FCC TEST REPORT

CATEGORY	:	Fixed
PRODUCT NAME	:	Satellite Radio PnP Receiver
FCC ID.	:	NKRUPAST201
FILING TYPE	:	Certification
BRAND (MODEL) NAME	:	WNC(UPA-ST2), SIRIUS(ST2), RADIOSHACK(ST2R), BRIX(SIR-GTR1)
APPLICANT	:	**Wistron NeWeb Corporation** No. 10-1, Li-hsin Road I, Science-baded Industrial Park, Hsinchu 300, Taiwan, R.O.C.
MANUFACTURER	:	Same as applicant
ISSUED BY	:	**SPORTON INTERNATIONAL INC.** 6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien, Taiwan, R.O.C.

Statements:

The test result in this report refers exclusively to the presented test model / sample.
Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

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

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

1190

ILAC MRA

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HISTORY OF THIS TEST REPORT

Received Date: June 02, 2005
Test Date: June 21, 2005
Original Report Issue Date: June 30, 2005
Report No.: FR560202

■ No additional attachment.
☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

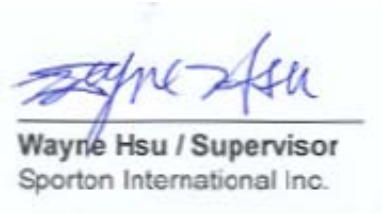
with

47 CFR FCC Part 15 Subpart C

PRODUCT NAME	:	Satellite Radio PnP Receiver
BRAND (MODEL) NAME	:	WNC(UPA-ST2), SIRIUS(ST2), RADIOSHACK(ST2R), BRIX(SIR-GTR1)
APPLICANT	:	**Wistron NeWeb Corporation** No. 10-1, Li-hsin Road I, Science-baded Industrial Park, Hsinchu 300, Taiwan, R.O.C.
MANUFACTURER	:	Same as applicant

I **HEREBY** CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4-2003 and all test are performed according to 47 CFR FCC Part 15 Subpart C. Testing was carried out on June 21, 2005 at SPORTON International Inc. LAB.



1. General Description of Equipment under Test

1.1. Applicant

Wistron NeWeb Corporation
No. 10-1, Li-hsin Road I, Science-baded Industrial Park, Hsinchu 300, Taiwan, R.O.C.

1.2. Manufacturer

Same as applicant

1.3. Basic Description of Equipment under Test

This product is a Satellite Radio receiver with FM transmitter. There are 3 antenna selections for Satellite Radio receiver and 1 FM transmitter antenna. The technical data has been listed on section " Features of Equipment under Test ".

1.4. Features of Equipment under Test

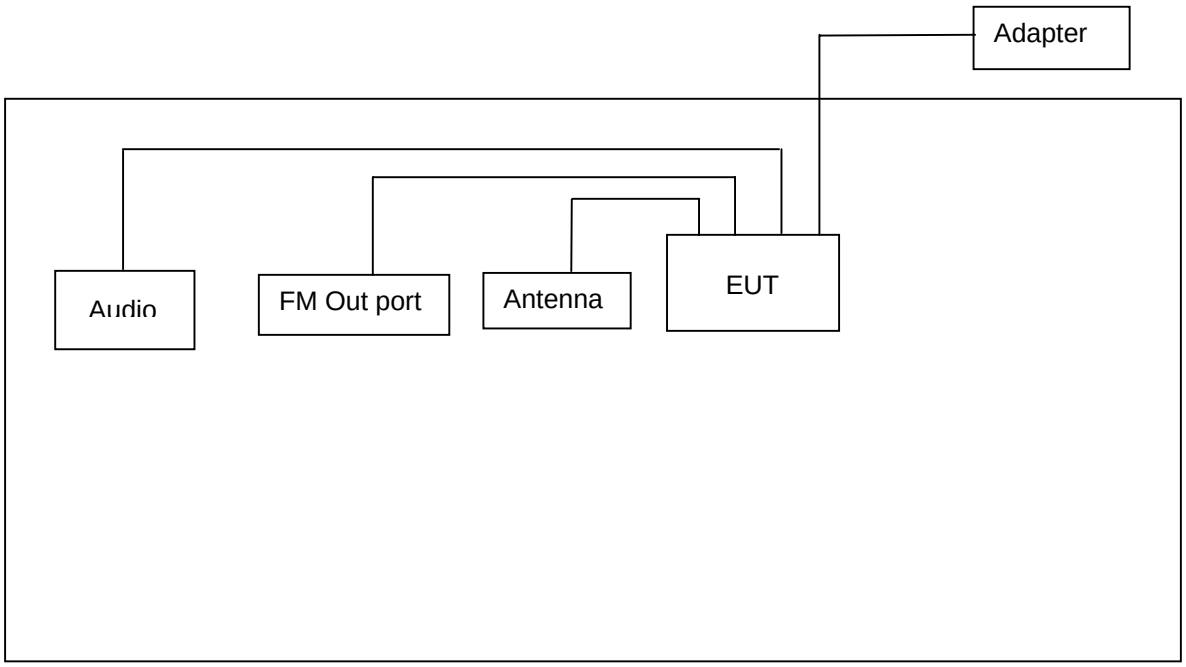
Items	Description
Type of Modulation	FM
Number of Channels	3
Frequency Band	88.1 MHz ~ 107.9 MHz
Carrier Frequency	See section 1.5 for details
Antenna Type	TX: Monopole Antenna; RX: PATCH Antenna
Testing Duty Cycle	100.00%
Test Power Source	12VDC by car charger + AC Charger
Temperature Range (Operating)	-10 ~ 55 °C

