

**EMC CONFORMITY TEST REPORT**

For

Simple&Direct Compact&Mini Battery Tester**Trade Name** : DAILY-POWER , SZ , SMARTZONE**Model Number** : SZ-BCT2010**Report Number** : ST1106009E**Date** : June 24, 2011**Regulations** : See below

Standards	Results (Pass/Fail)
EN 55022: 2010;	PASS
EN 61000-3-2: 2006;	N/A(power<75w)
EN 61000-3-3: 2008;	N/A(power<75w)
EN 55024: 2010;	
(EN 61000-4-2: 2009;	PASS
EN 61000-4-3: 2006+A1:2008+A2:2010;	PASS
EN 61000-4-4: 2010;	N/A
EN 61000-4-5: 2006;	N/A
EN 61000-4-6: 2009;	N/A
EN 61000-4-8: 2010	N/A
EN 61000-4-11: 2004)	N/A

Prepared for :
Smart Zone Technology Limited
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d.b.a.
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EC-Declaration of Conformity

For the following equipment:

(Product Name)

Simple&Cirect Compact&Mini Battery Tester

(Model Designation / Trade name)

SZ-BCT2010 / DAILY-POWER, SZ, SMARTZONE is here with confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EEC), For the evaluation regarding the Electromagnetic Compatibility (2004/108/EC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EEC), the following standards are applied:

- ☒ EN 55022: 2010
- ☐ EN 61000-3-2: 2006; N/A (power <75w)
- ☐ EN 61000-3-3: 2008;N/A(power <75w)
- ☒ EN 55024: 2010
- (EN 61000-4-2: 2009;
- EN 61000-4-3: 2006+A1:2008+A2:2010;
- EN 61000-4-4: 2004;
- EN 61000-4-5: 2006;
- EN 61000-4-6: 2009;
- EN 61000-4-8: 2010; N/A
- EN 61000-4-11: 2004)

The following manufacturer / importer or authorized representative established within the EUT is responsible for this declaration:

Smart Zone Technology Limited

(Company Name)

Xu Tai Industrial Zone, Long Wo Road, Long Tian Village, Keng Zi Residential, Ping Shan
District, Shenzhen City, Guangdong, China

(Company Address)

Person responsible for making this declaration:

(Name, Surname)

(Position / Title)

(Place)

(Date)

(Legal Signature)

TABLE OF CONTENTS

DESCRIPTION	PAGE
VERIFICATION OF CONFORMITY	5
GENERAL INFORMATION	6
SYSTEM DESCRIPTION	7
PRODUCT INFORMATION	8
SUPPORT EQUIPMENT	9
TEST FACILITY	10
TEST EQUIPMENT LIST	11
SECTION 1 EN 55022(LINE CONDUCTED & RADIATED EMISSION)	13
MEASUREMENT PROCEDURE & LIMIT (LINE CONDUCTED EMISSION TEST)	13
MEASUREMENT PROCEDURE & LIMIT (RADIATED EMISSION TEST)	16
BLOCK DIAGRAM OF TEST SETUP	19
SUMMARY DATA	20
SECTION 2 EN 61000-4-2 (ELECTROSTATIC DISCHARGE)	23
BLOCK DIAGRAM OF TEST SETUP	23
TEST PROCEDURE	24
PERFORMANCE & RESULT	25
SECTION 3 EN 61000-4-3 (RADIATED ELECTROMAGNETIC FIELD)	26
BLOCK DIAGRAM OF TEST SETUP	26
TEST PROCEDURE	27
PERFORMANCE & RESULT	28
SECTION 4 EN 61000-4-4 (FAST TRANSIENTS/BURST)	29
BLOCK DIAGRAM OF TEST SETUP	29
TEST PROCEDURE	30
PERFORMANCE & RESULT	30

DESCRIPTION	PAGE
SECTION 5 EN 61000-4-5 (SURGE IMMUNITY)	31
BLOCK DIAGRAM OF TEST SETUP	31
TEST PROCEDURE	32
PERFORMANCE & RESULT	32
SECTION 6 EN 61000-4-6 (CONDUCTED DISTURBANCE/ INDUCED BY RADIO-FREQUENCY FIELD)	33
BLOCK DIAGRAM OF TEST SETUP	33
TEST PROCEDURE	34
PERFORMANCE & RESULT	34
SECTION 7 EN 61000-4-11 (VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS)	35
BLOCK DIAGRAM OF TEST SETUP	35
TEST PROCEDURE	36
PERFORMANCE & RESULT	36
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP EN 55022 TEST EN 55024 TEST EN 61000-4-2 TEST EN 61000-4-3 TEST EN 61000-4-4 TEST EN 61000-4-5 TEST EN 61000-4-6 TEST EN 61000-4-11 TEST	36
APPENDIX 2 PHOTOGRAPHS OF EUT	40
APPENDIX 3 PHOTOGRAPHS OF EMISSION TEST	42

VERIFICATION OF CONFORMITY

Equipment Under Test: Simple&Cirect Compact&Mini Battery Tester

Trade Name: DAILY-POWER , SZ , SMARTZONE

Model Number: SZ-BCT2010

Serial Number: N/A

Applicant: Smart Zone Technology Limited
8/F., Tower 1, Tern Centre, 237 Queen`s Road, Central. HK

Manufacturer: Smart Zone Technology Limited
Xu Tai Industrial Zone, Long Wo Road, Long Tian Village,
Keng Zi Residential, Ping Shan District, Shenzhen City,
Guangdong, China

Type of Test: EMC Directive 2004/108/EC for CE Marking

Technical Standards: EN 55022: 2010;
EN 61000-3-2: 2006; N/A (power <75w),
EN 61000-3-3: 2008; N/A(power <75w)
EN 55024: 2010;
(EN 61000-4-2: 2009; EN 61000-4-3: 2006+A1:2008+A2:2010;
EN 61000-4-4: 2010; EN 61000-4-5: 2006;
EN 61000-4-6: 2009; EN 61000-4-8: 2010 ; N/A(Applicable
only to equipment containing devices susceptible to magnetic
field)
EN 61000-4-11: 2004)

File Number: ST1106009E

Date of test: June 21-24, 2011

Deviation: None

Condition of Test Sample: Normal

The above equipment was tested by SinTek Laboratory Co., Ltd. for compliance with the requirements set forth in EMC Directive 2004/108/EC and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Approved by Authorized Signatory: _____



