


Test Verification of Conformity

On the basis of the referenced test report(s), sample(s) of the below product have been found to comply with the harmonized standards and Directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product.

Once all product relevant  mark directives are verified in compliance, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to product identical to the test sample(s) if the product complies with all relevant CE mark Directives requirements.

Applicant Name & Address:

GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED.
 No. 17, Keyuan 3 Road, Ronggui, Shunde High-Tech Zone, Foshan,
 Guangdong, P.R.China

**Product Description:
 Ratings & Principle
 Characteristics:**

Electronic Cabinet Lock
 Working Voltage: DC 2.0~3.5V;
 External Voltage: DC 6.4V;
 Under Voltage Alarm Point: 2.2+/-0.2V;
 Static Current: Unlocking condition, =<30uA; Locking condition: =<100uA
 C1515D

Models:

Brand Name:



BE-TECH 思达

**Relevant Standards/
 Specifications/Directives:**

EN 61000-6-1:2007/ Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments
 EN 61000-6-3:2007+A1: 2011/ Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments
 EMC Directive 2004/108/EC

Verification Issuing Office:

Same as Legal Entity

Date of Tests:

30 October 2014-31 October 2014

Test Report Number(s):

141027077GZU-003: 18 November 2014

Note 1: This verification is part of the full test report(s) and should be read in conjunction with them.

Signature: _____

Helen Ma

Name:

Helen Ma

Position:

Sr. Project Engineer

Date:

18 November 2014



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Report No.: 141027077GZU-003
Issued: 2014-11-18

TEST REPORT

Applicant Name & Address : GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED.
No. 17, Keyuan 3 Road, Ronggui, Shunde High-Tech Zone, Foshan, Guangdong, P.R.China

Manufacturing Site : Same as above

Sample Description
Product : Electronic Cabinet Lock
Model No. : C1515D
Electrical Rating : See page 4 for details

Date Received : 27 October 2014

Date Test Conducted : 30 October 2014-31 October 2014

Test standards : EN 61000-6-1: 2007
EN 61000-6-3: 2007+A1: 2011

Test Result : Pass


Conclusion : The submitted samples complied with the above EMC standards.

Remark : None.

*****End of Page*****

Prepared and Checked By:

Approved By:



Ivan Zhou
Sr. Project Engineer
Intertek Guangzhou



Helen Ma
Sr. Project Engineer
Intertek Guangzhou
 18 November 2014 **Date**



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CONTENT

TEST REPORT	1
CONTENT	2
1 TEST RESULTS SUMMARY	3
2 EMC RESULTS CONCLUSION	4
3 LABORATORY MEASUREMENTS	5
4 EMI TEST	6
4.1 EN 61000-6-3 CONTINUOUS CONDUCTED DISTURBANCE VOLTAGE TEST	6
4.2 EN 61000-6-3 DISCONTINUOUS CONDUCTED DISTURBANCE VOLTAGE	6
4.3 EN 61000-6-3 EMISSION AT TELECOMMUNICATIONS/NETWORK PORTS	6
4.4 EN 61000-6-3 RADIATED EMISSION BELOW 1 GHZ	6
4.4.1 <i>Used Test Equipment</i>	6
4.4.2 <i>Block Diagram of Test Setup</i>	7
4.4.3 <i>Test Setup and Procedure</i>	7
4.4.4 <i>Test Data</i>	8
4.4.5 <i>Measurement uncertainty</i>	9
4.5 RADIATED EMISSION ABOVE 1 GHZ	9
5 HARMONIC OF CURRENT	9
6 FLICKER	9
7 EMS TEST	10
7.1 EN 61000-4-2(PURSUANT TO EN 61000-6-1) ELECTROSTATIC DISCHARGE IMMUNITY	10
7.1.1 <i>Used Test Equipment</i>	10
7.1.2 <i>Block Diagram of Test Setup</i>	11
7.1.3 <i>Test Setup and Procedure</i>	11
7.1.4 <i>Test Result</i>	13
7.2 EN 61000-4-6(PURSUANT TO EN 61000-6-1) INJECTED CURRENT (0.15 MHZ TO 80 MHZ)	14
7.3 EN 61000-4-4(PURSUANT TO EN 61000-6-1) ELECTRICAL FAST TRANSIENT/BURST	14
7.4 EN 61000-4-5(PURSUANT TO EN 61000-6-1) SURGE IMMUNITY	14
7.5 EN 61000-4-11(PURSUANT TO EN 61000-6-1) VOLTAGE DIPS AND INTERRUPTIONS	14
7.6 EN 61000-4-3(PURSUANT TO EN 61000-6-1) RADIATED ELECTROMAGNETIC FIELD IMMUNITY	14
7.6.1 <i>Used Test Equipment</i>	14
7.6.2 <i>Block Diagram of Test Setup</i>	15
7.6.3 <i>Test Setup and Procedure</i>	15
7.6.4 <i>Test Result</i>	16
7.7 EN 61000-4-8(PURSUANT TO EN 61000-6-1) POWER FREQUENCY MAGNETIC FIELD IMMUNITY	16
8 APPENDIX I - PHOTOS OF TEST SETUP	17
9 APPENDIX II - PHOTOS OF EUT	19

