


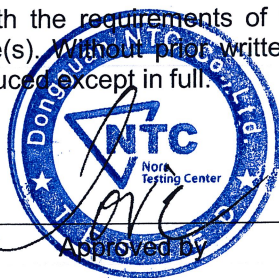
EMC TEST REPORT

Applicant.....: SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address..... : Fenda Hi-Tech Park, Zhoushi Road, Shiyao Town, Baoan District, Shenzhen City, Guangdong, China
Manufacturer..... : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address..... : Fenda Hi-Tech Park, Zhoushi Road, Shiyao Town, Baoan District, Shenzhen City, Guangdong, China
Factory..... : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address..... : Fenda Hi-Tech Park, Zhoushi Road, Shiyao Town, Baoan District, Shenzhen City, Guangdong, China
Product Name.....: Computer Multimedia Speaker
Brand Name..... : F&D
Model No. : PA300, PA200, PA928, PA948, PA310, PA100, PA388
(For model difference refer to section 2)
Measurement Standard.....: EN 55032: 2015+A11: 2020
EN IEC 61000-3-2: 2019
EN 61000-3-3: 2013+A1: 2019
EN 55035: 2017
Receipt Date of Samples.... : November 11, 2020
Date of Tested..... : November 12, 2020 to December 18, 2020
Date of Report..... : December 30, 2020

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.


Prepared by

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Approved by

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1. Summary of Test Result

| EMISSION | | | |
|--------------------------------|--|--------|---------|
| Standard | Test Item | Result | Remarks |
| EN 55032: 2015+A11: 2020 | Conducted Emission | PASS | --- |
| | Conducted Disturbance at the telecommunication ports | N/A | --- |
| | Radiated Emission | PASS | --- |
| EN IEC 61000-3-2: 2019 | Harmonic Current Emission | PASS | --- |
| EN 61000-3-3: 2013+A1: 2019 | Voltage Fluctuations & Flicker | PASS | --- |

| IMMUNITY(EN 55035: 2017) | | | |
|--|--|--------|---|
| Standard | Test Item | Result | Remarks |
| IEC 61000-4-2: 2008 | Electrostatic Discharges (ESD) | PASS | --- |
| IEC 61000-4-3: 2006+A1: 2007+A2: 2010 | Continuous RF Electromagnetic Field Disturbances | PASS | --- |
| IEC 61000-4-4: 2012 | Electrical Fast Transients/Burst (EFT/B) | PASS | --- |
| IEC 61000-4-5: 2014 | Surges | PASS | --- |
| IEC 61000-4-6: 2013 | Continuous Induced RF Disturbances | PASS | --- |
| IEC 61000-4-8: 2009 | Power Frequency Magnetic Field | N/A | The EUT does not Contain Magnetic Field Sensitive Components. |
| IEC 61000-4-11: 2004 | Voltage Dips and Interruptions | PASS | --- |

2. General Description of EUT

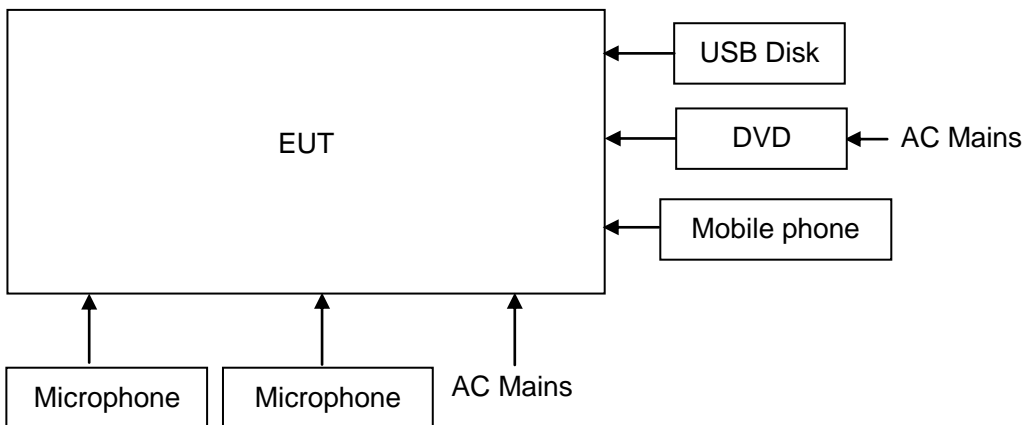
| Product Information | |
|------------------------|---|
| Product name: | Computer Multimedia Speaker |
| Main Model Name: | PA300 |
| Additional Model Name: | PA200, PA928, PA948, PA310, PA100, PA388 |
| Model Difference: | These models have the same circuit schematic, construction, PCB Layout and critical components. The difference is model number only due to trading purpose. |
| S/N: | PA300EF204000001 |
| Brand Name: | F&D |
| EUT Type: | Class B |
| Operation Frequency: | Below 108MHz (Declared by manufacturer) |
| Hardware Version: | V1.0 |
| Software Version: | V1.0 |
| Temperature range: | 0 – 40 °C (Declared by manufacturer) |
| Rating: | AC 100-240V 50/60Hz DC 12V from internal battery |
| I/O Port: | USB Port*1, MIC Port*2, AC Port*1, Optical Port*1, AUX Port*1 |
| Accessories | |
| Adapter: | N/A |
| Cable: | AC Mains: 1.5m unshielded Audio Line: 1.2m unshielded |
| Other: | IR Remote * 1 |
| Additional information | |
| Note: | According to these model difference, all tests were carried on model PA300 |
| Remark: | All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual. |

3. Configuration of EUT

Description of Test Modes

| Test Mode | | Description |
|-----------|-------------|--|
| 1. | AUX IN | Turn on the EUT and set it operating at AUX mode, then connect the EUT to mobile phone through audio cable to play 1KHz signal. |
| 2. | USB Playing | Turn on the EUT and and set it operating at USB mode, then connect the USB flash disk to play 1KHz signal. |
| 3. | Optical IN | Turn on the EUT and and set it operating at Optical mode, then connect the EUT to DVD player through optical signal cable to play 1KHz signal. |

Block Diagram of Configuration



Note:

- a. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- b. Grounding was established in accordance with the manufacturer’s requirements and conditions for the intended use, if necessary.

4. Description of Support Device

| No. | Equipment | Brand | M/N | S/N | Cable Specification | Remarks |
|-----|--------------|---------|-------------|----------------------|----------------------------------|----------------------------------|
| 1. | DVD Player | Pioneer | DV-310NC-K | 0JTL030411CN | 1.8m Unshielded, with core | --- |
| 2. | Mobile Phone | Huawei | PCT-AL10 | 5EN021930100 2260 | --- | --- |
| 3. | Microphone*2 | --- | --- | --- | --- | Provided by the laboratory |
| 4. | USB DISK | Sony | USB 3.0 8GB | --- | --- | Provided by the laboratory |

5. Test Facility

| | | |
|-----------------------------------|---|--|
| Test Site | : | Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.) |
| Accreditations and Authorizations | : | <p>The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2024</p> <p>The Laboratory has been assessed and proved to be in compliance with ISO17025</p> <p>Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 The Certificate is valid until December 31, 2021</p> <p>Listed by FCC, November 06, 2017 Test Firm Registration Number: 907417</p> <p>Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A</p> |
| Test Site Location | : | Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China |

6. Test Conditions

| No. | Test Item | Test Mode | Test Voltage | Tested by | Remarks |
|-----|--|-----------|--|-----------|------------|
| 1. | Conducted Emission | 1-3 | AC 110V / 60Hz AC 230V / 50Hz | Hancock | See note 1 |
| 2. | Conducted Emission (Asymmetric mode) Wired network Port | --- | --- | --- | --- |
| 3. | Conducted Emission (Asymmetric mode) -Antenna Port | --- | --- | --- | --- |
| 4. | Conducted Differential Voltage Emissions | --- | --- | --- | --- |
| 5. | Radiated Emission | 1-3 | AC 110V / 60Hz AC 230V / 50Hz DC 12V | Alvin | See note 1 |
| 6. | Harmonic Current Emission | 1-3 | AC 230V / 50Hz | Loki | See note 1 |
| 7. | Voltage Fluctuations & Flicker | 1-3 | AC 230V / 50Hz | Loki | See note 1 |
| 8. | Electrostatic Discharges (ESD) | 1-3 | AC 110V / 60Hz AC 230V / 50Hz DC 12V | Loki | See note 2 |
| 9. | Continuous RF Electromagnetic Field Disturbances | 1-3 | AC 110V / 60Hz AC 230V / 50Hz DC 12V | Ivan | See note 1 |
| 10. | Electrical Fast Transients/Burst (EFT/B) | 1-3 | AC 110V / 60Hz AC 230V / 50Hz | Loki | See note 2 |
| 11. | Surges | 1-3 | AC 110V / 60Hz AC 230V / 50Hz | Loki | See note 2 |
| 12. | Continuous Induced RF Disturbances | 1-3 | AC 110V / 60Hz AC 230V / 50Hz | Ivan | See note 2 |
| 13. | Power Frequency Magnetic Field | --- | --- | --- | --- |
| 14. | Voltage Dips and Interruptions | 1-3 | AC 100V / 60Hz AC 230V / 50Hz AC 240V / 50Hz | Loki | See note 2 |

Note:

1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~70%, 86~106kPa
2. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~60%, 86~106kPa
3. Only the worst voltage was recorded in the report.

7. Measurement Uncertainty

| No. | Test Item | Frequency | Uncertainty | Remarks |
|-----|--|----------------|-------------|---------|
| 1. | Conducted Emission (AC mains) | 9KHz ~ 150KHz | ± 3.04 dB | --- |
| | | 150KHz ~ 30MHz | ± 2.52 dB | --- |
| 2. | Conducted Emission (Asymmetric mode) Wired network Port | 150KHz ~ 30MHz | ± 2.52 dB | --- |
| 3. | Conducted Emission (Asymmetric mode) Antenna Port | 150KHz ~ 30MHz | ± 2.52 dB | --- |
| 4. | Conducted Differential Voltage Emissions | 30 – 2150MHz | ± 2.52 dB | --- |
| 5. | Radiated Emission Test | 30MHz ~ 1GHz | ± 4.68 dB | --- |
| | | 1GHz ~ 6GHz | ± 5.14 dB | --- |

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The measurement uncertainty levels above are estimated and calculated according to CISPR 16-4-2.

8. Measurement Bandwidths

| No. | Frequency Range (MHz) | Peak Level (kHz) | Quasi-Peak Level (kHz) | Average Level (kHz) |
|-----|-----------------------|------------------|------------------------|---------------------|
| 1. | 0.01 ~ 0.15 | 1.0 | 0.2 | N/A |
| 2. | 0.15 ~30.0 | 10.0 | 9.0 | N/A |
| 3. | 30 ~ 1000 | 100.0 | 120.0 | N/A |
| 4. | Above 1000 | 1000.0 | N/A | 1000.0 |

Note: Measurements were made using the bandwidths and detectors specified by the standard. No video filter was used.

9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

10. Sample Calculations

| Conducted Emission | | | | | | |
|--|----------------------|---------------------|--------------------|--------------|-----------|----------|
| Freq. (MHz) | Reading Level (dBuV) | Correct Factor (dB) | Measurement (dBuV) | Limit (dBuV) | Over (dB) | Detector |
| 0.1900 | 30.10 | 10.60 | 40.70 | 79.00 | -38.30 | QP |
| Where, Freq. = Emission frequency in MHz Reading Level = Uncorrected Analyzer/Receiver reading Corrector Factor = Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation Measurement = Reading + Corrector Factor Limit = Limit stated in standard Margin = Measurement - Limit Detector = Reading for Quasi-Peak / Average / Peak | | | | | | |

| Radiated Emission | | | | | | |
|--|----------------------|-----------------------|----------------------|----------------|-----------|----------|
| Freq. (MHz) | Reading Level (dBuV) | Correct Factor (dB/m) | Measurement (dBuV/m) | Limit (dBuV/m) | Over (dB) | Detector |
| 60.0700 | 45.88 | -18.38 | 27.50 | 49.00 | -21.50 | QP |
| Where, Freq. = Emission frequency in MHz Reading Level = Uncorrected Analyzer/Receiver reading Corrector Factor = Antenna Factor + Cable Loss - Pre-amplifier Measurement = Reading + Corrector Factor Limit = Limit stated in standard Over = Margin, which calculated by Measurement - Limit Detector = Reading for Quasi-Peak / Average / Peak | | | | | | |

11. Conducted Emission Measurement

LIMIT

Limits for conducted disturbance for the AC mains power ports:

| Frequency (MHz) | <input type="checkbox"/> Class A (dBuV) | | <input checked="" type="checkbox"/> Class B (dBuV) | |
|-----------------|---|---------|--|----------|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 to 0.5 | 79 | 66 | 66 to 56 | 56 to 46 |
| 0.5 to 5 | 73 | 60 | 56 | 46 |
| 5 to 30 | 73 | 60 | 60 | 50 |

- Note:
1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
 2. The higher value measured with and without the outer conductor screen of the antenna terminal connected to earth is considered.
 3. Television receivers with teletext facilities should be tested in teletext mode with teletext Picture.
 4. The lower limit shall apply at the transition frequencies.
 5. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

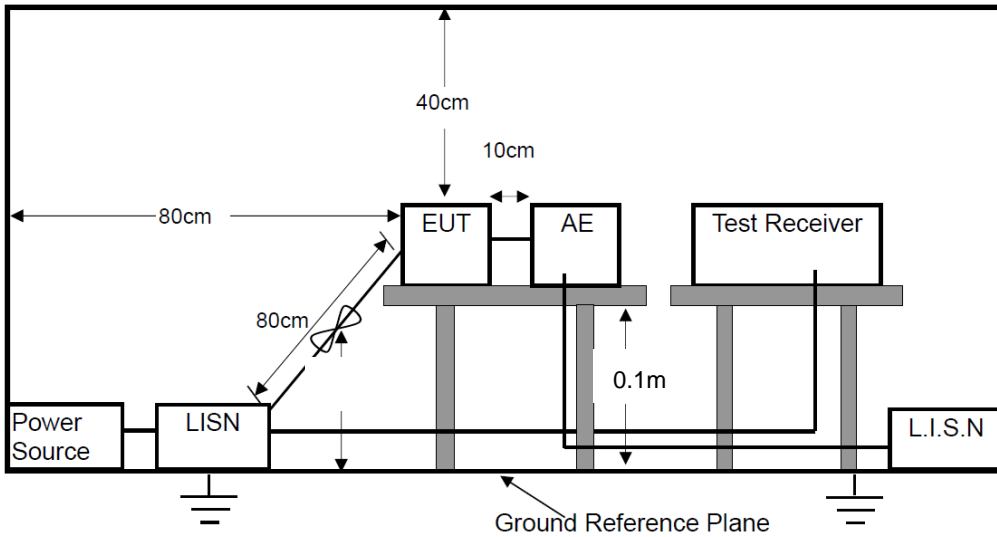
Limits for conducted disturbance for asymmetric mode:

| Frequency (MHz) | Voltage limits <input type="checkbox"/> Class A (dB(uV)) | | Current limits <input type="checkbox"/> Class A (dBuA) | |
|-----------------|---|----------|---|----------|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 to 0.5 | 97 to 87 | 84 to 74 | 53 to 43 | 40 to 30 |
| 0.5 to 30 | 87 | 74 | 43 | 30 |
| Frequency (MHz) | Voltage limits <input type="checkbox"/> Class B (dBuV) | | Current limits <input type="checkbox"/> Class B (dBuA) | |
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 to 0.5 | 84 to 74 | 74 to 64 | 40 to 30 | 30 to 20 |
| 0.5 to 30 | 74 | 64 | 30 | 20 |

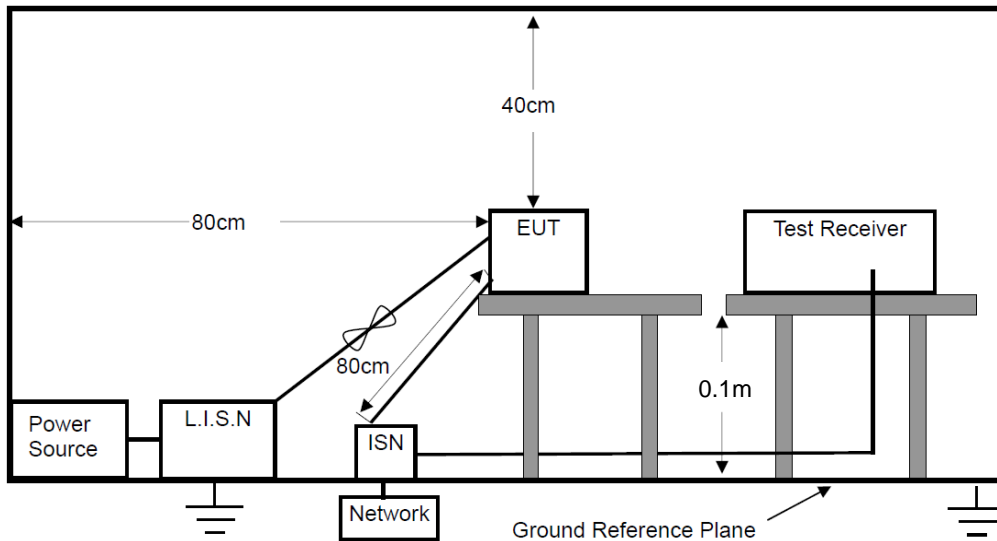
- Note:
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

BLOCK DIAGRAM OF TEST SETUP

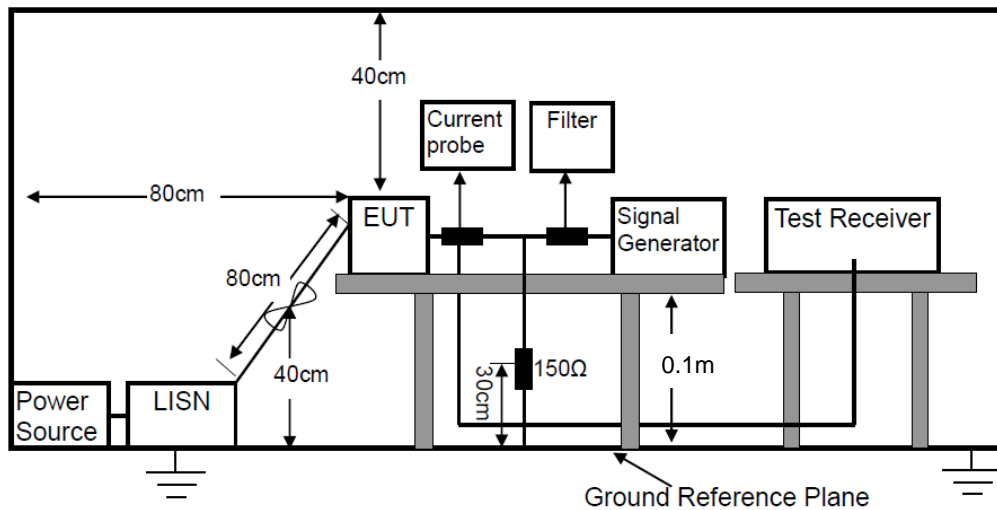
Conducted Disturbance at the Mains power Ports



Conducted Disturbance for asymmetric mode at the wired network ports



Conducted Disturbance for asymmetric mode at the antenna ports



TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.1m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. Configure the EUT and support devices as per section 3.
- c. All I/O cables and support devices were positioned as per EN 55032.
- d. Connect mains power port of the EUT to a line impedance stabilization network (LISN) and wired network port to Asymmetric Artificial Network (AAN).
- e. Connect all support devices to the other LISN and AAN, if needed.
- f. Turn on the EUT and all support devices, and make it run stably.
- g. Set the detector and measurement bandwidth of test-receiver system as per EN 55032.
- h. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for conducted interference checking
- i. Repeat the above scans in each mode and record the test data.

