FCC TEST REPORT

CATEGORY	:	Portable
PRODUCT NAME	:	Gamepad
FCC ID.	:	FSUGG009
FILING TYPE	:	Certification
BRAND NAME	:	Genius
MODEL NAME	:	Wireless G-12PS
APPLICANT	:	**KYE SYSTEMS CORP.** NO. 492, SEC. 5, CHUNG HSIN RD., SAN CHUNG TAIPEI HSIEN, 241, 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, NVLAP or any agency of U.S. government.

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

Dr. Alan Lane
Vice General Manager
Sporton International Inc.

Lab Code: 200079-0

Table of Contents

HISTORY OF THIS TEST REPORT

Original Report Issue Date: Dec. 14, 2004

Report No.: FR490711

■ 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 (Section 15.249)

PRODUCT NAME	:	Gamepad
BRAND NAME	:	Genius
MODEL NAME	:	Wireless G-12PS
APPLICANT	:	**KYE SYSTEMS CORP.** NO. 492, SEC. 5, CHUNG HSIN RD., SAN CHUNG TAIPEI HSIEN, 241, 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. Testing was carried out on Dec. 04, 2004 at SPORTON International Inc. LAB.

Dr. Alan Lane
Vice General Manager
Sporton International Inc.

1. General Description of Equipment under Test

1.1. Applicant

KYE SYSTEMS CORP.
NO. 492, SEC. 5, CHUNG HSIN RD., SAN CHUNG TAIPEI HSIEN, 241, TAIWAN. R.O.C.

1.2. Manufacturer

Same as applicant

1.3. Basic Description of Equipment under Test

This product is a Game pad and receiver with GFSK modulation solution. The receiver is used to be plugged on the USB port of the computer and PS2. Please refer to “Features of Equipment under Test”.

1.4. Features of Equipment under Test

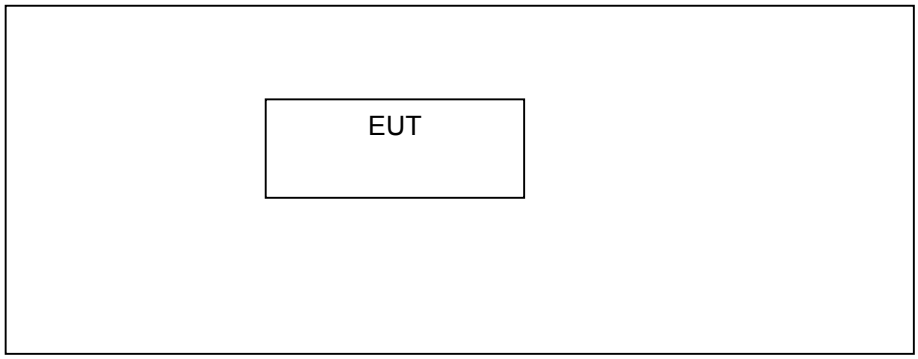
Items	Description
Type of Modulation	GFSK
Number of Channels	3
Frequency Band	2400MHz ~ 2483.5MHz
Carrier Frequency	See section 1.5 for details
Channel Bandwidth	1MHz
Antenna Type	Printed Antenna
Testing Duty Cycle	100.00%
Power Rating (DC/AC, Voltage)	6 VDC from battery
Test Power Source	110.00V AC
Temperature Range (Operating)	0 ~ 55 °C

1.5. Table for Carrier Frequencies

Channel	Frequency
01	2404 MHz
02	2442 MHz
03	2480 MHz

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

Spurious emission below 1GHz is independent of channel selection, so only channel 03 was tested.
AC conduction emission is independent of channel selection, so only channel 03 was tested.

2.3. Description of Test Supporting Units

Support unit	Brand	Model No.	Serial No.	FCC ID	Data cable (m)
Notebook	COMPAQ	PRESARIO 1500	SP0004	DoC	-
Printer	EPSON	SYULUS COLOR 680	SP0016	DoC	1.7
PS2	-	-	-	DoC	-

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 : 03CH01-HY / TH01-HY

3.2. Test Conditions

Normal Voltage	: 6.0V (battery)
Extreme Voltages	: NA
Normal Temperature	: 20˚C
Extreme Temperature	: 0 ˚C and 55 ˚C

3.3. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.
ANSI C63.4-2003
47 CFR Part 15 Subpart C (Section 15.249)

3.4. DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.

3.5. Frequency Range Investigated

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

3.6. Test Distance

The test distance of radiated emission (30MHz~1GHz) test from antenna to EUT is 3 M.
The test distance of radiated emission (1GHz~10th carrier harmonic) test from antenna to EUT is 3 M.

3.7. 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 Part 15 and Part 2			
Paragraph	**FCC Rule**	**Description of Test**	**Result**
5.1	15.249	Maximum Carrier Field Strength	Pass
5.2	15.249	Band Edges Emission	Pass
5.3	15.207	AC Power Line Conducted Emission	NA
5.4	15.209/15.249	Spurious Radiated Emission	Pass
5.5	15.203	Antenna Requirement	Pass

5. Test Result

5.1. Test of Maximum Carrier Field Strength

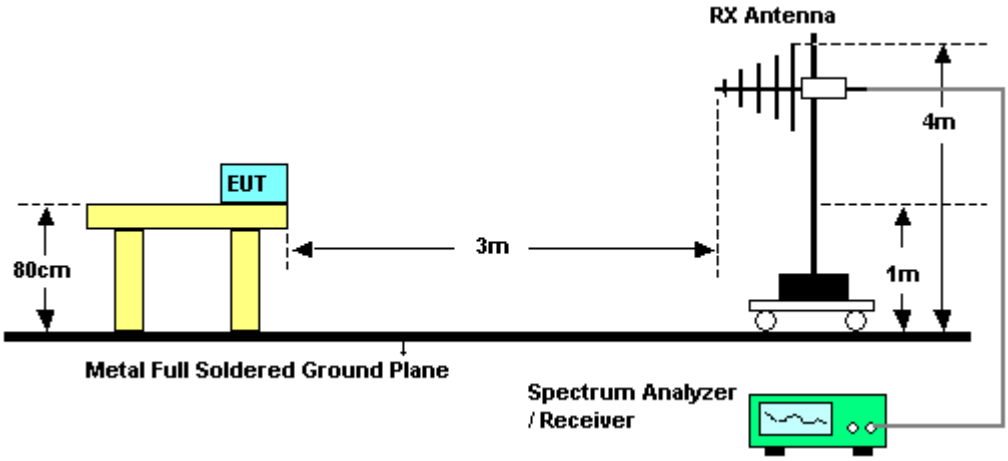
5.1.1. Measuring Instruments

Item 6~17 of the table is on section 6.

