FCC RF Test Report

APPLICANT	:	Barnes&Noble.com
EQUIPMENT	:	eBook
BRAND NAME	:	Nook
MODEL NAME	:	BNTV400
FCC ID	:	XHHBNTV400-A
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Aug. 09, 2012 and completely tested on Sep. 08, 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
FR280906A	Rev. 01	Initial issue of report	Oct. 12, 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(e)	A8.2(b)	Power Spectral Density	≤ 8dBm	Pass	-
3.9	15.247(d)	A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 12.97 dB at 2358.24 MHz
3.10	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.70 dB at 0.470 MHz
3.11	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Barnes&Noble.com
76 Ninth Avenue, 9th Floor, New York, NY 10011

1.2 Feature of Equipment Under Test

Product Feature	
Equipment	eBook
Brand Name	Nook
Model Name	BNTV400
FCC ID	XHHBNTV400-A
Sample A	SKU 3 3022960041994111
Sample B	SKU 4 3023020046204130
Sample C	SKU 5 3022950040664102
Sample D	SKU 5 3022950037324101
EUT supports Radios application	WLAN 11bgn / Bluetooth
HW Version	EVT2
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) : 2.51 dBm (0.0018 W) Bluetooth EDR (2Mbps) : 3.63 dBm (0.0023 W) Bluetooth EDR (3Mbps) : 4.25 dBm (0.0027 W)
99% Occupied Bandwidth	Bluetooth (1Mbps) : 0.840MHz Bluetooth EDR (2Mbps) : 1.173MHz Bluetooth EDR (3Mbps) : 1.164MHz
Antenna Type	Printed Antenna with gain -0.16 dBi
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth 2.1 EDR (2Mbps) : π/4-DQPSK Bluetooth 2.1 EDR (3Mbps) : 8-DPSK

	Sample A	Sample B
PCBA SKU #	SKU 3	SKU 4
Model Number	BNTV400	BNTV400
CPU	OMAP 1.3 GHz	OMAP 1.3 GHz
Memory	1GB DDR2 for PoP @ 533 Mhz	1GB DDR2 for PoP @ 533 Mhz
eMMC/Managed NAND Flash	8GB	8GB
Wilreless	Combo, Wlan 802.11b/g/n, Bluetooth 2.1+EDR	Combo, Wlan 802.11b/g/n, Bluetooth 2.1+EDR
Battery	Li-Ion Rechargeable Battery	Li-Ion Rechargeable Battery
Display Module	7" LCM	7" LCM
Touch Controller	yes	yes

	Sample C	Sample D
PCBA SKU #	SKU 5	SKU 5
Model Number	BNTV400	BNTV400
CPU	OMAP 1.3 GHz	OMAP 1.3 GHz
Memory	1GB DDR2 for PoP @ 533 Mhz	1GB DDR2 for PoP @ 533 Mhz
eMMC/Managed NAND Flash	16GB	16GB
Wilreless	Combo, Wlan 802.11b/g/n, Bluetooth 2.1+EDR	Combo, Wlan 802.11b/g/n, Bluetooth 2.1+EDR
Battery	Li-Ion Rechargeable Battery	Li-Ion Rechargeable Battery
Display Module	7" LCM	7" LCM
Touch Controller	yes	yes

1.3 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	CO05-HY	03CH06-HY	722060/4086B-1

1.4 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
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance DR01
- 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.

1.5 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-605	KA2DIR605B1	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A
4.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

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	2.27 dBm	3.46 dBm	4.18 dBm
Ch39	2441MHz	2.45 dBm	3.51 dBm	4.17 dBm
Ch78	2480MHz	2.51 dBm	3.63 dBm	**4.25 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 3Mbps 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 (Z plane) and recorded in this report.

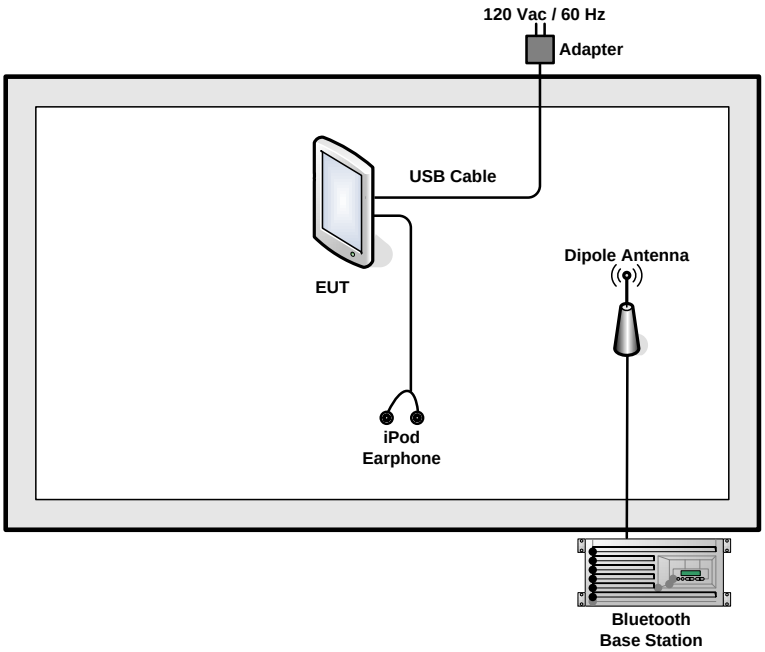
Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth 1Mbps GFSK	**Bluetooth EDR 2Mbps π/4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402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

Remark:

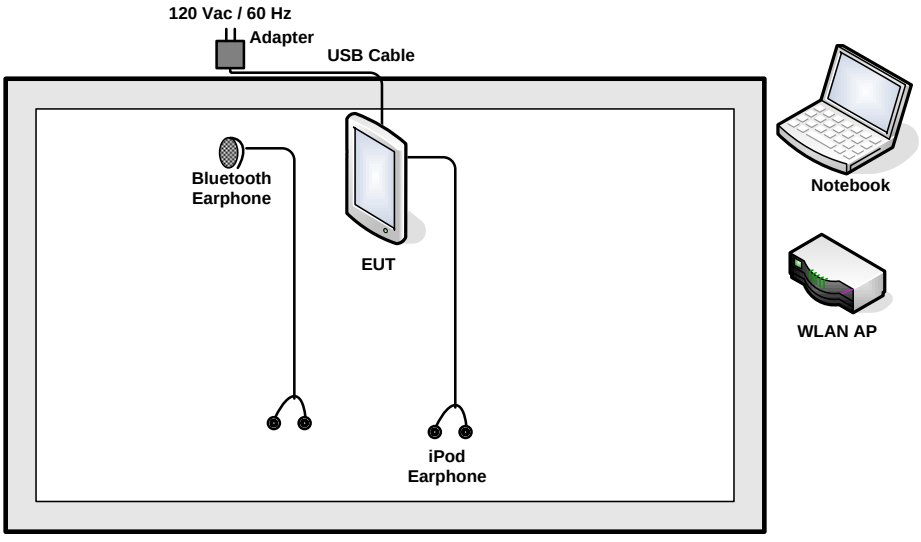
1. TC stands for Test Configuration, and consists of iPod earphone and SD card.
2. For radiated TCs, the data rate was set in 3Mbps due to the highest RF output power; only the data of these modes was reported.
3. Manufacturer of Adapter 1 is Foxlink and Manufacturer of Adapter 2 is APD.
4. For radiated TCs, the test was performance with Adapter 2.

2.3 Connection Diagram of Test System

<Bluetooth Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

For Bluetooth function, programmed RF utility, “ADB” installed in the notebook make the EUT provides functions like channel selection and power level 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.

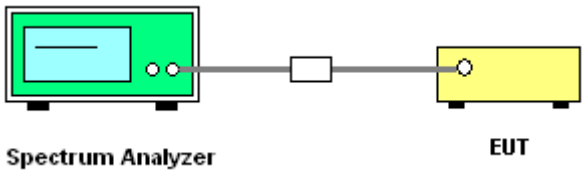
3.1.2 Measuring Instruments

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 a low loss cable.
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.

3.1.4 Test Setup

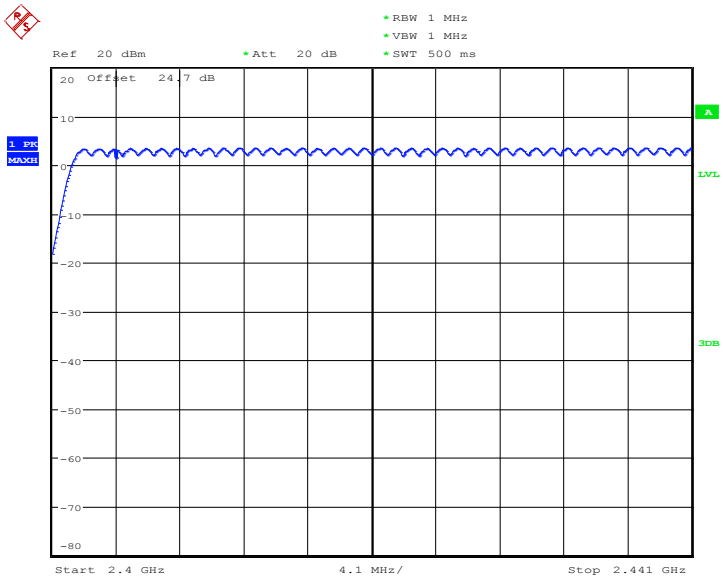


3.1.5 Test Result of Number of Hopping Frequency

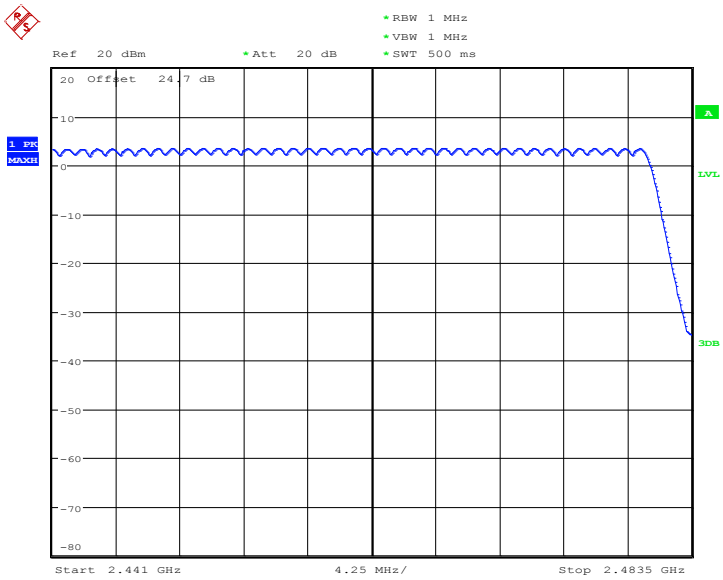
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Engineer :	Phoebe Huang	**Relative Humidity :**	51~53%

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

Number of Hopping Channel Plot on Channel 00 - 78



Date: 31.AUG.2012 16:25:30



Date: 31.AUG.2012 16:32:16

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.

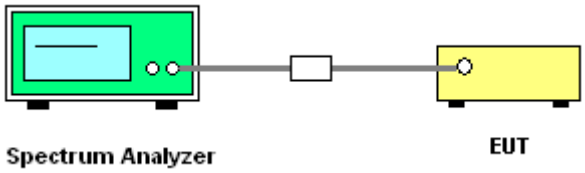
3.2.2 Measuring Instruments

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 a low loss cable.
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.

3.2.4 Test Setup

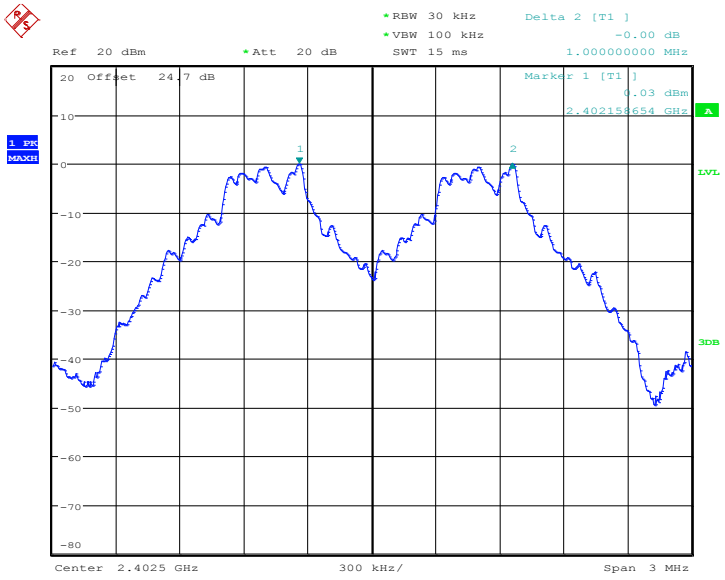


3.2.5 Test Result of Hopping Channel Separation

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

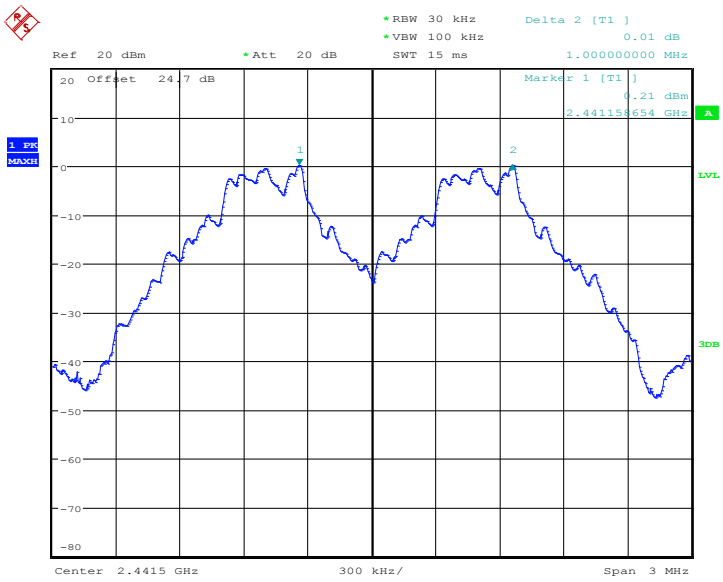
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.000	0.6047	Pass
39	2441	1.000	0.6069	Pass
78	2480	1.005	0.6047	Pass

