



FCC RF Test Report

APPLICANT : Mighty Audio, Inc.
EQUIPMENT : Mighty Audio Device
BRAND NAME : Mighty
MODEL NAME : M1
MARKETING NAME : M1
FCC ID : 2AKBCB00SCH16
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DSS) Spread Spectrum Transmitter

The product was received on Oct. 11, 2016 and testing was completed on Dec. 23, 2016. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in 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: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



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FCC ID : 2AKBCB00SCH16

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TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION.....	5
1.1 Applicant.....	5
1.2 Manufacturer.....	5
1.3 Product Feature of Equipment Under Test.....	5
1.4 Modification of EUT	5
1.5 Testing Location	6
1.6 Applicable Standards.....	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST.....	7
2.1 Test Mode.....	7
2.2 Connection Diagram of Test System.....	8
2.3 Support Unit used in test configuration and system	9
2.4 EUT Operation Test Setup	9
2.5 Measurement Results Explanation Example.....	9
3 TEST RESULT	10
3.1 Number of Channel Measurement	10
3.2 Hopping Channel Separation Measurement	12
3.3 Dwell Time Measurement.....	15
3.4 20dB and 99% Bandwidth Measurement	17
3.5 Peak Output Power Measurement	22
3.6 Conducted Band Edges Measurement.....	24
3.7 Conducted Spurious Emission Measurement	27
3.8 Radiated Band Edges and Spurious Emission Measurement	31
3.9 AC Conducted Emission Measurement.....	35
3.10 Antenna Requirements.....	37
4 LIST OF MEASURING EQUIPMENT.....	38
5 UNCERTAINTY OF EVALUATION.....	39
APPENDIX A. AC CONDUCTED EMISSION TEST RESULT	
APPENDIX B. RADIATED SPURIOUS EMISSION	
APPENDIX C. RADIATED SPURIOUS EMISSION PLOTS	
APPENDIX D. DUTY CYCLE PLOTS	
APPENDIX E. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR6O1109A	Rev. 01	Initial issue of report	Jan. 18, 2017
FR6O1109A	Rev. 02	Removing AFH information	Jan. 19, 2017



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(1)	Number of Channels	$\geq 15\text{Chs}$	Pass	-
3.2	15.247(a)(1)	Hopping Channel Separation	$\geq 2/3$ of 20dB BW	Pass	-
3.3	15.247(a)(1)	Dwell Time of Each Channel	$\leq 0.4\text{sec}$ in 31.6sec period	Pass	-
3.4	15.247(a)(1)	20dB Bandwidth	NA	Pass	-
3.4	-	99% Bandwidth	-	Pass	-
3.5	15.247(b)(1)	Peak Output Power	$\leq 125\text{ mW}$	Pass	-
3.6	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
3.7	15.247(d)	Conducted Spurious Emission	$\leq 20\text{dBc}$	Pass	-
3.8	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.40 dB at 7326.000 MHz
3.9	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 11.80 dB at 0.166 MHz
3.10	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Mighty Audio, Inc.

707 Coeur d'Alene Ave, Venice, CA 90291 USA

1.2 Manufacturer

Dongguanhuang Fu Electronic Technology Co., LTD

ChuTang ChinXiaoTang Industrial Zone, FengGang, DongGuang, GuangDong, China Postcode 523682

1.3 Product Feature of Equipment Under Test

Bluetooth, DTS b/g/n

Product Specification subjective to this standard	
Antenna Type	WLAN: Chip Antenna Bluetooth: Chip Antenna

1.4 Modification of EUT

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

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH05-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
Test Site No.	Sporton Site No.	
	03CH11-HY	

Note: The test site complies with ANSI C63.4 2014 requirement.

1.6 Applicable 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
- ♦ ANSI C63.10-2013

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.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

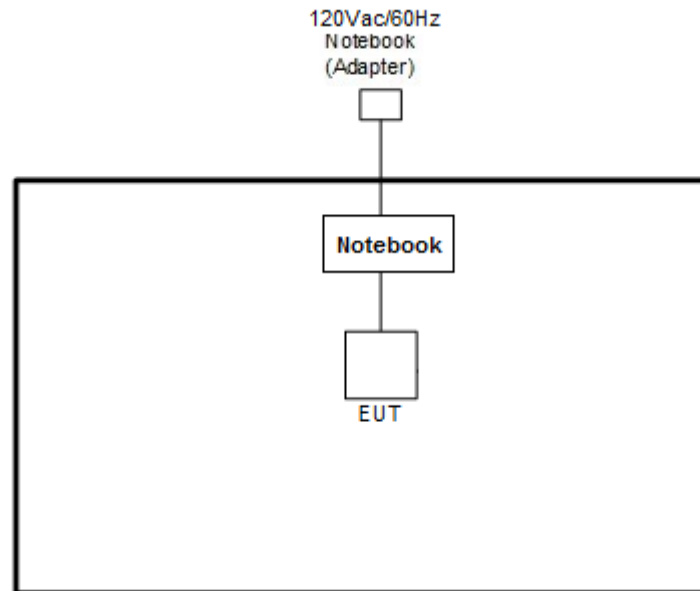
- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

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

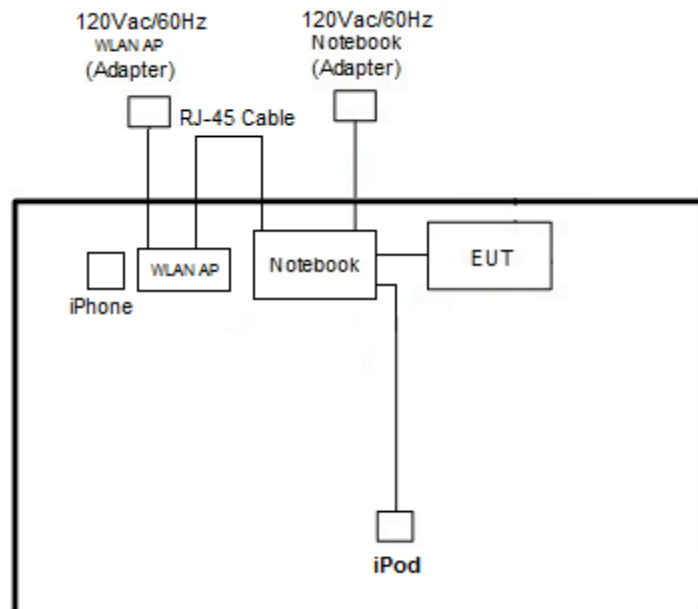
Summary table of Test Cases	
Test Item	Data Rate / Modulation
	Bluetooth BR 1Mbps GFSK
Conducted Test Cases	Mode 1: CH00_2402 MHz
	Mode 2: CH40_2442 MHz
	Mode 3: CH78_2480 MHz
Radiated Test Cases	Bluetooth BR 1Mbps GFSK
	Mode 1: CH00_2402 MHz
	Mode 2: CH40_2442 MHz
	Mode 3: CH78_2480 MHz
AC Conducted Emission	Mode 1: Bluetooth Link + WLAN Link + 3.5mm audio jack to USB Cable (Charging from Notebook)

2.2 Connection Diagram of Test System

<Bluetooth Tx Mode>



<AC Conducted Emission Mode>



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
3.	Notebook	T-PUT NB	E335	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	iPhone	Apple	A1387	BCG-E2816A	N/A	N/A

2.4 EUT Operation Test Setup

For Bluetooth function, turn on the power and press the play button for EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

2.5 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.

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\
 &= 4.2 + 10 = 14.2 \text{ (dB)}
 \end{aligned}$$

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.

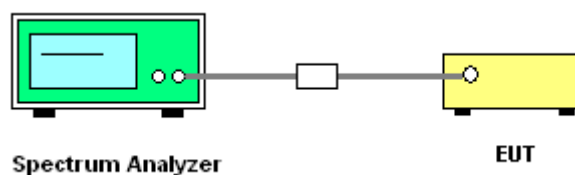
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

1. The testing follows ANSI C63.10-2013 clause 7.8.3.
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 = 300kHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