5.1.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The turn table 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 scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. For carrier field strength emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

5.1.3. Test Setup Layout



5.1.4. Test Result

- Temperature: 25°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

Channel No.	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV/m)	Detector
01	2404 MHz	62.75	-31.25	94.00	32.70	Average
01	2404 MHz	87.60	-26.40	114.00	57.55	Peak
02	2442 MHz	62.46	-31.54	94.00	32.29	Average
02	2442 MHz	87.21	-26.79	114.00	57.04	Peak
03	2480 MHz	62.98	-31.02	94.00	32.70	Average
03	2480 MHz	87.58	-26.42	114.00	57.30	Peak

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

5.2. Test of Band Edges Emission

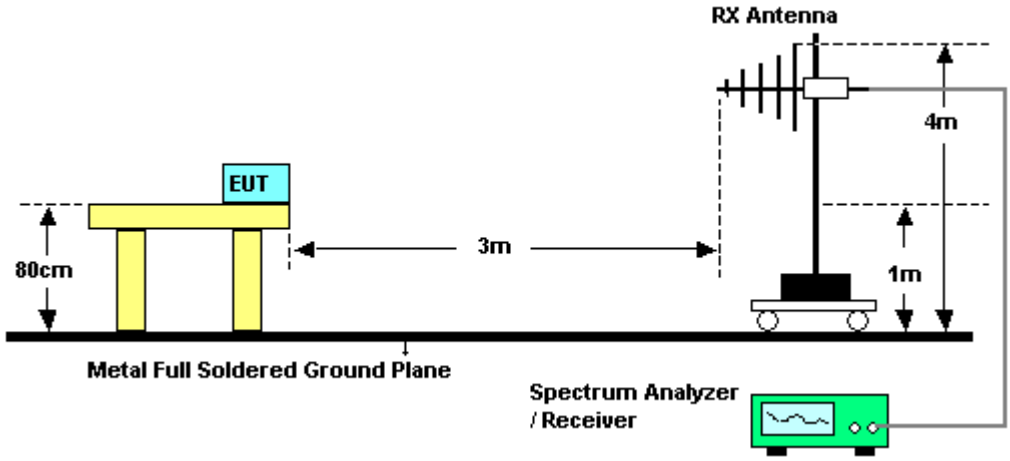
5.2.1. Measuring Instruments

Item 6~17 of the table is on section 6.

5.2.2. Test Procedures

1. The transmitter is set to the lowest and highest channel.
2. Configure the EUT according to ANSI C63.4.
3. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
4. 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.
5. For band edge emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
6. For band edge emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

5.2.3. Test Setup Layout



5.2.4. Test Result

Temperature: 25°C
Relative Humidity: 62%
Duty Cycle of the Equipment During the Test: 100.00%
Test Engineer: Ted Chou

Test Channel	Freq. (MHz)	Level* (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Read (dBuV/m)	Trace (PK/AV)
01	2382.580	58.11	-15.89	74	28.13	PK
01	2382.580	42.80	-11.20	54	12.82	AV
03	2483.850	60.15	-13.85	74	29.87	PK
03	2483.850	46.76	-7.24	54	16.48	AV

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level*.
Level* : The max field strength in the restricted bands.

5.3. Test of AC Power Line Conducted Emission

The EUT is battery powered, so it is not required to test the item.

5.4. Test of Spurious Radiated Emission

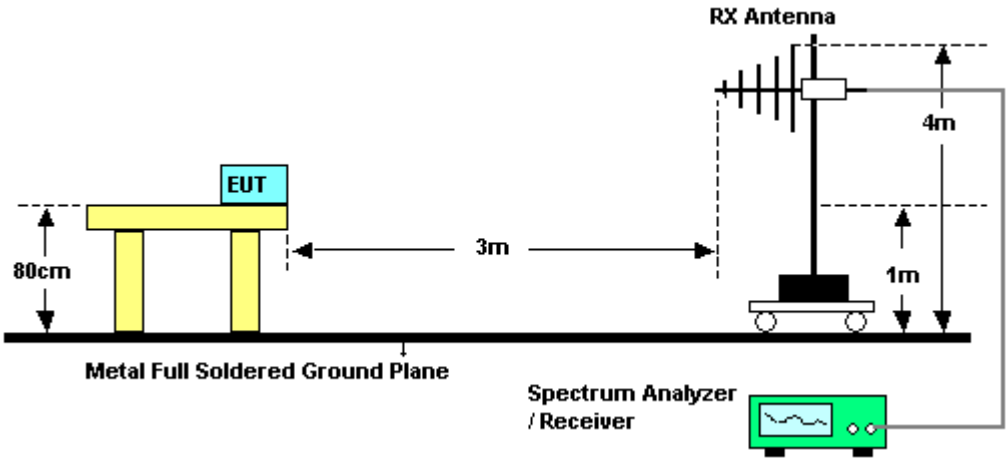
5.4.1. Measuring Instruments

Please reference item 6~17 in chapter 6 for the instruments used for testing.

5.4.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 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 turn table.
4. Power on the EUT and all the supporting units.
5. The turn table 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 turn table 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.

5.4.3. Test Setup Layout



5.4.4. Test Results for CH 03 / 2480 MHz (for emission below 1GHz)

- Temperature: 25°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(A) Polarization: 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	34.590	15.86	-24.14	40.00	30.91	11.98	1.01	28.04	Peak	---	---
2	99.700	12.20	-31.30	43.50	29.34	8.98	1.78	27.90	Peak	---	---
3	120.100	14.08	-29.42	43.50	28.08	11.90	1.96	27.86	Peak	---	---
1	240.000	15.68	-30.32	46.00	27.35	13.07	2.80	27.54	Peak	---	---
2	256.000	13.87	-32.13	46.00	25.98	12.50	2.87	27.48	Peak	---	---
3	285.600	16.37	-29.63	46.00	27.31	13.38	3.04	27.36	Peak	---	---

(B) Polarization: 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	32.380	19.26	-20.74	40.00	33.83	12.49	0.98	28.04	Peak	---	---
2	46.660	18.59	-21.41	40.00	33.38	12.06	1.16	28.01	Peak	---	---
3	66.550	21.84	-18.16	40.00	38.40	10.04	1.37	27.97	Peak	172	185
1	672.000	21.80	-24.20	46.00	25.29	20.62	4.62	28.73	Peak	---	---
2	839.200	23.48	-22.52	46.00	24.98	21.82	5.28	28.60	Peak	---	---
3	992.000	25.59	-28.41	54.00	24.41	23.72	5.67	28.21	Peak	---	---

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

5.4.5. Test Results for CH 01 / 2404 MHz (for emission above 1GHz)

- Temperature: 25°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(A) Polarization: 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	2328.000	56.83	-17.17	74.00	66.57	28.12	1.75	39.61	Peak	---	---
2	2328.000	25.50	-28.50	54.00	35.24	28.12	1.75	39.61	Average	---	---
3	4808.000	63.92	-10.08	74.00	68.70	32.96	2.40	40.14	Peak	---	---
4	4808.000	46.88	-7.12	54.00	51.66	32.96	2.40	40.14	Average	---	---
5	7208.000	63.49	-10.51	74.00	64.48	35.77	2.72	39.48	Peak	---	---
6	7208.000	46.07	-7.93	54.00	47.06	35.77	2.72	39.48	Average	---	---

