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Report No. SZEMO10020055701

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FCC REPORT

Application No. : SZEMO100200557RF
Applicant: Electronics Co.,Ltd
FCC ID: WED-FD350
Product Name: GPS
Product N.O.: G69-1, G69-2, G69-3, G69-5, G69-6, G69-8, G69-9, G350, FD-350.*
* Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Standards: FCC CFR Title 47 Part 15 Subpart B: 2008
Date of Receipt 01 February 2010
Date of Test 01 February to 08 February 2010
Date of Issue 08 February 2010

Test Result :	PASS *
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*In the configuration tested, the EUT complied with the standards specified above. This report supersedes our previous report SZEMO10020055701, issued on 08 February 2010, which is hereby deemed null and void.”.

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.

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3 Test Summary

Test Item	Section in CFR 47	Result
Radiated Emission (30MHz to 1GHz)	ANSI C63.4:2003	Passed
Conducted Emission (150KHz to 30MHz)	ANSI C63.4:2003	Passed*

Remark 1: Passed: The EUT complies with the essential requirements in the standard.

Failed: The EUT does not comply with the essential requirements in the standard.

**The EUT passed the Conducted Emission(PC mode, Play+AC adapter mode) after retest.*

Remark 2:

Item No.: G69-1, G69-2, G69-3, G69-5, G69-6, G69-8, G69-9, G350, FD-350

Only the Item in section 6 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above items.

4 General Information

4.1 Client Information

Applicant:	Electronics Co.,Ltd
Address of Applicant:	No.161, Xin Min Road, Tong Luo Wei Industrial Zone, Jin Xia, Chang An Town, DongGuan City, GuangDong Province, P.R.C
Factory:	Electronics Factory
Address of Factory:	No.161, Xin Min Road, Tong Luo Wei Industrial Zone, Jin Xia, Chang An Town, DongGuan City, GuangDong Province, P.R.C

4.2 General Description of E.U.T.

Product Name:	GPS
Item No.:	G69-1, G69-2, G69-3, G69-5, G69-6, G69-8, G69-9, G350, FD-350
Power Supply:	Input DC 12/24V Output DC 5V==1A

4.3 E.U.T Operation Environment and test mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1008 mbar
Test mode:	
PC mode	Exchange data between the EUT and PC.
Play +DC adapter mode	Pre-scan the play audio, video in SD card, and found which is worse case mode, the EUT power supply by DC adapter.
Play +AC adapter mode	Pre-scan the play audio, video in SD card, and found which is worse case mode, the EUT power supply by AC adapter.
GPS receive mode	Keep the EUT in GPS receive mode, pre-scan the EUT power supply by DC adapter or AC adapter, and found which is worse case.

4.4 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **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, 2008. Valid until September 28, 2011.

- **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, June 27, 2008.

- **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.: 4620C-1.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.6 Other Information Requested by the Customer

None.

5 Equipments Used during Test

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	16-06-2009	16-06-2010
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	05-11-2009	05-11-2010
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2009	18-06-2010
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	05-11-2009	05-11-2010
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	23-06-2009	23-06-2010
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	10-11-2009	10-11-2010
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	10-11-2009	10-11-2010
9	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	13-07-2009	13-07-2010
10	Band filter	Amindeon	82346	SEL0094	23-06-2009	23-06-2010
11	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	12-08-2009	12-08-2010

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	23-06-2009	23-06-2010
3	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	19-02-2009	19-02-2010
4	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	19-02-2009	19-02-2010
5	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	19-02-2009	19-02-2010
6	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	23-06-2009	23-06-2010
7	Coaxial Cable	SGS	N/A	SEL0024	18-06-2009	18-06-2010

