FCC RF Test Report

APPLICANT	:	**Kyocera Communications, Inc.**
EQUIPMENT	:	**Cellular/PCS WCDMA/GSM/GPRS/EDGE phone with Bluetooth**
BRAND NAME	:	**Kyocera**
MODEL NAME	:	**C4700**
FCC ID	:	**OVF-C4700**
STANDARD	:	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	:	**Digital Spread Spectrum (DSS)**

The product was received on Jul. 20, 2010 and completely tested on Jul. 28, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Anderson Chiu

Anderson Chiu / Vice Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR072003	Rev. 01	Initial issue of report	Aug. 05, 2010
FR072003	Rev. 02	Revise SW version	Aug. 06, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	A8.4(2)	Number of Channels	≥ 15Chs	Pass	-
3.2	15.247(a)(1)	A8.1(a)	20dB Bandwidth	NA	Pass	-
3.3	15.247(a)(1)	A8.1(b)	Channel Separation	≥ 2/3 of 20dB BW	Pass	-
3.4	15.247(a)(1)	A8.1(d)	Dwell Time of Each Channel	≤ 0.4sec in 31.6sec period	Pass	-
3.5	15.247(b)(1)	A8.1(b)	Peak Output Power	≤ 1W	Pass	-
3.6	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.7	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.8	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 6.2 dB at 0.534 MHz
3.9	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 2.16 dB at 30 MHz
3.10	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Kyocera Communications, Inc.
10300 Campus Point Drive,San Diego,CA 92121

1.2 Manufacturer

Compal Communication, INC.
No. 385, Yangguang Street, Neihu, Taipei (114), Taiwan, R.O.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Cellular/PCS WCDMA/GSM/GPRS/EDGE phone with Bluetooth
Brand Name	Kyocera
Model Name	C4700
FCC ID	OVF-C4700
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Channel Spacing	1 MHz
Maximum Output Power to Antenna	Bluetooth (1Mbps) : 8.42 dBm (0.007 W) Bluetooth EDR (2Mbps) : 8.80 dBm (0.008 W) Bluetooth EDR (3Mbps) : 9.26 dBm (0.008 W)
Antenna Type	PIFA Antenna with gain -3.82 dBi
Type of Antenna Connector	N/A
HW Version	0A
SW Version	1.0.19
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π /4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Spread Spectrum (DSS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	TW1022/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.4-2003
- IC RSS-210 Issue 7

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Output Power

Preliminary tests were performed in different data rate and recorded the RF output power in the following table:

Channel	Frequency	Bluetooth RF Output Power		
		Data Rate / Modulation		
		GFSK	π /4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	7.73 dBm	8.02 dBm	8.55 dBm
Ch39	2441MHz	7.86 dBm	8.21 dBm	8.74 dBm
Ch78	2480MHz	8.42 dBm	8.80 dBm	**9.26 dBm**

Remark:

1. The data rate was set in 3Mbps for all the test items due to the highest RF output power.

2. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

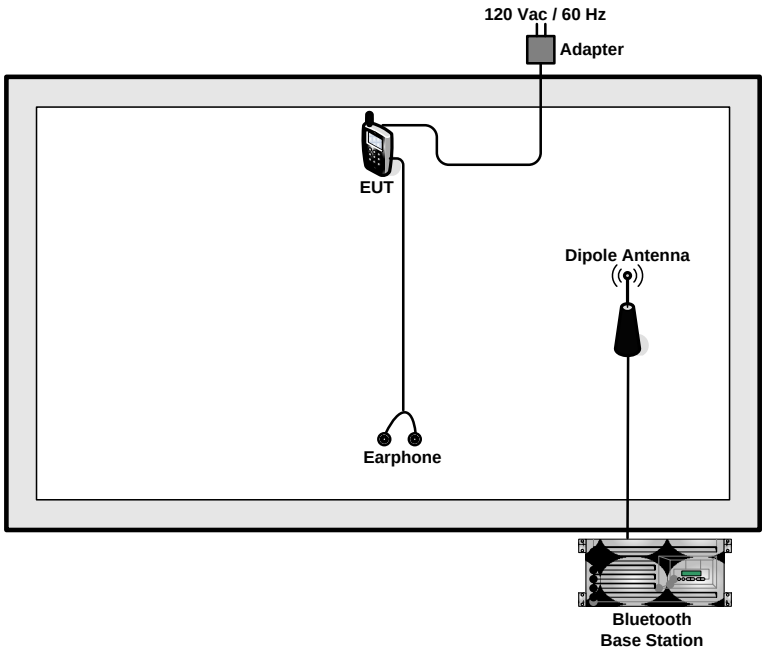
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

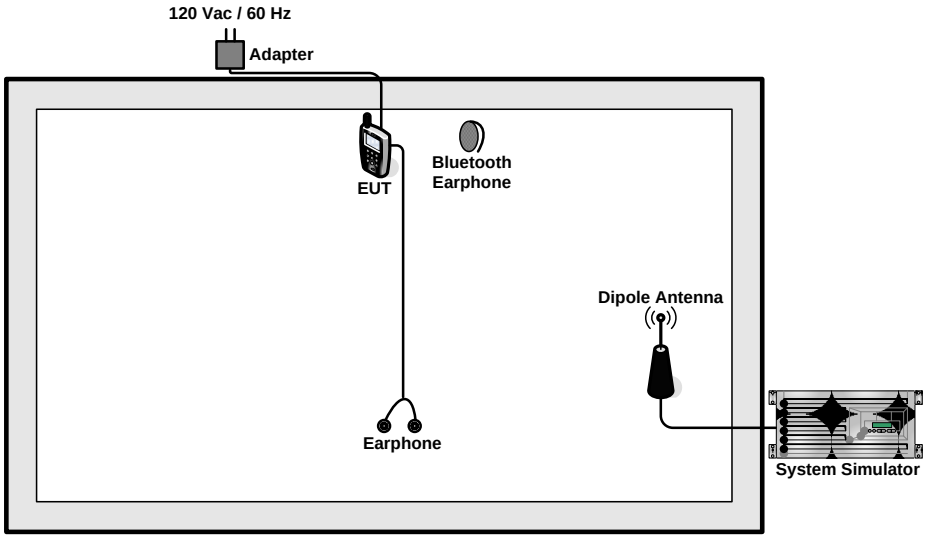
Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth 1Mbps GFSK	**Bluetooth EDR 2Mbps π /4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated TCs	N/A	N/A	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz
AC Conducted Emission	Mode 1 :GSM850 Idle + Bluetooth Link + Earphone + Adapter		
Remark: For radiated TCs, the data rate was set in 3Mbps due to the highest RF output power; only the data of these modes was reported.			

2.3 Connection Diagram of Test System

<Bluetooth Tx Mode>



<EUT with Adapter Mode>



2.4 RF Utility

For Bluetooth function, key in "＃2801＃" to make the EUT contact with Bluetooth base station for transmitting and receiving signals continuously.

3 Test Result

3.1 Number of Channel Measurement

3.1.1 Limits of Number of Hopping Frequency

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

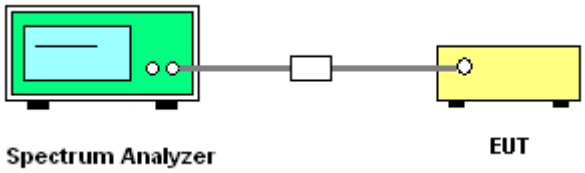
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The modulation types of EUT are irrelevant to number of hopping channels deviation.
4. The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = the frequency band of operation; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
5. The number of hopping frequency used is defined as the device has the numbers of total channel.

3.1.4 Test Setup

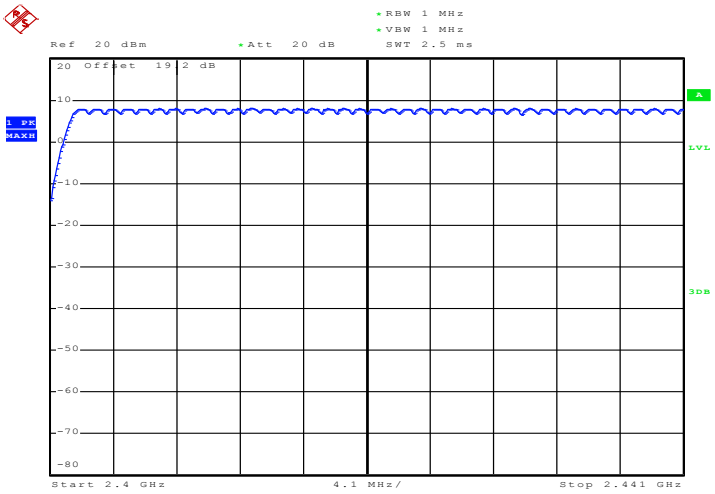


3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	Mode 7~9	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

Number of Hopping Channels (Channel)	Limits (Channel)	Pass/Fail
79	> 15	Pass

Number of Hopping Channel Plot on Channel 00 - 78



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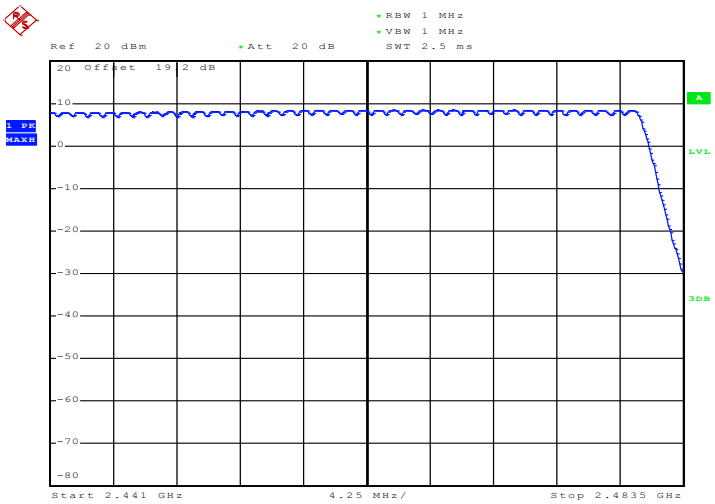

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3.2 20dB Bandwidth Measurement

3.2.1 Limit of 20dB Bandwidth

N/A

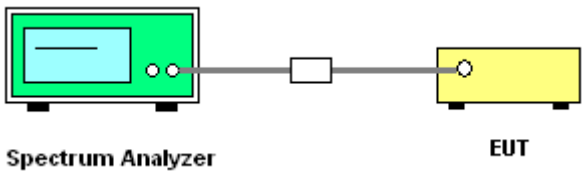
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The EUT should be transmitting at its maximum data rate as the worst cases.
4. Use the following spectrum analyzer settings:
   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel;
   RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.
5. The marker-delta reading at this point is the 20 dB bandwidth of the emission.