(B) Polarization: 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	2328.000	63.00	-11.00	74.00	72.74	28.12	1.75	39.61	Peak	---	---
2	2328.000	25.34	-28.66	54.00	35.08	28.12	1.75	39.61	Average	---	---
3	4808.000	64.28	-9.72	74.00	69.06	32.96	2.40	40.14	Peak	---	---
4	4808.000	43.72	-10.28	54.00	48.50	32.96	2.40	40.14	Average	---	---
5	7208.000	54.21	-19.79	74.00	55.20	35.77	2.72	39.48	Peak	---	---
6	7208.000	42.45	-11.55	54.00	43.44	35.77	2.72	39.48	Average	---	---

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

5.4.6. Test Results for CH 02 / 2442 MHz (for emission above 1GHz)

- Temperature: 25°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(A) Polarization: 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	4888.000	67.73	-6.27	74.00	72.25	33.11	2.51	40.14	Peak	---	---
2	4888.000	46.38	-7.62	54.00	50.90	33.11	2.51	40.14	Average	---	---
3	7328.000	55.76	-18.24	74.00	56.11	36.13	2.97	39.45	Peak	---	---
4	7328.000	42.24	-11.76	54.00	42.59	36.13	2.97	39.45	Average	---	---
5	10580.000	50.37	-23.63	74.00	46.35	38.86	3.77	38.61	Peak	---	---

(B) Polarization: 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	4888.000	60.47	-13.53	74.00	64.99	33.11	2.51	40.14	Peak	---	---
2	4888.000	41.87	-12.13	54.00	46.39	33.11	2.51	40.14	Average	---	---
3	7328.000	50.28	-23.72	74.00	50.63	36.13	2.97	39.45	Peak	---	---
4	10640.000	50.41	-23.59	74.00	46.12	38.82	4.08	38.61	Peak	---	---

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

5.4.7. Test Results for CH 03 / 2480 MHz (for emission above 1GHz)

- Temperature: 25°C
- Relative Humidity: 62%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(A) Polarization: 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	4964.000	69.58	-4.42	74.00	74.05	33.24	2.44	40.15	Peak	---	---
2	4964.000	46.26	-7.74	54.00	50.73	33.24	2.44	40.15	Average	---	---
3	7440.000	57.57	-16.43	74.00	57.70	36.39	2.90	39.42	Peak	---	---
4	7440.000	43.11	-10.89	54.00	43.24	36.39	2.90	39.42	Average	---	---
5	10880.000	50.69	-23.31	74.00	46.48	38.67	4.14	38.60	Peak	---	---

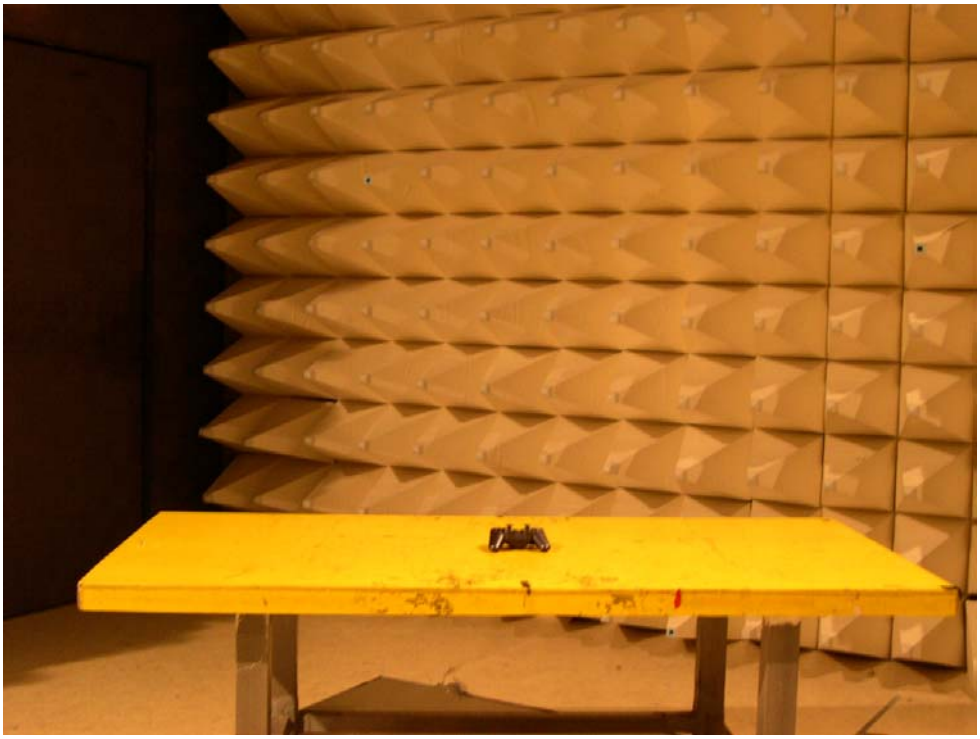
(B) Polarization: Vertical

	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	4964.000	57.43	-16.57	74.00	61.90	33.24	2.44	40.15	Peak	---	---
2	4964.000	41.34	-12.66	54.00	45.81	33.24	2.44	40.15	Average	---	---
3	7444.000	50.44	-23.56	74.00	50.57	36.39	2.90	39.42	Peak	---	---
4	10052.000	50.55	-23.45	74.00	46.66	38.90	3.63	38.64	Peak	---	---

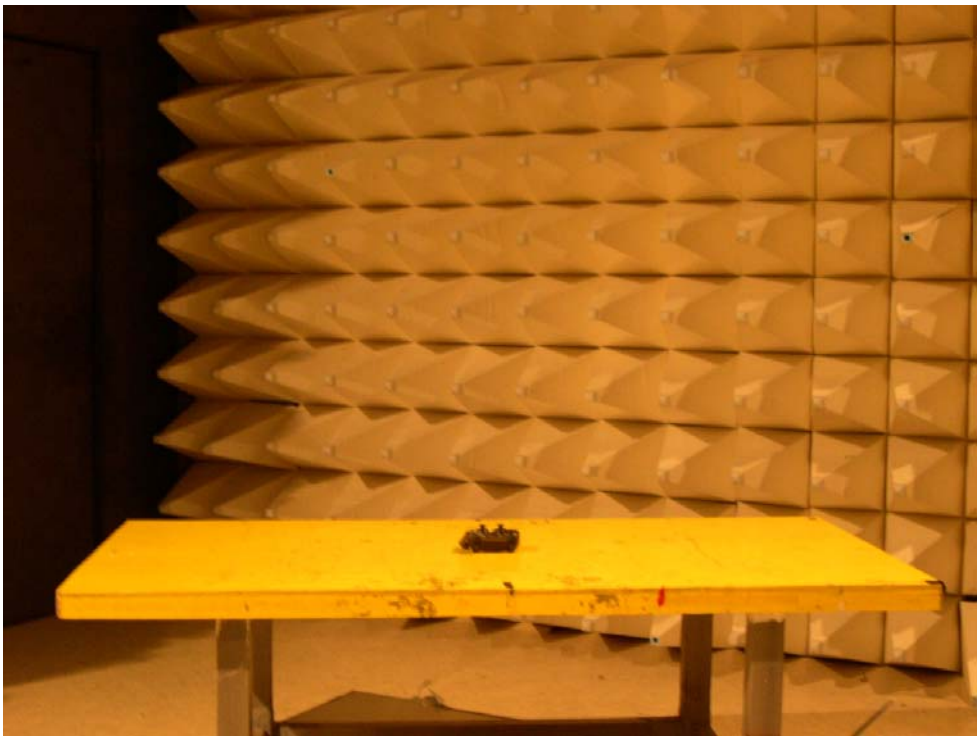
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.4.8. Photographs of Radiated Emission Test Configuration

