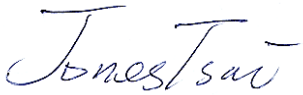
FCC RF Test Report

APPLICANT	**:**	**Kilpatrick LLC**
EQUIPMENT	**:**	**Tablet PC**
MODEL NAME	**:**	**C6R7NC**
FCC ID	**:**	**S2F-5830**
STANDARD	**:**	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	**:**	**(DSS) Spread Spectrum Transmitter**

The testing was completed on Sep. 06, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant 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: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL INC.

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR332726-08A	Rev. 01	Initial issue of report	Sep. 27, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	Number of Channels	≥ 15Chs	Pass	-
3.2	15.247(a)(1)	Hopping Channel Separation	≥ 2/3 of 20dB BW	Pass	-
3.3	15.247(a)(1)	Dwell Time of Each Channel	≤ 0.4sec in 31.6sec period	Pass	-
3.4	15.247(a)(1)	20dB Bandwidth	NA	Pass	-
3.5	15.247(b)(1)	Peak Output Power	≤ 125 mW	Pass	-
3.6	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
3.7	15.247(d)	Conducted Spurious Emission	≤ 20dBc	Pass	-
3.8	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 10.03 dB at 105.060 MHz
3.9	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 8.50 dB at 0.406 MHz
3.10	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Kilpatrick LLC

102 S. Tejon Street

Suite 1100

Colorado Springs, Colorado 80903

1.2 Feature of Equipment Under Test

Product Feature	
Equipment	Tablet PC
Model Name	C6R7NC
FCC ID	S2F-5830
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE WLAN 11b/g/n (HT20), WLAN 11a/n (HT20/HT40) Bluetooth v3.0

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

1.3 Product Specification of Equipment Under Test

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 BR(1Mbps) : 5.67 dBm (0.0037 W) Bluetooth EDR (2Mbps) : 7.11 dBm (0.0051 W) Bluetooth EDR (3Mbps) : 7.16 dBm (0.0052 W)
Antenna Type	Fixed Internal Antenna with gain 4.10 dBi
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 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 Registration No.
	TH02-HY	CO05-HY	03CH08-HY	636805

Note: The test site complies with ANSI C63.4 2003 requirement.

1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.4-2003

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Preliminary tests were performed in different data rates 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	5.67 dBm	7.11 dBm	**7.16** dBm
Ch39	2441MHz	5.47 dBm	6.88 dBm	7.04 dBm
Ch78	2480MHz	4.92 dBm	5.95 dBm	6.21 dBm

Remark:

1. All the test data for each data rate were verified, but only the worst case was reported.
2. The worse data rate was 3Mbps and all the data rate were tested and reported.
3. For AFH mode, the power and other characteristics remain the same as 1Mbps data rate.

a. The EUT has been associated with peripherals 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, and different data rates were conducted to determine the final configuration (Y plane as worst plane) from all possible combinations, and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.2 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

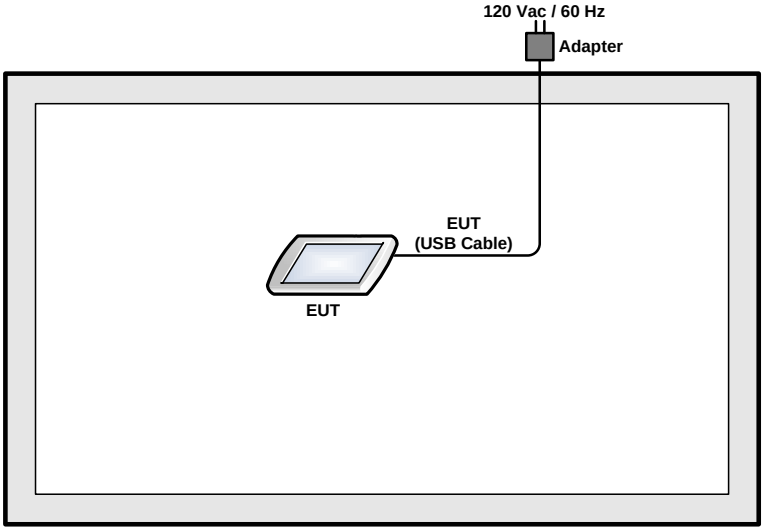
Summary table of Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth BR 1Mbps GFSK	**Bluetooth EDR 2Mbps π/4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted Test Cases	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated Test Cases	**Bluetooth EDR 3Mbps 8-DPSK**		
	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz		
AC Conducted Emission	Mode 1 :GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 1> Mode 2 :GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 1> Mode 3 :GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 2> Mode 4 :GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter) <Fig. 2>		

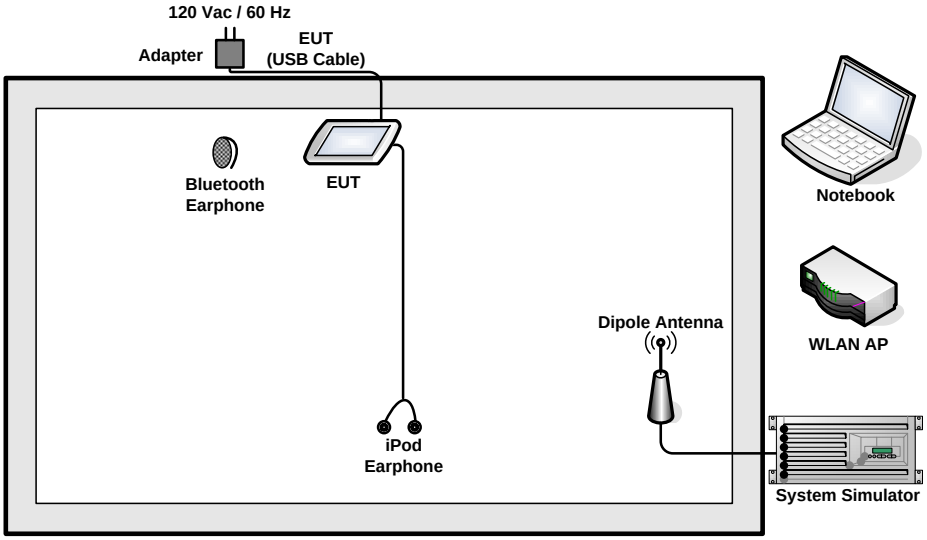
Remark:

1. For radiated test cases, the worst mode data rate 3Mbps was reported only, because this data rate has the highest RF output power at preliminary tests, and the conducted spurious emissions and conducted band edge measurement for each data rate are no worse than 3Mbps, and no other significantly frequencies found in conducted spurious emission .
2. The worst case of conducted emission is mode 1.

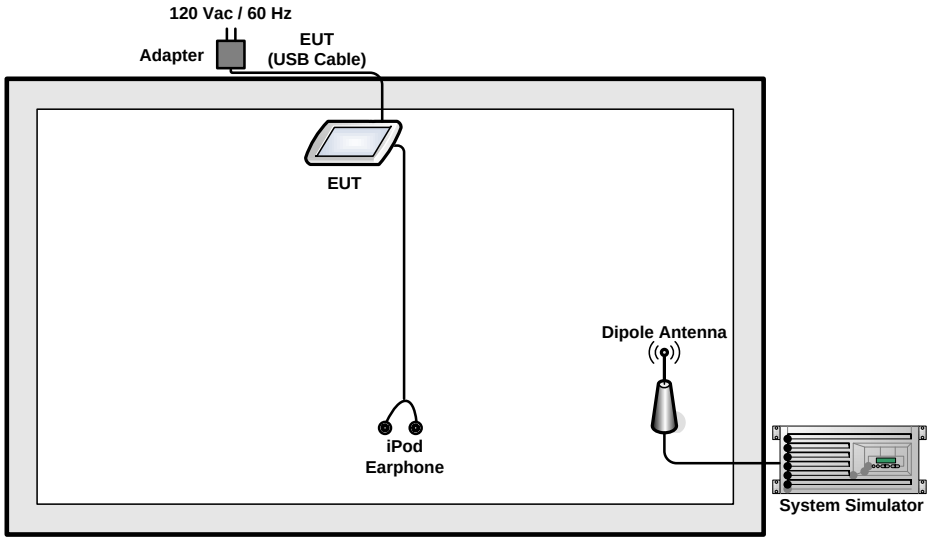
2.3 Connection Diagram of Test System

<Bluetooth Tx Mode>





<Fig. 1>



<Fig. 2>

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
5.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A
6.	Adapter	Foxlink	PE98ED	Verification	N/A	N/A

2.5 EUT Operation Test Setup

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.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

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

Measuring equipment is listed in the section 4 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.

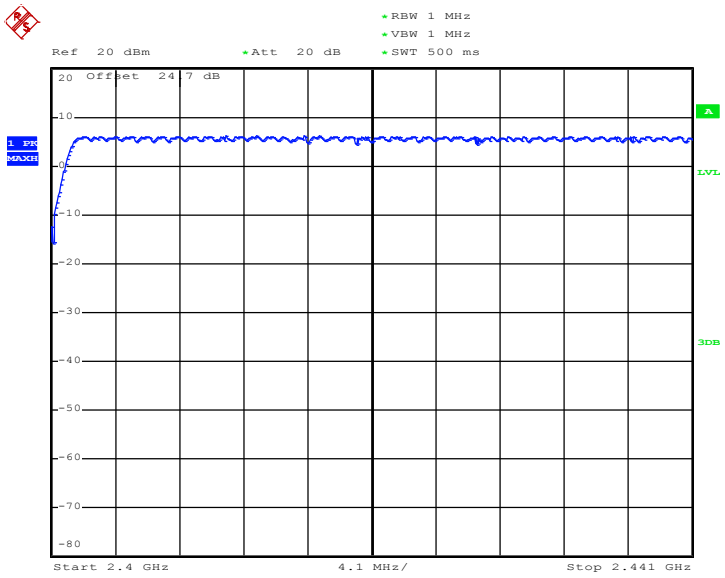
3.1.4 Test Setup

3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Engineer :	Stuart Lin	**Relative Humidity :**	48~51%

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



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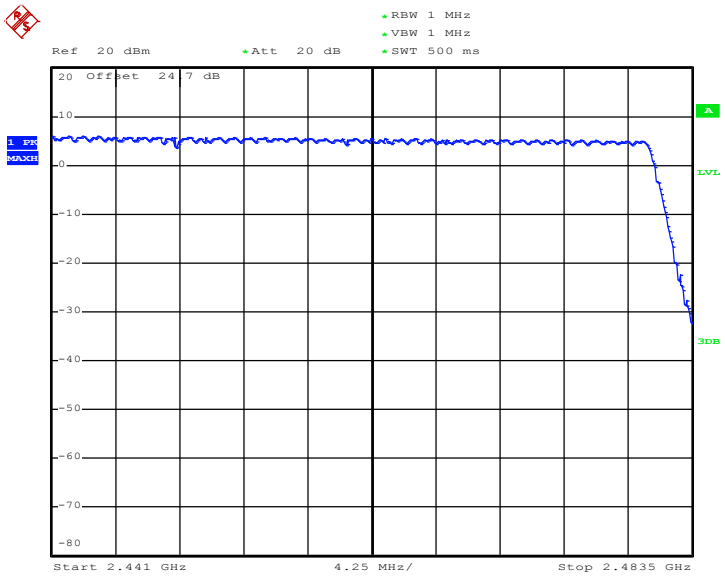

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3.2 Hopping Channel Separation Measurement

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.

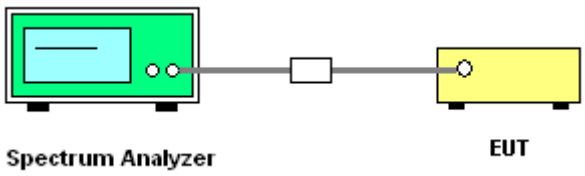
3.2.2 Measuring Instruments

Measuring equipment is listed in the section 4 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

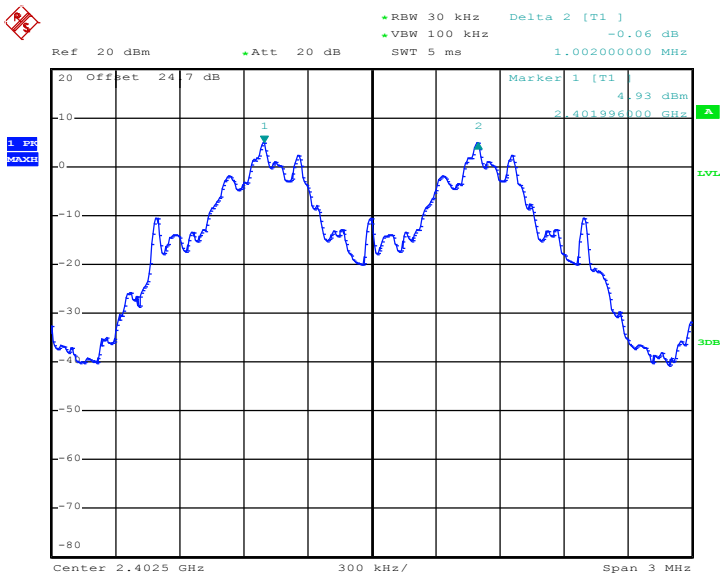


3.2.5 Test Result of Hopping Channel Separation

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.4000	Pass
39	2441	1.002	0.4000	Pass
78	2480	1.002	0.4000	Pass

Channel Separation Plot on Channel 00 - 01



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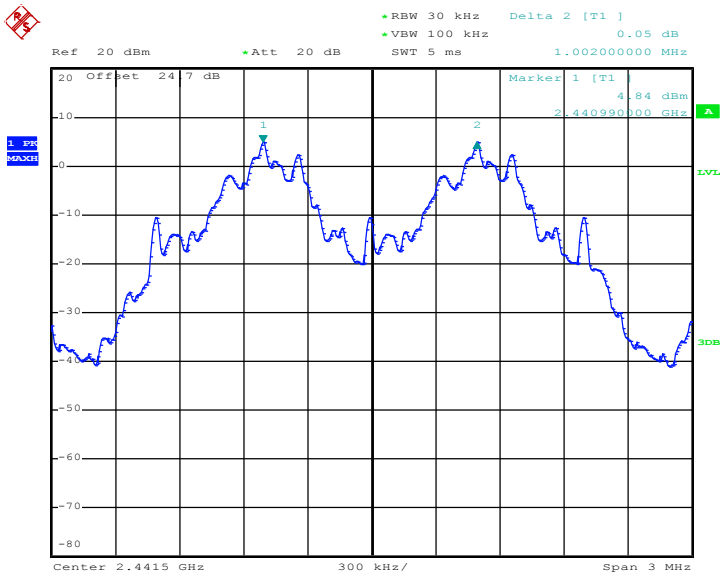
Channel Separation Plot on Channel 39 - 40



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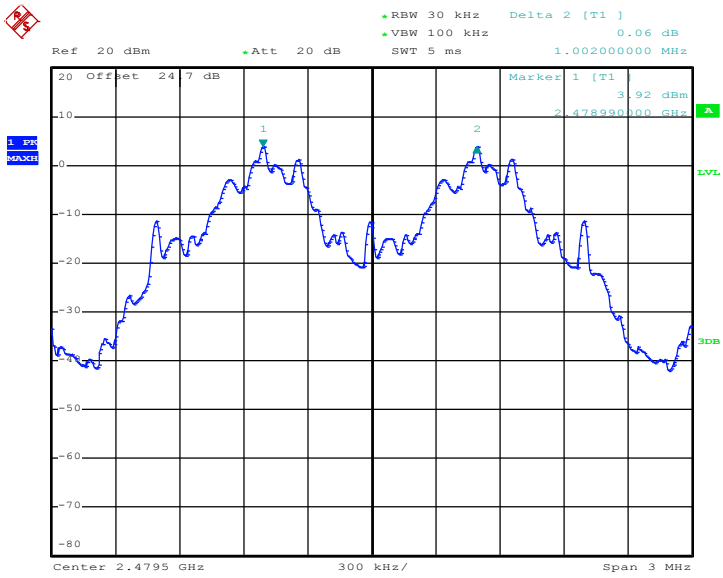
Channel Separation Plot on Channel 77 - 78



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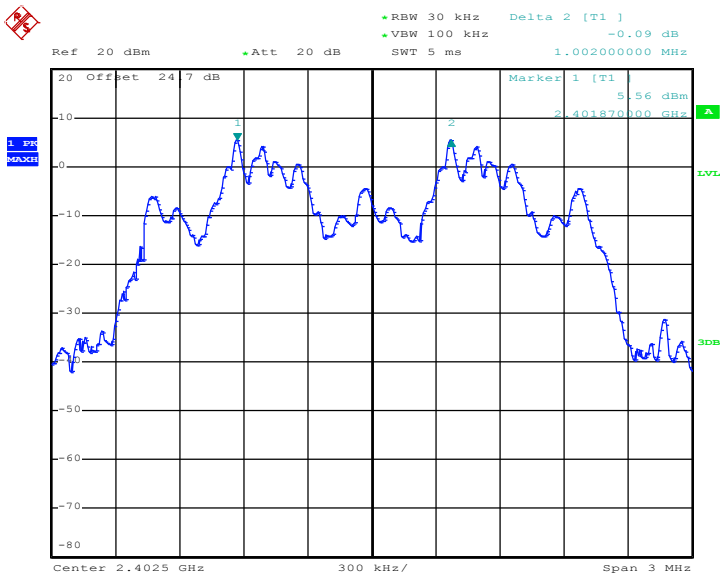
Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Engineer :	Stuart Lin	**Relative Humidity :**	48~51%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.5600	Pass
39	2441	1.002	0.5520	Pass
78	2480	1.002	0.4000	Pass

Channel Separation Plot on Channel 00 - 01



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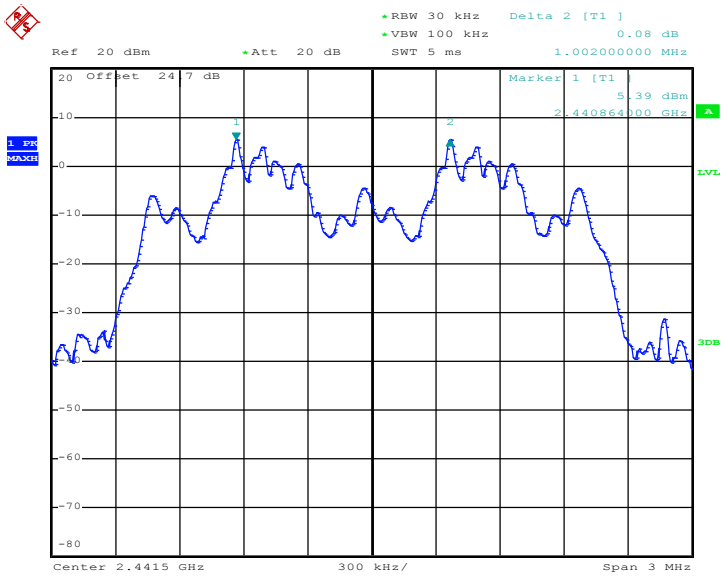
Channel Separation Plot on Channel 39 - 40



