FCC RF Test Report

APPLICANT	:	PSION INC.
EQUIPMENT	:	EP10 Hand-Held Computer
BRAND NAME	:	PSION
MODEL NAME	:	7515C
FCC ID	:	GM37515CA
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	Digital Spread Spectrum (DSS)

The product was received on Mar. 10, 2011 and completely tested on Jun. 20, 2011. 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:

Jones Tsai

Jones Tsai / 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.

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR143002A	Rev. 01	Initial issue of report	Jul. 19, 2011
FR143002A	Rev. 02	Update report for revising the received date of product and the requirements of FCC Part 15, Subpart B (certification)	Aug. 01, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	Number of Channels	≥ 15Chs	Pass	-
3.2	15.247(a)(1)	20dB Bandwidth	NA	Pass	-
3.2	-	99% Bandwidth	-	Pass	-
3.3	15.247(a)(1)	Channel Separation	≥ 2/3 of 20dB BW	Pass	-
3.4	15.247(a)(1)	Dwell Time of Each Channel	≤ 0.4sec in 31.6sec period	Pass	-
3.5	15.247(b)(1)	Peak Output Power	≤ 125 mW	Pass	-
3.6	15.247(d)	Frequency Band Edges	≤ 20dBc	Pass	-
3.7	15.247(d)	Spurious Emission	< 20 dBc	Pass	-
3.8	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 9 dB at 0.17 MHz
3.9	15.247(d)	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.74 dB at 32.97 MHz
3.10	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

PSION INC.
2100 Meadowvale Blvd, Mississauga ON L5N 7J9, CANADA

1.2 Manufacturer

PSION INC.
2100 Meadowvale Blvd, Mississauga ON L5N 7J9, CANADA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	EP10 Hand-Held Computer
Brand Name	psion
Model Name	7515C
FCC ID	GM37515CA
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) : 8.28 dBm (6.73 W) Bluetooth EDR (2Mbps) : 8.18 dBm (6.58 W) Bluetooth EDR (3Mbps) : 8.84 dBm (7.65 W)
Antenna Type	PIFA Antenna with gain 3.73 dBi
HW Version	2
SW Version	1.1
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.

List of Accessory:

Specification of Accessory		
AC Adapter 1	**Brand Name**	Leader
	Model Name	IU18-2050300-WP
AC Adapter 2	**Brand Name**	Phihong
	Model Name	PSA15R-050P
Battery	**Brand Name**	PSION / ETI
	Model Name	RV3010 / BP08-000760
Car Charger	**Brand Name**	AOEM
	Model Name	C15C-0520CD0-C0
Desktop Charger Cradle (Single Dock)	**Brand Name**	PSION
	Model Name	RV4000
Desktop Charger Cradle (AC Adapter)	**Brand Name**	FSP
	Model Name	FSP050-DBAB1
Charger Snap Module 1	**Brand Name**	PSION
	Model Name	RV4001
Charger Snap Module 2	**Brand Name**	PSION
	Model Name	RV4002
LCD Panel	**Brand Name**	Sharp
	Model Name	LS037V7DW01
Pouch	**Brand Name**	Psion
	Model Name	RV6091

Remark: For accessories equipped with this EUT, please refer to Appendix A.

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	722060/4086B-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

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 (certification), 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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	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.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
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	7.77 dBm	7.65 dBm	8.34 dBm
Ch39	2441MHz	8.18 dBm	8.03 dBm	8.72 dBm
Ch78	2480MHz	8.28 dBm	8.18 dBm	**8.84 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

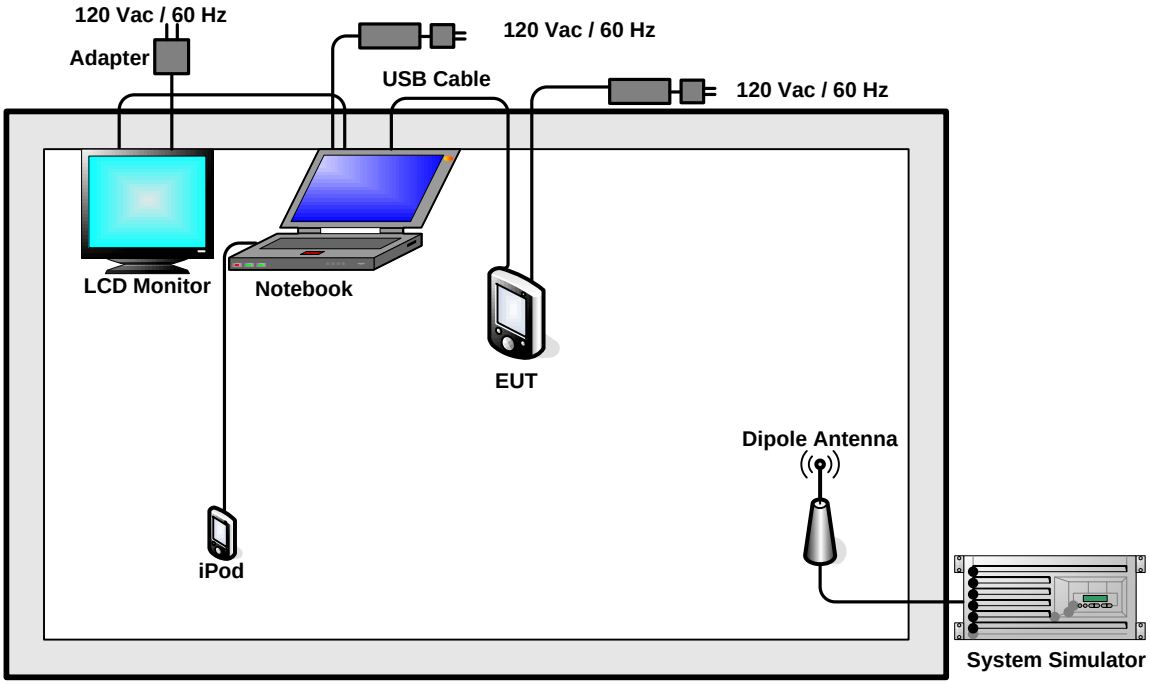
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest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

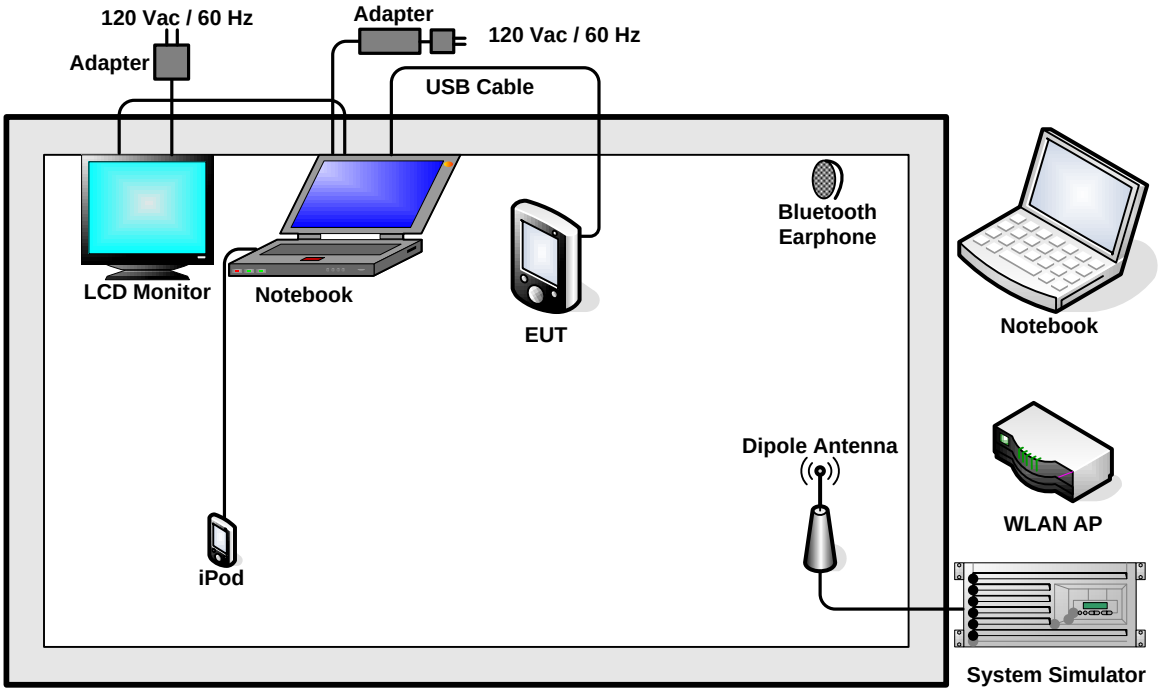
Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth 1Mbps GFSK	**Bluetooth EDR 2Mbps π/4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 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 :GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + MP3 + Camera + Sleeve (USB + DC Jack) + Battery 3600mA + AC Wall Adapter 1 + USB Cable(Link with Notebook)		
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>



<AC Conducted Emission Mode>



2.4 RF Utility

For Bluetooth function, the RF utility, “BTTest” was installed in EUT which was programmed in order to make the EUT into the engineering modes to 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.

