



SGS-CSTC Standards Technical Services Co., Ltd.

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Report No.: GZEM121200554101
Page: 1 of 19
FCC ID: RSRG-777-797

TEST REPORT

Application No.:	GZEM1212005541IT
Applicant:	Gosafe Company Limited
FCC ID:	RSRG-777-797
Product Name:	GPS Tracker
Product Description:	Controller with PC database management
Model No:	G777
Trade Mark:	GOSAFE
Standards:	CFR 47 FCC PART 15 SUBPART B:2012
Date of Receipt:	2012-12-28
Date of Test:	2013-01-16
Date of Issue:	2013-02-25
Test Result :	Pass*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Richard Li
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.

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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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2013-02-25		Original

Authorized for issue by:				
Tested By		 (Simon Cai) /Project Engineer		2013-01-16 Date
Prepared By		 (Millie Li) /Clerk		2013-01-24 Date
Checked By		 (Kobe Jian) /Reviewer		2013-02-25 Date



3 Test Summary

Electromagnetic Interference (EMI)				
Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission (150 KHz to 30 MHz)	FCC PART 15 SUBPART B:2012	ANSI C63.4:2009	Class B	PASS
Radiated Emission (30 MHz to 1 GHz)	FCC PART 15 SUBPART B:2012	ANSI C63.4:2009	Class B	PASS
Radiated Emission above 1 GHz	FCC PART 15 SUBPART B:2012	ANSI C63.4:2009	Class B	N/A
Remark : EUT: In this whole report EUT means Equipment Under Test. N/A: Not applicable, please refer to section 7.3 of this report for details.				



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5 General Information

5.1 Client Information

Applicant: Gosafe Company Limited
Address of Applicant: RM301-306, NO.69 Guangpu West Road, Science & Technology Town,
Guangzhou 510663 China

5.2 General Description of E.U.T.

Product Name: GPS Tracker
Model No: G777

5.3 Details of E.U.T.

Rated Supply (Voltage): DC12V (supplied by an external AC/DC adaptor)
Operating frequency: 4MHz (the Highest working frequency)
USB port: 1.5m unscreened cable

5.4 General Test Climate During Testing

Temperature: 15-30 °C Humidity: 30~70 %RH Atmospheric Pressure: 860~1060 mbar

5.5 Deviation from Standards

None.

5.6 Abnormalities from Standard Conditions

None.

5.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



5.8 Description of Support Units

Supporting equipments:

Description	Manufacturer	Model No.	Serial No.	Data Cable	Power Cable
AC/DC adaptor	Shantou Xingma	XM-333	N/A	N/A	1.2m(DC)

Description	Manufacturer	Model No.	SN/Certificate NO	Power Cable
Test PC 1				
Personal Computer	DELL	OPTIPLEX 755	D6JF82X	1.5m
Monitor	DELL	MOR-SP2208WFPt(B)	CN-OPK573-71618-831-119U	1.5m
Mouse	DELL	M-WDEL1	OT0943	N/A
Keyboard	DELL	SK-8115	CN-ODJ331-71616-7B1-109J	N/A
Printer				
Printer	DELL	4470-AD1 (926B)	CN-OGH204-48734-69Q-7K78	1.5m
Other Peripheral				
ROM Programmer	DASI Electronics	EMP-100A	N/A	1.5m (DC)
Faxmodem	3Com U.S. Robotics	56K Faxmodem	715630-01	1.8m (DC)

Cables:

#	Type	Length, m	Shield	Metallic hood	Ferrite
1	VGA	1.8	Yes	No	Yes
2	LPT	1.8	Yes	No	No
3	COM	1.5	Yes	No	No
4	USB(Mouse)	1.8	Yes	No	No
5	USB(Keyboard)	1.8	Yes	No	No

Software:

Description	Manufacturer	Software name	Version no.
USB Driver	Gosafe Co.,Ltd	Tracking Config Port	1.2.0.0
Trcaking Config Software	Gosafe Co.,Ltd	G7707S	V0.9005





5.9 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.

