FCC RF Test Report

APPLICANT	:	ASUSTeK COMPUTER INC.
EQUIPMENT	:	ASUS MeMO Pad
BRAND NAME	:	ASUS
MODEL NAME	:	K001
FCC ID	:	MSQK001
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DSS) Spread Spectrum Transmitter

The product was received on Sep. 18, 2012 and completely tested on Nov. 22, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures 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

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR291814A	Rev. 01	Initial issue of report	Dec. 03, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	A8.4(2)	Number of Channels	≥ 15Chs	Pass	-
3.2	15.247(a)(1)	A8.1(b)	Hopping Channel Separation	≥ 2/3 of 20dB BW	Pass	-
3.3	15.247(a)(1)	A8.1(d)	Dwell Time of Each Channel	≤ 0.4sec in 31.6sec period	Pass	-
3.4	15.247(a)(1)	A8.1(a)	20dB Bandwidth	NA	Pass	-
3.4	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.5	15.247(b)(1)	A8.1(b)	Peak Output Power	≤ 1 w for 1Mbps ≤ 125 Mw for 2, 3Mbps	Pass	-
3.6	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
3.7	15.247(d)	A8.5	Conducted Spurious Emission	≤ 20dBc	Pass	-
3.8	15.247(d)	A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 7.30 dB at 32.970 MHz
3.9	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 14.29 dB at 0.187 MHz
3.10	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ASUSTeK COMPUTER INC.
4F., No. 150, LI-TE RD., PEITOU, TAIPEI 112, TAIWAN

1.2 Manufacturer

Wistron Infocomm Manufacturing (Kunshan) Co., Ltd.
First Avenue, Kunshan Integrated Free Trade Zone, Kunshan, Jiangsu, 215300, P.R China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	ASUS MeMO Pad
Brand Name	ASUS
Model Name	K001
FCC ID	MSQK001
Sample 1	SKU#1
Sample 2	SKU#2
Sample 3	SKU#3
Sample 4	SKU#4
EUT supports Radios application	WLAN 11abgn / Bluetooth
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Maximum Output Power to Antenna	Bluetooth (1Mbps) : 10.79 dBm (0.0120 W) Bluetooth EDR (2Mbps) : 9.82 dBm (0.0096 W) Bluetooth EDR (3Mbps) : 10.29 dBm (0.0107 W)
99% Occupied Bandwidth	Bluetooth (1Mbps) : 0.880MHz Bluetooth EDR (2Mbps) : 1.196MHz Bluetooth EDR (3Mbps) : 1.176MHz
Antenna Type	PCB Antenna type with gain 2.22 dBi
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth 2.1 EDR (2Mbps) : π/4-DQPSK Bluetooth 2.1 EDR (3Mbps) : 8-DPSK Bluetooth 3.0 EDR : GFSK, π/4-DQPSK, 8-DPSK

Second Source	SKU#1	SKU#2	SKU#3	SKU#4
Memory	HynixH5TC2G83CFR-H9R	ELPIDA/J2108EDBG-DJL-F	ELPIDA/J2108EDBG-DJL-F	ELPIDA/J2108EDBG-DJL-F
EMMC	Hynix/H26M64002DQR	Hynix/H26M52002EQR	KINGSTON/KE4CN4K6A	Hynix/H26M52002EQR
LCD Panel	HSD HSD101PWW1-G00	CMI N101ICG-L21	HSD HSD101PWW1-G10	CMI N101ICG-L21 (VER.C3)
Pad Battery	SIMPLO C11-ME301T	SIMPLO C11-ME301T	SIMPLO C11-ME301T	LG C11-ME301T
Camera (front)	LITEON 10P2SF130L	LITEON 10P2SF130K	LITEON 10P2SF130K	LITEON 10P2SF130K
ADAPTER	AD83531	PSA10A-050Q	PSA10A-050Q	AD83531

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.
	TH02-HY	03CH05-HY	722060/4086B-1

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL: +886-2-2631-5551 FAX: +886-2-2631-9740	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	CO01-NH	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 and ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-300	KA2DIR300B1	N/A	Unshielded, 1.5 m
3.	Bluetooth Speaker	i Tech	C51-A05153-XX	RKIC51-A05153-XX	N/A	N/A
4.	LCD Monitor	Dell	2408WFPb	FCC DoC	Shielded, 1.5 m	Unshielded, 1.8 m
5.	Memory Card	transcend	Micro SD 2GB	N/A	N/A	N/A
6.	Earphone	ASUS	OBO-PT-HS09D-01	FCC DoC	Unshielded,1.2 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	10.01 dBm	9.29 dBm	9.70 dBm
Ch39	2441MHz	10.72 dBm	9.34 dBm	9.83 dBm
Ch78	2480MHz	**10.79 dBm**	9.82 dBm	10.29 dBm

Remark:

1. All the test data for each data rate were verified, but only the worst case was reported.
2. The data rate was set in 1Mbps for all the test items due to the highest RF output power.
3. 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 ANSI C63.10-2009 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, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

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

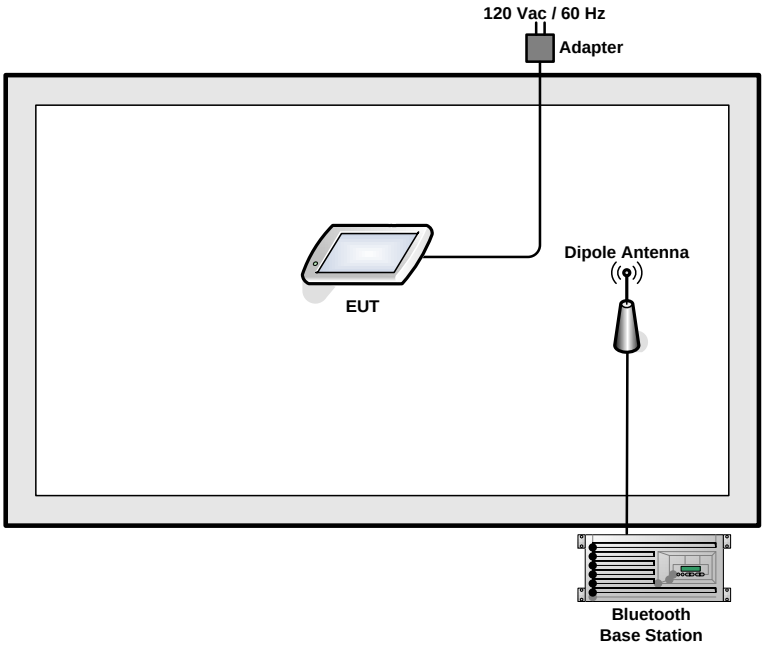
Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth 1Mbps GFSK	**Bluetooth EDR 2Mbps π/4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Pretest	Pretest
AC Conducted Emission	Mode 1 :WLAN (2.4G) Link + Bluetooth Link + MP3 + H-Pattern + USB Cable (Charging from Adapter) + Earphone + SD Card + HDMI Cable		

Remark:

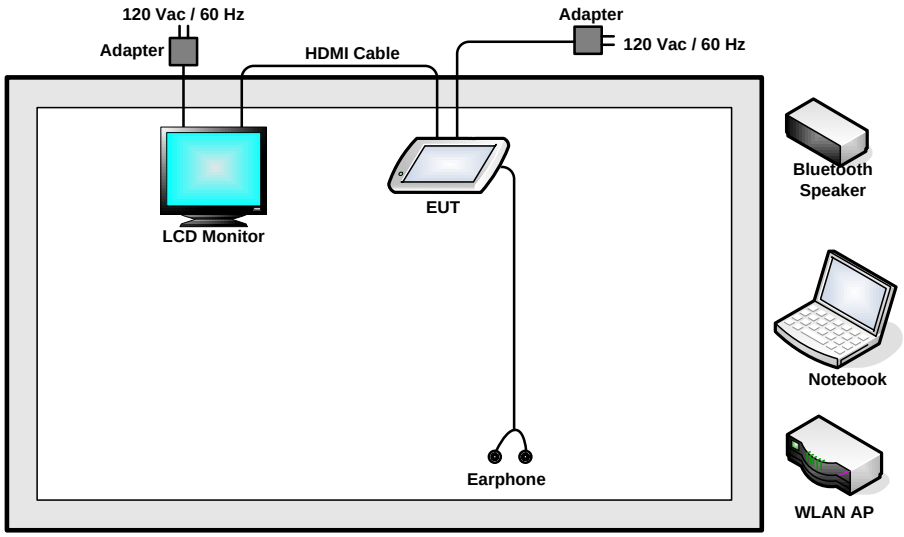
1. For radiated TCs, the data rate was set in 1Mbps due to the highest RF output power; only the data of these modes was reported.
2. All test items were performance with Sample 1.

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 continuous transmitting and receiving signals.

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 RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. 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.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

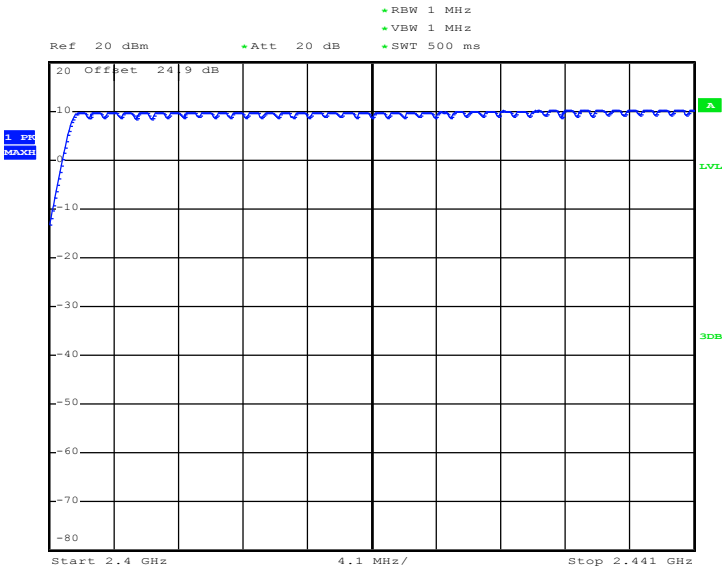
3.1.4 Test Setup

3.1.5 Test Result of Number of Hopping Frequency

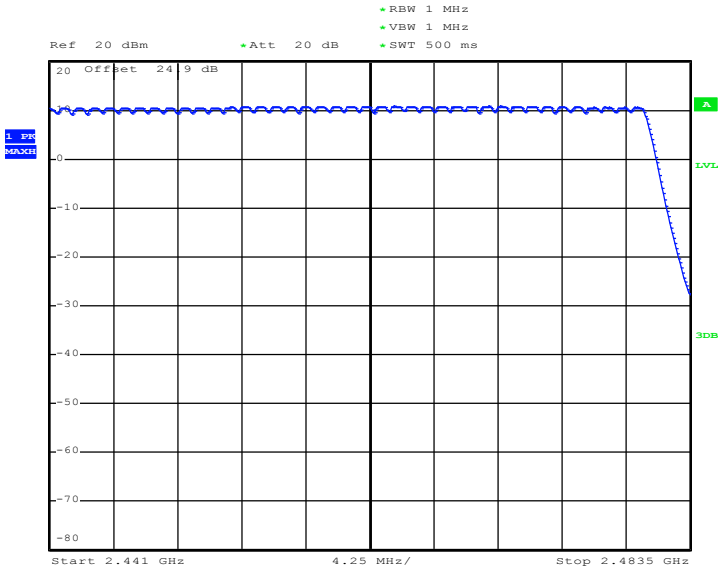
Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
79	>= 20	> 15	Pass

Number of Hopping Channel Plot on Channel 00 - 78



Date: 15.NOV.2012 00:23:09



Date: 15.NOV.2012 00:28:17

3.2 Hopping Channel Separation Measurement

3.2.1 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.

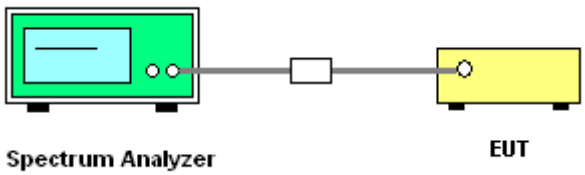
3.2.2 Measuring Instruments

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 RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. 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.
6. Measure and record the results in the test report.

