

CE-EMC

TEST REPORT

Test report
On Behalf of
Shenzhen Siyoteam Technology Co., Ltd.
For
SMART LED USB CHARGER
Model No.: A4405;
(Serial models see page 8)

Prepared for : Shenzhen Siyoteam Technology Co., Ltd.
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Date of Test: June 23, 2017 ~ June 30, 2017

Date of Report: June 30, 2017

Report Number: WST17060203-1ER

TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Siyoteam Technology Co., Ltd.
Address : Room 2003B, SEG Plaza, Huaqiang North Road, Futian District,
Shenzhen, P.R.China
Manufacturer's Name : Shenzhen Siyoteam Technology Co., Ltd.
Address : Room 2003B, SEG Plaza, Huaqiang North Road, Futian District,
Shenzhen, P.R.China

Product description

Trade Mark: **LDNIO[®]**
Product name : SMART LED USB CHARGER
Model and/or type reference : A4405
Serial models see page 8
EN 55032:2015
EN 61000-3-2:2014
Standards : EN 61000-3-3:2013
EN 55024: 2010+A1:2015

This device described above has been tested by WST, and the test results show that the equipment under test (EUT) is in compliance with the 2014/30/EU requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test :
Date (s) of performance of tests : June 23, 2017 ~ June 30, 2017
Date of Issue : June 30, 2017
Test Result : **Pass**

Testing Engineer :



(Sam Tan)

Technical Manager :


(John Li)

Authorized Signatory :



(Michael Ling)



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1. TEST SUMMARY

Test procedures according to the technical standards:

| EMC Emission | | | | |
|---------------------|-----------------------------------|--------------------------|----------|--------|
| Standard | Test Item | Limit | Judgment | Remark |
| EN 55032 | Conducted Emission | Class B | PASS | |
| | Radiated Emission | Class B | PASS | |
| EN61000-3-2 | Harmonic Current Emission | Class A or D NOTE (2) | N/A | |
| EN 61000-3-3 | Voltage Fluctuations & Flicker | ----- | PASS | |
| EMC Immunity | | | | |
| Section EN 55024 | Test Item | Performance Criteria | Judgment | Remark |
| EN 61000-4-2 | Electrostatic Discharge | B | PASS | |
| EN 61000-4-3 | RF electromagnetic field | A | PASS | |
| EN 61000-4-4 | Fast transients | B | PASS | |
| EN 61000-4-5 | Surges | B | PASS | |
| EN 61000-4-6 | Injected Current | A | PASS | |
| EN 61000-4-8 | Power Frequency Magnetic Field | A | PASS | |
| EN 61000-4-11 | Volt. Interruptions Volt. Dips | B / C / C NOTE (3) | PASS | |

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3) Voltage dip: 100% reduction – Performance Criteria **B**
Voltage dip: 30% reduction – Performance Criteria **C**
Voltage Interruption: 100% Interruption – Performance Criteria **C**
- (4) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

Shenzhen WST Testing Co., Ltd.
Address: 87 Guangshen Road, Baocheng 11st Zone, Xin'an Street, Bao'an, Shenzhen,
Guangdong, China

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95** %.

A. Conducted Measurement :

| Test Site | Method | Measurement Frequency Range | U , (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| WSTC01 | ANSI | 150 KHz ~ 30MHz | 3.2 | |

B. Radiated Measurement :

| Test Site | Method | Measurement Frequency Range | U , (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| WSTA01 | ANSI | 30MHz ~ 1000MHz | 4.7 | |
| | | 1GHz ~6GHz | 5.0 | |

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | | | | | |
|----------------------|--|----------------------|-----|----------------------|-----|
| Equipment | SMART LED USB CHARGER | | | | |
| Model Name | A4405 | | | | |
| Serial No | A2205, A3305 | | | | |
| Model Difference | All the models are identical except the model name. | | | | |
| Product Description | <p>The EUT is a SMART LED USB CHARGER .</p> <table border="1"><tr><td>Operating frequency:</td><td>N/A</td></tr><tr><td>Connecting I/O port:</td><td>N/A</td></tr></table> <p>Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</p> | Operating frequency: | N/A | Connecting I/O port: | N/A |
| Operating frequency: | N/A | | | | |
| Connecting I/O port: | N/A | | | | |
| Power Source | AC Voltage | | | | |
| Power Rating | AC100-240V, 50Hz | | | | |

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1 | Running |

| For Conducted Test | |
|--------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | Running |

| For Radiated Test | |
|-------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | Running |

| For EMS Test | |
|-----------------|-------------|
| Final Test Mode | Description |
| Mode 1 | Normal |

2.3 DESCRIPTION OF TEST SETUP

Mode 1:



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------------------|---------------|----------------|------------|------|
| E-1 | SMART LED USB CHARGER | LDNIO® | A4405 | N/A | EUT |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| C-1 | NO | NO | 180cm | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

2.5.1 CONDUCTED TEST SITE

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-----------------------|--------------|----------|------------|------------------|
| 1 | LISN | R&S | ENV216 | 101313 | Jul. 06, 2017 |
| 2 | LISN | EMCO | 3816/2 | 00042990 | Jul. 06, 2017 |
| 3 | 50Ω Switch | ANRITSU CORP | MP59B | 6200983704 | Jul. 06, 2017 |
| 4 | Test Cable | N/A | C01 | N/A | Jul. 06, 2017 |
| 5 | Test Cable | N/A | C02 | N/A | Jul. 06, 2017 |
| 6 | Test Cable | N/A | C03 | N/A | Jul. 06, 2017 |
| 7 | EMI Test Receiver | R&S | ESCI | 101160 | Jul. 06, 2017 |
| 8 | Passive Voltage Probe | ESH2-Z3 | R&S | 100196 | Jul. 06, 2017 |
| 9 | Triple-Loop Antenna | EVERFINE | LIA-2 | 11020003 | Jul. 06, 2017 |
| 10 | Absorbing Clamp | R&S | MDS-21 | 100423 | Jul. 08, 2017 |

2.5.2 RADIATED TEST SITE

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|-----------------|------------|------------------|
| 1 | Bilog Antenna | TESEQ | CBL6111D | 31216 | Jul. 06, 2017 |
| 2 | Test Cable | N/A | R-01 | N/A | Jul. 06, 2017 |
| 3 | Test Cable | N/A | R-02 | N/A | Jul. 06, 2017 |
| 4 | EMI Test Receiver | R&S | ESCI-7 | 101318 | Jul. 06, 2017 |
| 5 | Antenna Mast | EM | SC100_1 | N/A | N/A |
| 6 | Turn Table | EM | SC100 | 060531 | N/A |
| 7 | 50Ω Switch | Anritsu Corp | MP59B | 6200983705 | Jul. 06, 2017 |
| 8 | Spectrum Analyzer | Aglient | E4407B | MY45108040 | Jul. 06, 2017 |
| 9 | Horn Antenna | EM | EM-AH-1018 0 | 2011071402 | Jul. 06, 2017 |
| 10 | Amplifier | EM | EM-30180 | 060538 | Jul. 06, 2017 |

2.5.3 HARMONICS AND FILCK

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|--------------------|--------------|----------|------------|------------------|
| 1 | Harmonic & Flicker | EM TEST | DPA500 | 0303-04 | Jul. 06, 2017 |
| 2 | AC Power Source | EM TEST | ACS500 | 0203-01 | Jul. 06, 2017 |

2.5.4 ESD

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|--------------------|--------------|----------------------|------------|------------------|
| 1 | ESD TEST GENERATOR | EVERFINE | EMS61000-2 A-V200 | 11040001T | Jul. 06, 2017 |

2.5.5 RS

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|------------------------|--------------|------------|------------|------------------|
| 1 | Signal Generator | R&S | SMT 06 | 832080/007 | Jul. 24, 2017 |
| 2 | Log-Bicon Antenna | Schwarzbeck | VULB9161 | 4022 | Aug. 15, 2017 |
| 3 | Power Amplifier | AR | 150W1000M1 | 320946 | Sep. 23, 2017 |
| 4 | Microwave Horn Antenna | AR | AT4002A | 321467 | Sep. 11, 2017 |
| 5 | Power Amplifier | AR | 25S1G4A | 308598 | Sep. 23, 2017 |