Channel Separation Plot on Channel 00 - 01



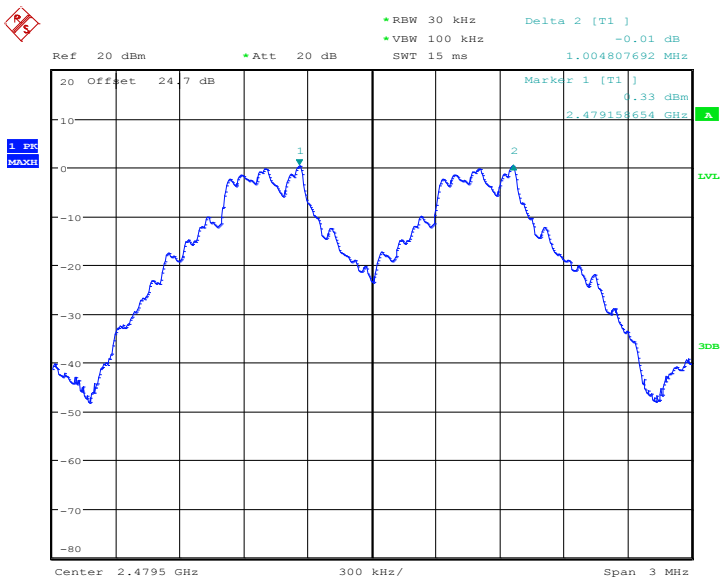
Date: 31.AUG.2012 15:26:16

Channel Separation Plot on Channel 39 - 40



Date: 31.AUG.2012 15:28:36

Channel Separation Plot on Channel 77 - 78

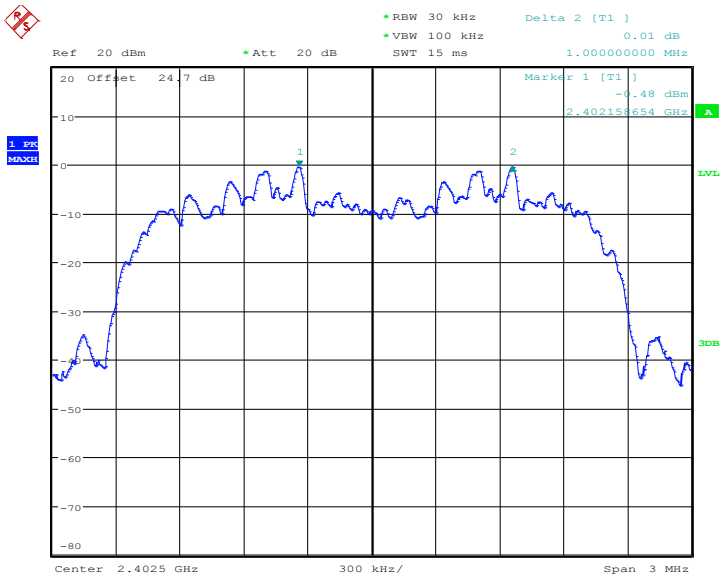


Date: 31.AUG.2012 15:33:11

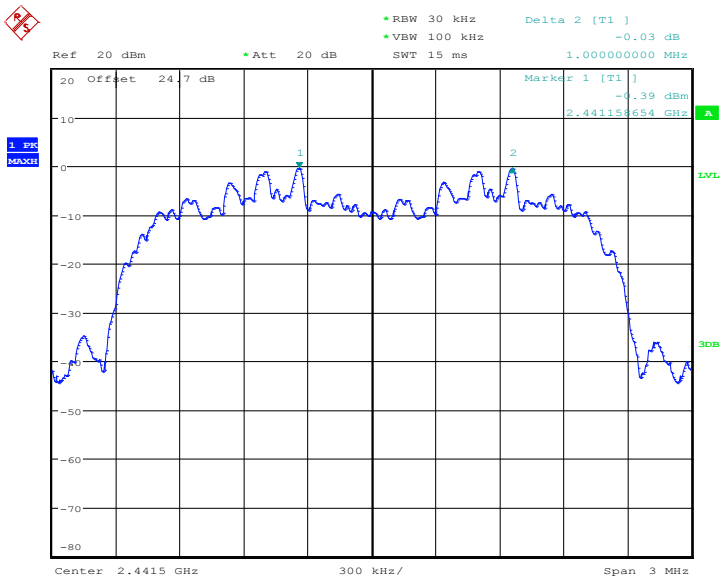
Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.000	0.8750	Pass
39	2441	1.000	0.8493	Pass
78	2480	1.000	0.8750	Pass

Channel Separation Plot on Channel 00 - 01

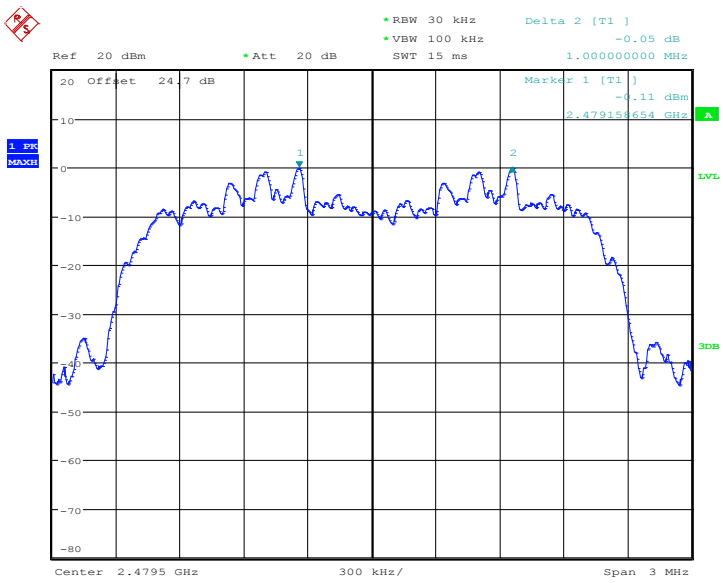


Channel Separation Plot on Channel 39 - 40



Date: 31.AUG.2012 15:39:24

Channel Separation Plot on Channel 77 - 78

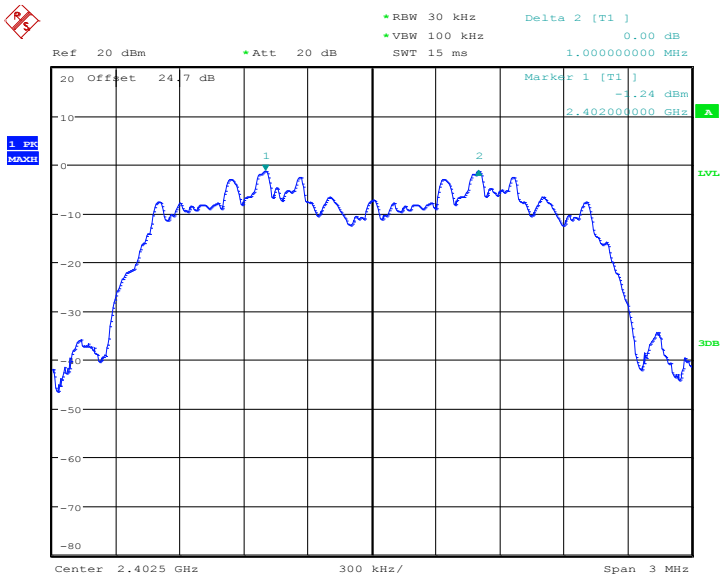


Date: 31.AUG.2012 15:36:35

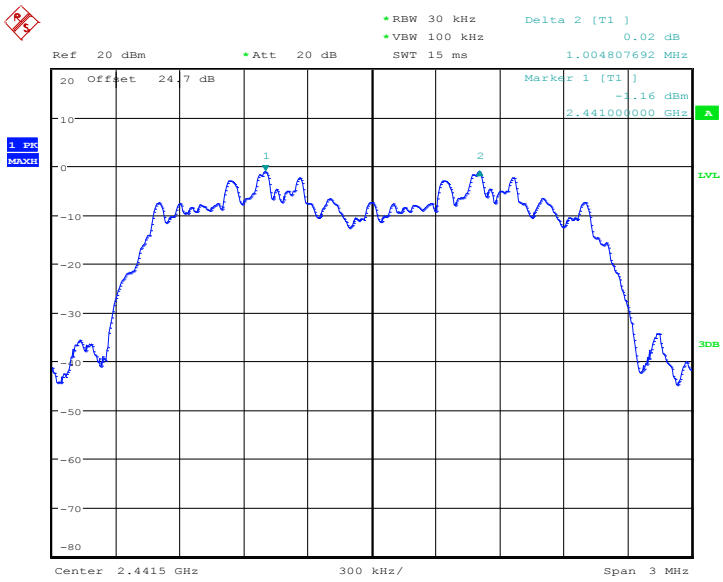
Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.000	0.8365	Pass
39	2441	1.005	0.8365	Pass
78	2480	1.000	0.8397	Pass

Channel Separation Plot on Channel 00 - 01

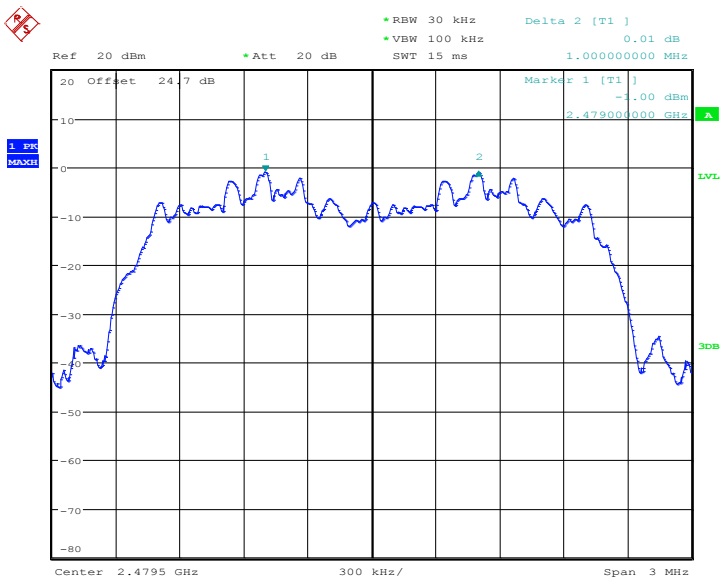


Channel Separation Plot on Channel 39 - 40



Date: 31.AUG.2012 15:46:00

Channel Separation Plot on Channel 77 - 78



Date: 31.AUG.2012 15:47:31

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 connector was connected to the spectrum analyzer through a low loss cable.
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.

3.3.4 Test Setup

3.3.5 Test Result of Dwell Time

Test Mode :	3DH5	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
3DH5	3.70	3000.00	0.35	0.4	Pass

Remark:

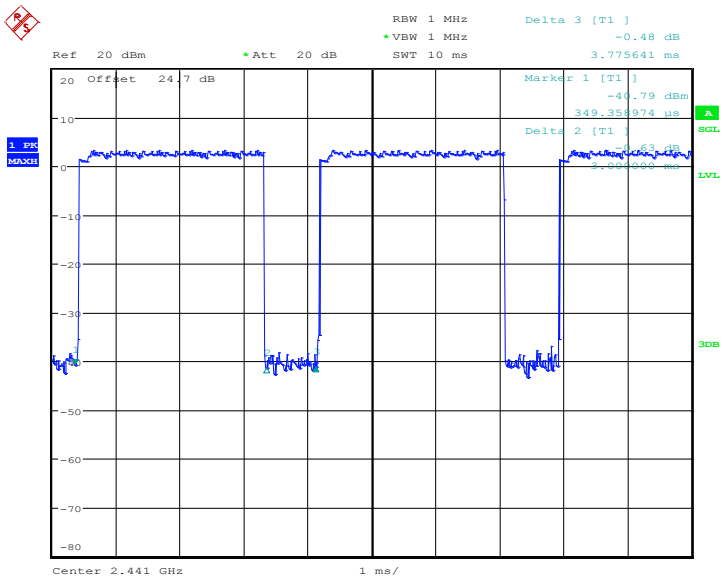
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time

2. 79 channels come from the Hopping Channel number.

3. Average Hopping Channel = hops/sweep time

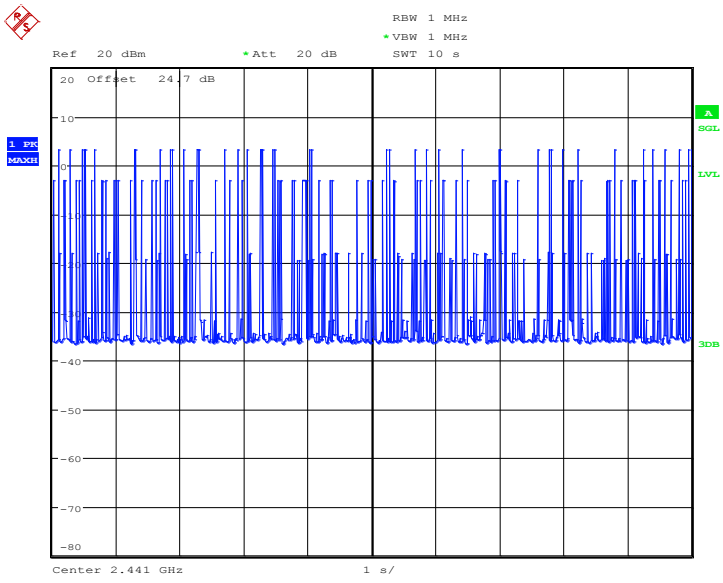
4. T: Package Transfer Time(us)

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



Date: 31.AUG.2012 10:54:03

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



Date: 31.AUG.2012 16:01:12

3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB Bandwidth

Reporting only

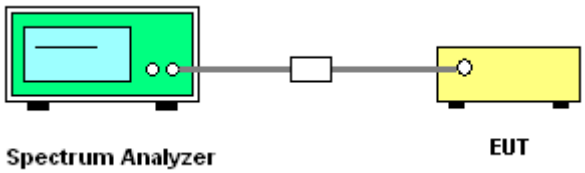
3.4.2 Measuring Instruments

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 a low loss cable.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Use the following spectrum analyzer settings:
   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel;
   RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.