3.2.4 Test Setup

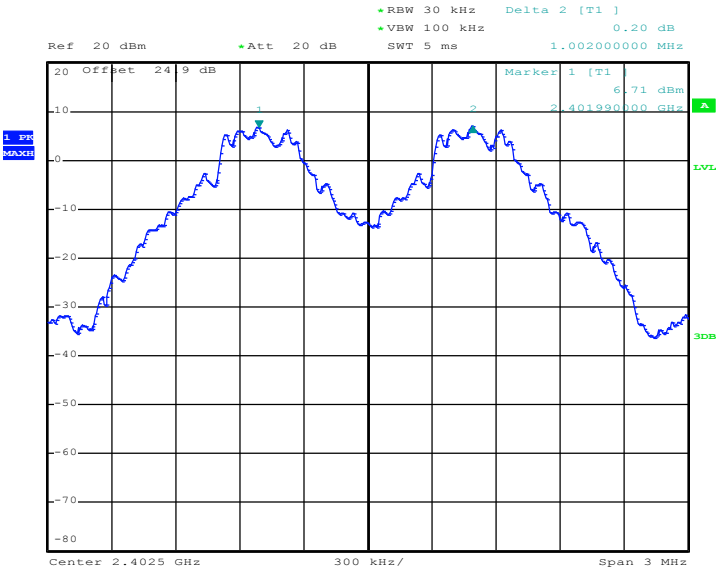


3.2.5 Test Result of Hopping Channel Separation

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

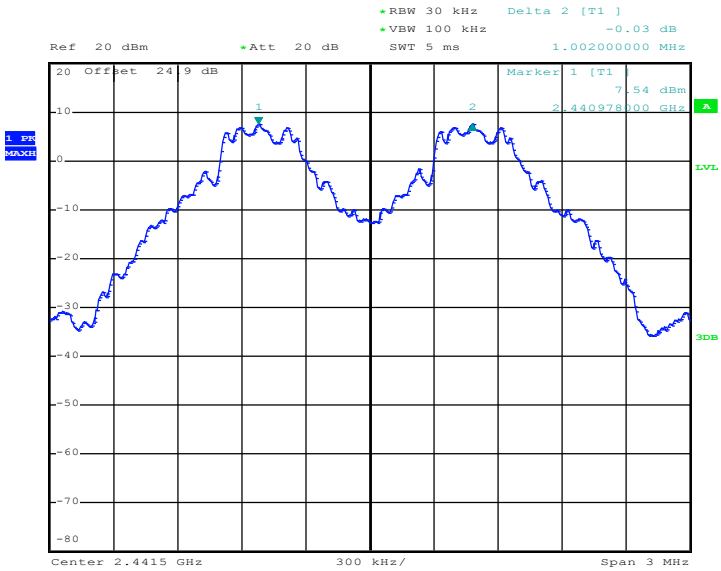
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.6133	Pass
39	2441	1.002	0.6027	Pass
78	2480	1.002	0.6027	Pass

Channel Separation Plot on Channel 00 - 01



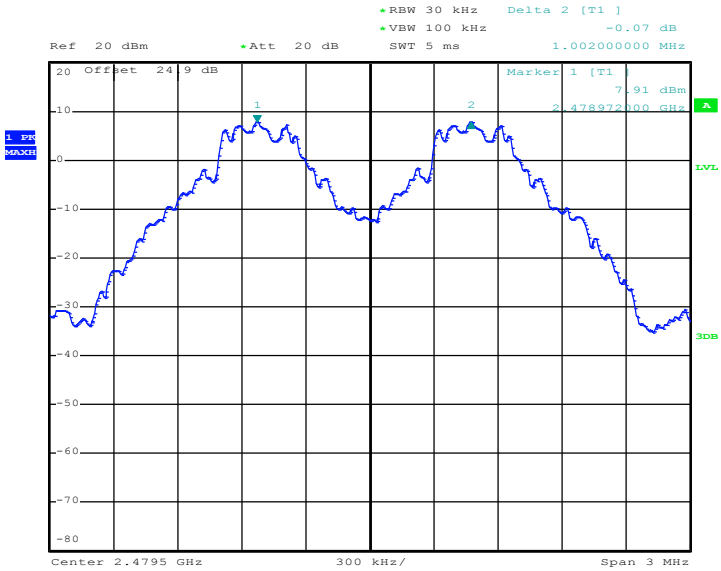
Date: 14.NOV.2012 23:36:36

Channel Separation Plot on Channel 39 - 40



Date: 14.NOV.2012 23:48:22

Channel Separation Plot on Channel 77 - 78

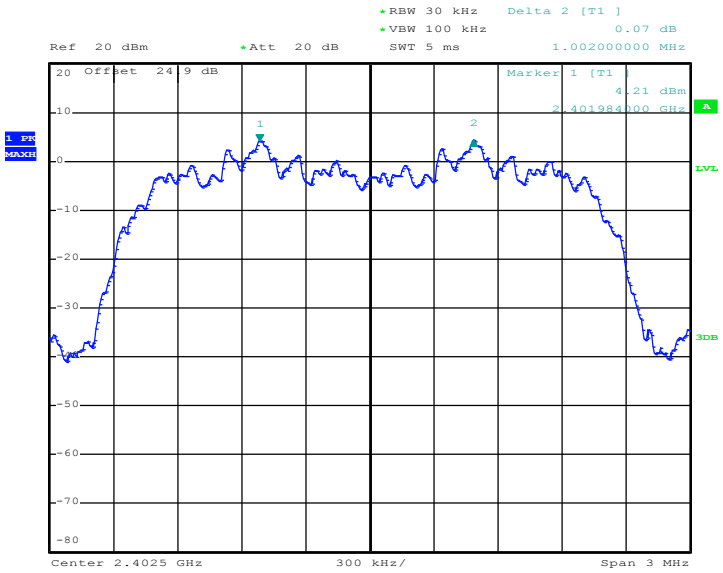


Date: 14.NOV.2012 23:54:12

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

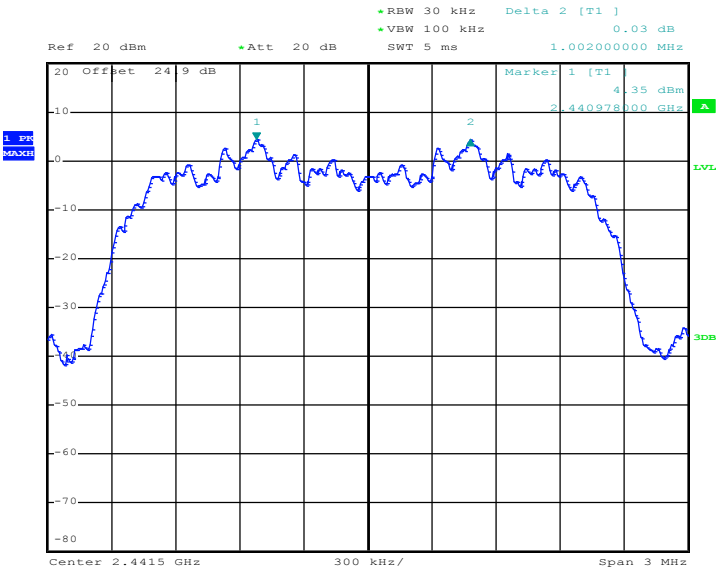
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.9040	Pass
39	2441	1.002	0.9000	Pass
78	2480	1.002	0.9000	Pass

Channel Separation Plot on Channel 00 - 01



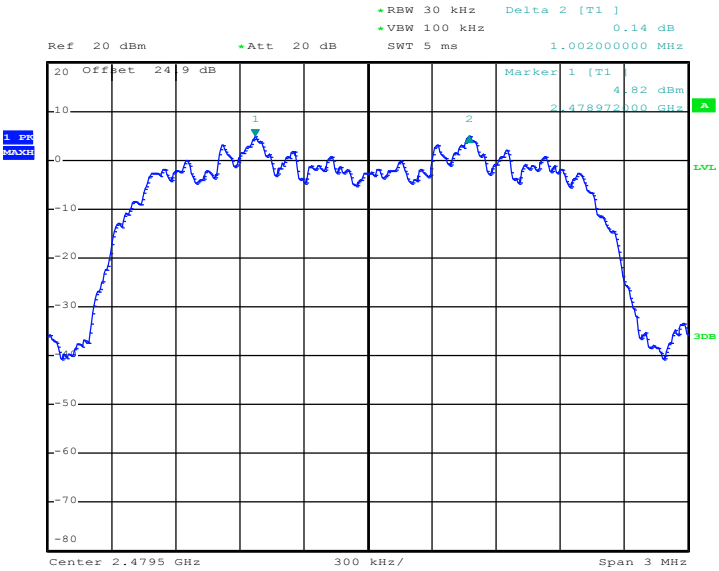
Date: 15.NOV.2012 00:04:47

Channel Separation Plot on Channel 39 - 40



Date: 15.NOV.2012 00:00:39

Channel Separation Plot on Channel 77 - 78

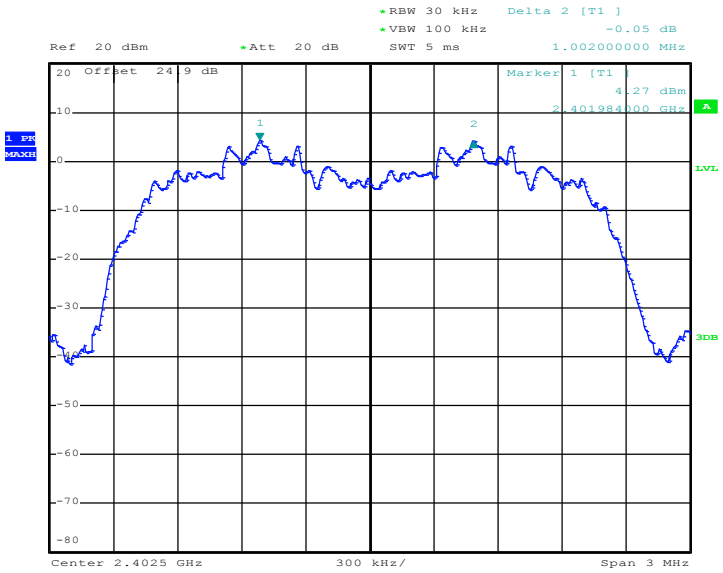


Date: 14.NOV.2012 23:55:25

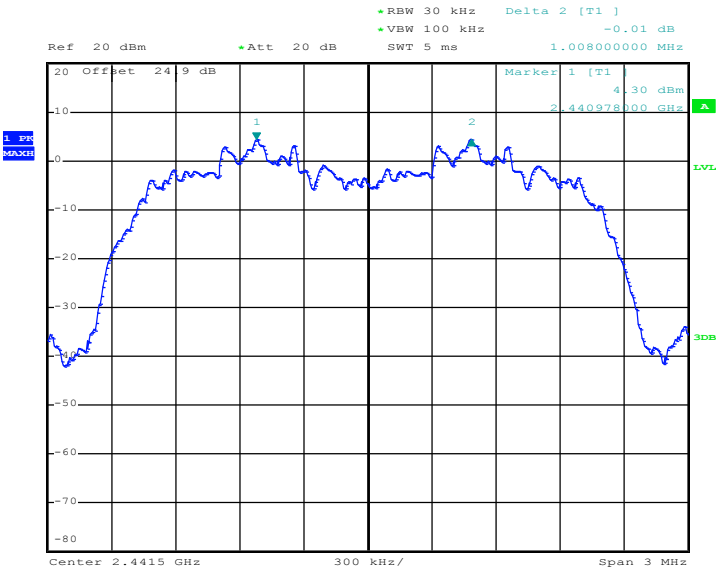
Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.8600	Pass
39	2441	1.008	0.8560	Pass
78	2480	1.002	0.8600	Pass

Channel Separation Plot on Channel 00 - 01

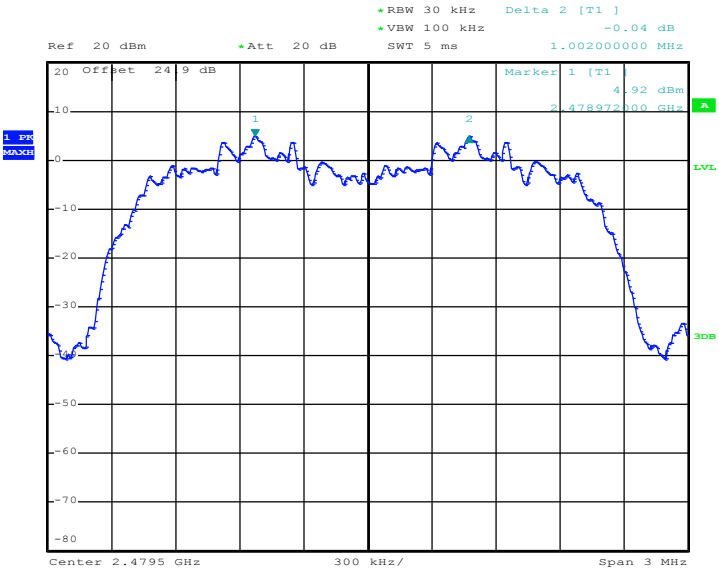


Channel Separation Plot on Channel 39 - 40



Date: 15.NOV.2012 00:11:17

Channel Separation Plot on Channel 77 - 78



Date: 15.NOV.2012 00:14:19

3.3 Dwell Time Measurement

3.3.1 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.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 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 RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. 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.
6. Measure and record the results in the test report.

3.3.4 Test Setup

3.3.1 Test Result of Dwell Time

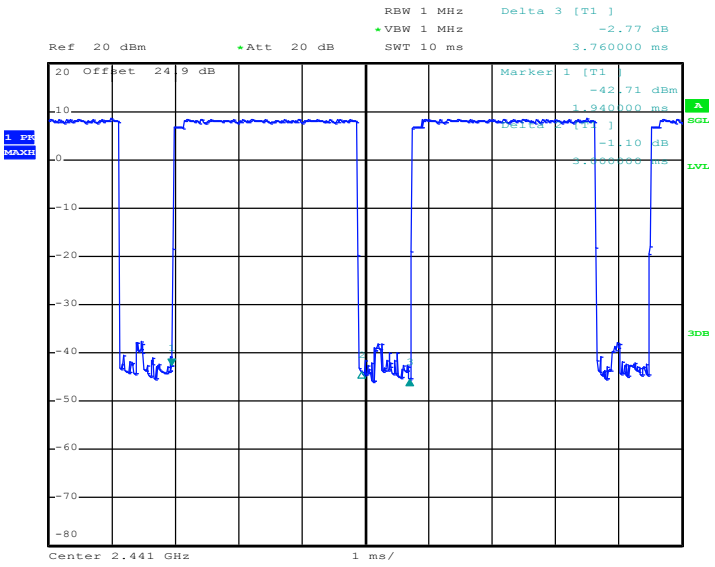
Test Mode :	2DH5	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Mode	Hopping Channel Number	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Normal	79	106.67	3.00	0.32	0.4	Pass
AFH	20	53.34	3.00	0.16	0.4	Pass

Remark:

1. In normal mode, hopping rate is 1600hops/s with 6 slots in 79 hopping channels.
   With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s),
   Hops Over Occupancy Time comes to (1600 / 6 / 79) x (0.4 x 79) = 106.67 hops.
2. In AFH mode, hopping rate is 800hops/s with 6 slots in 20 hopping channels.
   With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s),
   Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.34 hops.
3. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

Package Transfer Time Plot



Date: 14.NOV.2012 00:10:03

3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

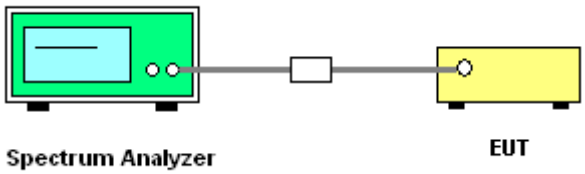
3.4.2 Measuring Instruments

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 RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
   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. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
   For 99% Bandwidth measurement, the RBW=30kHz, and VBW ≥ RBW. Sweep = auto ;
   Detector function = sample. Trace = max hold.
6. Measure and record the results in the test report.

