FCC TEST REPORT

CATEGORY	:	Mobile End Product
PRODUCT NAME	:	802.11g Wireless Access Point / Work group B
FCC ID.	:	PPQWP300UP
FILING TYPE	:	Class II Change
MODEL NAME	:	WP-300UP, FG2255-01, NXA-WAP200G, CT-WP300U, WP-300U, AP-200
APPLICANT	:	**Lite-On It Corp.** 6F, 16, Sec. 4, Nanking E. Rd, Taipei, R.O.C.
MANUFACTURER	:	Same as Applicant
ISSUED BY	:	**SPORTON International Inc.** 6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Statements:

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

Certificate or Test Report could not be used by the applicant to claim the product endorsement by CNLA, NVLAP or any agency of U.S. government.

The test equipment used to perform the test are calibrated and traceable to NML/ROC or NIST/USA.

Dr. Alan Lane
Vice General Manager
Sporton International Inc.

NVLAP®
Lab Code: 200079-0

Table of Contents

History of this test report

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. General Description of Equipment under Test

1.1. Applicant

Lite-On It Corp.

6F, 16, Sec. 4, Nanking E. Rd, Taipei, R.O.C.

1.2. Manufacturer

Same as 1.1

1.3. Basic Description of Equipment under Test

This product is a wireless AP. The radio technical data has been listed on section " Features of Equipment under Test ". There are 4 antennas filed in this project.

1.4. Features of Equipment under Test

ITEM	DESCRIPTION
Type of Modulation	DSSS (CCK / DQPSK / DBPSK), OFDM
Number of Channels	11
Frequency Band	2400MHz ~ 2483.5MHz
Carrier Frequency of Each Channel	Please reference table below.
Channel Bandwidth	11MHz
RF Conducted Output Power	CCK : 17.19dBm (peak) OFDM : 15.97 dBm (peak)
Antenna Type / Gain	Omni-directional Antenna / 5.5dBi (Ant1) Yagi Antenna / 10dBi (Ant2) Panel Antenna / 13dBi (Ant3) Ultra Flat / 3dBi (Ant4)
Function Type	Transceiver
Duty Cycle	100%
Power Rating (DC/AC, Voltage)	110VAC / 12VDC (power adapter)
Temperature Range (Operating)	0 ~ 55℃

1.5. Table for Carrier Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412 MHz	5	2432 MHz	9	2452 MHz
2	2417 MHz	6	2437 MHz	10	2457 MHz
3	2422 MHz	7	2442 MHz	11	2462 MHz
4	2427 MHz	8	2447 MHz		

2. Test Configuration of the Equipment under Test

2.1. Description of the Test

a. During testing, the equipment was placed on a non-conducting support.
b. The following test modes were performed:
   CH 01 2412MHz
   CH 06 2437MHz
   CH 11 2462MHz
c. 4 antennas are filed in this project. See section 2.2. for the details.
d. Spurious emission below 1GHz is independent of channel selection, so only Channel 11 with OFDM modulation was tested.
e. For spurious emission above 1GHz, lowest, middle and highest channel was tested.
f. The EUT has been programmed to continuously transmit or receive during testing. The used peripherals as well as the configuration fulfill the requirements of ANSI C63.4:2001.
g. The configuration is operated in a manner which tends to maximize its emission characteristics in a typical application.
h. 3 meters measurement distance in semi-anechoic chamber was used in this test.

2.2. Antenna Description

No.	Type	Gain (dBi)
Ant. 1	Omni-directional	5.5
Ant. 2	Yagi	10
Ant. 3	Panel	13
Ant. 4	Ultra Flat	3

2.3. Frequency Range Investigated

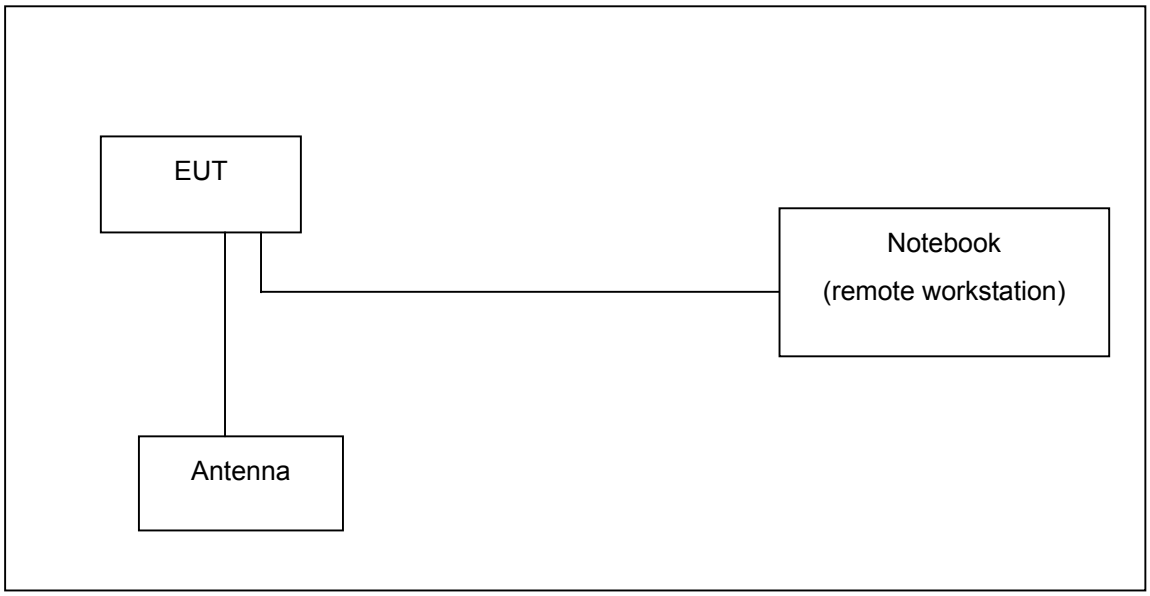
a. Conducted power line test: from 150 kHz to 30 MHz
b. Radiated emission test: from 30 MHz to 25000 MHz

2.4. Description of Test Supporting Units

Support Unit 1. – Notebook (DELL)

FCC ID	: N/A
Model No.	: PP10L
Serial No.	: SP0031
Remark	: This support device was tested to comply with FCC standards and authorized under Declaration of Conformity.

2.5. Connection Diagram of Test System



2.6. Test Software

There are 2 software may be used in the testing.

a. Channel & Power Controlling Software: This was provided by the manufacturer and is able to let the test engineer select the operating channel as well as the RF output power. The parameters for channel selection is trying to offer the test engineer the ability to fix the operating channel for testing, both normal data and continuously transmitting modes are allowed, and that for RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

b. “H” Pattern Generator: Except Access Point, the supporting equipment such as monitor or printer is always available. Under testing, these supporting equipment has to also under working condition. “H” Pattern Generator is able to continuously transmitting “H” character to those supporting equipments.

c. At the same time, “PING.EXE” to link with the remote workstation to receive and transmit data by wireless, and the PC reads and writes message in EUT.

3. Test Location and Standards

3.1. Test Location

Test Location : Sporton Hwa Ya Testing Building

Address : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Tel: +886 3 327 3456 Fax: +886 3 318 0055

Test Site No. : CO04-HY, 03CH03-HY

3.2. Test Conditions

Normal Voltage	: 110V/60Hz
Extreme Voltage	: 138V and 102V
Normal Temperature	: 20 ℃
Extreme Temperature	: 0 ℃ and 55 ℃

3.3. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.

ANSI C63.4-2001

47 CFR Part 15 Subpart C (Section 15.247)

3.4. DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.

4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR Part 15 and Part 2			
Paragraph	**FCC Rule**	**Description of Test**	**Result**
5.1	15.247(b)	Maximum Peak Output Power	Pass
5.2	15.247(c)	Band Edges Emission	Pass
5.3	15.209/15.247(c)	Spurious Radiated Emission	Pass
5.4	15.203	Antenna Requirement	Pass
5.5	2.1091/2.1093	Maximum Permissible Exposure for the EUT	Pass

4.2. Test of Maximum Peak Output Power

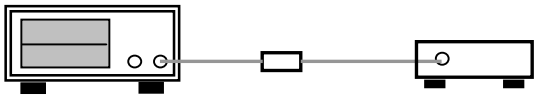
4.2.1 Measuring Instruments

Item 17, 19 of the table on section 6.

4.2.2 Test Procedures

1. The transmitter output was connected to the spectrum analyzer.
2. Use the channel power function to measure the power.
3. Repeated the 1~2 for the middle and highest channel of the EUT.

4.2.3 Test Setup Layout



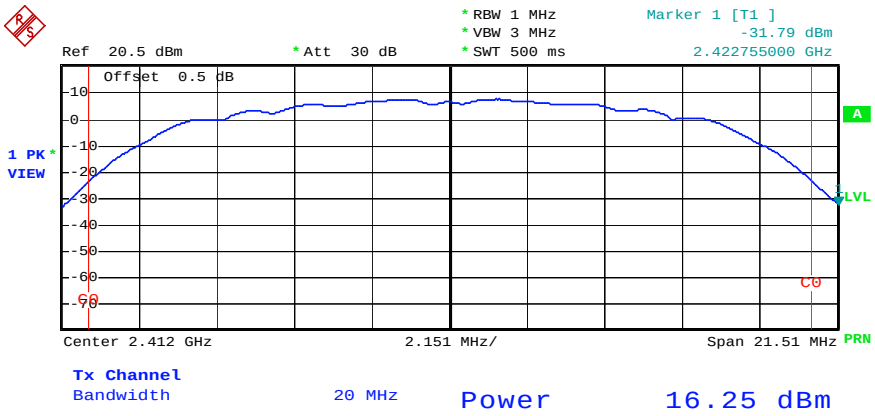
Spectrum Analyzer **EUT**

4.2.4 Test Result：See spectrum analyzer plots below

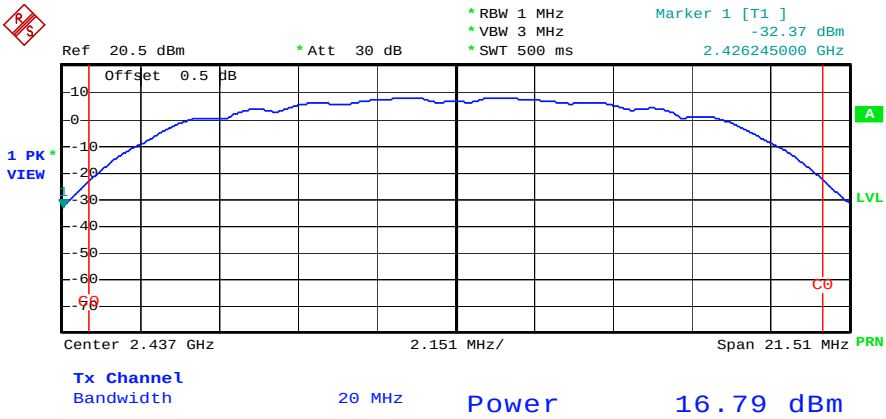
- Modulation Type: CCK
- Temperature: 25°C
- Relative Humidity: 65 %
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Sam Lee

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mWatt)	Limits (dBm)
01	2412	16.25	42.17	30 dBm
06	2437	16.79	47.75	30 dBm
11	2462	17.20	52.48	30 dBm

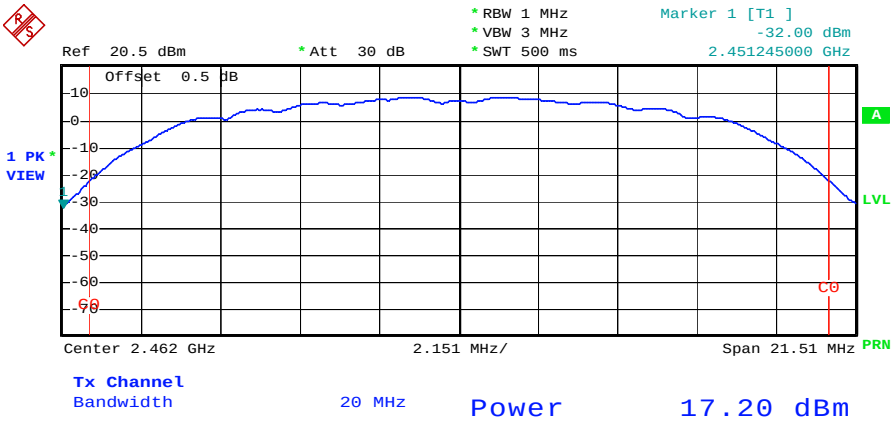
Modulation Type: CCK (Channel 01) :



Modulation Type: CCK (Channel 06) :



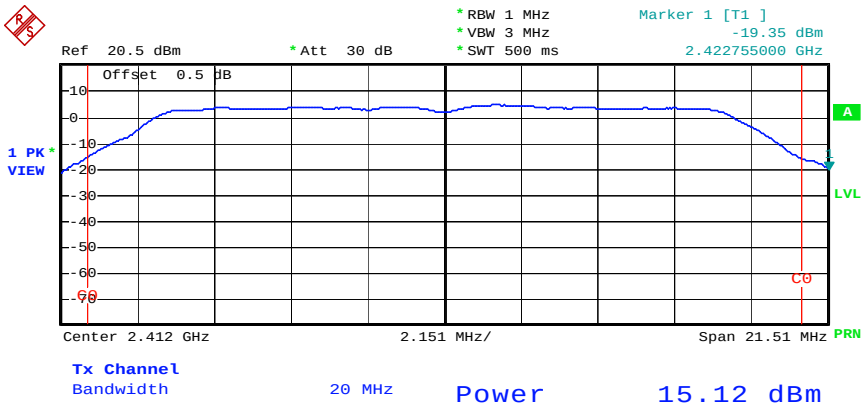
Modulation Type: CCK (Channel 11) :



- Modulation Type: OFDM
- Temperature: 25°C
- Relative Humidity: 65 %
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Sam Lee

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mWatt)	Limits (dBm)
01	2412	15.12	32.51	30 dBm
06	2437	15.53	35.73	30 dBm
11	2462	15.90	38.90	30 dBm

Modulation Type: CCK (Channel 01) :



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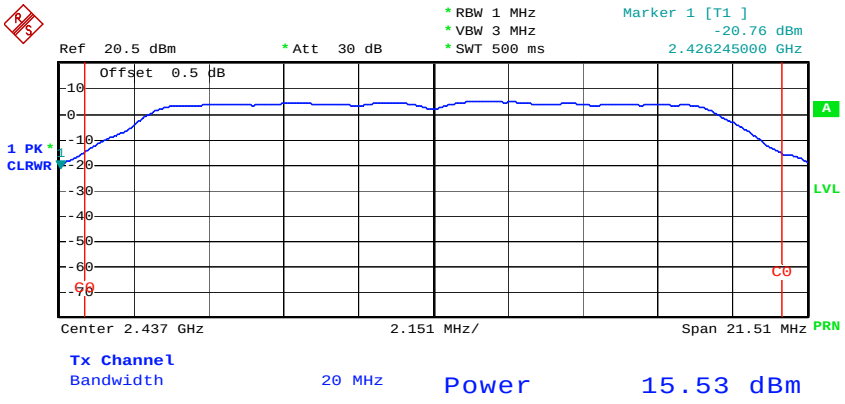
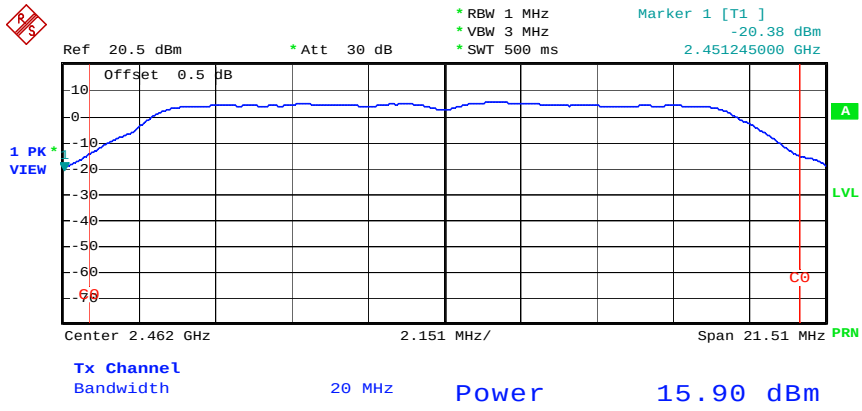
Modulation Type: CCK (Channel 06) :



Date: 11.SEP.2004 18:08:21

Modulation Type: CCK (Channel 11)：



Date: 11.SEP.2004 18:10:10

4.3. Test of Band Edges Emission

4.3.1 Measuring Instruments

Item 16 of the table on section 6.

4.3.2 Test Procedures

1. The transmitter is set to the lowest channel.
2. Set both RBW and VBW of spectrum analyzer to 1MHz for peak value, and set RBW and VBW of spectrum analyzer to 1MHz and 10Hz for average value.
3. The lowest band edges emission was measured and recorded.
4. The transmitter set to the highest channel and repeated 2~4.

