CE

EMC COMPLIANCE TEST REPORT

for

HEADPHONE

Trade Name	**:**	QUEEN
Model Number	**:**	OV2009MV, OV510MV, OV740MV
Serial Number	**:**	N/A
Report Number	**:**	SZ0801001-E
Date	**:**	May 12, 2008
Regulations	**:**	See below

Standards	Results (Pass/Fail)
EN55022:2006	PASS
EN55024:1998+A1:2001+A2:2003	PASS
-EN61000-4-2:1995+A1:1998+A2:2001	PASS
-EN61000-4-3:2006	PASS

Prepared for：

LUNA INDUSTRIAL CO., LTD
TANGXIA INDUSTRIAL ZONE, HUIYANG DISTRICT,
HUIZHOU CITY, GUANGDONG PROVINCE, CHINA

Prepared by：

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1 VERIFICATION OF COMPLIANCE

Equipment Under Test:	HEADPHONE
Trade Name:	QUEEN
Model Number:	OV2009MV, OV510MV, OV740MV
Serial Number:	N/A
EUT Powered during test:	5V from PC
Applicant:	LUNA INDUSTRIAL CO., LTD TANGXIA INDUSTRIAL ZONE, HUIYANG DISTRICT, HUIZHOU CITY, GUANGDONG PROVINCE, CHINA
Manufacturer:	LUNA INDUSTRIAL CO., LTD TANGXIA INDUSTRIAL ZONE, HUIYANG DISTRICT, HUIZHOU CITY, GUANGDONG PROVINCE, CHINA
Type of Test:	EMC Directive 2004/108/EC for CE Marking
Technical Standards:	EN55022:1998+A1:2000+A2:2003 EN55024:1998+A1:2001+A2:2003 (EN61000-4-2:1995+A1:1998+A2:2001; EN61000-4-3:2002+A1:2002)
File Number:	SZ0801001-E
Deviation:	None
Condition of Test Sample:	Normal

The above equipment was tested by SEC Engineering Services Co., Ltd. for compliance with the requirements set forth in 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.

This report is an additional report from SZ0801001-E, just change the applicant to LUNA INDUSTRIAL CO., LTD and the model no., the model OV2009MV, OV510MV, OV740MV are identical to MSX8PRO in the report of SZ0801001-E. just difference in the appearance.

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

Approved by Authorized Signatory:

Jack Wang/ Manager

2 SYSTEM DESCRIPTION

EUT Test Program:

1. PC MIC was connected to NOTEBOOK PC via sound card port;
2. Other related support units worked as usual;
3. NOTEBOOK PC was loaded and executed in windows XP mode;
4. Keep the EUT working during test.

3 PRODUCT INFORMATION

Housing Type: Plastic
EUT Power Rating: 5v from PC
Power during test: 5v from PC

I/O Port of EUT:

	I/O Port Type	Q'TY	Tested with
1)	Audio output port	2	2

4 SUPPORT EQUIPMENT

No.	Equipment	Model #	Serial #	Trade Name	Data Cable	Power Cord
1)	NOTEBOOK PC	VECTRA VL420MT	CN15100363	HP	N/A	Unshielded 1.8m

****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.

5 TEST FACILITY

Location: No.1 Workshop, M-10, Middle Section, Science& Technology Park, Shenzhen, China

Site Accreditation:

VCCI:
The 3m Semi-anechoic chamber and Shielded Room (7.5m×4.0m×3.0m) have been registered in Accordance with the Regulations for Voluntary Control Measure with Registration No.: R-2197 and C-2383 respectively. Date of Registration: September 29, 2005. Valid until September 28, 2008.

FCC-Registration No.: 556682
Registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, Aug. 04, 2005.

Industry Canada (IC)
The 3m Semi-anechoic chamber has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6002

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 1GHz.

