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Report No.: SZEMO080602688RFF
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FCC ID: WED-G53CT

FCC Test Report

Application No.: SZEMO080602688RF

Applicant: Electronic Co.,Ltd.

Manufacturer: Electronic Factory

Equipment Under Test (EUT):

EUT Name: GPS

Item No.: G56C-1/ G56C-2/ G56C-3/ G56C-5/ G56C-6/ M20/ M30/ G20♣

♣

Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

Trade mark: GPS

FCC ID: WED-G53CT

Standards: FCC PART15 SUBPART B:2007

Date of Receipt: 17 June 2008

Date of Test: 17 June to 01 July 2008

Date of Issue: 03 July 2008

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 40GHz)	FCC PART 15, SUBPART B: 2007	ANSI C63.4:2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15, SUBPART B: 2007	ANSI C63.4:2003	Class B	PASS

Remark:

Item No.: G56C-1/ G56C-2/ G56C-3/ G56C-5/ G56C-6/ M20/ M30/ G20

Only the Item G56C-1 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above items, with only different of the out beings.

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4 General Information

4.1 Client Information

Applicant: Electronic Co.,Ltd.
Manufacturer: Electronic Factory
Address of Applicant: New industrial Developing Zone,Xiao Bian, Chang An ,Dong Guan,Guangdong,China.

4.2 General Description of E.U.T.

EUT Name: GPS
Item No.: G56C-1/ G56C-2/ G56C-3/ G56C-5/ G56C-6/ M20/ M30/ G20

4.3 Details of E.U.T.

Power Supply: USB port supply

4.4 Description of Support Units

The EUT has been tested with a personal computer system for 'Web-Cam' mode.

Description	Manufacturer	Model No.
PC	IBM	2662
Printer	Canon	BJC-1000SP

4.5 Standards Applicable for Testing

The customer requested FCC tests for a digital camera.
The standard used was FCC PART 15, SUBPART B, CLASS B (2007)

4.6 Test Location

All tests were performed at: -

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China 510663

Tel: +86 20 8215 5555 Fax: +86 20 8207 5059

No tests were sub-contracted.



4.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.
- **ACA**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.
Date of Registration: September 29, 2005. Valid until September 28, 2008.
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAS L0167**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 556682**
SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, Aug. 04, 2005
- **Industry Canada (IC)**
The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6002.

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.



5 Equipments Used during Test

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A
2	LISN	ETS-LINDGREN	3816/2	SEL0021	18-06-2008	17-06-2009
3	ISN	Rohde & Schwarz	ENY 22 1109	EMC0114	18-06-2008	17-06-2009
4	ISN	Rohde & Schwarz	ENY 41 1110	EMC0115	18-06-2008	17-06-2009
5	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	18-06-2008	17-06-2009
6	Coaxial Cable	SGS	N/A	SEL0024	18-06-2008	17-06-2009

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2009
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2007	11-12-2008
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2008	17-06-2009
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2007	11-08-2008
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2008	17-06-2009
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2007	11-08-2008
8	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2008	17-06-2009
9	Band filter	Amindeon	82346	SEL0094	18-06-2008	17-06-2009

General used equipment						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101 to SEL0103	18-11-2007	17-11-2008
2	Barometer	ChangChun	DYM3	SEL0088	22-06-2006	21-06-2009

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6 Test Results

6.1 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part15 B
Test Method: ANSI C63.4
Frequency Range: 150KHz to 30MHz
Class / Severity: Class B
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)
Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1012 Mbar
EUT Operation: Test in on mode.