4.3.3 Test Result :

- Modulation Type: CCK (Ant1)
- Test Engineer: Sam Lee

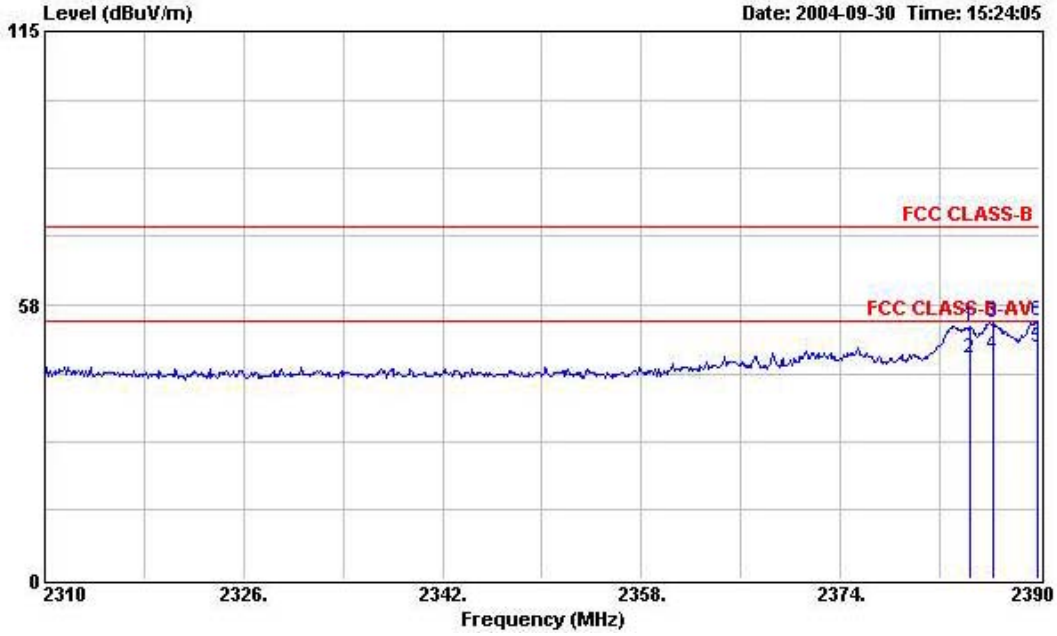
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2389.920	V	-58.5	54.0	-5.5	Average
2389.920	V	-52.8	74.0	-19.8	Peak

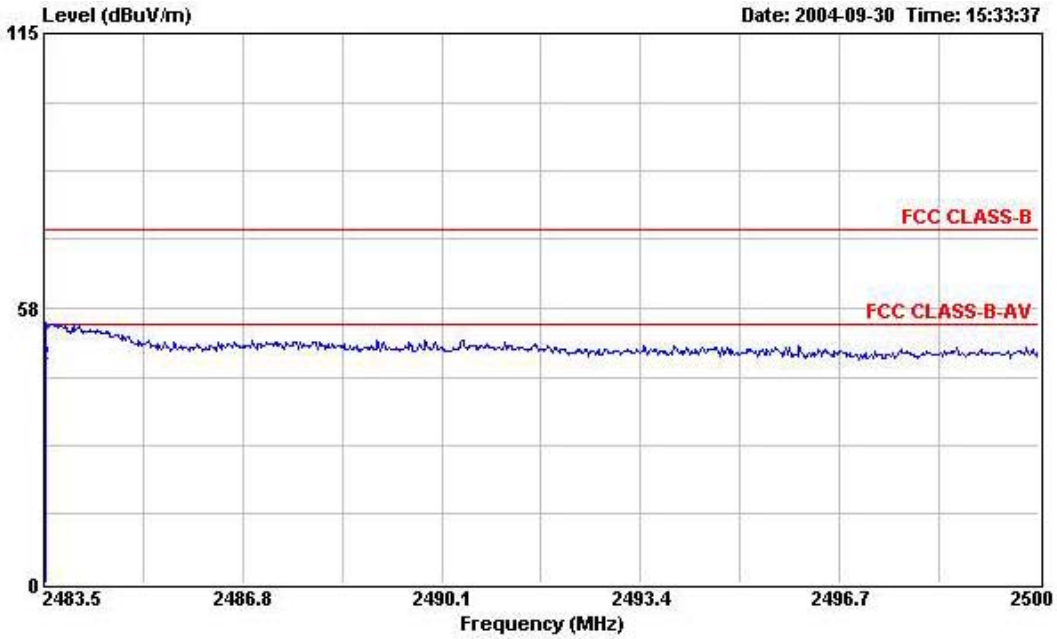
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2483.530	V	-61.5	54.0	-8.4	Average
2483.530	V	-52.5	74.0	-19.4	Peak

Modulation Type: CCK (Channel 01) :



Modulation Type: CCK (Channel 11) :



4.3.4 Test Result :

- Modulation Type: OFDM (Ant1)
- Test Engineer: Sam Lee

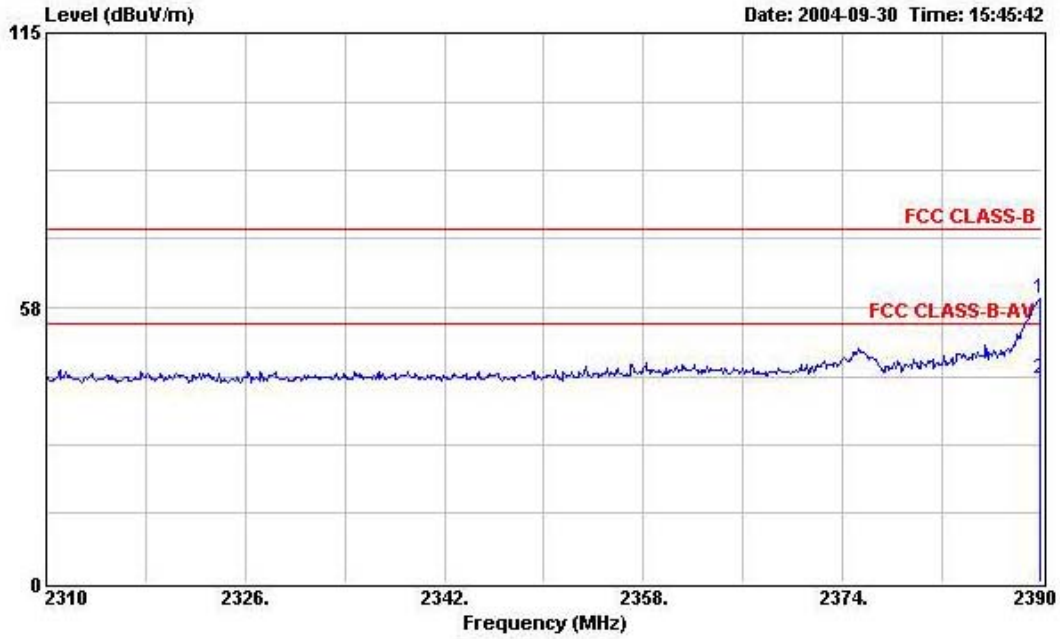
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2389.920	V	-47.6	54.0	-11.5	Average
2389.920	V	-64.6	74.0	-14.5	Peak

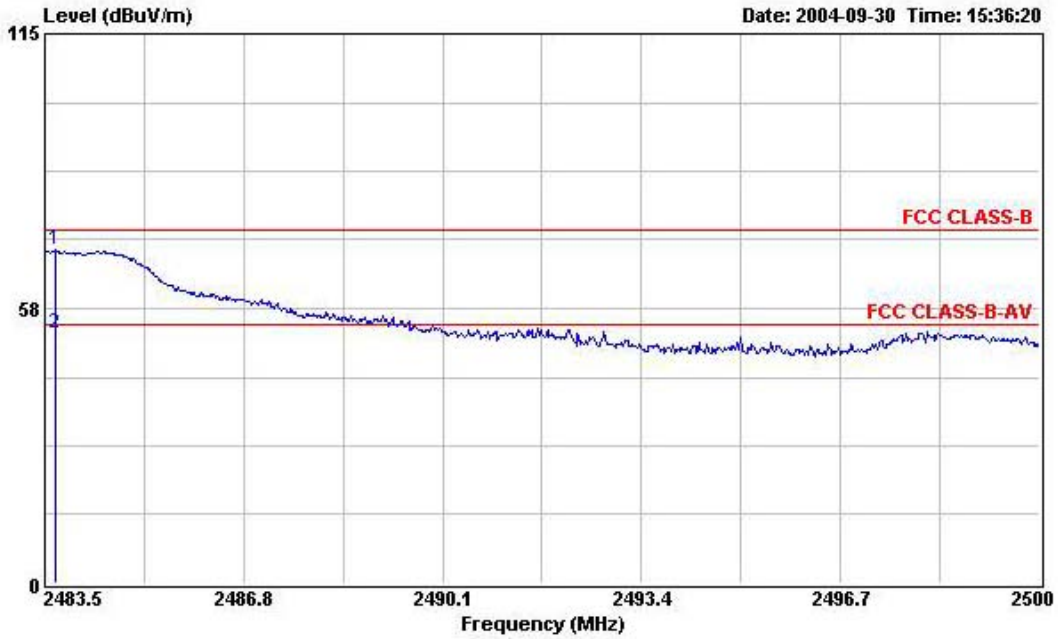
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2483.680	V	-54.9	54.0	-1.8	Average
2483.680	V	-37.4	74.0	-4.3	Peak

Modulation Type: OFDM (Channel 01) :



Modulation Type: OFDM (Channel 11) :



4.3.5 Test Result :

- Modulation Type: CCK (Ant2)
- Test Engineer: Sam Lee

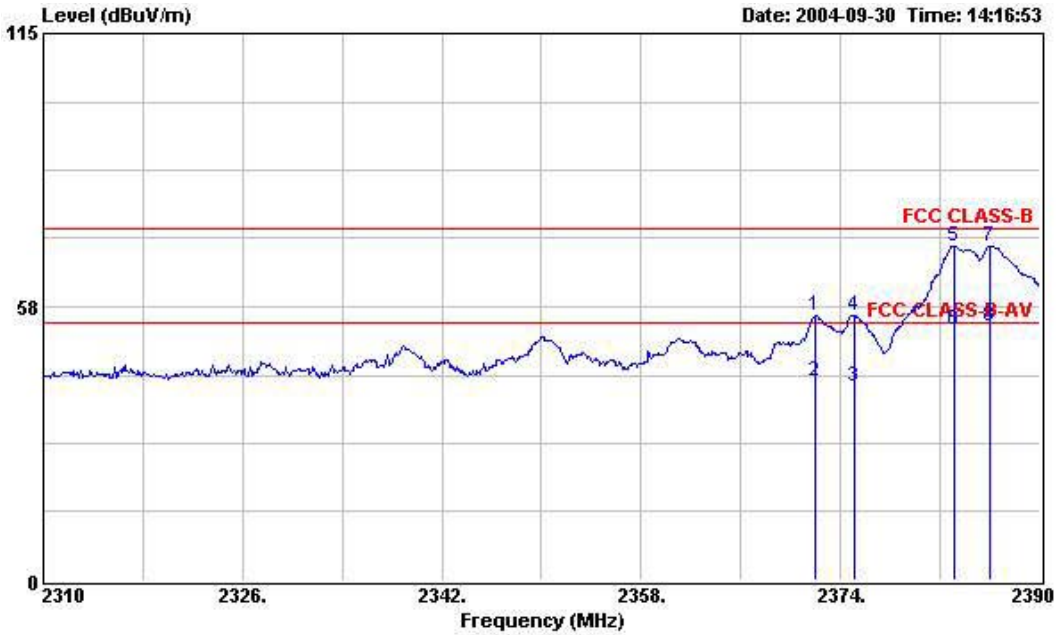
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2386.000	V	-53.7	54.0	-0.6	Average
2386.000	V	-36.8	74.0	-3.7	Peak

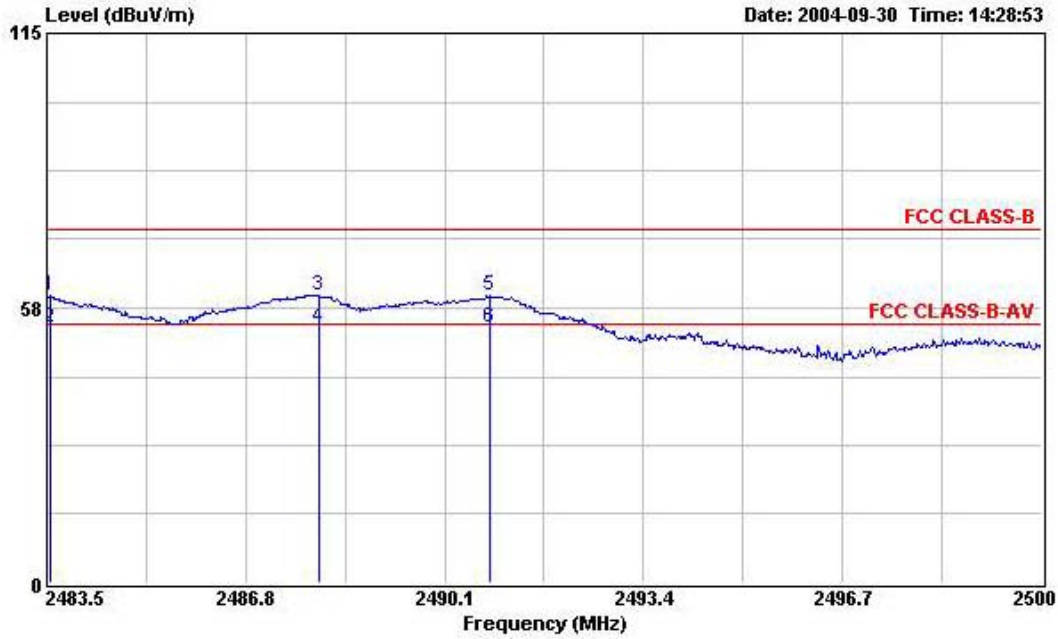
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2488.000	V	-53.6	54.0	-0.5	Average
2488.000	V	--46.8	74.0	-13.7	Peak

Modulation Type: CCK (Channel 01)：



Modulation Type: CCK (Channel 11)：



4.3.6 Test Result :

- Modulation Type: OFDM (Ant2)
- Test Engineer: Sam Lee

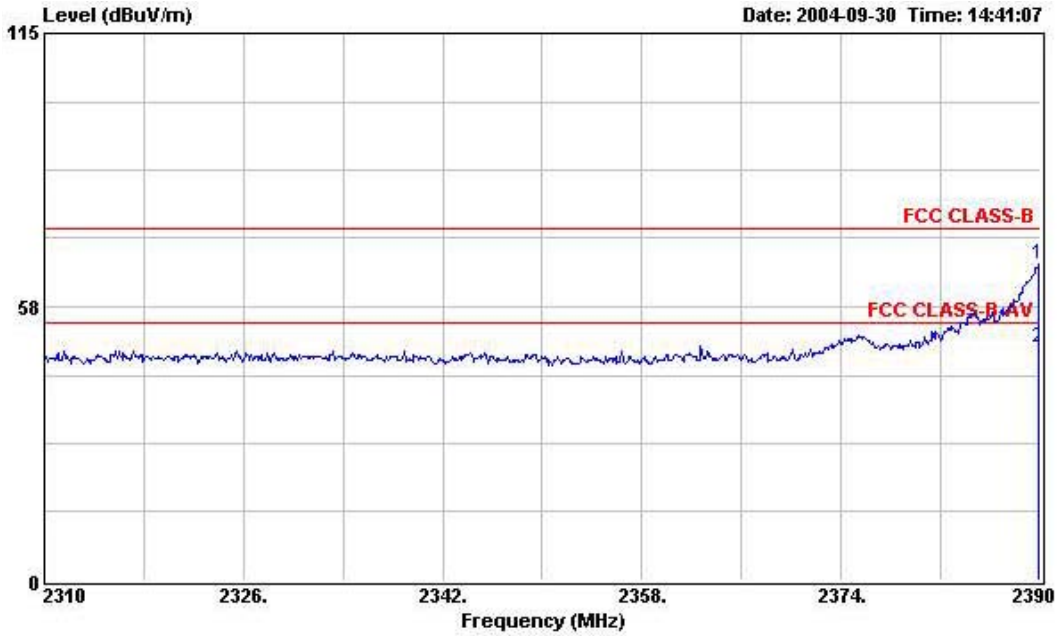
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2389.920	V	-58.0	54.0	-5.0	Average
2389.920	V	-40.7	74.0	-7.6	Peak

