



# EMC Test Report

Report No.: STS2508161E01

Issued for

Shenzhen Gotron Electronic CO.,LTD.

7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua  
District, Shenzhen City, Guangdong Province, China

Product Name: Smart Phone

Brand Name: ulefone

Model Name: RugKing 3 Pro

Series Model(s): GQ3128, RugKing 3, RugKing 3 Ultra,  
RugKing 3E, RugKing 3S, RugKing 3  
Lite, RugKing 3 Pro+, RugKing 3s,  
RugKing 3s Pro

ETSI EN 301 489-1 V2.2.3 (2019-11)

ETSI EN 301 489-3 V2.3.2 (2023-01)

Test Standards: ETSI EN 301 489-17 V3.3.1 (2024-09)

ETSI EN 301 489-19 V2.2.1 (2022-09)

ETSI EN 301 489-52 V1.3.1 (2024-11)

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.



## TEST REPORT

**Applicant's name** ..... : Shenzhen Gotron Electronic CO.,LTD.  
**Address** ..... : 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province, China  
**Manufacturer's Name** ..... : Shenzhen Gotron Electronic CO.,LTD.  
**Address** ..... : 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province, China

**Product description**

**Product Name** ..... : Smart Phone  
**Brand Name** ..... : ulefone  
**Model Name** ..... : RugKing 3 Pro  
**Series Model(s)** ..... : GQ3128, RugKing 3, RugKing 3 Ultra, RugKing 3E, RugKing 3S, RugKing 3 Lite, RugKing 3 Pro+, RugKing 3s, RugKing 3s Pro  
ETSI EN 301 489-1 V2.2.3 (2019-11)  
ETSI EN 301 489-3 V2.3.2 (2023-01)  
**Test Standards** ..... : ETSI EN 301 489-17 V3.3.1 (2024-09)  
ETSI EN 301 489-19 V2.2.1 (2022-09)  
ETSI EN 301 489-52 V1.3.1 (2024-11)

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**Date of Test** .....

**Date of Receipt of Test Item** ..... : 22 Aug. 2025  
**Date (s) of Performance of Tests** ..... : 22 Aug. 2025 ~ 17 Sept. 2025  
**Date of Issue** ..... : 17 Sept. 2025  
**Test Result** ..... : **Pass**

Testing Engineer :

Star Deng

(Star Deng)

Technical Manager :

Brave Wu

(Brave Wu)

Authorized Signatory :

Bovey Yang

(Bovey Yang)



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**Revision History**

| Rev. | Issue Date    | Report No.    | Effect Page | Contents      |
|------|---------------|---------------|-------------|---------------|
| 00   | 17 Sept. 2025 | STS2508161E01 | ALL         | Initial Issue |
|      |               |               |             |               |



## 1. TEST SUMMARY

Test procedures according to the technical standards:

ETSI EN 301 489-1 V2.2.3 (2019-11)  
ETSI EN 301 489-3 V2.3.2 (2023-01)  
ETSI EN 301 489-17 V3.3.1 (2024-10)  
ETSI EN 301 489-19 V2.2.1 (2022-09)  
ETSI EN 301 489-52 V1.3.1 (2024-11)

| EMC Emission                      |                                                           |                      |          |                 |
|-----------------------------------|-----------------------------------------------------------|----------------------|----------|-----------------|
| Standard                          | Test Item                                                 | Limit                | Judgment | Remark          |
| EN 55032:2015+A11:2020            | Conducted Emission on AC And Telecom Port 150kHz to 30MHz | Class B              | PASS     |                 |
|                                   | Radiated Emission                                         | Class B              | PASS     | <b>NOTE (1)</b> |
| EN IEC 61000-3-2:2019+A2:2024     | Harmonic Current Emission                                 | Class A              | N/A      | <b>NOTE (2)</b> |
| EN 61000-3-3:2013+A2:2021+AC:2022 | Voltage Fluctuations & Flicker                            | -----                | PASS     |                 |
| EMC Immunity                      |                                                           |                      |          |                 |
| Section                           | Test Item                                                 | Performance Criteria | Judgment | Remark          |
| EN IEC 61000-4-2:2025             | Electrostatic Discharge                                   | B                    | PASS     |                 |
| EN IEC 61000-4-3:2020             | RF Electromagnetic Field                                  | A                    | PASS     |                 |
| EN 61000-4-4:2012                 | Electrical fast transients/burst                          | B                    | PASS     |                 |
| EN 61000-4-5:2014+A1:2017         | Surges                                                    | B                    | PASS     |                 |
| EN IEC 61000-4-6:2023             | Continuous induced RF disturbances                        | A                    | PASS     |                 |
| EN IEC 61000-4-11:2020            | Voltage dips and interruptions                            | B / B / C / C        | PASS     |                 |

**NOTE:** 1) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.  
If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.  
If the highest frequency of the internal sources of the EUT is between 500 MHz and 1GHz, the measurement shall only be made up to 5 GHz.  
If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times of the highest frequency or 6 GHz, whichever is less.

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

(3) "N/A" denotes test is not applicable in this Test Report.



## 1.1 TEST FACTORY

|                   |                                                                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Company Name:     | Shenzhen STS Test Services Co. Ltd.                                                                                                           |
| Address:          | 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China |
| Telephone:        | +86-755 3688 6288                                                                                                                             |
| Fax:              | +86-755 3688 6277                                                                                                                             |
| Registration No.: | IC Registration No.: 12108A                                                                                                                   |
|                   | FCC test Firm Registration Number: 625569                                                                                                     |
|                   | A2LA Certificate No.: 4338.01                                                                                                                 |

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded 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    | CISPR 16-4-2 | 9KHz-150KHz                 | 2.32     |      |
|           |              | 150 KHz ~ 30MHz             | 3.06     |      |

### B. Radiated Measurement :

| Test Site | Method       | Measurement Frequency Range | U , (dB) | NOTE |
|-----------|--------------|-----------------------------|----------|------|
| STSC02    | CISPR 16-4-2 | 30MHz ~ 1000MHz             | 4.23     |      |
|           |              | 1GHz ~ 6GHz                 | 5.13     |      |



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                  |                                                                                                                        |                                                                                                                                                                                                                                    |
|------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name     | Smart Phone                                                                                                            |                                                                                                                                                                                                                                    |
| Brand Name       | ulefone                                                                                                                |                                                                                                                                                                                                                                    |
| Model Name       | RugKing 3 Pro                                                                                                          |                                                                                                                                                                                                                                    |
| Series Model(s)  | GQ3128, RugKing 3, RugKing 3 Ultra, RugKing 3E, RugKing 3S, RugKing 3 Lite, RugKing 3 Pro+, RugKing 3s, RugKing 3s Pro |                                                                                                                                                                                                                                    |
| Model Difference | Only different in model name                                                                                           |                                                                                                                                                                                                                                    |
| Frequency Bands  | Bluetooth                                                                                                              | 2402~2480 MHz                                                                                                                                                                                                                      |
|                  | 2.4G WLAN                                                                                                              | 802.11b/g/n(20MHz): 2412~2472MHz                                                                                                                                                                                                   |
|                  | 5.2G WLAN                                                                                                              | 802.11a/n/ac (20MHz): 5180~5240MHz                                                                                                                                                                                                 |
|                  | 5.3G WLAN                                                                                                              | 802.11a/n/ac (20MHz): 5260~5320MHz                                                                                                                                                                                                 |
|                  | 5.8G WLAN                                                                                                              | 802.11a/n/ac (20MHz): 5745~5825MHz                                                                                                                                                                                                 |
|                  | GPS                                                                                                                    | 1575.42MHz                                                                                                                                                                                                                         |
|                  | FM                                                                                                                     | 87.5-108MHZ                                                                                                                                                                                                                        |
|                  | GSM                                                                                                                    | GSM 900: 880 ~ 915 MHz<br>GSM 1800:1710 ~ 1785 MHz                                                                                                                                                                                 |
|                  | WCDMA                                                                                                                  | WCDMA B1:1920-1980 MHz<br>WCDMA B8:880-915 MHz                                                                                                                                                                                     |
|                  | LTE                                                                                                                    | LTE Band 1: 1920-1980 MHz<br>LTE Band 3: 1710-1785 MHz<br>LTE Band 7: 2500-2570 MHz<br>LTE Band 8: 880-915 MHz<br>LTE Band 20: 832-862 MHz<br>LTE Band 28: 703-748 MHz<br>LTE Band 38: 2570-2620 MHz<br>LTE Band 40: 2300-2400 MHz |
| Modulation Mode  | BT                                                                                                                     | BT(1Mbps): GFSK<br>BT EDR(2Mbps): $\pi/4$ -DQPSK<br>BT EDR(3Mbps): 8DPSK                                                                                                                                                           |
|                  | BLE                                                                                                                    | GFSK                                                                                                                                                                                                                               |
|                  | 2.4G WLAN                                                                                                              | 802.11b(DSSS):CCK,DQPSK,DBPSK<br>802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM<br>802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM                                                                                                                    |
|                  | 5G WLAN                                                                                                                | 802.11a(OFDM):BPSK,QPSK,16-QAM,64-QAM<br>802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM<br>802.11ac(OFDM):<br>BPSK,QPSK,16-QAM,64-QAM,256-QAM                                                                                               |
|                  | GPS                                                                                                                    | BPSK                                                                                                                                                                                                                               |
|                  | FM                                                                                                                     | FM                                                                                                                                                                                                                                 |
|                  | GSM                                                                                                                    | GMSK for GSM/GPRS; GMSK and 8PSK for EDGE                                                                                                                                                                                          |



|                         |                                                                                                |                                    |
|-------------------------|------------------------------------------------------------------------------------------------|------------------------------------|
|                         | WCDMA                                                                                          | QPSK; HSDPA:QPSK/16QAM; HSUPA:BPSK |
|                         | LTE                                                                                            | QPSK /16QAM                        |
| SIM Card                | SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested.       |                                    |
| Rating                  | 5.0V $\overline{=}$ 2.0A                                                                       |                                    |
| Battery                 | Model: 3128<br>Rated Voltage: 3.87V<br>Charge Limit Voltage: 4.45V<br>Capacity: 5600mAh        |                                    |
| Adapter                 | Model: HJ-0502000-EU<br>Input: 100-240V~50/60Hz 0.3A<br>Output: 5.0V $\overline{=}$ 2.0A 10.0W |                                    |
| Hardware version number | N/A                                                                                            |                                    |
| Software version number | N/A                                                                                            |                                    |



## 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       | Adapter+USB cable +GSM900 Link+BT Link+WLAN Link+GPS RX   |
| Mode 2       | Adapter+USB cable +DCS1800 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 3       | Adapter+USB cable+WCDMA B1 Link+BT Link+WLAN Link+GPS RX  |
| Mode 4       | Adapter+USB cable +WCDMA B8 Link+BT Link+WLAN Link+GPS RX |
| Mode 5       | Adapter+USB cable +LTE B1 Link +BT Link+WLAN Link+GPS RX  |
| Mode 6       | Adapter+USB cable +LTE B3 Link +BT Link+WLAN Link+GPS RX  |
| Mode 7       | Adapter+USB cable +LTE B7 Link+BT Link+WLAN Link+GPS RX   |
| Mode 8       | Adapter+USB cable +LTE B8 Link+BT Link+WLAN Link+GPS RX   |
| Mode 9       | Adapter+USB cable +LTE B20 Link+BT Link+WLAN Link+GPS RX  |
| Mode 10      | Adapter+USB cable +LTE B28 Link+BT Link+WLAN Link+GPS RX  |
| Mode 11      | Adapter+USB cable +LTE B38 Link+BT Link+WLAN Link+GPS RX  |
| Mode 12      | Adapter+USB cable +LTE B40 Link+BT Link+WLAN Link+GPS RX  |
| Mode 13      | Charging +FM                                              |
| Mode 14      | Adapter+USB cable +DCS1800 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 15      | Adapter+USB cable+WCDMA B1 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 16      | Adapter+USB cable +WCDMA B8 Idle+BT Link+WLAN Link+GPS RX |
| Mode 17      | Adapter+USB cable +LTE B1 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 18      | Adapter+USB cable +LTE B3 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 19      | Adapter+USB cable +LTE B7 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 20      | Adapter+USB cable +LTE B8 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 21      | Adapter+USB cable +LTE B20 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 22      | Adapter+USB cable +LTE B28 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 23      | Adapter+USB cable +LTE B38 Idle+BT Link+WLAN Link+GPS RX  |



|         |                                                                  |
|---------|------------------------------------------------------------------|
| Mode 24 | Adapter+USB cable +LTE B40 Idle+BT Link+WLAN Link+GPS RX         |
| Mode 25 | Adapter+USB cable +GSM900 Link+BT Standby +WLAN Standby +GPS RX  |
| Mode 26 | Adapter+USB cable +DCS1800 Link+BT Standby +WLAN Standby +GPS RX |
| Mode 27 | Adapter+USB cable+WCDMA B1 Link+BT Standby +WLAN Standby +GPS RX |
| Mode 28 | Adapter+USB cable +WCDMA B8 Link+BT Standby+WLAN Standby+GPS RX  |
| Mode 29 | Adapter+USB cable +LTE B1 Link +BT Standby+WLAN Standby+GPS RX   |
| Mode 30 | Adapter+USB cable +LTE B3 Link +BT Standby+WLAN Standby+GPS RX   |
| Mode 31 | Adapter+USB cable +LTE B7 Link+BT Standby+WLAN Standby +GPS RX   |
| Mode 32 | Adapter+USB cable +LTE B8 Link+BT Standby+WLAN Standby+GPS RX    |
| Mode 33 | Adapter+USB cable +LTE B20 Link+BT Standby+WLAN Standby+GPS RX   |
| Mode 34 | Adapter+USB cable +LTE B28 Link+BT Standby+WLAN Standby+GPS RX   |
| Mode 35 | Adapter+USB cable +LTE B38 Link+BT Standby+WLAN Standby +GPS RX  |
| Mode 36 | Adapter+USB cable +LTE B40 Link+BT Standby+WLAN Standby +GPS RX  |
| Mode 37 | Adapter+USB cable +GSM900 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 38 | Adapter+USB cable +DCS1800 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 39 | Adapter+USB cable+WCDMA B1 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 40 | Adapter+USB cable +WCDMA B8 Idle+BT Standby+WLAN Standby+GPS RX  |
| Mode 41 | Adapter+USB cable +LTE B1 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 42 | Adapter+USB cable +LTE B3 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 43 | Adapter+USB cable +LTE B7 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 44 | Adapter+USB cable +LTE B8 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 45 | Adapter+USB cable +LTE B20 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 46 | Adapter+USB cable +LTE B28 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 47 | Adapter+USB cable +LTE B38 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 48 | Adapter+USB cable +LTE B40 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 49 | Charging +FM                                                     |



| For Conducted Test |                                                         |
|--------------------|---------------------------------------------------------|
| Final Test Mode    | Description                                             |
| Mode 1             | Adapter+USB cable +GSM900 Link+BT Link+WLAN Link+GPS RX |

| For Radiated Test |                                                         |
|-------------------|---------------------------------------------------------|
| Final Test Mode   | Description                                             |
| Mode 1            | Adapter+USB cable +GSM900 Link+BT Link+WLAN Link+GPS RX |

| For EMS Test |                                                           |
|--------------|-----------------------------------------------------------|
| Pretest Mode | Description                                               |
| Mode 1       | Adapter+USB cable +GSM900 Link+BT Link+WLAN Link+GPS RX   |
| Mode 2       | Adapter+USB cable +DCS1800 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 3       | Adapter+USB cable+WCDMA B1 Link+BT Link+WLAN Link+GPS RX  |
| Mode 4       | Adapter+USB cable +WCDMA B8 Link+BT Link+WLAN Link+GPS RX |
| Mode 5       | Adapter+USB cable +LTE B1 Link +BT Link+WLAN Link+GPS RX  |
| Mode 6       | Adapter+USB cable +LTE B3 Link +BT Link+WLAN Link+GPS RX  |
| Mode 7       | Adapter+USB cable +LTE B7 Link+BT Link+WLAN Link+GPS RX   |
| Mode 8       | Adapter+USB cable +LTE B8 Link+BT Link+WLAN Link+GPS RX   |
| Mode 9       | Adapter+USB cable +LTE B20 Link+BT Link+WLAN Link+GPS RX  |
| Mode 10      | Adapter+USB cable +LTE B28 Link+BT Link+WLAN Link+GPS RX  |
| Mode 11      | Adapter+USB cable +LTE B38 Link+BT Link+WLAN Link+GPS RX  |
| Mode 12      | Adapter+USB cable +LTE B40 Link+BT Link+WLAN Link+GPS RX  |
| Mode 13      | Charging +FM                                              |
| Mode 14      | Adapter+USB cable +DCS1800 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 15      | Adapter+USB cable+WCDMA B1 Idle+BT Link+WLAN Link+GPS RX  |
| Mode 16      | Adapter+USB cable +WCDMA B8 Idle+BT Link+WLAN Link+GPS RX |
| Mode 17      | Adapter+USB cable +LTE B1 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 18      | Adapter+USB cable +LTE B3 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 19      | Adapter+USB cable +LTE B7 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 20      | Adapter+USB cable +LTE B8 Idle+BT Link+WLAN Link+GPS RX   |
| Mode 21      | Adapter+USB cable +LTE B20 Idle+BT Link+WLAN              |



|         |                                                                  |
|---------|------------------------------------------------------------------|
|         | Link+GPS RX                                                      |
| Mode 22 | Adapter+USB cable +LTE B28 Idle+BT Link+WLAN Link+GPS RX         |
| Mode 23 | Adapter+USB cable +LTE B38 Idle+BT Link+WLAN Link+GPS RX         |
| Mode 24 | Adapter+USB cable +LTE B40 Idle+BT Link+WLAN Link+GPS RX         |
| Mode 25 | Adapter+USB cable +GSM900 Link+BT Standby +WLAN Standby +GPS RX  |
| Mode 26 | Adapter+USB cable +DCS1800 Link+BT Standby +WLAN Standby +GPS RX |
| Mode 27 | Adapter+USB cable+WCDMA B1 Link+BT Standby +WLAN Standby +GPS RX |
| Mode 28 | Adapter+USB cable +WCDMA B8 Link+BT Standby+WLAN Standby+GPS RX  |
| Mode 29 | Adapter+USB cable +LTE B1 Link +BT Standby+WLAN Standby+GPS RX   |
| Mode 30 | Adapter+USB cable +LTE B3 Link +BT Standby+WLAN Standby+GPS RX   |
| Mode 31 | Adapter+USB cable +LTE B7 Link+BT Standby+WLAN Standby +GPS RX   |
| Mode 32 | Adapter+USB cable +LTE B8 Link+BT Standby+WLAN Standby+GPS RX    |
| Mode 33 | Adapter+USB cable +LTE B20 Link+BT Standby+WLAN Standby+GPS RX   |
| Mode 34 | Adapter+USB cable +LTE B28 Link+BT Standby+WLAN Standby+GPS RX   |
| Mode 35 | Adapter+USB cable +LTE B38 Link+BT Standby+WLAN Standby +GPS RX  |
| Mode 36 | Adapter+USB cable +LTE B40 Link+BT Standby+WLAN Standby +GPS RX  |
| Mode 37 | Adapter+USB cable +GSM900 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 38 | Adapter+USB cable +DCS1800 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 39 | Adapter+USB cable+WCDMA B1 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 40 | Adapter+USB cable +WCDMA B8 Idle+BT Standby+WLAN Standby+GPS RX  |
| Mode 41 | Adapter+USB cable +LTE B1 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 42 | Adapter+USB cable +LTE B3 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 43 | Adapter+USB cable +LTE B7 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 44 | Adapter+USB cable +LTE B8 Idle+BT Standby+WLAN Standby+GPS RX    |
| Mode 45 | Adapter+USB cable +LTE B20 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 46 | Adapter+USB cable +LTE B28 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 47 | Adapter+USB cable +LTE B38 Idle+BT Standby+WLAN Standby+GPS RX   |
| Mode 48 | Adapter+USB cable +LTE B40 Idle+BT Standby+WLAN Standby+GPS RX   |