1.5. Table for Carrier Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	88.1 MHz	23	92.5 MHz	45	96.9 MHz	65	100.9 MHz	87	105.3 MHz
2	88.3 MHz	24	92.7 MHz	46	97.1 MHz	66	101.1 MHz	88	105.5 MHz
3	88.5 MHz	25	92.9 MHz	47	97.3 MHz	67	101.3 MHz	89	105.7 MHz
4	88.7 MHz	26	93.1 MHz	48	97.5 MHz	68	101.5 MHz	90	105.9 MHz
5	88.9 MHz	27	93.3 MHz	49	97.7 MHz	69	101.7 MHz	91	106.1 MHz
6	89.1 MHz	28	93.5 MHz	50	97.9 MHz	70	101.9 MHz	92	106.3 MHz
7	89.3 MHz	29	93.7 MHz	51	98.1 MHz	71	102.1 MHz	93	106.5 MHz
8	89.5 MHz	30	93.9 MHz	52	98.3 MHz	72	102.3 MHz	94	106.7 MHz
9	89.7 MHz	31	94.1 MHz	53	98.5 MHz	73	102.5 MHz	95	106.9 MHz
10	89.9 MHz	32	94.3 MHz	54	98.7 MHz	74	102.7 MHz	96	107.1 MHz
11	90.1 MHz	33	94.5 MHz	55	98.9 MHz	75	102.9 MHz	97	107.3 MHz
12	90.3 MHz	34	94.7 MHz	56	99.1 MHz	76	103.1 MHz	98	107.5 MHz
13	90.5 MHz	35	94.9 MHz	57	99.3 MHz	77	103.3 MHz	99	107.7 MHz
14	90.7 MHz	36	95.1 MHz	58	99.5 MHz	78	103.5 MHz	100	107.9 MHz
15	90.9 MHz	37	95.3 MHz	59	99.7 MHz	79	103.7 MHz		
16	91.1 MHz	38	95.5 MHz	60	99.9 MHz	80	103.9 MHz		
17	91.3 MHz	39	95.7 MHz	59	99.7 MHz	81	104.1 MHz		
18	91.5 MHz	40	95.9 MHz	60	99.9 MHz	82	104.3 MHz		
19	91.7 MHz	41	96.1 MHz	61	100.1 MHz	83	104.5 MHz		
20	91.9 MHz	42	96.3 MHz	62	100.3 MHz	84	104.7 MHz		
21	92.1 MHz	43	96.5 MHz	63	100.5 MHz	85	104.9 MHz		
22	92.3 MHz	44	96.7 MHz	64	100.7 MHz	86	105.1 MHz		

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

1. According to ANSI C63.4-2003: Frequency range of EUT is more than 10 MHz, we have to test the lowest, middle and highest channels of EUT.
2. AC conduction emission is independent of channel selection, there will be no effect on test results, so only channel 100 with FM modulation was tested.
3. For spurious emissions, there are FM transmitter configuration and GPS receiver configuration.
   Mode 1: TX FM transmitter.
   Mode 2: RX GPS receiver with 4K206300C antenna.
   Mode 3: RX GPS receiver with 4L300435C antenna.
   Mode 4: RX GPS receiver with 6346917 antenna.

2.3. Description of Test Supporting Units

This test has not tested the perimeter.

3. General Information of Test

3.1. Test Facility

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.
	:	TEL 886-3-327-3456
	:	FAX 886-3-318-0055
Test Site No	:	03CH03-HY / CO01-HY

3.2. Standards for Methods of Measurement

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

ANSI C63.4-2003

47 CFR FCC Part 15 Subpart C

3.3. Frequency Range Investigated

Radiated emission test: from 30 MHz to 10th carrier harmonic.

3.4. Test Distance

The test distance of radiated emission (30MHz~10th carrier harmonic) test from antenna to EUT is 3 M.

3.5. Test Software

There is no test software for the test.

4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR FCC Part 15 Subpart C			
Paragraph	**FCC Rule**	**Description of Test**	**Result**
5.1	15.239(b)	Maximum Field Strength of Fundamental	Pass
5.2	15.239(a)	Emission Bandwidth	Pass
5.3	15.207	AC Power Line Conducted Emission	Pass
5.4	15.239(c)	Spurious Radiated Emission	Pass
5.5	15.203	Antenna Requirement	Pass

5. Test Result

5.1. Test of Maximum Field Strength of Fundamental

5.1.1. Applicable Standard

Section 15.239(b): The field strength of fundamental emissions shall not exceed 250 microvolts/meter at 3 meters (measurement instrumentation employing an average detector).

5.1.2. Measuring Instruments

Item 7~18 of the table on section 6.

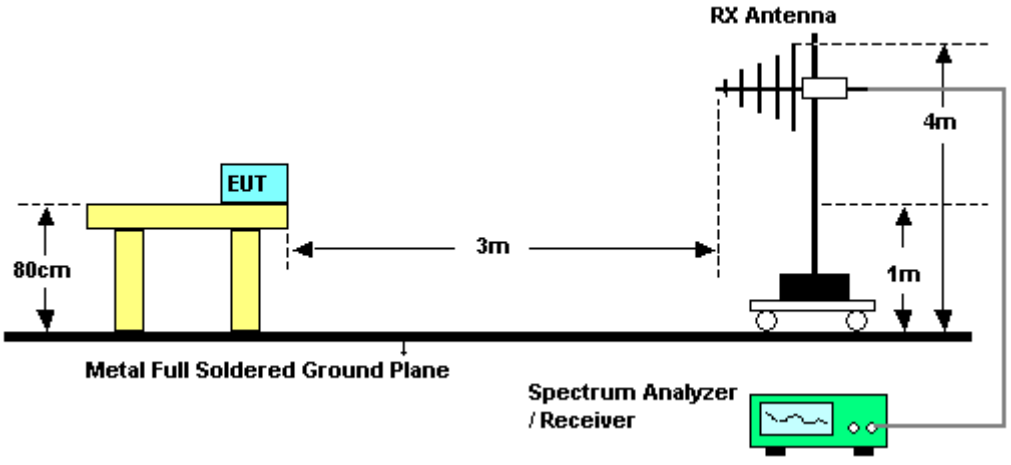
5.1.3. Description of Major Test Instruments Setting

- Test Receiver : R&S ESCS 30
  Attenuation : 10 dB
  Start Frequency : 0.15 MHz
  Stop Frequency : 30 MHz
  IF Bandwidth : 9 KHz

5.1.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.-2003
2. 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 emission field strength of both horizontal and vertical polarization.
4. For carrier field strength emission, the antenna tower was scanned (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 carrier field strength emission, use 9kHz RBW of Receiver for reading under average and peak detector.