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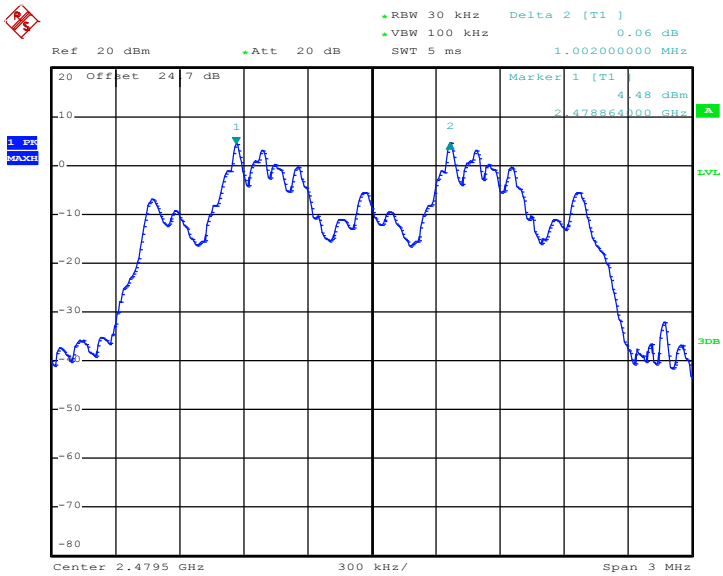
Channel Separation Plot on Channel 77 - 78



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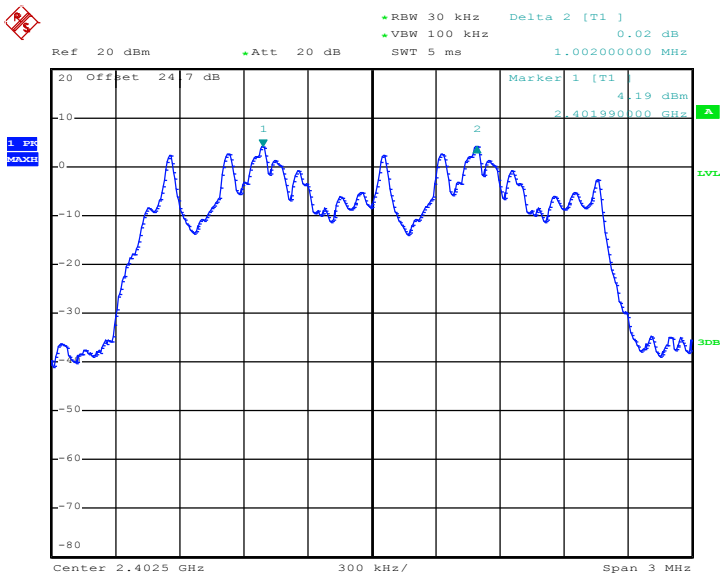
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Engineer :	Stuart Lin	**Relative Humidity :**	48~51%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.8000	Pass
39	2441	1.002	0.8000	Pass
78	2480	1.002	0.8000	Pass

Channel Separation Plot on Channel 00 - 01



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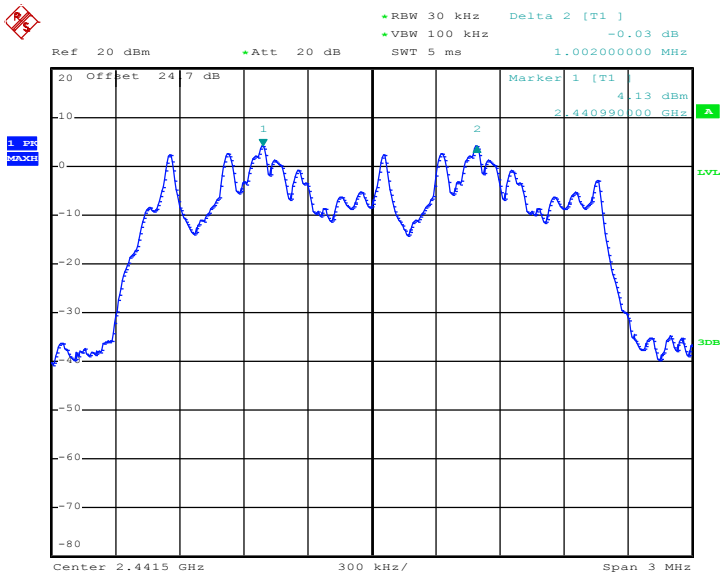
Channel Separation Plot on Channel 39 - 40



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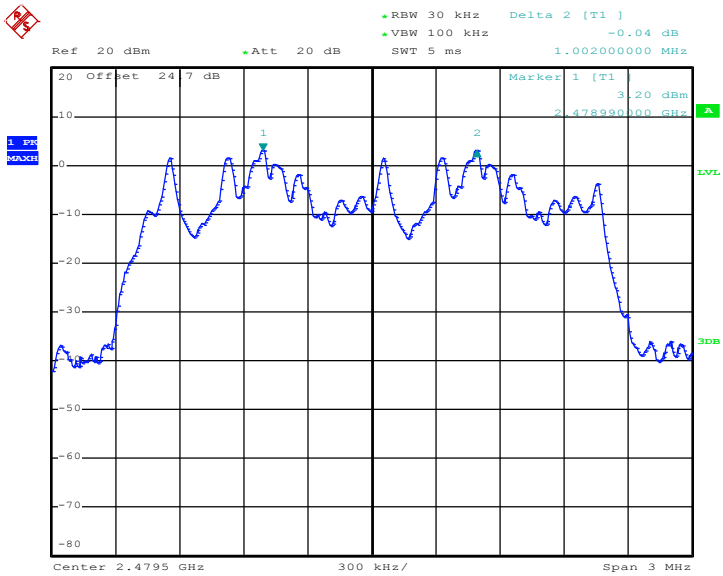
Channel Separation Plot on Channel 77 - 78



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3.3 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.

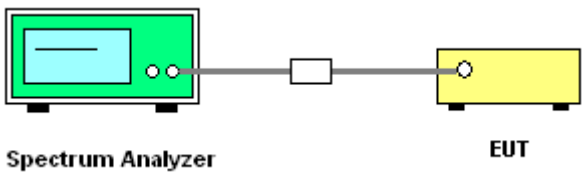
3.3.2 Measuring Instruments

Measuring equipment is listed in the section 4 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



3.3.5 Test Result of Dwell Time

Test Mode :	DH5	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

Mode	Hopping Channel Number	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Normal	79	106.67	2.93	0.31	0.4	Pass
AFH	20	53.33	2.93	0.16	0.4	Pass

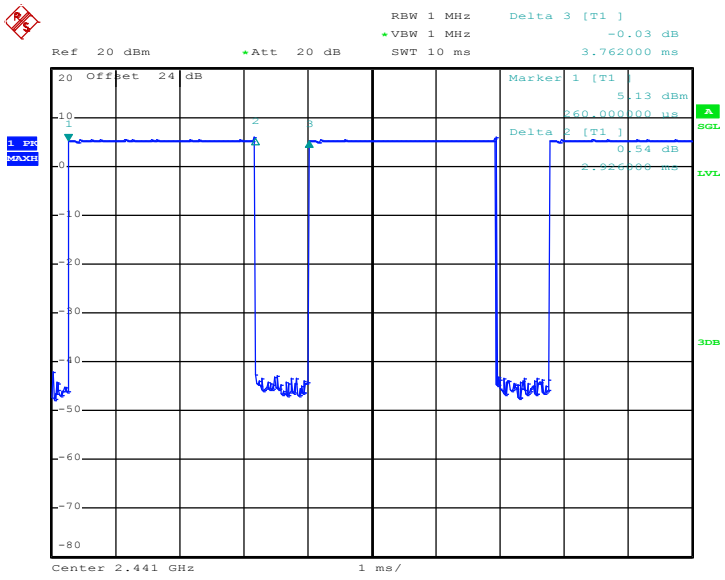
Remark:

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) = 53.33 hops.

3. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

Package Transfer Time Plot



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3.4 20dB Bandwidth Measurement

3.4.1 Limit of 20dB Bandwidth

Reporting only

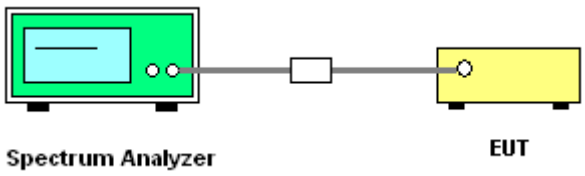
3.4.2 Measuring Instruments

Measuring equipment is listed in the section 4 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. Measure and record the results in the test report.

3.4.4 Test Setup

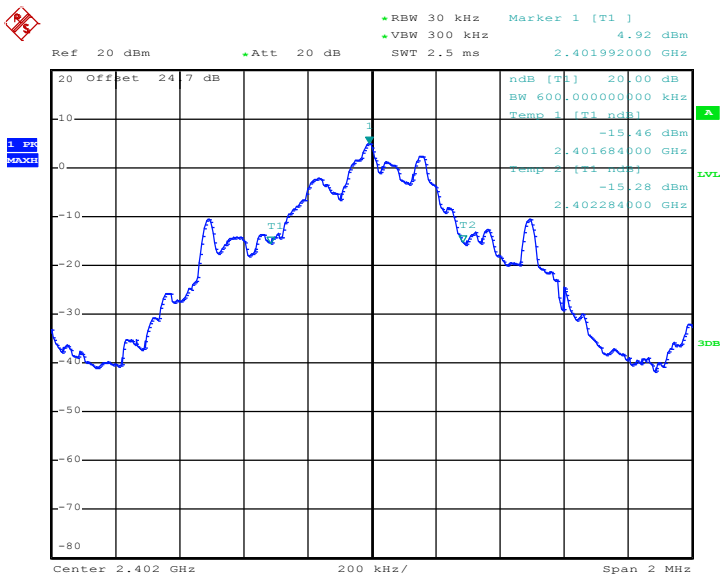


3.4.5 Test Result of 20dB Bandwidth

Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.600
39	2441	0.600
78	2480	0.600

20 dB Bandwidth Plot on Channel 00



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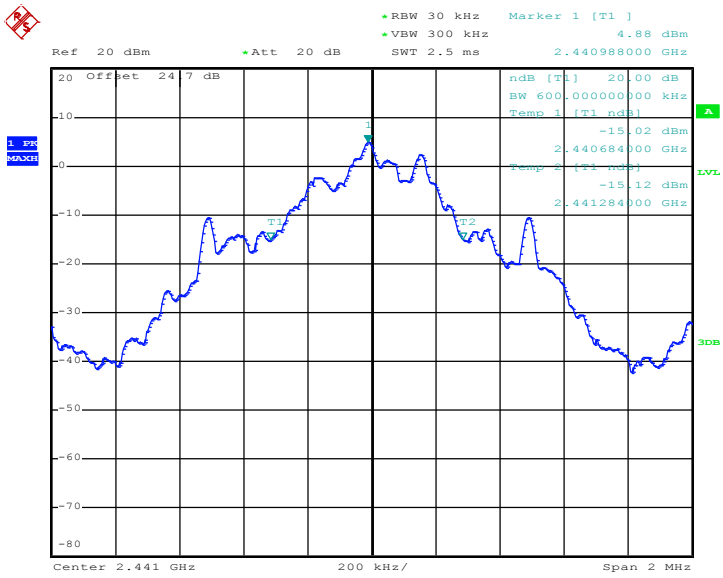
20 dB Bandwidth Plot on Channel 39



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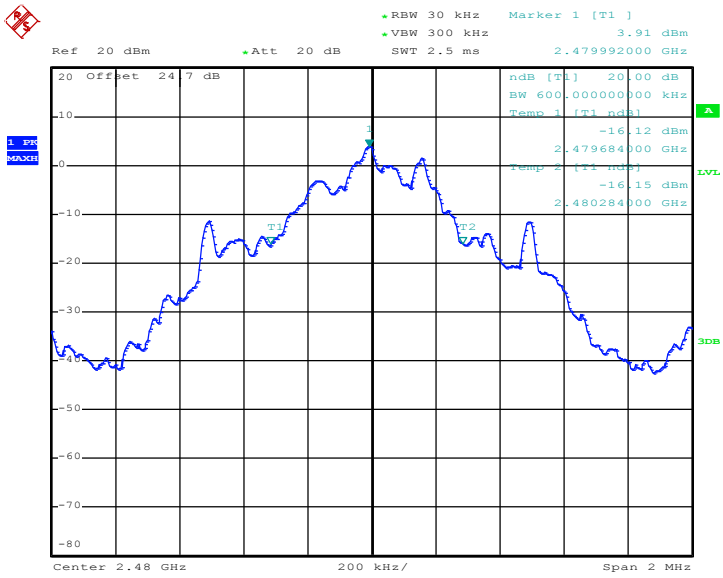
20 dB Bandwidth Plot on Channel 78

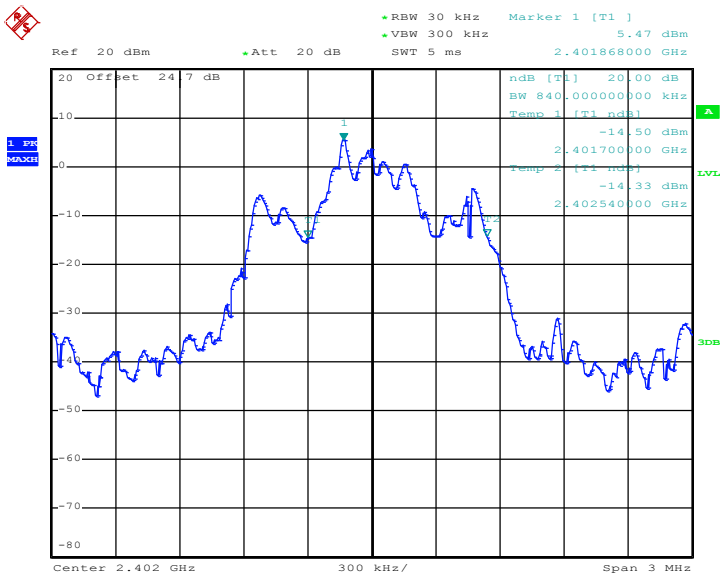


Date: 6.SEP.2013 16:30:04

Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Engineer :	Stuart Lin	**Relative Humidity :**	48~51%

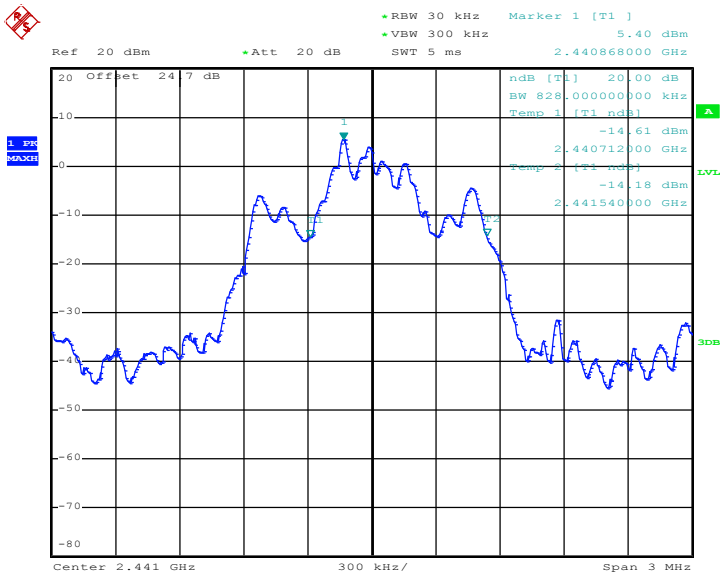
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.840
39	2441	0.828
78	2480	0.600

20 dB Bandwidth Plot on Channel 00



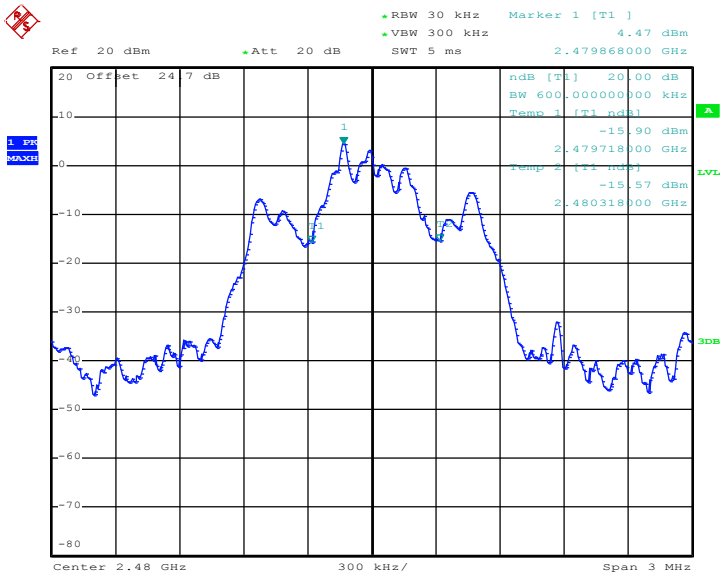
Date: 6.SEP.2013 16:49:13

20 dB Bandwidth Plot on Channel 39



Date: 6.SEP.2013 16:44:39

20 dB Bandwidth Plot on Channel 78

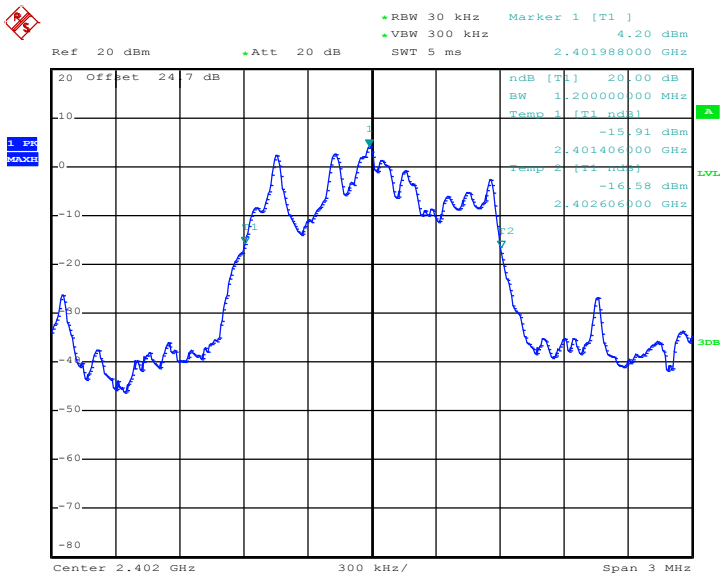


Date: 6.SEP.2013 16:33:32

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

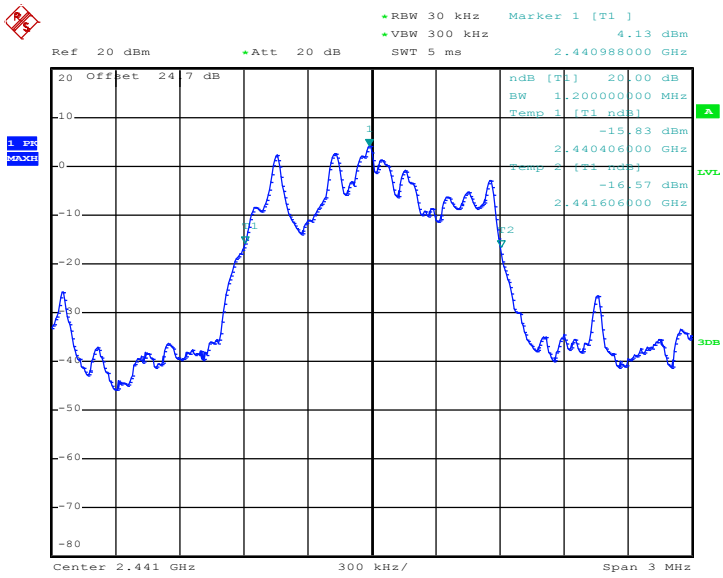
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.200
39	2441	1.200
78	2480	1.200

20 dB Bandwidth Plot on Channel 00



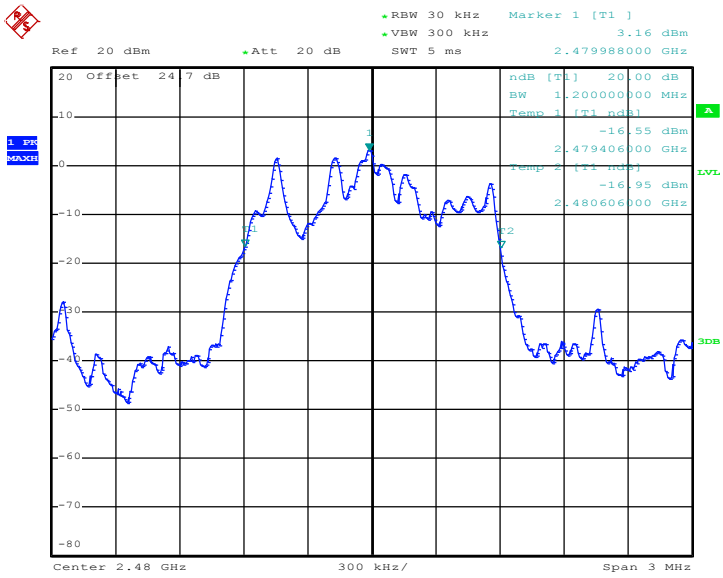
Date: 6.SEP.2013 16:56:00

20 dB Bandwidth Plot on Channel 39



Date: 6.SEP.2013 17:04:07

20 dB Bandwidth Plot on Channel 78



Date: 6.SEP.2013 17:07:54

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, 3Mbps and AFH are 0.125 watts.