3.4.4 Test Setup

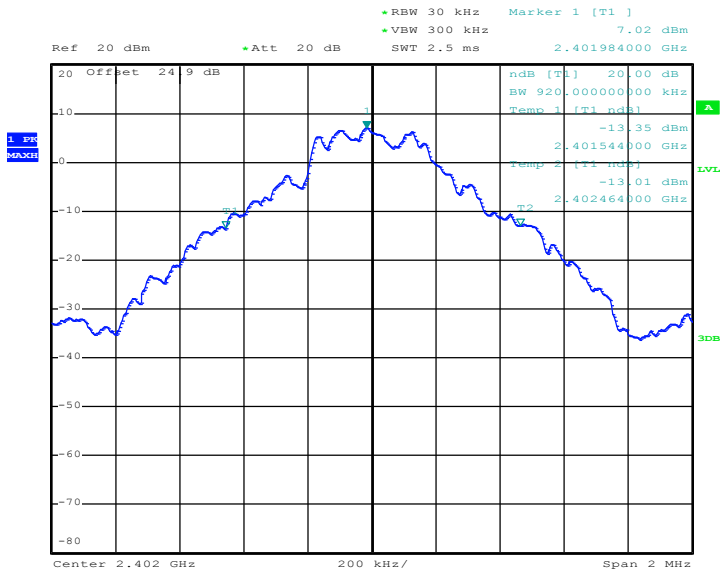


3.4.5 Test Result of 20dB Bandwidth

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

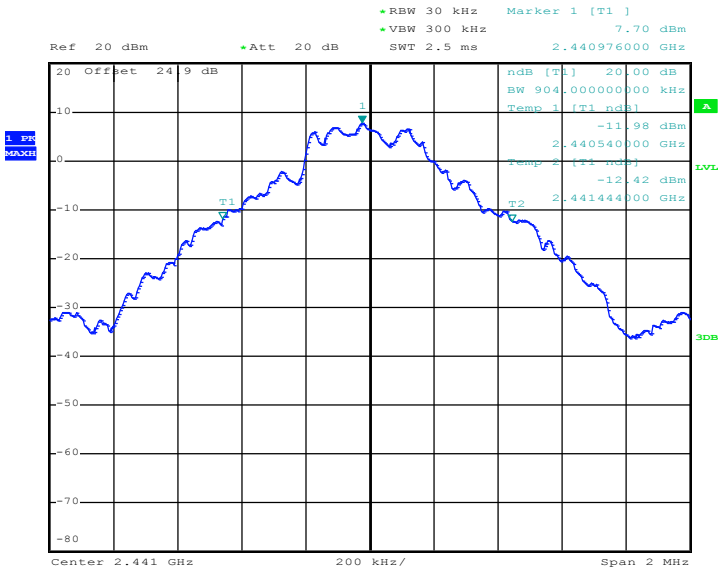
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.920
39	2441	0.904
78	2480	0.904

20 dB Bandwidth Plot on Channel 00



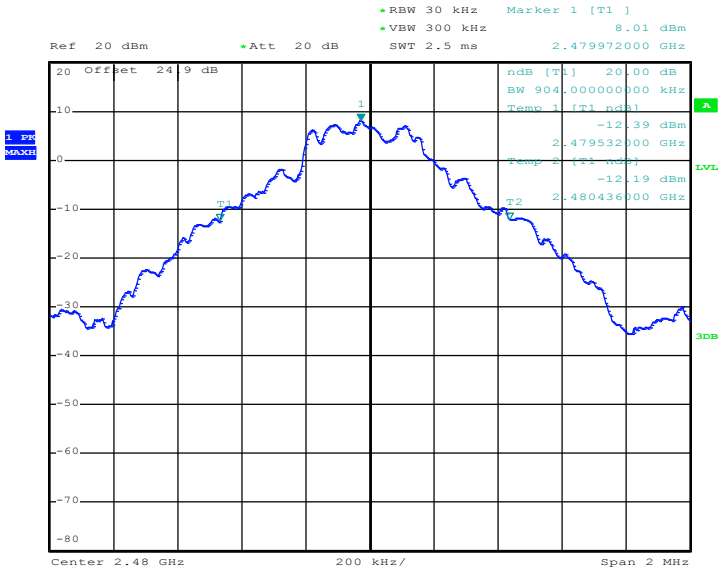
Date: 15.NOV.2012 00:58:18

20 dB Bandwidth Plot on Channel 39



Date: 14.NOV.2012 23:37:27

20 dB Bandwidth Plot on Channel 78

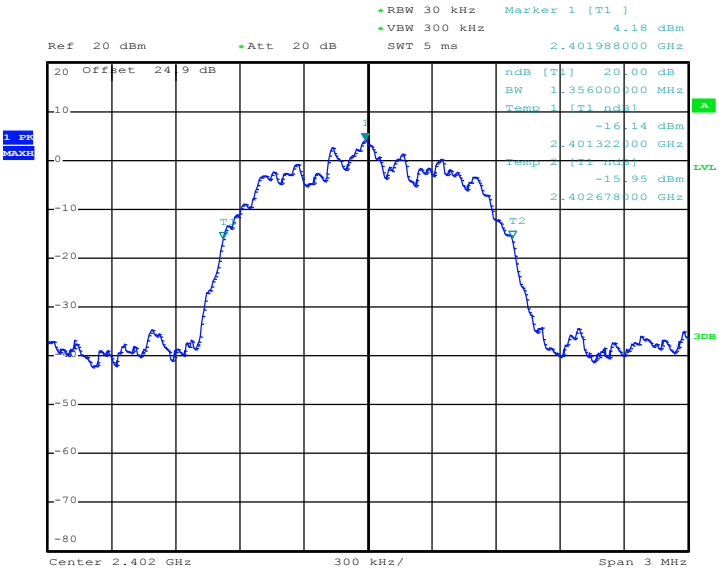


Date: 14.NOV.2012 23:50:35

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

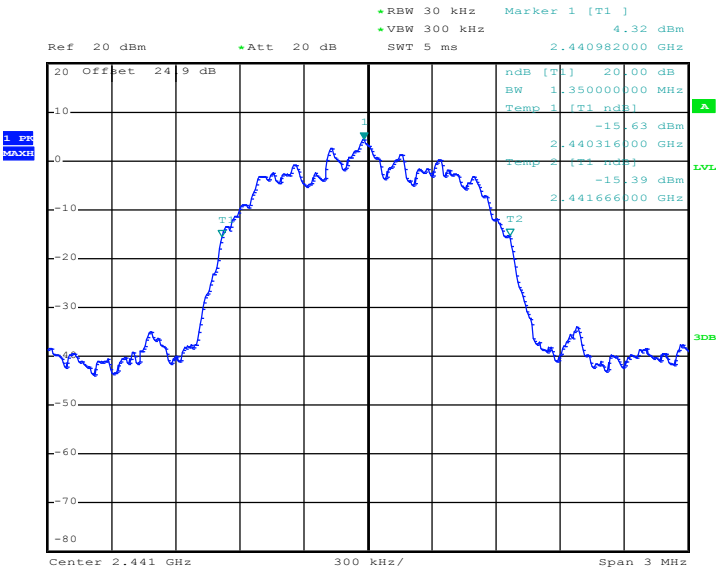
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.356
39	2441	1.350
78	2480	1.350

20 dB Bandwidth Plot on Channel 00



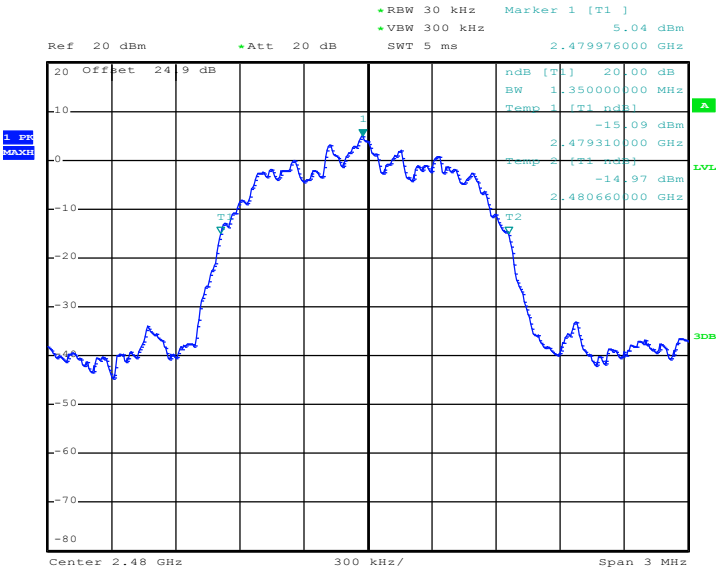
Date: 15.NOV.2012 00:01:20

20 dB Bandwidth Plot on Channel 39



Date: 14.NOV.2012 23:58:31

20 dB Bandwidth Plot on Channel 78

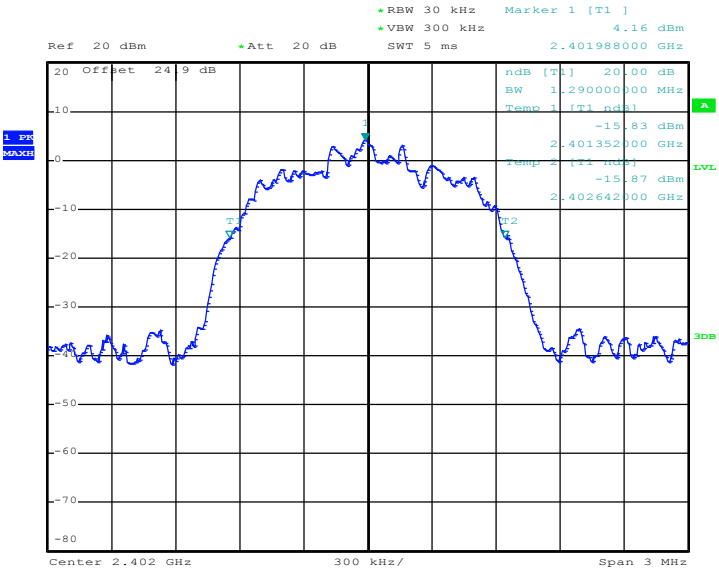


Date: 14.NOV.2012 23:55:53

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

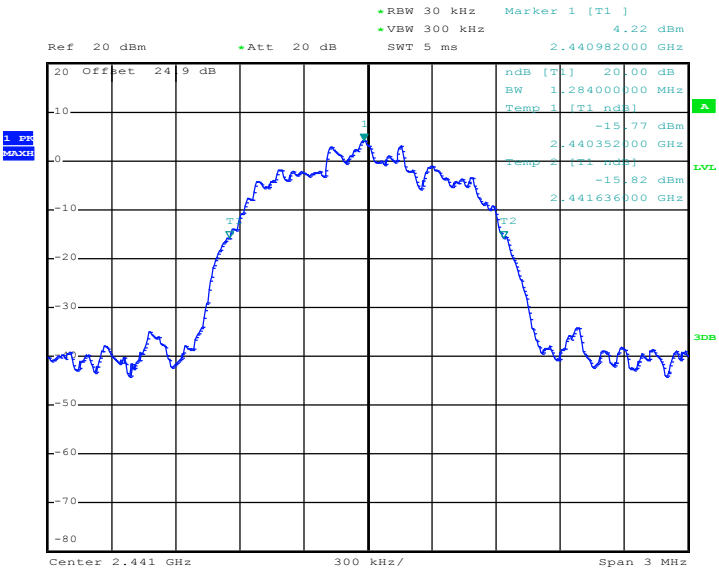
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.290
39	2441	1.284
78	2480	1.290

