EMC
Measurement and Test Report

For

GlobTek, Inc

186 Veterans Dr. Northvale, NJ 07647 USA

Test Standards:	EN 55022:2010 EN 61000-3-2:2006+A1:2009+A2:2009 EN 61000-3-3:2013 EN 55024:2010
Product Description:	ITE POWER SUPPLY
Tested Model:	GT-43004P***-T*
Report No.:	STR14078007E
Tested Date:	2014-07-02 to 2014-07-03
Issued Date:	2014-07-03
Tested By:	Vigoss Liang / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager
Prepared By:	

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

General Description of EUT	
Product Name:	ITE POWER SUPPLY
Trade Name:	GlobTek
Model No.:	GT-43004P***-T*
Adding Model(s):	The 1st “*” part denotes the rated output wattage designation, which can be “001” to “150”, with interval of 1. The 2nd “*” part denotes the standard rated output voltage designation, which can be “12”, “16”, “19”, “24” . The 3rd “*” part is optional, which can be “-0.1” to “-4.9” with interval of 0.1 to denote voltage deviation or blank to indicate no voltage different. The result by subtracting the deviation value from the standard rated output voltage denotes the rated output voltage, with a range of 12-24volts. The 4th “*” part can be ‘3’ or ‘3A’ to denote two types of Class I models with different appliance inlets.
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	AC 100-240V
Rated Current:	2.0A
Rated Power:	150W
Highest Internal Frequency:	/
Classification of ITE:	Class B

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1.2 Test Standards

The following report is prepared on behalf of the GlobTek, Inc in accordance with EN55022, Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement, and EN61000-3-2, Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase), and EN61000-3-3, Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection, and EN55024, Immunity characteristics Limits and methods of measurement.

The objective of the manufacturer is to demonstrate compliance with the standards EN55022, EN61000-3-2, EN61000-3-3, and EN55024 for Information Technology Equipment.

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

1.3 Test Methodology

All measurements contained in this report were conducted with the standards EN55022, EN61000-3-2, EN61000-3-3, and EN55024 for Information Technology Equipment, and all related testing and measurement techniques intentional standards.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology 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 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

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1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission/immunity 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	Full Load	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Power Cable	1.2	Unshielded	Without Core
Output Cable(100W)	1.0	Unshielded	With one Core
Output Cable(150W)	1.8	Unshielded	With two 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
/	/	/	/

1.6 Performance Criteria for EMS

All the test data has been collected, reduced, and analyzed within this report in accordance with Immunity requires the following as specific performance criteria:

A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.

B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.

C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.

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2. SUMMARY OF TEST RESULTS

Standards	Description of Test Item	Result
EN55022	Conducted Disturbance	Compliant
	Radiated Disturbance	Compliant
EN61000-3-2	Harmonic Current Emission	Compliant
EN61000-3-3	Voltage Fluctuation and Flicker	Compliant
EN55024	Electrostatic Discharge Immunity in accordance with IEC 61000-4-2	Compliant
	Continuous Radiated Disturbances Immunity in accordance with IEC 61000-4-3	Compliant
	Electrical Fast Transient/Burst Immunity in accordance with IEC 61000-4-4	Compliant
	Surges Immunity in accordance with IEC 61000-4-5	Compliant
	Continuous Conducted Disturbances Immunity in accordance with IEC 61000-4-6	Compliant
	Power-frequency Magnetic Fields Immunity in accordance with IEC 61000-4-8	N/A
	Voltage Dips/Interruptions Immunity in accordance with IEC 61000-4-11	Compliant

N/A: not applicable

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3. Conducted Disturbance

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.

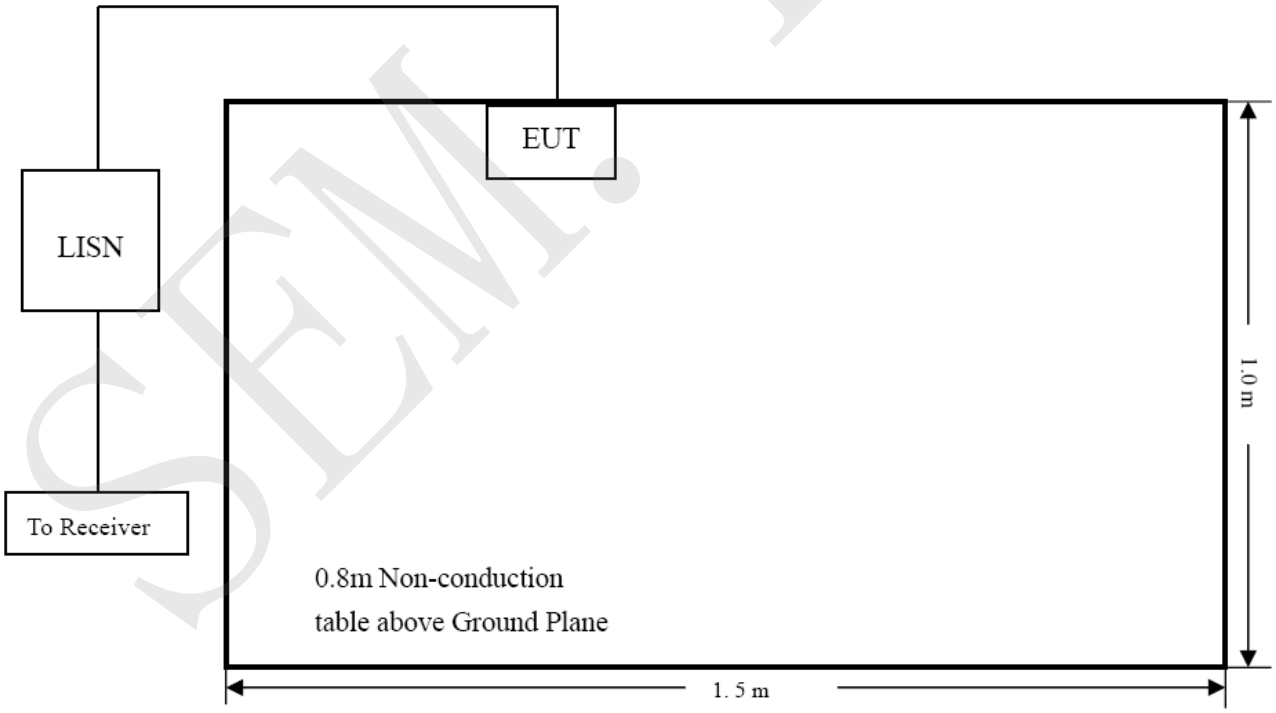
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-28	2015-05-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-28	2015-05-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-28	2015-05-27
Current Probe	FCC	F-33-4	091684	2014-05-28	2015-05-27

3.3 Test Procedure

Test is conducting under the description of EN55022 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

3.4 Basic Test Setup Block Diagram



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3.5 Environmental Conditions

Temperature:	22 ° C
Relative Humidity:	55 %
ATM Pressure:	1015 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the EN55022 Conducted margin for a Class B device, with the *worst* margin reading of:

-1.59 dB at **18.398 MHz** in the **Neutral**, **Average** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

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Plot of Conducted Emissions Test Data

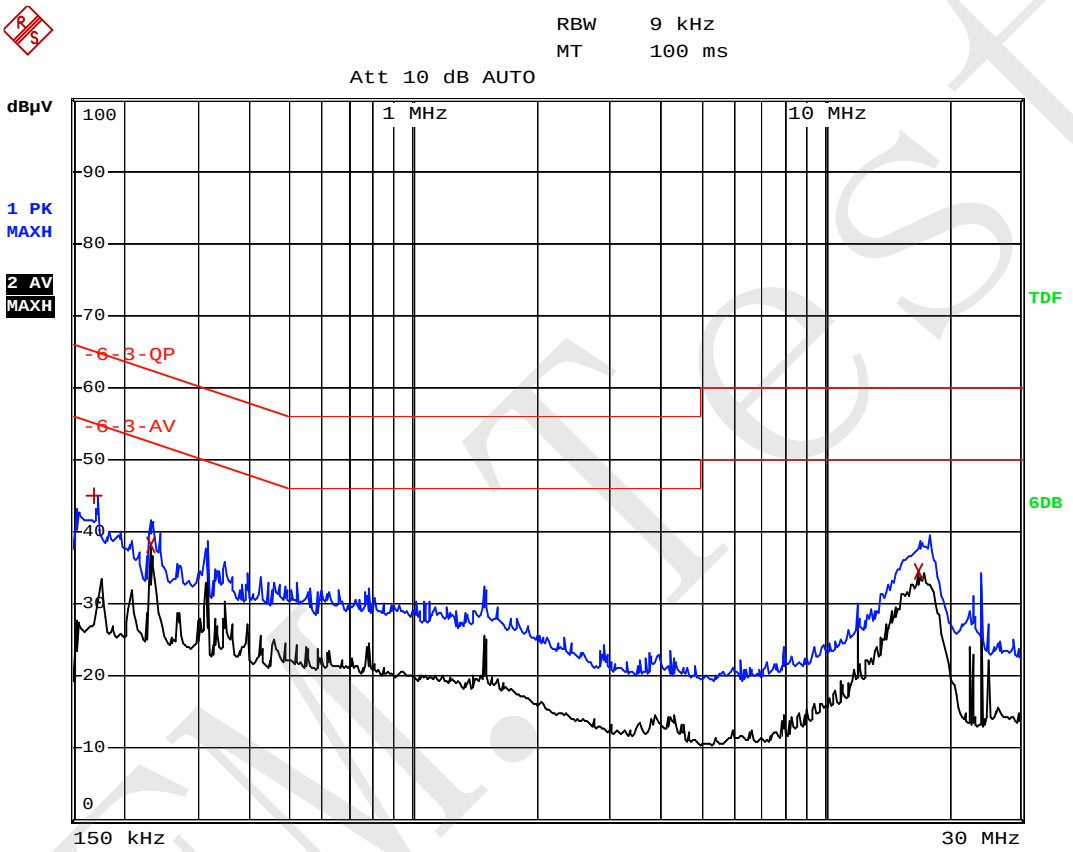
EUT: *ITE POWER SUPPLY*

Tested Model: *GT-43004P12012-T3*

Operating Condition: *Full Load*

Comment: *AC 230V/50Hz*

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)

Trace1: -6-3-QP

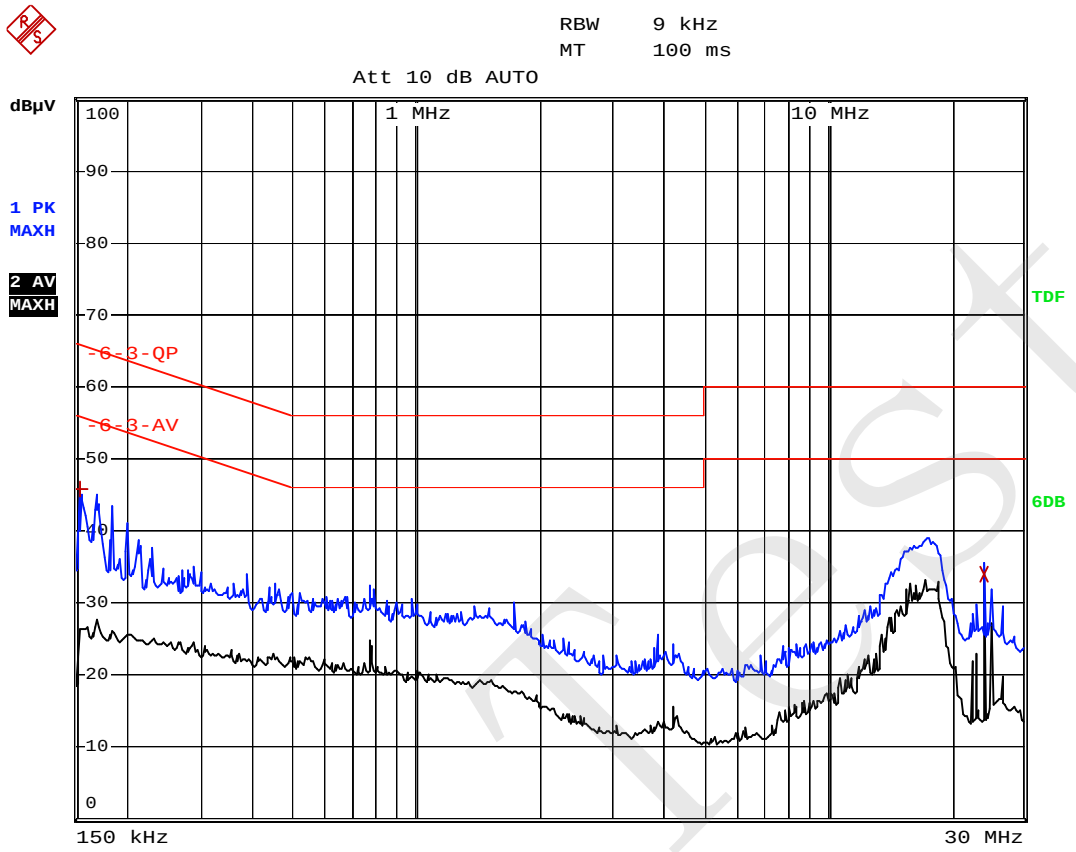
Trace2: -6-3-AV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	170 kHz	45.00	-19.95
2	Average	230 kHz	38.08	-14.36
2	Average	17.006 MHz	34.58	-15.41

