

FCC RADIO TEST REPORT

According to

47 CFR FCC Part 15 Subpart C § 15.225

Equipment : Tablet
Brand Name : TOSHIBA, Excite
Model No. : TOSHIBA AT330,Excite 13 AT330,Excite 13 AT335
Filing Type : New Application
Applicant : PEGATRON CORPORATION
No. 76, Ligong St., Beitou District, Taipei City 11261
FCC ID : VUIPDT4330LBNFC
Manufacturer : PEGATRON CORPORATION
No. 76, Ligong St., Beitou District, Taipei City 11261
Received Date : Apr. 16, 2012
Final Test Date : May 09, 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.



SPORTON International Inc.

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

Table of Contents

1. SUMMARY OF THE TEST RESULT	2
2. GENERAL INFORMATION.....	3
2.1 Product Details	3
2.2 Accessories	3
2.3 Test Manner.....	3
2.4 Table for Test Modes	3
2.5 Table for Testing Locations	4
2.6 Table for Supporting Units	4
2.7 Test Configurations	4
3. TEST RESULT	6
3.1 AC Power Line Conducted Emissions Measurement	6
3.2 Field Strength of Fundamental Emissions and Mask Measurement	16
3.3 20dB Spectrum Bandwidth Measurement	19
3.4 Radiated Emissions Measurement.....	22
3.5 Frequency Stability Measurement	32
3.6 Antenna Requirements	34
4. LIST OF MEASURING EQUIPMENTS.....	35
5. TEST LOCATION.....	37
6. TAF CERTIFICATE OF ACCREDITATION.....	38
APPENDIX A. TEST PHOTOS	A11
APPENDIX B. PHOTOGRAPHS OF EUT	B12

History of This Test Report

Original Issue Date: May 11, 2012

Report No.: FR232266-01

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

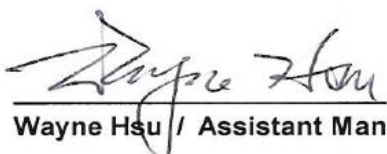
CERTIFICATE OF COMPLIANCE

According to

47 CFR FCC Part 15 Subpart C § 15.225

Equipment : Tablet
Brand Name : TOSHIBA, Excite
Model : TOSHIBA AT330, Excite 13 AT330, Excite 13 AT335
Applicant : PEGATRON CORPORATION
No. 76, Ligong St., Beitou District, Taipei City 11261

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Apr. 16, 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	7.70 dB
3.2	15.225(a)	Field Strength of Fundamental Emissions	Complies	60.7 dB
3.3	15.215(c)	20dB Spectrum Bandwidth	Complies	-
3.4	15.225(d)	Radiated Emissions	Complies	8.90 dB
3.5	15.225(e)	Frequency Stability	Complies	-
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 / Frequency Stability	±8.5×10 ⁻⁸	Confidence levels of 95%
Radiated / Band Edge Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7°C	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	19Vdc from AC Adapter ; 11.1Vdc from Li-ion battery
Modulation	ASK
Channel Number	1
Channel Band Width (99%)	2.26 kHz
Max. Field Strength	42.38 dBuV/m at 10m (QP)
Test Freq. Range	13.553 ~ 13.567MHz
Carrier Frequencies	13.56 MHz (Ch. 1)
Antenna	Integrate Antenna (Without any antenna connector)

2.2 Accessories

Accessories Information				
AC Adapter 1	Brand Name	TOSHIBA(Lieton)	Model Name	PA-1300-03
	Power Rating	I/P: 100-240Vac,50-60Hz,1000mA ; O/P: 19.0Vdc,1580mA		
AC Adapter 2	Brand Name	TOSHIBA(Lieton)	Model Name	PA-1300-04
	Power Rating	I/P: 100-240Vac,50-60Hz,1000mA ; O/P: 19.0Vdc,1580mA		
AC Adapter 3	Brand Name	TOSHIBA(Delta)	Model Name	PA3922U-1ACA
	Power Rating	I/P: 100-240Vac,50-60Hz,1200mA ; O/P: 19.0Vdc,1580mA		
AC Adapter 4	Brand Name	TOSHIBA(Delta)	Model Name	PA3922E-1AC3
	Power Rating	I/P: 100-240Vac,50-60Hz,1200mA ; O/P: 19.0Vdc,1580mA		
Battery	Brand Name	Simplo(Toshiba)	Model Name	PA5055U-1BRS
	Power Rating	11.1Vdc, 3280mA	Type	Li-ion

2.3 Test Manner

The following test modes were for conducted and radiated final test:

Mode 1. EUT with AC Adapter 1 (TOSHIBA (Lieton) / PA-1300-03)

Mode 2. EUT with AC Adapter 2 (TOSHIBA (Lieton) / PA-1300-04)

Mode 3. EUT with AC Adapter 3 (TOSHIBA (Delta) / PA3922U-1ACA)

Mode 4. EUT with AC Adapter 4 (TOSHIBA (Delta) / PA3922E-1AC3)

2.4 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	Mode 1 ~ Mode 4 (Transmitting)	-
Radiated Emissions 30MHz~1GHz		-
Field Strength of Fundamental Emissions	CTX	1
20dB Spectrum Bandwidth	CTX	1
Radiated Emissions 9kHz~30MHz	CTX	1
Band Edge Emissions	CTX	1
Frequency Stability	Un-modulation	1

Note: CTX=continuously transmitting.

2.5 Table for Testing Locations

Test Site No.	Site Category	Location
CO04-HY	Conduction	Hwa Ya
TH01-HY	OVEN Room	Hwa Ya
10CH02-HY	SAC	Hwa Ya
03CH02-HY	SAC	Hwa Ya

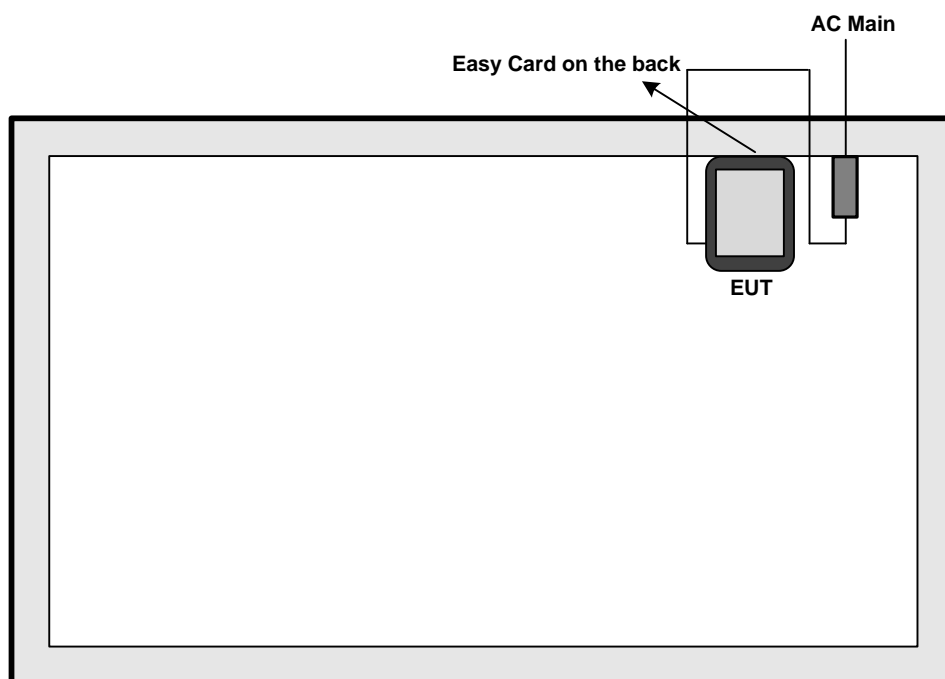
Semi Anechoic Chamber (SAC).

2.6 Table for Supporting Units

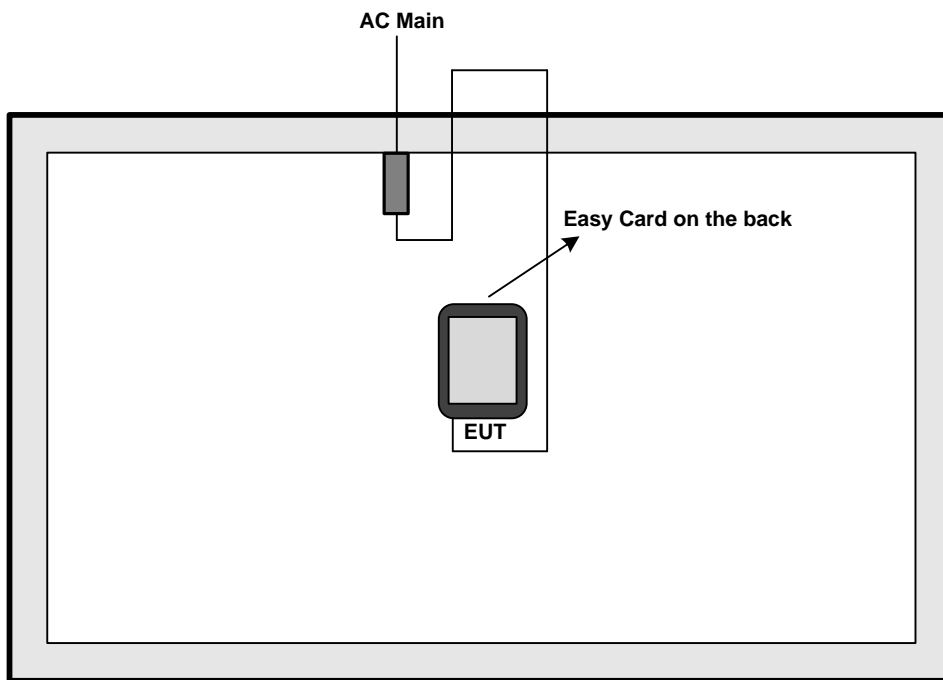
Support Unit	Brand	Model	FCC ID
Easy Card	--	--	--

2.7 Test Configurations

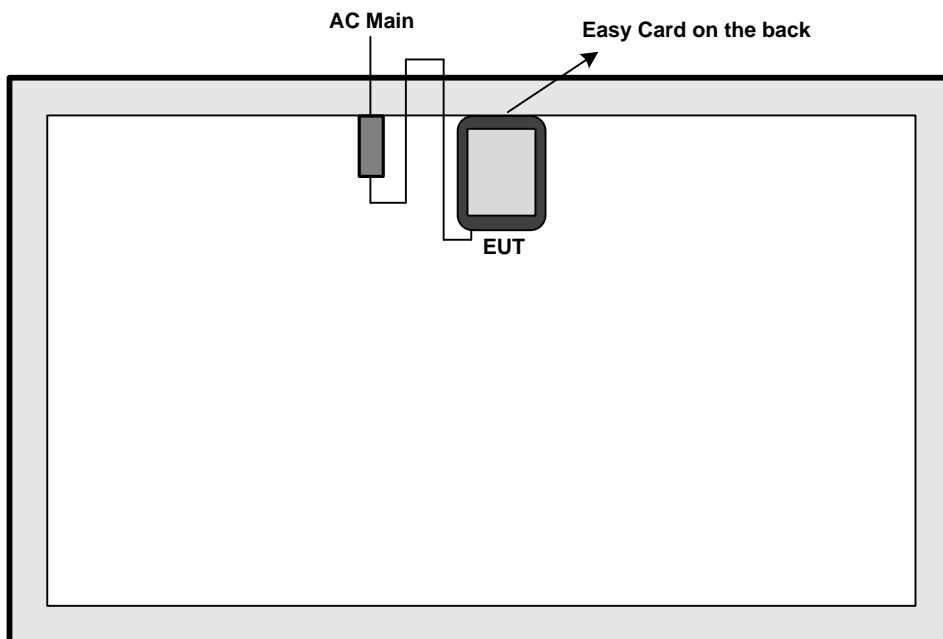
For conducted emissions



For radiated emissions 9kHz~30MHz



For radiated emissions 30MHz~1GHz



3. TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For a Low-power Radio-frequency device 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.