5.1.5. Test Setup Layout



5.1.6. Test Criteria

All test results complied with the requirements of 15.239(b). Measurement Uncertainty is 2.26dB.

5.1.7. Test Result

- Temperature: 26°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

Channel No.	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector
01	88.1 MHz	36.51	-11.49	48	Average
01	88.1 MHz	36.93	-31.07	68	Peak
51	98.1 MHz	29.09	-18.91	48	Average
51	98.1 MHz	30.24	-37.76	68	Peak
100	107.9 MHz	28.41	-19.59	48	Average
100	107.9 MHz	29.54	-38.46	68	Peak

Note:

Correct Factor = Antenna Factor + Cable Loss - Preamp Factor.

Read Level = Level of Receiver or Spectrum.

Level = Read Level + Correct Factor.

5.2. Test of Emission Bandwidth

5.2.1. Applicable Standard

Section 15.239(a): Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency.

5.2.2. Measuring Instruments

Item 7 of the table on section 6.

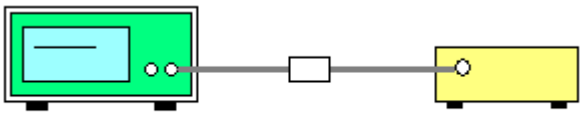
5.2.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP40
  Attenuation : Auto
  Center Frequency : Carrier frequency
  Span Frequency : Suitable for observe
  RB : 10 kHz
  VB : 10 kHz

5.2.4. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 1% of occupied bandwidth
3. Set the 99% occupied bandwidth function to measure the bandwidth of EUT.

5.2.5. Test Setup Layout



5.2.6. Test Criteria

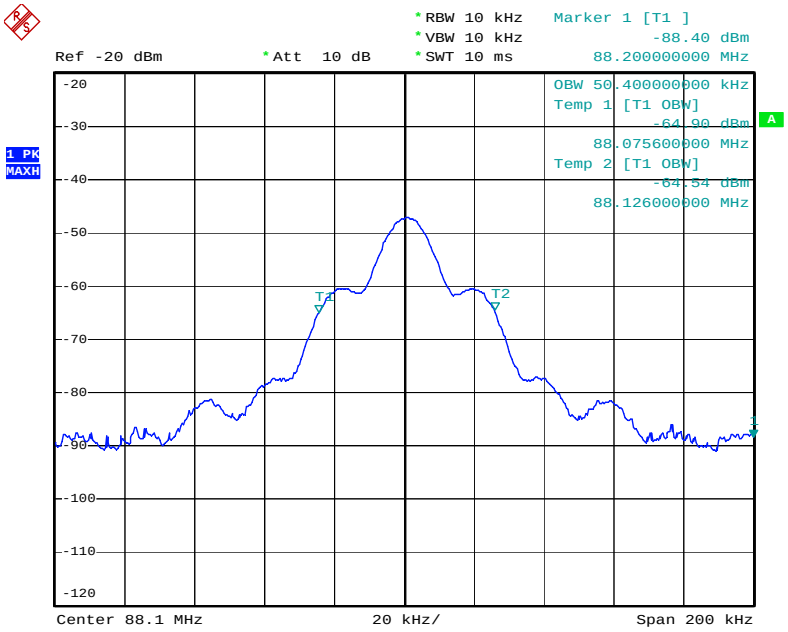
All test results complied with the requirements of 15.239(a). Measurement Uncertainty is $1x10^{-5}$.

5.2.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sam Lee

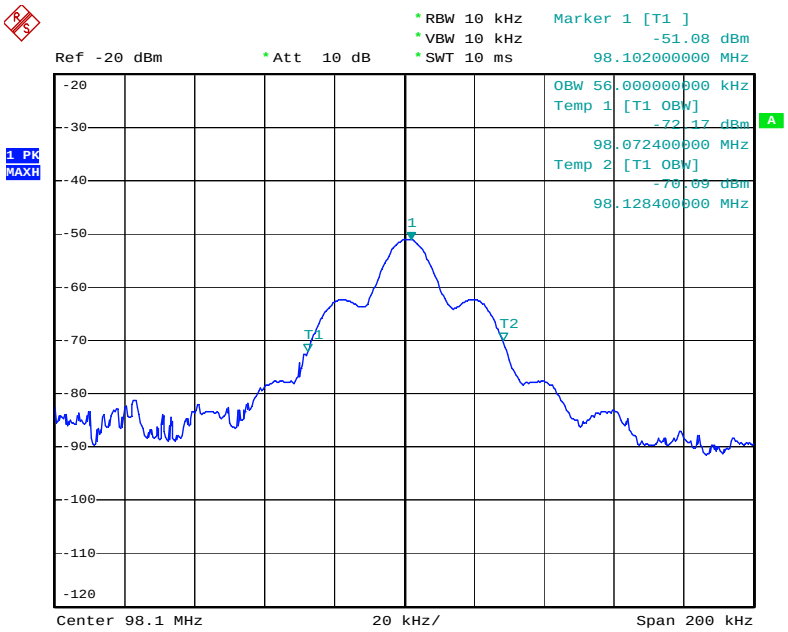
Channel	Frequency (MHz)	Bandwidth (kHz)	Max. Limit (kHz)
01	88.1 MHz	50.40	200
51	98.1 MHz	56.00	200
100	107.9 MHz	58.40	200