3.2.4 Test Setup

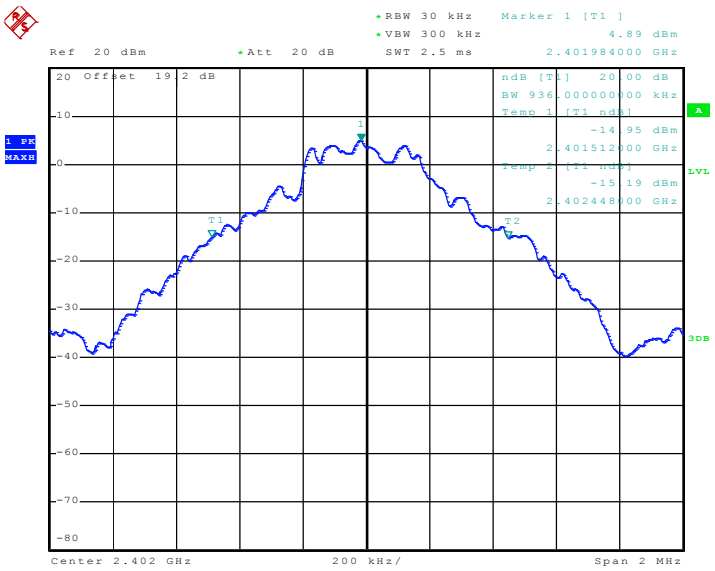


3.2.5 Test Result of 20dB Bandwidth

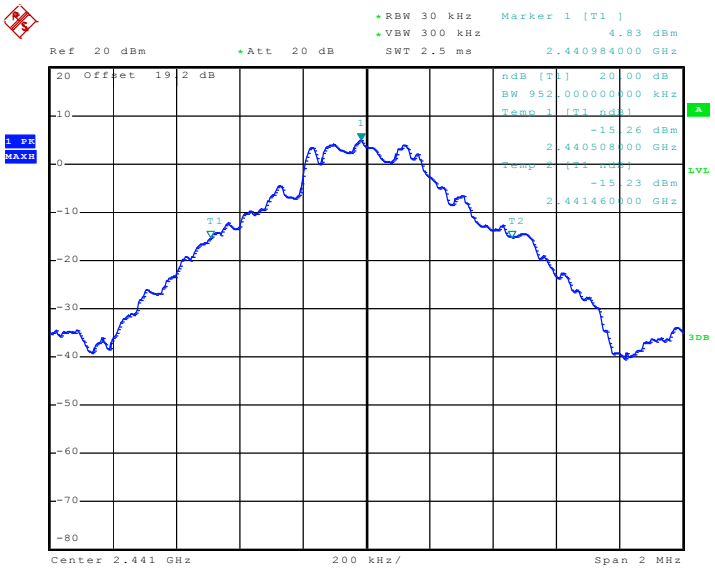
Test Mode :	Mode 1, 2, 3	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.936
39	2441	0.952
78	2480	0.940

20 dB Bandwidth Plot on Channel 00



20 dB Bandwidth Plot on Channel 39



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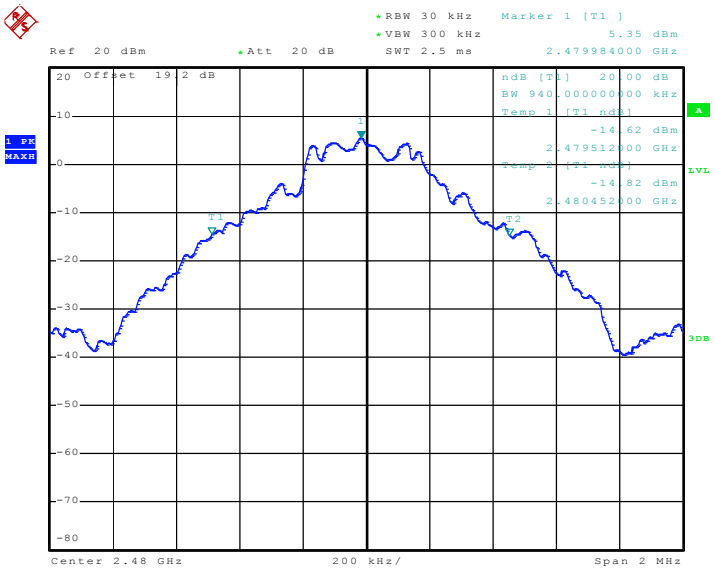
20 dB Bandwidth Plot on Channel 78



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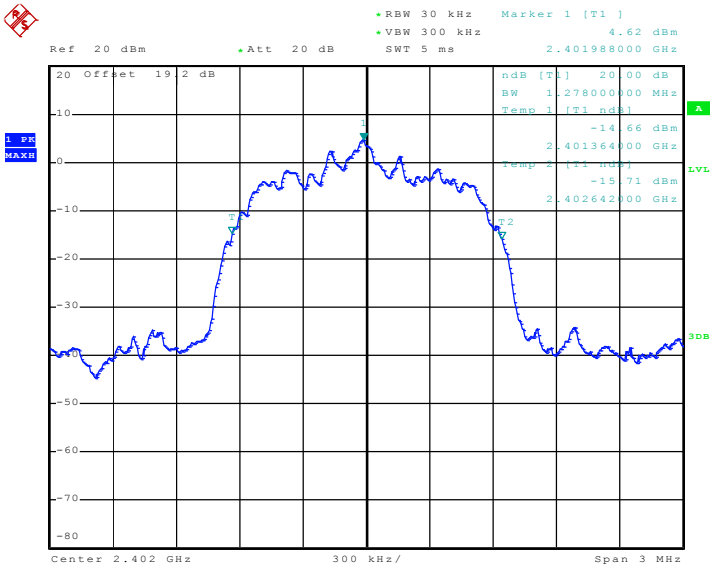
Test Mode :	Mode 4, 5, 6	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.278
39	2441	1.278
78	2480	1.284

20 dB Bandwidth Plot on Channel 00



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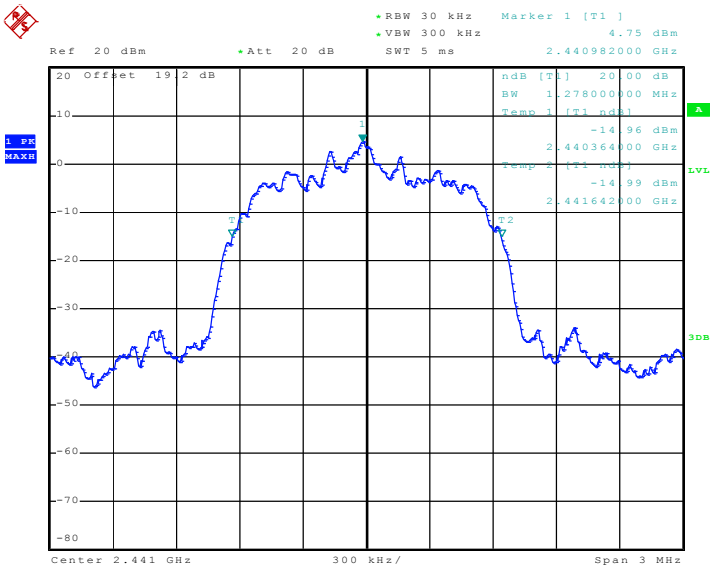
20 dB Bandwidth Plot on Channel 39



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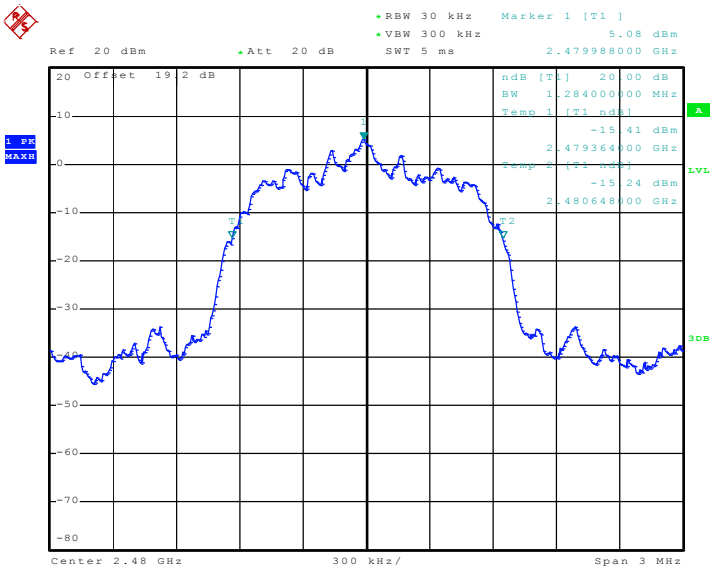
20 dB Bandwidth Plot on Channel 78

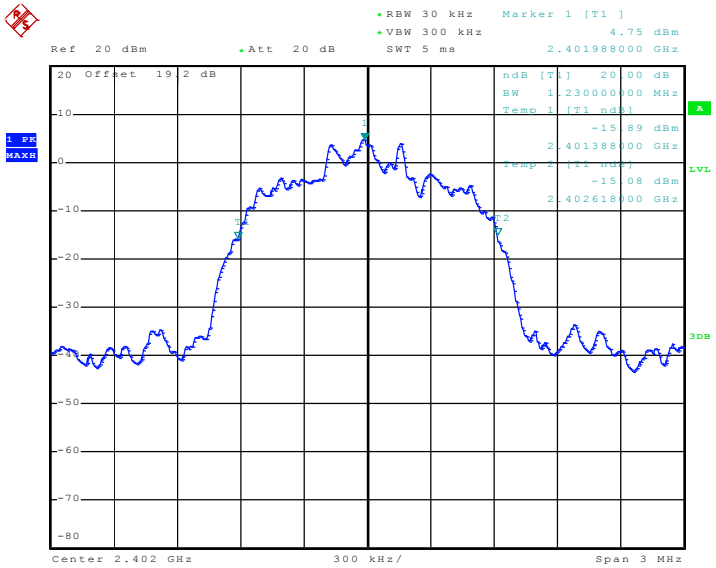


Date: 21.JUL.2010 16:52:08

Test Mode :	Mode 7, 8, 9	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

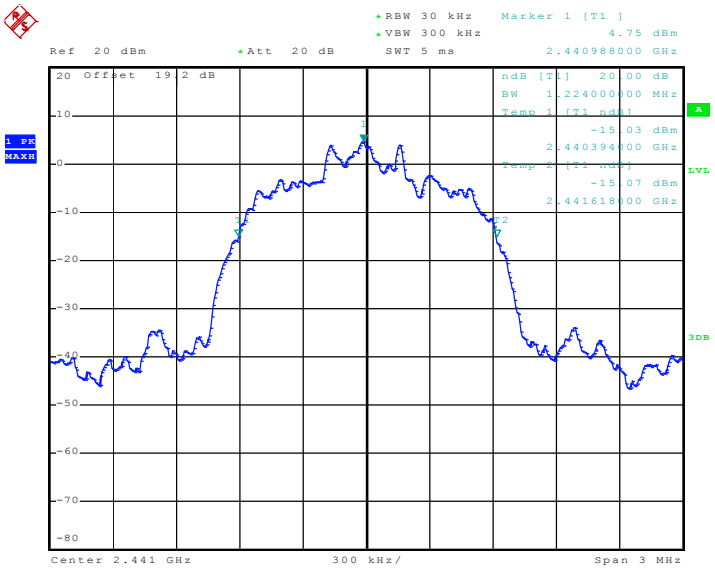
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.230
39	2441	1.224
78	2480	1.230

