FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.249

Equipment	:	**Connected Home Gateway**
Brand Name	:	**MOTOROLA**
Model No.	:	**CPP100/1B1A/US1, CPP100/3E1A/US1**
Filing Type	:	**New Application**
Applicant	:	**Motorola Mobility Inc.** 101 Tournament Dr. Horsham, PA 19044
FCC ID	:	**ACQCPP**
Manufacturer	:	**Motorola Mobility Inc.** 101 Tournament Dr. Horsham, PA 19044
Received Date	:	Jan. 30, 2012
Final Test Date	:	Mar. 05, 2012

Statement

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 **47 CFR FCC Part 15 Subpart C**.

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

Testing Laboratory
1190

SPORTON International Inc.

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

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History of This Test Report

Original Issue Date: Mar. 05, 2012
Report No.: FR211729
■ No additional attachment.
□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 15 Subpart C § 15.249

Equipment	:	Connected Home Gateway
Brand Name	:	MOTOROLA
Model No.	:	CPP100/1B1A/US1, CPP100/3E1A/US1
Applicant	:	Motorola Mobility Inc.
		101 Tournament Dr. Horsham, PA 19044

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jan. 30, 2012 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Wayne Hsu / Assistant Manager

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: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
3.1	15.207	AC Power Line Conducted Emissions	Complies	14.65 dB
3.2	15.249(a)	Field Strength of Fundamental Emissions	Complies	3.38 dB
3.3	15.215(c)	20dB Spectrum Bandwidth Measurement	Complies	-
3.4	15.249(a)/(d)	Radiated Emissions	Complies	5.42 dB
3.5	15.249(d)	Band Edge Emissions	Complies	10.28 dB
3.6	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Field Strength of Fundamental Emissions	±0.8dB	Confidence levels of 95%
20dB Spectrum Bandwidth Measurement	$\pm 8.5\times10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7℃	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

2. GENERAL INFORMATION

2.1. Product Details

Items	Description
Power Type	12Vdc from adapter
Modulation	FSK
Frequency Range	908.40~908.42 MHz
Channel Number	2
20dB Spectrum Bandwidth Measurement	0.129 MHz
Max. Field Strength	90.62 dBuV/m at 3m (Average)
Antenna	Printed antenna (with gain of 1.8 dBi)

2.2. Accessories

Power	Brand	Model	Rating
AC Adapter	LEADER	MT12-Y120100-A1	Input: 100-120V~50/60Hz 0.3A Output: 12V 1.0A

Note: Regarding to more detail and other information, please refer to user manual.

2.3. Table for Test Modes

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

Test Items	Mode	Channel
AC Power Line Conducted Emissions	Normal Mode	-
Field Strength of Fundamental Emissions 20dB Spectrum Bandwidth Measurement	CTX	908.40 MHz / 908.42 MHz
Radiated Emissions 9kHz~1GHz	Normal Mode	-
Radiated Emissions 1GHz~10th Harmonic	CTX	908.40 MHz / 908.42 MHz
Band Edge Emissions	CTX	908.40 MHz / 908.42 MHz

Note: CTX=continuously transmitting.

2.4. Table for Testing Locations

Test Site No.	Site Category	Location
CO04-HY	Conduction	Hwa Ya
TH01-HY	OVEN Room	Hwa Ya
OS02-NH (Below 1GHz)	OATS	Nei Hu
03CH02-HY (Above 1GHz)	SAC	Hwa Ya

Open Area Test Site (OATS);Semi Anechoic Chamber (SAC).

2.5. Table for Supporting Units

Support Unit	Brand	Model	FCC ID	Remark
USB Flash	TDK	8GB	DoC	Conducted Emissions
Personal Computer (Remote Workstation)	HP	-	-	
LCD Monitor (Remote Workstation)	DELL	2408WFPb	DoC	
(PS2) Keyboard (Remote Workstation)	HP	KB-0133	DoC	
(PS2) Mouse (Remote Workstation)	HP	M-S69	DoC	
Connected Home Gateway (Remote Workstation)	MOTOROLA	CPP100	-	
USB Flash	TDK	8GB	DoC	Radiated Emissions (Below 1GHz)
Connected Home Gateway (Remote Workstation)	MOTOROLA	CPR100	-	
Personal Computer (Remote Workstation)	Compaq	D31m	DoC	
Personal Computer (Remote Workstation)	Compaq	D31m	DoC	Radiated Emissions (Above 1GHz)

Note: The Personal Computer, USB Flash and Connected Home Gateway provides is by customer.

2.6. EUT Operation during Test

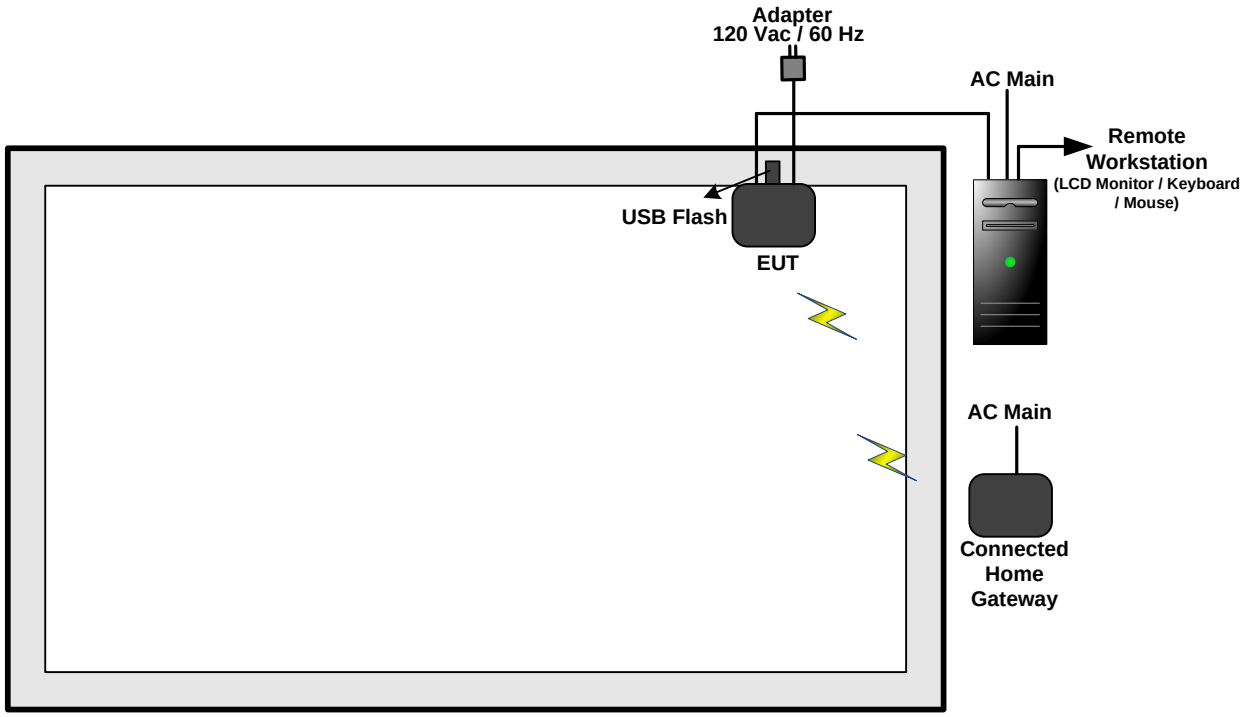
Two executive programs, "kiwi Syslog" and "Tftp32d" under Win XP, must be executed before the test. The testing steps were executed as follows.

Step1: Executed "kiwi Syslog" to read the testing log or result from EUT.
Step2: Exectued "TFTP Server"(Tftp32d) for downloading the testing kernel into EUT via RJ45 cable.
Step3: Powered on EUT.
Step4: EUT executed 'zwping' to run connection test with the remote workstation(Connected Home Gateway) by Z-Wave module periodically and automatically.
Step5: EUT executed 'l2ping' to run connection test with the remote workstation(Connected Home Gateway) by Bluetooth module periodically and automatically.
Step6: EUT executed 'ping' to run connection test with the remote workstation(Connected Home Gateway) by WiFi module periodically and automatically.
Step7: All test results by above connection tests were reported to "kiwi Syslog" utility in remove PC by RJ45 cable.