Modulation Type: FM (Channel 01)：



Date: 20.JUN.2005 15:01:59

Modulation Type: FM (Channel 51)：



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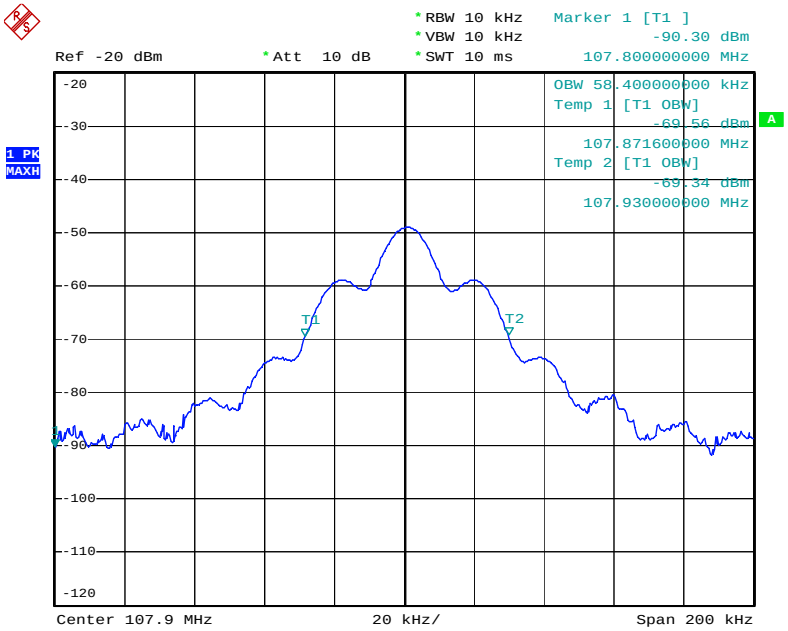
Modulation Type: FM (Channel 100)：



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5.3. Test of AC Power Line Conducted Emission

5.3.1. Applicable Standard

Section 15.207: For a Low-power Radio-frequency Device 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

5.3.2. Measuring Instruments

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

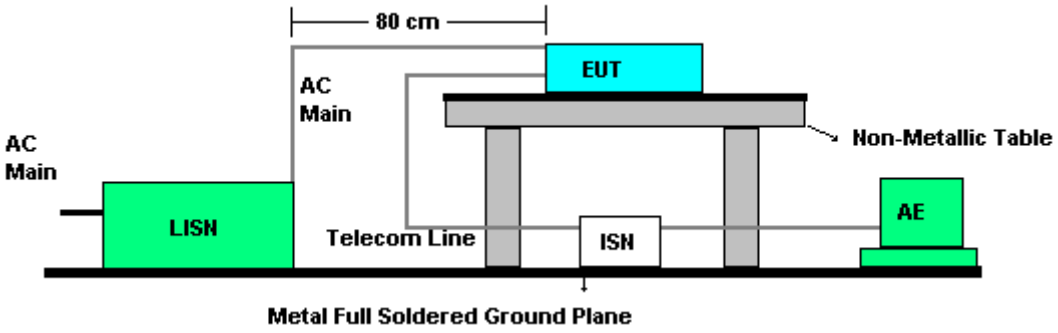
5.3.3. Description of Major Test Instruments Setting

- Test Receiver : R&S ESCS 30
  Attenuation : 10 dB
  Start Frequency : 0.15 MHz
  Stop Frequency : 30 MHz
  IF Bandwidth : 9 KHz

5.3.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.-2003
2. The EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN)
4. All the support units are connected to the other LISNs. The LISN should provides 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. 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 for each RF channel. Only one RF channel has to be investigated since this test is independent with the RF channel selection.

5.3.5. Test Setup Layout



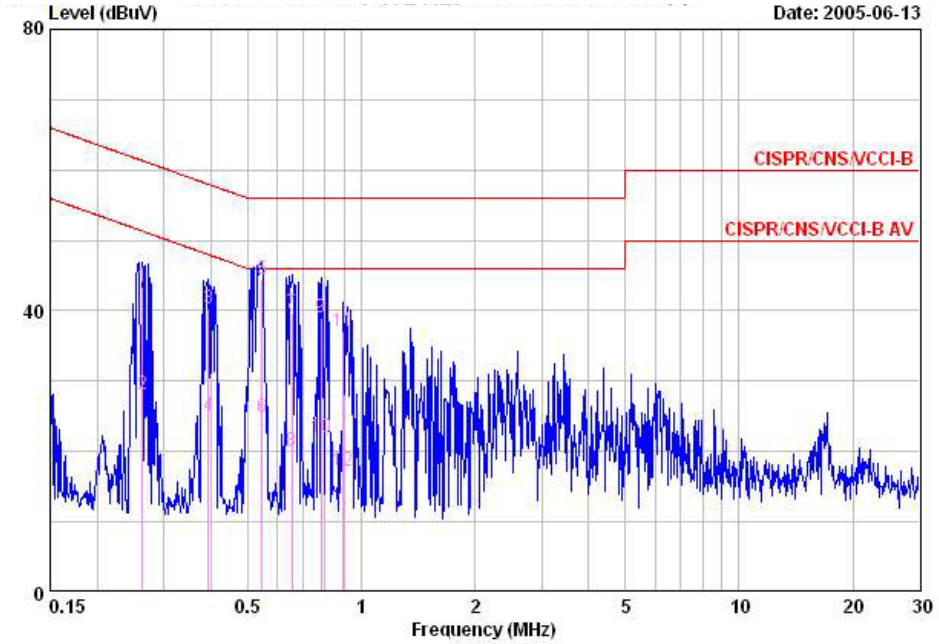
5.3.6. Test Criteria

All test results complied with the requirements of 15.207. Measurement Uncertainty is 2.54dB.

5.3.7. Test Result of Conducted Emission for CH 100 / 107.9 MHz

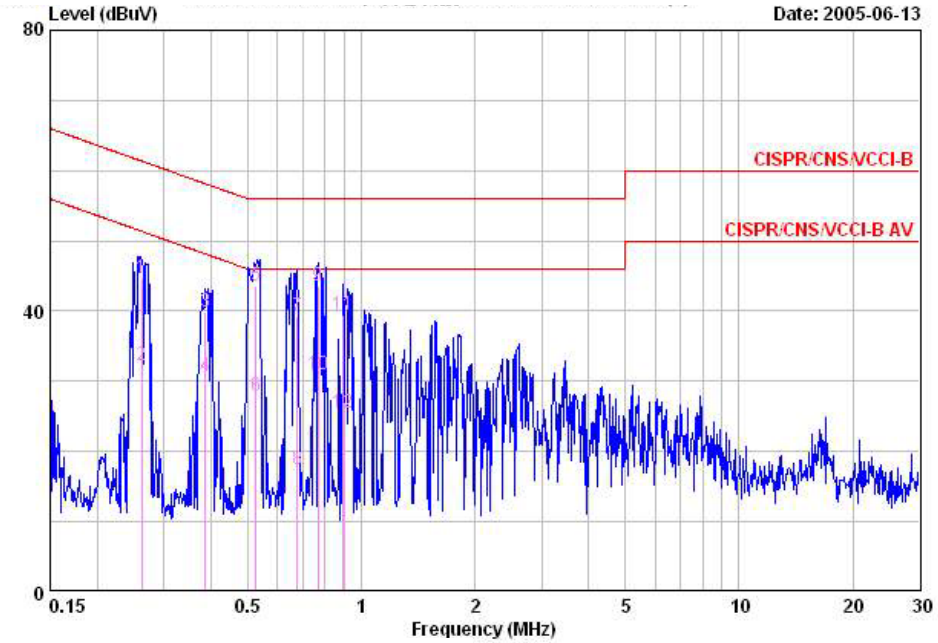
- Temperature: 26°C
- Relative Humidity: 62%
- Test Engineer: Sky Wu

