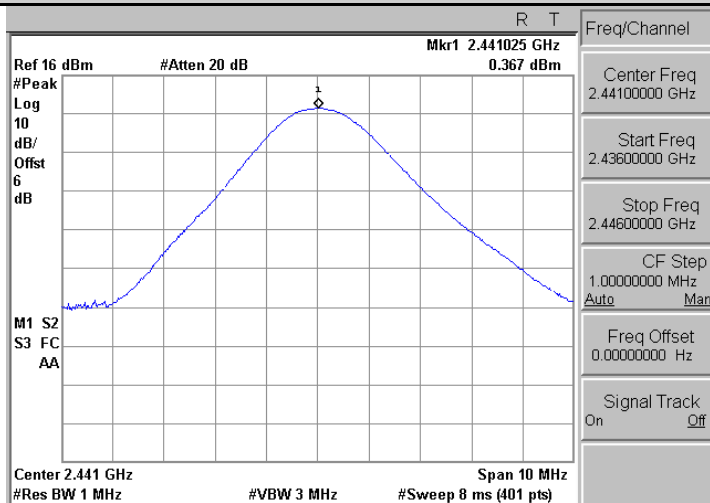


4.6 Test Graphs

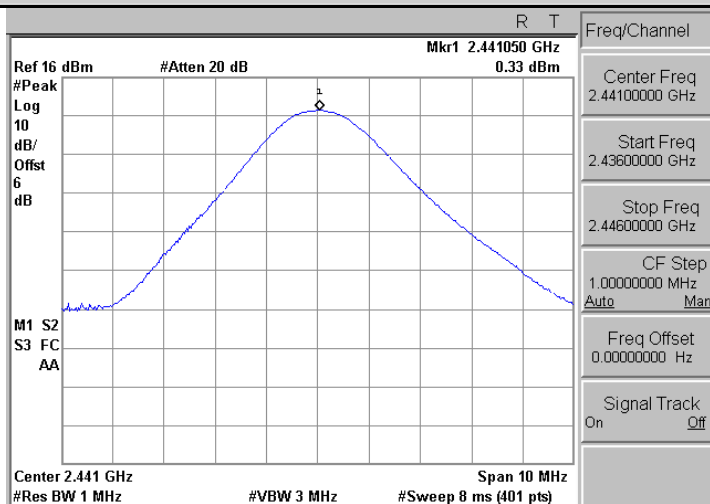


GFSK Link Mode _ CH39 (2441MHz)

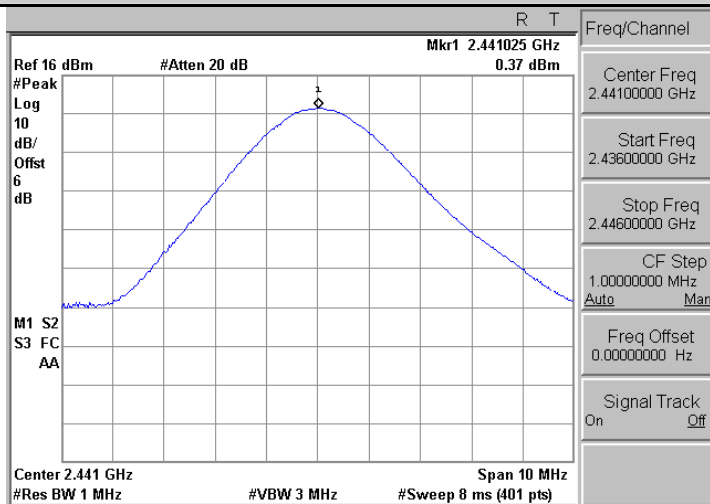
DH1



DH3



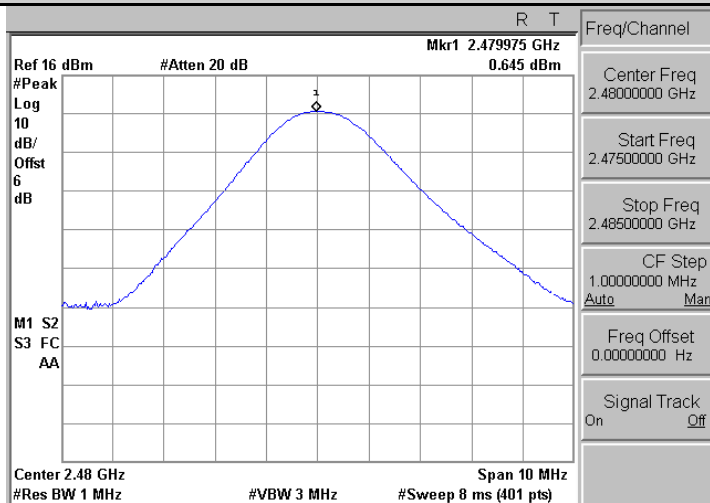
DH5





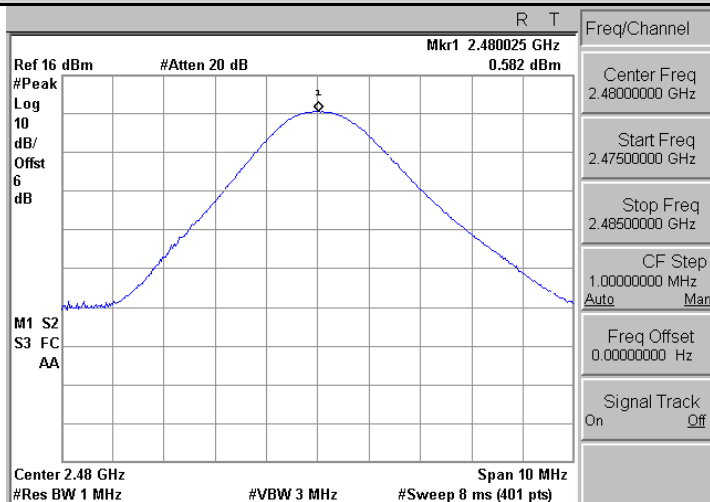
GFSK Link Mode _ CH78 (2480MHz)

DH1



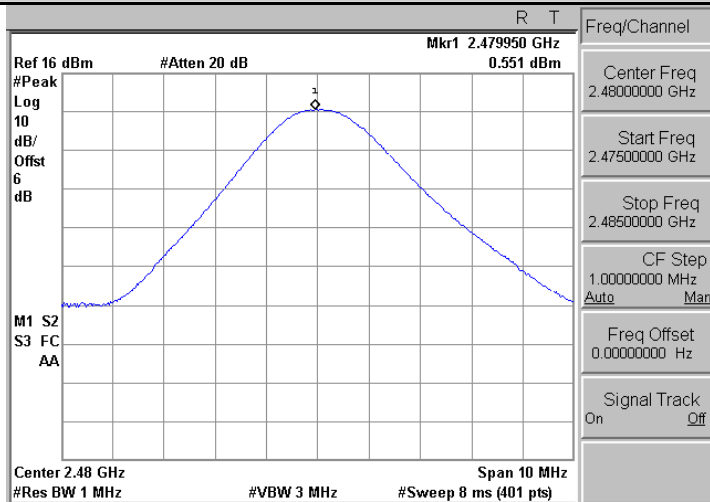
Freq/Channel
Center Freq 2.4800000 GHz
Start Freq 2.4750000 GHz
Stop Freq 2.4850000 GHz
CF Step 1.0000000 MHz Auto Man
Freq Offset 0.0000000 Hz
Signal Track On Off

DH3



Freq/Channel
Center Freq 2.4800000 GHz
Start Freq 2.4750000 GHz
Stop Freq 2.4850000 GHz
CF Step 1.0000000 MHz Auto Man
Freq Offset 0.0000000 Hz
Signal Track On Off

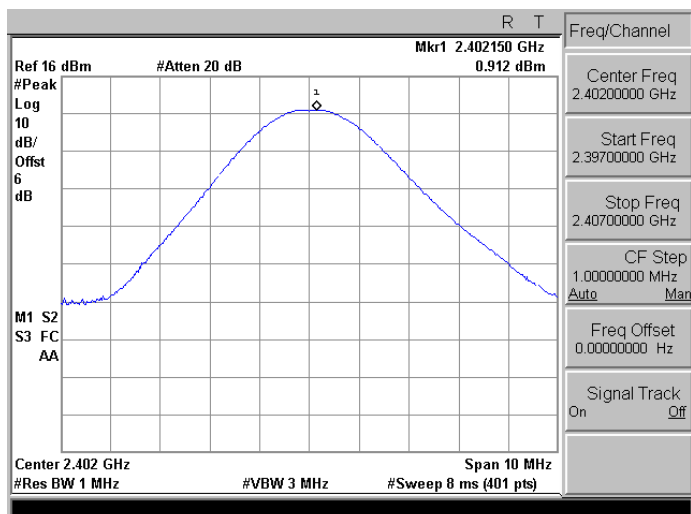
DH5



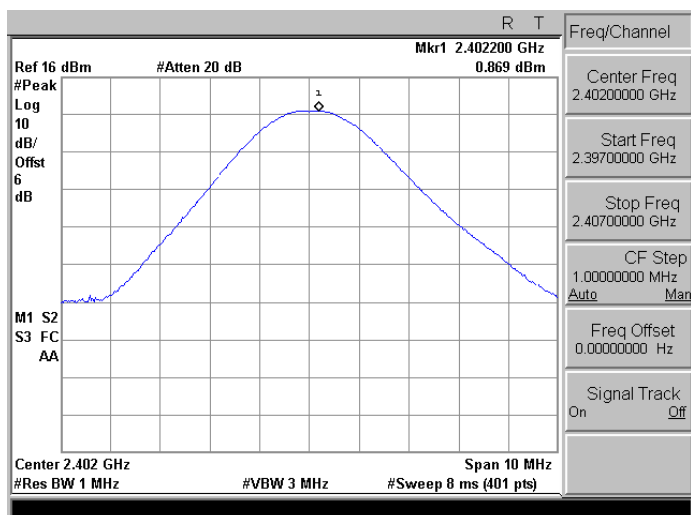
Freq/Channel
Center Freq 2.4800000 GHz
Start Freq 2.4750000 GHz
Stop Freq 2.4850000 GHz
CF Step 1.0000000 MHz Auto Man
Freq Offset 0.0000000 Hz
Signal Track On Off

π /4-DPSK Link Mode _ CH00 (2402MHz)

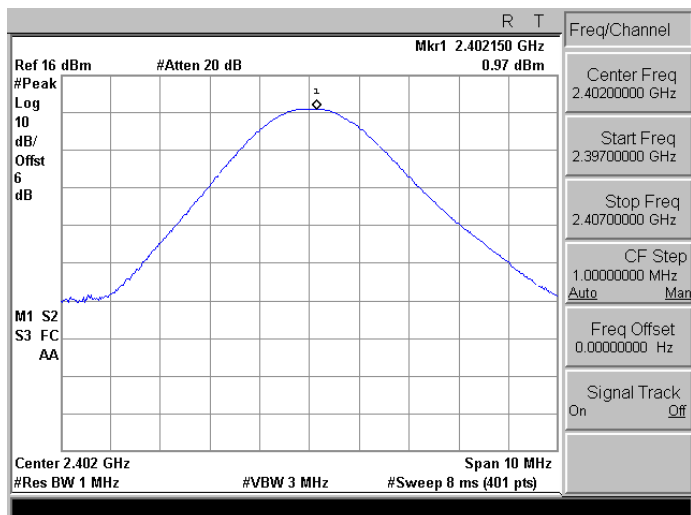
2DH1



2DH3

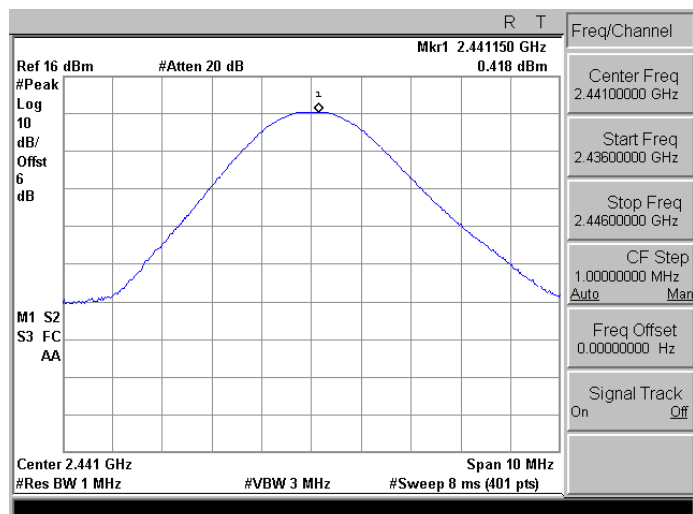


2DH5

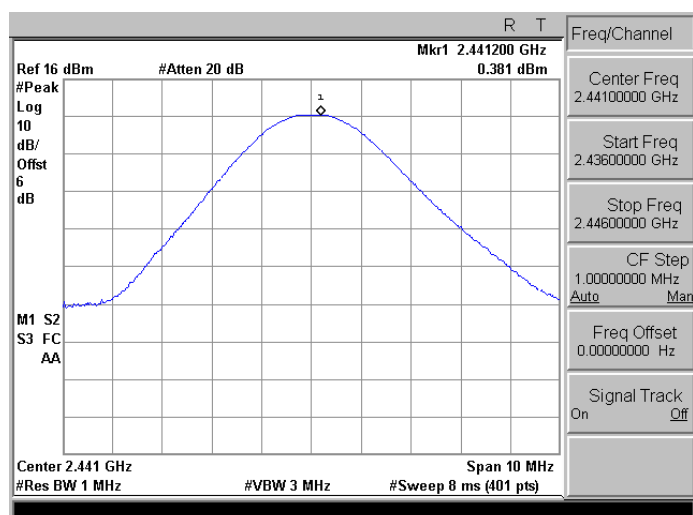


π I4-DPSK Link Mode _ CH39 (2441MHz)