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

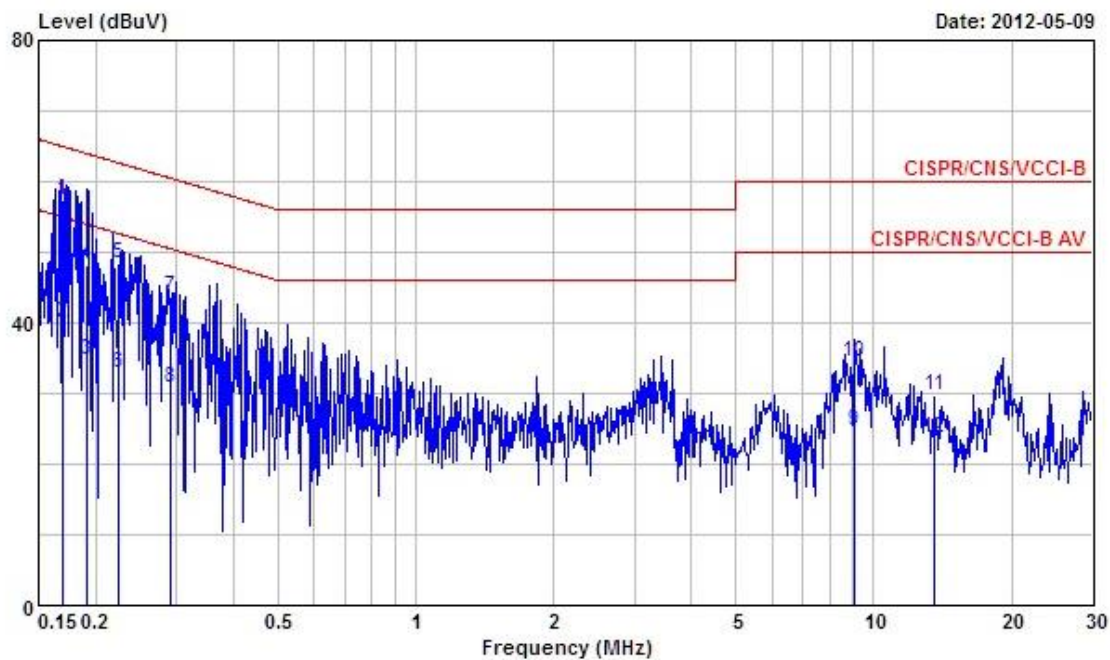
3.1.3 Test Procedures

1. The EUT was warmed up for 15 minutes before testing started.
2. 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.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

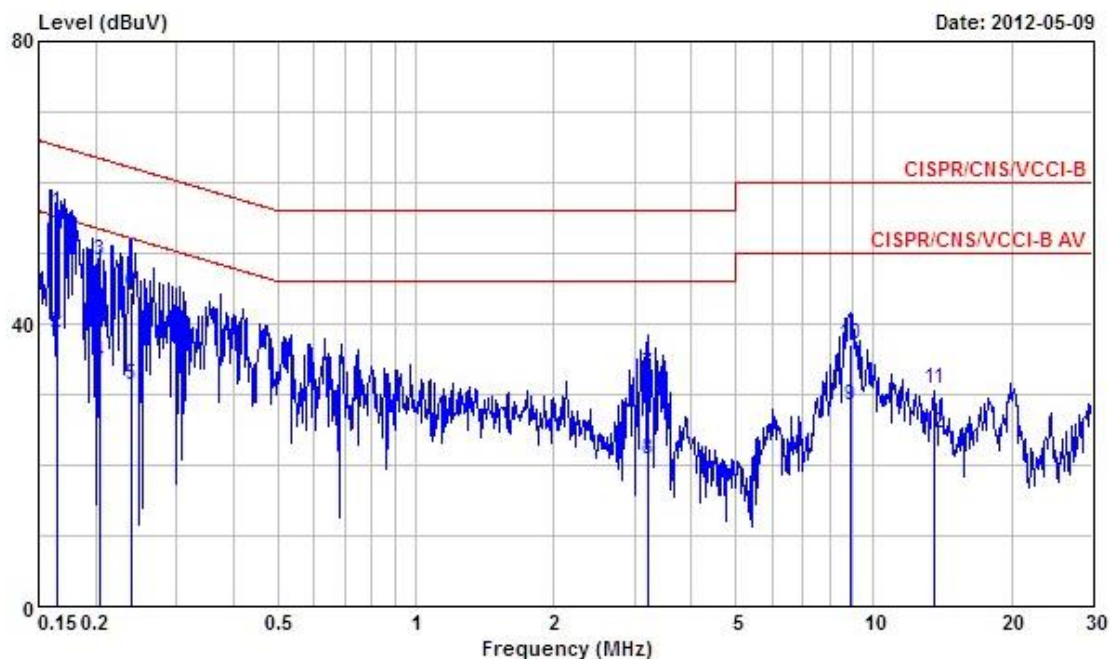
Final Test Date	May 09, 2012	Test Site No.	CO04-HY
Temperature	22°C	Humidity	45%
Test Engineer	Alan	Configuration	Mode 1 (Transmitting)

Line



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1686940	57.32	-7.70	65.02	56.92	0.30	0.10	QP
2	0.1686940	40.13	-14.89	55.02	39.73	0.30	0.10	Average
3	0.1913990	34.86	-19.12	53.98	34.46	0.30	0.10	Average
4	0.1913990	48.19	-15.79	63.98	47.79	0.30	0.10	QP
5	0.2242790	48.34	-14.32	62.66	47.94	0.30	0.10	QP
6	0.2242790	32.87	-19.79	52.66	32.47	0.30	0.10	Average
7	0.2916930	43.58	-16.90	60.48	43.18	0.30	0.10	QP
8	0.2916930	30.69	-19.79	50.48	30.29	0.30	0.10	Average
9	9.060	24.80	-25.20	50.00	24.08	0.45	0.27	Average
10	9.060	34.42	-25.58	60.00	33.70	0.45	0.27	QP
11	13.560	29.63	-30.37	60.00	28.75	0.51	0.37	QP
12	13.560	23.67	-26.33	50.00	22.79	0.51	0.37	Average

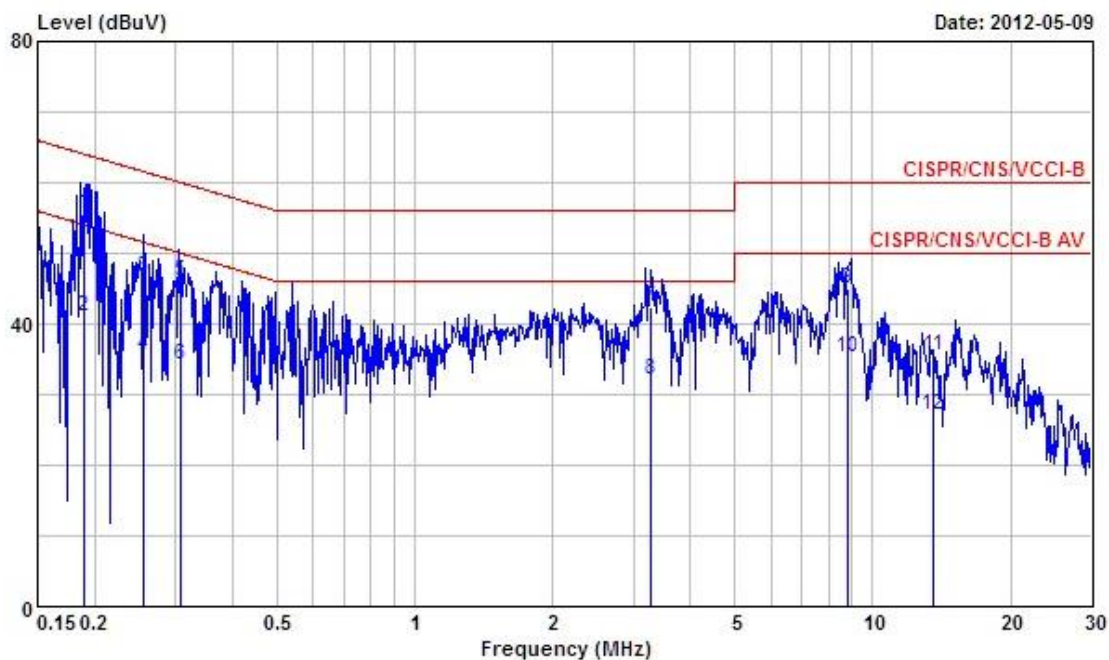
Neutral



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1642520	55.71	-9.54	65.25	55.35	0.26	0.10	QP
2	0.1642520	38.61	-16.64	55.25	38.25	0.26	0.10	Average
3	0.2040810	48.99	-14.45	63.44	48.64	0.25	0.10	QP
4	0.2040810	34.43	-19.01	53.44	34.08	0.25	0.10	Average
5	0.2403720	31.41	-20.67	52.08	31.06	0.25	0.10	Average
6	0.2403720	44.60	-17.48	62.08	44.25	0.25	0.10	QP
7	3.220	32.80	-23.20	56.00	32.52	0.28	0.00	QP
8	3.220	20.90	-25.10	46.00	20.62	0.28	0.00	Average
9	8.870	28.31	-21.69	50.00	27.67	0.38	0.26	Average
10	8.870	37.22	-22.78	60.00	36.58	0.38	0.26	QP
11	13.560	30.80	-29.20	60.00	30.00	0.43	0.37	QP
12	13.560	24.47	-25.53	50.00	23.67	0.43	0.37	Average

