EMC
Measurement and Test Report

For

GlobTek, Inc.

186 Veterans Dr. Northvale, NJ 07647 USA

Test Standards:	EN 60601-1-2:2007 (Ed3) EN 55022:2010 EN 61000-3-2:2006+A1:2009+A2:2009 EN 61000-3-3:2008 EN 55024:2010
Product Description:	Power supply
Tested Model:	GTM41061-WWVV-X.X series
Report No.:	STR13058044E
Tested Date:	2013-05-06 to 2013-05-24
Issued Date:	2013-05-24
Tested By:	Daniel Liu / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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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:	Power supply
Trade Name:	GlobTek
Model No.:	GTM41061-WWVV-X.X series
Adding Model(s):	GTM41061-WWVV-X.X series
Note: The test data is gathered from a production sample, provided by the manufacturer. *GTM41061-WWVV-X.X series* *M can be "M" or "-" for market identification* *WW is the rated output wattage designation, with a maximum value of "18";* *VV is the standard rated output voltage designation, with a maximum value of "30";* *-X.X denotes the optional deviation, subtracted or added from standard output voltage in 0.1 volt increments or blank to indicate the no voltage different;*	

Technical Characteristics of EUT	
Rated Voltage:	Tested Model: GTM41061-1512-7.0 Input: AC 100-240V Output: DC 5V Tested Model: GTM41061-1818-3.0 Input: AC 100-240V Output: DC 15V Tested Model: GTM41061-1830 Input: AC 100-240V Output: DC 30V
Rated Current:	Tested Model: GTM41061-1512-7.0 Input: 0.6A Output: 3A Tested Model: GTM41061-1818-3.0 Input: 0.6A Output: 1.2A Tested Model: GTM41061-1830 Input: 0.6A Output: 0.6A
Rated Power:	Tested Model: GTM41061-1512-7.0 15W Tested Model: GTM41061-1818-3.0 18W Tested Model: GTM41061-1830 18W

1.2 Test Standards

The following report is prepared on behalf of the GlobTek, Inc. in accordance with EN 60601-1-2, Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests, and 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 EN 60601-1-2 for Medical electrical equipment, and EN 55022, EN 61000-3-2, EN 61000-3-3 and EN 55024 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 standard EN 60601-1-2 for Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests, and EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024 standards.

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/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	GTM41061-1512-7.0
TM2	Full Load	GTM41061-1818-3.0
TM3	Full Load	GTM41061-1830

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Power Cable	1.9	Unshielded	With 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.

2. SUMMARY OF TEST RESULTS

Standards	Description of Test Item	Result
EN 60601-1-2 (EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3)	Conducted Disturbance	Compliant
	Radiated Disturbance	Compliant
	Harmonic Current Emission	Compliant
	Voltage Fluctuation and Flicker	Compliant
	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	Compliant
	Voltage Dips/Interruptions Immunity in accordance with IEC 61000-4-11	Compliant

N/A: not applicable

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.

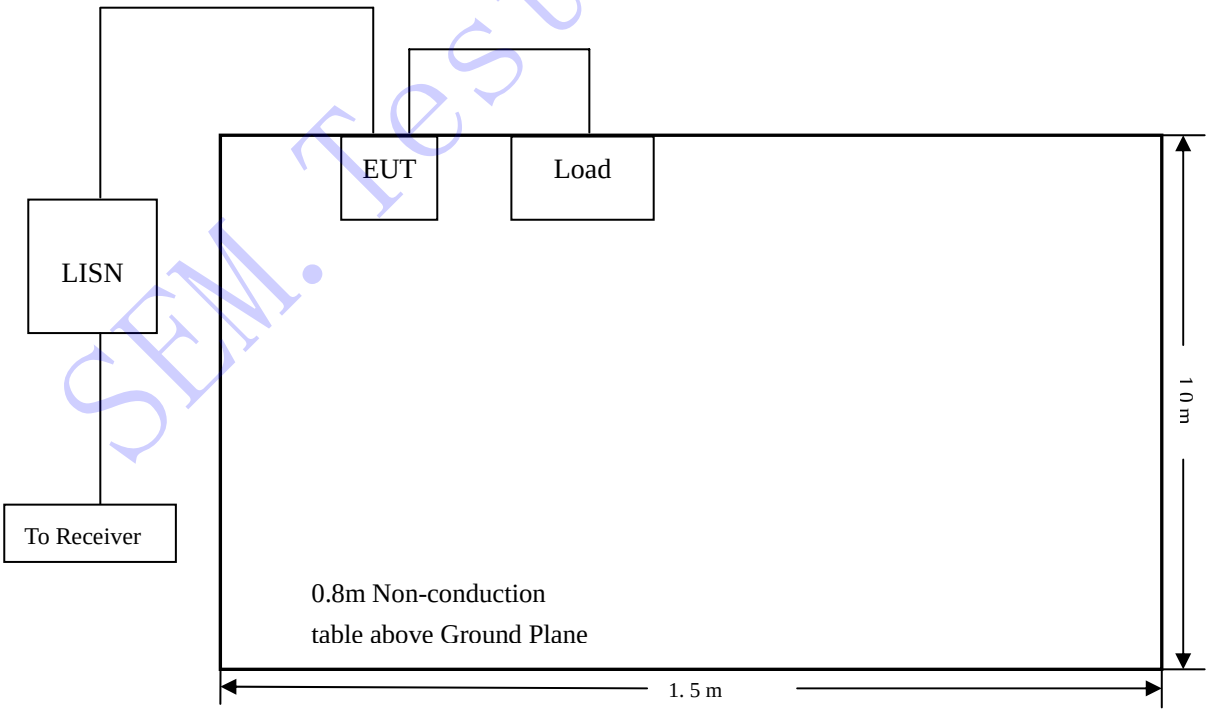
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	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
Current Probe	FCC	F-33-4	091684	2013-05-07	2014-05-06

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



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 EN 60601-1-2 Conducted margin for a Class B device, with the *worst* margin reading of:

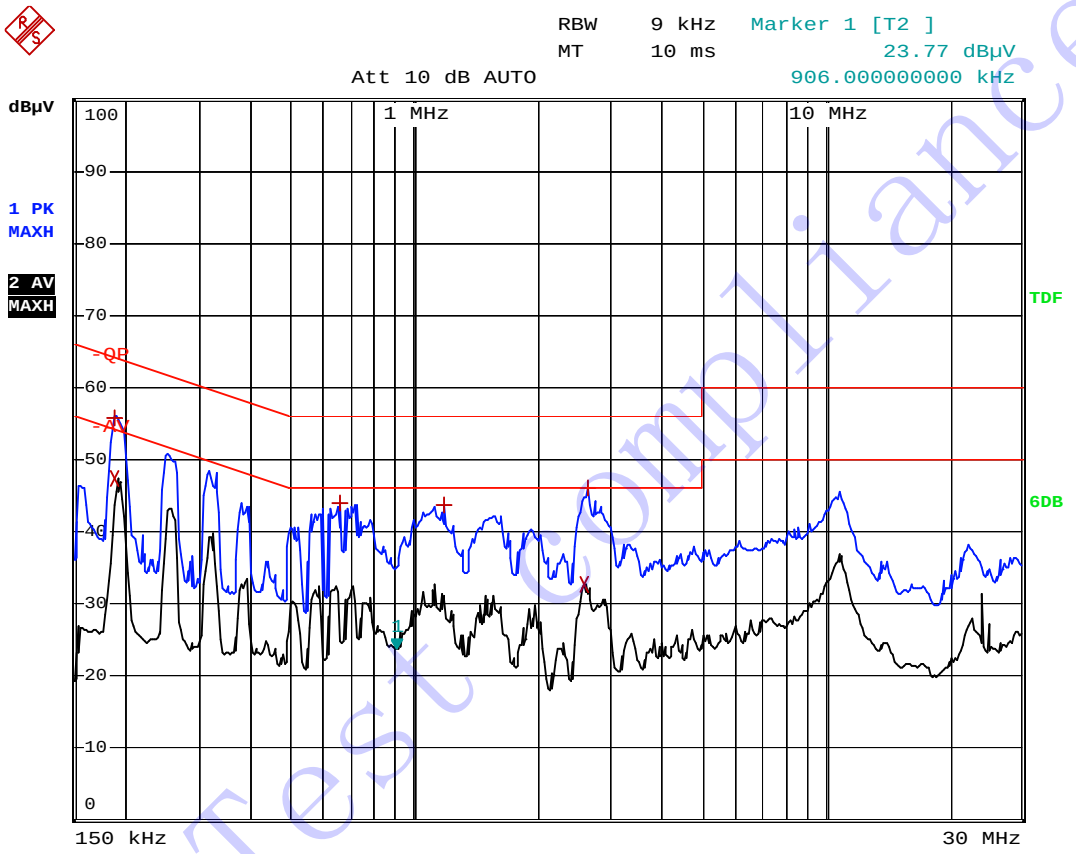
-3.39 dB at **0.258 MHz** in the **Neutral** mode, **Average** detector, **GTM41061-1818-3.0** Model, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

EUT: *Power supply*
Tested Model: *GTM41061-1512-7.0*
Operating Condition: *Full Load*
Comment: *AC 230V / 50Hz*

Test Specification: *Line*

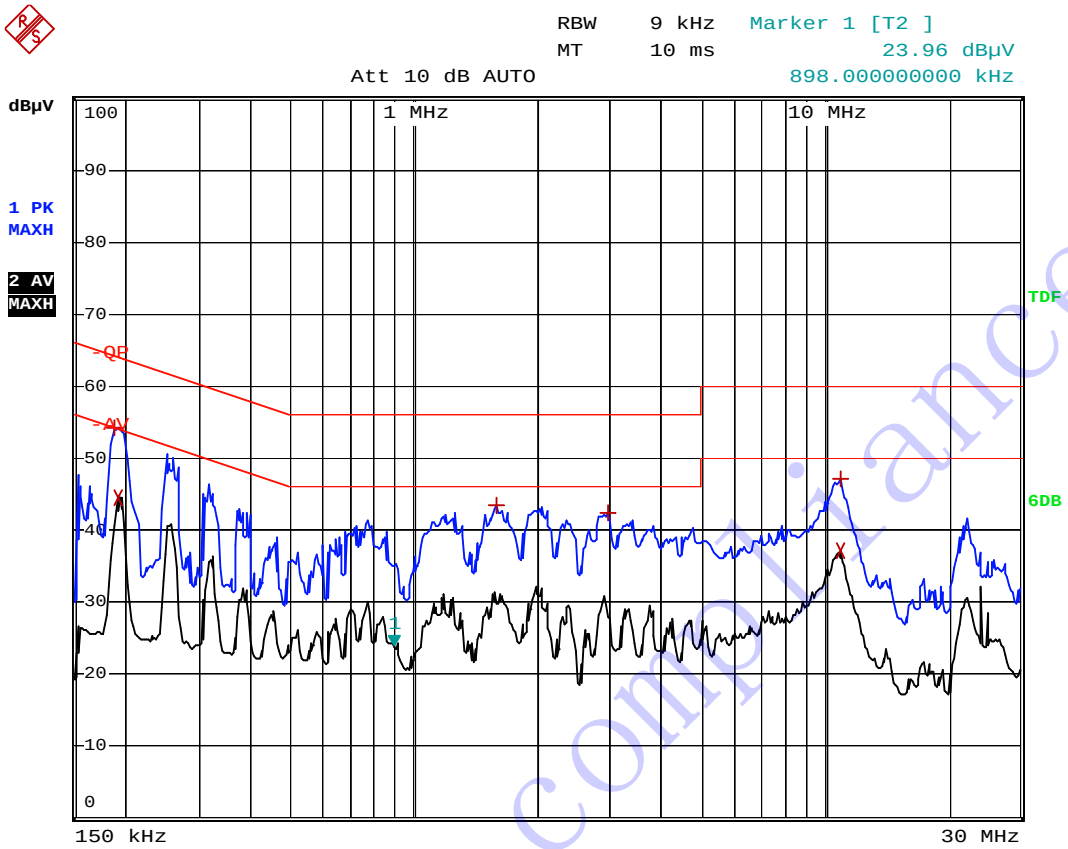


EDIT PEAK LIST (Prescan Results)