20 dB Bandwidth Plot on Channel 00



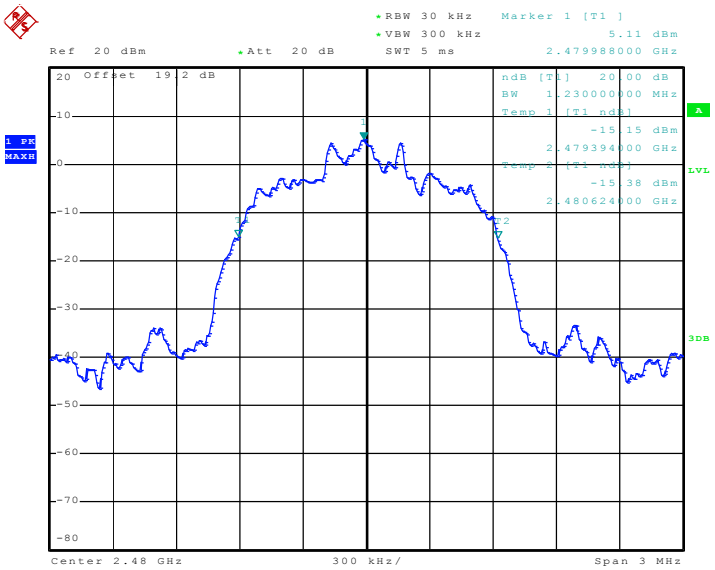
Date: 21.JUL.2010 16:55:38

20 dB Bandwidth Plot on Channel 39



Date: 21.JUL.2010 16:57:19

20 dB Bandwidth Plot on Channel 78



Date: 21.JUL.2010 16:57:54

3.3 Hopping Channel Separation Measurement

3.3.1 Limit of Hopping Channel Separation

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.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. Please refer FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The EUT should be transmitting at its maximum data rate as the worst cases.
4. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
5. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

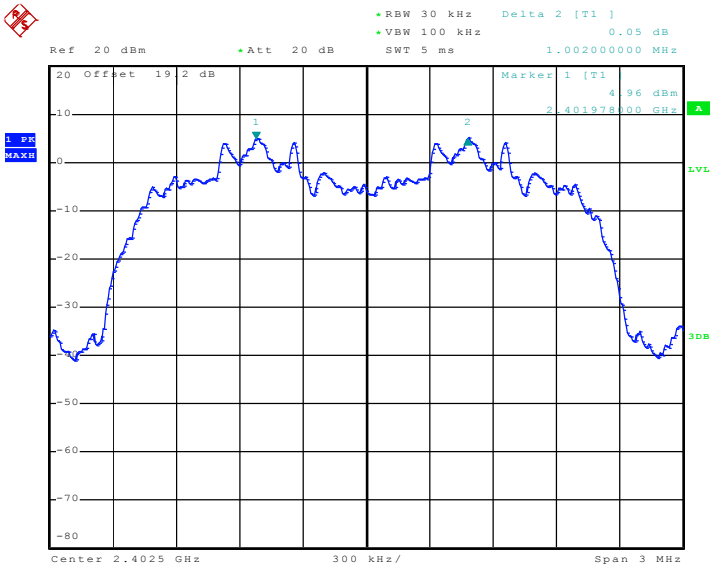
3.3.4 Test Setup

3.3.5 Test Result of Hopping Channel Separation

Test Mode :	Mode 7, 8, 9	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

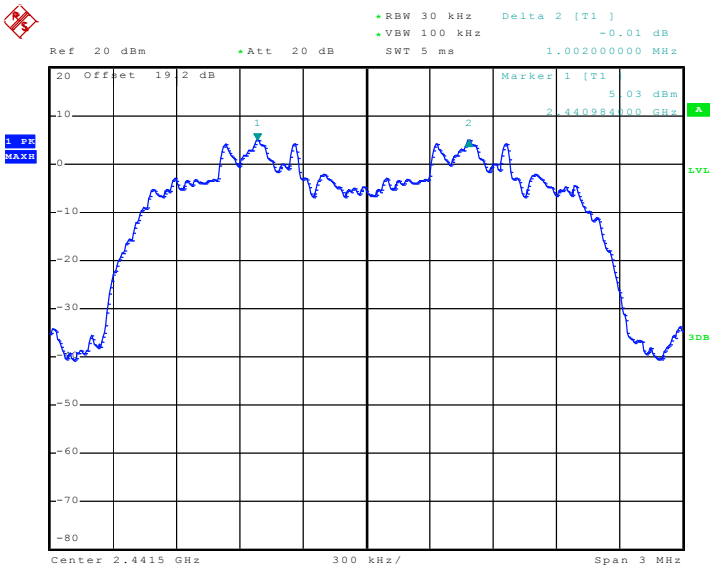
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.820	Pass
39	2441	1.002	0.816	Pass
78	2480	1.002	0.820	Pass

Channel Separation Plot on Channel 00 - 01



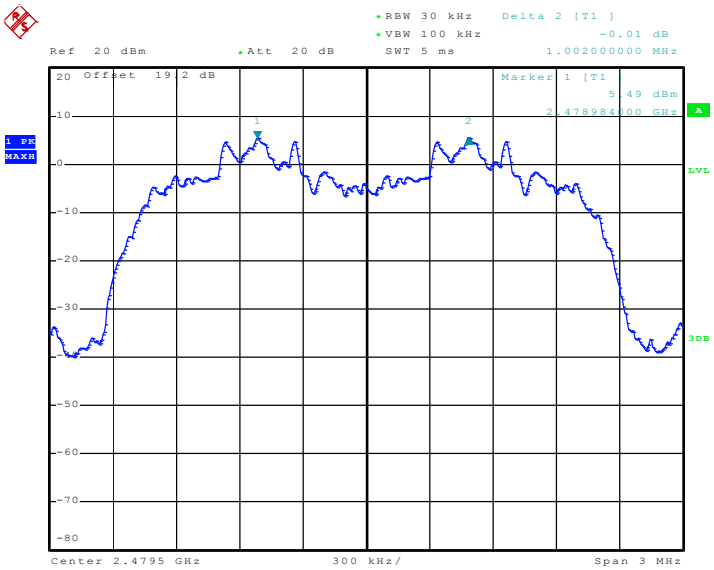
Date: 21.JUL.2010 18:19:30

Channel Separation Plot on Channel 39 - 40



Date: 21.JUL.2010 18:20:22

Channel Separation Plot on Channel 77 - 78



Date: 21.JUL.2010 18:22:38

3.4 Dwell Time Measurement

3.4.1 Limit of Dwell Time

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.

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The EUT should be transmitting at its maximum data rate as the worst cases.
4. The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
5. Use the marker-delta function to calculate the dwell time.

3.4.4 Test Setup

3.4.5 Test Result of Dwell Time

Test Mode :	Mode 8	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
3DH5	3.80	3018.00	0.36	0.4	Pass

Remark:

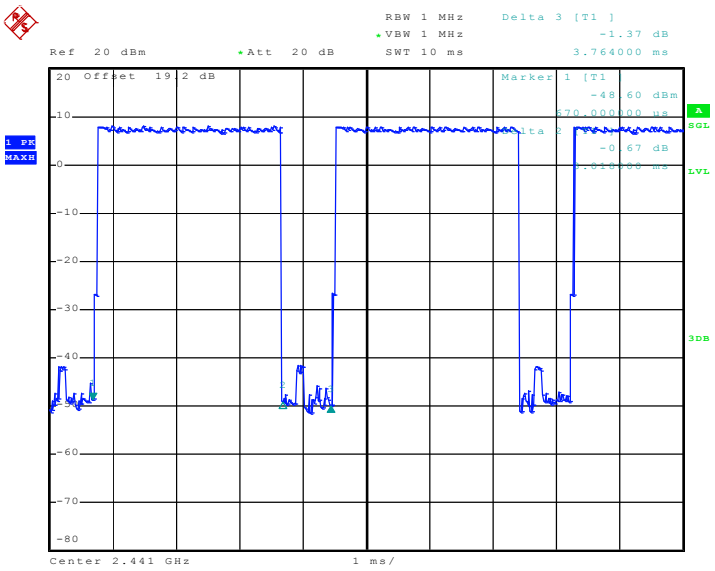
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time

2. 79 channels come from the Hopping Channel number.

3. Average Hopping Channel = hops/sweep time

4. t: Package Transfer Time(us)

3DH5 Dwell Time (One Pulse) Plot on Channel 39



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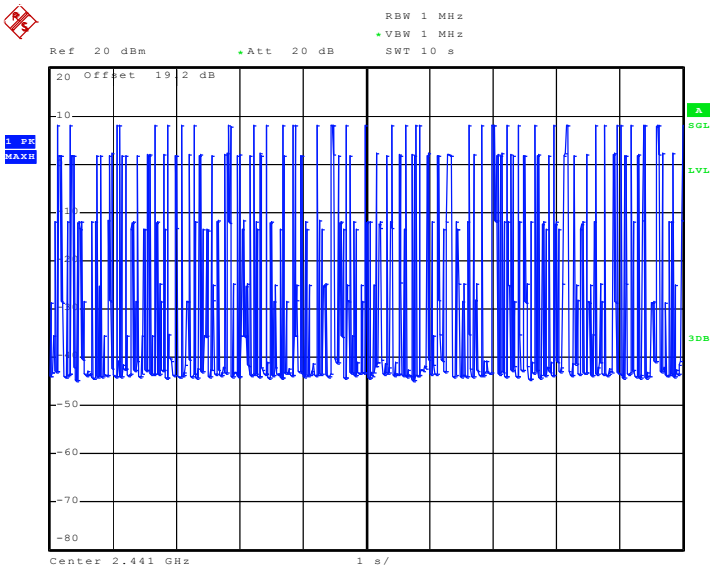
3DH5 Dwell Time (Count Pulses) Plot on Channel 39



Date: 21.JUL.2010 19:17:18

3.5 Peak Output Power Measurement

3.5.1 Limit of Peak Output Power

Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels: 1W (30 dBm).

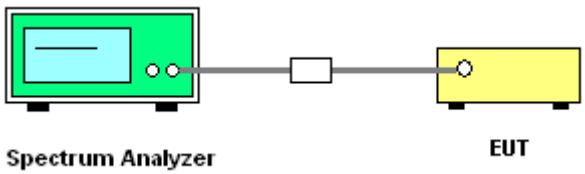
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.

