

EMC Test Report

Report No.: AGC00552190303EE01

PRODUCT DESIGNATION : Smart Phone
BRAND NAME : CUBOT
MODEL NAME : J7
APPLICANT : Shenzhen Huafurui Technology Co., Ltd.
DATE OF ISSUE : Apr. 22, 2019
STANDARD(S) : EN 301 489-1 V2.2.0: 2017-03(draft)
: EN 301 489-17 V3.2.0: 2017-03(draft)
: EN 301 489-19 V2.1.0: 2017-03(draft)
: EN 301 489-52 V1.1.0: 2016-11(draft)
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|----------------|-------------|---------------|---------------|-----------------|
| V1.0 | / | Apr. 22, 2019 | Valid | Initial release |

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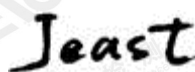
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1. TEST REPORT CERTIFICATION

| | |
|----------------------------|--|
| Applicant | Shenzhen Huafului Technology Co., Ltd. |
| Address | Unit 1401 &1402, 14/F, Jin qi zhi gu mansion (No. 4 building of Chong wen Garden), Crossing of the Liu xian street and Tang ling road, Tao yuan street, Nan shan district, Shenzhen,P.R. China |
| Manufacturer | Shenzhen Huafului Technology Co., Ltd. |
| Address | Unit 1401 &1402, 14/F, Jin qi zhi gu mansion (No. 4 building of Chong wen Garden), Crossing of the Liu xian street and Tang ling road, Tao yuan street, Nan shan district, Shenzhen,P.R. China |
| Factory Name | Shenzhen Huafului Technology Co., Ltd. |
| Address | Unit 1401 &1402, 14/F, Jin qi zhi gu mansion (No. 4 building of Chong wen Garden), Crossing of the Liu xian street and Tang ling road, Tao yuan street, Nan shan district, Shenzhen,P.R. China |
| Product Designation | Smart Phone |
| Brand Name | CUBOT |
| Test Model | J7 |
| Date of test | Apr. 01, 2019~Apr. 22, 2019 |
| Deviation | None |
| Test Result | Pass |
| Report Template | AGCRT-EC-3G2/EMC |

We, Attestation of Global Compliance (Shenzhen) Co., Ltd., hereby certify that the submitted samples of the above item, as detailed in chapter 2.1 of this report, has been tested in our facility. The test record, data evaluation and test configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified. The test results of this report relate only to the tested sample identified in this report.

Tested By



Jeast Zhan(Zhan jiangdong)

Apr. 22, 2019

Reviewed By



Max Zhang(Zhang Yi)

Apr. 22, 2019

Approved By



 Forrest Lei(Lei Yonggang)
 Authorized Officer

Apr. 22, 2019

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2. GENERAL INFORMATION

2.1. DESCRIPTION OF EUT

Details of technical specification refer to the description in follows:

| EUT 1-Smart Phone | |
|-----------------------|---|
| Brand Name | CUBOT |
| Test Model | J7 |
| Hardware Version | E553_MAIN_PCB_V1.1 |
| Software Version | E553_CQ_9055_80_PO_V01_S20190308 |
| GPRS Class | Class 12 |
| Radio parts supported | <input checked="" type="checkbox"/> GSM <input checked="" type="checkbox"/> UMTS <input type="checkbox"/> LTE <input checked="" type="checkbox"/> GPS <input checked="" type="checkbox"/> BLUETOOTH <input checked="" type="checkbox"/> WIFI <input type="checkbox"/> NFC <input type="checkbox"/> EGPRS |
| EUT 2-AC/DC Adapter | |
| Brand Name | CUBOT |
| Test Model | TPA-97050100VU |
| Manufacturer Name | SHENZHEN TIANYIN ELECTRONICS CO.,LTD. |
| Manufacturer Address | 2-6 FL, Bldg 9, SanZhuli Industrial Park, Shuitian Community Shiyan Subdistrict, Bao'an District Shenzhen, Guangdong , China |
| Rated Input | AC100-240V, 50/60Hz 0.15A |
| Rated Output | DC5.0V,1000mA |
| EUT 3-Li-ion Battery | |
| Brand Name | CUBOT |
| Test Model | C6 |
| Manufacturer Name | Zhongshan Tianmao Battery Co., Ltd. |
| Manufacturer Address | No. 208, Qianjin 1st Road, Xinqianjin Village, Tanzhou Town, Zhongshan City |
| Capacitance | 2800mAh |
| Rated Voltage | DC3.8V |
| Charging Voltage | DC4.35V |

Note:

1. The EUT consists of **hand telephone set, li-ion battery, USB cable, charger and earphone.**
2. The Phone has dual-SIM card slots, but only one of the card can be transmitting when the two cards are inserting the phone together. Anyone of the SIM Card socket was tested.
3. Please refer to Appendix A for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

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2.2. OBJECTIVE

Perform Electro Magnetic Interference (EMI) and Electro Magnetic Susceptibility (EMS) tests for CE Marking.

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2.3. TEST STANDARDS AND RESULTS

The EUT has been tested according to ETSI EN 301 489-1 V2.2.0: 2017-03; ETSI EN 301 489-19 V2.1.0: 2017-03; ETSI EN 301 489-17 V3.2.0: 2017-03; ETSI EN 301 489 -52 V1.1.0 :2016-11.

| | |
|---------------------------|---|
| ETSI EN 301 489-1 | ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU |
| ETSI EN 301 489-17 | ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU |
| ETSI EN 301 489-19 | ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band (ROGNSS) providing positioning, navigation, and timing data; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU |
| ETSI EN 301 489-52 | ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment; Harmonised Standard covering the essential requirements of article 3.1b of Directive 2014/53/EU |

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2.4. TEST ITEMS AND THE RESULTS

| No. | Basic Standard | Test Type | Result |
|-------------------------------------|----------------|---|--------|
| EMISSION (EN 301 489-1 §7.1) | | | |
| 1 | EN 55032 | Radiated emission | PASS |
| 2 | EN 55032 | Conducted emission, DC ports | N/A |
| 3 | EN 55032 | Conducted emission, AC ports | PASS |
| 4 | EN 55032 | Conducted emission, Telecom ports | N/A |
| 5 | EN 61000-3-2 | Harmonic current emissions | N/A |
| 6 | EN 61000-3-3 | Voltage fluctuations & flicker | PASS |
| IMMUNITY (EN 301 489-1 §7.2) | | | |
| 7 | EN 61000-4-2 | Electrostatic discharge immunity | PASS |
| 8 | EN 61000-4-3 | Radiated RF electromagnetic field immunity | PASS |
| 9 | EN 61000-4-4 | Electrical fast transient/burst immunity | PASS |
| 10 | ISO 7637-1, -2 | Transients and surges, DC ports | N/A |
| 11 | EN 61000-4-5 | Surge immunity, AC ports, Telecom ports | PASS |
| 12 | EN 61000-4-6 | Immunity to conducted disturbances induced by RF fields | PASS |
| 13 | EN 61000-4-11 | Voltage dips and short interruptions immunity | PASS |

Note:

1. N/A- Not Applicable.
2. The latest versions of basic standards are applied.

2.5. ENVIRONMENTAL CONDITIONS

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

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

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3. TEST MODE DESCRIPTION

| | |
|----------------------------------|--|
| MODE 1 OPERATING MODE | Specification A: GSM 900 Specification: MS + Battery + Charger + Earphone Specification B: DCS 1800 Specification: MS + Battery + Charger + Earphone Specification D: UMTS 2100 Specification: MS + Battery + Charger + Earphone Specification E: UMTS 900 Specification: MS + Battery + Charger + Earphone Specification F: GPRS 900 Specification: MS + Battery + Charger + Earphone Specification G: GPRS 1800 Specification: MS + Battery + Charger + Earphone Specification H: HSPA 2100 Specification: MS + Battery + Charger + Earphone Specification I: HSPA 900 Specification: MS + Battery + Charger + Earphone |
| MODE 2 IDLE MODE | Specification: MS + Battery + Charger + Earphone |
| MODE 3 BLUETOOTH MODE | Specification: MS + Battery + Charger + Earphone |
| MODE 4 WIFI MODE | Specification: MS + Battery + Charger + Earphone |
| MODE 5 GPS MODE | Specification: MS + Battery + Charger + Earphone |
| MODE 6 OPERATING MODE | Specification A: GSM 900 Specification: MS + Battery + Earphone Specification B: DCS 1800 Specification: MS + Battery + Earphone Specification D: UMTS 2100 Specification: MS + Battery + Earphone Specification E: UMTS 900 Specification: MS + Battery + Earphone Specification F: GPRS 900 Specification: MS + Battery + Earphone Specification G: GPRS 1800 Specification: MS + Battery + Earphone Specification H: HSPA 2100 Specification: MS + Battery + Earphone Specification I: HSPA 900 Specification: MS + Battery + Earphone |
| MODE 7 | Specification: MS + Battery + Earphone |

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| | |
|---|--|
| IDLE MODE | |
| MODE 8 BLUETOOTH MODE | Specification: MS + Battery + Earphone |
| MODE 9 WIFI MODE | Specification: MS + Battery + Earphone |
| MODE 10 GPS MODE | Specification: MS + Battery + Earphone |
| Note: EMI and EMS contain the above test modes. All the modes had been tested but only the worst data recorded in the report. | |

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4. MEASUREMENT UNCERTAINTY

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

- Uncertainty of Conducted Emission, $U_c = \pm 3.2\text{dB}$
- Uncertainty of Radiated Emission below 1GHz, $U_c = \pm 3.9\text{dB}$
- Uncertainty of Radiated Emission above 1GHz, $U_c = \pm 4.8\text{dB}$

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5. IDENTIFICATION OF THE RESPONSIBLE TESTING LOCATION

| | |
|------------------|---|
| Test Site | Attestation of Global Compliance (Shenzhen) Co., Ltd |
| Location | 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen, Guangdong, China |

LIST OF EQUIPMENTS USED OF AGC

| Description | Manufacturer | Model No. | S/N | Calibration Date | Calibration Due. |
|---|--------------|-------------|------------|------------------|------------------|
| Universal Radio Communication Tester | R&S | CMU200 | 120237 | Feb. 27, 2019 | Feb. 26, 2020 |
| Wireless Communication Test Set | AGILENT | 8960 | GB42361316 | Feb. 27, 2019 | Feb. 26, 2020 |
| Wireless communication test | R&S | CMW500 | 120909 | July 13,2018 | July 12, 2019 |
| Signal Analyzer | Agilent | N9010A | MY52090123 | Dec. 20, 2018 | Dec. 19, 2019 |
| EMI Test Receiver | R&S | ESHS-30 | 828765 | July 12,2018 | July 11, 2019 |
| AMN | R&S | ESH2-Z5 | 100086 | Aug.19, 2018 | Aug.18, 2019 |
| WIDEBAND REQUENCY ANTENNA | SCHWARZBECK | VULB9168 | D69250 | Mar. 01, 2018 | Feb. 28, 2020 |
| Double-Ridged Waveguide Horn Antenna | ETS LINDGREN | 3117 | 00034609 | Mar. 01, 2018 | Feb. 28, 2020 |
| ESD Simulator | Schaffner | NSG 438 | 782 | Sep.20, 2018 | Sep.19, 2019 |
| Electrical Fast Transient Burst Generator | EM Test | EFT 200 | 0503-03 | Aug.19, 2018 | Aug.18, 2019 |
| Lightning Surge Generator | Schaffner | Modula 6150 | 34437 | Aug.19, 2018 | Aug.18, 2019 |
| Voltage Dip Immunity Test Generator | EM Test | VDS 200 | 1199-06 | Aug.19, 2018 | Aug.18, 2019 |
| Signal Conditioning Unit | Schaffner | CCN1000-1 | 72431 | Aug.19, 2018 | Aug.18, 2019 |
| AC Source | Schaffner | NSG1007 | 56825 | Aug.19, 2018 | Aug.18, 2019 |
| Signal Generator | AGILENT | N5171B | MY53050474 | Sep.20,2018 | Sep.19,2019 |