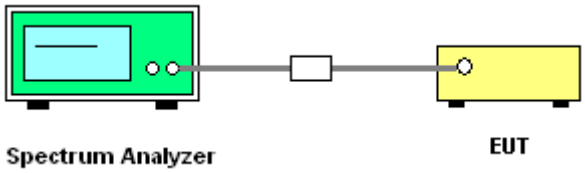
3.1.2 Measuring Instruments

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

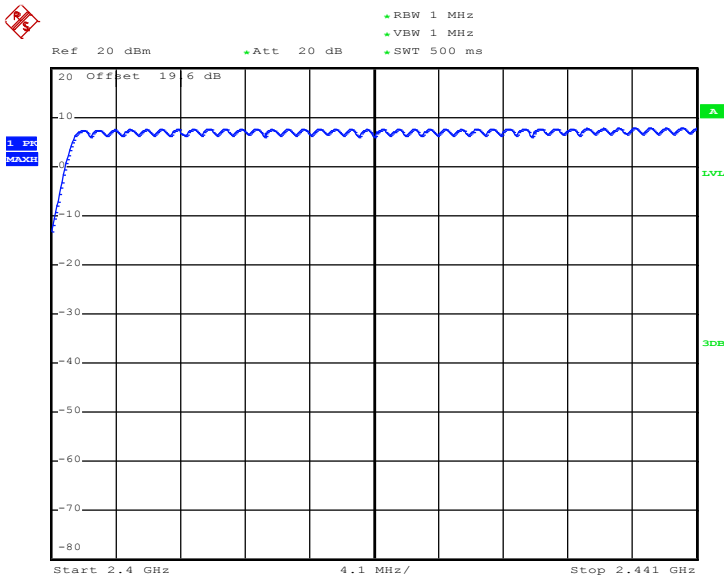


3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	Mode 7~9	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

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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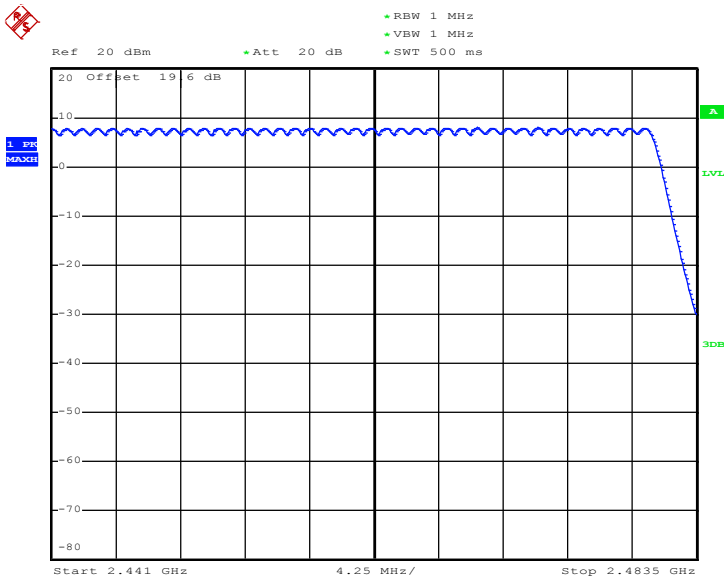


Date: 15.MAR.2011 08:32:36

3.2 20dB Bandwidth Measurement

3.2.1 Limit of 20dB Bandwidth

N/A

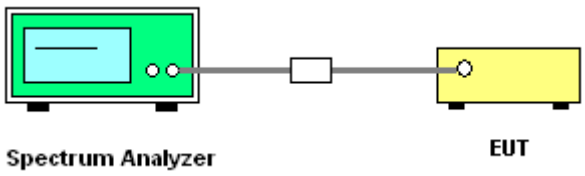
3.2.2 Measuring Instruments

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

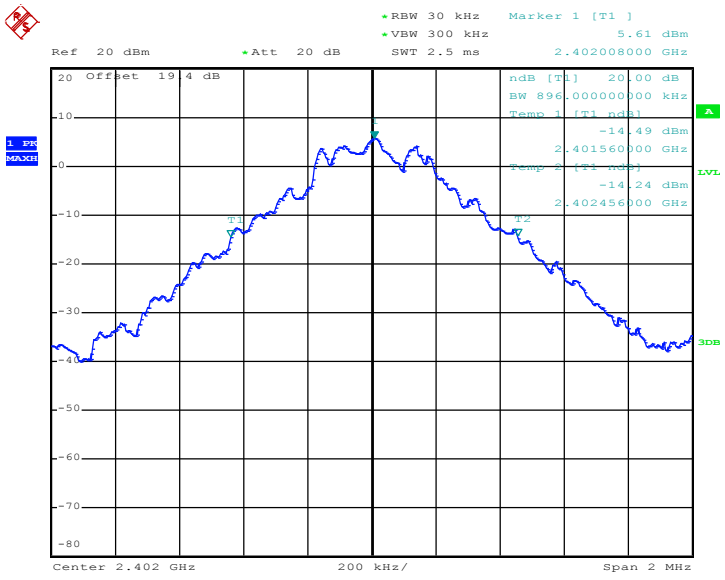


3.2.5 Test Result of 20dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.896
39	2441	0.864
78	2480	0.852

20 dB Bandwidth Plot on Channel 00



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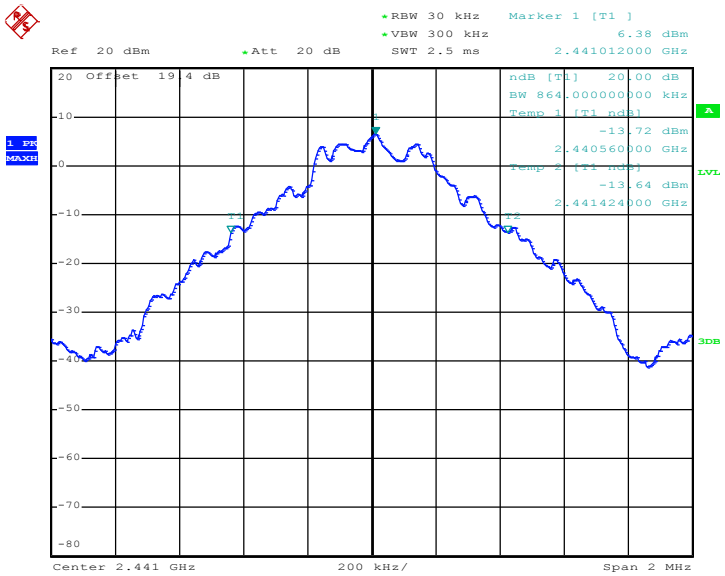
20 dB Bandwidth Plot on Channel 39



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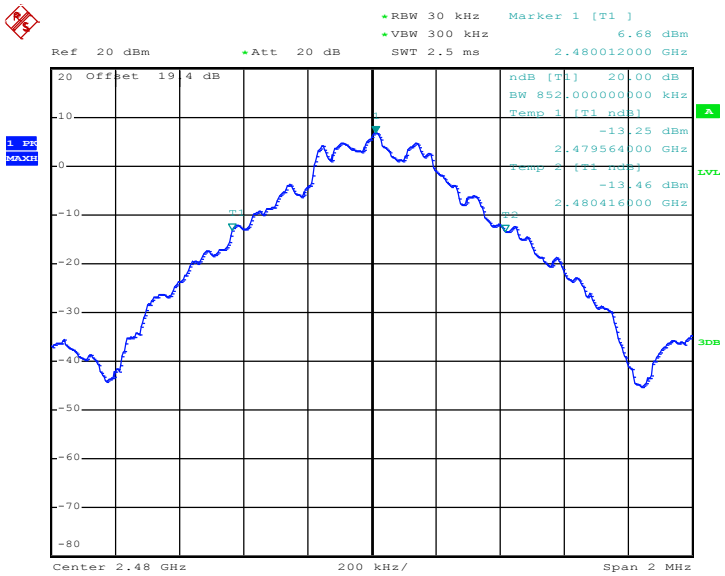
20 dB Bandwidth Plot on Channel 78



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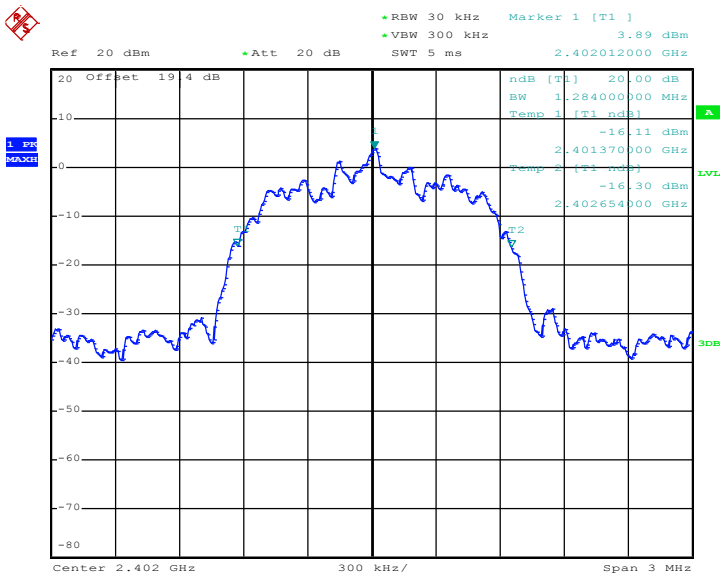
Test Mode :	Mode 4, 5, 6	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.284
39	2441	1.302
78	2480	1.308

