EMC TEST REPORT

Report No: STS1609183E01

Issued for

Digicom Trading (PVT) Limited

Room No.302, 3rd floor, the forum, Clifton, Karachi, Pakistan

Product Name:	Mobile Phone
Brand Name:	QMobile
Test Model Name:	E500i Music
Series Model:	N/A
Test Standard:	ETSI EN 301 489-1 V1.9.2
	ETSI EN 301 489-7 V1.3.1
	ETSI EN 301 489-17 V2.2.1

Shenzhen STS Test Services Co., Ltd.
1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road,
Fuyong Street, Bao'an District, Shenzhen, Guangdong, China
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

TEST REPORT CERTIFICATION

Applicant's name.....:	Digicom Trading (PVT) Limited
Address.....:	Room No.302, 3rd floor, the forum, Clifton, Karachi, Pakistan
Manufacturer's Name.....:	HK YBHS ELECTROIC DIGITAL TECHNOLOGY CO.,LIMITED
Address.....:	2th Floor, Block C, Academy Of Aerospace Technology Building, Keji South 10th Rd, Hi-tech Park, Nanshan District, Shenzhen, China

Product description

Product name.....:	Mobile Phone
Trademark .....:	QMobile
Model and/or type reference .:	E500i Music
Series Model.....:	N/A
Standards .....:	ETSI EN 301 489-1 V1.9.2 (2011-09) ETSI EN 301 489-7 V1.3.1 (2005-11) ETSI EN 301 489-17 V2.2.1 (2012-09)

This device described above has been tested by STS, and the test results show that the equipment under test (EUT) is in compliance with the 1999/5/EC R&TTE Directive Art 3.1b requirements. And it is applicable only to the tested sample identified in the report.

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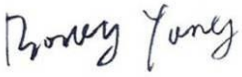
Date of Test .....:	
Date (s) of performance of tests .....:	23 Sep. 2016 ~ 29 Sep. 2016
Date of Issue .....:	30 Sep. 2016
Test Result.....:	**Pass**

Testing Engineer **:** 

(Tony Liu)

Technical Manager **:** 

(Vita Li)

Authorized Signatory **:** 

(Bovey Yang)

TABLE OF CONTENTS

Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	30 Sep. 2016	STS1609183E01	ALL	Initial Issue
Note: **Format version** of the report -V01				

1. TEST SUMMARY

Test procedures according to the technical standards:

ETSI EN 301 489-1 V1.9.2 (2011-09)
ETSI EN 301 489-7 V1.3.1 (2005-11)
ETSI EN 301 489-17 V2.2.1 (2012-09)

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55022:2010/AC:2011	Conducted Emission On AC And Telecom Port 150kHz to 30MHz	Class B	PASS	
	Radiated Emission 30MHz to 1000MHz	Class B	PASS	
	Radiated Emission 1GHz to 6GHz	Class B	PASS	
EN61000-3-2:2014	Harmonic Current Emission	Class A	N/A	
EN 61000-3-3:2013	Voltage Fluctuations & Flicker	------	PASS	
EMC Immunity				
Section EN 55024:2010	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006+A1: 2008+ A2:2010	RF electromagnetic field	A	PASS	
EN 61000-4-4:2012	Fast transients	B	PASS	
EN 61000-4-5:2014	Surges	B	PASS	
EN 61000-4-6:2014/AC:2015	Injected Current	A	PASS	
EN 61000-4-11:2004	Volt. Interruptions Volt. Dips	B / C / C / C NOTE (3)	PASS	

Note: (1)" N/A" denotes test is not applicable in this Test Report

(2) The power consumption of EUT is less than 75W and no Limits apply.

(3) Voltage dip: 100% reduction – Performance Criteria **B**

Voltage dip: 30% reduction – Performance Criteria **C**

Voltage dip: 40% reduction – Performance Criteria **C**

Voltage Interruption: 100% Interruption – Performance Criteria **C**

For GSM mode add Special conditions for EMC immunity tests

(4) For client's request and manual description, the test will not be executed.

1.1 TEST FACTORY

Company Name:	Shenzhen STS Test Services Co., Ltd.
Address:	1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	+86-755 3688 6288
Fax:	+86-755 3688 6277
Registration No.:	CNAS Registration No.: L7649; FCC Registration No.: 842334; IC Registration No.: 12108A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**,where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**,providing a level of confidence of approximately **95** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U · (dB)	NOTE
STSC01	ANSI	9KHz-150KHz	2.88	
		150 KHz ~ 30MHz	2.67	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U · (dB)	NOTE
STSC02	ANSI	30MHz ~ 200MHz	2.83	
		200MHz ~ 1000MHz	2.94	
		1GHz ~ 6 GHz	3.03	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Mobile Phone
Trade Name	QMobile
Model Name	E500i Music
Series Model	N/A
Model Difference	N/A
Frequency Band	GSM 900: 880.2 MHz to 914.8 MHz GSM1800: 1710.2 MHz to 1784.8 MHz Bluetooth: 2402 MHz to 2480 MHz
Modulation Mode	GSM / DCS: GMSK Bluetooth: GFSK, π/4-DQPSK, 8DPSK
Description test modes	SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested.
Power Rating	DC 3.7V from battery
Adapter	Power supply and ADP(rating): Input: AC 100-240V, 150mA, 50/60Hz Output: DC5.0V, 500mA
Battery	Battery(rating): Rated Voltage: 3.7V Charge Limit: 4.2V Capacity: 1000mAh
Antenna	GSM: PIFA Bluetooth: Dipole
Connecting I/O Port(s)	USB port*1/ Earphone *1
Hardware version number	K38-MB-V1.1
Software version number	QMobile_E500i Music_20160920_V1.08

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	GSM 900 Mode
Mode 2	GPRS 900 Mode
Mode 3	BT Mode
Mode 4	FM mode
Mode 5	USB Mode
Mode 6	GSM 1800 Mode
Mode 7	GPRS 1800 Mode
Mode 8	Play music mode
Mode 9	Camera mode

For Conducted Test	
Final Test Mode	Description
Mode 1	GSM 900 Mode

For Radiated Test	
Final Test Mode	Description
Mode 5	USB Mode

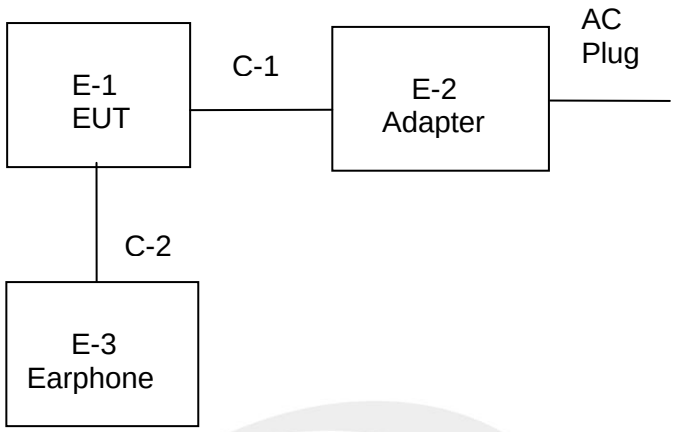
For EMS Test	
Final Test Mode	Description
Mode 1	GSM 900 Mode
Mode 2	GPRS 900 Mode
Mode 3	BT Mode
Mode 4	FM mode
Mode 5	USB Mode
Mode 6	GSM 1800 Mode
Mode 7	GPRS 1800 Mode
Mode 8	Play music mode
Mode 9	Camera mode

Note: The test modes were carried out for all operation modes(include link and idle).

The final test mode of the EUT was the worst test mode for Mode 1 and Mode 5, and its test data was showed.

2.3 DESCRIPTION OF TEST SETUP

Mode 1:



2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-1	Mobile Phone	QMobile	E500i Music	N/A	EUT
E-2	Adapter	QMobile	E500i music	N/A	EUT
E-3	Earphone	N/A	N/A	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
C-1	Shielded	NO	90cm	/
C-2	Unshielded	NO	100cm	/

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

(3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

2.5.1 CONDUCTED TEST SITE

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESPI	102086	2015.11.20	2016.11.19
LISN	R&S	ENV216	101242	2015.10.25	2016.10.24
LISN	EMCO	3810/2NM	000-23625	2015.10.25	2016.10.24
Absorbing clamp	R&S	MDS-21	100668	2015.10.22	2016.10.23

2.5.2 RADIATED TEST SITE

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESCI	101427	2015.11.20	2016.11.19
Bilog Antenna	TESEQ	CBL6111D	34678	2015.11.25	2016.11.24
Horn Antenna	SCHWARZBECK	BBHA 9120D(1201)	9120D-1343	2016.03.06	2017.03.05
Power Amplifier	Agilent	8449B	60538	2015.10.25	2016.10.24
Spectrum Analyzer	Agilent	E4407B	MY50140340	2015.10.25	2016.10.24

2.5.3 HARMONICS AND FLICKER

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Harmonic Voltage & Flicker	LAPLACE	AC 2000A	311217	2015.10.25	2016.10.24
AC Power Source	MTONI	PHF-5010	631169	2015.10.25	2016.10.24

2.5.4 ESD

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
ESD TEST GENERATOR	HTEC	HESD30	143802	2015.10.25	2016.10.24

2.5.5 SURGE, EFT/BURST, VOLTAGE INTERRUPTION/DIPS

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Surger Generator	HTEC	HCWG71	143804	2015.10.25	2016.10.24
Surger Generator	HTEC	SCDN161P	143805	2015.10.25	2016.10.24
VOLTAGE DIPS & INTERRUPTIONS Generator	HTEC	HPFS 161P	143803	2015.10.25	2016.10.24
EFT/B Generator	HTEC	HEFT 51	143801	2015.10.25	2016.10.24

2.5.6 RS

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Signal Generator	R&S	SME500i Music0A	104260	2015.10.27	2016.10.26
Log-Bicon Antenna	Schwarzbeck	VULB9161	4022	2016.08.15	2017.08.14
Power Amplifier	AR	150W1000M1	320946	2016.09.23	2017.09.22
Microwave Horn Antenna	AR	AT4002A	321467	2016.06.11	2017.06.10
Power Amplifier	AR	25S1G4A	308598	2016.09.23	2017.09.22
Universal Radio Communication Tester	R&S	CMU200	111764	2015.10.25	2016.10.24
Audio Analyzer	R&S	UPV	100419	2016.03.08	2017.03.07

2.5.7 INJECTION CURRENT

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
CS	SCHLODER	CDG-6000-25	126A1280/2014	2015.10.25	2016.10.24
CDN	SCHLODER	CDN-M2+3	A2210275/2014	2015.10.25	2016.10.24
EM Clamp	FCC	F-203I-23MM	504	2016.06.09	2017.06.08
Attenuator	HTEC	ATT-6DB-100	A100W224	2015.10.25	2016.10.24
Audio Power Amplifier	B&K	2716-C-001	2610976	2016.03.08	2017.03.07
Mouth Simulator	B&K	4227	2630621	2016.03.08	2017.03.07
Sound Calibrator	B&K	4231	2637486	2016.03.08	2017.03.07
1/2” Pressure-field Microphone	B&K	4192	2641678	2016.03.08	2017.03.07
Ear Simulator for Telephonometry	B&K	4185	2553612	2016.03.08	2017.03.07
Telephone Test Head	B&K	4185	2631728	2016.03.08	2017.03.07
Universal Radio Communication Tester	R&S	CMU200	111764	2015.10.25	2016.10.24
Audio Analyzer	R&S	UPV	100419	2016.03.08	2017.03.07

2.5.8 MF

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
MF Generator	HTEC	HMFG-COMB	143903	2015.10.25	2016.10.24
Magnetic field coil	HTEC	HCOIL 100	143808	2015.10.25	2016.10.24

