

FCC 47 CFR PART 15 SUBPART C

Product Type : Smartphone
Applicant : HTC Corporation
Address : No. 23, Xinghua Rd., Taoyuan City, Taoyuan County
330, Taiwan
Trade Name : HTC
Model Number : PB76100
Test Specification : FCC 47 CFR PART 15 SUBPART C: Oct, 2008
ANSI C63.4-2003
Issue Date : Jan. 27, 2010

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jan. 27, 2010	Initial Issue	

Test Report Verification

Issued Date: 2010/01/27

Product Type : Smartphone

Applicant : HTC Corporation

Address : No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330,
Taiwan

Trade Name : HTC

Model Number : PB76100

FCC ID : NM8PB76100

EUT Rated Voltage : AC 100-240V, 50-60Hz, 0.2A

Test Voltage : 120 Vac / 60 Hz

Applicable Standard : FCC 47 CFR PART 15 SUBPART C: Oct, 2008
ANSI C63.4-2003

Test Result : Complied

Performed Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
Taoyuan Country 334, Taiwan R.O.C.
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Taiwan Accreditation Foundation accreditation number:
1330
<http://www.atl-lab.com.tw/e-index.htm>



The above equipment has been tested by A Test Lab Techno Corp., and found compliance with the requirements set forth in the Electromagnetic Compatibility Directive 2004/108/EC and technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By :  Reviewed By : 
(Manager) (Miller Lee) (Testing Engineer) (John Cheng)

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1 General Information

1.1 Summary of Test Result

Standard		Item	Result	Remark
15.247	RSS-GEN			
15.207	7.2.2	AC Power Conducted Emission	PASS	----
----	6	Receiver Radiated Emissions	PASS	----
Standard		Item	Result	Remark
15.247	RSS-210			
15.247(c)	A8.5	Transmitter Radiated Emissions	PASS	----
15.247(b)(1)	A8.4 (2)	Max. Output Power	PASS	----
15.247(a)(1)	A8.1 (1)	20dB RF Bandwidth	PASS	----
15.247(a)(1)(iii)	A8.1 (2)	Carrier Frequency Separation	PASS	----
15.247(a)(1)(iii)	A8.1 (4)	Number of Hopping	PASS	----
15.247(a)(1)(iii)	A8.1 (4)	Time of Occupancy (Dwell Time)	PASS	----
15.247(c)	A8.5	Out of Band Conducted Spurious Emission	PASS	----
15.247(c)	A8.5	Band Edge Measurement	PASS	----
15.203	-	Antenna Requirement	PASS	----

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.24 dB.

Radiated Emission

The measurement uncertainty of 30 MHz - 1GHz is evaluated as ± 3.072 dB.

2 EUT Description

Product	:	Smartphone
Trade Name	:	HTC
Model No.	:	PB76100
Applicant	:	HTC Corporation No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Manufacturer	:	HTC Corporation No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
FCC ID	:	NM8PB76100
Frequency Range	:	2402 ~ 2480 MHz
Modulation Type	:	GFSK for 1Mbps
	:	$\pi/4$ -DQPSK for 2Mbps
	:	8DPSK for 3Mbps
Antenna Type	:	PIFA Type
Antenna Gain	:	0.8 dBi
RF Output Power	:	GFSK: 7.775 dBm / 0.006 W
	:	$\pi/4$ -DQPSK: 6.970 dBm / 0.005 W
	:	8DPSK: 6.499 dBm / 0.004 W

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

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	2.231	■
	Middle	2402	DH3	2.125	□
	High	2402	DH5	2.108	□
	Low	2441	DH1	2.218	□
	Middle	2441	DH3	2.195	□
	High	2441	DH5	2.131	□
	Low	2480	DH1	2.176	□
	Middle	2480	DH3	2.121	□
	High	2480	DH5	2.093	□
$\pi/4$ -DQPSKe	Low	2402	2DH1	0.931	□
	Middle	2402	2DH3	0.896	□
	High	2402	2DH5	0.882	□
	Low	2441	2DH1	0.731	□
	Middle	2441	2DH3	0.725	□
	High	2441	2DH5	0.723	□
	Low	2480	2DH1	0.539	□
	Middle	2480	2DH3	0.518	□
	High	2480	2DH5	0.517	□
8DPSK	Low	2402	3DH1	0.521	□
	Middle	2402	3DH3	0.509	□
	High	2402	3DH5	0.512	□
	Low	2441	3DH1	0.319	□
	Middle	2441	3DH3	0.308	□
	High	2441	3DH5	0.305	□
	Low	2480	3DH1	0.289	□
	Middle	2480	3DH3	0.277	□
	High	2480	3DH5	0.285	□

Pre-Test Mode
Mode 1: IDLE Mode
Mode 2: Normal Operation Mode
Mode 3: GFSK Link Mode
Mode 4: 8DPSK Link Mode
Mode 5: $\pi/4$ -DQPSK Link Mode
EUT Pre-Test Source
Sample 1 st
Sample 2 nd
AC Adapter Pre-Test Source
AC Adapter #1
AC Adapter #2
AC Adapter #3

Final-Test Mode
Mode 1: IDLE Mode
Mode 2: Normal Operation Mode
Mode 3: GFSK Link Mode
Mode 4: 8DPSK Link Mode
Mode 5: $\pi/4$ -DQPSK Link Mode
Final-Test of EUT Source
Sample 1 st
Final -Test of AC Adapter Source
AC Adapter #2

Tested System Details

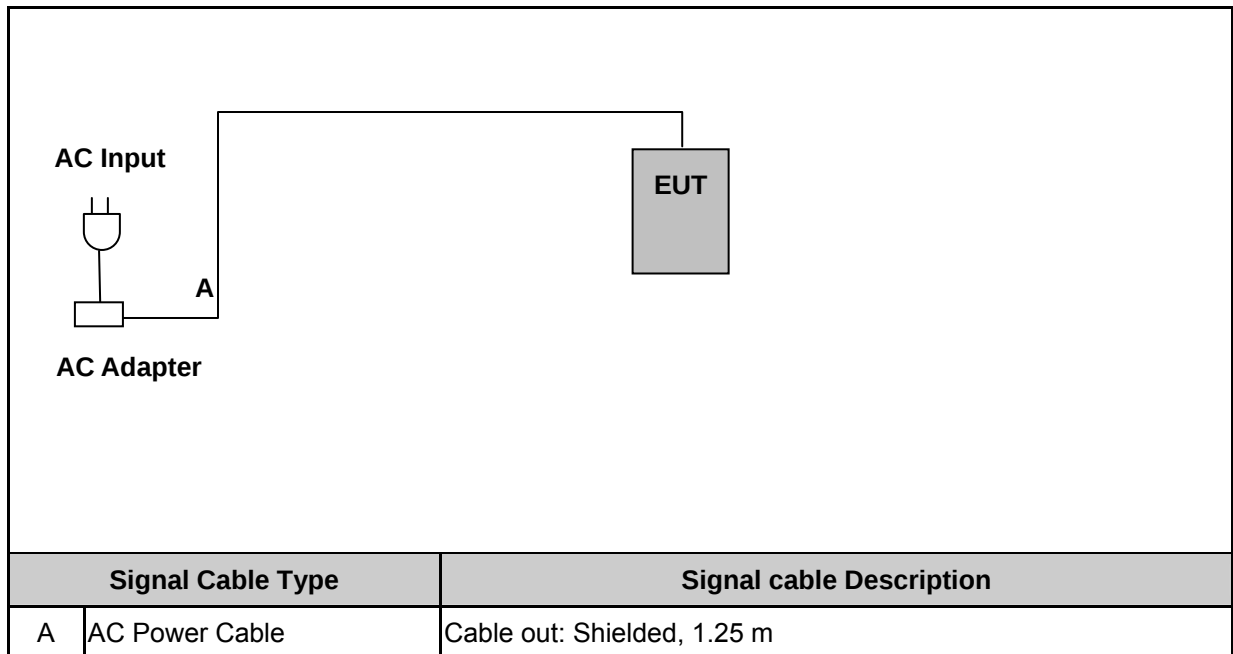
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1.	Bluetooth Tester	R & S	CBT	100350	NA

3.2. EUT Exercise Software

1.	Setup the EUT and Bluetooth Tester (CBT) as shown on 1.4.
2.	Turn on the power of all equipment.
3.	EUT run test program "HTC SSD Test-Ver.4.4.13.1.plat_2.0 ECLAIR-legend".
4.	EUT turn on Bluetooth function link Bluetooth headset.

3.3. Configuration of Test System Details



3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	25
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

4 Conducted Emission Measurement

4.1. Limit

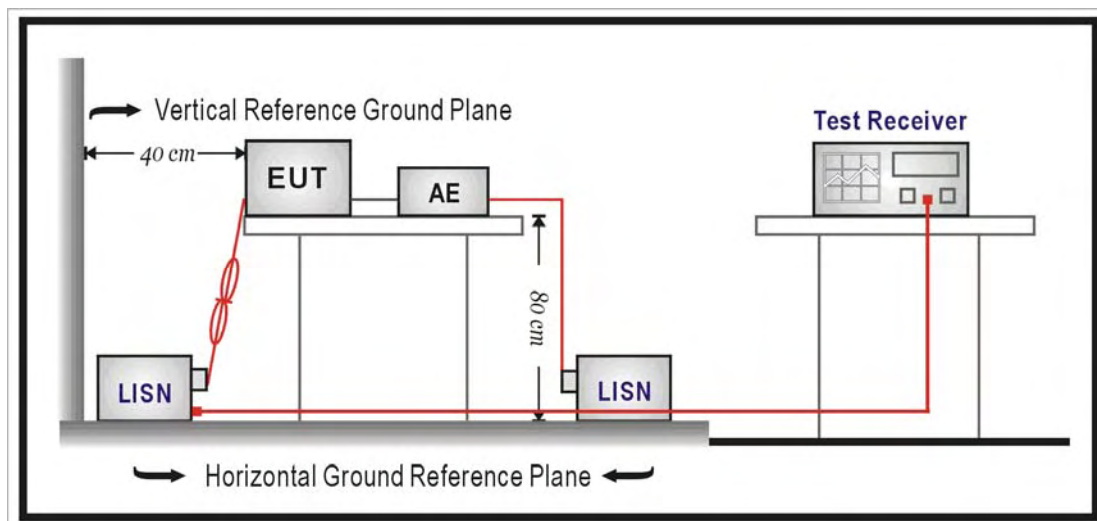
Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

4.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date
Test Receiver	R&S	ESCI	100367	07/01/2009
LISN	EMCO	3816/2 SH	00060110	06/05/2009
LISN	EMCO	3816/2 SH	00060111	06/29/2009
Transient Limiter	ELECTRO-METRICS	EM-7600	777	09/22/2009
Test Site	ATL	TE02	TE02	N.C.R.

NOTE: N.C.R. = No Calibration Request.

4.3. Test Setup



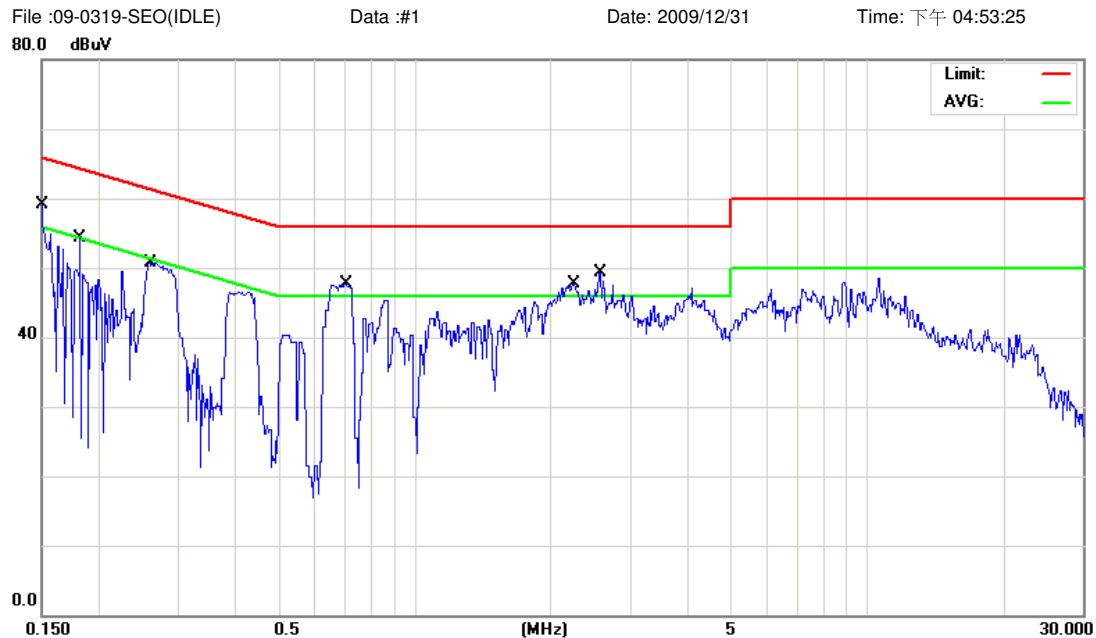
4.4. Test Procedure

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

4.5. Test Result



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

M/N: PB76100

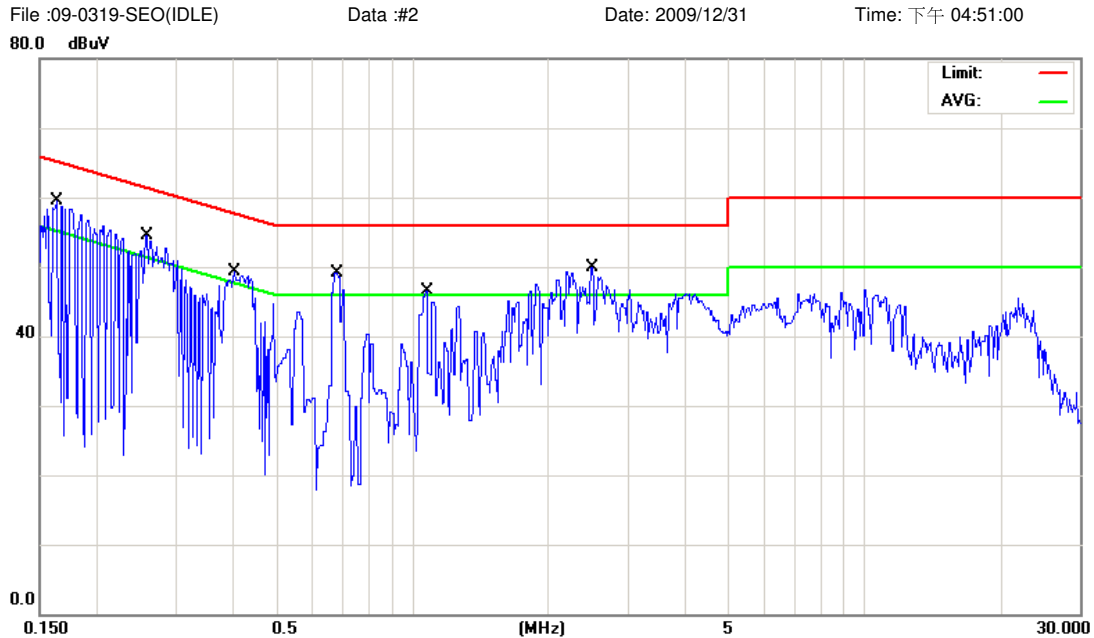
Mode: #1

Note: AC Adapter: #2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1500	40.90	9.73	50.63	65.99	-15.36	QP	
2		0.1500	20.70	9.73	30.43	55.99	-25.56	AVG	
3		0.1822	27.80	9.74	37.54	64.38	-26.84	QP	
4		0.1822	7.00	9.74	16.74	54.38	-37.64	AVG	
5		0.2592	38.10	9.75	47.85	61.45	-13.60	QP	
6		0.2592	20.10	9.75	29.85	51.45	-21.60	AVG	
7	*	0.7070	34.40	9.80	44.20	56.00	-11.80	QP	
8		0.7070	17.10	9.80	26.90	46.00	-19.10	AVG	
9		2.2370	30.40	9.88	40.28	56.00	-15.72	QP	
10		2.2370	15.10	9.88	24.98	46.00	-21.02	AVG	
11		2.5610	31.80	9.93	41.73	56.00	-14.27	QP	
12		2.5610	21.40	9.93	31.33	46.00	-14.67	AVG	

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

●Reference Only



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

M/N: PB76100

Mode: #1

Note: AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1633	36.80	9.73	46.53	65.29	-18.76	QP	
2		0.1633	11.90	9.73	21.63	55.29	-33.66	AVG	
3		0.2578	37.40	9.75	47.15	61.50	-14.35	QP	
4		0.2578	15.70	9.75	25.45	51.50	-26.05	AVG	
5		0.4027	35.10	9.78	44.88	57.80	-12.92	QP	
6		0.4027	15.60	9.78	25.38	47.80	-22.42	AVG	
7	*	0.6800	35.10	9.79	44.89	56.00	-11.11	QP	
8		0.6800	12.80	9.79	22.59	46.00	-23.41	AVG	
9		1.0760	28.20	9.80	38.00	56.00	-18.00	QP	
10		1.0760	8.60	9.80	18.40	46.00	-27.60	AVG	
11		2.4890	31.71	9.87	41.58	56.00	-14.42	QP	
12		2.4890	18.61	9.87	28.48	46.00	-17.52	AVG	

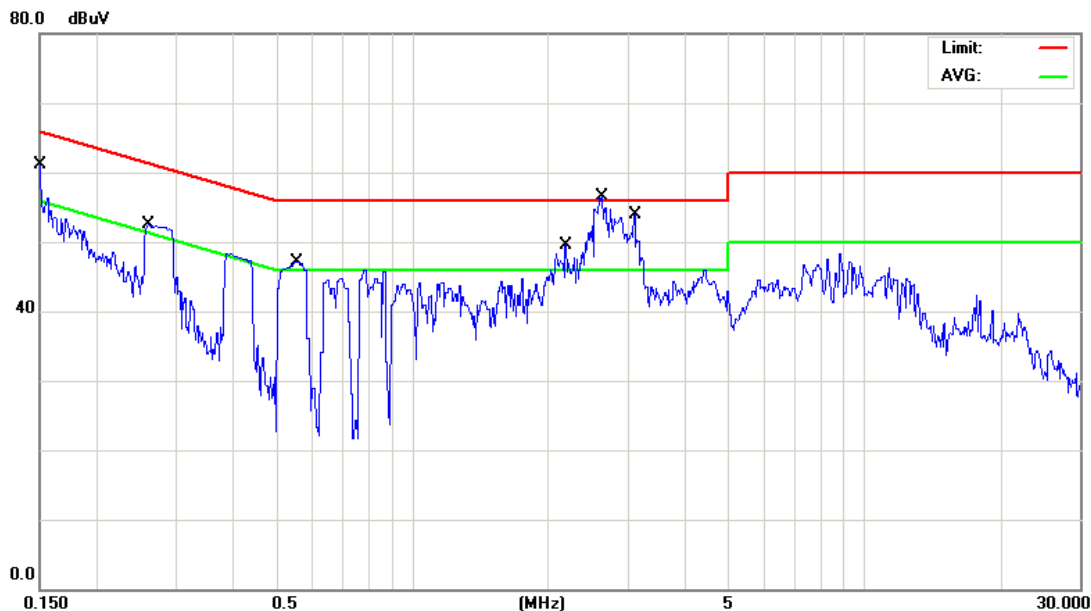
*:Maximum data x:Over limit !:over margin

●Reference Only

File :09-0319-SEO(GSM850+WIFI+ Data :#1

Date: 2010/01/05

Time: 下午 03:17:08



Site : Conducted

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

M/N: PB76100

Mode: #2

Note: AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	44.60	9.73	54.33	65.99	-11.66	QP	
2		0.1500	24.00	9.73	33.73	55.99	-22.26	AVG	
3		0.2606	39.60	9.75	49.35	61.41	-12.06	QP	
4		0.2606	22.70	9.75	32.45	51.41	-18.96	AVG	
5		0.5540	34.70	9.79	44.49	56.00	-11.51	QP	
6		0.5540	18.00	9.79	27.79	46.00	-18.21	AVG	
7		2.1829	32.90	9.88	42.78	56.00	-13.22	QP	
8		2.1829	20.70	9.88	30.58	46.00	-15.42	AVG	
9	*	2.6330	40.00	9.93	49.93	56.00	-6.07	QP	
10		2.6330	28.20	9.93	38.13	46.00	-7.87	AVG	
11		3.0920	37.00	9.90	46.90	56.00	-9.10	QP	
12		3.0920	29.20	9.90	39.10	46.00	-6.90	AVG	

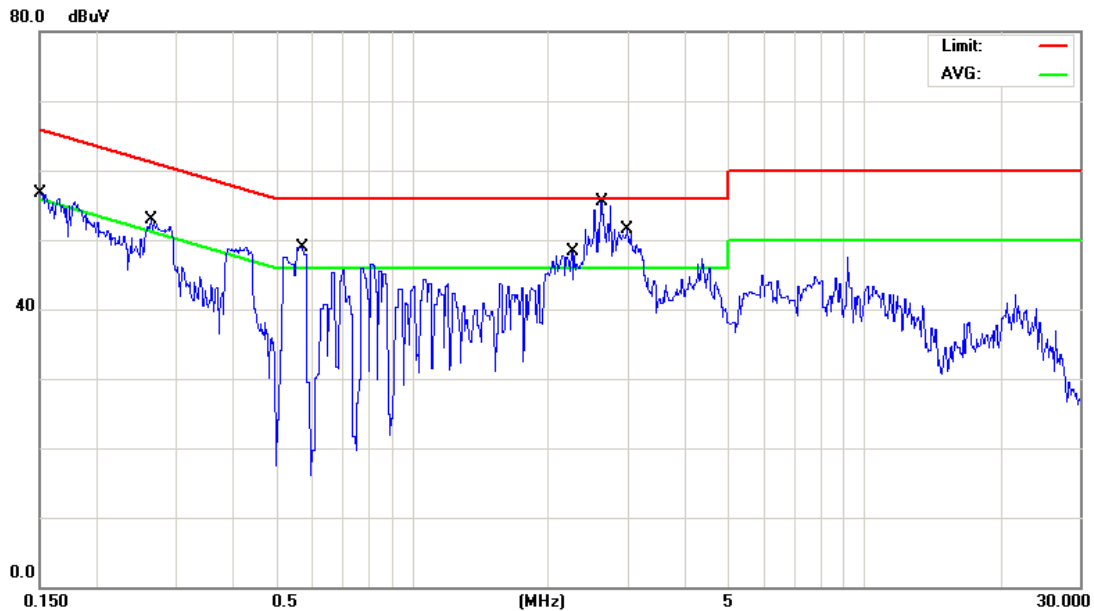
*:Maximum data x:Over limit !:over margin