3.4.4 Test Setup

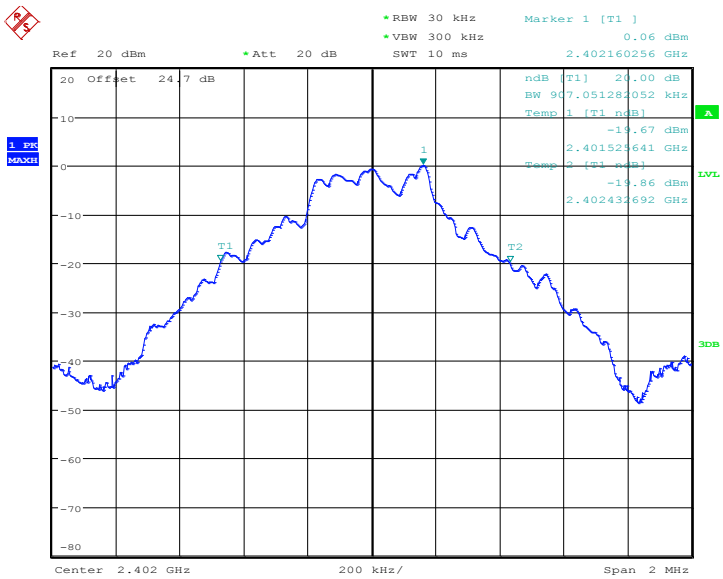


3.4.5 Test Result of 20dB Bandwidth

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

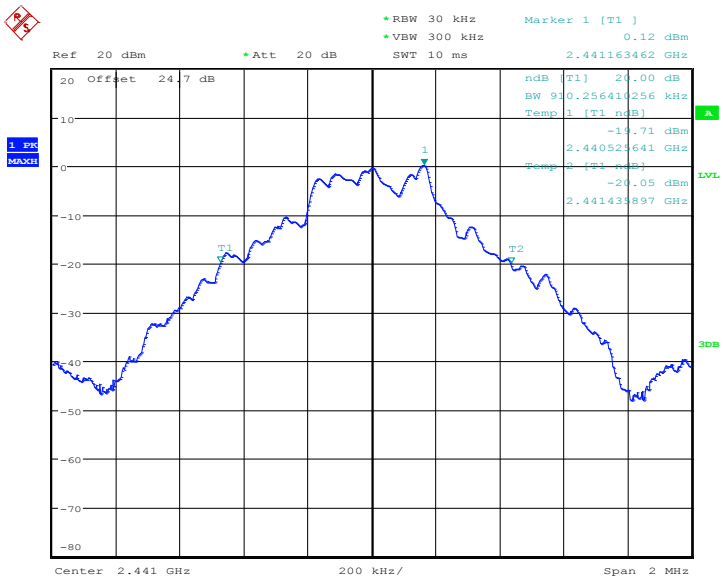
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.907
39	2441	0.910
78	2480	0.907

20 dB Bandwidth Plot on Channel 00



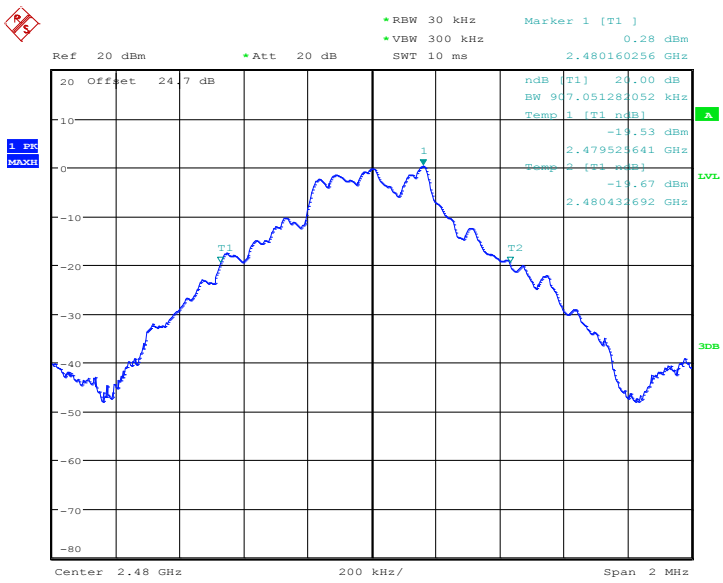
Date: 31.AUG.2012 11:00:17

20 dB Bandwidth Plot on Channel 39



Date: 31.AUG.2012 11:02:13

20 dB Bandwidth Plot on Channel 78

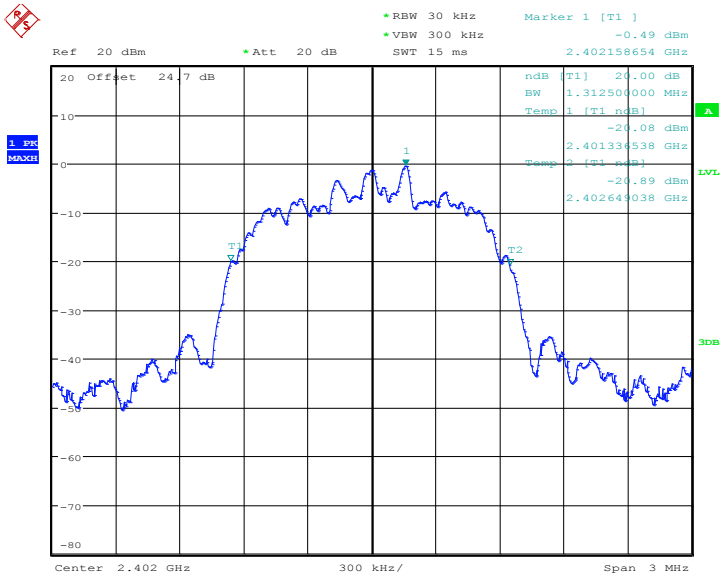


Date: 31.AUG.2012 11:03:00

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

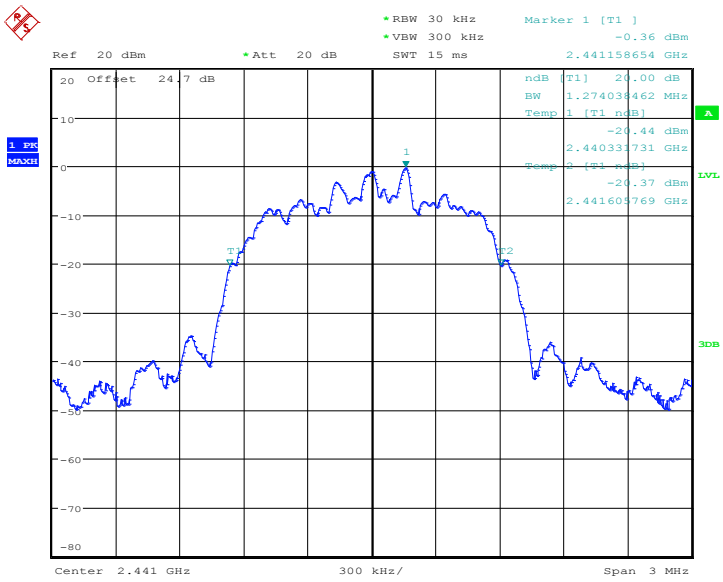
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.313
39	2441	1.274
78	2480	1.313

20 dB Bandwidth Plot on Channel 00



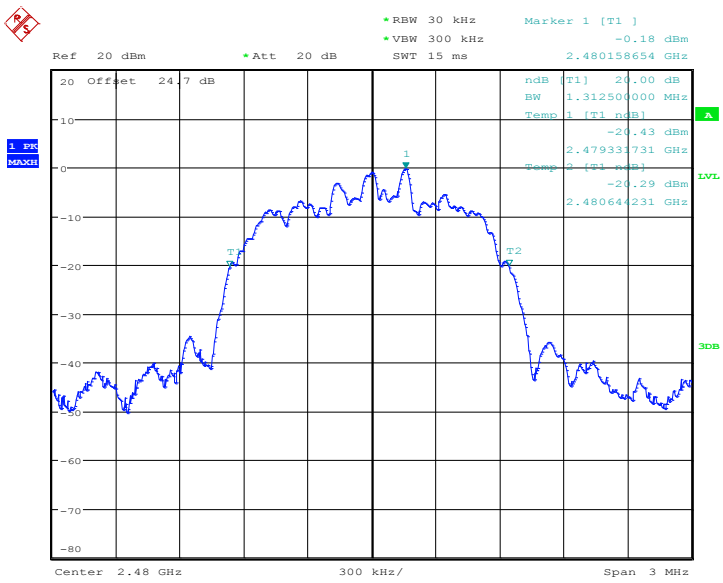
Date: 31.AUG.2012 11:06:33

20 dB Bandwidth Plot on Channel 39



Date: 31.AUG.2012 11:07:36

20 dB Bandwidth Plot on Channel 78

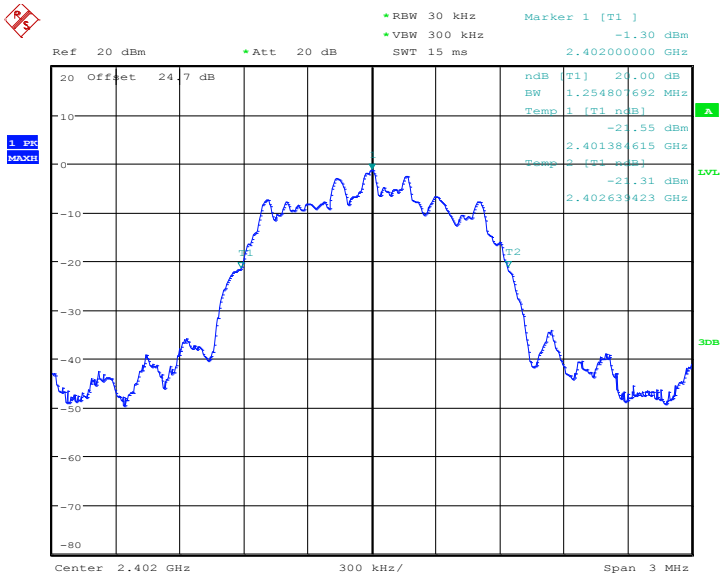


Date: 31.AUG.2012 11:08:13

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

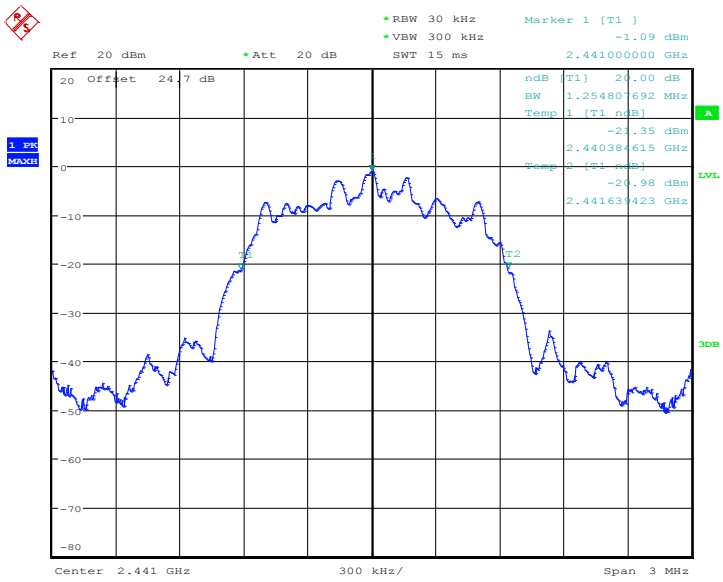
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.255
39	2441	1.255
78	2480	1.260

20 dB Bandwidth Plot on Channel 00



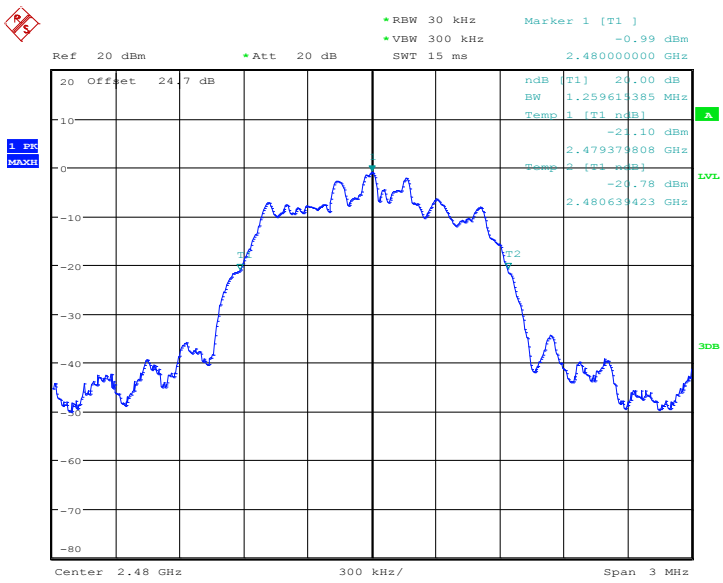
Date: 31.AUG.2012 11:13:40

20 dB Bandwidth Plot on Channel 39



Date: 31.AUG.2012 11:12:59

20 dB Bandwidth Plot on Channel 78



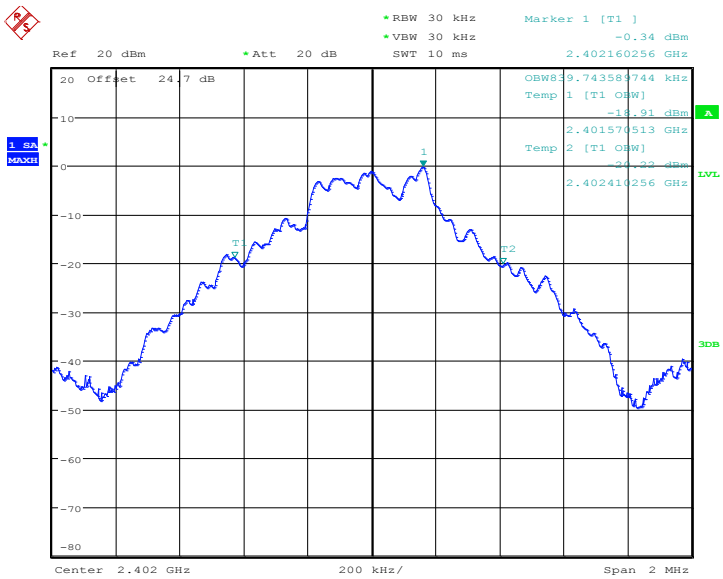
Date: 31.AUG.2012 11:10:35

3.4.6 Test Result of 99% Occupied Bandwidth

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

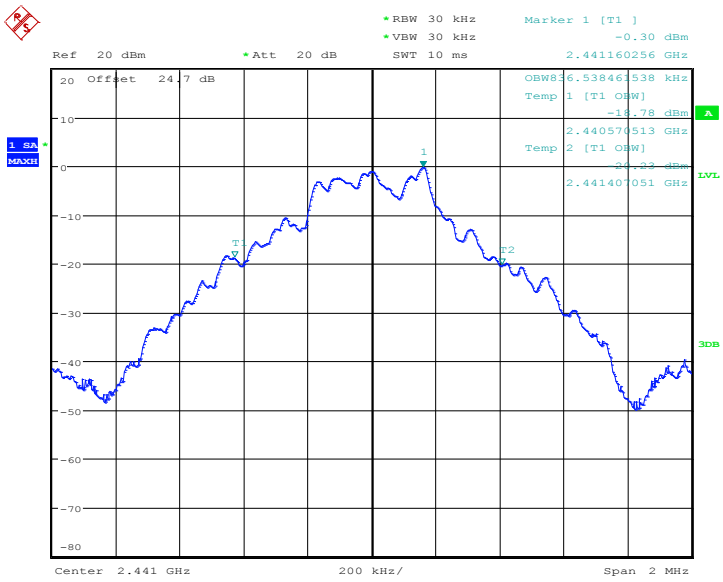
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.840
39	2441	0.837
78	2480	0.840

