

FCC Part 15B
Measurement and Test Report
For
GlobTek, Inc.
186 Veterans Dr. Northvale, NJ 07647 USA

FCC Rule(s):	<u>FCC Part 15 Subpart B</u>	
Product Description:	<u>Power adapter</u>	
Tested Model:	<u>GT(M or -) 21097-X-Y.Y series</u>	
Report No.:	<u>STR14128286E-3</u>	
Tested Date:	<u>2014-12-30 to 2015-01-30</u>	
Issued Date:	<u>2015-01-30</u>	
Tested By:	<u>Justin Huang / Engineer</u>	<i>Justin Huang</i>
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Approved & Authorized By:	<u>Jandy so / PSQ Manager</u>	<i>Jandyso</i>
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.
 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 adapter
Trade Name:	GlobTek
Model No.:	GT(M or -) 21097-X-Y.Y series
Adding Model(s):	/
<p><i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i> GT(M or -) 21097-X-Y.Y Where “M” or “-“ for market identification and not related to safety. “X” denotes the standard output power and voltage, which can be 2003, 3005, 4509, 5012, 5015, 5018, 5024 or 5048, the former two numbers of figures indicate max. output power, 50W max. and the latter two numbers of figures indicate standard model output voltage. “-Y.Y” is optional variable or blank for specifying output voltage deviation from standard model; which means subcontracting volts from standard output voltage in 0.1V increments or blank; 0.1min.to 23.9 max., actual voltage range is 3.3-48V only.</p>	

Technical Characteristics of EUT	
Rated Voltage:	AC 100-240V, 50-60Hz
Rated Current:	Max 1.6A
Rated Power:	Max 50W
Power Adapter Model:	/
Lowest Internal Frequency:	/
Highest Internal Frequency:	Below 108MHz
Classification of ITE:	Class B

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 C63.4-2014, 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.: 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).

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	Working	Connected to the load

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Resistance * 1	/	/	/

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

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.

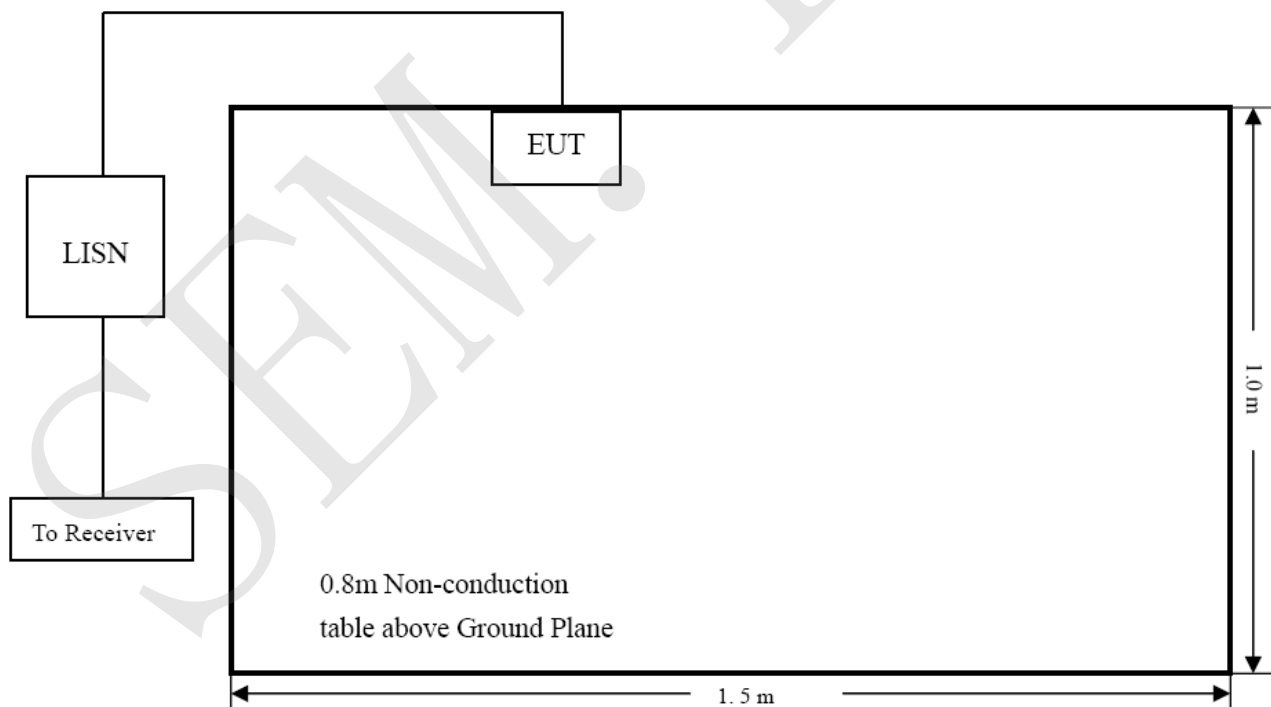
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	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

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2014, 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 B device, with the *worst* margin reading of:

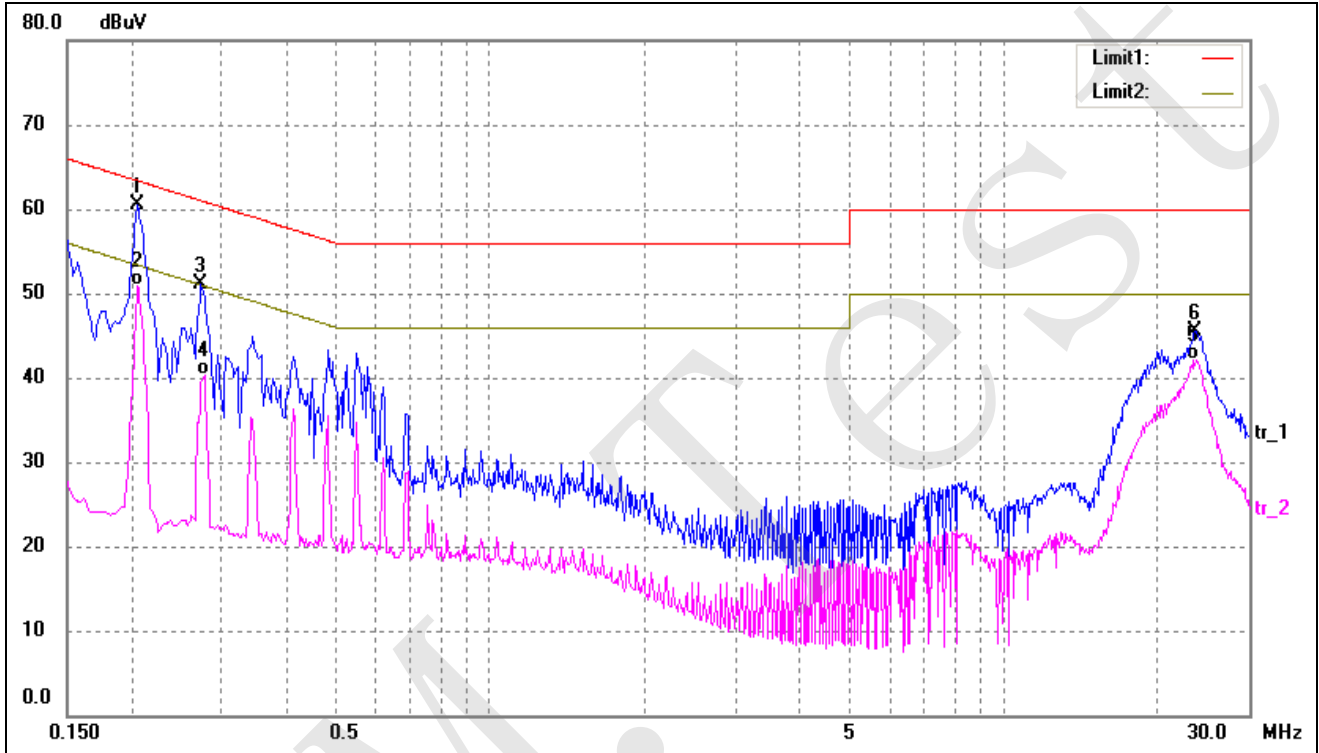
-2.21 dB at **0.2060 MHz** in the **Neutral, Average** detector, **GT-21097-3005** Model, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

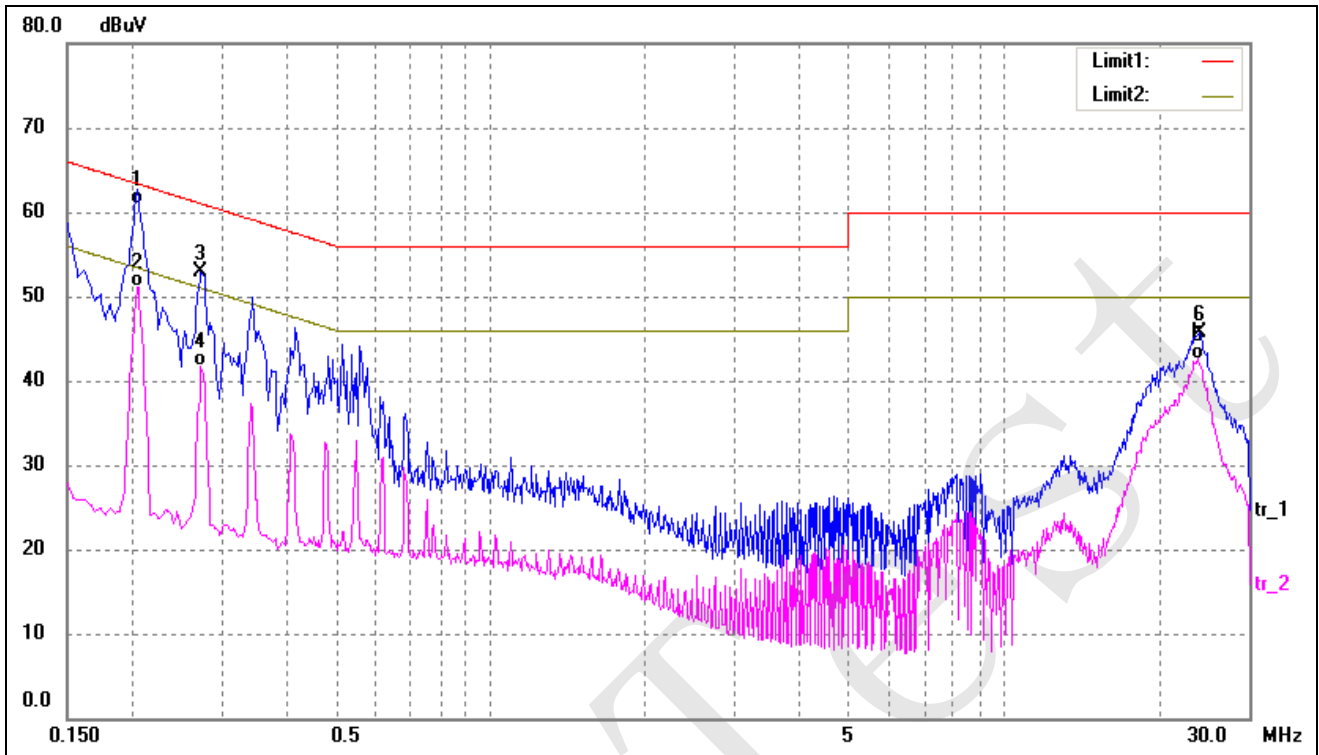
EUT: Power adapter
 Tested Model: GT-21097-3005
 Operating Condition: TMI
 Comment: AC 120V/60Hz