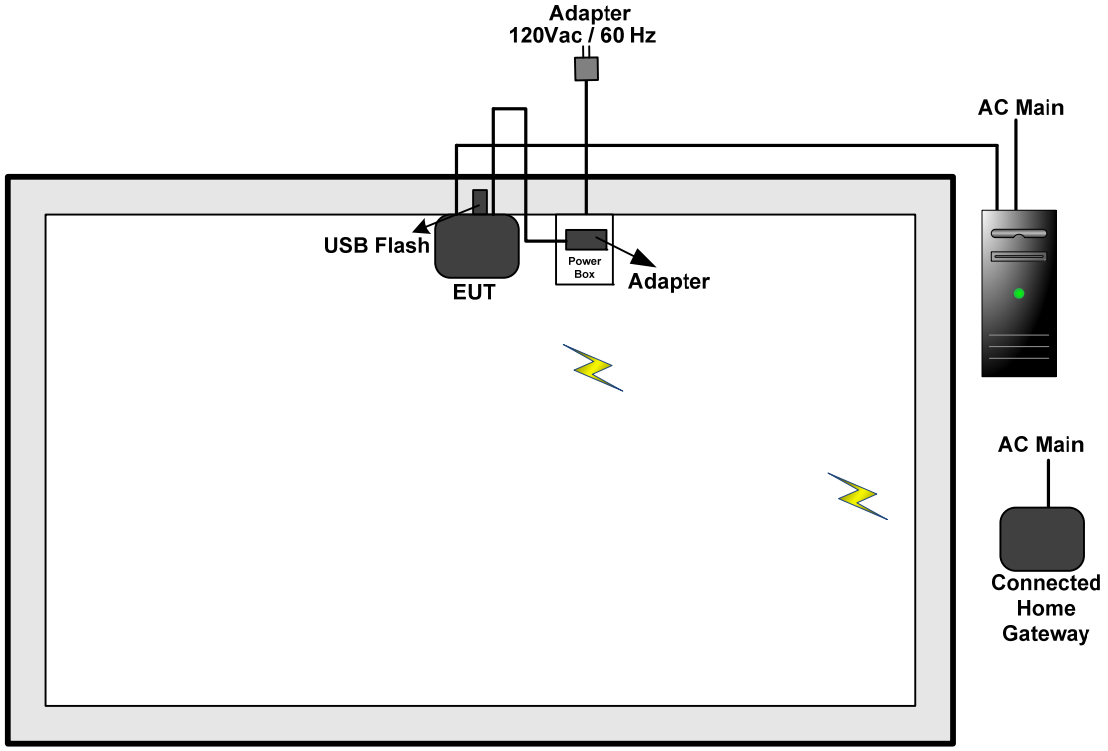
For Radiated Emissions :
- Executed “ Command” to keep transmitting signals at fixed frequency.

2.7. Test Configurations

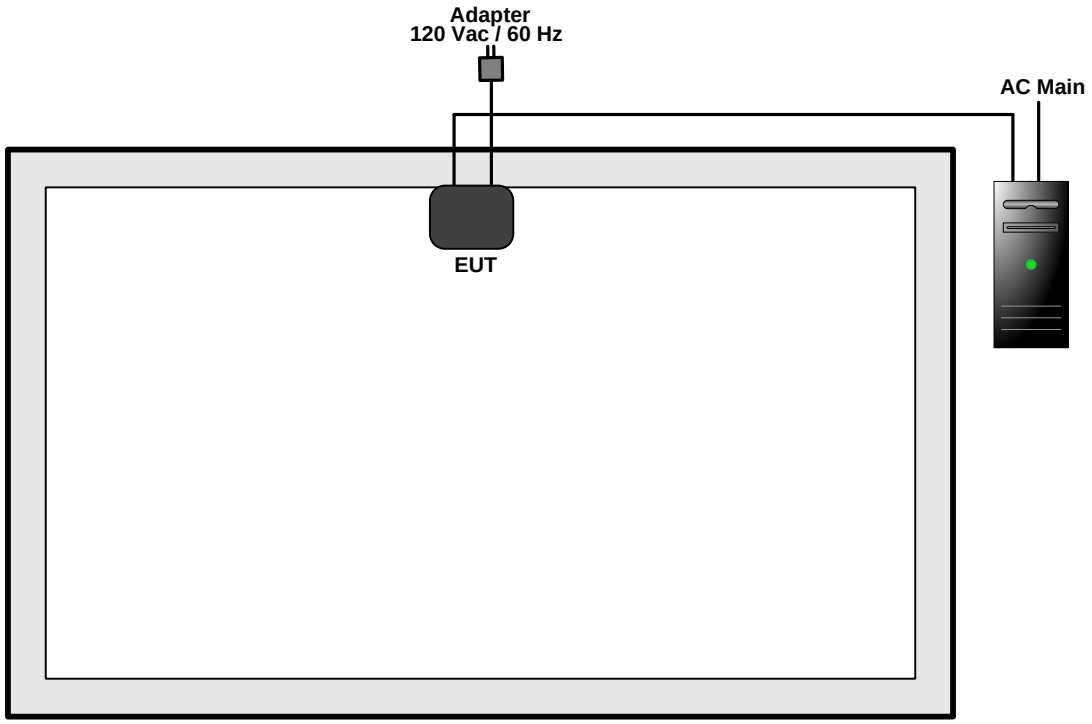
For conducted emissions



For radiated emissions 9kHz~1GHz



For radiated emissions above 1GHz



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

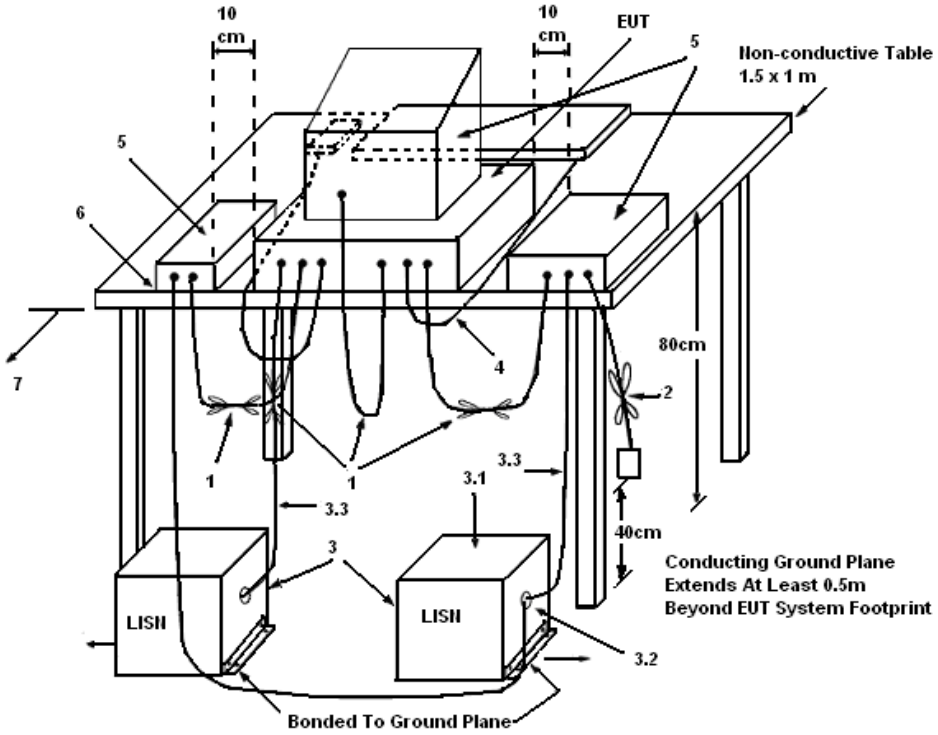
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

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 warm up about 15 minutes then start test.
2. Configure the EUT according to ANSI C63.4. The EUT or host of 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 or host of 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 provide 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
7. The measurement has to be done between each power line and ground at the power terminal.