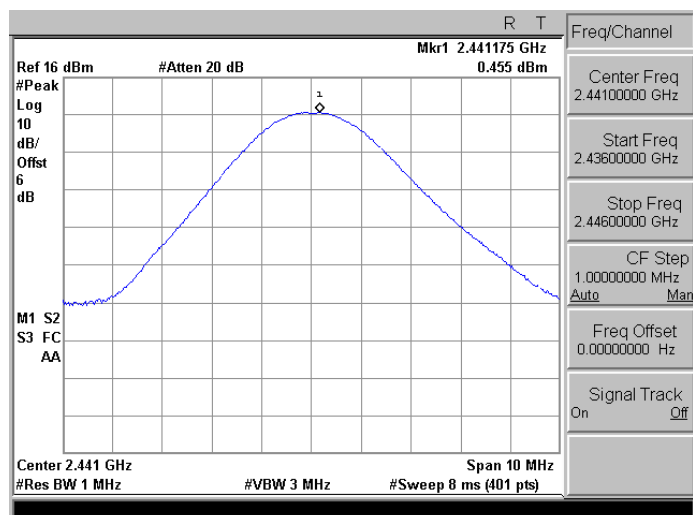
2DH1



2DH3

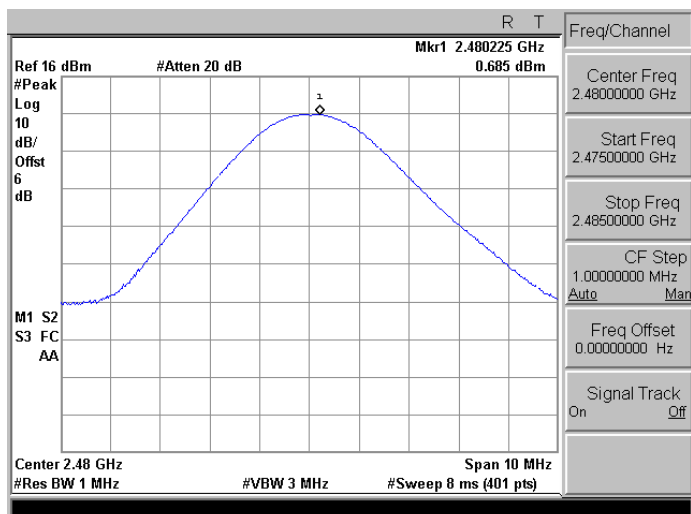


2DH5

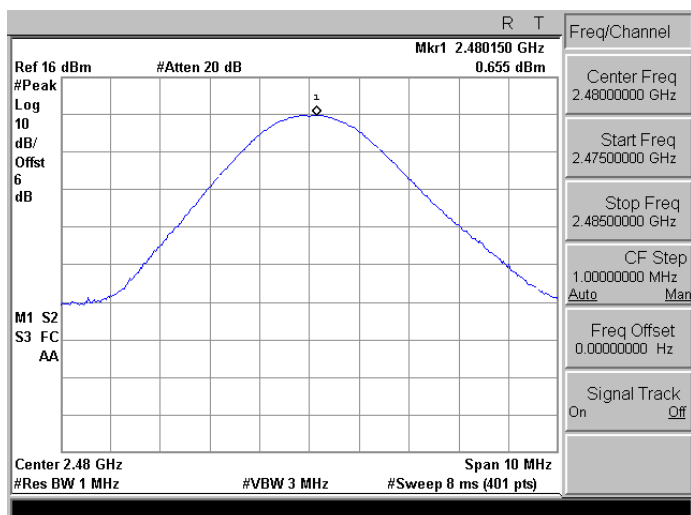


π I4-DPSK Link Mode _ CH78 (2480MHz)

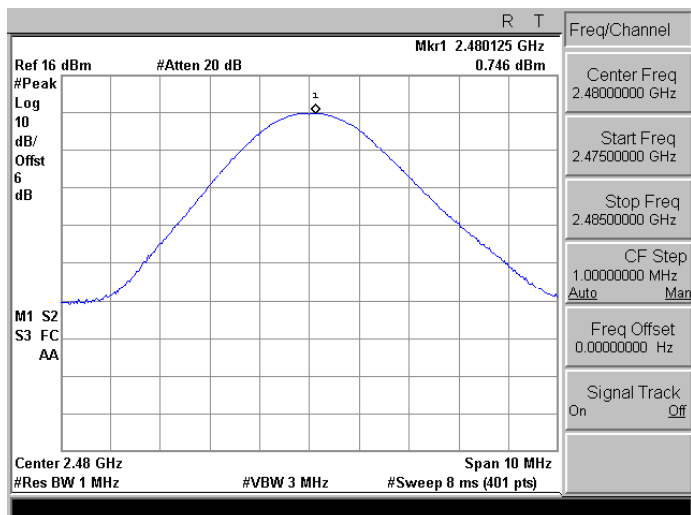
2DH1



2DH3

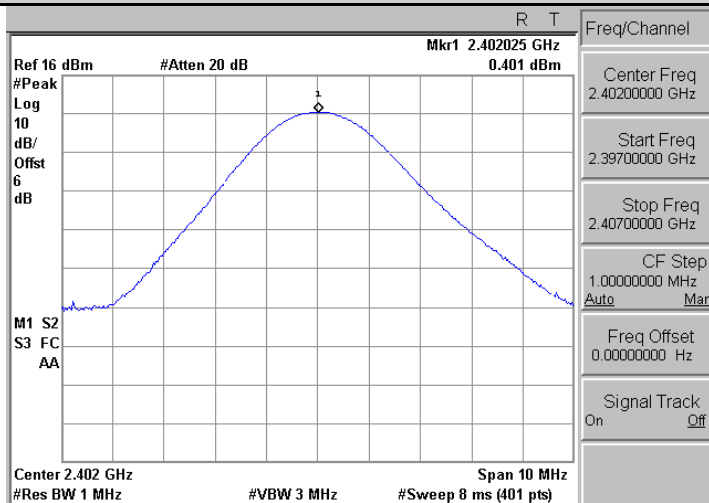


2DH5

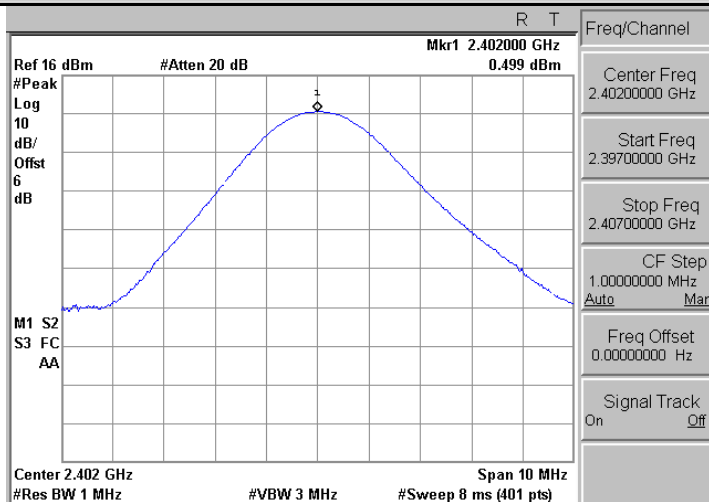


8DPSK Link Mode _ CH00 (2402MHz)

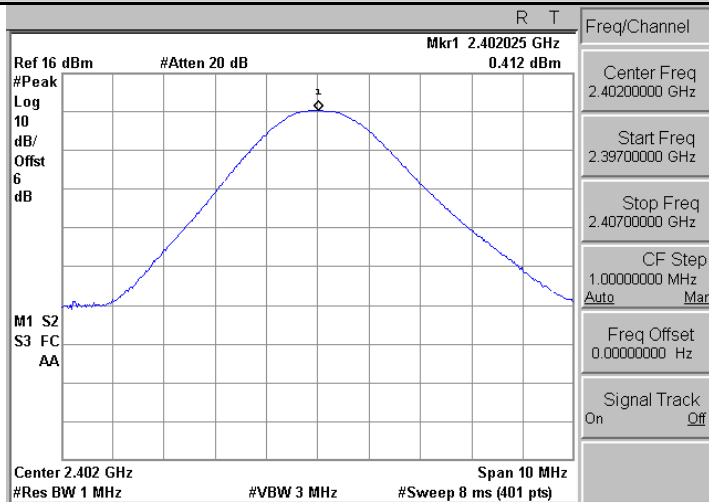
3DH1



3DH3

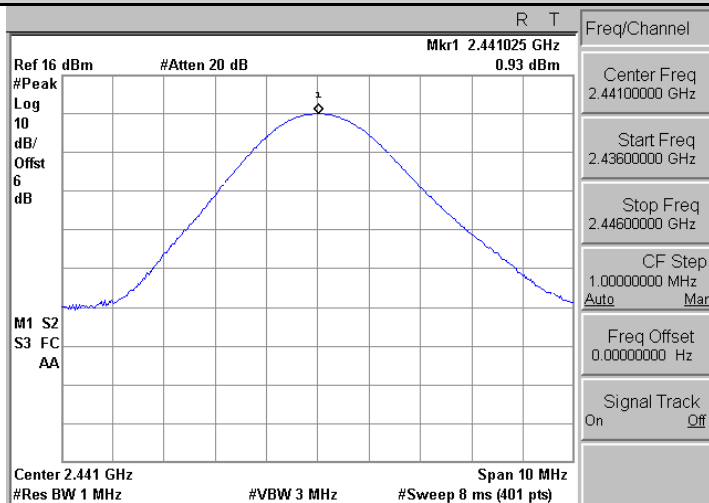


3DH5

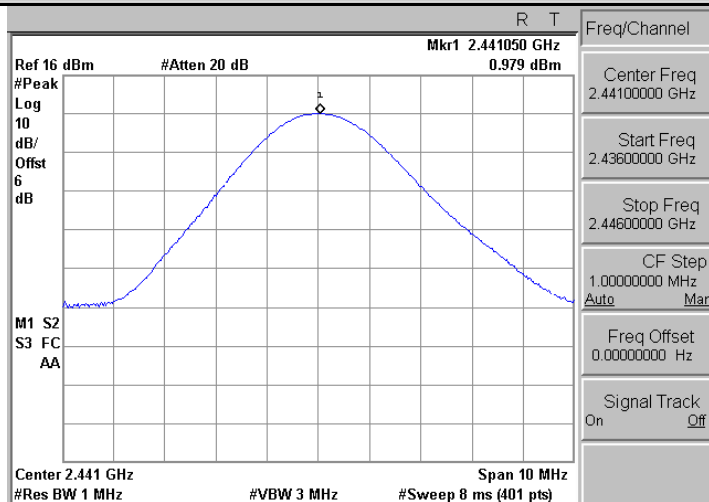


8DPSK Link Mode _ CH39 (2441MHz)

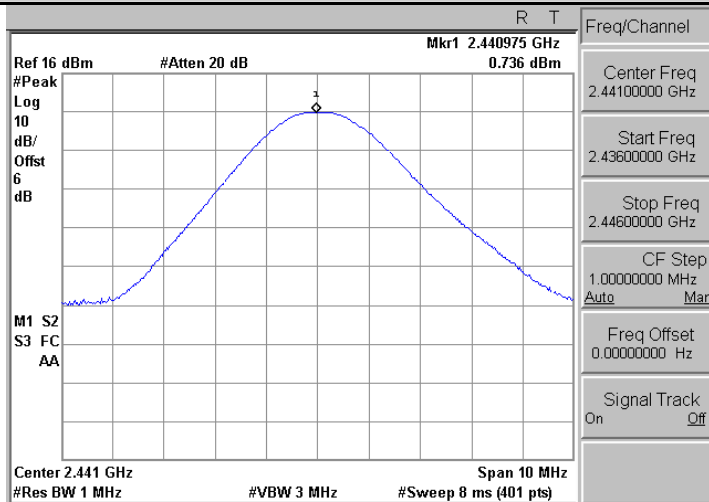
3DH1



3DH3

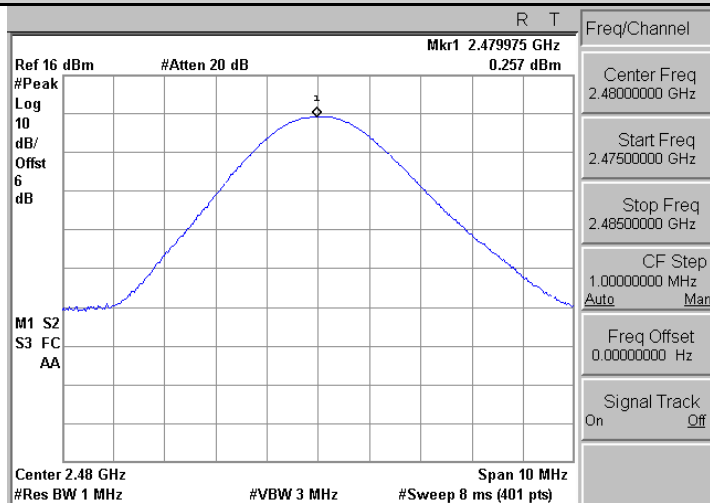


3DH5

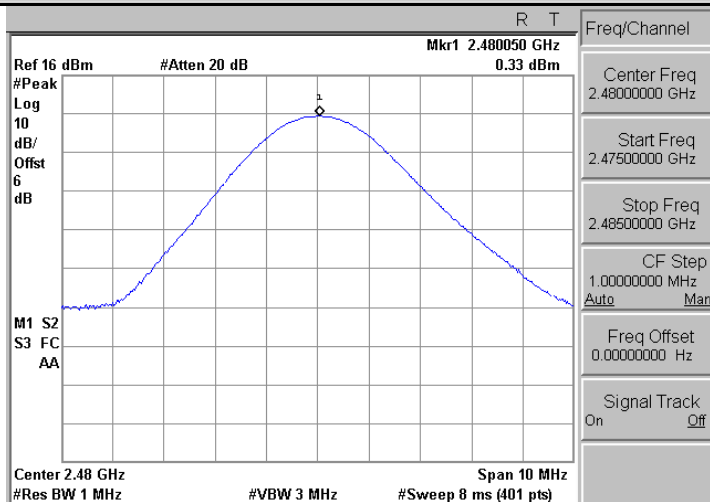


8DPSK Link Mode _ CH78 (2480MHz)

