Variant FCC RF Test Report

APPLICANT	:	Acer Incorporated
EQUIPMENT	:	Tablet Computer
BRAND NAME	:	Acer
MODEL NAME	:	A100
FCC ID	:	HLZTMDMA100
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	Digital Spread Spectrum (DSS)

This is a variant report which is only valid together with the original test report. The product was received on Jul. 19, 2011 and completely tested on Jul. 26, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

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
FR132346-04A	Rev. 01	This is a variant report. The original report which can be referred to Sporton Report No. FR132346A as appendix C. Detail changes list as below : 1. Addition adaptor DC cable length 150cm. (layout PCB are same as the original case.) 2. Addition LPDDR2 add Elpida 1GB. 3. Addition eMMC add Samsung 16GB、SanDisk 16GB、Kingston 16GB、Kingston 8GB. 4. Addition 7” WSVGA LCD CMI (w/I V-COM) 5. Addition touch Panel with 4 point. 6. ICT USB cable. For the changes, the test case was verified. Tested in accordance with the requirement of Class 1 Permissive Change.	Aug. 01, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
2.5	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
2.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 6.4 dB at 0.182 MHz
2.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 5.01 dB at 2483.5 MHz
2.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Acer Incorporated
8F., No.88, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22181, Taiwan (R.O.C)

1.2 Manufacturer

1. **Compal Electronics, Inc.**
   No. 581, Ruiguang Rd., Neihu District, Taipei City 11492, Taiwan
2. **Compal Electronics Technology (Kunshan) Co., Ltd.**
   No. 25, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
3. **Compal Information (Kunshan) Co., Ltd.**
   No. 15, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
4. **Compal Information Technology (Kunshan) Co., Ltd.**
   No. 58, First Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
5. **Compalead Eletrônica Do Brasil Indústria E Comércio Ltda**
   Rua Kanebo 175, Galpões C1, C2, C3, C4, C5 C6 E C12, Bairro Distrito Industrial Jundiaí Business Park, Cep 13213-090, Jundiaí - São Paulo, Brasil
6. **Compal (Vietnam) Co., Ltd.**
   Ba Thien Industrial Zone, Ba Hien Commune, Binh Xuyen County, Vinh Phuc Province, Vietnam

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet Computer
Brand Name	Acer
Model Name	A100
Sample 1	EUT with LP DDR2 4th and eMMC 3rd
Sample 2	EUT with LP DDR2 4th and eMMC 4th
Sample 3	EUT with LP DDR2 4th and eMMC 5th
Sample 4	EUT with LP DDR2 4th and eMMC 6th
FCC ID	HLZTMDMA100
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Channel Spacing	1 MHz
Maximum Output Power to Antenna	**Sample 1** Bluetooth (1Mbps) : 3.03 dBm (0.002 W) Bluetooth EDR (2Mbps) : 5.61 dBm (0.003 W) Bluetooth EDR (3Mbps) : 3.42 dBm (0.002 W) **Sample 2** Bluetooth (1Mbps) : 2.33 dBm (0.001 W) Bluetooth EDR (2Mbps) : 4.91 dBm (0.003 W) Bluetooth EDR (3Mbps) : 2.72 dBm (0.001 W) **Sample 3** Bluetooth (1Mbps) : 2.82 dBm (0.001 W) Bluetooth EDR (2Mbps) : 5.66 dBm (0.003 W) Bluetooth EDR (3Mbps) : 3.25 dBm (0.002 W) **Sample 4** Bluetooth (1Mbps) : 3.12 dBm (0.002 W) Bluetooth EDR (2Mbps) : 5.7 dBm (0.003 W) Bluetooth EDR (3Mbps) : 3.54 dBm (0.002 W)
Antenna Type	PIFA Antenna with gain 2.38 dBi
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π /4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK
EUT Stage	Identical Prototype

Remark:

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

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.4-2003
- IC RSS-210 Issue 8

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	iPod Earphone	Apple	A1285	FCC DoC	Unshielded, 1.2 m	N/A
9.	Earphone + Mic	Ergotech	ET-E200	FCC DoC	Unshielded, 1.8 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Output Power

Preliminary tests were performed in different data rate and recorded the RF output power in the following table:

<Sample 1>

Channel	Frequency	Bluetooth Output Power		
		Data Rate / Modulation		
		GFSK	π/4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	2 dBm	4.56 dBm	2.37 dBm
Ch39	2441MHz	2.68 **dBm**	5.26 dBm	3 dBm
Ch78	2480MHz	3.03 dBm	**5.61** dBm	3.42 dBm

<Sample 2>

Channel	Frequency	Bluetooth Output Power		
		Data Rate / Modulation		
		GFSK	π/4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	1.13 dBm	3.62 dBm	1.53 dBm
Ch39	2441MHz	1.93 **dBm**	4.5 dBm	2.2 dBm
Ch78	2480MHz	2.33 dBm	**4.91** dBm	2.72 dBm

<Sample 3>

Channel	Frequency	Bluetooth Output Power		
		Data Rate / Modulation		
		GFSK	π/4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	1.53 dBm	4.14 dBm	1.93 dBm
Ch39	2441MHz	2.45 dBm	5.13 dBm	2.79 dBm
Ch78	2480MHz	2.82 dBm	**5.66** dBm	3.25 dBm

<Sample 4>

Channel	Frequency	Bluetooth Output Power		
		Data Rate / Modulation		
		GFSK	π/4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	1.96 dBm	4.49 dBm	2.25 dBm
Ch39	2441MHz	2.72 **dBm**	5.26 dBm	3.03 dBm
Ch78	2480MHz	3.12 dBm	**5.7** dBm	3.54 dBm

Remark:

1. The data rate was set in 2Mbps for all the test items due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

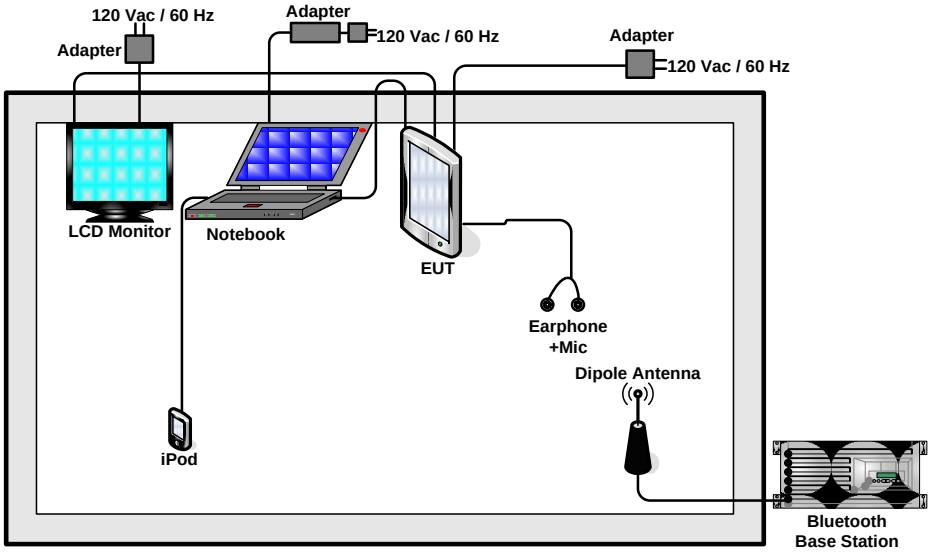
Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth 1Mbps GFSK	**Bluetooth EDR 2Mbps π /4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted TCs	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated TCs	N/A	Mode 1: CH78_2480 MHz	N/A
AC Conducted Emission	Mode 1 :WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		

Remark:

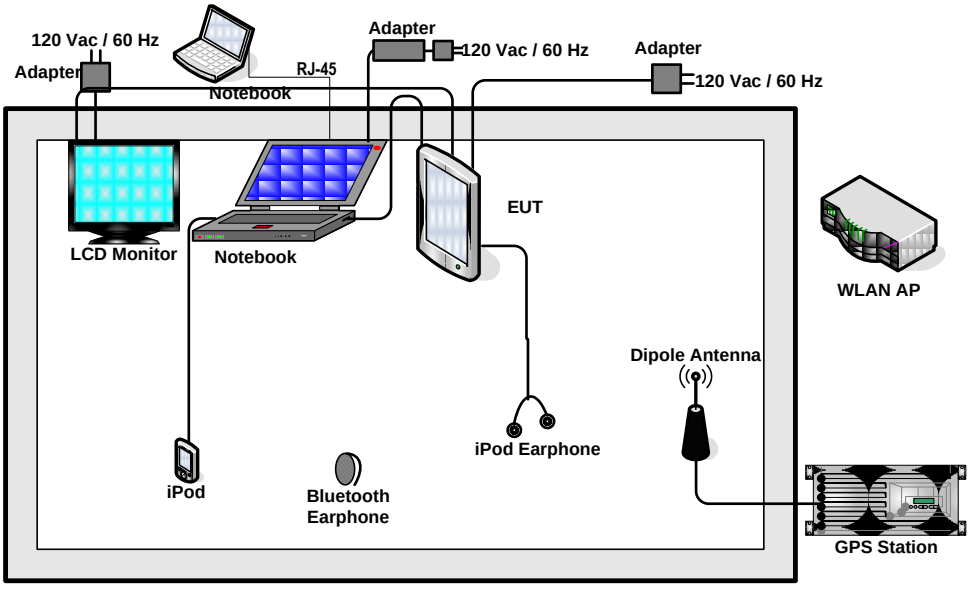
1. TC stands for Test Configuration, and consists of MP3, HDMI, earphone, and USB Link with Notebook.
2. For radiated TCs, the data rate was set in 2Mbps due to the highest RF output power; only the data of these modes was reported.

2.3 Connection Diagram of Test System

<Bluetooth Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

For Bluetooth function, the RF utility, “cmd” was installed in EUT which was programmed in order to make the EUT into the engineering modes to contact with Bluetooth base station for transmitting and receiving signals continuously.

2.5 Band Edges Measurement

2.5.1 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.

2.5.2 Measuring Instruments

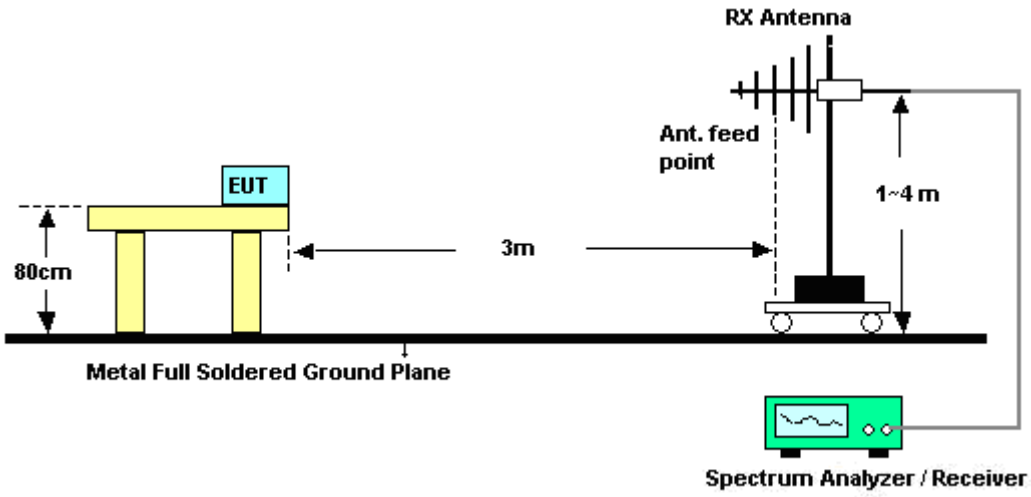
See list of measuring instruments of this test report.