SEM. Test

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)			
Trace1:	-6-3-QP		
Trace2:	-6-3-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	154 kHz	45.91	-19.86
2 Average	23.99 MHz	33.86	-16.13

SEM. Test

Plot of Conducted Emissions Test Data

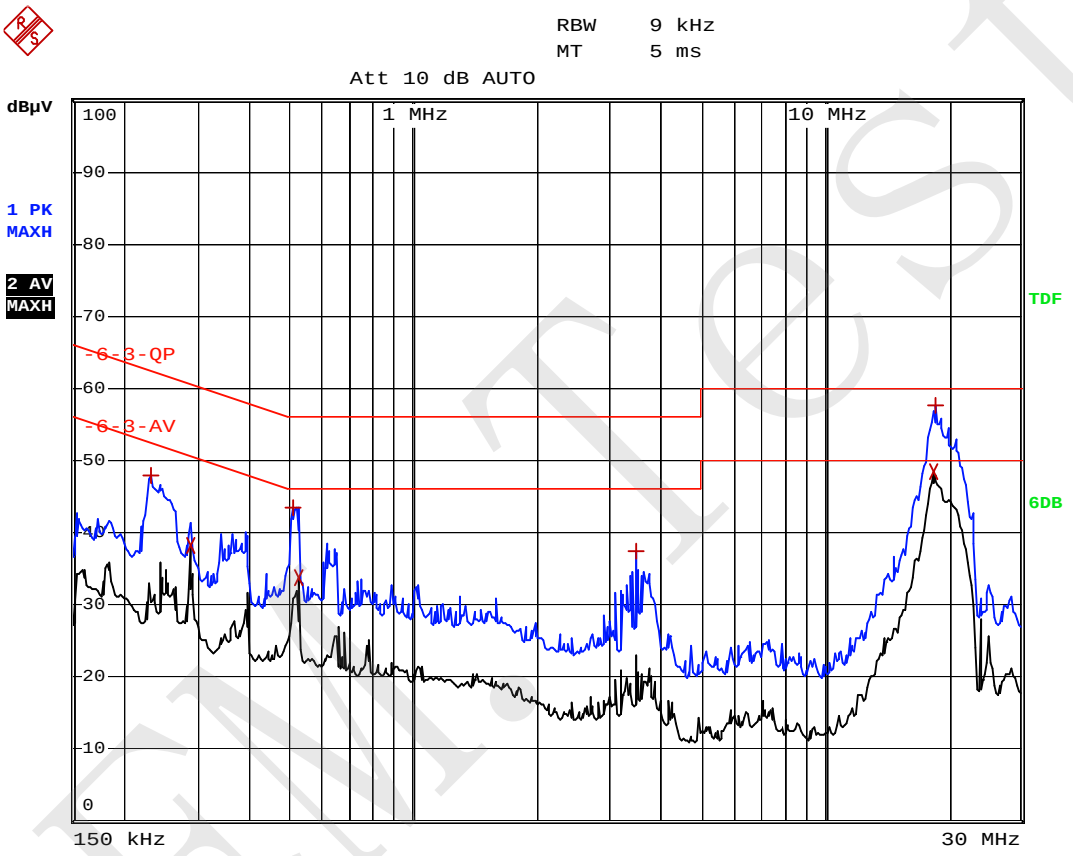
EUT: *ITE POWER SUPPLY*

Tested Model: *GT-43004P15024-T3*

Operating Condition: *Full Load*

Comment: *AC 230V/50Hz*

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)

Trace1: -6-3-QP
Trace2: -6-3-AV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	230 kHz	47.95	-14.49
2	Average	286 kHz	38.16	-12.47
1	Max Peak	510 kHz	43.48	-12.51
2	Average	526 kHz	33.62	-12.37
1	Max Peak	3.498 MHz	37.45	-18.54
2	Average	18.398 MHz	48.40	-1.59
1	Max Peak	18.682 MHz	57.67	-2.32

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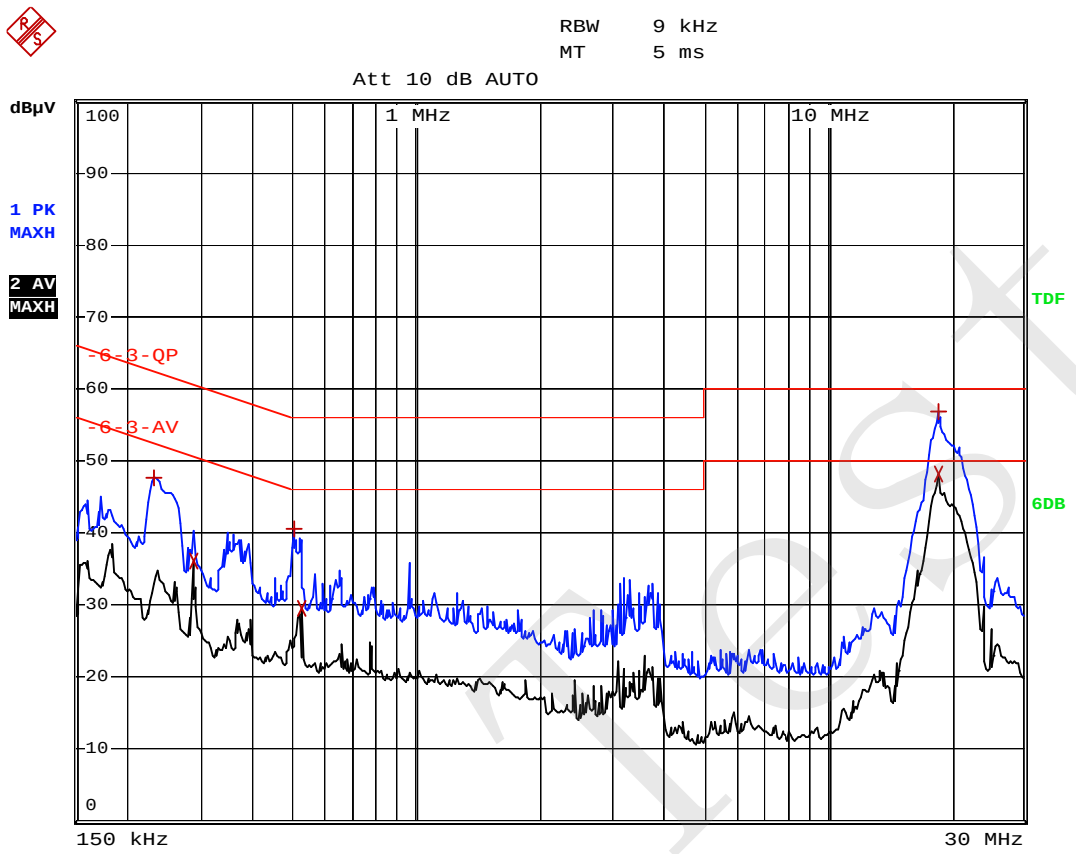
Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)			
Trace1:	-6-3-QP		
Trace2:	-6-3-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	230 kHz	47.75	-14.69
2 Average	286 kHz	36.09	-14.54
1 Max Peak	506 kHz	40.49	-15.50
2 Average	526 kHz	29.59	-16.40
1 Max Peak	18.526 MHz	56.79	-3.20
2 Average	18.682 MHz	48.03	-1.96

4. Radiated Disturbance

4.1 Measurement Uncertainty

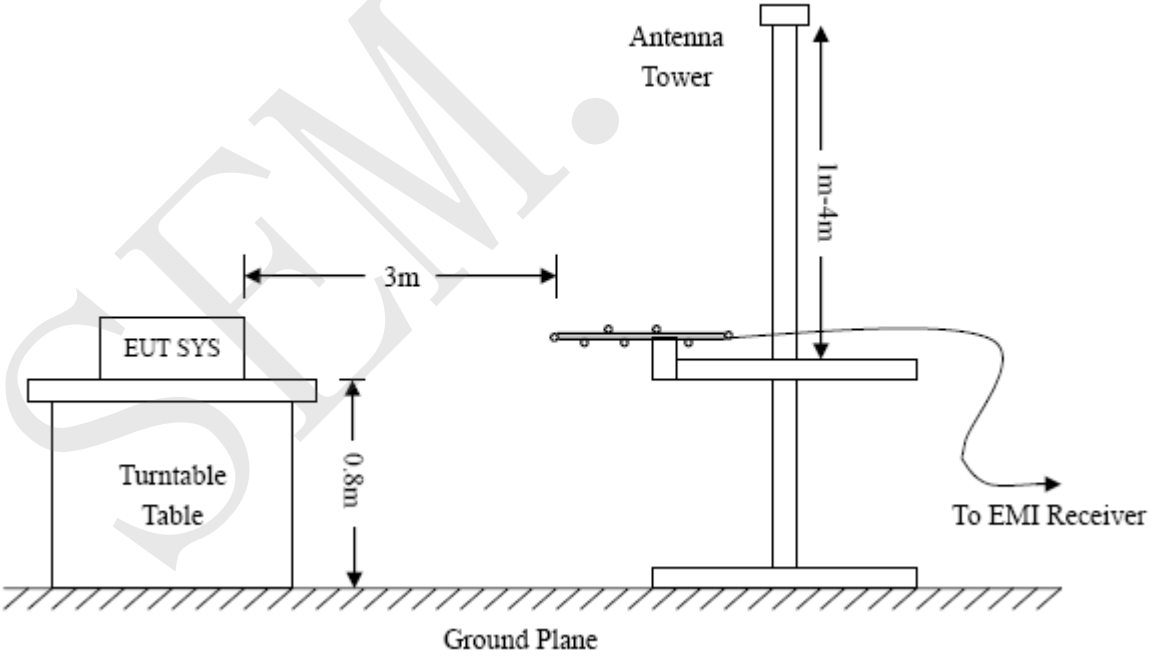
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23

4.3 Test Procedure

Test is conducting under the description of EN55022 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.



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4.4 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:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

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

Margin = Corr. Ampl. – EN55022 Class B Limit

4.5 Environmental Conditions

Temperature:	23° C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

4.6 Summary of Test Results/Plots

According to the data in section 4.6, the EUT complied with the EN55022 Class B standards, and had the worst margin is:

-3.43 dB at **160.3457 MHz** in the **Horizontal** polarization, **Model GT-43004P12024-T3, 30 MHz to 1 GHz, 3Meters**

SEM. Test

Plot of Radiated Emissions Test Data

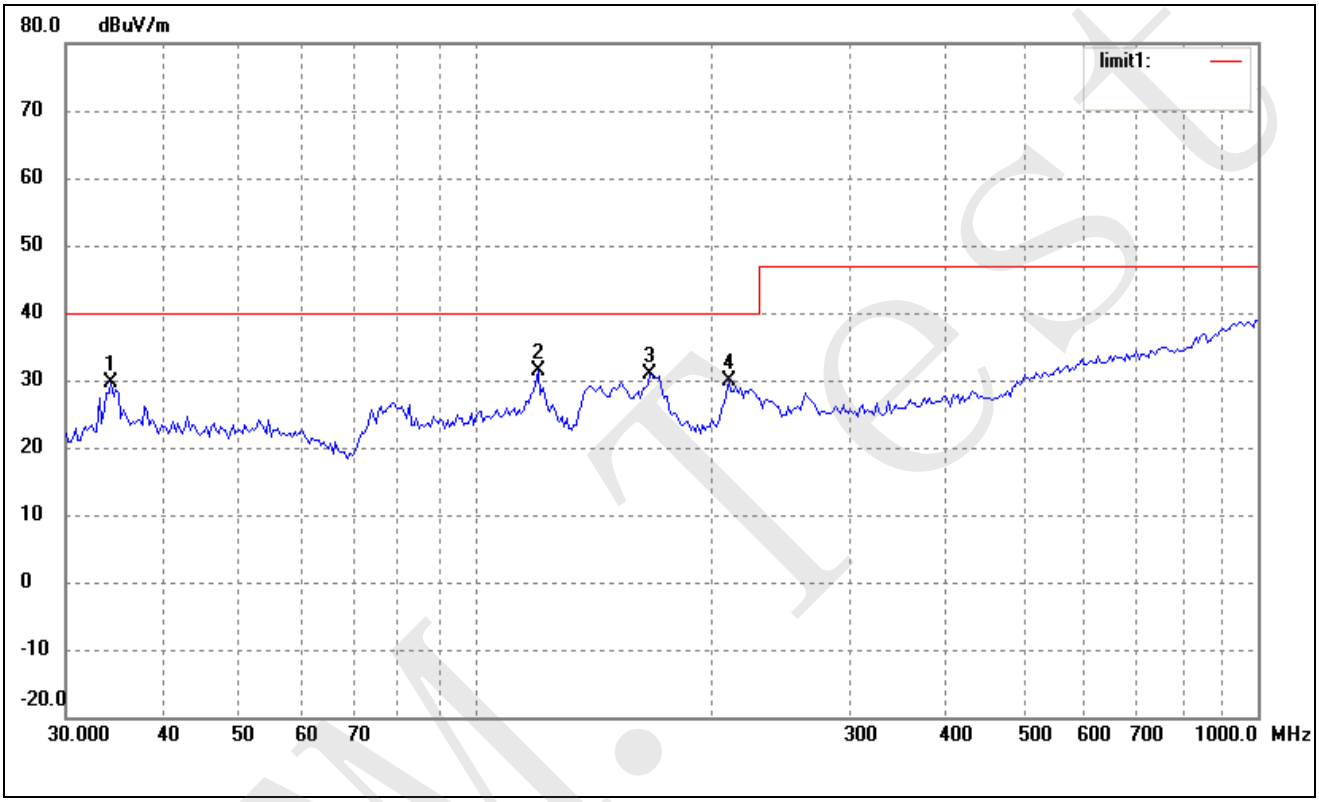
EUT: *ITE POWER SUPPLY*

Tested Model: *GT-43004P12012-T3*

Operating Condition: *Full Load*

Comment:

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	34.2760	22.83	6.77	29.60	40.00	-10.40	359	200	peak
2	120.2766	25.43	5.91	31.34	40.00	-8.66	359	200	peak
3	167.2368	26.00	4.79	30.79	40.00	-9.21	359	200	peak
4	210.7860	22.86	6.97	29.83	40.00	-10.17	359	200	peak

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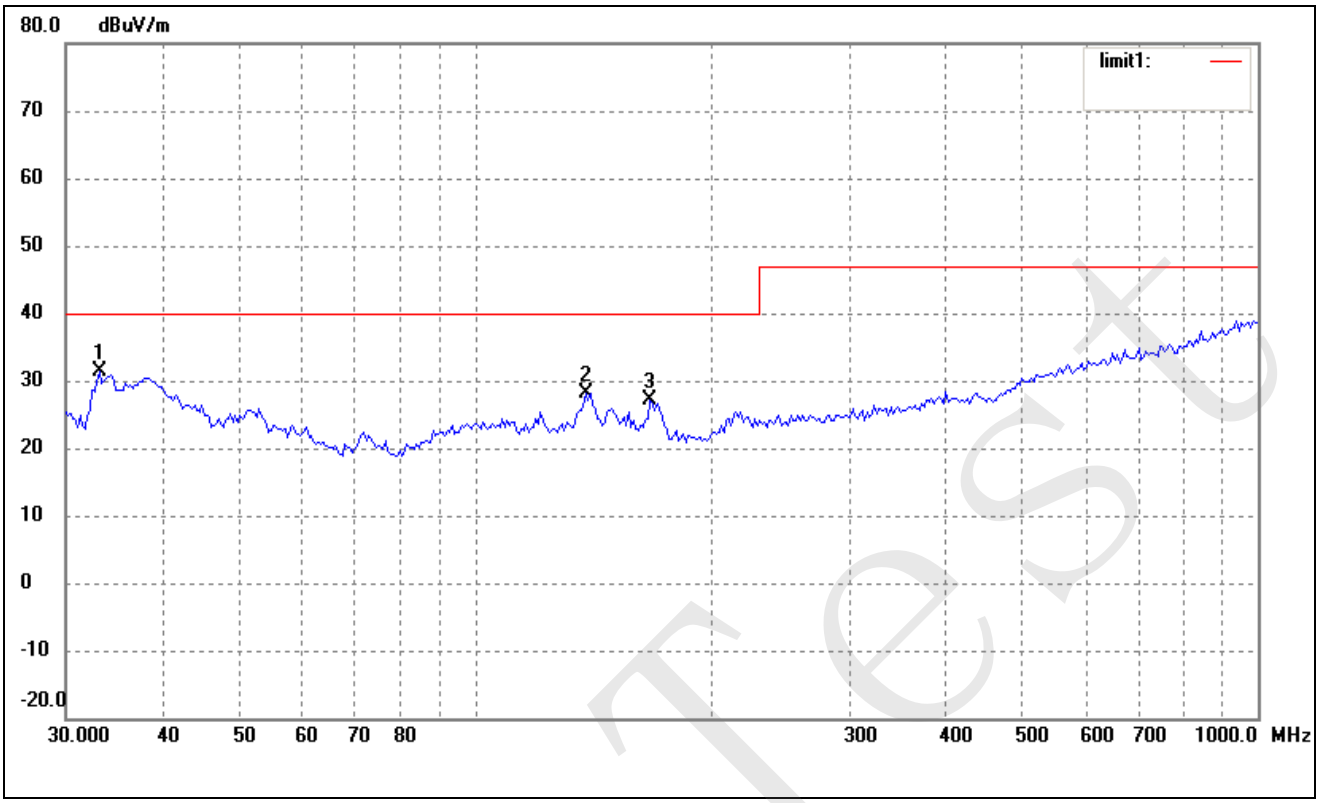
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	24.53	6.77	31.30	40.00	-8.70	359	100	peak
2	138.3873	24.08	4.06	28.14	40.00	-11.86	359	100	peak
3	167.2368	22.41	4.79	27.20	40.00	-12.80	359	100	peak

Note: emissions are only the base noise in frequency 1GHz~6GHz.

SEM. Test

Plot of Radiated Emissions Test Data

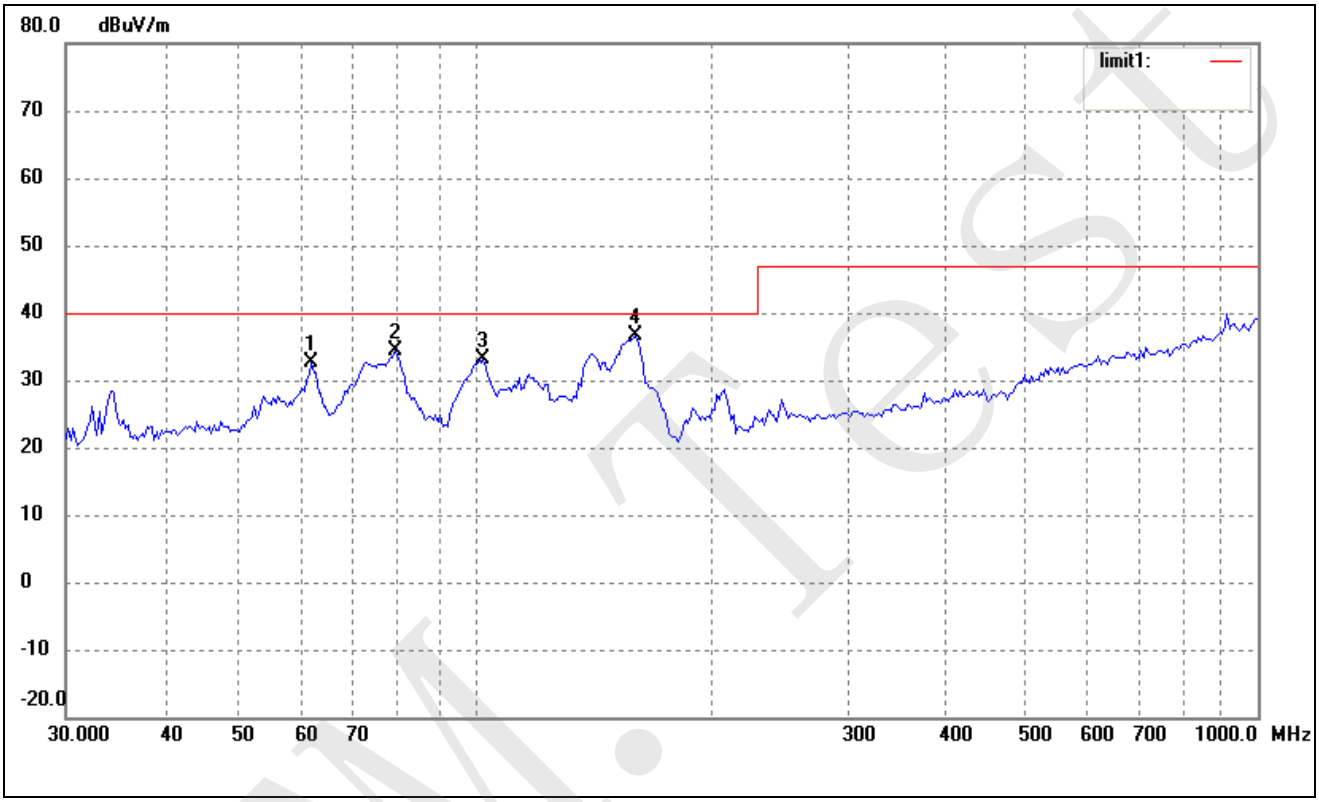
EUT: *ITE POWER SUPPLY*

Tested Model: *GT-43004P15024-T3*

Operating Condition: *Full Load*

Comment:

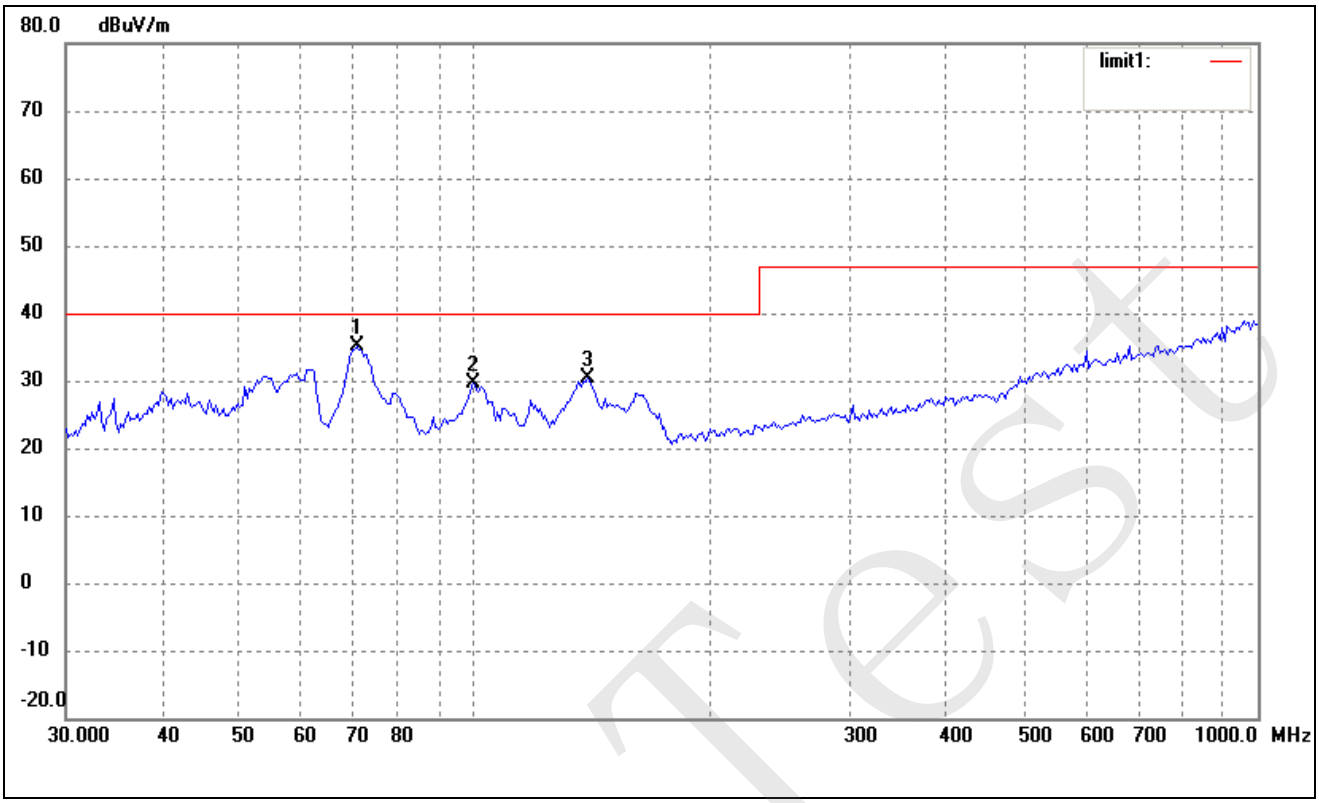
Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	61.7781	25.69	6.83	32.52	40.00	-7.48	359	200	peak
2	78.9652	30.91	3.46	34.37	40.00	-5.63	359	200	peak
3	102.3597	24.82	8.23	33.05	40.00	-6.95	359	200	peak
4	160.3457	32.04	4.55	36.59	40.00	-3.41	359	200	peak

STM. Test

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	70.5836	31.70	3.52	35.22	40.00	-4.78	359	100	peak
2	99.5281	21.11	8.40	29.51	40.00	-10.49	359	100	peak
3	139.3613	26.26	4.00	30.26	40.00	-9.74	359	100	peak

Note: emissions are only the base noise in frequency 1GHz~6GHz.

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5. Harmonic Current Emissions

5.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Digital Power Analyzer	California Instrument	CTS	72831	2014-05-28	2015-05-27
Power Source	California Instrument	5001IX-CTS-400	60077	2014-05-28	2015-05-27

5.2 Test Procedure

Test is conducting under the description of EN61000-3-2.

5.3 Test Standards

EN61000-3-2, Clause 7.1 Limits for Class A equipment.

