

FCC/IC RF Test Report

APPLICANT : Sony Mobile Communications AB
EQUIPMENT : Smart phone
BRAND NAME : SONY
TYPE NAME : PM-0771-BV
FCC ID : PY7PM-0771
IC : 4170B-PM0771
STANDARD : FCC Part 15 Subpart C §15.247
IC RSS-210 issue 8

CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Apr. 02, 2014 and testing was completed on May 12, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and the testing has shown the tested sample to be 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 : PY7PM-0771

IC : 4170B-PM0771

Page Number : 1 of 142

Report Issued Date : Jun. 09, 2014

Report Version : Rev. 01



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 Feature of Equipment Under Test	5
1.4 Product Specification of Equipment Under Test	6
1.5 Modification of EUT	7
1.6 Testing Location	8
1.7 Applicable Standards	8
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	9
2.1 Carrier Frequency Channel	9
2.2 Pre-Scanned RF Power	10
2.3 Test Mode	11
2.4 Connection Diagram of Test System	13
2.5 Support Unit used in test configuration and system	14
2.6 EUT Operation Test Setup	14
2.7 Measurement Results Explanation Example	15
3 TEST RESULT	16
3.1 6dB and 99% Bandwidth Measurement	16
3.2 Output Power Measurement	19
3.3 Power Spectral Density Measurement	22
3.4 Conducted Band Edges and Spurious Emission Measurement	25
3.5 Radiated Band Edges and Spurious Emission Measurement	43
3.6 AC Conducted Emission Measurement	134
3.7 Antenna Requirements	139
4 LIST OF MEASURING EQUIPMENT	140
5 UNCERTAINTY OF EVALUATION	142



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR440284C	Rev. 01	Initial issue of report	Jun. 09, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	RSS-210 A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	RSS-Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	RSS-210 A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	RSS-210 A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	RSS-210 A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.08 dB at 2483.500 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 6.80 dB at 0.158 MHz
3.7	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Sony Mobile Communications AB
Nya Vattentorget, 22188 Lund, Sweden

1.2 Manufacturer

Compal Communications, INC.
No. 385, Yangguang Street, Neihu, Taipei 11491, Taiwan

1.3 Feature of Equipment Under Test

The Equipment Under Test (hereafter called: EUT) is smart phone supporting, GSM / WCDMA / LTE, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n, Bluetooth with FM Receiver, ANT+, GPS, and NFC features, and below is details of information.

General Information of Equipment Under Test	
Equipment	Smart phone
Brand Name	SONY
Type Name	PM-0771-BV
FCC ID	PY7PM-0771
IC	4170B-PM0771
GSM Operating Band(s)	GSM 850/900/1800/1900MHz
GPRS / EGPRS Multi Slot Class	GPRS Class 33, EGPRS Class 33
WCDMA Operating Band(s)	FDD Band I / II / IV / V
WCDMA Rel. Version	Rel. 8
LTE Operating Band(s)	FDD Band II / IV / VII / XVII
LTE Rel. Version	Rel. 10
Wi-Fi Specification	802.11b/g/n (HT40), 802.11a/n (HT20/HT40)
Bluetooth Version	v3.0+EDR / v4.0-LE
NFC Specification	ISO14443A / ISO14443B / Felica
ANT+	ANT+
Power Supply	Battery / AC Adapter / Car Charger
EUT Stage	Production Unit

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

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz 802.11a/n: 5745~5825MHz.
Maximum (Peak) Output Power to Antenna	<2412 MHz ~ 2462 MHz> 802.11b : 19.58 dBm (0.0908 W) 802.11g : 22.73 dBm (0.1875 W) 802.11n HT20 : 22.29 dBm (0.1694 W) <5745 MHz ~ 5825 MHz> 802.11a : 20.12 dBm (0.1028 W) 802.11n HT20 : 20.06 dBm (0.1014 W) 802.11n HT40 : 19.91 dBm (0.0979 W)
99% Occupied Bandwidth	<2412 MHz ~ 2462 MHz> 802.11b : 14.05MHz 802.11g : 18.60MHz 802.11n HT20 : 19.30MHz <5745 MHz ~ 5825 MHz> 802.11a : 19.15MHz 802.11n HT20 : 20.00MHz 802.11n HT40 : 37.20MHz
Antenna Type / Gain	802.11b/g/n : PIFA Antenna type with gain 1.40 dBi 802.11a/n : PIFA Antenna type with gain -2.20 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

EUT Information List				
IMEI	HW Version	SW Version	S/N	Performed Test Item
IMEI : 004402452474269	A	18.3.C.0.8	ZH8002JUPJ	RF conducted measurement
IMEI : 004402452477643			ZH80038NS9	Radiated Spurious Emission
IMEI : 004402452477734			ZH8002JVQW	Conducted Emission

Accessory List	
AC Adapter	Model No. : EP800
	Type No. : CAA-0002016-US B
	SN : 1112W28321732 (for Radiated Spurious Emission) 3113W23610674 (for AC power line Conducted Emission)
Battery	Model No. : LIS1551ERPC
	Type No. : F-4993-128-0
Earphone	Model No. : MH410c
	Type No. : AG-1100
	SN : 12522047001ADD8 (for Radiated Spurious Emission) 12481A10036502 (for AC power line Conducted Emission)
USB Cable	Model No. : AHAB EC450
	Type No. : AI-0700
	SN : 132512DA0631054 (for Radiated Spurious Emission) 132212DF3297482 (for AC power line Conducted Emission)

Note:

1. Above EUT list and accessory list used are electrically identical per declared by manufacturer.
2. Above the accessories list are used to exercise the EUT during test, and the serial number of each type of accessories is listed in each section of this report.
3. For other wireless features of this EUT, test report will be issued separately.

1.5 Modification of EUT

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

1.6 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 Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			IC Registration No.
	TH02-HY	CO05-HY	03CH06-HY	4086B-1

1.7 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
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ANSI C63.4-2003
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3
- NOTICE 2012-DRS0126

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.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

2 Test Configuration of Equipment Under Test

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: conducted emission (150 kHz to 30 MHz) and radiated 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 (Z plane for WLAN 2.4GHz and X plane for WLAN 5GHz Band 4) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	159	5795
	151	5755	161	5805
	153	5765	165	5825
	157	5785	-	-

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test shown in the following tables.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	19.58	19.54	19.52	19.49

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	22.73	22.70	22.69	22.70	22.71	22.72	22.68	22.70

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.29	22.27	22.22	22.22	22.21	22.24	22.24	22.23

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.12	20.09	20.06	20.10	20.09	20.02	20.10	20.10

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.06	20.05	20.04	20.03	20.02	20.01	20.05	20.01

5GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.91	19.89	19.82	19.77	19.88	19.80	19.74	19.88

2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

<2.4GHz>

Test Cases				
Conducted TCs	Test Items	Mode	Data Rate	Test Channel
	6dB and 99% BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
	Conducted Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	MCS0	1/11
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	MCS0	1/11
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11

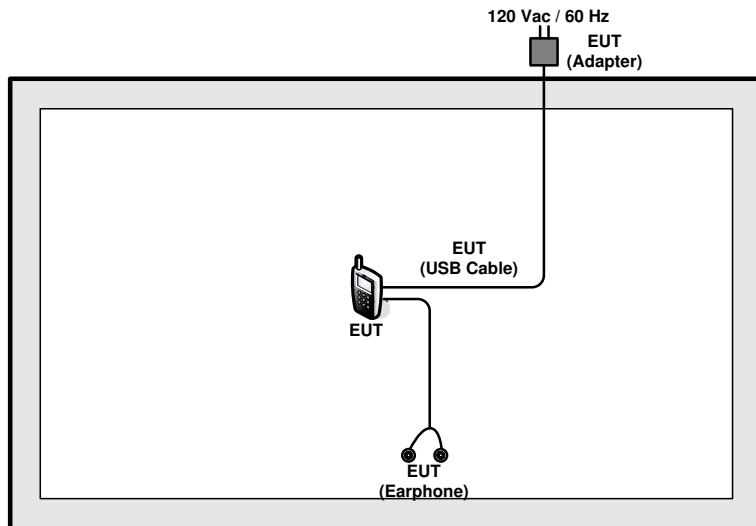
<5GHz>

Test Cases				
Conducted TCs	Test Items	Mode	Data Rate	Test Channel
	6dB and 99% BW Power Spectral Density	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
	Output Power	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
	Conducted Band Edge	802.11a	6 Mbps	149/165
		802.11n HT20	MCS0	149/165
		802.11n HT40	MCS0	151/159
	Conducted Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
Radiated TCs	Radiated Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159

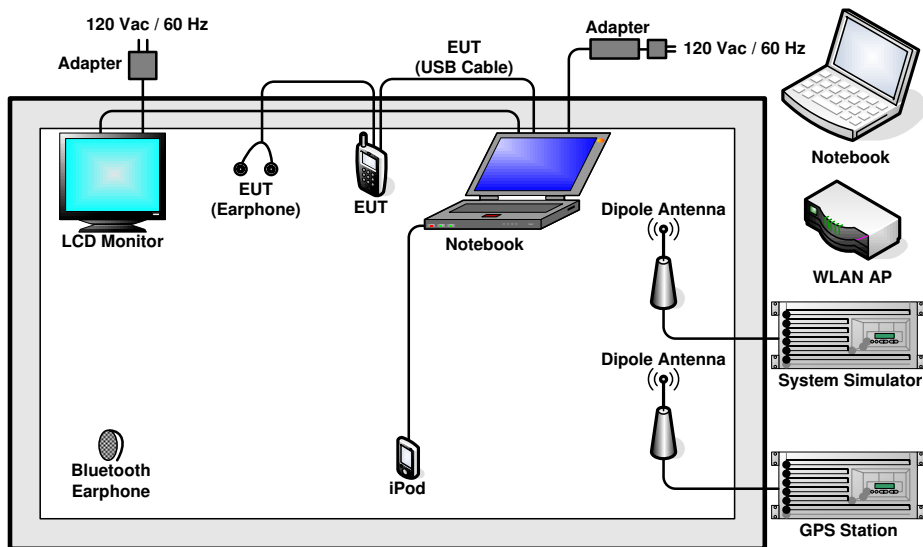
Test Cases	
AC Conducted Emission	Mode 1 : GSM1900 Idle + Bluetooth Link + WLAN (2.4GHz) Link + Earphone + Battery + USB Cable (Data Link with Notebook) + GPS Rx

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 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.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
6.	Bluetooth Earphone	Sony	SBH20	PY7-RD0010	Unshielded, 0.75m	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.6 EUT Operation Test Setup

For WLAN function, programmed RF utility, "Android Debug Bridge" installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.



2.7 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 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

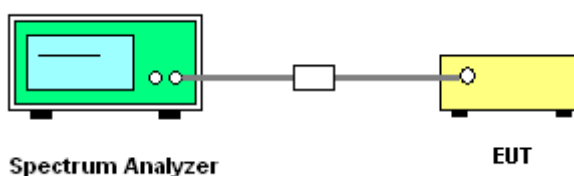
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r01.
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. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup

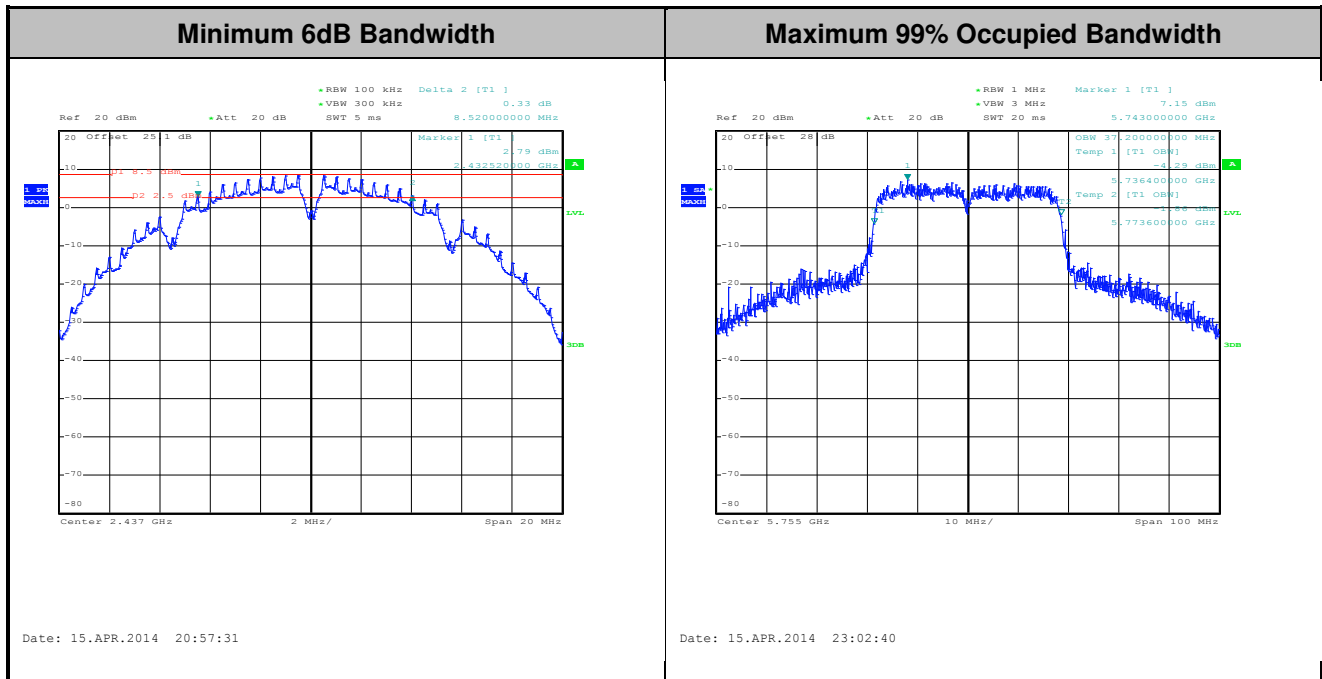


3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Osolemio Chang and Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	14.05	9.00	0.5	Pass
11b	1Mbps	1	6	2437	13.65	8.52	0.5	Pass
11b	1Mbps	1	11	2462	13.70	8.52	0.5	Pass
11g	6Mbps	1	1	2412	18.60	16.36	0.5	Pass
11g	6Mbps	1	6	2437	18.30	16.36	0.5	Pass
11g	6Mbps	1	11	2462	18.20	16.32	0.5	Pass
HT20	MCS0	1	1	2412	19.30	17.56	0.5	Pass
HT20	MCS0	1	6	2437	19.15	17.52	0.5	Pass
HT20	MCS0	1	11	2462	18.85	17.56	0.5	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11a	6Mbps	1	149	5745	19.10	16.32	0.5	Pass
11a	6Mbps	1	157	5785	19.05	16.36	0.5	Pass
11a	6Mbps	1	165	5825	19.15	16.32	0.5	Pass
HT20	MCS0	1	149	5745	20.00	17.60	0.5	Pass
HT20	MCS0	1	157	5785	19.80	17.56	0.5	Pass
HT20	MCS0	1	165	5825	19.85	17.56	0.5	Pass
HT40	MCS0	1	151	5755	37.20	35.44	0.5	Pass
HT40	MCS0	1	159	5795	37.10	35.44	0.5	Pass



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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting Antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the Antenna exceeds 6dBi.

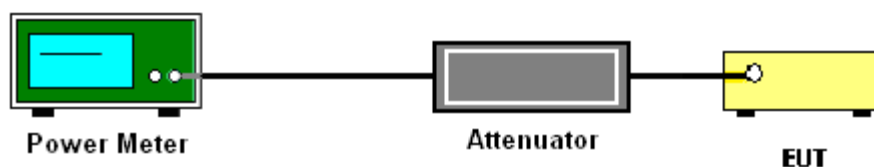
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r01.
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 and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Osolemio Chang and Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	19.09	30	1.40	Pass
11b	1Mbps	1	6	2437	19.58	30	1.40	Pass
11b	1Mbps	1	11	2462	19.55	30	1.40	Pass
11g	6Mbps	1	1	2412	21.99	30	1.40	Pass
11g	6Mbps	1	6	2437	22.73	30	1.40	Pass
11g	6Mbps	1	11	2462	21.94	30	1.40	Pass
HT20	MCS0	1	1	2412	21.69	30	1.40	Pass
HT20	MCS0	1	6	2437	22.29	30	1.40	Pass
HT20	MCS0	1	11	2462	21.53	30	1.40	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	20.12	30	-2.20	Pass
11a	6Mbps	1	157	5785	19.79	30	-2.20	Pass
11a	6Mbps	1	165	5825	19.81	30	-2.20	Pass
HT20	MCS0	1	149	5745	20.06	30	-2.20	Pass
HT20	MCS0	1	157	5785	19.79	30	-2.20	Pass
HT20	MCS0	1	165	5825	19.81	30	-2.20	Pass
HT40	MCS0	1	151	5755	19.91	30	-2.20	Pass
HT40	MCS0	1	159	5795	19.43	30	-2.20	Pass

Note: Measured power (dBm) has offset with cable loss.



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26°C
Test Engineer :	Osolemio Chang and Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	0.10	16.71	30	1.40	Pass
11b	1Mbps	1	6	2437	0.10	16.98	30	1.40	Pass
11b	1Mbps	1	11	2462	0.10	16.84	30	1.40	Pass
11g	6Mbps	1	1	2412	0.60	14.61	30	1.40	Pass
11g	6Mbps	1	6	2437	0.60	14.93	30	1.40	Pass
11g	6Mbps	1	11	2462	0.60	14.11	30	1.40	Pass
HT20	MCS0	1	1	2412	0.63	13.64	30	1.40	Pass
HT20	MCS0	1	6	2437	0.63	13.95	30	1.40	Pass
HT20	MCS0	1	11	2462	0.63	13.24	30	1.40	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	0.59	13.98	30	-2.20	Pass
11a	6Mbps	1	157	5785	0.59	13.81	30	-2.20	Pass
11a	6Mbps	1	165	5825	0.59	13.90	30	-2.20	Pass
HT20	MCS0	1	149	5745	0.64	13.99	30	-2.20	Pass
HT20	MCS0	1	157	5785	0.64	13.88	30	-2.20	Pass
HT20	MCS0	1	165	5825	0.64	13.95	30	-2.20	Pass
HT40	MCS0	1	151	5755	1.18	13.82	30	-2.20	Pass
HT40	MCS0	1	159	5795	1.18	13.57	30	-2.20	Pass

Note: Measured power (dBm) has offset with cable loss and duty factor.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

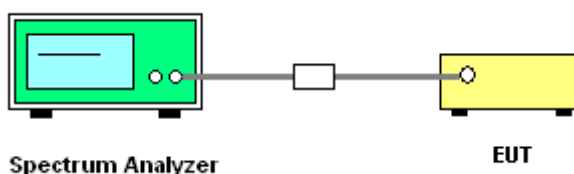
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
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. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup



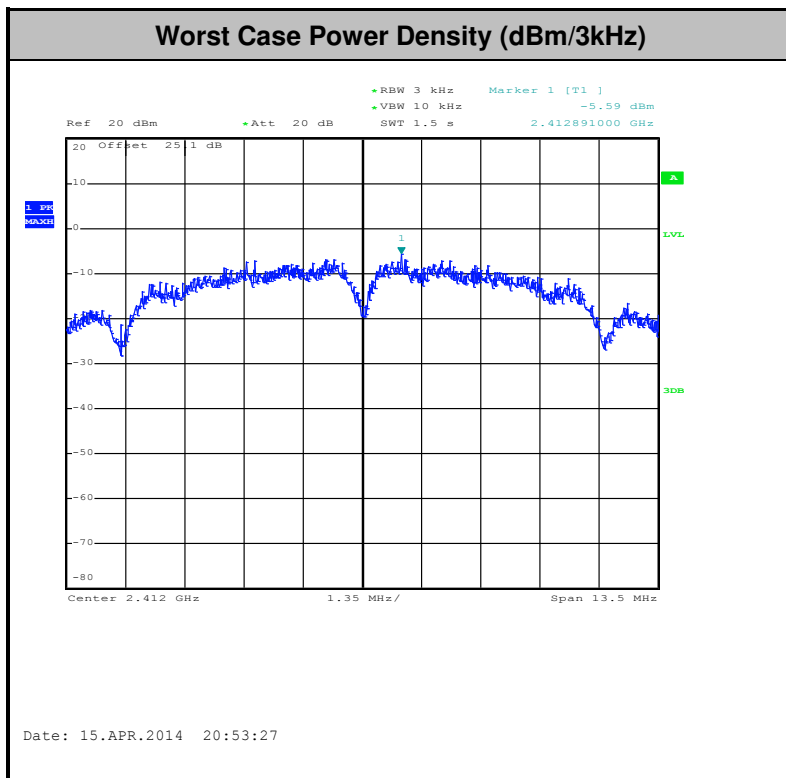
3.3.5 Test Result of Power Spectral Density

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26°C
Test Engineer :	Osolemio Chang and Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	-5.59	8	1.40	Pass
11b	1Mbps	1	6	2437	-5.98	8	1.40	Pass
11b	1Mbps	1	11	2462	-6.77	8	1.40	Pass
11g	6Mbps	1	1	2412	-11.06	8	1.40	Pass
11g	6Mbps	1	6	2437	-10.61	8	1.40	Pass
11g	6Mbps	1	11	2462	-12.50	8	1.40	Pass
HT20	MCS0	1	1	2412	-12.22	8	1.40	Pass
HT20	MCS0	1	6	2437	-12.12	8	1.40	Pass
HT20	MCS0	1	11	2462	-12.85	8	1.40	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	-12.81	8	-2.20	Pass
11a	6Mbps	1	157	5785	-11.14	8	-2.20	Pass
11a	6Mbps	1	165	5825	-12.91	8	-2.20	Pass
HT20	MCS0	1	149	5745	-13.07	8	-2.20	Pass
HT20	MCS0	1	157	5785	-11.83	8	-2.20	Pass
HT20	MCS0	1	165	5825	-14.07	8	-2.20	Pass
HT40	MCS0	1	151	5755	-14.07	8	-2.20	Pass
HT40	MCS0	1	159	5795	-15.97	8	-2.20	Pass

Note: Measured power density (dBm) has offset with cable loss.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

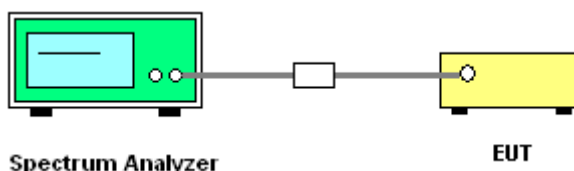
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
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=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
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.

3.4.4 Test Setup



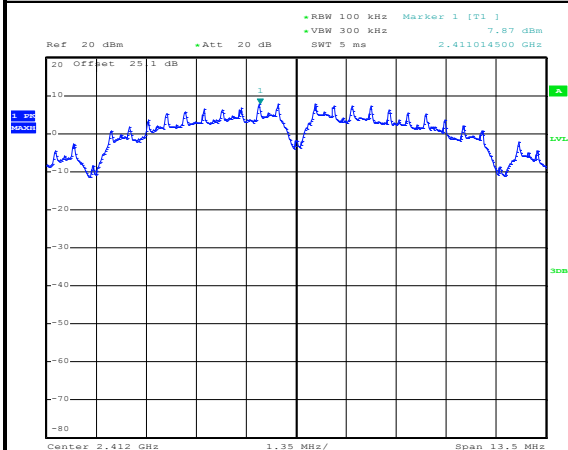


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	Temperature :	21~26℃
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Osolemio Chang and Bill Kuo