Line to Ground



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.26303	43.40	-17.93	61.34	43.06	0.06	0.28	QP
2	0.26303	28.11	-23.22	51.34	27.77	0.06	0.28	AVERAGE
3	0.39344	40.41	-17.58	57.99	40.13	0.00	0.28	QP
4	0.39344	25.03	-22.96	47.99	24.75	0.00	0.28	AVERAGE
5 @	0.54644	44.44	-11.56	56.00	44.10	0.00	0.34	QP
6	0.54644	24.84	-21.16	46.00	24.50	0.00	0.34	AVERAGE
7	0.65430	39.60	-16.40	56.00	38.98	0.00	0.62	QP
8	0.65430	20.01	-25.99	46.00	19.39	0.00	0.62	AVERAGE
9	0.78345	39.03	-16.97	56.00	38.33	0.00	0.70	QP
10	0.78345	22.06	-23.94	46.00	21.36	0.00	0.70	AVERAGE
11	0.89441	36.97	-19.03	56.00	36.30	0.00	0.67	QP
12	0.89441	17.27	-28.73	46.00	16.60	0.00	0.67	AVERAGE

Neutral to Ground

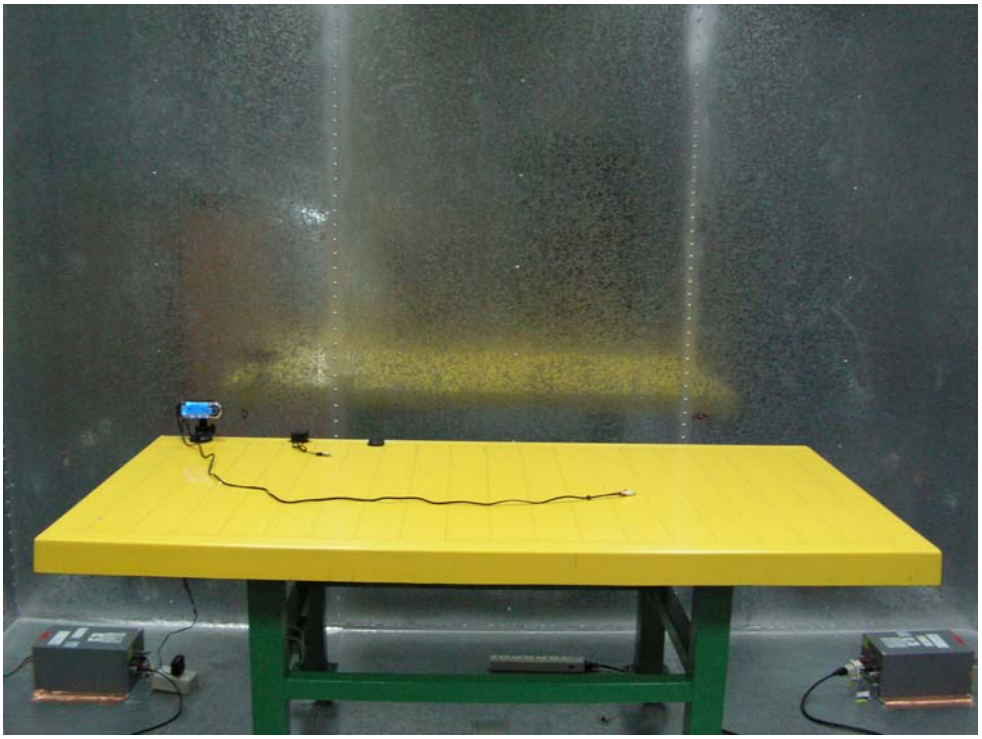


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.26265	44.70	-16.65	61.35	44.32	0.10	0.28	QP
2	0.26265	32.24	-19.11	51.35	31.86	0.10	0.28	AVERAGE
3	0.38724	39.84	-18.28	58.12	39.46	0.10	0.28	QP
4	0.38724	30.75	-17.37	48.12	30.37	0.10	0.28	AVERAGE
5 @	0.52607	43.66	-12.34	56.00	43.31	0.07	0.28	QP
6	0.52607	27.83	-18.17	46.00	27.48	0.07	0.28	AVERAGE
7	0.67544	39.23	-16.77	56.00	38.52	0.04	0.67	QP
8	0.67544	17.38	-28.62	46.00	16.67	0.04	0.67	AVERAGE
9	0.76702	43.50	-12.50	56.00	42.76	0.03	0.71	QP
10	0.76702	30.90	-15.10	46.00	30.16	0.03	0.71	AVERAGE
11	0.88969	39.41	-16.59	56.00	38.72	0.01	0.67	QP
12	0.88969	25.59	-20.41	46.00	24.90	0.01	0.67	AVERAGE