3.5.4 Test Setup

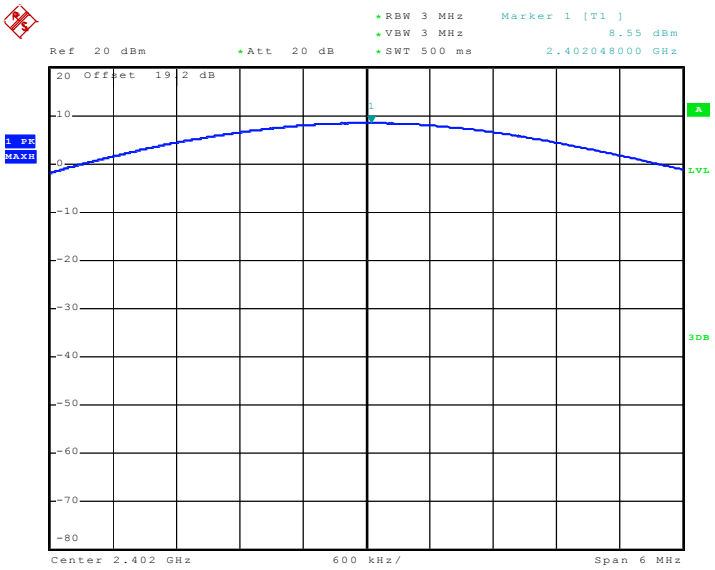


3.5.5 Test Result of Peak Output Power

Test Mode :	Mode 7, 8, 9	Temperature :	25~27℃
Test Engineer :	Lancelot Chen	Relative Humidity :	48~51%

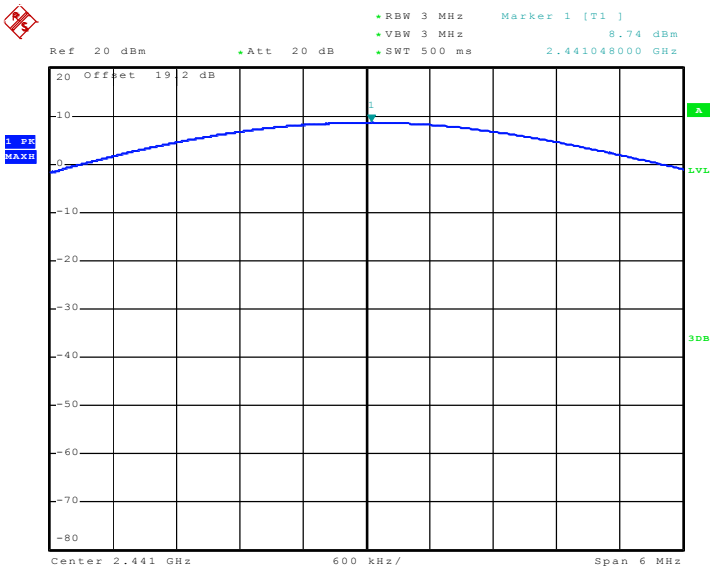
Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits (dBm)	Pass/Fail
		3 Mbps		
00	2402	8.55	30	Pass
39	2441	8.74	30	Pass
78	2480	9.26	30	Pass

Peak Output Power Plot on Channel 00



Date: 21.JUL.2010 11:07:48

Peak Output Power Plot on Channel 39



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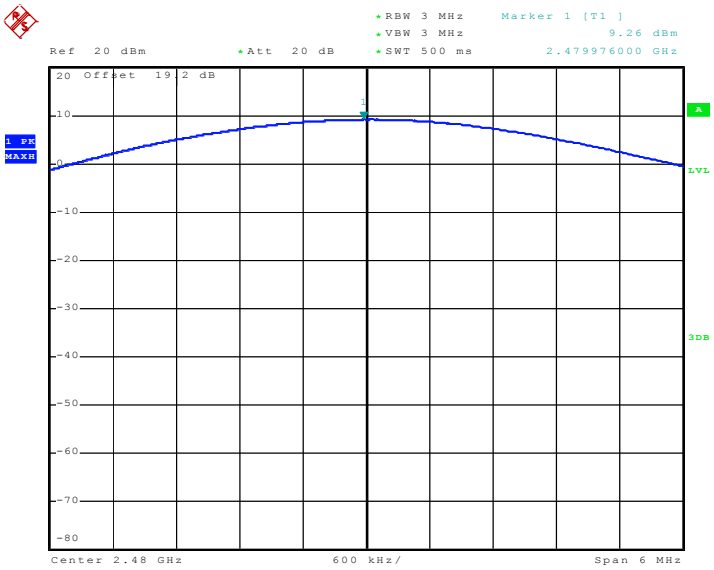
Peak Output Power Plot on Channel 78



3.6 Band Edges Measurement

3.6.1 Limit of Band Edges

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.

3.6.2 Measuring Instruments

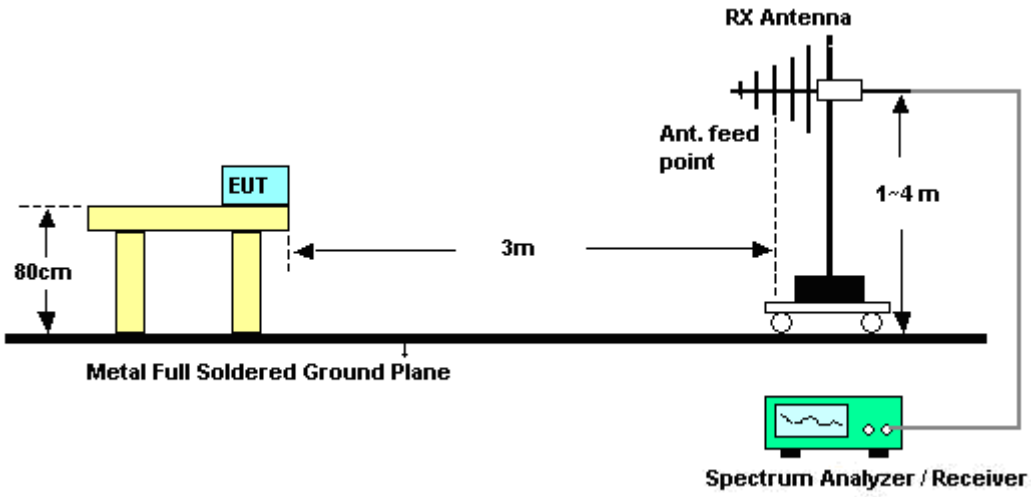
See list of measuring instruments of this test report.

3.6.3 Test Procedures

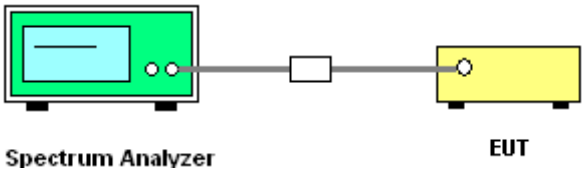
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC Public Notice DA 00-705 Measurement Guidelines.
2. RF antenna conducted test: Set RBW = 300kHz, Video bandwidth (VBW) ≥ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 300k Hz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Applies to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 1MHz, Sweep: Auto for Peak; set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto for Average. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation. See FCC Section 15.35(b) and (c).
4. In case the emission is fail due to the used RBW / VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

3.6.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.6.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	00	Relative Humidity :	45~46%
		Test Engineer :	Duncan Lin

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.85	48.89	-25.11	74	44.26	32.13	6.03	33.53	104	335	Peak
2388.85	36.5	-17.5	54	31.87	32.13	6.03	33.53	104	335	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	48.2	-25.8	74	43.57	32.13	6.03	33.53	141	44	Peak
2389.42	36.52	-17.48	54	31.89	32.13	6.03	33.53	141	44	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
		Test Engineer :	Duncan Lin

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	70.76	-3.24	74	65.87	32.27	6.18	33.56	100	338	Peak
2483.5	32.44	-21.56	54	27.55	32.27	6.18	33.56	100	338	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	88.12	56.94	31.18	54	-22.82	Pass
Hopping Mode	88.12	55.68	32.44	54	-21.56	Pass

Note : Average result = Maximum field strength – Delta result

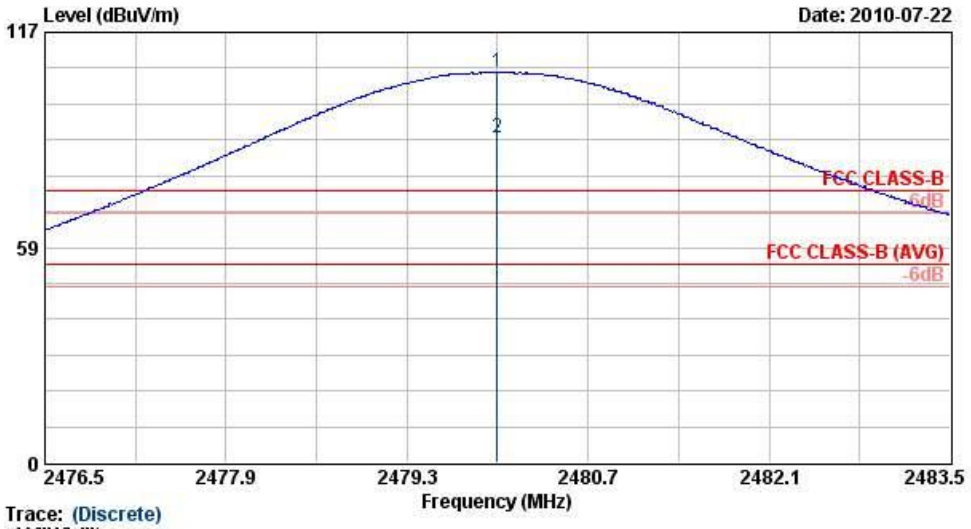
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	66.41	-7.59	74	61.52	32.27	6.18	33.56	129	356	Peak
2483.5	30	-24	54	25.11	32.27	6.18	33.56	129	356	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	85.47	56.36	29.11	54	-24.89	Pass
Hopping Mode	85.47	55.47	30.00	54	-24.00	Pass

Note : Average result = Maximum field strength – Delta result

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Horizontal



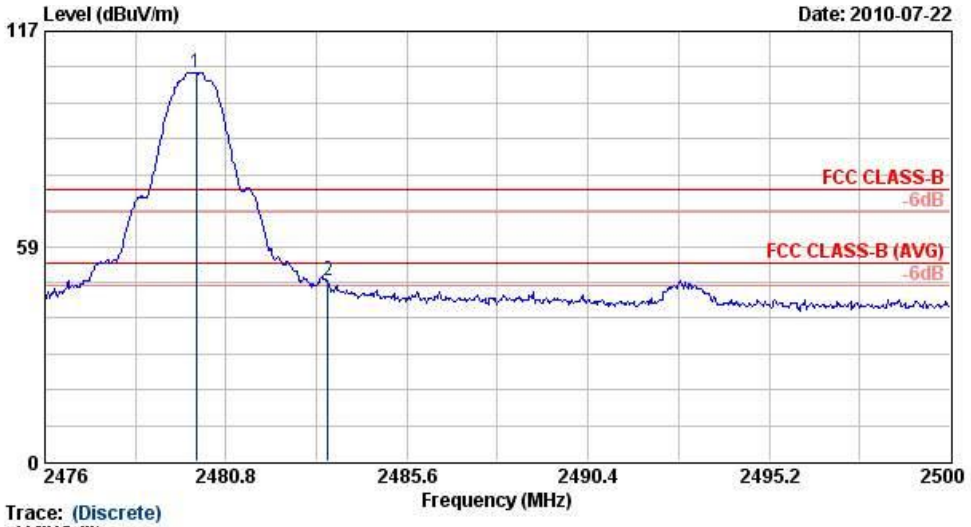
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_100526 HORIZONTAL
Project : FR 072003
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	106.07	32.07	74.00	101.18	32.27	6.18	33.56	100	338	Peak
2 @	2480.00	88.12	34.12	54.00	83.23	32.27	6.18	33.56	100	338	Average