FRONT VIEW



REAR VIEW



5.5. Antenna Requirements

5.5.1. Standard Applicable

47 CFR Part15 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.

5.5.2. Antenna Connected Construction

There is no antenna connector for printed antenna.

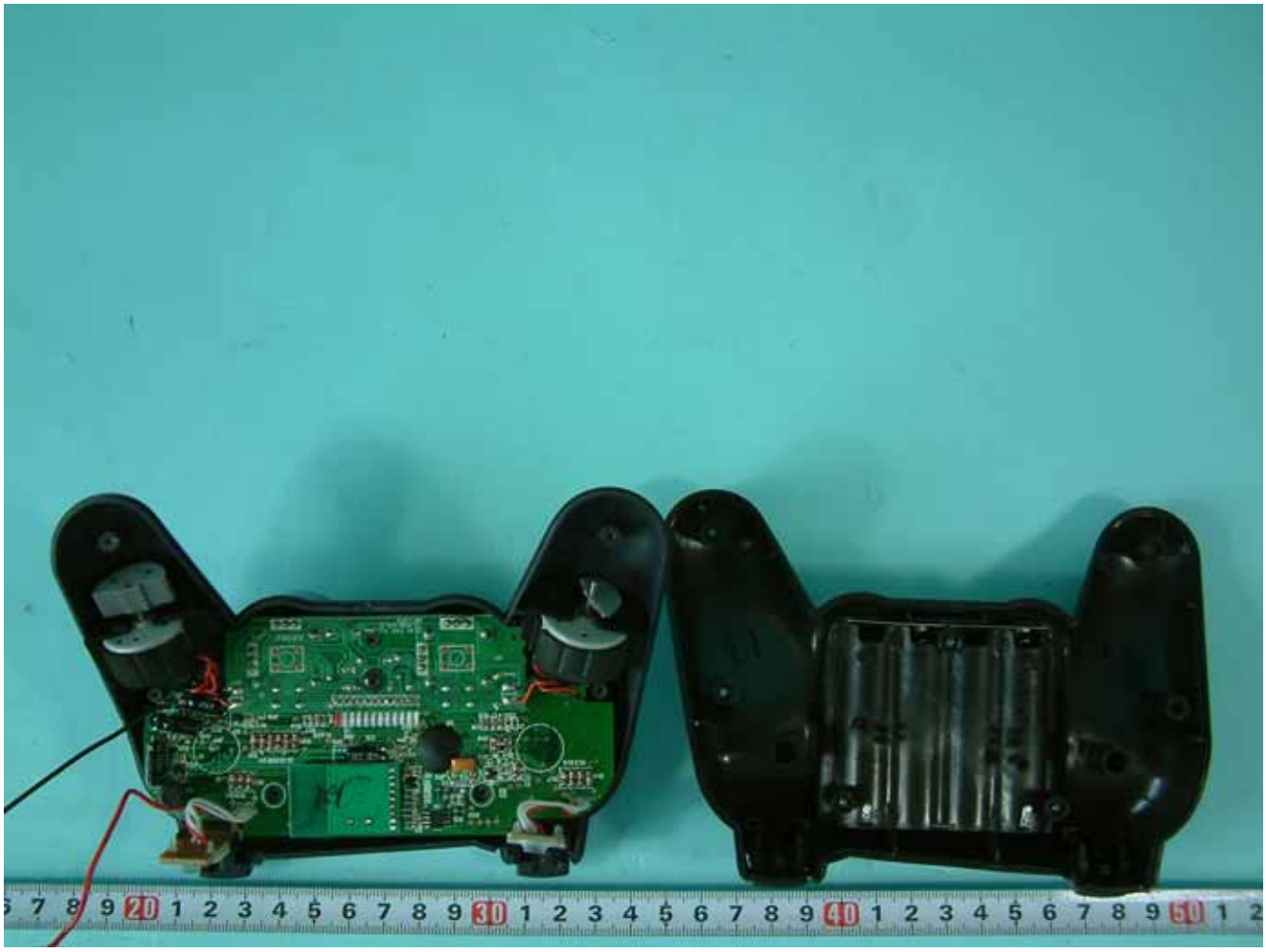
6. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	EMC Receiver	R&S	ESCS 30	100174	9 KHz – 2.75 GHz	Feb. 16, 2004	Conduction (CO04-HY)
2	LISN	MessTec	NNB-2/16Z	2001/004	9 KHz – 30 MHz	Jun. 09, 2004	Conduction (CO04-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9 KHz – 30 MHz	Apr. 27, 2004	Conduction (CO04-HY)
4	EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
5	RF Cable-CON	UTIFLEX	3102-26886-4	CB044	9KHz~30MHz	Apr. 21, 2004	Conduction (CO04-HY)
6	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
7	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 31, 2004	Radiation (03CH03-HY)
8	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 04, 2004	Radiation (03CH03-HY)
9	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 28, 2004	Radiation (03CH03-HY)
10	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
11	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 02, 2004	Radiation (03CH03-HY)
12	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
13	Horn Antenna	EMCO	3115	6741	1GHz – 18GHz	Apr. 07, 2004	Radiation (03CH03-HY)
14	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
15	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
16	Horn Antenna	Schwarzbeck	BBHA9170	154	18GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
17	RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec. 04, 2004	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.