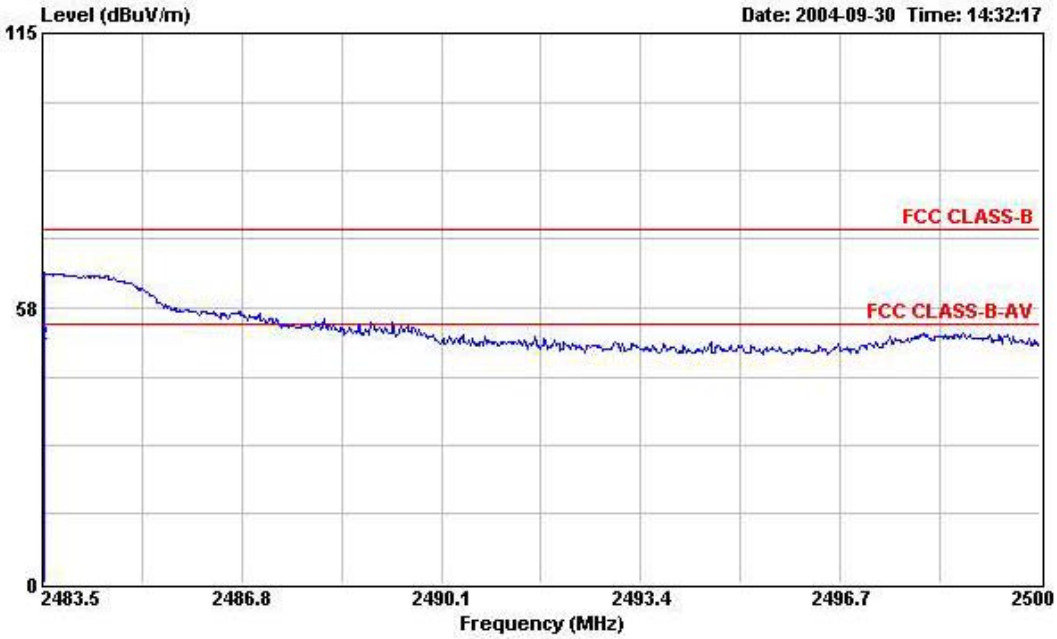
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2483.530	V	-57.6	54.0	-4.5	Average
2483.530	V	-42.2	74.0	-9.1	Peak

Modulation Type: OFDM (Channel 01) :



Modulation Type: OFDM (Channel 11) :



4.3.7 Test Result :

- Modulation Type: CCK (Ant3)
- Test Engineer: Sam Lee

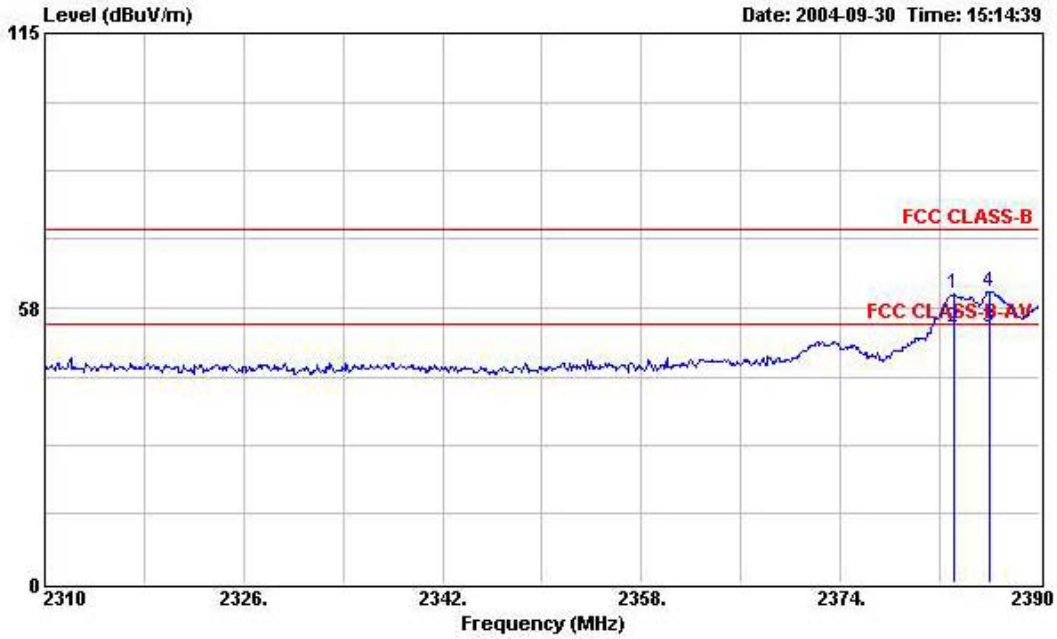
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2383.120	V	-53.7	54.0	-0.6	Average
2383.120	V	-46.7	74.0	-13.6	Peak

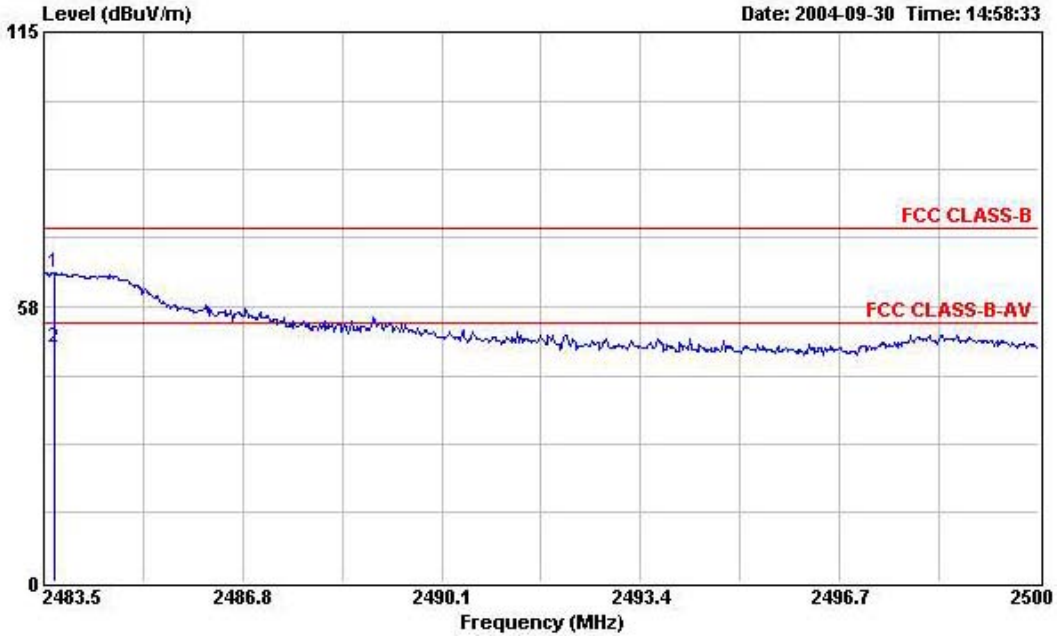
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2483.680	V	-58.2	54.0	-5.1	Average
2483.680	V	-42.3	74.0	-9.2	Peak

Modulation Type: CCK (Channel 01) :



Modulation Type: CCK (Channel 11) :



4.3.8 Test Result :

- Modulation Type: OFDM (Ant3)
- Test Engineer: Sam Lee

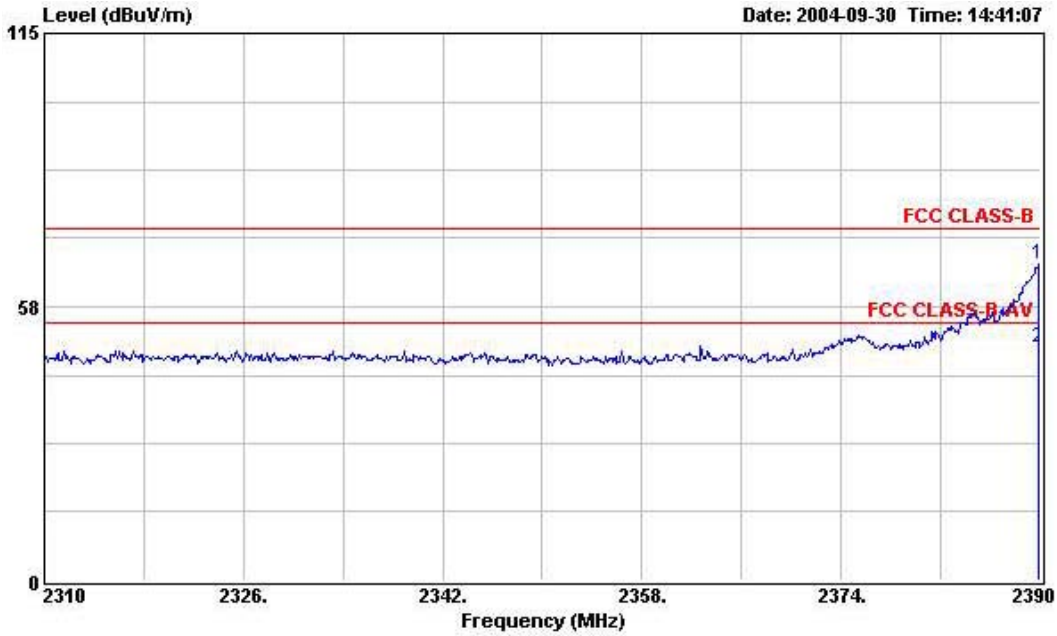
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2389.920	V	-58.0	54.0	-5.0	Average
2389.920	V	-40.7	74.0	-7.6	Peak

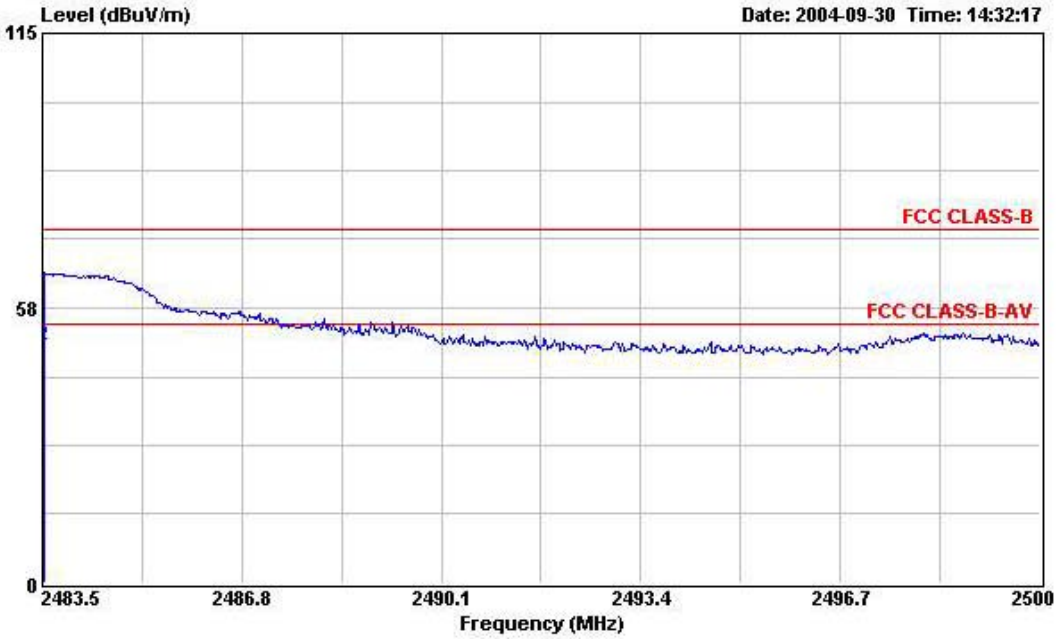
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2483.530	V	-57.6	54.0	-4.5	Average
2483.530	V	-42.2	74.0	-9.1	Peak

Modulation Type: OFDM (Channel 01) :



Modulation Type: OFDM (Channel 11) :



4.3.9 Test Result :

- Modulation Type: CCK (Ant4)
- Test Engineer: Sam Lee

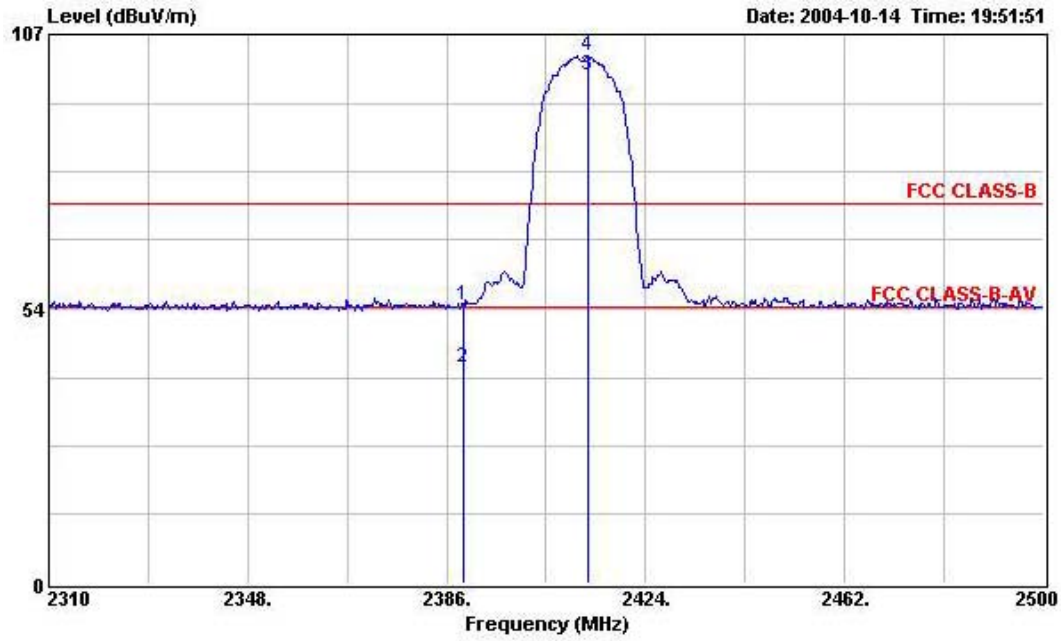
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2389.150	H	-64.9	54.0	-11.8	Average
2389.150	H	-52.7	74.0	-19.6	Peak

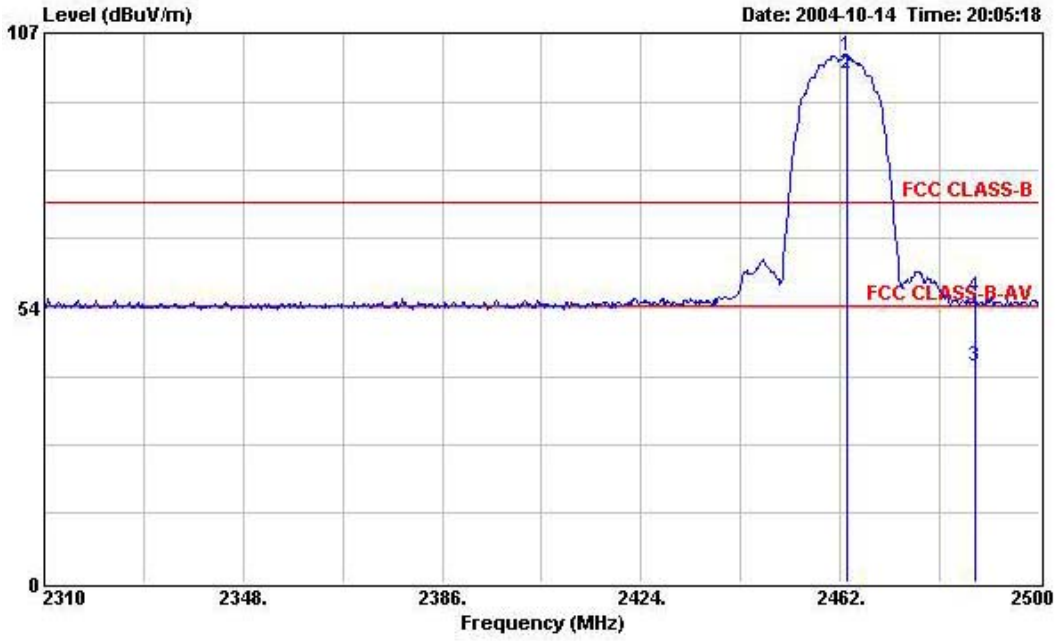
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2487.650	H	-64.9	54.0	-11.8	Average
2487.650	H	-51.6	74.0	-18.5	Peak

Modulation Type: CCK (Channel 01)：



Modulation Type: CCK (Channel 11)：



4.3.10 Test Result :

- Modulation Type: OFDM (Ant4)
- Test Engineer: Sam Lee

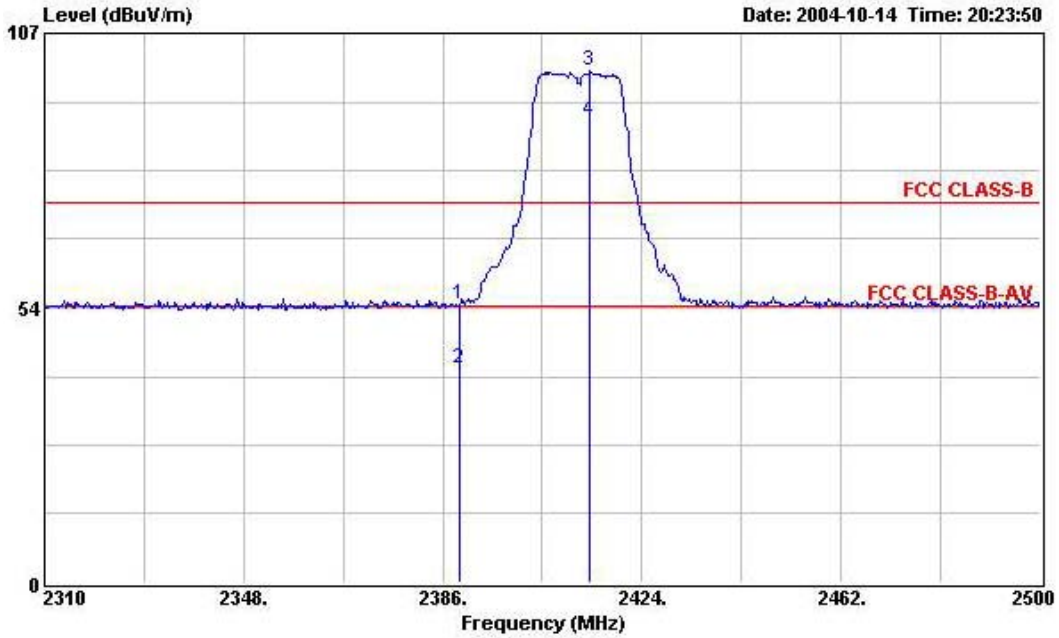
(A) Left Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2389.230	H	-65.3	54.0	-12.2	Average
2389.230	H	-52.7	74.0	-19.6	Peak

