



FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Pocket PC Phone
MODEL NAME : PB81100
FCC ID : NM8PB81100
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Spread Spectrum (DSS)

The product was received on Aug. 12, 2009 and completely tested on Sep. 25, 2009. 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:

Roy Wu / Manager



SPORTON INTERNATIONAL INC.

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



TABLE OF CONTENTS

REVISION HISTORY..... 3

SUMMARY OF TEST RESULT 4

1 GENERAL DESCRIPTION..... 5

 1.1 Applicant 5

 1.2 Manufacturer..... 5

 1.3 Feature of Equipment Under Test 5

 1.4 Testing Site 6

 1.5 Applied Standards 6

 1.6 Ancillary Equipment List 7

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST..... 8

 2.1 RF Output Power 8

 2.2 Test Mode..... 9

 2.3 Connection Diagram of Test System..... 10

 2.4 RF Utility 10

3 TEST RESULT 11

 3.1 Number of Channel Measurement 11

 3.2 20dB Bandwidth Measurement 13

 3.3 Hopping Channel Separation Measurement 20

 3.4 Dwell Time Measurement..... 23

 3.5 Peak Output Power Measurement 25

 3.6 Band Edges Measurement 28

 3.7 Spurious Emission Measurement..... 33

 3.8 AC Conducted Emission Measurement..... 37

 3.9 Radiated Emission Measurement..... 41

 3.10 Antenna Requirements 52

4 LIST OF MEASURING EQUIPMENT..... 53

5 UNCERTAINTY OF EVALUATION..... 54

6 CERTIFICATION OF TAF ACCREDITATION 56

APPENDIX A. PHOTOGRAPHS OF EUT

APPENDIX B. SETUP PHOTOGRAPHS



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 10.1 dB at 0.462 MHz
3.9	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.16 dB at 32.97 MHz
3.10	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

HTC Corporation

No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.2 Manufacturer

HTC Corporation

No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Pocket PC Phone
Model Name	PB81100
Pocket PC Phone 1	EUT with Camera 1
Pocket PC Phone 2	EUT with Camera 2
FCC ID	NM8PB81100
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) : -0.81 dBm (0.83 mW) Bluetooth EDR (2Mbps) : 1.94 dBm (1.56 mW) Bluetooth EDR (3Mbps) : -0.45 dBm (0.90 mW)
Antenna Type	PIFA Antenna with gain 0.5 dBi
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).

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st 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 (DoC), 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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Base Station	Anritsu	8852B	N/A	N/A	Unshielded, 1.8 m
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-100	PYA1YH	N/A	N/A
7.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
8.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	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	-1.29 dBm	1.38 dBm	-0.97 dBm
Ch39	2441MHz	-0.81 dBm	1.94 dBm	-0.45 dBm
Ch78	2480MHz	-1.25 dBm	1.61 dBm	-0.87 dBm

Remark:

1. The data rate was set in 2Mbps 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).

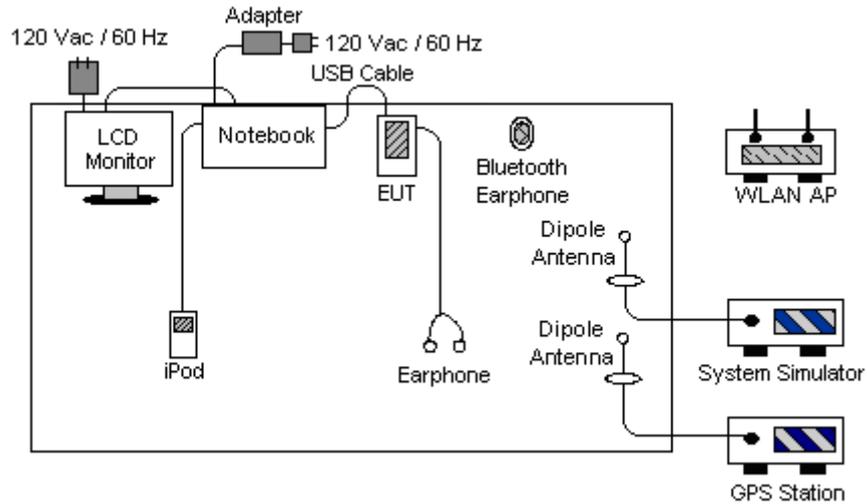
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

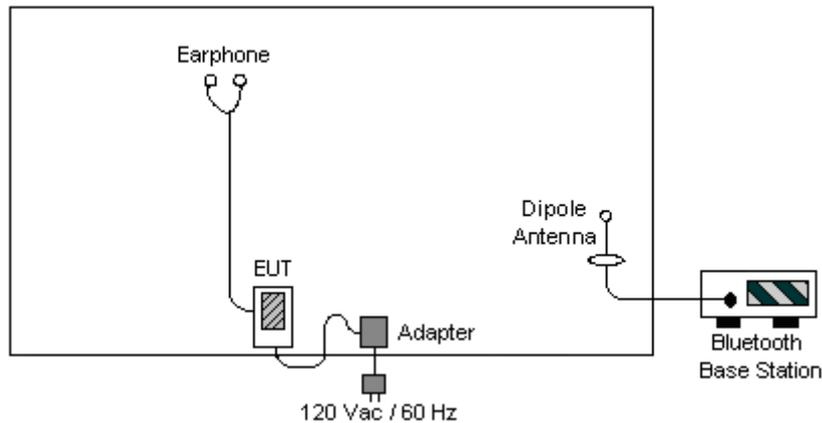
Test Cases			
Test Item	Data Rate / Modulation		
	Bluetooth 1Mbps GFSK	Bluetooth EDR 2Mbps π /4-DQPSK	Bluetooth EDR 3Mbps 8-DPSK
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated TCs	N/A	Mode 1: CH00_2402 MHz for Pocket PC Phone 1 Mode 2: CH39_2441 MHz for Pocket PC Phone 1 Mode 3: CH78_2480 MHz for Pocket PC Phone 1 Mode 4: CH78_2480 MHz for Pocket PC Phone 2	N/A
AC Conducted Emission	Mode 1 : Pocket PC Phone 1 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 1 + USB Cable (Link with Notebook) Mode 2 : Pocket PC Phone 2 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 1 + USB Cable (Link with Notebook)		
Remark: 1. For radiated TCs, the data rate was set in 2Mbps due to the highest RF output power; only the data of these modes was reported. 2. For conducted emission, the worst case is mode 1; only the test data of this mode was reported.			

2.3 Connection Diagram of Test System

<Conducted Emission>



<Radiated Emission>



2.4 RF Utility

For Bluetooth function, the RF utility, "HTC Debug Tools" was installed in EUT which was programmed in order to make the EUT into the engineering modes to contact with BT 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.

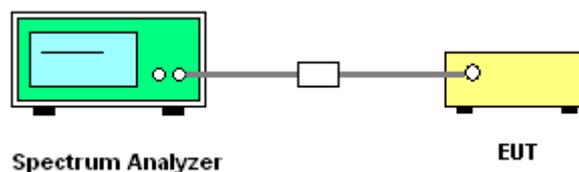
3.1.2 Measuring Instruments

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; $RBW \geq 1\%$ of the span; $VBW \geq RBW$; 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

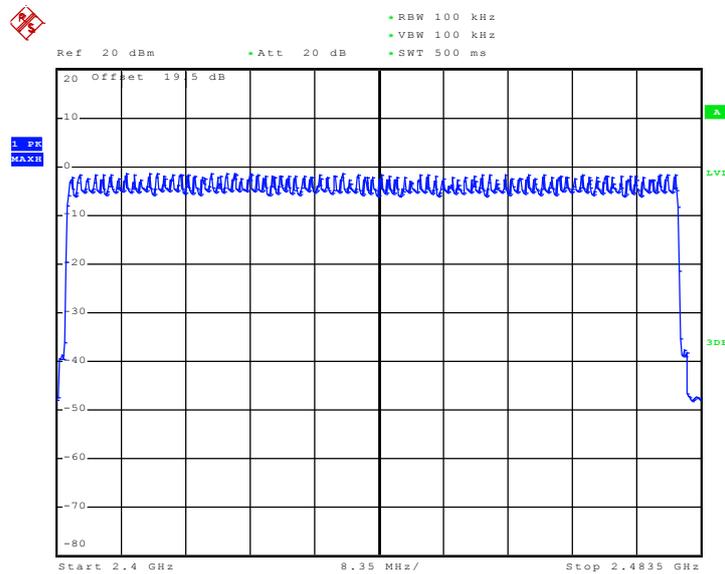




3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	Mode 4~6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	47~49%
Number of Hopping Channels (Channel)	Limits (Channel)	Pass/Fail	
79	> 15	Pass	

Number of Hopping Channel Plot on Channel 00 - 78



Date: 11.SEP.2009 16:16:10

3.2 20dB Bandwidth Measurement

3.2.1 Limit of 20dB Bandwidth

N/A

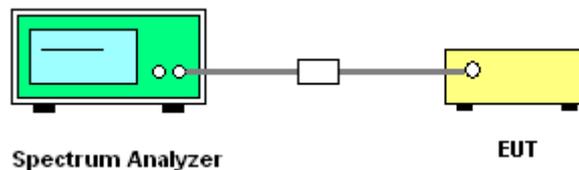
3.2.2 Measuring Instruments

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 \geq 1% of the 20 dB bandwidth; VBW \geq 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



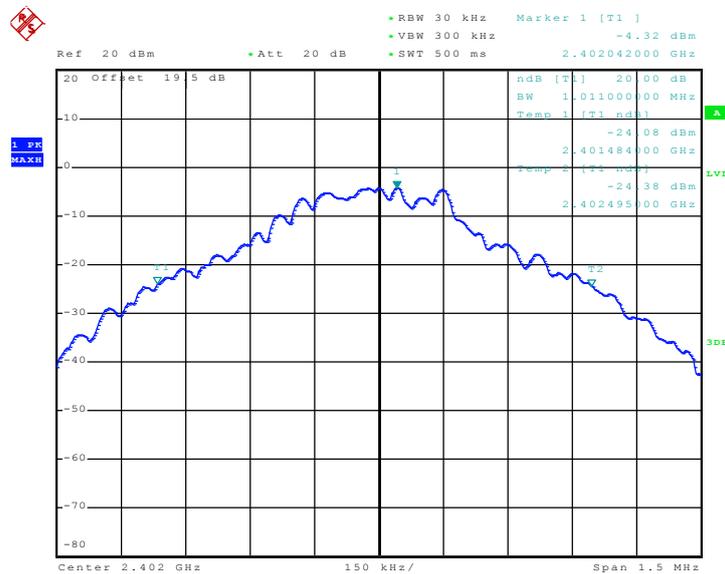


3.2.5 Test Result of 20dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	47~49%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.011
39	2441	1.014
78	2480	1.014