20 dB Bandwidth Plot on Channel 00



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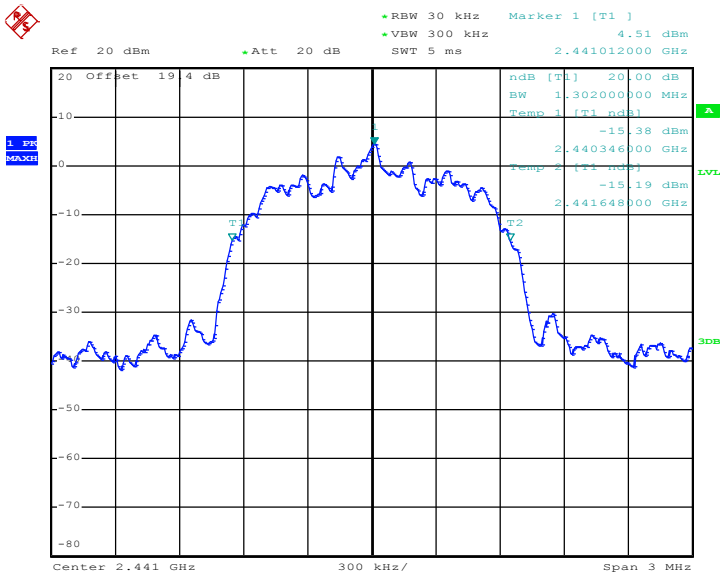
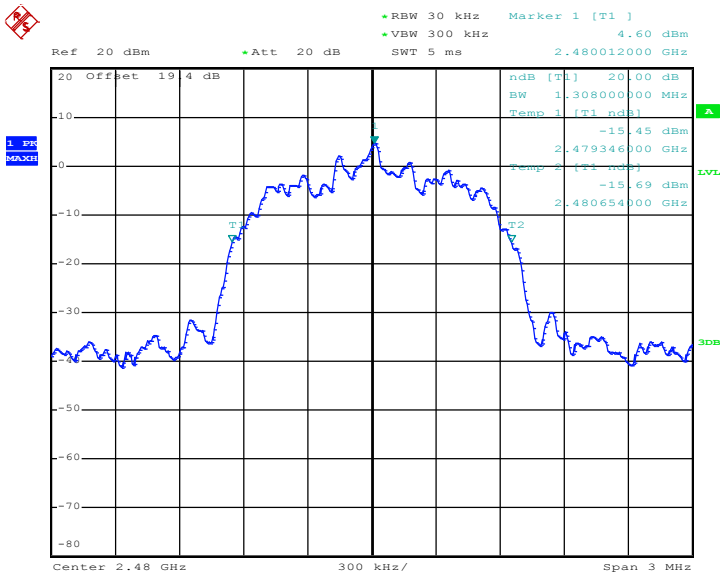
20 dB Bandwidth Plot on Channel 39



Date: 10.MAR.2011 18:40:19

20 dB Bandwidth Plot on Channel 78

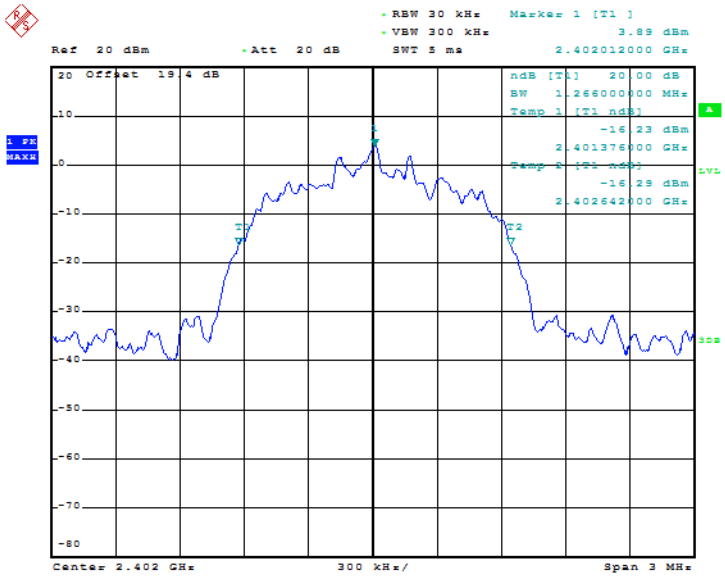


Date: 10.MAR.2011 18:40:41

Test Mode :	Mode 7, 8, 9	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.266
39	2441	1.260
78	2480	1.266

20 dB Bandwidth Plot on Channel 00



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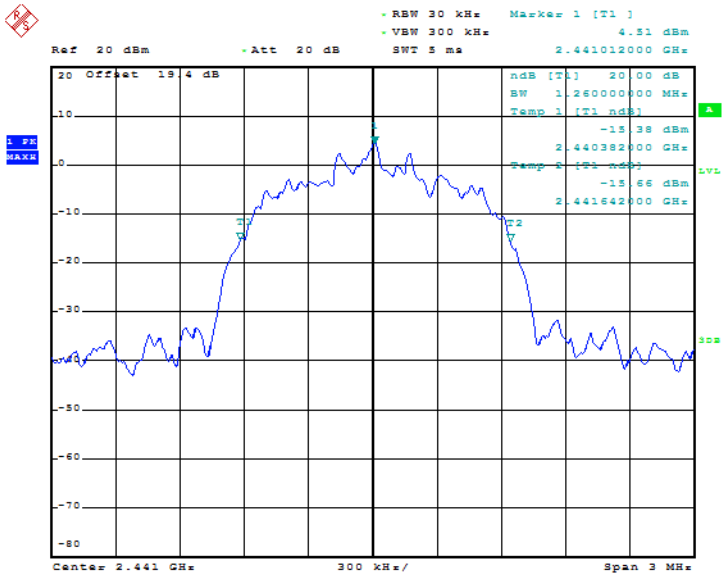
20 dB Bandwidth Plot on Channel 39



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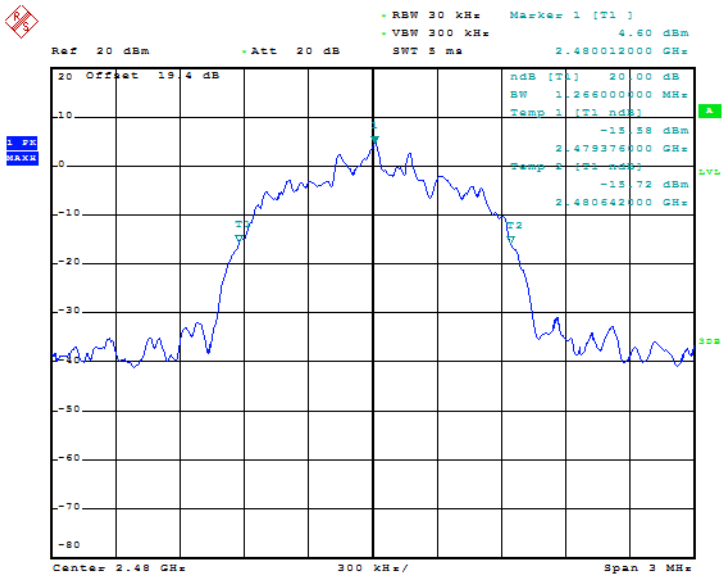
20 dB Bandwidth Plot on Channel 78



Date: 10.MAR.2011 18:41:42

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.

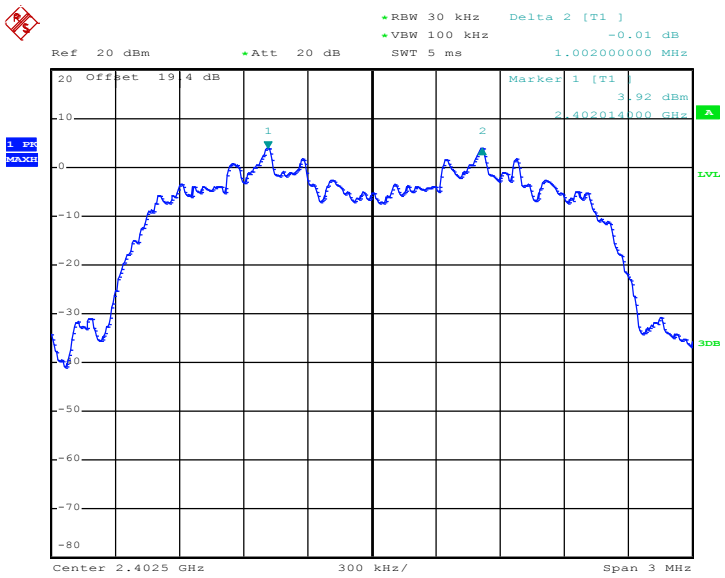
3.3.4 Test Setup

3.3.5 Test Result of Hopping Channel Separation

Test Mode :	Mode 7, 8, 9	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.844	Pass
39	2441	1.002	0.840	Pass
78	2480	1.002	0.844	Pass

Channel Separation Plot on Channel 00 - 01



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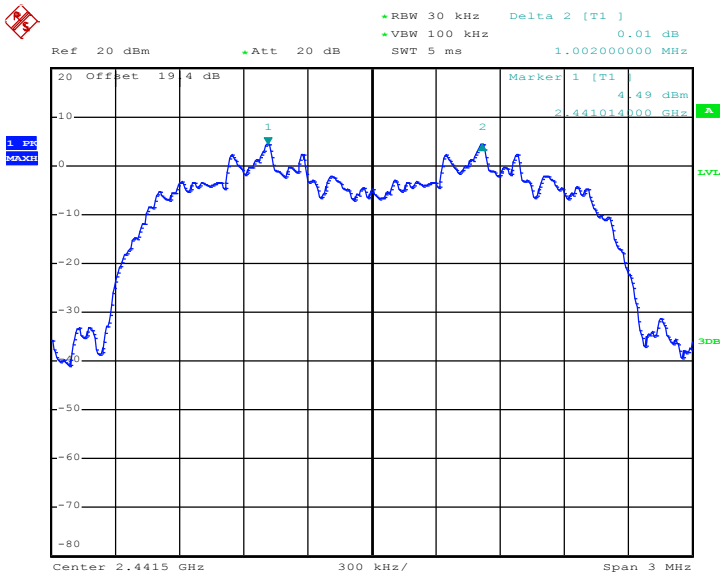
Channel Separation Plot on Channel 39 - 40



