

RSS-Gen Receiver Test Report

According to

IC RSS-Gen issue 3

Equipment : 802.11abgn, USB module
Brand Name : SparkLAN
Model No. : WUBR-508N
Filing Type : New Application
Applicant : SparkLAN Communications, Inc.
Manufacturer : 8F., No. 257, Sec. 2, Tiding Blvd., Neihu District,
Taipei City 11493, Taiwan
Received Date : Mar. 29, 2012
Final Test Date : Apr. 11, 2012

Statement

Test result included in this report is only for dipole antenna of the product.

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.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **IC RSS-Gen issue 3**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



SPORTON International Inc.

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

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Original Issue Date: Jun. 11, 2012

- No additional attachment.

☐ Additional attachment were issued as following record:

[illegible]

CERTIFICATE OF COMPLIANCE

According to

IC RSS-Gen issue 3

Equipment : 802.11abgn, USB module

Brand Name : SparkLAN

Model No. : WUBR-508N

Applicant : SparkLAN Communications, Inc.

8F., No. 257, Sec. 2, Tiding Blvd., Neihu District,
Taipei City 11493, Taiwan

WE HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4-2003 and the energy emitted by this equipment were passed IC RSS-Gen issue 3. Testing was carried out on Mar. 29, 2012 at SPORTON International Inc. LAB.

Wayne Hsu / Assistant Manager

Dec 2012

SPORTON International Inc.

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

1 SUMMARY OF THE TEST RESULT

Applied Standard: IC RSS-Gen issue 3				
Part	Rule Section	Description of Test	Result	Under Limit
3.1	7.2.2	AC Power Line Conducted Emissions	Complies	13.96 dB
3.2	6	Radiated Emissions	Complies	3.21 dB

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	$\pm 2.3\text{dB}$	Confidence levels of 95%
Radiated Emissions	$\pm 1.9\text{dB}$	Confidence levels of 95%

2 GENERAL INFORMATION

2.1 Product Details

There are three types of the EUT. The difference between these three types is connector; we chose the full function type to test. The equipment is 802.11abgn, USB module. For more detailed features description, please refer to the specifications or user's manual.

2.2 Table for Test Modes

Investigation has been done on the entire possible Configuration for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode
AC Power Line Conducted Emissions	System Mode
Radiated Emissions (30MHz~1GHz)	System Mode
Radiated Emissions (Above 1GHz)	CRX 802.11a 5785 MHz
	CRX 802.11n 5785 MHz (20MHz)
	CRX 802.11n 5795 MHz (40MHz)
	CRX 802.11g 2437 MHz
	CRX 802.11n 2437 MHz (20MHz)
	CRX 802.11n 2437 MHz (40MHz)

2.3 Table for Testing Locations

Test Site No.	Site Category	Location
CO01-HY	Conduction	Hwa Ya
03CH02-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.4 Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	VOSTRO 3350	DoC
(USB) Mouse	Microsoft	1113	JNZ211443
iPod nano	Apple	A1199	N/A
Wireless AP (Remote Workstation)	D-Link	DNS-G120	DoC

2.5 EUT Operation during Test

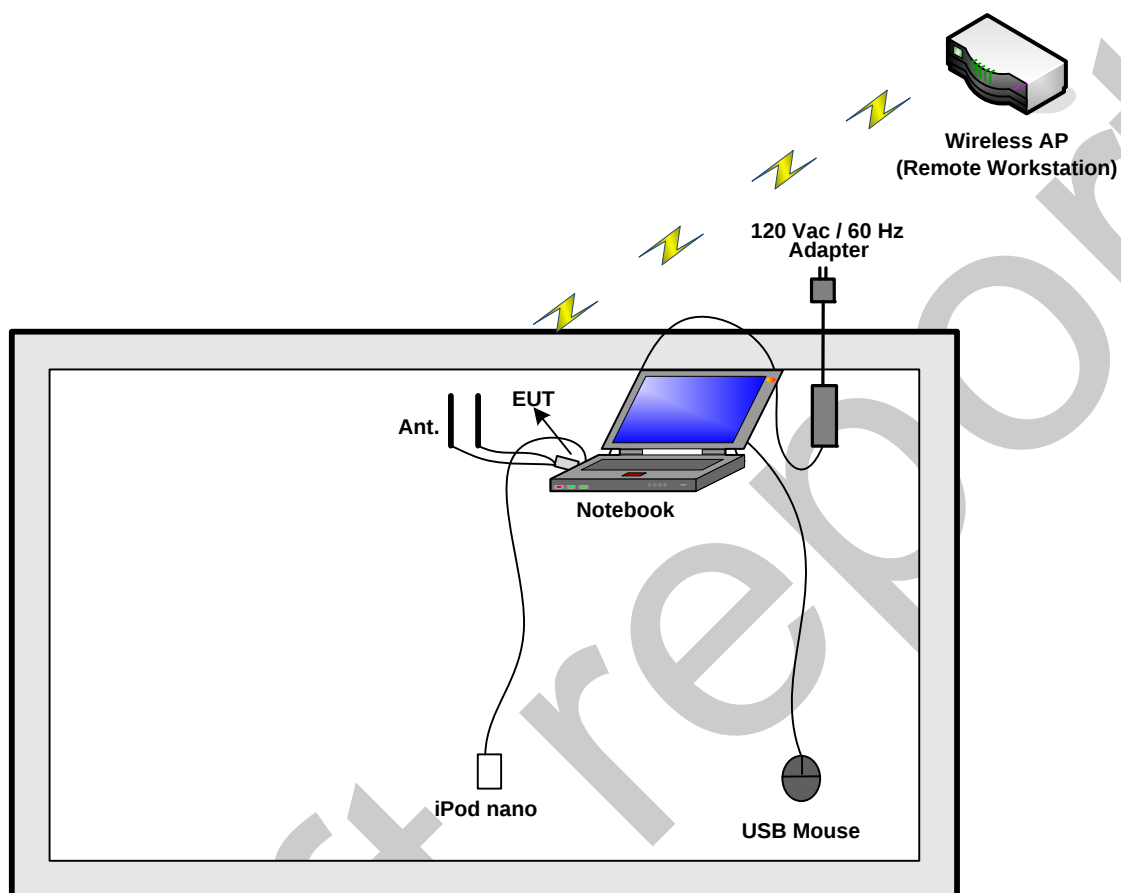
Two executive programs, "EMITEST.exe" and "EMCTEST.exe" under Win XP, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

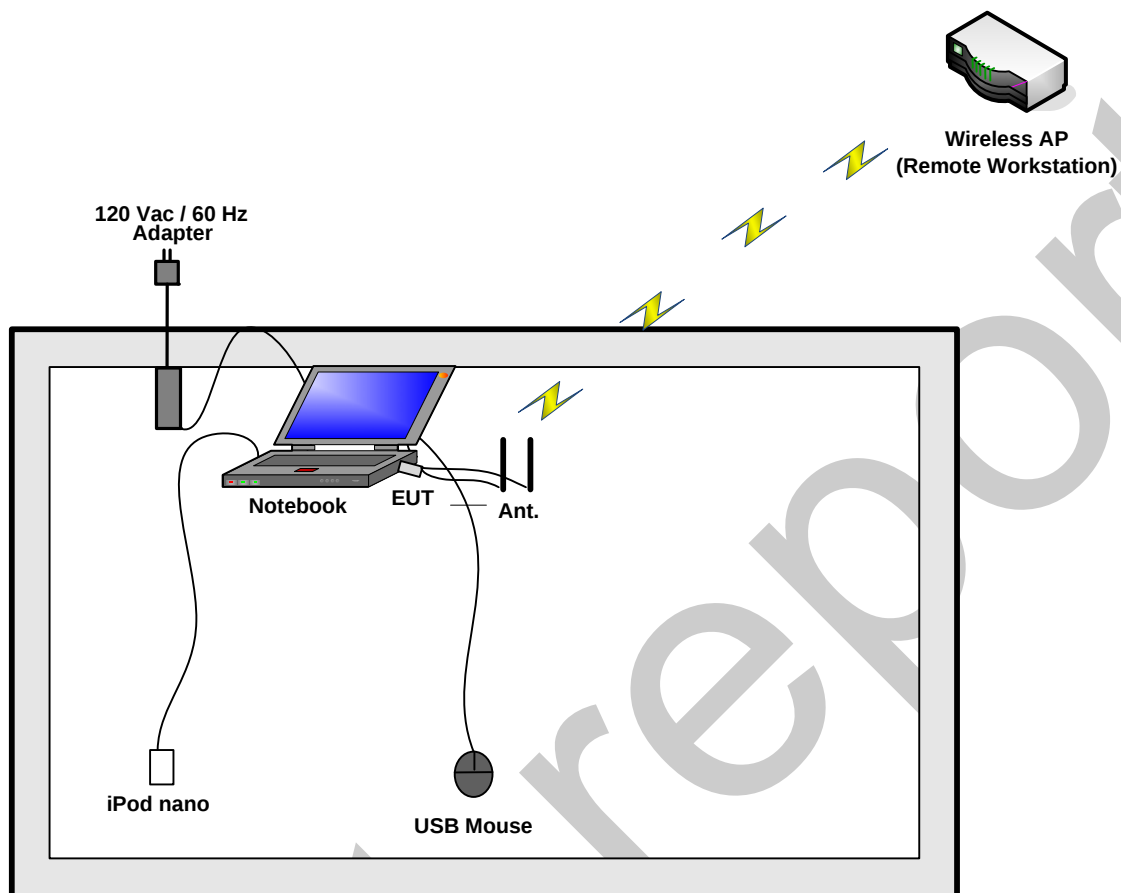
- Turn on the power of all equipment.
- The NB executed "Winthrax.exe" to read/write data from EUT.
- The NB executed "EMITEST.exe" sends "H" messages to the panel and displays "H" patterns on the screen.
- The EUT connect to remote workstation (Wireless AP) via WiFi.

2.6 Test Configurations

Conducted Emissions



Radiated Emission



3 TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For this product which is designed to be connected to the 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 below limits table.