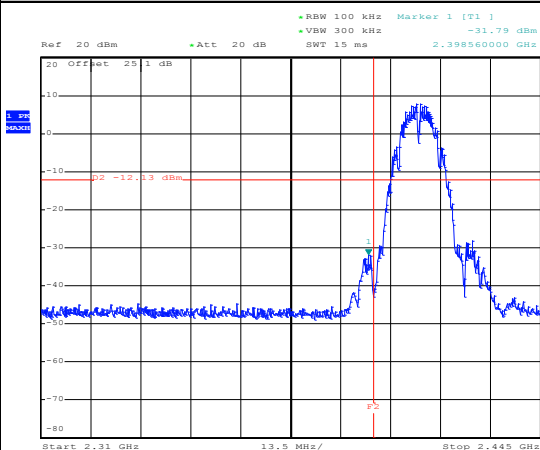
WLAN 802.11b Channel 01

100kHz PSD reference Level



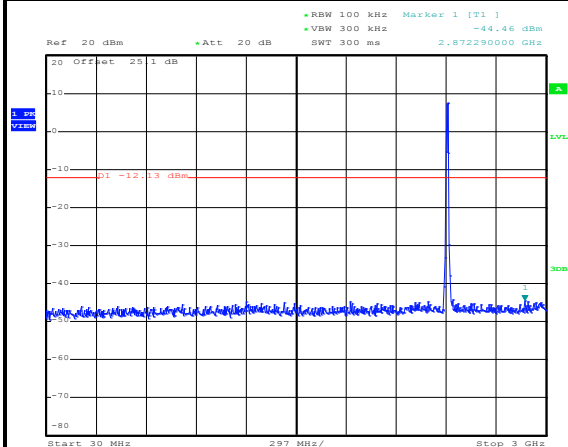
Date: 15.APR.2014 20:53:35

Low Channel Plot



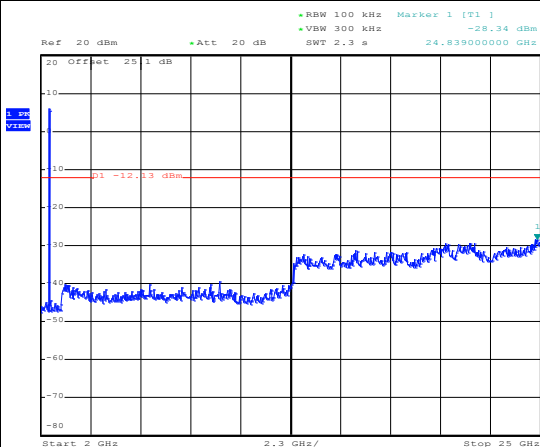
Date: 15.APR.2014 20:53:49

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:29:23

Spurious Emission 2GHz~25GHz



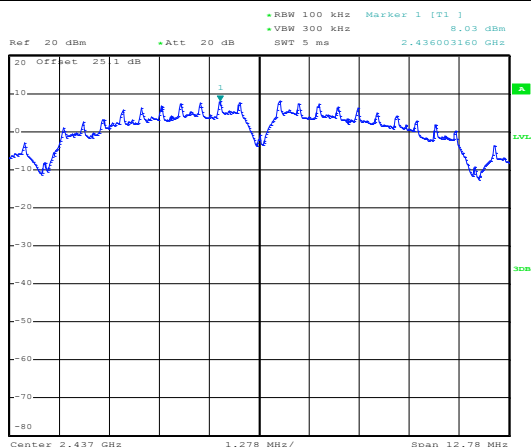
Date: 15.APR.2014 21:29:42



Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Osolemio Chang and Bill Kuo

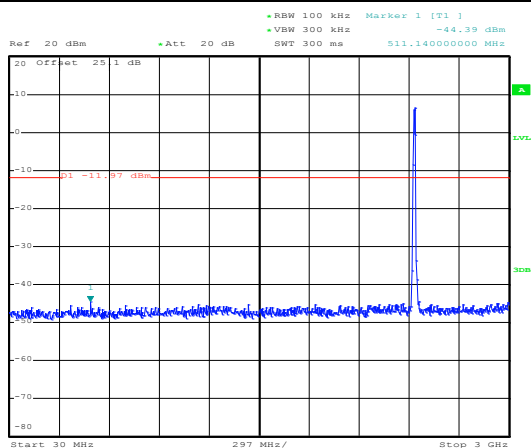
WLAN 802.11b Channel 06

100kHz PSD reference Level



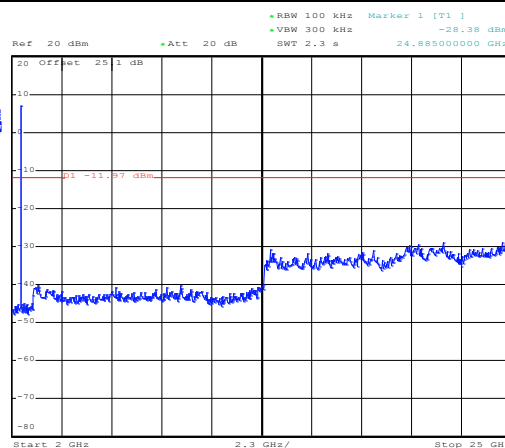
Date: 15.APR.2014 20:58:00

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:30:59

Spurious Emission 2GHz~25GHz



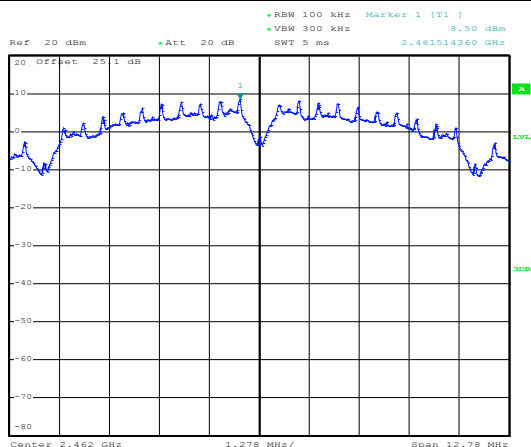
Date: 15.APR.2014 21:31:16



Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Osolemio Chang and Bill Kuo

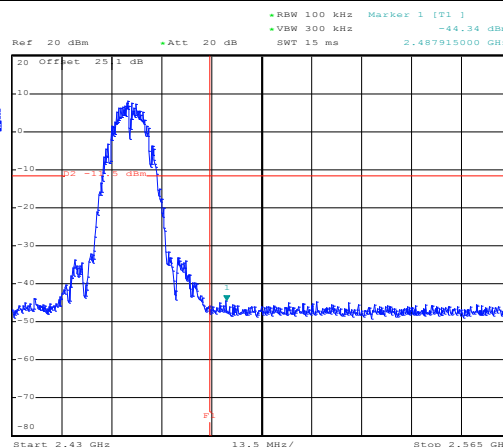
WLAN 802.11b Channel 11

100kHz PSD reference Level



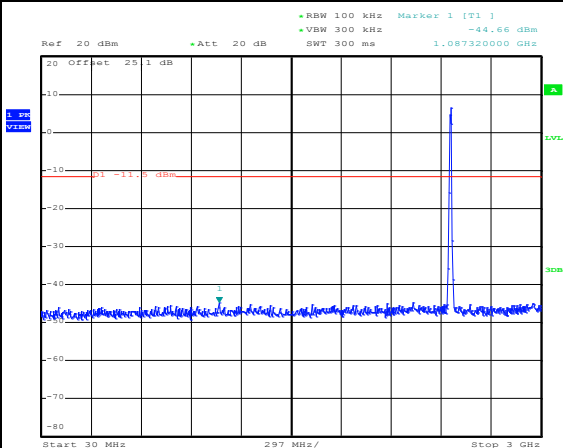
Date: 15.APR.2014 21:02:48

High Channel Plot



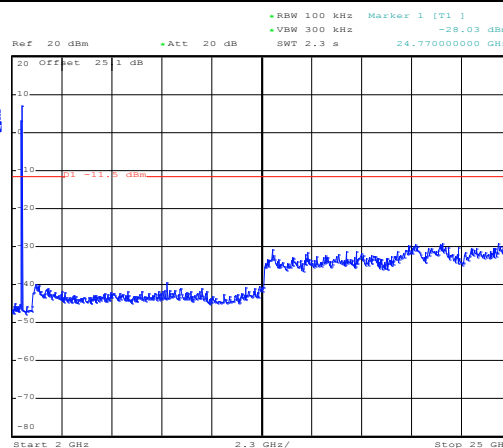
Date: 15.APR.2014 21:03:01

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:32:39

Spurious Emission 2GHz~25GHz



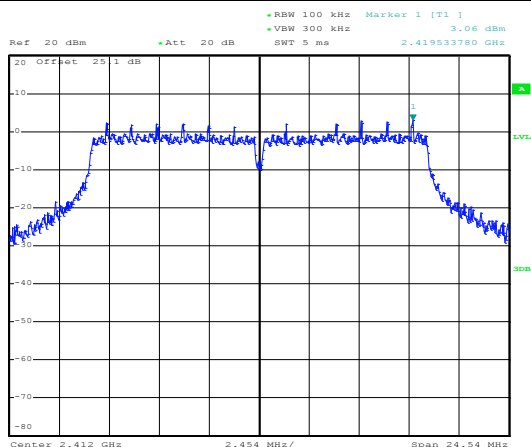
Date: 15.APR.2014 21:32:57



Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Osolemio Chang and Bill Kuo

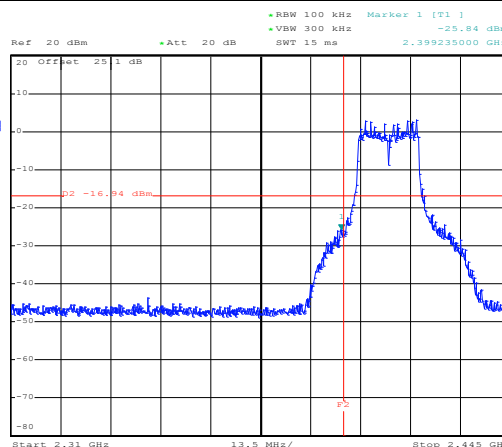
WLAN 802.11g Channel 01

100kHz PSD reference Level



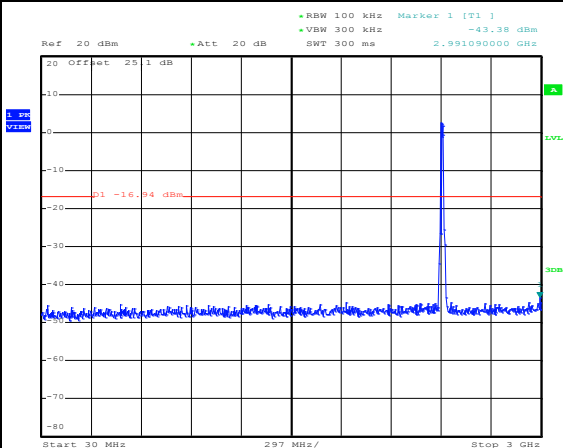
Date: 15.APR.2014 21:07:19

Low Channel Plot



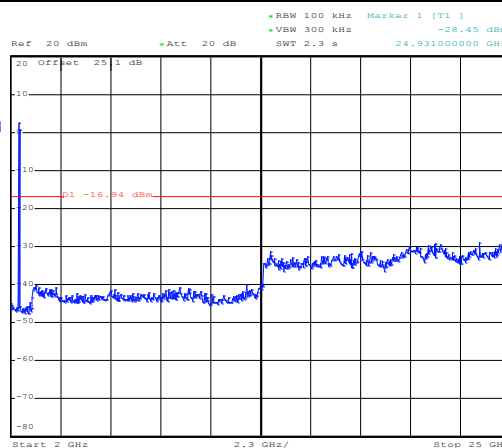
Date: 15.APR.2014 21:12:06

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:35:04

Spurious Emission 2GHz~25GHz



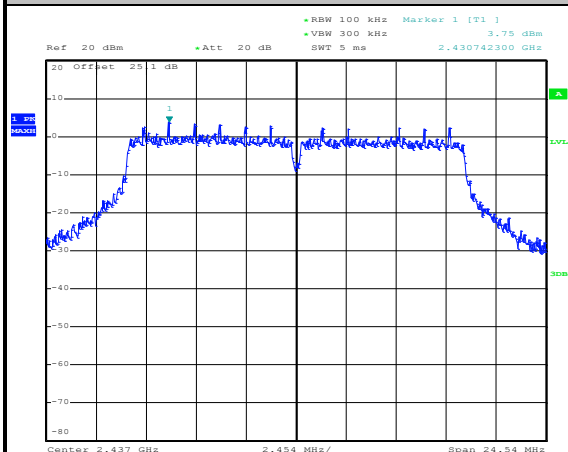
Date: 15.APR.2014 21:35:22



Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Osolemio Chang and Bill Kuo

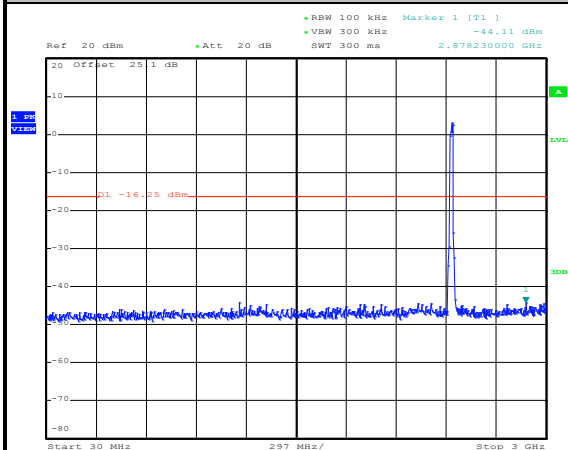
WLAN 802.11g Channel 06

100kHz PSD reference Level



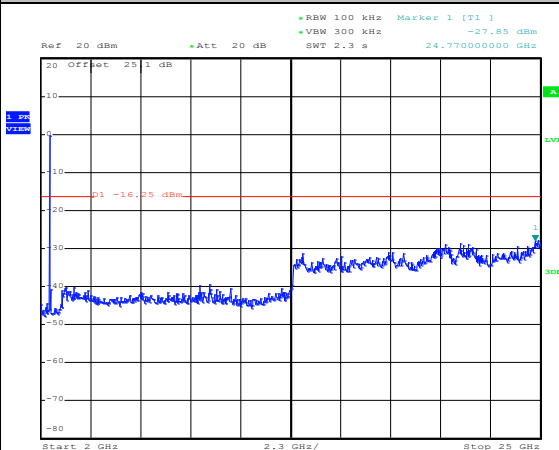
Date: 15.APR.2014 21:17:05

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:25:05

Spurious Emission 2GHz~25GHz



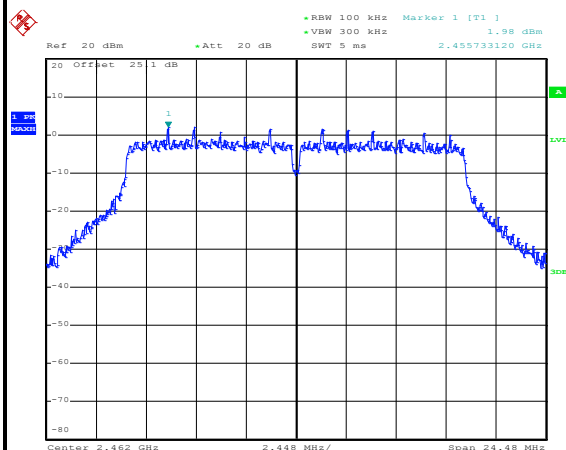
Date: 15.APR.2014 21:25:24



Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Osolemio Chang and Bill Kuo

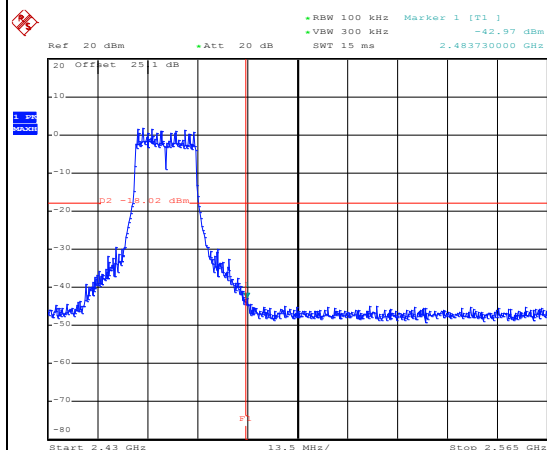
WLAN 802.11g Channel 11

100kHz PSD reference Level



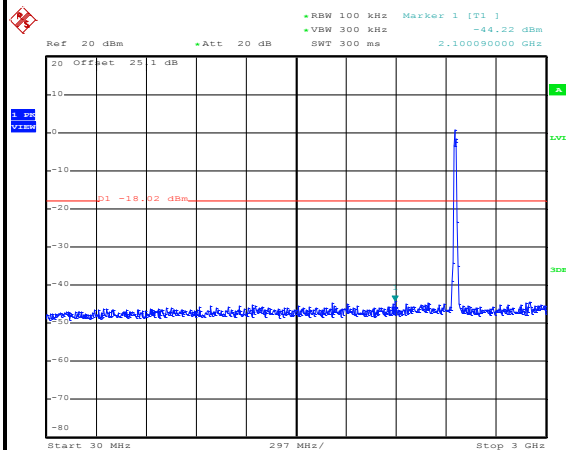
Date: 12.MAY.2014 13:05:05

High Channel Plot



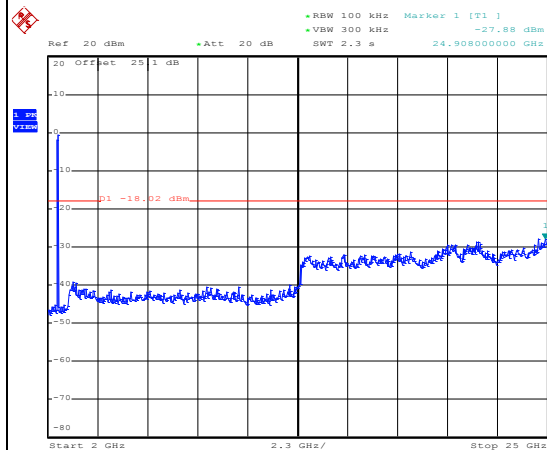
Date: 12.MAY.2014 13:05:45

Spurious Emission 30MHz~3GHz



Date: 12.MAY.2014 13:06:09

Spurious Emission 2GHz~25GHz



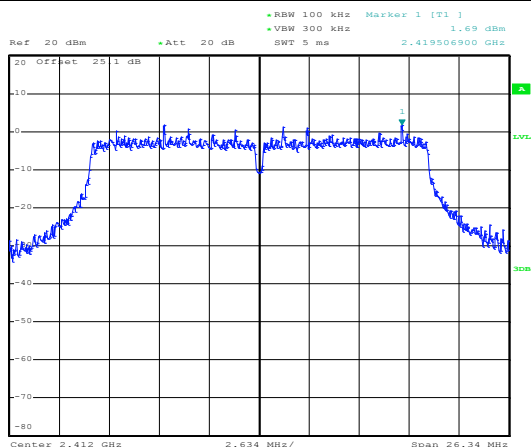
Date: 12.MAY.2014 13:06:27



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Osolemio Chang and Bill Kuo

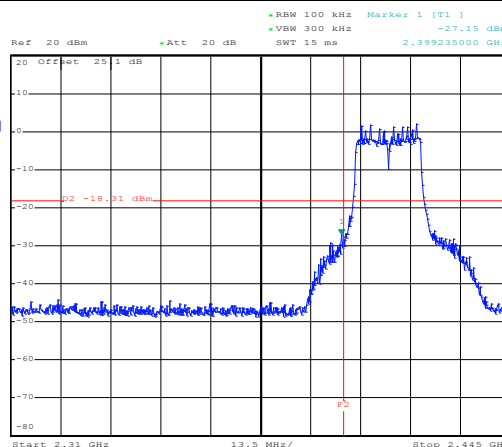
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



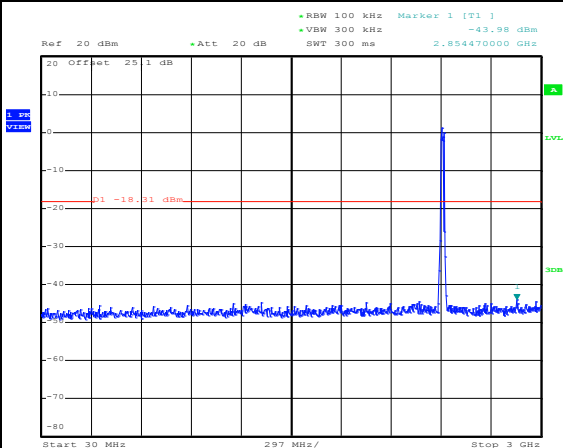
Date: 15.APR.2014 21:39:30

Low Channel Plot



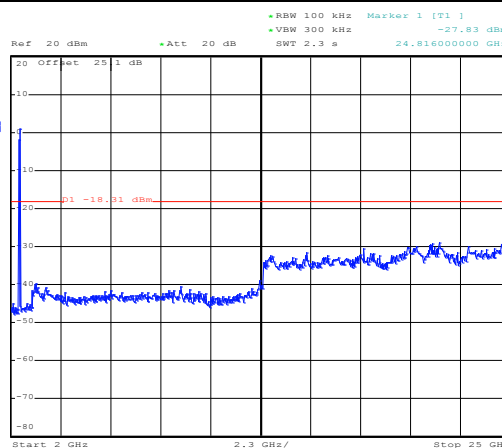
Date: 15.APR.2014 21:43:17

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:42:02

Spurious Emission 2GHz~25GHz



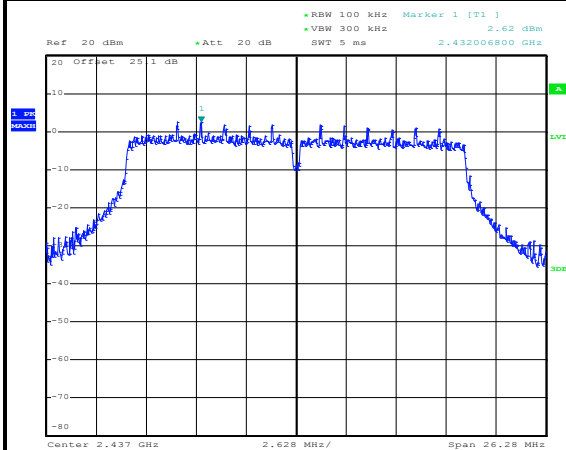
Date: 15.APR.2014 21:42:21



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Osolemio Chang and Bill Kuo

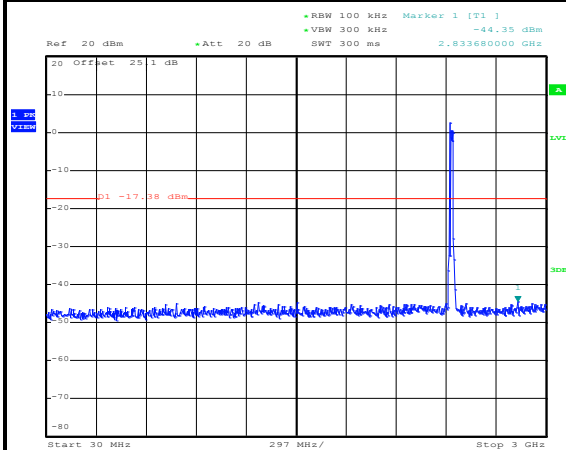
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



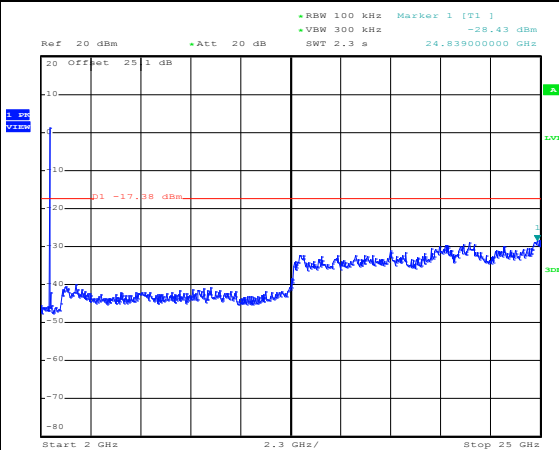
Date: 15.APR.2014 21:47:28

Spurious Emission 30MHz~3GHz



Date: 15.APR.2014 21:47:47

Spurious Emission 2GHz~25GHz



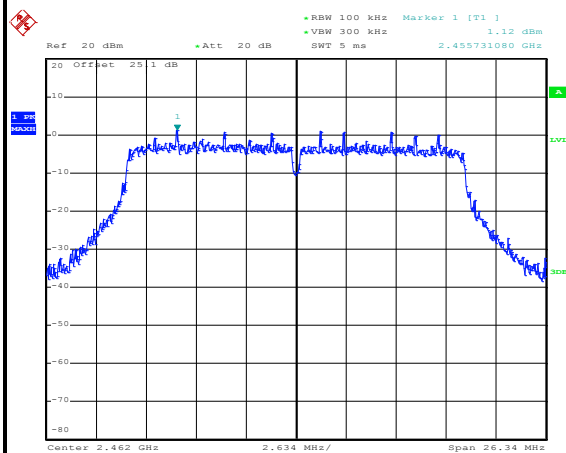
Date: 15.APR.2014 21:48:06



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Osolemio Chang and Bill Kuo

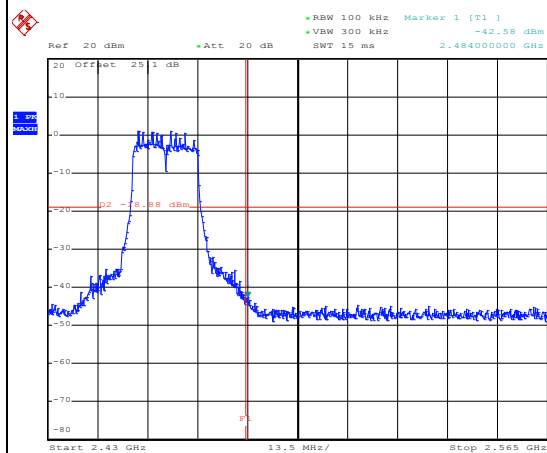
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



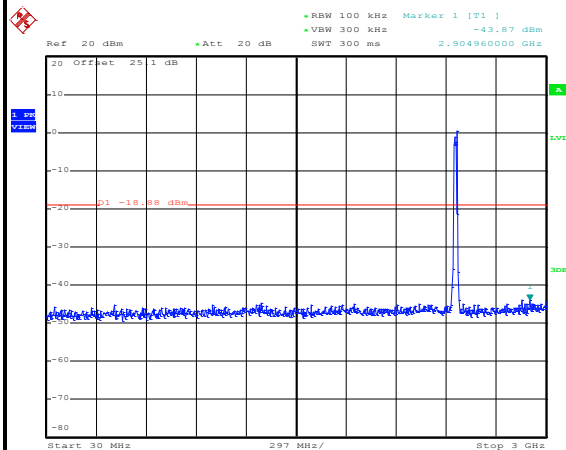
Date: 12.MAY.2014 13:10:31

High Channel Plot



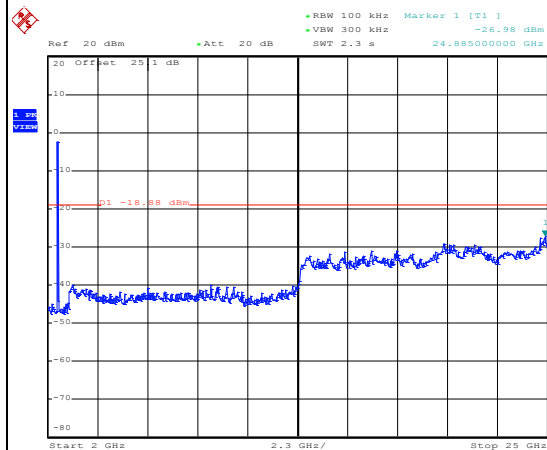
Date: 12.MAY.2014 13:10:45

Spurious Emission 30MHz~3GHz



Date: 12.MAY.2014 13:11:04

Spurious Emission 2GHz~25GHz



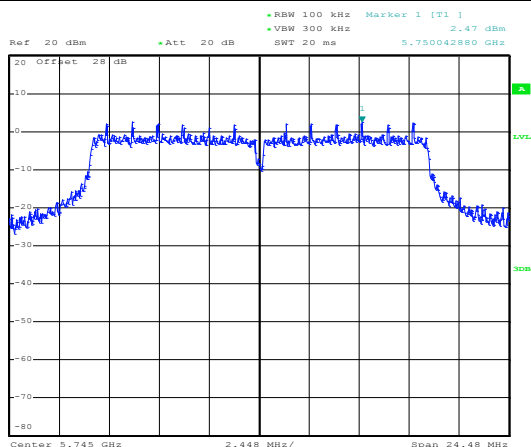
Date: 12.MAY.2014 13:11:22



Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Osolemio Chang and Bill Kuo

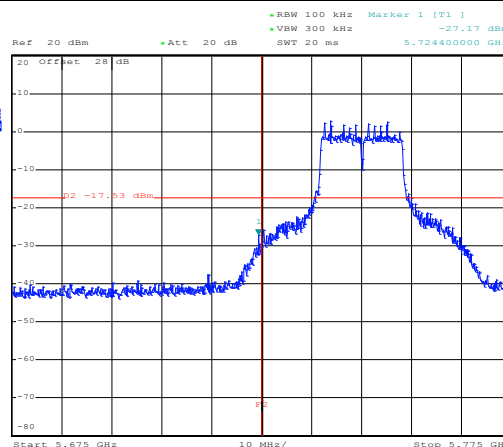
WLAN 802.11a Channel 149

100kHz PSD reference Level



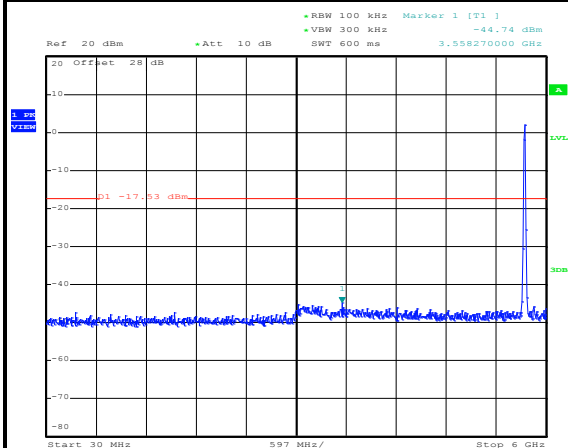
Date: 15.APR.2014 22:14:38

Low Channel Plot



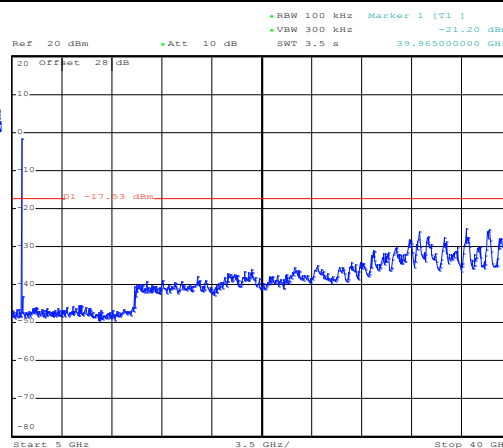
Date: 15.APR.2014 22:14:52

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 22:17:01

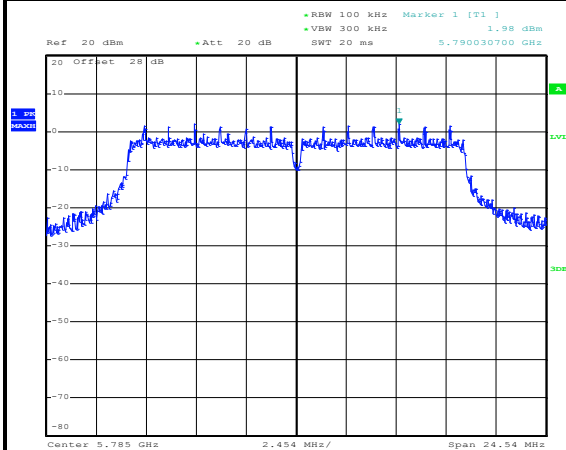
Spurious Emission 5GHz~40GHz



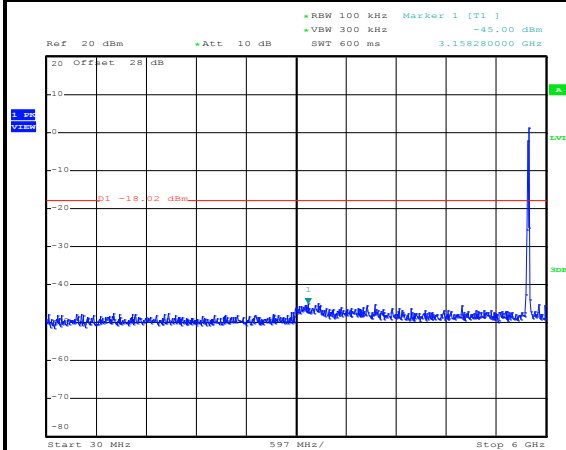
Date: 15.APR.2014 22:17:19



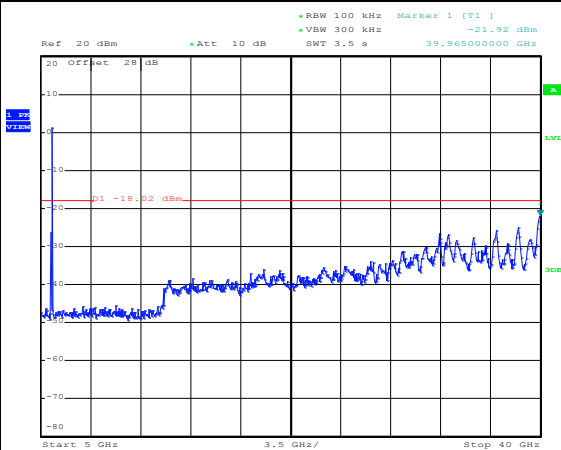
Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Osolemio Chang and Bill Kuo

WLAN 802.11a Channel 157**100kHz PSD reference Level**

Date: 15.APR.2014 22:20:39

Spurious Emission 30MHz~6GHz

Date: 15.APR.2014 22:20:58

Spurious Emission 5GHz~40GHz

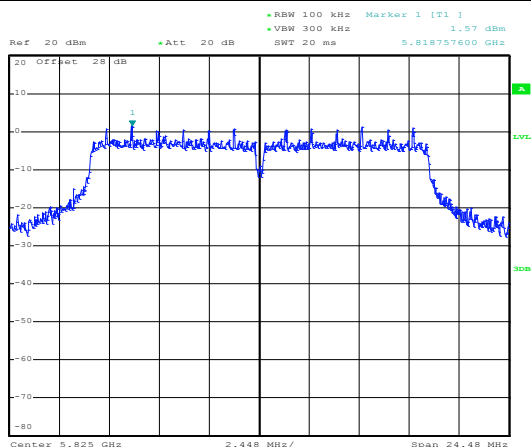
Date: 15.APR.2014 22:21:17



Test Mode :	802.11a	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Osolemio Chang and Bill Kuo