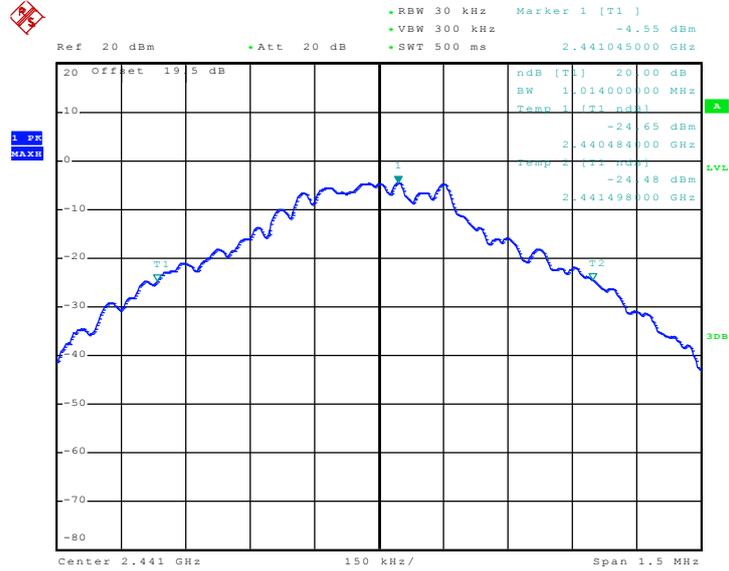
20 dB Bandwidth Plot on Channel 00



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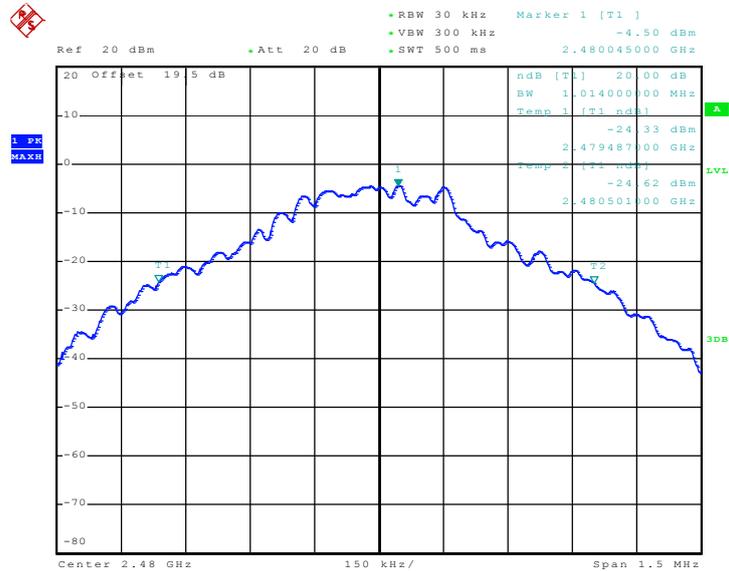


20 dB Bandwidth Plot on Channel 39



Date: 11.SEP.2009 14:11:56

20 dB Bandwidth Plot on Channel 78



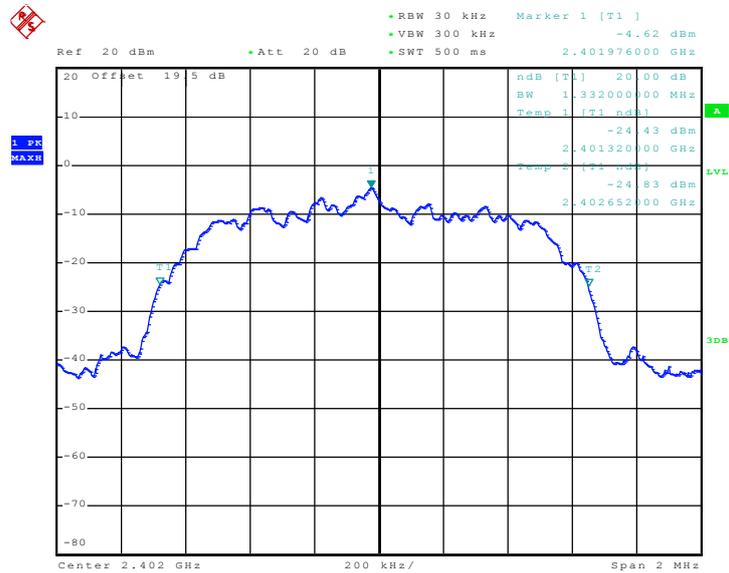
Date: 11.SEP.2009 14:12:15



Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	47~49%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.332
39	2441	1.332
78	2480	1.332

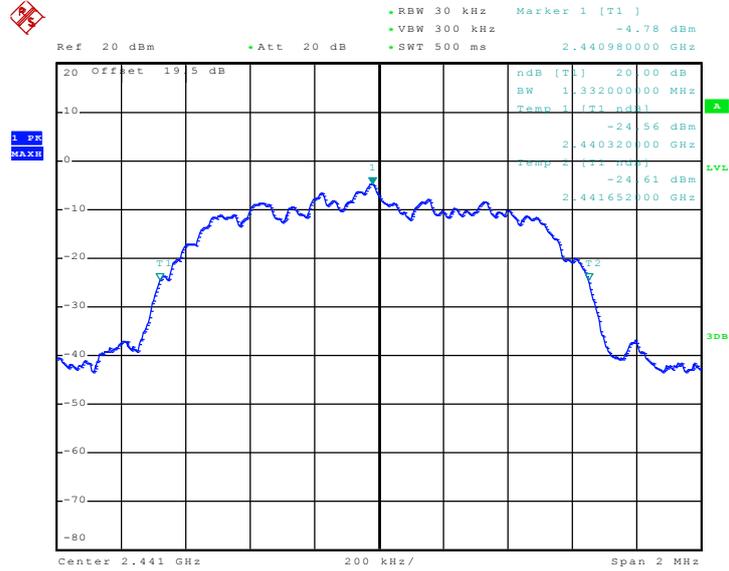
20 dB Bandwidth Plot on Channel 00



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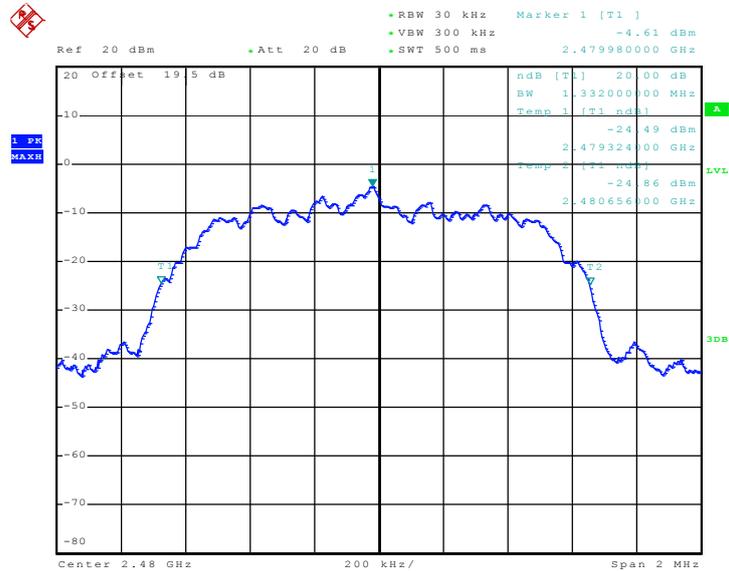


20 dB Bandwidth Plot on Channel 39



Date: 11.SEP.2009 14:13:09

20 dB Bandwidth Plot on Channel 78



Date: 11.SEP.2009 14:13:23

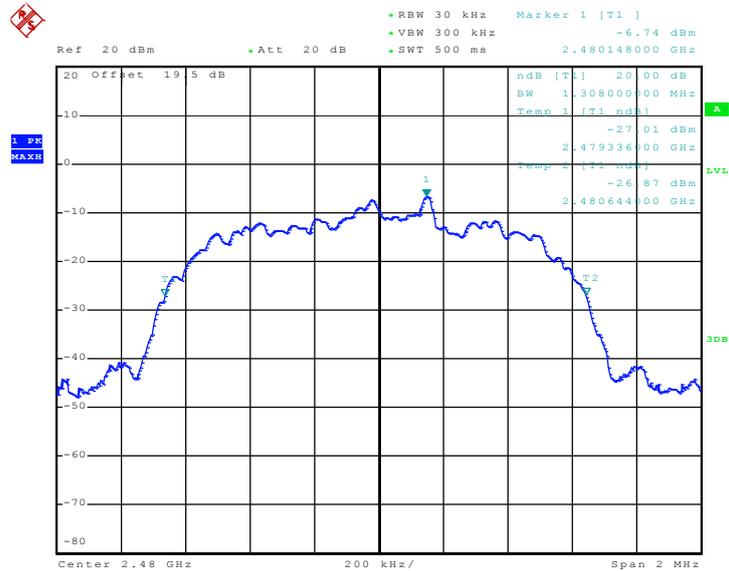


20 dB Bandwidth Plot on Channel 39



Date: 11.SEP.2009 14:17:52

20 dB Bandwidth Plot on Channel 78



Date: 11.SEP.2009 14:18:12

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.

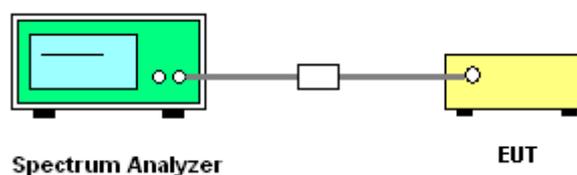
3.3.2 Measuring Instruments

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; $RBW \geq 1\%$ of the span;
VBW \geq 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



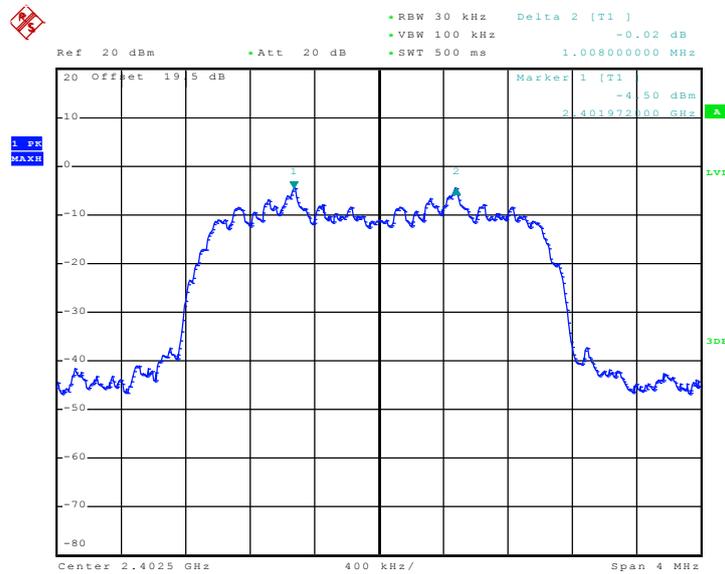


3.3.5 Test Result of Hopping Channel Separation

Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	47~49%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.008	0.888	Pass
39	2441	1.000	0.888	Pass
78	2480	1.008	0.888	Pass

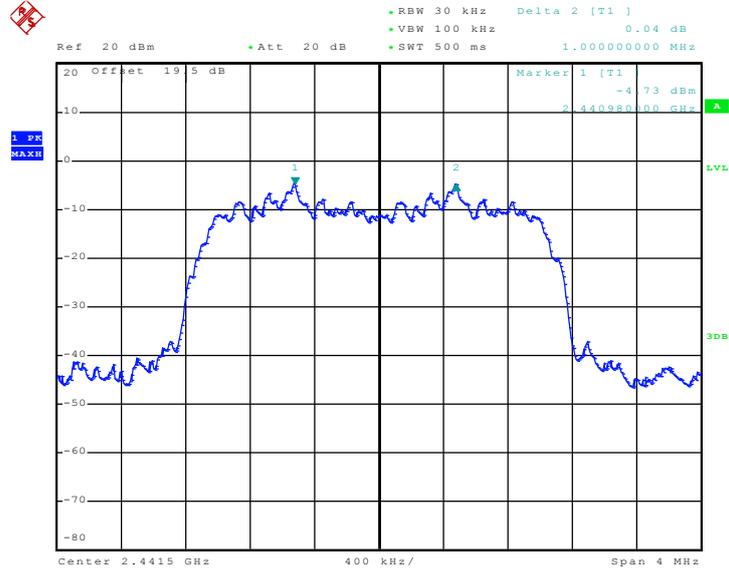
Channel Separation Plot on Channel 00 - 01