6.1.2 Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

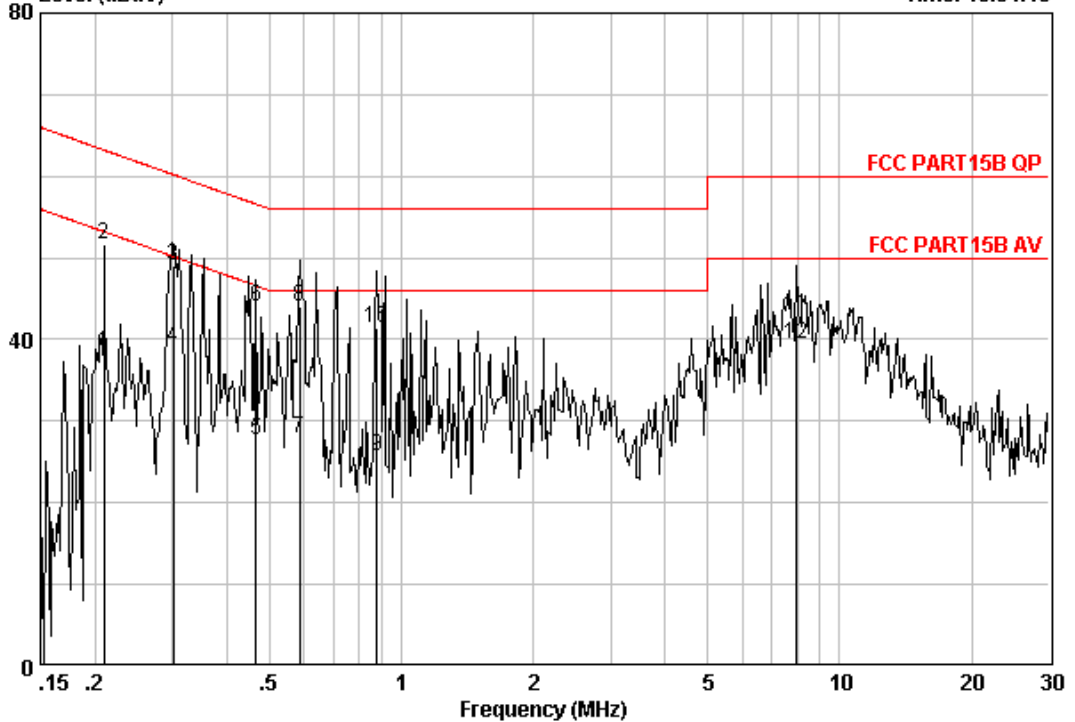
The following Quasi-Peak and Average measurements were performed on the EUT on 23 June 2008:



Line:

Data: 1
Level (dBuV)

Time: 10:51:43



Site : Shielding Room
Condition : FCC PART15B QP CE LINE
EUT : GPS
Job no : 2688RFF
Test mode : PC
Test line : N/A