20 dB Bandwidth Plot on Channel 00



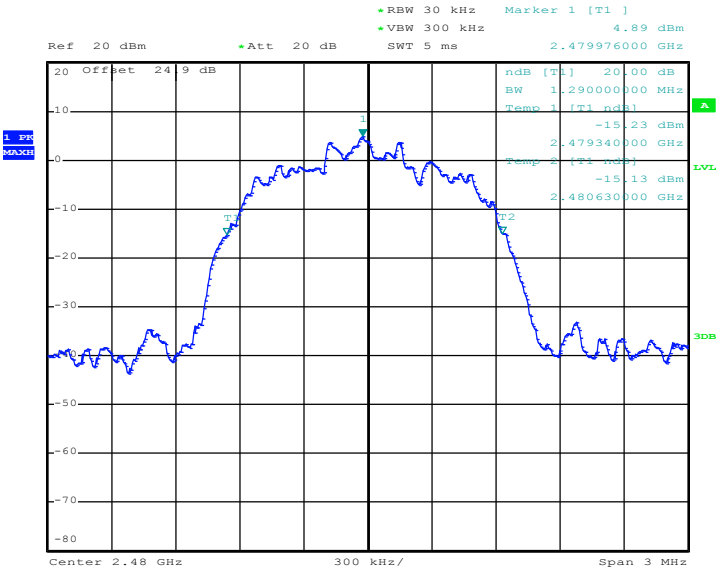
Date: 15.NOV.2012 00:05:31

20 dB Bandwidth Plot on Channel 39



Date: 15.NOV.2012 00:09:10

20 dB Bandwidth Plot on Channel 78



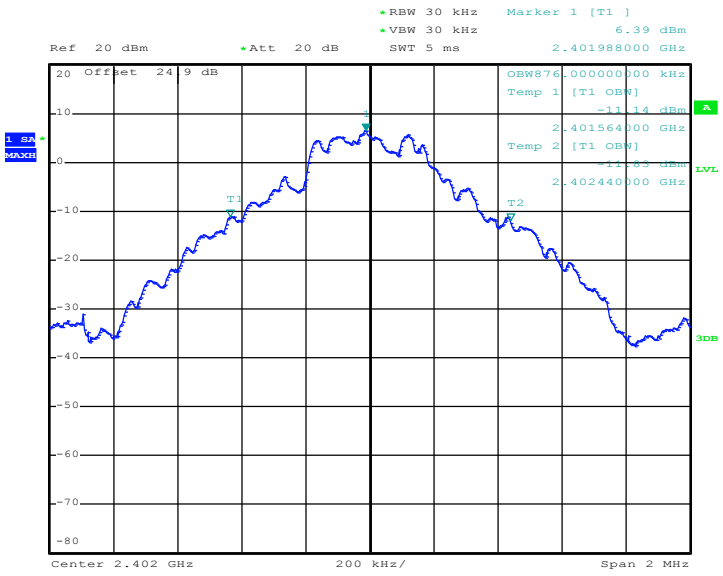
Date: 15.NOV.2012 00:11:48

3.4.6 Test Result of 99% Occupied Bandwidth

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

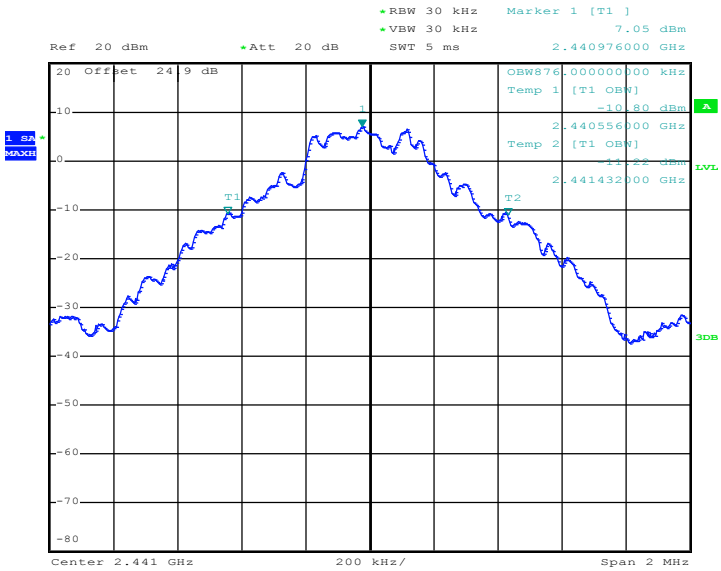
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.876
39	2441	0.876
78	2480	0.880

99% Bandwidth Plot on Channel 00



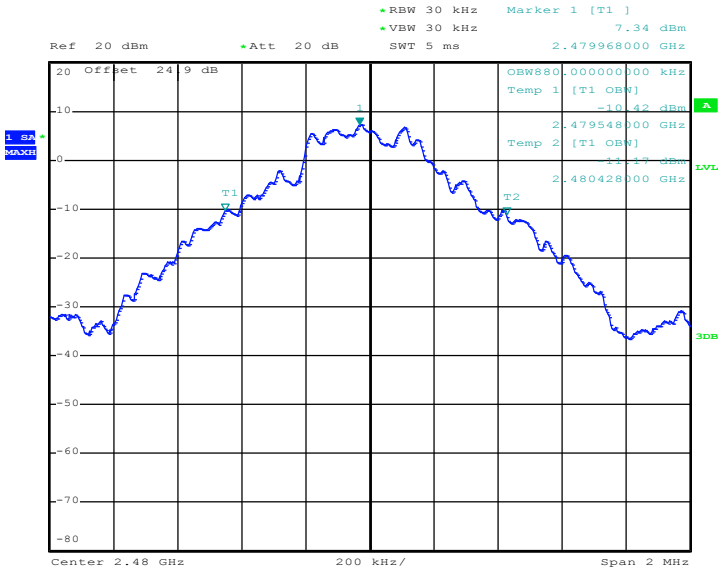
Date: 14.NOV.2012 23:34:21

99% Occupied Bandwidth Plot on Channel 39



Date: 14.NOV.2012 23:38:49

99% Occupied Bandwidth Plot on Channel 78

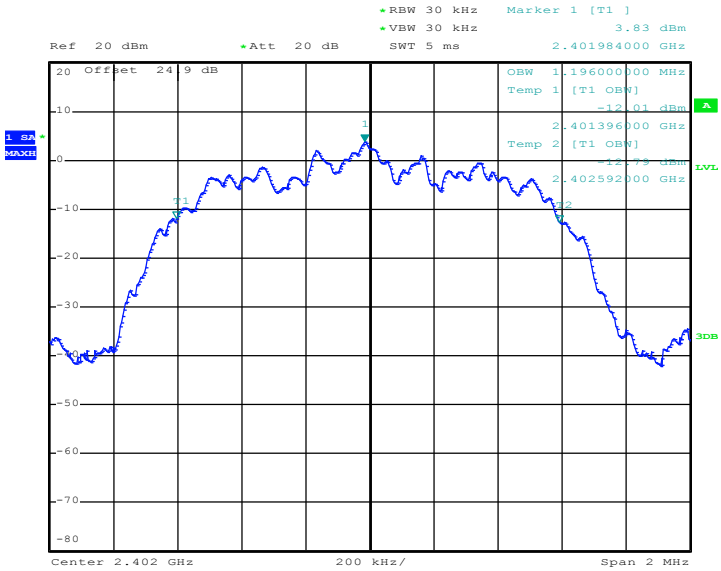


Date: 14.NOV.2012 23:51:39

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

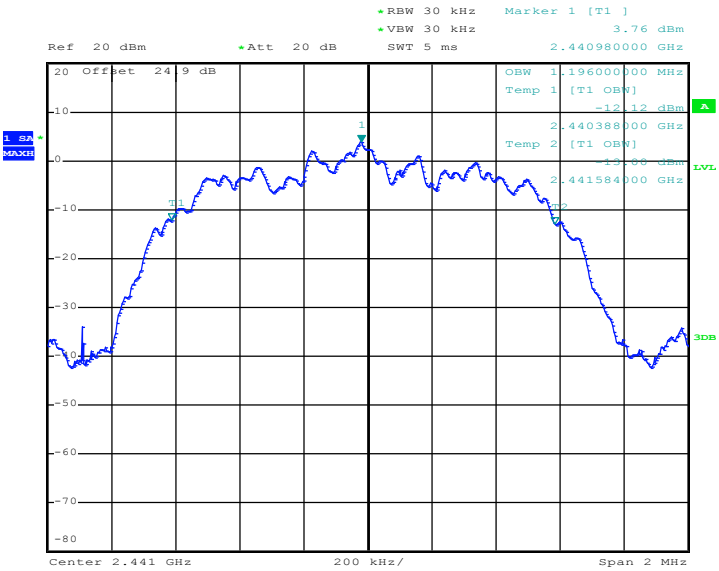
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	1.196
39	2441	1.196
78	2480	1.192

99% Bandwidth Plot on Channel 00



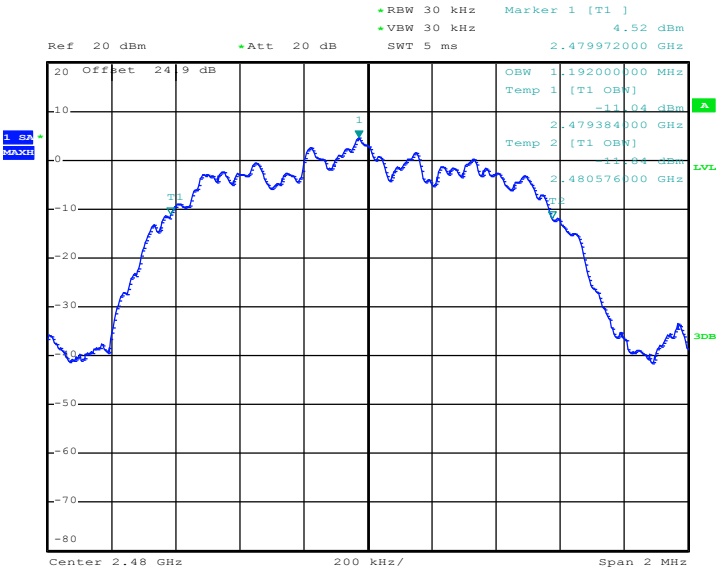
Date: 15.NOV.2012 00:03:58

99% Occupied Bandwidth Plot on Channel 39



Date: 14.NOV.2012 23:59:05

99% Occupied Bandwidth Plot on Channel 78

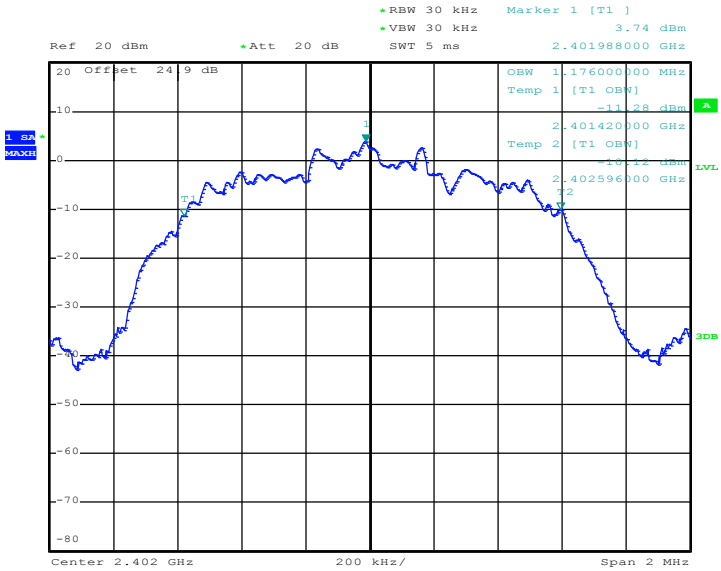


Date: 14.NOV.2012 23:56:48

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

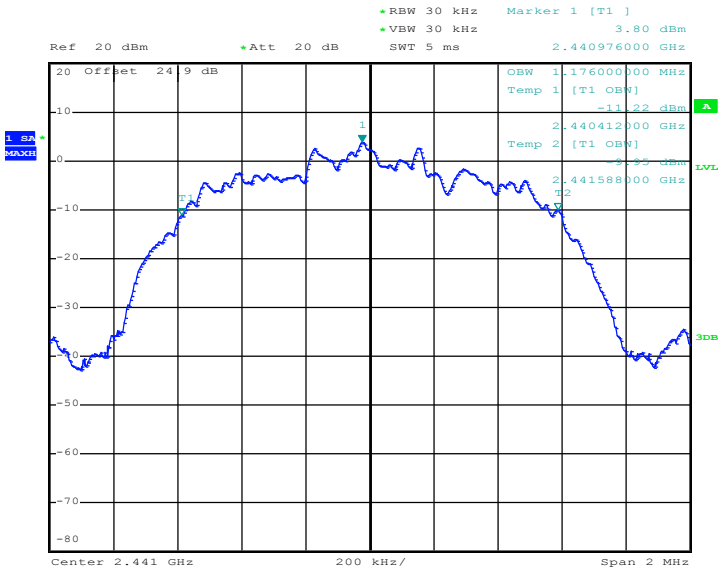
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	1.176
39	2441	1.176
78	2480	1.172

99% Bandwidth Plot on Channel 00



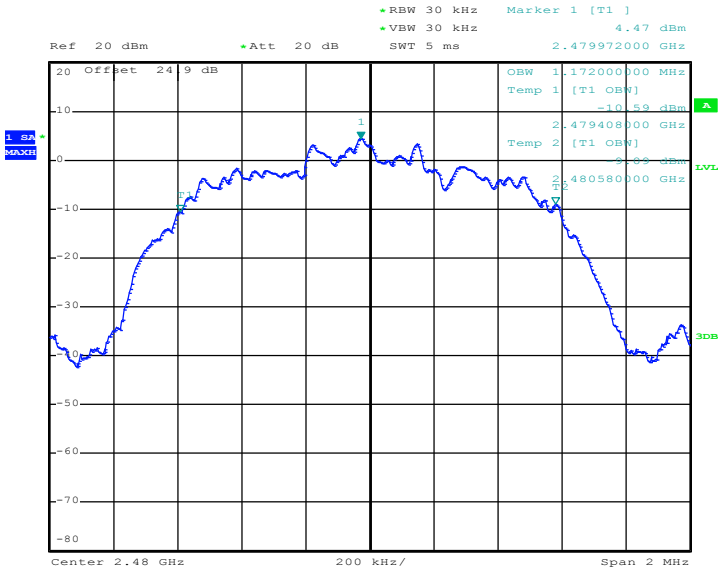
Date: 15.NOV.2012 00:06:48

99% Occupied Bandwidth Plot on Channel 39



Date: 15.NOV.2012 00:09:46

99% Occupied Bandwidth Plot on Channel 78



Date: 15.NOV.2012 00:12:43

3.5 Peak Output Power Measurement

3.5.1 Limit of Peak Output Power

Section 15.247 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts. The power limit for 1Mbps is 1watt, and for 2Mbps, and 3Mbps are 0.125 watts.

