FCC Test Report

Report No.: AGC00754141201FE07

FCC ID	:	2AC99-TM45TM
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Mobile Phone
BRAND NAME	:	AIRIS
MODEL NAME	:	TM45TM, TM45TA, TM45TN, TM45TB
CLIENT	:	Infinity System S.L.
DATE OF ISSUE	:	Dec.09, 2014
STANDARD(S)	:	FCC Part 15 Rules
REPORT VERSION	:	V1.0

Attestation of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec.09, 2014	Valid	Original Report

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1. VERIFICATION OF CONFORMITY

Applicant	Infinity System S.L.
Address	Crtra A-2, Km 48.5, Pol. Ind. De Cabanillas, Parcela 12B, 19171, Guadalajara, Spain.
Manufacturer	Green Globe International Corp.
Address	Room A, 6/F, Man Wing Building, 503-507 Nathan Road, Yau Ma Tei, Kowloon, Hong Kong
Product Designation	Mobile Phone
Brand Name	AIRIS
Test Model	TM45TM
Series Model	TM45TA, TM45TN, TM45TB
Difference description	All the same except for the model name.
Measurement Procedure	ANSI C63.4: 2003
Date of test	Dec.02, 2014 to Dec.08, 2014
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-IT/AC

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Prepared By 

Bart Xie Dec.09, 2014

Checked By 

Kidd Yang Dec.09, 2014

Authorized By 

Solger Zhang Dec.09, 2014

2. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (PC) through USB port.
2. Power on the EUT, use the software to transfer data between EUT and PC.
3. Make sure the EUT operates normally during the test.

Test Mode

TEST MODE DESCRIPTION		
NO.	**TEST MODE DESCRIPTION**	**WORST**
1	USB (connection for data transferring)	V
Note: 1.V means EMI worst mode 2 .Other modes have been verified through VOC mode.		

3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO.

Conducted measurement: +/- 2.75dB

Radiated measurement: +/- 3.2Db

Summary Of Test Results

FCC Rules	Description Of Test	Result
§15.107	Conduction Emission	Compliant
§15.109	Radiated Emission	Compliant

4. PRODUCT INFORMATION

Housing Type	Plastic
EUT Input Rating	DC 3.7V by battery
Adapter Input	AC100-240V, 50/60Hz, 0.15A
Adapter Output	DC 5V, 0.5A

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
USB Port	1	1.0 m, unshielded	1
Earphone Port	1	1.0 m, unshielded	1

5. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
MacBook	Apple	A1465	--	1	1.5m unshielded

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

6. TEST FACILITY

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	2/F., Building 2, No.1-No.4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2003.
Site Filing	The FCC Registration Number is 259865
Instrument Tolerance	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.

ALL TEST EQUIPMENT LIST

Description	Manufacturer	Model	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	07/25/2014	07/24/2015
LISN	R&S	ESH3-Z5	07/25/2014	07/24/2015
SPECTRUM ANALYZER	AGILENT	E4440A	02/17/2014	02/16/2015
WIDEBAND REQUENCY ANTENNA	SCHWARZBECK	VULB9168	08/16/2014	08/15/2015
HORN ANTENNA	EM	EM-AH-10180	02/17/2014	02/16/2015
AMPLIFIER	EM	EM30180	02/17/2014	02/16/2015
POSITIONING CONTROLLER	MF	MF-7802	07/25/2014	07/24/2015