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2060	51.04	9.50	60.54	63.37	-2.83	peak
2*	0.2060	41.32	9.50	50.82	53.37	-2.55	AVG
3	0.2740	41.66	9.50	51.16	61.00	-9.84	peak
4	0.2780	30.86	9.50	40.36	50.88	-10.52	AVG
5	23.3900	29.67	12.46	42.13	50.00	-7.87	AVG
6	23.5260	32.98	12.51	45.49	60.00	-14.51	peak

Test Specification: Neutral

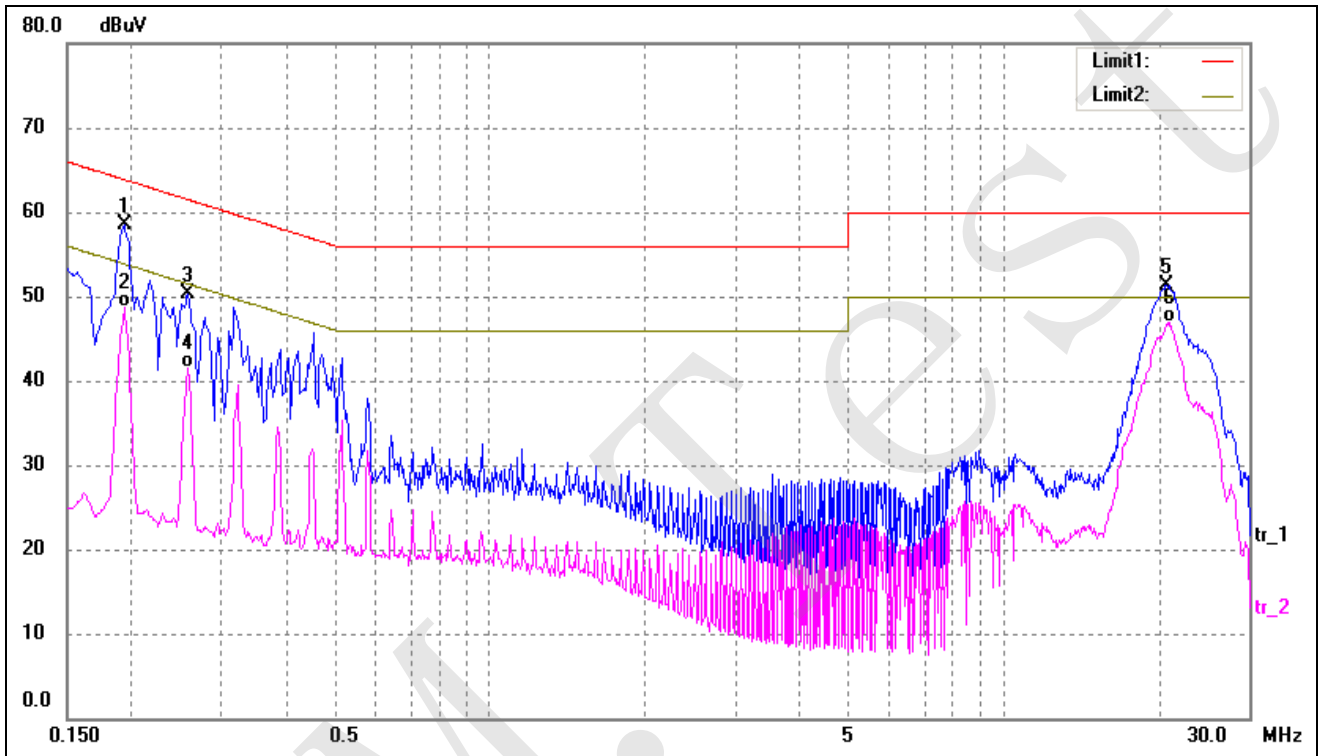


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2060	51.43	9.50	60.93	63.37	-2.44	QP
2*	0.2060	41.66	9.50	51.16	53.37	-2.21	AVG
3	0.2740	43.47	9.50	52.97	61.00	-8.03	peak
4	0.2740	32.11	9.50	41.61	51.00	-9.39	AVG
5	23.8380	29.99	12.61	42.60	50.00	-7.40	AVG
6	24.0420	33.05	12.68	45.73	60.00	-14.27	peak

Plot of Conducted Emissions Test Data

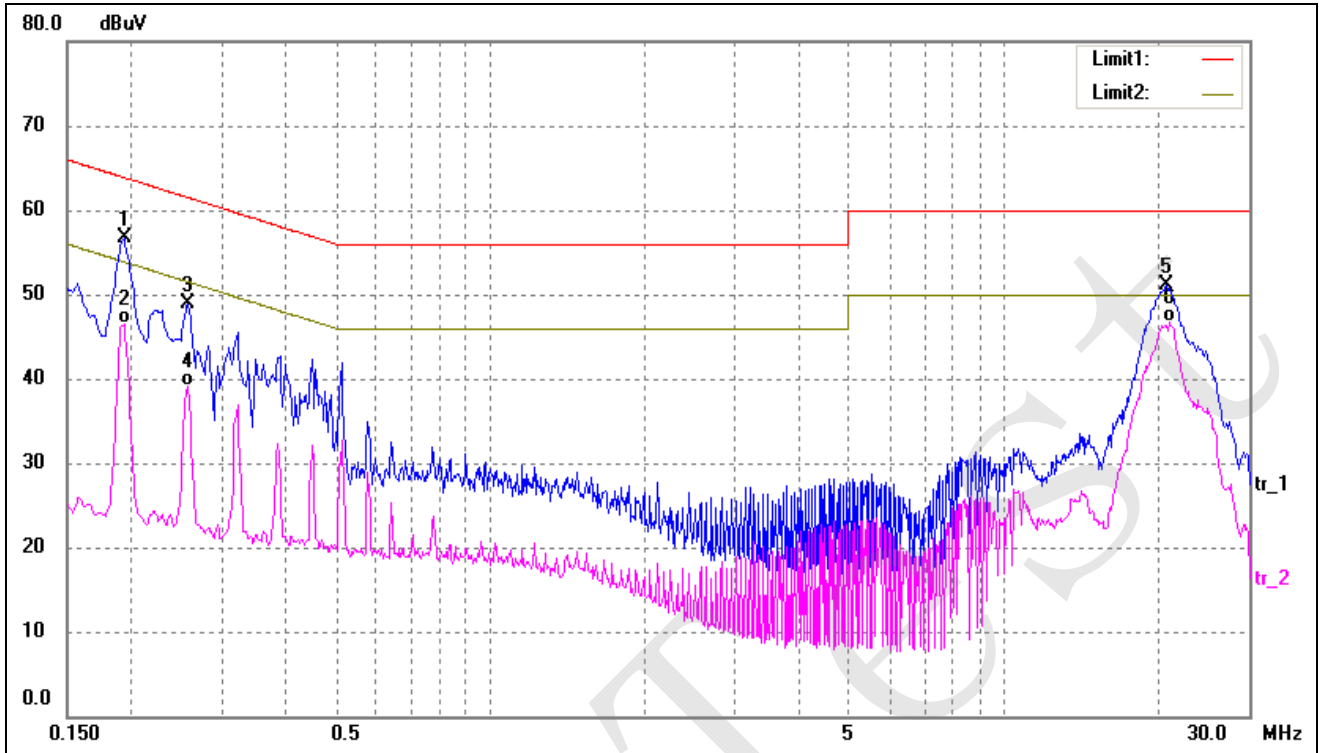
EUT: Power adapter
 Tested Model: GT-21097-5012
 Operating Condition: TM1
 Comment: AC 120V/60Hz

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1940	48.98	9.50	58.48	63.86	-5.38	peak
2	0.1940	39.25	9.50	48.75	53.86	-5.11	AVG
3	0.2580	40.90	9.50	50.40	61.50	-11.10	peak
4	0.2580	32.06	9.50	41.56	51.50	-9.94	AVG
5	20.7260	39.31	12.00	51.31	60.00	-8.69	peak
6*	21.0460	34.88	12.00	46.88	50.00	-3.12	AVG

Test Specification: Neutral

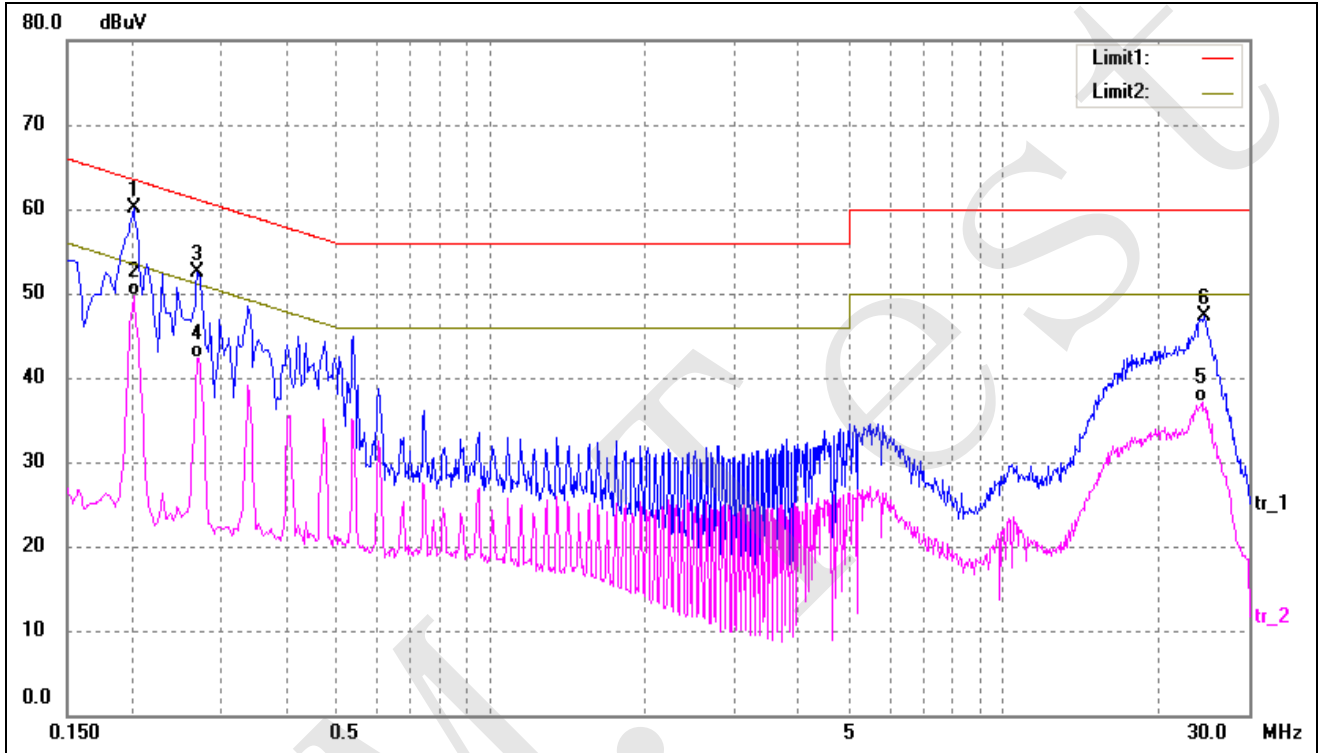


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1940	47.27	9.50	56.77	63.86	-7.09	peak
2	0.1940	37.09	9.50	46.59	53.86	-7.27	AVG
3	0.2580	39.43	9.50	48.93	61.50	-12.57	peak
4	0.2580	29.56	9.50	39.06	51.50	-12.44	AVG
5	20.7380	39.02	12.00	51.02	60.00	-8.98	peak
6*	20.9980	34.64	12.00	46.64	50.00	-3.36	AVG

