

FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.225

Equipment : PDA
Model No. : IWGD
Brand Name : MTC
Filing Type : New Application
Applicant : **Mitac Technology Corp**
NO.1, R&D 2ND RD.HsinChu Science -Based
Industrial Park, HsinChu, TAIWAN, R.O.C.
FCC ID : MAU034
Manufacturer : **Mitac Technology Corp**
NO.1, R&D 2ND RD.HsinChu Science -Based
Industrial Park, HsinChu, TAIWAN, R.O.C.
GeTAC Technology(Kunshan) LTD.
No. 269, 2nd Road, Export Processing Zone,
Changjiang South Road, Kunshan, Jiangsu, P.R.C.
Received Date : Sep. 02, 2008
Final Test Date : Sep. 30, 2008

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.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of This Test Report

Original Issue Date: Oct. 20, 2008

Report No.: FR881429ZA

■ 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 : PDA
Model No. : IWGD
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NO.1, R&D 2ND RD.HsinChu Science -Based
Industrial Park, HsinChu, TAIWAN, R.O.C.

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Sep. 02, 2008 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

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei 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	15.93 dB
3.2	15.225(a)	Field Strength of Fundamental Emissions	Complies	69.47 dB
3.3	15.215(c)	20dB Spectrum Bandwidth	Complies	-
3.4	15.225(d)	Radiated Emissions	Complies	3.22 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	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	5V from adapter ; 3.7V from Li-ion battery
Modulation	ASK
Channel Number	1
Channel Band Width (99%)	8.80 kHz
Max. Field Strength	34.53 dBuV/m at 10m (QP)
Test Freq. Range	13.553 ~ 13.567MHz
Carrier Frequencies	13.559 MHz (CH 1)
Antenna	Printed Antenna

2.2. Accessories

Power	Brand	Model	Rating
SWITCHING POWER SUPPLY	PHIHONG	PSC11R-050	INPUT: 100-240V~0.3A 50-60Hz OUTPUT: 5V 2A MAX
Li-ion Battery	GTK	IWGD Battery	Rating 3.7V 3600mAh
Others			
USB Cable			

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	Antenna
AC Power Line Conducted Emissions	Mode 1	6Mbps	-
Field Strength of Fundamental Emissions	CTX	1	1
20dB Spectrum Bandwidth	CTX	1	NA
Radiated Emissions 9kHz~30MHz	CTX	1	1
Radiated Emissions 9kHz~10 th Harmonic			
Band Edge Emissions	CTX	1	1
Frequency Stability	Un-modulation	1	NA

Note: CTX=continuously transmitting

2.4. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
10CH02-HY	SAC	Hwa Ya	101377	IC 4086B-1	-
03CH02-HY	SAC	Hwa Ya	101377	IC 4086B-1	-
CO01-HY	Conduction	Hwa Ya	93596	IC 4086B-1	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

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

2.5. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	D400	DoC
Modem	ACEEX	DM-1414	IFAXDM1414
Mouse	Microsoft	1004	DoC
Headset	HAWK	03-MSB301	N/A

2.6. EUT Operation during Test

An executive program, EMCTEST.EXE under WIN XP, which generates a complete line of continuously repeating “ H ” pattern was used as the test software. At the same time, “Microsoft ActiveSync” was executed to EUT Link.

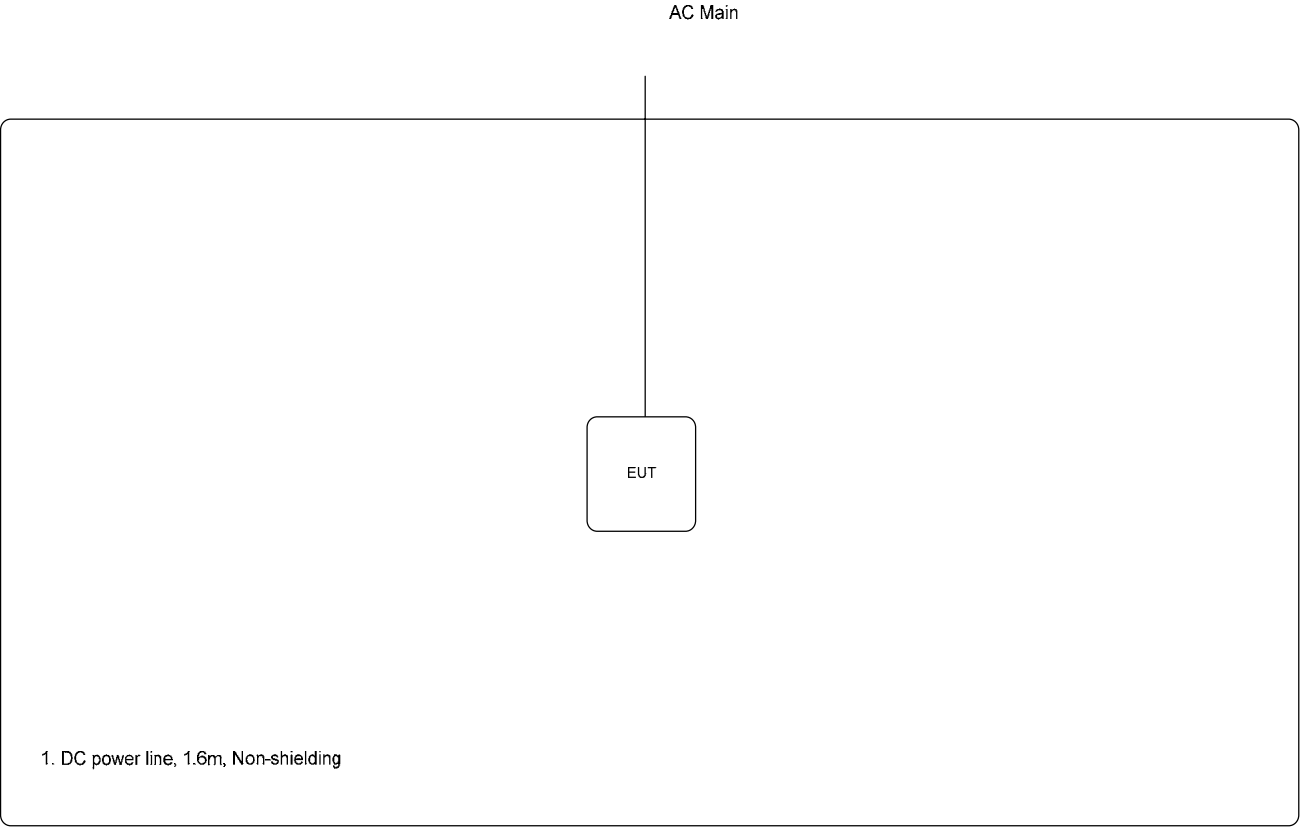
The NB sends “ H ” messages to the panel, and the panel displays “ H ” patterns on the screen.

