

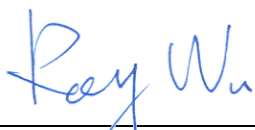
FCC RF Test Report

APPLICANT : Motorola, Inc.
EQUIPMENT : Enterprise Digital Assistant (EDA)
BRAND NAME : Motorola
MODEL NAME : MC659B
FCC ID : UZ7MC659B
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Spread Spectrum (DSS)

The product was received on Jan. 08, 2010 and completely tested on Jan. 22, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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

Reviewed by:



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	11
3 TEST RESULT	12
3.1 Number of Channel Measurement	12
3.2 20dB and 99% Bandwidth Measurement	16
3.3 Hopping Channel Separation Measurement	29
3.4 Dwell Time Measurement.....	36
3.5 Peak Output Power Measurement	49
3.6 Band Edges Measurement	56
3.7 Spurious Emission Measurement.....	70
3.8 AC Conducted Emission Measurement.....	74
3.9 Radiated Emission Measurement.....	82
3.10 Antenna Requirements.....	93
4 LIST OF MEASURING EQUIPMENT.....	94
5 UNCERTAINTY OF EVALUATION.....	95
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR010801A	Rev. 01	Initial issue of report	Feb. 22, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	A8.4(2)	Number of Channels	$\geq 15\text{Chs}$	Pass	-
3.2	15.247(a)(1)	A8.1(a)	20dB Bandwidth	NA	Pass	-
3.2	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.3	15.247(a)(1)	A8.1(b)	Channel Separation	$\geq 2/3$ of 20dB BW	Pass	-
3.4	15.247(a)(1)	A8.1(d)	Dwell Time of Each Channel	$\leq 0.4\text{sec}$ in 31.6sec period	Pass	-
3.5	15.247(b)(1)	A8.1(b)	Peak Output Power	$\leq 1\text{W}$	Pass	-
3.6	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.7	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.8	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 13.7 dB at 0.454 MHz
3.9	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.56 dB at 51.33 MHz
3.10	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Askey Technology (Jiangsu)

No. 1388, Jiao Tong Road, WuJiang Economic-Technological Development Area, Jiangsu Province
215200, P. R. C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Digital Assistant (EDA)
Brand Name	Motorola
Model Name	MC659B
FCC ID	UZ7MC659B
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) : 1.52 dBm (1.42 mW) Bluetooth EDR (2Mbps) : 3.68 dBm (2.33 mW) Bluetooth EDR (3Mbps) : 3.97 dBm (2.49 mW)
Antenna Type	PCB Antenna with gain 1.7 dBi
HW Version	EVT2
SW Version	BSP2410
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π /4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK
EUT Stage	Identical Prototype

Remark:

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

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 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.	Bluetooth Base Station	R&S	CBT32	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.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
8.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
9.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
10.	iPod	Apple	A1199	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	1.17 dBm	3.33 dBm	3.63 dBm
Ch39	2441MHz	1.52 dBm	3.68 dBm	3.97 dBm
Ch78	2480MHz	0.84 dBm	2.90 dBm	3.32 dBm

Remark:

1. The data rate was set in 3Mbps for Transmitter Radiated Emission test 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.

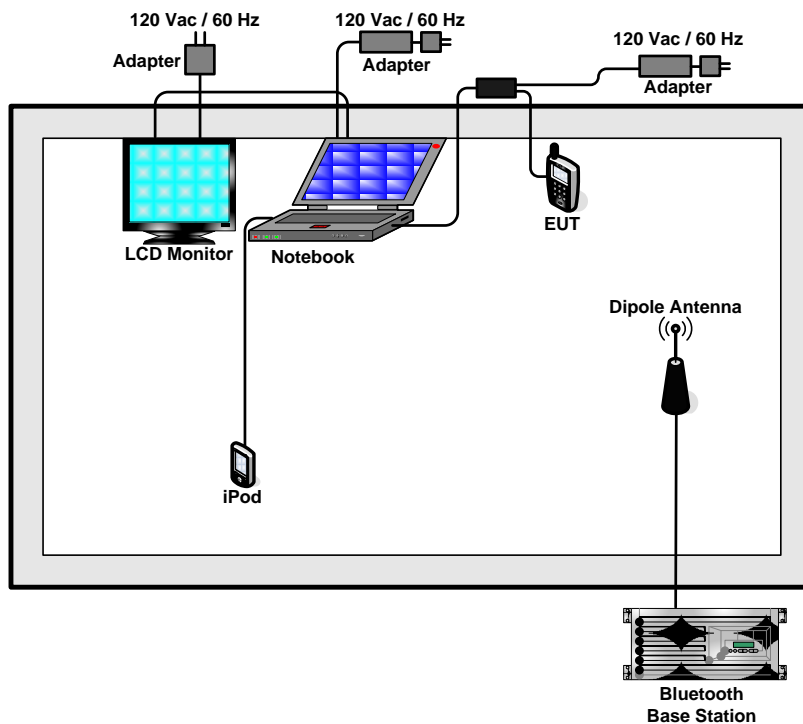
Test Cases			
Test Item	Data Rate / Modulation		
	Bluetooth 1Mbps GFSK	Bluetooth EDR 2Mbps π /4-DQPSK	Bluetooth EDR 3Mbps 8-DPSK
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated TCs	N/A	N/A	Mode 1: CH00_2402 MHz + Qwerty Keypad Mode 2: CH39_2441 MHz + Qwerty Keypad Mode 3: CH78_2480 MHz + Qwerty Keypad Mode 4: CH78_2480 MHz + Numeric Keypad
AC Conducted Emission	Mode 1 : GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Camera + MP3 + Qwerty Keypad Mode 2 : WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Scanner + MP3 + Qwerty Keypad Mode 3 : CDMA2000 BC0 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Camera + MP3 + Numeric Keypad		

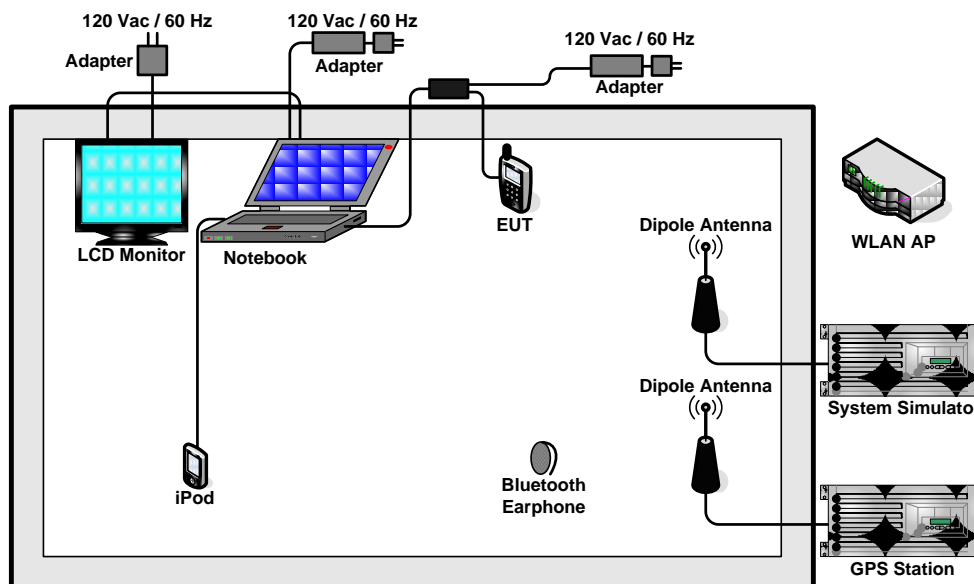
Remark:

1. 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, and the test was performed together with USB charging cable with AC power.
2. "Bluetooth Link" stands for terminal linked to headset by Bluetooth function.
3. "WLAN Link" stands for terminal associated with AP at 2.4GHz band.
4. "GPS Rx" stands for receive signals from GPS station continuously.
5. "Scanner" stands for scanning and decoding a barcode by scanner.
6. "MP3" stands for playing MP3 file.
7. "Camera" stands for playing camera to capture picture.
8. "USB Link" stands for active sync file transfer.

2.3 Connection Diagram of Test System

<Radiation Test>



<Conduction Test>


2.4 RF Utility

For Bluetooth function, the RF utility, "regedit" 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.

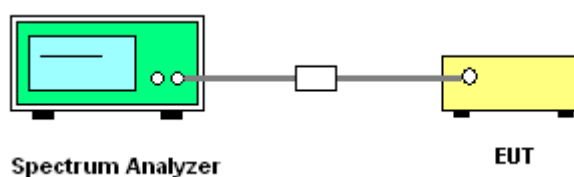
3.1.2 Measuring Instruments

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; $RBW \geq 1\%$ 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.

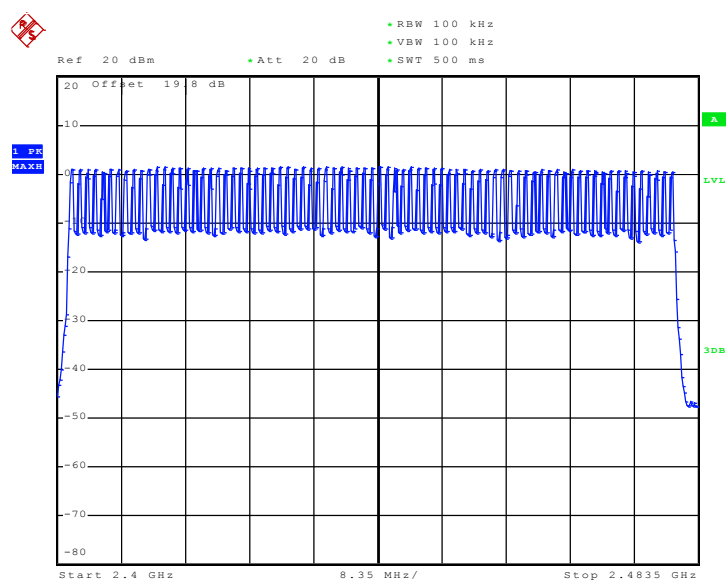
3.1.4 Test Setup



3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	Mode 1~3	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%
Number of Hopping Channels (Channel)		Limits (Channel)	Pass/Fail
79		> 15	Pass

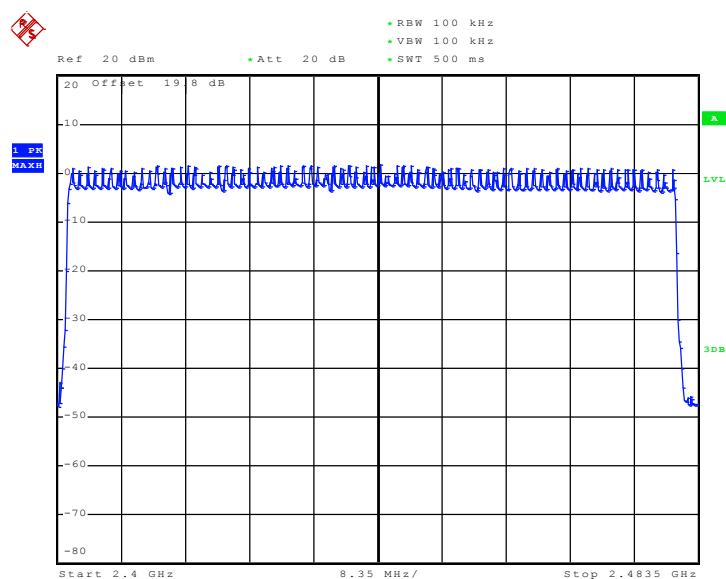
Number of Hopping Channel Plot on Channel 00 - 78



Date: 19.JAN.2010 14:20:18

Test Mode :	Mode 4~6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

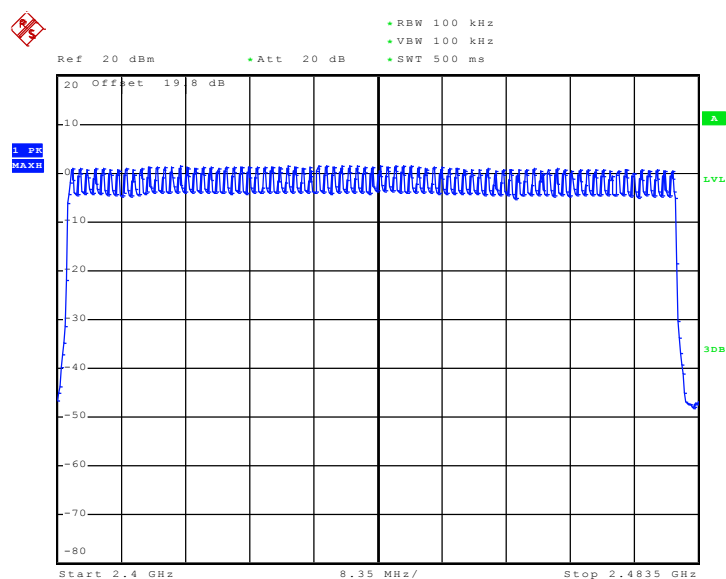
Number of Hopping Channels (Channel)	Limits (Channel)	Pass/Fail
79	> 15	Pass

Number of Hopping Channel Plot on Channel 00 - 78


Date: 19..JAN..2010 14:25:52

Test Mode :	Mode 7~9	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

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

Number of Hopping Channel Plot on Channel 00 - 78


Date: 19..JAN..2010 14:34:27

3.2 20dB and 99% Bandwidth Measurement

3.2.1 Limit of 20dB Bandwidth

N/A

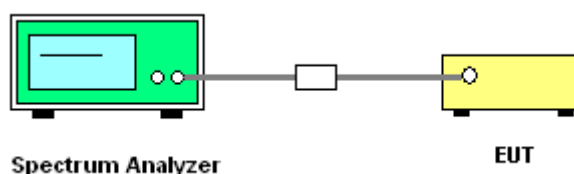
3.2.2 Measuring Instruments

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

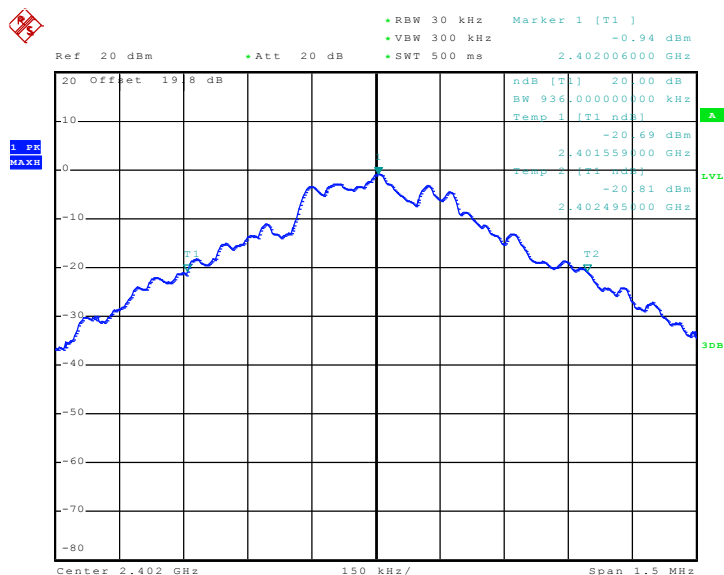


3.2.5 Test Result of 20dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.936
39	2441	0.909
78	2480	0.933

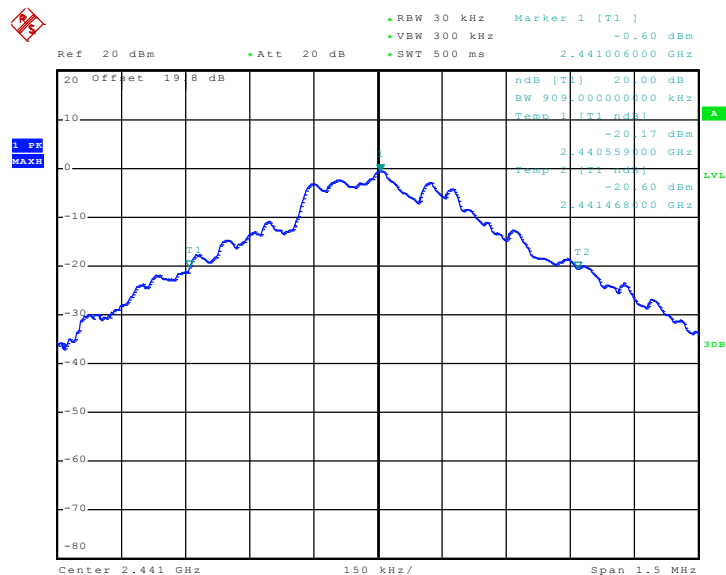
20 dB Bandwidth Plot on Channel 00



Date: 19.JAN.2010 13:17:59

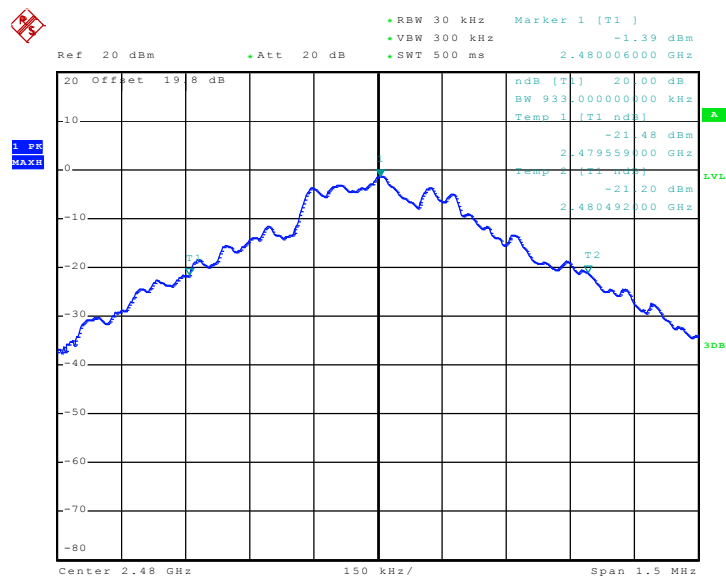


20 dB Bandwidth Plot on Channel 39



Date: 19.JAN.2010 13:18:17

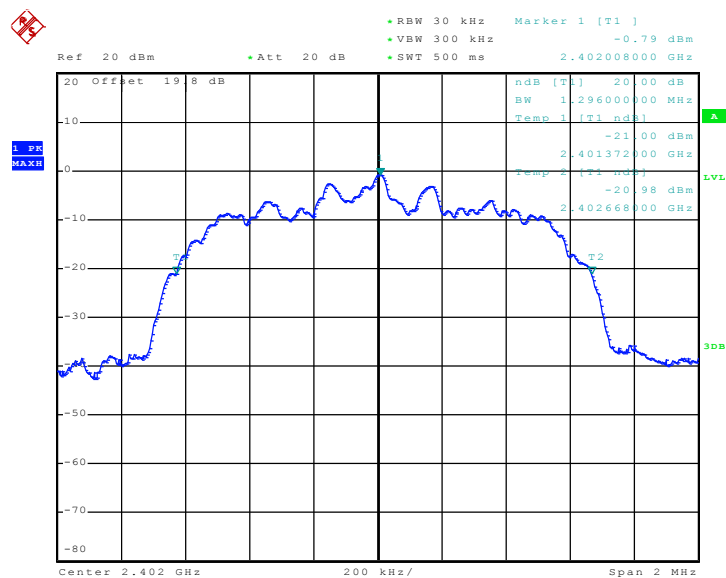
20 dB Bandwidth Plot on Channel 78



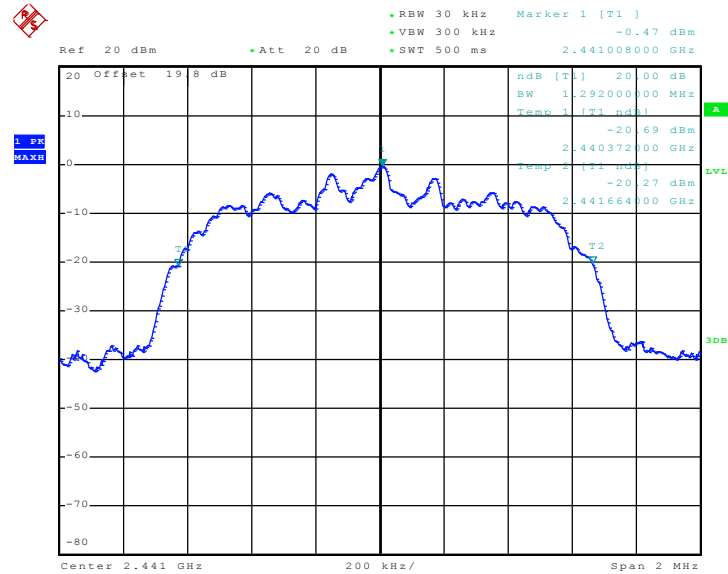
Date: 19.JAN.2010 13:18:32

Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

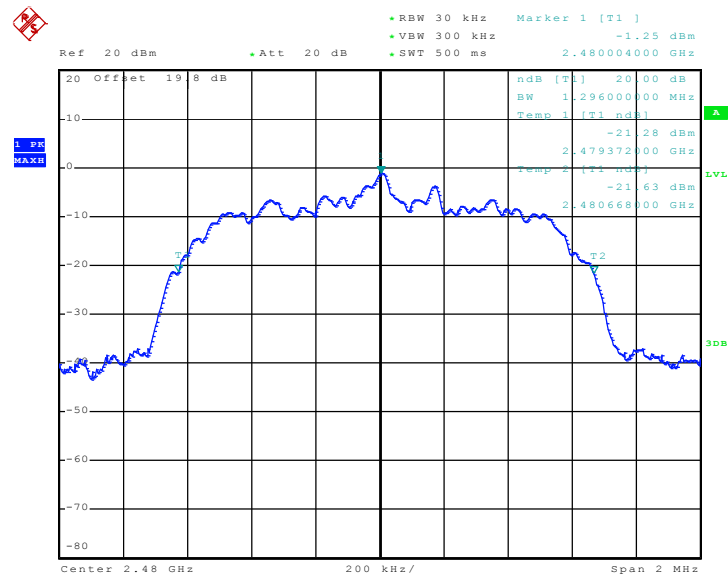
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.296
39	2441	1.292
78	2480	1.296