6 Test results and Measurement Data

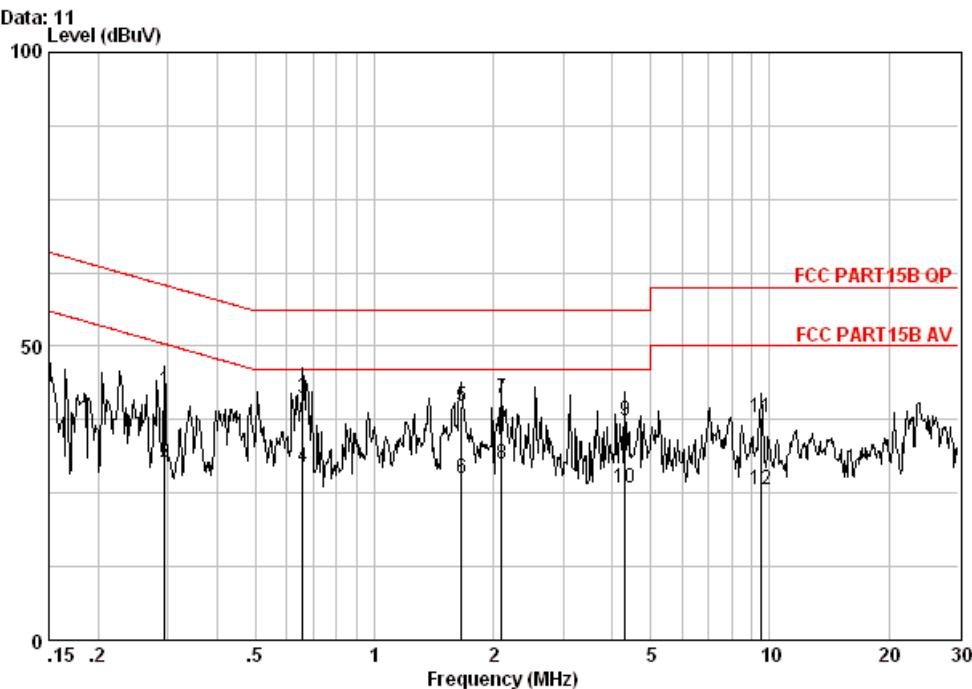
6.1 Conducted Emissions

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4: 2003
Test 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
Test mode:	PC mode
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed

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.

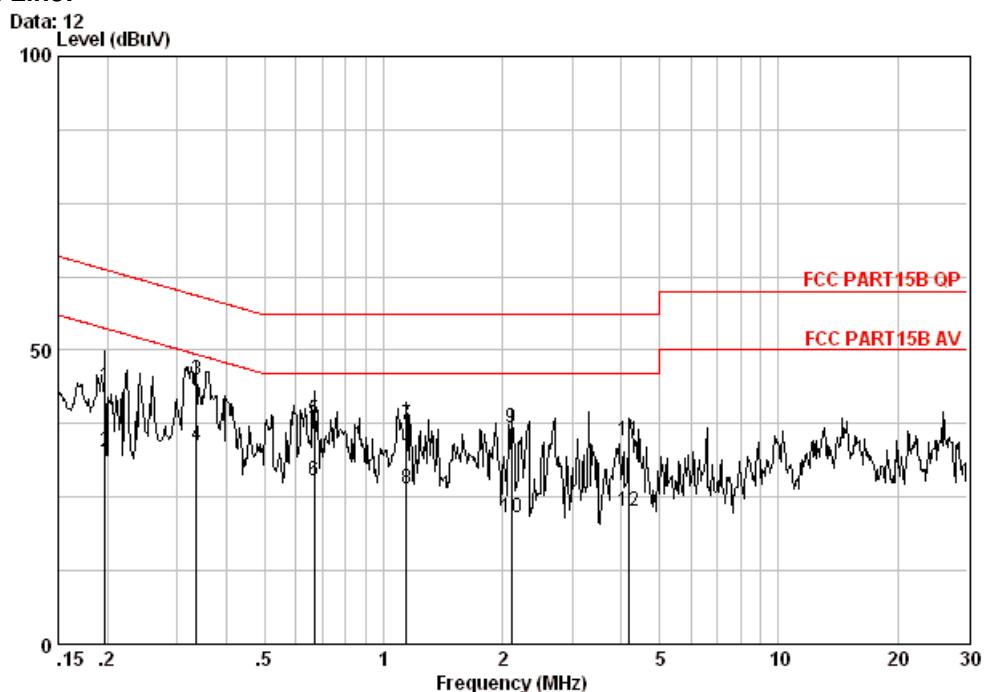
PC mode:
Live Line:


Site : Shielding Room
Condition : FCC PART15B QP CE LINE
EUT : GPS
Job No. : 0557RF
MODE : COMMUNICATE WITH PC

	Freq	Cable	LISN	Read	Limit Level	Limit Line	Over Limit	Remark
		MHz	dB	dB		dBuV	dBuV	
1	0.29398	0.05	-0.04	42.51	42.52	60.41	-17.89	QP
2	0.29398	0.05	-0.04	30.25	30.26	50.41	-20.15	Average
3	0.65778	0.06	-0.05	41.20	41.21	56.00	-14.79	QP
4	0.65778	0.06	-0.05	29.36	29.37	46.00	-16.63	Average
5	1.662	0.11	-0.06	39.80	39.85	56.00	-16.15	QP
6	1.662	0.11	-0.06	27.41	27.46	46.00	-18.54	Average
7 @	2.099	0.12	-0.06	41.18	41.24	56.00	-14.76	QP
8	2.099	0.12	-0.06	29.85	29.91	46.00	-16.09	Average
9	4.315	0.16	-0.10	37.18	37.25	56.00	-18.75	QP
10	4.315	0.16	-0.10	25.87	25.93	46.00	-20.07	Average
11	9.502	0.22	-0.27	37.96	37.91	60.00	-22.09	QP
12	9.502	0.22	-0.27	25.64	25.59	50.00	-24.41	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

Neutral Line:


Site : Shielding Room
 Condition : FCC PART15B QP CE NEUTRAL
 EUT : GPS
 Job No. : 0557RF
 MODE : COMMUNICATE WITH PC

Freq	Cable	LISN	Read	Limit	Over	Remark
	Loss	Factor	Level			
	MHz	dB	dB	dBuV	dBuV	dB
1	0.19758	0.04	-0.04	43.97	43.97	63.71 -19.74 QP
2	0.19758	0.04	-0.04	32.65	32.65	53.71 -21.06 Average
3 @	0.33562	0.05	-0.04	45.03	45.04	59.31 -14.27 QP
4	0.33562	0.05	-0.04	33.75	33.76	49.31 -15.55 Average
5	0.66832	0.06	-0.04	38.02	38.04	56.00 -17.96 QP
6	0.66832	0.06	-0.04	27.81	27.83	46.00 -18.17 Average
7	1.141	0.09	-0.05	37.17	37.21	56.00 -18.79 QP
8	1.141	0.09	-0.05	26.35	26.39	46.00 -19.61 Average
9	2.110	0.12	-0.06	36.71	36.77	56.00 -19.23 QP
10	2.110	0.12	-0.06	21.43	21.49	46.00 -24.51 Average
11	4.180	0.16	-0.10	34.44	34.50	56.00 -21.50 QP
12	4.180	0.16	-0.10	22.51	22.57	46.00 -23.43 Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

6.2 Radiated Emission

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4: 2003
Test Frequency Range:	30MHz to 25000MHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
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:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit
Test mode:	PC mode, Play+DC mode, GPS mode
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

Measurement Record Uncertainty: $\pm 6\text{dB}$
PC Mode

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)	Polarity
62.98	0.80	7.11	28.03	49.07	28.95	40.00	-11.05	Vertical
128.94	1.27	7.72	27.61	48.26	29.64	43.50	-13.86	Vertical
222.06	1.53	11.34	27.04	45.80	31.63	46.00	-14.37	Vertical
350.10	2.06	15.40	27.09	37.27	27.64	46.00	-18.36	Vertical
749.74	3.06	21.70	27.11	37.25	34.90	46.00	-11.10	Vertical
855.47	3.42	22.55	26.65	32.67	31.99	46.00	-14.01	Vertical
198.78	1.40	10.19	27.16	48.18	32.61	43.50	-10.89	Horizontal
222.06	1.53	11.34	27.04	50.96	36.79	46.00	-9.21	Horizontal
299.66	1.90	13.85	26.72	43.93	32.96	46.00	-13.04	Horizontal
413.15	2.26	16.35	27.45	37.77	28.93	46.00	-17.07	Horizontal
780.78	3.14	22.02	27.00	36.97	35.13	46.00	-10.87	Horizontal
906.88	3.61	23.24	26.43	35.42	35.84	46.00	-10.16	Horizontal