Executed "Media player" to play audio and video.

2.7. Test Configurations

2.7.1. Radiation Emissions Test Configuration

For radiated emissions 30MHz~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.

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

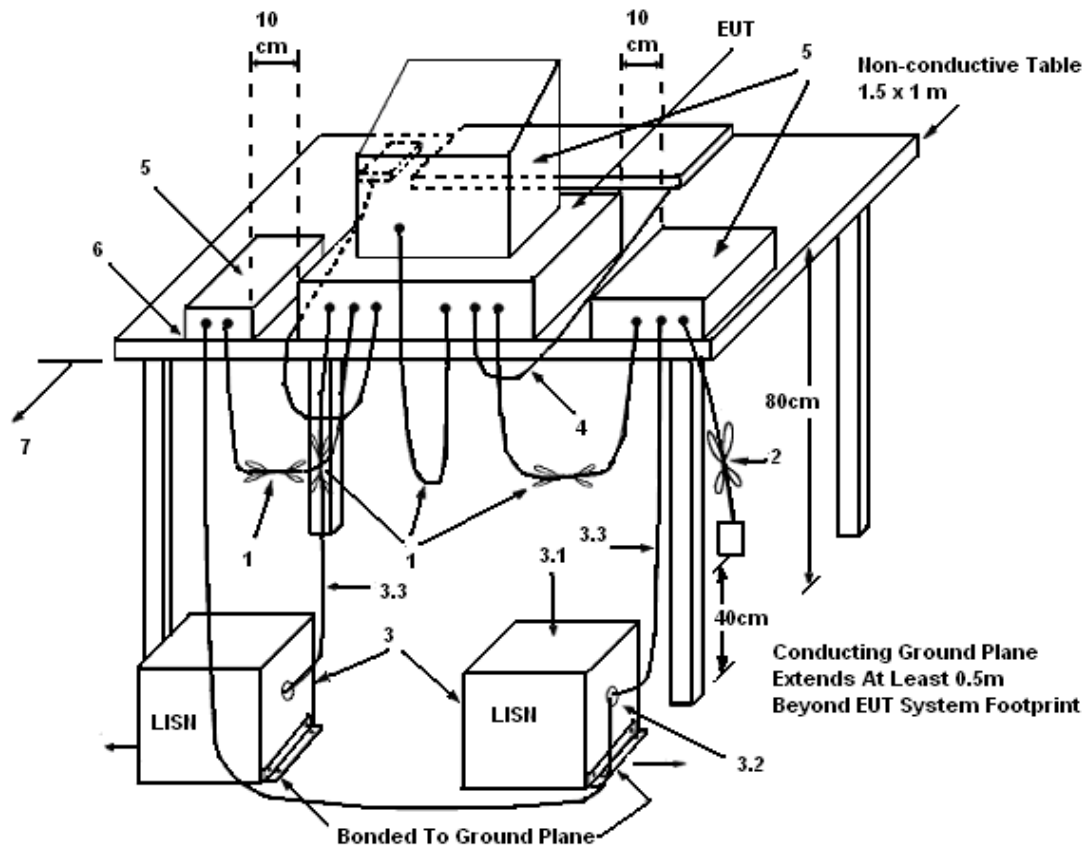
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

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. 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.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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

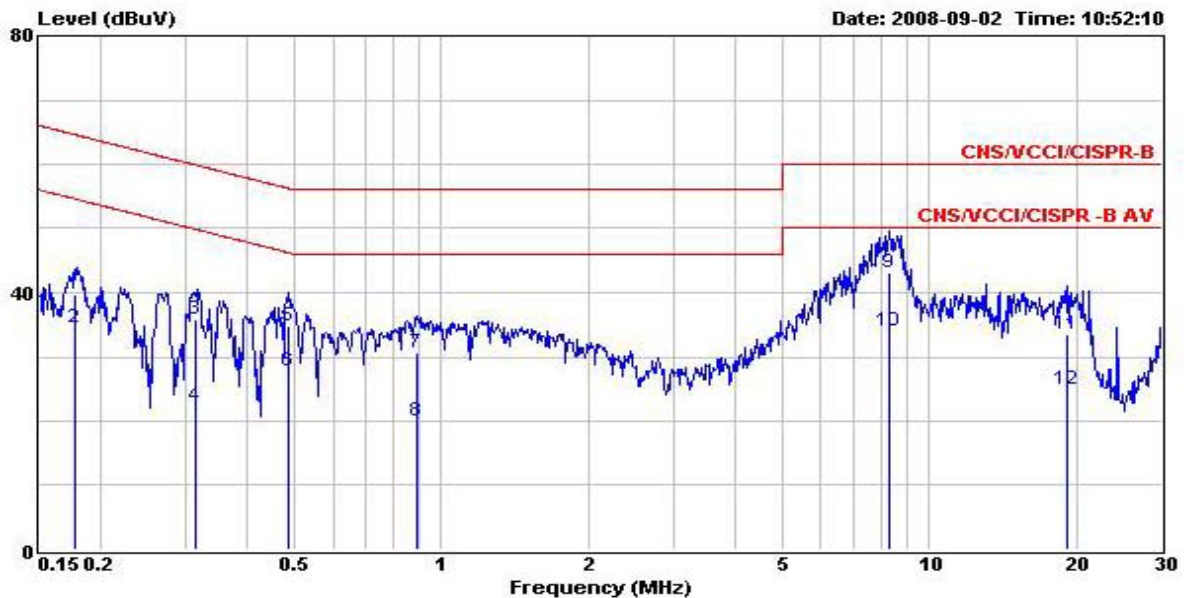
There is no deviation with the original standard.