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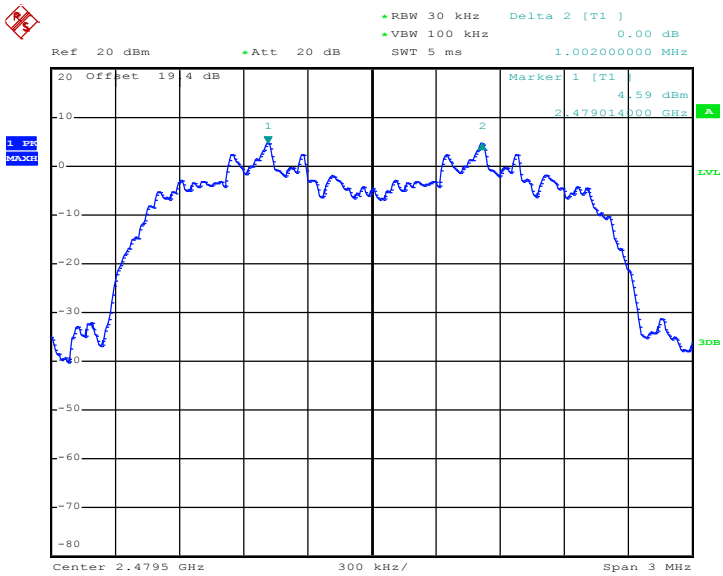
Channel Separation Plot on Channel 77 - 78



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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 2, 5, 8	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
3DH5	3.3	3012	0.31	0.4	Pass

Remark:

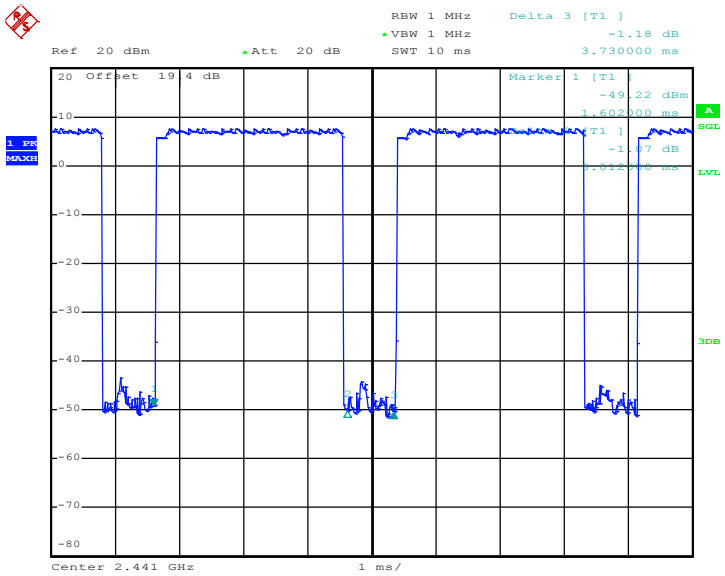
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time

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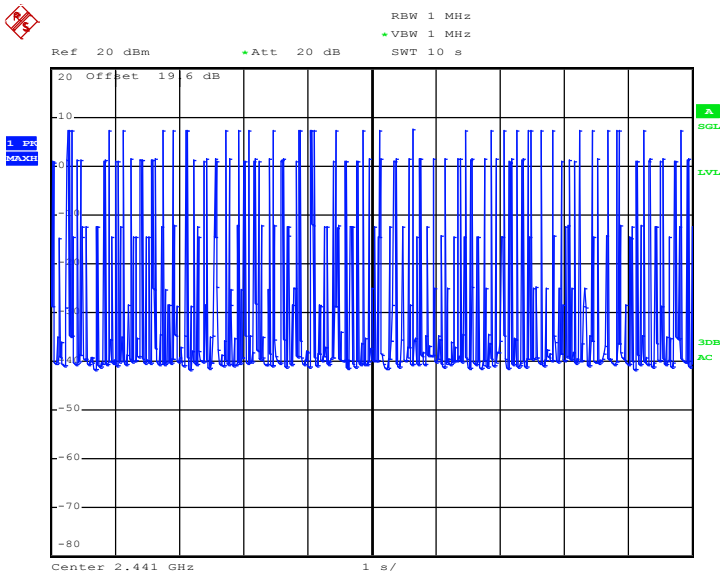
3DH5 Dwell Time (Count Pulses) Plot on Channel 39



Date: 16.MAR.2011 11:32:35

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 may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW (20.97dBm).

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.

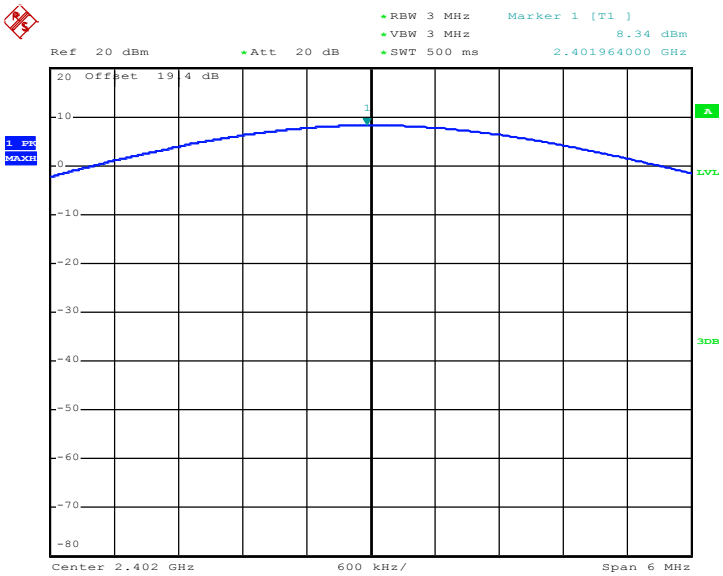
3.5.4 Test Setup

3.5.5 Test Result of Peak Output Power

Test Mode :	Mode 7, 8, 9	Temperature :	24~26.0℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits	Pass/Fail
		3 Mbps	(dBm)	
00	2402	8.3404	20.97	Pass
39	2441	8.7159	20.97	Pass
78	2480	8.8367	20.97	Pass

Peak Output Power Plot on Channel 00



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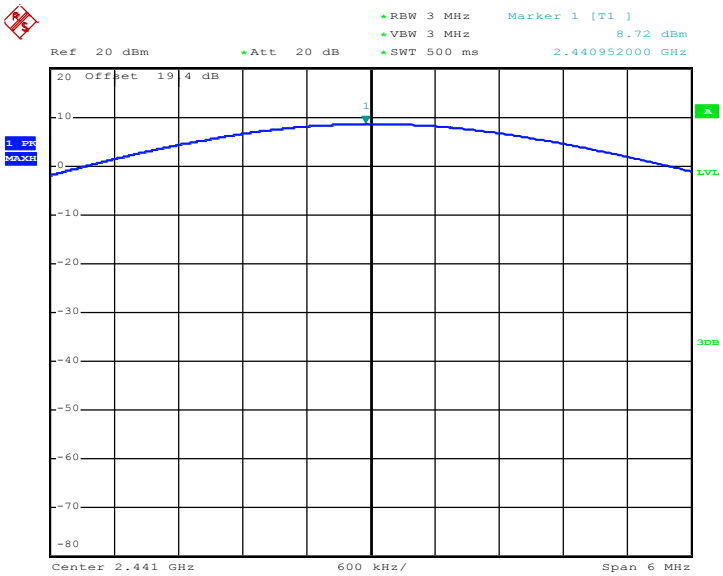
Peak Output Power Plot on Channel 39



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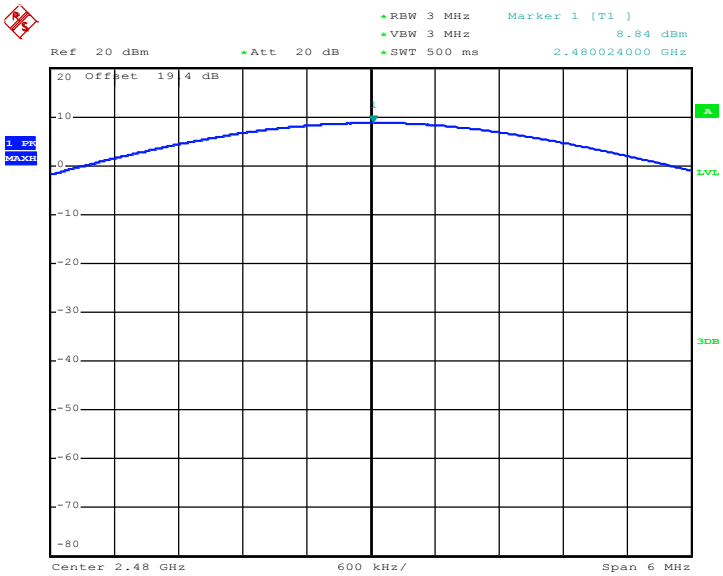
Peak Output Power Plot on Channel 78



Date: 10.MAR.2011 18:15:25

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

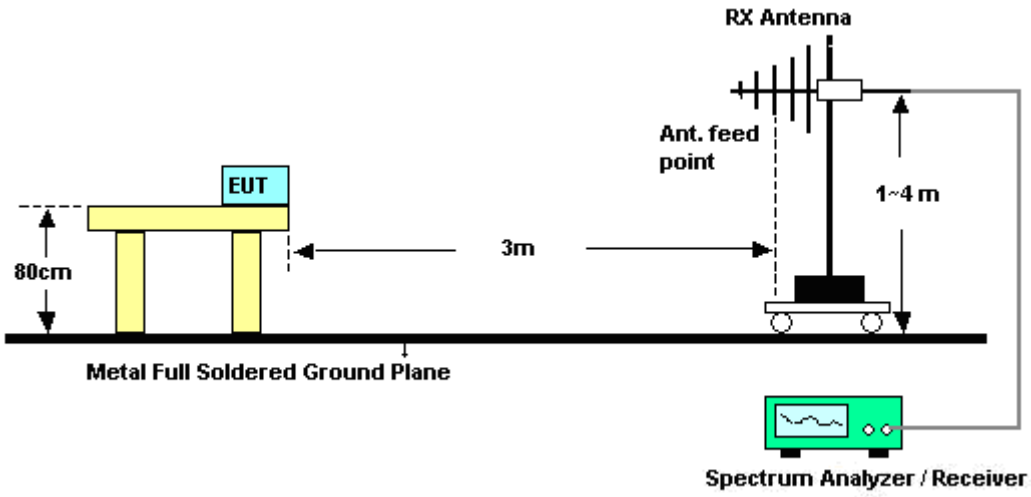
See list of measuring instruments of this test report.