1

TEST RESULTS SUMMARY

Test Item	Standard	Result
Continuous conducted disturbance voltage	EN 61000-6-3:2007+A1: 2011 Reference: EN 55022: 2010	N/A
Discontinuous conducted disturbance voltage	EN 61000-6-3:2007+A1: 2011 Reference: EN 55014-1: 2006+A1: 2009	N/A
Emission at Telecommunications/ network Ports	EN 61000-6-3:2007+A1: 2011 Reference: EN 55022: 2010	N/A
Radiated emission (30 MHz–1000 MHz)	EN 61000-6-3:2007+A1: 2011 Reference: EN 55022: 2010	Pass
Radiated emission (1 GHz–6 GHz)	EN 61000-6-3:2007+A1: 2011 Reference: EN 55022: 2010	N/A
Harmonic of current	EN 61000-6-3:2007+A1: 2011 Reference: EN 61000-3-2: 2006+A1: 2009+A2: 2009	N/A
Flicker	EN 61000-6-3:2007+A1: 2011 Reference: EN 61000-3-3: 2013	N/A
ESD immunity	EN 61000-6-1:2007 Reference: EN 61000-4-2: 2009	Pass
Radiated EM field immunity	EN 61000-6-1:2007 Reference: EN 61000-4-3 :2006 +A1:2008 + A2:2010	Pass
EFT immunity	EN 61000-6-1:2007 Reference: EN 61000-4-4: 2012	N/A
Surge immunity	EN 61000-6-1:2007 Reference: EN 61000-4-5: 2006	N/A
Inject current immunity	EN 61000-6-1:2007 Reference: EN 61000-4-6: 2009	N/A
Power frequency magnetic field immunity	EN 61000-6-1:2007 Reference: EN 61000-4-8: 2010	N/A
Voltage dips and interruption immunity	EN 61000-6-1:2007 Reference: EN 61000-4-11: 2004	N/A

Remark: 1. The symbol “N/A” in above table means Not Applicable.
 2. When determining the test results, measurement uncertainty of tests has been considered.

2

EMC Results Conclusion (with Justification)

RE: EMC Testing Pursuant to EMC Directive 2004/108/EC Performed On the Electronic Cabinet Lock, Model: C1515D.

We tested the Electronic Cabinet Lock, Model: C1515D, to determine if it was in compliance with the relevant EN standards as marked on the Test Results Summary. We found that the unit met the requirement of EN 61000-6-3(Radiated emission (30 MHz–1000 MHz), EN 61000-6-1 (EN 61000-4-2), EN 61000-6-1 (EN 61000-4-3) standards when tested as received. The worst case's test data was presented in this test report. Test items Radiated emission (30 MHz–1000 MHz) & Radiated EM field immunity were subcontracted.

Rating:

Working Voltage: DC 2.0~3.5V;

External Voltage: DC 6.4V;

Under Voltage Alarm Point: 2.2+/-0.2V;

Static Current: Unlocking condition, $\leq 30\mu\text{A}$; Locking condition: $\leq 100\mu\text{A}$

The production units are required to conform to the initial sample as received when the units are placed on the market.

Standards against which no testing of the captioned model has been conducted and the engineering judgment is stated as follows:

3 LABORATORY MEASUREMENTS

Configuration Information

Equipment Under Test (EUT):	Electronic Cabinet Lock
Model:	C1515D
Serial No.	Not Labeled
Support Equipment:	N/A
Rated Voltage:	DC 3V
Condition of Environment:	Temperature : 22~28°C Relative Humidity: 35~60% Atmosphere Pressure 86~106kPa

Notes:

1. The EMI measurements had been made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications.
An attempt had be made to maximize the emission by varying the configuration of the EUT.
2. The EMS measurements had been made in the frequency bands being investigated, with the EUT in the most susceptible operating mode consistent with normal applications. The configuration of the test sample had been varied to achieve maximum susceptibility.

4 EMI TEST

4.1 EN 61000-6-3 Continuous Conducted Disturbance Voltage Test

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

4.2 EN 61000-6-3 Discontinuous Conducted Disturbance Voltage

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

4.3 EN 61000-6-3 Emission at Telecommunications/network Ports

Test Result: Not Applicable

Remark: The test only apply to balanced telecommunication ports intended for connection to unshielded balanced pairs

