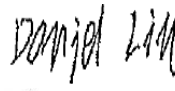
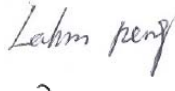


EMC
Measurement and Test Report
For
GlobTek, Inc.
186 Veterans Dr. Northvale, NJ 07647 USA

Test Standards:	<u>FCC Part 15 Subpart B</u>
Product Description:	<u>5 Bay Lithium-Ion Battery Charger</u>
Tested Model:	<u>GT-93023-12012</u>
Report No.:	<u>STR13078207E-3</u>
Tested Date:	<u>2013-07-15 to 2013-07-23</u>
Issued Date:	<u>2013-07-24</u>
Tested By:	<u>Daniel Liu / Engineer</u> 
Reviewed By:	<u>Lahm Peng / EMC Manager</u> 
Approved & Authorized By:	<u>Jandy so / PSQ Manager</u> 
Prepared By:	

SEM.Test Compliance Service Co., Ltd
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Bao'an District, Shenzhen, P.R.C. (518101)
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: GlobTek, Inc.
Address of applicant: 186 Veterans Dr. Northvale, NJ 07647 USA
Manufacturer: 1. GlobTek, Inc.
2. GlobTek (Suzhou) Co., Ltd
Address of manufacturer: 1. 186 Veterans Dr. Northvale, NJ 07647 USA
2. Building 4, No. 76, Jin Ling East Rd., Suzhou Industrial Park, Suzhou, JiangSu 215021, China

General Description of EUT

Product Name:	5 Bay Lithium-Ion Battery Charger
Trade Name:	GlobTek
Model No.:	GT-93023-12012
Adding Model(s):	MBC-001

Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model GT-93023-12012, but the circuit and the electronic construction do not change, declared by the manufacturer.

Technical Characteristics of EUT

Rated Voltage:	Input: AC 100-240V Output: DC 24V
Rated Current:	Input: 2.0A Output: 6.25A
Rated Power:	150W
Power Adapter Model:	GT-43004P15024-T3
Highest Internal Frequency:	Below 108MHz
Classification of ITE:	Class A

1.2 Test Standards

The following report is prepared on behalf of the GlobTek, Inc. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance 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 and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charging	Full Load, Half Load, Empty Load

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Power Cable	2.0	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

N/A: not applicable

SEM. Test Compliance

3. CONDUCTED EMISSIONS

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

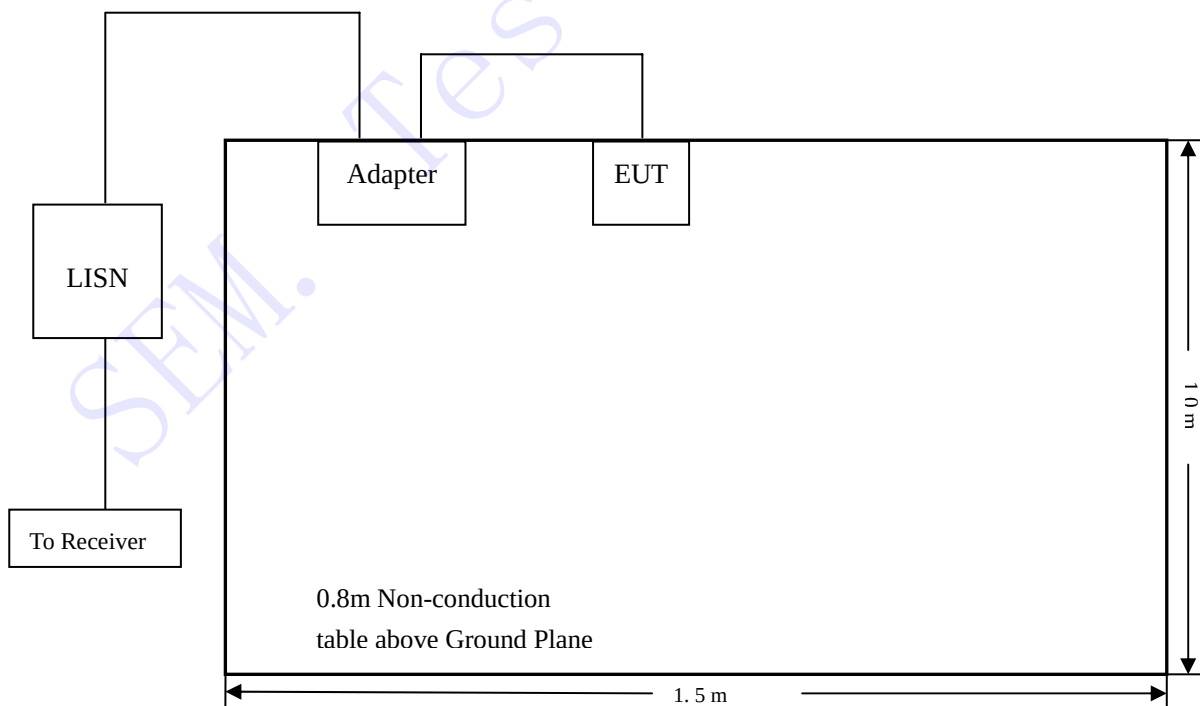
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class A device, with the *worst* margin reading of:

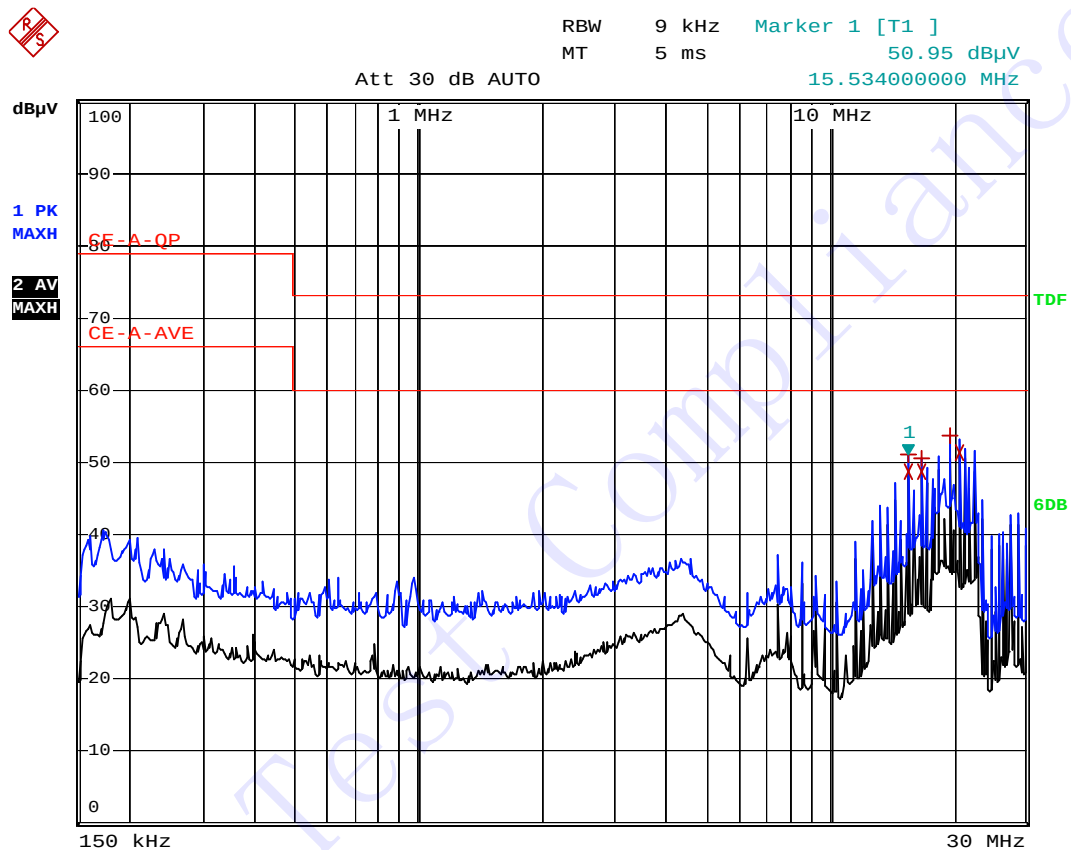
-8.52 dB at 21.254 MHz in the **Neutral, Average** detector, **TM1(Full Load)** Model, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

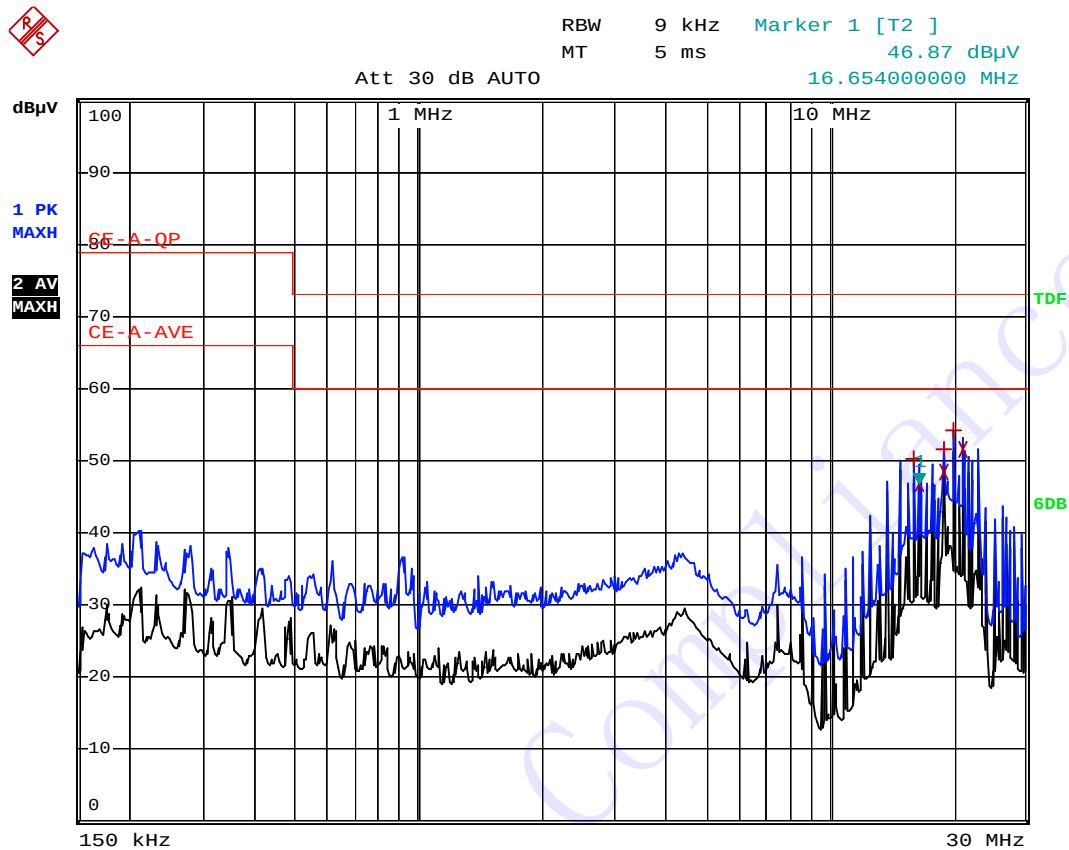
EUT: 5 Bay Lithium-Ion Battery Charger
Tested Model: GT-93023-12012
Operating Condition: TM1(Full Load)
Comment: AC 120V/60Hz; Adapter DC 24V

Test Specification: Line



EDIT PEAK LIST (Prescan Results)			
Trace1:	CE-A-QP		
Trace2:	CE-A-AVE		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	15.534 MHz	48.64	-11.35
1 Max Peak	15.534 MHz	50.95	-22.04
1 Max Peak	16.682 MHz	50.55	-22.44
2 Average	16.682 MHz	48.73	-11.26
1 Max Peak	19.554 MHz	53.70	-19.29
2 Average	20.706 MHz	51.29	-8.70