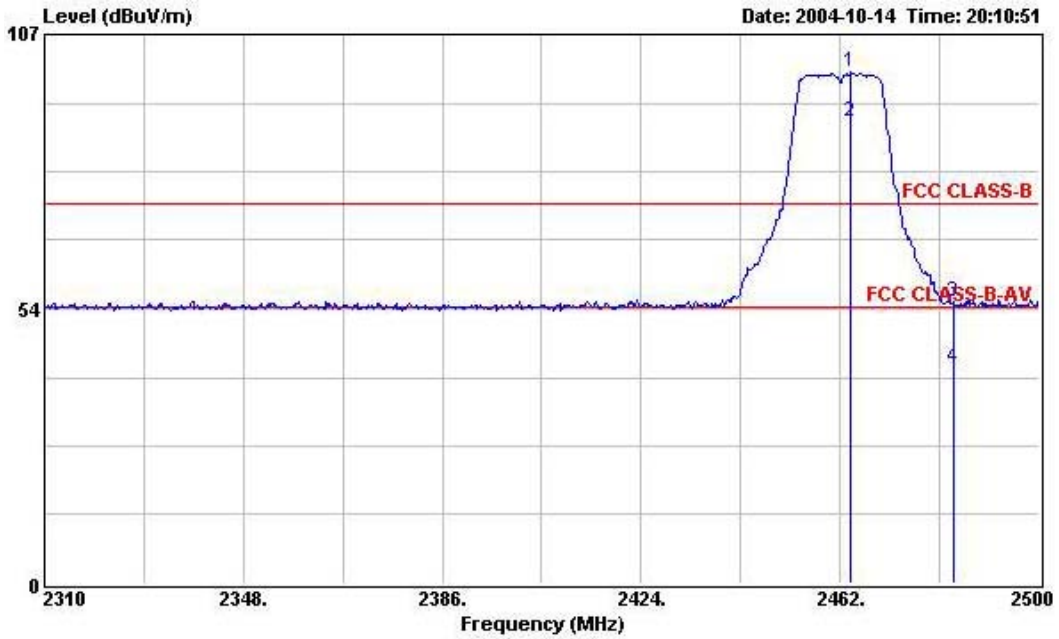
(B) Right Edge

Frequency (MHz)	Antenna Polarization	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Remark
2483.660	H	-64.9	54.0	-11.9	Average
2483.660	H	-52.3	74.0	-19.2	Peak

Modulation Type: OFDM (Channel 01) :



Modulation Type: OFDM (Channel 11) :



4.4. Test of AC Power Line Conducted Emission

4.4.1 Measuring Instruments

Please reference item 1~4 in chapter 6 for the instruments used for testing.

4.4.2 Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connected to the other LISNs. The LISN should provides 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Use the Channel & Power Controlling software to make the EUT working on selected channel and expected output power, then use the “H” Patter Generator software to make the supporting equipments stay on working condition.
7. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
8. The measurement has to be done between each power line and ground at the power terminal for each RF channel. Only one RF channel has to be investigated since this test is independent with the RF channel selection.

4.4.3 Test Result of Conducted Emission

Test Mode	RF Link	Tested By	Sky Wu
Temperature / Humidity	24deg. C / 49%		

Line to Ground

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.2098020	44.48	-18.73	63.21	44.37	0.10	0.01	QP
2	0.2098020	39.72	-13.49	53.21	39.61	0.10	0.01	Average
3	0.2787730	33.60	-27.25	60.85	33.49	0.10	0.01	QP
4	0.2787730	27.07	-23.78	50.85	26.96	0.10	0.01	Average
5	0.3501520	37.25	-21.71	58.96	37.13	0.10	0.02	QP
6	0.3501520	37.51	-11.45	48.96	37.39	0.10	0.02	Average
7	1.543	34.64	-21.36	56.00	34.51	0.10	0.03	QP
8	1.543	34.30	-11.70	46.00	34.17	0.10	0.03	Average
9	9.611	37.57	-22.43	60.00	37.26	0.20	0.11	QP
10	9.611	36.30	-13.70	50.00	35.99	0.20	0.11	Average
11	27.567	36.12	-23.88	60.00	35.49	0.40	0.23	QP
12	27.567	35.33	-14.67	50.00	34.70	0.40	0.23	Average

Neutral to Ground

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.2107440	41.02	-22.16	63.18	40.91	0.10	0.01	QP
2	0.2107440	32.78	-20.40	53.18	32.67	0.10	0.01	Average
3	1.193	36.58	-19.42	56.00	36.44	0.10	0.04	QP
4	1.193	35.63	-10.37	46.00	35.49	0.10	0.04	Average
5	2.033	36.66	-9.34	46.00	36.54	0.10	0.02	Average
6	2.033	36.96	-19.04	56.00	36.84	0.10	0.02	QP
7	3.157	31.24	-14.76	46.00	31.09	0.10	0.05	Average
8	3.157	35.29	-20.71	56.00	35.14	0.10	0.05	QP
9	9.051	34.55	-15.45	50.00	34.25	0.19	0.11	Average
10	9.051	35.88	-24.12	60.00	35.58	0.19	0.11	QP
11	27.564	31.46	-18.54	50.00	30.73	0.50	0.23	Average
12	27.564	35.67	-24.33	60.00	34.94	0.50	0.23	QP

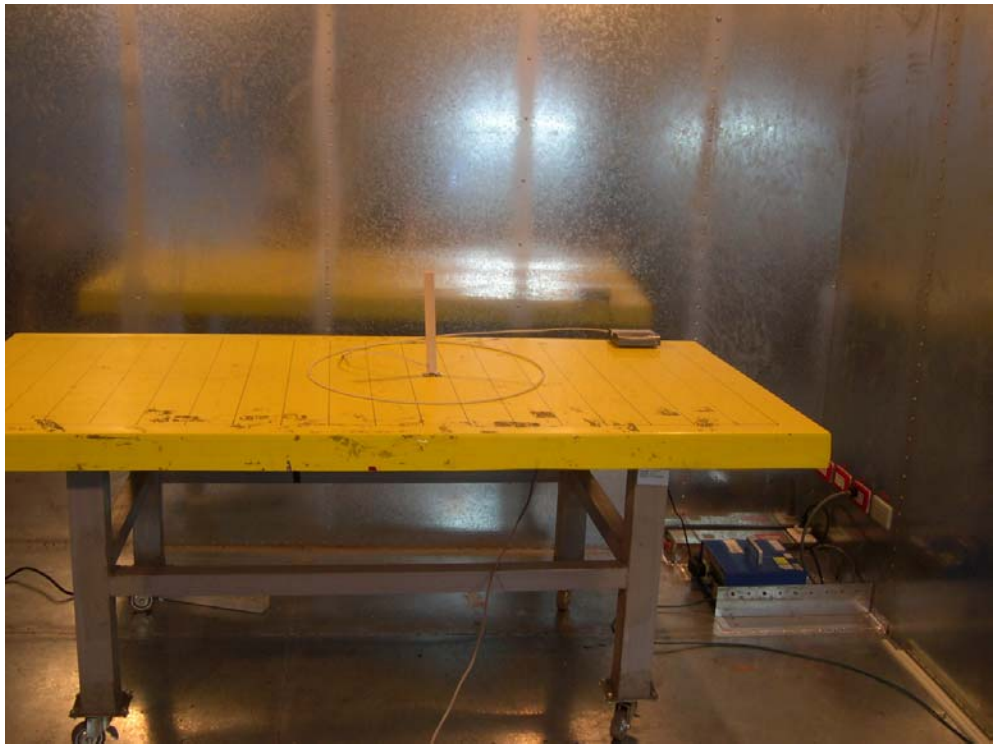
Remark: The conduction testing is independent of antenna change, so only one test is required.

4.4.4 Photographs of Conducted Emission Test Configuration

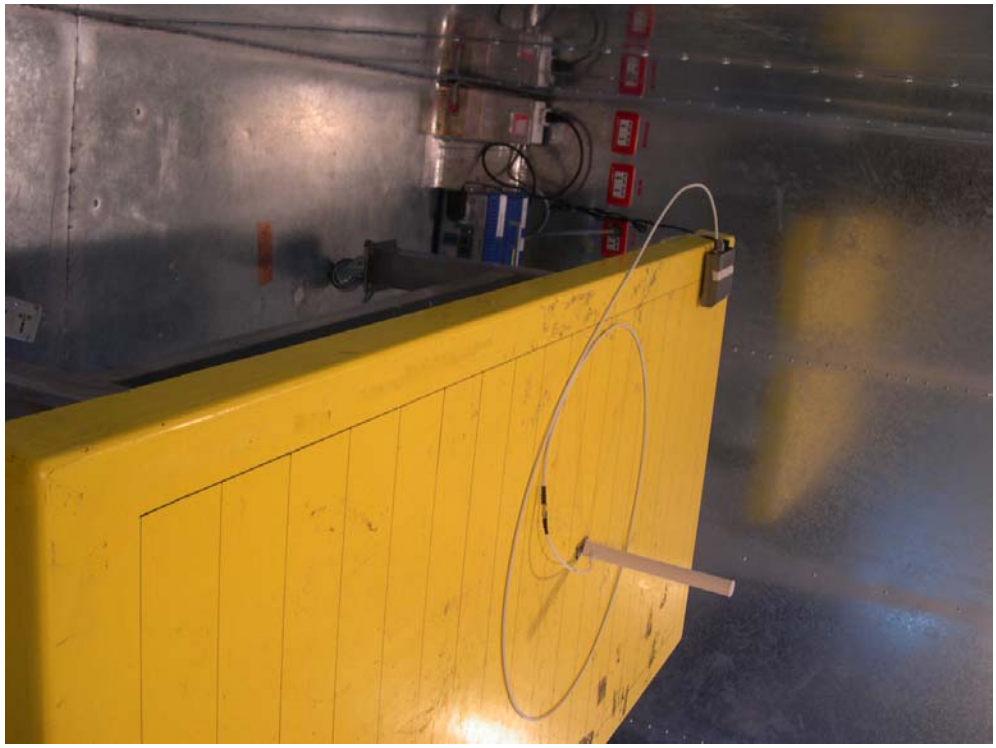
- The photographs show the configuration that generates the maximum emission.