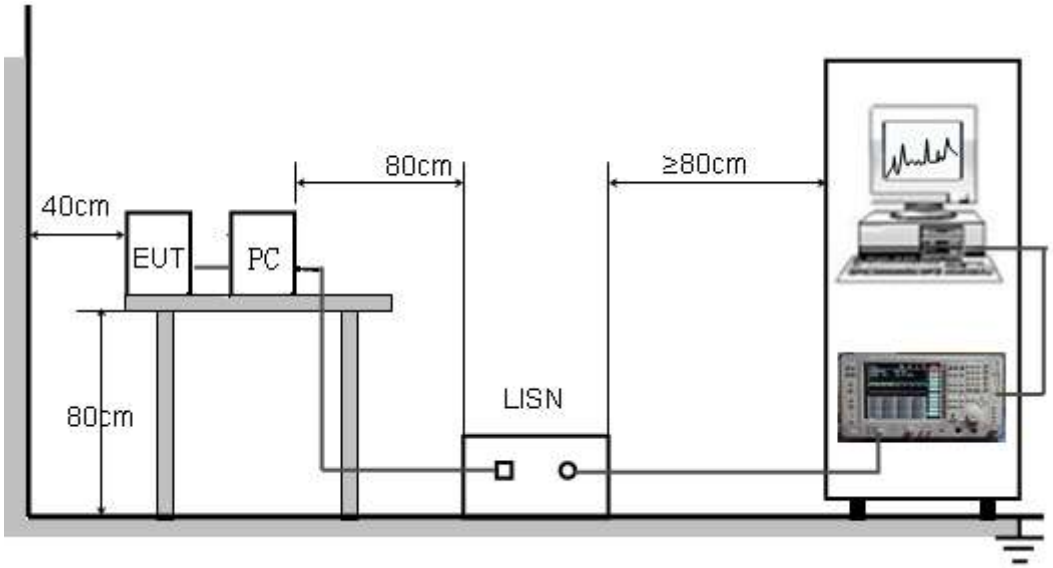
7. FCCLINE CONDUCTED EMISSION TEST

7.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

Note:
1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

7.2. BLOCK DIAGRAM OF TEST SETUP



7.3. PROCEDURE OF LINE CONDUCTED EMISSION TEST

(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When 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 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

(2) Support equipment, if needed, was placed as per ANSI C63.4.

(3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

(4) The EUT received DC5V power from PC with receive AC120V/60Hz power from a LISN.

(5) 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.

(6) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

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

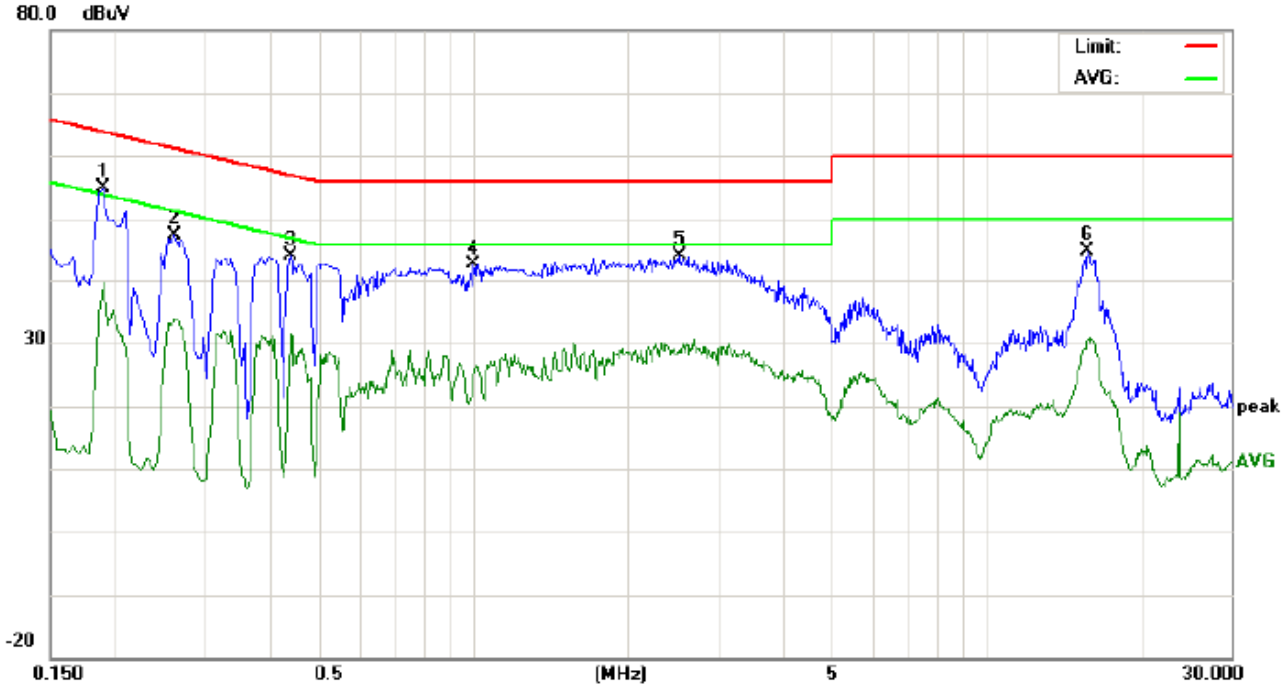
(8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.