* Maximum field strength of the fundamental emission

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Horizontal

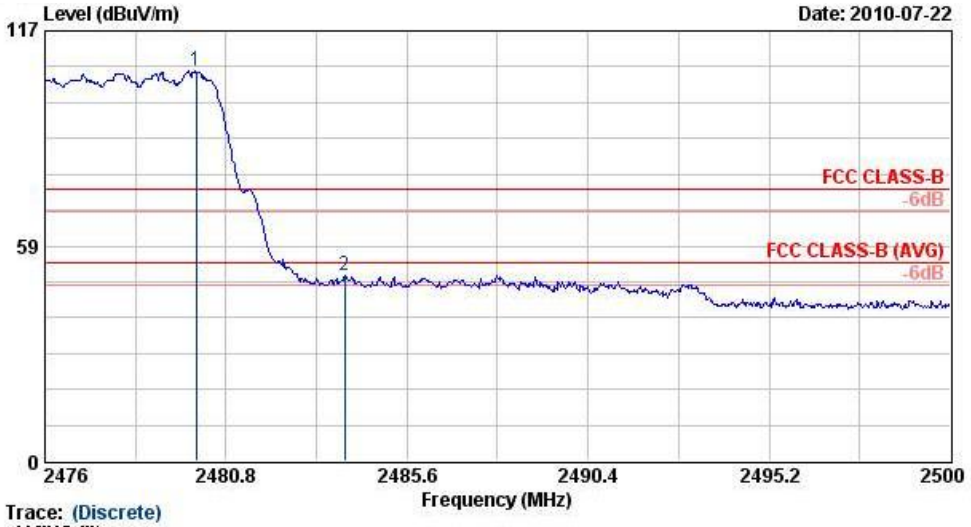


Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_100526 HORIZONTAL
Project : FR 072003
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	105.89	31.89	74.00	101.00	32.27	6.18	33.56	100	338	Peak
2	2483.50	48.95	-25.05	74.00	44.06	32.27	6.18	33.56	100	338	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 56.94 dB , single carrier Mode

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Horizontal

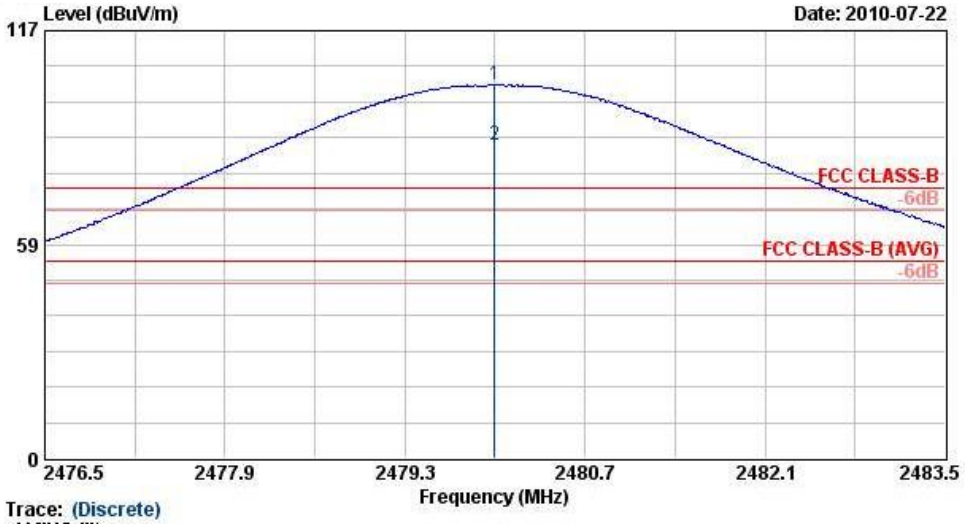


Site : 03CH07-HV
Condition : FCC CLASS-B HF-ANT_100526 HORTZONTAL
Project : FR 072003
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	105.97	31.97	74.00	101.08	32.27	6.18	33.56	100	338	Peak
2	2483.94	50.29	-23.71	74.00	45.40	32.27	6.18	33.56	100	338	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 55.68 dB , Hopping Mode

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Vertical

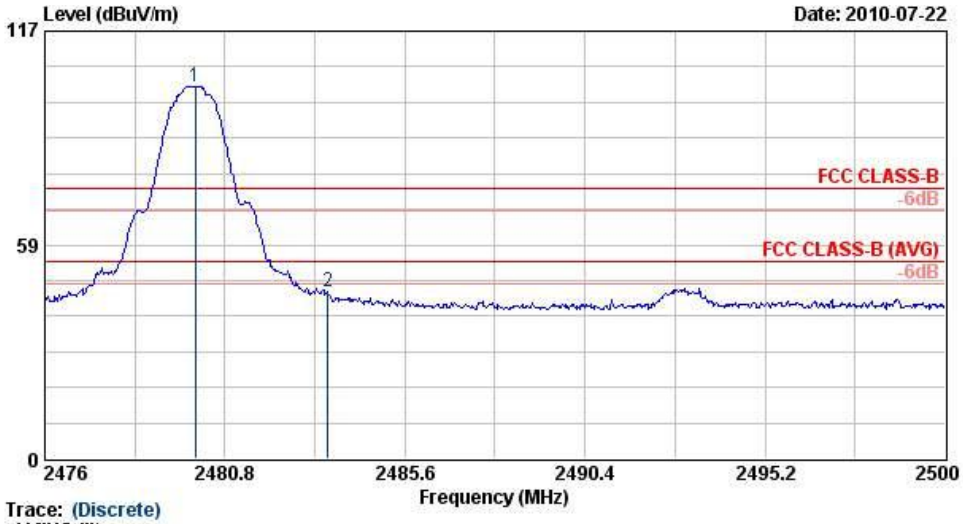


Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_100526 VERTICAL
Project : FR 072003
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	102.09	28.09	74.00	97.20	32.27	6.18	33.56	129	356	Peak
2 X	2480.00	85.47	31.47	54.00	80.58	32.27	6.18	33.56	129	356	Average

* Maximum field strength of the fundamental emission

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Vertical

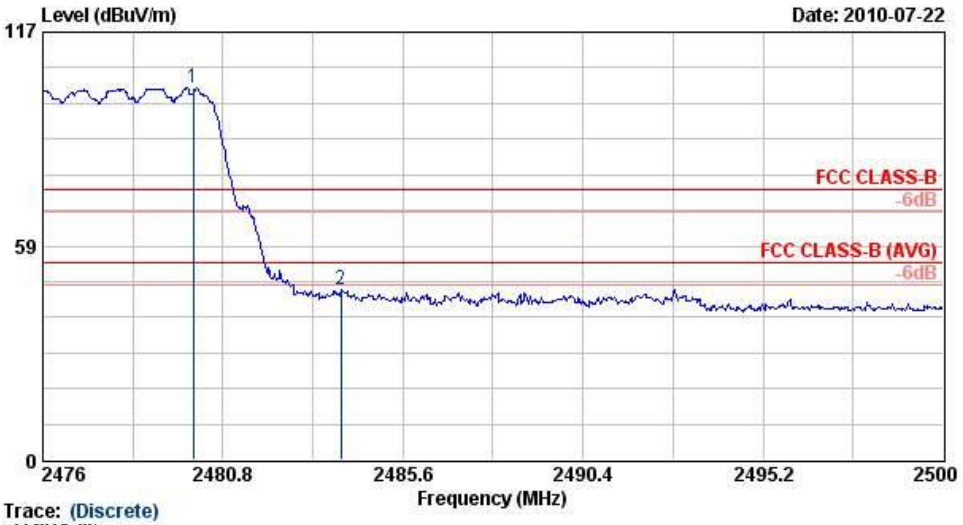


Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_100526 VERTICAL
Project : FR 072003
Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	101.93	27.93	74.00	97.05	32.27	6.18	33.56	129	356	Peak
2	2483.54	45.57	-28.43	74.00	40.68	32.27	6.18	33.56	129	356	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 56.36 dB , single carrier Mode

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Vertical



Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_100526 VERTICAL
Project : FR 072003
Mode : Mode 3

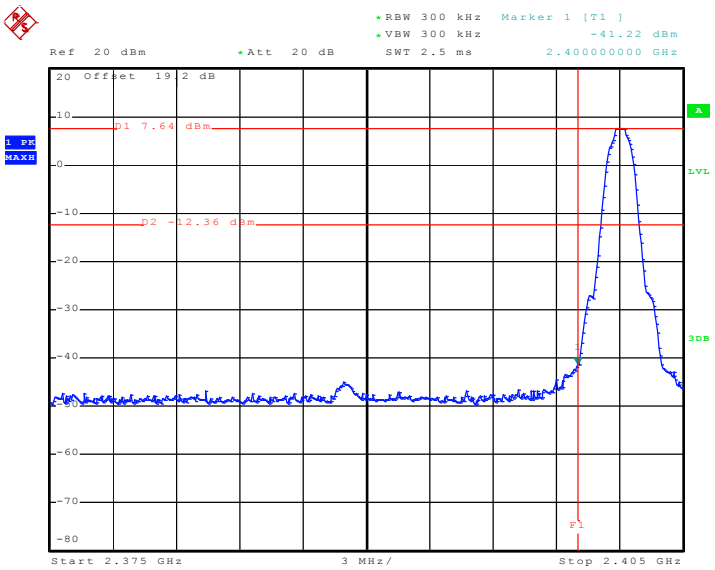
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	101.85	27.85	74.00	96.96	32.27	6.18	33.56	129	356	Peak
2	2483.94	46.38	-27.62	74.00	41.49	32.27	6.18	33.56	129	356	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 55.47 dB , Hopping Mode

3.6.6 Test Result of Conducted Band Edges

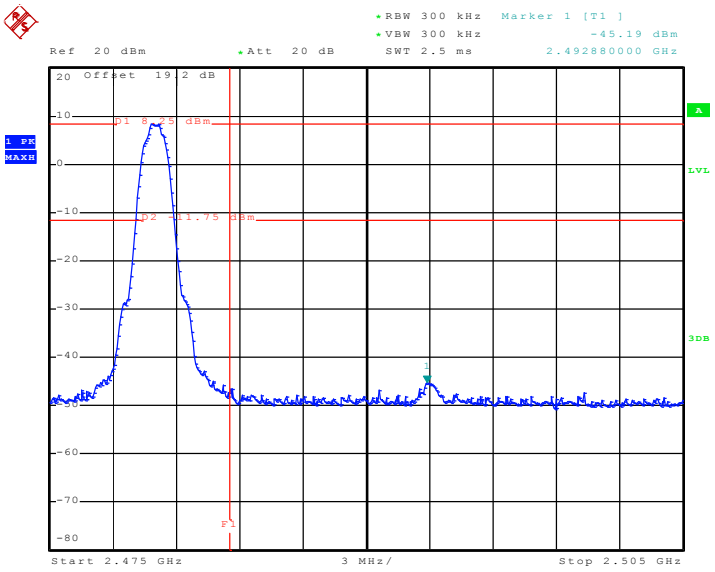
Test Mode :	Mode 7 and 9	**Temperature :**	25~27℃
Test Channel :	00 and 78	**Relative Humidity :**	48~51%
		Test Engineer :	Lancelot Chen