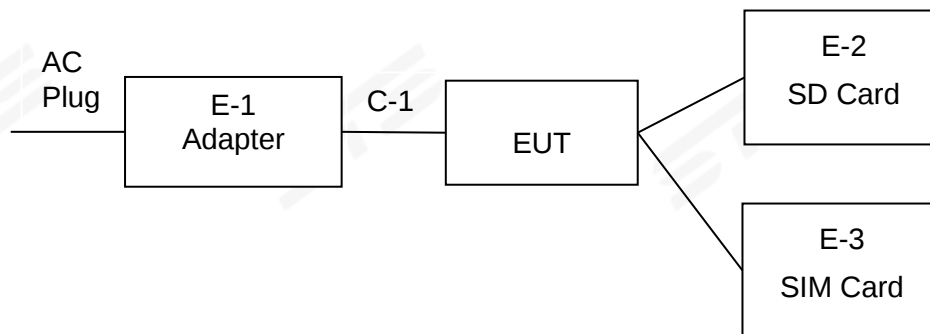


|         |              |
|---------|--------------|
| Mode 49 | Charging +FM |
|---------|--------------|

Note:

1. In the conducted disturbance test, Mode 1 is the minimum margin mode, and this report only shows the minimum margin mode test data.
2. In the radiation disturbance test, Mode 1 is the minimum margin mode, and this report only shows the minimum margin mode test data.

## 2.3 DESCRIPTION OF TEST SETUP





## 2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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. | Note |
|------|-----------|-----------|----------------|------|
| E-1  | Adapter   | N/A       | HJ-0502000-EU  | N/A  |
| E-2  | SD Card   | Sandisk   | 840XKT-FB      | N/A  |
| E-3  | SIM Card  | Verizon   | QPE            | N/A  |

| Item | Equipment | Ferrite Core | Length | Note |
|------|-----------|--------------|--------|------|
| C-1  | USB Cable | NO           | 110cm  | N/A  |

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.



## 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                        | ESCI       | 101427     | 2024.9.23        | 2025.9.22        |
| LISN                   | R&S                        | AtT-F01220 | 8130179    | 2024.9.23        | 2025.9.22        |
| Absorbing Clamp        | R&S                        | MDS-21     | 100668     | 2025.2.24        | 2026.2.23        |
| CE Cable               | N/A                        | C01        | N/A        | 2024.9.23        | 2025.9.22        |
| Temperature & Humidity | Anymetre                   | JR900      | 240686     | 2024.10.15       | 2025.10.14       |
| Testing Software       | EZ-EMC(Ver.STSLAB-03A1 CE) |            |            |                  |                  |

### 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     | 2024.9.23        | 2025.9.22        |
| Bi-log Antenna           | TESEQ                      | CBL6111D   | 45873      | 2024.9.28        | 2025.9.27        |
| Horn Antenna             | SCHWARZBECK                | BBHA 9120D | 9120D-1343 | 2024.9.28        | 2025.9.27        |
| Pre-amplifier(1G-26.5G)  | Agilent                    | HP8449B    | 3008A02383 | 2025.2.22        | 2026.2.21        |
| Pre-amplifier(0.1M-3GHz) | EM                         | EM330      | 060665     | 2025.2.22        | 2026.2.21        |
| Spectrum Analyzer        | Agilent                    | N9020A     | MY49100060 | 2024.9.23        | 2025.9.22        |
| RE Cable (9K-1G)         | N/A                        | R01        | N/A        | 2024.9.23        | 2025.9.22        |
| RE Cable (1G-26G)        | N/A                        | R02        | N/A        | 2024.9.23        | 2025.9.22        |
| Temperature & Humidity   | Mieo                       | HH660      | N/A        | 2024.9.26        | 2025.9.25        |
| SAC                      | ChengYu                    | 9*6*6      | N/A        | 2025.8.13        | 2028.8.12        |
| Testing Software         | EZ-EMC(Ver.STSLAB-03A1 RE) |            |            |                  |                  |

### 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     | 2024.9.23        | 2025.9.22        |
| AC Power Source            | MTONI                   | PHF-5010 | 631169     | 2024.9.23        | 2025.9.22        |
| Temperature & Humidity     | Anymetre                | JR900    | 240686     | 2024.10.15       | 2025.10.14       |
| Testing Software           | HA-PC Link Version 3.03 |          |            |                  |                  |

**2.5.4 ESD**

| Kind of Equipment      | Manufacturer | Type No. | Serial No. | Last Calibration | Calibrated Until |
|------------------------|--------------|----------|------------|------------------|------------------|
| ESD TEST GENERATOR     | TESEQ        | NSG438   | 1175       | 2024.10.14       | 2025.10.13       |
| Temperature & Humidity | N/A          | WS1066   | N/A        | 2025.2.25        | 2026.2.24        |

**2.5.5 SURGE, EFT/BURST, VOLTAGE INTERRUPTION/DIPS**

| Kind of Equipment                      | Manufacturer | Type No.  | Serial No. | Last Calibration | Calibrated Until |
|----------------------------------------|--------------|-----------|------------|------------------|------------------|
| Surger Generator                       | HTEC         | HCWG 100  | 225202     | 2025.2.22        | 2026.2.21        |
| Surger Generator                       | HTEC         | HTW       | 152104     | 2024.9.23        | 2025.9.22        |
| VOLTAGE DIPS & INTERRUPTIONS Generator | HTEC         | HPFS 161P | 143803     | 2025.2.22        | 2026.2.21        |
| EFT/B Generator                        | HTEC         | HEFT 51   | 1920001    | 2024.9.23        | 2025.9.22        |
| Temperature & Humidity                 | Anymetre     | JR900     | 240686     | 2024.10.15       | 2025.10.14       |

**2.5.6 RS**

| Kind of Equipment                    | Manufacturer | Type No.          | Serial No. | Last Calibration | Calibrated Until |
|--------------------------------------|--------------|-------------------|------------|------------------|------------------|
| Power Meter                          | Agilent      | E4419B            | QB43312265 | 2024.9.23        | 2025.9.22        |
| Power Sensor                         | hp           | E9300A            | US39210170 | 2024.9.23        | 2025.9.22        |
| Power Sensor                         | hp           | E9300A            | US39210476 | 2024.9.23        | 2025.9.22        |
| Signal Generator                     | Agilent      | N5181A            | MY56144718 | 2024.9.23        | 2025.9.22        |
| Power Amplifier                      | MICOTOP      | MPA-80-1000-250   | MPA1711489 | 2024.9.23        | 2025.9.22        |
| Power Amplifier                      | MICOTOP      | MPA-1000-6000-100 | MPA1904132 | 2024.9.23        | 2025.9.22        |
| RS Test Antenna (80-1GHz)            | SCHWARZBECK  | VULP 9118E        | 000999     | N/A              | N/A              |
| RS Test Antenna (1G-10GHz)           | SCHWARZBECK  | STLP 9149         | 000648     | N/A              | N/A              |
| Universal Radio Communication Tester | R&S          | CMU200            | 116337     | 2025.2.22        | 2026.2.21        |
| Audio Analyzer                       | R&S          | UPL               | 100689     | 2025.2.22        | 2026.2.21        |
| Audio Breakthrough Shielding Box     | SKET         | SB_ABT/C35        | N/A        | N/A              | N/A              |
| Ear Simulator                        | SKET         | AE_ABT/C35        | N/A        | N/A              | N/A              |
| Mouth Simulator                      | SKET         | AM_ABT/C35        | N/A        | N/A              | N/A              |
| 1KHz Standard Source                 | SKET         | MSC_ABT/C35       | N/A        | 2024.9.24        | 2025.9.23        |



|                        |                 |       |            |            |            |
|------------------------|-----------------|-------|------------|------------|------------|
| Field Probe            | Narda           | EP601 | 611WX80261 | 2025.2.26  | 2026.2.25  |
| Temperature & Humidity | Anymetre        | JR900 | 240686     | 2024.10.15 | 2025.10.14 |
| Testing Software       | EMC-S V1.4.0.53 |       |            |            |            |

## 2.5.7 INJECTION CURRENT

| Kind of Equipment                    | Manufacturer | Type No.    | Serial No.    | Last Calibration | Calibrated Until |
|--------------------------------------|--------------|-------------|---------------|------------------|------------------|
| CS                                   | SCHLODER     | CDG-6000-25 | 126A1280/2014 | 2024.9.23        | 2025.9.22        |
| CDN                                  | SCHLODER     | CDN-M2+3    | A2210275/2014 | 2024.9.23        | 2025.9.22        |
| EM Clamp                             | FISCHER      | F-203I-23MM | 445           | 2025.2.22        | 2026.2.21        |
| Attenuator                           | Nemtest      | ATT-6DB-100 | A100W224      | 2024.9.23        | 2025.9.22        |
| Universal Radio Communication Tester | R&S          | CMU200      | 116337        | 2025.2.22        | 2026.2.21        |
| Audio Analyzer                       | R&S          | UPL         | 100689        | 2025.2.22        | 2026.2.21        |
| Audio Breakthrough Shielding Box     | SKET         | SB_ABT/C35  | N/A           | N/A              | N/A              |
| Ear Simulator                        | SKET         | AE_ABT/C35  | N/A           | N/A              | N/A              |
| Mouth Simulator                      | SKET         | AM_ABT/C35  | N/A           | N/A              | N/A              |
| 1KHz Standard Source                 | SKET         | MSC_ABT/C35 | N/A           | 2024.9.24        | 2025.9.23        |
| Temperature & Humidity               | Anymetre     | JR900       | 240686        | 2024.10.15       | 2025.10.14       |



### 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 * |
| 0.5 ~ 5         | 73.00          | 60.00   | 56.00          | 46.00     |
| 5 ~ 30          | 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.

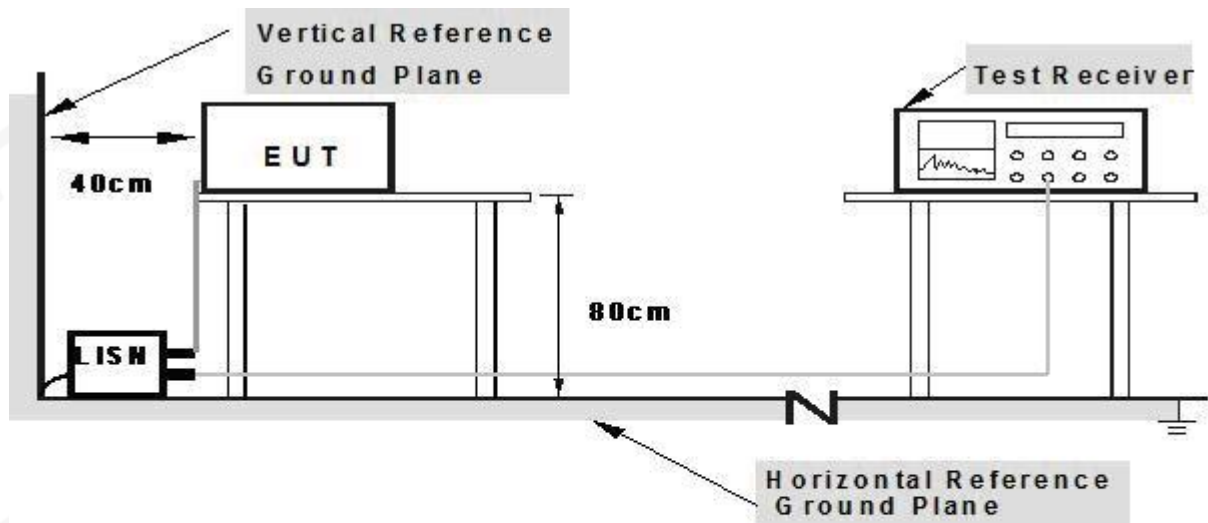
The following table is the setting of the receiver

| 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 conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs 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 LISN s (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

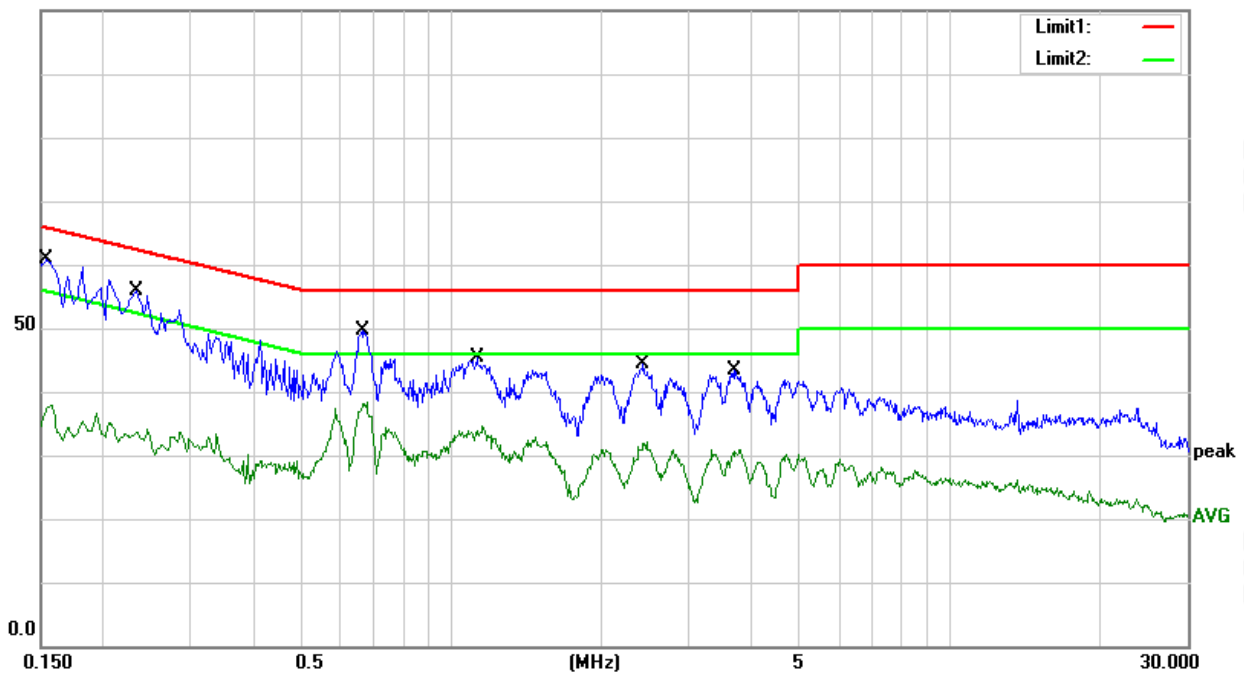
|               |                                     |                    |            |
|---------------|-------------------------------------|--------------------|------------|
| Temperature:  | 25.1℃                               | Relative Humidity: | 59%        |
| Phase:        | L                                   | Test Mode:         | Mode 1     |
| Test Voltage: | DC 5V from Adapter                  | Test Date:         | 2025.08.27 |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |            |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|---------------|--------------|-------------|----------|
| 1   | 0.1540          | 41.00          | 19.87       | 60.87         | 65.78        | -4.91       | QP       |
| 2   | 0.1540          | 18.12          | 19.87       | 37.99         | 55.78        | -17.79      | AVG      |
| 3   | 0.2340          | 35.99          | 19.89       | 55.88         | 62.31        | -6.43       | QP       |
| 4   | 0.2340          | 16.77          | 19.89       | 36.66         | 52.31        | -15.65      | AVG      |
| 5   | 0.6620          | 29.78          | 19.81       | 49.59         | 56.00        | -6.41       | QP       |
| 6   | 0.6620          | 18.55          | 19.81       | 38.36         | 46.00        | -7.64       | AVG      |
| 7   | 1.1260          | 25.47          | 19.81       | 45.28         | 56.00        | -10.72      | QP       |
| 8   | 1.1260          | 14.90          | 19.81       | 34.71         | 46.00        | -11.29      | AVG      |
| 9   | 2.4340          | 24.51          | 19.81       | 44.32         | 56.00        | -11.68      | QP       |
| 10  | 2.4340          | 12.30          | 19.81       | 32.11         | 46.00        | -13.89      | AVG      |
| 11  | 3.6980          | 23.52          | 19.82       | 43.34         | 56.00        | -12.66      | QP       |
| 12  | 3.6980          | 11.16          | 19.82       | 30.98         | 46.00        | -15.02      | AVG      |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit.
3. Factor = Insertion loss + Cable loss.