99% Bandwidth Plot on Channel 00



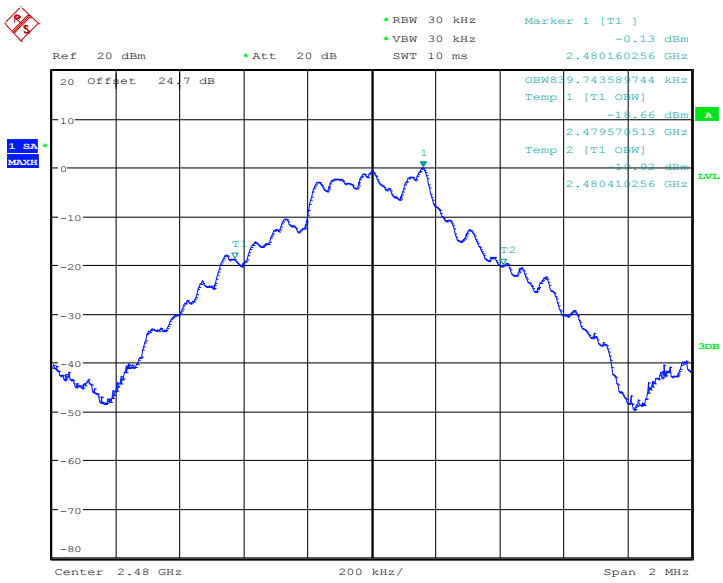
Date: 31.AUG.2012 14:07:49

99% Occupied Bandwidth Plot on Channel 39



Date: 31.AUG.2012 14:08:53

99% Occupied Bandwidth Plot on Channel 78

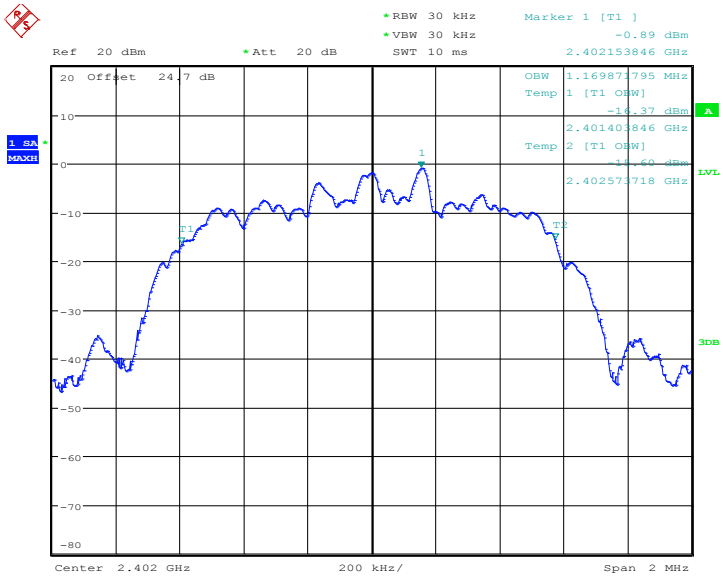


Date: 31.AUG.2012 14:09:34

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

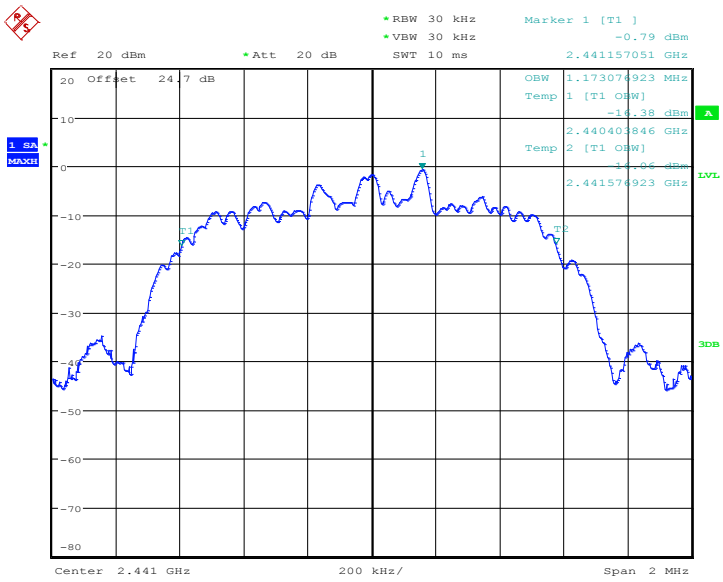
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	1.170
39	2441	1.173
78	2480	1.167

99% Bandwidth Plot on Channel 00



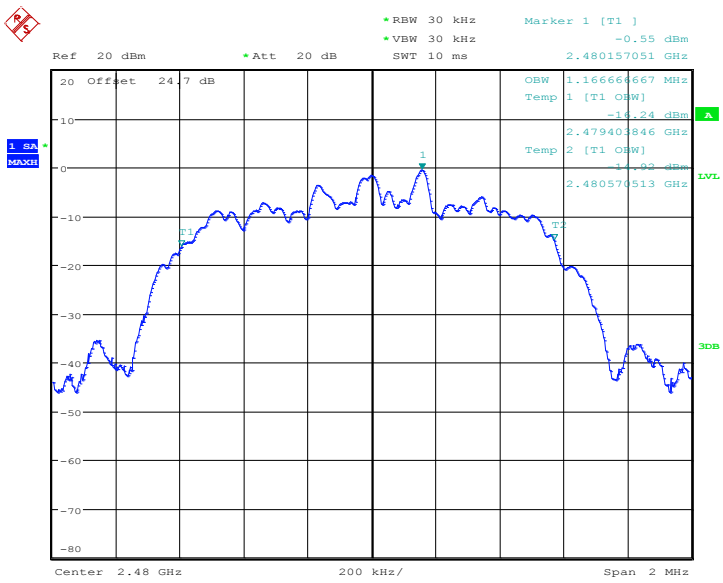
Date: 31.AUG.2012 14:12:59

99% Occupied Bandwidth Plot on Channel 39



Date: 31.AUG.2012 14:12:01

99% Occupied Bandwidth Plot on Channel 78

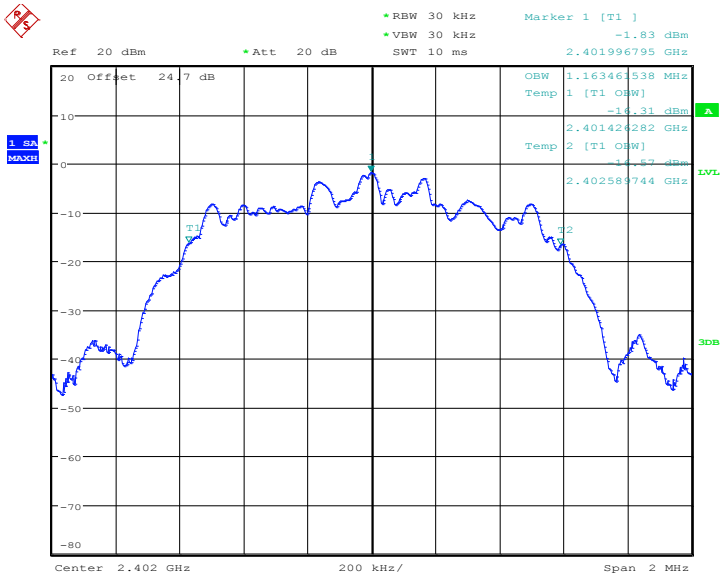


Date: 31.AUG.2012 14:11:11

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

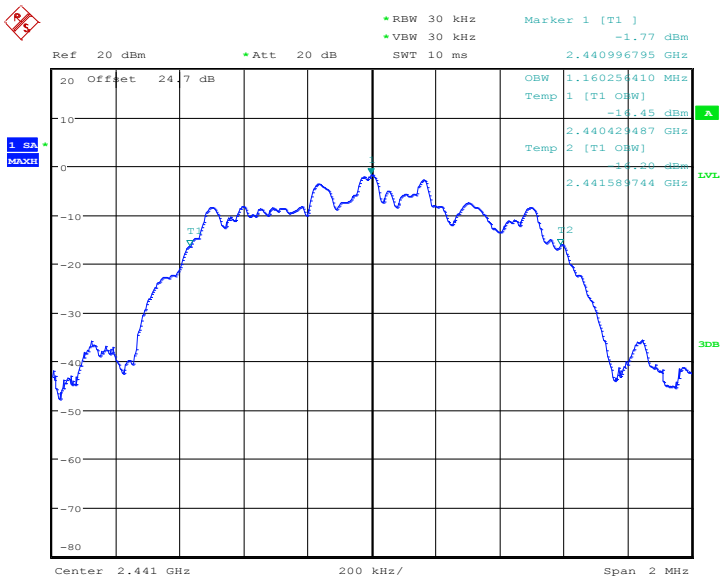
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	1.164
39	2441	1.160
78	2480	1.160

99% Bandwidth Plot on Channel 00



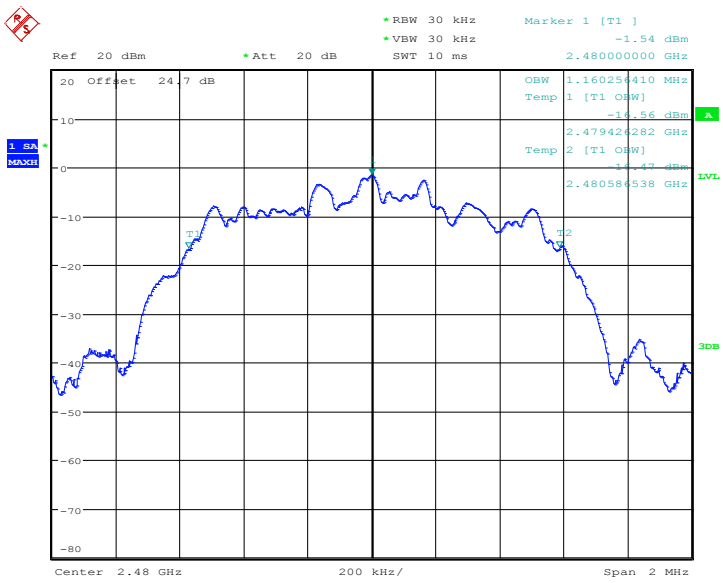
Date: 31.AUG.2012 14:13:38

99% Occupied Bandwidth Plot on Channel 39



Date: 31.AUG.2012 14:14:23

99% Occupied Bandwidth Plot on Channel 78



Date: 31.AUG.2012 14:15:06

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.