SALON OUYANG / Q.A. Manager

GENERAL INFORMATION

Applicant: Smart Zone Technology Limited
8/F., Tower 1, Tern Centre, 237 Queen`s Road, Central. HK

Manufacturer: Smart Zone Technology Limited
Xu Tai Industrial Zone, Long Wo Road, Long Tian Village,
Keng Zi Residential, Ping Shan District, Shenzhen City,
Guangdong, China

File Number: ST1106009E

Date of Test: June 21-24, 2011

Equipment Under Test: Simple&Cirect Compact&Mini Battery Tester

Model Number: SZ-BCT2010

Serial Number: N/A

Type of Test: EMC Directive 2004/108/EC for CE Marking

Technical Standards: EN 55022: 2010;
EN 61000-3-2: 2006; N/A (power <75w),
EN 61000-3-3: 2008; N/A(power <75w)
EN 55024: 2010;
(EN 61000-4-2: 2009; EN 61000-4-3: 2006+A1:2008+A2:2010;
EN 61000-4-4: 2010; EN 61000-4-5: 2006;
EN 61000-4-6: 2009; EN 61000-4-8: 2010 ; N/A(Applicable only
to equipment containing devices susceptible to magnetic field)
EN 61000-4-11: 2004)

**Frequency Range
(EN 55022):** 150kHz to 30MHz for Line Conducted Test
30MHz to 2000MHz for Radiated Emission Test

Test Site: SINTEK LABORATORY CO., LTD.
No. 7, Xinshidai industrial, Guantian Village, Shiyan Town, Baoan
District, Shenzhen, China



SYSTEM DESCRIPTION

EUT Test Program:

1. Set up EUT with the auxiliary equipment. Let the EUT work in the test mode and measure it.
2. Startup test program in the windows 2000.
3. Let EUT work as usual.
4. Keep the program running throughout the test.



PRODUCT INFORMATION

Housing Type: Plastic

EUT Power Rating: DC 5V 600MA

Power during Test DC 5V by PC

USB cable : Non-shielded 0.3m (with a ferrite core)

I/O Port of EUT:

I/O Port Type	Q'TY	Tested with
N/A	N/A	N/A

1) Difference between model numbers as below:

No.	Model Number	Trade Name
N/A	N/A	N/A

***Note: These products listed in the report are identical, except that their model numbers and appearances are different just for marketing purpose.

SUPPORT EQUIPMENT

No.	Equipment	Model #	Serial #	Trade Name	Data Cable	Power Cord
1.	PC	PC2	N/A	N/A	N/A	Non-shielded, 1.5m
2.	Monitor	TFT1780PS	N/A	Topview	Shielded 1.5 m	Non-shielded 1.5m
3.	Printer	P320A	DQYK006399	EPSON STYLUS C60	Shielded 0.8m	Non-shielded 1.0m
4.	Keyboard	KB-3923	N/A	COMPAQ	Non-shielded 1.5 m	N/A
5.	Mouse	3D SWW-22	N/A	SHUANGFE IYAN	Non-shielded 1.5m	N/A
6.	Modem	EDVM-CF56T HCF	G9TTAI-25564 -M5-E	WONDA	Shielded 0.8 m	Non-shielded 2.0m

****Note:** All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.



TEST FACILITY

- Location:** No. 7, Xinshidai industrial, Guantian Village,
Shiyan Town, Baoan District Shenzhen, China.
- Description:** There is one 3/10m open area test sites and one line conducted
labs for final test.
The Open Area Test Sites and the Line Conducted labs are
constructed and calibrated to meet the FCC requirements in
documents ANSI C63.4 and CISPR 22/EN 55022 requirements.
- Site Filing:** A site description is on file with the Federal Communications
Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
- Site Accreditation:** Accredited by FCC. November 02.2004
The certificate registration number is 963441
Accredited by TUV. November 11.2004
- Instrument Tolerance:** All measuring equipment is in accord with ANSI C63.4 and CISPR
22 requirements that meet industry regulatory agency and
accreditation agency requirement.
- Ground Plane:** Two conductive reference ground planes were used during the Line
Conducted Emission, one in vertical and the other in horizontal. The dimensions of these
ground planes are as below. The vertical ground plane was placed distancing 40 cm to the
rear of the wooden test table on where the EUT and the support equipment were placed during
test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and
distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal
conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest
measuring antenna, and covered the entire area between the EUT and the antenna. It has no
holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the
highest frequency of measurement up to 2GHz.

TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at SinTek Laboratory Co., Ltd for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10kHz to 2.0GHz or above.

Equipment used during the tests:

Open Area Test Site: A

Open Area Test Site A					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
EMI TEST RECEIVER	SCHAFFNER	SCR3501	464	06/12/2010	06/12/2011
AMPLIFIER	Com-Power	PA-103	161062	06/12/2010	06/12/2011
ANTENNA	SCHAFFNER	CBL6111C	2775	06/12/2010	06/12/2011
CABLE	TIME MICROWAVE	LMR-400	N-TYPE04	06/12/2010	06/12/2011

Conducted Emission Test Site: 843

Conducted Emission Test Site :843					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
Spectrum Analyzer	ADVANTENT	R3132	140301570	06/12/2010	06/12/2011
LISN(EUT)	Com-Power	LI115	2027	06/12/2010	06/12/2011

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

TEST EQUIPMENT LIST

ESD test (61000-4-2)					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
ESD Generator	SCHAFFNER	NSG 435	5488	06/12/2010	06/12/2011

Radiated Electromagnetic Field immunity Measurement (61000-4-3)					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Generator	Maconi	2022D	119246/003	06/12/2010	06/12/2011
Power Amplifier	M2S	A00181/ 1000	9801-112	06/12/2010	06/12/2011
Power Amplifier	M2S	AC8113/ 800-250A	9801-179	06/12/2010	06/12/2011
Power Antenna	SCHAFFNER	CBL6140A	1204	06/12/2010	06/12/2011

Fast Transients/Burst test (61000-4-4)/Surge(61000-4-5)/Voltage Dips & Interruptions(61000-4-11)					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Fast Transients/Burst Generator	SCHAFFNER	MODULA 6000	34354	06/12/2010	06/12/2011

CS test (61000-4-6)					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Generator	SCHAFFNER	NSG 2070	1086	06/12/2010	06/12/2011
CDN	SCHAFFNER	M016	20812	06/12/2010	06/12/2011

