



## EMC TEST REPORT

For

Shenzhen Huafurui Technology Co., Ltd.

Smartphone

Test Model: KINGKONG ES

Prepared for : Shenzhen Huafurui Technology Co., Ltd.  
Address : Unit 601-03, 6/F, Block A, Building 1, Ganfeng  
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Xiangjiaotang Community, Bantian Street, Longgang  
District, Shenzhen, P.R. China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.  
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Date of receipt of test sample : May 21, 2024  
Number of tested samples : 2  
Sample No. : A240520136-1, A240520136-2  
Serial number : Prototype  
Date of Test : May 21, 2024 ~ June 07, 2024  
Date of Report : June 13, 2024



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**EMC TEST REPORT**  
**EN 55032:2015/A1:2020**  
Electromagnetic compatibility of multimedia equipment - Emission Requirements  
**EN 55035:2017/A11:2020**  
Electromagnetic compatibility of multimedia equipment – Immunity requirements

**Report Reference No. .... : LCSA05204088EP**

**Date of Issue..... : June 13, 2024**

**Testing Laboratory Name : Shenzhen LCS Compliance Testing Laboratory Ltd.**

**Address..... : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China**

**Testing Location/ Procedure.... : Full application of Harmonised standards ■  
Partial application of Harmonised standards □  
Other standard testing method □**

**Applicant's Name..... : Shenzhen Huafurui Technology Co., Ltd.**

**Address..... : Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China**

**Test Specification**

**Standard..... : EN 55032:2015/A1:2020  
EN 55035:2017/A11:2020  
EN IEC 61000-3-2:2019/A1:2021  
EN 61000-3-3:2013/A2:2021**

**Test Report Form No..... : LCSEMC-1.0**

**TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.**

**Master TRF..... : Dated 2011-03**

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**Test Item Description..... : Smartphone**

**Trade Mark..... : CUBOT**

**Test Model..... : KINGKONG ES**

**Ratings : Please Refer to Page 9**

**Result ..... : Positive**

**Compiled by:**

Kevin Huang

Kevin Huang/ Administrator

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Cary Luo/ Technique principal

**Approved by:**

Gavin Liang

Gavin Liang/ Manager



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## EMC -- TEST REPORT

Test Report No. : <b>LCSA05204088EP</b>	<u>June 13, 2024</u> Date of issue
---	---------------------------------------

<b>Test Model.....</b>	<b>: KINGKONG ES</b>
<b>EUT.....</b>	<b>: Smartphone</b>
<b>Applicant.....</b>	<b>: Shenzhen Huafurui Technology Co., Ltd.</b>
<b>Address.....</b>	<b>: Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China</b>
<b>Telephone.....</b>	<b>: /</b>
<b>Fax.....</b>	<b>: /</b>
<b>Manufacturer.....</b>	<b>: Shenzhen Huafurui Technology Co., Ltd.</b>
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<b>Telephone.....</b>	<b>: /</b>
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<b>Factory.....</b>	<b>: Shenzhen Huafurui Technology Co., Ltd.</b>
<b>Address.....</b>	<b>: Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China</b>
<b>Telephone.....</b>	<b>: /</b>
<b>Fax.....</b>	<b>: /</b>

<b>Test Result</b>	<b>Positive</b>
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The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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### Revision History

Report Version	Issue Date	Revision Content	Revised By
000	June 13, 2024	Initial Issue	---



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## TABLE OF CONTENTS

Test Report Description	Page
<b>1. TEST STANDARDS .....</b>	<b>6</b>
<b>2.SUMMARY OF STANDARDS AND RESULTS .....</b>	<b>7</b>
2.1. DESCRIPTION OF STANDARDS AND RESULTS .....	7
2.2. DESCRIPTION OF PERFORMANCE CRITERIA .....	8
<b>3. GENERAL INFORMATION .....</b>	<b>9</b>
3.1. DESCRIPTION OF DEVICE (EUT) .....	9
3.2. DESCRIPTION OF TEST FACILITY .....	10
3.3. SUPPORT EQUIPMENT LIST .....	10
3.4. EXTERNAL I/O .....	10
3.5. STATEMENT OF THE MEASUREMENT UNCERTAINTY .....	11
3.6. MEASUREMENT UNCERTAINTY .....	11
<b>4. MEASURING DEVICES AND TEST EQUIPMENT .....</b>	<b>12</b>
<b>5. TEST RESULTS .....</b>	<b>15</b>
5.1. POWER LINE CONDUCTED EMISSION MEASUREMENT .....	15
5.2. RADIATED EMISSION MEASUREMENT .....	17
5.3. HARMONIC CURRENT EMISSION MEASUREMENT .....	20
5.4. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT .....	21
5.5. ELECTROSTATIC DISCHARGE IMMUNITY TEST .....	22
5.6. RF FIELD STRENGTH SUSCEPTIBILITY TEST .....	24
5.7. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST .....	26
5.8. SURGE IMMUNITY TEST .....	28
5.9. INJECTED CURRENTS SUSCEPTIBILITY TEST .....	30
5.10. MAGNETIC FIELD SUSCEPTIBILITY TEST .....	32
5.11. VOLTAGE DIPS AND INTERRUPTIONS TEST .....	33
<b>ANNEXE A .....</b>	<b>34</b>
<b>ANNEXE B .....</b>	<b>39</b>
<b>ANNEXE C .....</b>	<b>60</b>





## 1. TEST STANDARDS

**The tests were performed according to following standards:**

EN 55032:2015/A1:2020 Electromagnetic compatibility of multimedia equipment - Emission Requirements

EN 55035:2017/A11:2020 Electromagnetic compatibility of multimedia equipment - Immunity requirements

EN IEC 61000-3-2:2019/A1:2021 Electromagnetic compatibility (EMC) –Part 3-2: Limits – Limits for harmonic current emissions (equipment input current  $\leq 16$  A per phase)

EN 61000-3-3:2013/A2:2021 Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection



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## 2.SUMMARY OF STANDARDS AND RESULTS

### 2.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

Emission (EN 55032:2015/A1:2020)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 55032:2015/A1:2020	Class B	PASS
Conducted disturbance at telecommunication port	EN 55032:2015/A1:2020	Class B	N/A
Radiated disturbance	EN 55032:2015/A1:2020	Class B	PASS
Harmonic current emissions	EN IEC 61000-3-2:2019/A1:2021	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013/A2:2021	-----	PASS
Immunity (EN 55035:2017/A11:2020)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2	B	PASS
Radio-frequency, Continuous radiated disturbance	EN IEC 61000-4-3	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4	B	PASS
Surge (Input a.c. power ports)	EN 61000-4-5	B	PASS
Surge (Telecommunication ports)		B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6	A	PASS
Power frequency magnetic field	EN 61000-4-8	A	PASS
Voltage dips, >95% reduction	EN IEC 61000-4-11	B	PASS
Voltage dips, 30% reduction		C	PASS
Voltage interruptions		C	PASS

\*\*\*Note: N/A is an abbreviation for Not Applicable.

#### Test mode:

Mode 1	Operate in charging mode	Record
Mode 2	Playing Music mode	Pre-scan
Mode 3	Video playing mode	Pre-scan
Mode 4	Camera mode	Pre-scan
Mode 5	Exchange Data With PC	Pre-scan

\*\*\*Note: All test modes were tested, but we only recorded the worst case in this report.





## 2.2. Description of Performance Criteria

### General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;

#### 2.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### 2.2.2. Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### 2.2.3. Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.



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### 3. GENERAL INFORMATION

#### 3.1. Description of Device (EUT)

EUT : Smartphone

Trade Mark : CUBOT

Test Model : KINGKONG ES

Ratings : Input: DC 5V, 2000mA  
Adapter1 Model: HJ-0502000W2-EU  
For AC Adapter Input: 100-240V~, 50/60Hz, 0.3A  
Adapter Output: 5.0V $\Rightarrow$ 2.0A  
Output Power: 10W  
Adapter2 Model: QZ-01001EA00  
For AC Adapter Input: 100-240V~, 50/60Hz, 0.3A  
Adapter Output: 5.0V $\Rightarrow$ 2.0A(10.0W)  
DC 3.87V by Rechargeable Li-ion Battery, 5100mAh

Highest internal frequency (Fx) : Fx > 1 GHz

Highest internal frequency (Fx)	Highest measured frequency
$Fx \leq 108 \text{ MHz}$ $108 \text{ MHz} < Fx \leq 500 \text{ MHz}$ $500 \text{ MHz} < Fx \leq 1 \text{ GHz}$ $Fx > 1 \text{ GHz}$	1 GHz 2 GHz 5 GHz $5 \times Fx$ up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies. NOTE 2 Fx is defined in EN 55032 Section 3.1.19. Where Fx is unknown, the radiated emission measurements shall be performed up to 6 GHz	





### 3.2. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

### 3.3. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
ShenZhen HuaJin Electronics CO.,LTD	AC Power Adapter	HJ-0502000W2-EU	---	CE
Guangdong Quanzhi Technology Co, Ltd.	AC Adapter	QZ-01001EA00	---	CE

### 3.4. External I/O

I/O Port Description	Quantity	Cable
Type-C USB Port	1	USB Cable: 0.8m, unshielded



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### 3.5. Statement of The 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 LCS 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.

### 3.6. Measurement Uncertainty

Test	Parameters	Expanded uncertainty ( $U_{lab}$ )	Expanded uncertainty ( $U_{cisprr}$ )
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	$\pm 2.63$ dB $\pm 2.35$ dB	$\pm 3.8$ dB $\pm 3.4$ dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	$\pm 3.68$ dB	N/A
Radiated Emission	Level accuracy (30MHz to 1000MHz)	$\pm 3.48$ dB	$\pm 5.3$ dB
Radiated Emission	Level accuracy (above 1000MHz)	$\pm 3.90$ dB	$\pm 5.2$ dB
Mains Harmonic	Voltage	$\pm 0.510\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.510\%$	N/A
1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus. 2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.			





#### 4. MEASURING DEVICES AND TEST EQUIPMENT

##### Test Item: Conducted Disturbance

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	Farad	EZ	/	N/A	N/A
2	EMI Test Receiver	R&S	ESR3	102312	2024-03-02	2025-03-01
3	Artificial Mains	R&S	ENV216	101288	2023-06-09	2024-06-08
4	Pulse Limiter	R&S	ESH3-Z2	102750-NB	2023-08-15	2024-08-14
5	Impedance Stabilization Network	TESEQ	ISN T800	45130	2023-10-18	2024-10-17

##### Test Item: Radiated Disturbance (Electric Field)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	Farad	EZ	/	N/A	N/A
2	3m Full Anechoic Chamber	MRDIANZI	FAC-3M	MR009	2022-08-17	2025-08-16
3	Positioning Controller	Max-Full	MF7802BS	MF780208586	N/A	N/A
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
6	EMI Test Receiver	R&S	ESPI	101940	2023-08-15	2024-08-14
7	Low-frequency amplifier	SchwarzZBECK	BBV9745	00253	2023-10-18	2024-10-17
8	High-frequency amplifier	JS Denki Pte	PA0118-43	JSPA21009	2023-10-18	2024-10-17
9	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2023-10-18	2024-10-17

##### Test Item: Harmonic Current

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	HARMONICS&FLICKER MEASUREMENT SYSTEM	EVERFINE	HFM-3000	P630850CD1411116	2024-03-02	2025-03-01
2	HARMONICS&FLICKER TESTING POWER SOURCE	EVERFINE	HFS-4000	P624486CD1411124	2024-03-02	2025-03-01

##### Test Item: Voltage fluctuation and Flicker

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	HARMONICS&FLICKER MEASUREMENT SYSTEM	EVERFINE	HFM-3000	P630850CD1411116	2024-03-02	2025-03-01
2	HARMONICS&FLICKER TESTING POWER SOURCE	EVERFINE	HFS-4000	P624486CD1411124	2024-03-02	2025-03-01

##### Test Item: Electrostatic Discharge

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESD Simulator	SCHLODER	SESD 230	604035	2023-07-17	2024-07-16



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**Test Item: RF Field Strength Susceptibility**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	RS Test Software	Tonscend	/	/	N/A	N/A
2	MXG Vector Signal Generator	Agilent	E4438C	MY42081396(6G)	2023-10-18	2024-10-17
3	3m Full Anechoic Chamber	MRDIANZI	FAC-3M	MR009	2022-08-17	2025-08-16
4	RF POWER AMPLIFIER	OPHIR	5225R	1052	2023-06-09	2024-06-08
5	RF POWER AMPLIFIER	OPHIR	5273F	1019	2023-06-09	2024-06-08
6	RF POWER AMPLIFIER	SKET	HAP_0306G-50W	/	2023-06-09	2024-06-08
7	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	2023-07-14	2024-07-13
8	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-482	2023-07-14	2024-07-13
9	RS Electric field probe	narda	EP 601	611WX80208	2023-06-13	2024-06-12

Note: NCR means no calibration requirement

**Test Item: Electrical Fast Transient/Burst**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500-M4	0101-34	2023-08-15	2024-08-14
2	Electric fast pulse group generator	3ctest	EFT-4001G	EC0461044	2023-10-18	2024-10-17
3	Capacitive coupling clamp	3CTEST	EFTC	EC0441098	2023-06-09	2024-06-08

**Test Item: Surge**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500-M4	0101-34	2023-08-15	2024-08-14
2	Communication wave lightning generator	HTEC	HTSG 70	181701	2023-10-18	2024-10-17
3	Symmetrical data line coupling network	HTEC	HCN 8	182701	2023-10-18	2024-10-17
4	Data line decoupling network	HTEC	HDEC 8	182702	2023-10-18	2024-10-17