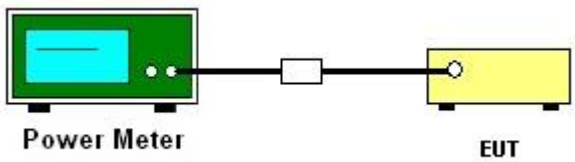
3.5.2 Measuring Instruments

Measuring equipment is listed in the section 4 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 power meter 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 :	Stuart Lin	Relative Humidity :	48~51%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	5.67	20.97	Pass
39	2441	5.47	20.97	Pass
78	2480	4.92	20.97	Pass

Note: For AFH mode using 20 hopping channels, the maximum output power limit is 20.97dBm.

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

Channel	Frequency (MHz)	RF Power (dBm)		
		π /4-DQPSK	Max. Limits (dBm)	Pass/Fail
		2 Mbps		
00	2402	7.11	20.97	Pass
39	2441	6.88	20.97	Pass
78	2480	5.95	20.97	Pass

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits (dBm)	Pass/Fail
		3 Mbps		
00	2402	7.16	20.97	Pass
39	2441	7.04	20.97	Pass
78	2480	6.21	20.97	Pass

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.

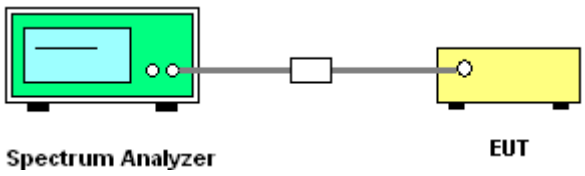
3.6.2 Measuring Instruments

Measuring equipment is listed in the section 4 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 = 100kHz, VBW = 300kHz. 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.

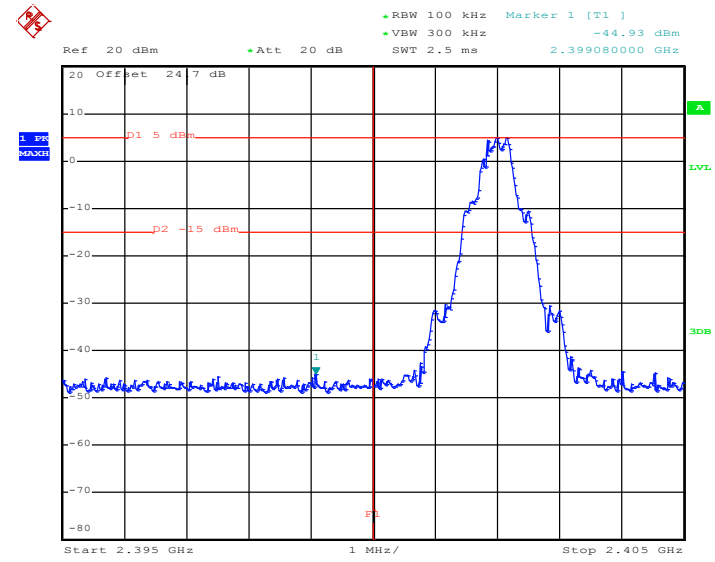
3.6.4 Test Setup



3.6.6 Test Result of Conducted Band Edges

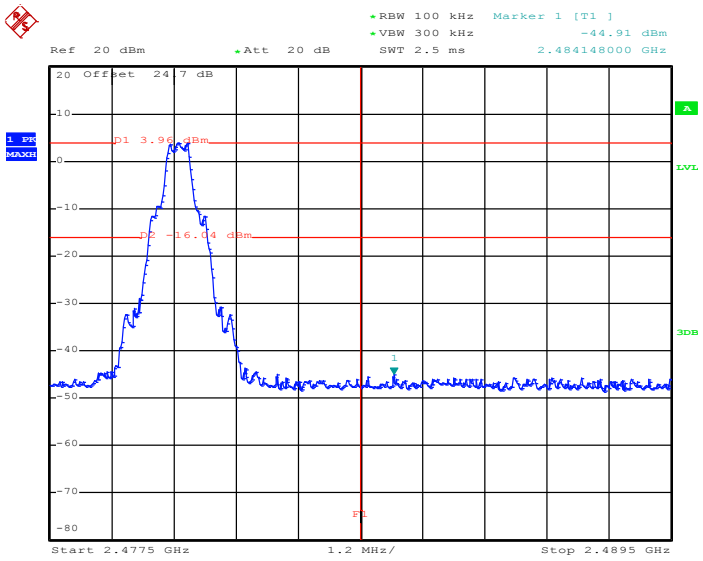
Test Mode :	1Mbps	**Temperature :**	24~26℃
Test Channel :	00 and 78	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

Low Band Edge Plot on Channel 00



Date: 6.SEP.2013 16:03:30

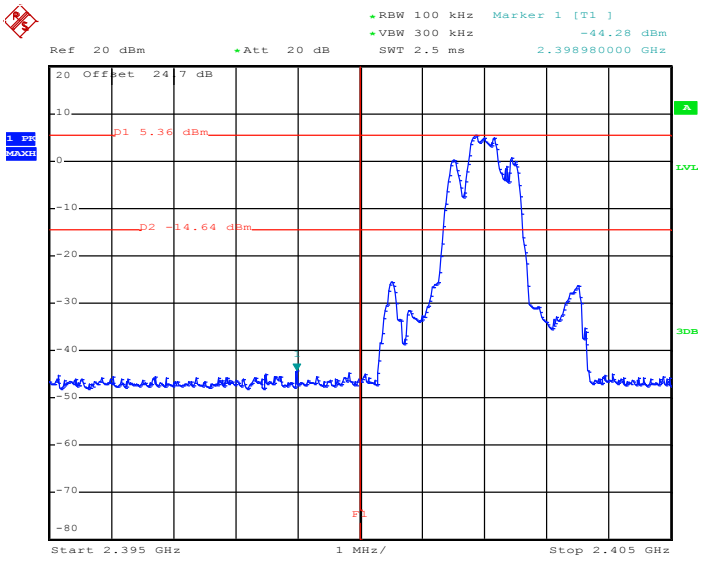
High Band Edge Plot on Channel 78



Date: 6.SEP.2013 16:30:37

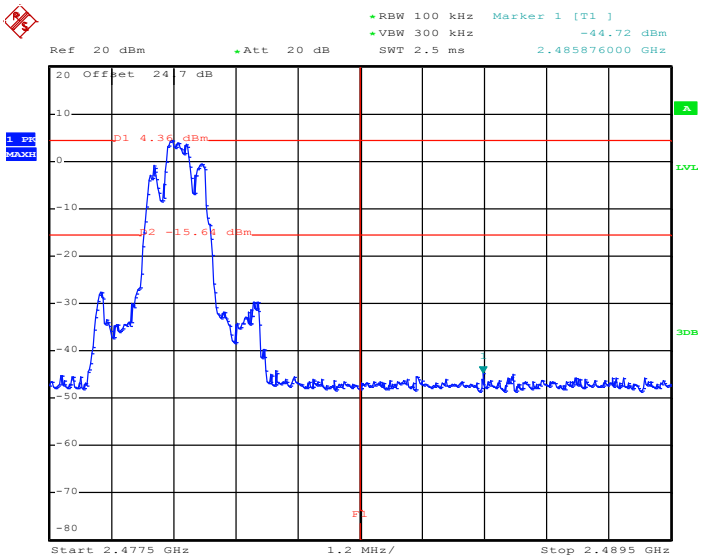
Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Channel :	00 and 78	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

Low Band Edge Plot on Channel 00



Date: 6.SEP.2013 16:52:56

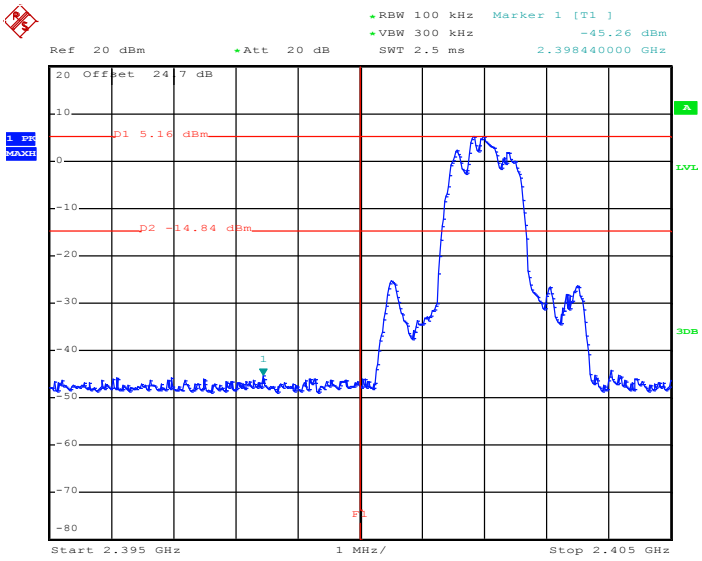
High Band Edge Plot on Channel 78



Date: 6.SEP.2013 16:34:14

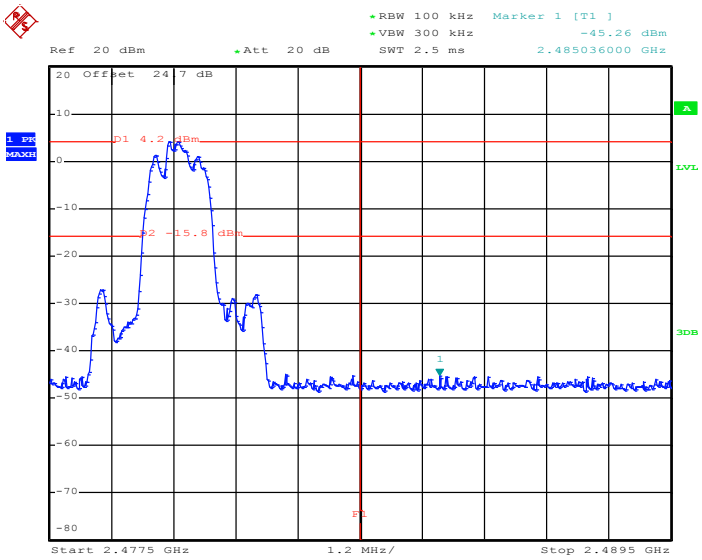
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	00 and 78	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

Low Band Edge Plot on Channel 00



Date: 6.SEP.2013 16:56:42

High Band Edge Plot on Channel 78

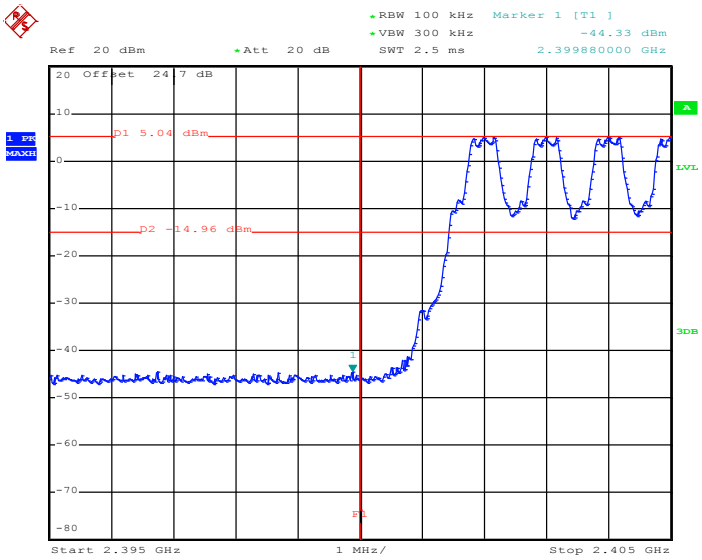


Date: 6.SEP.2013 17:08:51

3.6.7 Test Result of Conducted Hopping Mode Band Edges

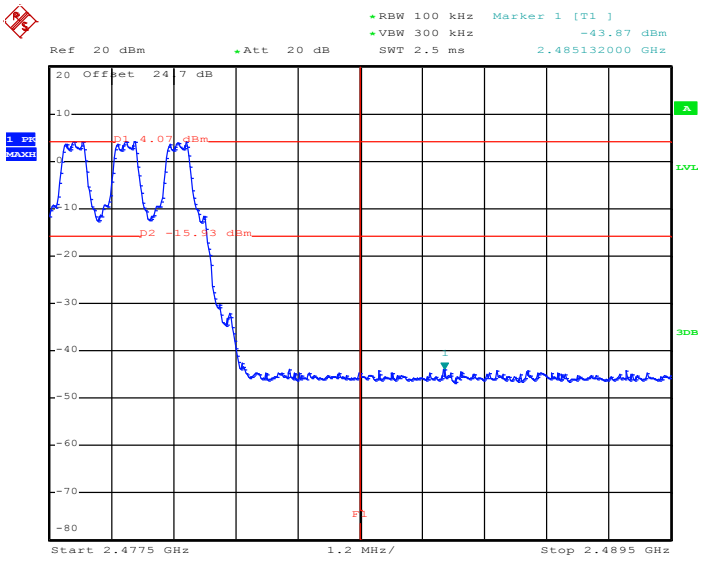
Test Mode :	1Mbps	Temperature :	24~26℃
Test Engineer :	Stuart Lin	Relative Humidity :	48~51%

1Mbps Hopping Mode Low Band Edge Plot



Date: 6.SEP.2013 18:05:41

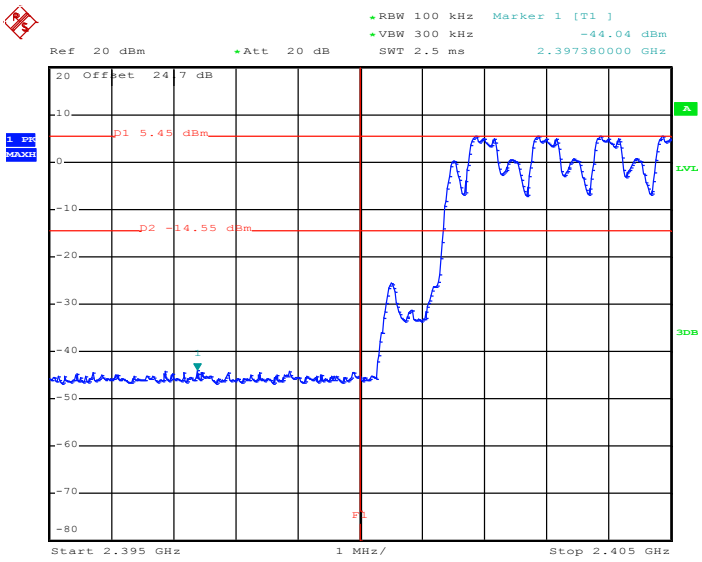
1Mbps Hopping Mode High Band Edge Plot



Date: 6.SEP.2013 17:57:36

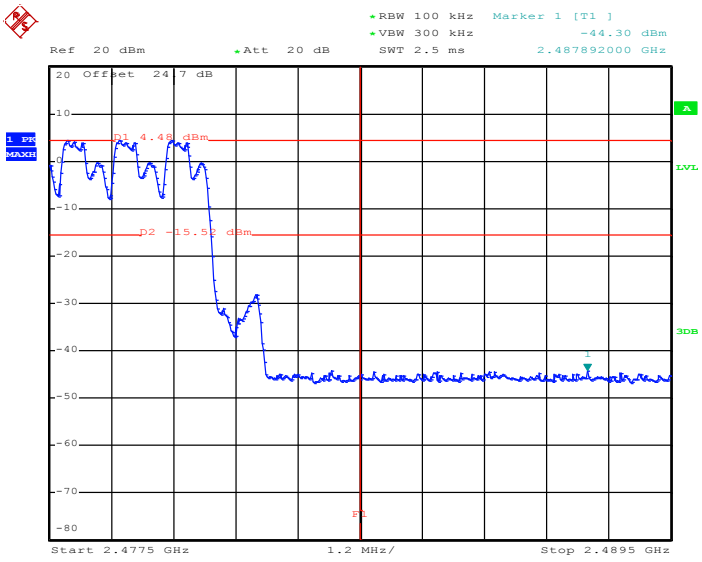
Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Engineer :	Stuart Lin	**Relative Humidity :**	48~51%