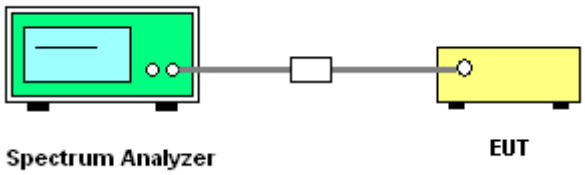
3.5.2 Measuring Instruments

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 RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

3.5.4 Test Setup

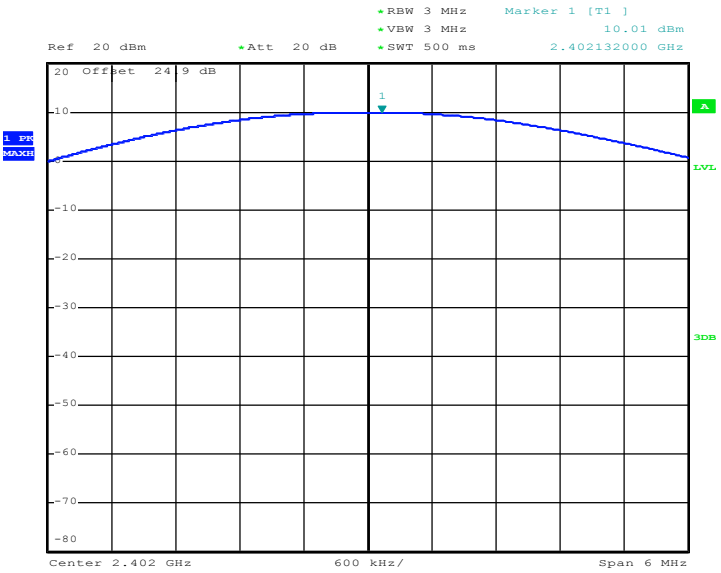


3.5.5 Test Result of Peak Output Power

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

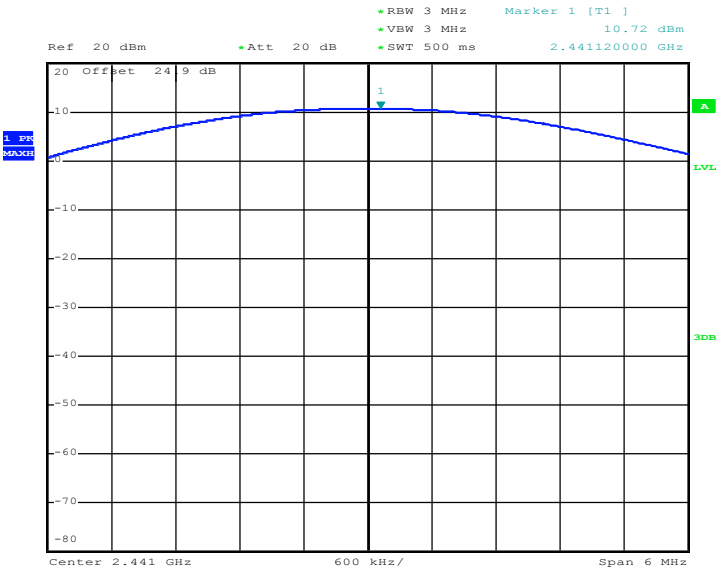
Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	10.01	30.00	Pass
39	2441	10.72	30.00	Pass
78	2480	10.79	30.00	Pass

Peak Output Power Plot on Channel 00



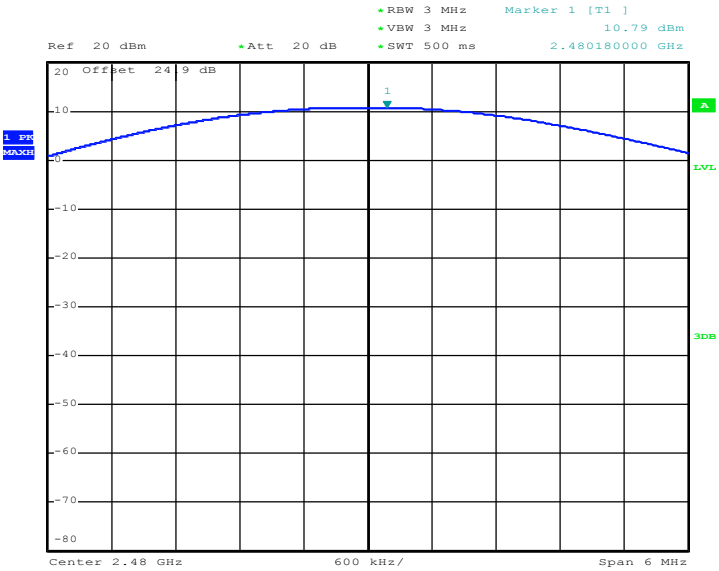
Date: 13.NOV.2012 23:49:10

Peak Output Power Plot on Channel 39



Date: 13.NOV.2012 23:50:25

Peak Output Power Plot on Channel 78

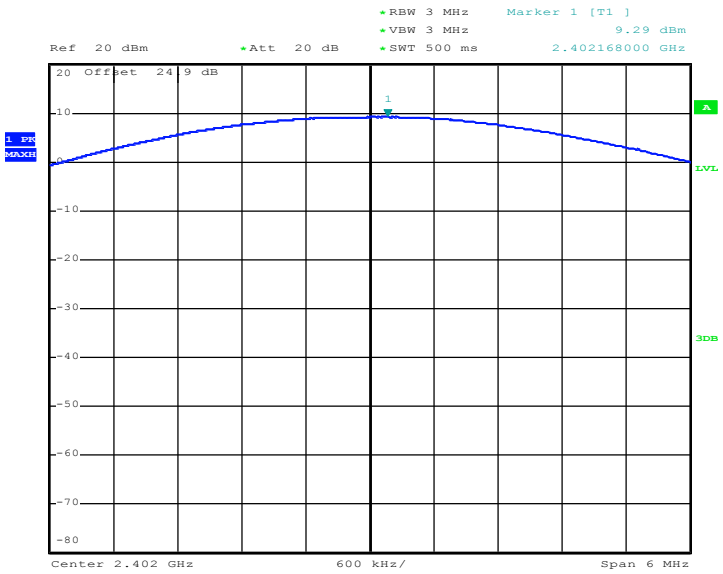


Date: 13.NOV.2012 23:51:40

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

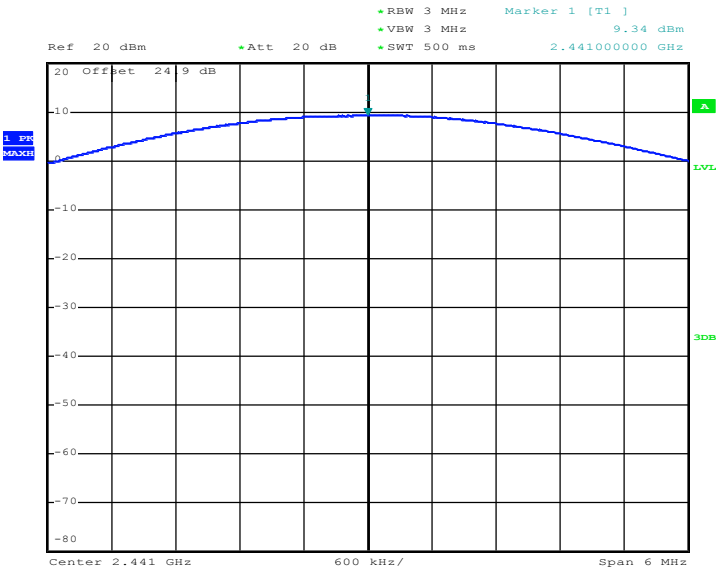
Channel	Frequency (MHz)	RF Power (dBm)		
		π/4-DQPSK 2 Mbps	Max. Limits (dBm)	Pass/Fail
00	2402	9.29	20.97	Pass
39	2441	9.34	20.97	Pass
78	2480	9.82	20.97	Pass

Peak Output Power Plot on Channel 00



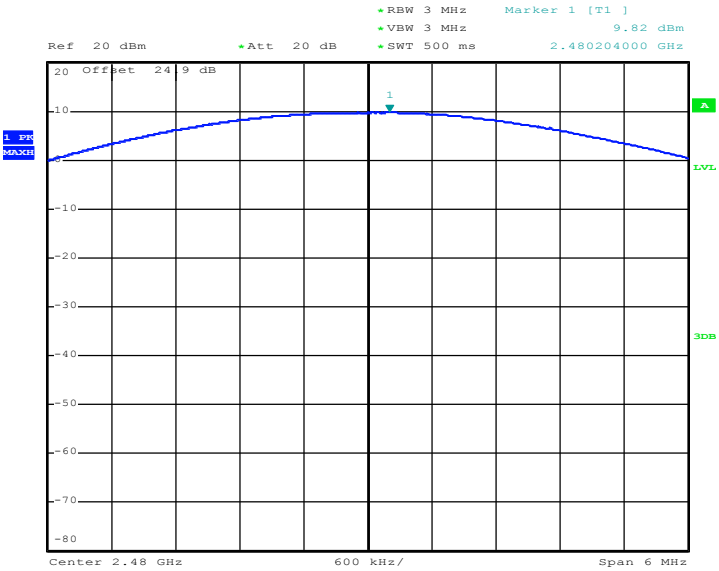
Date: 13.NOV.2012 23:49:35

Peak Output Power Plot on Channel 39



Date: 13.NOV.2012 23:50:50

Peak Output Power Plot on Channel 78

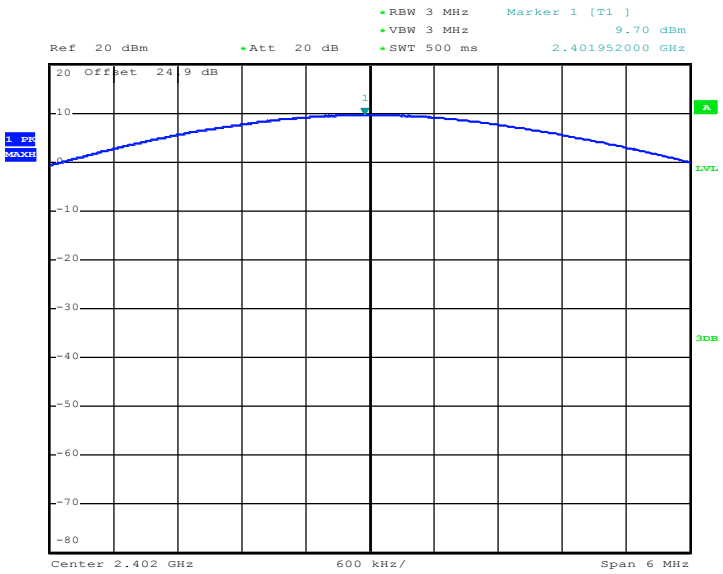


Date: 13.NOV.2012 23:52:04

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

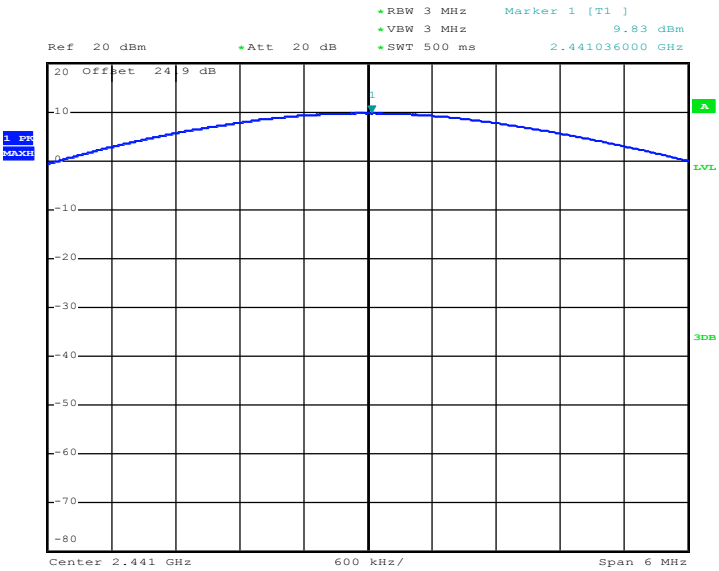
Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits	Pass/Fail
		3 Mbps	(dBm)	
00	2402	9.70	20.97	Pass
39	2441	9.83	20.97	Pass
78	2480	10.29	20.97	Pass

Peak Output Power Plot on Channel 00



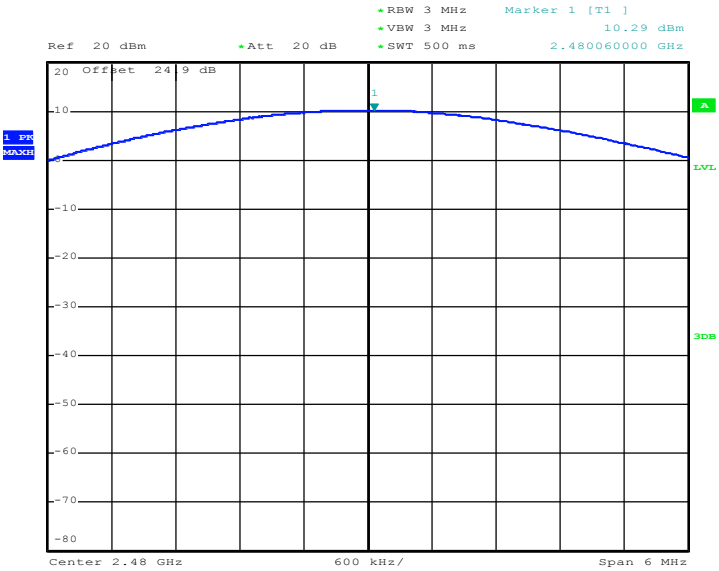
Date: 13.NOV.2012 23:50:00

Peak Output Power Plot on Channel 39



Date: 13.NOV.2012 23:51:15

Peak Output Power Plot on Channel 78



Date: 13.NOV.2012 23:52:29

3.6 Conducted 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

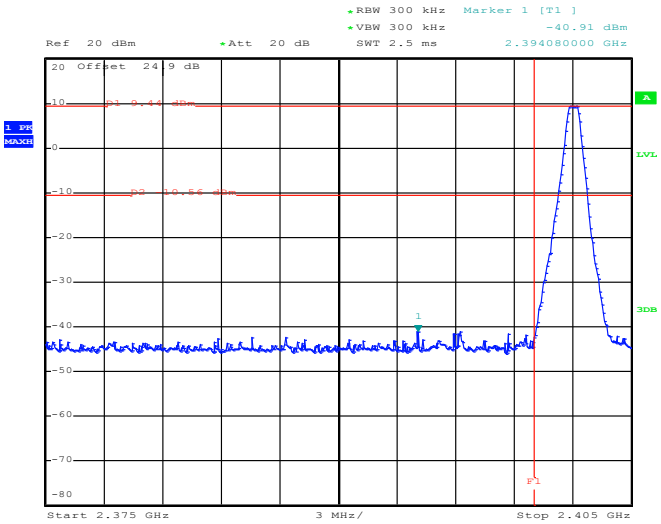
1. The testing follows the guidelines in Band-edge Compliance of RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 300KHz (≥ 1% span=30MHz), VBW = 300KHz (≥ RBW). Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 300KHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2. and 3.
5. Measure and record the results in the test report.