Date: 11.SEP.2009 15:23:50

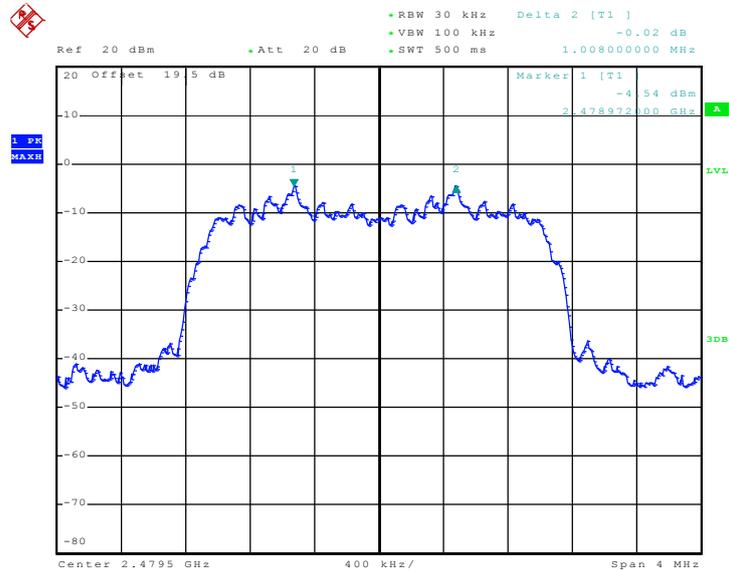


Channel Separation Plot on Channel 39 - 40



Date: 11.SEP.2009 15:24:12

Channel Separation Plot on Channel 77 - 78



Date: 11.SEP.2009 15:24:34

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.

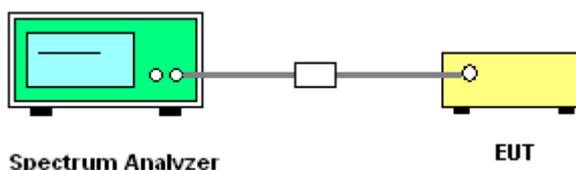
3.4.2 Measuring Instruments

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

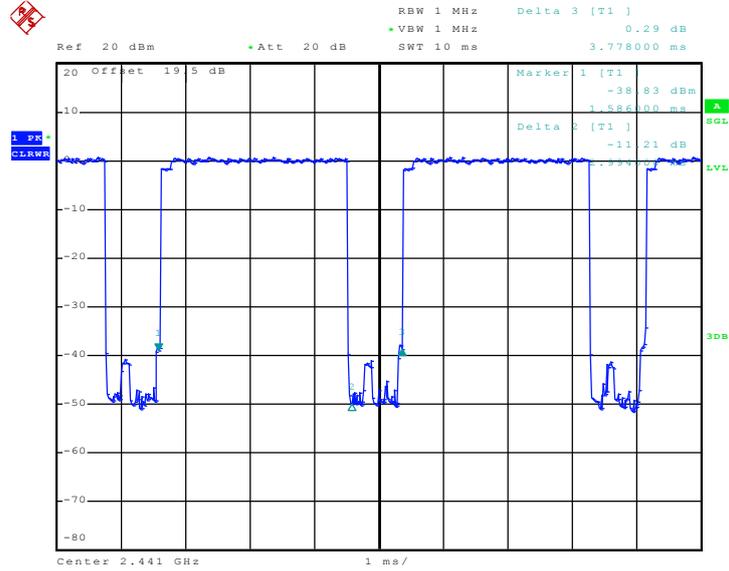
Test Mode :	Mode 5	Temperature :	26~28°C		
Test Engineer :	Ken Hsu	Relative Humidity :	47~49%		
Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
2DH5	3.00	2994.00	0.28	0.4	Pass

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)

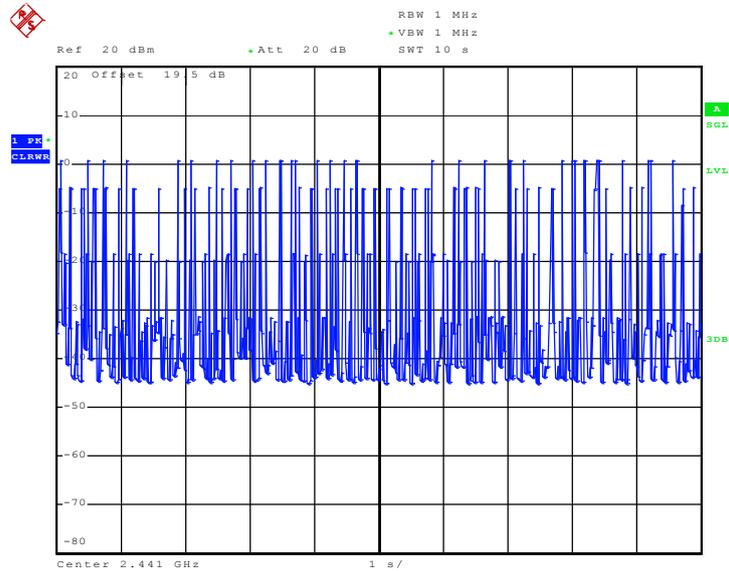


2DH5 Dwell Time (One Pulse) Plot on Channel 39



Date: 11.SEP.2009 15:30:47

2DH5 Dwell Time (Count Pulses) Plot on Channel 39



Date: 11.SEP.2009 16:00:50

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).

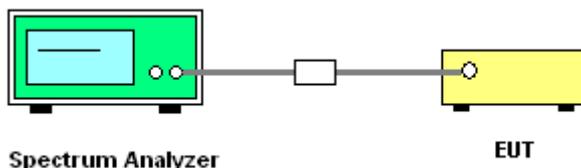
3.5.2 Measuring Instruments

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



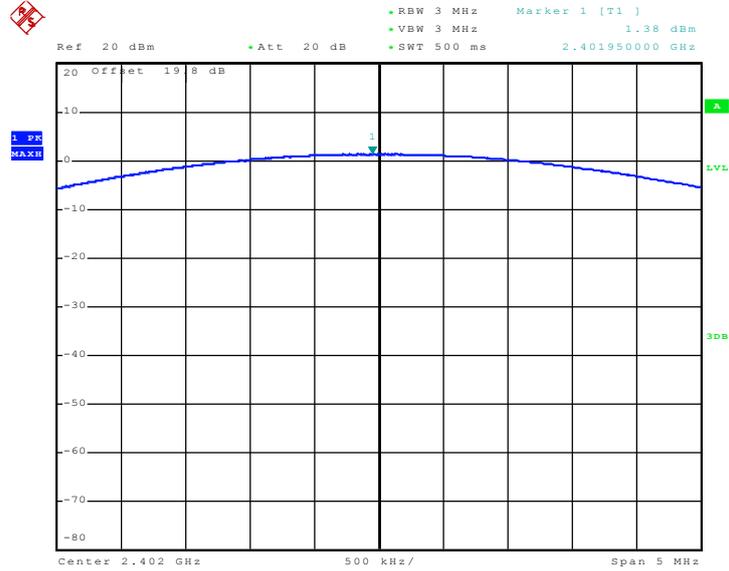
3.5.5 Test Result of Peak Output Power

Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	47~49%

Channel	Frequency (MHz)	RF Power (dBm)		
		π /4-DQPSK	Max. Limits (dBm)	Pass/Fail
		2 Mbps		
00	2402	1.38	30	Pass
39	2441	1.94	30	Pass
78	2480	1.61	30	Pass

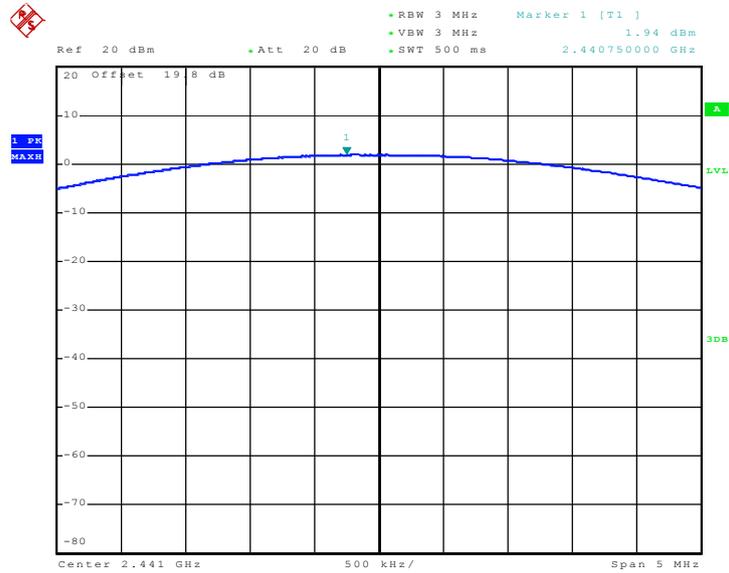


Peak Output Power Plot on Channel 00



Date: 1.SEP.2009 22:07:35

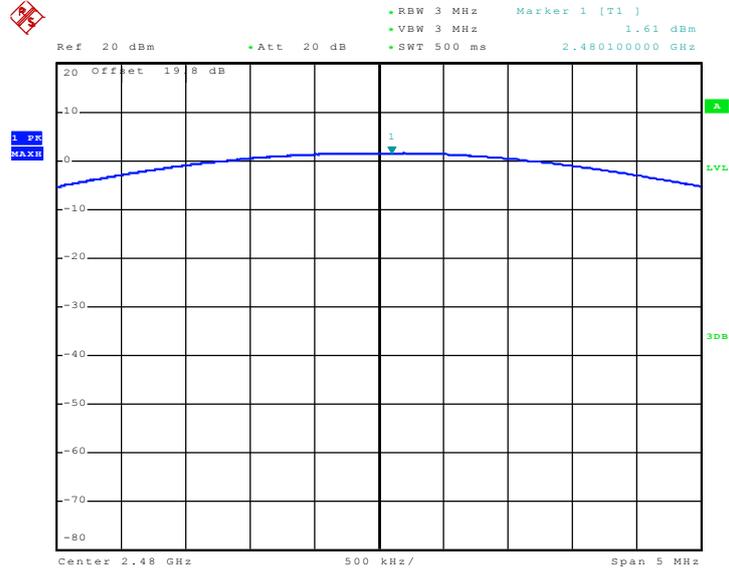
Peak Output Power Plot on Channel 39



Date: 1.SEP.2009 22:09:48



Peak Output Power Plot on Channel 78



Date: 1.SEP.2009 22:11:40

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.