100.0 dBuV





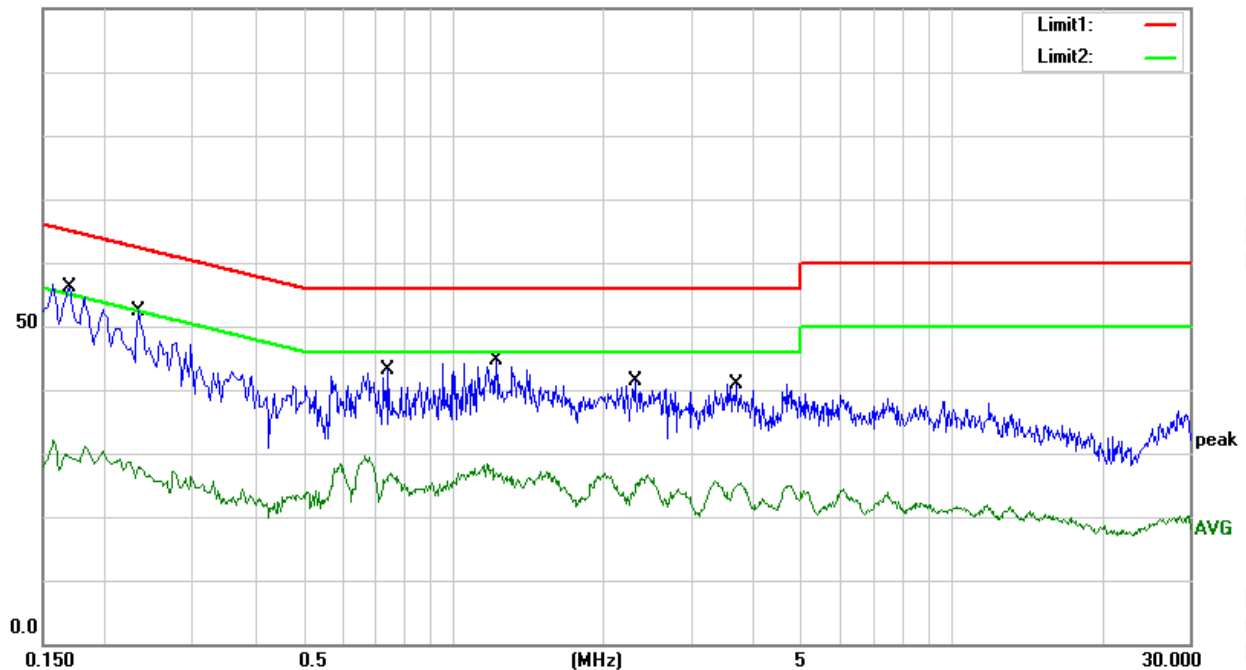
|               |                                     |                    |            |
|---------------|-------------------------------------|--------------------|------------|
| Temperature:  | 25.1 °C                             | Relative Humidity: | 59%        |
| Phase:        | N                                   | Test Mode:         | Mode 1     |
| Test Voltage: | DC 5V from Adapter                  | Test Date:         | 2025.08.27 |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |            |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|---------------|--------------|-------------|----------|
| 1   | 0.1700          | 36.19          | 19.83       | 56.02         | 64.96        | -8.94       | QP       |
| 2   | 0.1700          | 11.38          | 19.83       | 31.21         | 54.96        | -23.75      | AVG      |
| 3   | 0.2340          | 32.44          | 19.81       | 52.25         | 62.31        | -10.06      | QP       |
| 4   | 0.2340          | 8.61           | 19.81       | 28.42         | 52.31        | -23.89      | AVG      |
| 5   | 0.7420          | 23.19          | 19.81       | 43.00         | 56.00        | -13.00      | QP       |
| 6   | 0.7420          | 9.70           | 19.81       | 29.51         | 46.00        | -16.49      | AVG      |
| 7   | 1.2220          | 24.79          | 19.80       | 44.59         | 56.00        | -11.41      | QP       |
| 8   | 1.2220          | 8.56           | 19.80       | 28.36         | 46.00        | -17.64      | AVG      |
| 9   | 2.3100          | 21.67          | 19.79       | 41.46         | 56.00        | -14.54      | QP       |
| 10  | 2.3100          | 6.94           | 19.79       | 26.73         | 46.00        | -19.27      | AVG      |
| 11  | 3.6980          | 21.04          | 19.82       | 40.86         | 56.00        | -15.14      | QP       |
| 12  | 3.6980          | 5.70           | 19.82       | 25.52         | 46.00        | -20.48      | AVG      |

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit.
3. Factor = Insertion loss + Cable loss.

100.0 dBuV



### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 LIMITS OF THE 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 THE 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 in the following: CISPR 32.
- (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 EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meter.
- c. The height of antenna is varied from 1 meter to 4 meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meter and the rotatable table was turned from 0 degrees to 360 degree to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.2.4 TEST SETUP

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

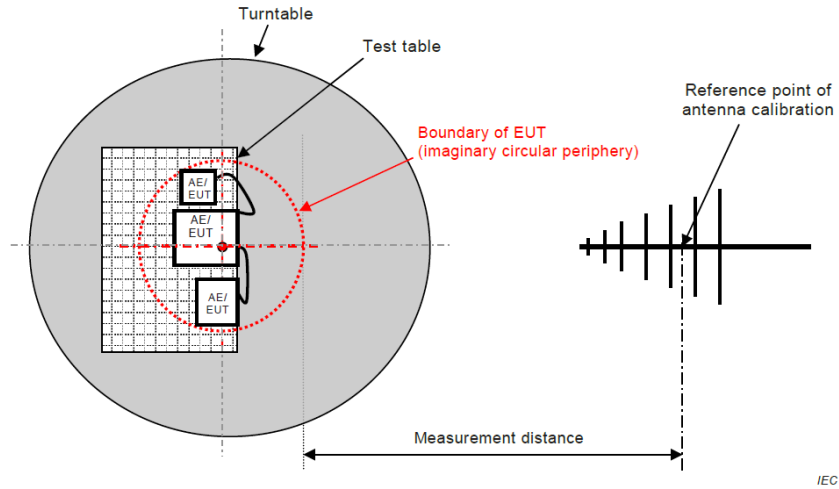


Figure C.1 – Measurement distance

#### (B) Radiated Emission Test Set-Up Frequency Above 1GHz

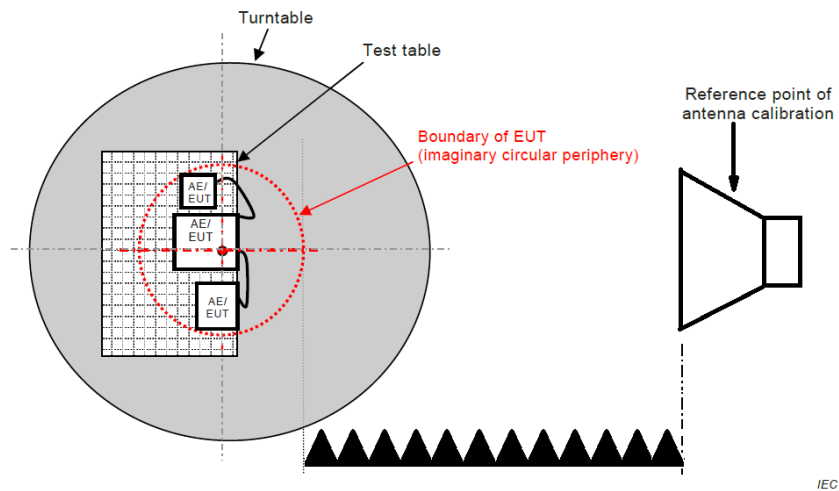


Figure C.1 – Measurement distance

### 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.

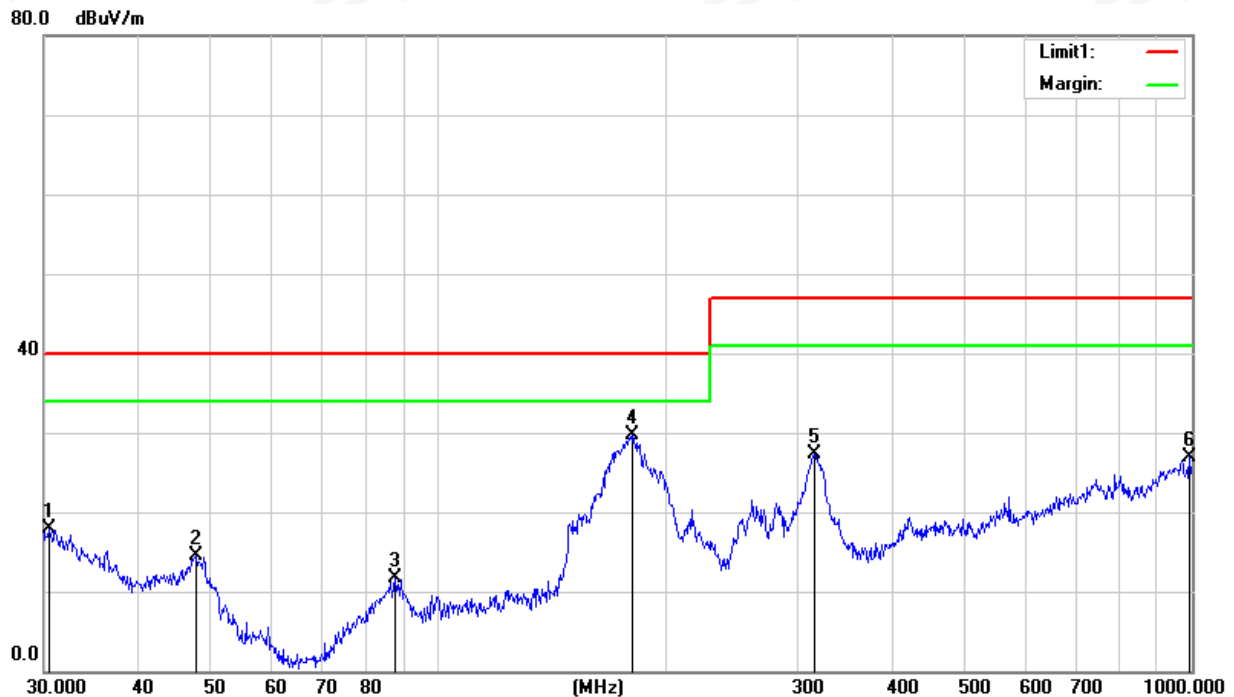
**3.2.6 TEST RESULTS (30MHz-1000MHz)**

|               |                                     |                    |            |
|---------------|-------------------------------------|--------------------|------------|
| Temperature:  | 25.3°C                              | Relative Humidity: | 43%        |
| Phase:        | Horizontal                          | Test Mode:         | Mode 1     |
| Test Voltage: | DC 5V from Adapter                  | Test Date:         | 2025.08.27 |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |            |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Results (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|------------------|----------------|-------------|----------|
| 1   | 30.4238         | 29.22          | -11.26      | 17.96            | 40.00          | -22.04      | QP       |
| 2   | 47.8260         | 35.14          | -20.55      | 14.59            | 40.00          | -25.41      | QP       |
| 3   | 87.7248         | 33.62          | -21.87      | 11.75            | 40.00          | -28.25      | QP       |
| 4   | 181.2834        | 50.65          | -20.94      | 29.71            | 40.00          | -10.29      | QP       |
| 5   | 315.4808        | 42.43          | -15.07      | 27.36            | 47.00          | -19.64      | QP       |
| 6   | 993.0114        | 29.08          | -2.16       | 26.92            | 47.00          | -20.08      | QP       |

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result = Reading + Factor )-Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.



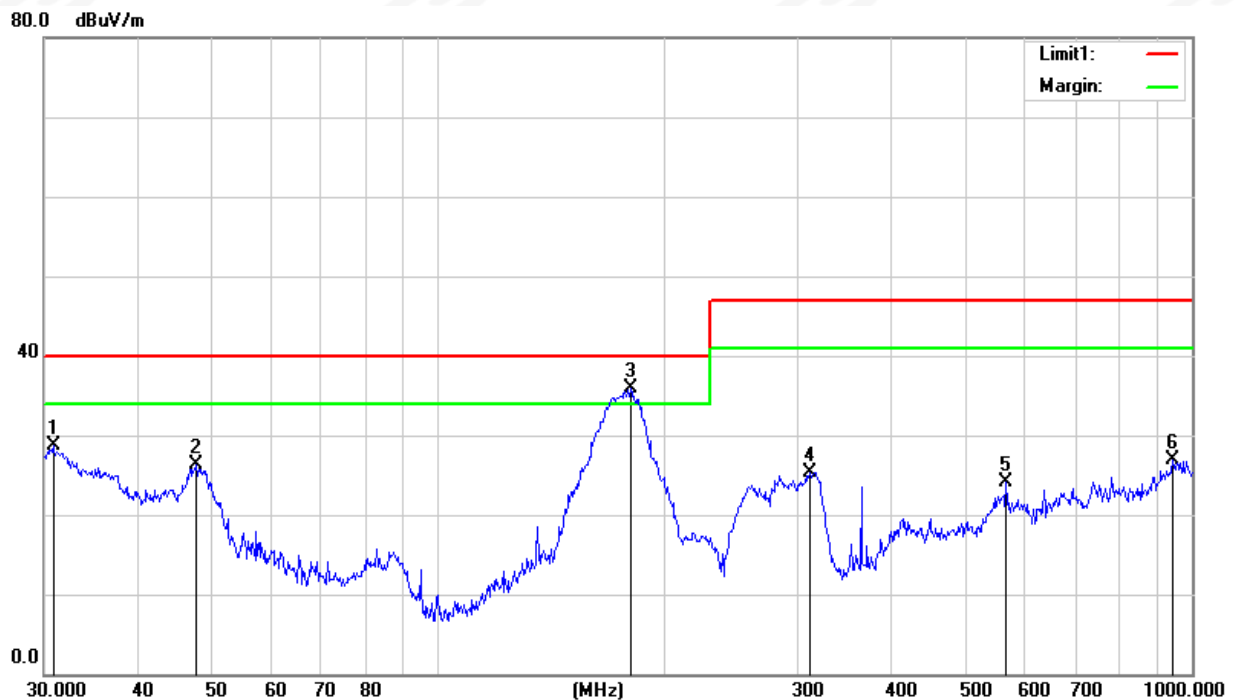


|               |                                     |                    |            |
|---------------|-------------------------------------|--------------------|------------|
| Temperature:  | 25.3°C                              | Relative Humidity: | 43%        |
| Phase:        | Vertical                            | Test Mode:         | Mode 1     |
| Test Voltage: | DC 5V from Adapter                  | Test Date:         | 2025.08.27 |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |            |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Results (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|------------------|----------------|-------------|----------|
| 1   | 30.8535         | 40.13          | -11.50      | 28.63            | 40.00          | -11.37      | QP       |
| 2   | 47.8260         | 46.87          | -20.55      | 26.32            | 40.00          | -13.68      | QP       |
| 3   | 180.0165        | 56.78          | -20.86      | 35.92            | 40.00          | -4.08       | QP       |
| 4   | 311.0867        | 40.66          | -15.41      | 25.25            | 47.00          | -21.75      | QP       |
| 5   | 566.6223        | 32.18          | -8.15       | 24.03            | 47.00          | -22.97      | QP       |
| 6   | 942.1305        | 29.32          | -2.36       | 26.96            | 47.00          | -20.04      | QP       |

## Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result = Reading + Factor) – Limit.
3. Factor = Cable Loss + Antenna Factor – Amplifier Gain.



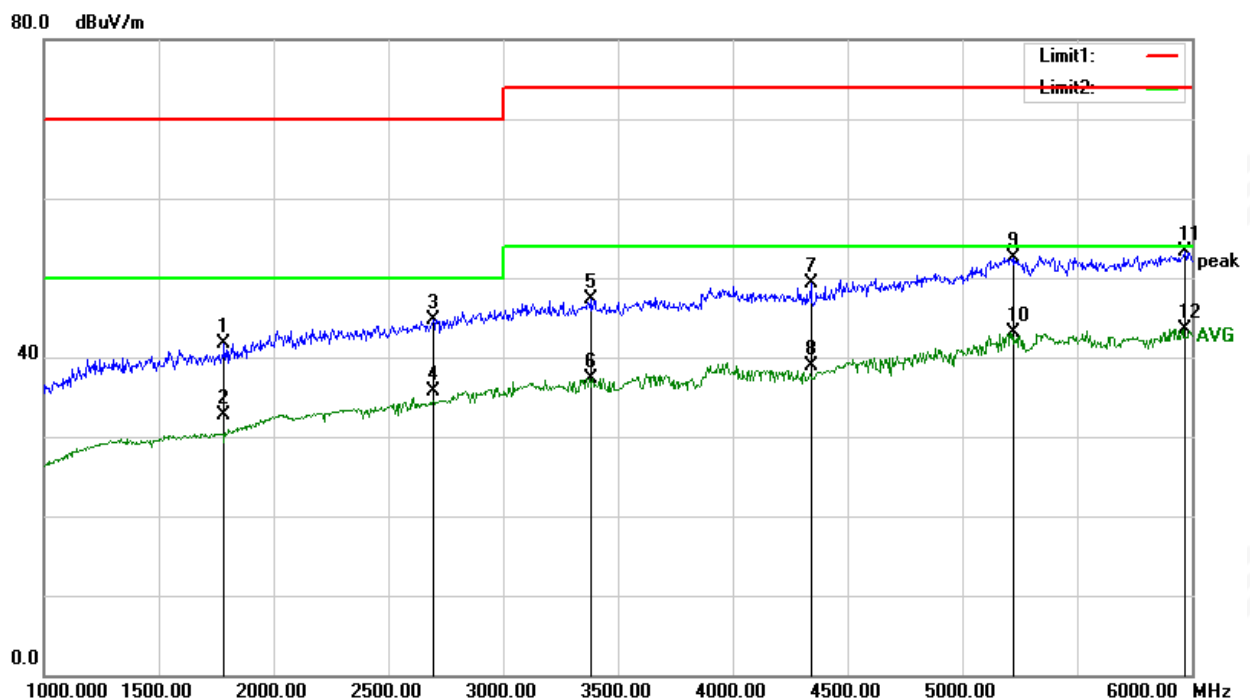
**3.2.7 TEST RESULT (1000 - 6000 MHz)**

|               |                                     |                    |            |
|---------------|-------------------------------------|--------------------|------------|
| Temperature:  | 25.3℃                               | Relative Humidity: | 43%        |
| Phase:        | Horizontal                          | Test Mode:         | Mode 1     |
| Test Voltage: | DC 5V from Adapter                  | Test Date:         | 2025.08.27 |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |            |

| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|-----------------|----------------|---------------------|---------------|--------------|-------------|--------|
| 1   | 1785.000        | 43.56          | -1.92               | 41.64         | 70.00        | -28.36      | peak   |
| 2   | 1785.000        | 34.64          | -1.92               | 32.72         | 50.00        | -17.28      | AVG    |
| 3   | 2695.000        | 44.25          | 0.55                | 44.80         | 70.00        | -25.20      | peak   |
| 4   | 2695.000        | 35.15          | 0.55                | 35.70         | 50.00        | -14.30      | AVG    |
| 5   | 3385.000        | 45.06          | 2.27                | 47.33         | 74.00        | -26.67      | peak   |
| 6   | 3385.000        | 35.10          | 2.27                | 37.37         | 54.00        | -16.63      | AVG    |
| 7   | 4340.000        | 44.78          | 4.57                | 49.35         | 74.00        | -24.65      | peak   |
| 8   | 4340.000        | 34.41          | 4.57                | 38.98         | 54.00        | -15.02      | AVG    |
| 9   | 5225.000        | 45.94          | 6.61                | 52.55         | 74.00        | -21.45      | peak   |
| 10  | 5225.000        | 36.41          | 6.61                | 43.02         | 54.00        | -10.98      | AVG    |
| 11  | 5970.000        | 45.77          | 7.56                | 53.33         | 74.00        | -20.67      | peak   |
| 12  | 5970.000        | 35.99          | 7.56                | 43.55         | 54.00        | -10.45      | AVG    |

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result = Reading + Factor) - Limit.
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain.