20 dB Bandwidth Plot on Channel 00


Date: 19..JAN..2010 13:19:14

20 dB Bandwidth Plot on Channel 39


Date: 19.JAN.2010 13:19:32

20 dB Bandwidth Plot on Channel 78


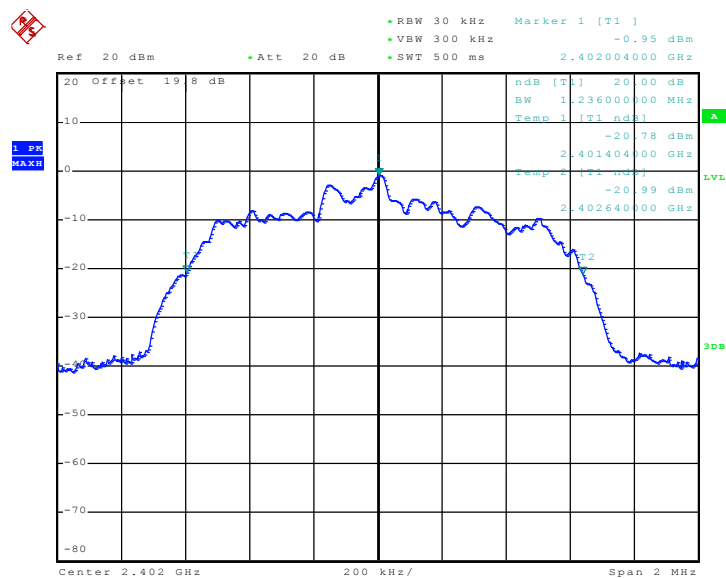
Date: 19.JAN.2010 13:19:50



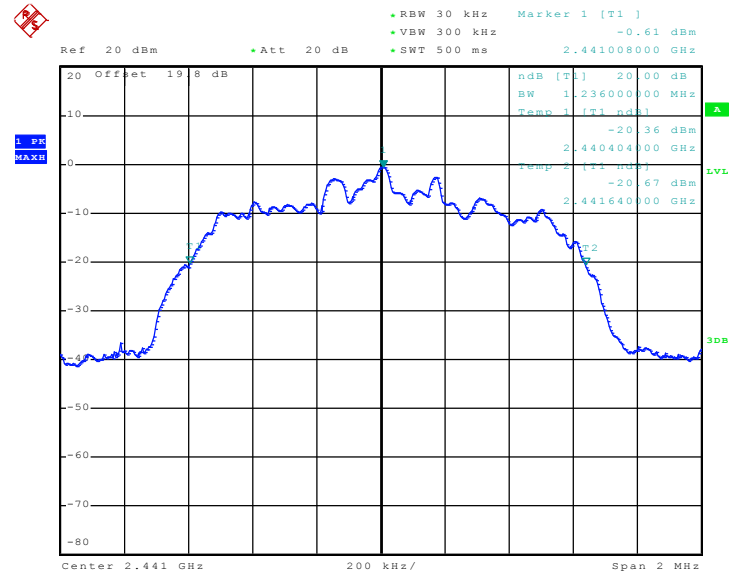
Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.236
39	2441	1.236
78	2480	1.240

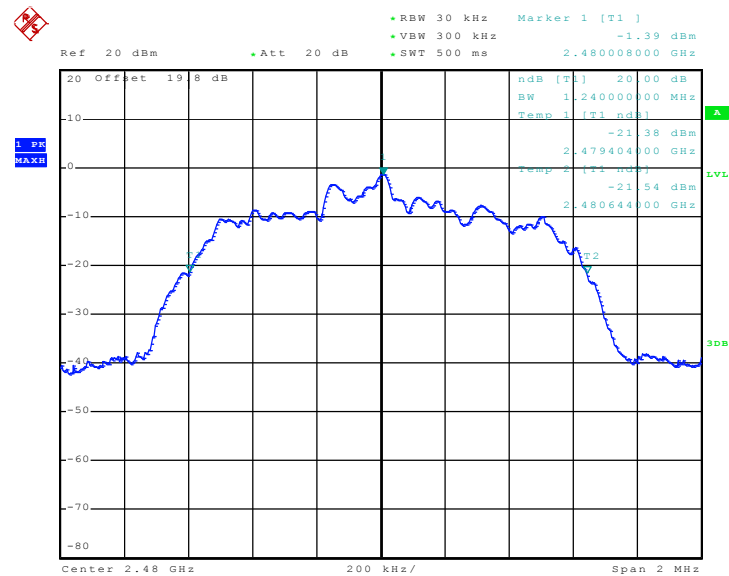
20 dB Bandwidth Plot on Channel 00



Date: 19..JAN..2010 13:20:28

20 dB Bandwidth Plot on Channel 39


Date: 19.JAN.2010 13:20:46

20 dB Bandwidth Plot on Channel 78


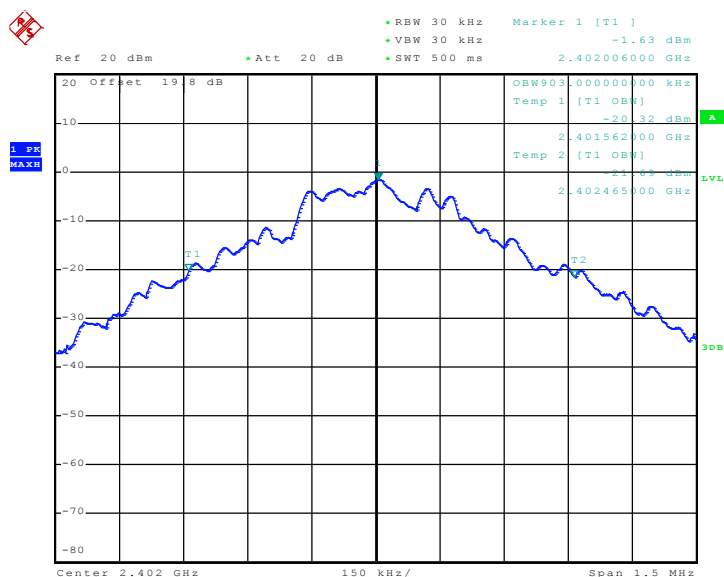
Date: 19.JAN.2010 13:21:09

3.2.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.903
39	2441	0.897
78	2480	0.897

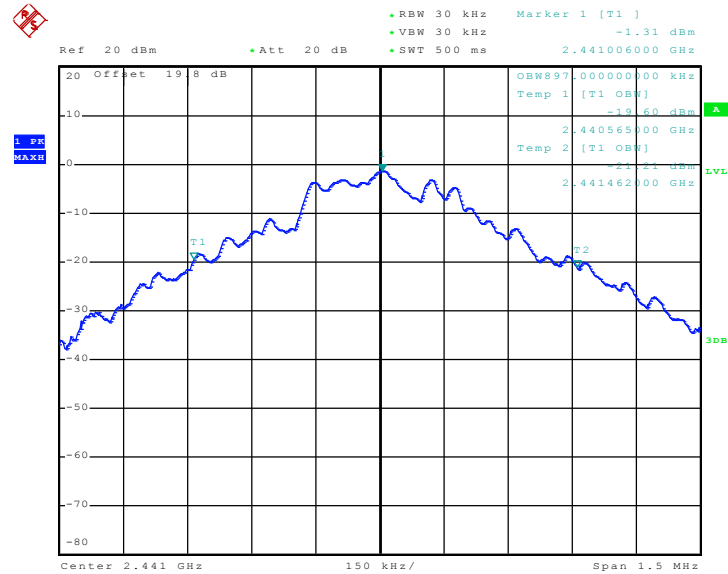
99% Bandwidth Plot on Channel 00



Date: 19.JAN.2010 13:36:49

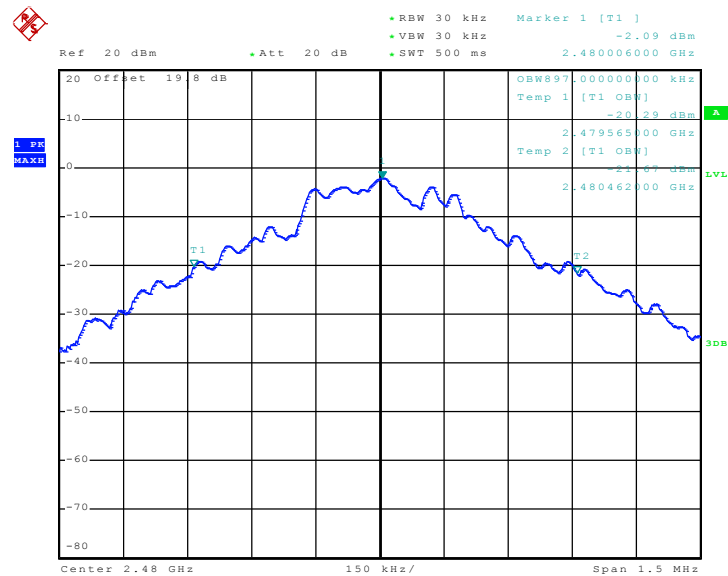


99% Occupied Bandwidth Plot on Channel 39



Date: 19.JAN.2010 13:37:11

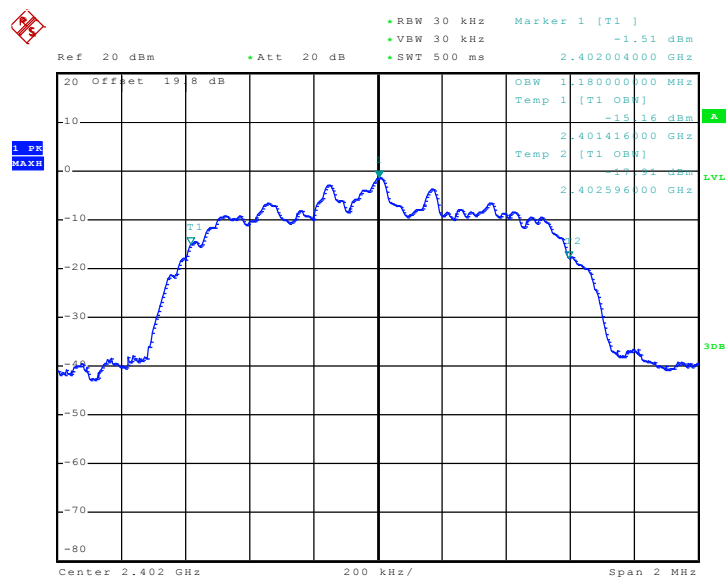
99% Occupied Bandwidth Plot on Channel 78



Date: 19.JAN.2010 13:37:31

Test Mode :	Mode 4, 5, 6	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

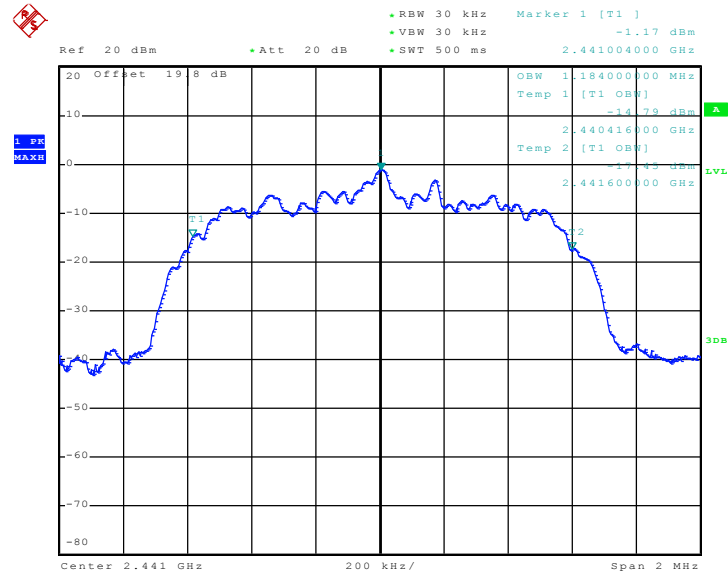
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	1.180
39	2441	1.184
78	2480	1.180

99% Bandwidth Plot on Channel 00


Date: 19..JAN..2010 13:38:33

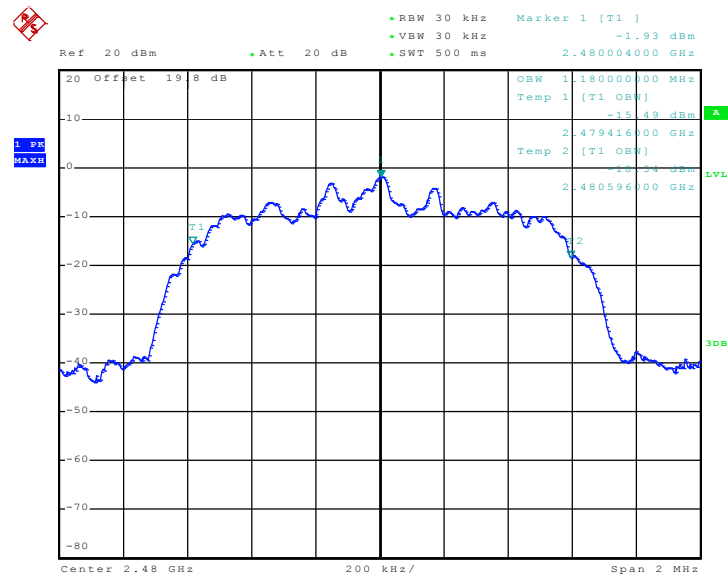


99% Occupied Bandwidth Plot on Channel 39



Date: 19.JAN.2010 13:38:56

99% Occupied Bandwidth Plot on Channel 78



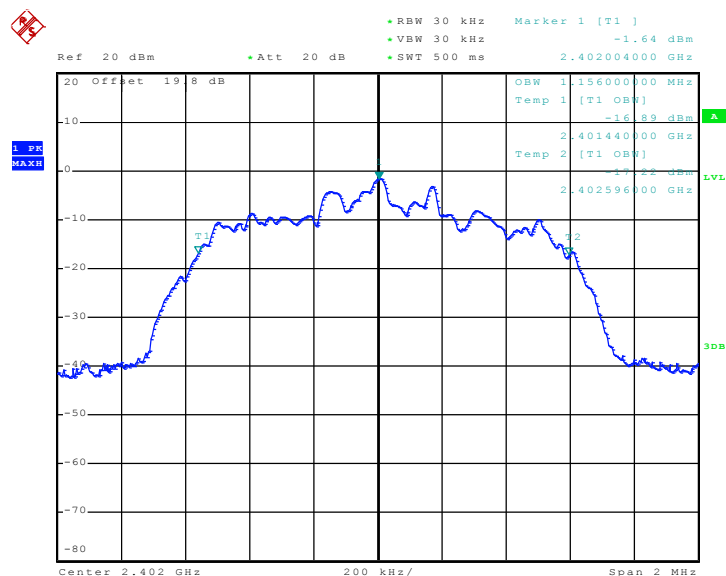
Date: 19.JAN.2010 13:39:15



Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	1.156
39	2441	1.160
78	2480	1.160

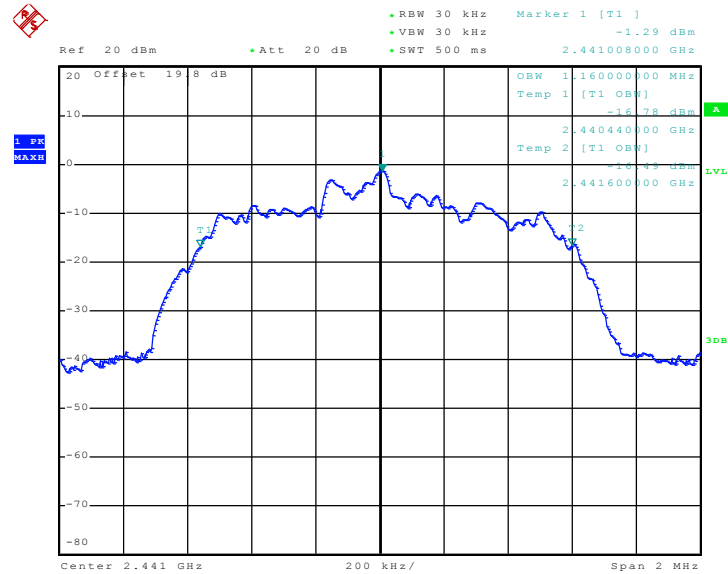
99% Bandwidth Plot on Channel 00



Date: 19..JAN..2010 13:39:37

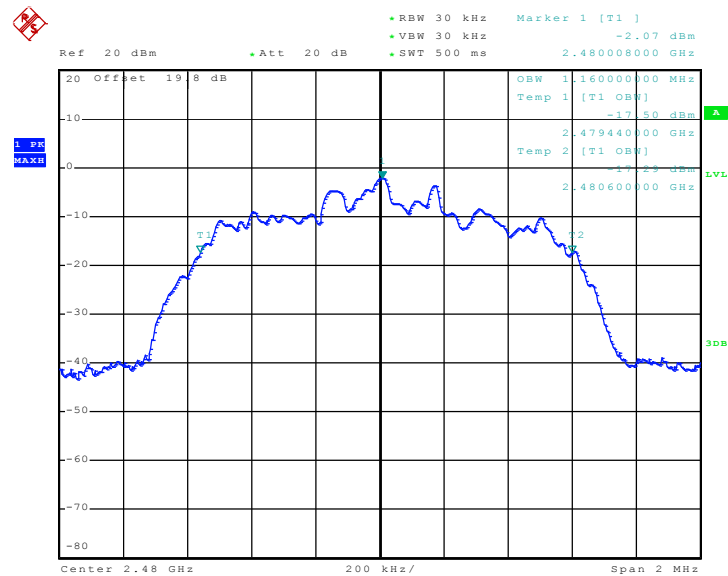


99% Occupied Bandwidth Plot on Channel 39



Date: 19.JAN.2010 13:39:56

99% Occupied Bandwidth Plot on Channel 78



Date: 19.JAN.2010 13:40:14

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.

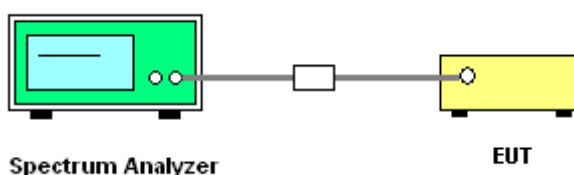
3.3.2 Measuring Instruments

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

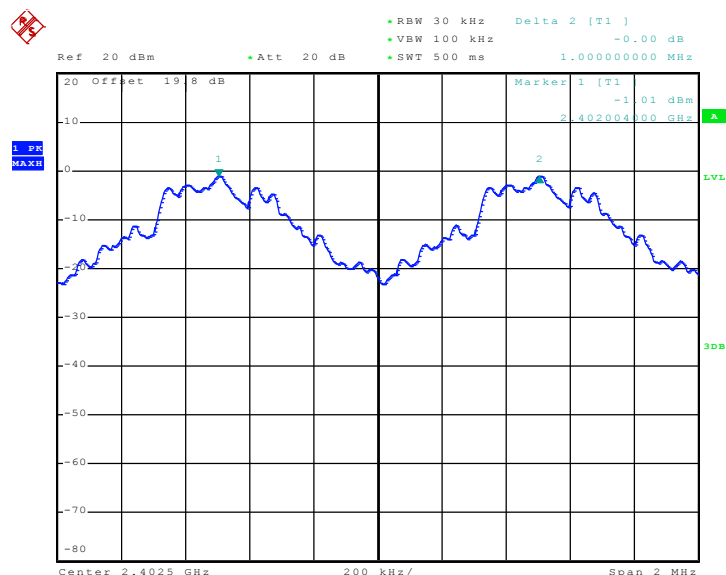


3.3.5 Test Result of Hopping Channel Separation

Test Mode :	Mode 1, 2, 3	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.000	0.624	Pass
39	2441	1.004	0.606	Pass
78	2480	1.000	0.622	Pass

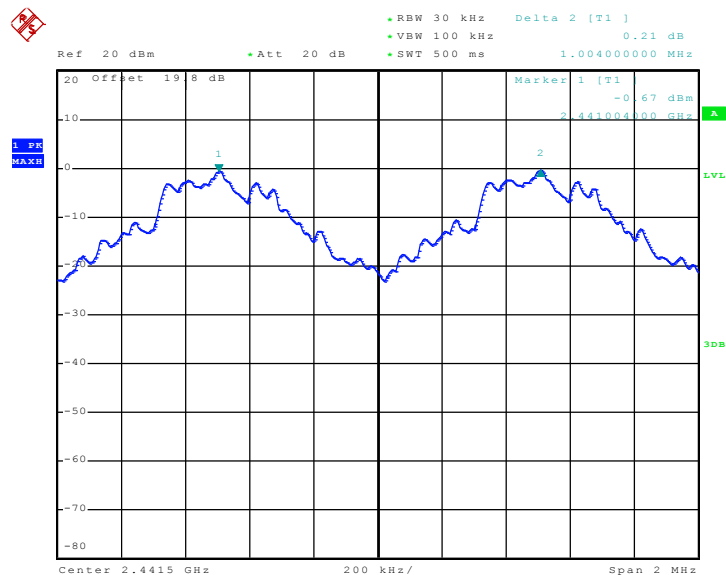
Channel Separation Plot on Channel 00 - 01