Class B

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2 Measuring Instruments and Setting

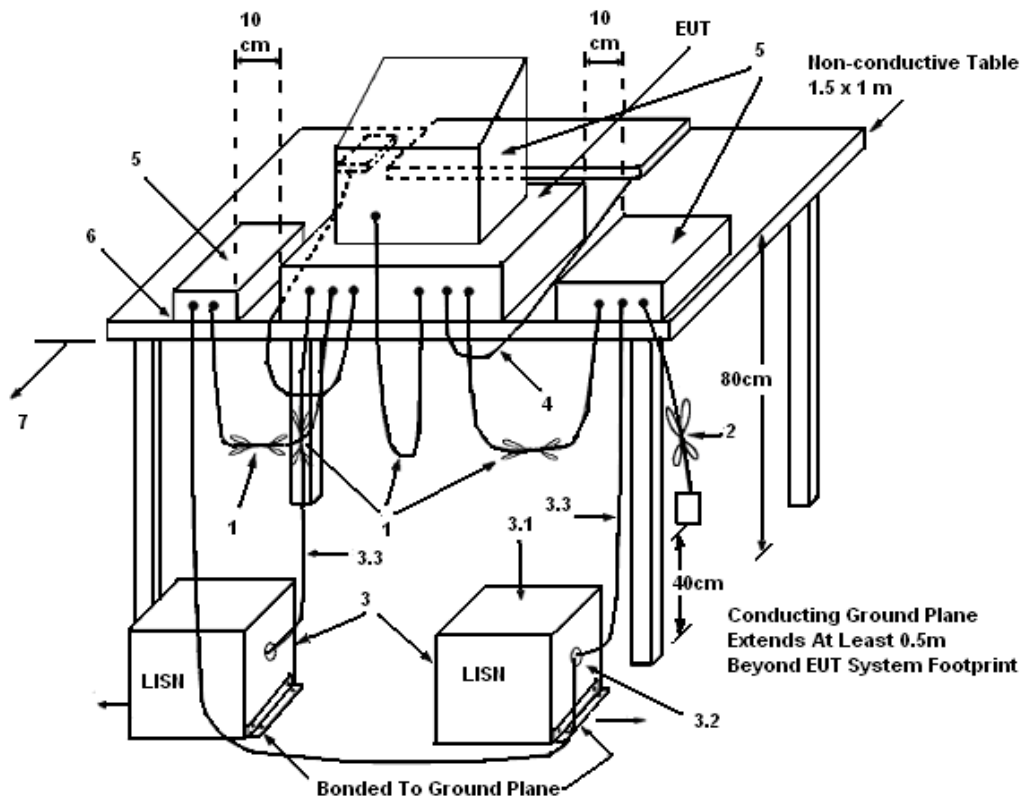
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.1.3 Test Procedures

1. The EUT was warmed up for 15 minutes before testing started.
2. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters 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 connect to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.1.4 Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5 Test Deviation

There is no deviation with the original standard.

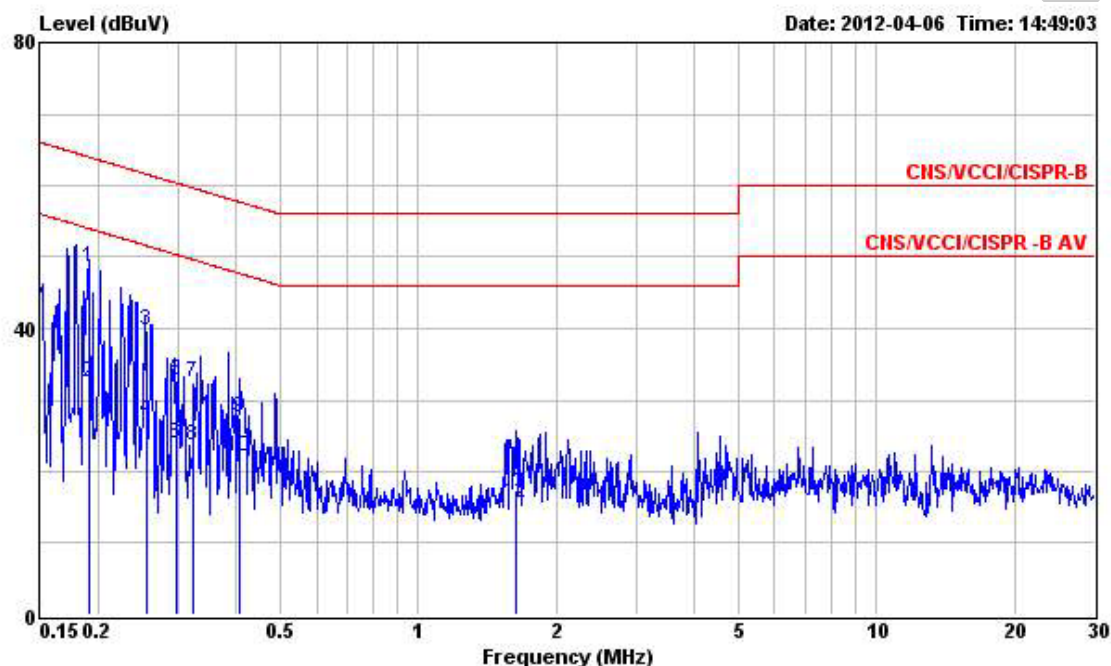
3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

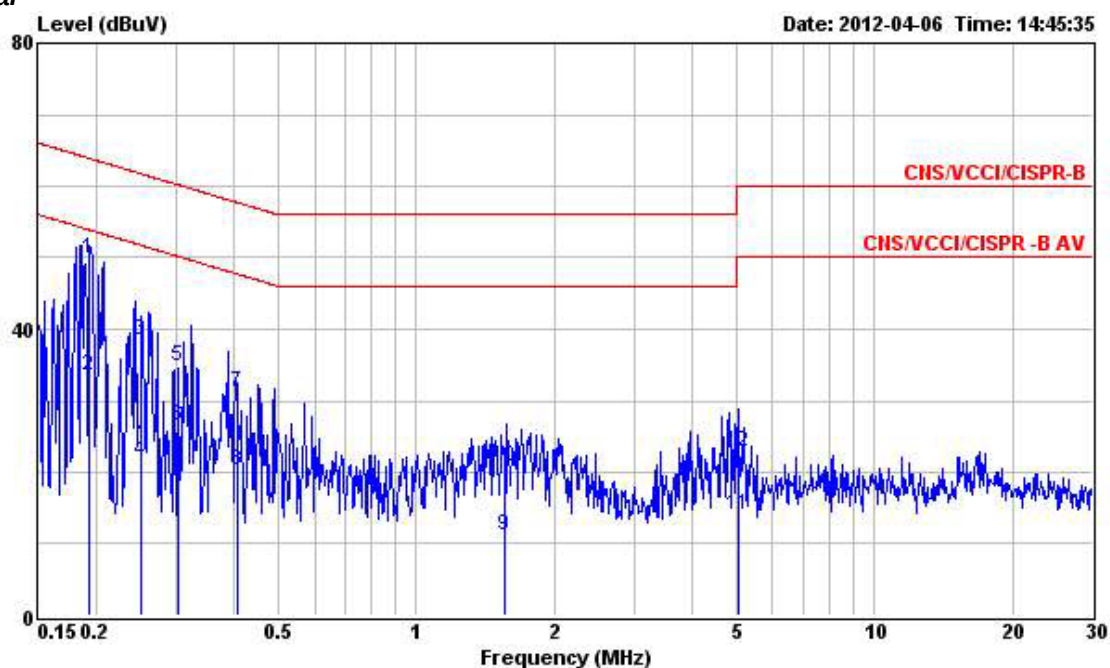
Final Test Date	Apr. 06, 2012	Test Site No.	CO01-HY
Temperature	23.6°C	Humidity	49%
Test Engineer	David	Configuration	System Mode

Line



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.192	48.57	-15.38	63.95	48.39	0.08	0.10	QP
2	0.192	32.58	-21.37	53.95	32.40	0.08	0.10	Average
3	0.255	39.62	-21.97	61.59	39.44	0.08	0.10	QP
4	0.255	27.40	-24.19	51.59	27.22	0.08	0.10	Average
5	0.297	32.70	-27.63	60.33	32.51	0.09	0.10	QP
6	0.297	23.98	-26.35	50.33	23.79	0.09	0.10	Average
7	0.323	32.38	-27.26	59.64	32.19	0.09	0.10	QP
8	0.323	23.61	-26.02	49.63	23.42	0.09	0.10	Average
9	0.408	27.51	-30.18	57.69	27.32	0.09	0.10	QP
10	0.408	22.01	-25.68	47.69	21.82	0.09	0.10	Average
11	1.630	17.49	-38.51	56.00	17.27	0.12	0.10	QP
12	1.630	15.66	-30.34	46.00	15.44	0.12	0.10	Average

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.193	49.95	-13.96	63.91	49.79	0.06	0.10	QP
2	0.193	33.53	-20.38	53.91	33.37	0.06	0.10	Average
3	0.250	38.53	-23.23	61.76	38.37	0.06	0.10	QP
4	0.250	21.67	-30.09	51.76	21.51	0.06	0.10	Average
5	0.301	34.68	-25.54	60.22	34.51	0.07	0.10	QP
6	0.301	26.41	-23.81	50.22	26.24	0.07	0.10	Average
7	0.408	31.15	-26.54	57.69	30.98	0.07	0.10	QP
8	0.408	20.22	-27.47	47.69	20.05	0.07	0.10	Average
9	1.560	11.20	-34.80	46.00	11.00	0.10	0.10	Average
10	1.560	20.73	-35.27	56.00	20.53	0.10	0.10	QP
11	5.030	13.90	-36.10	50.00	13.61	0.17	0.12	Average
12	5.030	22.92	-37.08	60.00	22.63	0.17	0.12	QP

Note:
Level = Read Level + Probe Factor + Cable Loss.

3.2 Radiated Emissions Measurement

3.2.1 Limit

Measurements shall be made with a quasi-peak measuring receiver in the frequency range 30 MHz to 3th harmonic of highest frequency. The quasi-peak measuring receiver shall be in accordance with clause 2 of CISPR 16-1. Receivers with peak detectors shall be in accordance with clause 3 of CISPR 16-1, and shall have a 6 dB bandwidth in accordance with clause 2 of CISPR 16-1.

Frequency of Emission (MHz)	Field Strength QP Limit (dBuV/m) at 3m
30~88	40
88~216	43.5
216~960	46
960~1000	54

3.2.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

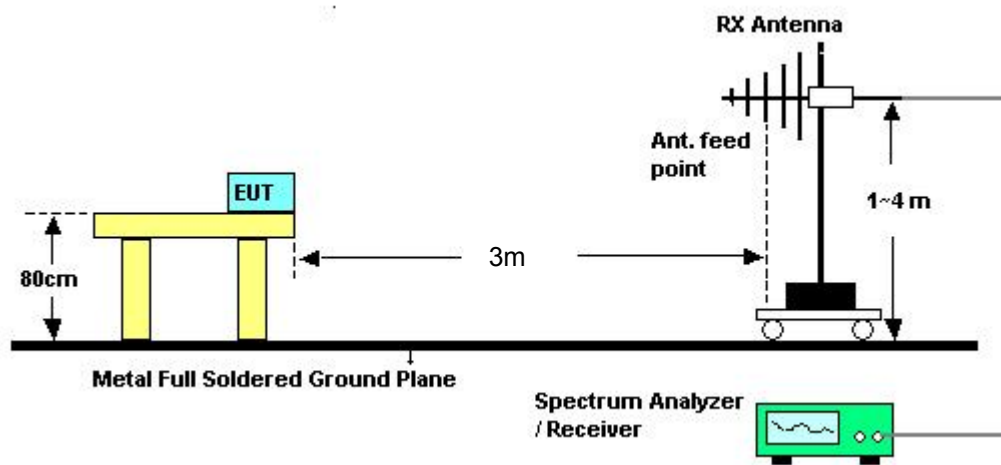
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

Spectrum Parameter	Setting
Start Frequency	1000 MHz
Stop Frequency	3th harmonic of highest frequency
RB / VB	1 MHz / 1MHz for Peak; 1 MHz / 10Hz for Average

3.2.3 Test Procedures

1. The EUT was placed on the top of the turntable 0.8 meter above ground. 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 turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