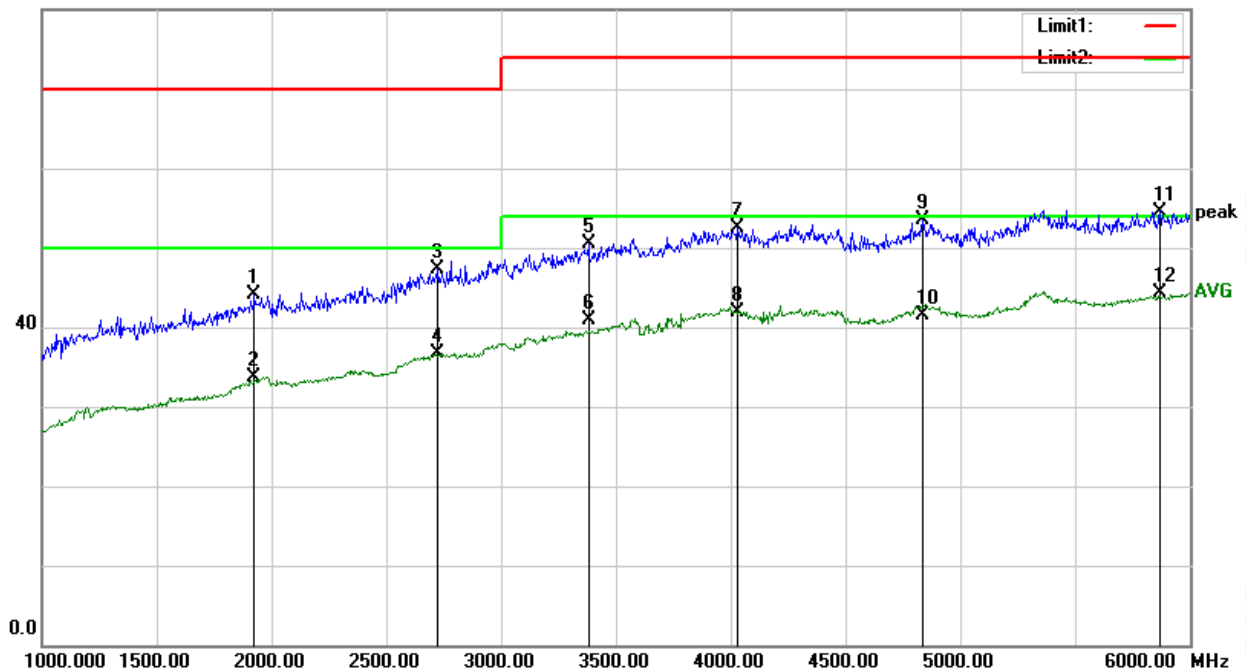
|               |                                     |                    |            |
|---------------|-------------------------------------|--------------------|------------|
| Temperature:  | 25.3°C                              | Relative Humidity: | 43%        |
| Phase:        | Vertical                            | Test Mode:         | Mode 1     |
| Test Voltage: | DC 5V from Adapter                  | Test Date:         | 2025.08.27 |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |            |

| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|-----------------|----------------|---------------------|---------------|--------------|-------------|--------|
| 1   | 1925.000        | 45.52          | -1.33               | 44.19         | 70.00        | -25.81      | peak   |
| 2   | 1925.000        | 35.04          | -1.33               | 33.71         | 50.00        | -16.29      | AVG    |
| 3   | 2725.000        | 46.51          | 0.76                | 47.27         | 70.00        | -22.73      | peak   |
| 4   | 2725.000        | 36.00          | 0.76                | 36.76         | 50.00        | -13.24      | AVG    |
| 5   | 3380.000        | 48.21          | 2.28                | 50.49         | 74.00        | -23.51      | peak   |
| 6   | 3380.000        | 38.59          | 2.28                | 40.87         | 54.00        | -13.13      | AVG    |
| 7   | 4030.000        | 48.01          | 4.40                | 52.41         | 74.00        | -21.59      | peak   |
| 8   | 4030.000        | 37.47          | 4.40                | 41.87         | 54.00        | -12.13      | AVG    |
| 9   | 4835.000        | 47.89          | 5.63                | 53.52         | 74.00        | -20.48      | peak   |
| 10  | 4835.000        | 35.96          | 5.63                | 41.59         | 54.00        | -12.41      | AVG    |
| 11  | 5870.000        | 47.09          | 7.51                | 54.60         | 74.00        | -19.40      | peak   |
| 12  | 5870.000        | 36.72          | 7.51                | 44.23         | 54.00        | -9.77       | AVG    |

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result = Reading + Factor) - Limit.
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain.

80.0 dBuV/m



### 3.3 VOLTAGE FLUCTUATION AND FLICKERS

#### 3.3.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKERS

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

#### 3.3.2 TEST PROCEDURE

##### a. Fluctuation and Flickers Test:

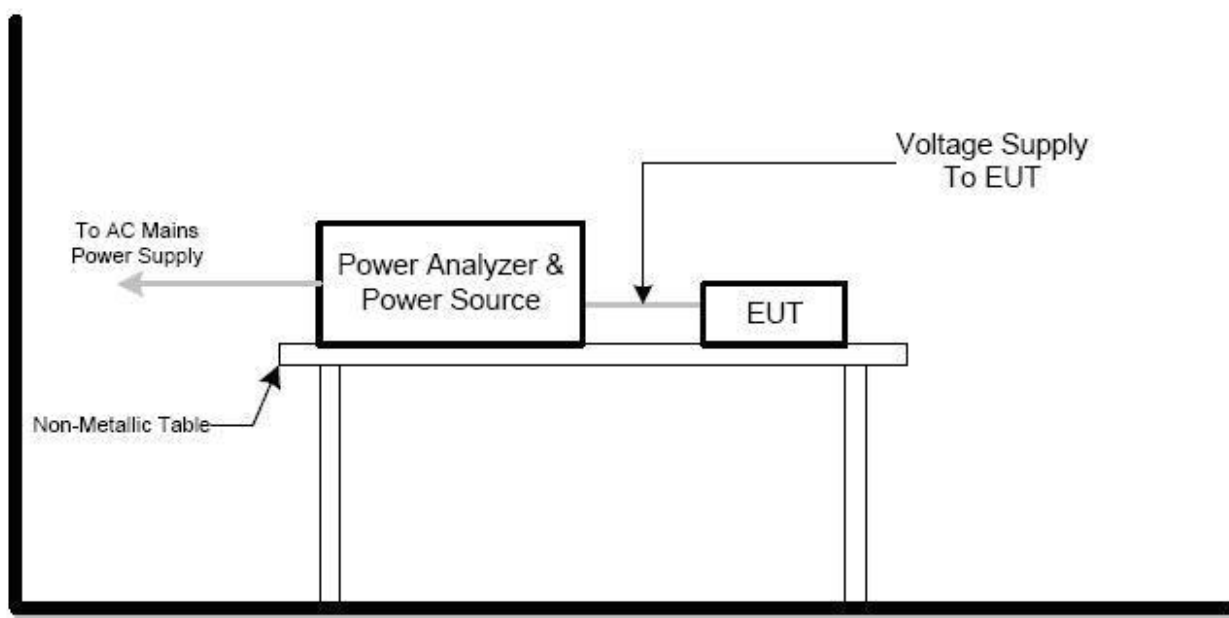
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 6.0/4.0 of EN 61000-3-3 depend.

##### b. All types of voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

#### 3.3.3 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 described unless otherwise a special operating condition is specified in the following during the testing.

#### 3.3.4 TEST SETUP





### 3.3.5 TEST RESULTS

EUT: Smart Phone

Test category: IEC 61000-3-3 Ed3.2:2021

Measurement standard: IEC 61000-15 Ed2.0:2010

Test date:2025-08-29 Start time: 16:59:00

Test duration (sec):600

Describe:

Operator: Star

Model/Type: RugKing 3 Pro

Serial number:

End time: 17:09:00

Load Power : 11.700 W  
Load Current :118.300 mArms  
Nominal Voltage : 230.54 Vrms

Power Factor:0.429  
Crest Factor:4.159

Test Result: pass

Status: Test Completed

Pst and limit line European Limits



#### Result:

|                               |      |                  |        |      |
|-------------------------------|------|------------------|--------|------|
| T-max (ms):                   | 0.00 | Test limit (ms): | 500.00 | Pass |
| Highest dc (%):               | 0.11 | Test limit (%):  | 3.30   | Pass |
| Highest dmax (%):             | 0.67 | Test limit (%):  | 4.00   | Pass |
| Highest Pst (10 min. period): | 0.00 | Test limit:      | 1.00   | Pass |

## 4. EMC IMMUNITY TEST

### 4.1 GENERAL PERFORMANCE CRITERIA

#### 4.1.1 PERFORMANCE CRITERIA

According to **ETSI EN 301 489-3** standard, the general performance criteria are as follows:

##### **Continuous and non-continuous operation**

Latency is the time delay between the initiation and the completion of operation of the EUT. Correct functioning requires completing the relevant operation within the maximum latency time.

Where the maximum latency is specified in the applicable harmonised radio standard (in the wanted performance criterion, or an acknowledge requirement), that value shall be used.

Where this is not the case, then the maximum latency is that required by the intended use of the EUT.

##### **Operating modes**

Where the EUT has more than one mode of operation (see clause 4.4.1), an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in all modes to confirm there are no such unintentional responses.

**The provisions of ETSI EN 301 489-1 [1] clause 6 shall apply, together with ETSI EN 301489-3 clauses 6.2 and 6.3 of the present document.**

##### **Performance criteria for continuous phenomena**

During the test, the equipment shall:

- continue to operate as intended;
- not unintentionally transmit;
- not unintentionally change its operating state;
- not unintentionally change critical stored data.



### **Performance criteria for transient phenomena**

For all ports and transient phenomena with the exception described below, the following applies:

- The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data.
- After application of the transient phenomena, the equipment shall operate as intended.

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

- For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.
- For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.



#### 4.1.2 PERFORMANCE CRITERIA (GPS)

According to **ETSI EN 301 489-19** standard, the general performance criteria are as follows:

##### **Performance criteria for Continuous phenomena**

During the test, the equipment shall operate as intended, e.g. not unintentionally change its operating state and not unintentionally change critical stored data.

After the test, the equipment shall operate as intended, e.g. have no loss of function and have no loss of critical stored data

##### **Performance criteria for Transient phenomena**

After the test, functions shall be self-recoverable and the equipment shall operate as intended and the equipment shall have no loss of critical stored data.

#### 4.1.3 PERFORMANCE CRITERIA (GSM/ WCDMA/LTE)

According to ETSI EN 301 489-52 standard, the general performance criteria are as follows:

**Performance criteria for Continuous phenomena applied to Transmitters (CT)**

With a link established, during the test, the uplink 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).

NOTE: When there is a high-level background noise present, the filter bandwidth may be reduced to a minimum of 40 Hz.

In idle mode, the transmitter shall not operate unintentionally.

At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or critical stored data, and the communication link shall have been maintained.

**Performance criteria for Continuous phenomena applied to Receivers (CR)**

During the test, the RXQUAL of the downlink shall not exceed the value of three, measured during each individual exposure in the test sequence.

In the case of narrow-band responses, the procedure in clause 4.4.1 shall be followed.

During the test, 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, centred on 1 kHz (audio breakthrough check).

NOTE: When there is a high-level background noise present, the filter bandwidth may be reduced to a minimum of 40 Hz.

At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or critical stored data, and the communication link shall have been maintained.

**UTRA**

In the data transfer mode, the performance criteria can be one of the following:

if the BER (as referred to in clause 5.3.1 of ETSI TS 134 109 [4]) is used, it shall not exceed 0,001 during the test sequence;

if the BLER (as referred to in ETSI TS 134 109 [4]) is used, it shall not exceed 0,01 during the test sequence.

The BLER calculation shall be based on evaluating the CRC on each transport block. Details are specified in annex C.

In the case of narrow-band responses, the procedure in clause 4.4.2.1 shall be followed.

When testing a voice call, the performance criteria in clause 6.1.1 shall apply.

**E-UTRA, E-UTRA with LAA, inband or guard band NB-IoT, Standalone NB-IoT**

In data transfer mode, the data throughput of the EUT shall not fall below 95 % of the maximum data throughput. Details are specified in annex C.

In the case of narrow-band responses, the procedure in clause 4.2.2 shall be followed.

When testing a voice call, the performance criteria in clause 6.1.1 shall apply.

**NR**

In the data transfer mode of both FR1 and FR2, the data throughput of the EUT shall not fall below 95 % of the maximum data throughput. Details are specified in annex C.

In the case of narrow-band responses, the procedure in clause 4.3.1 shall be followed.

When testing a voice call, the performance criteria in clause 6.1.1 shall apply.

**Performance criteria for Transient phenomena**

At the conclusion of each exposure of the transient phenomena, the EUT shall operate without loss of the communication link.

At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended without loss of user control functions or critical stored data.

In addition, where the EUT supports idle mode, it should be verified that the transmitter shall not unintentionally operate when transient phenomena are applied.

#### 4.1.4 PERFORMANCE CRITERIA

According to **ETSI EN 301 489-17** standard, the general performance criteria are as follows:

| Criteria                                                                                                  | During the test                                                                                                       | After the test<br>(i.e. as a result of the application of the test)                                                                                |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| A                                                                                                         | Shall operate as intended.<br>(See note).<br>Shall be no loss of function.<br>Shall be no unintentional transmissions | Shall operate as intended.<br>Shall be no degradation of performance.<br>Shall be no loss of function.<br>Shall be no loss of critical stored data |
| B                                                                                                         | May be loss of function.                                                                                              | Functions shall be self-recoverable.<br>Shall operate as intended after recovering.<br>Shall be no loss of critical stored data.                   |
| C                                                                                                         | May be loss of function.                                                                                              | Functions shall be recoverable by the operator.<br>Shall operate as intended after recovering.<br>Shall be no loss of critical stored data.        |
| NOTE : Operate as intended during the test allows a level of degradation in accordance with clause 6.2.2. |                                                                                                                       |                                                                                                                                                    |

##### Minimum performance level

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

For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

##### Performance criteria for Continuous phenomena

The performance criteria A shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur during the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur during the test.

##### Performance criteria for Transient phenomena

The performance criteria B shall apply, except for voltage dips greater than or equal to 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur as a result of the application of the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur as a result of the application of the test.

#### 4.1.5 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 following during the testing.

## 4.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

### 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 : 8KV (Direct)<br>Contact Discharge : 4KV (Direct/Indirect)                            |
| Polarity:             | Positive & Negative                                                                                  |
| Number of Discharge:  | Air Discharge: at least 10 times on each point<br>Contact Discharge: at least 10 times on each point |
| 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. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation

The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

The time interval between two successive single discharges was at least 1 second.

The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meter from the EUT.

Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

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):

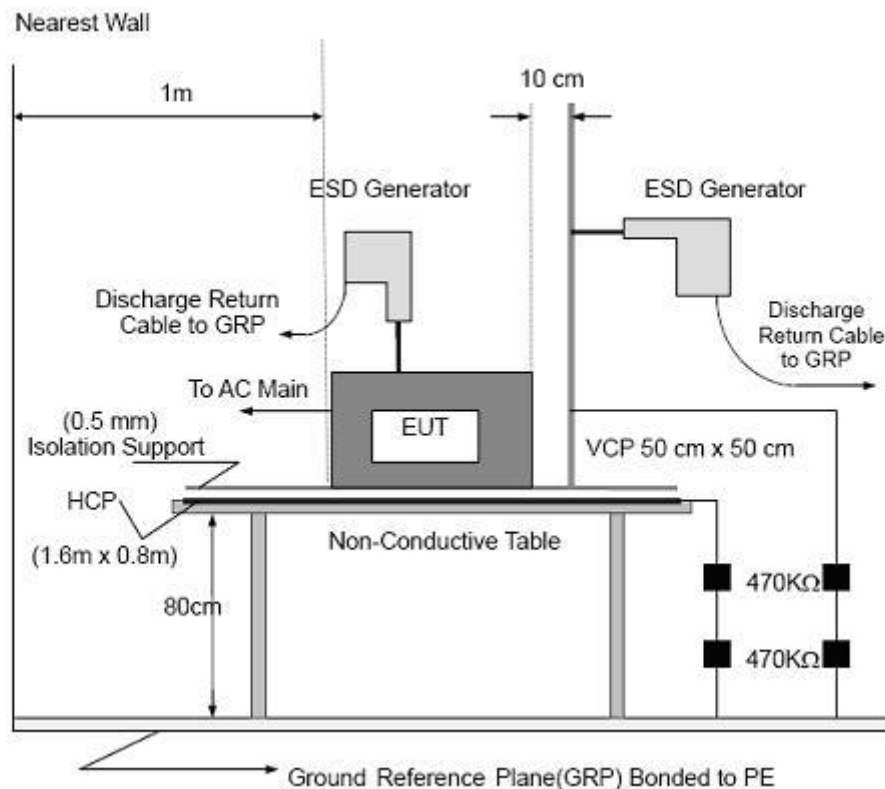
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

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 meter high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick. 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 940kΩ 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 of 0.8-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 of 0.1 meter thickness. The GRP was consisted of a sheet of aluminum that is at least 0.25mm thick, and extended at least 0.5 meter from the EUT on all sides.

**4.2.4 TEST RESULTS**

|               |                                     |                    |                                                                                                                                                                   |
|---------------|-------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature:  | 24.1℃                               | Relative Humidity: | 54%                                                                                                                                                               |
| Test Date:    | 2025.08.30                          | Test Mode:         | Mode1/2/3/4/5/6/7/8/9/10/<br>11/12/13/14/15/16/17/18/<br>19/20/21/22/23/24/25/26/<br>27/28/29/30/30/32/33/34/<br>35/36/37/38/39/40/41/42/<br>43/44/45/46/47/48/49 |
| Test Voltage: | DC 5V from Adapter                  |                    |                                                                                                                                                                   |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |                                                                                                                                                                   |

| Discharge Level | Polarity | Test Points | Contact Discharge | Air Discharge | Criterion | Test Result |
|-----------------|----------|-------------|-------------------|---------------|-----------|-------------|
| 4               | +/-      | VCP/HCP     | Note              | N/A           | B         | A           |
| 4               | +/-      | Green Dot   | Note              | N/A           | B         | A           |
| 8               | +/-      | Red Dot     | N/A               | Note          | B         | A           |

Note: The EUT function was correct during the test  
Red Dot —Air Discharged  
Green Dot —Contact Discharged

The Photo for Discharge Points of EUT









### 4.3 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

#### 4.3.1 TEST SPECIFICATION

|                       |                                    |
|-----------------------|------------------------------------|
| Basic Standard:       | IEC/EN 61000-4-3                   |
| Required Performance: | A                                  |
| Frequency Range:      | 80 MHz - 6000 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.

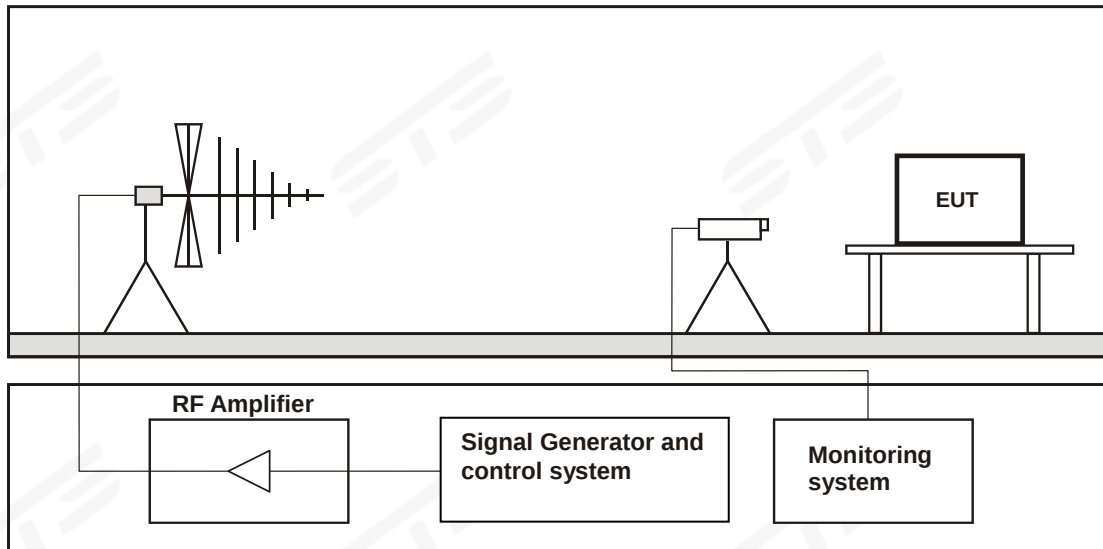
The testing distance from antenna to the EUT was 3 meter.

The other conditions required in the following manners:

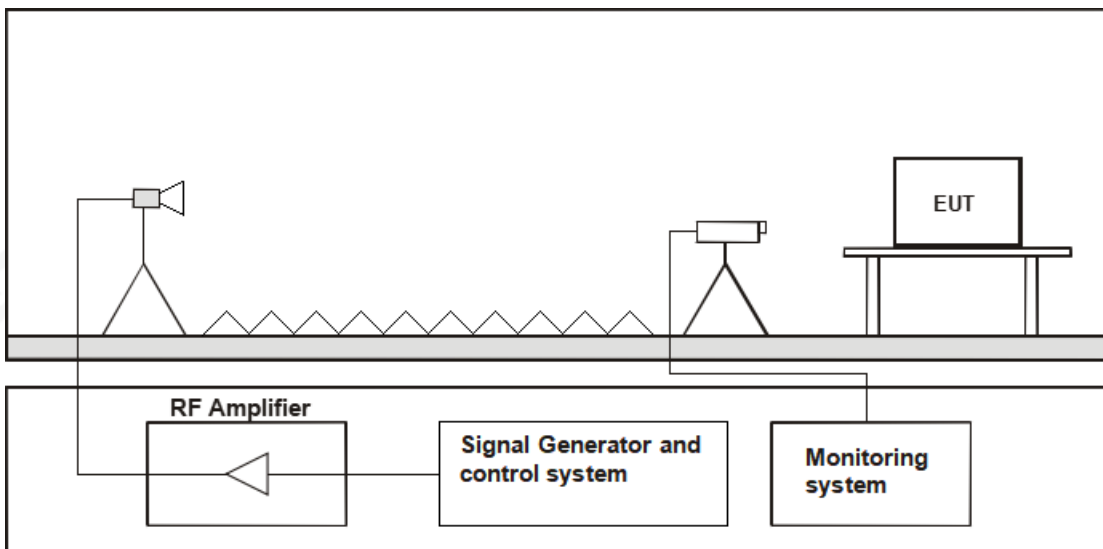
- The frequency range is swept from 80 MHz to 6000 MHz with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 3s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- 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

#### (A) RS Test Set-Up Frequency Below 1GHz



#### (B) RS Test Set-Up Frequency Above 1GHz



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:  | 24.1℃                               | Relative Humidity: | 54%                                                                                                                                                               |
| Test Date:    | 2025.08.30                          | Test Mode:         | Mode1/2/3/4/5/6/7/8/9/10/<br>11/12/13/14/15/16/17/18/<br>19/20/21/22/23/24/25/26/<br>27/28/29/30/30/32/33/34/<br>35/36/37/38/39/40/41/42/<br>43/44/45/46/47/48/49 |
| Test Voltage: | DC 5V from Adapter                  |                    |                                                                                                                                                                   |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |                                                                                                                                                                   |

| Frequency Range (MHz) | RF Field Position | R.F. Field Strength                        | Azimuth | Observation | Perform. Criteria | Results | Judgement |
|-----------------------|-------------------|--------------------------------------------|---------|-------------|-------------------|---------|-----------|
| 80 - 6000             | H / V             | 3 V/m (rms)<br>AM Modulated<br>1000Hz, 80% | Front   | CT,CR       | A                 | A       | PASS      |
|                       |                   |                                            | Rear    |             |                   |         |           |
|                       |                   |                                            | Left    |             |                   |         |           |
|                       |                   |                                            | Right   |             |                   |         |           |

Note: "A" stand for, during test, operated 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.

#### Spot frequency test:

A spot frequency test shall additionally be performed at:

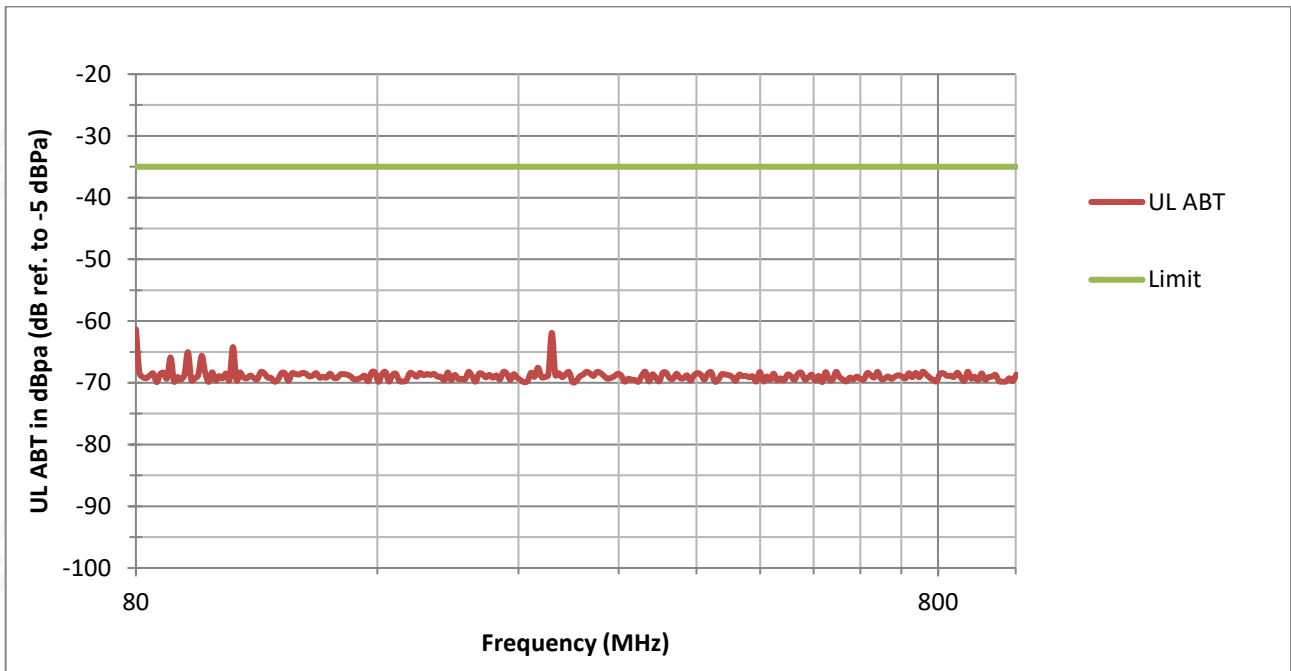
- 80 MHz;
- 104 MHz;
- 136 MHz;
- 165 MHz;
- 200 MHz;
- 260 MHz;
- 330 MHz;
- 430 MHz;
- 560 MHz;
- 715 MHz  $\pm$  1 MHz;
- a spot frequency test shall be performed at 920 MHz  $\pm$  1 MHz using a test level of 3 V/m (measured unmodulated) 100 % modulated by 200 Hz pulses of equal mark to space ratio.

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.

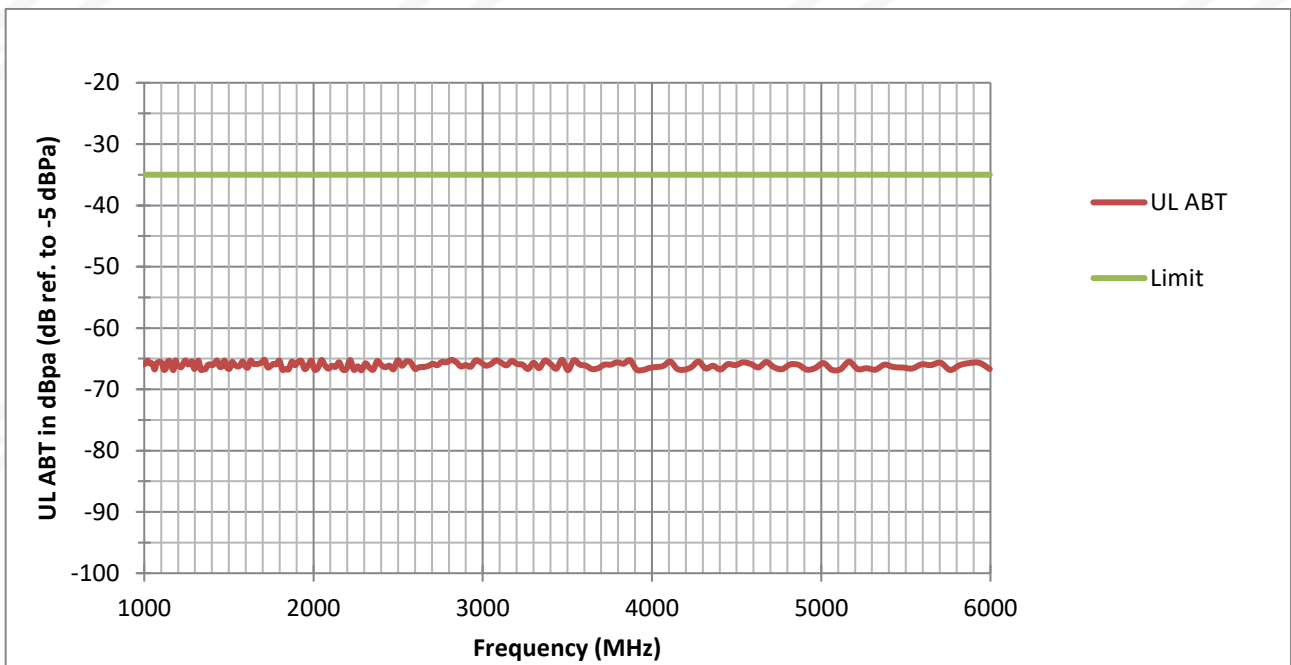


## Audio Breakthrough Measurement Result (GSM)



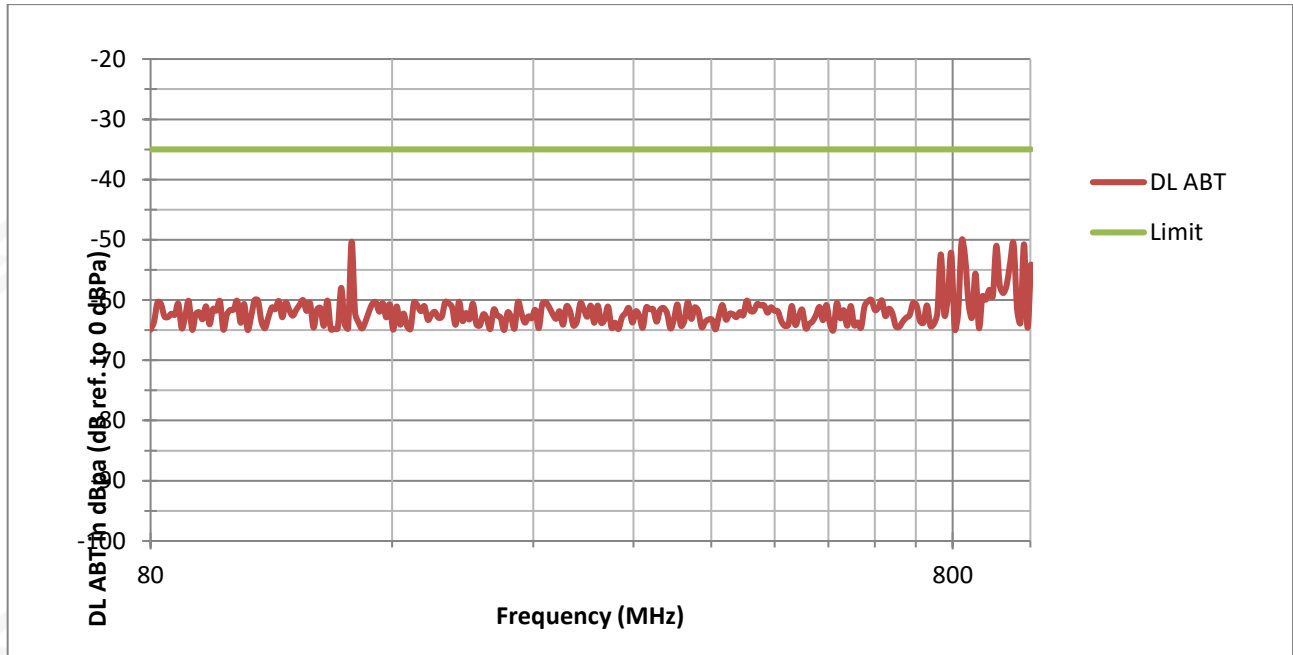
Uplink Audio Break-through Test PASS

Worst. Value is -61.33 Audio level (dB ref. to -5dBPa) at 80.00MHz (Margin 26.33 Audio level (dB ref. to -5dBPa))