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TEST EQUIPMENT OF RS&CS IMMUNITY TEST

| Description | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|---------------------------------|---------------|----------------|-----------------|---------------|---------------|
| Signal Generator | AGILENT | E8257D | MY45141029 | Sep.20, 2018 | Sep.19, 2019 |
| Biconilog Antenna | EMCO | 3142C | 00060447 | Mar. 01, 2018 | Feb. 28, 2020 |
| Power Probe | R&S | URV5-Z4 | 100124 | May. 15, 2018 | May. 14, 2019 |
| Power Meter | R&S | NRVD | 8323781027 | May. 15, 2018 | May. 14, 2019 |
| Power Amplifier | KALMUS | 7100LC | 04-02/17-06-001 | June 12, 2018 | June 11, 2019 |
| RF Amplifier | Milmega | AS0104-55_55 | 1004793 | June 12, 2018 | June 11, 2019 |
| Power Amplifier | RF Light | NTWPAS-2560100 | 2016051406 | Sep.20, 2018 | Sep.19, 2019 |
| Directional Coupler | Werlatone | C5571-10 | 99463 | June 12, 2018 | June 11, 2019 |
| Directional Coupler | Werlatone | C6026-10 | 99482 | June 12, 2018 | June 11, 2019 |
| Power Amplifier | AR | 75A250 | 18464 | June 12, 2018 | June 11, 2019 |
| CDN | Schaffner | M016 | 21264 | Aug.19, 2018 | Aug.18, 2019 |
| 6dB attenuator | JWF | 50FHC-006-50 | 5N-20 | June 12, 2018 | June 11, 2019 |
| Electromagnetic Injection Clamp | Luthi | EM101 | 35773 | Aug.19, 2018 | Aug.18, 2019 |
| Audio Power Amplifier | B&K | 2716-C-001 | 2647129 | June 29, 2017 | June 28, 2018 |
| Audio Power Amplifier | B&K | 2716-C-001 | 2647129 | June 27, 2018 | June 26, 2019 |
| Conditioning Amplifier | B&K | 2690-OS2 | 2654235 | June 27, 2018 | June 26, 2019 |
| Microphone | B&K | 4192 | 26488641 | June 27, 2018 | June 26, 2019 |
| Probe Microphone | B&K | 4182 | 2647123 | June 27, 2018 | June 26, 2019 |
| Sound Calibrator | B&K | 4231 | 2656617 | June 27, 2018 | June 26, 2019 |
| Mouth Simulator | B&K | 4227 | 2659578 | June 27, 2018 | June 26, 2019 |
| Telephone Test Head | B&K | 4206B | 2663112 | June 27, 2018 | June 26, 2019 |
| Audio Analyzer | R&S | UPV | 101196 | July 13,2018 | July 12, 2019 |
| Wireless communication test | R&S | CMW500 | 120909 | July 13,2018 | July 12, 2019 |
| Horn antenna | ETS | 3117 | 00034609 | Mar. 01, 2018 | Feb. 28, 2020 |
| 1 KHZ standard audio source | B&K | 4231 | 26741065 | May. 13, 2018 | May. 12, 2019 |
| Filter Bank Notch 1(880-915MHz) | MICRO-TRONICS | 010 | / | Feb. 27, 2019 | Feb. 26, 2020 |

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| | | | | | |
|--------------------------------------|---------------|--------|------------|---------------|---------------|
| Filter Bank Notch 2(1710-1785MHz) | MICRO-TRONICS | 009 | / | Feb. 27, 2019 | Feb. 26, 2020 |
| Filter Bank Notch 3(1920-1980MHz) | MICRO-TRONICS | 008 | / | Feb. 27, 2019 | Feb. 26, 2020 |
| TEST SOFTWARE | FR | EZ-EMC | Ver.RA-03A | -- | -- |
| CHAMBER | ETS | --- | --- | Mar. 01, 2018 | Feb. 28, 2020 |

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6. EMISSION TEST

6.1. MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT

6.1.1 LIMITS OF MAINS TERMINAL DISTURBANCE VOLTAGE AND TABLE A OF EN55032

| Frequency range (MHz) | Limits (dBuV), Class B ITE | |
|-----------------------|----------------------------|----------|
| | Quasi-peak | Average |
| 0.15 - 0.50 | 66 to 56 | 56 to 46 |
| 0.50 - 5 | 56 | 46 |
| 5 - 30 | 60 | 50 |

Note:

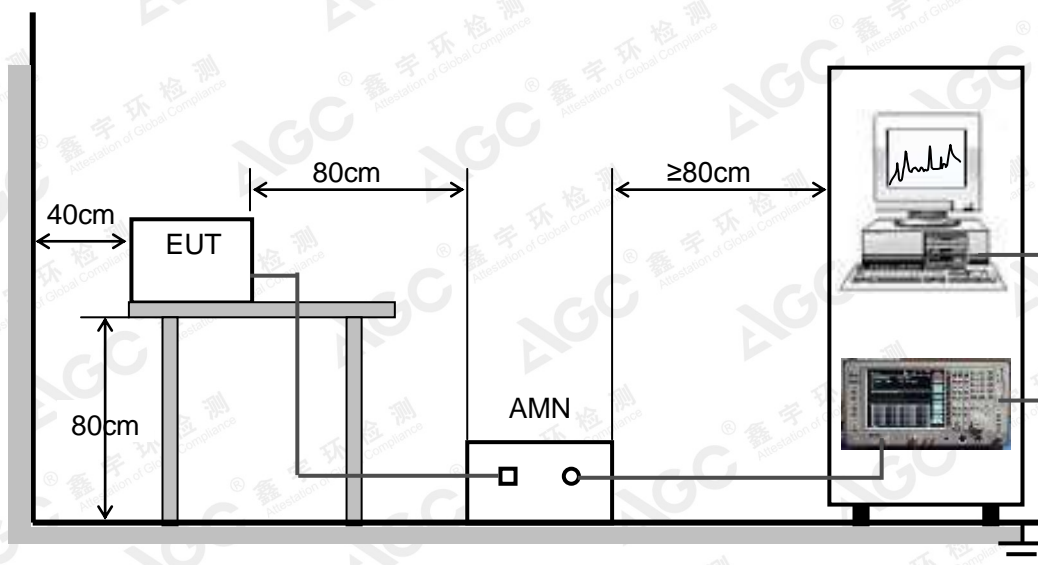
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

6.1.2 TEST PROCEDURE

1. The EUT was placed 0.4 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (AMN). The LISN provide 50Ω/50μH of coupling impedance for the measuring instrument.
2. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
3. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 20dB under the prescribed limits are not reported.

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6.1.3 TEST SETUP



For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

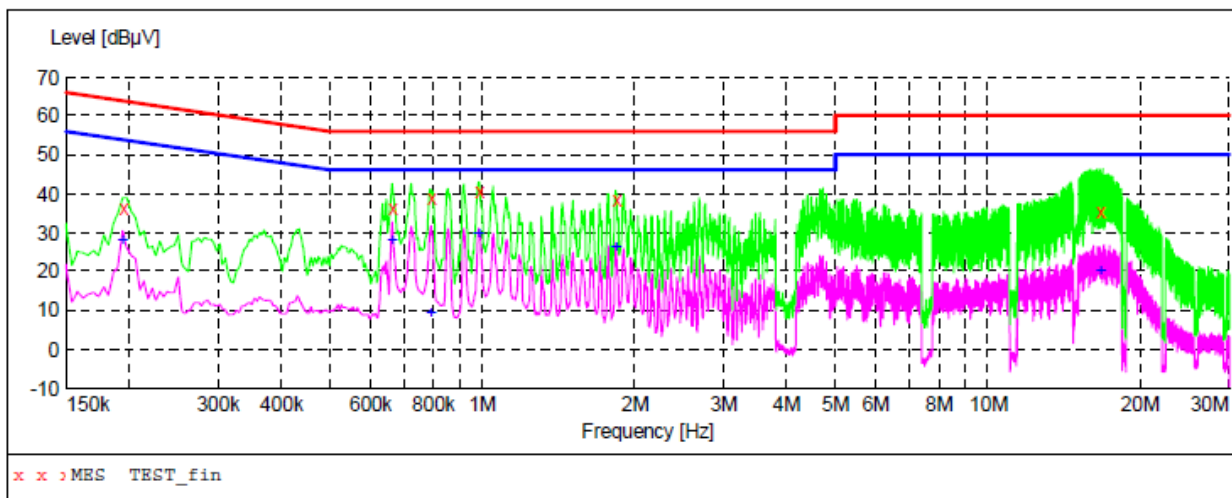
6.1.4 TEST RESULT

All test modes were carried out for all operation modes

The worst test data (Specification A GSM 900 of mode 1) was showed as the follow:

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LINE CONDUCTED EMISSION TEST-L



MEASUREMENT RESULT: "TEST_fin"

4/8/2019 11:37AM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.194000 | 36.10 | 10.3 | 64 | 27.8 | QP | L1 | FLO |
| 0.662000 | 36.30 | 10.3 | 56 | 19.7 | QP | L1 | FLO |
| 0.790000 | 38.90 | 10.4 | 56 | 17.1 | QP | L1 | FLO |
| 0.982000 | 40.60 | 10.4 | 56 | 15.4 | QP | L1 | FLO |
| 1.838000 | 38.40 | 10.4 | 56 | 17.6 | QP | L1 | FLO |
| 16.638000 | 35.50 | 10.9 | 60 | 24.5 | QP | L1 | FLO |

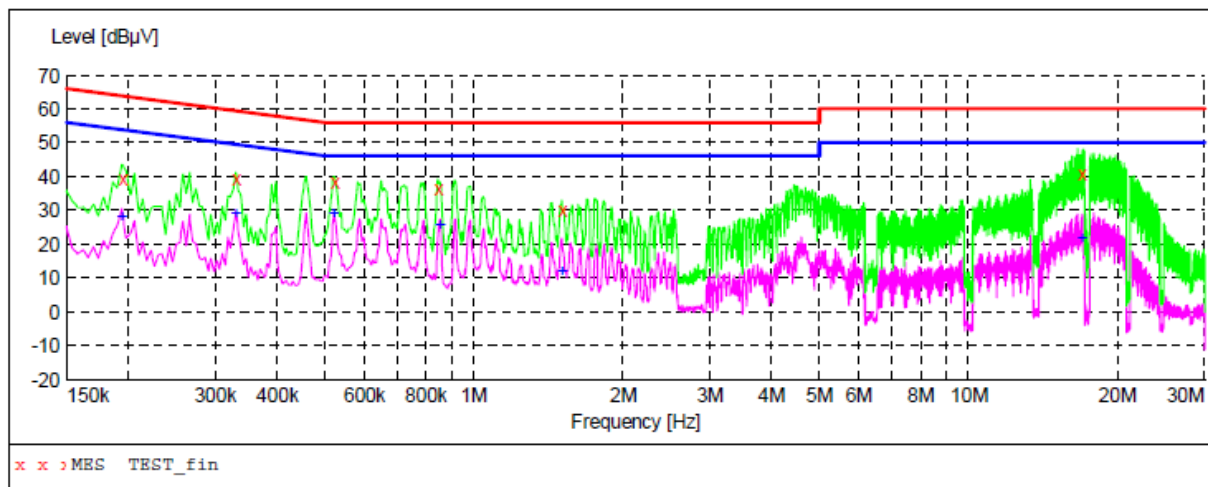
MEASUREMENT RESULT: "TEST_fin2"

4/8/2019 11:37AM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.194000 | 27.90 | 10.3 | 54 | 26.0 | AV | L1 | FLO |
| 0.662000 | 28.20 | 10.3 | 46 | 17.8 | AV | L1 | FLO |
| 0.790000 | 9.40 | 10.4 | 46 | 36.6 | AV | L1 | FLO |
| 0.982000 | 29.50 | 10.4 | 46 | 16.5 | AV | L1 | FLO |
| 1.838000 | 26.30 | 10.4 | 46 | 19.7 | AV | L1 | FLO |
| 16.698000 | 20.40 | 10.9 | 50 | 29.6 | AV | L1 | FLO |

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LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT: "TEST_fin"

4/8/2019 10:52AM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.194000 | 39.30 | 10.3 | 64 | 24.6 | QP | N | FLO |
| 0.330000 | 39.70 | 10.2 | 60 | 19.8 | QP | N | FLO |
| 0.522000 | 38.40 | 10.3 | 56 | 17.6 | QP | N | FLO |
| 0.846000 | 36.50 | 10.4 | 56 | 19.5 | QP | N | FLO |
| 1.506000 | 29.90 | 10.4 | 56 | 26.1 | QP | N | FLO |
| 16.930000 | 40.90 | 10.9 | 60 | 19.1 | QP | N | FLO |

MEASUREMENT RESULT: "TEST_fin2"

4/8/2019 10:52AM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.194000 | 28.10 | 10.3 | 54 | 25.8 | AV | N | FLO |
| 0.330000 | 29.30 | 10.2 | 50 | 20.2 | AV | N | FLO |
| 0.522000 | 29.20 | 10.3 | 46 | 16.8 | AV | N | FLO |
| 0.854000 | 25.80 | 10.4 | 46 | 20.2 | AV | N | FLO |
| 1.506000 | 11.80 | 10.4 | 46 | 34.2 | AV | N | FLO |
| 16.934000 | 21.90 | 10.9 | 50 | 28.1 | AV | N | FLO |

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6.2. RADIATED DISTURBANCE MEASUREMENT

6.2.1. LIMITS OF RADIATED DISTURBANCES

Radiated Emission at Frequencies up to 1GHz

For Class B Equipment SAC/OATS

| EN 55032 Table clause | Frequency range (MHz) | Distance (m) | Detector type | Limits (dBuV/m) |
|--------------------------|-----------------------|--------------|---------------|-----------------|
| A4.1 | 30 - 230 | 10 | Quasi Peak | 30 |
| | 230 - 1000 | | | 37 |
| A4.2 | 30 - 230 | 3 | Quasi Peak | 40 |
| | 230 - 1000 | | | 47 |

Radiated Emission at Frequencies above 1GHz

For Class B Equipment FSOATS

| EN 55032 Table clause | Frequency range (MHz) | Distance (m) | Detector type | Limits (dBuV/m) |
|--------------------------|--------------------------|-----------------|---------------|-----------------|
| A5.1 | 1000 - 3000 | 3 | Average | 50 |
| | 3000 - 6000 | | | 54 |
| A5.2 | 1000 - 3000 | | Peak | 70 |
| | 3000 - 6000 | | | 74 |

6.2.2. TEST CONDITION:

The highest internal source of an EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes.

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 1 GHz, 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 the highest frequency or 6 GHz, whichever is less.

Notes:

1. The lower limit shall apply at the transition frequency.
2. Additional provisions may be required for cases where interference occurs.