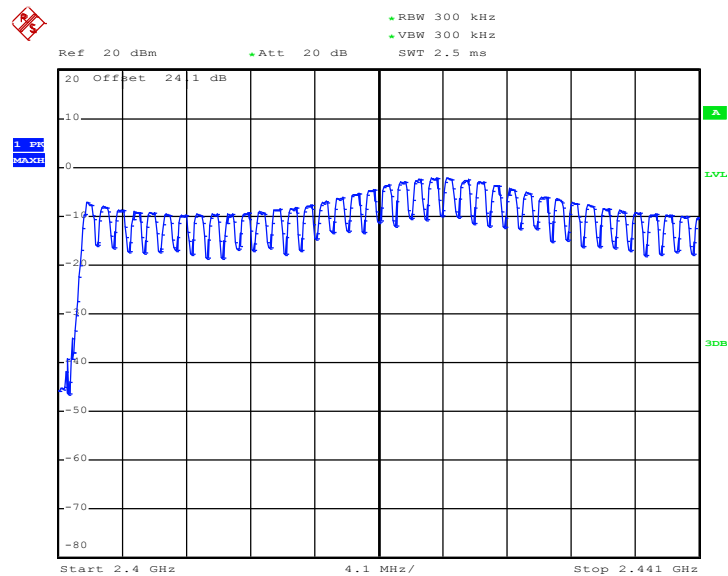
3.1.4 Test Setup



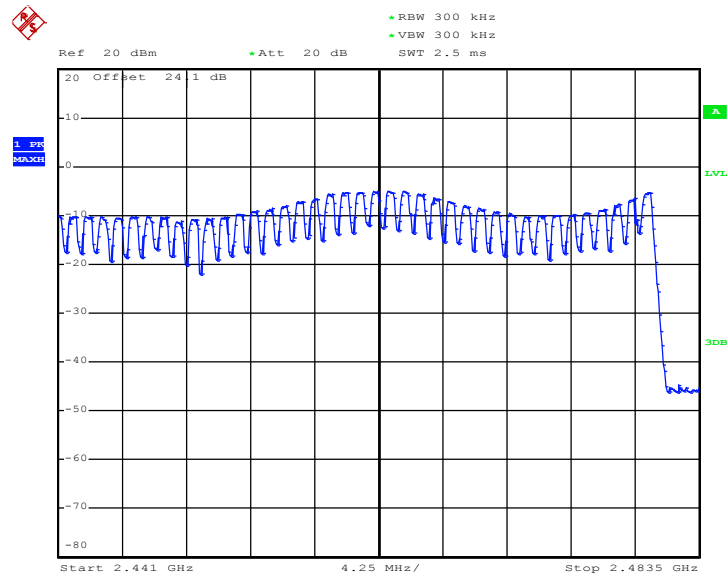
3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	1Mbps	Temperature :	24~26°C
Test Engineer :	Aking Chang	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



Date: 23.DEC.2016 16:22:18



Date: 23.DEC.2016 16:22:55

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.

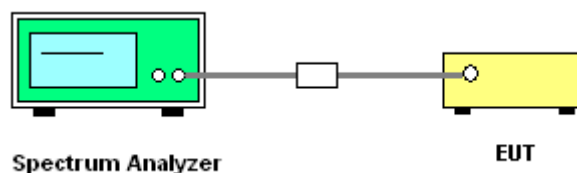
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.2.
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 = 300kHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

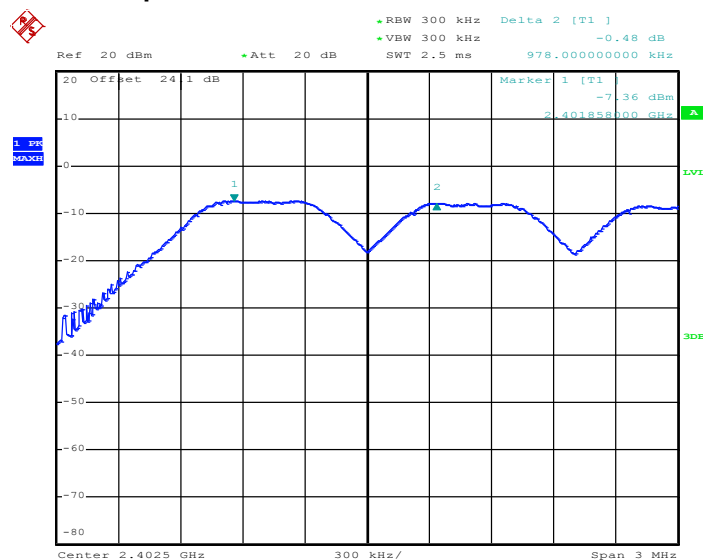
3.2.4 Test Setup



**3.2.5 Test Result of Hopping Channel Separation**

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

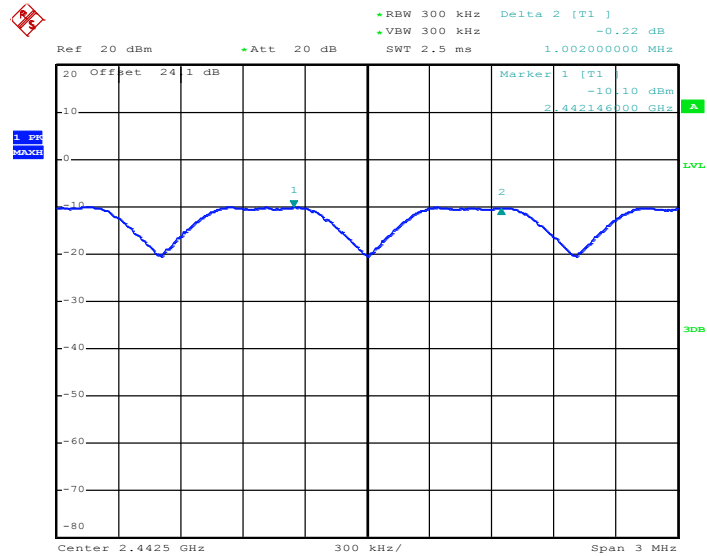
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	0.978	0.6933	Pass
40	2442	1.002	0.6960	Pass
78	2480	1.002	0.6960	Pass

Channel Separation Plot on Channel 00 - 01

Date: 23.DEC.2016 16:27:39

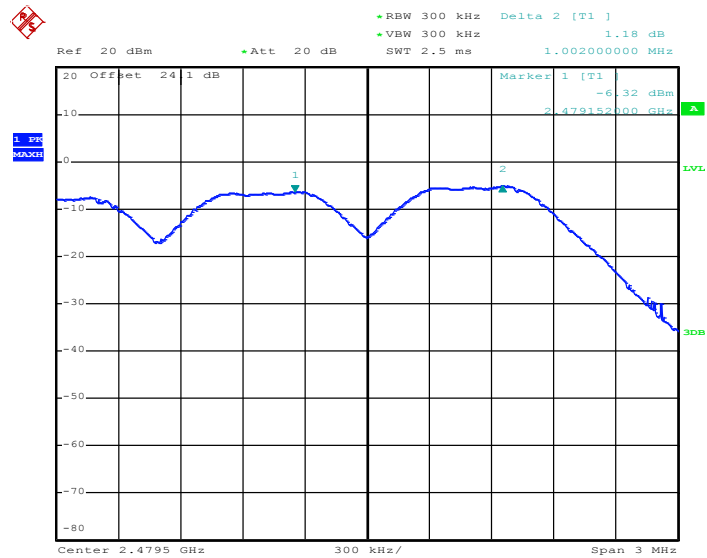


Channel Separation Plot on Channel 40 - 41



Date: 23.DEC.2016 16:34:38

Channel Separation Plot on Channel 77 - 78



Date: 23.DEC.2016 16:32:24

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.

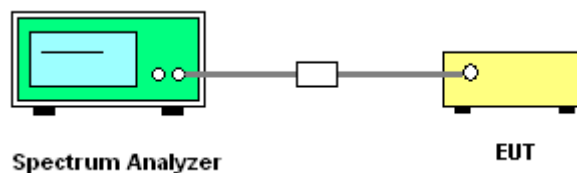
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.4.
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 \geq 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



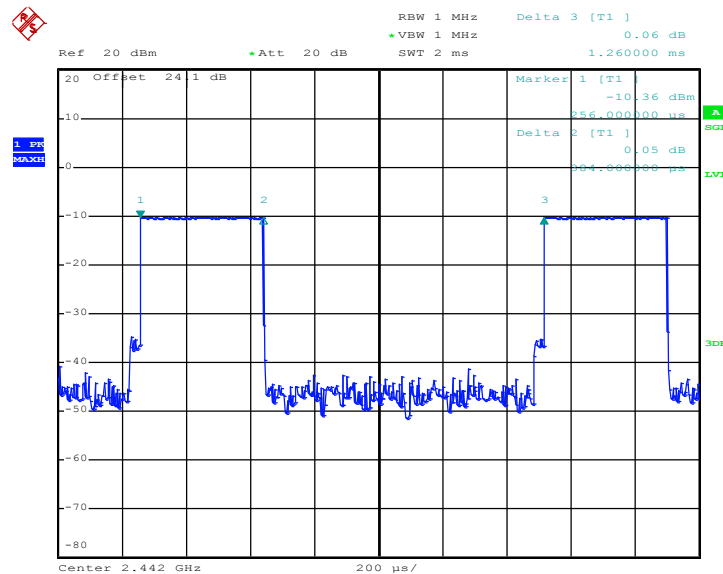
3.3.5 Test Result of Dwell Time

Test Mode :	DH5	Temperature :	24~26℃
Test Engineer :	Aking Chang	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	0.38	0.04	0.4	Pass

Remark:

- In normal mode, hopping rate is 1600 hops/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.
- Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

Package Transfer Time Plot


Date: 23.DEC.2016 15:57:24

3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

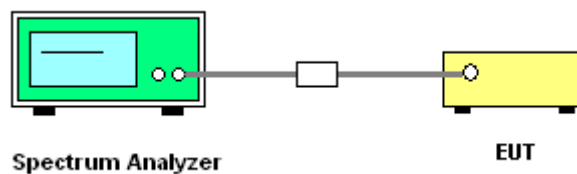
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 6.9.2 and 6.9.3.
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 5 times the 20 dB bandwidth, centered on a hopping channel;
RBW \geq 1% of the 20 dB bandwidth; VBW \geq RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel;
RBW \geq 1% of the 99% bandwidth; VBW \geq RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
6. Measure and record the results in the test report.

