



EMC Test Report

Product Name: Smart Phone

Model Number: SNE-LX1

Report No: SYBH(Z-EMC) 20180619018002-2

FCC ID: QISSNE-LX1

Reliability Laboratory of Huawei Technologies Co., Ltd.

(Global Compliance and Testing Center of Huawei Technologies Co., Ltd)

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Notice

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2. The laboratory has passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01
3. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-1.
4. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named as “Global Compliance and Testing Center of Huawei Technologies Co., Ltd”, the both names have coexisted since 2009.
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Applicant: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Date of Receipt Test Item: 2018-07-11
Start Date of Test: 2018-07-12
End Date of Test: 2018-07-20

Test Result: Pass

**Approved By
(Lab Manager)**

2018-07-25
Date

He Hao
Name

He Hao
Signature

**Prepared by
(Test Engineer)**

2018-07-24
Date

Peng Shaohua
Name

Peng Shaohua
Signature



Modification Record

| No. | Last Report No. | Modification Description |
|-----|-----------------|--------------------------|
| 1 | NA | First Report. |

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1 General Information

1.1 EUT Description

| EUT Description | |
|----------------------|--|
| Product Name | Smart Phone |
| Model Number | SNE-LX1 |
| Input voltage | 3.8V |
| TX Frequency | GSM 850:824MHz to 849MHz PCS 1900:1850MHz to 1910MHz WCDMA Band II: 1850MHz to 1910MHz WCDMA Band IV: 1710MHz to 1755MHz WCDMA Band V: 824MHz to 849MHz LTE BAND 7: 2500MHz to 2570MHz 2.4G WIFI/Bluetooth: 2400MHz to 2483.5MHz 5G WIFI: 5150MHz to 5250MHz 5250MHz to 5350MHz 5470MHz to 5725MHz 5725MHz to 5850MHz NFC:13.56MHz |
| RX Frequency | GSM 850: 869MHz to 894MHz PCS 1900:1930MHz to 1990MHz WCDMA Band II: 1930MHz to 1990MHz WCDMA Band IV: 2110MHz to 2155MHz WCDMA Band V: 869MHz to 894MHz LTE BAND 7: 2620MHz to 2690MHz 2.4G WIFI/Bluetooth: 2400MHz to 2483.5MHz 5G WIFI: 5150MHz to 5250MHz 5250MHz to 5350MHz 5470MHz to 5725MHz 5725MHz to 5850MHz GPS: 1575.42MHz BDS: 1559.052MHz GLONASS:1597.55MHz A-GPS: 1575.42MHz FM: 87.5 MHz to 108MHz NFC:13.56MHz |
| S/N | HYF0118625000336 |
| HW Version | HL2SNEL21M |
| SW Version | SNE-LX1 8.2.0.110(C900) |
| EUT Accessory | |
| Data cable(04071121) | Data Cable USB A Male to Type C ,Shield Manufacturer: Cheng Uei Precision Ind. Co., Ltd. HUIZHOU DEHONG TECHNOLOGY CO.,LTD. LUXSHARE Precision Industry Co., Ltd HONGFUJIN PRECISION INDUSTRIAL(SHENZHEN).LTD |
| Data cable(04071528) | Data Cable USB A Male to Type C ,Shield Manufacturer: Ningbo Broad Telecommunication Co., Ltd LUXSHARE Precision Industry Co., Ltd HUIZHOU DEHONG TECHNOLOGY CO.,LTD. |



| | |
|---------|--|
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-059200BHQ Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: B68479G7L00237; K68445H8R04248</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-059200AHQ Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: B68501J4300032; K68579H3522559</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-059200EHQ Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: B68393GAK24347; K68347FBT00335</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-059200UHQ Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: B76599FCC00522; K76547HB157708</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-090200BH0 Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: H9891RJ2800196; K98901J3200008</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-090200AH0 Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: H99001RJ550322; K99001J3100032</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-090200EH0 Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: H988K7J3D00236 ;K98814J2100047</p> |
| Adapter | <p>Manufacturer:Huawei Technologies Co.,Ltd. Model: HW-090200UH0 Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V ▬▬▬ 2A OR 9V ▬▬▬ 2A Rated Power: 10W OR 18W SN: H992K5J3X00035;K99201J3Y00023</p> |

| | |
|---------------------|--|
| Rechargeable Li-ion | Manufacturer:Huawei Technologies Co.,Ltd. Battery Model: HB386589ECW Rated capacity: 3650mAh Nominal Voltage:  +3.82V Charging Voltage:  +4.40V SN: 5UMSSYI405X00A41;5UMSSYI426X00652 |
| Earphone(22040322) | Manufacturer: Jiangxi Lianchuang Hongsheng Electronic Co. ,LTD GoerTek Inc. FOXCONN INTERCONNECT TECHNOLOGY LIMITED Boluo County Quancheng Electronic Co.,ltd |

Remark: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed information.