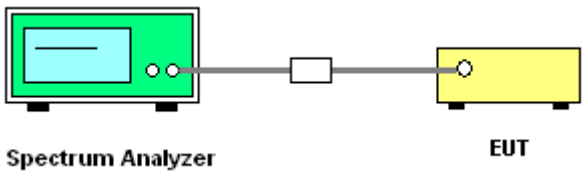
3.5.2 Measuring Instruments

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 a low loss cable.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.5.4 Test Setup

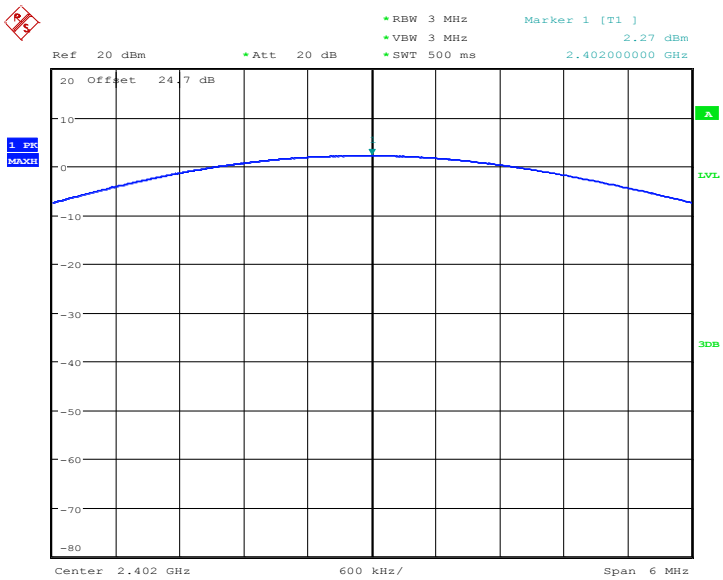


3.5.5 Test Result of Peak Output Power

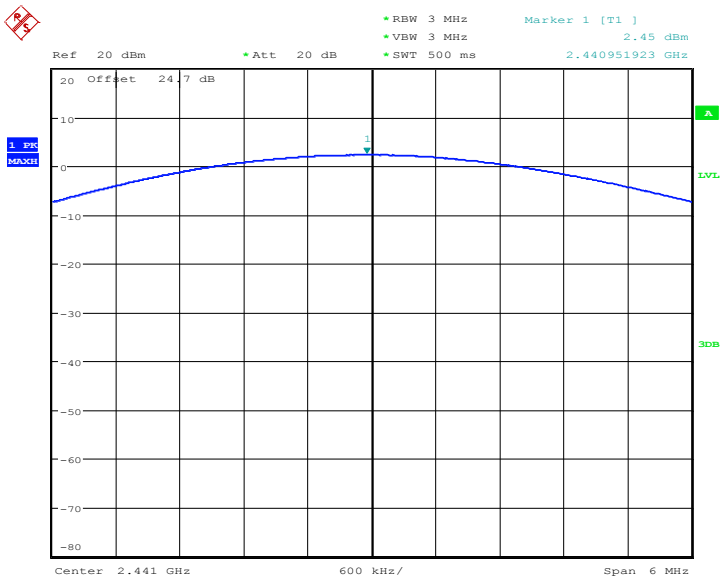
Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	2.27	30.00	Pass
39	2441	2.45	30.00	Pass
78	2480	2.51	30.00	Pass

Peak Output Power Plot on Channel 00

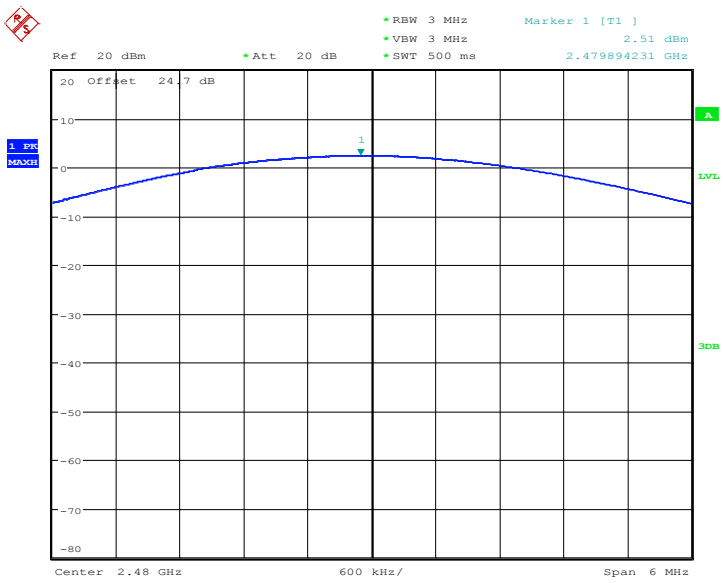


Peak Output Power Plot on Channel 39



Date: 31.AUG.2012 09:58:03

Peak Output Power Plot on Channel 78

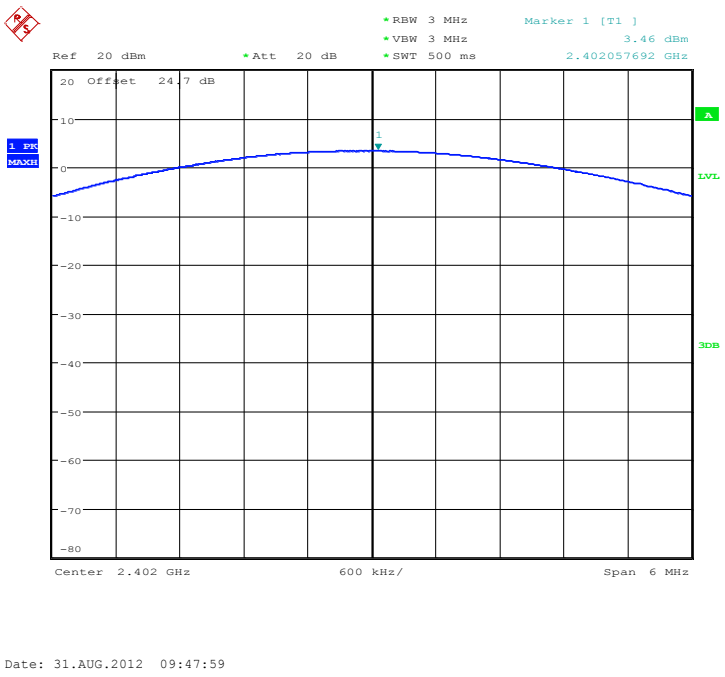


Date: 31.AUG.2012 10:29:34

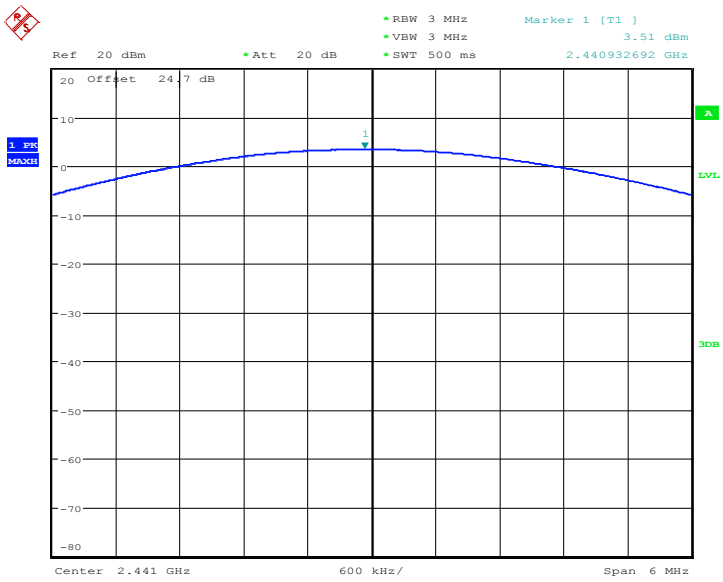
Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		π/4-DQPSK	Max. Limits	Pass/Fail
		2 Mbps	(dBm)	
00	2402	3.46	20.97	Pass
39	2441	3.51	20.97	Pass
78	2480	3.63	20.97	Pass

Peak Output Power Plot on Channel 00

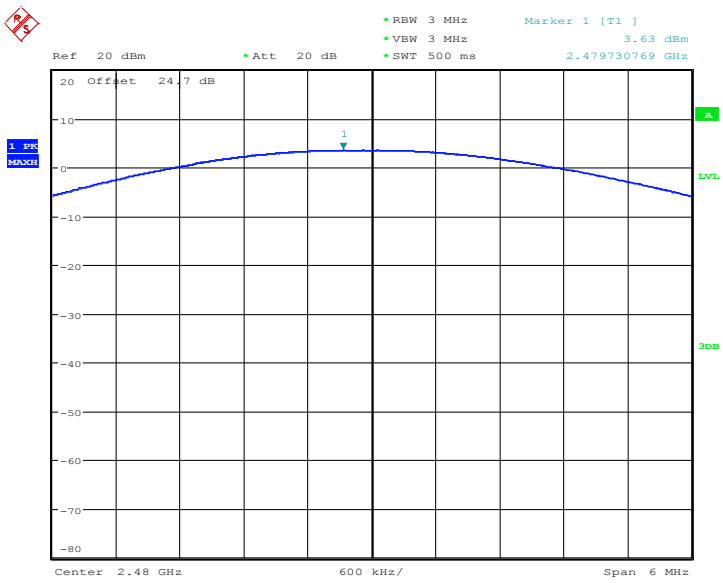


Peak Output Power Plot on Channel 39



Date: 31.AUG.2012 10:00:00

Peak Output Power Plot on Channel 78

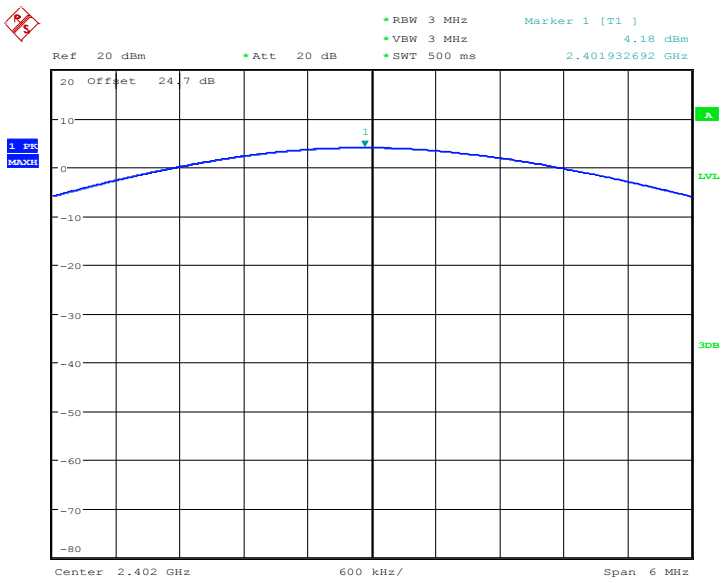


Date: 31.AUG.2012 10:10:26

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

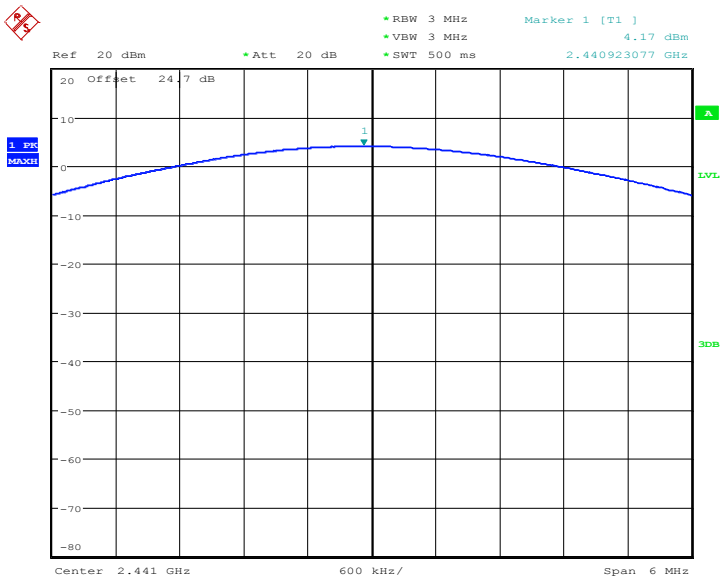
Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits	Pass/Fail
		3 Mbps	(dBm)	
00	2402	4.18	20.97	Pass
39	2441	4.17	20.97	Pass
78	2480	4.25	20.97	Pass

Peak Output Power Plot on Channel 00



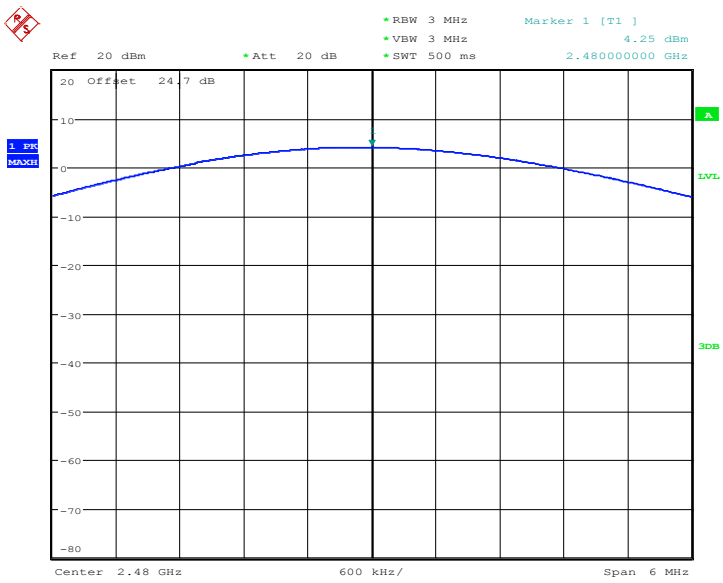
Date: 31.AUG.2012 09:49:34

Peak Output Power Plot on Channel 39



Date: 31.AUG.2012 10:02:17

Peak Output Power Plot on Channel 78



Date: 31.AUG.2012 10:35:41

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.

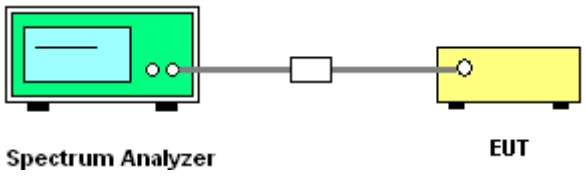
3.6.2 Measuring Instruments

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. Record the results in the test report.