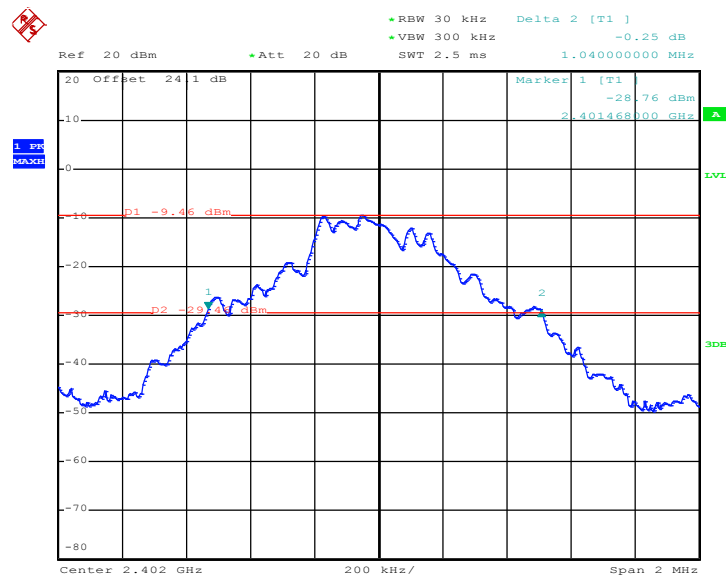
3.4.4 Test Setup



**3.4.5 Test Result of 20dB Bandwidth**

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

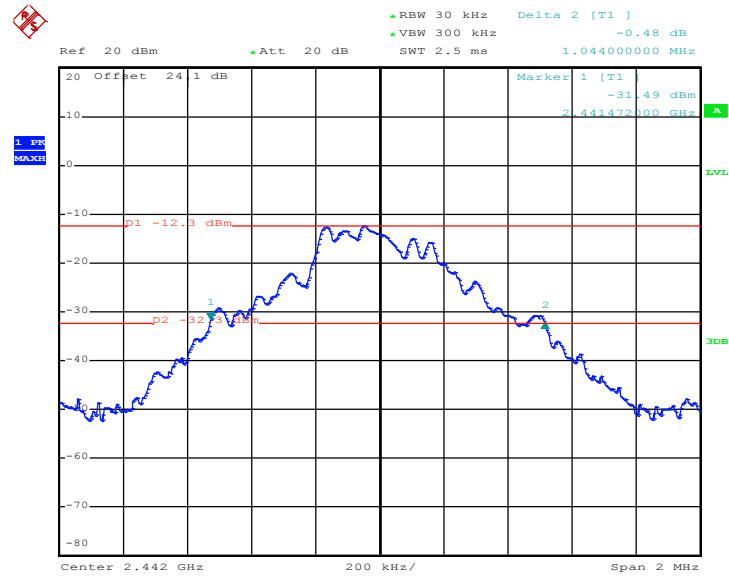
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	1.040
40	2442	1.044
78	2480	1.044

20 dB Bandwidth Plot on Channel 00

Date: 23.DEC.2016 16:11:13

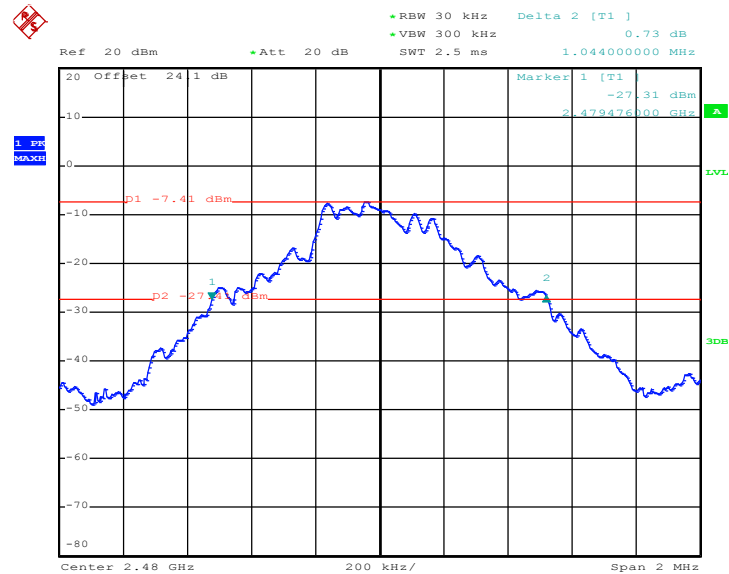


20 dB Bandwidth Plot on Channel 40



Date: 23.DEC.2016 16:15:36

20 dB Bandwidth Plot on Channel 78



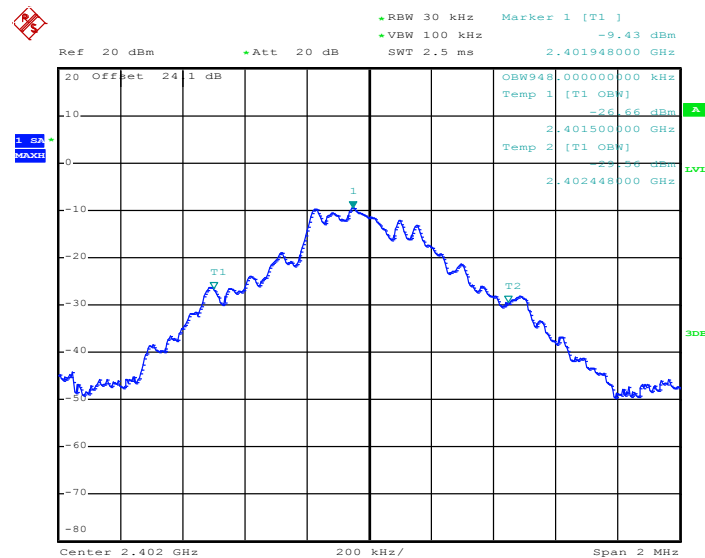
Date: 23.DEC.2016 16:18:56

3.4.6 Test Result of 99% Occupied Bandwidth

Test Mode :	1Mbps	Temperature :	24~26°C
Test Engineer :	Aking Chang	Relative Humidity :	48~51%

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.948
40	2442	0.952
78	2480	0.952

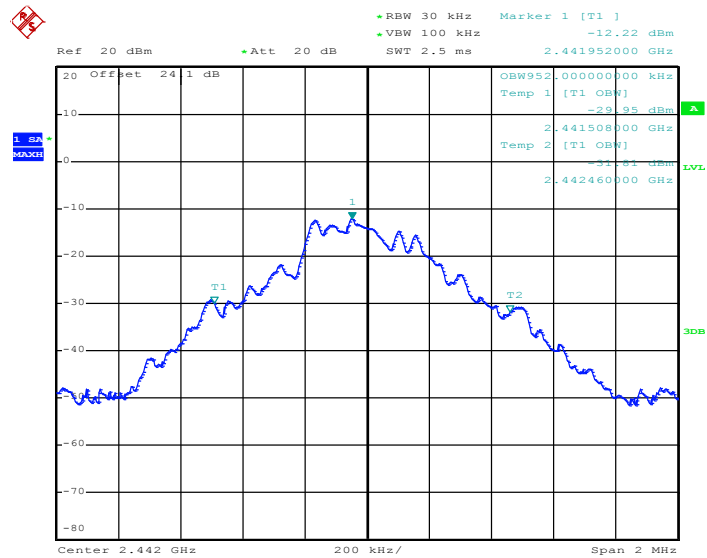
99% Occupied Bandwidth Plot on Channel 00



Date: 23.DEC.2016 16:35:30

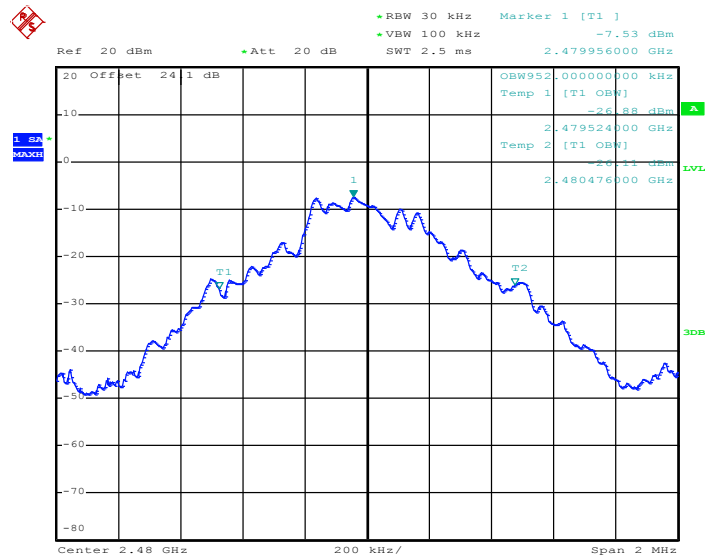


99% Occupied Bandwidth Plot on Channel 40



Date: 23.DEC.2016 16:36:18

99% Occupied Bandwidth Plot on Channel 78



Date: 23.DEC.2016 16:37:37

Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

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 mode is 0.125 watts.