2Mbps Hopping Mode Low Band Edge Plot



Date: 6.SEP.2013 17:45:24

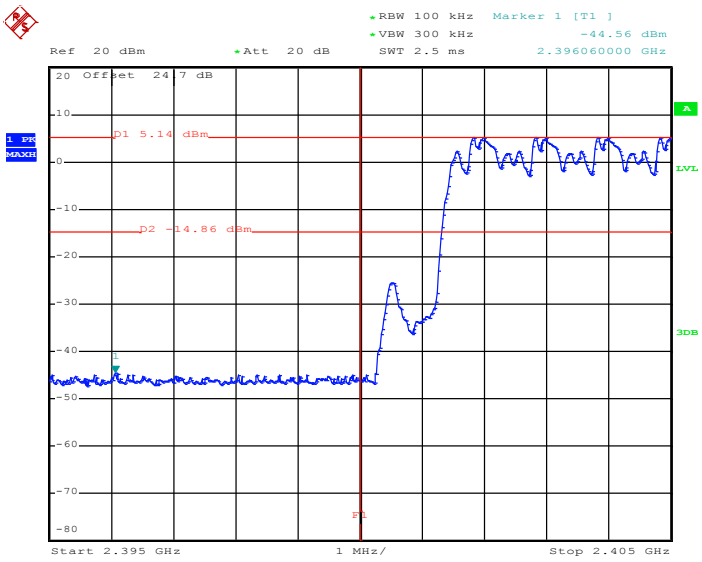
2Mbps Hopping Mode High Band Edge Plot



Date: 6.SEP.2013 17:50:34

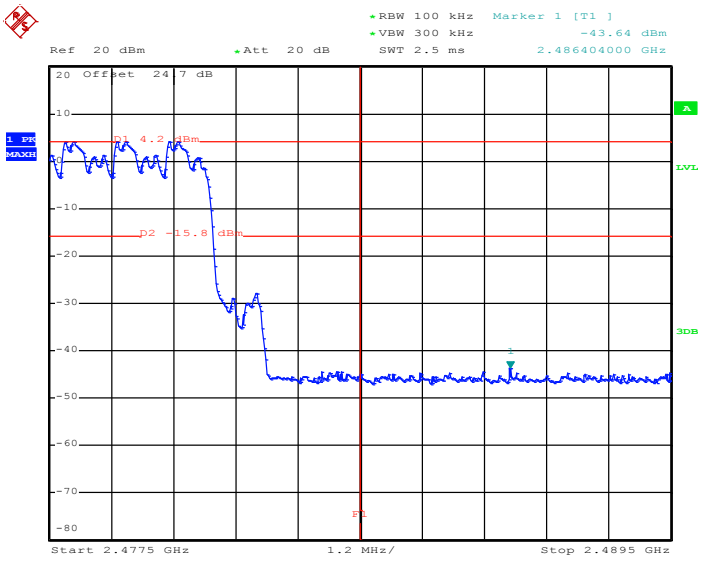
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Engineer :	Stuart Lin	**Relative Humidity :**	48~51%

3Mbps Hopping Mode Low Band Edge Plot



Date: 6.SEP.2013 18:09:41

3Mbps Hopping Mode High Band Edge Plot



Date: 6.SEP.2013 18:13:31

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

Measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedure

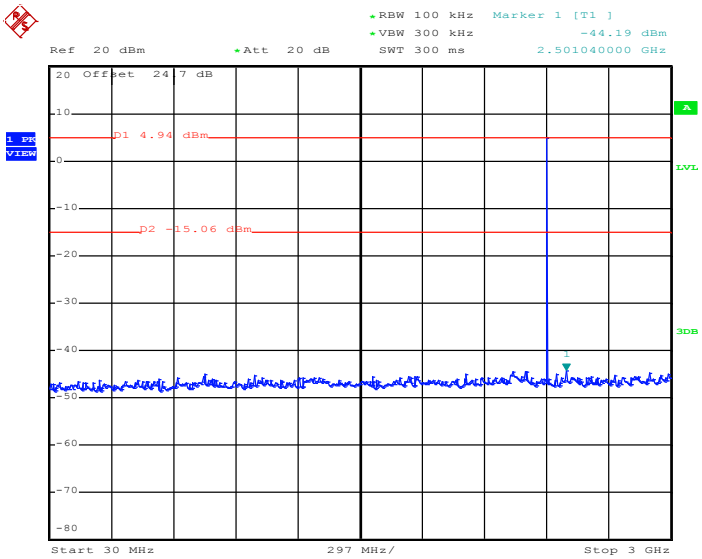
1. The testing follows the guidelines in Spurious RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum 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.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7.4 Test Setup

3.7.5 Test Result of Conducted Spurious Emission

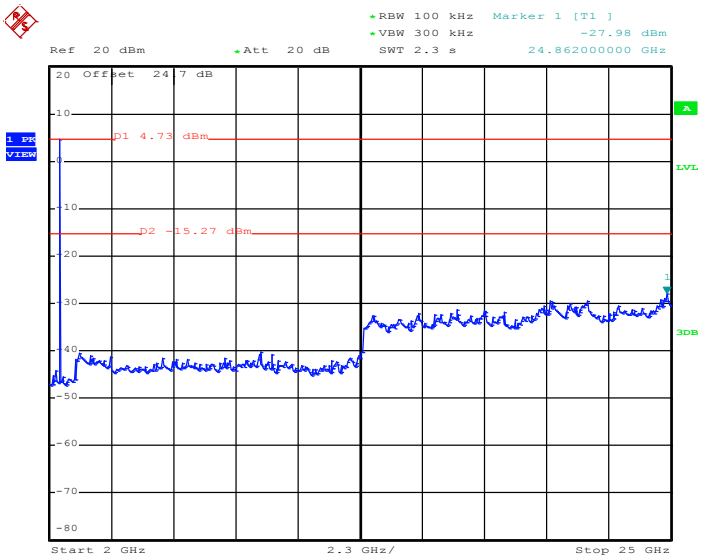
Test Mode :	1Mbps	Temperature :	24~26℃
Test Channel :	00	Relative Humidity :	48~51%
		Test Engineer :	Stuart Lin

1Mbps CSE Plot on Ch 00 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:05:16

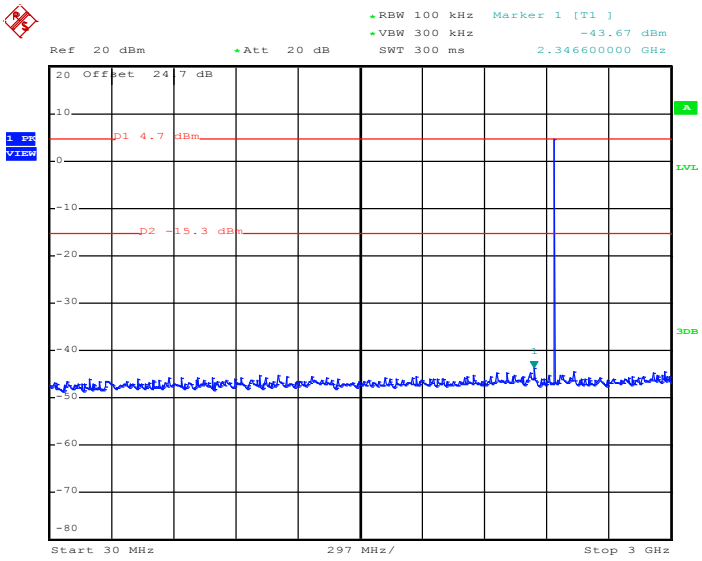
1Mbps CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:05:37

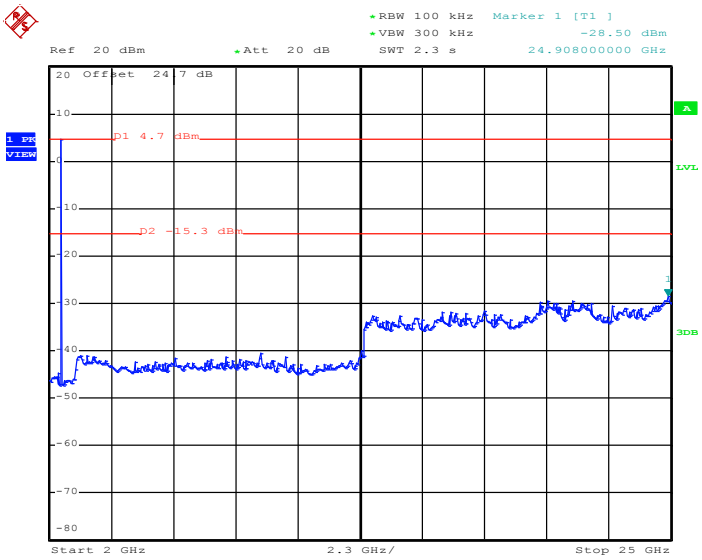
Test Mode :	1Mbps	**Temperature :**	24~26℃
Test Channel :	39	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

1Mbps CSE Plot on Ch 39 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:21:27

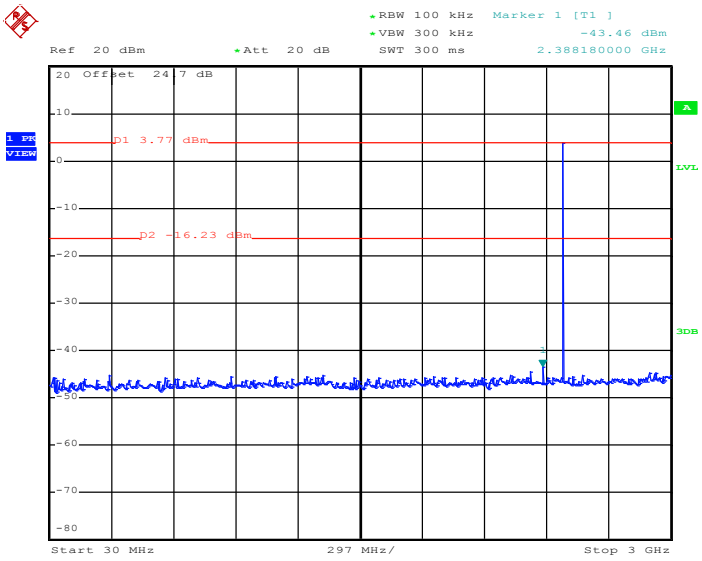
1Mbps CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:21:49

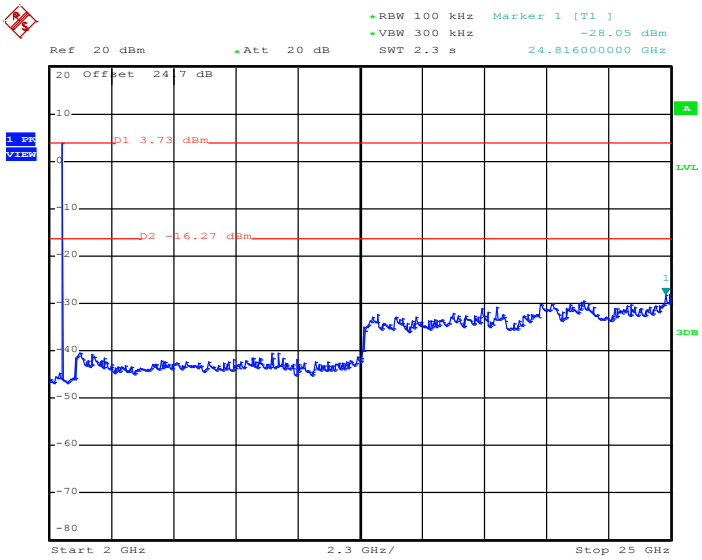
Test Mode :	1Mbps	**Temperature :**	24~26℃
Test Channel :	78	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

1Mbps CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:32:00

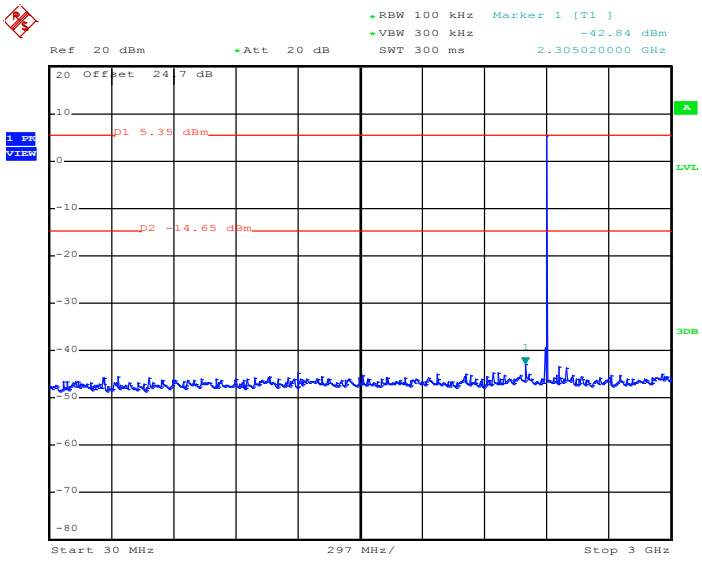
1Mbps CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:32:22

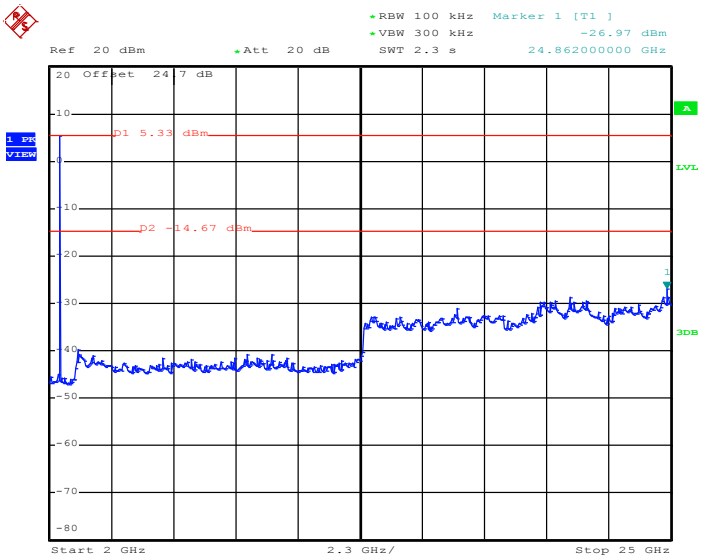
Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Channel :	00	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

2Mbps CSE Plot on Ch 00 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:54:17

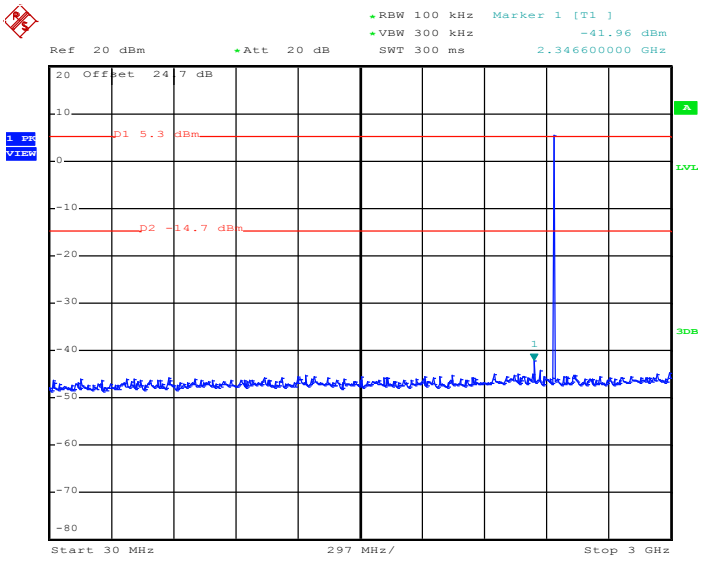
2Mbps CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:54:39

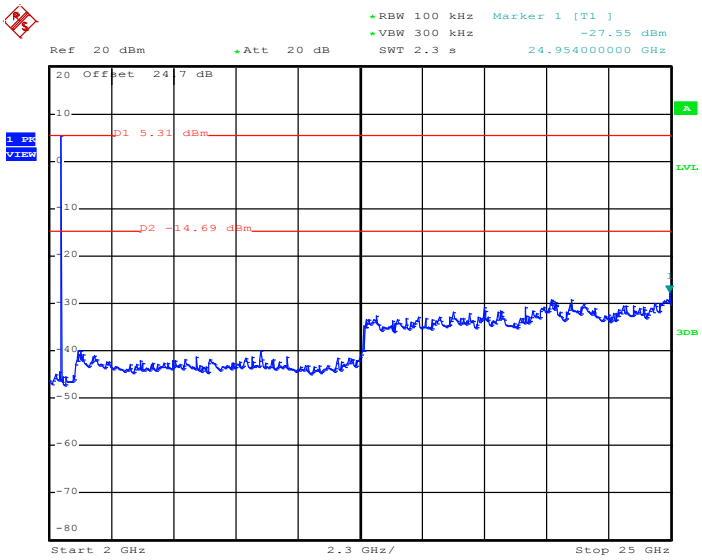
Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Channel :	39	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

2Mbps CSE Plot on Ch 39 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:45:21

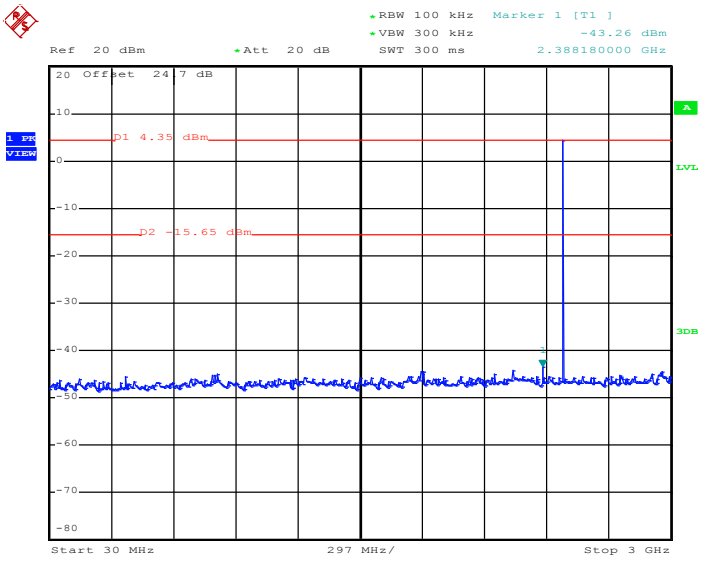
2Mbps CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:45:43

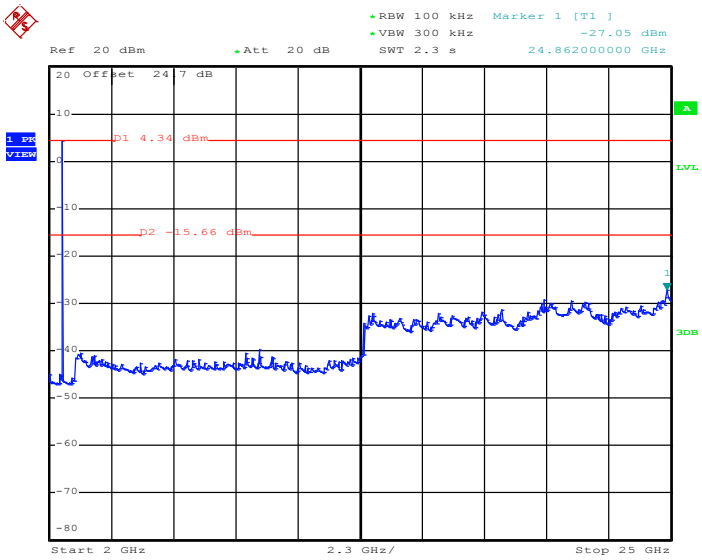
Test Mode :	2Mbps	**Temperature :**	24~26℃
Test Channel :	78	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