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.

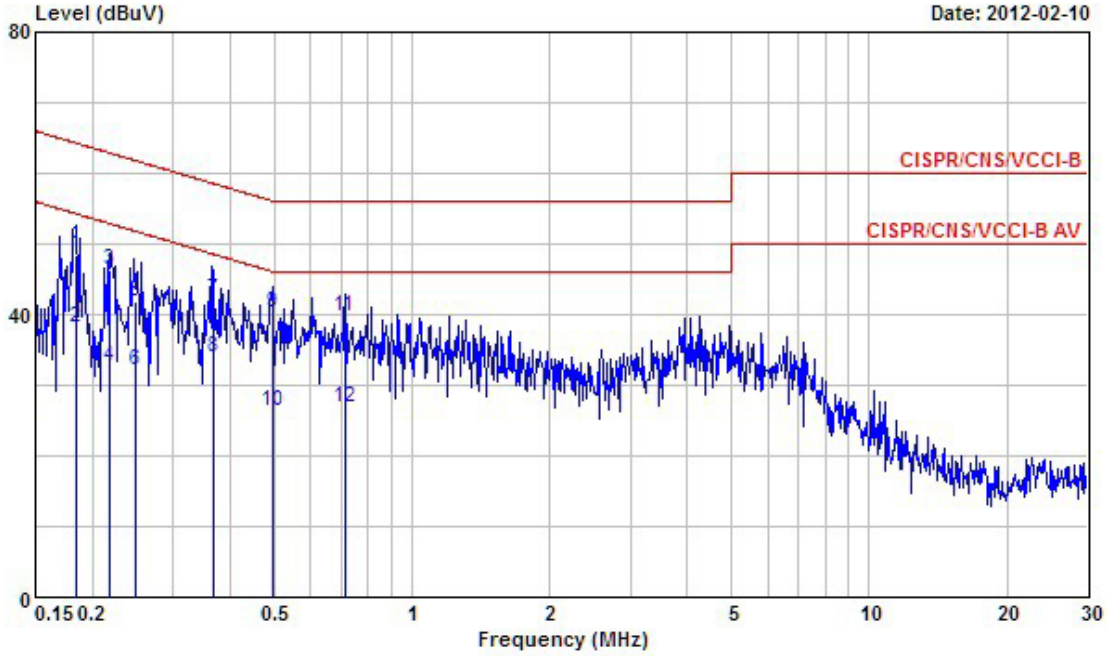
3.1.6. EUT Operation during Test

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

3.1.7. Results of AC Power Line Conducted Emissions Measurement

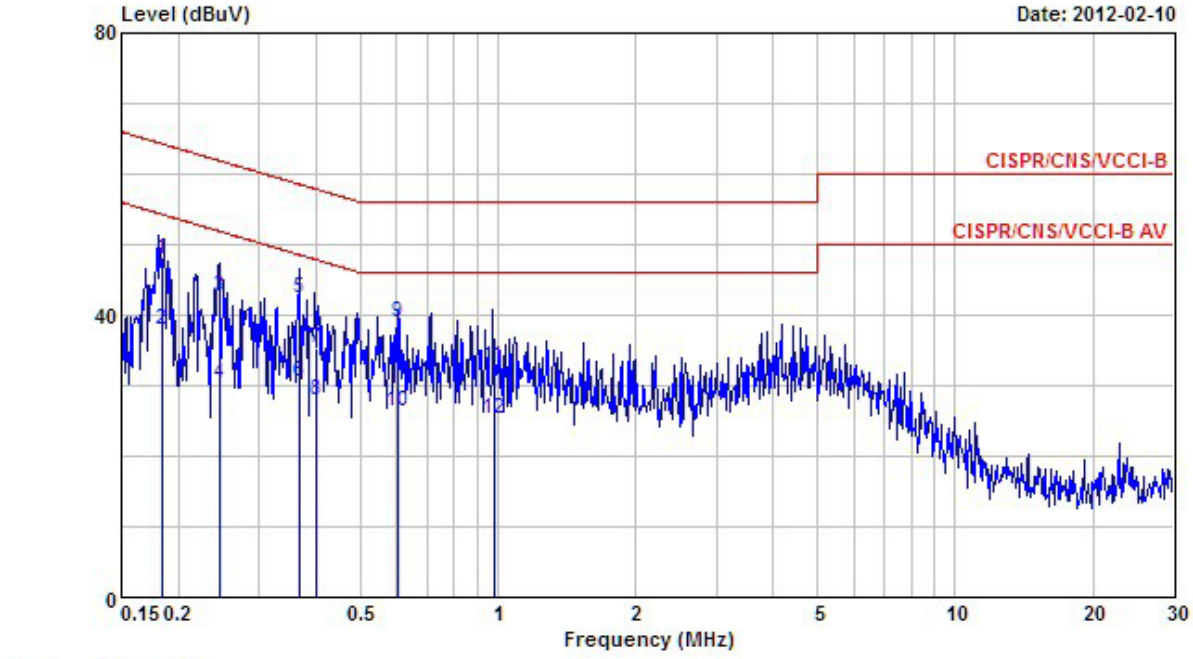
Final Test Date	Feb. 10, 2012	**Test Site No.**	CO04-HY
Temperature	22.5℃	**Humidity**	50%
Test Engineer	Assen	**Configuration**	Normal Mode

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1834550	48.50	-15.83	64.33	48.11	0.30	0.09	QP
2	0.1834550	38.15	-16.18	54.33	37.76	0.30	0.09	Average
3	0.2173520	46.23	-16.69	62.92	45.83	0.30	0.10	QP
4	0.2173520	32.60	-20.32	52.92	32.20	0.30	0.10	Average
5	0.2489220	41.74	-20.05	61.79	41.34	0.30	0.10	QP
6	0.2489220	32.15	-19.64	51.79	31.75	0.30	0.10	Average
7	0.3673120	42.04	-16.52	58.56	41.64	0.30	0.10	QP
8	@0.3673120	33.91	-14.65	48.56	33.51	0.30	0.10	Average
9	0.4941090	40.25	-15.85	56.10	39.86	0.29	0.10	QP
10	0.4941090	26.24	-19.86	46.10	25.85	0.29	0.10	Average
11	0.7121870	39.72	-16.28	56.00	39.33	0.29	0.10	QP
12	0.7121870	26.91	-19.09	46.00	26.52	0.29	0.10	Average

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1845220	47.83	-16.45	64.28	47.48	0.26	0.09	QP
2	0.1845220	37.81	-16.47	54.28	37.46	0.26	0.09	Average
3	0.2455200	42.64	-19.27	61.91	42.29	0.25	0.10	QP
4	0.2455200	30.39	-21.52	51.91	30.04	0.25	0.10	Average
5	0.3672530	42.32	-16.24	58.56	41.98	0.24	0.10	QP
6	0.3672530	30.42	-18.14	48.56	30.08	0.24	0.10	Average
7	0.4008820	35.33	-22.51	57.84	34.99	0.24	0.10	QP
8	0.4008820	27.88	-19.96	47.84	27.54	0.24	0.10	Average
9	0.6011200	38.87	-17.13	56.00	38.53	0.24	0.10	QP
10	0.6011200	26.24	-19.76	46.00	25.90	0.24	0.10	Average
11	0.9802920	32.67	-23.33	56.00	32.32	0.25	0.10	QP
12	0.9802920	25.15	-20.85	46.00	24.80	0.25	0.10	Average

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

3.2. Field Strength of Fundamental Emissions Measurement

3.2.1. Limit

The field strength of fundamental emissions within these bands specified at a distance of 3 meters (measurement instrumentation employing an average detector) shall comply with the following table.