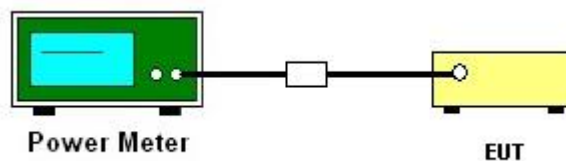
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.5.
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 :	Aking Chang	Relative Humidity :	48~51%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	-4.47	20.97	Pass
40	2442	-5.34	20.97	Pass
78	2480	-3.28	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

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

3.6.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.6.
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 100kHz 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.

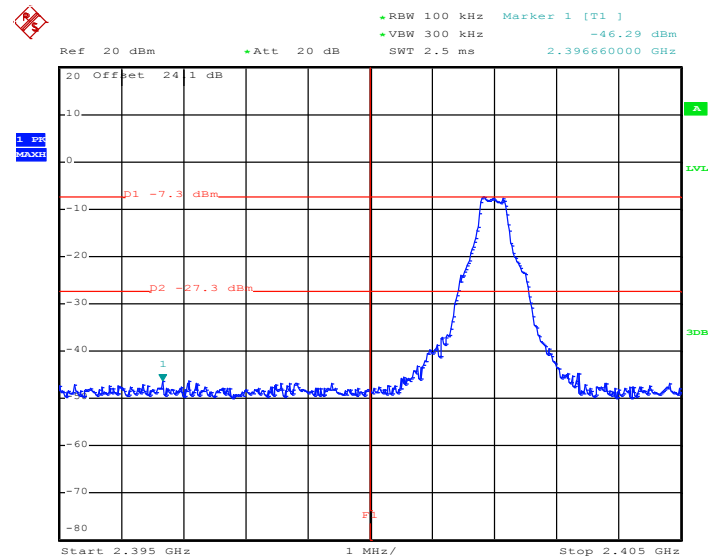
3.6.4 Test Setup



3.6.5 Test Result of Conducted Band Edges

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

Low Band Edge Plot on Channel 00

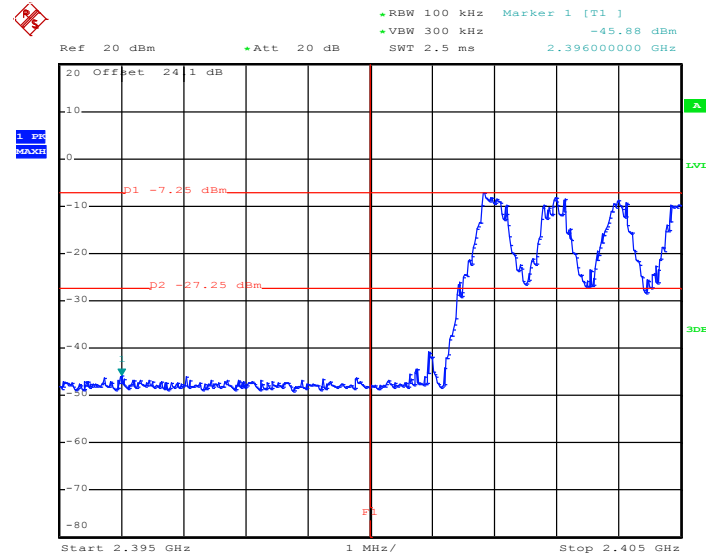




3.6.6 Test Result of Conducted Hopping Mode Band Edges

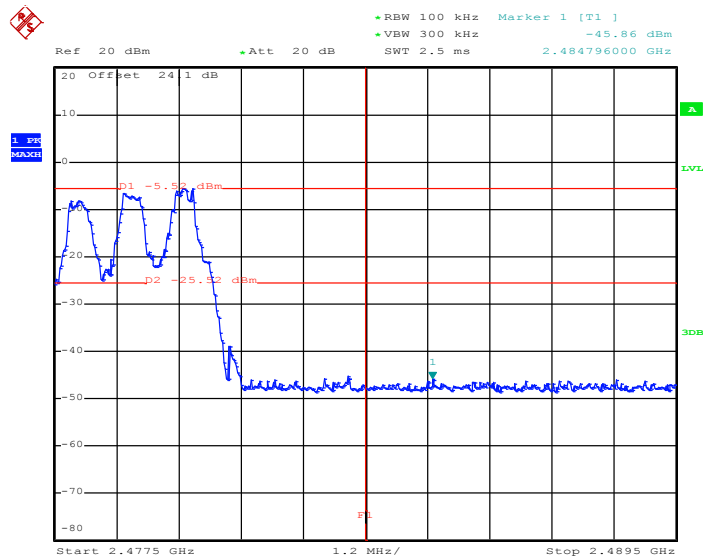
Test Mode :	1Mbps	Temperature :	24~26°C
Test Engineer :	Aking Chang	Relative Humidity :	48~51%

1Mbps Hopping Mode Low Band Edge Plot



Date: 23.DEC.2016 16:28:53

1Mbps Hopping Mode High Band Edge Plot



Date: 23.DEC.2016 16:30:40

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.

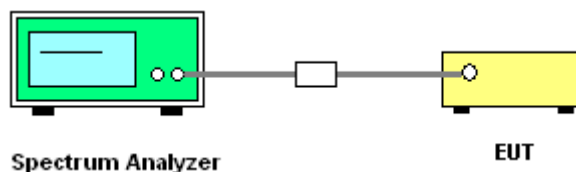
3.7.2 Measuring Instruments

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

3.7.3 Test Procedure

1. The testing follows ANSI C63.10-2013 clause 7.8.8.
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.

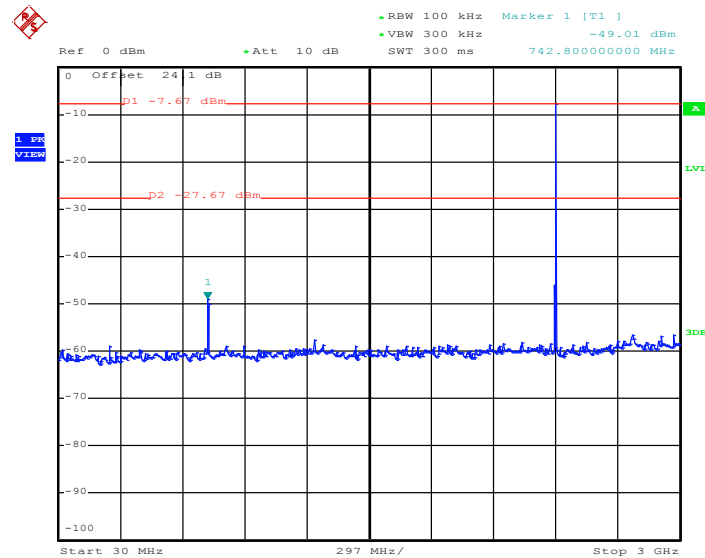
3.7.4 Test Setup



3.7.5 Test Result of Conducted Spurious Emission

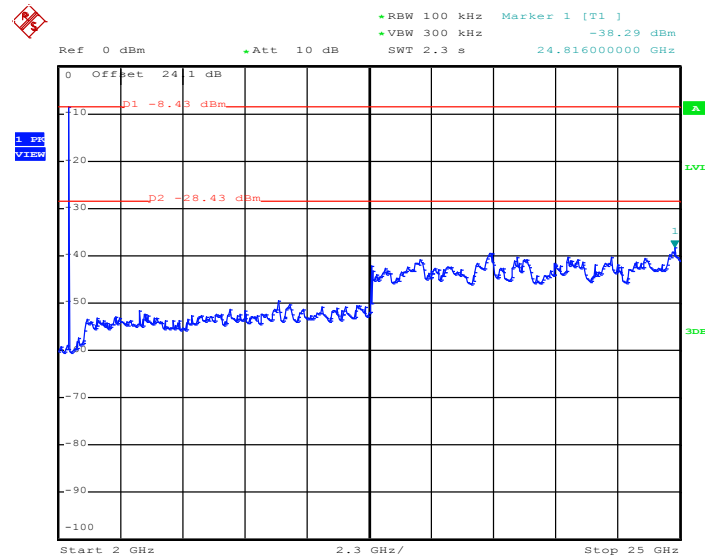
Test Mode :	1Mbps	Temperature :	24~26°C
Test Channel :	00	Relative Humidity :	48~51%
		Test Engineer :	Aking Chang

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



Date: 23.DEC.2016 16:07:47

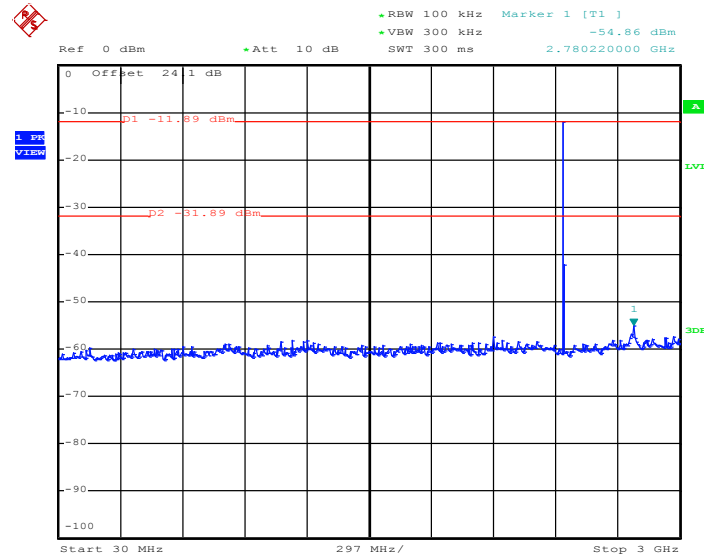
1Mbps CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 23.DEC.2016 16:08:09