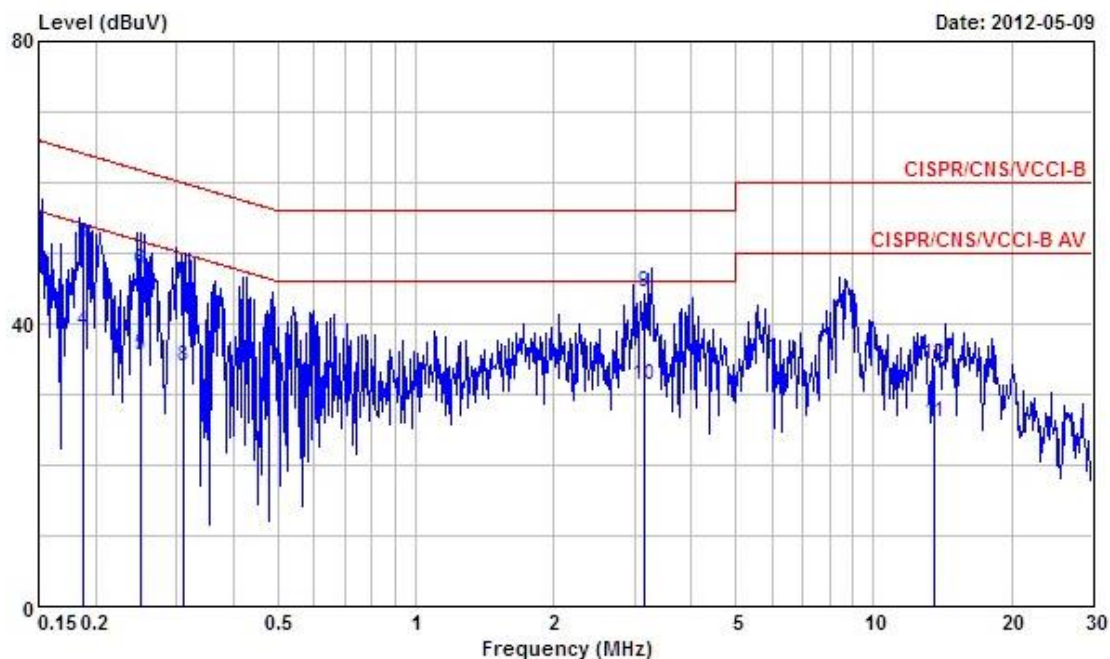
Note:
Level = Read Level + LISN Factor + Cable Loss.

Final Test Date	May 09, 2012	Test Site No.	CO04-HY
Temperature	22°C	Humidity	45%
Test Engineer	Alan	Configuration	Mode 2 (Transmitting)

Line

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1889560	55.56	-8.52	64.08	55.16	0.30	0.10	QP
2	0.1889560	41.17	-12.91	54.08	40.77	0.30	0.10	Average
3	0.2547970	46.63	-14.97	61.60	46.23	0.30	0.10	QP
4	0.2547970	35.50	-16.10	51.60	35.10	0.30	0.10	Average
5	0.3086910	45.99	-14.02	60.01	45.59	0.30	0.10	QP
6	0.3086910	34.10	-15.91	50.01	33.70	0.30	0.10	Average
7	3.262	42.41	-13.59	56.00	42.08	0.33	0.00	QP
8	3.262	32.11	-13.89	46.00	31.78	0.33	0.00	Average
9	8.815	45.07	-14.93	60.00	44.37	0.44	0.26	QP
10	8.815	35.36	-14.64	50.00	34.66	0.44	0.26	Average
11	13.560	35.53	-24.47	60.00	34.65	0.51	0.37	QP
12	13.560	27.05	-22.95	50.00	26.17	0.51	0.37	Average

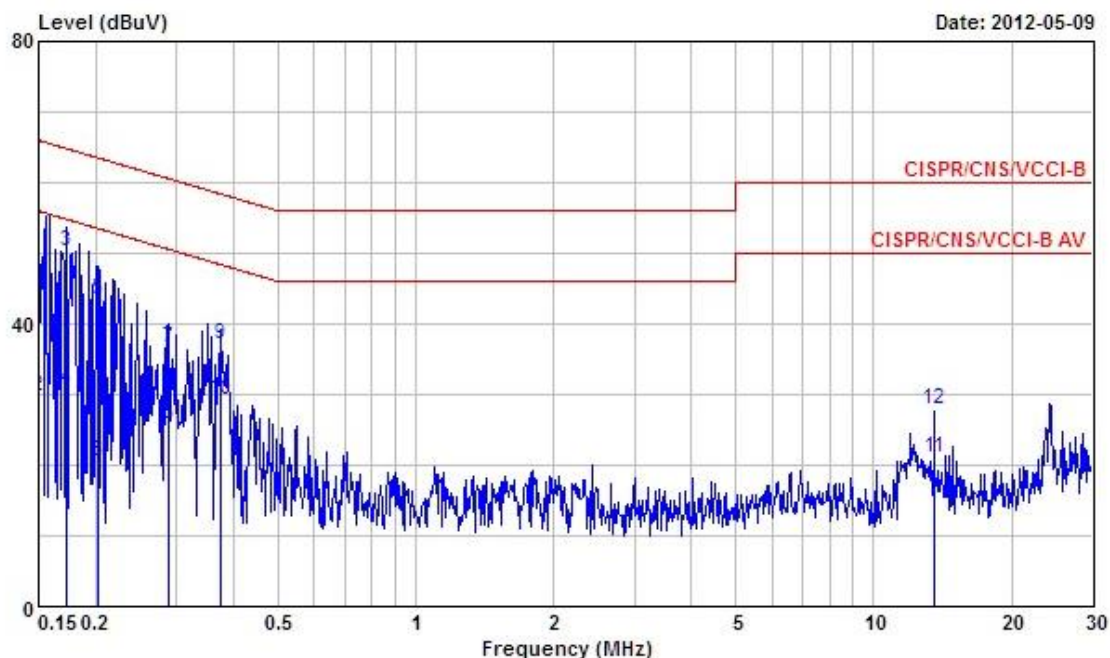
Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	36.04	-19.96	56.00	35.67	0.27	0.10	Average
2	0.1500000	48.91	-17.09	66.00	48.54	0.27	0.10	QP
3	0.1874380	51.38	-12.77	64.15	51.03	0.25	0.10	QP
4	0.1874380	38.87	-15.28	54.15	38.52	0.25	0.10	Average
5	0.2507790	35.54	-16.19	51.73	35.19	0.25	0.10	Average
6	0.2507790	47.67	-14.06	61.73	47.32	0.25	0.10	QP
7	0.3103010	45.89	-14.07	59.96	45.55	0.24	0.10	QP
8	0.3103010	33.99	-15.97	49.96	33.65	0.24	0.10	Average
9	3.166	44.42	-11.58	56.00	44.14	0.28	0.00	QP
10	3.166	31.33	-14.67	46.00	31.05	0.28	0.00	Average
11	13.560	26.07	-23.93	50.00	25.27	0.43	0.37	Average
12	13.560	34.20	-25.80	60.00	33.40	0.43	0.37	QP

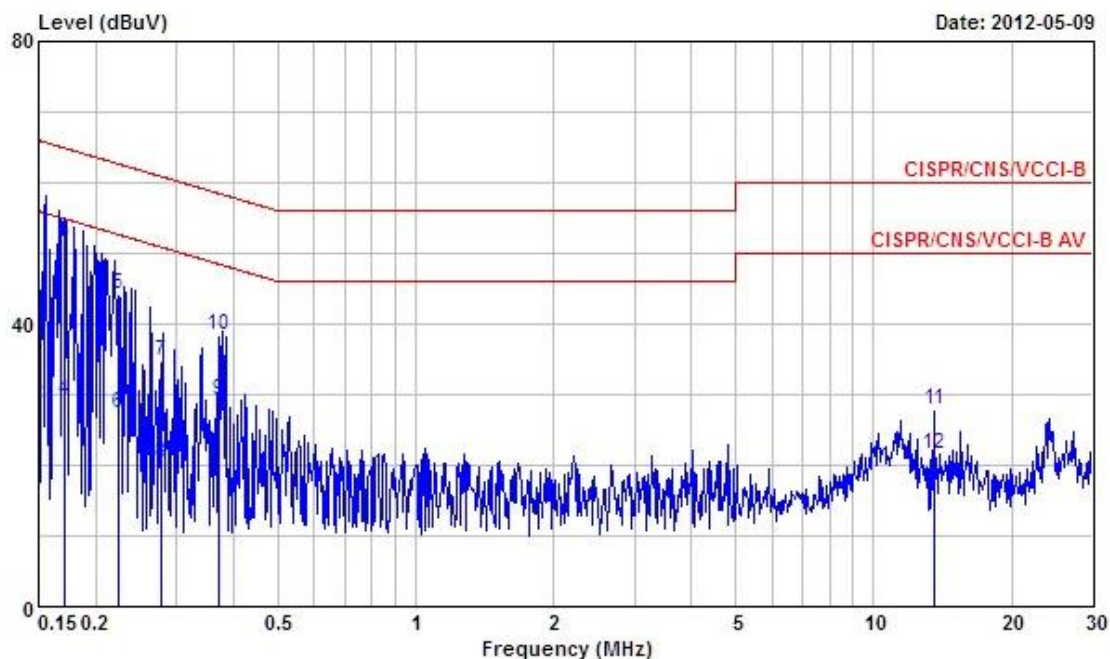
Note:
Level = Read Level + LISN Factor + Cable Loss.