**SECTION 1 EN 55022(LINE CONDUCTED AND
RADIATED EMISSION)
MEASUREMENT PROCEDURE
(PRELIMINARY LINE CONDUCTED EMISSION TEST)**

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per EN55022.
- 3) All I/O cables were positioned to simulate typical actual usage as per EN55022.
- 4) The EUT received DC 5V power by Single, then the Single received AC 230V/50Hz power through a Line Impedance Stabilization Network (LISN) which supplied power was grounded to the ground plane .
- 5) All support equipment received AC 230V/50Hz power from a second LISN, if any.
- 6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- 8) During the above scans, the emissions were maximized by cable manipulation.
- 9) The following test mode(s) were scanned during the preliminary test:

Preliminary Conducted Emission Test			
Frequency Range Investigated		150KHz TO 30 MHz	
Mode of operation	Date	Data Report No.	Worst Mode
Single	6/24/2011	SZ-BCT2010 (L, N)	<input checked="" type="checkbox"/>

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

MEASUREMENT PROCEDURE (FINAL LINE CONDUCTED EMISSION TEST)

- 1) EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.
- 2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using an Average detector.
- 3) The test data of the worst case condition(s) was reported on the SumJane Data page.

Data Sample:

Freq. MHz	Peak Raw dBuV	Q.P. Raw dBuV	Average Raw dBuV	Q.P. Limit dBuV	Average Limit dBuV	Q.P. Margin dB	Average Margin dB	Note
x.xxx	43.90	---	---	56.00	46.00	---	-2.10	L 1

Freq.

Raw dBuV

Limit dBuV

Margin dB

Note

“---”

= Emission frequency in MHz

= Uncorrected Analyzer/Receiver reading

= Limit stated in standard

= Reading in reference to limit

= Current carrying line of reading

= The emission level complied with the Average limits, with at least 2 dB margin, so no further recheck.



LINE CONDUCTED EMISSION LIMIT

Frequency	Maximum RF Line Voltage	
	Q.P.	AVERAGE
150kHz-500kHz	66-56dBuV	56-46dBuV
500kHz-5MHz	56dBuV	46dBuV
5MHz-30MHz	60dBuV	50dBuV

****Note:** The lower limit shall apply at the transition frequency.

MEASUREMENT PROCEDURE (PRELIMINARY RADIATED EMISSION TEST)

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per EN 55022.
- 3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.
- 4) The EUT received DC 5V power by Single, then the Single received AC 230V/50Hz power from the outlet socket under the turntable.
- 5) All support equipment received AC 230V/50Hz power from socket under the turntable, if any.
- 6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 7) The following test mode(s) were scanned during the preliminary test:

Preliminary Radiated Emission Test			
Frequency Range Investigated		30 MHz TO 1000 MHz	
Mode of operation	Date	Data Report No.	Worst Mode
Single	6/24/2011	SZ-BCT2010 (L, N)	<input checked="" type="checkbox"/>

Then, the EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

MEASUREMENT PROCEDURE (FINAL RADIATED EMISSION TEST)

- 1) EUT and support equipment were set up on the turntable as per step 7 of the preliminary test.
- 2) The Analyzer / Receiver scanned from 30MHz to 2000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 3) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.
- 4) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

==	==	==	==	==	==	==
Freq.	Raw	Corr.	Emiss.	Limits	Margin	Reading
(MHz)	Data	Factor	Level			Type
	(dBuV/m)	(dB)	(dBuV/m)		(dB)	P/Q
====	====	====	====	====	====	====
xxx.xx	14.03	12.25	26.28	30.00	-3.72	P
====	====	====	====	====	====	====

Freq.	= Emission frequency in MHz
Raw Data (dBuV/m)	= Uncorrected Analyzer / Receiver reading
Corr. Factor (dB)	= Correction factors of antenna factor and cable loss
Emiss. Level	= Raw reading converted to dBuV/m and CF added
Limit dBuV/m	= Limit stated in standard
Margin dB	= Reading in reference to limit
P	=Peak Reading
Q	=Quasi-peak



RADIATED EMISSION LIMIT

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBu V/m/ Q.P.)
30-230	10	30
230-1000	10	37

****Note:** The lower limit shall apply at the transition frequency.

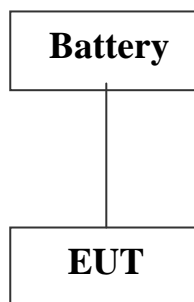
BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators

EUT : Simple&Cirect Compact&Mini Battery Tester

Trade Name : DAILY-POWER, SZ, SMARTZONE

Model Number : SZ-BCT2010



(EUT: Simple&Cirect Compact&Mini Battery Tester)



SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: SZ-BCT2010

Tested by: Jinni

Location: A-site

Test Mode: Single

Polar: Vertical--10m

Detector Function: Peak/QP

Test Results: Passed

Temperature: 20°C

Humidity: 60%RH

(The chart below shows the highest readings taken from the final data.)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)	Reading Type (P/Q)
51.340	7.14	7.82	14.96	30.00	-15.04	P
95.960	9.39	9.43	18.82	30.00	-11.18	P
117.300	6.88	12.90	19.78	30.00	-10.22	P
145.430	5.44	11.78	17.22	30.00	-12.78	P
186.170	7.12	9.72	16.84	30.00	-13.16	P
215.160	4.16	9.86	14.02	30.00	-15.98	P



SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: SZ-BCT2010

Tested by: Jinni

Location: A-site

Test Mode: Single

Polar: Horizontal--10m

Detector Function: Peak/QP

Test Results: Passed

Temperature: 20°C

Humidity: 60%RH

(The chart below shows the highest readings taken from the final data.)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)	Reading Type (P/Q)
81.410	5.66	8.38	14.04	30.00	-15.96	P
95.960	10.73	10.65	21.38	30.00	-8.62	P
127.560	7.40	12.28	19.68	30.00	-10.32	P
173.560	9.53	10.25	19.78	30.00	-10.22	P
214.300	7.16	9.85	17.01	30.00	-12.99	P
227.880	7.15	10.85	18.00	30.00	-12.00	P