Trace1:	-QP
Trace2:	-AV
Trace3:	---

TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	190 kHz	55.90	-8.13
2	Average	190 kHz	47.30	-6.73
1	Max Peak	658 kHz	43.86	-12.14
1	Max Peak	1.186 MHz	43.64	-12.36
2	Average	2.602 MHz	32.77	-13.23
1	Max Peak	2.638 MHz	46.08	-9.91

Test Specification: *Neutral*



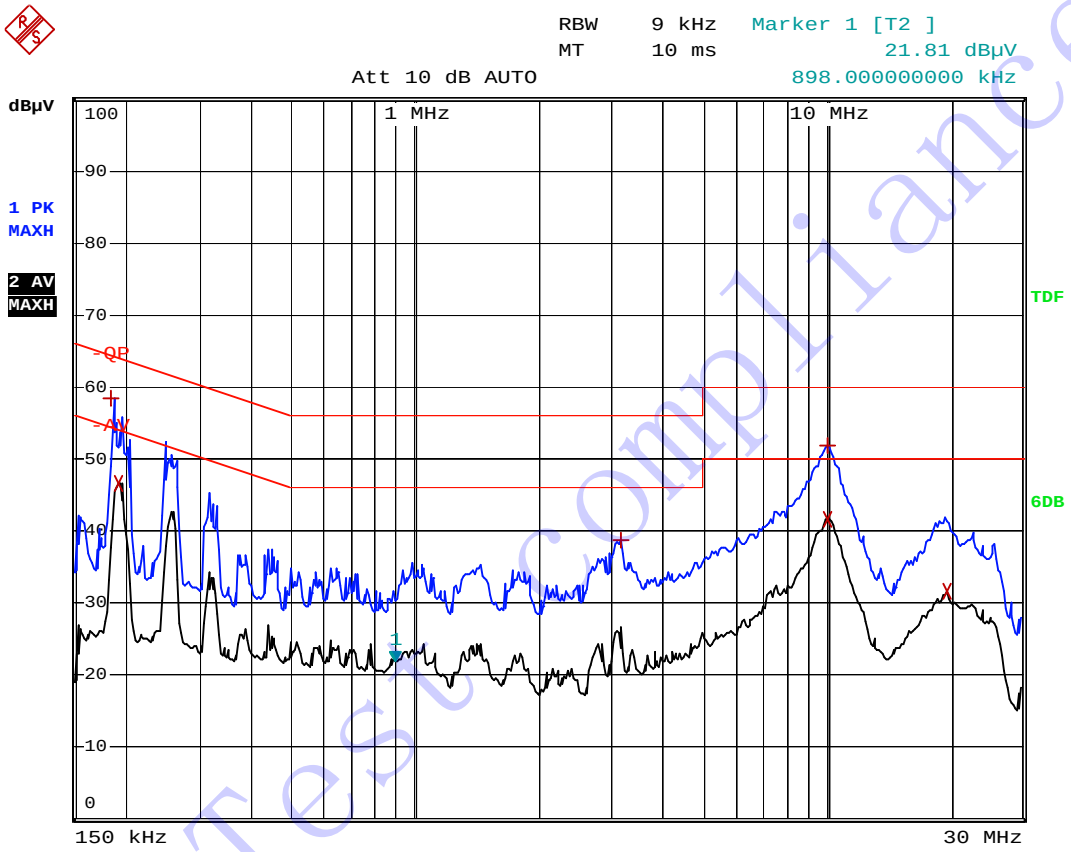
EDIT PEAK LIST (Prescan Results)

Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	190 kHz	54.14	-9.88
2 Average	194 kHz	44.55	-9.30
1 Max Peak	1.582 MHz	43.45	-12.54
1 Max Peak	2.97 MHz	42.45	-13.55
2 Average	10.918 MHz	37.14	-12.85
1 Max Peak	11.014 MHz	47.07	-12.92

Plot of Conducted Emissions Test Data

EUT: *Power supply*
Tested Model: *GTM41061-1818-3.0*
Operating Condition: *Full Load*
Comment: *AC 230V / 50Hz*

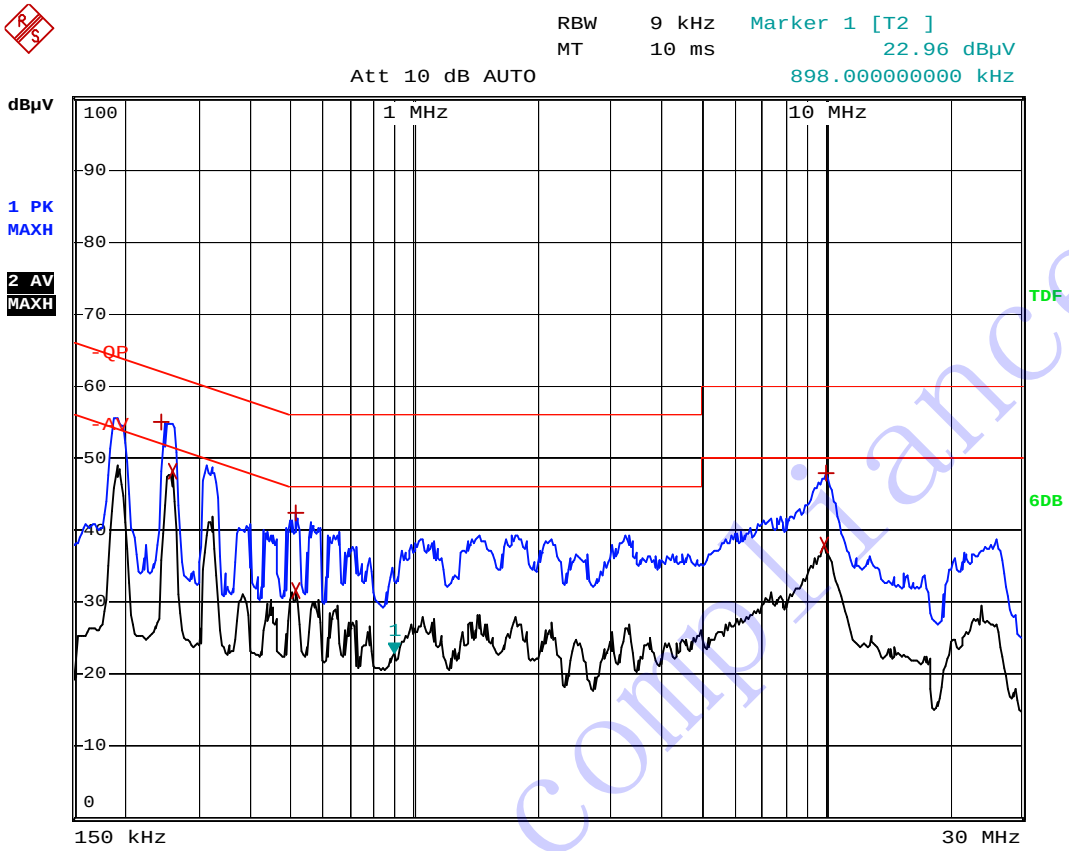
Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)

Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	186 kHz	58.29	-5.91
2 Average	194 kHz	46.67	-7.18
1 Max Peak	3.166 MHz	38.84	-17.15
2 Average	10.078 MHz	41.71	-8.28
1 Max Peak	10.114 MHz	51.75	-8.24
2 Average	19.642 MHz	31.70	-18.30

Test Specification: *Neutral*



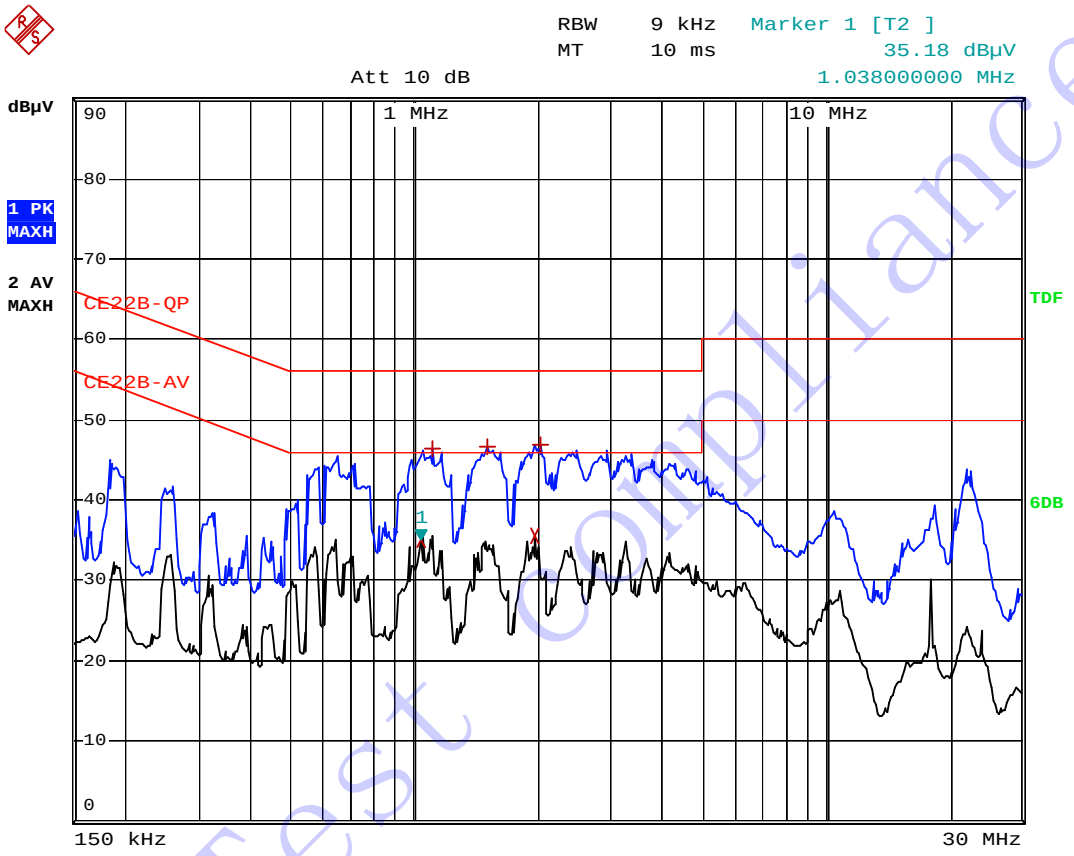
EDIT PEAK LIST (Prescan Results)

Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	246 kHz	55.06	-6.82
2 Average	258 kHz	48.10	-3.39
1 Max Peak	514 kHz	42.36	-13.63
2 Average	514 kHz	31.55	-14.44
2 Average	10.014 MHz	38.05	-11.94
1 Max Peak	10.09 MHz	47.79	-12.21

Plot of Conducted Emissions Test Data

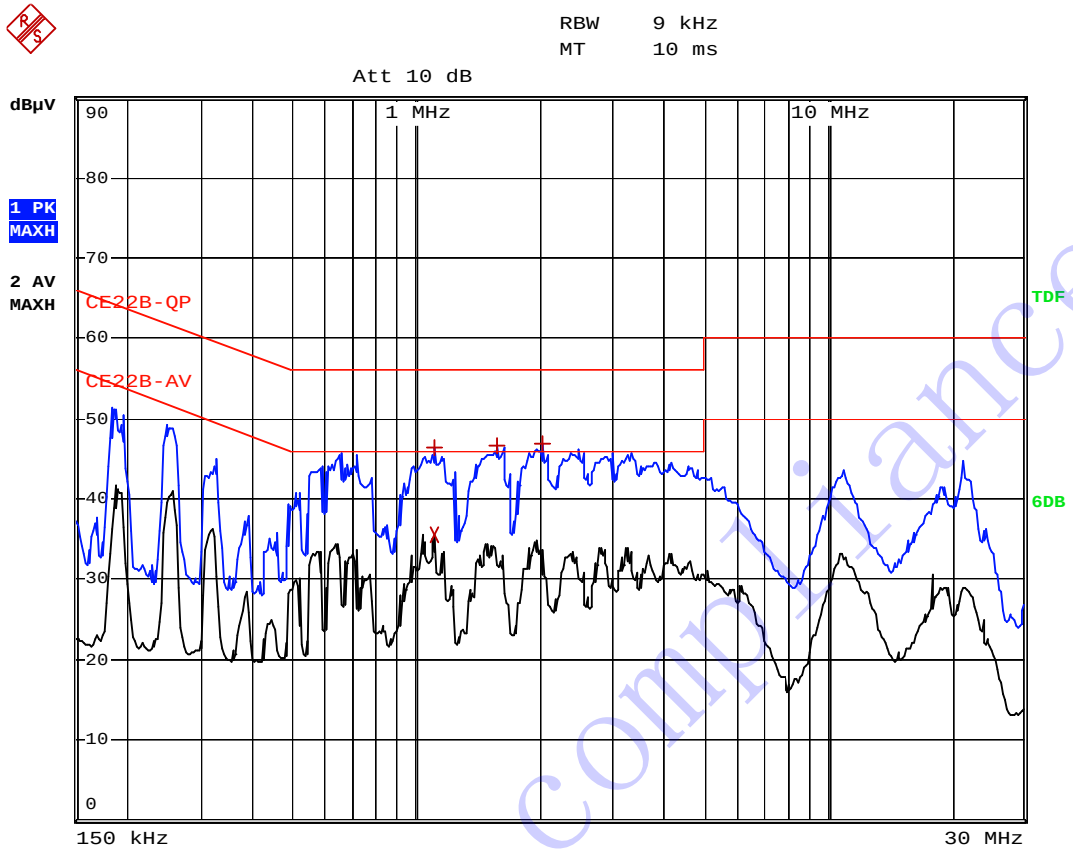
EUT: *Power supply*
Tested Model: *GTM41061-1830*
Operating Condition: *Full Load*
Comment: *AC 230V / 50Hz*

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)			
Trace1:	CE22B-QP		
Trace2:	CE22B-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	1.038 MHz	35.17	-10.82
1 Max Peak	1.11 MHz	46.43	-9.56
1 Max Peak	1.502 MHz	46.66	-9.33
2 Average	1.958 MHz	35.46	-10.53
1 Max Peak	2.026 MHz	46.93	-9.06

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)

Trace1:	CE22B-QP		
Trace2:	CE22B-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	1.102 MHz	35.53	-10.46
1 Max Peak	1.11 MHz	46.37	-9.62
1 Max Peak	1.566 MHz	46.56	-9.43
1 Max Peak	2.026 MHz	46.84	-9.15

4. Radiated Disturbance

4.1 Measurement Uncertainty

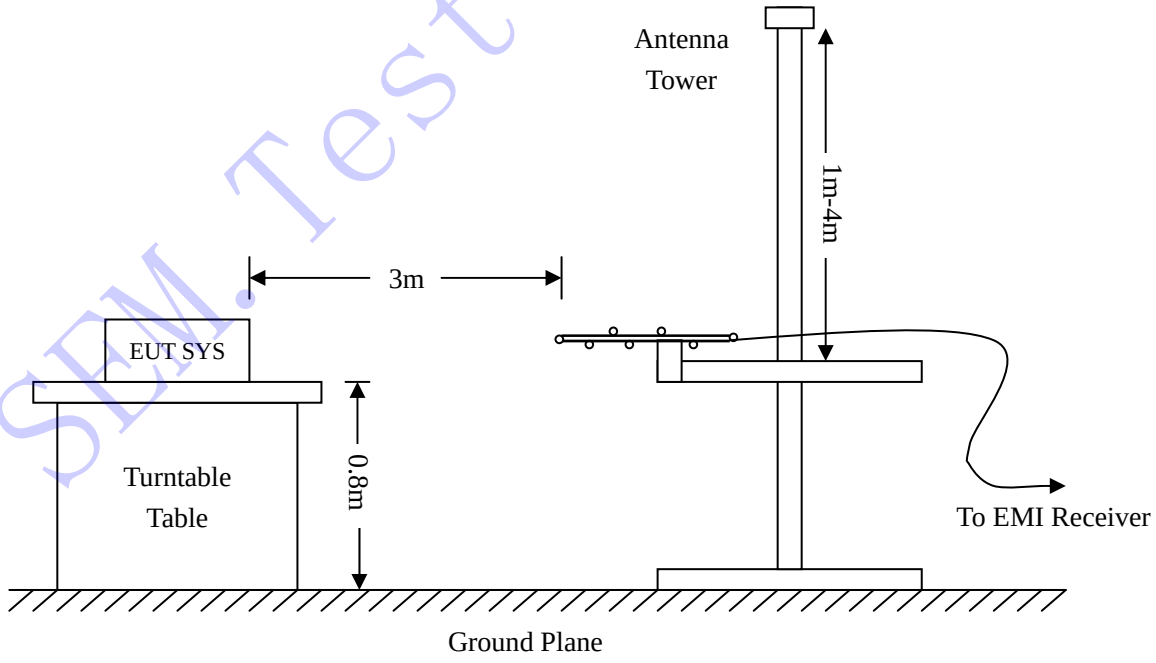
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	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

4.3 Test Procedure

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



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. – EN 60601-1-2 Class B Limit

4.5 Environmental Conditions

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

4.6 Summary of Test Results/Plots

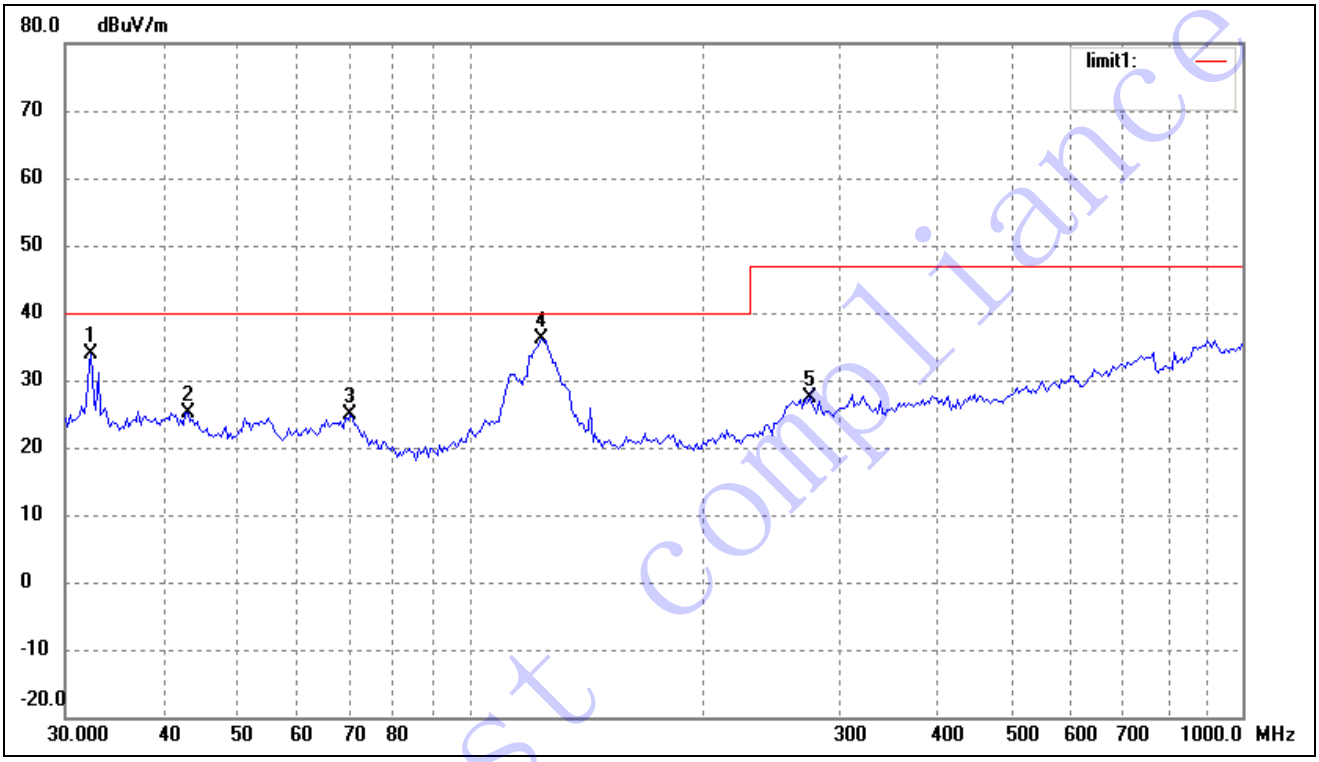
According to the data in section 4.6, the EUT complied with the EN 60601-1-2 Class B standards, and had the worst margin is:

-3.05 dB at **123.6985 MHz** in the, **Vertical** polarization, **GTM41061-1512-7.0** Model, **30 MHz to 1 GHz, 3Meters**

Plot of Radiated Emissions Test Data

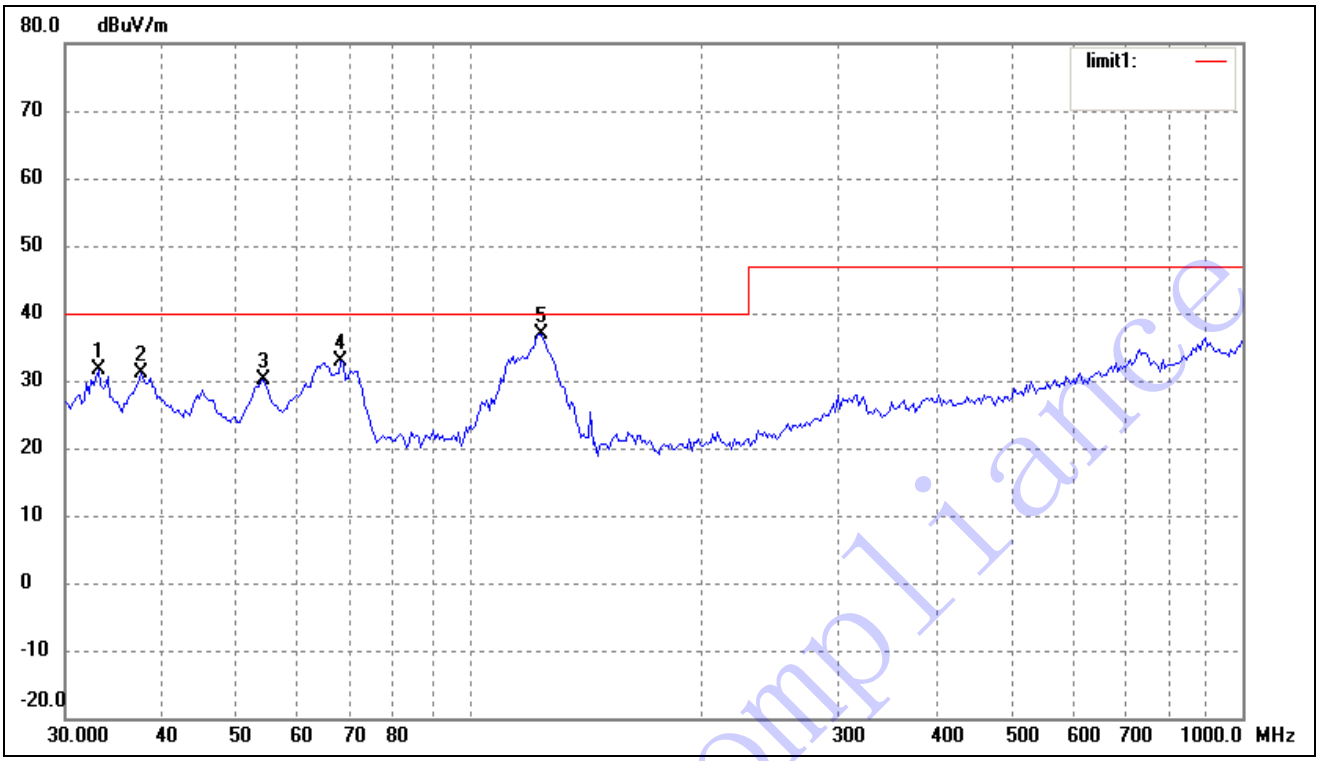
EUT: *Power supply*
Tested Model: *GTM41061-1512-7.0*
Operating Condition: *Full Load*
Comment: *AC 230V / 50Hz*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.4059	25.54	8.44	33.98	40.00	-6.02	360	100	peak
2	43.2017	16.40	8.70	25.10	40.00	-14.90	360	100	peak
3	70.0903	22.37	2.51	24.88	40.00	-15.12	360	100	peak
4	123.6985	31.62	4.60	36.22	40.00	-3.78	360	100	peak
5	275.1570	18.56	8.88	27.44	47.00	-19.56	360	100	peak

Test Specification: *Vertical*

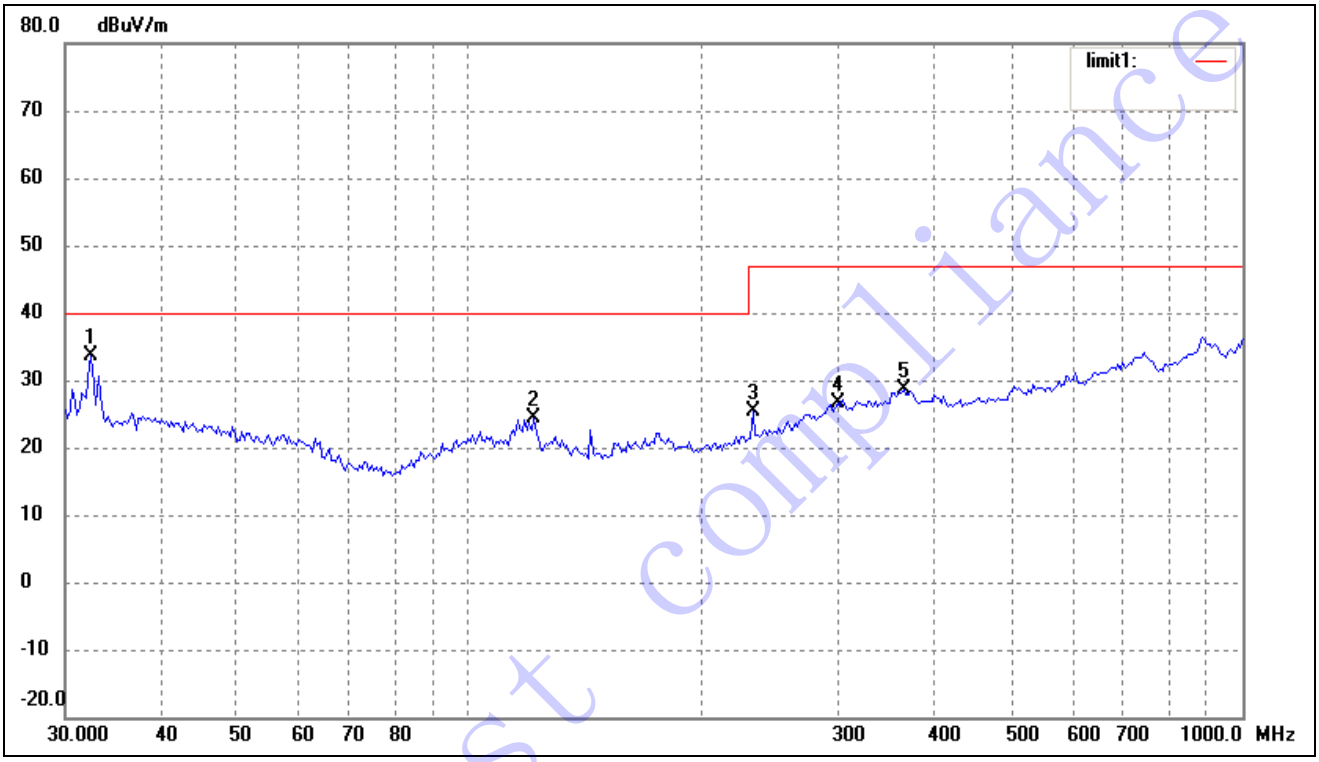


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	23.16	8.56	31.72	40.00	-8.28	360	100	peak
2	37.5479	21.75	9.29	31.04	40.00	-8.96	360	100	peak
3	54.0711	23.85	6.24	30.09	40.00	-9.91	360	100	peak
4	68.1514	29.65	3.11	32.76	40.00	-7.24	360	100	peak
5	123.6985	32.35	4.60	36.95	40.00	-3.05	360	100	peak

Plot of Radiated Emissions Test Data

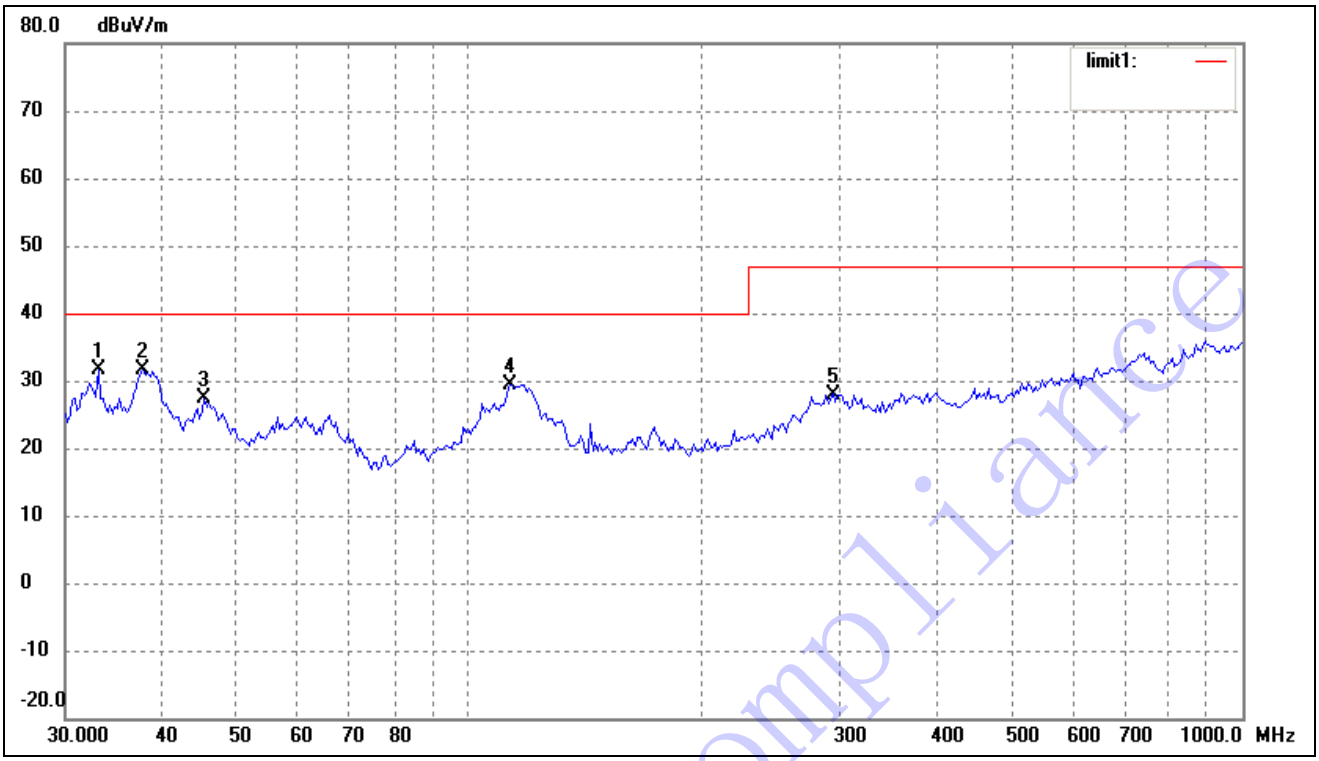
EUT: *Power supply*
Tested Model: *GTM41061-1818-3.0*
Operating Condition: *Full Load*
Comment: *AC 230V / 50Hz*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.4059	25.17	8.44	33.61	40.00	-6.39	360	100	peak
2	121.1231	19.54	4.78	24.32	40.00	-15.68	360	100	peak
3	232.5318	18.78	6.59	25.37	47.00	-21.63	360	100	peak
4	299.3158	16.44	10.15	26.59	47.00	-20.41	360	100	peak
5	364.2595	18.03	10.68	28.71	47.00	-18.29	360	100	peak