- **ACMA**

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.

- **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 (Lab Code: 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.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., 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 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460 and C-2584)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460 and C-2584 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC 61010-1:2006-10 and Rules of procedure IEC 61010-2:2006-10, and the relevant IEC CB-Scheme Operational documents.



6 Equipment Used during Test

Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date	Calibration Interval
					(YYYY-MM-DD)	
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m ³	N/A	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2013-03-12	1Y
EMC0102	LISN	SCHAFFNER CHASE	MN2050D/1	1421	2013-9-6	1Y
EMC2046	Artificial Mains Network (LISN)	AFJ Instruments	LT32C	S.N.320311201 50	2013-03-12	1Y
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2013-03-12	1Y
EMC0107	Coaxial Cable	SGS	2m	N/A	2013-07-10	1Y
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	1Y
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	2013-11-5	1Y
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	2013-11-5	1Y
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	2013-11-5	1Y
EMC2047	CDN	Elektronik- Feinmechanik	L-801:AF2	2793	2014-11-11	3Y
EMC2048	CDN	Elektronik- Feinmechanik	L-801:M2/M3	2738	2014-11-11	3Y
EMC2062	6dB Attenuator	HP	8491A	24487	2014-01-04	1Y
EMC167	Conical metal housing	SGS-EMC	N/A	N/A	2013-12-16	1Y



RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date	Calibration
					(YYYY-MM-DD)	
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-08-30	2Y
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2013-06-29	1Y
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2013-03-12	1Y
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2013-06-01	1Y
EMC2025	Trilog Broadband Antenna 30-3000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9163	9163-450	2013-12-17	2Y
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2013-11-27	2Y
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2013-03-26	2Y
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2013-11-28	2Y
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2014-07-01	2Y
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2013-03-12	1Y
EMC0049	Amplifier	Agilent	8447D	2944A10862	2013-03-12	1Y
EMC0075	310N Amplifier	Sonoma	310N	272683	2013-03-12	1Y
EMC0523	Active Loop Antenna	EMCO	6502	42963	2014-04-07	2Y
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2014-06-01	3Y
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2014-04-27	2Y

General used equipment					
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date
					(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2011-12-16
EMC0007	DMM	Fluke	73	70671122	2011-12-16



7 Emission Test Results

7.1 Conducted Emissions Mains Terminals, 150 KHz to 30MHz

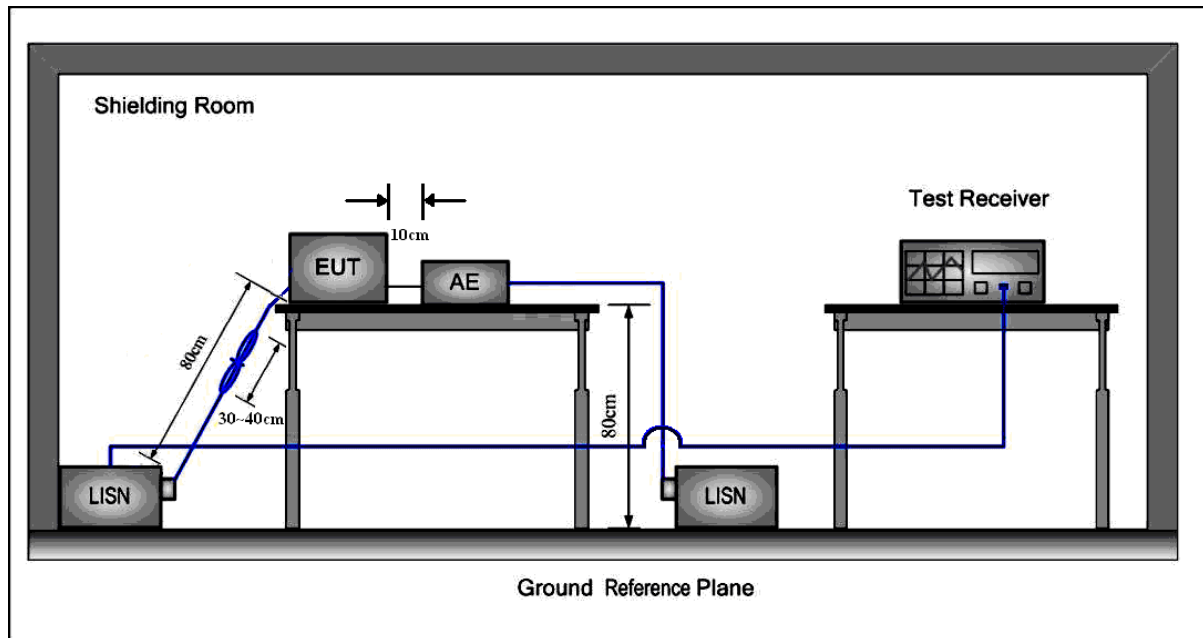
Test Requirement: FCC Part15 B
Test Method: ANSI C63.4
Test Voltage: 120V AC, 60Hz
Test Date: 2013-01-16
Frequency Range: 150KHz to 30MHz
Detector: Peak for pre-scan
Quasi-Peak and Average at frequency with maximum peak
(9 kHz resolution bandwidth)
Class / Limit: Class B