TEST RESULTS

PASS

Please refer to the following pages.

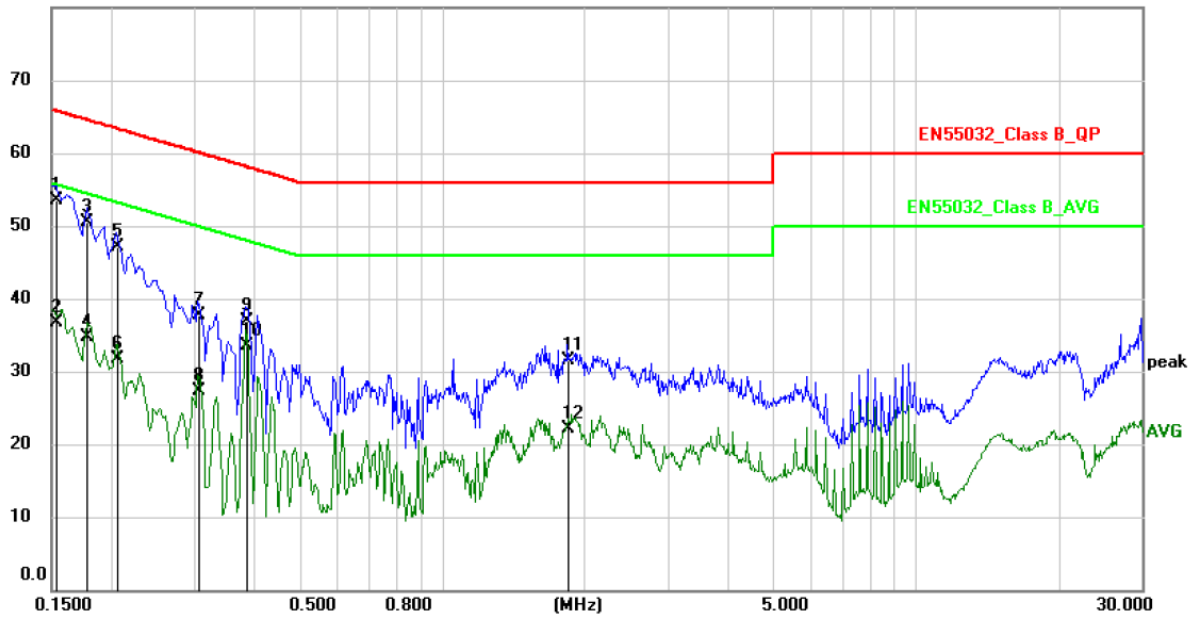
| | |
|--------------------------------|-------------------------------|
| M/N: PA300 | Testing Voltage: AC 230V/50Hz |
| Phase: L1 | Detector: QP & AVG |
| Test Model: 2 (The worst case) | |

Conducted Emission Measurement

Date: 2020/11/14

Time: 11:00:14

80.0 dBuV



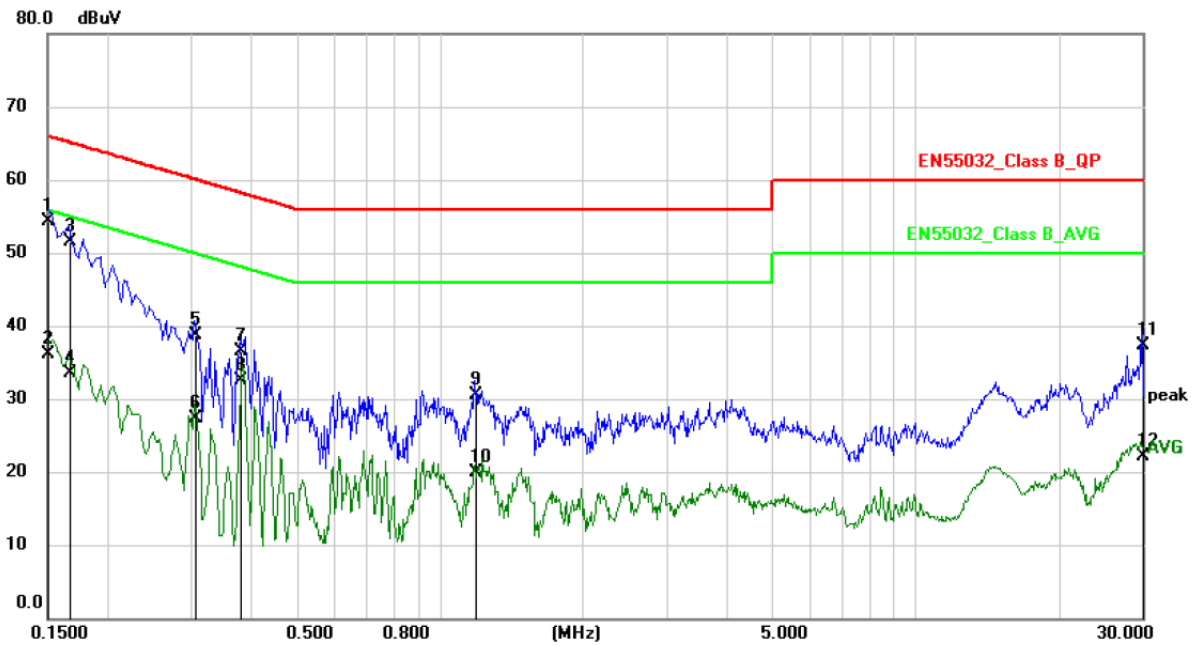
| No. Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | Detector | Comment |
|---------|--------|---------------|----------------|-------------|-------|--------|----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | | |
| 1 * | 0.1539 | 42.90 | 10.60 | 53.50 | 65.79 | -12.29 | QP | |
| 2 | 0.1539 | 26.20 | 10.60 | 36.80 | 55.79 | -18.99 | AVG | |
| 3 | 0.1779 | 40.00 | 10.60 | 50.60 | 64.58 | -13.98 | QP | |
| 4 | 0.1779 | 24.10 | 10.60 | 34.70 | 54.58 | -19.88 | AVG | |
| 5 | 0.2058 | 36.60 | 10.60 | 47.20 | 63.37 | -16.17 | QP | |
| 6 | 0.2058 | 21.10 | 10.60 | 31.70 | 53.37 | -21.67 | AVG | |
| 7 | 0.3059 | 27.10 | 10.60 | 37.70 | 60.08 | -22.38 | QP | |
| 8 | 0.3059 | 16.80 | 10.60 | 27.40 | 50.08 | -22.68 | AVG | |
| 9 | 0.3860 | 26.29 | 10.61 | 36.90 | 58.15 | -21.25 | QP | |
| 10 | 0.3860 | 22.99 | 10.61 | 33.60 | 48.15 | -14.55 | AVG | |
| 11 | 1.8460 | 20.90 | 10.70 | 31.60 | 56.00 | -24.40 | QP | |
| 12 | 1.8460 | 11.40 | 10.70 | 22.10 | 46.00 | -23.90 | AVG | |

| | |
|--------------------------------|-------------------------------|
| M/N: PA300 | Testing Voltage: AC 230V/50Hz |
| Phase: N | Detector: QP & AVG |
| Test Model: 5 (The worst case) | |

Conducted Emission Measurement

Date: 2020/11/14

Time: 11:05:11



| No. Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | Detector | Comment |
|---------|---------|---------------|----------------|-------------|-------|--------|----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | | |
| 1 * | 0.1500 | 43.70 | 10.60 | 54.30 | 66.00 | -11.70 | QP | |
| 2 | 0.1500 | 25.60 | 10.60 | 36.20 | 56.00 | -19.80 | AVG | |
| 3 | 0.1660 | 41.00 | 10.60 | 51.60 | 65.16 | -13.56 | QP | |
| 4 | 0.1660 | 22.90 | 10.60 | 33.50 | 55.16 | -21.66 | AVG | |
| 5 | 0.3059 | 28.10 | 10.60 | 38.70 | 60.08 | -21.38 | QP | |
| 6 | 0.3059 | 16.70 | 10.60 | 27.30 | 50.08 | -22.78 | AVG | |
| 7 | 0.3820 | 25.99 | 10.61 | 36.60 | 58.24 | -21.64 | QP | |
| 8 | 0.3820 | 21.89 | 10.61 | 32.50 | 48.24 | -15.74 | AVG | |
| 9 | 1.1900 | 19.90 | 10.70 | 30.60 | 56.00 | -25.40 | QP | |
| 10 | 1.1900 | 9.20 | 10.70 | 19.90 | 46.00 | -26.10 | AVG | |
| 11 | 29.9618 | 26.50 | 10.80 | 37.30 | 60.00 | -22.70 | QP | peak |
| 12 | 29.9618 | 11.40 | 10.80 | 22.20 | 50.00 | -27.80 | AVG | AVG |

12. Conducted Differential Voltage Emissions Measurement

LIMITS

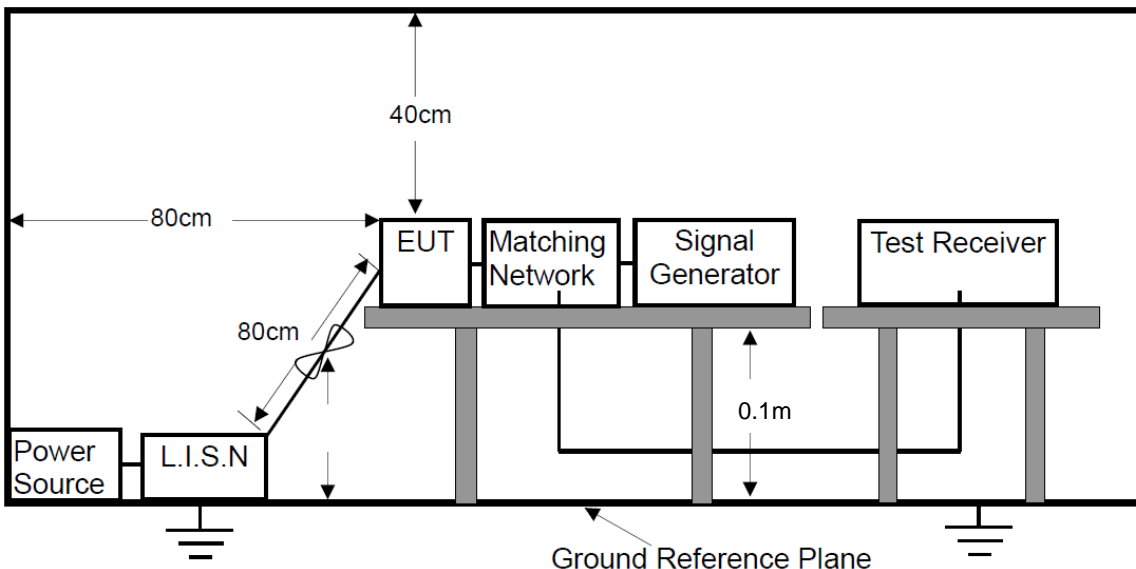
Limits for conducted differential voltage emissions from Class B equipment:

| Applicability | Frequency Range (MHz) | Detector Type/ Bandwidth | Class B Limits dB(uV) 75Ω | | | |
|---|-----------------------|--------------------------|---------------------------|------------------------------|----------------------------|----|
| | | | Other* | Local Oscillator Fundamental | Local Oscillator Harmonics | |
| See Note 1 | 30 to 950 | For frequencies ≤1GHz | 46 | 46 | 46 | |
| | 950 to 2150 | | 46 | 54 | 54 | |
| Tuner units (not the LNB) for satellite signal reception. | 950 to 2150 | | 46 | 54 | 54 | |
| Frequency modulation audio receivers and PC tuner cards. | 30 to 300 | | Quasi Peak/ 120kHz | 46 | 54 | 50 |
| | 300 to 1000 | | | | | 52 |
| Frequency modulation car radios. | 30 to 300 | | For frequencies ≥1 GHz | 46 | 66 | 59 |
| | 300 to 1000 | 52 | | | | |
| See Note 2 | 30 to 950 | Peak/1 MHz | 46 | 76 | 46 | |
| | 950 to 2150 | | | N/A | 54 | |

Note

1. Television receivers (analogue or digital), video recorders and PC TV broadcast receiver tuner cards working in channels between 30 MHz and 1 GHz, and digital audio receivers.
2. Applicable to EUTs with RF modulator output ports (for example DVD equipment, video recorders, camcorders and decoders etc.) designed to connect to TV broadcast receiver tuner ports. Limits specified for the LO are for the RF modulator carrier signal and harmonics.
3. The term 'other' refers to all emissions other than the fundamental and the harmonics of the LO.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.1m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. Configure the EUT and support devices as per section 3.
- c. All I/O cables and support devices were positioned as per EN 55032.
- d. Connect mains power port of the EUT to a line impedance stabilization network (LISN).
- e. Connect wired network port of the EUT and necessary support device to 75~50Ω matching network.
- f. Connect all support devices to the other LISN and AAN, if needed.
- g. Set the output level of the auxiliary signal generator shall be set to give at the antenna input terminal of the receiver the value of 60 dB(μV) for frequency modulation receivers and 70dB(μV) for television receivers, on 75Ω impedance.
- h. Turn on the EUT and all support devices, and make it run stably.
- i. Set the detector and measurement bandwidth of test-receiver system as per EN 55032.
- j. Scan the frequency range from 30MHz to 2150MHz for differential voltage emissions checking.
- k. Repeat the above scans in each specified mode and channel and record the test data.

TEST RESULTS

Not Applicable

13. Radiated Emission Measurement

LIMITS

Below 1GHz:

| Frequency (MHz) | <input type="checkbox"/> Class A | | <input checked="" type="checkbox"/> Class B | |
|-----------------|----------------------------------|--------|---|--------|
| | Quasi-peak dB(uV/m) | | Quasi-peak dB(uV/m) | |
| | At 3m | At 10m | At 3m | At 10m |
| 30 to 230 | 50 | 40 | 40 | 30 |
| 230 to 1000 | 57 | 47 | 47 | 37 |

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

Above 1GHz:

| Frequency (GHz) | <input type="checkbox"/> Class A at 3m | | <input type="checkbox"/> Class B at 3m | |
|-----------------|--|------------------|--|------------------|
| | Peak dB(uV/m) | Average dB(uV/m) | Peak dB(uV/m) | Average dB(uV/m) |
| 1 ~ 3 | 76 | 56 | 70 | 50 |
| 3 ~ 6 | 80 | 60 | 74 | 54 |

For FM Receiver:

| | Quasi-peak dB(uV/m) | | | |
|-------------|---|-----------|---|-----------|
| | <input checked="" type="checkbox"/> Class B At 3m | | <input type="checkbox"/> Class B At 10m | |
| | Fundamental | Harmonics | Fundamental | Harmonics |
| 30 to 230 | 60 | 52 | 50 | 42 |
| 230 to 300 | | 52 | | 42 |
| 300 to 1000 | | 56 | | 46 |

Required highest frequency for radiated measurement

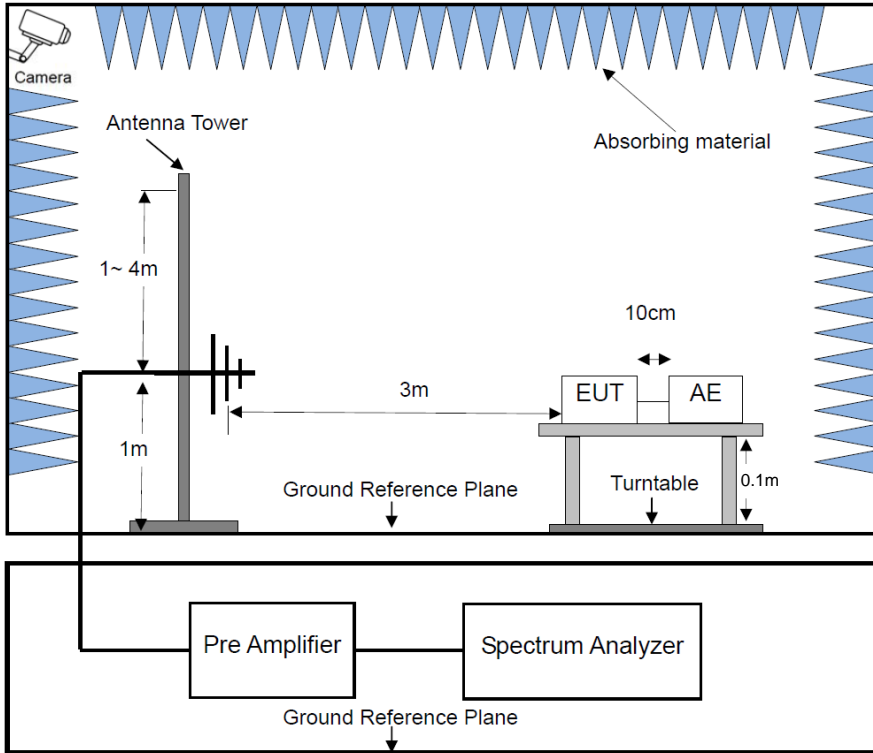
| Highest internal frequency* (F_x) | Highest measured frequency |
|--|---|
| $F_x \leq 108 \text{ MHz}$ | 1 GHz |
| $108 \text{ MHz} < F_x \leq 500 \text{ MHz}$ | 2 GHz |
| $500 \text{ MHz} < F_x \leq 1 \text{ GHz}$ | 5 GHz |
| $F_x > 1 \text{ GHz}$ | $5 \times F_x$ up to a maximum of 6 GHz |

Note

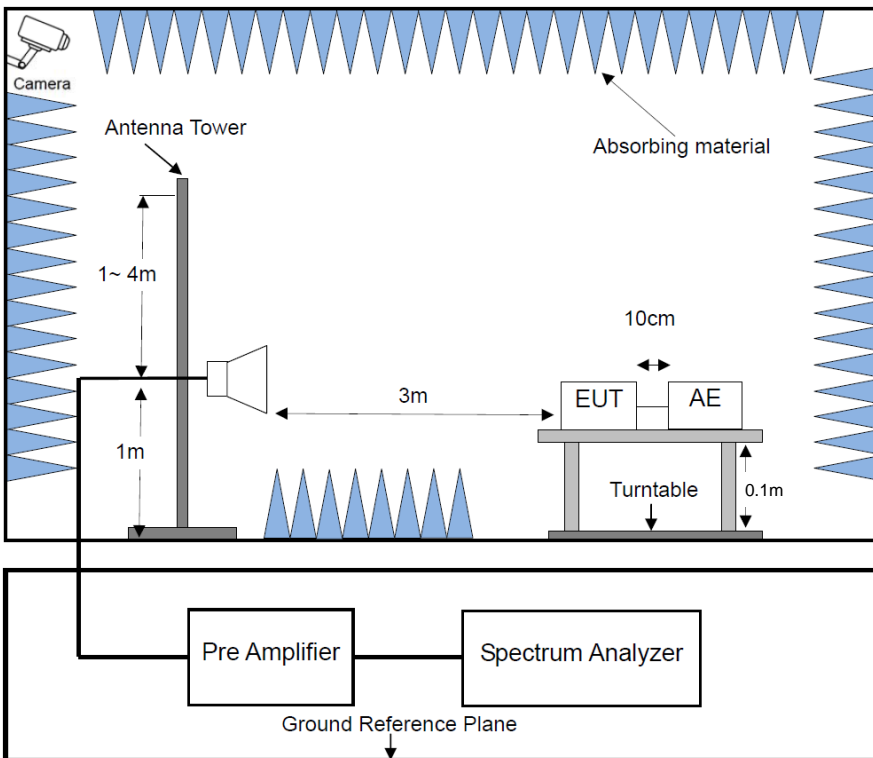
1. Highest fundamental frequency generated or used within the EUT or highest frequency at which it operates.
2. For FM and TV broadcast receivers, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.
3. For outdoor units of home satellite receiving systems highest measured frequency shall be 18GHz.
4. Where F_x is unknown, the radiated emission measurements shall be performed up to 6 GHz.