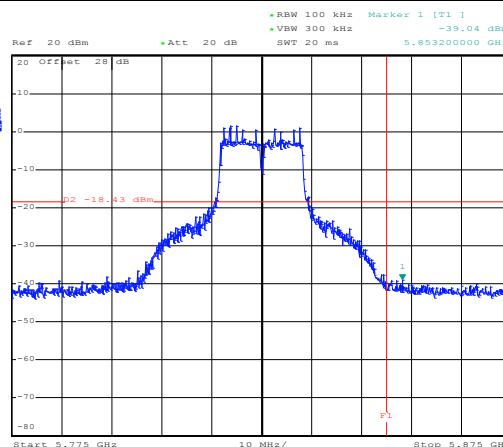
WLAN 802.11a Channel 165

100kHz PSD reference Level



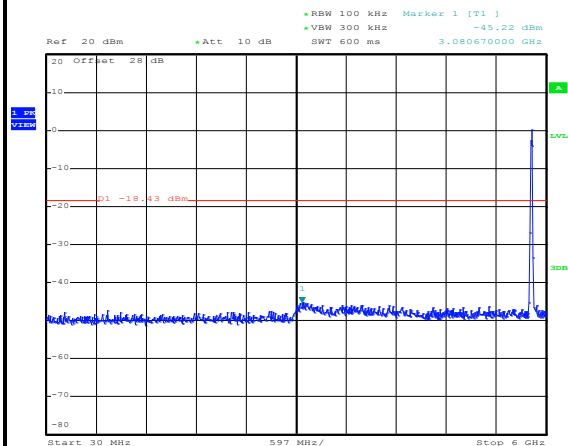
Date: 15.APR.2014 22:24:30

High Channel Plot



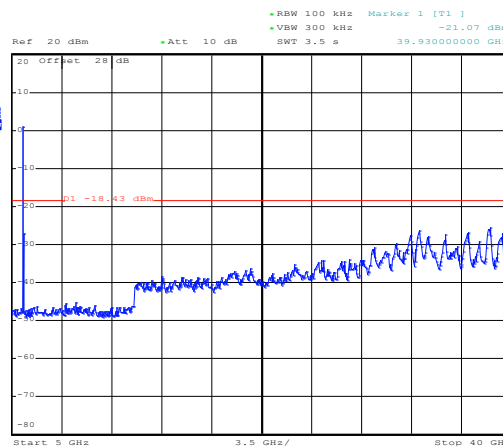
Date: 15.APR.2014 22:24:44

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 22:25:03

Spurious Emission 5GHz~40GHz



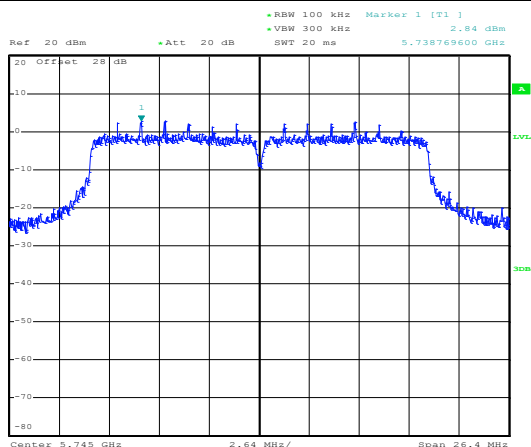
Date: 15.APR.2014 22:25:21



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Osolemio Chang and Bill Kuo

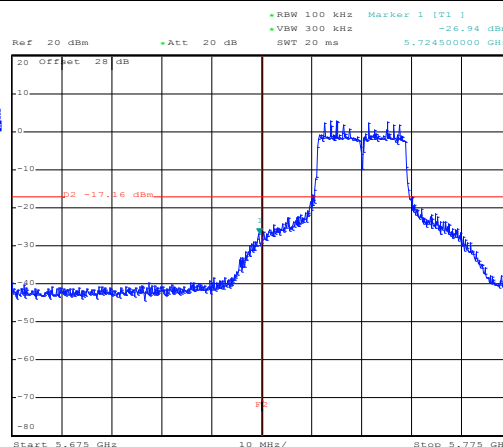
WLAN 802.11n HT20 Channel 149

100kHz PSD reference Level



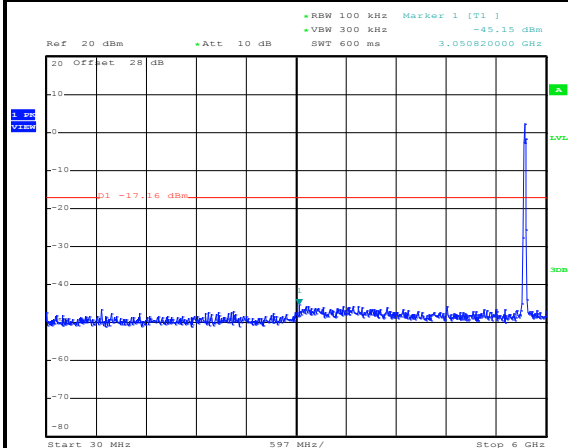
Date: 15.APR.2014 22:43:22

Low Channel Plot



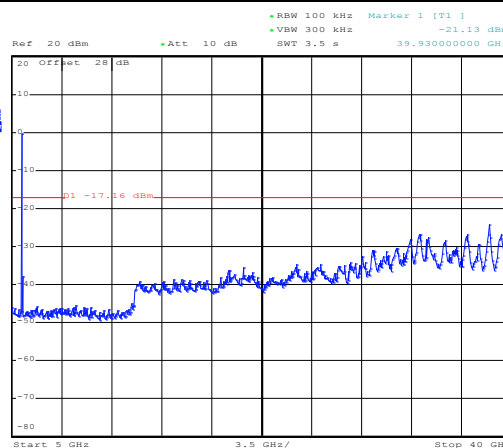
Date: 15.APR.2014 22:43:35

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 22:43:55

Spurious Emission 5GHz~40GHz



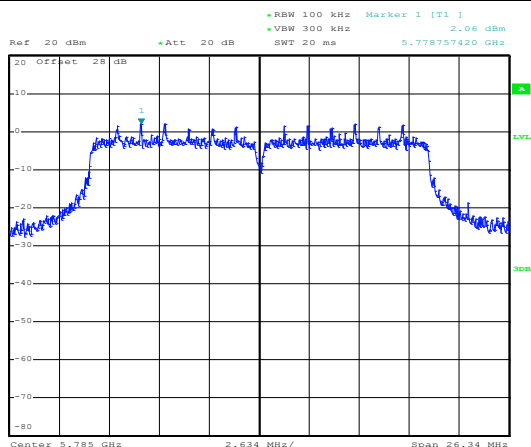
Date: 15.APR.2014 22:44:13



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Osolemio Chang and Bill Kuo

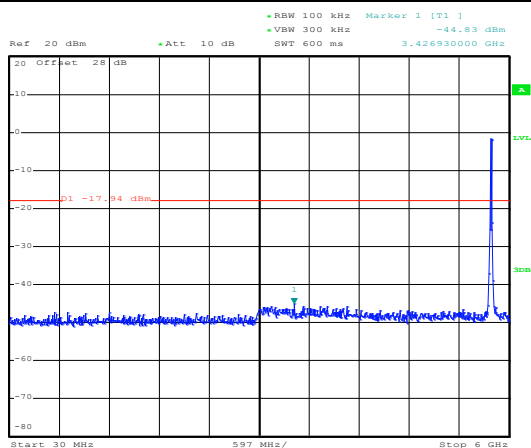
WLAN 802.11n HT20 Channel 157

100kHz PSD reference Level



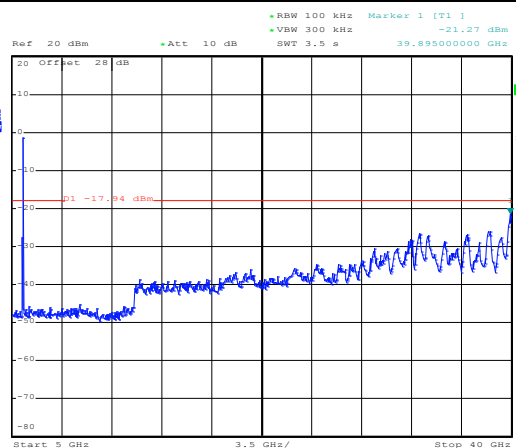
Date: 15.APR.2014 22:48:12

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 22:48:32

Spurious Emission 5GHz~40GHz



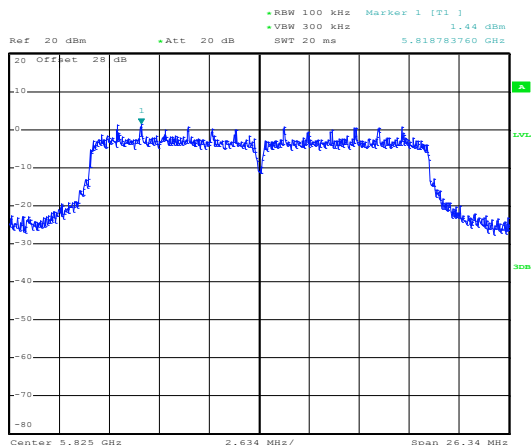
Date: 15.APR.2014 22:48:50



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Osolemio Chang and Bill Kuo

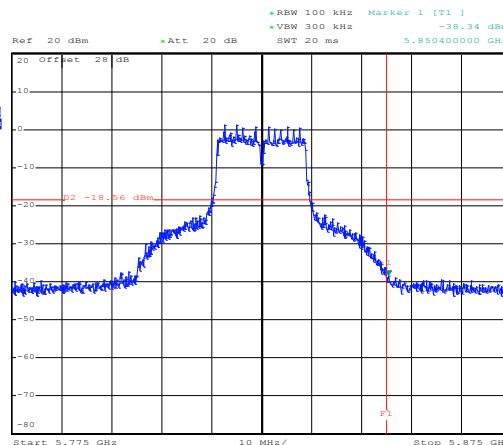
WLAN 802.11n HT20 Channel 165

100kHz PSD reference Level



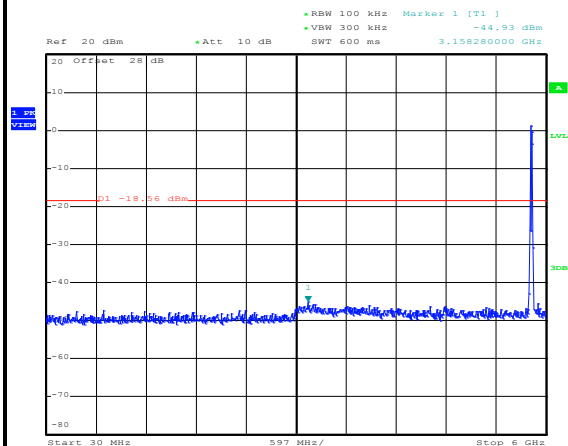
Date: 15.APR.2014 22:51:49

High Channel Plot



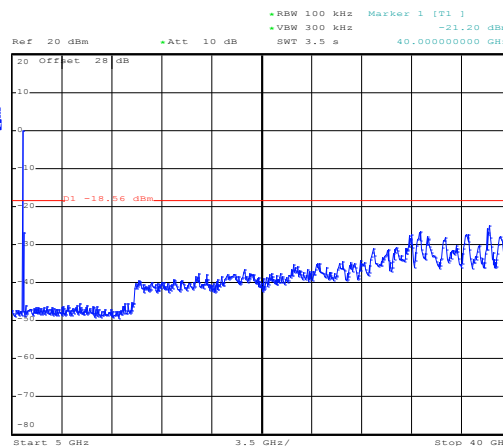
Date: 15.APR.2014 22:52:02

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 22:52:21

Spurious Emission 5GHz~40GHz



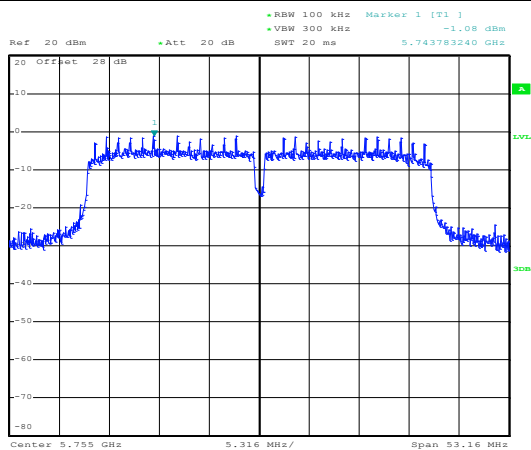
Date: 15.APR.2014 22:52:40



Test Mode :	802.11n HT40	Temperature :	21~26°C
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	151	Test Engineer :	Osolemio Chang and Bill Kuo

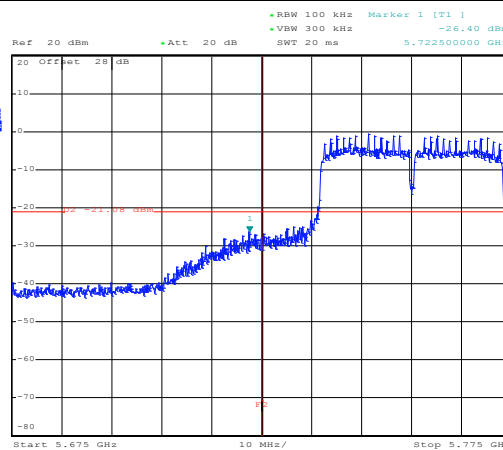
WLAN 802.11n HT40 Channel 151

100kHz PSD reference Level



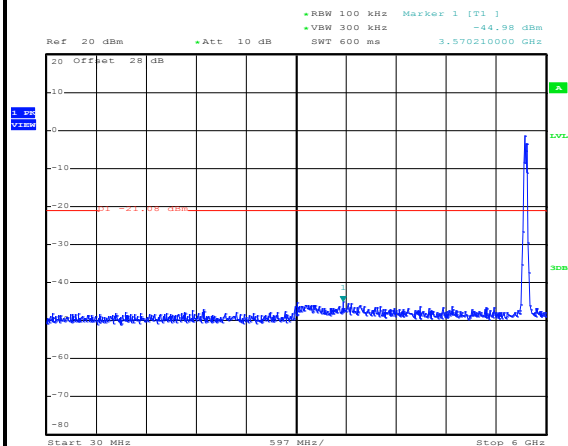
Date: 15.APR.2014 23:01:38

Low Channel Plot



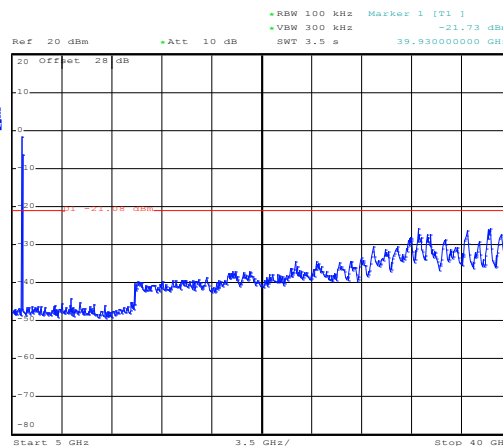
Date: 15.APR.2014 23:01:52

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 23:05:29

Spurious Emission 5GHz~40GHz



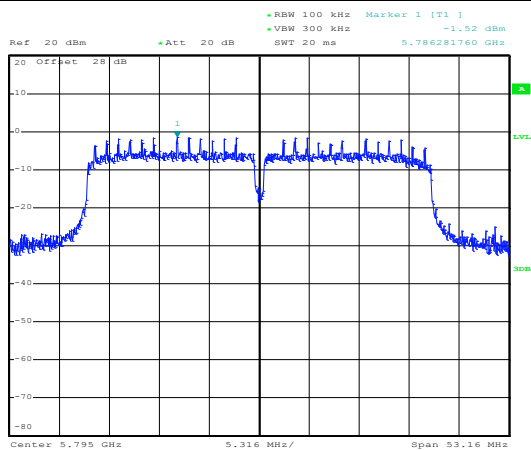
Date: 15.APR.2014 23:05:48



Test Mode :	802.11n HT40	Temperature :	21~26°C
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	159	Test Engineer :	Osolemio Chang and Bill Kuo

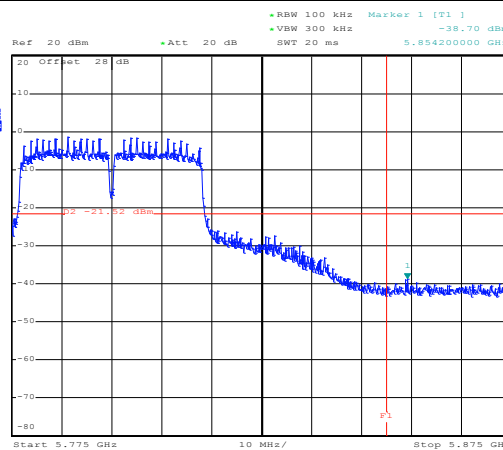
WLAN 802.11n HT40 Channel 159

100kHz PSD reference Level



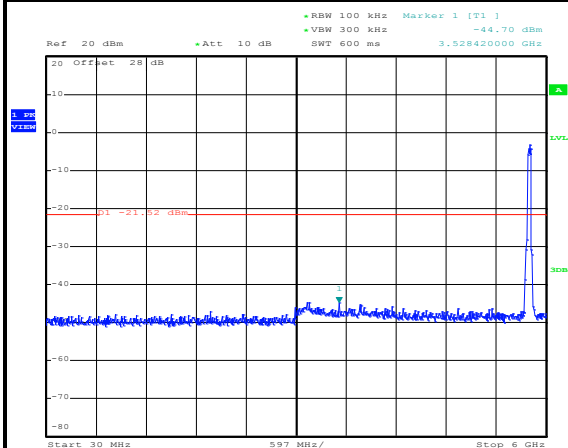
Date: 15.APR.2014 23:09:15

High Channel Plot



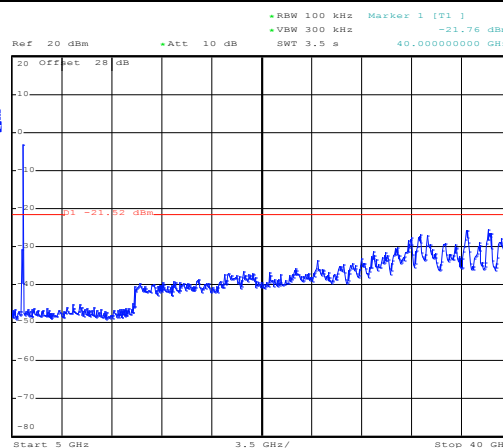
Date: 15.APR.2014 23:09:28

Spurious Emission 30MHz~6GHz



Date: 15.APR.2014 23:09:47

Spurious Emission 5GHz~40GHz



Date: 15.APR.2014 23:10:06

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. 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

3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. 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.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. 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; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

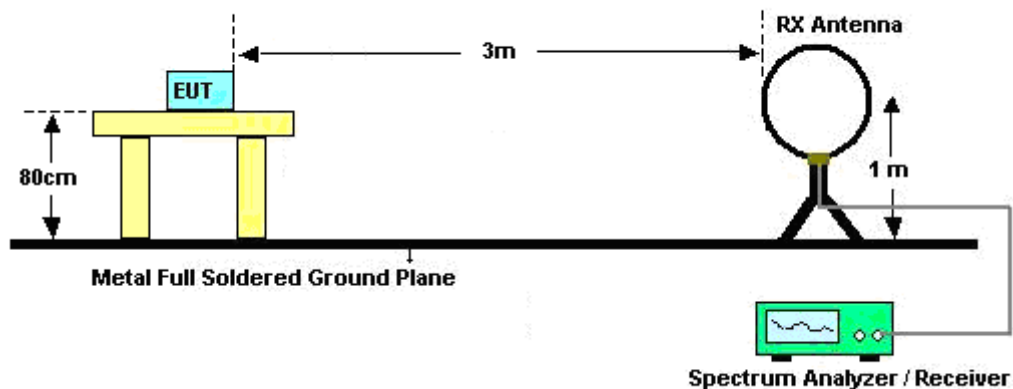
For average measurement:

 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

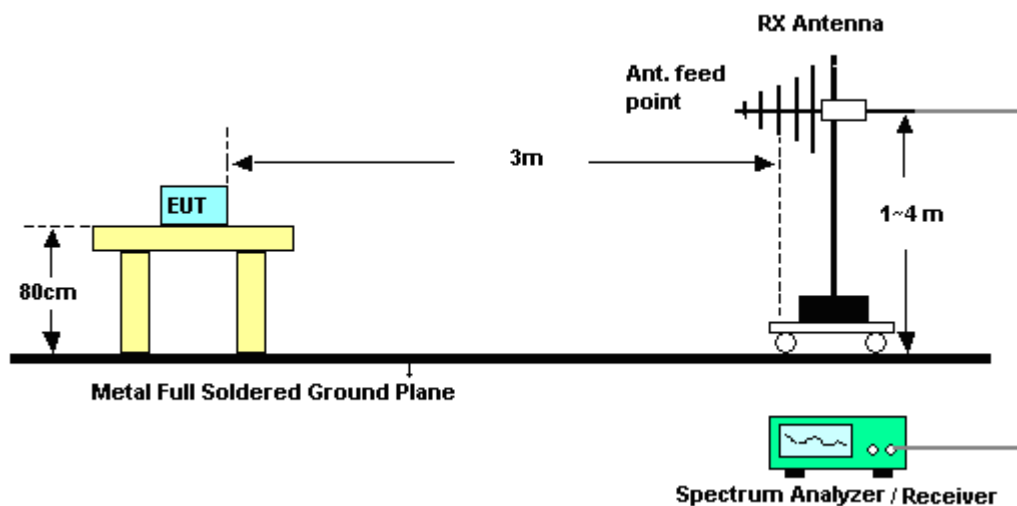
Band	Duty Cycle(%)	T(μ s)	1/T(kHz)	VBW Setting
802.11b	97.63	8240.000	0.121	300Hz
802.11g	87.18	1360.000	0.735	1kHz
2.4GHz 802.11n HT20	86.49	1280.000	0.781	1kHz
802.11a	87.26	1370.000	0.730	1kHz
5GHz 802.11n HT20	86.39	1270.000	0.787	1kHz
5GHz 802.11n HT40	76.26	636.000	1.572	3kHz

3.5.4 Test Setup

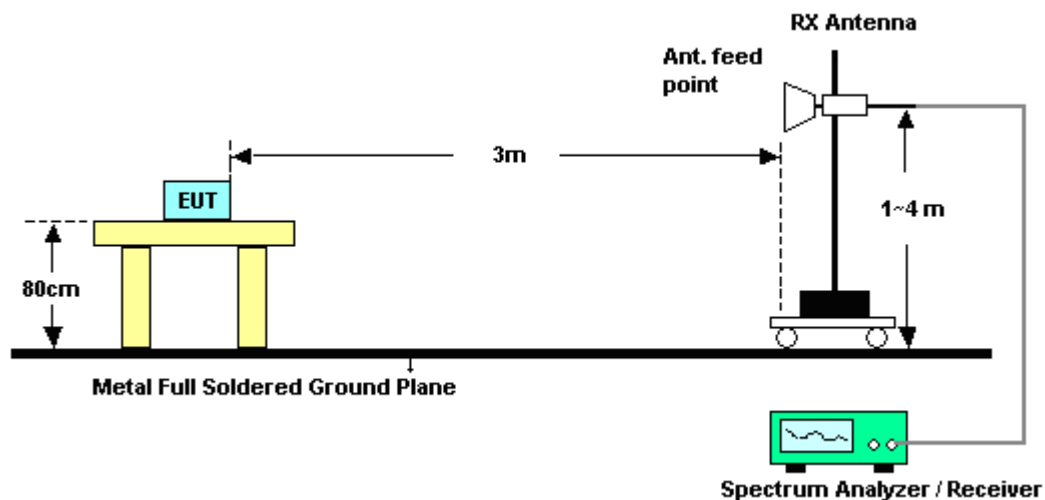
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

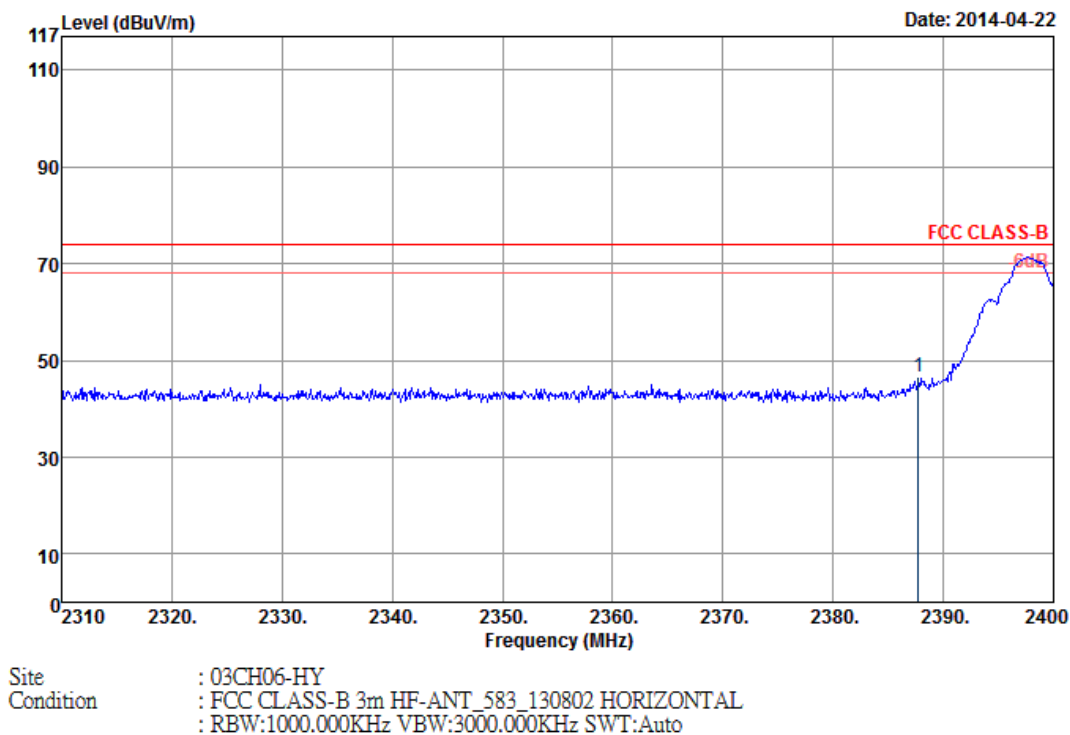


3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

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.

3.5.6 Test Result of Radiated Spurious at Band Edges

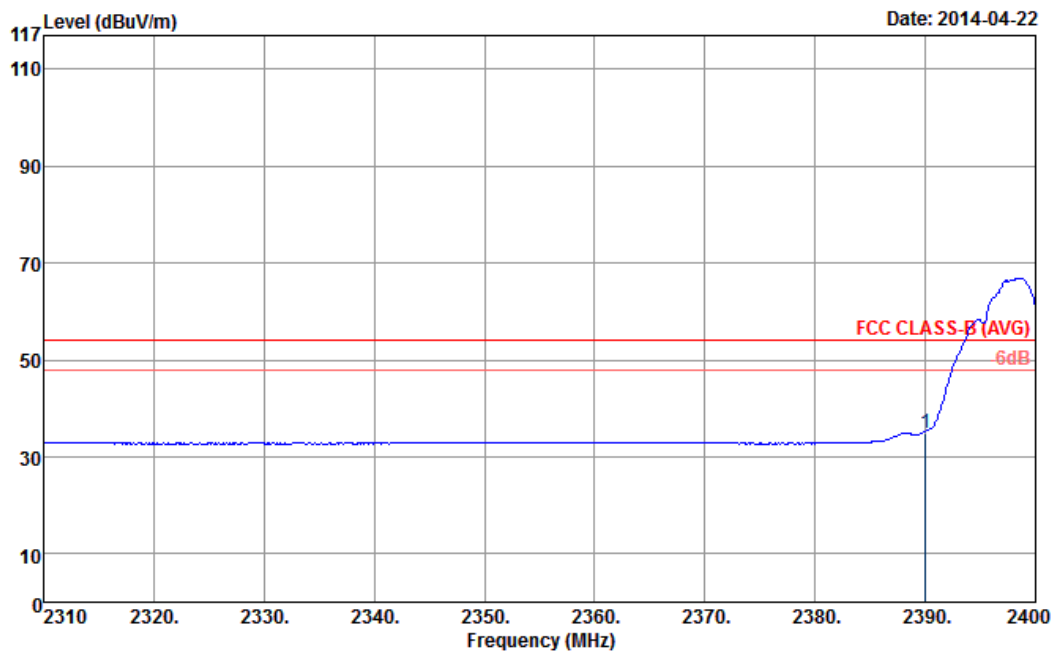
Test Mode :	802.11b	Temperature :	24~25℃
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.76	46.71	-27.29	74	42.99	31.92	6.45	34.65	105	43	Peak

Note: Worst case measurement on 2387.76 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



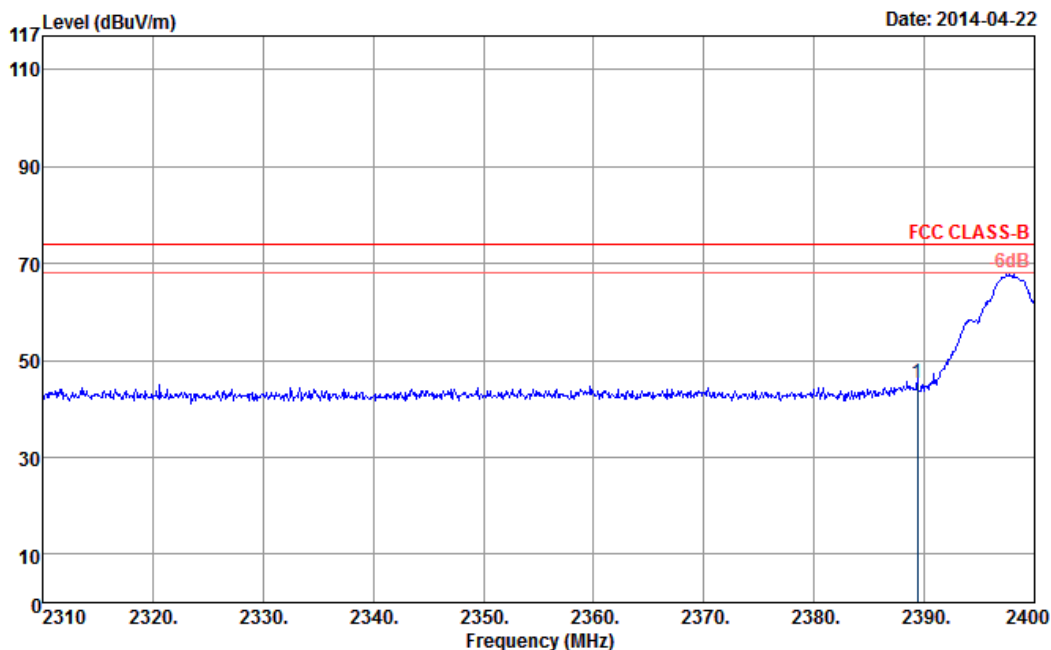
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:0.300KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	34.73	-19.27	54	31	31.92	6.45	34.64	105	43	Average

Note: Worst case measurement on 2390.00 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

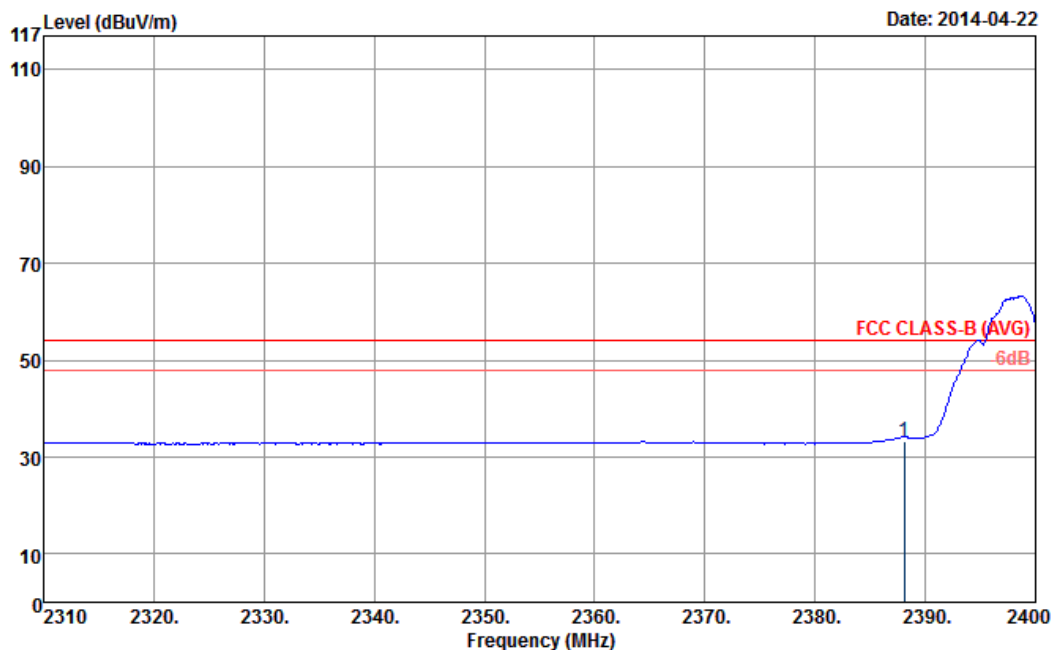
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.38	45.38	-28.62	74	41.66	31.92	6.45	34.65	100	59	Peak

Note: Worst case measurement on 2389.38 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.