Date: 19.JAN.2010 14:02:38

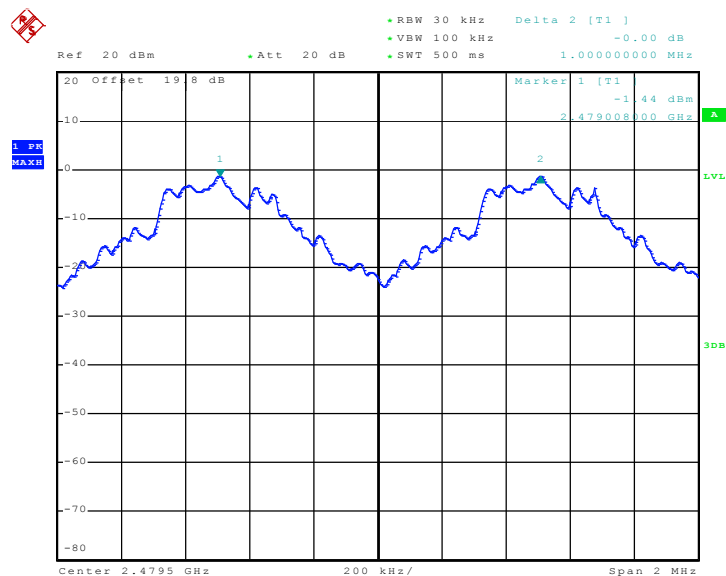


Channel Separation Plot on Channel 39 - 40



Date: 19.JAN.2010 14:03:05

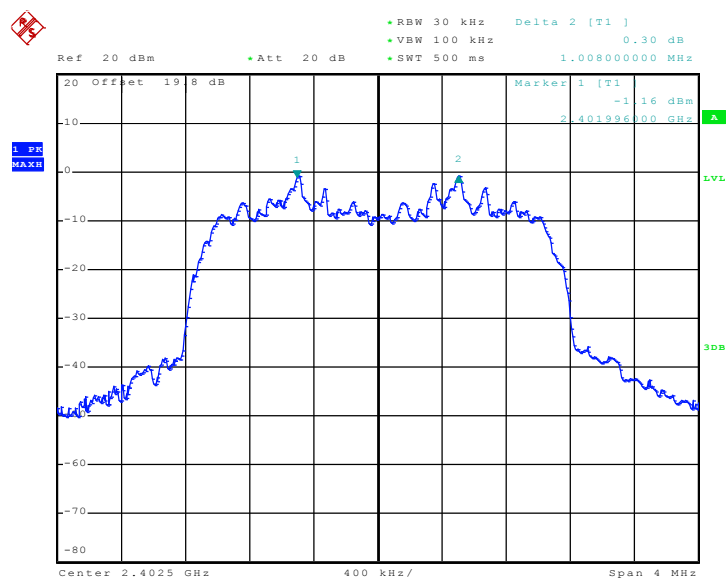
Channel Separation Plot on Channel 77 - 78



Date: 19.JAN.2010 14:03:21

Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

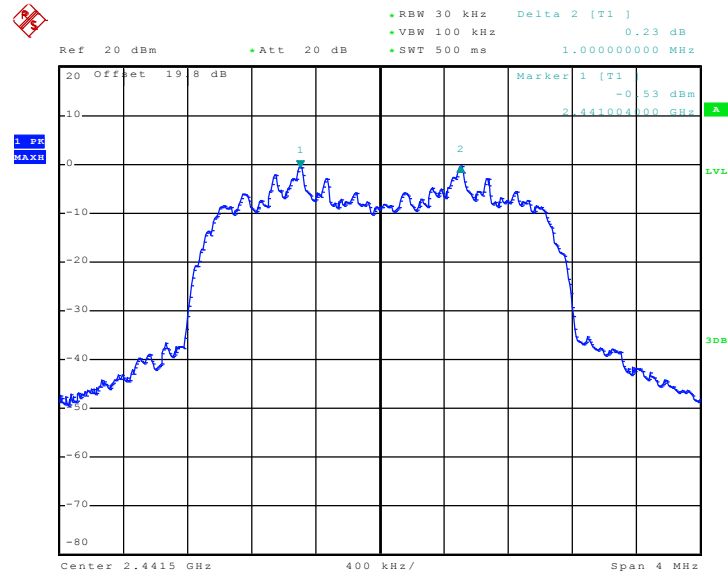
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.008	0.864	Pass
39	2441	1.000	0.861	Pass
78	2480	1.008	0.864	Pass

Channel Separation Plot on Channel 00 - 01


Date: 19..JAN..2010 14:08:04

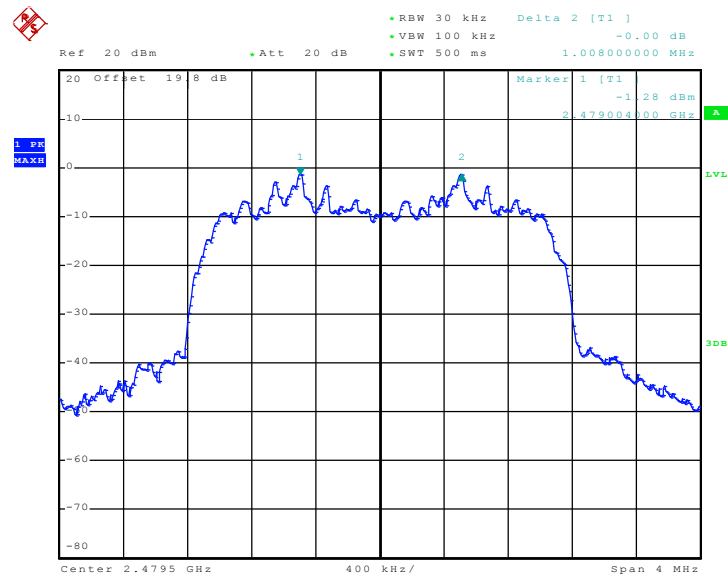


Channel Separation Plot on Channel 39 - 40



Date: 19.JAN.2010 14:09:57

Channel Separation Plot on Channel 77 - 78



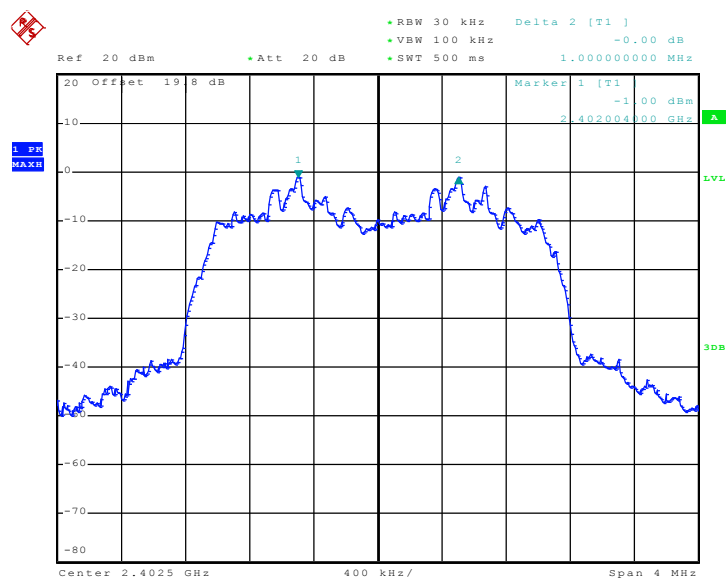
Date: 19.JAN.2010 14:10:41



Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.000	0.824	Pass
39	2441	1.000	0.824	Pass
78	2480	1.008	0.827	Pass

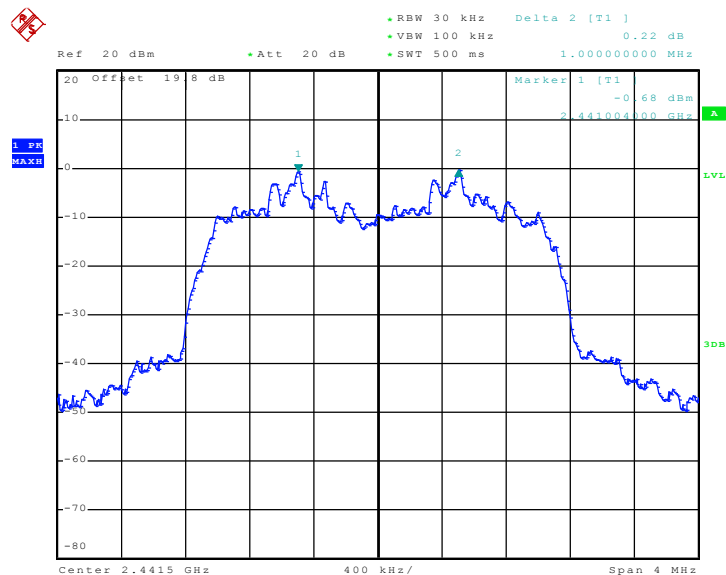
Channel Separation Plot on Channel 00 - 01



Date: 19..JAN..2010 14:11:24

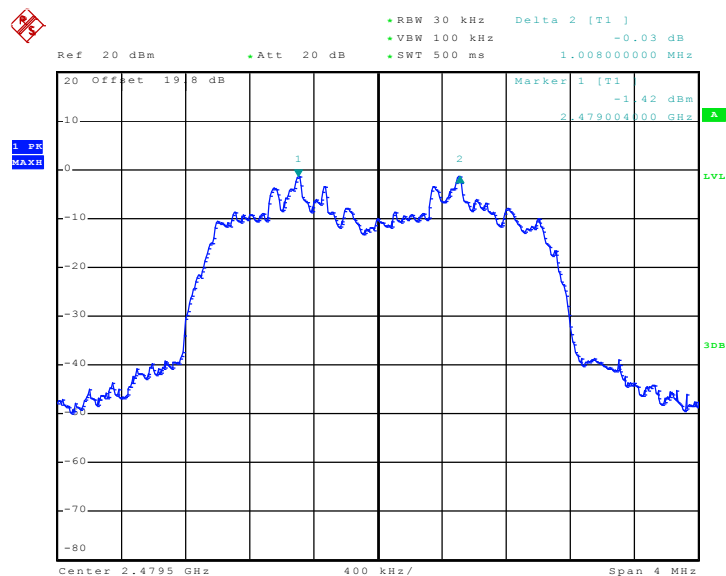


Channel Separation Plot on Channel 39 - 40



Date: 19.JAN.2010 14:11:43

Channel Separation Plot on Channel 77 - 78



Date: 19.JAN.2010 14:11:58

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.

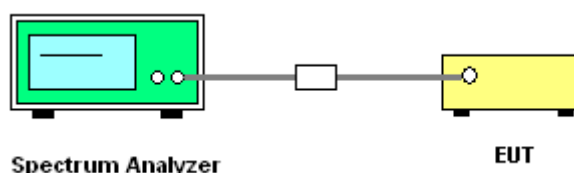
3.4.2 Measuring Instruments

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 \geq 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	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

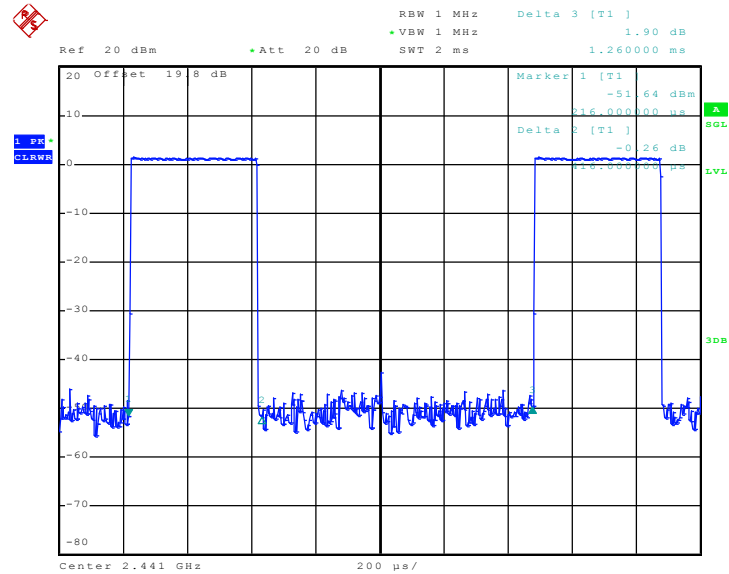
Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
DH1	7.80	416.00	0.10	0.4	Pass
DH3	4.40	1710.00	0.24	0.4	Pass
DH5	2.90	2960.00	0.27	0.4	Pass

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)

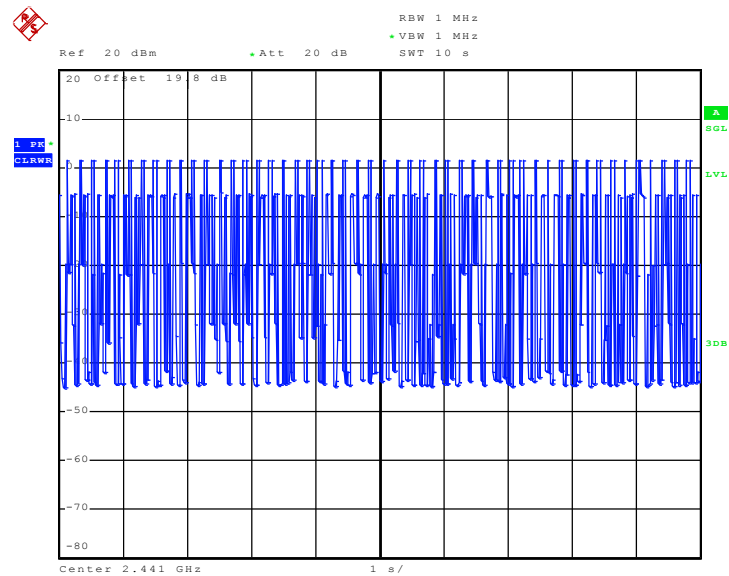


DH1 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:28:48

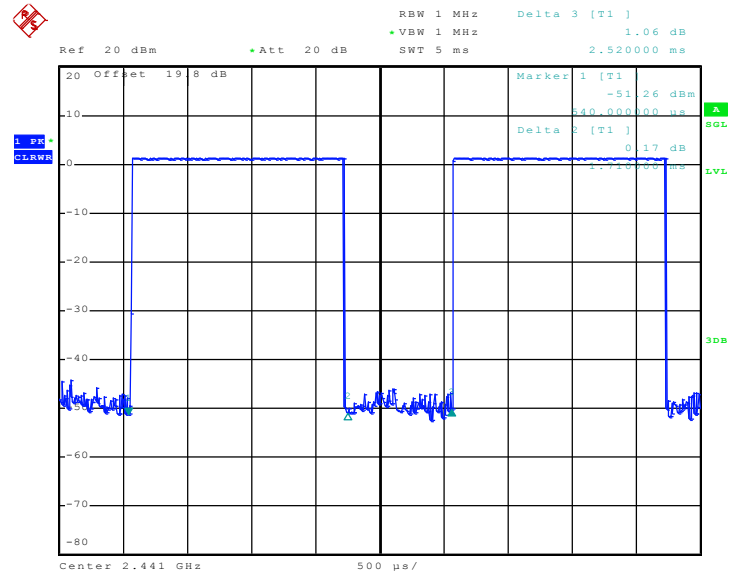
DH1 Dwell Time (Count Pulses) Plot on Channel 39



Date: 19.JAN.2010 11:17:16

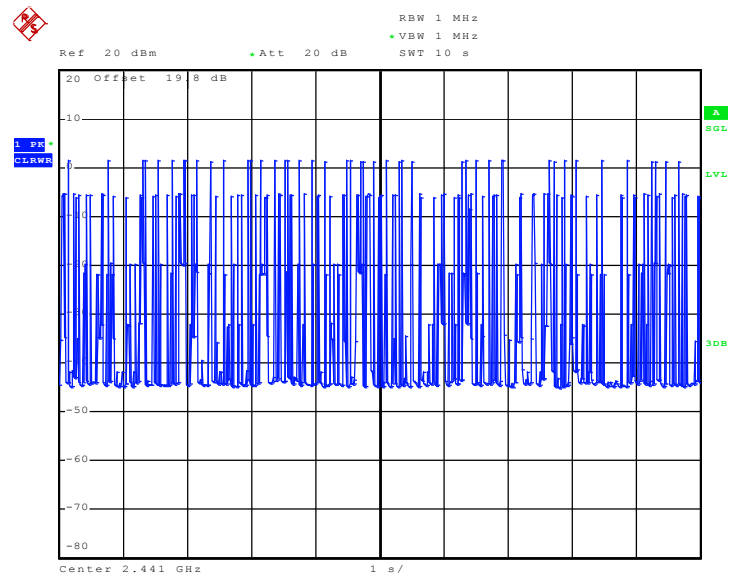


DH3 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:31:41

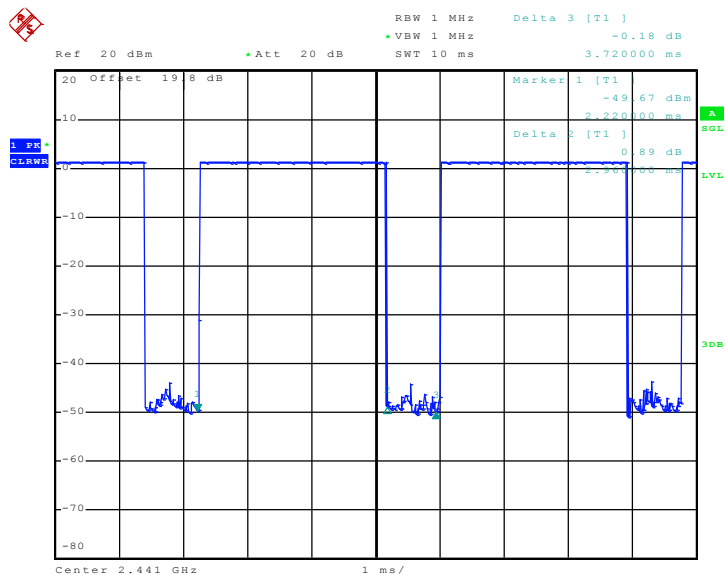
DH3 Dwell Time (Count Pulses) Plot on Channel 39



Date: 19.JAN.2010 11:18:23

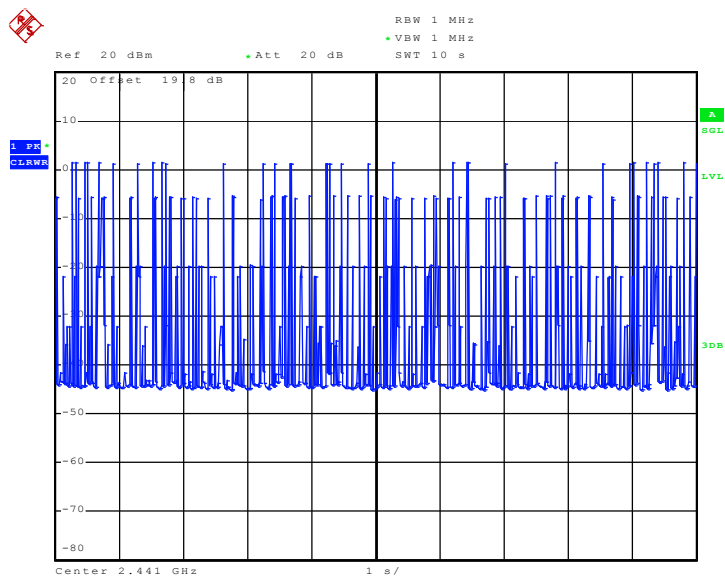


DH5 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:32:12

DH5 Dwell Time (Count Pulses) Plot on Channel 39



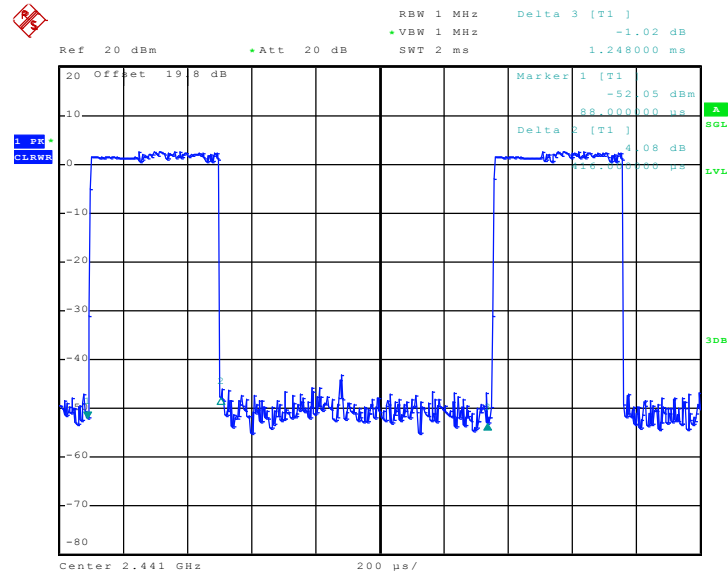
Date: 19.JAN.2010 11:19:04

Test Mode :	Mode 5	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

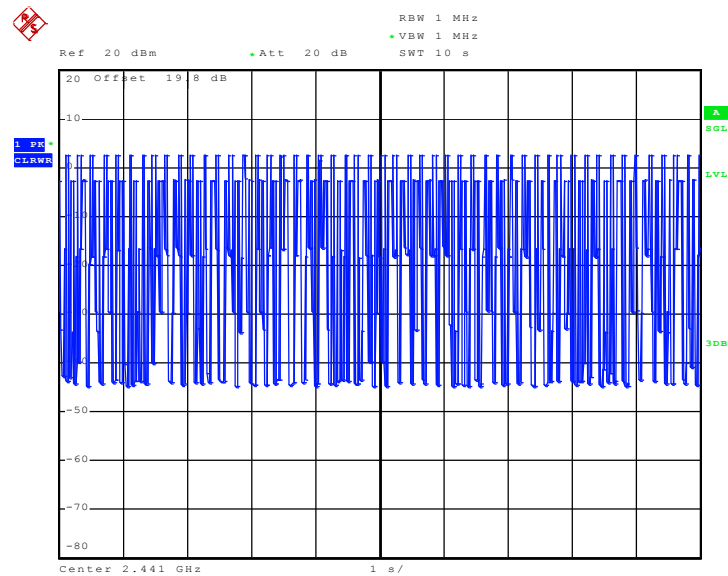
Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
2DH1	9.00	416.00	0.12	0.4	Pass
2DH3	4.50	1710.00	0.24	0.4	Pass
2DH5	3.20	3030.00	0.31	0.4	Pass