Test Specification: *Vertical*

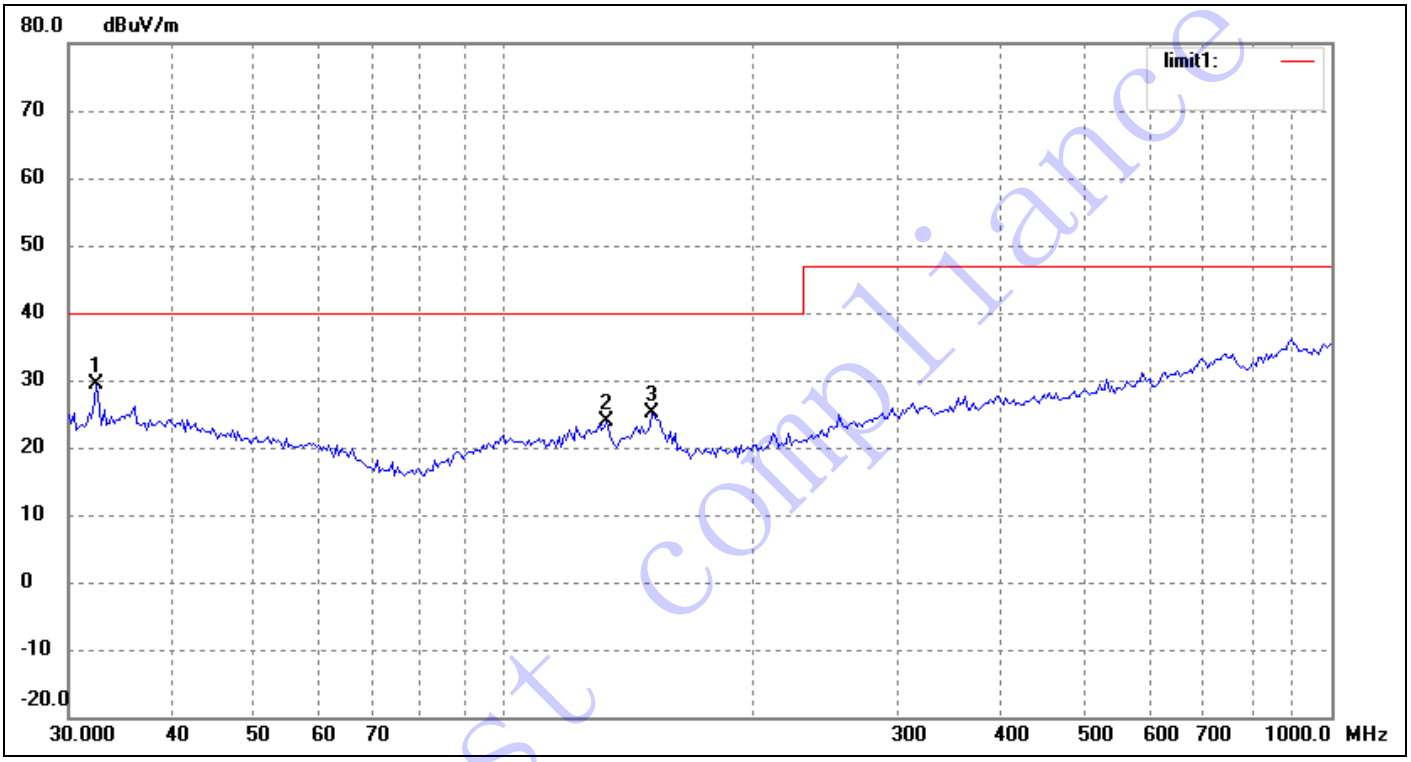


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	23.14	8.56	31.70	40.00	-8.30	360	100	peak
2	37.8121	22.25	9.33	31.58	40.00	-8.42	360	100	peak
3	45.3755	19.23	8.05	27.28	40.00	-12.72	360	100	peak
4	112.9196	23.86	5.56	29.42	40.00	-10.58	360	100	peak
5	295.1469	18.05	9.95	28.00	47.00	-19.00	360	100	peak

Plot of Radiated Emissions Test Data

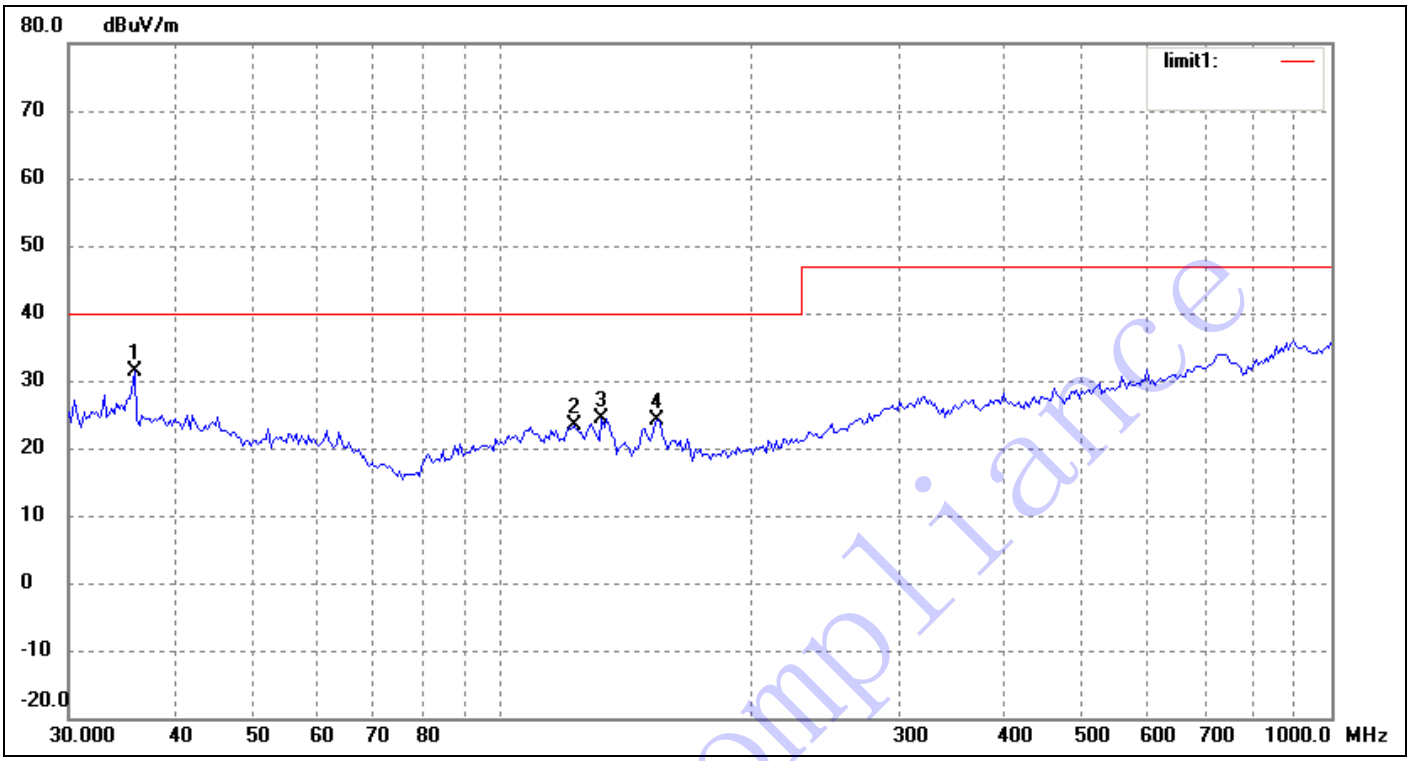
EUT: *Power supply*
Tested Model: *GTM41061-1830*
Operating Condition: *Full Load*
Comment: *AC 230V / 50Hz*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	32.4059	20.85	8.44	29.29	40.00	-10.71	360	100	peak
2	133.6188	20.11	3.86	23.97	40.00	-16.03	360	100	peak
3	151.5972	21.45	3.57	25.02	40.00	-14.98	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	36.0007	22.26	9.04	31.30	40.00	-8.70	360	100	peak
2	121.9755	18.60	4.71	23.31	40.00	-16.69	360	100	peak
3	131.7577	20.45	4.00	24.45	40.00	-15.55	360	100	peak
4	153.7385	20.66	3.59	24.25	40.00	-15.75	360	100	peak

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	2013-05-07	2014-05-06
Power Source	California Instrument	5001IX-CTS-400	60077	2013-05-07	2014-05-06

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

According to Clause 7 of EN61000-3-2, the EUT (rated power is Max.18W) is less than 75W, belong to ‘equipment with a rated power of 75W or less’, therefore ‘limits are not specified in this edition of the standards’. It is deem to full fit the requirements of the standards.

Result: The EUT is compliance with the requirements of this section.