2.5.6 SURGE, EFT/BURST, VOLTAGE INTERRUPTION/DIPS

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|--------------------|------------|------------------|
| 1 | Surge Generator | EVERFINE | EMS61000-5 A | 1101002 | Jul. 06, 2017 |
| 2 | DIPS Generator | EVERFINE | EMS61000-1 1K | 1011002 | Jul. 06, 2017 |
| | EFT/B Generator | EVERFINE | EMS61000-4 A-V2 | 1012005 | Aug. 04, 2017 |

2.5.7 INJECTION CURRENT

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|-------------|------------|------------------|
| 1 | Signal Generator | IFR | 2023A | 202301/368 | Sep. 30, 2017 |
| 2 | Power Amplifier | AR | 75A250AM1 | 0320709 | Sep. 23, 2017 |
| 3 | CDN | FCC | FCC-801-M2 | 06043 | Sep. 02, 2017 |
| 4 | EM Clamp | FCC | F-203I-23MM | 504 | Sep. 09, 2017 |

2.4.8 MF

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|-----------------|------------|------------------|
| 1 | Generator | EVERFINE | EMS61000-8 K | 1007001 | Jul. 06, 2017 |

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | |
|-----------------|----------------|---------|----------------|-----------|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

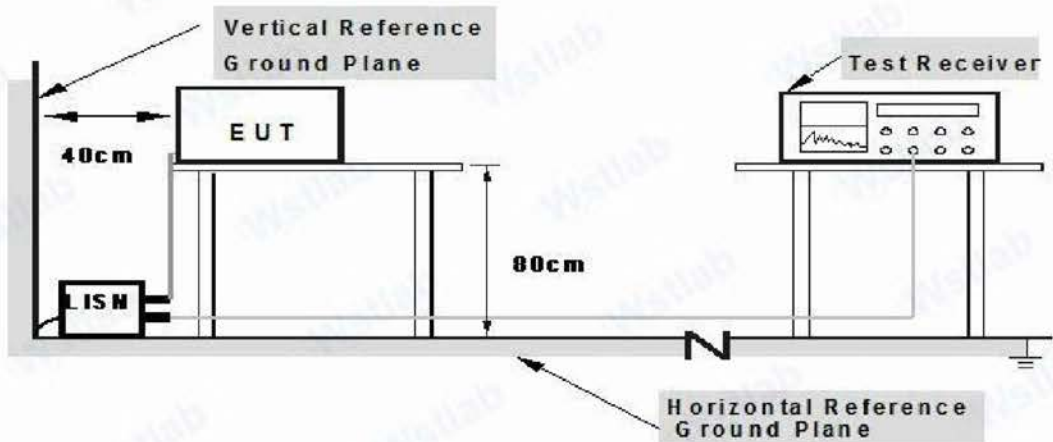
The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISN's (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

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

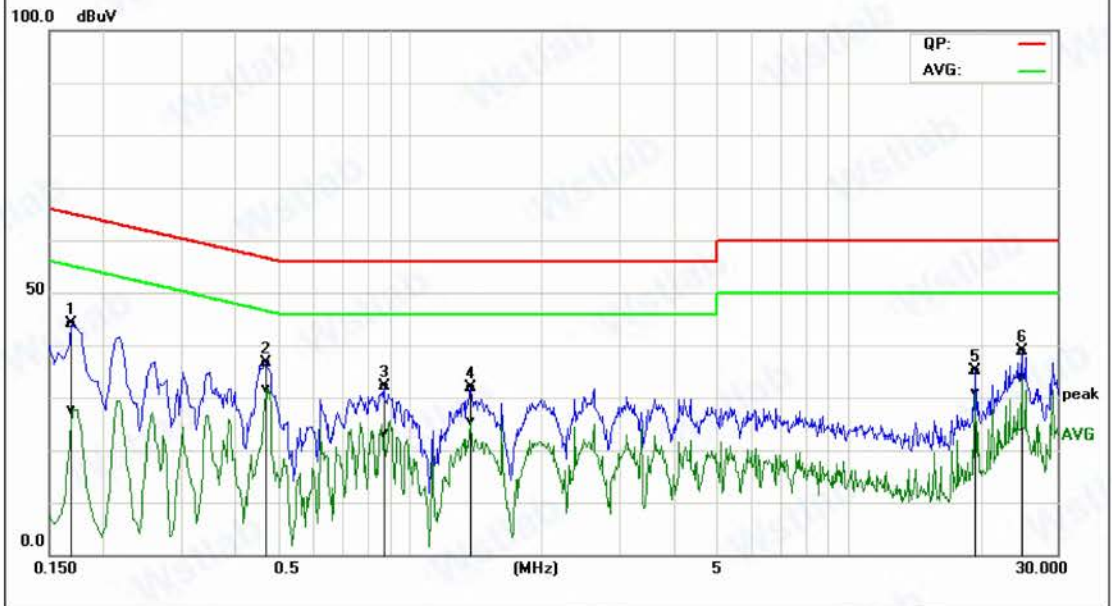
3.1.5 TEST RESULTS

| | | | |
|----------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name. : | A4405 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Test Date : | 2017-06-25 |
| Test Mode : | Running | Phase : | L |
| Test Voltage : | AC 230V/50Hz | | |

| No. | Frequency | QuasiPeak reading | Average reading | Correction factor | QuasiPeak result | Average result | QuasiPeak limit | Average limit | QuasiPeak margin | Average margin | Remark |
|-----|-----------|-------------------|-----------------|-------------------|------------------|----------------|-----------------|---------------|------------------|----------------|--------|
| . | (MHz) | (dBuV) | (dBuV) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dBuV) | (dB) | (dB) | . |
| 1. | 0.1700. | 44.18. | 27.64. | 0.04. | 44.22. | 27.68. | 64.96. | 54.96. | -20.74. | -27.28. | Pass. |
| 2. | 0.4700. | 36.49. | 31.71. | 0.04. | 36.53. | 31.75. | 56.51. | 46.51. | -19.98. | -14.76. | Pass. |
| 3. | 0.8740. | 32.03. | 23.18. | 0.06. | 32.09. | 23.24. | 56.00. | 46.00. | -23.91. | -22.76. | Pass. |
| 4. | 1.3740. | 31.75. | 25.28. | 0.08. | 31.83. | 25.36. | 56.00. | 46.00. | -24.17. | -20.64. | Pass. |
| 5. | 19.5020. | 34.83. | 30.63. | 0.30. | 35.13. | 30.93. | 60.00. | 50.00. | -24.87. | -19.07. | Pass. |
| 6. | 24.8940. | 38.59. | 33.49. | 0.34. | 38.93. | 33.83. | 60.00. | 50.00. | -21.07. | -16.17. | Pass. |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit

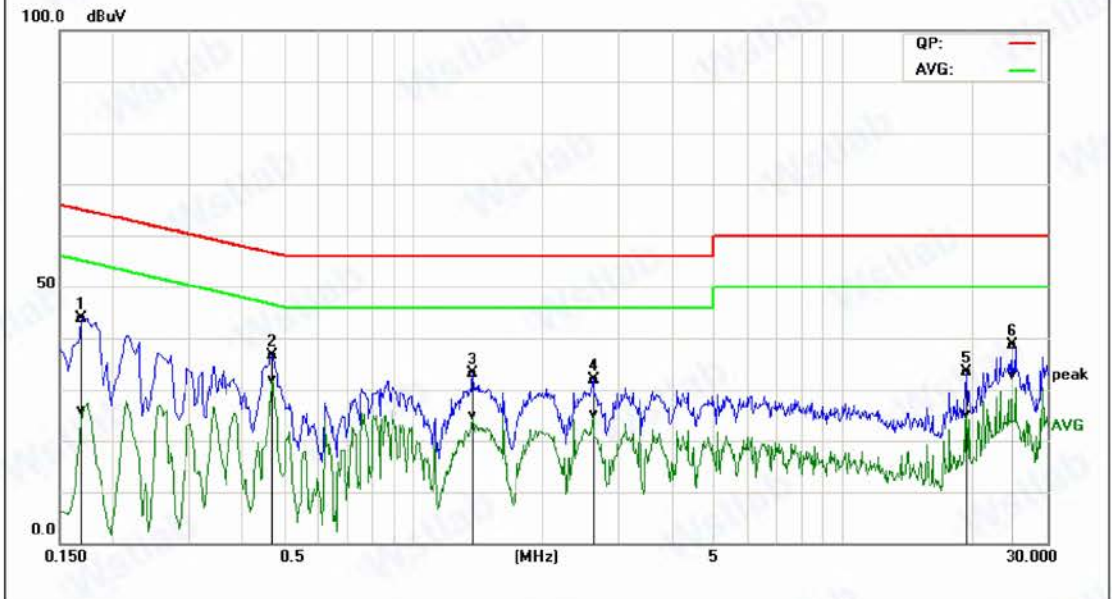


| | | | |
|----------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name. : | A4405 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Test Date : | 2017-06-25 |
| Test Mode : | Running | Phase : | N |
| Test Voltage : | AC 230V/50Hz | | |