2.5.3 Test Procedures

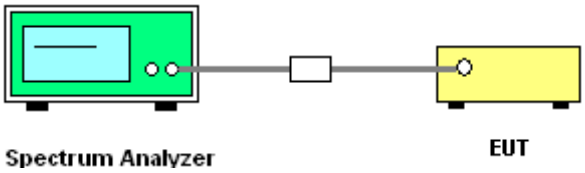
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC Public Notice DA 00-705 Measurement Guidelines.
2. RF antenna conducted test: Set RBW = 300kHz, Video bandwidth (VBW) ≥ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 300k Hz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Applies to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 1MHz, Sweep: Auto for Peak; set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto for Average. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation. See FCC Section 15.35(b) and (c).
4. In case the emission is fail due to the used RBW / VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

2.5.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



2.5.5 Test Result of Radiated Band Edges

<Sample 1>

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.71	-5.29	74	64.15	32.28	6.18	33.9	152	31	Peak
2483.5	31.21	-22.79	54	26.65	32.28	6.18	33.9	152	31	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	85.78	54.57	31.21	54	-22.79	Pass
Hopping Mode	85.78	55.26	30.52	54	-23.48	Pass

Note : Average result = Maximum field strength – Delta result

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	65.2	-8.8	74	60.64	32.28	6.18	33.9	100	90	Peak
2483.5	29.25	-24.75	54	24.69	32.28	6.18	33.9	100	90	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	83.24	53.99	29.25	54	-24.75	Pass
Hopping Mode	83.24	54.43	28.81	54	-25.19	Pass

Note : Average result = Maximum field strength – Delta result

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

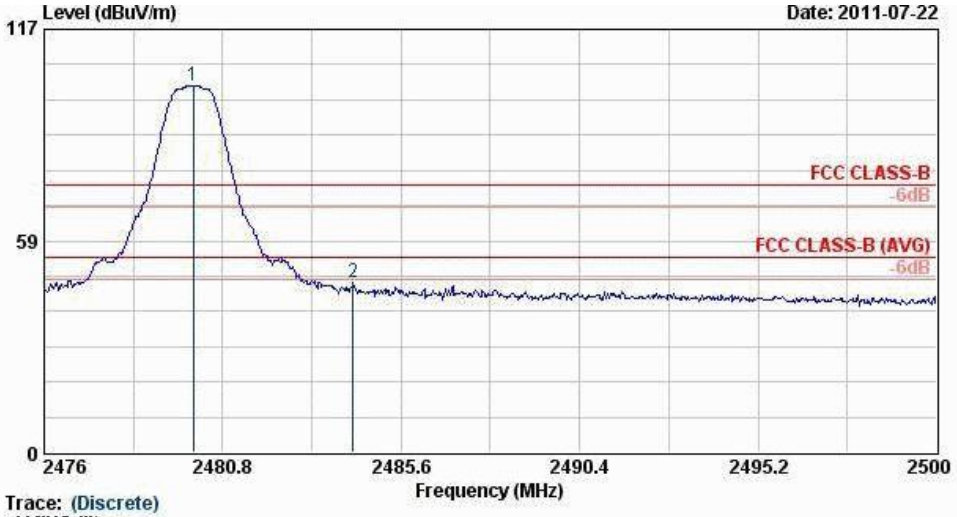
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	103.40	29.40	74.00	98.84	32.28	6.18	33.90	152	31	Peak
2 @	2480.00	85.78	31.78	54.00	81.22	32.28	6.18	33.90	152	31	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

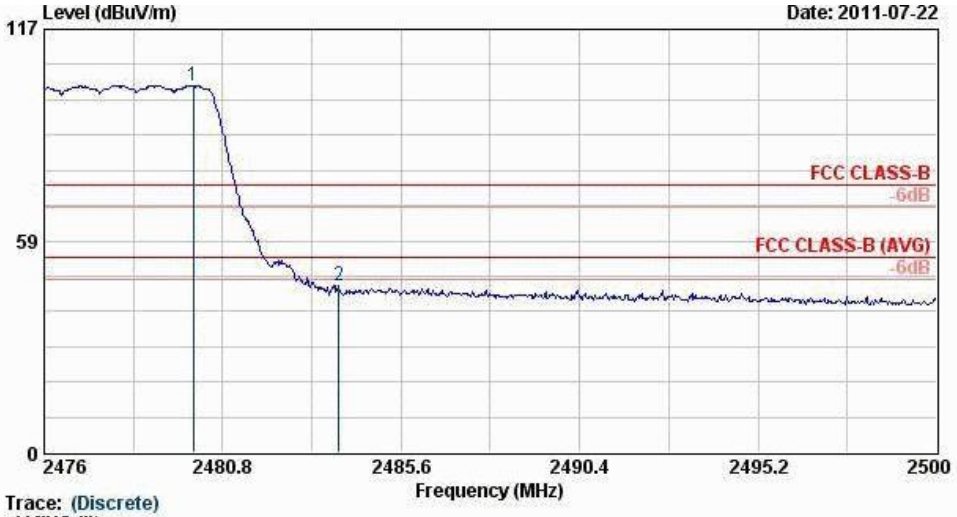


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	101.44	27.44	74.00	96.88	32.28	6.18	33.90	152	31	Peak
2	2484.30	46.87	-27.13	74.00	42.31	32.28	6.18	33.90	152	31	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.57 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平



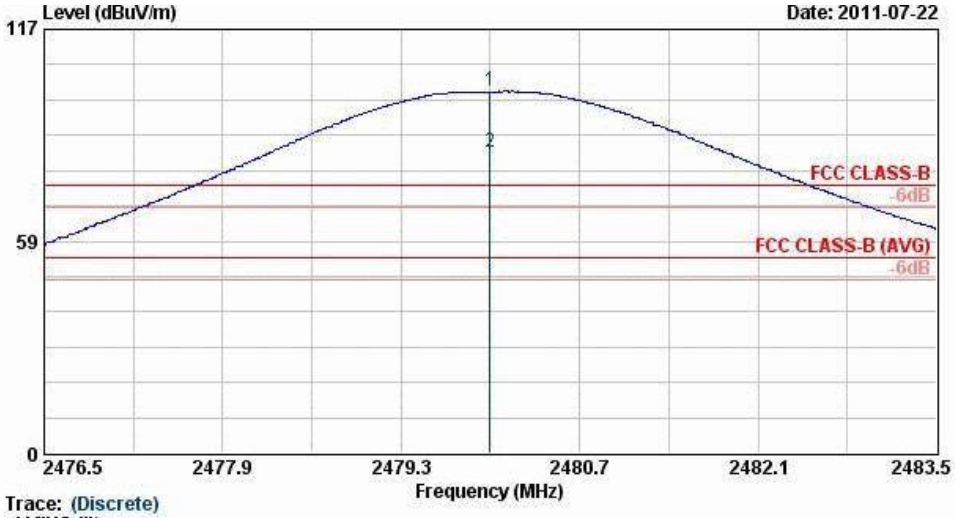
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	101.46	27.46	74.00	96.90	32.28	6.18	33.90	152	31	Peak
2	2483.92	46.20	-27.80	74.00	41.64	32.28	6.18	33.90	152	31	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 55.26 dB , Hopping Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



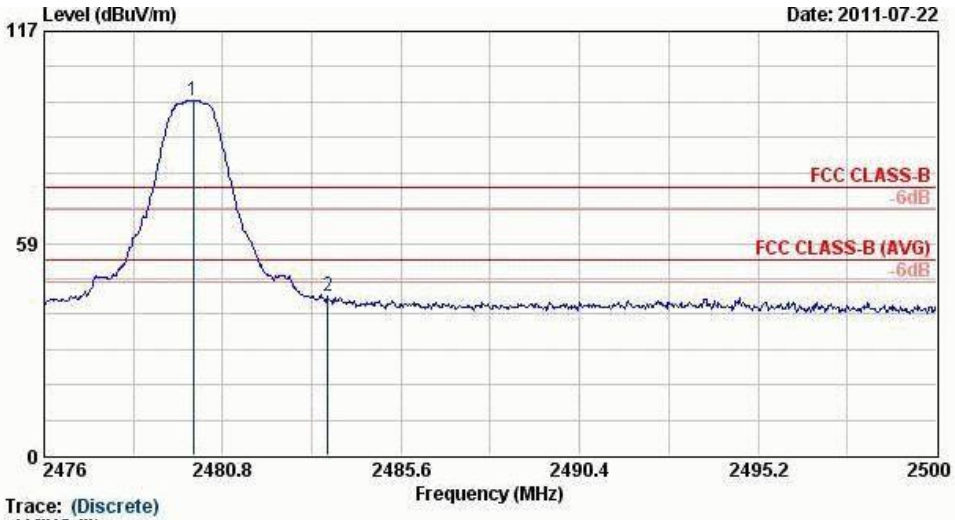
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	99.88	25.88	74.00	95.32	32.28	6.18	33.90	100	90	Peak
2 @	2480.00	83.24	29.24	54.00	78.68	32.28	6.18	33.90	100	90	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



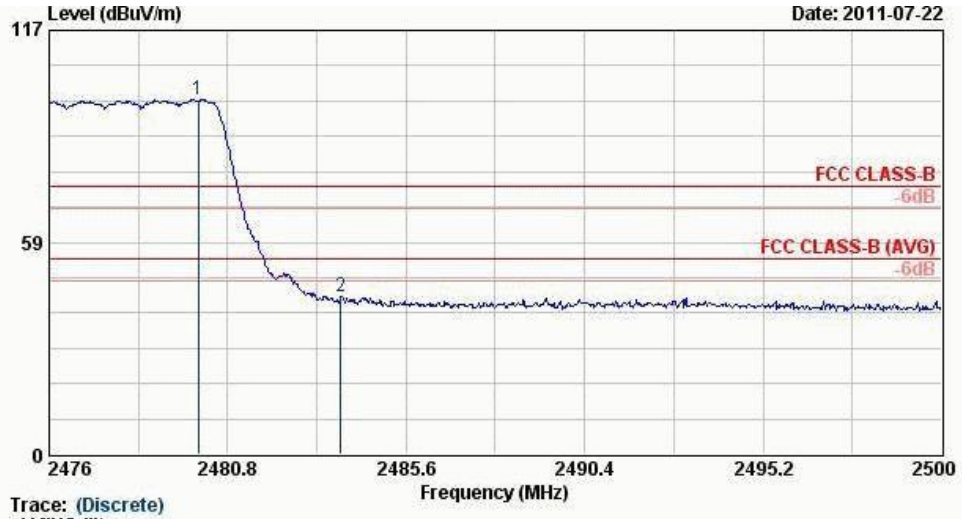
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	97.92	23.92	74.00	93.36	32.28	6.18	33.90	100	90	Peak
2	2483.63	43.93	-30.07	74.00	39.37	32.28	6.18	33.90	100	90	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 53.99 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	97.84	23.84	74.00	93.28	32.28	6.18	33.90	100	90	Peak
2	2483.85	43.41	-30.59	74.00	38.85	32.28	6.18	33.90	100	90	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.43 dB , Hopping Mode

<Sample 2>

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.57	-5.43	74	64.01	32.28	6.18	33.9	100	33	Peak
2483.5	32.24	-21.76	54	27.68	32.28	6.18	33.9	100	33	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	86.56	54.32	32.24	54	-21.76	Pass
Hopping Mode	86.56	54.38	32.18	54	-21.82	Pass