Final Test Date	May 09, 2012	Test Site No.	CO04-HY
Temperature	22°C	Humidity	45%
Test Engineer	Alan	Configuration	Mode 3 (Transmitting)

Line

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	49.86	-16.14	66.00	49.46	0.30	0.10	QP
2	0.1500000	29.69	-26.31	56.00	29.29	0.30	0.10	Average
3	0.1721540	50.16	-14.70	64.86	49.76	0.30	0.10	QP
4	0.1721540	30.88	-23.98	54.86	30.48	0.30	0.10	Average
5	0.2028850	43.43	-20.06	63.49	43.03	0.30	0.10	QP
6	0.2028850	20.55	-32.94	53.49	20.15	0.30	0.10	Average
7	0.2893470	36.53	-24.01	60.54	36.13	0.30	0.10	QP
8	0.2893470	25.76	-24.78	50.54	25.36	0.30	0.10	Average
9	0.3751190	37.24	-21.15	58.39	36.84	0.30	0.10	QP
10	0.3751190	29.33	-19.06	48.39	28.93	0.30	0.10	Average
11	13.560	21.00	-29.00	50.00	20.12	0.51	0.37	Average
12	13.560	28.02	-31.98	60.00	27.14	0.51	0.37	QP

Neutral

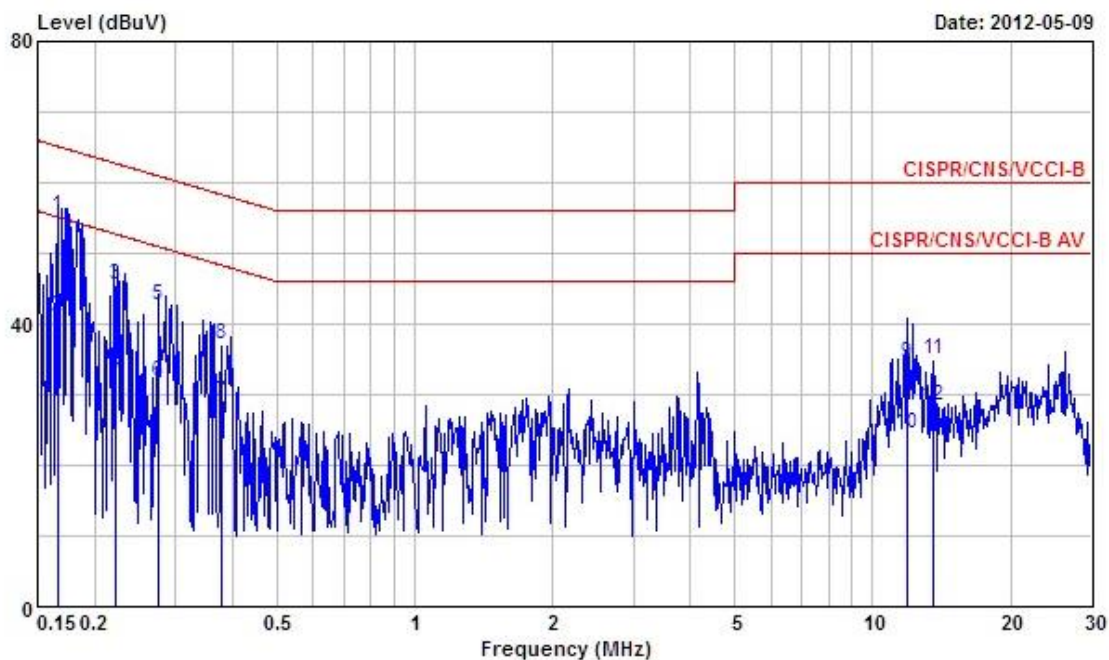


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	53.94	-12.06	66.00	53.57	0.27	0.10	QP
2	0.1500000	28.70	-27.30	56.00	28.33	0.27	0.10	Average
3	0.1712450	51.51	-13.39	64.90	51.15	0.26	0.10	QP
4	0.1712450	29.29	-25.61	54.90	28.93	0.26	0.10	Average
5	0.2231880	44.21	-18.49	62.70	43.86	0.25	0.10	QP
6	0.2231880	27.31	-25.39	52.70	26.96	0.25	0.10	Average
7	0.2767820	34.79	-26.12	60.91	34.44	0.25	0.10	QP
8	0.2767820	20.36	-30.55	50.91	20.01	0.25	0.10	Average
9	0.3706160	29.19	-19.30	48.49	28.85	0.24	0.10	Average
10	0.3706160	38.30	-20.19	58.49	37.96	0.24	0.10	QP
11	13.560	27.77	-32.23	60.00	26.97	0.43	0.37	QP
12	13.560	21.53	-28.47	50.00	20.73	0.43	0.37	Average

Note:

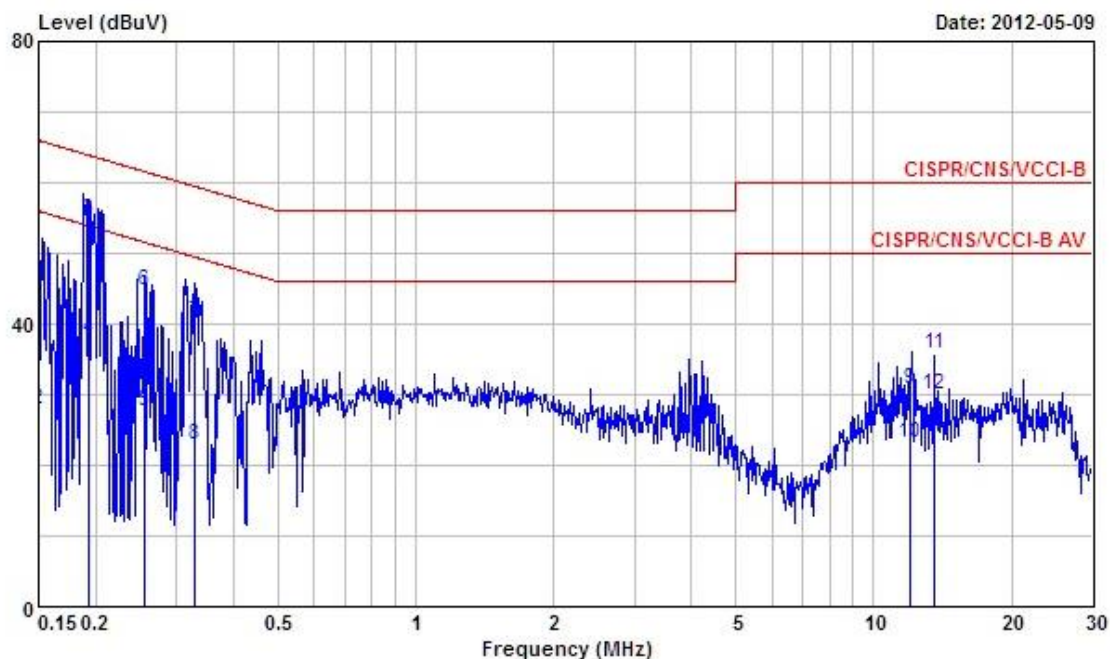
Level = Read Level + LISN Factor + Cable Loss.

Final Test Date	May 09, 2012	Test Site No.	CO04-HY
Temperature	22°C	Humidity	45%
Test Engineer	Alan	Configuration	Mode 4 (Transmitting)

Line

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1664180	55.35	-9.79	65.14	54.95	0.30	0.10	QP
2	0.1664180	41.04	-14.10	55.14	40.64	0.30	0.10	Average
3	0.2228730	45.61	-17.10	62.71	45.21	0.30	0.10	QP
4	0.2228730	32.88	-19.83	52.71	32.48	0.30	0.10	Average
5	0.2752330	42.55	-18.41	60.96	42.15	0.30	0.10	QP
6	0.2752330	31.94	-19.02	50.96	31.54	0.30	0.10	Average
7	0.3778120	28.85	-19.48	48.33	28.45	0.30	0.10	Average
8	0.3778120	37.15	-21.18	58.33	36.75	0.30	0.10	QP
9	11.870	34.39	-25.61	60.00	33.56	0.49	0.34	QP
10	11.870	24.38	-25.62	50.00	23.55	0.49	0.34	Average
11	13.560	35.11	-24.89	60.00	34.23	0.51	0.37	QP
12	13.560	28.37	-21.63	50.00	27.49	0.51	0.37	Average

Neutral



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	44.16	-21.84	66.00	43.79	0.27	0.10	QP
2	0.1500000	27.84	-28.16	56.00	27.47	0.27	0.10	Average
3	0.1933800	54.62	-9.27	63.89	54.27	0.25	0.10	QP
4	0.1933800	37.78	-16.11	53.89	37.43	0.25	0.10	Average
5	0.2561510	27.58	-23.98	51.56	27.23	0.25	0.10	Average
6	0.2561510	44.84	-16.72	61.56	44.49	0.25	0.10	QP
7	0.3303280	40.32	-19.12	59.44	39.98	0.24	0.10	QP
8	0.3303280	23.00	-26.44	49.44	22.66	0.24	0.10	Average
9	11.955	30.75	-29.25	60.00	30.00	0.41	0.34	QP
10	11.955	23.09	-26.91	50.00	22.34	0.41	0.34	Average
11	13.560	35.80	-24.20	60.00	35.00	0.43	0.37	QP
12	13.560	30.00	-20.00	50.00	29.20	0.43	0.37	Average

Note:

Level = Read Level + LISN Factor + Cable Loss.

3.2 Field Strength of Fundamental Emissions and Mask Measurement

3.2.1 Limit

Field strength of fundamental emissions limit:

The field strength of fundamental emissions shall not exceed 15848 micorvolts/meter at 30 meters. The emissions limit in this paragraph is based on measurement instrumentation employing a QP detector.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Field Strength (dB μ V/m) at 10m	Field Strength (dB μ V/m) at 3m
13.553 ~ 13.567MHz	15848 at 30m	103.08 (QP)	124 (QP)

Mask limit:

Mask limit:

Rules and specifications		RSS-210 A2.6			
Description		Compliance with the spectrum mask is tested using a spectrum analyzer with RB set to a 1kHz for the band 13.553~13.567MHz			
Limit	Freq. of Emission (MHz)	Field Strength (uV/m) at 30m	Field Strength (dBuV/m) at 30m	Field Strength (dBuV/m) at 10m	Field Strength (dBuV/m) at 3m
	1.705~13.110	30	29.5	48.58	69.5
	13.110~13.410	106	40.5	59.58	80.5
	13.410~13.553	334	50.5	69.58	90.5
	13.553~13.567	15848	84.0	103.08	124.0
	13.567~13.710	334	50.5	69.58	90.5
	13.710~14.010	106	40.5	59.58	80.5
	14.010~30.000	30	29.5	48.58	69.5

3.2.2 Measuring Instruments and Setting

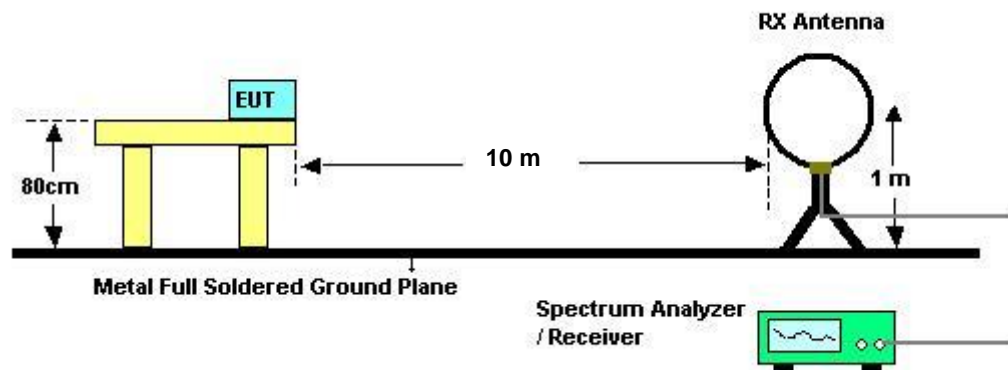
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	Auto
Center Frequency	Fundamental Frequency
RB	10 kHz
Detector	QP

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 loop receiving antenna mounted 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 receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. For Fundamental emissions, use the receiver to measure QP reading.
5. 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.
6. Compliance with the spectrum mask is tested using a spectrum analyzer with RB set to a 10kHz for the band 13.553~13.567MHz.