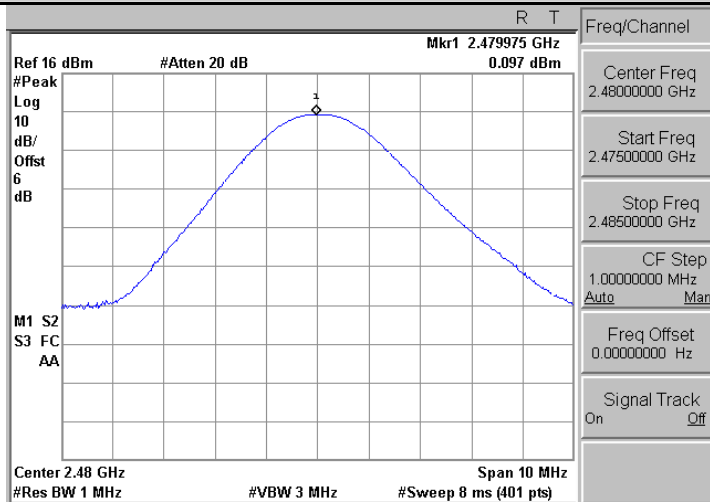
3DH1



3DH3



3DH5





5. Minimum 20dB RF Bandwidth Requirements

5.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW $\geq$ 1% of the 20dB span
3. VBW $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

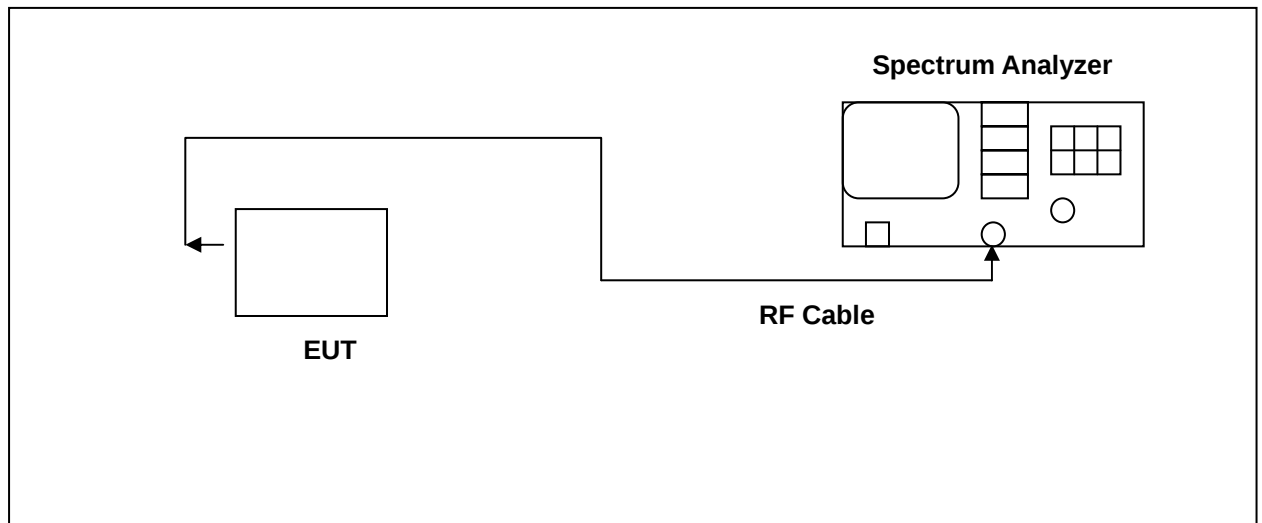
5.2 Limits

N/A

5.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May 14, 2009	May 14, 2010

5.4 Test Instruments Configuration



5.5 Test Result

EUT : Smartphone
 Model No. : PB65100
 Test Mode : GFSK Link Mode
 Test Date : 12/27/2009

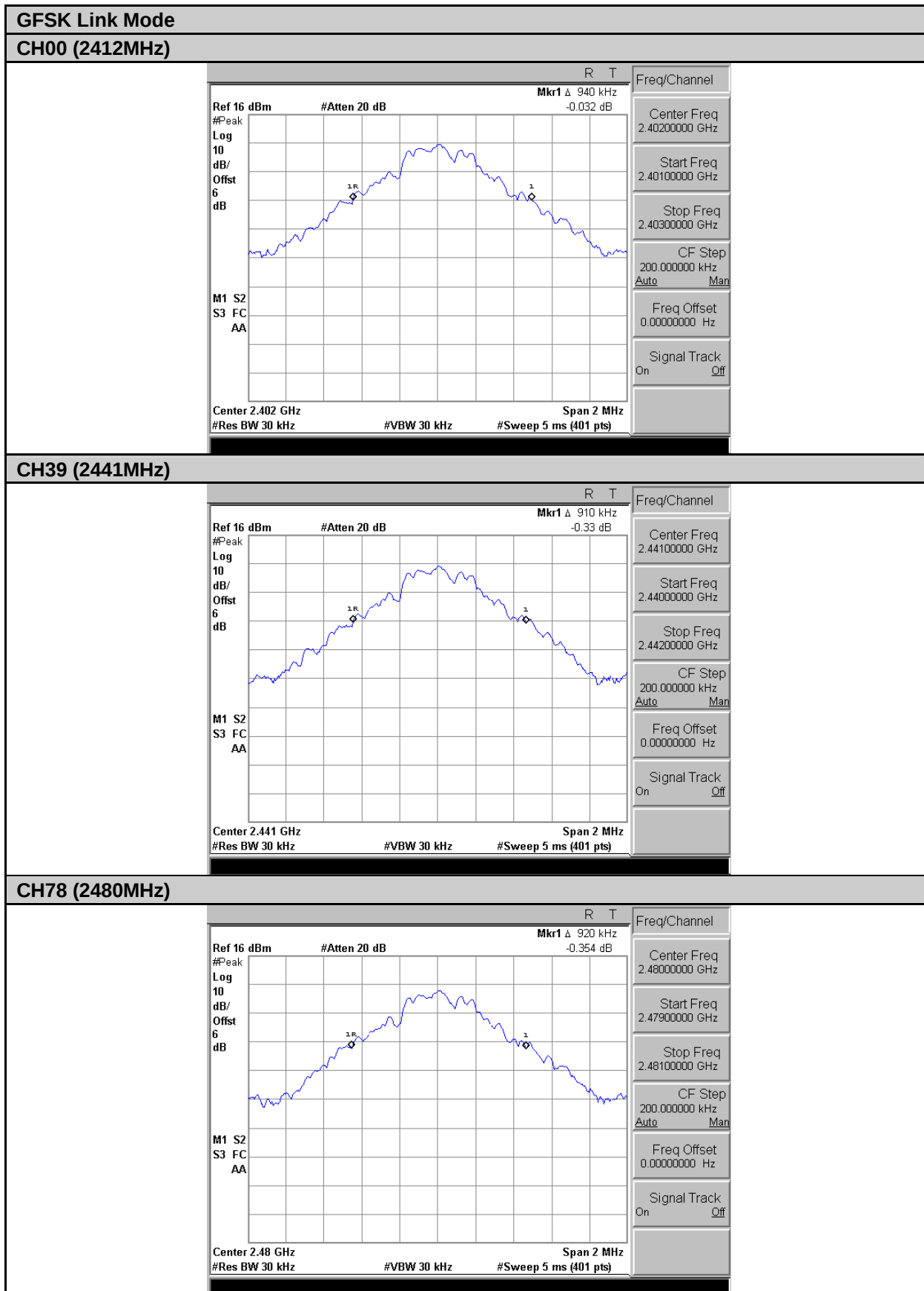
Frequency (MHz)	Max 20dB Bandwidth (MHz)
2402	940
2441	910
2480	920

EUT : Smartphone
 Model No. : PB65100
 Test Mode : 8DPSK Link Mode
 Test Date : 12/27/2009

Frequency (MHz)	Max 20dB Bandwidth (MHz)
2402	1.240
2441	1240
2480	1255

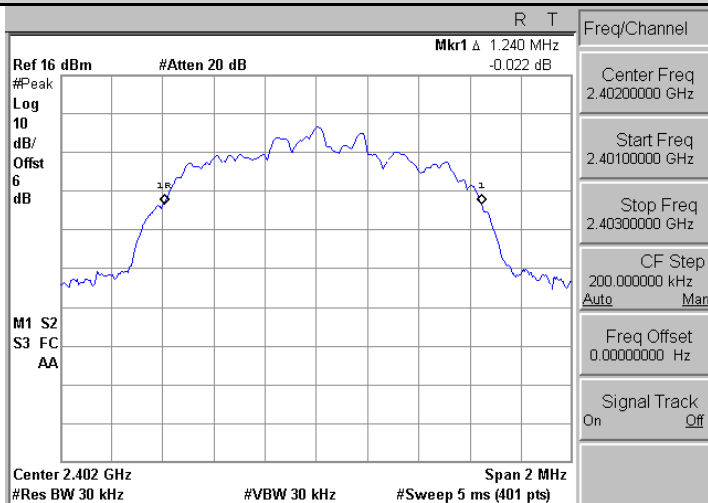


5.6 Test Graphs

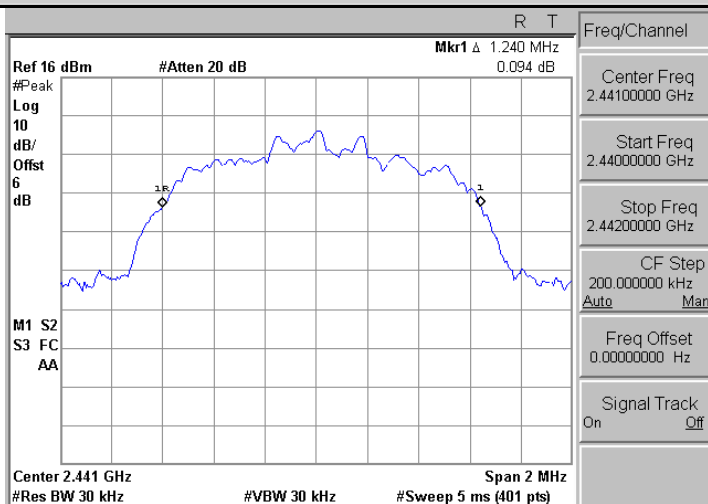


8DPSK Link Mode

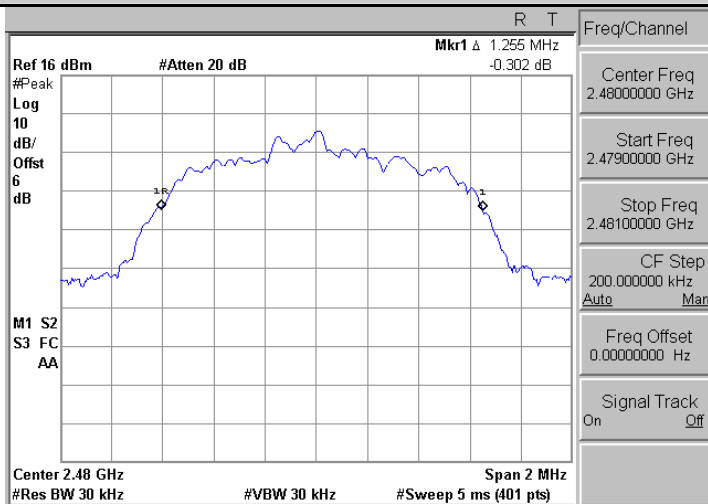
CH00 (2412MHz)



CH39 (2441MHz)



CH78 (2480MHz)



6. Carrier Frequency Separation Requirements

6.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW) $\geq$ 1% of the span
3. Video (or Average) Bandwidth (VBW) $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

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

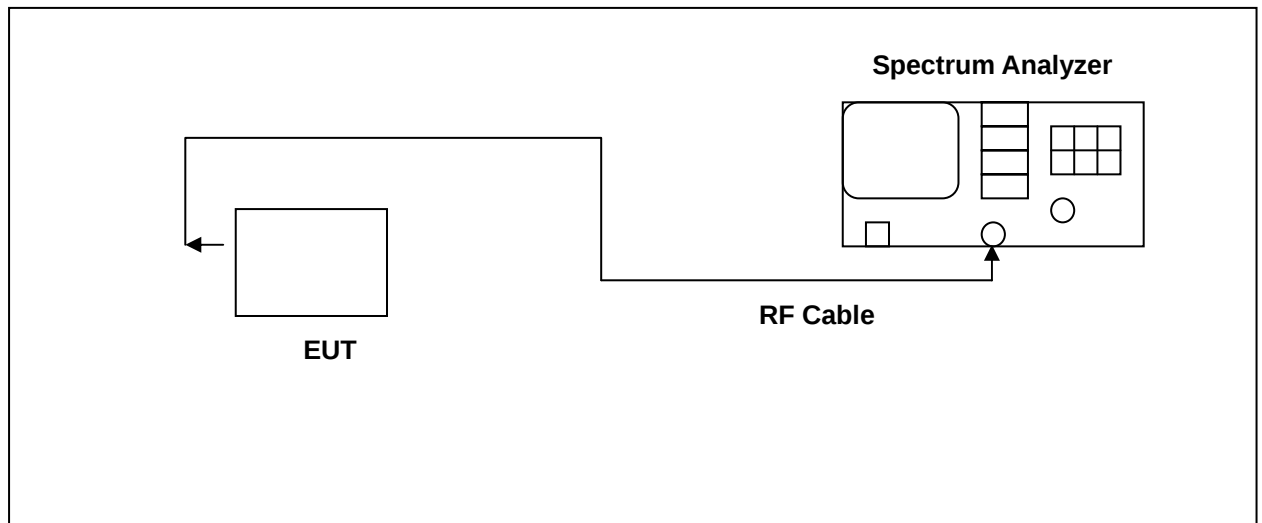
6.2 Limits

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.