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6.2.2. TEST PROCEDURE

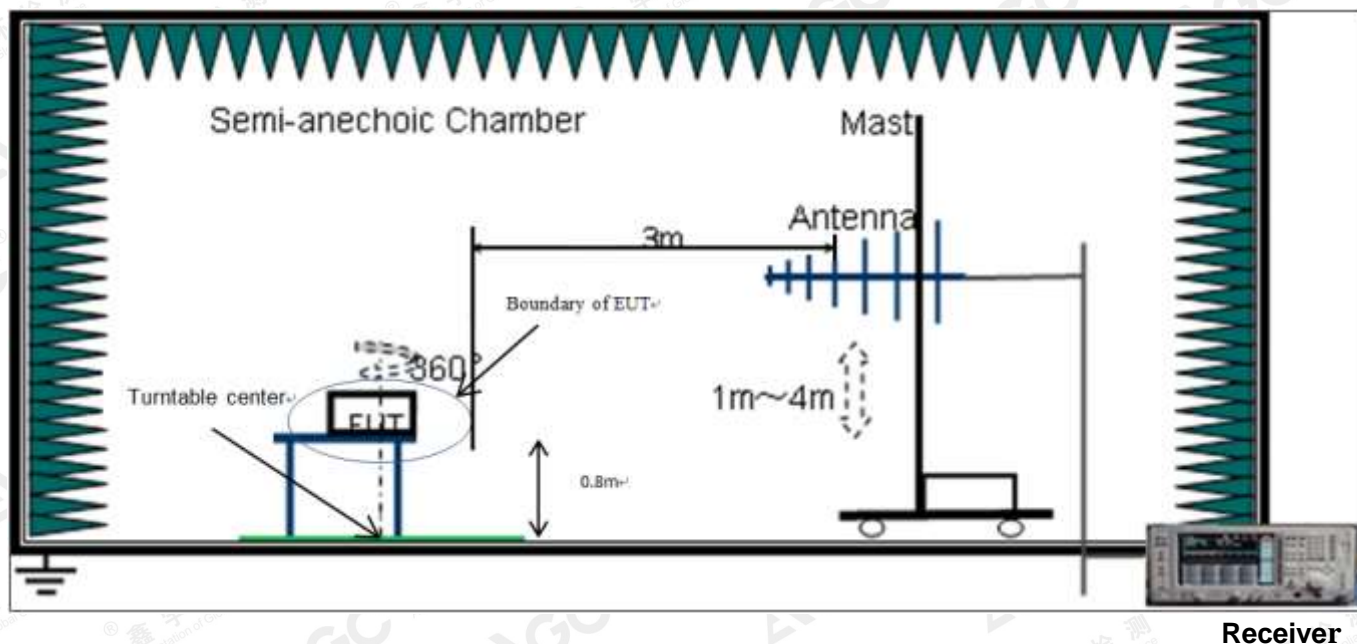
- (1). The EUT was placed on the top of an insulating table 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- (2). The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- (3). The antenna is a broadband antenna, and its height is varied from 1 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.
- (4). For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- (5). The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 3 dB margin would be retested one by one using the quasi-peak method.
- (6). For emissions above 1G, the Horn Antenna is used. and its height is varied from 1 to 4 meter above the ground and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- (7). The EUT was arranged according to Clause 8 of CISPR 16-1-4. Use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
- (8). For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Note: Refer to the clause 8.2 in EN 301 489-1, enclosure of ancillary equipment measured on a stand-alone basis. Ancillary equipment can also be measured in combination with the radio equipment under test. When the ancillary equipment is measured in combination with the radio equipment, radiated emissions from the transmitter/transceiver shall be ignored, but recorded in the test report.

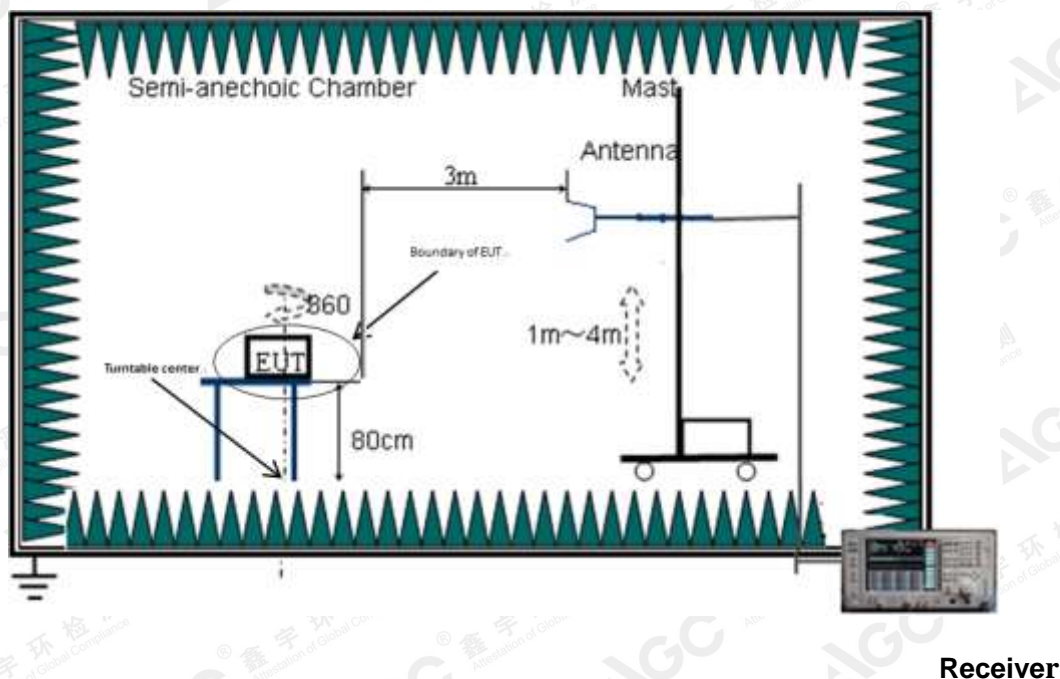
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6.2.3. BLOCK DIAGRAM OF TEST SETUP

Radiated Disturbance 30M to1 GHz



Radiated Disturbance above 1 GHz



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

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6.2.4 TEST RESULT

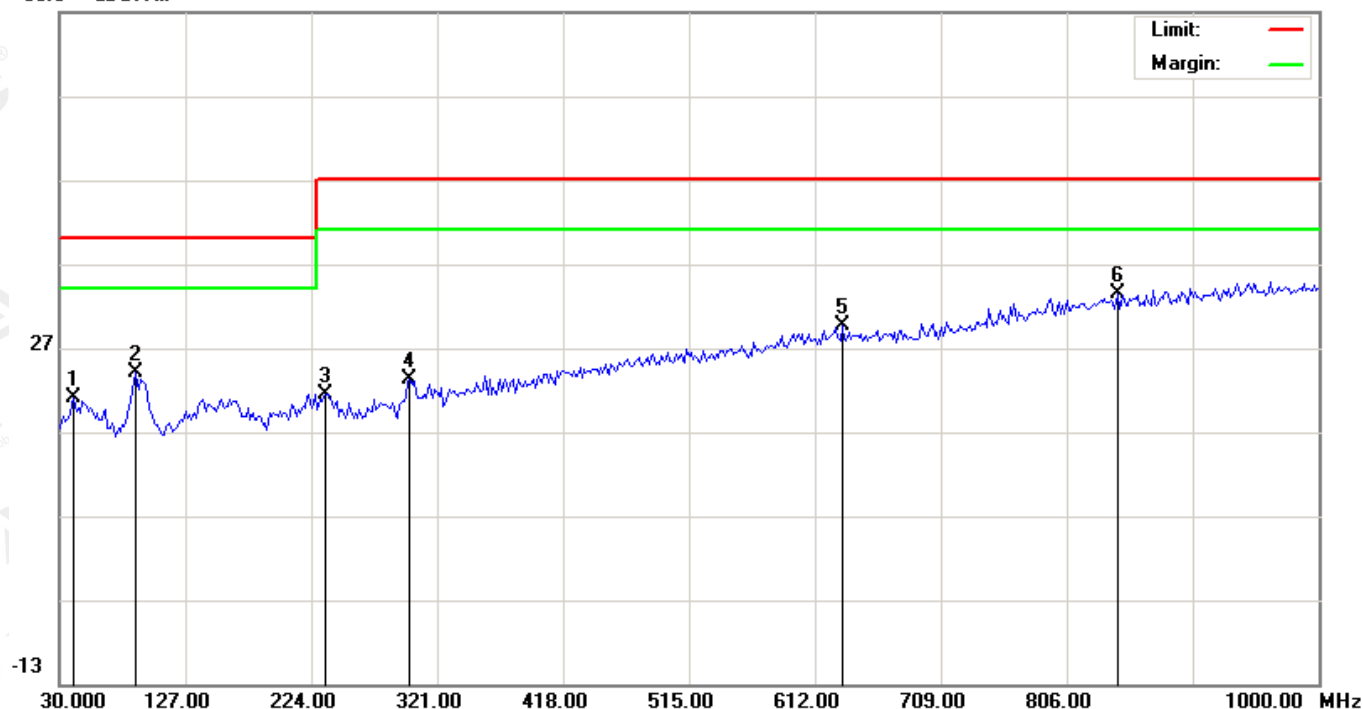
All test modes were carried out for all operation modes

The worst test data (Specification A GSM 900 of mode 1) was showed as the follow:

Note: The filter has been used in this test.

RADIATED EMISSION BELOW 1GHZ- HORIZONTAL

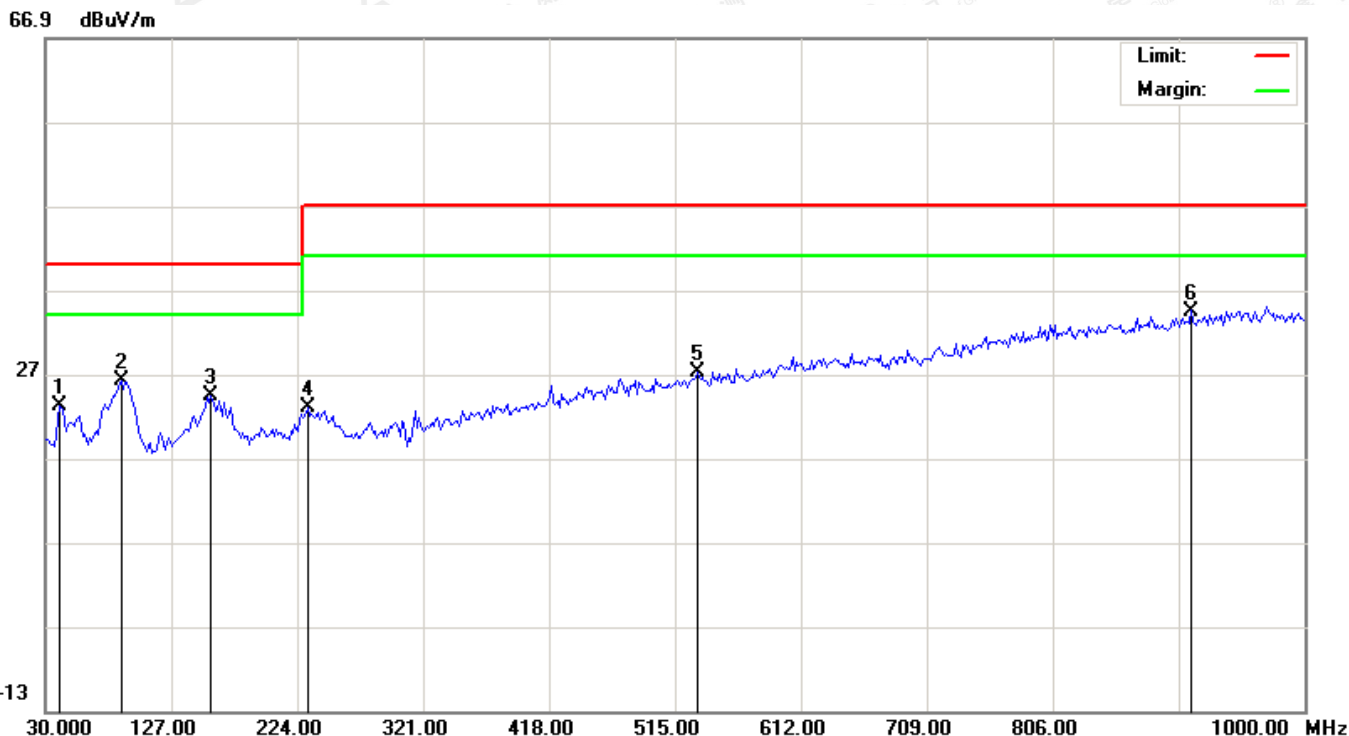
66.9 dBuV/m



| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 41.3167 | 0.93 | 20.04 | 20.97 | 40.00 | -19.03 | peak | | | |
| 2 | | 88.2000 | 8.95 | 14.97 | 23.92 | 40.00 | -16.08 | peak | | | |
| 3 | | 235.3167 | 3.10 | 18.33 | 21.43 | 47.00 | -25.57 | peak | | | |
| 4 | | 299.9833 | 3.73 | 19.47 | 23.20 | 47.00 | -23.80 | peak | | | |
| 5 | | 633.0167 | 2.26 | 27.35 | 29.61 | 47.00 | -17.39 | peak | | | |
| 6 | * | 844.8000 | 2.39 | 30.99 | 33.38 | 47.00 | -13.62 | peak | | | |