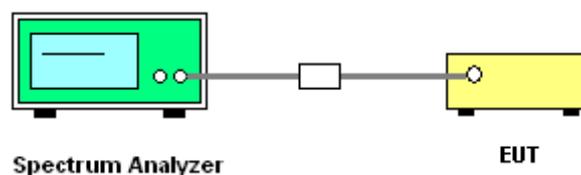
3.6.2 Measuring Instruments

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 = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz 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





3.6.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	42~44%
		Test Engineer :	Kai Wang

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
2353.89	56.85	-17.15	74.00	53.66	32.08	5.49	34.37	128	349	Peak
2353.89	35.92	-18.08	54.00	32.73	32.08	5.49	34.37	128	349	Average

Remark:

<Delta Marker>

Delta marker at 1% RBW of span = 46.23 – 2.27 = 43.96 dB (can be referred to section 3.6.6)

Peak band edge at 2353.89 MHz (RBW = VBW = 1MHz) = 100.81 dBuV/m –43.96 dB = 56.85 dBuV/m

Duty factor = 20 x log ((Package Transfer Times(ms) x Avg Hopping Channel) / 100 ms)

$$= 20 \times \log ((2.994 \times 3.0) / 100) = -20.93$$

Average band edge = Peak band edge + Duty factor = 56.85 dBuV/m + (-20.93) = 35.92 dBuV/m

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	52.49	-21.51	74.00	49.28	32.13	5.46	34.38	100	292	Peak
2389.42	31.56	-22.44	54.00	28.35	32.13	5.46	34.38	100	292	Average

Remark:

<Delta Marker>

Delta marker at 1% RBW of span = 46.23 – 2.27 = 43.96 dB (can be referred to section 3.6.6)

Peak band edge at 2389.42 MHz (RBW = VBW = 1MHz) = 96.45 dBuV/m –43.96 dB = 52.49 dBuV/m

Duty factor = 20 x log ((Package Transfer Times(ms) x Avg Hopping Channel) / 100 ms)

$$= 20 \times \log ((2.994 \times 3.0) / 100) = -20.93$$

Average band edge = Peak band edge + Duty factor = 52.49 dBuV/m + (-20.93) = 31.56 dBuV/m



Test Mode :	Mode 3	Temperature :	28~29°C
Test Channel :	78	Relative Humidity :	42~44%
		Test Engineer :	Kai Wang

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
2483.50	58.24	-15.76	74.00	54.98	32.27	5.38	34.40	100	342	Peak
2483.50	37.31	-16.69	54.00	34.05	32.27	5.38	34.40	100	342	Average

Remark:

<Delta Marker>

Delta marker at 1% RBW of span = 46.12 – 2.13 = 43.99 dB (can be referred to section 3.6.6)

Peak band edge at 2483.50 MHz (RBW = VBW = 1MHz) = 102.23 dBuV/m –43.99 dB = 58.24 dBuV/m

Duty factor = 20 x log ((Package Transfer Times(ms) x Avg Hopping Channel) / 100 ms)

$$= 20 \times \log ((2.994 \times 3.0) / 100) = -20.93$$

Average band edge = Peak band edge + Duty factor = 58.24 dBuV/m + (-20.93) dB = 37.31 dBuV/m

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
2483.50	54.20	-19.80	74.00	50.94	32.27	5.38	34.40	100	296	Peak
2483.50	33.27	-20.73	54.00	30.01	32.27	5.38	34.40	100	296	Average

Remark:

<Delta Marker>

Delta marker at 1% RBW of span = 46.12 – 2.13 = 43.99 dB (can be referred to section 3.6.6)

Peak band edge at 2483.50 MHz (RBW = VBW = 1MHz) = 98.19 dBuV/m –43.99 dB = 54.20 dBuV/m

Duty factor = 20 x log ((Package Transfer Times(ms) x Avg Hopping Channel) / 100 ms)

$$= 20 \times \log ((2.994 \times 3.0) / 100) = -20.93$$

Average band edge = Peak band edge + Duty factor = 54.20 dBuV/m + (-20.93) dB = 33.27 dBuV/m



Test Mode :	Mode 4	Temperature :	28~29°C
Test Channel :	78	Relative Humidity :	42~44%
		Test Engineer :	Kai Wang

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
2483.50	57.53	-16.47	74.00	54.27	32.27	5.38	34.40	126	350	Peak
2483.50	36.60	-17.40	54.00	33.34	32.27	5.38	34.40	126	350	Average

Remark:

<Delta Marker>

Delta marker at 1% RBW of span = 46.12 – 2.13 = 43.99 dB (can be referred to section 3.6.6)

Peak band edge at 2483.50 MHz (RBW = VBW = 1MHz) = 101.52 dBuV/m –43.99 dB = 57.53 dBuV/m

Duty factor = 20 x log ((Package Transfer Times(ms) x Avg Hopping Channel) / 100 ms)

$$= 20 \times \log ((2.994 \times 3.0) / 100) = -20.93$$

Average band edge = Peak band edge + Duty factor = 57.53 dBuV/m + (-20.93) dB = 36.60 dBuV/m

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
2483.50	54.07	-19.93	74.00	50.81	32.27	5.38	34.40	117	280	Peak
2483.50	33.14	-20.86	54.00	29.88	32.27	5.38	34.40	117	280	Average

Remark:

<Delta Marker>

Delta marker at 1% RBW of span = 46.12 – 2.13 = 43.99 dB (can be referred to section 3.6.6)

Peak band edge at 2483.50 MHz (RBW = VBW = 1MHz) = 98.06 dBuV/m –43.99 dB = 54.07 dBuV/m

Duty factor = 20 x log ((Package Transfer Times(ms) x Avg Hopping Channel) / 100 ms)

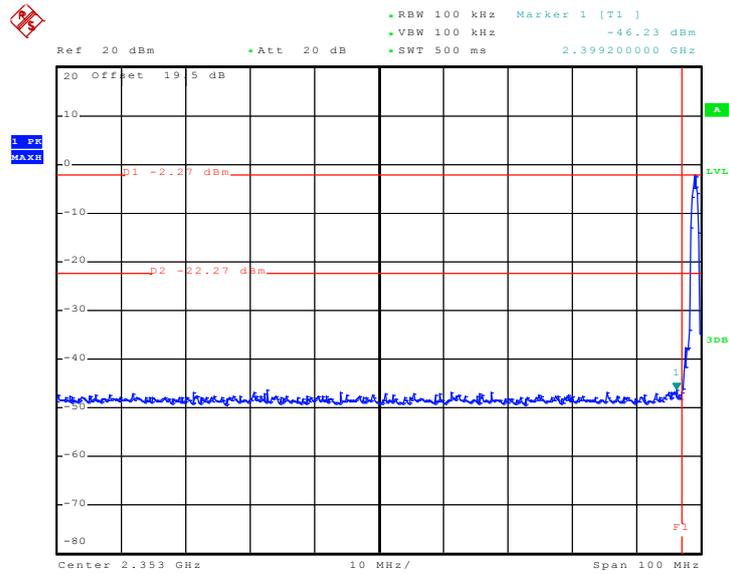
$$= 20 \times \log ((2.994 \times 3.0) / 100) = -20.93$$

Average band edge = Peak band edge + Duty factor = 54.07 dBuV/m + (-20.93) dB = 33.14 dBuV/m

3.6.6 Test Result of Conducted Band Edges

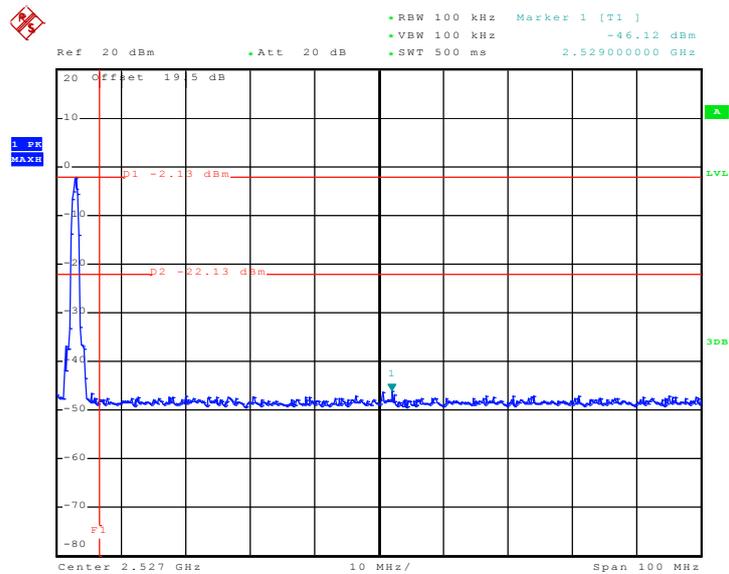
Test Mode :	Mode 4 and 6	Temperature :	26~28°C
Test Channel :	00 and 78	Relative Humidity :	47~49%
		Test Engineer :	Ken Hsu

Low Band Edge Plot on Channel 00



Date: 11.SEP.2009 14:27:33

High Band Edge Plot on Channel 78



Date: 11.SEP.2009 15:20:00

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.

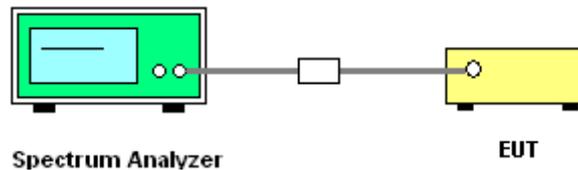
3.7.2 Measuring Instruments

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) \geq 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

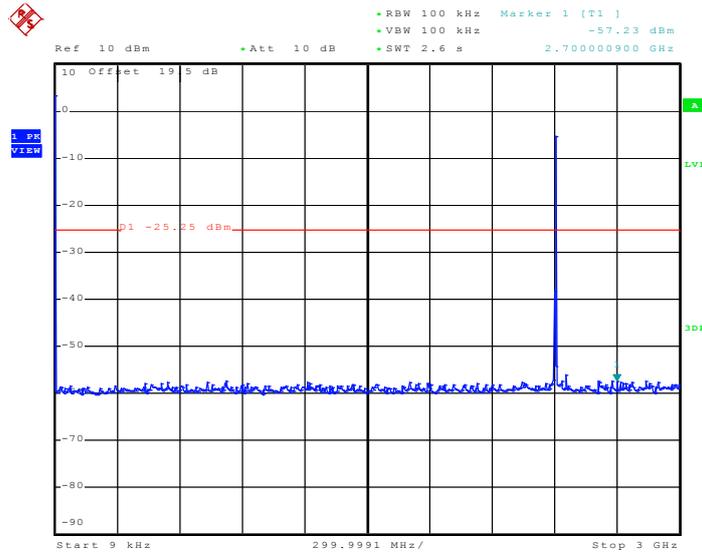




3.7.5 Test Result

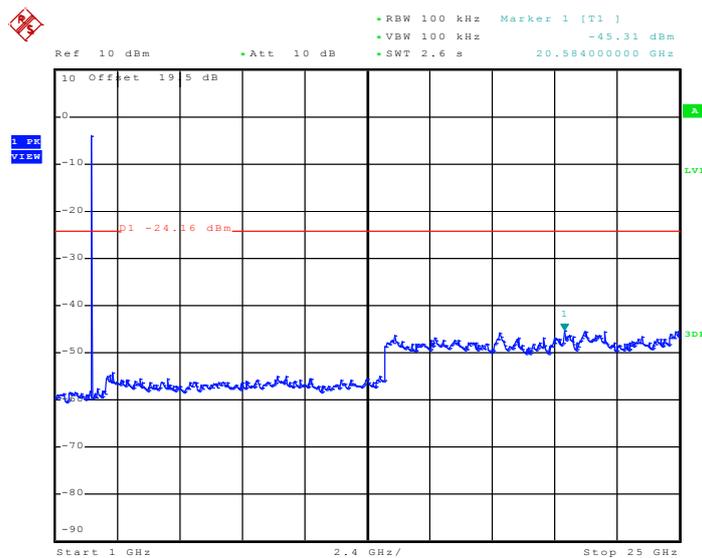
Test Mode :	Mode 4	Temperature :	26~28°C
Test Channel :	00	Relative Humidity :	47~49%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 14.SEP.2009 16:46:14