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

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

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

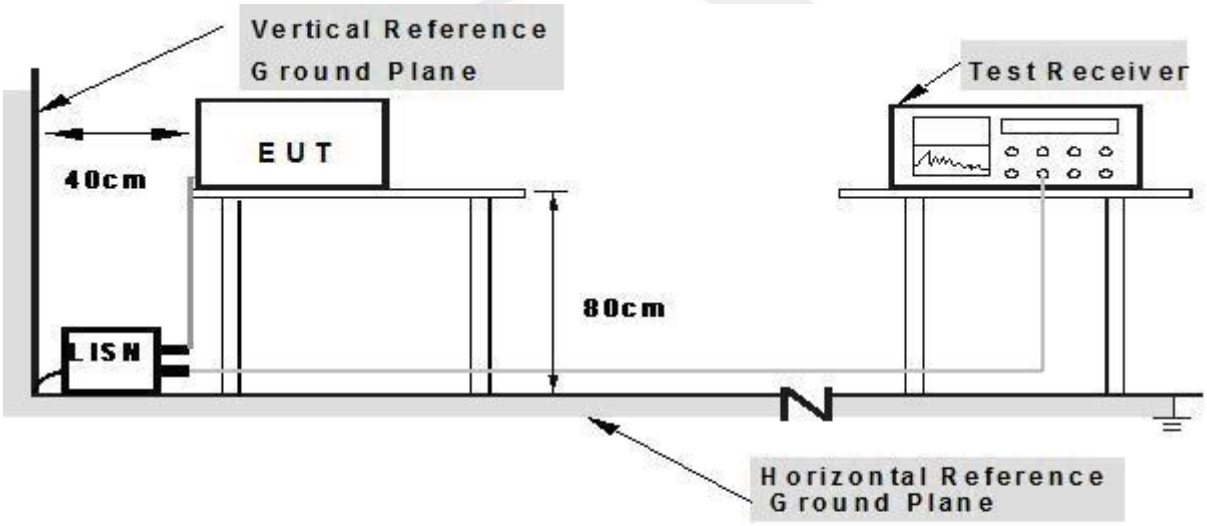
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. LISN at least 80 cm from nearest part of EUT chassis.

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

3.1.3 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

3.1.4 EUT OPERATING CONDITIONS

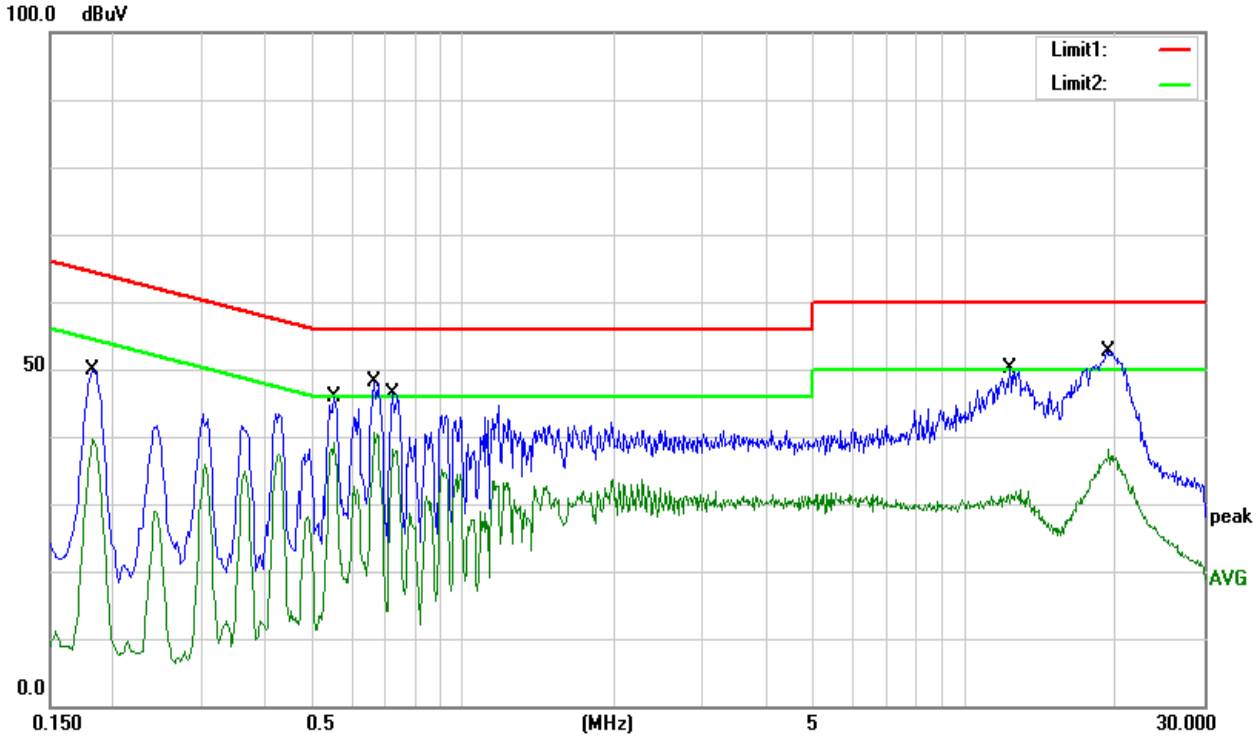
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.1.5 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	L
Test Voltage:	AC 230V/50Hz	Test Mode:	Mode 1

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1820	40.74	9.23	49.97	64.39	-14.42	QP
2	0.1820	30.34	9.23	39.57	54.39	-14.82	AVG
3	0.5540	36.65	9.17	45.82	56.00	-10.18	QP
4	0.5540	29.85	9.17	39.02	46.00	-6.98	AVG
5	0.6620	38.84	9.22	48.06	56.00	-7.94	QP
6	0.6660	31.49	9.22	40.71	46.00	-5.29	AVG
7	0.7220	37.11	9.23	46.34	56.00	-9.66	QP
8	0.7220	29.02	9.23	38.25	46.00	-7.75	AVG
9	12.2820	40.66	9.47	50.13	60.00	-9.87	QP
10	12.2820	20.75	9.47	30.22	50.00	-19.78	AVG
11	19.3300	42.69	9.90	52.59	60.00	-7.41	QP
12	19.3300	28.14	9.90	38.04	50.00	-11.96	AVG

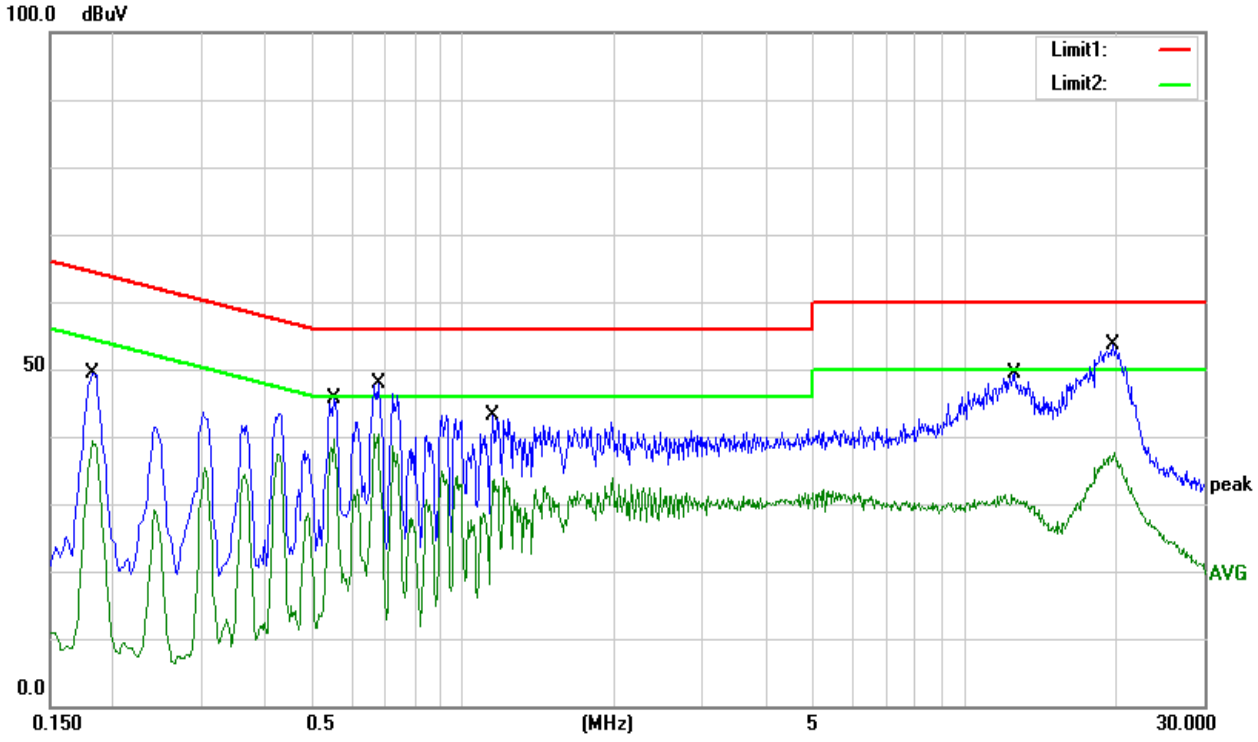
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	N
Test Voltage:	AC 230V/50Hz	Test Mode:	Mode 1

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1820	40.04	9.23	49.27	64.39	-15.12	QP
2	0.1820	29.97	9.23	39.20	54.39	-15.19	AVG
3	0.5540	36.36	9.17	45.53	56.00	-10.47	QP
4	0.5540	30.45	9.17	39.62	46.00	-6.38	AVG
5	0.6780	38.53	9.23	47.76	56.00	-8.24	QP
6	0.6780	28.80	9.23	38.03	46.00	-7.97	AVG
7	1.1460	33.93	9.25	43.18	56.00	-12.82	QP
8	1.1460	24.16	9.25	33.41	46.00	-12.59	AVG
9	12.5620	39.85	9.42	49.27	60.00	-10.73	QP
10	12.5620	21.37	9.42	30.79	50.00	-19.21	AVG
11	19.6540	43.77	9.75	53.52	60.00	-6.48	QP
12	19.6540	26.85	9.75	36.60	50.00	-13.40	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	Class A		Class B	
	At 10m	At 3m	At 10m	At 3m
	dBuV/m	dBuV/m	dBuV/m	dBuV/m
30 – 230	40	50	30	40
230 – 1000	47	57	37	47

3.2.2 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
1000-3000	76	56	70	50
3000-6000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to CISPR 22.

(2) The tighter limit applies at the band edges.