BLOCKDIAGRAM OF TEST SETUP

Below 1GHz:



Above 1GHz



TEST PROCEDURES

- a. The EUT was placed on a rotatable wooden table top 0.1m above ground.
- b. The EUT was set 3m away from the receiving antenna which was mounted on the top of a variable height antenna tower.
- c. Configure the EUT and support devices as per section 3.
- d. All I/O cables and support devices were positioned as per EN 55032.
- e. Connect mains power port of the EUT to the outlet socket under the turntable and connect all other support devices to other outlet socket under the turntable.
- f. Turn on the EUT and all support devices, and make it run stably.
- g. Set the detector and measurement bandwidth of test-receiver system as per EN 55032.
- h. Scan the frequency range from 30MHz to 1000MHz for radiation emissions checking.
- i. Emissions were scanned and measured rotating the EUT from 0 to 360 degrees and positioning the antenna from 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- j. Repeat the above scans in each mode and channel and record the test data.

TEST RESULTS

PASS

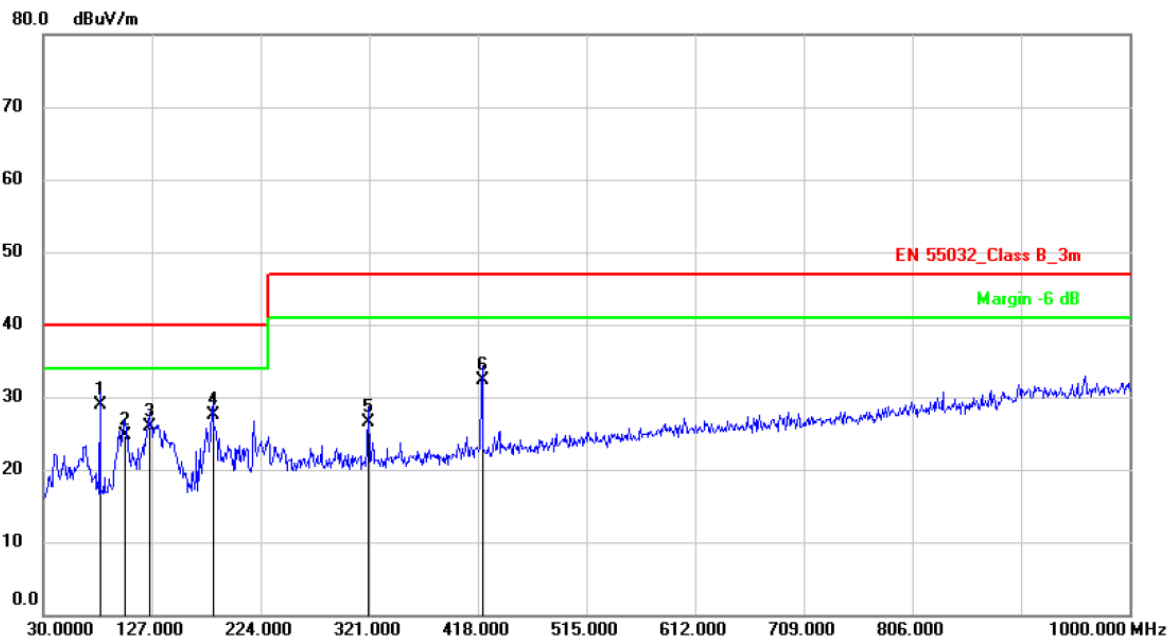
Please refer to the following pages.

| | |
|--------------------------------|-------------------------------|
| M/N: PA300 | Testing Voltage: AC 230V/50Hz |
| Polarization: Horizontal | Detector: QP |
| Test Model: 2 (The worst case) | Distance: 3m |

Radiated Emission Measurement

Date: 2020/11/16

Time: 14:25:11



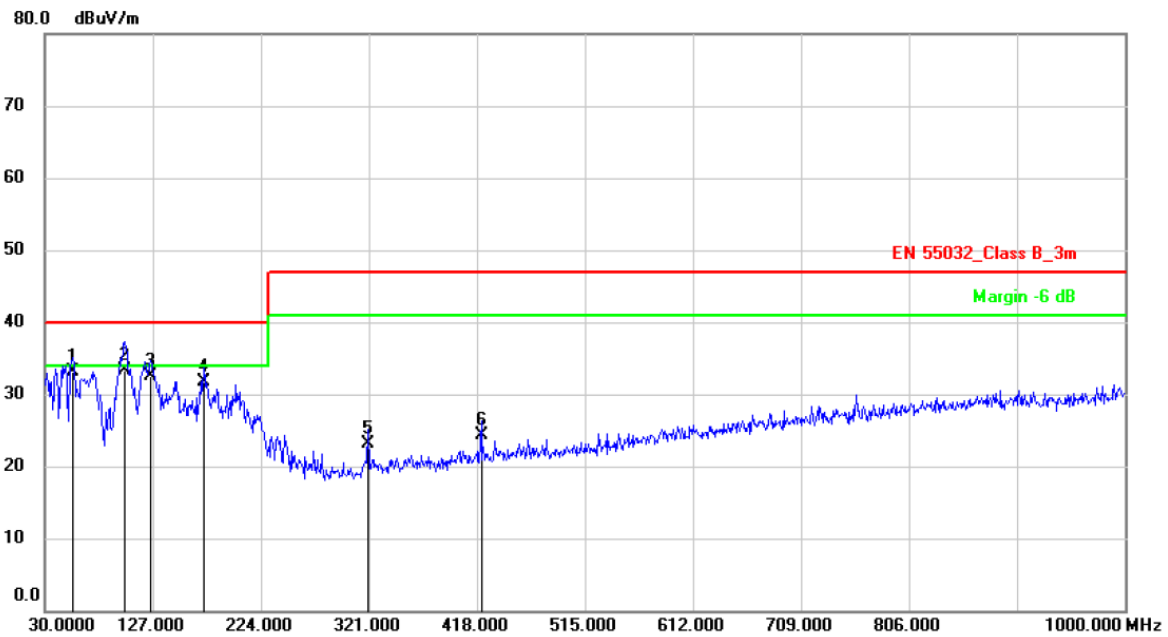
| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB/m | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|---------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | * | 80.4400 | 40.66 | -11.66 | 29.00 | 40.00 | -11.00 | QP | |
| 2 | | 102.7500 | 32.22 | -7.52 | 24.70 | 40.00 | -15.30 | QP | |
| 3 | | 125.0600 | 35.89 | -9.99 | 25.90 | 40.00 | -14.10 | QP | |
| 4 | | 181.3200 | 36.62 | -9.12 | 27.50 | 40.00 | -12.50 | QP | |
| 5 | | 320.0300 | 31.58 | -4.98 | 26.60 | 47.00 | -20.40 | QP | |
| 6 | | 421.8800 | 35.28 | -2.98 | 32.30 | 47.00 | -14.70 | QP | |

| | |
|--------------------------------|-------------------------------|
| M/N: PA300 | Testing Voltage: AC 230V/50Hz |
| Polarization: Vertical | Detector: QP |
| Test Model: 2 (The worst case) | Distance: 3m |

Radiated Emission Measurement

Date: 2020/11/16

Time: 14:18:16



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | | |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 55.2200 | 40.85 | -7.75 | 33.10 | 40.00 | -6.90 | QP | |
| 2 | * | 101.7800 | 42.05 | -8.72 | 33.33 | 40.00 | -6.67 | QP | |
| 3 | | 125.0600 | 43.83 | -11.23 | 32.60 | 40.00 | -7.40 | QP | |
| 4 | | 172.5900 | 41.76 | -10.06 | 31.70 | 40.00 | -8.30 | QP | |
| 5 | | 320.0300 | 29.08 | -5.98 | 23.10 | 47.00 | -23.90 | QP | |
| 6 | | 421.8800 | 28.28 | -3.98 | 24.30 | 47.00 | -22.70 | QP | |

14. Harmonic Current Emission Measurement

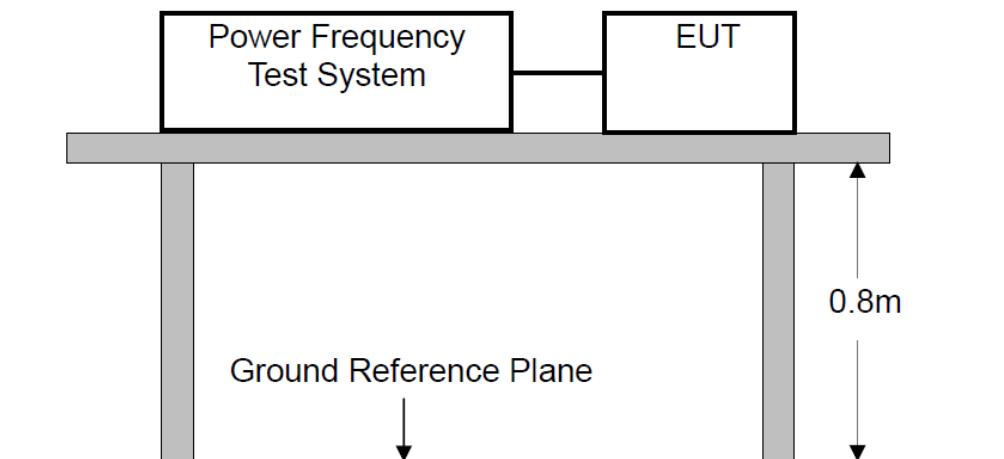
LIMITS

Limit of Harmonic Current Emission

| Limits for Class A equipment | | Limits for Class D equipment | | |
|------------------------------|---|-------------------------------------|---|---|
| Harmonics order h | Maximum permissible harmonics Current A | Harmonics order h | Maximum permissible harmonics current per watt mA/W | Maximum permissible harmonics current A |
| Odd harmonics | | - | - | - |
| 3 | 2.30 | 3 | 3.4 | 2.30 |
| 5 | 1.14 | 5 | 1.9 | 1.14 |
| 7 | 0.77 | 7 | 1.0 | 0.77 |
| 9 | 0.40 | 9 | 0.5 | 0.40 |
| 11 | 0.33 | 11 | 0.35 | 0.33 |
| 13 | 0.21 | 15 ≤ h ≤ 39 (odd harmonics only) | 3.85/h | 0.15 × 15/h |
| 15 ≤ h ≤ 39 | 0.15 × 15/h | | | |
| Even harmonics | | - | - | - |
| 2 | 1.08 | - | - | - |
| 4 | 0.43 | - | - | - |
| 6 | 0.30 | - | - | - |
| 8 ≤ h ≤ 40 | 0.23 × 8/h | - | - | - |

Note: The limits above are not specified for equipment with a rated input power of 75W or less (other than lighting equipment).

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.8m above ground.
- b. Configure the EUT and support devices as per section 3.
- c. Turn on the EUT and all support devices, and make it run stably.
- d. Set the EUT to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- e. Classify the EUT as follows:
 - Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment ,equipment not specified in one of the three other classes.
 - Class B: Portable tools; Arc welding equipment which is not professional equipment.
 - Class C: Lighting equipment.
 - Class D: Equipment having a specified power less than or equal to 600W of the Personal computers and personal computer monitors and television receivers
- f. Set correspondent test program and measurement time of the test system to measure the current harmonics emanated from EUT, and then record the test data.

TEST RESULTS

PASS

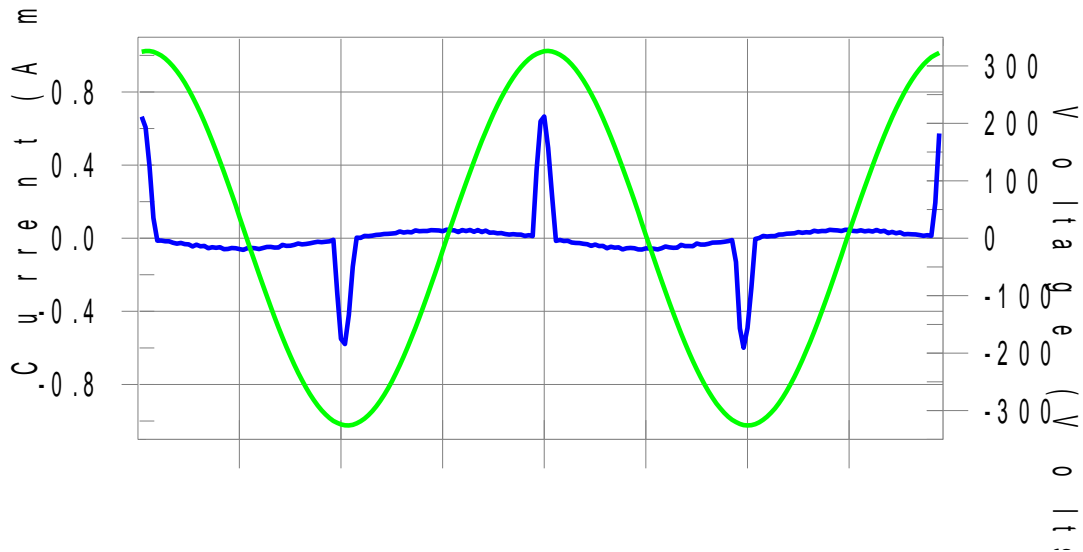
Please refer to the following pages of the worst case.

According to clause 7 of EN IEC 61000-3-2, equipment with a rated power of 75W or less, no limits apply. It is considered to meet the requirements of the standard.

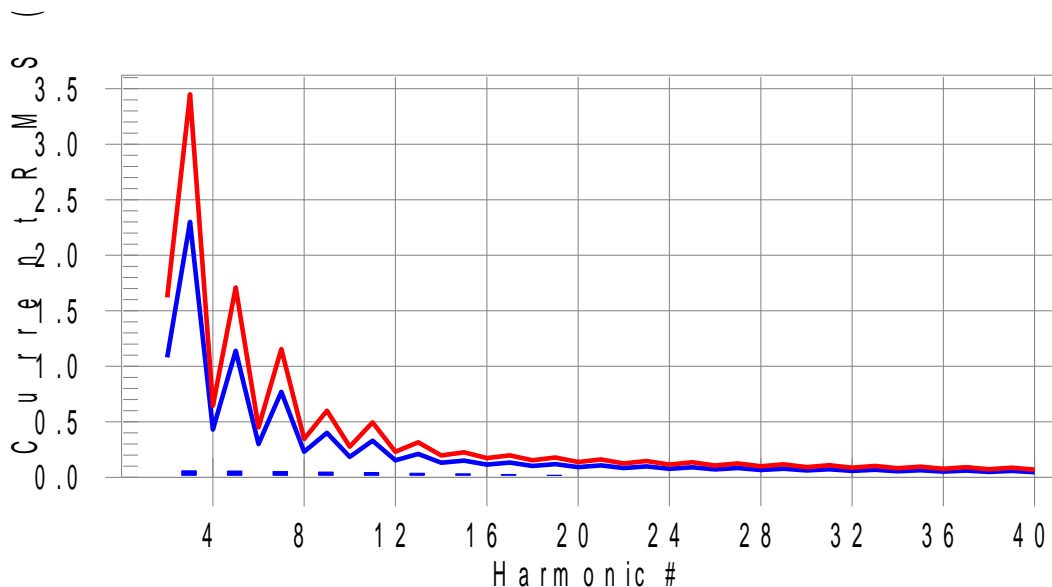
Harmonics – Class-A per Ed. Ed. 5.0 (2018)(Run time)

EUT: Computer Multimedia Speaker **Tested by: Loki**
Test category: Class-A per Ed. 5.0 (2018) (European limits) **Test Margin: 100**
Test date: 2020/11/23 **Start time: 5:04:43** **End time: 5:07:25**
Test duration (min): 2.5 **Data file name: H-000426.cts_data**
Comment: USB Playing
Customer: FENDA
M/N:PA300
Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H15-14.0% of 150% limit, H15-20.8% of 100% limit

Current Test Result Summary (Run time)

EUT: Computer Multimedia Speaker Tested by: Loki
 Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
 Test date: 2020/11/23 Start time: 5:04:43 End time: 5:07:25
 Test duration (min): 2.5 Data file name: H-000426.cts_data
 Comment: USB Playing
 Customer: FENDA
 M/N:PA300
 Test Result: Pass Source qualification: Normal
 THC(A): 0.133 I-THD(%): 184.3 POHC(A): 0.021 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.48 Frequency(Hz): 50.00
 I_Peak (Amps): 0.688 I_RMS (Amps): 0.152
 I_Fund (Amps): 0.072 Crest Factor: 4.555
 Power (Watts): 14.0 Power Factor: 0.405

| Harm# | Harms(avg) | 100%Limit | %of Limit | Harms(max) | 150%Limit | %of Limit | Status |
|-------|------------|-----------|-----------|------------|-----------|-----------|--------|
| 2 | 0.005 | 1.080 | 0.5 | 0.006 | 1.620 | 0.4 | Pass |
| 3 | 0.059 | 2.300 | 2.6 | 0.060 | 3.450 | 1.7 | Pass |
| 4 | 0.005 | 0.430 | 1.2 | 0.006 | 0.645 | 0.9 | Pass |
| 5 | 0.056 | 1.140 | 4.9 | 0.057 | 1.710 | 3.3 | Pass |
| 6 | 0.005 | 0.300 | N/A | 0.005 | 0.450 | N/A | Pass |
| 7 | 0.053 | 0.770 | 6.8 | 0.053 | 1.155 | 4.6 | Pass |
| 8 | 0.004 | 0.230 | N/A | 0.005 | 0.345 | N/A | Pass |
| 9 | 0.048 | 0.400 | 12.0 | 0.048 | 0.600 | 8.1 | Pass |
| 10 | 0.004 | 0.184 | N/A | 0.004 | 0.276 | N/A | Pass |
| 11 | 0.043 | 0.330 | 13.0 | 0.043 | 0.495 | 8.7 | Pass |
| 12 | 0.003 | 0.153 | N/A | 0.004 | 0.230 | N/A | Pass |
| 13 | 0.037 | 0.210 | 17.7 | 0.037 | 0.315 | 11.9 | Pass |
| 14 | 0.003 | 0.131 | N/A | 0.003 | 0.197 | N/A | Pass |
| 15 | 0.031 | 0.150 | 20.8 | 0.031 | 0.225 | 14.0 | Pass |
| 16 | 0.003 | 0.115 | N/A | 0.003 | 0.173 | N/A | Pass |
| 17 | 0.025 | 0.132 | 19.1 | 0.026 | 0.198 | 12.9 | Pass |
| 18 | 0.002 | 0.102 | N/A | 0.002 | 0.153 | N/A | Pass |
| 19 | 0.019 | 0.118 | 16.5 | 0.020 | 0.178 | 11.1 | Pass |
| 20 | 0.002 | 0.092 | N/A | 0.002 | 0.138 | N/A | Pass |
| 21 | 0.014 | 0.107 | 13.2 | 0.014 | 0.161 | 9.0 | Pass |
| 22 | 0.002 | 0.084 | N/A | 0.002 | 0.125 | N/A | Pass |
| 23 | 0.009 | 0.098 | 9.6 | 0.010 | 0.147 | 6.6 | Pass |
| 24 | 0.002 | 0.077 | N/A | 0.002 | 0.115 | N/A | Pass |
| 25 | 0.006 | 0.090 | 6.1 | 0.006 | 0.135 | 4.3 | Pass |
| 26 | 0.002 | 0.071 | N/A | 0.002 | 0.107 | N/A | Pass |
| 27 | 0.003 | 0.083 | N/A | 0.003 | 0.125 | N/A | Pass |
| 28 | 0.001 | 0.066 | N/A | 0.002 | 0.099 | N/A | Pass |
| 29 | 0.003 | 0.078 | N/A | 0.003 | 0.116 | N/A | Pass |
| 30 | 0.001 | 0.061 | N/A | 0.002 | 0.092 | N/A | Pass |
| 31 | 0.004 | 0.073 | N/A | 0.004 | 0.109 | N/A | Pass |
| 32 | 0.001 | 0.058 | N/A | 0.001 | 0.086 | N/A | Pass |
| 33 | 0.005 | 0.068 | N/A | 0.005 | 0.102 | N/A | Pass |
| 34 | 0.001 | 0.054 | N/A | 0.001 | 0.081 | N/A | Pass |
| 35 | 0.005 | 0.064 | N/A | 0.005 | 0.096 | N/A | Pass |
| 36 | 0.001 | 0.051 | N/A | 0.001 | 0.077 | N/A | Pass |
| 37 | 0.005 | 0.061 | N/A | 0.005 | 0.091 | N/A | Pass |
| 38 | 0.001 | 0.048 | N/A | 0.001 | 0.073 | N/A | Pass |
| 39 | 0.004 | 0.058 | N/A | 0.004 | 0.087 | N/A | Pass |
| 40 | 0.001 | 0.046 | N/A | 0.001 | 0.069 | N/A | Pass |