1.2 Test Site Information

| | |
|---------------------|---|
| Test Site 1: | RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD. |
| Test Site Location: | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |

1.3 Applied Standards

APPLIED STANDARD

47 CFR FCC Part 15, Subpart B

2 Summary of Results

| Summary of Results | | | | |
|--|-------------------|---|--------|-------|
| Test Items | Test Mode | Performance Class & Required Performance Criteria | Result | Site |
| <u>Radiated Emissions</u> Enclosure Port | Mode 2~ Mode 4 | CLASS B | Pass | Site1 |
| <u>Conducted Emissions</u> <input type="checkbox"/> DC Power Port <input checked="" type="checkbox"/> AC Power Port <input type="checkbox"/> Telecommunication Ports | Mode 1~ Mode 4 | CLASS B | Pass | Site1 |
| Note: 1, Measurement taken is within the uncertainty of test system. 2, <input checked="" type="checkbox"/> The item has been tested; <input type="checkbox"/> The item has not been tested. | | | | |

During the measurement, the environmental conditions complied with the range listed as below.

| Item | Required |
|----------------------|----------------|
| Ambient temperature | 15°C ~ 35°C |
| Relative humidity | 25% ~ 75% |
| Atmospheric pressure | 86kPa ~ 106kPa |

3 System Configuration during EMC Test

3.1 Test Mode

The EUT was configured, installed, arranged and operated in a manner consistent with typical application. The following mode(s) were applied during the compliance test.

| Test Mode | |
|-----------|--|
| Mode 1: | Charging +traffic +WIFI+BT+NFC+GNSS On +Earphone |
| Mode 2: | Charging +Camera On +Earphone +idle |
| Mode 3: | Charging +Video Playing +Earphone +idle |
| Mode 4: | USB Copy(EUT with PC) +Earphone |

Remark:

- 1) If there is one kind of accessories with different models, each one should be applied throughout the compliance test respectively, however, only the worst case will be recorded in this report.
- 2) If EUT has more than one typical operation, only the worst test mode will be recorded in this report.

Traffic Mode:

When the EUT state is switched on and with Radio Resource Control (RRC) connection established.

Idle Mode:

When the EUT state is switched on but without Radio Resource Control (RRC) connection.

Worst Case:

- 1) Radiated Emission

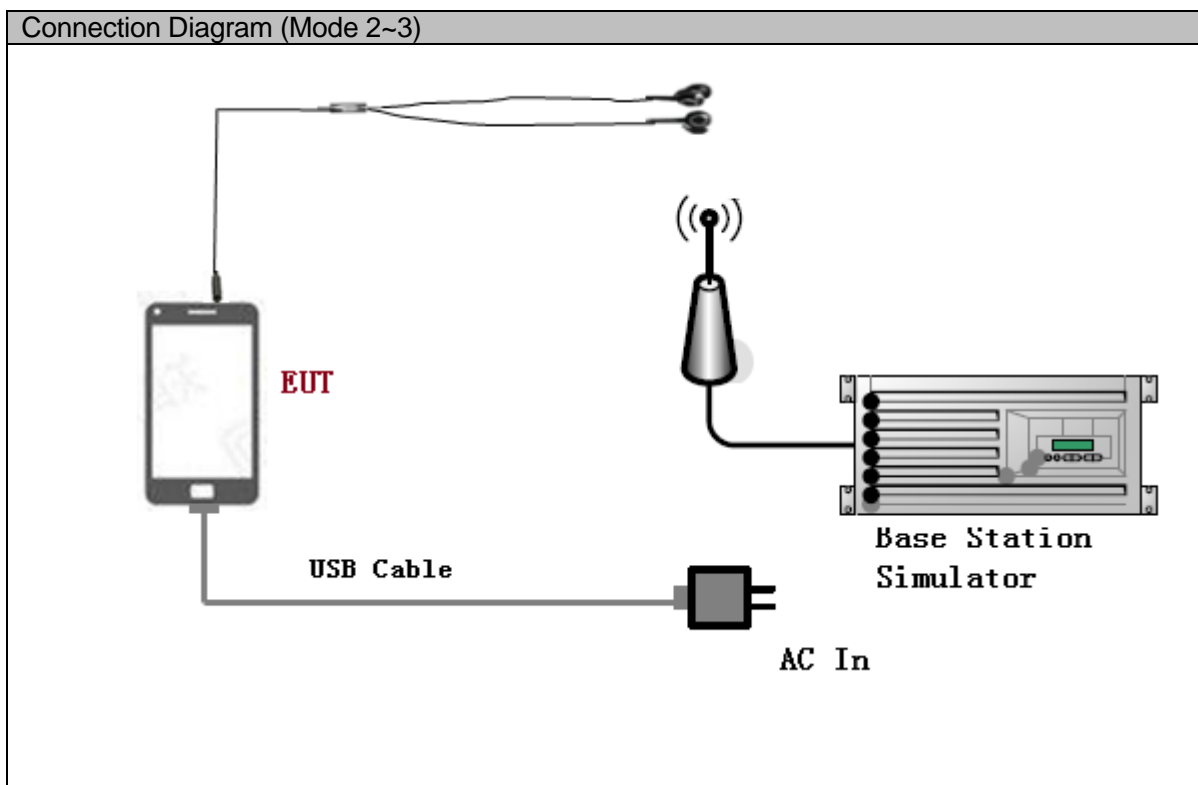
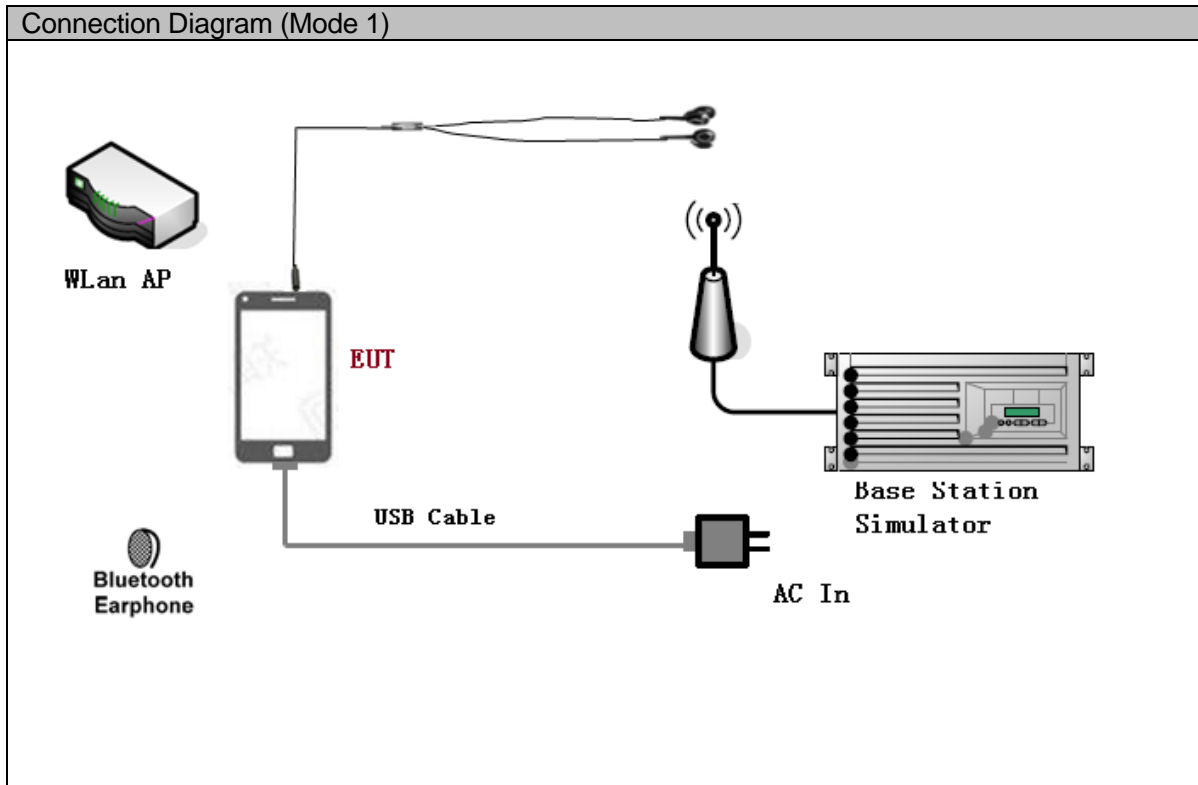
Adapter (Mode 3: HW-090200UH0, SN: K99201J3Y00023) +Charging +Video Playing +Earphone +idle the result is the worst (30MHz~1GHz).