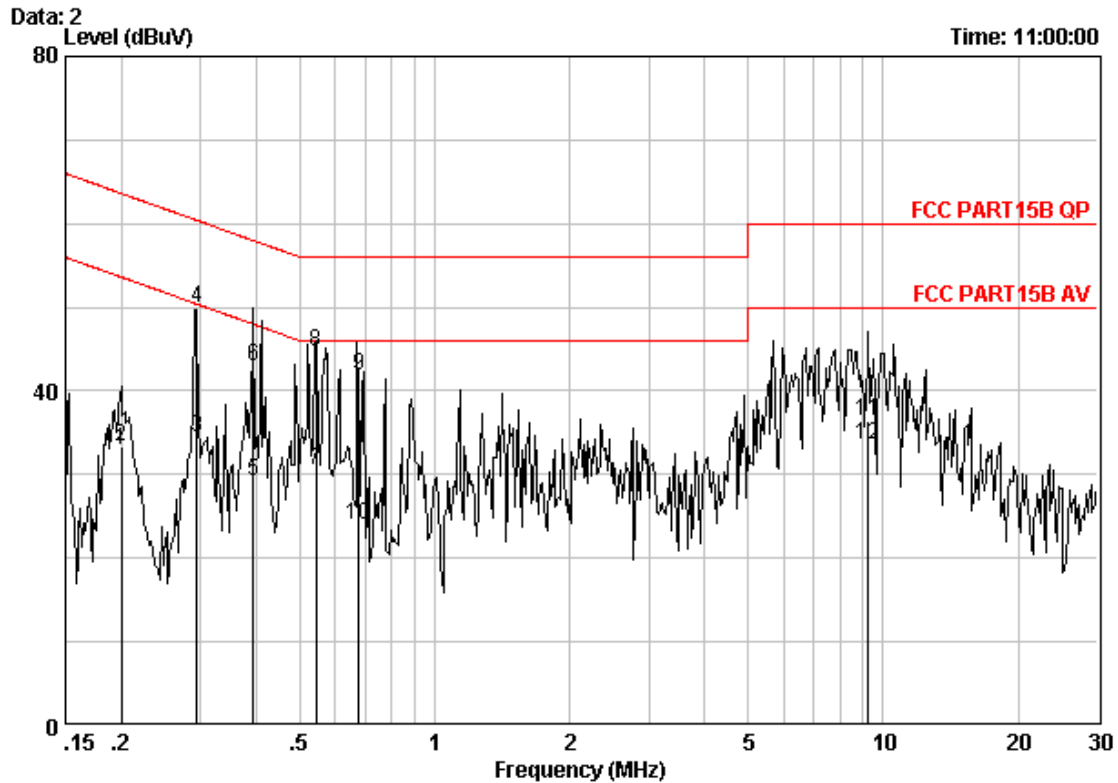
	Freq	Cable	LISN	Read	Limit	Over	
	MHz	Loss	Factor	Level	Level	Line	Limit
		dB	dB	dBuV	dBuV	dBuV	dB
1	0.20944	-0.09	-0.04	38.50	38.37	53.23	-14.86
2	0.20944	-0.09	-0.04	51.90	51.77	63.23	-11.46
3	0.30188	0.00	-0.04	49.00	48.96	60.19	-11.23
4	0.30188	0.00	-0.04	39.00	38.96	50.19	-11.23
5	0.46614	0.00	-0.04	27.70	27.66	46.58	-18.93
6	0.46614	0.00	-0.04	44.10	44.06	56.58	-12.53
7	0.58540	0.00	-0.04	28.00	27.96	46.00	-18.04
8	0.58540	0.00	-0.04	44.00	43.96	56.00	-12.04
9	0.88031	0.06	-0.05	25.70	25.72	46.00	-20.28
10	0.88031	0.06	-0.05	41.50	41.52	56.00	-14.48
11	7.977	0.17	-0.18	43.00	42.99	60.00	-17.01
12 @	7.977	0.17	-0.18	39.40	39.39	50.00	-10.61

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Neutral:



Site : Shielding Room
Condition : FCC PART15B QP CE NEUTRAL
EUT : GPS
Job no : 2688RF
Test mode : PC
Test line : N/A

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.19969	-0.10	-0.04	33.00	32.86	53.62	-20.76	Average
2	0.19969	-0.10	-0.04	33.60	33.46	63.62	-30.16	QP
3	0.29398	-0.01	-0.04	34.40	34.36	50.41	-16.06	Average
4 @	0.29398	-0.01	-0.04	49.90	49.86	60.41	-10.56	QP
5	0.39344	0.00	-0.04	29.20	29.16	47.99	-18.83	Average
6	0.39344	0.00	-0.04	43.00	42.96	57.99	-15.03	QP
7	0.54355	0.00	-0.04	30.60	30.56	46.00	-15.44	Average
8	0.54355	0.00	-0.04	44.80	44.76	56.00	-11.24	QP
9	0.67544	0.00	-0.04	42.00	41.96	56.00	-14.04	QP
10	0.67544	0.00	-0.04	24.00	23.96	46.00	-22.04	Average
11	9.204	0.19	-0.29	36.50	36.40	60.00	-23.60	QP
12	9.204	0.19	-0.29	33.70	33.60	50.00	-16.40	Average

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6.2 Radiated Emissions, 30MHz to 40GHz

Test Requirement: FCC Part15 B
Test Method: ANSI C63.4
Frequency Range: 30MHz to 40GHz
Measurement Distance: 3m
Class: Class B
Limit: 40.0 dB μ V/m between 30MHz & 88MHz
43.5 dB μ V/m between 88MHz & 216MHz
46.0 dB μ V/m between 216MHz & 960MHz
54.0 dB μ V/m above 960MHz
Detector: RBW=120KHz,VBW=300KHz for 30MHz to 1000MHz
RBW=1MHz,VBW=3MHz for above 1GHz
Quasi-Peak if maximised peak within 6dB of limit

6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1012 mbar
EUT Operation: Test the EUT in GPS mode, PC connect mode MP4 and SD playing mode..