3.6.3 Test Procedures

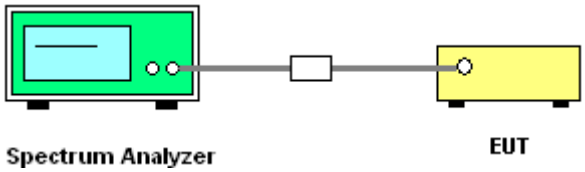
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC Public Notice DA 00-705 Measurement Guidelines.
2. RF antenna conducted test: Set RBW = 300kHz, Video bandwidth (VBW) ≥ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured 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 :	23~25 °C
Test Channel :	00	Relative Humidity :	49~51%
		Test Engineer :	Ivan Chiang

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
2379.73	59.71	-14.29	74	55.4	32.16	5.99	33.84	132	40	Peak
2379.73	35.27	-18.73	54	30.96	32.16	5.99	33.84	132	40	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
2379.73	61.66	-12.34	74	57.35	32.16	5.99	33.84	100	31	Peak
2379.73	36.11	-17.89	54	31.8	32.16	5.99	33.84	100	31	Average

Test Mode :	Mode 3	Temperature :	23~25 °C
Test Channel :	78	Relative Humidity :	49~51%
		Test Engineer :	Ivan Chiang

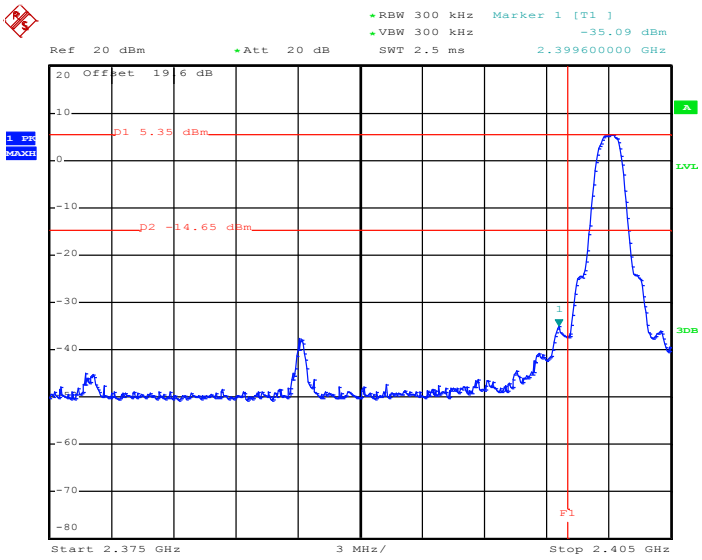
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	60.14	-13.86	74	55.58	32.28	6.18	33.9	103	344	Peak
2483.5	41.5	-12.5	54	36.94	32.28	6.18	33.9	103	344	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
2483.5	61.03	-12.97	74	56.47	32.28	6.18	33.9	122	30	Peak
2483.5	42.57	-11.43	54	38.01	32.28	6.18	33.9	122	30	Average

3.6.6 Test Result of Conducted Band Edges

Test Mode :	Mode 7 and 9	**Temperature :**	24~26.0℃
Test Channel :	00 and 78	**Relative Humidity :**	50~53%
		Test Engineer :	Pinkston Tu

Low Band Edge Plot on Channel 00



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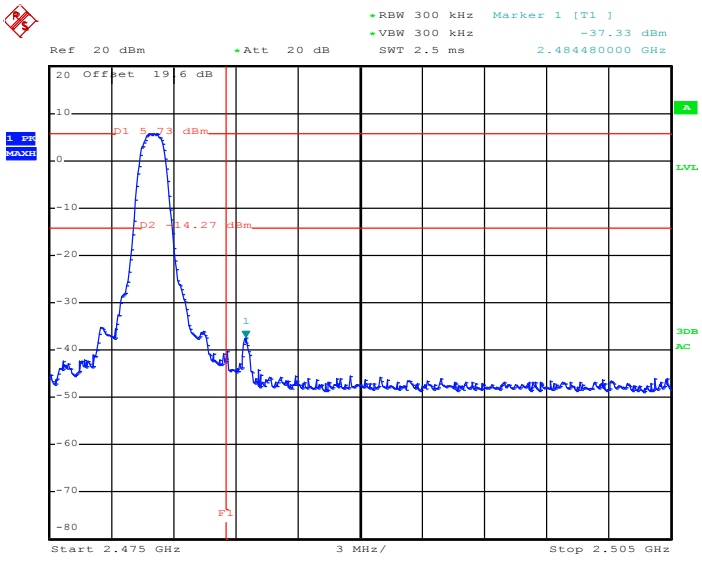
High Band Edge Plot on Channel 78



Date: 16.MAR.2011 11:09:49

3.7 Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

All harmonics/spurious 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

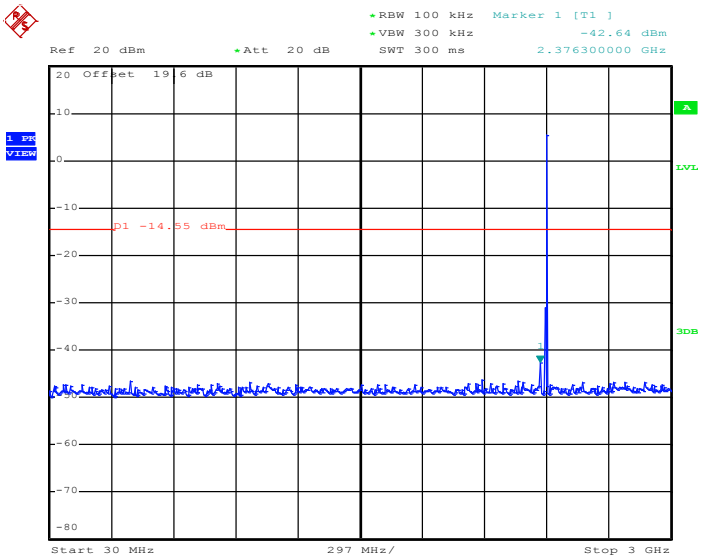
1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) ≥ RBW, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100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

3.7.4 Test Setup

3.7.5 Test Result

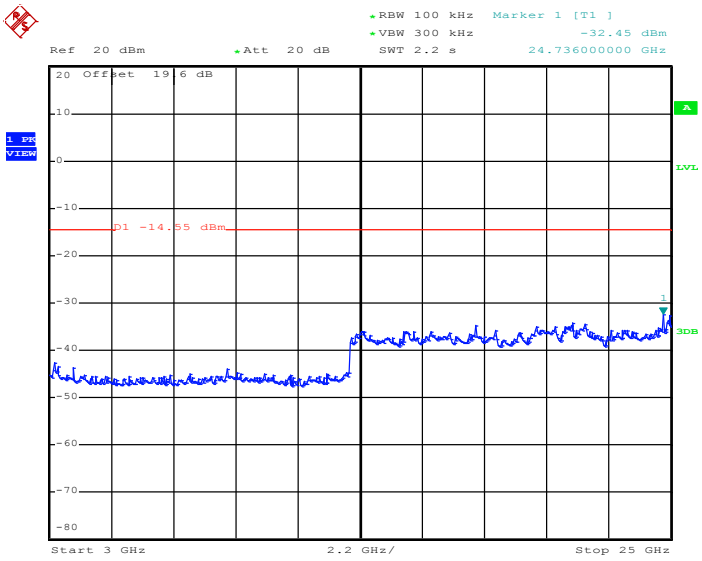
Test Mode :	Mode 7	Temperature :	24~26.0℃
Test Channel :	00	Relative Humidity :	50~53%
		Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 14:31:00