**Test Item: Conducted Susceptibility**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Simulator	FRANKONIA	CIT-10/75	A126A1195	2023-08-15	2024-08-14
2	CDN	FRANKONIA	CDN-M2+M3	A2210177	2023-06-09	2024-06-08
3	6dB Attenuator	FRANKONIA	DAM25W	1172040	2023-06-09	2024-06-08
4	Electromagnetic coupling injection clamp	ZHINAN	ZN23203	14017	2023-06-09	2024-06-08



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**Test Item: Power Frequency Magnetic Field Susceptibility**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power frequency mag-field generator System	EVERFINE	EMS61000-8K	906003	2023-06-09	2024-06-08

**Test Item: Voltage Dips**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2023-06-09	2024-06-08

**Test Item: Voltage Short Interruptions**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2023-06-09	2024-06-08



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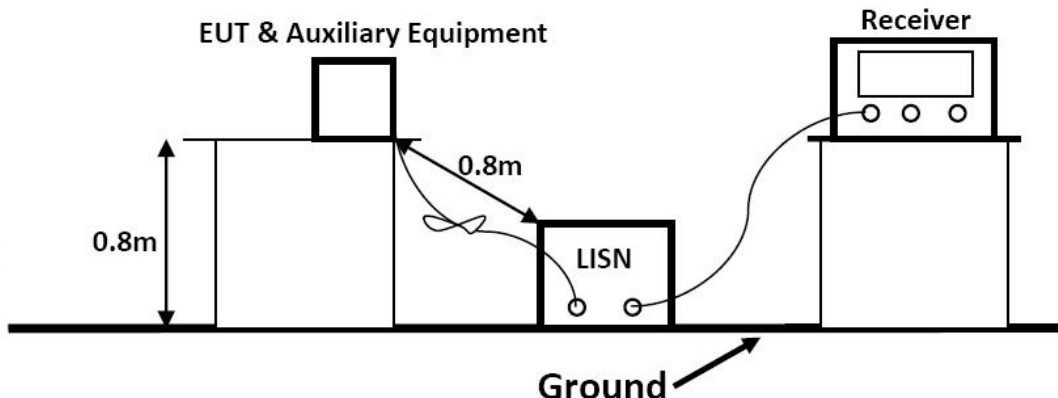




## 5. TEST RESULTS

### 5.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

#### 5.1.1. Block Diagram of Test Setup



#### 5.1.2. Test Standard

EN 55032:2015/A1:2020 Class B

Power Line Conducted Emission Limits (Class B)		
Frequency (MHz)	Limit (dB $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.  
NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

#### 5.1.3. EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the EN 55032 requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

#### 5.1.4. Operating Condition of EUT

5.1.4.1. Setup the EUT as shown on Section 5.1.1

5.1.4.2. Turn on the power of all equipments.

5.1.4.3. Let the EUT work in measuring mode 1 and measure it.



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### 5.1.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55032 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.

The frequency range from 150kHz to 30MHz is investigated.

### 5.1.6. Test Results

**PASS.**

Refer to attached Annexe B.1



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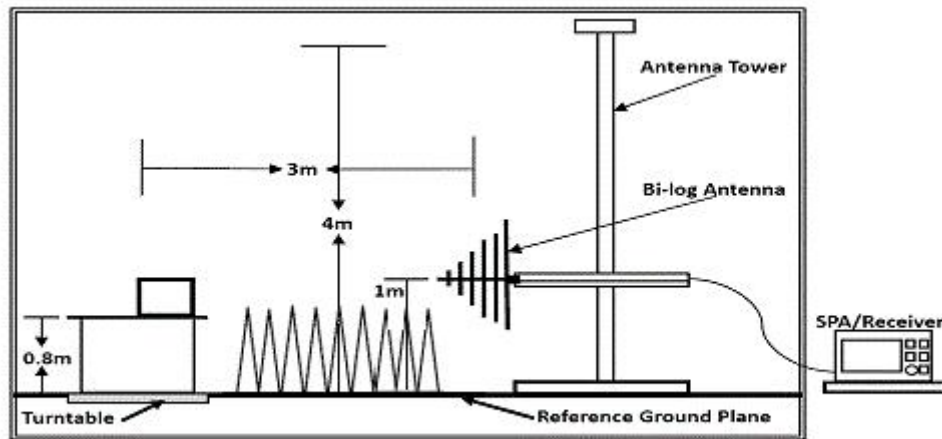
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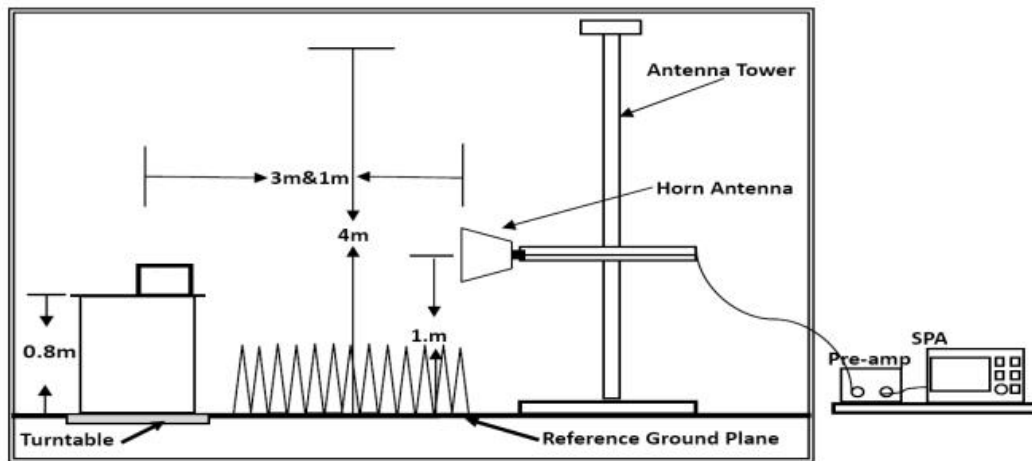


## 5.2. RADIATED EMISSION MEASUREMENT

### 5.2.1. Block Diagram of Test Setup



Below 1GHz



Above 1GHz





### 5.2.2. Test Standard

EN 55032:2015/A1:2020 Class B

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Limits for Radiated Emission Below 1GHz			
Frequency (MHz)	Distance (Meters)	Field Strengths Limit (dBμV/m)	
30 ~ 230	3	42-35	
230 ~ 1000	3	42	
***Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.			
Limits for Radiated Emission Above 1GHz			
Frequency (MHz)	Distance (Meters)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)
1000 ~ 6000	3	74	54
***Note: The lower limit applies at the transition frequency.			

### 5.2.3. EUT Configuration on Test

The EN 55032 regulations test method must be used to find the maximum emission during radiated emission measurement.

### 5.2.4. Operating Condition of EUT

5.2.4.1. Turn on the power.

5.2.4.2. Let the EUT work in the test mode 1 and measure it.





### 5.2.5. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the EMI test receiver is set at RBW/VBW=120kHz/300kHz.

The frequency range from 30MHz to 1000MHz is checked.

The bandwidth of the Spectrum analyzer is set at RBW/VBW=1MHz/3MHz.

The frequency range from 1GHz to the frequency which about 5th carrier harmonic or 6GHz is checked.

### 5.2.6. Test Results

**PASS.**

Refer to attached Annexe B.2



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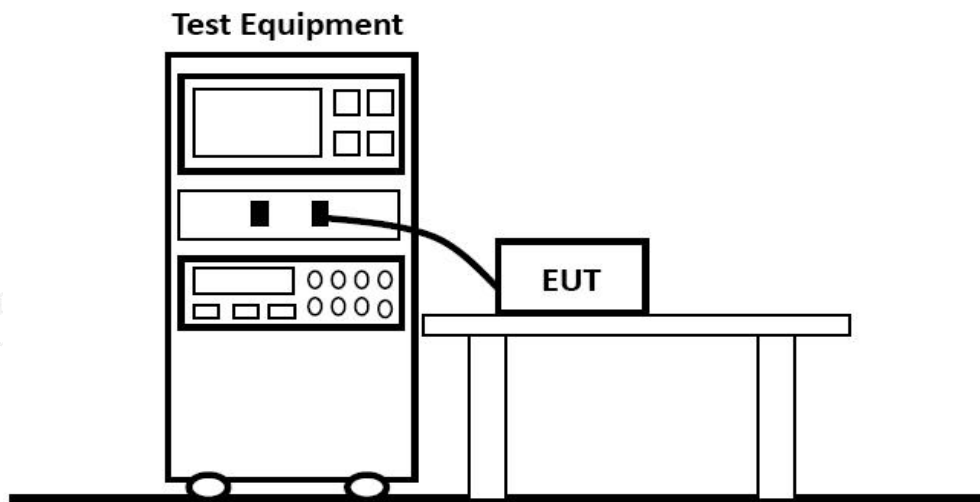
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### 5.3. HARMONIC CURRENT EMISSION MEASUREMENT

#### 5.3.1. Block Diagram of Test Setup



#### 5.3.2. Test Standard

EN IEC 61000-3-2:2019/A1:2021

#### 5.3.3. Operating Condition of EUT

Same as Section 5.2.4, except the test setup replaced as Section 5.3.1.

#### 5.3.4. Test Results

Refer to attached Annexe B.3

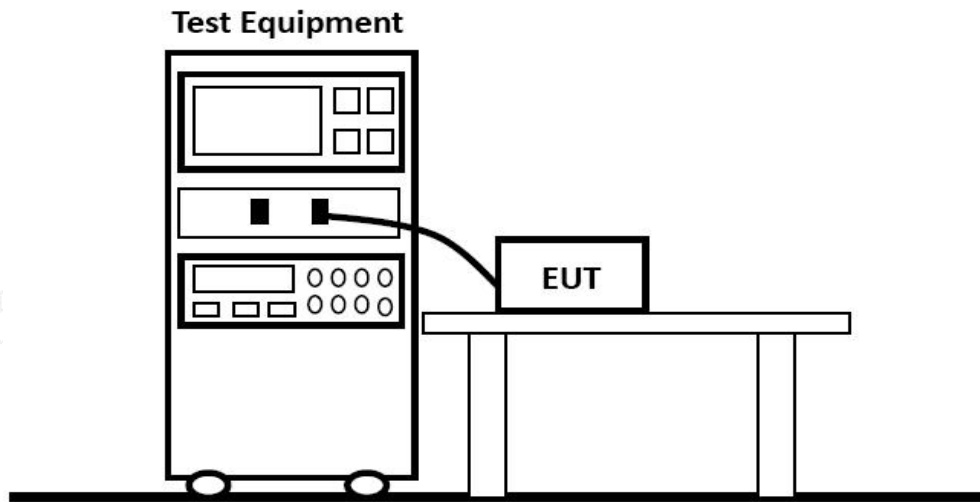






## 5.4. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

### 5.4.1. Block Diagram of Test Setup



### 5.4.2. Test Standard

EN 61000-3-3:2013/A2:2021

### 5.4.3. Operating Condition of EUT

Same as Section 5.2.4, except the test setup replaced as Section 5.4.1.

### 5.4.4. Test Results

**PASS**

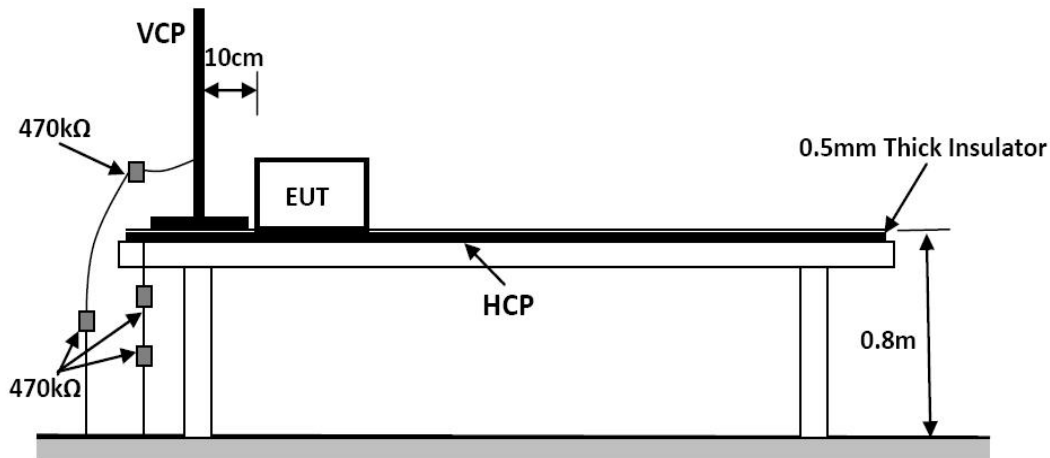
Refer to attached Annexe B.4





## 5.5. ELECTROSTATIC DISCHARGE IMMUNITY TEST

### 5.5.1. Block Diagram of Test Setup



### 5.5.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-2, Severity Level: 3 / Air Discharge:  $\pm 8\text{KV}$ , Level: 2 / Contact Discharge:  $\pm 4\text{KV}$ )

### 5.5.3. Severity Levels and Performance Criterion

#### 5.5.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1	$\pm 2$	$\pm 2$
2	$\pm 4$	$\pm 4$
3	$\pm 6$	$\pm 8$
4	$\pm 8$	$\pm 15$
X	Special	Special

#### 5.5.3.2. Performance Criterion

Performance Criterion: B

### 5.5.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.5.1.

### 5.5.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 5.1.4. Except the test set up replaced by Section 5.5.1.





### 5.5.6. Test Procedure

#### 5.2.6.1. Air Discharge

This test is done on a non-conductive surfaces. The round discharge tip of the Electrostatic Discharge simulator shall be approached as fast as possible then to touch the EUT. After each discharge, the simulator shall be removed from the EUT. The simulator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

#### 5.2.6.2. Contact Discharge

All the procedure shall be same as air discharge, except using the acute discharge tip. The top end of the Electrostatic Discharge simulator is touch the EUT all the time when the simulator is re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.