Test Mode :	802.11b	Temperature :	24~25℃
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:0.300KHz SWT:Auto

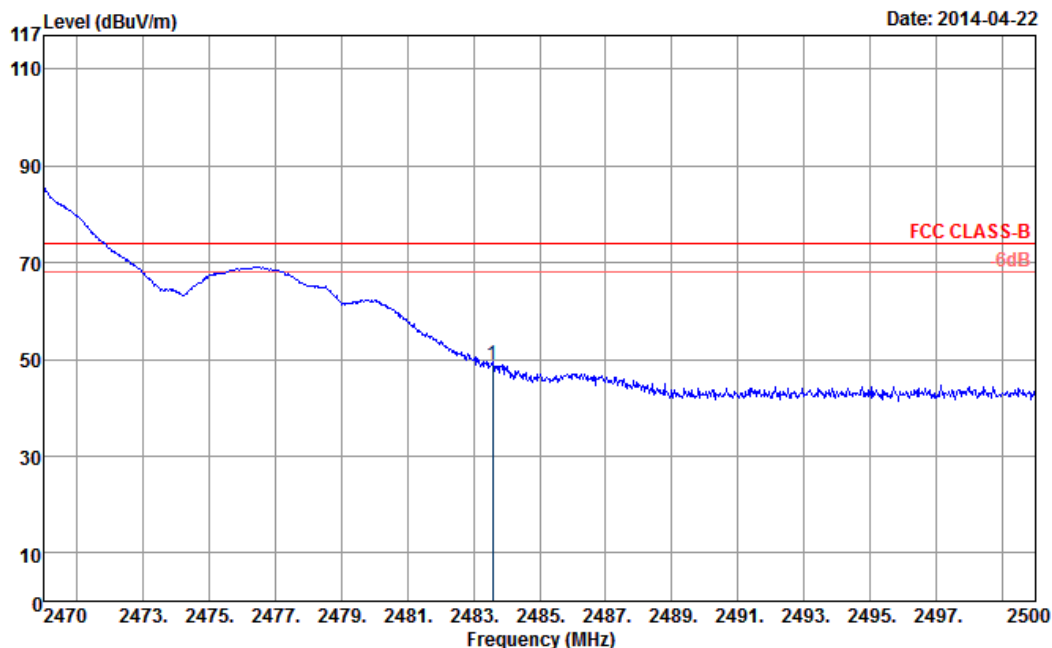
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.12	33.13	-20.87	54	29.41	31.92	6.45	34.65	100	59	Average

Note: Worst case measurement on 2388.12 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.



Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



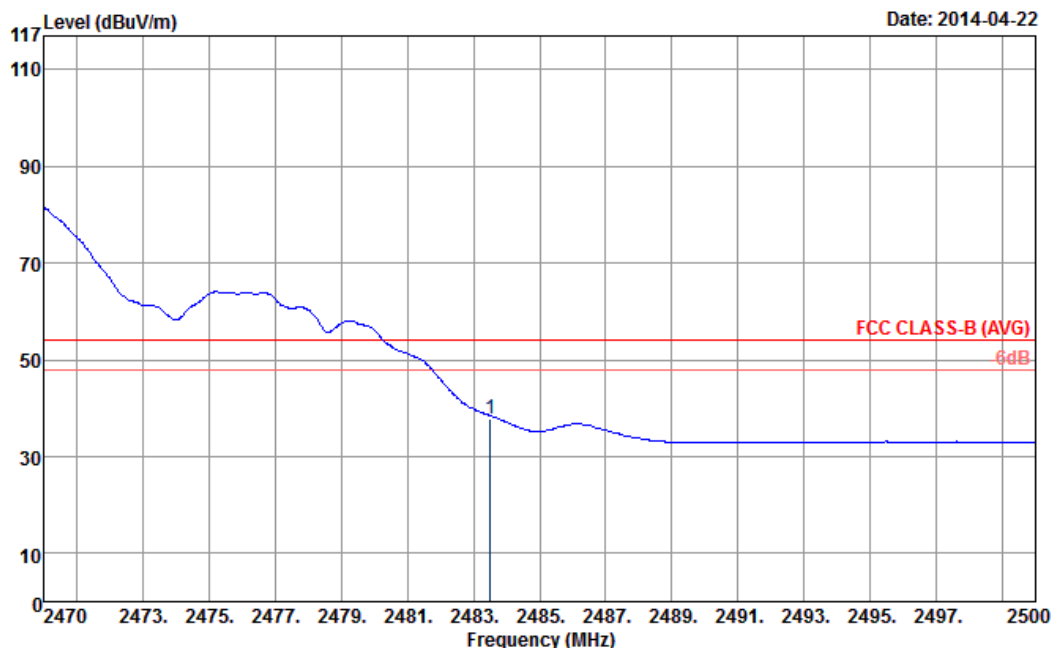
Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.59	48.89	-25.11	74	44.94	31.99	6.59	34.63	100	300	Peak

Note: Worst case measurement on 2483.59 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



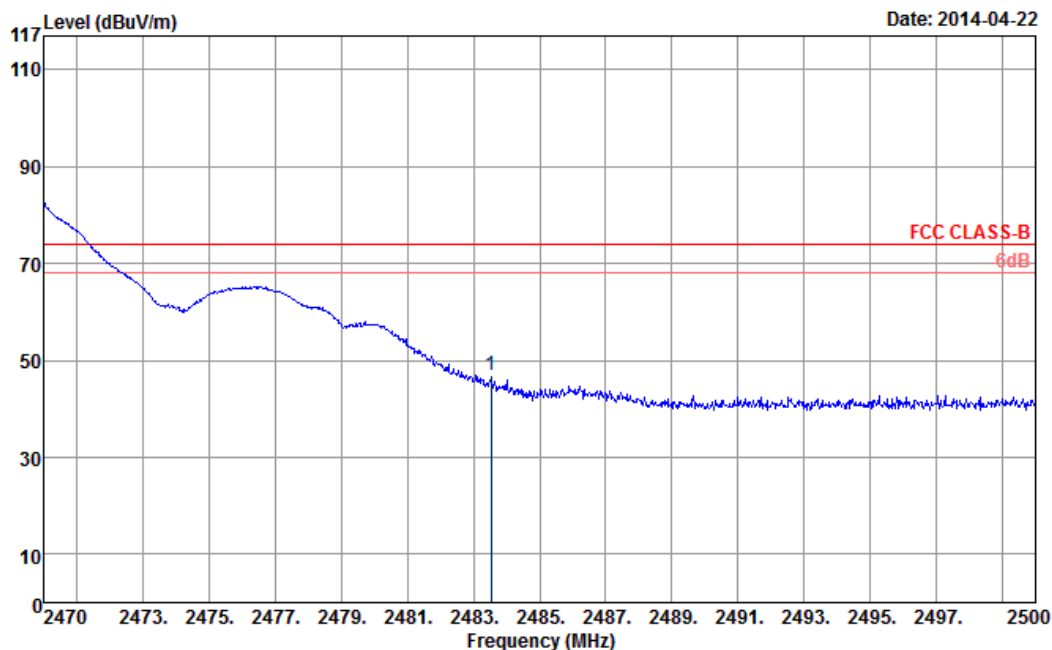
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:0.300KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	37.93	-16.07	54	33.98	31.99	6.59	34.63	100	300	Average

Note: Worst case measurement on 2483.50 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

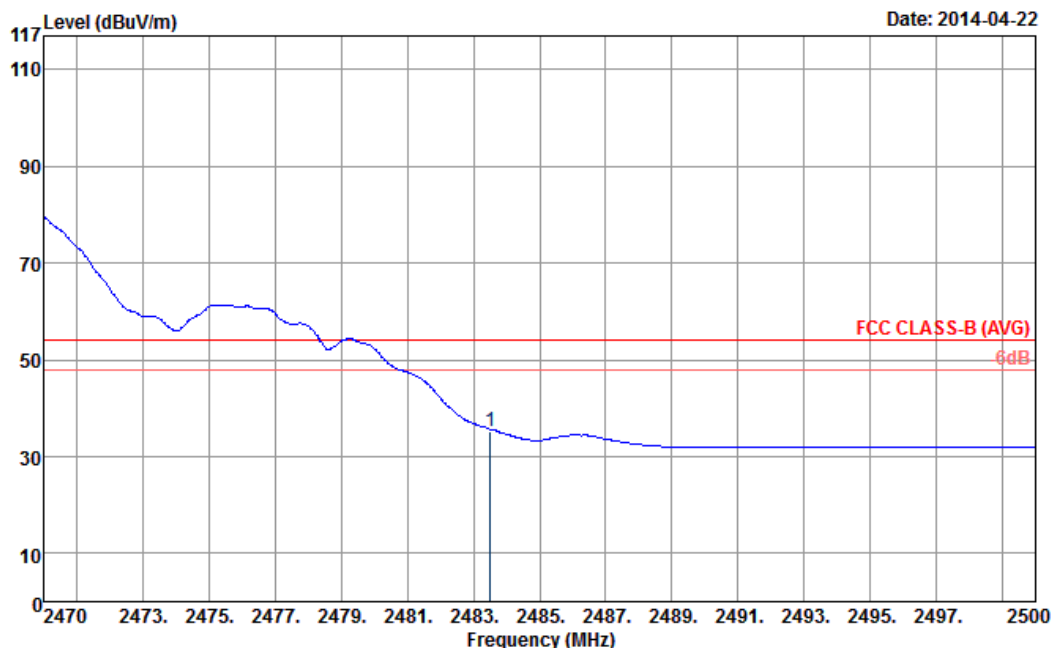
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.53	46.78	-27.22	74	42.83	31.99	6.59	34.63	100	55	Peak

Note: Worst case measurement on 2483.53 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.



Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:0.300KHz SWT:Auto

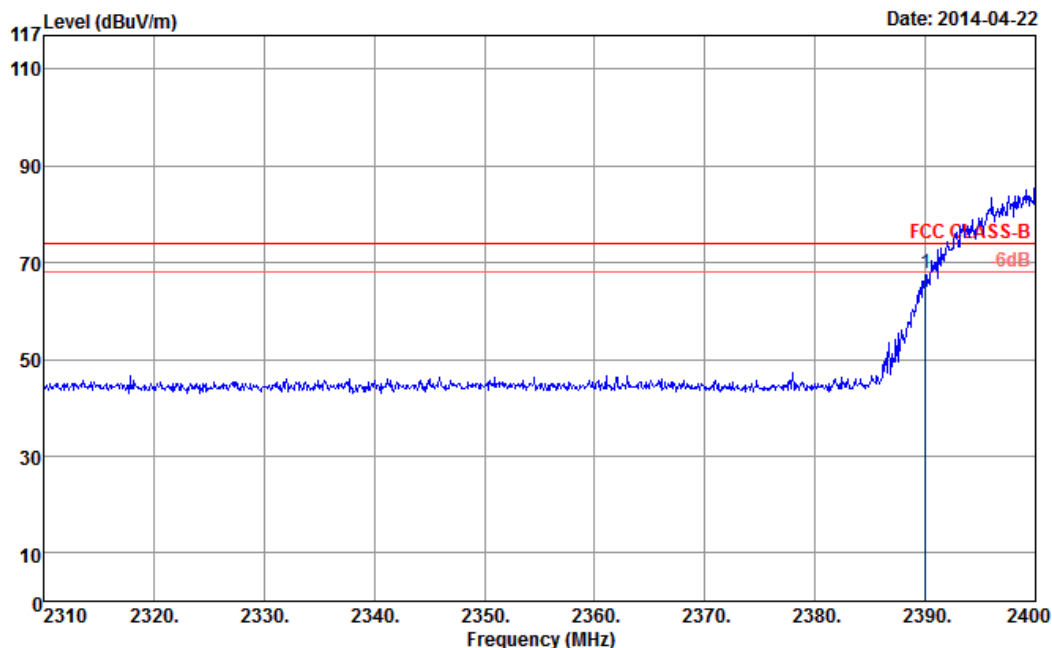
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	35.13	-18.87	54	31.18	31.99	6.59	34.63	100	55	Average

Note: Worst case measurement on 2483.50 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.



Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



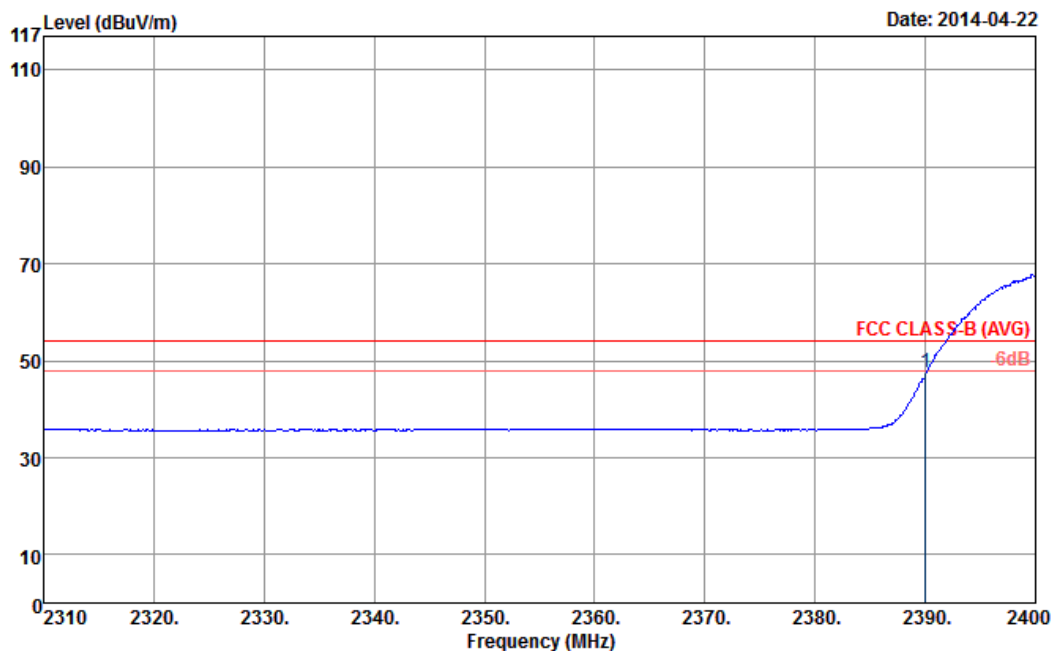
Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	67.88	-6.12	74	64.15	31.92	6.45	34.64	102	44	Peak

Note: Worst case measurement on 2390.00 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

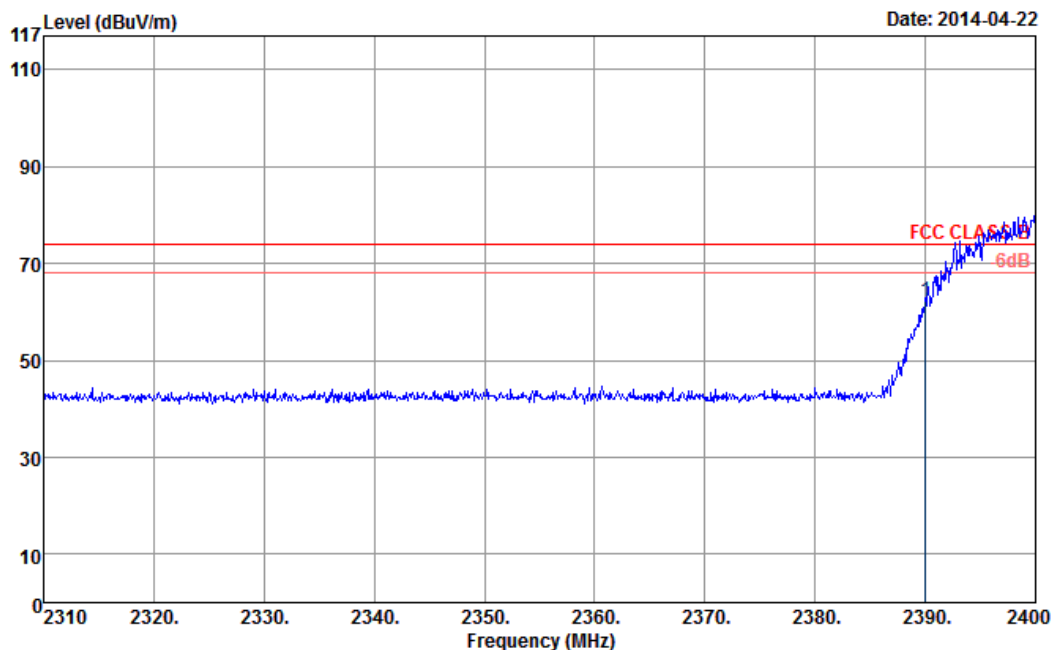
ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	47.68	-6.32	54	43.95	31.92	6.45	34.64	102	44	Average

Note: Worst case measurement on 2390.00 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.



Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

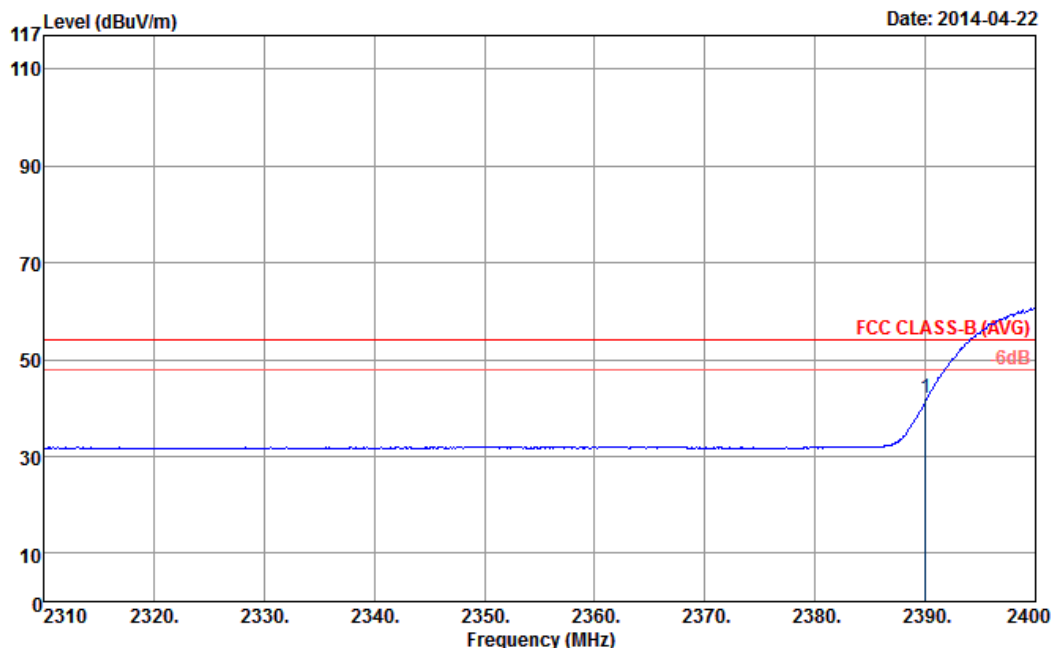
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	62.37	-11.63	74	58.64	31.92	6.45	34.64	101	61	Peak

Note: Worst case measurement on 2390.00 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.



Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



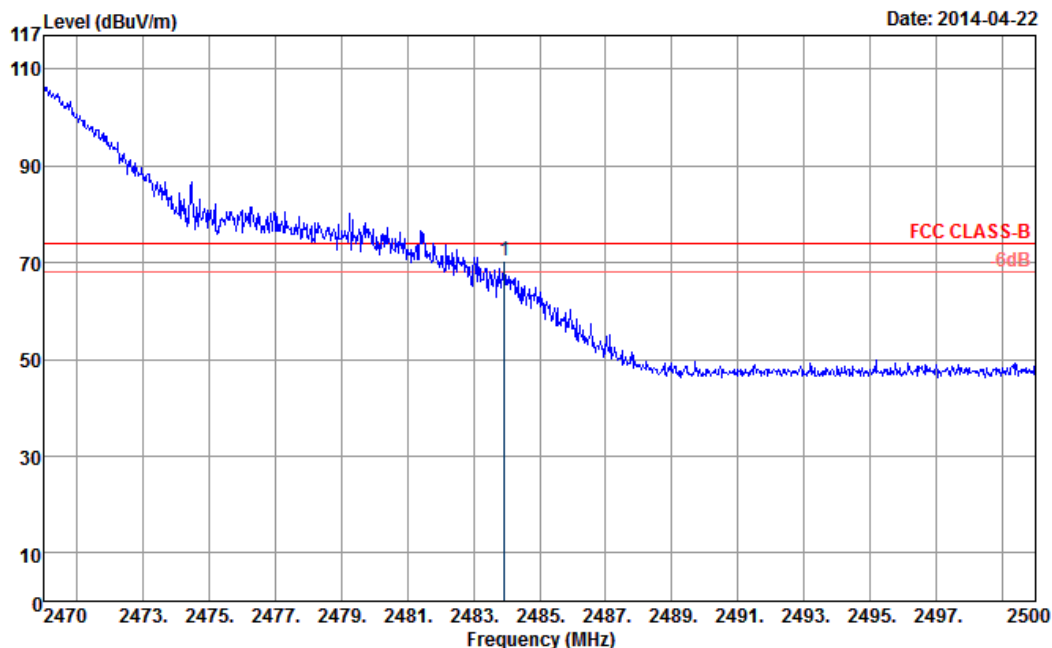
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	41.93	-12.07	54	38.2	31.92	6.45	34.64	101	61	Average

Note: Worst case measurement on 2390.00 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



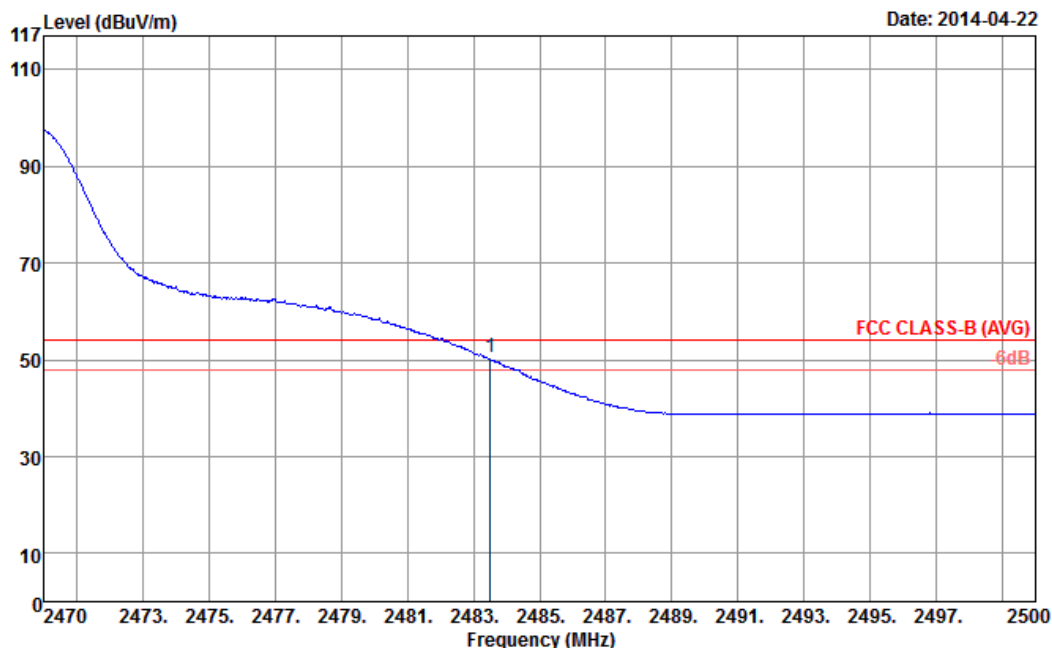
Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.95	70.29	-3.71	74	66.34	31.99	6.59	34.63	101	44	Peak

Note: Worst case measurement on 2483.95 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



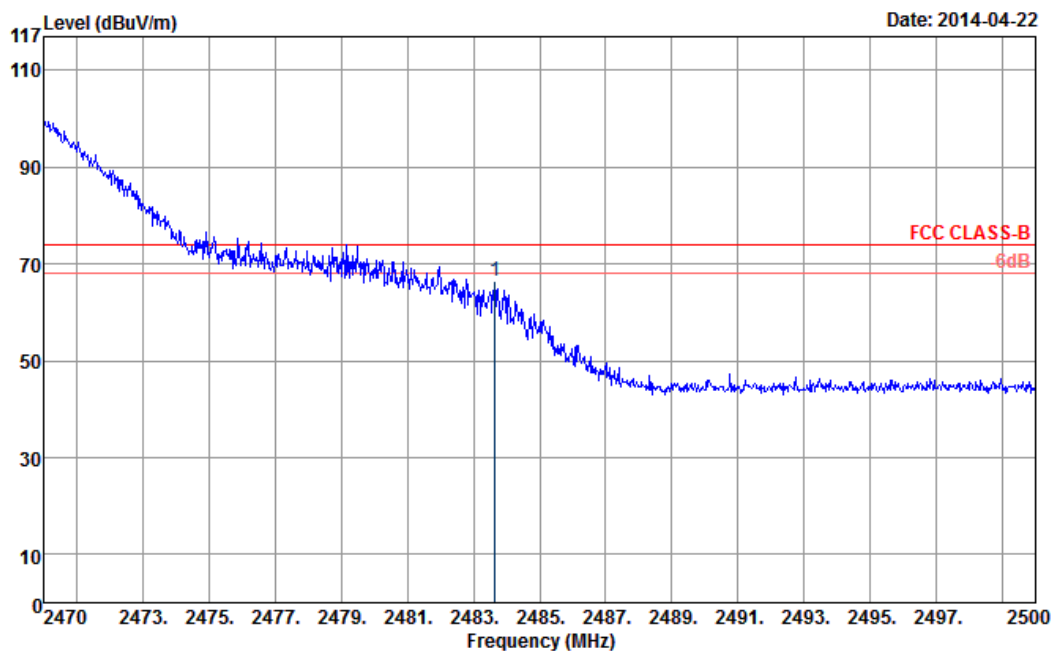
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	50.54	-3.46	54	46.59	31.99	6.59	34.63	101	44	Average

Note: Worst case measurement on 2483.50 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

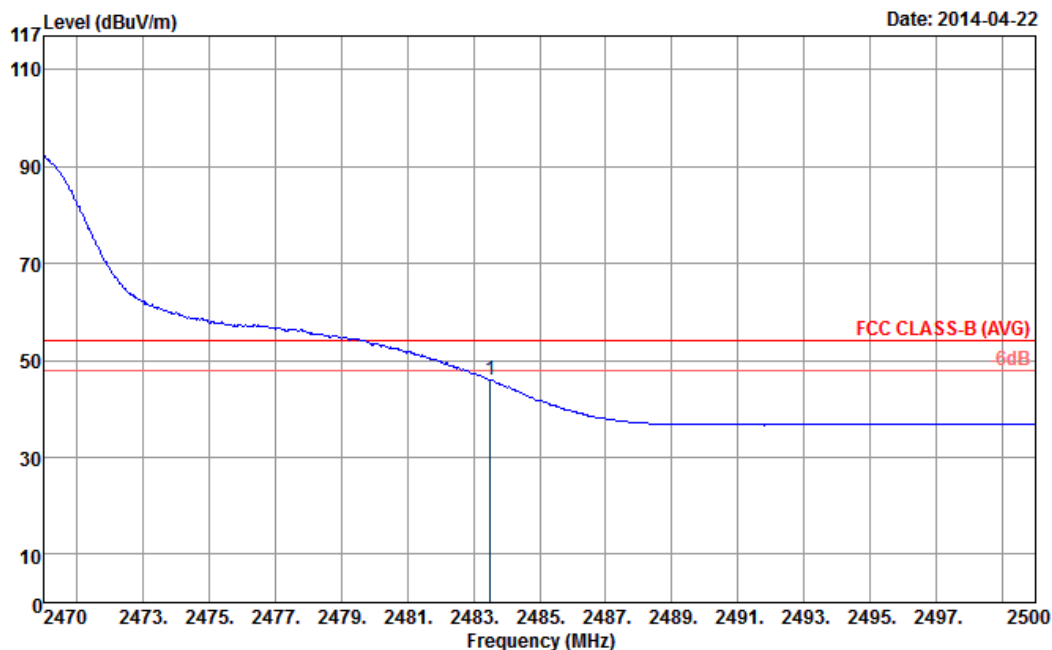
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.65	66.38	-7.62	74	62.43	31.99	6.59	34.63	100	63	Peak

Note: Worst case measurement on 2483.65 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.



Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



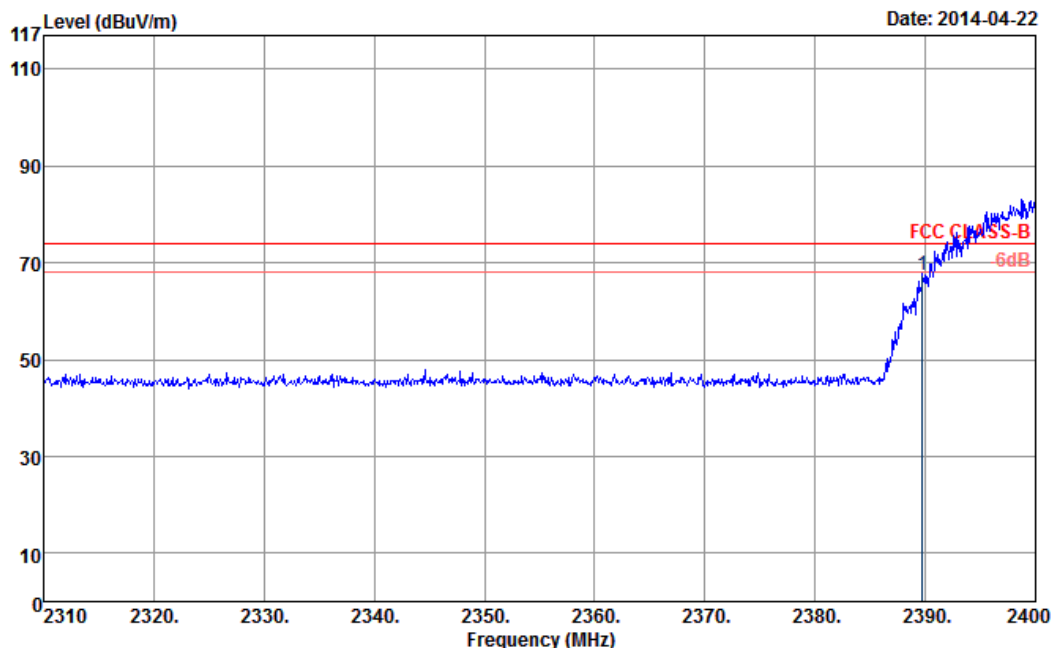
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	46.11	-7.89	54	42.16	31.99	6.59	34.63	100	63	Average

Note: Worst case measurement on 2483.50 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



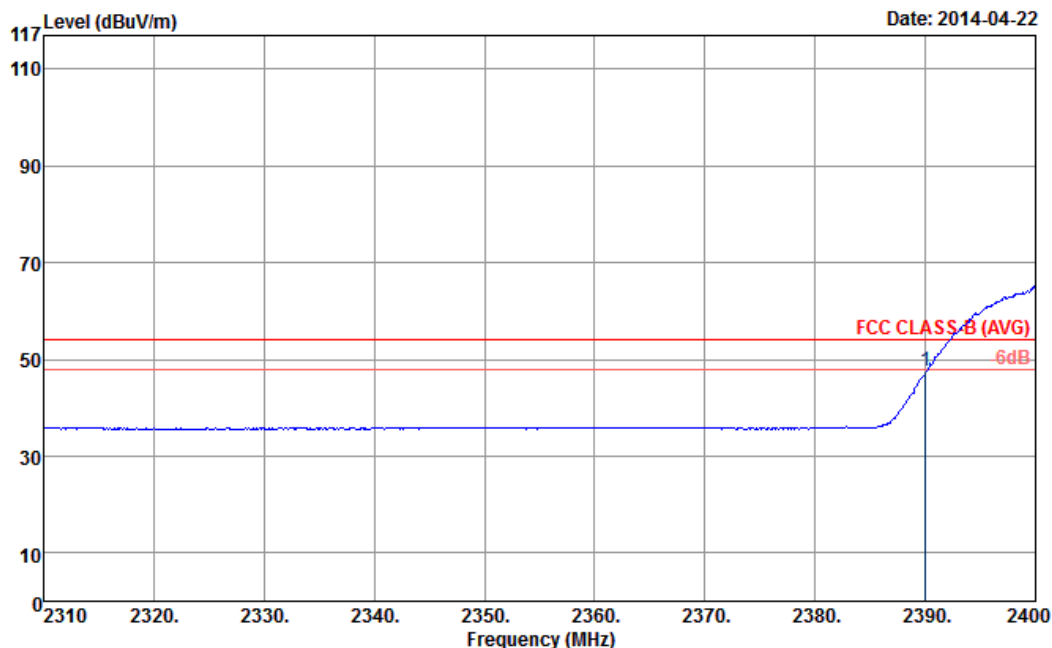
Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.74	67.47	-6.53	74	63.75	31.92	6.45	34.65	103	44	Peak

Note: Worst case measurement on 2389.74 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

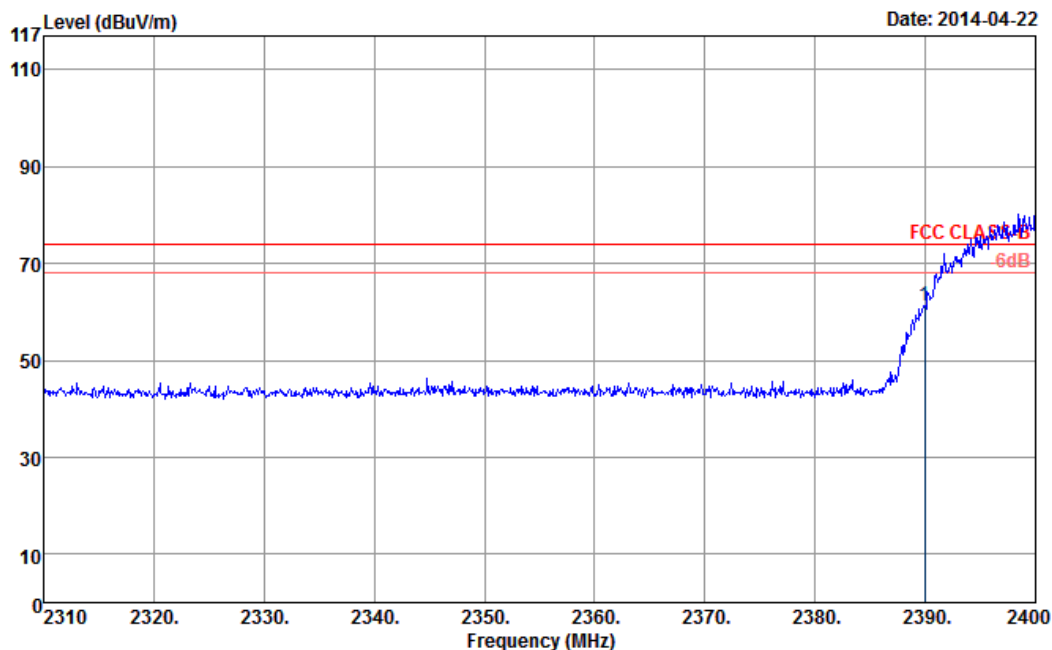
ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390.00	47.62	-6.38	54	43.89	31.92	6.45	34.64	103	44	Average

Note: Worst case measurement on 2390.00 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.



Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

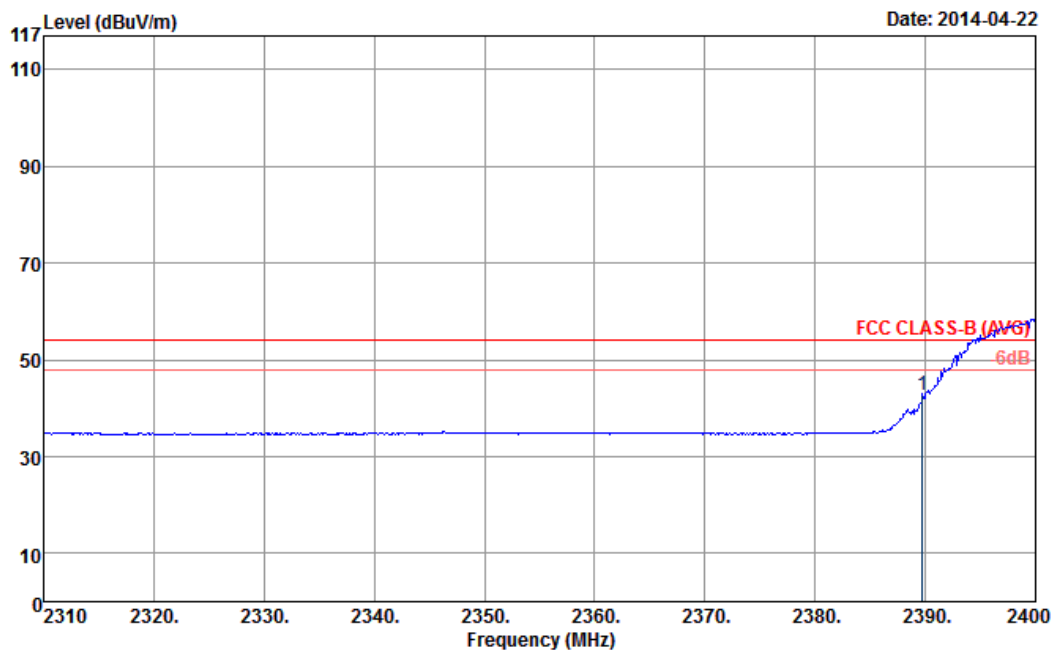
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	61.33	-12.67	74	57.6	31.92	6.45	34.64	101	61	Peak

Note: Worst case measurement on 2389.92 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.



Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Gavin Wu



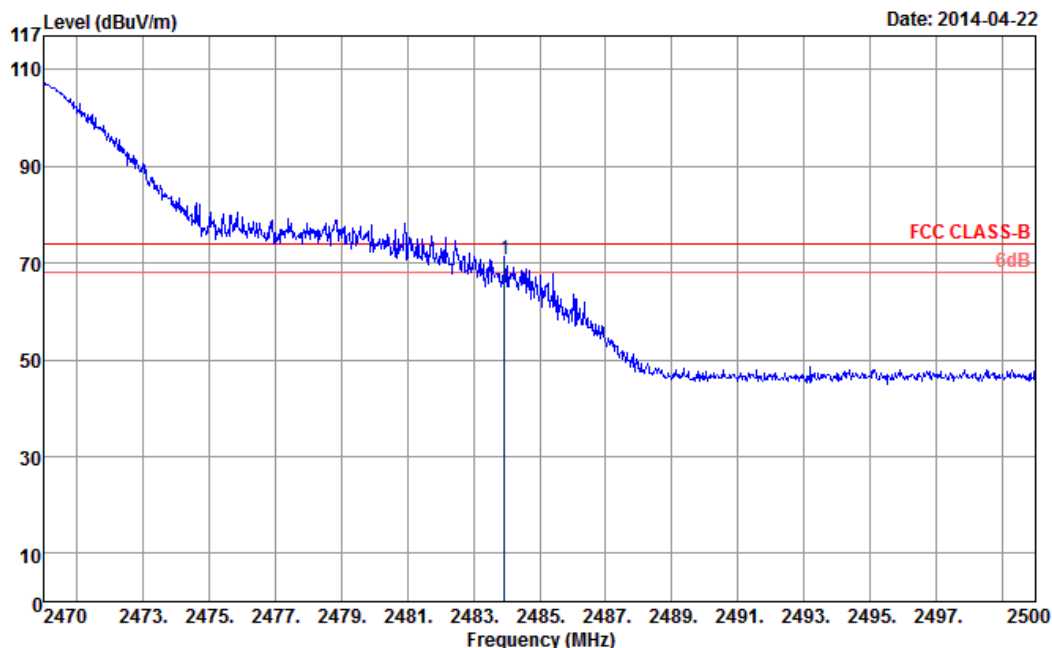
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.74	42.55	-11.45	54	38.83	31.92	6.45	34.65	101	61	Average

Note: Worst case measurement on 2389.74 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

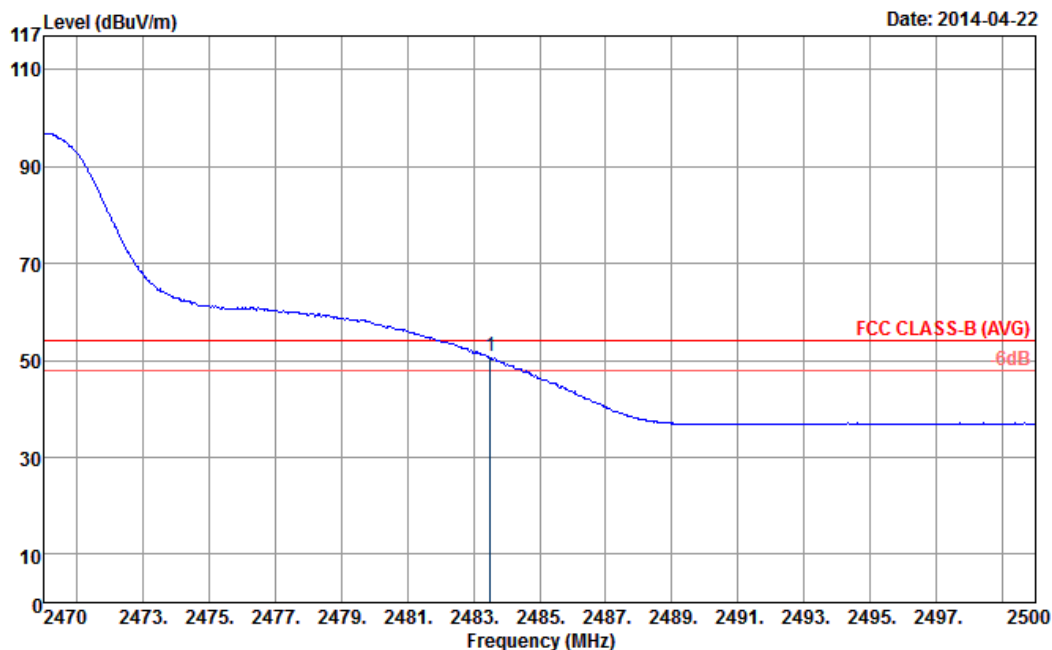
ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.95	70.8	-3.2	74	66.85	31.99	6.59	34.63	101	42	Peak

Note: Worst case measurement on 2483.95 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.



Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



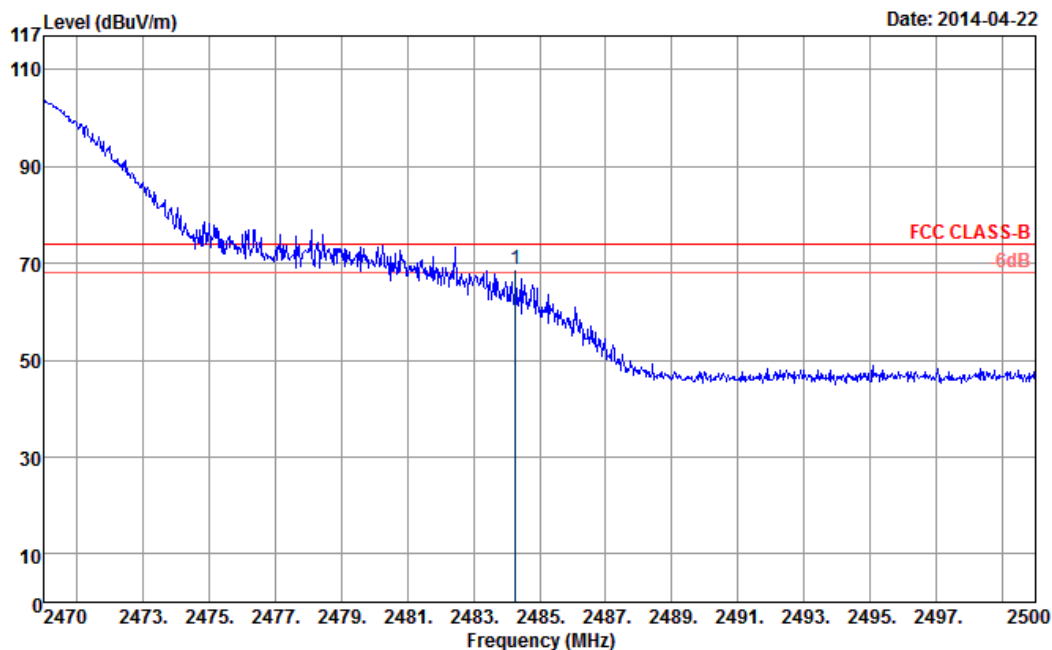
Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 HORIZONTAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	50.92	-3.08	54	46.97	31.99	6.59	34.63	101	42	Average

Note: Worst case measurement on 2483.50 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

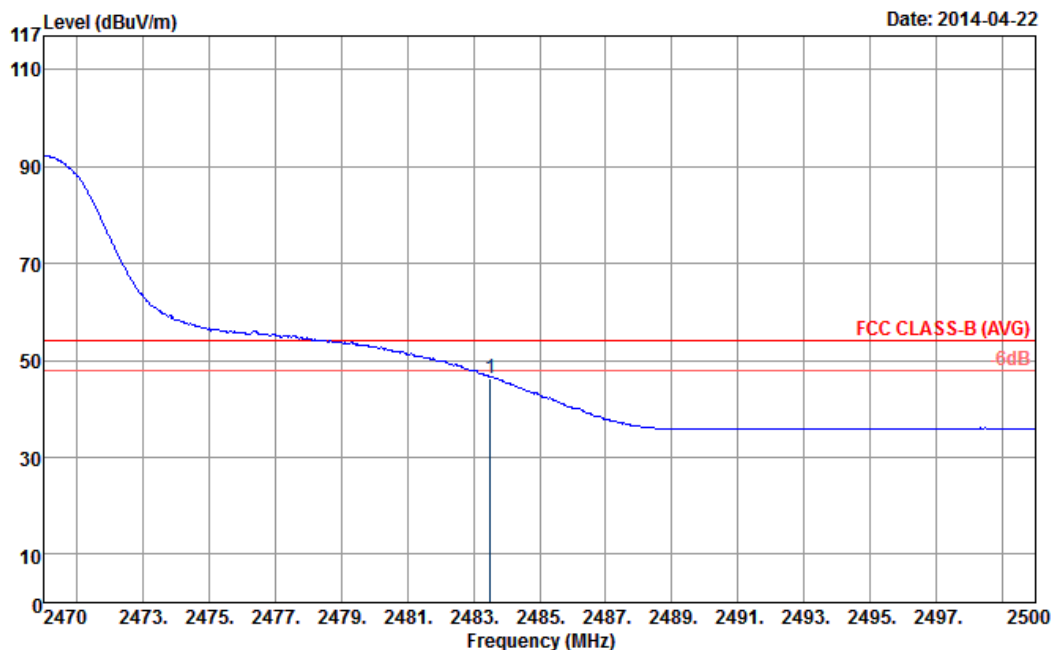
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.28	68.64	-5.36	74	64.69	31.99	6.59	34.63	101	61	Peak

Note: Worst case measurement on 2484.28 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.



Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Gavin Wu



Site : 03CH06-HY
Condition : FCC CLASS-B (AVG) 3m HF-ANT_583_130802 VERTICAL
: RBW:1000.000KHz VBW:1.000KHz SWT:Auto

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	46.38	-7.62	54	42.43	31.99	6.59	34.63	101	61	Average

Note: Worst case measurement on 2483.50 MHz is compliance with 74/54 dBuV/m (peak/average) limit and band edge measurement in the restricted band 2483.5-2500MHz. And, 2470-2483.5MHz is within the operating band and not within the restricted band. The test result is compliance with the FCC limit line.

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

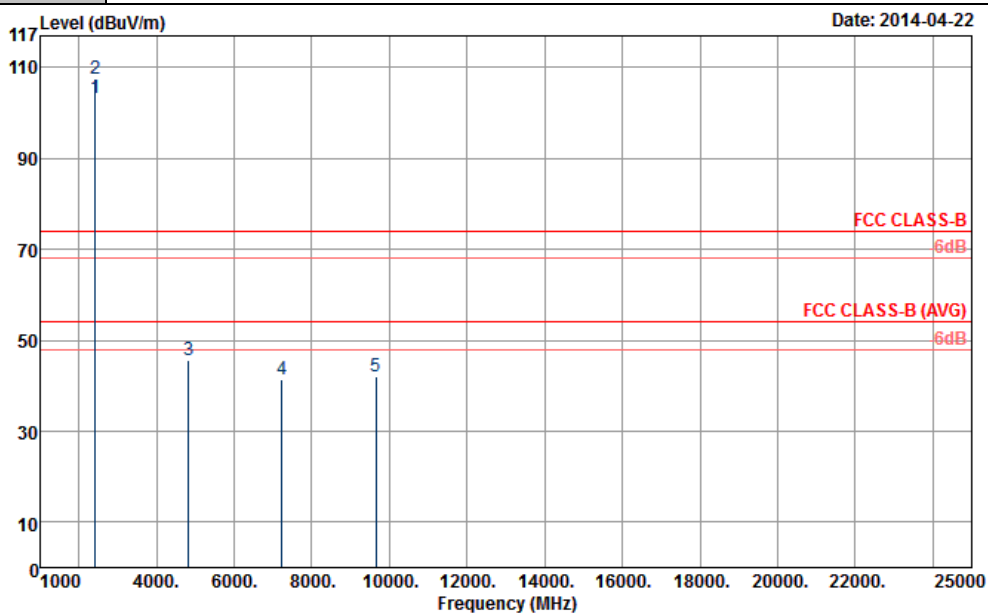
Test Mode :	802.11b	Temperature :	24~25℃							
Test Channel :	01	Relative Humidity :	45~46%							
Test Engineer :	Gavin Wu									
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 111.52 dBμV/m - 20dB = 91.52 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5th ,6th , 7th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.									
Level (dBuV/m) Date: 2014-04-22 Frequency (MHz) Site : 03CH06-HY Condition : FCC CLASS-B 3m SHF-EHF HORIZONTAL										
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	106.94	-	-	103.16	31.93	6.49	34.64	105	43	Average
2414	111.52	-	-	107.74	31.93	6.49	34.64	105	43	Peak
4824	43.39	-30.61	74	59.63	34.4	10.17	60.81	100	0	Peak
7236	41.6	-49.92	91.52	55.48	35.66	10.96	60.5	100	0	Peak
9648	43.61	-47.91	91.52	57.79	36.39	10.56	61.13	100	0	Peak

Other harmonics are lower than background noise

Test Mode :	802.11b	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :

- 2414 MHz is fundamental signal which can be ignored.
- 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 107.68 dBμV/m - 20dB = 87.68 dBμV/m.
- Average measurement was not performed if peak level went lower than the average limit.
- The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	103.21	-	-	99.43	31.93	6.49	34.64	100	59	Average
2414	107.68	-	-	103.9	31.93	6.49	34.64	100	59	Peak
4824	45.71	-28.29	74	61.95	34.4	10.17	60.81	100	0	Peak
7236	41.53	-46.15	87.68	55.41	35.66	10.96	60.5	100	0	Peak

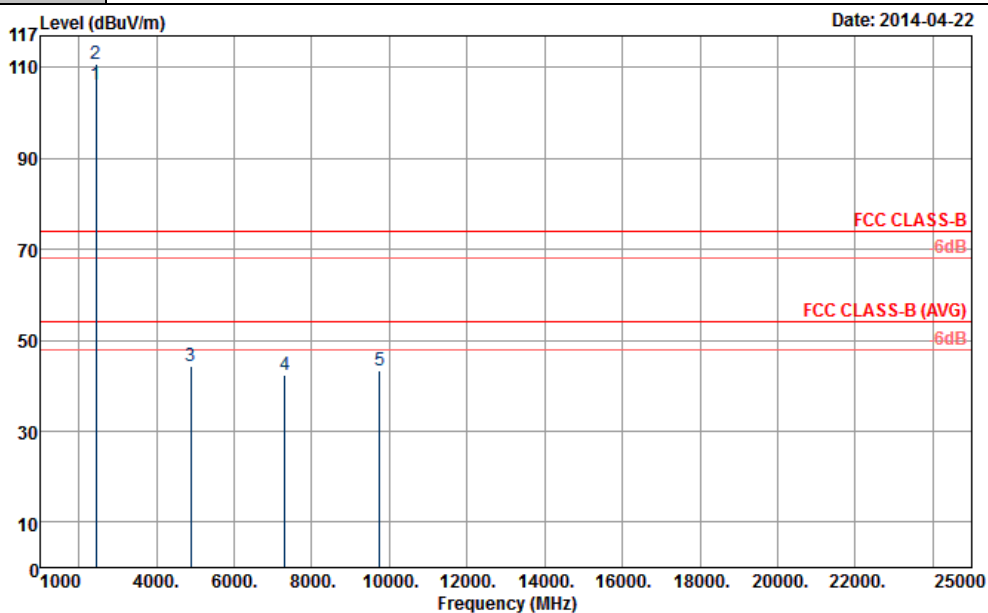


9648 42.02 -45.66 87.68 56.2 36.39 10.56 61.13 100 0 Peak

Other harmonics are lower than background noise

Test Mode :	802.11b	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2439 MHz is fundamental signal which can be ignored. 9747 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 110.84 dBμV/m - 20dB = 90.84 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	106.18	-	-	102.34	31.96	6.52	34.64	100	44	Average
2439	110.84	-	-	107	31.96	6.52	34.64	100	44	Peak
4875	44.27	-29.73	74	60.41	34.37	10.18	60.69	100	0	Peak
7311	42.36	-31.64	74	56.33	35.61	10.94	60.52	100	0	Peak

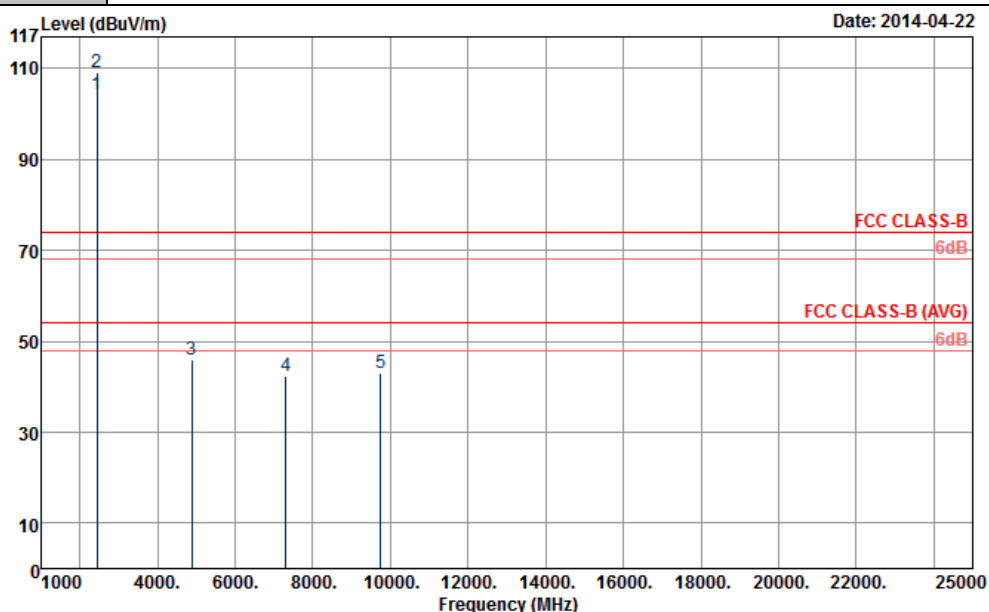


9747	43.23	-47.61	90.84	57.31	36.51	10.56	61.15	100	0	Peak
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Other harmonics are lower than background noise

Test Mode :	802.11b	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2439 MHz is fundamental signal which can be ignored. 9747 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 109.27 dBμV/m - 20dB = 89.27 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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Site Condition : 03CH06-HY
: FCC CLASS-B 3m SHF-EHF VERTICAL

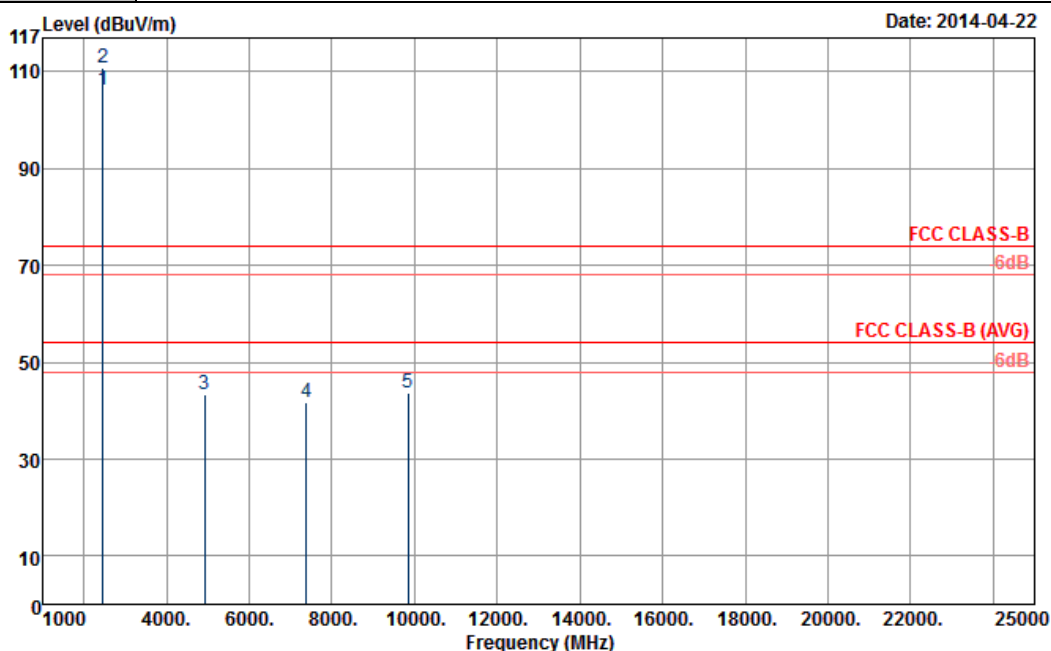
ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	104.21	-	-	100.37	31.96	6.52	34.64	100	55	Average
2439	109.27	-	-	105.43	31.96	6.52	34.64	100	55	Peak
4875	45.91	-28.09	74	62.05	34.37	10.18	60.69	100	0	Peak
7311	42.29	-31.71	74	56.26	35.61	10.94	60.52	100	0	Peak
9747	43.1	-46.17	89.27	57.18	36.51	10.56	61.15	100	0	Peak

Other harmonics are lower than background noise



Test Mode :	802.11b	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. 9849 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 110.7 dBμV/m - 20dB = 90.7 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



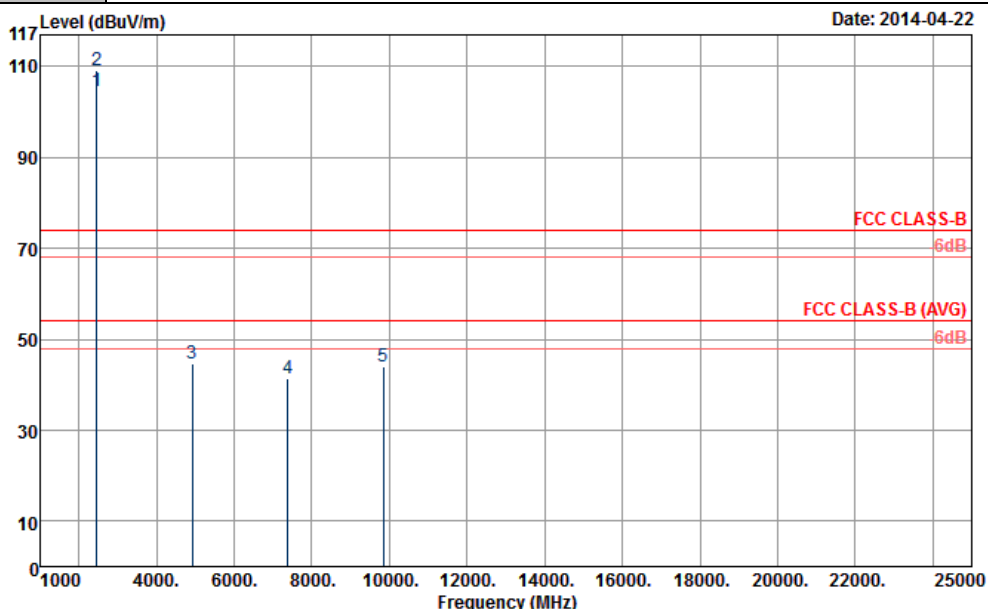
Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	106.21	-	-	102.32	31.97	6.56	34.64	100	300	Average
2464	110.7	-	-	106.81	31.97	6.56	34.64	100	300	Peak
4926	43.23	-30.77	74	59.25	34.34	10.21	60.57	100	0	Peak
7386	41.66	-32.34	74	55.74	35.56	10.92	60.56	100	0	Peak
9849	43.54	-47.16	90.7	57.51	36.63	10.57	61.17	100	0	Peak