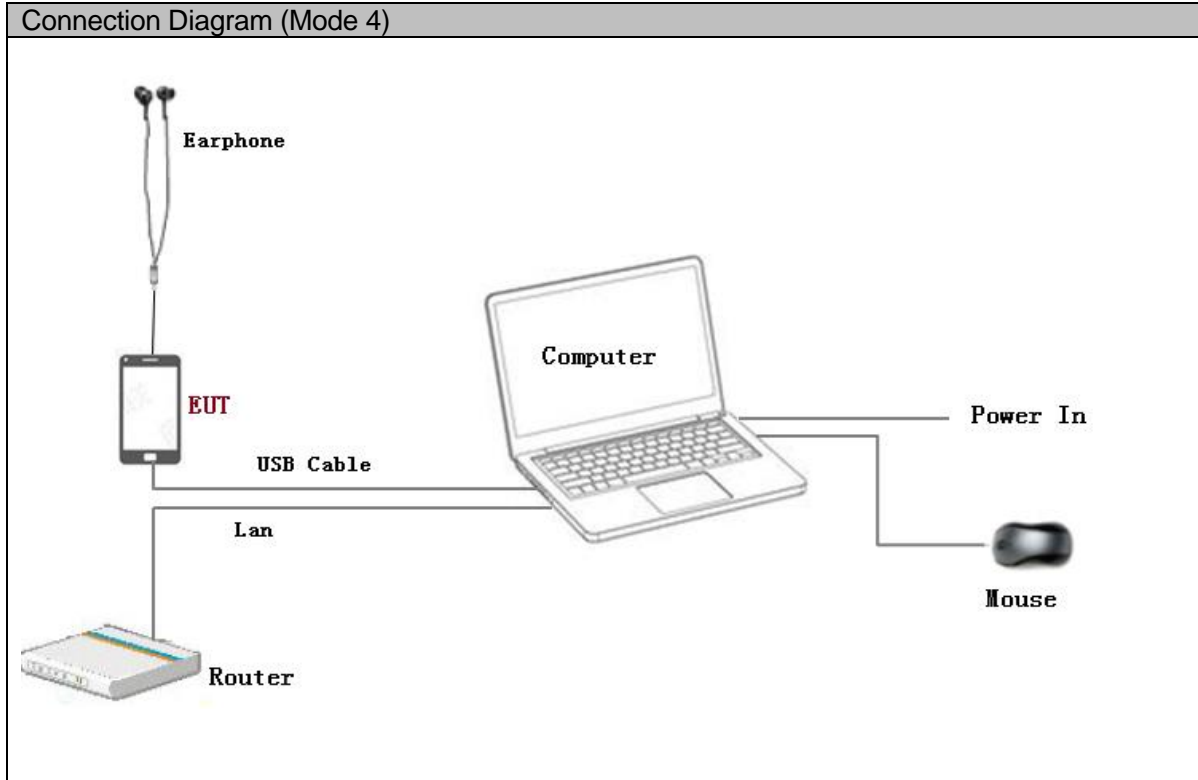
Adapter (Mode 2: HW-090200UH0, SN: K99201J3Y00023) +Charging +Camera On +Earphone +idle the result is the worst (1GHz~40GHz).