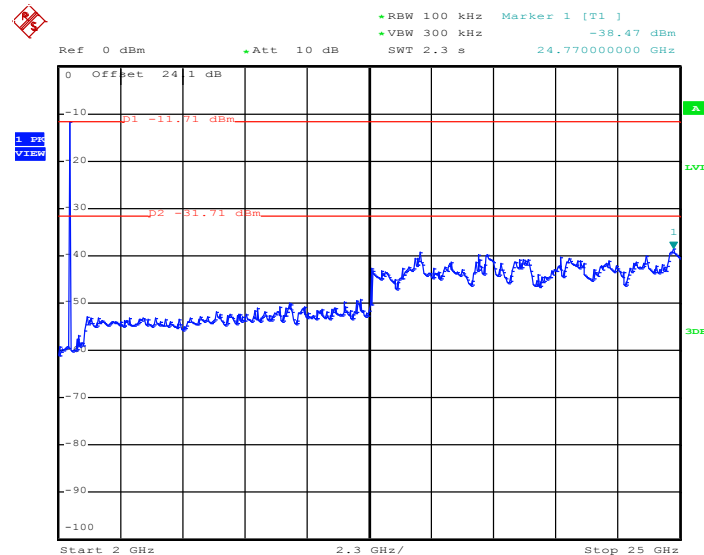
Test Mode :	1Mbps	Temperature :	24~26℃
Test Channel :	40	Relative Humidity :	48~51%
		Test Engineer :	Aking Chang

1Mbps CSE Plot on Ch 40 between 30MHz ~ 3 GHz



Date: 23.DEC.2016 16:13:16

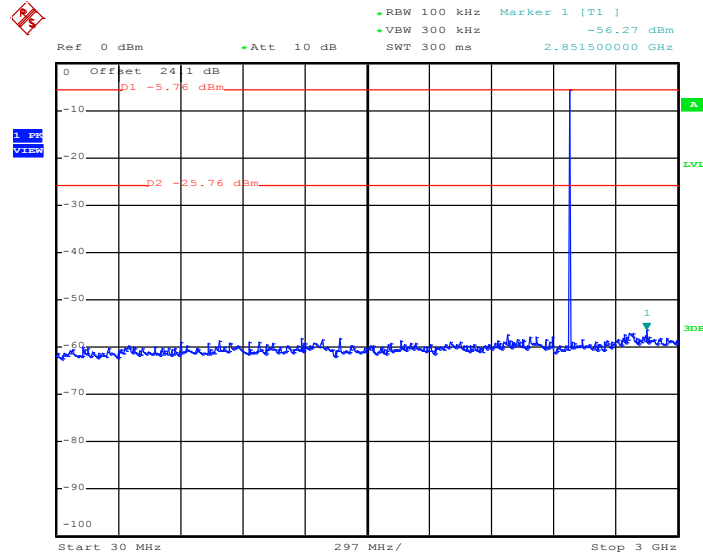
1Mbps CSE Plot on Ch 40 between 2 GHz ~ 25 GHz



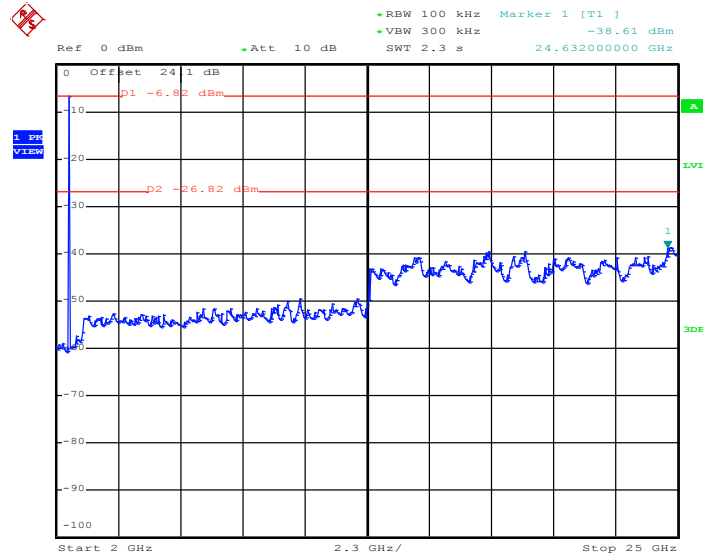
Date: 23.DEC.2016 16:13:37



Test Mode :	1Mbps	Temperature :	24~26°C
Test Channel :	78	Relative Humidity :	48~51%
		Test Engineer :	Aking Chang

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

Date: 23.DEC.2016 16:16:25

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

Date: 23.DEC.2016 16:16:47



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

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

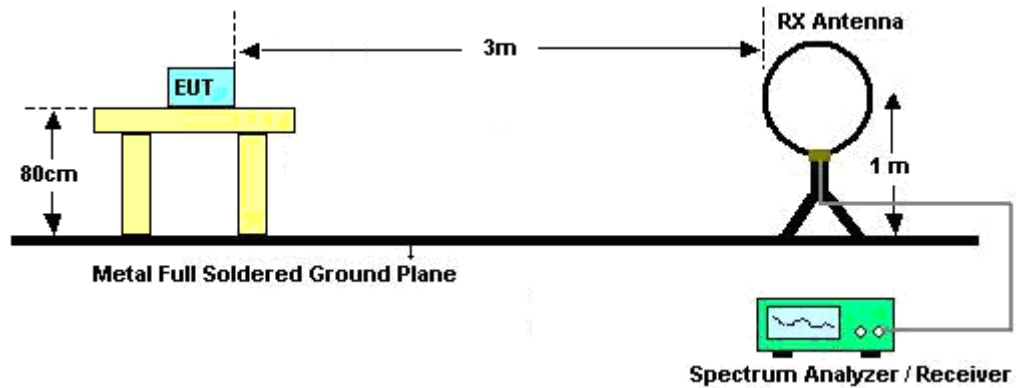
3.8.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. 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.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. 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 $f > 1$ GHz ; VBW \geq 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 = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

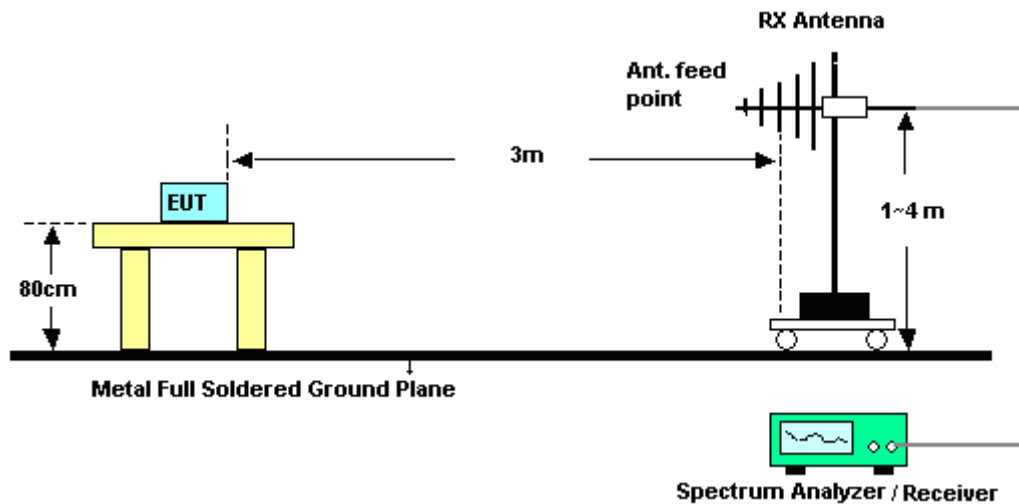
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (42.38dB) derived from $20\log(\text{dwell time}/100\text{ms})$. This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

3.8.4 Test Setup

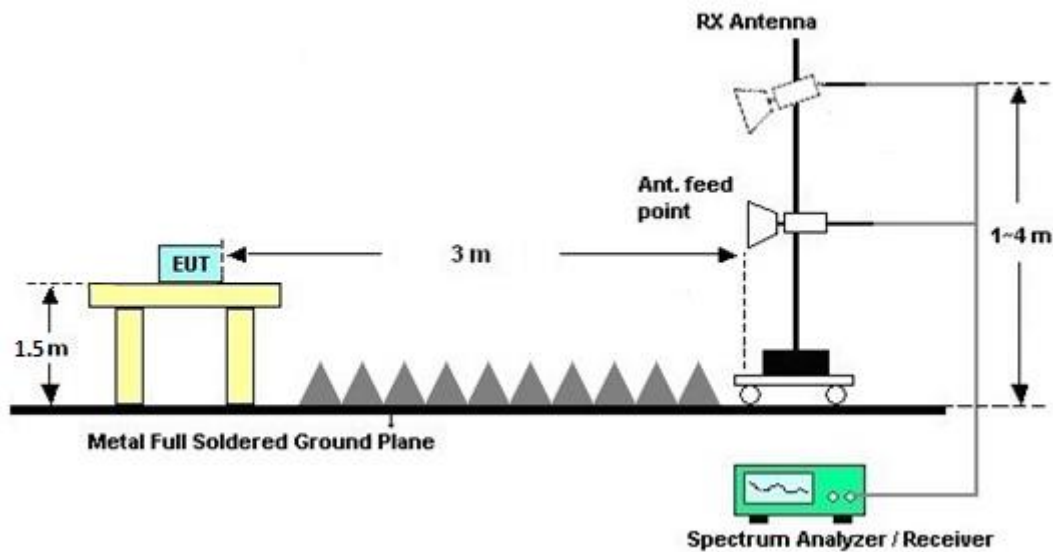
For radiated emissions below 30MHz



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 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.8.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

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 (dB μ V)	
	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.