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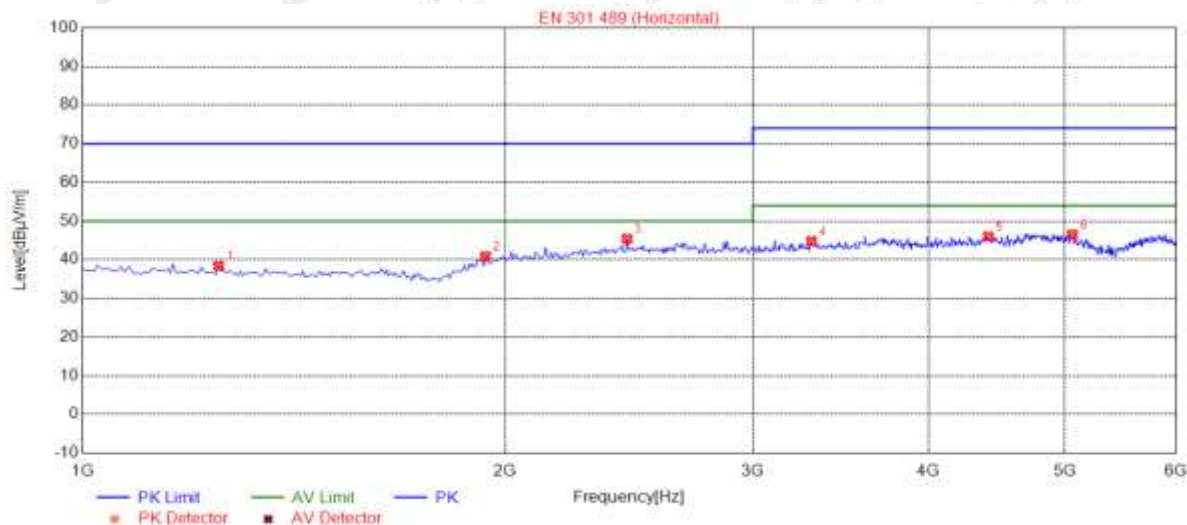
RADIATED EMISSION BELOW 1GHZ- VERTICAL



| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 41.3167 | 3.11 | 20.04 | 23.15 | 40.00 | -16.85 | peak | | | |
| 2 | | 88.2000 | 11.18 | 14.97 | 26.15 | 40.00 | -13.85 | peak | | | |
| 3 | | 157.7167 | 5.25 | 19.19 | 24.44 | 40.00 | -15.56 | peak | | | |
| 4 | | 232.0833 | 4.81 | 18.10 | 22.91 | 47.00 | -24.09 | peak | | | |
| 5 | | 532.7833 | 1.66 | 25.63 | 27.29 | 47.00 | -19.71 | peak | | | |
| 6 | * | 912.7000 | 2.69 | 31.81 | 34.50 | 47.00 | -12.50 | peak | | | |

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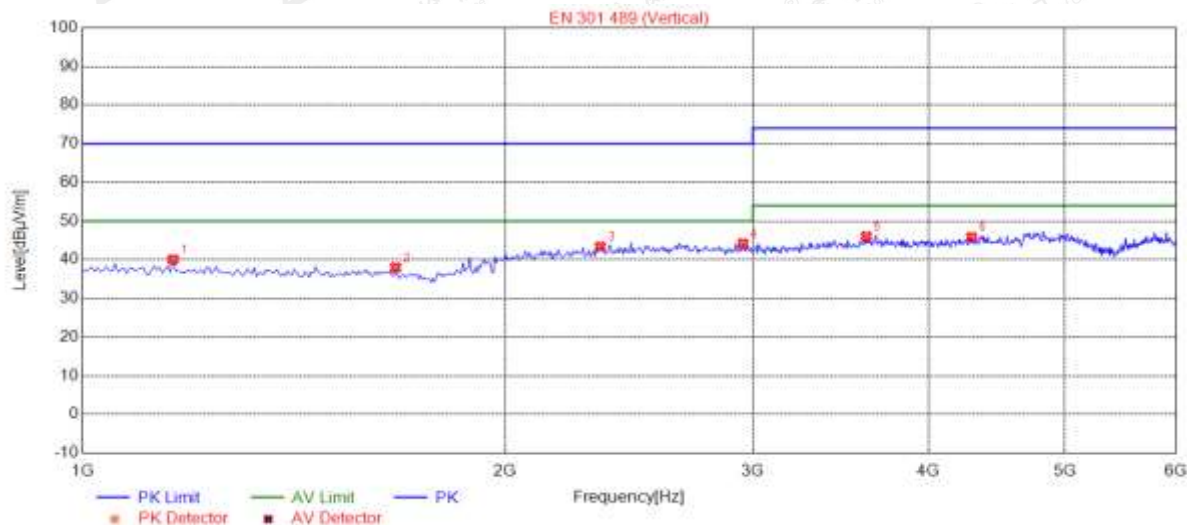
RADIATED EMISSION ABOVE 1GHZ – HORIZONTAL



| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
|-----|-------------|----------------|-------------|----------------|-------------|-------------|-----------|------------|
| 1 | 1250.2503 | 38.38 | -16.89 | 70.00 | 31.62 | 150 | 120 | Horizontal |
| 2 | 1935.9359 | 40.86 | -12.50 | 70.00 | 29.14 | 150 | 330 | Horizontal |
| 3 | 2441.4414 | 45.42 | -9.97 | 70.00 | 24.58 | 100 | 180 | Horizontal |
| 4 | 3302.3023 | 44.77 | -8.28 | 74.00 | 29.23 | 150 | 20 | Horizontal |
| 5 | 4413.4134 | 46.00 | -5.43 | 74.00 | 28.00 | 100 | 350 | Horizontal |
| 6 | 5064.0641 | 46.52 | -4.79 | 74.00 | 27.48 | 200 | 250 | Horizontal |

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RADIATED EMISSION ABOVE 1GHZ - VERTICAL



| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
|-----|-------------|----------------|-------------|----------------|-------------|-------------|-----------|----------|
| 1 | 1160.160 | 40.06 | -16.80 | 70.00 | 29.94 | 150 | 270 | Vertical |
| 2 | 1670.670 | 38.01 | -15.32 | 70.00 | 31.99 | 100 | 100 | Vertical |
| 3 | 2336.336 | 43.37 | -10.41 | 70.00 | 26.63 | 150 | 350 | Vertical |
| 4 | 2951.952 | 44.20 | -9.37 | 70.00 | 25.80 | 150 | 320 | Vertical |
| 5 | 3612.612 | 46.02 | -7.35 | 74.00 | 27.98 | 200 | 130 | Vertical |
| 6 | 4293.293 | 45.87 | -5.74 | 74.00 | 28.13 | 150 | 170 | Vertical |

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6.3. HARMONIC CURRENT MEASUREMENT

6.3.1 LIMITS OF HARMONIC CURRENT

Harmonic current emissions evaluate the potential for the EUT to cause distortion on the AC power lines. It is applicable to electrical and electronic equipment having an input current ≤ 16 A per phase, and intended to be connected to public low-voltage distribution systems.

| Limits for Class A Equipment | |
|------------------------------|---------------------------------------|
| Harmonics Order n | Max. permissible harmonic current (A) |
| Odd harmonics | |
| 3 | 2.30 |
| 5 | 1.14 |
| 7 | 0.77 |
| 9 | 0.40 |
| 11 | 0.33 |
| 13 | 0.21 |
| $15 \leq n \leq 39$ | $0.15 \times 15/n$ |
| Even harmonics | |
| 2 | 1.08 |
| 4 | 0.43 |
| 6 | 0.30 |
| $8 \leq n \leq 40$ | $0.23 \times 8/n$ |

Note:

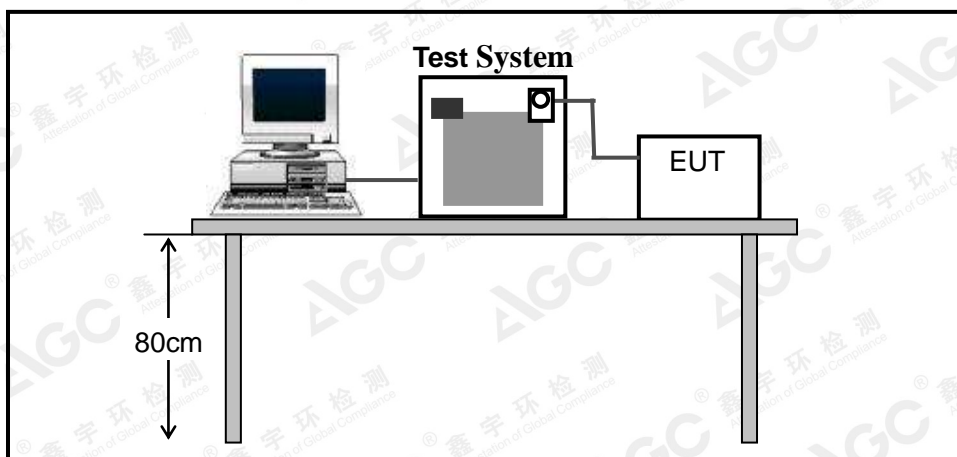
1. According to section 5 of EN61000-3-2, the EUT is Class A equipment.
2. The above limits are for all applications having an active input power > 75W. No limits apply for equipment with an active input power up to and including 75W.

6.3.2 TEST PROCEDURE

1. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
2. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.

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6.3.3 TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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6.3.4 TEST RESULT

Note:

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

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6.4. VOLTAGE FLUCTUATIONS AND FLICK MEASUREMENT

6.4.1. LIMITS OF VOLTAGE FLUCTUATIONS AND FLICK

The objective of voltage changes, voltage fluctuations and flicker in public low voltage supply systems during equipment with rated current ≤ 16 A per phase, ensures that home appliances and certain other electrical equipment do not adversely affect lighting equipment when connected to the same power system.

| Test Item | Limit | Note |
|---------------|-------|---|
| P_{st} | 1.0 | P_{st} means Short-term flicker indicator |
| P_{lt} | 0.65 | P_{lt} means long-term flicker indicator |
| T_{dt} | 0.2 | T_{dt} means maximum time that d_t exceeds 3% |
| $d_{max}(\%)$ | 4% | d_{max} means maximum relative voltage change. |
| $d_c(\%)$ | 3% | d_c means relative steady-state voltage change. |

6.4.2. TEST PROCEDURE

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal conditions
- During the flick measurement, the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

6.4.3. TEST SETUP

Same as 3.4.3

6.4.4. TEST RESULT

Test Specification

| | | | |
|----------------|------|--------------|--|
| Test Frequency | 50Hz | Test Voltage | AC 230V |
| Waveform | Sine | Test Time | 10 minutes(P_{st}); 2 hours (P_{lt}) |

All test modes were carried out for all operation modes

Only the test result of the worst case GSM 900 as follow:

| Test Parameter | Measurement Value | Limit | Remarks |
|----------------|-------------------|-------|---------|
| P_{st} | 0.010 | 1.0 | Pass |
| P_{lt} | 0.001 | 0.65 | Pass |
| $T_{dt(s)}$ | 0.06 | 0.2 | Pass |
| $d_{max}(\%)$ | 0.08% | 4% | Pass |
| $d_c(\%)$ | 0.05% | 3% | Pass |

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7. IMMUNITY TEST

7.1. EUT SETUP AND OPERATING CONDITIONS

The battery was in full voltage and the charger was connected to the EUT to keep the voltage constant during the tests. During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

7.2. GENERAL PERFORMANCE CRITERIA

7.2.1. GENERAL PERFORMANCE CRITERIA

The EUT tested system was configured as the statements of 2.2 Unless otherwise a special operating condition is specified in the follows during the testing.

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

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

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

7.2.2. PERFORMANCE CRITERIA FOR TT AND TR TO EUT

PERFORMANCE FOR TT

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

PERFORMANCE FOR TR

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

PERFORMANCE FOR CT

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

PERFORMANCE FOR CR

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

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7.2.3. PERFORMANCE CRITERIA FOR (GSM/ WCDMA)

| CLAUSE 6 of EN301 489 –1 | |
|--------------------------|---|
| Criteria | Performance criteria |
| CT/CR | <p>During and after the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer when the apparatus is used as intended. At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate.</p> <p>The EUT shall operate as its intended operating condition during and after the test.</p> <p>The EUT (transmitter) uplink speech output level shall be at least 35dB less than the previously recorded reference.</p> <p>The EUT (receiver) shall show the RXQUAL of the GSM downlink does not exceed the value of three, and the BER of the WCDMA shall no greater than 0.1%, and measure during each individual exposure in the test sequence.</p> <p>The EUT (receiver) downlink speech output level shall be at least 35dB less than the previously recorded reference.</p> <p>The EUT shall show no loss of user control functions or stored data and the communication link shall be maintained during and after the test.</p> <p>The EUT shall show no unintentional responses when it is in idle condition.</p> |
| TT/TR | <p>After the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the apparatus is used as intended. At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communication link. At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate.</p> |

Note:

For data transmission, the EUT was assessed in the following methods:

For WCDMA testing, the BER (as referred in TS 134 109 [9]) is used, it shall not exceed 0.1% during the test sequence.

Note: All test modes have been tested during the test.

