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FCC TEST REPORT

Product name.....: Mobile Phone

Trademark .....: elementt

Model/Type reference.....: Torch ES-F641

Listed Model(s) .....: /

FCC ID.....: **2AEMYESF641**

Test Standards .....: **47 CFR FCC Part 15 Subpart B - Unintentional Radiators**
ANSI C63.4: 2003

Applicant .....: South Mobile Ltda

Address of applicant .....: Avenida Apoquindo 6410, Of. 803. Las Condes. Santiago – Chile

Date of Receipt .....: Apr. 15, 2015

Date of Test Date.....: Apr. 15, 2015 - June 8, 2015

Data of issue. .....: June 8, 2015

Test result	**Pass ***

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

GENERAL DESCRIPTION OF EUT	
Equipment:	Mobile Phone
Model Name:	Torch ES-F641
Manufacturer:	South Mobile Ltda
Manufacturer Address:	Avenida Apoquindo 6410, Of. 803. Las Condes. Santiago – Chile
Power Rating:	DC 3.7V form 1700mAh by rechargeable battery or DC 5.0V form Input:100-240V~,50/60Hz Output: 5.0V⎓1000mA adapter

Compiled By: (Allen Wang)

Reviewed By: (Tony Wang)

Approved By: (Walter Chen)

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1. SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2003 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz

1.2. Test Description

Emission Measurement requirements		
Radiated Emission	Part15.109	PASS
Conducted Disturbance	Part15.107	PASS

Remark: The measurement uncertainty is not included in the test result.

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen General Testing & Inspection Technology Co., Ltd.

Add: 1F, 2 Block,Jiaquan Building, Guanlan High-tech Park Baoan District, Shenzhen, Guangdong,China.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9783A

The 3m alternate test site of Shenzhen GTI Technology Co., Ltd.EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Aug, 2011.

FCC-Registration No.: 214666

Shenzhen GTI 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. Registration 214666, Sep 19, 2011

1.4. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements and is documented in the Shenzhen General Testing & Inspection Technology Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for General Testing & Inspection laboratory is reported:

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U(dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.7 dB	(1)
Radiated Emission	1~18GHz	5.0 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101KPa

2.2. General Description of EUT

Product Name:	Mobile Phone
Model/Type reference:	Torch ES-F641
Power supply:	DC 3.7V from battery
Adapter information :	Model:C1000 Input: 100-240V, 50/60Hz 0.2A Output:DC5V⎓1000m A
Hardware version:	B808-MB-V0.2
Software version:	WCDMA-20150407

2.3. Description of Test Modes

The device was a Mobile Phone .As the function of the EUT, the operation mode selected to test as follow:

Test Mode	Function	Description
1	USB Data Transfer	Data Transfer with PC

2.4. Description of Peripheral during Testing

No.	Product	Manufacturer	Serial No.	Certification
1	PC	Lenovo	H435	DOC
2	PC Power Supply	Bestec	ATX-250-12Z	DOC
3	Display	DELL	U2412M	DOC
4	Printer	HP	PJ1008	DOC

2.5. Measurement Instruments List

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101112	Jan. 07, 2016
2	LISN	R&S	ENV216	101113	Jan. 07, 2016
3	EMI Test Receiver	R&S	ESCI	100920	Jan. 07, 2016
4	Cable	Schwarzbeck	AK9515E	33156	Jan. 07, 2016

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	CBL6141A	4180	Jan. 07, 2016
2	Spectrum Analyzer	HP	8563E	02052	Jan. 07, 2016
3	Horn Antenna	Schwarzbeck	BBHA 9120D	648	Jan. 07, 2016
4	Pre-Amplifier	HP	8447D	1937A03050	Jan. 07, 2016
5	Pre-Amplifier	EMCI	EMC051835	980075	Jan. 07, 2016
6	EMI Test Receiver	R&S	ESCI	100658	Jan. 07, 2016
7	Antenna Mast	UC	UC3000	N/A	N/A
8	Turn Table	UC	UC3000	N/A	N/A
9	Cable Below 1GHz	Schwarzbeck	AK9515E	33155	Jan. 07, 2016
10	Cable Above 1GHz	Hubersuhner	SUCOFLEX102	DA1580	Jan. 07, 2016

Note: 1. The Cal. Interval was one year.