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	2013-05-07	2014-05-06
Power Source	California Instrument	5001IX-CTS-400	60077	2013-05-07	2014-05-06

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

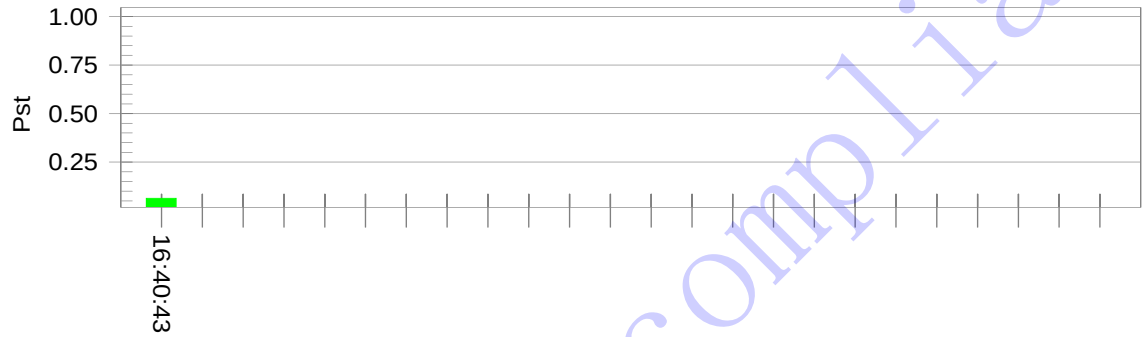
6.4 Voltage Fluctuation and Flicker Test Data

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: Power supply **Tested by: Daniel**
Test category: All parameters (European limits) **Test Margin: 100**
Test date: 2013-5-15 **Start time: 04:30:29 PM** **End time: 04:40:44 PM**
Test duration (min): 10 **Data file name: F-000463.cts_data**
Comment: TM1
Customer: GlobTek, Inc.

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



Plt and limit line

Parameter values recorded during the test:

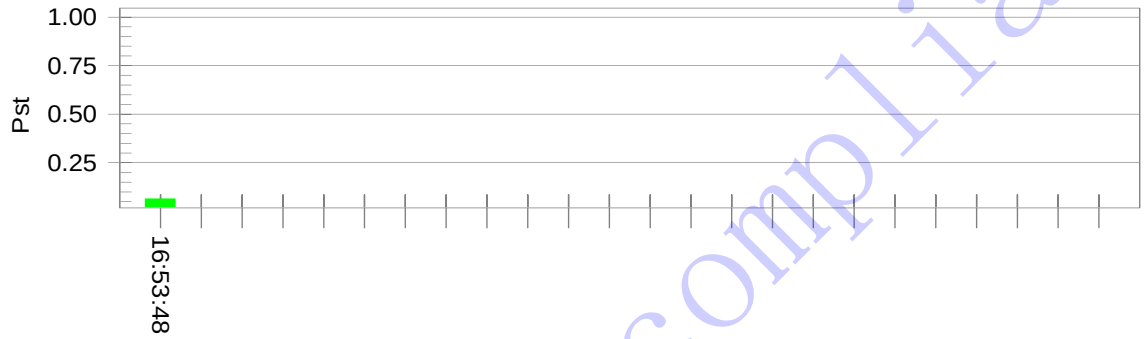
Vrms at the end of test (Volt):	**230.93**			
Highest dt (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.064**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.028**	**Test limit:**	**0.650**	**Pass**

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: Power supply **Tested by: Daniel**
Test category: All parameters (European limits) **Test Margin: 100**
Test date: 2013-5-15 **Start time: 04:43:35 PM** **End time: 04:53:49 PM**
Test duration (min): 10 **Data file name: F-000464.cts_data**
Comment: TM2
Customer: GlobTek, Inc.

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



Plt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.93**			
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**

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	2013-05-07	2014-05-06

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

Tested Model: GTM41061-1512-7.0

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points	Test Levels (Kv)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Surface	A	A	A	A	A	A	A	A	B	B
Gap	A	A	A	A	A	A	A	A	B	B
Port	A	A	A	A	A	A	A	A	B	B

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2 Test Points	Test Levels (Kv)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Metal Part	A	A	A	A	A	A	A	A		

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	A	A	A	A		
Top Side	A	A	A	A	A	A	A	A		
Back Side	A	A	A	A	A	A	A	A		
Left Side	A	A	A	A	A	A	A	A		
Right Side	A	A	A	A	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	A	A	A	A		
Top Side	A	A	A	A	A	A	A	A		
Back Side	A	A	A	A	A	A	A	A		
Left Side	A	A	A	A	A	A	A	A		
Right Side	A	A	A	A	A	A	A	A		

Tested Model: GTM41061-1818-3.0

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points	Test Levels (Kv)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Surface	A	A	A	A	A	A	A	A	B	B
Gap	A	A	A	A	A	A	A	A	B	B
Port	A	A	A	A	A	A	A	A	B	B

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2 Test Points	Test Levels (Kv)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Metal Part	A	A	A	A	A	A	A	A		

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	A	A	A	A		
Top Side	A	A	A	A	A	A	A	A		
Back Side	A	A	A	A	A	A	A	A		
Left Side	A	A	A	A	A	A	A	A		
Right Side	A	A	A	A	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	A	A	A	A		
Top Side	A	A	A	A	A	A	A	A		
Back Side	A	A	A	A	A	A	A	A		
Left Side	A	A	A	A	A	A	A	A		
Right Side	A	A	A	A	A	A	A	A		

Tested Model: GTM41061-1830

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points	Test Levels (Kv)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Surface	A	A	A	A	A	A	A	A	B	B
Gap	A	A	A	A	A	A	A	A	B	B
Port	A	A	A	A	A	A	A	A	B	B

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2 Test Points	Test Levels (Kv)									
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Metal Part	A	A	A	A	A	A	A	A		

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	A	A	A	A		
Top Side	A	A	A	A	A	A	A	A		
Back Side	A	A	A	A	A	A	A	A		
Left Side	A	A	A	A	A	A	A	A		
Right Side	A	A	A	A	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	A	A	A	A		
Top Side	A	A	A	A	A	A	A	A		
Back Side	A	A	A	A	A	A	A	A		
Left Side	A	A	A	A	A	A	A	A		
Right Side	A	A	A	A	A	A	A	A		

Test Result: Pass

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	2013-05-07	2014-05-06
Voltage Probe	Rohde & Schwarz	URV5-Z2	100013	2013-05-07	2014-05-06
Power Amplifier	AR	150W1000	300999	2013-05-07	2014-05-06
Power Amplifier	AR	25S1G4AM1	305993	2013-05-07	2014-05-06
Trilog Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Anechoic chamber	Albatross Projects	MCDC	----	2012-03-20	2014-03-19

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

Tested Model: GTM41061-1512-7.0

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	20	A	A	A	A	A	A	A	A
1000-2700	10	A	A	A	A	A	A	A	A

Modulation: Pulse modulation, 50% duty cycle, repetition frequency 18Hz

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
380-390	35	A	A	A	A	A	A	A	A
430-470	28	A	A	A	A	A	A	A	A
800-960	28	A	A	A	A	A	A	A	A

Modulation: Pulse modulation, 50% duty cycle, repetition frequency 217Hz

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
140-170	24	A	A	A	A	A	A	A	A
704-787	9	A	A	A	A	A	A	A	A
1700-1990	28	A	A	A	A	A	A	A	A
2400-2570	28	A	A	A	A	A	A	A	A
5100-5800	9	A	A	A	A	A	A	A	A

Tested Model: GTM41061-1818-3.0

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	20	A	A	A	A	A	A	A	A
1000-2700	10	A	A	A	A	A	A	A	A

Modulation: Pulse modulation, 50% duty cycle, repetition frequency 18Hz

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
380-390	35	A	A	A	A	A	A	A	A
430-470	28	A	A	A	A	A	A	A	A
800-960	28	A	A	A	A	A	A	A	A

Modulation: Pulse modulation, 50% duty cycle, repetition frequency 217Hz

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
140-170	24	A	A	A	A	A	A	A	A
704-787	9	A	A	A	A	A	A	A	A
1700-1990	28	A	A	A	A	A	A	A	A
2400-2570	28	A	A	A	A	A	A	A	A
5100-5800	9	A	A	A	A	A	A	A	A

Test Result: Pass

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	2013-05-07	2014-05-06
Couple Clamp	EMC PARTNER	CN-EFT1000	513	2013-05-07	2014-05-06

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

Tested Model: GTM41061-1512-7.0

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	/	/	/	/	/	/	/	/
	L1+L2	A	A	B	B	B	B	/	/
	L1 + PE	/	/	/	/	/	/	/	/
	L2 + PE	/	/	/	/	/	/	/	/
	L1+L2+PE	/	/	/	/	/	/	/	/
Signal ports		/	/	/	/	/	/	/	/

Tested Model: GTM41061-1818-3.0

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	/	/	/	/	/	/	/	/
	L1+L2	A	A	B	B	B	B	/	/
	L1 + PE	/	/	/	/	/	/	/	/
	L2 + PE	/	/	/	/	/	/	/	/
	L1+L2+PE	/	/	/	/	/	/	/	/
Signal ports		/	/	/	/	/	/	/	/

Test Result: Pass

10. Surges

10.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Transient 2000	EMC PARTNER	TRA2000	863	2013-05-07	2014-05-06

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

Tested Model: GTM41061-1512-7.0

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

Tested Model: GTM41061-1818-3.0

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

Tested Model: GTM41061-1830

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

Test Result: Pass

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	2013-05-07	2014-05-06
Attenuator	EMTEST	MA-500	1009	2013-05-07	2014-05-06
CDN	Luthi	L-801M2/M3	2665	2013-05-07	2014-05-06

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

Tested Model: GTM41061-1512-7.0

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	/
X	Special	/	/	/

Tested Model: GTM41061-1818-3.0

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	/
X	Special	/	/	/

Test Result: Pass

12. Power-Frequency Magnetic Fields (PFMF)

12.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMCPRO	KEYTEK	EMCPro	0509124	2013-05-07	2014-05-06
Coil	KEYTEK	F-1000-4-8	0533	2013-05-07	2014-05-06

12.2 Test Procedure

Test is conducting under the description of IEC 61000-4-8.