3.2.4 Test Setup Layout



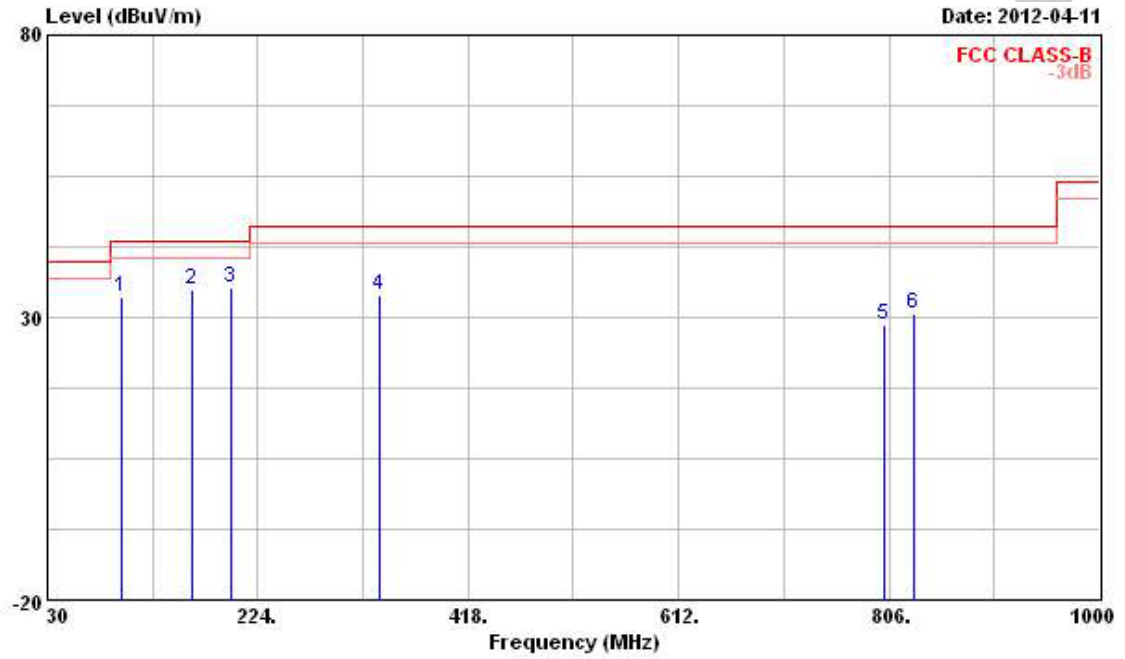
3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 Results of Radiated Emissions (30MHz~1GHz)

Final Test Date	Apr. 11, 2012	Test Site No.	03CH02-HY
Temperature	23.9℃	Humidity	63%
Test Engineer	Streak	Configurations	System Mode

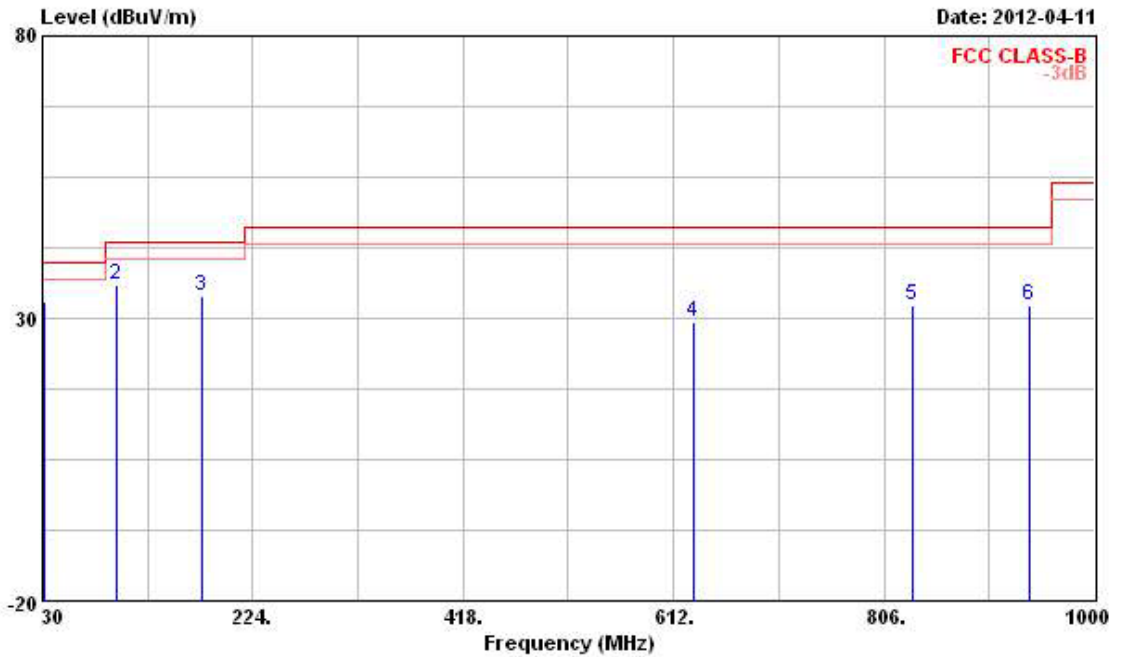
Horizontal



REMARK

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	98.870	33.76	-9.74	43.50	48.95	11.01	1.65	27.85	Peak	---	---
2	163.860	34.82	-8.68	43.50	49.89	10.38	2.12	27.57	Peak	---	---
3	198.780	35.24	-8.26	43.50	48.96	11.28	2.42	27.42	Peak	---	---
4	335.550	33.87	-12.13	46.00	43.90	14.26	3.12	27.41	Peak	---	---
5	801.150	28.54	-17.46	46.00	31.32	20.27	4.89	27.94	Peak	---	---
6	828.310	30.73	-15.27	46.00	33.39	20.20	4.98	27.84	Peak	---	---

Vertical



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	31.940	32.95	-7.05	40.00	44.49	15.48	0.92	27.94	Peak	---
2	98.870	35.91	-7.59	43.50	51.10	11.01	1.65	27.85	Peak	---
3	176.470	34.02	-9.48	43.50	49.40	9.88	2.25	27.51	Peak	---
4	630.430	29.35	-16.65	46.00	33.64	19.78	4.33	28.40	Peak	---
5	832.190	32.28	-13.72	46.00	34.93	20.19	4.99	27.83	Peak	---
6	939.860	32.21	-13.79	46.00	33.17	21.01	5.48	27.45	Peak	---

Note:

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

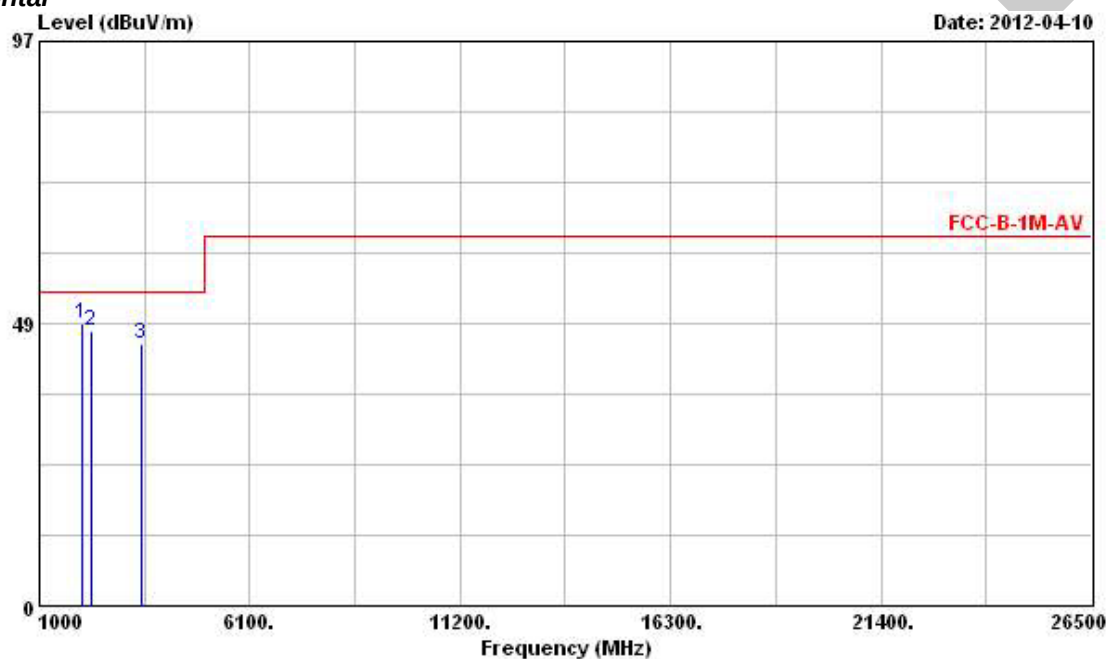
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.2.7 Results for Radiated Emissions (1GHz~3th harmonic of highest frequency)

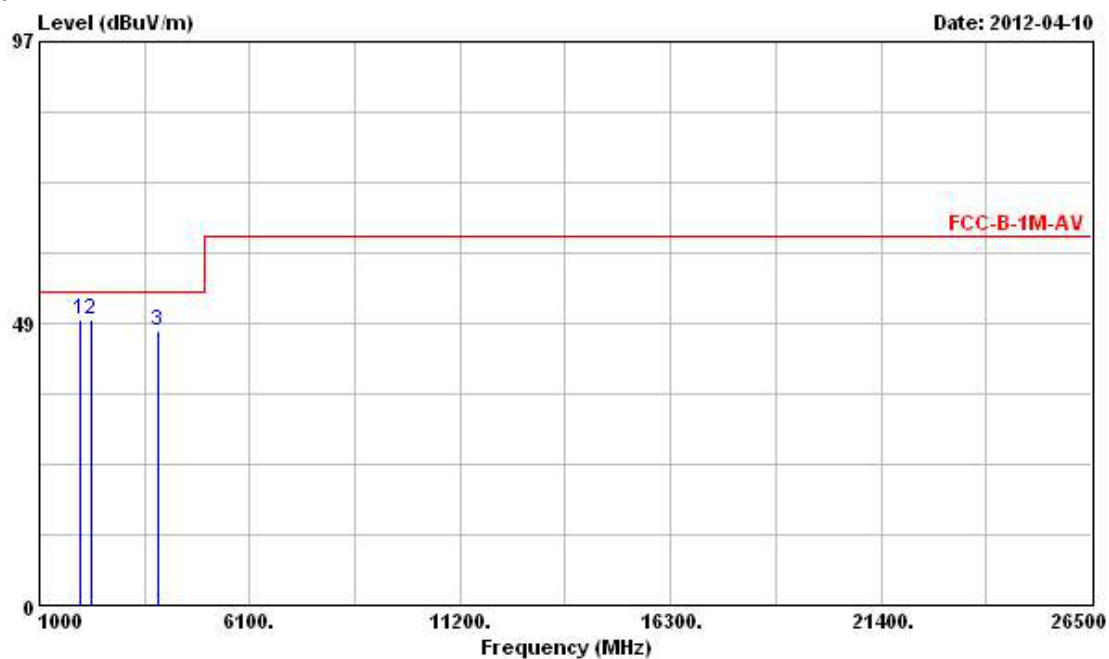
Final Test Date	Apr. 10, 2012	Test Site No.	03CH02-HY
Temperature	23.9℃	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11a 5785 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	2040.000	48.60	-5.40	54.00	48.44	32.05	2.75	34.64	Peak	---	---
2	2270.000	47.24	-6.76	54.00	46.65	32.39	2.93	34.73	Peak	---	---
3	3475.000	45.13	-8.87	54.00	43.11	33.11	3.82	34.91	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1990.000	49.00	-5.00	54.00	49.05	31.88	2.69	34.62	Peak	---	---
2	2245.000	49.29	-4.71	54.00	48.77	32.34	2.90	34.72	Peak	---	---
3	3885.000	47.23	-6.77	54.00	44.43	33.58	4.08	34.86	Peak	---	---