Note : Average result = Maximum field strength – Delta result

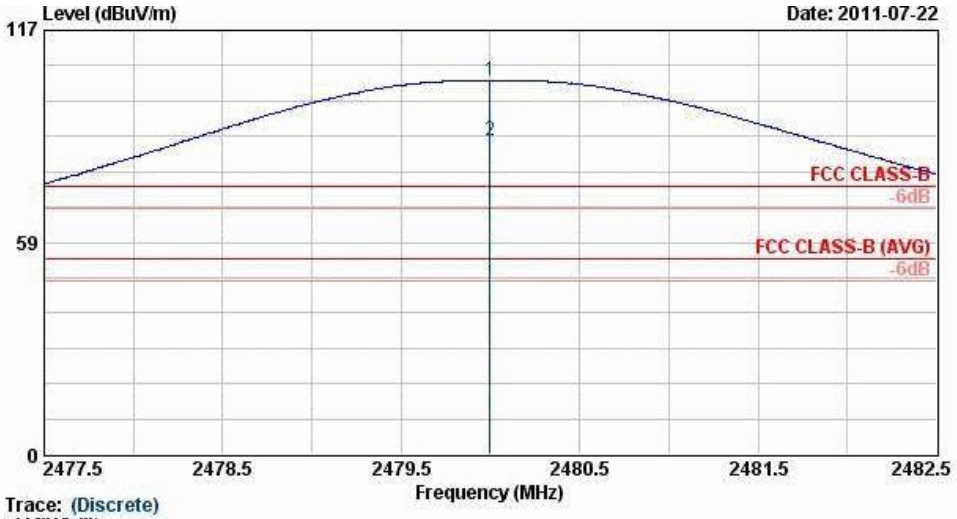
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	67.55	-6.45	74	62.99	32.28	6.18	33.9	121	82	Peak
2483.5	30.2	-23.8	54	25.64	32.28	6.18	33.9	121	82	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	84.65	54.45	30.20	54	-23.80	Pass
Hopping Mode	84.65	54.63	30.02	54	-23.98	Pass

Note : Average result = Maximum field strength – Delta result

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平



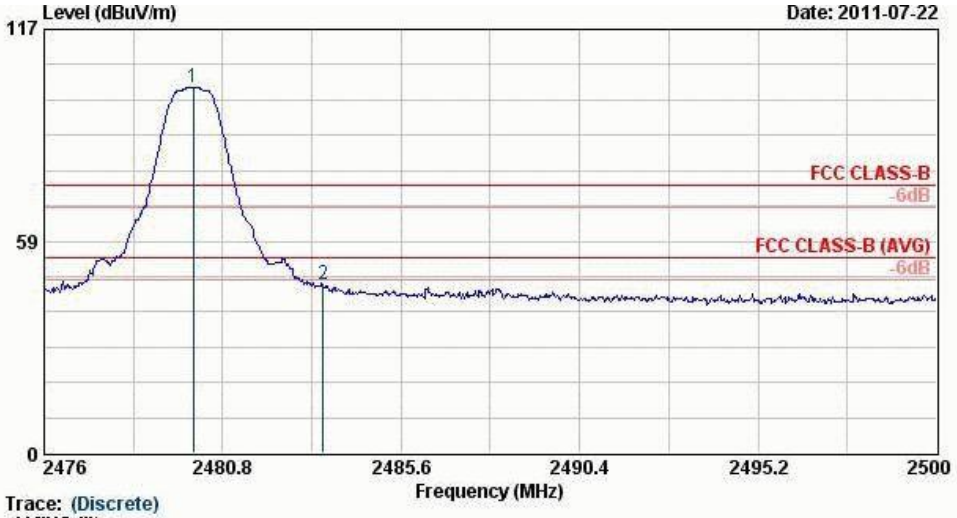
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	103.16	29.16	74.00	98.60	32.28	6.18	33.90	100	33	Peak
2 @	2480.00	86.56	32.56	54.00	82.00	32.28	6.18	33.90	100	33	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C°
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

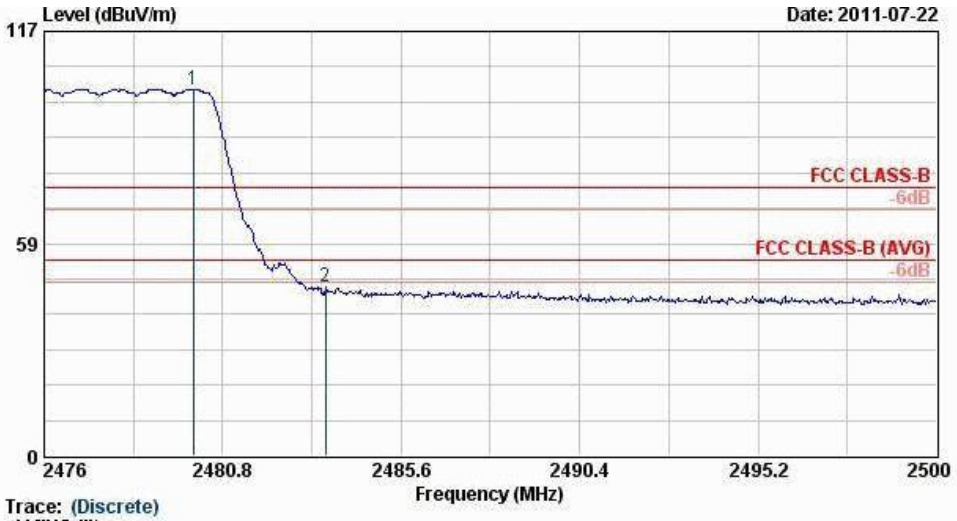


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	100.98	26.98	74.00	96.43	32.28	6.18	33.90	100	33	Peak
2	2483.50	46.66	-27.34	74.00	42.10	32.28	6.18	33.90	100	33	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.32 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

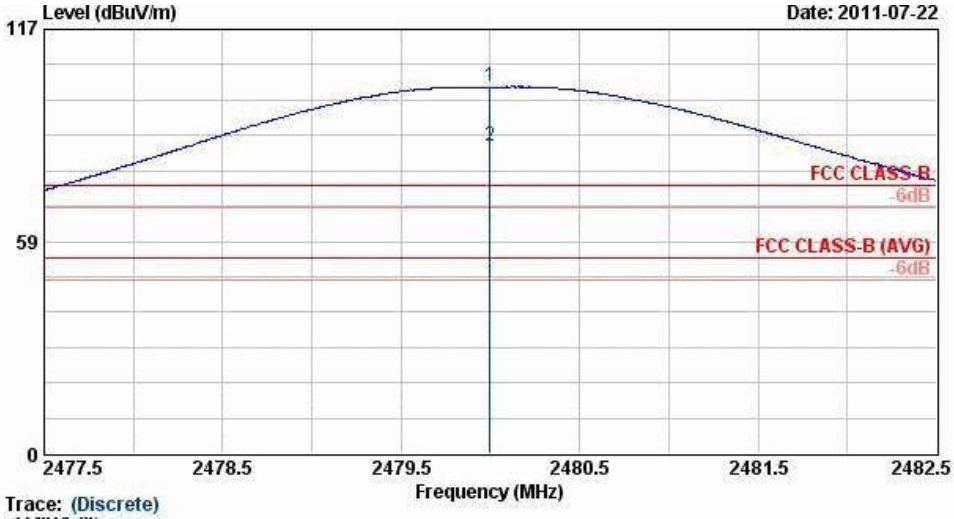


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TP 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	101.02	27.02	74.00	96.46	32.28	6.18	33.90	100	33	Peak
2	2483.56	46.64	-27.36	74.00	42.08	32.28	6.18	33.90	100	33	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.38 dB , Hopping Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直

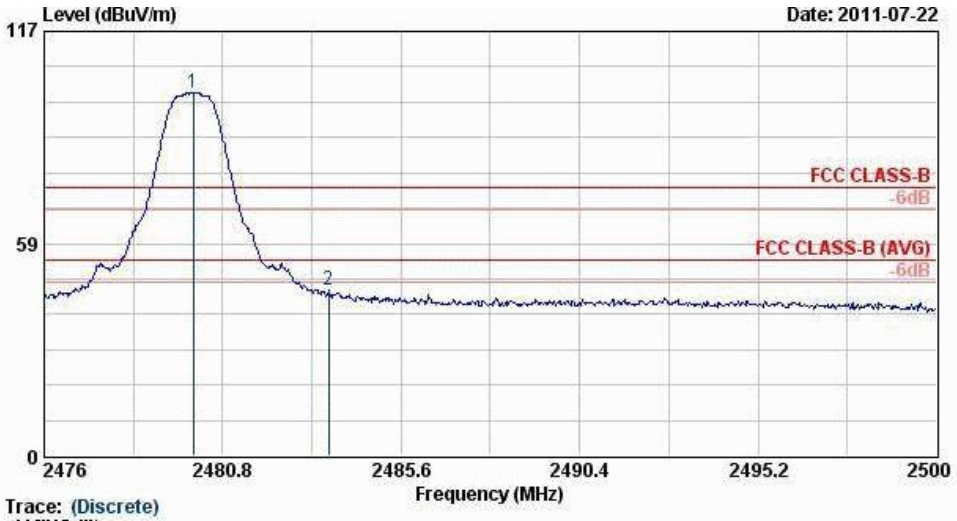


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TP 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	101.15	27.15	74.00	96.59	32.28	6.18	33.90	121	82	Peak
2 @	2480.00	84.65	30.65	54.00	80.09	32.28	6.18	33.90	121	82	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直

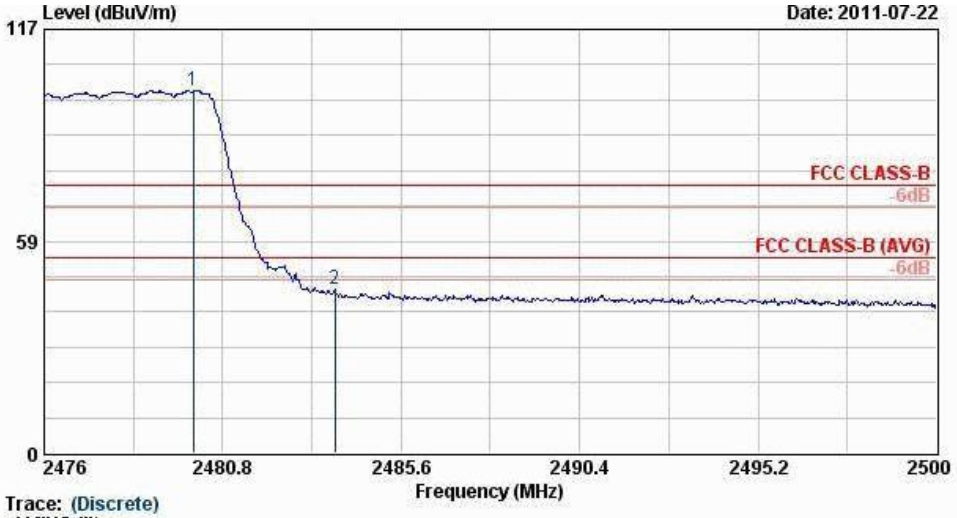


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TP 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	100.02	26.02	74.00	95.46	32.28	6.18	33.90	121	82	Peak
2	2483.66	45.57	-28.43	74.00	41.01	32.28	6.18	33.90	121	82	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.45 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TP 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	100.03	26.03	74.00	95.47	32.28	6.18	33.90	121	82	Peak
2	2483.82	45.40	-28.60	74.00	40.84	32.28	6.18	33.90	121	82	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.63 dB , Hopping Mode

<Sample 3>

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.19	-5.81	74	63.63	32.28	6.18	33.9	100	33	Peak
2483.5	31.56	-22.44	54	27	32.28	6.18	33.9	100	33	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	85.45	53.89	31.56	54	-22.44	Pass
Hopping Mode	85.45	55.57	29.88	54	-24.12	Pass