3. EMC EMISSION TEST

3.1. Conducted Emission Measurement

LIMIT

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

TEST PROCEDURE

a) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2003.

b) Support equipment, if needed, was placed as per ANSI C63.4-2003.

c) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2003.

d) An USB Line connection between the EUT and PC which received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.

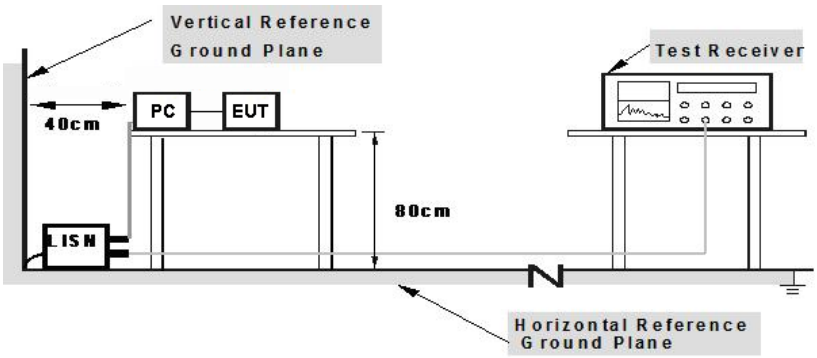
e) All support equipments received AC power from a second LISN, if any.

f) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

g) Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

h) During the above scans, the emissions were maximized by cable manipulation.

TEST SETUP

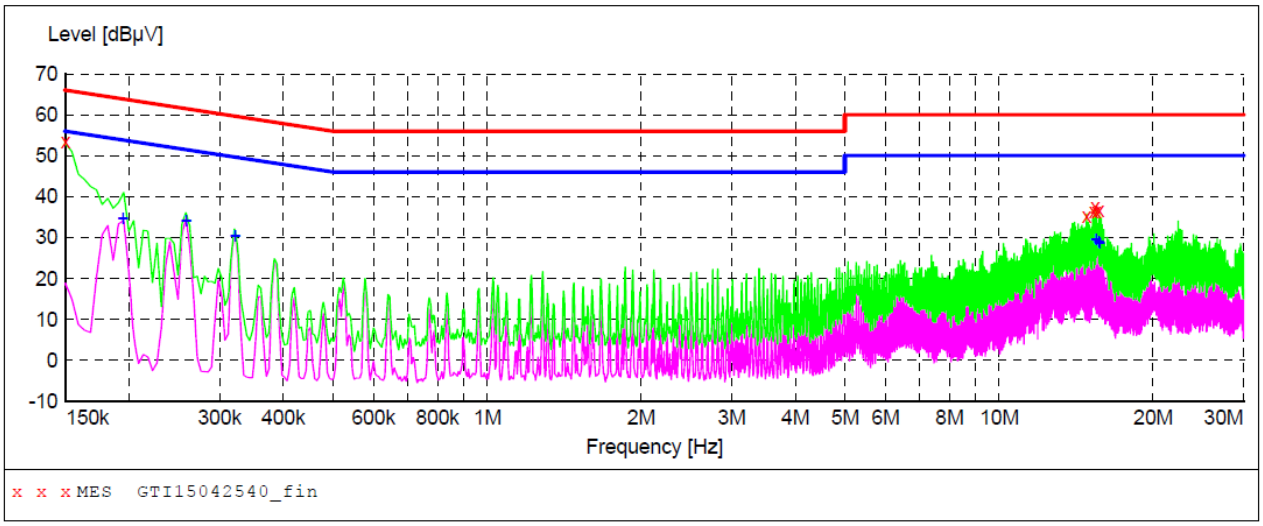


Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

TEST RESULTS

Test mode:	Mode 1	Polarization:	L

SCAN TABLE: "Voltage (9K-30M)FIN1"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "GTI15042540_fin"