(9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test data of the worst case condition (mode 1) was reported on the Summary Data page.

7.4. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L



Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Mobile Phone
M/N: TM45TM
Mode: USB
Note:

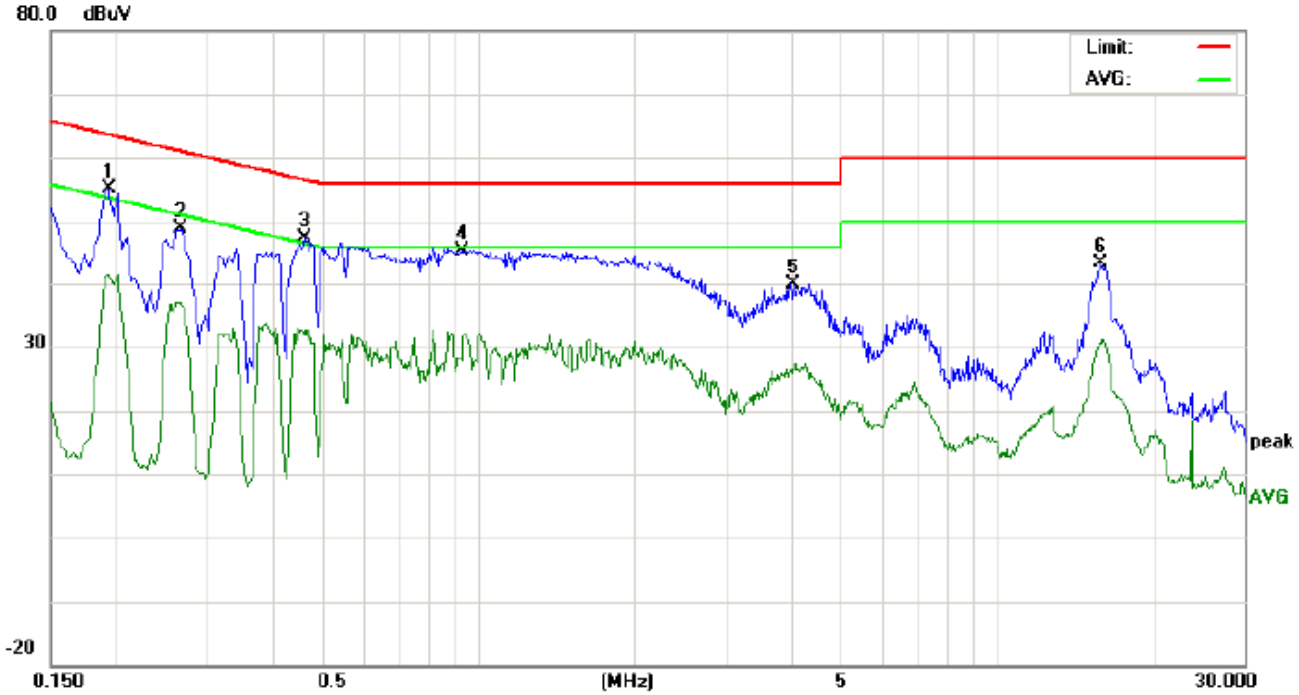
Phase: *L1*
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1900	44.60		29.49	10.20	54.80		39.69	64.03	54.03	-9.23	-14.34	P	
2	0.2620	37.14		23.57	10.27	47.41		33.84	61.36	51.36	-13.95	-17.52	P	
3	0.4420	33.70		21.00	10.36	44.06		31.36	57.02	47.02	-12.96	-15.66	P	
4	1.0020	32.37		14.50	10.37	42.74		24.87	56.00	46.00	-13.26	-21.13	P	
5	2.5260	33.64		18.45	10.44	44.08		28.89	56.00	46.00	-11.92	-17.11	P	
6	15.7860	34.69		20.58	10.11	44.80		30.69	60.00	50.00	-15.20	-19.31	P	