Note : Average result = Maximum field strength – Delta result

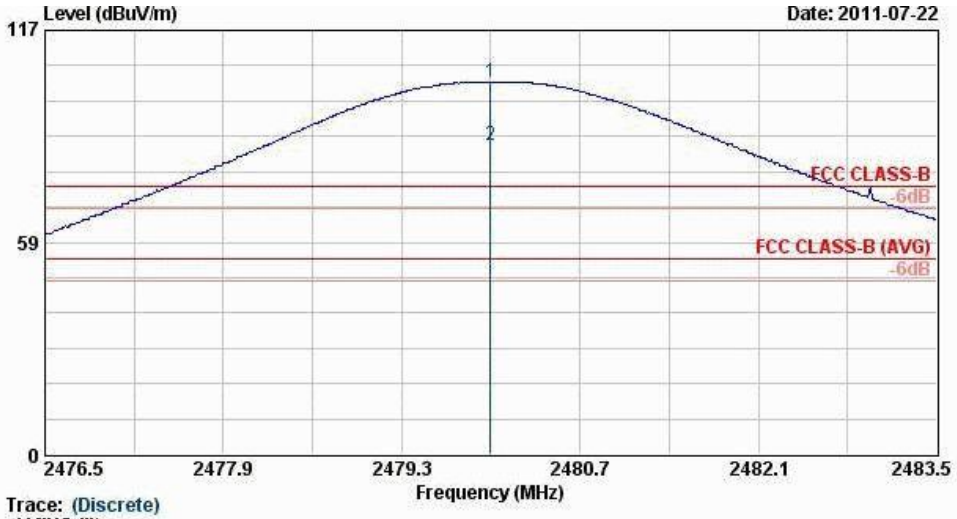
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	67.34	-6.66	74	62.78	32.28	6.18	33.9	121	83	Peak
2483.5	31.66	-22.34	54	27.1	32.28	6.18	33.9	121	83	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	85.05	53.39	31.66	54	-22.34	Pass
Hopping Mode	85.05	55.87	29.18	54	-24.82	Pass

Note : Average result = Maximum field strength – Delta result

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

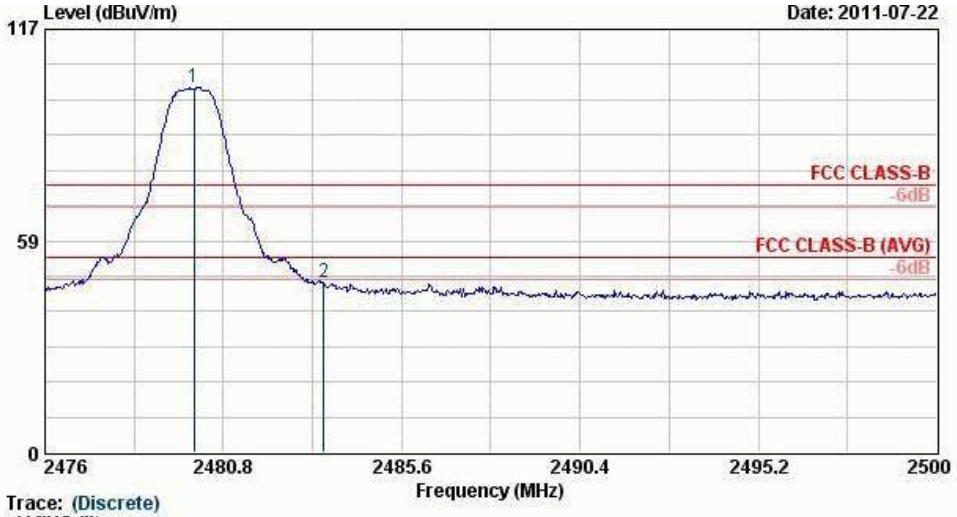


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	102.81	28.81	74.00	98.26	32.28	6.18	33.90	100	33	Peak
2 @	2480.00	85.45	31.45	54.00	80.89	32.28	6.18	33.90	100	33	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平



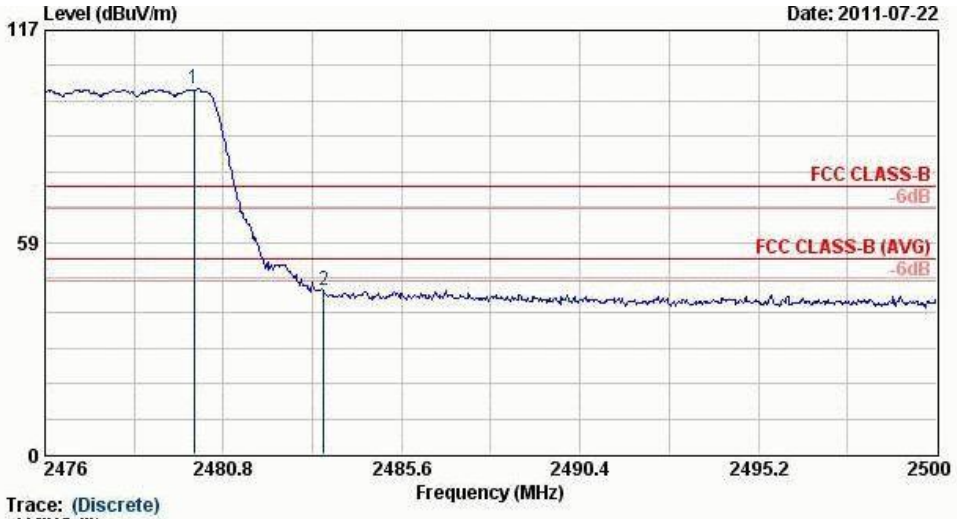
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	100.78	26.78	74.00	96.22	32.28	6.18	33.90	100	33	Peak
2	2483.50	46.89	-27.11	74.00	42.33	32.28	6.18	33.90	100	33	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 53.89 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平



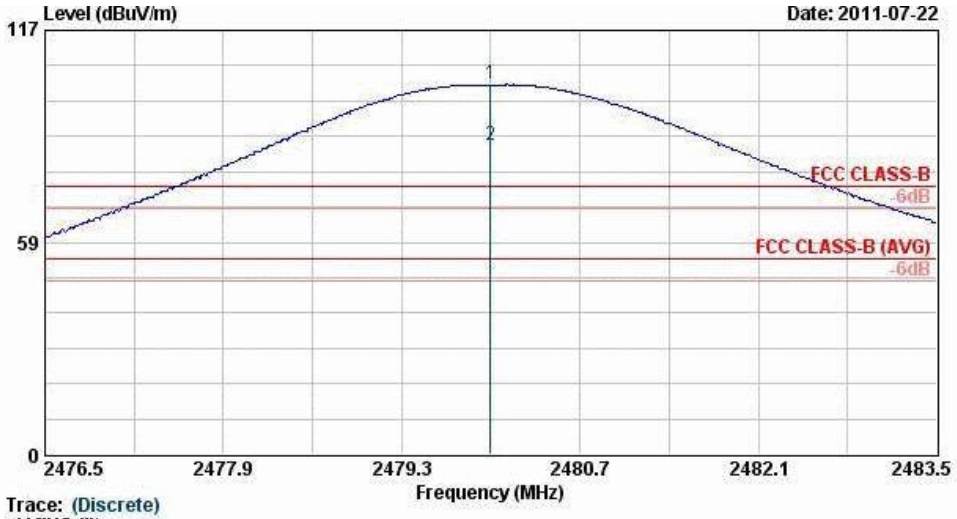
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	100.77	26.77	74.00	96.21	32.28	6.18	33.90	100	33	Peak
2	2483.50	45.20	-28.80	74.00	40.64	32.28	6.18	33.90	100	33	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 55.57 dB , Hopping Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直

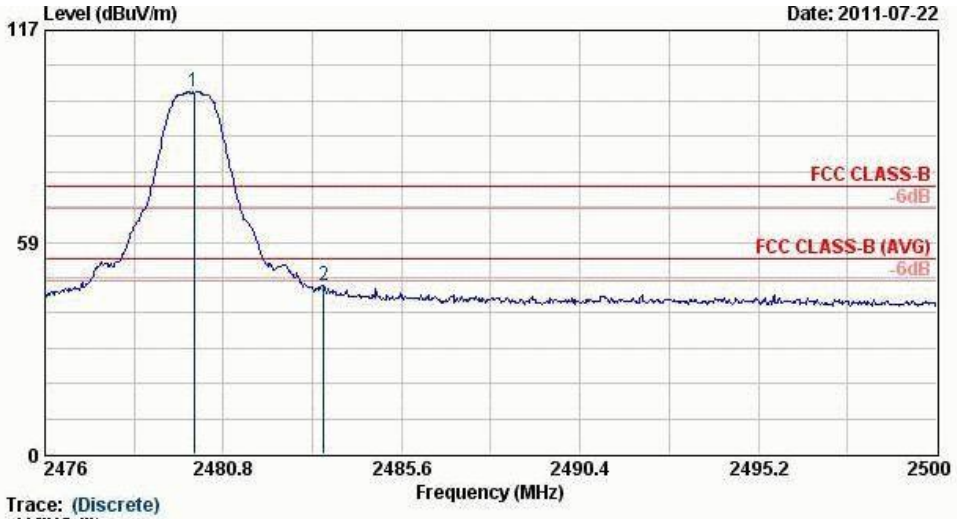


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	102.04	28.04	74.00	97.48	32.28	6.18	33.90	121	83	Peak
2 @	2480.00	85.05	31.05	54.00	80.49	32.28	6.18	33.90	121	83	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



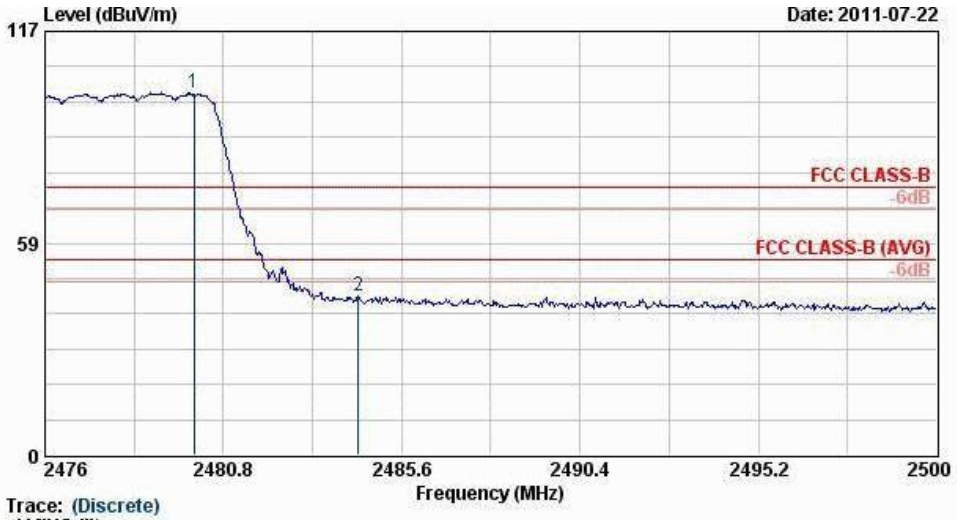
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	99.98	25.98	74.00	95.42	32.28	6.18	33.90	121	83	Peak
2	2483.50	46.59	-27.41	74.00	42.03	32.28	6.18	33.90	121	83	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 53.39 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	99.89	25.89	74.00	95.33	32.28	6.18	33.90	121	83	Peak
2	2484.42	44.02	-29.98	74.00	39.46	32.28	6.18	33.90	121	83	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 55.87 dB , Hopping Mode

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	78	Relative Humidity :	45~47%
		Test Engineer :	David Yang

<Sample 4>

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.99	-5.01	74	64.43	32.28	6.18	33.9	100	22	Peak
2483.5	31.81	-22.19	54	27.25	32.28	6.18	33.9	100	22	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	85.38	53.57	31.81	54	-22.19	Pass
Hopping Mode	85.38	54.27	31.11	54	-22.89	Pass