●Reference Only

File :09-0319-SEO(GSM850+WIFI+ Data :#2

Date: 2010/01/05

Time: 下午 03:21:24



Site : Conducted

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

M/N: PB76100

Mode: #2

Note: AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	43.80	9.73	53.53	65.99	-12.46	QP	
2		0.1500	22.40	9.73	32.13	55.99	-23.86	AVG	
3		0.2641	39.40	9.75	49.15	61.30	-12.15	QP	
4		0.2641	21.60	9.75	31.35	51.30	-19.95	AVG	
5		0.5720	34.90	9.79	44.69	56.00	-11.31	QP	
6		0.5720	13.50	9.79	23.29	46.00	-22.71	AVG	
7		2.2550	31.00	9.88	40.88	56.00	-15.12	QP	
8		2.2550	18.90	9.88	28.78	46.00	-17.22	AVG	
9	*	2.6150	38.50	9.93	48.43	56.00	-7.57	QP	
10		2.6150	27.90	9.93	37.83	46.00	-8.17	AVG	
11		2.9930	38.40	9.89	48.29	56.00	-7.71	QP	
12		2.9930	28.40	9.89	38.29	46.00	-7.71	AVG	

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

●Reference Only

5 Radiated Interference Measurement

5.1. Limit

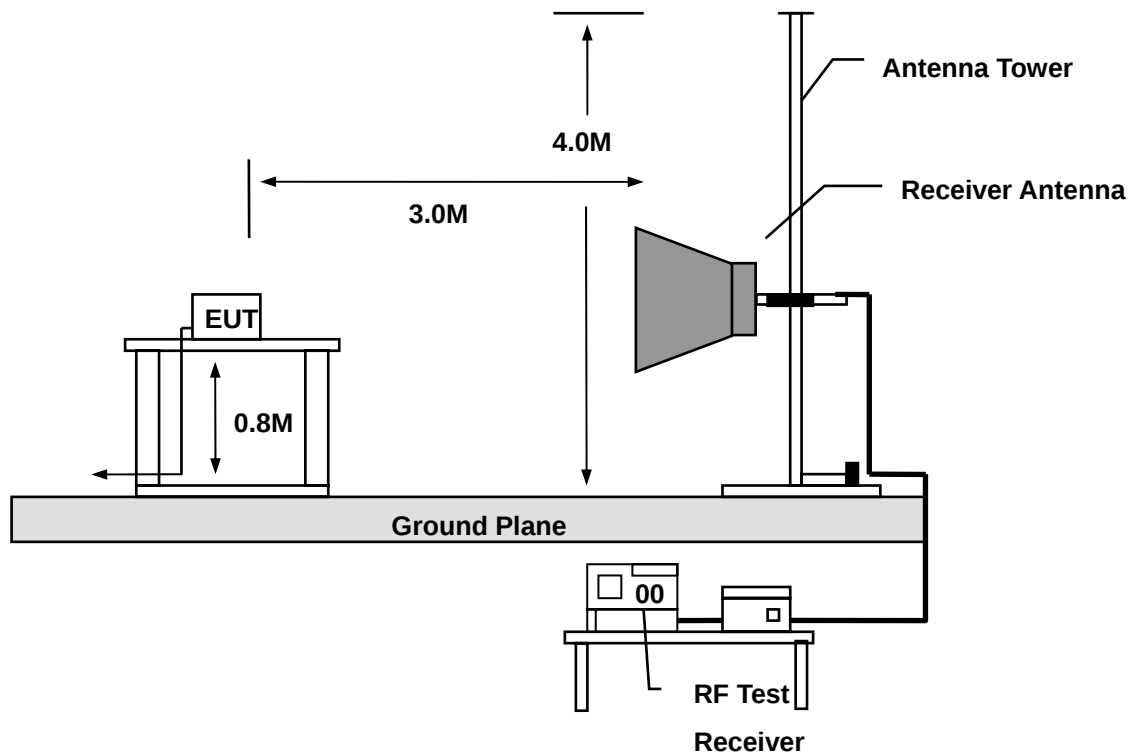
Frequency Range (MHz)	Peak (dBuV)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54

5.2. Test Instruments

3 Meter Chamber				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
RF Pre-selector	Agilent	N9039A	MY46520256	01/27/2009
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/20/2009
Pre Amplifier	Agilent	8449B	3008A02237	07/01/2009
Pre Amplifier	Agilent	8447D	2944A10961	06/30/2009
Bi-log Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/23/2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	07/01/2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/30/2009
Test Site	ATL	TE01	888001	08/06/2009

NOTE: N.C.R. = No Calibration Request.

5.3. Setup



5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m) = FI (dBuV) + AF (dBuV) + CL (dBuV) - Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m) = Amplitude (dBuV) - Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

5.5. Test Result

5.5.1. Below 1GHz

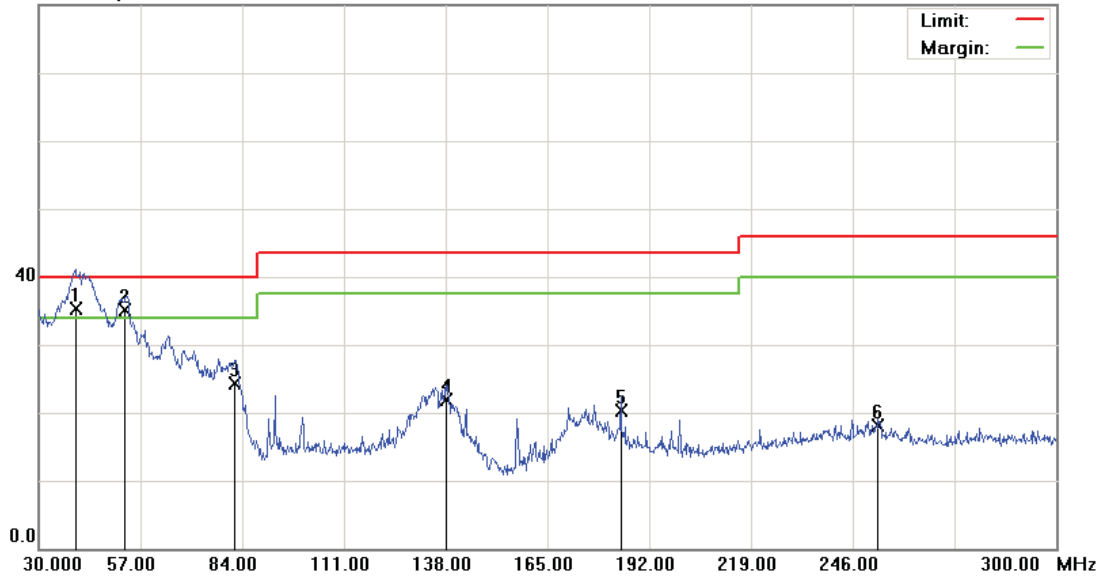
File :PB76100(Normal Link)

Data :#1

Date:2009/12/15

Time: 下午 02:10:40

80.0 dBuV/m



Site: :966 Chamber

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

M/N: PB76100

Mode: #2

Note: AC Adapter: #2

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	Comment
1	*	39.7200	47.18	-11.96	35.22	40.00	-4.78	QP			
2	!	52.9500	47.28	-12.19	35.09	40.00	-4.91	QP			
3		82.1100	40.12	-15.78	24.34	40.00	-15.66	QP			
4		138.0000	38.17	-16.20	21.97	43.50	-21.53	QP			
5		184.4400	34.23	-13.87	20.36	43.50	-23.14	QP			
6		252.7500	29.15	-11.01	18.14	46.00	-27.86	QP			

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

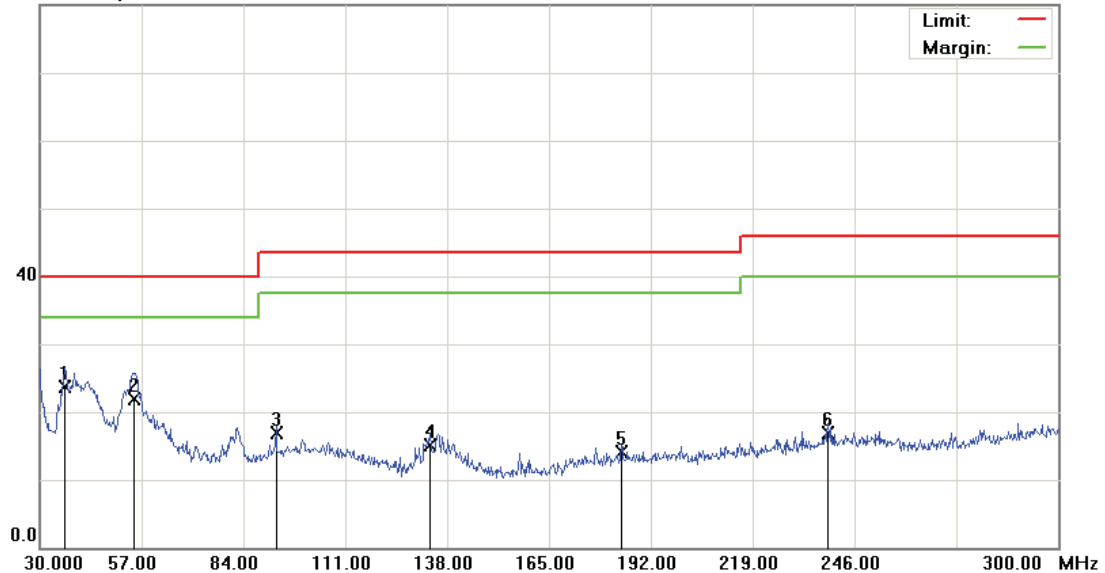
File :PB76100(Normal Link)

Data :#3

Date:2009/12/15

Time: 下午 02:18:07

80.0 dBuV/m



Site: :966 Chamber

Polarization: *Horizontal*

Temperature: 22 ℃

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

M/N: PB76100

Mode: #2

Note: AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	36.7500	36.53	-12.73	23.80	40.00	-16.20	QP		
2		55.1100	34.12	-12.22	21.90	40.00	-18.10	QP		
3		92.6400	29.38	-12.57	16.81	43.50	-26.69	QP		
4		133.4100	31.05	-15.86	15.19	43.50	-28.31	QP		
5		184.1700	28.02	-13.89	14.13	43.50	-29.37	QP		
6		238.9800	28.38	-11.49	16.89	46.00	-29.11	QP		

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

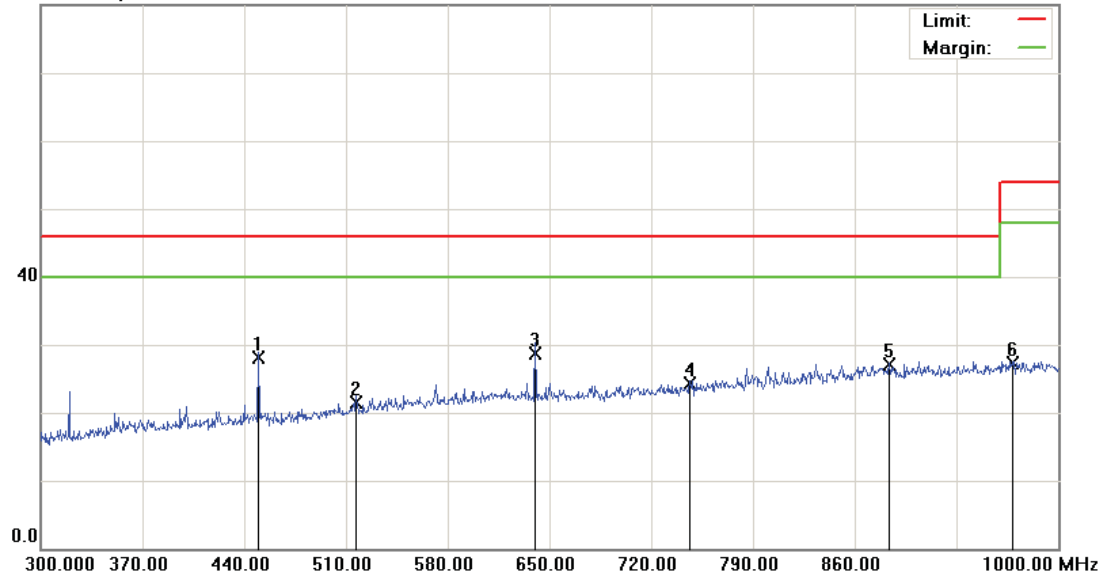
File :PB76100(Normal Link)

Data :#2

Date:2009/12/15

Time: 下午 02:14:23

80.0 dBuV/m



Site: :966 Chamber

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

M/N: PB76100

Mode: #2

Note: AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		449.8000	36.35	-8.15	28.20	46.00	-17.80	QP		
2		517.0000	28.05	-6.48	21.57	46.00	-24.43	QP		
3	*	640.2000	33.12	-4.46	28.66	46.00	-17.34	QP		
4		746.6000	27.51	-3.11	24.40	46.00	-21.60	QP		
5		883.8000	27.31	-0.26	27.05	46.00	-18.95	QP		
6		968.5000	26.52	0.72	27.24	54.00	-26.76	QP		

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

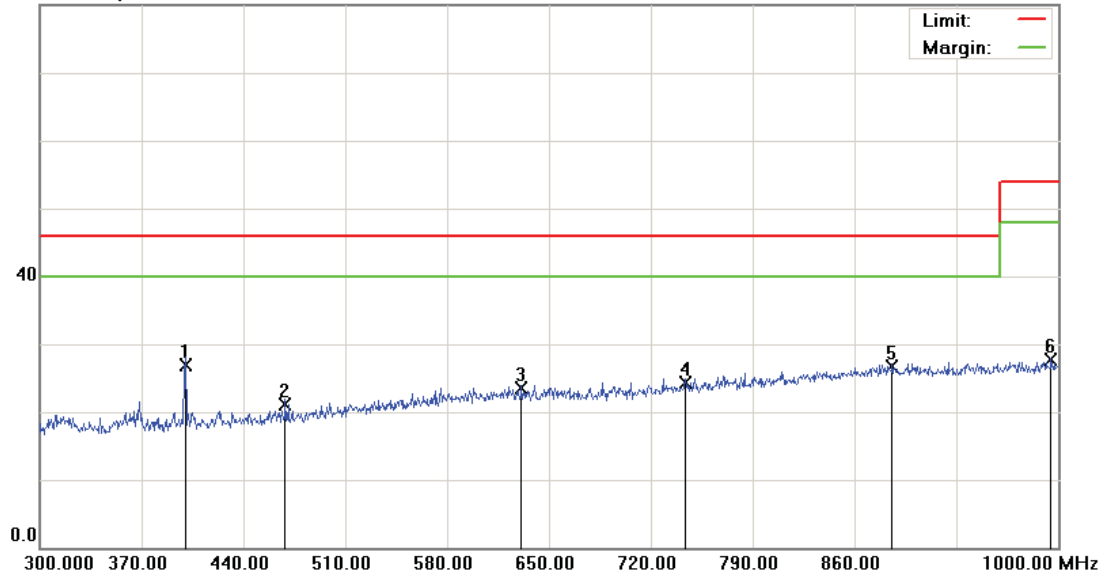
File :PB76100(Normal Link)

Data :#4

Date:2009/12/15

Time: 下午 02:21:51

80.0 dBuV/m



Site: :966 Chamber

Polarization: *Horizontal*

Temperature: 22 ℃

Limit: FCC Class B 3M Radiation

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

M/N: PB76100

Mode: #2

Note: AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	400.1000	35.25	-8.33	26.92	46.00	-19.08	QP		
2		468.7000	28.93	-7.75	21.18	46.00	-24.82	QP		
3		631.1000	27.78	-4.36	23.42	46.00	-22.58	QP		
4		743.8000	27.38	-3.15	24.23	46.00	-21.77	QP		
5		885.9000	27.01	-0.25	26.76	46.00	-19.24	QP		
6		995.1000	26.96	0.78	27.74	54.00	-26.26	QP		

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

5.5.2. Above 1GHz

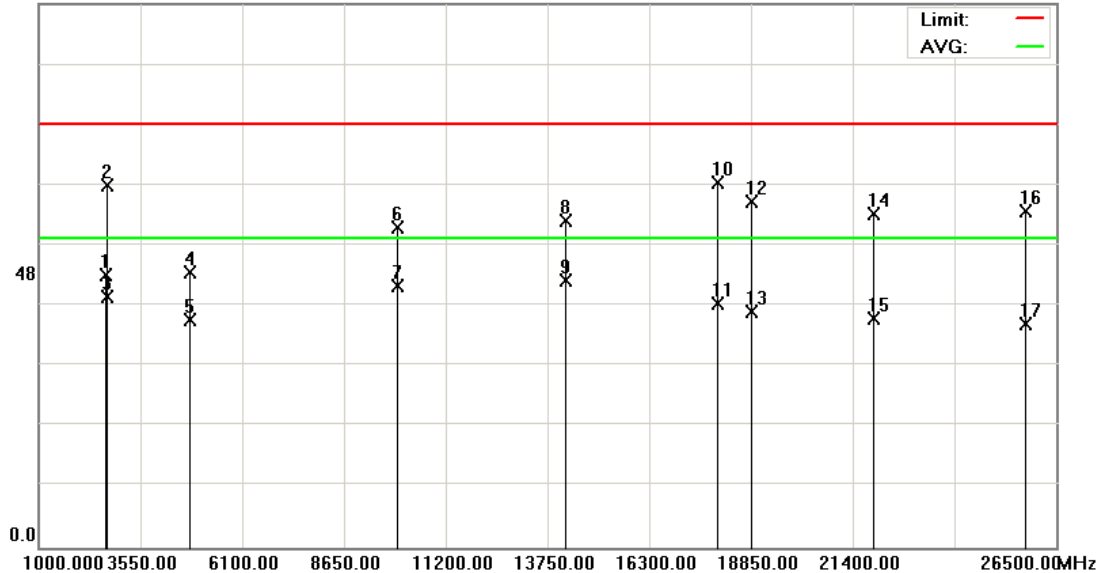
File : PB76100(2402MHz)Z

Data : #17

Date: 2009/12/15

Time: 下午 04:13:41

95.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB76100

Mode: #3

Note: 2402MHz, AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		2667.700	46.63	1.00	47.63	74.00	-26.37	peak		
2		2700.000	40.71	22.58	63.29	74.00	-10.71	peak		
3		2700.000	21.23	22.58	43.81	54.00	-10.19	AVG		
4		4798.750	40.74	7.29	48.03	74.00	-25.97	peak		
5		4798.750	32.46	7.29	39.75	54.00	-14.25	AVG		
6		9981.750	38.05	17.88	55.93	74.00	-18.07	peak		
7		9981.750	27.83	17.88	45.71	54.00	-8.29	AVG		
8		14200.000	38.37	18.86	57.23	74.00	-16.77	peak		
9	*	14200.000	27.83	18.86	46.69	54.00	-7.31	AVG		
10		18000.000	38.09	25.57	63.66	74.00	-10.34	peak		
11		18000.000	17.05	25.57	42.62	54.00	-11.38	AVG		
12		18871.250	37.41	23.15	60.56	74.00	-13.44	peak		
13		18871.250	17.94	23.15	41.09	54.00	-12.91	AVG		
14		21910.000	37.20	21.16	58.36	74.00	-15.64	peak		
15		21910.000	18.90	21.16	40.06	54.00	-13.94	AVG		
16		25735.000	39.99	18.79	58.78	74.00	-15.22	peak		
17		25735.000	20.34	18.79	39.13	54.00	-14.87	AVG		