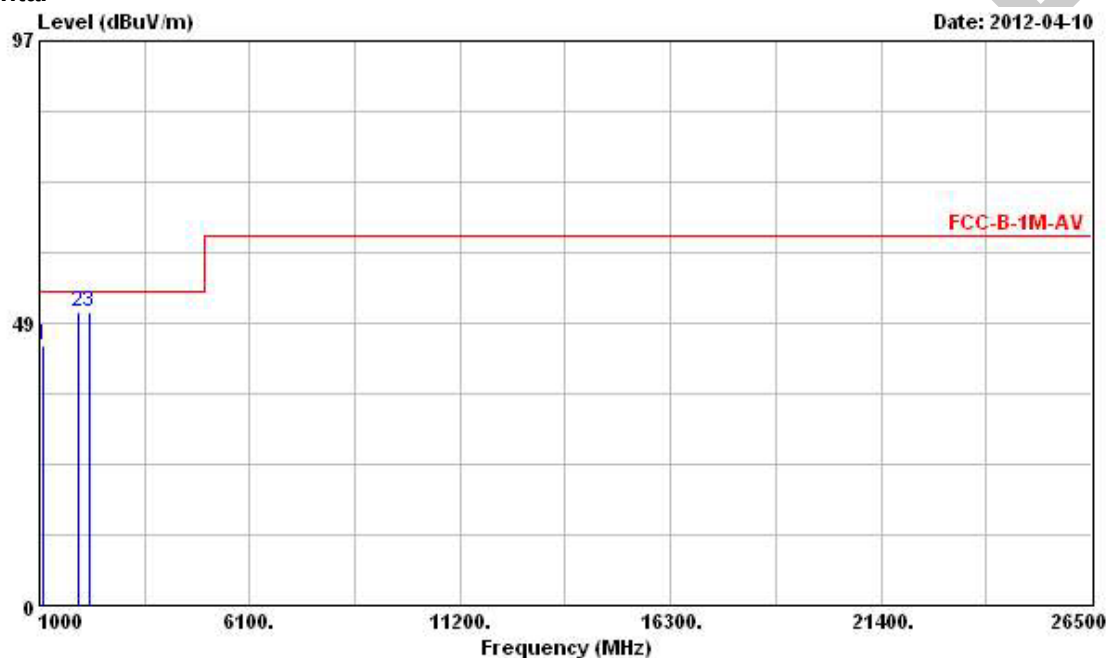
Note:

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

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 10, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 5785 MHz (20MHz)

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1070.000	44.56	-9.44	54.00	49.79	28.33	1.88	35.44	Peak	---	---
2	1925.000	50.37	-3.63	54.00	50.94	31.42	2.66	34.65	Peak	---	---
3	2200.000	50.52	-3.48	54.00	50.06	32.29	2.87	34.70	Peak	---	---

Vertical

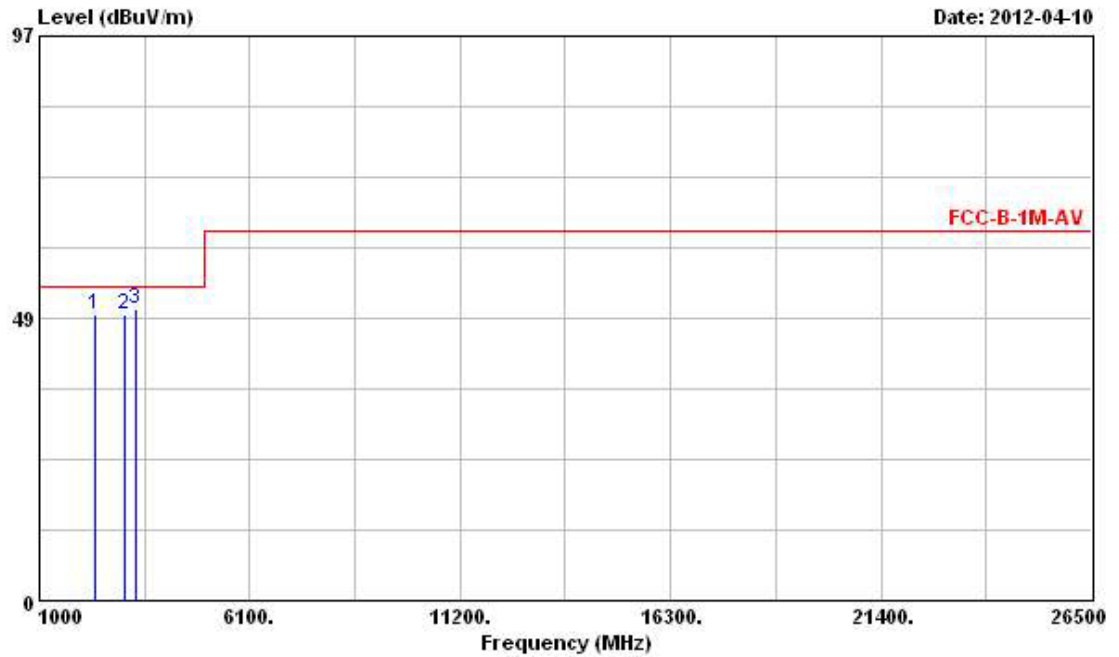


TABLE 2

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	2360.000	49.18	-4.82	54.00	48.44	32.51	2.99	34.76	Peak	---	---
2	3090.000	49.00	-5.00	54.00	47.14	33.27	3.52	34.93	Peak	---	---
3	3355.000	49.99	-4.01	54.00	48.03	33.16	3.72	34.92	Peak	---	---

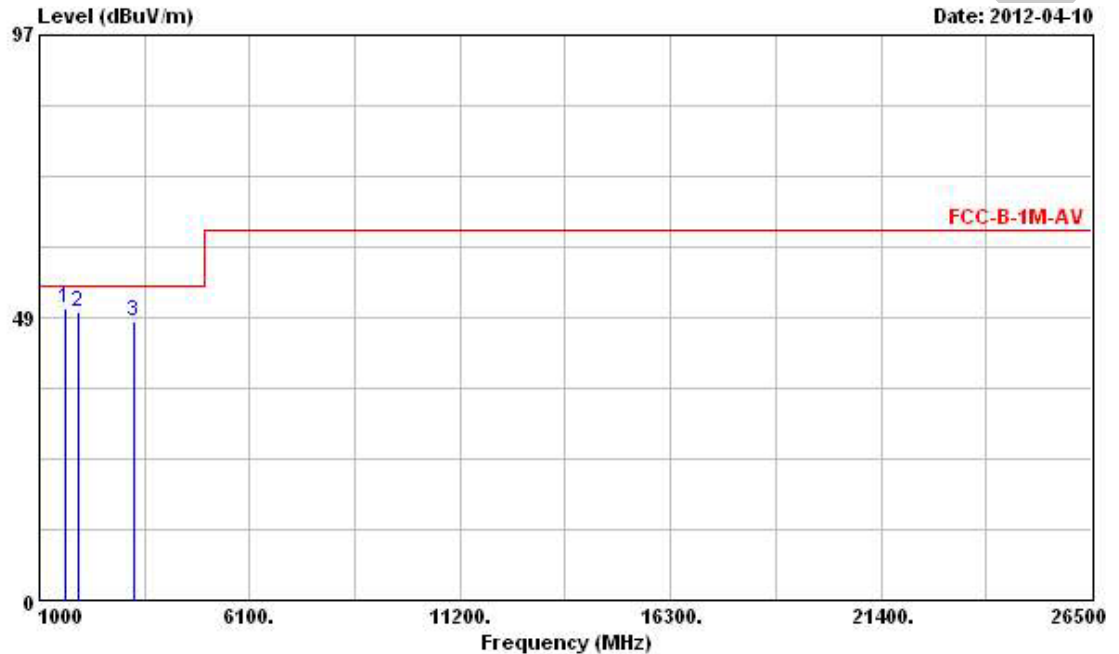
Note:

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

Emission level (dBuV/m) = 20 log Emission level (uV/m).

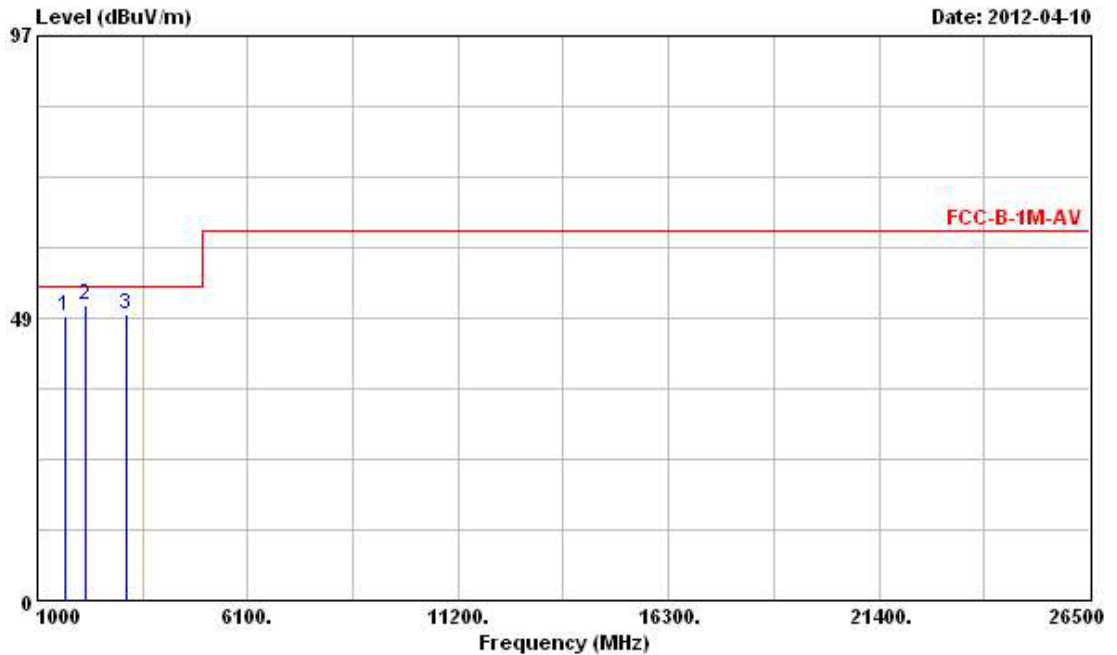
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 10, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 5795 MHz (40MHz)

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1645.000	50.04	-3.96	54.00	52.80	29.55	2.43	34.74	Peak	---	---
2	1955.000	49.42	-4.58	54.00	49.75	31.65	2.66	34.64	Peak	---	---
3	3315.000	47.98	-6.02	54.00	46.04	33.18	3.68	34.92	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1655.000	48.80	-5.20	54.00	51.43	29.67	2.43	34.73	Peak	---	---
2	2190.000	50.79	-3.21	54.00	50.35	32.27	2.87	34.70	Peak	---	---
3	3170.000	49.25	-4.75	54.00	47.36	33.23	3.59	34.93	Peak	---	---

Note:

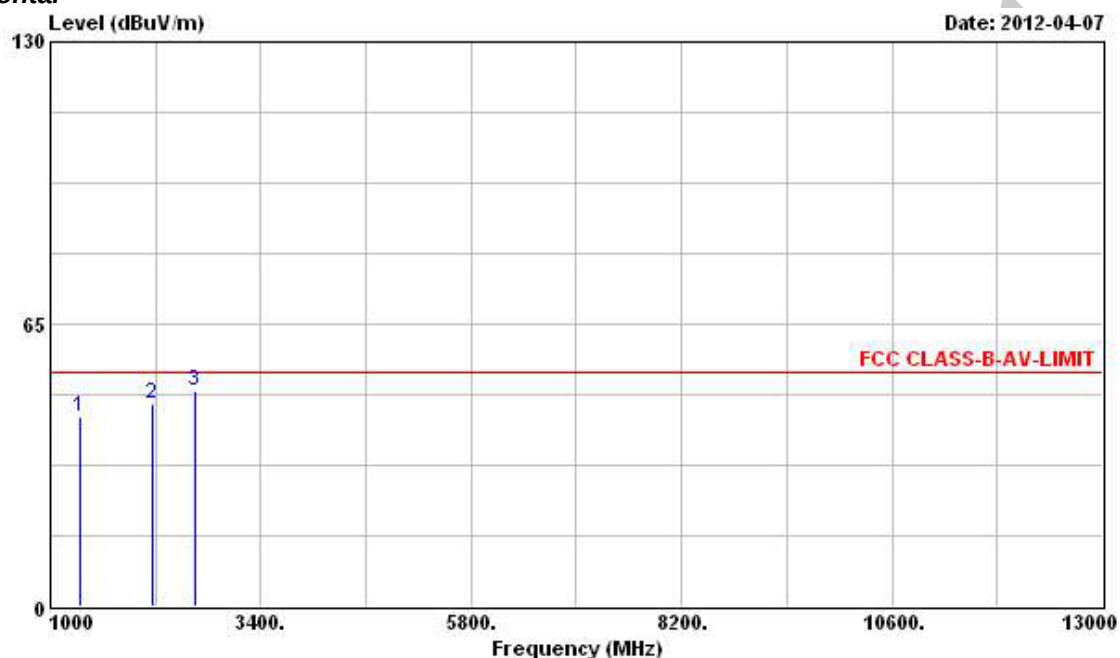
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

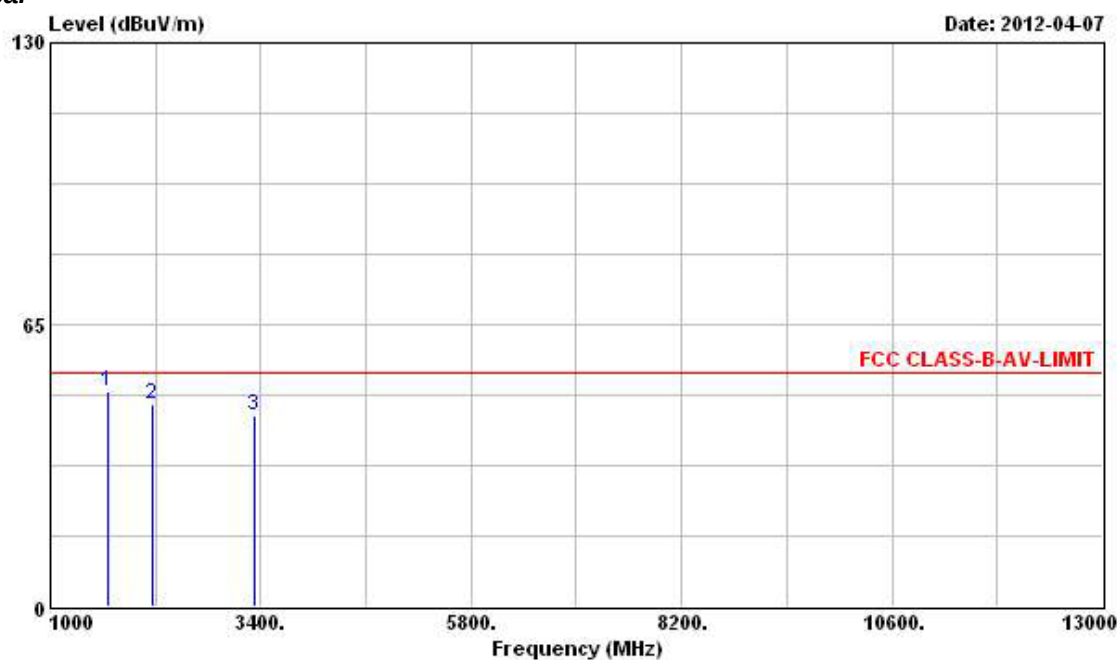
Final Test Date	Apr. 07, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11g 2437 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1330.000	43.60	-10.40	54.00	49.18	27.36	2.11	35.05	Peak	---	---
2	2170.000	46.46	-7.54	54.00	47.42	30.89	2.84	34.69	Peak	---	---
3	2655.000	49.66	-4.34	54.00	48.78	32.56	3.18	34.86	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1650.000	49.48	-4.52	54.00	52.87	28.92	2.43	34.74	Peak	---	---
2	2170.000	46.79	-7.21	54.00	47.42	31.22	2.84	34.69	Peak	---	---
3	3330.000	44.12	-9.88	54.00	42.05	33.27	3.72	34.92	Peak	---	---

Note:

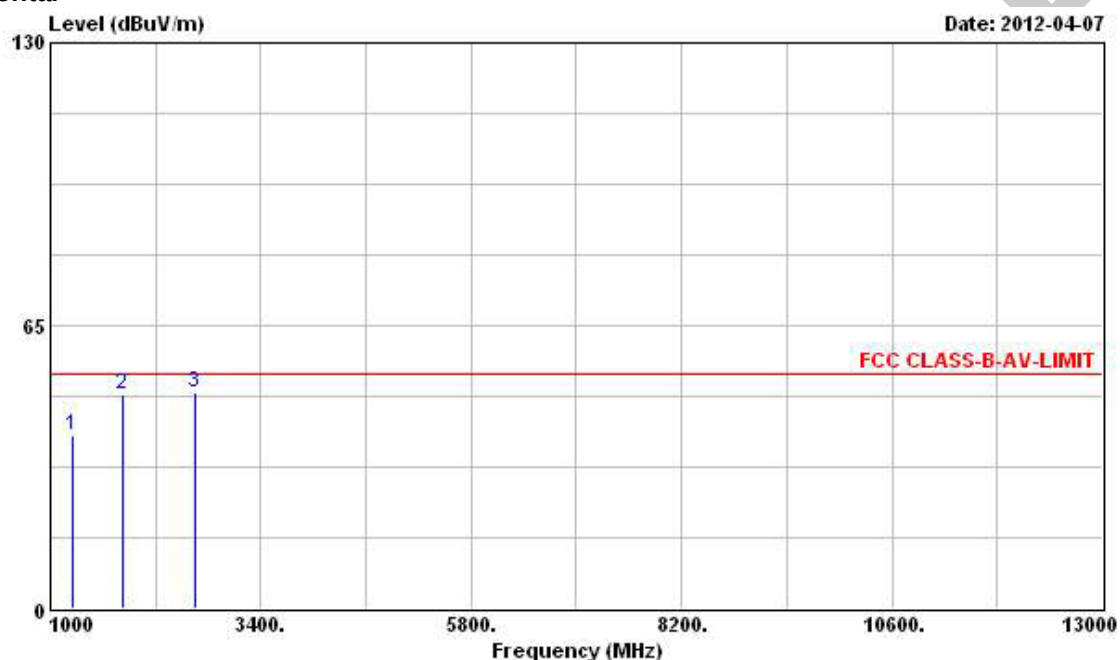
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

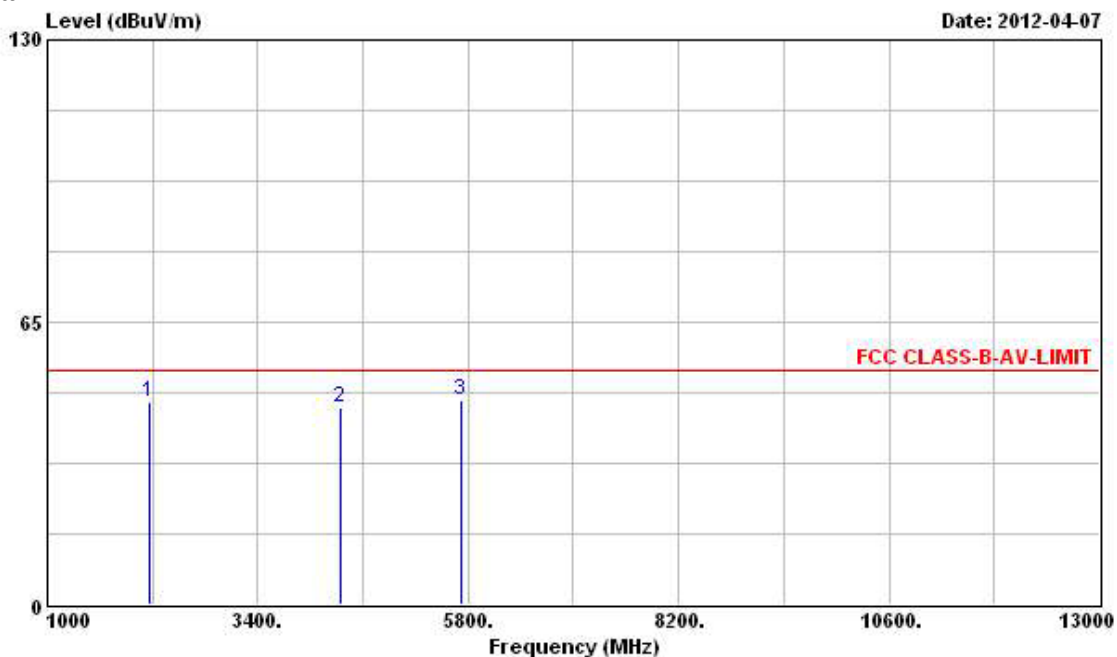
Final Test Date	Apr. 07, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 2437 MHz (20MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1255.000	39.75	-14.25	54.00	45.54	27.31	2.07	35.17	Peak	---	---
2	1830.000	49.21	-4.79	54.00	52.02	29.30	2.56	34.67	Peak	---	---
3	2655.000	49.66	-4.34	54.00	48.78	32.56	3.18	34.86	Peak	---	---

Vertical



REC-2012-04-07

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	2170.000	46.79	-7.21	54.00	47.42	31.22	2.84	34.69	Peak	---	---
2	4335.000	45.12	-8.88	54.00	41.12	34.60	4.27	34.87	Peak	---	---
3	5730.000	46.88	-7.12	54.00	40.45	36.18	5.04	34.79	Peak	---	---

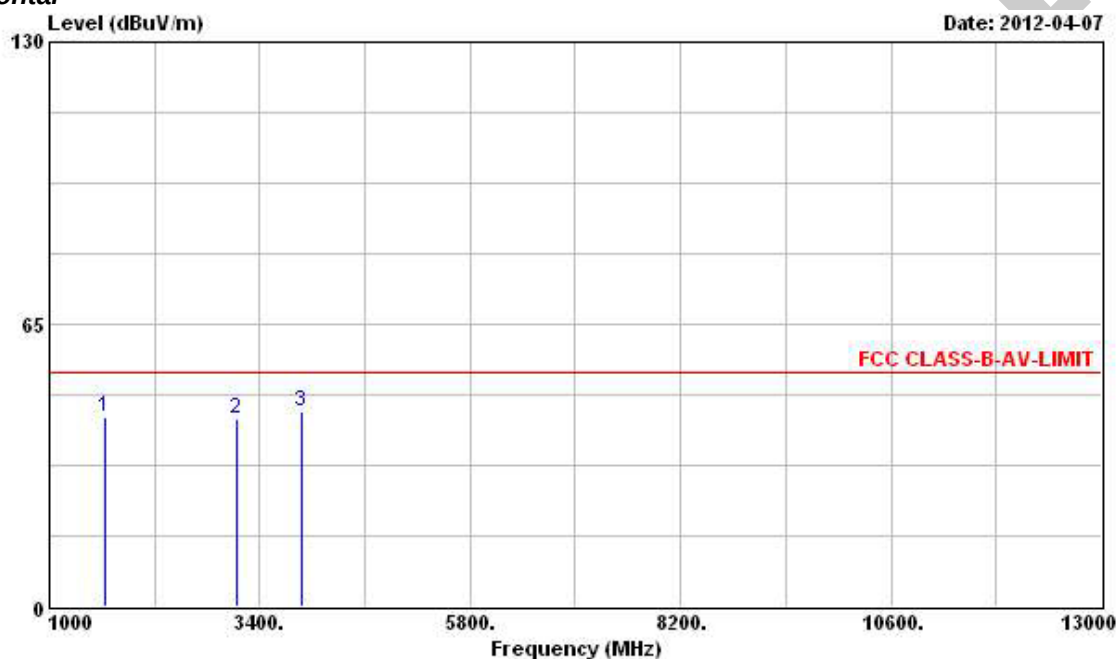
Note:

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

Emission level (dBuV/m) = 20 log Emission level (uV/m).