Note : Average result = Maximum field strength – Delta result

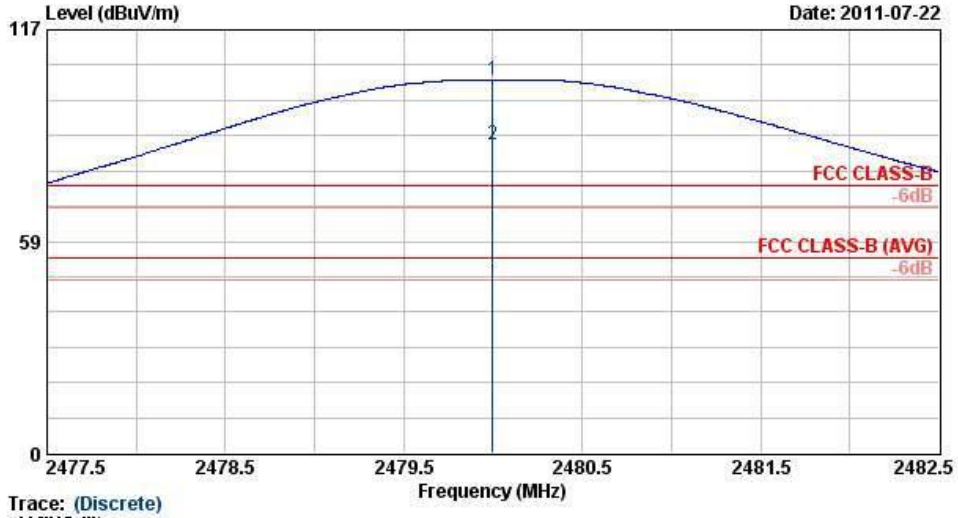
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	66.32	-7.68	74	61.76	32.28	6.18	33.9	100	89	Peak
2483.5	30.55	-23.45	54	25.99	32.28	6.18	33.9	100	89	Average

Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Average Result (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
Single Carrier Mode	83.84	54.19	29.65	54	-24.35	Pass
Hopping Mode	83.84	53.29	30.55	54	-23.45	Pass

Note : Average result = Maximum field strength – Delta result

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

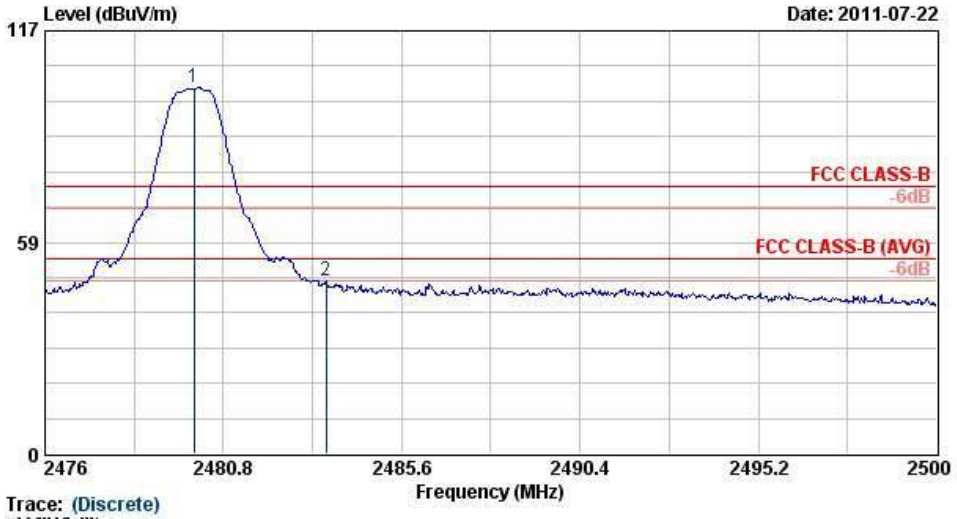


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100624 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	103.29	29.29	74.00	98.74	32.28	6.18	33.90	100	22	Peak
2 @	2480.00	85.38	31.38	54.00	80.82	32.28	6.18	33.90	100	22	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

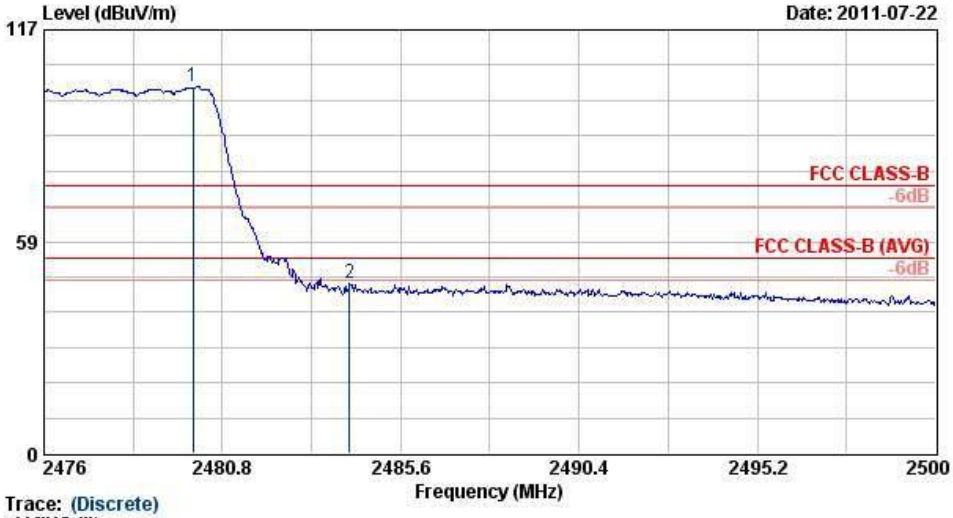


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	101.25	27.25	74.00	96.70	32.28	6.18	33.90	100	22	Peak
2	2483.56	47.68	-26.32	74.00	43.12	32.28	6.18	33.90	100	22	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 53.57 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	水平

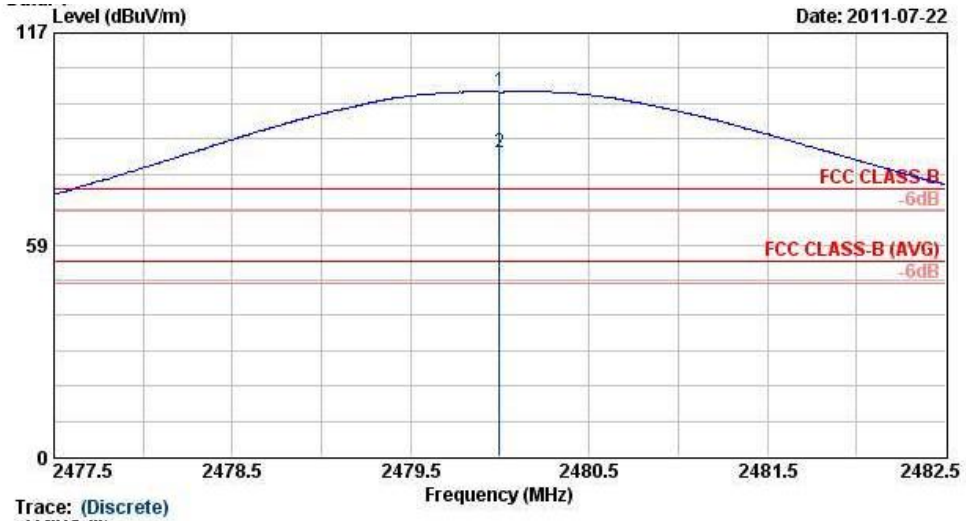


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 HORIZONTAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	101.20	27.20	74.00	96.64	32.28	6.18	33.90	100	22	Peak
2	2484.23	46.93	-27.07	74.00	42.37	32.28	6.18	33.90	100	22	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.27 dB , Hopping Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直

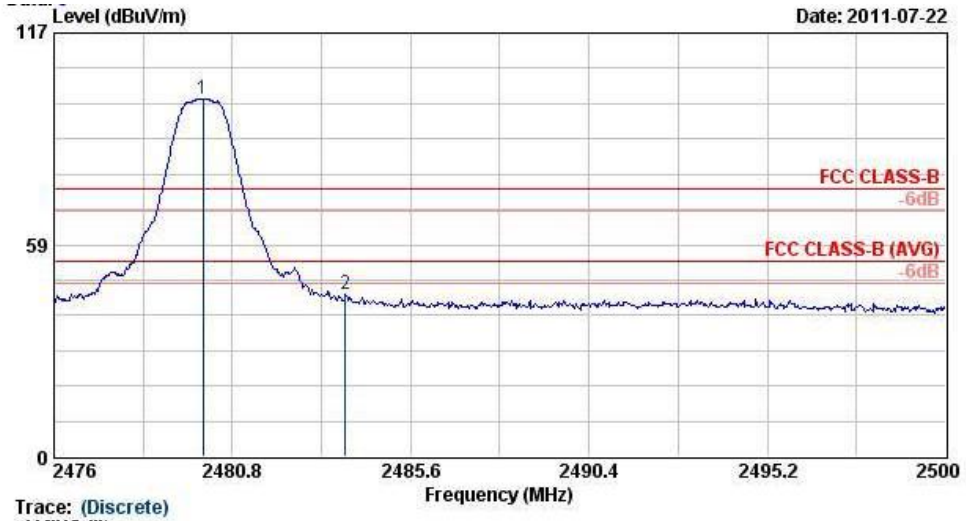


Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	100.91	26.91	74.00	96.35	32.28	6.18	33.90	100	89	Peak
2 @	2480.00	83.84	29.84	54.00	79.28	32.28	6.18	33.90	100	89	Average

* Maximum field strength of the fundamental emission

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



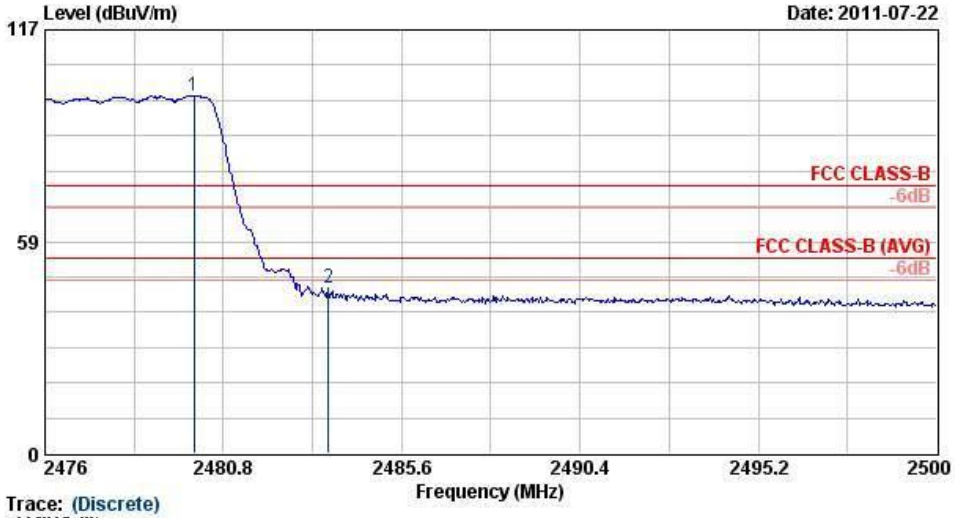
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TR 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 X	2480.00	98.83	24.83	74.00	94.27	32.28	6.18	33.90	100	89	Peak
2	2483.85	44.64	-29.36	74.00	40.08	32.28	6.18	33.90	100	89	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 54.19 dB , single carrier Mode

檢驗模式：	Bluetooth Tx CH78 Mode_2Mbps	溫度：	20~21°C
測試工程師：	David Yang	相對溼度：	45~47%
測試距離：	3m	極化：	垂直



Site : 03CH07-HY
Condition : FCC CLASS-B HF_ANT_100824 VERTICAL
Project : TP 132346-04
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2480.00	98.88	24.88	74.00	94.32	32.28	6.18	33.90	100	89	Peak
2	2483.63	45.59	-28.41	74.00	41.03	32.28	6.18	33.90	100	89	Peak