3.2.4 Test Setup Layout



3.2.5 Test Deviation

There is no deviation with the original standard.

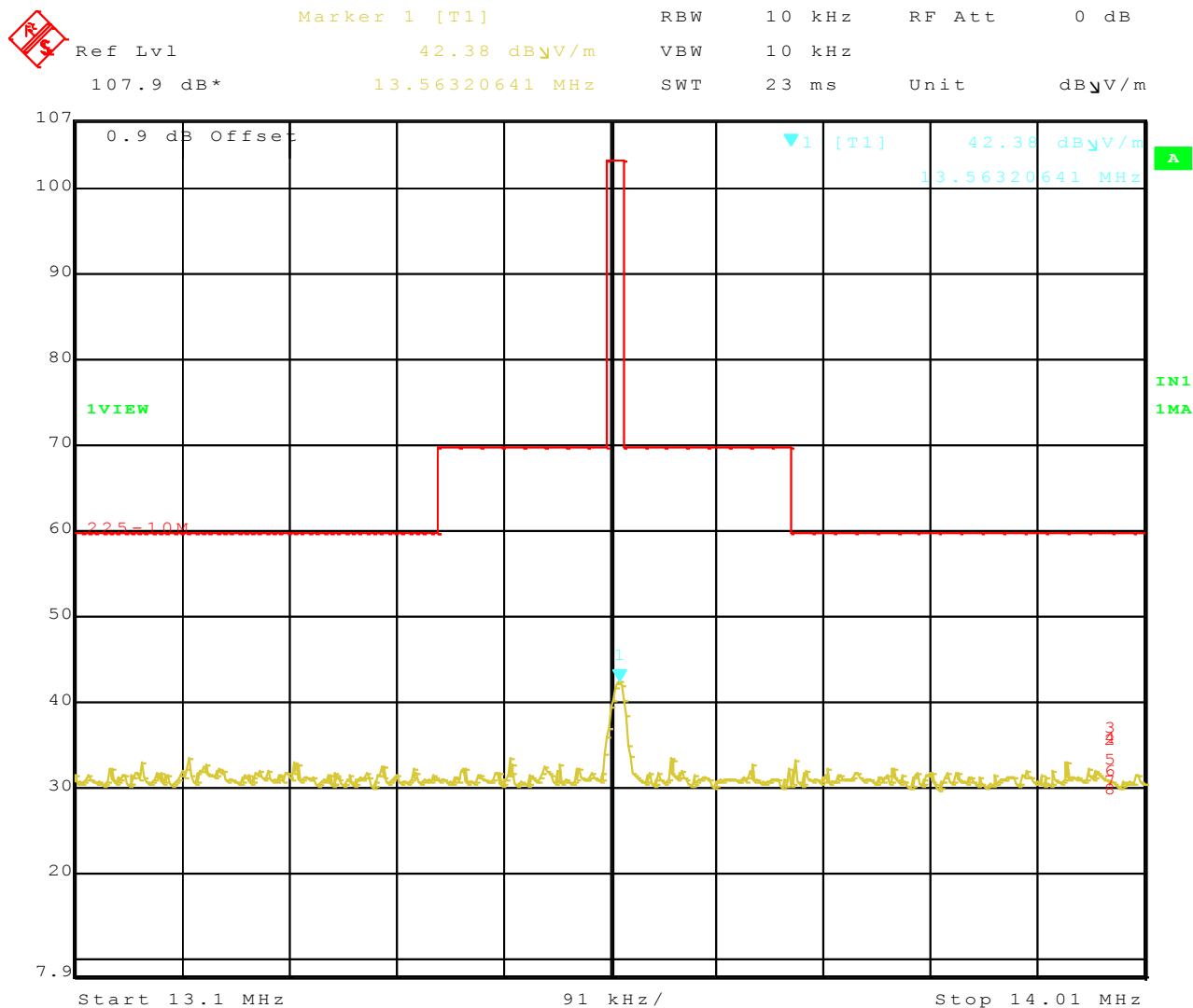
3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7 Test Result of Field Strength of Fundamental Emissions

Final Test Date	May 02, 2012	Test Site No.	10CH02-HY
Temperature	21°C	Humidity	42%
Test Engineer	Teddy	Configurations	Ch. 1

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m) at 10m	Remark
13.56 MHz	42.38	-60.7	103.08	QP



Date: 2.MAY.2012 10:53:34

Note:

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

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 (13.553 ~ 13.567MHz).

3.3.2 Measuring Instruments and Setting

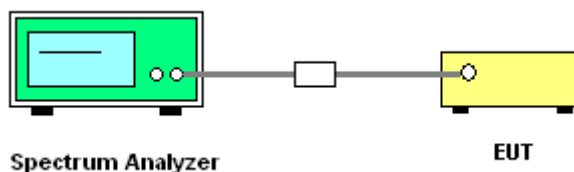
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	1 kHz
VB	1 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. 20dB Bandwidth the resolution bandwidth of 1 kHz and the video bandwidth of 1 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

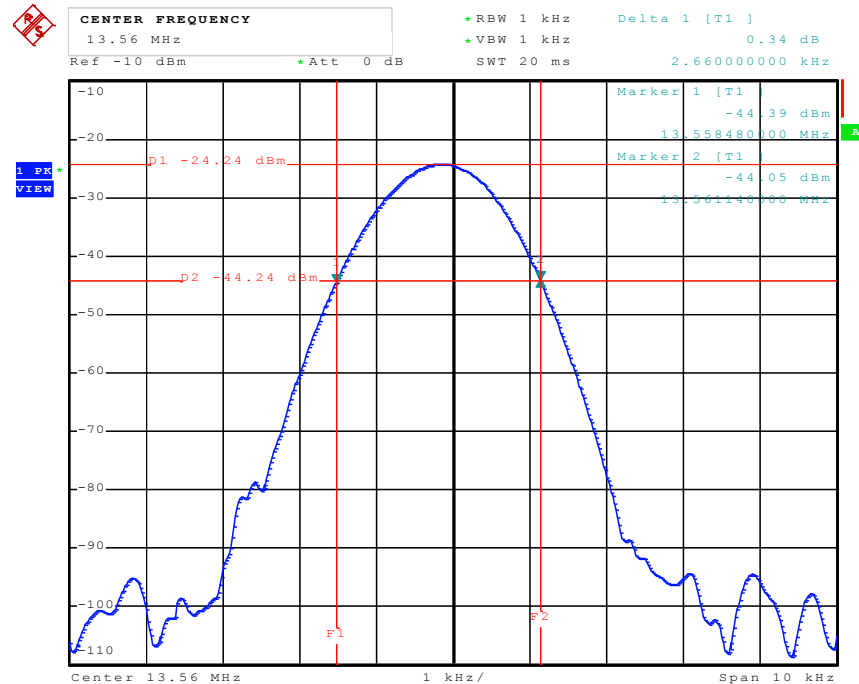
The EUT was programmed to be in continuously transmitting mode.

3.3.7 Test Result of 20dB Spectrum Bandwidth

Final Test Date	May 05, 2012	Test Site No.	TH01-HY
Temperature	26.6°C	Humidity	42%
Test Engineer	Bear	Configurations	Ch. 1

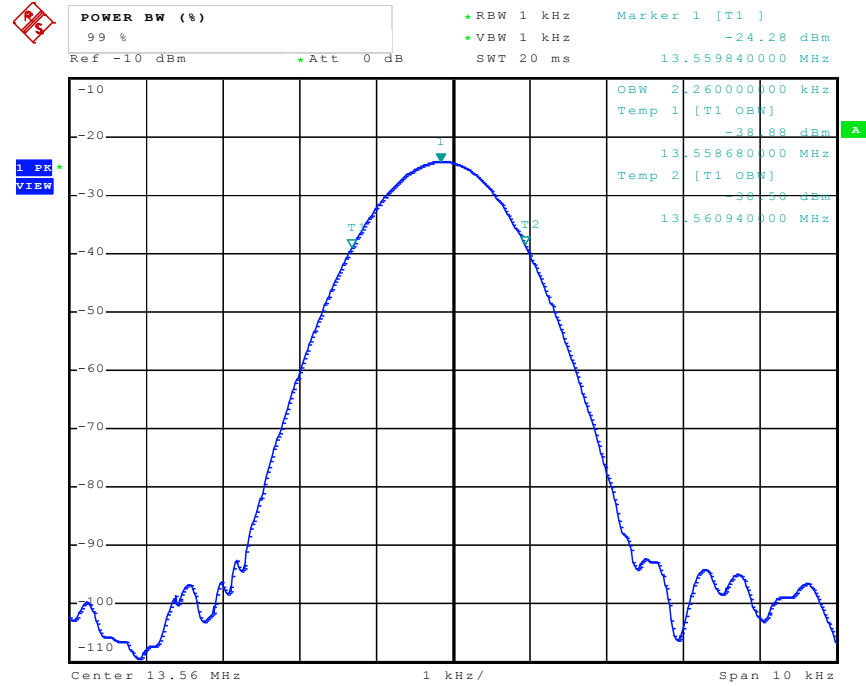
Frequency	20dB BW (kHz)	99% OBW (kHz)	Frequency range (MHz) $f_L > 13.553\text{MHz}$	Frequency range (MHz) $f_H < 13.567\text{MHz}$	Test Result
13.56 MHz	2.66	2.26	13.5585	13.5611	Complies

20 dB Bandwidth Plot on 13.56 MHz



Date: 5.MAY.2012 12:37:16

99% Bandwidth Plot on 13.56 MHz



Date: 5.MAY.2012 12:35:40

3.4 Radiated Emissions Measurement

3.4.1 Limit

The field strength of any emissions which appear outside of 13.553 ~ 13.567MHz band shall not exceed the general radiated emissions limits in Section 15.209(a)

Frequencies (MHz)	Field Strength (micровolts/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 receiver.