Test Performance

Performance Criterion: A

Environmental Conditions

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

12.3 Power-Frequency Magnetic Field Test Data

Tested Model: GTM41061-1512-7.0

Level	Magnetic Field Strength (r.m.s) A/m	Frequency Hz	Induction Coil Postion	Pass	Fail
1	1	50	X, Y, Z	/	/
2	3	50	X, Y, Z	/	/
3	10	50	X, Y, Z	/	/
X	30	50	X, Y, Z	A	/

Tested Model: GTM41061-1818-3.0

Level	Magnetic Field Strength (r.m.s) A/m	Frequency Hz	Induction Coil Postion	Pass	Fail
1	1	50	X, Y, Z	/	/
2	3	50	X, Y, Z	/	/
3	10	50	X, Y, Z	/	/
X	30	50	X, Y, Z	A	/

Test Result: Pass

13. Voltage Dips and Interruptions

13.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Transient 2000	EMC PARTNER	TRA2000	863	2013-05-07	2014-05-06

13.2 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

13.3 Voltage Dips And Interruptions Test Data

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

Tested Model: GTM41061-1512-7.0

Level	U	T	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	B	/
2	100%	20ms	0/90/180/270	3	B	/
3	30%	500ms	0/90/180/270	3	B	/
4	100%	5000ms	0/90/180/270	3	B	/

Tested Model: GTM41061-1818-3.0

Level	U	T	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	B	/
2	100%	20ms	0/90/180/270	3	B	/
3	30%	500ms	0/90/180/270	3	B	/
4	100%	5000ms	0/90/180/270	3	B	/