| No. | Frequency (MHz) | QuasiPeak reading (dBuV) | Average reading (dBuV) | Correction factor (dB) | QuasiPeak result (dBuV) | Average result (dBuV) | QuasiPeak limit (dBuV) | Average limit (dBuV) | QuasiPeak margin (dB) | Average margin (dB) | Remark |
|-----|-----------------|--------------------------|------------------------|------------------------|-------------------------|-----------------------|------------------------|----------------------|-----------------------|---------------------|--------|
| 1. | 0.1700 | 43.73 | 25.85 | 0.04 | 43.77 | 25.89 | 64.96 | 54.96 | -21.19 | -29.07 | Pass |
| 2. | 0.4700 | 36.63 | 31.80 | 0.04 | 36.67 | 31.84 | 56.51 | 46.51 | -19.84 | -14.67 | Pass |
| 3. | 1.3740 | 33.00 | 24.80 | 0.08 | 33.08 | 24.88 | 56.00 | 46.00 | -22.92 | -21.12 | Pass |
| 4. | 2.6260 | 31.81 | 24.97 | 0.11 | 31.92 | 25.08 | 56.00 | 46.00 | -24.08 | -20.92 | Pass |
| 5. | 19.5060 | 33.06 | 24.80 | 0.30 | 33.36 | 25.10 | 60.00 | 50.00 | -26.64 | -24.90 | Pass |
| 6. | 24.8780 | 38.25 | 32.32 | 0.34 | 38.59 | 32.66 | 60.00 | 50.00 | -21.41 | -17.34 | Pass |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

| FREQUENCY (MHz) | Class A | | Class B | |
|-----------------|---------|--------|---------|--------|
| | At 10m | At 3m | At 10m | At 3m |
| | dBuV/m | dBuV/m | dBuV/m | dBuV/m |
| 30 – 230 | 40 | 50 | 30 | 40 |
| 230 – 1000 | 47 | 57 | 37 | 47 |

3.2.2 LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Class A (at 3m) dBuV/m | | Class B (at 3m) dBuV/m | |
|-----------------|------------------------|-----|------------------------|-----|
| | Peak | Avg | Peak | Avg |
| 1000-3000 | 76 | 56 | 70 | 50 |
| 3000-6000 | 80 | 60 | 74 | 54 |

Notes:

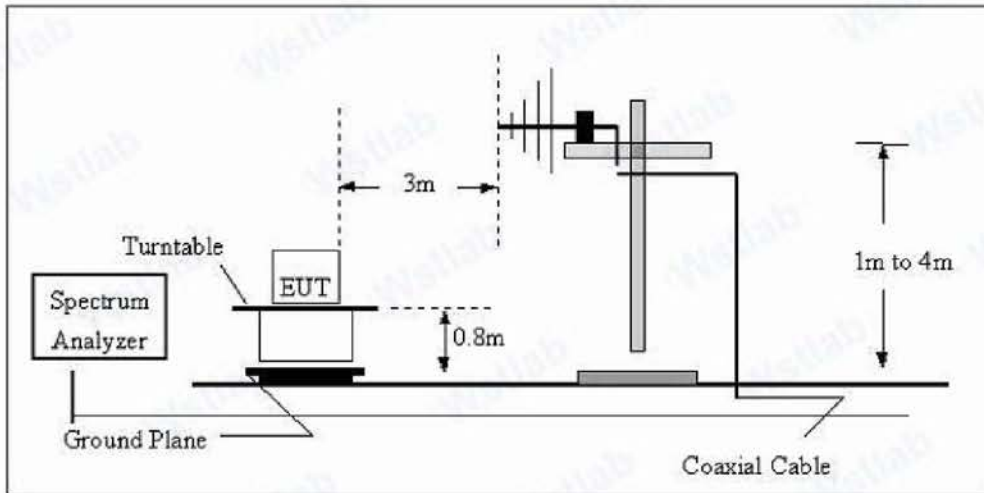
- (1) The limit for radiated test was performed according to as following: CISPR 22.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.3 TEST PROCEDURE

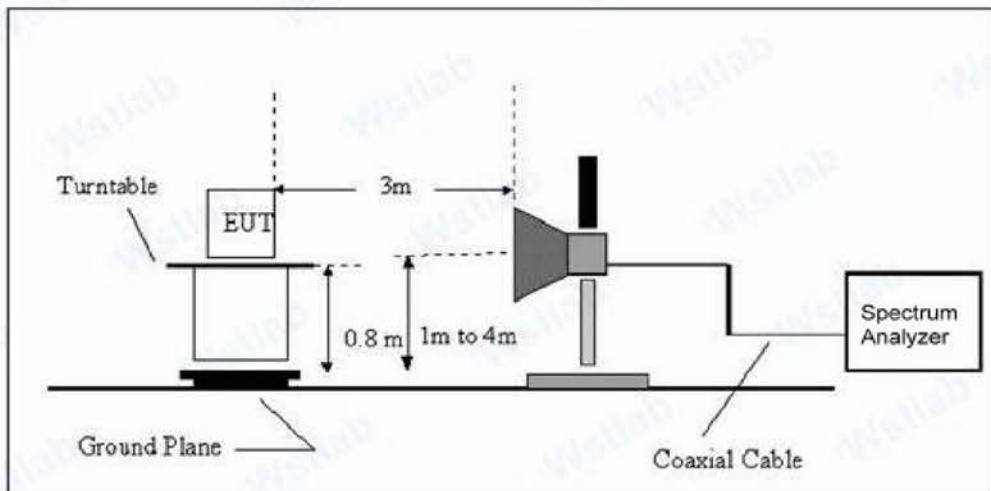
- a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.4 TEST SETUP

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



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



3.2.5 EUT OPERATING CONDITIONS

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

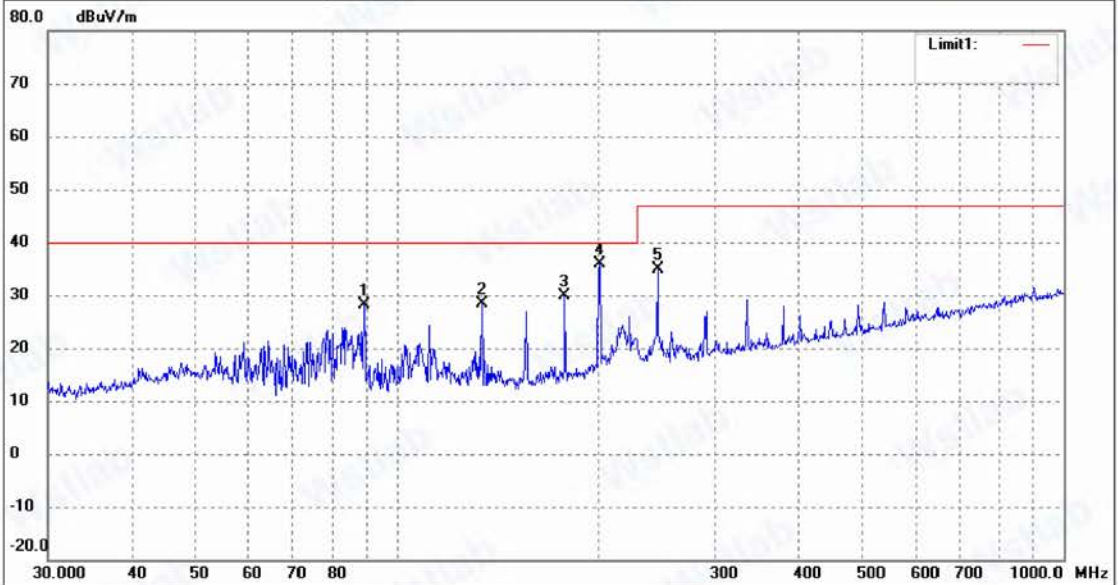
3.2.6 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-26 |
| Test Mode : | Running | Polarization : | Horizontal |
| Test Power : | AC230V/50Hz | | |