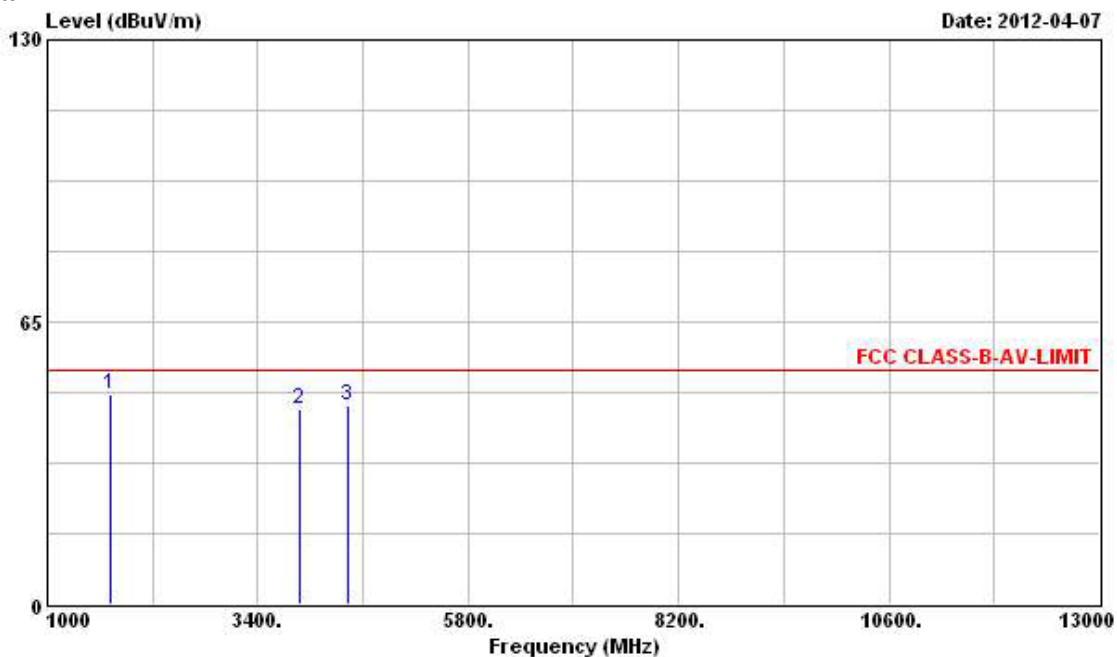
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 07, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 2437 MHz (40MHz)

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1635.000	43.66	-10.34	54.00	47.78	28.22	2.40	34.74	Peak	---	---
2	3130.000	43.35	-10.65	54.00	41.33	33.40	3.55	34.93	Peak	---	---
3	3870.000	45.03	-8.97	54.00	41.65	34.16	4.08	34.86	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1715.000	48.50	-5.50	54.00	51.51	29.24	2.46	34.71	Peak	---	---
2	3870.000	44.86	-9.14	54.00	41.66	33.98	4.08	34.86	Peak	---	---
3	4430.000	45.71	-8.29	54.00	41.58	34.72	4.29	34.88	Peak	---	---

Note:

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

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4 LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz ~ 2.75GHz	Feb. 08, 2012	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz ~ 30MHz	Jan. 12, 2012	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz ~ 30MHz	Feb. 20, 2012	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 ~ 60Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9kHz ~ 30MHz	Mar. 02, 2012	Conduction (CO01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Aug. 08, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100kHz ~ 1.3GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1 Hz ~ 26.5GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 06, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9kHz ~ 30MHz	Jul. 29, 2010*	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.

5 TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
LINKOU	ADD : No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C. TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

6 TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-111208

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2010 to January 09, 2013
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 08, 2011