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

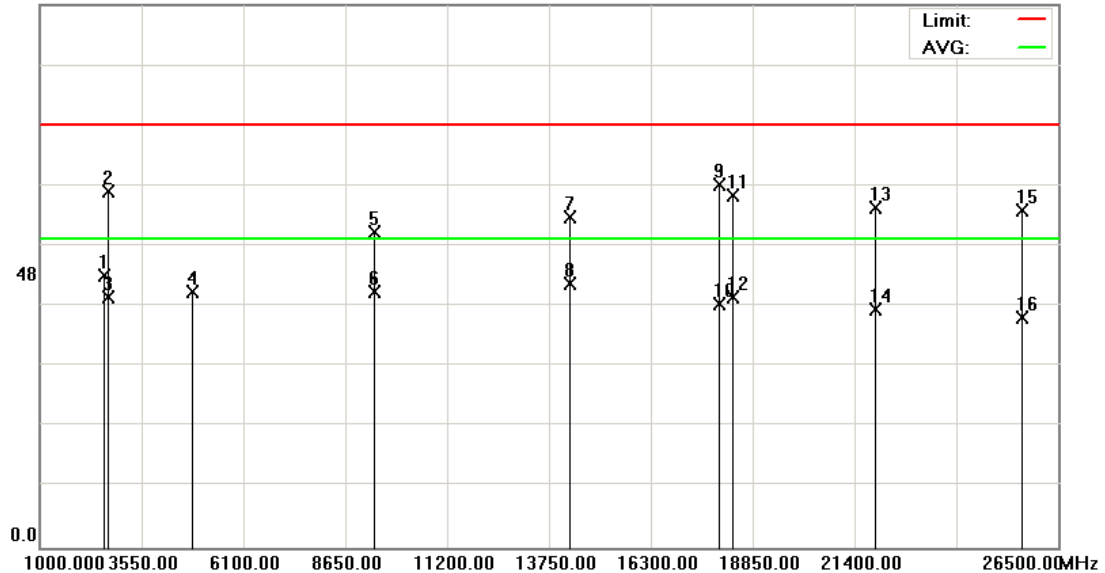
File :PB76100(2402MHz)Z

Data :#18

Date: 2009/12/15

Time: 下午 04:42:08

95.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB76100

Mode: #3

Note: 2402MHz, AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		2603.100	46.95	0.61	47.56	74.00	-26.44	peak		
2		2700.000	39.74	22.58	62.32	74.00	-11.68	peak		
3		2700.000	21.17	22.58	43.75	54.00	-10.25	AVG		
4		4804.000	37.38	7.32	44.70	74.00	-29.30	peak		
5		9379.500	38.21	17.03	55.24	74.00	-18.76	peak		
6		9379.500	27.78	17.03	44.81	54.00	-9.19	AVG		
7		14240.000	39.10	18.71	57.81	74.00	-16.19	peak		
8	*	14240.000	27.49	18.71	46.20	54.00	-7.80	AVG		
9		18000.000	37.95	25.57	63.52	74.00	-10.48	peak		
10		18000.000	17.02	25.57	42.59	54.00	-11.41	AVG		
11		18318.750	38.42	23.19	61.61	74.00	-12.39	peak		
12		18318.750	20.67	23.19	43.86	54.00	-10.14	AVG		
13		21888.750	38.21	21.18	59.39	74.00	-14.61	peak		
14		21888.750	20.47	21.18	41.65	54.00	-12.35	AVG		
15		25607.500	40.20	18.90	59.10	74.00	-14.90	peak		
16		25607.500	21.36	18.90	40.26	54.00	-13.74	AVG		

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

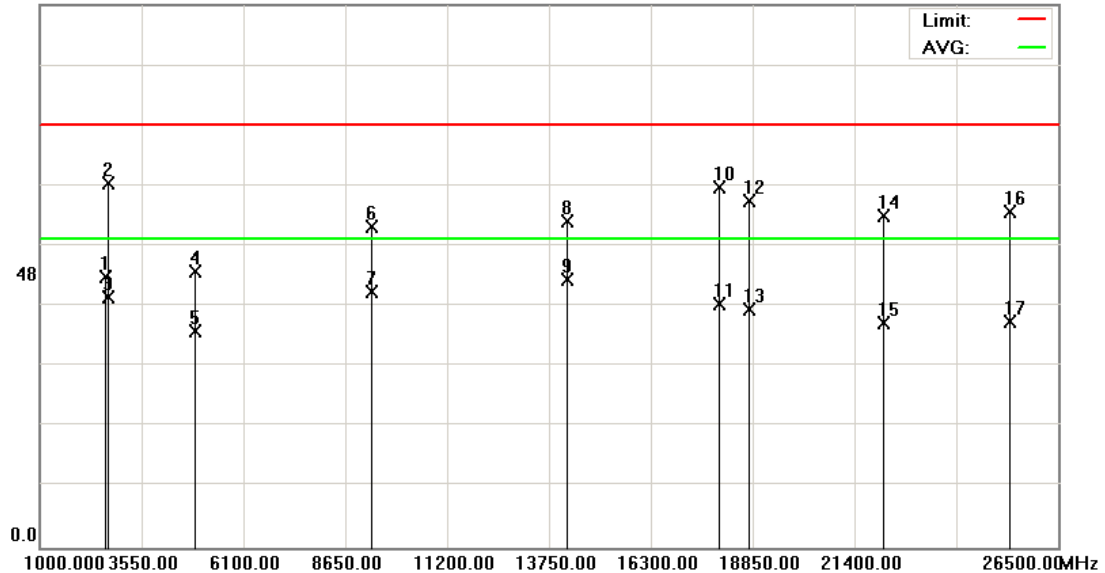
File :PB76100(2441MHz)Z

Data :#17

Date: 2009/12/15

Time: 下午 04:15:46

95.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB76100

Mode: #3

Note: 2441MHz, AC Adapter: #2

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	Comment
1		2643.900	46.31	0.97	47.28	74.00	-26.72	peak			
2		2700.000	41.27	22.58	63.85	74.00	-10.15	peak			
3		2700.000	21.28	22.58	43.86	54.00	-10.14	AVG			
4		4890.000	40.62	7.73	48.35	74.00	-25.65	peak			
5		4890.000	30.12	7.73	37.85	54.00	-16.15	AVG			
6		9288.250	39.39	16.78	56.17	74.00	-17.83	peak			
7		9288.250	27.93	16.78	44.71	54.00	-9.29	AVG			
8		14200.000	38.23	18.86	57.09	74.00	-16.91	peak			
9	*	14200.000	27.93	18.86	46.79	54.00	-7.21	AVG			
10		18000.000	37.47	25.57	63.04	74.00	-10.96	peak			
11		18000.000	16.98	25.57	42.55	54.00	-11.45	AVG			
12		18765.000	37.59	23.13	60.72	74.00	-13.28	peak			
13		18765.000	18.49	23.13	41.62	54.00	-12.38	AVG			
14		22101.250	36.94	21.06	58.00	74.00	-16.00	peak			
15		22101.250	18.36	21.06	39.42	54.00	-14.58	AVG			
16		25267.500	39.56	19.13	58.69	74.00	-15.31	peak			
17		25267.500	20.41	19.13	39.54	54.00	-14.46	AVG			

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

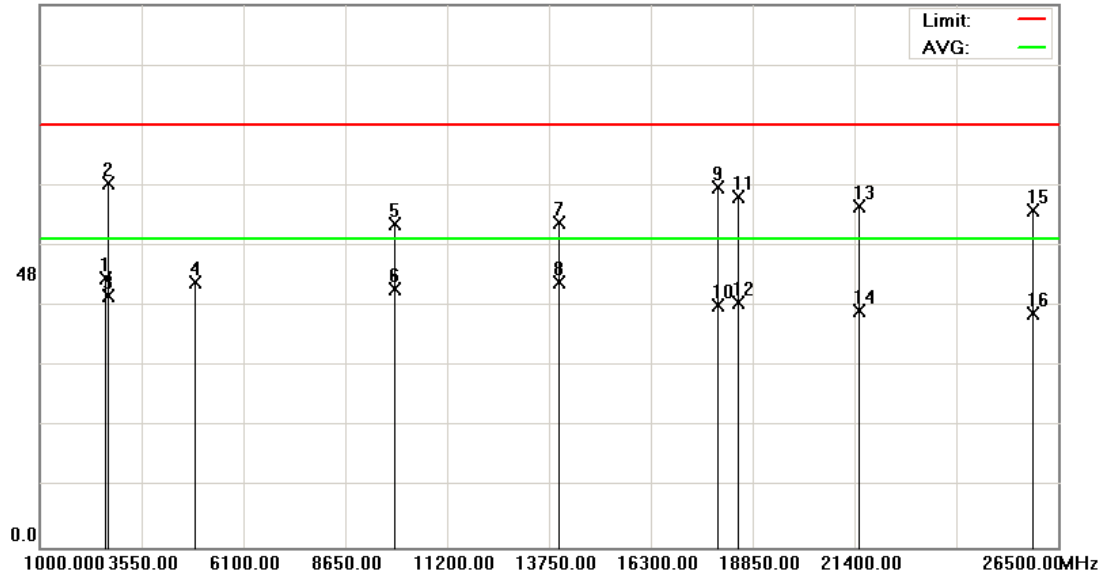
File :PB76100(2441MHz)Z

Data :#18

Date: 2009/12/15

Time: 下午 04:47:51

95.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB76100

Mode: #3

Note: 2441MHz, AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		2657.500	46.25	0.93	47.18	74.00	-26.82	peak		
2		2700.000	41.14	22.58	63.72	74.00	-10.28	peak		
3		2700.000	21.39	22.58	43.97	54.00	-10.03	AVG		
4		4882.000	38.60	7.74	46.34	74.00	-27.66	peak		
5		9872.250	38.89	17.84	56.73	74.00	-17.27	peak		
6		9872.250	27.43	17.84	45.27	54.00	-8.73	AVG		
7		13980.000	38.34	18.62	56.96	74.00	-17.04	peak		
8	*	13980.000	27.73	18.62	46.35	54.00	-7.65	AVG		
9		17980.000	37.86	25.21	63.07	74.00	-10.93	peak		
10		17980.000	17.12	25.21	42.33	54.00	-11.67	AVG		
11		18488.750	38.27	23.12	61.39	74.00	-12.61	peak		
12		18488.750	19.77	23.12	42.89	54.00	-11.11	AVG		
13		21506.250	38.44	21.35	59.79	74.00	-14.21	peak		
14		21506.250	20.21	21.35	41.56	54.00	-12.44	AVG		
15		25841.250	40.27	18.69	58.96	74.00	-15.04	peak		
16		25841.250	22.20	18.69	40.89	54.00	-13.11	AVG		

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

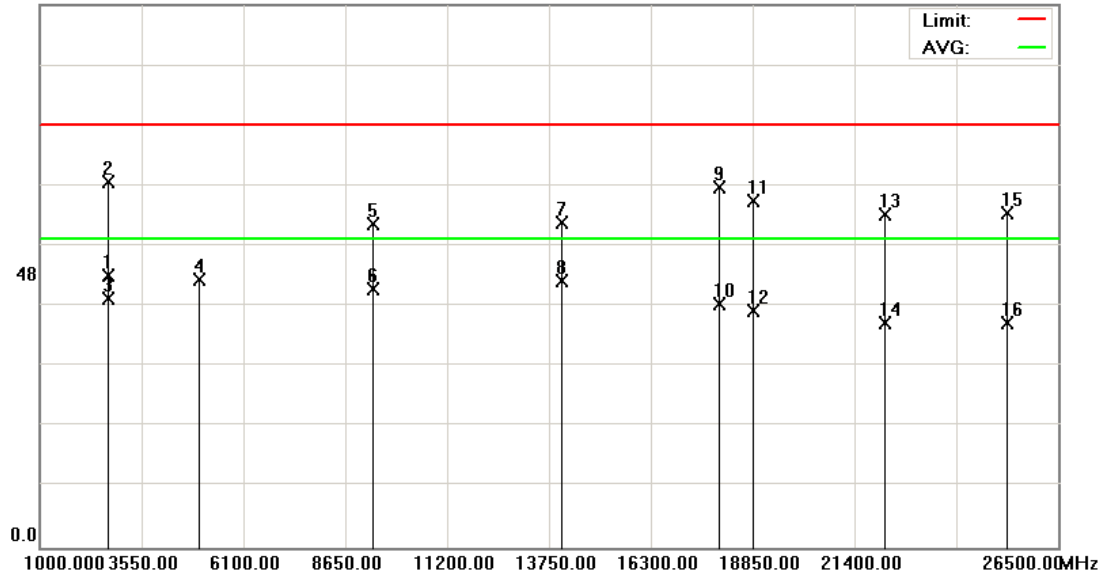
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Data : #17

Date: 2009/12/15

Time: 下午 04:17:51

95.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB76100

Mode: #3

Note: 2480MHz, AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		2698.300	46.73	0.87	47.60	74.00	-26.40	peak		
2		2700.000	41.45	22.58	64.03	74.00	-9.97	peak		
3		2700.000	21.12	22.58	43.70	54.00	-10.30	AVG		
4		4960.000	39.14	7.80	46.94	74.00	-27.06	peak		
5		9324.750	39.77	16.91	56.68	74.00	-17.32	peak		
6		9324.750	28.36	16.91	45.27	54.00	-8.73	AVG		
7		14060.000	38.06	18.72	56.78	74.00	-17.22	peak		
8	*	14060.000	27.94	18.72	46.66	54.00	-7.34	AVG		
9		18000.000	37.41	25.57	62.98	74.00	-11.02	peak		
10		18000.000	17.09	25.57	42.66	54.00	-11.34	AVG		
11		18828.750	37.60	23.15	60.75	74.00	-13.25	peak		
12		18828.750	18.22	23.15	41.37	54.00	-12.63	AVG		
13		22143.750	37.21	21.04	58.25	74.00	-15.75	peak		
14		22143.750	18.18	21.04	39.22	54.00	-14.78	AVG		
15		25225.000	39.50	19.16	58.66	74.00	-15.34	peak		
16		25225.000	20.26	19.16	39.42	54.00	-14.58	AVG		

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

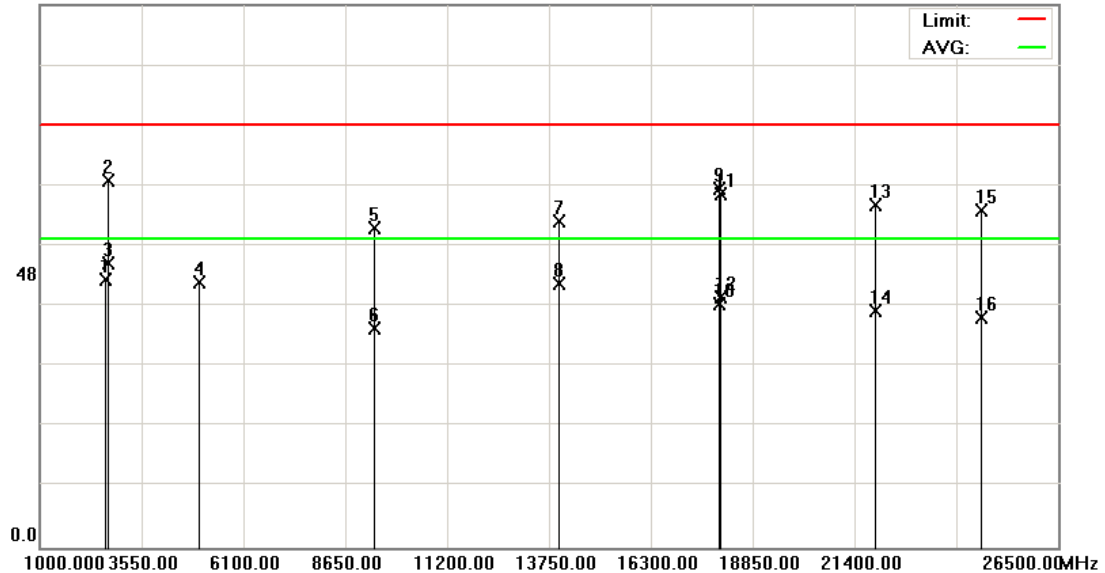
File :PB76100(2480MHz)Z

Data :#18

Date: 2009/12/15

Time: 下午 04:45:48

95.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 KHz VBW: 1000 KHz

M/N: PB76100

Mode: #3

Note: 2480MHz, AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		2635.400	46.01	0.95	46.96	74.00	-27.04	peak		
2		2700.000	41.55	22.58	64.13	74.00	-9.87	peak		
3	*	2700.000	27.15	22.58	49.73	54.00	-4.27	AVG		
4		4960.000	38.74	7.80	46.54	74.00	-27.46	peak		
5		9379.500	38.86	17.03	55.89	74.00	-18.11	peak		
6		9379.500	21.38	17.03	38.41	54.00	-15.59	AVG		
7		14000.000	38.41	18.67	57.08	74.00	-16.92	peak		
8		14000.000	27.48	18.67	46.15	54.00	-7.85	AVG		
9		18000.000	37.31	25.57	62.88	74.00	-11.12	peak		
10		18000.000	17.12	25.57	42.69	54.00	-11.31	AVG		
11		18042.500	38.59	23.27	61.86	74.00	-12.14	peak		
12		18042.500	20.50	23.27	43.77	54.00	-10.23	AVG		
13		21931.250	38.73	21.15	59.88	74.00	-14.12	peak		
14		21931.250	20.37	21.15	41.52	54.00	-12.48	AVG		
15		24587.500	39.38	19.62	59.00	74.00	-15.00	peak		
16		24587.500	20.64	19.62	40.26	54.00	-13.74	AVG		

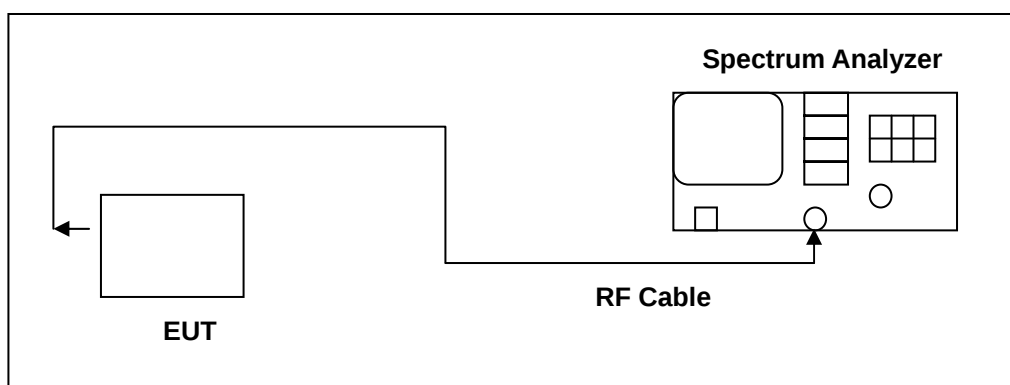
*:Maximum data x:Over limit !:over margin

6 Maximum Conducted Output Power Measurement

6.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels < 1 watt.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009
Test Site	ATL	TE06	TE06	N.C.R.

NOTE: N.C.R. = No Calibration Request.

6.4. 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 (GAIN - 6)/3 dBm.

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

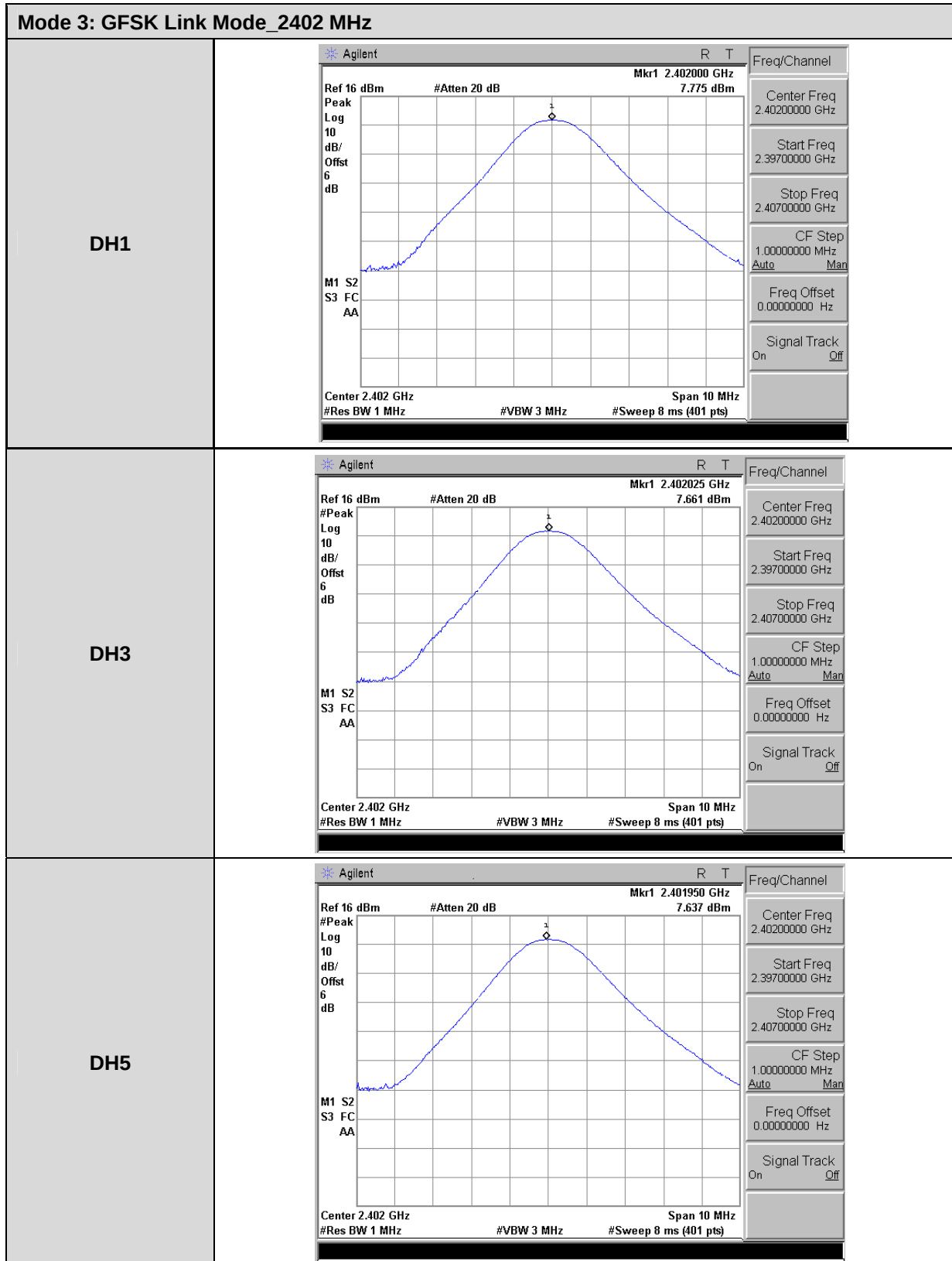
6.5. Test Result

Product	Smartphone			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 3: GFSK Link Mode			
Date of Test	12/14/2009		Test Site	TE06
Frequency (MHz)	Packet Type	Measurement		Limit (W)
		(dBm)	(W)	
2402	DH1	7.775	0.006	< 1
	DH3	7.661	0.006	< 1
	DH5	7.637	0.006	< 1
2441	DH1	7.367	0.005	< 1
	DH3	7.330	0.005	< 1
	DH5	7.370	0.005	< 1
2480	DH1	6.645	0.005	< 1
	DH3	6.582	0.005	< 1
	DH5	6.551	0.005	< 1