2Mbps CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:36:18

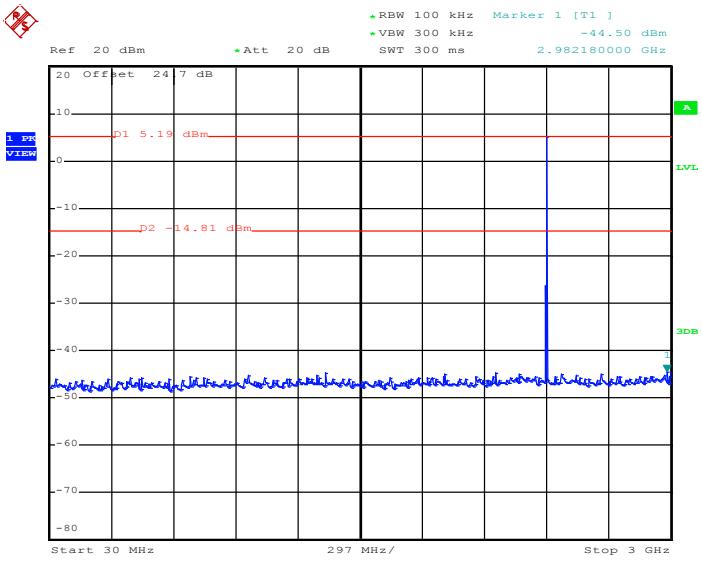
2Mbps CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:36:40

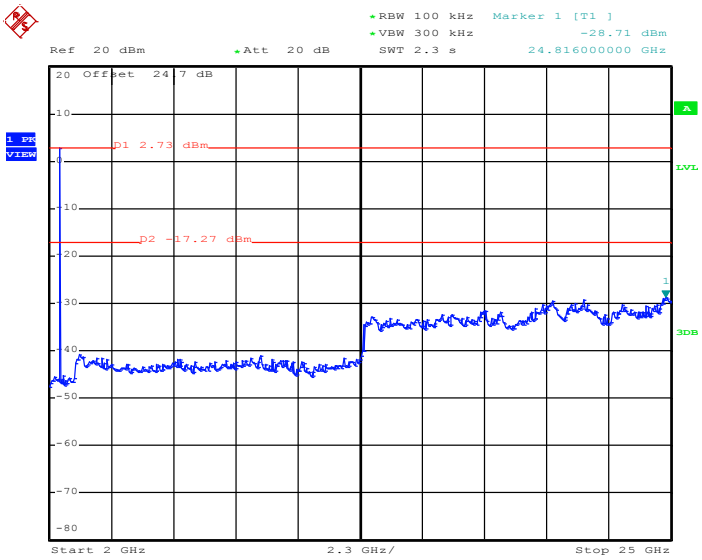
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	00	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

3Mbps CSE Plot on Ch 00 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 16:58:14

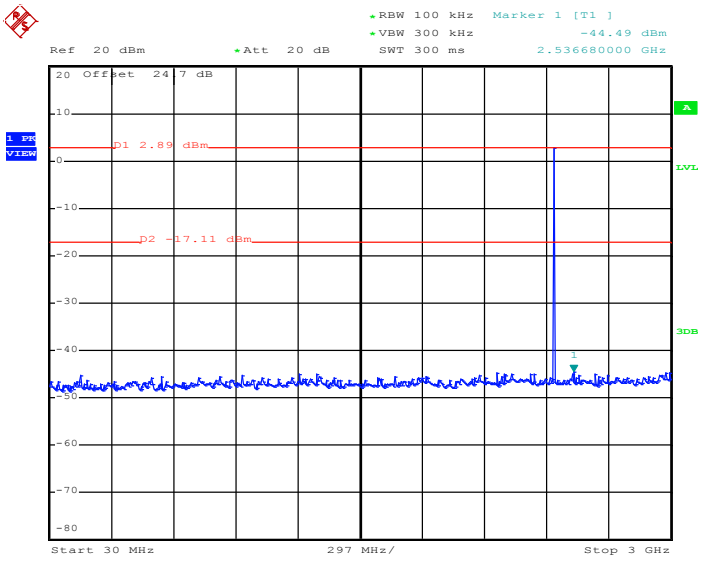
3Mbps CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 16:58:36

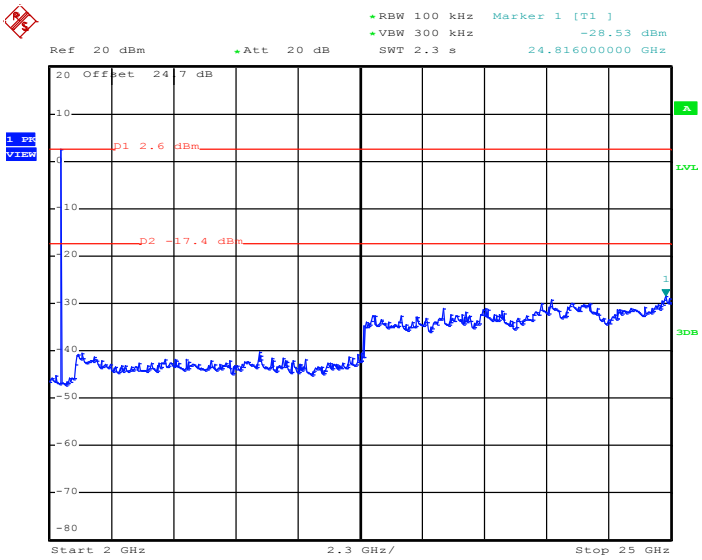
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	39	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

3Mbps CSE Plot on Ch 39 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 17:05:10

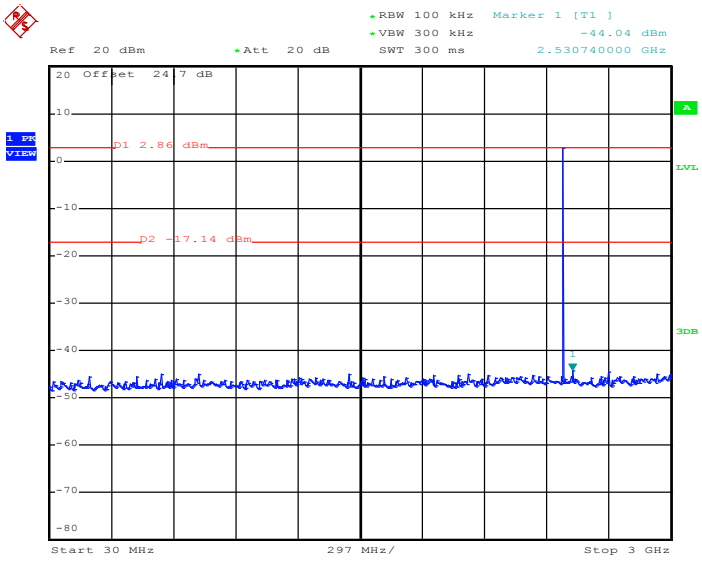
3Mbps CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



Date: 6.SEP.2013 17:05:32

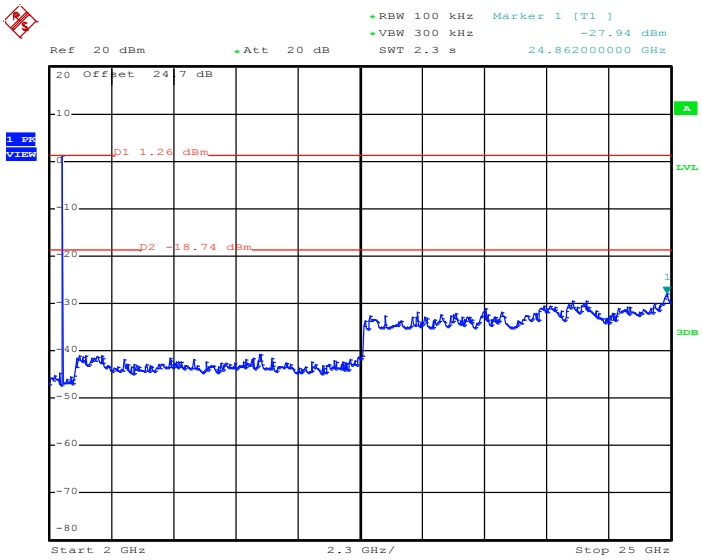
Test Mode :	3Mbps	**Temperature :**	24~26℃
Test Channel :	78	**Relative Humidity :**	48~51%
		Test Engineer :	Stuart Lin

3Mbps CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 6.SEP.2013 17:11:05

3Mbps CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



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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

Measuring equipment is listed in the section 4 of this test report.

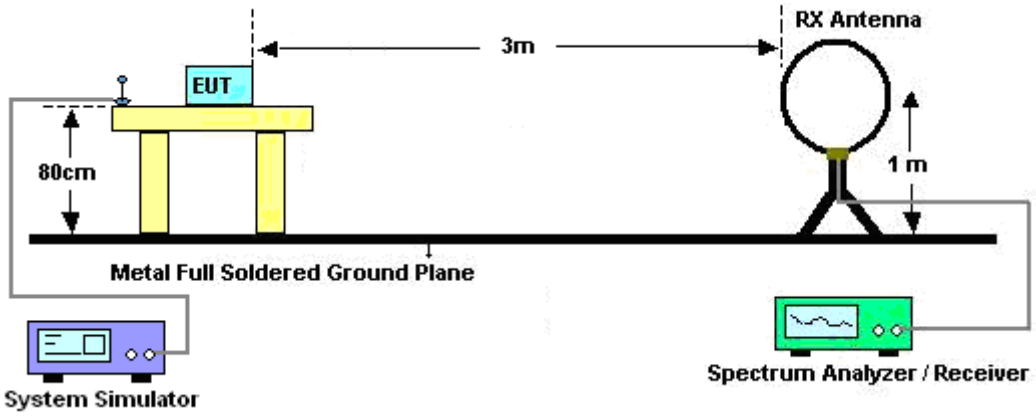
3.8.3 Test Procedures

1. The testing follows the guidelines in Spurious Radiated Emissions of FCC Public Notice DA 00-705 Measurement Guidelines.
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 Emission Level = Peak Emission Level + 20*log(Duty cycle)
7. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

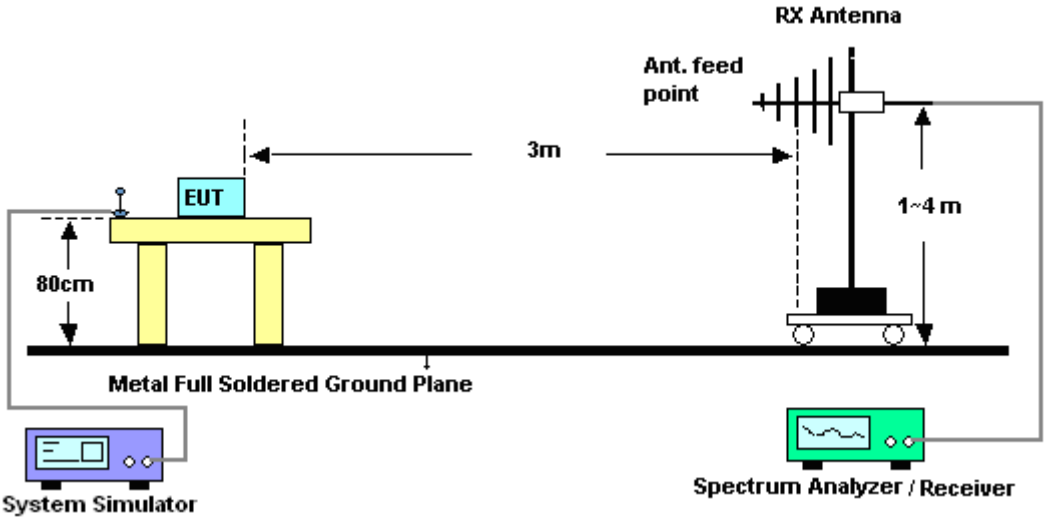
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.73dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as bandedge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

3.8.4 Test Setup

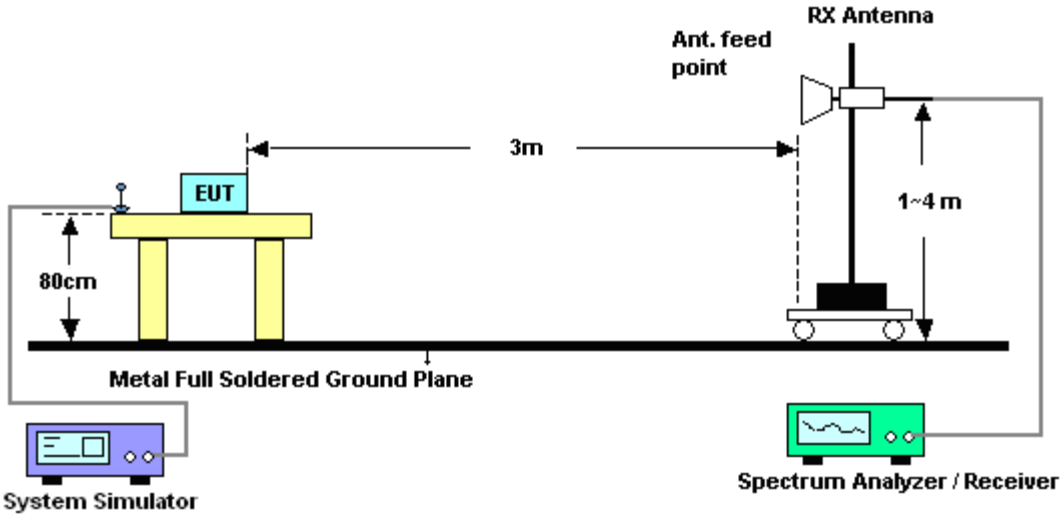
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

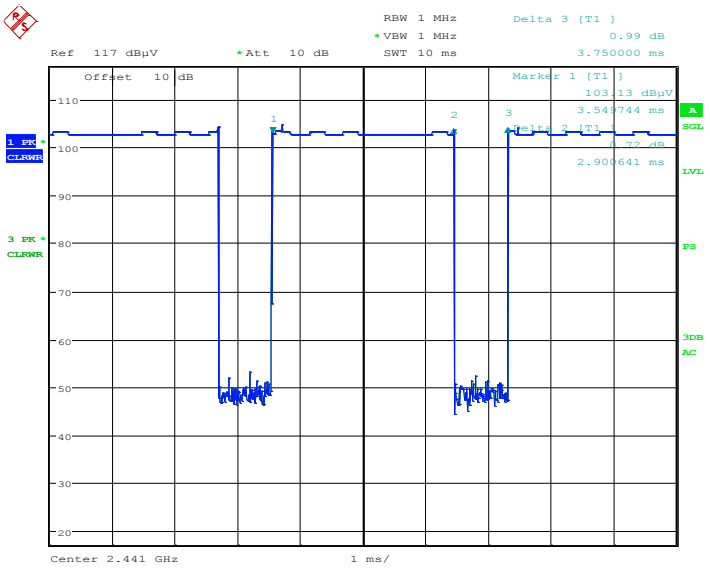


3.8.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

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.

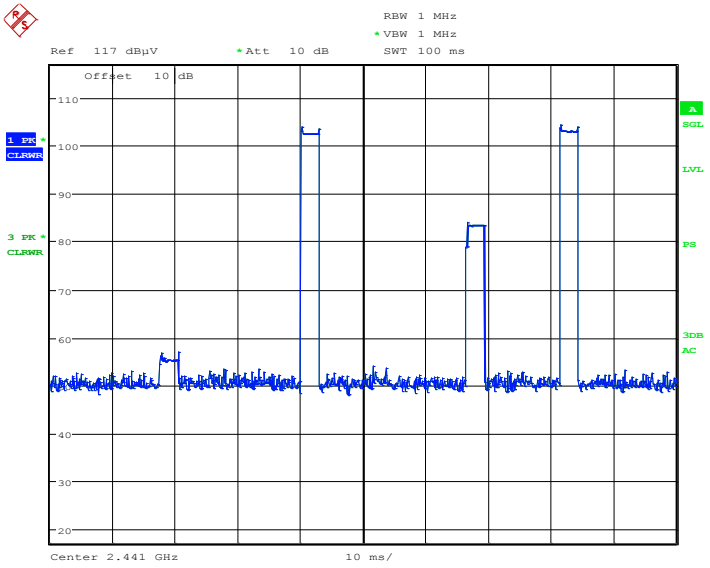
3.8.6 Duty cycle correction factor for average measurement

3DH5 on time (One Pulse) Plot on Channel 39



Date: 26.AUG.2013 17:32:06

3DH5 on time (Count Pulses) Plot on Channel 39



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Note:

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

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

2.90 ms x 20 channels = 58.0 ms

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100ms / 57.6ms] = 2 hops

Thus, the maximum possible ON time:

2.90 ms x 2 = 5.80 ms

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

20 x log(5.80 ms/100ms) = -24.73 dB

3.8.7 Test Result of Radiated Spurious at Band Edges

Test Mode :	3Mbps	Temperature :	21~23°C
Test Channel :	00	Relative Humidity :	51~53%
		Test Engineer :	David Ke

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
2371.47	57.02	-16.98	74	54.53	32.2	6.21	35.92	149	137	Peak
2371.47	32.29	-21.71	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
2380.56	56.59	-17.41	74	54.34	31.95	6.22	35.92	186	121	Peak
2380.56	31.86	-22.14	54	-	-	-	-	-	-	Average

Test Mode :	3Mbps	Temperature :	21~23°C
Test Channel :	78	Relative Humidity :	51~53%
		Test Engineer :	David Ke

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
2483.53	61.69	-12.31	74	58.44	32.63	6.45	35.83	121	17	Peak
2483.53	36.96	-17.04	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	62.47	-11.53	74	59.26	32.59	6.45	35.83	152	118	Peak
2483.5	37.74	-16.26	54	-	-	-	-	-	-	Average

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

Note: Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

Test Mode :	3Mbps	**Temperature :**	21~23°C
Test Channel :	00	**Relative Humidity :**	51~53%
Test Engineer :	David Ke	**Polarization :**	Horizontal
Remark :	1. 2402 MHz is fundamental signal which can be ignored. 2. 7206 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.14dBμV/m - 20dB = 86.14dBμV/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	106.14	-	-	103.55	32.27	6.22	35.9	149	137	Peak
2402	81.41	-	-	-	-	-	-	-	-	Average
4803	40.3	-33.7	74	56.81	34.46	8	58.97	100	0	Peak
4803	15.57	-38.43	54	-	-	-	-	-	-	Average
7206	42.34	-43.8	86.14	54.5	35.62	10.49	58.27	100	0	Peak

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	**Temperature :**	21~23°C
Test Channel :	00	**Relative Humidity :**	51~53%
Test Engineer :	David Ke	**Polarization :**	Vertical
Remark :	1. 2402 MHz is fundamental signal which can be ignored. 2. 7206 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	106.3	-	-	103.92	32.06	6.22	35.9	186	121	Peak
2402	81.57	-	-	-	-	-	-	-	-	Average
4803	39.8	-34.2	74	56.31	34.46	8	58.97	100	0	Peak
4803	15.07	-38.93	54	-	-	-	-	-	-	Average
7206	41.83	-44.47	86.3	54.01	35.6	10.49	58.27	100	0	Peak

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2442 MHz is fundamental signal which can be ignored.		

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
2442	106.34	-	-	103.36	32.49	6.34	35.85	100	19	Peak
2442	81.61	-	-	-	-	-	-	-	-	Average
4881	39.04	-34.96	74	55.36	34.4	8.15	58.87	100	0	Peak
4881	14.31	-39.69	54	-	-	-	-	-	-	Average
7323	41.83	-32.17	74	54.22	35.63	10.47	58.49	100	0	Peak
7323	17.1	-36.9	54	-	-	-	-	-	-	Average

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	Temperature :	21~23°C
Test Channel :	39	Relative Humidity :	51~53%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2442 MHz is fundamental signal which can be ignored.		