| No. | Frequency (MHz) | Reading (dBuV/m) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree () | Height (cm) | Remark |
|-----|-----------------|------------------|----------------|-----------------|----------------|-------------|------------|-------------|--------|
| 1 | 89.2764 | 40.92 | -12.87 | 28.05 | 40.00 | -11.95 | | | peak |
| 2 | 134.0882 | 40.70 | -12.23 | 28.47 | 40.00 | -11.53 | | | peak |
| 3 | 178.7584 | 41.28 | -11.41 | 29.87 | 40.00 | -10.13 | | | peak |
| 4 | 201.3930 | 44.58 | -8.66 | 35.92 | 40.00 | -4.08 | | | peak |
| 5 | 245.9509 | 42.76 | -7.91 | 34.85 | 47.00 | -12.15 | | | peak |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit

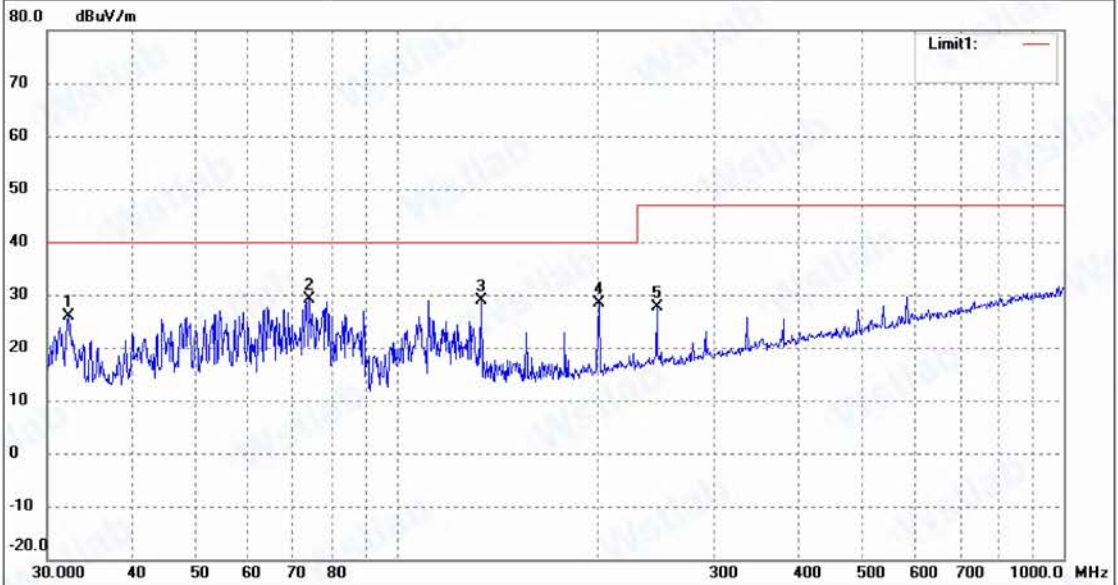


| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-26 |
| Test Mode : | Running | Polarization : | Vertical |
| Test Power : | AC230V/50Hz | | |

| No. | Frequency (MHz) | Reading (dBuV/m) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree () | Height (cm) | Remark |
|-----|-----------------|------------------|----------------|-----------------|----------------|-------------|------------|-------------|--------|
| 1 | 32.2925 | 35.59 | -9.72 | 25.87 | 40.00 | -14.13 | | | peak |
| 2 | 74.1351 | 41.61 | -12.49 | 29.12 | 40.00 | -10.88 | | | peak |
| 3 | 134.0882 | 41.11 | -12.23 | 28.88 | 40.00 | -11.12 | | | peak |
| 4 | 201.3930 | 37.14 | -8.66 | 28.48 | 40.00 | -11.52 | | | peak |
| 5 | 245.9509 | 35.55 | -7.91 | 27.64 | 47.00 | -19.36 | | | peak |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



3.2.7 TEST RESULTS(1000~6000MHz)

| | | | |
|---------------|-----------------------|---------------------|-------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Date : | N/A |
| Test Mode : | N/A | Polarization : | N/A |
| Test Power : | N/A | | |

NOTE:

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

(2) The power consumption of EUT is less than 36W and no Limits apply.

3.3 HARMONICS CURRENT

3.3.1 LIMITS OF HARMONICS CURRENT

| IEC 555-2 | | | | | |
|------------------------------------|------------------|--|--------------------|------------------|--|
| Table - I | | | Table - II | | |
| Equipment Category | Harmonic Order n | Max. Permissible Harmonic Current (in Amperes) | Equipment Category | Harmonic Order n | Max. Permissible Harmonic Current (in Amperes) |
| Non Portable Tools or TV Receivers | Odd Harmonics | | TV Receivers | Odd Harmonics | |
| | 3 | 2.30 | | 3 | 0.80 |
| | 5 | 1.14 | | 5 | 0.60 |
| | 7 | 0.77 | | 7 | 0.45 |
| | 9 | 0.40 | | 9 | 0.30 |
| | 11 | 0.33 | | 11 | 0.17 |
| | 13 | 0.21 | | 13 | 0.12 |
| | 15 ≤ n ≤ 39 | 0.15 · 15/n | | 15 ≤ n ≤ 39 | 0.10 · 15/n |
| | Even Harmonics | | | Even Harmonics | |
| | 2 | 1.08 | | 2 | 0.30 |
| 4 | 0.43 | 4 | 0.15 | | |
| 8 | 0.30 | | | | |
| 8 ≤ n ≤ 40 | 0.23 · 8/n | DC | 0.05 | | |

| EN 61000-3-2/IEC 61000-3-2 | | | | | |
|-----------------------------|---|--------------------|------------------|--|--|
| Equipment Category | Max. Permissible Harmonic Current (in Amperes) | Equipment Category | Harmonic Order n | Max. Permissible Harmonic Current (in A) | Max. Permissible Harmonic Current (mA/w) |
| Class A | Same as Limits Specified in 4-2.1, Table - I, but only odd harmonics required | Class D | 3 | 2.30 | 3.4 |
| | | | 5 | 1.14 | 1.9 |
| | | | 7 | 0.77 | 1.0 |
| | | | 9 | 0.40 | 0.5 |
| | | | 11 | 0.33 | 0.35 |
| | | | 13 ≤ n ≤ 39 | see Table I | 3.85/n |
| only odd harmonics required | | | | | |

3.3.1.1 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.

b. The classification of EUT is according to section 5 of EN 61000-3-2. The EUT is classified 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. Portable tools.; Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