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7.2.4 GENERAL PERFORMANCE CRITERIA TO BT/ WIFI

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

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

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

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7.2.5 PERFORMANCE CRITERIA FOR TT AND TR TO BT/ WIFI**PERFORMANCE FOR TT TO BT/WIFI**

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

PERFORMANCE FOR TR TO BT/WIFI

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

7.2.6 PERFORMANCE CRITERIA FOR CT AND CR TO BT/ WIFI**PERFORMANCE FOR CT TO BT/WIFI**

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

PERFORMANCE FOR CR TO BT/WIFI

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

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7.3. ELECTROSTATIC DISCHARGE IMMUNITY TEST

7.3.1. TEST SPECIFICATION

| | |
|---------------------|--|
| Basic Standard | EN 61000-4-2 |
| Discharge Impedance | 330Ω / 150 pF |
| Discharge Voltage | Air Discharge -8 kV , Contact Discharge - 4 kV |
| Polarity | Positive / Negative |
| Number of Discharge | Minimum 20 times at each test point |
| Discharge Mode | Single discharge |
| Discharge Period | 1-second minimum |
| Test Conditions | Temperature/ Humidity:22.5℃/53.0% |

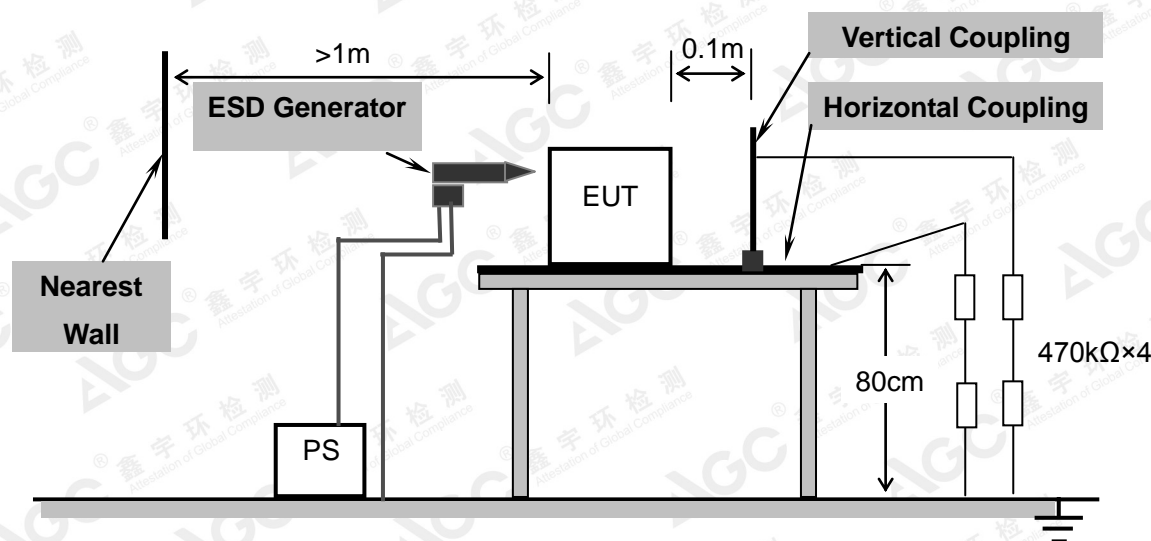
7.3.2. TEST PROCEDURE

The test procedure was in accordance with EN 61000-4-2:

- 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 meters 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 completed.
- At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the EUT. The ESD generator was positioned vertically at a distance of 0.1 meters from the EUT with the discharge electrode touching the HCP.
- At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m×0.5m) was placed vertically to and 0.1 meters from the EUT.

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7.3.3. TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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7.3.4. TEST RESULT

EN 301 489-52 V1.1.0 MS (MODE 1_GSM/GPRS 900&DCS/GPRS 1800) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|-----------------------|----------------|-------------|------------|
| HCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| VCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| Camera | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Screen | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Flashlight | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Stethoscope | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Interface of USB to Adapter | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Fingerprint identification | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 1_WCDMA/HSPA2100& WCDMA/HSPA900)TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|-----------------------|----------------|-------------|------------|
| HCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| VCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| Camera | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Screen | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Flashlight | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Stethoscope | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Interface of USB to Adapter | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Fingerprint identification | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |

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IDEL (MODE 2) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TT, TR | Pass |
| VCP | ±2,±4 | Indirect | TT, TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

EN 301 489-17 V3.2.0 BT (MODE 3) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TT, TR | Pass |
| VCP | ±2,±4 | Indirect | TT, TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

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EN 301 489-17 V3.2.0 WIFI (MODE 4) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TT, TR | Pass |
| VCP | ±2,±4 | Indirect | TT, TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

EN 301 489-19 V2.1.0 GPS (MODE 5) TEST RESULTS

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TR | Pass |
| VCP | ±2,±4 | Indirect | TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

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EN 301 489-52 V1.1.0 MS (MODE 6_GSM/GPRS 900&DCS/GPRS 1800)TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TT, TR | Pass |
| VCP | ±2,±4 | Indirect | TT, TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 6_WCDMA/HSPA2100& WCDMA/HSPA900) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TT, TR | Pass |
| VCP | ±2,±4 | Indirect | TT, TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

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IDEL (MODE 7) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|-----------------------|----------------|-------------|------------|
| HCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| VCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| Camera | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Screen | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Flashlight | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Stethoscope | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Interface of USB to Adapter | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Fingerprint identification | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |

EN 301 489-17 V3.2.0 BT (MODE 8) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|-----------------------|----------------|-------------|------------|
| HCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| VCP | $\pm 2, \pm 4$ | Indirect | TT, TR | Pass |
| Camera | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Screen | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Flashlight | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Stethoscope | $\pm 2, \pm 4, \pm 8$ | Air | TT, TR | Pass |
| Interface of USB to Adapter | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |
| Fingerprint identification | $\pm 2, \pm 4$ | Contact | TT, TR | Pass |

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EN 301 489-17 V3.2.0 WIFI (MODE 9) TEST RESULT

| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TT, TR | Pass |
| VCP | ±2,±4 | Indirect | TT, TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TT, TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TT, TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TT, TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TT, TR | Pass |

EN 301 489-19 V2.1.0 GPS (MODE 10) TEST RESULTS

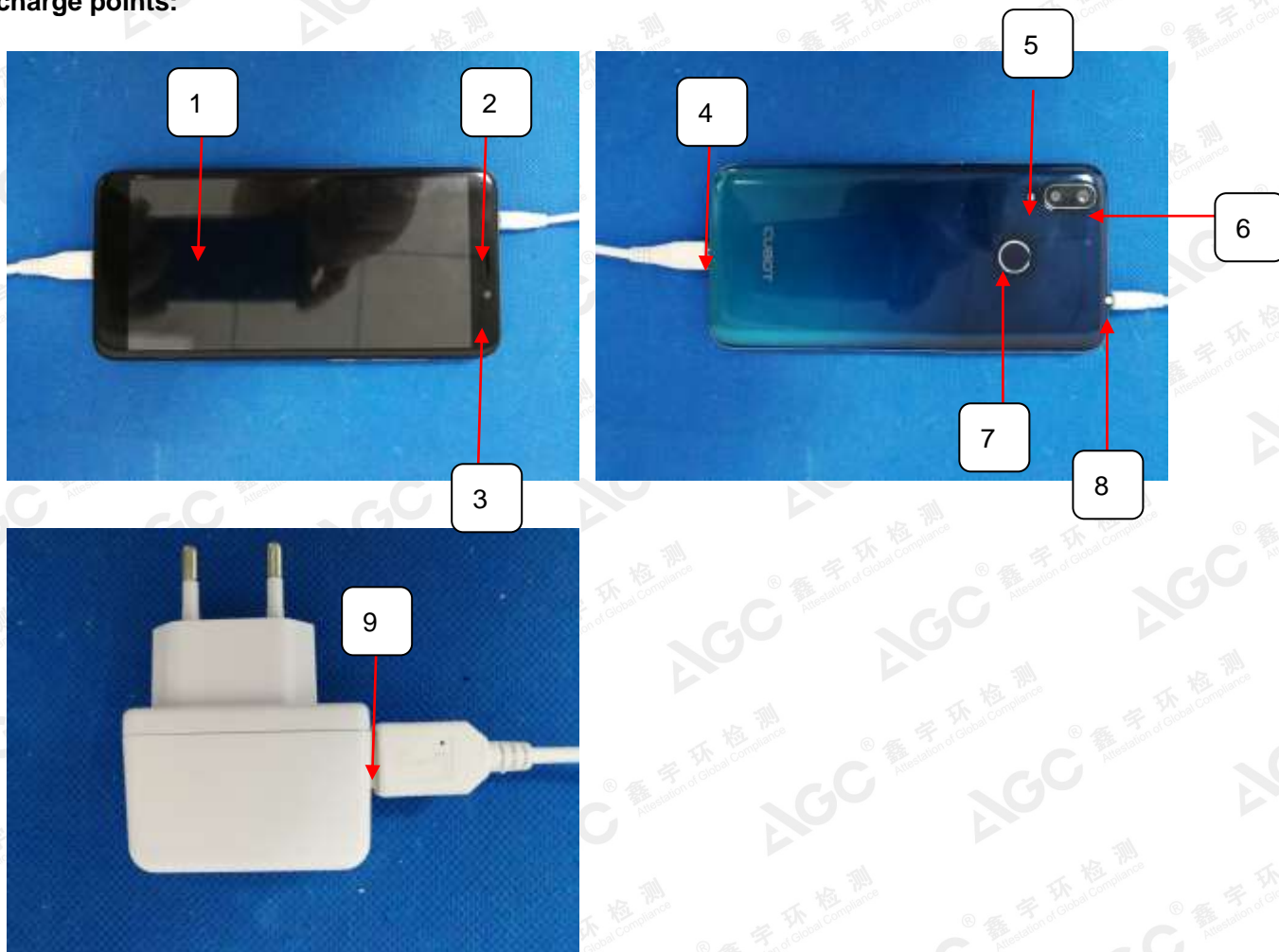
| Test Points | Discharge Level (kV) | Discharge Mode | Observation | Conclusion |
|---------------------------------|----------------------|----------------|-------------|------------|
| HCP | ±2,±4 | Indirect | TR | Pass |
| VCP | ±2,±4 | Indirect | TR | Pass |
| Camera | ±2, ±4 , ±8 | Air | TR | Pass |
| Screen | ±2, ±4 , ±8 | Air | TR | Pass |
| Flashlight | ±2, ±4 , ±8 | Air | TR | Pass |
| Stethoscope | ±2, ±4 , ±8 | Air | TR | Pass |
| Interface of USB to Adapter | ±2,±4 | Contact | TR | Pass |
| Interface of Adapter/ USB to MS | ±2,±4 | Contact | TR | Pass |
| Fingerprint identification | ±2,±4 | Contact | TR | Pass |

Phenomenon: no function loss during the test.

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input type="checkbox"/> A / <input checked="" type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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Discharge points:



Note: The air discharge points are 1~3 and 5~6. The contact discharge points are 7~9.

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7.4. RADIATED, RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST

7.4.1 TEST SPECIFICATION

| | |
|---------------------|-------------------------------------|
| Basic Standard | EN 61000-4-3 |
| Frequency Range | 80 MHz – 6000MHz |
| Field Strength | 3V/m |
| Modulation | 1 kHz sine wave, 80%, AM modulation |
| Frequency Step | 1% of fundamental |
| Polarity of Antenna | Horizontal and Vertical |
| Test Distance | 3m |
| Antenna Height | 1.5m |
| Dwell Time | 3 seconds |
| Test Conditions | Temperature/ Humidity:21.5°C/52.0% |

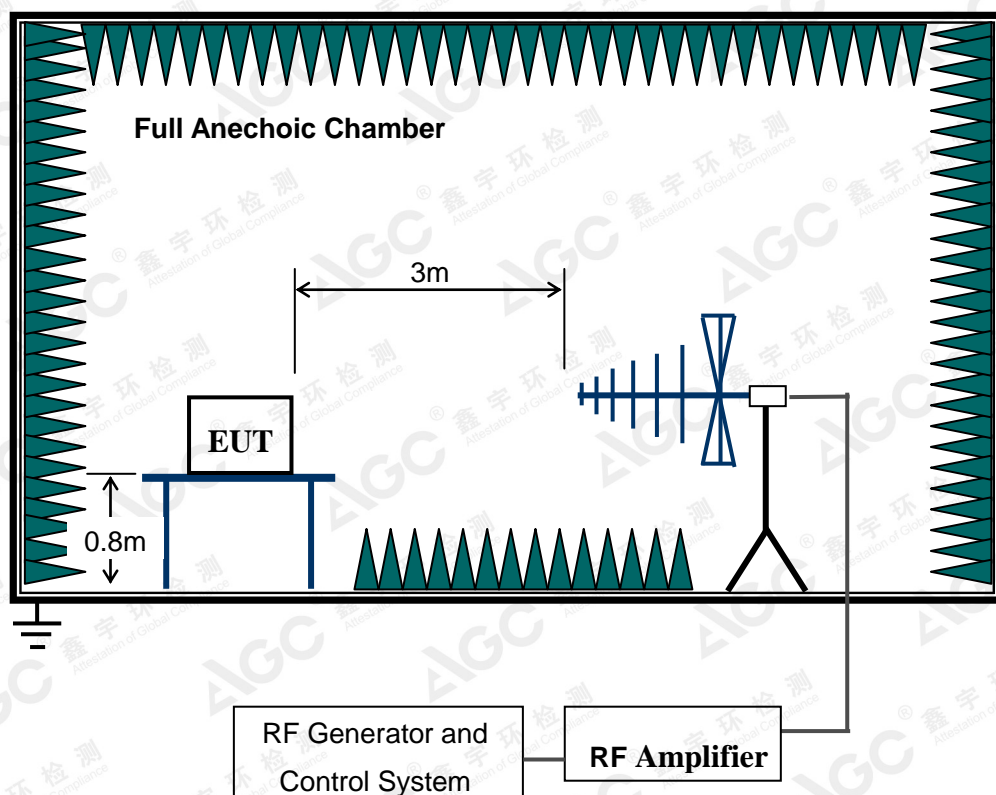
7.4.2 TEST PROCEDURE

The test procedure was in accordance with EN 61000-4-3.