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
2442	107.31	-	-	104.44	32.38	6.34	35.85	127	89	Peak
2442	82.58	-	-	-	-	-	-	-	-	Average
4881	42.14	-31.86	74	58.46	34.4	8.15	58.87	100	0	Peak
4881	17.41	-36.59	54	-	-	-	-	-	-	Average
7323	42.07	-31.93	74	54.55	35.54	10.47	58.49	100	0	Peak
7323	17.34	-36.66	54	-	-	-	-	-	-	Average

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	**Temperature :**	21~23°C
Test Channel :	78	**Relative Humidity :**	51~53%
Test Engineer :	David Ke	**Polarization :**	Horizontal
Remark :	2480 MHz is fundamental signal which can be ignored.		

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
78.06	20.31	-19.69	40	44.63	6.61	1.03	31.96	-	-	Peak
141.24	24.35	-19.15	43.5	43.82	10.95	1.39	31.81	-	-	Peak
230.34	21.89	-24.11	46	42.05	9.8	1.77	31.73	-	-	Peak
313.3	29.05	-16.95	46	45.22	13.46	2.05	31.68	100	22	Peak
487.6	27.63	-18.37	46	39.37	16.91	2.54	31.19	-	-	Peak
785.8	24.11	-21.89	46	31.96	19.86	3.23	30.94	-	-	Peak
2480	103.3	-	-	100.05	32.63	6.45	35.83	121	17	Peak
2480	78.57	-	-	-	-	-	-	-	-	Average
4959	40.06	-33.94	74	56.22	34.33	8.26	58.75	100	0	Peak
4959	15.33	-38.67	54	-	-	-	-	-	-	Average
7440	41.08	-32.92	74	53.64	35.68	10.47	58.71	100	0	Peak
7440	16.35	-37.65	54	-	-	-	-	-	-	Average

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	**Temperature :**	21~23°C
Test Channel :	78	**Relative Humidity :**	51~53%
Test Engineer :	David Ke	**Polarization :**	Vertical
Remark :	2480 MHz is fundamental signal which can be ignored.		

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	29.65	-10.35	40	39.41	21.66	0.64	32.06	-	-	Peak
105.06	33.47	-10.03	43.5	54.17	10.01	1.2	31.91	100	205	Peak
141.51	28.02	-15.48	43.5	46.92	11.52	1.39	31.81	-	-	Peak
314.7	29.91	-16.09	46	45.7	13.85	2.05	31.69	-	-	Peak
486.2	25.71	-20.29	46	37.46	16.9	2.54	31.19	-	-	Peak
748.7	24.53	-21.47	46	32.17	20.1	3.15	30.89	-	-	Peak
2480	104.95	-	-	101.74	32.59	6.45	35.83	152	118	Peak
2480	80.22	-	-	-	-	-	-	-	-	Average
4959	40.32	-33.68	74	56.48	34.33	8.26	58.75	100	0	Peak
4959	15.59	-38.41	54	-	-	-	-	-	-	Average
7440	40.82	-33.18	74	53.62	35.44	10.47	58.71	100	0	Peak
7440	16.09	-37.91	54	-	-	-	-	-	-	Average

Note: Other harmonics are lower than background noise.

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 (dBμV)	
	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.

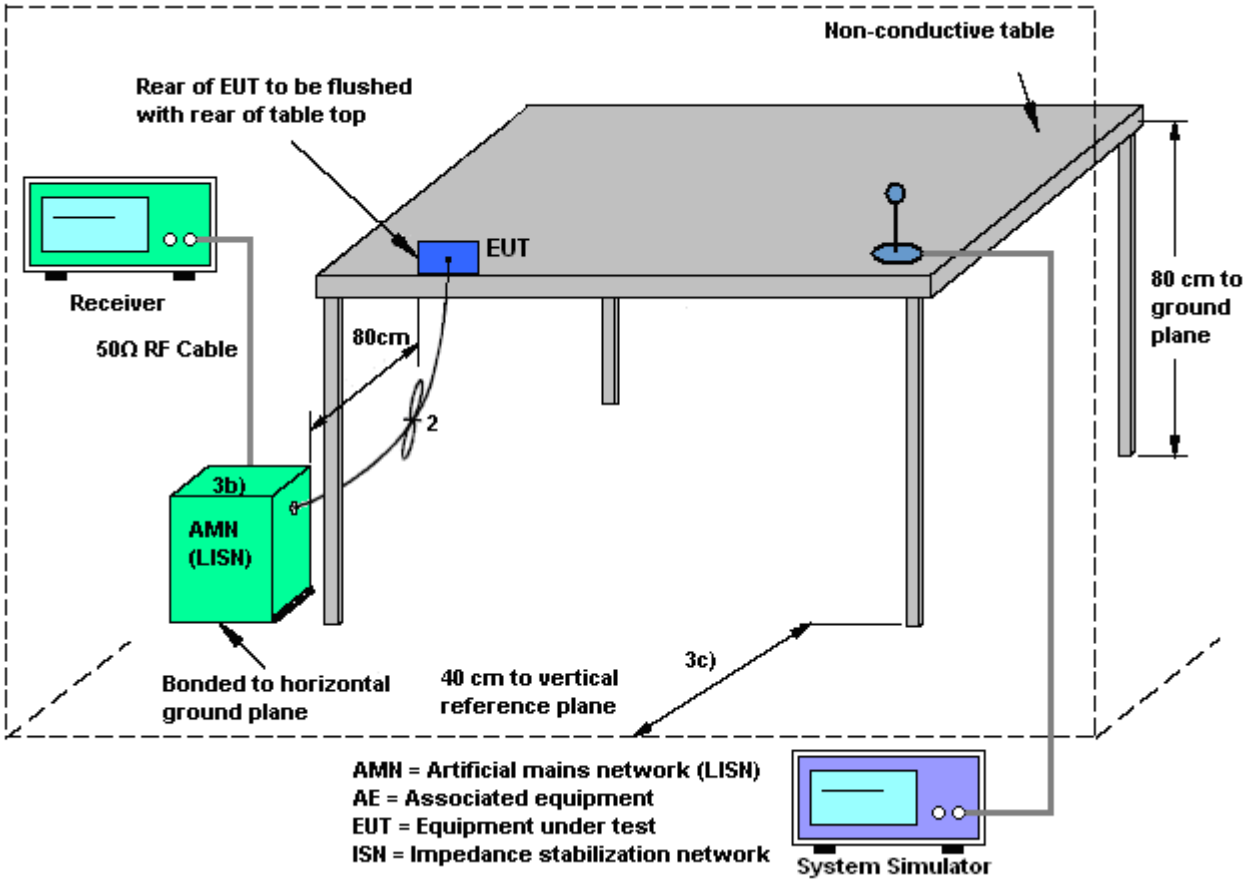
3.9.2 Measuring Instruments

Measuring equipment is listed in the section 4 of this test report.

3.9.3 Test Procedures

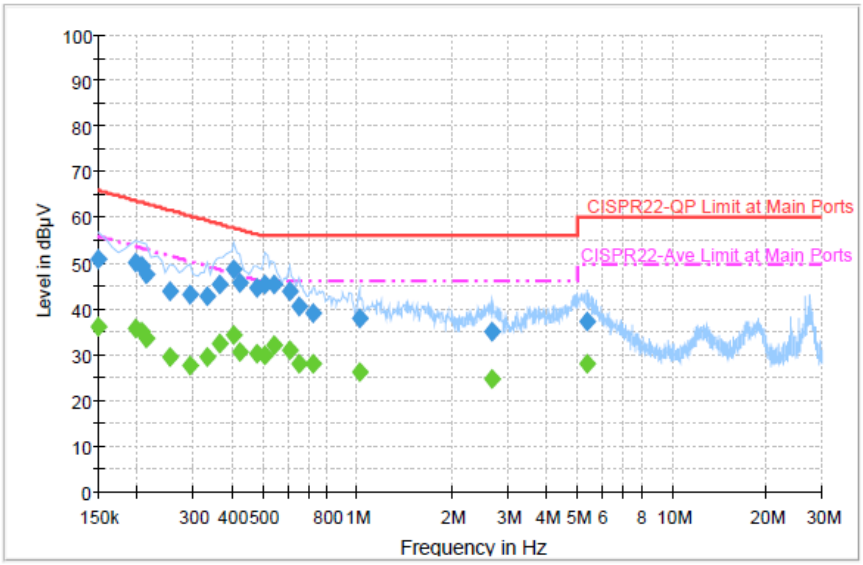
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.9.4 Test Setup



3.9.5 Test Result of AC Conducted Emission

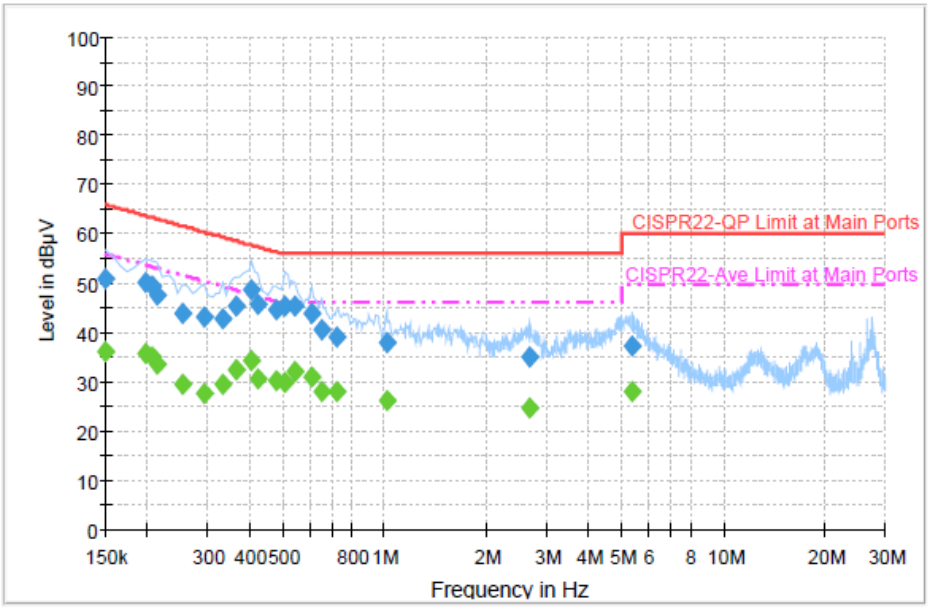
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.1	Off	L1	19.4	14.9	66.0
0.198000	50.0	Off	L1	19.3	13.7	63.7
0.206000	49.5	Off	L1	19.4	13.9	63.4
0.214000	47.6	Off	L1	19.4	15.4	63.0
0.254000	43.7	Off	L1	19.5	17.9	61.6
0.294000	43.3	Off	L1	19.4	17.1	60.4
0.334000	42.6	Off	L1	19.4	16.8	59.4
0.366000	45.3	Off	L1	19.4	13.3	58.6
0.406000	48.8	Off	L1	19.4	8.9	57.7
0.422000	45.6	Off	L1	19.4	11.8	57.4
0.478000	44.7	Off	L1	19.4	11.7	56.4
0.510000	45.3	Off	L1	19.4	10.7	56.0
0.542000	45.5	Off	L1	19.4	10.5	56.0
0.606000	43.8	Off	L1	19.4	12.2	56.0
0.654000	40.5	Off	L1	19.4	15.5	56.0
0.726000	39.1	Off	L1	19.4	16.9	56.0
1.014000	37.8	Off	L1	19.5	18.2	56.0
2.694000	35.1	Off	L1	19.6	20.9	56.0
5.358000	37.2	Off	L1	19.6	22.8	60.0

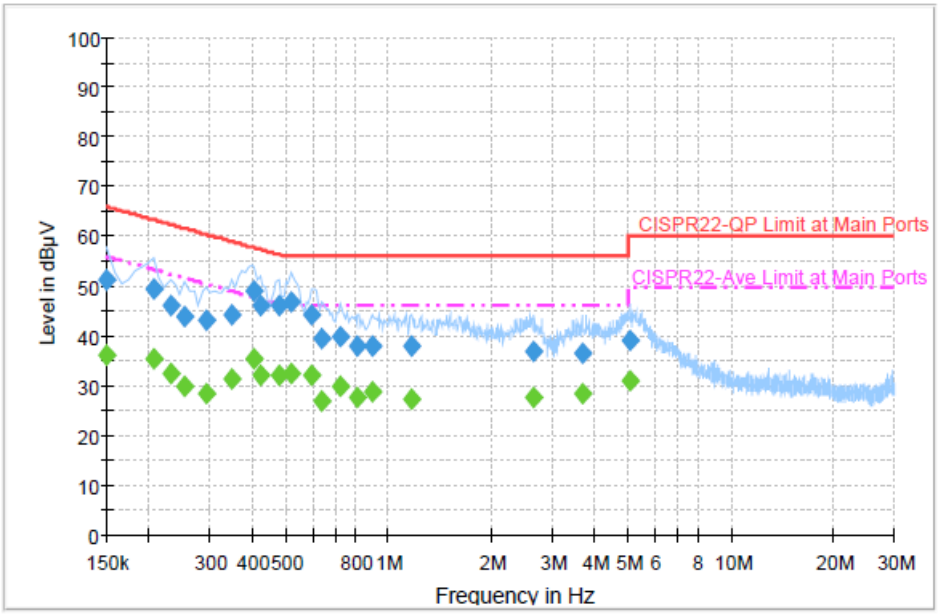
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.3	Off	L1	19.4	19.7	56.0
0.198000	35.7	Off	L1	19.3	18.0	53.7
0.206000	35.2	Off	L1	19.4	18.2	53.4
0.214000	33.7	Off	L1	19.4	19.3	53.0
0.254000	29.6	Off	L1	19.5	22.0	51.6
0.294000	27.6	Off	L1	19.4	22.8	50.4
0.334000	29.4	Off	L1	19.4	20.0	49.4
0.366000	32.3	Off	L1	19.4	16.3	48.6
0.406000	34.5	Off	L1	19.4	13.2	47.7
0.422000	30.7	Off	L1	19.4	16.7	47.4
0.478000	30.1	Off	L1	19.4	16.3	46.4
0.510000	29.9	Off	L1	19.4	16.1	46.0
0.542000	32.1	Off	L1	19.4	13.9	46.0
0.606000	30.9	Off	L1	19.4	15.1	46.0
0.654000	28.1	Off	L1	19.4	17.9	46.0
0.726000	28.1	Off	L1	19.4	17.9	46.0
1.014000	26.3	Off	L1	19.5	19.7	46.0
2.694000	24.7	Off	L1	19.6	21.3	46.0
5.358000	28.1	Off	L1	19.6	21.9	50.0

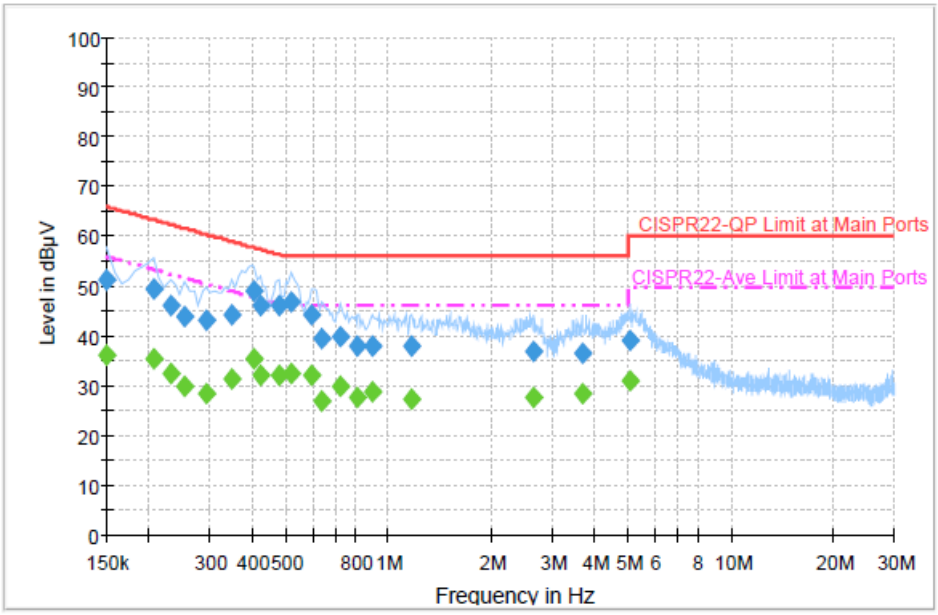
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.4	Off	N	19.4	14.6	66.0
0.206000	49.5	Off	N	19.4	13.9	63.4
0.230000	46.0	Off	N	19.4	16.4	62.4
0.254000	44.0	Off	N	19.5	17.6	61.6
0.294000	43.1	Off	N	19.4	17.3	60.4
0.350000	44.4	Off	N	19.4	14.6	59.0
0.406000	49.2	Off	N	19.4	8.5	57.7
0.422000	46.1	Off	N	19.4	11.3	57.4
0.478000	46.0	Off	N	19.4	10.4	56.4
0.518000	46.9	Off	N	19.4	9.1	56.0
0.598000	44.3	Off	N	19.4	11.7	56.0
0.638000	39.6	Off	N	19.4	16.4	56.0
0.726000	40.0	Off	N	19.4	16.0	56.0
0.814000	38.1	Off	N	19.6	17.9	56.0
0.894000	38.1	Off	N	19.5	17.9	56.0
1.166000	38.0	Off	N	19.5	18.0	56.0
2.662000	36.8	Off	N	19.6	19.2	56.0
3.670000	36.4	Off	N	19.6	19.6	56.0
5.062000	39.0	Off	N	19.6	21.0	60.0

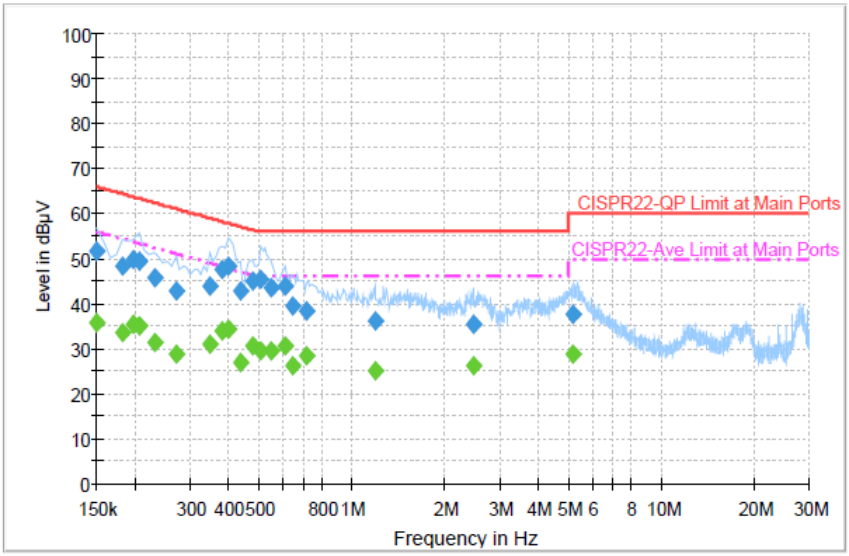
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.1	Off	N	19.4	19.9	56.0
0.206000	35.5	Off	N	19.4	17.9	53.4
0.230000	32.3	Off	N	19.4	20.1	52.4
0.254000	29.7	Off	N	19.5	21.9	51.6
0.294000	28.3	Off	N	19.4	22.1	50.4
0.350000	31.5	Off	N	19.4	17.5	49.0
0.406000	35.5	Off	N	19.4	12.2	47.7
0.422000	32.3	Off	N	19.4	15.1	47.4
0.478000	32.3	Off	N	19.4	14.1	46.4
0.518000	32.4	Off	N	19.4	13.6	46.0
0.598000	32.2	Off	N	19.4	13.8	46.0
0.638000	27.0	Off	N	19.4	19.0	46.0
0.726000	29.8	Off	N	19.4	16.2	46.0
0.814000	27.7	Off	N	19.6	18.3	46.0
0.894000	28.7	Off	N	19.5	17.3	46.0
1.166000	27.4	Off	N	19.5	18.6	46.0
2.662000	27.8	Off	N	19.6	18.2	46.0
3.670000	28.3	Off	N	19.6	17.7	46.0
5.062000	30.9	Off	N	19.6	19.1	50.0