6.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May 14, 2009	May 14, 2010
Attenuator	RADIALL	R41572000	0603033073	NA	NA

6.4 Test Instruments Configuration



6.5 Test Result

EUT : Smartphone
 Model No. : PB65100
 Test Mode : GFSK Link Mode
 Test Date : 12/27/2009

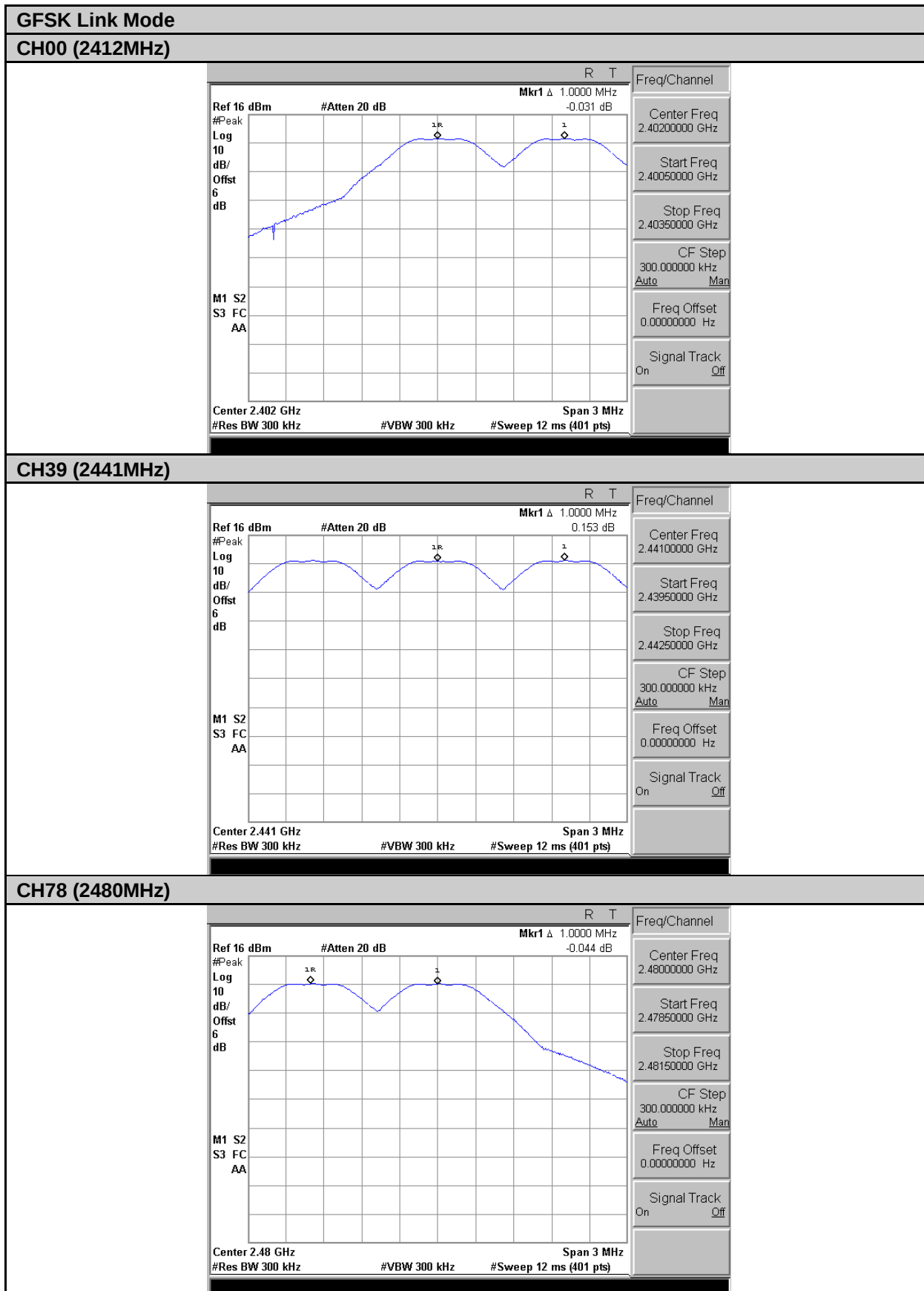
Frequency (MHz)	Frequency Separation (MHz)
2402	1
2441	1
2480	1

EUT : Smartphone
 Model No. : PB65100
 Test Mode : 8DPSK Link Mode
 Test Date : 12/27/2009

Frequency (MHz)	Frequency Separation (MHz)
2402	1
2441	1
2480	1

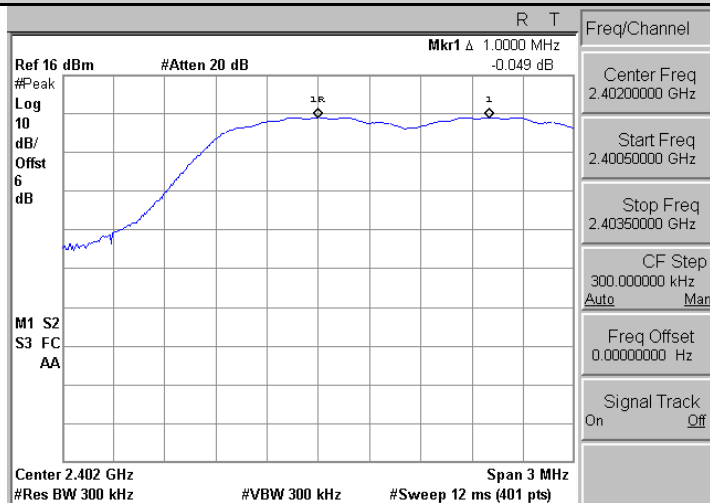


6.6 Test Graphs

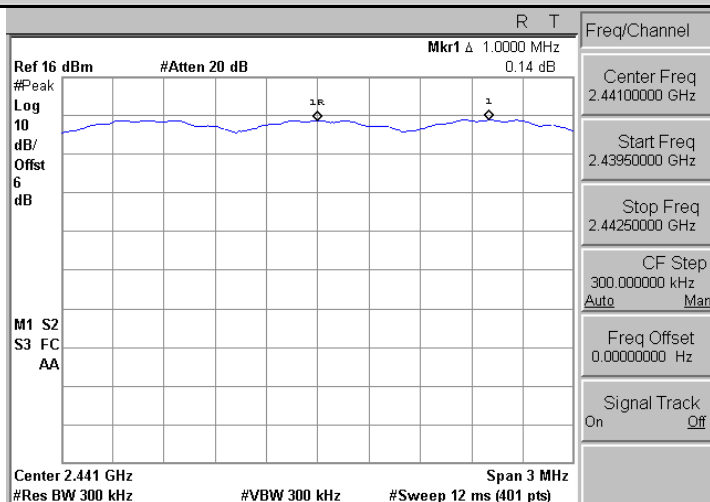


8DPSK Link Mode

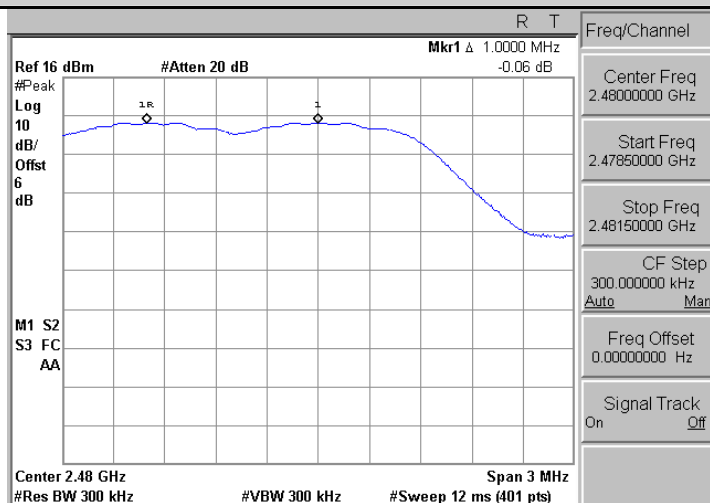
CH00 (2412MHz)



CH39 (2441MHz)



CH78 (2480MHz)





7. Number of Hopping Requirements

7.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW $\geq$ 1% of the span
3. VBW $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize.

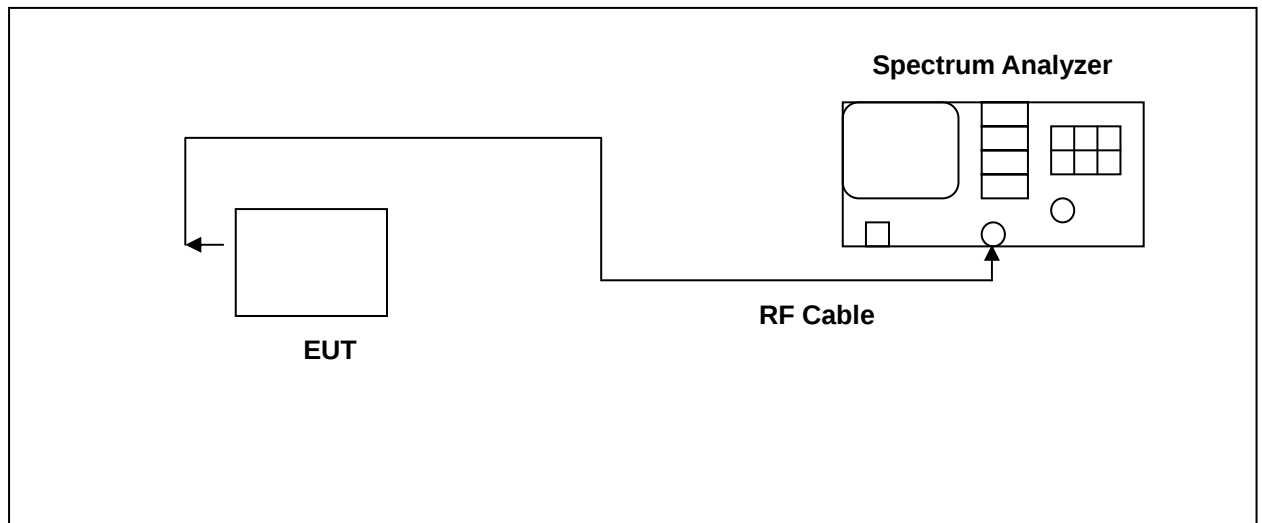
7.2 Limits

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

7.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May 14, 2009	May 14, 2010
Attenuator	RADIALL	R41572000	0603033073	NA	NA

7.4 Test Instruments Configuration



7.5 Test Result

EUT : Smartphone
 Model No. : PB65100
 Test Mode : GFSK Link Mode
 Test Date : 12/27/2009

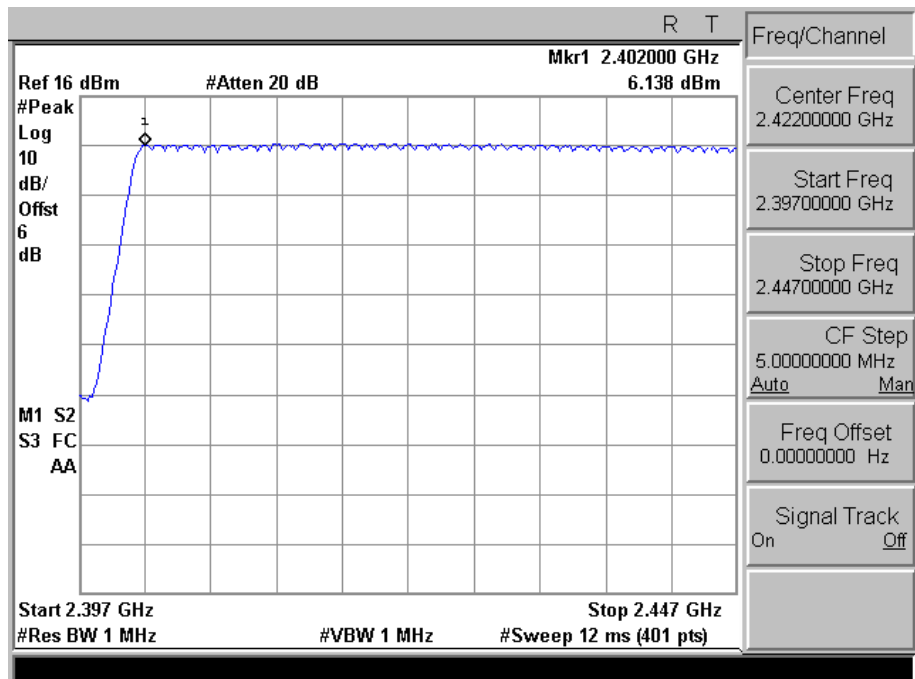
Number of Hopping Channels	Limits
79	> 15

EUT : Smartphone
 Model No. : PB65100
 Test Mode : 8DPSK Link Mode
 Test Date : 12/27/2009

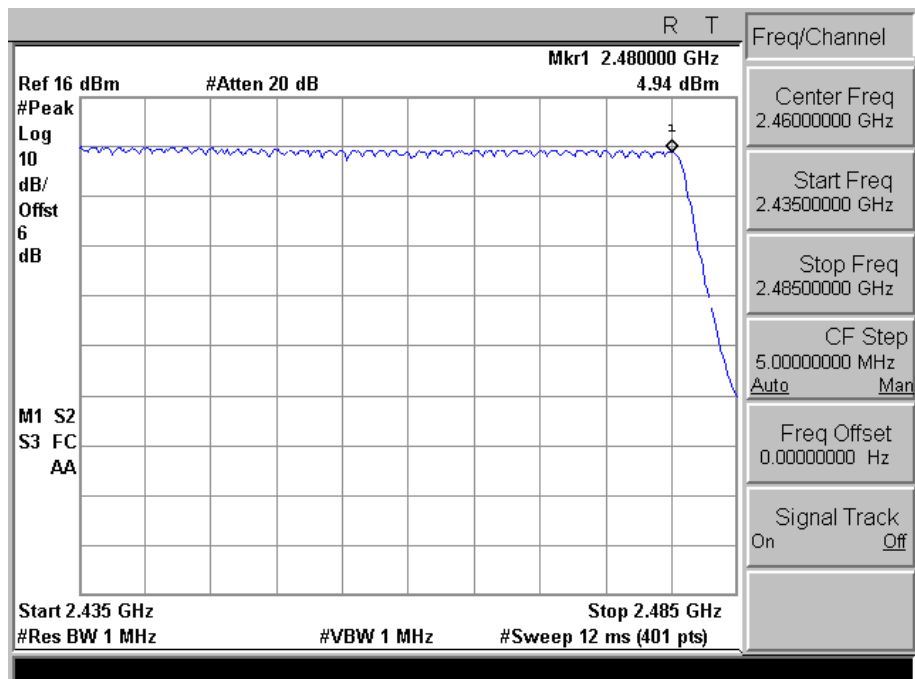
Number of Hopping Channels	Limits
79	> 15