- 2) Conducted Emission

Adapter (Mode 1: HW-090200EH0, SN: K98814J2100047) + Charging + traffic +WIFI+BT+NFC+GNSS On +Earphone the result is the worst.

3.2 Test System Configuration





3.3 Cables Used during Test

| Cable | Quantity | Length | Type of Cable |
|----------|----------|--------|---------------|
| USB | 1 | <3m | Shielded |
| Earphone | 1 | <3m | Unshielded |

3.4 Associated Equipment Used during Test

| Name | Model | Manufacturer | S/N | Calibrated Deadline | Cal interval |
|----------------------------|-----------|--------------|-------------|---------------------|--------------|
| Radio Communication Tester | CMU200 | R&S | 3608082535 | 2019-05-07 | 12 |
| Radio Communication Tester | MT8820C | Anritsu | A110518805 | 2019-05-08 | 12 |
| Notebook | S3 | ThinkPad | A140714638 | / | / |
| Mouse | M-U0025-O | Lenovo | HS423HB22TB | / | / |

4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 40GHz

4.1.1 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANCI C63.4: 2014. The test distance was 3m. The set-up and test methods were according to ANCI C63.4: 2014.

A preliminary scan and a final scan of the emissions were made from 30 MHz to 40 GHz by using test script of software; The emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m. The azimuth range of turntable was 0° to 360°. The receiving antenna has two polarizations V and H.

Measurement bandwidth (RBW) for 30MHz to 1000 MHz: 120 kHz;

Measurement bandwidth (RBW) for 1000MHz to 40000 MHz: 1MHz;

EUT was configured in idle mode and the test performed at worst emission state.

4.1.2 Test setup

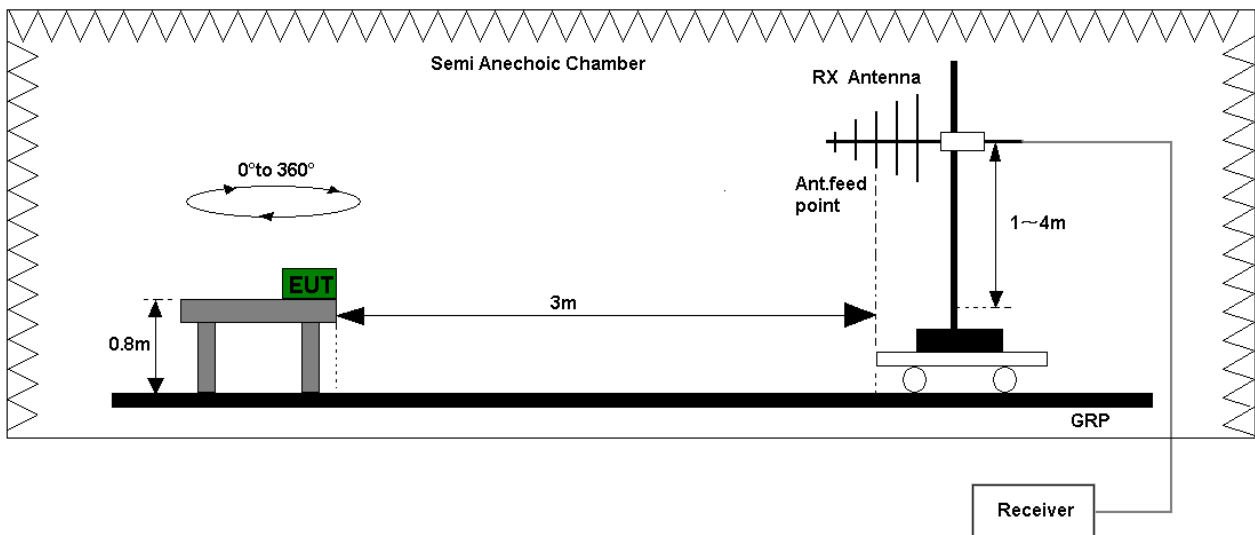


Figure 1. Test set-up of radiated disturbance(30MHz-1GHz)

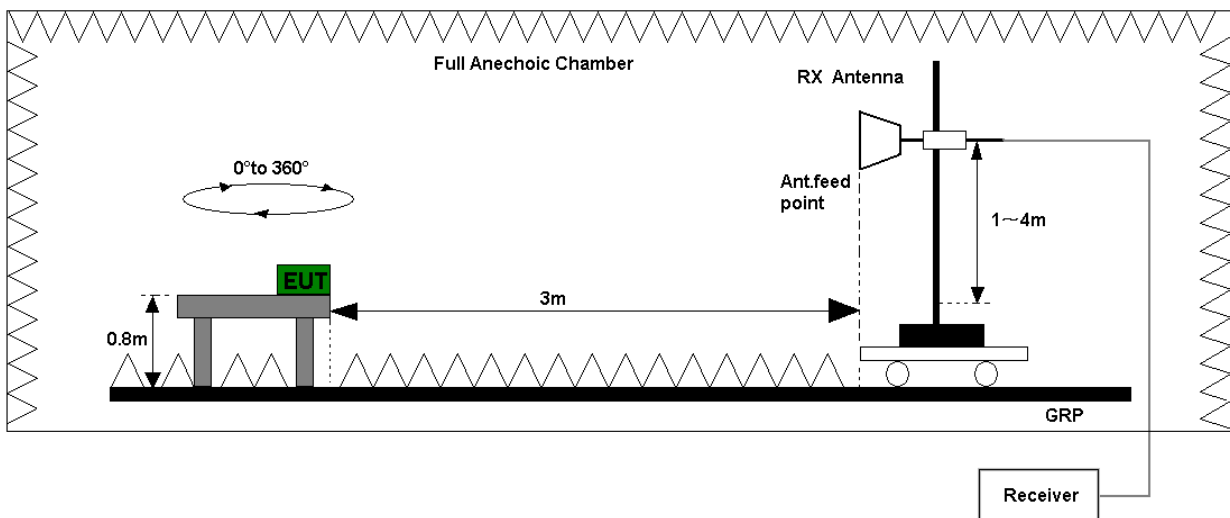


Figure 2. Test set-up of radiated disturbance(above 1GHz)