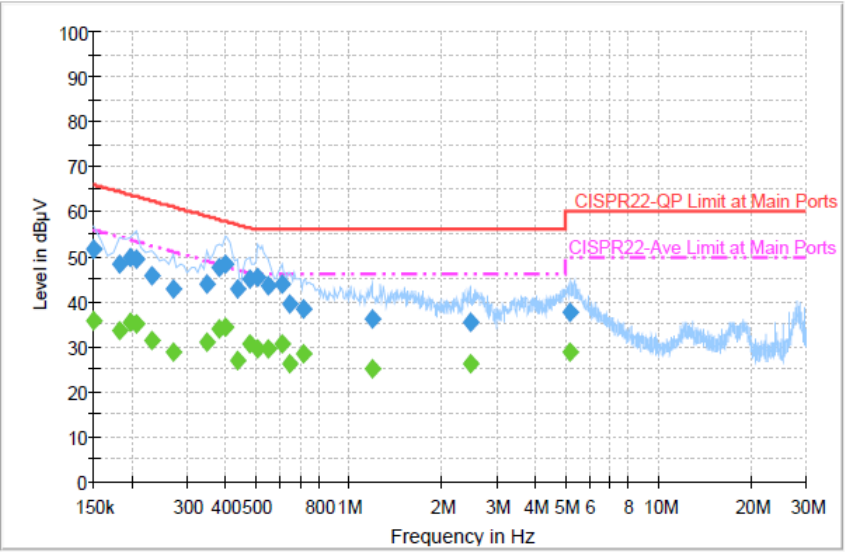
Test Mode :	Mode 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.5	Off	L1	19.4	14.5	66.0
0.182000	48.2	Off	L1	19.4	16.2	64.4
0.198000	49.8	Off	L1	19.3	13.9	63.7
0.206000	49.5	Off	L1	19.4	13.9	63.4
0.230000	45.6	Off	L1	19.4	16.8	62.4
0.270000	42.9	Off	L1	19.3	18.2	61.1
0.350000	43.9	Off	L1	19.4	15.1	59.0
0.382000	47.5	Off	L1	19.4	10.7	58.2
0.398000	48.4	Off	L1	19.5	9.5	57.9
0.438000	42.9	Off	L1	19.4	14.2	57.1
0.478000	45.1	Off	L1	19.4	11.3	56.4
0.510000	45.3	Off	L1	19.4	10.7	56.0
0.550000	43.4	Off	L1	19.4	12.6	56.0
0.606000	43.8	Off	L1	19.4	12.2	56.0
0.646000	39.5	Off	L1	19.4	16.5	56.0
0.718000	38.5	Off	L1	19.5	17.5	56.0
1.190000	36.0	Off	L1	19.5	20.0	56.0
2.462000	35.4	Off	L1	19.6	20.6	56.0
5.166000	37.6	Off	L1	19.6	22.4	60.0

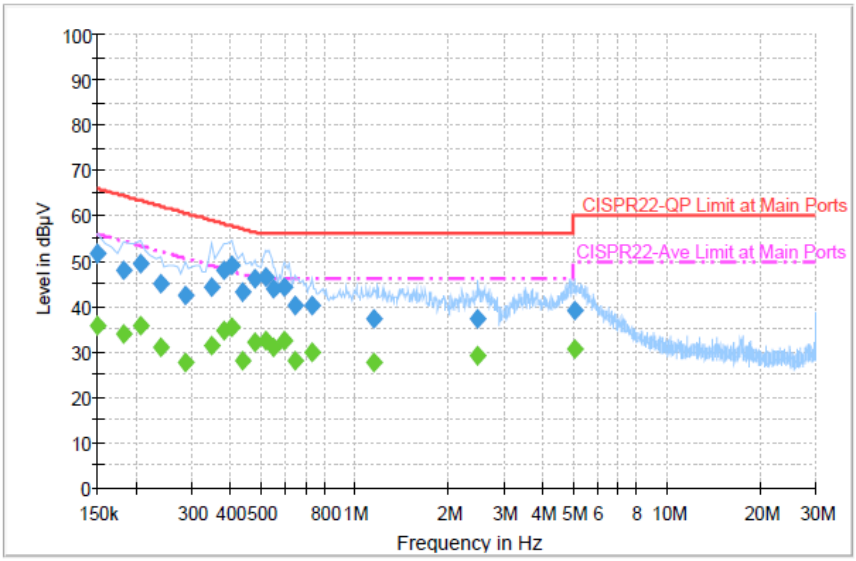
Test Mode :	Mode 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.8	Off	L1	19.4	20.2	56.0
0.182000	33.6	Off	L1	19.4	20.8	54.4
0.198000	35.4	Off	L1	19.3	18.3	53.7
0.206000	35.1	Off	L1	19.4	18.3	53.4
0.230000	31.4	Off	L1	19.4	21.0	52.4
0.270000	28.7	Off	L1	19.3	22.4	51.1
0.350000	30.8	Off	L1	19.4	18.2	49.0
0.382000	34.0	Off	L1	19.4	14.2	48.2
0.398000	34.5	Off	L1	19.5	13.4	47.9
0.438000	27.0	Off	L1	19.4	20.1	47.1
0.478000	30.8	Off	L1	19.4	15.6	46.4
0.510000	29.6	Off	L1	19.4	16.4	46.0
0.550000	29.5	Off	L1	19.4	16.5	46.0
0.606000	30.6	Off	L1	19.4	15.4	46.0
0.646000	26.2	Off	L1	19.4	19.8	46.0
0.718000	28.4	Off	L1	19.5	17.6	46.0
1.190000	25.0	Off	L1	19.5	21.0	46.0
2.462000	26.3	Off	L1	19.6	19.7	46.0
5.166000	28.6	Off	L1	19.6	21.4	50.0

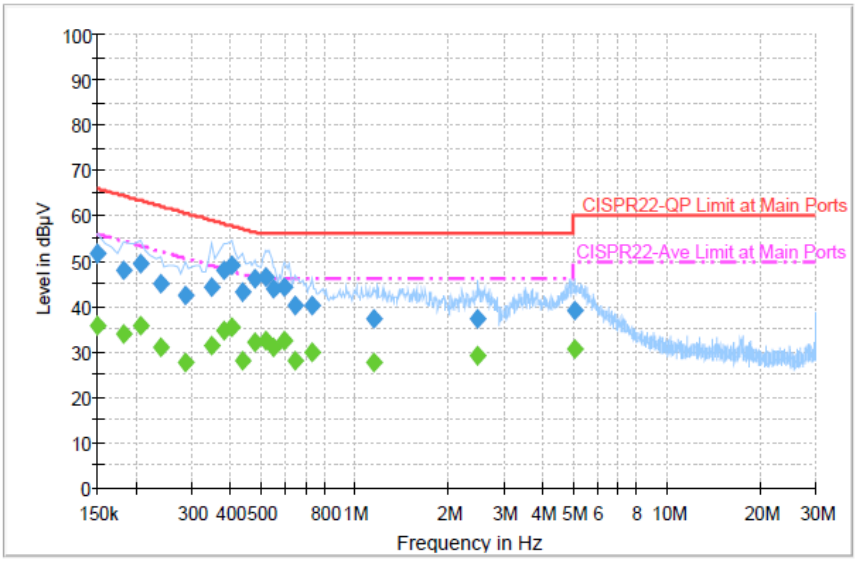
Test Mode :	Mode 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.7	Off	N	19.4	14.3	66.0
0.182000	48.1	Off	N	19.4	16.3	64.4
0.206000	49.5	Off	N	19.4	13.9	63.4
0.238000	45.0	Off	N	19.5	17.2	62.2
0.286000	42.4	Off	N	19.4	18.2	60.6
0.350000	44.2	Off	N	19.4	14.8	59.0
0.382000	48.0	Off	N	19.4	10.2	58.2
0.406000	49.2	Off	N	19.4	8.5	57.7
0.438000	43.3	Off	N	19.4	13.8	57.1
0.478000	46.1	Off	N	19.4	10.3	56.4
0.518000	46.5	Off	N	19.4	9.5	56.0
0.550000	43.8	Off	N	19.4	12.2	56.0
0.598000	44.3	Off	N	19.4	11.7	56.0
0.646000	40.4	Off	N	19.4	15.6	56.0
0.734000	40.2	Off	N	19.4	15.8	56.0
1.150000	37.3	Off	N	19.5	18.7	56.0
2.486000	37.2	Off	N	19.6	18.8	56.0
5.078000	39.1	Off	N	19.6	20.9	60.0

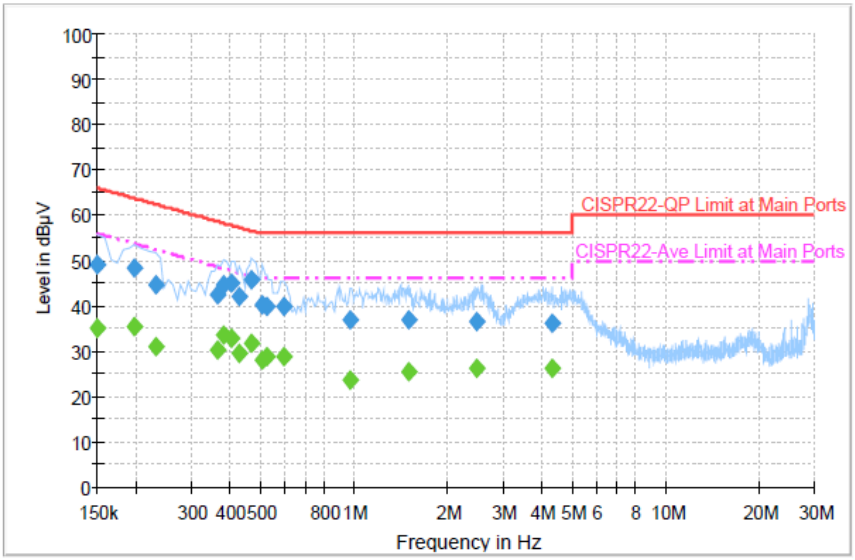
Test Mode :	Mode 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz, 11n HT20, Ch149, MCS0) Link + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.0	Off	N	19.4	20.0	56.0
0.182000	34.0	Off	N	19.4	20.4	54.4
0.206000	35.9	Off	N	19.4	17.5	53.4
0.238000	31.1	Off	N	19.5	21.1	52.2
0.286000	27.6	Off	N	19.4	23.0	50.6
0.350000	31.5	Off	N	19.4	17.5	49.0
0.382000	34.8	Off	N	19.4	13.4	48.2
0.406000	35.3	Off	N	19.4	12.4	47.7
0.438000	28.0	Off	N	19.4	19.1	47.1
0.478000	32.3	Off	N	19.4	14.1	46.4
0.518000	32.5	Off	N	19.4	13.5	46.0
0.550000	30.9	Off	N	19.4	15.1	46.0
0.598000	32.5	Off	N	19.4	13.5	46.0
0.646000	27.9	Off	N	19.4	18.1	46.0
0.734000	29.9	Off	N	19.4	16.1	46.0
1.150000	27.5	Off	N	19.5	18.5	46.0
2.486000	29.2	Off	N	19.6	16.8	46.0
5.078000	30.7	Off	N	19.6	19.3	50.0

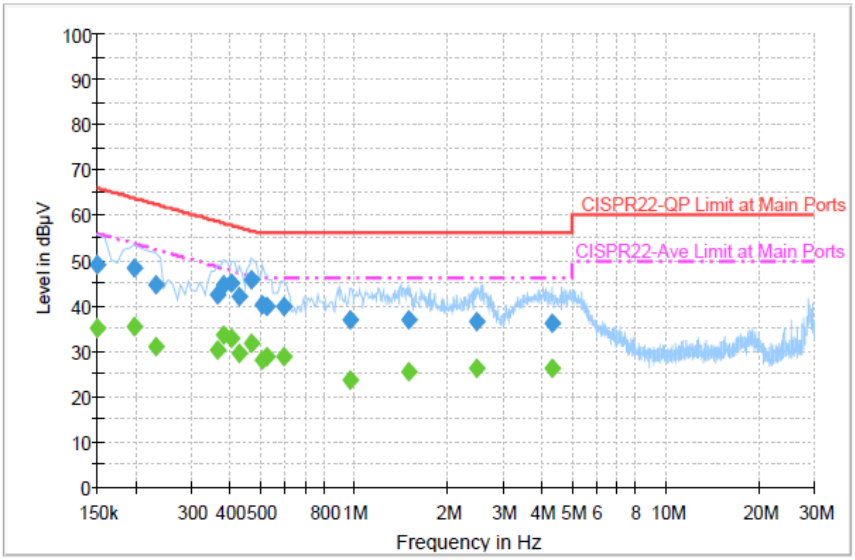
Test Mode :	Mode 3	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.2	Off	L1	19.4	16.8	66.0
0.198000	48.5	Off	L1	19.3	15.2	63.7
0.230000	44.5	Off	L1	19.4	17.9	62.4
0.366000	42.5	Off	L1	19.4	16.1	58.6
0.382000	44.6	Off	L1	19.4	13.6	58.2
0.406000	45.0	Off	L1	19.4	12.7	57.7
0.430000	41.9	Off	L1	19.4	15.4	57.3
0.470000	45.7	Off	L1	19.4	10.8	56.5
0.510000	40.1	Off	L1	19.4	15.9	56.0
0.526000	39.7	Off	L1	19.4	16.3	56.0
0.598000	39.9	Off	L1	19.4	16.1	56.0
0.974000	36.9	Off	L1	19.4	19.1	56.0
1.494000	37.0	Off	L1	19.5	19.0	56.0
2.470000	36.6	Off	L1	19.6	19.4	56.0
4.334000	36.1	Off	L1	19.6	19.9	56.0

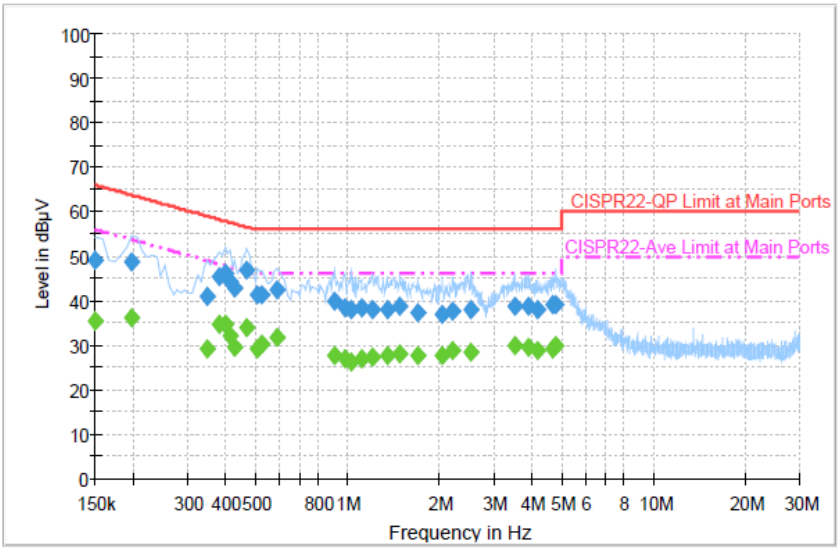
Test Mode :	Mode 3	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.9	Off	L1	19.4	21.1	56.0
0.198000	35.3	Off	L1	19.3	18.4	53.7
0.230000	31.0	Off	L1	19.4	21.4	52.4
0.366000	30.4	Off	L1	19.4	18.2	48.6
0.382000	33.7	Off	L1	19.4	14.5	48.2
0.406000	32.7	Off	L1	19.4	15.0	47.7
0.430000	29.4	Off	L1	19.4	17.9	47.3
0.470000	31.9	Off	L1	19.4	14.6	46.5
0.510000	28.0	Off	L1	19.4	18.0	46.0
0.526000	28.6	Off	L1	19.4	17.4	46.0
0.598000	28.9	Off	L1	19.4	17.1	46.0
0.974000	23.8	Off	L1	19.4	22.2	46.0
1.494000	25.6	Off	L1	19.5	20.4	46.0
2.470000	26.1	Off	L1	19.6	19.9	46.0
4.334000	26.2	Off	L1	19.6	19.8	46.0

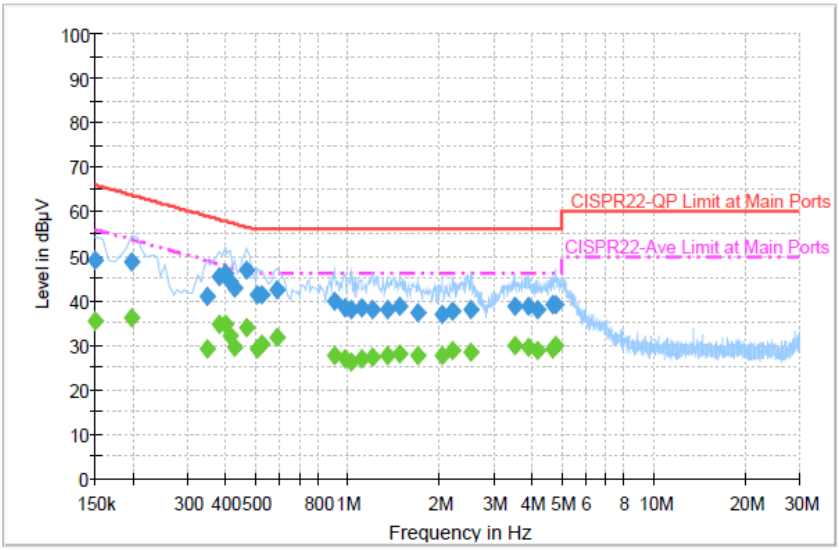
Test Mode :	Mode 3	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.0	Off	N	19.4	17.0	66.0
0.198000	48.6	Off	N	19.3	15.1	63.7
0.350000	40.9	Off	N	19.4	18.1	59.0
0.382000	45.4	Off	N	19.4	12.8	58.2
0.398000	46.3	Off	N	19.5	11.6	57.9
0.414000	44.4	Off	N	19.4	13.2	57.6
0.430000	42.6	Off	N	19.4	14.7	57.3
0.470000	46.9	Off	N	19.4	9.6	56.5
0.510000	41.2	Off	N	19.4	14.8	56.0
0.526000	41.3	Off	N	19.4	14.7	56.0
0.590000	42.5	Off	N	19.4	13.5	56.0
0.910000	39.8	Off	N	19.4	16.2	56.0
0.982000	38.5	Off	N	19.5	17.5	56.0