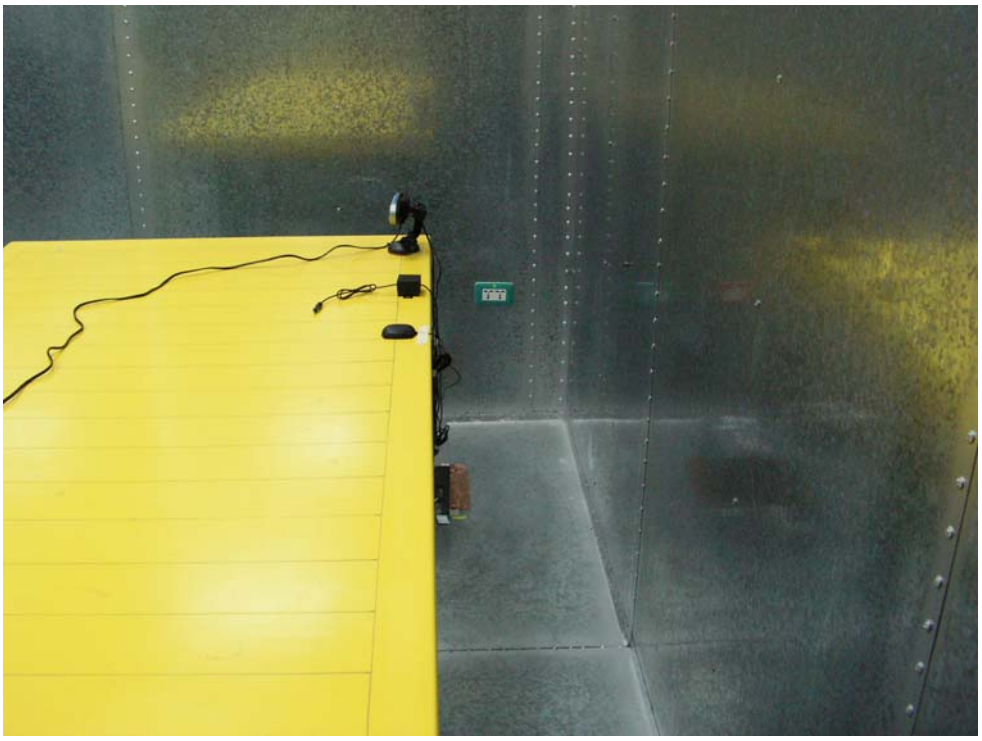
Note:
Corrected Reading: Probe (LISN / ISN) Factor + Cable Loss + Read Level = Level.

5.3.8. Photographs of Conducted Emission Test Configuration

FRONT VIEW



REAR VIEW



5.4. Test of Spurious Radiated Emission

5.4.1. Applicable Standard

Section 15.239(c): The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in Section 15.209.

5.4.2. Measuring Instruments

Please reference item 7~18 in chapter 6 for the instruments used for testing.

5.4.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP40
  Attenuation : Auto
  Start Frequency : 1000 MHz
  Stop Frequency : 10th carrier harmonic
  RB / VB : 1 MHz / 1MHz for Peak
  RB / VB : 1 MHz / 10Hz for Average

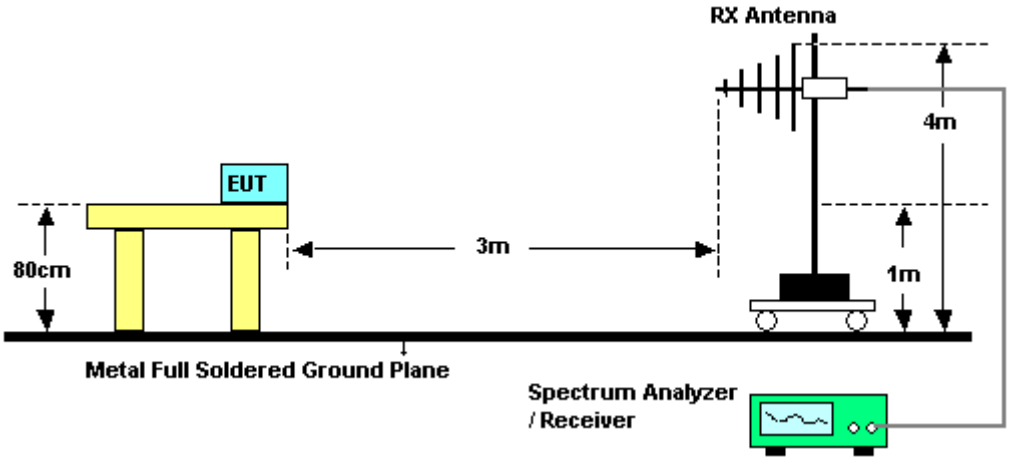
- Test Receiver : R&S ESCS 30
  Attenuation : Auto
  Start Frequency : 30 MHz
  Stop Frequency : 1000 MHz
  RB : 120 KHz for QP or PK

5.4.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.-2003
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. Power on the EUT and all the supporting units.
5. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10. If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.

11. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.4.5. Test Setup Layout



5.4.6. Test Criteria

All test results complied with the requirements of 15.239(c). Measurement Uncertainty is 2.26dB.

5.4.7. Test Results for CH 01 / 88.1 MHz

- Temperature: 26°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	175.500	15.49	-28.01	43.50	8.55	2.00	31.61	36.55	Peak
2	264.740	18.75	-27.25	46.00	12.90	2.50	31.34	34.69	Peak
3	351.070	21.53	-24.47	46.00	14.48	2.41	31.24	35.88	Peak
4	607.150	23.89	-22.11	46.00	18.63	3.16	30.69	32.79	Peak
5	780.780	24.75	-21.25	46.00	19.80	3.84	30.21	31.33	Peak
6 @	917.550	25.67	-20.33	46.00	20.86	4.03	29.63	30.41	Peak

(B) Polarization: Vertical

	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	141.550	19.32	-24.18	43.50	10.65	1.70	31.56	38.54	Peak
2	303.540	17.29	-28.71	46.00	13.08	2.22	31.31	33.31	Peak
3	482.990	20.48	-25.52	46.00	17.03	3.16	30.93	31.22	Peak
4	634.310	23.01	-22.99	46.00	18.72	3.38	30.44	31.35	Peak
5	676.990	23.34	-22.66	46.00	18.72	3.55	30.42	31.49	Peak
6 @	917.550	25.75	-20.25	46.00	20.86	4.03	29.63	30.48	Peak