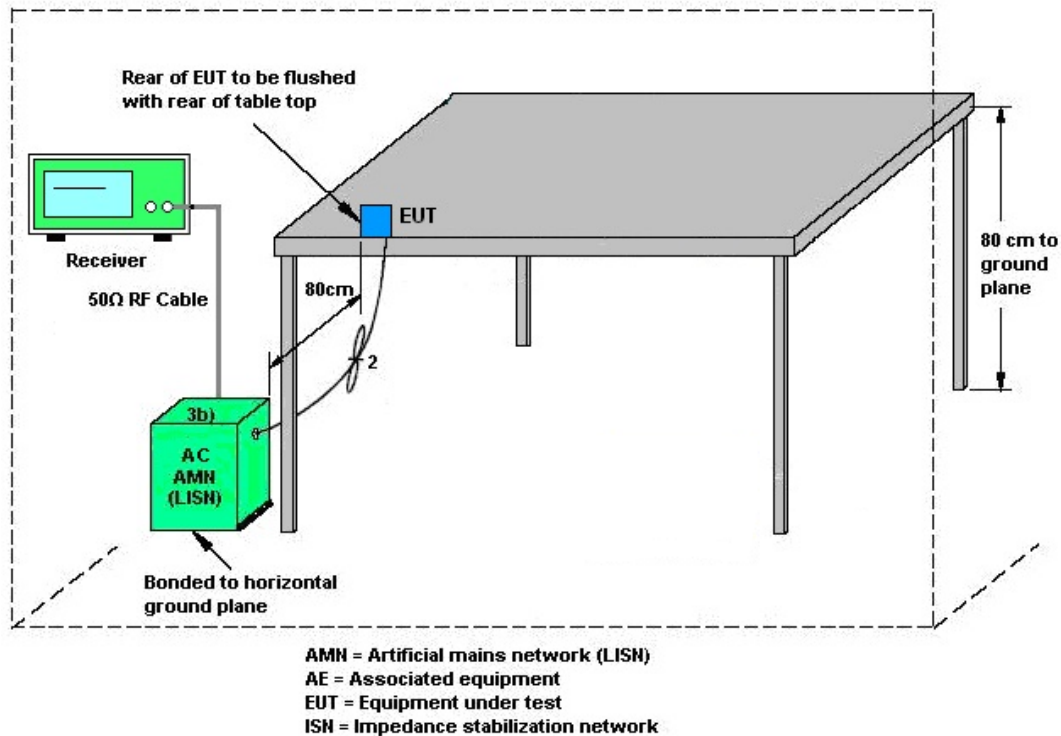
3.9.2 Measuring Instruments

The 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 (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.9.4 Test Setup



3.9.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



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 Anti-Replacement Construction

An embedded-in antenna design 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
Power Meter	Agilent	E4416A	GB412923 44	300MHz~40GHz	Jan. 08, 2016	Dec. 23, 2016	Jan. 07, 2017	Conducted (TH05-HY)
Power Sensor	Agilent	E9327A	US404415 48	300MHz~40GHz	Jan. 07, 2016	Dec. 23, 2016	Jan. 06, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jul. 17, 2016	Dec. 23, 2016	Jul. 16, 2017	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 22, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Nov. 22, 2016	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Nov. 22, 2016	Dec. 01, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 14, 2015	Nov. 22, 2016	Dec. 13, 2016	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Nov. 28, 2016 ~ Nov. 30, 2016	Sep. 01, 2017	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D	35414	30MHz~1GHz	Oct. 15, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Oct. 14, 2017	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-152 2	1GHz ~ 18GHz	Mar. 30, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Mar. 31, 2017	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 584	18GHz- 40GHz	Nov. 08, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Nov. 07, 2017	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 10, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Nov. 09, 2017	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY532700 80	1GHz~26.5GHz	Nov. 10, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Nov. 09, 2017	Radiation (03CH11-HY)
Preamplifier	MITEQ	TTA0204	1872107	2GHz~40GHz	Feb. 15, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Feb. 14, 2017	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY523502 76	10Hz ~ 44GHZ	Mar. 21, 2016	Nov. 28, 2016 ~ Nov. 30, 2016	Mar. 20, 2017	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Nov. 28, 2016 ~ Nov. 30, 2016	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500- B	N/A	1~4m	N/A	Nov. 28, 2016 ~ Nov. 30, 2016	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Nov. 28, 2016 ~ Nov. 30, 2016	N/A	Radiation (03CH11-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.7
-------------------------------------------------------------------------	-----

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2
-------------------------------------------------------------------------	-----

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

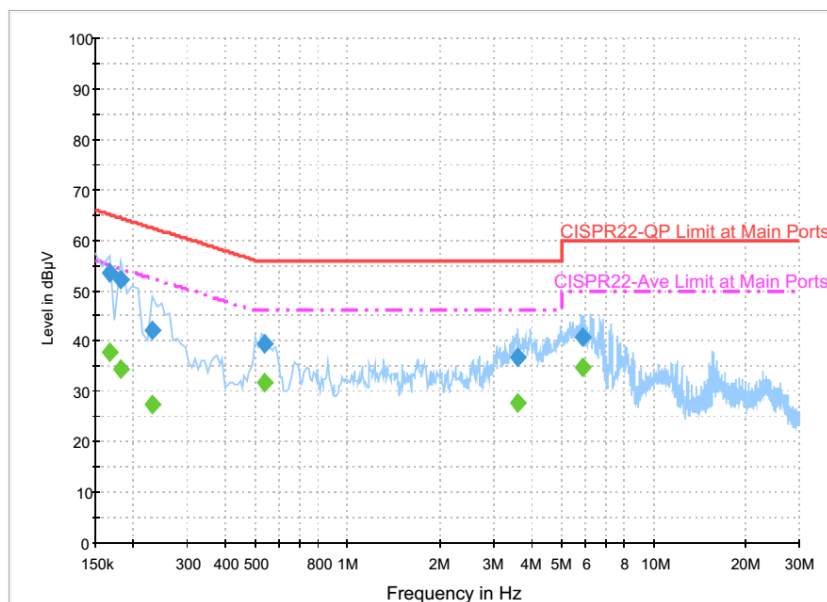
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.5
-------------------------------------------------------------------------	-----

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2
-------------------------------------------------------------------------	-----

Appendix A. AC Conducted Emission Test Results

Test Engineer :	Kai-Chun Chu	Temperature :	23~24°C
		Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line



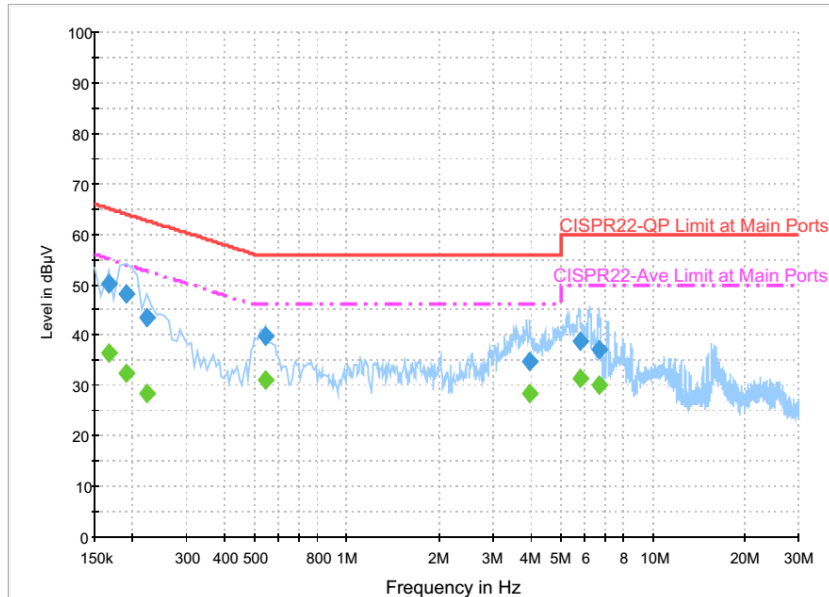
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.166000	53.4	Off	L1	19.6	11.8	65.2
0.182000	52.1	Off	L1	19.6	12.3	64.4
0.230000	42.3	Off	L1	19.6	20.1	62.4
0.534000	39.3	Off	L1	19.6	16.7	56.0
3.590000	36.9	Off	L1	19.6	19.1	56.0
5.878000	40.8	Off	L1	19.7	19.2	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.166000	37.8	Off	L1	19.6	17.4	55.2
0.182000	34.5	Off	L1	19.6	19.9	54.4
0.230000	27.3	Off	L1	19.6	25.1	52.4
0.534000	31.7	Off	L1	19.6	14.3	46.0
3.590000	27.9	Off	L1	19.6	18.1	46.0
5.878000	34.9	Off	L1	19.7	15.1	50.0