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)

2DH1 Dwell Time (One Pulse) Plot on Channel 39


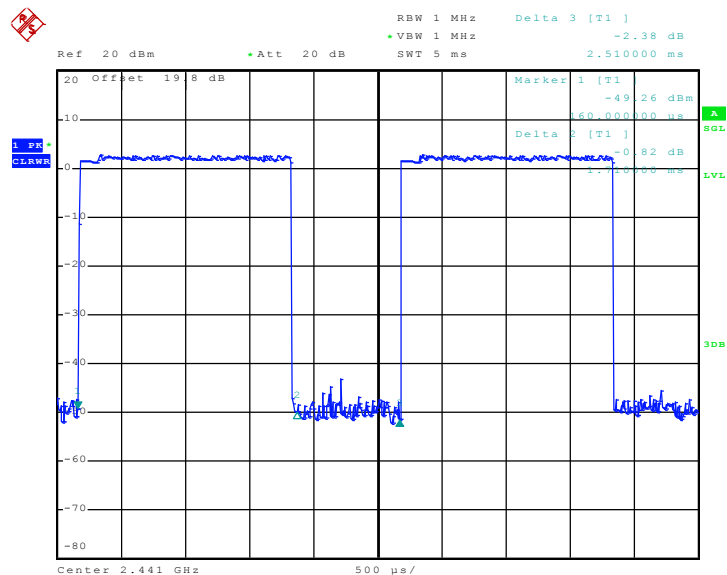
Date: 19.JAN.2010 11:33:34

2DH1 Dwell Time (Count Pulses) Plot on Channel 39


Date: 19.JAN.2010 11:19:35

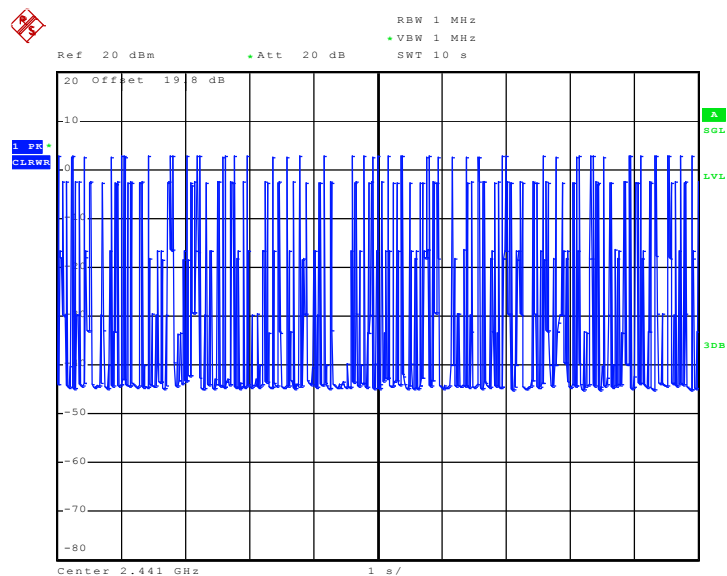


2DH3 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:34:45

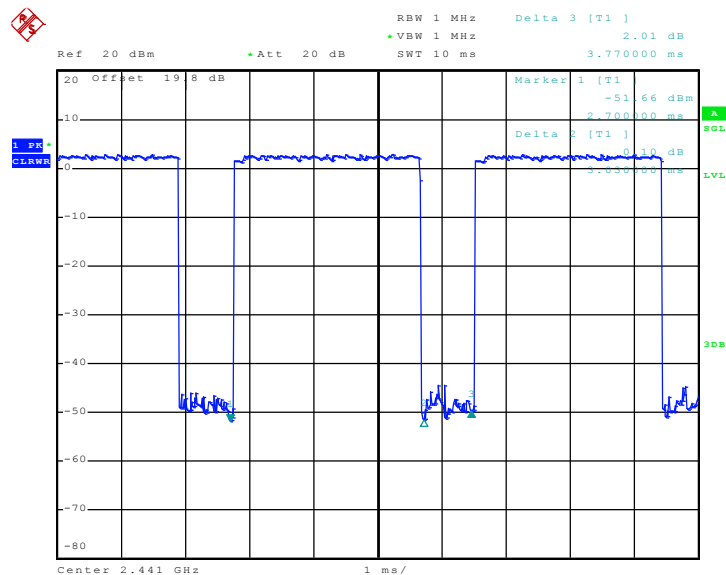
2DH3 Dwell Time (Count Pulses) Plot on Channel 39



Date: 19.JAN.2010 11:19:56

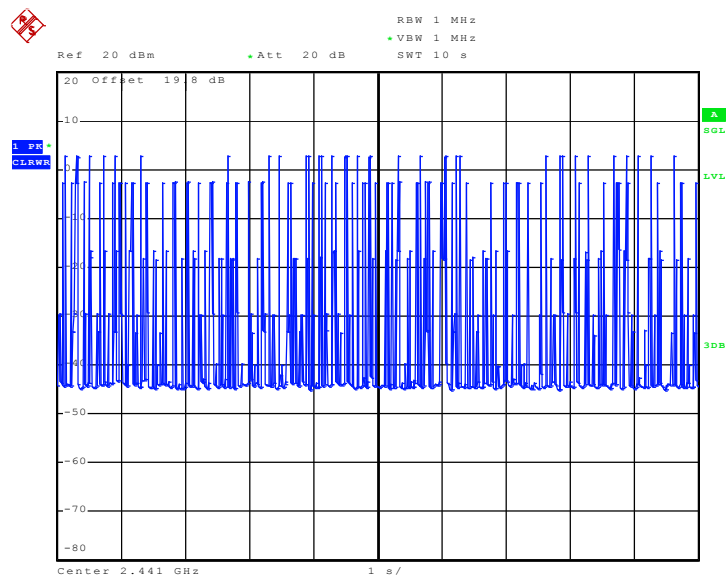


2DH5 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:35:21

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



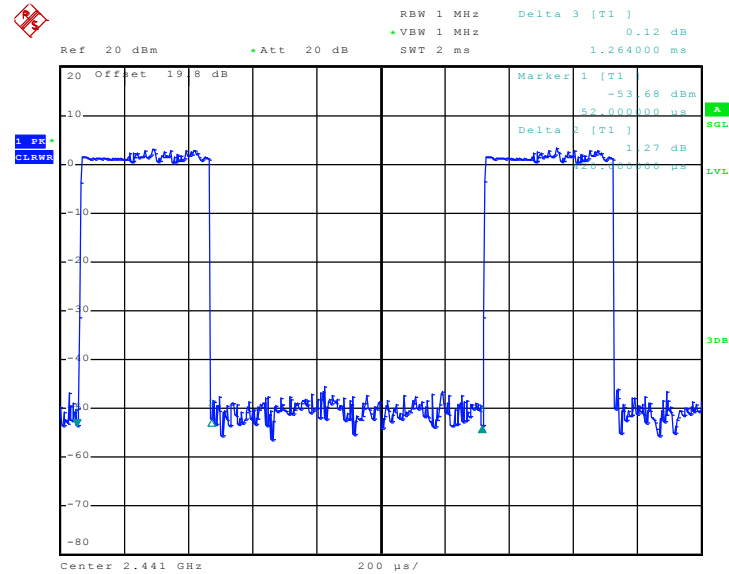
Date: 19.JAN.2010 11:20:16

Test Mode :	Mode 8	Temperature :	26~28℃
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

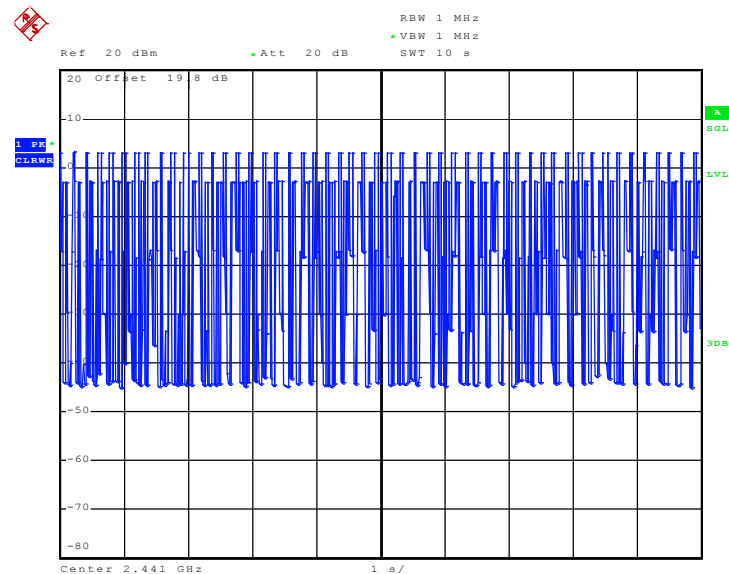
Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
3DH1	8.10	420.00	0.11	0.4	Pass
3DH3	4.80	1730.00	0.26	0.4	Pass
3DH5	3.20	2930.00	0.30	0.4	Pass

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)

3DH1 Dwell Time (One Pulse) Plot on Channel 39


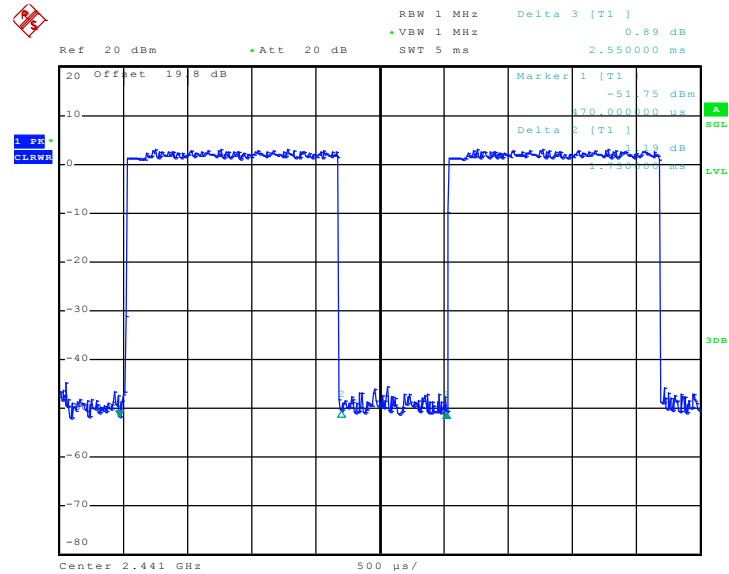
Date: 19.JAN.2010 11:35:51

3DH1 Dwell Time (Count Pulses) Plot on Channel 39


Date: 19.JAN.2010 11:21:01

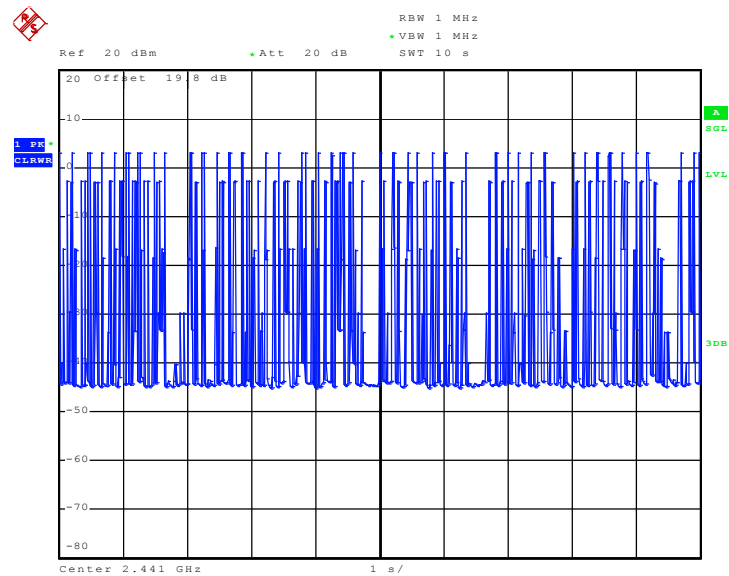


3DH3 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:36:31

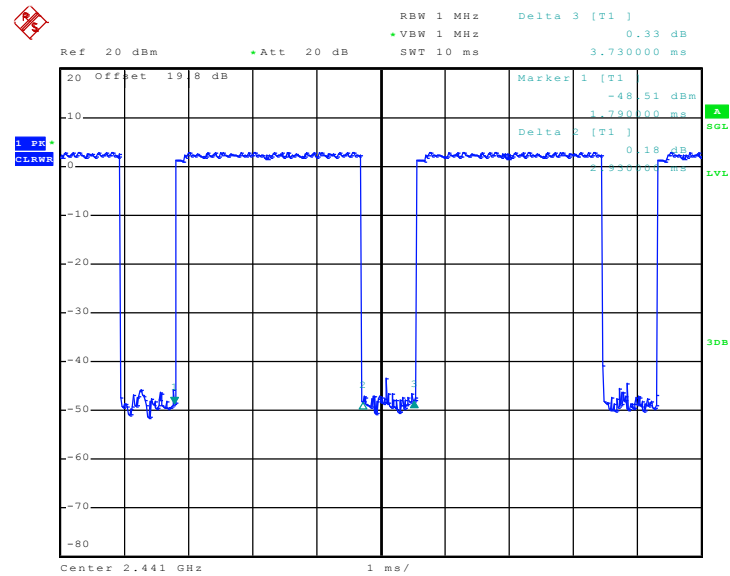
3DH3 Dwell Time (Count Pulses) Plot on Channel 39



Date: 19.JAN.2010 11:23:01

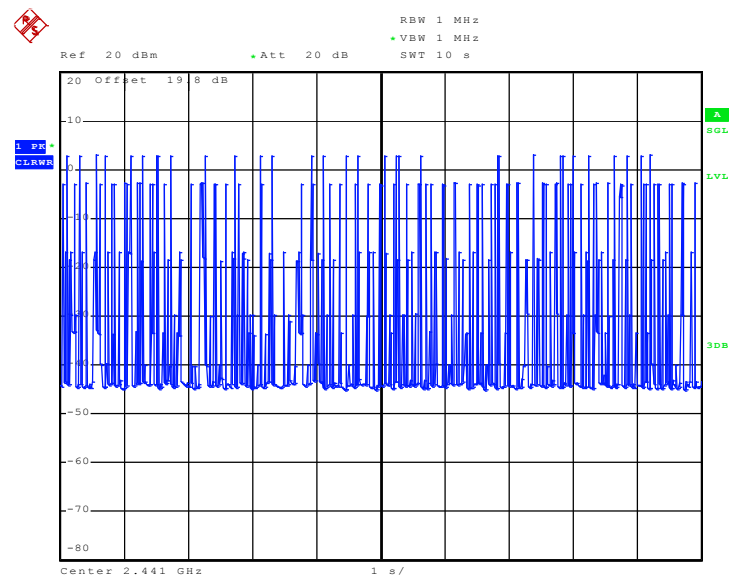


3DH5 Dwell Time (One Pulse) Plot on Channel 39



Date: 19.JAN.2010 11:36:58

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



Date: 19.JAN.2010 11:23:32

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).

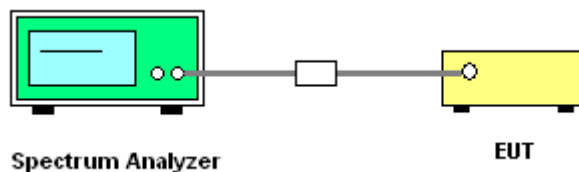
3.5.2 Measuring Instruments

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



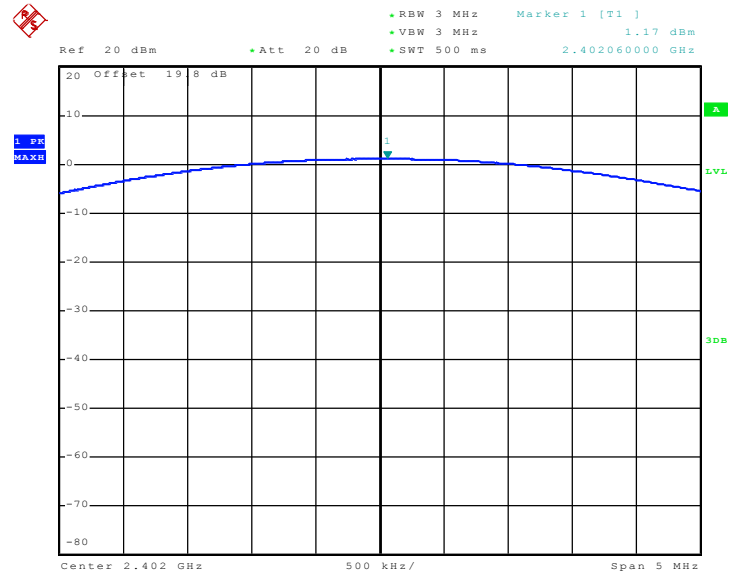
3.5.5 Test Result of Peak Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	1.17	30	Pass
39	2441	1.52	30	Pass
78	2480	0.84	30	Pass

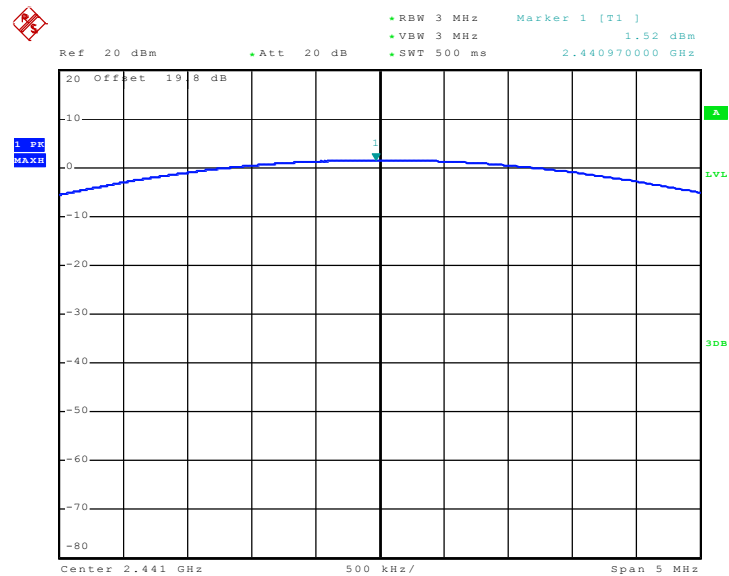


Peak Output Power Plot on Channel 00



Date: 19.JAN.2010 10:58:50

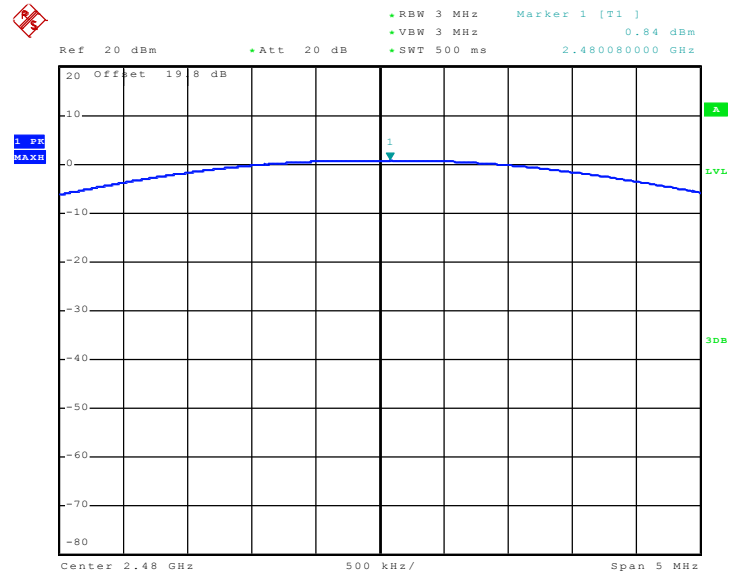
Peak Output Power Plot on Channel 39



Date: 19.JAN.2010 11:01:58



Peak Output Power Plot on Channel 78



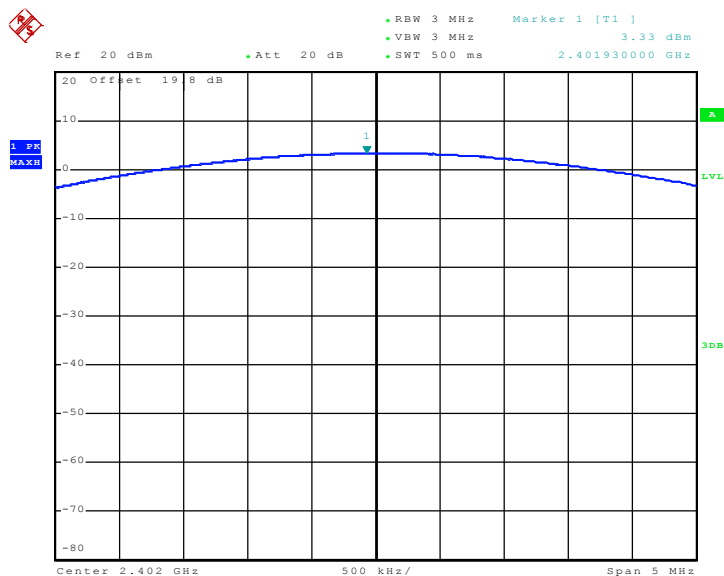
Date: 19.JAN.2010 11:04:19



Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

Channel	Frequency (MHz)	RF Power (dBm)		
		π /4-DQPSK	Max. Limits (dBm)	Pass/Fail
		2 Mbps		
00	2402	3.33	30	Pass
39	2441	3.68	30	Pass
78	2480	2.90	30	Pass