3.6.4 Test Setup

2.6.5 Test Result of Conducted Band Edges

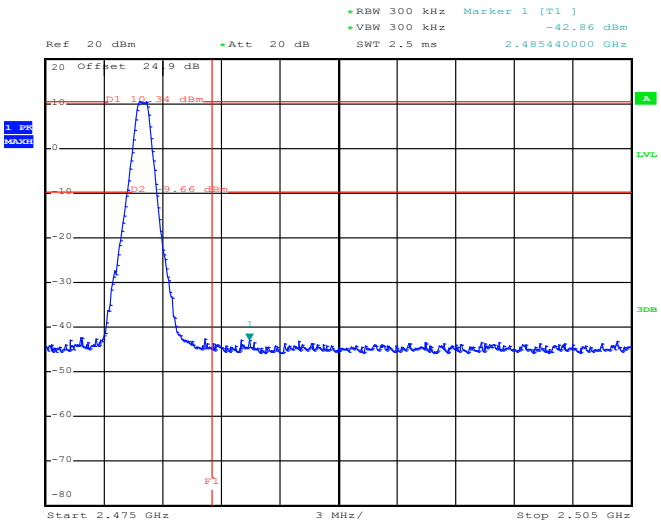
Test Mode :	1bps	**Temperature :**	24~26℃
Test Channel :	00 and 78	**Relative Humidity :**	50~53%
		Test Engineer :	Reece Li

Low Band Edge Plot on Channel 00



Date: 14.NOV.2012 23:33:26

High Band Edge Plot on Channel 78

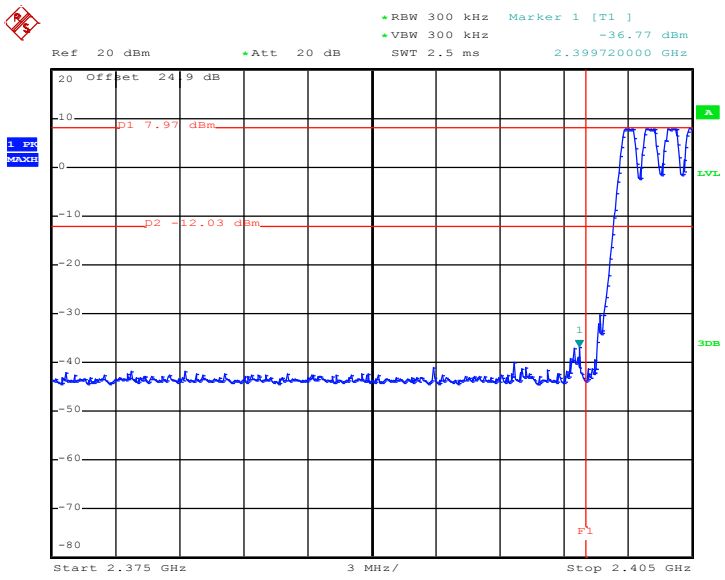


Date: 14.NOV.2012 23:51:00

2.6.6 Test Result of Conducted Hopping Mode Band Edges

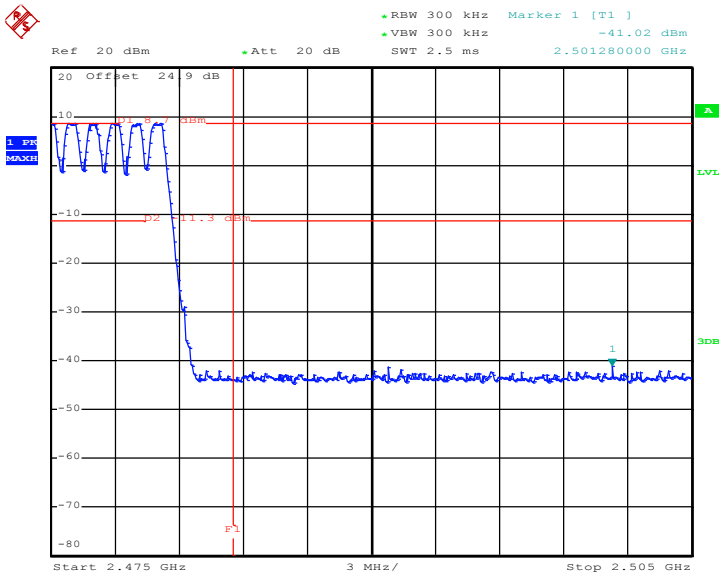
Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Hopping Mode Low Band Edge Plot



Date: 22.NOV.2012 20:54:04

Hopping Mode High Band Edge Plot



Date: 22.NOV.2012 20:56:06

3.7 Conducted Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

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.

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedure

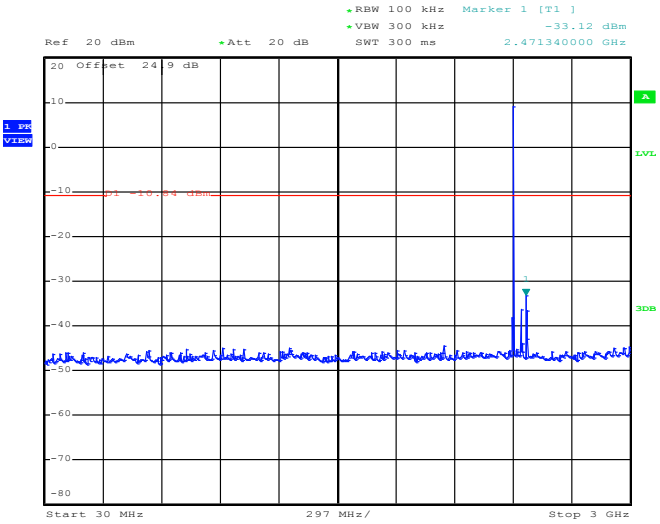
1. The testing follows the guidelines in Spurious RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 KHz, VBW = 300KHz, 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.
5. Measure and record the results in the test report.

3.7.4 Test Setup

3.7.5 Test Result

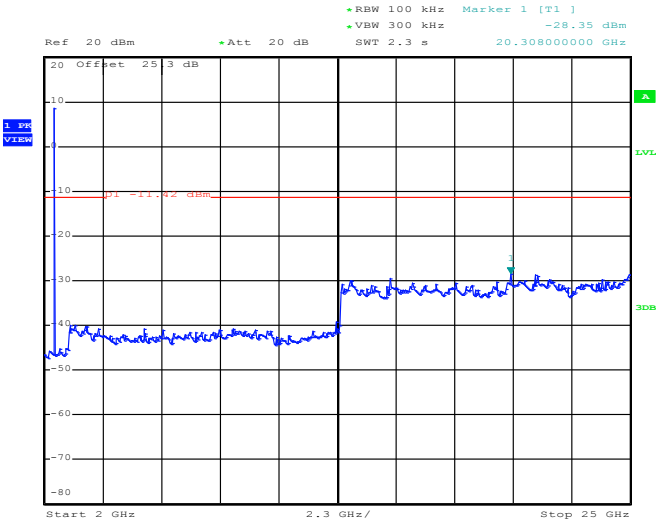
Test Mode :	1Mbps	Temperature :	24~26℃
Test Channel :	00	Relative Humidity :	50~53%
		Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.NOV.2012 23:34:47

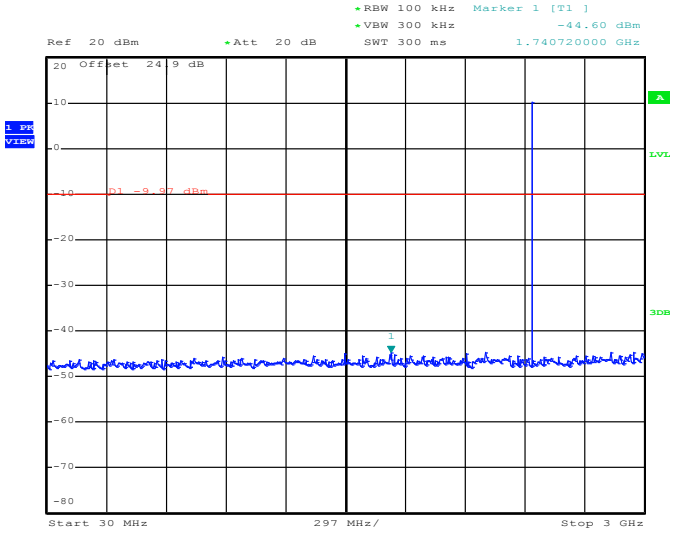
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



Date: 14.NOV.2012 23:35:09

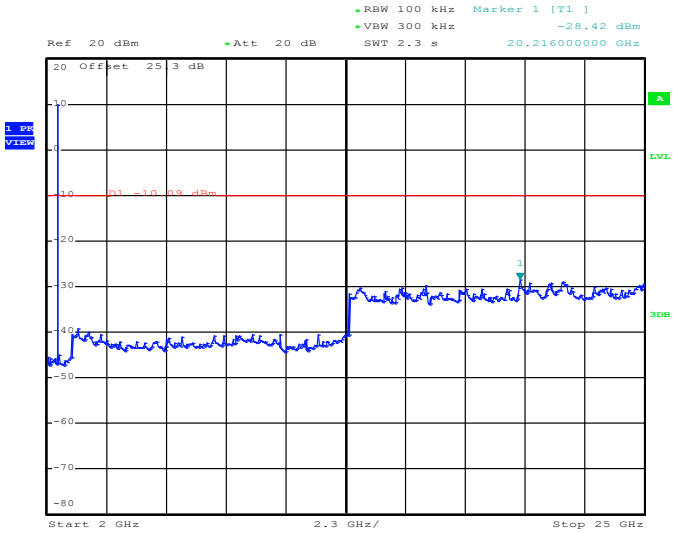
Test Mode :	1Mbps	**Temperature :**	24~26℃
Test Channel :	39	**Relative Humidity :**	50~53%
		Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.NOV.2012 23:40:16

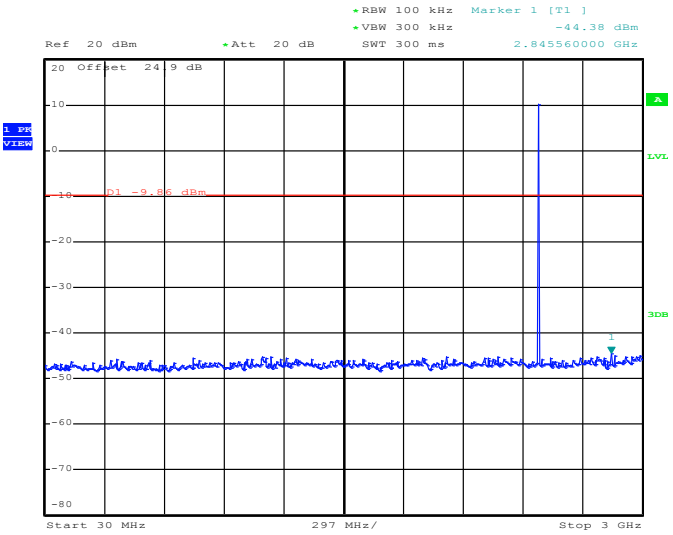
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



Date: 14.NOV.2012 23:40:39

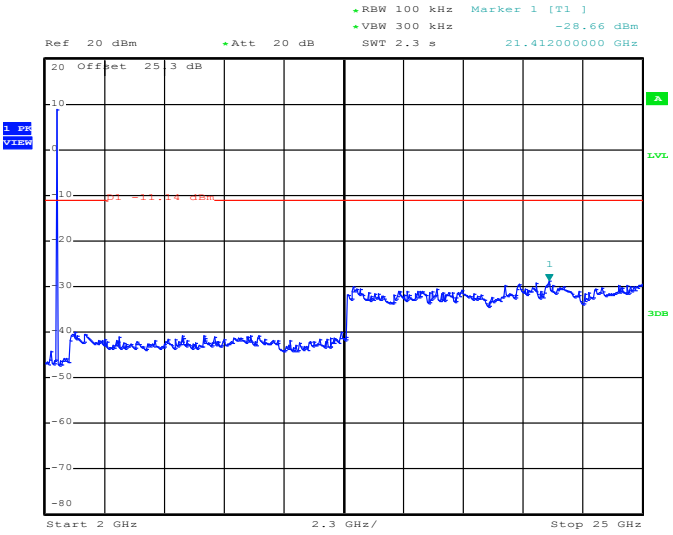
Test Mode :	1Mbps	**Temperature :**	24~26℃
Test Channel :	78	**Relative Humidity :**	50~53%
		Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.NOV.2012 23:52:55