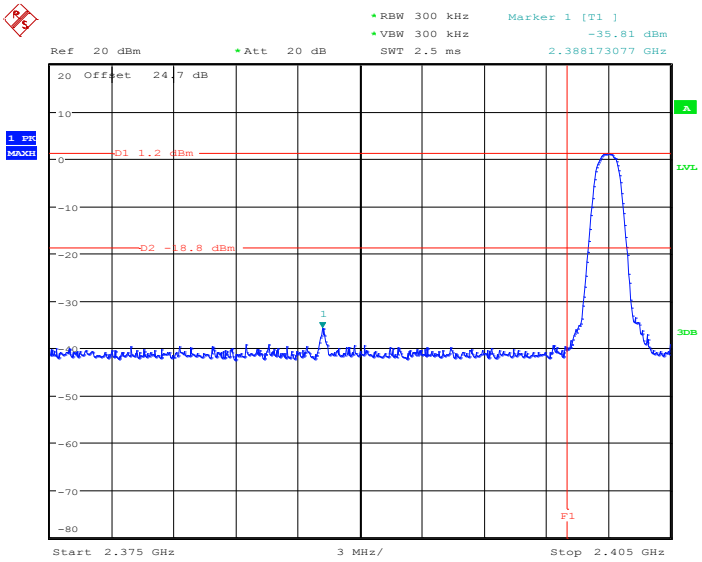
3.6.4 Test Setup



4.6.5 Test Result of Conducted Band Edges

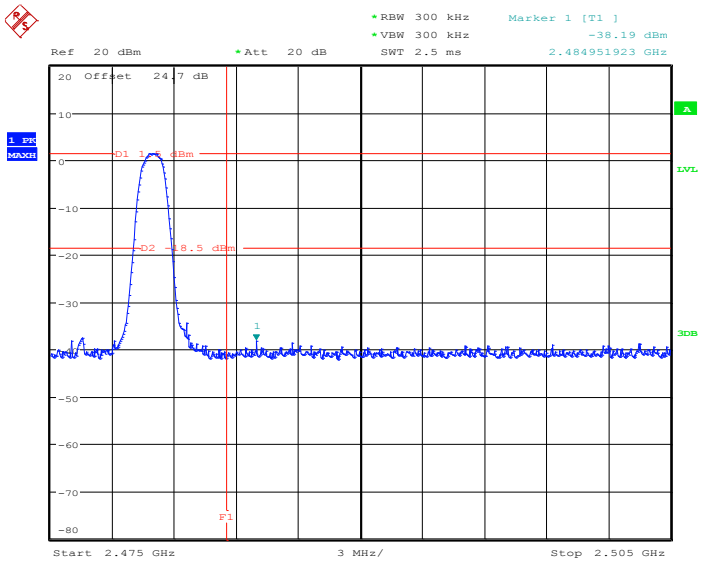
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	00 and 78	**Relative Humidity :**	51~53%
		Test Engineer :	Phoebe Huang

Low Band Edge Plot on Channel 00



Date: 31.AUG.2012 11:46:04

High Band Edge Plot on Channel 78

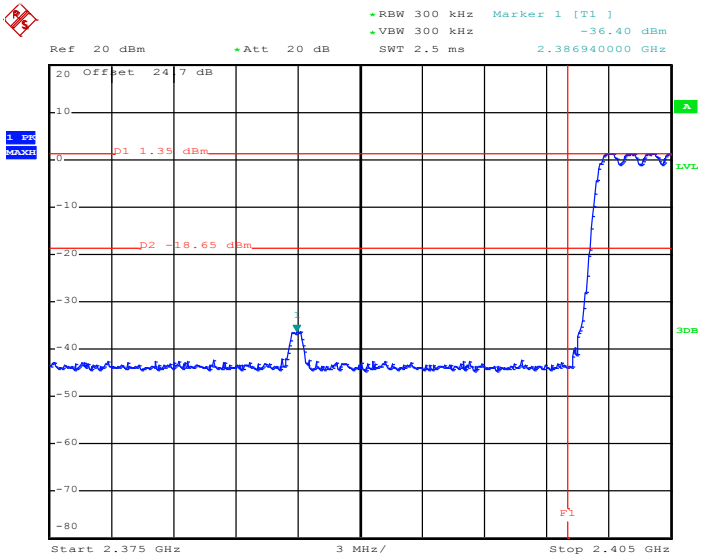


Date: 31.AUG.2012 11:47:02

4.6.6 Test Result of Conducted Hopping Mode Band Edges

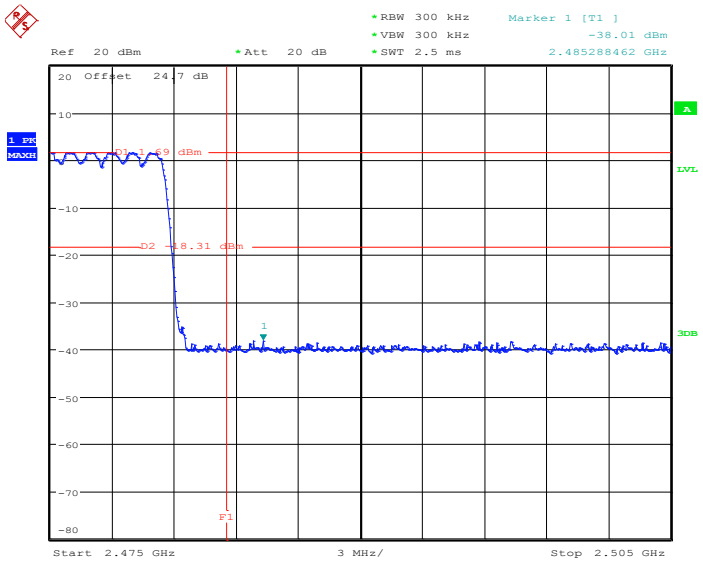
Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Hopping Mode Low Band Edge Plot



Date: 4.SEP.2012 01:03:00

Hopping Mode High Band Edge Plot



Date: 31.AUG.2012 17:06:26

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.

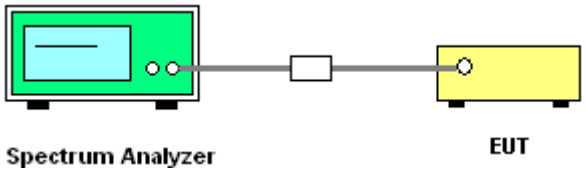
3.7.2 Measuring Instruments

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 transmitter output was connected to the spectrum analyzer via a low lose cable.
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. Record the results in the test report.

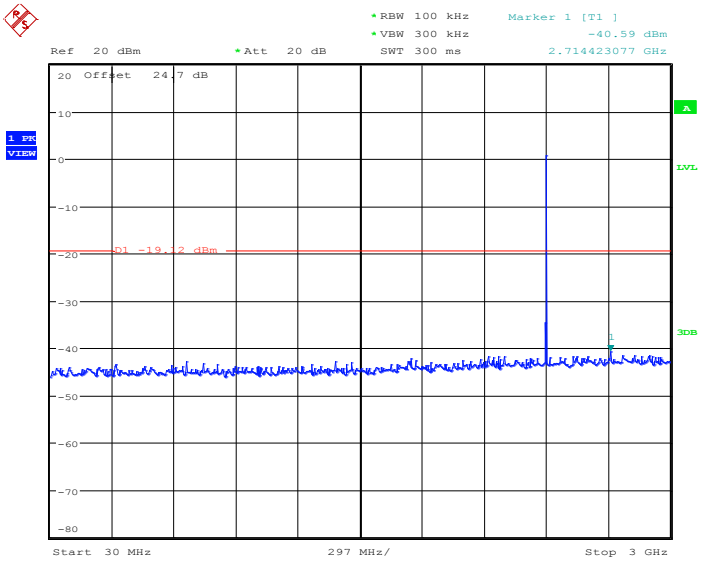
3.7.4 Test Setup



3.7.5 Test Result

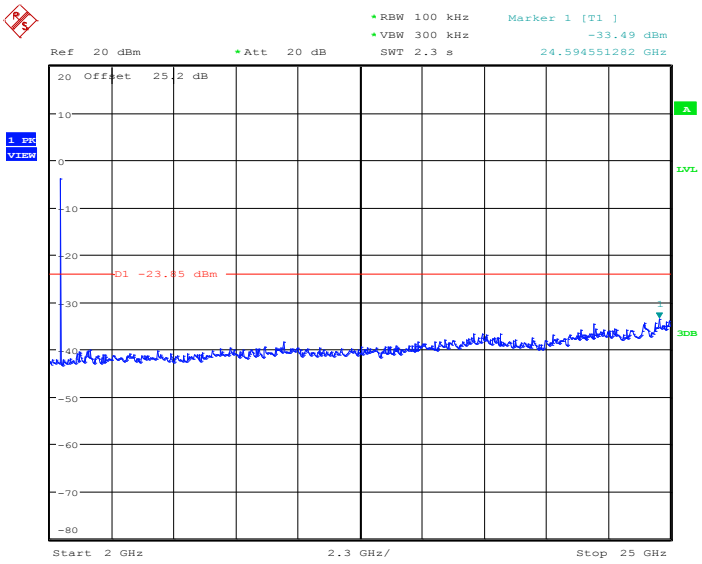
Test Mode :	3Mbps	Temperature :	24~26℃
Test Channel :	00	Relative Humidity :	51~53%
		Test Engineer :	Phoebe Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 31.AUG.2012 13:55:07

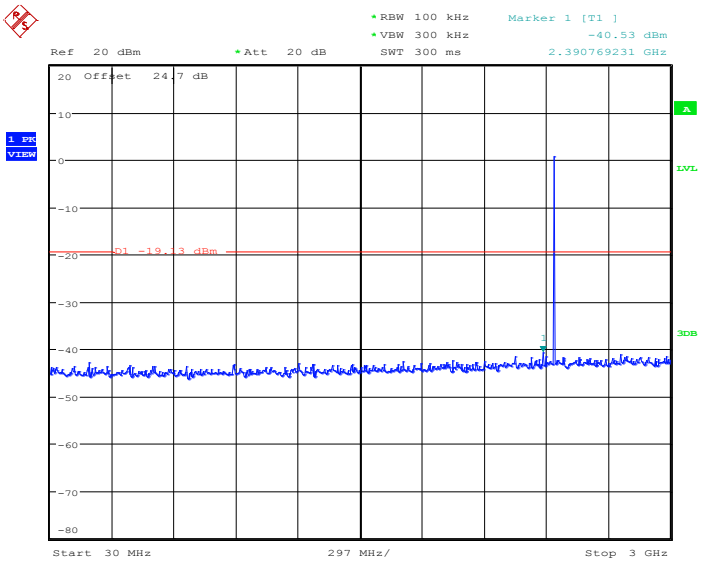
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



Date: 31.AUG.2012 13:55:28

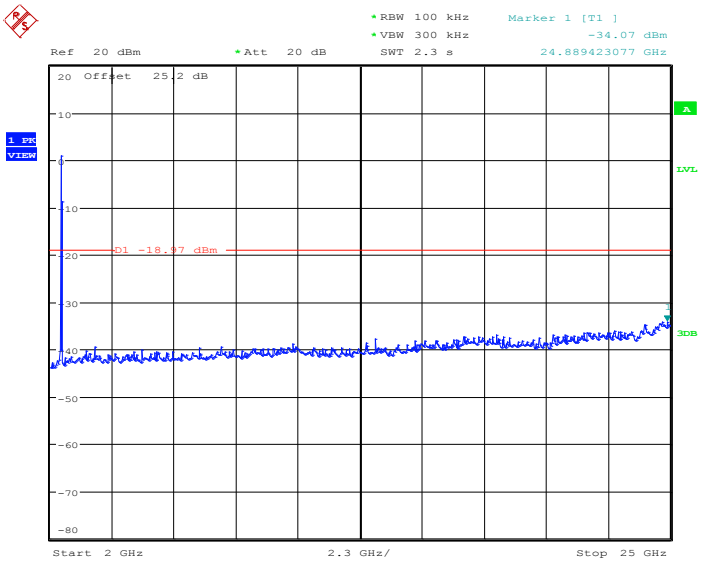
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	39	**Relative Humidity :**	51~53%
		Test Engineer :	Phoebe Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 31.AUG.2012 13:52:55

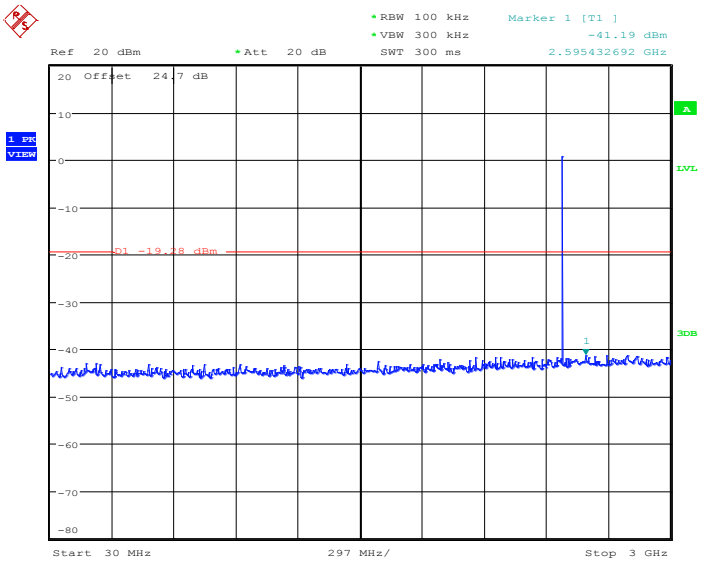
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



Date: 31.AUG.2012 13:53:17

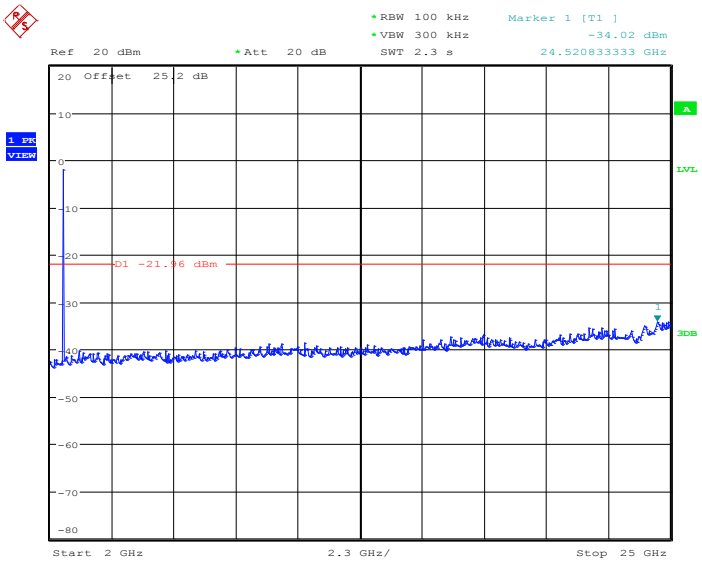
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	78	**Relative Humidity :**	51~53%
		Test Engineer :	Phoebe Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 31.AUG.2012 13:54:01

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



Date: 31.AUG.2012 13:54:23

3.8 Power Spectral Density Measurement

3.8.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3KHz band at any time interval of continuous transmission.

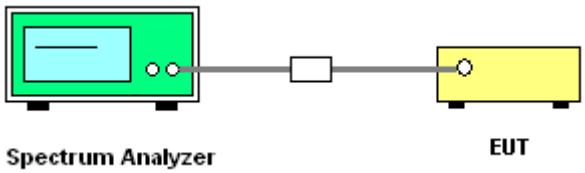
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB Publication No. 558074.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 KHz. Video bandwidth (VBW) >= 10 KHz.
4. Record the measurement data derived from spectrum analyzer.