RESULT: PASS

LINE CONDUCTED EMISSION TEST-N



Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Mobile Phone
M/N: TM45TM
Mode: USB
Note:

Phase: *N*
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1940	45.01		31.25	10.21	55.22		41.46	63.86	53.86	-8.64	-12.40	P	
2	0.2660	38.49		26.52	10.28	48.77		36.80	61.24	51.24	-12.47	-14.44	P	
3	0.4620	37.05		21.62	10.37	47.42		31.99	56.66	46.66	-9.24	-14.67	P	
4	0.9380	35.02		21.33	10.39	45.41		31.72	56.00	46.00	-10.59	-14.28	P	
5	4.0660	29.51		16.85	10.40	39.91		27.25	56.00	46.00	-16.09	-18.75	P	
6	15.8540	33.29		20.59	10.11	43.40		30.70	60.00	50.00	-16.60	-19.30	P	

RESULT: PASS

8. FCC RADIATED EMISSION TEST

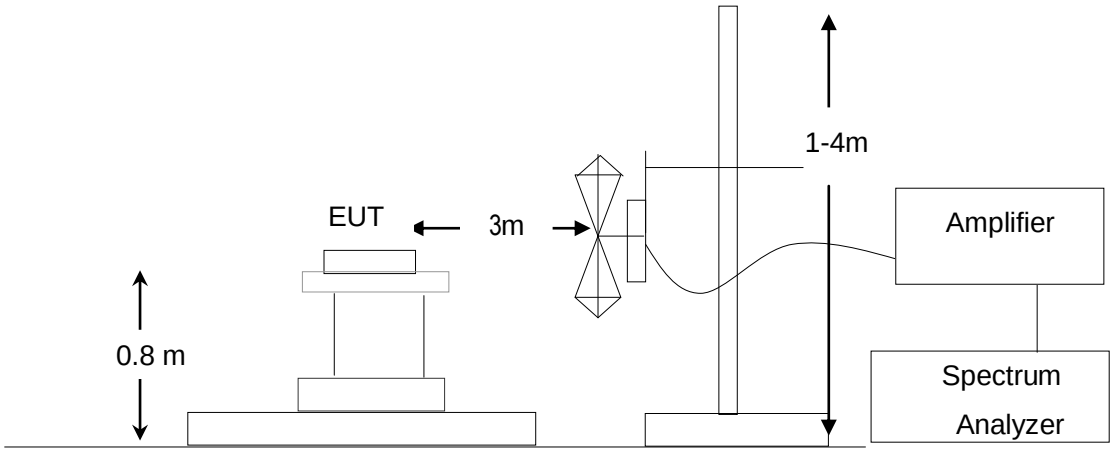
8.1. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

Note: The lower limit shall apply at the transition frequency.

8.2. BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators



8.3. PROCEDURE OF RADIATED EMISSION TEST

(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

(2) Support equipment, if needed, was placed as per ANSI C63.4.

(3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

(4) The EUT received DC 5V power from PC with receive AC120V/60Hz power from socket under the turntable through a LISN.

(5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.