6.2.2 Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. The EUT was measured by Bilog antenna with 2 orthogonal polarities and peak emissions from the EUT were detected within 6dB of the class B limit line.

The following quasi-peak measurements were performed on the EUT:



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Test results on GPS mode+DC 12V charging mode;

Horizontal:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
79.47	1.08	7.68	28.00	49.55	30.31	40.00	-9.69
180.35	1.37	9.91	27.26	47.77	31.79	43.50	-11.71
200.00	1.40	10.20	27.15	54.00	38.45	43.50	-5.05
229.82	1.57	11.64	27.00	50.49	36.70	46.00	-9.30
264.74	1.74	12.61	26.85	45.35	32.85	46.00	-13.15
299.66	1.90	13.85	26.72	53.12	42.15	46.00	-3.85
1525.00(PK)	1.21	20.61	44.26	74.82	52.38	74.00	-21.62
1525.00(AV)	1.21	20.61	44.26	62.67	40.23	54.00	-13.77

Vertical:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
79.47	1.08	7.68	28.00	50.22	30.98	40.00	-9.02
91.11	1.11	8.76	27.94	47.40	29.33	43.50	-14.17
182.29	1.37	9.95	27.25	42.24	26.31	43.50	-17.19
198.78	1.40	10.19	27.16	47.47	31.90	43.50	-11.60
265.71	1.75	12.63	26.85	39.74	27.27	46.00	-18.73
299.66	1.90	13.85	26.72	43.02	32.05	46.00	-13.95
1525.00(PK)	1.21	20.61	44.26	64.96	42.52	74.00	-31.48
1525.00(AV)	1.21	20.61	44.26	54.35	31.91	54.00	-22.09

1. Transducer = Antenna Factor + Cable Loss.

2. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

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Test results on PC connect mode:

Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
79.47	1.08	7.68	28.00	47.97	28.73	40.00	-11.27
153.19	1.32	9.18	27.43	50.59	33.66	43.50	-9.84
183.26	1.37	9.97	27.24	47.35	31.45	43.50	-12.05
188.11	1.38	10.06	27.22	51.02	35.24	43.50	-8.26
198.78	1.40	10.19	27.16	55.96	40.39	43.50	-3.11
299.66	1.90	13.85	26.72	50.19	39.22	46.00	-6.78

Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
74.62	0.94	7.28	28.00	49.06	29.28	40.00	-10.72
79.47	1.08	7.68	28.00	49.01	29.77	40.00	-10.23
98.87	1.19	9.06	27.89	46.27	28.63	43.50	-14.87
118.27	1.25	8.02	27.70	47.54	29.11	43.50	-14.39
198.78	1.40	10.19	27.16	48.54	32.97	43.50	-10.53
299.66	1.90	13.85	26.72	40.74	29.77	46.00	-16.23

1. All readings are Quasi-Peak values.
2. Transducer = Antenna Factor + Cable Loss.
3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

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Test results on MP4 and SD playing mode:

1. All readings are Quasi-Peak values.

Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
78.50	1.05	7.59	28.00	51.00	31.64	40.00	-8.36
171.62	1.36	9.55	27.31	45.62	29.22	43.50	-14.28
188.11	1.38	10.06	27.22	48.15	32.37	43.50	-11.13
198.78	1.40	10.19	27.16	49.90	34.33	43.50	-9.17
299.66	1.90	13.85	26.72	46.87	35.90	46.00	-10.10
397.63	2.19	16.27	27.39	43.39	34.46	46.00	-11.54

Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
79.47	1.08	7.68	28.00	52.09	32.85	40.00	-7.15
88.20	1.10	8.54	27.96	48.37	30.05	43.50	-13.45
153.19	1.32	9.18	27.43	41.91	24.98	43.50	-18.52
198.78	1.40	10.19	27.16	46.17	30.60	43.50	-12.90
397.63	2.19	16.27	27.39	37.59	28.66	46.00	-17.34
497.54	2.59	17.80	27.70	37.06	29.75	46.00	-16.25

2. Transducer = Antenna Factor + Cable Loss.

3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.