Plot of Conducted Emissions Test Data

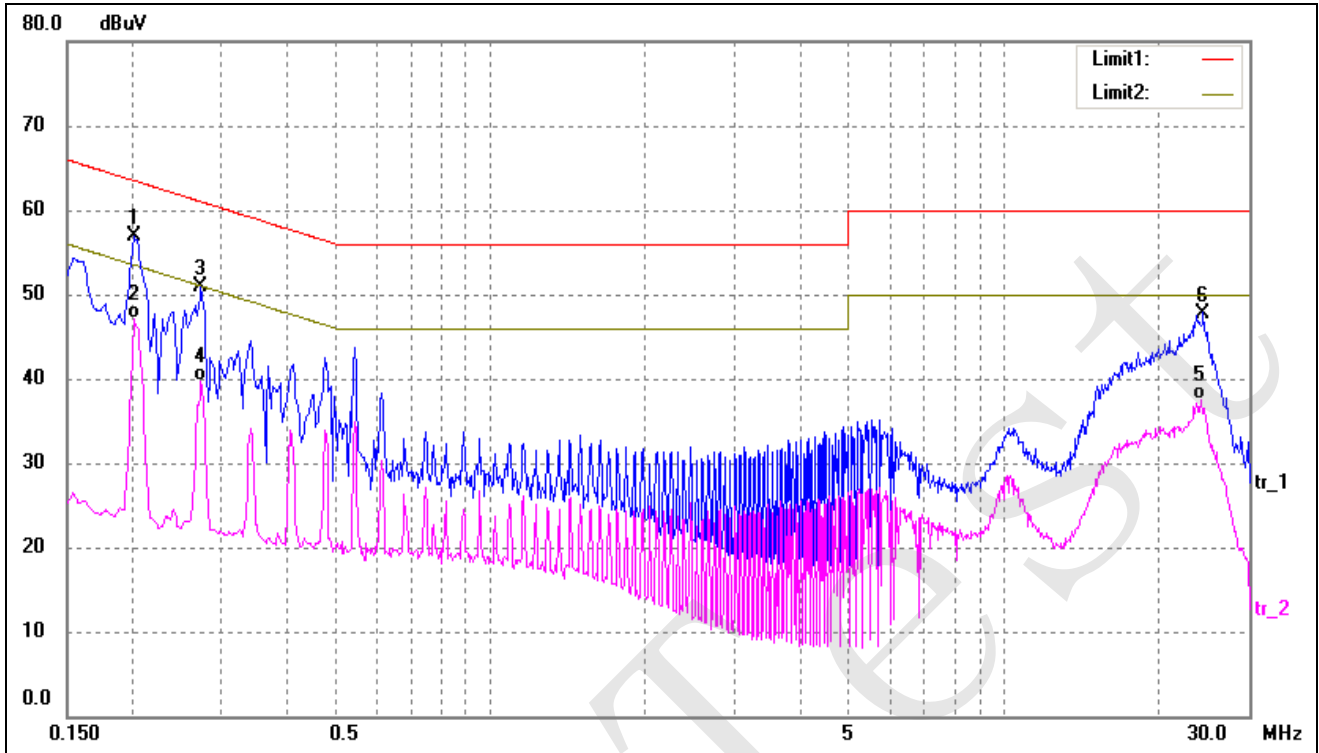
EUT: Power adapter
 Tested Model: GT-21097-5048
 Operating Condition: TM1
 Comment: AC 120V/60Hz

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.2020	50.58	9.50	60.08	63.53	-3.45	peak
2	0.2020	40.13	9.50	49.63	53.53	-3.90	AVG
3	0.2700	43.09	9.50	52.59	61.12	-8.53	peak
4	0.2700	32.85	9.50	42.35	51.12	-8.77	AVG
5	24.3900	24.28	12.80	37.08	50.00	-12.92	AVG
6	24.5940	34.36	12.86	47.22	60.00	-12.78	peak

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2020	47.34	9.50	56.84	63.53	-6.69	peak
2*	0.2020	37.52	9.50	47.02	53.53	-6.51	AVG
3	0.2740	41.46	9.50	50.96	61.00	-10.04	peak
4	0.2740	30.12	9.50	39.62	51.00	-11.38	AVG
5	24.1580	24.84	12.72	37.56	50.00	-12.44	AVG
6	24.4980	34.97	12.83	47.80	60.00	-12.20	peak

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

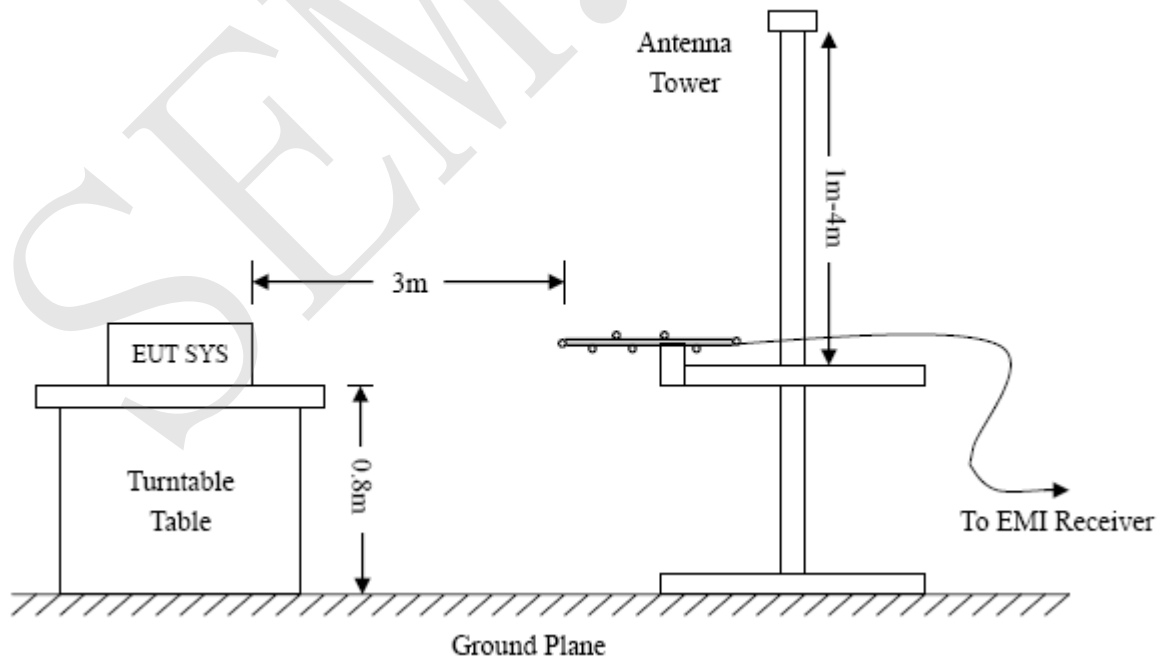
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	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
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-24	2015-05-23

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

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 -6dBμV means the emission is 6dBμV below the maximum limit for a Class B 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

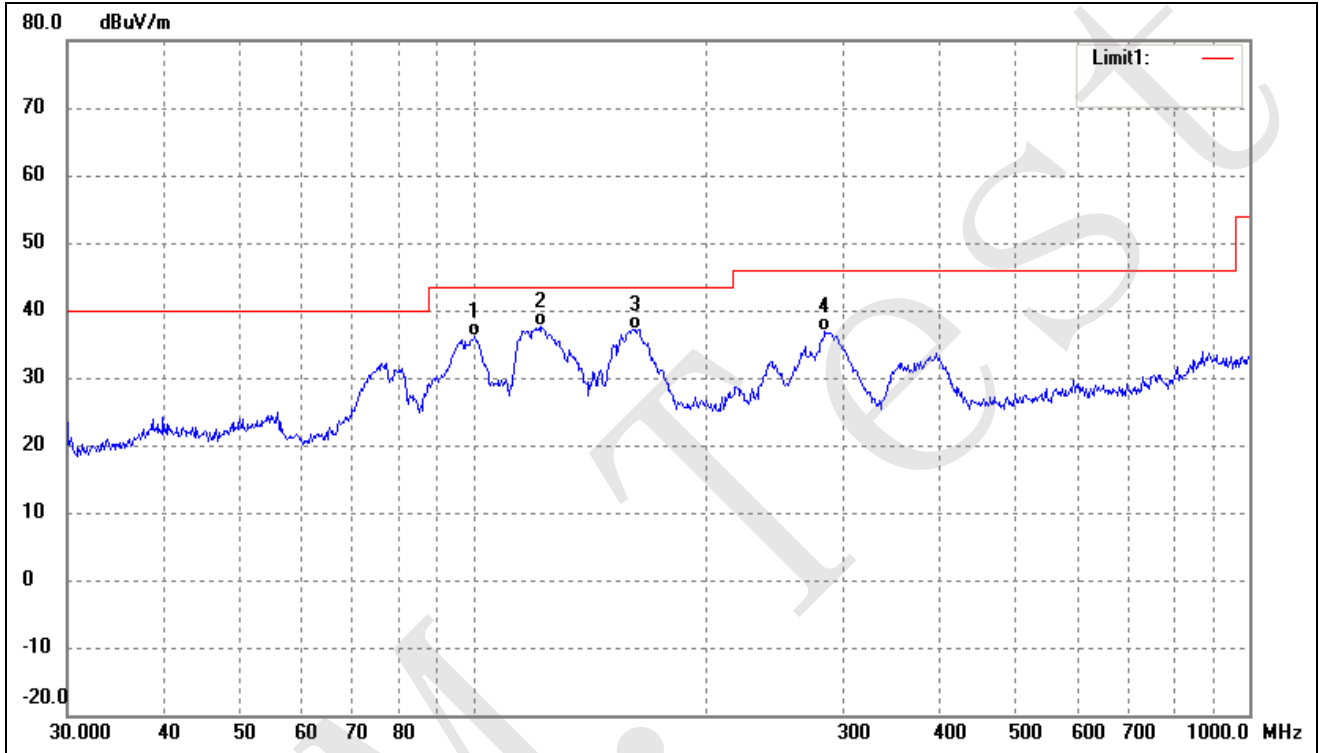
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.90 dB at 63.0916 MHz in the Vertical polarization, GT-21097-5012 Model, 30 MHz to 1 GHz, 3Meters