Note: The EUT power level is below 75.0 Watts and therefore has no defined limits

Voltage Source Verification Data (Run time)

EUT: Computer Multimedia Speaker Tested by: Loki
 Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
 Test date: 2020/11/23 Start time: 5:04:43 End time: 5:07:25
 Test duration (min): 2.5 Data file name: H-000426.cts_data
 Comment: USB Playing
 Customer: FENDA
 M/N:PA300
 Test Result: Pass Source qualification: Normal

Highest parameter values during test:

| | |
|------------------------|----------------------|
| Voltage (Vrms): 230.48 | Frequency(Hz): 50.00 |
| I_Peak (Amps): 0.688 | I_RMS (Amps): 0.152 |
| I_Fund (Amps): 0.072 | Crest Factor: 4.555 |
| Power (Watts): 14.0 | Power Factor: 0.405 |

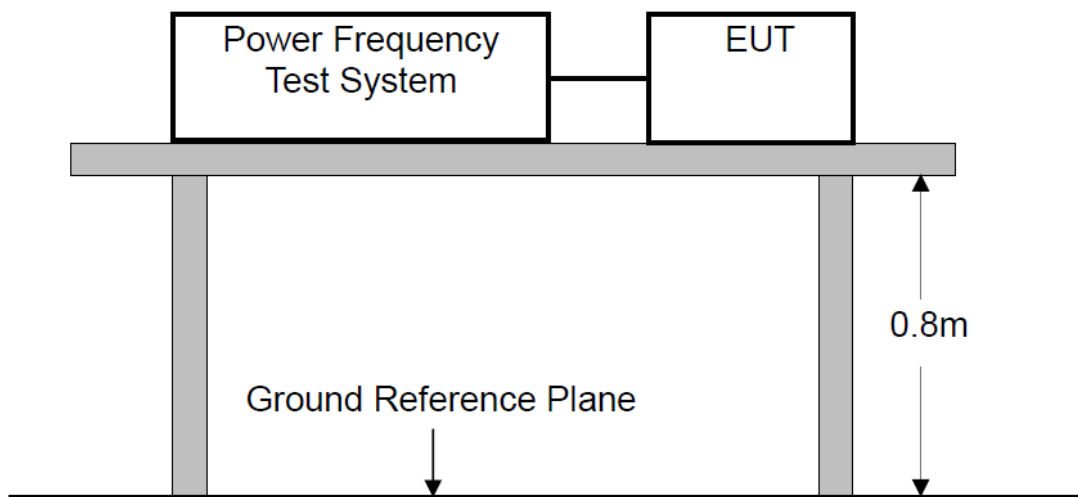
| Harm# | Harmonics V-rms | Limit V-rms | % of Limit | Status |
|-------|-----------------|-------------|------------|--------|
| 2 | 0.071 | 0.461 | 15.38 | OK |
| 3 | 0.529 | 2.074 | 25.50 | OK |
| 4 | 0.073 | 0.461 | 15.95 | OK |
| 5 | 0.045 | 0.922 | 4.83 | OK |
| 6 | 0.038 | 0.461 | 8.25 | OK |
| 7 | 0.048 | 0.691 | 6.95 | OK |
| 8 | 0.014 | 0.461 | 3.00 | OK |
| 9 | 0.039 | 0.461 | 8.56 | OK |
| 10 | 0.012 | 0.461 | 2.64 | OK |
| 11 | 0.040 | 0.230 | 17.42 | OK |
| 12 | 0.013 | 0.230 | 5.61 | OK |
| 13 | 0.027 | 0.230 | 11.60 | OK |
| 14 | 0.004 | 0.230 | 1.60 | OK |
| 15 | 0.026 | 0.230 | 11.22 | OK |
| 16 | 0.008 | 0.230 | 3.45 | OK |
| 17 | 0.024 | 0.230 | 10.37 | OK |
| 18 | 0.013 | 0.230 | 5.74 | OK |
| 19 | 0.024 | 0.230 | 10.61 | OK |
| 20 | 0.021 | 0.230 | 9.00 | OK |
| 21 | 0.020 | 0.230 | 8.71 | OK |
| 22 | 0.004 | 0.230 | 1.89 | OK |
| 23 | 0.013 | 0.230 | 5.83 | OK |
| 24 | 0.004 | 0.230 | 1.90 | OK |
| 25 | 0.008 | 0.230 | 3.66 | OK |
| 26 | 0.004 | 0.230 | 1.85 | OK |
| 27 | 0.004 | 0.230 | 1.69 | OK |
| 28 | 0.004 | 0.230 | 1.79 | OK |
| 29 | 0.006 | 0.230 | 2.58 | OK |
| 30 | 0.003 | 0.230 | 1.49 | OK |
| 31 | 0.006 | 0.230 | 2.61 | OK |
| 32 | 0.004 | 0.230 | 1.55 | OK |
| 33 | 0.007 | 0.230 | 3.09 | OK |
| 34 | 0.003 | 0.230 | 1.39 | OK |
| 35 | 0.008 | 0.230 | 3.27 | OK |
| 36 | 0.003 | 0.230 | 1.31 | OK |
| 37 | 0.008 | 0.230 | 3.30 | OK |
| 38 | 0.003 | 0.230 | 1.09 | OK |
| 39 | 0.008 | 0.230 | 3.28 | OK |
| 40 | 0.011 | 0.230 | 4.88 | OK |

15. Voltage Fluctuations & Flicker Measurement

LIMIT

| Test Item | Limit | Remarks |
|---------------|-------|--|
| P_{st} | 1.0 | P_{st} = Short-term flicker indicator |
| P_{lt} | 0.65 | P_{lt} = Long-term flicker indicator |
| T_{dt} | 500ms | T_{dt} = Maximum accumulated time that dt with a deviation exceeding 3,3 % |
| $d_{max}(\%)$ | 4% | d_{max} = Maximum relative voltage change |
| $d_c(\%)$ | 3.3% | d_c = Maximum relative steady-state voltage change |

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURE

- a. The EUT was placed on a wooden table 0.8m above ground.
- b. Configure the EUT and support devices as per section 3.
- c. Turn on the EUT and all support devices, and make it run stably.
- d. Set the EUT to produce the most unfavorable sequence of voltage changes under normal operating conditions.
- e. Set correspondent test program and measurement time of the test system to measure the most unfavorable sequence of voltage changes from EUT, and then record the test data.

TEST RESULTS

PASS

Please refer to the following page of the worst case.

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

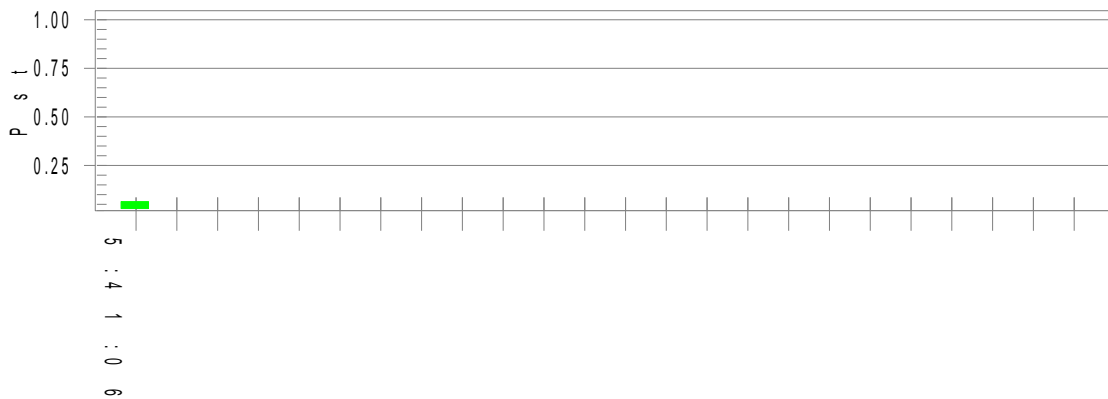
EUT: Computer Multimedia Speaker
Test category: All parameters (European limits)
Test date: 2020/11/23
Test duration (min): 10
Comment: USB Playing
Customer: FENDA
M/N:PA300
Test Result: Pass

Tested by: Loki
Test Margin: 100
Start time: 5:30:45
Data file name: F-000429.cts_data
End time: 5:41:12

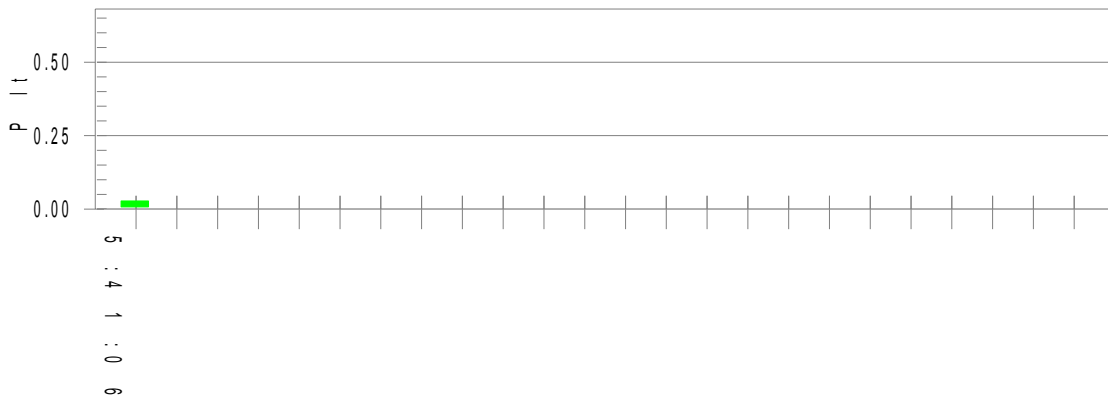
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

| | | | |
|--|---------------|-------------------------|-------------------|
| Vrms at the end of test (Volt): | 230.40 | | |
| T-max (mS): | 0 | Test limit (mS): | 500.0 Pass |
| Highest dc (%): | 0.00 | Test limit (%): | 3.30 Pass |
| Highest dmax (%): | 0.00 | Test limit (%): | 4.00 Pass |
| Highest Pst (10 min. period): | 0.064 | Test limit: | 1.000 Pass |
| Highest Plt (2 hr. period): | 0.028 | Test limit: | 0.650 Pass |

16. Performance Criteria for Immunity

The performance criteria are referred to the test standard: **EN 55035**

Performance Criteria A

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

Performance Criteria B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

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

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

Performance Criteria C

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

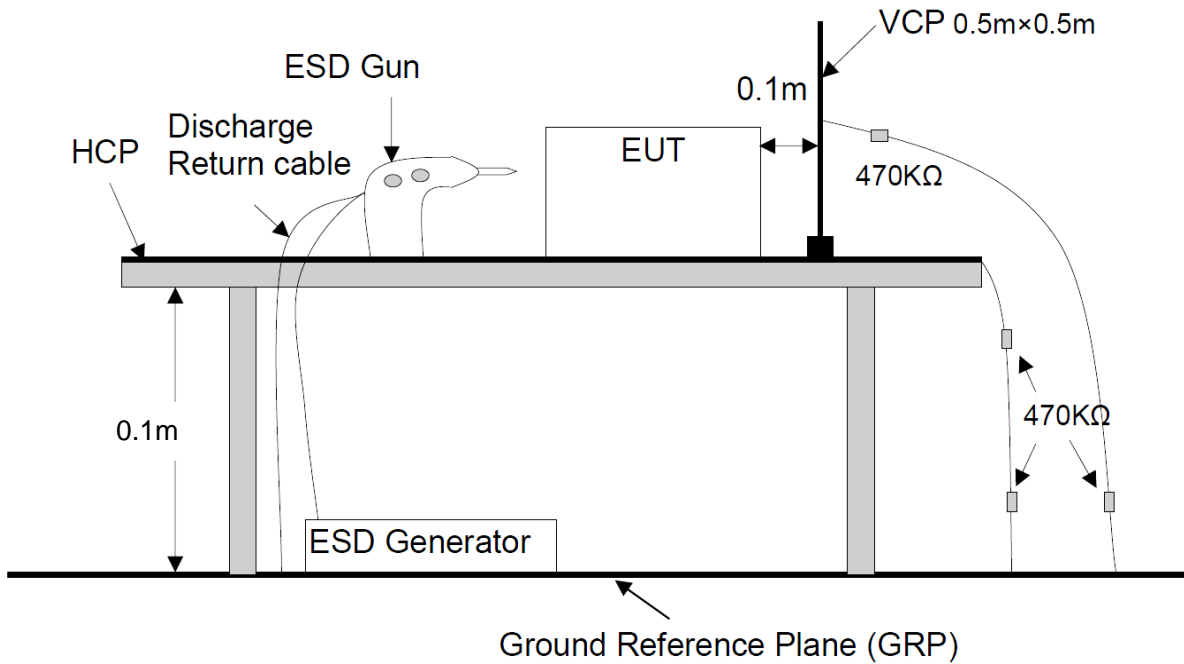
Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

17. Electrostatic Discharge Measurement

TEST LEVEL

| Level | Test Voltage Contact Discharge (KV) | Test Voltage Air Discharge (KV) |
|-------|-------------------------------------|---------------------------------|
| 1 | ±2.0 | ±2.0 |
| 2 | ±4.0 | ±4.0 |
| 3 | ±6.0 | ±8.0 |
| 4 | ±8.0 | ±15.0 |
| X | Special | Special |
| Note: | "x" is an open level. | |

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

Air Discharge:

Air discharges at slots and apertures and insulating surfaces. On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

Contact Discharge:

Contact discharges to the conductive surfaces and coupling planes. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 20 indirect discharges to the center of the front edge of the Horizontal Coupling Plane (HCP). The remaining three test points shall each receive at least 20 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

- a. The EUT was placed on a wooden table 0.1m height from the ground.
- b. The EUT was located 0.1m minimum from all side of the HCP (dimensions 1.6m x0.8m).
- c. Configure the EUT and support devices as per section 3.
- d. The support units were located 30cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10cm with EUT.
- e. Turn on the EUT and all support devices, and make it run stably.
- f. The time interval between two successive single discharges was at least 1 second. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- g. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

- h. At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each HCP opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the HCP and perpendicular to its front edge during the discharges.
- i. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane (VCP) in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.
- j. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT:

| Description | Level | Performance Criterion |
|-------------------|--------|-----------------------|
| Contact Discharge | ±4.0KV | B |
| Air Discharge | ±8.0KV | B |

TEST RESULT

PASS

Please refer to the following pages.

Electrostatic Discharge Test Results

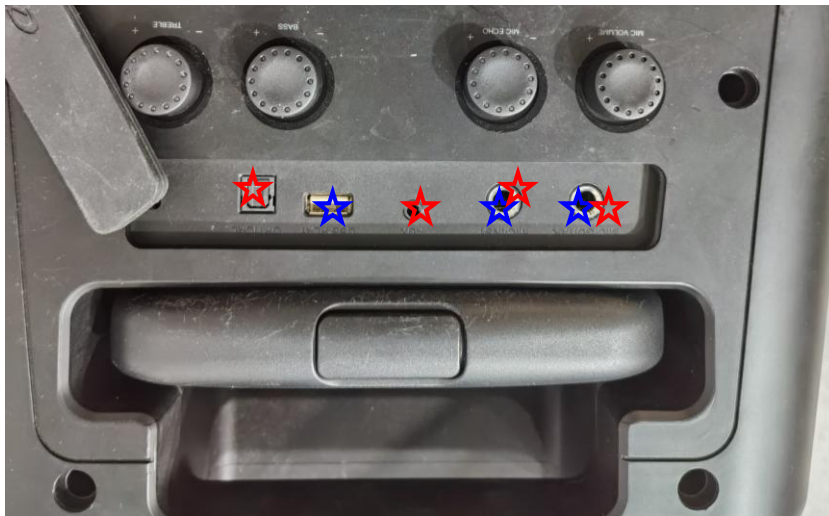
| | | | |
|--------------------------------|--|---|------------------------|
| Ambient Condition: | Temp.: 27°C | R.H.: 37% | Air Pressure : 101 kPa |
| Test Specifications | Test level: | ±2, 4 KV for Contact Discharge ±2, 4, 8 KV for Air Discharge | |
| | Discharge impedance: | 330ohm / 150pF | |
| | NO. of discharges: | 10 times at each test point for each polarity at least | |
| | Polarity: | Positive / Negative | |
| | Discharge mode: | Single | |
| | Interval time of discharges: | ≥1s | |
| Required Performance Criterion | B | | |
| Tested mode | 1-3 | | |
| Test Point | Kind A-Air Discharge C-Contact Discharge | Result (Performance Criterion) | |
| Metal, MIC Port, Optical | C | A | |
| USB Port | C | B | |
| MIC Port, AUX Port | A | B | |
| AC Port, Button, Screen | A | A | |
| Indirect Discharge (VCP) | C | A | |
| Indirect Discharge (HCP) | --- | --- | |

Note: The noise phenomenon occurred during the test, but the EUT can be resumed to normal operation after the test.