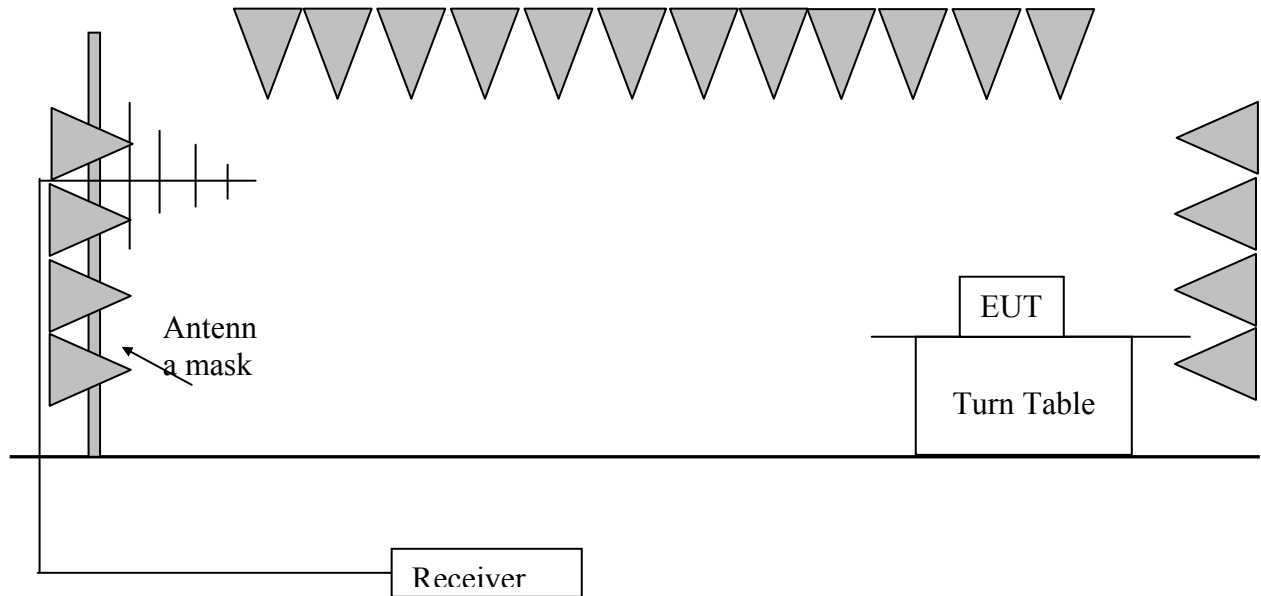
4.4 EN 61000-6-3 Radiated Emission below 1 GHz

Test Result: Pass

4.4.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer
1302.6005.26	EMI Test Receiver	ESU	Rohde & Schwarz
2944A07999	Pre-Amplifier	8447D	HP
142	Bilog Antenna	VULB9163	Schwarzbeck
012	Loop Antenna	FMZB 1519	Schwarzbeck
BBHA9170399	Horn Antenna	BBHA 9170	Schwarzbeck
D143	Horn Antenna	BBHA 9120	Schwarzbeck
ACRX1	Cable	AK9513	Schwarzbeck
FP2RX2	Cable	N/A	Rosenberger
CRPX1	Cable	AK9513	Schwarzbeck
CRRX2	Cable	AK9513	Schwarzbeck
1415261	Pre-Amplifier	PAM-0126	A.H.

4.4.2 Block Diagram of Test Setup



4.4.3 Test Setup and Procedure

The measurement was applied in a semi-anechoic chamber. The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mask. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

Broadband antenna was used as receiving antenna. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to EN55022 requirement during radiated test.

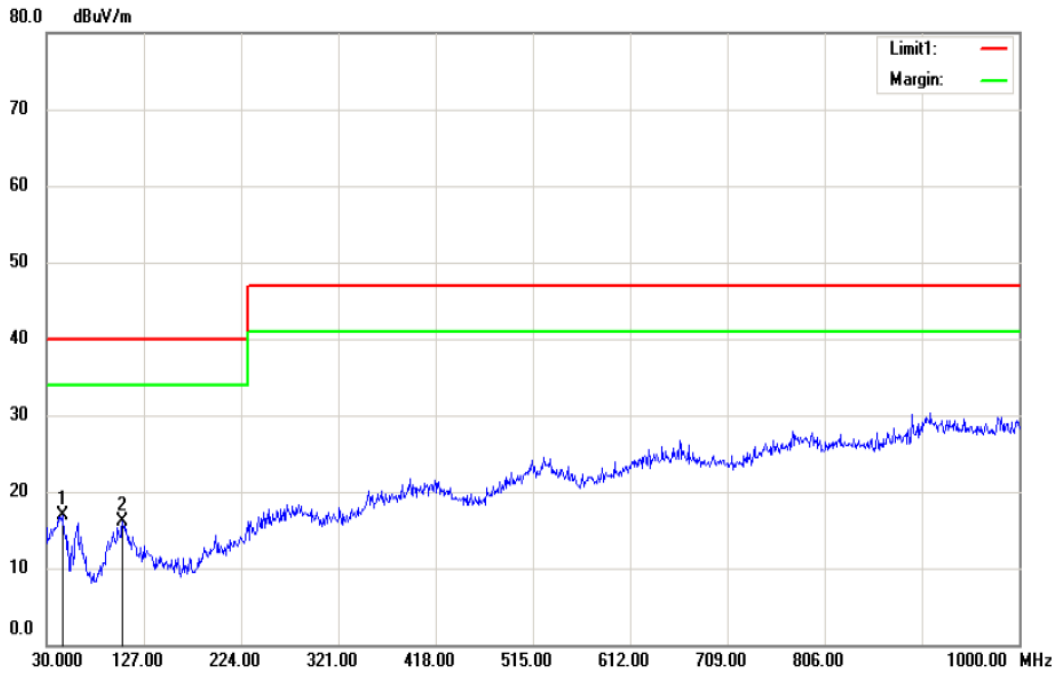
The bandwidth setting on R&S Test Receiver was 120 kHz.