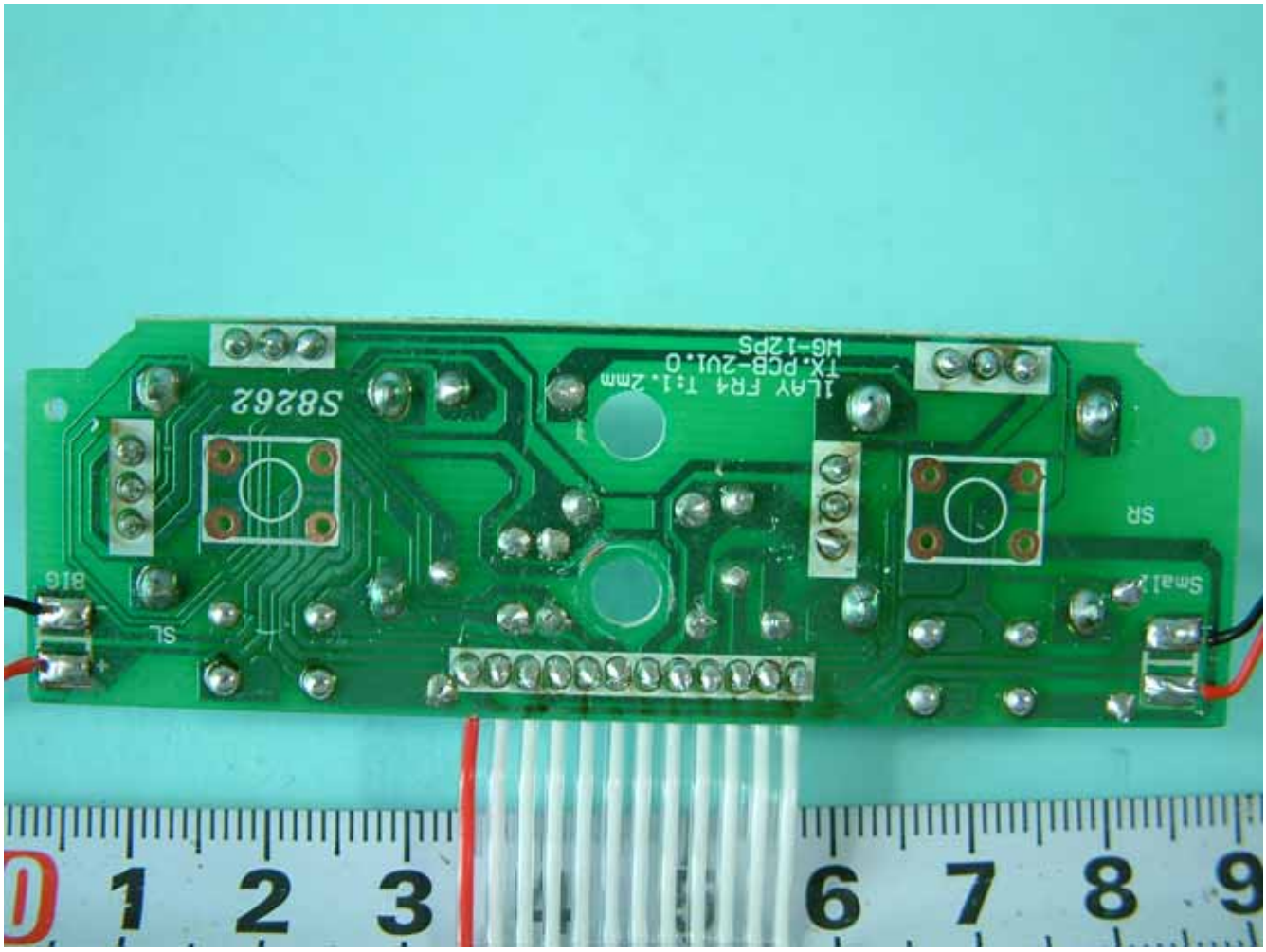
APPENDIX A. Photographs of EUT

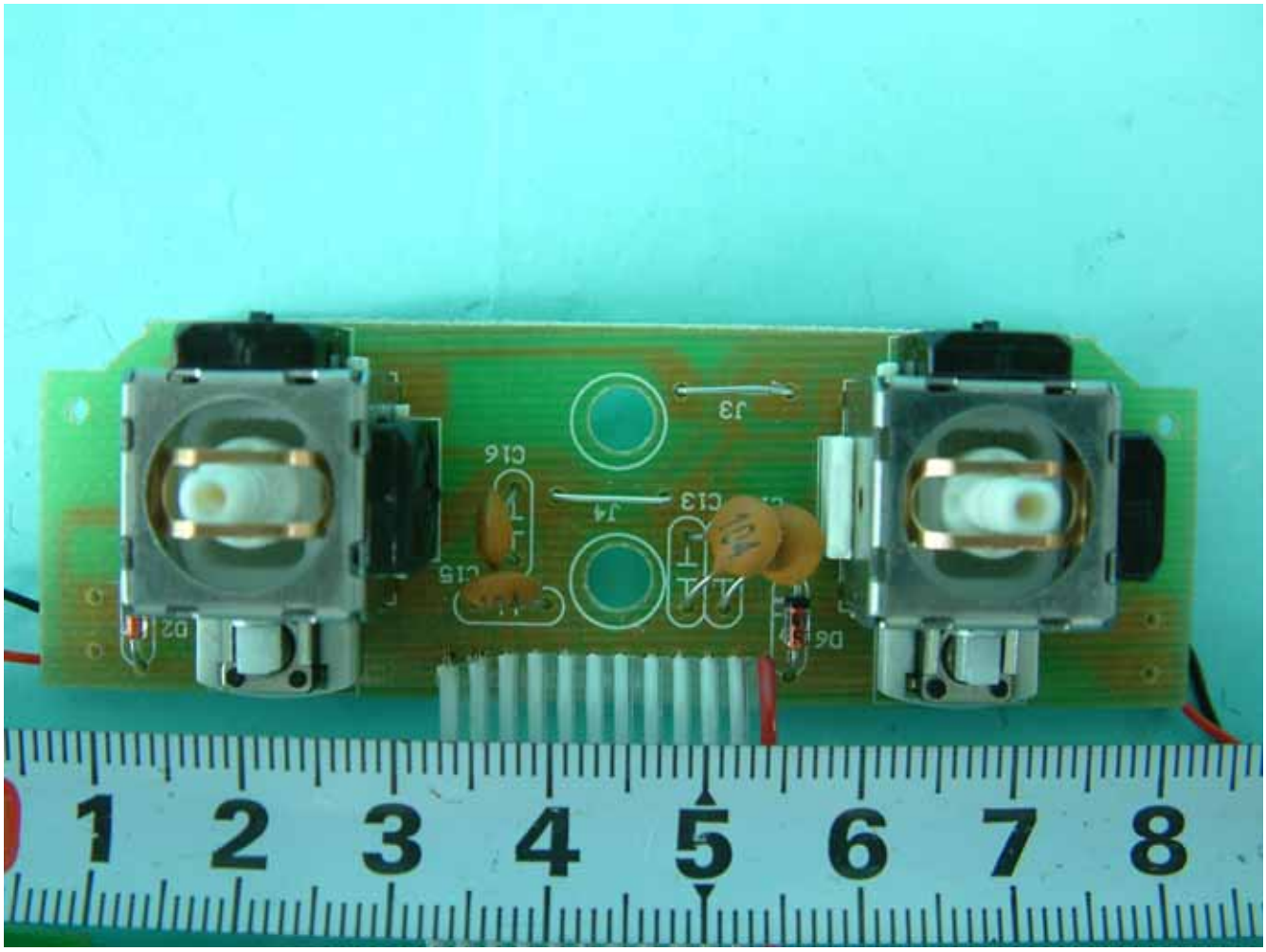
SPORTON International Inc.
TEL : 886-2-2696-2468
FAX : 886-2-2696-2255