Test Specification: Neutral

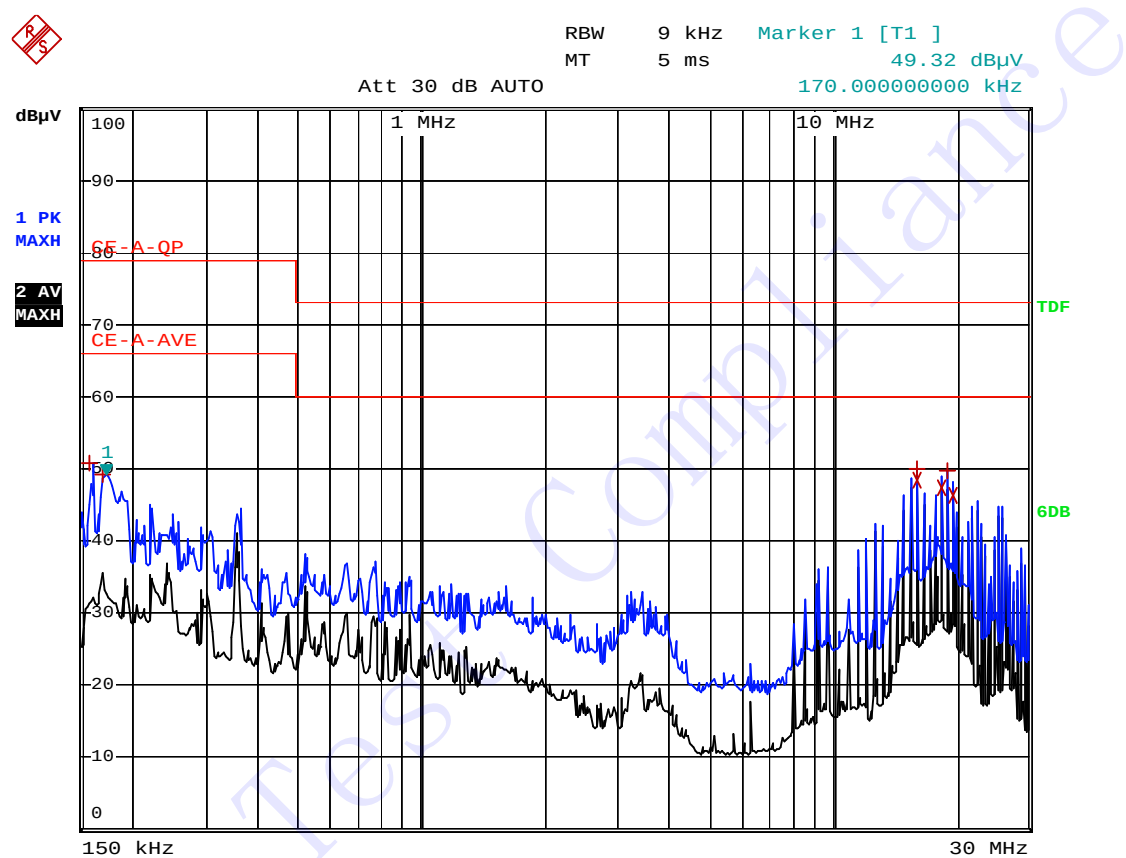


EDIT PEAK LIST (Prescan Results)			
Trace1:	CE-A-QP		
Trace2:	CE-A-AVE		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	16.078 MHz	50.32	-22.67
2 Average	16.654 MHz	46.87	-13.13
2 Average	18.95 MHz	48.34	-11.65
1 Max Peak	18.95 MHz	51.66	-21.33
1 Max Peak	20.098 MHz	54.18	-18.81
2 Average	21.254 MHz	51.47	-8.52

Plot of Conducted Emissions Test Data

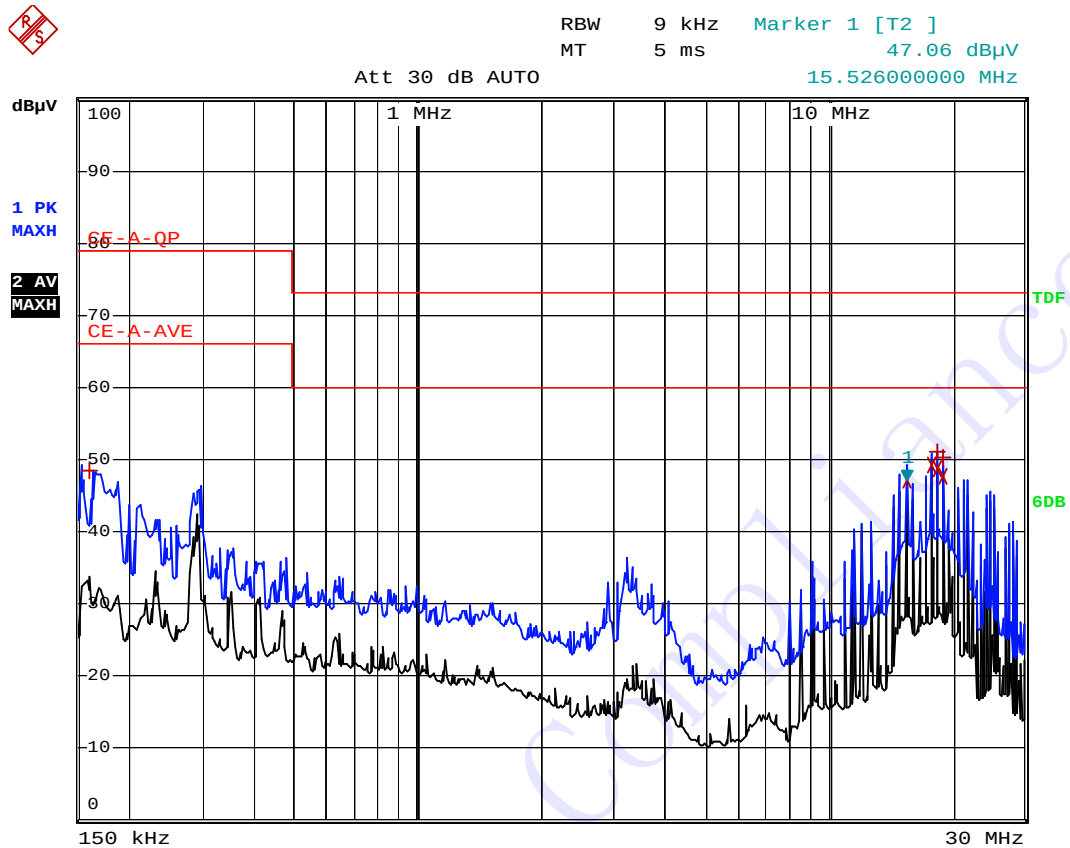
EUT: 5 Bay Lithium-Ion Battery Charger
Tested Model: GT-93023-12012
Operating Condition: TM1(Half Load)
Comment: AC 120V/60Hz; Adapter DC 24V