3.1.6. EUT Operation during Test

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

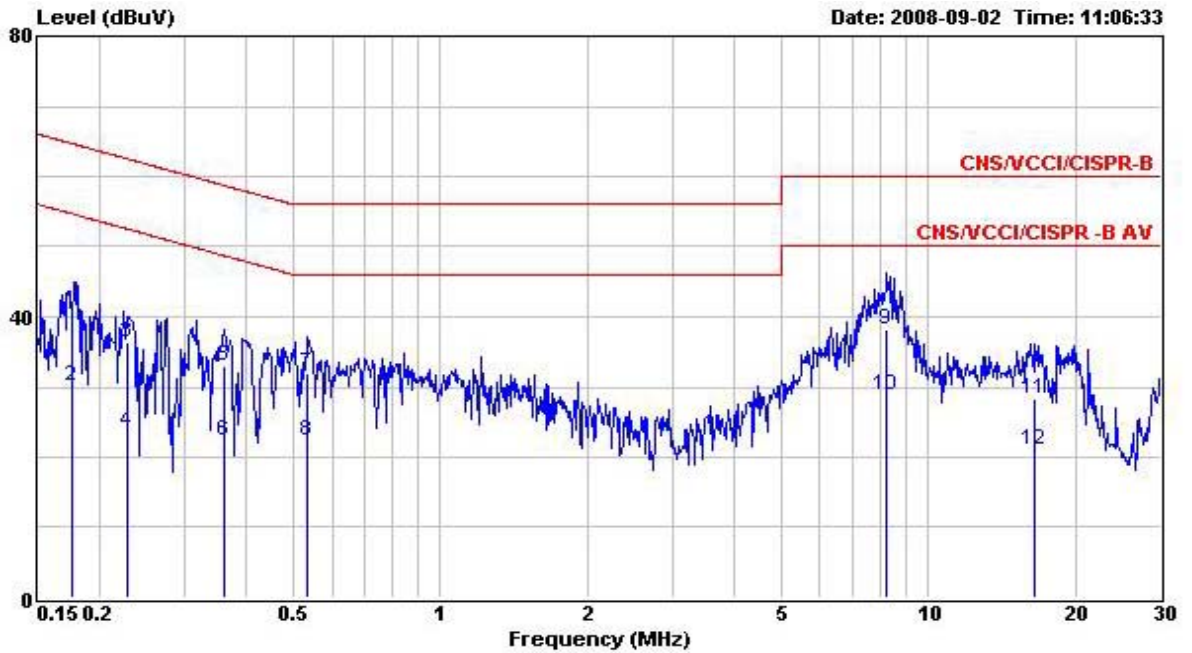
3.1.7. Results of AC Power Line Conducted Emissions Measurement

Test date	Sep. 02, 2008	Test Site No.	CO01-HY
Temperature	26.4	Humidity	45%
Test Engineer	Ken	Phase	Line
Configuration	Mode 1		



	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.178	39.78	-24.81	64.59	39.62	0.08	0.08	QP
2	0.178	34.46	-20.13	54.59	34.30	0.08	0.08	Average
3	0.314	35.75	-24.12	59.87	35.60	0.09	0.06	QP
4	0.314	22.40	-27.47	49.87	22.25	0.09	0.06	Average
5	0.488	34.85	-21.36	56.21	34.70	0.10	0.05	QP
6	0.488	27.88	-18.33	46.21	27.73	0.10	0.05	Average
7	0.891	30.62	-25.38	56.00	30.43	0.12	0.07	QP
8	0.891	20.03	-25.97	46.00	19.84	0.12	0.07	Average
9	8.280	43.03	-16.97	60.00	42.60	0.25	0.18	QP
10	8.280	34.07	-15.93	50.00	33.64	0.25	0.18	Average
11	19.220	33.47	-26.53	60.00	32.76	0.41	0.30	QP
12	19.220	24.88	-25.12	50.00	24.17	0.41	0.30	Average

Test date	Sep. 02, 2008	Test Site No.	CO01-HY
Temperature	26.4	Humidity	45%
Test Engineer	Ken	Phase	Neutral
Configuration	Mode 1		



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.176	40.86	-23.83	64.69	40.71	0.07	0.08	QP
2	0.176	30.22	-24.47	54.69	30.07	0.07	0.08	Average
3	0.228	36.30	-26.22	62.52	36.16	0.07	0.07	QP
4	0.228	23.60	-28.92	52.52	23.46	0.07	0.07	Average
5	0.360	32.86	-25.87	58.73	32.74	0.07	0.05	QP
6	0.360	22.45	-26.28	48.73	22.33	0.07	0.05	Average
7	0.535	31.90	-24.10	56.00	31.76	0.08	0.06	QP
8	0.535	22.32	-23.68	46.00	22.18	0.08	0.06	Average
9	8.240	38.06	-21.94	60.00	37.64	0.24	0.18	QP
10	8.240	28.80	-21.20	50.00	28.38	0.24	0.18	Average
11	16.490	28.32	-31.68	60.00	27.65	0.40	0.27	QP
12	16.490	21.06	-28.94	50.00	20.39	0.40	0.27	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 micровolts/meter at 30 meters. The emissions limit in this paragraph is based on measurement instrumentation employing a QP detector.

Frequency Band (MHz)	Fundamental Emissions Limit (dBuV/m) at 10m
13.553 ~ 13.567MHz	104 (QP)

Mask limit:

Rules and specifications	CFR 47 Part 15 section 15.225(a)-(d)			
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
	1.705~13.110	30	29.5	89.5
	13.110~13.410	106	40.5	100.5
	13.410~13.553	334	50.5	110.5
	13.553~13.567	15848	84.0	144.0
	13.567~13.710	334	50.5	110.5
	13.710~14.010	106	40.5	100.5
	14.010~30.000	30	29.5	89.5

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	9 kHz
Detector	QP

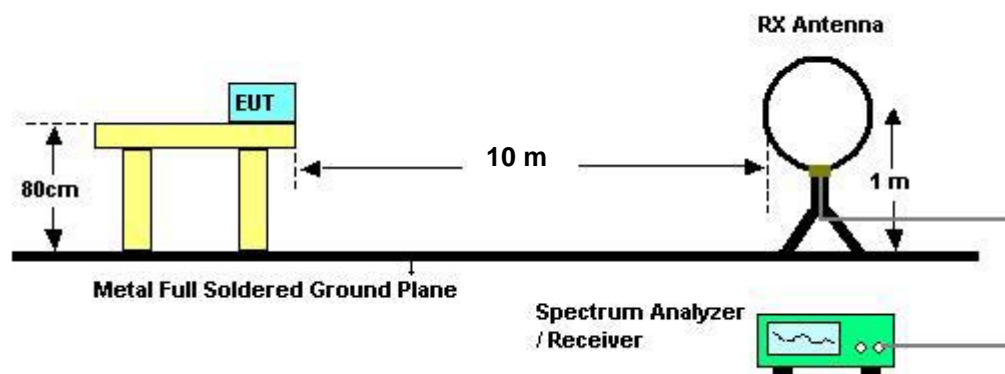
3.2.3. Test Procedures

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 1kHz 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.