4.1.3 Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.
 Refer to the section 7.1.1 of this report for test data.

| Test Limits (Class B) | | | | |
|-----------------------------|------------------|------|--------------------|----|
| Frequency of Emission (MHz) | Radiated Limit | | | |
| | Unit(μ V/m) | | Unit(dB μ V/m) | |
| 30-88 | 100 | | 40 | |
| 88-216 | 150 | | 43.5 | |
| 216-960 | 200 | | 46 | |
| Above 960 | 500 | | 54 | |
| Above 1000 | AV | PK | AV | PK |
| | 500 | 5000 | 54 | 74 |

4.2 Conducted Disturbance 0.15 MHz to 30MHz

4.2.1 Test Procedure

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm away from LISN. The set-up and test methods were according to ANCI C63.4: 2014 Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.

EUT was communicated with the simulator through Air interface, the simulator controls the EUT to transmitter the maximum power which defined in specification of product. The EUT operated on the typical channel.

Measurement bandwidth (RBW) for 150 kHz to 30 MHz: 9 kHz;

The EUT was set in the shielded chamber and operated under nominal conditions.

4.2.2 Test Setup

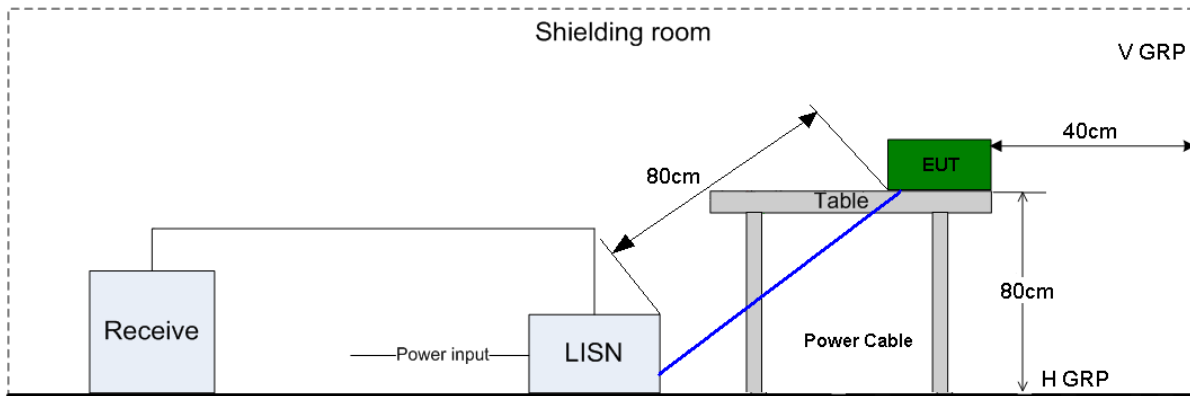


Figure 3. Test Set-up of conducted disturbance

4.2.3 Test Results

The EUT has met requirements for Conducted disturbance of power lines.

Refer to the section 7.2.1 of this report for test data.

| Test Limit of AC Power Port | | |
|-----------------------------|-----------------|-----------------|
| Frequency range | 150kHz ~ 30MHz | |
| Frequency | Voltage limits | |
| | QP (dB μ V) | AV (dB μ V) |
| 0.15MHz~0.5MHz | 66-56 | 56-46 |
| 0.5MHz-5MHz | 56 | 46 |
| 5MHz~30MHz | 60 | 50 |

5 Main Test Instruments

| Main Test Equipments | | | | | | |
|----------------------|----------------------------|--------------|----------|--------------|---------------------|--------------|
| Test item | Test Instrument | Model | S/N | Manufacturer | Calibrated Deadline | Cal interval |
| RE | EMI Test receiver | ESU26 | 100150 | R&S | Jun. 28, 2019 | 12 |
| | Spectrum Analyzer | FSU43 | 100048 | R&S | Jun. 29, 2019 | 12 |
| | Broadband Antenna | VULB 9163 | 9163-491 | SCHWARZ BECK | Mar. 28, 2019 | 24 |
| | Horn Antenna | HF906 | 100683 | R&S | Mar. 28, 2019 | 24 |
| | Horn antenna (18 to 26.5G) | 3160-09 | 5140299 | ETS | Jul. 20, 2019 | 24 |
| | Horn antenna (26.5 to 40G) | 3160-10 | LM5947 | ETS | Jul. 19, 2019 | 24 |
| | Amplifier | SCU26 | 10021 | R&S | May. 08, 2019 | 12 |
| | Amplifier | SCU40 | 10016 | R&S | May. 08, 2019 | 12 |
| CE | EMI Test receiver | ESCI | 101163 | R&S | Jan. 19, 2019 | 12 |
| | Artificial Mains Network | ENV216 | 100382 | R&S | May. 08, 2019 | 12 |
| Software Information | | | | | | |
| Test Item | Software Name | Manufacturer | | Version | | |
| RE | EMC32 | R&S | | V9.25.0 | | |
| CE | EMC32 | R&S | | V9.25.0 | | |