(6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

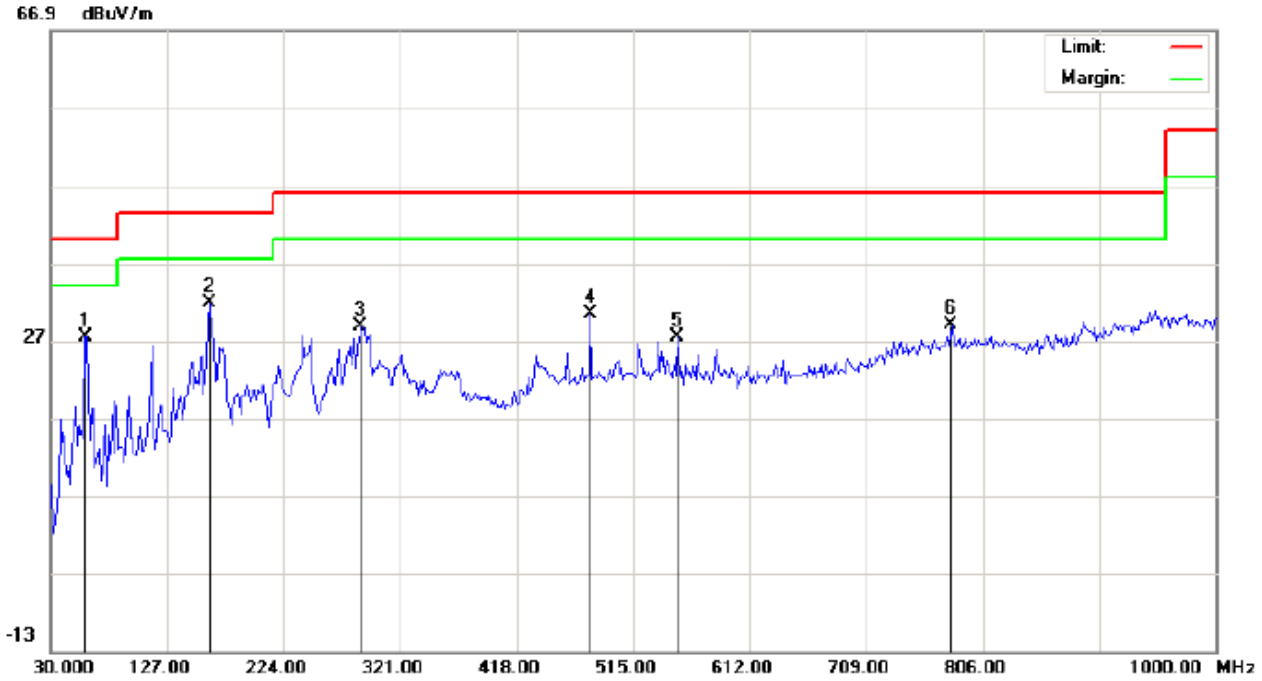
(7) The test mode(s) were scanned during the test:

(8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position,polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

The test data of the worst case condition (mode 1) was reported on the Summary Data page.

8.4. TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test at 3m Distance-Horizontal



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Mobile Phone
M/N: TM45TM
Mode: USB
Note:

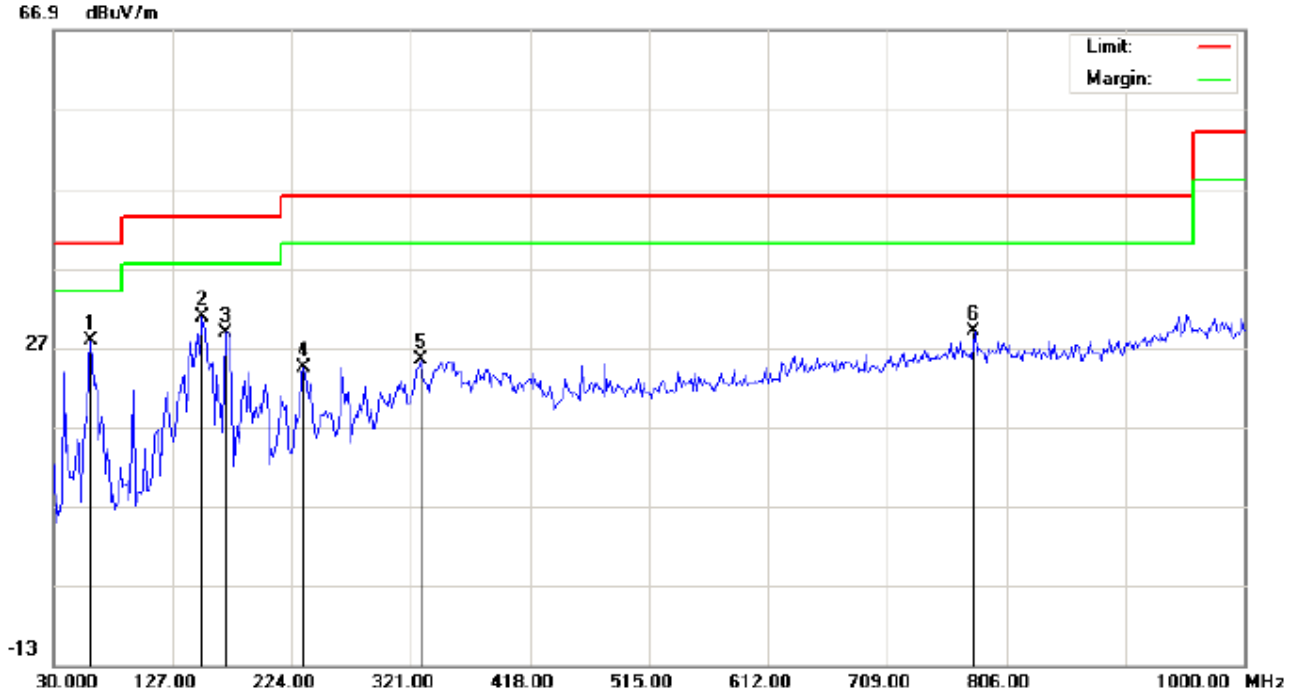
Polarization: *Horizontal*
Power: AC 120V/60Hz
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		59.1000	16.32	11.16	27.48	40.00	-12.52	peak			
2	*	162.5666	17.07	14.78	31.85	43.50	-11.65	peak			
3		288.6666	13.77	15.07	28.84	46.00	-17.16	peak			
4		479.4332	9.55	20.91	30.46	46.00	-15.54	peak			
5		552.1833	4.78	22.53	27.31	46.00	-18.69	peak			
6		780.1332	1.96	27.05	29.01	46.00	-16.99	peak			

RESULT: PASS

Radiated Emission Test at 3m Distance-Vertical



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Mobile Phone
M/N: TM45TM
Mode: USB
Note:

Polarization: *Vertical*
Power: AC 120V/60Hz
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	60.7167	19.91	7.87	27.78	40.00	-12.22	peak			
2		151.2500	15.50	15.27	30.77	43.50	-12.73	peak			
3		170.6500	14.06	14.66	28.72	43.50	-14.78	peak			
4		233.6999	12.09	12.30	24.39	46.00	-21.61	peak			
5		329.0833	7.98	17.35	25.33	46.00	-20.67	peak			
6		780.1332	2.02	27.05	29.07	46.00	-16.93	peak			