* Marker-Delta Method (RBW/VBW=100KHz): 53.29 dB , Hopping Mode

2.6 AC Conducted Emission Measurement

2.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

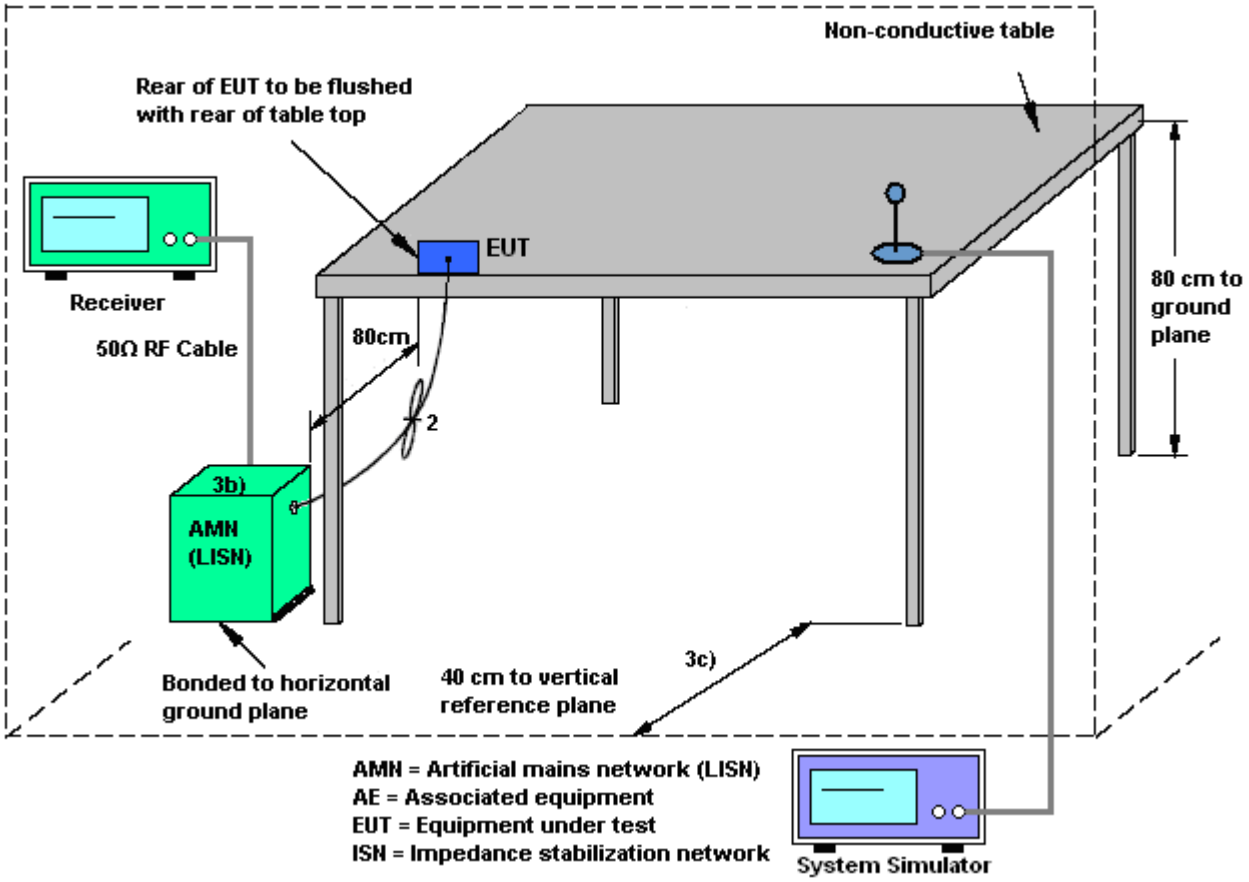
2.6.2 Measuring Instruments

See list of measuring instruments of this test report.

2.6.3 Test Procedures

1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
1. Connect EUT to the power mains through a line impedance stabilization network (LISN).
2. All the support units are connecting to the other LISN.
3. The LISN provides 50 ohm coupling impedance for the measuring instrument.
4. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

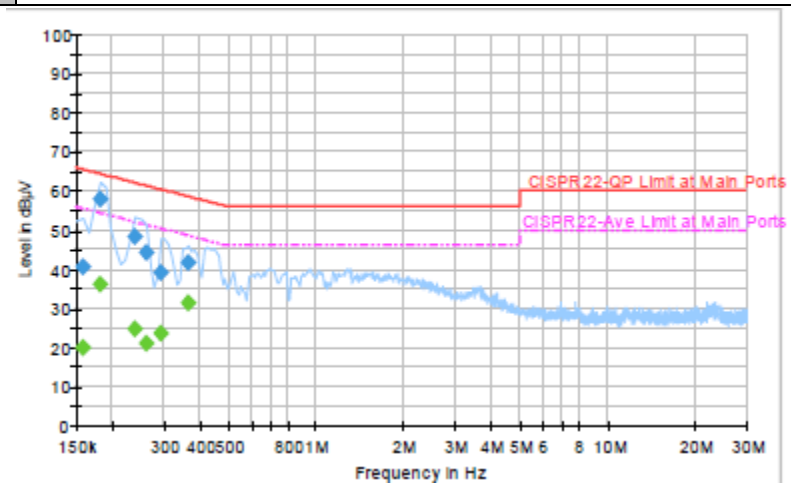
2.6.4 Test Setup



2.6.5 Test Result of AC Conducted Emission

<Sample 1>

Test Mode :	Mode 1	**Temperature :**	21~23℃
Test Engineer :	Hayden Wu	**Relative Humidity :**	41~43%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



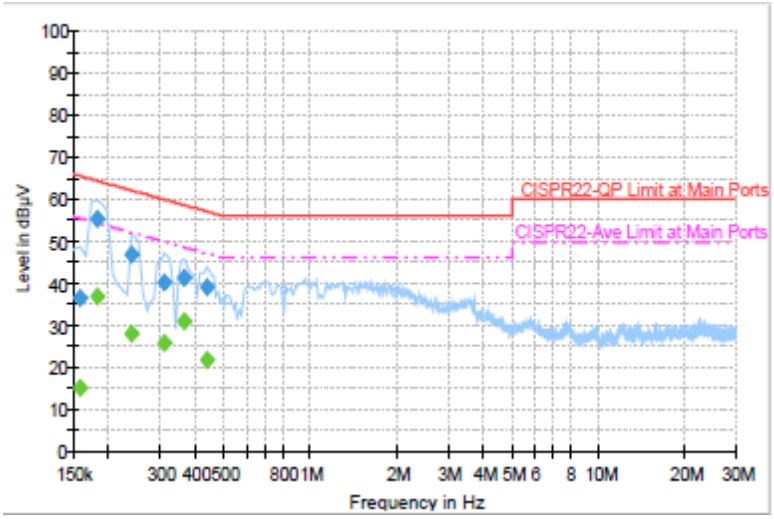
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	40.4	Off	L1	19.3	25.2	65.6
0.182000	58.0	Off	L1	19.4	6.4	64.4
0.238000	48.5	Off	L1	19.4	13.7	62.2
0.262000	44.2	Off	L1	19.3	17.2	61.4
0.294000	39.3	Off	L1	19.3	21.1	60.4
0.366000	41.8	Off	L1	19.3	16.8	58.6

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	19.8	Off	L1	19.3	35.8	55.6
0.182000	36.2	Off	L1	19.4	18.2	54.4
0.238000	24.7	Off	L1	19.4	27.5	52.2
0.262000	20.9	Off	L1	19.3	30.5	51.4
0.294000	23.7	Off	L1	19.3	26.7	50.4
0.366000	31.5	Off	L1	19.3	17.1	48.6

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

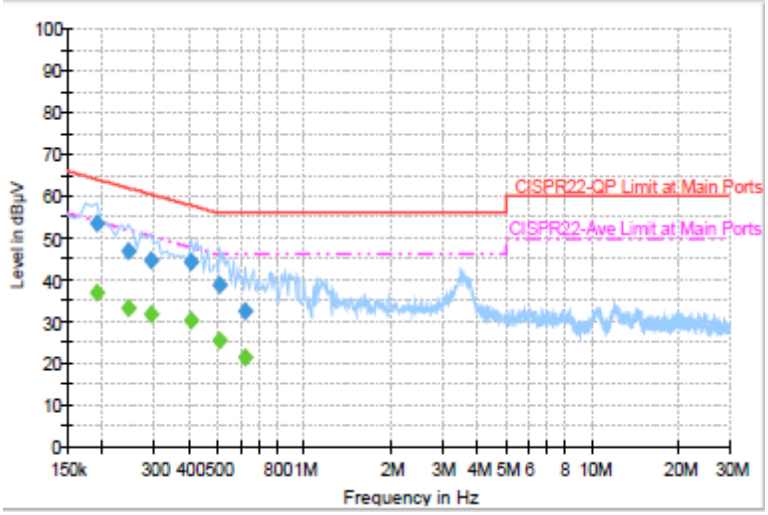
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	36.5	Off	N	19.4	29.1	65.6
0.182000	55.4	Off	N	19.4	9.0	64.4
0.238000	47.0	Off	N	19.4	15.2	62.2
0.310000	40.2	Off	N	19.3	19.8	60.0
0.366000	41.5	Off	N	19.3	17.1	58.6
0.438000	39.0	Off	N	19.4	18.1	57.1

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	15.1	Off	N	19.4	40.5	55.6
0.182000	36.8	Off	N	19.4	17.6	54.4
0.238000	28.0	Off	N	19.4	24.2	52.2
0.310000	25.9	Off	N	19.3	24.1	50.0
0.366000	31.2	Off	N	19.3	17.4	48.6
0.438000	21.9	Off	N	19.4	25.2	47.1

<Sample 2>

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



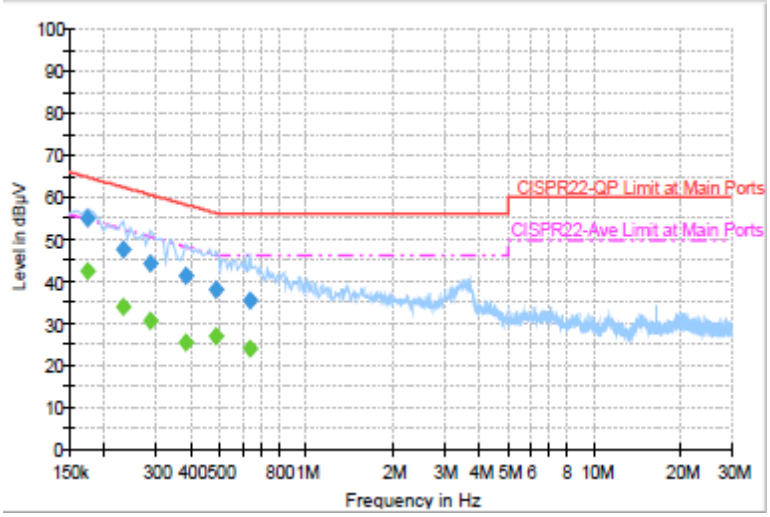
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	53.4	Off	L1	19.4	10.6	64.0
0.246000	46.8	Off	L1	19.4	15.1	61.9
0.294000	44.5	Off	L1	19.3	15.9	60.4
0.406000	44.1	Off	L1	19.4	13.6	57.7
0.510000	38.7	Off	L1	19.3	17.3	56.0
0.622000	32.4	Off	L1	19.3	23.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	37.0	Off	L1	19.4	17.0	54.0
0.246000	33.2	Off	L1	19.4	18.7	51.9
0.294000	31.6	Off	L1	19.3	18.8	50.4
0.406000	30.1	Off	L1	19.4	17.6	47.7
0.510000	25.5	Off	L1	19.3	20.5	46.0
0.622000	21.3	Off	L1	19.3	24.7	46.0