Plot of Radiated Emissions Test Data

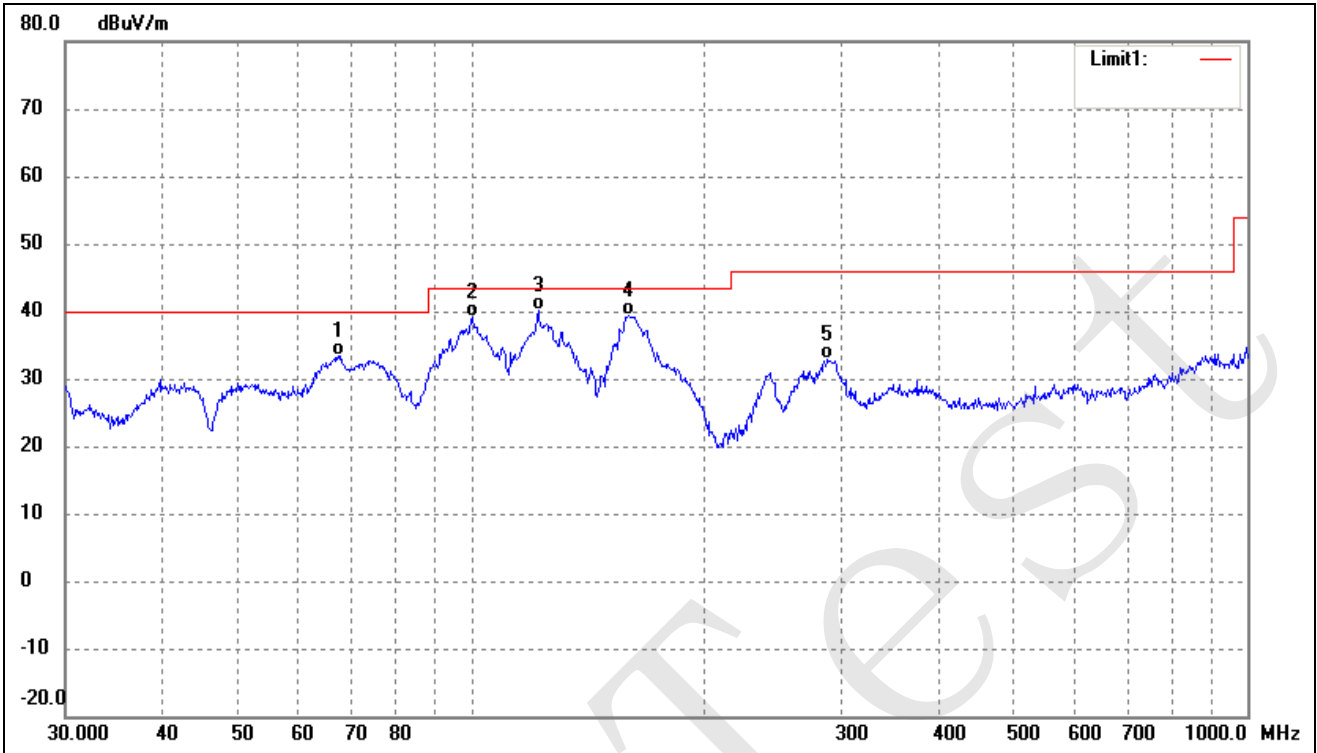
EUT: Power adapter
 Tested Model: GT-21097-3005
 Operating Condition: TM1
 Comment: AC 120V/60Hz

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	100.5806	30.13	6.07	36.20	43.50	-7.30	25	100	QP
2	122.4039	33.93	3.82	37.75	43.50	-5.75	87	100	QP
3	161.4742	34.60	2.63	37.23	43.50	-6.27	114	100	QP
4	283.9791	28.21	8.55	36.76	46.00	-9.24	205	100	QP

Test Specification: Vertical

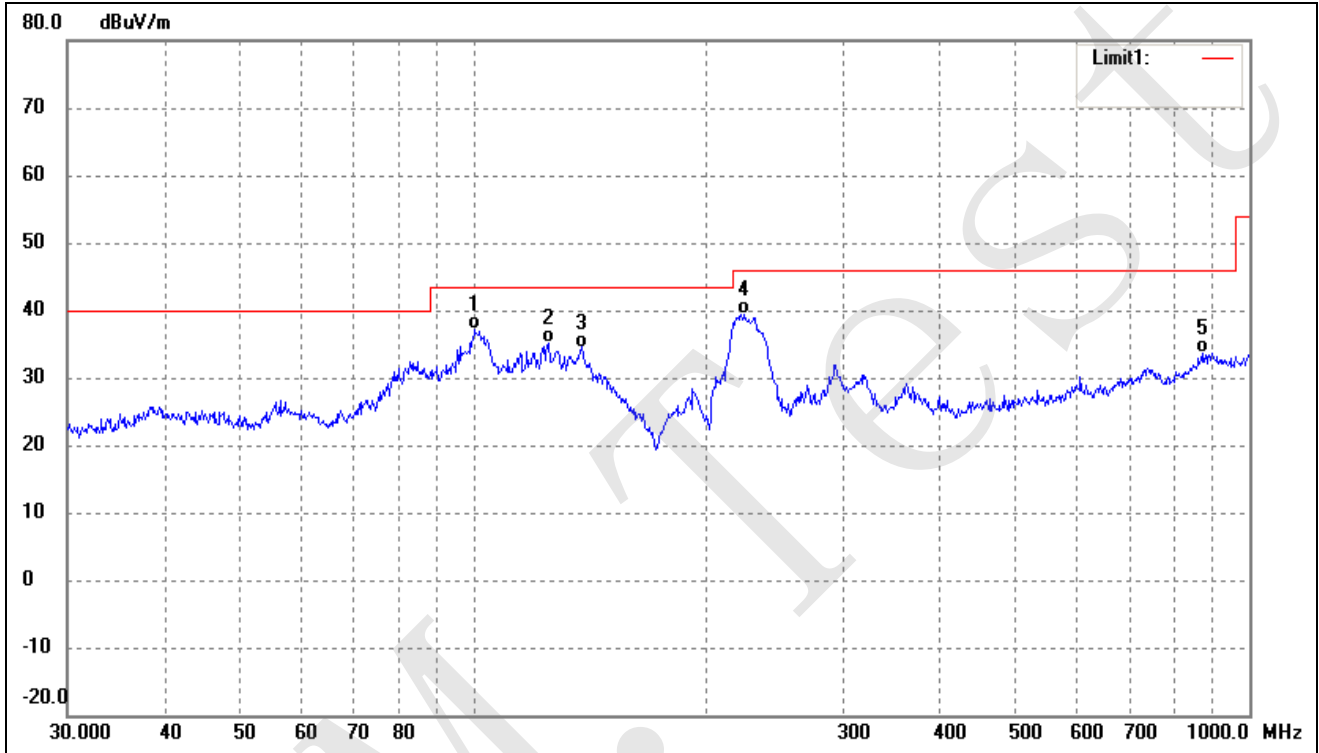


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	67.4381	30.29	3.01	33.30	40.00	-6.70	23	100	QP
2	100.2286	32.99	6.10	39.09	43.50	-4.41	168	100	QP
3	121.9754	36.20	3.85	40.05	43.50	-3.45	144	100	QP
4	159.2250	36.75	2.62	39.37	43.50	-4.13	230	200	QP
5	287.9904	24.17	8.71	32.88	46.00	-13.12	115	200	QP

Plot of Radiated Emissions Test Data

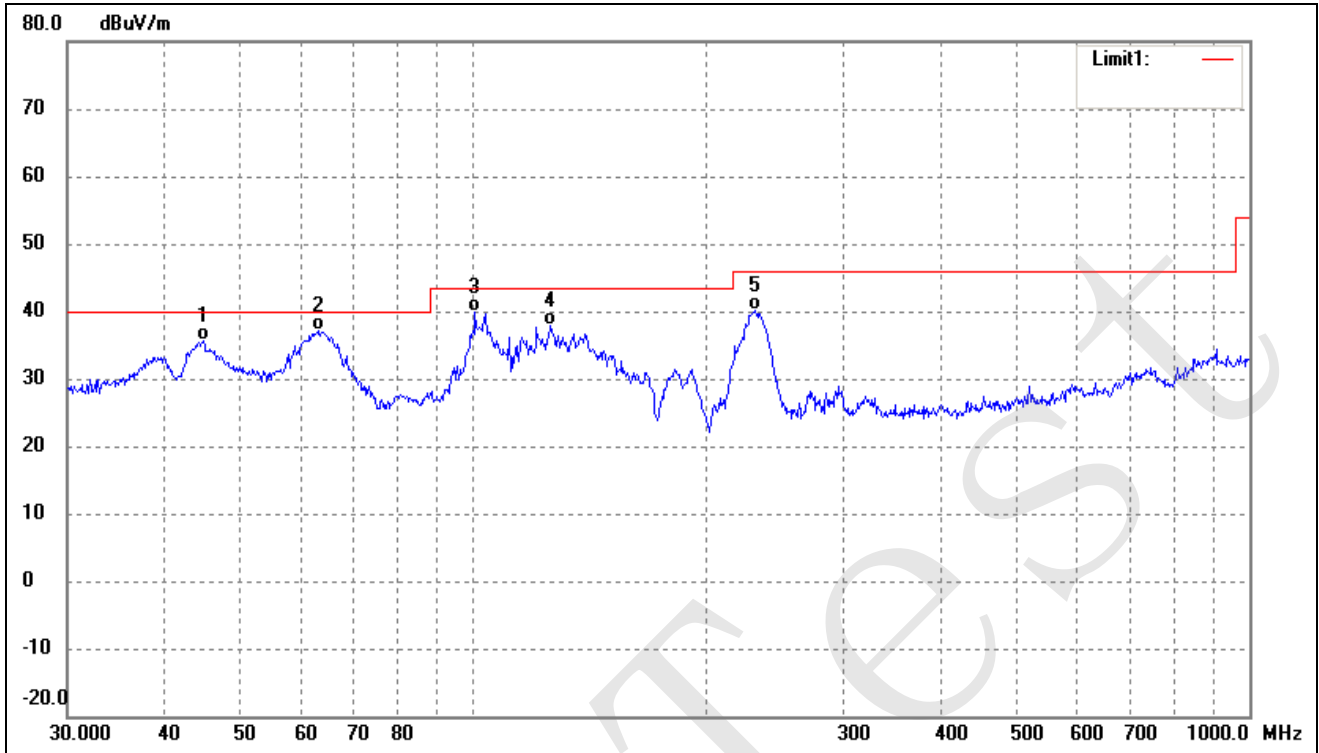
EUT: Power adapter
 Tested Model: GT-21097-5012
 Operating Condition: TM1
 Comment: AC 120V/60Hz

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	100.5806	31.09	6.07	37.16	43.50	-6.34	155	100	QP
2	125.0066	31.44	3.61	35.05	43.50	-8.45	42	100	QP
3	137.9028	31.92	2.58	34.50	43.50	-9.00	132	100	QP
4	222.9502	34.08	5.28	39.36	46.00	-6.64	227	200	QP
5	869.1302	17.06	16.54	33.60	46.00	-12.40	0	200	QP