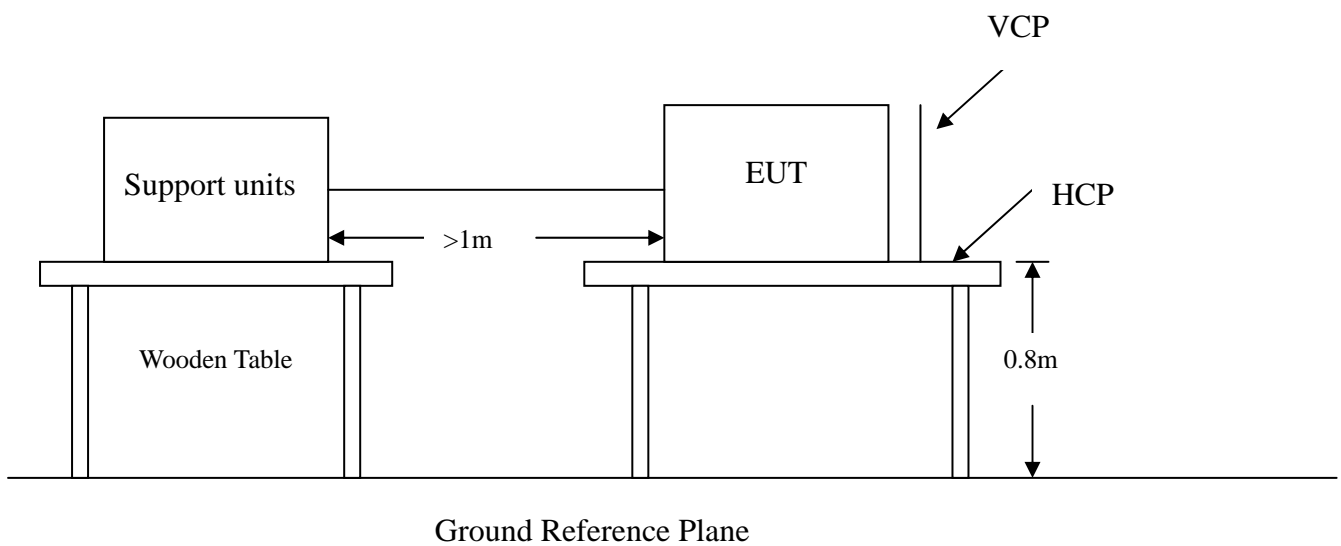
SECTION 2 EN 61000-4-2 (ELECTROSTATIC DISCHARGE)

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port : Enclosure
Basic Standard : EN 61000-4-2
Test Level : ± 8 kV (Indirect Discharge)
Performance Criteria : A (Standard require)
Tester : Jinni
Temperature/Humidity: 25°C/60%

Block Diagram of Test Setup:

(The 470 k ohm resistors are installed per standard requirement)



Test Procedure:

1. The EUT was located 0.1 m minimum from all side of the HCP.
2. The support units were located 1 m minimum away from the EUT.
3. Set up EUT with all support equipment. Let the EUT work in the test mode and measure it.
4. Let EUT work as usual.
5. Keep the program running throughout the test.
6. Active the communication function if the EUT with such port(s).
7. As per the requirement of EN 55024; applying direct contact discharge at the sides other than front of EUT at minimum 50 discharges (25 positive and 25 negative) if applicable, can't be applied direct contact discharge side of EUT then the indirect discharge shall be applied. One of the test points shall be subjected to at least 50 indirect discharge (contact) to the front edge of horizontal coupling plane.
8. Other parts of EUT where it is not possible to perform contact discharge then selecting appropriate points of EUT for air discharge, a minimum of 10 single air discharges shall be applied.
9. The application of ESD to the contact of open connectors is not required.
10. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per the A2 to EN 61000-4-2, a bleed resistor cable is connected between the EUT and HCP during the test. The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
Mini 25 /Point	±4Kv	Indirect Discharge HCP	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Front)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Left)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Back)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Right)	Pass
Mini 10 /Point	±4kV	Contact Discharge	Pass
Mini 10 /Point	±4kV	Air Discharge	Pass



Performance & Result:

- ☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- ☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- ☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS**