The frequency range from 30MHz to 1000MHz was checked

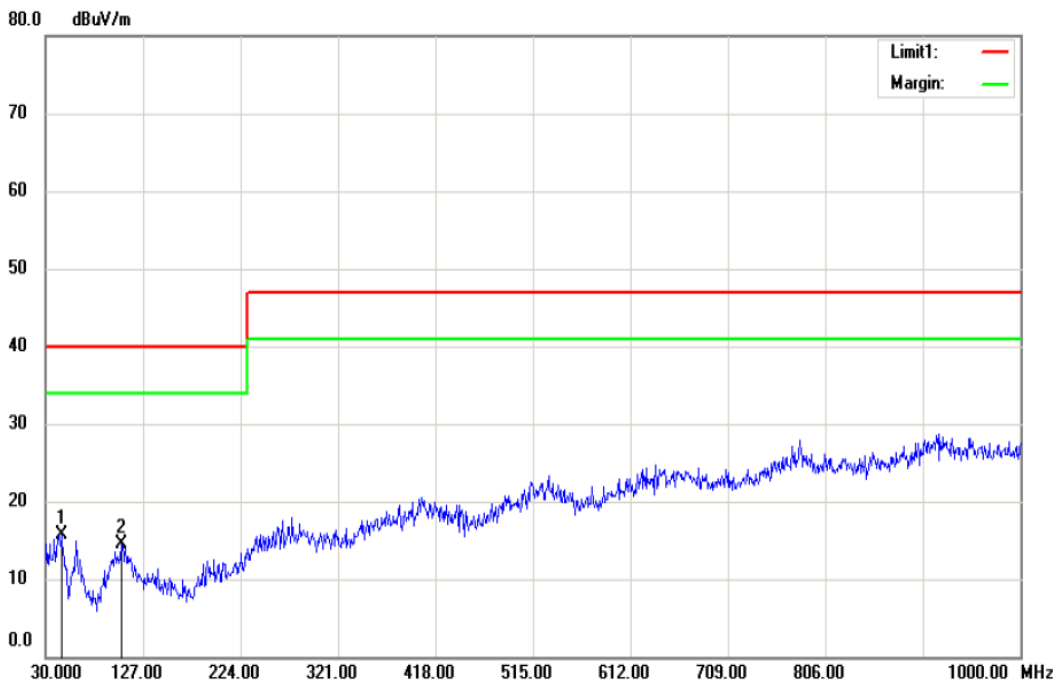
4.4.4 Test Data

Model: C1515D

Polarization of the antenna: Horizontal



Polarization of the antenna: Vertical



4.4.5 Measurement uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with CISPR 16-4-2:2003.

Measurement uncertainty of radiated emission: 4.27 dB.

The measurement uncertainty is given with a confidence of 95%, $k=2$.

4.5 Radiated Emission above 1 GHz

Test Result: Not Applicable

Remark: The highest internal source of the EUT is not more than 108 MHz, so the measurement above 1000 MHz is not applicable.

5 Harmonic of Current

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

6 Flicker

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

7 EMS TEST

Performance Criteria:

- Criterion A: The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permission loss of performance) specified by the manufacturer, when the apparatus is used as intended. 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 from what the user may reasonably expect from the apparatus if used as intended.
- Criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permission loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. 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 from what the user may reasonably expect from the apparatus if used as intended.
- Criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instruction for use.

Measurement Uncertainty

According to CISPR 16-4-2:2003, measurement uncertainty to immunity test is under consideration.