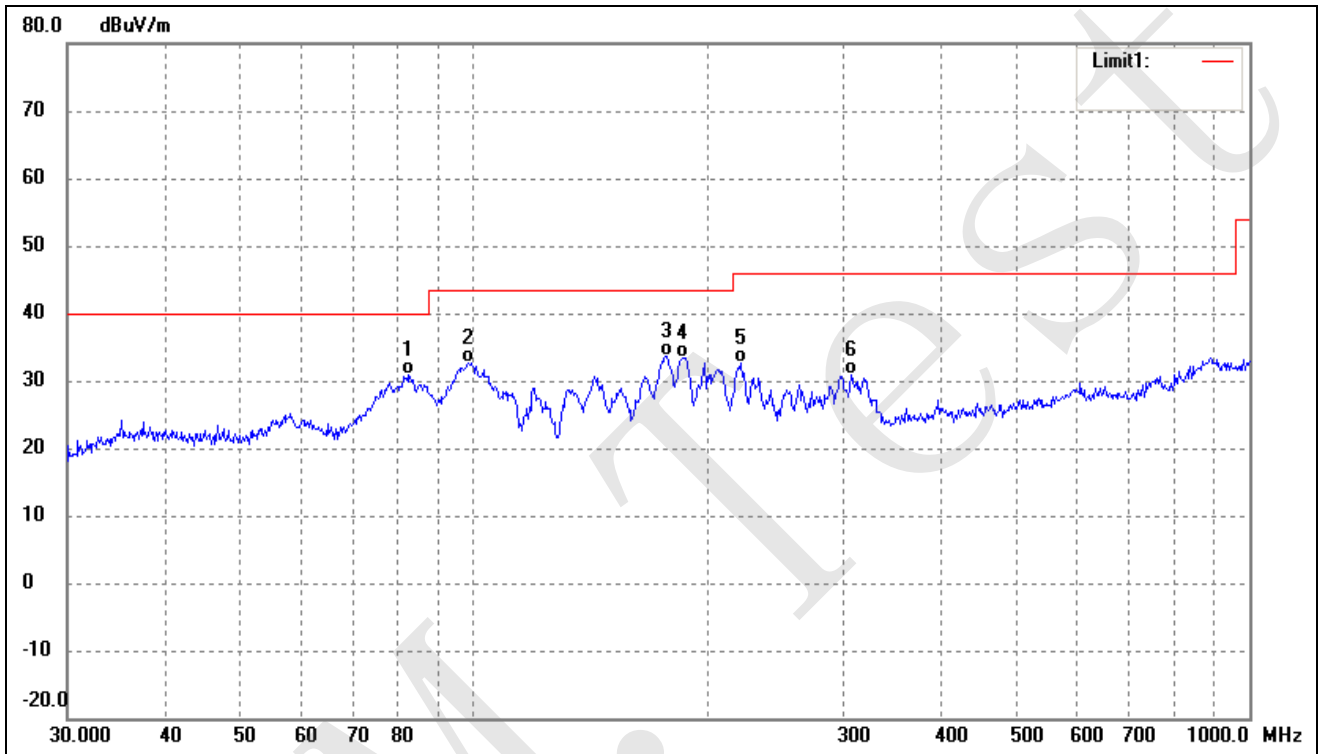
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	44.9006	27.94	7.79	35.73	40.00	-4.27	25	100	QP
2	63.0916	32.71	4.39	37.10	40.00	-2.90	103	100	QP
3	100.5806	33.86	6.07	39.93	43.50	-3.57	75	100	QP
4	125.8864	34.35	3.54	37.89	43.50	-5.61	195	200	QP
5	230.9068	34.31	5.77	40.08	46.00	-5.92	142	200	QP

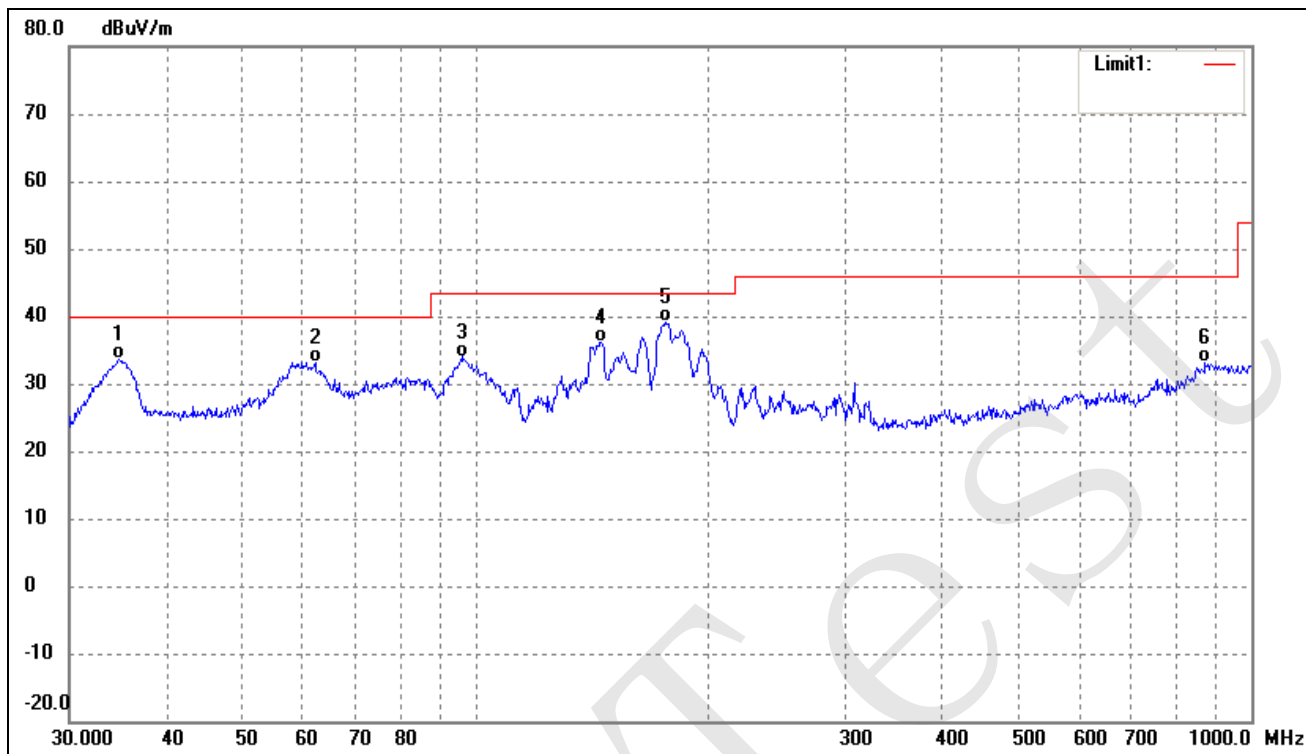
Plot of Radiated Emissions Test Data

EUT: Power adapter
 Tested Model: GT-21097-5048
 Operating Condition: TM1
 Comment: AC 120V/60Hz
 Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	82.3588	29.26	1.62	30.88	40.00	-9.12	64	100	QP
2	98.4866	26.95	5.75	32.70	43.50	-10.80	172	100	QP
3	177.5092	30.88	2.73	33.61	43.50	-9.89	251	100	QP
4	186.4409	30.41	3.05	33.46	43.50	-10.04	118	100	QP
5	221.3921	27.51	5.20	32.71	46.00	-13.29	203	200	QP
6	306.7537	21.59	9.21	30.80	46.00	-15.20	260	200	QP

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	34.7602	25.24	8.35	33.59	40.00	-6.41	58	100	QP
2	62.2128	28.51	4.67	33.18	40.00	-6.82	135	100	QP
3	96.0986	28.86	5.14	34.00	43.50	-9.50	116	100	QP
4	145.3506	33.60	2.46	36.06	43.50	-7.44	157	100	QP
5	175.6516	36.32	2.72	39.04	43.50	-4.46	207	200	QP
6	872.1832	16.51	16.61	33.12	46.00	-12.88	186	200	QP