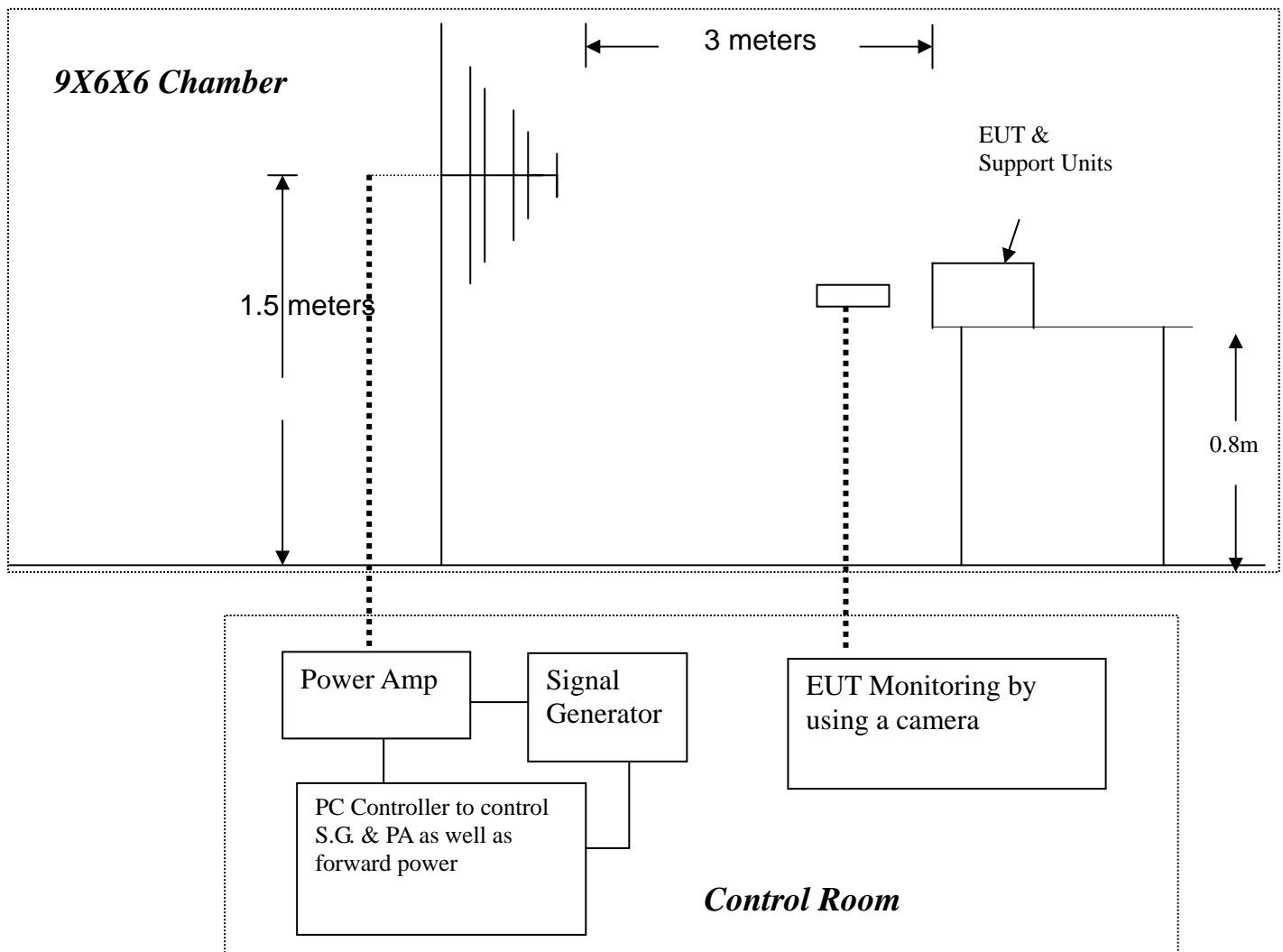
☐ **FAILED**

SECTION 3 EN 61000-4-3 (RADIATED ELECTROMAGNETIC FIELD)

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port : Enclosure
Basic Standard : EN 61000-4-3
Requirements : 3 V/m with 80% AM. 1kHz Non-modulation.
Performance Criteria : B(Standard require)
Tester : Jinni
Temperature : 25°C
Humidity : 60%

Block Diagram of Test Setup:



Test Procedure:

1. The EUT was located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity. The support units were located outside of the uniformity area, but the cable(s) connected with EUT were exposed to the calibrated field as per EN 61000-4-3.
2. Set up EUT with all support equipment. Let the EUT work in the test mode and measure it.
3. Let EUT work as usual.
4. Keep the program running throughout the test. Setting the testing parameters of RS test software per EN 61000-4-3.
5. Performing the pre-test at each side of with double specified level (6V/m) at 4% steps.
6. From the result of pre-test in step 5, choice the worst side of EUT for final test from 80 MHz to 1000 MHz at 1% steps.
7. Recording the test result in following table.
8. It is not necessary to perform test as per annex A of EN 55024 if the EUT doesn't belong to TTE product.

EN 61000-4-3 Preliminary test conditions:

Test level : 6V/m
Steps : 4 % of fundamental
Dwell Time : 1 sec

Range (MHz)	Field	Non-modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	6V/m	Yes	H	Front	Pass
80-1000	6V/m	Yes	V	Front	Pass
80-1000	6V/m	Yes	H	Right	Pass
80-1000	6V/m	Yes	V	Right	Pass
80-1000	6V/m	Yes	H	Back	Pass
80-1000	6V/m	Yes	V	Back	Pass
80-1000	6V/m	Yes	H	Left	Pass
80-1000	6V/m	Yes	V	Left	Pass

EN 61000-4-3 Final test conditions:

Test level : 3V/m
Steps : 1 % of fundamental
Dwell Time : 1 sec

Range (MHz)	Field	Non-modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	3V/m	Yes	H	Back	Pass
80-1000	3V/m	Yes	V	Back	Pass



Performance & Result:

- ☐ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- ☒ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- ☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

☒ **PASS**

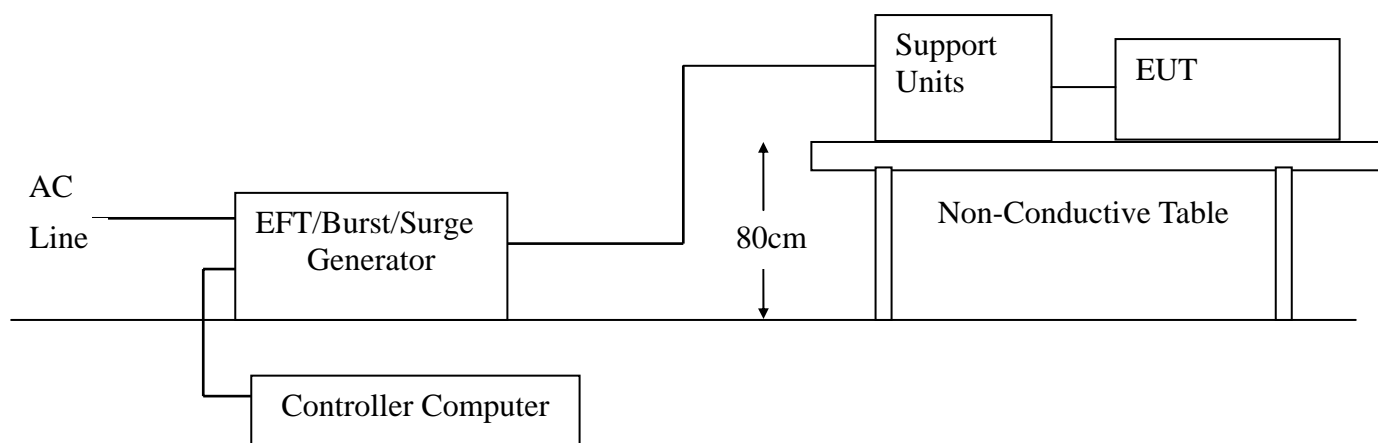
☐ **FAILED**

SECTION 4 EN 61000-4-4 (FAST TRANSIENTS/BURST)

FAST TRANSIENTS/BURST IMMUNITY TEST

Port : On Power Supply Lines
Basic Standard : EN 61000-4-4
Requirements : +/- 1kV for Power Supply Lines
Performance Criteria : A(Standard require)
Tester : Jinni
Temperature : 25°C
Humidity : 60%

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground reference plane.
2. A 1.0 meter long power cord was attached to EUT during the test.
3. The length of communication cable between communication port and clamp was keeping within 1 meter.
4. Set up EUT with all support equipment. Let the EUT work in the test mode and measure it.
5. Let EUT work as usual.
6. Keep the program running throughout the test.
7. Related peripherals work during the test.
8. Recording the test result as shown in following table.