Frequency range MHz	Class B Limits dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 :The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		
NOTE 2: The lower limit is applicable at the transition frequency.		

7.1.1 E.U.T. Operation

Test the EUT in PC connecting mode, keep upload data from EUT.

7.1.2 Test Setup and Procedure



1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to nominal power supply through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.



7.1.3 Measurement Data

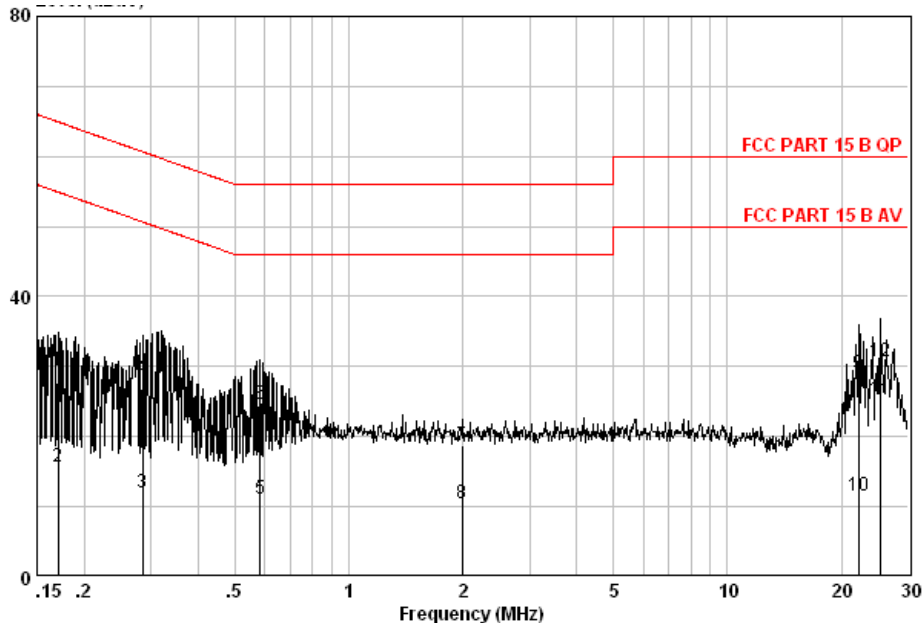
Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected.

Please see the attached Quasi-peak and Average test results.