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

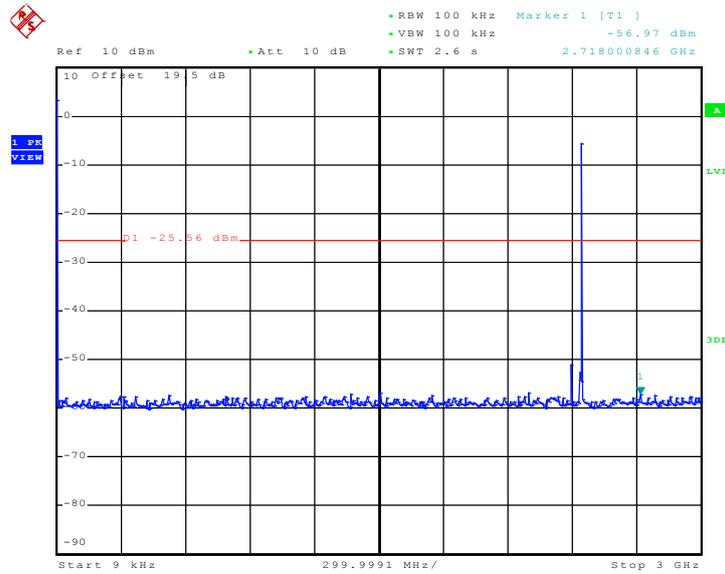


Date: 14.SEP.2009 16:46:28



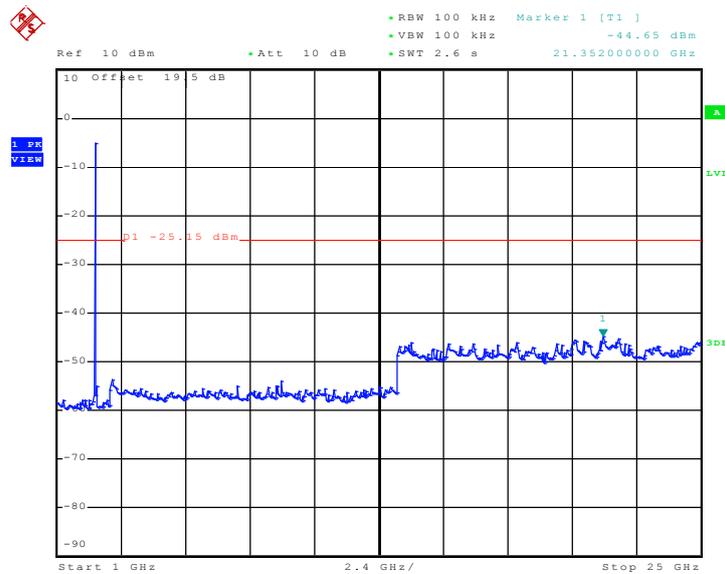
Test Mode :	Mode 5	Temperature :	26~28°C
Test Channel :	39	Relative Humidity :	47~49%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 14.SEP.2009 16:46:50

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

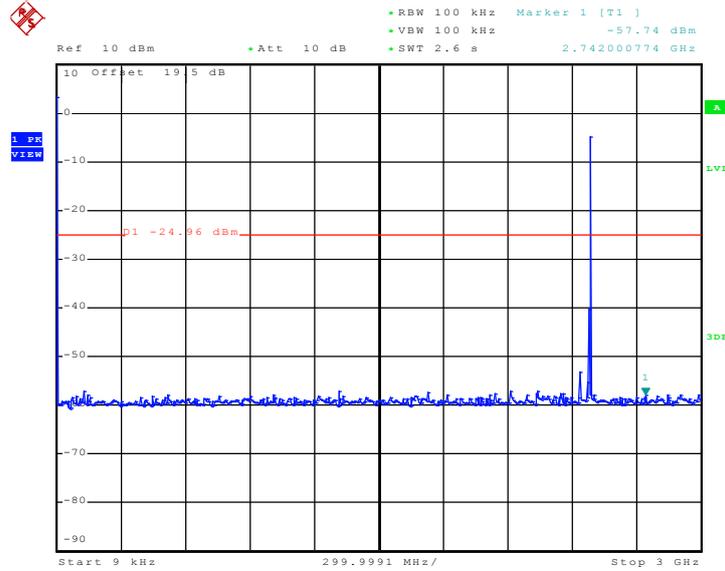


Date: 14.SEP.2009 16:47:07



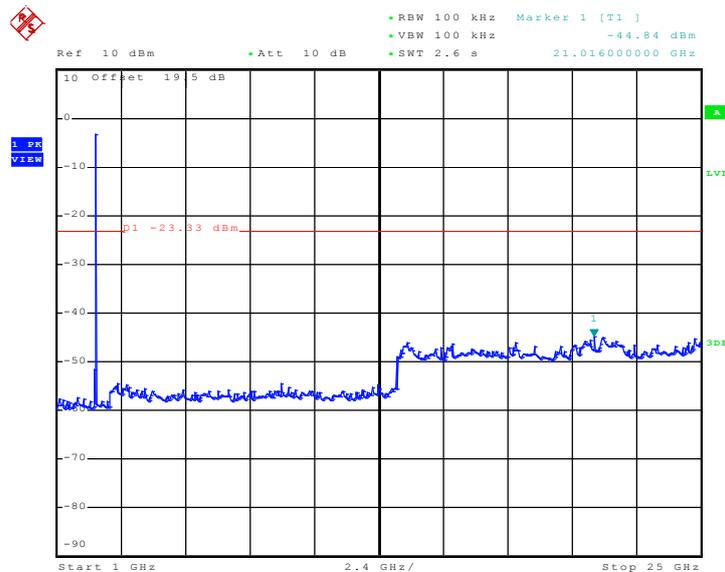
Test Mode :	Mode 6	Temperature :	26~28°C
Test Channel :	78	Relative Humidity :	47~49%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 14.SEP.2009 16:47:25

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 14.SEP.2009 16:47:45

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.

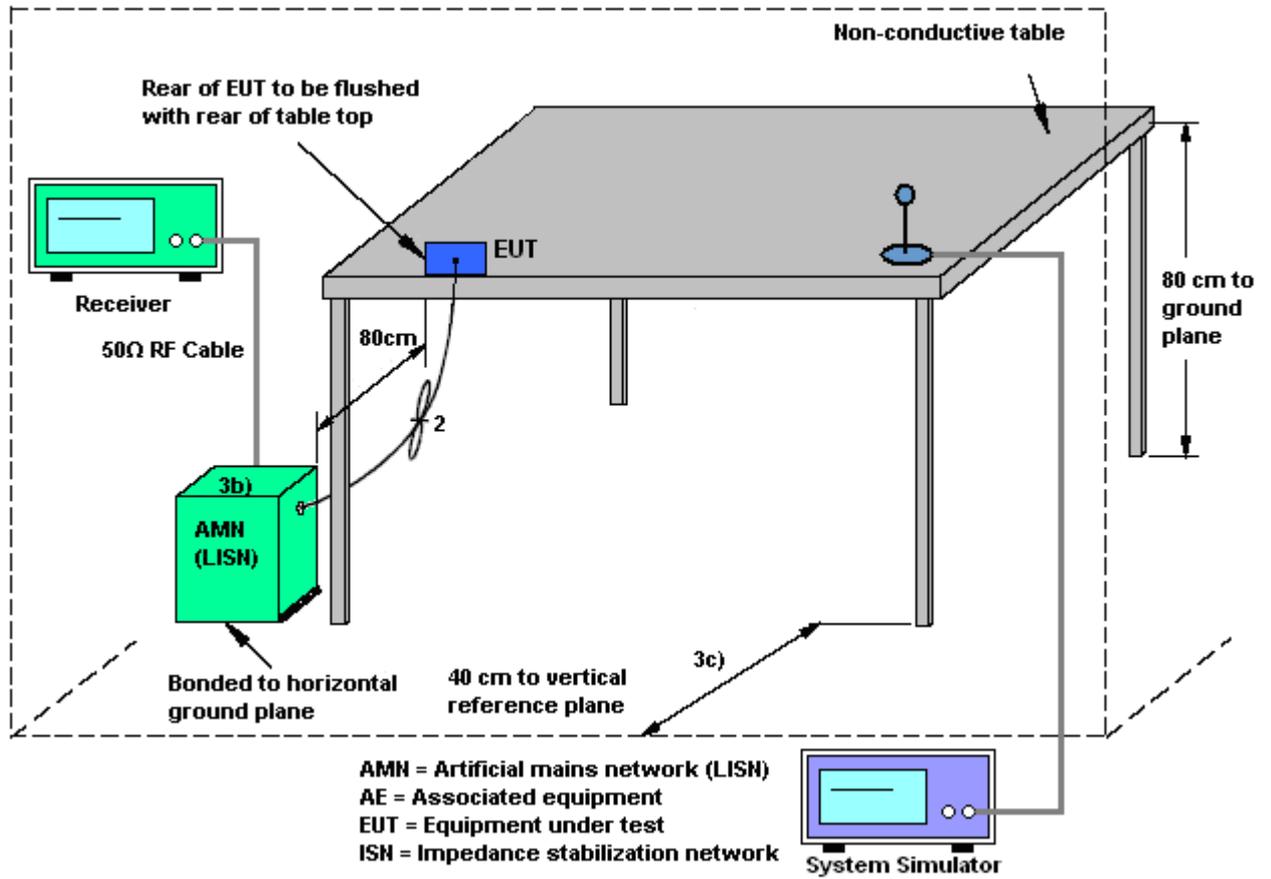
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

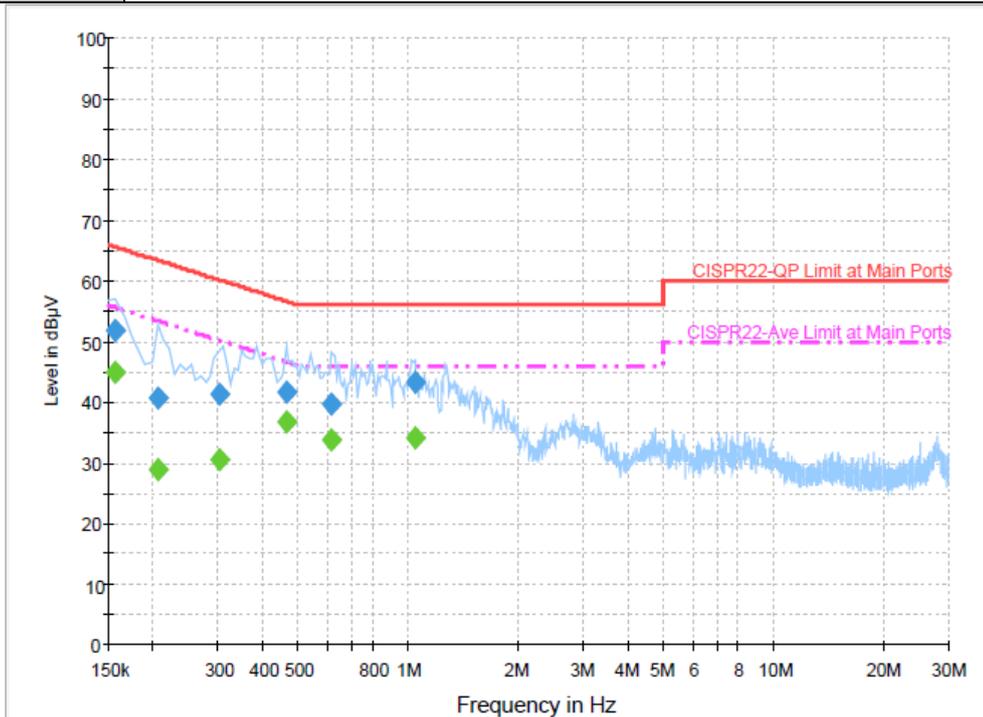
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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 :	22~23°C
Test Engineer :	Cona Huang	Relative Humidity :	42~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Pocket PC Phone 1 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 1 + USB Cable (Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