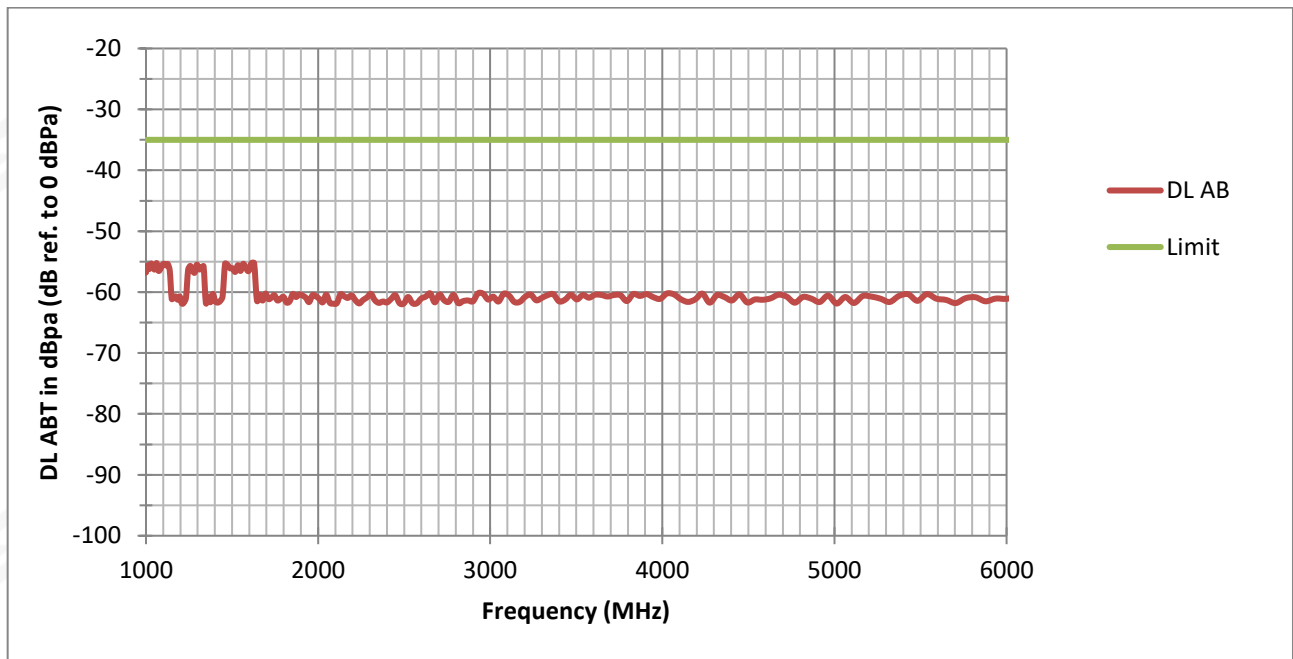
Uplink Audio Break-through Test PASS

Worst. Value is -65.22 Audio level (dB ref. to -5dBPa) at 2047.10MHz (Margin 30.22 Audio level (dB ref. to -5dBPa))



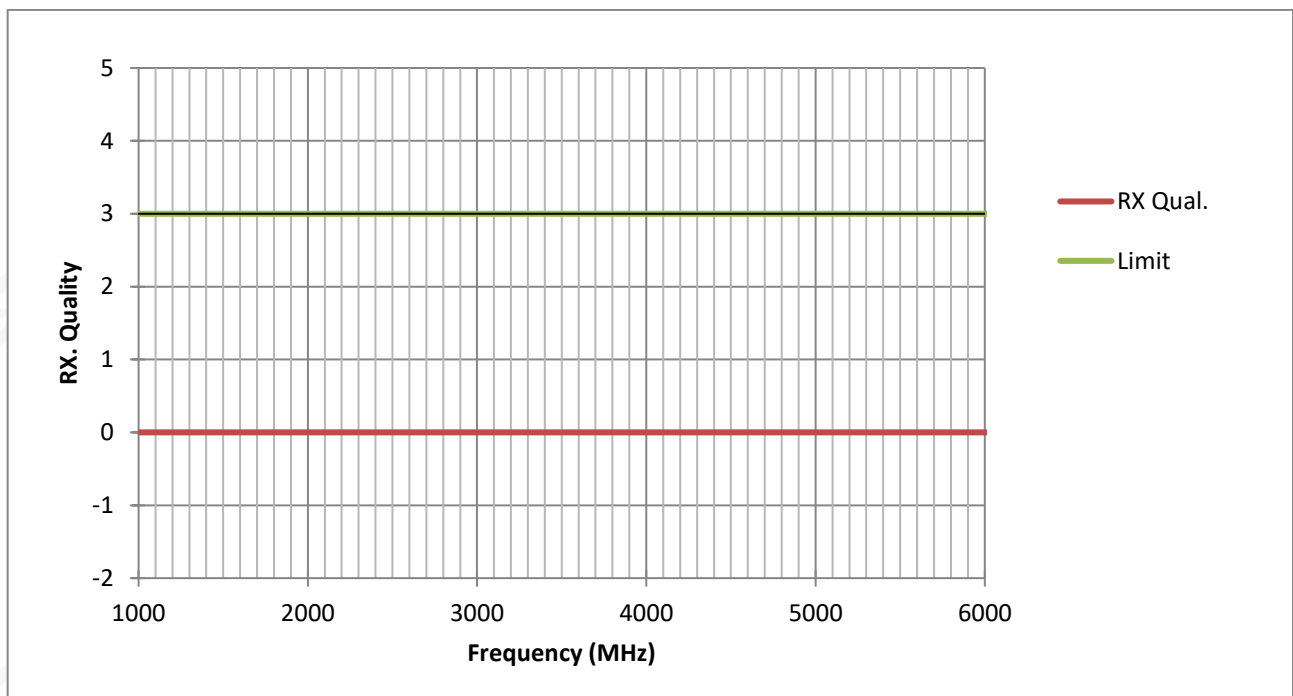
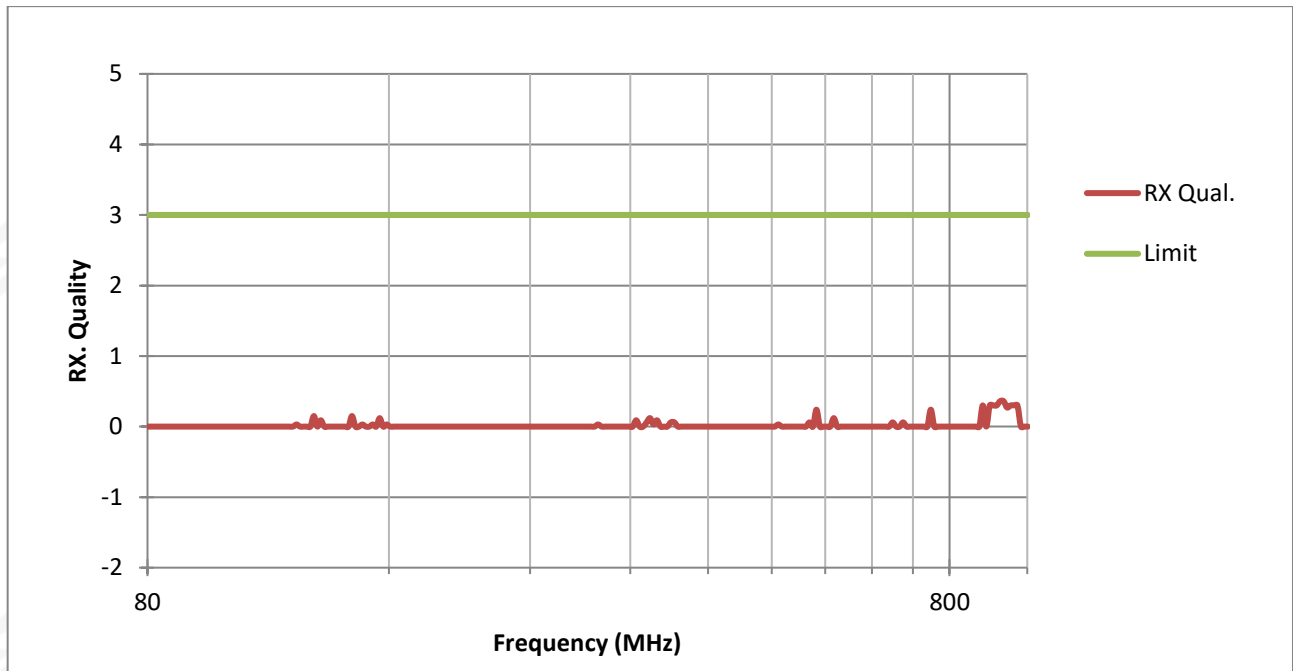
Downlink Audio Break-through Test PASS

Worst. Value is -50.22 Audio level (dB ref. to 0dBPa) at 820.90MHz (Margin 15.22 Audio level (dB ref. to 0dBPa))



Downlink Audio Break-through Test PASS

Worst. Value is -55.26 Audio level (dB ref. to 0dBPa) at 1628.35MHz (Margin 20.24 Audio level (dB ref. to 0dBPa))





## BER Measurement Result (WCDMA)

| Type            | Antenna Polar | Observation item | Test Result | Limit  | Result |
|-----------------|---------------|------------------|-------------|--------|--------|
| WCDMA Band I    | VERT/HOTRI    | BER              | 0           | <0.001 | Pass   |
| WCDMA Band VIII | VERT/HOTRI    | BER              | 0           | <0.001 | Pass   |

## Throughput Measurement Result (LTE)

| Type        | Antenna Polar | Observation item | Test Result | Limit | Result |
|-------------|---------------|------------------|-------------|-------|--------|
| LTE BAND 1  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 3  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 7  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 8  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 20 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 28 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 38 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 40 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |



#### 4.4 ELECTRICAL FAST TRANSIENT (EFT)

##### 4.4.1 TEST SPECIFICATION

|                       |                                                   |
|-----------------------|---------------------------------------------------|
| Basic Standard:       | IEC/EN 61000-4-4                                  |
| Required Performance: | B                                                 |
| Test Voltage:         | Power Line : 1 KV<br>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.                              |

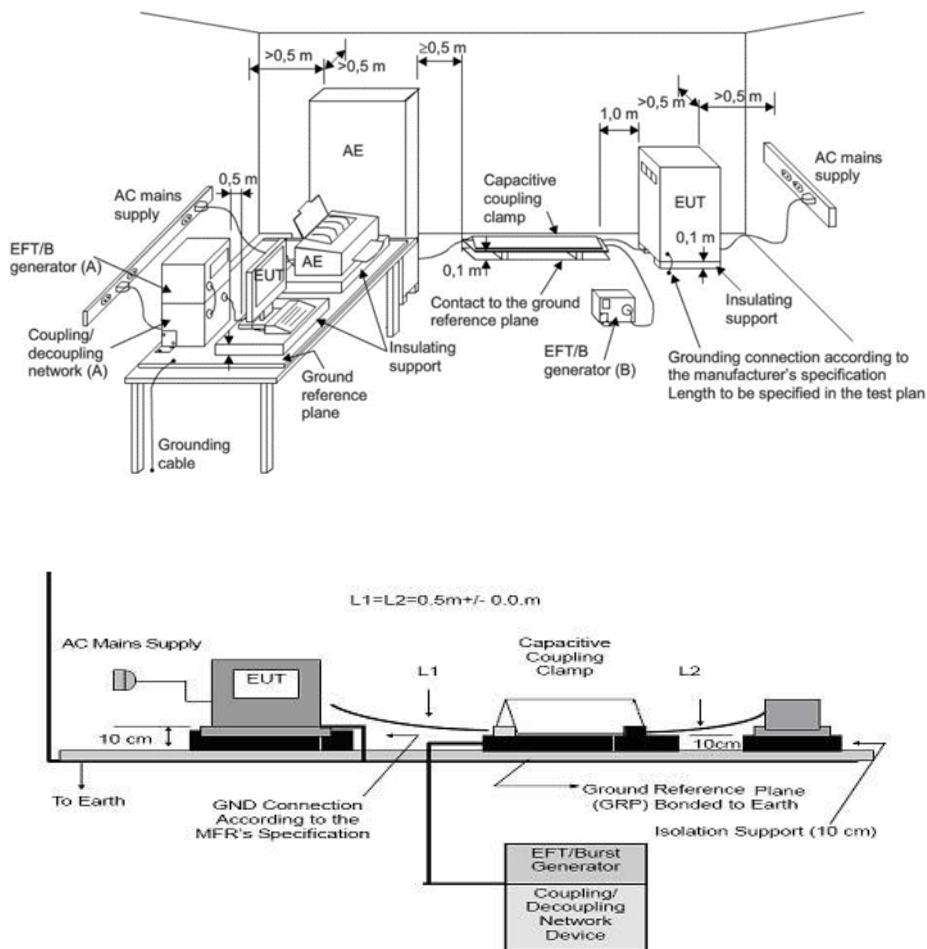
##### 4.4.2 TEST PROCEDURE

The ground reference plane shall be a metallic sheet (copper or aluminum) of 0.25 mm minimum thickness; other metallic materials may be used, but they shall have at least 0.65 mm minimum thickness.

The other conditions required in the following manners:

- The length of power cord between the coupling device and the EUT should not exceed 1 meter.
- Both positive and negative polarity discharges were applied.
- The duration time of each test sequential was 1 minute

#### 4.4.3 TEST SETUP



Note:

##### TABLE-TOP EQUIPMENT

- Table-top equipment and equipment normally mounted on ceilings or walls as well as built-in equipment shall be tested with the EUT located  $(0.1 \pm 0.01)$  m above the ground reference plane.
- Testing of large table-top equipment or multiple systems can be performed on the floor; maintaining the same distances as for the test setup of table-top equipment.
- The test generator and the coupling/decoupling network shall be bonded to the ground reference plane.
- The ground reference plane shall be a metallic sheet (copper or aluminum) of 0.25mm minimum thickness; other metallic materials may be used, but they shall have at least 0.65 mm minimum thickness.
- The minimum size of the ground reference plane is 0.8m x 1m. The actual size depends on the dimension of the EUT.
- The ground reference plane shall project beyond the EUT by at least 0.1m on all sides.
- The ground reference plane shall be connected to the earth (PE) for safety reasons.



- h. The EUT shall be arranged and connected to satisfy its functional requirements according to the equipment installation specifications.
- i. The minimum distance between the EUT and all other conductive structures (including the generator, AE and the walls of a shielded room), except the ground reference plane, shall be more than 0.5m.
- j. All cables to the EUT shall be placed on the insulation support 0.1m above the ground reference plane. Cables not subject to electrical fast transients shall be routed as far as possible from the cable under test to minimize the coupling between the cables.
- k. The EUT shall be connected to the earth system in accordance with the manufacturer's installation specifications; no additional earth connections are allowed.
- l. The connection impedance of the coupling/decoupling network earth cables to the ground reference plane and all connectors shall provide a low inductance.
- m. Either a direct coupling network or a capacitive clamp shall be used for the application of the test voltages. The test voltages shall be coupled to all of the EUT ports in turn including those between two units of equipment involved in the test, unless the length of the interconnecting cable makes it impossible to test.

#### FLOOR-STANDING EQUIPMENT

When using the coupling clamp, the minimum distance between the coupling plates and all other conductive surfaces (including the generator), except the ground reference plane beneath the coupling clamp and beneath the EUT, shall be at least 0.5m.

The distance between any coupling devices and the EUT shall be (0.5 - 0/+0.1) m for tabletop equipment testing, and (1.0  $\pm$  0.1) m for floor standing equipment, unless otherwise specified in product standards. When it is not physically possible to apply the distances mentioned above, other distances can be used and shall be recorded in the test report.

The cable between the EUT and the coupling device, if detachable, shall be as short as possible to comply with the requirements of this clause. If the manufacturer provides a cable exceeding the distance between the coupling device and the point of entry of the EUT, the excess length of this cable shall be bundled and situated at a distance of 0.1m above the ground reference plane. When a capacitive clamp is used as a coupling device, the excess cable length shall be bundled at the AE side.

Parts of the EUT with interconnecting cables of a length less than 3m, which are not tested, shall be placed on the insulating support. The parts of the EUT shall have a distance of 0.5m between them. Excess cable length shall be bundled.