4/25/2015 11:07AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	53.60	9.9	66	12.4	PK	L1	GND
14.822000	35.10	10.7	60	24.9	PK	L1	GND
15.302000	36.50	10.7	60	23.5	PK	L1	GND
15.422000	37.60	10.7	60	22.4	PK	L1	GND
15.482000	36.50	10.7	60	23.5	PK	L1	GND
15.722000	36.70	10.7	60	23.3	PK	L1	GND

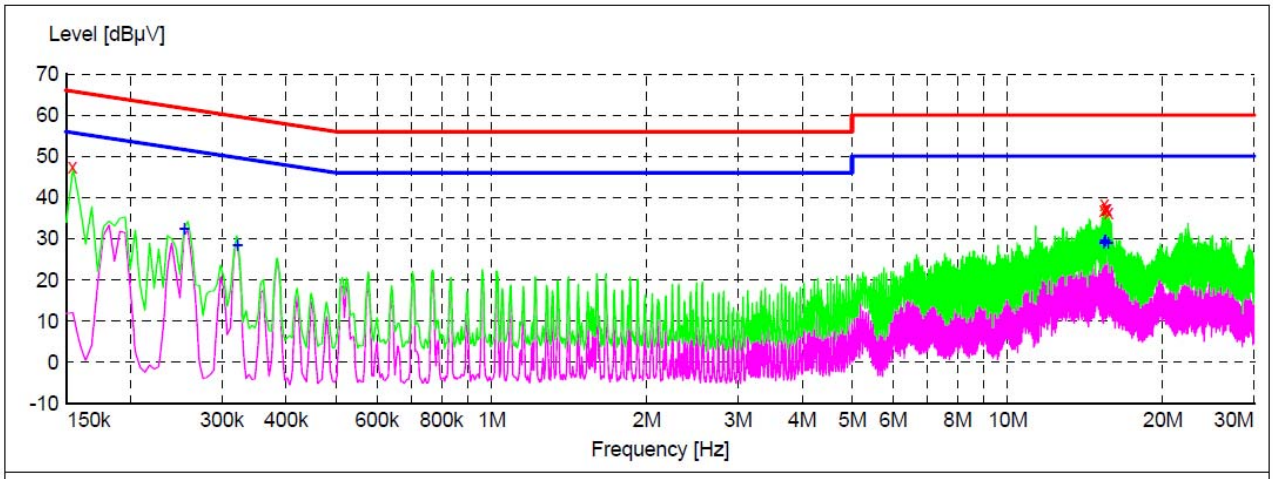
MEASUREMENT RESULT: "GTI15042540_fin2"

4/25/2015 11:07AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194000	34.70	9.9	54	19.2	AV	L1	GND
0.258000	34.20	9.9	52	17.3	AV	L1	GND
0.322000	30.50	9.9	50	19.2	AV	L1	GND
15.482000	29.40	10.7	50	20.6	AV	L1	GND
15.662000	29.00	10.7	50	21.0	AV	L1	GND
15.722000	28.80	10.7	50	21.2	AV	L1	GND

Test mode:	Mode 1	Polarization:	N

SCAN TABLE: "Voltage (9K-30M)FIN1"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "GTI15042541_fin"

4/25/2015 11:10AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	47.60	9.9	66	18.2	PK	N	GND
15.362000	37.00	10.7	60	23.0	PK	N	GND
15.422000	38.40	10.7	60	21.6	PK	N	GND
15.482000	37.10	10.7	60	22.9	PK	N	GND
15.602000	37.10	10.7	60	22.9	PK	N	GND
15.722000	36.50	10.7	60	23.5	PK	N	GND

MEASUREMENT RESULT: "GTI15042541_fin2"