Live Line:

Peak Scan:

Level (dBμV)



Quasi-peak and Average measurement

Freq	Read	Cable	LISN	Level	Limit	Over	Remark
MHz	dBμV	Loss	Factor	dBμV	Line	Limit	
		dB	dB		dBμV	dB	
0.170	19.74	0.09	9.63	29.46	64.94	-35.48	QP
0.170	6.02	0.09	9.63	15.74	54.94	-39.20	AVERAGE
0.285	2.24	0.09	9.64	11.96	50.68	-38.71	AVERAGE
0.285	18.66	0.09	9.64	28.38	60.68	-32.29	QP
0.582	1.39	0.05	9.63	11.07	46.00	-34.93	AVERAGE
0.582	15.00	0.05	9.63	24.68	56.00	-31.32	QP
1.991	8.92	0.06	9.66	18.64	56.00	-37.36	QP
1.991	0.83	0.06	9.66	10.55	46.00	-35.45	AVERAGE
22.180	18.36	0.27	10.35	28.98	60.00	-31.02	QP
22.180	0.89	0.27	10.35	11.51	50.00	-38.49	AVERAGE
25.456	14.34	0.37	10.53	25.23	50.00	-24.77	AVERAGE
25.456	19.90	0.37	10.53	30.79	60.00	-29.21	QP

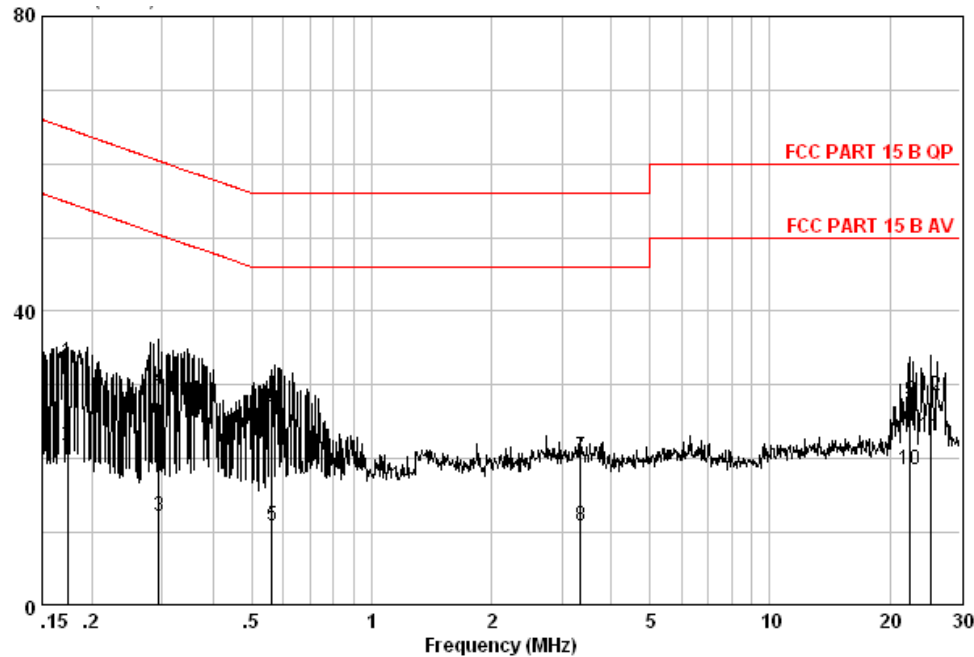
Level = Read Level + LISN Factor + Cable Loss.



Neutral Line:

Peak Scan:

Level (dBμV)



Quasi-peak and Average measurement:

Freq	Read	Cable	LISN	Level	Limit	Over	
MHz	Level	Loss	Factor	Level	Line	Limit	Remark
	dBμV	dB	dB	dBμV	dBμV	dB	
0.174	23.40	0.10	9.64	33.14	64.77	-31.63	QP
0.174	12.02	0.10	9.64	21.76	54.77	-33.01	AVERAGE
0.294	2.46	0.08	9.63	12.17	50.41	-38.24	AVERAGE
0.294	19.72	0.08	9.63	29.43	60.41	-30.98	QP
0.561	1.14	0.05	9.67	10.86	46.00	-35.14	AVERAGE
0.561	17.24	0.05	9.67	26.96	56.00	-29.04	QP
3.346	10.50	0.13	9.74	20.37	56.00	-35.63	QP
3.346	0.96	0.13	9.74	10.83	46.00	-35.17	AVERAGE
22.535	17.26	0.27	10.47	28.00	60.00	-32.00	QP
22.535	7.83	0.27	10.47	18.57	50.00	-31.43	AVERAGE
25.456	12.00	0.37	10.66	23.02	50.00	-26.98	AVERAGE
25.456	17.64	0.37	10.66	28.66	60.00	-31.34	QP