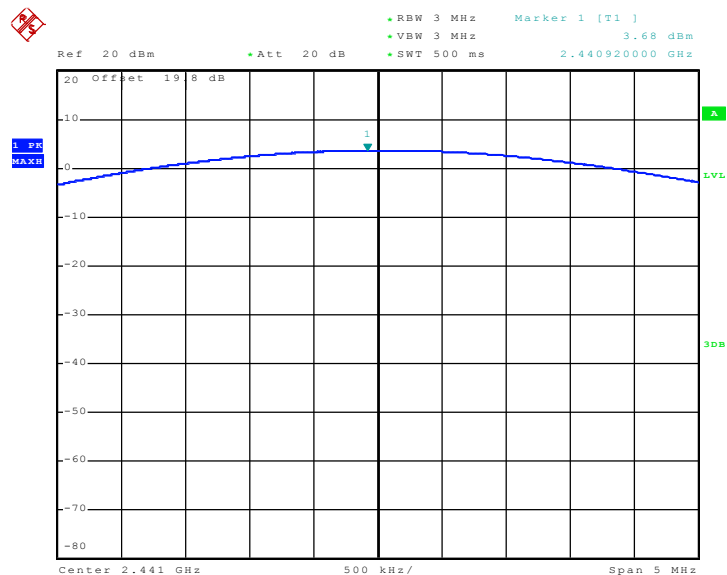
Peak Output Power Plot on Channel 00



Date: 19.JAN.2010 11:00:36

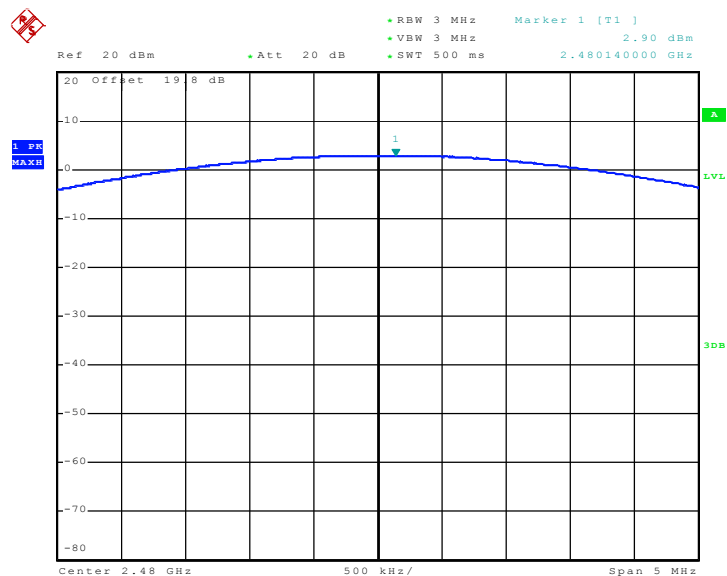


Peak Output Power Plot on Channel 39



Date: 19.JAN.2010 11:03:20

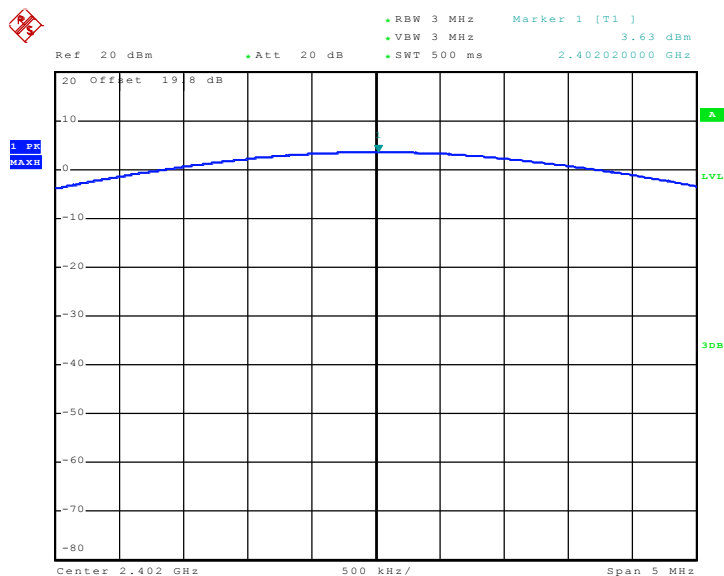
Peak Output Power Plot on Channel 78



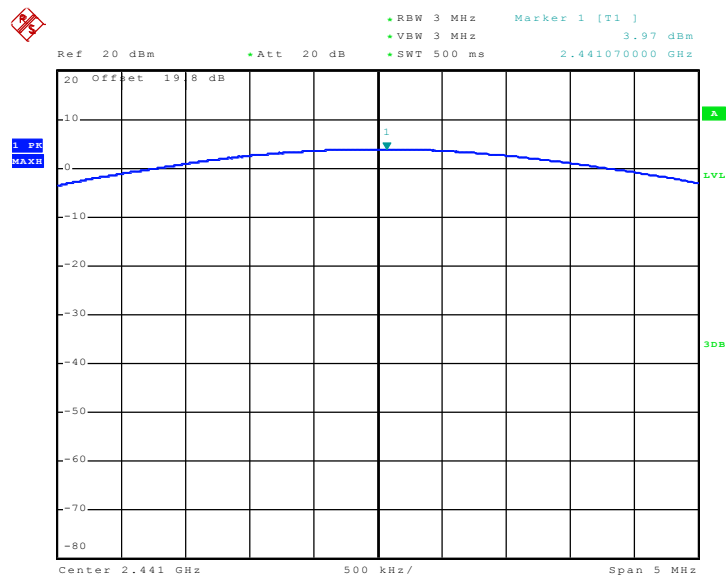
Date: 19.JAN.2010 11:05:18

Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Ken Hsu	Relative Humidity :	33~35%

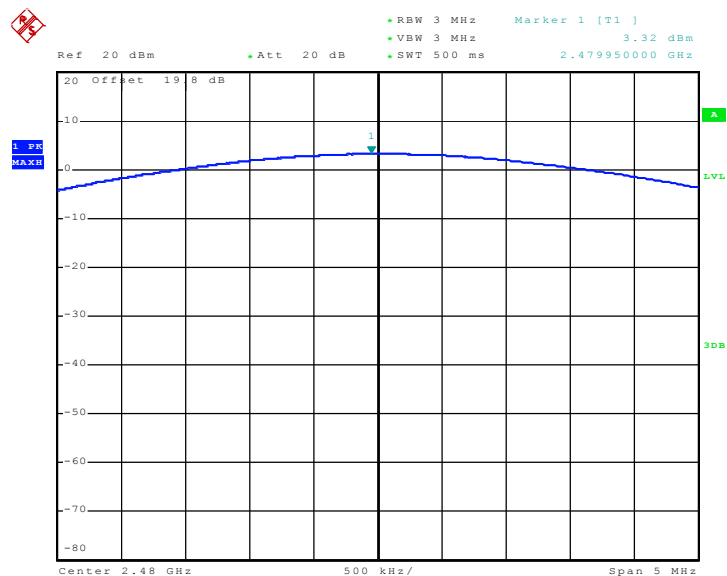
Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits (dBm)	Pass/Fail
		3 Mbps		
00	2402	3.63	30	Pass
39	2441	3.97	30	Pass
78	2480	3.32	30	Pass

Peak Output Power Plot on Channel 00


Date: 19.JAN.2010 11:00:56

Peak Output Power Plot on Channel 39


Date: 20.JAN.2010 09:07:21

Peak Output Power Plot on Channel 78


Date: 19.JAN.2010 11:05:30

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

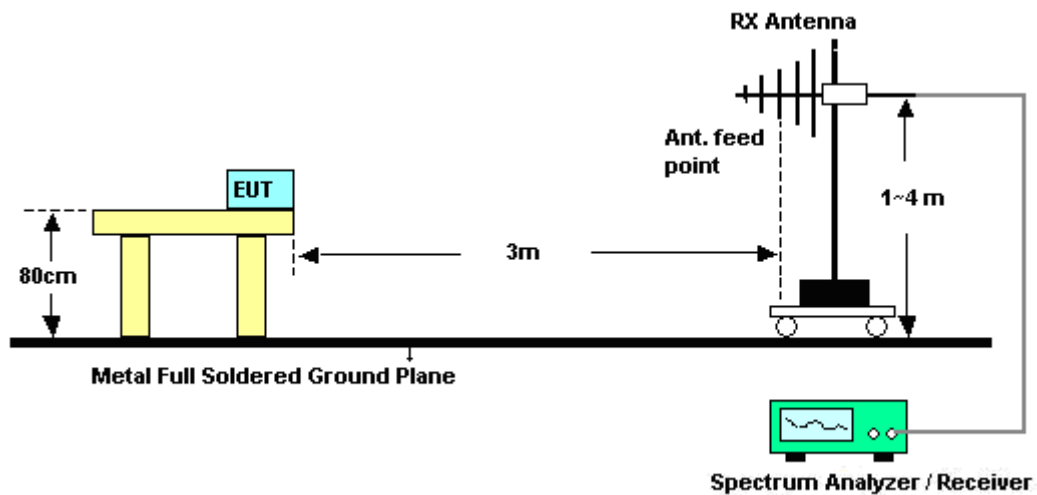
See list of measuring instruments of this test report.

3.6.3 Test Procedures

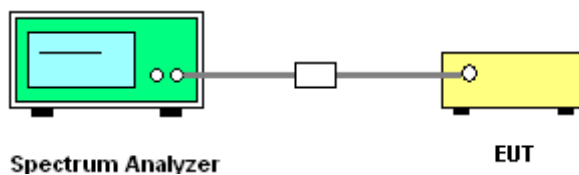
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC Public Notice DA 00-705 Measurement Guidelines.
2. RF antenna conducted test: Set RBW = 300kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as 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 :	22~23°C
Test Channel :	00	Relative Humidity :	42~43%
		Test Engineer :	Kay Wu

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
2319.69	45.12	-28.88	74	41.72	32.02	5.51	34.13	130	240	Peak
2319.69	33.01	-20.99	54	29.61	32.02	5.51	34.13	130	240	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
2339.26	46.71	-27.29	74	43.3	32.05	5.5	34.14	136	296	Peak
2339.26	32.95	-21.05	54	29.54	32.05	5.5	34.14	136	296	Average

Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
		Test Engineer :	Kay Wu

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	63.55	-10.45	74	60.09	32.27	5.38	34.19	200	230	Peak
2483.5	28.00	-26.00	54	24.54	32.27	5.38	34.19	200	230	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Average Result (dBμV/m)	Average Limit (dBμV/m)	Margin (dB)	Result
Single Carrier Mode	81.34	53.76	27.58	54	-26.42	Pass
Hopping Mode	81.34	53.34	28.00	54	-26.00	Pass

Note : Average result = Maximum field strength – Delta result

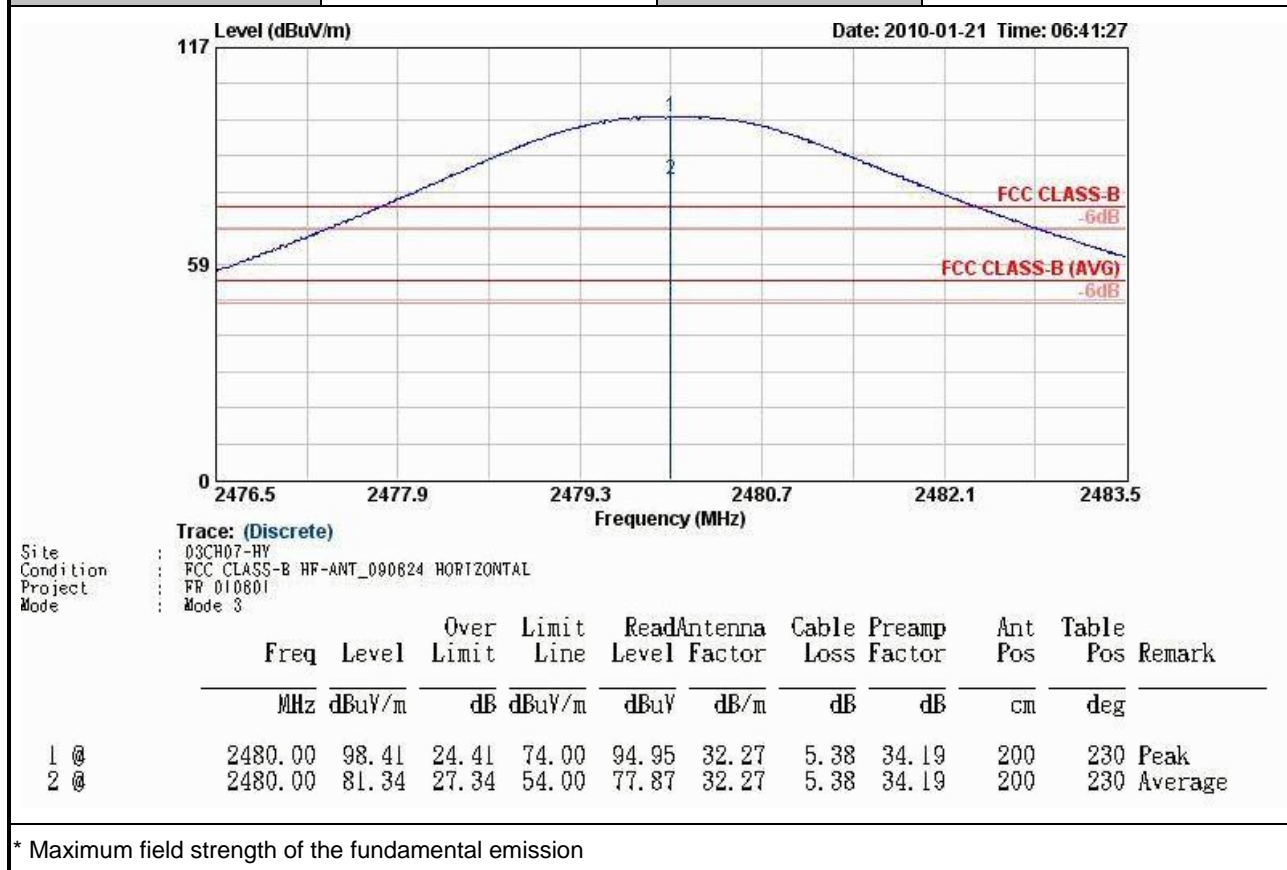
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	57.69	-16.31	74	54.23	32.27	5.38	34.19	100	52	Peak
2483.5	28.60	-25.40	54	25.14	32.27	5.38	34.19	100	52	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Average Result (dBμV/m)	Average Limit (dBμV/m)	Margin (dB)	Result
Single Carrier Mode	77.05	49.00	28.05	54	-25.95	Pass
Hopping Mode	77.05	48.45	28.60	54	-25.40	Pass

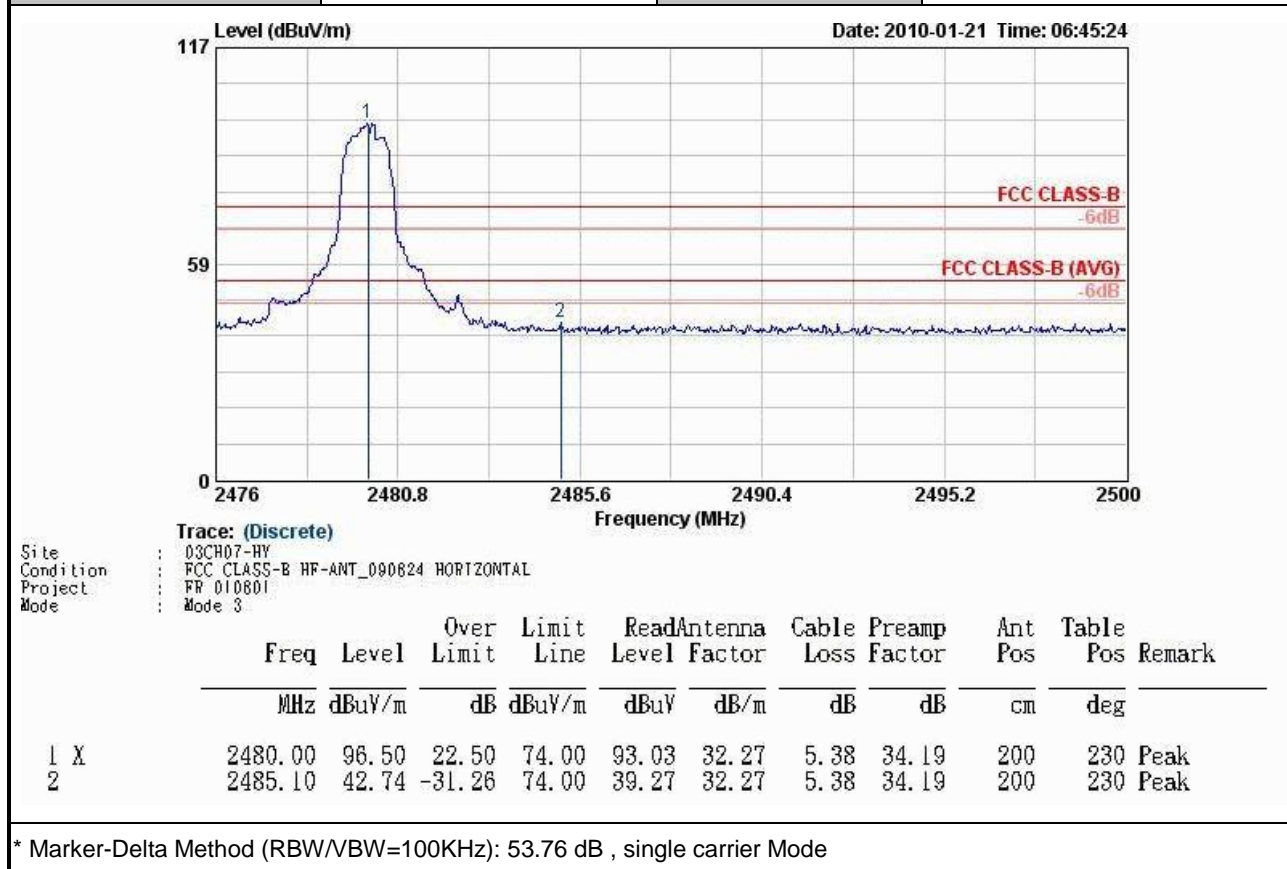
Note : Average result = Maximum field strength – Delta result

Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal

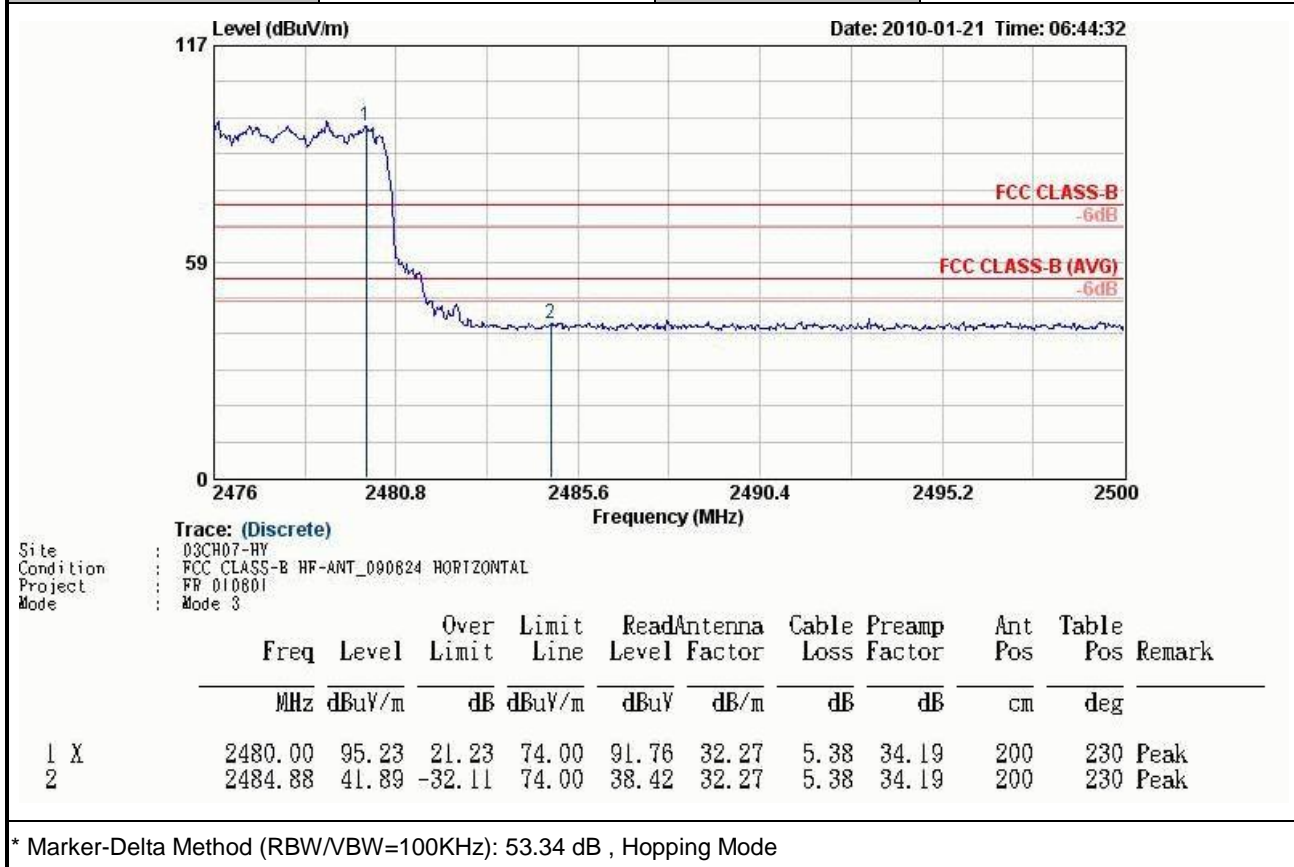




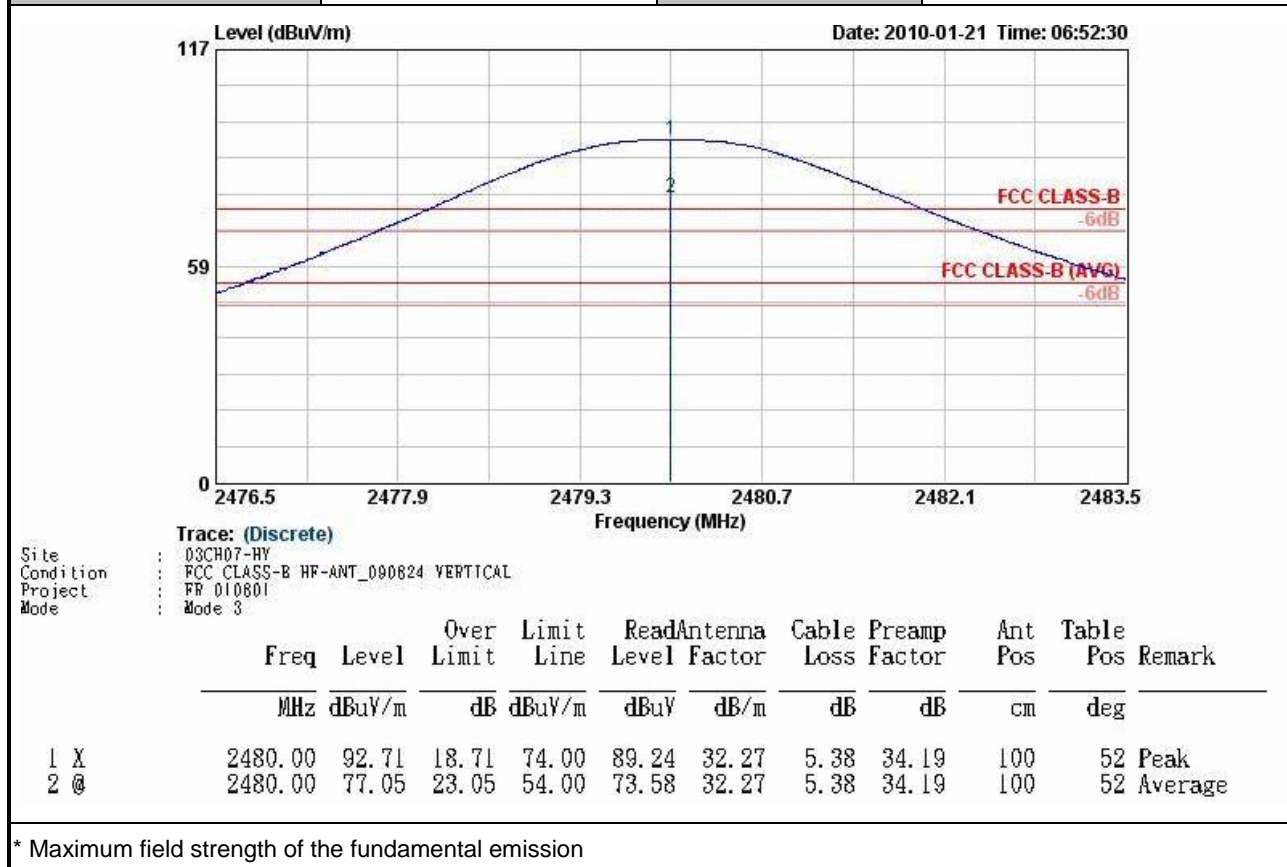
Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal

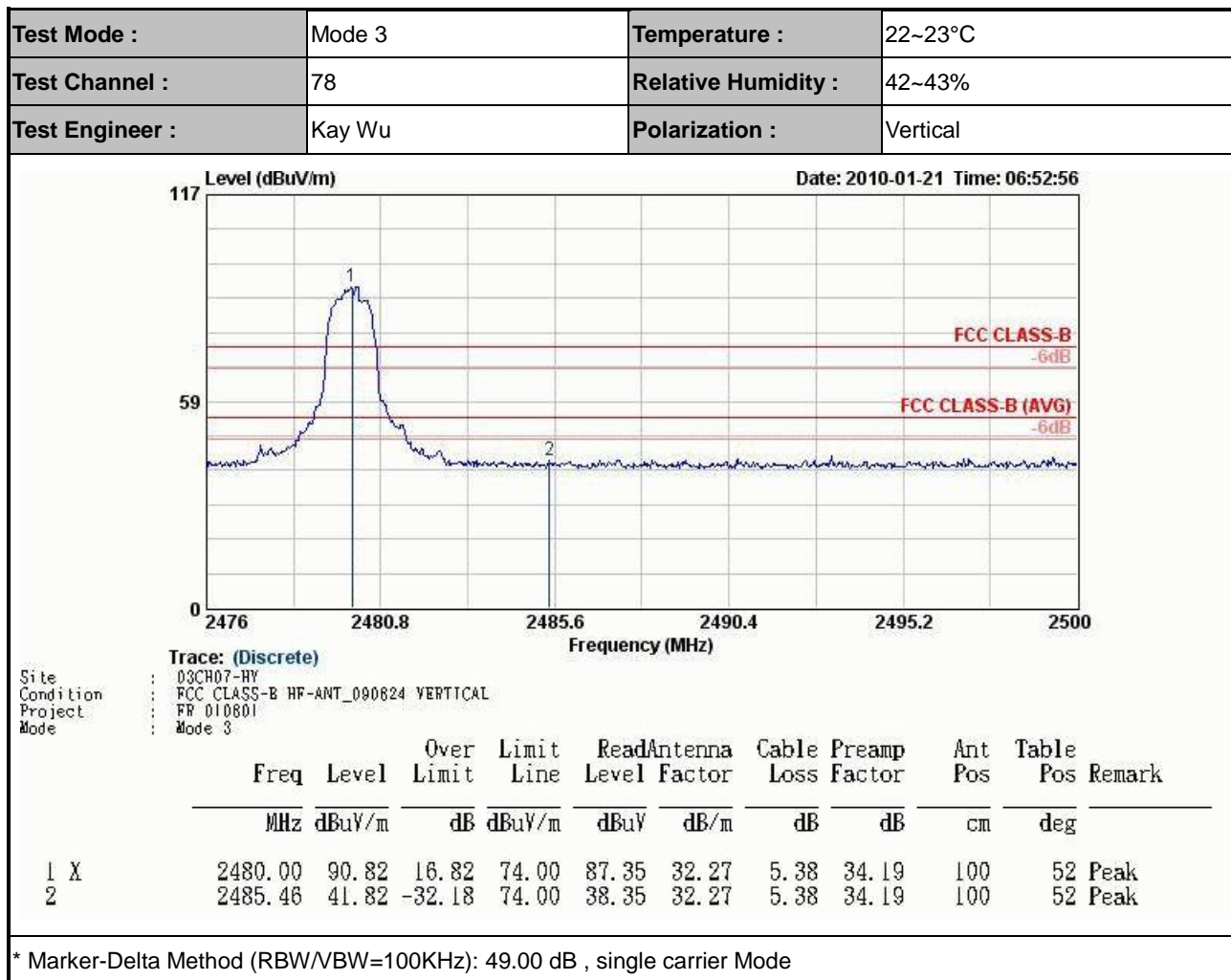


Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal



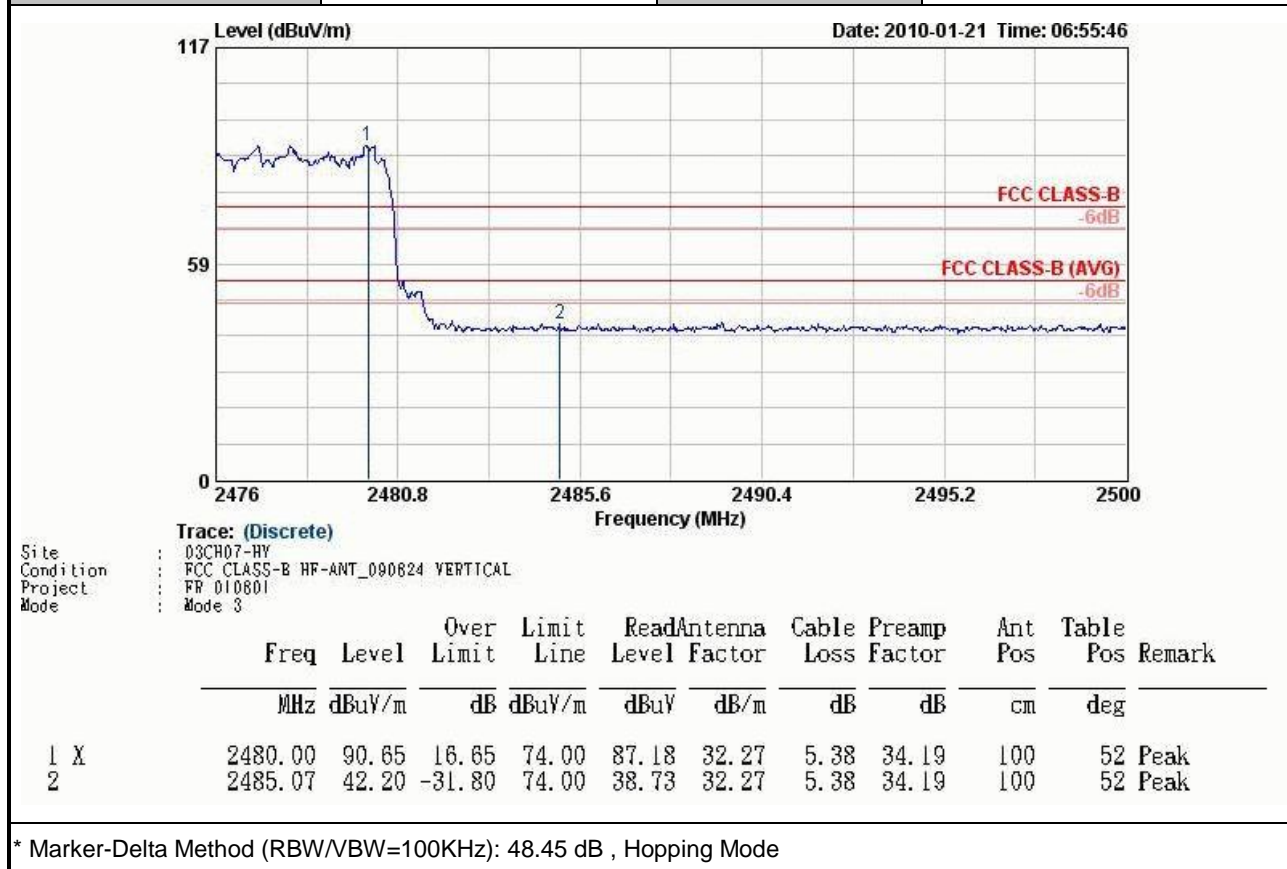
Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Vertical







Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Vertical





Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
		Test Engineer :	Kay Wu

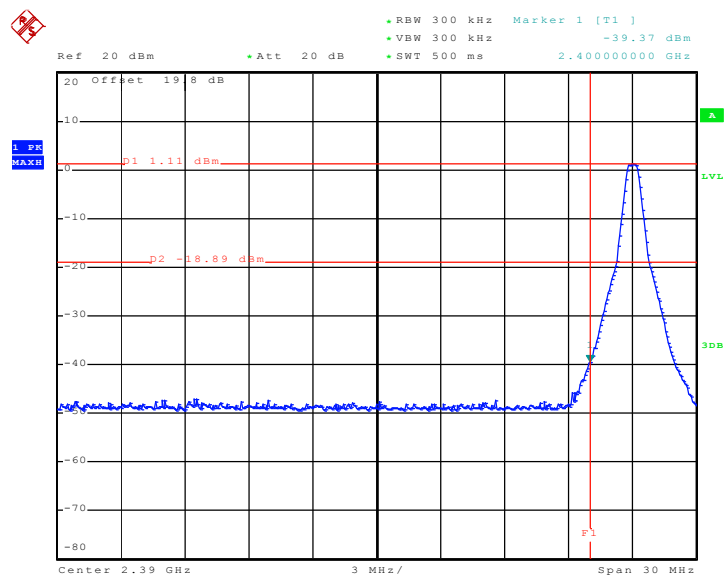
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	59.40	-14.60	74	55.94	32.27	5.38	34.19	131	316	Peak
2483.5	47.37	-6.63	54	43.91	32.27	5.38	34.19	131	316	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	57.19	-16.81	74	53.73	32.27	5.38	34.19	129	164	Peak
2483.5	45.59	-8.41	54	42.13	32.27	5.38	34.19	129	164	Average

3.6.6 Test Result of Conducted Band Edges

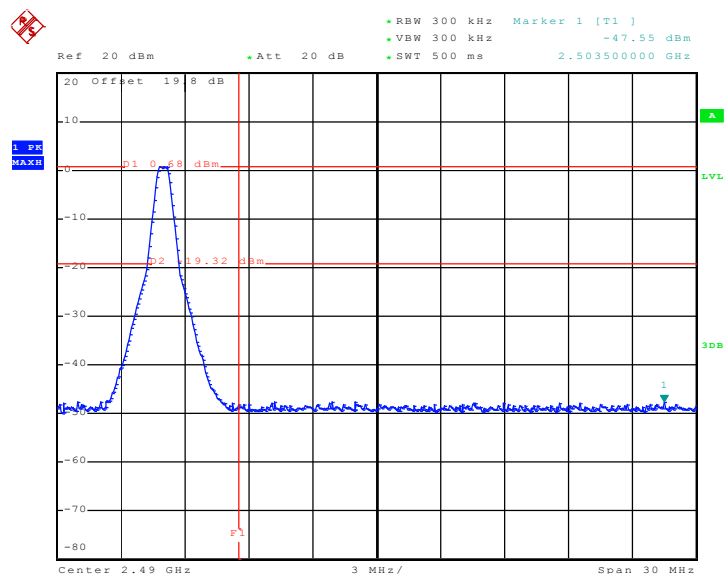
Test Mode :	Mode 1 and 3	Temperature :	26~28°C
Test Channel :	00 and 78	Relative Humidity :	33~35%
		Test Engineer :	Ken Hsu

Low Band Edge Plot on Channel 00



Date: 19.JAN.2010 13:43:09

High Band Edge Plot on Channel 78



Date: 19.JAN.2010 13:50:32



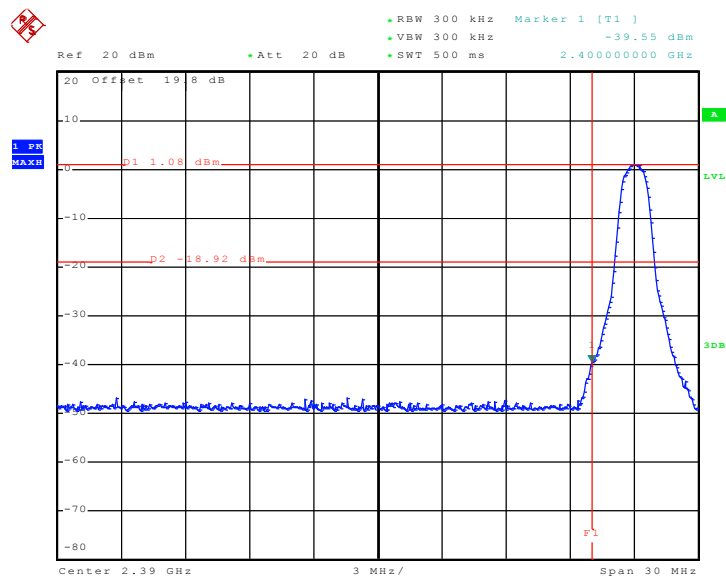
Low Band Edge Plot on Channel 00



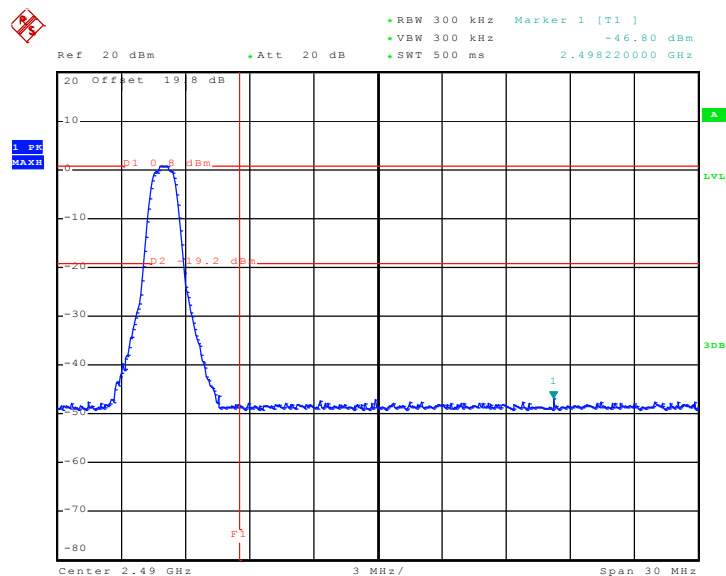
High Band Edge Plot on Channel 78



Test Mode :	Mode 7 and 9	Temperature :	26~28°C
Test Channel :	00 and 78	Relative Humidity :	33~35%
		Test Engineer :	Ken Hsu

Low Band Edge Plot on Channel 00


Date: 19.JAN.2010 13:48:22

High Band Edge Plot on Channel 78


Date: 19.JAN.2010 13:53:21

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.

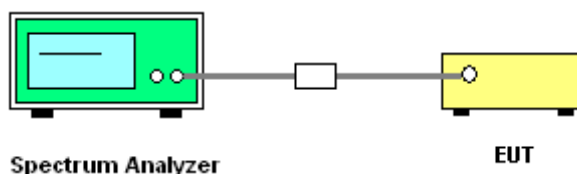
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedure

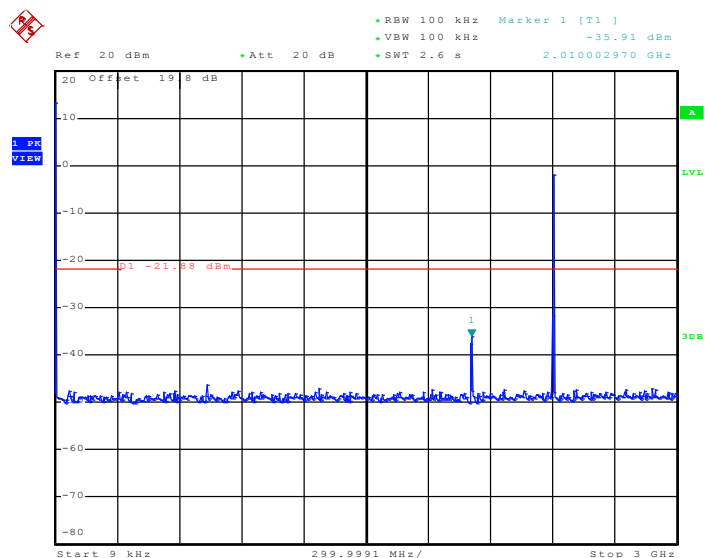
1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100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

3.7.4 Test Setup

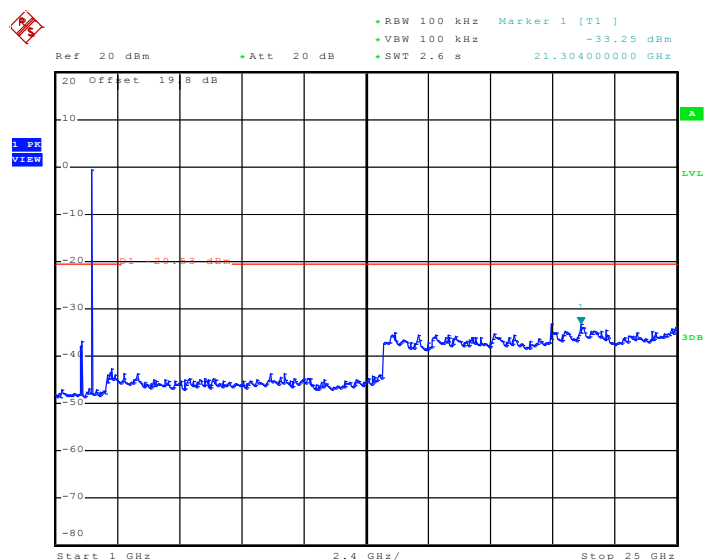




Test Mode :	Mode 7	Temperature :	26~28℃
Test Channel :	00	Relative Humidity :	33~35%
		Test Engineer :	Ken Hsu