Low Band Edge Plot on Channel 00



Date: 21.JUL.2010 19:08:38

High Band Edge Plot on Channel 78



Date: 21.JUL.2010 18:26:38

3.7 Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

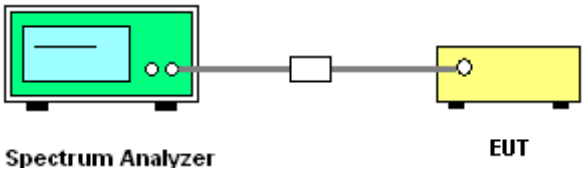
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) ≥ RBW, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

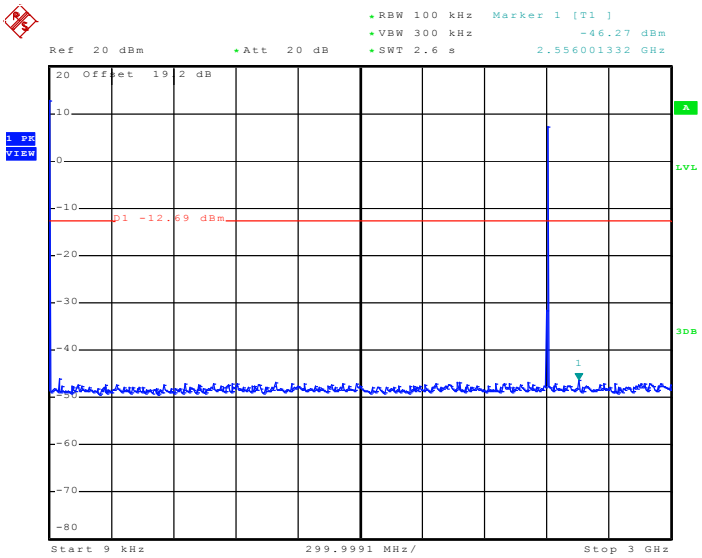
3.7.4 Test Setup



3.7.5 Test Result

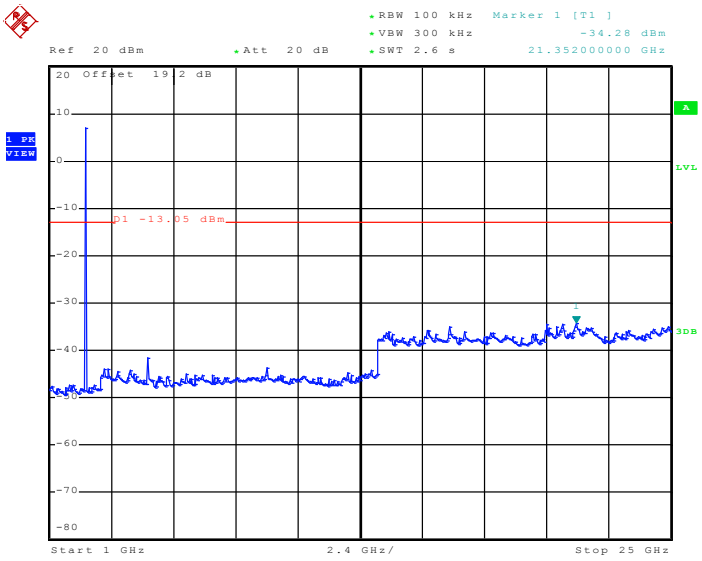
Test Mode :	Mode 7	Temperature :	25~27℃
Test Channel :	00	Relative Humidity :	48~51%
		Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 21.JUL.2010 19:50:21

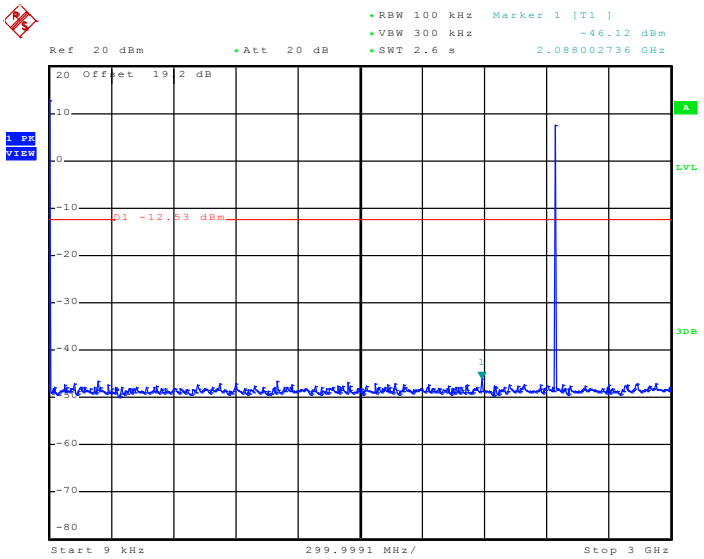
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 21.JUL.2010 19:56:18

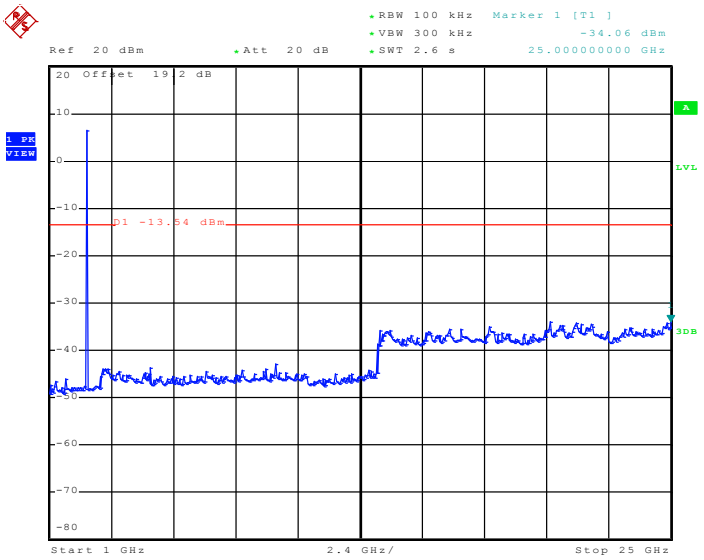
Test Mode :	Mode 8	**Temperature :**	25~27℃
Test Channel :	39	**Relative Humidity :**	48~51%
		Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 21.JUL.2010 19:51:09

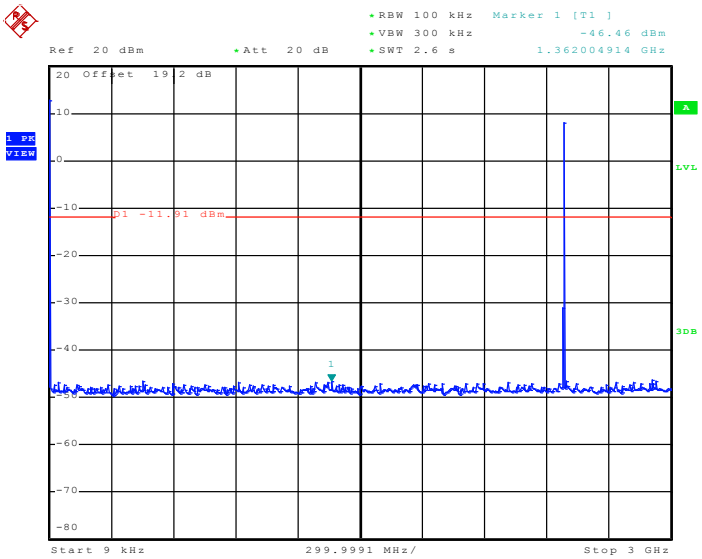
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 21.JUL.2010 19:55:32

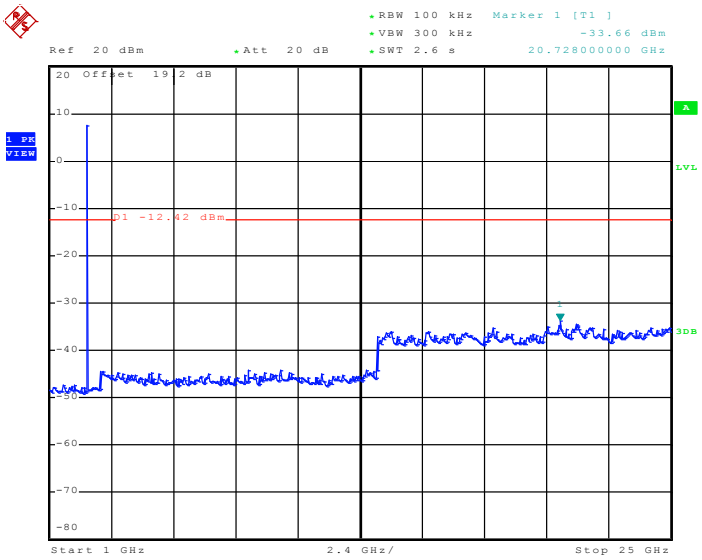
Test Mode :	Mode 9	Temperature :	25~27℃
Test Channel :	78	Relative Humidity :	48~51%
		Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 21.JUL.2010 19:52:09

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 21.JUL.2010 19:54:22

3.8 AC Conducted Emission Measurement

3.8.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

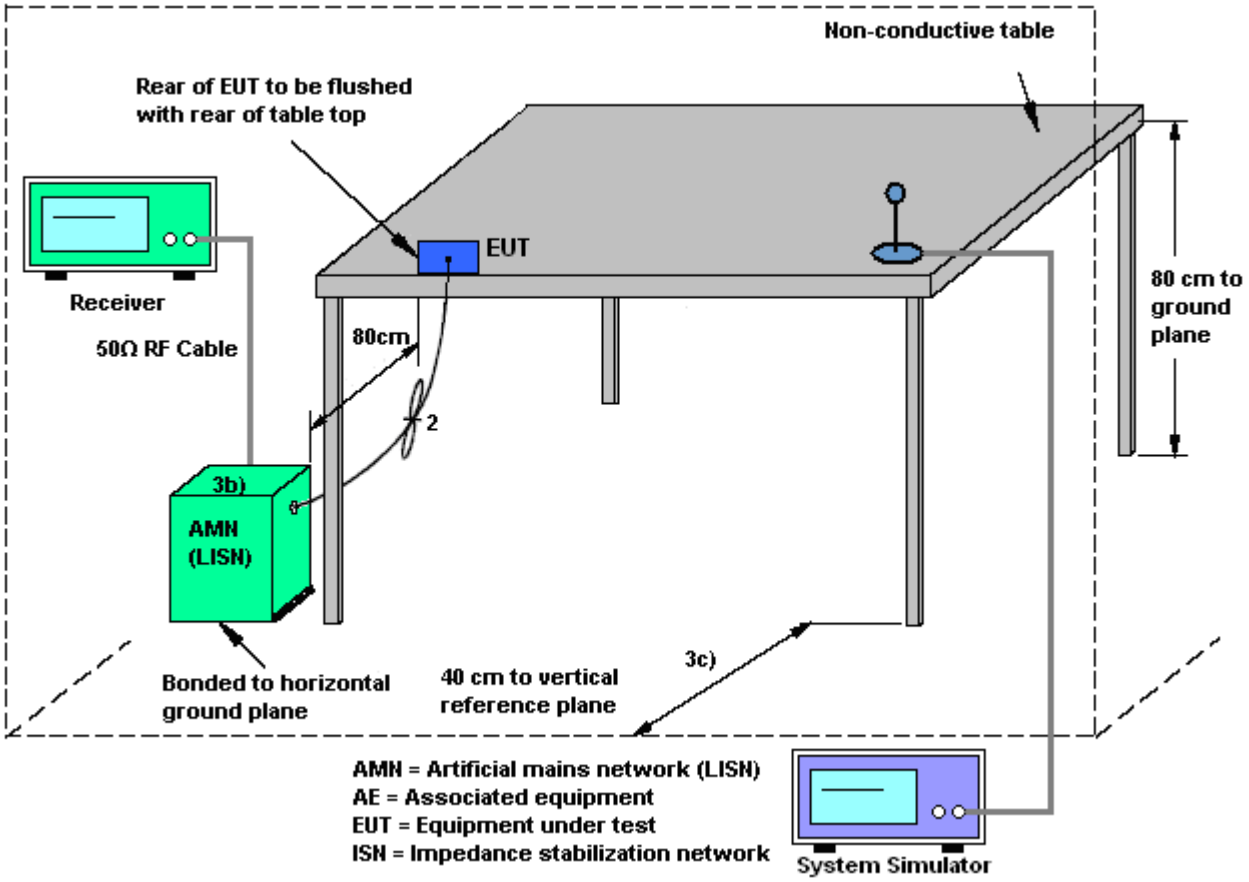
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