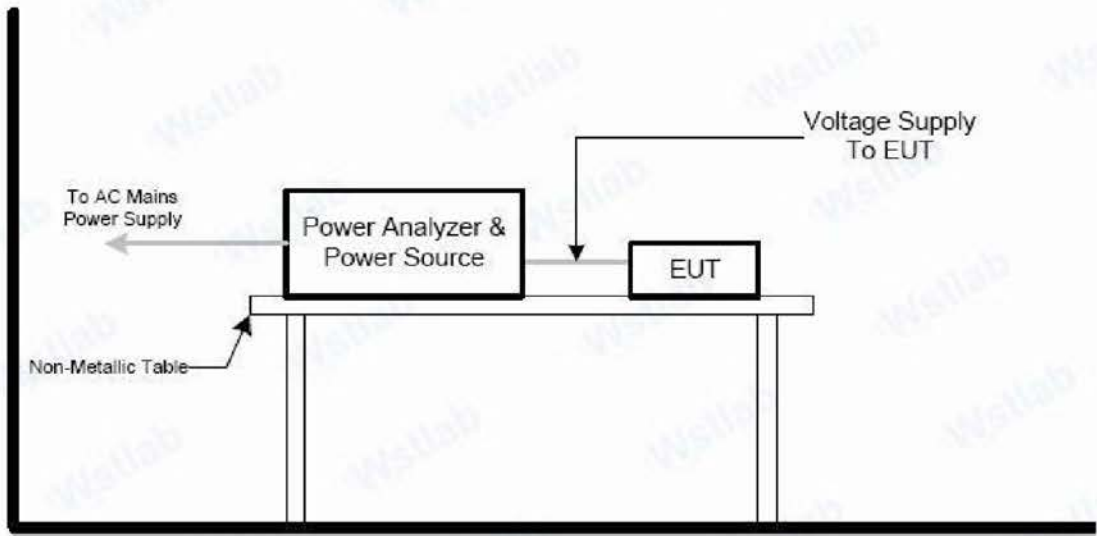
Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

3.3.1.2 EUT OPERATING CONDITIONS

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

3.3.1.3 TEST SETUP



3.3.2 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|-------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Date : | N/A |
| Test Mode : | N/A | Polarization : | N/A |
| Test Power : | N/A | | |

NOTE:

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

(2) The power consumption of EUT is less than 36W and no Limits apply.

3.4 VOLTAGE FLUCTUATION AND FLICKERS

3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKERS

| Tests | Limits | | Descriptions |
|-------|--------------------|---------------------|----------------------------------|
| | IEC555-3 | IEC/EN 61000-3-3 | |
| Pst | ≤ 1.0, Tp= 10 min. | ≤ 1.0, Tp= 10 min. | Short Term Flicker Indicator |
| Plt | N/A | ≤ 0.65, Tp=2 hr. | Long Term Flicker Indicator |
| dc | ≤ 3% | ≤ 3.3% | Relative Steady-State V-Chang |
| dmax | ≤ 4% | ≤ 4% | Maximum Relative V-change |
| d (t) | N/A | ≤ 3.3% for > 500 ms | Relative V-change characteristic |

3.4.1.1 TEST PROCEDURE

a. Harmonic Current Test:

Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.

b. Fluctuation and Flickers Test:

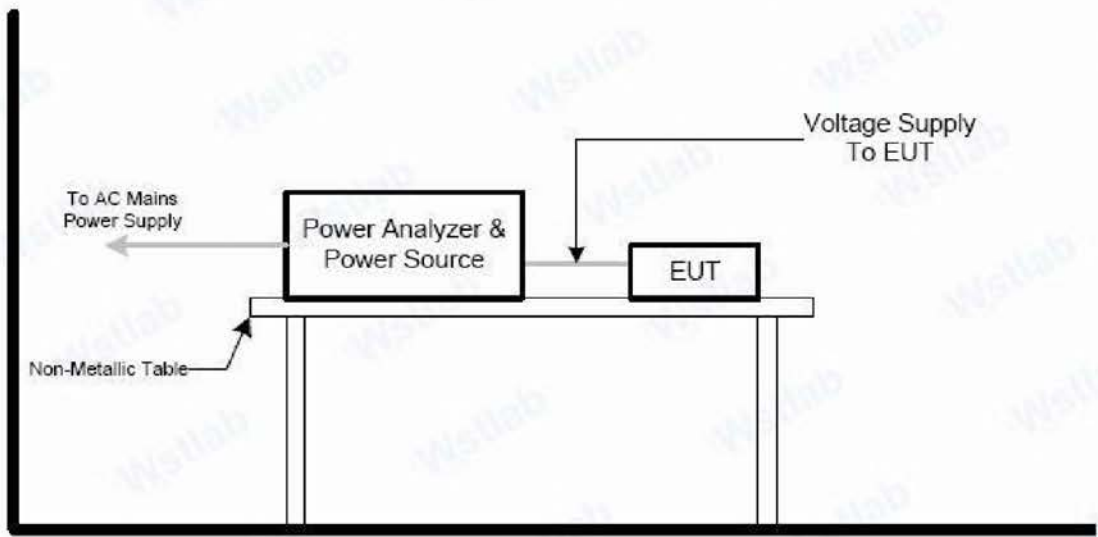
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.

c. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

3.4.1.2 EUT OPERATING CONDITIONS

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

3.4.1.3 TEST SETUP

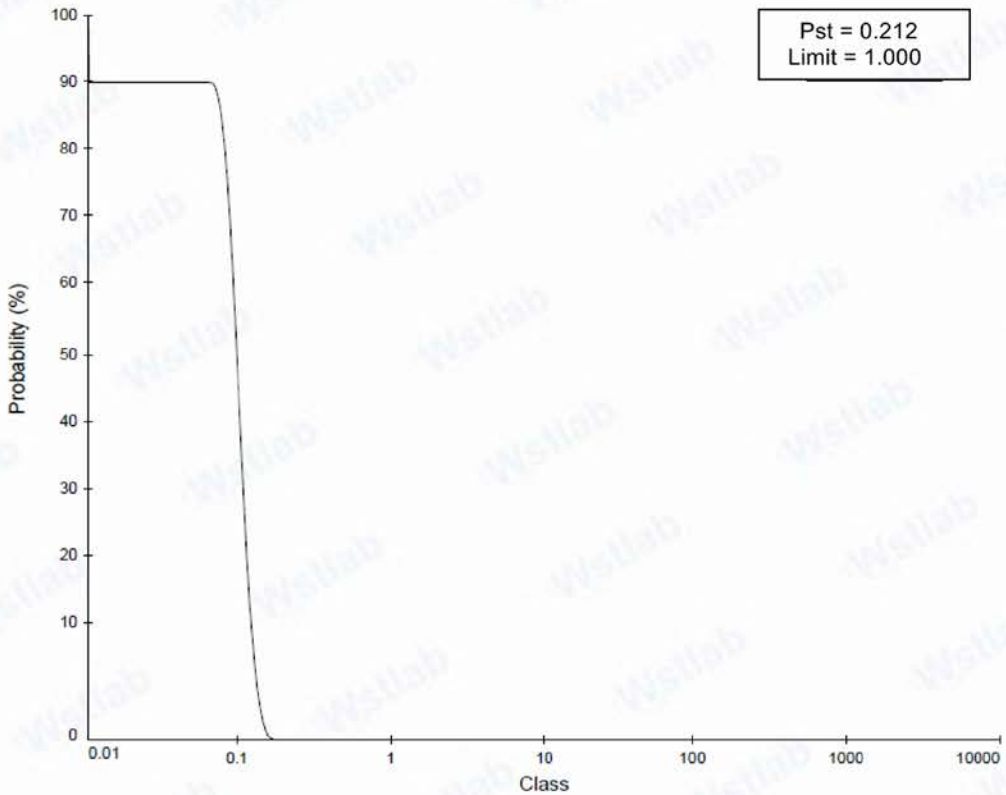


3.4.2 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-27 |
| Test Mode : | Normal | | |
| Result : | Pass | | |

| | |
|--------------------------------|--|
| Overall Result: PASS | Notes: Measurement method - Voltage |
|--------------------------------|--|

Pst Curve 1



| | |
|-----------------|------------------------------|
| Overall Result: | Notes: |
| PASS | Measurement method - Voltage |

| | Pst | dc(%) | dmax(%) | d(t)>3.3%(ms) |
|-----------|-------|-------|---------|---------------|
| Limit | 1.000 | 3.300 | 4.000 | 500 |
| Reading 1 | 0.212 | 0.000 | 1.008 | 0 |