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

5.4.8. Test Results for CH 51 / 98.1 MHz

- Temperature: 26°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	194.900	16.03	-27.47	43.50	8.55	2.00	31.49	36.97	Peak
2	292.870	23.46	-22.54	46.00	12.75	2.32	31.32	39.72	Peak
3	392.780	24.29	-21.71	46.00	15.50	2.65	31.06	37.19	Peak
4	533.430	21.45	-24.55	46.00	17.83	3.23	30.81	31.20	Peak
5	703.180	24.24	-21.76	46.00	19.08	3.62	30.51	32.04	Peak
6 @	943.740	25.97	-20.03	46.00	20.94	3.92	29.54	30.65	Peak

(B) Polarization: Vertical

	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	141.550	19.35	-24.15	43.50	10.65	1.70	31.56	38.56	Peak
2	292.870	22.93	-23.07	46.00	12.75	2.32	31.32	39.19	Peak
3	536.340	23.62	-22.38	46.00	17.92	3.23	30.80	33.28	Peak
4	687.660	23.41	-22.59	46.00	18.78	3.58	30.47	31.52	Peak
5	815.700	24.94	-21.06	46.00	20.24	3.86	30.16	30.99	Peak
6 @	902.030	25.56	-20.44	46.00	20.74	4.09	29.68	30.41	Peak

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

5.4.9. Test Results for CH 100 / 107.9 MHz

- Temperature: 26°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	214.300	20.10	-23.40	43.50	8.20	2.08	31.41	41.23	Peak
2	322.940	24.07	-21.93	46.00	13.70	2.30	31.28	39.36	Peak
3	431.580	23.76	-22.24	46.00	16.30	2.83	30.96	35.59	Peak
4	599.390	22.71	-23.29	46.00	18.50	3.10	30.75	31.86	Peak
5	722.580	23.77	-22.23	46.00	19.54	3.74	30.41	30.89	Peak
6 @	854.500	24.98	-21.02	46.00	20.55	4.01	30.08	30.50	Peak

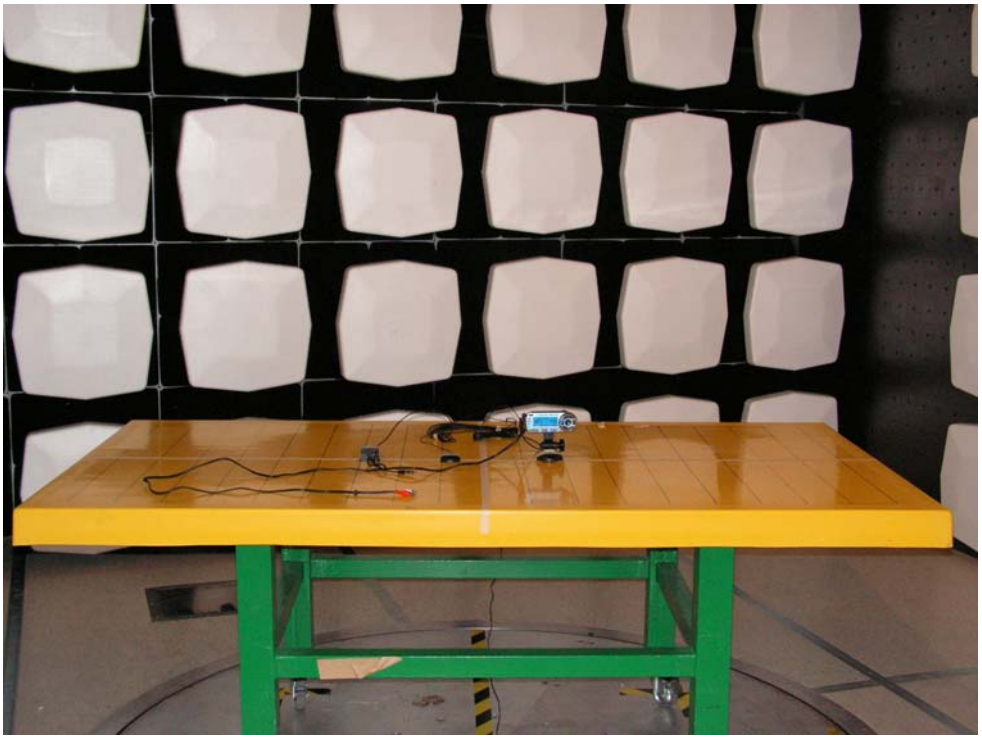
(B) Polarization: Vertical

	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	141.550	20.25	-23.25	43.50	10.65	1.70	31.56	39.46	Peak
2	214.300	15.42	-28.08	43.50	8.20	2.08	31.41	36.55	Peak
3	303.540	17.20	-28.80	46.00	13.08	2.22	31.31	33.22	Peak
4	431.580	20.59	-25.41	46.00	16.30	2.83	30.96	32.43	Peak
5	700.270	23.83	-22.17	46.00	19.00	3.60	30.52	31.75	Peak
6 @	842.860	25.93	-20.07	46.00	20.44	3.98	30.13	31.64	Peak