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

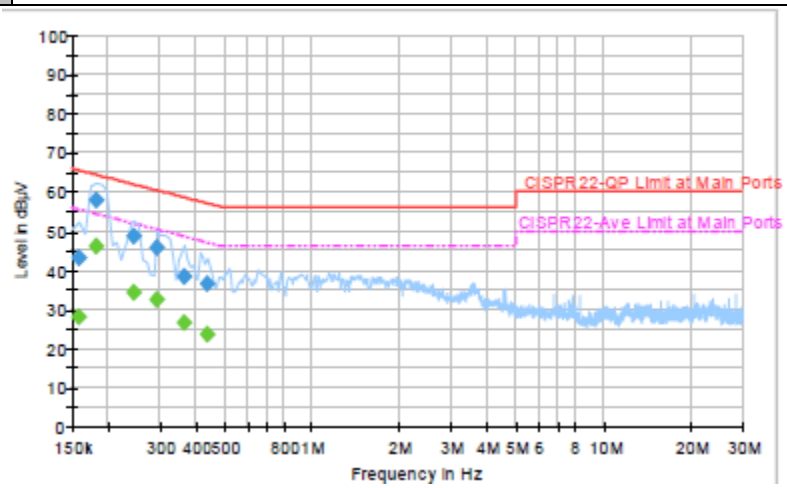
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	55.0	Off	N	19.3	9.8	64.8
0.230000	47.6	Off	N	19.4	14.8	62.4
0.286000	44.4	Off	N	19.3	16.2	60.6
0.382000	41.2	Off	N	19.4	17.0	58.2
0.486000	38.2	Off	N	19.4	18.0	56.2
0.638000	35.4	Off	N	19.4	20.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	42.4	Off	N	19.3	12.4	54.8
0.230000	33.8	Off	N	19.4	18.6	52.4
0.286000	30.5	Off	N	19.3	20.1	50.6
0.382000	25.6	Off	N	19.4	22.6	48.2
0.486000	26.8	Off	N	19.4	19.4	46.2
0.638000	24.0	Off	N	19.4	22.0	46.0

<Sample 3>

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



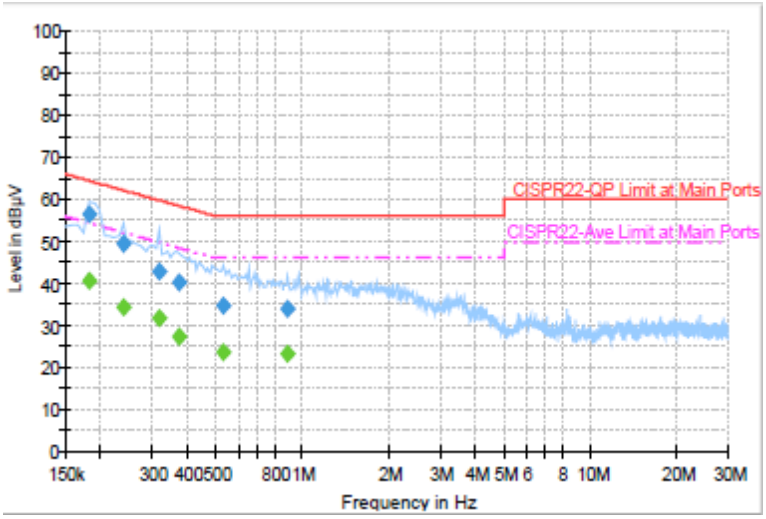
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	43.2	Off	L1	19.3	22.4	65.6
0.182000	57.8	Off	L1	19.4	6.6	64.4
0.246000	48.7	Off	L1	19.4	13.2	61.9
0.294000	45.7	Off	L1	19.3	14.7	60.4
0.366000	38.4	Off	L1	19.3	20.2	58.6
0.438000	36.4	Off	L1	19.4	20.7	57.1

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	28.0	Off	L1	19.3	27.6	55.6
0.182000	46.3	Off	L1	19.4	8.1	54.4
0.246000	34.3	Off	L1	19.4	17.6	51.9
0.294000	32.3	Off	L1	19.3	18.1	50.4
0.366000	26.6	Off	L1	19.3	22.0	48.6
0.438000	23.7	Off	L1	19.4	23.4	47.1

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

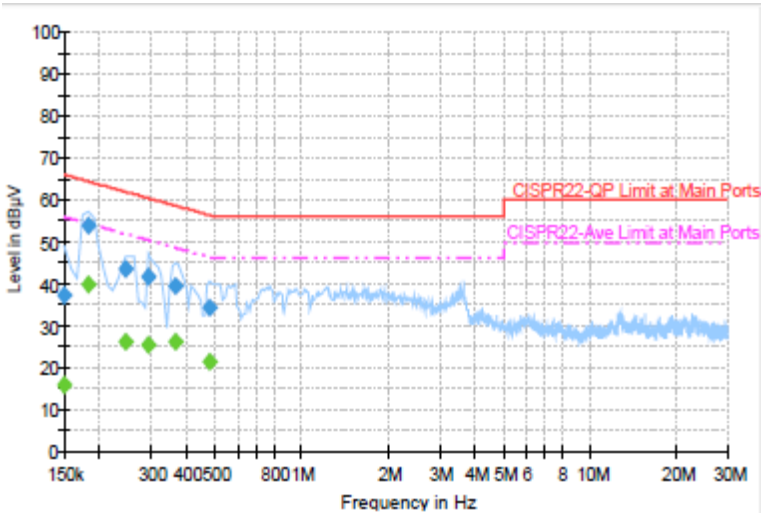
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	56.5	Off	N	19.4	7.9	64.4
0.238000	49.5	Off	N	19.4	12.7	62.2
0.318000	42.6	Off	N	19.3	17.2	59.8
0.374000	40.1	Off	N	19.4	18.3	58.4
0.534000	34.6	Off	N	19.3	21.4	56.0
0.886000	33.9	Off	N	19.4	22.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	40.5	Off	N	19.4	13.9	54.4
0.238000	34.2	Off	N	19.4	18.0	52.2
0.318000	31.6	Off	N	19.3	18.2	49.8
0.374000	27.2	Off	N	19.4	21.2	48.4
0.534000	23.8	Off	N	19.3	22.2	46.0
0.886000	23.1	Off	N	19.4	22.9	46.0

<Sample 4>

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



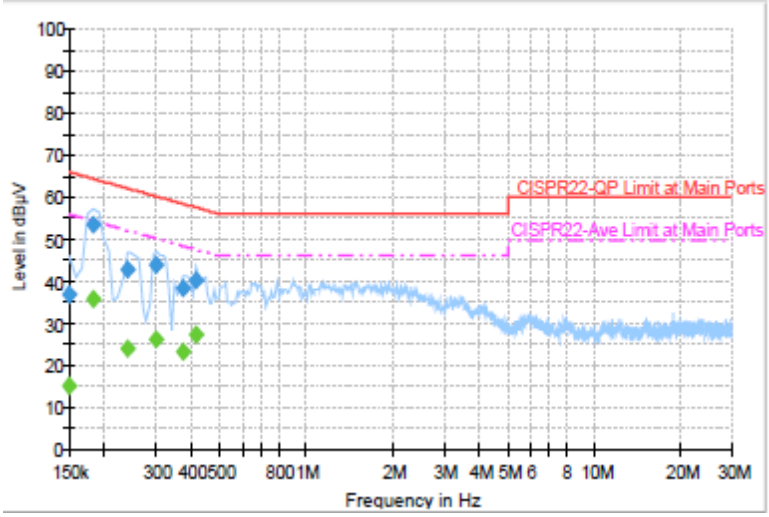
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	37.4	Off	L1	19.4	28.6	66.0
0.182000	53.8	Off	L1	19.4	10.6	64.4
0.246000	43.4	Off	L1	19.4	18.5	61.9
0.294000	41.8	Off	L1	19.3	18.6	60.4
0.366000	39.6	Off	L1	19.3	19.0	58.6
0.478000	34.5	Off	L1	19.4	21.9	56.4

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	15.9	Off	L1	19.4	40.1	56.0
0.182000	39.9	Off	L1	19.4	14.5	54.4
0.246000	26.3	Off	L1	19.4	25.6	51.9
0.294000	25.3	Off	L1	19.3	25.1	50.4
0.366000	26.2	Off	L1	19.3	22.4	48.6
0.478000	21.5	Off	L1	19.4	24.9	46.4

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Hayden Wu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.9	Off	N	19.4	29.1	66.0
0.182000	53.7	Off	N	19.4	10.7	64.4
0.238000	42.7	Off	N	19.4	19.5	62.2
0.302000	44.0	Off	N	19.3	16.2	60.2
0.374000	38.3	Off	N	19.4	20.1	58.4
0.414000	40.4	Off	N	19.4	17.2	57.6

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	15.2	Off	N	19.4	40.8	56.0
0.182000	35.7	Off	N	19.4	18.7	54.4
0.238000	24.1	Off	N	19.4	28.1	52.2
0.302000	26.2	Off	N	19.3	24.0	50.2
0.374000	23.4	Off	N	19.4	25.0	48.4
0.414000	27.2	Off	N	19.4	20.4	47.6

2.7 Radiated Emission Measurement

2.7.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

2.7.2 Measuring Instruments

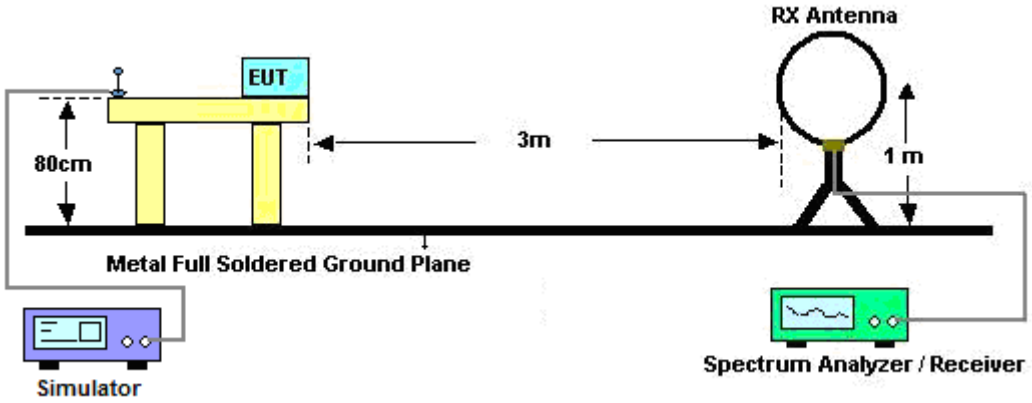
See list of measuring instruments of this test report.

2.7.3 Test Procedures

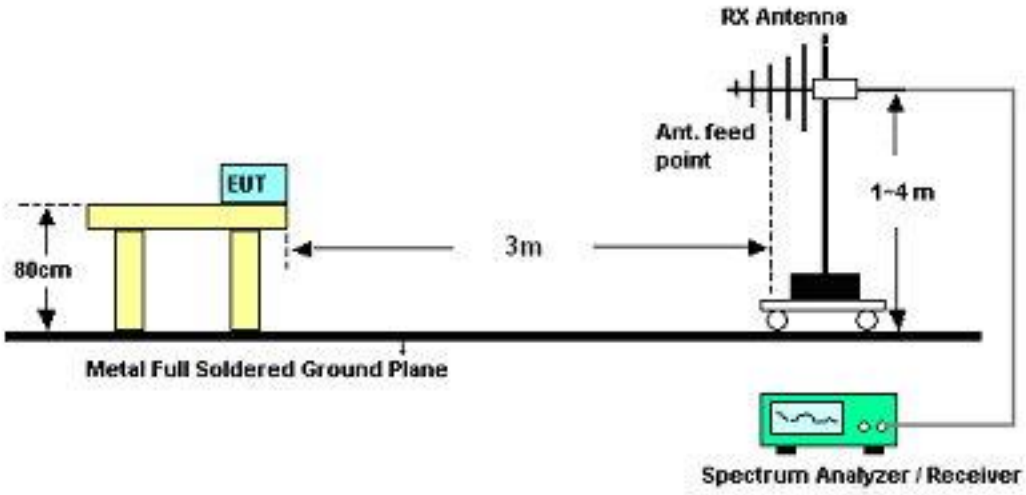
1. The testing follows the guidelines in FCC Public Notice DA 00-705 Measurement Guidelines.
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.
4. Measured average value for the peak value is greater than 54 dBuv/m