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



Date: 14.NOV.2012 23:53:17

3.8 Radiated Band Edges and Spurious Emission Measurement

3.8.1 Limit of Radiated Band Edges and Spurious 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

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

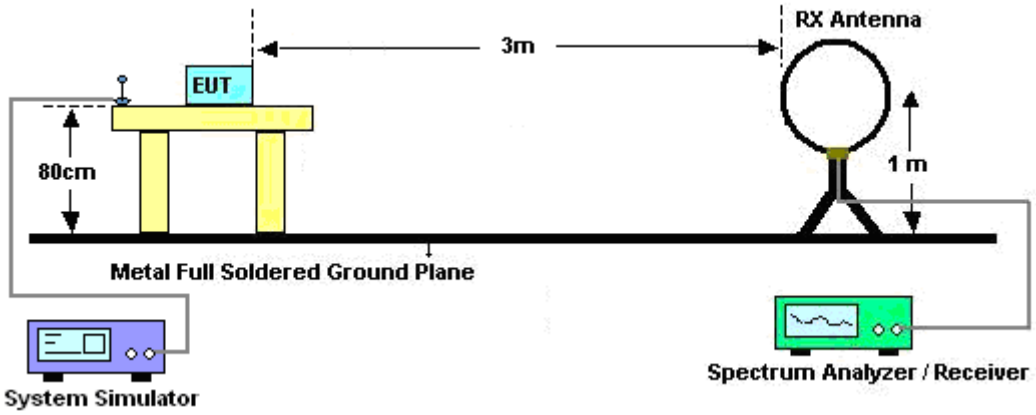
3.8.3 Test Procedures

1. The testing follows the guidelines in Spurious Radiated Emissions of FCC Public Notice DA 00-705 Measurement Guidelines and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 KHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement: use duty cycle correction factor method per 15.35(c).
   Duty cycle = On time/100 milliseconds
   On time = $N_1*L_1+N_2*L_2+...+N_{n-1}*LN_{n-1}+N_n*L_n$
   Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
   Average Level = Peak Level + 20*log(Duty cycle)
7. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

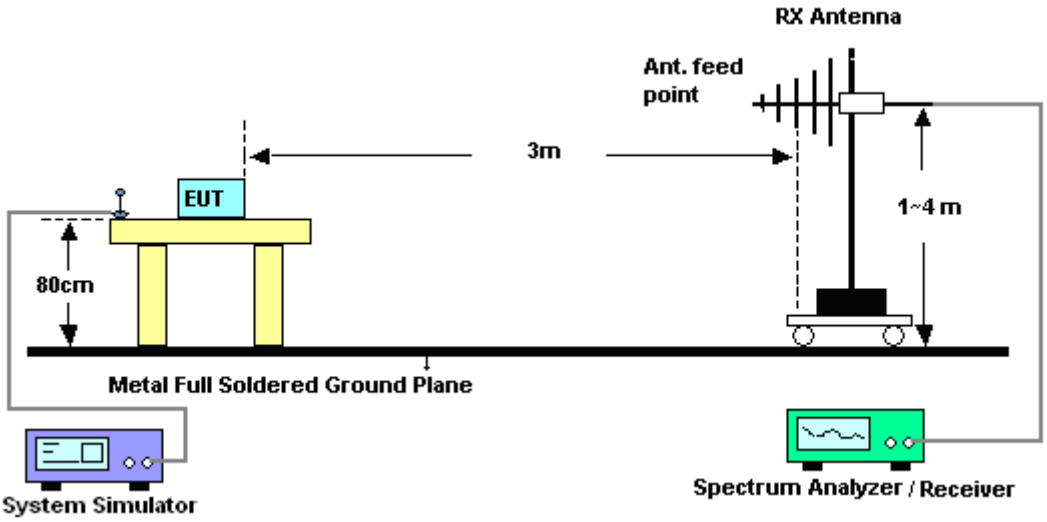
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.73dB) derived from 20log (dwell time/100ms).
For example: Average level = 54.03dBuV/m – 24.73 (dB) = 29.30dBuV/m.

3.8.4 Test Setup

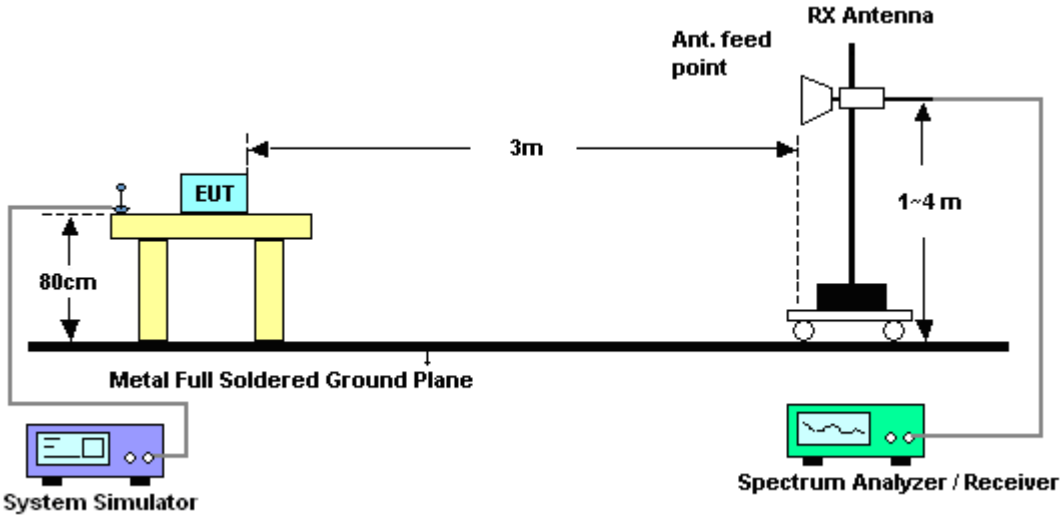
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

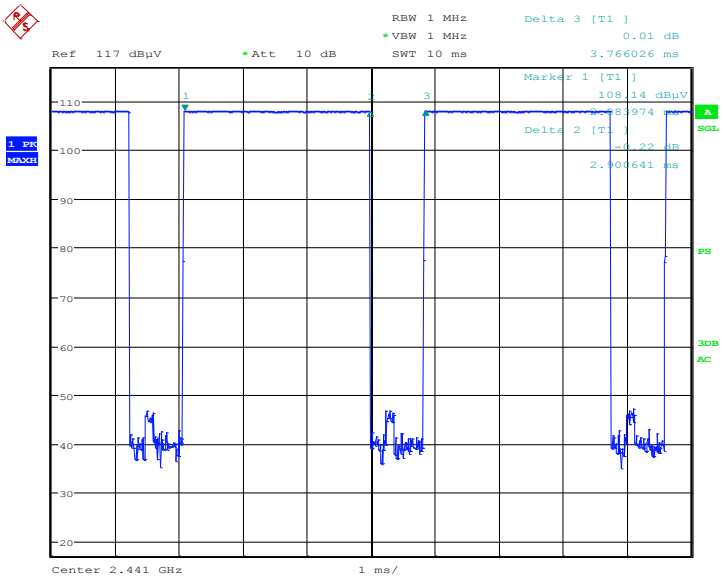


3.8.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

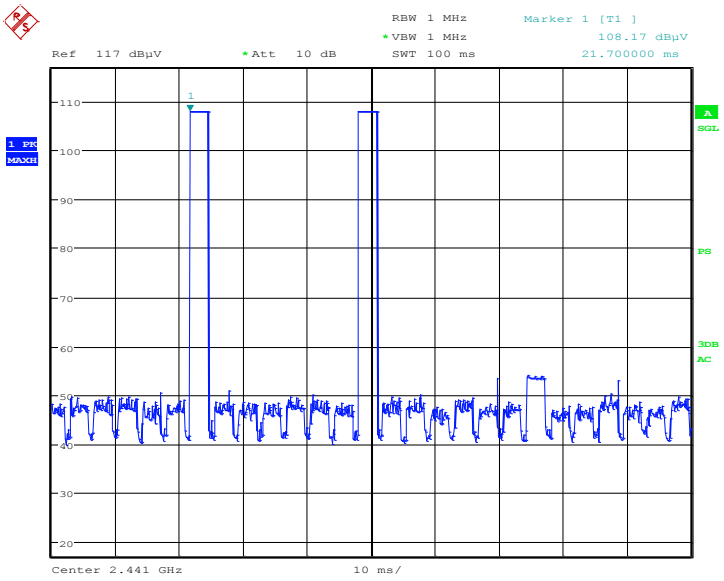
3.8.6 Duty cycle correction factor for average measurement

DH5 on time/100ms (One Pulse) Plot on Channel 39



Date: 14.NOV.2012 21:01:58

DH5 on time/100ms (Count Pulses) Plot on Channel 39



Date: 14.NOV.2012 21:03:50

Note:

1. Duty cycle = on time/100 milliseconds = 2 * 2.90 / 100 = 5.80 %
2. Duty cycle correction factor = 20*log(Duty cycle) = -24.73 dB
3. DH5 has the highest duty cycle and is reported.

3.8.7 Test Result of Radiated Band Edges

Test Mode :	1Mbps	Temperature :	23~25°C
Test Channel :	00	Relative Humidity :	49~51%
		Test Engineer :	Eric Shih

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2373.63	54.03	-19.97	74	53.18	32.16	4.57	35.88	114	337	Peak
2373.63	29.30	-24.7	54	-	-	-	-	-	-	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.65	48.4	-25.6	74	47.52	32.18	4.58	35.88	177	4	Peak
2389.65	23.67	-30.33	54	-	-	-	-	-	-	Average

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.73dB) derived from 20log (dwell time/100ms).

For example: Average level = 54.03dBuV/m – 24.73 (dB) = 29.30dBuV/m.

Test Mode :	1Mbps	Temperature :	23~25°C
Test Channel :	78	Relative Humidity :	49~51%
		Test Engineer :	Eric Shih

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	64.72	-9.28	74	63.61	32.28	4.64	35.81	100	221	Peak
2483.5	39.99	-14.01	54	-	-	-	-	-	-	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	61.36	-12.64	74	60.25	32.28	4.64	35.81	198	4	Peak
2483.5	36.63	-17.37	54	-	-	-	-	-	-	Average

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

Test Mode :	1Mbps	**Temperature :**	23~25°C
Test Channel :	00	**Relative Humidity :**	49~51%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	1. 2402 MHz is fundamental signal which can be ignored. 2. 3201 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 109.75 dBuV/m - 20dB = 89.75 dBuV/m. 3. 3201 MHz and 7206 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2402	109.75	-	-	108.85	32.18	4.58	35.86	114	337	Peak
2402	85.02	-	-	-	-	-	-	-	-	Average
3201	42.91	-46.84	89.75	63.18	32.76	5.56	58.59	100	0	Peak
4806	48.72	-25.28	74	67.01	34.26	6.51	59.06	100	0	Peak
4806	23.99	-30.01	54	-	-	-	-	-	-	Average
7206	43.64	-46.11	89.75	57.14	36.06	8.25	57.81	100	0	Peak

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.73dB) derived from 20log (dwell time/100ms).

For example: Average level = 109.75dBuV/m – 24.73 (dB) = 85.02dBuV/m.

Test Mode :	1Mbps	**Temperature :**	23~25°C
Test Channel :	00	**Relative Humidity :**	49~51%
Test Engineer :	Eric Shih	**Polarization :**	Vertical
Remark :	1. 2402 MHz is fundamental signal which can be ignored. 2. 3201 MHz and 7206 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2402	106.18	-	-	105.28	32.18	4.58	35.86	177	4	Peak
2402	81.45	-	-	-	-	-	-	-	-	Average
3201	41.14	-45.04	86.18	61.41	32.76	5.56	58.59	100	0	Peak
4806	47.21	-26.79	74	65.5	34.26	6.51	59.06	100	0	Peak
4806	22.48	-31.52	54	-	-	-	-	-	-	Average
7206	46.52	-39.66	86.18	60.02	36.06	8.25	57.81	100	0	Peak

Test Mode :	1Mbps	Temperature :	23~25°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. 3255 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2441	109.88	-	-	108.86	32.24	4.61	35.83	103	221	Peak
2441	85.15	-	-	-	-	-	-	-	-	Average
3255	42.97	-46.91	89.88	63.31	32.75	5.58	58.67	100	0	Peak
4884	48.74	-25.26	74	66.8	34.28	6.54	58.88	100	0	Peak
4884	24.01	-29.99	54	-	-	-	-	-	-	Average
7323	46.86	-27.14	74	60.42	36.03	8.42	58.01	100	0	Peak
7323	22.13	-31.87	54	-	-	-	-	-	-	Average

Test Mode :	1Mbps	Temperature :	23~25°C
Test Channel :	39	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. 3255 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2441	105.1	-	-	104.08	32.24	4.61	35.83	196	141	Peak
2441	80.37	-	-	-	-	-	-	-	-	Average
3255	40.47	-44.63	85.1	60.81	32.75	5.58	58.67	100	0	Peak
4884	45.28	-28.72	74	63.34	34.28	6.54	58.88	100	0	Peak
4884	20.55	-33.45	54	-	-	-	-	-	-	Average
7323	51.36	-22.64	74	64.92	36.03	8.42	58.01	100	0	Peak
7323	26.63	-27.37	54	-	-	-	-	-	-	Average