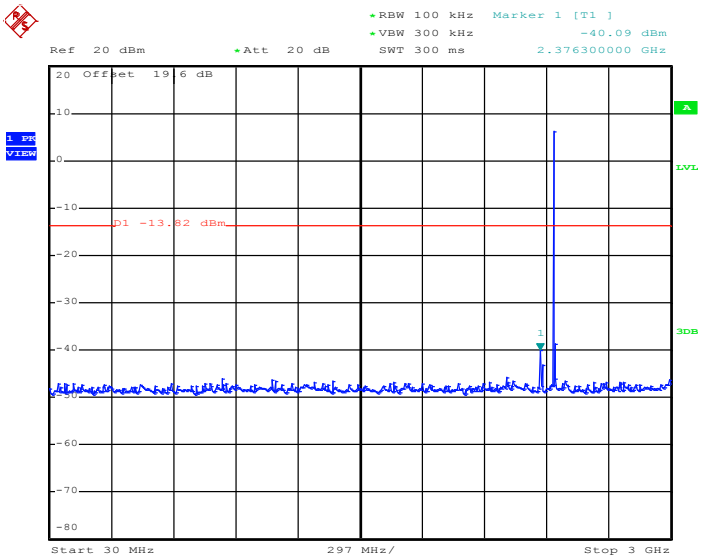
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 16.MAR.2011 14:31:22

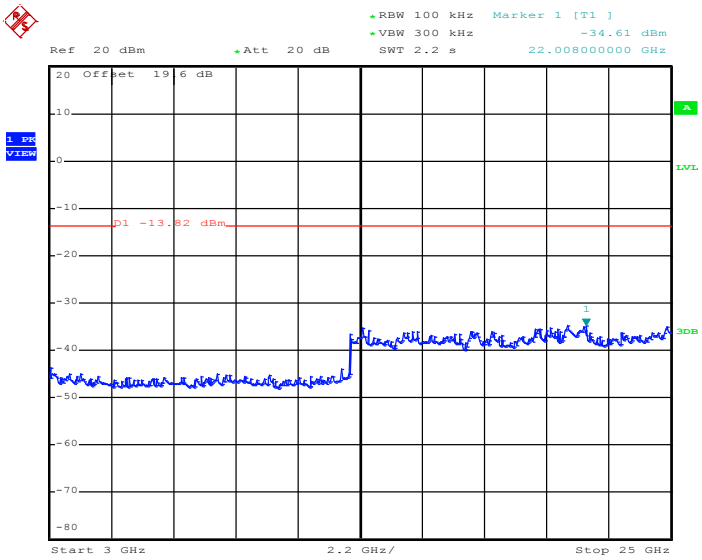
Test Mode :	Mode 8	**Temperature :**	24~26.0℃
Test Channel :	39	**Relative Humidity :**	50~53%
		Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 14:28:06

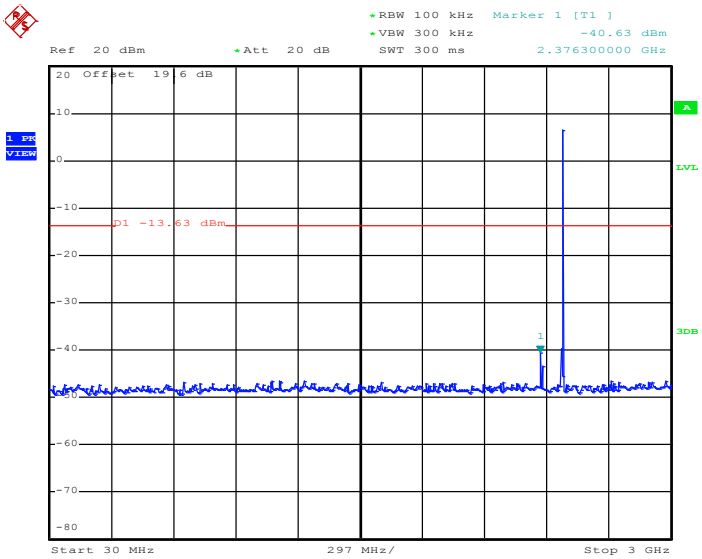
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 16.MAR.2011 14:28:18

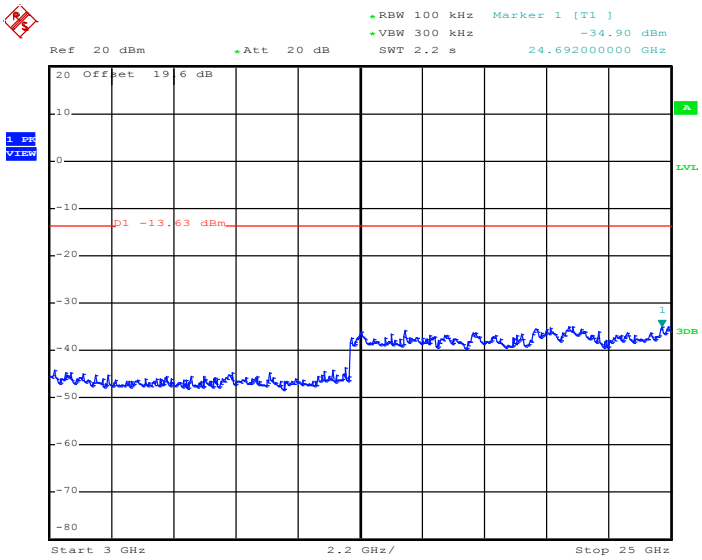
Test Mode :	Mode 9	**Temperature :**	24~26.0℃
Test Channel :	78	**Relative Humidity :**	50~53%
		Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 14:29:09

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 16.MAR.2011 14:29:22

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.

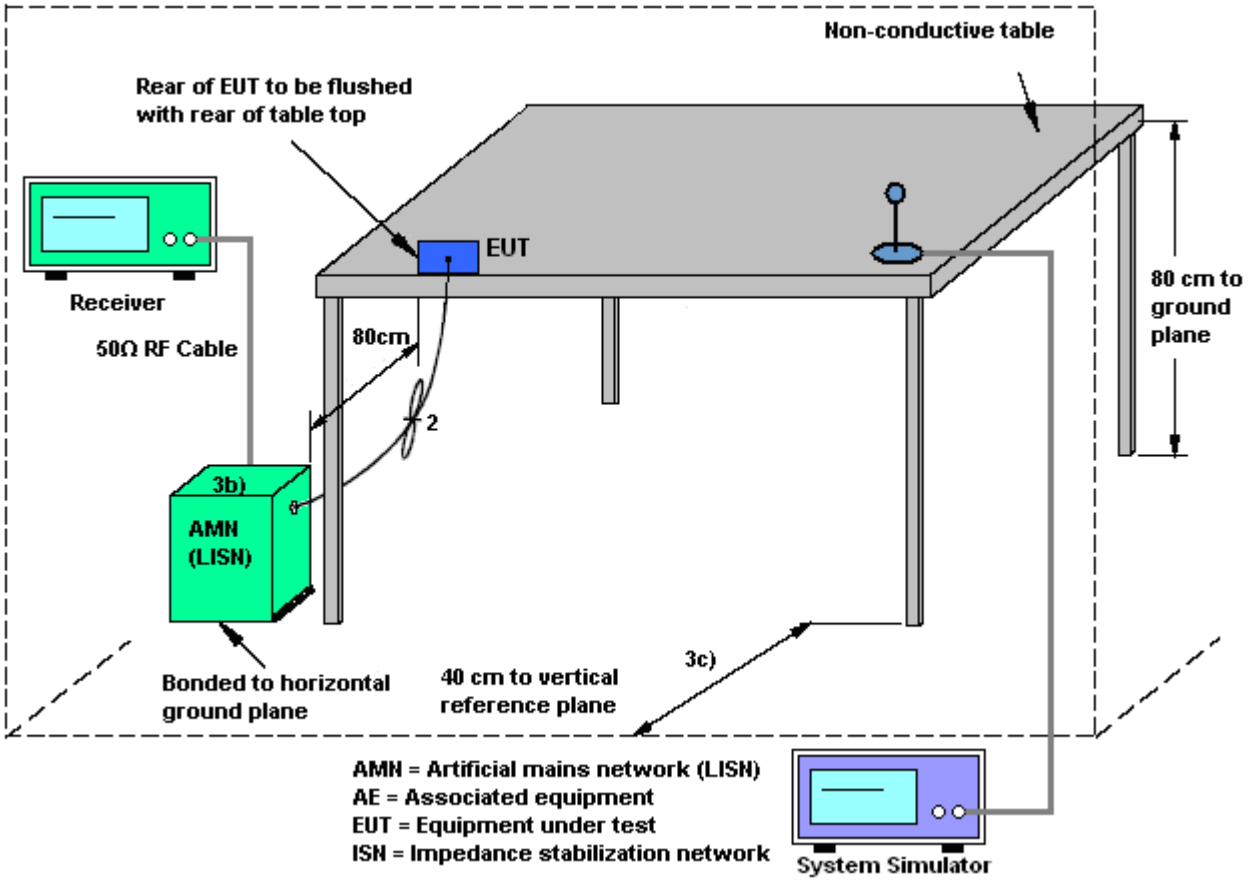
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