Other harmonics are lower than background noise

Test Mode :	802.11b	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. 9849 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 109.04 dBμV/m - 20dB = 89.04 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	104.64	-	-	100.75	31.97	6.56	34.64	100	55	Average
2464	109.04	-	-	105.15	31.97	6.56	34.64	100	55	Peak
4926	44.58	-29.42	74	60.6	34.34	10.21	60.57	100	0	Peak
7386	41.27	-32.73	74	55.35	35.56	10.92	60.56	100	0	Peak
9849	44.04	-45	89.04	58.01	36.63	10.57	61.17	100	0	Peak

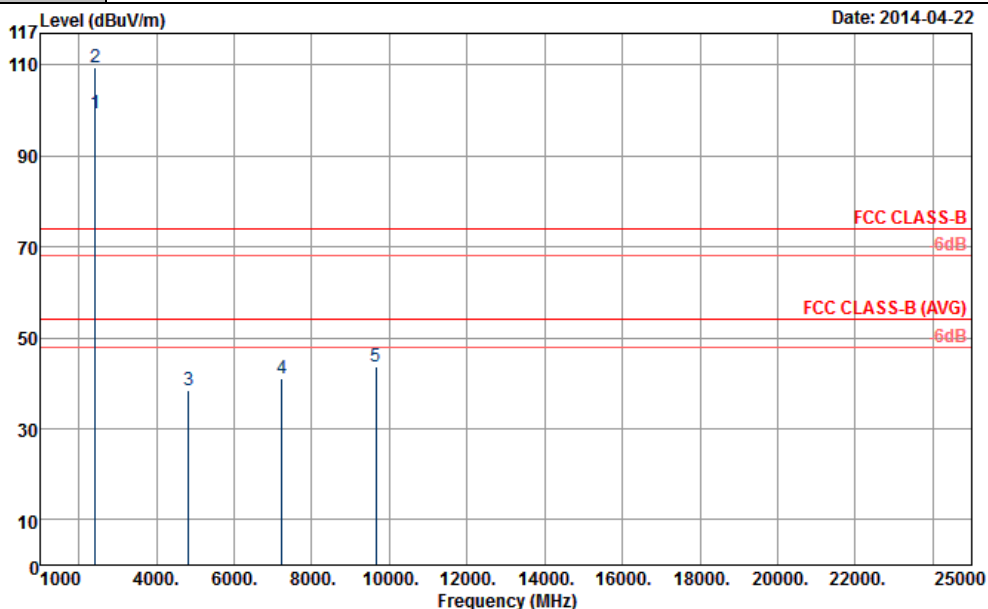


Other harmonics are lower than background noise



Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2414 MHz is fundamental signal which can be ignored. 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 109.41 dBμV/m - 20dB = 89.41 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

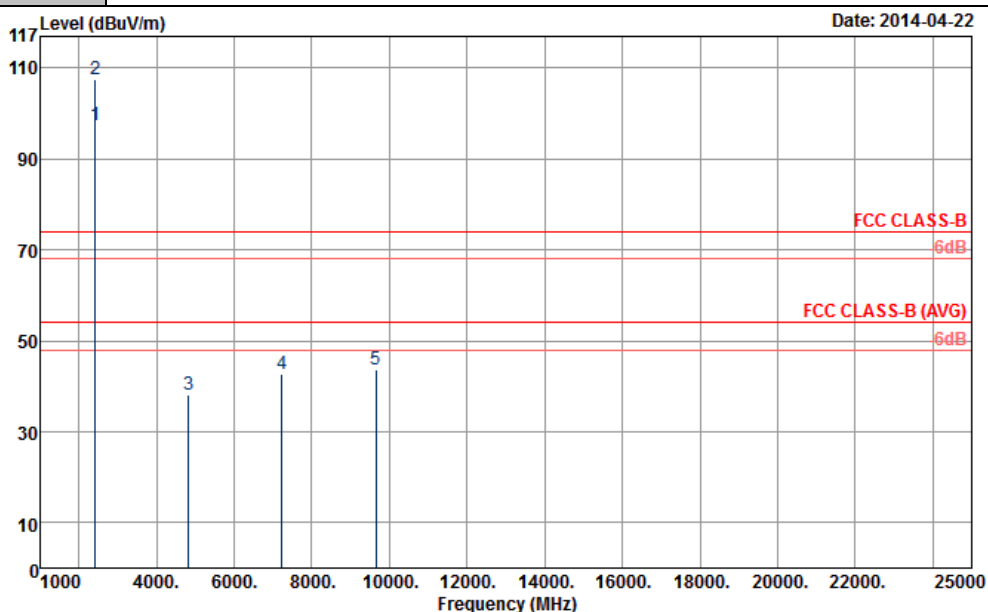
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	99.26	-	-	95.48	31.93	6.49	34.64	102	44	Average
2414	109.41	-	-	105.63	31.93	6.49	34.64	102	44	Peak
4824	38.41	-35.59	74	54.65	34.4	10.17	60.81	100	0	Peak
7236	41.19	-48.22	89.41	55.07	35.66	10.96	60.5	100	0	Peak
9648	43.79	-45.62	89.41	57.97	36.39	10.56	61.13	100	0	Peak



Other harmonics are lower than background noise

Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2414 MHz is fundamental signal which can be ignored. 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 107.68 dBμV/m - 20dB = 87.68 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	97.36	-	-	93.57	31.94	6.49	34.64	101	61	Average
2414	107.68	-	-	103.89	31.94	6.49	34.64	101	61	Peak
4824	38.11	-35.89	74	54.35	34.4	10.17	60.81	100	0	Peak
7236	42.77	-44.91	87.68	56.65	35.66	10.96	60.5	100	0	Peak



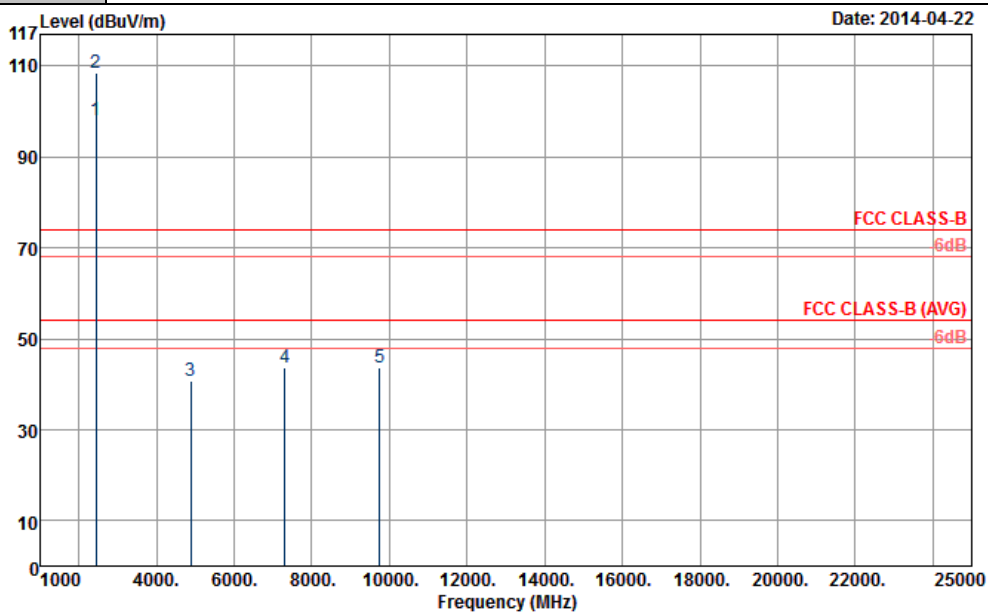
FCC/IC RF Test Report

Report No. : FR440284C

9648 43.67 -44.01 87.68 57.85 36.39 10.56 61.13 100 0 Peak

Other harmonics are lower than background noise

Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2438 MHz is fundamental signal which can be ignored. 2. 9747 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 108.63 dBμV/m - 20dB = 88.63 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2438	98.13	-	-	94.31	31.94	6.52	34.64	102	43	Average
2438	108.63	-	-	104.81	31.94	6.52	34.64	102	43	Peak
4875	40.69	-33.31	74	56.83	34.37	10.18	60.69	100	0	Peak

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : PY7PM-0771

IC : 4170B-PM0771

Page Number : 82 of 142

Report Issued Date : Jun. 09, 2014

Report Version : Rev. 01

Report Template No.: BU5-FR15CWL Version 1.0

Report Template No.: BU5- CR210WL Version 1.0



FCC/IC RF Test Report

Report No. : FR440284C

7311	43.58	-30.42	74	57.55	35.61	10.94	60.52	100	0	Peak
9747	43.74	-44.89	88.63	57.82	36.51	10.56	61.15	100	0	Peak

Other harmonics are lower than background noise

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : PY7PM-0771

IC : 4170B-PM0771

Page Number : 83 of 142

Report Issued Date : Jun. 09, 2014

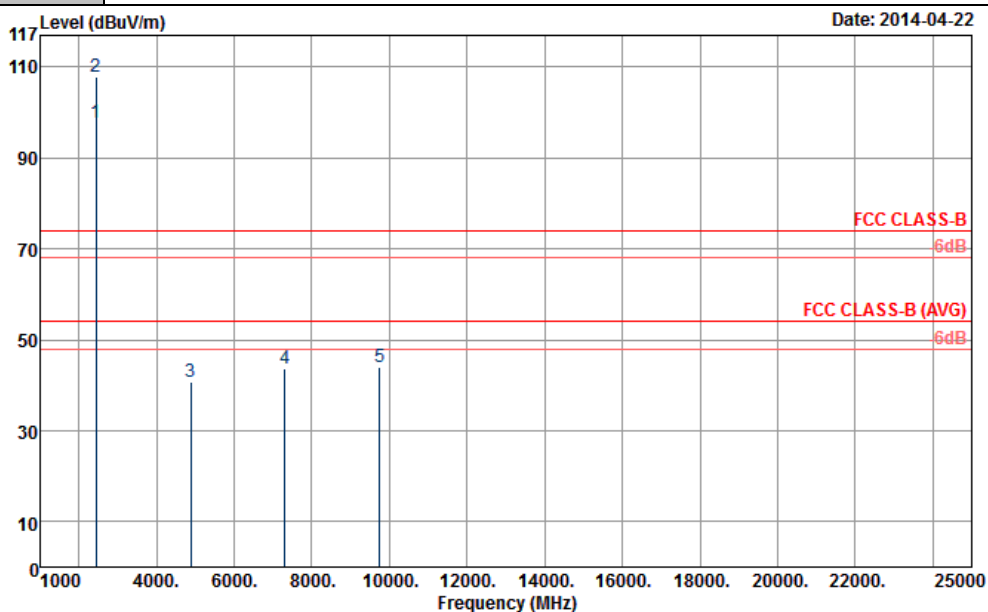
Report Version : Rev. 01

Report Template No.: BU5-FR15CWL Version 1.0

Report Template No.: BU5- CR210WL Version 1.0

Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2436 MHz is fundamental signal which can be ignored. 9747 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 108.03 dBμV/m - 20dB = 88.03 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF VERTICAL

ANTENNA POLARITY : VERTICAL

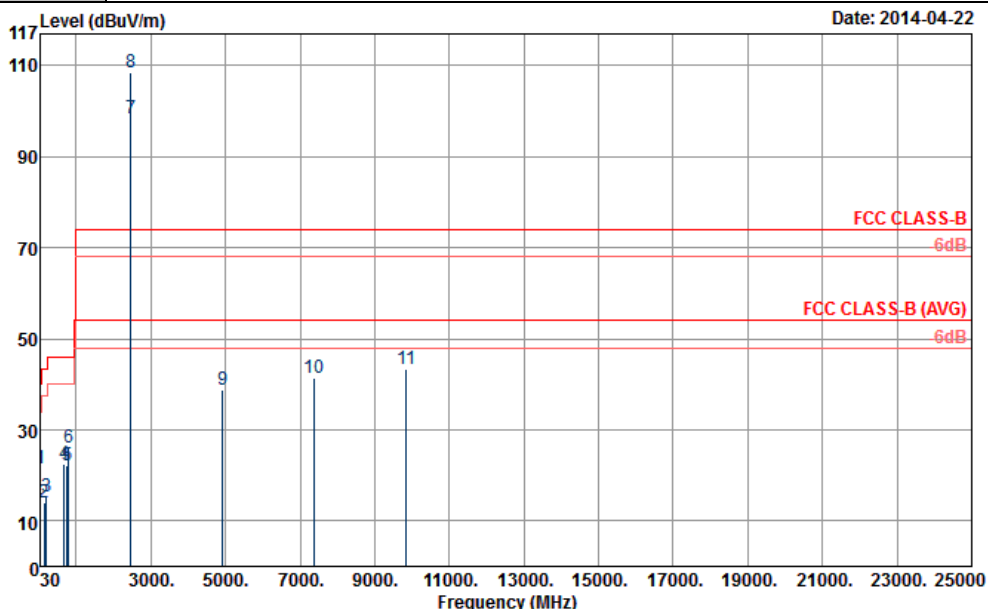
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2436	97.66	-	-	93.84	31.94	6.52	34.64	101	62	Average
2436	108.03	-	-	104.21	31.94	6.52	34.64	101	62	Peak
4875	40.87	-33.13	74	57.01	34.37	10.18	60.69	100	0	Peak
7311	43.8	-30.2	74	57.77	35.61	10.94	60.52	100	0	Peak
9747	43.95	-44.08	88.03	58.03	36.51	10.56	61.15	100	0	Peak

Other harmonics are lower than background noise





Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2460 MHz is fundamental signal which can be ignored. 2. 9849 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 108.68 dBμV/m - 20dB = 88.68 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site Condition : 03CH06-HY
: FCC CLASS-B 3m SHF-EHF HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

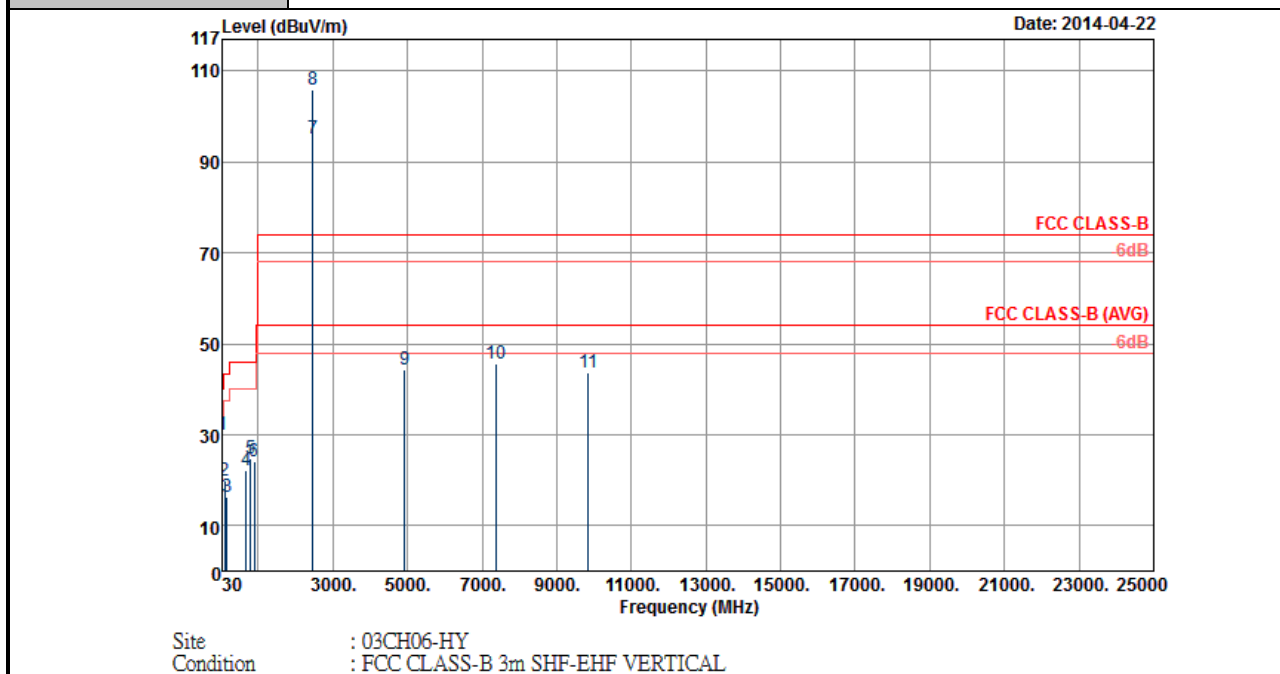
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
46.74	21.39	-18.61	40	43.23	9.17	0.77	31.78	100	193	Peak
129.36	14.07	-29.43	43.5	33.04	11.52	1.26	31.75	-	-	Peak
194.16	15.45	-28.05	43.5	36.6	9.1	1.5	31.75	-	-	Peak
679.4	22.34	-23.66	46	32.11	19.41	2.85	32.03	-	-	Peak
751.5	22.23	-23.77	46	30.96	20.2	3.05	31.98	-	-	Peak
784.4	26.22	-19.78	46	34.97	20.15	3.06	31.96	-	-	Peak





ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2460	98.43	-	-	94.53	31.97	6.56	34.63	101	44	Average
2460	108.68	-	-	104.78	31.97	6.56	34.63	101	44	Peak
4923	38.72	-35.28	74	54.75	34.34	10.2	60.57	100	0	Peak
7386	41.44	-32.56	74	55.52	35.56	10.92	60.56	100	0	Peak
9849	43.28	-45.4	88.68	57.25	36.63	10.57	61.17	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2460MHz is fundamental signal which can be ignored. 2. 9849 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 105.88 dBμV/m - 20dB = 85.88 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		


ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	29.87	-10.13	40	44.29	16.7	0.67	31.79	101	203	Peak
97.23	19.8	-23.7	43.5	40.08	10.38	1.09	31.75	-	-	Peak
158.25	16.21	-27.29	43.5	36.38	10.14	1.44	31.75	-	-	Peak
672.4	22.06	-23.94	46	31.77	19.48	2.84	32.03	-	-	Peak
784.4	24.75	-21.25	46	33.5	20.15	3.06	31.96	-	-	Peak
895	24.06	-21.94	46	31.25	21	3.36	31.55	-	-	Peak

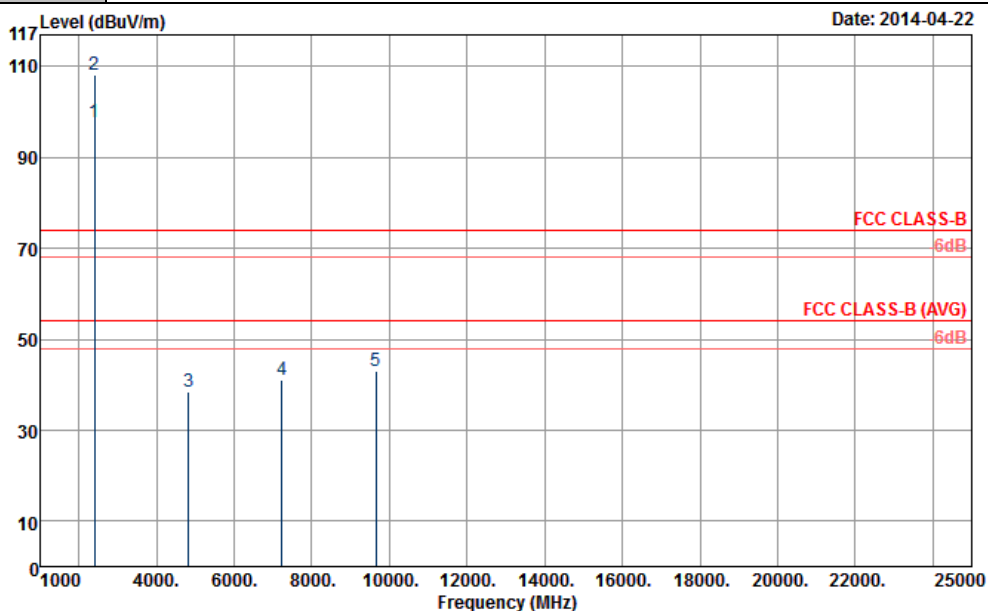




ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2460	95.22	-	-	91.33	31.97	6.56	34.64	100	63	Average
2460	105.88	-	-	101.99	31.97	6.56	34.64	100	63	Peak
4923	44.46	-29.54	74	55.7	34.34	10.2	55.78	100	0	Peak
7386	45.59	-28.41	74	55.22	35.56	10.92	56.11	100	0	Peak
9849	43.82	-42.06	85.88	57.79	36.63	10.57	61.17	100	0	Peak
Other harmonics are lower than background noise										



Test Mode :	2.4GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	2410 MHz is fundamental signal which can be ignored. 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 108.08 dBμV/m - 20dB = 88.08 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2410	97.67	-	-	93.88	31.94	6.49	34.64	103	44	Average
2410	108.08	-	-	104.29	31.94	6.49	34.64	103	44	Peak
4824	38.45	-35.55	74	54.69	34.4	10.17	60.81	100	0	Peak
7236	40.98	-47.1	88.08	54.86	35.66	10.96	60.5	100	0	Peak
9648	43.07	-45.01	88.08	57.25	36.39	10.56	61.13	100	0	Peak

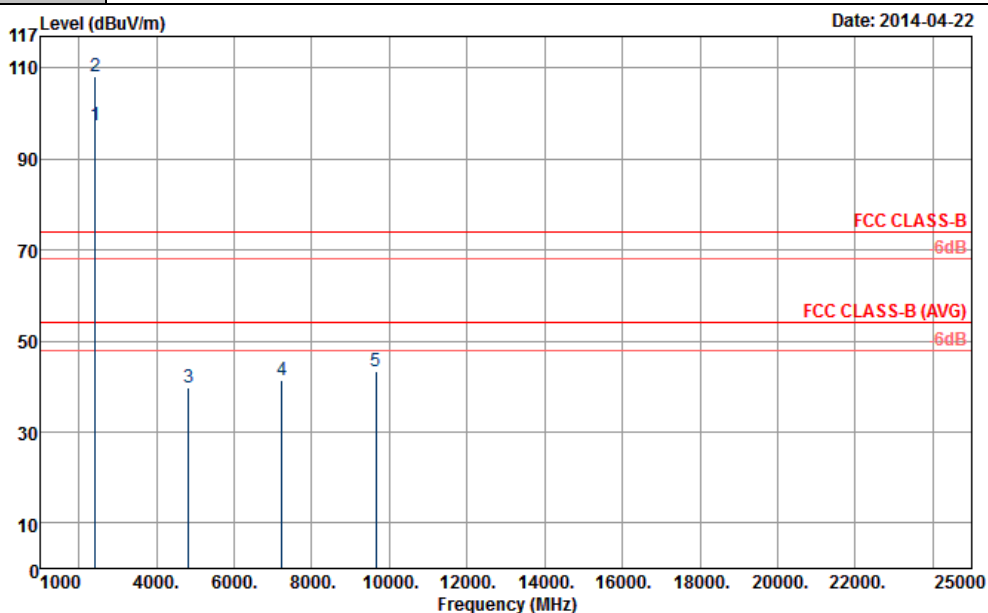


Other harmonics are lower than background noise

Test Mode :	2.4GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :

- 2414 MHz is fundamental signal which can be ignored.
- 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 108.05 dBμV/m - 20dB = 88.05 dBμV/m.
- Average measurement was not performed if peak level went lower than the average limit.
- The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	97.48	-	-	93.69	31.94	6.49	34.64	101	61	Average
2414	108.05	-	-	104.26	31.94	6.49	34.64	101	61	Peak
4824	39.62	-34.38	74	55.86	34.4	10.17	60.81	100	0	Peak
7236	41.42	-46.63	88.05	55.3	35.66	10.96	60.5	100	0	Peak

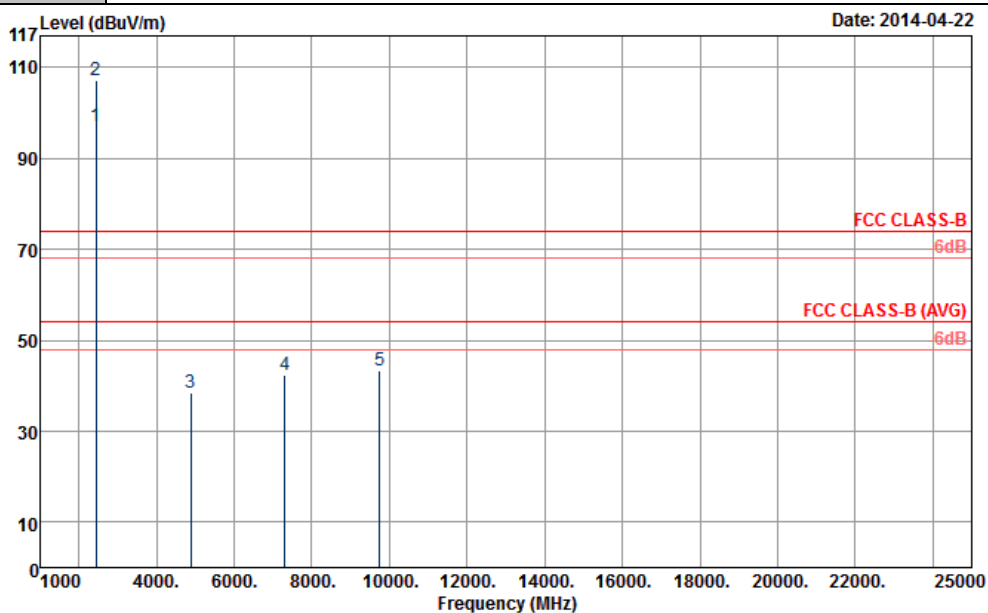


9648 43.23 -44.82 88.05 57.41 36.39 10.56 61.13 100 0 Peak

Other harmonics are lower than background noise

Test Mode :	2.4GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2439 MHz is fundamental signal which can be ignored. 9748 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 107.29 dBμV/m - 20dB = 87.29 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	96.99	-	-	93.15	31.96	6.52	34.64	100	41	Average
2439	107.29	-	-	103.47	31.94	6.52	34.64	100	41	Peak
4874	38.57	-35.43	74	54.71	34.37	10.18	60.69	100	0	Peak
7311	42.37	-31.63	74	56.34	35.61	10.94	60.52	100	0	Peak

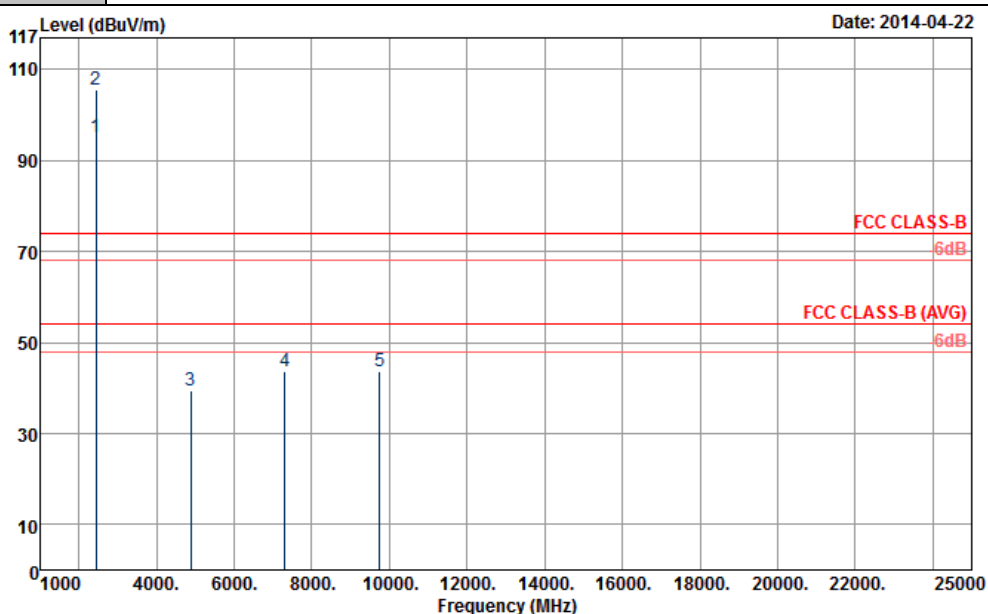


9748	43.21	-44.08	87.29	57.29	36.51	10.56	61.15	100	0	Peak
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Other harmonics are lower than background noise

Test Mode :	2.4GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	2439 MHz is fundamental signal which can be ignored. 9748 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 105.69 dBμV/m - 20dB = 85.69 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (5th, 6th, 7th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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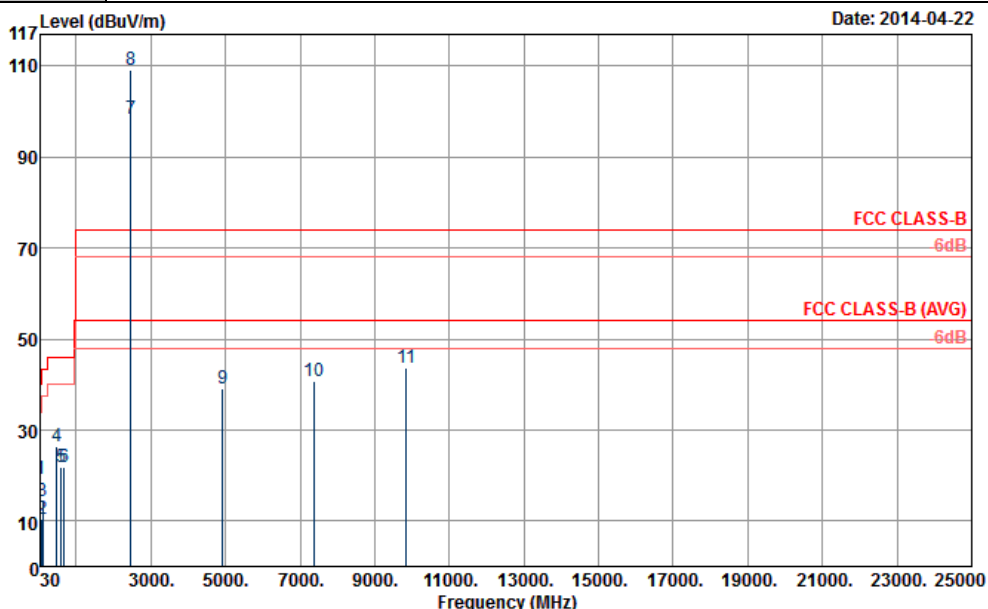
Site Condition : 03CH06-HY
: FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	95.32	-	-	91.48	31.96	6.52	34.64	100	60	Average
2439	105.69	-	-	101.85	31.96	6.52	34.64	100	60	Peak
4874	39.48	-34.52	74	55.62	34.37	10.18	60.69	100	0	Peak
7311	43.64	-30.36	74	57.61	35.61	10.94	60.52	100	0	Peak
9748	43.62	-42.07	85.69	57.7	36.51	10.56	61.15	100	0	Peak