#### 5.2.6.3. Indirect Discharge For Horizontal Coupling Plane

The vertical coupling plane(VCP) is placed 0.1m away from EUT. The top end of Electrostatic Discharge simulator should aim at the center of one border of the VCP for at least 25 times discharge.

#### 5.2.6.4. Indirect Discharge For Vertical Coupling Plane

The top end of Electrostatic Discharge simulator should place at the point 0.1m away from EUT on the horizontal coupling plane(HCP). At least 25 times discharge should be done for every pre-selected point around EUT.

Record any performance degradation of the EUT during the test and judge the test result according to ce criterion.

### 5.5.7. Test Results

**PASS.**

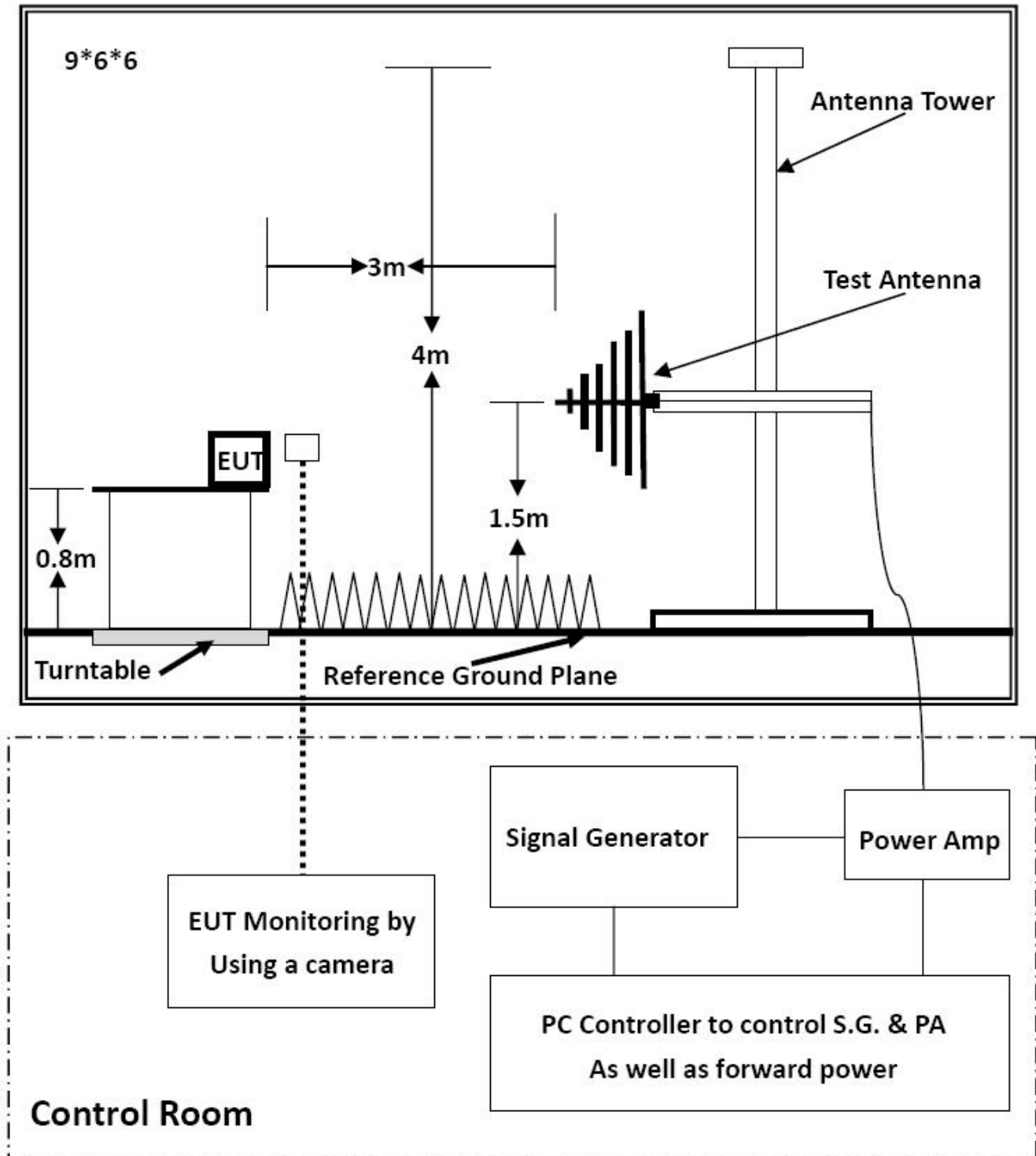
Refer to attached Annexe B.5





## 5.6. RF FIELD STRENGTH SUSCEPTIBILITY TEST

### 5.6.1. Block Diagram of Test Setup





### 5.6.2. Test Standard

EN 55035:2017/A11:2020 (EN IEC 61000-4-3 Severity Level: 2, 3V/m)

### 5.6.3. Severity Levels and Performance Criterion

#### 5.6.3.1. Severity level

Level	Field Strength (V/m)
1	1
2	3
3	10
X	1

#### 5.6.3.2. Performance Criterion

Performance Criterion: A

### 5.6.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.6.1.

### 5.6.5. Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.2.4, except the test setup replaced as Section 5.6.1.

### 5.6.6. Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD Recording is used to monitor its screen. All the scanning conditions are as following:

Condition of Test	Remark
Fielded Strength	3 V/m (Severity Level 2)
Radiated Signal	Unmodulated
Test Frequency Range (swept test)	80-1000MHz
Test Frequency (spot test)	1800MHz, 2600MHz, 3500MHz, 5000MHz
Dwell time of radiated	0.0015 decade/s
Waiting Time	3 Sec.

### 5.6.7. Test Results

**PASS.**

Refer to attached Annexe B.6

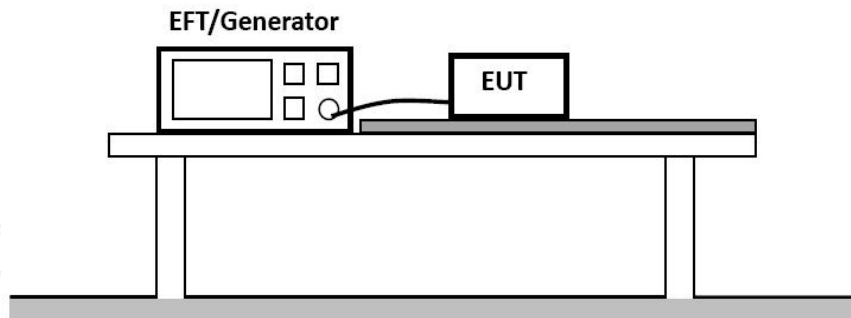


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## 5.7. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

### 5.7.1. Block Diagram of Test Setup



### 5.7.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-4, Severity Level, Level 2: 1KV)

### 5.7.3. Severity Levels and Performance Criterion

#### 5.7.3.1. Severity level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 KV	0.25 KV
2	1 KV	0.5 KV
3	2 KV	1 KV
4	4 KV	2 KV
X	Special	Special

#### 5.7.3.2. Performance Criterion

Performance Criterion: B

### 5.7.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.7.1.

### 5.7.5. Operating Condition of EUT

5.7.5.1. Setup the EUT as shown in Section 5.7.1.

5.7.5.2. Turn on the power of all equipments.

5.7.5.3. Let the EUT work in test mode 1 and measure it.







### 5.7.6. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

5.7.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 mins.

5.7.6.2. For signal lines and control lines ports:

It's unnecessary to test.

5.7.6.3. For DC output line ports:

It's unnecessary to test.

### 5.7.7. Test Results

**PASS.**

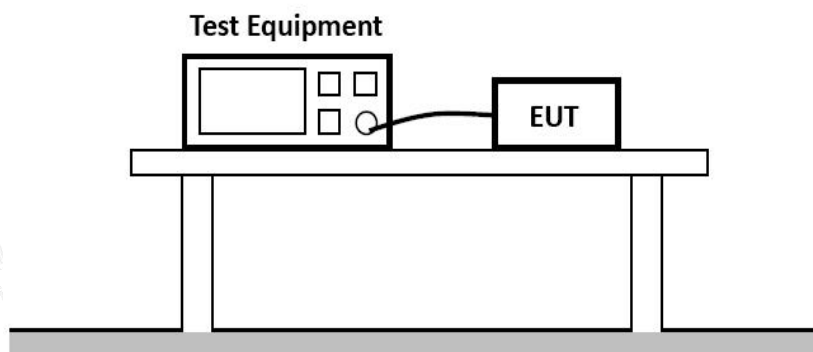
Refer to attached Annexe B.7





## 5.8. SURGE IMMUNITY TEST

### 5.8.1. Block Diagram of Test Setup



### 5.8.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-5, Severity Level: Line to Line: Level 2, 1.0KV, Line to Earth: Level 3, 2.0KV)

### 5.8.3. Severity Levels and Performance Criterion

#### 5.8.3.1. Severity level

Severity Level	Open-Circuit Test Voltage (KV)
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

#### 5.8.3.2. Performance Criterion

Performance Criterion: B

### 5.8.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.8.1.

### 5.8.5. Operating Condition of EUT

5.8.5.1. Setup the EUT as shown in Section 5.8.1.

5.8.5.1. Turn on the power of all equipments.

5.8.5.1. Let the EUT work in test mode 1 and measure it.



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### 5.8.6. Test Procedure

5.8.6.1. Set up the EUT and test generator as shown on Section 5.8.1.

5.8.6.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

5.8.6.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.

5.8.6.4. Different phase angles are done individually.

5.8.6.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

### 5.8.7. Test Results

**PASS.**

Refer to attached Annexe B.8

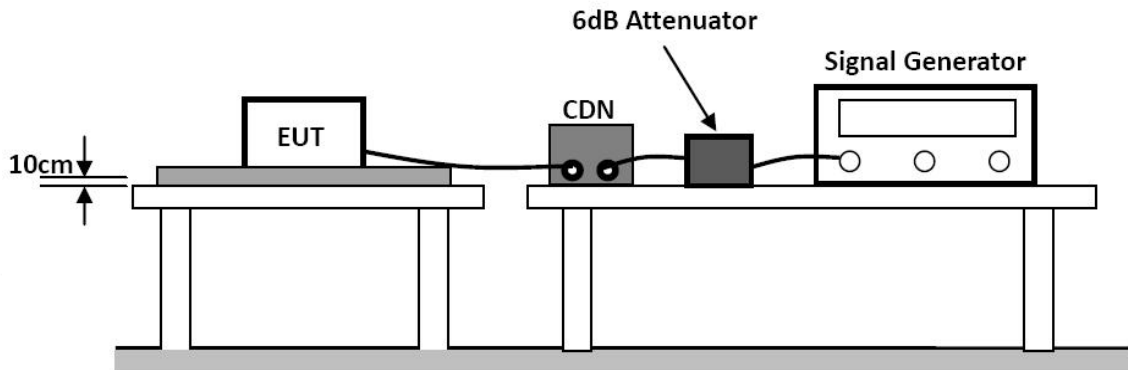


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## 5.9. INJECTED CURRENTS SUSCEPTIBILITY TEST

### 5.9.1. Block Diagram of Test Setup



### 5.9.2. Test Standard

EN 55035:2017/A11:2020(EN 61000-4-6, Severity Level: Level 2, (0.15MHz ~ 80MHz))

### 5.9.3. Severity Levels and Performance Criterion

#### 5.9.3.1. Severity level

Level	Field Strength (V)
1	1
2	3
3	10
X	Special

#### 5.9.3.2. Performance Criterion

Performance Criterion: A

### 5.9.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.9.1.

### 5.9.5. Operating Condition of EUT

5.9.5.1. Setup the EUT as shown in Section 5.9.1.

5.9.5.2. Turn on the power of all equipments.

5.9.5.3. Let the EUT work in test mode1 and measure it.

### 5.9.6. Test Procedure

5.9.6.1. Set up the EUT, CDN and test generators as shown on Section 5.9.1.

5.9.6.2. Let the EUT work in test mode and measure it.



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5.9.6.3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

5.9.6.4. The disturbance signal described below is injected to EUT through CDN.

5.9.6.5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.