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	48%
ATM Pressure:	1022 mbar

5.4 Harmonic Current Emissions Test Data

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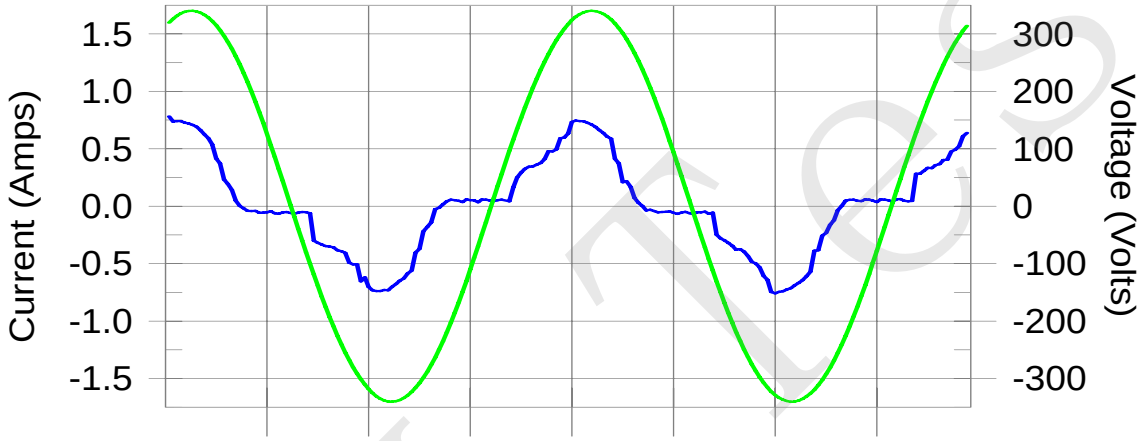
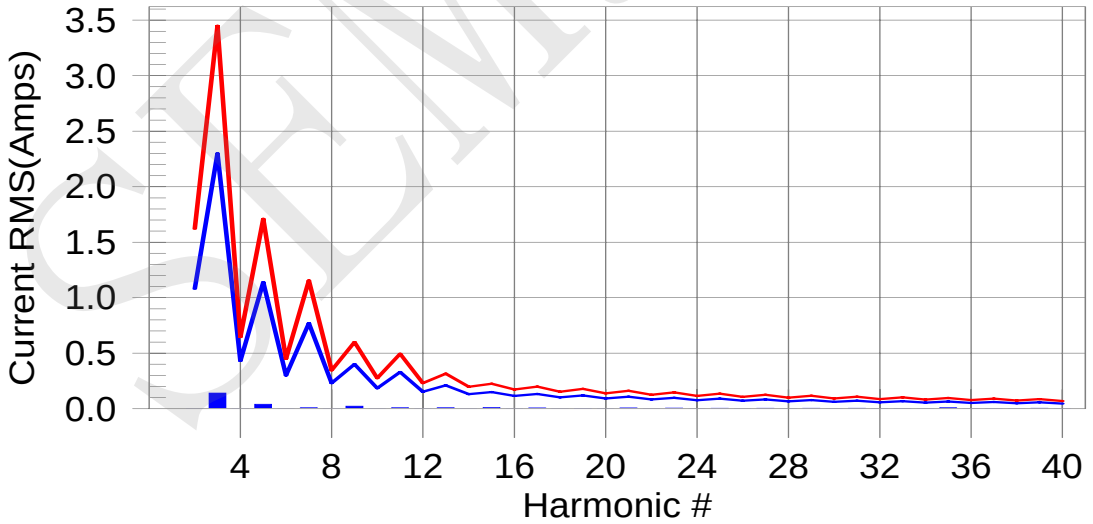
EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: Class-A per Ed. 3.2 (2009) (European limits) Test Margin: 100
Test date: 2014-07-1 Start time: 09:52:06 AM End time: 09:54:52 AM
Test duration (min): 2.5 Data file name: H-000171.cts_data
Comment: Output Voltage: 12V
Customer: GlobTek, Inc

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonic was #35 with 12.49% of the limit.

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Current Test Result Summary (Run time)

EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: Class-A per Ed. 3.2 (2009) (European limits) Test Margin: 100
Test date: 2014-07-1 Start time: 09:52:06 AM End time: 09:54:52 AM
Test duration (min): 2.5 Data file name: H-000171.cts_data
Comment: Output Voltage: 12V
Customer: GlobTek, Inc

Test Result: Pass Source qualification: Normal
THC(A): 0.15 I-THD(%): 39.00 POHC(A): 0.012 POHC Limit(A): 0.295
Highest parameter values during test:

V_RMS (Volts):	240.80	Frequency(Hz):	50.00
I_Peak (Amps):	1.103	I_RMS (Amps):	0.413
I_Fund (Amps):	0.634	Crest Factor:	2.682
Power (Watts):	88.0	Power Factor:	0.887

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	0.0	0.001	1.620	0.06	Pass
3	0.140	2.300	6.1	0.141	3.450	4.09	Pass
4	0.000	0.430	0.0	0.001	0.645	0.10	Pass
5	0.040	1.140	3.5	0.040	1.710	2.35	Pass
6	0.000	0.300	0.0	0.000	0.450	0.06	Pass
7	0.009	0.770	1.1	0.009	1.155	0.78	Pass
8	0.000	0.230	0.0	0.000	0.345	0.06	Pass
9	0.023	0.400	5.8	0.023	0.600	3.87	Pass
10	0.000	0.184	0.0	0.000	0.276	0.09	Pass
11	0.008	0.330	2.3	0.008	0.495	1.57	Pass
12	0.000	0.153	0.0	0.000	0.230	0.10	Pass
13	0.008	0.210	3.8	0.008	0.315	2.57	Pass
14	0.000	0.131	0.0	0.000	0.197	0.11	Pass
15	0.010	0.150	6.6	0.010	0.225	4.46	Pass
16	0.000	0.115	0.0	0.000	0.173	0.12	Pass
17	0.006	0.132	4.7	0.006	0.199	3.15	Pass
18	0.000	0.102	0.0	0.000	0.153	0.17	Pass
19	0.003	0.118	0.0	0.003	0.178	1.61	Pass
20	0.000	0.092	0.0	0.000	0.138	0.17	Pass
21	0.007	0.107	6.5	0.007	0.161	4.39	Pass
22	0.000	0.084	0.0	0.000	0.125	0.16	Pass
23	0.005	0.098	5.5	0.005	0.147	3.72	Pass
24	0.000	0.077	0.0	0.000	0.115	0.21	Pass
25	0.004	0.090	0.0	0.004	0.135	3.26	Pass
26	0.000	0.071	0.0	0.000	0.106	0.36	Pass
27	0.004	0.083	0.0	0.004	0.125	3.57	Pass

SHM. Test

28	0.001	0.066	0.0	0.001	0.099	0.65	Pass
29	0.003	0.078	0.0	0.003	0.116	2.79	Pass
30	0.000	0.061	0.0	0.000	0.092	0.36	Pass
31	0.003	0.073	0.0	0.003	0.109	3.10	Pass
32	0.001	0.058	0.0	0.001	0.086	0.74	Pass
33	0.003	0.068	0.0	0.003	0.102	2.70	Pass
34	0.000	0.054	0.0	0.000	0.081	0.49	Pass
35	0.008	0.064	12.5	0.008	0.096	8.46	Pass
36	0.000	0.051	0.0	0.000	0.077	0.27	Pass
37	0.002	0.061	0.0	0.002	0.091	2.31	Pass
38	0.000	0.048	0.0	0.000	0.073	0.39	Pass
39	0.004	0.058	0.0	0.005	0.087	5.19	Pass
40	0.000	0.046	0.0	0.000	0.069	0.42	Pass

SEM. Test

Voltage Source Verification Data (Run time)

EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: Class-A per Ed. 3.2 (2009) (European limits) Test Margin: 100
Test date: 2014-07-1 Start time: 09:52:06 AM End time: 09:54:52 AM
Test duration (min): 2.5 Data file name: H-000171.cts_data
Comment: Output Voltage: 12V
Customer: GlobTek, Inc

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	240.80	Frequency(Hz):	50.00
I_Peak (Amps):	1.103	I_RMS (Amps):	0.413
I_Fund (Amps):	0.634	Crest Factor:	2.682
Power (Watts):	88.0	Power Factor:	0.887

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.060	0.481	12.46	OK
3	0.639	2.166	29.50	OK
4	0.064	0.481	13.23	OK
5	0.078	0.963	8.08	OK
6	0.032	0.482	6.68	OK
7	0.023	0.722	3.25	OK
8	0.023	0.481	4.68	OK
9	0.022	0.481	4.58	OK
10	0.011	0.482	2.35	OK
11	0.017	0.241	6.95	OK
12	0.010	0.241	3.95	OK
13	0.008	0.241	3.42	OK
14	0.006	0.241	2.36	OK
15	0.016	0.241	6.80	OK
16	0.006	0.241	2.58	OK
17	0.012	0.241	5.00	OK
18	0.012	0.241	4.99	OK
19	0.015	0.241	6.36	OK
20	0.015	0.241	6.19	OK
21	0.013	0.241	5.20	OK
22	0.008	0.241	3.16	OK
23	0.008	0.241	3.39	OK
24	0.005	0.241	1.92	OK
25	0.007	0.241	2.87	OK
26	0.003	0.241	1.31	OK
27	0.007	0.241	2.84	OK

SEM.Test

28	0.003	0.241	1.21	OK
29	0.009	0.241	3.55	OK
30	0.003	0.241	1.42	OK
31	0.005	0.241	2.22	OK
32	0.004	0.241	1.53	OK
33	0.007	0.241	3.09	OK
34	0.003	0.241	1.08	OK
35	0.012	0.241	5.01	OK
36	0.003	0.241	1.38	OK
37	0.004	0.241	1.76	OK
38	0.003	0.241	1.21	OK
39	0.010	0.241	4.21	OK
40	0.009	0.241	3.53	OK

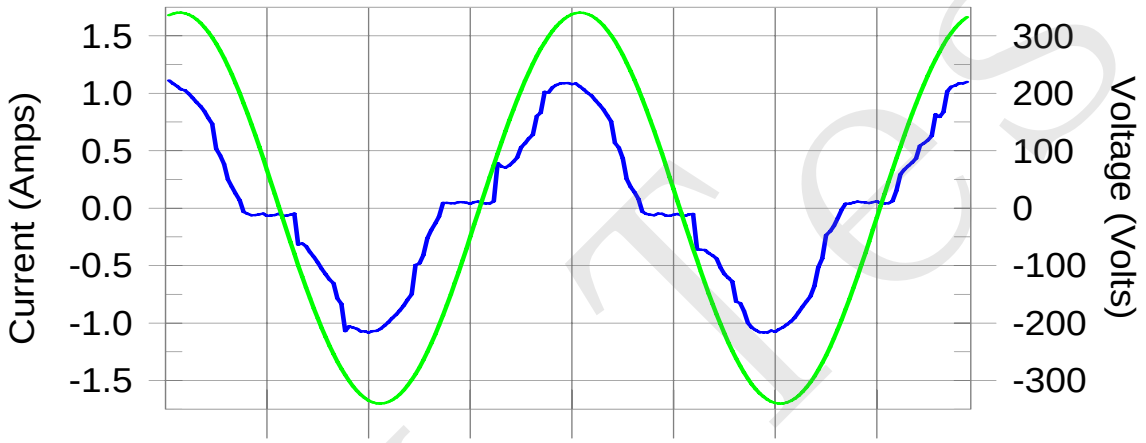
SEM. Test

Harmonics – Class-A per Ed. 3.2 (2009)(Run time)

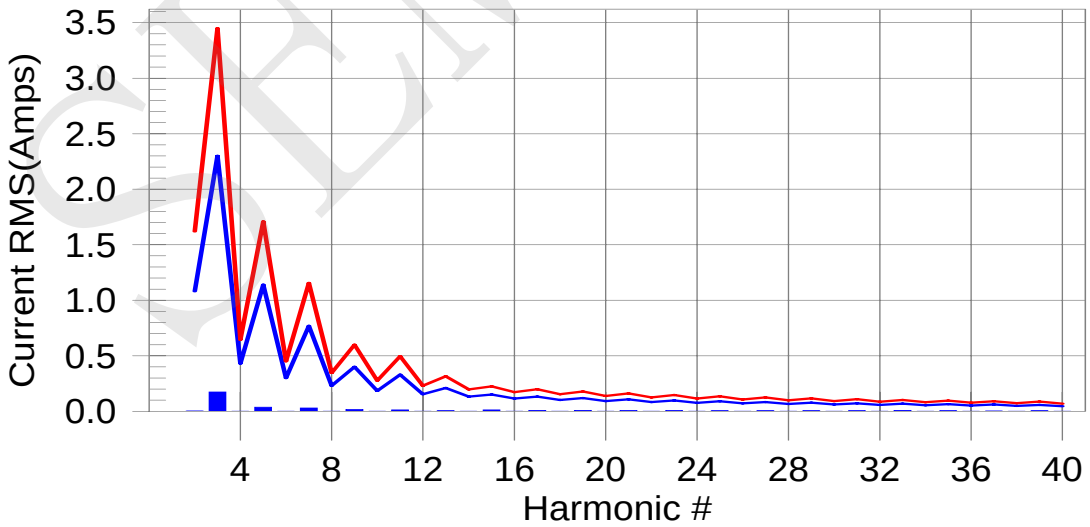
EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: Class-A per Ed. 3.2 (2009) (European limits) Test Margin: 100
Test date: 2014-07-1 Start time: 09:24:01 AM End time: 09:26:47 AM
Test duration (min): 2.5 Data file name: H-000170.cts_data
Comment: Output Voltage: 24V
Customer: GlobTek, Inc

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonic was #33 with 11.50% of the limit.