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

Tested Model: GT-21097-3005

FCC Label Location



Tested Model: GT-21097-5012

FCC Label Location



Tested Model: GT-21097-5048

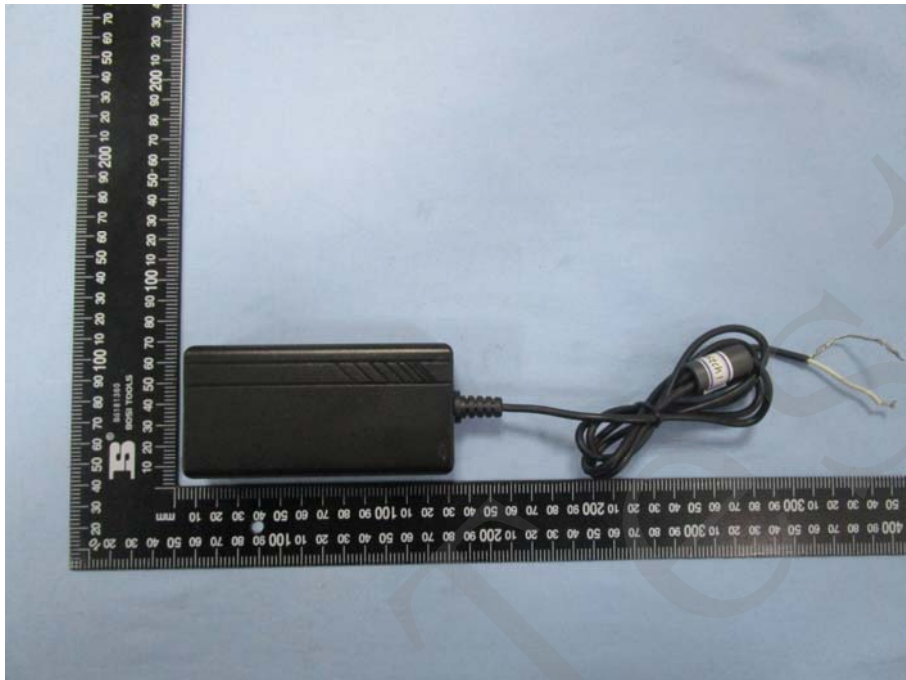
FCC Label Location



EXHIBIT 2 - EUT PHOTOGRAPHS

Tested Model: GT-21097-3005

EUT View 1



EUT View 2



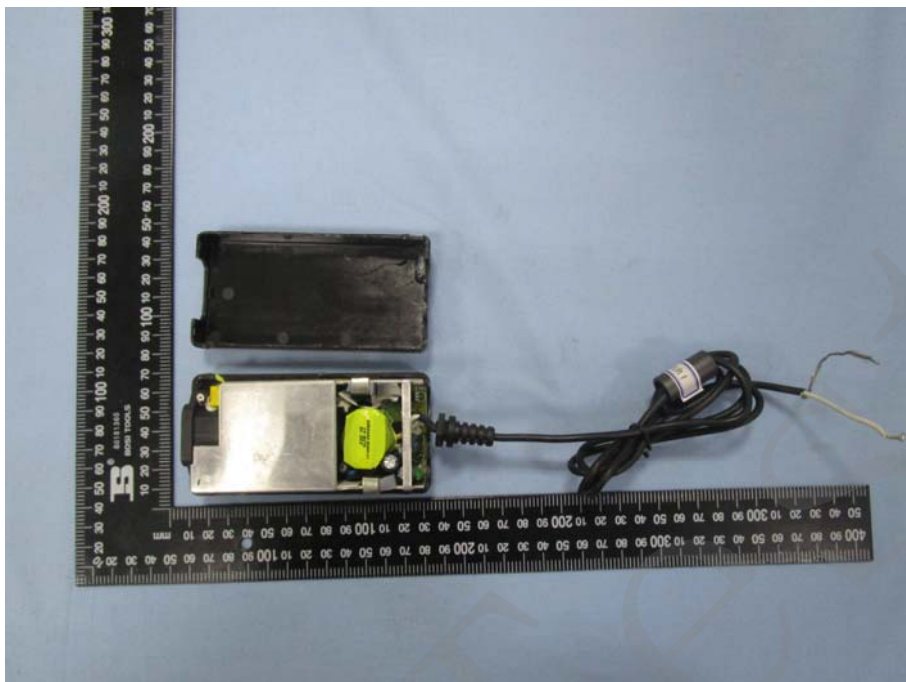
EUT View 3



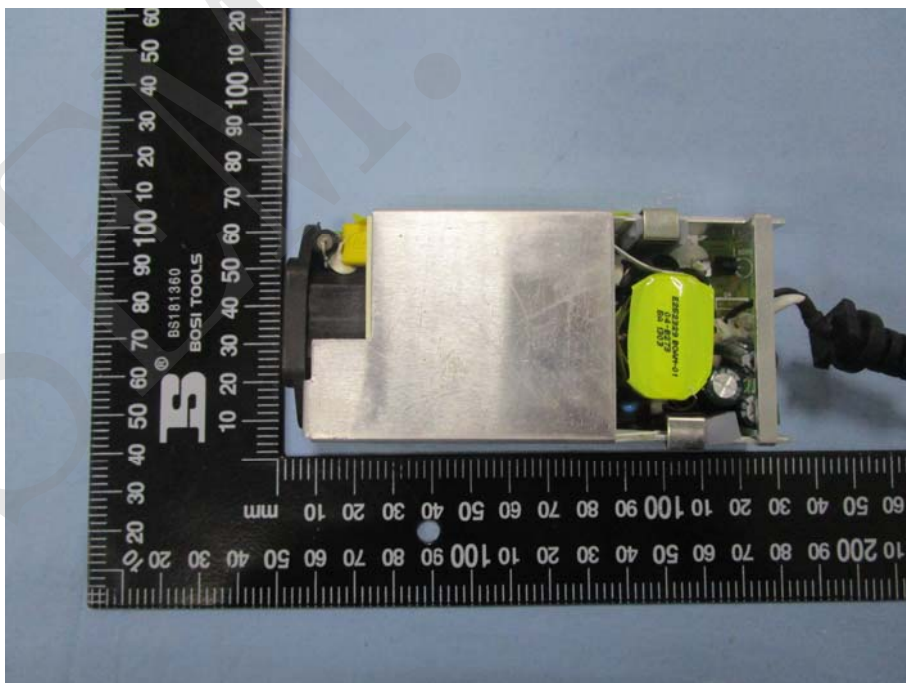
EUT View 4



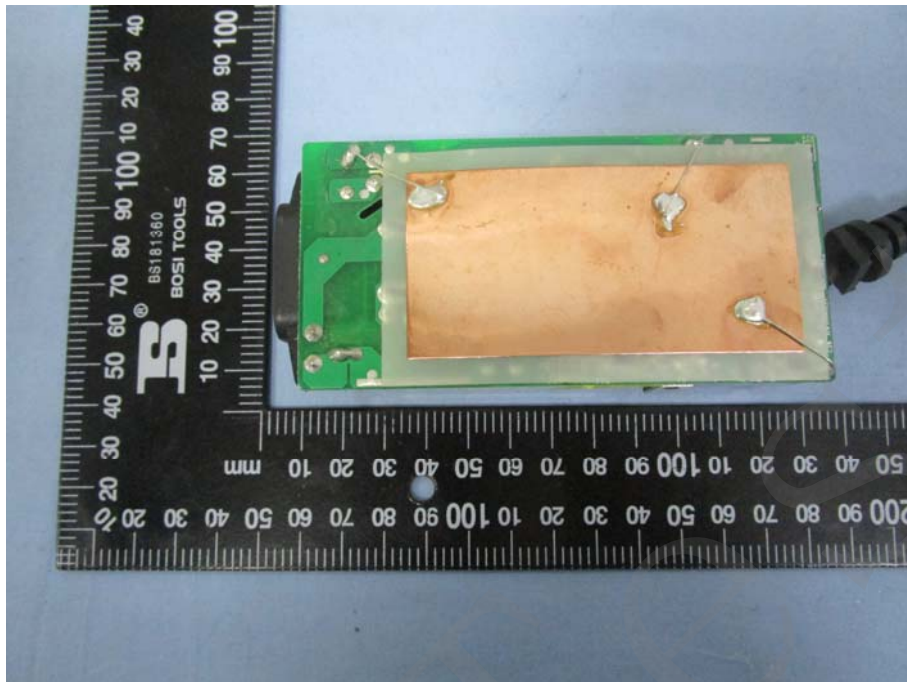
EUT Housing and Board View 1



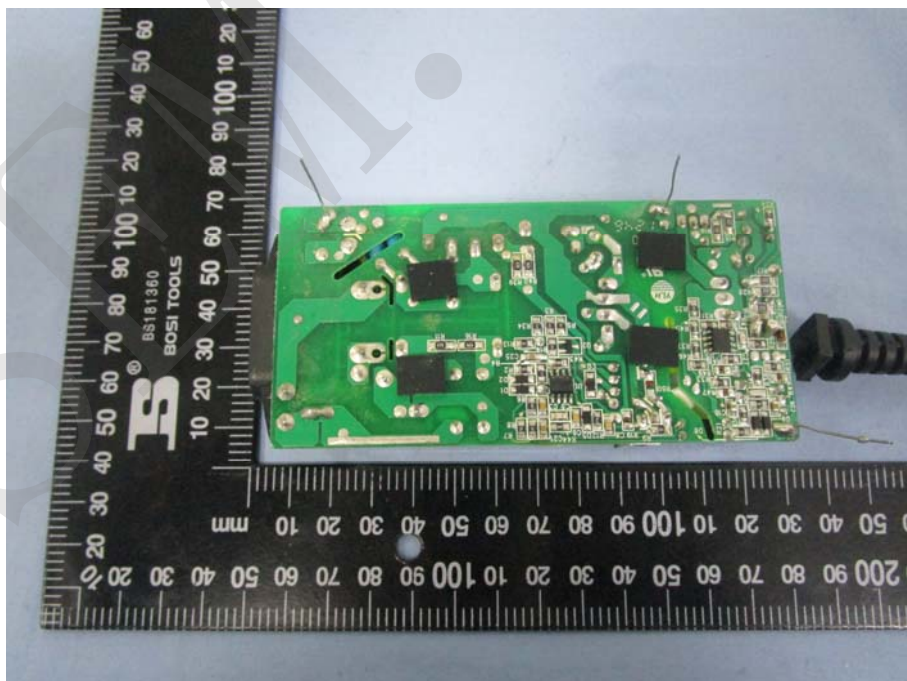
Solder Board-Component View 1



Solder Board-Component View 2



Solder Board-Component View 3



Tested Model: GT-21097-5012

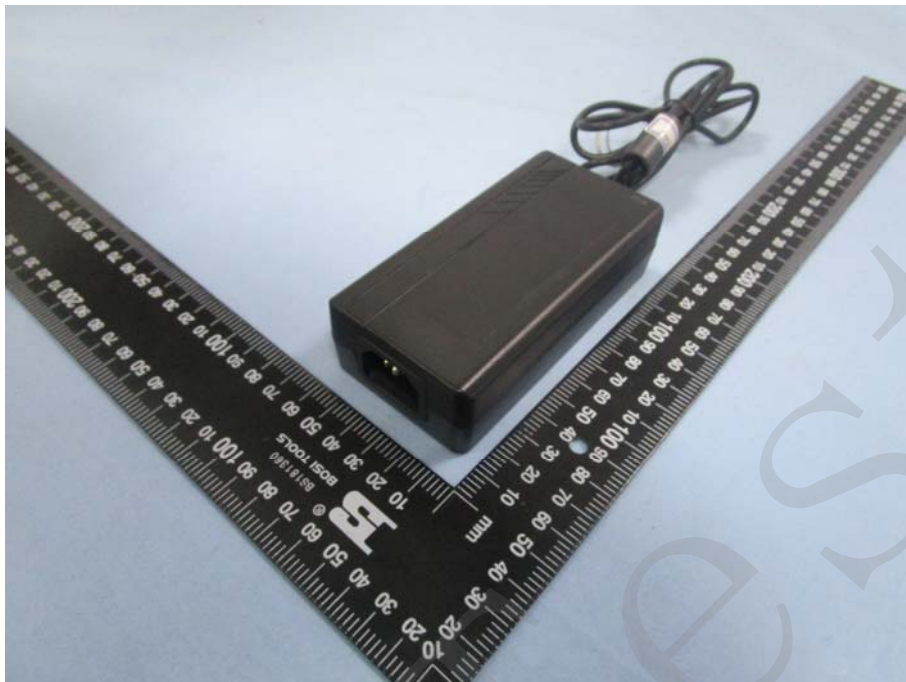