6 TEST EQUIPMENT LIST

Instrumentation: The equipment conforms to the CISPR 16-1 / ANSI C63.2-1988 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

Equipment used during the tests:

For Conducted Emission Test

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	ETS-LINDGREN	00033512	27-06-2008	26-06-2009
2	EMI Test Receiver	Rohde& Schwarz	10019	27-06-2008	26-06-2009
3	Shielding Room	ZhongYu Electron	SEL0042	N/A	N/A
4	Coaxial Cable	SGS	SEL0024	01-06-2008	30-05-2009

For Radiated Emission Test

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1	EMI Test Receiver	Rohde& Schwarz	100249	14-12-2008	13-12-2009
2	BiConiLog Antenna	ETS-LINDGREN	00042673	03-08-2008	02-08-2009
3	Double-ridged horn	ETS-LINDGREN	00035926	25-12-2008	24-12-2009
4	Amplifier	Agilent Technologies	2944A10861	27-06-2008	26-06-2009

For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1.	ESD Simulator	SCHAFFNER	414	14-06-2008	13-06-2009
	ESD Ground Plane	SGS(3m*3m)	SEL0004	N/A	N/A

For Conducted Immunity Test

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1.	RF-Generator	SCHAFFNER	1114	06-09-2008	15-09-2009
2.	Coupling/Decoupling Network	SCHAFFNER	21243	03-09-2008	02-09-2009
3.	EM CLAMP	SCHAFFNER	21029	03-09-2008	02-09-2009

For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1.	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	16-06-2008	15-06-2009
2.	Signal Generator	Rohde& Schwarz	102319	27-06-2008	26-06-2009
3.	Amplifier 30M-1GHz	Amplifier Research	312698	03-05-2008	02-05-2009
4.	Amplifier 0.8-3.0GHz	Amplifier Research	312667	03-05-2008	02-05-2009
5	Power Meter	Rohde& Schwarz	101287	27-06-2008	26-06-2009
6	Power Sensor	Rohde& Schwarz	100247	27-06-2008	26-06-2009
7	Power Sensor	Rohde& Schwarz	100248	27-06-2008	26-06-2009
8	Dual Directional Coupler	Amplifier Research	80M-1GHz	05-08-2008	14-08-2009
9	Dual Directional Coupler	Amplifier Research	0.8-4.2GHz	05-08-2008	14-08-2009
10	Software EMC32	Rohde& Schwarz	SEL0082	N/A	N/A
11	Log-periodic Antenna	Amplifier Research	311820	N/A	N/A
12	Antenna Tripod	Amplifier Research	312383	N/A	N/A

For Electrical Fast Transient/Burst Immunity, Surge, Voltage dips and Interruptions Test

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1.	ProPLUS System	Thermo ELECTRON	0412194	09-08-2008	08-08-2009
2	ProPLUS Capacitive Clamp	Thermo ELECTRON	0501362	11-08-2008	10-08-2009

For General Used Equipment

Item	Equipment	Manufacturer	Serial No.	Last Cal.	Cal. Interval
1.	Temperature, Humidity & Barometer	OREGON/VAISALA/ TESTO/ ANDTEK	EMC0001 TO EMC0004	30-08-2008	29-08-2009
2.	DMM	Mastech	SEL0044	20-09-2008	19-09-2009
3.	Audio	Rohde& Schwarz	100855	20-10-2008	19-10-2009

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.

7 TEST RESULTS

7.1 LINE CONDUCTED MEASUREMENT PROCEDURE

7.1.1 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 power from PC, and PC received AC230V/50Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.

5) All support equipments received power from a second LISN supplying power of AC 230V/50Hz, 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

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

Note: According to this case, this test item needs not to be carried out.

7.1.2 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 Summary Data page.

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.

7.2 RADIATED MEASUREMENT PROCEDURE

7.2.1 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 EN55022.

3) All I/O cables were positioned to simulate typical actual usage as per EN55022.

4) The EUT received DC power from PC, and PC received AC 230V/50Hz through the outlet socket under the turntable. All support equipments received AC 230V/50Hz power from socket under the turntable, if any.

5) The antenna was placed at 3 meter away from the EUT as stated in EN55022. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.

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
Working	01/07/2008	MSX8PRO _0(V,H)	☒

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

7.2.2 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 1000MHz. 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.