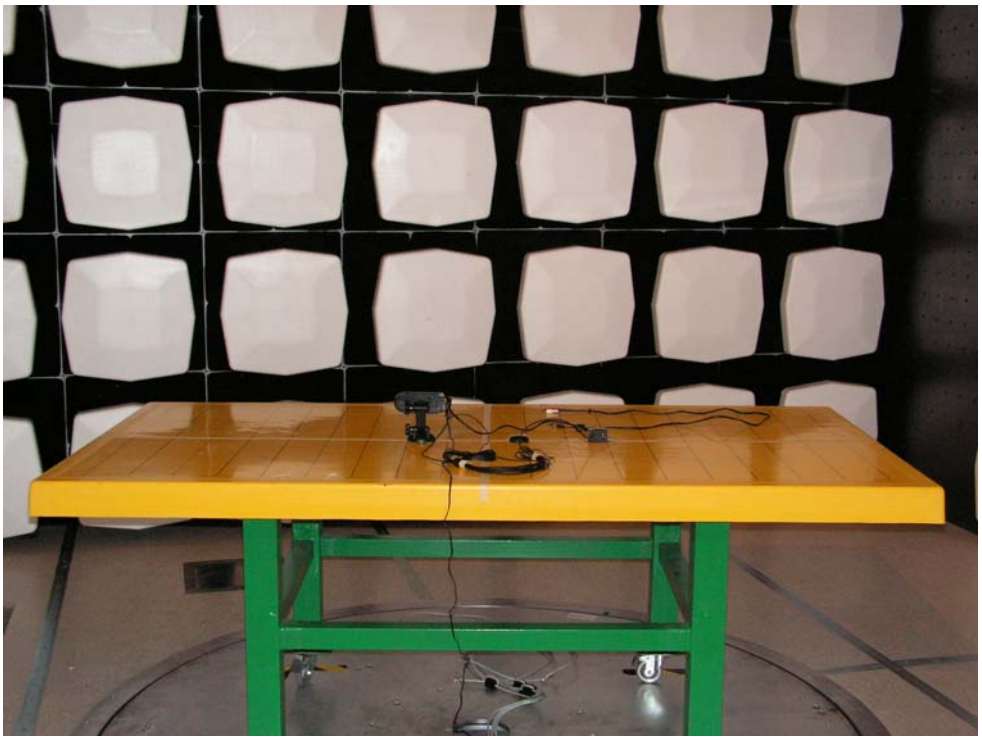
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.4.10. Photographs of Radiated Emission Test Configuration

FRONT VIEW



REAR VIEW



5.5. Antenna Requirements

5.5.1. Standard Applicable

Section 15.203: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.5.2. Antenna Connected Construction

There is no antenna connector for Monopole Antenna (Tx), PATCH Antenna (Rx).

5.5.3. Test Criteria

All test results complied with the requirements of 15.203.

6. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	EMC Receiver	R&S	ESCS 30	100132	9 KHz – 2.75 GHz	Jun. 23, 2004	Conduction (CO01-HY)
2	LISN	MessTec	NNB-2/16Z	2001/008	9 KHz – 30 MHz	May 02, 2005	Conduction (CO01-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9 KHz – 30 MHz	Apr. 18, 2005	Conduction (CO01-HY)
4	EMI Filter	LINDGREN	LRE-2060	1004	< 450 Hz	N/A	Conduction (CO01-HY)
5	EMI Filter	LINDGREN	N6006	201052	0 ~ 60 Hz	N/A	Conduction (CO01-HY)
6	RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9KHz~30MHz	Dec. 23, 2004	Conduction (CO01-HY)
7	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
8	Spectrum Analyzer	R&S	FSP40	100004	9KHZ~4GHz	Aug. 31, 2004	Radiation (03CH03-HY)
9	Amplifier	Schaffner	CPA9231A	18667	9KHz – 2GHz	Jan. 04, 2005	Radiation (03CH03-HY)
10	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 23, 2004	Radiation (03CH03-HY)
11	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 23, 2004	Radiation (03CH03-HY)
12	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 02, 2004	Radiation (03CH03-HY)
13	Amplifier	MITEQ	AFS44	879984	1GHz~26.5GHz	Mar. 25, 2005	Radiation (03CH03-HY)
14	Horn Antenna	COMPOWER	AH-118	10092	1GHz – 18GHz	Feb. 18, 2005	Radiation (03CH03-HY)
15	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
16	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
17	Horn Antenna	Schwarzbeck	BBHA9170	154	15GHz~40GHz	Jun. 08, 2005	Radiation (03CH03-HY)
18	RF Cable-HIGH	SUHNER	SUCOFLES 106	SN30094/6	1GHz~26.5GHz	Mar. 05, 2005	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.

7. Company Profile

SPORTON Lab. was established in 1986 with one shielded room: the first private EMI test facility, offering local manufacturers an alternative EMI test familial apart from ERSO. In 1988, one 3M and 10M/3M open area test site were setup and also obtained official accreditation from FCC, VCCI and NEMKO. In 1993, a Safety laboratory was founded and obtained accreditation from UL of USA, CSA of Canada and TUV (Rhineland & PS) of Germany. In 1995, one EMC lab, including EMI and EMS test facilities was setup. In 1997, SPORTON Group has provided financial expense to relocate the headquarter to Orient Scientific Park in Taipei Hsien to offer more comprehensive, more qualified and better service to local suppliers and manufactures. In 1999, Safety Group and Component Group were setup. In 2001, SPORTON has established 3M/10M chamber in Hwa Ya Technology Park.

7.1. Certificate of Accreditation

Taiwan	BSMI, CNLA, DGT
USA	FCC, NVLAP, UL
EU	Nemko, TUV
Japan	VCCI
Canada	Industry Canada

7.2. Test Location

SHIJR	ADD：	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL：	02-2696-2468
	FAX：	02-2696-2255
HWA YA	ADD：	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL：	03-327-3456
	FAX：	03-318-0055
LINKOU	ADD：	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL：	02-2601-1640
	FAX：	02-2601-1695
DUNGHU	ADD：	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL：	02-2631-4739
	FAX：	02-2631-9740
JUNGHE	ADD：	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL：	02-8227-2020
	FAX：	02-8227-2626
NEIHU	ADD：	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL：	02-2794-8886
	FAX：	02-2794-9777

8. CNLA Certificate of Accreditation

Test Lab.	:	Sporton International Inc.
Accreditation Number	:	1190
Originally Accredited	:	2003/12/15
Effective Period	:	2003/12/15~2006/12/14
Accredited Scope	:	47 CFR FCC Part 15 Subpart C (9kHz~40GHz)

Taiwan Accreditation Foundation
Chinese National Laboratory Accreditation
Certificate of Accreditation

Accreditation Criteria:	ISO 17025
Accreditation Number:	1190
Organization/Laboratory:	EMC & Wireless Communications Laboratory,Sporton International Inc.
Originally Accredited:	December 15, 2003
Effective Period:	December 15, 2003 To December 14, 2006
Accredited Scope:	Electrical Testing Field, 7 items, details shown in the following pages.
Specific Accreditation Program:	Recognition and Approval of Designated Laboratory for Commodities Inspection

President, Taiwan Accreditation Foundation
Date:July 19, 2004

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