Frequency Band (MHz)	Fundamental Emissions Limit (dBuV/m) at 3m
908.40-908.42	94

3.2.2. Measuring Instruments and Setting

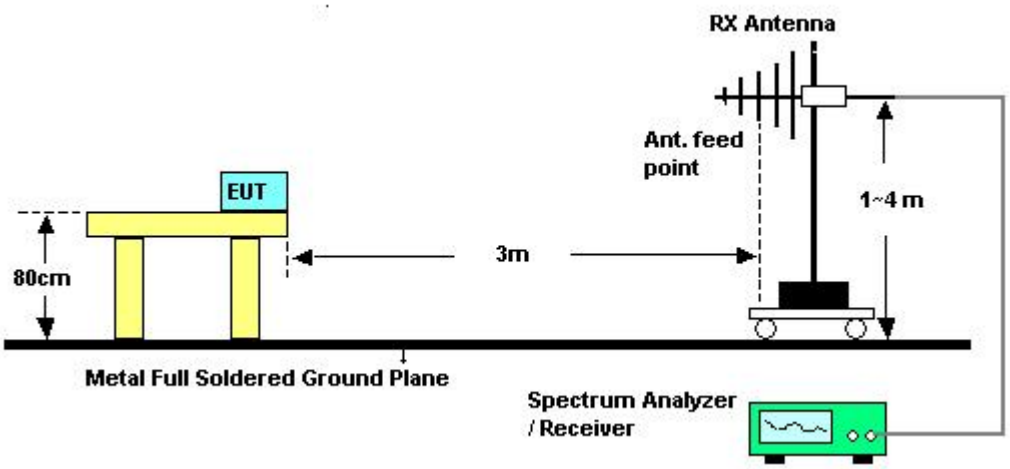
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Power Meter Parameter	Setting
RB	1 MHz Peak / 1MHz Average
VB	1 MHz Peak / 10Hz Average
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.2.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. 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. For Fundamental emissions, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

3.2.4. Test Setup Layout



3.2.5. Test Deviation

There is no deviation with the original standard.

3.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7. Test Result of Field Strength of Fundamental Emissions

Final Test Date	Jan. 31, 2012	**Test Site No.**	03CH02-HY
Temperature	19.9℃	**Humidity**	61%
Test Engineer	Streak	**Configurations**	908.40 MHz / 908.42 MHz

908.40 MHz

	Freq	Level	Over Limit	Limit Line	Read 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
2	908.400	89.31	-4.69	94.00	91.33	20.25	5.30	27.57	Average	---	---
2	908.400	96.71	-17.29	114.00	98.73	20.25	5.30	27.57	Peak	---	---

908.42 MHz

	Freq	Level	Over Limit	Limit Line	Read 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
2 @	908.420	90.62	-3.38	94.00	92.64	20.25	5.30	27.57	Average	---	---
2	908.420	96.65	-17.35	114.00	98.67	20.25	5.30	27.57	Peak	---	---

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

3.3. 20dB Spectrum Bandwidth Measurement

3.3.1. Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band.

3.3.2. Measuring Instruments and Setting

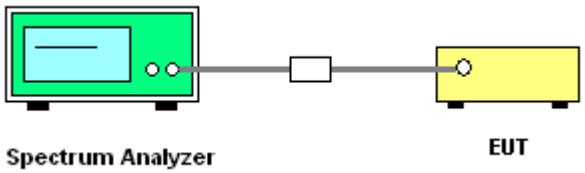
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	10 kHz
VB	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 10 kHz and the video bandwidth of 10 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.

3.3.4. Test Setup Layout



3.3.5. Test Deviation

There is no deviation with the original standard.

3.3.6. EUT Operation during Test

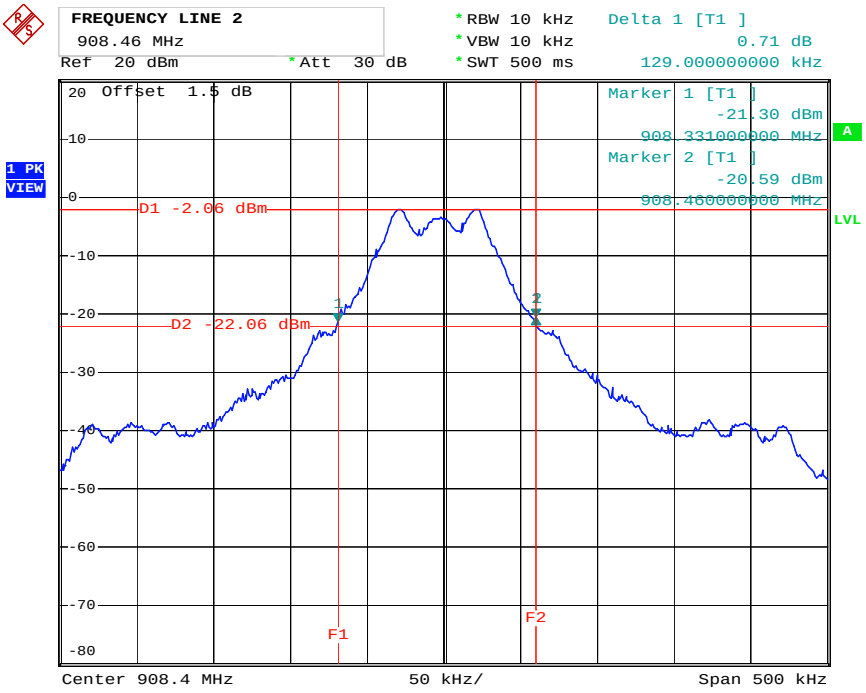
The EUT was programmed to be in continuously transmitting mode.

3.3.7. Test Result of 20dB Spectrum Bandwidth

Final Test Date	Jan. 30, 2012	**Test Site No.**	TH01-HY
Temperature	22.6℃	**Humidity**	30%
Test Engineer	Shiming	**Configurations**	908.40 MHz / 908.42 MHz

Frequency	**20dB Spectrum Bandwidth (MHz)**	**Frequency range (MHz)** f_L **> 908 MHz**	**Frequency range (MHz)** f_H **< 928 MHz**	**Test Result**
908.40 MHz	0.129	908.3310	908.4600	Complies
908.42 MHz	0.112	908.3590	908.4710	Complies

20dB Spectrum Bandwidth Plot on 908.40 MHz



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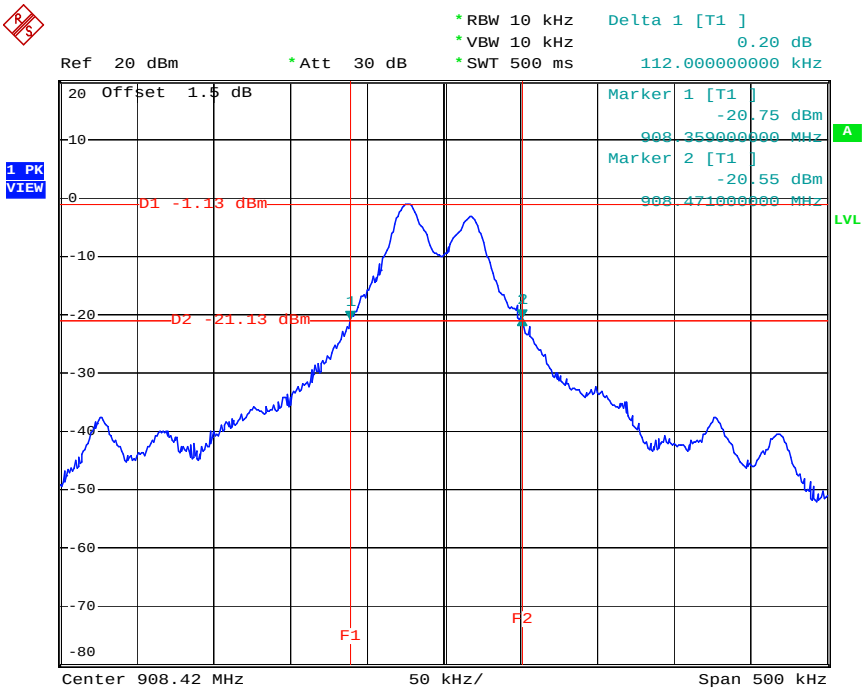
20dB Spectrum Bandwidth Plot on 908.42 MHz