Test Engineer :	Kai-Chun Chu	Temperature :	23~24°C
		Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.166000	50.1	Off	N	19.6	15.1	65.2
0.190000	48.0	Off	N	19.6	16.0	64.0
0.222000	43.4	Off	N	19.6	19.3	62.7
0.542000	39.8	Off	N	19.6	16.2	56.0
3.950000	34.6	Off	N	19.6	21.4	56.0
5.782000	38.7	Off	N	19.7	21.3	60.0
6.662000	37.1	Off	N	19.7	22.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.166000	36.5	Off	N	19.6	18.7	55.2
0.190000	32.4	Off	N	19.6	21.6	54.0
0.222000	28.5	Off	N	19.6	24.2	52.7
0.542000	31.0	Off	N	19.6	15.0	46.0
3.950000	28.3	Off	N	19.6	17.7	46.0
5.782000	31.6	Off	N	19.7	18.4	50.0
6.662000	30.2	Off	N	19.7	19.8	50.0



Appendix B. Radiated Spurious Emission

Test Engineer :	Jacky Hung and Ken Wu	Temperature :	20~23°C
		Relative Humidity :	58~63%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2343.915	44.11	-29.89	74	41.86	27.03	8.82	33.6	127	143	P	H
		2343.915	1.73	-52.27	54	-	-	-	-	-	-	A	H
	*	2402	94.54	-	-	92.05	27.19	8.89	33.59	127	143	P	H
	*	2402	52.16	-	-	-	-	-	-	-	-	A	H
													H
													H
		2374.365	44.2	-29.8	74	41.84	27.14	8.82	33.6	375	219	P	V
		2374.365	1.82	-52.18	54	-	-	-	-	-	-	A	V
	*	2402	86.04	-	-	83.55	27.19	8.89	33.59	375	219	P	V
	*	2402	43.66	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 40 2442MHz		2345.14	43.99	-30.01	74	41.74	27.03	8.82	33.6	248	129	P	H
		2345.14	1.61	-52.39	54	-	-	-	-	-	-	A	H
	*	2442	91.42	-	-	88.72	27.34	8.94	33.58	248	129	P	H
	*	2442	49.04	-	-	-	-	-	-	-	-	A	H
		2492.23	43.75	-30.25	74	40.84	27.5	8.98	33.57	248	129	P	H
		2492.23	1.37	-52.63	54	-	-	-	-	-	-	A	H
		2318.68	44.16	-29.84	74	42.04	26.98	8.75	33.61	361	291	P	V
		2318.68	1.78	-52.22	54	-	-	-	-	-	-	A	V
	*	2442	82.48	-	-	79.78	27.34	8.94	33.58	361	291	P	V
	*	2442	40.1	-	-	-	-	-	-	-	-	A	V
		2493.98	44.09	-29.91	74	41.18	27.5	8.98	33.57	361	291	P	V
		2493.98	1.71	-52.29	54	-	-	-	-	-	-	A	V



BT	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 78 2480MHz	*	2480	93.64	-	-	90.79	27.45	8.98	33.58	353	139	P	H
	*	2480	51.26	-	-	-	-	-	-	-	-	A	H
		2493.36	44.69	-29.31	74	41.78	27.5	8.98	33.57	353	139	P	H
		2493.36	2.31	-51.69	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	87.14	-	-	84.29	27.45	8.98	33.58	395	304	P	V
	*	2480	44.76	-	-	-	-	-	-	-	-	A	V
		2486.44	44.29	-29.71	74	41.44	27.45	8.98	33.58	395	304	P	V
		2486.44	1.91	-52.09	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 00 2402MHz		4804	36.9	-37.1	74	45.68	31.66	10.65	51.09	100	0	P	H
		4804	-5.48	-59.48	54	-	-	-	-	-	-	A	H
													H
													H
		4804	35.48	-38.52	74	44.26	31.66	10.65	51.09	100	0	P	V
		4804	-6.9	-60.9	54	-	-	-	-	-	-	A	V
													V
													V
BT CH 40 2442MHz		4844	33.56	-40.44	74	42.15	31.72	10.77	51.08	100	0	P	H
		4844	-8.82	-62.82	54	-	-	-	-	-	-	A	H
		7326	37.07	-36.93	74	37.5	37.29	12.79	50.51	100	0	P	H
		7326	-5.31	-59.31	54	-	-	-	-	-	-	A	H
		4844	32.19	-41.81	74	40.78	31.72	10.77	51.08	100	0	P	V
		4844	-10.19	-64.19	54	-	-	-	-	-	-	A	V
		7326	37.98	-36.02	74	38.41	37.29	12.79	50.51	100	0	P	V
		7326	-4.4	-58.4	54	-	-	-	-	-	-	A	V
BT CH 78 2480MHz		4960	33.5	-40.5	74	41.47	31.94	11.12	51.03	100	0	P	H
		4960	-8.88	-62.88	54	-	-	-	-	-	-	A	H
		7440	37.67	-36.33	74	37.86	37.44	12.88	50.51	100	0	P	H
		7440	-4.71	-58.71	54	-	-	-	-	-	-	A	H
		4960	33.48	-40.52	74	41.45	31.94	11.12	51.03	100	0	P	V
		4960	-8.9	-62.9	54	-	-	-	-	-	-	A	V
		7440	37.97	-36.03	74	38.16	37.44	12.88	50.51	100	0	P	V
		7440	-4.41	-58.41	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz BT (LF)

[illegible]



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.

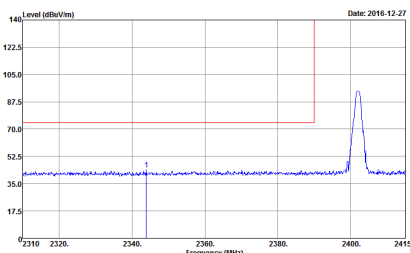
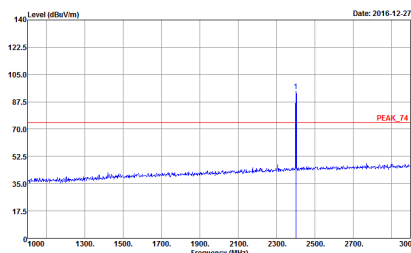


Appendix C. Radiated Spurious Emission Plots

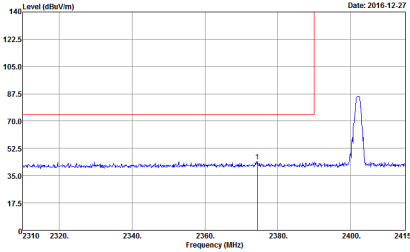
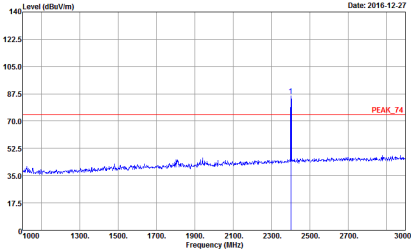
Test Engineer :	Jacky Hung and Ken Wu	Temperature :	20~23°C
		Relative Humidity :	58~63%

2.4GHz 2400~2483.5MHz

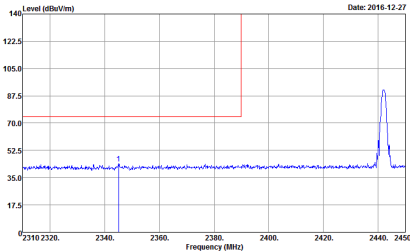
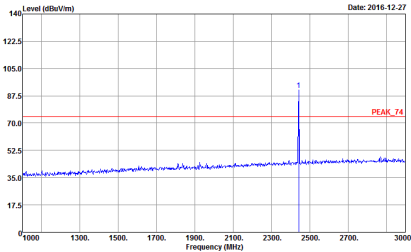
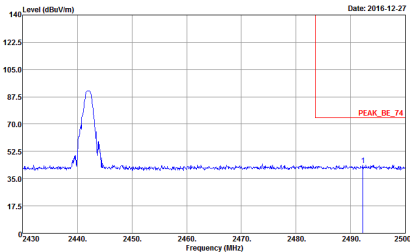
BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH11-HV Condition : PEAK_BE_74 3m HORN 9120d-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 601109</p>	 <p>Site : 03CH11-HV Condition : PEAK_74 3m HORN 9120d-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 601109</p>

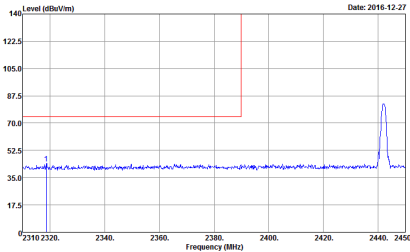
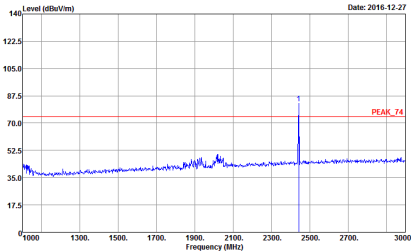
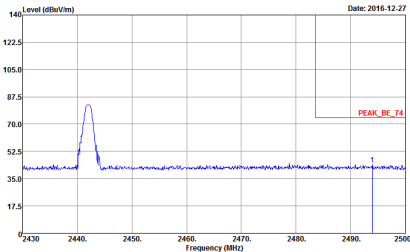