ESD TEST POINT

(★ Direct Air Discharge; ☆ Direct Contact Discharge)





18. Continuous RF Electromagnetic Field Disturbances Measurement

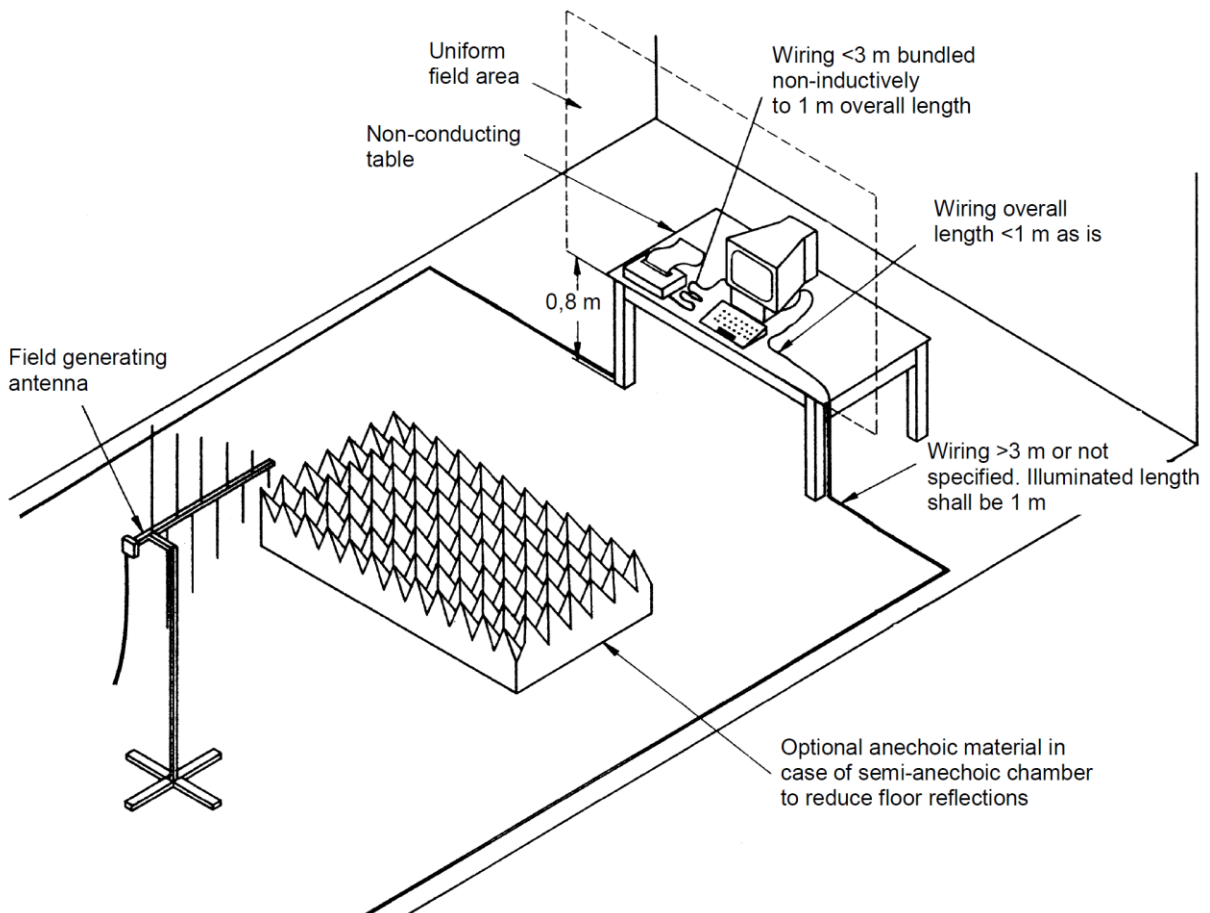
TEST LEVEL

| Level | Field Strength V/m |
|-------|--------------------|
| 1 | 1 |
| 2 | 3 |
| 3 | 10 |
| X* | Special |

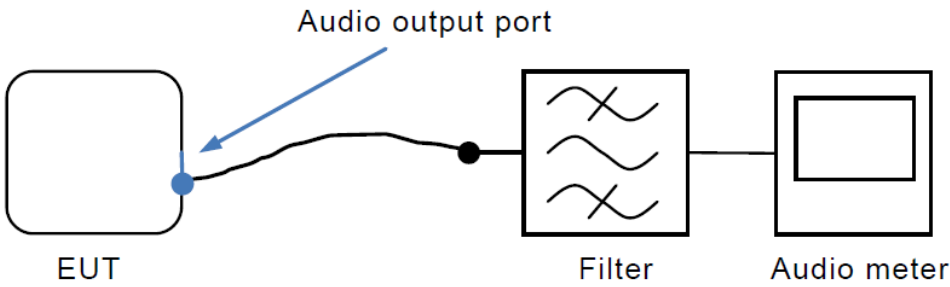
Note: "x" is an open test level and the associated field strength may be any value.

BLOCK DIAGRAM OF TEST SETUP

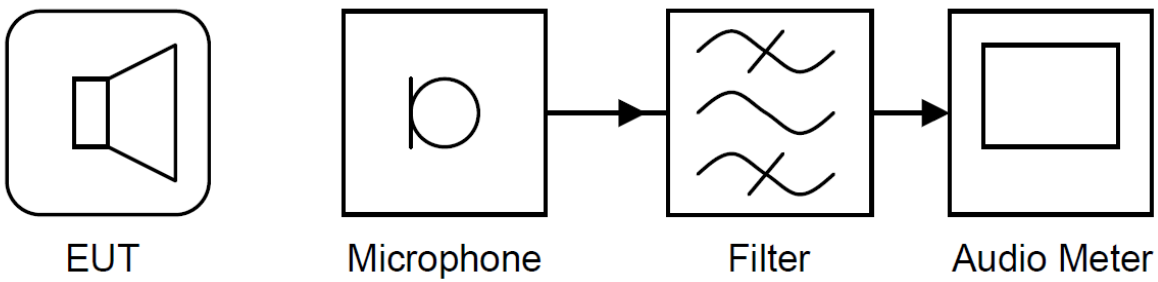
Normal Test:



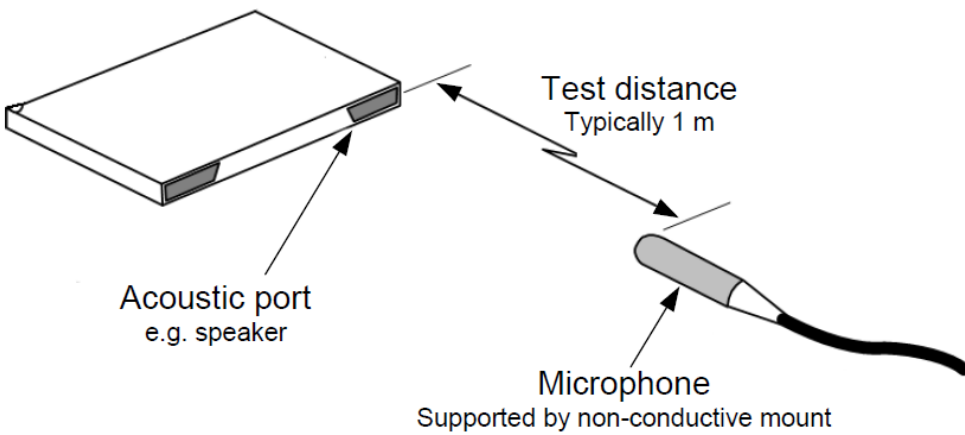
Test setup for electrical measurements (direct connection to EUT):



Test setup for acoustic measurements:



Test setup for acoustic measurements on loudspeakers



TEST PROCEDURES

- a. The testing was performed in a fully anechoic chamber.
- b. The EUT and necessary support devices were placed on a turn table which is 0.1 meter above ground.
- c. EUT was set 3 meter away from the transmitting antenna which is mounted on an antenna tower.
- d. Configure the EUT and support devices as per section 3.
- e. Turn on the EUT and all support devices, and make it run stably.
- f. Set horizontal and vertical polarization of the antenna to test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.
- g. All the scanning conditions are as follows:
- h. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT

| Description | Level | Frequency | Performance Criterion |
|----------------------------------|-------|------------|-----------------------|
| RF Field Strength Susceptibility | 3V/m | 80~1000MHz | A |
| | 3V/m | 1800MHz | A |
| | 3V/m | 2600MHz | A |
| | 3V/m | 3500MHz | A |
| | 3V/m | 5000MHz | A |

TEST RESULTS

PASS

Please refer to the following pages.

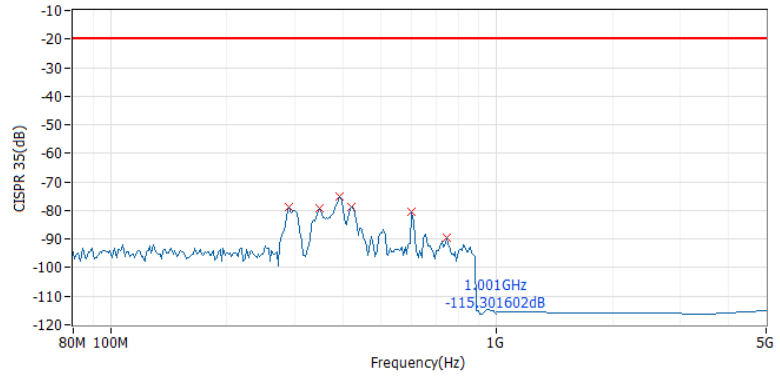
| RF Field Strength Susceptibility Test Results | | | | |
|--|-------------------|---------------------------------|-----------------------|--------------------------------|
| Ambient Condition | Temp.: 25 °C | R.H.: 50 % | Air Pressure: 101 kPa | |
| Test Specifications | Fielded Strength: | 3V/m | | |
| | Modulation: | 1kHz sine wave, 80%AM | | |
| | Frequency Size: | 1% of preceding frequency value | | |
| | Dwell Time: | 1s | | |
| | Mode: | Swept test / Spot test | | |
| Required Performance Criterion | A | | | |
| Tested mode | 1-3 | | | |
| Frequency (MHz) | Level (V/m) | Antenna polarity | Side | Result (Performance Criterion) |
| 80-1000, 1800MHz, 2600MHz, 3500MHz, 5000MHz | 3 | Horizontal | Front | A |
| | | | Left | A |
| | | | Right | A |
| | | | Back | A |
| | | Vertical | Front | A |
| | | | Left | A |
| | | | Right | A |
| | | | Back | A |
| Note: During the test, the EUT did not show any abnormality. | | | | |

RF Field Strength Susceptibility Test Results for acoustic measurements

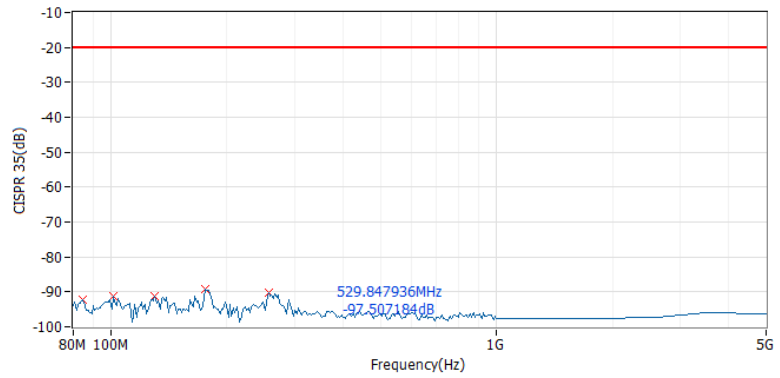
Worst case mode: USB Playing

Note: The value of the reference level was reduce 20dB as the limit.

Horizontal



Vertical



TEST PROCEDURES

- a. The EUT was placed on the insulating support 0.1m above the reference ground plane.
- b. Configure the EUT and support devices as per section 3.
- c. Turn on the EUT and all support devices, and make it run stably.
- d. For input and output AC power port of the EUT, the EUT was connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. The coaxial output of the EFT generator to the terminals on the EUT should not exceed 0.5 meter. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.
- e. For signal ports of the EUT, the EUT was connected to the power mains, and the signal line through a coupling device which couples the EUT interference signal to signal line. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.
- f. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT

| Description | AC Mains power ports | Analogue/digital data ports |
|-----------------------|----------------------|-----------------------------|
| Test Level | 1.0KV | 0.5KV |
| Repetition frequency | 5kHz | 5kHz |
| Impulse Wave-shape | 5/50ns (Tr/Th) | 5/50ns (Tr/Th) |
| Performance Criterion | B | B |

TEST RESULTS

PASS

Please refer to the following pages.

Electrical Fast Transient/Burst Test Results

| | | | |
|--------------------------------|---|---|-----------------------|
| Ambient Condition | Temp.: 26 °C | R.H.: 37 % | Air Pressure: 101 kPa |
| Test Specifications | Test Level | 1.0 kV for power port 0.5 kV for signal port | |
| | Repetition Frequency : | 5kHz; | |
| | Duration : | 15ms | |
| | Period : | 300ms | |
| | Impulse wave shape : | 5/50ns (Tr/Th) | |
| | Test Duration : | ≥1min | |
| Required Performance Criterion | B | | |
| Tested mode | 1-3 | | |
| Coupling mode and port | <input checked="" type="checkbox"/> AC Mains <input checked="" type="checkbox"/> Direct Coupling <input type="checkbox"/> Signal line <input type="checkbox"/> Capacitive <input type="checkbox"/> DC line | | |
| Test Line | Test Voltage | Result (Performance Criterion) | |
| L | ±1KV | B | |
| N | ±1KV | B | |
| PE | --- | --- | |
| L、 N | ±1KV | B | |
| L、 PE | --- | --- | |
| N、 PE | --- | --- | |
| L、 N、 PE | --- | --- | |
| Signal port (RJ- 45) | --- | --- | |
| Signal port (Tuner) | --- | --- | |

Note : The lamp flickered during the test, but the EUT can be manually resumed to normal operation.

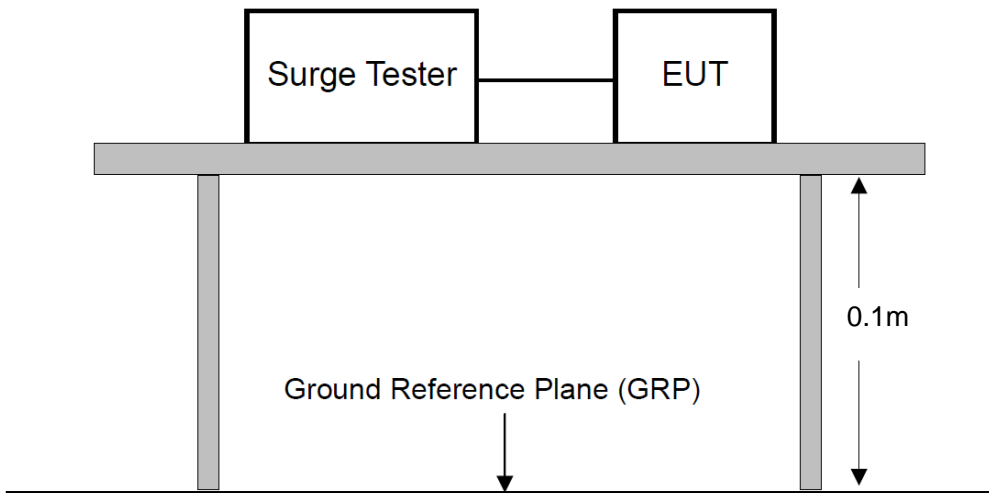
20. Surge Measurement

TEST LEVEL

| Level | Open-Circuit Test Voltage (kV) | |
|-------|--------------------------------|---------------|
| | Line to Line | Line to Earth |
| 1 | - | 0.5 |
| 2 | 0.5 | 1 |
| 3 | 1 | 2 |
| 4 | 2 | 4 |
| X | Special | Special |

Note: "X" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on the wooden table 0.1m above the ground.
- b. Configure the EUT and support devices as per section 3.
- c. Turn on the EUT and all support devices, and make it run stably.
- d. The surge is applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- e. For test applied to unshielded un-symmetrically operated interconnection lines of EUT, the surge was applied to the lines via the capacitive coupling. The coupling / decoupling networks didn't influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- f. For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT, the surge was applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor were not specified. The interconnection line between the EUT and the coupling/decoupling networks was shorter than 2 meters in length.
- g. Five positive and five negative (polarity) pulses at specified phase angles with a 1min repetition rate are conducted during test.
- h. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT

| Description | AC Mains power ports | | Analogue/digital data ports | |
|-----------------------|----------------------|----------------|-----------------------------|---------------------|
| | Line to Line | Line to Earth | Unshielded Symmetrical | Coaxial or Shielded |
| Test Level | 1.0kV | 2.0kV | 1.0 and 4.0Kv* | 0.5kV |
| Wave-Shape | 1.2/50(8/20)us | 1.2/50(8/20)us | 10/700 (5/320)us | 1.2/50(8/20)us |
| Performance Criterion | B | B | C | B |

Note: *: Surges are applied with primary protection fitted. Where possible, use the actual primary protector intended to be used in the installation. Where the surge coupling network for the 10/700 (5/320) μ s waveform affects the functioning of high speed data ports, the test shall be carried out using a 1,2/50 (8/20)us waveform and appropriate coupling network.

TEST RESULTS

PASS

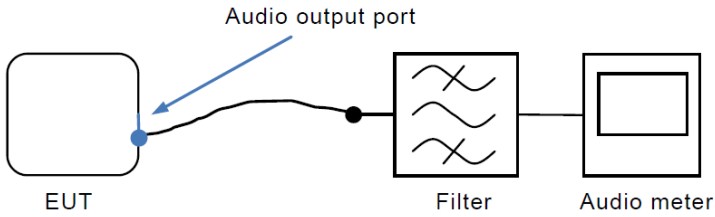
Please refer to the following pages.

Surge Immunity Test Results

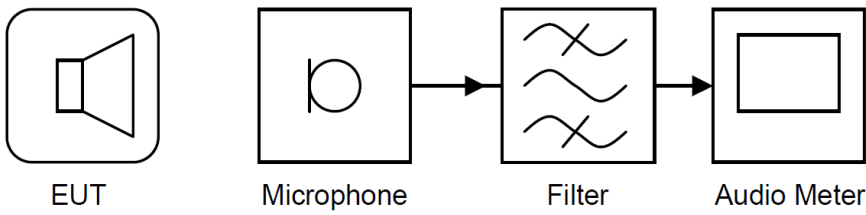
| | | | |
|--------------------------------|-------------------------------|--|--------------------------------|
| Ambient Condition | Temp.: 27 °C | R.H.: 37 % | Air Pressure: 101 kPa |
| Test Specifications | Wave-shape: | 1.2/50 us (Tr/Th) / 8/20 us (Tr/Th) for input poewr port 10/700 us (Tr/Th) / 5/320 us (Tr/Th) for Signal port | |
| | Test Level: | ±0.5, 1.0kV for Line to Line ±1.0, 2.0kV for Line to Earth | |
| | Phase angle: | 90° and 270° | |
| | Polarity | Positive / Negative | |
| | NO. of pulse : | 5 positive / 5 negative | |
| | Pulse repetition rate : | 1 time per minute / maximum | |
| | Generagor source impendence : | 2 ohm / power supply network 12 ohm / power supply network to ground 42 ohm / other lines to ground / | |
| Required Performance Criterion | B | | |
| Tested mode | 1-3 | | |
| Test Line | Phase Angle | Test Voltage | Result (Performance Criterion) |
| L-N | 90° | +0.5KV, +1KV | A |
| | 270° | -0.5KV, -1KV | |
| L-PE | --- | --- | --- |
| | --- | --- | |
| N-PE | --- | --- | --- |
| | --- | --- | |
| Signal port | --- | --- | --- |
| DC line | --- | --- | --- |

Note : During the test, the EUT did not show any abnormality.