#### 4.4.4 TEST RESULTS

|               |                                     |                    |                                                                                                                                                                   |
|---------------|-------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature:  | 24.1℃                               | Relative Humidity: | 54%                                                                                                                                                               |
| Test Date:    | 2025.08.30                          | Test Mode:         | Mode1/2/3/4/5/6/7/8/9/10/<br>11/12/13/14/15/16/17/18/<br>19/20/21/22/23/24/25/26/<br>27/28/29/30/30/32/33/34/<br>35/36/37/38/39/40/41/42/<br>43/44/45/46/47/48/49 |
| Test Voltage: | DC 5V from Adapter                  |                    |                                                                                                                                                                   |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |                                                                                                                                                                   |

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



## 4.5 SURGE TESTING

### 4.5.1 TEST SPECIFICATION

|                        |                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------|
| Basic Standard:        | IEC/EN 61000-4-5                                                                        |
| Required Performance:  | B                                                                                       |
| Wave-Shape:            | Combination Wave<br>1.2/50 $\mu$ s Open Circuit Voltage                                 |
| Test Voltage:          | Power line ~ line to line: 1 KV<br>line to ground: 2 KV<br>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:

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

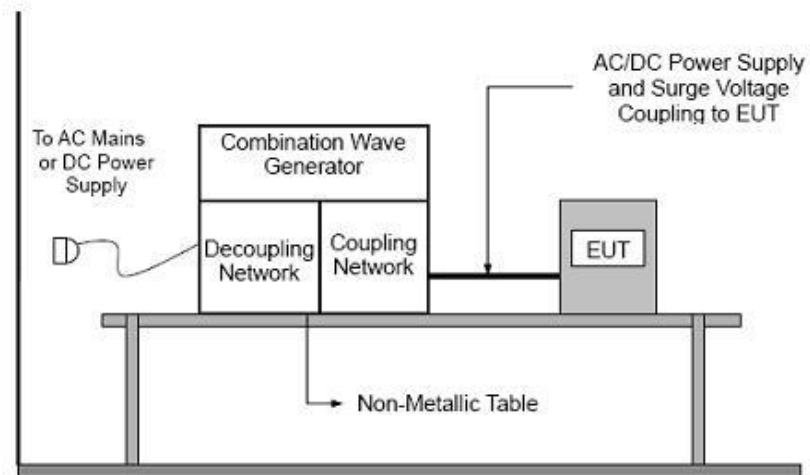
b. equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

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

The surge is applied to the lines via the capacitive coupling. The coupling /decoupling

d. 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:  | 24.1℃                               | Relative Humidity: | 54%                                                                                                                                                               |
| Test Date:    | 2025.08.30                          | Test Mode:         | Mode1/2/3/4/5/6/7/8/9/10/<br>11/12/13/14/15/16/17/18/<br>19/20/21/22/23/24/25/26/<br>27/28/29/30/30/32/33/34/<br>35/36/37/38/39/40/41/42/<br>43/44/45/46/47/48/49 |
| Test Voltage: | DC 5V from Adapter                  |                    |                                                                                                                                                                   |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |                                                                                                                                                                   |

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

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



## 4.6 CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

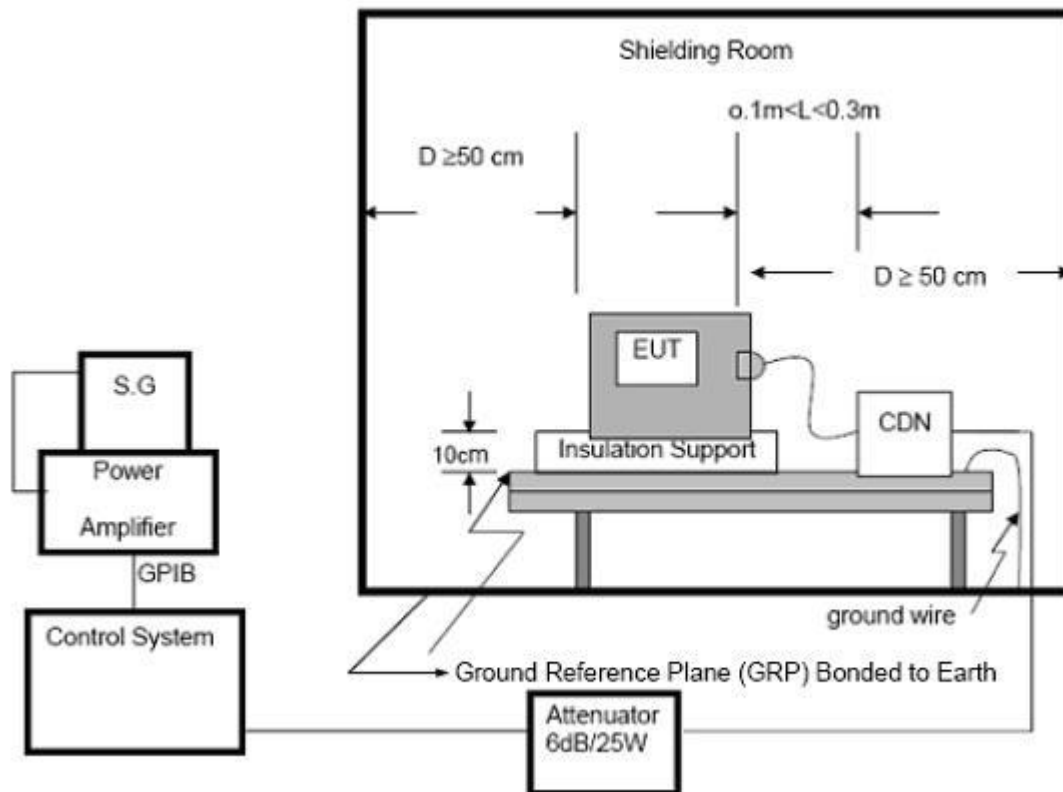
### 4.6.1 TEST SPECIFICATION

|                       |                                    |
|-----------------------|------------------------------------|
| Basic Standard:       | IEC/EN 61000-4-6                   |
| Required Performance: | A                                  |
| Frequency Range:      | 0.15 MHz - 80 MHz                  |
| Field Strength:       | 3Vr.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 shall be tested within its intended operating and climatic conditions.
- An artificial hand was placed on the hand-held accessory and connected to the ground reference plane.
- One of the CDNs not used for injection was terminated with 50Ω, providing only one return path. All other CDNs were coupled as decoupling networks.
- The frequency range is swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. Where the frequency is swept incrementally, the step size shall not exceed 1% of the preceding frequency value.
- The dwell time of the amplitude modulated carrier at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0.5 s. The sensitive frequencies (e.g. clock frequencies) shall be analyzed separately.
- Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

### 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**

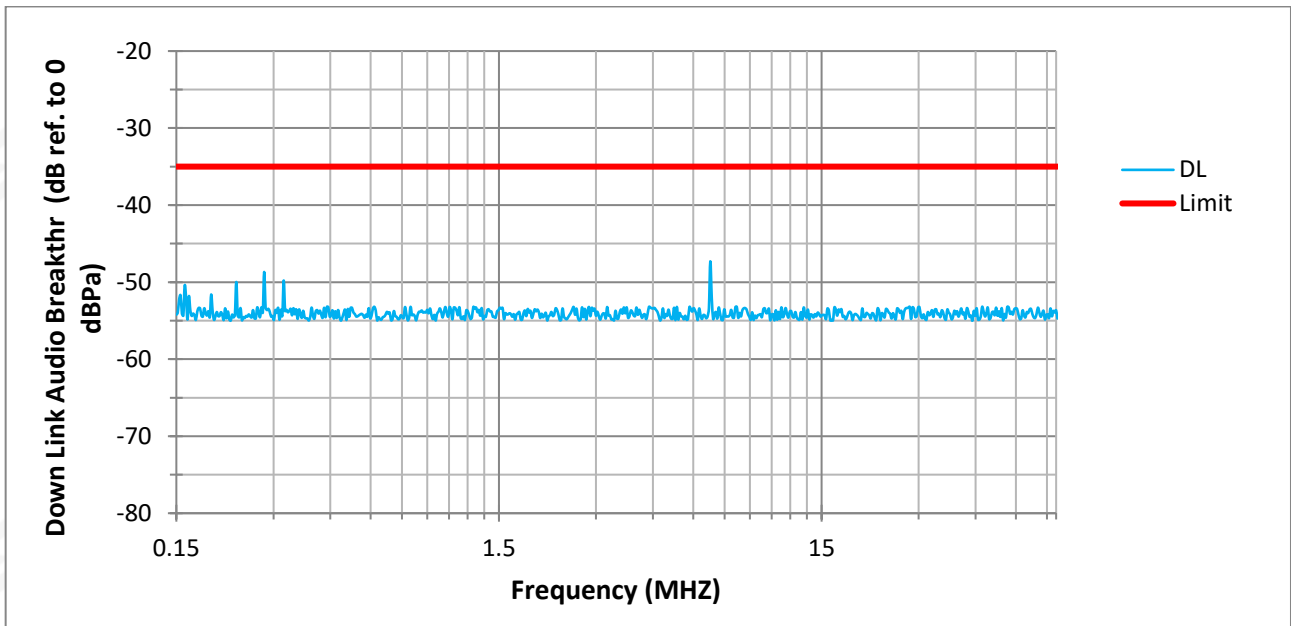
|               |                                     |                    |                                                                                                                                                                   |
|---------------|-------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature:  | 24.1℃                               | Relative Humidity: | 54%                                                                                                                                                               |
| Test Date:    | 2025.08.30                          | Test Mode:         | Mode1/2/3/4/5/6/7/8/9/10/<br>11/12/13/14/15/16/17/18/<br>19/20/21/22/23/24/25/26/<br>27/28/29/30/30/32/33/34/<br>35/36/37/38/39/40/41/42/<br>43/44/45/46/47/48/49 |
| Test Voltage: | DC 5V from Adapter                  |                    |                                                                                                                                                                   |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |                                                                                                                                                                   |

| Test Ports<br>(Mode)            | Freq. Range<br>MHz) | Field Strength                                    | Observation | Perform.<br>Criteria | Results | Judgement |
|---------------------------------|---------------------|---------------------------------------------------|-------------|----------------------|---------|-----------|
| Input/ Output<br>AC. Power Port | 0.15 --- 80         | 3V(rms)<br><br>AM<br>Modulated<br><br>1000Hz, 80% | CT, CR      | A                    | A       | PASS      |
| Input/ Output<br>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, operated 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.

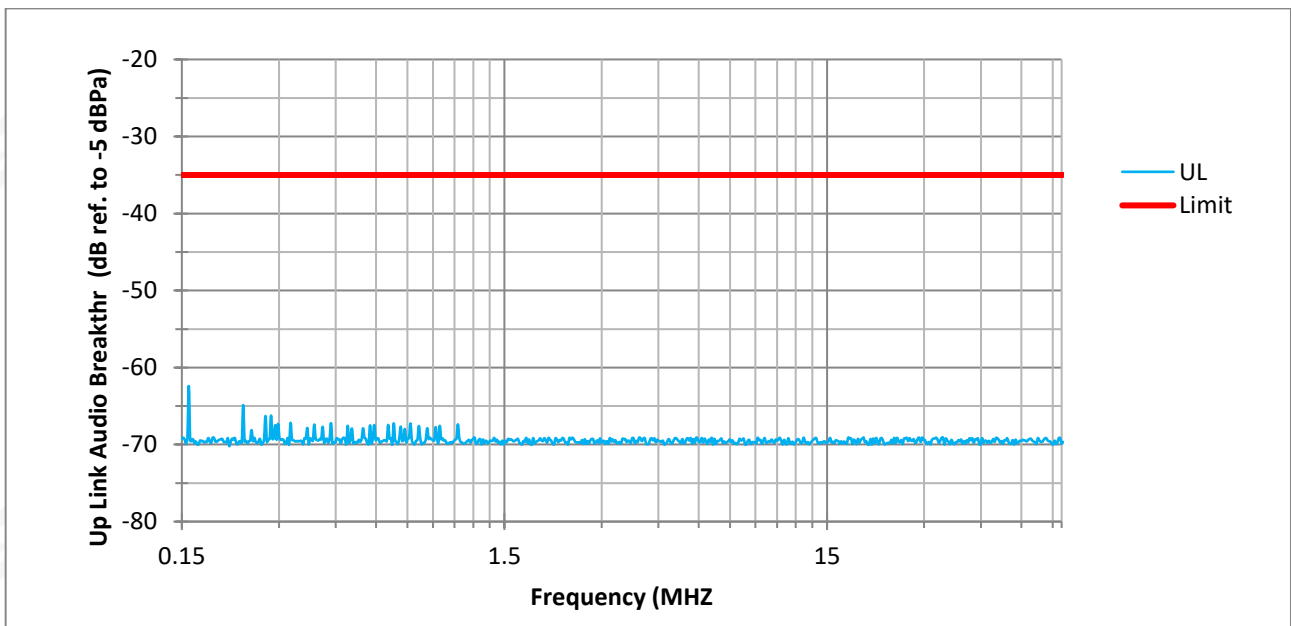


## Audio Breakthrough Measurement Result (GSM)



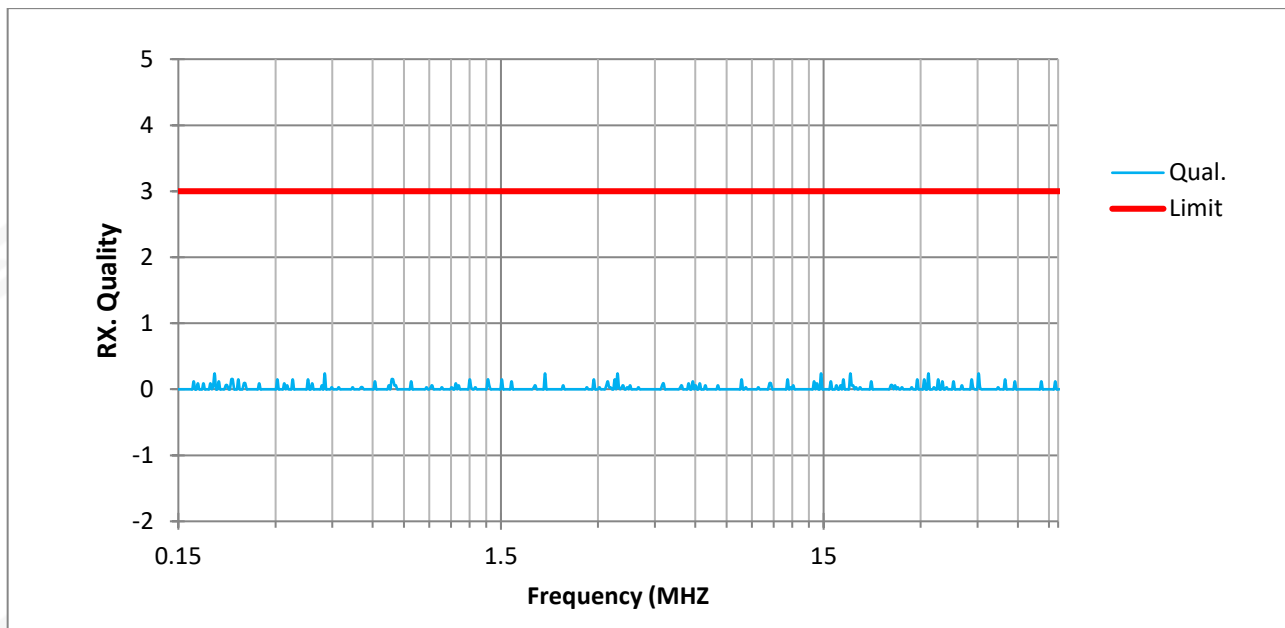
Downlink Audio Break-through Test PASS

Worst. Value is -47.3 Audio level (dB ref. to 0dBPa) at 6.78MHz (Margin 12.3 Audio level (dB ref. to 0dBPa))



Uplink Audio Break-through Test PASS

Worst. Value is -62.4 Audio level (dB ref. to -5dBPa) at 0.16MHz (Margin 27.4 Audio level (dB ref. to -5dBPa))



BER Measurement Result (WCDMA)

| Type            | Antenna Polar | Observation item | Test Result | Limit  | Result |
|-----------------|---------------|------------------|-------------|--------|--------|
| WCDMA Band I    | VERT/HOTRI    | BER              | 0           | <0.001 | Pass   |
| WCDMA Band VIII | VERT/HOTRI    | BER              | 0           | <0.001 | Pass   |

Throughput Measurement Result (LTE)

| Type        | Antenna Polar | Observation item | Test Result | Limit | Result |
|-------------|---------------|------------------|-------------|-------|--------|
| LTE BAND 1  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 3  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 7  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 8  | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 20 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 28 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 38 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |
| LTE BAND 40 | VERT/HOTRI    | Throughput       | 100         | >95   | Pass   |

## 4.7 VOLTAGE INTERRUPTION/DIPS TESTING (DIPS)

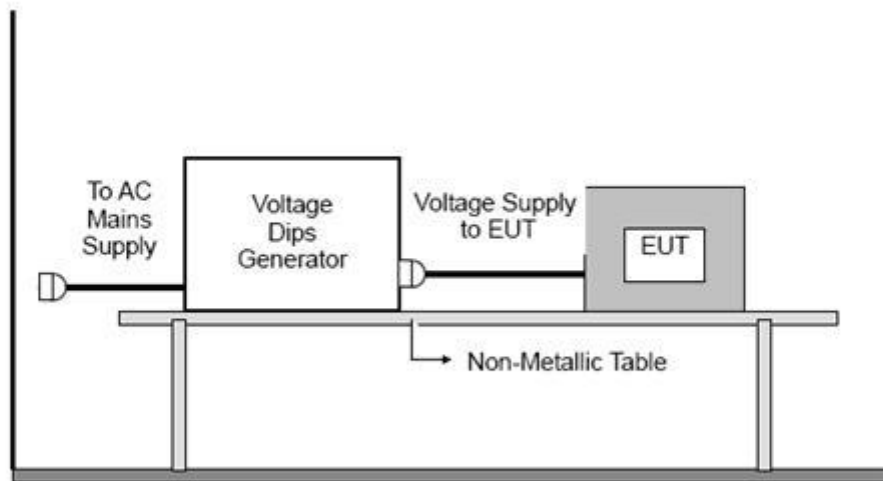
### 4.7.1 TEST SPECIFICATION

|                         |                                                                                                                                                                       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Standard:         | IEC/EN 61000-4-11                                                                                                                                                     |
| Required Performance:   | B (For 100% Voltage Dips, 0.5 Cycles)<br>B (For 100% Voltage Dips, 1 Cycles)<br>C (For 30% Voltage Dips, 25 Cycles)<br>C (For 100% Voltage Interruptions, 250 Cycles) |
| Test Duration Time:     | Minimum 3 test events in sequence                                                                                                                                     |
| Interval between Event: | Minimum 10 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



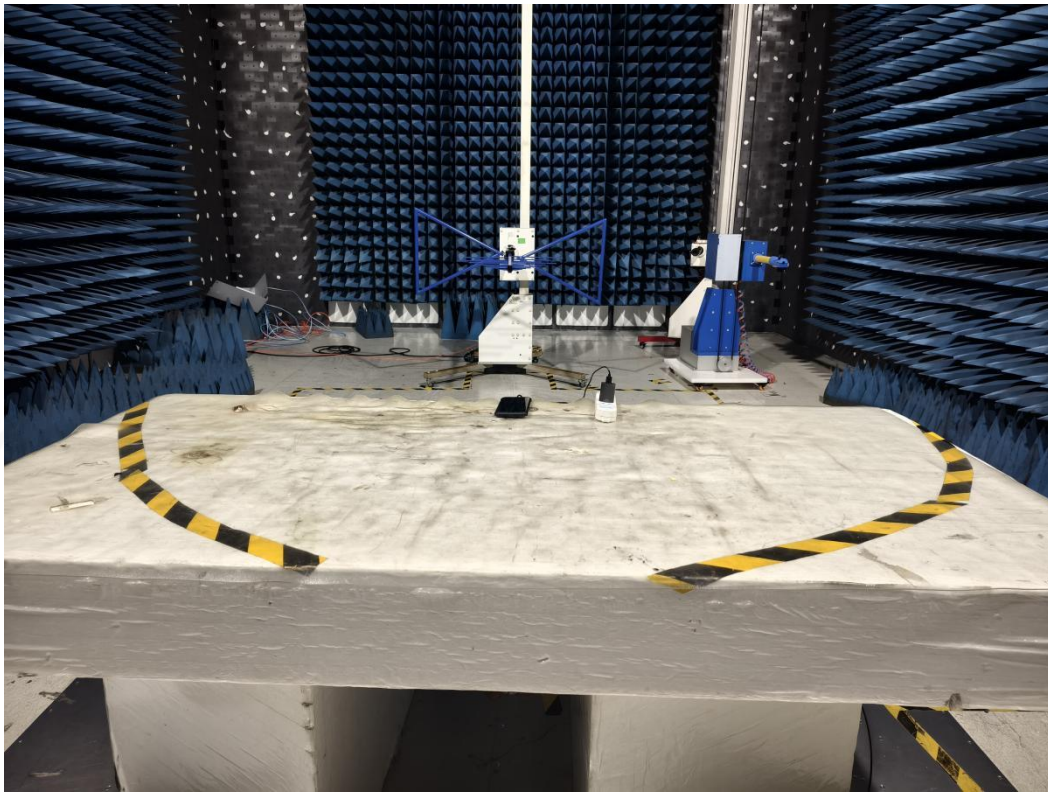
**4.7.4 TEST RESULTS**

|               |                                     |                    |                                                                                                                                                                   |
|---------------|-------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature:  | 24.1℃                               | Relative Humidity: | 54%                                                                                                                                                               |
| Test Date:    | 2025.08.30                          | Test Mode:         | Mode1/2/3/4/5/6/7/8/9/10/<br>11/12/13/14/15/16/17/18/<br>19/20/21/22/23/24/25/26/<br>27/28/29/30/30/32/33/34/<br>35/36/37/38/39/40/41/42/<br>43/44/45/46/47/48/49 |
| Test Voltage: | DC 5V from Adapter                  |                    |                                                                                                                                                                   |
| Description:  | Adapter Input voltage: AC 230V/50Hz |                    |                                                                                                                                                                   |