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
1	Vertical	Fundamental
Peak	<div><p>Site : 08CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 6O1109</p></div>	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 6O1109</p></div>

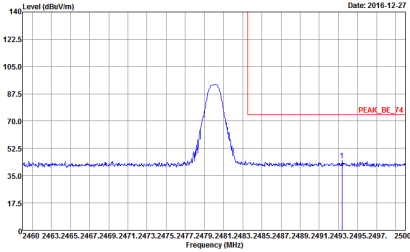
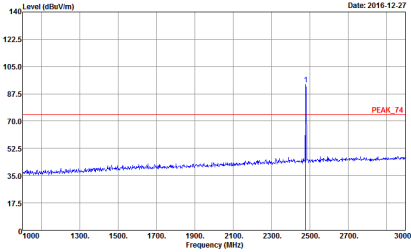


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH40 2442MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 601109</p>	 <p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 601109</p>
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 601109</p>	Left blank

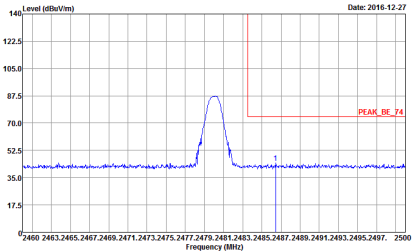
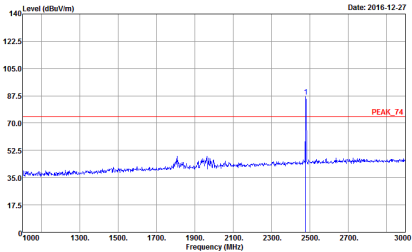


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH40 2442MHz	
1	Vertical	Fundamental
Peak	<div><p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 601109</p></div>	<div><p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 601109</p></div>
Peak	<div><p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 601109</p></div>	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Fundamental
Peak	<div><p>Site : 08CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 6O1109</p></div>	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 6O1109</p></div>

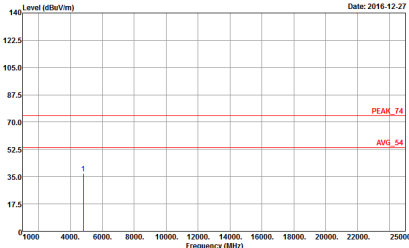
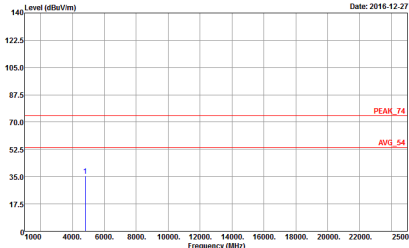


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
1	Vertical	Fundamental
Peak	<div><p>Site : 08CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 6O1109</p></div>	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 6O1109</p></div>

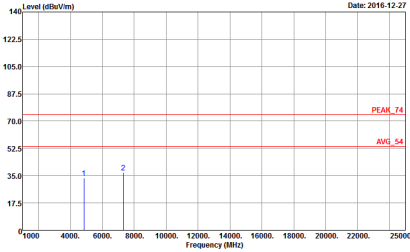
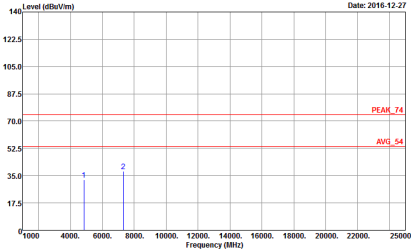


2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Vertical
Peak Avg.	<div><p>Site : 03CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL Detector : Peak Project : 6O1109</p></div>	<div><p>Site : 03CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL Detector : Peak Project : 6O1109</p></div>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH40 2442MHz	
1	Horizontal	Vertical
Peak Avg.	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL Detector : Peak Project : 6O1109</p></div>	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL Detector : Peak Project : 6O1109</p></div>

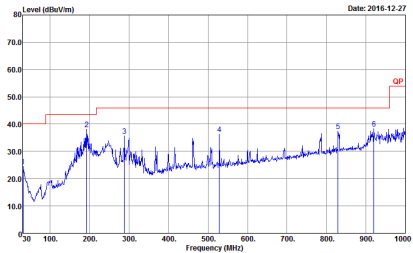
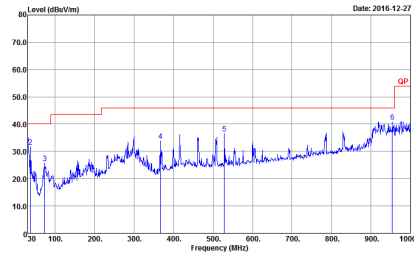


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Vertical
Peak Avg.	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL Detector : Peak Project : 6O1109</p></div>	<div><p>Site : 08CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL Detector : Peak Project : 6O1109</p></div>



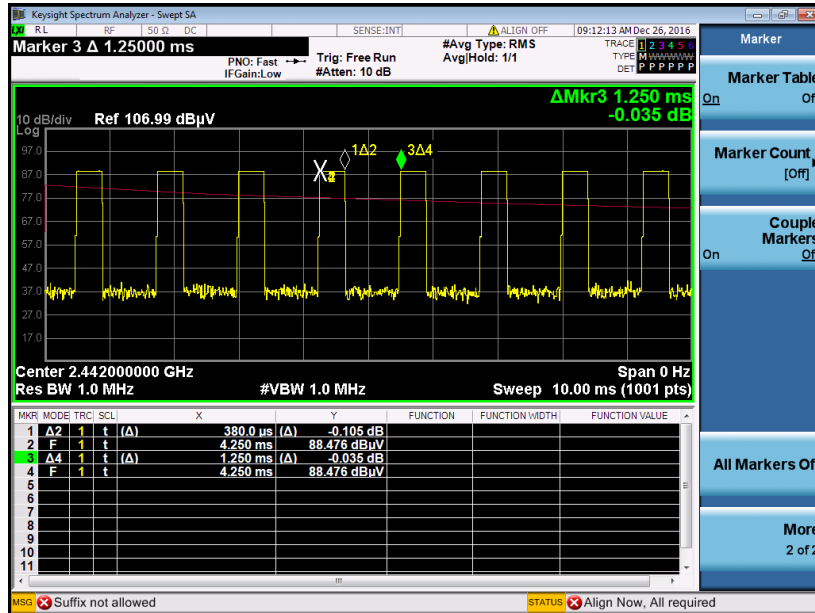
Emission below 1GHz

2.4GHz BT (LF)

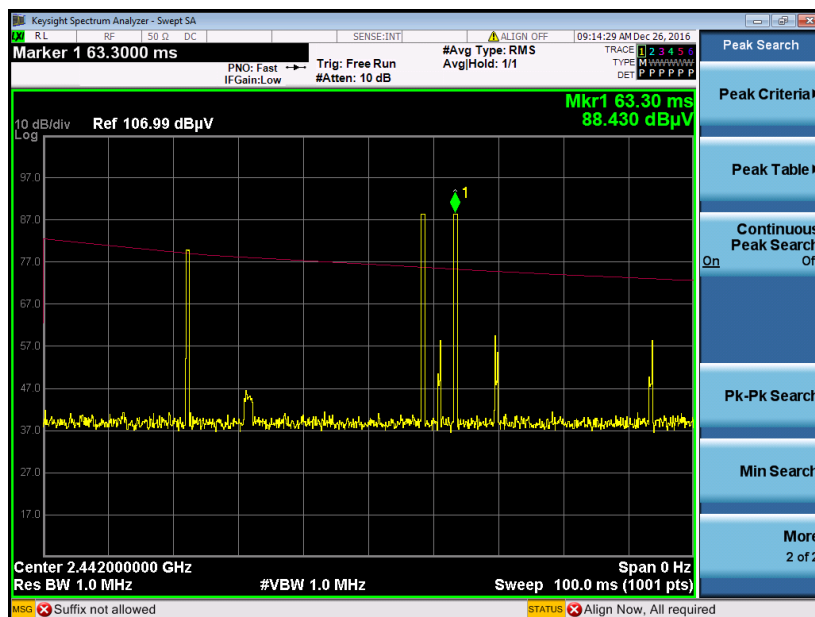
BT	2.4GHz 2400~2483.5MHz	
ANT	BT LF	
1	Horizontal	Vertical
QP / Peak	 <p>Site : 03CH11-HY Condition : QP 3m BT-LO6 6111D-LF_ETC HORIZONTAL Detector : Peak Project : 6O1109</p>	 <p>Site : 03CH11-HY Condition : QP 3m BT-LO6 6111D-LF_ETC VERTICAL Detector : Peak Project : 6O1109</p>

Appendix D. Duty Cycle Plots

DH1 on time (One Pulse) Plot on Channel 40



on time (Count Pulses) Plot on Channel 40



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 0.38 / 100 = 0.76 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -42.38 \text{ dB}$
3. DH1 has the highest duty cycle worst case and is reported.