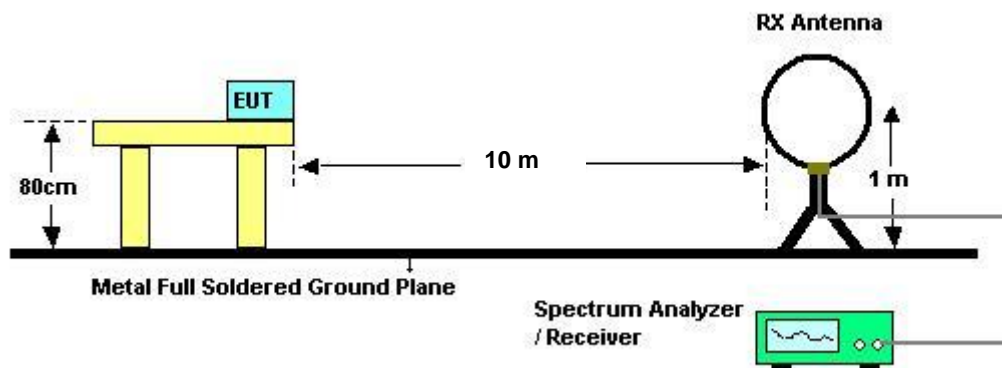
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.4.3 Test Procedures

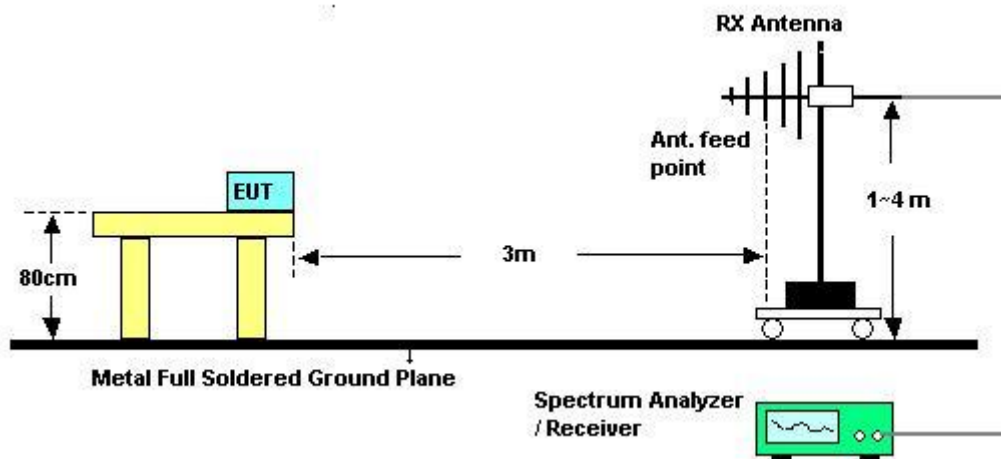
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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. 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.
7. 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



3.4.5 Test Deviation

There is no deviation with the original standard.

3.4.6 EUT Operation during Test

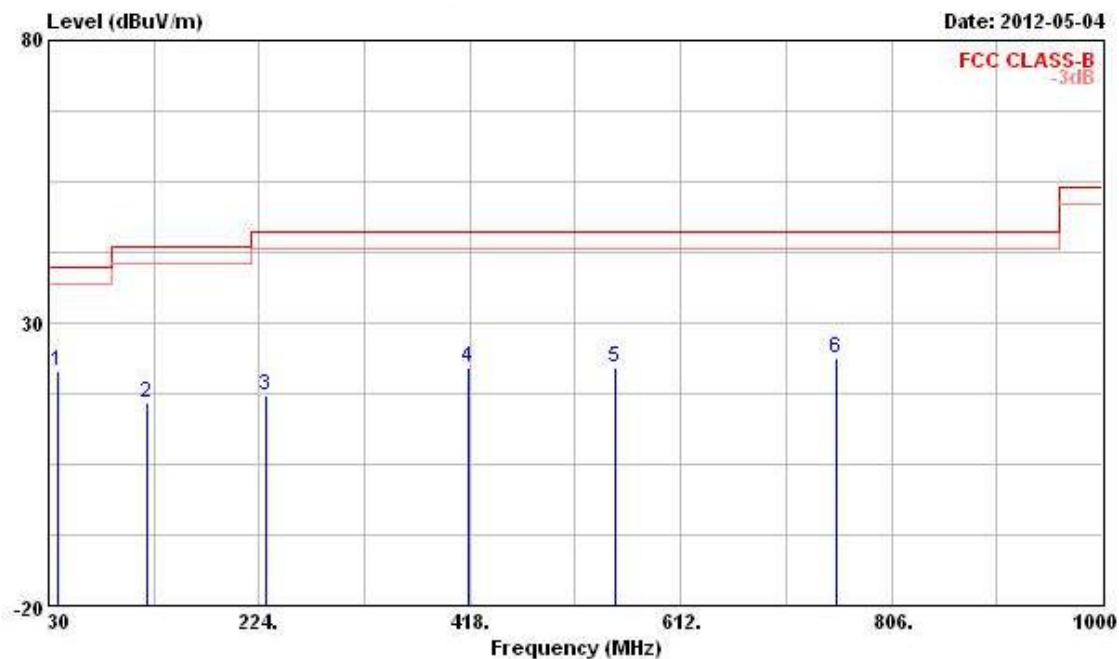
The EUT was programmed to be in continuously transmitting mode.

3.4.7 Results of Transmitter Spurious Emissions (9kHz~30MHz)

All spurious emissions (9kHz-30MHz) are below fundamental emissions field strength and the levels exceed the level of 20 dB below the applicable limit.

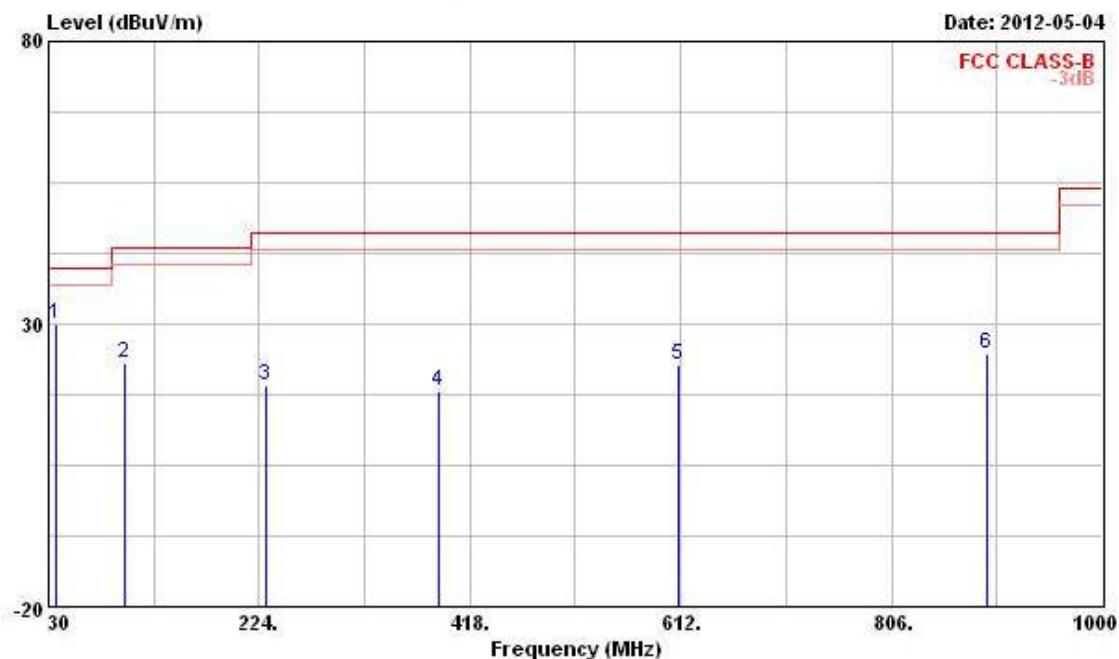
3.4.8 Results for Radiated Emissions (30MHz~1GHz)

Final Test Date	May 04, 2012	Test Site No.	03CH02-HY
Temperature	22.3℃	Humidity	66%
Test Engineer	Hsiao	Configuration	Ch.1 (Mode 1)

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	38.730	21.58	-18.42	40.00	35.01	13.47	1.01	27.91	Peak	---	---
2	121.180	15.83	-27.67	43.50	28.36	13.39	1.84	27.76	Peak	---	---
3	229.820	17.21	-28.79	46.00	29.58	12.33	2.64	27.34	Peak	---	---
4	417.030	22.09	-23.91	46.00	30.98	15.61	3.46	27.96	Peak	---	---
5	551.860	22.06	-23.94	46.00	27.66	18.77	4.05	28.42	Peak	---	---
6	754.590	23.61	-22.39	46.00	27.35	19.62	4.73	28.09	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	36.790	30.03	-9.97	40.00	43.03	13.92	1.00	27.92	Peak	---	---
2	99.840	23.19	-20.31	43.50	38.20	11.18	1.66	27.85	Peak	---	---
3	229.820	19.23	-26.77	46.00	31.60	12.33	2.64	27.34	Peak	---	---
4	389.870	18.14	-27.86	46.00	27.48	15.10	3.36	27.80	Peak	---	---
5	610.060	22.79	-23.21	46.00	26.91	20.05	4.27	28.44	Peak	---	---
6	894.270	24.80	-21.20	46.00	27.15	20.04	5.23	27.62	Peak	---	---

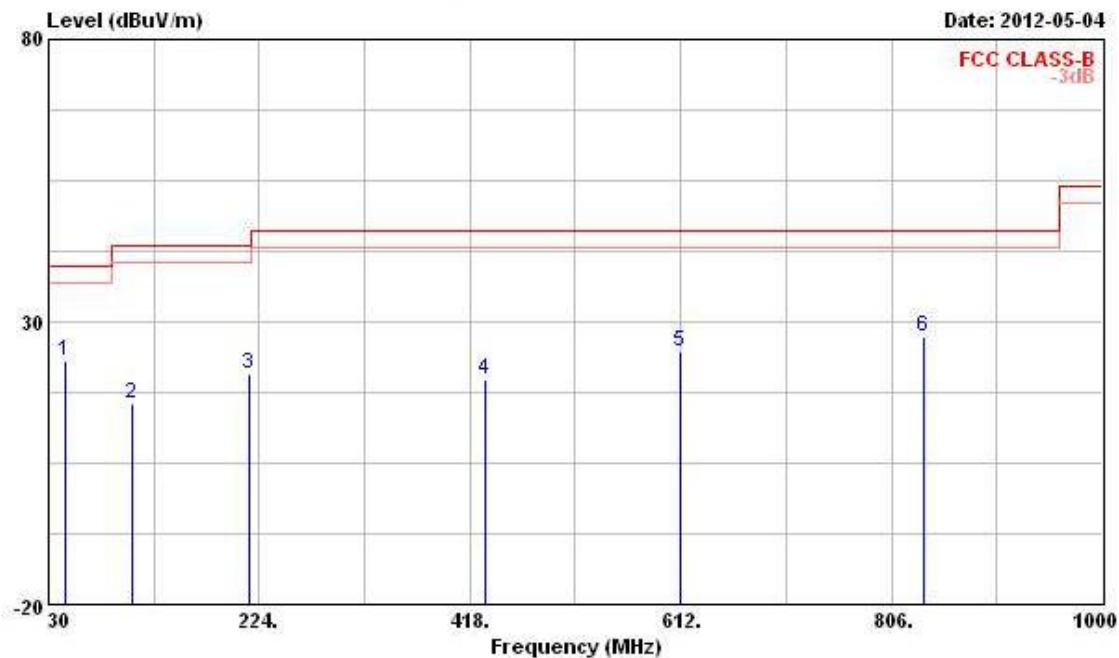
Note:

The amplitude of spurious emissions which 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).