Test Specification: Line



EDIT PEAK LIST (Prescan Results)				
Trace1:	CE-A-QP			
Trace2:	CE-A-AVE			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB	
1 Max Peak	158 kHz	50.78	-28.21	
1 Max Peak	170 kHz	49.31	-29.68	
2 Average	16.102 MHz	48.45	-11.54	
1 Max Peak	16.102 MHz	49.87	-23.13	
2 Average	18.406 MHz	47.33	-12.66	
1 Max Peak	18.982 MHz	49.69	-23.30	
2 Average	19.558 MHz	46.39	-13.60	

Test Specification: Neutral

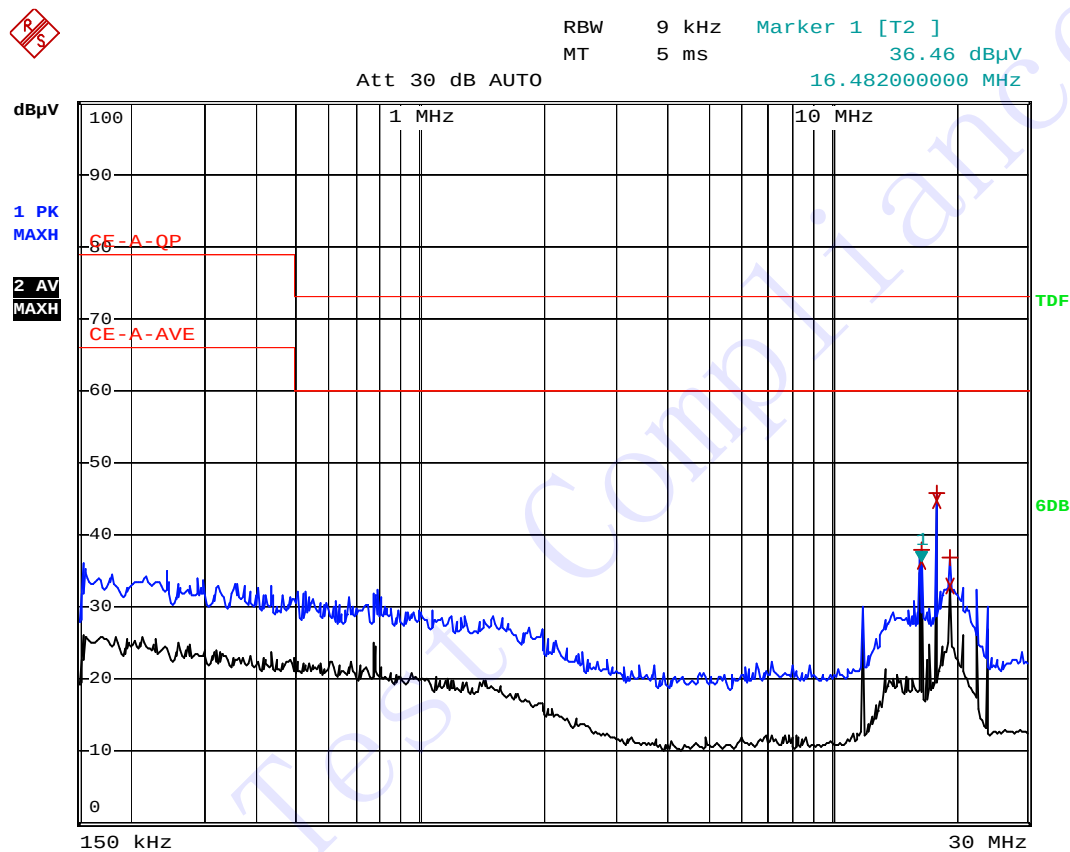


EDIT PEAK LIST (Prescan Results)			
Trace1:	CE-A-QP		
Trace2:	CE-A-AVE		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	162 kHz	48.29	-30.70
2 Average	15.526 MHz	47.05	-12.94
2 Average	17.822 MHz	49.10	-10.89
2 Average	18.402 MHz	48.70	-11.29
1 Max Peak	18.402 MHz	50.95	-22.04
2 Average	18.974 MHz	47.72	-12.27
1 Max Peak	18.974 MHz	50.23	-22.76