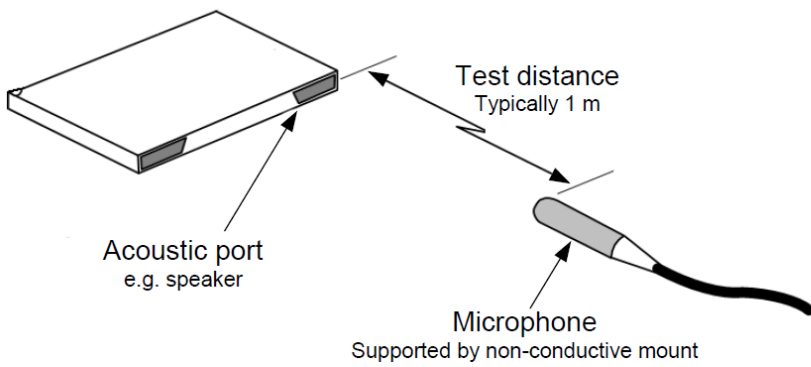
Test setup for electrical measurements (direct connection to EUT):



Test setup for acoustic measurements:



Test setup for acoustic measurements on loudspeakers



TEST PROCEDURES

- a. The EUT was placed on the insulating support 0.1m above the ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- b. Configure the EUT and support devices as per section 3.
- c. Turn on the EUT and all support devices, and make it run stably.
- d. The disturbance signal described below is injected to EUT through CDN.
- e. The frequency range is swept from 150 KHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- f. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT

| AC Mains power ports | | | Analogue/digital data ports | | |
|------------------------|---------------------|-----------------------|-----------------------------|---------------------|-----------------------|
| Frequency ranges (MHz) | Test Level V(r.m.s) | Performance Criterion | Frequency ranges (MHz) | Test Level V(r.m.s) | Performance Criterion |
| 0.15 to 10 | 3 | A | 0.15 to 10 | 3 | A |
| 10 to 30 | 3 to 1 | A | 10 to 30 | 3 to 1 | A |
| 30 to 80 | 1 | A | 30 to 80 | 1 | A |

TEST RESULTS

PASS

Please refer to the following pages.

Injected Currents Susceptibility Test Results

| | | | |
|--------------------------------|-----------------|---|--------------------------------|
| Ambient Condition | Temp.: 25°C | R.H.: 50 % | Air Pressure:101 kPa |
| Test Specifications | Test Level | 3V (r.m.s), 3 to 1V (r.m.s), 1V (r.m.s) | |
| | Modulation | 1kHz sine wave, 80%AM | |
| | Step Size | 1% of preceding frequency value | |
| | Dwell Time | 1s | |
| | Mode | Swept test | |
| Required Performance Criterion | A | | |
| Tested mode | 1-3 | | |
| Test Port | Frequency (MHz) | Level(V) | Result (Performance Criterion) |
| AC Mains | 0.15~10 | 3 | A |
| | 10~30 | 3 to 1 | A |
| | 30-80 | 1 | A |

Note : During the test, the EUT did not show any abnormality.

Injected Currents Susceptibility Test Results for acoustic measurements

Worst case mode: USB Playing

Note: The value of the reference level was reduce 20dB as the limit.



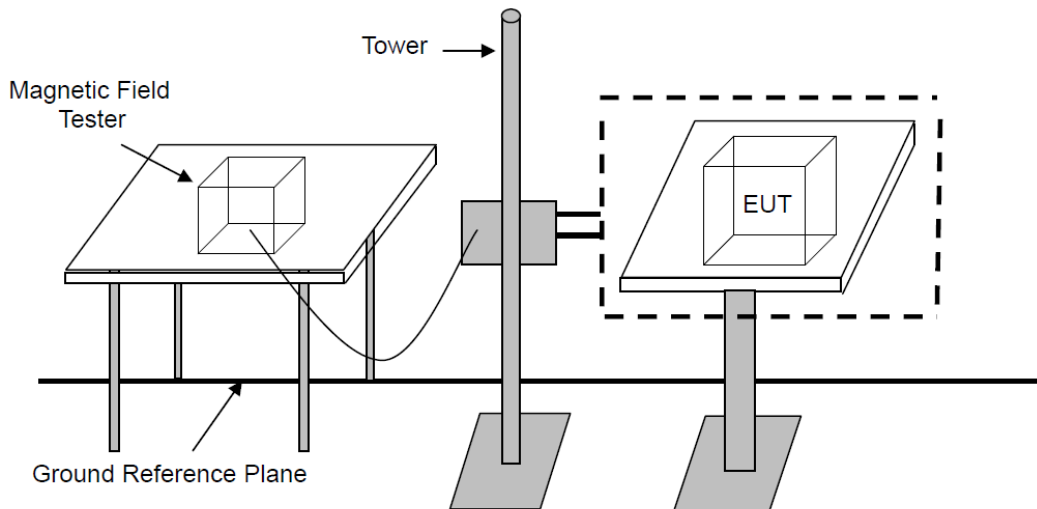
22. Power Frequency Magnetic Field Measurement

TEST LEVEL

| Level | Magnetic field strength A/m |
|-------|--------------------------------|
| 1 | 1 |
| 2 | 3 |
| 3 | 10 |
| 4 | 30 |
| 5 | 100 |
| X* | Special |

Note*: "x" can be any level, above, below or in-between the other levels. This level can be given in the product specification.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on the middle of an induction coil(1*1m), under which is a 0.8m-thick insulating support.
- b. Configure the EUT and support devices as per section 3.
- c. All cables of the EUT were exposed to the magnetic field for 1m of their length.
- d. X, Y and Z polarization of the induction coil are set on test, so that each side of the E.U.T. is affected by the magnetic field. If not possible as the EUT size, change the position of the EUT is permitted.
- e. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT

| | |
|-----------------------|--------------|
| Fielded Strength | 1A/m |
| Frequency | 50Hz or 60Hz |
| Performance Criterion | A |

TEST RESULTS

Not Applicable.

23. Voltage Dips and Interruptions Measurement

TEST LEVEL

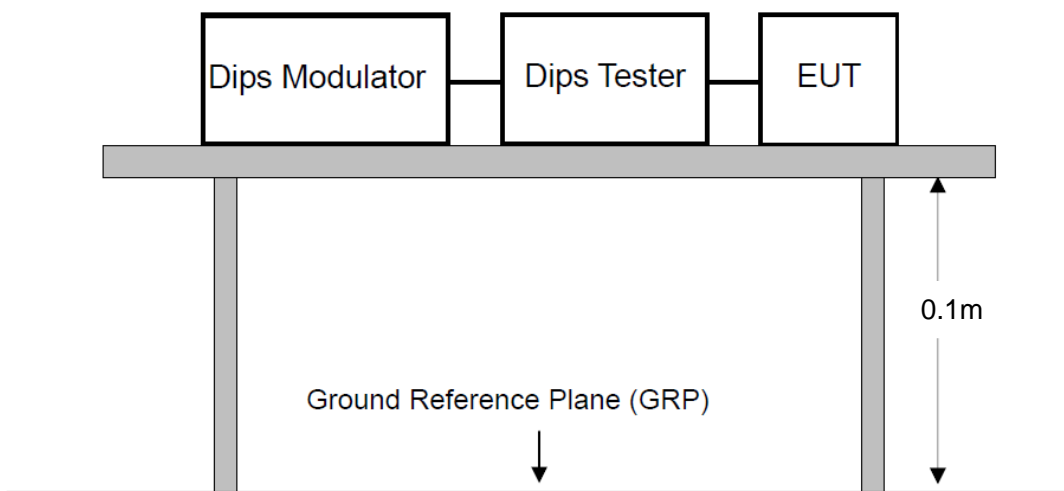
| Class | Test level and durations for voltage dips (t_s)(50Hz/60Hz) | | | | |
|----------------------|--|--------------------|---------------------------------------|---------------------------------------|---|
| Class 1 | Case-by-case according to the equipment requirements | | | | |
| Class 2 | 0 % during ½ cycle | 0 % during 1 cycle | 70 % during 25/30 ^b cycles | | |
| Class 3 | 0 % during ½ cycle | 0 % during 1 cycle | 40 % during 10/12 ^b cycles | 70 % during 25/30 ^b cycles | 80 % during 250/300 ^c cycles |
| Class X ^a | X | X | X | X | X |

Note: a. To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.
 b. "25/30 cycles" means "25 cycles for 50 Hz test" and "30 cycles for 60 Hz test".

| Class | Test level and durations for short interruptions (t_s) (50 Hz/60 Hz) | | | | |
|----------------------|--|---|---|---|---|
| Class 1 | Case-by-case according to the equipment requirements | | | | |
| Class 2 | 0 % during 250/300 ^b cycles | | | | |
| Class 3 | 0 % during 250/300 ^b cycles | | | | |
| Class X ^a | X | X | X | X | X |

Note: a. To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.
 b. "250/300 cycles" means "250 cycles for 50 Hz test" and "300 cycles for 60 Hz test".

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on the wooded table 0.1m above the ground.
- b. Configure the EUT and support devices as per section 3.
- c. Setting the parameter of tests and then perform the test software of test simulator.
- d. Conditions changes to occur at 0 and 180 degree crossover point of the voltage waveform.
- e. Repeat the above steps in each mode and record the test result.

MINIMUM REQUIREMENT

| Description | Level | Cycle | Performance Criterion |
|-----------------------|----------------------|--------------|-----------------------|
| Voltage Dips | Residual voltage <5% | 0.5 | B |
| Voltage Dips | Residual voltage 70% | 25 for 50Hz | B |
| Voltage Dips | Residual voltage 70% | 30 for 60Hz | B |
| Voltage Interruptions | Residual voltage <5% | 250 for 50Hz | C |
| Voltage Interruptions | Residual voltage <5% | 300 for 60Hz | C |

TEST RESULTS

PASS

Please refer to the following page.

| Voltage Dips and Interruptions Test Results | | | |
|---|---|--|--|
| Ambient Condition: | Temp.: 27°C | R.H.: 37 % | Air Pressure: 101 kPa |
| Test Specifications: | Residual voltage | 0%, 70% | |
| | Duration (periods) | <input checked="" type="checkbox"/> 0.5 | |
| | | <input checked="" type="checkbox"/> 25 for 50Hz | <input checked="" type="checkbox"/> 30 for 60Hz |
| | | <input checked="" type="checkbox"/> 250 for 50Hz | <input checked="" type="checkbox"/> 300 for 60Hz |
| | Phase angle | 0° | |
| | Interval between tests | 10s | |
| NO. of tests | 3 times | | |
| Required Performance Criterion | B for voltage dips C for voltage interruptions | | |
| Tested mode | 1-3 | | |
| Test Level (Residual voltage) % | Duration (periods) | | Result (Performance Criterion) |
| | 50Hz | 60Hz | |
| 0 | 0.5P | 0.5P | A |
| 70 | 25P | 30P | A |
| 0 | 250P | 300P | B |
| Note : The charging was stopped during the test, but the EUT can be resumed to normal operation after the test. | | | |

24. Measuring Devices and Test Equipment

For Conducted Emission Measurement (AC Mains)

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|-----------------------------------|-----------|------------|---------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCI | 101152 | Mar. 13, 2020 | 1 Year |
| 2. | L.I.S.N | Rohde & Schwarz | ENV 216 | 101317 | Mar. 13, 2020 | 1 Year |
| 3. | L.I.S.N | Rohde & Schwarz | ESH2-Z5 | 893606/014 | Mar. 13, 2020 | 1 Year |
| 4. | RF Switching Unit | Compliance Direction Systems Inc. | RSU-M2 | 38311 | Mar. 13, 2020 | 1 Year |
| 5. | Test Software | EZ | EZ_EMCC | N/A | N/A | N/A |

For Conducted Emission Measurement (Asymmetric Mode, Wired Network Port)

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|-----------------------------------|-----------|----------------|---------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCI | 101152 | Mar. 13, 2020 | 1 Year |
| 2. | L.I.S.N | Rohde & Schwarz | ENV 216 | 101317 | Mar. 13, 2020 | 1 Year |
| 3. | AAN | Schwarzbeck | NTFM 8158 | CAT5-8158-0006 | Mar. 13, 2020 | 1 Year |
| 4. | AAN | Schwarzbeck | NTFM 8158 | CAT6-8158-0009 | Mar. 13, 2020 | 1 Year |
| 5. | RF Switching Unit | Compliance Direction Systems Inc. | RSU-M2 | 38311 | Mar. 13, 2020 | 1 Year |
| 6. | Test Software | EZ | EZ_EMCC | N/A | N/A | N/A |

For Conducted Emission Measurement (Asymmetric Mode, Antenna Port)

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|-----------------------------------|-----------|------------|---------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCI | 101152 | Mar. 13, 2020 | 1 Year |
| 2. | L.I.S.N | Rohde & Schwarz | ENV 216 | 101317 | Mar. 13, 2020 | 1 Year |
| 3. | Current probe | Schwarzbeck | SW9605 | 9605-221 | Mar. 13, 2020 | 1 Year |
| 4. | RF Switching Unit | Compliance Direction Systems Inc. | RSU-M2 | 38311 | Mar. 13, 2020 | 1 Year |
| 5. | Test Software | EZ | EZ_EMCC | N/A | N/A | N/A |

For Conducted Differential Voltage Emissions Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|--------------------------------|-----------------|-----------|------------|---------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCI | 101152 | Mar. 13, 2020 | 1 Year |
| 2. | L.I.S.N | Rohde & Schwarz | ENV 216 | 101317 | Mar. 13, 2020 | 1 Year |
| 3. | Matching and Combining network | Inrnet | 6007 | N/A | Mar. 13, 2020 | 1 Year |
| 4. | Test Software | EZ | EZ_EMCC | N/A | N/A | N/A |

 For Radiated Emission Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|-----------------|-----------|------------|---------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCI7 | 100837 | Mar. 13, 2020 | 1 Year |
| 2. | Spectrum Analyzer | Rohde & Schwarz | FSU26 | 200409/026 | Mar. 13, 2020 | 1 Year |
| 3. | Antenna | Schwarzbeck | VULB9162 | 9162-010 | Mar. 23, 2020 | 1 Year |
| 4. | Loop Antenna | Schwarzbeck | FMZB 1513 | 1513-272 | Mar. 23, 2020 | 1 Year |
| 5. | Horn Antenna | COM-Power | AH-118 | 071078 | Mar. 23, 2020 | 1 Year |
| 6. | Pre-Amplifier | HP | HP 8447D | 1145A00203 | Mar. 13, 2020 | 1 Year |
| 7. | Pre-Amplifier | HP | HP 8449B | 3008A00964 | Mar. 13, 2020 | 1 Year |
| 8. | Chamber | SAEMC | 9*7*7m | N/A | Jun. 20, 2019 | 2 Year |
| 9. | Test Software | EZ | EZ_EMCC | N/A | N/A | N/A |

 For Harmonic / Flicker Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|--------------------------|------------------------|-----------|------------|---------------|---------------|
| 1. | Power Frequency Analyzer | California Instruments | PACS-1 | 72846 | Mar. 13, 2020 | 1 Year |
| 2. | 5KVA AC Power Source | California Instruments | 5001iX | 60137 | Mar. 13, 2020 | 1 Year |
| 3. | Software | California Instruments | CTS 4.2.5 | N/A | N/A | N/A |

For Electrostatic Discharge Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|------------|--------------|-----------|------------|---------------|---------------|
| 1. | ESD Tester | TESEQ | NSG 437 | 432 | Mar. 23, 2020 | 1 Year |

For RF Electromagnetic Field Immunity Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|------------------|-----------------|---------------------|----------------|---------------|---------------|
| 1. | Signal Generator | Agilent | N5181A | MY4707016 0 | Mar. 13, 2020 | 1 Year |
| 2. | RF Switch | SKET | N/A | N/A | N/A | N/A |
| 3. | Power Amplifier | SKET | HAP801000M _250W | 201804008 | N/A | N/A |
| 4. | Power Amplifier | SKET | HAP0103G_7 5W | 201804009 | N/A | N/A |
| 5. | Power Amplifier | SKET | HAP0306G_5 0W | 201804010 | N/A | N/A |
| 6. | Power Meter | Agilent | E4419B | GB40201469 | Mar. 13, 2020 | 1 Year |
| 7. | Power Sensor | Agilent | E9304A | MY4149891 9 | Mar. 13, 2020 | 1 Year |
| 8. | Power Sensor | Agilent | E9300A | US39211259 | Mar. 13, 2020 | 1 Year |
| 9. | E-Field Probe | Narda | EP-601 | N/A | Mar. 23, 2020 | 1 Year |
| 10. | Antenna | Schwarzbeck | STLP 9129 | 9129071 | N/A | N/A |
| 11. | Audio Analyzer | Rohde & Schwarz | UPV | 100894 | Mar. 13, 2020 | 1 Year |
| 12. | Chamber | Chengyu | 7*5*3.5m | N/A | Mar. 26, 2018 | 3 Year |
| 13. | Test Software | SKET | SKET_RS | N/A | N/A | N/A |

For Electrical Fast Transient /Burst Immunity Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|----------------|--------------|--------------|-----------------|---------------|---------------|
| 1. | Burst Tester | EM TEST | UCS 500N7 | V110410868 3 | Mar. 13, 2020 | 1 Year |
| 2. | Coupling Clamp | EM TEST | HFK | 0311-94 | Mar. 13, 2020 | 1 Year |
| 3. | Test Soft | EM TEST | lec. control | N/A | N/A | N/A |

For Surge Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|--------------|--------------|--------------|-------------|---------------|---------------|
| 1. | Surge Tester | EM TEST | UCS 500N7 | V1104108683 | Mar. 13, 2020 | 1 Year |
| 2. | Test Soft | EM TEST | lec. control | N/A | N/A | N/A |

 For Injected Currents Immunity Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-----------------------|-----------------|------------|------------|---------------|---------------|
| 1. | Signal generator | IFR | 2023A | 2023051280 | Mar. 13, 2020 | 1 Year |
| 2. | Power Amplifier | SCHAFFNER | CBA9425 | 1022 | Mar. 13, 2020 | 1 Year |
| 3. | 6dB 50Watt Attenuator | SCHAFFNER | ATN6025 | N/A | Mar. 13, 2020 | 1 Year |
| 4. | CDN | Lioncel | CDN-M3-16 | 0170703 | Mar. 13, 2020 | 1 Year |
| 5. | CDN | Lioncel | CDN-M2-16 | 0170708 | Mar. 13, 2020 | 1 Year |
| 6. | CDN | CDSI | ADN-M5/AF5 | 8105001 | Mar. 13, 2020 | 1 Year |
| 7. | EM Clamp | CDSI | EMCL-22 | 8192007 | Mar. 13, 2020 | 1 Year |
| 8. | Directional Coupler | SCHAFFNER | 255 | 19184 | Mar. 13, 2020 | 1 Year |
| 9. | Audio Analyzer | Rohde & Schwarz | UPV | 100894 | Mar. 13, 2020 | 1 Year |
| 10. | Test Software | EZ | EZ_CS | N/A | N/A | N/A |