6 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| System Measurement Uncertainty | | |
|--------------------------------|----------------------------------|---------------|
| Items | Extended Uncertainty | |
| RE(30MHz-1GHz) | Field strength (dB μ V/m) | U=4.1dB; k=2 |
| RE(1GHz-18GHz) | Field strength (dB μ V/m) | U=5.1dB; k=2 |
| RE(18 GHz-26.5GHz) | Field strength (dB μ V/m) | U=4.82dB; k=2 |
| RE (26.5 GHz- 40GHz) | Field strength (dB μ V/m) | U=5.22dB; k=2 |
| CE | Disturbance Voltage (dB μ V) | U=2.5dB; k=2 |

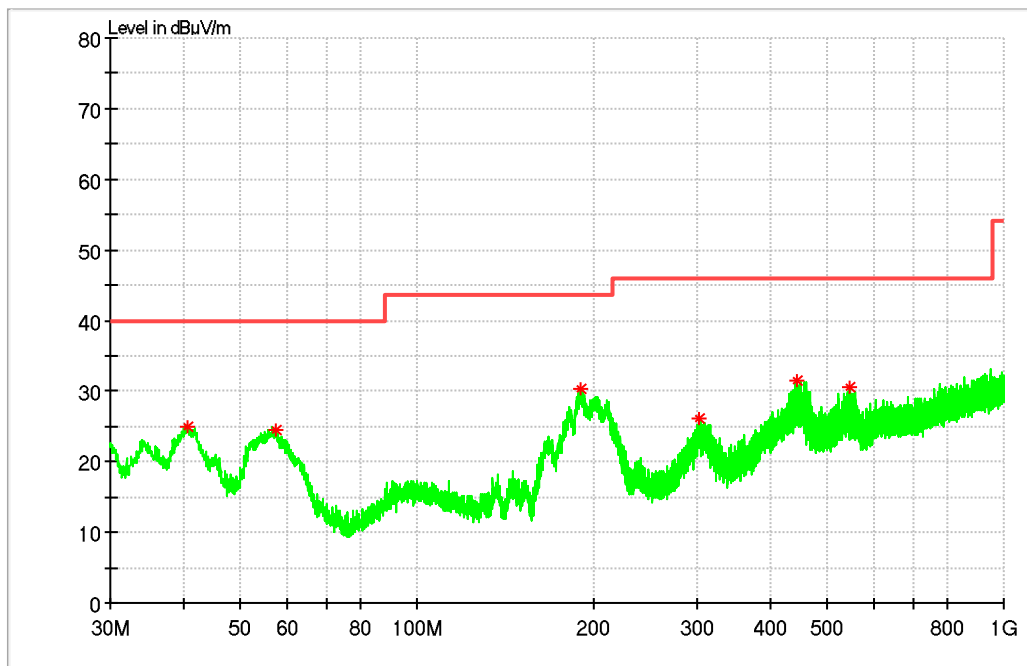
7 Test Data and Graph

Only the worst test results were shown

7.1 Radiated Disturbance

7.1.1 30MHz~1GHz

Test Mode 3: Charging + Video Playing + Earphone + idle



MEASUREMENT RESULT: QP Detector

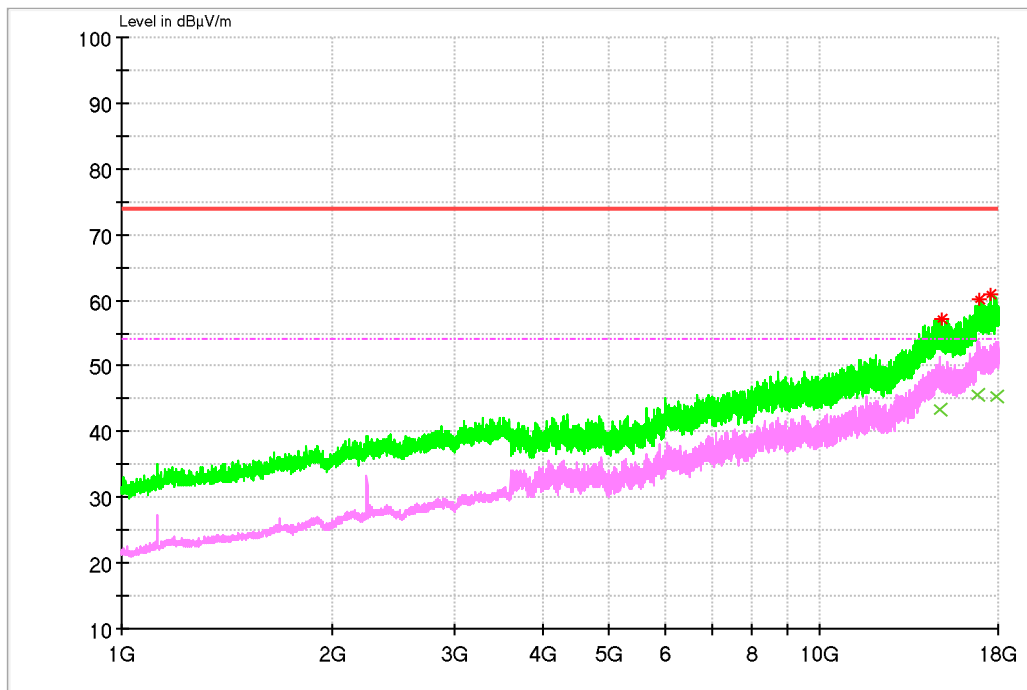
| Frequency MHz | Level dB μ V/m | Transd dB | Limit dB μ V/m | Margin dB | Height cm | Azimuth deg | Polarisation |
|------------------|-----------------------|--------------|-----------------------|--------------|--------------|----------------|--------------|
| 40.573000 | 24.90 | 14.4 | 40.00 | 15.10 | 100.0 | 158.0 | V |
| 57.305500 | 24.58 | 14.0 | 40.00 | 15.42 | 100.0 | 333.0 | V |
| 190.001500 | 30.42 | 12.5 | 43.50 | 13.08 | 100.0 | 91.0 | H |
| 303.540000 | 26.10 | 15.6 | 46.00 | 19.90 | 100.0 | 197.0 | V |
| 443.656500 | 31.41 | 18.5 | 46.00 | 14.59 | 100.0 | 174.0 | V |
| 545.215500 | 30.49 | 20.7 | 46.00 | 15.51 | 100.0 | 234.0 | V |