GPS Mode

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)	Polarity
32.91	0.60	13.91	28.16	30.12	16.47	40.00	-23.53	Vertical
79.47	1.08	7.68	28.00	37.63	18.39	40.00	-21.61	Vertical
114.39	1.24	8.30	27.74	30.57	12.37	43.50	-31.13	Vertical
163.86	1.34	9.56	27.36	32.25	15.79	43.50	-27.71	Vertical
198.78	1.40	10.19	27.16	34.47	18.90	43.50	-24.60	Vertical
211.39	1.47	10.81	27.09	35.88	21.07	43.50	-22.43	Vertical
78.50	1.05	7.59	28.00	37.96	18.60	40.00	-21.40	Horizontal
110.51	1.23	8.57	27.77	34.25	16.28	43.50	-27.22	Horizontal
180.35	1.37	9.91	27.26	31.01	15.03	43.50	-28.47	Horizontal
211.39	1.47	10.81	27.09	33.22	18.41	43.50	-25.09	Horizontal
400.54	2.20	16.30	27.41	30.25	21.34	46.00	-24.66	Horizontal
731.31	3.00	21.62	27.17	27.13	24.58	46.00	-21.42	Horizontal

Play Mode

Frequen cy (MHz)	Cable Loss (dB)	Antenn a Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
35.82	0.60	12.70	28.13	30.29	15.46	40.00	-24.54	Vertical
79.47	1.08	7.68	28.00	30.91	11.67	40.00	-28.33	Vertical
117.30	1.25	8.08	27.71	28.55	10.17	43.50	-33.33	Vertical
223.03	1.53	11.38	27.04	32.49	18.36	46.00	-27.64	Vertical
400.54	2.20	16.30	27.41	31.28	22.37	46.00	-23.63	Vertical
766.23	3.11	21.90	27.05	25.88	23.84	46.00	-22.16	Vertical
78.50	1.05	7.59	28.00	35.33	15.97	40.00	-24.03	Horizontal
110.51	1.23	8.57	27.77	35.44	17.47	43.50	-26.03	Horizontal
160.95	1.34	9.59	27.38	36.83	20.38	43.50	-23.12	Horizontal
198.78	1.40	10.19	27.16	42.88	27.31	43.50	-16.19	Horizontal
234.67	1.60	11.81	26.98	40.24	26.67	46.00	-19.33	Horizontal
400.54	2.20	16.30	27.41	32.12	23.21	46.00	-22.79	Horizontal

Charge Mode

Frequen cy (MHz)	Cable Loss (dB)	Antenn a Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
78.50	1.05	7.59	28.00	33.67	14.31	40.00	-25.69	Vertical
110.51	1.23	8.57	27.77	30.80	12.83	43.50	-30.67	Vertical
198.78	1.40	10.19	27.16	33.83	18.26	43.50	-25.24	Vertical
223.03	1.53	11.38	27.04	33.19	19.06	46.00	-26.94	Vertical
400.54	2.20	16.30	27.41	31.16	22.25	46.00	-23.75	Vertical
773.02	3.13	21.97	27.03	26.56	24.63	46.00	-21.37	Vertical
82.38	1.10	7.95	27.99	37.21	18.27	40.00	-21.73	Horizontal
110.51	1.23	8.57	27.77	38.70	20.73	43.50	-22.77	Horizontal
160.95	1.34	9.59	27.38	35.32	18.87	43.50	-24.63	Horizontal
200.01	1.40	10.20	27.15	49.00	33.45	43.50	-10.05	Horizontal
241.46	1.63	12.04	26.95	44.74	31.46	46.00	-14.54	Horizontal
400.54	2.20	16.30	27.41	34.53	25.62	46.00	-20.38	Horizontal