8DPSK Link Mode

CH0~CH39



CH40~CH78



8. Time of Occupancy (Dwell Time) Requirements

8.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 1 MHz
3. VBW $\geq$ RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

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

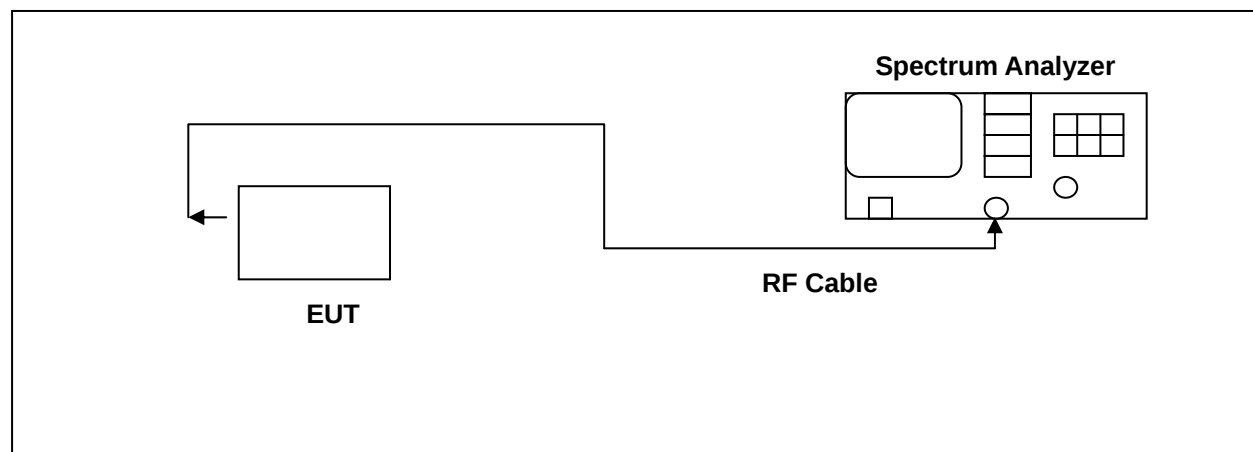
8.2 Limits

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.

8.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May 14, 2009	May 14, 2010
Attenuator	RADIALL	R41572000	0603033073	NA	NA

8.4 Test Instruments Configuration





8.5 Test Result

EUT : Smartphone
Model No. : PB65100
Test Mode : GFSK Link Mode
Test Date : 12/27/2009

DH1 Mode	
Cycle Calculate	$79\text{CH} * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$800/79\text{CH} = 10.13(\text{times/sec})$
Each Channel Dwell Times (1)	0.38 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6 * 10.13 = 320.108(\text{times})$
Dwell Times on Cycle (1) * (2)	121.64104 ms (sec)
LIMIT(msec)	≤ 400

DH3 Mode	
Cycle Calculate	$79\text{CH} * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$400/79\text{CH}=5.1(\text{times/sec})$
Each Channel Dwell Times (1)	1.64 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6*5.1=161.16(\text{times})$
Dwell Times on Cycle (1) * (2)	264.3024 ms (sec)
LIMIT(msec)	≤ 400

DH5 Mode	
Cycle Calculate	$79\text{CH} * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$266.7/79\text{CH}=3.37 \text{ (times/sec)}$
Each Channel Dwell Times (1)	2.91 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6*3.37=106.492 \text{ (times)}$
Dwell Times on Cycle (1) * (2)	309.89172 ms (sec)
LIMIT(msec)	≤ 400

Note: RB=1MHz; VB=1MHz; SPAN=0MHz; Sweep Time=20msec



EUT : Smartphone
 Model No. : PB65100
 Test Mode : 8DPSK Link Mode
 Test Date : 12/27/2009

DH1 Mode	
Cycle Calculate	$79CH * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$800/79CH = 10.13 \text{ (times/sec)}$
Each Channel Dwell Times (1)	0.39 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6 * 10.13 = 320.108 \text{ (times)}$
Dwell Times on Cycle (1) * (2)	124.84212 ms (sec)
LIMIT(msec)	≤ 400

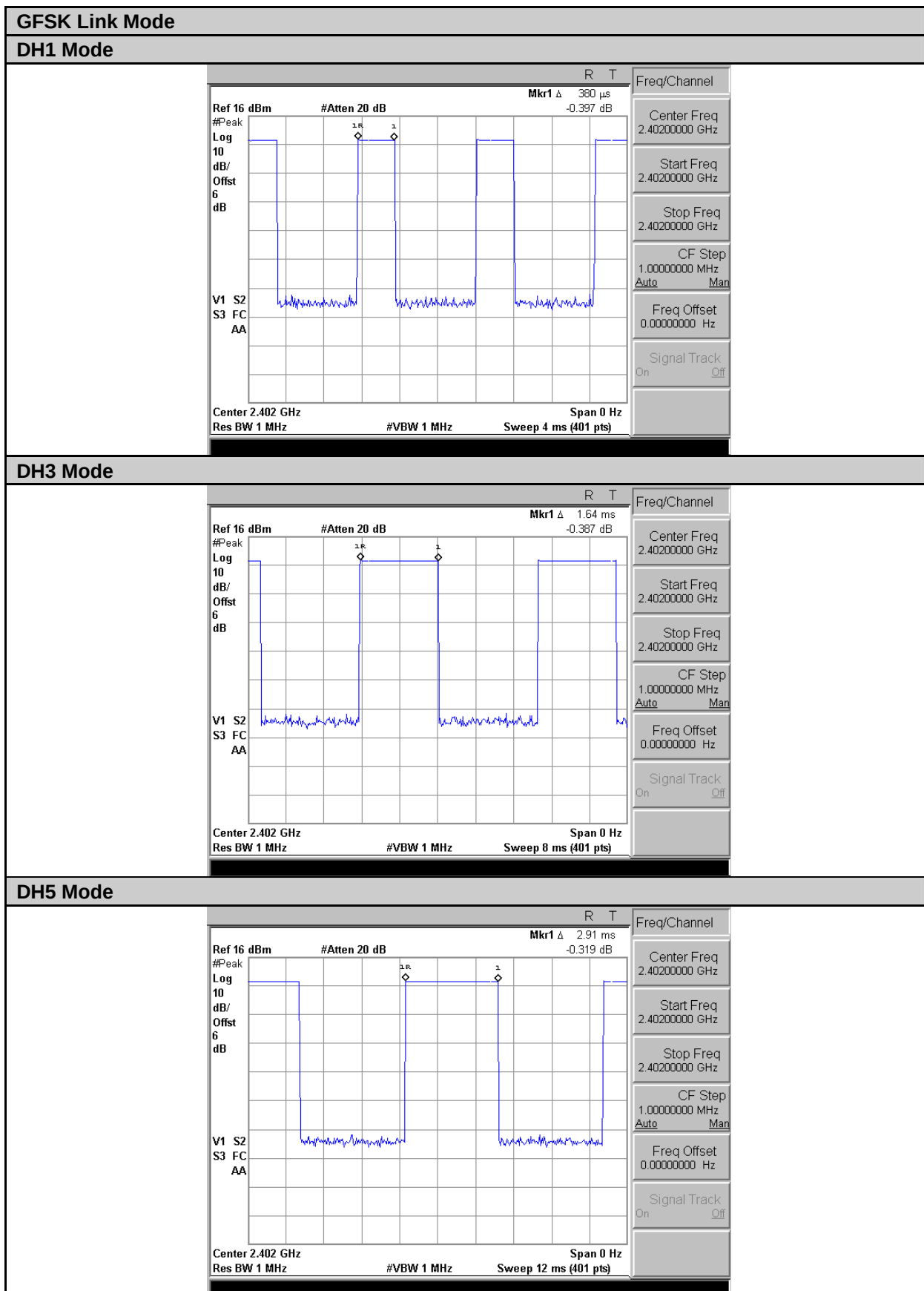
DH3 Mode	
Cycle Calculate	$79CH * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$400/79CH = 5.1 \text{ (times/sec)}$
Each Channel Dwell Times (1)	1.64 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6 * 5.1 = 161.16 \text{ (times)}$
Dwell Times on Cycle (1) * (2)	264.3024 ms (sec)
LIMIT(msec)	≤ 400

DH5 Mode	
Cycle Calculate	$79CH * 0.4 = 31.6 \text{ (sec)}$
The EUT Hopping Number per Sec	1600 times/sec
Each Channel Dwell Times per Sec	$266.7/79CH = 3.37 \text{ (times/sec)}$
Each Channel Dwell Times (1)	2.88 ms (sec)
Each Channel Dwell Times on Cycle(2)	$31.6 * 3.37 = 106.492 \text{ (times)}$
Dwell Times on Cycle (1) * (2)	306.69696 ms (sec)
LIMIT(msec)	≤ 400

Note: RB=1MHz; VB=1MHz; SPAN=0MHz; Sweep Time=20msec

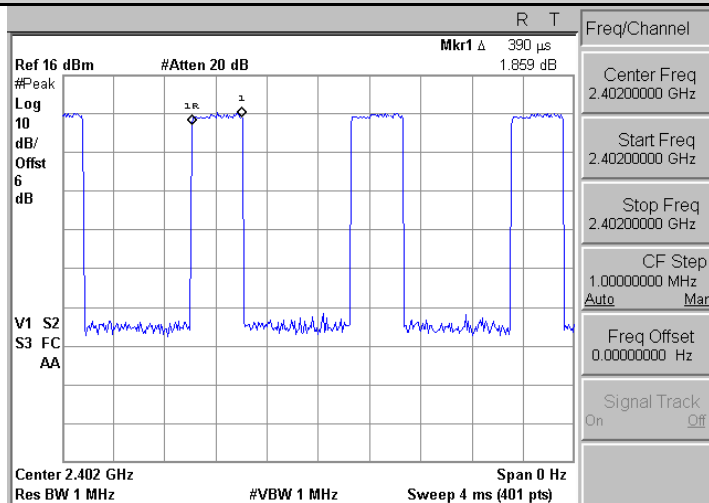


8.6 Test Graphs

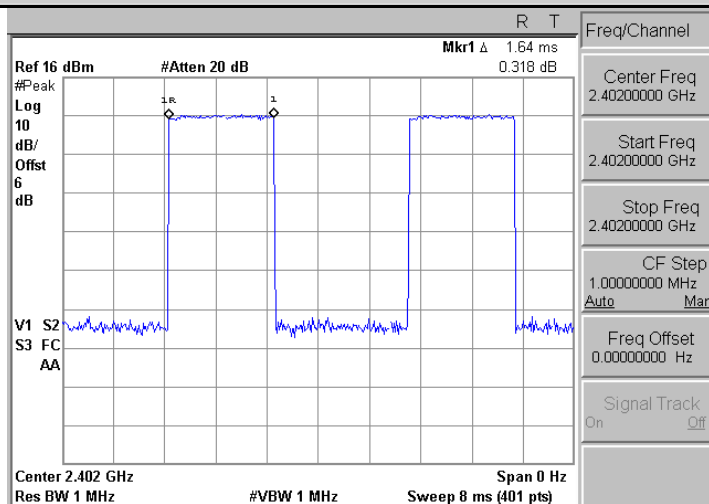


8DPSK Link Mode

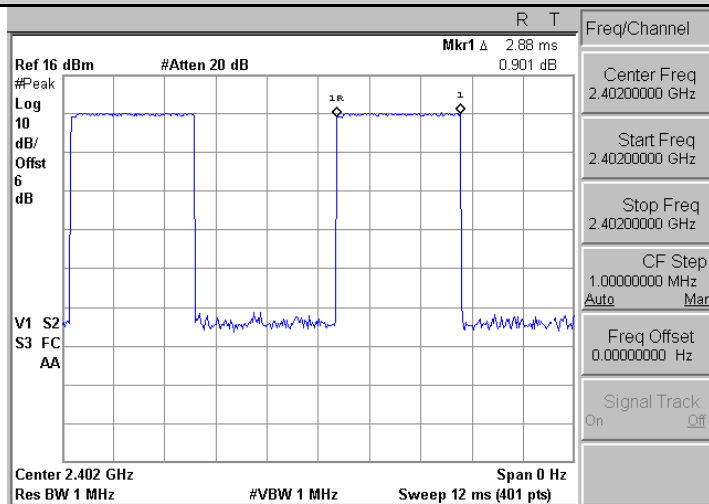
3DH1 Mode



3DH3 Mode



3DH5 Mode



9. Out of Band Conducted Emissions Requirements

9.1 Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 0, 39, 79)

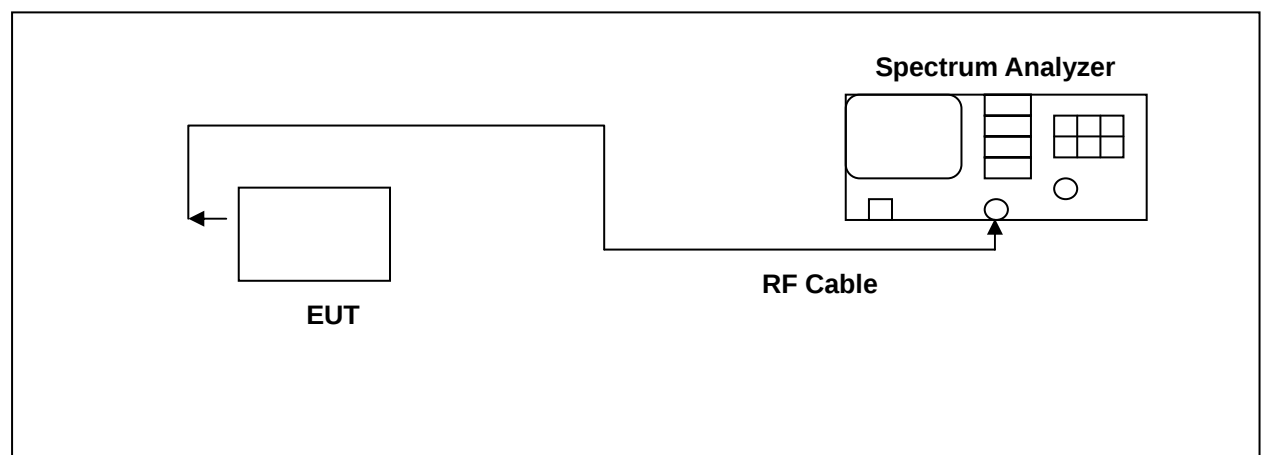
9.2 Limits

Data shows out of band emissions are suppressed well below the -20 dBc minimum required by the Rules

9.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	May 14, 2009	May 14, 2010

9.4 Test Instruments Configuration





9.5 Test Result

EUT : Smartphone

Model No. : PB65100

Test Mode : #1 GFSK Link Mode
 #2 8DPSK Link Mode

Test Date : 12/27/2009

Please refer to next page of detail testing data.