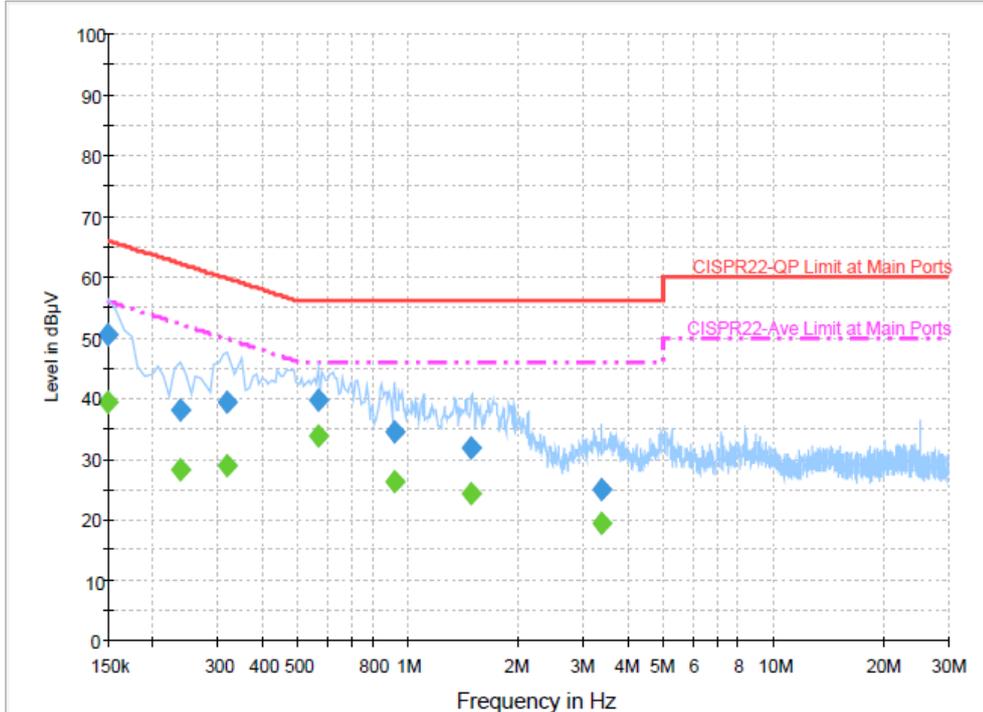
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	51.7	Off	L1	19.5	13.9	65.6
0.206000	40.7	Off	L1	19.5	22.7	63.4
0.302000	41.2	Off	L1	19.4	19.0	60.2
0.462000	41.7	Off	L1	19.4	15.0	56.7
0.614000	39.7	Off	L1	19.5	16.4	56.0
1.038000	43.4	Off	L1	19.4	12.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	44.8	Off	L1	19.5	10.8	55.6
0.206000	28.7	Off	L1	19.5	24.7	53.4
0.302000	30.5	Off	L1	19.4	19.7	50.2
0.462000	36.6	Off	L1	19.4	10.1	46.7
0.614000	33.7	Off	L1	19.5	12.3	46.0
1.038000	34.1	Off	L1	19.4	11.9	46.0



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Cona Huang	Relative Humidity :	42~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Pocket PC Phone 1 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 1 + USB Cable (Link with Notebook)		
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)
0.150000	50.5	Off	N	19.5	15.5	66.0
0.238000	37.9	Off	N	19.5	24.3	62.2
0.318000	39.3	Off	N	19.5	20.5	59.8
0.566000	39.7	Off	N	19.5	16.3	56.0
0.918000	34.3	Off	N	19.4	21.7	56.0
1.486000	31.9	Off	N	19.5	24.1	56.0
3.382000	24.8	Off	N	19.5	31.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.5	Off	N	19.5	16.5	56.0
0.238000	28.2	Off	N	19.5	24.0	52.2
0.318000	28.9	Off	N	19.5	20.9	49.8
0.566000	33.7	Off	N	19.5	12.3	46.0
0.918000	26.4	Off	N	19.4	19.6	46.0
1.486000	24.2	Off	N	19.5	21.8	46.0
3.382000	19.3	Off	N	19.5	26.7	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

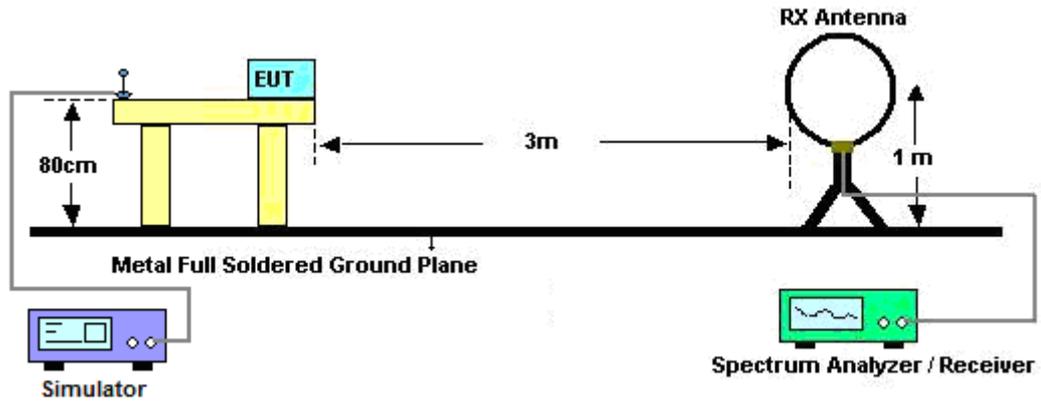
See list of measuring instruments of this test report.

3.9.3 Test Procedures

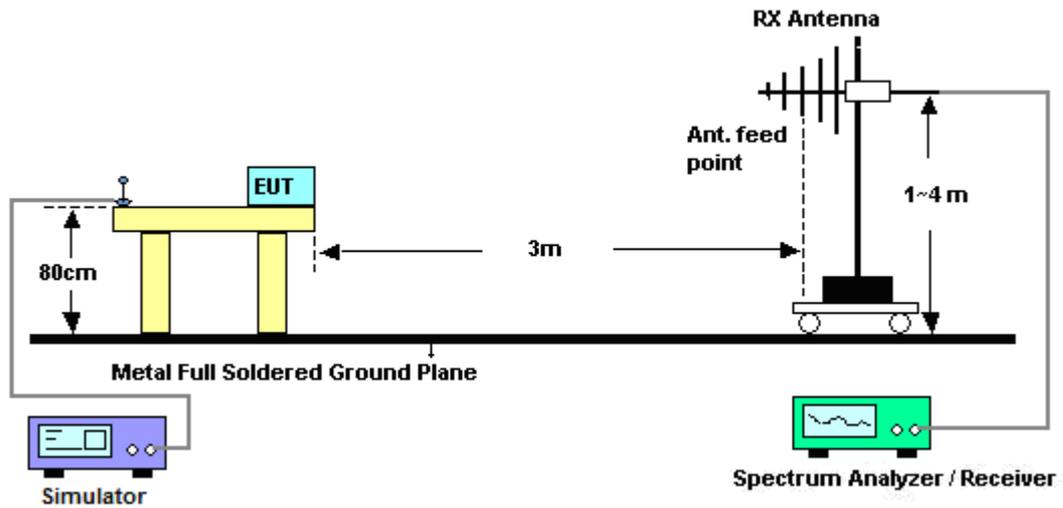
1. The testing follows the guidelines in FCC Public Notice DA 00-705 Measurement Guidelines.
2. Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
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 :	Kai Wang	Temperature :	28~29°C	
		Relative Humidity :	42~44%	
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.

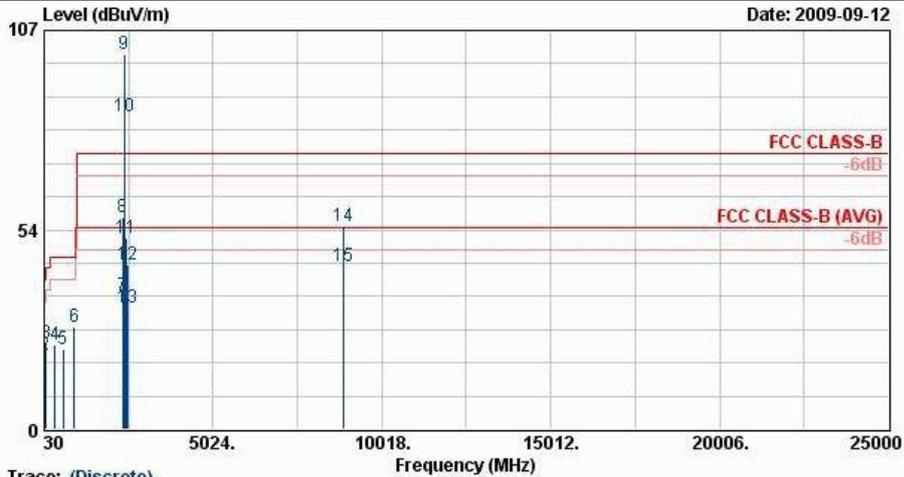
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

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 :	28~29°C
Test Channel :	00	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