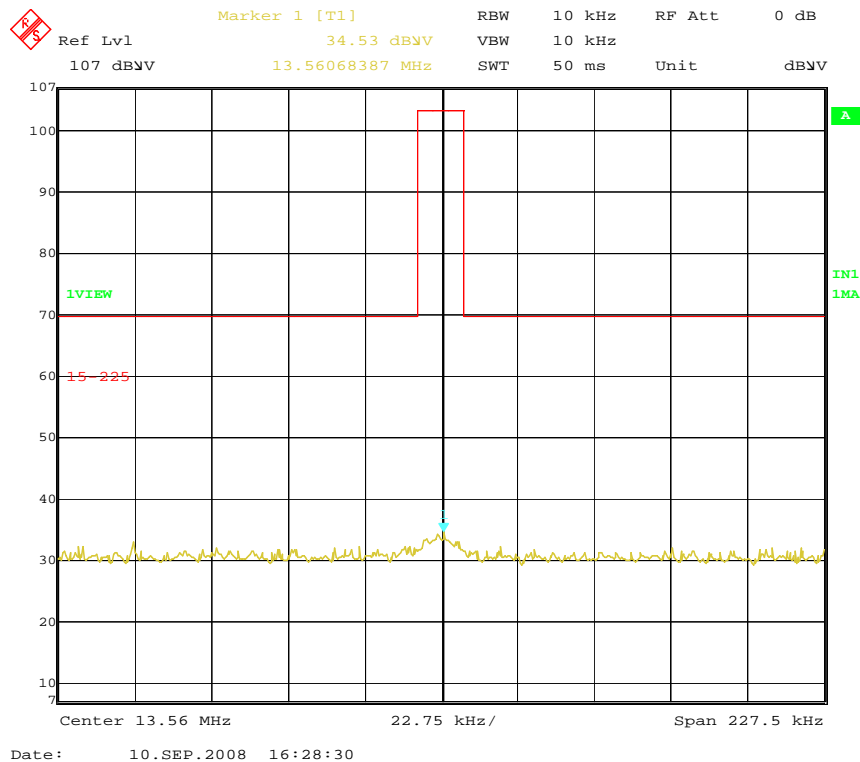
3.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7. Test Result of Field Strength of Fundamental Emissions

Test date	Sep. 10, 2008	Test Site No.	10CH02-HY
Temperature	27	Humidity	55%
Test Engineer	Eddie	Configurations	Channel 1

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m) at 10m	Remark
13.559 MHz	34.53	-69.47	104	QP



Note:

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

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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

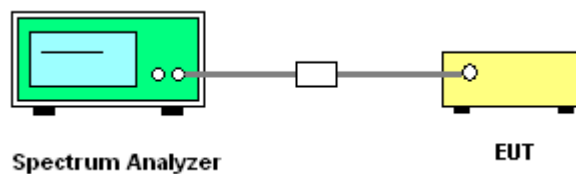
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 analyser in peak hold mode.
2. 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

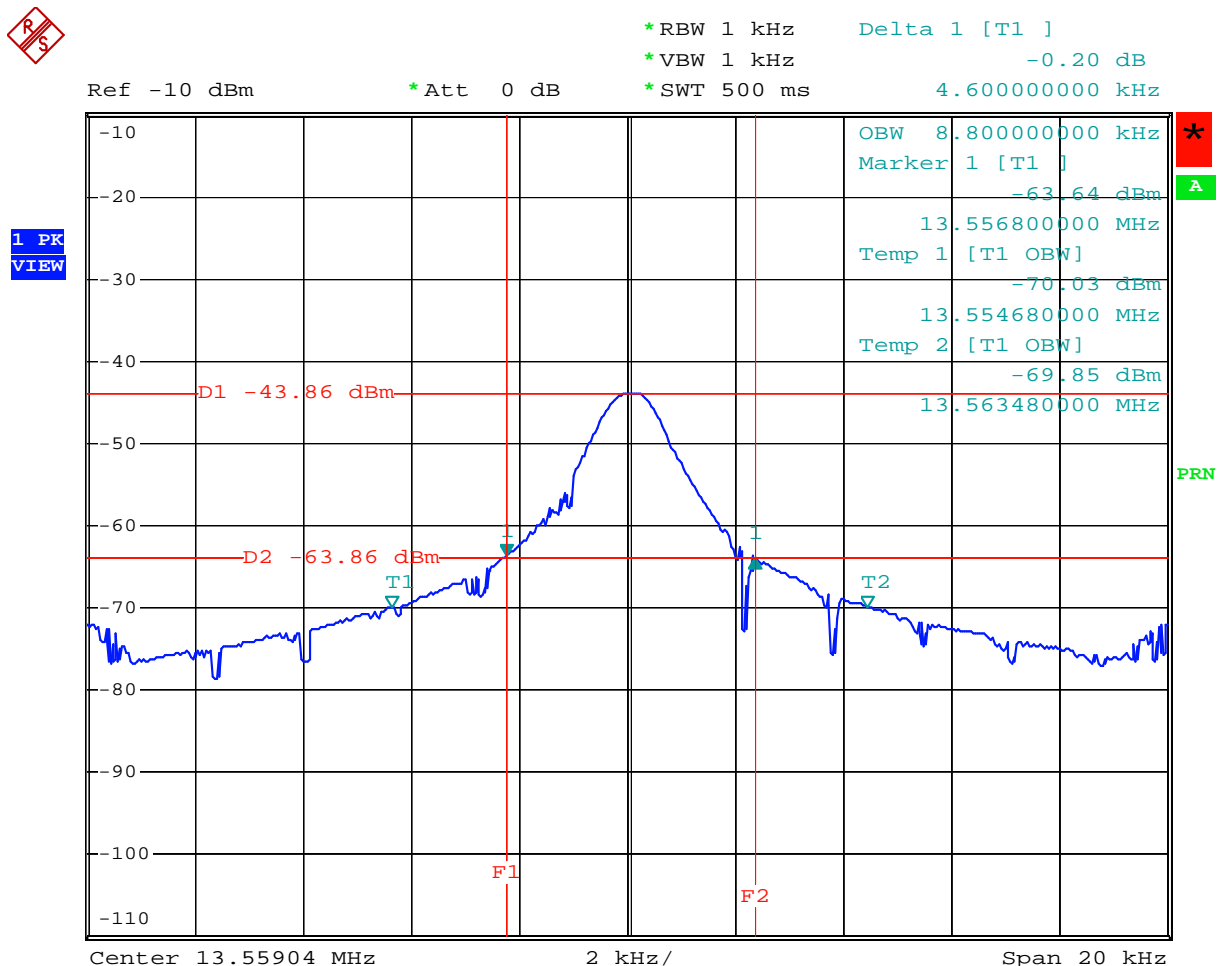
The EUT was programmed to be in continuously transmitting mode.