Test conditions:

Impulse Frequency: 5kHz

Tr/Th: 5/50ns

Burst Duration: 15ms

Burst Period: 300ms

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L	+/- 1	Direct	Pass
N	+/- 1	Direct	Pass
PE	+/- 1	Direct	Pass
L+N	+/- 1	Direct	Pass
L+PE	+/- 1	Direct	Pass
N+PE	+/- 1	Direct	Pass
L + N + PE	+/- 1	Direct	Pass

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS**

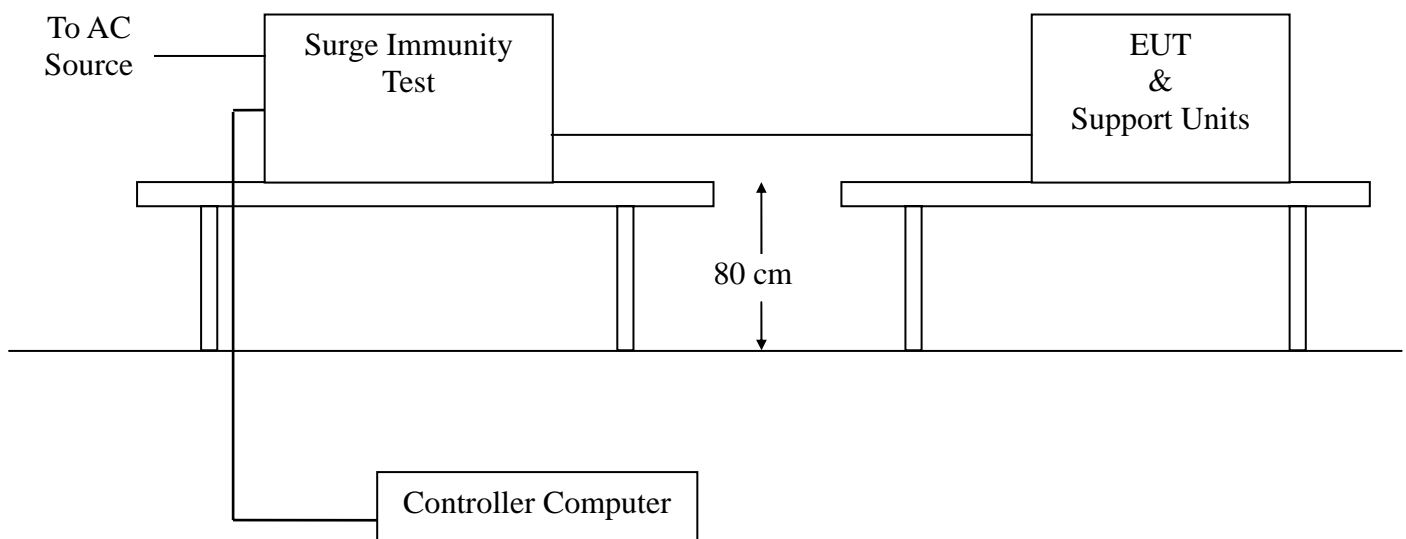
☐ **FAILED**

SECTION 5 EN 61000-4-5 (SURGE IMMUNITY)

SURGE IMMUNITY TEST

Port : On Power Supply Lines
Basic Standard : EN 61000-4-5
Requirements : +/- 1kV (Line to Line)
: +/- 2kV (Line to Ground)
Performance Criteria : A (Standard require)
Tester : Jinni
Temperature : 25°C
Humidity : 60%

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground floor.
2. Set up EUT with all support equipment. Let the EUT work in the test mode and measure it.
3. Let EUT work as usual.
4. Keep the program running throughout the test.
5. .Related peripherals work during the test.
6. Recording the test result as shown in following table.

Test conditions:

Voltage Waveform : 1.2/50 μ s
 Current Waveform : 8/20 μ s
 Polarity : Positive/Negative
 Phase angle : 0°, 90°, 270°
 Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
L1-L2	1	Positive	Capacitive	Pass
L1-PE	2	Positive	Capacitive	Pass
L2-PE	2	Positive	Capacitive	Pass
L1-L2	1	Negative	Capacitive	Pass
L1-PE	2	Negative	Capacitive	Pass
L2-PE	2	Negative	Capacitive	Pass

Performance & Result:

- ☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- ☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- ☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

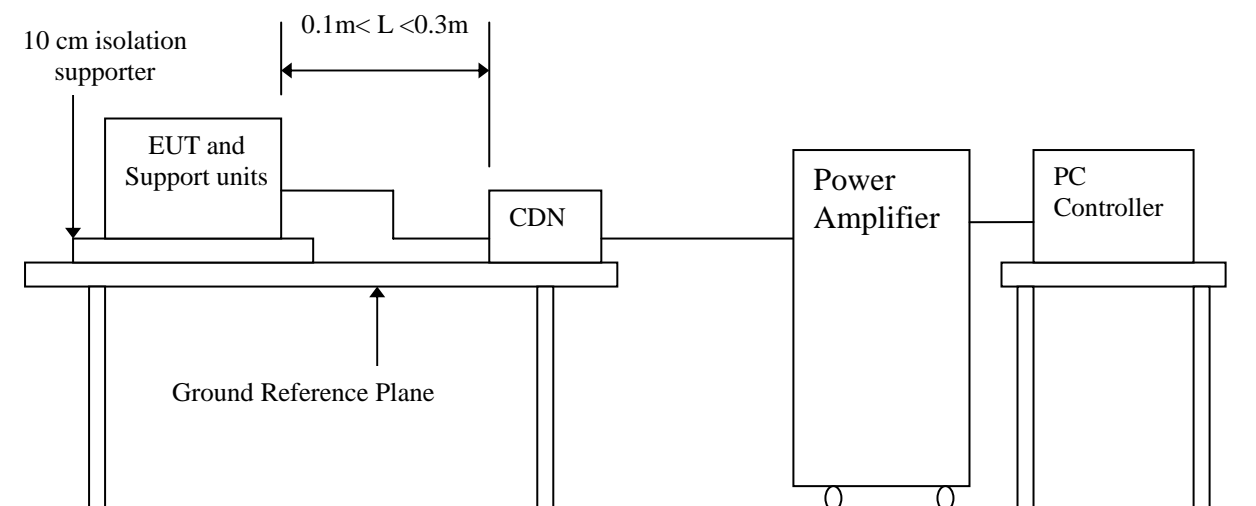
☒ **PASS**

☐ **FAILED**

SECTION 6 EN 61000-4-6(CONDUCTED DISTURBANCE/INDUCED BY RADIO-FREQUENCY FIELD)

Port : On Power Supply Lines
Basic Standard : EN 61000-4-6
Requirements : 3V with 80% AM. 1kHz Non-modulation
Injection Method : CDN
Performance Criteria : A (Standard require)
Tester : Jinni
Temperature : 20°C
Humidity : 60%

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
2. Set up EUT with all support equipment. Let the EUT work in the test mode and measure it.
3. Let EUT work as usual.
4. Keep the program running throughout the test.
5. Related peripherals work during the test.
6. Setting the testing parameters of CS test software per EN 61000-4-6.
7. Recording the test result in following table.