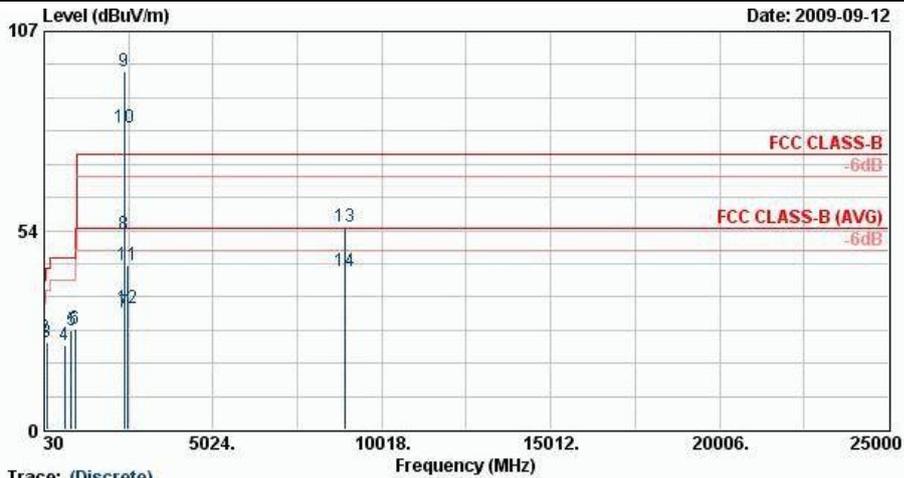


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 961306-03

	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	31.89	29.82	-10.18	40.00	42.05	18.82	0.66	31.70	100	109	Peak
2	42.69	20.07	-19.93	40.00	38.37	12.68	0.72	31.70	---	---	Peak
3	89.13	22.97	-20.53	43.50	44.53	9.04	1.10	31.70	---	---	Peak
4	351.80	22.86	-23.14	46.00	36.56	15.25	2.35	31.30	---	---	Peak
5	601.70	21.49	-24.51	46.00	29.72	19.51	3.25	31.00	---	---	Peak
6	929.30	27.31	-18.69	46.00	29.98	23.78	4.22	30.67	---	---	Peak
7	2353.89	35.92	-18.08	54.00	32.73	32.08	5.49	34.37	128	349	Average
8	2353.89	56.85	-17.15	74.00	53.66	32.08	5.49	34.37	128	349	Peak
9 X	2402.00	100.81			97.58	32.16	5.44	34.38	128	349	Peak
10 @	2402.00	84.04			80.83	32.13	5.46	34.38	128	349	Average
11	2452.00	51.16	-22.84	74.00	47.92	32.22	5.41	34.39	100	0	Peak
12	2494.00	44.06	-29.94	74.00	40.79	32.30	5.37	34.40	128	349	Peak
13	2494.00	32.76	-21.24	54.00	29.49	32.30	5.37	34.40	128	349	Average
14	8886.00	54.40	-19.60	74.00	43.24	36.23	10.30	35.38	100	241	Peak
15	8886.00	43.71	-10.29	54.00	32.55	36.23	10.30	35.38	100	241	Average



Test Mode :	Mode 1	Temperature :	28~29°C
Test Channel :	00	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

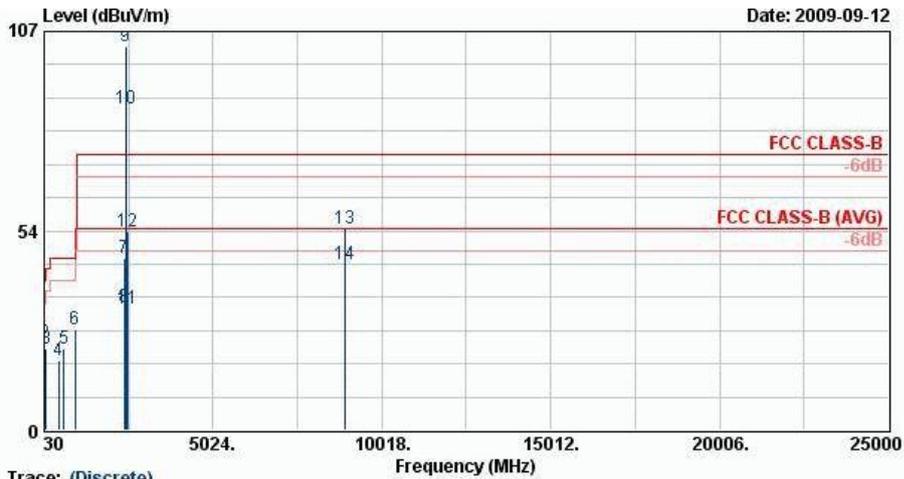


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	32.97	38.04	-1.96	40.00	50.80	18.28	0.66	31.70	100	301	QP
2	42.69	24.52	-15.48	40.00	42.82	12.68	0.72	31.70	---	---	Peak
3	107.49	23.29	-20.21	43.50	42.48	11.30	1.21	31.69	---	---	Peak
4	640.20	22.82	-23.18	46.00	30.42	19.98	3.38	30.96	---	---	Peak
5	836.20	26.60	-19.40	46.00	30.67	22.70	3.93	30.70	---	---	Peak
6	948.20	27.09	-18.91	46.00	29.11	24.37	4.26	30.65	---	---	Peak
7	2389.42	31.56	-22.44	54.00	28.35	32.13	5.46	34.38	100	292	Average
8	2389.42	52.49	-21.51	74.00	49.28	32.13	5.46	34.38	100	292	Peak
9 X	2402.00	96.45			93.23	32.16	5.44	34.38	100	292	Peak
10 @	2402.00	81.12			77.91	32.13	5.46	34.38	100	292	Average
11	2486.00	44.05	-29.95	74.00	40.79	32.27	5.38	34.40	100	292	Peak
12	2486.00	32.42	-21.58	54.00	29.16	32.27	5.38	34.40	100	292	Average
13	8922.00	54.57	-19.43	74.00	43.39	36.25	10.31	35.38	100	111	Peak
14	8922.00	42.62	-11.38	54.00	31.44	36.25	10.31	35.38	100	111	Average



Test Mode :	Mode 2	Temperature :	28~29°C
Test Channel :	39	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

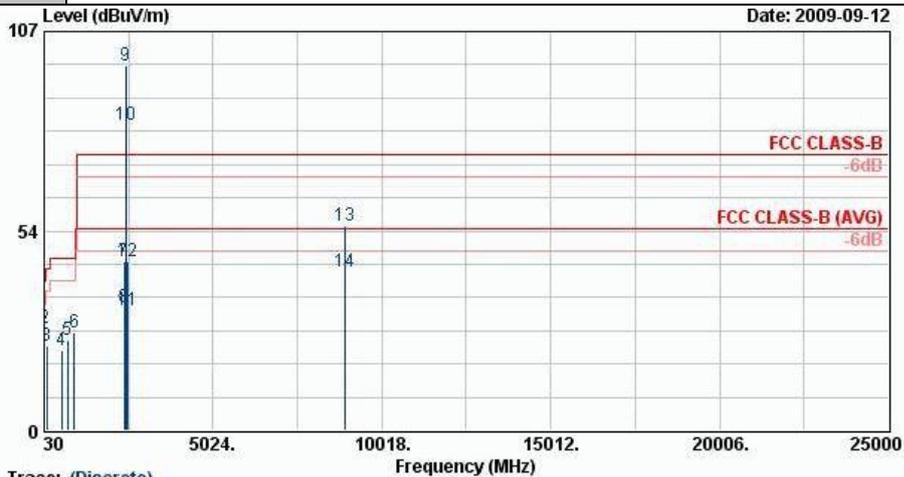


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	32.70	27.15	-12.85	40.00	39.91	18.28	0.66	31.70	100	189	Peak
2	42.69	23.29	-16.71	40.00	41.58	12.68	0.72	31.70	---	---	Peak
3	90.21	21.72	-21.78	43.50	43.11	9.20	1.11	31.70	---	---	Peak
4	467.30	18.79	-27.21	46.00	29.47	17.61	2.84	31.13	---	---	Peak
5	604.50	21.70	-24.30	46.00	29.89	19.55	3.26	31.00	---	---	Peak
6	939.80	27.09	-18.91	46.00	29.41	24.11	4.24	30.66	---	---	Peak
7	2388.00	45.96	-28.04	74.00	42.75	32.13	5.46	34.38	128	345	Peak
8	2388.00	33.07	-20.93	54.00	29.86	32.13	5.46	34.38	128	345	Average
9 @	2441.00	103.01			99.77	32.22	5.41	34.39	128	345	Peak
10 @	2441.00	86.28			83.04	32.22	5.41	34.39	128	345	Average
11	2486.00	32.54	-21.46	54.00	29.28	32.27	5.38	34.40	128	345	Average
12	2486.00	53.30	-20.70	74.00	50.04	32.27	5.38	34.40	128	345	Peak
13	8937.00	54.23	-19.77	74.00	43.04	36.26	10.32	35.39	100	111	Peak
14	8937.00	44.63	-9.37	54.00	33.44	36.26	10.32	35.39	100	111	Average



Test Mode :	Mode 2	Temperature :	28~29°C
Test Channel :	39	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

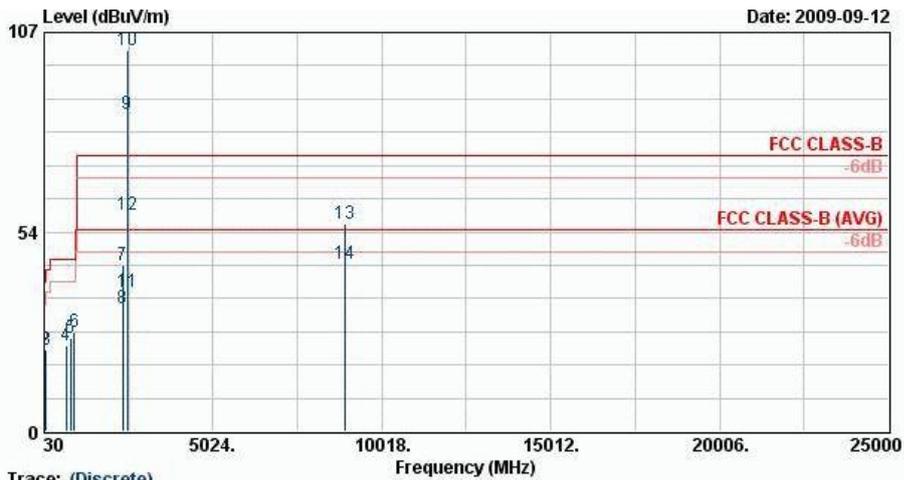


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	34.05	38.51	-1.49	40.00	51.80	17.74	0.67	31.70	100	297	QP
2	43.50	27.60	-12.40	40.00	46.44	12.14	0.72	31.70	---	---	Peak
3	107.49	22.73	-20.77	43.50	41.92	11.30	1.21	31.69	---	---	Peak
4	540.10	21.51	-24.49	46.00	30.74	18.76	3.06	31.06	---	---	Peak
5	727.00	24.08	-21.92	46.00	29.90	21.39	3.63	30.85	---	---	Peak
6	926.50	26.32	-19.68	46.00	29.09	23.69	4.21	30.67	---	---	Peak
7	2390.00	45.45	-28.55	74.00	42.23	32.13	5.46	34.38	100	291	Peak
8	2390.00	33.04	-20.96	54.00	29.83	32.13	5.46	34.38	100	291	Average
9 X	2441.00	98.04			94.80	32.22	5.41	34.39	100	291	Peak
10 @	2441.00	81.85			78.61	32.22	5.41	34.39	100	291	Average
11	2492.00	32.39	-21.61	54.00	29.12	32.30	5.37	34.40	100	291	Average
12	2492.00	45.31	-28.69	74.00	42.04	32.30	5.37	34.40	100	291	Peak
13	8922.00	54.80	-19.20	74.00	43.62	36.25	10.31	35.38	100	159	Peak
14	8922.00	42.73	-11.27	54.00	31.55	36.25	10.31	35.38	100	159	Average



Test Mode :	Mode 3	Temperature :	28~29°C
Test Channel :	78	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