4/25/2015 11:10AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.254000	32.40	9.9	52	19.2	AV	N	GND
0.322000	28.50	9.9	50	21.2	AV	N	GND
15.362000	29.10	10.7	50	20.9	AV	N	GND
15.422000	29.50	10.7	50	20.5	AV	N	GND
15.482000	29.40	10.7	50	20.6	AV	N	GND
15.662000	29.10	10.7	50	20.9	AV	N	GND

3.2. Radiated Emission

LIMITS

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (at 3m) dBuV/m		Class B (at 3m) dBuV/m	
	Peak	Avg	Peak	Avg
Above 1000	80	60	74	54

Notes:

1) The limit for radiated test was performed according to as following: CISPR 22/ FCC PART 15B /ICES-003.
2) The tighter limit applies at the band edges.
3) Emission level (dBuV/m)=20log Emission level (uV/m).

TEST PROCEDURE

a) The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c) The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

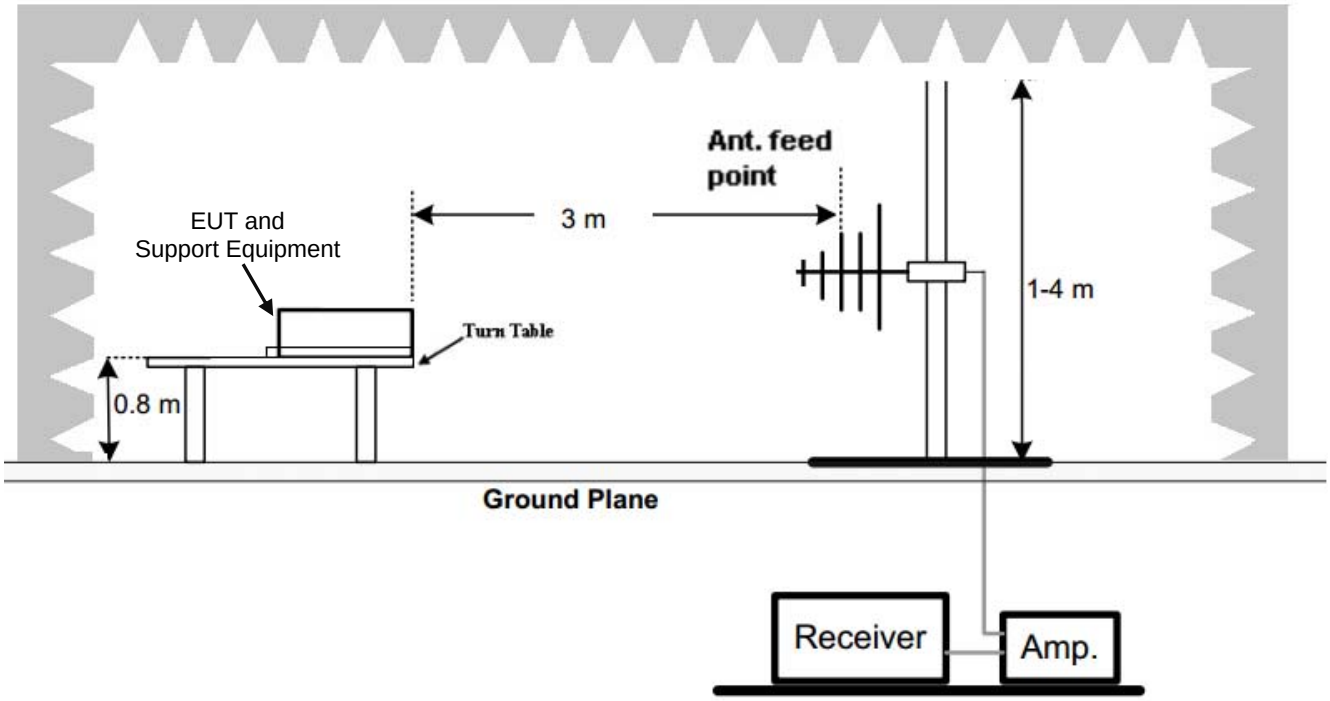
d) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP (AV) Limits and then no additional QP Mode measurement performed.