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3.4. Radiated Emissions Measurement

3.4.1. Limit

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

3.4.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

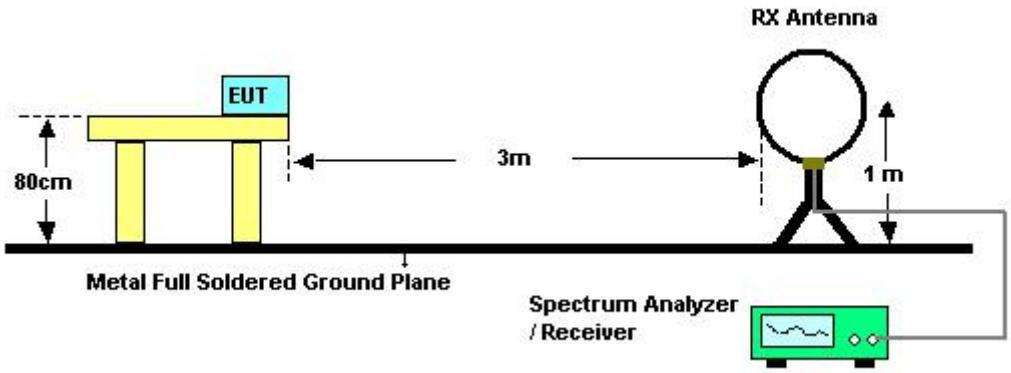
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.4.3. Test Procedures

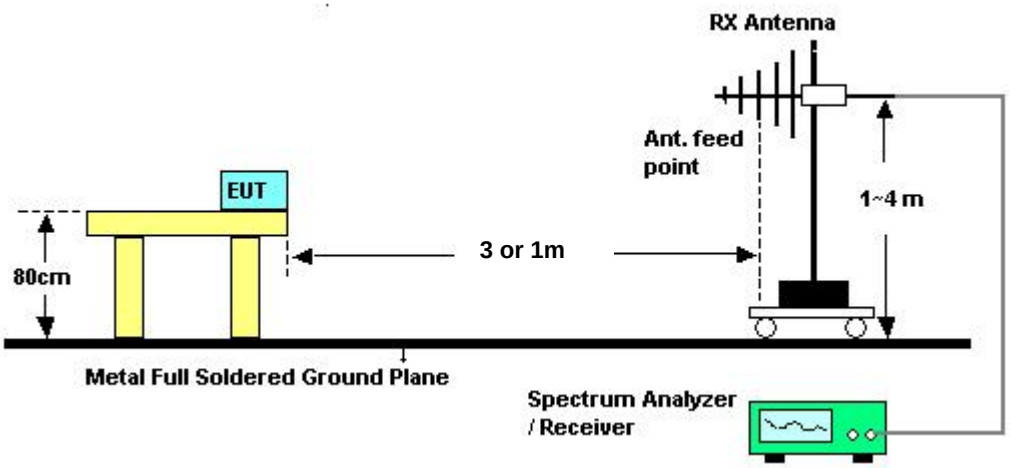
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions 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.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions 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.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.4.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.4.5. Test Deviation

There is no deviation with the original standard.

3.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.4.7. Results of Radiated Emissions (9kHz~30MHz)

Final Test Date	Mar. 05, 2012	**Test Site No.**	OS02-NH
Temperature	20℃	**Humidity**	55%
Test Engineer	Chas		

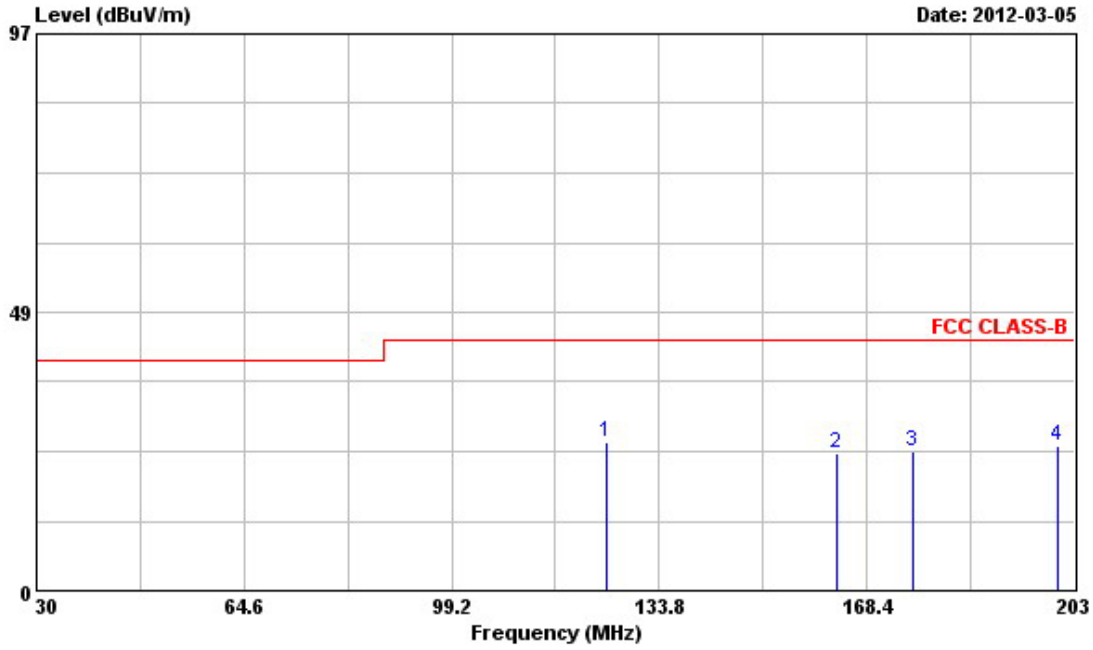
Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

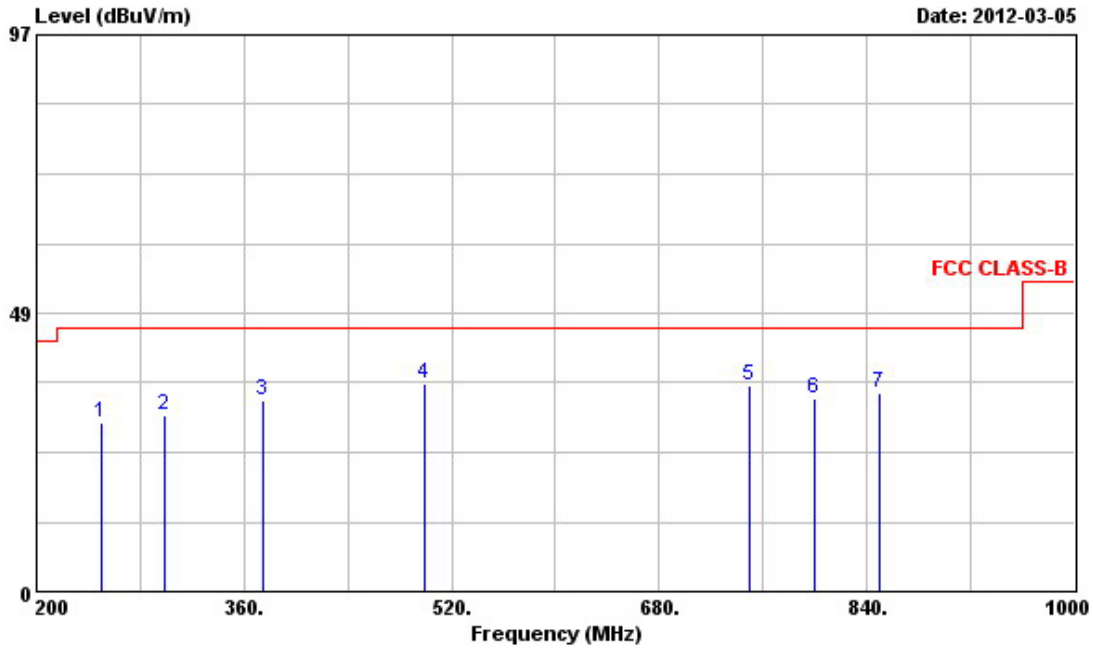
3.4.8. Results of Radiated Emissions (30MHz~1GHz)