Plot of Conducted Emissions Test Data

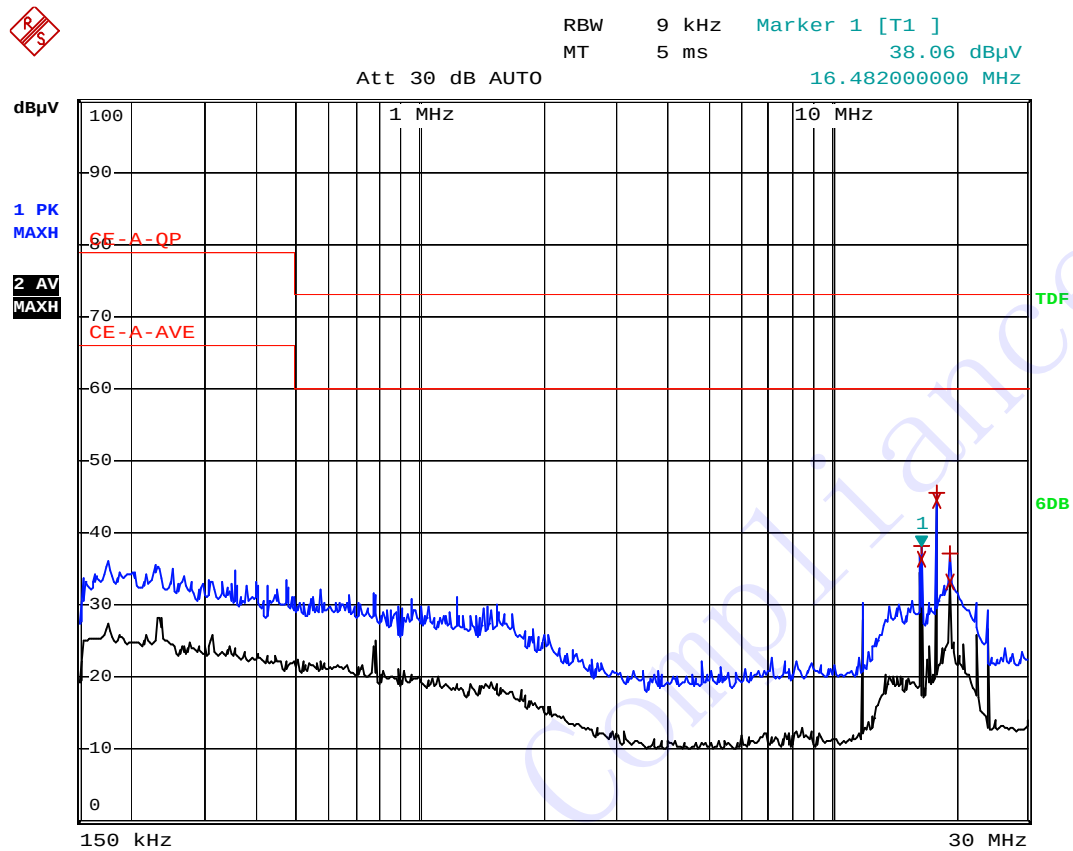
EUT: 5 Bay Lithium-Ion Battery Charger
Tested Model: GT-93023-12012
Operating Condition: TM1(Empty Load)
Comment: AC 120V/60Hz; Adapter DC 24V

Test Specification: Line



EDIT PEAK LIST (Prescan Results)				
Trace1:		CE-A-QP		
Trace2:		CE-A-AVE		
Trace3:		---		
	TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	16.482 MHz	37.87	-35.12
2	Average	16.482 MHz	36.46	-23.53
2	Average	17.978 MHz	44.83	-15.16
1	Max Peak	17.978 MHz	45.75	-27.24
2	Average	19.478 MHz	32.90	-27.09
1	Max Peak	19.478 MHz	36.96	-36.03

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)				
Trace1:	CE-A-QP			
Trace2:	CE-A-AVE			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
2 Average	16.482 MHz	36.34	-23.65	
1 Max Peak	16.482 MHz	38.06	-34.93	
1 Max Peak	17.978 MHz	45.64	-27.35	
2 Average	17.978 MHz	44.57	-15.42	
1 Max Peak	19.478 MHz	37.04	-35.95	
2 Average	19.478 MHz	33.29	-26.70	

4. RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

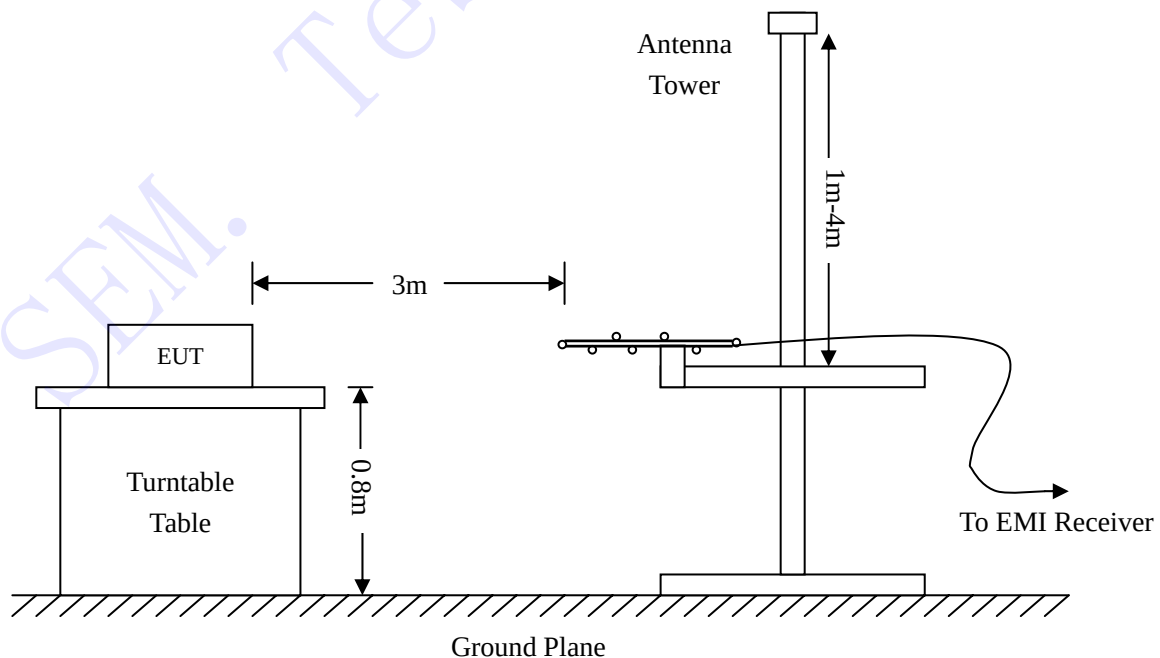
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for a Class A device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.54 dB at 318.8170 MHz in the **Horizontal** polarization, **TM1(Full Load)** Model, **30 MHz to 1 GHz, 3Meters**