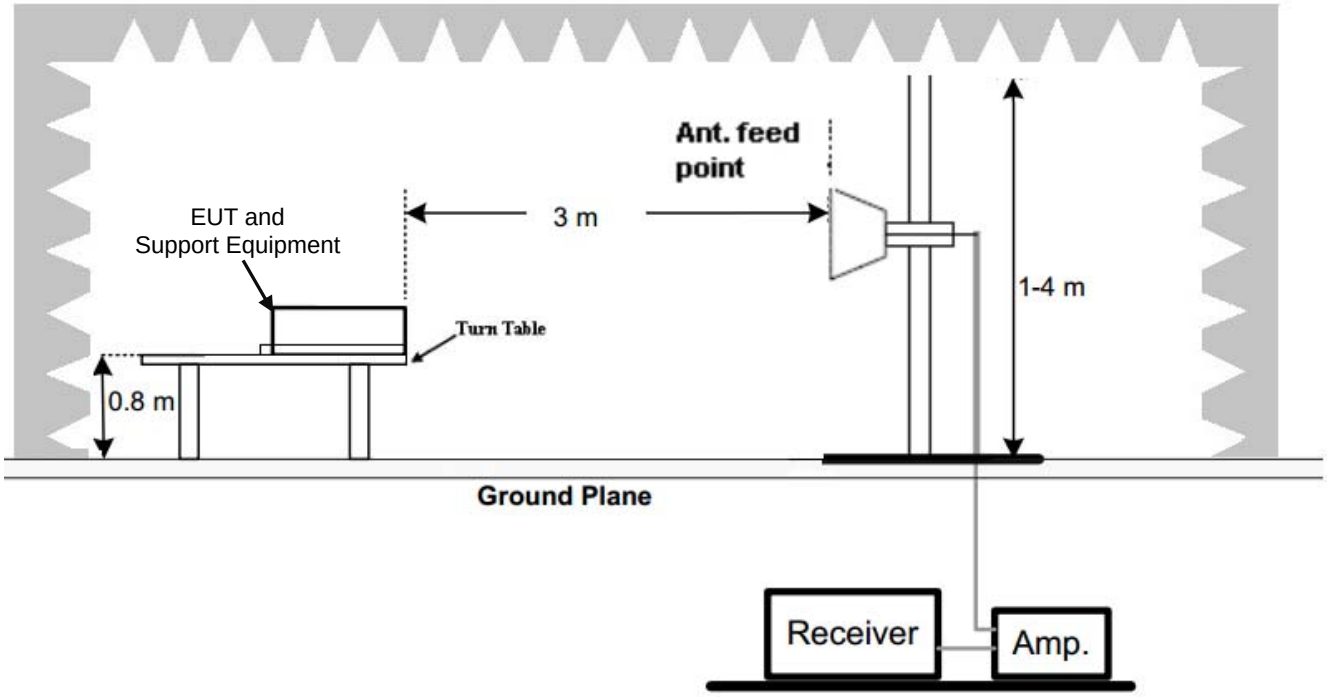
TEST SETUP

For the actual test configuration, please refer to the related Item –EUT Test Photos.