Test Mode :	1Mbps	Temperature :	23~25°C
Test Channel :	78	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. 3306 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	21.2	-18.8	40	35.03	17.08	0.72	31.63	-	-	Peak
153.66	22.58	-20.92	43.5	41.41	11.12	1.29	31.24	-	-	Peak
294.87	27.25	-18.75	46	43.31	13.2	1.77	31.03	-	-	Peak
510	28.29	-17.71	46	38.61	18.1	2.25	30.67	-	-	Peak
612.2	26.32	-19.68	46	34.21	19.98	2.46	30.33	-	-	Peak
713.7	29.55	-16.45	46	35.97	21.1	2.68	30.2	110	69	Peak
2480	109.33	-	-	108.22	32.28	4.64	35.81	100	221	Peak
2480	84.6	-	-	-	-	-	-	-	-	Average
3306	42.3	-47.03	89.33	62.69	32.74	5.6	58.73	100	0	Peak
4962	46.47	-27.53	74	64.26	34.29	6.57	58.65	100	0	Peak
4962	21.74	-32.26	54	-	-	-	-	-	-	Average
7440	43.98	-30.02	74	57.55	36.01	8.63	58.21	100	0	Peak
7440	19.25	-34.75	54	-	-	-	-	-	-	Average

Test Mode :	1Mbps	Temperature :	23~25°C
Test Channel :	78	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. 3306 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	32.7	-7.3	40	46.53	17.08	0.72	31.63	100	102	Peak
86.7	20.69	-19.31	40	42.96	8.06	1.05	31.38	-	-	Peak
226.29	24.04	-21.96	46	43.69	9.72	1.56	30.93	-	-	Peak
510	32.86	-13.14	46	43.18	18.1	2.25	30.67	-	-	Peak
714.4	28.62	-17.38	46	34.99	21.15	2.68	30.2	-	-	Peak
815.9	27.6	-18.4	46	32.23	22.28	2.86	29.77	-	-	Peak
2480	105.79	-	-	104.68	32.28	4.64	35.81	198	4	Peak
2480	81.06	-	-	-	-	-	-	-	-	Average
3306	41.14	-44.65	85.79	61.53	32.74	5.6	58.73	100	0	Peak
4959	47.83	-26.17	74	65.62	34.29	6.57	58.65	100	0	Peak
4959	23.1	-30.9	54	-	-	-	-	-	-	Average
7440	44.61	-29.39	74	58.18	36.01	8.63	58.21	100	0	Peak
7440	19.88	-34.12	54	-	-	-	-	-	-	Average

3.9 AC Conducted Emission Measurement

3.9.1 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.

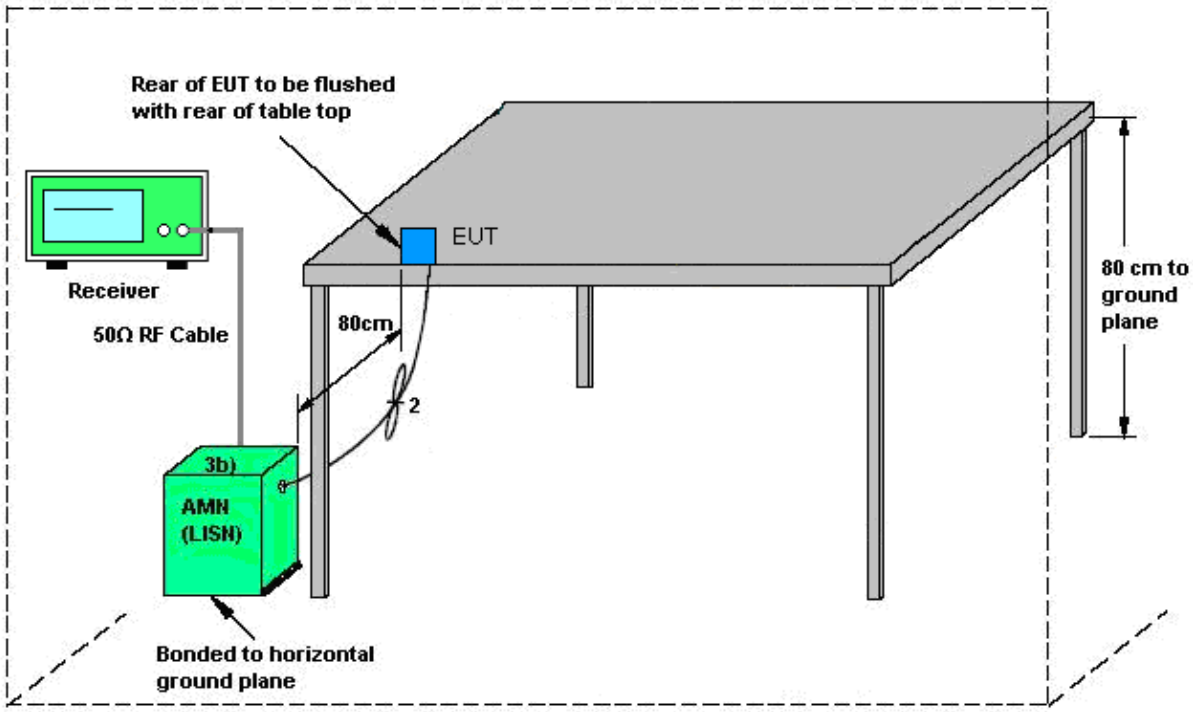
3.9.2 Measuring Instruments

See list of measuring instruments of this test report.

3.9.3 Test Procedures

1. The test follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009 test site requirement.
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.

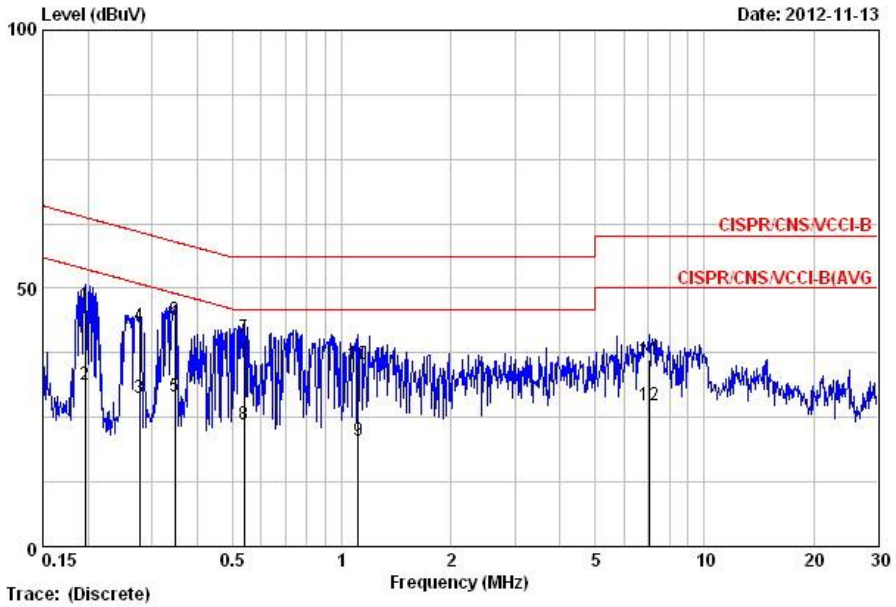
3.9.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.9.5 Test Result of AC Conducted Emission

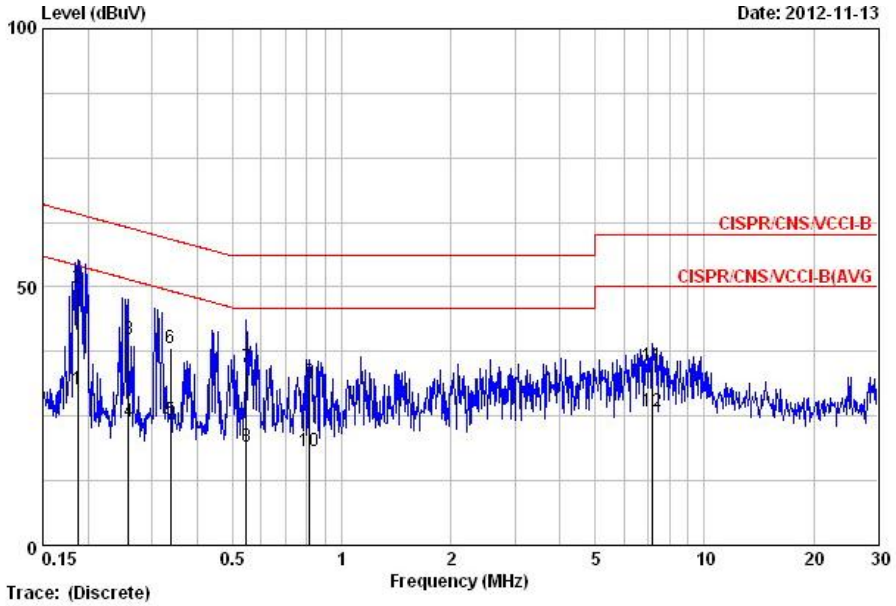
Test Mode :	Mode 1	**Temperature :**	23~24℃
Test Engineer :	Eddie Lee	**Relative Humidity :**	54~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN (2.4G) Link + Bluetooth Link + MP3 + H-Pattern + USB Cable (Charging from Adapter) + Earphone + SD Card + HDMI Cable		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Trace: (Discrete)
Site : CO01-NH
Condition : CISPR/CNS/VCCI-B NNB41/04/10053 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.197	46.71	-17.04	63.76	36.45	10.16	0.10	QP
2	0.197	31.46	-22.29	53.76	21.20	10.16	0.10	AVERAGE
3	0.277	28.67	-22.23	50.90	18.41	10.16	0.10	AVERAGE
4	0.277	42.76	-18.14	60.90	32.50	10.16	0.10	QP
5	0.346	28.98	-20.07	49.05	18.72	10.16	0.10	AVERAGE
6	0.346	43.95	-15.10	59.05	33.69	10.16	0.10	QP
7	0.538	40.44	-15.56	56.00	30.17	10.17	0.10	QP
8	0.538	23.51	-22.49	46.00	13.24	10.17	0.10	AVERAGE
9	1.111	20.49	-25.51	46.00	10.19	10.18	0.11	AVERAGE
10	1.111	35.31	-20.69	56.00	25.01	10.18	0.11	QP
11	7.025	36.12	-23.88	60.00	25.66	10.26	0.20	QP
12	7.025	27.38	-22.62	50.00	16.92	10.26	0.20	AVERAGE

Test Mode :	Mode 1	Temperature :	23~24℃
Test Engineer :	Eddie Lee	Relative Humidity :	54~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4G) Link + Bluetooth Link + MP3 + H-Pattern + USB Cable (Charging from Adapter) + Earphone + SD Card + HDMI Cable		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-NH
Condition : CISPR/CNS/VCCI-B NNB41/04/10053 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.187	30.32	-23.83	54.15	20.08	10.14	0.10	AVERAGE
2	0.187	49.86	-14.29	64.15	39.62	10.14	0.10	QP
3	0.259	39.86	-21.61	61.46	29.62	10.14	0.10	QP
4	0.259	23.93	-27.54	51.46	13.69	10.14	0.10	AVERAGE
5	0.337	24.13	-25.14	49.27	13.89	10.14	0.10	AVERAGE
6	0.337	38.06	-21.21	59.27	27.82	10.14	0.10	QP
7	0.546	34.41	-21.59	56.00	24.16	10.14	0.10	QP
8	0.546	19.01	-26.99	46.00	8.76	10.14	0.10	AVERAGE
9	0.815	31.55	-24.45	56.00	21.30	10.15	0.10	QP
10	0.815	18.32	-27.68	46.00	8.07	10.15	0.10	AVERAGE
11	7.175	34.74	-25.26	60.00	24.29	10.24	0.20	QP
12	7.175	25.90	-24.10	50.00	15.45	10.24	0.20	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

Non-standard connector used.

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	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Nov. 13, 2012 ~ Nov. 22, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Bluetooth Base Station	R&S	CBT32	100519	N/A	Jun. 05, 2012	Nov. 13, 2012 ~ Nov. 22, 2012	Jun. 04, 2013	Conducted (TH02-HY)
Receiver	R&S	ESCS 30	100357	9 kHz - 2.75 GHz	Nov. 18, 2011	Nov. 13, 2012	Nov. 17, 2012	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	04/10053	9kHz - 30MHz	Nov. 17, 2011	Nov. 13, 2012	Nov. 16, 2012	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	N/A	Nov. 13, 2012	N/A	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9kHz - 30MHz	Dec. 13, 2011	Nov. 13, 2012	Dec. 12, 2012	Conduction (CO01-NH)
Spectrum Analyzer	R&S	ESU26	100390	20Hz ~ 26.5GHz	Dec. 22, 2011	Nov. 12, 2012 ~ Nov. 15, 2012	Dec. 21, 2012	Radiation (03CH05-HY)
Bilog Antenna	Schaffner	CBL6111C	2725	30MHz~2GHz	Oct. 06, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Oct. 05, 2013	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	Nov. 12, 2012 ~ Nov. 15, 2012	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	Nov. 12, 2012 ~ Nov. 15, 2012	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz~18GHz	Aug. 10, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Aug. 09, 2013	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A02665	1GHz~26.5GHz	Aug. 28, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Aug. 27, 2013	Radiation (03CH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Sep. 27, 2013	Radiation (03CH05-HY)
Pre Amplifier	COM-POWER	PA-103	161075	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Jul. 02, 2014	Radiation (03CH05-HY)
Bluetooth Base Station	R&S	CBT32	100522	N/A	Feb. 09, 2012	Nov. 12, 2012 ~ Nov. 15, 2012	Feb. 08, 2014	Radiation (03CH05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

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

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 EP291814 as below.