5.9.6.6. The frequency range is swept from 150kHz to 10MHz using 3V signal level, 10MHz to 30MHz using 3V to 1V signal level, 30MHz to 80MHz using 1V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

5.9.6.7. The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  decades/s. where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

5.9.6.8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

### 5.9.7. Test Results

**PASS.**

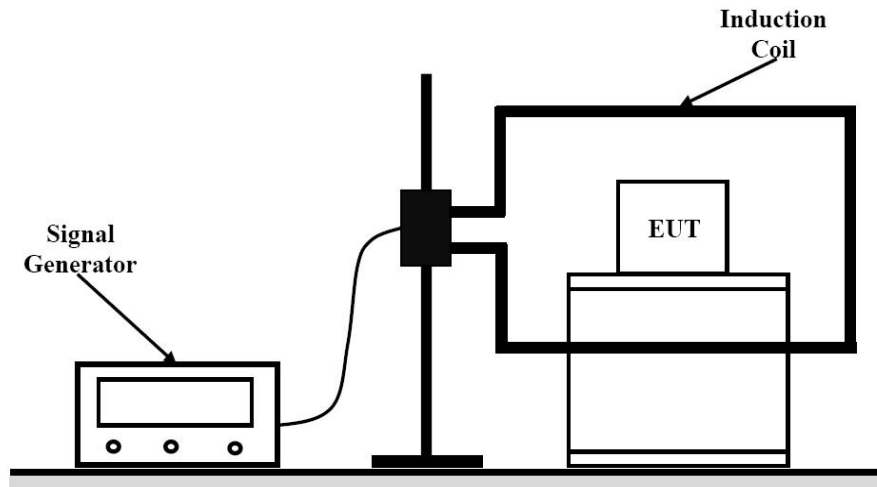
Refer to attached Annexe B.9





## 5.10. MAGNETIC FIELD SUSCEPTIBILITY TEST

### 5.10.1. Block Diagram of Test Setup



### 5.10.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-8, Severity Level: Level 1, 1A/m)

### 5.10.3. Severity Levels and Performance Criterion

#### 5.10.3.1. Severity level

Level	Field Strength (A/m)
1	1
2	3
3	10
4	30
5	100
X	Special

#### 5.10.3.2. Performance Criterion

Performance Criterion: A

### 5.10.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.10.1.

### 5.10.5. Test Procedure

EUT is placed on an insulating support of 0.1m high above a table of 0.8m high. There is a minimum 1m\*1m ground metallic plane put on this table. EUT is put in the center of the magnetic coil then two orientations of the magnetic coil, horizontal and vertical, shall be rotated in order to expose the EUT to the difference polarization magnetic field.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

### 5.10.6. Test Results

**PASS.**

Refer to attached Annexe B.10



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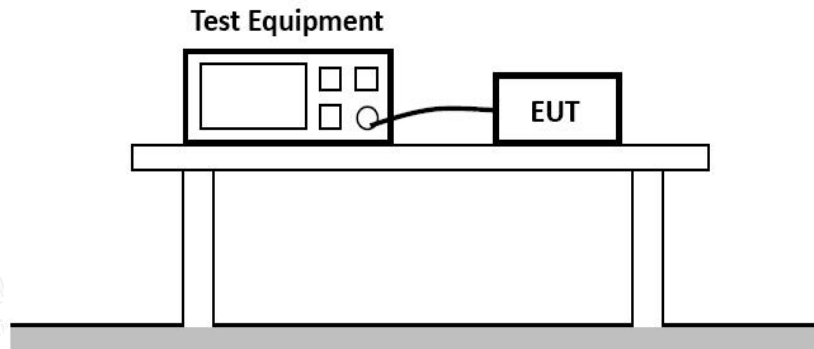
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## 5.11. VOLTAGE DIPS AND INTERRUPTIONS TEST

### 5.11.1. Block Diagram of Test Setup



### 5.11.2. Test Standard

EN 55035:2017/A11:2020 (EN IEC 61000-4-11)

### 5.11.3. Severity Levels and Performance Criterion

#### 5.11.3.1. Severity level

Test Level		
Voltage Reduction $\%U_T$	Voltage Dips $\%U_T$	Duration (in Period)
100	0	0.5
100	0	1
30	70	5
Voltage Reduction $\%U_T$	Voltage Dips $\%U_T$	Duration (in Period)
100	0	250

#### 5.11.3.2. Performance Criterion

Performance Criterion: B&C

### 5.11.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.11.1.

### 5.11.5. Operating Condition of EUT

5.11.5.1. Setup the EUT as shown in Section 5.11.1.

5.11.5.2. Turn on the power of all equipments.

5.11.5.3. Let the EUT work in test mode 1 and measure it.

### 5.11.6. Test Procedure

5.11.6.1. Set up the EUT and test generator as shown on Section 5.11.1.

5.11.6.2. The interruptions are introduced at selected phase angles with specified duration.

5.11.6.3. Record any degradation of performance.

### 5.11.7. Test Results

**PASS.**

Refer to attached Annexe B.11

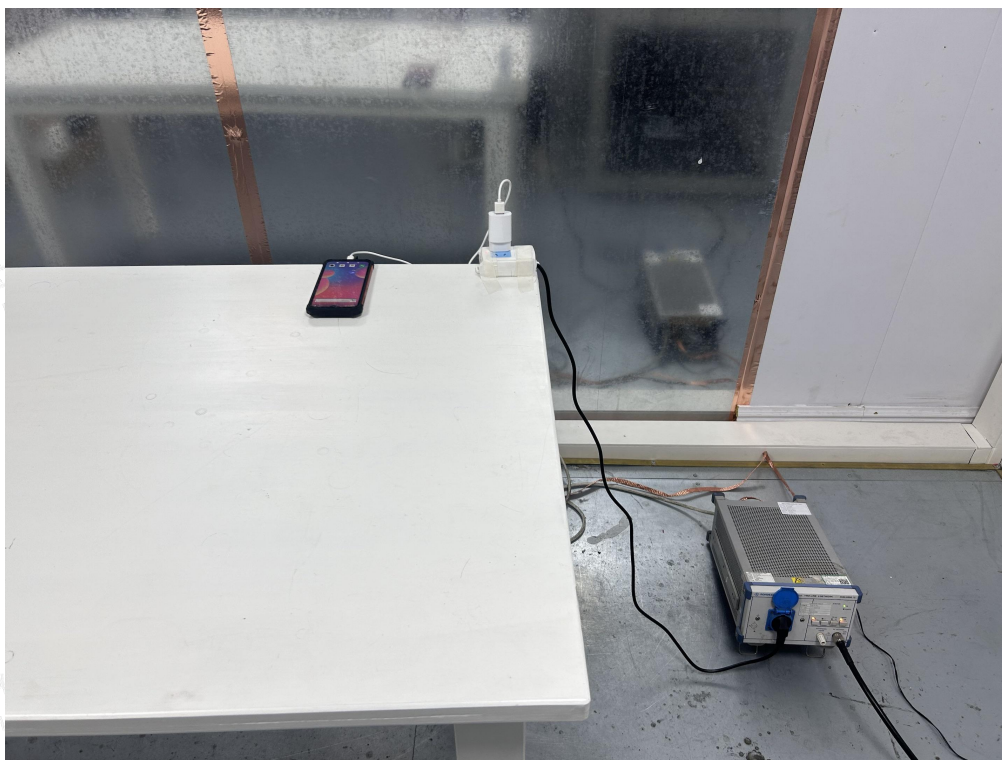




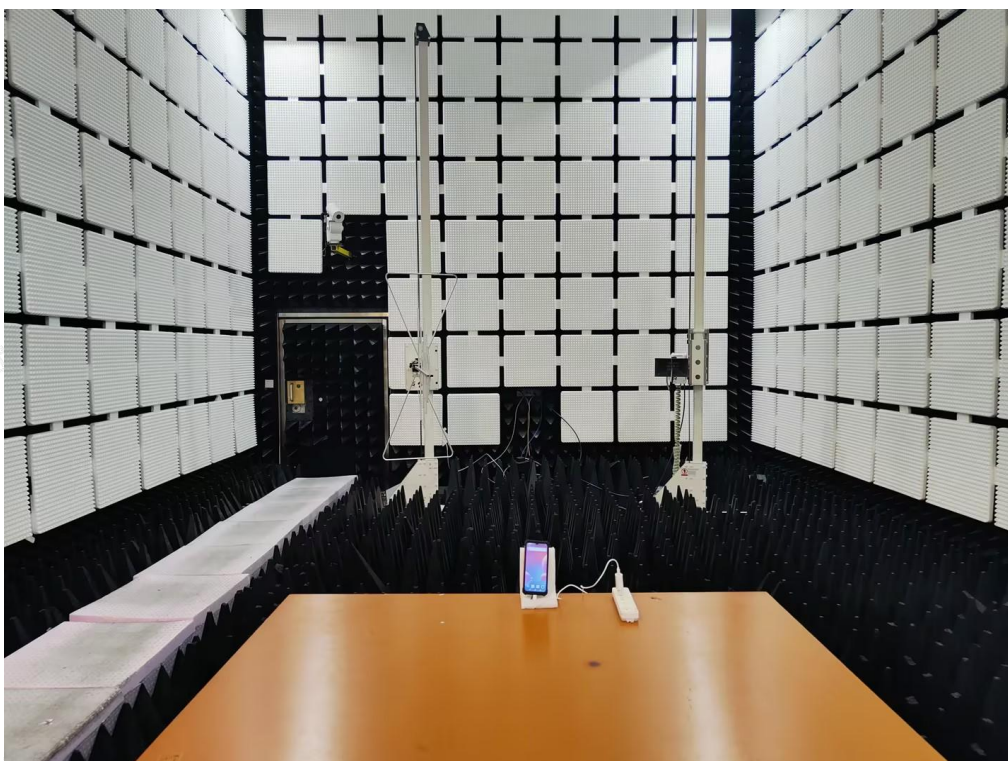
## Annexe A

(Test photograph)

### A.1 Test Setup Photo of Power Line Conducted Measurement



### A.2 Test Setup Photo of Radiated Measurement (Below 1 GHz & Above 1GHz)

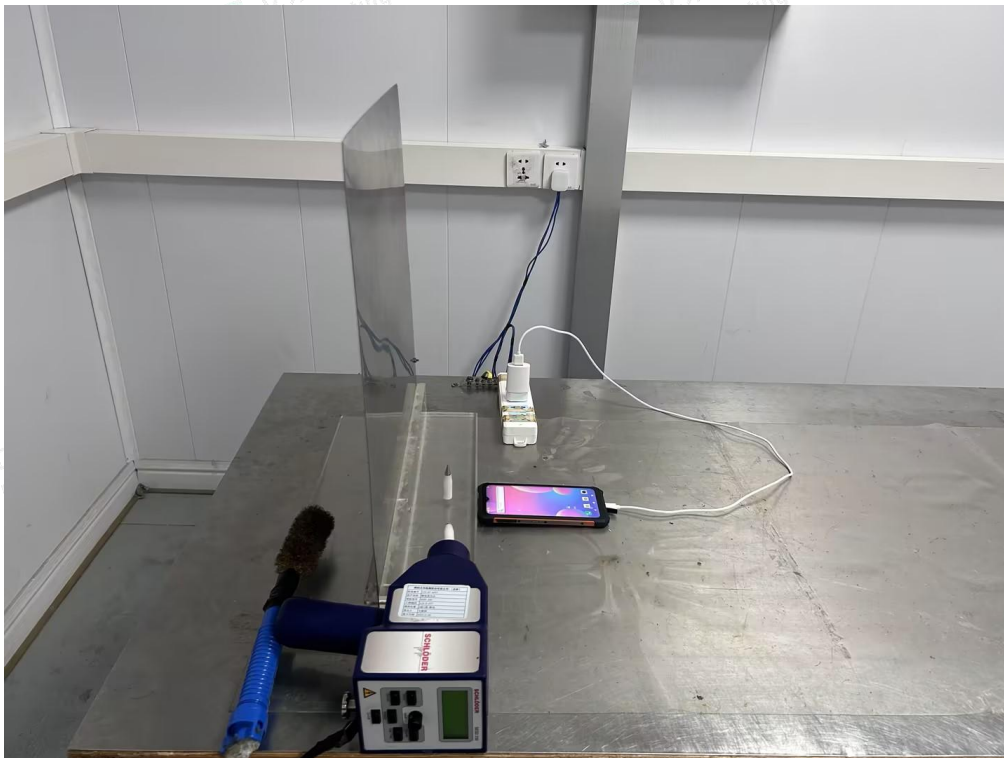




### A.3 Test Setup Photo of Harmonic & Flicker Measurement



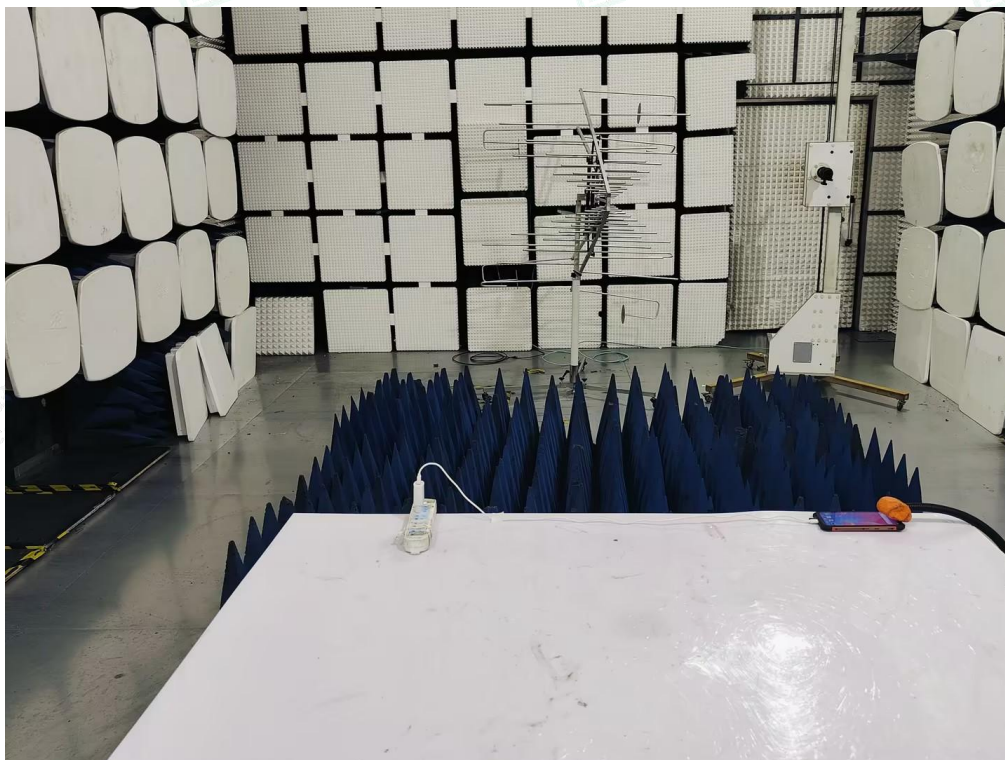
### A.4 Test Setup Photo of Electrostatic Discharge Test