Plot of Radiated Emissions Test Data

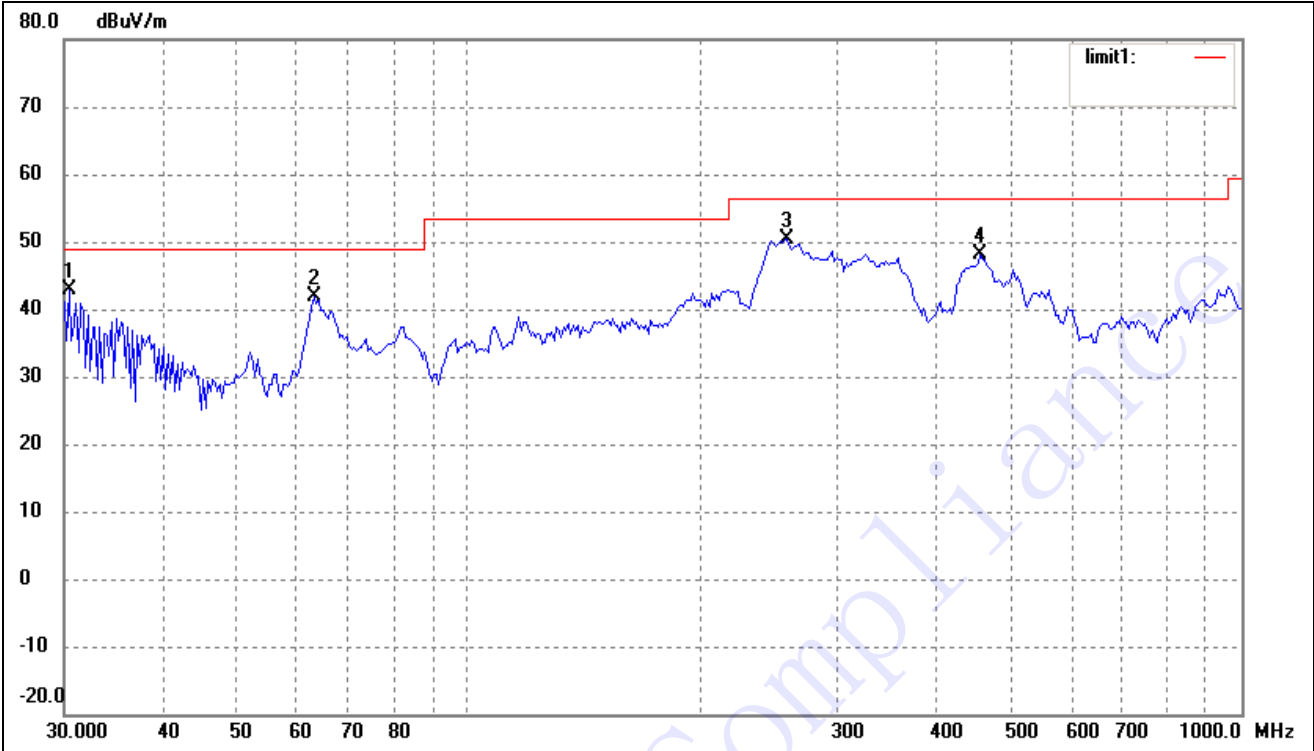
EUT: 5 Bay Lithium-Ion Battery Charger
 Tested Model: GT-93023-12012
 Operating Condition: TM1(Full Load)
 Comment: AC 120V/60Hz; Adapter DC 24V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	65.3432	37.46	4.00	41.46	49.00	-7.54	360	100	peak
2	218.3085	42.37	5.81	48.18	56.40	-8.22	360	100	peak
3	261.9753	45.74	7.86	53.60	56.40	-2.80	360	100	peak
4	318.8170	43.40	10.46	53.86	56.40	-2.54	360	100	peak

Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	30.4238	34.75	8.11	42.86	49.00	-6.14	360	100	peak
2	63.0916	37.22	4.71	41.93	49.00	-7.07	360	100	peak
3	258.3264	42.84	7.64	50.48	56.40	-5.92	360	100	peak
4	459.1144	36.42	11.77	48.19	56.40	-8.21	360	100	peak

Plot of Radiated Emissions Test Data

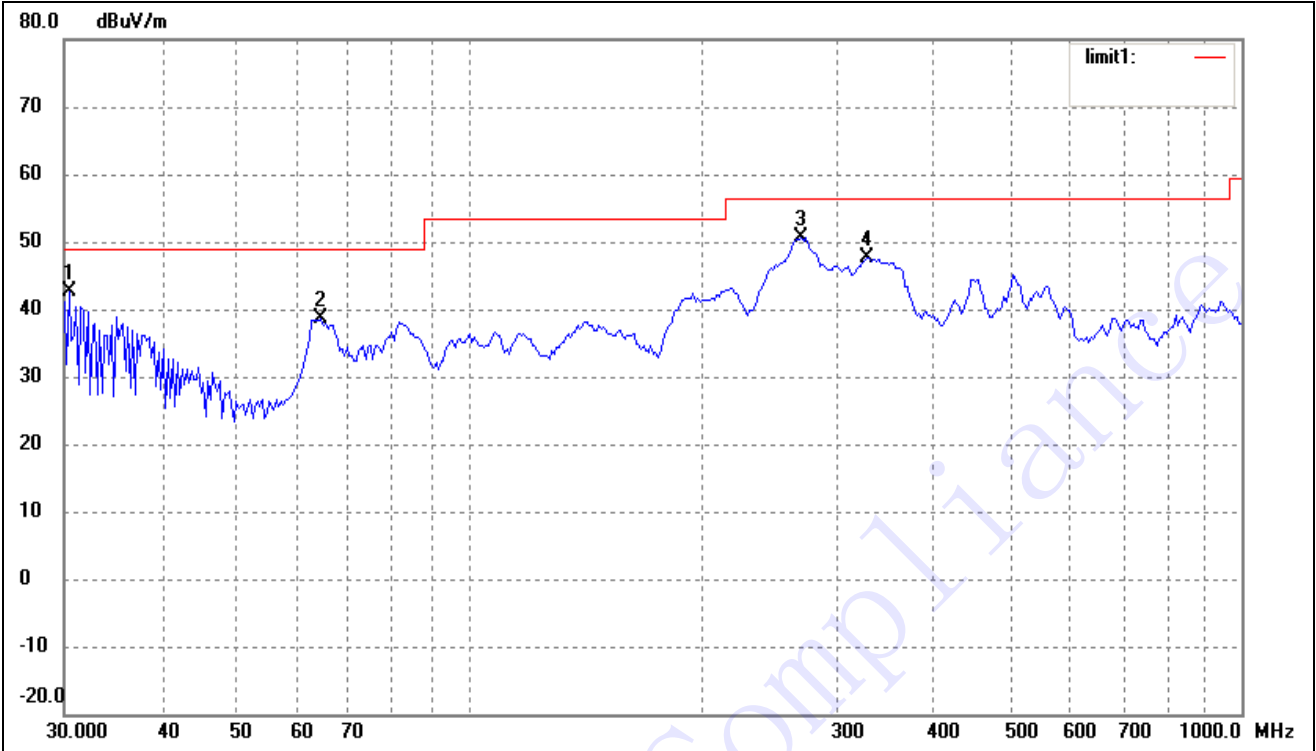
EUT: 5 Bay Lithium-Ion Battery Charger
 Tested Model: GT-93023-12012
 Operating Condition: TM1(Half Load)
 Comment: AC 120V/60Hz; Adapter DC 24V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	215.2678	43.07	5.62	48.69	53.50	-4.81	360	100	peak
2	247.6819	45.42	7.22	52.64	56.40	-3.76	360	100	peak
3	273.2341	45.13	8.72	53.85	56.40	-2.55	360	100	peak
4	327.8873	42.26	10.33	52.59	56.40	-3.81	360	100	peak