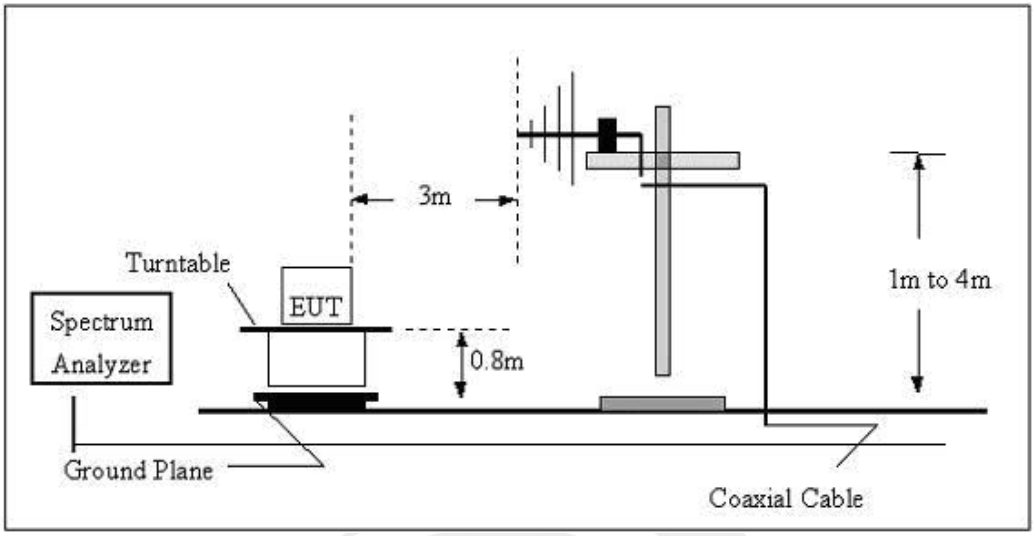
(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.3 TEST PROCEDURE

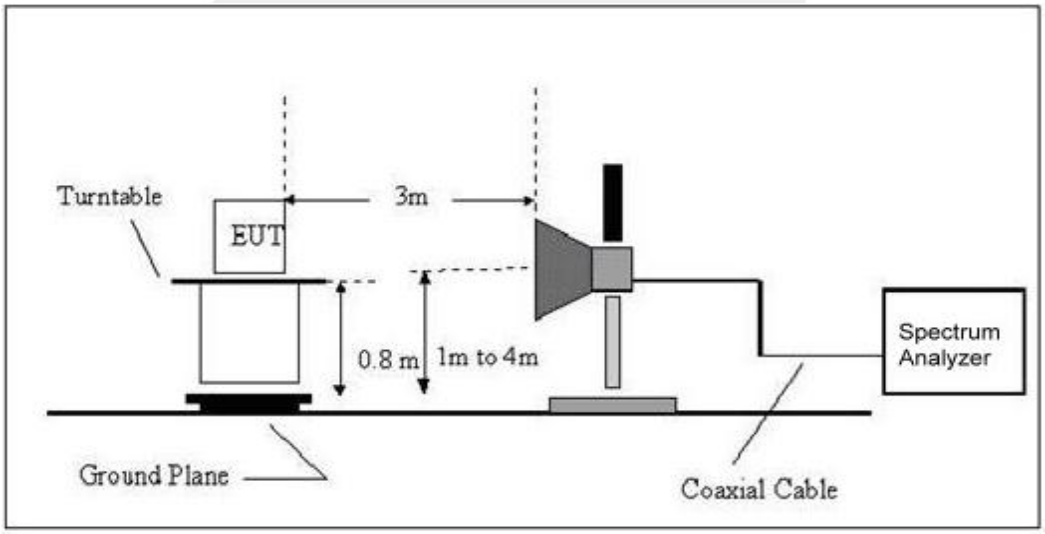
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment 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.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.4 TEST SETUP

(A) Radiated Emission Test Setup Frequency Below 1 GHz



(B) Radiated Emission Test Setup Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

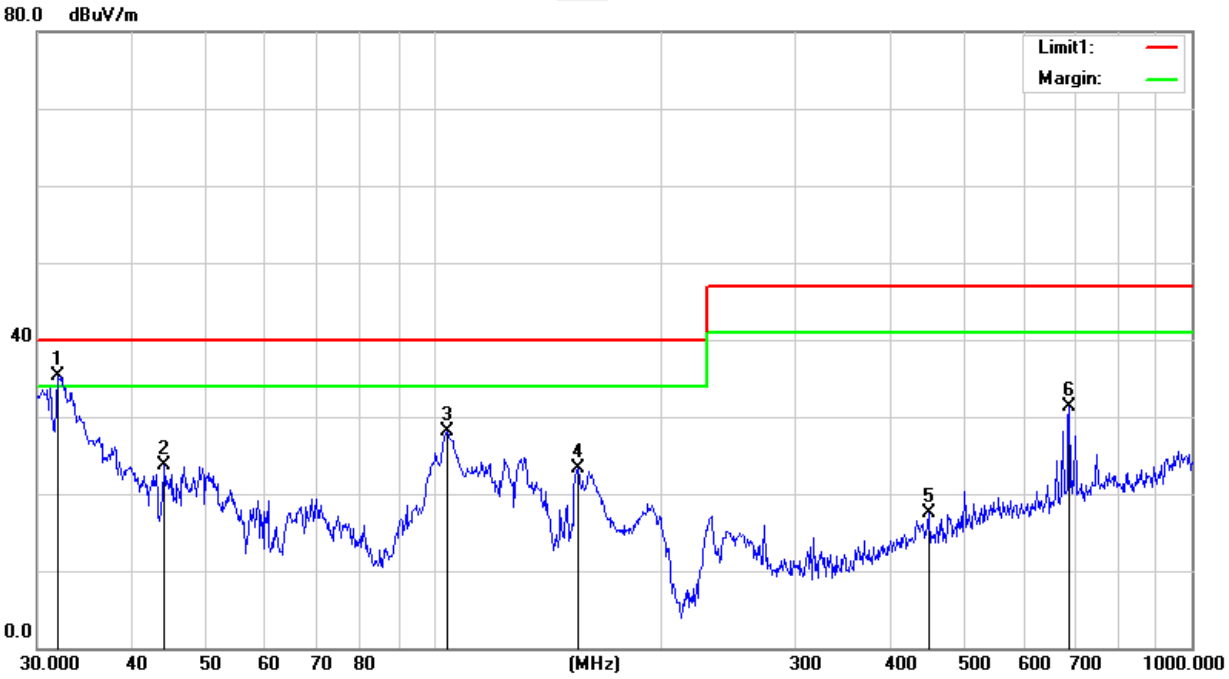
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS(30 - 1000 MHz)

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	Horizontal
Test Voltage:	AC 230V/50Hz	Test Mode:	Mode 5

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	31.9546	47.58	-12.20	35.38	40.00	-4.62	QP
2	44.1202	42.09	-18.45	23.64	40.00	-16.36	QP
3	104.1701	46.92	-18.84	28.08	40.00	-11.92	QP
4	154.8204	41.44	-18.22	23.22	40.00	-16.78	QP
5	449.5558	28.04	-10.52	17.52	47.00	-29.48	QP
6	689.5644	36.93	-5.57	31.36	47.00	-15.64	QP

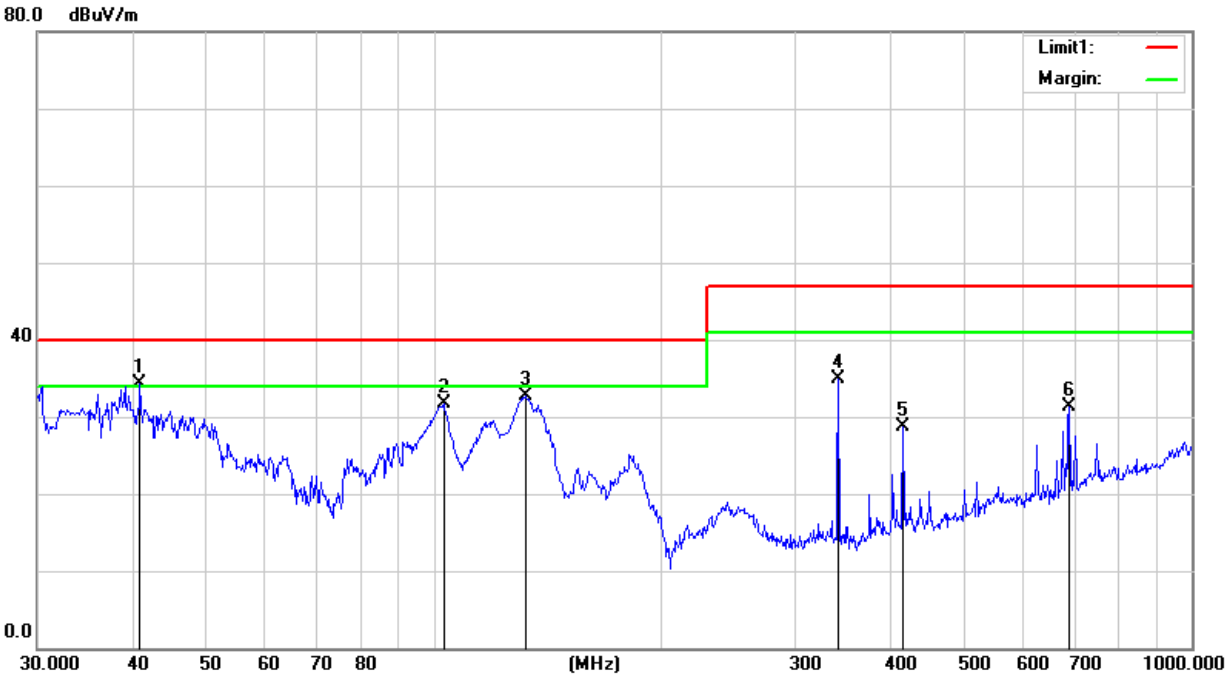
Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	Vertical
Test Voltage:	AC 230V/50Hz	Test Mode:	Mode 5

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.9881	51.22	-16.84	34.38	40.00	-5.62	QP
2	103.0800	50.58	-18.93	31.65	40.00	-8.35	QP
3	132.2204	50.30	-17.54	32.76	40.00	-7.24	QP
4	341.9786	48.76	-13.93	34.83	47.00	-12.17	QP
5	416.1791	39.61	-10.97	28.64	47.00	-18.36	QP
6	689.5643	36.93	-5.57	31.36	47.00	-15.64	QP

Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor)–Limit



3.2.7 TEST RESULT (1000 - 6000MHz)

Temperature:	24 ℃	Relative Humidity:	54 %
Pressure:	1010hPa	Test Mode:	Mode 5
Test Power:	AC 230V/50Hz		

Freq. (MHz)	Reading (dBuV)	Corr.Factor (dB)	Measured (dBuV/m)	Limits (dBuV/m)	Margins (dBuV/m)	Ant. H/V	Mark
1750.11	73.13	-10.98	62.15	70.00	-7.85	V	PK
1750.76	52.24	-10.98	41.26	50.00	-8.74	V	AVG
2122.95	65.27	-10.54	54.73	70.00	-15.27	V	PK
2122.88	51.99	-10.54	41.45	50.00	-8.55	V	AVG
1750.03	67.07	-11.52	55.55	70.00	-14.45	H	PK
1750.15	55.34	-11.52	43.82	50.00	-6.18	H	AVG
2150.56	65.05	-10.08	54.97	70.00	-15.03	H	PK
2150.77	53.15	-10.08	43.07	50.00	-6.93	H	AVG

Remark:
Absolute Level= Reading Level+ Factor, Margin= Absolute Level - Limit

3.3 HARMONICS CURRENT

3.3.1 LIMITS OF HARMONICS CURRENT

IEC 555-2					
Table - I			Table - II		
Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in Ampers)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in Ampers)
Non Portable Tools or TV Receivers	Odd Harmonics		TV Receivers	Odd Harmonics	
	3	2.30		3	0.80
	5	1.14		5	0.60
	7	0.77		7	0.45
	9	0.40		9	0.30
	11	0.33		11	0.17
	13	0.21		13	0.12
	15≤n≤39	0.15 · 15/n		15≤n≤39	0.10 · 15/n
	Even Harmonics			Even Harmonics	
	2	1.08		2	0.30
	4	0.43		4	0.15
	8	0.30			
	8≤n≤40	0.23 · 8/n		DC	0.05

EN 61000-3-2/IEC 61000-3-2					
Equipment Category	Max. Permissible Harmonic Current (in Ampers)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in A)	(mA/w)
Class A	Same as Limits Specified in 4-2.1, Table - I, but only odd harmonics required	Class D	3	2.30	3.4
			5	1.14	1.9
			7	0.77	1.0
			9	0.40	0.5
			11	0.33	0.35
			13≤n≤39	see Table I	3.85/n
			only odd harmonics required		