- The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- The test signal was 80% amplitude modulated with a 1 kHz sine wave.
- The frequency range was swept from 80 MHz – 6000MHz to 2700MHz with the exception of the exclusion band for transmitters, receivers and duplex transceivers. The rate of sweep did not exceed 1.5×10^{-3} decade/s. 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 field strength level was 3V/m.
- The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.
- Downlink Mode: the audio source was adjusted to achieve a reference level equivalent to a SPL of 0 dBPa at 1 kHz at the input of the acoustic coupler for the downlink, the reading of the audio level meter was recorded as a reference level. During the test, the downlink speech output level was monitored, it was confirmed to be at least 35 dB less than the previously- recorded reference level.
- Uplink Mode: EUT is used for this calibration, the output of the audio source was adjusted to achieve a reference level equivalent to a SPL of –5 dBPa at 1kHz at the Mouth Reference Point (MRP), the reading of the audio level meter, which was connected to the output of the communication tester, was recorded as a reference level. During the test, the uplink speech output level was monitored, it was confirmed to be at least 35 dB less than the previously- recorded reference level.

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7.4.3 TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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7.4.4 TEST RESULT

EN 301 489-52 V1.1.0 MS (MODE 1) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion |
|-------------------------------|------------------|-----------------|----------------------|-------------|------------|
| GSM/GPRS 900 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |
| GSM/GPRS 900 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |
| DCS/GPRS 1800 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |
| DCS/GPRS 1800 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 1) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|---------------------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| UMTS/ HSPA 2100 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| UMTS/ HSPA 2100 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| UMTS/ HSPA 900 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| UMTS/ HSPA 900 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

Note: In the data transfer mode, the BER (as referred in TS 134 109 [8]) is used, it shall not exceed 0,001 during the test sequence, in the speech mode, the performance criteria shall be that the uplink and downlink speech output levels shall be at least 35 dB less than the recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz. in idle mode, the transmitter is not unintentionally operate.

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IDEL (MODE 2) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

EN 301 489-17 V3.2.0 BT (MODE 3) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

EN 301 489-17 V3.2.0 WIFI (MODE 4) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

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EN 301 489-19 V2.1.0 GPS (MODE 5) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|---|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz \pm 1 MHz; 920 MHz \pm 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz \pm 1 MHz; 920 MHz \pm 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz \pm 1 MHz; 920 MHz \pm 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |

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| | | | | | | |
|--|------------|---|---|----|------|-----------------------------|
| | Horizontal | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz ± 1 MHz; 920 MHz ± 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |
|--|------------|---|---|----|------|-----------------------------|

Note: For the spot frequency test of the immunity test with radiated RF electromagnetic fields (see ETSI EN 301 489-1 [1], clause 9.2) the EUT shall be assessed by monitoring the accuracy of the call received alert signal.

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Special conditions for EMC immunity tests (Worst Test Report)

| EUT operating Mode | | Polarity | Position (°) | Max. value(dB) | Frequency (MHz) |
|----------------------|----------|----------|--------------|----------------|-----------------|
| Call Mode GSM 900 | Uplink | H | Front | -46.37 | 459.50 |
| | | V | Front | -58.45 | 313.43 |
| | Downlink | H | Front | -49.05 | 130.80 |
| | | V | Front | -58.99 | 478.13 |

| EUT operating Mode | | Polarity | Position (°) | Max. value | Frequency (MHz) |
|----------------------|------------|----------|--------------|------------|-----------------|
| Call Mode GSM 900 | RX Quality | H | Front | 0 | 80MHz-6000MHz |
| | | V | Front | 0 | 80MHz-6000MHz |

| EUT operating Mode | | Polarity | Position (°) | Max. value(dB) | Frequency (MHz) |
|--------------------|----------|----------|--------------|----------------|-----------------|
| UMTS 2100 MHz | Uplink | H | Front | -48.42 | 510.43 |
| | | V | Front | -50.12 | 605.39 |
| | Downlink | H | Front | -56.46 | 401.03 |
| | | V | Front | -51.07 | 775.18 |

| EUT operating Mode | | Polarity | Position (°) | Max. value | Frequency (MHz) |
|--------------------|-----|----------|--------------|------------|-----------------|
| UMTS 2100 MHz | BER | H | Front | 0.0006 | 80MHz-6000MHz |
| | | V | Front | 0.0005 | 80MHz-6000MHz |

Note:

Downlink SPL = 0 dBPa at 1KHz at the input of acoustic coupler

Uplink SPL = -5 dBPa at 1KHz at the Mouth Reference Point

During the test BLER / Throughput > 95%

Phenomenon: no function loss during the test.

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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EN 301 489-52 V1.1.0 MS (MODE 6) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion |
|-------------------------------|------------------|-----------------|----------------------|-------------|------------|
| GSM/GPRS 900 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |
| GSM/GPRS 900 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |
| DCS/GPRS 1800 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |
| DCS/GPRS 1800 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 6) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|---------------------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| UMTS/ HSPA 2100 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| UMTS/ HSPA 2100 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| UMTS/ HSPA 900 MHz, Traffic | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| UMTS/ HSPA 900 MHz, Idle | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

Note: In the data transfer mode, the BER (as referred in TS 134 109 [8]) is used, it shall not exceed 0,001 during the test sequence, in the speech mode, the performance criteria shall be that the uplink and downlink speech output levels shall be at least 35 dB less than the recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz. in idle mode, the transmitter is not unintentionally operate.

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IDEL (MODE 7) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

EN 301 489-17 V3.2.0 BT (MODE 8) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

EN 301 489-17 V3.2.0 WIFI (MODE 9) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|-----------------|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 | 3 | CT,CR | Pass | Right, Left, Front, Rear |

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EN 301 489-19 V2.1.0 GPS (MODE 10) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Conclusion | Side |
|------------------|------------------|---|----------------------|-------------|------------|--------------------------|
| Operating Mode | Vertical | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz \pm 1 MHz; 920 MHz \pm 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |
| | Horizontal | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz \pm 1 MHz; 920 MHz \pm 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |
| Standby Mode | Vertical | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz \pm 1 MHz; 920 MHz \pm 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |

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| | | | | | | |
|--|------------|---|---|----|------|-----------------------------|
| | Horizontal | 80-6000 80 MHz; 104 MHz; 136 MHz; 165 MHz; 200 MHz; 260 MHz; 330 MHz; 430 MHz; 560 MHz; 715 MHz ± 1 MHz; 920 MHz ± 1 MHz | 3 | CR | Pass | Right, Left, Front, Rear |
|--|------------|---|---|----|------|-----------------------------|

Note: For the spot frequency test of the immunity test with radiated RF electromagnetic fields (see ETSI EN 301 489-1 [1], clause 9.2) the EUT shall be assessed by monitoring the accuracy of the call received alert signal.

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Special conditions for EMC immunity tests (Worst Test Report)

| EUT operating Mode | | Polarity | Position (°) | Max. value(dB) | Frequency (MHz) |
|----------------------|----------|----------|--------------|----------------|-----------------|
| Call Mode GSM 900 | Uplink | H | Front | -58.45 | 157.43 |
| | | V | Front | -44.36 | 672.80 |
| | Downlink | H | Front | -48.96 | 130.41 |
| | | V | Front | -59.78 | 477.57 |

| EUT operating Mode | | Polarity | Position (°) | Max. value | Frequency (MHz) |
|----------------------|------------|----------|--------------|------------|-----------------|
| Call Mode GSM 900 | RX Quality | H | Front | 0 | 80MHz-6000MHz |
| | | V | Front | 0 | 80MHz-6000MHz |

| EUT operating Mode | | Polarity | Position (°) | Max. value(dB) | Frequency (MHz) |
|--------------------|----------|----------|--------------|----------------|-----------------|
| UMTS 2100 MHz | Uplink | H | Front | -52.40 | 576.20 |
| | | V | Front | -50.19 | 464.47 |
| | Downlink | H | Front | -45.16 | 451.45 |
| | | V | Front | -53.85 | 631.52 |

| EUT operating Mode | | Polarity | Position (°) | Max. value | Frequency (MHz) |
|--------------------|-----|----------|--------------|------------|-----------------|
| UMTS 2100 MHz | BER | H | Front | 0.0007 | 80MHz-6000MHz |
| | | V | Front | 0.0008 | 80MHz-6000MHz |

Note:

Downlink SPL = 0 dBPa at 1KHz at the input of acoustic coupler

Uplink SPL = -5 dBPa at 1KHz at the Mouth Reference Point

During the test BLER / Throughput > 95%

Phenomenon: no function loss during the test.

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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7.5. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

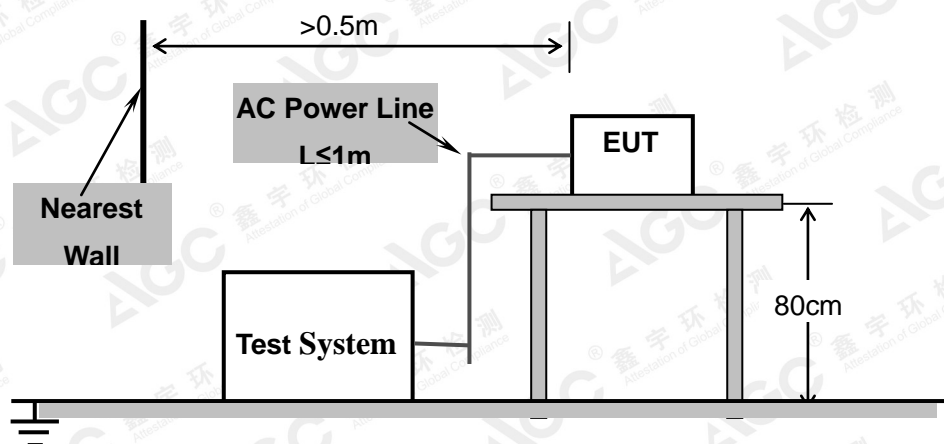
7.5.1 TEST SPECIFICATION

| | |
|--------------------|--|
| Basic Standard | EN 61000-4-4 |
| Test Voltage | a.c. power port – 1 kV; communication port 0.5kV |
| Polarity | Positive/Negative |
| Impulse Frequency | 5kHz |
| Impulse wave shape | 5/50ns |
| Burst Duration | 15ms |
| Burst Period | 300ms |
| Test Duration | Not less than 1 min. |
| Test Conditions | Temperature/ Humidity:22.5℃/52.5% |

7.5.2 TEST PROCEDURE

- The EUT was tested with 1000 volt discharges to the AC power input leads.
- Both positive and negative polarity discharges were applied.
- The length of the “hot wire” from the coaxial output of the EFT generator to the terminals on the EUT should not exceed 1 meter.
- The duration time of each test sequential was 1 minute.
- The transient/burst waveform was in accordance with EN 61000-4-4, 5/50ns.
- Test communication port according EN 61000-4-4 with clamp

7.5.3 TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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7.5.4 TEST RESULT

EN 301 489-52 V1.1.0 MS (MODE 1_GSM/GPRS 900&DCS/GPRS 1800) TEST RESULT

| Test Point | Polarity | Test Level (kV) | Observation | Conclusion |
|----------------|----------|-----------------|-------------|------------|
| a.c. port, L | +/- | 1 | TT,TR | Pass |
| a.c. port, N | +/- | 1 | TT,TR | Pass |
| a.c. port, L-N | +/- | 1 | TT,TR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 1_WCDMA/HSPA2100& WCDMA/HSPA900)TEST RESULT

| Test Point | Polarity | Test Level (kV) | Observation | Conclusion |
|----------------|----------|-----------------|-------------|------------|
| a.c. port, L | +/- | 1 | TT,TR | Pass |
| a.c. port, N | +/- | 1 | TT,TR | Pass |
| a.c. port, L-N | +/- | 1 | TT,TR | Pass |

IDEL (MODE 2) TEST RESULT

| Test Point | Polarity | Test Level (kV) | Observation | Conclusion |
|----------------|----------|-----------------|-------------|------------|
| a.c. port, L | +/- | 1 | TT,TR | Pass |
| a.c. port, N | +/- | 1 | TT,TR | Pass |
| a.c. port, L-N | +/- | 1 | TT,TR | Pass |

EN 301 489-17 V3.2.0 BT (MODE 3) TEST RESULT

| Test Point | Polarity | Test Level (kV) | Observation | Conclusion |
|----------------|----------|-----------------|-------------|------------|
| a.c. port, L | +/- | 1 | TT,TR | Pass |
| a.c. port, N | +/- | 1 | TT,TR | Pass |
| a.c. port, L-N | +/- | 1 | TT,TR | Pass |

EN 301 489-17 V3.2.0 WIFI (MODE 4) TEST RESULT

| Test Point | Polarity | Test Level (kV) | Observation | Conclusion |
|----------------|----------|-----------------|-------------|------------|
| a.c. port, L | +/- | 1 | TT,TR | Pass |
| a.c. port, N | +/- | 1 | TT,TR | Pass |
| a.c. port, L-N | +/- | 1 | TT,TR | Pass |

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EN 301 489-19 V2.1.0 GPS (MODE 5) TEST RESULT

| Test Point | Polarity | Test Level (kV) | Observation | Conclusion |
|----------------|----------|-----------------|-------------|------------|
| a.c. port, L | +/- | 1 | TR | Pass |
| a.c. port, N | +/- | 1 | TR | Pass |
| a.c. port, L-N | +/- | 1 | TR | Pass |

Phenomenon: no function loss during the test.