Product	Smartphone			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 5: $\pi/4$ -DQPSK Link Mode			
Date of Test	12/14/2009		Test Site	TE06
Frequency (MHz)	Packet Type	Measurement		Limit (W)
		(dBm)	(W)	
2402	2DH1	6.912	0.005	< 1
	2DH3	6.869	0.005	< 1
	2DH5	6.970	0.005	< 1
2441	2DH1	6.418	0.004	< 1
	2DH3	6.381	0.004	< 1
	2DH5	6.455	0.004	< 1
2480	2DH1	5.685	0.004	< 1
	2DH3	5.655	0.004	< 1
	2DH5	5.746	0.004	< 1

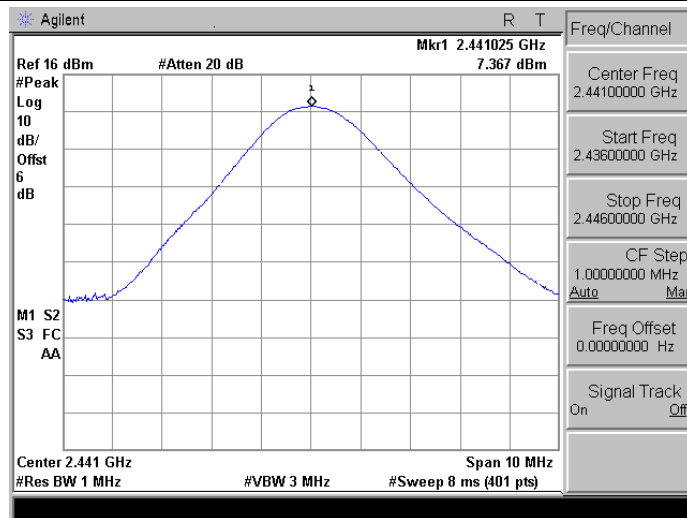
Product	Smartphone			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 4: 8DPSK Link Mode			
Date of Test	12/14/2009	Test Site		TE06
Frequency (MHz)	Packet Type	Measurement		Limit (W)
		(dBm)	(W)	
2402	3DH1	6.401	0.004	< 1
	3DH3	6.499	0.004	< 1
	3DH5	6.212	0.004	< 1
2441	3DH1	5.930	0.004	< 1
	3DH3	5.979	0.004	< 1
	3DH5	5.736	0.004	< 1
2480	3DH1	5.257	0.003	< 1
	3DH3	5.330	0.003	< 1
	3DH5	5.097	0.003	< 1