Note:

Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is calculated by software which is not shown in the sheet.

7.1.2 1GHz~18GHz

Test Mode 2: Charging +Camera On +Earphone +idle



MEASUREMENT RESULT: PK Detector

| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Height cm | Azimuth deg | Polarisation |
|---------------|--------------|-----------|--------------|-----------|-----------|-------------|--------------|
| 14970.033333 | 57.22 | 17.5 | 74 | 16.78 | 100.0 | 323.0 | H |
| 16880.266667 | 60.24 | 21.0 | 74 | 13.76 | 100.0 | 9.0 | V |
| 17609.000000 | 60.82 | 20.7 | 74 | 13.18 | 100.0 | 66.0 | V |

MEASUREMENT RESULT: AV Detector

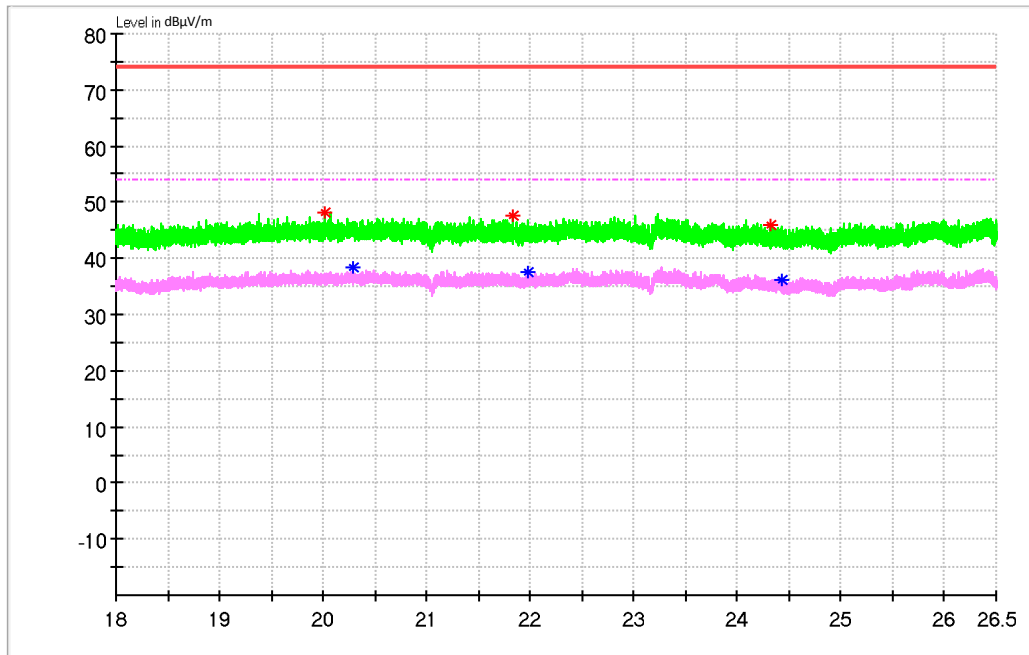
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Height cm | Azimuth deg | Polarisation |
|---------------|--------------|-----------|--------------|-----------|-----------|-------------|--------------|
| 14827.435334 | 43.33 | 17.6 | 54 | 10.67 | 100.0 | 36.0 | H |
| 16841.750000 | 45.71 | 20.7 | 54 | 8.29 | 100.0 | 22.0 | H |
| 17873.349333 | 45.47 | 21.5 | 54 | 8.53 | 100.0 | 14.0 | V |

Note:

Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is calculated by software which is not shown in the sheet.