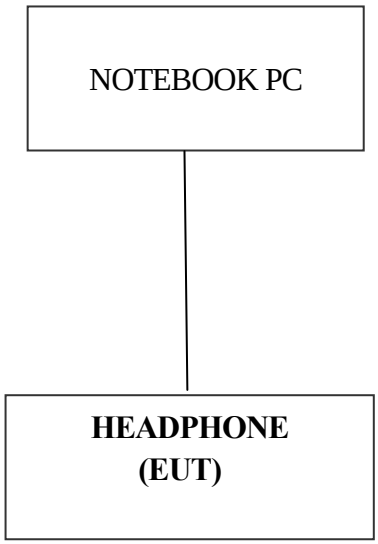
RADIATED EMISSION LIMIT

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30-230	3	40
230-1000	3	47

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

7.2.3 BLOCK DIAGRAM OF TEST SETUP

EUT **:** HEADPHONE
Trade Name **:** NGS
Model Number : MSX8PRO

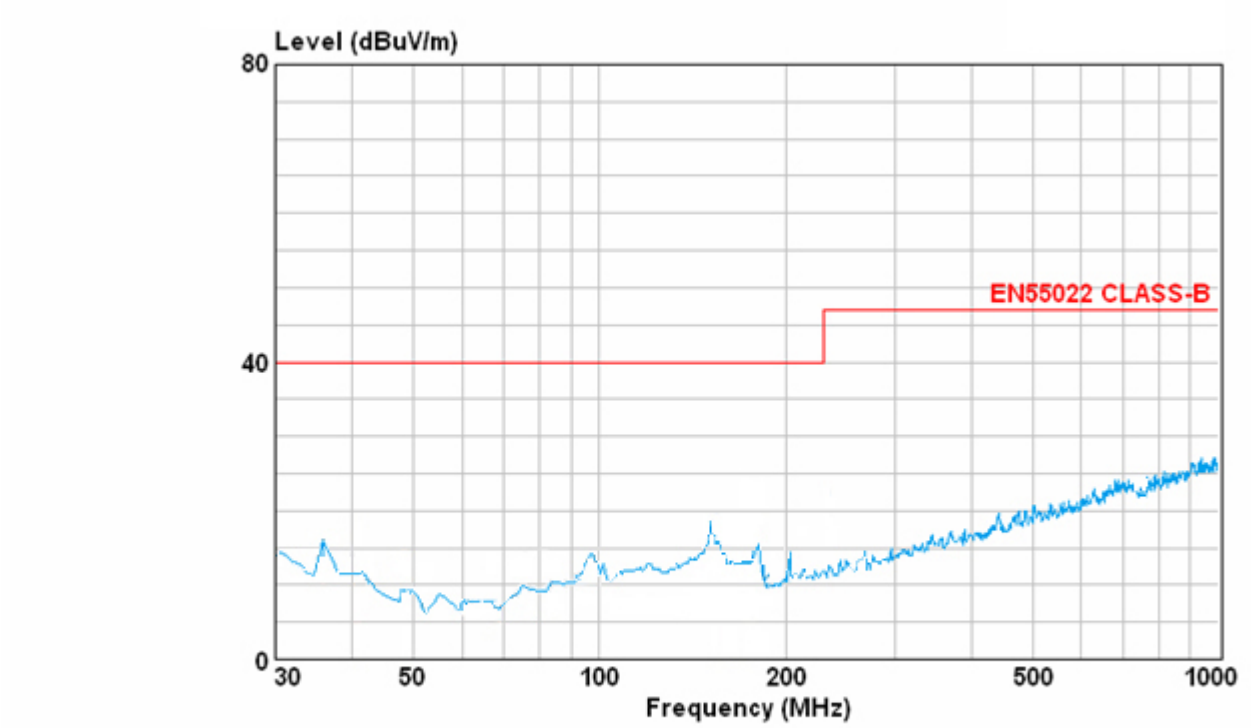


7.2.4 SUMMARY DATA (RADIATED EMISSION TEST)

Model Number: MSX8PRO **Location:** Chamber