 For Power Frequency magnetic field immunity Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|--------------------------------|--------------|------------------|------------|---------------|---------------|
| 1. | Signal Generator | EVERFINE | EMS61000-8K_V200 | N/A | Mar. 13, 2020 | 1 Year |
| 2. | Adjustable Magnetic field Coil | EVERFINE | MFC-4 | N/A | Mar. 13, 2020 | 1 Year |
| 3. | Test Software | EVERFINE | MS | N/A | N/A | N/A |

 For Voltage Dips and Interruptions Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|----------------|--------------|-------------|-------------|---------------|---------------|
| 1. | Dips Tester | EM TEST | UCS500N | V1104108683 | Mar. 13, 2020 | 1 Year |
| 2. | Dips Modulator | EM TEST | V4780S2 | 0111-11 | Mar. 13, 2020 | 1 Year |
| 3. | Test Soft | EM TEST | lec.control | N/A | N/A | N/A |

25. Photographs of Test Configuration

Photo of Conducted Emission Measurement



Photo of Radiated Emission Measurement

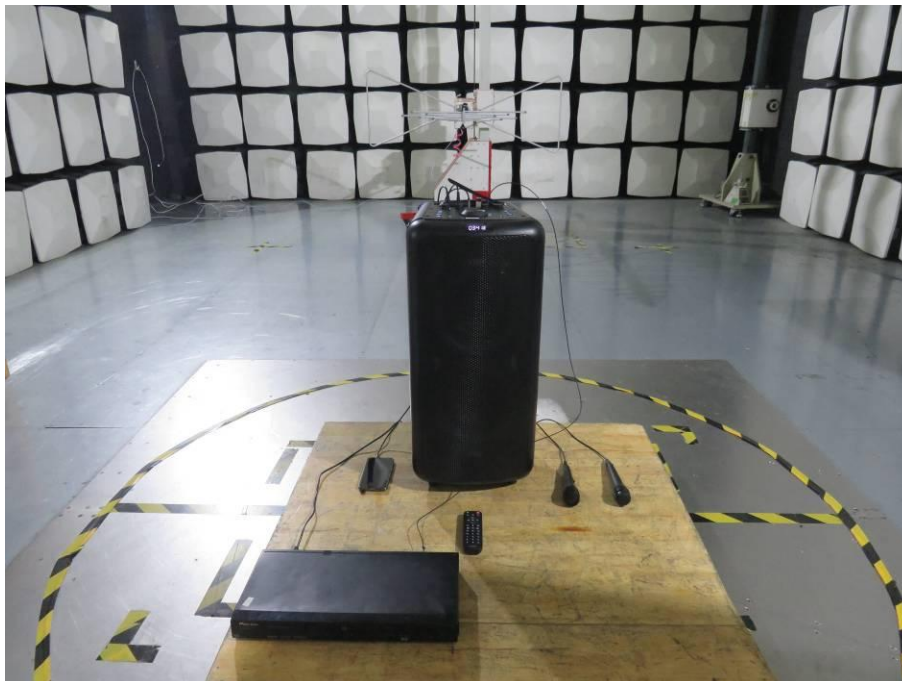


Photo of Harmonic/Flicker Measurement



Photo of Electrostatic Discharge Measurement



Photo of Continuous RF Electromagnetic Field Disturbances Measurement



Photo of Electrical Fast Transients / Burst / Surge / Voltage Dips and Interruptions Measurement



Photo of Continuous Induced RF Disturbances Measurement

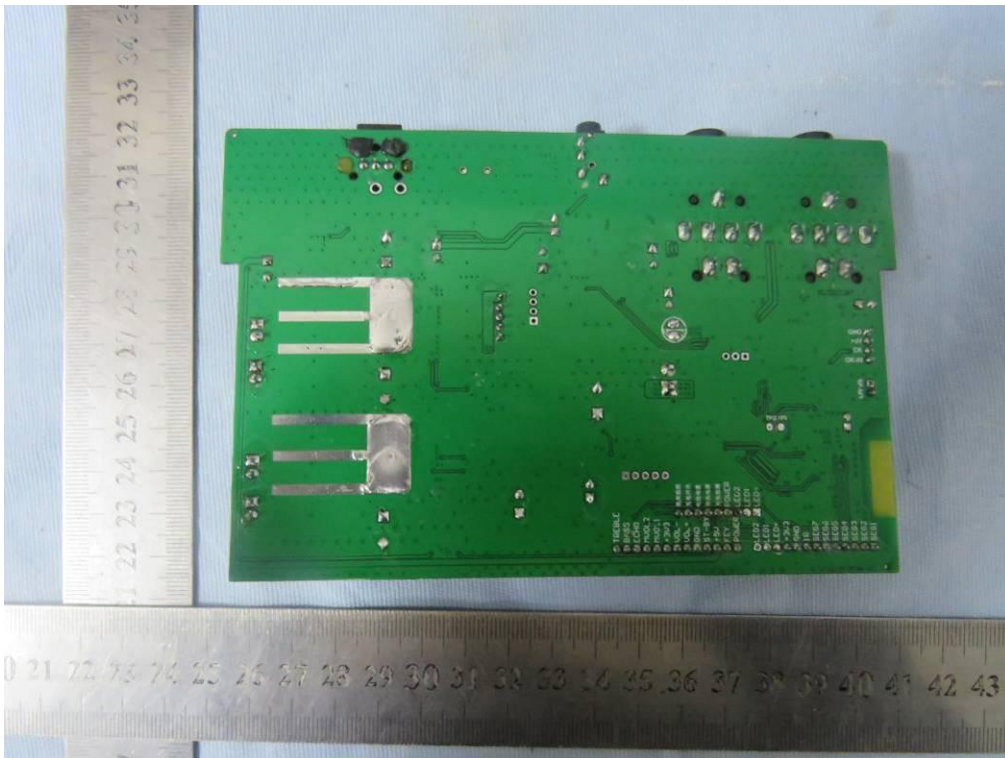


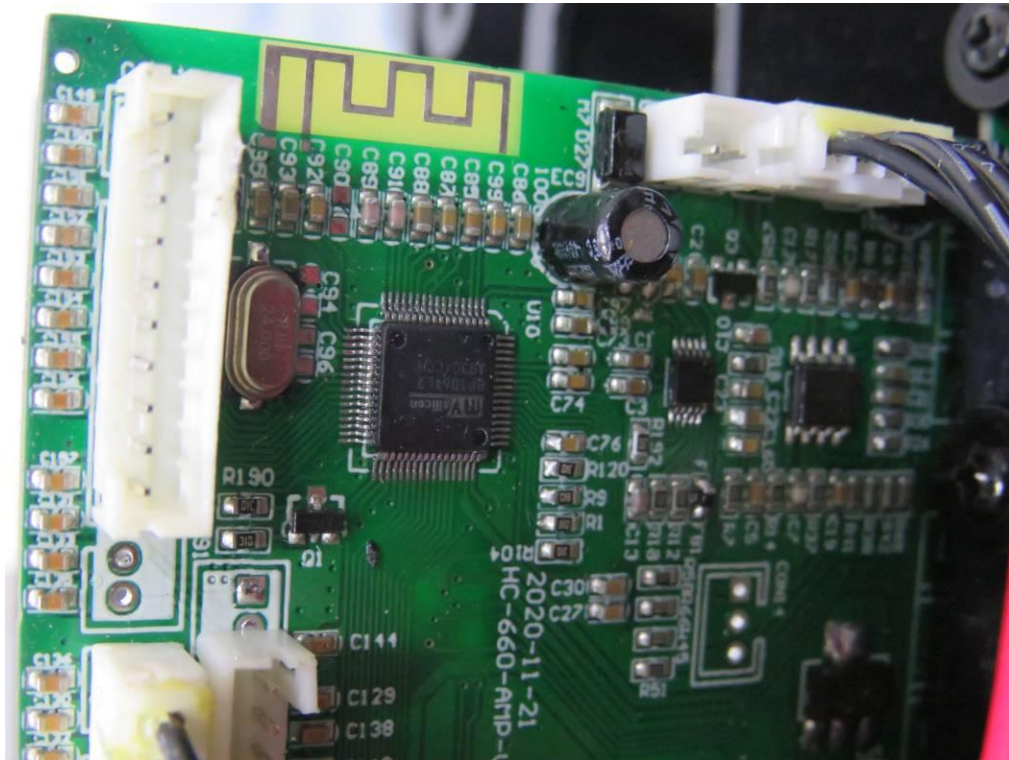
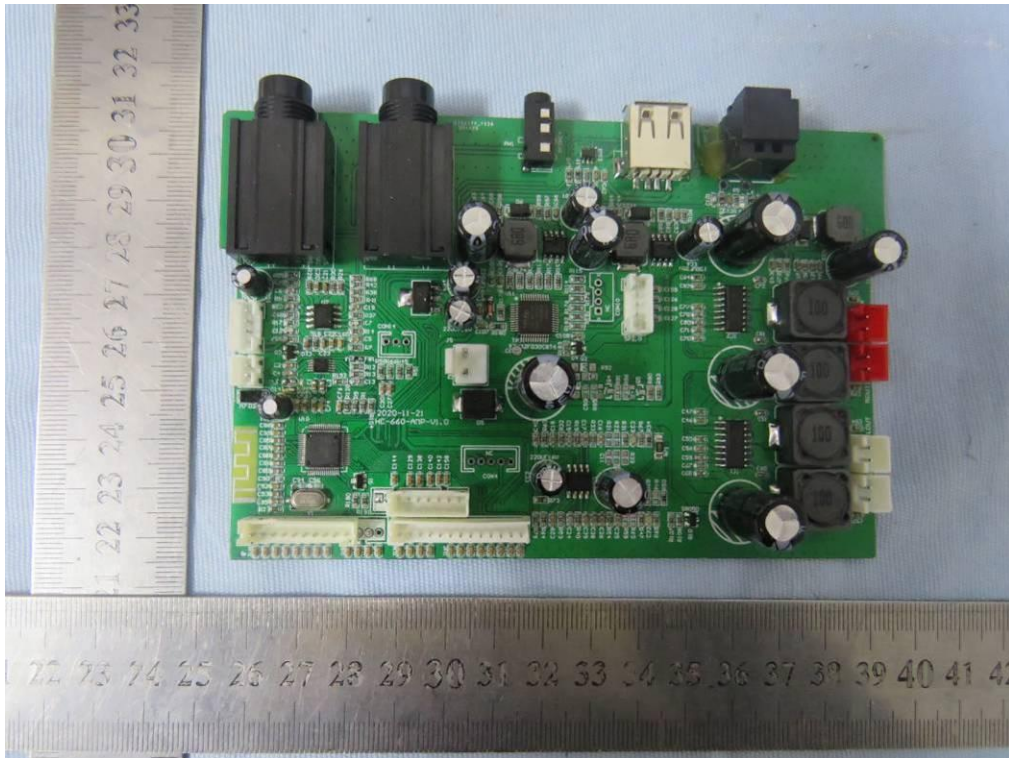
26. Photographs of the EUT

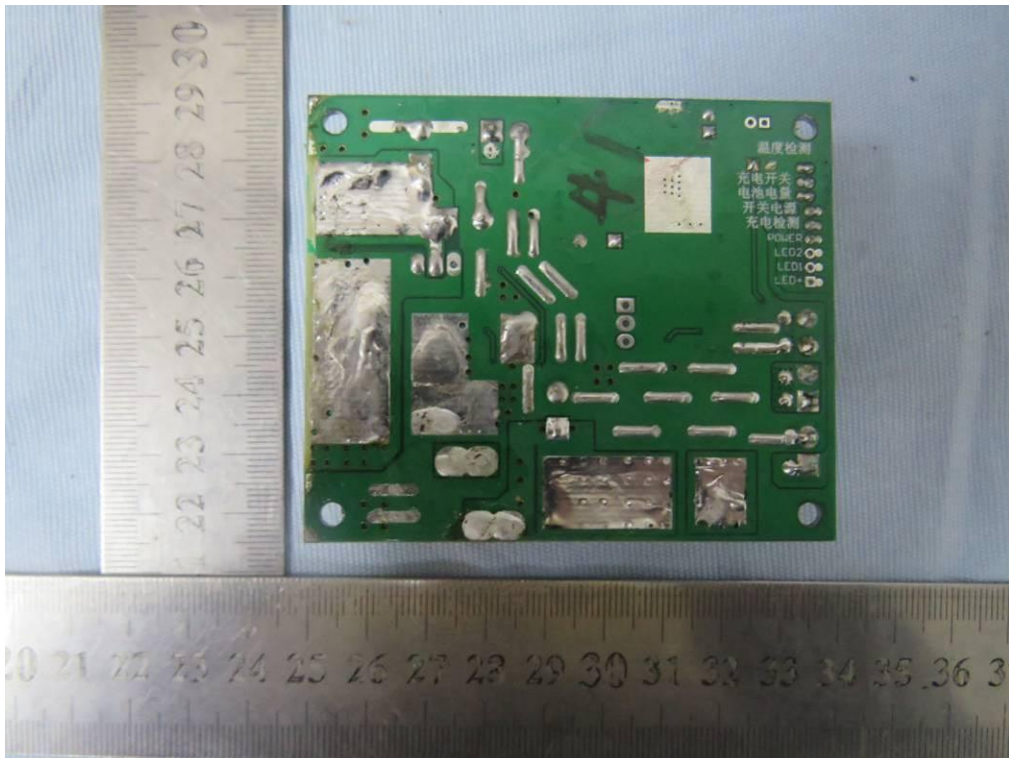
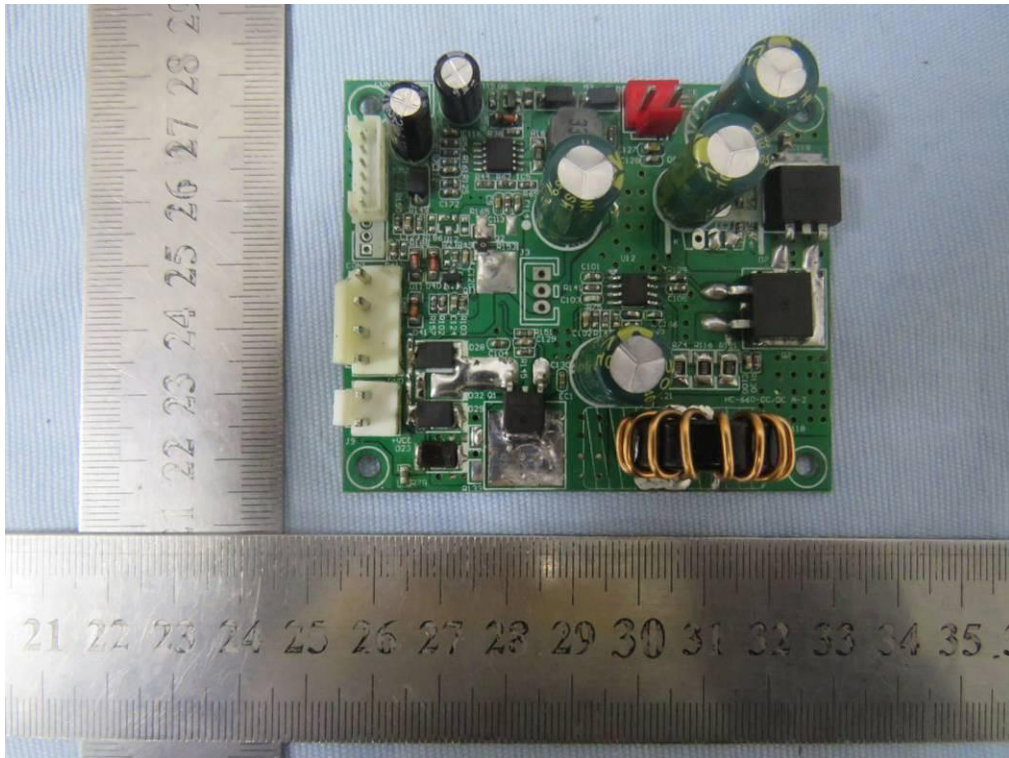


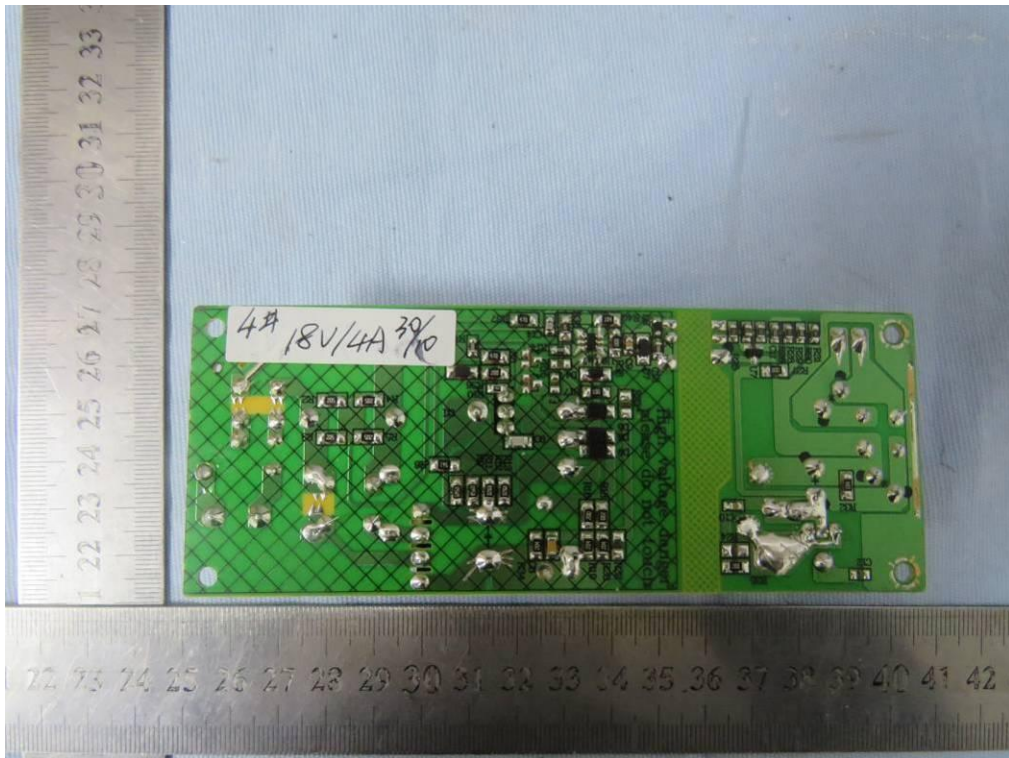
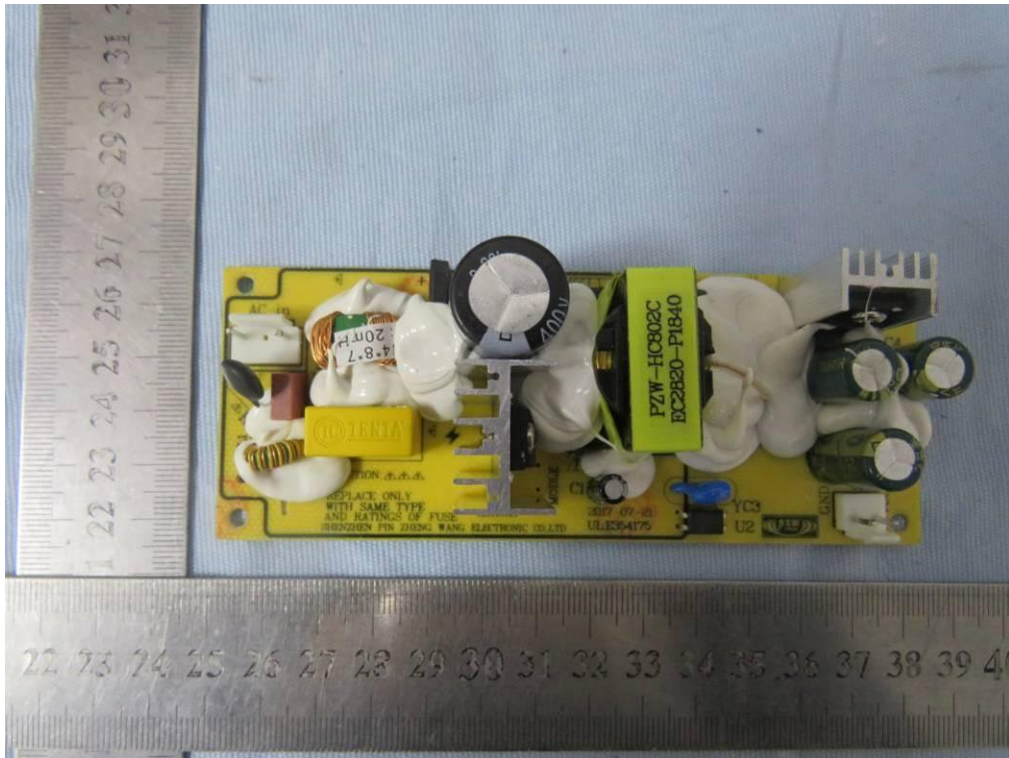