Level = Read Level + LISN Factor + Cable Loss.



7.2 Radiated Emissions, 30MHz to 1GHz

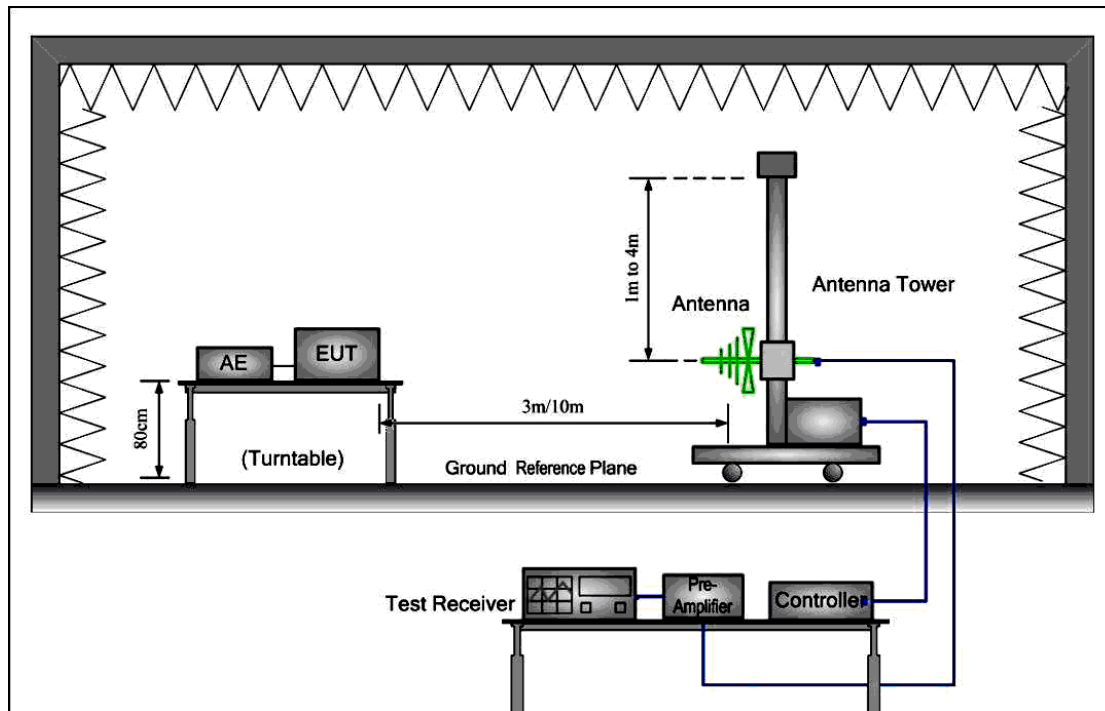
Test Requirement: FCC Part15 B
Test Method: ANSI C63.4
Test Voltage: 120V AC, 60Hz
Test Date: 2013-01-16
Frequency Range: 30MHz to 1GHz
Measurement Distance: 3 m
Detector: Peak for pre-scan
Quasi-Peak at frequency with maximum peak
(120 kHz resolution bandwidth)
Class / Limit: Class B

Frequency range MHz	Quasi-peak limits dB (μV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54
At transitional frequencies the lower limit applies.	

7.2.1 E.U.T. Operation

Test the EUT in PC connecting mode, keep upload data from EUT.