7.1 EN 61000-4-2(Pursuant to EN 61000-6-1) Electrostatic Discharge Immunity

Tested Port: Enclosure

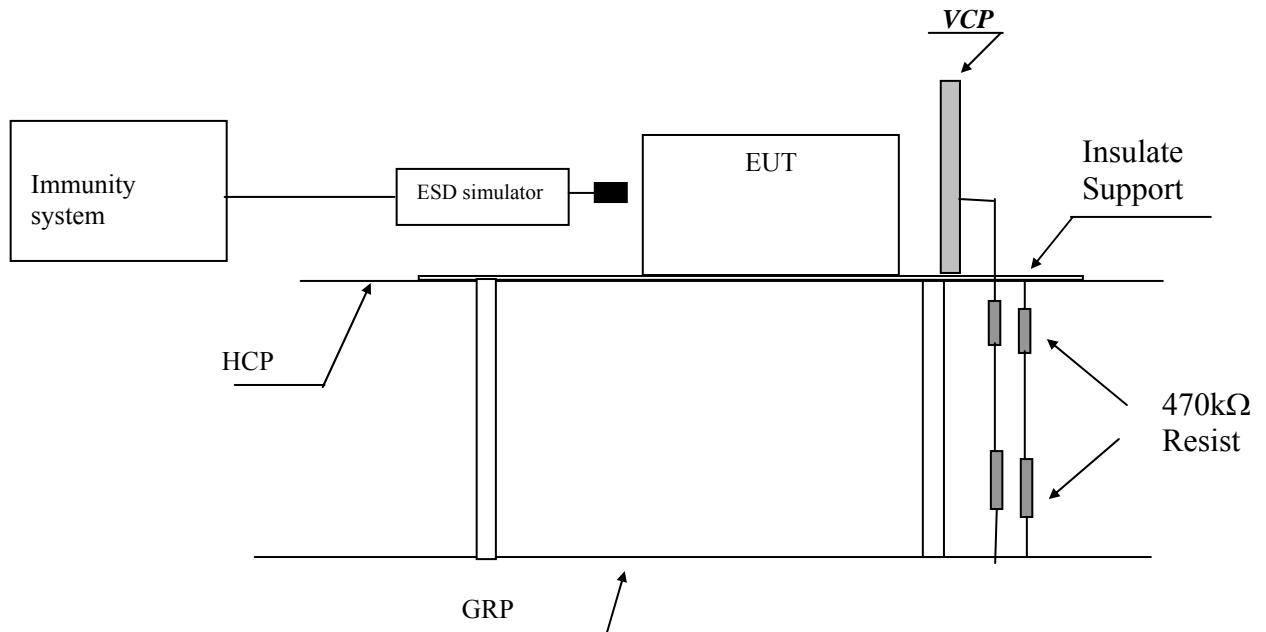
Performance criterion: B

Test Result: Pass

7.1.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer
EM077-04	ESD Simulator	NSG437	TESEQ

7.1.2 Block Diagram of Test Setup



Note: HCP means Horizontal Coupling Plane,
 VCP means Vertical Coupling Plane
 GRP means Ground Reference Plane

7.1.3 Test Setup and Procedure

The EUT was put on a 0.8m high wooden table/0.1m high for floor standing equipment standing on the ground reference plane (GRP) 3m by 2m in size, made by iron 1.0 mm thick.

A horizontal coupling plane (HCP) 1.6m by 0.8m in size was placed on the table, and the EUT with its cables were isolated from the HCP by an insulating support thick than 0.5mm. The VCP 0.5m by 0.5m in size & HCP were constructed from the same material type & thickness as that of the GRP, and connected to the GRP via a 470kΩ resistor at each end.

The distance between EUT and any of the other metallic surface excepted the GRP, HCP & VCP was greater than 1m.

The EUT was arranged and connected according to its functional requirements.
 The EUT was arranged and connected according to its functional requirements

Direct static electricity discharges was applied only to those points and surface which are accessible to personnel during normal usage.

Test voltage was increased from the minimum to the selected test level and with single discharge.

On each preselected points 10 times of each polarity single discharge were applied. The time interval between successive single discharges is 1s.

The ESD generator was held perpendicular to the surface to which the discharge is applied. The discharge return cable of the generator was kept at a distance of 0.2m whilst the discharge is being applied. During the contact discharges, the tip of the discharge electrode was touch the EUT before the discharge switch is operated. During the air discharges, the round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT.

Indirect discharge was conducted to objects placed near the EUT, simulated by applying the discharges of the ESD generator to a coupling plane, in the contact discharge mode.

After each discharge, the ESD generator was removed from the EUT, the generator is then retriggered for a new single discharge. For ungrounded product, a grounded carbon fibre brush with bleeder resistors ($2 \times 470 \text{ k}\Omega$) in the grounding cable was used after each discharge to remove remnant electrostatic voltage.

10 times of each polarity single discharge were applied to HCP and VCP. The detail selected points are listed in the following table.