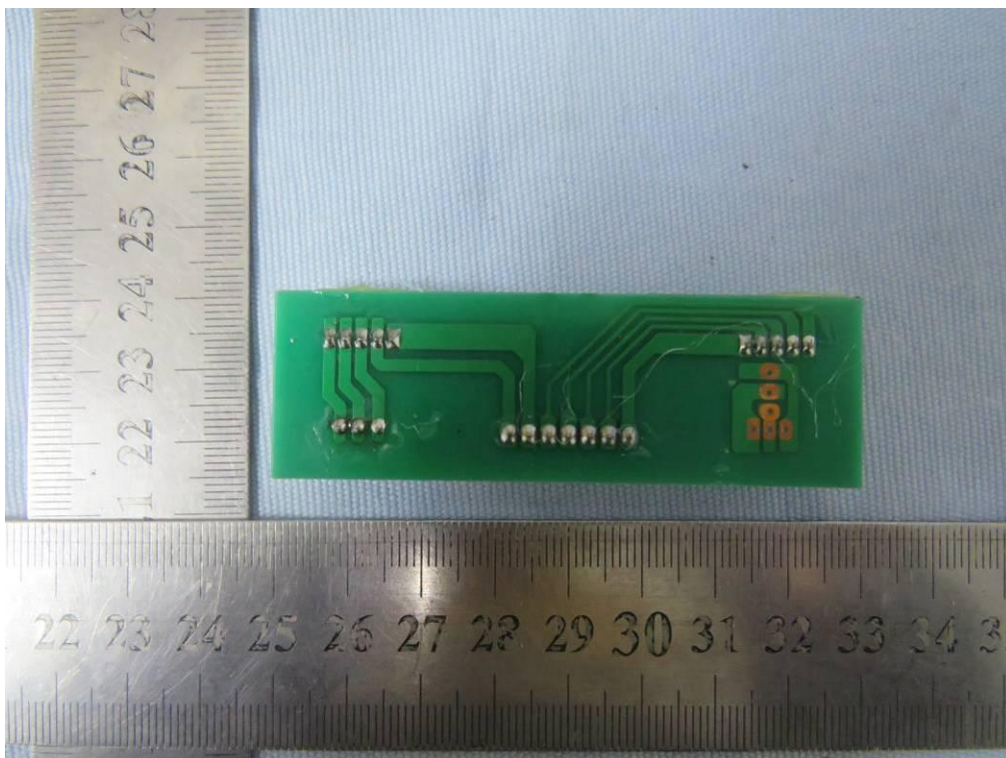
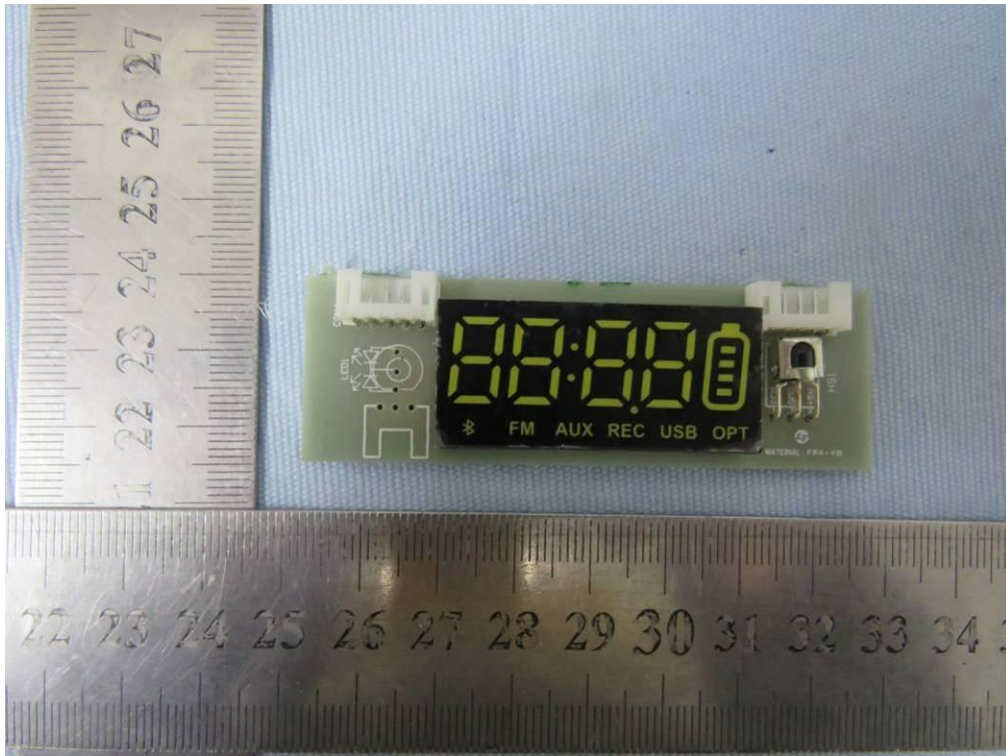


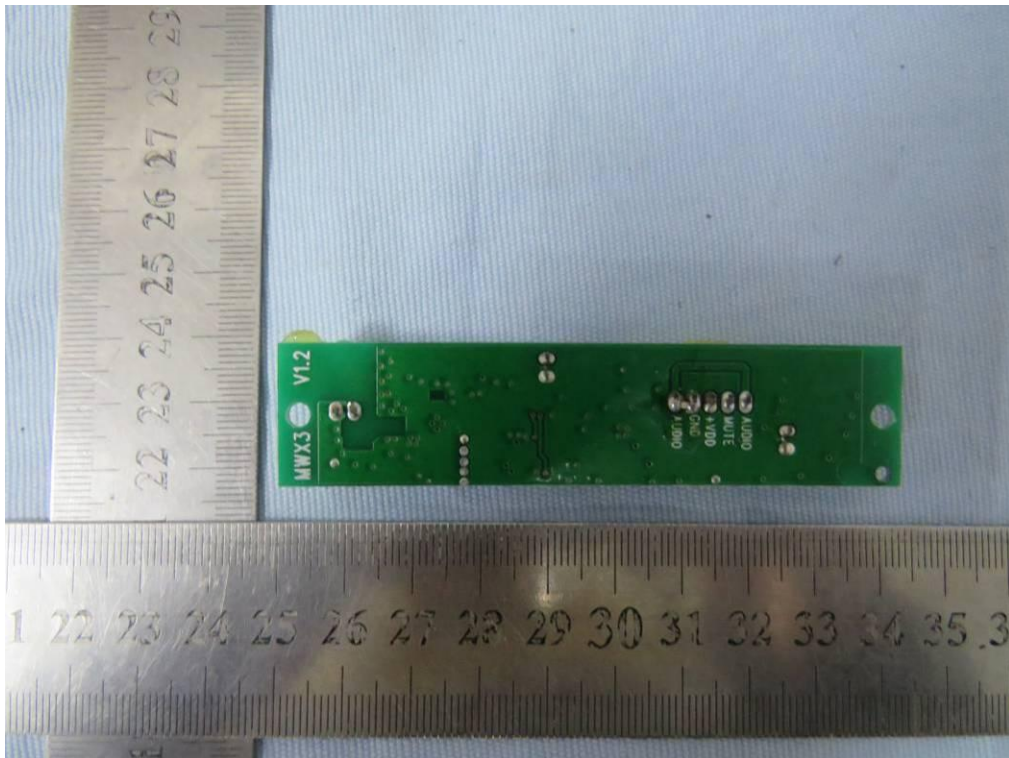
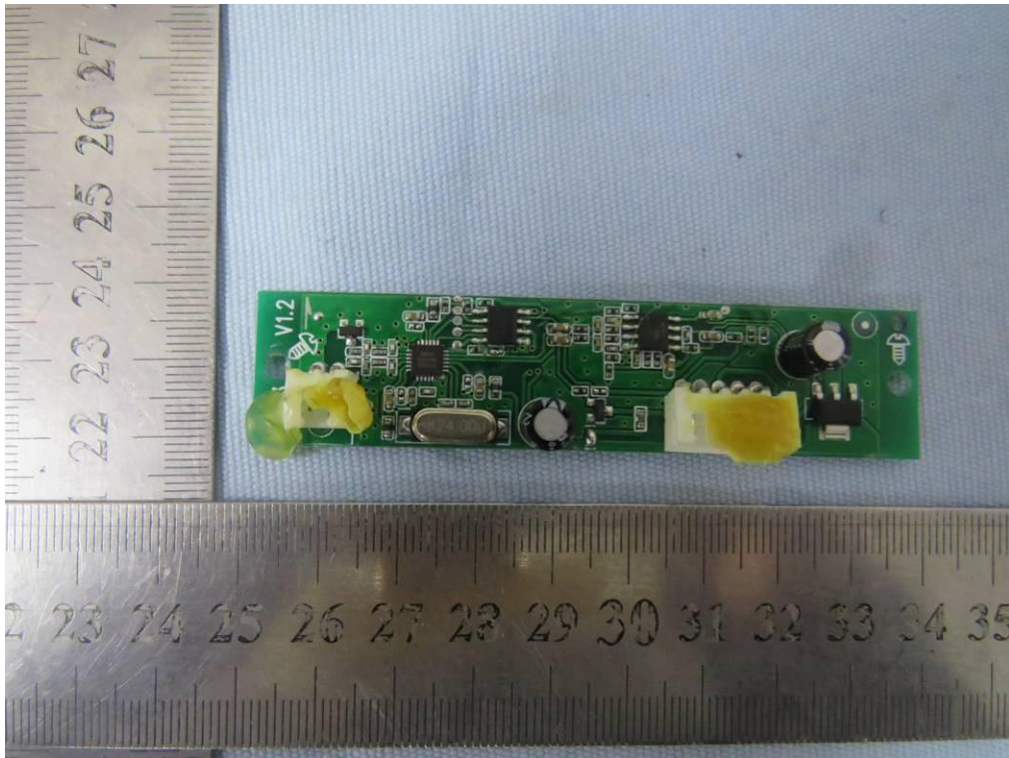


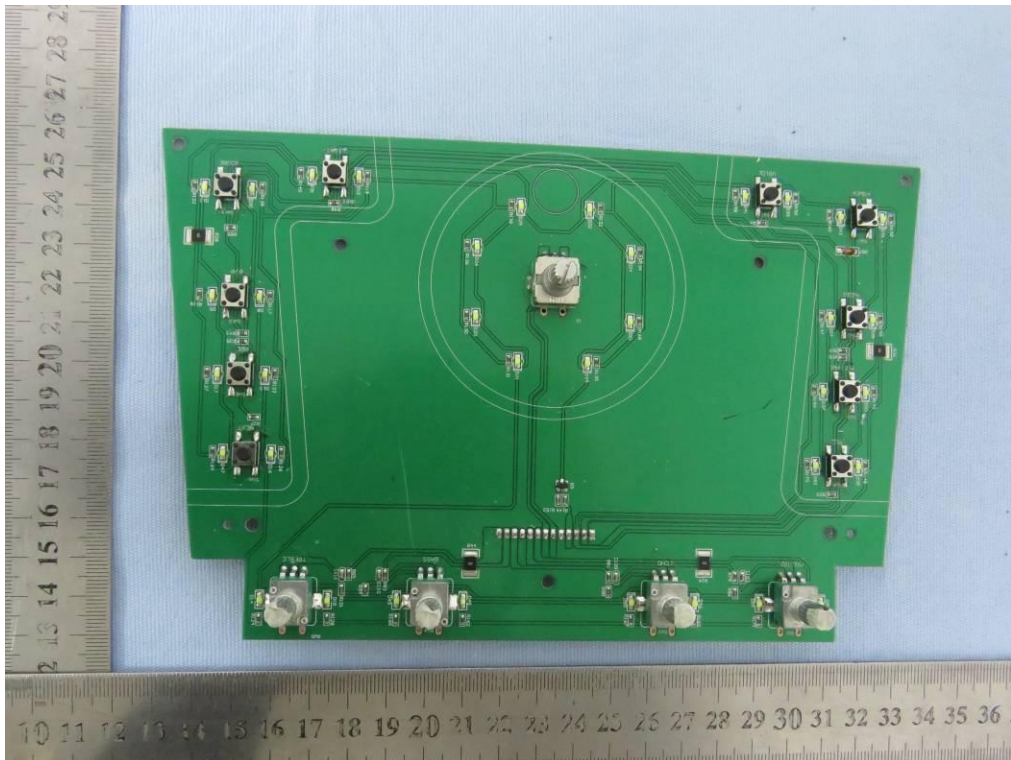
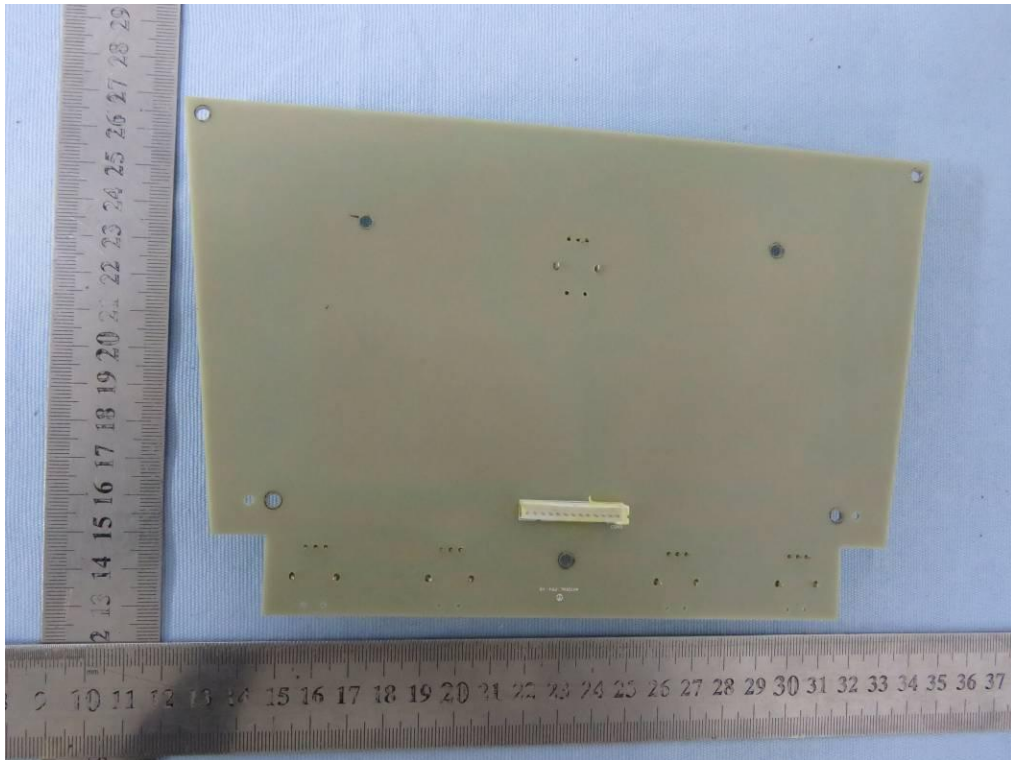


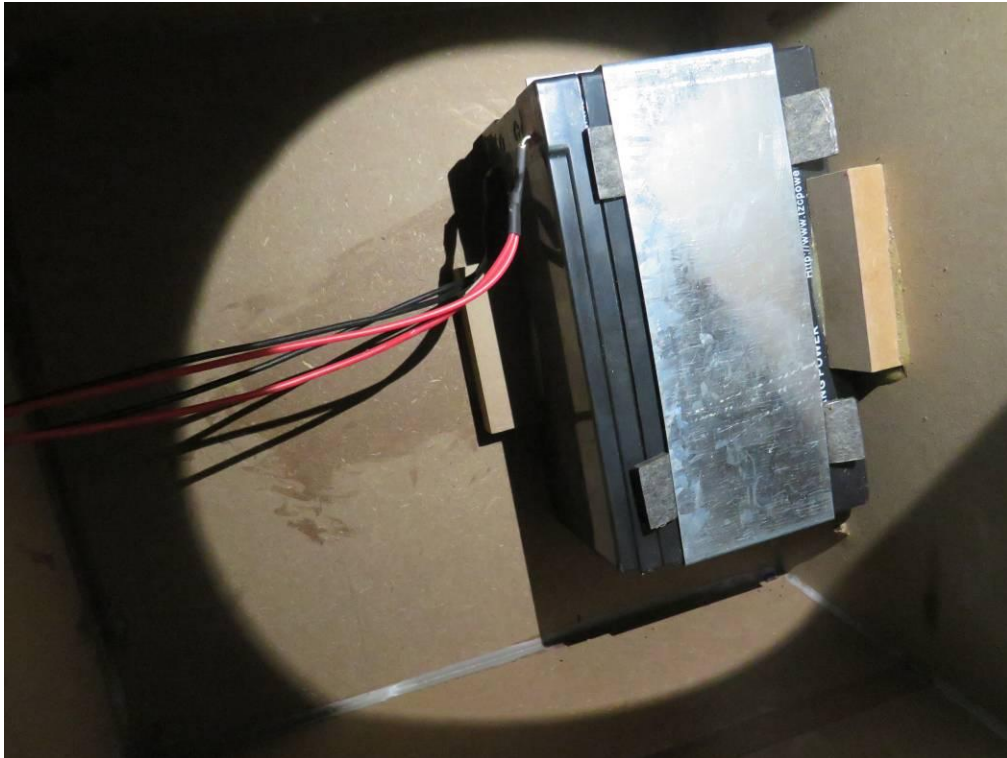












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