P1, total 24 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix

Appendix A. Test Photos

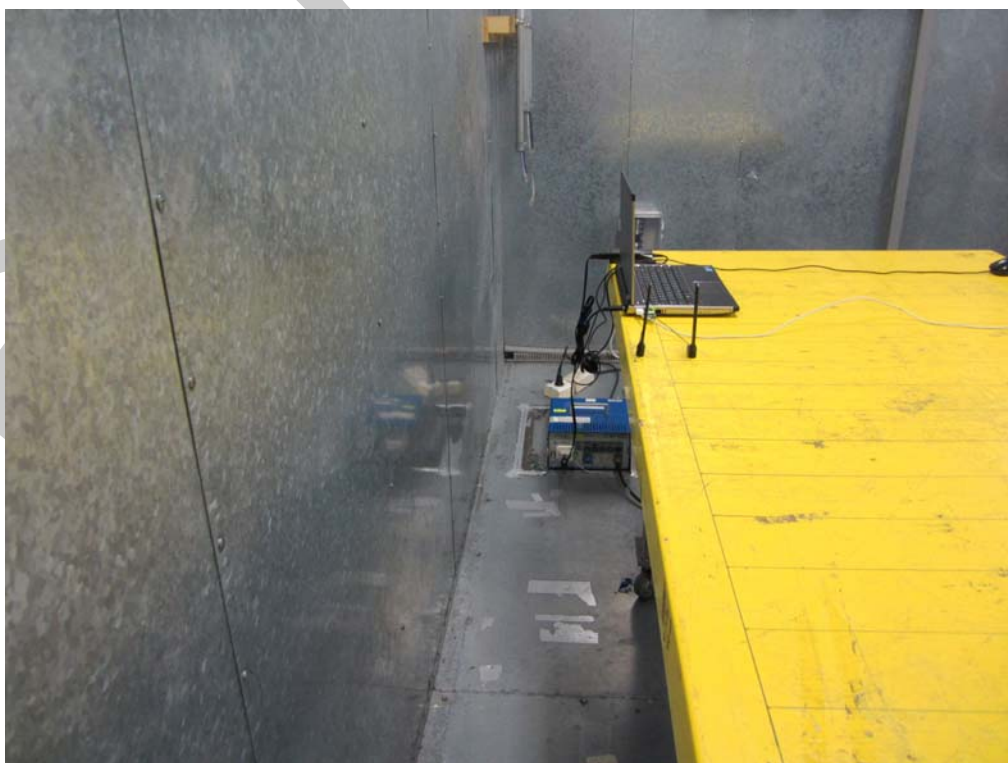
Draft report

1 Photographs of Conducted Emissions Test Configuration

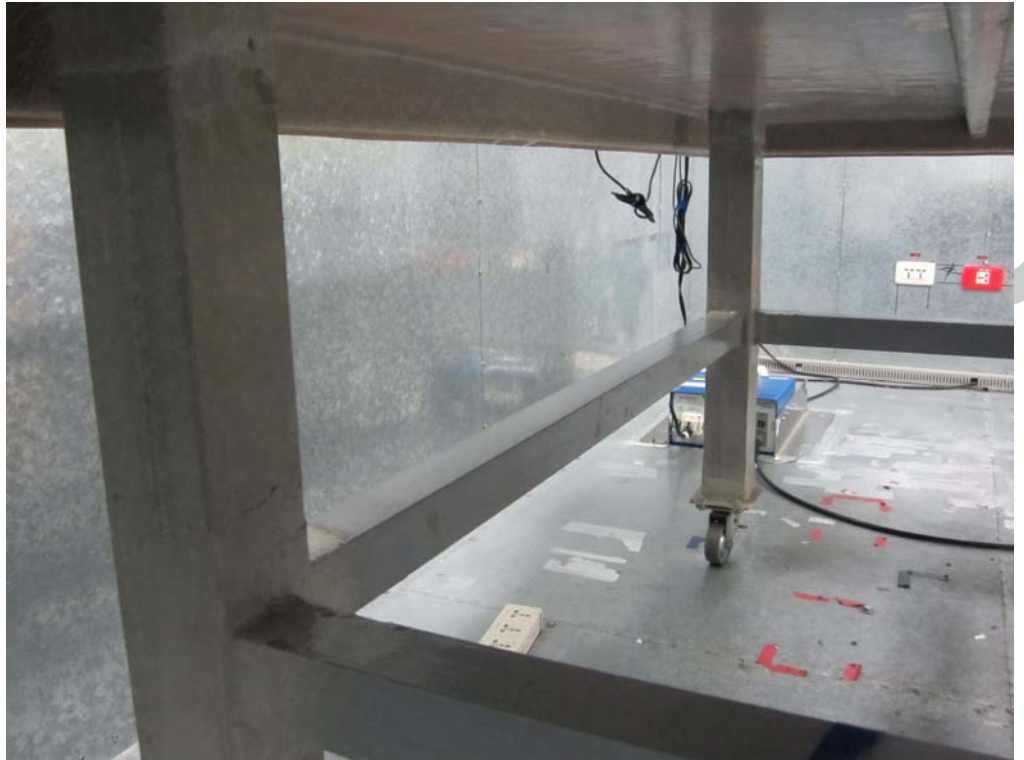
FRONT VIEW



REAR VIEW

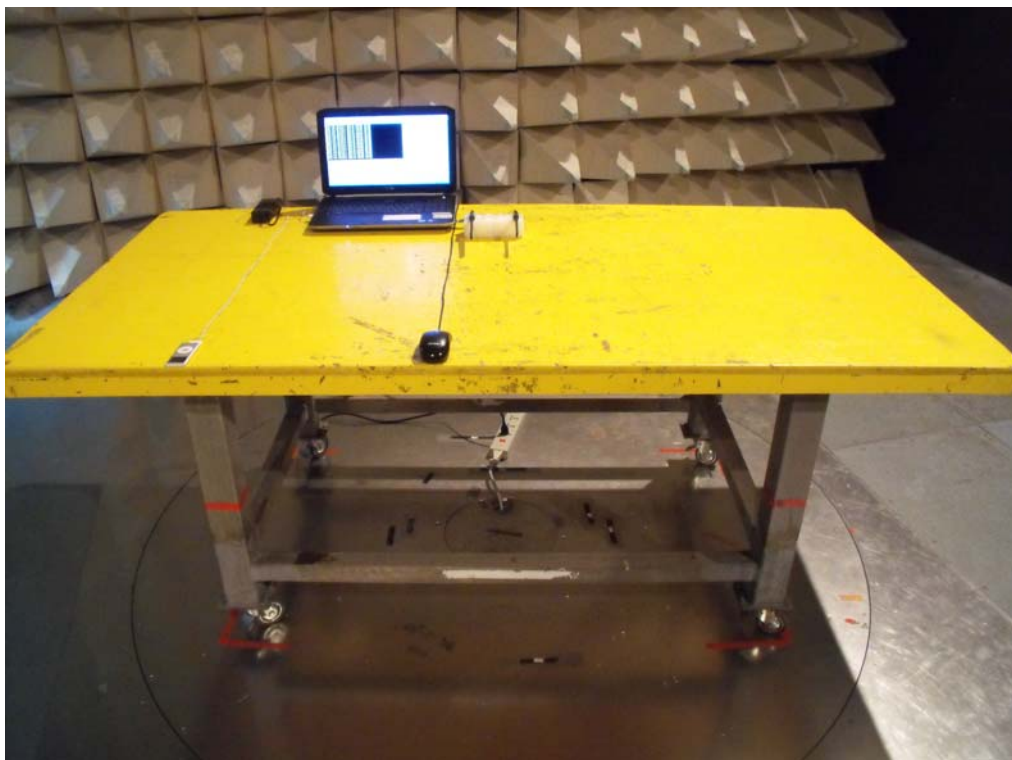


SIDE VIEW

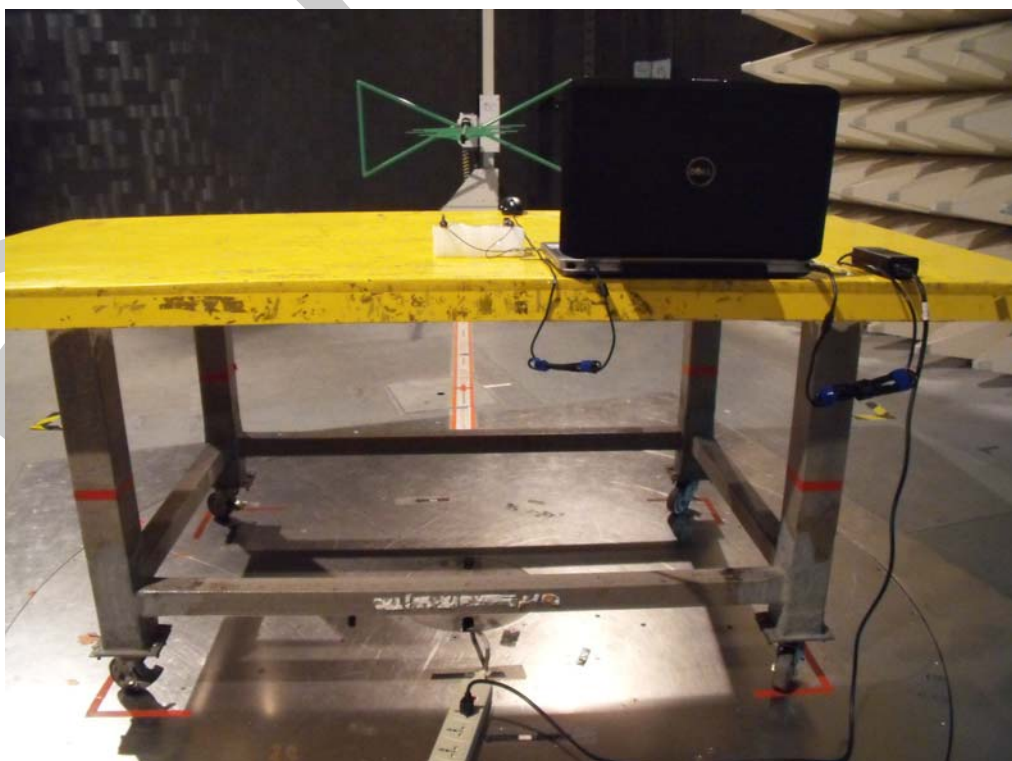


2 Photographs of Radiated Emissions Test Configuration

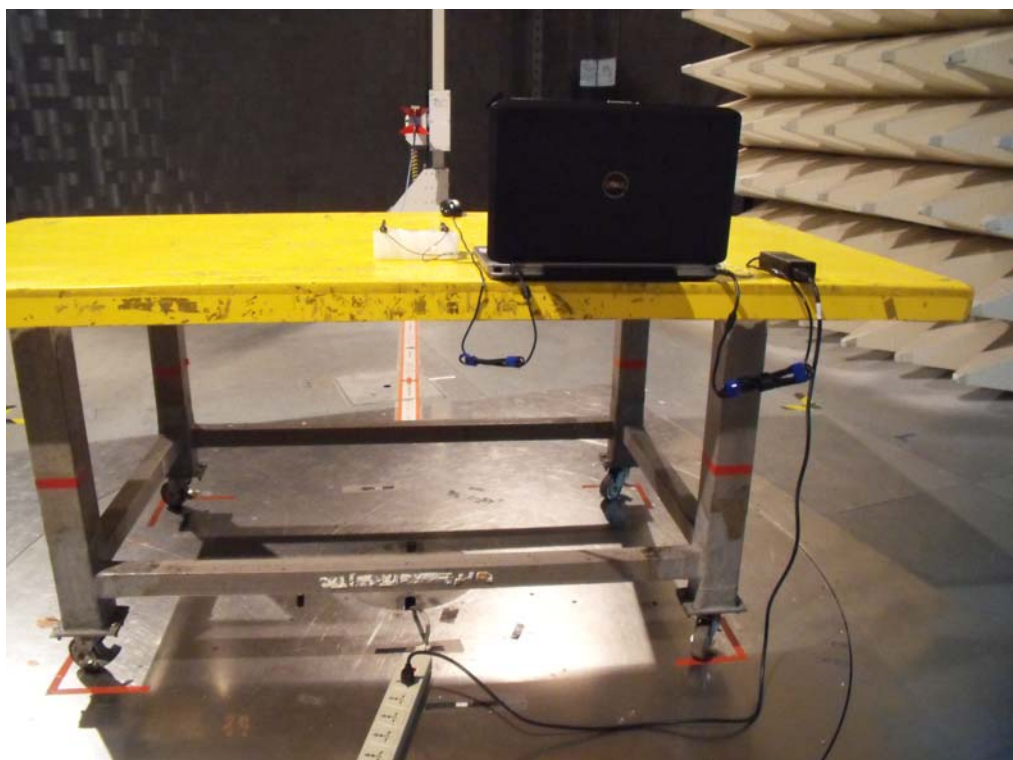
FRONT VIEW



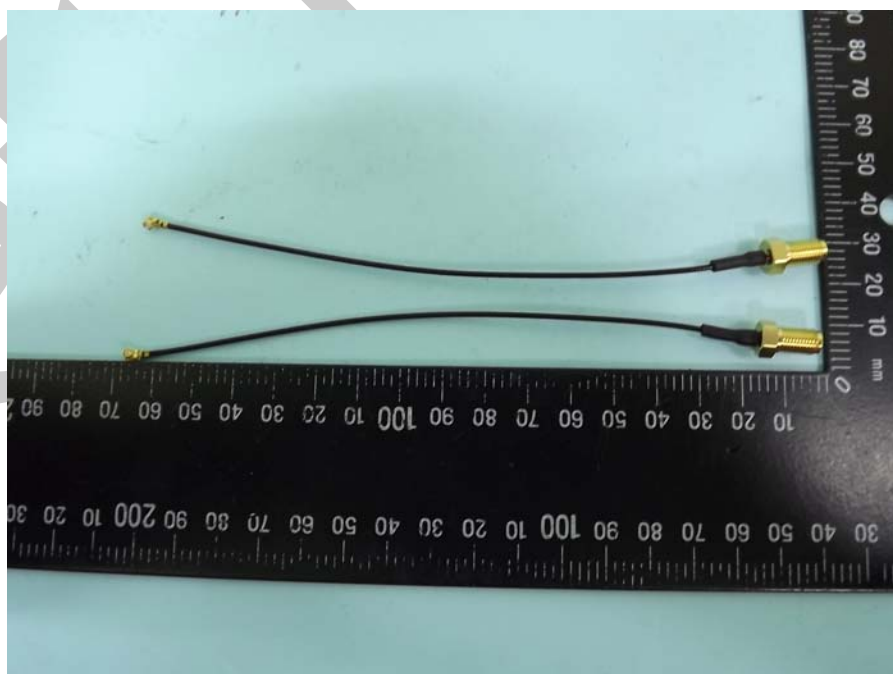
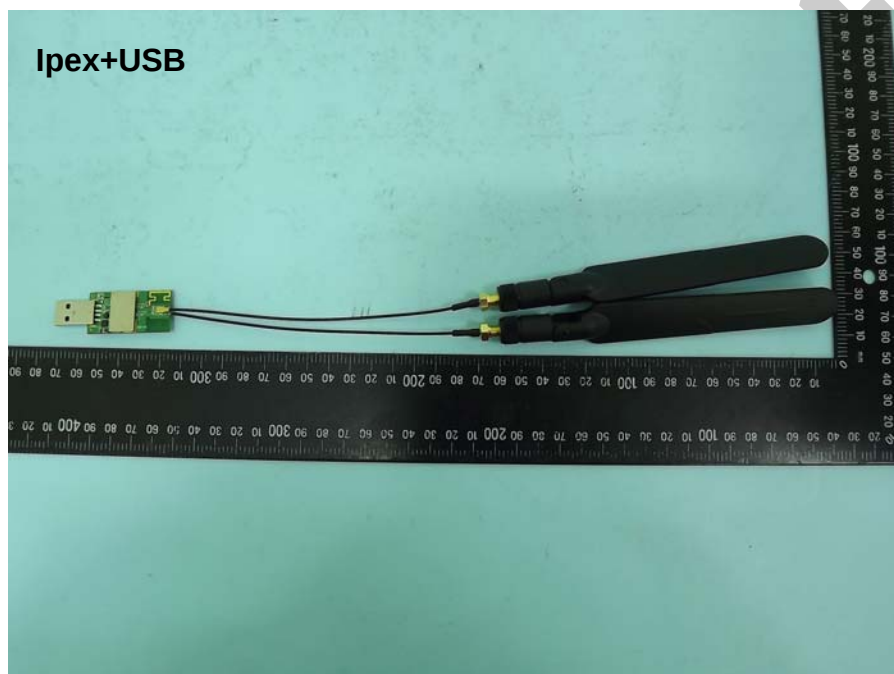
REAR VIEW