Final Test Date	Mar. 05, 2012	**Test Site No.**	OS02-NH
Temperature	20℃	**Humidity**	55%
Test Engineer	Chas	**Configuration**	Normal Mode

Horizontal

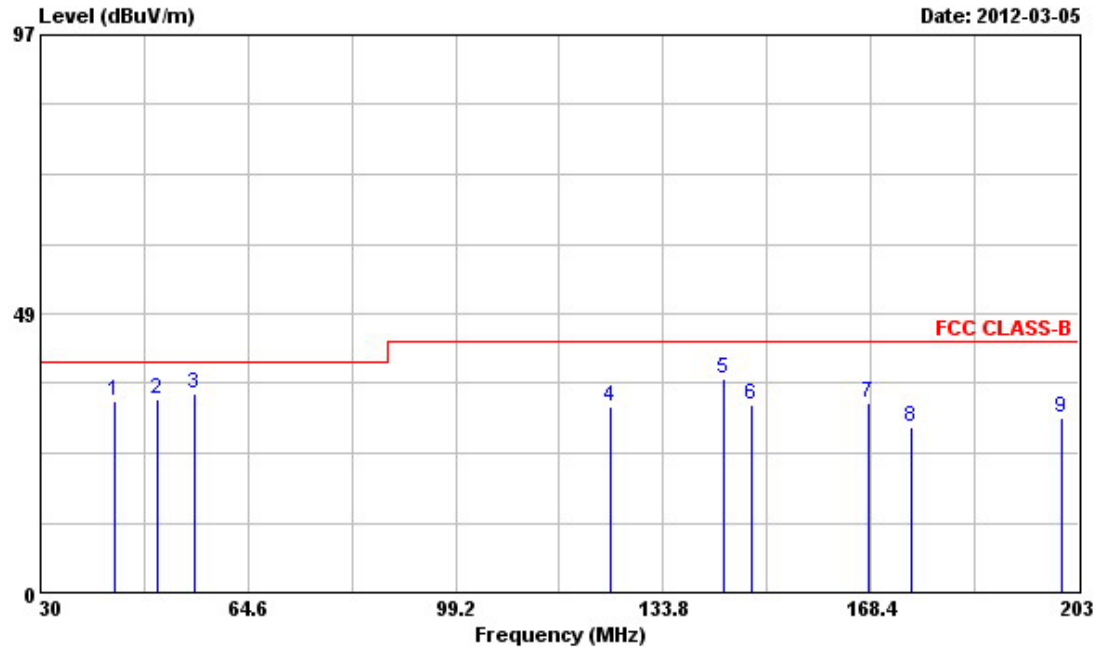


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	124.980	25.88	-17.62	43.50	43.84	12.36	1.32	31.64	Peak	---	---
2	163.380	23.95	-19.55	43.50	44.01	9.95	1.55	31.56	Peak	---	---
3	176.010	24.36	-19.14	43.50	45.09	9.20	1.59	31.52	Peak	---	---
4	200.060	25.16	-18.34	43.50	45.63	9.32	1.67	31.46	Peak	---	---

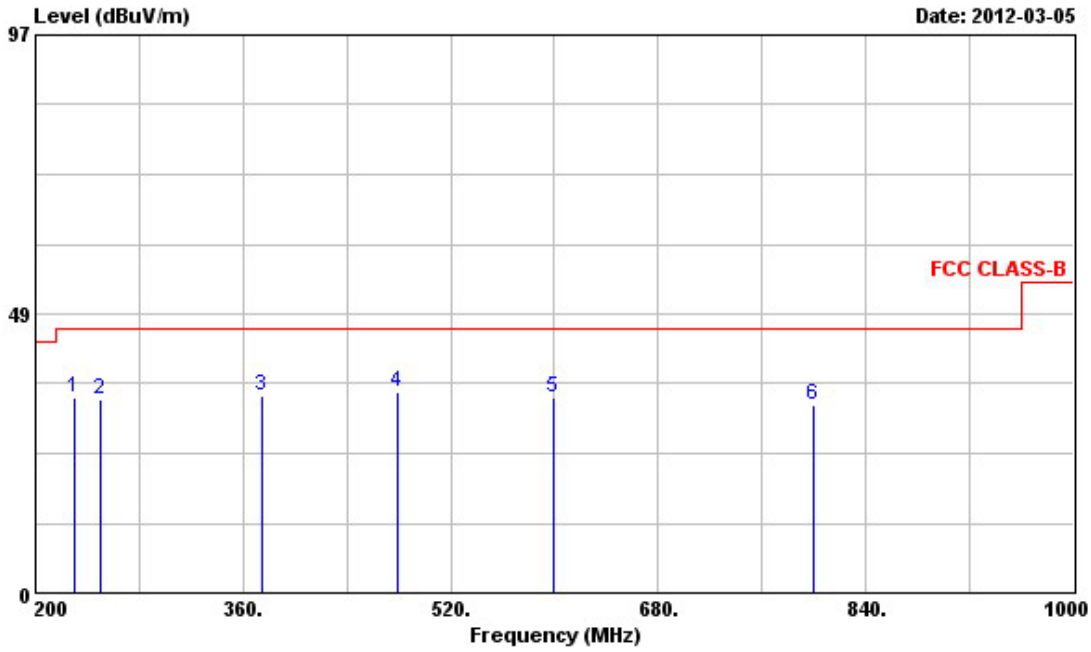


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	249.600	29.47	-16.53	46.00	46.70	12.29	1.90	31.42	Peak	---	---
2	298.400	30.77	-15.23	46.00	46.84	13.23	2.07	31.37	Peak	---	---
3	374.400	33.23	-12.77	46.00	47.14	15.14	2.36	31.41	Peak	---	---
4	499.200	36.23	-9.77	46.00	47.19	17.55	2.84	31.35	Peak	---	---
5	749.600	35.86	-10.14	46.00	43.40	19.98	3.79	31.31	Peak	---	---
6	800.000	33.74	-12.26	46.00	40.58	20.63	3.86	31.33	Peak	---	---
7	849.600	34.54	-11.46	46.00	40.90	21.12	3.80	31.28	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	Read 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	42.460	33.16	-6.84	40.00	51.87	12.31	0.81	31.83	QP	---	---
2	49.550	33.57	-6.43	40.00	55.97	8.59	0.86	31.85	Peak	---	---
3 @	55.600	34.58	-5.42	40.00	58.23	7.28	0.91	31.84	QP	100	180
4	124.980	32.42	-11.08	43.50	50.38	12.36	1.32	31.64	Peak	---	---
5	144.010	37.22	-6.28	43.50	56.79	10.61	1.42	31.60	Peak	---	---
6	148.510	32.51	-10.99	43.50	52.24	10.42	1.44	31.59	Peak	---	---
7	168.050	32.88	-10.62	43.50	53.14	9.71	1.57	31.54	Peak	---	---
8	175.150	28.85	-14.65	43.50	49.55	9.24	1.59	31.53	Peak	---	---
9	200.060	30.41	-13.09	43.50	50.88	9.32	1.67	31.46	Peak	---	---