RESULT: PASS

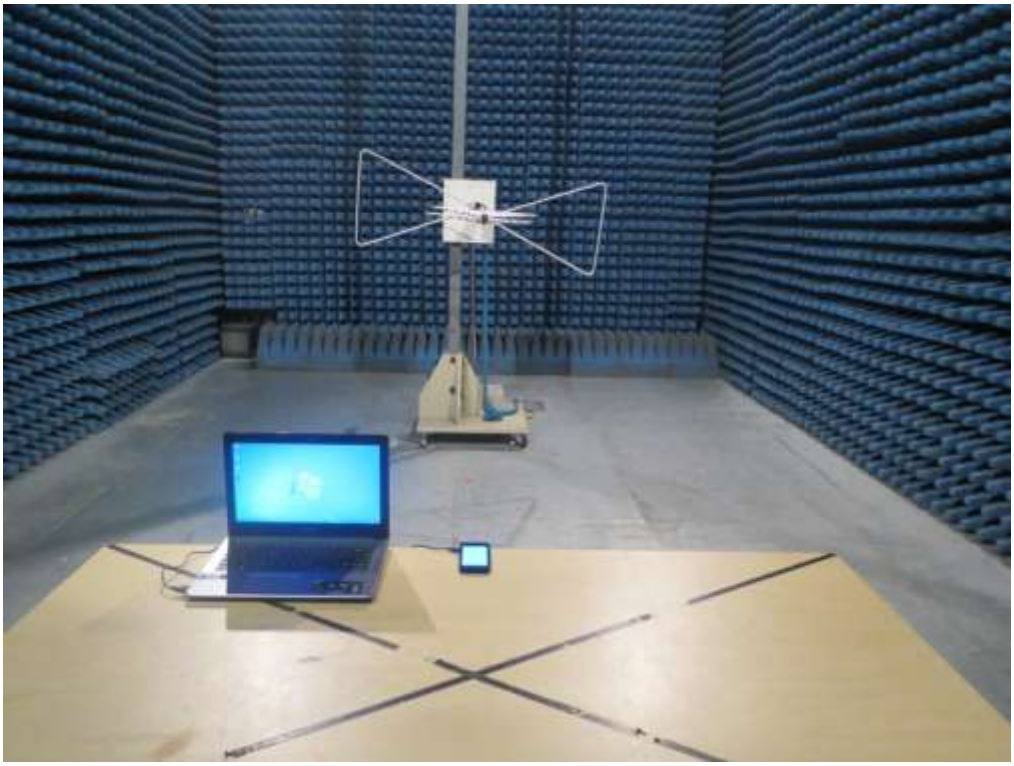
Note: All Other modes above 1GHz have more than 20db margin, no recording in the report

Measurement = Reading + Factor, Over = Measurement – Limit.