Ant 1

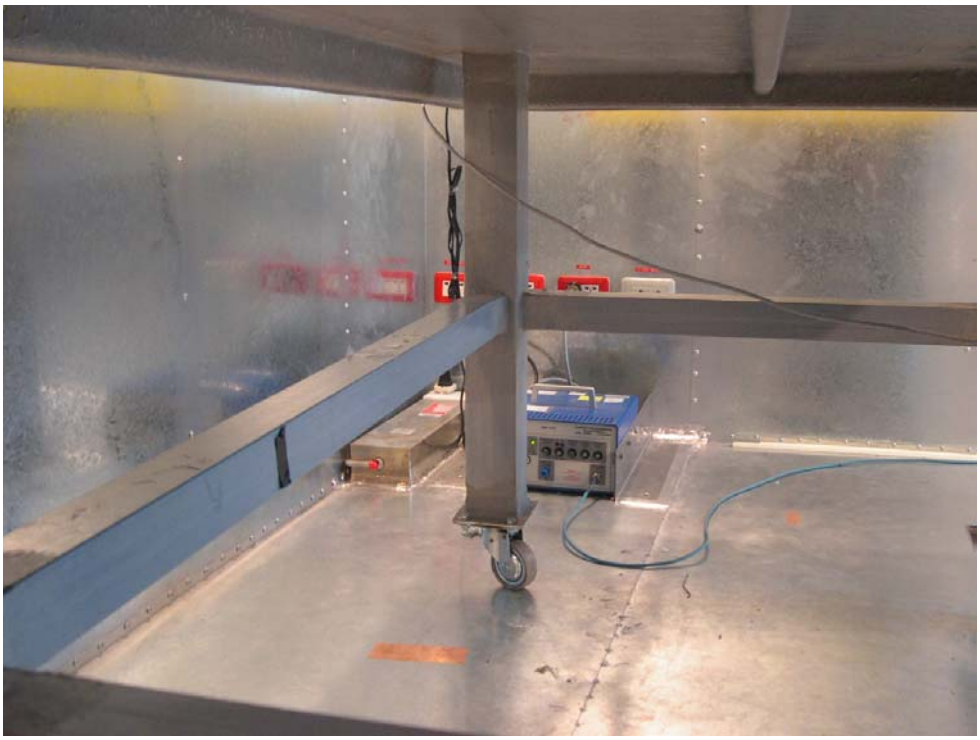
FRONT VIEW



REAR VIEW

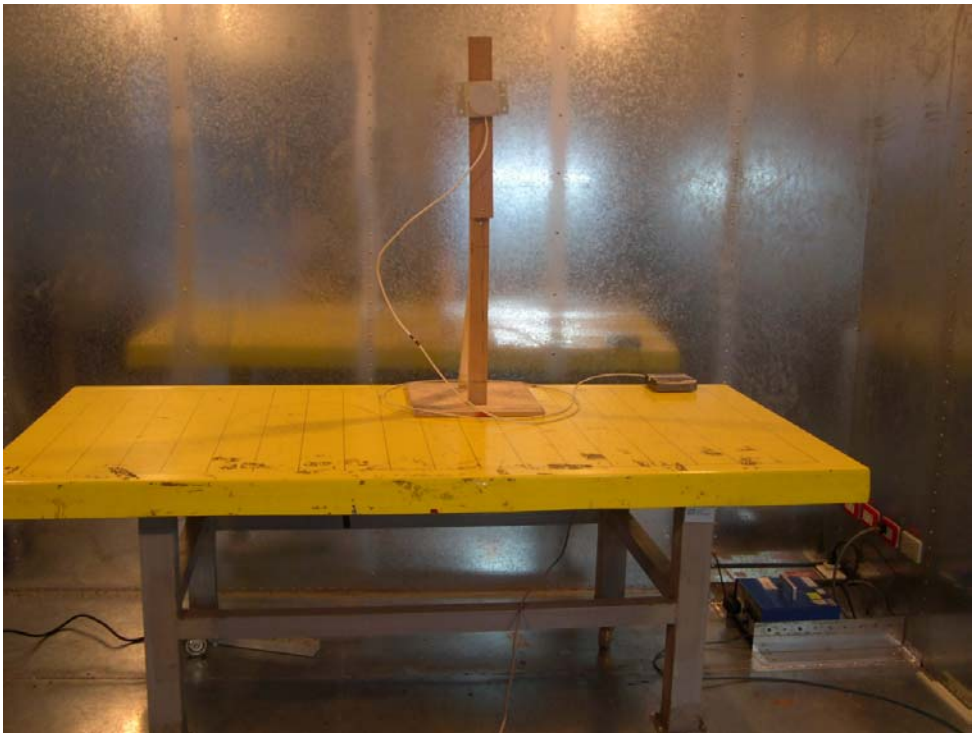


SIDE VIEW

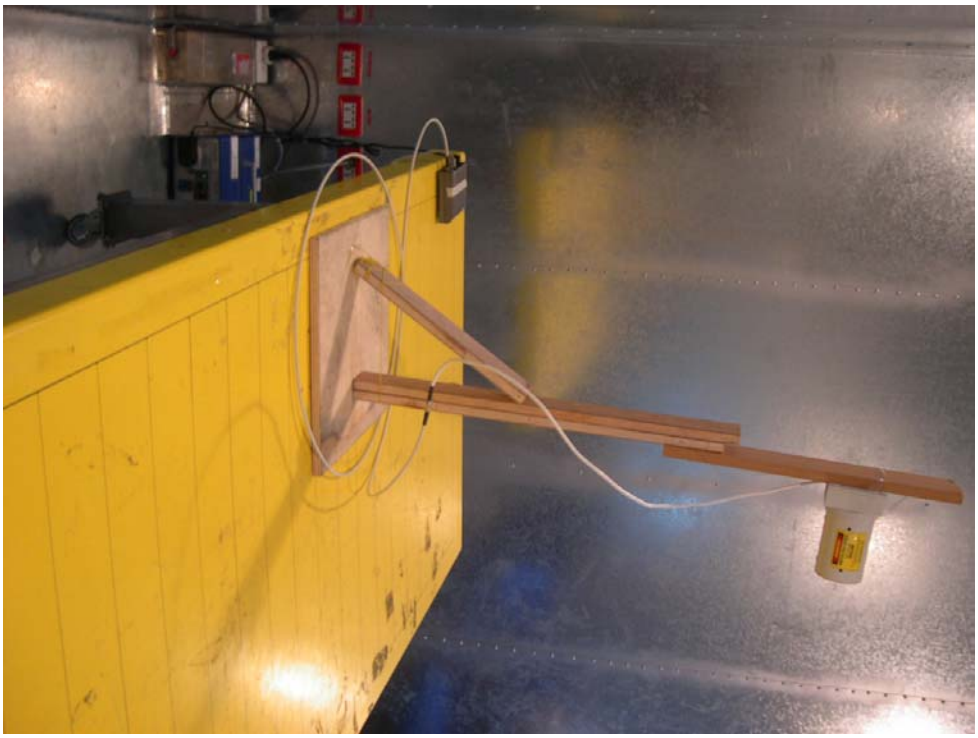


Ant 2

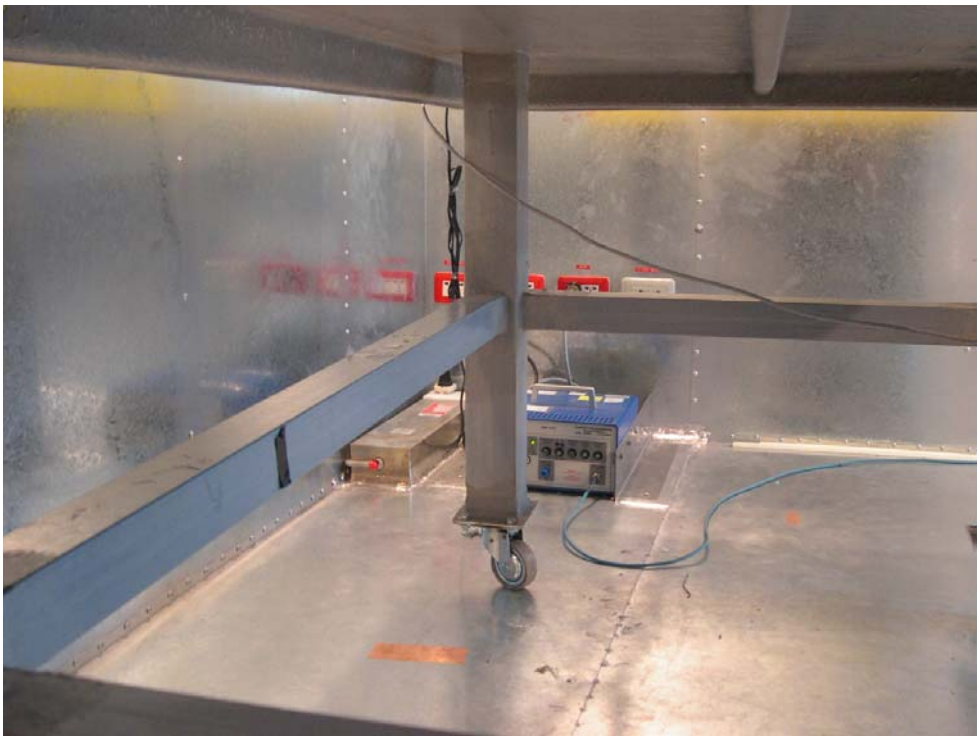
FRONT VIEW



REAR VIEW

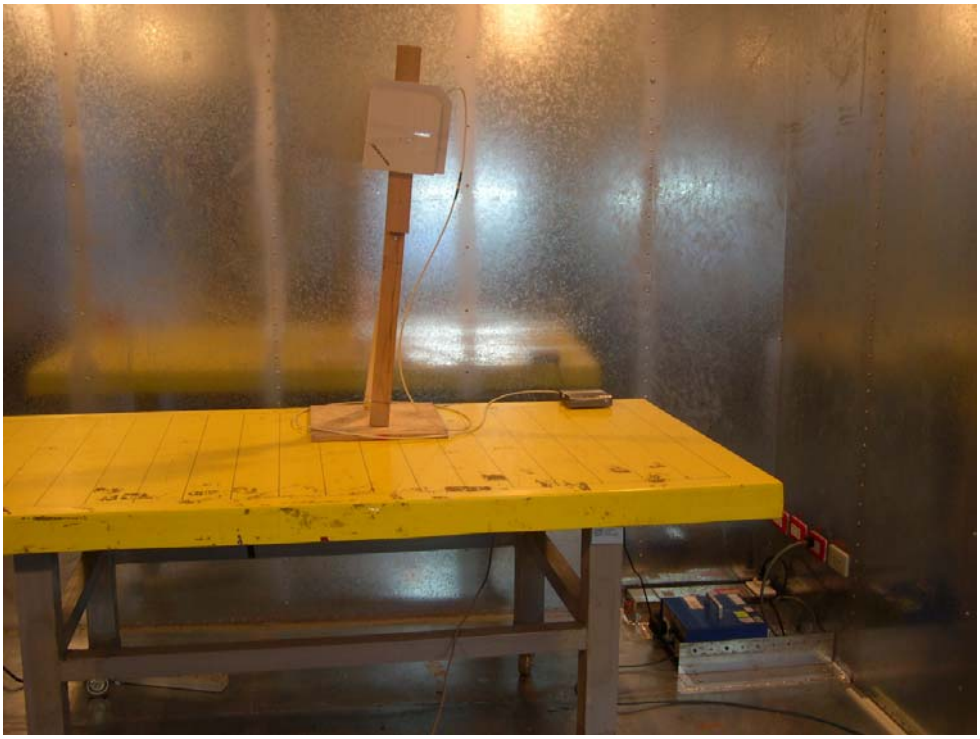


SIDE VIEW

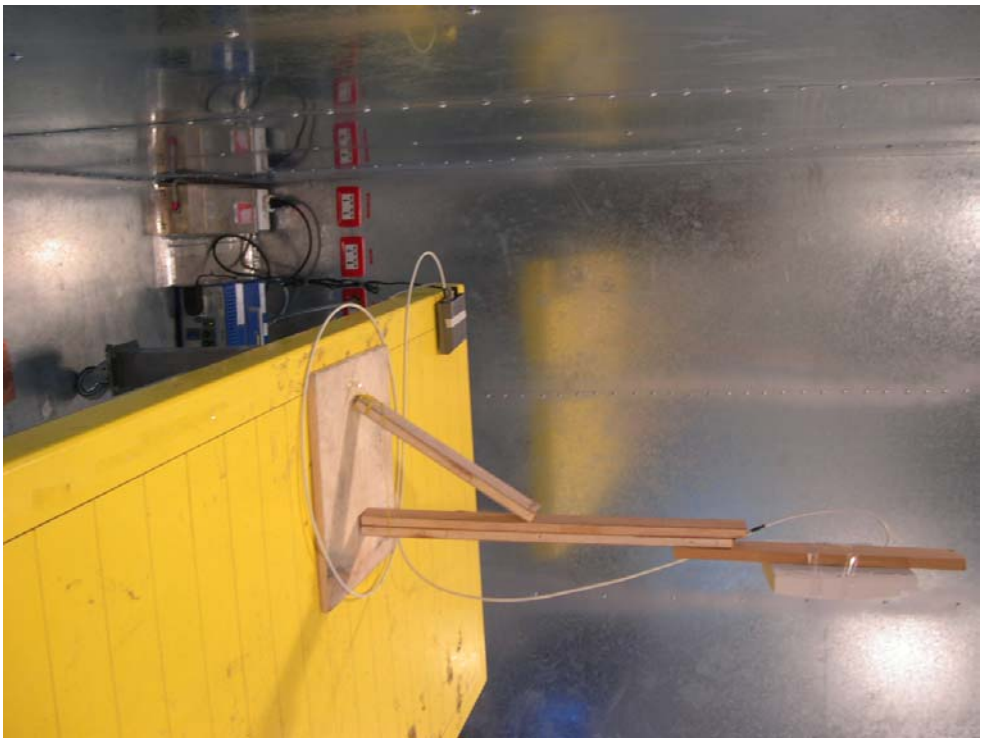


Ant 3

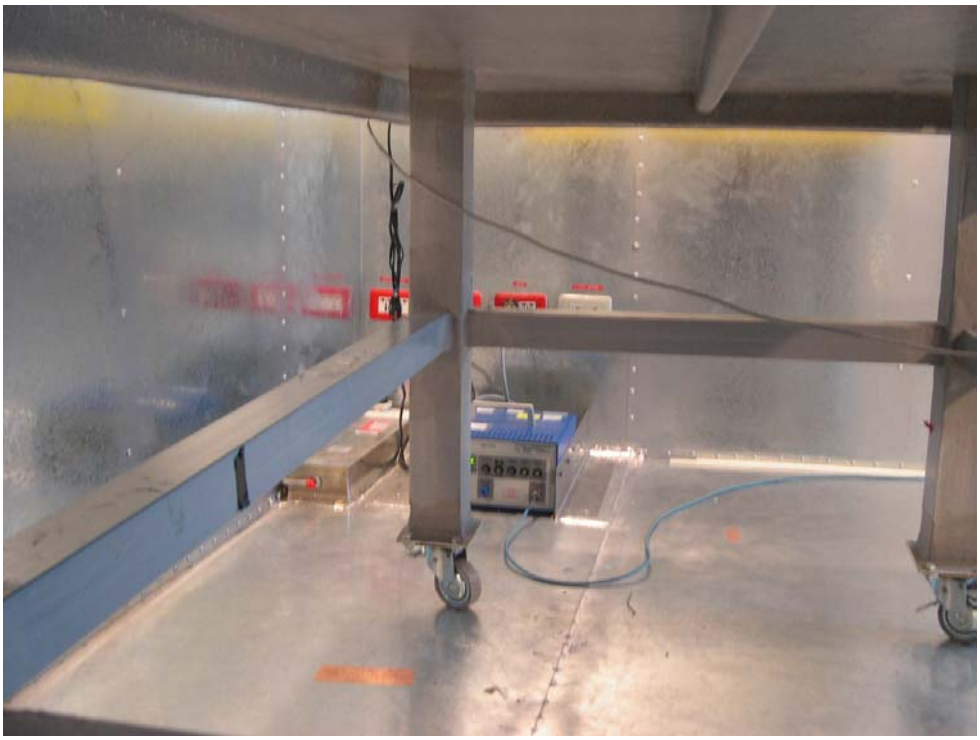
FRONT VIEW



REAR VIEW

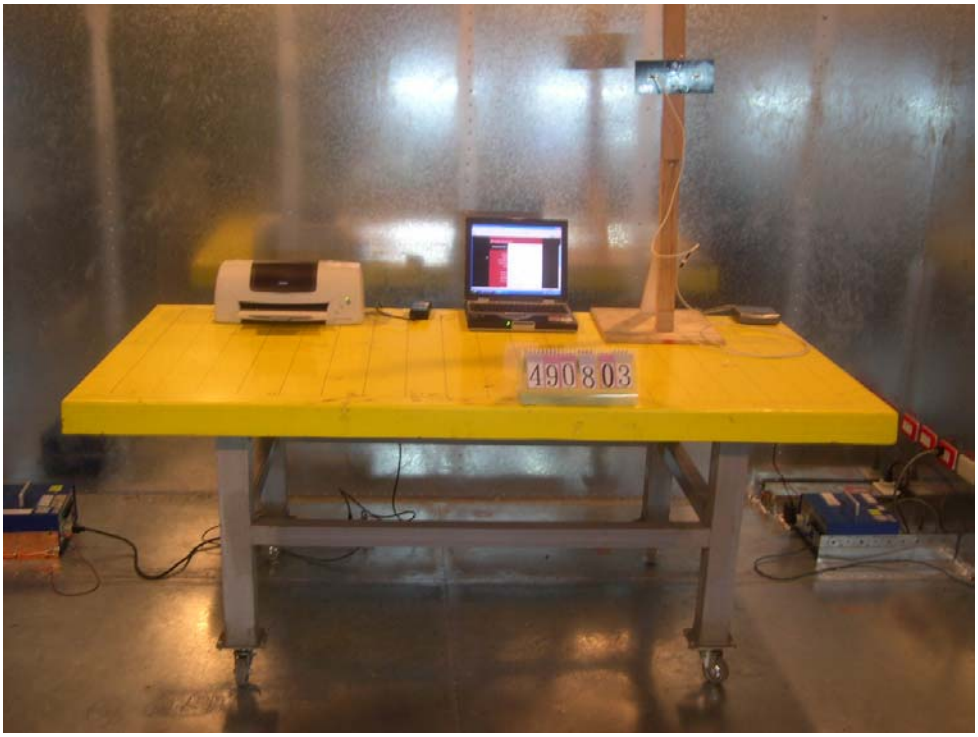


SIDE VIEW

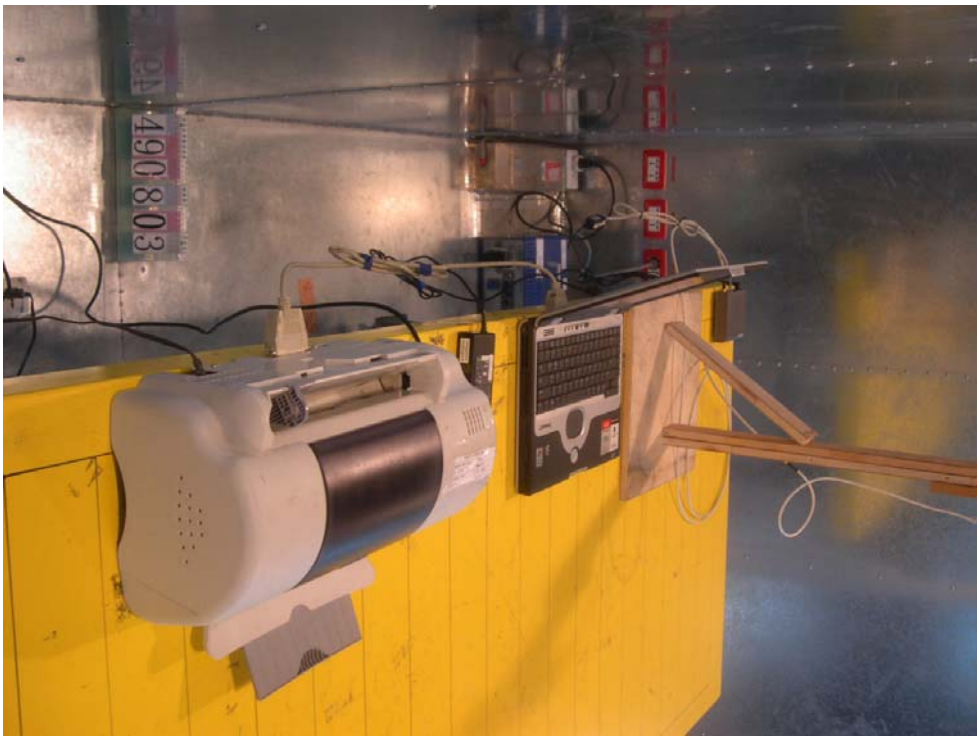


Ant 4

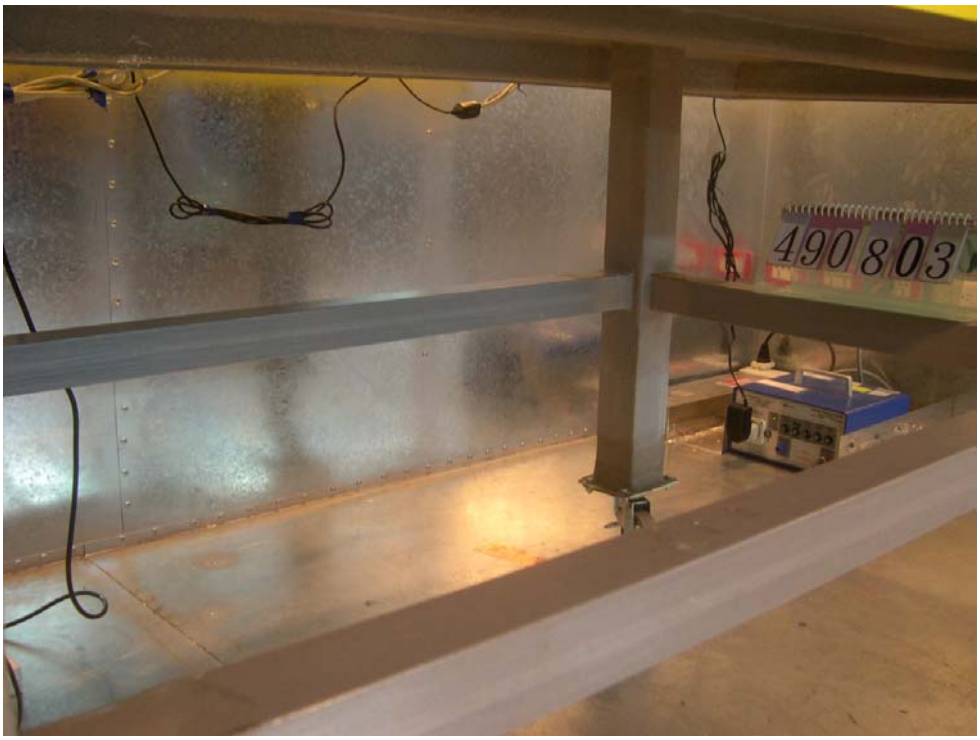
FRONT VIEW



REAR VIEW



SIDE VIEW



4.5. Test of Spurious Radiated Emission

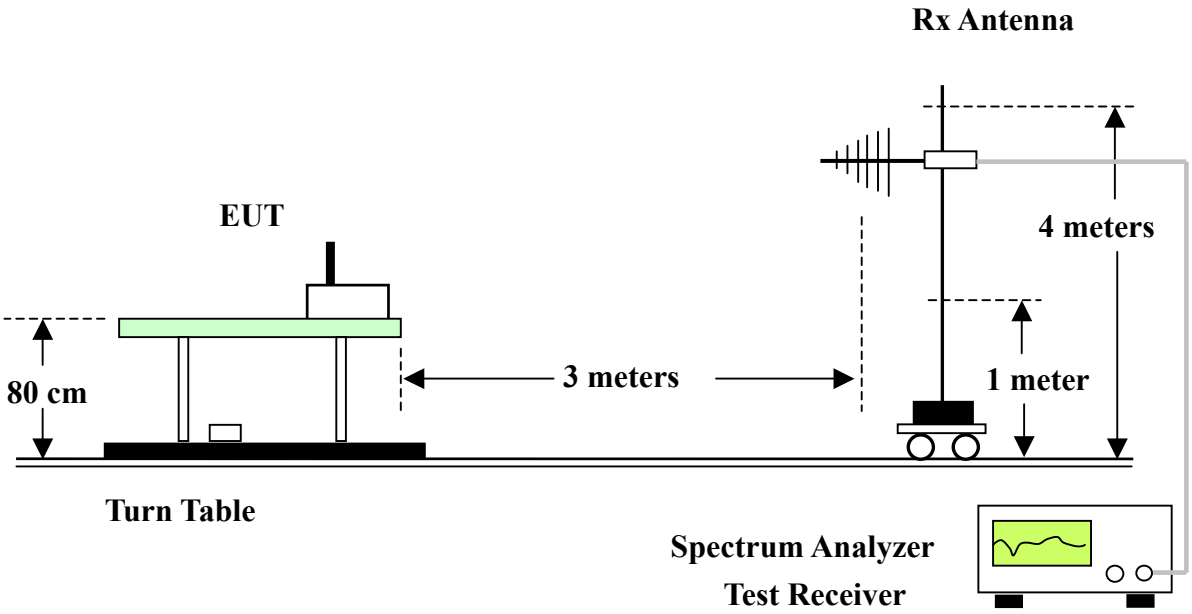
4.5.1 Measuring Instruments

Please reference item 5~16 in chapter 6 for the instruments used for testing.