3.3.7. Test Result of 20dB Spectrum Bandwidth

Test date	Sep. 04, 2008	Test Site No.	TH01-HY
Temperature	26	Humidity	59%
Test Engineer	Murphy	Configurations	Channel 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
13.559 MHz	4.60	8.80	13.5570	13.5610	Complies

20 dB/99% Bandwidth Plot on 13.559 MHz



Date: 4.SEP.2008 14:33:16

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 (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 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

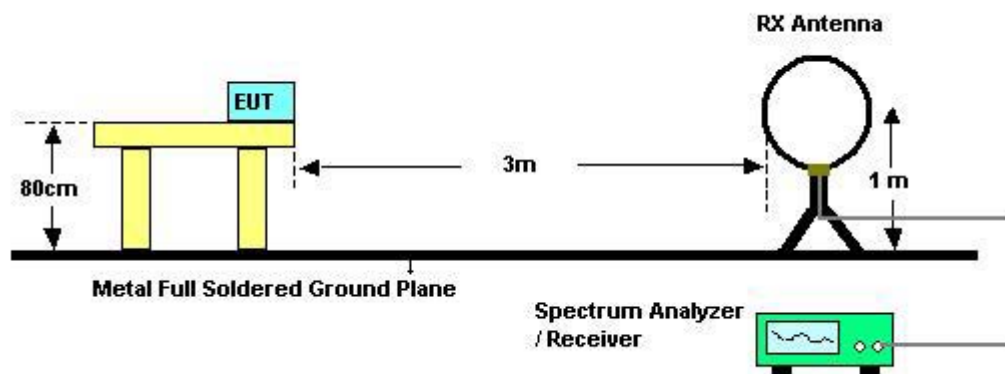
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

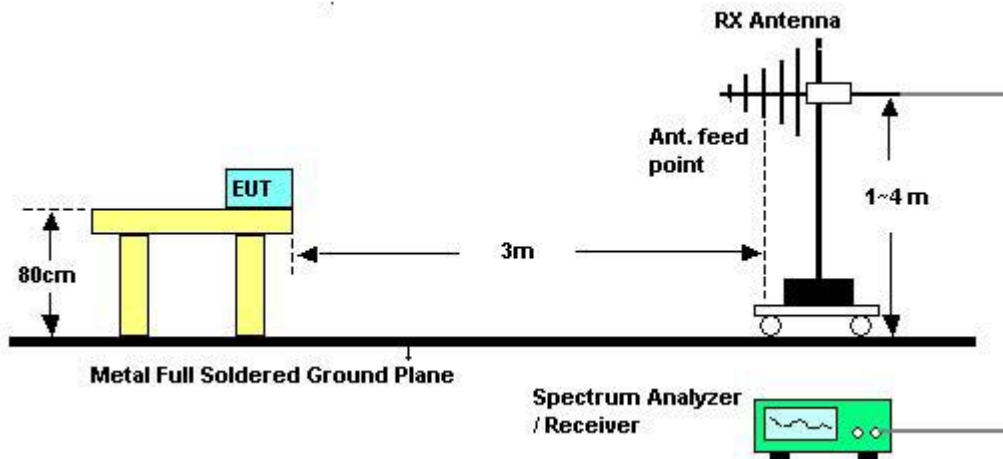
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

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.

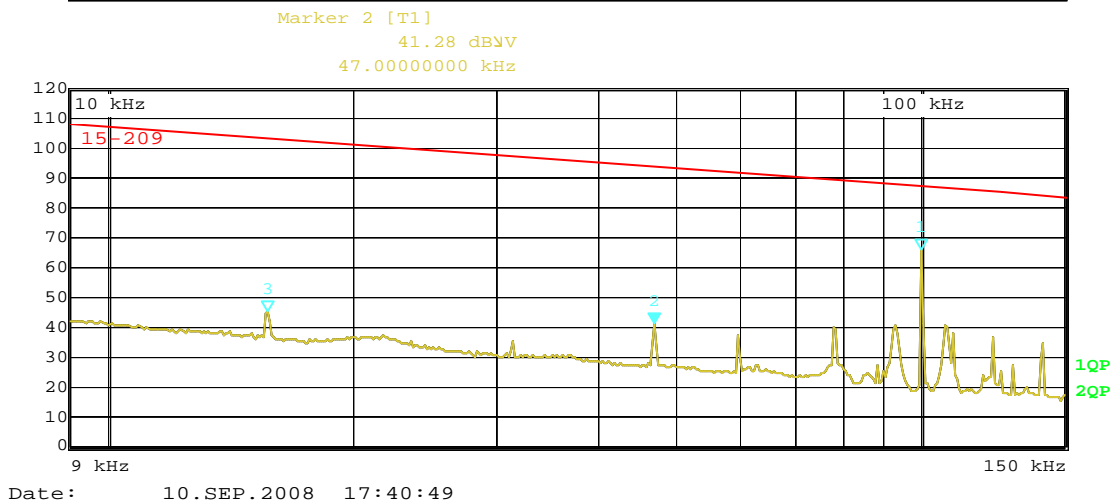
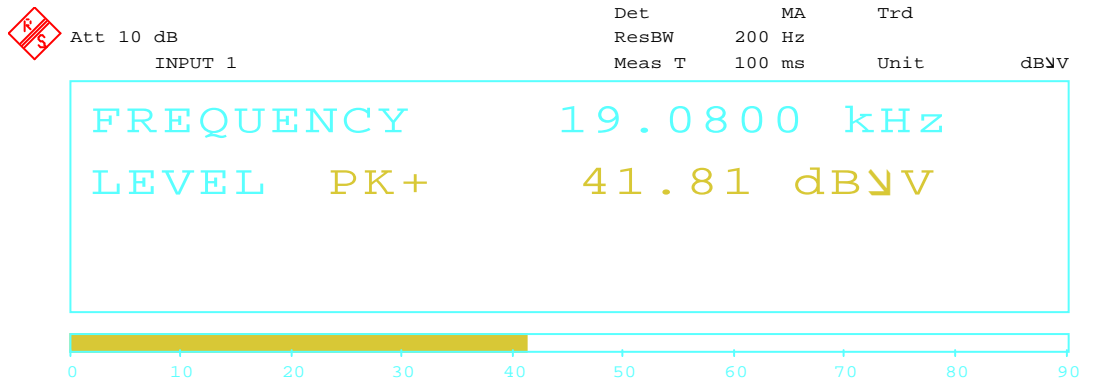
3.4.6. EUT Operation during Test