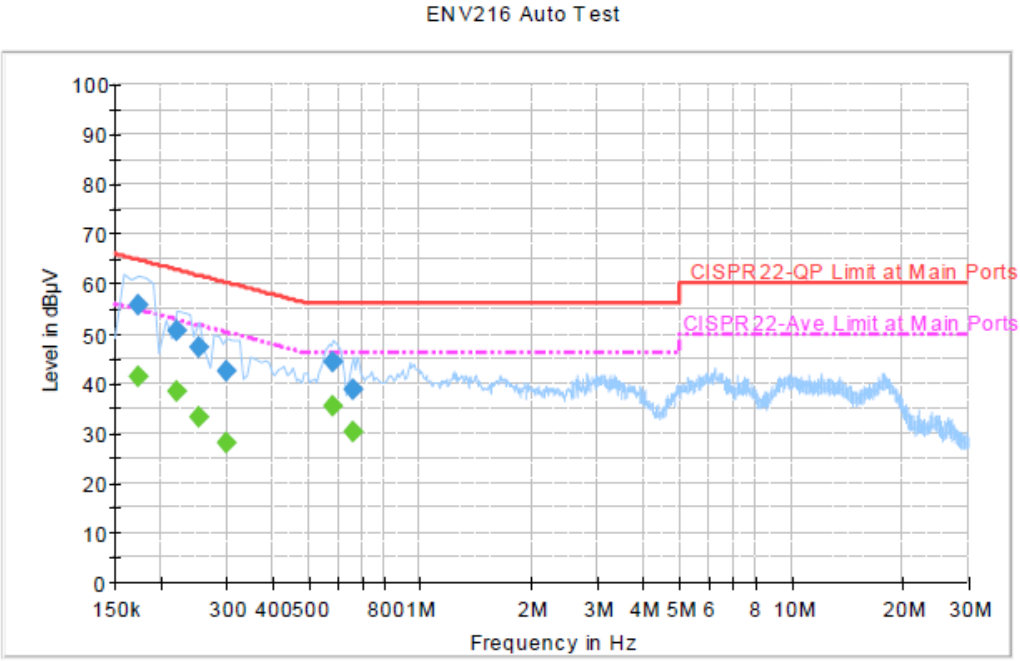
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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 Chiang	**Relative Humidity :**	40~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + MP3 + Camera + Sleeve (USB + DC Jack) + Battery 3600mA + AC Wall Adapter 1 + USB Cable(Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



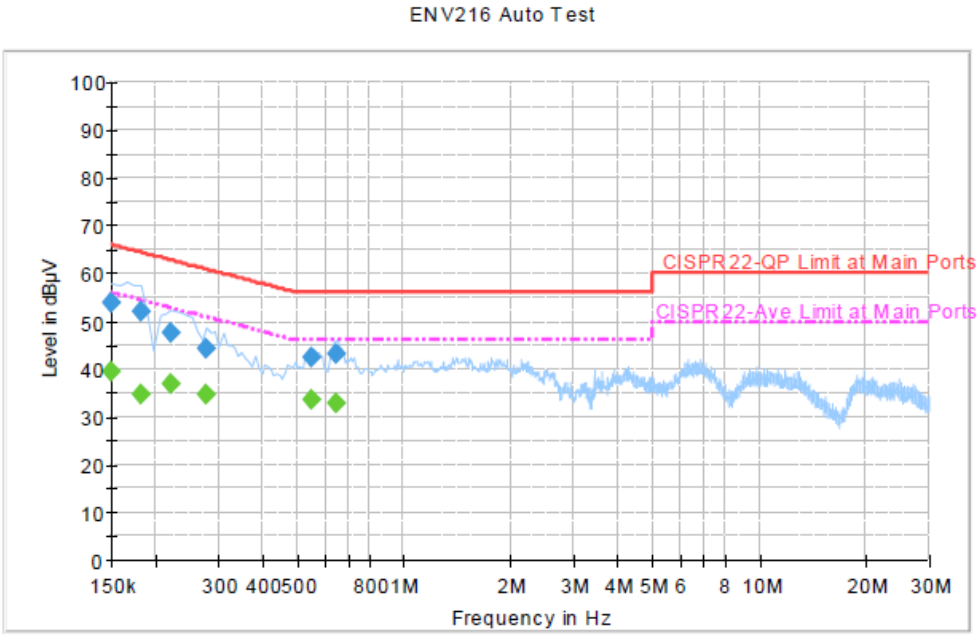
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	55.8	Off	L1	19.4	9.0	64.8
0.222000	50.7	Off	L1	19.4	12.0	62.7
0.254000	47.2	Off	L1	19.4	14.4	61.6
0.302000	42.6	Off	L1	19.4	17.6	60.2
0.582000	44.3	Off	L1	19.4	11.7	56.0
0.662000	38.8	Off	L1	19.4	17.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	41.5	Off	L1	19.4	13.3	54.8
0.222000	38.5	Off	L1	19.4	14.2	52.7
0.254000	33.3	Off	L1	19.4	18.3	51.6
0.302000	28.0	Off	L1	19.4	22.2	50.2
0.582000	35.5	Off	L1	19.4	10.5	46.0
0.662000	30.4	Off	L1	19.4	15.6	46.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Novic Chiang	**Relative Humidity :**	40~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + MP3 + Camera + Sleeve (USB + DC Jack) + Battery 3600mA + AC Wall Adapter 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	54.0	Off	N	19.4	12.0	66.0
0.182000	52.1	Off	N	19.4	12.3	64.4
0.222000	47.7	Off	N	19.4	15.0	62.7
0.278000	44.4	Off	N	19.4	16.5	60.9
0.550000	42.4	Off	N	19.4	13.6	56.0
0.646000	43.0	Off	N	19.4	13.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.5	Off	N	19.4	16.5	56.0
0.182000	34.5	Off	N	19.4	19.9	54.4
0.222000	36.8	Off	N	19.4	15.9	52.7
0.278000	34.7	Off	N	19.4	16.2	50.9
0.550000	33.6	Off	N	19.4	12.4	46.0
0.646000	32.7	Off	N	19.4	13.3	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

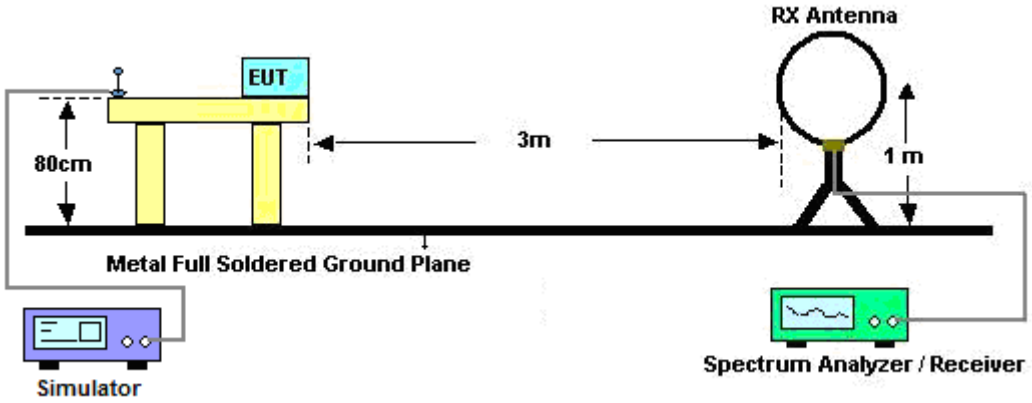
See list of measuring instruments of this test report.

3.9.3 Test Procedures

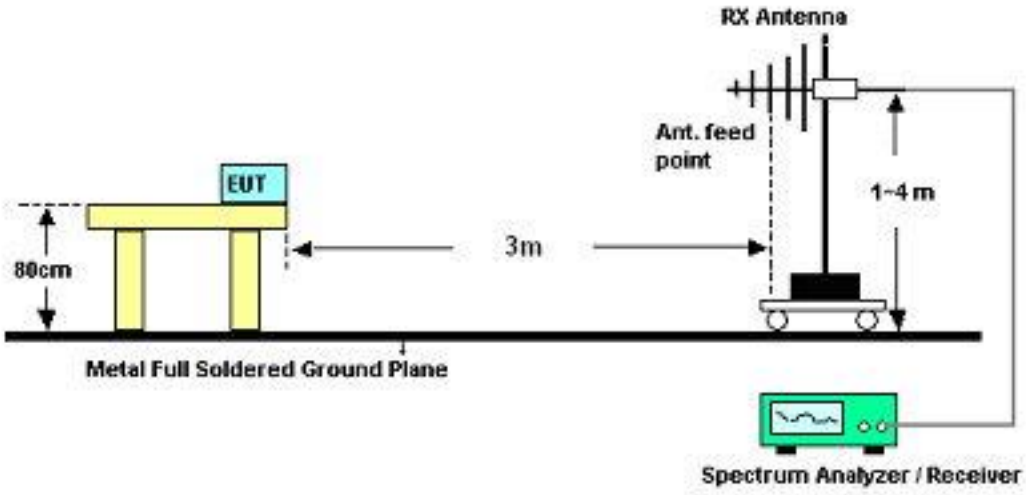
1. The testing follows the guidelines in FCC Public Notice DA 00-705 Measurement Guidelines.
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = 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.
4. Measured average value for the peak value is greater than 54 dBuv/m

3.9.4 Test Setup

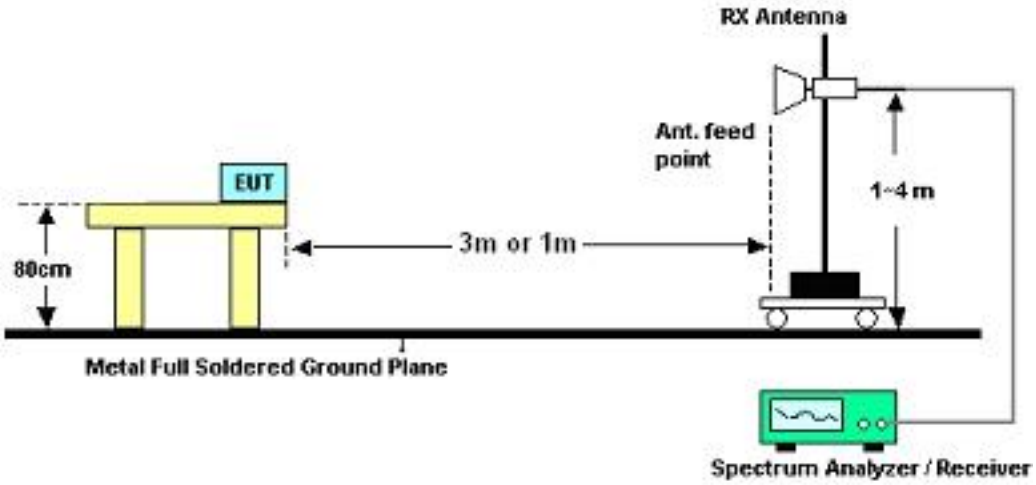
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Ivan Chiang	Temperature :	23~25 °C
		Relative Humidity :	49~51%