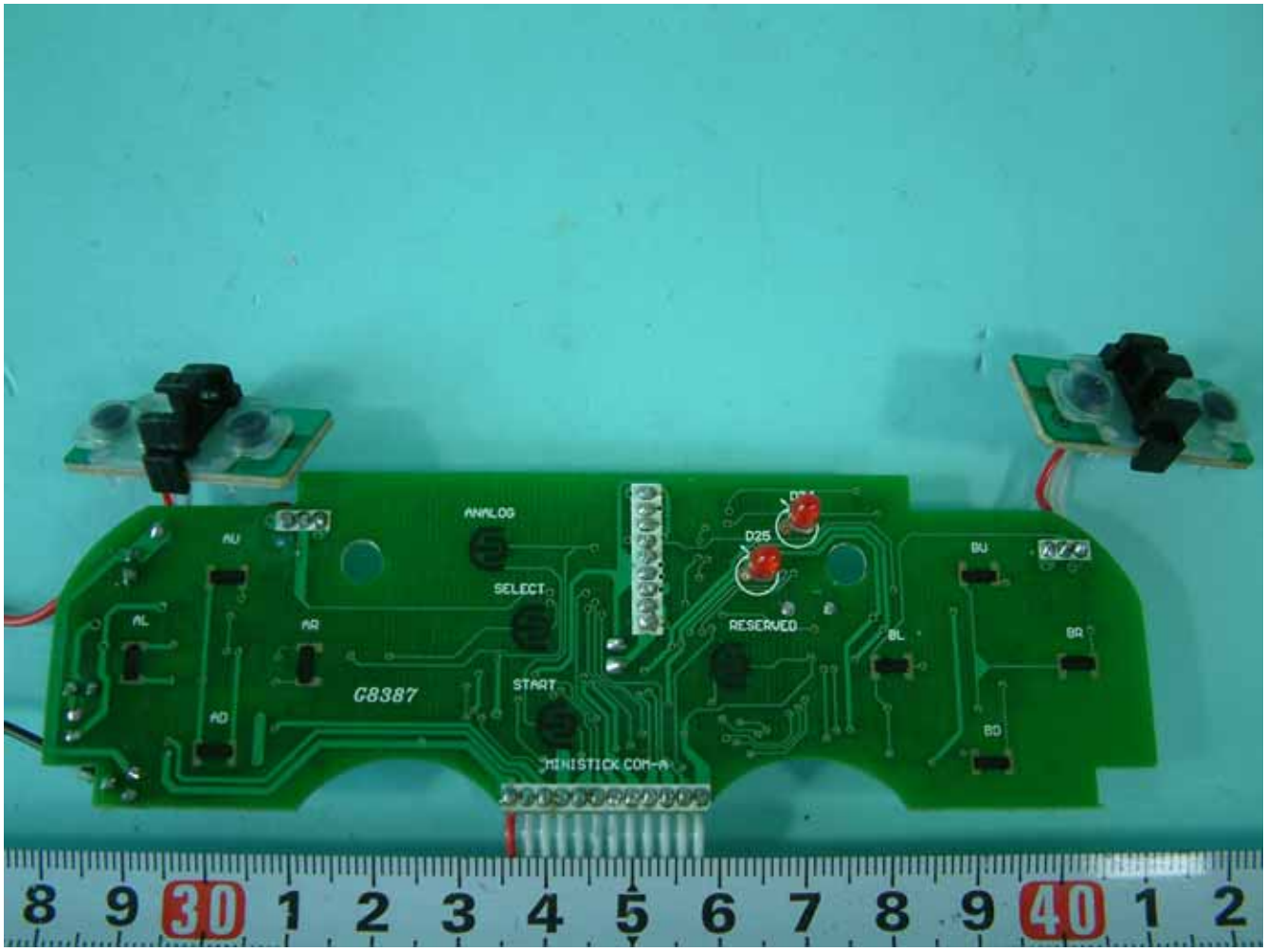


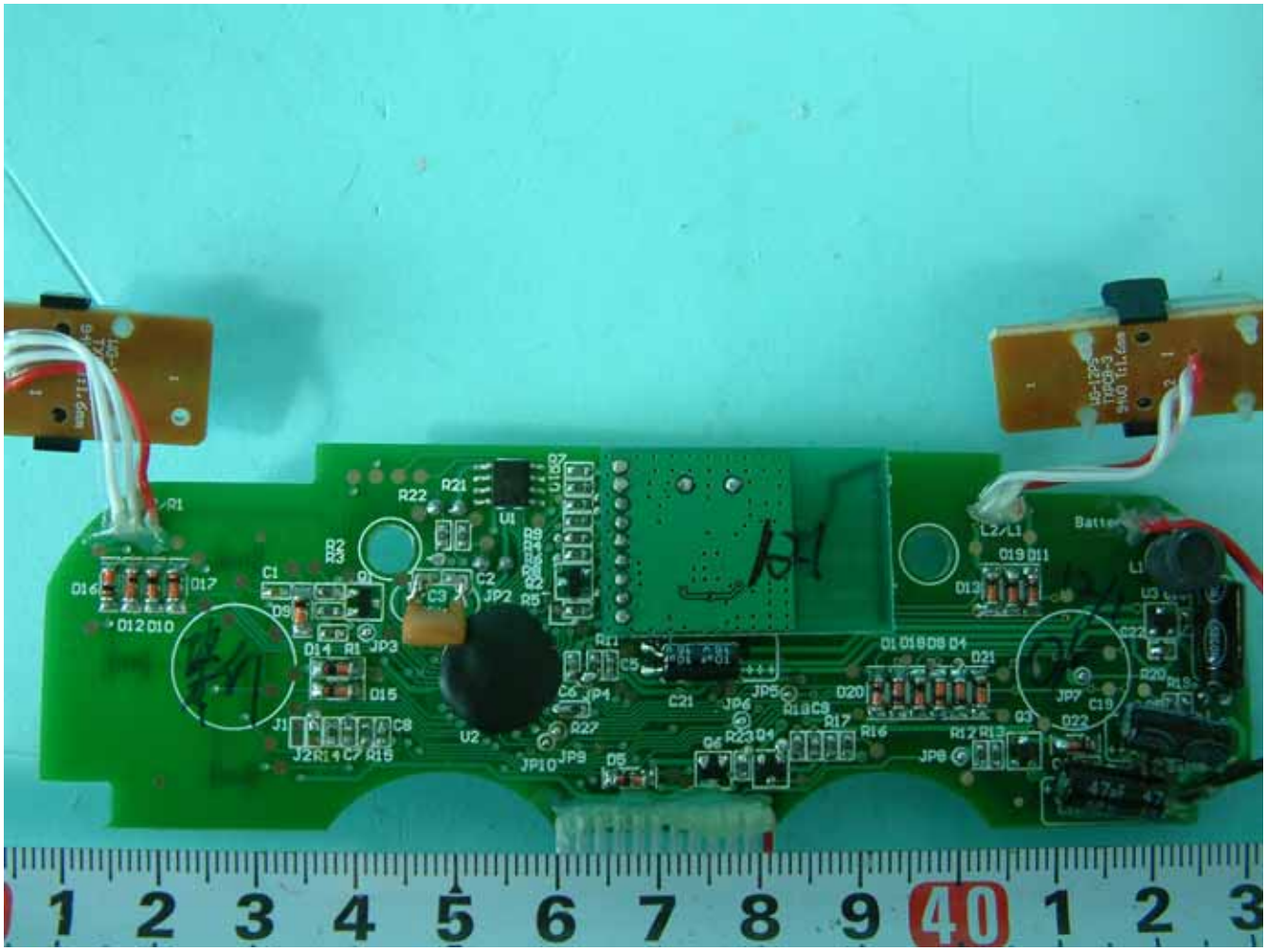
SPORTON International Inc.
TEL : 886-2-2696-2468
FAX : 886-2-2696-2255