7.1.4 Test Result

Direct Application of ESD

Direct Contact Discharge

Applied Voltage (kV)	No. of Discharge for each point	Result	Discharged Points
2, 4	20	Pass	Accessible metal parts of the EUT Conductive substrate with coating which is not declared to be insulating

Direct Air Discharge

Applied Voltage (kV)	No. of Discharge for each point	Result	Discharged Points
2, 4, 8	20	Pass	All accessible points where contact discharge cannot be applied such as Displays, Indicators light, Keyboard, Button, Switch, Knob, Air gap, Slots, Hole and so on

Indirect Application of ESD

Horizontal Coupling Plane under the EUT

Applied Voltage (kV)	No. of Discharge for each point	Result	Discharged Point
2, 4	20	Pass	At the front edge of each HCP opposite the centre point of each unit of the EUT

Vertical Coupling Plane beside the EUT

Applied Voltage (kV)	No. of Discharge for each point	Result	Discharged Point
2, 4	20	Pass	The centre of the vertical edge of the coupling plane

7.2 EN 61000-4-6(Pursuant to EN 61000-6-1) Injected Current (0.15 MHz to 80 MHz)

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

7.3 EN 61000-4-4(Pursuant to EN 61000-6-1) Electrical Fast Transient/Burst

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

7.4 EN 61000-4-5(Pursuant to EN 61000-6-1) Surge Immunity

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

7.5 EN 61000-4-11(Pursuant to EN 61000-6-1) Voltage Dips and Interruptions

Test Result: Not Applicable

Remark: The products are powered by dry batteries only.

7.6 EN 61000-4-3(Pursuant to EN 61000-6-1) Radiated Electromagnetic Field Immunity

Tested Port: Enclosure

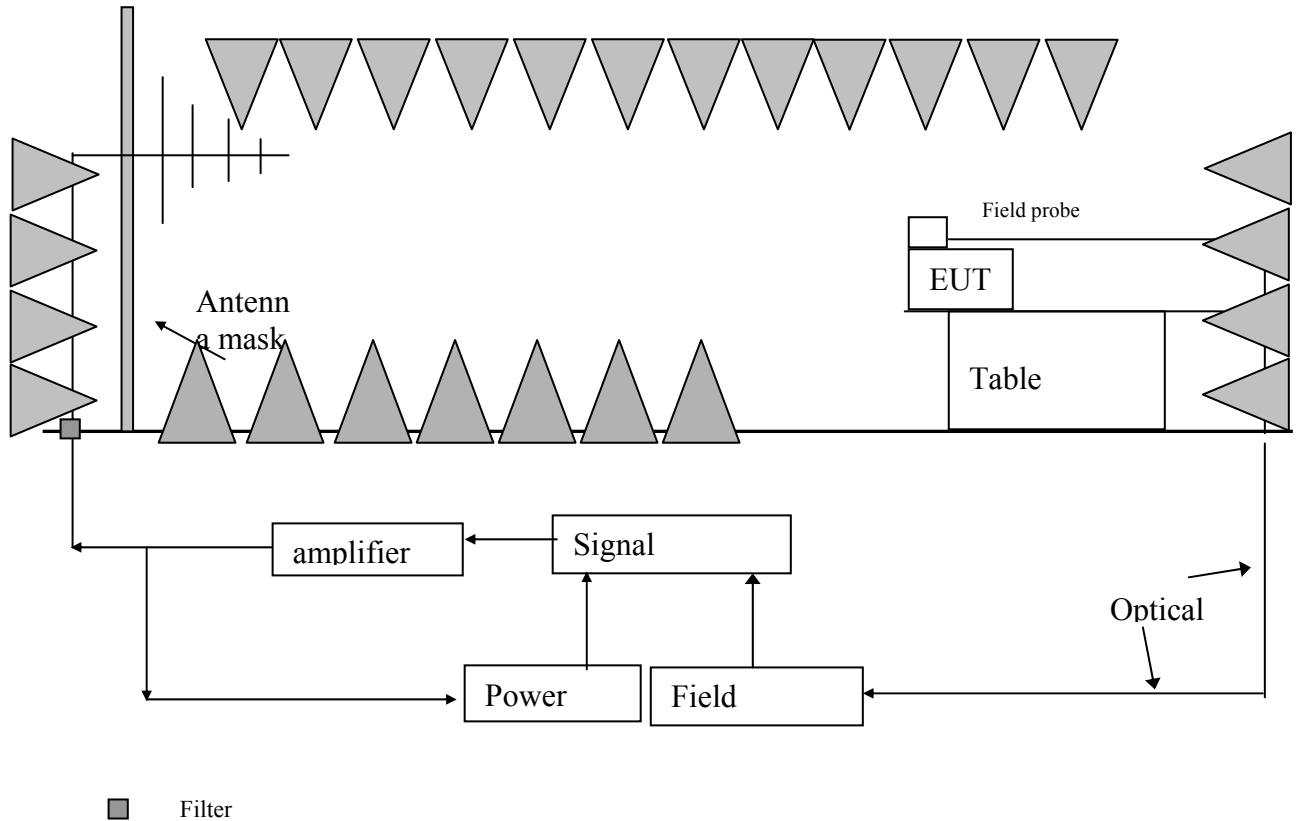
Performance criterion: A

Test Result: Pass

7.6.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer
10539	RF Power Meter. Dual Channel	4232A	BOONTON
34236/34238	50ohm Diode Power Sensor	51011EMC	BOONTON
332	Broad-Band Horn Antenna	BBHA 9120 L3F	SCHWARZBECK
N/A	Power Amplifier	AP32MT215	PRANA
N/A	Power Amplifier	AS0102-55	MILMEGA
N/A	Signal Generator	2023B	AEROFLEX
N/A	Field Strength Meter	HI-6005	HOLADAY
N/A	RS232 Fiber Optic Modem	HI-4413P	HOLADAY
N/A	Log.-Per. Antenna	VULP 9118E	SCHWARZBECK