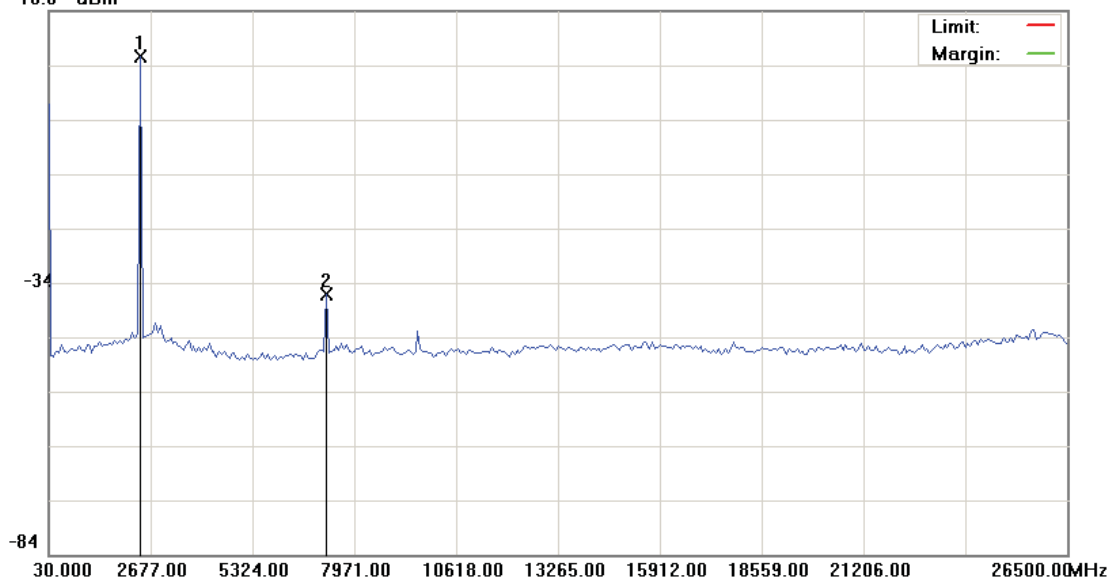
File : (20dB)BT

Data : #1

Date: 2009/12/27

Time:

16.0 dBm



Site: Polarization: Temperature: 22 °C
 Limit: Power: Humidity: 60 %
 EUT: Distance: RBW: 100 KHz VBW: 100 KHz
 M/N:
 Mode: GFSK Link Mode
 Note: 2402

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2402.000	1.61	6.09	7.70			peak		Tx
2		7243.075	-42.51	6.27	-36.24			peak		

*:Maximum data x:Over limit !:over margin

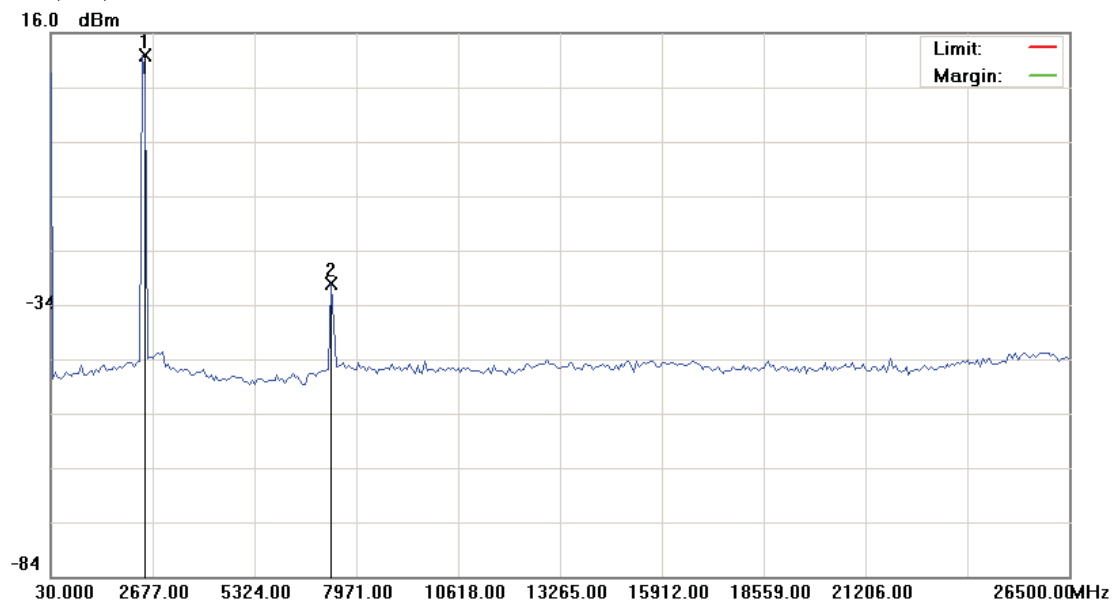


File : (20dB)BT

Data : #2

Date: 2009/12/27

Time:



Site:	Polarization:	Temperature:	22 °C
Limit:	Power:	Humidity:	60 %
EUT:	Distance:	RBW:	100 KHz
M/N:		VBW:	100 KHz
Mode:	GFSK Link Mode		
Note:	2441		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2441.000	5.86	6.09	11.95			peak		Tx
2		7309.250	-36.51	6.28	-30.23			peak		

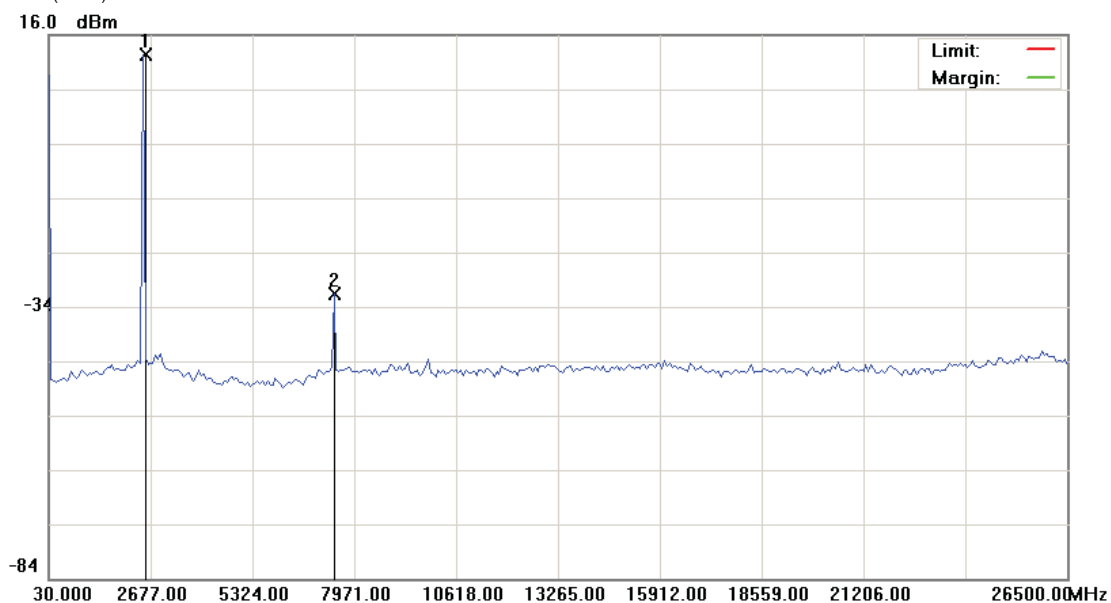
*:Maximum data x:Over limit !:over margin

File : (20dB)BT

Data : #3

Date: 2009/12/27

Time:



Site: Polarization: Temperature: 22 °C
Limit: Power: Humidity: 60 %
EUT: Distance: RBW: 100 KHz VBW: 100 KHz
M/N:
Mode: GFSK Link Mode
Note: 2480

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2480.000	6.28	6.09	12.37			peak		Tx
2		7441.600	-37.98	6.28	-31.70			peak		

*:Maximum data x:Over limit !:over margin

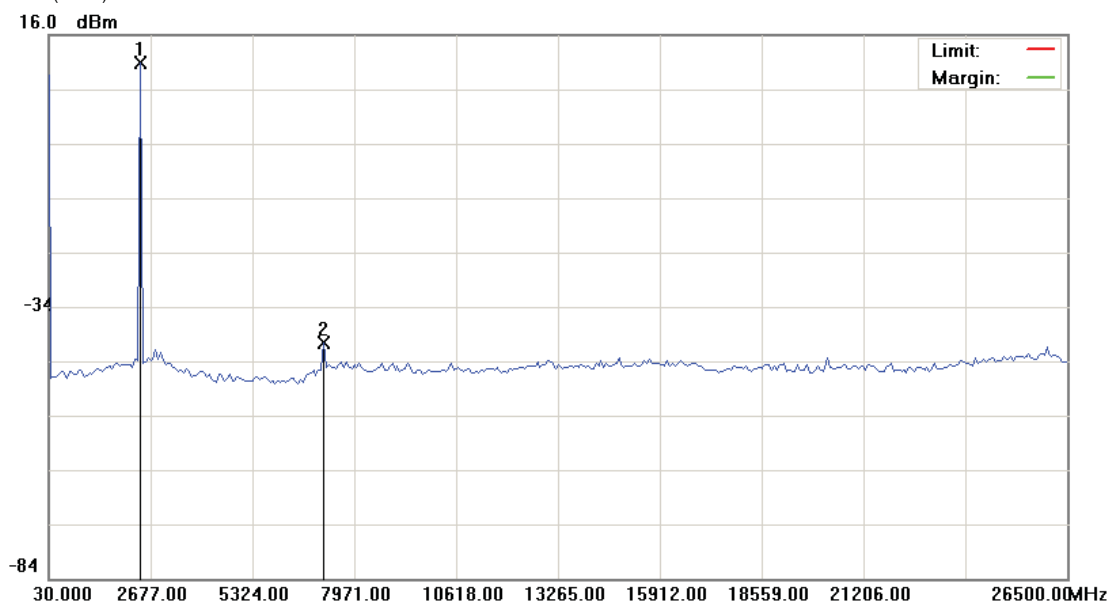


File : (20dB)

Data : #1

Date: 2009/12/27

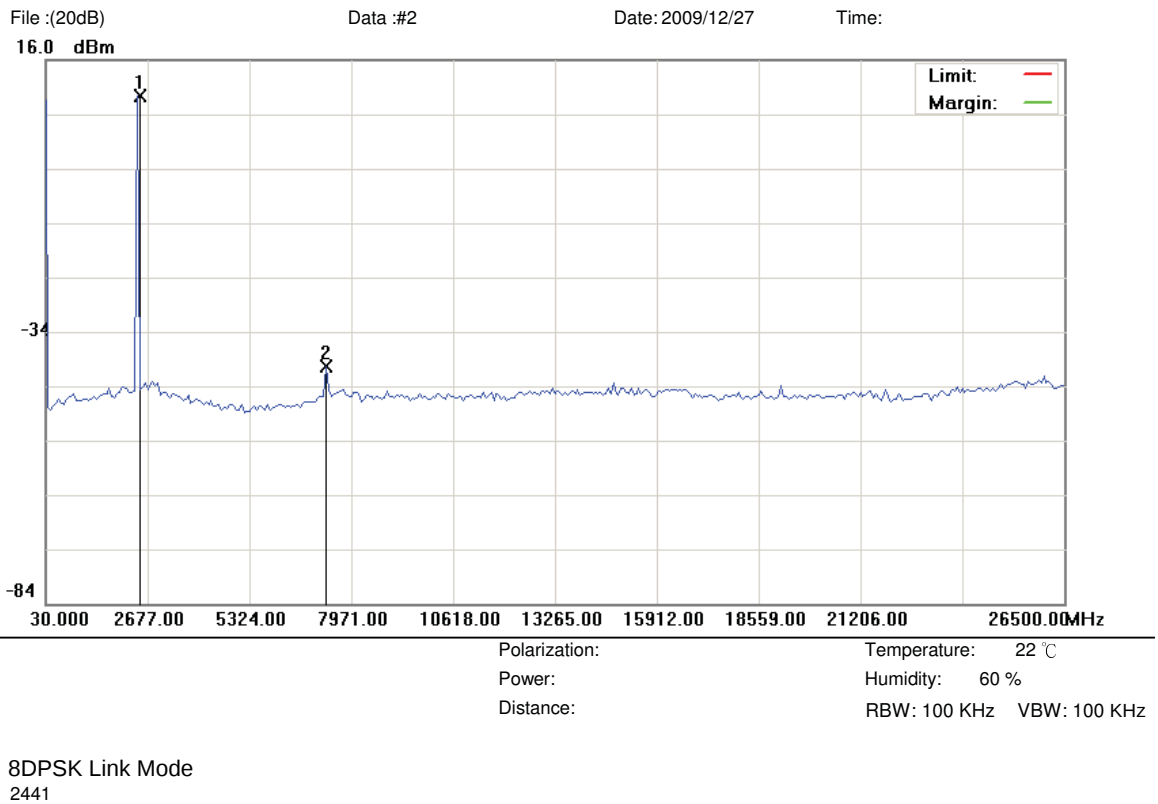
Time:



Site: Polarization: Temperature: 22 °C
Limit: Power: Humidity: 60 %
EUT: Distance: RBW: 100 KHz VBW: 100 KHz
M/N:
Mode: 8DPSK Link Mode
Note: 2402

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2402.000	4.77	6.09	10.86			peak		
2		7176.900	-46.98	6.27	-40.71			peak		

*:Maximum data x:Over limit !:over margin



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2441.000	3.33	6.09	9.42			peak		Tx
2		7309.250	-46.68	6.28	-40.40			peak		

*:Maximum data x:Over limit !:over margin



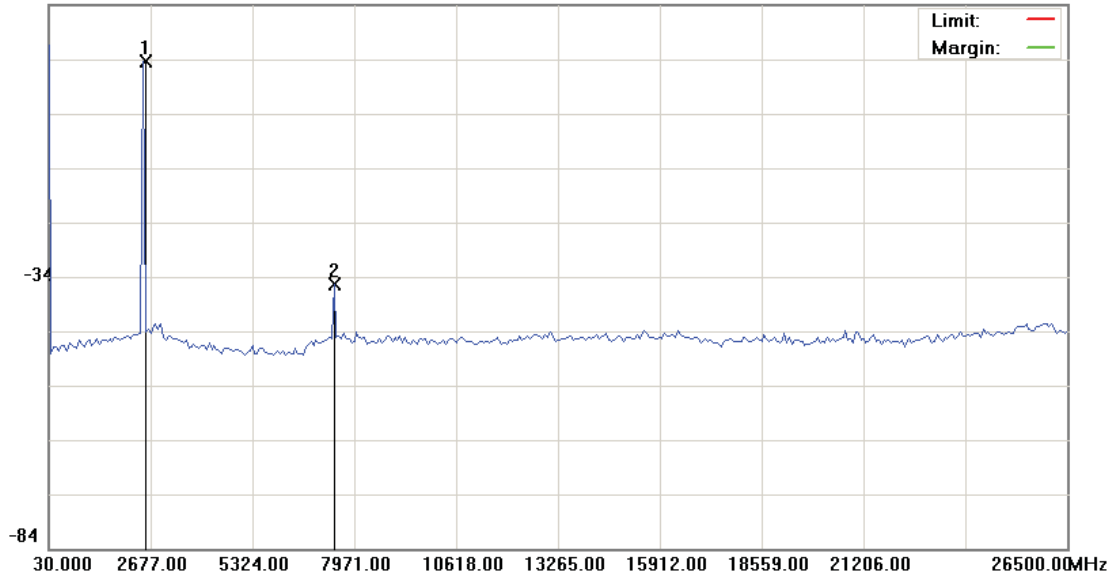
File : (20dB)

Data : #3

Date: 2009/12/27

Time:

16.0 dBm



Site: Polarization: Temperature: 22 °C
Limit: Power: Humidity: 60 %
EUT: Distance: RBW: 100 KHz VBW: 100 KHz
M/N:
Mode: 8DPSK Link Mode
Note: 2480

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2480.000	-0.35	6.09	5.74			peak		Tx
2		7441.600	-41.54	6.28	-35.26			peak		

*:Maximum data x:Over limit !:over margin



10. Band Edges Requirements

10.1 Test Procedure

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

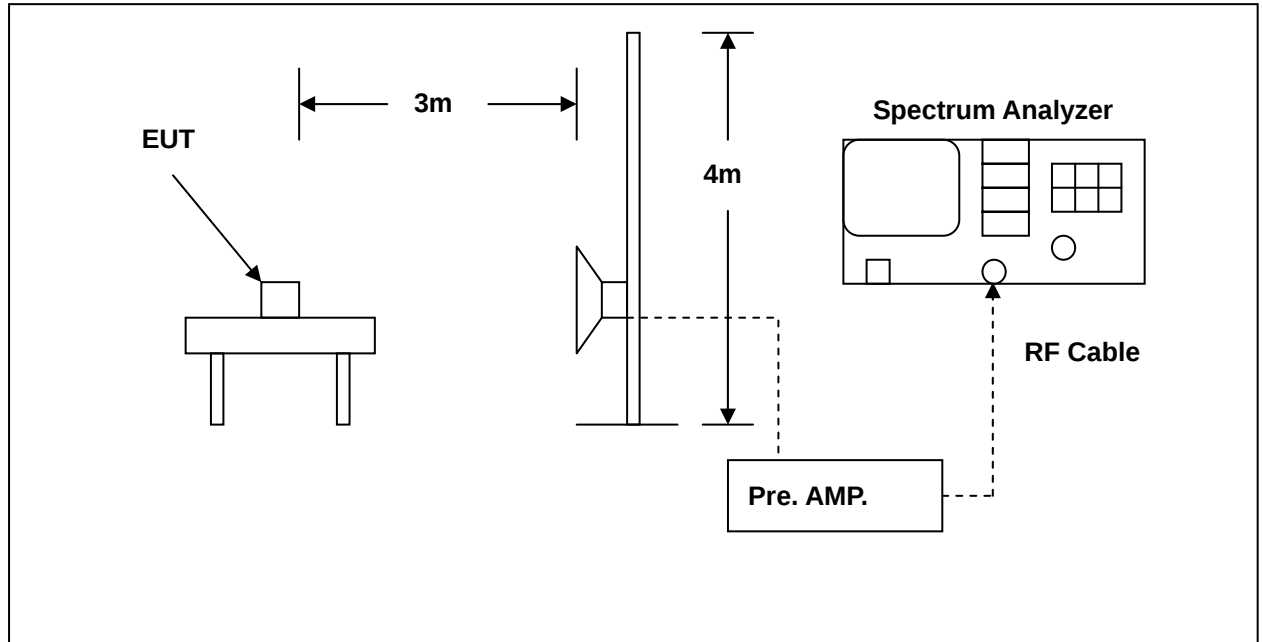
10.2 Limits

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

10.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 23, 2009	Jun. 23, 2010
Pre Amplifier	Agilent	8449B	3008A02456	Feb. 19, 2009	Feb. 19, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jul. 01, 2009	Jul. 01, 2010

10.4 Test Instruments Configuration



10.5 Test Result

EUT : Smartphone

Model No. : PB65100

Test Mode : #1 GFSK Link Mode
#2 8DPSK Link Mode

Test Date : 12/24/2009

Please refer to next page of detail testing data.

Notes:

1. Margin= Amplitude - Limits
2. Height of table for EUT placed: 0.8 Meter.
3. ANT= Antenna height.
4. Duty= Duty cycle correction factor.
5. Dis= Distance extrapolation factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)
7. Actual Amp= Amplitude – Duty – Dis.



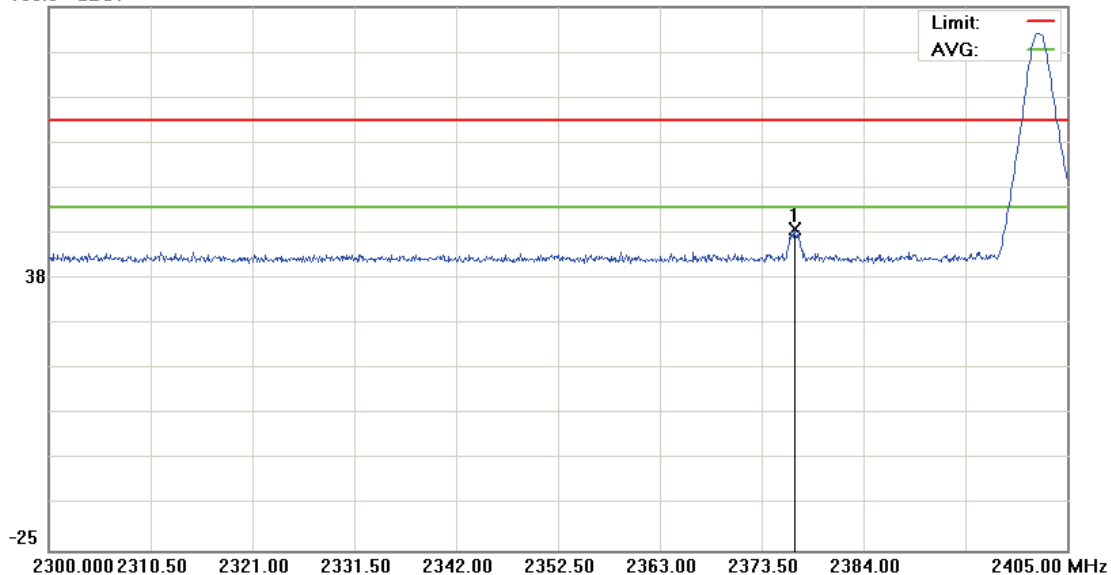
File :PB65100(Band Edge)

Data :#1

Date: 2009/12/24

Time: 下午 07:39:42

100.0 dBuV



Site: : 966 Chamber

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: GFSK Link Mode

Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2376.860	48.68	0.17	48.85	74.00	-25.15	peak		

*:Maximum data x:Over limit !:over margin



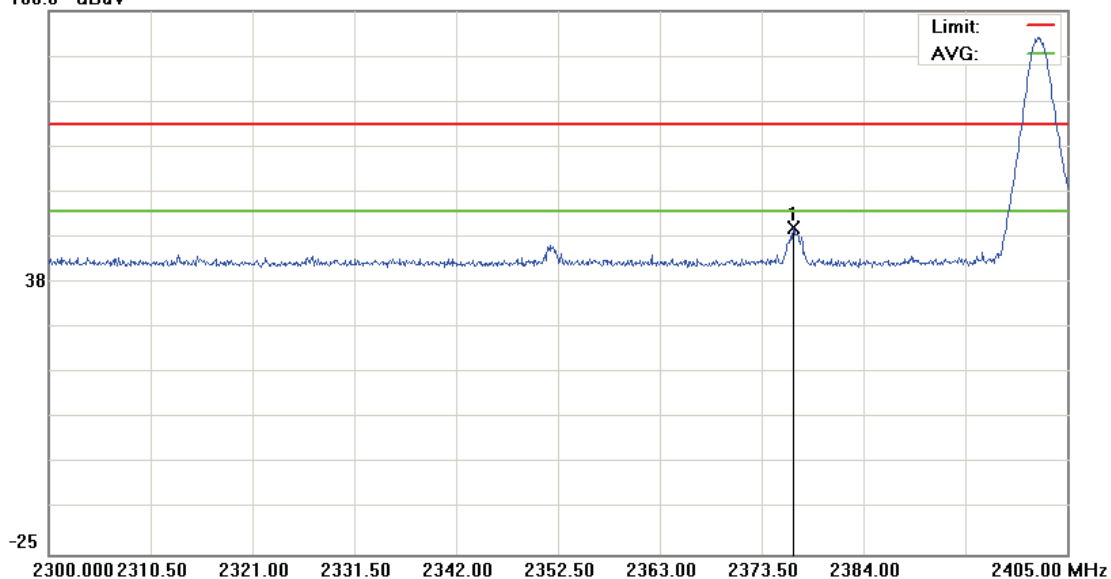
File :PB65100(Band Edge)

Data :#5

Date: 2009/12/24

Time: 下午 08:18:46

100.0 dBuV



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: GFSK Link Mode

Note: 2402MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2376.755	49.93	0.17	50.10	74.00	-23.90	peak		

*:Maximum data x:Over limit !:over margin



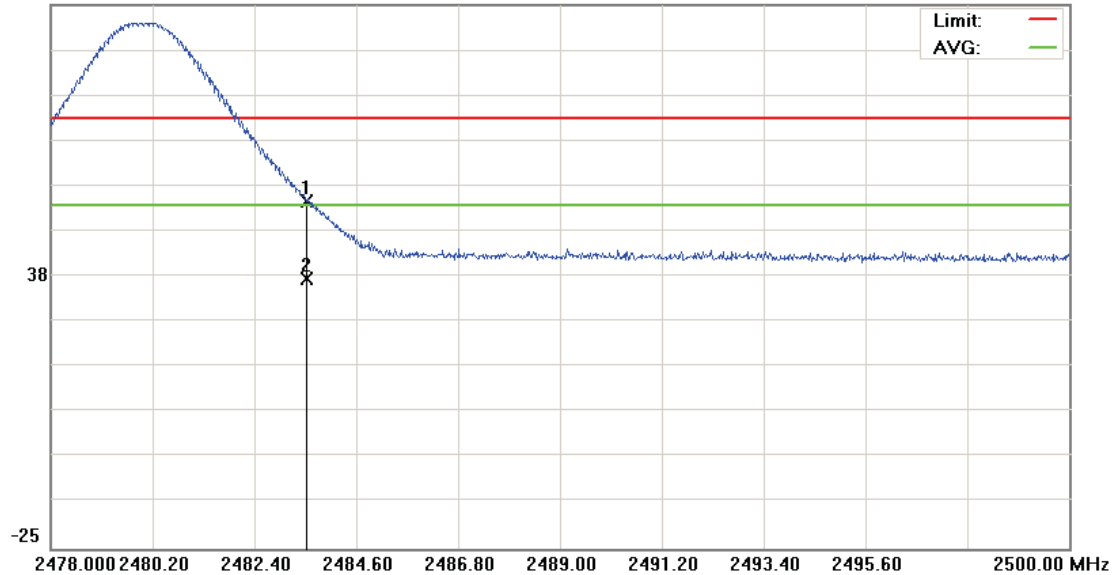
File :PB65100(Band Edge)