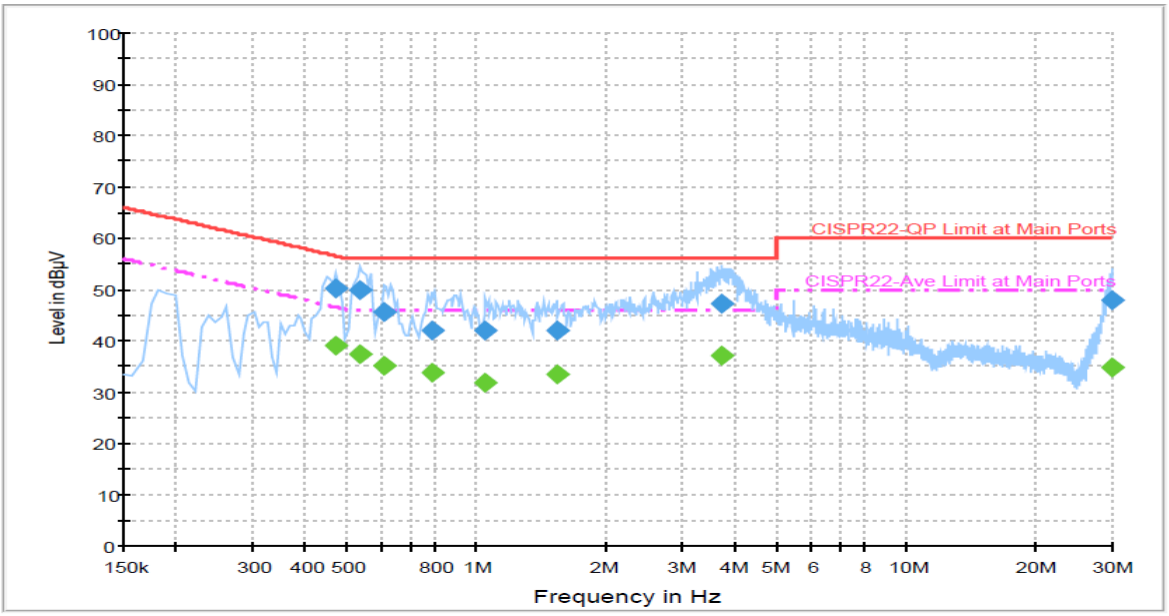
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.8.4 Test Setup



3.8.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Novic Jiang	**Relative Humidity :**	42~44%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + Earphone + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



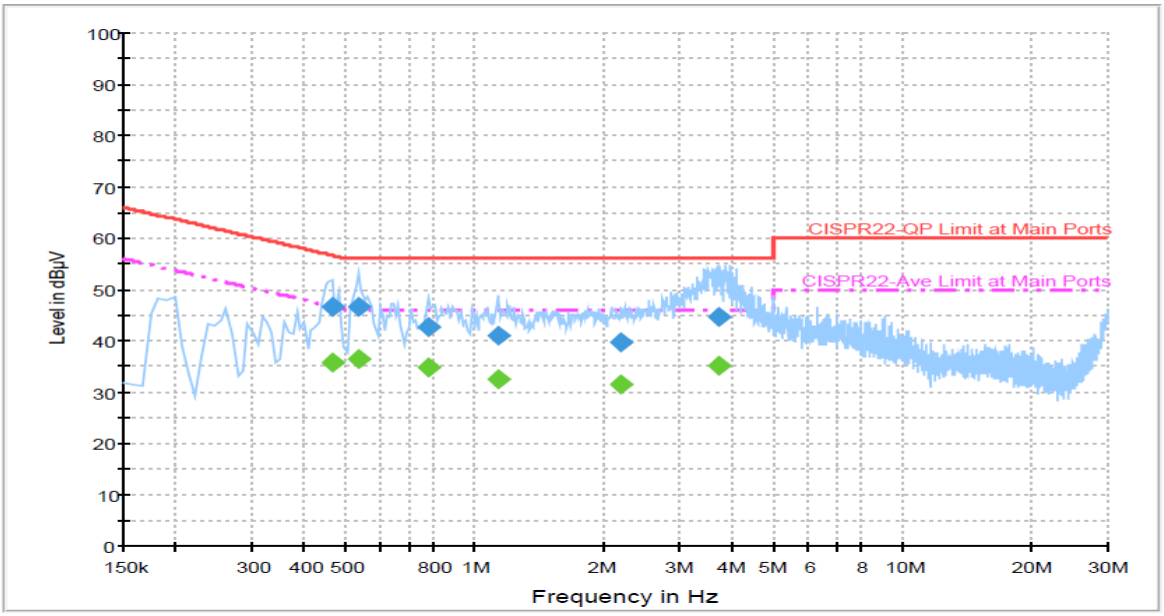
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.470000	50.2	Off	L1	19.4	6.3	56.5
0.534000	49.8	Off	L1	19.3	6.2	56.0
0.606000	45.5	Off	L1	19.4	10.5	56.0
0.782000	42.0	Off	L1	19.4	14.0	56.0
1.046000	42.1	Off	L1	19.4	13.9	56.0
1.534000	42.1	Off	L1	19.4	13.9	56.0
3.694000	47.2	Off	L1	19.5	8.8	56.0
29.998000	47.8	Off	L1	19.8	12.2	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.470000	38.9	Off	L1	19.4	7.6	46.5
0.534000	37.4	Off	L1	19.3	8.6	46.0
0.606000	35.0	Off	L1	19.4	11.0	46.0
0.782000	33.7	Off	L1	19.4	12.3	46.0
1.046000	31.7	Off	L1	19.4	14.3	46.0
1.534000	33.3	Off	L1	19.4	12.7	46.0
3.694000	36.9	Off	L1	19.5	9.1	46.0
29.998000	34.7	Off	L1	19.8	15.3	50.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Novic Jiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + Earphone + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.462000	46.5	Off	N	19.3	10.2	56.7
0.534000	46.6	Off	N	19.3	9.4	56.0
0.774000	42.8	Off	N	19.4	13.2	56.0
1.126000	40.9	Off	N	19.4	15.1	56.0
2.182000	39.7	Off	N	19.5	16.3	56.0
3.726000	44.5	Off	N	19.6	11.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.462000	35.7	Off	N	19.3	11.0	46.7
0.534000	36.3	Off	N	19.3	9.7	46.0
0.774000	34.8	Off	N	19.4	11.2	46.0
1.126000	32.6	Off	N	19.4	13.4	46.0
2.182000	31.4	Off	N	19.5	14.6	46.0
3.726000	35.1	Off	N	19.6	10.9	46.0

3.9 Radiated Emission Measurement

3.9.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.9.2 Measuring Instruments

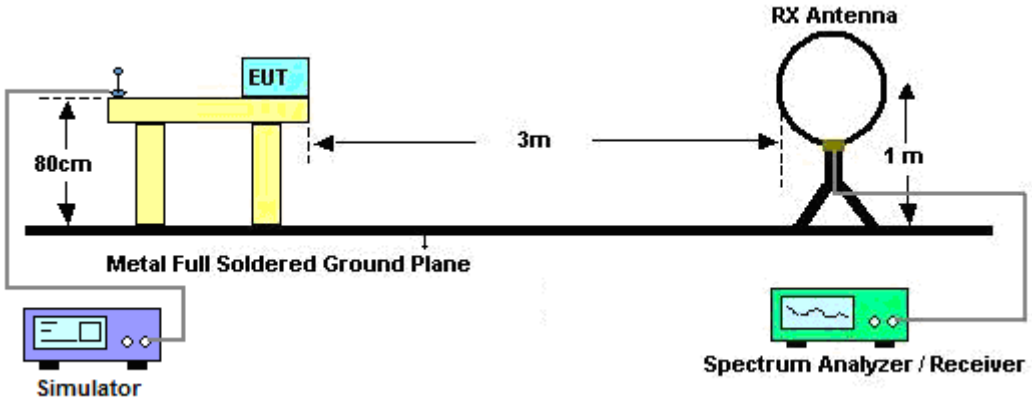
See list of measuring instruments of this test report.