Other harmonics are lower than background noise

Test Mode :	2.4GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. 9848 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 109.21 dBμV/m - 20dB = 89.21 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

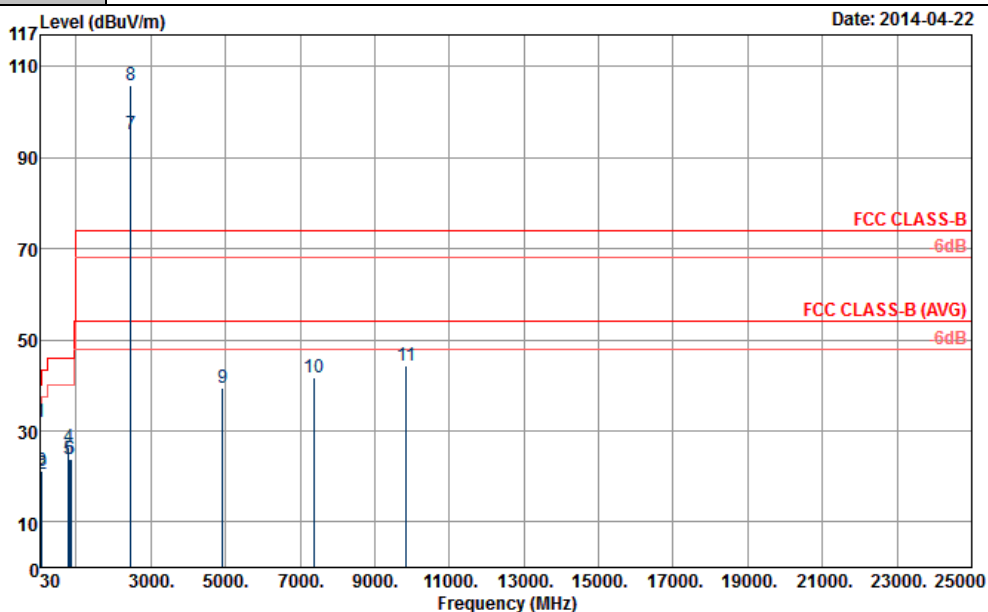
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.39	-20.61	40	32.05	18.5	0.64	31.8	-	-	Peak
79.14	10.29	-29.71	40	34.06	7	0.99	31.76	-	-	Peak
108.3	14.27	-29.23	43.5	32.8	12.08	1.14	31.75	-	-	Peak
485.5	26.36	-19.64	46	38.26	17.66	2.35	31.91	103	222	Peak
595.4	21.87	-24.13	46	31.82	19.35	2.75	32.05	-	-	Peak
679.4	21.98	-24.02	46	31.75	19.41	2.85	32.03	-	-	Peak





ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	98.41	-	-	94.51	31.97	6.56	34.63	101	42	Average
2464	109.21	-	-	105.31	31.97	6.56	34.63	101	42	Peak
4924	39.14	-34.86	74	55.17	34.34	10.2	60.57	100	0	Peak
7386	40.89	-33.11	74	54.97	35.56	10.92	60.56	100	0	Peak
9848	43.57	-45.64	89.21	57.54	36.63	10.57	61.17	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	2.4GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 2460 MHz is fundamental signal which can be ignored. 2. 9848 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 105.78 dBμV/m - 20dB = 85.78 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (5 th , 6 th , 7 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF VERTICAL

ANTENNA POLARITY : VERTICAL

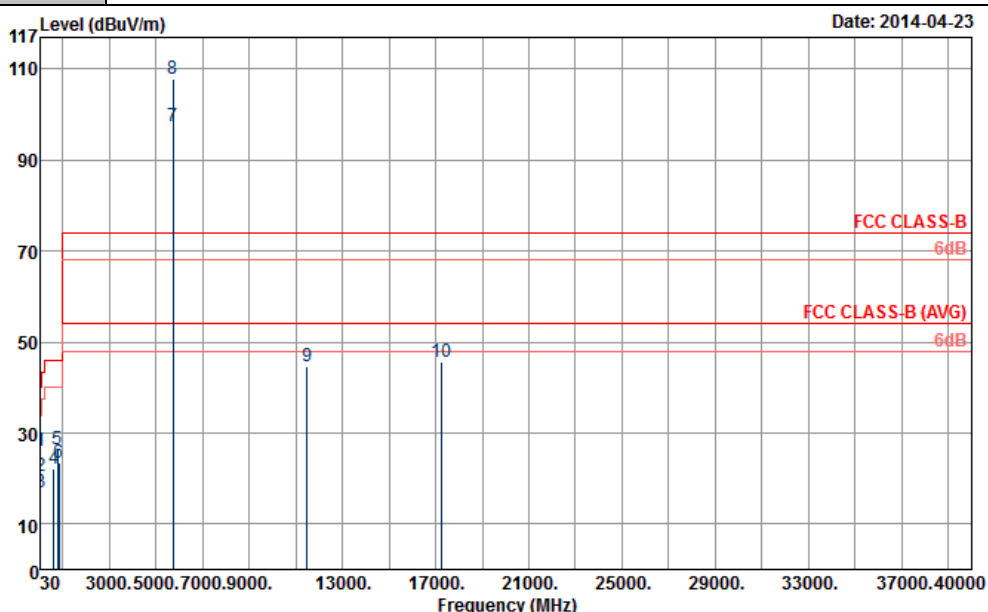
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	31.94	-8.06	40	44.6	18.5	0.64	31.8	105	207	Peak
70.5	20.41	-19.59	40	44.74	6.5	0.94	31.77	-	-	Peak
80.76	21.17	-18.83	40	44.84	7.1	0.99	31.76	-	-	Peak
784.4	26.46	-19.54	46	35.21	20.15	3.06	31.96	-	-	Peak
818	23.73	-22.27	46	32.12	20.36	3.12	31.87	-	-	Peak
847.4	23.76	-22.24	46	31.51	20.78	3.22	31.75	-	-	Peak





ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2460	95.2	-	-	91.31	31.97	6.56	34.64	101	61	Average
2460	105.78	-	-	101.89	31.97	6.56	34.64	101	61	Peak
4924	39.29	-34.71	74	55.32	34.34	10.2	60.57	100	0	Peak
7386	41.88	-32.12	74	55.96	35.56	10.92	60.56	100	0	Peak
9848	44.22	-41.56	85.78	58.19	36.63	10.57	61.17	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 17235 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 107.94 dBμV/m - 20dB = 87.94 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

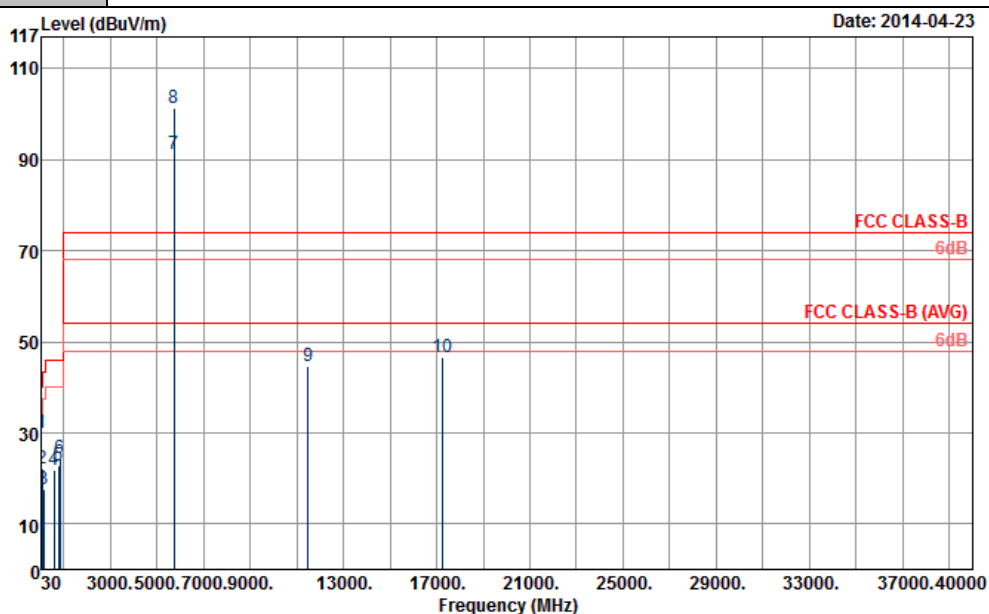
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	26.01	-13.99	40	38.67	18.5	0.64	31.8	100	101	Peak
34.05	20.65	-19.35	40	35.66	16.1	0.68	31.79	-	-	Peak
40.26	16.84	-23.16	40	35.65	12.24	0.74	31.79	-	-	Peak
627.6	22.24	-23.76	46	31.75	19.75	2.79	32.05	-	-	Peak
784.4	26.31	-19.69	46	35.06	20.15	3.06	31.96	-	-	Peak
837.6	23.59	-22.41	46	31.51	20.68	3.19	31.79	-	-	Peak





ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5745	97.54	-	-	85.1	35.04	11.39	33.99	102	301	Average
5745	107.94	-	-	95.5	35.04	11.39	33.99	102	301	Peak
11490	44.77	-29.23	74	54.46	37.79	11.04	58.52	100	0	Peak
17235	45.56	-42.38	87.94	50.76	41.13	12.27	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5742 MHz is fundamental signal which can be ignored. 2. 17235 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 101.27 dBμV/m - 20dB = 81.27 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	30	-10	40	42.66	18.5	0.64	31.8	103	169	Peak
91.56	22.16	-21.34	43.5	43.96	8.9	1.06	31.76	-	-	Peak
155.55	17.47	-26.03	43.5	37.62	10.2	1.4	31.75	-	-	Peak
573	21.89	-24.11	46	31.93	19.33	2.65	32.02	-	-	Peak
767.6	22.95	-23.05	46	31.74	20.13	3.05	31.97	-	-	Peak
840.4	24.51	-21.49	46	32.39	20.7	3.2	31.78	-	-	Peak

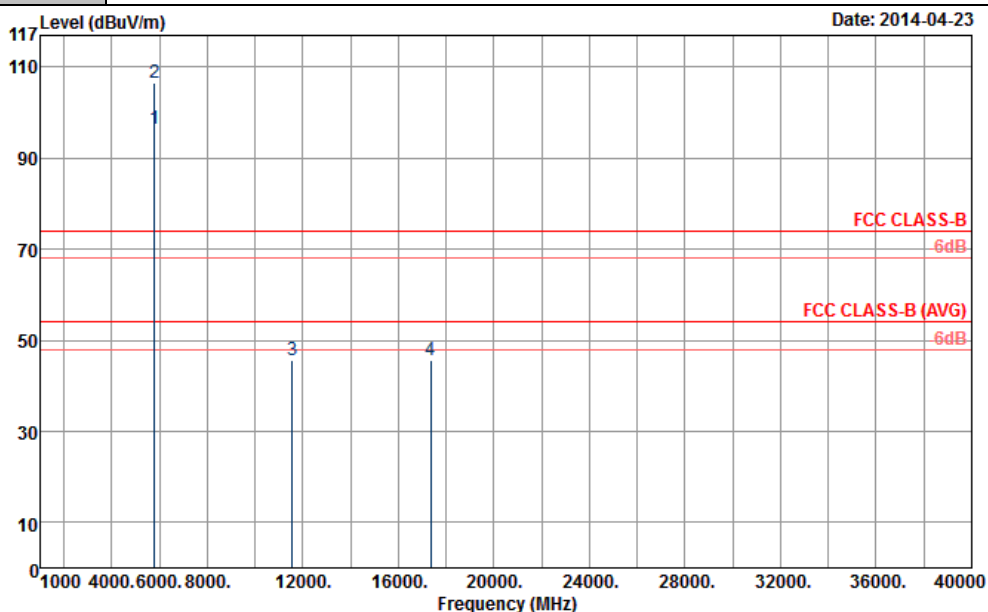




ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5742	91.21	-	-	78.77	35.04	11.39	33.99	100	93	Average
5742	101.27	-	-	88.83	35.04	11.39	33.99	100	93	Peak
11490	44.53	-29.47	74	54.22	37.79	11.04	58.52	100	0	Peak
17235	46.75	-34.52	81.27	51.95	41.13	12.27	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	5782 MHz is fundamental signal which can be ignored. 17355 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.57 dBμV/m - 20dB = 86.57 dBμV/m. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (4th, 5th, 6th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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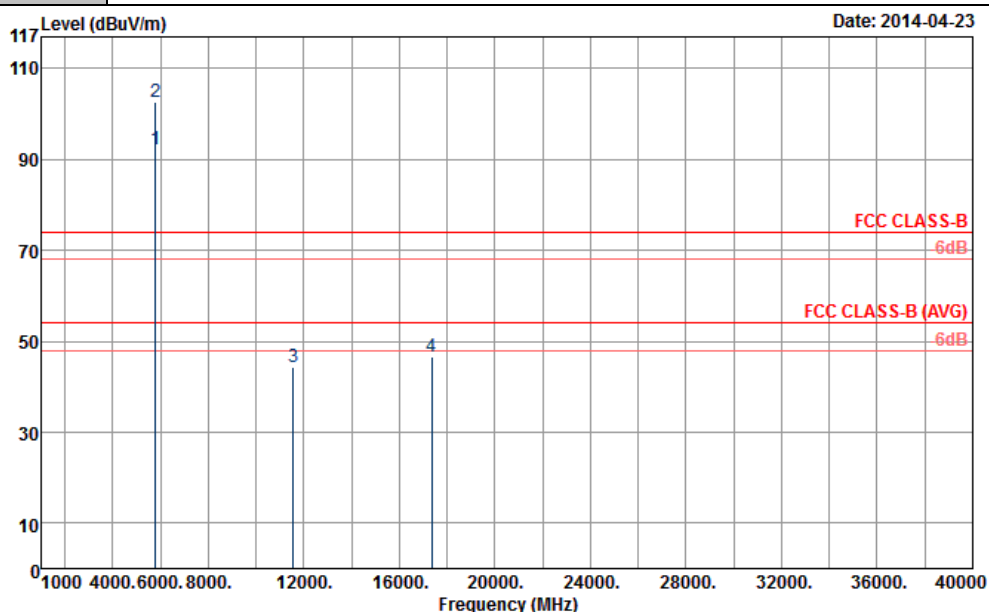
Site Condition : 03CH06-HY
: FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5782	96.57	-	-	84.06	35.08	11.43	34	100	322	Average
5782	106.57	-	-	94.06	35.08	11.43	34	100	322	Peak
11570	45.56	-28.44	74	55.09	37.92	11.09	58.54	100	0	Peak
17355	45.49	-41.08	86.57	50.73	40.94	12.42	58.6	100	0	Peak

Other harmonics are lower than background noise

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5787 MHz is fundamental signal which can be ignored. 2. 17355 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 102.57 dBμV/m - 20dB = 82.57 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



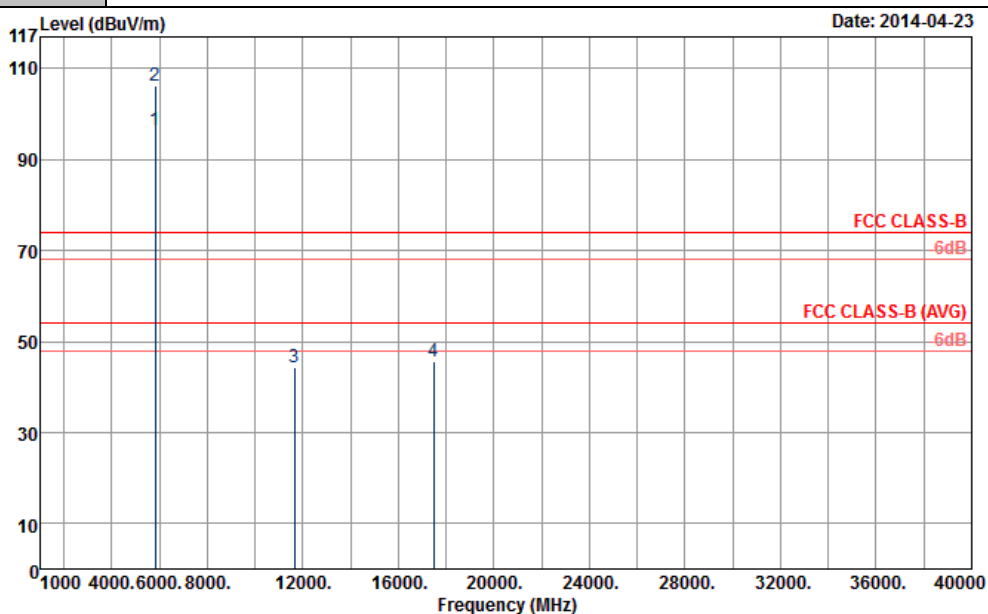
Site Condition : 03CH06-HY
: FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5787	92.07	-	-	79.55	35.09	11.43	34	100	96	Average
5787	102.57	-	-	90.05	35.09	11.43	34	100	96	Peak
11570	44.29	-29.71	74	53.82	37.92	11.09	58.54	100	0	Peak
17355	46.69	-35.88	82.57	51.93	40.94	12.42	58.6	100	0	Peak
Other harmonics are lower than background noise										



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. 17475 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.23 dBμV/m - 20dB = 86.23 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		

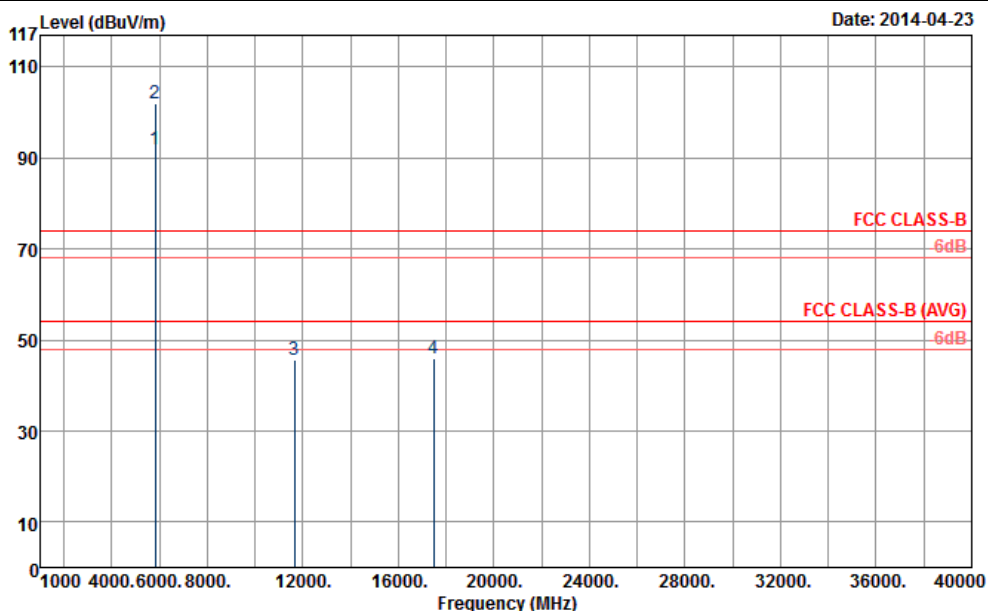


Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5827	96.46	-	-	83.82	35.13	11.51	34	100	0	Average
5827	106.23	-	-	93.59	35.13	11.51	34	100	0	Peak
11650	44.44	-29.56	74	53.83	38.05	11.14	58.58	100	0	Peak
17475	45.69	-40.54	86.23	50.97	40.75	12.57	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	802.11a	Temperature :	24~25℃
Test Channel :	165	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. 17475 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 102.15 dBμV/m - 20dB = 82.15 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		

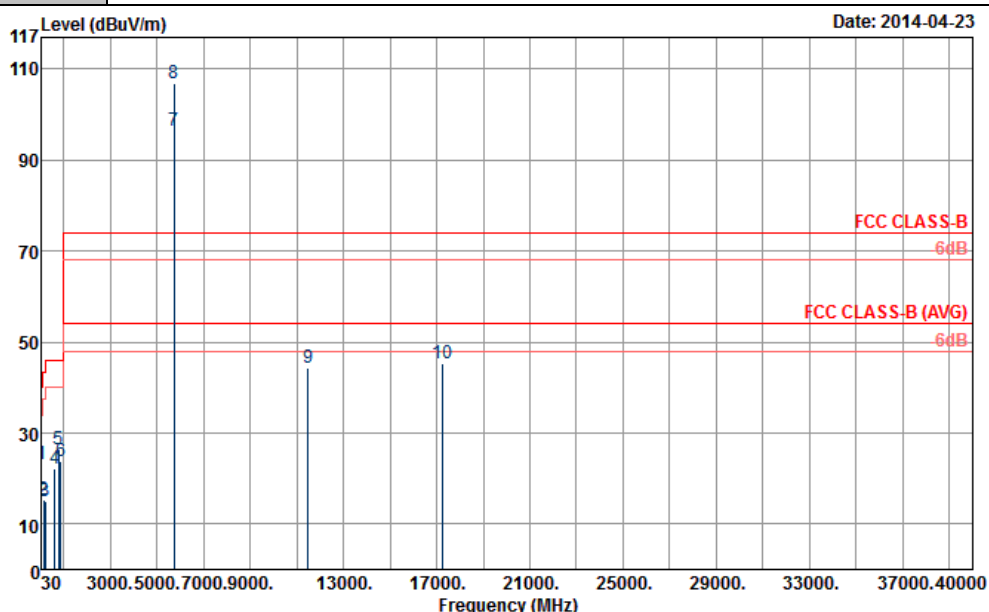


Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5827	91.88	-	-	79.24	35.13	11.51	34	100	276	Average
5827	102.15	-	-	89.51	35.13	11.51	34	100	276	Peak
11650	45.53	-28.47	74	54.92	38.05	11.14	58.58	100	0	Peak
17475	45.93	-36.22	82.15	51.21	40.75	12.57	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	5GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. 17235 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.73 dBμV/m - 20dB = 86.73 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

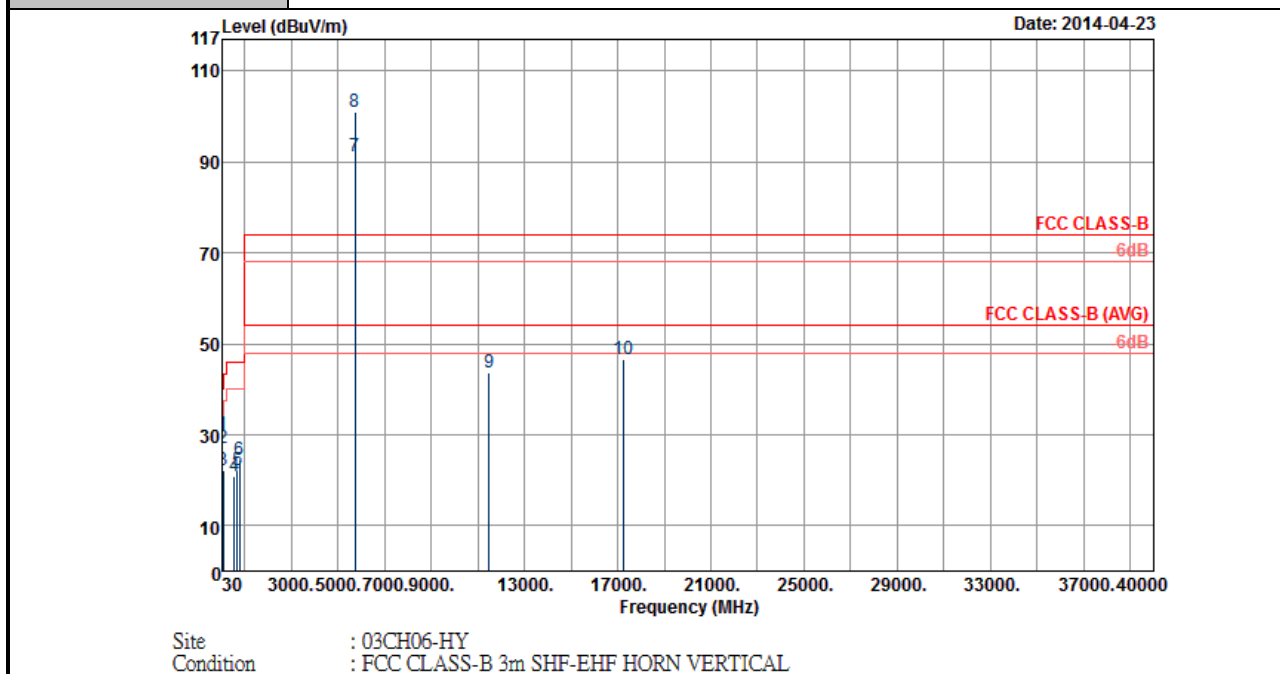
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	23.18	-16.82	40	36.42	17.9	0.65	31.79	102	111	Peak
138	15.17	-28.33	43.5	34.32	11.3	1.3	31.75	-	-	Peak
189.3	15.1	-28.4	43.5	36.29	9.08	1.48	31.75	-	-	Peak
627.6	22.24	-23.76	46	31.75	19.75	2.79	32.05	-	-	Peak
784.4	26.31	-19.69	46	35.06	20.15	3.06	31.96	-	-	Peak
886.6	23.94	-22.06	46	31.29	20.9	3.33	31.58	-	-	Peak





ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5747	96.59	-	-	84.15	35.04	11.39	33.99	100	338	Average
5747	106.73	-	-	94.29	35.04	11.39	33.99	100	338	Peak
11490	44.23	-29.77	74	53.92	37.79	11.04	58.52	100	0	Peak
17235	45.44	-41.29	86.73	50.64	41.13	12.27	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	5GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. 17235 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	30	-10	40	42.66	18.5	0.64	31.8	104	162	Peak
37.02	27.04	-12.96	40	43.66	14.46	0.71	31.79	-	-	Peak
91.56	22.16	-21.34	43.5	43.96	8.9	1.06	31.76	-	-	Peak
545	20.81	-25.19	46	30.96	19.3	2.54	31.99	-	-	Peak
690.6	22.06	-23.94	46	31.81	19.4	2.87	32.02	-	-	Peak
784.4	24.48	-21.52	46	33.23	20.15	3.06	31.96	-	-	Peak

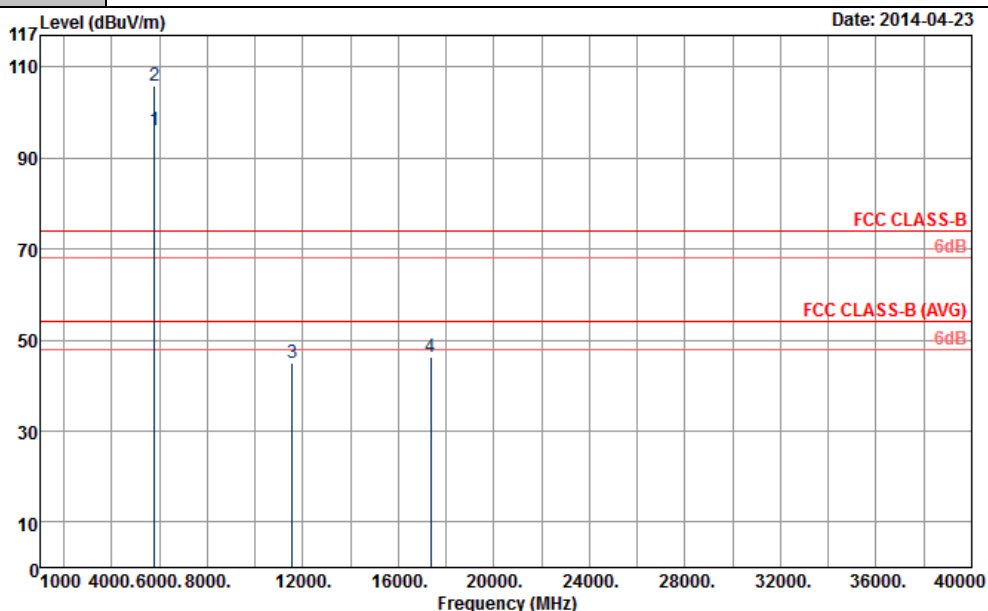




ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5747	91.14	-	-	78.7	35.04	11.39	33.99	100	99	Average
5747	101.13	-	-	88.69	35.04	11.39	33.99	100	99	Peak
11490	43.63	-30.37	74	53.32	37.79	11.04	58.52	100	0	Peak
17235	46.51	-34.62	81.13	51.71	41.13	12.27	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	5GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		

Remark :	5787 MHz is fundamental signal which can be ignored. 17355 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. - Average measurement was not performed if peak level went lower than the average limit. - The harmonic (4th, 5th, 6th, ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise
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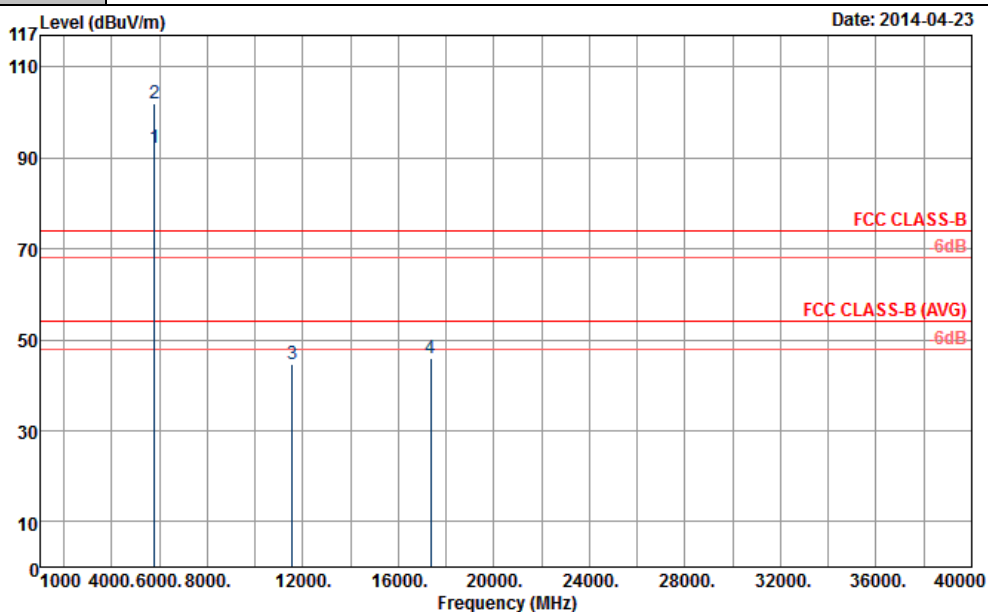
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5787	96.17	-	-	83.65	35.09	11.43	34	100	348	Average
5787	106.01	-	-	93.49	35.09	11.43	34	100	348	Peak
11570	45.07	-28.93	74	54.6	37.92	11.09	58.54	100	0	Peak
17355	46.15	-39.86	86.01	51.39	40.94	12.42	58.6	100	0	Peak