Test Specification: Vertical

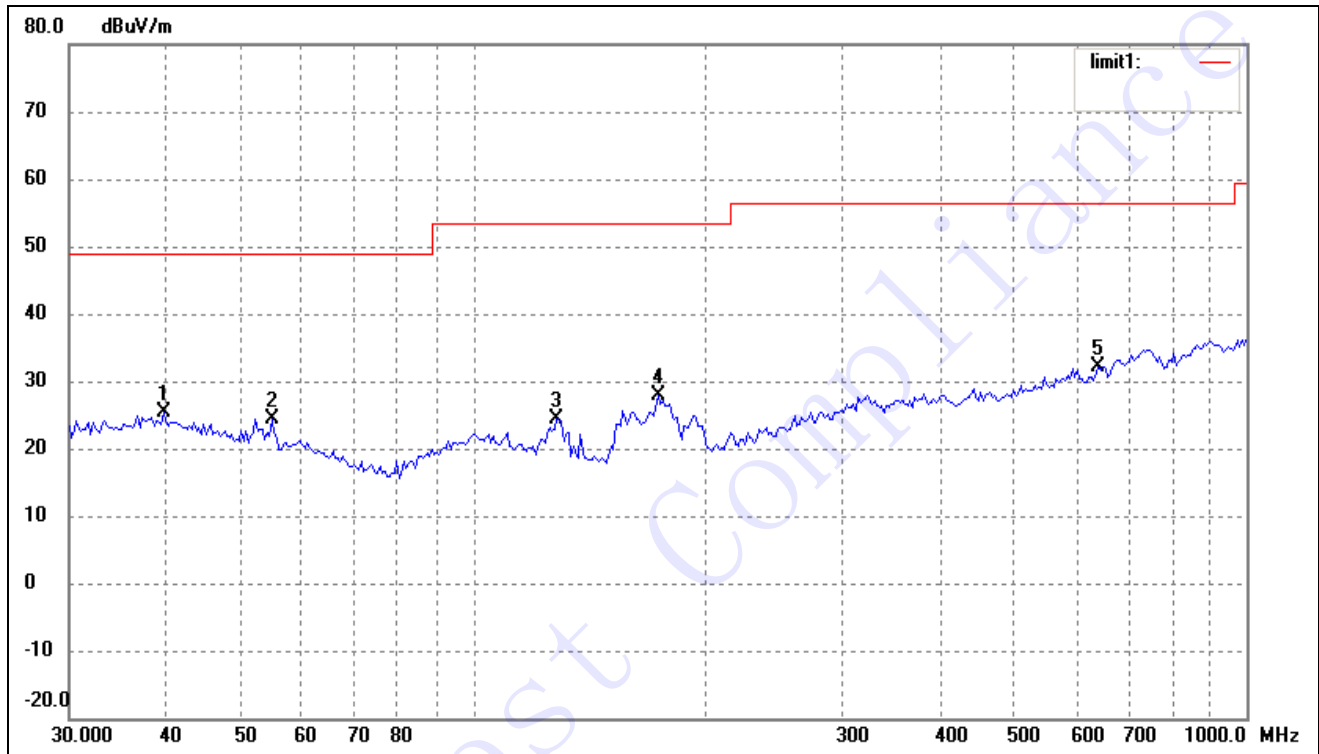


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	30.4238	34.41	8.11	42.52	49.00	-6.48	360	100	peak
2	64.4331	34.30	4.29	38.59	49.00	-10.41	360	100	peak
3	269.4284	42.21	8.43	50.64	56.40	-5.76	360	100	peak
4	327.8873	37.37	10.33	47.70	56.40	-8.70	360	100	peak