(A) Radiated Emission Test Set-Up Frequency below 1 GHz

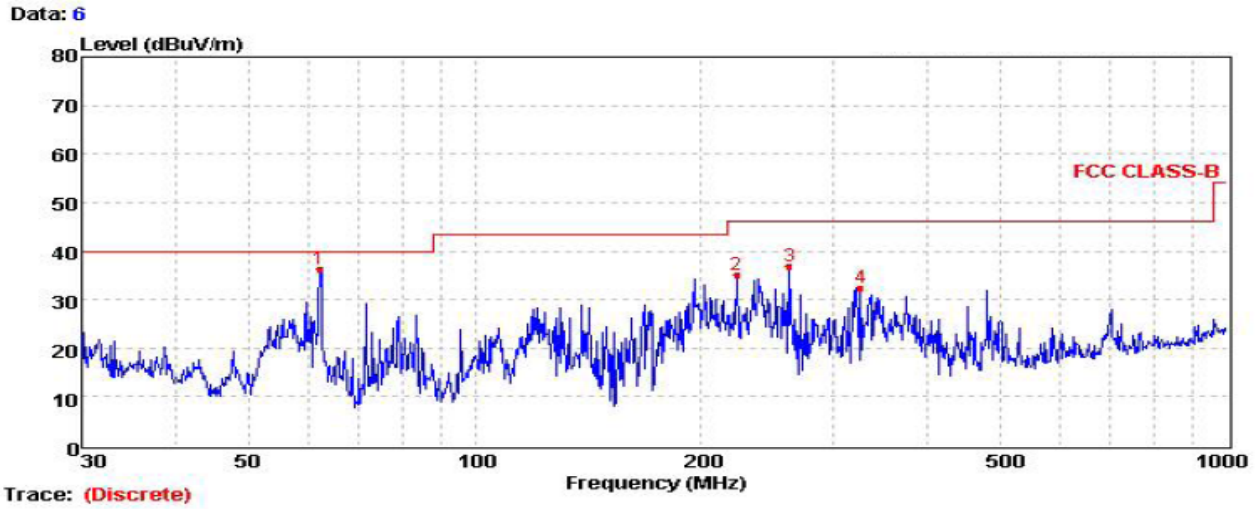


(B) Radiated Emission Test Set-UP Frequency above 1GHz

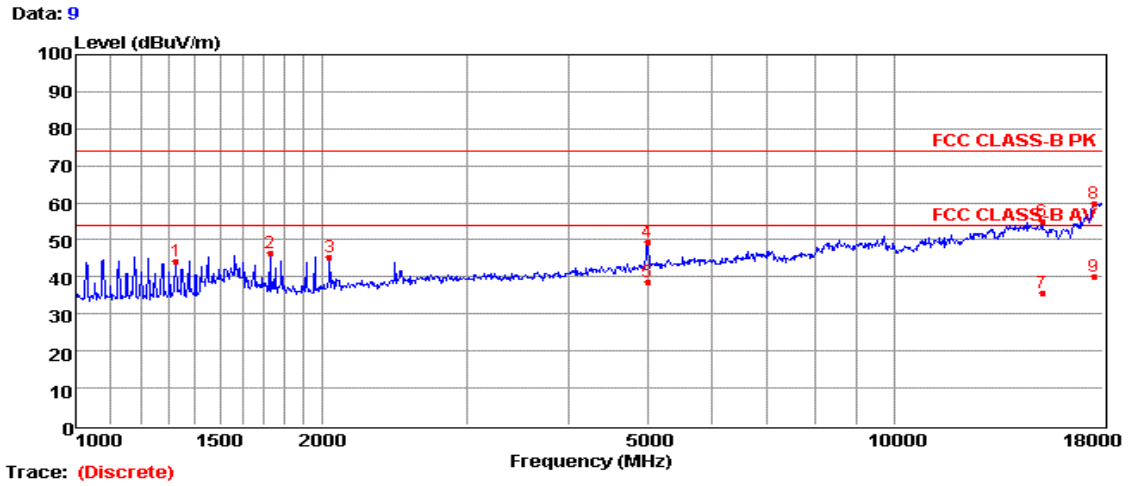


TEST RESULTS

Test mode:	Mode 1	Polarization:	Horizontal



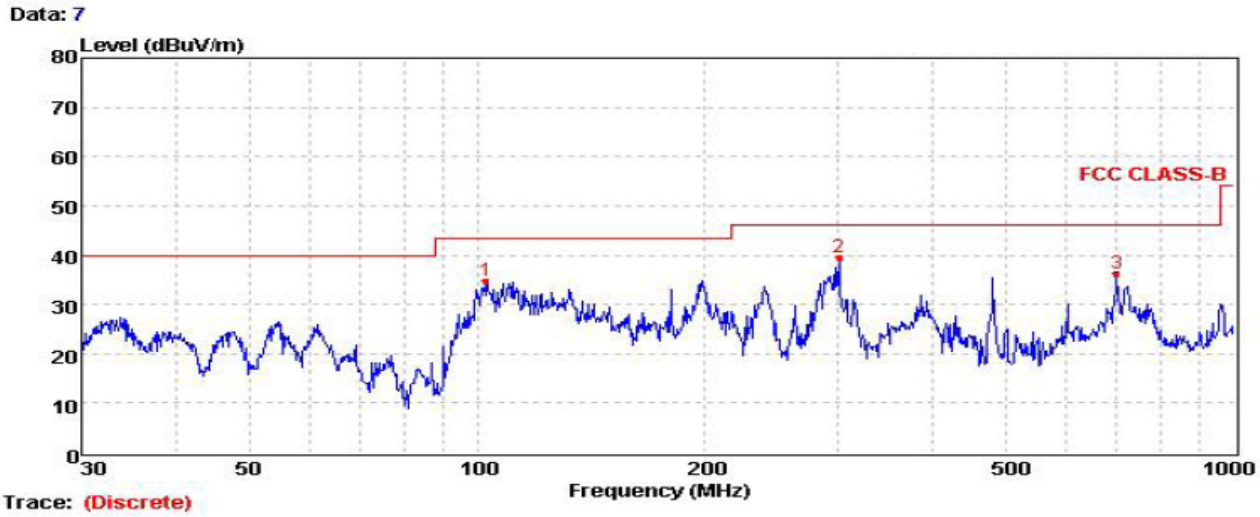
Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	62.21	36.17	-20.06	56.23	40.00	3.83	HORIZONTAL	Peak
2	222.95	35.20	-17.73	52.93	46.00	10.80	HORIZONTAL	Peak
3	261.98	36.84	-17.52	54.36	46.00	9.16	HORIZONTAL	Peak
4	325.60	32.52	-16.24	48.76	46.00	13.48	HORIZONTAL	Peak