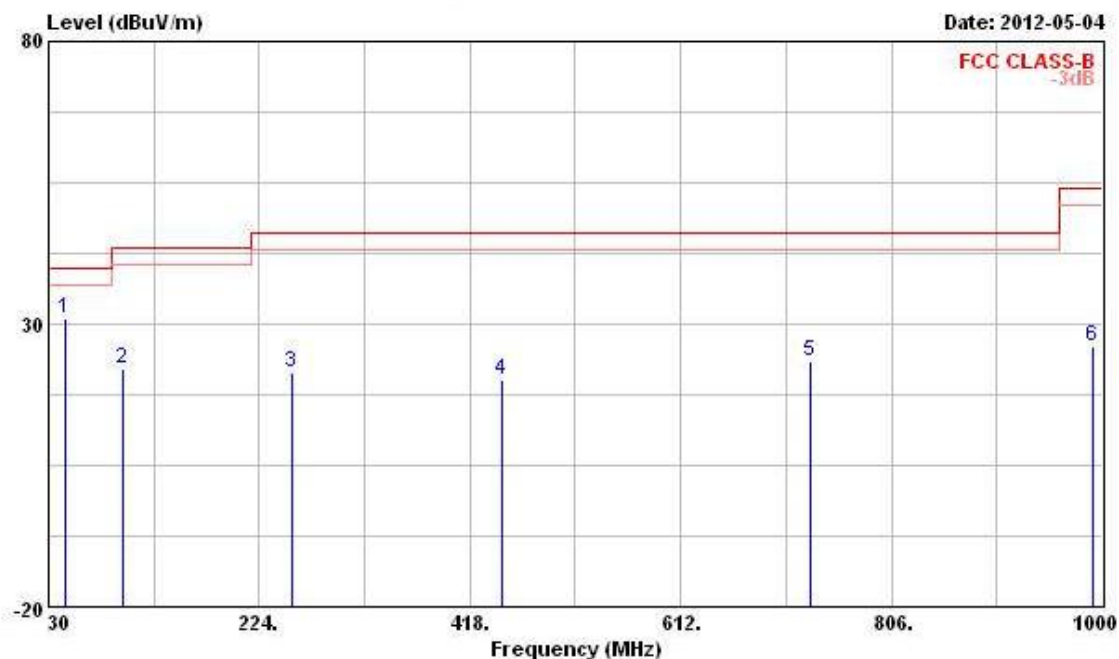
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	May 04, 2012	Test Site No.	03CH02-HY
Temperature	22.3°C	Humidity	66%
Test Engineer	Hsiao	Configuration	Ch.1 (Mode 2)

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	44.550	22.93	-17.07	40.00	37.69	12.02	1.10	27.88	Peak	---	---
2	106.630	15.57	-27.93	43.50	29.68	11.99	1.72	27.82	Peak	---	---
3	215.270	20.88	-22.62	43.50	33.85	11.86	2.54	27.37	Peak	---	---
4	431.580	19.69	-26.31	46.00	28.31	15.90	3.51	28.03	Peak	---	---
5	611.030	24.67	-21.33	46.00	28.80	20.04	4.27	28.44	Peak	---	---
6	836.070	27.35	-18.65	46.00	29.99	20.18	5.00	27.82	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	44.550	31.10	-8.90	40.00	45.86	12.02	1.10	27.88	Peak	---	---
2	98.870	22.06	-21.44	43.50	37.25	11.01	1.65	27.85	Peak	---	---
3	254.070	21.51	-24.49	46.00	32.95	13.05	2.79	27.28	Peak	---	---
4	448.070	20.19	-25.81	46.00	28.50	16.24	3.56	28.11	Peak	---	---
5	731.310	23.28	-22.72	46.00	27.51	19.29	4.65	28.17	Peak	---	---
6	991.270	26.20	-27.80	54.00	25.53	22.28	5.65	27.26	Peak	---	---

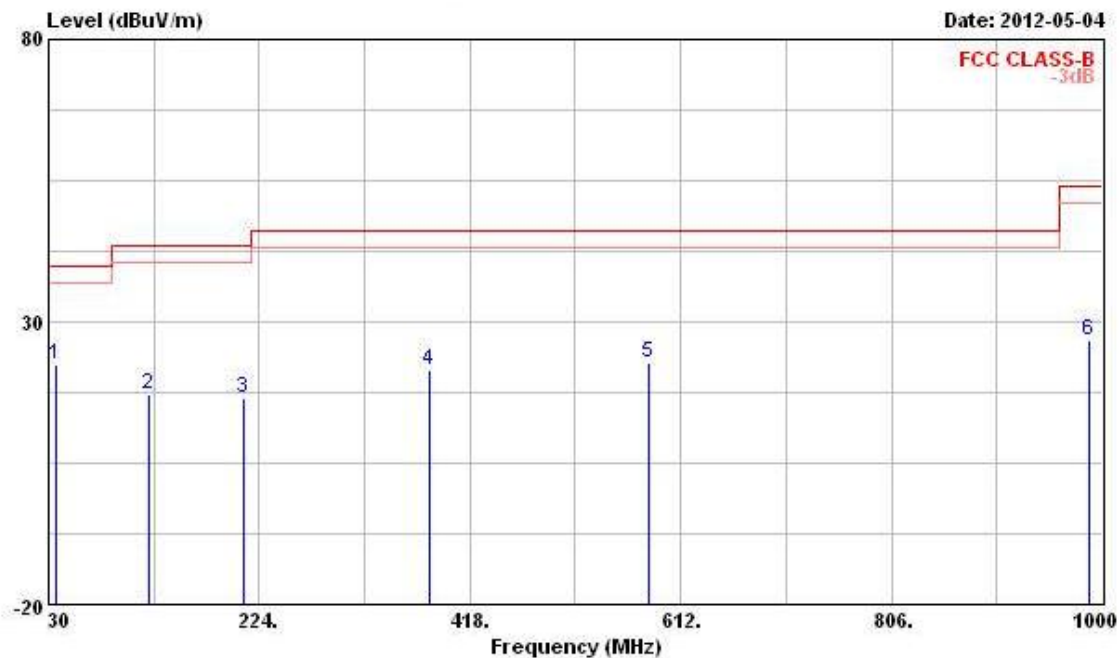
Note:

The amplitude of spurious emissions which 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).

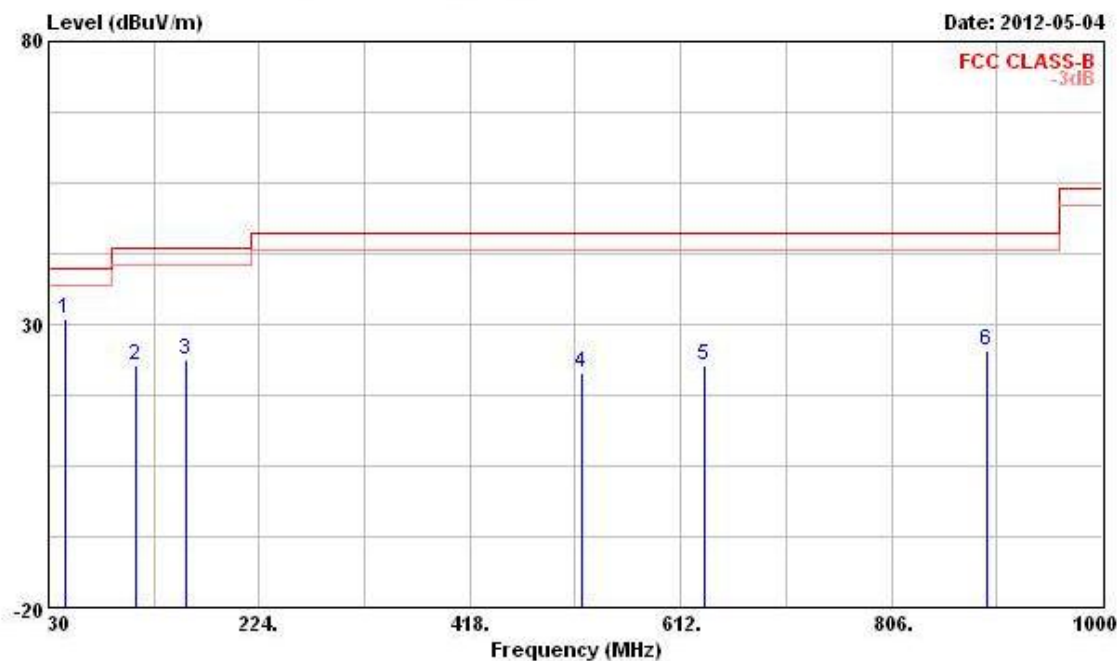
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	May 04, 2012	Test Site No.	03CH02-HY
Temperature	22.3°C	Humidity	66%
Test Engineer	Hsiao	Configuration	Ch.1 (Mode 3)

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	36.790	22.31	-17.69	40.00	35.31	13.92	1.00	27.92	Peak	---	---
2	122.150	17.01	-26.49	43.50	29.58	13.34	1.84	27.75	Peak	---	---
3	209.450	16.54	-26.96	43.50	29.76	11.67	2.49	27.38	Peak	---	---
4	381.140	21.44	-24.56	46.00	30.90	14.97	3.31	27.74	Peak	---	---
5	582.900	22.63	-23.37	46.00	27.23	19.67	4.17	28.44	Peak	---	---
6	987.390	26.69	-27.31	54.00	26.13	22.19	5.64	27.27	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	44.550	31.07	-8.93	40.00	45.83	12.02	1.10	27.88 Peak	---	---
2	110.510	22.77	-20.73	43.50	36.36	12.46	1.75	27.80 Peak	---	---
3	156.100	23.89	-19.61	43.50	38.79	10.64	2.06	27.60 Peak	---	---
4	521.790	21.38	-24.62	46.00	27.92	17.93	3.92	28.39 Peak	---	---
5	634.310	22.72	-23.28	46.00	27.06	19.72	4.34	28.40 Peak	---	---
6	894.270	25.45	-20.55	46.00	27.80	20.04	5.23	27.62 Peak	---	---