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input type="checkbox"/> A / <input checked="" type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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7.6. SURGE IMMUNITY TEST

7.6.1 TEST SPECIFICATION

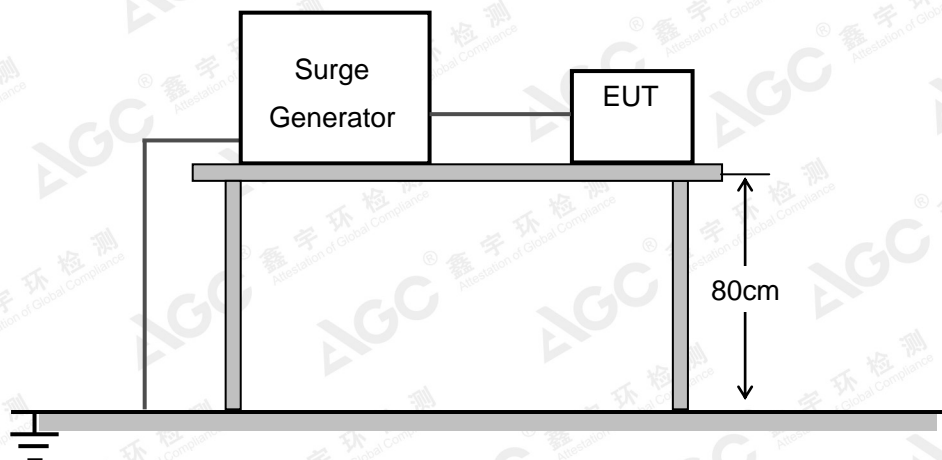
| | |
|-----------------|---|
| Basic Standard | EN 61000-4-5 |
| Waveform | Voltage 1.2/50 μ s; Current 8/20 μ s |
| Test Voltage | a.c. power port, line to ground 2 kV, line to line 1.0 Kv communication port 1kV |
| Polarity | Positive/Negative |
| Phase Angle | 0°, 90°, 180°, 270° |
| Repetition Rate | 60sec |
| Times | 5 time/each condition. |
| Test Conditions | Temperature/ Humidity:23.5°C/50.6% |

7.6.2 TEST PROCEDURE

- The EUT and the auxiliary equipment were placed on a table of 0.8m heights above a metal ground reference plane. The size of ground plane is greater than 1m \times 1m and project beyond the EUT by at least 0.1m on all sides. The ground plane is connected to the protective earth. The length of power cord between the coupling device and the EUT was less than 2 meters (provided by the manufacturer).
- The EUT was connected to the power mains through a coupling device that directly couples the surge interference signal. The surge noise was applied synchronized to the voltage phase at the zero crossing and the peak value of the AC voltage wave (positive and negative).
- The surges were applied line to line and line(s) to earth. When testing line to earth the test voltage was applied successively between each of the lines and earth. Steps up to the test level specified increased the test voltage. All lower levels including the selected test level were tested. The polarity of each surge level included positive and negative test pulses.

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7.6.3 TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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7.6.4 TEST RESULT

EN 301 489-52 V1.1.0 MS (MODE 1_GSM/GPRS 900&DCS/GPRS 1800) TEST RESULT

| Coupling Line | Polarity | Voltage (kV) | Observation | Conclusion |
|-----------------|----------|--------------|-------------|------------|
| a.c. power, L-N | +/- | 1.0 | TT,TR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 1_WCDMA/HSPA2100& WCDMA/HSPA900)TEST RESULT

| Coupling Line | Polarity | Voltage (kV) | Observation | Conclusion |
|-----------------|----------|--------------|-------------|------------|
| a.c. power, L-N | +/- | 1.0 | TT,TR | Pass |

IDEL (MODE 2) TEST RESULT

| Coupling Line | Polarity | Voltage (kV) | Observation | Conclusion |
|-----------------|----------|--------------|-------------|------------|
| a.c. power, L-N | +/- | 1.0 | TT,TR | Pass |

EN 301 489-17 V3.2.0 BT (MODE 3) TEST RESULT

| Coupling Line | Polarity | Voltage (kV) | Observation | Conclusion |
|-----------------|----------|--------------|-------------|------------|
| a.c. power, L-N | +/- | 1.0 | TT,TR | Pass |

EN 301 489-17 V3.2.0 WIFI (MODE 4) TEST RESULT

| Coupling Line | Polarity | Voltage (kV) | Observation | Conclusion |
|-----------------|----------|--------------|-------------|------------|
| a.c. power, L-N | +/- | 1.0 | TT,TR | Pass |

EN 301 489-19 V2.1.0 GPS (MODE 5) TEST RESULT

| Coupling Line | Polarity | Voltage (kV) | Observation | Conclusion |
|-----------------|----------|--------------|-------------|------------|
| a.c. power, L-N | +/- | 1.0 | TR | Pass |

Phenomenon: no function loss during the test.

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input type="checkbox"/> A / <input checked="" type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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7.7. IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS

7.7.1 TEST SPECIFICATION

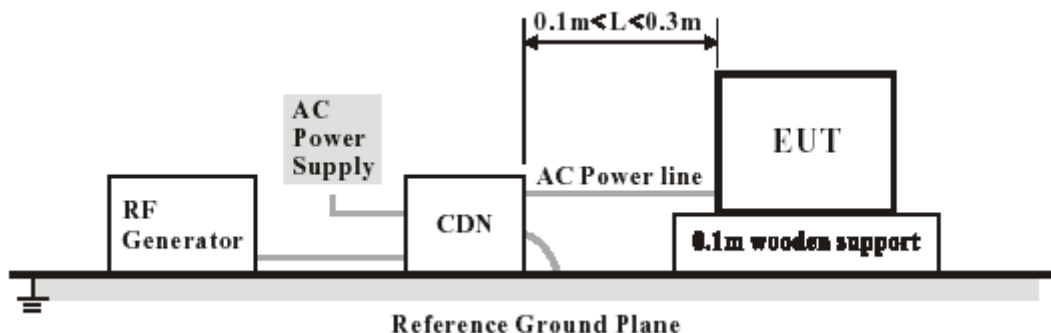
| | |
|-----------------|-------------------------------------|
| Basic Standard | EN 61000-4-6 |
| Frequency Range | 0.15 MHz – 80 MHz |
| Field Strength | 3Vrms |
| Modulation | 1 kHz Sine Wave, 80% AM |
| Frequency Step | 1% of fundamental |
| Coupled Cable | a.c. power line, Communication Line |
| Coupling Device | CDN-M2 ,Clamp |
| Test Conditions | Temperature/ Humidity:24.5℃/51.5% |

7.7.2 TEST PROCEDURE

- The EUT shall be tested within its intended operating and climatic conditions.
- The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.
- The test signal was 80% amplitude modulated with a 1 kHz sine wave
- 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 sweep rate shall not exceed 1.5×10^{-3} decades/s. The step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value where the frequency is swept incrementally.
- The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequencies and harmonics or frequencies of dominant interest, shall be analyzed separately.
- Attempts should be made to fully exercise the EUT during test, and to fully interrogate all exercise modes selected for susceptibility.
- Downlink Mode: the audio source was adjusted to achieve a reference level equivalent to a SPL of 0 dBPa at 1 kHz at the input of the acoustic coupler for the downlink, the reading of the audio level meter was recorded as a reference level. During the test, the downlink speech output level was monitored, it was confirmed to be at least 35 dB less than the previously- recorded reference level.
- Uplink Mode: EUT is used for this calibration, the output of the audio source was adjusted to achieve a reference level equivalent to a SPL of –5 dBPa at 1kHz at the Mouth Reference Point (MRP), the reading of the audio level meter, which was connected to the output of the communication tester, was recorded as a reference level. During the test, the uplink speech output level was monitored, it was confirmed to be at least 35 dB less than the previously- recorded reference level.

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7.7.3 TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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7.7.4 TEST RESULT

EN 301 489-52 V1.1.0 MS (MODE 1) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (Vrms) | Observation | Conclusion |
|-------------------------------|------------------|-----------------|-----------------------|-------------|------------|
| GSM/GPRS 900 MHz, Traffic | a.c. port | 0.15-80 | 3 | CT,CR | Pass |
| GSM/GPRS 900 MHz, Idle | a.c. port I | 0.15-80 | 3 | CT,CR | Pass |
| DCS/GPRS 1800 MHz, Traffic | a.c. port | 0.15-80 | 3 | CT,CR | Pass |
| DCS/GPRS 1800 MHz, Idle | a.c. port | 0.15-80 | 3 | CT,CR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 1) TEST RESULT

| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (Vrms) | Observation | Conclusion |
|--------------------------------|------------------|-----------------|-----------------------|-------------|------------|
| UMTS/HSPA 2100 MHz, Traffic | a.c. port | 0.15-80 | 3 | CT,CR | Pass |
| UMTS/HSPA 2100 MHz, Idle | a.c. port I | 0.15-80 | 3 | CT,CR | Pass |
| UMTS/HSPA 900 MHz, Traffic | a.c. port | 0.15-80 | 3 | CT,CR | Pass |
| UMTS/HSPA 900 MHz, Idle | a.c. port I | 0.15-80 | 3 | CT,CR | Pass |

Note: In the data transfer mode, the BER (as referred in TS 134 109 [8]) is used, it shall not exceed 0,001 during the test sequence, in the speech mode, the performance criteria shall be that the uplink and downlink speech output levels shall be at least 35 dB less than the recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz. in idle mode, the transmitter is not unintentionally operate.

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IDEL (MODE 2) TEST RESULT

| EUT Working Mode | Test Port | Frequency (MHz) | Field Strength (Vrms) | Observation | Conclusion |
|------------------|-----------|-----------------|-----------------------|-------------|------------|
| Operating Mode | a.c. port | 0.15 – 80 | 3 | CT,CR | Pass |
| Standby Mode | a.c. port | 0.15 – 80 | 3 | CT,CR | Pass |

EN 301 489-17 V3.2.0 BT (MODE 3) TEST RESULT

| EUT Working Mode | Test Port | Frequency (MHz) | Field Strength (Vrms) | Observation | Conclusion |
|------------------|-----------|-----------------|-----------------------|-------------|------------|
| Operating Mode | a.c. port | 0.15 – 80 | 3 | CT,CR | Pass |
| Standby Mode | a.c. port | 0.15 – 80 | 3 | CT,CR | Pass |

EN 301 489-17 V3.2.0 WIFI (MODE 4) TEST RESULT

| EUT Working Mode | Test Port | Frequency (MHz) | Field Strength (Vrms) | Observation | Conclusion |
|------------------|-----------|-----------------|-----------------------|-------------|------------|
| Operating Mode | a.c. port | 0.15 – 80 | 3 | CT,CR | Pass |
| Standby Mode | a.c. port | 0.15 – 80 | 3 | CT,CR | Pass |

EN 301 489-19 V2.1.0 GPS (MODE 5) TEST RESULT

| EUT Working Mode | Test Port | Frequency (MHz) | Field Strength (Vrms) | Observation | Conclusion |
|------------------|-----------|-----------------|-----------------------|-------------|------------|
| Operating Mode | a.c. port | 0.15 – 80 | 3 | CR | Pass |
| Standby Mode | a.c. port | 0.15 – 80 | 3 | CR | Pass |

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Special Conditions for EMC Immunity Tests (Worst Test Result)

| EUT operating Mode | | Max. value(dB) | Frequency (MHz) |
|----------------------|----------|----------------|-----------------|
| Call Mode GSM 900 | Uplink | -59.55 | 2.04 |
| | | -50.26 | 62.49 |
| | Downlink | -55.45 | 5.71 |
| | | -50.61 | 17.44 |

| EUT operating Mode | | Max. value | Frequency (MHz) |
|----------------------|------------|------------|-------------------|
| Call Mode GSM 900 | RX Quality | 0 | 0.15MHz-80.00 MHz |
| | | 0 | 0.15MHz-80.00 MHz |

| EUT operating Mode | | Max. value(dB) | Frequency (MHz) |
|--------------------|----------|----------------|-----------------|
| UMTS 2100 MHz | Uplink | -57.07 | 6.02 |
| | | -53.65 | 60.23 |
| | Downlink | -55.29 | 4.78 |
| | | -60.00 | 58.41 |

| EUT operating Mode | | Max. value | Frequency (MHz) |
|--------------------|-----|------------|-------------------|
| UMTS 2100 MHz | BER | 0.0007 | 0.15MHz-80.00 MHz |
| | | 0.0008 | 0.15MHz-80.00 MHz |

Note: Downlink SPL = 0 dBPa at 1KHz at the input of acoustic coupler
 Uplink SPL = -5 dBPa at 1KHz at the Mouth Reference Point
 During the test BLER / Throughput > 95%

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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7.8. VOLTAGE DIPS AND SHORT INTERRUPTIONS IMMUNITY TEST

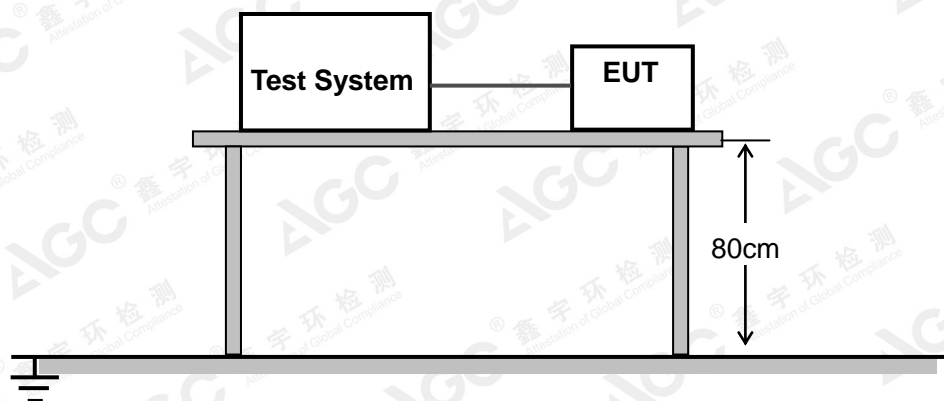
7.8.1 TEST SPECIFICATION

| | |
|------------------------------|--|
| Basic Standard | EN 61000-4-11 |
| Voltage Dips | 100% reduction, 0.5 Cycle 100% reduction, 1.0 Cycle 30% reduction, 25 Cycles |
| Voltage Interruptions | 100% reduction, 250 Cycles |
| Voltage Phase Angle | 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315° |
| Test Conditions | Temperature/ Humidity:21.5℃/52.0% |

7.8.2 TEST PROCEDURE

- The power cord was used as supplied by the manufacturer. The EUT was connected to the line output of the Voltage Dips and Interruption Generator.
- The EUT was tested for (1) 100% voltage dip of supplied voltage with duration of 0.5 cycles, (2)100% voltage dip of supplied voltage and duration 1.0 cycle. (3) 30% voltage dip of supplied voltage and duration 25 cycles. (4) 100% voltage interruption of supplied voltage with duration of 250 Cycles was followed,
- Voltage reductions occur at 0 degree crossover point of the voltage waveform. The performance of the EUT was checked after the voltage dip or interruption.