## A.5 RF Electromagnetic Field (80MHz to 6 000MHz )



Below 1 GHz

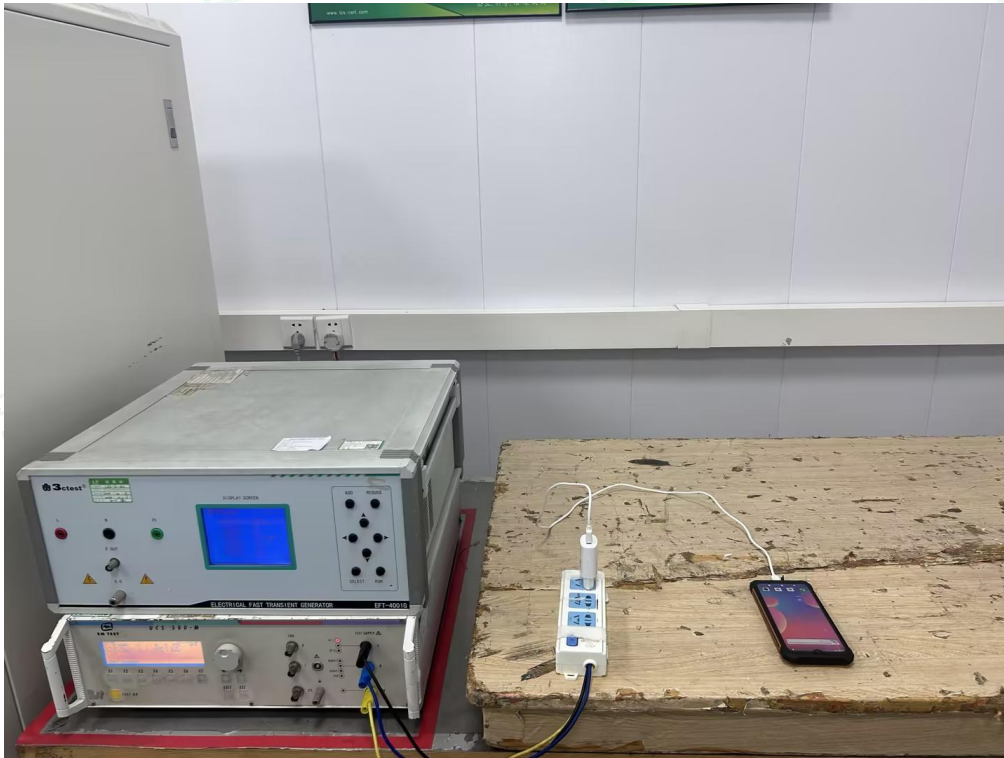


Above 1GHz





## A.6 Photo of Electrical Fast Transient/Burst Test & Surge Immunity Test



## A.7 Test Setup Photo of Injected Currents Susceptibility Test



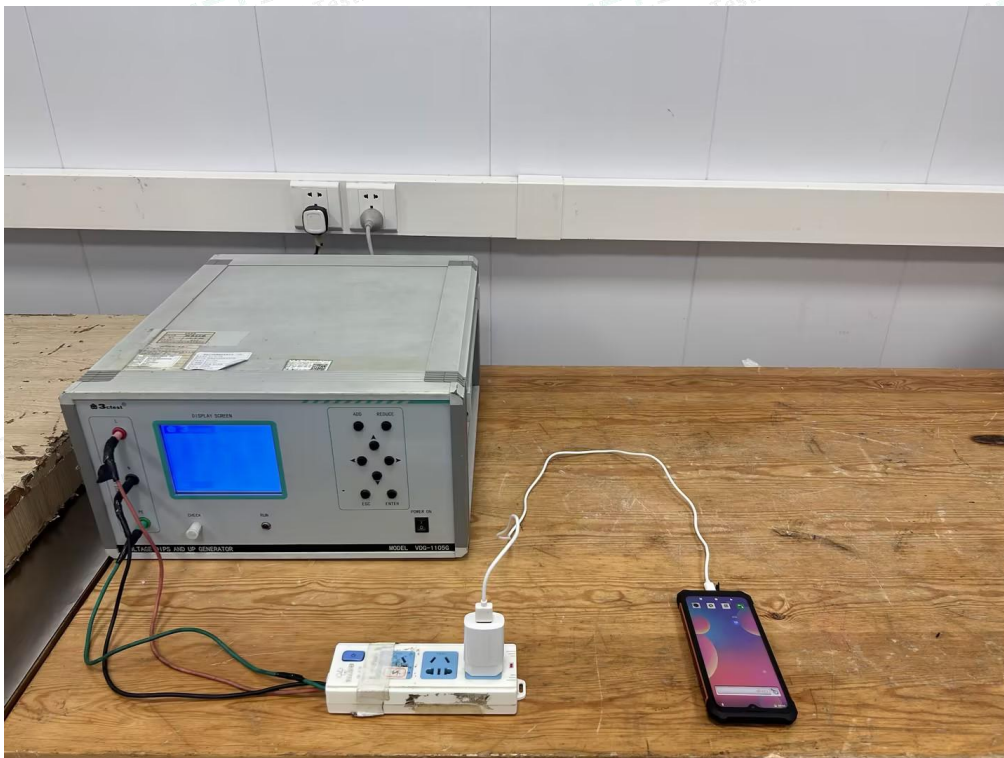




### A.8 Test Setup Photo of Magnetic Field Immunity Test



### A.9 Test Setup Photo of Voltage Dips and Interruptions Test





**ANNEXE B**

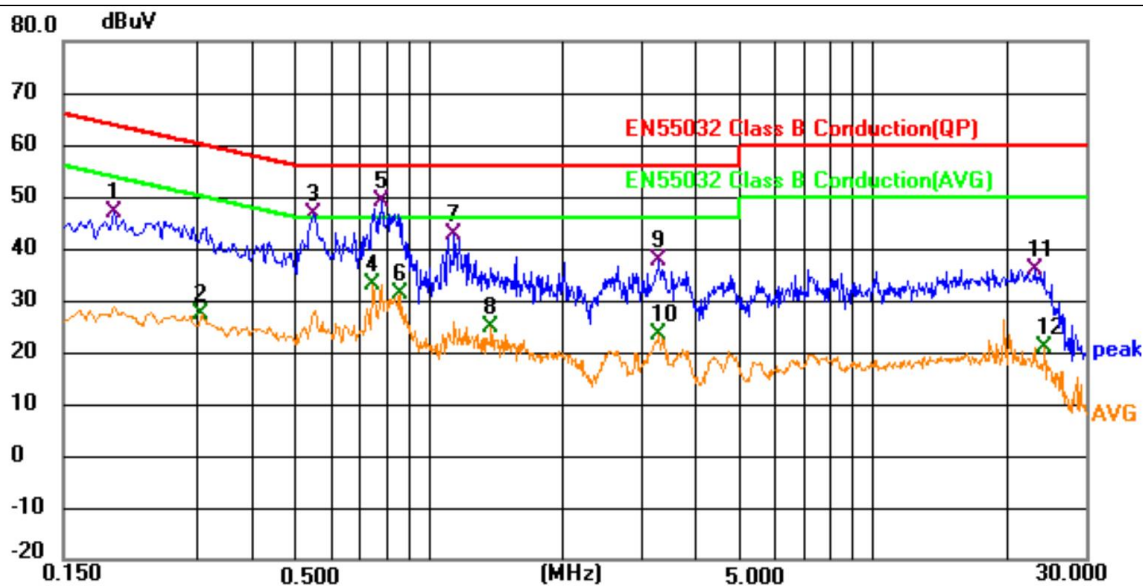
(Emission and Immunity test results)

**B.1 POWER LINE CONDUCTED EMISSION MEASUREMENT**

Adapter1 Model: HJ-0502000W2-EU

Environmental Conditions:	22.5°C, 53.7% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Line

Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.195	27.27	19.67	46.94	63.83	-16.89	QP	
2		0.307	7.45	19.82	27.27	50.05	-22.78	AVG	
3		0.550	26.77	19.68	46.45	56.00	-9.55	QP	
4		0.749	13.74	19.16	32.90	46.00	-13.10	AVG	
5	*	0.784	29.90	19.11	49.01	56.00	-6.99	QP	
6		0.866	12.33	19.05	31.38	46.00	-14.62	AVG	
7		1.140	23.40	19.12	42.52	56.00	-13.48	QP	
8		1.374	5.81	19.07	24.88	46.00	-21.12	AVG	
9		3.309	18.50	19.22	37.72	56.00	-18.28	QP	
10		3.309	4.10	19.22	23.32	46.00	-22.68	AVG	
11		23.226	17.13	18.83	35.96	60.00	-24.04	QP	
12		24.351	1.99	18.75	20.74	50.00	-29.26	AVG	



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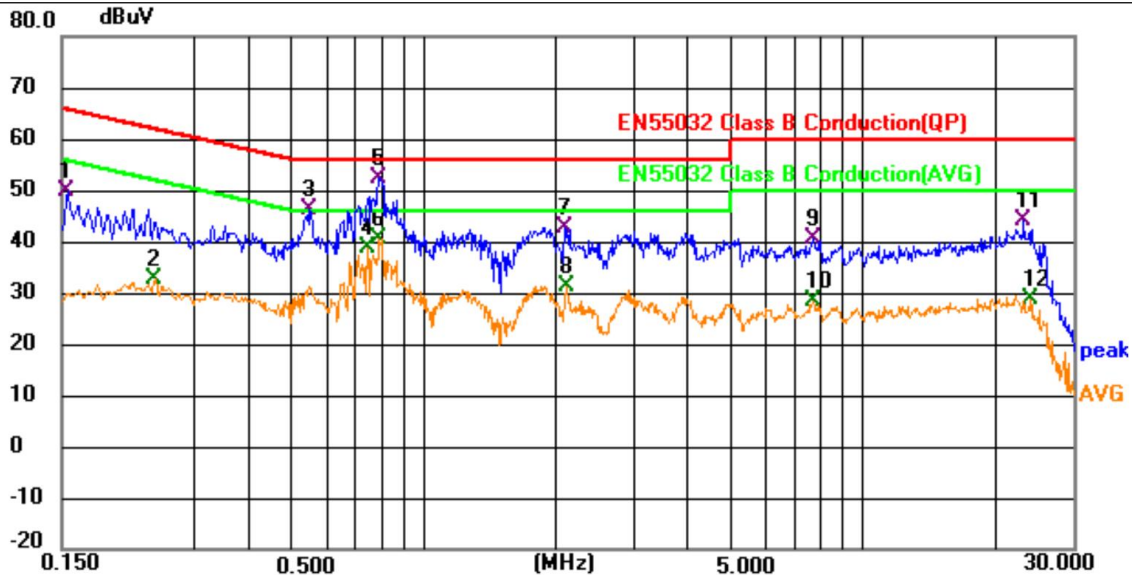
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Environmental Conditions:	22.5℃, 53.7% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Neutral

Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.154	30.13	19.60	49.73	65.79	-16.06	QP	
2		0.244	12.76	19.78	32.54	51.96	-19.42	AVG	
3		0.550	26.67	19.42	46.09	56.00	-9.91	QP	
4		0.749	19.50	19.35	38.85	46.00	-7.15	AVG	
5	*	0.793	33.10	19.20	52.30	56.00	-3.70	QP	
6		0.793	21.48	19.20	40.68	46.00	-5.32	AVG	
7		2.107	23.65	19.14	42.79	56.00	-13.21	QP	
8		2.116	12.13	19.14	31.27	46.00	-14.73	AVG	
9		7.652	20.81	19.82	40.63	60.00	-19.37	QP	
10		7.719	8.65	19.85	28.50	50.00	-21.50	AVG	
11		23.217	24.82	19.24	44.06	60.00	-15.94	QP	
12		24.140	9.45	19.30	28.75	50.00	-21.25	AVG	

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

Margin= Reading Level+Correct Factor – Limit

Correct Factor=Lisn Factor+Cable Factor+Insertion loss of Pulse Limiter



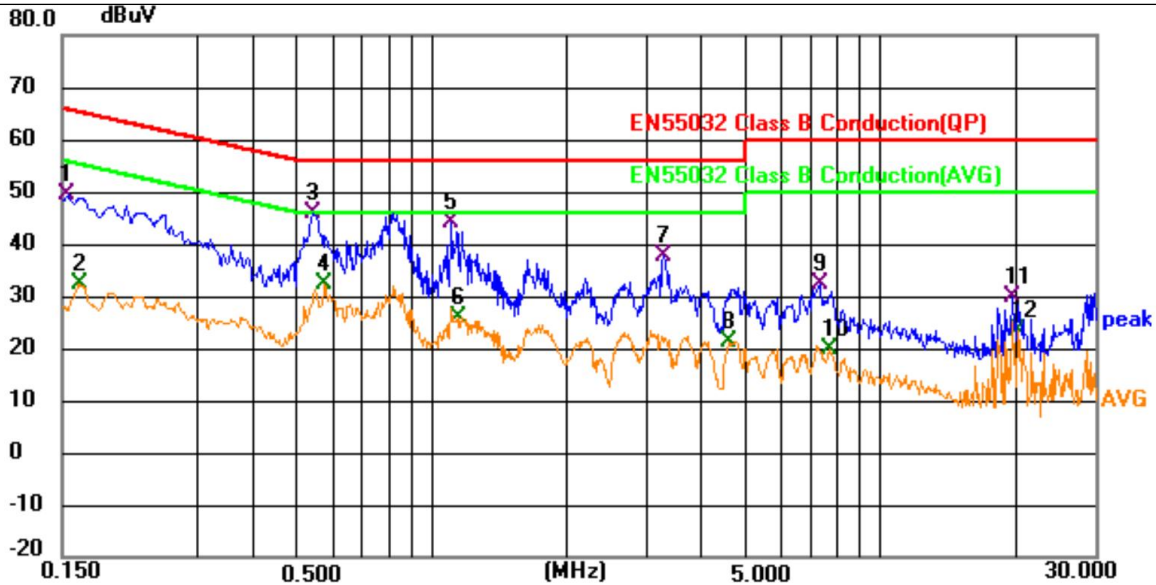
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Adapter2 Model: QZ-01001EA00