Test Result: Pass

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

Tested Model: GTM41061-1512-7.0

CE Label Location

Tested Model: GTM41061-1818-3.0

EXHIBIT 2 - EUT PHOTOGRAPHS

Tested Model: GTM41061-1512-7.0

EUT View 1

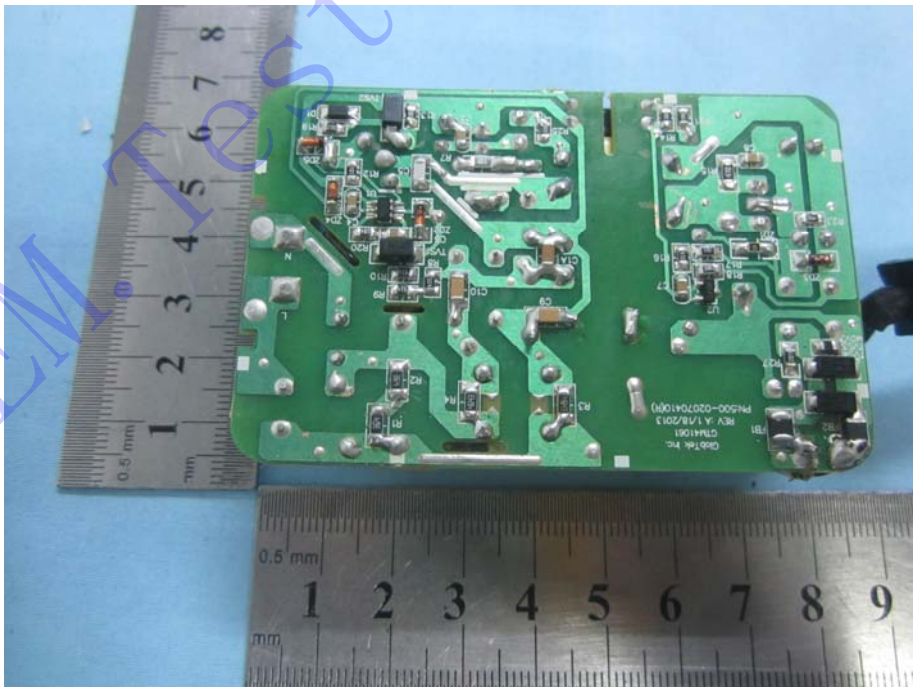
EUT View 2

EUT View 3

EUT Housing and Board View 1

Solder Board-Component View 1

Solder Board-Component View 2



Tested Model: GTM41061-1818-3.0

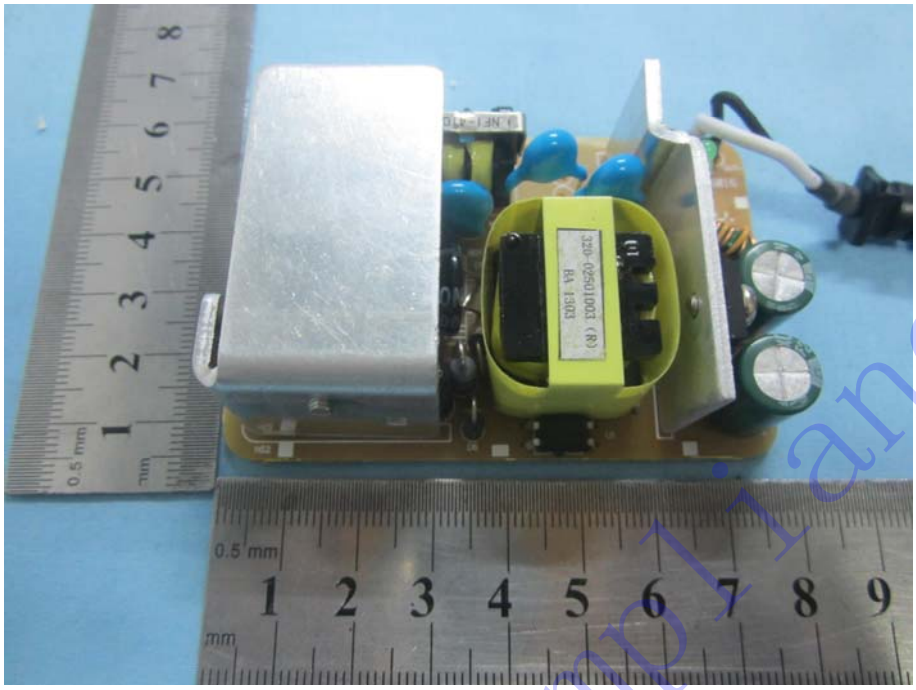
EUT View 1

EUT View 2

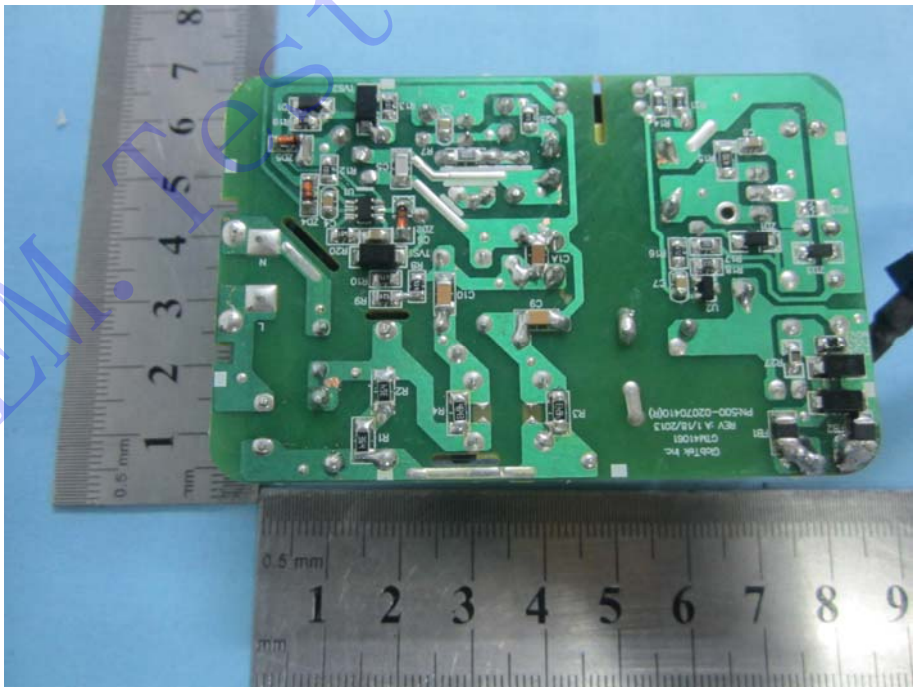
EUT View 3

EUT Housing and Board View 1

Solder Board-Component View 1



Solder Board-Component View 2



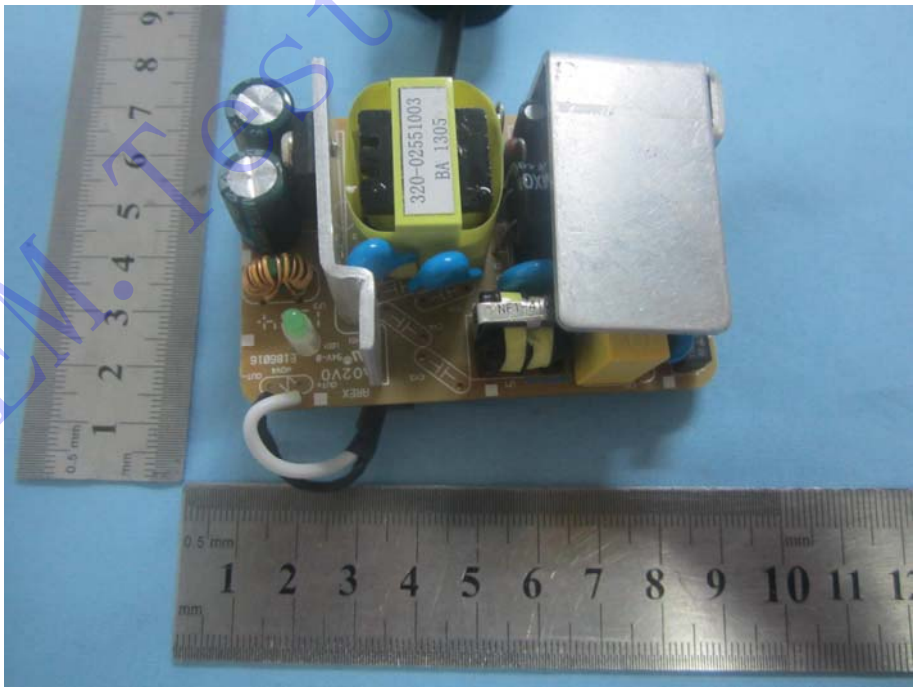
Tested Model: GTM41061-1830

EUT View 1

EUT View 2

EUT Housing and Board View 1

Solder Board-Component View 1



Solder Board-Component View 2

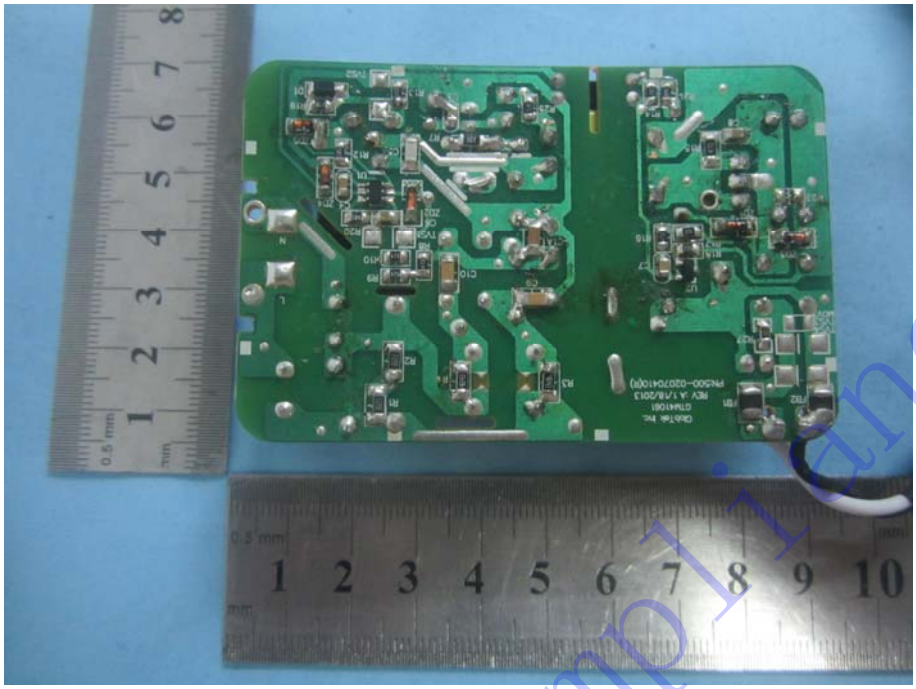
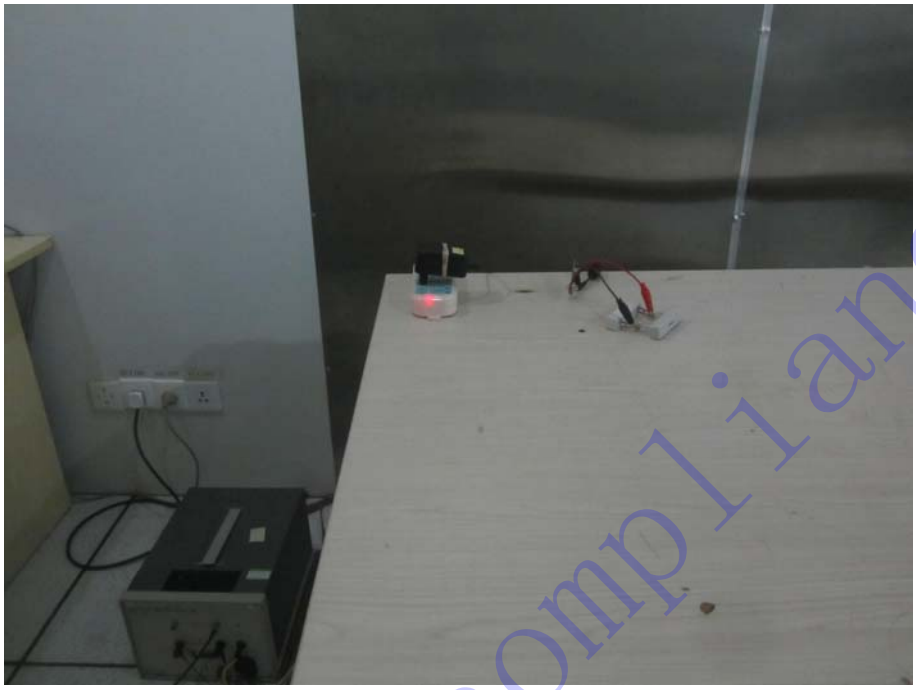


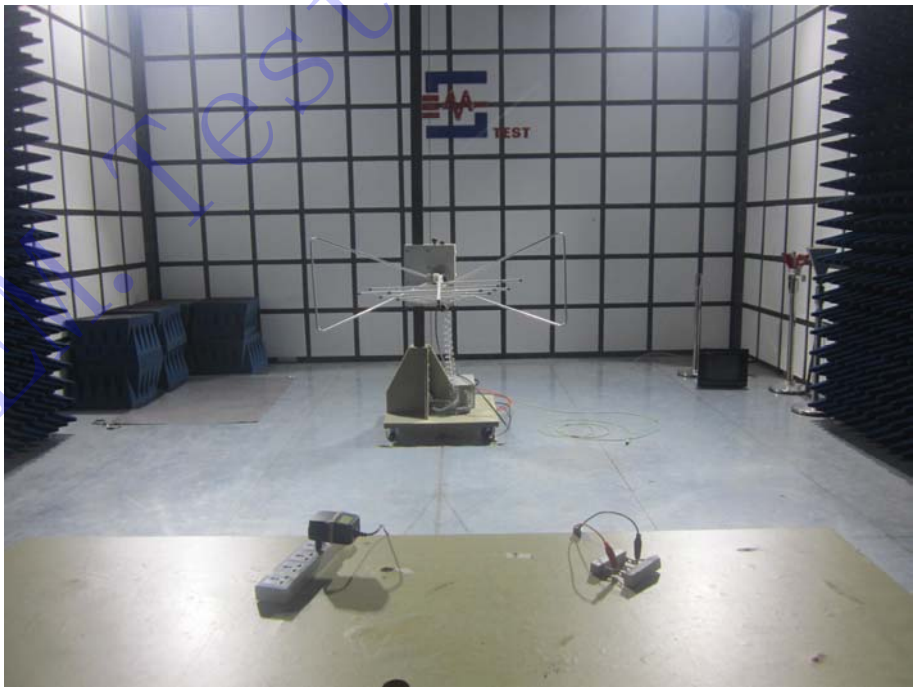
EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

Tested Model: GTM41061-1512-7.0

Conduction Emission Test View



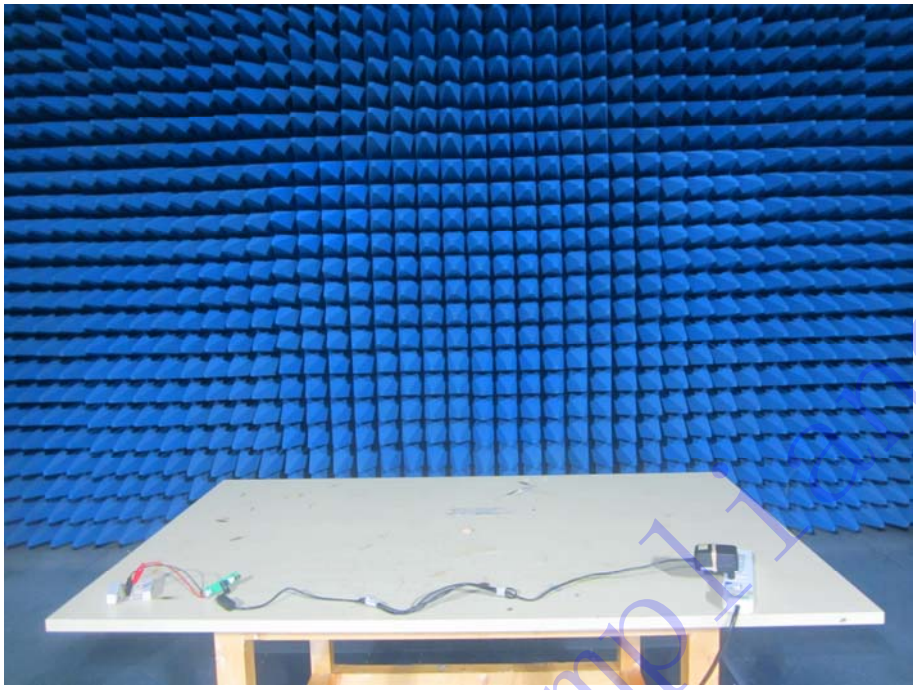
Radiation Emission Test View



Flicker Test View

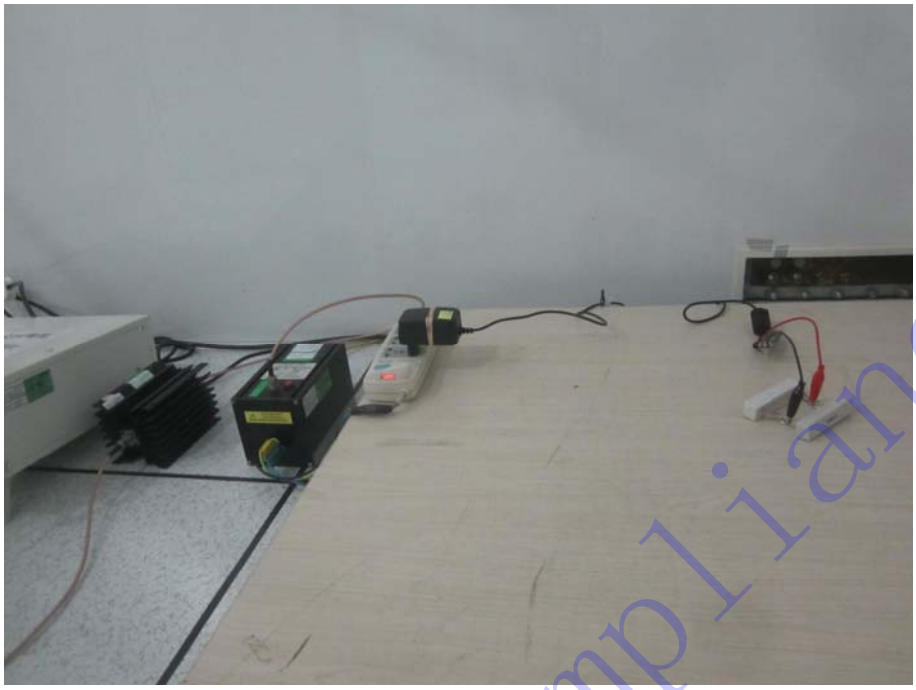
IEC61000-4-2 Test View

IEC61000-4-3 Test View



IEC61000-4-4/5/11 Test View

IEC61000-4-6 Test View



Tested Model: GTM41061-1818-3.0

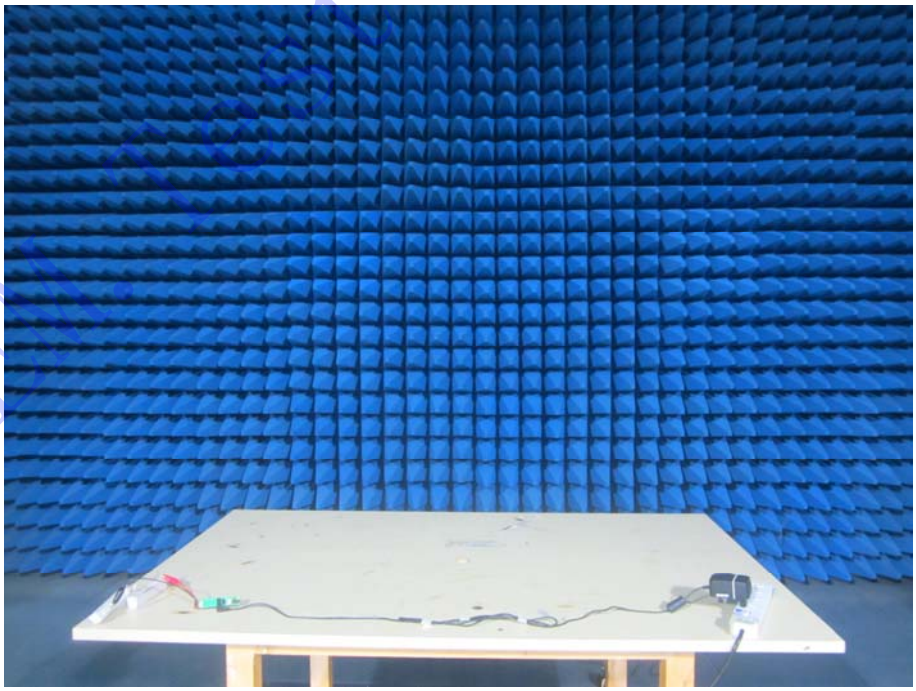
Conduction Emission Test View

Radiation Emission Test View

Flicker Test View

IEC61000-4-2 Test View

IEC61000-4-3 Test View



IEC61000-4-4/5/11 Test View

IEC61000-4-6 Test View

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