3.8.4 Test Setup



3.8.5 Test Result of Power Spectral Density

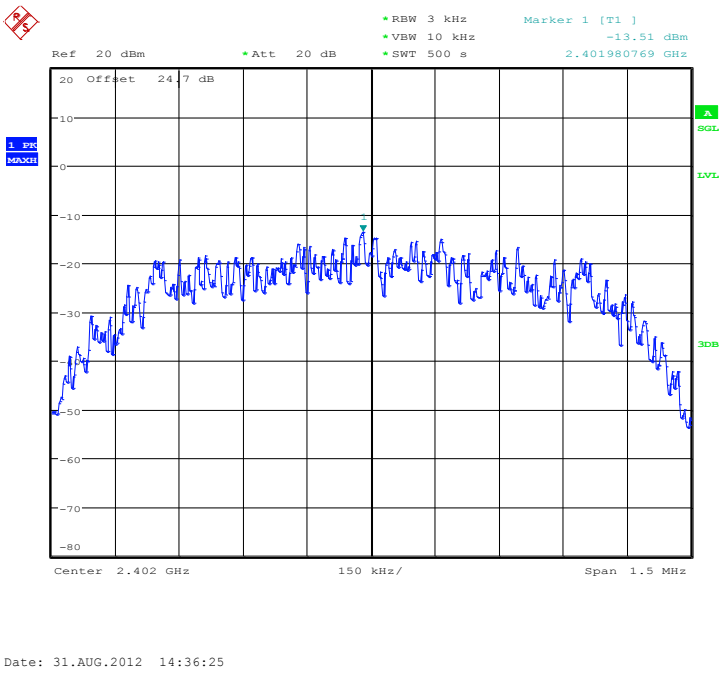
Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

Channel	Frequency (MHz)	BT Power Density	Max. Limits (dBm)	Pass /Fail
		PSD/3KHz (dBm)		
00	2402	-13.51	8	Pass
39	2441	-13.43	8	Pass
78	2480	-13.14	8	Pass

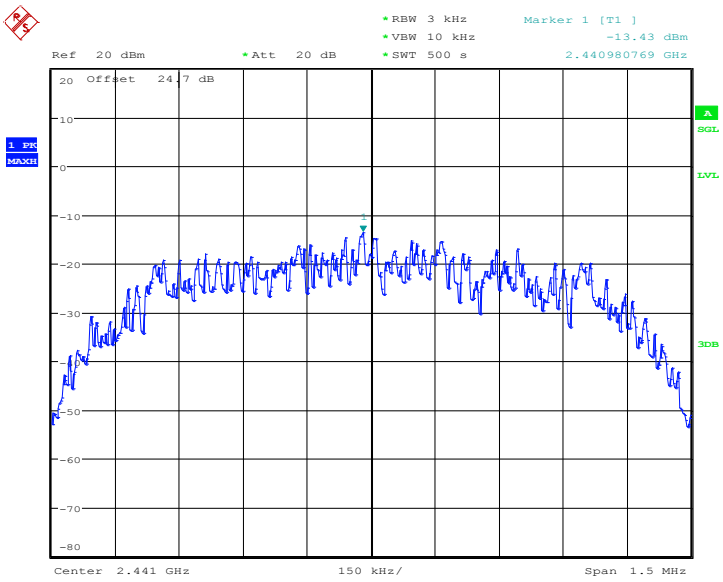
3.8.6 Test Result of Power Spectral Density Plots

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Phoebe Huang	Relative Humidity :	51~53%

PSD Plot on Channel 00

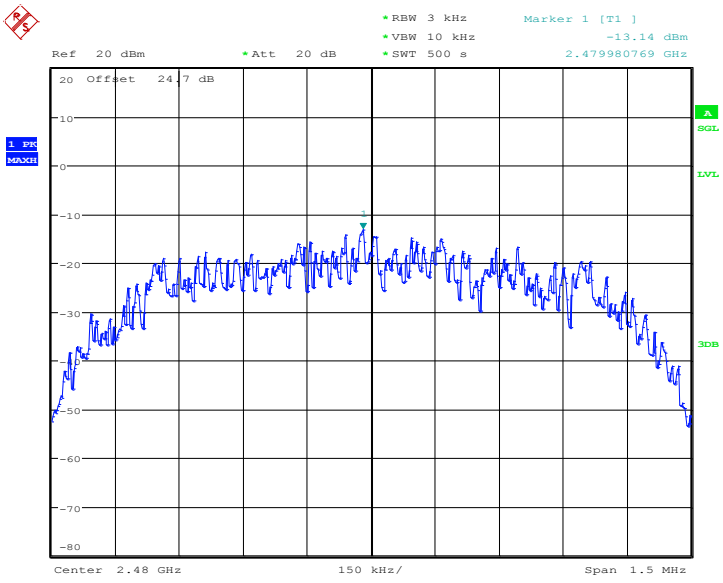


PSD Plot on Channel 39



Date: 31.AUG.2012 14:49:19

PSD Plot on Channel 78



Date: 31.AUG.2012 14:59:59

3.9 Radiated Band Edges and Spurious Emission Measurement

3.9.1 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

3.9.2 Measuring Instruments

See list of measuring instruments of this test report.

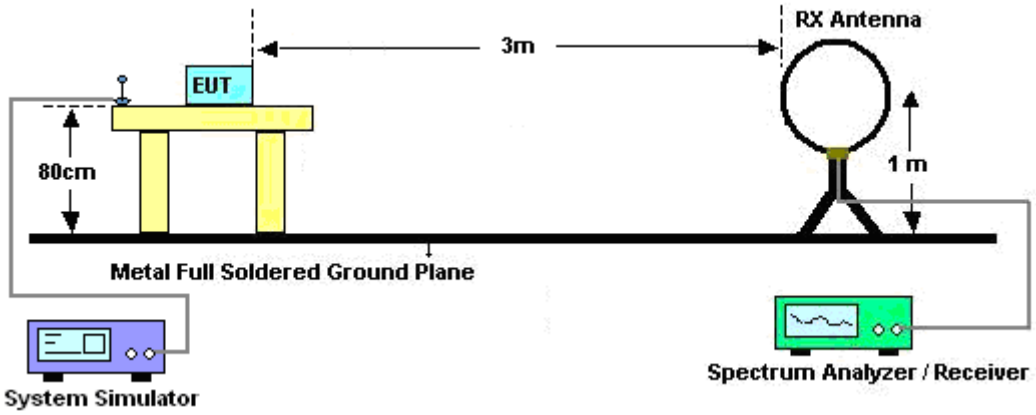
3.9.3 Test Procedures

1. The testing follows the guidelines in 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

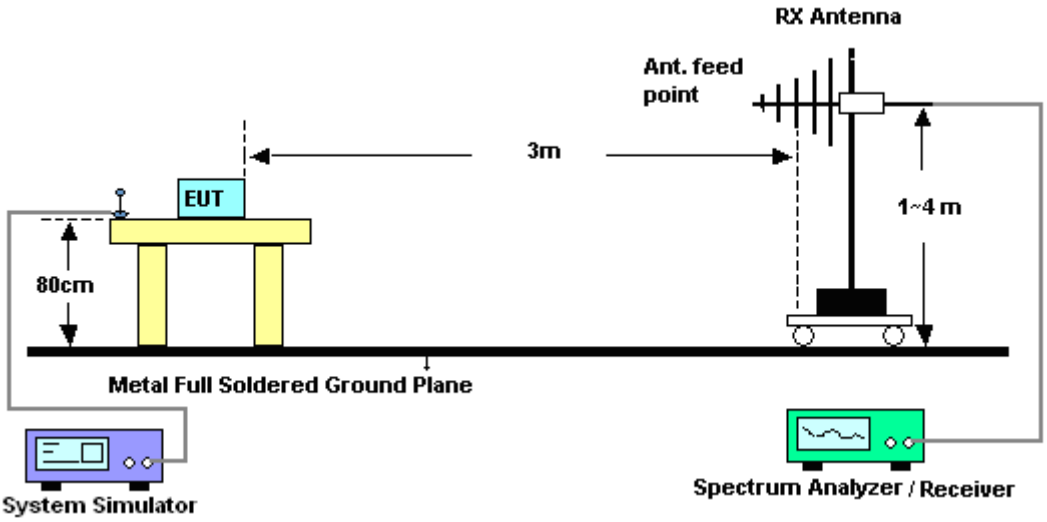
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.5dB) derived from 20log (dwell time/100ms).
For example: Average level = 45.61dBuV/m – 24.5 (dB) = 21.11dBuV/m.

3.9.4 Test Setup

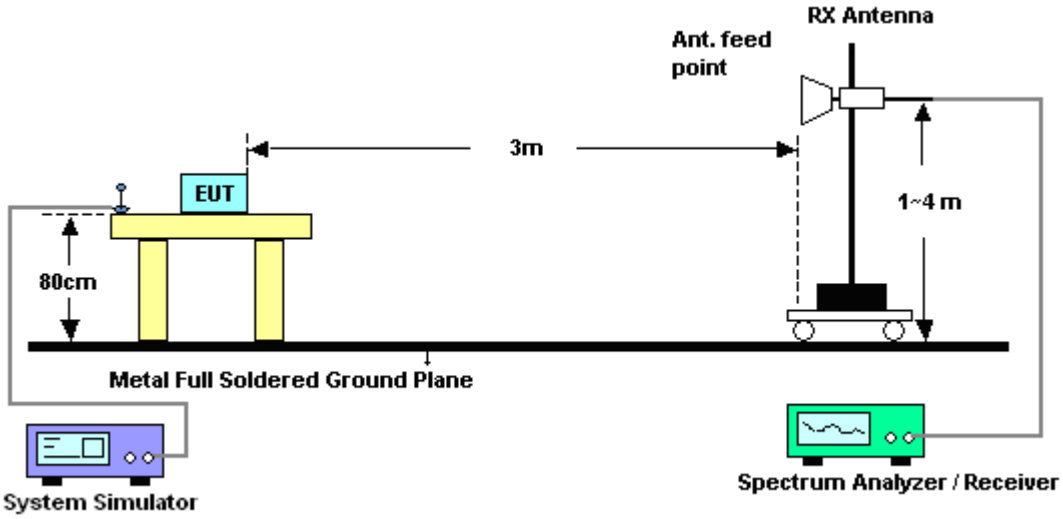
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

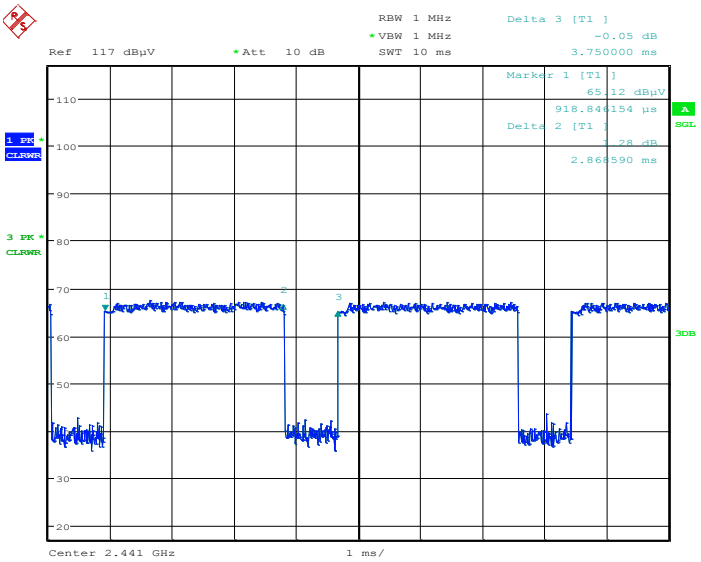


3.9.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

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.

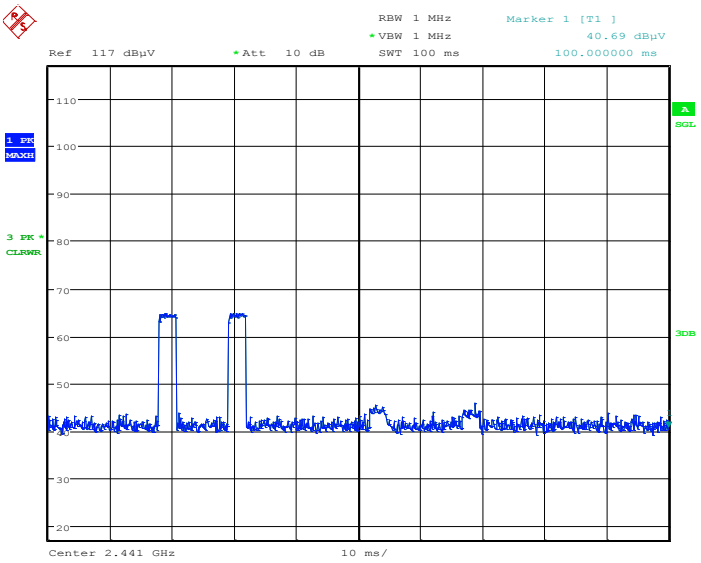
3.9.6 Duty cycle correction factor for average measurement

3DH5 on time/100ms (One Pulse) Plot on Channel 39



Date: 8.SEP.2012 17:33:36

3DH5 on time/100ms (Count Pulses) Plot on Channel 39



Date: 8.SEP.2012 17:43:01

Note:

1. Duty cycle = on time/100 milliseconds = 2 * 2.868 / 100 = 5.74 %
2. Duty cycle correction factor = 20*log(Duty cycle) = -24.83 dB
3. 3DH5 has the highest duty cycle and is reported.

3.9.7 Test Result of Radiated Band Edges

Test Mode :	3Mbps	**Temperature :**	27~28°C
Test Channel :	00	**Relative Humidity :**	49~50%
		Test Engineer :	Timberland

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**
2358.24	61.03	-12.97	74	56.86	32.31	6.42	34.56	162	242	Peak
2358.24	36.2	-17.8	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**
2358.33	57.37	-16.63	74	53.2	32.31	6.42	34.56	102	322	Peak
2358.33	32.54	-21.46	54	-	-	-	-	-	-	Average

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.83dB) derived from 20log (dwell time/100ms).

For example: Average level = 61.03dBuV/m – 24.83 (dB) = 36.2dBuV/m.