SEM. Test

Current Test Result Summary (Run time)

EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: Class-A per Ed. 3.2 (2009) (European limits) Test Margin: 100
Test date: 2014-07-1 Start time: 09:24:01 AM End time: 09:26:47 AM
Test duration (min): 2.5 Data file name: H-000170.cts_data
Comment: Output Voltage: 24V
Customer: GlobTek, Inc

Test Result: Pass Source qualification: Normal
THC(A): 0.18 I-THD(%): 28.62 POHC(A): 0.017 POHC Limit(A): 0.266
Highest parameter values during test:

V_RMS (Volts):	240.78	Frequency(Hz):	50.00
I_Peak (Amps):	1.111	I_RMS (Amps):	0.662
I_Fund (Amps):	0.636	Crest Factor:	1.682
Power (Watts):	149.3	Power Factor:	0.938

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	0.0	0.001	1.620	0.06	Pass
3	0.173	2.300	7.5	0.174	3.450	5.03	Pass
4	0.001	0.430	0.0	0.001	0.645	0.11	Pass
5	0.037	1.140	3.3	0.037	1.710	2.19	Pass
6	0.000	0.300	0.0	0.000	0.450	0.07	Pass
7	0.029	0.770	3.8	0.029	1.155	2.54	Pass
8	0.000	0.230	0.0	0.000	0.345	0.05	Pass
9	0.016	0.400	4.0	0.016	0.600	2.72	Pass
10	0.000	0.184	0.0	0.000	0.276	0.09	Pass
11	0.012	0.330	3.6	0.012	0.495	2.41	Pass
12	0.000	0.153	0.0	0.000	0.230	0.09	Pass
13	0.005	0.210	2.4	0.005	0.315	1.61	Pass
14	0.000	0.131	0.0	0.000	0.197	0.07	Pass
15	0.012	0.150	8.1	0.012	0.225	5.42	Pass
16	0.000	0.115	0.0	0.000	0.173	0.10	Pass
17	0.008	0.132	6.0	0.008	0.199	4.08	Pass
18	0.000	0.102	0.0	0.000	0.153	0.11	Pass
19	0.008	0.118	6.8	0.008	0.178	4.63	Pass
20	0.000	0.092	0.0	0.000	0.138	0.17	Pass
21	0.006	0.107	6.0	0.007	0.161	4.08	Pass
22	0.000	0.084	0.0	0.000	0.125	0.12	Pass
23	0.007	0.098	6.9	0.007	0.147	4.66	Pass
24	0.000	0.077	0.0	0.000	0.115	0.15	Pass
25	0.004	0.090	0.0	0.004	0.135	3.26	Pass
26	0.000	0.071	0.0	0.000	0.106	0.27	Pass
27	0.005	0.083	6.1	0.005	0.125	4.21	Pass

SFM. Test

28	0.000	0.066	0.0	0.001	0.099	0.54	Pass
29	0.005	0.078	6.9	0.006	0.116	4.75	Pass
30	0.000	0.061	0.0	0.000	0.092	0.30	Pass
31	0.006	0.073	8.2	0.006	0.109	5.69	Pass
32	0.000	0.058	0.0	0.001	0.086	0.63	Pass
33	0.008	0.068	11.5	0.008	0.102	7.88	Pass
34	0.000	0.054	0.0	0.000	0.081	0.35	Pass
35	0.005	0.064	8.5	0.006	0.096	5.92	Pass
36	0.000	0.051	0.0	0.000	0.077	0.20	Pass
37	0.003	0.061	0.0	0.003	0.091	3.24	Pass
38	0.000	0.048	0.0	0.000	0.073	0.28	Pass
39	0.006	0.058	10.1	0.006	0.087	6.85	Pass
40	0.000	0.046	0.0	0.000	0.069	0.38	Pass

SEM. Test

Voltage Source Verification Data (Run time)

EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: Class-A per Ed. 3.2 (2009) (European limits) Test Margin: 100
Test date: 2014-07-1 Start time: 09:24:01 AM End time: 09:26:47 AM
Test duration (min): 2.5 Data file name: H-000170.cts_data
Comment: Output Voltage: 24V
Customer: GlobTek, Inc

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	240.78	Frequency(Hz):	50.00
I_Peak (Amps):	1.111	I_RMS (Amps):	0.662
I_Fund (Amps):	0.636	Crest Factor:	1.682
Power (Watts):	149.3	Power Factor:	0.938

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.070	0.482	14.58	OK
3	0.649	2.167	29.96	OK
4	0.063	0.482	13.12	OK
5	0.089	0.963	9.25	OK
6	0.034	0.482	7.05	OK
7	0.034	0.722	4.77	OK
8	0.022	0.482	4.53	OK
9	0.020	0.482	4.13	OK
10	0.012	0.481	2.57	OK
11	0.014	0.241	5.87	OK
12	0.009	0.241	3.85	OK
13	0.012	0.241	4.96	OK
14	0.007	0.241	2.80	OK
15	0.015	0.241	6.10	OK
16	0.006	0.241	2.68	OK
17	0.009	0.241	3.64	OK
18	0.011	0.241	4.53	OK
19	0.015	0.241	6.05	OK
20	0.015	0.241	6.37	OK
21	0.012	0.241	5.16	OK
22	0.006	0.241	2.61	OK
23	0.009	0.241	3.77	OK
24	0.005	0.241	2.25	OK
25	0.008	0.241	3.15	OK
26	0.003	0.241	1.23	OK
27	0.006	0.241	2.30	OK

SEM.Test

28	0.003	0.241	1.20	OK
29	0.005	0.241	2.21	OK
30	0.003	0.241	1.07	OK
31	0.011	0.241	4.47	OK
32	0.004	0.241	1.69	OK
33	0.011	0.241	4.77	OK
34	0.003	0.241	1.14	OK
35	0.010	0.241	3.99	OK
36	0.002	0.241	0.97	OK
37	0.009	0.241	3.66	OK
38	0.002	0.241	0.90	OK
39	0.011	0.241	4.52	OK
40	0.008	0.241	3.37	OK

SEM. Test

6. Voltage Fluctuation and Flicker

6.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Digital Power Analyzer	California Instrument	CTS	72831	2014-05-28	2015-05-27
Power Source	California Instrument	5001IX-CTS-400	60077	2014-05-28	2015-05-27

6.2 Test Procedure

Test is conducting under the description of EN61000-3-3.

6.3 Test Standards

EN61000-3-3, Limit: Clause 5.

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	48%
ATM Pressure:	1022 mbar

6.4 Voltage Fluctuation and Flicker Test Data

SEM. Test

EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: All parameters (European limits) Test Margin: 100
Test date: 2011-10-29 Start time: 10:12:23 AM End time: 10:22:39 AM
Test duration (min): 10 Data file name: F-000154.cts_data
Comment: Output Voltage: 12V
Customer: GlobTek, Inc

Test Result: Pass Status: Test Completed

Pst and limit line European Limits

Plt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.44			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

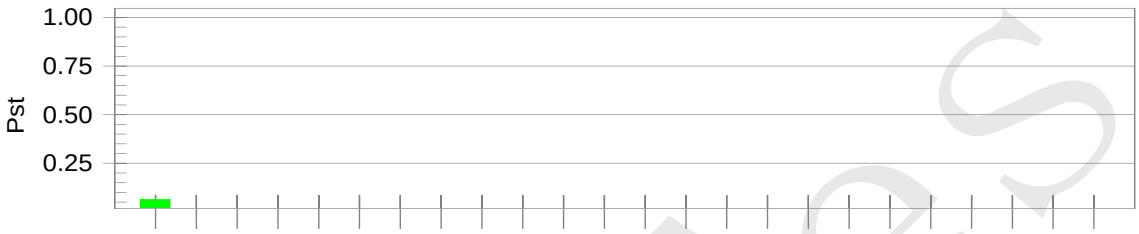
Test Result: Pass

SEM. Test

EUT: ITE POWER SUPPLY Tested by: Vigoss
Test category: All parameters (European limits) Test Margin: 100
Test date: 2011-10-29 Start time: 10:28:05 AM End time: 10:38:21 AM
Test duration (min): 10 Data file name: F-000155.cts_data
Comment: Output Voltage: 24V
Customer: GlobTek, Inc

Test Result: Pass Status: Test Completed

Pst and limit line European Limits



Plt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.61			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

SEM. Test

7. Electrostatic Discharges (ESD)

7.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
ESD Generator	TESQ AG	NSG 437	161	2014-05-28	2015-05-27

7.2 Test Procedure

Test is conducting under the description of IEC61000-4-2.

Test Performance

Performance Criterion: B

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	1011 mbar

7.3 Electrostatic Discharge Immunity Test Data

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2	Test Levels (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Slot	A	A	A	A	A	A	A	A		
Lamp	A	A	A	A	A	A	B	B		

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2	Test Levels (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
N/A	/	/	/	/						

SEM. Test

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

EN 61000-4-2 Test Points	Test Levels (kV)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Front Side	A	A	A	A						
Top Side	A	A	A	A						
Back Side	A	A	A	A						
Left Side	A	A	A	A						
Right Side	A	A	A	A						

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

EN 61000-4-2 Test Points	Test Levels (kV)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Front Side	A	A	A	A						
Top Side	A	A	A	A						
Back Side	A	A	A	A						
Left Side	A	A	A	A						
Right Side	A	A	A	A						

Test Result: Pass

SEM. Test

8. Continuous Radiated Disturbances (R/S)

8.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Signal Generator	Rohde & Schwarz	SMT03	100059	2014-05-28	2015-05-27
Voltage Probe	Rohde & Schwarz	URV5-Z2	100013	2014-05-28	2015-05-27
Power Amplifier	AR	150W1000	300999	2014-05-28	2015-05-27
Power Amplifier	AR	25S1G4AM1	305993	2014-05-28	2015-05-27
Trilog Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Anechoic chamber	Albatross Projects	MCDC	----	2013-12-26	2015-12-15

8.2 Test Procedure

Test is conducting under the description of IEC61000-4-3.

Test Performance

Performance Criterion: A

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1010 mbar

8.3 Continuous Radiated Disturbances Test Data

Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A

Test Result: Pass

SEM. Test

9. Electrical Fast Transients (EFT)

9.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Transient 2000	EMC PARTNER	TRA2000	863	2014-05-28	2015-05-27
Couple Clamp	EMC PARTNER	CN-EFT1000	513	2014-05-28	2015-05-27

9.2 Test Procedure

Test is conducting under the description of IEC61000-4-4.

Test Performance

Performance Criterion: B

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

9.3 Electrical Fast Transients Test Data

EN 61000-4-4 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
Power Supply Power Port of EUT	L1	A	A	B	B	B	B	/	/
	L2	A	A	B	B	B	B	/	/
	PE	A	A	B	B	B	B	/	/
	L1+L2	A	A	B	B	B	B	/	/
	L1 + PE	A	A	B	B	B	B	/	/
	L2 + PE	A	A	B	B	B	B	/	/
	L1+L2+PE	A	A	B	B	B	B	/	/
Signal ports	DC Port	A	A	B	B	B	B	/	/

Test Result: Pass

SEM. Test

10. Surges

10.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Transient 2000	EMC PARTNER	TRA2000	863	2014-05-28	2015-05-27

10.2 Test Procedure

Test is conducting under the description of IEC 61000-4-5.

Test Performance

Performance Criterion: B

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

10.3 Surge Test Data

AC Input Port:

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	L-N, L-PE, N-PE	A	/
2	1kV	±	L-N, L-PE, N-PE	B	/
3	2kV	±	L-PE, N-PE	B	/
4	4kV	±	L-N, L-PE, N-PE	/	/

DC Output Port:

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	P+N	B	/
2	1kV	±	P+N	/	/
3	2kV	±	P+N	/	/
4	4kV	±	P+N	/	/

Test Result: Pass

SEMTest

11. Continuous Conducted Disturbances (C/S)

11.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
CS Immunity Tester	EMTEST	CWS500	0900-03	2014-05-28	2015-05-27
Attenuator	EMTEST	MA-500	1009	2014-05-28	2015-05-27
CDN	Luthi	L-801M2/M3	2665	2014-05-28	2015-05-27

11.2 Test Procedure

Test is conducting under the description of IEC 61000-4-6.