2.7.4 Test Setup

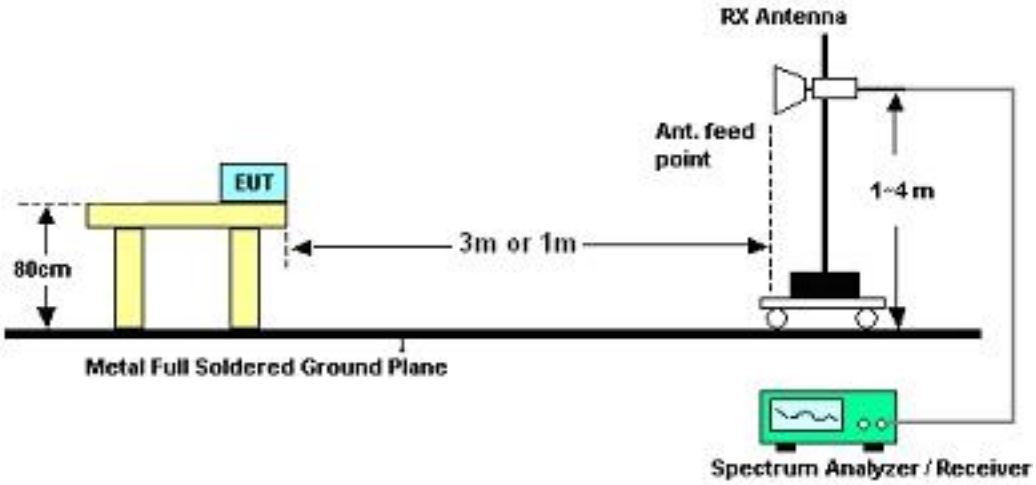
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	David Yang	Temperature :	20~21°C
		Relative Humidity :	45~47%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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

<Sample 1 >

Test Mode :	Mode 1	**Temperature :**	20~21°C
Test Channel :	78	**Relative Humidity :**	45~47%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.09	34.24	-5.76	40	56	9.08	0.68	31.52	163	182	Peak
163.65	27.59	-15.91	43.5	47.75	10.14	1.22	31.52	-	-	Peak
241.41	20.01	-25.99	46	37.85	12.05	1.53	31.42	-	-	Peak
402.9	17.89	-28.11	46	30.31	16.61	2.15	31.18	-	-	Peak
624.1	22.44	-23.56	46	30.55	20.03	2.76	30.9	-	-	Peak
806.1	24.67	-21.33	46	29.66	22.54	3.16	30.69	-	-	Peak
2388	45.25	-28.75	74	40.89	32.18	6.03	33.85	152	31	Peak
2388	33.69	-20.31	54	29.33	32.18	6.03	33.85	152	31	Average
2480	85.8	-	-	81.24	32.28	6.18	33.9	152	31	Average
2480	103.25	-	-	98.69	32.28	6.18	33.9	152	31	Peak
2483.5	68.71	-5.29	74	64.15	32.28	6.18	33.9	152	31	Peak
2483.5	31.21	-22.79	54	26.65	32.28	6.18	33.9	152	31	Average

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	78	Relative Humidity :	45~47%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.09	34.1	-5.9	40	55.86	9.08	0.68	31.52	105	78	Peak
92.37	22.97	-20.53	43.5	44.63	8.9	0.96	31.52	-	-	Peak
118.29	16.53	-26.97	43.5	35.64	11.36	1.09	31.56	-	-	Peak
391.7	17	-29	46	29.77	16.32	2.12	31.21	-	-	Peak
590.5	22.6	-23.4	46	31.25	19.62	2.66	30.93	-	-	Peak
721.4	25.23	-20.77	46	31.78	21.23	2.99	30.77	-	-	Peak
2390	46.26	-27.74	74	41.9	32.18	6.03	33.85	100	90	Peak
2390	33.73	-20.27	54	29.37	32.18	6.03	33.85	100	90	Average
2480	83.23	-	-	78.67	32.28	6.18	33.9	100	90	Average
2480	99.68	-	-	95.12	32.28	6.18	33.9	100	90	Peak
2483.5	65.2	-8.8	74	60.64	32.28	6.18	33.9	100	90	Peak
2483.5	29.25	-24.75	54	24.69	32.28	6.18	33.9	100	90	Average

<Sample 2>

Test Mode :	Mode 1	**Temperature :**	20~21°C
Test Channel :	78	**Relative Humidity :**	45~47%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
45.66	21.02	-18.98	40	41.59	10.27	0.66	31.5	-	-	Peak
119.37	13.56	-29.94	43.5	32.57	11.45	1.1	31.56	-	-	Peak
192.54	14.31	-29.19	43.5	35.44	9.08	1.29	31.5	-	-	Peak
377	25.09	-20.91	46	38.37	15.87	2.09	31.24	-	-	Peak
621.3	22.65	-23.35	46	30.79	20.01	2.75	30.9	-	-	Peak
755.7	33.88	-12.12	46	39.75	21.76	3.07	30.7	182	103	Peak
2340	45.92	-28.08	74	41.69	32.11	5.95	33.83	100	33	Peak
2340	33.03	-20.97	54	28.8	32.11	5.95	33.83	100	33	Average
2480	103.86	-	-	99.3	32.28	6.18	33.9	100	33	Average
2480	87.02	-	-	82.46	32.28	6.18	33.9	100	33	Peak
2483.5	68.57	-5.43	74	64.01	32.28	6.18	33.9	100	33	Peak
2483.5	32.24	-21.76	54	27.68	32.28	6.18	33.9	100	33	Average

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	78	Relative Humidity :	45~47%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.5	27.63	-12.37	40	47.36	11.13	0.64	31.5	105	314	Peak
69.42	20.69	-19.31	40	45.12	6.29	0.84	31.56	-	-	Peak
117.21	24.02	-19.48	43.5	43.21	11.28	1.09	31.56	-	-	Peak
377	23.92	-22.08	46	37.2	15.87	2.09	31.24	-	-	Peak
590.5	24.93	-21.07	46	33.58	19.62	2.66	30.93	-	-	Peak
755.7	29.72	-16.28	46	35.59	21.76	3.07	30.7	-	-	Peak
2324	45.92	-28.08	74	41.73	32.09	5.92	33.82	121	82	Peak
2324	32.89	-21.11	54	28.7	32.09	5.92	33.82	121	82	Average
2480	101.84	-	-	97.28	32.28	6.18	33.9	121	82	Peak
2480	85.37	-	-	80.81	32.28	6.18	33.9	121	82	Average
2483.5	67.55	-6.45	74	62.99	32.28	6.18	33.9	121	82	Peak
2483.5	30.2	-23.8	54	25.64	32.28	6.18	33.9	121	82	Average

<Sample 3>

Test Mode :	Mode 1	**Temperature :**	20~21°C
Test Channel :	78	**Relative Humidity :**	45~47%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.78	18.96	-21.04	40	34.29	15.57	0.57	31.47	-	-	Peak
144.21	18.34	-25.16	43.5	37.32	11.37	1.2	31.55	-	-	Peak
216.3	18.16	-27.84	46	37.95	10.27	1.4	31.46	-	-	Peak
377	24.78	-21.22	46	38.06	15.87	2.09	31.24	-	-	Peak
593.3	25.99	-20.01	46	34.58	19.67	2.67	30.93	-	-	Peak
755.7	39.25	-6.75	46	45.12	21.76	3.07	30.7	167	352	Peak
2366	45.86	-28.14	74	41.58	32.13	5.99	33.84	100	33	Peak
2366	33.66	-20.34	54	29.38	32.13	5.99	33.84	100	33	Average
2480	85.45	-	-	80.89	32.28	6.18	33.9	100	33	Average
2480	102.62	-	-	98.06	32.28	6.18	33.9	100	33	Peak
2483.5	68.19	-5.81	74	63.63	32.28	6.18	33.9	100	33	Peak
2483.5	31.56	-22.44	54	27	32.28	6.18	33.9	100	33	Average

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	78	Relative Humidity :	45~47%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.18	21.18	-18.82	40	38.65	13.43	0.61	31.51	-	-	Peak
71.85	18.49	-21.51	40	42.74	6.46	0.84	31.55	-	-	Peak
144.21	27.14	-16.36	43.5	46.12	11.37	1.2	31.55	-	-	Peak
372.1	22.07	-23.93	46	35.52	15.72	2.08	31.25	-	-	Peak
587	31.44	-14.56	46	40.17	19.56	2.65	30.94	-	-	Peak
755.7	34.84	-11.16	46	40.71	21.76	3.07	30.7	114	151	Peak
2380	45.96	-28.04	74	41.62	32.16	6.03	33.85	121	83	Peak
2380	33.73	-20.27	54	29.39	32.16	6.03	33.85	121	83	Average
2480	85.22	-	-	80.66	32.28	6.18	33.9	121	83	Average
2480	101.84	-	-	97.28	32.28	6.18	33.9	121	83	Peak
2483.5	67.34	-6.66	74	62.78	32.28	6.18	33.9	121	83	Peak
2483.5	31.66	-22.34	54	27.1	32.28	6.18	33.9	121	83	Average

<Sample 4>

Test Mode :	Mode 1	**Temperature :**	20~21°C
Test Channel :	78	**Relative Humidity :**	45~47%
Test Engineer :	David Yang	**Polarization :**	Horizontal
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	19.08	-20.92	40	34.19	15.8	0.56	31.47	-	-	Peak
191.73	19.64	-23.86	43.5	40.77	9.08	1.29	31.5	-	-	Peak
216.3	21.22	-24.78	46	41.01	10.27	1.4	31.46	-	-	Peak
377	24.77	-21.23	46	38.05	15.87	2.09	31.24	-	-	Peak
589.8	27.2	-18.8	46	35.86	19.61	2.66	30.93	-	-	Peak
755.7	40.01	-5.99	46	45.88	21.76	3.07	30.7	133	245	Peak
2382	46.21	-27.79	74	41.87	32.16	6.03	33.85	100	22	Peak
2382	33.39	-20.61	54	29.05	32.16	6.03	33.85	100	22	Average
2480	103.2	-	-	98.64	32.28	6.18	33.9	100	22	Peak
2480	86.5	-	-	81.94	32.28	6.18	33.9	100	22	Average
2483.5	68.99	-5.01	74	64.43	32.28	6.18	33.9	100	22	Peak
2483.5	31.81	-22.19	54	27.25	32.28	6.18	33.9	100	22	Average

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	78	Relative Humidity :	45~47%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2480 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	18.93	-21.07	40	34.04	15.8	0.56	31.47	-	-	Peak
106.41	15.08	-28.42	43.5	35.23	10.37	1.03	31.55	-	-	Peak
206.58	14.83	-28.67	43.5	35.37	9.58	1.35	31.47	-	-	Peak
435.8	18.23	-27.77	46	29.95	17.15	2.26	31.13	-	-	Peak
554.1	24.72	-21.28	46	34.08	19.05	2.56	30.97	-	-	Peak
783	25.5	-20.5	46	30.89	22.19	3.11	30.69	127	152	Peak
2382	45.41	-28.59	74	41.07	32.16	6.03	33.85	100	89	Peak
2382	33.37	-20.63	54	29.03	32.16	6.03	33.85	100	89	Average
2480	100.68	-	-	96.12	32.28	6.18	33.9	100	89	Peak
2480	84.06	-	-	79.5	32.28	6.18	33.9	100	89	Average
2483.5	66.32	-7.68	74	61.76	32.28	6.18	33.9	100	89	Peak
2483.5	30.55	-23.45	54	25.99	32.28	6.18	33.9	100	89	Average

2.8. Antenna Requirements

2.8.1. 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.

2.8.2. Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

2.8.3. 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.

3. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)
Bluetooth Base Station	R&S	CBT32	100522	N/A	Jan.13, 2011	Jan.13, 2013	Radiation (03CH07-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)

4. Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP132346-04A as below.

Appendix C. Original Report

Please refer to Sporton report number FR132346A as below.