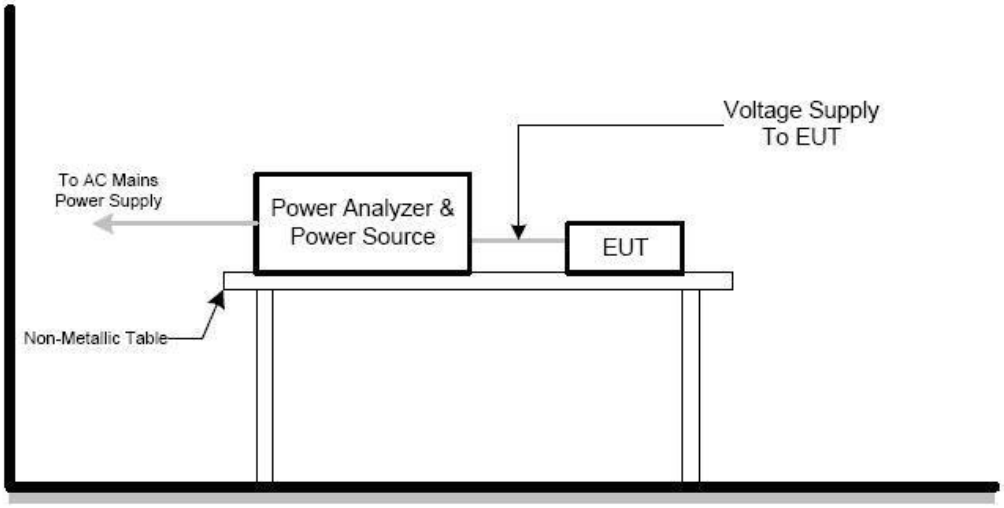
3.3.2 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.
b. The classification of EUT is according to section 5 of EN 61000-3-2. The EUT is classified as follows:
Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.
Class B: Portable tools. Portable tools.; Arc welding equipment which is not professional equipment.
Class C: Lighting equipment.
Class D: Equipment having a specified power less than or equal to 600W of the following types: Personal computers and personal computer monitors and television receivers.
c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

3.3.3 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.4 TEST SETUP



3.3.5 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	N/A

*Note: The active input power of the EUT is less than **75 W.** No limits apply for equipment with an active input power up to and including 75W*

3.4 VOLTAGE FLUCTUATION AND FLICKERS

3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKERS

Tests	Measurement Value	Limit	Descriptions
	IEC555-3	IEC/EN 61000-3-3	
P_{st}	≤ 1.0,Tp= 10 min.	≤ 1.0,Tp= 10 min.	Short Term Flicker Indicator
P_{lt}	N/A	≤0.65, Tp=2 hr.	Long Term Flicker Indicator
$T_{dt(s)}$	≤ 3%	≤ 3.3%	Relative Steady-State V-Chang
d_{max}(%)	≤ 4%	≤ 4%	Maximum Relative V-Chang
d_c(%)	N/A	≤ 3.3% for > 500 ms	Relative V-change Characteristic

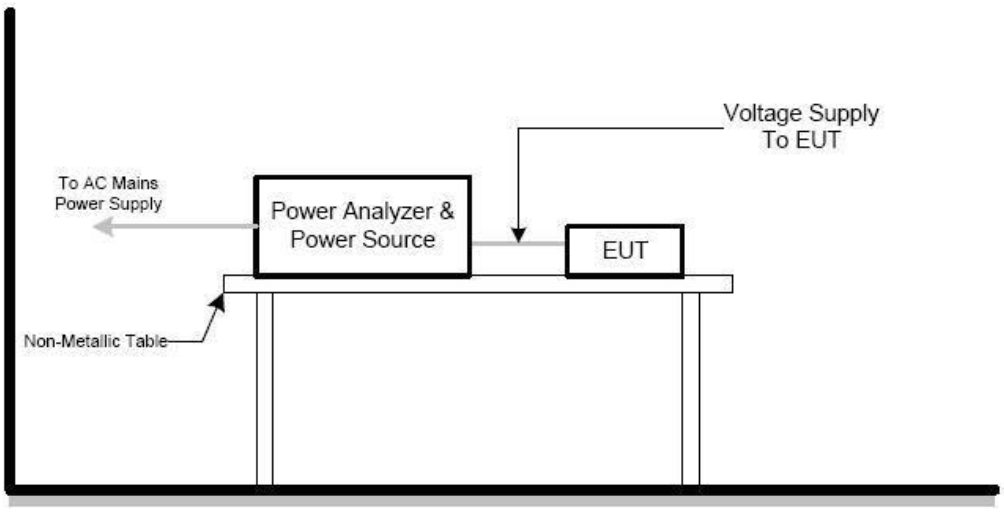
3.4.2 TEST PROCEDURE

a. Harmonic Current Test:
Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.
b. Fluctuation and Flickers Test:
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.
c. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

3.4.3 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.4 TEST SETUP



3.4.5 TEST RESULTS

Temperature:	25 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz

Test Parameter	Measurement Value	Limit	Remarks
P_{st}	0.03	1.0	Pass
P_{lt}	--	0.65	--
$T_{dt(s)}$	0.00	0.5	Pass
d_{max}(%)	0.01%	4%	Pass
d_c(%)	0.00%	3.3%	Pass

4. EMC IMMUNITY TEST

4.1 GENERAL PERFORMANCE CRITERIA

4.1.1 PERFORMANCE CRITERIA (GSM)

According to **EN 301489 -7** standard, the general performance criteria as following:

Criterion A	The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
Criterion B	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
Criterion C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

PERFORMANCE CRITERIA FOR CT AND CR

A communication link shall be established at the start of the test, and maintained during the test. During the test, the RXQUAL of the downlink shall not exceed 3, measured during each individual exposure in the test sequence. Both the uplink speech output level and the downlink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band Pass filter of width 200 Hz, centered on 1 kHz (audio breakthrough check). At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained.

PERFORMANCE CRITERIA FOR TT AND TR

A communications link shall be established at the start of the test. At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communication link. At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communication link shall have been maintained.

4.1.2 PERFORMANCE CRITERIA (Bluetooth)

According to **EN 301489 -17** standard, the general performance criteria as following:

Criteria	During the test	After the test
A	Shall operate as intended May show degradation of performance (see note 1) Shall be no loss of function Shall be no unintentional transmissions	Shall operate as intended Shall be no degradation of performance (see note 2) Shall be no loss of function Shall be no loss of stored data or user programmable functions
B	May show loss of function (one or more) May show degradation of performance (see note 1) No unintentional transmissions	Functions shall be self-recoverable Shall operate as intended after recovering Shall be no degradation of performance (see note 2) Shall be no loss of stored data or user programmable functions
C	May be loss of function (one or more)	Functions shall be recoverable by the operator Shall operate as intended after recovering Shall be no degradation of performance (see note 2)

NOTE 1: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2: no degradation of performance after the test is understood as any degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

PERFORMANCE FOR TT

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR TR

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR CT

The performance criteria A shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an Acknowledgement (ACK) or Not Acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR CR

The performance criteria A shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

4.1.3 GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2 ESD TESTING

4.2.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance:	B
Discharge Voltage:	Air Discharge: 2KV/4KV/8KV (Direct) Contact Discharge: 2KV/4KV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

4.2.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.

If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

Vertical Coupling Plane (VCP):

The coupling plane of dimensions 0.5m x 0.5m, is placed parallel to and positioned at a distance 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):

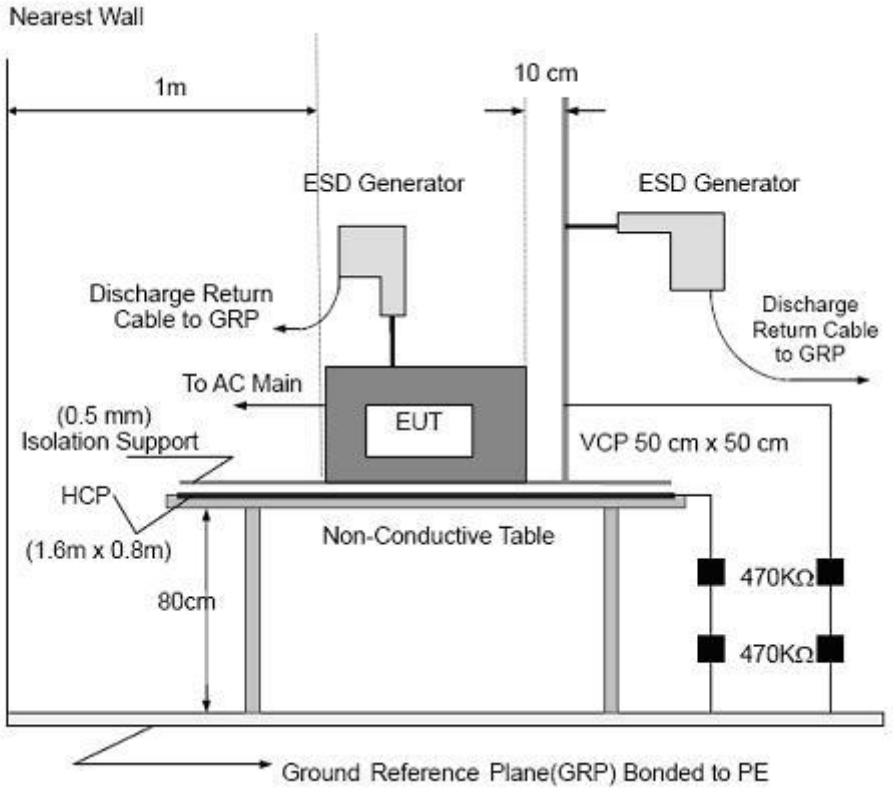
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

b. Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point.

4.2.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.2.4 TEST RESULT

Temperature:	25 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz
Test Mode:	Mode1/2/3/4/5/6/7/8/9		

BT TEST RESULT

Mode	Air Discharge								Contact Discharge								Observation	Criterion	Result
Test level (KV)	2		4		8		15		2		4		6		8				
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-			
HCP									A	A	A	A					**TT,TR**	**B**	**PASS**
VCP									A	A	A	A							**PASS**
Keying	A	A	A	A	A	A													**PASS**
Charge Port	A	A	A	A	A	A													**PASS**
Crevice	A	A	A	A	A	A													**PASS**
Headphone	A	A	A	A	A	A													**PASS**
Indicator light	A	A	A	A	A	A													**PASS**
Headphone Port	A	A	A	A	A	A													**PASS**
Rear camera	A	A	A	A	A	A													**PASS**
Microphone	A	A	A	A	A	A													**PASS**

GSM/GPRS TEST RESULT

Mode	Air Discharge								Contact Discharge								Observation	Criterion	Result
Test level (KV)	2		4		8		15		2		4		6		8				
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-			
HCP									A	A	A	A					TT,TR	B	PASS
VCP									A	A	A	A							PASS
Keying	A	A	A	A	A	A													PASS
Charge Port	A	A	A	A	A	A													PASS
Crevice	A	A	A	A	A	A													PASS
Headphone	A	A	A	A	A	A													PASS
Indicator light	A	A	A	A	A	A													PASS
Headphone Port	A	A	A	A	A	A													PASS
Rear camera	A	A	A	A	A	A													PASS
Microphone	A	A	A	A	A	A													PASS