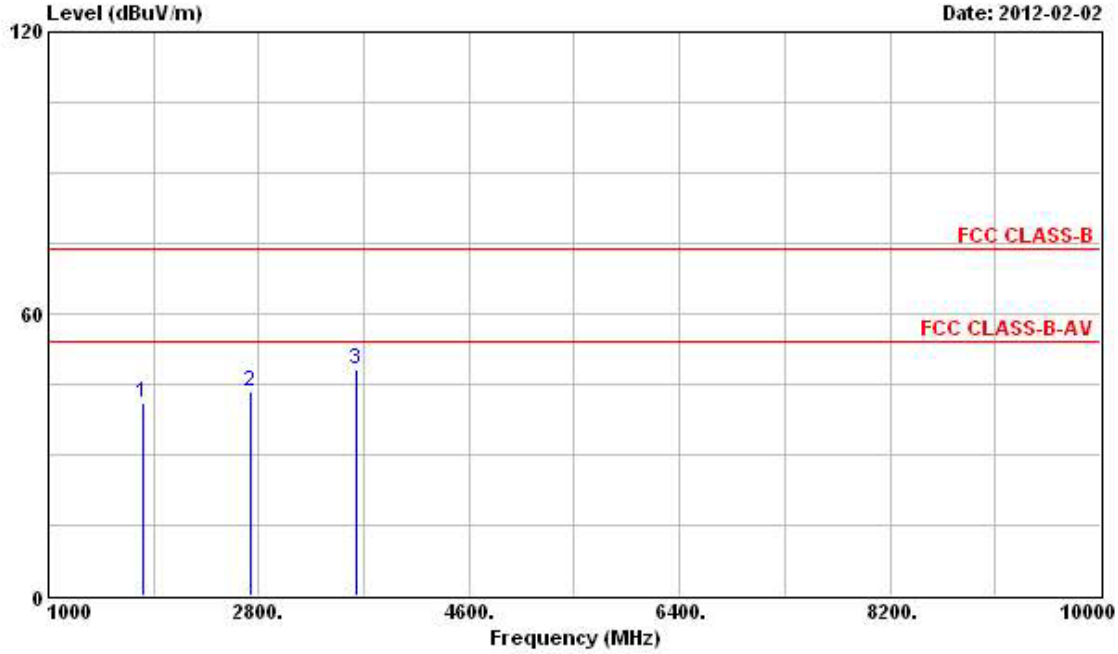
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	230.400	33.94	-12.06	46.00	52.37	11.18	1.82	31.43	Peak	---	---
2	249.600	33.51	-12.49	46.00	50.74	12.29	1.90	31.42	Peak	---	---
3	374.400	34.33	-11.67	46.00	48.24	15.14	2.36	31.41	Peak	---	---
4	479.200	34.87	-11.13	46.00	46.26	17.19	2.78	31.36	Peak	---	---
5	599.200	34.11	-11.89	46.00	43.02	19.08	3.30	31.29	Peak	---	---
6	800.000	32.52	-13.48	46.00	39.36	20.63	3.86	31.33	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.

3.4.9. Results for Radiated Emissions (1GHz~10th Harmonic)

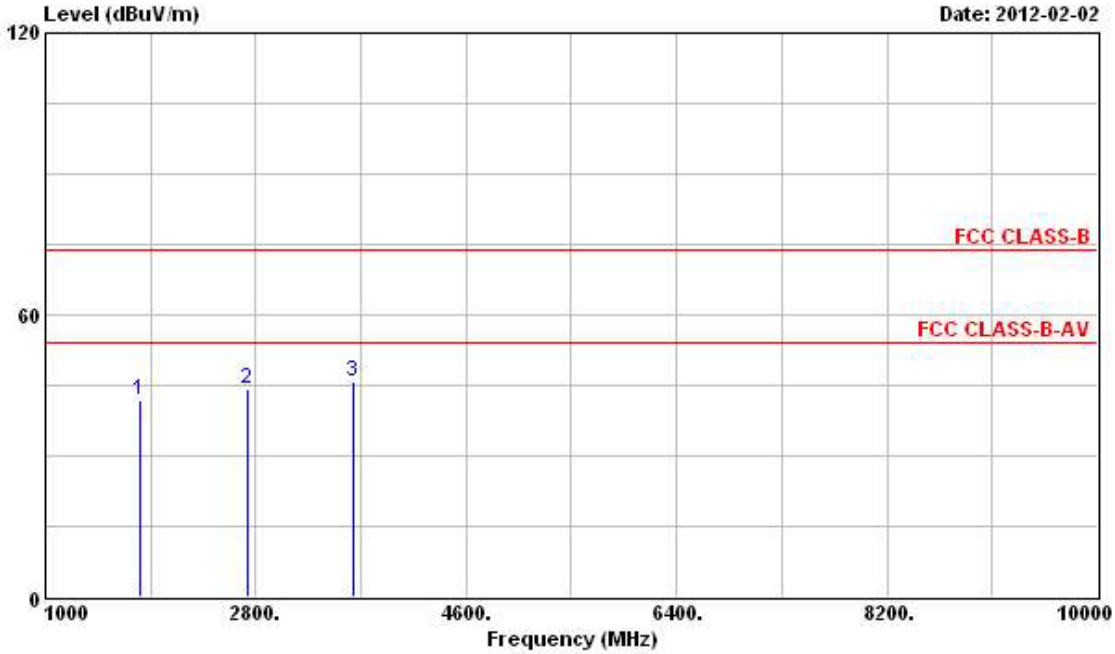
Final Test Date	Feb. 02, 2012	**Test Site No.**	03CH02-HY
Temperature	19.9℃	**Humidity**	61%
Test Engineer	Streak	**Configurations**	908.40 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	Read 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	1816.800	40.86	-33.14	74.00	43.77	29.21	2.56	34.68	Peak	---	---
2	2725.200	43.53	-10.47	54.00	42.45	32.72	3.24	34.88	PK	---	---
3 @	3633.600	48.19	-5.81	54.00	45.47	33.68	3.94	34.90	PK	---	---

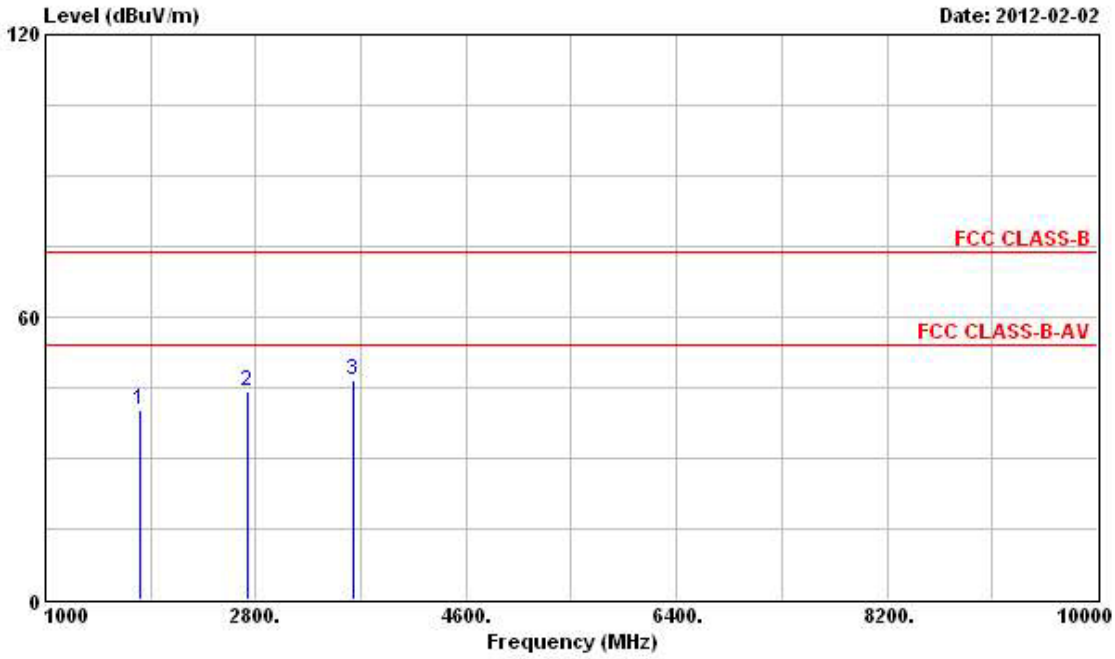
Vertical



	Freq	Level	Over Limit	Limit Line	Read 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	1816.800	41.99	-32.01	74.00	44.39	29.72	2.56	34.68	Peak	---	---
2 @	2725.200	44.34	-9.66	54.00	43.23	32.75	3.24	34.88	PK	---	---
3 @	3633.600	45.96	-8.04	54.00	43.37	33.55	3.94	34.90	PK	---	---