6.6. Test Graphs

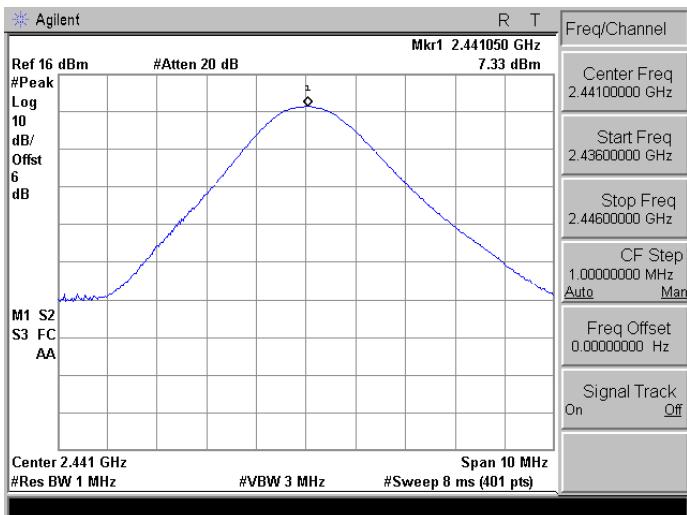


Mode 3: GFSK Link Mode_2441 MHz

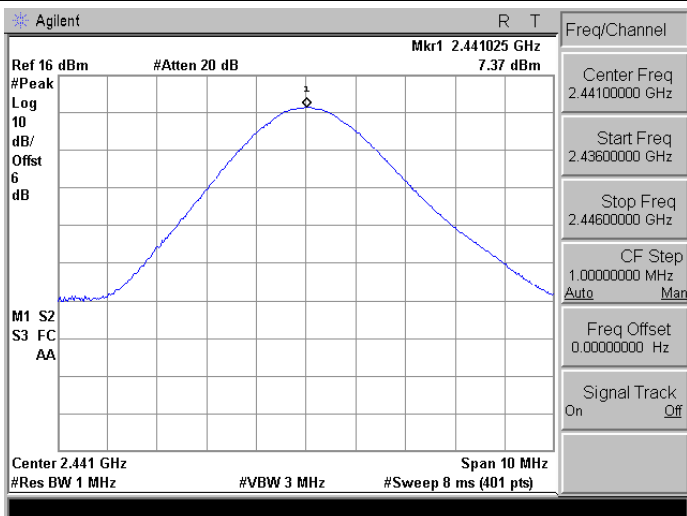
DH1



DH3

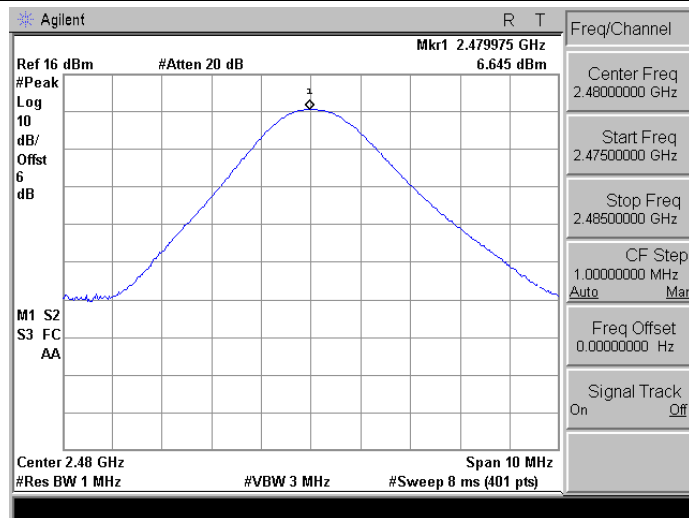


DH5

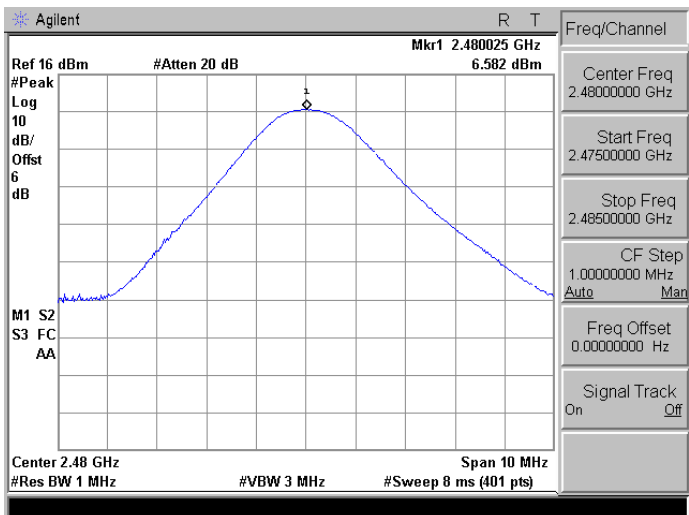


Mode 3: GFSK Link Mode_2480 MHz

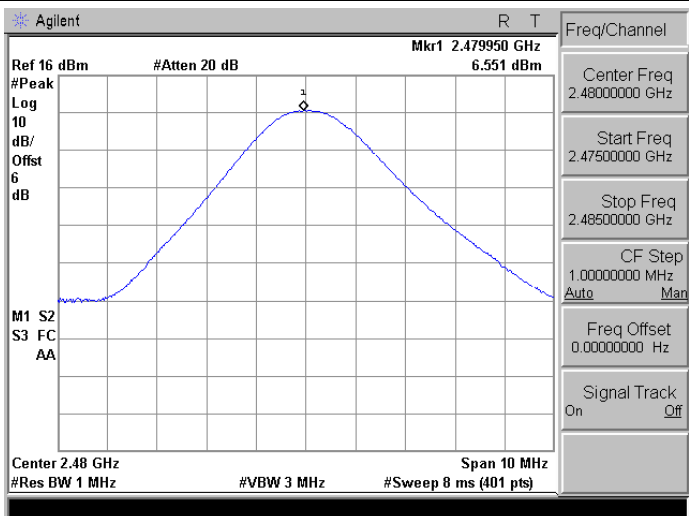
DH1



DH3

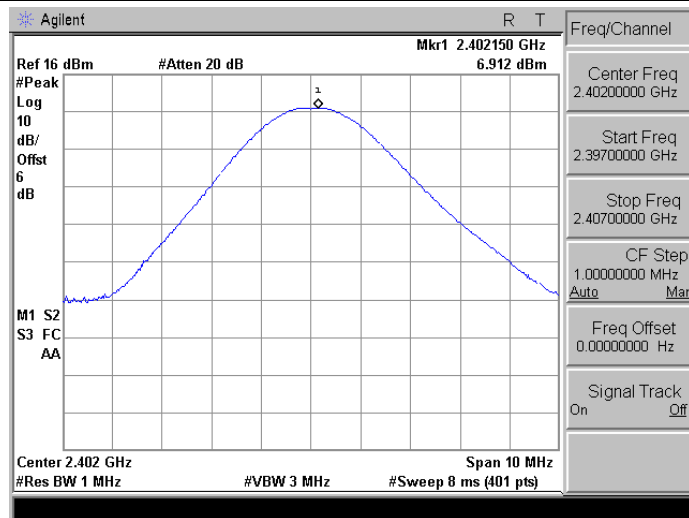


DH5

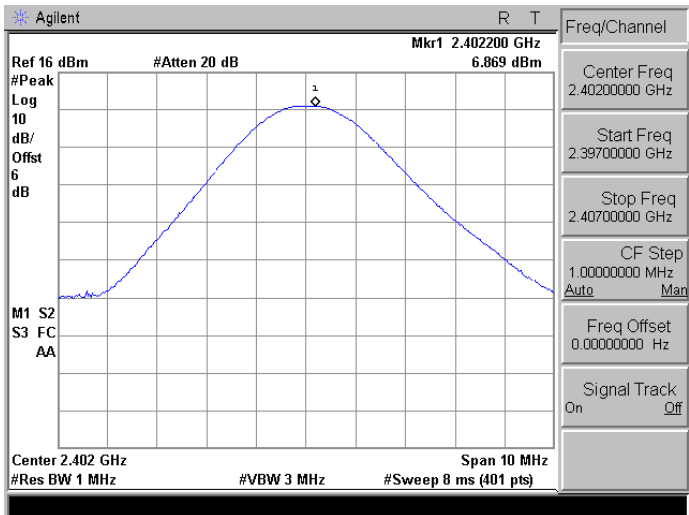


Mode2: $\pi/4$ -DPSK Link Mode_2402 MHz

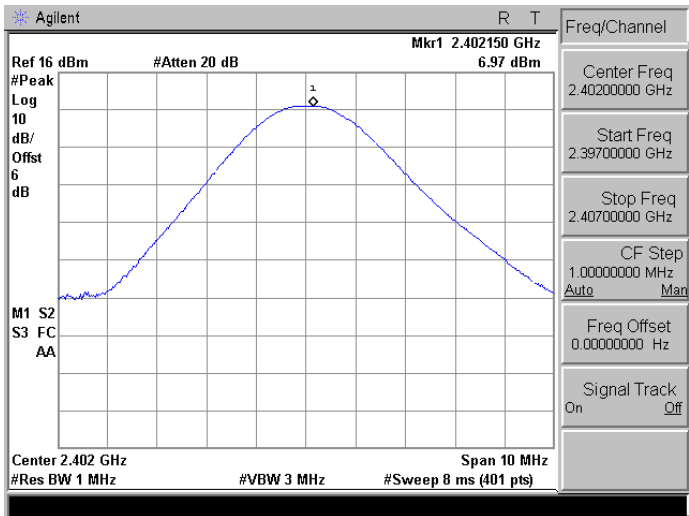
DH1



DH3

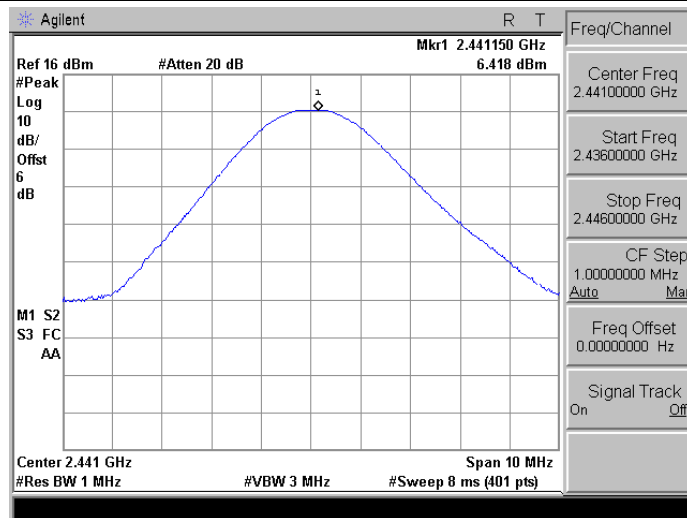


DH5

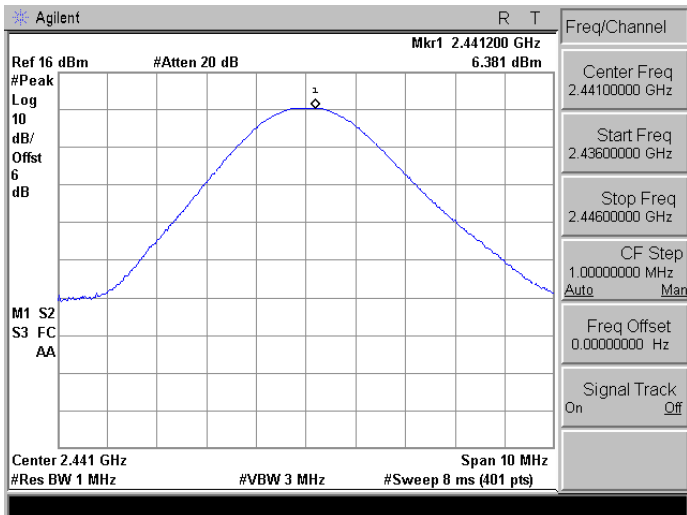


Mode2: $\pi/4$ -DPSK Link Mode_2441 MHz

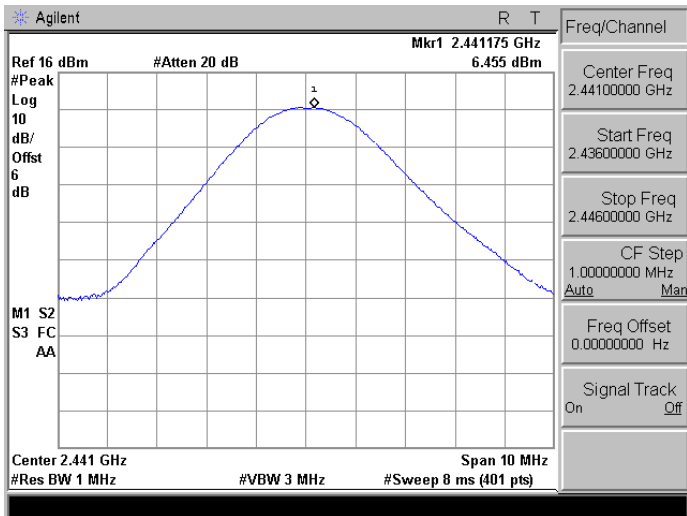
DH1



DH3

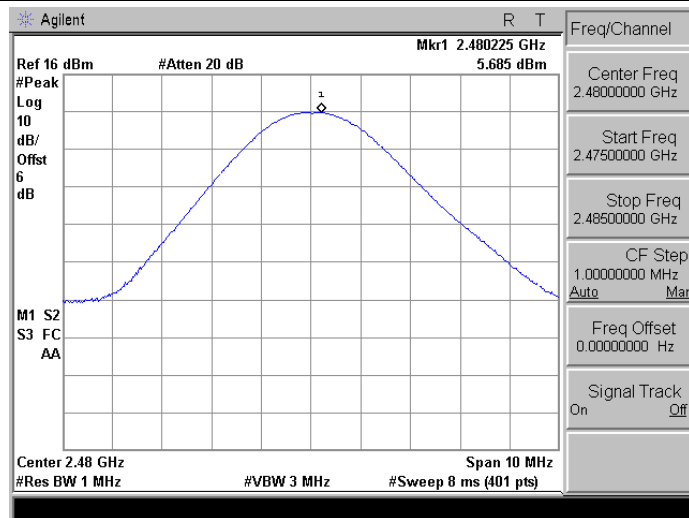


DH5

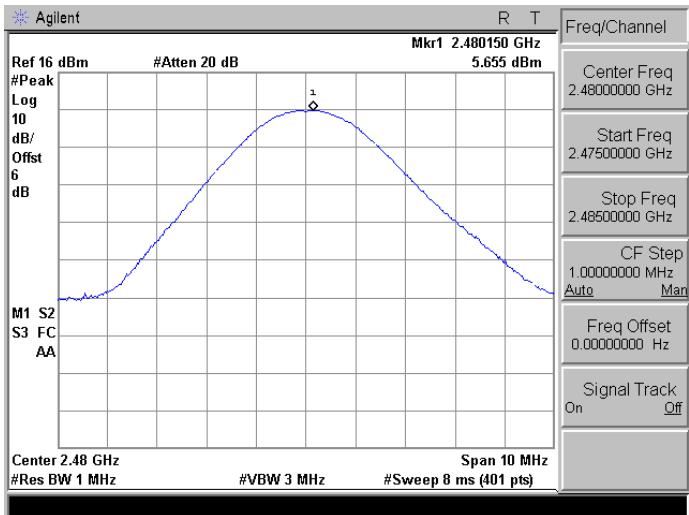


Mode2: $\pi/4$ -DPSK Link Mode_2480 MHz

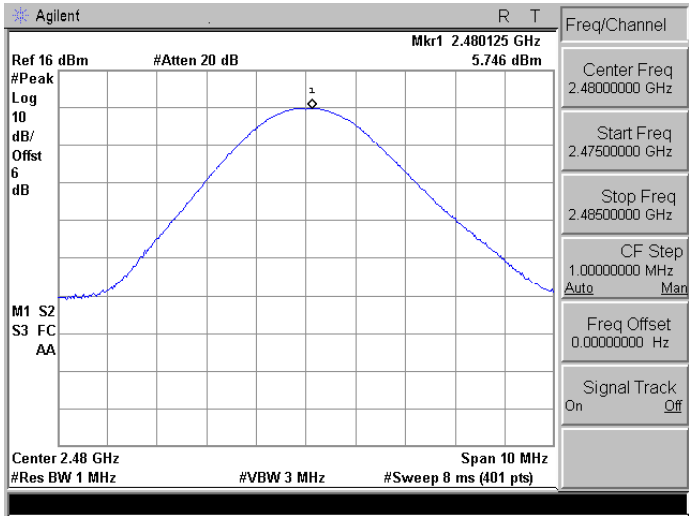
DH1



DH3

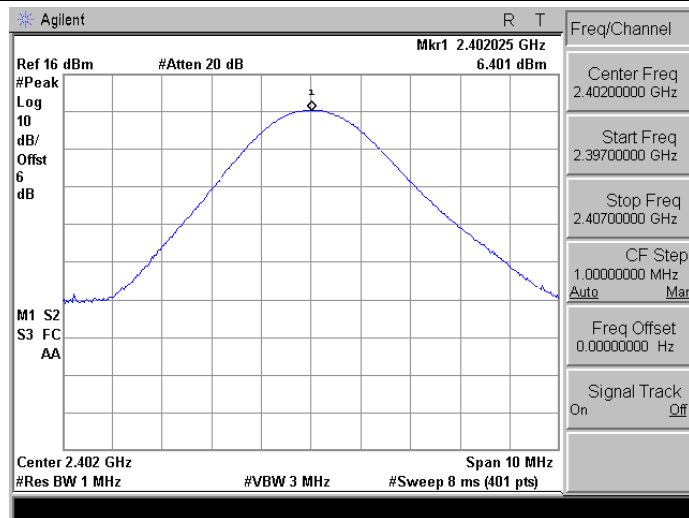


DH5

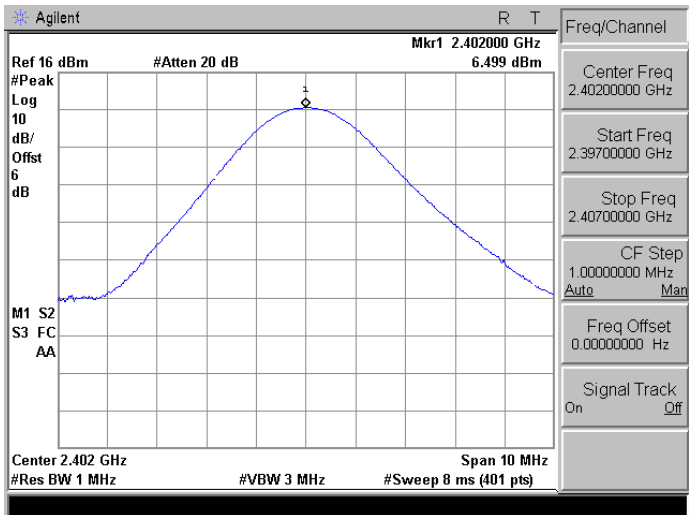


Mode3: 8DPSK Link Mode_2402 MHz

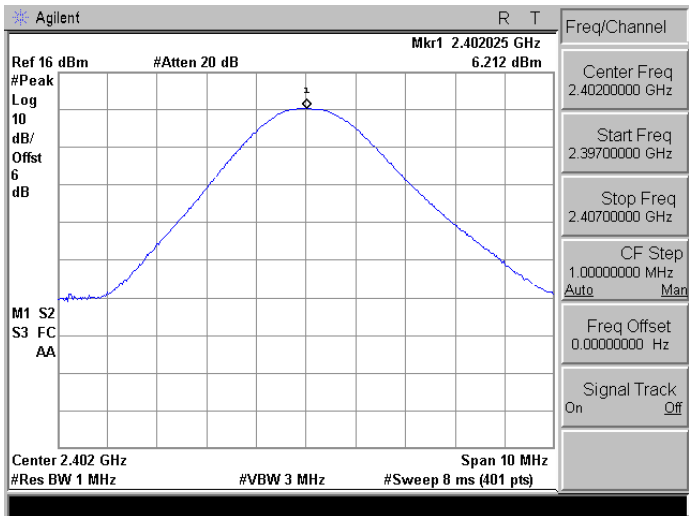
DH1



DH3

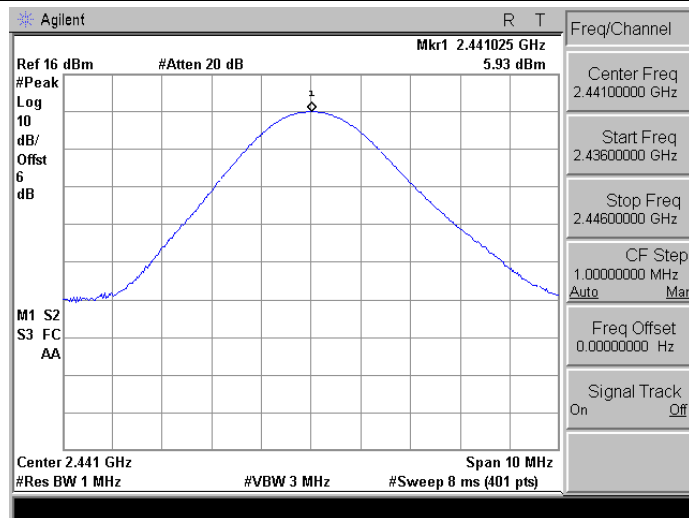


DH5

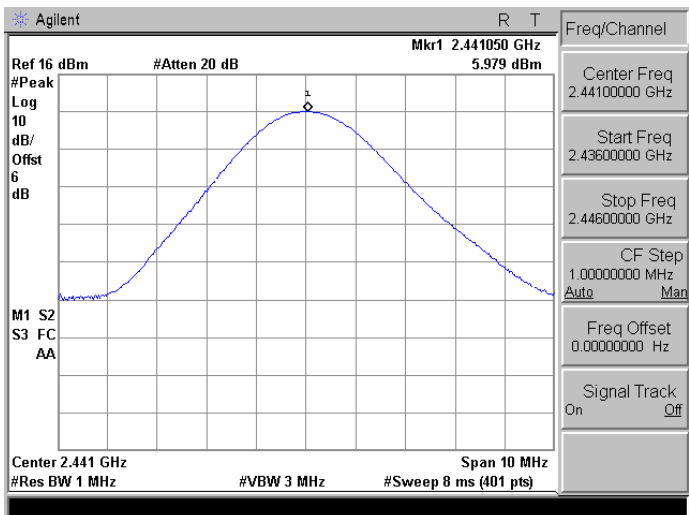


Mode3: 8DPSK Link Mode_2441 MHz

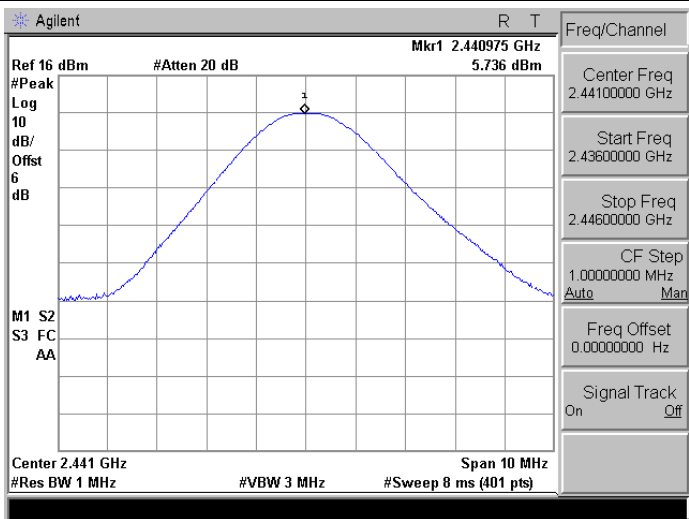
DH1



DH3

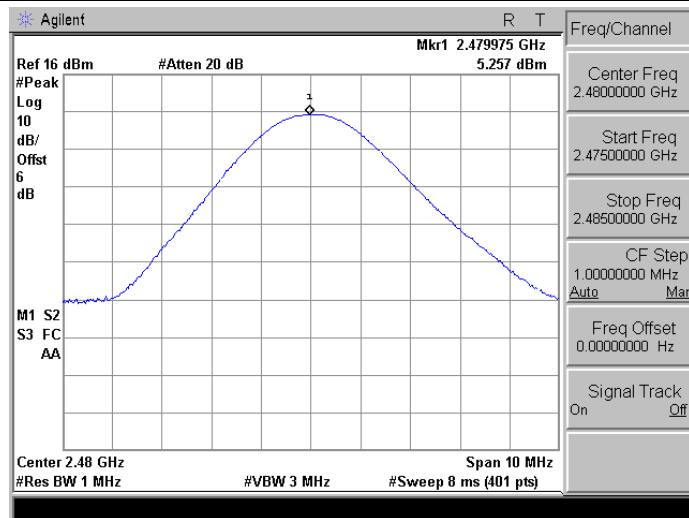


DH5

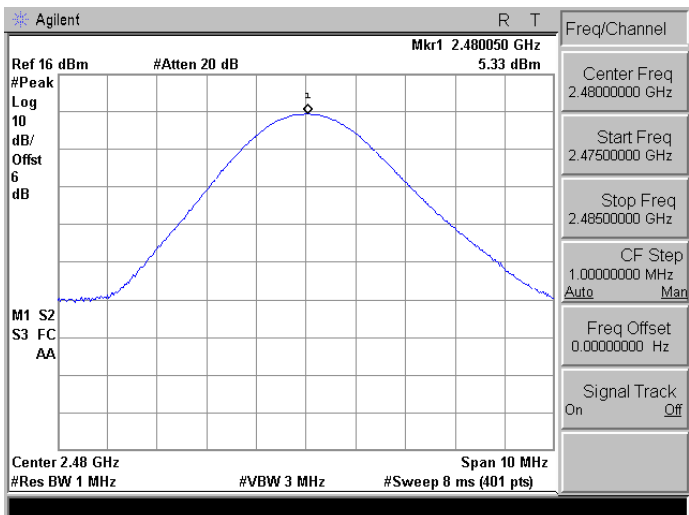


Mode3: 8DPSK Link Mode_2480 MHz

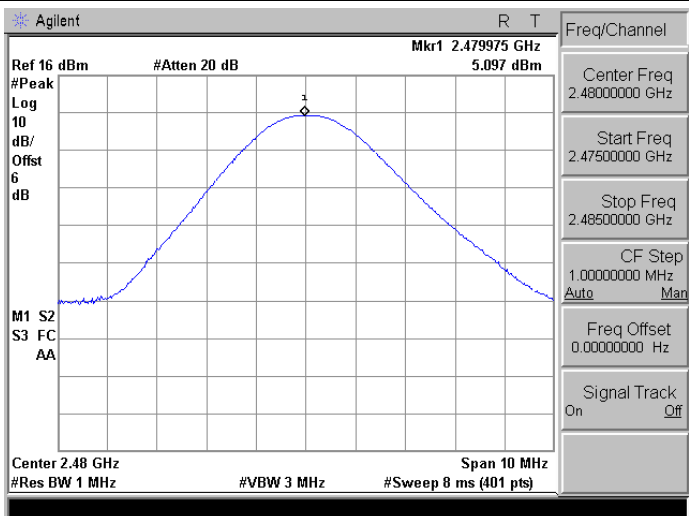
DH1



DH3



DH5

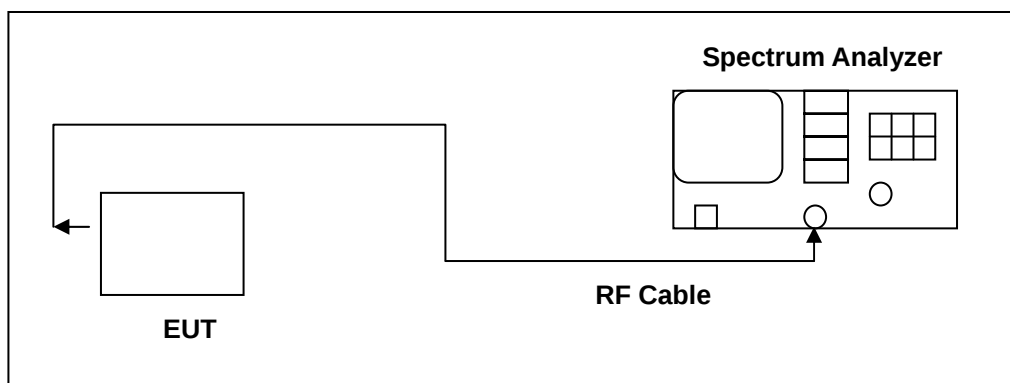


7 Minimum 20dB RF Bandwidth Measurement

7.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hop-ping channel is < 1 MHz.

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009
Test Site	ATL	TE06	TE06	N.C.R.

NOTE: N.C.R. = No Calibration Request.

7.4. 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

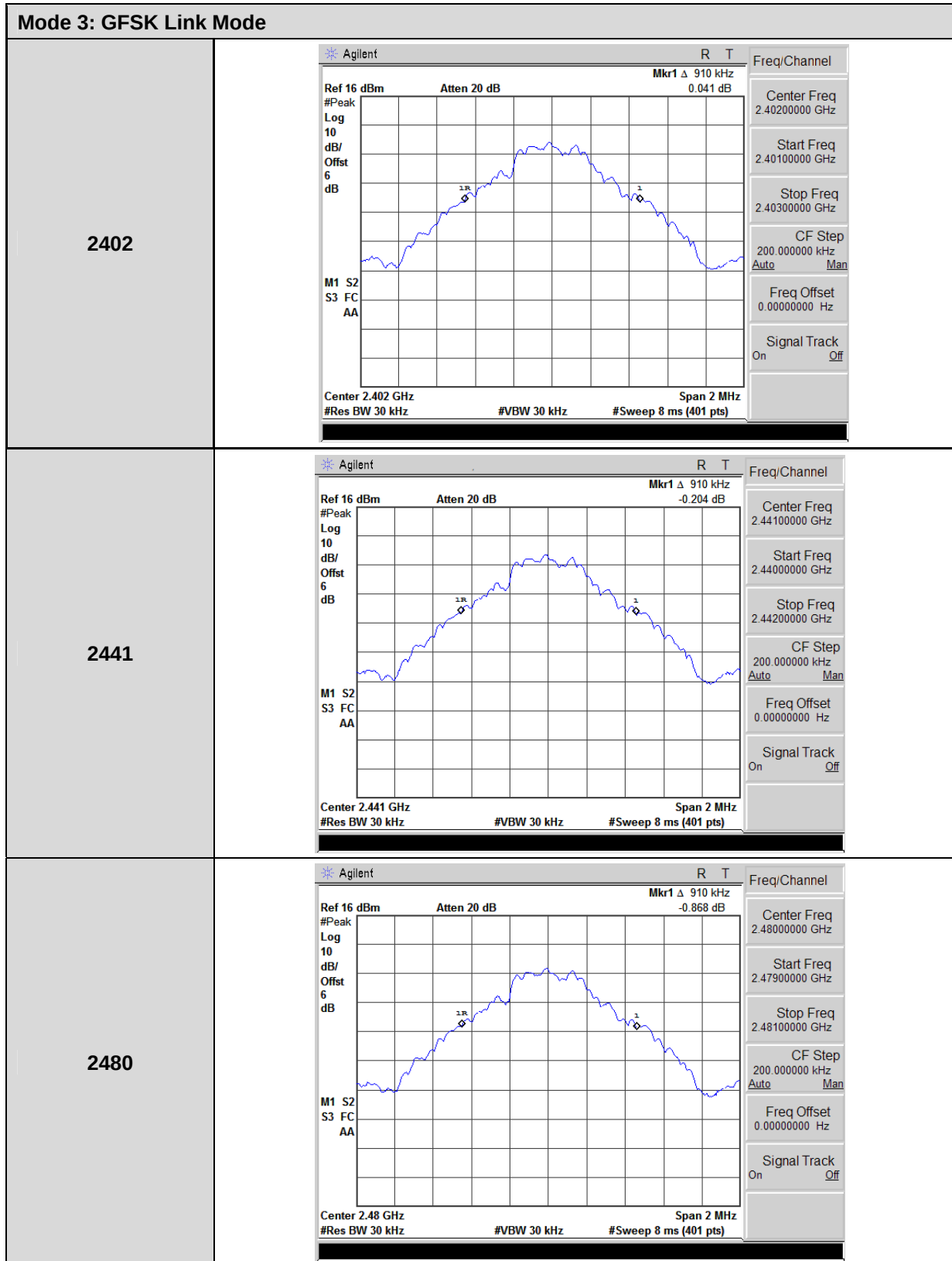
The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to 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.

7.5. Test Result

Product	Smartphone		
Test Item	Minimum 20dB RF Bandwidth		
Test Mode	Mode 3: GFSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
Frequency (MHz)	20dB Bandwidth (MHz)		Limit (MHz)
2402	0.910		< 1
2441	0.910		< 1
2480	0.910		< 1

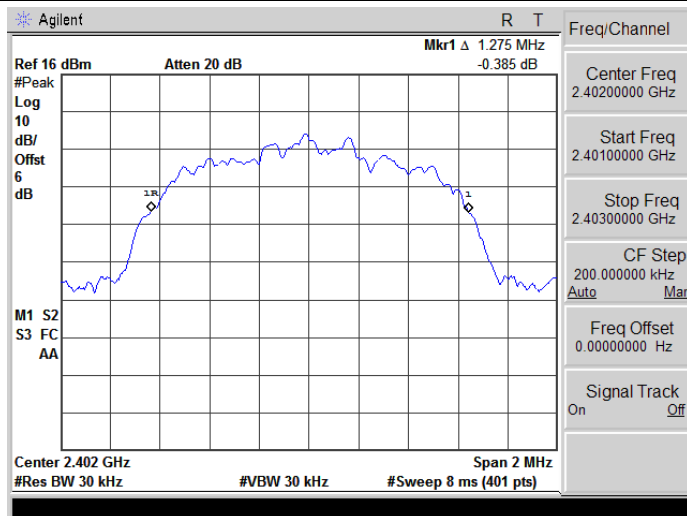
Product	Smartphone		
Test Item	Minimum 20dB RF Bandwidth		
Test Mode	Mode 4: 8DPSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
Frequency (MHz)	20dB Bandwidth (MHz)	2/3 20dB Bandwidth (MHz)	Limit (MHz)
2402	1.275	0.850	< 1
2441	1.270	0.847	< 1
2480	1.280	0.853	< 1

7.6. Test Graphs

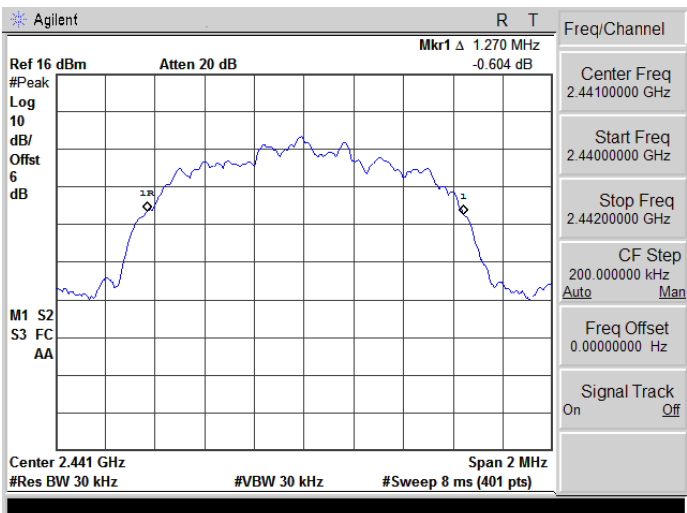


Mode3: 8DPSK Link Mode

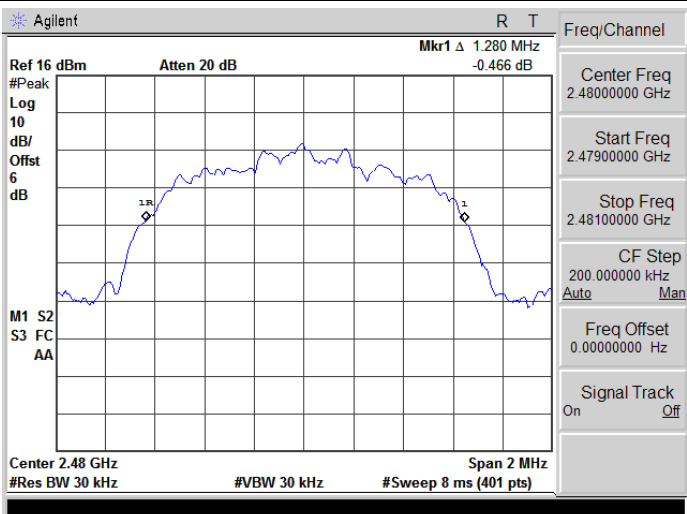
2402



2441



2480

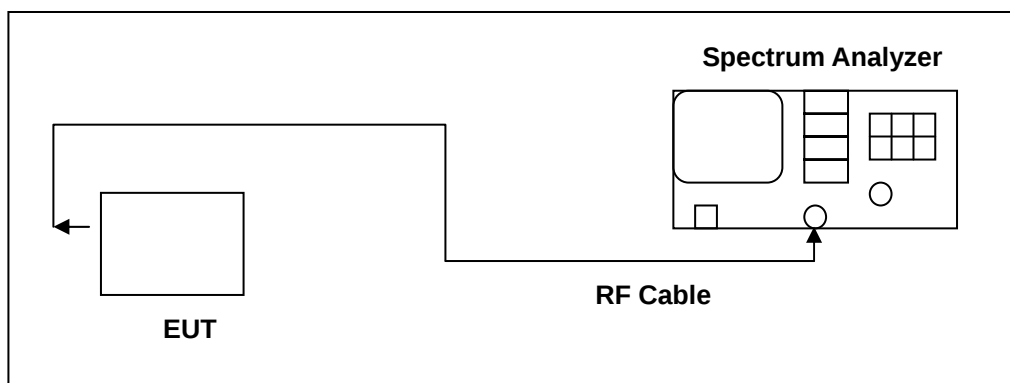


8 Carrier Frequency Separation Measurement

8.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band shall use at least 75 hopping frequencies. The Carrier Frequency Separation is 1 MHz.

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009
Test Site	ATL	TE06	TE06	N.C.R.

NOTE: N.C.R. = No Calibration Request.