Test conditions:

Frequency Range: 0.15MHz-80MHz

Frequency Step : 1% of fundamental

Dwell Time : 1 sec

Range (MHz)	Field	Non-modulation	Result (Pass/Fail)
0.15-80	3V	Yes	Pass

Performance & Result:

- ☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- ☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- ☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

☒ **PASS**

☐ **FAILED**

SECTION 7 EN 61000-4-11 (VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS)

VOLTAGE DIPS / SHORT INTERRUPTIONS

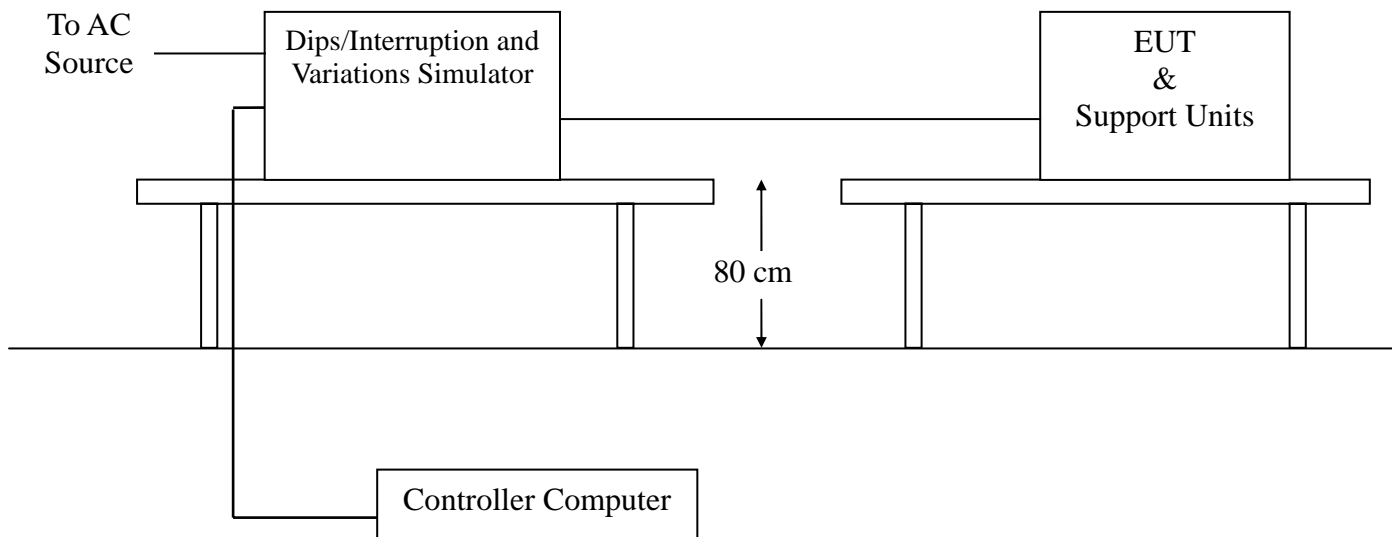
Port : On Power Supply Lines
Basic Standard : EN 61000-4-11 (2004)
Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

Voltage Dips	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
	<5	>95	0.5	B
	70	30	25	C

Voltage Interruptions	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
	<5	>95	250	C

Test Interval : Min. 10 sec.
Tester :Jinni
Temperature : 20°C
Humidity : 60%

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. Set up EUT all support equipment. Let the EUT work in the test mode and measure it.
3. Let EUT work as usual.
4. Keep the program running throughout the test.
5. Setting the parameter of tests and then Perform the test software of test simulator.
6. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
7. Recording the test result in test record form.

Test conditions:

The duration with a sequence of three dips/interruptions with interval of 10 s minimum
(Between each test event)

Voltage Dips:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	0.5	Normal	B
70	30	25	Normal	B

Voltage Interruptions:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	250	EUT shut down, need to recover by the operator	B

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS**☐ **FAILED**



APPENDIX 1

PHOTOGRAPHS OF TEST SETUP

RADIATED EMISSION TEST



ELECTROSTATIC DISCHARGE TEST (EN 61000-4-2)



RADIATED ELECTROMAGNETIC FIELD (EN 61000-4-3)





APPENDIX 2

PHOTOGRAPHS OF EUT

View of EUT



View of EUT





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APPENDIX 3 PHOTOGRAPHS OF EMISSION TEST



Page 1

SinTek Laboratory Co., Ltd.