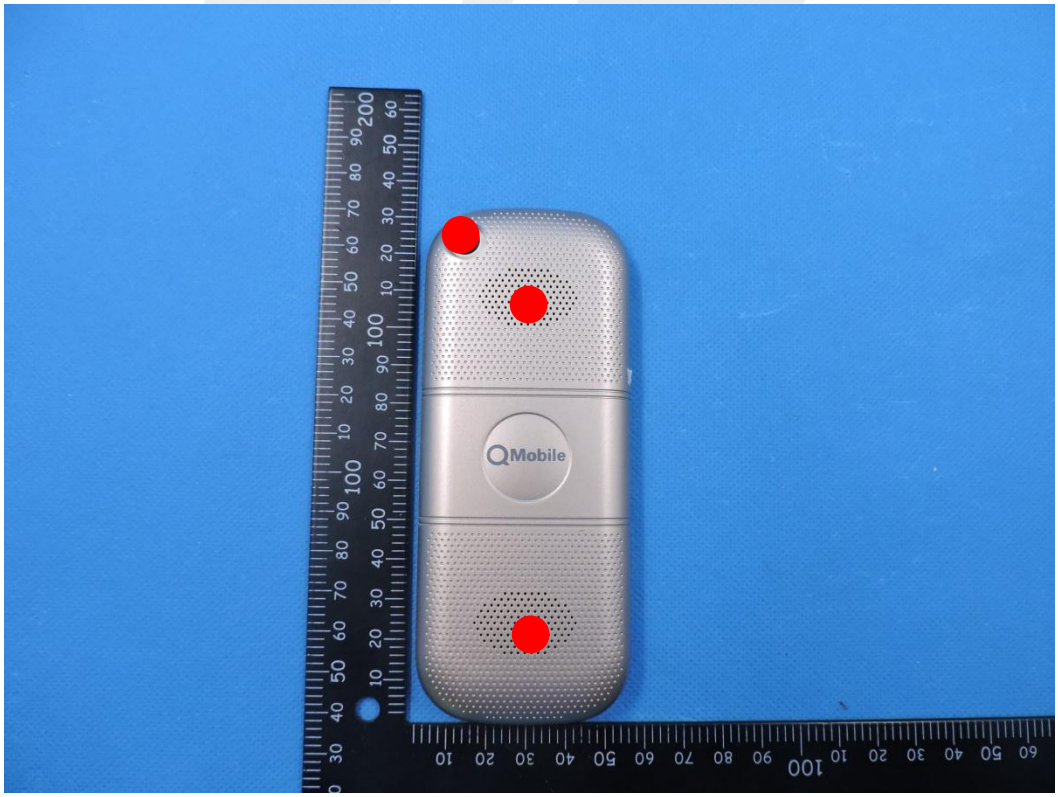
FM TEST RESULT

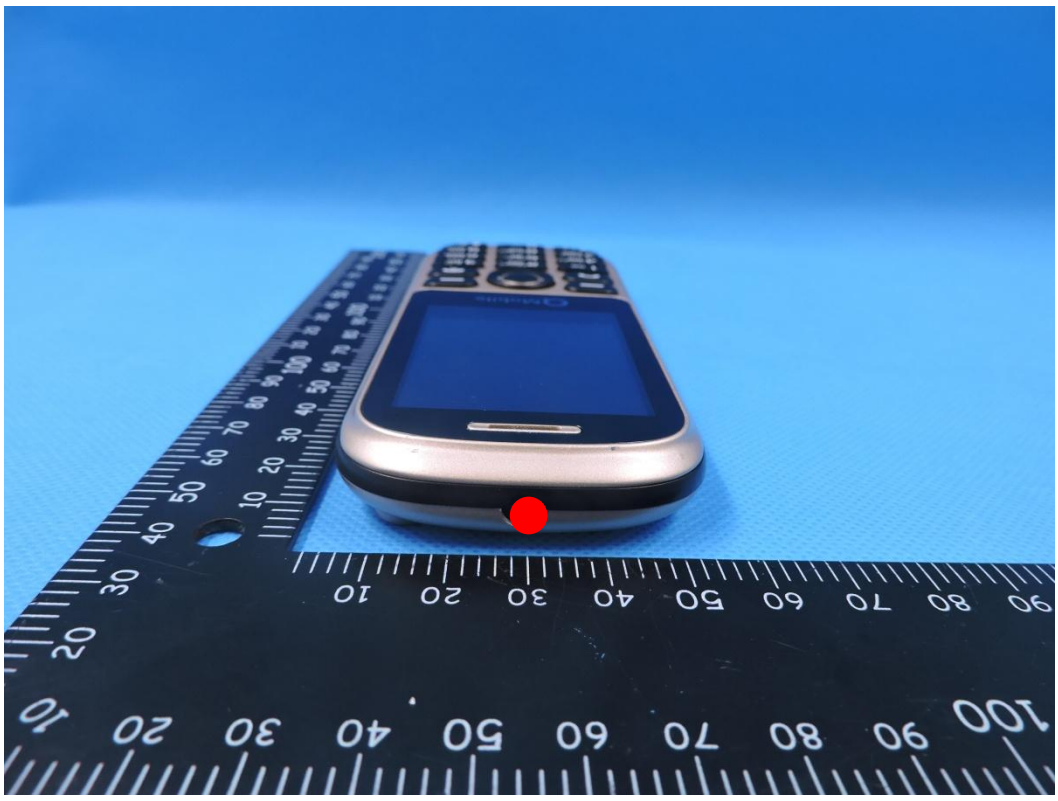
Mode	Air Discharge								Contact Discharge								Observation	Criterion	Result
Test level (KV)	2		4		8		15		2		4		6		8				
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-			
HCP									A	A	A	A					TT,TR	B	PASS
VCP									A	A	A	A							PASS
Keying	A	A	A	A	A	A													PASS
Charge Port	A	A	A	A	A	A													PASS
Crevice	A	A	A	A	A	A													PASS
Headphone	A	A	A	A	A	A													PASS
Indicator light	A	A	A	A	A	A													PASS
Headphone Port	A	A	A	A	A	A													PASS
Rear camera	A	A	A	A	A	A													PASS
Microphone	A	A	A	A	A	A													PASS

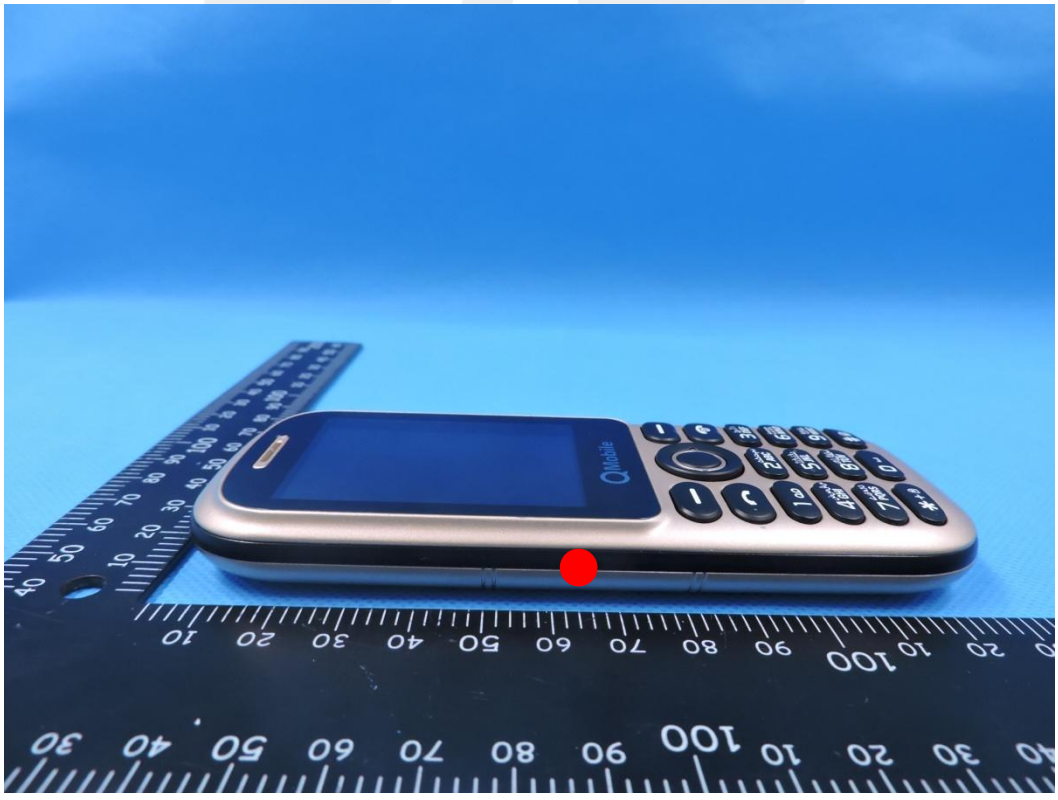
USB/CAMERA/PLAY MUSIC TEST RESULT

Mode	Air Discharge								Contact Discharge								Observation	Criterion	Result
Test level (KV)	2		4		8		15		2		4		6		8				
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-			
HCP									A	A	A	A					TT,TR	B	PASS
VCP									A	A	A	A							PASS
Keying	A	A	A	A	A	A													PASS
Charge Port	A	A	A	A	A	A													PASS
Crevice	A	A	A	A	A	A													PASS
Headphone	A	A	A	A	A	A													PASS
Indicator light	A	A	A	A	A	A													PASS
Headphone Port	A	A	A	A	A	A													PASS
Rear camera	A	A	A	A	A	A													PASS
Microphone	A	A	A	A	A	A													PASS

The Photo for Discharge Points of EUT







Red Dot —Air Contact Discharged
Blue Dot —Contact Discharged

4.3 RS TESTING

4.3.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance:	A
Frequency Range:	80 MHz - 1000 MHz, 1400 - 2700 MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	at least 3 seconds

4.3.2 TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

The testing distance from antenna to the EUT was 3 meters.

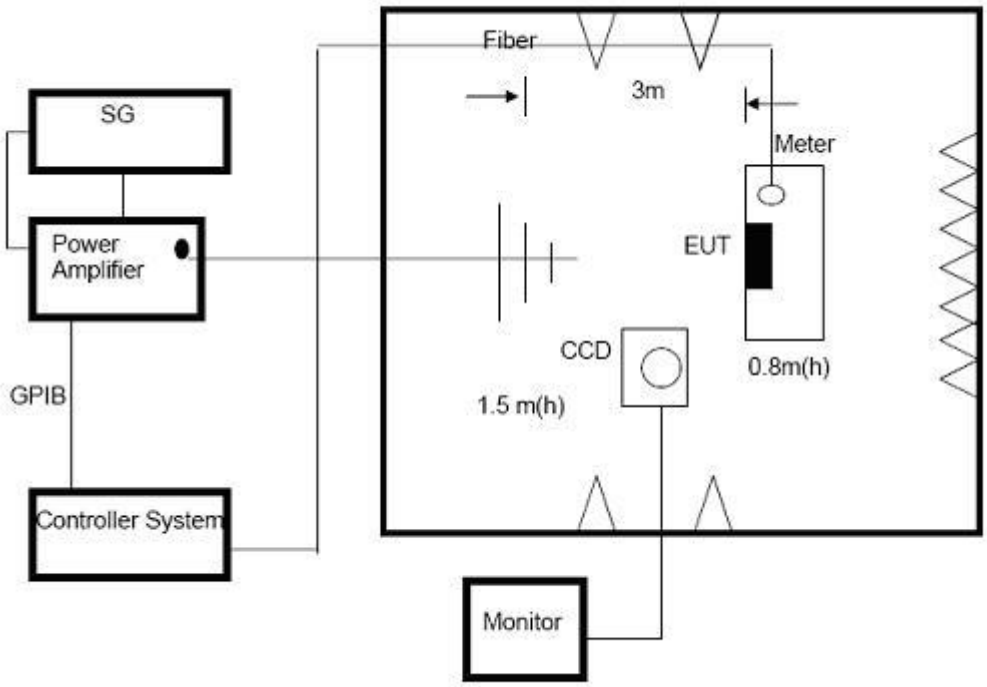
The other condition as following manner:

a. The frequency range is swept from 80 MHz to 1000 MHz & 1400MHz - 2700MHz with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

b. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

c. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.3.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.3.4 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz
Test Mode:	Mode1/2/3/4/5/6/7/8/9		

GSM Uplink/Downlink

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results	Judgment
80-1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	**CT,CR**	**A**	**A**	**PASS**
			Rear				
			Left				
			Right				

Note: During the test, the Maximum Bit Error Ratio was less than 1×10^{-3}, the Uplink/Downlink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz (audio breakthrough check).
The RXQUAL of the downlink is not exceeding the value of three, measured during each individual exposure in the test sequence. Or During and after the test, the apparatus continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level.
At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate.

GPRS Uplink/Downlink

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results	Judgment
80-1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	**CT,CR**	**A**	**A**	**PASS**
			Rear				
			Left				
			Right				

Note: During the test, the Maximum Block Error Ratio was less than 1×10^{-2}.

BT Link

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results	Judgment
80-1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front Rear Left Right	**CT,CR**	**A**	**A**	**PASS**

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

FM Link

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results	Judgment
80-1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front Rear Left Right	**CT,CR**	**A**	**A**	**PASS**

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

USB/PLAY MUSIC/CAMERA Link

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results	Judgment
80-1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front Rear Left Right	**CT,CR**	**A**	**A**	**PASS**

Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

Note:

1) N/A - denotes test is not applicable in this test report.