7.2.2 Test Setup and Procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
5. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

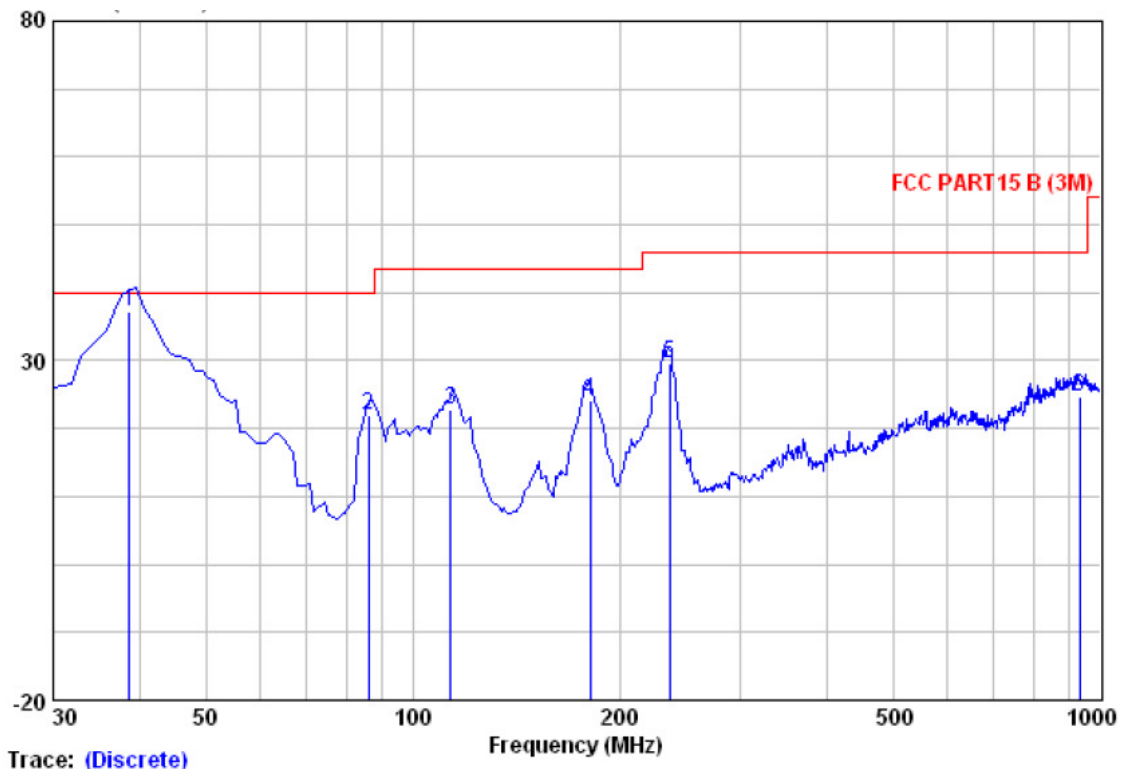


7.2.3 Measurement Data

Vertical:

Peak scan

Level (dB μ V/m)