8.4. 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

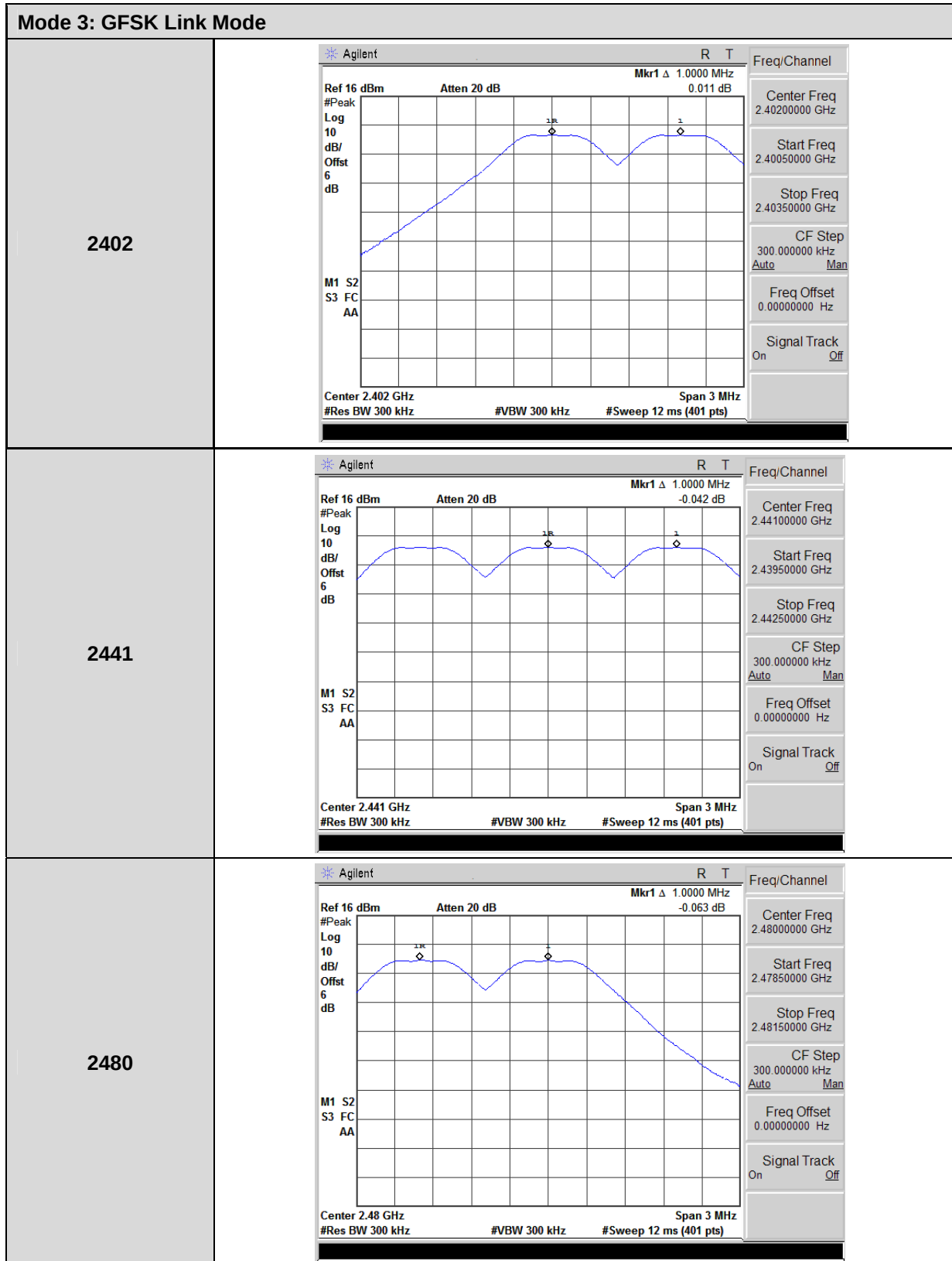
The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

8.5. Test Result

Product	Smartphone		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 3: GFSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
Frequency (MHz)	Measurement (MHz)	Limit (MHz)	
2402	1	1	
2441	1	1	
2480	1	1	

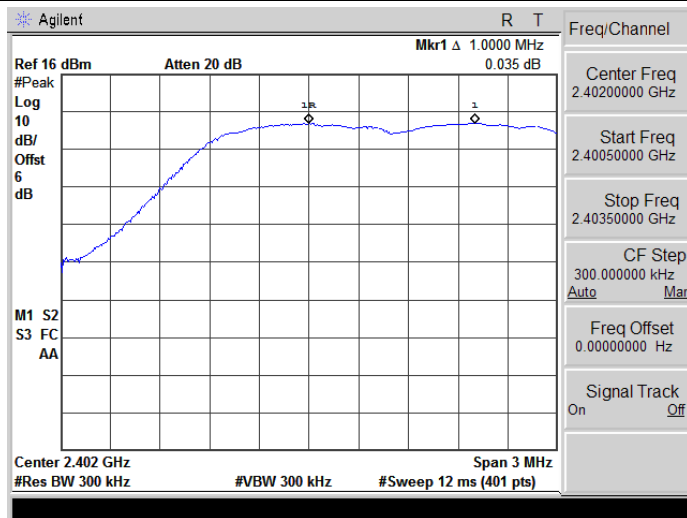
Product	Smartphone		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 4: 8DPSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
Frequency (MHz)	Measurement (MHz)	Limit (MHz)	
2402	1	1	
2441	1	1	
2480	1	1	

8.6. Test Graphs

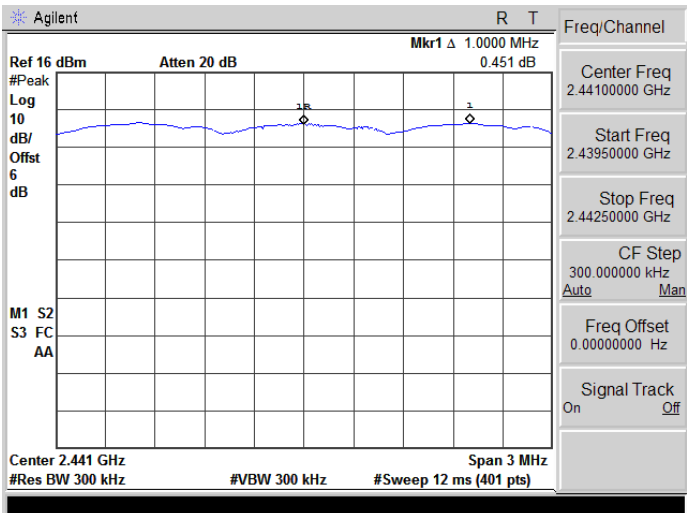


Mode3: 8DPSK Link Mode

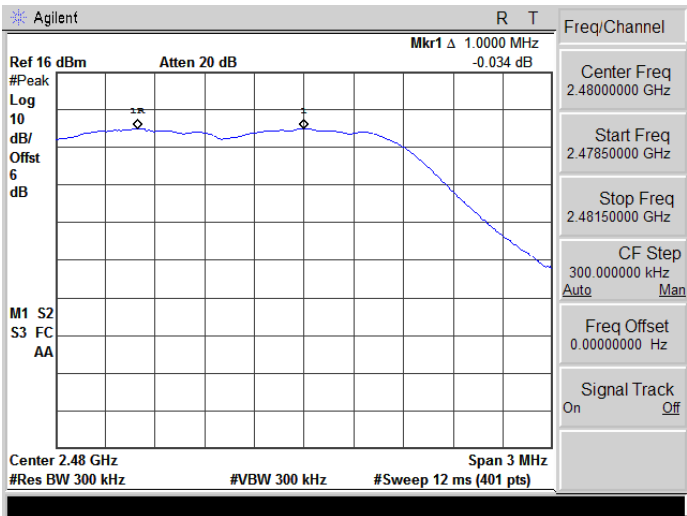
2402



2441



2480

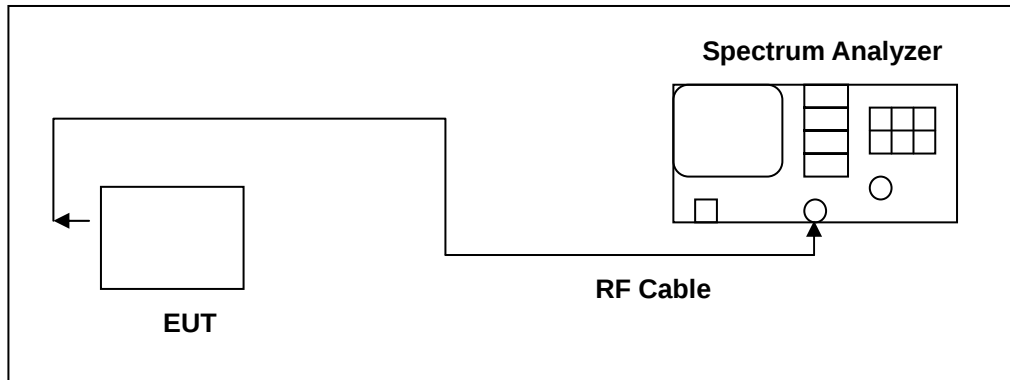


9 Number of Hopping Measurement

9.1. Limit

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

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009
Test Site	ATL	TE06	TE06	N.C.R.

NOTE: N.C.R. = No Calibration Request.

9.4. 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

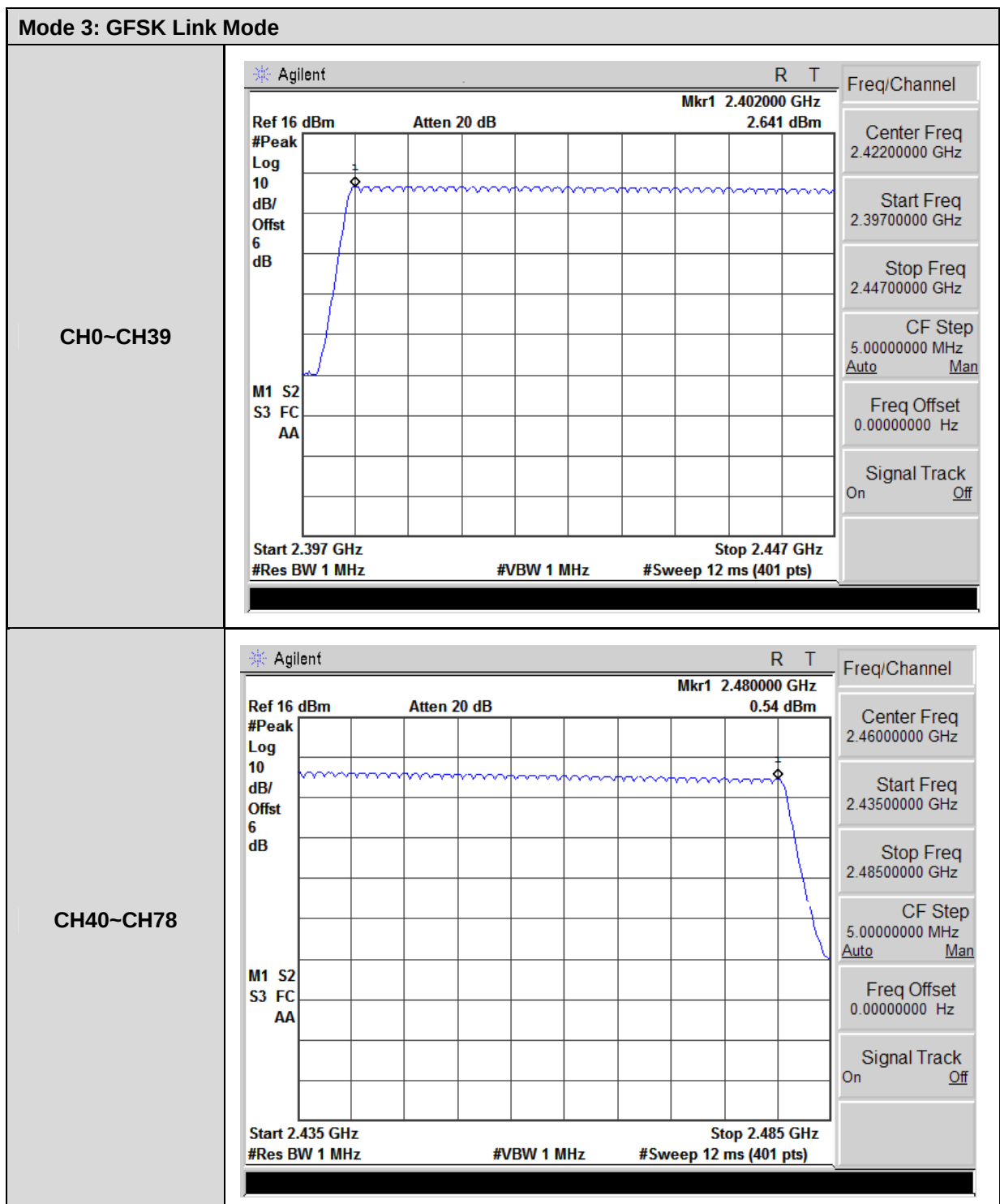
The trace was allowed to stabilize.

9.5. Test Result

Product	Smartphone		
Test Item	Number of Hopping		
Test Mode	Mode 3: GFSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
Frequency Rangy (MHz)	Measurement (ch)	Limit (ch)	
2402 - 2480	79	> 15	

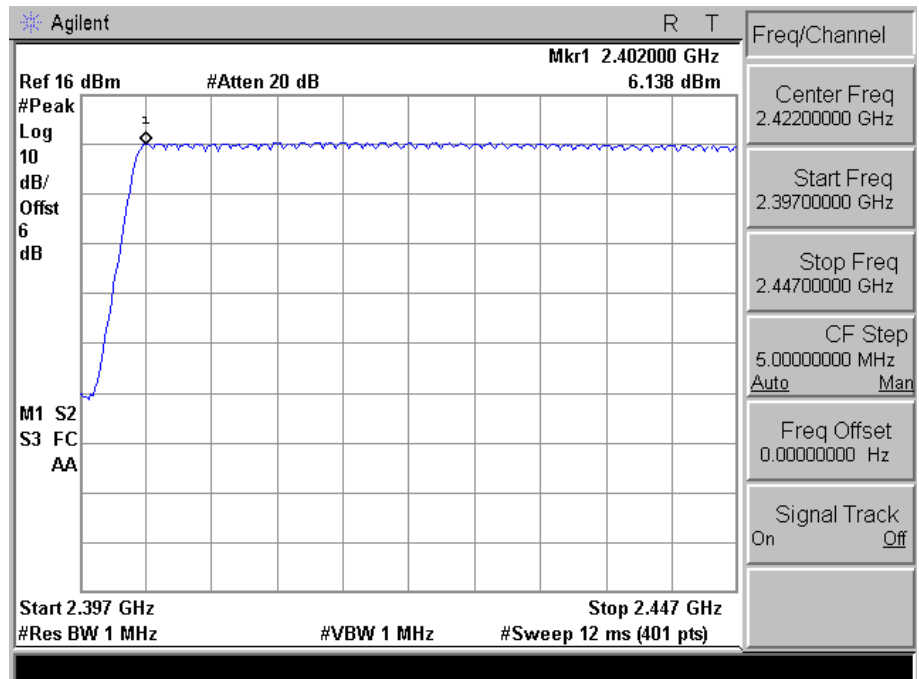
Product	Smartphone		
Test Item	Number of Hopping		
Test Mode	Mode 4: 8DPSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
Frequency Rangy (MHz)	Measurement (ch)	Limit (ch)	
2402 - 2480	79	> 15	

9.6. Test Graphs

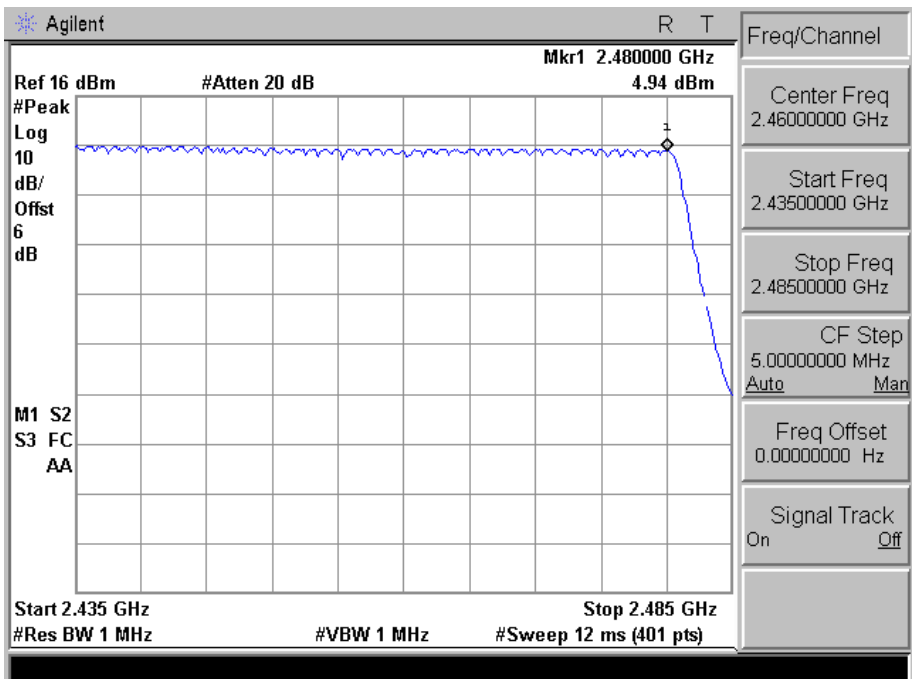


Mode 3: 8DPSK Link Mode

CH0~CH39



CH40~CH78

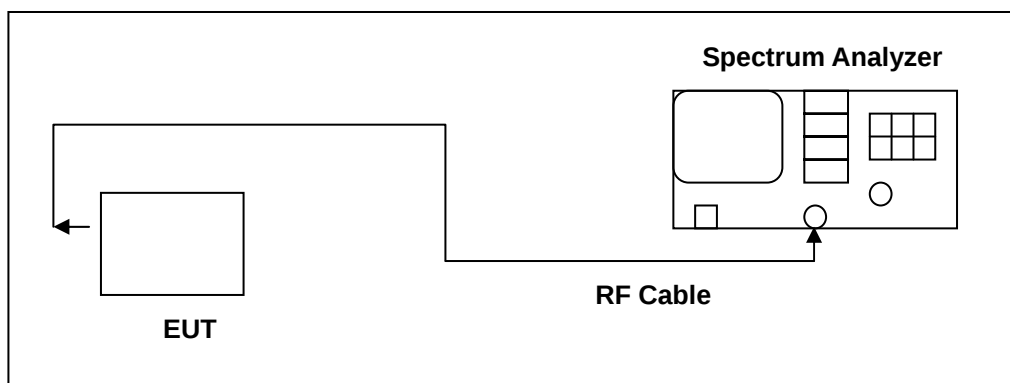


10 Time of Occupancy (Dwell Time) Measurement

10.1. Limit

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.

10.2. Test Setup



10.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009
Test Site	ATL	TE06	TE06	N.C.R.

NOTE: N.C.R. = No Calibration Request.

10.4. 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

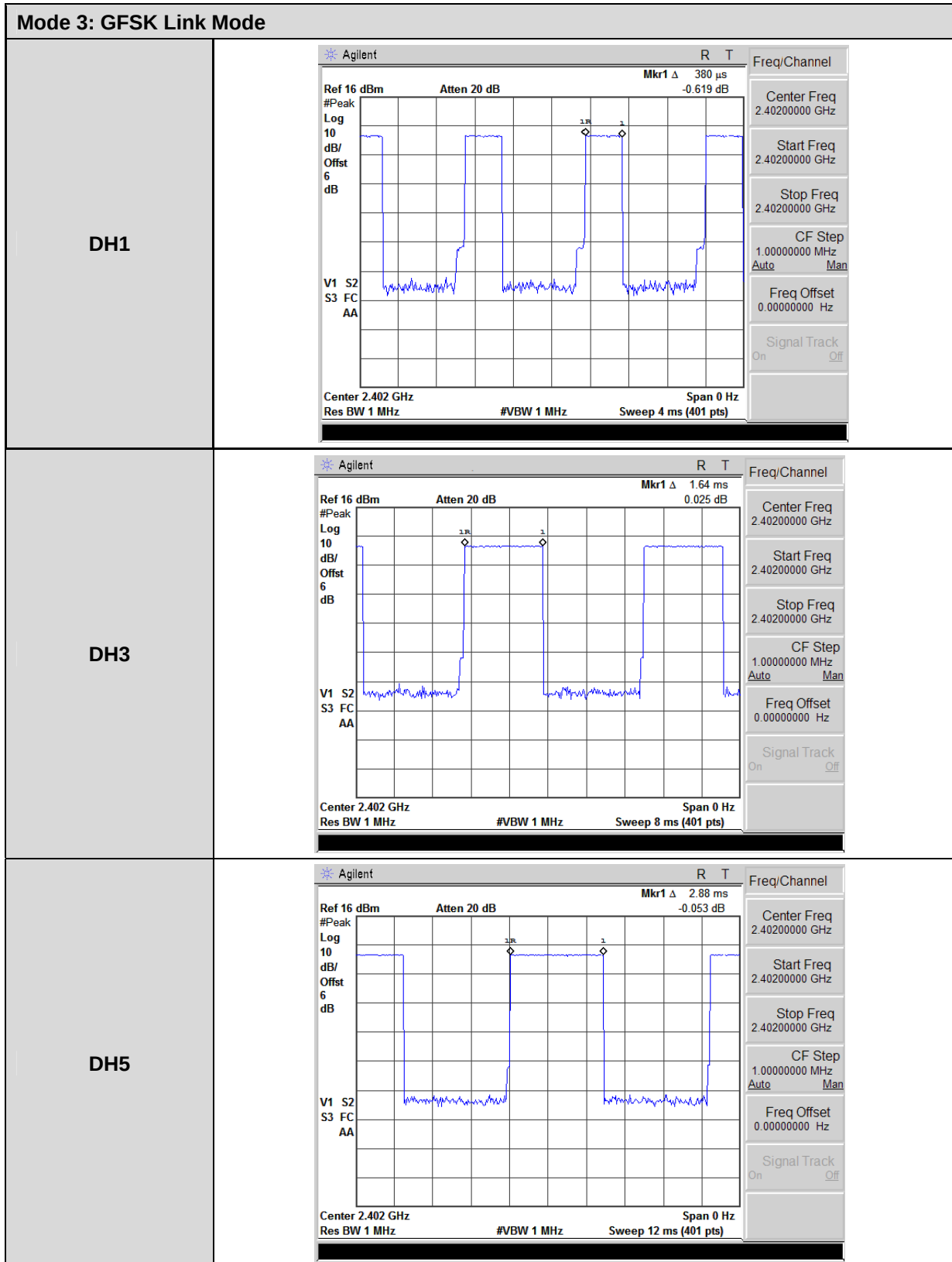
The marker-delta function was used to determine the dwell time.