2) Criteria A: There was no change operated with initial operating during the test.

3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

4) Criteria C: The system shut down during the test.

4.4 EFT/BURST TESTING

4.4.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-4
Required Performance:	B
Test Voltage:	Power Line: 1 KV Signal/Control Line: 0.5 KV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave shape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

4.4.2 TEST PROCEDURE

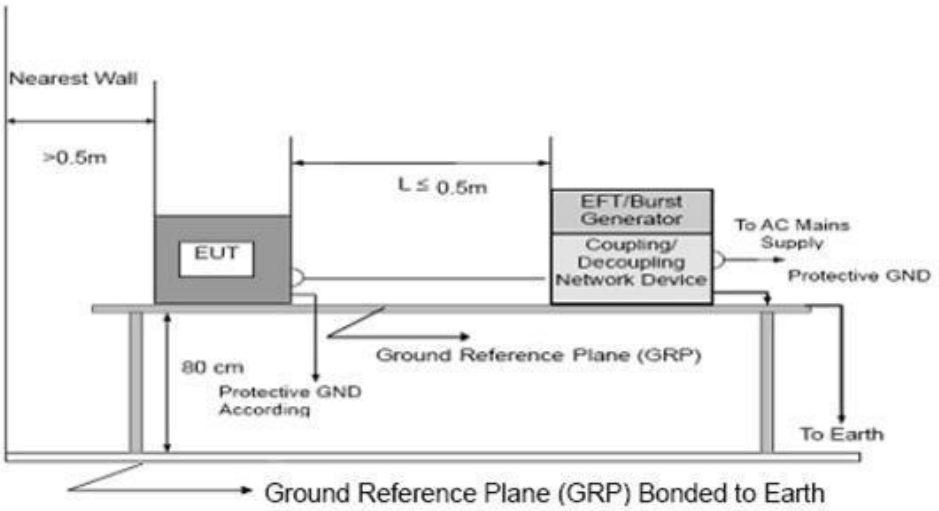
The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min and 0.65mm thick min.
The other condition as following manner:

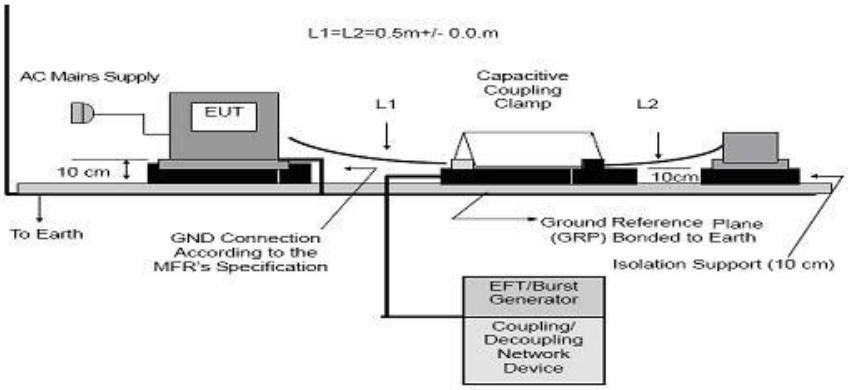
a. The length of power cord between the coupling device and the EUT should not exceed 1 meter.

b. Both positive and negative polarity discharges were applied.

c. The duration time of each test sequential was 1 minute

4.4.3 TEST SETUP





Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

4.4.4 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz
Test Mode:	Mode1/2/3/4/5/6/7/8/9		

BT TEST RESULT

Coupling Line		Test level (KV)								Observation	Criterion	Result
		0.5		1		2		4				
		+	-	+	-	+	-	+	-			
AC line	L	A	A	A	A					TT,TR	B	PASS
	N	A	A	A	A							PASS
	PE											
	L+N	A	A	A	A							PASS
	L+PE											
	N+PE											
	L+N+PE											
DC Line												
Signal Line												

GSM/GPRS TEST RESULT

Coupling Line		Test level (KV)								Observation	Criterion	Result
		0.5		1		2		4				
		+	-	+	-	+	-	+	-			
AC line	L	A	A	A	A					TT,TR	B	PASS
	N	A	A	A	A							PASS
	PE											
	L+N	A	A	A	A							PASS
	L+PE											
	N+PE											
	L+N+PE											
DC Line												
Signal Line												

FM TEST RESULT

Coupling Line		Test level (KV)								Observation	Criterion	Result
		0.5		1		2		4				
		+	-	+	-	+	-	+	-			
AC line	L	A	A	A	A					TT,TR	B	PASS
	N	A	A	A	A							PASS
	PE											
	L+N	A	A	A	A							PASS
	L+PE											
	N+PE											
	L+N+PE											
DC Line												
Signal Line												

PLAY MUSIC/CAMERA TEST RESULT

Coupling Line		Test level (KV)								Observation	Criterion	Result
		0.5		1		2		4				
		+	-	+	-	+	-	+	-			
AC line	L	A	A	A	A					TT,TR	B	PASS
	N	A	A	A	A							PASS
	PE											
	L+N	A	A	A	A							PASS
	L+PE											
	N+PE											
	L+N+PE											
DC Line												
Signal Line												

Note:

1) P/N denotes the Positive/Negative polarity of the output voltage.

2) N/A - denotes test is not applicable in this test report

3) There was not any unintentional transmission in standby mode

4.5 SURGE TESTING

4.5.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-5
Required Performance:	B
Wave-Shape:	Combination Wave 1.2/50 us Open Circuit Voltage 8 /20 us Short Circuit Current
Test Voltage:	Power line ~ line to line: 1 KV line to ground: 2 KV Telecommunication line: 1 KV
Surge Input/Output:	L-N, L-PE, N-PE
Generator Source:	(L-N)2 ohm between networks
Impedance:	(L-PE, N-PE)12 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0 /90/180/270°
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

4.5.2 TEST PROCEDURE

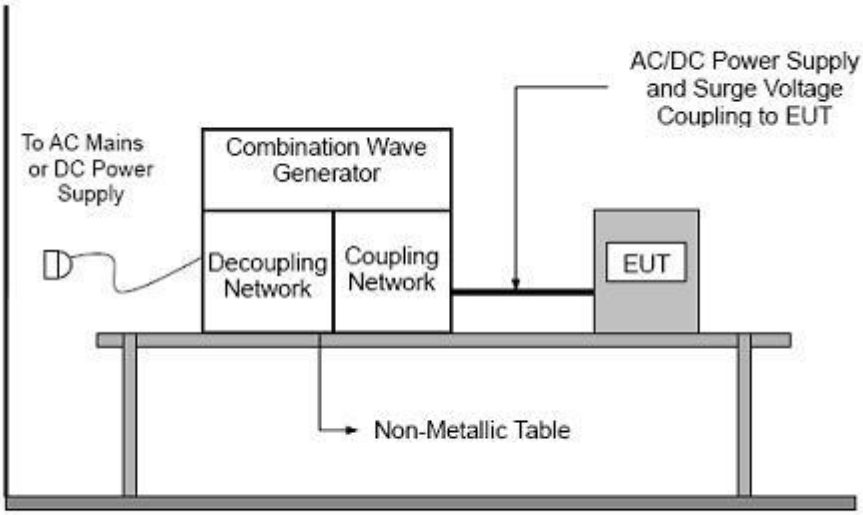
a. For EUT power supply:

b. The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

c. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

d. The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

4.5.3 TEST SETUP



4.5.4 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz
Test Mode:	Mode1/2/3/4/5/6/7/8/9		

BT TEST RESULT

Coupling Line			Test level								Observation	Criterion	Result
			0.5 KV		1 KV		2 KV		4 KV				
			+	-	+	-	+	-	+	-			
AC line	L-N	0°	A	A	A	A					TT,TR	B	PASS
		90°	A	A	A	A							
		180°	A	A	A	A							
		270°	A	A	A	A							
	L-PE	0°											
		90°											
		180°											
		270°											
	N-PE	0°											
		90°											
		180°											
		270°											
DC Line													
Signal Line													

GSM/GPRS TEST RESULT

Coupling Line			Test level								Observation	Criterion	Result
			0.5 KV		1 KV		2 KV		4 KV				
			+	-	+	-	+	-	+	-			
AC line	L-N	0°	A	A	A	A					TT,TR	B	PASS
		90°	A	A	A	A							
		180°	A	A	A	A							
		270°	A	A	A	A							
	L-PE	0°											
		90°											
		180°											
		270°											
	N-PE	0°											
		90°											
		180°											
		270°											
DC Line													
Signal Line													

FM/PLAY MUSIC/CAMERA TEST RESULT

Coupling Line			Test level								Observation	Criterion	Result
			0.5 KV		1 KV		2 KV		4 KV				
			+	-	+	-	+	-	+	-			
AC line	L-N	0°	A	A	A	A					TT,TR	B	PASS
		90°	A	A	A	A							
		180°	A	A	A	A							
		270°	A	A	A	A							
	L-PE	0°											
		90°											
		180°											
		270°											
	N-PE	0°											
		90°											
		180°											
		270°											
DC Line													
Signal Line													

Note:

1) Polarity and Numbers of Impulses：5 Pst / Ngt at each tested mode

2) N/A - denotes test is not applicable in this Test Report

3) There was not any unintentional transmission in standby mode

4.6 INJECTION CURRENT TESTING

4.6.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-6
Required Performance:	A
Frequency Range:	0.15 MHz - 80 MHz
Field Strength:	3 Vr.m.s.
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Dwell Time:	at least 3 seconds

4.6.2 TEST PROCEDURE

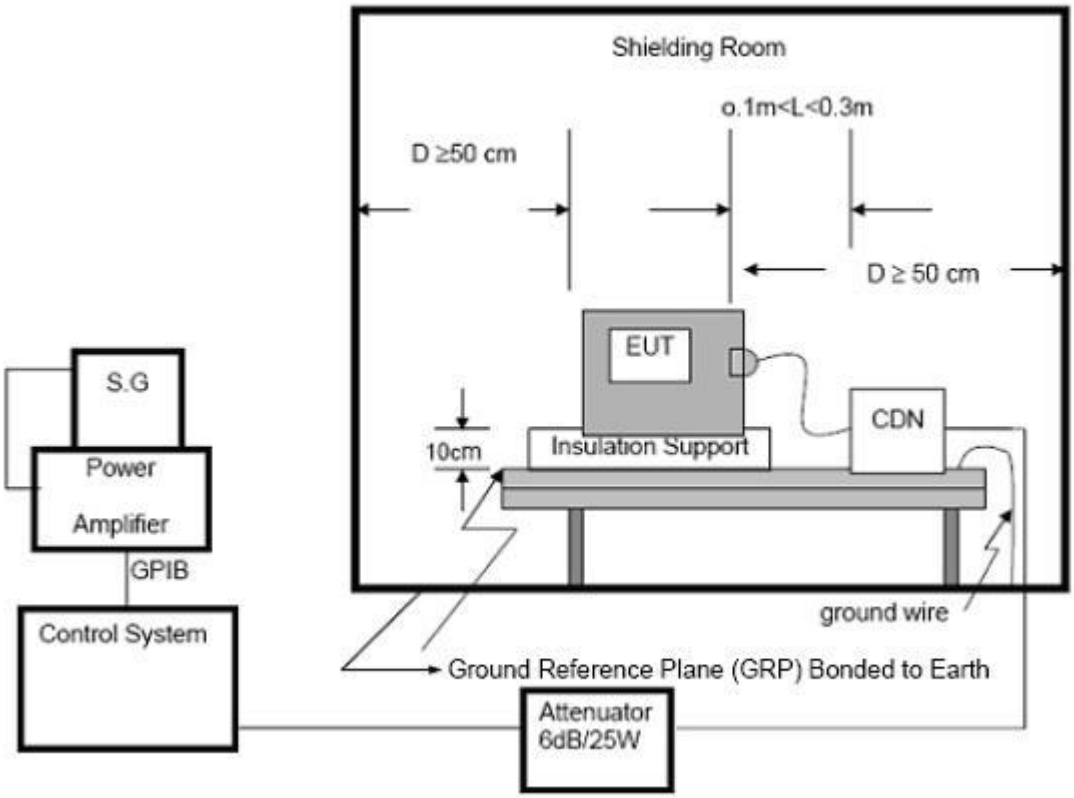
The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

The other condition as following manner:

a. The frequency range is swept from 150 KHz to 80 MHz, with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

b. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

4.6.3 TEST SETUP



NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

4.6.4 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz
Test Mode:	Mode1/2/3/4/5/6/7/8/9		

GSM Uplink/Downlink

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Observation	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 ---80	3V(rms) AM Modulated 1000Hz, 80%	**CT, CR**	**A**	**A**	**PASS**
Input/ Output DC. Power Port	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Signal Line	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Note: During the test, the Maximum Bit Error Ratio was less than 1×10^{-3}."A" stand for, the uplink/downlink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz (audio breakthrough check). The RXQUAL of the downlink is not exceeding the value of three, measured during each individual exposure in the test sequence. Or During and after the test, the apparatus continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level.						