4. EMC IMMUNITY TEST

4.1 STANDARD COMPLIANCE/SERVIRITY LEVEL/CRITERIA

| Tests Standard No. | TEST SPECIFICATION | Test Mode Test Ports | Perform. Criteria |
|---|---|---------------------------------|----------------------|
| 1. ESD IEC/EN 61000-4-2 | 8KV air discharge 4KV contact discharge | Direct Mode | B |
| | 4KV HCP discharge 4KV VCP discharge | Indirect Mode | B |
| 2. RS IEC/EN 61000-4-3 | 80 MHz to 1000 MHz, 1000Hz, 80%, AM modulated | Enclosure | A |
| 3. EFT/Burst IEC/EN 61000-4-4 | 5/50ns Tr/Th 5KHz Repetition Freq. | Power Supply Port | B |
| | 5/50ns Tr/Th 5KHz Repetition Freq. | CTL/Signal Data Line Port | B |
| 4. Surges IEC/EN 61000-4-5 | 1.2/50(8/20) Tr/Th us | L-N | B |
| 5 Injected Current IEC/EN 61000-4-6 | 0.15 MHz to 80 MHz, 1000Hz 80%, AM Modulated 150Ω source impedance | CTL/Signal Port | A |
| | 0.15 MHz to 80 MHz, 1000Hz 80%, AM Modulated 150Ω source impedance | AC Power Port | A |
| | 0.15 MHz to 80 MHz, 1000Hz 80%, AM Modulated 150Ω source impedance | DC Power Port | A |
| 6. Power Frequency Magnetic Field IEC/EN 61000-4-8 | 50 Hz, | Enclosure | A |
| 7. Volt. Interruptions Volt. Dips IEC/EN 61000-4-11 | Voltage dip 100% Voltage dip 30% Interruption 100% | | B |
| | | AC Power Port | C |
| | | | C |

4.2 GENERAL PERFORMANCE CRITERIA

According to **EN 55024** standard, the general performance criteria as following:

| | |
|--------------------|---|
| Criterion A | <p>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.</p> <p>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.</p> |
| Criterion B | <p>After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.</p> <p>The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.</p> |
| Criterion C | <p>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.</p> <p>Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p> |

4.3 GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

4.4 ESD TESTING

4.4.1 TEST SPECIFICATION

| | |
|----------------------|---|
| Basic Standard: | IEC/EN 61000-4-2 |
| Discharge Impedance: | 330 ohm / 150 pF |
| Required Performance | B |
| Discharge Voltage: | Air Discharge : 2kV/4kV/8kV (Direct) Contact Discharge : 2kV/4kV (Direct/Indirect) |
| Polarity: | Positive & Negative |
| Number of Discharge: | Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total |
| Discharge Mode: | Single Discharge |
| Discharge Period: | 1 second minimum |

4.4.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

- a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. 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 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.

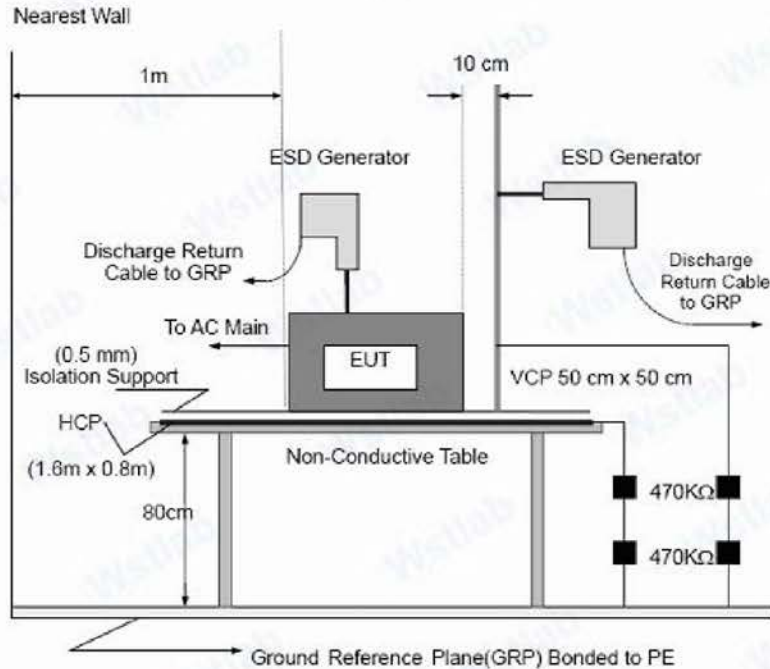
If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

Vertical Coupling Plane (VCP):
The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.
- b. Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point.

4.4.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.4.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 45% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-27 |
| Test Mode : | Normal | | |
| Test Power : | AC230V/50Hz | | |

| Mode | Air Discharge | | | | Contact Discharge | | | | Criterion | Result | | | | |
|-----------------|---------------|---|----|----|-------------------|---|---|---|-----------|--------|---|---|---|------|
| | 4 | 8 | 10 | 15 | 2 | 4 | 6 | 8 | | | | | | |
| Test level (kV) | + | | - | | + | | - | | + | | - | | | |
| Test Location | + | - | + | - | + | - | + | - | + | - | + | - | | |
| HCP | | | | | | | | | A | A | A | A | B | PASS |
| VCP | | | | | | | | | A | A | A | A | | PASS |
| Metallic parts | | | | | | | | | A | A | A | A | | PASS |
| enclosure | A | A | A | A | | | | | | | | | | PASS |
| slit | A | A | A | A | | | | | | | | | | PASS |

Note:

- 1) +/- denotes the Positive/Negative polarity of the output voltage.
- 2) Test condition:
 Direct / Indirect (HCP/VCP) discharges: Minimum 50 times (Positive/Negative) at each point. Air discharges: Minimum 10 times (Positive/Negative) at each point.
- 3) Test location(s) in which discharge (Air and contact discharge) to be applied illustrated by photos shown in next page(s)
- 4) The Indirect (HCP/VCP) discharges description of test point as following:
 1.left side 2.right side 3.front side 4.rear side
- 5) N/A - denotes test is not applicable in this test report

4.5 RS TESTING

4.5.1 TEST SPECIFICATION

| | |
|----------------------|------------------------------------|
| Basic Standard: | IEC/EN 61000-4-3 |
| Required Performance | A |
| Frequency Range: | 80 MHz - 1000 MHz |
| Field Strength: | 3 V/m |
| Modulation: | 1kHz Sine Wave, 80%, AM Modulation |
| Frequency Step: | 1 % of fundamental |
| Polarity of Antenna: | Horizontal and Vertical |
| Test Distance: | 3 m |
| Antenna Height: | 1.5 m |
| Dwell Time: | at least 3 seconds |

4.5.2 TEST PROCEDURE

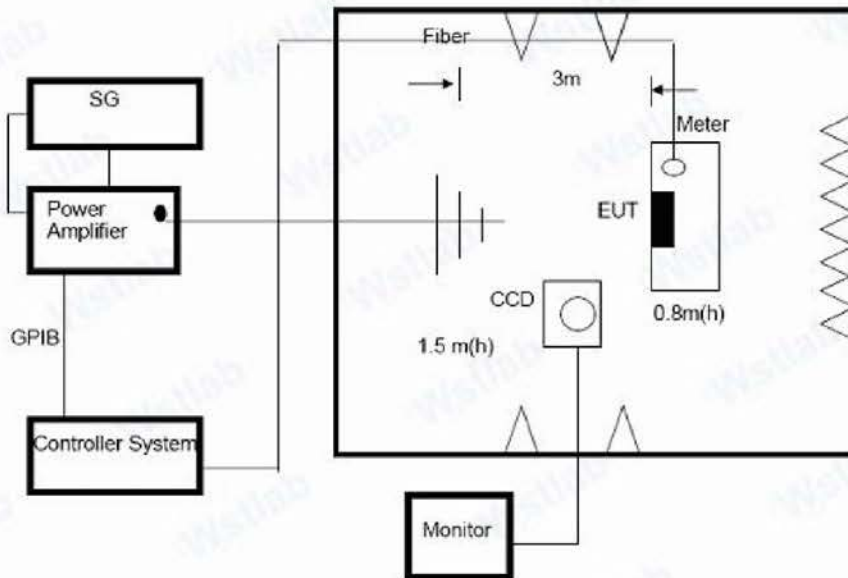
The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

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

The other condition as following manner:

- a. The frequency range is swept from 80 MHz to 1000 MHz, & 1400MHz - 2700MHz with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10⁻³ decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- b. Sweep Frequency 900 MHz, with the Duty Cycle:1/8 and Modulation: Pulse 217 Hz(if applicable)
- c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.5.3 TEST SETU



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.5.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-28 |
| Test Mode : | Normal | | |
| Test Power : | AC230V/50Hz | | |

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

Note:

- 1) N/A - denotes test is not applicable in this test report.
- 2) Criteria A: There was no change operated with initial operating during the test.
- 3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 4) Criteria C: The system shut down during the test.