Environmental Conditions:	22.5℃, 53.7% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Line

Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.154	29.47	19.87	49.34	65.79	-16.45	QP	
2		0.164	12.50	19.82	32.32	55.26	-22.94	AVG	
3	*	0.541	26.32	19.71	46.03	56.00	-9.97	QP	
4		0.578	12.89	19.59	32.48	46.00	-13.52	AVG	
5		1.109	25.09	19.13	44.22	56.00	-11.78	QP	
6		1.145	6.62	19.12	25.74	46.00	-20.26	AVG	
7		3.282	18.31	19.21	37.52	56.00	-18.48	QP	
8		4.591	2.32	19.03	21.35	46.00	-24.65	AVG	
9		7.309	12.91	19.45	32.36	60.00	-27.64	QP	
10		7.660	0.23	19.59	19.82	50.00	-30.18	AVG	
11		19.712	10.78	19.12	29.90	60.00	-30.10	QP	
12		20.261	4.52	19.04	23.56	50.00	-26.44	AVG	



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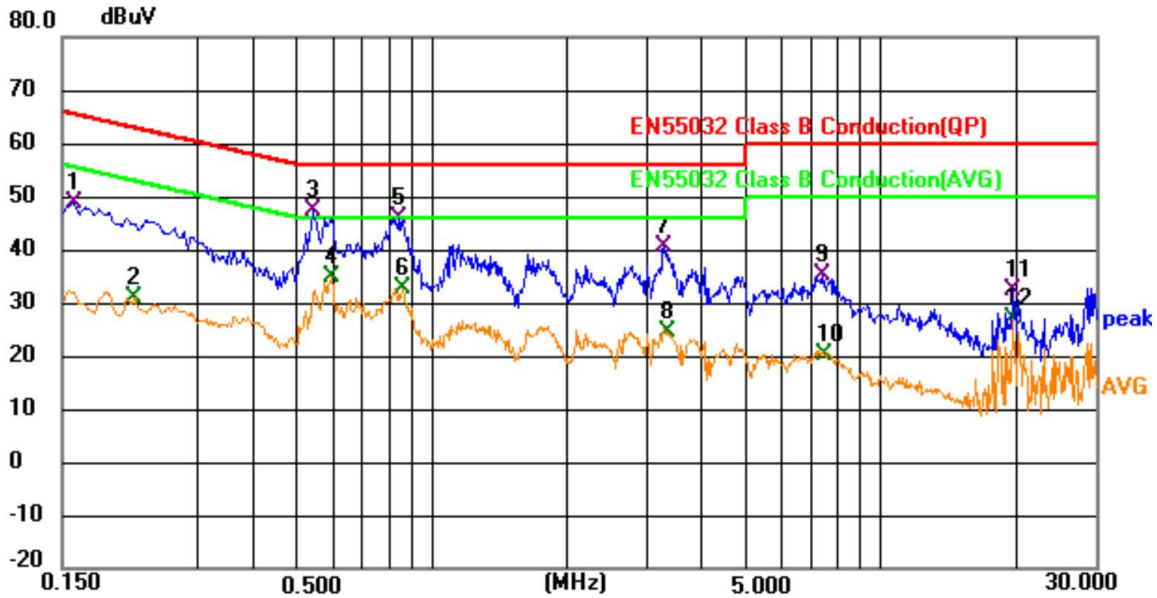
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Environmental Conditions:	22.5°C, 53.7% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Neutral

Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.159	29.08	19.62	48.70	65.52	-16.82	QP	
2		0.217	11.01	19.77	30.78	52.93	-22.15	AVG	
3	*	0.541	27.97	19.41	47.38	56.00	-8.62	QP	
4		0.596	15.37	19.45	34.82	46.00	-11.18	AVG	
5		0.843	26.87	19.02	45.89	56.00	-10.11	QP	
6		0.866	13.64	18.98	32.62	46.00	-13.38	AVG	
7		3.282	21.53	18.98	40.51	56.00	-15.49	QP	
8		3.363	5.54	18.99	24.53	46.00	-21.47	AVG	
9		7.444	15.48	19.75	35.23	60.00	-24.77	QP	
10		7.481	0.56	19.76	20.32	50.00	-29.68	AVG	
11		19.712	13.40	19.09	32.49	60.00	-27.51	QP	
12		19.712	8.04	19.09	27.13	50.00	-22.87	AVG	

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

Margin= Reading Level+Correct Factor – Limit

Correct Factor=Lisn Factor+Cable Factor+Insertion loss of Pulse Limiter



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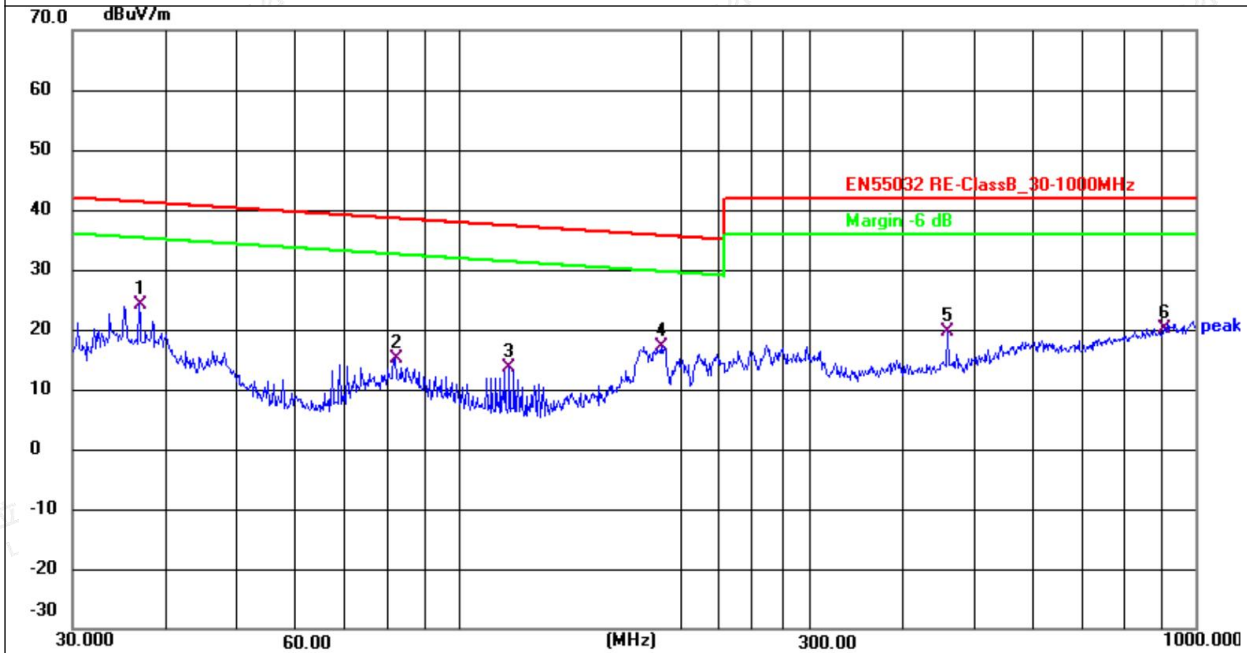


**B.2 Radiated Disturbance Test Results (30MHz to 1000MHz)**

Adapter1 Model: HJ-0502000W2-EU

Environmental Conditions:	23.8℃, 52.3% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Vertical

Detailed results are shown below



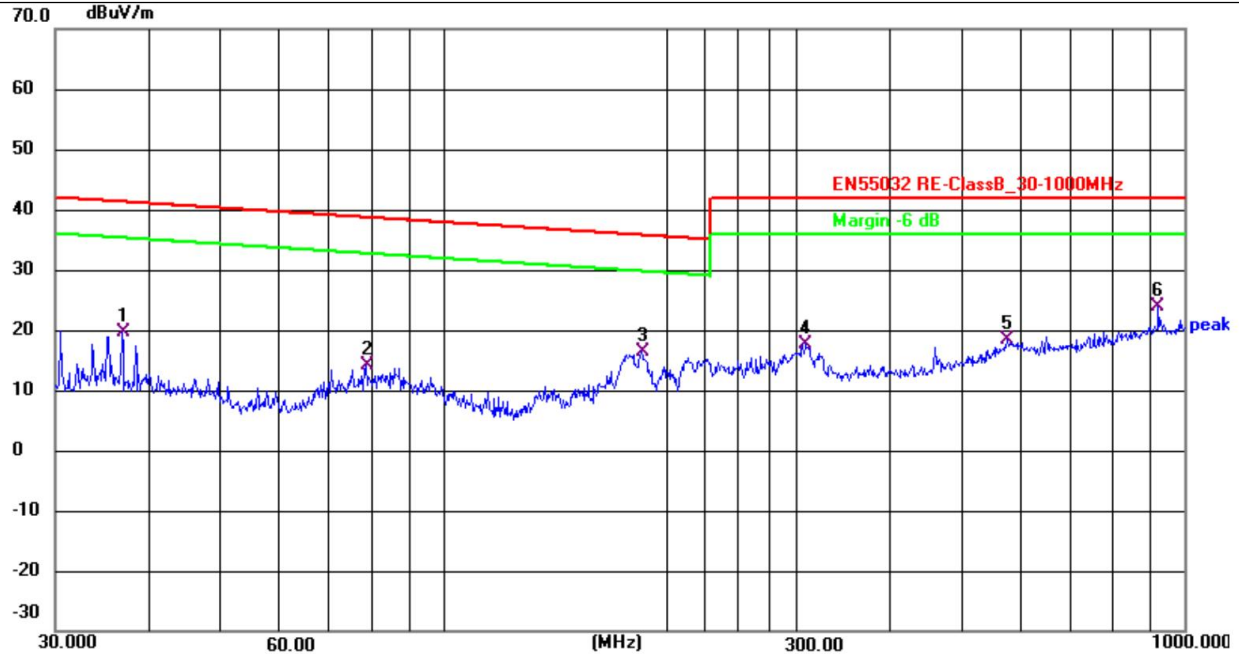
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.8953	41.75	-17.69	24.06	41.29	-17.23	QP
2	82.0705	34.79	-19.67	15.12	38.54	-23.42	QP
3	117.3602	33.36	-19.71	13.65	37.31	-23.66	QP
4	188.4125	35.48	-18.39	17.09	35.69	-18.60	QP
5	460.7271	34.00	-14.46	19.54	42.00	-22.46	QP
6	906.4824	28.31	-8.20	20.11	42.00	-21.89	QP





Environmental Conditions:	23.8℃, 52.3% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Horizontal

Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.8953	37.30	-17.69	19.61	41.29	-21.68	QP
2	78.6887	33.98	-19.83	14.15	38.69	-24.54	QP
3	185.1378	34.48	-17.99	16.49	35.75	-19.26	QP
4	308.9125	32.75	-15.12	17.63	42.00	-24.37	QP
5	576.6443	29.13	-10.83	18.30	42.00	-23.70	QP
6	922.5157	31.75	-7.97	23.78	42.00	-18.22	QP

Note: Margin= Reading Level+Correct Factor – Limit

Correct Factor=Antenna Factor+Cable Factor – Pre-Amplifier Factor



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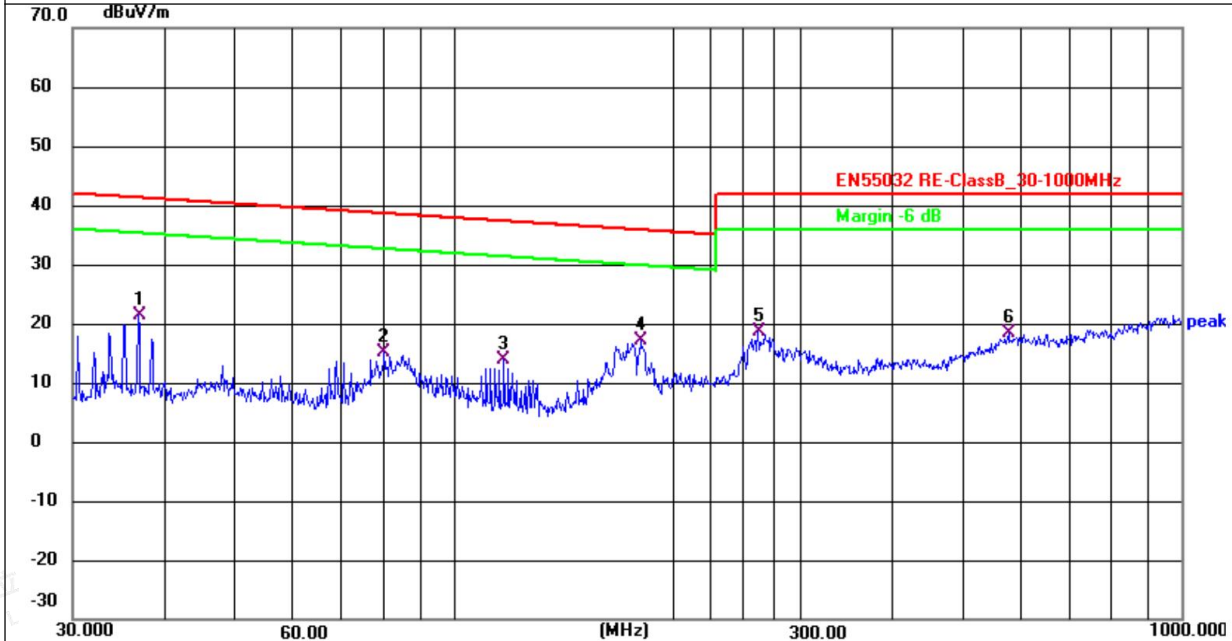