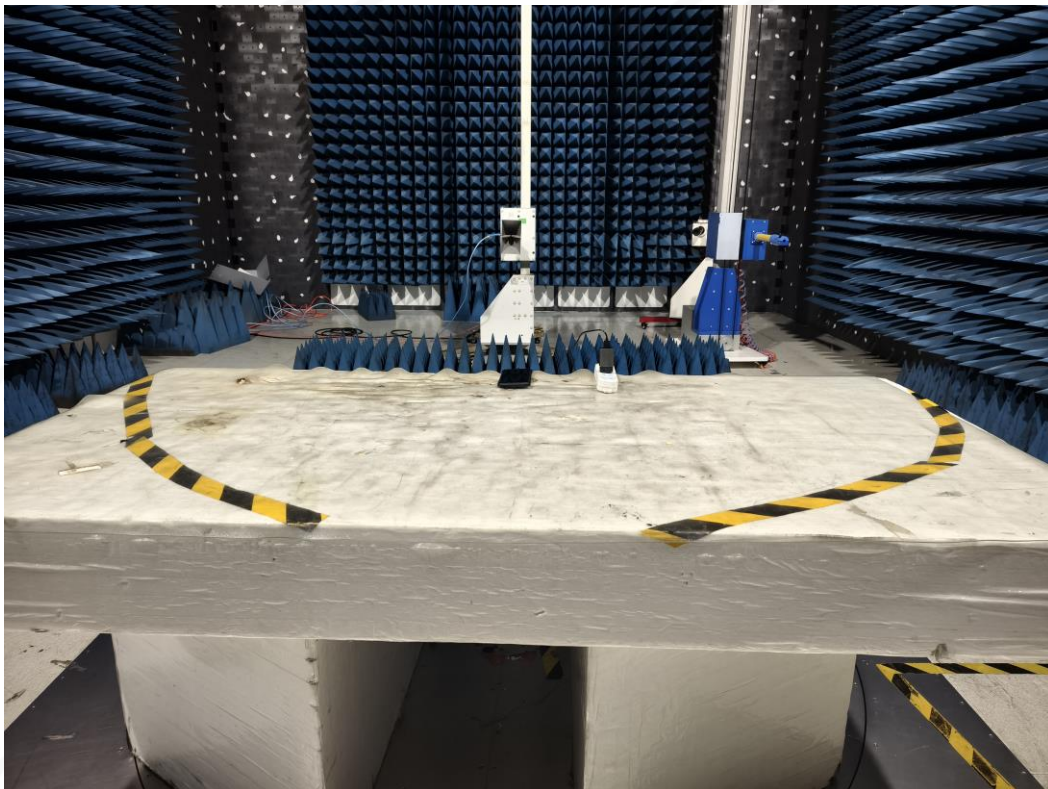
| Interruption & Dips        | Duration (T) | Observation | Perform Criteria | Results | Judgement |
|----------------------------|--------------|-------------|------------------|---------|-----------|
| Voltage dip 100%           | 0.5          | TT, TR      | B                | A       | PASS      |
| Voltage dip 100%           | 1            | TT, TR      | B                | A       | PASS      |
| Voltage dip 30%            | 25           | TT, TR      | C                | A       | PASS      |
| Voltage interruptions 100% | 250          | TT, TR      | C                | B       | PASS      |

**APPENDIX 1-PHOTO TEST OF EUT**

RE (30 - 1000 MHz )



RE (1000 - 6000 MHz )



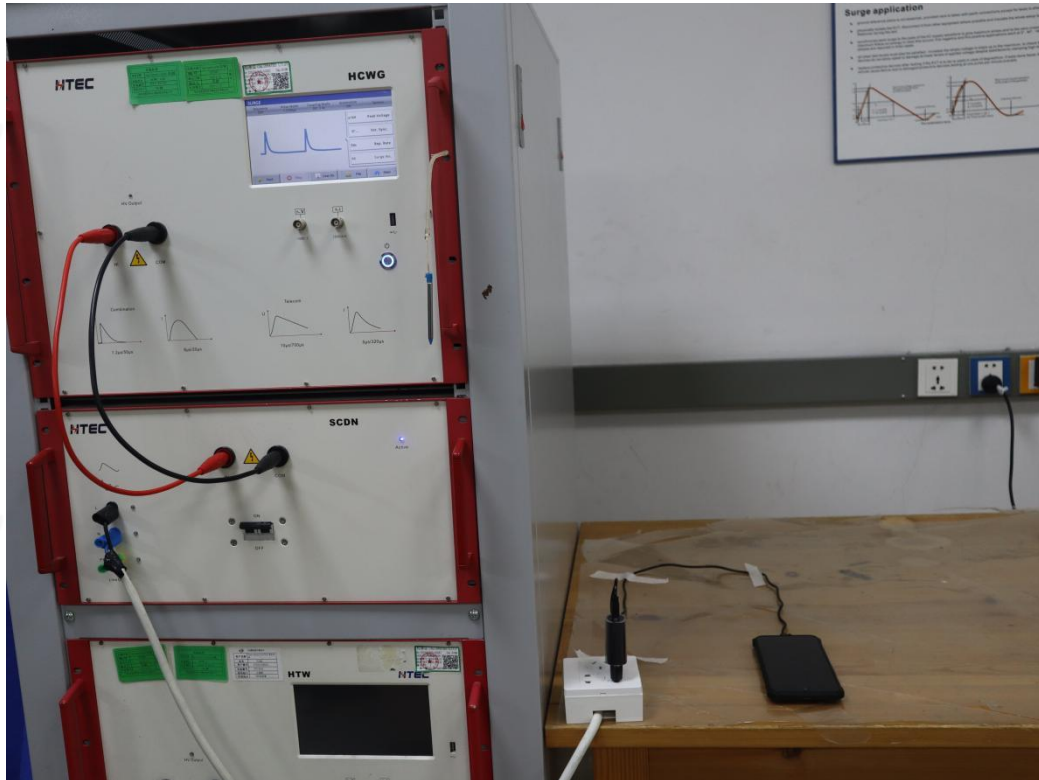
CE



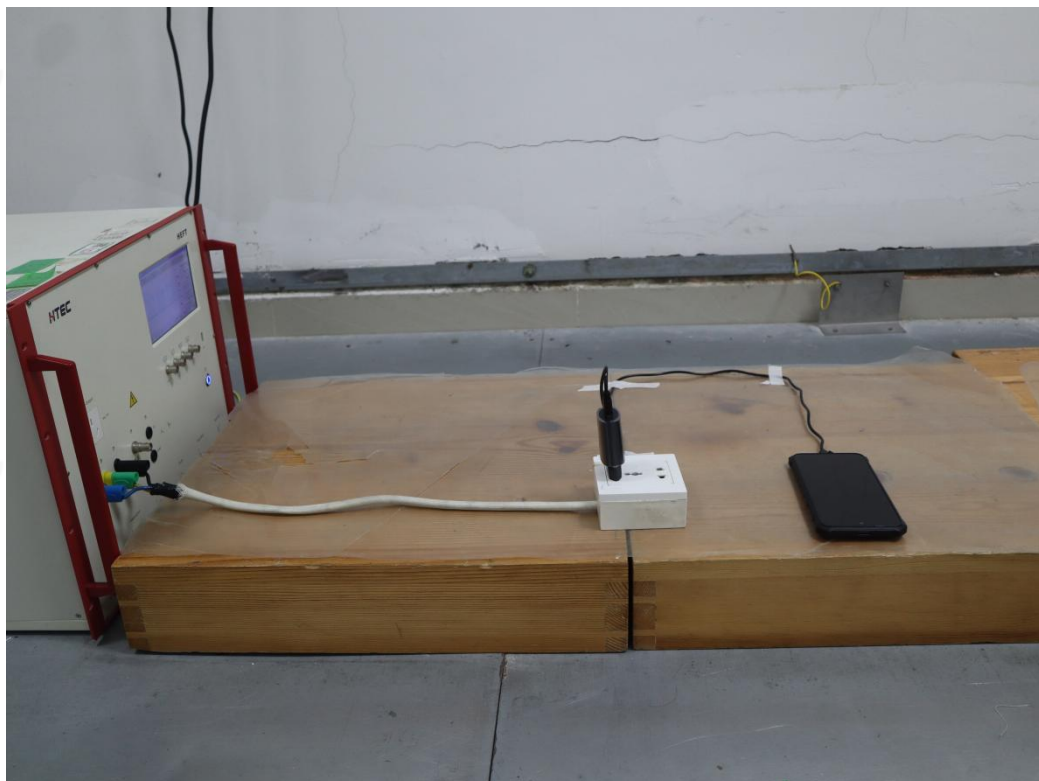
FLICKER



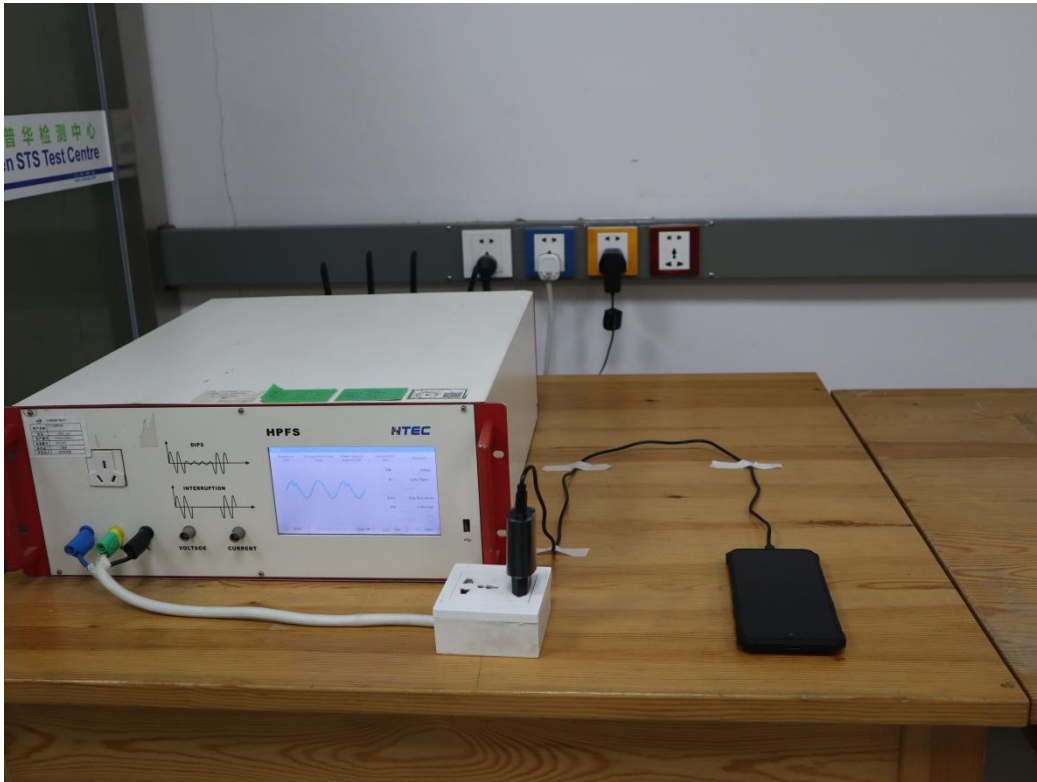
## SURGE



## EFT



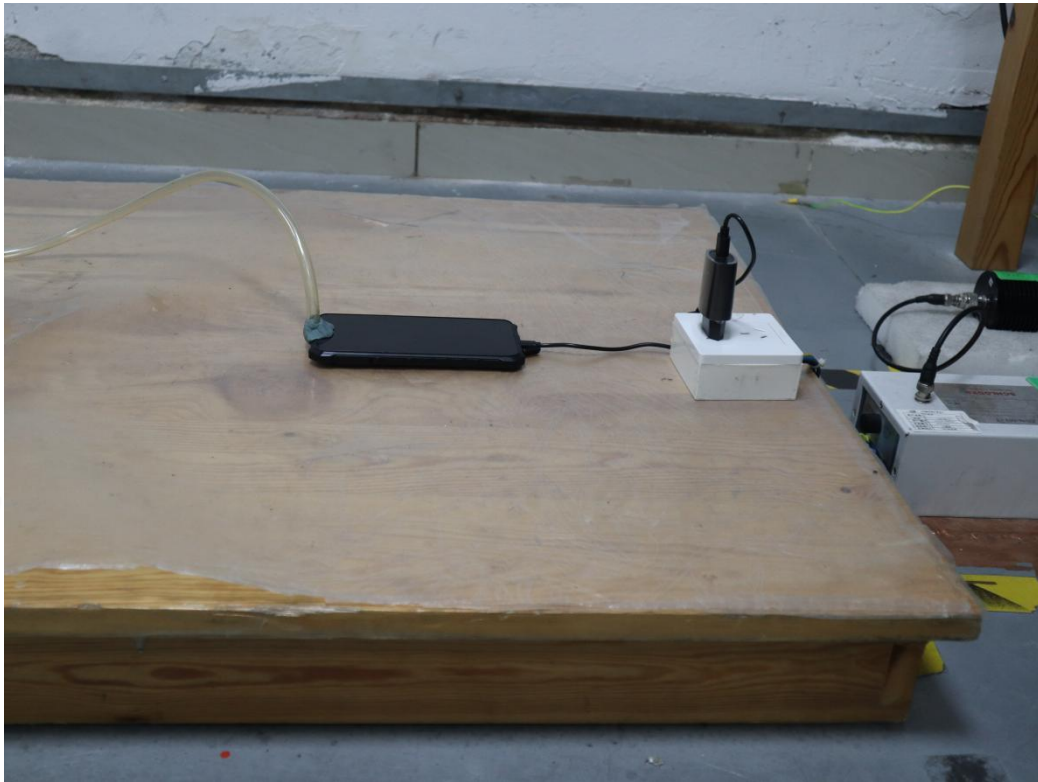
## DIPS



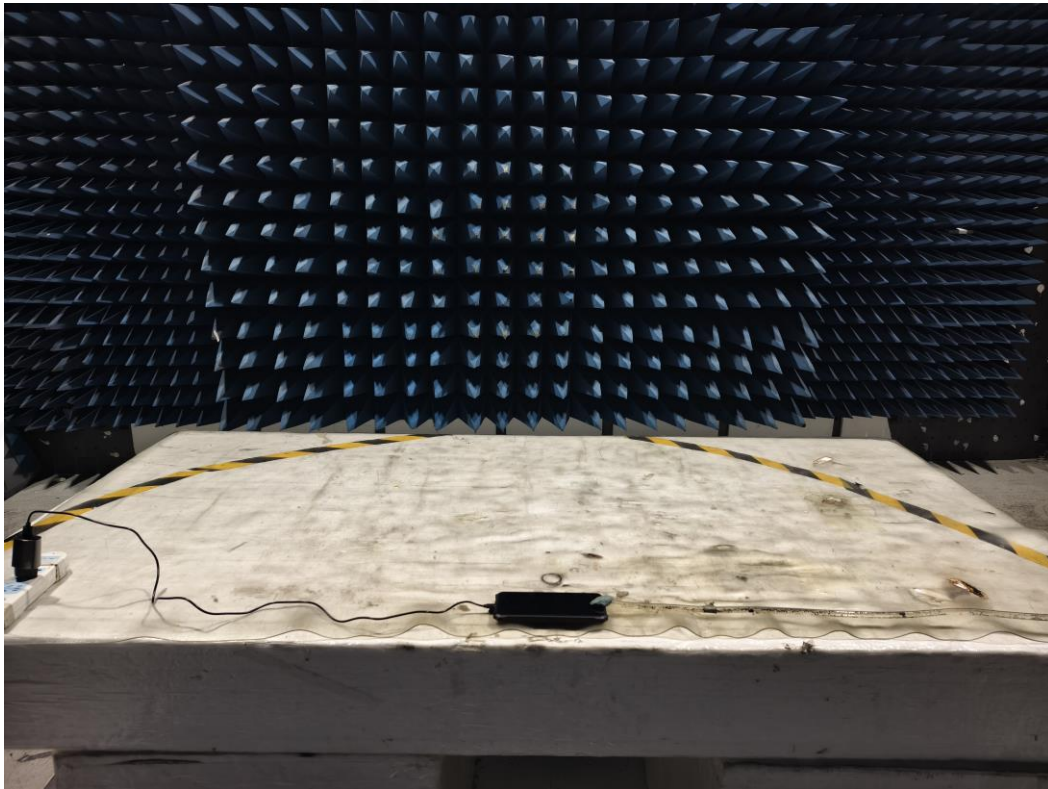
## ESD



CS



RS (80 - 1000 MHz)



※※※※※END OF THE REPORT※※※※※