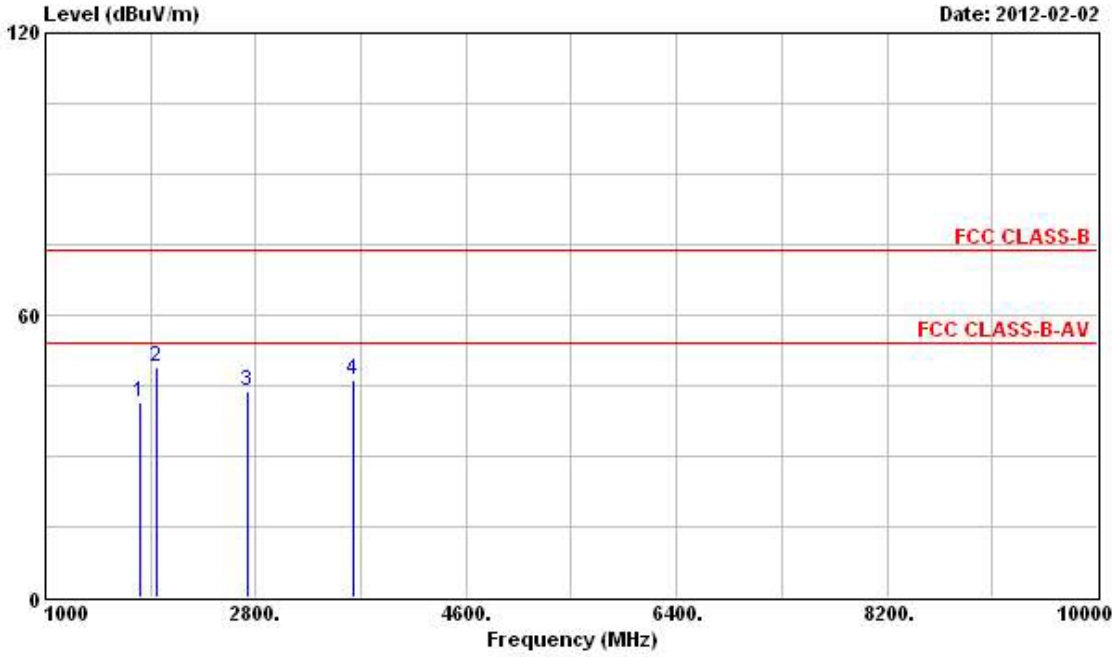
Final Test Date	Feb. 02, 2012	**Test Site No.**	03CH02-HY
Temperature	19.9℃	**Humidity**	61%
Test Engineer	Streak	**Configurations**	908.42 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	Read 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	1816.840	40.46	-33.54	74.00	43.37	29.21	2.56	34.68	Peak	---	---
2 @	2725.260	44.29	-9.71	54.00	43.21	32.72	3.24	34.88	PK	---	---
3 @	3633.680	46.55	-7.45	54.00	43.83	33.68	3.94	34.90	PK	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	Read 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	1816.840	41.47	-32.53	74.00	43.87	29.72	2.56	34.68	Peak	---	---
2	1958.000	49.10	-24.90	74.00	50.68	30.36	2.69	34.63	Peak	---	---
3	2725.260	43.97	-10.03	54.00	42.86	32.75	3.24	34.88	PK	---	---
4 @	3633.680	46.01	-7.99	54.00	43.42	33.55	3.94	34.90	PK	---	---

3.5. Band Edge Emissions Measurement

3.5.1. Limit

Band edge emissions radiated outside of the specified frequency bands shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

3.5.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

3.5.3. Test Procedures

1. The test procedure is the same as section 3.4.3, only the frequency range investigated is limited to 2MHz around band edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

3.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 3.4.4.

3.5.5. Test Deviation

There is no deviation with the original standard.

3.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.5.7. Test Result of Band Edge

Final Test Date	Jan. 31, 2012	**Test Site No.**	03CH02-HY
Temperature	19.9℃	**Humidity**	61%
Test Engineer	Streak	**Configurations**	908.40 MHz / 908.42 MHz

908.40 MHz

	Freq	Level	Over Limit	Limit Line	Read 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	900.370	20.32	-25.68	46.00	22.62	20.05	5.25	27.60	Average	---	---
3	949.930	25.84	-20.16	46.00	26.44	21.28	5.53	27.41	Average	---	---
1	900.020	33.36	-12.64	46.00	35.68	20.03	5.25	27.60	Peak	---	---
3	949.930	35.56	-10.44	46.00	36.16	21.28	5.53	27.41	Peak	---	---

908.42 MHz

	Freq	Level	Over Limit	Limit Line	Read 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	900.370	21.45	-24.55	46.00	23.75	20.05	5.25	27.60	Average	---	---
3	949.930	24.76	-21.24	46.00	25.36	21.28	5.53	27.41	Average	---	---
1	900.020	33.19	-12.81	46.00	35.51	20.03	5.25	27.60	Peak	---	---
3	949.930	35.72	-10.28	46.00	36.32	21.28	5.53	27.41	Peak	---	---

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

3.6. Antenna Requirements

3.6.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

3.6.2. Antenna Connector Construction

Please refer to section 2.1 in this test report; antenna connector complied with the requirements.

4. LIST OF MEASURING EQUIPMENTS

Conducted Emissions

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 kHz ~ 2.75 GHz	Apr. 20, 2011	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz – 30MHz	Jan. 16, 2012	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9 kHz ~ 30 MHz	May 04, 2011	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	CB049	9 kHz ~ 30 MHz	Apr. 21, 2011	Conduction (CO04-HY)

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

Radio Frequency

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP 40	100305	9 KHz ~ 40 GHz	Feb. 11, 2011	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 03, 2011	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	N/A	Nov. 17, 2011	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10 MHz ~ 40 GHz	Jun. 07, 2011	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1027452	300 MHz ~ 40 GHz	Jun. 16, 2011	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1124009	300 MHz ~ 40 GHz	Jun. 20, 2011	Conducted (TH01-HY)
RF Cable-1m	Jye Bao	RG142	CB034-1m	20 MHz ~ 7 GHz	Dec. 03, 2011	Conducted (TH01-HY)
RF Cable-2m	Jye Bao	RG142	CB035-2m	20 MHz ~ 1 GHz	Dec. 03, 2011	Conducted (TH01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	Jun. 09, 2011*	Conducted (TH01-HY)

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

Radiation Emissions Below 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Open Area Test Site	SPORTON	OATS-10	OS02-NH	30 MHz - 1 GHz 10m, 3m	Jan. 02, 2012	Radiation (OS02-NH)
Amplifier	BURGEON	BPA-530	100203	0.01 MHz - 3 GHz	May 24, 2011	Radiation (OS02-NH)
Receiver	R&S	ESCI	100497	9 kHz – 3 GHz	Mar. 22, 2011	Radiation (OS02-NH)
Bilog Antenna	CHASE	CBL6122B	2884	30 MHz - 2 GHz	Feb. 11, 2012	Radiation (OS02-NH)
Turn Table	EMCO	2080	9508-1805	0 - 360 degree	N/A	Radiation (OS02-NH)
Antenna Mast	ETS	2075-2	2385	1 m - 4 m	N/A	Radiation (OS02-NH)
RF Cable-R10m	MIYAZAKI	5DFB	CB044	30 MHz - 1 GHz	Sep. 16, 2011	Radiation (OS02-NH)
RF Cable-R03m	MIYAZAKI	5DFB	CB002	30 MHz - 1 GHz	Sep. 16, 2011	Radiation (OS02-NH)

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

Radiation Emissions Above 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9 kHz ~ 40 GHz	Aug. 08, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1 GHz ~ 26.5 GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1 GHz ~ 18 GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1 GHz ~ 40 GHz	Mar. 07, 2011	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30 MHz ~ 2 GHz	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 m - 4 m	N/A	Radiation (03CH02-HY)

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

5. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, 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	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 728, 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. : L1190-110111

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 Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 11, 2011

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