Adapter2 Model: QZ-01001EA00

Environmental Conditions:	23.8°C, 52.3% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Vertical

Detailed results are shown below



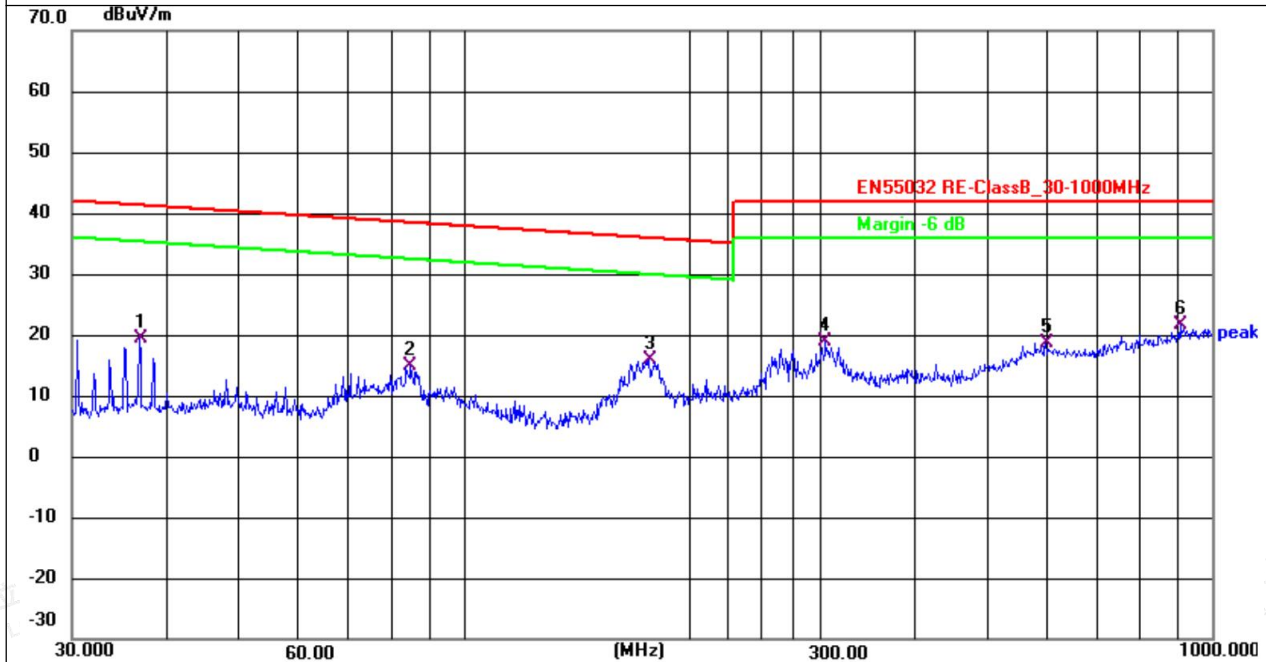
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.8953	38.96	-17.69	21.27	41.29	-20.02	QP
2	80.3617	34.97	-19.84	15.13	38.61	-23.48	QP
3	117.3602	33.53	-19.71	13.82	37.31	-23.49	QP
4	180.6488	35.85	-18.66	17.19	35.83	-18.64	QP
5	261.9752	34.03	-15.48	18.55	42.00	-23.45	QP
6	578.6700	29.12	-10.80	18.32	42.00	-23.68	QP





Environmental Conditions:	23.8℃, 52.3% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1
Test Engineer:	Paddi Chen
Pol:	Horizontal

Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.8953	37.08	-17.69	19.39	41.29	-21.90	QP
2	84.9993	34.18	-19.38	14.80	38.42	-23.62	QP
3	176.8878	34.77	-18.95	15.82	35.90	-20.08	QP
4	304.6099	34.21	-15.35	18.86	42.00	-23.14	QP
5	599.3212	29.11	-10.44	18.67	42.00	-23.33	QP
6	906.4824	29.75	-8.20	21.55	42.00	-20.45	QP

Note: Margin= Reading Level+Correct Factor – Limit

Correct Factor=Antenna Factor+Cable Factor – Pre-Amplifier Factor

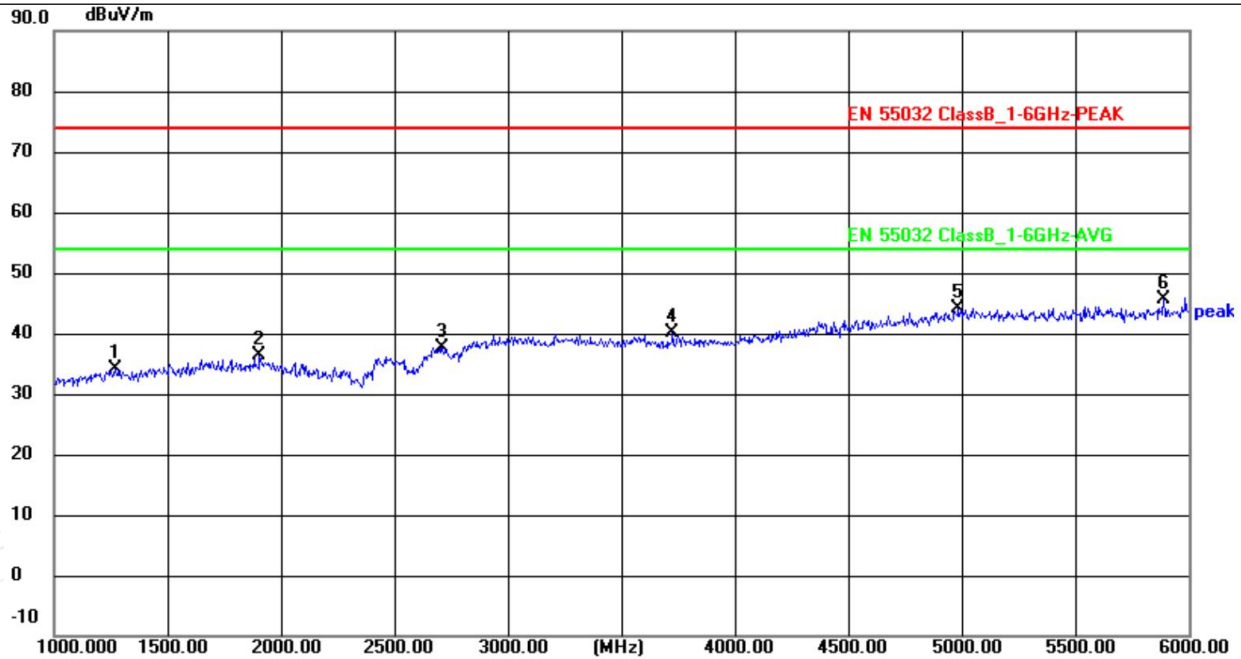




Adapter1 Model: HJ-0502000W2-EU

Environmental Conditions:	23.5°C, 52.1% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1 (Above 1GHz)
Test Engineer:	Paddi Chen
Detector Function:	Peak + AV
Pol:	Horizontal

Detailed results are shown below



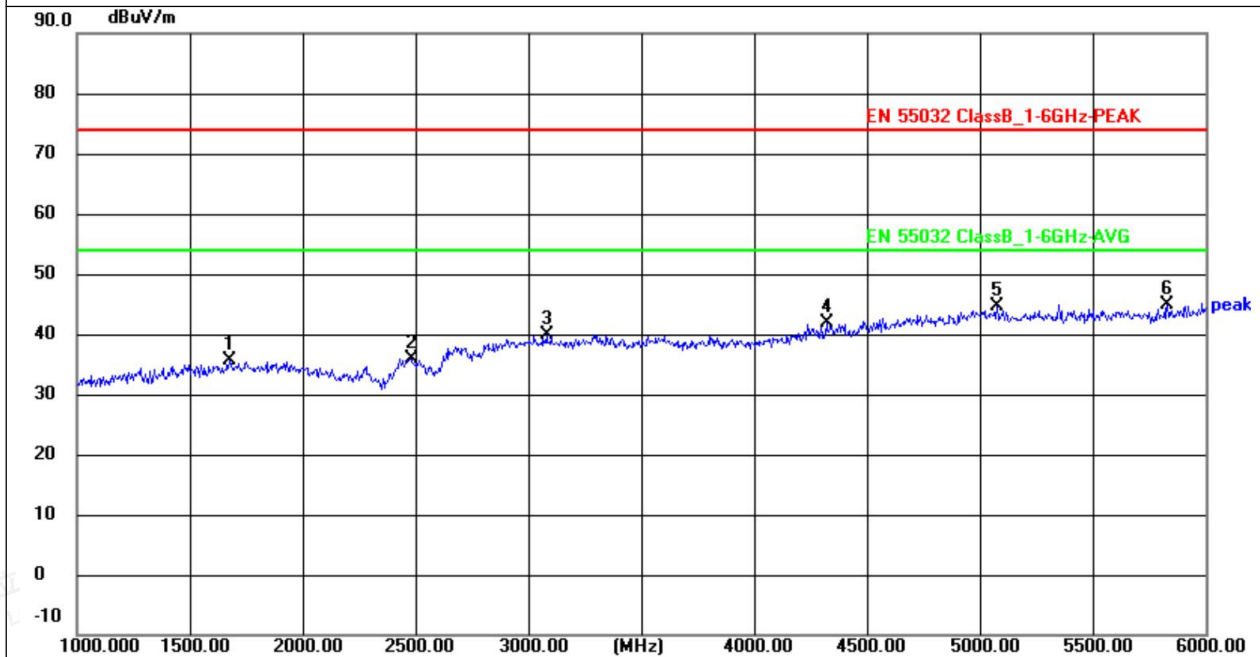
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1270.000	49.24	-15.23	34.01	74.00	-39.99	peak
2	1905.000	50.01	-13.61	36.40	74.00	-37.60	peak
3	2710.000	48.37	-10.62	37.75	74.00	-36.25	peak
4	3725.000	49.25	-9.02	40.23	74.00	-33.77	peak
5	4985.000	48.45	-4.20	44.25	74.00	-29.75	peak
6	5890.000	49.26	-3.59	45.67	74.00	-28.33	peak





Environmental Conditions:	23.5°C, 52.1% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1 (Above 1GHz)
Detector Function:	Peak + AV
Test Engineer:	Paddi Chen
Pol:	Vertical

Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1675.000	50.04	-14.44	35.60	74.00	-38.40	peak
2	2480.000	47.37	-11.42	35.95	74.00	-38.05	peak
3	3080.000	49.47	-9.56	39.91	74.00	-34.09	peak
4	4320.000	49.10	-7.29	41.81	74.00	-32.19	peak
5	5075.000	48.64	-3.98	44.66	74.00	-29.34	peak
6	5830.000	48.49	-3.53	44.96	74.00	-29.04	peak

Note:

- Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- Measurements above show only up to 6 maximum emissions noted.
- Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Factor = Antenna Factor + Cable Loss + Amplifier Factor  
Emission Level = Reading level + Factor  
Margin = Emission Level - Limit



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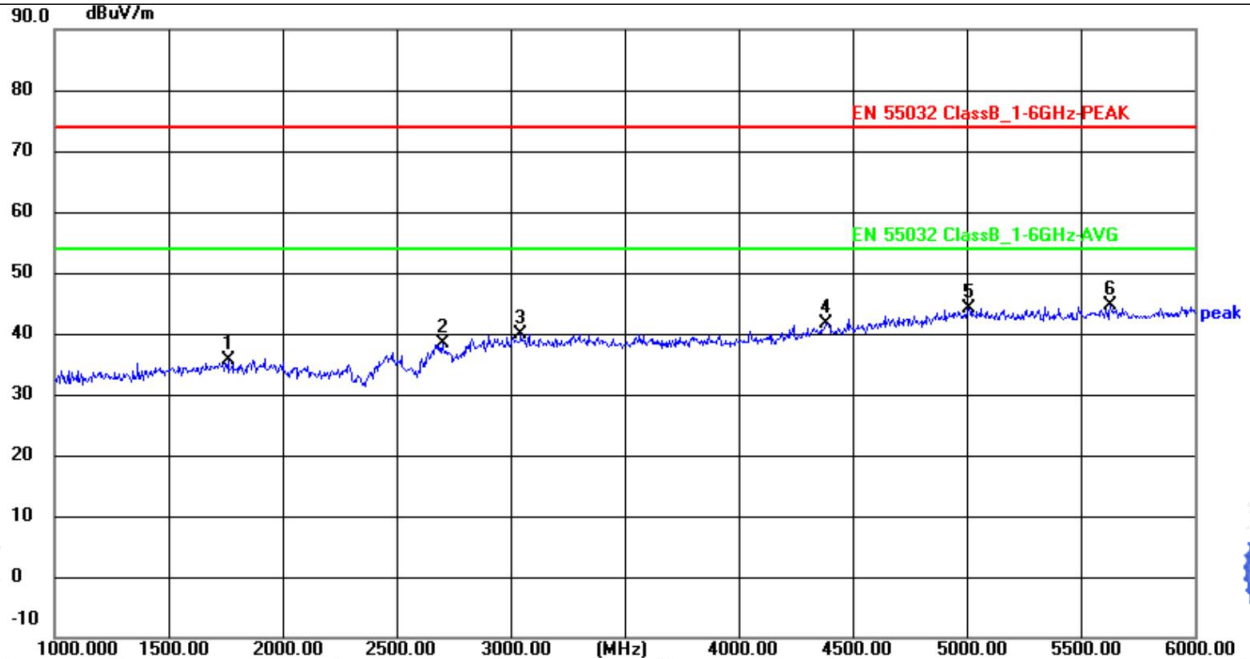




Adapter2 Model: QZ-01001EA00

Environmental Conditions:	23.5°C, 52.1% RH
Test Voltage:	AC 230V,50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1 (Above 1GHz)
Test Engineer:	Paddi Chen
Detector Function:	Peak + AV
Pol:	Horizontal