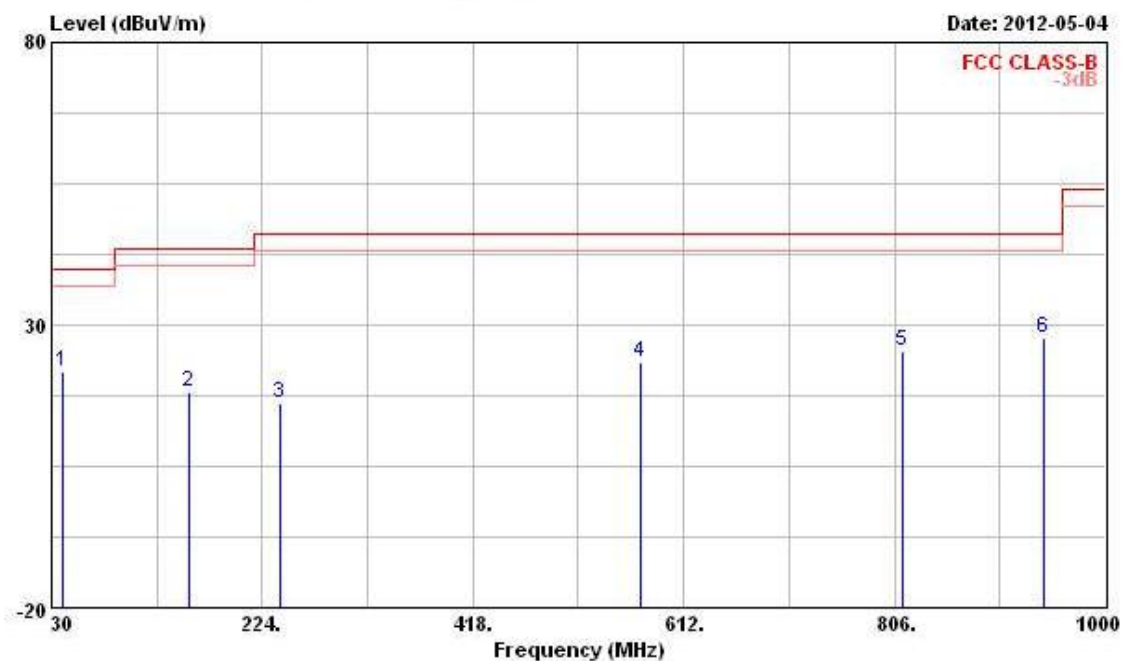
Note:

The amplitude of spurious emissions which 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).

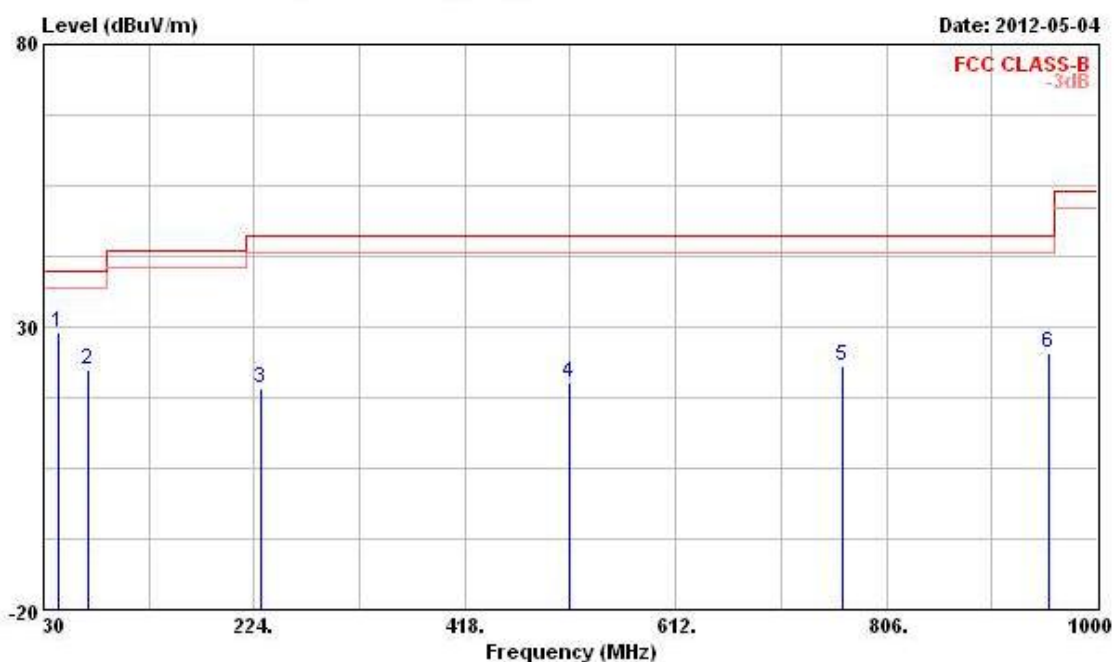
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	May 04, 2012	Test Site No.	03CH02-HY
Temperature	22.3°C	Humidity	66%
Test Engineer	Hsiao	Configuration	Ch.1 (Mode 4)

Horizontal

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	40.670	21.84	-18.16	40.00	35.68	13.01	1.05	27.90	Peak	---	---
2	156.100	18.10	-25.40	43.50	33.00	10.64	2.06	27.60	Peak	---	---
3	240.490	16.14	-29.86	46.00	28.06	12.68	2.71	27.31	Peak	---	---
4	572.230	23.26	-22.74	46.00	28.21	19.36	4.13	28.44	Peak	---	---
5	813.760	25.44	-20.56	46.00	28.15	20.24	4.94	27.89	Peak	---	---
6	943.740	27.71	-18.29	46.00	28.54	21.11	5.50	27.44	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	43.580	28.86	-11.14	40.00	43.38	12.27	1.09	27.88	Peak	---	---
2	70.740	22.31	-17.69	40.00	41.96	6.78	1.42	27.85	Peak	---	---
3	229.820	19.27	-26.73	46.00	31.64	12.33	2.64	27.34	Peak	---	---
4	514.030	20.17	-25.83	46.00	26.96	17.70	3.89	28.38	Peak	---	---
5	766.230	23.18	-22.82	46.00	26.67	19.79	4.77	28.05	Peak	---	---
6	955.380	25.49	-20.51	46.00	25.93	21.40	5.55	27.39	Peak	---	---

Note:

The amplitude of spurious emissions which 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.

3.5 Frequency Stability Measurement

3.5.1 Limit

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

3.5.2 Measuring Instruments and Setting

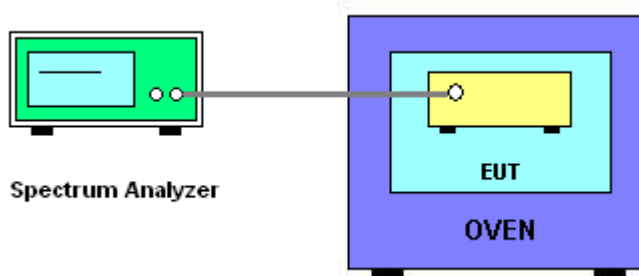
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RB	1 kHz
VB	1 kHz
Sweep Time	Auto

3.5.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 1 kHz, VBW = 1 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 100 ppm.
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is -20°C~50°C.

3.5.4 Test Setup Layout



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 un-modulation transmitting mode.

3.5.7 Test Result of Frequency Stability

Final Test Date	May 05, 2012	Test Site No.	TH01-HY
Temperature	26.6℃	Humidity	42%
Test Engineer	Bear	Configurations	Ch. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	13.56 MHz
12.765	13.559820
11.1	13.559820
9.435	13.559800
Max. Deviation (MHz)	0.000200
Max. Deviation (ppm)	14.7493

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(℃)	13.56 MHz
-20	13.559840
-10	13.559860
0	13.559880
10	13.559860
20	13.559840
30	13.559820
40	13.559800
50	13.559780
Max. Deviation (MHz)	0.000220
Max. Deviation (ppm)	16.2242

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 kHz ~ 2.75 GHz	Mar. 23, 2012	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz – 30MHz	Feb. 08, 2012	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9 kHz ~ 30 MHz	Apr. 20, 2012	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	CB049	9 kHz ~ 30 MHz	Apr. 25, 2012	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-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	FSP 40	100305	9 KHz ~ 40 GHz	Feb. 21, 2012	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-SP-SD	MAA1112-007	-20~100℃	Dec. 07, 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.

For radiated emissions 9kHz~30MHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
10m Semi Anechoic Chamber	TDK	SAC-10M	10CH02-HY	30 MHz ~ 1 GHz 10m,3m	Nov. 05, 2011	Radiation (10CH02-HY)
Amplifier	AGILENT	8447D	2944A10827	100 KHz ~ 1.3 GHz	May 20, 2011	Radiation (10CH02-HY)
Amplifier	AGILENT	8447D	2944A10828	100 KHz ~ 1.3 GHz	Apr. 27, 2012	Radiation (10CH02-HY)
Receiver	R&S	ESI	838496/008	20 Hz ~ 7 GHz	May 09, 2011	Radiation (10CH02-HY)
Spectrum Analyzer	R&S	FSP7	100645	9 KHz ~ 7 GHz	Apr. 27, 2012	Radiation (10CH02-HY)
Biconical Antenna	Schwarzbeck	VHBB 9124	287	30 MHz ~ 200 MHz	Dec. 17, 2011	Radiation (10CH02-HY)
Log Antenna	Schwarzbeck	VUSLP 9111	207	200 MHz ~ 1 GHz	Dec. 17, 2011	Radiation (10CH02-HY)
Turn Table	HD	DS 430	430/360	0 -360 degree	N/A	Radiation (10CH02-HY)
Antenna Mast	HD	MA240	240/664	1 m - 4 m	N/A	Radiation (10CH02-HY)
Antenna Mast	HD	MA240	240/667	1 m - 4 m	N/A	Radiation (10CH02-HY)
RF Cable-R10m	Jye Bao	RG142	CB027-INSIDE	30 MHz ~ 1 GHz	Feb. 11, 2012	Radiation (10CH02-HY)
RF Cable-R10m	Suhner Switzerland + BELDEN	RG223/U + RG8/U	CB026-DOOR	30 MHz ~ 1 GHz	Feb. 11, 2012	Radiation (10CH02-HY)

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

For radiated emissions 30MHz~1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9 kHz ~ 40 GHz	Sep. 01, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30 MHz ~ 1 GHz 3m	May 11, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100 kHz ~ 1.3 GHz	Jul. 25, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz ~ 1 GHz	Nov. 11, 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.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul. 29, 2010*	Radiation (10CH02-HY) (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 : 886-3-318-0055
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


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

Certificate No. : L1190-111208

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

Pl, total 24 pages

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