4.5.2 Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turn table.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10. If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.
11. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

4.5.3 Test Setup Layout



4.5.4 Test Results and Limit

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Test Mode	CH 11 OFDM (Ant1)	**Temperature**	24 deg. C	**Tested By**	Steve Chen
Freq. Range	30MHz~1GHz	**Humidity**	64%		

(A) Polarization: Horizontal

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1		99.700	23.64	-19.86	43.50	40.78	8.98	1.78	27.90	Peak	---	---
2		127.750	23.32	-20.18	43.50	36.83	12.27	2.06	27.84	Peak	---	---
3		200.000	33.40	-10.10	43.50	42.73	15.80	2.57	27.70	Peak	---	---
1		200.000	32.01	-11.49	43.50	40.94	16.20	2.57	27.70	Peak	---	---
2		298.400	39.86	-6.14	46.00	50.34	13.75	3.08	27.31	Peak	---	---
3	!	359.200	42.53	-3.47	46.00	51.19	15.60	3.34	27.60	Peak	151	187

(B) Polarization: Vertical

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1		39.860	27.39	-12.61	40.00	41.76	12.58	1.07	28.02	Peak	---	---
2		127.750	28.92	-14.58	43.50	42.43	12.27	2.06	27.84	Peak	---	---
3		139.990	28.04	-15.46	43.50	41.21	12.60	2.05	27.82	Peak	---	---
1		231.200	35.67	-10.33	46.00	46.73	13.77	2.75	27.58	Peak	---	---
2		298.400	32.45	-13.55	46.00	42.93	13.75	3.08	27.31	Peak	---	---
3		439.200	34.88	-11.12	46.00	42.90	16.49	3.64	28.15	Peak	---	---

Modulation Type	CCK (Ant1)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2389.920	49.11	-4.89	54.00	58.72	28.27	1.72	39.60	Average	107	149
1	1102.000	36.07	-17.93	54.00	49.67	24.40	1.23	39.23	Average	---	---
2	1294.000	35.71	-18.29	54.00	48.79	24.75	1.37	39.20	Average	---	---
3	2086.000	38.95	-15.05	54.00	49.33	27.60	1.66	39.64	Average	---	---
1	4822.000	46.83	-7.17	54.00	51.50	33.00	2.47	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2384.480	53.10	-20.90	74.00	62.71	28.27	1.72	39.60	Peak	---	---
2	2384.480	46.43	-7.57	54.00	56.04	28.27	1.72	39.60	Average	---	---
3	2386.320	53.64	-20.36	74.00	63.25	28.27	1.72	39.60	Peak	---	---
4	2386.320	47.06	-6.94	54.00	56.67	28.27	1.72	39.60	Average	---	---
5	2389.920	48.43	-5.57	54.00	58.04	28.27	1.72	39.60	Average	---	---
6	2389.920	54.17	-19.83	74.00	63.78	28.27	1.72	39.60	Peak	---	---
1	2334.000	45.08	-8.92	54.00	54.84	28.15	1.70	39.61	Average	---	---
2	2374.000	45.57	-8.43	54.00	55.22	28.24	1.71	39.60	Average	---	---
3	2654.000	48.28	-5.72	54.00	56.81	29.02	1.97	39.52	Average	---	---
1	4822.000	45.10	-8.90	54.00	49.77	33.00	2.47	40.14	Average	---	---

Modulation Type	CCK (Ant1)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1102.000	36.43	-17.57	54.00	50.03	24.40	1.23	39.23	Average	---	---
2	1198.000	35.24	-18.76	54.00	48.66	24.58	1.22	39.22	Average	---	---
1	4876.000	48.23	-5.77	54.00	52.75	33.10	2.52	40.14	Average	105	218

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2116.000	42.23	-11.77	54.00	52.52	27.67	1.68	39.64	Average	---	---
2	2532.000	47.47	-6.53	54.00	56.53	28.64	1.87	39.57	Average	---	---
3	2652.000	47.83	-6.17	54.00	56.37	29.01	1.97	39.52	Average	---	---
1	4876.000	44.61	-9.39	54.00	49.13	33.10	2.52	40.14	Average	---	---

Modulation Type	CCK (Ant1)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1100.000	35.87	-18.13	54.00	49.47	24.40	1.23	39.23	Average	---	---
2	1678.000	37.66	-16.34	54.00	49.49	25.97	1.55	39.35	Average	---	---
3	2142.000	40.37	-13.63	54.00	50.58	27.73	1.69	39.63	Average	---	---
1	4924.000	48.06	-5.94	54.00	52.56	33.18	2.47	40.15	Average	105	220

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.530	54.59	-19.41	74.00	63.93	28.46	1.79	39.59	Peak	---	---
2	2483.530	45.54	-8.46	54.00	54.88	28.46	1.79	39.59	Average	---	---
1	2142.000	42.44	-11.56	54.00	52.65	27.73	1.69	39.63	Average	---	---
2	2334.000	42.67	-11.33	54.00	52.43	28.15	1.70	39.61	Average	---	---
3	2556.000	47.39	-6.61	54.00	56.35	28.71	1.89	39.56	Average	---	---
1	4926.000	44.95	-9.05	54.00	49.44	33.19	2.47	40.15	Average	---	---

Modulation Type	OFDM (Ant1)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2389.920	49.22	-4.78	54.00	58.83	28.27	1.72	39.60	Average	106	251
1	1102.000	35.61	-18.39	54.00	49.21	24.40	1.23	39.23	Average	---	---
2	1198.000	35.67	-18.33	54.00	49.09	24.58	1.22	39.22	Average	---	---
3	2374.000	39.60	-14.40	54.00	49.25	28.24	1.71	39.60	Average	---	---
1	4828.000	44.10	-9.90	54.00	48.74	33.01	2.49	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2389.920	59.46	-14.54	74.00	69.07	28.27	1.72	39.60	Peak	---	---
2	2389.920	42.46	-11.54	54.00	52.07	28.27	1.72	39.60	Average	---	---
1	2212.000	40.83	-13.17	54.00	50.87	27.88	1.70	39.62	Average	---	---
2	2364.000	45.93	-8.07	54.00	55.61	28.22	1.70	39.60	Average	---	---
3	2622.000	46.72	-7.28	54.00	55.41	28.92	1.93	39.54	Average	---	---
1	4822.000	44.81	-9.19	54.00	49.48	33.00	2.47	40.14	Average	---	---

Modulation Type	OFDM (Ant1)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1102.000	35.96	-18.04	54.00	49.56	24.40	1.23	39.23	Average	---	---
2	1294.000	35.04	-18.96	54.00	48.12	24.75	1.37	39.20	Average	---	---
3	1574.000	36.47	-17.53	54.00	48.74	25.50	1.49	39.26	Average	---	---
1	4876.000	44.61	-9.39	54.00	49.13	33.10	2.52	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2116.000	41.70	-12.30	54.00	51.99	27.67	1.68	39.64	Average	---	---
2	2356.000	42.76	-11.24	54.00	52.48	28.20	1.69	39.61	Average	---	---
3	2574.000	46.72	-7.28	54.00	55.60	28.77	1.90	39.55	Average	106	254
1	4876.000	46.34	-7.66	54.00	50.86	33.10	2.52	40.14	Average	---	---

Modulation Type	OFDM (Ant1)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1294.000	35.19	-18.81	54.00	48.27	24.75	1.37	39.20	Average	---	---
2	1678.000	36.82	-17.18	54.00	48.65	25.97	1.55	39.35	Average	---	---
3	2500.000	40.89	-13.11	54.00	50.08	28.54	1.85	39.58	Average	---	---
1	4924.000	46.88	-7.12	54.00	51.38	33.18	2.47	40.15	Average	104	235

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.680	69.64	-4.36	74.00	78.98	28.46	1.79	39.59	Peak	---	---
2	2483.680	52.17	-1.83	54.00	61.51	28.46	1.79	39.59	Average	---	---
1	2140.000	41.78	-12.22	54.00	52.00	27.72	1.69	39.63	Average	---	---
2	2348.000	43.35	-10.65	54.00	53.09	28.19	1.68	39.61	Average	---	---
3	2500.000	47.51	-26.49	74.00	56.70	28.54	1.85	39.58	Peak	---	---
1	4926.000	45.72	-28.28	74.00	50.21	33.19	2.47	40.15	Average	---	---

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Test Mode	CH 11 OFDM (Ant2)	**Temperature**	24 deg. C	**Tested By**	Steve Chen
Freq. Range	30MHz~1GHz	**Humidity**	64%		

(A) Polarization: Horizontal

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1		30.340	22.65	-17.35	40.00	36.83	12.92	0.95	28.05	Peak	---	---
2		92.220	21.96	-21.54	43.50	39.63	8.61	1.63	27.91	Peak	---	---
3		200.000	32.95	-10.55	43.50	42.28	15.80	2.57	27.70	Peak	---	---
1		200.000	32.44	-11.06	43.50	41.37	16.20	2.57	27.70	Peak	---	---
2	!	298.400	40.02	-5.98	46.00	50.50	13.75	3.08	27.31	Peak	---	---
3	!	359.200	42.60	-3.40	46.00	51.26	15.60	3.34	27.60	Peak	102	128

(B) Polarization: Vertical

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	!	38.670	34.28	-5.72	40.00	48.85	12.41	1.05	28.03	Peak	---	---
2		127.750	28.28	-15.22	43.50	41.79	12.27	2.06	27.84	Peak	---	---
3		139.820	27.80	-15.70	43.50	40.98	12.60	2.04	27.82	Peak	---	---
1		298.400	32.61	-13.39	46.00	43.09	13.75	3.08	27.31	Peak	---	---
2		359.200	30.79	-15.21	46.00	39.45	15.60	3.34	27.60	Peak	---	---
3		439.200	35.06	-10.94	46.00	43.08	16.49	3.64	28.15	Peak	---	---

Modulation Type	CCK (Ant2)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1150.000	36.39	-17.61	54.00	49.90	24.49	1.22	39.22	Average	---	---
2	2380.000	40.73	-13.27	54.00	50.36	28.26	1.71	39.60	Average	---	---
3	2676.000	41.98	-12.02	54.00	50.43	29.09	1.97	39.51	Average	---	---
1	4822.000	46.09	-7.91	54.00	50.76	33.00	2.47	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2372.000	55.64	-18.36	74.00	65.30	28.24	1.70	39.60	Peak	---	---
2	2372.000	41.67	-12.33	54.00	51.33	28.24	1.70	39.60	Average	---	---
3	2375.120	40.79	-13.21	54.00	50.43	28.25	1.71	39.60	Average	---	---
4	2375.120	55.75	-18.25	74.00	65.39	28.25	1.71	39.60	Peak	---	---
5	2383.120	70.24	-3.76	74.00	79.86	28.27	1.71	39.60	Peak	---	---
6	2383.120	52.71	-21.29	74.00	62.33	28.27	1.71	39.60	Average	---	---
7	2386.000	70.28	-3.72	74.00	79.89	28.27	1.72	39.60	Peak	---	---
8	2386.000	53.37	-0.63	54.00	62.98	28.27	1.72	39.60	Average	---	---
1	1198.000	37.89	-16.11	54.00	51.31	24.58	1.22	39.22	Average	---	---
2	2374.000	53.48	-20.52	74.00	63.13	28.24	1.71	39.60	Peak	---	---
3	2374.000	43.12	-10.88	54.00	52.77	28.24	1.71	39.60	Average	---	---
4	2558.000	51.72	-22.28	74.00	60.67	28.72	1.89	39.56	Peak	---	---
5	2558.000	41.54	-12.46	54.00	50.49	28.72	1.89	39.56	Average	---	---
1	4826.000	50.69	-3.31	54.00	55.33	33.01	2.49	40.14	Average	103	256

Modulation Type	CCK (Ant2)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1150.000	36.38	-17.62	54.00	49.89	24.49	1.22	39.22	Average	---	---
2	1198.000	36.79	-17.21	54.00	50.21	24.58	1.22	39.22	Average	---	---
3	2756.000	42.29	-11.71	54.00	50.48	29.34	1.95	39.48	Average	---	---
1	4876.000	50.10	-3.90	54.00	54.62	33.10	2.52	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2132.000	43.21	-10.79	54.00	53.46	27.70	1.68	39.63	Average	---	---
2	2366.000	50.46	-3.54	54.00	60.13	28.23	1.70	39.60	Average	105	249
3	2502.000	50.08	-3.92	54.00	59.27	28.54	1.85	39.58	Average	---	---
1	4876.000	49.10	-4.90	54.00	53.62	33.10	2.52	40.14	Average	---	---

Modulation Type	CCK (Ant2)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1198.000	36.75	-17.25	54.00	50.17	24.58	1.22	39.22	Average	---	---
2	2334.000	39.71	-14.29	54.00	49.47	28.15	1.70	39.61	Average	---	---
3	2502.000	40.96	-13.04	54.00	50.15	28.54	1.85	39.58	Average	---	---
1	4924.000	48.06	-5.94	54.00	52.56	33.18	2.47	40.15	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.550	60.09	-13.91	74.00	69.43	28.46	1.79	39.59	Peak	---	---
2	2483.550	53.21	-0.79	54.00	62.55	28.46	1.79	39.59	Average	---	---
3	2488.020	60.26	-13.74	74.00	69.56	28.50	1.79	39.59	Peak	---	---
4	2488.020	53.46	-0.54	54.00	62.76	28.50	1.79	39.59	Average	---	---
5	2490.860	59.98	-14.02	74.00	69.28	28.50	1.79	39.59	Peak	---	---
6	2490.860	53.28	-0.72	54.00	62.58	28.50	1.79	39.59	Average	---	---
1	2134.000	48.11	-5.89	54.00	58.35	27.71	1.68	39.63	Average	---	---
2	2500.000	53.87	-20.13	74.00	63.06	28.54	1.85	39.58	Peak	---	---
3	2500.000	42.49	-11.51	54.00	51.68	28.54	1.85	39.58	Average	---	---
4	2774.000	47.48	-6.52	54.00	55.63	29.39	1.94	39.48	Average	---	---
1	4926.000	52.95	-21.05	74.00	57.44	33.19	2.47	40.15	Peak	---	---
2	4926.000	49.81	-4.19	54.00	54.30	33.19	2.47	40.15	Average	107	188

Modulation Type	OFDM (Ant2)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1150.000	36.29	-17.71	54.00	49.80	24.49	1.22	39.22	Average	---	---
2	1198.000	36.65	-17.35	54.00	50.07	24.58	1.22	39.22	Average	---	---
3	2844.000	41.95	-12.05	54.00	49.84	29.61	1.95	39.45	Average	---	---
1	4822.000	45.62	-8.38	54.00	50.29	33.00	2.47	40.14	Average	106	237

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1198.000	37.46	-16.54	54.00	50.88	24.58	1.22	39.22	Average	---	---
2	2374.000	51.88	-22.12	74.00	61.53	28.24	1.71	39.60	Peak	---	---
3	2374.000	42.53	-11.47	54.00	52.18	28.24	1.71	39.60	Average	---	---
4	2596.000	51.40	-22.60	74.00	60.20	28.84	1.91	39.55	Peak	---	---
5	2596.000	41.66	-12.34	54.00	50.46	28.84	1.91	39.55	Average	---	---
1	2389.920	66.35	-7.65	74.00	75.96	28.27	1.72	39.60	Peak	---	---
2	2389.920	49.00	-5.00	54.00	58.61	28.27	1.72	39.60	Average	---	---
1	4822.000	45.01	-8.99	54.00	49.68	33.00	2.47	40.14	Average	---	---