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 :	23~25 °C
Test Channel :	00	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	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
43.77	31.35	-8.65	40	51.08	11.13	0.64	31.5	100	163	Peak
167.7	27.76	-15.74	43.5	48.16	9.89	1.23	31.52	-	-	Peak
240.06	32.23	-13.77	46	50.14	11.98	1.53	31.42	-	-	Peak
335	34.66	-11.34	46	49.56	14.54	1.87	31.31	-	-	Peak
478.5	31.44	-14.56	46	42.27	17.86	2.37	31.06	-	-	Peak
659.8	28.79	-17.21	46	36.36	20.43	2.86	30.86	-	-	Peak
2379.73	59.71	-14.29	74	55.4	32.16	5.99	33.84	132	40	Peak
2379.73	35.27	-18.73	54	30.96	32.16	5.99	33.84	132	40	Average
2402	105.11	-	-	100.73	32.2	6.03	33.85	132	40	Peak
2402	87.24	-	-	82.88	32.18	6.03	33.85	132	40	Average
2486	32.43	-21.57	54	27.87	32.28	6.18	33.9	132	40	Average
2486	44.75	-29.25	74	40.19	32.28	6.18	33.9	132	40	Peak
4804	47.02	-26.98	74	62.98	34.06	9.12	59.14	100	0	Peak

Test Mode :	Mode 1	Temperature :	23~25 °C
Test Channel :	00	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	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
30.54	35.09	-4.91	40	49.74	16.27	0.54	31.46	-	-	Peak
41.34	35.17	-4.83	40	54.01	12.04	0.63	31.51	100	26	Peak
109.65	29.02	-14.48	43.5	48.9	10.62	1.05	31.55	-	-	Peak
358.1	30.75	-15.25	46	44.71	15.27	2.04	31.27	-	-	Peak
430.9	31.17	-14.83	46	42.98	17.07	2.25	31.13	-	-	Peak
719.3	25.93	-20.07	46	32.51	21.2	2.99	30.77	-	-	Peak
2332	60.33	-13.67	74	56.12	32.09	5.95	33.83	100	31	Peak
2332	34.67	-19.33	54	30.46	32.09	5.95	33.83	100	31	Average
2379.73	61.66	-12.34	74	57.35	32.16	5.99	33.84	100	31	Peak
2379.73	36.11	-17.89	54	31.8	32.16	5.99	33.84	100	31	Average
2402	88.74	-	-	84.38	32.18	6.03	33.85	100	31	Average
2402	106.67	-	-	102.29	32.2	6.03	33.85	100	31	Peak
2484	44.91	-29.09	74	40.35	32.28	6.18	33.9	100	31	Peak
2484	32.61	-21.39	54	28.05	32.28	6.18	33.9	100	31	Average
4804	43.65	-30.35	74	59.61	34.06	9.12	59.14	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~25 °C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	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
43.77	31.49	-8.51	40	51.22	11.13	0.64	31.5	100	141	Peak
191.73	27.23	-16.27	43.5	48.36	9.08	1.29	31.5	-	-	Peak
264.09	30.86	-15.14	46	47.76	12.89	1.61	31.4	-	-	Peak
335	36.17	-9.83	46	51.07	14.54	1.87	31.31	-	-	Peak
358.1	36.74	-9.26	46	50.7	15.27	2.04	31.27	-	-	Peak
383.3	33.84	-12.16	46	46.91	16.05	2.11	31.23	-	-	Peak
2380	55.45	-18.55	74	51.11	32.16	6.03	33.85	103	338	Peak
2380	33.26	-20.74	54	28.92	32.16	6.03	33.85	103	338	Average
2441	105.92	-	-	101.45	32.24	6.11	33.88	103	338	Peak
2441	87.74	-	-	83.27	32.24	6.11	33.88	103	338	Average
2492	47.02	-26.98	74	42.44	32.3	6.18	33.9	103	338	Peak
2492	33.14	-20.86	54	28.56	32.3	6.18	33.9	103	338	Average
3249	44.87	-41.05	85.92	63.69	32.76	7.29	58.87	100	0	Peak
4882	47.86	-26.14	74	63.68	34.08	9.14	59.04	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~25 °C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	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
31.62	33.96	-6.04	40	48.83	16.04	0.55	31.46	-	-	Peak
42.42	34.58	-5.42	40	53.86	11.59	0.64	31.51	100	316	Peak
179.85	29.68	-13.82	43.5	50.85	9.11	1.25	31.53	-	-	Peak
310.5	30.62	-15.38	46	46.36	13.79	1.79	31.32	-	-	Peak
358.1	30.35	-15.65	46	44.31	15.27	2.04	31.27	-	-	Peak
918.1	26.35	-19.65	46	29.76	23.86	3.38	30.65	-	-	Peak
2332	60.79	-13.21	74	56.58	32.09	5.95	33.83	124	25	Peak
2332	33.47	-20.53	54	29.26	32.09	5.95	33.83	124	25	Average
2380	60.55	-13.45	74	56.21	32.16	6.03	33.85	124	25	Peak
2380	33.44	-20.56	54	29.1	32.16	6.03	33.85	124	25	Average
2441	88.96	-	-	84.49	32.24	6.11	33.88	124	25	Average
2441	106.99	-	-	102.52	32.24	6.11	33.88	124	25	Peak
2492	33.29	-20.71	54	28.71	32.3	6.18	33.9	124	25	Average
2492	52.18	-21.82	74	47.6	32.3	6.18	33.9	124	25	Peak
3249	41.86	-45.13	86.99	60.68	32.76	7.29	58.87	100	0	Peak
4882	44	-30	74	59.82	34.08	9.14	59.04	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~25 °C
Test Channel :	78	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	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
44.58	32.17	-7.83	40	52.35	10.67	0.65	31.5	123	142	Peak
240.06	32.67	-13.33	46	50.58	11.98	1.53	31.42	-	-	Peak
287.85	34.29	-11.71	46	50.67	13.27	1.68	31.33	-	-	Peak
310.5	34.7	-11.3	46	50.44	13.79	1.79	31.32	-	-	Peak
383.3	34.26	-11.74	46	47.33	16.05	2.11	31.23	-	-	Peak
430.9	37.71	-8.29	46	49.52	17.07	2.25	31.13	-	-	Peak
2380	55.64	-18.36	74	51.3	32.16	6.03	33.85	103	344	Peak
2380	33.1	-20.9	54	28.76	32.16	6.03	33.85	103	344	Average
2480	106.64	-	-	102.08	32.28	6.18	33.9	103	344	Peak
2480	88.33	-	-	83.77	32.28	6.18	33.9	103	344	Average
2483.5	60.14	-13.86	74	55.58	32.28	6.18	33.9	103	344	Peak
2483.5	41.5	-12.5	54	36.94	32.28	6.18	33.9	103	344	Average
3306	46.2	-27.8	74	65.03	32.71	7.39	58.93	100	0	Peak
4960	46.89	-27.11	74	62.55	34.09	9.16	58.91	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~25 °C
Test Channel :	78	Relative Humidity :	49~51%
Test Engineer :	Ivan Chiang	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
32.97	35.26	-4.74	40	50.37	15.8	0.56	31.47	105	74	Peak
41.61	35	-5	40	53.84	12.04	0.63	31.51	-	-	Peak
94.26	29.9	-13.6	43.5	51.34	9.12	0.97	31.53	-	-	Peak
358.1	34.57	-11.43	46	48.53	15.27	2.04	31.27	-	-	Peak
383.3	29.88	-16.12	46	42.95	16.05	2.11	31.23	-	-	Peak
430.9	27.93	-18.07	46	39.74	17.07	2.25	31.13	-	-	Peak
2332	32.46	-21.54	54	28.25	32.09	5.95	33.83	122	30	Average
2332	54.47	-19.53	74	50.26	32.09	5.95	33.83	122	30	Peak
2380	60.05	-13.95	74	55.71	32.16	6.03	33.85	122	30	Peak
2380	33.16	-20.84	54	28.82	32.16	6.03	33.85	122	30	Average
2480	90.05	-	-	85.49	32.28	6.18	33.9	122	30	Average
2480	108.49	-	-	103.93	32.28	6.18	33.9	122	30	Peak
2483.5	61.03	-12.97	74	56.47	32.28	6.18	33.9	122	30	Peak
2483.5	42.57	-11.43	54	38.01	32.28	6.18	33.9	122	30	Average
3306	40.25	-33.75	74	59.08	32.71	7.39	58.93	100	0	Peak
4960	44.18	-29.82	74	59.84	34.09	9.16	58.91	100	0	Peak

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
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T400A	25696	N/A	Jun. 16, 2011	Jun. 15, 2012	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T800	27134	N/A	Jun. 16, 2011	Jun. 15, 2012	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000485	0.1MHz~200MHz	Jun. 08, 2011	Jun. 07, 2012	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000484	0.1MHz~200MHz	Jun. 08, 2011	Jun. 07, 2012	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB.GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 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 EP143002 as below.