EUT View 1



EUT View 2



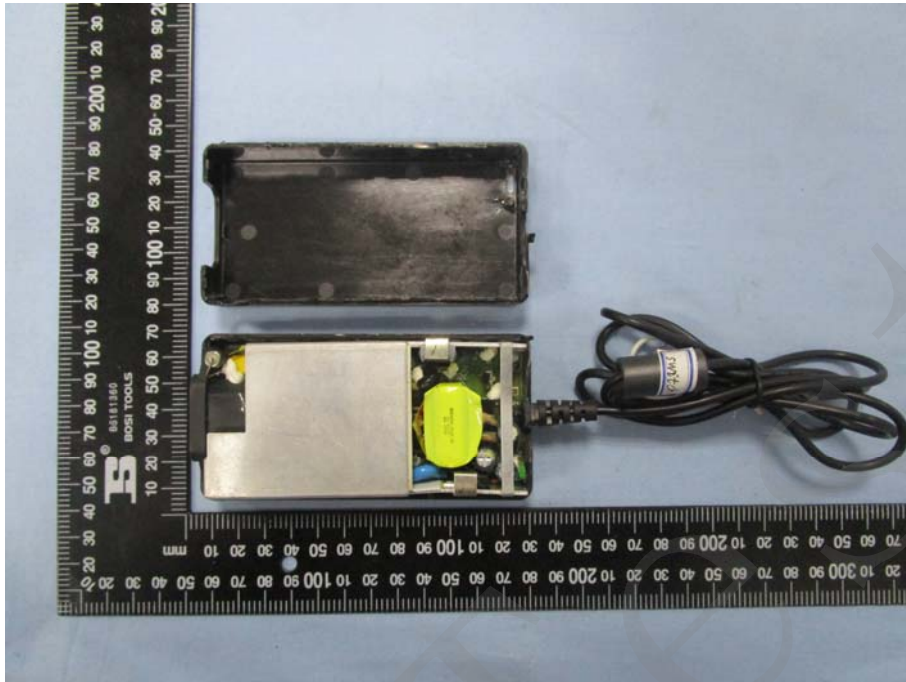
EUT View 3



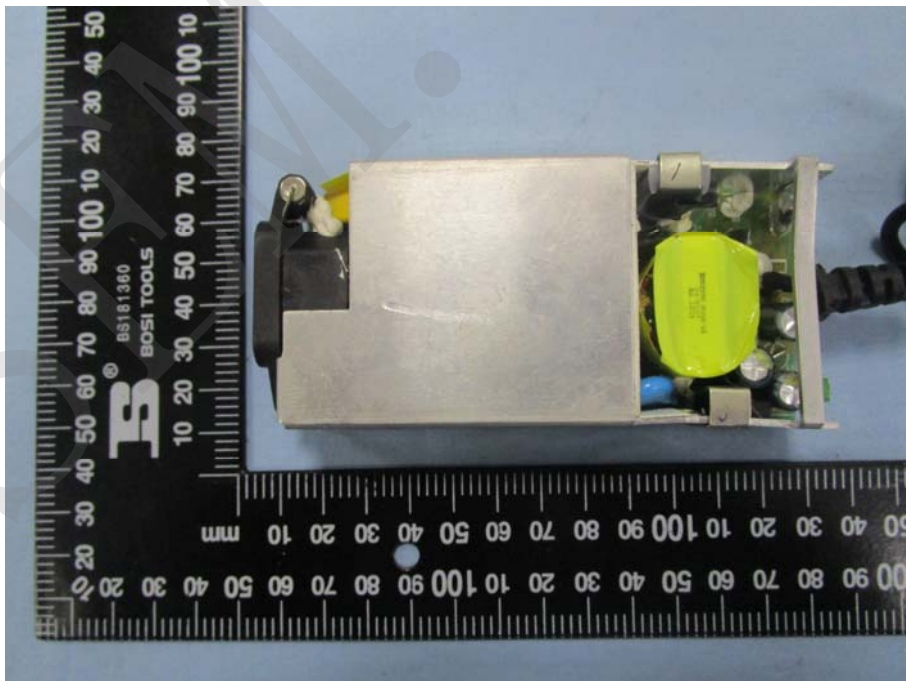
EUT View 4



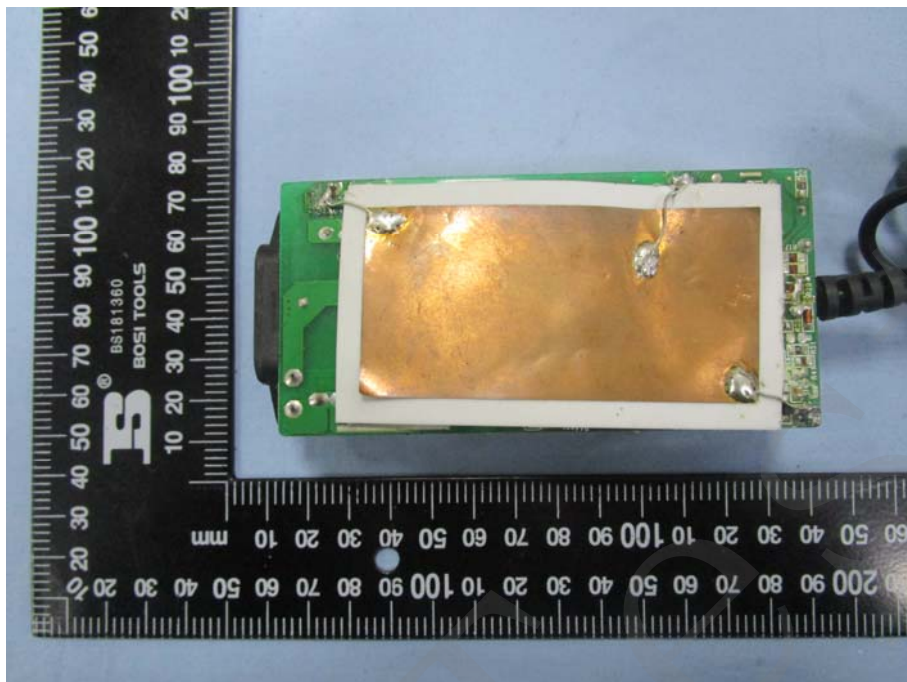
EUT Housing and Board View 1



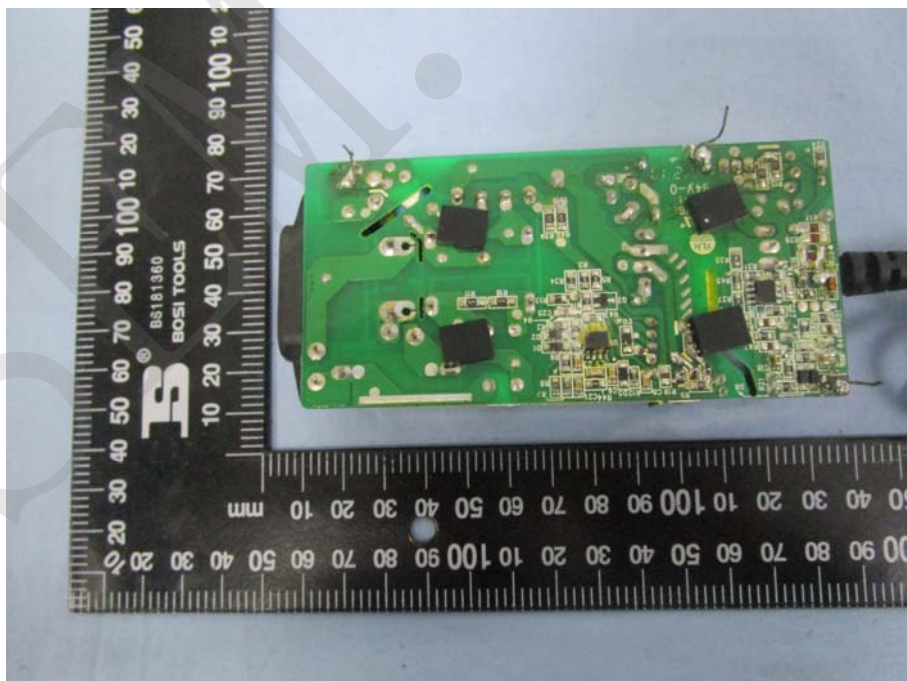
Solder Board-Component View 1



Solder Board-Component View 2

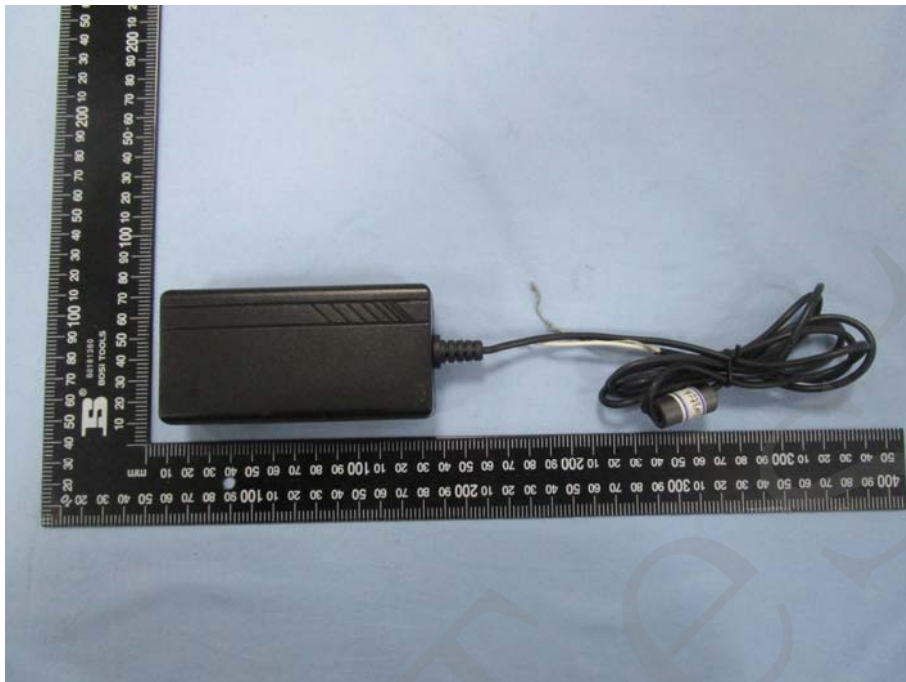


Solder Board-Component View 3



Tested Model: GT-21097-5048

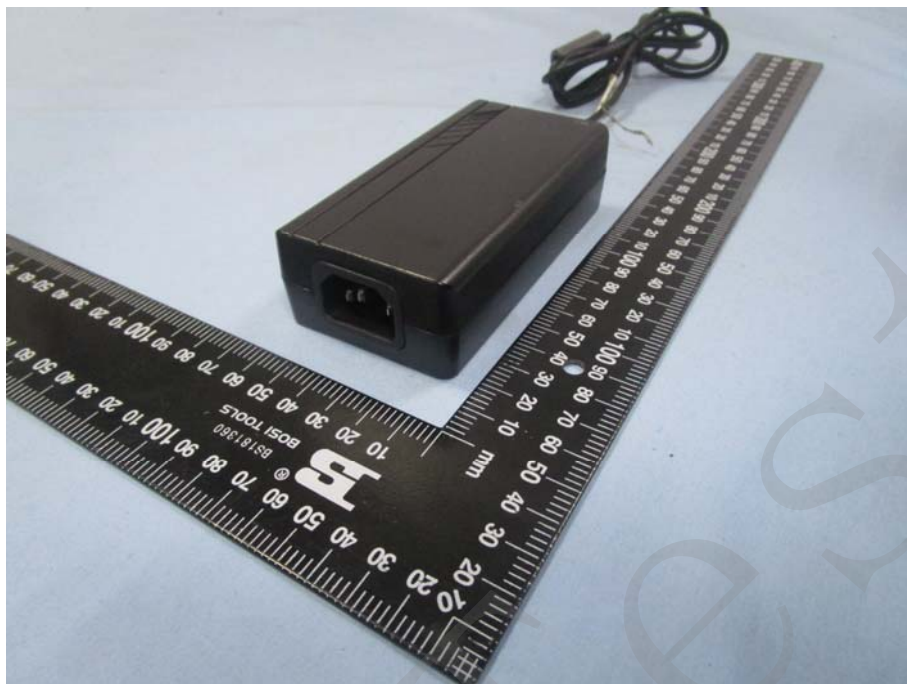
EUT View 1



EUT View 2



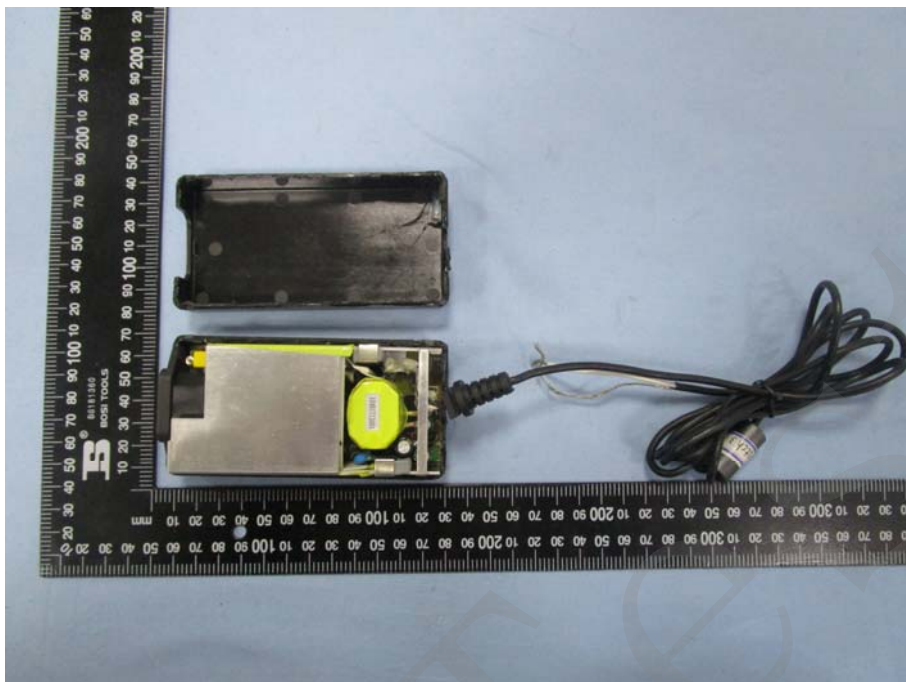
EUT View 3



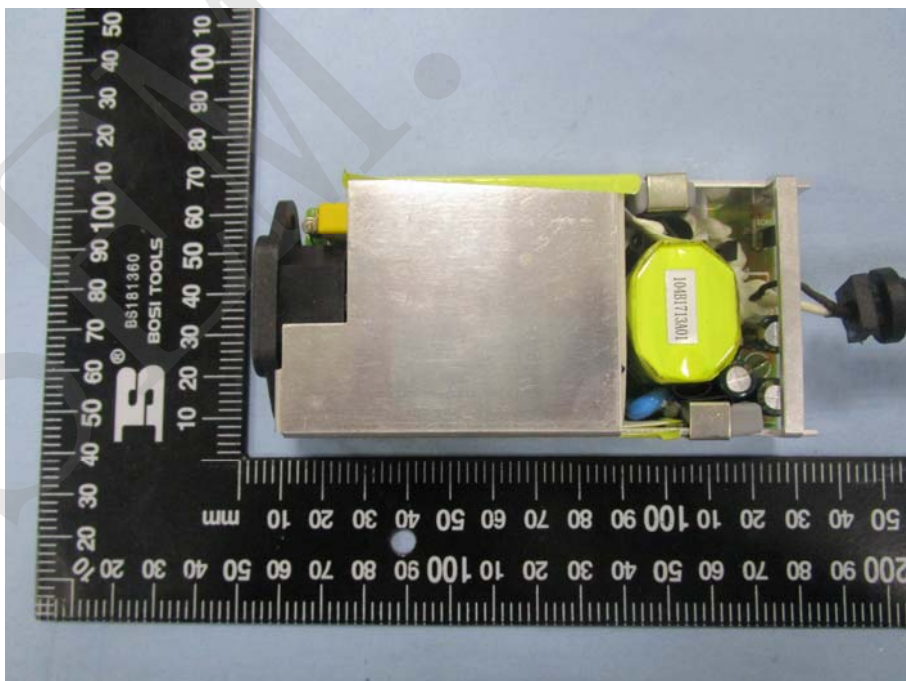
EUT View 4



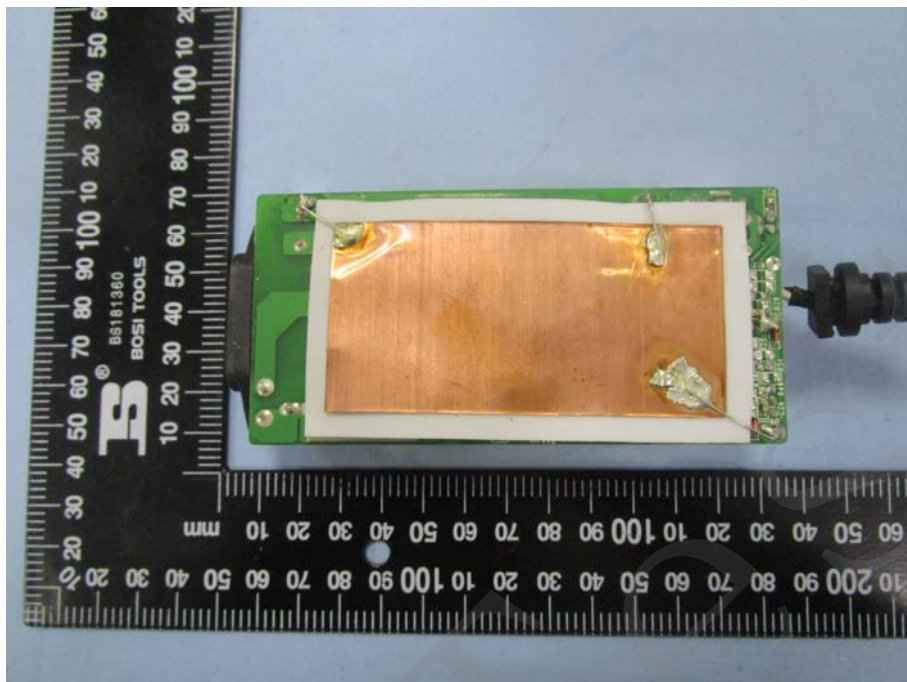
EUT Housing and Board View 1



Solder Board-Component View 1