7.8.3 TEST SETUP



For the actual test configuration, please refer to Appendix II : Photographs of the Test Configuration.

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7.8.4 TEST RESULT

EN 301 489-52 V1.1.0 MS (MODE 1_GSM/GPRS 900&DCS/GPRS 1800) TEST RESULT

| Test item | Voltage Reduction | Duration (cycle) | Times | Interval (Sec) | Observation | Conclusion |
|-----------------------|-------------------|------------------|-------|----------------|-------------|------------|
| Voltage dips | 100% | 0.5 | 3 | 10 | TT,TR | Pass |
| | 100% | 1 | 3 | 10 | TT,TR | Pass |
| | 30% | 25 | 3 | 10 | TT,TR | Pass |
| Voltage interruptions | 100% | 250 | 3 | 10 | TT,TR | Pass |

EN 301 489-52 V1.1.0 UMTS (MODE 1_WCDMA/HSPA2100& WCDMA/HSPA900)TEST RESULT

| Test item | Voltage Reduction | Duration (cycle) | Times | Interval (Sec) | Observation | Conclusion |
|-----------------------|-------------------|------------------|-------|----------------|-------------|------------|
| Voltage dips | 100% | 0.5 | 3 | 10 | TT,TR | Pass |
| | 100% | 1 | 3 | 10 | TT,TR | Pass |
| | 30% | 25 | 3 | 10 | TT,TR | Pass |
| Voltage interruptions | 100% | 250 | 3 | 10 | TT,TR | Pass |

IDLE(MODE 2) TEST RESULT

| Test item | Voltage Reduction | Duration (cycle) | Times | Interval (Sec) | Observation | Conclusion |
|-----------------------|-------------------|------------------|-------|----------------|-------------|------------|
| Voltage dips | 100% | 0.5 | 3 | 10 | TT,TR | Pass |
| | 100% | 1 | 3 | 10 | TT,TR | Pass |
| | 30% | 25 | 3 | 10 | TT,TR | Pass |
| Voltage interruptions | 100% | 250 | 3 | 10 | TT,TR | Pass |

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EN 301 489-17 V3.2.0 BT (MODE 3) TEST RESULT

| Test item | Voltage Reduction | Duration (cycle) | Times | Interval (Sec) | Observation | Conclusion |
|-----------------------|-------------------|------------------|-------|----------------|-------------|------------|
| Voltage dips | 100% | 0.5 | 3 | 10 | TT,TR | Pass |
| | 100% | 1 | 3 | 10 | TT,TR | Pass |
| | 30% | 25 | 3 | 10 | TT,TR | Pass |
| Voltage interruptions | 100% | 250 | 3 | 10 | TT,TR | Pass |

EN 301 489-17 V3.2.0 WIFI (MODE 4) TEST RESULT

| Test item | Voltage Reduction | Duration (cycle) | Times | Interval (Sec) | Observation | Conclusion |
|-----------------------|-------------------|------------------|-------|----------------|-------------|------------|
| Voltage dips | 100% | 0.5 | 3 | 10 | TT,TR | Pass |
| | 100% | 1 | 3 | 10 | TT,TR | Pass |
| | 30% | 25 | 3 | 10 | TT,TR | Pass |
| Voltage interruptions | 100% | 250 | 3 | 10 | TT,TR | Pass |

EN 301 489-19 V2.1.0 GPS (MODE 5) TEST RESULT

| Test item | Voltage Reduction | Duration (cycle) | Times | Interval (Sec) | Observation | Conclusion |
|-----------------------|-------------------|------------------|-------|----------------|-------------|------------|
| Voltage dips | 100% | 0.5 | 3 | 10 | TR | Pass |
| | 100% | 1 | 3 | 10 | TR | Pass |
| | 30% | 25 | 3 | 10 | TR | Pass |
| Voltage interruptions | 100% | 250 | 3 | 10 | TR | Pass |

Phenomenon: no function loss during the test.

| PERFORMANCE CRITERIA | |
|----------------------|---|
| Criteria requested | <input type="checkbox"/> A / <input checked="" type="checkbox"/> B / <input type="checkbox"/> C |
| Criteria meet | <input checked="" type="checkbox"/> A / <input type="checkbox"/> B / <input type="checkbox"/> C |

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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST SETUP

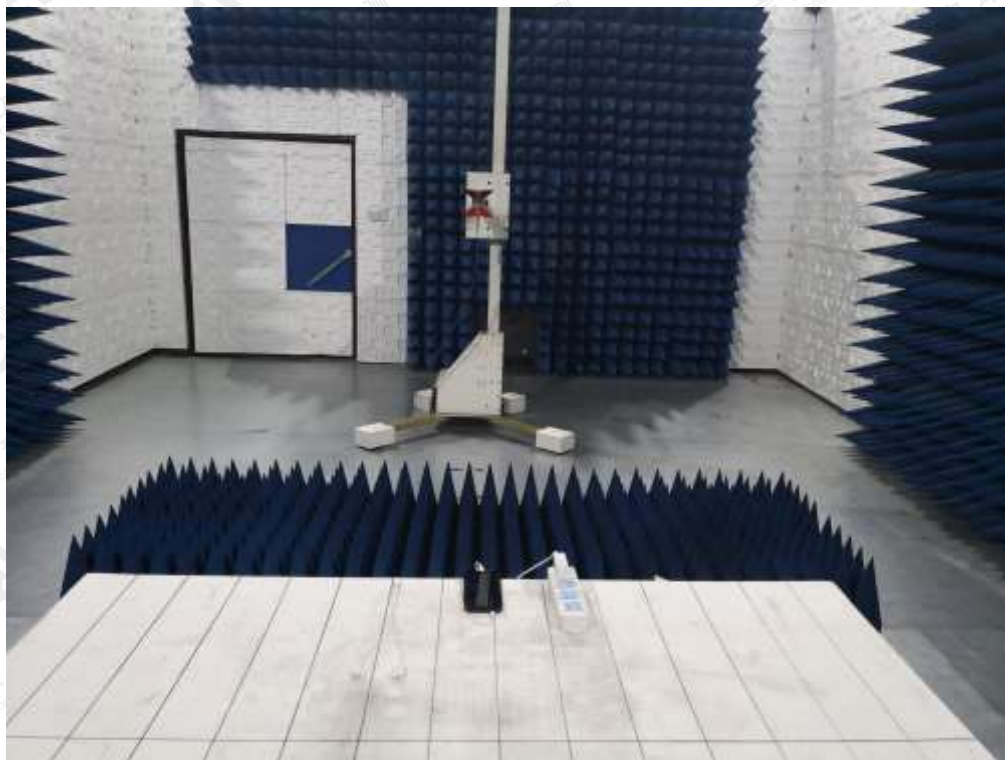


RADIATED EMISSION TEST SETUP



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RADIATED EMISSION-ABOVE 1G TEST SETUP



EN 61000-3-3 FLICKER TEST SETUP

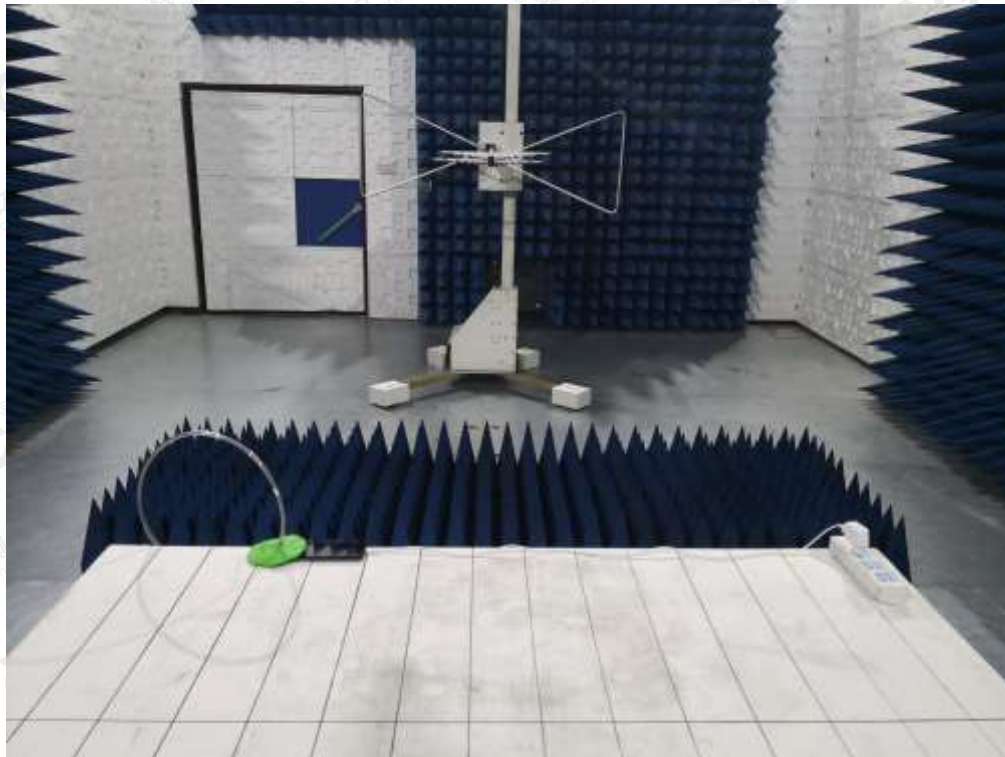


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EN 61000-4-2 ESD TEST SETUP

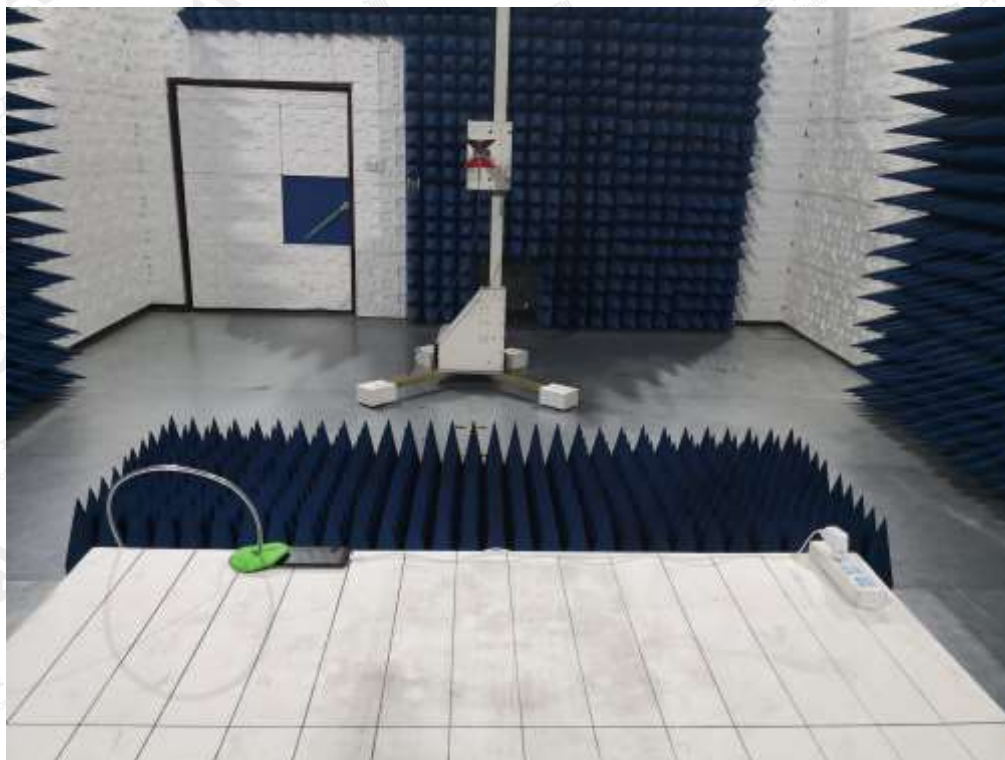


EN 61000-4-3 RS TEST SETUP



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RS ABOVE 1G TEST SETUP



EFT SURGE and DIPS IMMUNITY TEST SETUP



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EN 61000-4-6 CS TEST SETUP



----END OF REPORT----

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