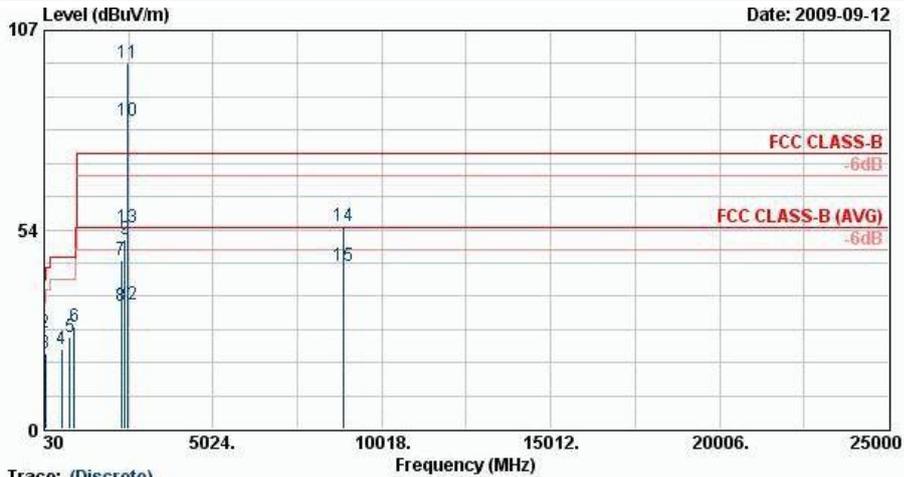


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	35.13	26.43	-13.57	40.00	40.25	17.20	0.68	31.70	100	29	Peak
2	42.69	21.82	-18.18	40.00	40.11	12.68	0.72	31.70	---	---	Peak
3	89.13	21.88	-21.62	43.50	43.44	9.04	1.10	31.70	---	---	Peak
4	685.70	23.07	-22.93	46.00	29.80	20.67	3.51	30.91	---	---	Peak
5	820.10	25.23	-20.77	46.00	29.68	22.35	3.90	30.70	---	---	Peak
6	918.10	26.65	-19.35	46.00	29.68	23.46	4.20	30.68	---	---	Peak
7	2364.00	44.47	-29.53	74.00	41.27	32.08	5.49	34.37	100	342	Peak
8	2364.00	33.03	-20.97	54.00	29.84	32.08	5.49	34.37	100	342	Average
9 @	2480.00	85.22			81.96	32.27	5.38	34.40	100	342	Average
10 X	2480.00	102.23			98.97	32.27	5.38	34.40	100	342	Peak
11	2483.50	37.31	-16.69	54.00	34.05	32.27	5.38	34.40	100	342	Average
12	2483.50	58.24	-15.76	74.00	54.98	32.27	5.38	34.40	100	342	Peak
13	8946.00	55.52	-18.48	74.00	44.33	36.26	10.32	35.39	100	222	Peak
14	8946.00	44.96	-9.04	54.00	33.77	36.26	10.32	35.39	100	222	Average



Test Mode :	Mode 3	Temperature :	28~29°C
Test Channel :	78	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored.		

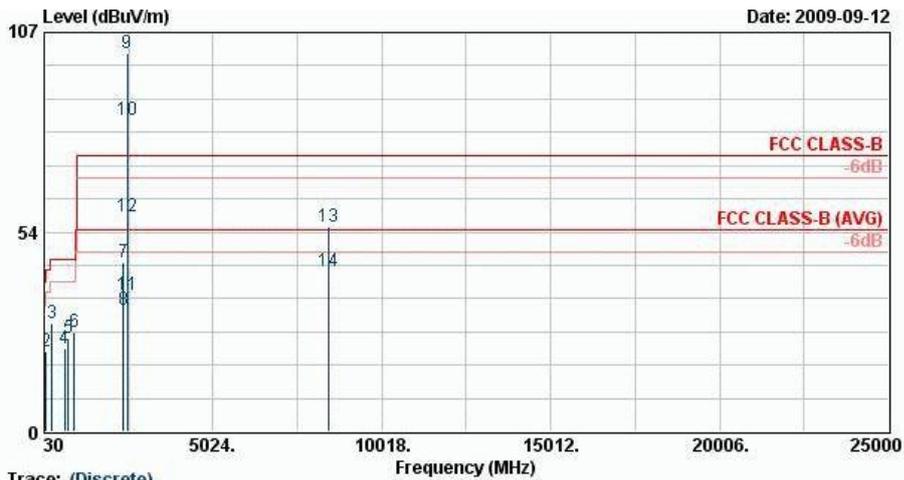


Trace: (Discrete)
 Site : 03CH07-RY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	32.97	38.84	-1.16	40.00	51.60	18.28	0.66	31.70	100	310	QP
2	41.34	26.00	-14.00	40.00	43.75	13.22	0.73	31.70	---	---	Peak
3	64.29	20.23	-19.77	40.00	44.74	6.26	0.93	31.70	---	---	Peak
4	556.90	21.56	-24.44	46.00	30.51	18.98	3.11	31.04	---	---	Peak
5	788.60	24.54	-21.46	46.00	29.57	21.88	3.82	30.72	---	---	Peak
6	917.40	27.34	-18.66	46.00	30.40	23.43	4.20	30.68	---	---	Peak
7	2316.00	45.16	-28.84	74.00	42.00	32.00	5.53	34.36	100	296	Peak
8	2316.00	33.02	-20.98	54.00	29.86	32.00	5.53	34.36	100	296	Average
9	2430.00	50.99	-23.01	74.00	47.76	32.19	5.43	34.39	100	0	Peak
10 @	2480.00	82.61			79.35	32.27	5.38	34.40	100	296	Average
11 X	2480.00	98.19			94.93	32.27	5.38	34.40	100	296	Peak
12	2483.50	33.27	-20.73	54.00	30.01	32.27	5.38	34.40	100	296	Average
13	2483.50	54.20	-19.80	74.00	50.94	32.27	5.38	34.40	100	296	Peak
14	8874.00	54.31	-19.69	74.00	43.17	36.22	10.30	35.37	100	274	Peak
15	8874.00	43.85	-10.15	54.00	32.71	36.22	10.30	35.37	100	274	Average



Test Mode :	Mode 4	Temperature :	28~29°C
Test Channel :	78	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

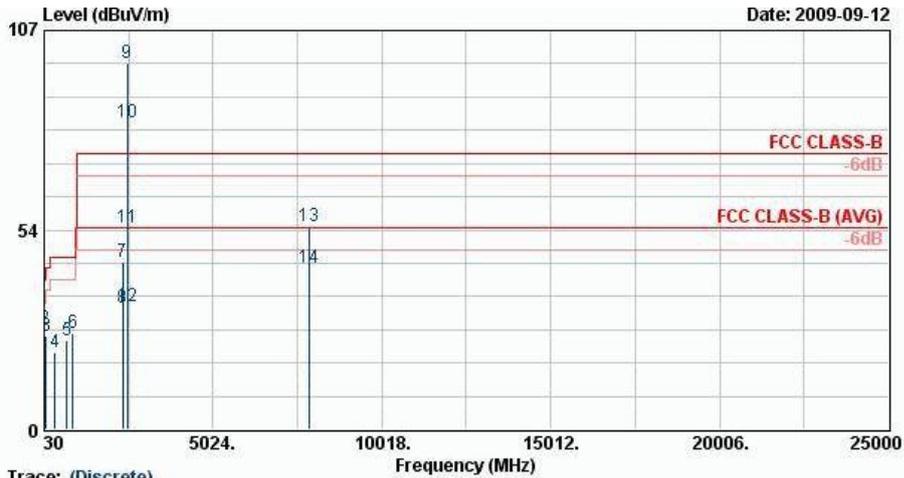


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	35.13	26.14	-13.86	40.00	39.96	17.20	0.68	31.70	100	128	Peak
2	89.13	21.45	-22.05	43.50	43.01	9.04	1.10	31.70	---	---	Peak
3	258.42	28.91	-17.09	46.00	44.76	13.68	1.94	31.48	---	---	Peak
4	642.30	22.08	-23.92	46.00	29.65	20.01	3.38	30.96	---	---	Peak
5	752.90	24.89	-21.11	46.00	30.17	21.81	3.71	30.80	---	---	Peak
6	931.40	26.54	-19.46	46.00	29.15	23.84	4.22	30.67	---	---	Peak
7	2366.00	45.51	-28.49	74.00	42.32	32.08	5.49	34.37	126	350	Peak
8	2366.00	32.73	-21.27	54.00	29.54	32.08	5.49	34.37	126	350	Average
9 X	2480.00	101.52			98.26	32.27	5.38	34.40	126	350	Peak
10 @	2480.00	83.45			80.19	32.27	5.38	34.40	126	350	Average
11	2483.50	36.60	-17.40	54.00	33.34	32.27	5.38	34.40	126	350	Average
12	2483.50	57.53	-16.47	74.00	54.27	32.27	5.38	34.40	126	350	Peak
13	8454.00	54.72	-19.28	74.00	43.87	36.00	10.14	35.30	100	258	Peak
14	8454.00	42.99	-11.01	54.00	32.15	36.00	10.14	35.30	100	258	Average



Test Mode :	Mode 4	Temperature :	28~29°C
Test Channel :	78	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 961306-03

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	32.97	37.34	-2.66	40.00	50.10	18.28	0.66	31.70	100	213	QP
2	42.69	27.18	-12.82	40.00	45.48	12.68	0.72	31.70	---	---	Peak
3	87.78	25.08	-14.92	40.00	46.81	8.88	1.09	31.70	---	---	Peak
4	340.60	20.87	-25.13	46.00	34.95	14.93	2.30	31.32	---	---	Peak
5	699.00	23.89	-22.11	46.00	30.36	20.88	3.55	30.90	---	---	Peak
6	881.00	25.93	-20.07	46.00	29.61	22.94	4.08	30.70	---	---	Peak
7	2350.00	45.13	-28.87	74.00	41.95	32.05	5.50	34.37	117	280	Peak
8	2350.00	32.64	-21.36	54.00	29.46	32.05	5.50	34.37	117	280	Average
9 X	2480.00	98.06			94.80	32.27	5.38	34.40	117	280	Peak
10 @	2480.00	82.19			78.93	32.27	5.38	34.40	117	280	Average
11	2483.50	54.07	-19.93	74.00	50.81	32.27	5.38	34.40	117	280	Peak
12	2483.50	33.14	-20.86	54.00	29.88	32.27	5.38	34.40	117	280	Average
13	7869.00	54.51	-19.49	74.00	44.02	35.97	9.78	35.27	100	168	Peak
14	7869.00	43.42	-10.58	54.00	32.94	35.97	9.78	35.27	100	168	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	FSP40	100055	9kHz~40GHz	Jun. 23, 2009	Jun. 22, 2010	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB412923 44	N/A	Feb. 19, 2009	Feb. 18, 2010	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US404415 48	N/A	Feb. 19, 2009	Feb. 18, 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. 26, 2008	Nov. 25, 2009	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 26, 2008	Nov. 25, 2009	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)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Nov. 20, 2008	Nov. 19, 2009	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 02, 2008	Dec. 01, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A023 62	1GHz~ 26.5GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/00 1	9 KHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)
Bluetooth Base Station	Anritsu	MT8852B	6K000057 22	N/A	Oct. 23, 2007	Oct. 22, 2009	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 Spec	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-shaped	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=1)	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 $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty $U_c(y)$	2.36				
Measuring uncertainty for a level of confidence of 95% $U = 2U_c(y)$	4.72				

6 Certification of TAF Accreditation



Certificate No. : L1190-090417

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : April 17, 2009

P1, total 20 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix



Appendix A. Photographs of EUT

Please refer to Sporton report number EP961306-03 as below.