4.6 EFT/BURST TESTING

4.6.1 TEST SPECIFICATION

| | |
|----------------------|---|
| Basic Standard: | IEC/EN 61000-4-4 |
| Required Performance | B |
| Test Voltage: | Power Line : 1 kV Signal/Control Line : 0.5 KV |
| Polarity: | Positive & Negative |
| Impulse Frequency: | 5 kHz |
| Impulse Wave shape : | 5/50 ns |
| Burst Duration: | 15 ms |
| Burst Period: | 300 ms |
| Test Duration: | Not less than 1 min. |

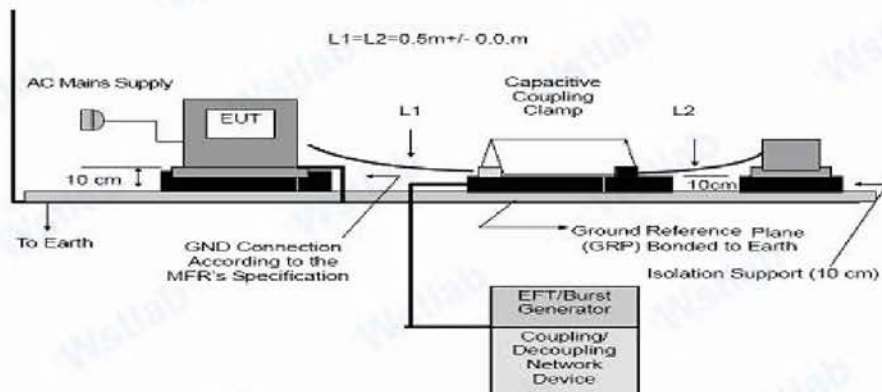
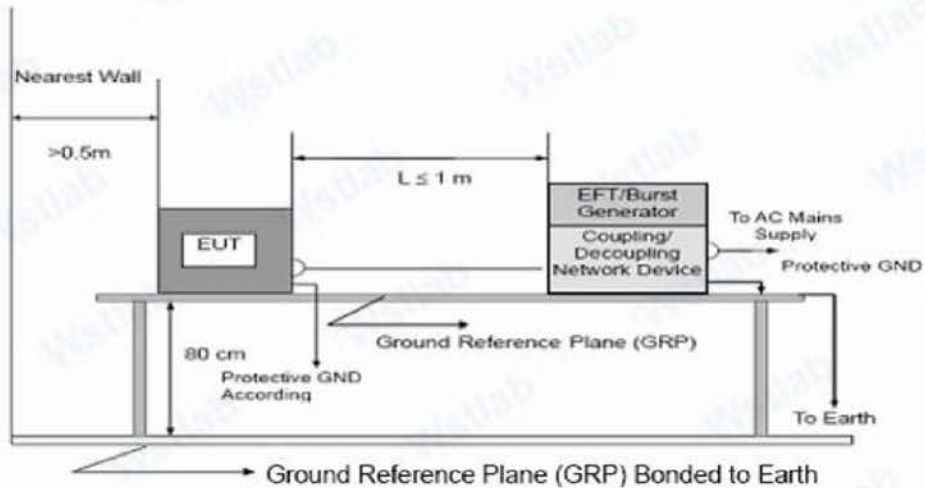
4.6.2 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

The other condition as following manner:

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

4.6.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

4.6.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-28 |
| Test Mode : | Normal | | |
| Results : | Pass | | |

| Coupling Line | Test level (kV) | | | | | | | | Criterion | Result | |
|---------------|-----------------|---|---|---|---|---|---|---|-----------|--------|------|
| | 0.5 | | 1 | | 2 | | 4 | | | | |
| | + | - | + | - | + | - | + | - | | | |
| AC line | L | A | A | A | A | | | | | B | PASS |
| | N | A | A | A | A | | | | | | PASS |
| | L+N | A | A | A | A | | | | | | PASS |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| DC Line | | | | | | | | | | | |
| Signal Line | | | | | | | | | | | |

Note:

- 1) +/- denotes the Positive/Negative polarity of the output voltage.
- 2) N/A - denotes test is not applicable in this test report
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

4.7 SURGE TESTING

4.7.1 TEST SPECIFICATION

| | |
|------------------------|--|
| Basic Standard: | IEC/EN 61000-4-5 |
| Required Performance | B |
| Wave-Shape: | Combination Wave 1.2/50 us Open Circuit Voltage 8 /20 us Short Circuit Current |
| Test Voltage: | Power Line : 0.5 kV, 1 kV, 2 kV |
| Surge Input/Output: | L-N |
| Generator Source: | 2 ohm between networks |
| Impedance: | 12 ohm between network and ground |
| Polarity: | Positive/Negative |
| Phase Angle: | 0 /90/180/270° |
| Pulse Repetition Rate: | 1 time / min. (maximum) |
| Number of Tests: | 5 positive and 5 negative at selected points |

4.7.2 TEST PROCEDURE

a. For EUT power supply:

The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

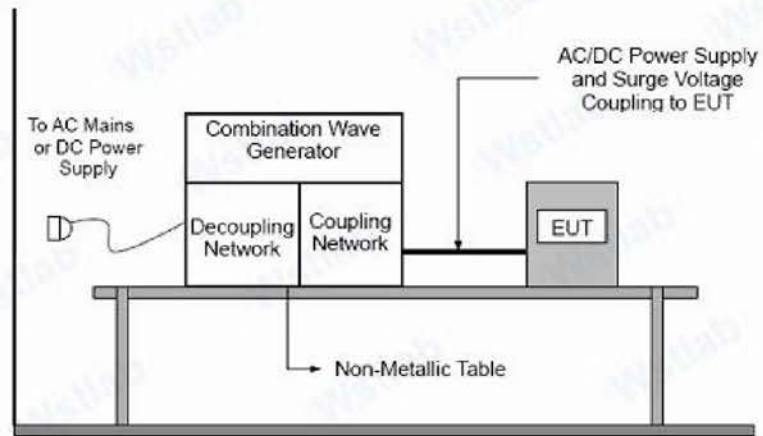
b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

c. For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT:

d. The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

4.7.3 TEST SETUP



4.7.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-28 |
| Test Mode : | Normal | | |
| Results : | Pass | | |

| Coupling Line | | | Test level | | | | | | | | Criterion | Result |
|---------------|-----|------|------------|---|------|---|------|---|------|---|-----------|--------|
| | | | 0.5 kV | | 1 kV | | 2 kV | | 4 kV | | | |
| | | | + | - | + | - | + | - | + | - | | |
| AC line | L-N | 0° | A | A | B | B | | | | | B | PASS |
| | | 90° | A | A | B | B | | | | | | |
| | | 180° | A | A | B | B | | | | | | |
| | | 270° | A | A | B | B | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| DC Line | | | | | | | | | | | | |
| Signal Line | | | | | | | | | | | | |

Note:

- 1) Polarity and Numbers of Impulses : 5 Pst / Ngst at each tested mode
- 2) N/A - denotes test is not applicable in this Test Report
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

4.8 INJECTION CURRENT TESTING

4.8.1 TEST SPECIFICATION

| | |
|----------------------|------------------------------------|
| Basic Standard: | IEC/EN 61000-4-6 |
| Required Performance | A |
| Frequency Range: | 0.15 MHz - 80 MHz |
| Field Strength: | 3 Vr.m.s. |
| Modulation: | 1kHz Sine Wave, 80%, AM Modulation |
| Frequency Step: | 1 % of fundamental |
| Dwell Time: | at least 3 seconds |