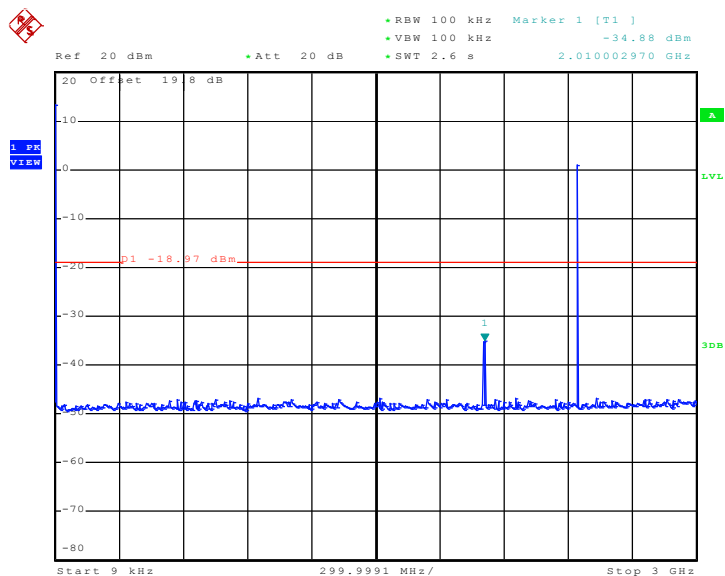


Date: 20 JAN 2010 08:51:20

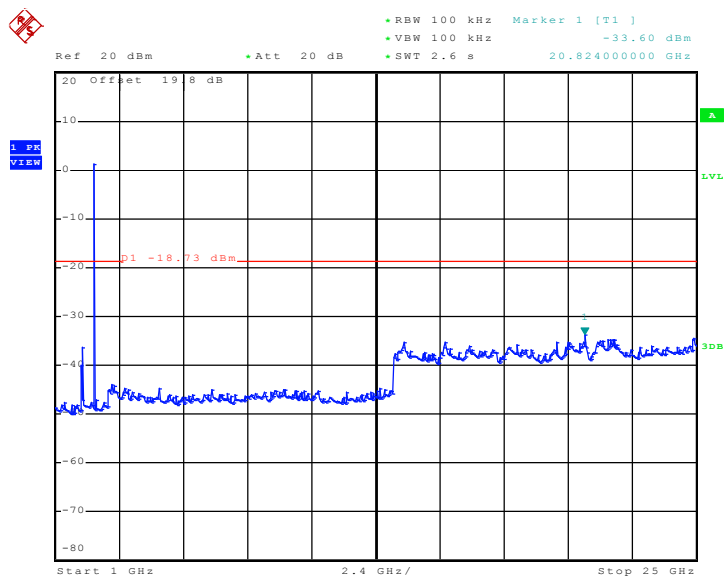


Date: 20 JAN 2010 08:52:43

Test Mode :	Mode 8	Temperature :	26~28°C
Test Channel :	39	Relative Humidity :	33~35%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz


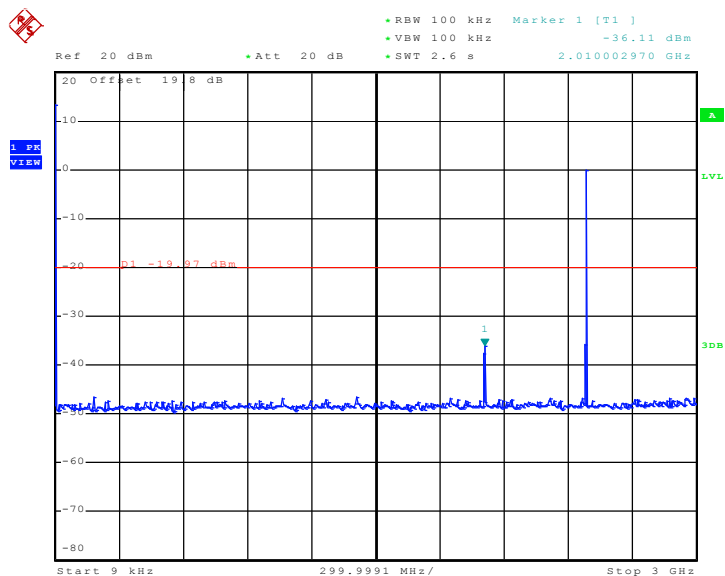
Date: 20.JAN.2010 08:53:58

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz


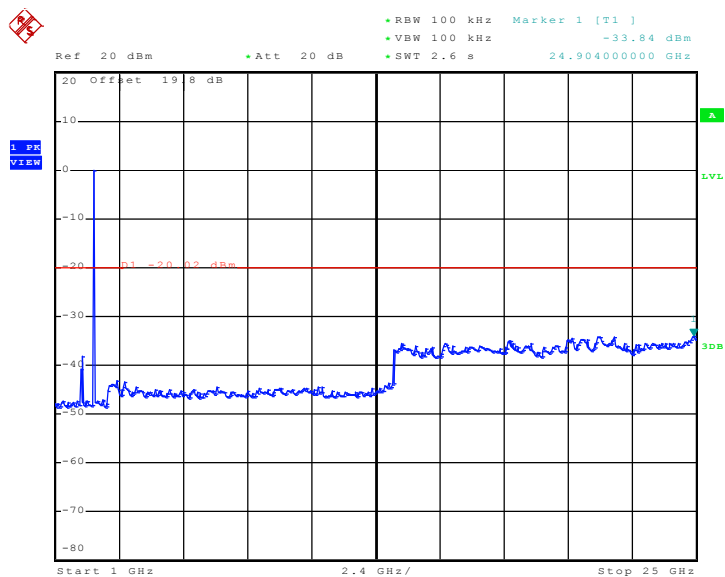
Date: 20.JAN.2010 08:54:19



Test Mode :	Mode 9	Temperature :	26~28°C
Test Channel :	78	Relative Humidity :	33~35%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

Date: 20.JAN.2010 08:55:39

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

Date: 20.JAN.2010 08:57:30

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.

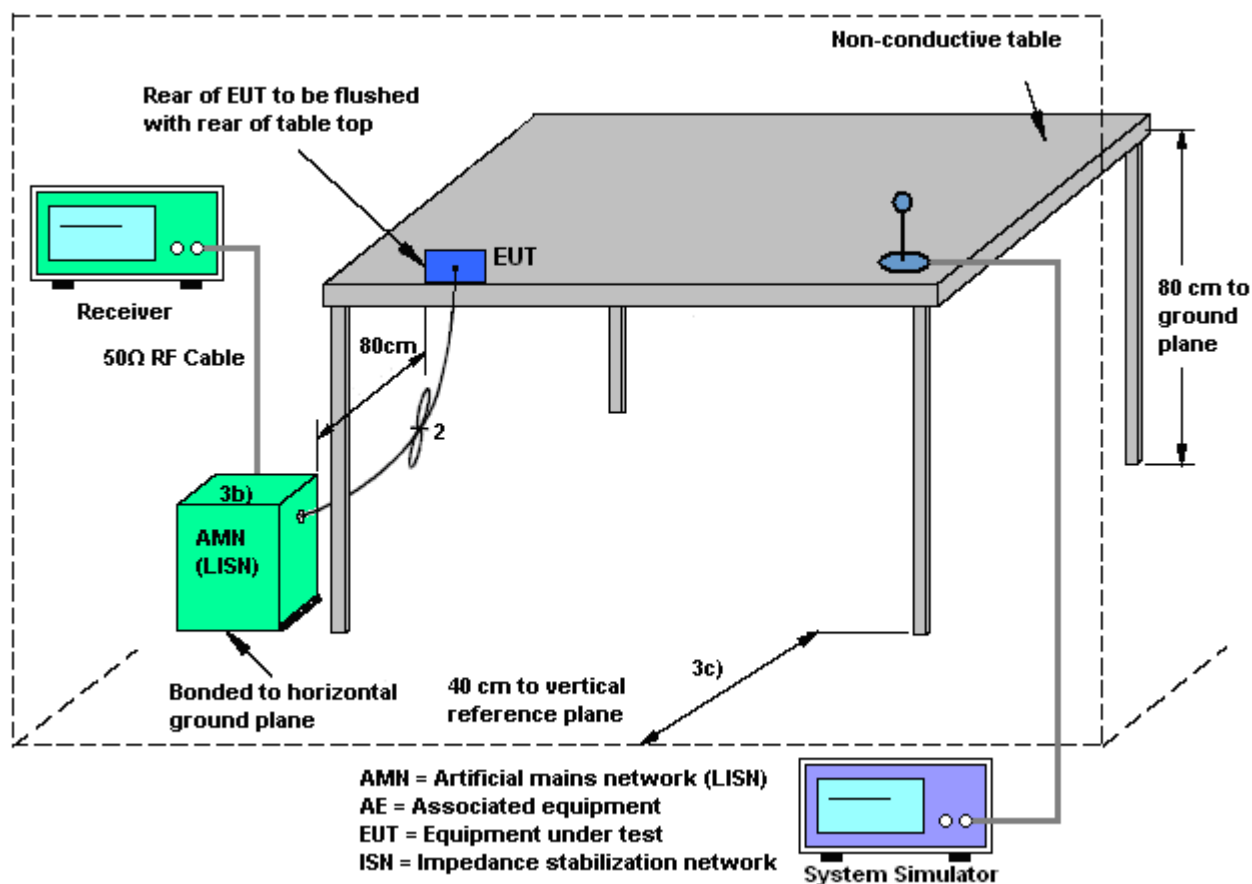
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

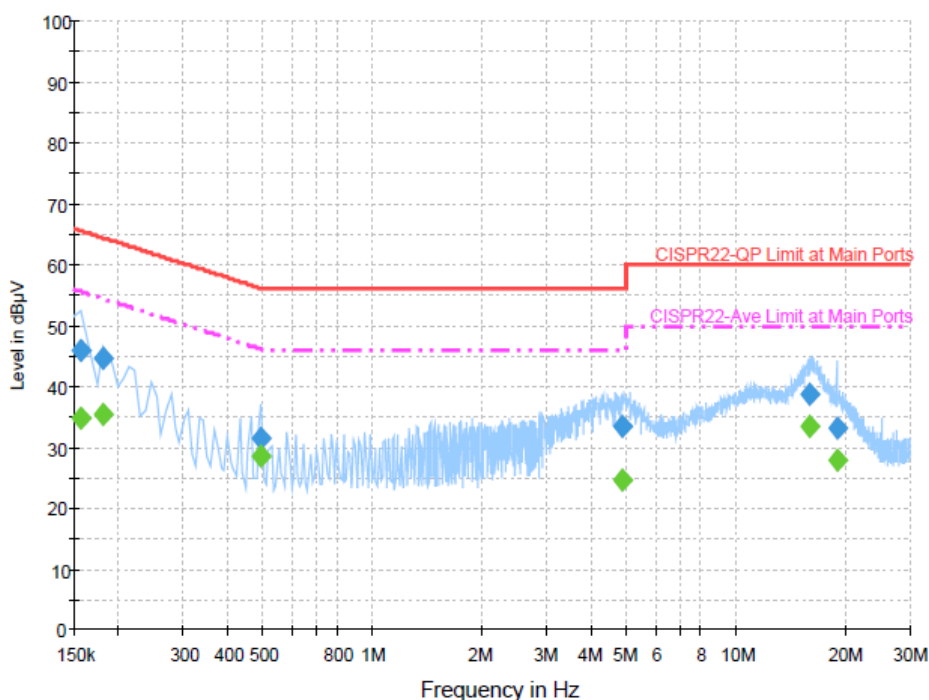
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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°C
Test Engineer :	Hayden Wu	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Camera + MP3 + Qwerty Keypad		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



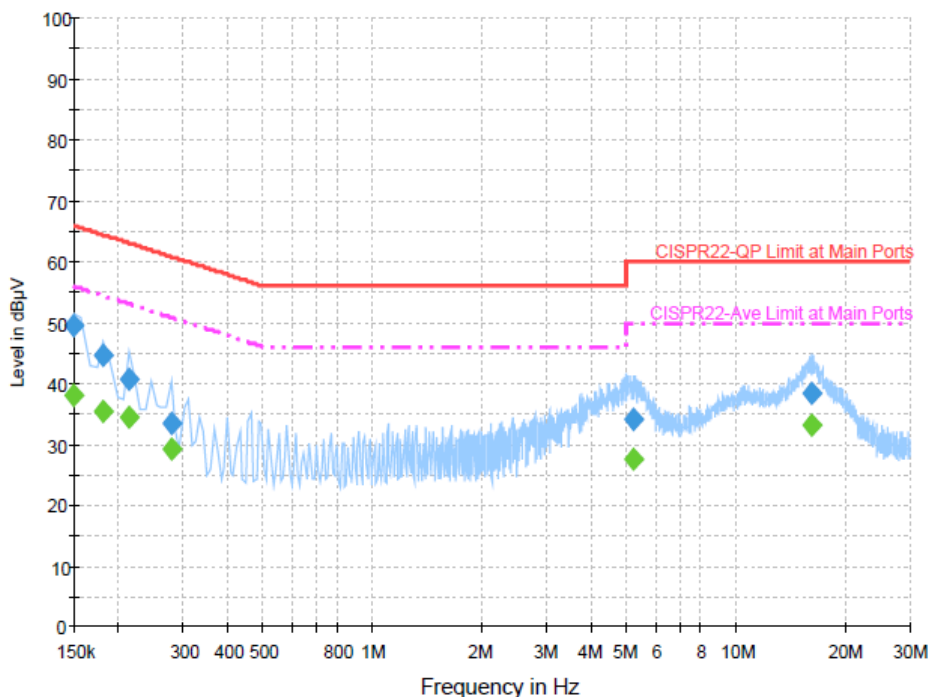
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	46.0	Off	L1	19.5	19.6	65.6
0.182000	44.4	Off	L1	19.5	20.0	64.4
0.494000	31.5	Off	L1	19.4	24.6	56.1
4.862000	33.4	Off	L1	19.5	22.6	56.0
15.878000	38.6	Off	L1	19.7	21.4	60.0
18.870000	33.2	Off	L1	19.7	26.8	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	34.7	Off	L1	19.5	20.9	55.6
0.182000	35.3	Off	L1	19.5	19.1	54.4
0.494000	28.5	Off	L1	19.4	17.6	46.1
4.862000	24.6	Off	L1	19.5	21.4	46.0
15.878000	33.3	Off	L1	19.7	16.7	50.0
18.870000	27.9	Off	L1	19.7	22.1	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Camera + MP3 + Qwerty Keypad		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

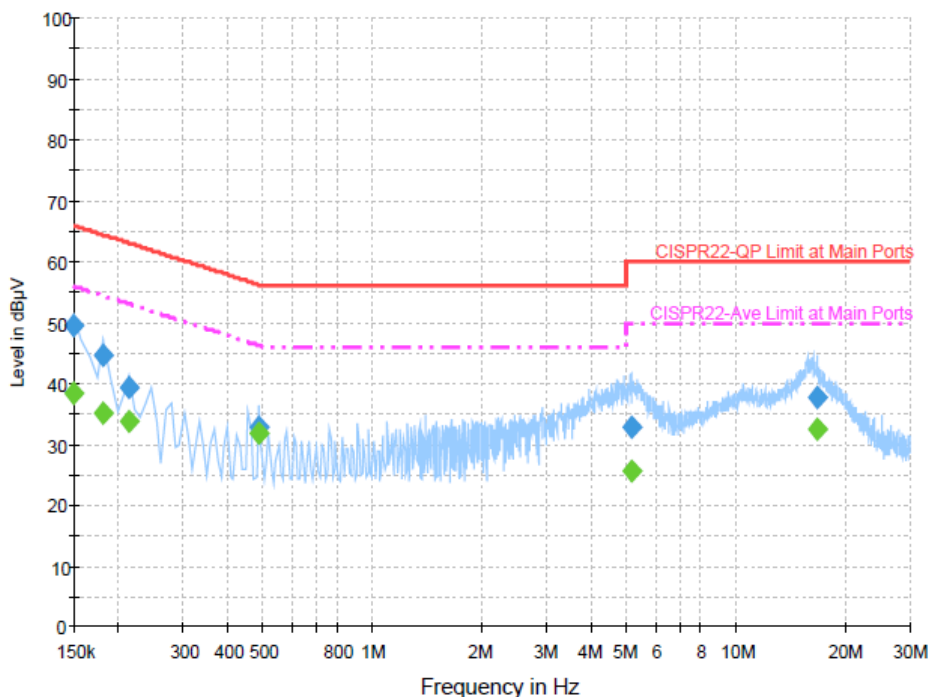

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	49.4	Off	N	19.5	16.6	66.0
0.182000	44.6	Off	N	19.5	19.8	64.4
0.214000	40.5	Off	N	19.5	22.5	63.0
0.278000	33.6	Off	N	19.5	27.3	60.9
5.214000	34.2	Off	N	19.5	25.8	60.0
16.086000	38.4	Off	N	19.8	21.6	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.0	Off	N	19.5	18.0	56.0
0.182000	35.5	Off	N	19.5	18.9	54.4
0.214000	34.4	Off	N	19.5	18.6	53.0
0.278000	29.2	Off	N	19.5	21.7	50.9
5.214000	27.4	Off	N	19.5	22.6	50.0
16.086000	33.1	Off	N	19.8	16.9	50.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Scanner + MP3 + Qwerty Keypad		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

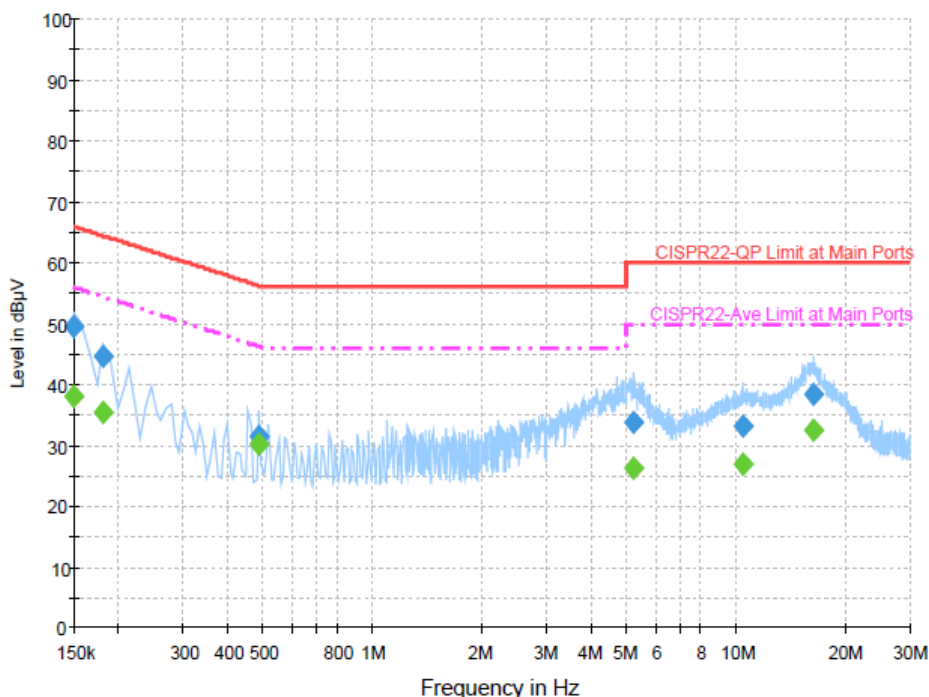

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	49.6	Off	L1	19.5	16.4	66.0
0.182000	44.6	Off	L1	19.5	19.8	64.4
0.214000	39.4	Off	L1	19.5	23.6	63.0
0.486000	32.6	Off	L1	19.4	23.6	56.2
5.126000	32.7	Off	L1	19.5	27.3	60.0
16.606000	37.7	Off	L1	19.7	22.3	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.4	Off	L1	19.5	17.6	56.0
0.182000	35.2	Off	L1	19.5	19.2	54.4
0.214000	33.7	Off	L1	19.5	19.3	53.0
0.486000	31.9	Off	L1	19.4	14.3	46.2
5.126000	25.6	Off	L1	19.5	24.4	50.0
16.606000	32.3	Off	L1	19.7	17.7	50.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Scanner + MP3 + Qwerty Keypad		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

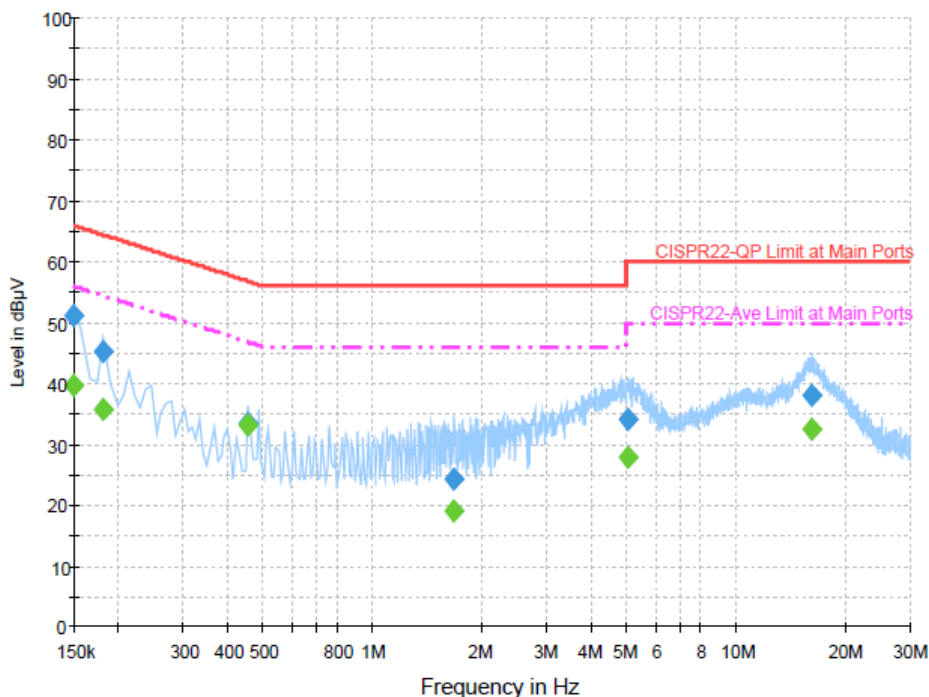

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	49.7	Off	N	19.5	16.3	66.0
0.182000	44.6	Off	N	19.5	19.8	64.4
0.486000	31.3	Off	N	19.4	24.9	56.2
5.238000	33.9	Off	N	19.5	26.1	60.0
10.446000	33.1	Off	N	19.6	26.9	60.0
16.350000	38.2	Off	N	19.8	21.8	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.1	Off	N	19.5	17.9	56.0
0.182000	35.5	Off	N	19.5	18.9	54.4
0.486000	30.1	Off	N	19.4	16.1	46.2
5.238000	26.3	Off	N	19.5	23.7	50.0
10.446000	26.9	Off	N	19.6	23.1	50.0
16.350000	32.6	Off	N	19.8	17.4	50.0

Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Camera + MP3 + Numeric Keypad		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

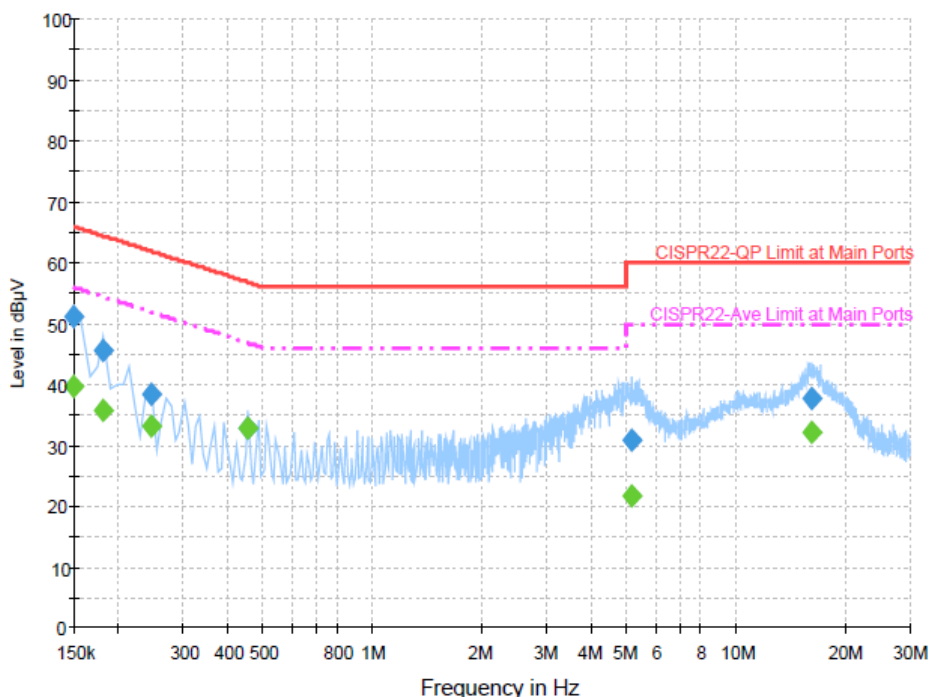

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	51.0	Off	L1	19.5	15.0	66.0
0.182000	45.4	Off	L1	19.5	19.0	64.4
0.454000	33.6	Off	L1	19.4	23.2	56.8
1.670000	24.1	Off	L1	19.5	31.9	56.0
5.046000	34.2	Off	L1	19.5	25.8	60.0
16.158000	37.9	Off	L1	19.7	22.1	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	39.6	Off	L1	19.5	16.4	56.0
0.182000	35.7	Off	L1	19.5	18.7	54.4
0.454000	33.1	Off	L1	19.4	13.7	46.8
1.670000	19.0	Off	L1	19.5	27.0	46.0
5.046000	27.9	Off	L1	19.5	22.1	50.0
16.158000	32.5	Off	L1	19.7	17.5	50.0

Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Charging Cable with AC Power + USB Link + Camera + MP3 + Numeric Keypad		
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	51.3	Off	N	19.5	14.7	66.0
0.182000	45.5	Off	N	19.5	18.9	64.4
0.246000	38.5	Off	N	19.5	23.4	61.9
0.454000	32.7	Off	N	19.4	24.1	56.8
5.174000	30.7	Off	N	19.5	29.3	60.0
16.142000	37.6	Off	N	19.8	22.4	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	39.6	Off	N	19.5	16.4	56.0
0.182000	35.9	Off	N	19.5	18.5	54.4
0.246000	33.0	Off	N	19.5	18.9	51.9
0.454000	32.7	Off	N	19.4	14.1	46.8
5.174000	21.7	Off	N	19.5	28.3	50.0
16.142000	32.1	Off	N	19.8	17.9	50.0

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

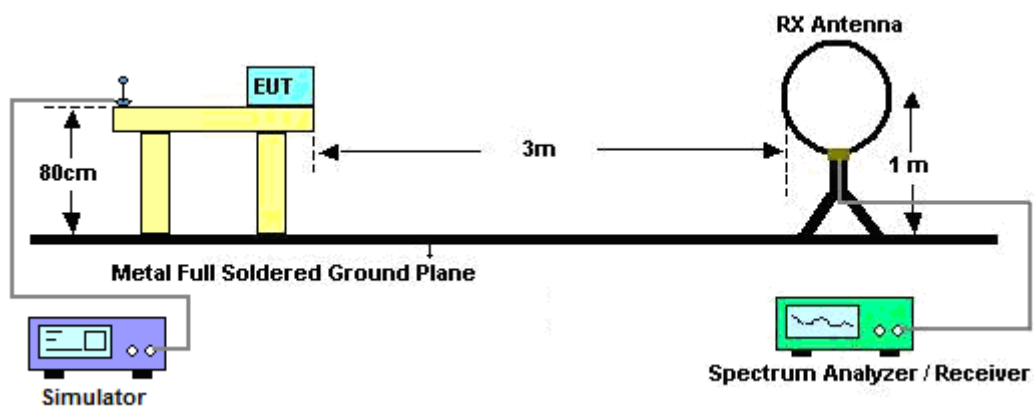
See list of measuring instruments of this test report.

3.9.3 Test Procedures

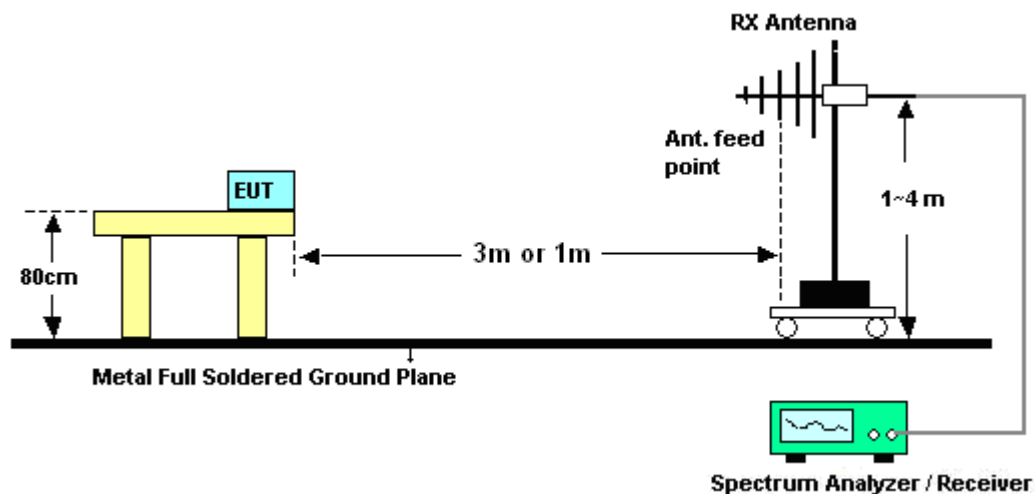
- The testing follows the guidelines in FCC Public Notice DA 00-705 Measurement Guidelines.
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - 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 = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- 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 :	Kay Wu	Temperature :	22~23°C
		Relative Humidity :	42~43%

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 :	22~23°C
Test Channel :	00	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	1. 1996 MHz is not within a restricted band. 2. 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
52.41	23.1	-16.9	40	46.38	7.57	0.85	31.7	100	55	Peak
167.7	24.4	-19.1	43.5	44.68	9.81	1.54	31.63	-	-	Peak
182.82	22.06	-21.44	43.5	43.05	9	1.63	31.62	-	-	Peak
318.9	20.2	-25.8	46	35.38	13.97	2.21	31.36	-	-	Peak
466.6	23.98	-22.02	46	34.79	17.48	2.84	31.13	-	-	Peak
942.6	27.31	-18.69	46	29.89	23.83	4.25	30.66	-	-	Peak
1996	64.96	-11.41	76.37	61.67	31.5	5.79	34	100	0	Peak
2319.69	33.01	-20.99	54	29.61	32.02	5.51	34.13	130	240	Average
2319.69	45.12	-28.88	74	41.72	32.02	5.51	34.13	130	240	Peak
2402	96.37	-	-	92.93	32.16	5.44	34.16	130	240	Peak
2402	80.73	-	-	77.3	32.13	5.46	34.16	130	240	Average
2500	44.91	-29.09	74	41.44	32.3	5.37	34.2	130	240	Peak
2500	32.42	-21.58	54	28.95	32.3	5.37	34.2	130	240	Average
3990	56.54	-17.46	74	51.51	33.5	5.94	34.41	100	348	Peak
3990	42.03	-11.97	54	37	33.5	5.94	34.41	100	348	Average
8373	54.31	-19.69	74	43.31	36	10.1	35.1	100	57	Peak
8373	40.64	-13.36	54	29.64	36	10.1	35.1	100	57	Average



Test Mode :	Mode 1	Temperature :	22~23°C
Test Channel :	00	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	1. 1996 MHz is not within a restricted band. 2. 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
51.33	33.44	-6.56	40	56.53	7.77	0.84	31.7	100	77	Peak
92.37	32.38	-11.12	43.5	53.79	9.17	1.12	31.7	-	-	Peak
143.13	27.44	-16.06	43.5	46.15	11.52	1.43	31.66	-	-	Peak
587	23.26	-22.74	46	31.25	19.81	3.21	31.01	-	-	Peak
733.3	23.84	-22.16	46	29.72	21.3	3.65	30.83	-	-	Peak
926.5	26.35	-19.65	46	29.23	23.58	4.21	30.67	-	-	Peak
1996	61.56	-10.51	72.07	58.27	31.5	5.79	34	100	0	Peak
2339.26	32.95	-21.05	54	29.54	32.05	5.5	34.14	136	296	Average
2339.26	46.71	-27.29	74	43.3	32.05	5.5	34.14	136	296	Peak
2402	92.07	-	-	88.63	32.16	5.44	34.16	136	296	Peak
2402	77.36	-	-	73.93	32.13	5.46	34.16	136	296	Average
2500	45.54	-28.46	74	42.07	32.3	5.37	34.2	136	296	Peak
2500	32.37	-21.63	54	28.9	32.3	5.37	34.2	136	296	Average
3990	54.5	-19.5	74	49.47	33.5	5.94	34.41	123	291	Peak
3990	40.96	-13.04	54	35.93	33.5	5.94	34.41	123	291	Average
8037	54.07	-19.93	74	43.31	36	9.86	35.1	100	37	Peak
8037	42.56	-11.44	54	31.8	36	9.86	35.1	100	37	Average

Test Mode :	Mode 2	Temperature :	22~23°C
Test Channel :	39	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	1. 1996 MHz is not within a restricted band. 2. 2441 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.83	-18.17	40	33.38	19.51	0.64	31.7	100	285	Peak
164.73	21.78	-21.72	43.5	41.85	10.03	1.53	31.63	-	-	Peak
181.74	22.05	-21.45	43.5	43.02	9.03	1.62	31.62	-	-	Peak
399.4	23.21	-22.79	46	35.76	16.11	2.54	31.2	-	-	Peak
643.7	22.89	-23.11	46	30.05	20.41	3.39	30.96	-	-	Peak
937.7	26.52	-19.48	46	29.19	23.75	4.24	30.66	-	-	Peak
1996	66.64	-12.66	79.30	63.35	31.5	5.79	34	100	0	Peak
2342	33.04	-20.96	54	29.63	32.05	5.5	34.14	200	231	Average
2342	45.25	-28.75	74	41.84	32.05	5.5	34.14	200	231	Peak
2441	82.61	-	-	79.16	32.22	5.41	34.18	200	231	Average
2441	99.3	-	-	95.85	32.22	5.41	34.18	200	231	Peak
2486	45.76	-28.24	74	42.3	32.27	5.38	34.19	200	231	Peak
2486	32.48	-21.52	54	29.02	32.27	5.38	34.19	200	231	Average
3990	57.12	-16.88	74	52.09	33.5	5.94	34.41	100	348	Peak
3990	42.67	-11.33	54	37.64	33.5	5.94	34.41	100	348	Average
8325	54.34	-19.66	74	43.38	36	10.06	35.1	105	75	Peak
8325	41.14	-12.86	54	30.18	36	10.06	35.1	105	75	Average

Test Mode :	Mode 2	Temperature :	22~23°C
Test Channel :	39	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	1. 1996 MHz is not within a restricted band. 2. 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
51.06	31.86	-8.14	40	54.95	7.77	0.84	31.7	100	60	Peak
92.37	33.29	-10.21	43.5	54.7	9.17	1.12	31.7	-	-	Peak
148.26	23.85	-19.65	43.5	42.75	11.29	1.46	31.65	-	-	Peak
514.9	22.61	-23.39	46	32.26	18.46	2.98	31.09	-	-	Peak
794.2	24.52	-21.48	46	29.26	22.14	3.83	30.71	-	-	Peak
929.3	26.75	-19.25	46	29.58	23.62	4.22	30.67	-	-	Peak
1996	61.94	-10.64	72.58	58.65	31.5	5.79	34	100	0	Peak
2358	32.94	-21.06	54	29.51	32.08	5.49	34.14	100	316	Average
2358	45.71	-28.29	74	42.28	32.08	5.49	34.14	100	316	Peak
2441	77.2	-	-	73.75	32.22	5.41	34.18	100	316	Average
2441	92.58	-	-	89.12	32.22	5.41	34.17	100	316	Peak
2484	45.56	-28.44	74	42.1	32.27	5.38	34.19	100	316	Peak
2484	32.38	-21.62	54	28.92	32.27	5.38	34.19	100	316	Average
3990	54.26	-19.74	74	49.23	33.5	5.94	34.41	124	290	Peak
3990	41.86	-12.14	54	36.83	33.5	5.94	34.41	124	290	Average
8274	54.7	-19.3	74	43.77	36	10.03	35.1	126	38	Peak
8274	42.87	-11.13	54	31.94	36	10.03	35.1	126	38	Average



Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	1. 1996 MHz is not within a restricted band. 2. 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
46.74	20.98	-19.02	40	41.98	9.94	0.76	31.7	-	-	Peak
92.37	18.41	-25.09	43.5	39.82	9.17	1.12	31.7	-	-	Peak
182.82	22.3	-21.2	43.5	43.29	9	1.63	31.62	-	-	Peak
466.6	25.62	-20.38	46	36.43	17.48	2.84	31.13	-	-	Peak
514.9	22.59	-23.41	46	32.24	18.46	2.98	31.09	-	-	Peak
913.2	27.62	-18.38	46	30.73	23.39	4.19	30.69	100	57	Peak
1996	66.18	-11.83	78.01	62.89	31.5	5.79	34	100	0	Peak
2382	45.57	-28.43	74	42.14	32.11	5.47	34.15	200	230	Peak
2382	33.08	-20.92	54	29.65	32.11	5.47	34.15	200	230	Average
2480	81.34	-	-	77.88	32.27	5.38	34.19	200	230	Average
2480	98.01	-	-	94.55	32.27	5.38	34.19	200	230	Peak
2483.5	63.55	-10.45	74	60.09	32.27	5.38	34.19	200	230	Peak
2483.5	28.00	-26.00	54	24.54	32.27	5.38	34.19	200	230	Average
3990	56.3	-17.7	74	51.27	33.5	5.94	34.41	100	348	Peak
3990	41.38	-12.62	54	36.35	33.5	5.94	34.41	100	348	Average
7629	54.8	-19.2	74	44.21	35.93	9.69	35.03	133	100	Peak
7629	42.69	-11.31	54	32.1	35.93	9.69	35.03	133	100	Average

Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	1. 1996 MHz is not within a restricted band. 2. 2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	27.69	-12.31	40	39.79	18.95	0.65	31.7	100	51	Peak
76.17	27.29	-12.71	40	50.79	7.21	0.99	31.7	-	-	Peak
92.37	30.24	-13.26	43.5	51.65	9.17	1.12	31.7	-	-	Peak
514.9	22.86	-23.14	46	32.51	18.46	2.98	31.09	-	-	Peak
643	22.79	-23.21	46	29.96	20.4	3.39	30.96	-	-	Peak
926.5	27.17	-18.83	46	30.05	23.58	4.21	30.67	-	-	Peak
1996	60.73	-11.33	72.06	57.44	31.5	5.79	34	100	0	Peak
2334	32.96	-21.04	54	29.56	32.02	5.51	34.13	100	52	Average
2334	45.84	-28.16	74	42.44	32.02	5.51	34.13	100	52	Peak
2480	92.06	-	-	88.6	32.27	5.38	34.19	100	52	Peak
2480	77.05	-	-	73.59	32.27	5.38	34.19	100	52	Average
2483.5	57.69	-16.31	74	54.23	32.27	5.38	34.19	100	52	Peak
2483.5	28.60	-25.40	54	25.14	32.27	5.38	34.19	100	52	Average
3990	53.87	-20.13	74	48.84	33.5	5.94	34.41	162	125	Peak
3990	40.02	-13.98	54	34.99	33.5	5.94	34.41	162	125	Average
8373	54.3	-19.7	74	43.3	36	10.1	35.1	100	105	Peak
8373	42.98	-11.02	54	31.98	36	10.1	35.1	100	105	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	1. 1996 MHz is not within a restricted band. 2. 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
51.33	24.87	-15.13	40	47.96	7.77	0.84	31.7	100	132	Peak
180.93	23.59	-19.91	43.5	44.56	9.03	1.62	31.62	-	-	Peak
294.33	23.71	-22.29	46	39.63	13.39	2.1	31.41	-	-	Peak
466.6	24.07	-21.93	46	34.88	17.48	2.84	31.13	-	-	Peak
702.5	23.61	-22.39	46	30.08	20.87	3.56	30.9	-	-	Peak
914.6	26.51	-19.49	46	29.61	23.4	4.19	30.69	-	-	Peak
1996	64.44	-10.34	74.78	61.15	31.5	5.79	34	100	0	Peak
2380	45.31	-28.69	74	41.88	32.11	5.47	34.15	131	316	Peak
2380	32.57	-21.43	54	29.14	32.11	5.47	34.15	131	316	Average
2480	94.78	-	-	91.32	32.27	5.38	34.19	131	316	Peak
2480	78.81	-	-	75.35	32.27	5.38	34.19	131	316	Average
2483.5	59.4	-14.6	74	55.94	32.27	5.38	34.19	131	316	Peak
2483.5	47.37	-6.63	54	43.91	32.27	5.38	34.19	131	316	Average
3993	54.53	-19.47	74	49.5	33.5	5.94	34.41	100	346	Peak
3993	39.07	-14.93	54	34.04	33.5	5.94	34.41	100	346	Average
8457	54.42	-19.58	74	43.36	36	10.16	35.1	104	29	Peak
8457	42.92	-11.08	54	31.86	36	10.16	35.1	104	29	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	78	Relative Humidity :	42~43%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	1. 1996 MHz is not within a restricted band. 2. 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
51.33	33.3	-6.7	40	56.39	7.77	0.84	31.7	100	285	Peak
75.09	30.04	-9.96	40	53.72	7.04	0.98	31.7	-	-	Peak
139.89	27.75	-15.75	43.5	46.31	11.7	1.4	31.66	-	-	Peak
399.4	20.75	-25.25	46	33.3	16.11	2.54	31.2	-	-	Peak
747.3	23.89	-22.11	46	29.53	21.48	3.69	30.81	-	-	Peak
948.9	26.69	-19.31	46	29.17	23.91	4.26	30.65	-	-	Peak
1996	60.65	-9.74	70.39	57.36	31.5	5.79	34	100	0	Peak
2342	45.46	-28.54	74	42.05	32.05	5.5	34.14	129	164	Peak
2342	32.62	-21.38	54	29.21	32.05	5.5	34.14	129	164	Average
2480	90.39	-	-	86.93	32.27	5.38	34.19	129	164	Peak
2480	76.92	-	-	73.46	32.27	5.38	34.19	129	164	Average
2483.5	57.19	-16.81	74	53.73	32.27	5.38	34.19	129	164	Peak
2483.5	45.59	-8.41	54	42.13	32.27	5.38	34.19	129	164	Average
3993	54.11	-19.89	74	49.08	33.5	5.94	34.41	100	37	Peak
3993	39	-15	54	33.97	33.5	5.94	34.41	100	37	Average
8322	54.64	-19.36	74	43.68	36	10.06	35.1	121	91	Peak
8322	42.94	-11.06	54	31.98	36	10.06	35.1	121	91	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 PCB 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	Anritsu	ML2495A	0932001	N/A	Sep. 17, 2009	Sep. 16, 2010	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 10, 2009	Sep. 09, 2010	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 KHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)
Bluetooth Base Station	R&S	CBT32	100519	N/A	May 12, 2009	May 11, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	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 $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	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 $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	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				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP010801 as below.