7.1.3 18GHz~26.5GHz

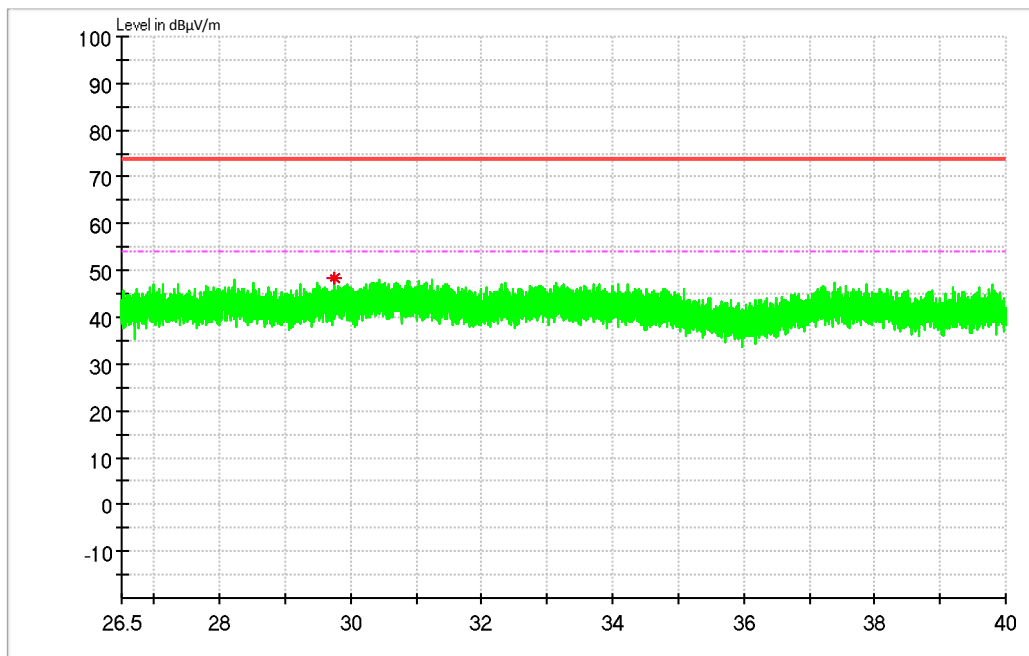
Test Mode 2:Charging +Camera On +Earphone +idle



NOTE 1: The data was measured by Peak detector.
NOTE 2: No peak found in the Test Range of “18 GHz to 26.5GHz”

7.1.4 26.5GHz~40GHz

Test Mode 2:Charging +Camera On +Earphone +idle

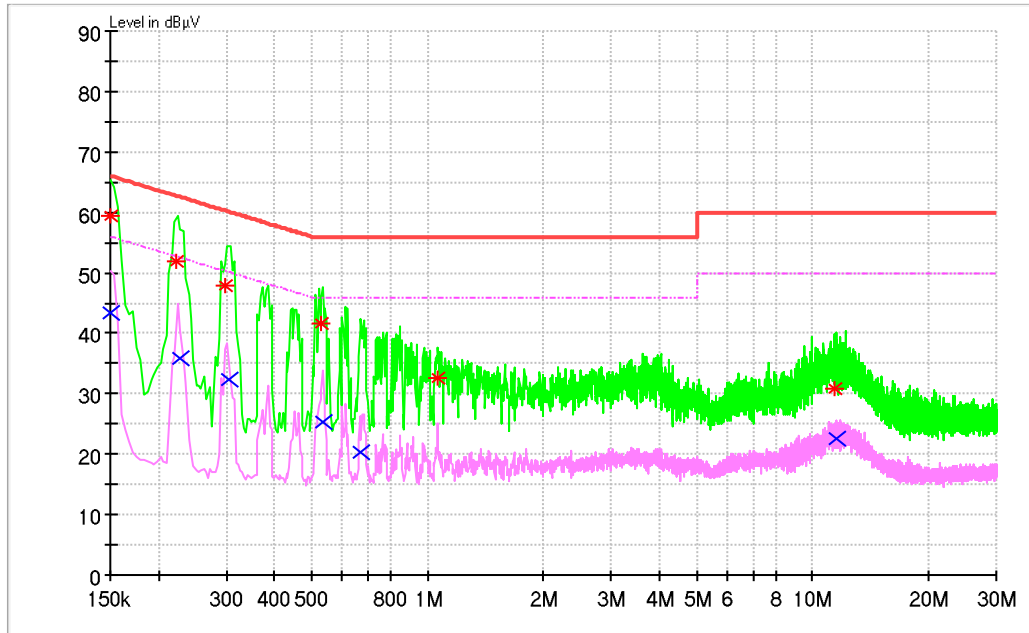


NOTE 1: The data was measured by Peak detector.
NOTE 2: No peak found in the Test Range of “26.5 GHz to 40GHz”

7.2 Conducted Disturbance

7.2.1 AC Port Test Data

Test Mode 3: Charging + traffic +WIFI+BT+NFC+GNSS On +Earphonef



MEASUREMENT RESULT: QP Detector

| Frequency MHz | Level dBµV | Line | Transd dB | Margin dB | Limit dBµV | PE |
|---------------|------------|------|-----------|-----------|------------|-----|
| 0.150584 | 59.37 | N | 9.7 | 6.60 | 65.97 | FLO |
| 0.222472 | 51.93 | N | 9.7 | 10.80 | 62.73 | FLO |
| 0.299233 | 47.85 | N | 9.7 | 12.41 | 60.26 | FLO |
| 0.526172 | 41.74 | N | 9.7 | 14.26 | 56.00 | FLO |
| 1.060638 | 32.51 | N | 9.7 | 23.49 | 56.00 | FLO |
| 11.414458 | 30.82 | N | 10.0 | 29.18 | 60.00 | FLO |

MEASUREMENT RESULT: AV Detector

| Frequency MHz | Level dBµV | Line | Transd dB | Margin dB | Limit dBµV | PE |
|---------------|------------|------|-----------|-----------|------------|-----|
| 0.150368 | 43.45 | L1 | 9.7 | 12.53 | 55.98 | FLO |
| 0.228256 | 35.80 | N | 9.7 | 16.71 | 52.51 | FLO |
| 0.303048 | 32.39 | L1 | 9.7 | 17.77 | 50.16 | FLO |
| 0.533334 | 25.32 | N | 9.7 | 20.68 | 46.00 | FLO |
| 0.673019 | 20.27 | N | 9.7 | 25.73 | 46.00 | FLO |
| 11.580461 | 22.50 | N | 10.0 | 27.50 | 50.00 | FLO |

-----END-----