Data :#3

Date: 2009/12/24

Time: 下午 07:54:52

100.0 dBuV



Site: : 966 Chamber Polarization: **Vertical** Temperature: 22 °C
Limit: FCC part 15 (PK) Power: Humidity: 60 %
EUT: Distance: 3m RBW: 1000 KHz VBW: 1000 KHz
M/N: PB65100
Mode: GFSK Link Mode
Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2483.510	54.59	0.25	54.84	74.00	-19.16	peak		
2	*	2483.510	36.72	0.25	36.97	54.00	-17.03	AVG		

*:Maximum data x:Over limit !:over margin



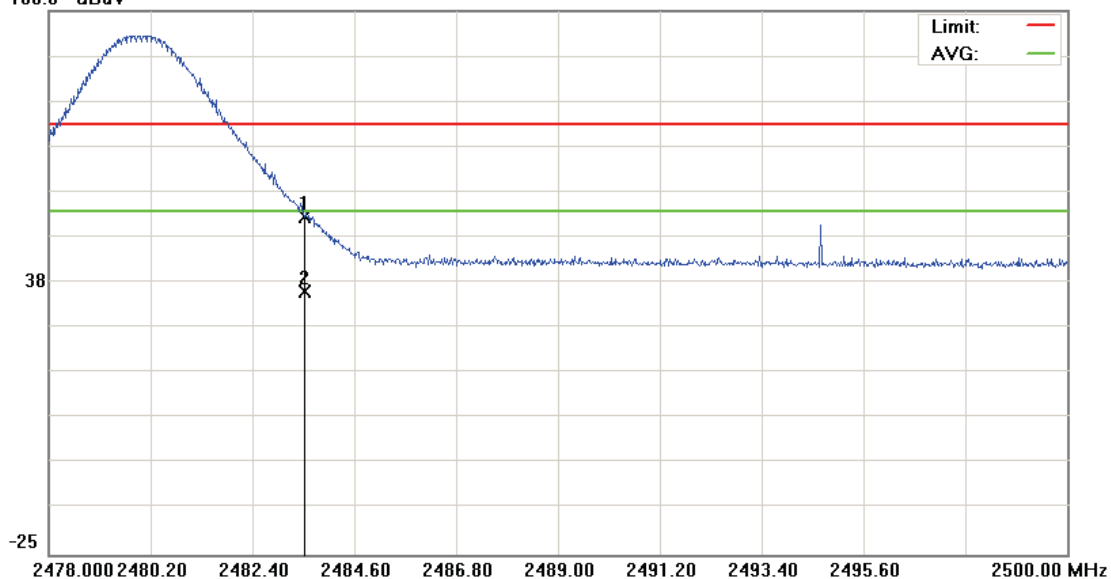
File :PB65100(Band Edge)

Data :#7

Date: 2009/12/24

Time: 下午 08:39:41

100.0 dBuV



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: GFSK Link Mode

Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2483.510	52.35	0.25	52.60	74.00	-21.40	peak		
2	*	2483.510	35.37	0.25	35.62	54.00	-18.38	AVG		

*:Maximum data x:Over limit !:over margin



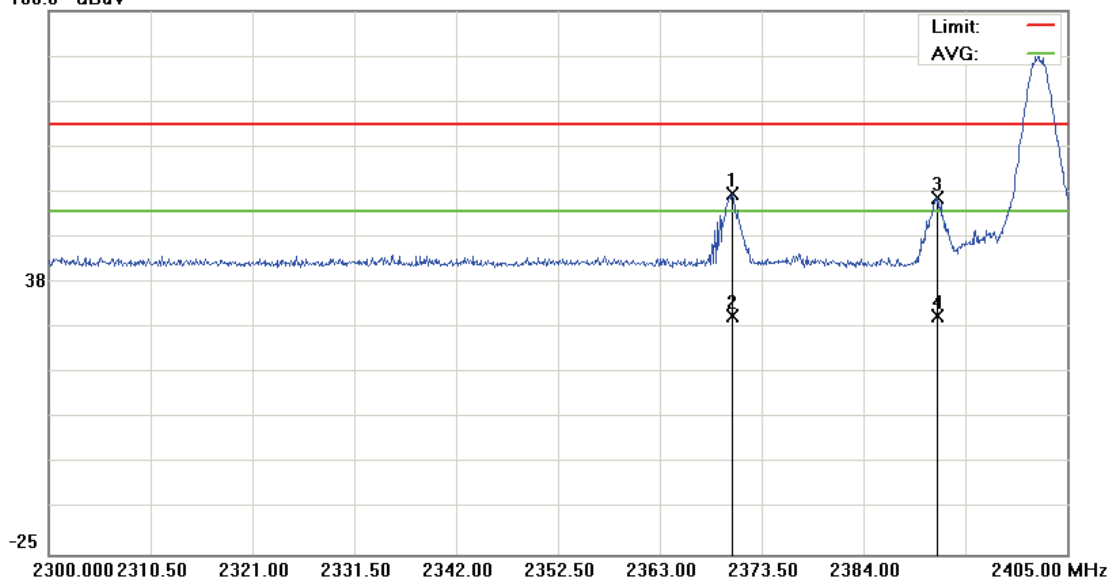
File :PB65100(Band Edge+DER)

Data :#1

Date: 2009/12/24

Time: 下午 08:46:02

100.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2402MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2370.455	57.88	0.18	58.06	74.00	-15.94	peak		
2		2370.455	29.52	0.18	29.70	54.00	-24.30	AVG		
3		2391.665	56.91	0.19	57.10	74.00	-16.90	peak		
4		2391.665	29.76	0.19	29.95	54.00	-24.05	AVG		

*:Maximum data x:Over limit !:over margin



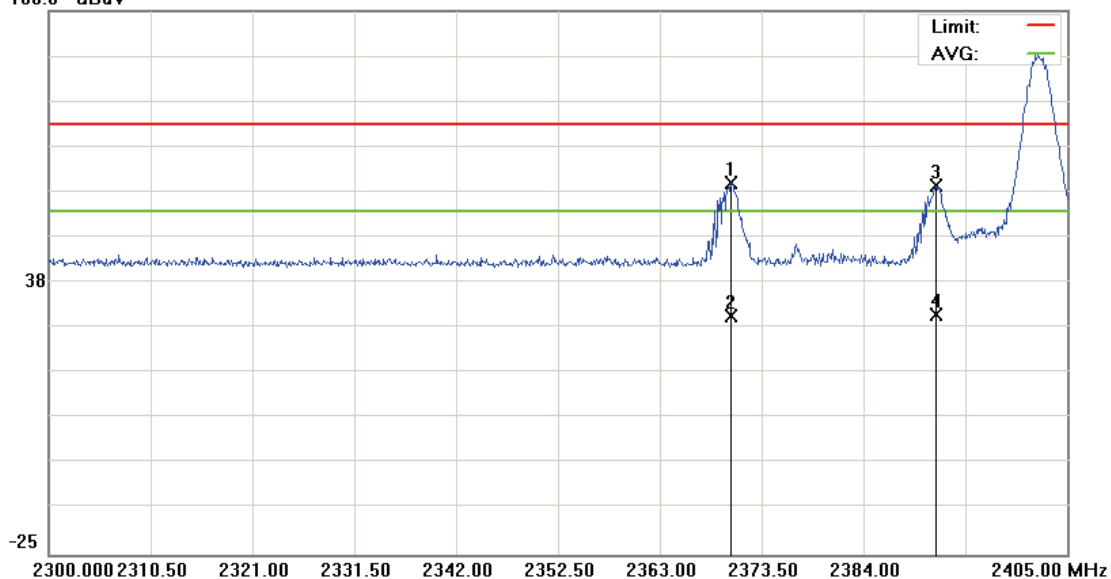
File :PB65100(Band Edge+DER)

Data :#5

Date: 2009/12/24

Time: 下午 09:09:28

100.0 dBuV



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2402MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2370.350	60.38	0.18	60.56	74.00	-13.44	peak		
2		2370.350	29.53	0.18	29.71	54.00	-24.29	AVG		
3		2391.455	59.52	0.19	59.71	74.00	-14.29	peak		
4		2391.455	29.85	0.19	30.04	54.00	-23.96	AVG		

*:Maximum data x:Over limit !:over margin



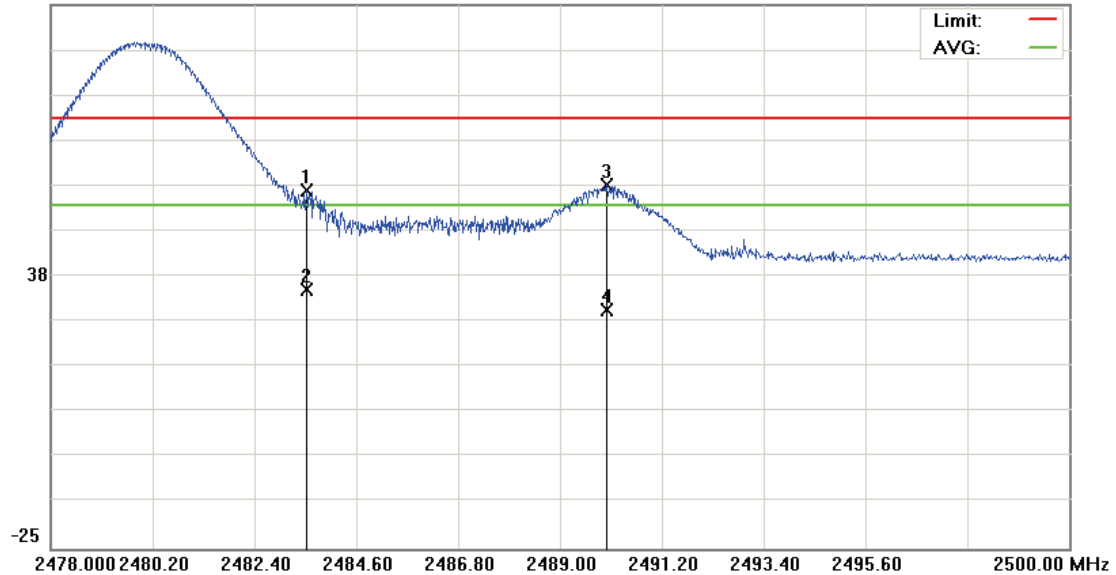
File :PB65100(Band Edge+DER)

Data :#3

Date: 2009/12/24

Time: 下午 08:57:04

100.0 dBuV



Site: : 966 Chamber Polarization: **Vertical** Temperature: 22 °C
Limit: FCC part 15 (PK) Power: Humidity: 60 %
EUT: Distance: 3m RBW: 1000 KHz VBW: 1000 KHz
M/N: PB65100
Mode: 8DPSK Link Mode
Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2483.510	56.95	0.25	57.20	74.00	-16.80	peak		
2		2483.510	34.21	0.25	34.46	54.00	-19.54	AVG		
3	*	2490.012	58.46	0.23	58.69	74.00	-15.31	peak		
4		2490.012	29.56	0.23	29.79	54.00	-24.21	AVG		

*:Maximum data x:Over limit !:over margin



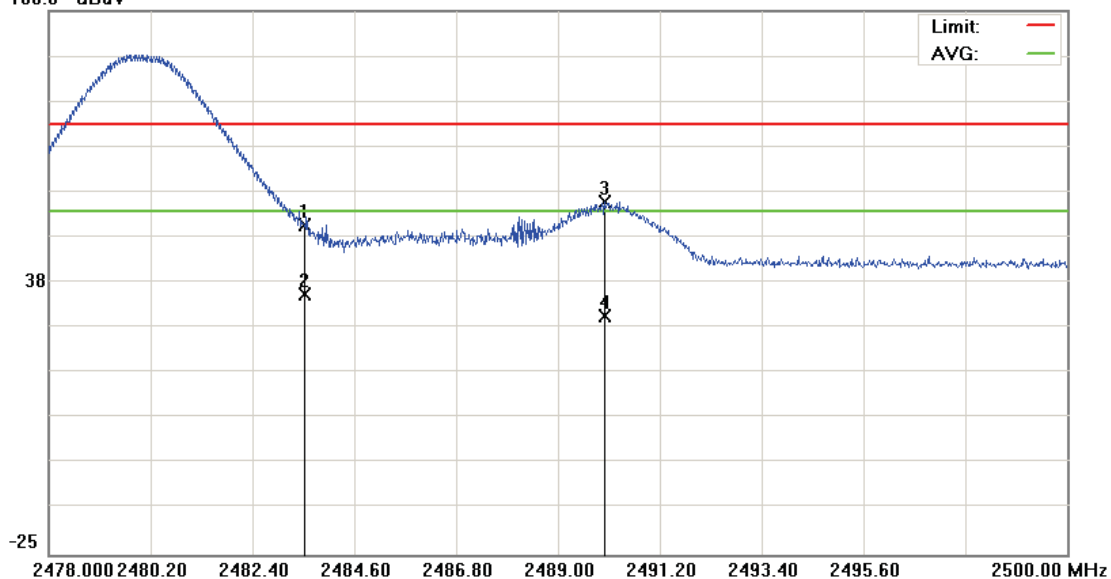
File :PB65100(Band Edge+DER)

Data :#7

Date: 2009/12/24

Time: 下午 09:27:00

100.0 dBuV



Site: : 966 Chamber

Polarization: *Horizontal*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB65100

Mode: 8DPSK Link Mode

Note: 2480MHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2483.510	50.48	0.25	50.73	74.00	-23.27	peak			
2		2483.510	34.61	0.25	34.86	54.00	-19.14	AVG			
3	*	2490.012	55.97	0.23	56.20	74.00	-17.80	peak			
4		2490.012	29.54	0.23	29.77	54.00	-24.23	AVG			

*:Maximum data x:Over limit !:over margin



11. Antenna Requirements

11.1 Standard Applicable

For intentional device, according to 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.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2 Antenna Connector Construction

The antenna used in this product is **PIFA Antenna**. And the maximum Gain of this antenna is only **0.87** dBi.