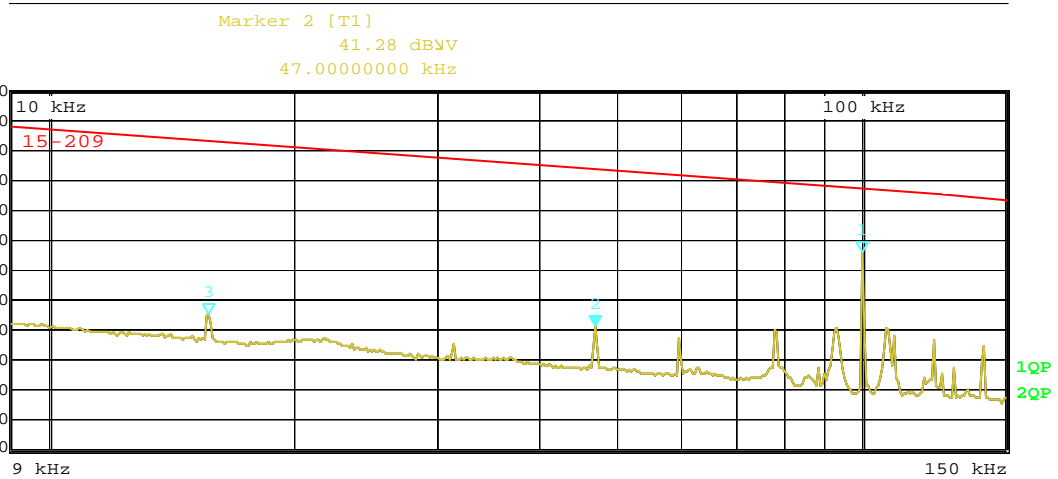
The EUT was programmed to be in continuously transmitting mode.

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

Test date	Sep. 10, 2008	Test Site No.	10CH02-HY
Temperature	27	Humidity	55%
Test Engineer	Eddie	Configurations	Channel 1

9KHz~150KHz





Date: 10.SEP.2008 17:44:28

150KHz~2MHz



Att 10 dB

INPUT 1

Det

MA/QP

Trd

ResBW

9 kHz

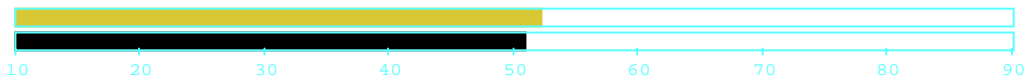
Meas T

100 ms

Unit

dBμV

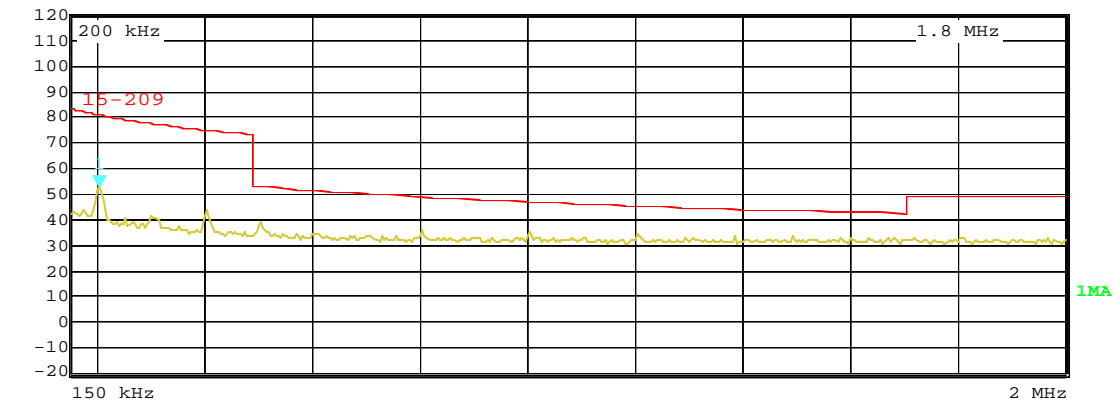
FREQUENCY	202.0000	kHz
LEVEL	PK+	52.18 dBμV
	QPK	50.94 dBμV



Marker 1 [T1]