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Modulation Type	OFDM (Ant2)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1102.000	36.49	-17.51	54.00	50.09	24.40	1.23	39.23	Average	---	---
2	1198.000	36.70	-17.30	54.00	50.12	24.58	1.22	39.22	Average	---	---
3	2270.000	39.59	-14.41	54.00	49.47	28.01	1.73	39.62	Average	---	---
1	4876.000	47.43	-6.57	54.00	51.95	33.10	2.52	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2350.000	50.08	-3.92	54.00	59.82	28.19	1.68	39.61	Average	105	260
2	2614.000	51.13	-22.87	74.00	59.86	28.89	1.92	39.54	Peak	---	---
3	2614.000	41.50	-12.50	54.00	50.23	28.89	1.92	39.54	Average	---	---
4	2670.000	51.22	-22.78	74.00	59.69	29.07	1.98	39.52	Peak	---	---
5	2670.000	43.21	-10.79	54.00	51.68	29.07	1.98	39.52	Average	---	---
1	4876.000	46.97	-7.03	54.00	51.49	33.10	2.52	40.14	Average	---	---

Modulation Type	OFDM (Ant2)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1678.000	38.48	-15.52	54.00	50.31	25.97	1.55	39.35	Average	---	---
2	2014.000	39.63	-14.37	54.00	50.27	27.44	1.57	39.65	Average	---	---
3	2500.000	41.64	-12.36	54.00	50.83	28.54	1.85	39.58	Average	---	---
1	4926.000	46.39	-7.61	54.00	50.88	33.19	2.47	40.15	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.530	64.86	-9.14	74.00	74.20	28.46	1.79	39.59	Peak	---	---
2	2483.530	49.48	-4.52	54.00	58.82	28.46	1.79	39.59	Average	---	---
1	2118.000	45.07	-8.93	54.00	55.36	27.67	1.68	39.64	Average	---	---
2	2350.000	49.36	-4.64	54.00	59.10	28.19	1.68	39.61	Average	102	135
3	2596.000	52.48	-21.52	74.00	61.28	28.84	1.91	39.55	Peak	---	---
4	2596.000	42.54	-11.46	54.00	51.34	28.84	1.91	39.55	Average	---	---
1	4924.000	44.99	-9.01	54.00	49.49	33.18	2.47	40.15	Average	---	---

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Test Mode	CH 11 OFDM (Ant3)	**Temperature**	24 deg. C	**Tested By**	Steve Chen
Freq. Range	30MHz~1GHz	**Humidity**	64%		

(A) Polarization: Horizontal

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1		127.750	24.52	-18.98	43.50	38.03	12.27	2.06	27.84	Peak	---	---
2		170.590	25.00	-18.50	43.50	36.65	13.74	2.37	27.76	Peak	---	---
3		200.000	33.73	-9.77	43.50	43.06	15.80	2.57	27.70	Peak	---	---
1	!	298.400	40.01	-5.99	46.00	50.49	13.75	3.08	27.31	Peak	---	---
2	!	359.200	42.42	-3.58	46.00	51.08	15.60	3.34	27.60	Peak	102	137
3		957.600	35.57	-10.43	46.00	35.20	22.96	5.65	28.24	Peak	---	---

(B) Polarization: Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	39.860	27.88	-12.12	40.00	42.25	12.58	1.07	28.02	Peak	---	---
2	127.750	27.15	-16.35	43.50	40.66	12.27	2.06	27.84	Peak	---	---
3	139.310	28.36	-15.14	43.50	41.56	12.58	2.04	27.82	Peak	---	---
1	298.400	32.90	-13.10	46.00	43.38	13.75	3.08	27.31	Peak	---	---
2	439.200	34.69	-11.31	46.00	42.71	16.49	3.64	28.15	Peak	---	---
3	957.600	36.44	-9.56	46.00	36.07	22.96	5.65	28.24	Peak	---	---

Modulation Type	CCK (Ant3)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1198.000	35.24	-18.76	54.00	48.66	24.58	1.22	39.22	Average	---	---
2	2372.000	41.14	-12.86	54.00	50.80	28.24	1.70	39.60	Average	---	---
3	2518.000	40.60	-13.40	54.00	49.72	28.59	1.86	39.57	Average	---	---
1	4822.000	44.79	-9.21	54.00	49.46	33.00	2.47	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2383.120	60.36	-13.64	74.00	69.98	28.27	1.71	39.60	Peak	---	---
2	2383.120	53.39	-0.61	54.00	63.01	28.27	1.71	39.60	Average	---	---
3	2386.000	53.38	-0.62	54.00	62.99	28.27	1.72	39.60	Average	---	---
4	2386.000	61.04	-12.96	74.00	70.65	28.27	1.72	39.60	Peak	---	---
1	2150.000	46.86	-7.14	54.00	57.05	27.75	1.69	39.63	Average	---	---
2	2374.000	53.04	-20.96	74.00	62.69	28.24	1.71	39.60	Peak	---	---
3	2374.000	42.71	-11.29	54.00	52.36	28.24	1.71	39.60	Average	---	---
4	2510.000	46.59	-27.41	74.00	55.74	28.57	1.86	39.58	Peak	---	---
5	2510.000	49.42	-4.58	54.00	58.57	28.57	1.86	39.58	Average	102	158
6	2510.000	51.04	-22.96	74.00	60.19	28.57	1.86	39.58	Peak	---	---
1	4822.000	45.39	-8.61	54.00	50.06	33.00	2.47	40.14	Average	---	---

Modulation Type	CCK (Ant3)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2076.000	44.72	-9.28	54.00	55.12	27.58	1.66	39.64	Average	---	---
2	2350.000	41.13	-12.87	54.00	50.87	28.19	1.68	39.61	Average	---	---
3	2508.000	40.68	-13.32	54.00	49.84	28.56	1.86	39.58	Average	---	---
1	4876.000	46.11	-7.89	54.00	50.63	33.10	2.52	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2118.000	47.08	-6.92	54.00	57.37	27.67	1.68	39.64	Average	---	---
2	2348.000	50.46	-3.54	54.00	60.20	28.19	1.68	39.61	Average	108	239
3	2524.000	47.11	-6.89	54.00	56.20	28.61	1.87	39.57	Average	---	---
4	2524.000	52.54	-21.46	74.00	61.63	28.61	1.87	39.57	Peak	---	---
1	4876.000	47.00	-7.00	54.00	51.52	33.10	2.52	40.14	Average	---	---

Modulation Type	CCK (Ant3)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1102.000	36.47	-17.53	54.00	50.07	24.40	1.23	39.23	Average	---	---
2	2308.000	40.87	-13.13	54.00	50.63	28.10	1.75	39.61	Average	---	---
3	2500.000	41.21	-12.79	54.00	50.40	28.54	1.85	39.58	Average	---	---
1	4924.000	44.77	-9.23	54.00	49.27	33.18	2.47	40.15	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.500	59.31	-14.69	74.00	68.65	28.46	1.79	39.59	Peak	---	---
2	2483.500	52.02	-1.98	54.00	61.36	28.46	1.79	39.59	Average	---	---
3	2488.020	60.81	-13.19	74.00	70.11	28.50	1.79	39.59	Peak	---	---
4	2488.020	53.58	-0.42	54.00	62.88	28.50	1.79	39.59	Average	---	---
5	2490.990	59.88	-14.12	74.00	69.18	28.50	1.79	39.59	Peak	---	---
6	2490.990	53.33	-0.67	54.00	62.63	28.50	1.79	39.59	Average	---	---
1	2118.000	47.48	-6.52	54.00	57.77	27.67	1.68	39.64	Average	---	---
2	2140.000	48.19	-5.81	54.00	58.41	27.72	1.69	39.63	Average	---	---
3	2500.000	44.22	-9.78	54.00	53.41	28.54	1.85	39.58	Average	---	---
4	2500.000	53.91	-20.09	74.00	63.10	28.54	1.85	39.58	Peak	---	---
1	4924.000	48.50	-5.50	54.00	53.00	33.18	2.47	40.15	Average	107	151

Modulation Type	OFDM (Ant3)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1198.000	35.62	-18.38	54.00	49.04	24.58	1.22	39.22	Average	---	---
2	1678.000	37.35	-16.65	54.00	49.18	25.97	1.55	39.35	Average	---	---
3	2374.000	41.51	-12.49	54.00	51.16	28.24	1.71	39.60	Average	---	---
1	4822.000	44.92	-9.08	54.00	49.59	33.00	2.47	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2389.920	67.50	-6.50	74.00	77.11	28.27	1.72	39.60	Peak	---	---
2	2389.920	49.62	-4.38	54.00	59.23	28.27	1.72	39.60	Average	---	---
1	2374.000	52.90	-21.10	74.00	62.55	28.24	1.71	39.60	Peak	---	---
2	2374.000	40.84	-13.16	54.00	50.49	28.24	1.71	39.60	Average	---	---
3	2572.000	50.76	-3.24	54.00	59.65	28.76	1.90	39.55	Average	102	213
1	4822.000	44.68	-9.32	54.00	49.35	33.00	2.47	40.14	Average	---	---

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Modulation Type	OFDM (Ant3)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1678.000	37.57	-16.43	54.00	49.40	25.97	1.55	39.35	Average	---	---
2	2374.000	40.90	-13.10	54.00	50.55	28.24	1.71	39.60	Average	---	---
3	2580.000	41.07	-12.93	54.00	49.93	28.79	1.90	39.55	Average	---	---
1	4876.000	45.07	-8.93	54.00	49.59	33.10	2.52	40.14	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2364.000	48.57	-5.43	54.00	58.25	28.22	1.70	39.60	Average	---	---
2	2518.000	50.98	-3.02	54.00	60.10	28.59	1.86	39.57	Average	105	262
3	2748.000	47.86	-6.14	54.00	56.09	29.31	1.95	39.49	Average	---	---
1	4876.000	46.17	-7.83	54.00	50.69	33.10	2.52	40.14	Average	---	---

Modulation Type	OFDM (Ant3)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1492.000	35.79	-18.21	54.00	48.38	25.13	1.46	39.18	Average	---	---
2	2188.000	38.75	-15.25	54.00	48.86	27.83	1.69	39.63	Average	---	---
3	2644.000	40.98	-13.02	54.00	49.56	28.99	1.96	39.53	Average	---	---
1	4924.000	44.52	-9.48	54.00	49.02	33.18	2.47	40.15	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.680	64.75	-9.25	74.00	74.09	28.46	1.79	39.59	Peak	---	---
2	2483.680	48.88	-5.12	54.00	58.22	28.46	1.79	39.59	Average	---	---
1	4924.000	46.69	-7.31	54.00	51.19	33.18	2.47	40.15	Average	---	---
1	2372.000	49.33	-4.67	54.00	58.99	28.24	1.70	39.60	Average	103	269
2	2500.000	52.78	-21.22	74.00	61.97	28.54	1.85	39.58	Peak	---	---
3	2500.000	41.06	-12.94	54.00	50.25	28.54	1.85	39.58	Average	---	---
4	2740.000	47.53	-6.47	54.00	55.78	29.29	1.95	39.49	Average	---	---

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Test Mode	CH 11 OFDM (Ant4)	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	30MHz~1GHz	Humidity	64%		

(A) Polarization: Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	59.070	33.45	-6.55	40.00	49.56	10.58	1.29	27.98	Peak	---	---
2	125.540	33.33	-10.17	43.50	46.96	12.22	2.00	27.85	Peak	---	---
3	176.030	34.13	-9.37	43.50	45.29	14.20	2.39	27.75	Peak	---	---
1	279.200	31.69	-14.31	46.00	42.87	13.19	3.01	27.38	Peak	---	---
2 !	298.400	41.23	-4.77	46.00	51.71	13.75	3.08	27.31	Peak	215	278
3	320.000	32.11	-13.89	46.00	41.90	14.41	3.20	27.40	Peak	---	---

(B) Polarization: Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	113.300	32.83	-10.67	43.50	47.87	10.93	1.90	27.87	Peak	---	---
2	122.820	37.25	-6.25	43.50	51.05	12.07	1.98	27.85	Peak	---	---
3	141.350	33.88	-9.62	43.50	47.13	12.50	2.07	27.82	Peak	---	---
1	279.200	27.94	-18.06	46.00	39.12	13.19	3.01	27.38	Peak	---	---
2	298.400	39.38	-6.62	46.00	49.86	13.75	3.08	27.31	Peak	---	---
3	320.000	29.22	-16.78	46.00	39.01	14.41	3.20	27.40	Peak	---	---

Modulation Type	CCK (Ant4)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9646.000	53.36	-20.64	74.00	50.12	38.28	3.70	38.74	Peak	---	---
2	9646.000	50.41	-3.59	54.00	47.17	38.28	3.70	38.74	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9646.000	53.45	-20.55	74.00	50.21	38.28	3.70	38.74	Peak	---	---
2	9646.000	50.48	-3.52	54.00	47.24	38.28	3.70	38.74	Average	---	---

Modulation Type	CCK (Ant4)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9746.000	54.78	-19.22	74.00	51.31	38.46	3.72	38.71	Peak	---	---
2	9746.000	51.67	-2.33	54.00	48.20	38.46	3.72	38.71	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9748.000	54.78	-19.22	74.00	51.31	38.47	3.71	38.71	Peak	---	---
2	9748.000	51.51	-2.49	54.00	48.04	38.47	3.71	38.71	Average	---	---

Modulation Type	CCK (Ant4)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	7382.000	56.06	-17.94	74.00	56.42	36.28	2.79	39.43	Peak	---	---
2	7382.000	51.13	-2.87	54.00	51.49	36.28	2.79	39.43	Average	---	---
1	9846.000	53.92	-20.08	74.00	50.01	38.64	3.95	38.68	Peak	---	---
2	9846.000	50.30	-3.70	54.00	46.39	38.64	3.95	38.68	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9848.000	55.20	-18.80	74.00	51.28	38.65	3.95	38.68	Peak	---	---
2	9848.000	52.13	-1.87	54.00	48.21	38.65	3.95	38.68	Average	---	---

Modulation Type	OFDM (Ant4)				
Test Mode	CH 01 2412MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9646.000	52.75	-21.25	74.00	49.51	38.28	3.70	38.74	Peak	---	---
2	9646.000	48.08	-5.92	54.00	44.84	38.28	3.70	38.74	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9646.000	53.51	-20.49	74.00	50.27	38.28	3.70	38.74	Peak	---	---
2	9646.000	48.96	-5.04	54.00	45.72	38.28	3.70	38.74	Average	---	---

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Modulation Type	OFDM (Ant4)				
Test Mode	CH 06 2437MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9748.000	53.65	-20.35	74.00	50.18	38.47	3.71	38.71	Peak	---	---
2	9748.000	49.87	-4.13	54.00	46.40	38.47	3.71	38.71	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9748.000	54.39	-19.61	74.00	50.92	38.47	3.71	38.71	Peak	---	---
2	9748.000	49.75	-4.25	54.00	46.28	38.47	3.71	38.71	Average	---	---

Modulation Type	OFDM (Ant4)				
Test Mode	CH 11 2462MHz	Temperature	24 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	64%		

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9846.000	54.46	-19.54	74.00	50.55	38.64	3.95	38.68	Peak	---	---
2	9846.000	50.63	-3.37	54.00	46.72	38.64	3.95	38.68	Average	---	---

Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	9846.000	54.91	-19.09	74.00	51.00	38.64	3.95	38.68	Peak	---	---
2	9846.000	51.47	-2.53	54.00	47.56	38.64	3.95	38.68	Average	---	---

4.5.5 Photographs of Radiated Emission Test Configuration

- The photographs show the configuration that generates the maximum emission.