10.5. Test Result

Product	Smartphone		
Test Item	Time of Occupancy (Dwell Time)		
Test Mode	Mode 3: GFSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
DH1			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	800/79CH = 10.13(times/sec)		
Each Channel Dwell Times (1)	0.380 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 10.13 = 320.108(times)		
Dwell Times on Cycle (1) * (2)	121.64104 ms (sec)		
LIMIT(msec)	< = 400		
DH3			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	400/79CH = 5.1(times/sec)		
Each Channel Dwell Times (1)	1.640 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 5.1 = 161.16(times)		
Dwell Times on Cycle (1) * (2)	264.3024 ms (sec)		
LIMIT(msec)	< = 400		
DH5			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	266.7/79CH = 3.37(times/sec)		
Each Channel Dwell Times (1)	2.880 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 3.37 = 106.492(times)		
Dwell Times on Cycle (1) * (2)	306.69696 ms (sec)		
LIMIT(msec)	< = 400		

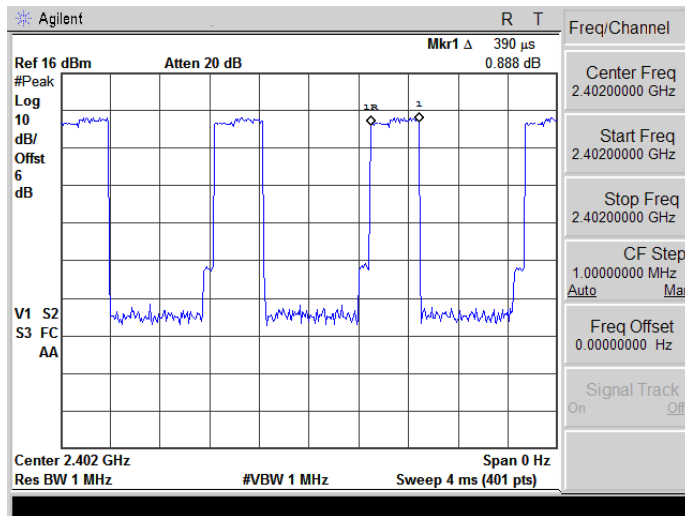
Product	Smartphone		
Test Item	Time of Occupancy (Dwell Time)		
Test Mode	Mode 4: 8DPSK Link Mode		
Date of Test	12/14/2009	Test Site	TE06
DH1			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	800/79CH = 10.13(times/sec)		
Each Channel Dwell Times (1)	0.390 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 10.13 = 320.108(times)		
Dwell Times on Cycle (1) * (2)	124.84212 ms (sec)		
LIMIT(msec)	< = 400		
DH3			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	400/79CH = 5.1(times/sec)		
Each Channel Dwell Times (1)	1.640 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 5.1 = 161.16(times)		
Dwell Times on Cycle (1) * (2)	264.3024 ms (sec)		
LIMIT(msec)	< = 400		
DH5			
Cycle Calculate	79CH * 0.4 = 31.6 (sec)		
The EUT Hopping Number per Sec	1600 times/sec		
Each Channel Dwell Times per Sec	266.7/79CH = 3.37(times/sec)		
Each Channel Dwell Times (1)	2.910 ms (sec)		
Each Channel Dwell Times on Cycle(2)	31.6 * 3.37 = 106.492(times)		
Dwell Times on Cycle (1) * (2)	309.89172 ms (sec)		
LIMIT(msec)	< = 400		

10.6. Test Graphs

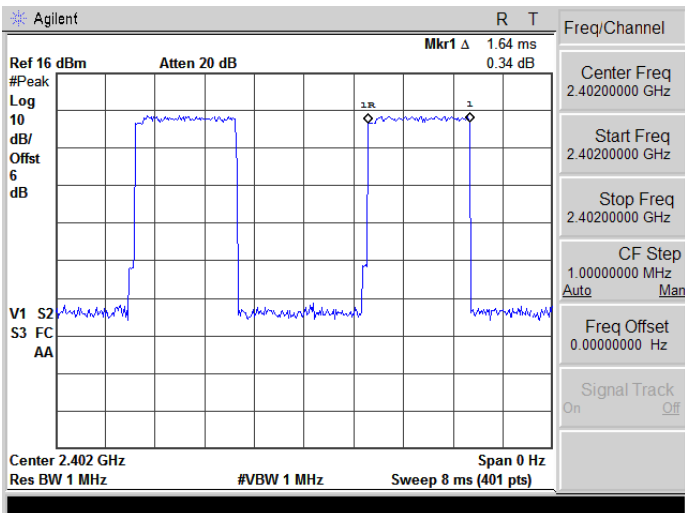


Mode3: 8DPSK Link Mode

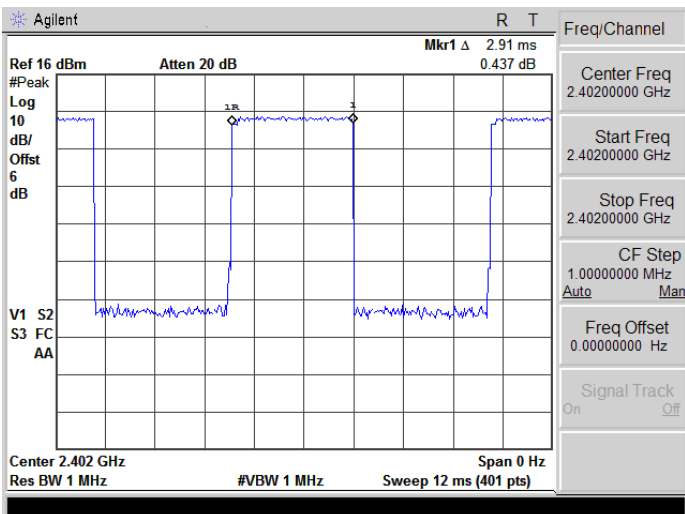
3DH1



3DH3



3DH5

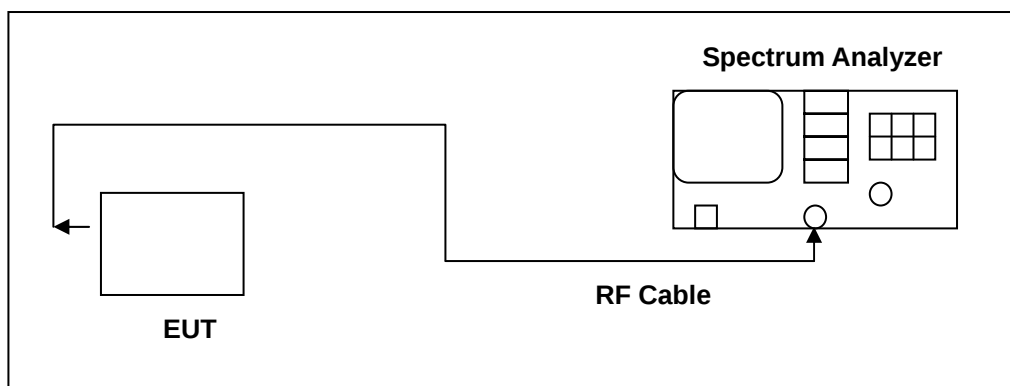


11 Out of Band Conducted Emissions Measurement

11.1. Limit

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

11.2. Test Setup



11.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009
Test Site	ATL	TE06	TE06	N.C.R.

NOTE: N.C.R. = No Calibration Request.

11.4. 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.

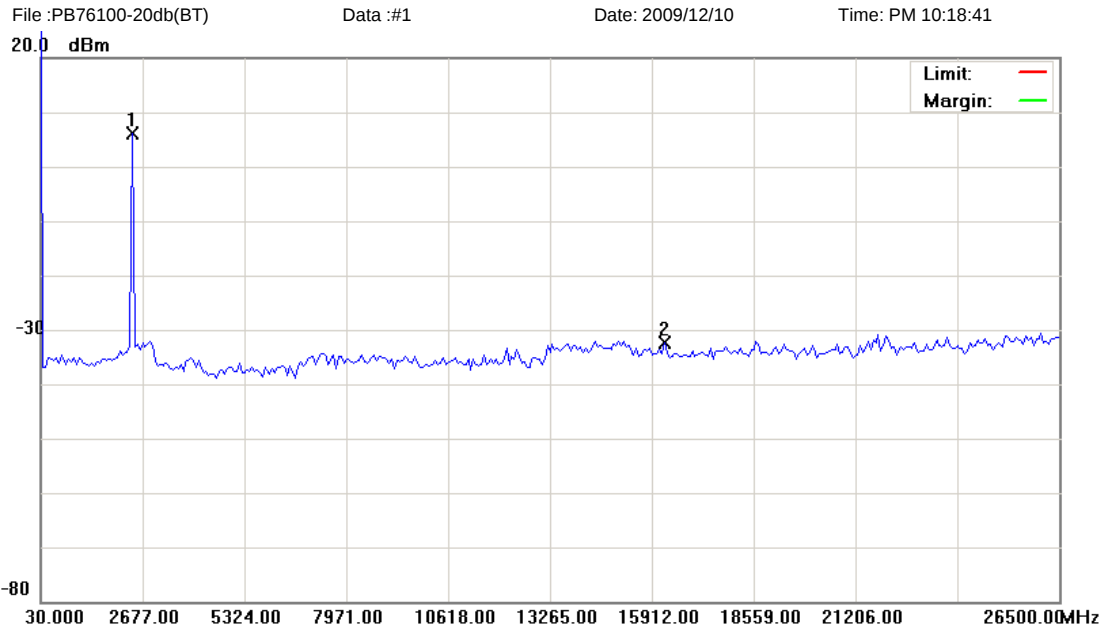
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 0, 39, 78)

11.5. Test Result

Product	Smartphone		
Test Item	Out of Band Conducted		
Test Mode	Mode 3: GFSK Link Mode		
Date of Test	12/10/2009	Test Site	TE06
Frequency (MHz)	Fundamental (dBm)	Limit (dBm)	Measurement (dBm)
2402	6.17	-13.83	-32.44
2441	4.55	-15.45	-31.17
2480	-1.88	-21.88	-34.22

Product	Smartphone		
Test Item	Out of Band Conducted		
Test Mode	Mode 4: 8DPSK Link Mode		
Date of Test	12/10/2009	Test Site	TE06
Frequency (MHz)	Fundamental (dBm)	Limit (dBm)	Measurement (dBm)
2402	5.17	-14.83	-30.52
2441	5.55	-14.45	-30.55
2480	2.13	-17.87	-32.29

11.6. Test Graphs



Site : RF Conducted

Phase:

Temperature: 26 °C

Limit:

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

RBW: 100 KHz VBW: 100 KHz

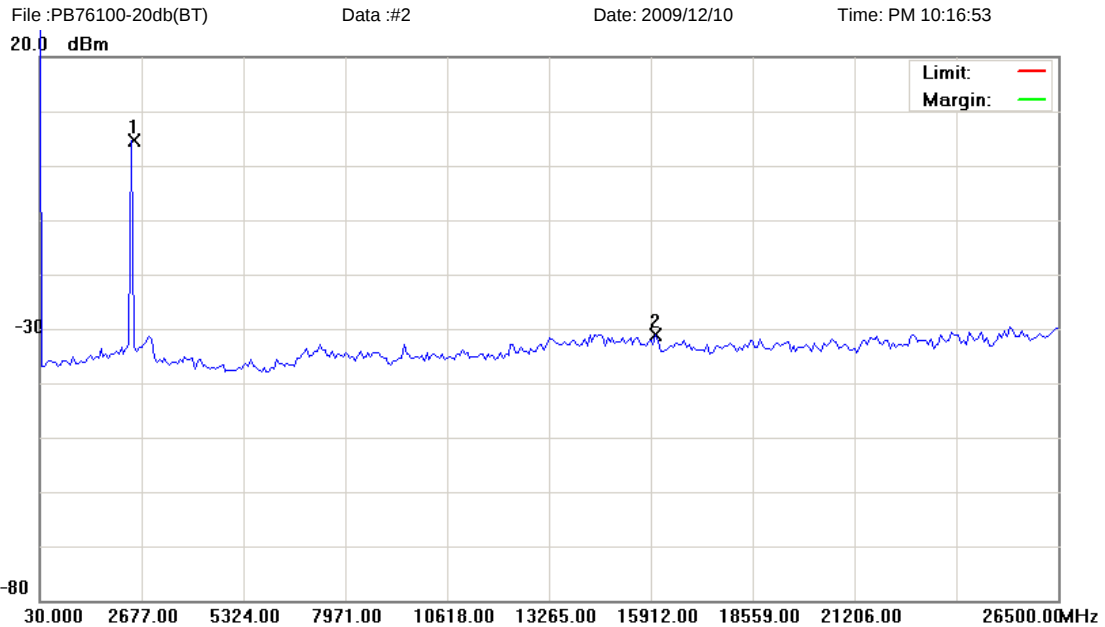
M/N: PB76100

Mode: #3

Note: 2402MHz, AC Adapter: #2

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	2402.000	0.08	6.09	6.17			peak	Tx
2		16242.87	-39.05	6.61	-32.44			peak	

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



Site : RF Conducted

Phase:

Temperature: 26 °C

Limit:

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

RBW: 100 KHz VBW: 100 KHz

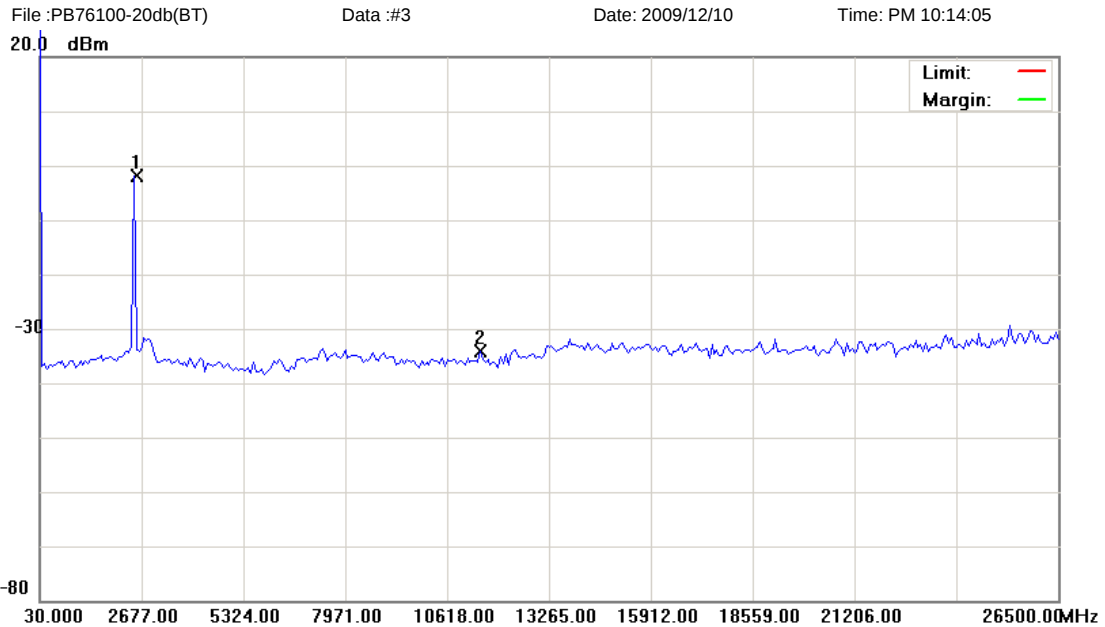
M/N: PB76100

Mode: #3

Note: 2441MHz, AC Adapter:#2

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	2441.000	-1.54	6.09	4.55			peak	Tx
2		16044.35	-37.78	6.61	-31.17			peak	

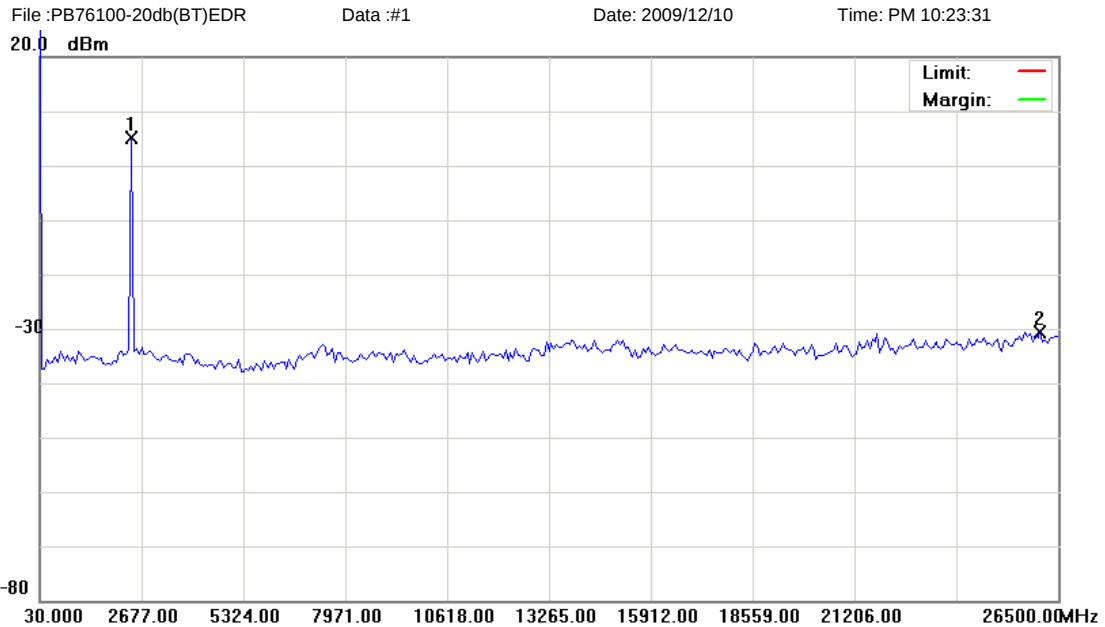
*:Maximum data x:Over limit !:over margin



Site : RF Conducted Phase: Temperature: 26 °C
Limit: Power: AC 120V/60Hz Humidity: 55 %
EUT: Smartphone RBW: 100 KHz VBW: 100 KHz
M/N: PB76100
Mode: #3
Note: 2480MHz, AC Adapter: # 2

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	2480.000	-7.97	6.09	-1.88			peak	Tx
2		11478.27	-40.65	6.43	-34.22			peak	

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



Site : RF Conducted

Phase:

Temperature: 26 °C

Limit:

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

RBW: 100 KHz VBW: 100 KHz

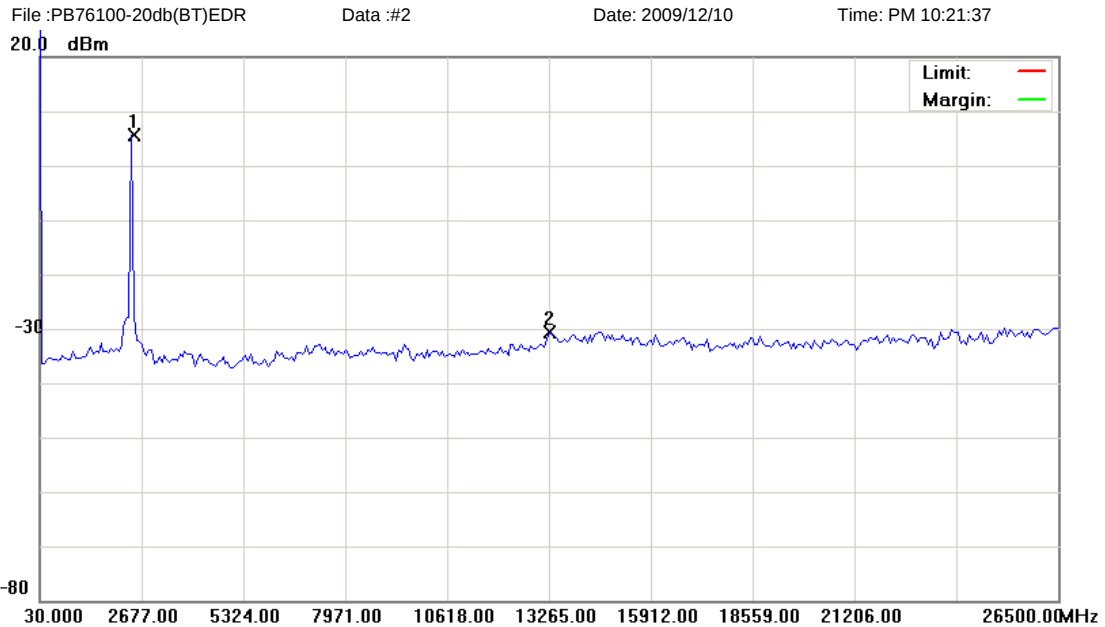
M/N: PB76100

Mode: #4

Note: 2402MHz, AC Adapter:#2

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	2402.000	-0.92	6.09	5.17			peak	Tx
2		26036.77	-37.50	6.98	-30.52			peak	

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



Site : RF Conducted

Phase:

Temperature: 26 °C

Limit:

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

RBW: 100 KHz VBW: 100 KHz

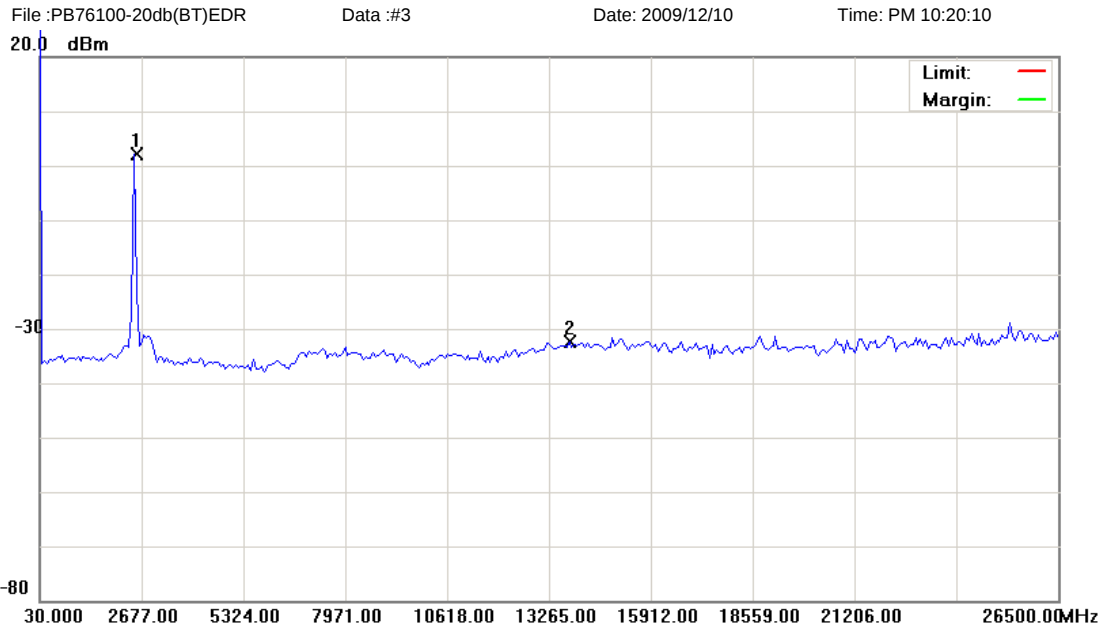
M/N: PB76100

Mode: #4

Note: 2441MHz, AC Adapter:#2

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	2441.000	-0.54	6.09	5.55			peak	Tx
2		13265.00	-37.05	6.50	-30.55			peak	

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



Site : RF Conducted

Phase:

Temperature: 26 °C

Limit:

Power: AC 120V/60Hz

Humidity: 55 %

EUT: Smartphone

RBW: 100 KHz VBW: 100 KHz

M/N: PB76100

Mode: #4

Note: 2480MHz, AC Adapter:#2

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	2480.000	-3.96	6.09	2.13			peak	Tx
2		13794.40	-38.91	6.52	-32.39			peak	

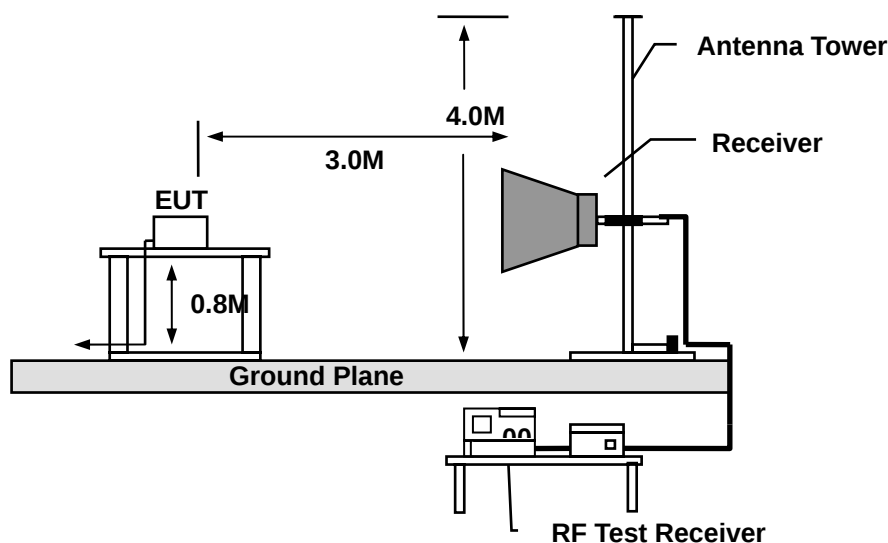
*:Maximum data x:Over limit !:over margin

12 Band Edges Measurement

12.1. Limit

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

12.2. Test Setup



12.3. Test Instruments

3 Meter Chamber				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date
RF Pre-selector	Agilent	N9039A	MY46520256	01/27/2009
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/20/2009
Pre Amplifier	Agilent	8449B	3008A02237	07/01/2009
Pre Amplifier	Agilent	8447D	2944A10961	06/30/2009
Bi-log Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/23/2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	07/01/2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/30/2009
Test Site	ATL	TE01	888001	08/06/2009

NOTE: N.C.R. = No Calibration Request.