52.62 dBμV

202.0000000 kHz



Date: 10.SEP.2008 18:12:18

2MHz~8MHz



FREQUENCY

6.0960000 MHz

LEVEL

PK+

30.28 dBV

QPK

24.54 dBV

10

20

30

40

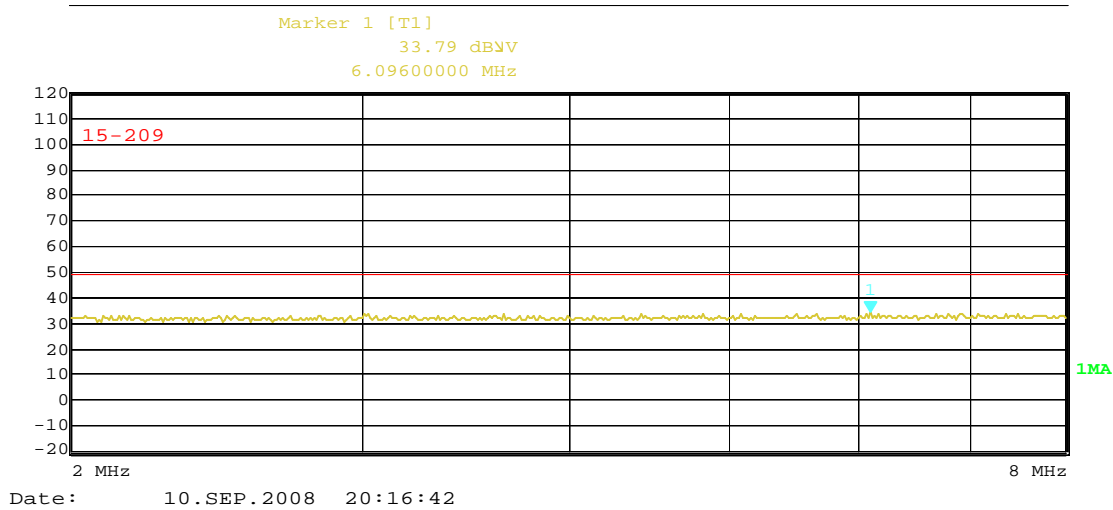
50

60

70

80

90



8.5MHz~25MHz

Att 10 dB

INPUT 1

Det

ResBW

Meas T

MA/QP

9 kHz

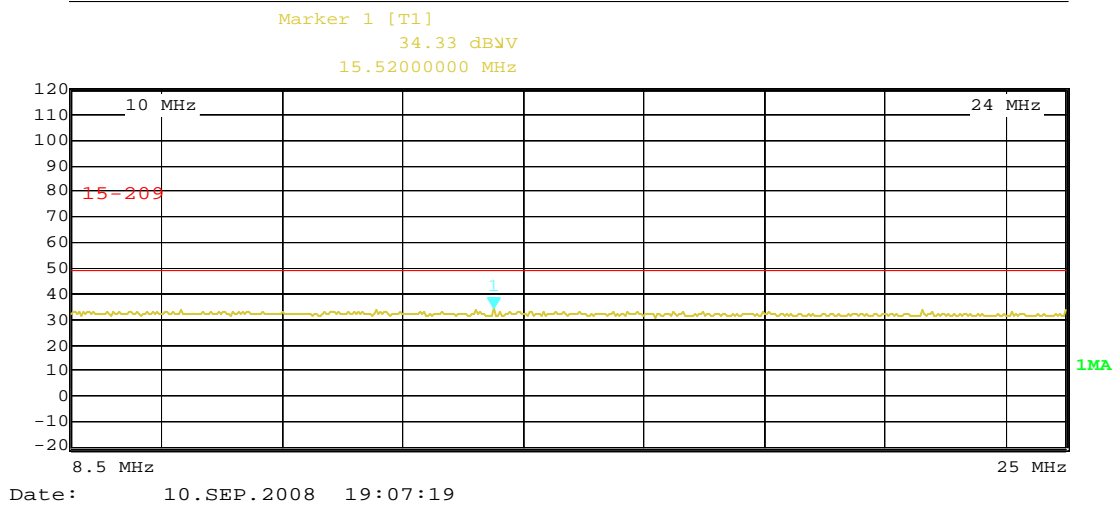
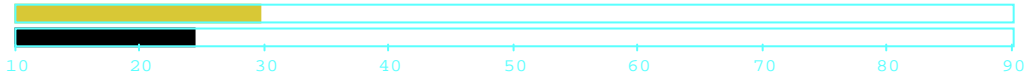
100 ms

Trd

Unit

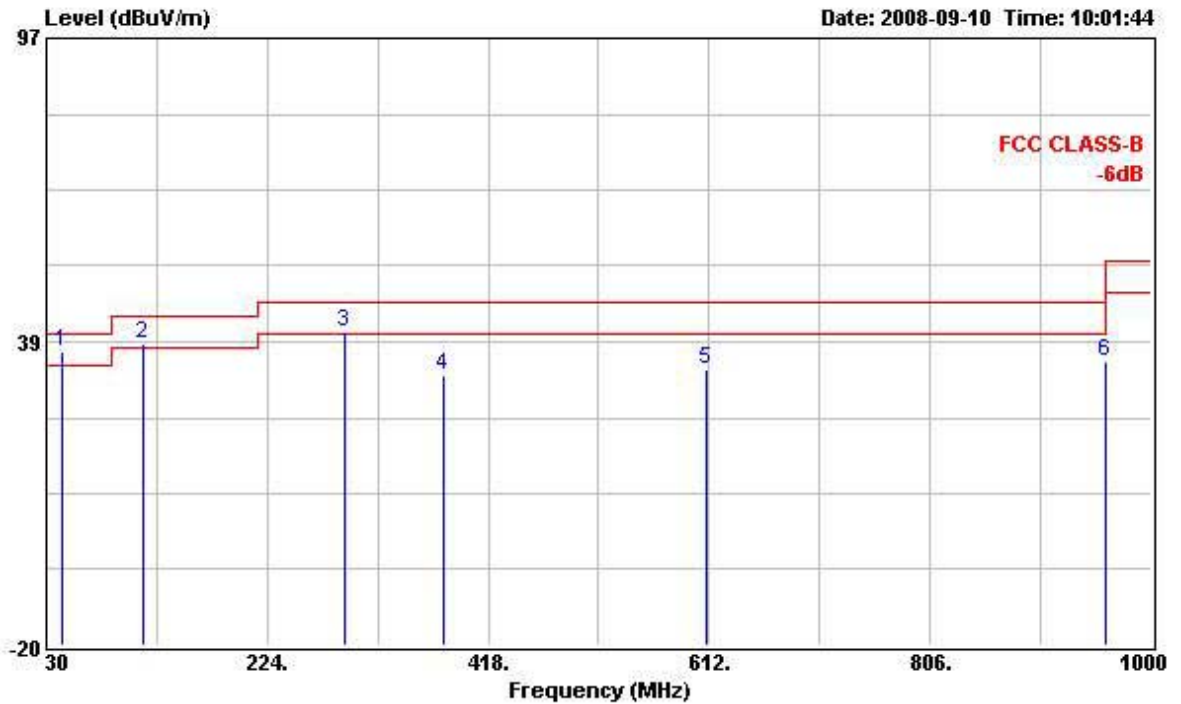
dBμV

FREQUENCY	15.5200000	MHz
LEVEL	PK+	30.14 dBμV
	QPK	24.26 dBμV



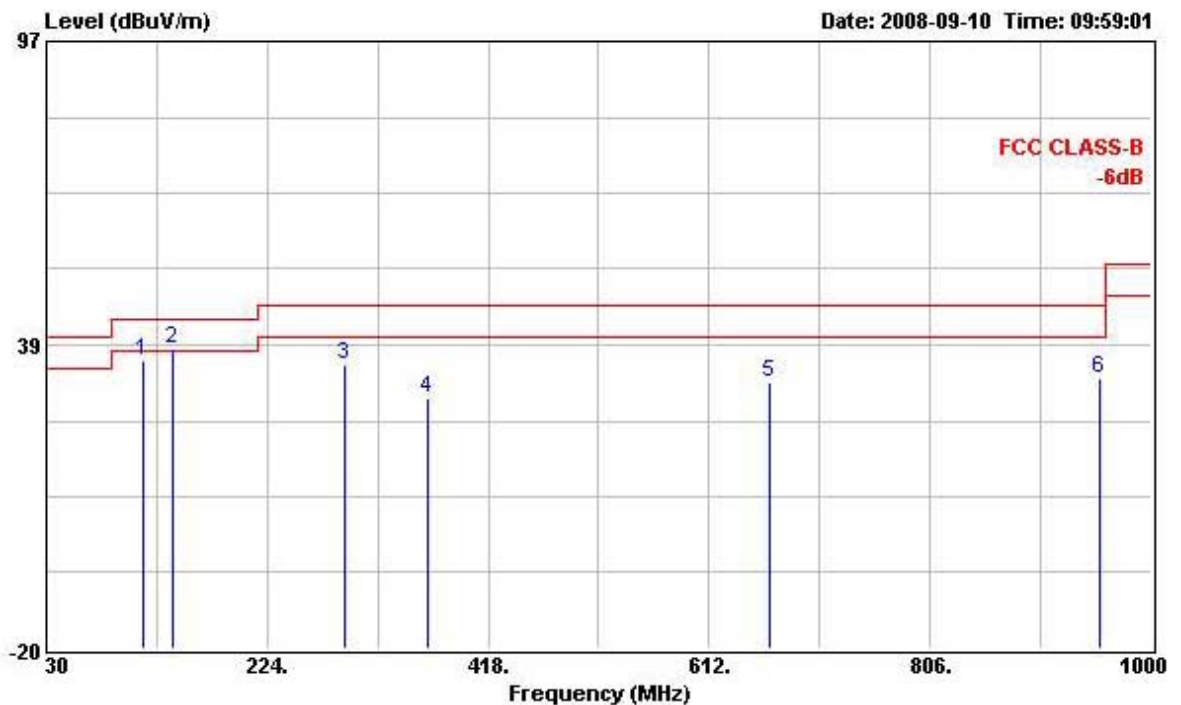
3.4.8. Results for Radiated Emissions (30MHz~1GHz)