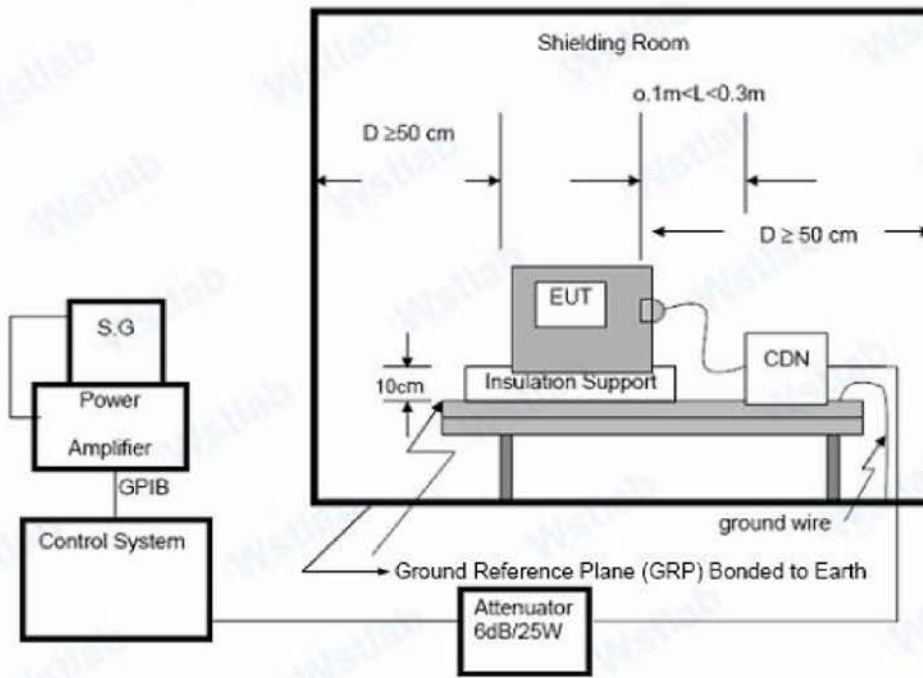
4.8.2 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

The other condition as following manner:

- a. The frequency range is swept from 150 KHz to 80 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- b. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

4.8.3 TEST SETUP



NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

4.8.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-28 |
| Test Mode : | Normal | | |
| Results : | Pass | | |

| Test Ports (Mode) | Freq. Range (MHz) | Field Strength | Perform. Criteria | Results | Judgment |
|------------------------------|-------------------|--|-------------------|------------|-------------|
| Input/ Output AC. Power Port | 0.15 ---80 | 3V(rms) AM Modulated 1000Hz, 80% | A | A | PASS |
| Input/ Output DC. Power Port | 0.15 --- 80 | | A | N/A | N/A |
| Signal Line | 0.15 --- 80 | | A | N/A | N/A |

Note:

- 1) N/A - denotes test is not applicable in this Test Report.
- 2) Criteria A: There was no change operated with initial operating during the test.
- 3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 4) Criteria C: The system shut down during the test.

4.9 VOLTAGE INTERRUPTION/DIPS TESTING

4.9.1 TEST SPECIFICATION

| | |
|----------------------|-------------------------|
| Basic Standard: | IEC/EN 61000-4-8 |
| Required Performance | A |
| Frequency Range: | 50Hz |
| Field Strength: | 1 A/m |
| Observation Time: | 1 minute |
| Inductance Coil: | Rectangular type, 1mx1m |

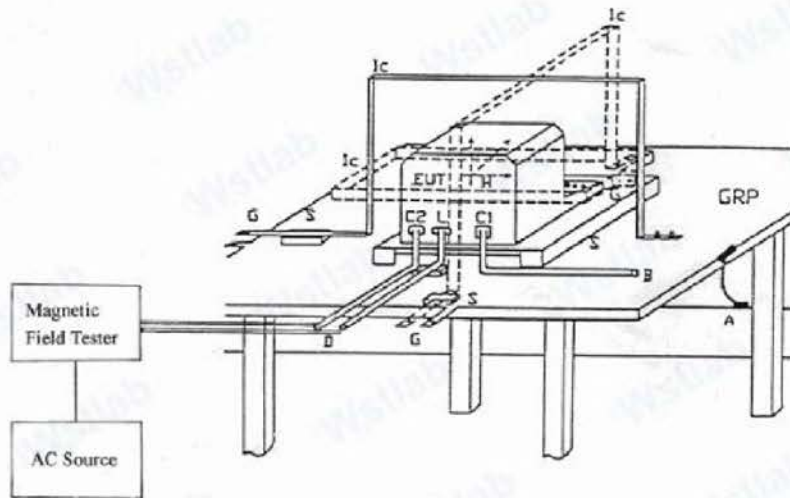
4.9.2 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

The other condition as following manner:

- a. The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- b. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

4.9.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

4.9.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-28 |
| Test Mode : | Normal | | |
| Results : | Pass | | |

| Test Mode | Test Level | Antenna aspect | Duration (s) | Perform Criteria | Results | Judgment |
|-----------|------------|----------------|--------------|------------------|---------|----------|
| Enclosure | 1 A/m | X | 5min. | A | A | Pass |
| Enclosure | 1 A/m | Y | 5min. | A | A | Pass |
| Enclosure | 1 A/m | Z | 5min. | A | A | Pass |

Note:

- 1) N/A - denotes test is not applicable in this test report
- 2) Criteria A: There was no change operated with initial operating during the test.
- 3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 4) Criteria C: The system shut down during the test.

4.10 VOLTAGE INTERRUPTION/DIPS TESTING

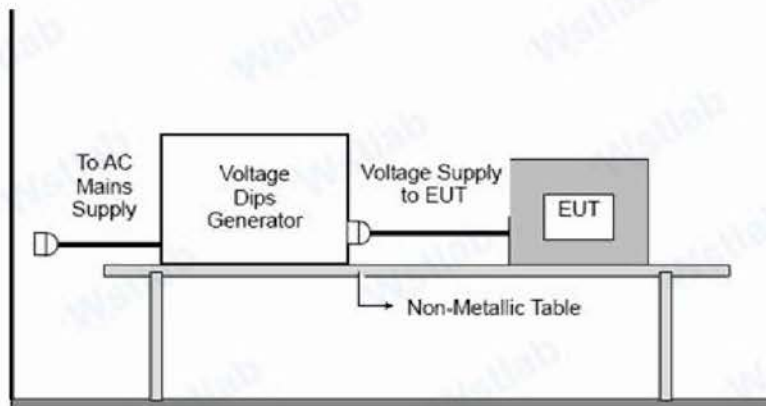
4.10.1 TEST SPECIFICATION

| | |
|-------------------------|---|
| Basic Standard: | IEC/EN 61000-4-11 |
| Required Performance | B (For 100% Voltage Dips) C (For 30% Voltage Dips) C (For 100% Voltage Interruptions) |
| Test Duration Time: | Minimum three test events in sequence |
| Interval between Event: | Minimum ten seconds |
| Phase Angle: | 0°/45°/90°/135°/180°/225°/270°/315°/360° |
| Test Cycle: | 3 times |

4.10.2 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.10.3 TEST SETUP



4.10.4 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|------------|
| EUT : | SMART LED USB CHARGER | Model Name : | A4405 |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1010 hPa | Test Date : | 2017-06-29 |
| Test Mode : | Normal | | |
| Results : | Pass | | |

| Test Level % U_T | Voltage Dips & Short Interruptions % U_T | Duration (in period) | Phase Angle | Criterion | Result |
|--|--|-------------------------|----------------------------------|-----------|--------|
| 0 | 100 | 250P | 90 | B | PASS |
| 40 | 60 | 5P | 180 | B | PASS |
| 70 | 30 | 0.5P | 270 | B | PASS |
| Remark: U_T is the rated voltage for the equipment. | | | Test Equipment: See Clause 2. | | |

Note:

- 1). N/A - denotes test is not applicable in this test report.
- 2) Criteria A: There was no change operated with initial operating during the test.
- 3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 4) Criteria C: The system shut down during the test.

5. EUT TEST PHOTO

Radiated Measurement Photo



Conducted Measurement Photo



ESD



6. ATTACHMENT PHOTOGRAPHS OF EUT

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



---The end of report---