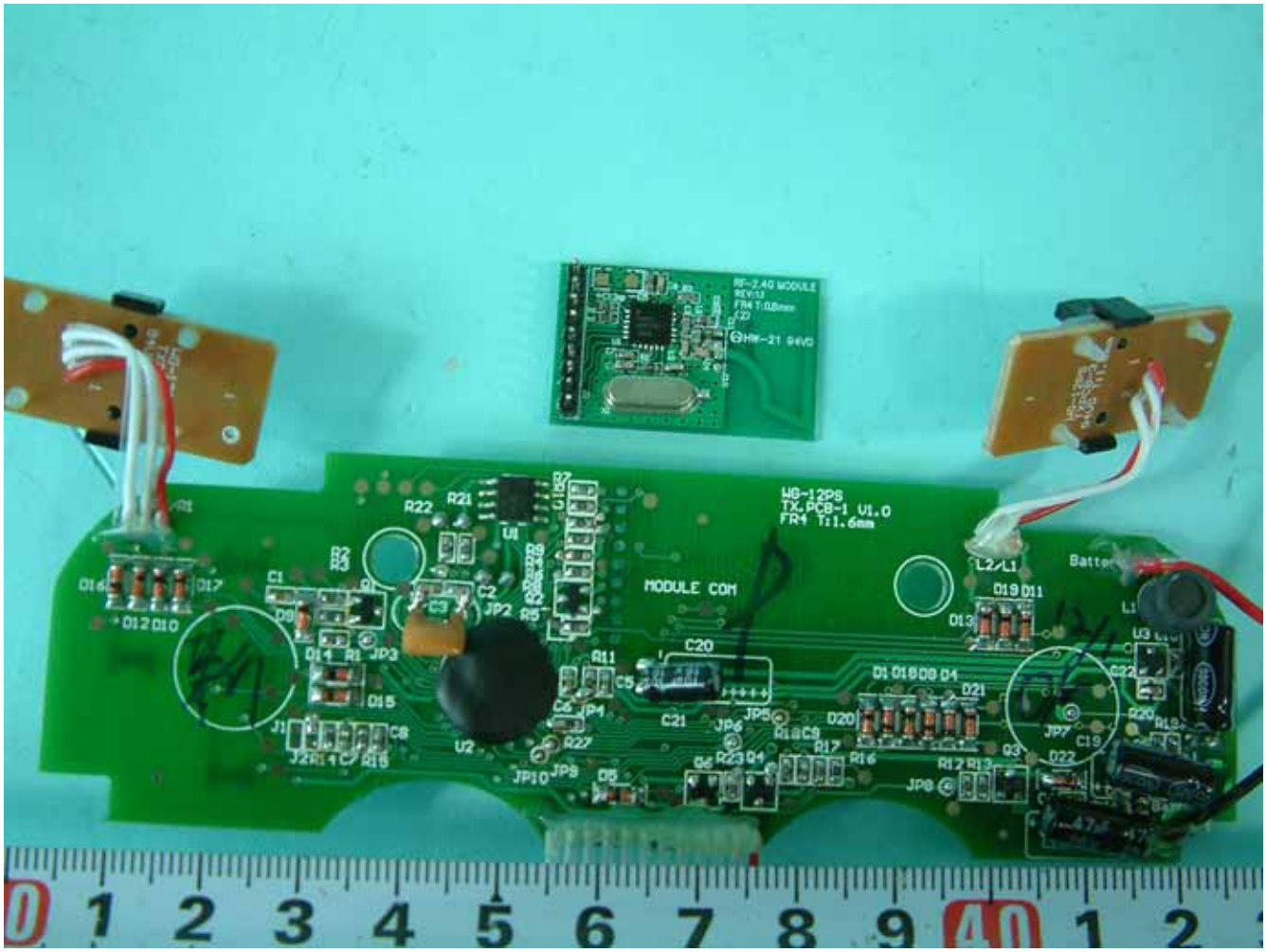
SPORTON International Inc.
TEL : 886-2-2696-2468
FAX : 886-2-2696-2255