Test Mode :	3Mbps	**Temperature :**	27~28°C
Test Channel :	78	**Relative Humidity :**	49~50%
		Test Engineer :	Timberland

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	60.29	-13.71	74	55.77	32.48	6.59	34.55	102	234	Peak
2483.5	35.46	-18.54	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	55.35	-18.65	74	50.83	32.48	6.59	34.55	197	305	Peak
2483.5	30.52	-23.48	54	-	-	-	-	-	-	Average

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

Test Mode :	3Mbps	**Temperature :**	27~28°C
Test Channel :	00	**Relative Humidity :**	49~50%
Test Engineer :	Timberland	**Polarization :**	Horizontal
Remark :	1. 2402 MHz is fundamental signal which can be ignored. 2. 9606 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 103.37 dBuV/m - 20dB = 83.37 dBuV/m.		

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	103.37	-	-	99.12	32.36	6.45	34.56	162	242	Peak
2402	78.54	-	-	-	-	-	-	-	-	Average
9606	53.85	-29.52	83.37	62.49	36.84	10.56	56.04	100	0	Peak

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.83dB) derived from 20log (dwell time/100ms).

For example: Average level = 103.37dBuV/m – 24.83 (dB) = 78.54dBuV/m.

Test Mode :	3Mbps	**Temperature :**	27~28°C
Test Channel :	00	**Relative Humidity :**	49~50%
Test Engineer :	Timberland	**Polarization :**	Vertical
Remark :	1. 2402 MHz is fundamental signal which can be ignored. 2. 9606 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
2402	98.05	-	-	93.8	32.36	6.45	34.56	102	322	Peak
2402	73.22	-	-	-	-	-	-	-	-	Average
9606	53.04	-25.01	78.05	61.68	36.84	10.56	56.04	100	0	Peak

Test Mode :	3Mbps	Temperature :	27~28°C
Test Channel :	39	Relative Humidity :	49~50%
Test Engineer :	Timberland	Polarization :	Horizontal
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. 9765 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
39.45	20.18	-19.82	40	38.24	12.7	0.74	31.5	-	-	Peak
189.84	22.89	-20.61	43.5	43.73	8.9	1.48	31.22	-	-	Peak
241.95	16.8	-29.2	46	34.59	11.6	1.7	31.09	-	-	Peak
375.6	22.16	-23.84	46	36.25	14.9	2.12	31.11	-	-	Peak
543.6	22.22	-23.78	46	32.03	18.82	2.53	31.16	-	-	Peak
800.5	27.46	-18.54	46	36.37	20	3.06	31.97	100	85	Peak
2441	104.04	-	-	99.65	32.43	6.52	34.56	102	241	Peak
2441	79.21	-	-	-	-	-	-	-	-	Average
9765	51.38	-32.66	84.04	59.65	37.09	10.57	55.93	100	0	Peak

Test Mode :	3Mbps	Temperature :	27~28°C
Test Channel :	39	Relative Humidity :	49~50%
Test Engineer :	Timberland	Polarization :	Vertical
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. 9765 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
30.54	22.19	-17.81	40	35.06	18.02	0.65	31.54	-	-	Peak
38.64	23.1	-16.9	40	40.73	13.14	0.73	31.5	100	32	Peak
189.84	20.11	-23.39	43.5	40.95	8.9	1.48	31.22	-	-	Peak
373.5	22.91	-23.09	46	37.03	14.86	2.12	31.1	-	-	Peak
567.4	22.36	-23.64	46	32.31	18.83	2.62	31.4	-	-	Peak
851.6	24.28	-21.72	46	31.3	20.4	3.24	30.66	-	-	Peak
2441	98.19	-	-	93.8	32.43	6.52	34.56	200	284	Peak
2441	73.36	-	-	-	-	-	-	-	-	Average
9765	50.29	-27.9	78.19	58.56	37.09	10.57	55.93	100	0	Peak

Test Mode :	3Mbps	Temperature :	27~28°C
Test Channel :	78	Relative Humidity :	49~50%
Test Engineer :	Timberland	Polarization :	Horizontal
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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
2480	102.19	-	-	97.67	32.48	6.59	34.55	102	234	Peak
2480	77.36	-	-	-	-	-	-	-	-	Average

Test Mode :	3Mbps	Temperature :	27~28°C
Test Channel :	78	Relative Humidity :	49~50%
Test Engineer :	Timberland	Polarization :	Vertical
Remark :	1. 2480 MHz is fundamental signal which can be ignored. 2. Test result of emissions which are 20 dB lower than the limit is not reported per15.31.		

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
2480	97.01	-	-	92.49	32.48	6.59	34.55	197	305	Peak
2480	72.18	-	-	-	-	-	-	-	-	Average

3.10 AC Conducted Emission Measurement

3.10.1 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.

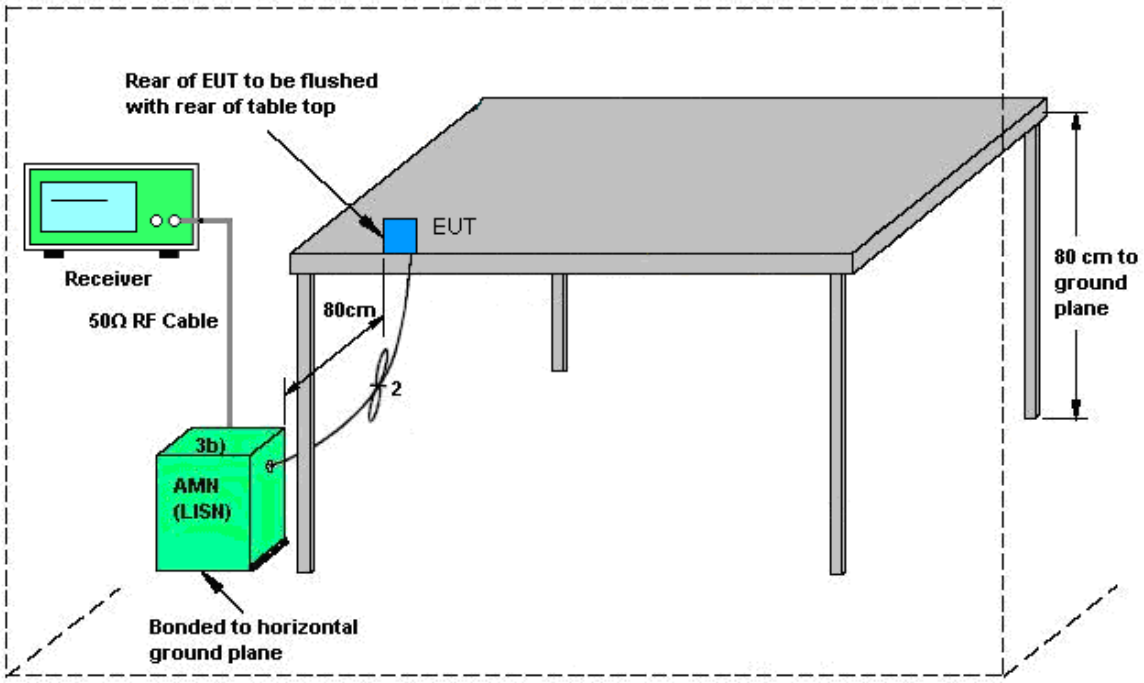
3.10.2 Measuring Instruments

See list of measuring instruments of this test report.

3.10.3 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.

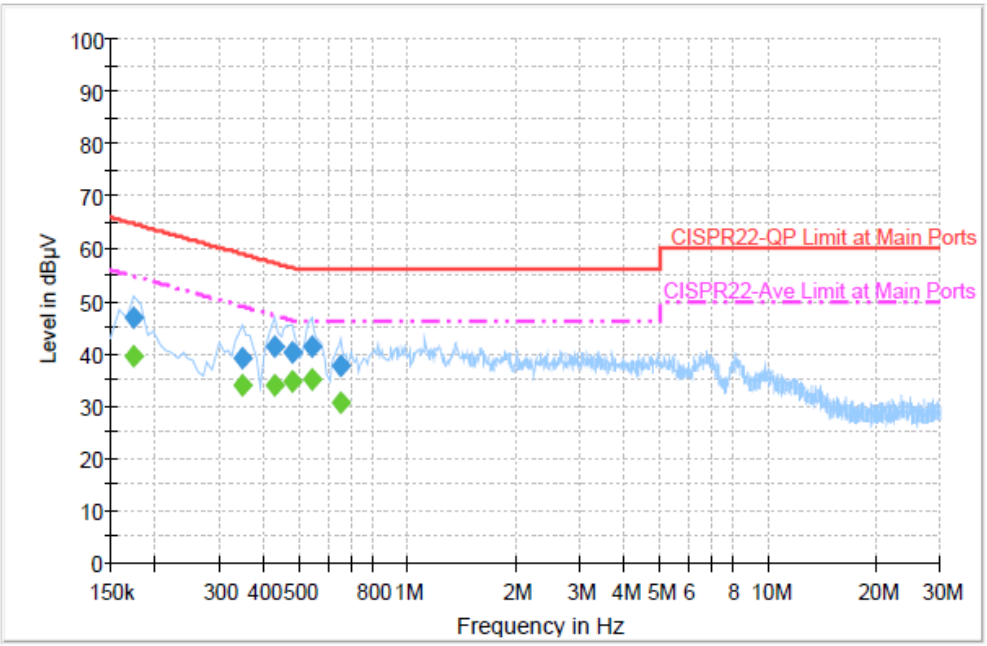
3.10.4 Test Setup



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

3.10.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Slash Huang	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Link + WLAN Link + H Pattern + TC + USB Cable (Charging from Adapter 1) for Sample C		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



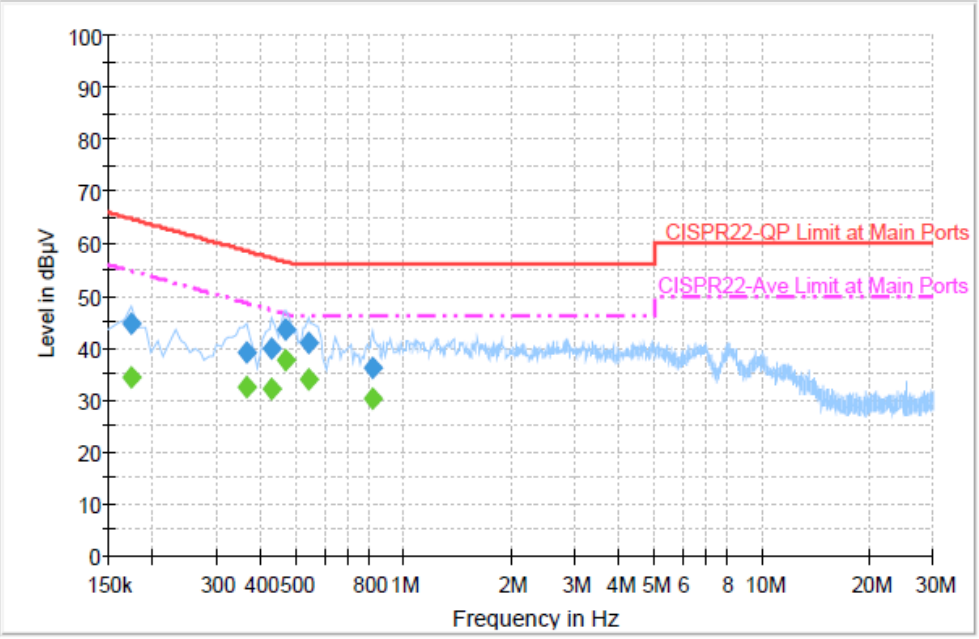
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	46.9	Off	L1	19.3	17.9	64.8
0.350000	39.3	Off	L1	19.3	19.7	59.0
0.430000	41.4	Off	L1	19.4	15.9	57.3
0.478000	40.3	Off	L1	19.5	16.1	56.4
0.542000	41.4	Off	L1	19.4	14.6	56.0
0.654000	37.5	Off	L1	19.4	18.5	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	39.5	Off	L1	19.3	15.3	54.8
0.350000	33.8	Off	L1	19.3	15.2	49.0
0.430000	34.0	Off	L1	19.4	13.3	47.3
0.478000	34.8	Off	L1	19.5	11.6	46.4
0.542000	35.2	Off	L1	19.4	10.8	46.0
0.654000	30.6	Off	L1	19.4	15.4	46.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Slash Huang	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Link + WLAN Link + H Pattern + TC + USB Cable (Charging from Adapter 1) for Sample C		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	44.7	Off	N	19.3	20.1	64.8
0.366000	39.0	Off	N	19.4	19.6	58.6
0.430000	40.0	Off	N	19.4	17.3	57.3
0.470000	43.5	Off	N	19.4	13.0	56.5
0.542000	40.8	Off	N	19.4	15.2	56.0
0.822000	36.3	Off	N	19.4	19.7	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	34.4	Off	N	19.3	20.4	54.8
0.366000	32.5	Off	N	19.4	16.1	48.6
0.430000	32.1	Off	N	19.4	15.2	47.3
0.470000	37.8	Off	N	19.4	8.7	46.5
0.542000	34.1	Off	N	19.4	11.9	46.0
0.822000	30.1	Off	N	19.4	15.9	46.0

3.11 Antenna Requirements

3.11.1 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.

3.11.2 Antenna Connected Construction

Non-standard connector used.

3.11.3 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	Aug. 31, 2012 ~ Sep. 04, 2012	Jun. 05, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Aug. 29, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Aug. 29, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Aug. 29, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Aug. 29, 2012	N/A	Conduction (CO05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9KHz ~ 26.5GHz	Nov. 23, 2011	Sep. 08, 2012	Nov. 22, 2012	Radiation (03CH06-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz-30GHz	Nov. 03, 2011	Sep. 08, 2012	Nov. 02, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz ~ 1000MHz	May 04, 2012	Sep. 08, 2012	May. 03, 2013	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz ~ 2GHz	Oct. 22, 2011	Sep. 08, 2012	Oct. 21, 2012	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Sep. 08, 2012	Jul. 31, 2013	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 20, 2011	Sep. 08, 2012	Oct. 19, 2012	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 13, 2012	Sep. 08, 2012	Apr. 12, 2013	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz ~ 1GHz	Apr. 11, 2012	Sep. 08, 2012	Apr. 10, 2013	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 21, 2012	Sep. 08, 2012	Jul. 20, 2013	Radiation (03CH06-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159087	1GHz~18GHz	Feb. 27, 2012	Sep. 08, 2012	Feb. 26, 2013	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Sep. 08, 2012	Jul. 02, 2014	Radiation (03CH06-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**