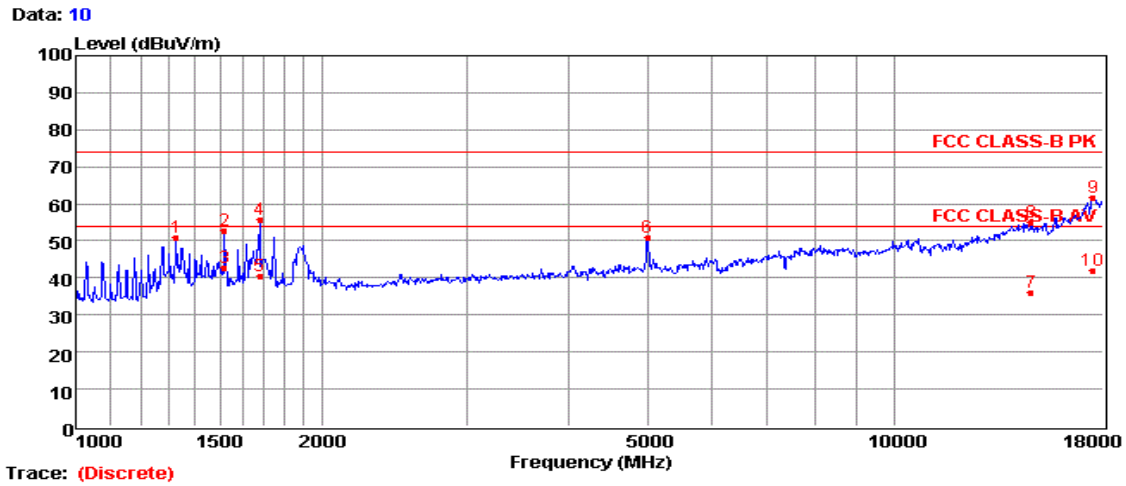
Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	1327.45	44.41	-14.94	59.35	74.00	29.59	HORIZONTAL	Peak
2	1726.82	46.46	-14.62	61.08	74.00	27.54	HORIZONTAL	Peak
3	2041.98	45.33	-13.38	58.71	74.00	28.67	HORIZONTAL	Peak
4	5002.50	49.49	-6.81	56.30	74.00	24.51	HORIZONTAL	Peak
5	5002.50	38.85	-6.81	45.66	54.00	15.15	HORIZONTAL	Average
7	15177.89	35.80	13.46	22.34	54.00	18.20	HORIZONTAL	Average
8	17537.80	59.95	20.22	39.73	74.00	14.05	HORIZONTAL	Peak
9	17537.80	40.00	20.22	19.78	54.00	14.00	HORIZONTAL	Average