Detailed results are shown below



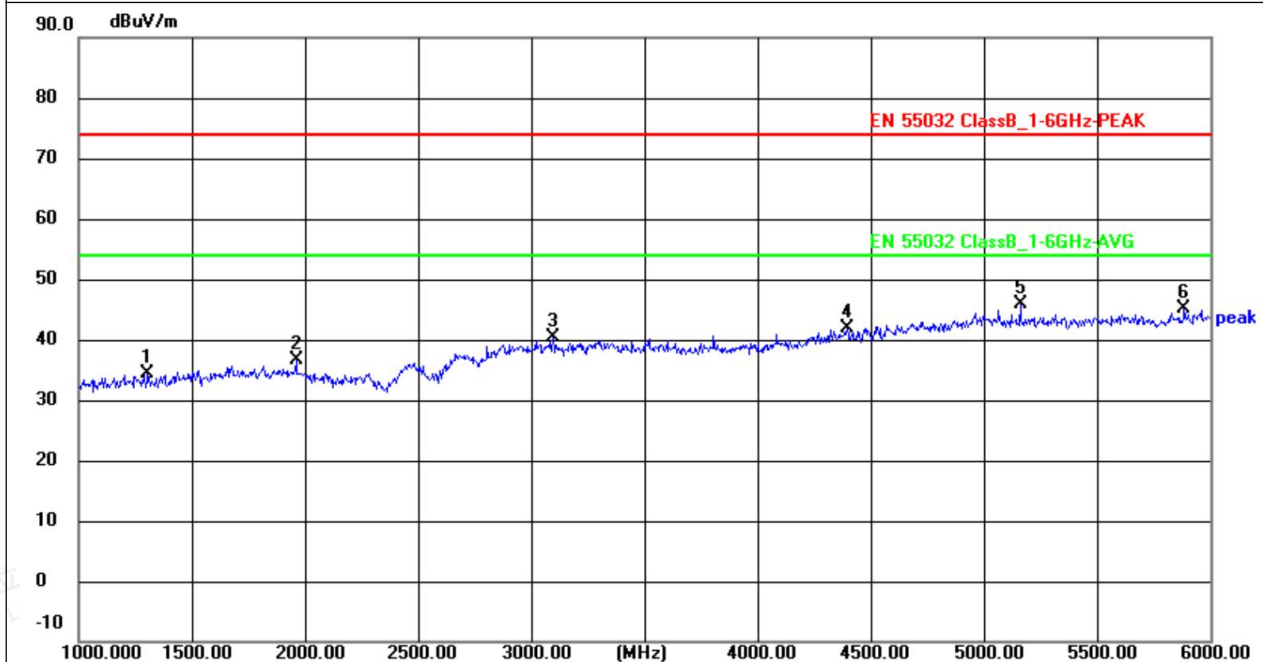
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1760.000	49.76	-14.24	35.52	74.00	-38.48	peak
2	2700.000	48.97	-10.64	38.33	74.00	-35.67	peak
3	3045.000	49.55	-9.58	39.97	74.00	-34.03	peak
4	4385.000	48.74	-7.03	41.71	74.00	-32.29	peak
5	5010.000	48.25	-4.11	44.14	74.00	-29.86	peak
6	5630.000	48.08	-3.33	44.75	74.00	-29.25	peak





Environmental Conditions:	23.5°C, 52.1% RH
Test Voltage:	AC 230V, 50Hz
Test Model:	KINGKONG ES
Test Mode:	Mode 1 (Above 1GHz)
Detector Function:	Peak + AV
Test Engineer:	Paddi Chen
Pol:	Vertical

Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1305.000	49.63	-15.23	34.40	74.00	-39.60	peak
2	1960.000	49.82	-13.31	36.51	74.00	-37.49	peak
3	3095.000	49.83	-9.56	40.27	74.00	-33.73	peak
4	4395.000	48.86	-6.99	41.87	74.00	-32.13	peak
5	5160.000	49.66	-3.84	45.82	74.00	-28.18	peak
6	5885.000	48.73	-3.57	45.16	74.00	-28.84	peak

Note:

- Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- Measurements above show only up to 6 maximum emissions noted.
- Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Factor = Antenna Factor + Cable Loss + Amplifier Factor  
Emission Level = Reading level + Factor  
Margin = Emission Level - Limit







### B.3 HARMONIC CURRENT EMISSION MEASUREMENT

Because the power of EUT is less than 75W, according to standard EN IEC 61000-3-2, harmonic current unnecessary to test.

### B.4 VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

Adapter1 Model: HJ-0502000W2-EU

Test Model	KINGKONG ES	Test Mode	TM1
Test Engineer	Paddi Chen	Test Voltage	AC 230V/50Hz
Environmental Conditions	24.5°C, 55.7% RH		

Pst and Limit

Plt and Limit

Relevant Parameter and Judgement During Test Period

Vrms at the end of test(V)	230.05			
Error Max (%)		Test Limit (%)		
T-max (ms)	0.00	Test Limit (ms)	500	Pass
dc (%)	0.00	Test Limit (%)	3.30	Pass
dmax (%)	0.00	Test Limit (%)	4.00	Pass
Pst	0.015	Test Limit	1.000	Pass
Plt	0.015	Test Limit	0.650	Pass

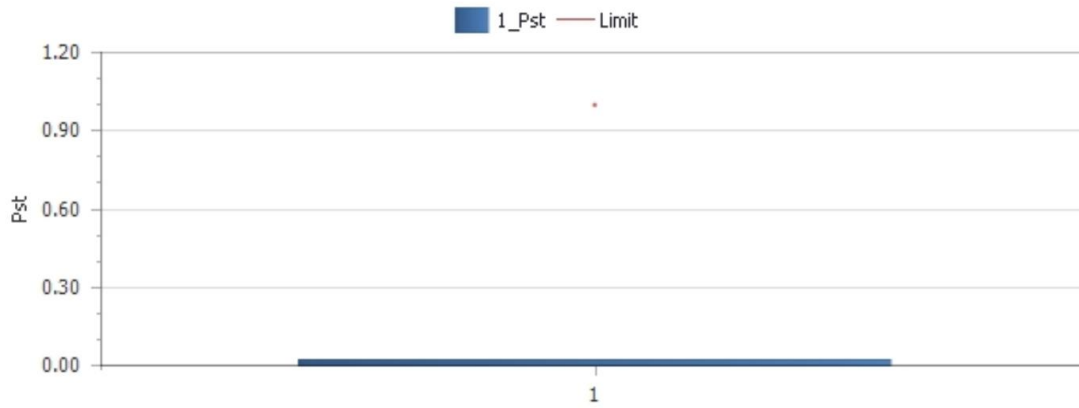




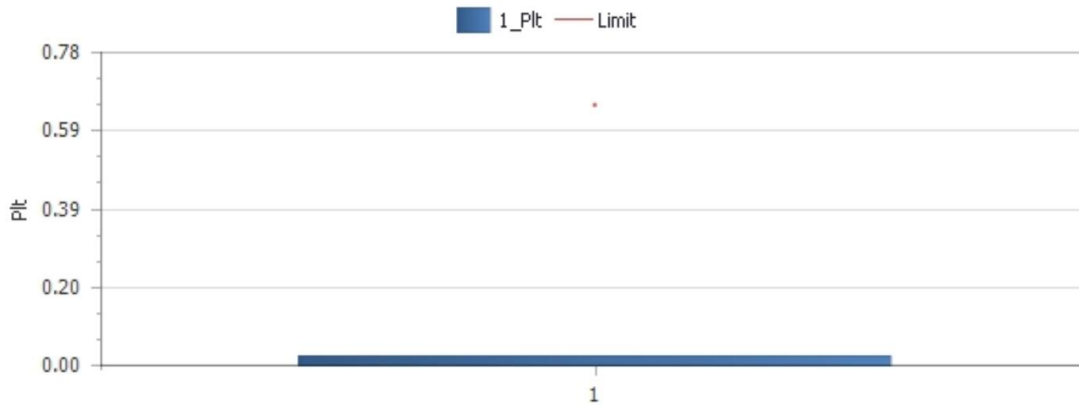
Adapter2 Model: QZ-01001EA00

Test Model	KINGKONG ES	Test Mode	TM1
Test Engineer	Paddi Chen	Test Voltage	AC 230V/50Hz
Environmental Conditions	24.6°C, 55.2% RH		

Pst and Limit



Plt and Limit



Relevant Parameter and Judgement During Test Period

Vrms at the end of test(V) 230.03

Error Max (%)		Test Limit(%)		
T-max (ms)	0.00	Test Limit(ms)	500	Pass
dc (%)	0.00	Test Limit(%)	3.30	Pass
dmax (%)	0.00	Test Limit(%)	4.00	Pass
Pst	0.024	Test Limit	1.000	Pass
Plt	0.024	Test Limit	0.650	Pass



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## B.5 ELECTROSTATIC DISCHARGE IMMUNITY TEST

## Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	Shenzhen Huafurui Technology Co., Ltd.		
EUT	Smartphone	Temperature	22.9℃
M/N	KINGKONG ES	Humidity	52.6%
Criterion	B	Pressure	1021mbar
Test Mode	Mode 1	Test Engineer	Paddi Chen

## Air Discharge

Test Points	Test Levels			Results		
	± 2kV	± 4kV	± 8kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

## Contact Discharge

Test Points	Test Levels		Results		
	± 2 kV	±4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

## Discharge To Horizontal Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

## Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B



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## B.6 RF FIELD STRENGTH SUSCEPTIBILITY TEST

## RF Field Strength Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN IEC 61000-4-3		
Applicant	Shenzhen Huafului Technology Co., Ltd.		
EUT	Smartphone	Temperature	23.3°C
M/N	KINGKONG ES	Humidity	52.4%
Field Strength	3 V/m	Criterion	A
Test Mode	Mode 1	Test Engineer	Paddi Chen
Test Frequency	80MHz to 1000MHz (swept test) 1800MHz, 2600MHz, 3500MHz, 5000MHz (spot test)		
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

## Test Equipment:

1. Signal Generator: 2031 (MARCONI)
2. Power Amplifier: 500A100 & 100W/1000M1 (A&R)
3. Power Antenna: 3108 (EMCO) & AT1080 (A&R)
4. Field Monitor: FM2000 (A&R)

Note: For equipment that supports a PER or FER, the minimum performance level shall be PER or FER less than or equal to 10%.



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## B.7 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

## Electrical Fast Transient/Burst Test Results

Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	Shenzhen Huafurui Technology Co., Ltd.		
EUT	Smartphone	Temperature	22.5℃
M/N	KINGKONG ES	Humidity	52.5%
Test Mode	Mode 1	Criterion	B
Test Engineer	Paddi Chen		

Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
L-N	1KV	PASS	PASS
L-PE			
N-PE			
L-N-PE			
Signal Line			
I/O Cable			

Note:



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## B.8 SURGE IMMUNITY TEST

## Surge Immunity Test Result

Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	Shenzhen Huafului Technology Co., Ltd.		
EUT	Smartphone	Temperature	23.4℃
M/N	KINGKONG ES	Humidity	52.5%
Test Mode	Mode 1	Criterion	B
Test Engineer	Paddi Chen		

Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result
L-N	+	0°, 90°, 180°, 270°	5	1.0	PASS
	-	0°, 90°, 180°, 270°	5	1.0	PASS
L-PE					
N-PE					
Signal Line					

Note: Verification shall be performed on the generators and coupling/decoupling network prior to the test.



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**B.9 INJECTED CURRENTS SUSCEPTIBILITY TEST****Injected Currents Susceptibility Test Results**

<b>Standard</b>	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6		
<b>Applicant</b>	Shenzhen Huafurui Technology Co., Ltd.		
<b>EUT</b>	Smartphone	<b>Temperature</b>	21.9°C
<b>M/N</b>	KINGKONG ES	<b>Humidity</b>	53.6%
<b>Test Mode</b>	Mode 1	<b>Criterion</b>	A
<b>Test Engineer</b>	Paddi Chen		

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V	A	PASS

**Remark:**

1. Modulation Signal: 1kHz 80% AM

2. Measurement Equipment :

Simulator: CIT-10 (FRANKONIA)

CDN : ☒ CDN-M2 (FRANKONIA)☐ CDN-M3 (FRANKONIA)

3. For equipment that supports a PER or FER, the minimum performance level shall be PER or FER less than or equal to 10%.



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## B.10 MAGNETIC FIELD SUSCEPTIBILITY TEST

## Magnetic Field Immunity Test Result

Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	Shenzhen Huafurui Technology Co., Ltd.		
EUT	Smartphone	Temperature	22.5°C
M/N	KINGKONG ES	Humidity	52.3%
Test Mode	Mode 1	Criterion	A
Test Engineer	Paddi Chen		

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
1	5 mins	X	A	PASS
1	5 mins	Y	A	PASS
1	5 mins	Z	A	PASS

Note:



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## B.11 VOLTAGE DIPS AND INTERRUPTIONS TEST

## Voltage Dips And Interruptions Test Results

Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN IEC 61000-4-11		
Applicant	Shenzhen Huafurui Technology Co., Ltd.		
EUT	Smartphone	Temperature	23.3℃
M/N	KINGKONG ES	Humidity	53.6%
Test Mode	Mode 1	Criterion	B&C
Test Engineer	Paddi Chen		

Test Level % U <sub>T</sub>	Voltage Dips & Short Interruptions % U <sub>T</sub>	Duration (in periods)	Criterion	Result
0	100	0.5P	B	PASS
70	30	25P	C	PASS
0	100	250P	C	PASS

Note:



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## ANNEXE C

(External and internal photos of the EUT)

Please refer to separated files Appendix C for Photographs of The EUT.

----- THE END OF TEST REPORT -----



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