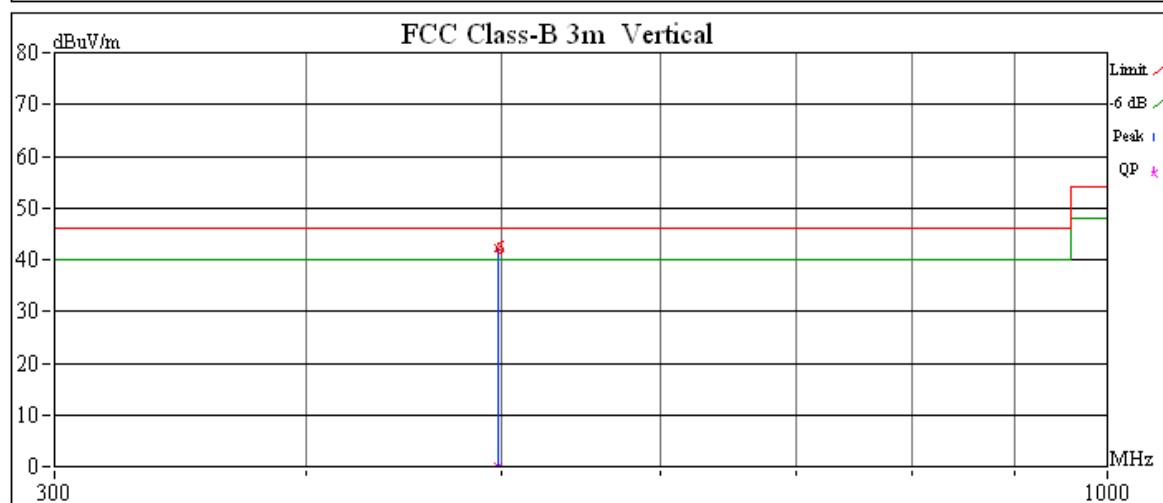
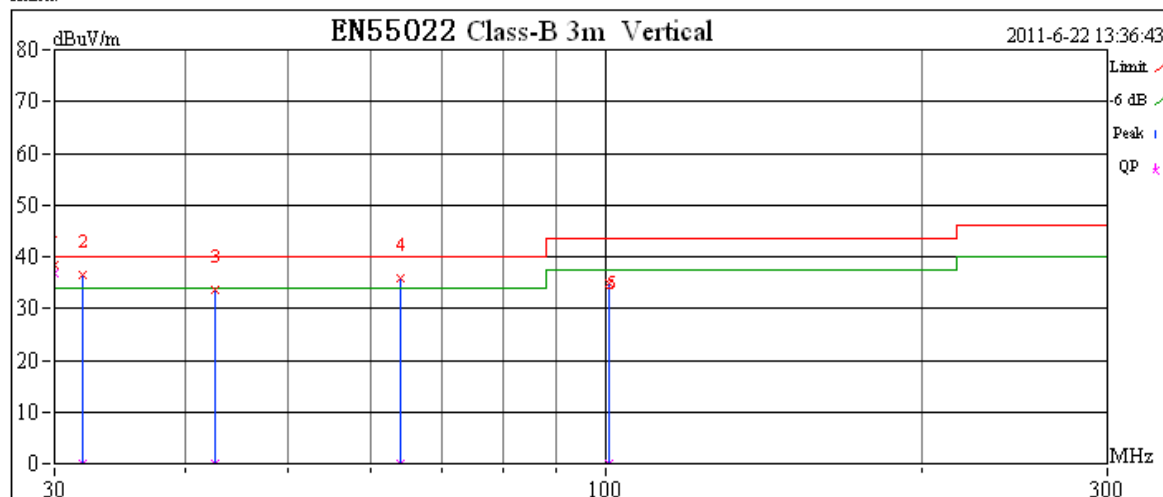
TEL: 0755-27608353 FAX: 0755-27608359

Site A

Custom Name: DareGlobal
Model Name: SZ-BCT2010
Test Mode:

Project No.: ST060010
Engineer Name: jinni

Index:

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SinTek Laboratory Co., Ltd.

TEL:0755-27608353 FAX:0755-27608359

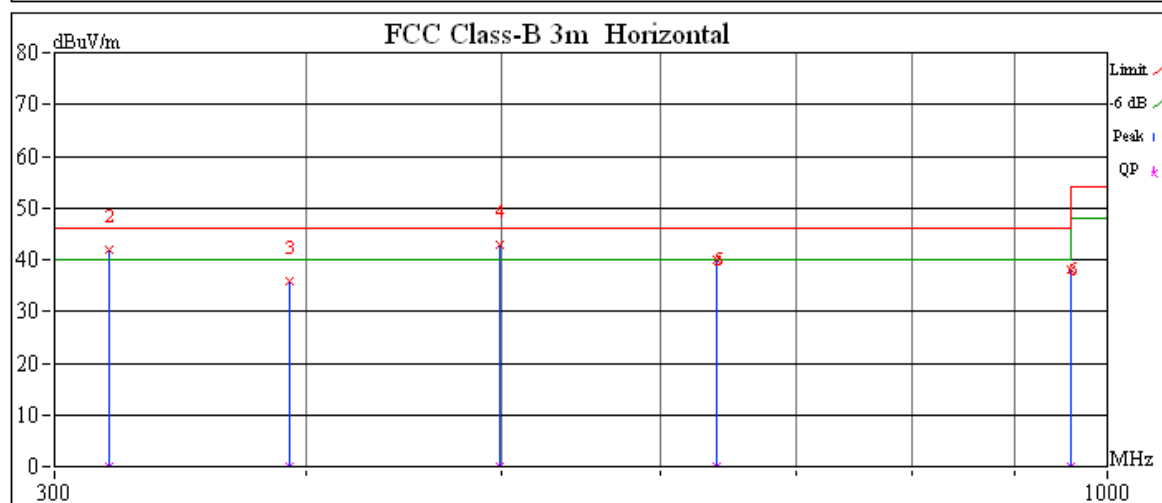
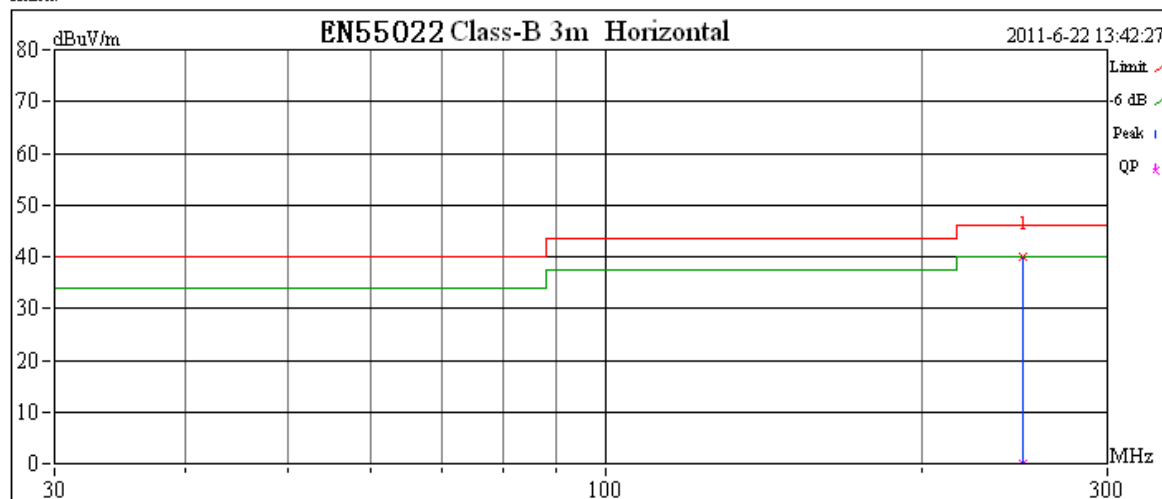
Page 1

Site A

Custom Name: DareGlobal
Model Name: SZ-BCT2010
Test Mode:

Project No.: ST060010
Engineer Name: jinni

Index:

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