3.9.3 Test Procedures

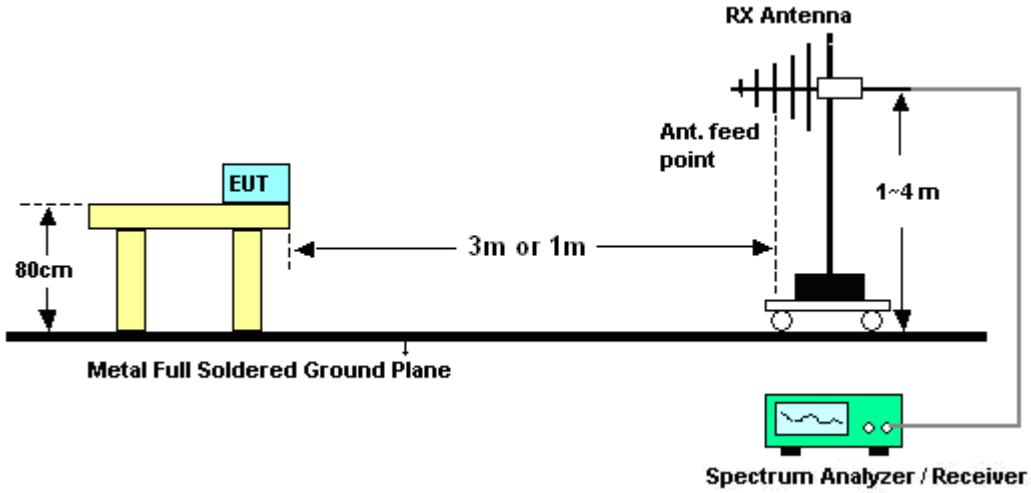
1. The testing follows the guidelines in FCC Public Notice DA 00-705 Measurement Guidelines.
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.9.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



3.9.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

Test Engineer :	Duncan Lin	Temperature :	24~25°C
		Relative Humidity :	45~46%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.9.6 Test Result of Radiated Emission (30 MHz ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Horizontal
Remark :	2402 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.85	-6.15	40	45.27	19.51	0.53	31.46	100	181	Peak
79.14	21.05	-18.95	40	44.22	7.48	0.88	31.53	-	-	Peak
120.45	20.81	-22.69	43.5	39.04	12.23	1.1	31.56	-	-	Peak
545.7	20.69	-25.31	46	30.1	19.04	2.54	30.99	-	-	Peak
687.8	22.46	-23.54	46	29.64	20.74	2.91	30.83	-	-	Peak
945.4	25.73	-20.27	46	28.99	23.87	3.45	30.58	-	-	Peak
2388.85	48.89	-25.11	74	44.26	32.13	6.03	33.53	104	335	Peak
2388.85	36.5	-17.5	54	31.87	32.13	6.03	33.53	104	335	Average
2402	103.67	-	-	99.02	32.16	6.03	33.54	104	335	Peak
2402	85.81	-	-	81.18	32.13	6.03	33.53	104	335	Average
2500	45.78	-28.22	74	40.87	32.3	6.18	33.57	104	335	Peak
2500	34.41	-19.59	54	29.5	32.3	6.18	33.57	104	335	Average
4804	56.43	-17.57	74	47.13	34.2	9.12	34.02	100	31	Peak
4804	47.71	-6.29	54	38.42	34.2	9.11	34.02	100	31	Average
8298	56.61	-17.39	74	43.78	36	10.93	34.1	136	303	Peak
8298	43.19	-10.81	54	30.36	36	10.93	34.1	136	303	Average
9608	57.54	-16.46	74	90.28	-10.38	12.01	34.37	101	360	Peak
9608	42.56	-11.44	54	75.3	-10.38	12.01	34.37	101	360	Average

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	00	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Vertical
Remark :	2402 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	36.99	-3.01	40	48.41	19.51	0.53	31.46	100	214	Peak
80.22	24	-16	40	47.08	7.57	0.88	31.53	-	-	Peak
120.18	23.08	-20.42	43.5	41.31	12.23	1.1	31.56	-	-	Peak
528.9	20.22	-25.78	46	30.02	18.71	2.51	31.02	-	-	Peak
713	22.77	-23.23	46	29.58	21.01	2.97	30.79	-	-	Peak
928.6	25.82	-20.18	46	29.43	23.61	3.41	30.63	-	-	Peak
2389.42	48.2	-25.8	74	43.57	32.13	6.03	33.53	141	44	Peak
2389.42	36.52	-17.48	54	31.89	32.13	6.03	33.53	141	44	Average
2402	100.68	-	-	96.03	32.16	6.03	33.54	141	44	Peak
2402	84.09	-	-	79.46	32.13	6.03	33.53	141	44	Average
2494	33.93	-20.07	54	29.02	32.3	6.18	33.57	141	44	Average
2494	45	-29	74	40.09	32.3	6.18	33.57	141	44	Peak
4804	57.67	-16.33	74	48.37	34.2	9.12	34.02	101	358	Peak
4804	47.69	-6.31	54	38.4	34.2	9.11	34.02	101	358	Average
8361	55.87	-18.13	74	43.01	36	10.95	34.09	100	115	Peak
8361	43.28	-10.72	54	30.42	36	10.95	34.09	100	115	Average
9608	51.99	-22.01	74	84.73	-10.38	12.01	34.37	104	38	Peak
9608	38.98	-15.02	54	71.72	-10.38	12.01	34.37	104	38	Average

Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	39	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Horizontal
Remark :	2441 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.96	-5.04	40	46.38	19.51	0.53	31.46	100	214	Peak
78.33	20.49	-19.51	40	43.76	7.39	0.87	31.53	-	-	Peak
127.74	20.84	-22.66	43.5	39.48	11.79	1.14	31.57	-	-	Peak
414.1	18.12	-27.88	46	30.68	16.41	2.19	31.16	-	-	Peak
624.1	22	-24	46	29.89	20.25	2.76	30.9	-	-	Peak
828.5	24.37	-21.63	46	29.38	22.49	3.21	30.71	-	-	Peak
2342	45.61	-28.39	74	41.13	32.05	5.95	33.52	133	313	Peak
2342	33.9	-20.1	54	29.42	32.05	5.95	33.52	133	313	Average
2441	104.56	-	-	99.78	32.22	6.11	33.55	133	313	Peak
2441	86.81	-	-	82.03	32.22	6.11	33.55	133	313	Average
2484	46.13	-27.87	74	41.24	32.27	6.18	33.56	133	313	Peak
2484	33.74	-20.26	54	28.85	32.27	6.18	33.56	133	313	Average
4882	57.57	-16.43	74	48.27	34.2	9.14	34.04	100	317	Peak
4882	49.14	-4.86	54	39.84	34.2	9.14	34.04	100	317	Average
8409	56	-18	74	43.12	36	10.97	34.09	153	282	Peak
8409	43.92	-10.08	54	31.04	36	10.97	34.09	153	282	Average
9764	60.29	-13.71	74	92.76	-10.08	11.93	34.32	100	357	Peak
9764	44.27	-9.73	54	76.74	-10.08	11.93	34.32	100	357	Average

Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	39	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Vertical
Remark :	2441 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	37.84	-2.16	40	49.26	19.51	0.53	31.46	100	142	Peak
79.41	23.44	-16.56	40	46.61	7.48	0.88	31.53	-	-	Peak
120.18	23.78	-19.72	43.5	42.01	12.23	1.1	31.56	-	-	Peak
414.1	17.73	-28.27	46	30.29	16.41	2.19	31.16	-	-	Peak
593.3	21.26	-24.74	46	29.58	19.94	2.67	30.93	-	-	Peak
778.1	24.21	-21.79	46	29.89	21.91	3.1	30.69	-	-	Peak
2350	45.17	-28.83	74	40.69	32.05	5.95	33.52	168	41	Peak
2350	33.79	-20.21	54	29.31	32.05	5.95	33.52	168	41	Average
2441	101.14	-	-	96.36	32.22	6.11	33.55	168	41	Peak
2441	84.94	-	-	80.16	32.22	6.11	33.55	168	41	Average
2486	45.09	-28.91	74	40.2	32.27	6.18	33.56	168	41	Peak
2486	33.6	-20.4	54	28.71	32.27	6.18	33.56	168	41	Average
4882	56.94	-17.06	74	47.64	34.2	9.14	34.04	102	63	Peak
4882	47.98	-6.02	54	38.68	34.2	9.14	34.04	102	63	Average
8418	56.52	-17.48	74	43.64	36	10.97	34.09	102	89	Peak
8418	43.01	-10.99	54	30.13	36	10.97	34.09	102	89	Average
9764	54.25	-19.75	74	86.72	-10.08	11.93	34.32	130	17	Peak
9764	40.86	-13.14	54	73.33	-10.08	11.93	34.32	130	17	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Horizontal
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	33.16	-6.84	40	45.67	18.4	0.55	31.46	-	-	Peak
79.14	20.52	-19.48	40	43.69	7.48	0.88	31.53	-	-	Peak
126.93	21.31	-22.19	43.5	39.95	11.8	1.13	31.57	-	-	Peak
435.8	17.96	-28.04	46	29.98	16.85	2.26	31.13	-	-	Peak
584.2	21.73	-24.27	46	30.27	19.76	2.64	30.94	-	-	Peak
782.3	23.7	-22.3	46	29.3	21.98	3.11	30.69	-	-	Peak
2332	45.98	-28.02	74	41.52	32.02	5.95	33.51	100	338	Peak
2332	39.09	-14.91	54	34.63	32.02	5.95	33.51	100	338	Average
2480	106.19	-	-	101.3	32.27	6.18	33.56	100	338	Peak
2480	89.13	-	-	84.24	32.27	6.18	33.56	100	338	Average
2483.5	70.76	-3.24	74	65.87	32.27	6.18	33.56	100	338	Peak
2483.5	32.44	-21.56	54	27.55	32.27	6.18	33.56	100	338	Average
4960	58.22	-15.78	74	48.93	34.2	9.16	34.07	115	313	Peak
4960	49.48	-4.52	54	40.19	34.2	9.16	34.07	115	313	Average
8298	55.59	-18.41	74	42.76	36	10.93	34.1	100	211	Peak
8298	43.38	-10.62	54	30.55	36	10.93	34.1	100	211	Average
9920	55.03	-18.97	74	87.22	-9.76	11.84	34.27	106	356	Peak
9920	39.75	-14.25	54	71.94	-9.76	11.84	34.27	106	356	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	78	Relative Humidity :	45~46%
Test Engineer :	Duncan Lin	Polarization :	Vertical
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	37.24	-2.76	40	48.66	19.51	0.53	31.46	100	137	Peak
53.49	23.44	-16.56	40	46.91	7.36	0.72	31.55	-	-	Peak
120.18	23.78	-19.72	43.5	42.01	12.23	1.1	31.56	-	-	Peak
447	19.11	-26.89	46	30.84	17.09	2.29	31.11	-	-	Peak
626.2	22.51	-23.49	46	30.36	20.27	2.77	30.89	-	-	Peak
772.5	23.79	-22.21	46	29.55	21.83	3.1	30.69	-	-	Peak
2318	45.55	-28.45	74	41.12	32.02	5.92	33.51	129	356	Peak
2318	33.9	-20.1	54	29.47	32.02	5.92	33.51	129	356	Average
2480	85.41	-	-	80.52	32.27	6.18	33.56	129	356	Average
2480	102.1	-	-	97.21	32.27	6.18	33.56	129	356	Peak
2483.5	66.41	-7.59	74	61.52	32.27	6.18	33.56	129	356	Peak
2483.5	30	-24	54	25.11	32.27	6.18	33.56	129	356	Average
4960	55.33	-18.67	74	46.04	34.2	9.16	34.07	100	67	Peak
4960	48.72	-5.28	54	39.43	34.2	9.16	34.07	100	67	Average
8250	56.3	-17.7	74	43.5	36	10.91	34.11	100	142	Peak
8250	43.34	-10.66	54	30.54	36	10.91	34.11	100	142	Average
9920	51.71	-22.29	74	83.9	-9.76	11.84	34.27	134	17	Peak
9920	37.91	-16.09	54	70.1	-9.76	11.84	34.27	134	17	Average

3.10 Antenna Requirements

3.10.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.10.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.10.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101329	9kHz~30GHz	Apr. 26, 2010	Apr. 25, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 17, 2009	Sep. 16, 2010	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 10, 2009	Sep. 09, 2010	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 28, 2008	Jul. 28, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2010	Mar. 26, 2011	Radiation (03CH07-HY)
Bluetooth Base Station	R&S	CBT32	100519	N/A	May 12, 2009	May 11, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP072003 as below.