Test Performance

Performance Criterion: A

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

11.3 Continuous Conducted Disturbances Test Data

Sweep frequency range: 150kHz~80MHz

Frequency step: 1% of fundamental

Dwell time: 1 second

AC Input Port:

Level	Voltage Level (e.m.f.) U_0	Modulation:	Pass	Fail
1	1	AM 80%, 1kHz sinewave	/	/
2	3	AM 80%, 1kHz sinewave	/	/
3	10	AM 80%, 1kHz sinewave	A	/

DC Output Port:

Level	Voltage Level (e.m.f.) U_0	Modulation:	Pass	Fail
1	1	AM 80%, 1kHz sinewave	/	/
2	3	AM 80%, 1kHz sinewave	/	/
3	10	AM 80%, 1kHz sinewave	A	/

Test Result: Pass

STM. Test

12. Voltage Dips and Interruptions

12.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Transient 2000	EMC PARTNER	TRA2000	863	2014-05-28	2015-05-27

12.2 Test Procedure

Test is conducting under the description of IEC 61000-4-11.

Test Performance

Performance Criterion: B/C

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

12.3 Voltage Dips And Interruptions Test Data

U: Vlotage dips in % U_T (U_T is rated voltage for the EUT)
T: Test duration

Level	U	T	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	A	/
2	30%	500ms	0/90/180/270	3	A	/
3	100%	5000ms	0/90/180/270	3	B	/

Test Result: Pass

SEM. Test

EXHIBIT 1 - PRODUCT LABELING

Proposed CE Label Format

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. The 'CE' marking must be affixed to the EUT or to its data plate. Where this is not possible or not warranted on account of the nature of the apparatus, it must be affixed to the packaging, if any, and to the accompanying documents. The 'CE' marking must have a height of at least 5 mm. If the 'CE' marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.

Proposed Label Location on EUT

CE Label Location

SEM.Test

EXHIBIT 2 - EUT PHOTOGRAPHS

EUT View 1 (12V)

EUT View 2

SEM. Test

EUT View 3 (24V)

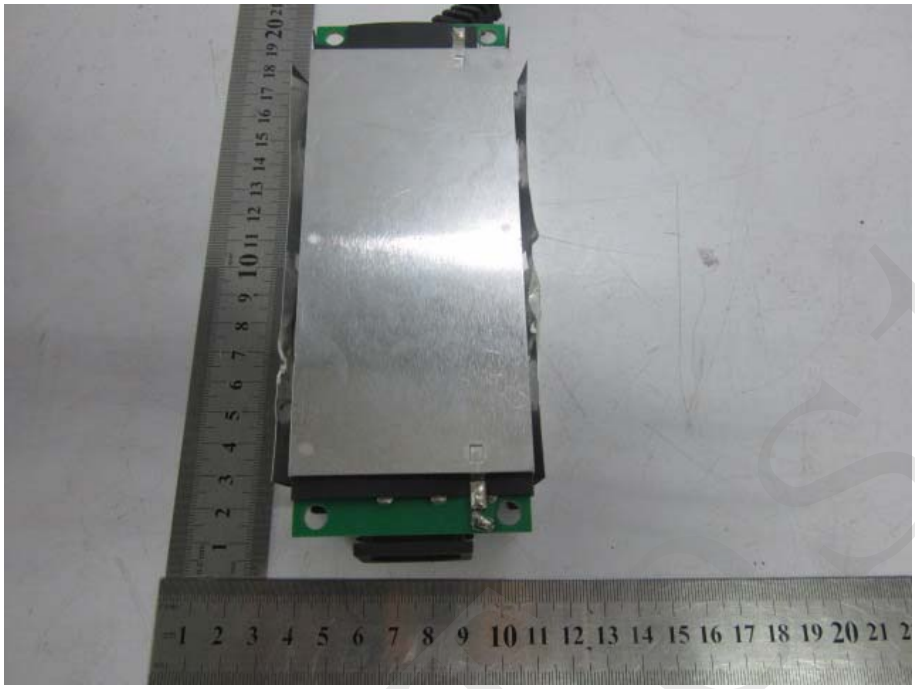
EUT View 4

SEMI Test

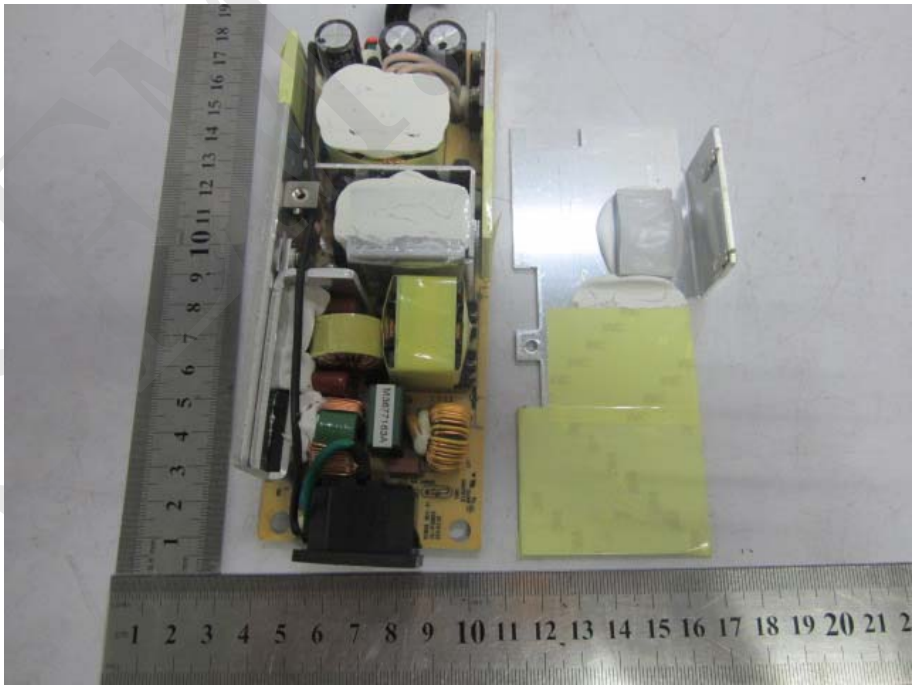
EUT Housing and Board View 1 (12V)

EUT Housing and Board View 2

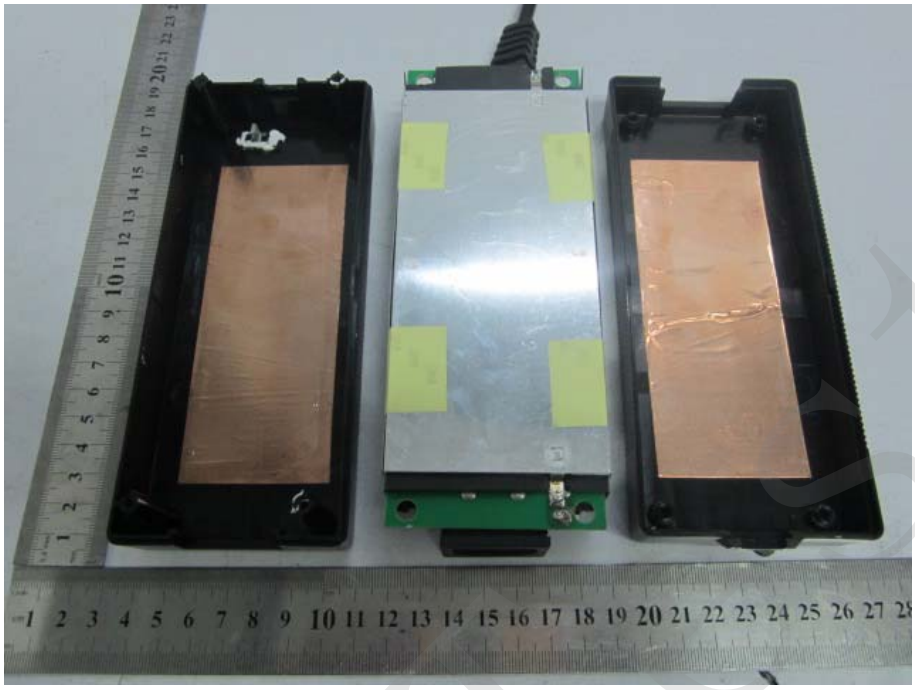
EUT Housing and Board View 3



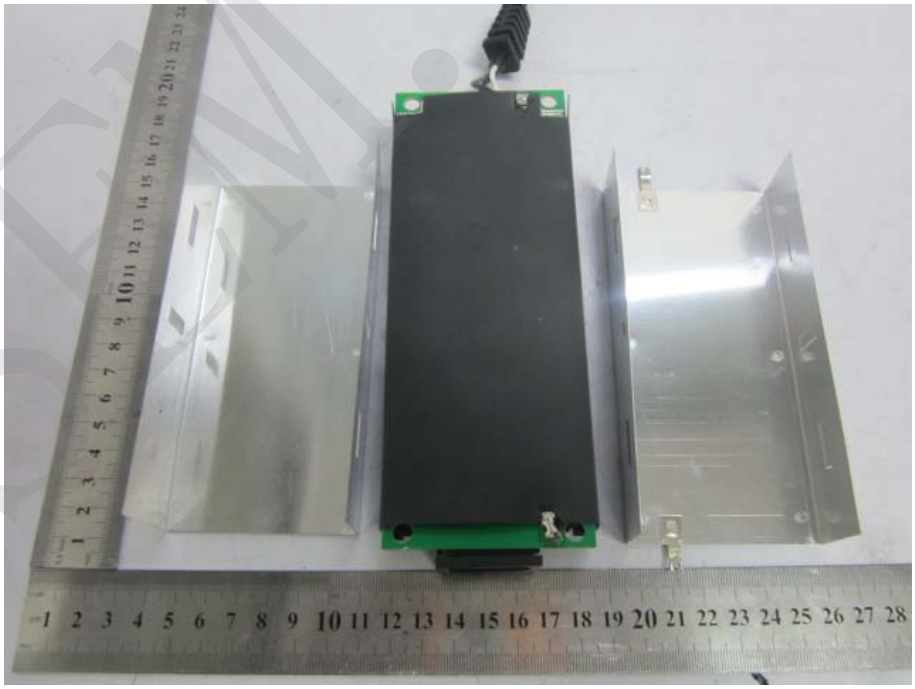
EUT Housing and Board View 4



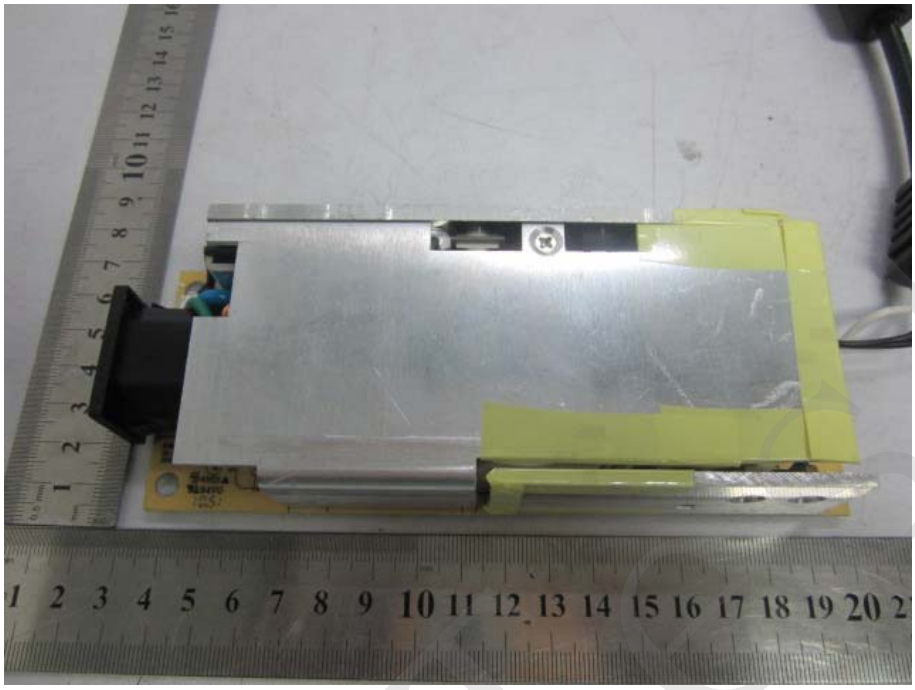
EUT Housing and Board View 5 (24V)