Note: 18GHz-25GHz was not recorded for its signal was very low against the limit.

Test mode:	Mode 1	Polarization:	Vertical



Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	102.72	34.69	-19.29	53.98	43.50	8.81	VERTICAL	Peak
2	300.37	39.43	-17.28	56.71	46.00	6.57	VERTICAL	Peak
3	699.30	36.43	-9.42	45.85	46.00	9.57	VERTICAL	Peak



Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	1327.45	50.89	-14.94	65.83	74.00	23.11	VERTICAL	Peak
2	1520.60	52.80	-14.71	67.51	74.00	21.20	VERTICAL	Peak
3	1520.60	42.83	-14.71	57.54	54.00	11.17	VERTICAL	Average
4	1677.62	55.93	-14.67	70.60	74.00	18.07	VERTICAL	Peak
5	1677.62	40.68	-14.67	55.35	54.00	13.32	VERTICAL	Average
6	5002.50	50.82	-6.81	57.63	74.00	23.18	VERTICAL	Peak
7	14702.91	36.08	13.62	22.46	54.00	17.92	VERTICAL	Average
8	14702.91	55.20	13.62	41.58	74.00	18.80	VERTICAL	Peak
10	17487.18	42.12	19.79	22.33	54.00	11.88	VERTICAL	Average

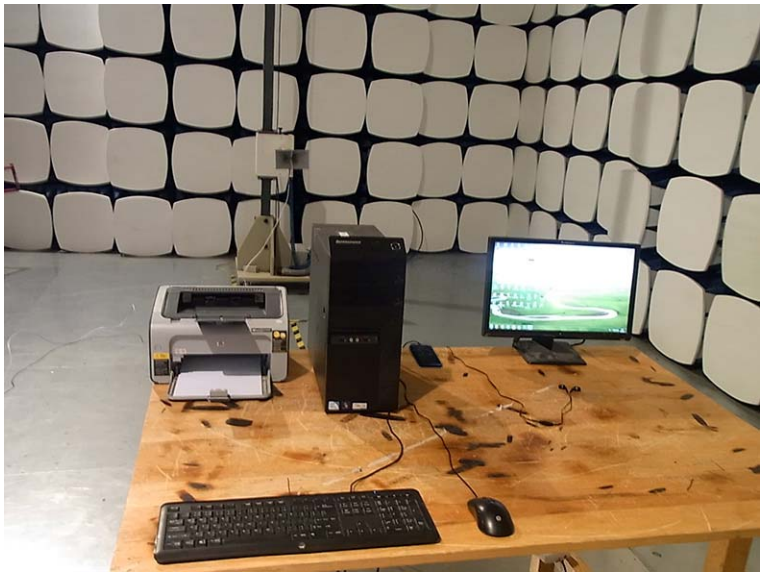
Note: 18GHz-25GHz was not recorded for its signal was very low against the limit.

4. EUT TEST PHOTO

Conducted Emission

Radiated Emission below 1GHz

Radiated Emission above 1GHz



5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Please reference to the test report No.: GTI20150167F-1

**********THE END**********