REAR VIEW

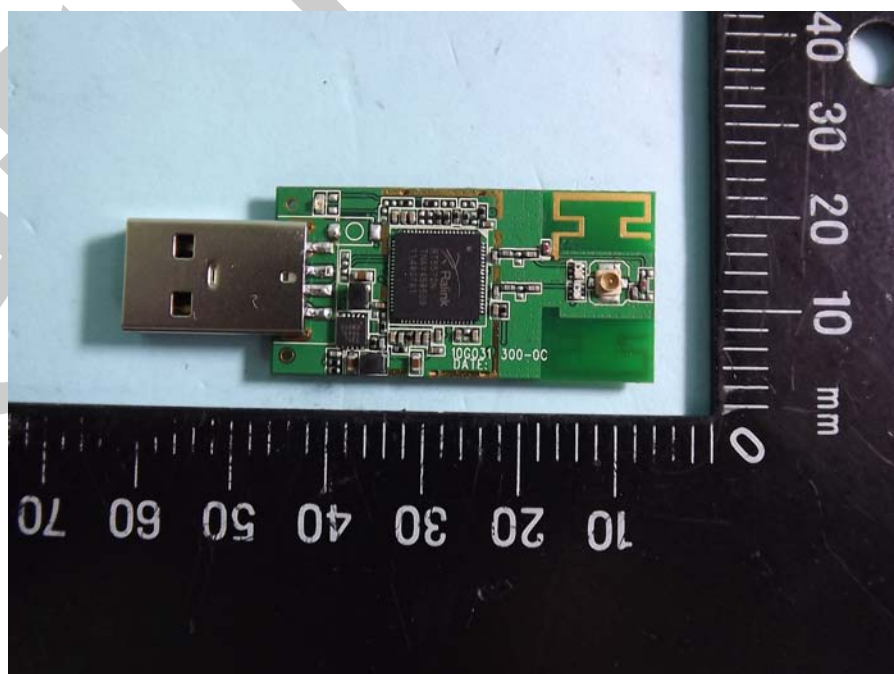
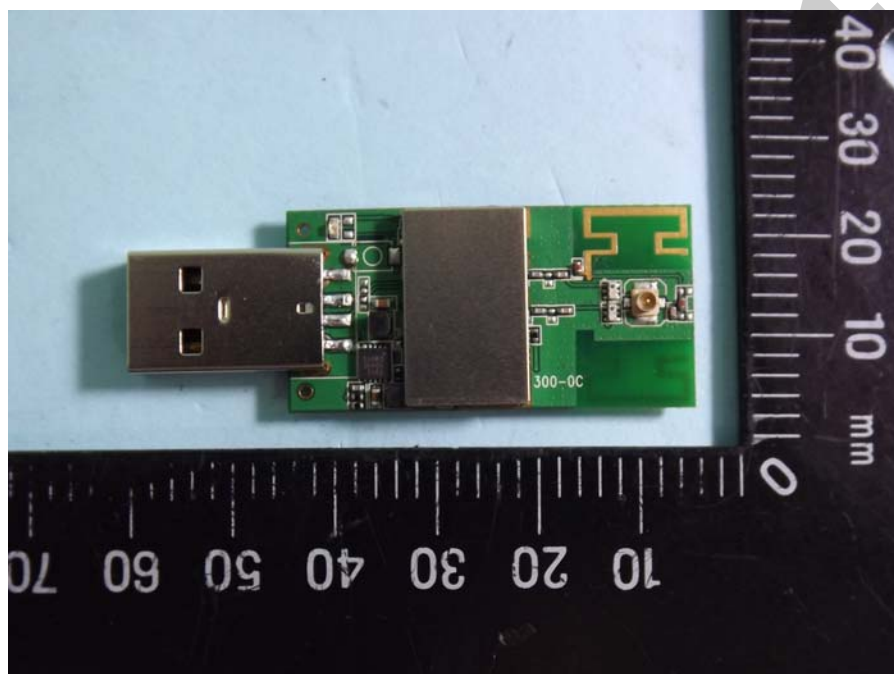


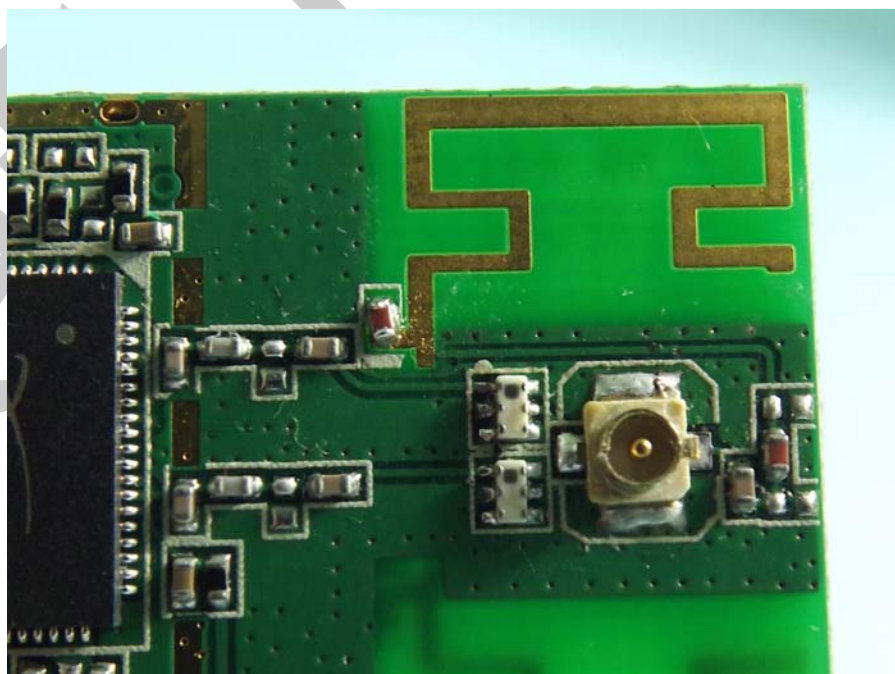
APPENDIX B. Photographs of EUT

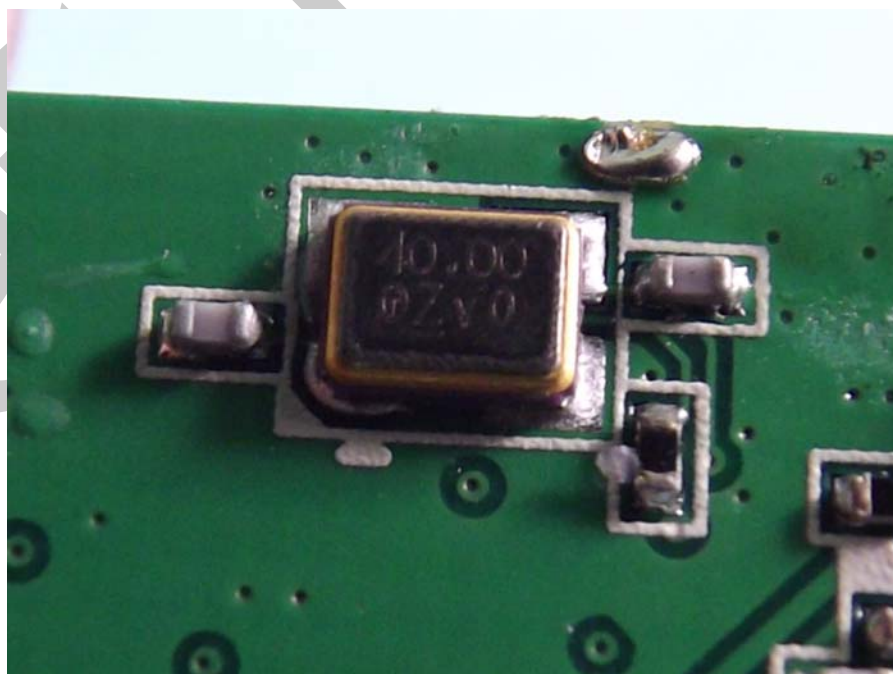
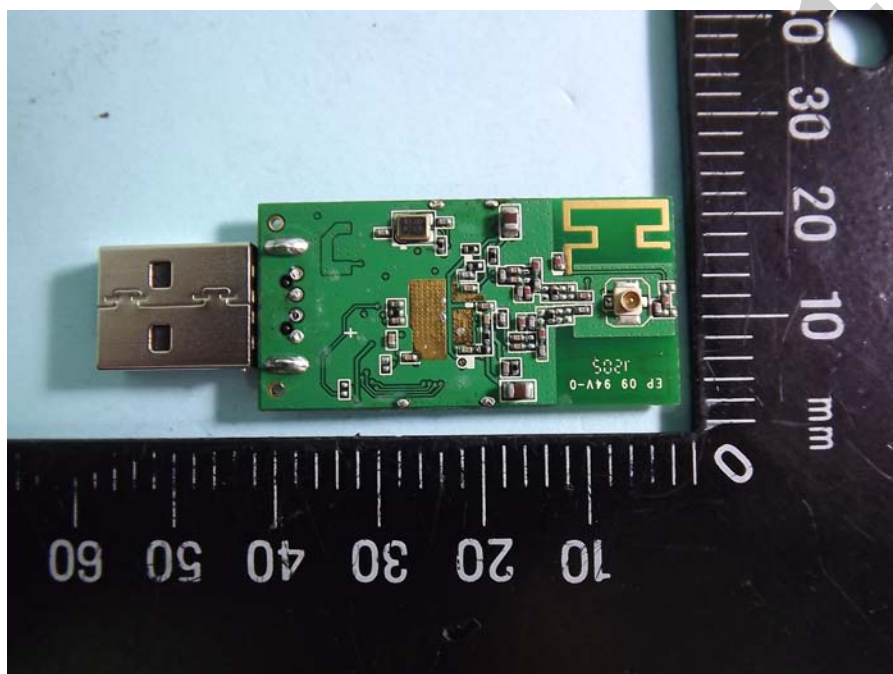


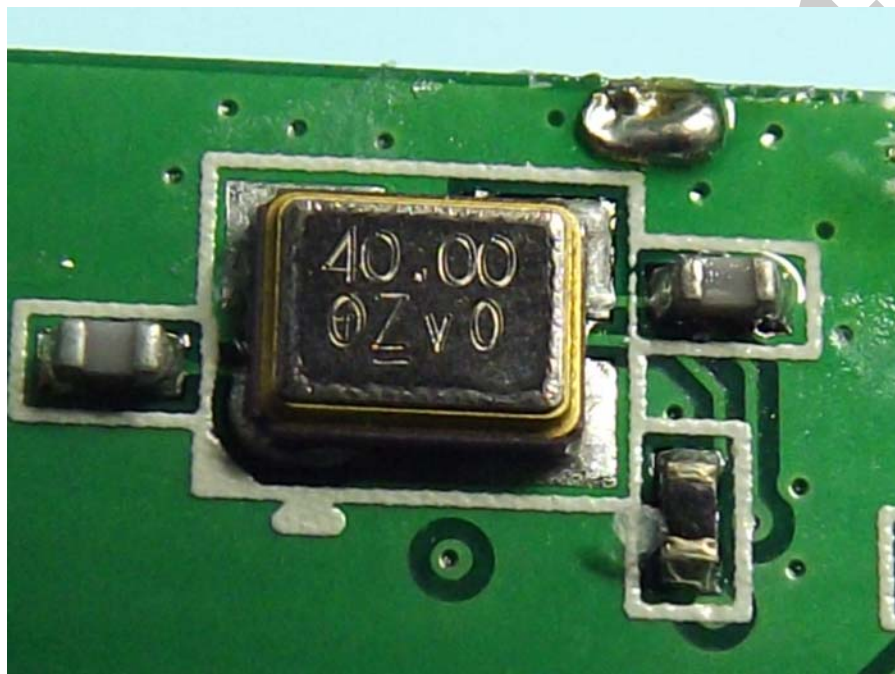












lpex+4pin pin-header