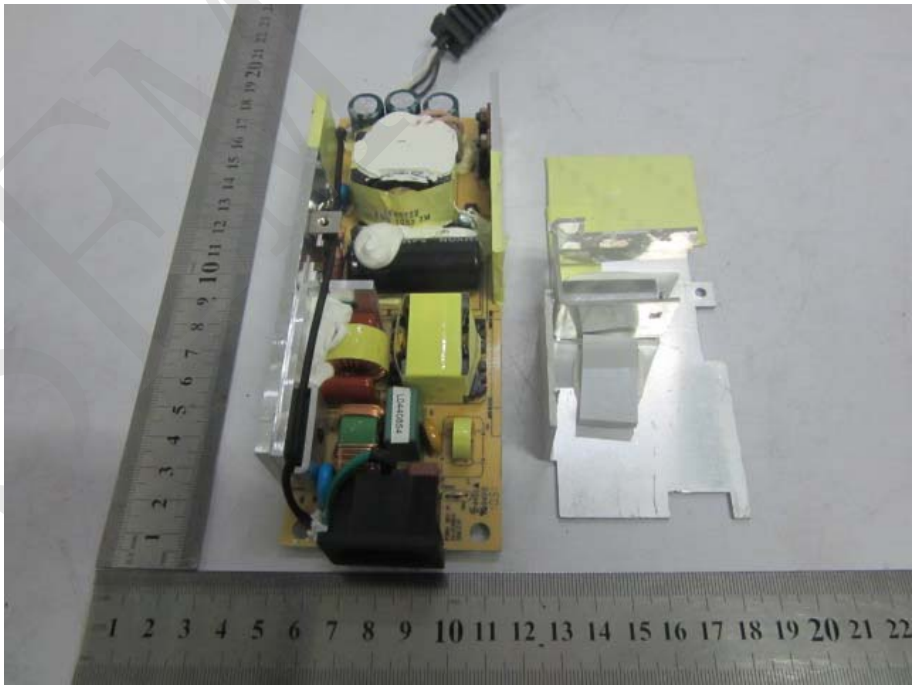
EUT Housing and Board View 6



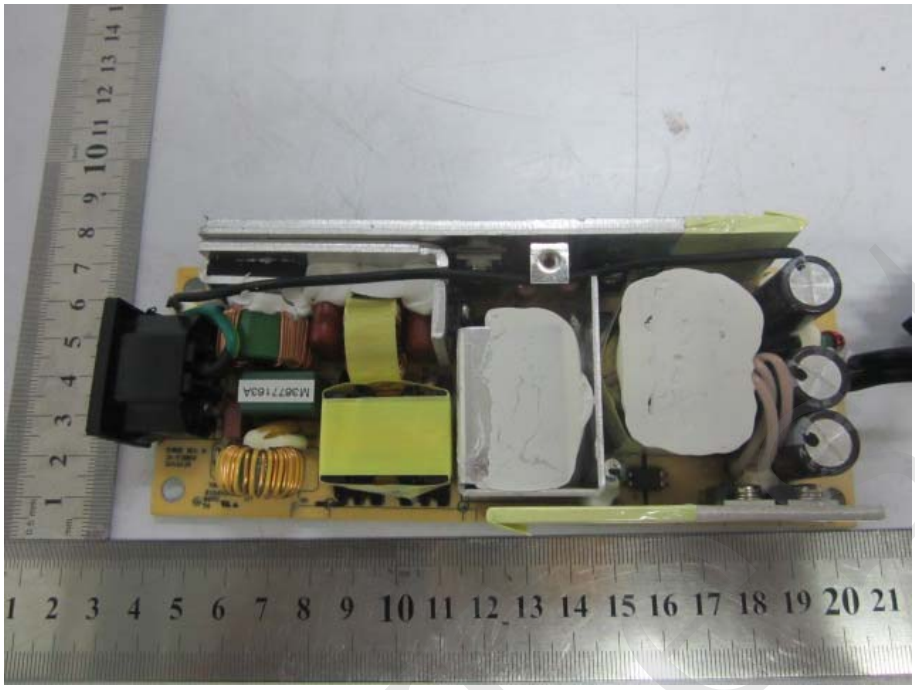
EUT Housing and Board View 7



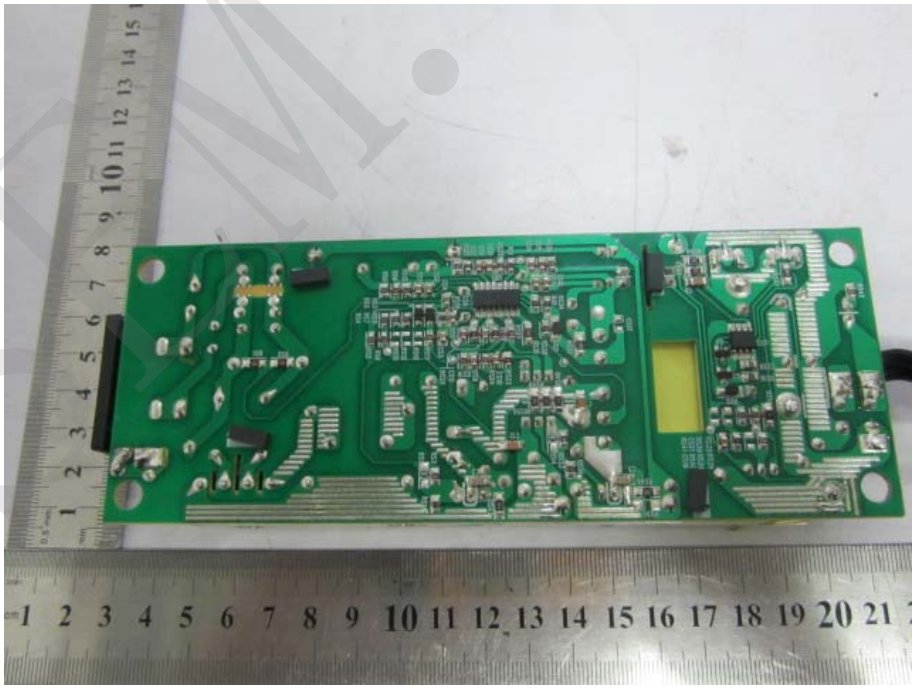
EUT Housing and Board View 8



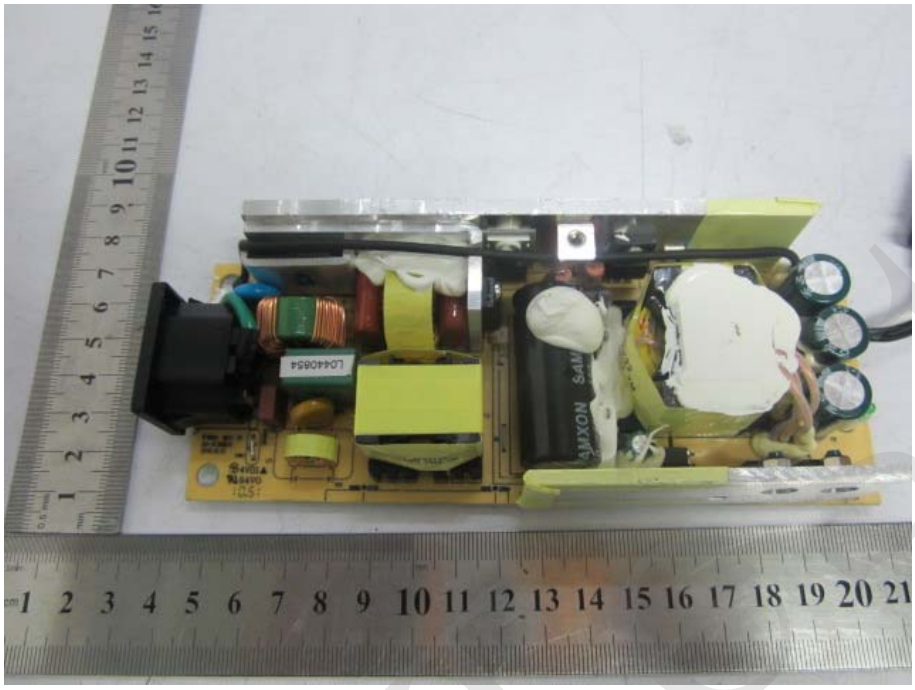
Solder Board-Component View 1 （12V）



Solder Board-Component View 2



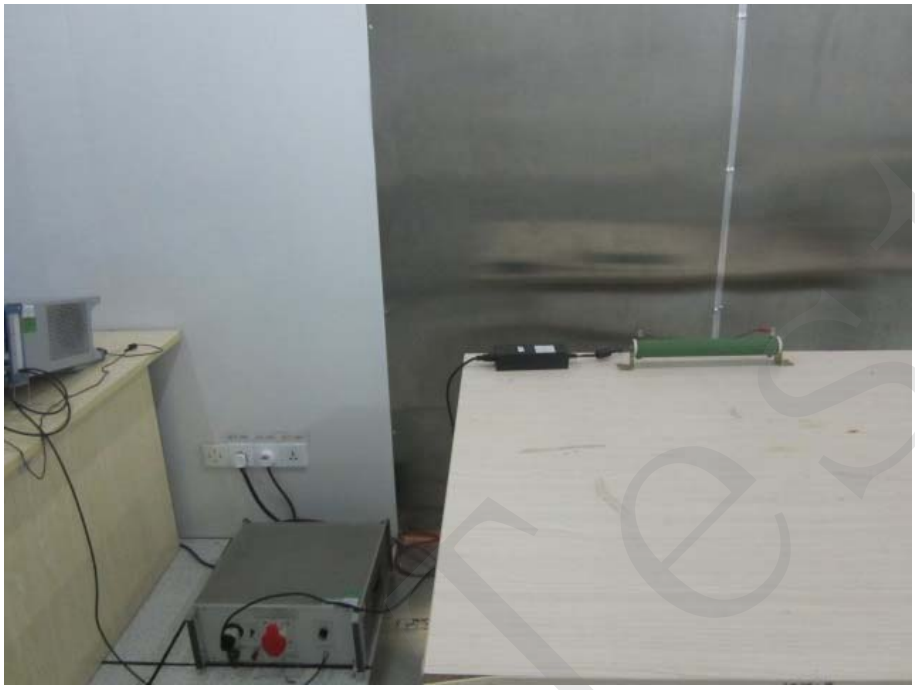
Solder Board-Component View 3 (24V)



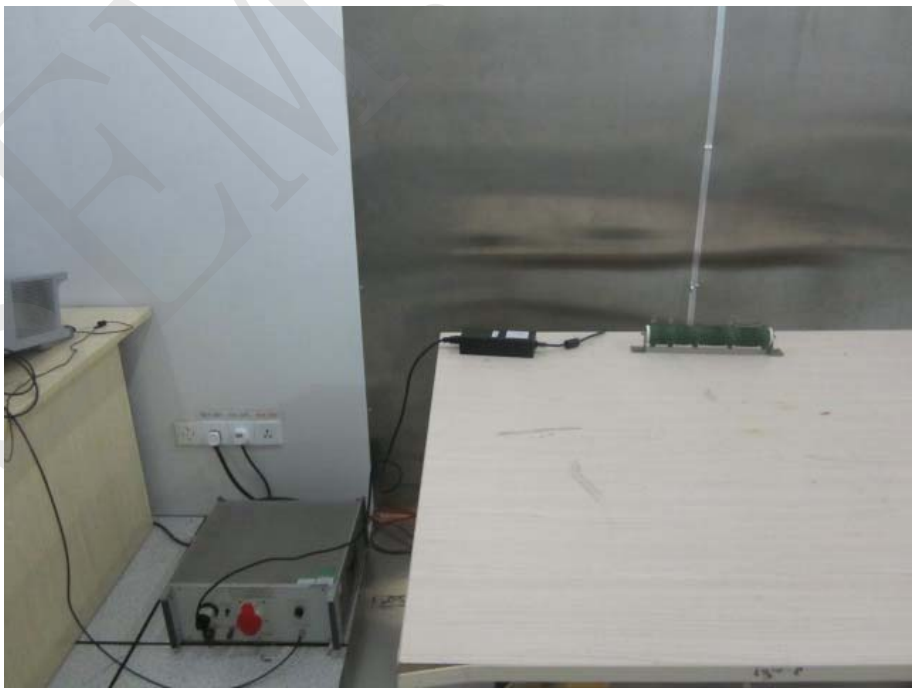
Solder Board-Component View 4

EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

Conduction Emission (12V)

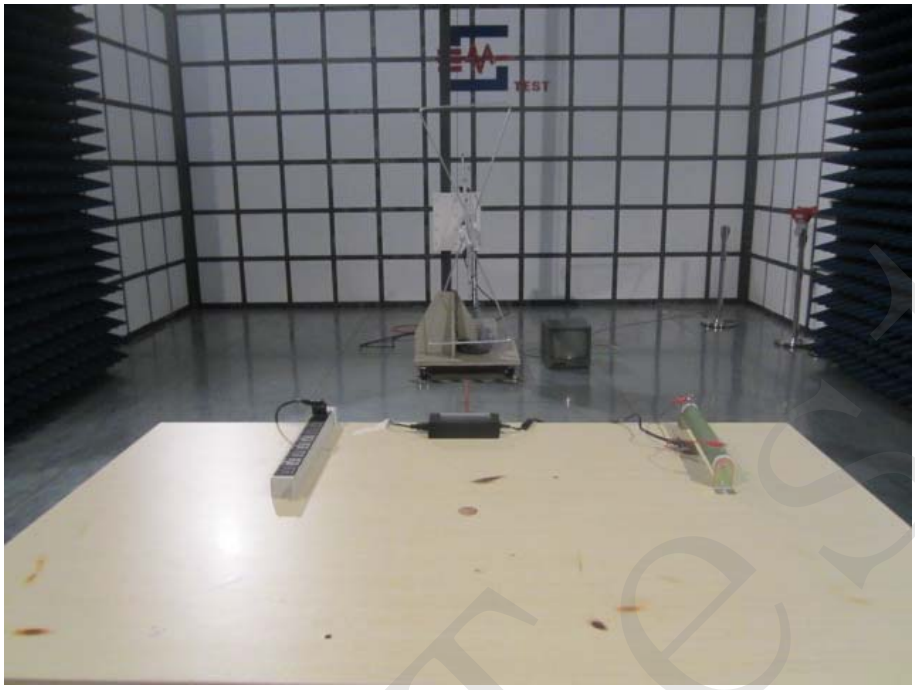


Conduction Emission (24V)