7.6.2 Block Diagram of Test Setup



7.6.3 Test Setup and Procedure

The test was conducted in an fully anechoic chamber to maintain a uniform field of sufficient dimensions with respect to the EUT, and also in order to comply with various national and international laws prohibiting interference to radio communications.

The equipment is placed in the test facility on a non-conducting table 0.8m high (for floor standing EUT, is placed on a non-conducting support 0.1m height).

The EUT was placed on the uniform calibrated plane which is 3V/m and 1V/mEM field.

For all ports connected to EUT, manufacturer specified cable type and length was used, for those cables no specification, unshielded cable applied.

Wire is left exposed to the electromagnetic field for a distance of 1m from the EUT.

The EUT was arranged and connected according to its functional requirements

Before testing, the intensity of the established field strength have been checked by placing the field sensor at a calibration grid point, and with the field generating antenna and cables in the same positions as used for the calibration, the forward power needed to give the calibrated field strength was measured.

Spot checks was made at a number of calibration grid points over the frequency range 80 to 1000MHz and 1.4 to 2.7 GHz, both polarizations was checked.

After calibration, the EUT is initially placed with one face coincident with the calibration plane.

The frequency range is swept from 80 to 1000MHz and 1.4 to 2.7 GHz, with the signal 80% amplitude modulated with a 1 kHz sinewave, pausing to adjust the r.f. signal level.

The dwell time at each frequency was 3s so as that the EUT to be exercised and be able to respond.

The step size was 1% of the fundamental with linear interpolation between calibrated points. Test was performed with the generating antenna facing each of the four sides of the EUT.

7.6.4 Test Result

Frequency (MHz)	Exposed Side	Field Strength (V/m)	Result
80 to 1000	Front	3V/m (r.m.s.)	Pass
80 to 1000	Left	3V/m (r.m.s.)	Pass
80 to 1000	Rear	3V/m (r.m.s.)	Pass
80 to 1000	Right	3V/m (r.m.s.)	Pass

Frequency (GHz)	Exposed Side	Field Strength (V/m)	Result
1.4 to 2.0	Front	3V/m (r.m.s.)	Pass
1.4 to 2.0	Left	3V/m (r.m.s.)	Pass
1.4 to 2.0	Rear	3V/m (r.m.s.)	Pass
1.4 to 2.0	Right	3V/m (r.m.s.)	Pass

Frequency (GHz)	Exposed Side	Field Strength (V/m)	Result
2.0 to 2.7	Front	1V/m (r.m.s.)	Pass
2.0 to 2.7	Left	1V/m (r.m.s.)	Pass
2.0 to 2.7	Rear	1V/m (r.m.s.)	Pass
2.0 to 2.7	Right	1V/m (r.m.s.)	Pass