GPRS Uplink/Downlink

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Observation	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 ---80	3V(rms) AM Modulated 1000Hz, 80%	**CT, CR**	**A**	**A**	**PASS**
Input/ Output DC. Power Port	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Signal Line	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Note: During the test, the Maximum Block Error Ratio was less than 1×10^{-2}.						

BT Link

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Observation	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 ---80	3V(rms) AM Modulated 1000Hz, 80%	**CT, CR**	**A**	**A**	**PASS**
Input/ Output DC. Power Port	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Signal Line	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.						

FM Link

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Observation	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 ---80	3V(rms) AM Modulated 1000Hz, 80%	**CT, CR**	**A**	**A**	**PASS**
Input/ Output DC. Power Port	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Signal Line	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.						

PLAY MUSIC/CAMERA Link

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Observation	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 ---80	3V(rms) AM Modulated 1000Hz, 80%	**CT, CR**	**A**	**A**	**PASS**
Input/ Output DC. Power Port	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Signal Line	0.15 --- 80		**N/A**	**N/A**	**N/A**	**N/A**
Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.						

4.7 VOLTAGE INTERRUPTION/DIPS TESTING

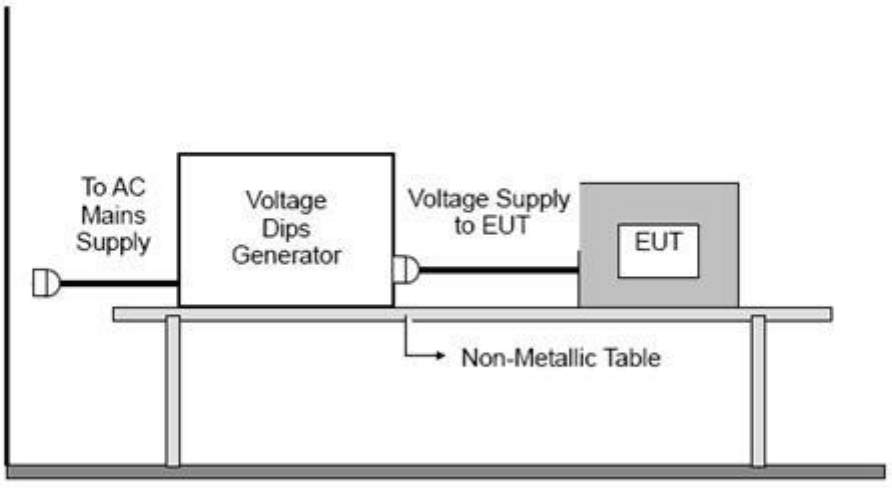
4.7.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-11
Required Performance:	B (For 100% Voltage Dips, 0.5 Cycle) B (For 100% Voltage Dips, 1 Cycle) C (For 30% Voltage Dips, 25 Cycles) C (For 100% Voltage Interruptions, 250 Cycles)
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle:	0°/45°/90°/135°/180°/225°/270°/315°/360°
Test Cycle:	3 times

4.7.2 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.7.3 TEST SETUP



4.7.4 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	45%
Pressure:	1010hPa	Test Voltage:	AC 230V/50Hz
Test Mode:	Mode1/2/3/4/5/6/7/8/9		

BT TEST RESULT

Voltage Reduction	Duration (ms)	Observation	Perform Criteria	Results	Judgment
Voltage dip 0%	10	**TT, TR**	**B**	**B**	**PASS**
Voltage dip 0%	20	**TT, TR**	**C**	**B**	**PASS**
Voltage dip 70%	500	**TT, TR**	**C**	**B**	**PASS**
Voltage interruptions	5000	**TT, TR**	**C**	**C**	**PASS**

GSM/GPRS TEST RESULT

Residual Voltage	Duration (ms)	Observation	Perform Criteria	Results	Judgment
Voltage 0%	10	**TT, TR**	**B**	**B**	**PASS**
Voltage 0%	20	**TT, TR**	**C**	**B**	**PASS**
Voltage 70%	10	**TT, CR**	**B**	**B**	**PASS**
Voltage 70%	500	**TT, TR**	**C**	**B**	**PASS**
Voltage 0%	5000	**TT, TR**	**C**	**C**	**PASS**

FM/ PLAY MUSIC/CAMERA TEST RESULT

Voltage Reduction	Duration (ms)	Observation	Perform Criteria	Results	Judgment
Voltage dip 0%	10	**TT, TR**	**B**	**B**	**PASS**
Voltage dip 0%	20	**TT, TR**	**C**	**B**	**PASS**
Voltage dip 70%	500	**TT, TR**	**C**	**B**	**PASS**
Voltage interruptions	5000	**TT, TR**	**C**	**C**	**PASS**

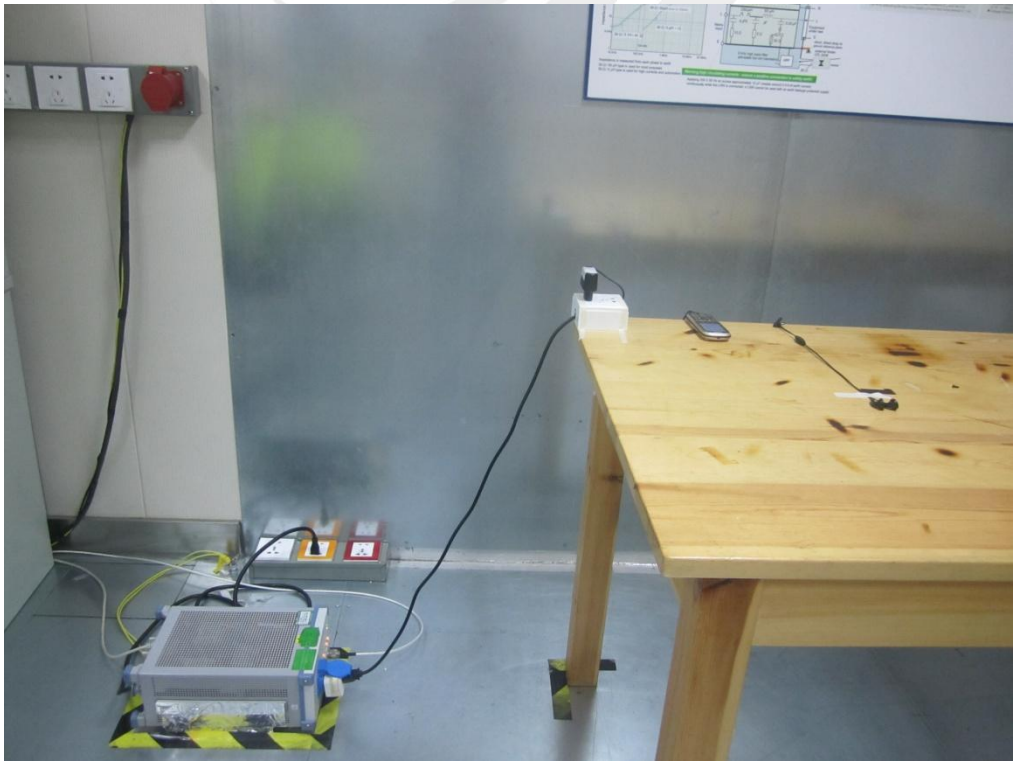
Note:

1) There was not any unintentional transmission in standby mode

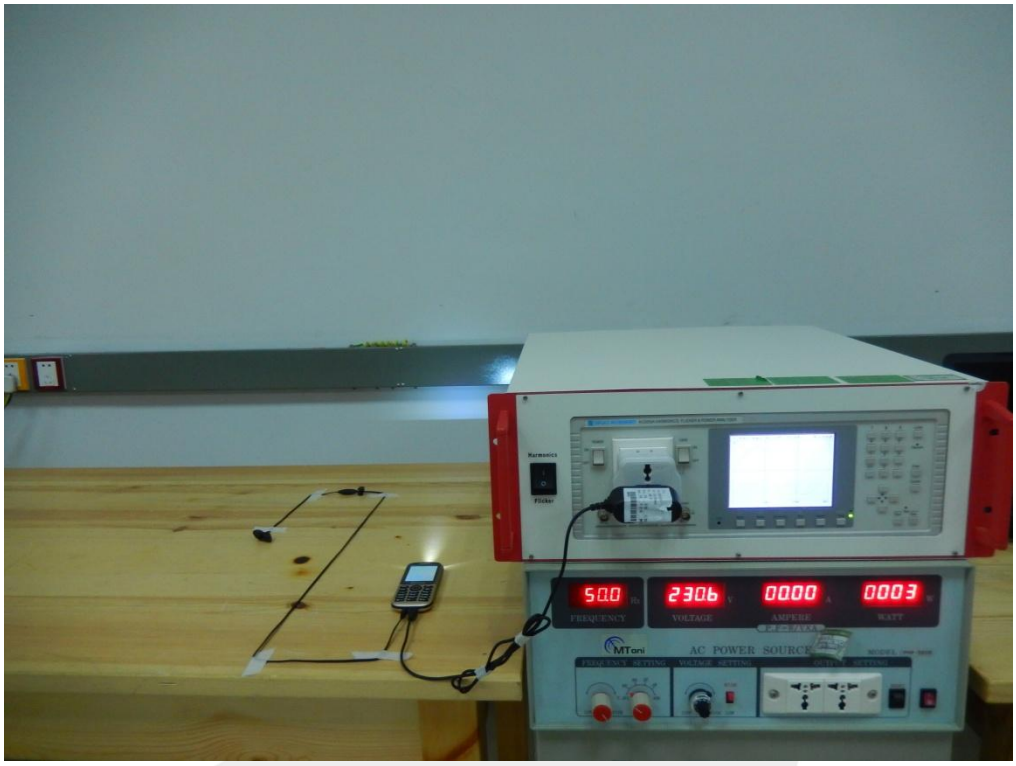
APPENDIX I-PHOTOGRAPHS OF EUT

RE

CE



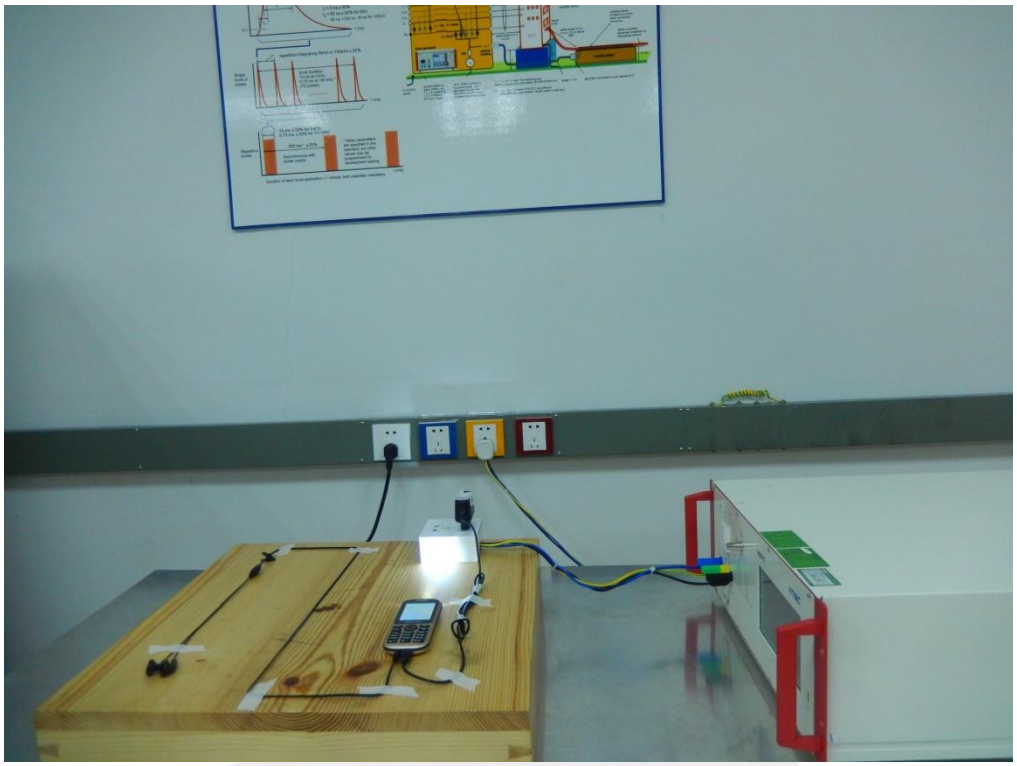
Flick


50.0
2306
0000
0003
AC POWER SOURCE

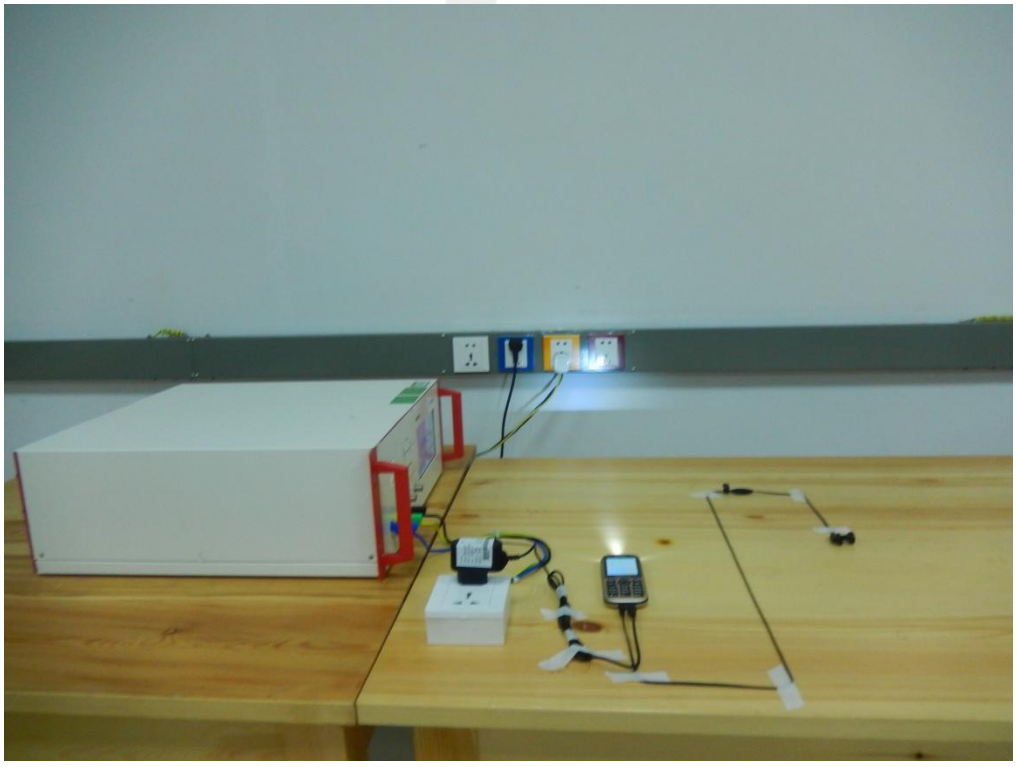
SURGE


HTEC
HCWG
NTEC
SCDN
NTEC
HTW
NTEC

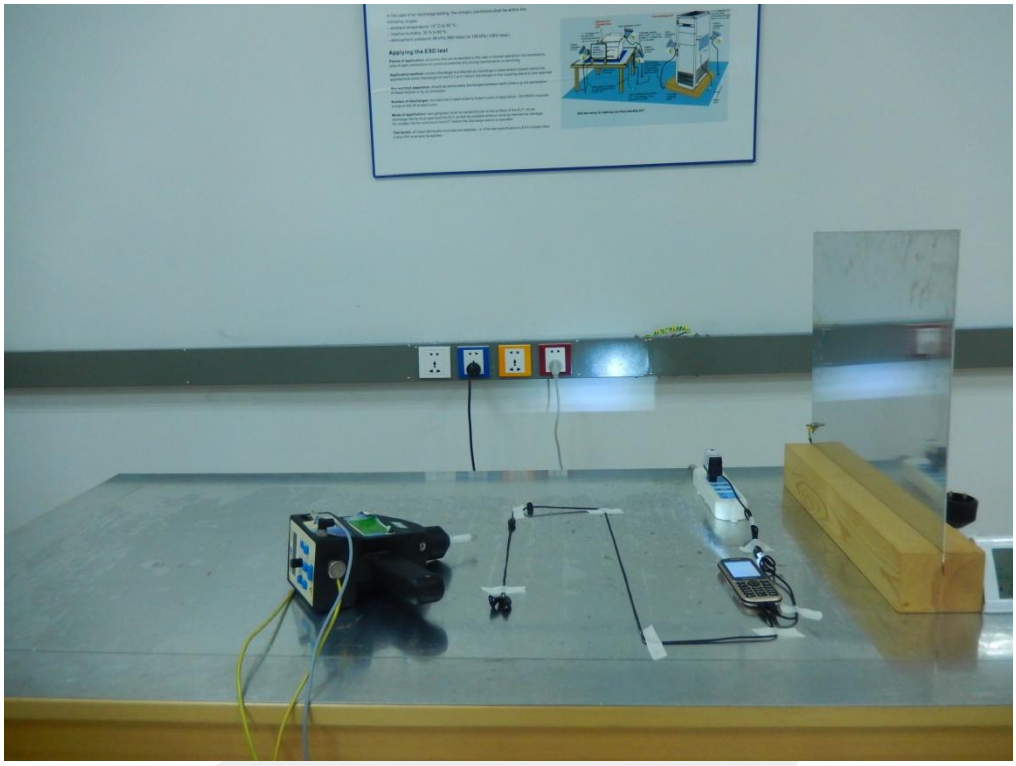
EFT



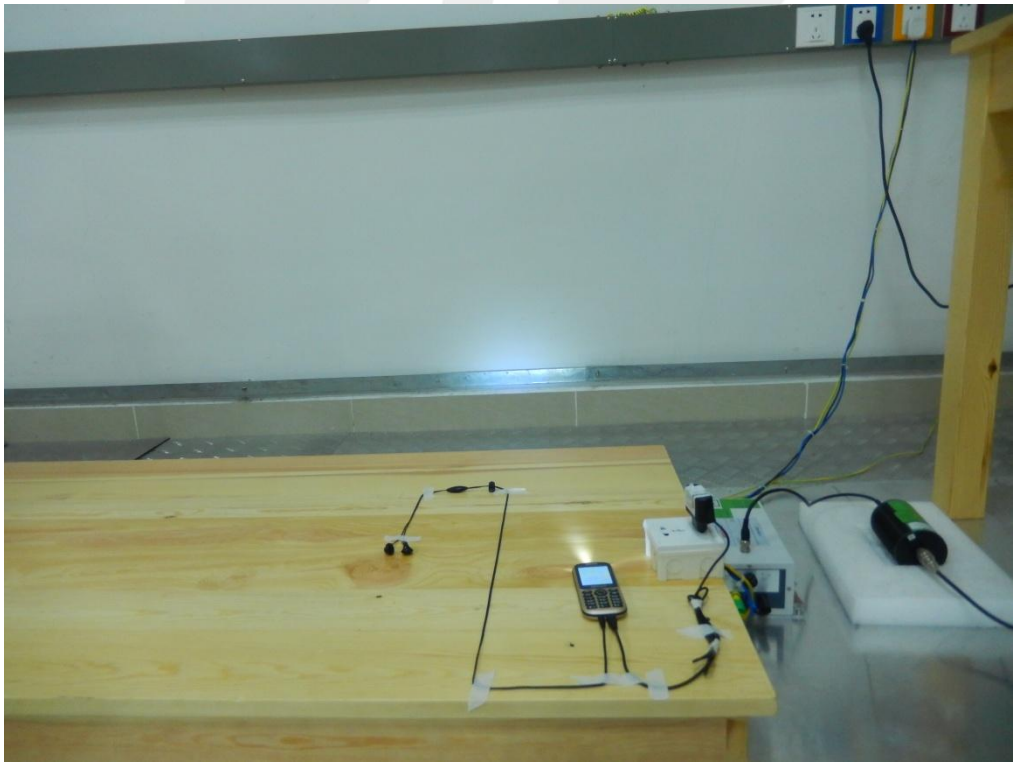
DIPS



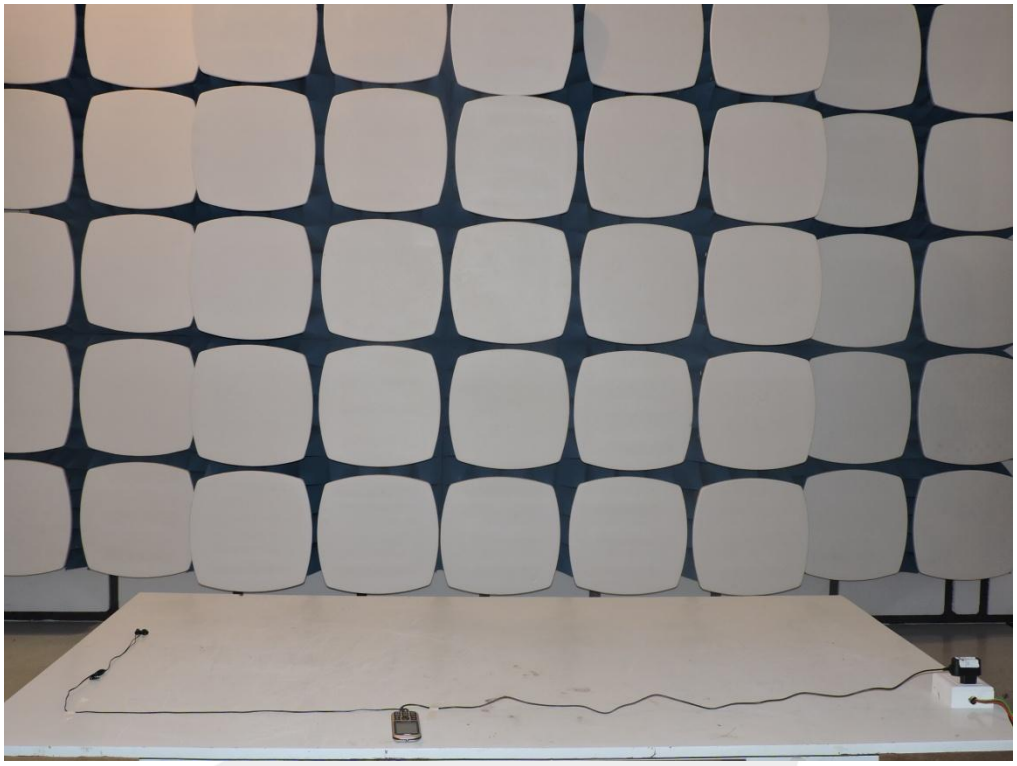
ESD



CS



RS



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