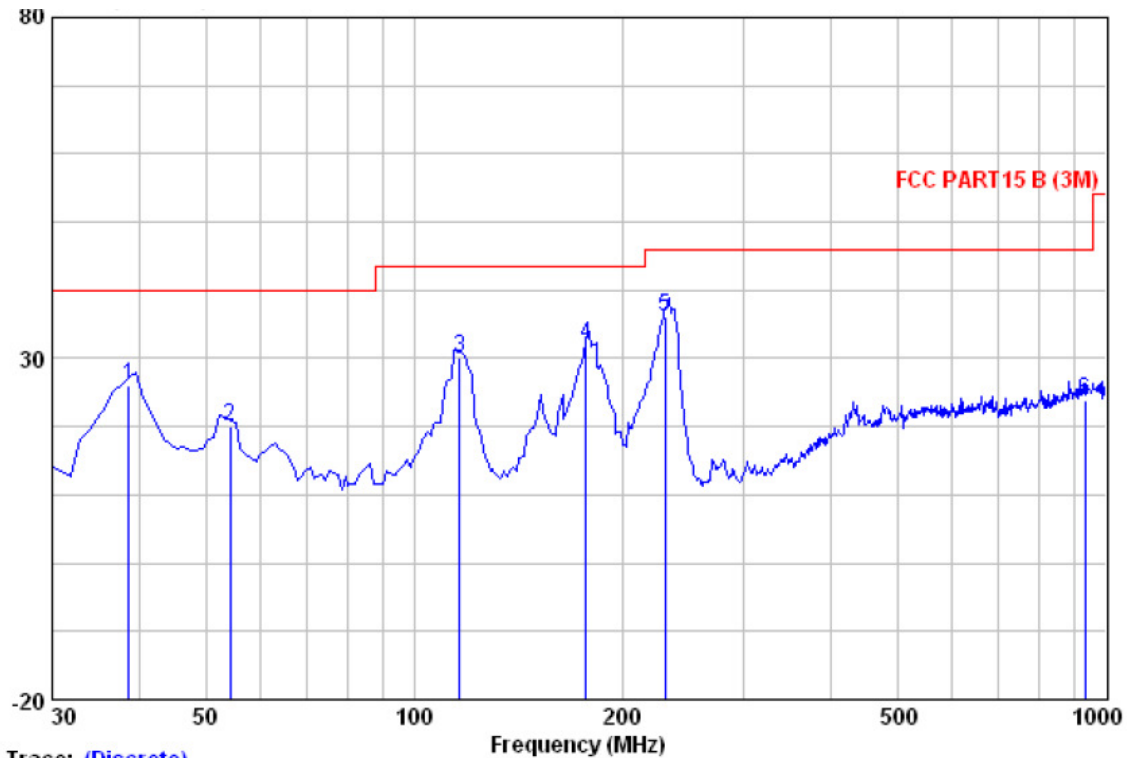
Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB μ V	dB/m	dB	dB	dB μ V/m	dB μ V/m	dB	
38.730	52.72	13.25	0.80	29.50	37.28	40.00	-2.72	QP
86.260	39.67	10.74	1.15	29.66	21.90	40.00	-18.10	QP
113.420	39.55	11.63	1.31	29.70	22.79	43.50	-20.71	QP
181.320	42.26	9.76	1.65	29.57	24.10	43.50	-19.40	QP
236.610	45.21	11.93	1.86	29.54	29.47	46.00	-16.53	QP
934.040	27.69	21.31	3.69	28.00	24.68	46.00	-21.32	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

**Horizontal:**

Peak scan

Level (dB μ V/m)

Quasi-peak measurement

Freq	ReadAntenna	Cable	Preamp	Limit	Over			
Level	Factor	Loss	Factor	Line	Limit	Remark		
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
38.730	41.47	13.25	0.80	29.50	26.03	40.00	-13.97	QP
54.250	35.43	13.05	1.00	29.52	19.95	40.00	-20.05	QP
116.330	47.35	11.10	1.33	29.70	30.09	43.50	-13.41	QP
177.440	50.60	9.49	1.63	29.58	32.14	43.50	-11.36	QP
230.790	52.13	11.67	1.84	29.54	36.11	46.00	-9.89	QP
934.040	26.80	21.31	3.69	28.00	23.79	46.00	-22.21	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.



7.3 Radiated Emissions above 1 GHz

Test Requirement: FCC Part15 B
Frequency Range: 1GHz to 40GHz
Measurement Distance: 3 m
Class / Limit: Class B
Test Date: N/A: See Remark Below

Remark:

There is no need for Radiated Emissions (above 1G) test to be performed on this product in accordance with FCC Part 15: 2012 because the highest internal source is less than 108 MHz. For further details, please refer to Subject B section 15.33 (b) (1) of FCC Part 15 which states: The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement Range (MHz)
Below 1.705	30
1.705 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

--End of Report--