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP

FCC RADIATED EMISSION TEST SETUP



APPENDIX B: PHOTOGRAPHS OF EUT

All VIEW OF EUT

TOP VIEW OF EUT

BOTTOM VIEW OF EUT

FRONT VIEW OF EUT

BACK VIEW OF EUT

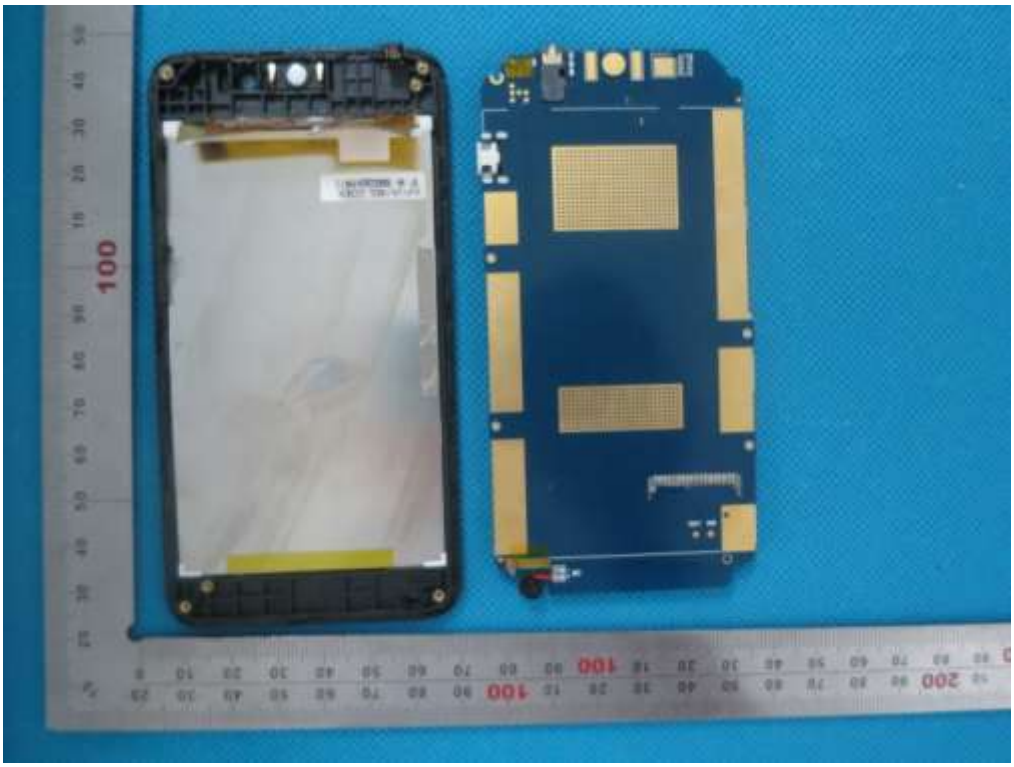
LEFT VIEW OF EUT

RIGHT VIEW OF EUT

OPEN VIEW OF EUT-1

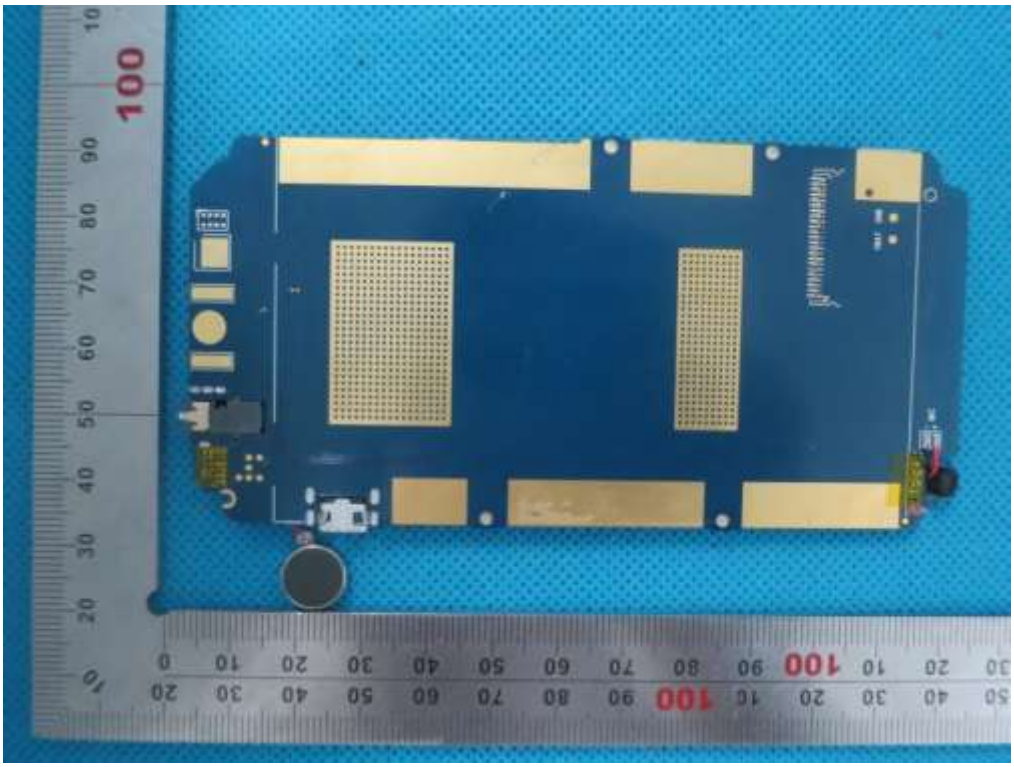
OPEN VIEW OF EUT-2

OPEN VIEW OF EUT-3



INTERNAL VIEW OF EUT-1

INTERNAL VIEW OF EUT-2



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