Plot of Radiated Emissions Test Data

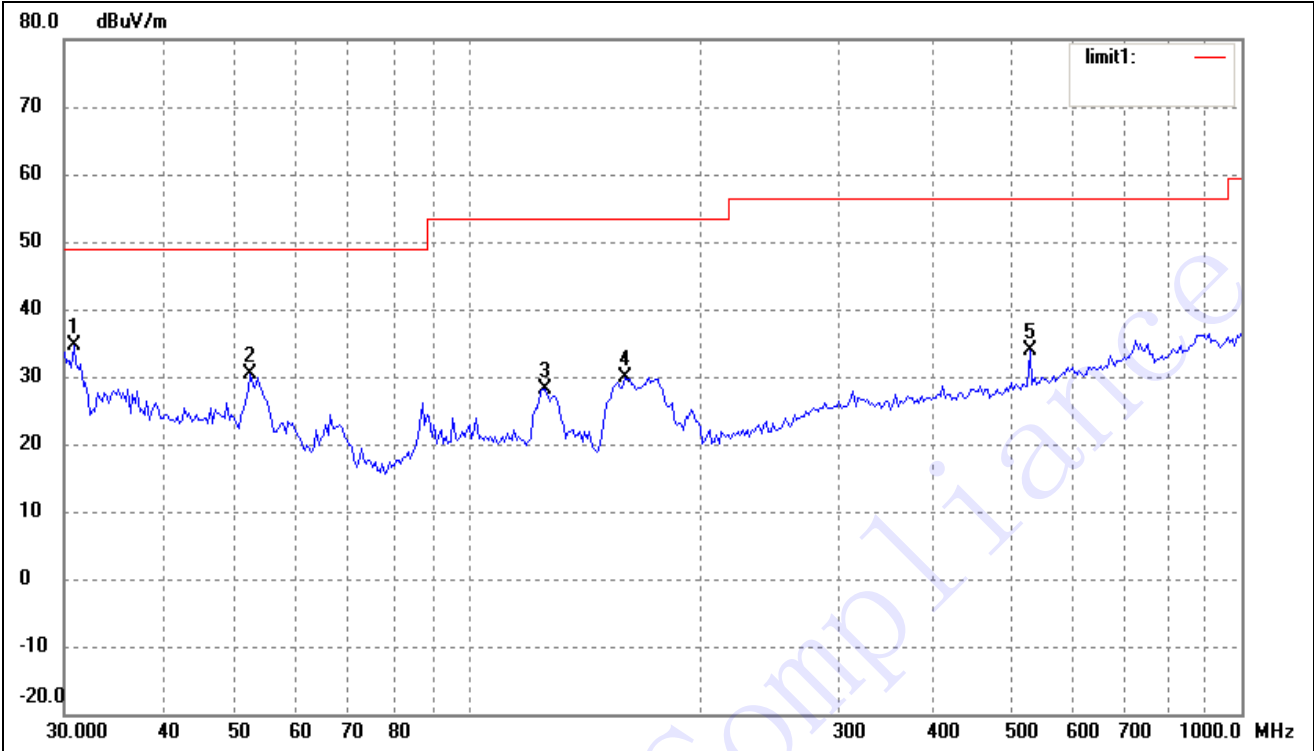
EUT: 5 Bay Lithium-Ion Battery Charger
 Tested Model: GT-93023-12012
 Operating Condition: TM1(Empty Load)
 Comment: AC 120V/60Hz; Adapter DC 24V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	39.7147	15.71	9.64	25.35	49.00	-23.65	360	100	peak
2	54.8348	18.20	6.17	24.37	49.00	-24.63	360	100	peak
3	128.1130	20.16	4.27	24.43	53.50	-29.07	360	100	peak
4	173.2051	24.07	3.72	27.79	53.50	-25.71	360	100	peak
5	642.8613	16.90	15.14	32.04	56.40	-24.36	360	100	peak

Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	30.8535	26.41	8.19	34.60	49.00	-14.40	360	100	peak
2	52.2079	23.84	6.42	30.26	49.00	-18.74	360	100	peak
3	125.4457	23.73	4.46	28.19	53.50	-25.31	360	100	peak
4	159.2251	26.25	3.65	29.90	53.50	-23.60	360	100	peak
5	531.9635	20.83	12.99	33.82	56.40	-22.58	360	100	peak

EXHIBIT 1 - PRODUCT LABELING

Proposed FCC Label Format

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation.

Specifications: Text is Black in color and is justified. Labels are printed in indelible ink on permanent adhesive backing or silk-screened onto the EUT or shall be affixed at a conspicuous location on the EUT. Where the EUT is constructed in two or more sections connected by wires and marketed together, the above statement is required to be affixed only to the main control unit. When the EUT is so small or for such use that it is not practicable to place the statement on it, the above information shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

Proposed Label Location on EUT

FCC Label Location



EXHIBIT 2 - EUT PHOTOGRAPHS

EUT View 1



EUT View 2



EUT View 3



EUT View 4



EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

Conduction Emission View



Radiation Emission View

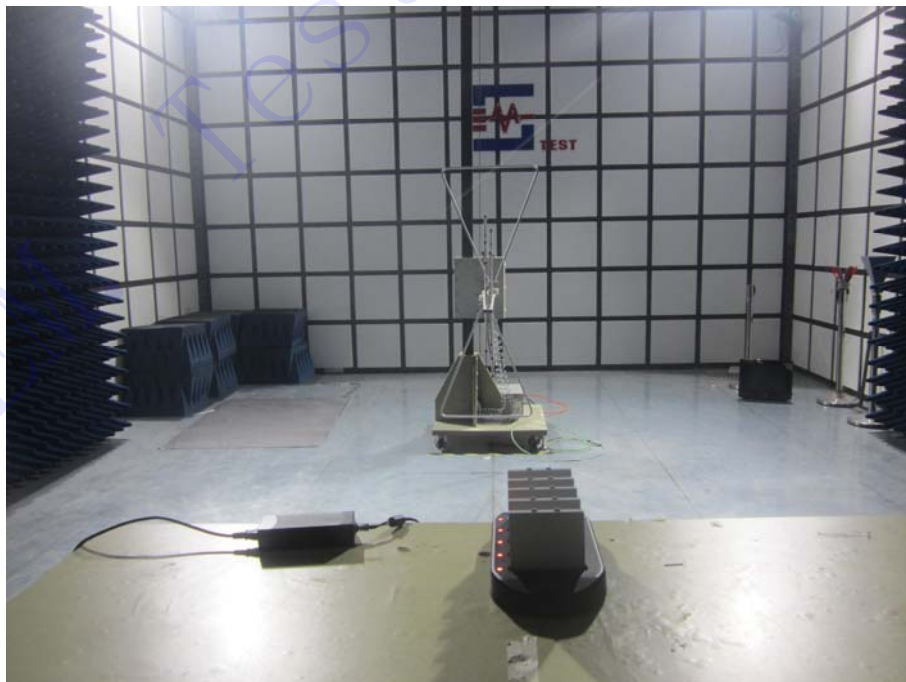


EXHIBIT 4 - USERS MANUAL

Information to Users

According to the FCC Part 15.19 and 15.21 rules, for this EUT, the instructions or operation manual furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

***** END OF REPORT *****