12.4. 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.

12.5. Test Graphs

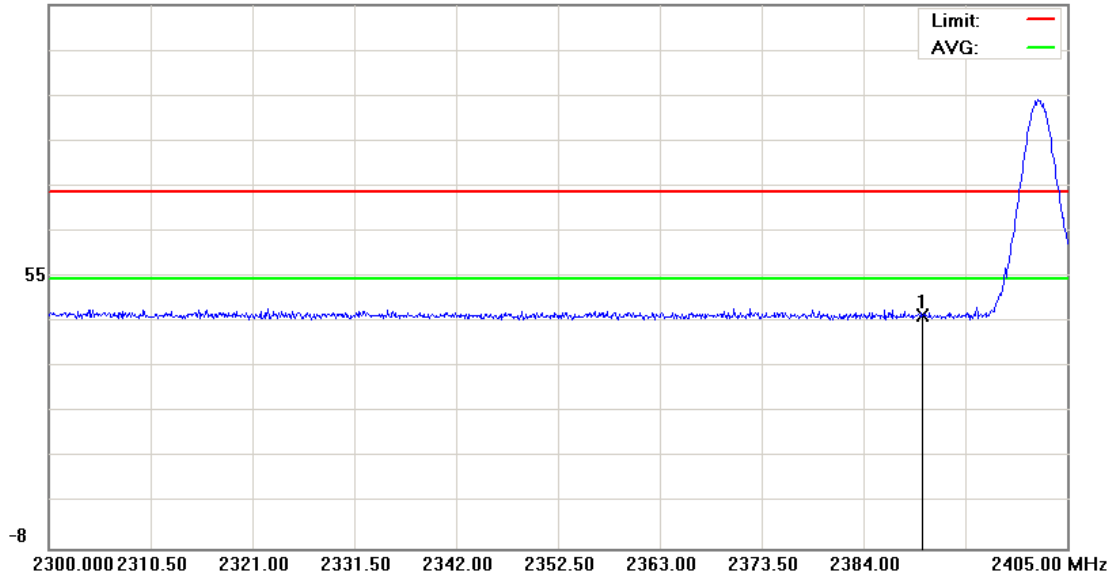
File :PB76100(Band Edge)EDR

Data :#1

Date: 2009/12/15

Time: 上午 09:51:20

117.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #3

Note: 2402MHz, AC Adapter:#2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2390.000	45.41	0.19	45.60	74.00	-28.40	peak		

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

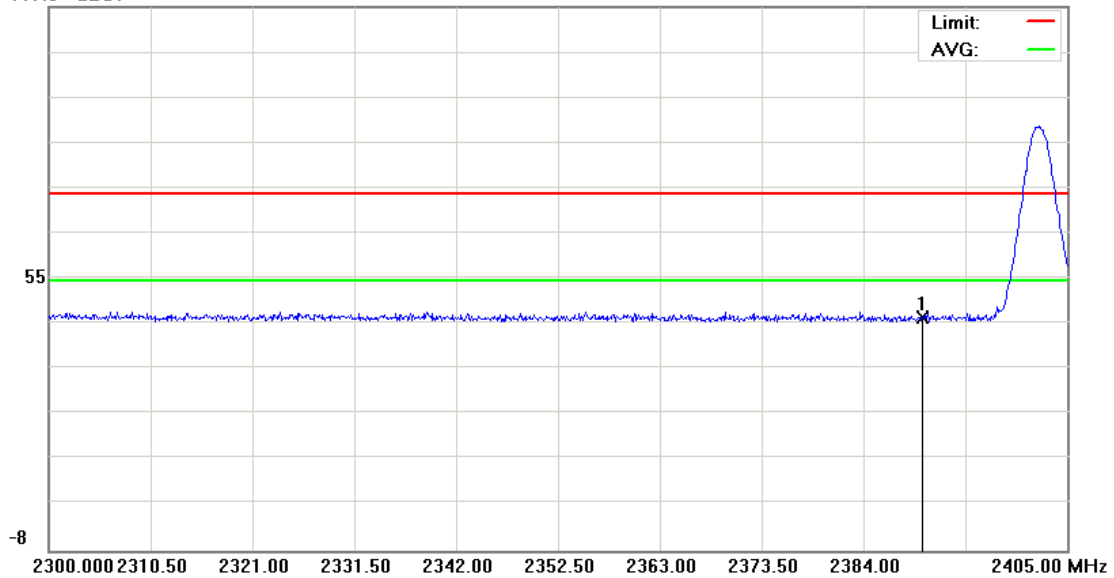
File :PB76100(Band Edge)EDR

Data :#5

Date: 2009/12/15

Time: 上午 10:13:05

117.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #3

Note: 2402MHz, AC Adapter:#2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	
1	*	2390.000	45.36	0.19	45.55	74.00	-28.45	peak		

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

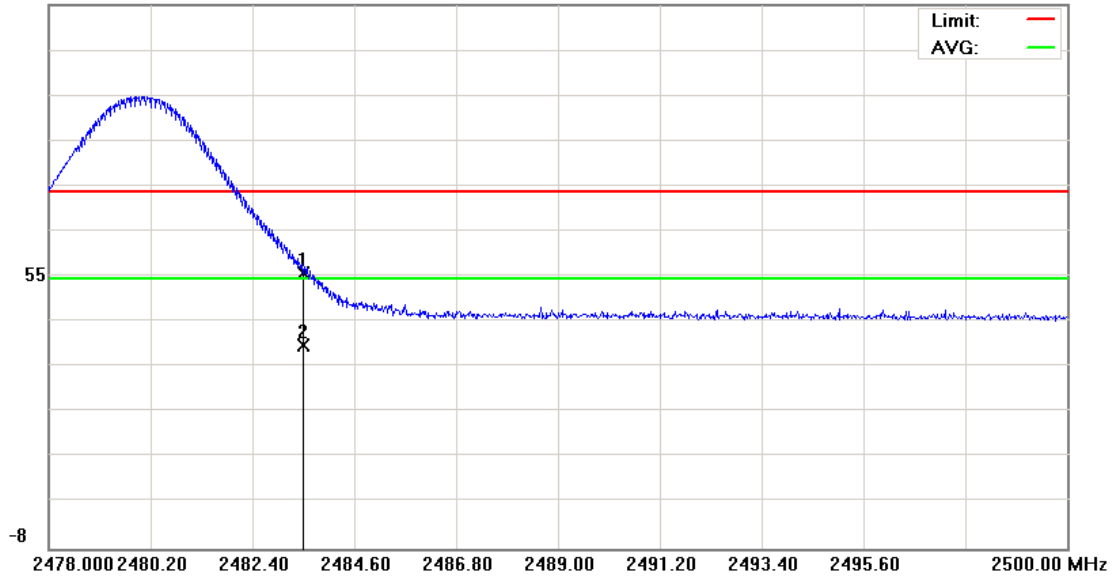
File :PB76100(Band Edge)EDR

Data :#3

Date: 2009/12/15

Time: 上午 09:57:56

117.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #3

Note: 2480MHz, AC Adapter:#2

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	Comment
1		2483.500	54.96	0.25	55.21	74.00	-18.79	peak			
2	*	2483.500	38.36	0.25	38.61	54.00	-15.39	AVG			

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

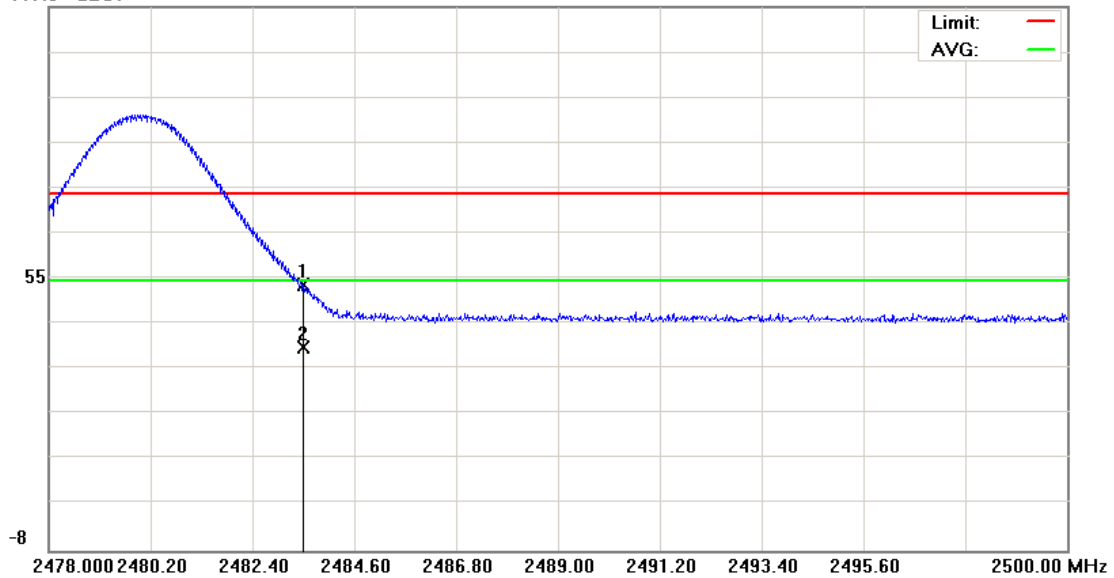
File :PB76100(Band Edge)EDR

Data :#7

Date: 2009/12/15

Time: 上午 10:21:37

117.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #3

Note: 2480MHz, AC Adapter:#2

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	Comment
1		2483.500	52.83	0.25	53.08	74.00	-20.92	peak			
2	*	2483.500	38.61	0.25	38.86	54.00	-15.14	AVG			

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

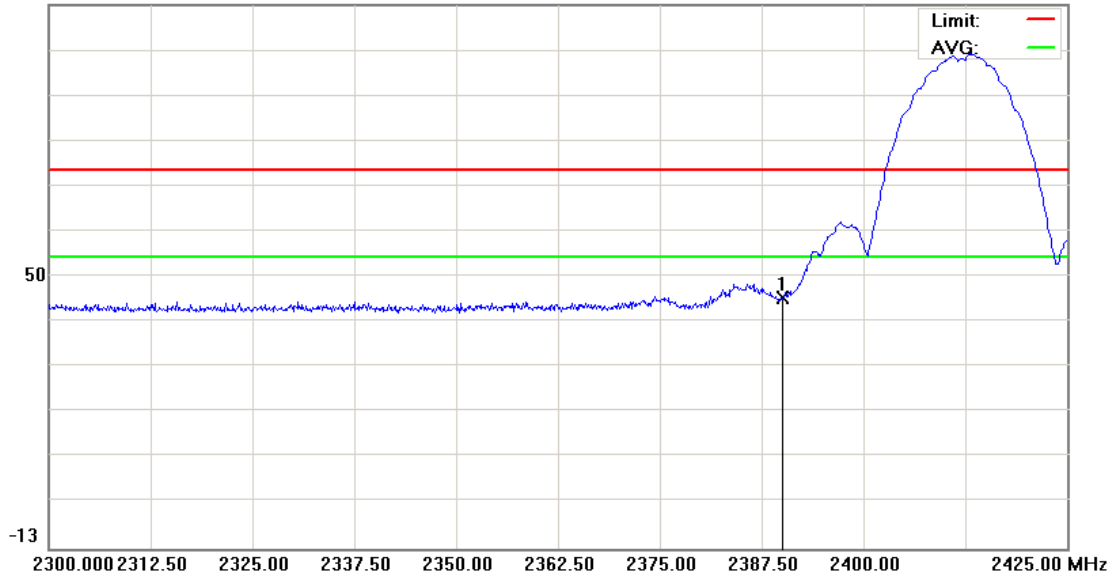
File :PB76100(Band Edge)

Data :#1

Date: 2009/12/14

Time: 下午 06:28:46

112.0 dBuV



Site: : 966 Chamber

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #4

Note: 2402MHz, AC Adapter:#2

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2390.000	44.54	0.19	44.73	74.00	-29.27	peak		

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

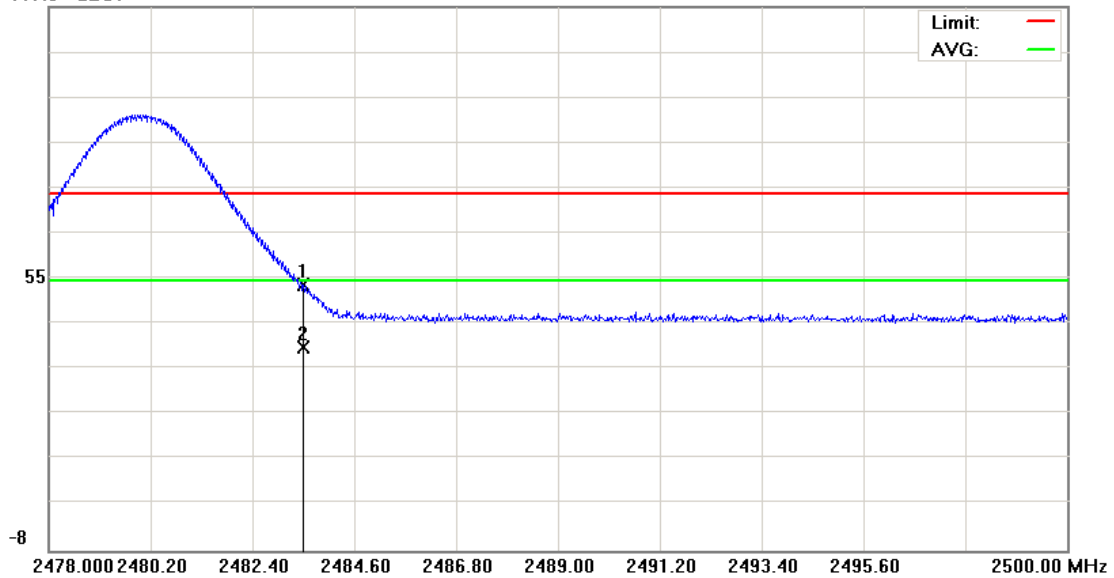
File :PB76100(Band Edge)EDR

Data :#7

Date: 2009/12/15

Time: 上午 10:21:37

117.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #3

Note: 2480MHz, AC Adapter:#2

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	Comment
1		2483.500	52.83	0.25	53.08	74.00	-20.92	peak			
2	*	2483.500	38.61	0.25	38.86	54.00	-15.14	AVG			

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

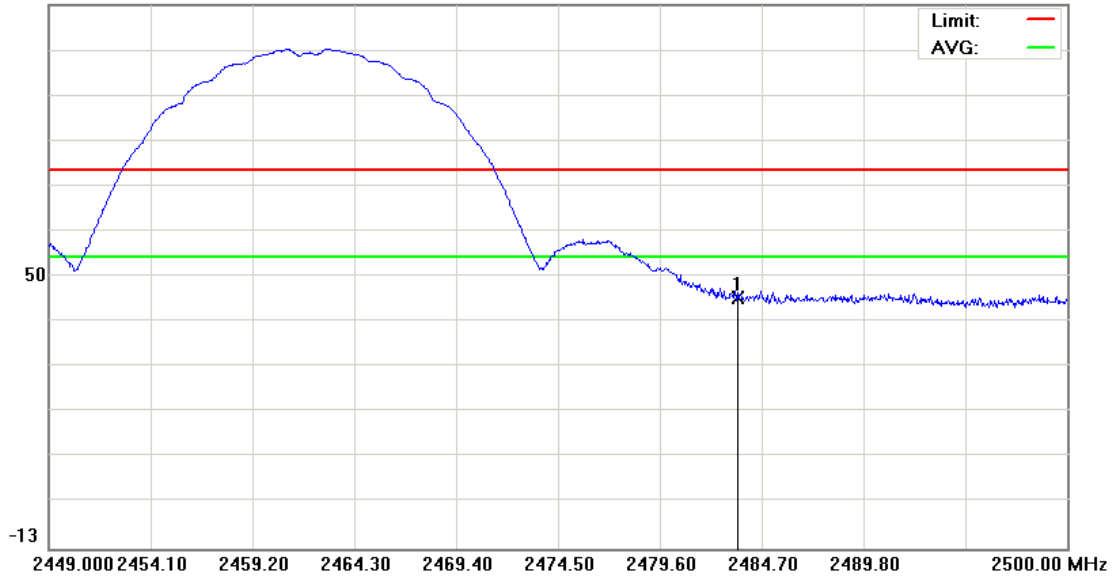
File :PB76100(Band Edge)

Data :#5

Date: 2009/12/14

Time: 下午 07:13:57

112.0 dBuV



Site: : 966 Chamber	Polarization: Vertical	Temperature: 22 °C
Limit: FCC part 15 (PK)	Power:	Humidity: 60 %
EUT: Smartphone	Distance: 3m	RBW: 1000 kHz VBW: 1000 kHz
M/N: PB76100		
Mode: #4		
Note: 2480MHz, AC Adapter: #2		

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2483.500	44.46	0.25	44.71	74.00	-29.29	peak		

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

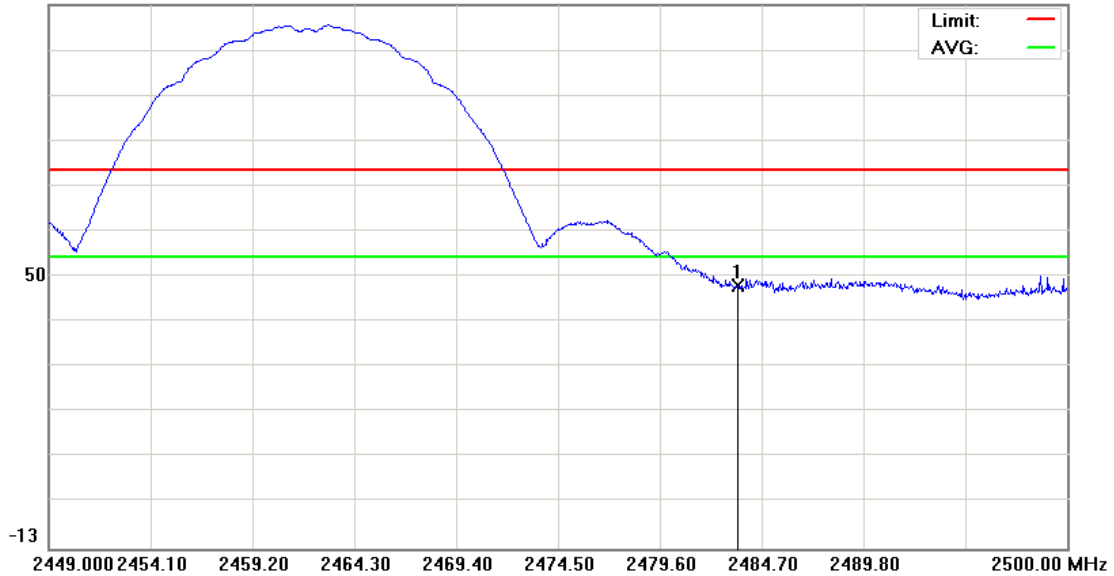
File :PB76100(Band Edge)

Data :#7

Date: 2009/12/14

Time: 下午 07:28:18

112.0 dBuV



Site: : 966 Chamber

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT: Smartphone

Distance: 3m

RBW: 1000 kHz VBW: 1000 kHz

M/N: PB76100

Mode: #4

Note: 2480MHz, AC Adapter:#2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	2483.500	47.21	0.25	47.46	74.00	-26.54	peak		

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

13 Antenna Measurement

13.1. Limit

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.

13.2. Antenna Connector Construction

The antenna used in this product is **PIFA antenna**. And the maximum Gain of this antenna is only **0.8 dBi**.