Test date	Sep. 10, 2008	Test Site No.	03CH02-HY
Temperature	26.5	Humidity	52%
Test Engineer	Eddie	Configurations	Channel 1

Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 !	43.580	36.78	-3.22	40.00	53.96	12.27	1.38	30.83	Peak	---	---
2 !	114.390	38.17	-5.33	43.50	53.89	12.92	2.13	30.77	Peak	---	---
3 !	292.870	40.26	-5.74	46.00	53.65	13.60	3.42	30.41	Peak	---	---
4	378.230	32.06	-13.94	46.00	43.60	14.92	3.78	30.24	Peak	---	---
5	610.060	33.35	-12.65	46.00	37.98	20.05	4.88	29.56	Peak	---	---
6	959.260	34.62	-11.38	46.00	35.50	21.49	6.09	28.46	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	114.390	35.31	-8.19	43.50	51.03	12.92	2.13	30.77	Peak	---	---
2	140.580	37.61	-5.89	43.50	54.05	11.90	2.38	30.72	Peak	---	---
3	292.870	34.66	-11.34	46.00	48.05	13.60	3.42	30.41	Peak	---	---
4	365.620	28.27	-17.73	46.00	40.10	14.72	3.72	30.27	Peak	---	---
5	665.350	31.36	-14.64	46.00	36.25	19.31	5.14	29.34	Peak	---	---
6	955.380	32.15	-13.85	46.00	33.14	21.40	6.09	28.48	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

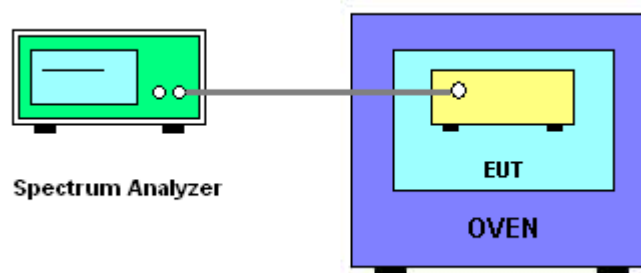
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 analyser.
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

Test date	Sep. 04, 2008	Test Site No.	TH01-HY
Temperature	26	Humidity	59%
Test Engineer	Murphy	Configurations	Channel 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	13.559 MHz
126.5	13.5596
110	13.5589
93.5	13.5583
Max. Deviation (MHz)	0.0007
Max. Deviation (ppm)	51.6262

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	13.559 MHz
-30	13.5597
-20	13.5597
-10	13.5593
0	13.5588
10	13.5584
20	13.5580
30	13.5578
40	13.5583
Max. Deviation (MHz)	13.5578
Max. Deviation (ppm)	0.0012

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. Further, this requirement does not apply to intentional radiators that must be professionally installed.

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	100132	9kHz – 2.75GHz	Jul. 24, 2008	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Mar. 24, 2008	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Mar. 13, 2008	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 – 60Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9kHz – 30MHz	May 07, 2008	Conduction (CO01-HY)
Isolation Transformer	Erika Fiedler OHG	D-65396 Walluf	58	45MHz-2.15GHz	N/A	Conduction (CO01-HY)
Impedance Stabilization Network	SCHAFFNER	ST08	22589	150kHz – 230MHz	Mar. 03, 2008	Conduction (CO01-HY)
Impedance Stabilization Network	SCHAFFNER	T400	21653	150kHz – 230MHz	May 09, 2008	Conduction (CO01-HY)
Impedance Stabilization Network	SCHAFFNER	T800	23342	150kHz – 230MHz	Mar. 03, 2008	Conduction (CO01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Jan. 10, 2008	Conducted (TH01-HY)
Power Meter	R&S	NRVS	100444	DC ~ 40GHz	Jul. 11, 2008	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z51	100458	DC ~ 30GHz	Jul. 11, 2008	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jul. 11, 2008	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 13, 2008	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	N/A	Jul. 18, 2008	Conducted (TH01-HY)
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2007	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2007	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Nov. 14, 2007	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 10, 2008	Conducted (TH01-HY)
Oscilloscope	Tektonix	TDS380	B016197	400MHz/ 2GS/s	Jun. 27, 2008	Conducted (TH01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30 MHz - 1 GHz 3m	May 12, 2008	Radiation (03CH02-HY)
Amplifier	ADVANTEST	BB525C	CH300001	9 kHz - 2 GHz	Dec. 05, 2007	Radiation (03CH02-HY)
Spectrum Analyzer	R&S	FSP40	100305/040	9 kHz - 40GHz	Jan. 10, 2008	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30 MHz - 2 GHz	Dec. 22, 2007	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)
RF Cable-R03m	Jye Bao	RG142	CB020	30 MHz - 1 GHz	Dec. 08, 2007	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1GHz – 26.5 GHz	Jul. 16, 2008	Radiation (03CH02-HY)
Horn Antenna	EMCO	3115	6903	1GHz~18GHz	Apr. 21, 2008	Radiation (03CH02-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX106	03CH02-HY	1GHz~40GHz	Dec. 12, 2007	Radiation (03CH02-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	May 30, 2008*	Conducted (TH01-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, 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 2 nd 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. : L1190-070110
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, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix Accreditation Program for Designated Testing Laboratory
Specific Accreditation Program	: for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007



PI, total 9 pages

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