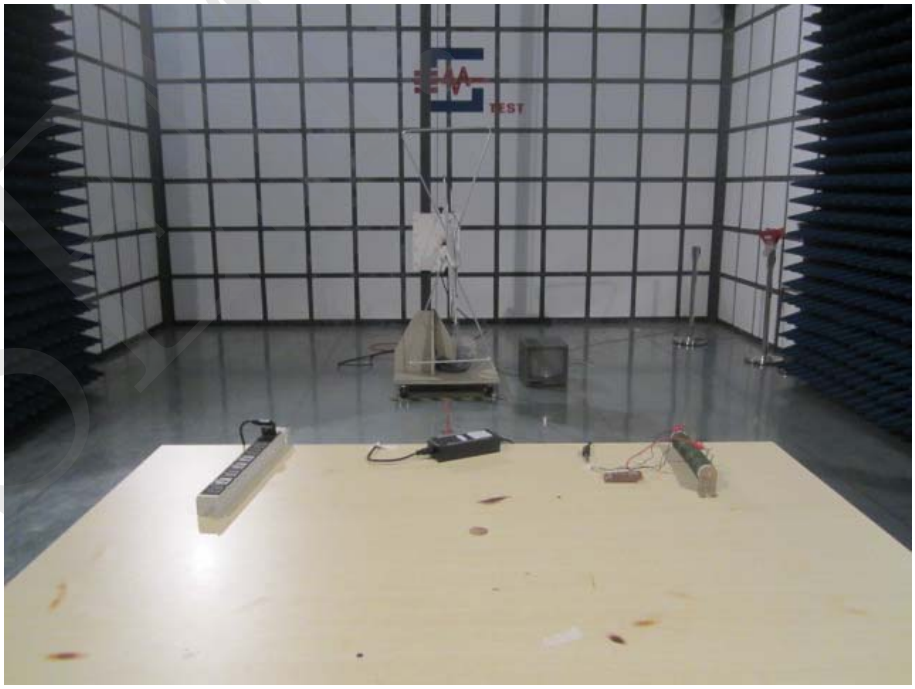


STM Test

Radiation Emission (12V)



Radiation Emission (24V)

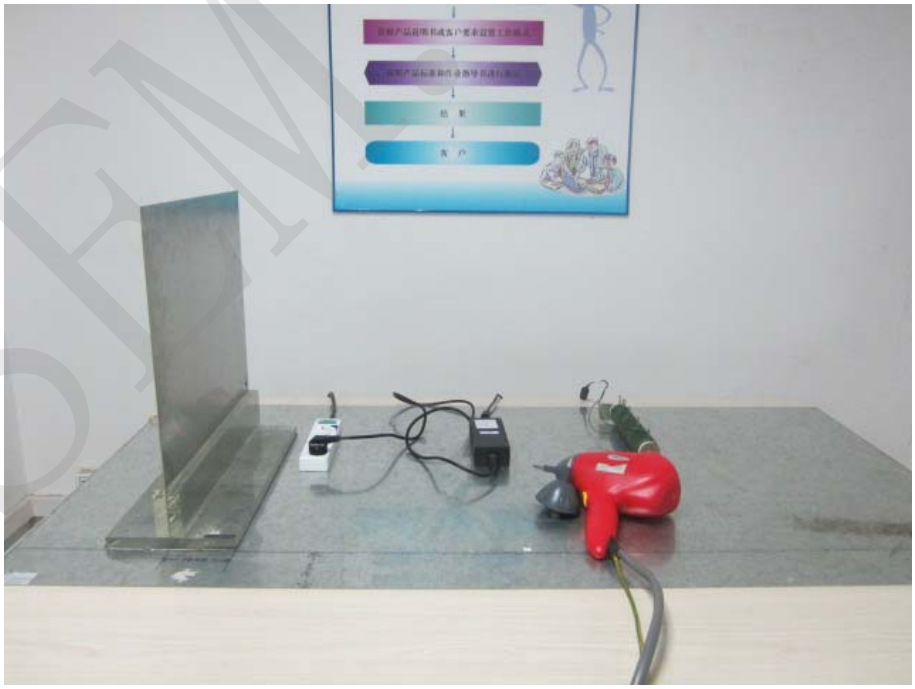


EN61000-3-2/3 (12V)

EN61000-3-2/3 (24V)

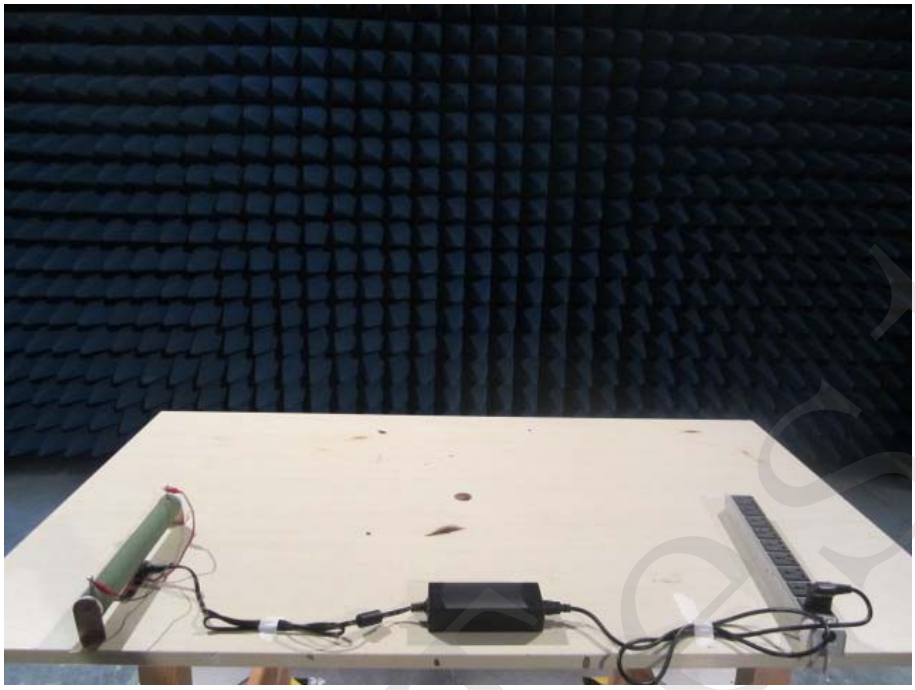
IEC 61000-4-2 (12V)

IEC 61000-4-2 (24V)

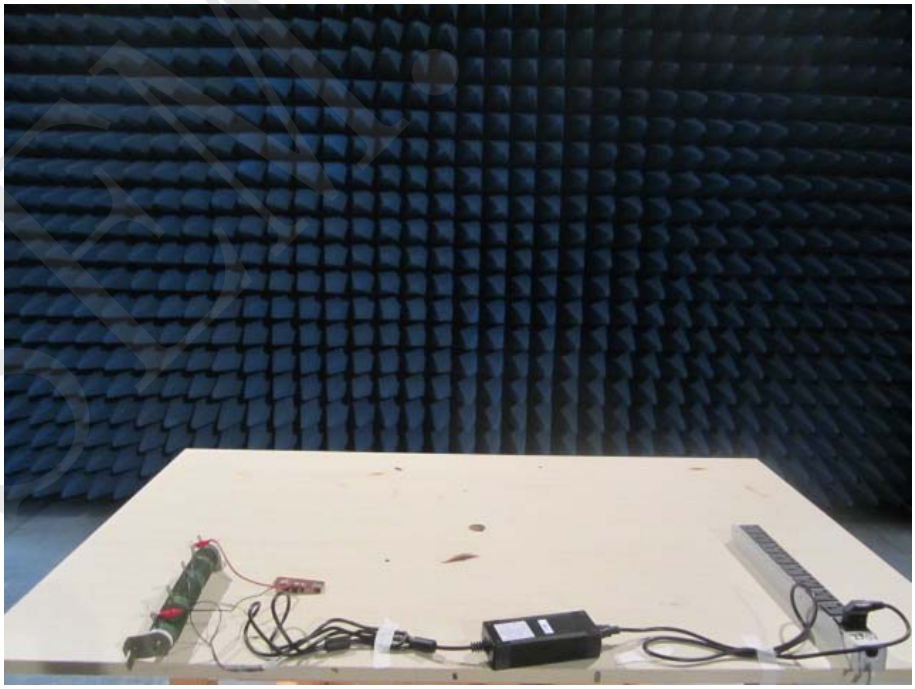


SEMTECH

IEC 61000-4-3 (12V)



IEC 61000-4-3 (24V)



STM Test

IEC 61000-4-4/5/11 (12V)

AC Power Input Port:

DC Power Output Port:

IEC 61000-4-4/5/11 (24V)

AC Power Input Port:

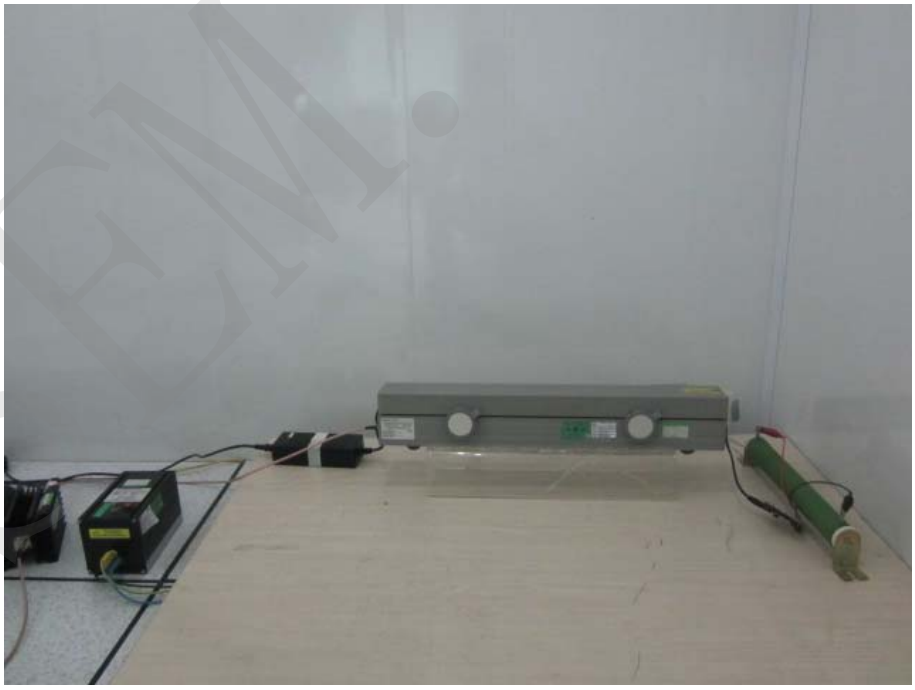
DC Power Output Port:

SEM Test

IEC 61000-4-6 (12V)

AC Power Input Port:

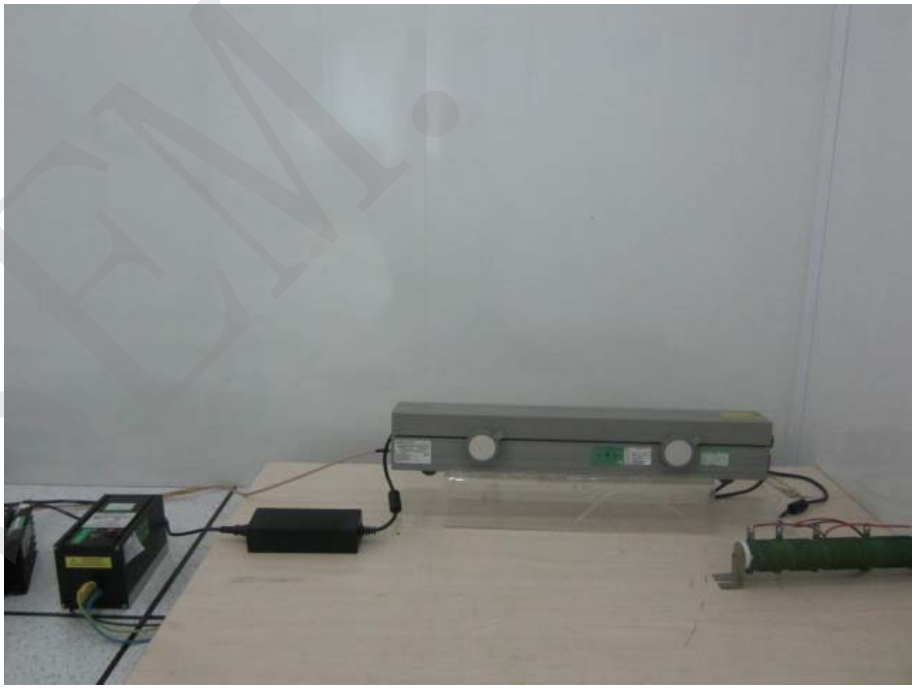
DC Power Output Port:



IEC 61000-4-6 (24V)

AC Power Input Port:

DC Power Output Port:



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