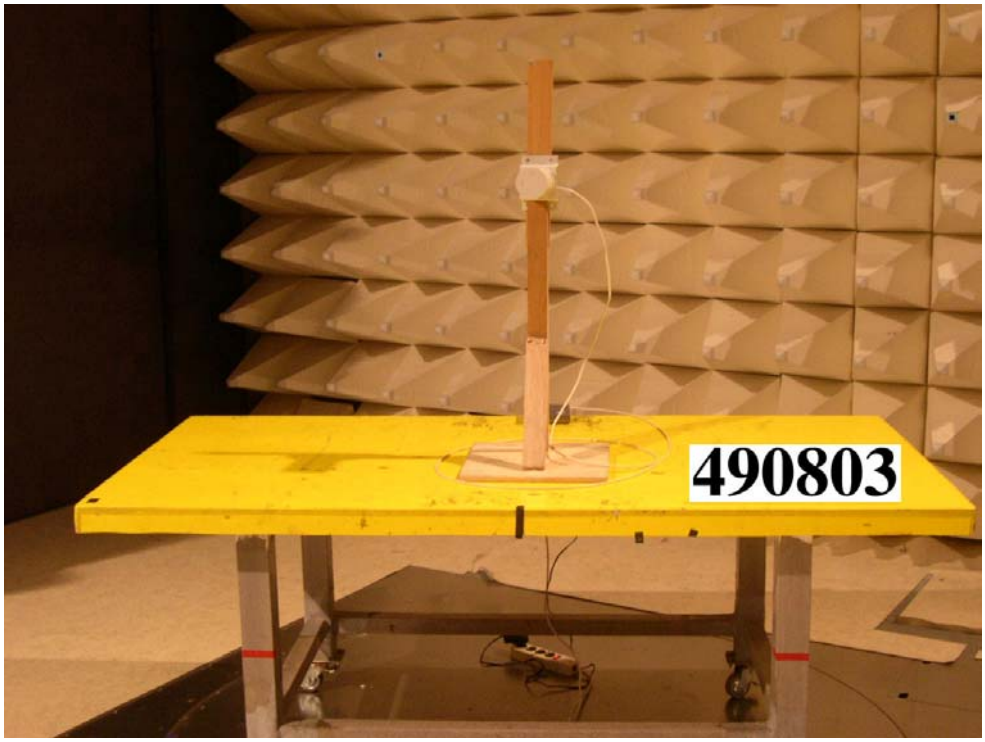
Antenna 1

FRONT VIEW

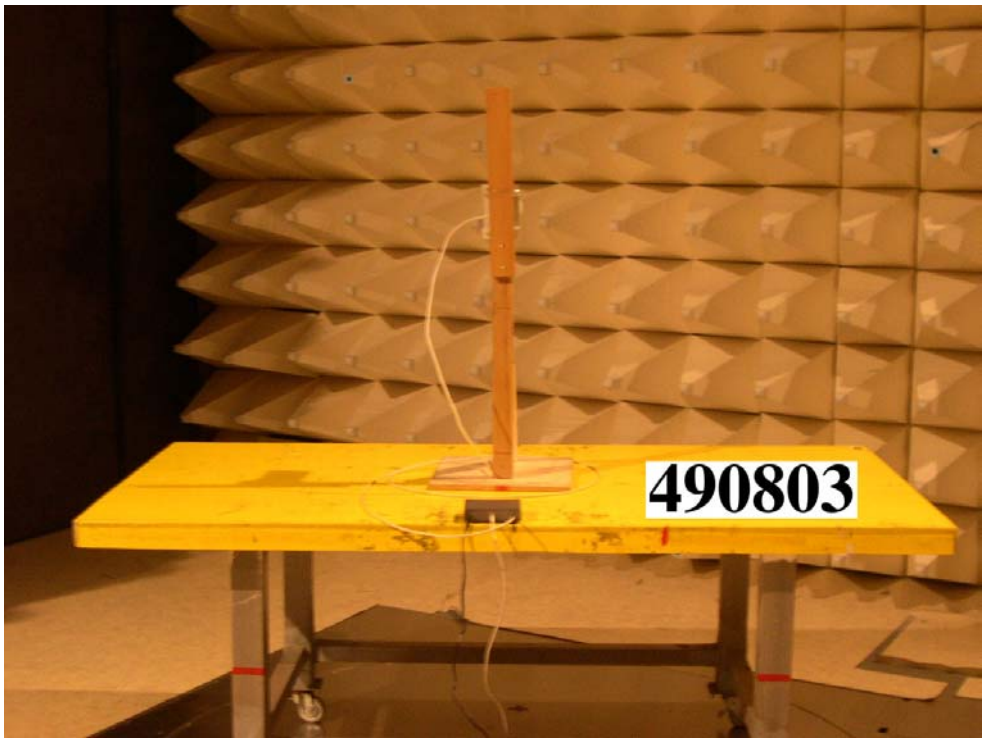
REAR VIEW

Antenna 2

FRONT VIEW

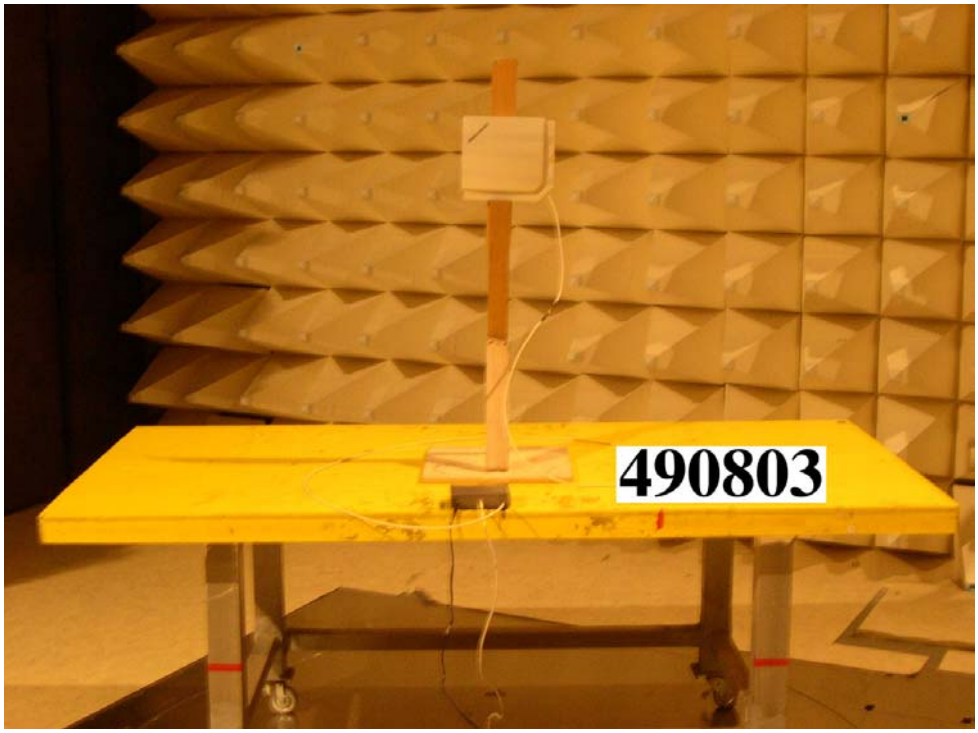


REAR VIEW

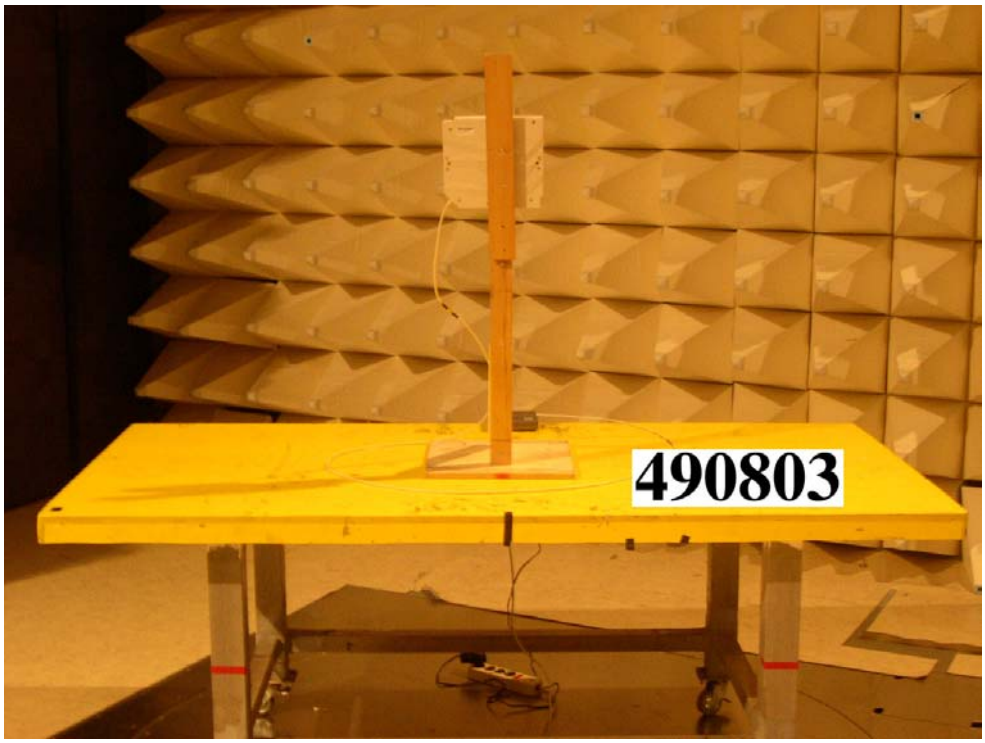


Antenna 3

FRONT VIEW

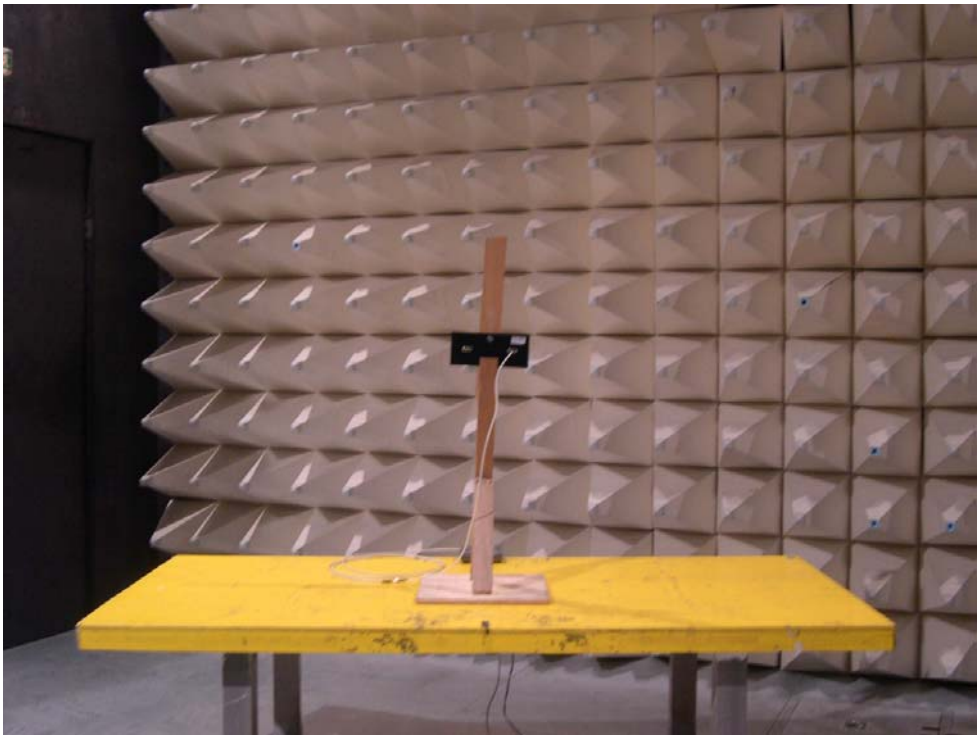


REAR VIEW

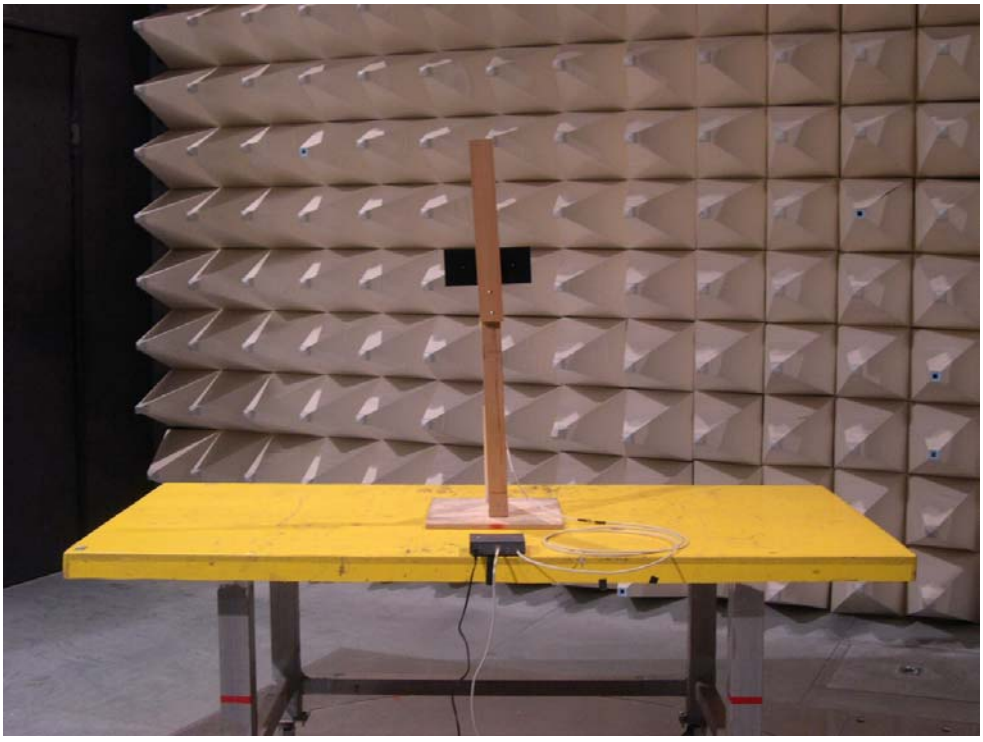


Antenna 4

FRONT VIEW



REAR VIEW



4.6. Antenna Requirements

4.6.1 Standard Applicable

47 CFR Part15 Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

47 CFR Part15 Section 15.247 (b):

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

If the intentional radiator is used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

4.6.2 Antenna Connected Construction

The antenna connector is reversed SMA.

4.7. RF Exposure

4.7.1 Limit For Maximum Permissible Exposure (MPE)

This product can be classified as mobile device, so the 20cm separation distance warning is required.

In this section, the power density at 20cm location is calculated to examine if it is lower than the limit.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

F = frequency in MHz

*Plane-wave equivalent power density

4.7.2 MPE Calculation Method

$$E\ (V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd\ (mW/cm^2) = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (mW)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=20cm, as well as the gain of the used antenna, the RF power density can be obtained.

4.6.3 Calculated Result and Limit

Modulation Type: CCK

Ant 1

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	5.5	3.55	16.2500	42.1697	0.0298	1
Channel 39	5.5	3.55	16.7900	47.7529	0.0337	1
Channel 78	5.5	3.55	17.2000	52.4807	0.0371	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

Ant 2

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	10	10.00	16.2500	42.1697	0.0839	1
Channel 39	10	10.00	16.7900	47.7529	0.0950	1
Channel 78	10	10.00	17.2000	52.4807	0.1045	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

Ant 3

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	13	19.95	16.2500	42.1697	0.1675	1
Channel 39	13	19.95	16.7900	47.7529	0.1896	1
Channel 78	13	19.95	17.2000	52.4807	0.2084	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

Modulation Type: OFDM

Ant 1

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	5.5	3.55	15.1200	32.5087	0.0230	1
Channel 39	5.5	3.55	15.5300	35.7273	0.0252	1
Channel 78	5.5	3.55	15.9000	38.9045	0.0275	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

Ant 2

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	10	10.00	15.1200	32.5087	0.0647	1
Channel 39	10	10.00	15.5300	35.7273	0.0711	1
Channel 78	10	10.00	15.9000	38.9045	0.0774	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

Ant 3

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	13	19.95	15.1200	32.5087	0.1291	1
Channel 39	13	19.95	15.5300	35.7273	0.1419	1
Channel 78	13	19.95	15.9000	38.9045	0.1545	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

Ant 4

Channel No.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)
Channel 00	3	2.00	15.12	32.5087	0.0129	1
Channel 39	3	2.00	15.53	35.7273	0.0142	1
Channel 78	3	2.00	15.9	38.9045	0.0155	1

From the calculated result shown in above table, the power density is lower than limit at location 20cm far away.

5. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	EMC Receiver	R&S	ESCS 30	100174	9 KHz – 2.75 GHz	Feb. 16, 2004	Conduction (CO04-HY)
2	LISN	MessTec	NNB-2/16Z	2001/004	9 KHz – 30 MHz	Jun. 09, 2004	Conduction (CO04-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9 KHz – 30 MHz	Apr. 27, 2004	Conduction (CO04-HY)
4	EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
5	RF Cable-CON	UTIFLEX	3102-26886-4	CB044	9KHz~30MHz	Apr. 21, 2004	Conduction (CO04-HY)
6	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
7	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 31, 2004	Radiation (03CH03-HY)
8	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 05, 2003	Radiation (03CH03-HY)
9	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 28, 2004	Radiation (03CH03-HY)
10	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
11	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 03, 2003	Radiation (03CH03-HY)
12	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
13	Horn Antenna	EMCO	3115	6821	1GHz – 18GHz	Sep. 12, 2003	Radiation (03CH03-HY)
14	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
15	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
16	Horn Antenna	Schwarzbeck	BBHA9170	154	18GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
17	RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec. 05, 2003	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
18	Spectrum analyzer	R&S	FSP7	838858/014	9KHZ~7GHZ	Sep. 02, 2004	Conducted (TH01-HY)
19	Power meter	R&S	NRVS	100444	DC~40GHz	Jun. 15, 2004	Conducted (TH01-HY)
20	Power sensor	R&S	NRV-Z55	100049	DC~40GHz	Jun. 15, 2004	Conducted (TH01-HY)
21	Power Sensor	R&S	NRV-Z32	100057	30MHz-6GHz	Jun. 15, 2004	Conducted (TH01-HY)
22	AC power source	HPC	HPA-500W	HPA-9100024	AC 0~300V	Jun. 16, 2004	Conducted (TH01-HY)
23	AC power source	G.W.	GPC-6030D	C671845	DC 1V~60V	Nov. 06, 2003	Conducted (TH01-HY)
24	Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2003	Conducted (TH01-HY)
25	RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz~7GHz	Jan. 01, 2004	Conducted (TH01-HY)
26	RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz~1GHz	Jan. 01, 2004	Conducted (TH01-HY)

※ Calibration Interval of instruments listed above is one year.