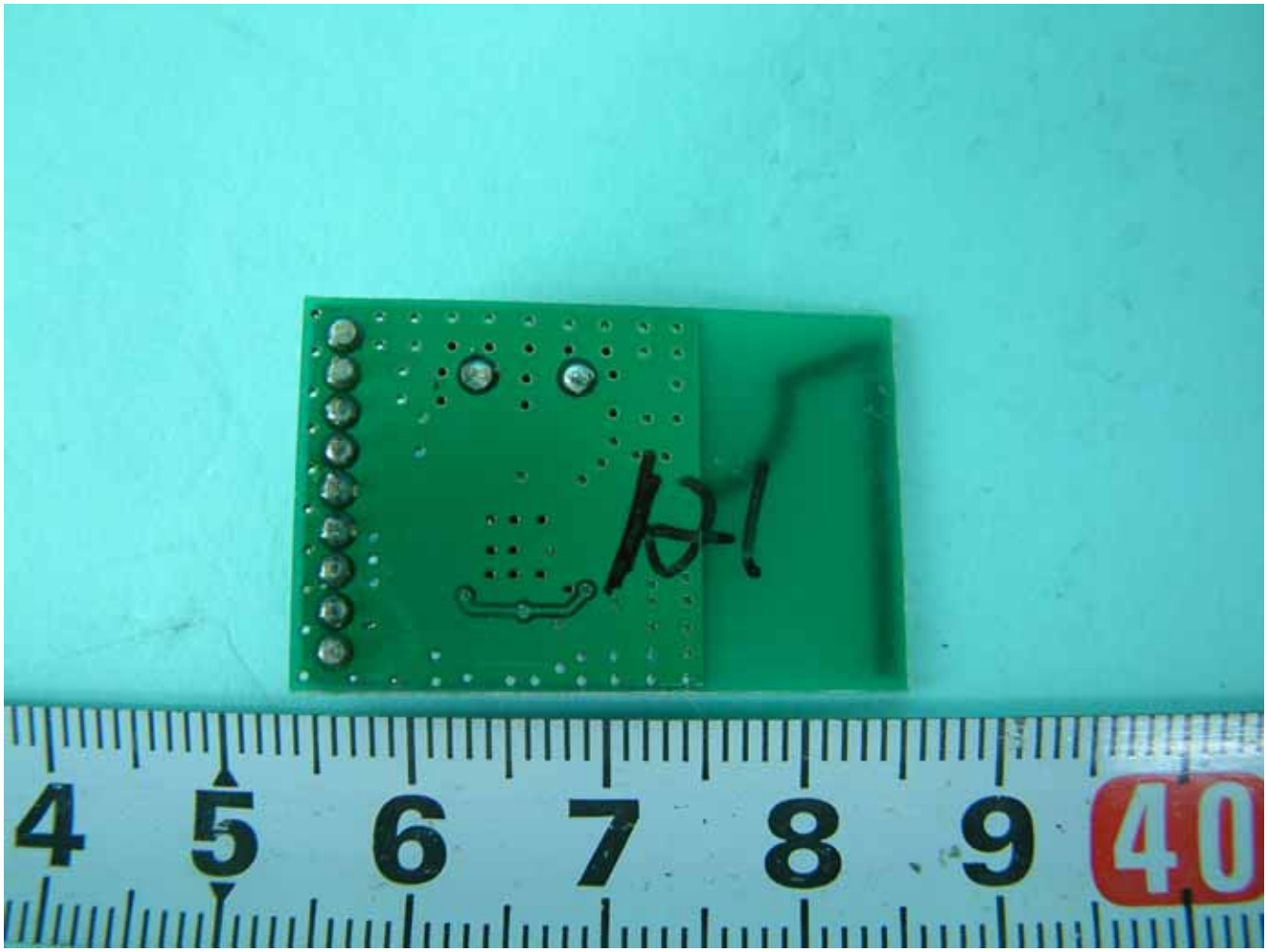

S8262
1LAY FR4 T:1.2mm
TX.PCB-2U1.0
MG-12PS
SR
SL
816
Small
0 1 2 3 6 7 8 9


J3
C16
J4
C13
C15
D2
D6
1 2 3 4 5 6 7 8


ANALOG
SELECT
START
AU
AL
AR
AD
BU
BL
BR
BD
D25
RESERVED
C8387
MINISTICK COM-A


R22
R21
U1
R2
R3
C1
C2
C3
JP2
R5
D16
D17
D12
D10
D9
D14
R1
JP3
D15
J1
J2
R14
C7
R15
C8
U2
JP10
JP9
D5
R11
C5
C6
JP4
C21
JP5
JP6
R18
C9
R17
R16
R23
Q4
Q1
R12
R13
JP8
Q3
D20
D1
D18
D8
D4
D21
JP7
C19
D22
R20
R19
L2/L1
D19
D11
D13
L1
Q2
C22
1 2 3 4 5 6 7 8 9 40 1 2 3


WG-12PS
TX.PCB-1 V1.0
FR4 T:1.6mm
MODULE COM



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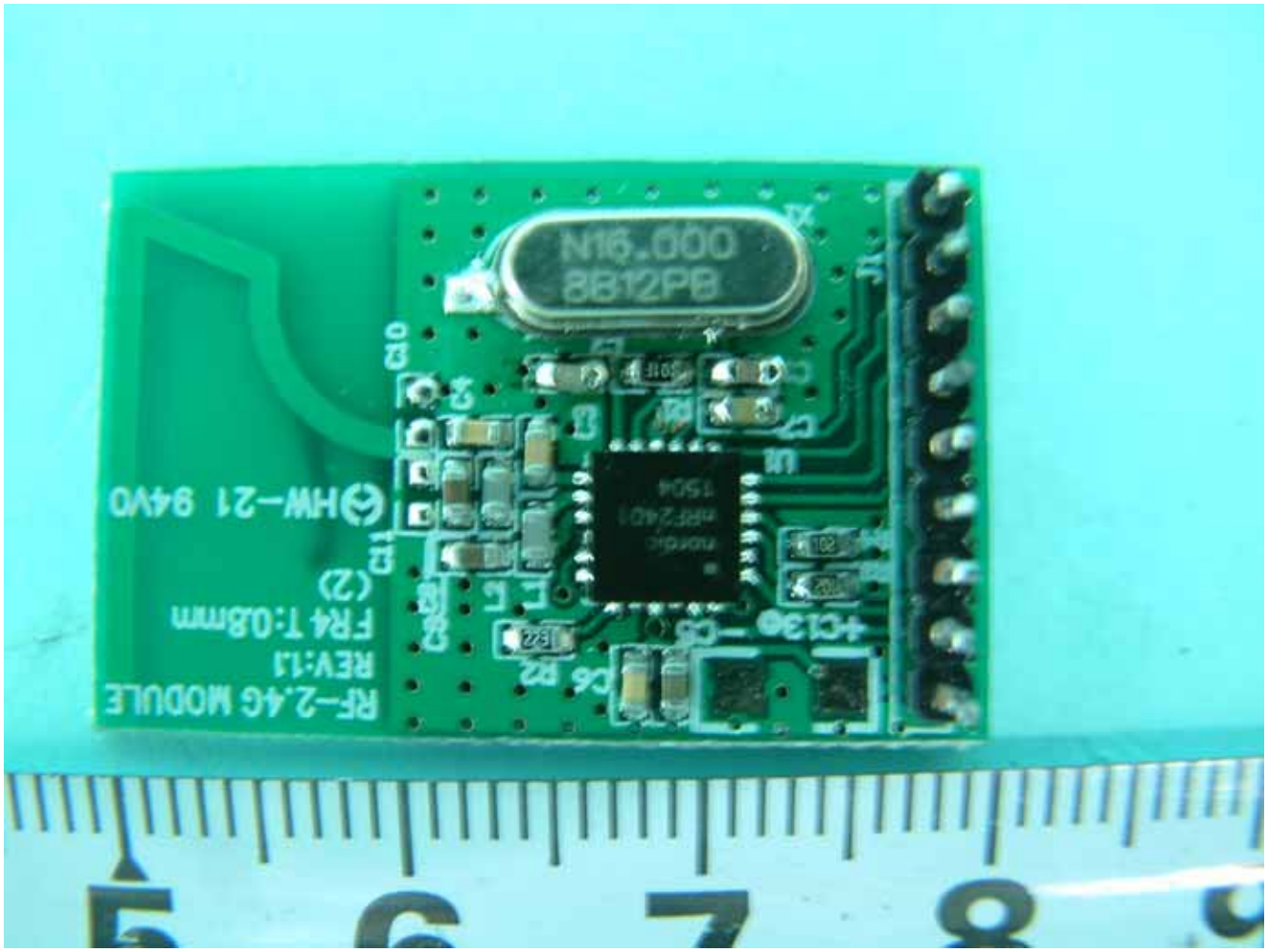
N16.000
8B12PB
HW-21 94V0
(2)
FR4 T:0.8mm
REV:1.1
RF-2.4G MODULE