Solder Board-Component View 2



Solder Board-Component View 3

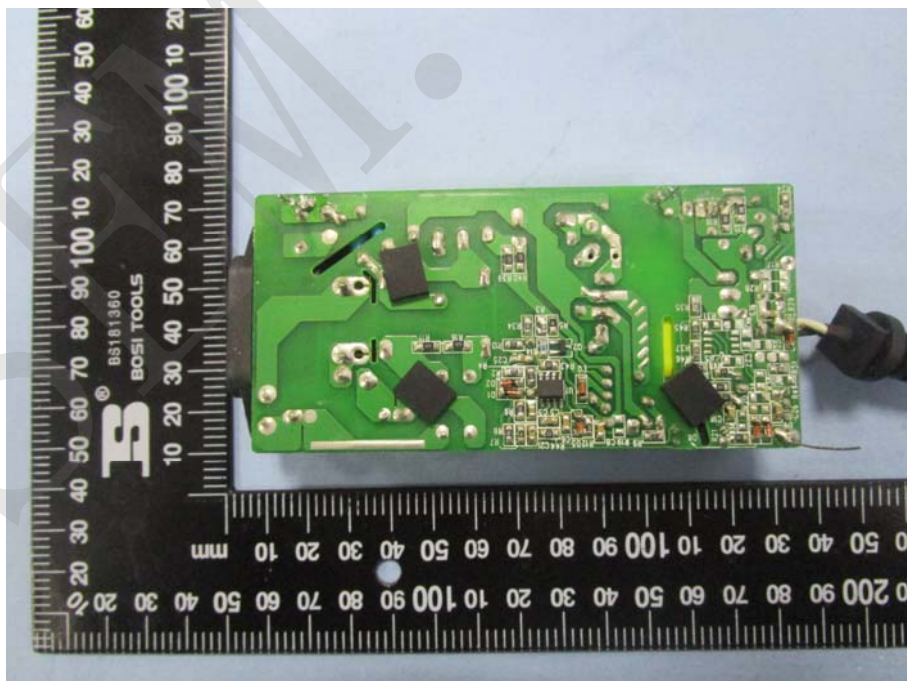


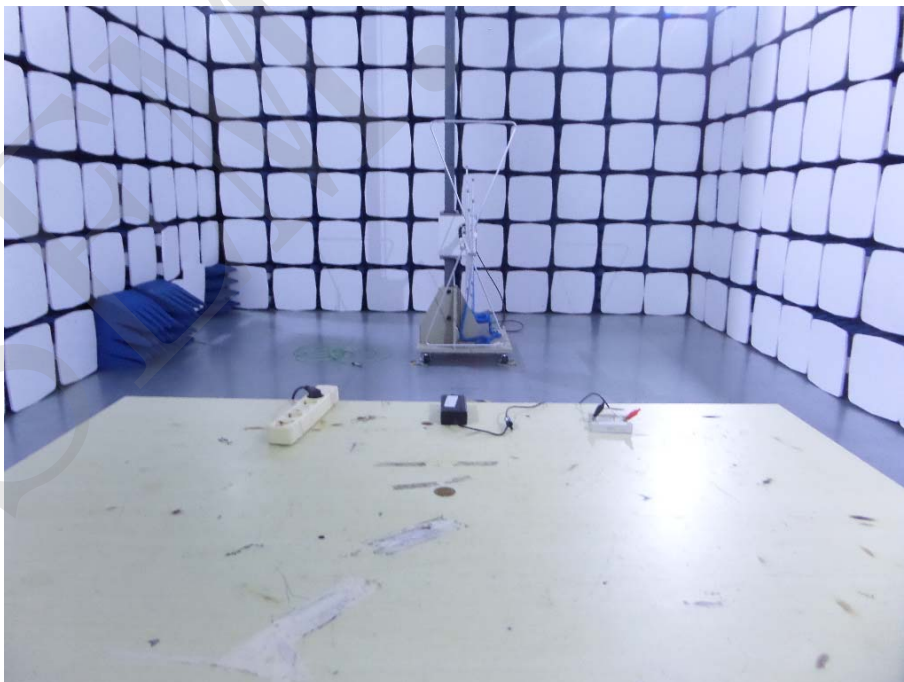
EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

Tested Model: GT-21097-3005

Conduction Emission Test View



Radiation Emission Test View

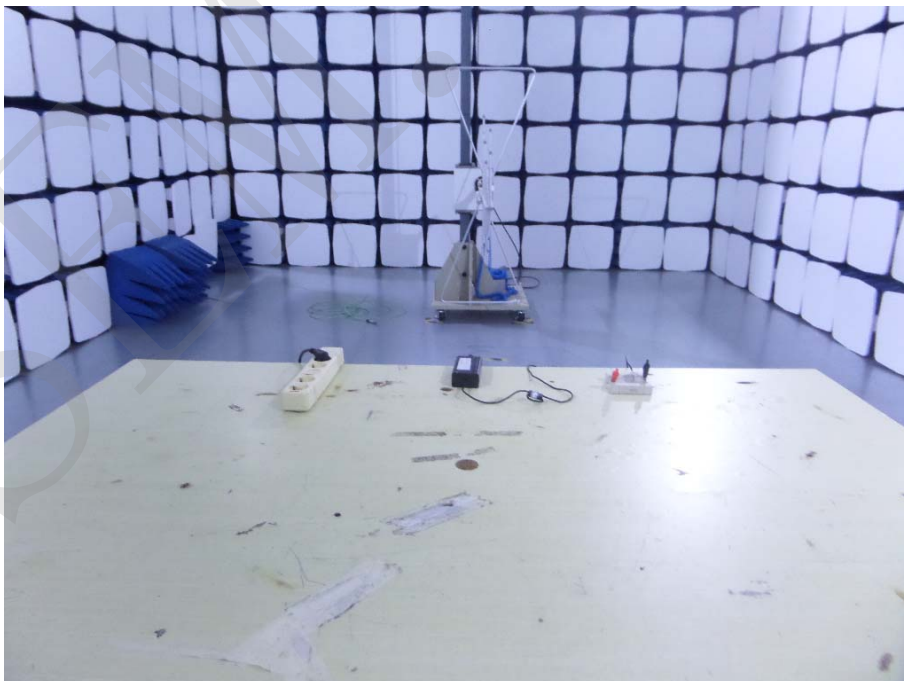


Tested Model: GT-21097-5012

Conduction Emission Test View



Radiation Emission Test View



Tested Model: GT-21097-5048

Conduction Emission Test View



Radiation Emission Test View

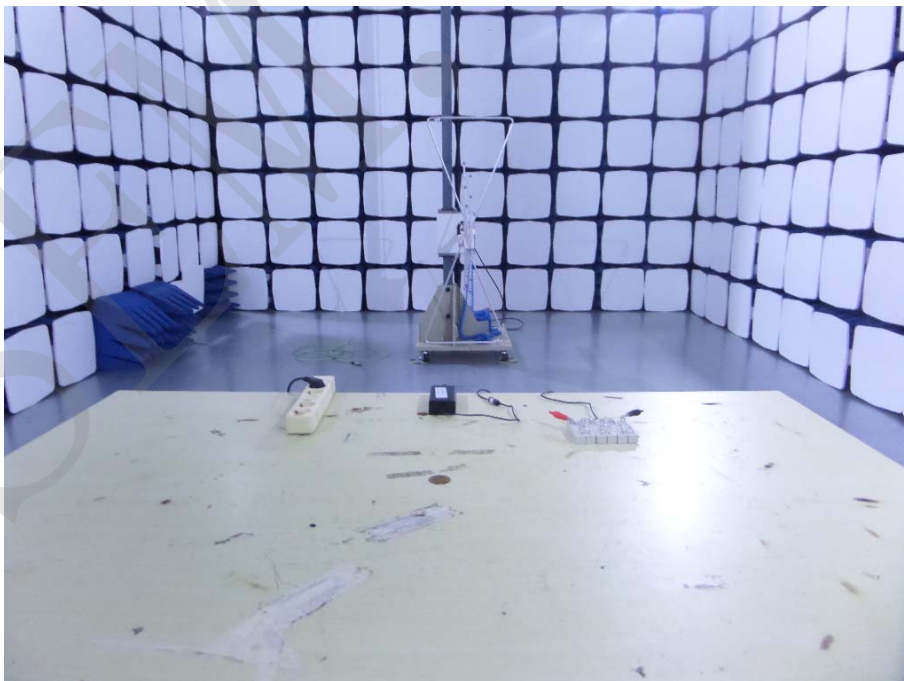


EXHIBIT 4 - USERS MANUAL

Information to Users

According to the FCC Part 15.19, 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 *****