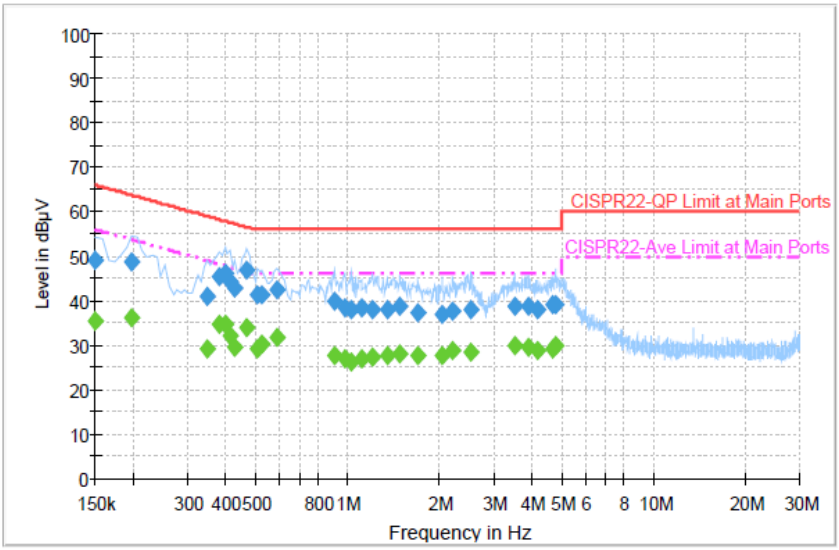
Test Mode :	Mode 3	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.030000	38.1	Off	N	19.4	17.9	56.0
1.110000	38.4	Off	N	19.4	17.6	56.0
1.206000	38.1	Off	N	19.5	17.9	56.0
1.350000	38.1	Off	N	19.5	17.9	56.0
1.486000	38.7	Off	N	19.5	17.3	56.0
1.702000	37.3	Off	N	19.5	18.7	56.0
2.038000	37.0	Off	N	19.6	19.0	56.0
2.214000	37.6	Off	N	19.6	18.4	56.0
2.542000	38.1	Off	N	19.6	17.9	56.0
3.534000	38.8	Off	N	19.6	17.2	56.0
3.902000	38.8	Off	N	19.6	17.2	56.0
4.198000	37.9	Off	N	19.6	18.1	56.0
4.694000	39.0	Off	N	19.6	17.0	56.0
4.782000	39.2	Off	N	19.6	16.8	56.0

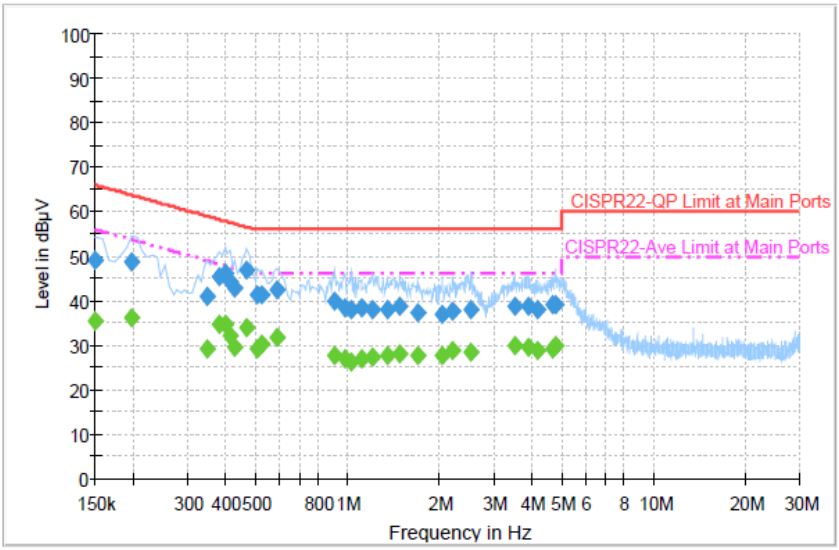
Test Mode :	Mode 3	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.4	Off	N	19.4	20.6	56.0
0.198000	36.2	Off	N	19.3	17.5	53.7
0.350000	29.0	Off	N	19.4	20.0	49.0
0.382000	34.8	Off	N	19.4	13.4	48.2
0.398000	34.9	Off	N	19.5	13.0	47.9
0.414000	32.1	Off	N	19.4	15.5	47.6
0.430000	29.3	Off	N	19.4	18.0	47.3
0.470000	33.9	Off	N	19.4	12.6	46.5
0.510000	29.0	Off	N	19.4	17.0	46.0
0.526000	30.4	Off	N	19.4	15.6	46.0
0.590000	31.6	Off	N	19.4	14.4	46.0
0.910000	27.7	Off	N	19.4	18.3	46.0
0.982000	26.9	Off	N	19.5	19.1	46.0

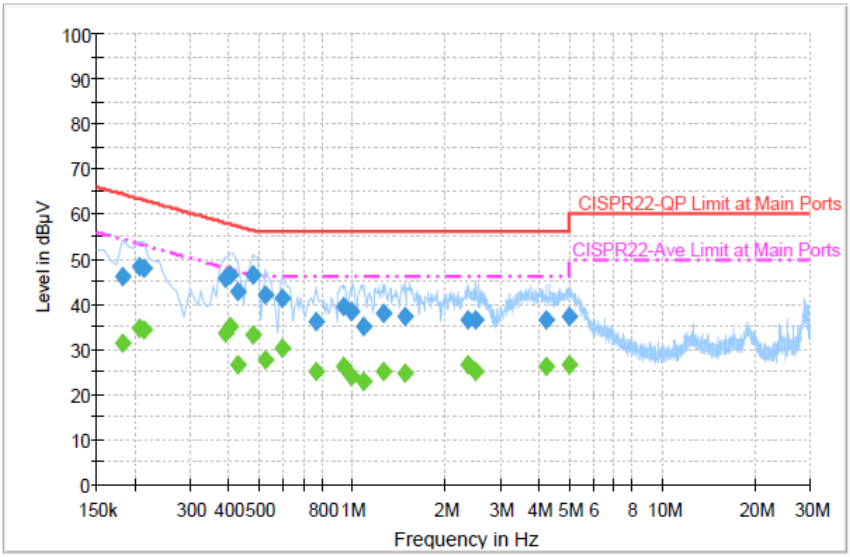
Test Mode :	Mode 3	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4GHz, 11n HT20, Ch06, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.030000	26.2	Off	N	19.4	19.8	46.0
1.110000	27.1	Off	N	19.4	18.9	46.0
1.206000	27.4	Off	N	19.5	18.6	46.0
1.350000	27.5	Off	N	19.5	18.5	46.0
1.486000	28.2	Off	N	19.5	17.8	46.0
1.702000	27.7	Off	N	19.5	18.3	46.0
2.038000	27.8	Off	N	19.6	18.2	46.0
2.214000	28.8	Off	N	19.6	17.2	46.0
2.542000	28.4	Off	N	19.6	17.6	46.0
3.534000	30.0	Off	N	19.6	16.0	46.0
3.902000	29.6	Off	N	19.6	16.4	46.0
4.198000	29.0	Off	N	19.6	17.0	46.0
4.694000	29.3	Off	N	19.6	16.7	46.0
4.782000	29.9	Off	N	19.6	16.1	46.0

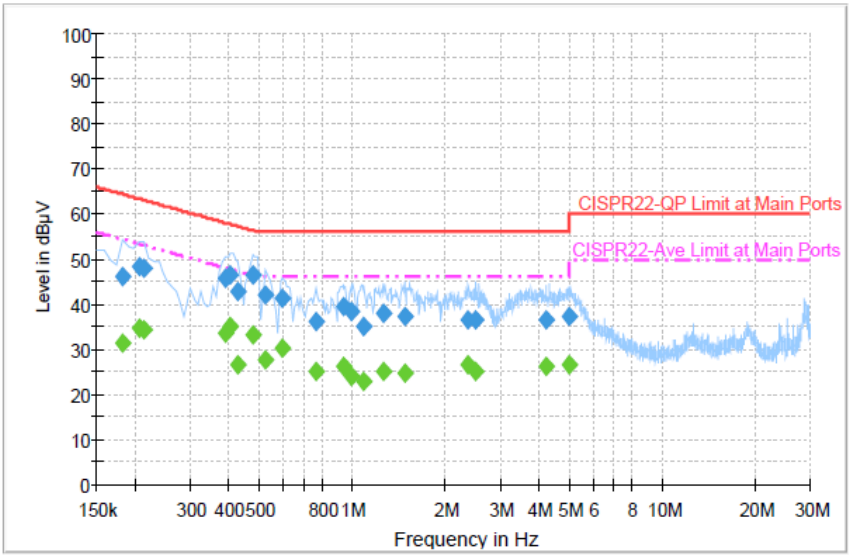
Test Mode :	Mode 4	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	46.1	Off	L1	19.4	18.3	64.4
0.206000	48.3	Off	L1	19.4	15.1	63.4
0.214000	47.9	Off	L1	19.4	15.1	63.0
0.390000	45.7	Off	L1	19.4	12.4	58.1
0.406000	46.4	Off	L1	19.4	11.3	57.7
0.430000	42.7	Off	L1	19.4	14.6	57.3
0.478000	46.5	Off	L1	19.4	9.9	56.4
0.526000	42.2	Off	L1	19.4	13.8	56.0
0.598000	41.5	Off	L1	19.4	14.5	56.0
0.766000	36.1	Off	L1	19.5	19.9	56.0
0.934000	39.5	Off	L1	19.4	16.5	56.0
0.990000	38.4	Off	L1	19.4	17.6	56.0
1.094000	34.9	Off	L1	19.5	21.1	56.0
1.262000	38.1	Off	L1	19.5	17.9	56.0
1.478000	37.2	Off	L1	19.4	18.8	56.0
2.374000	36.5	Off	L1	19.6	19.5	56.0
2.510000	36.5	Off	L1	19.6	19.5	56.0
4.230000	36.5	Off	L1	19.6	19.5	56.0
5.038000	37.3	Off	L1	19.6	22.7	60.0

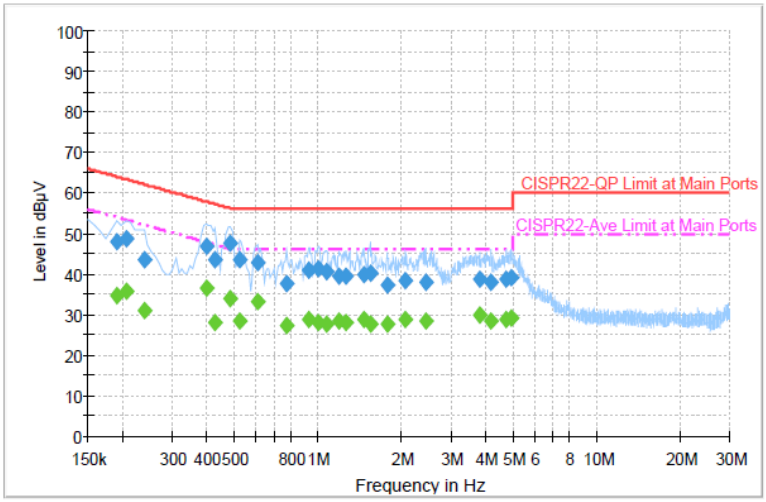
Test Mode :	Mode 4	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	31.3	Off	L1	19.4	23.1	54.4
0.206000	34.9	Off	L1	19.4	18.5	53.4
0.214000	34.2	Off	L1	19.4	18.8	53.0
0.390000	33.4	Off	L1	19.4	14.7	48.1
0.406000	34.9	Off	L1	19.4	12.8	47.7
0.430000	26.7	Off	L1	19.4	20.6	47.3
0.478000	33.3	Off	L1	19.4	13.1	46.4
0.526000	27.7	Off	L1	19.4	18.3	46.0
0.598000	30.3	Off	L1	19.4	15.7	46.0
0.766000	25.1	Off	L1	19.5	20.9	46.0
0.934000	26.3	Off	L1	19.4	19.7	46.0
0.990000	23.9	Off	L1	19.4	22.1	46.0
1.094000	22.9	Off	L1	19.5	23.1	46.0
1.262000	25.3	Off	L1	19.5	20.7	46.0
1.478000	24.7	Off	L1	19.4	21.3	46.0
2.374000	26.4	Off	L1	19.6	19.6	46.0
2.510000	25.2	Off	L1	19.6	20.8	46.0
4.230000	26.1	Off	L1	19.6	19.9	46.0
5.038000	26.6	Off	L1	19.6	23.4	50.0

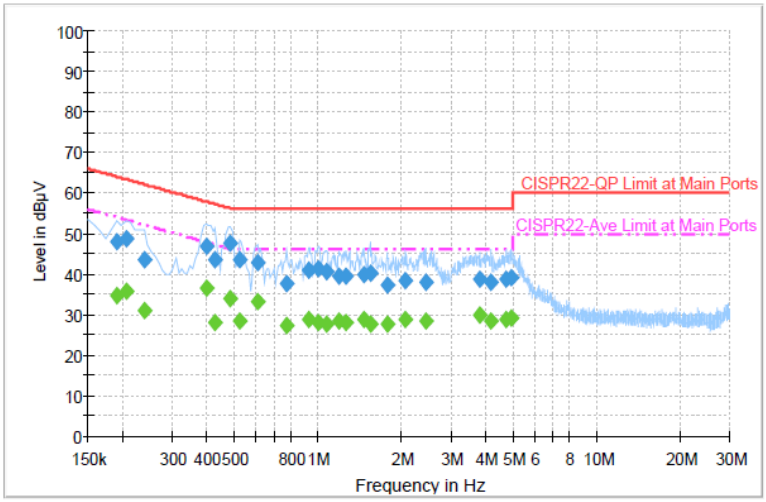
Test Mode :	Mode 4	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	48.0	Off	N	19.4	16.0	64.0
0.206000	48.6	Off	N	19.4	14.8	63.4
0.238000	43.7	Off	N	19.5	18.5	62.2
0.398000	47.0	Off	N	19.5	10.9	57.9
0.430000	43.5	Off	N	19.4	13.8	57.3
0.486000	47.6	Off	N	19.4	8.6	56.2
0.526000	43.4	Off	N	19.4	12.6	56.0
0.606000	42.9	Off	N	19.4	13.1	56.0
0.774000	37.8	Off	N	19.5	18.2	56.0
0.926000	41.1	Off	N	19.4	14.9	56.0
1.006000	41.3	Off	N	19.4	14.7	56.0
1.078000	40.5	Off	N	19.5	15.5	56.0
1.198000	39.6	Off	N	19.5	16.4	56.0
1.270000	39.4	Off	N	19.5	16.6	56.0
1.462000	39.9	Off	N	19.5	16.1	56.0
1.542000	40.1	Off	N	19.4	15.9	56.0
1.774000	37.4	Off	N	19.5	18.6	56.0
2.070000	38.2	Off	N	19.6	17.8	56.0
2.446000	38.1	Off	N	19.7	17.9	56.0
3.806000	38.6	Off	N	19.6	17.4	56.0
4.166000	38.0	Off	N	19.6	18.0	56.0
4.758000	38.7	Off	N	19.6	17.3	56.0
4.942000	39.0	Off	N	19.7	17.0	56.0

Test Mode :	Mode 4	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5GHz, 11n HT20, Ch149, MCS0) MIMO Tx + H Pattern + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	34.8	Off	N	19.4	19.2	54.0
0.206000	35.7	Off	N	19.4	17.7	53.4
0.238000	30.9	Off	N	19.5	21.3	52.2
0.398000	36.4	Off	N	19.5	11.5	47.9
0.430000	28.2	Off	N	19.4	19.1	47.3
0.486000	33.8	Off	N	19.4	12.4	46.2
0.526000	28.5	Off	N	19.4	17.5	46.0
0.606000	33.1	Off	N	19.4	12.9	46.0
0.774000	27.3	Off	N	19.5	18.7	46.0
0.926000	28.8	Off	N	19.4	17.2	46.0
1.006000	28.0	Off	N	19.4	18.0	46.0
1.078000	27.6	Off	N	19.5	18.4	46.0
1.198000	28.3	Off	N	19.5	17.7	46.0
1.270000	27.9	Off	N	19.5	18.1	46.0
1.462000	28.6	Off	N	19.5	17.4	46.0
1.542000	27.8	Off	N	19.4	18.2	46.0
1.774000	27.8	Off	N	19.5	18.2	46.0
2.070000	28.7	Off	N	19.6	17.3	46.0
2.446000	28.4	Off	N	19.7	17.6	46.0
3.806000	29.8	Off	N	19.6	16.2	46.0
4.166000	28.5	Off	N	19.6	17.5	46.0
4.758000	28.7	Off	N	19.6	17.3	46.0
4.942000	29.2	Off	N	19.7	16.8	46.0

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-detachable antenna is 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	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Aug. 29, 2013 ~ Sep. 06, 2013	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	300MHz~40GHz	Feb. 05, 2013	Aug. 29, 2013 ~ Sep. 06, 2013	Feb. 04, 2014	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	300MHz~40GHz	Feb. 05, 2013	Aug. 29, 2013 ~ Sep. 06, 2013	Feb. 04, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz – 26.5GHz	Jan. 23, 2013	Aug. 26, 2013	Jan. 22, 2014	Radiation (03CH08-HY)
Bilog Antenna	Teseq GmbH	CBL6112D	35379	30MHz~2GHz	Mar. 28, 2013	Aug. 26, 2013	Mar. 27, 2014	Radiation (03CH08-HY)
Horn Antenna	ESCO	3117	000143261	1GHz~18GHz	Jan. 08, 2013	Aug. 26, 2013	Jan. 07, 2014	Radiation (03CH08-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18G~40G	Sep. 28, 2012	Aug. 26, 2013	Sep. 27, 2013	Radiation (03CH08-HY)
Pre Amplifier	Agilent	8449B	3008A02665	1GHz~26.5GHz	Sep. 04, 2013	Aug. 26, 2013	Sep. 03, 2014	Radiation (03CH08-HY)
Pre Amplifier	EMC INSTRUMENT	EMC011830	980148	100MHz~18GHz	Jun. 21, 2013	Aug. 26, 2013	Jun. 20, 2014	Radiation (03CH08-HY)
Preamplifier	COM-POWER	PA-103	161075	10Hz~1000MHz Gain:32dB	Feb. 26, 2013	Aug. 26, 2013	Feb. 25, 2014	Radiation (03CH08-HY)
Turn Table	Chaintek	Chaintek 3000	N/A	0~360 Degree	N/A	Aug. 26, 2013	N/A	Radiation (03CH08-HY)
Antenna Mast	MF	MFA520BS	N/A	1m~4m	N/A	Aug. 26, 2013	N/A	Radiation (03CH08-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9 kHz~30 MhZ	Jul. 03, 2012	Aug. 26, 2013	Jul. 03, 2014	Radiation (03CH08-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 13, 2012	Aug. 29, 2013 ~ Sep. 04, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2012	Aug. 29, 2013 ~ Sep. 04, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 06, 2012	Aug. 29, 2013 ~ Sep. 04, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Aug. 29, 2013 ~ Sep. 04, 2013	N/A	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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**

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

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