Other harmonics are lower than background noise

Test Mode :	5GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5787 MHz is fundamental signal which can be ignored. 2. 17355 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



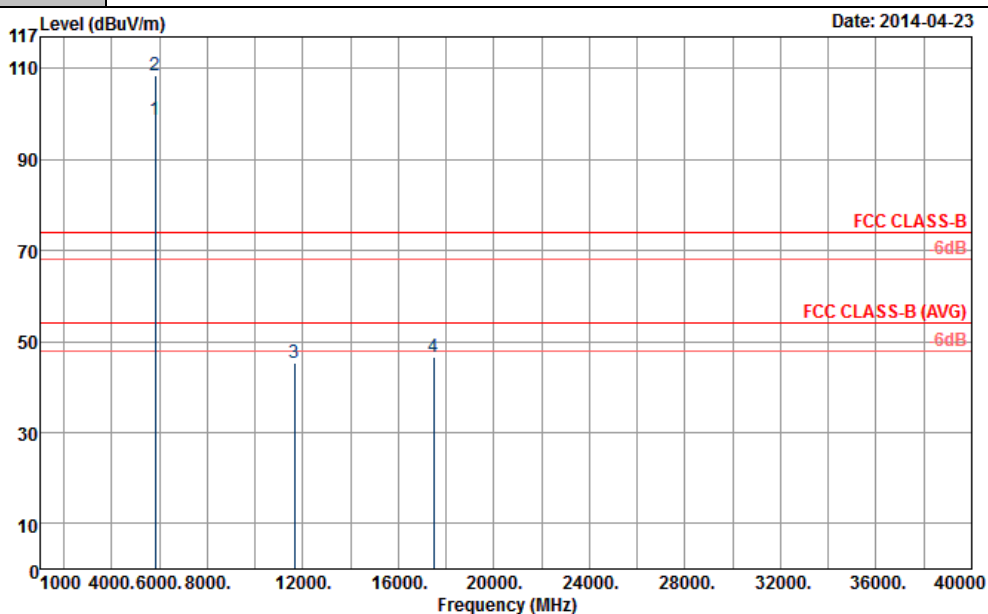
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5787	92.34	-	-	79.82	35.09	11.43	34	100	99	Average
5787	101.92	-	-	89.4	35.09	11.43	34	100	99	Peak
11570	44.58	-29.42	74	54.11	37.92	11.09	58.54	100	0	Peak
17355	45.92	-36	81.92	51.16	40.94	12.42	58.6	100	0	Peak
Other harmonics are lower than background noise										



Test Mode :	5GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. 17475 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		

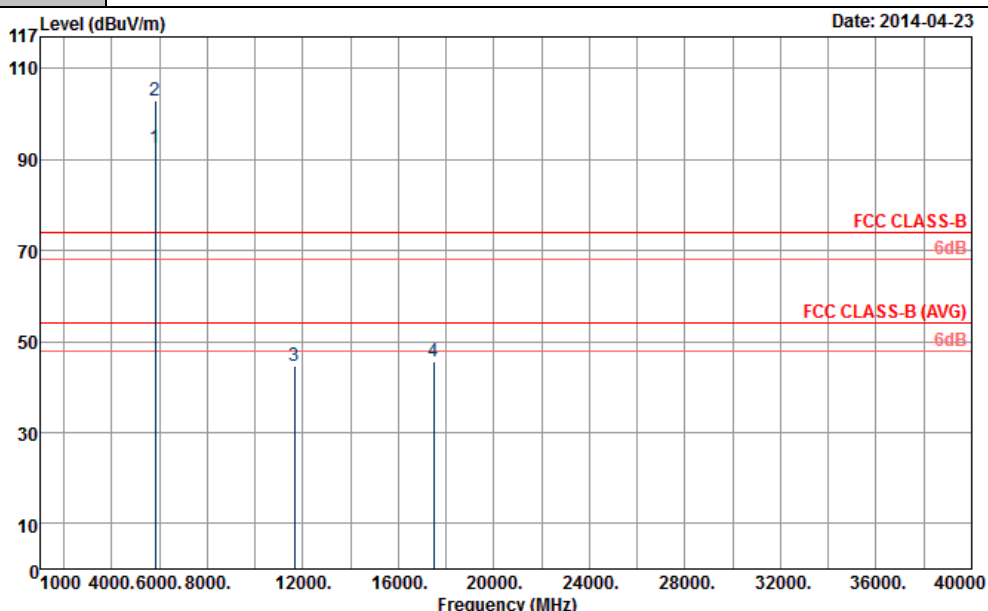


Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5827	98.89	-	-	86.25	35.13	11.51	34	100	348	Average
5827	108.59	-	-	95.95	35.13	11.51	34	100	348	Peak
11650	45.3	-28.7	74	54.69	38.05	11.14	58.58	100	0	Peak
17475	46.61	-41.98	88.59	51.89	40.75	12.57	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	5GHz 802.11n HT20	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. 17475 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 102.82 dB μ V/m - 20dB = 82.82 dB μ V/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



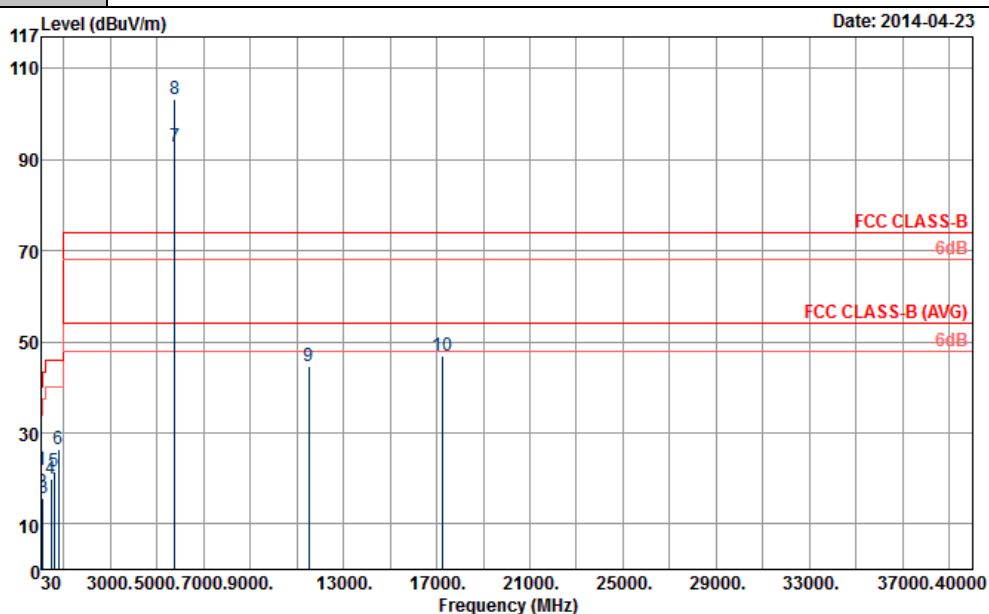
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5827	92.66	-	-	80.02	35.13	11.51	34	165	270	Average
5827	102.82	-	-	90.18	35.13	11.51	34	165	270	Peak
11650	44.65	-29.35	74	54.04	38.05	11.14	58.58	100	0	Peak
17475	45.71	-37.11	82.82	50.99	40.75	12.57	58.6	100	0	Peak
Other harmonics are lower than background noise										



Test Mode :	5GHz 802.11n HT40	Temperature :	24~25°C
Test Channel :	151	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. 17265 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 103.45 dBμV/m - 20dB = 83.45 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	21.78	-18.22	40	36.2	16.7	0.67	31.79	100	152	Peak
40.26	16.84	-23.16	40	35.65	12.24	0.74	31.79	-	-	Peak
98.04	15.52	-27.98	43.5	35.66	10.52	1.09	31.75	-	-	Peak
473.6	19.73	-26.27	46	31.86	17.46	2.31	31.9	-	-	Peak
583.5	21.62	-24.38	46	31.61	19.36	2.69	32.04	-	-	Peak
784.4	26.31	-19.69	46	35.06	20.15	3.06	31.96	-	-	Peak

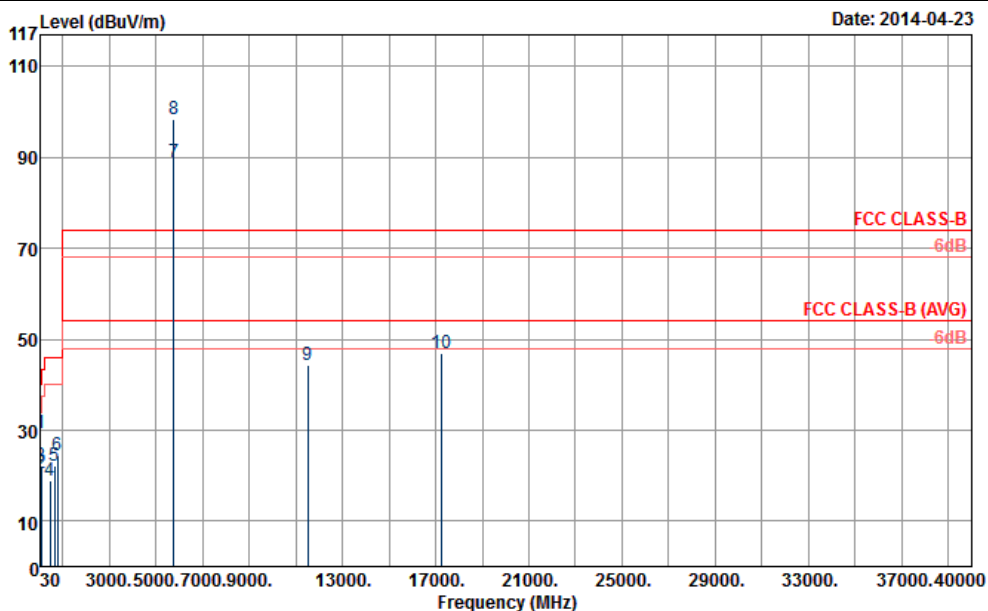




ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5757	93.03	-	-	80.58	35.06	11.39	34	100	338	Average
5757	103.45	-	-	91	35.06	11.39	34	100	338	Peak
11510	44.72	-29.28	74	54.36	37.8	11.06	58.5	100	0	Peak
17265	46.92	-36.53	83.45	52.12	41.07	12.33	58.6	100	0	Peak
Other harmonics are lower than background noise										



Test Mode :	5GHz 802.11n HT40	Temperature :	24~25°C
Test Channel :	151	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. 17265 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th , ...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

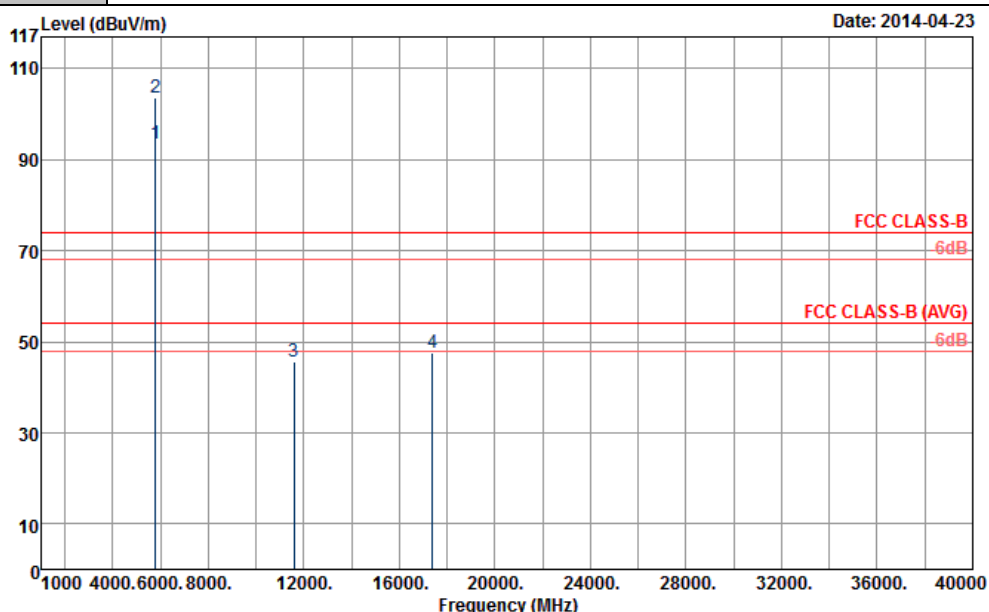
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	29.21	-10.79	40	41.87	18.5	0.64	31.8	100	207	Peak
80.76	20.45	-19.55	40	44.12	7.1	0.99	31.76	-	-	Peak
91.56	22.16	-21.34	43.5	43.96	8.9	1.06	31.76	-	-	Peak
448.4	19.03	-26.97	46	31.71	16.88	2.31	31.87	-	-	Peak
637.4	22.29	-23.71	46	31.89	19.66	2.79	32.05	-	-	Peak
784.4	24.48	-21.52	46	33.23	20.15	3.06	31.96	-	-	Peak





ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5757	88.91	-	-	76.46	35.06	11.39	34	100	99	Average
5757	98.48	-	-	85.99	35.06	11.43	34	100	99	Peak
11510	44.24	-29.76	74	53.88	37.8	11.06	58.5	100	0	Peak
17265	47.06	-31.42	78.48	52.26	41.07	12.33	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	5GHz 802.11n HT40	Temperature :	24~25°C
Test Channel :	159	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5797 MHz is fundamental signal which can be ignored. 2. 17385 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 103.65 dBμV/m - 20dB = 83.65dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		

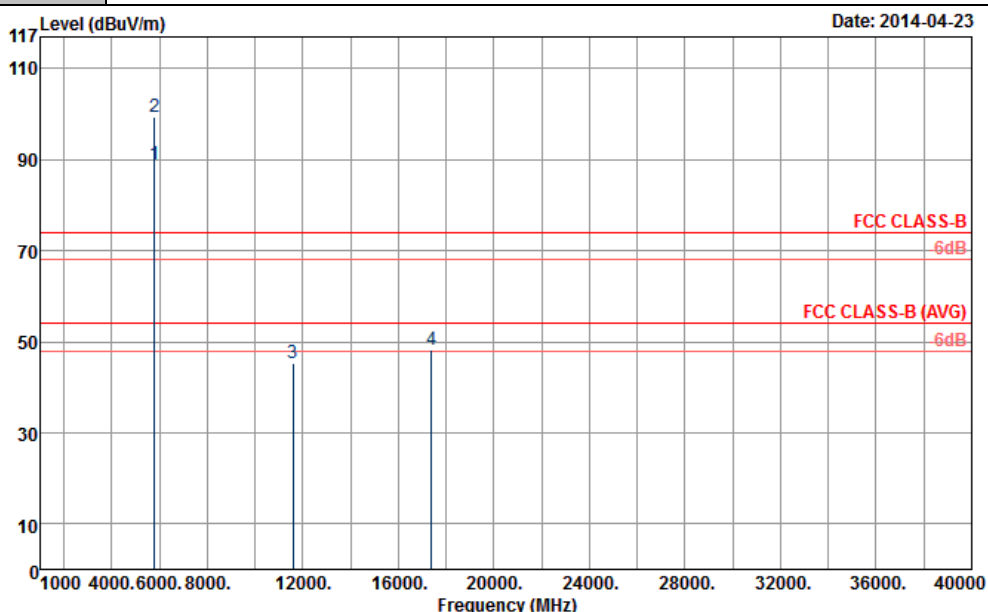


Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

ANTENNA POLARITY : HORIZONTAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5797	93.49	-	-	80.93	35.09	11.47	34	100	338	Average
5797	103.65	-	-	91.09	35.09	11.47	34	100	338	Peak
11590	45.72	-28.28	74	55.21	37.96	11.1	58.55	100	0	Peak
17385	47.45	-36.2	83.65	52.68	40.89	12.48	58.6	100	0	Peak
Other harmonics are lower than background noise										

Test Mode :	5GHz 802.11n HT40	Temperature :	24~25°C
Test Channel :	159	Relative Humidity :	45~46%
Test Engineer :	Gavin Wu		
Remark :	1. 5797 MHz is fundamental signal which can be ignored. 2. 17385 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 99.53 dBμV/m - 20dB = 79.53 dBμV/m. 3. Average measurement was not performed if peak level went lower than the average limit. 4. The harmonic (4 th , 5 th , 6 th ,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

ANTENNA POLARITY : VERTICAL

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5797	89.12	-	-	76.56	35.09	11.47	34	200	233	Average
5797	99.53	-	-	86.97	35.09	11.47	34	200	233	Peak
11590	45.33	-28.67	74	54.82	37.96	11.1	58.55	100	0	Peak
17385	48.14	-31.39	79.53	53.37	40.89	12.48	58.6	100	0	Peak
Other harmonics are lower than background noise										

3.6 AC Conducted Emission Measurement

3.6.1 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 (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.

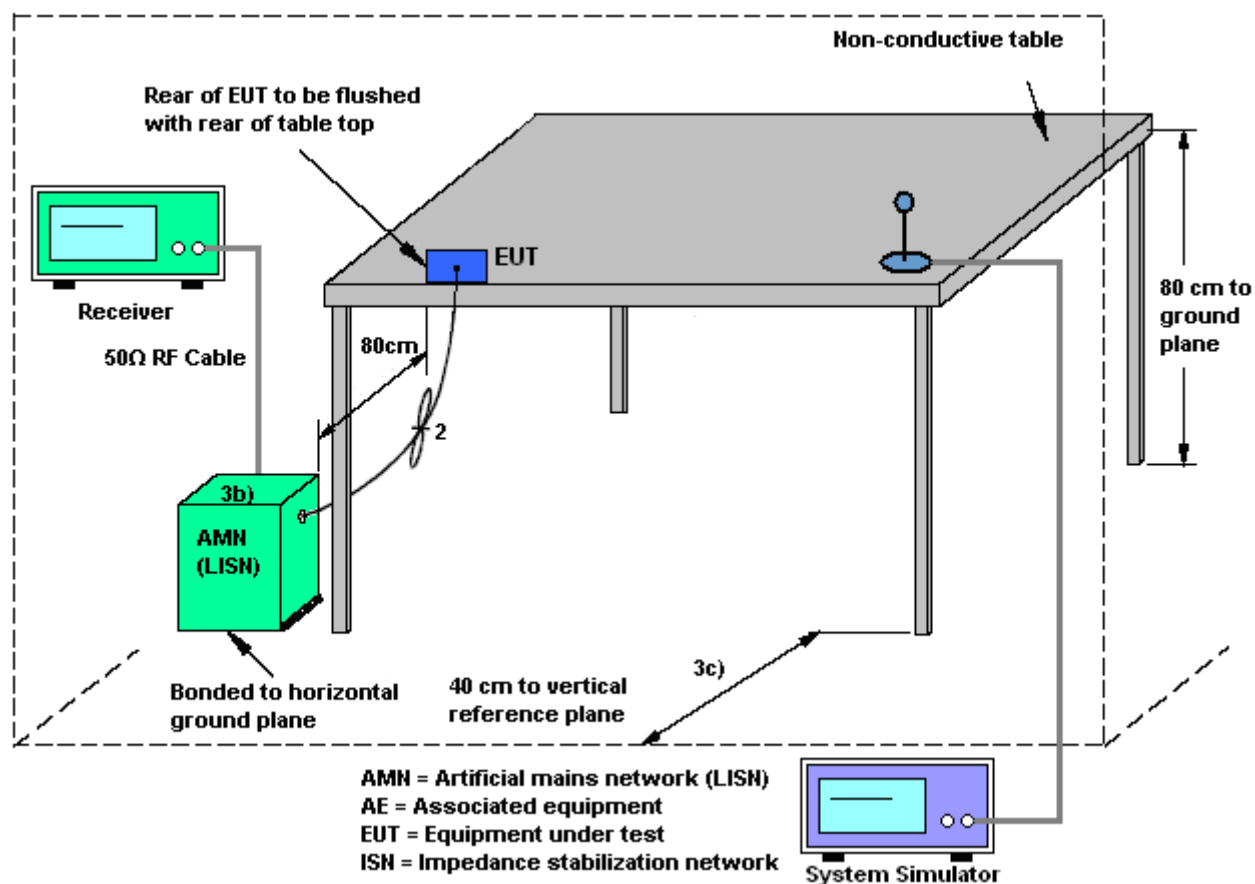
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

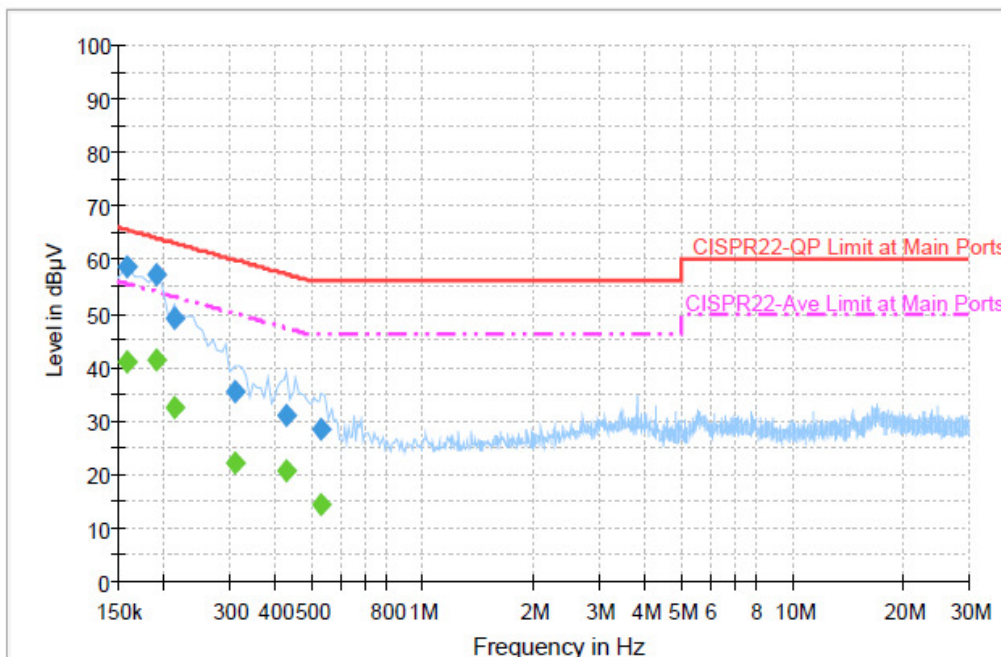
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Cosmo Xu	Relative Humidity :	46~48%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN (2.4GHz) Link + Earphone + Battery + USB Cable (Data Link with Notebook) + GPS Rx		



Final Result : Quasi-Peak

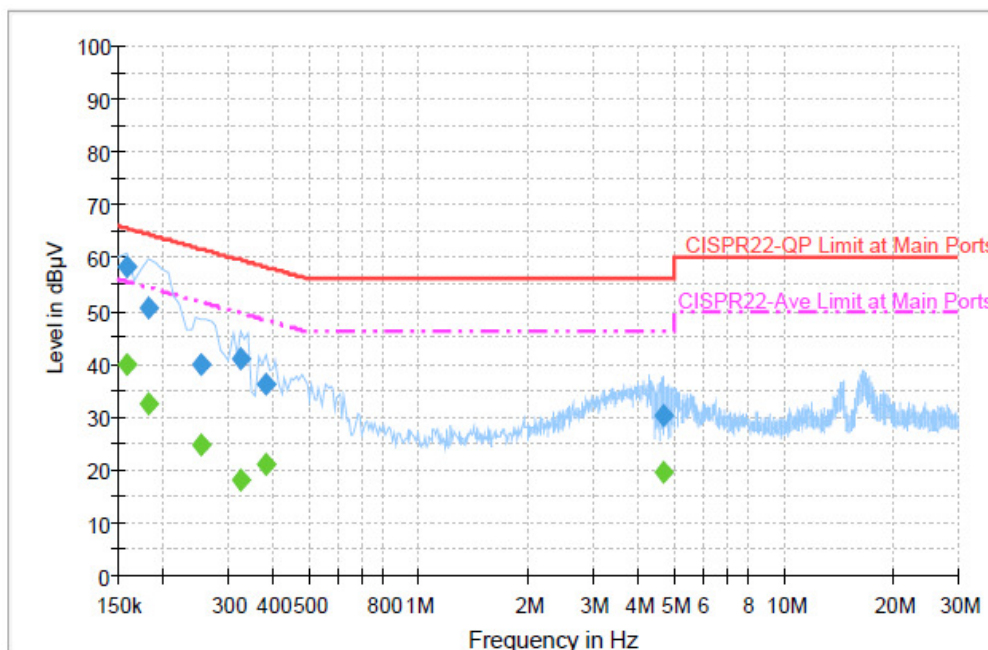
Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	58.8	Off	L1	19.3	6.8	65.6
0.190000	57.1	Off	L1	19.4	6.9	64.0
0.214000	49.0	Off	L1	19.4	14.0	63.0
0.312000	35.4	Off	L1	19.4	25.0	60.4
0.430000	31.1	Off	L1	19.4	26.2	57.3
0.534000	28.6	Off	L1	19.4	27.4	56.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	41.0	Off	L1	19.3	14.6	55.6
0.190000	41.4	Off	L1	19.4	12.6	54.0
0.214000	32.3	Off	L1	19.4	20.7	53.0
0.312000	22.0	Off	L1	19.4	28.4	50.4
0.430000	20.5	Off	L1	19.4	26.8	47.3
0.534000	14.2	Off	L1	19.4	31.8	46.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Cosmo Xu	Relative Humidity :	46~48%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN (2.4GHz) Link + Earphone + Battery + USB Cable (Data Link with Notebook) + GPS Rx		


Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	58.2	Off	N	19.3	7.4	65.6
0.182000	50.6	Off	N	19.3	13.8	64.4
0.254000	39.7	Off	N	19.4	21.9	61.6
0.326000	40.9	Off	N	19.4	18.7	59.6
0.382000	36.3	Off	N	19.3	21.9	58.2
4.670000	30.4	Off	N	19.6	25.6	56.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	40.0	Off	N	19.3	15.6	55.6
0.182000	32.5	Off	N	19.3	21.9	54.4
0.254000	24.8	Off	N	19.4	26.8	51.6
0.326000	18.2	Off	N	19.4	31.4	49.6
0.382000	21.2	Off	N	19.3	27.0	48.2
4.670000	19.7	Off	N	19.6	26.3	46.0



3.7 Antenna Requirements

3.7.1 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. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Apr. 12, 2014 ~ May 12, 2014	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	Apr. 12, 2014 ~ May 12, 2014	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	Apr. 12, 2014 ~ May 12, 2014	Aug. 16, 2014	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP30	101067	9kHz ~ 30GHz	Nov. 20, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Nov. 19, 2014	Radiation (03CH06-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9kHz ~ 26.5GHz	Dec. 02, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Dec. 01, 2014	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/0003	20MHz ~ 1000MHz	May 06, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	May 05, 2014	Radiation (03CH06-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9kHz ~ 30MHz	Jul. 03, 2012	Apr. 22, 2014 ~ Apr. 23, 2014	Jul. 02, 2014	Radiation (03CH06-HY)
Bilog Antenna	Schaffner	CBL6112B	2885	30MHz ~ 2GHz	Oct. 10, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Oct. 09, 2014	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 02, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Aug. 01, 2014	Radiation (03CH06-HY)
Amplifier	SONOMA	310N	187231	9kHz ~ 1GHz	May 15, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	May 14, 2014	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Jul. 17, 2014	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 03, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Oct. 02, 2014	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 10, 2014	Apr. 22, 2014 ~ Apr. 23, 2014	Apr. 09, 2015	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	Apr. 22, 2014 ~ Apr. 23, 2014	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1 m ~ 4 m	N/A	Apr. 22, 2014 ~ Apr. 23, 2014	N/A	Radiation (03CH06-HY)
LF RF Cable	warison	WCBA-WC04NM.NM2	N/A	30MHz~1GHz	Nov. 28, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Nov. 27, 2014	Radiation (03CH06-HY)
HF RF Cable	Huber + Suhner	sucoflex 104	286027/4	1GHz~26.5GHz	Nov. 28, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Nov. 27, 2014	Radiation (03CH06-HY)
High Pass Filter	Microwave Circuits	H3G018G1	SN477219	3G HPF	Nov. 28, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Nov. 27, 2014	Radiation (03CH06-HY)
High Pass Filter	Microwave Circuits	H07G18G3	282388	7G HPF	Nov. 28, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Nov. 27, 2014	Radiation (03CH06-HY)
Low Pass Filter	Wainwright	WLKS1500-8SS	SN51	1.5G LPF	Nov. 28, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	Nov. 27, 2014	Radiation (03CH06-HY)
Hygrometer	WISEWIND	410	BU5004	N/A	May 07, 2013	Apr. 22, 2014 ~ Apr. 23, 2014	May 06, 2014	Radiation (03CH06-HY)
Test Software	Audix	E3 V6.0	N/A	N/A	N/A	Apr. 22, 2014 ~ Apr. 23, 2014	N/A	Radiation (03CH06-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Apr. 11, 2014	Nov. 14, 2014	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Apr. 11, 2014	Dec. 11, 2014	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Apr. 11, 2014	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Apr. 11, 2014	N/A	Conduction (CO05-HY)
Test Software	N/A	EMC32	8.40.0	N/A	N/A	Apr. 11, 2014	N/A	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Apr. 25, 2013,	Apr. 11, 2014	Apr. 24, 2014	Conduction (CO05-HY)
LF Cable	Shuner	RG-402	N/A	N/A	Oct. 17, 2013	Apr. 11, 2014	Oct. 16, 2014	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.50
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