7.7 EN 61000-4-8(Pursuant to EN 61000-6-1) Power Frequency Magnetic Field Immunity

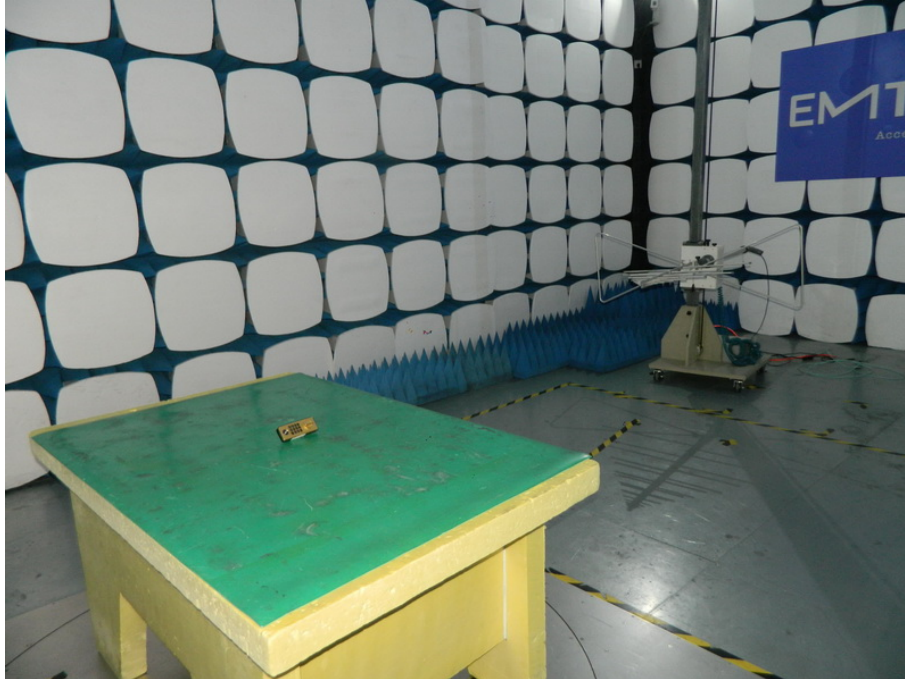
Tested Port: Enclosure

Performance criterion: A

Test Result: Not Applicable

8 Appendix I - Photos of test setup

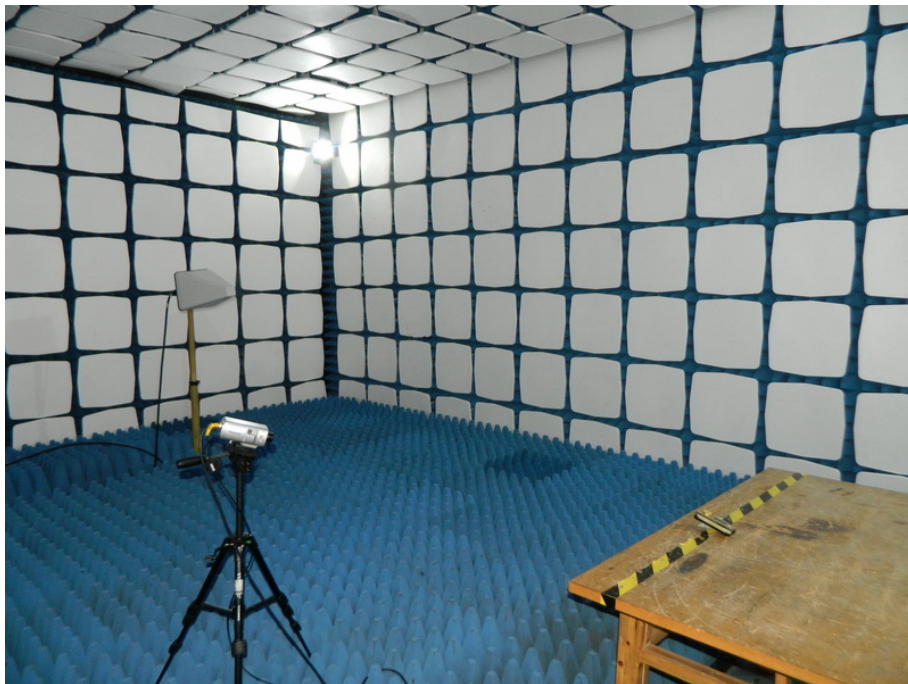
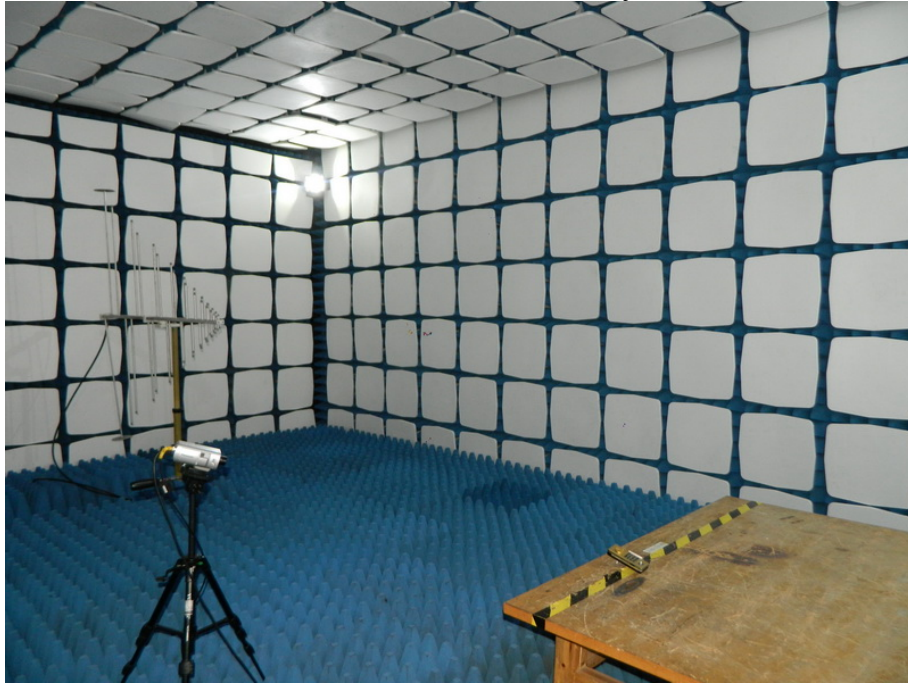
Radiated Emission



ESD Immunity



Radiated EM field immunity



9 Appendix II - Photos of EUT

Outside view (model: C1515D)



Inside view (model: C1515D)