Tested by: Rocky **Polar:** Vertical

Test Mode: Connect to PC **Detector Function:** Peak/QP

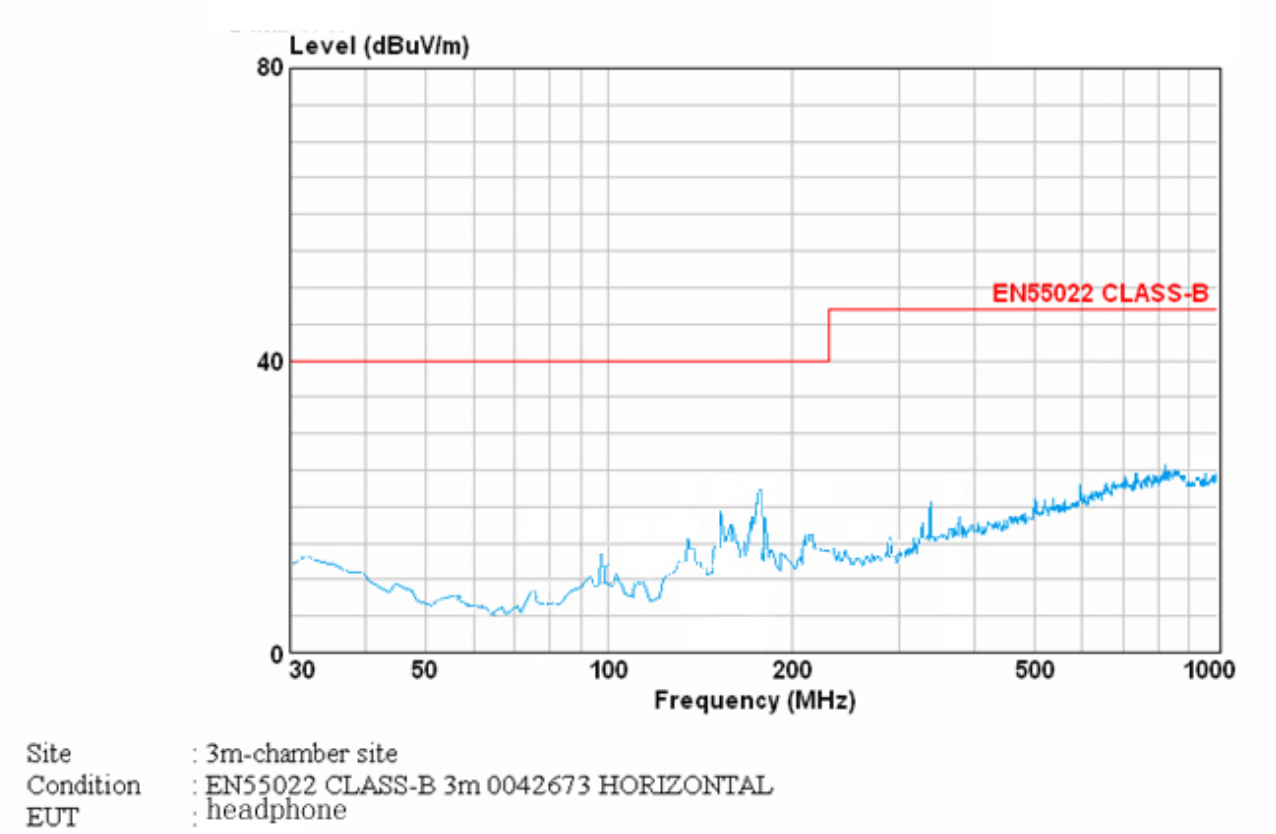


Site : 3m-chamber site
Condition : EN55022 CLASS-B 3m 0042673 VERTICAL
EUT : headphone

Model Number: MSX8PRO **Location:** Chamber

Tested by: Rocky **Polar:** Horizontal

Test Mode: Connect to PC **Detector Function:** Peak/QP



Site : 3m-chamber site
Condition : EN55022 CLASS-B 3m 0042673 HORIZONTAL
EUT : headphone

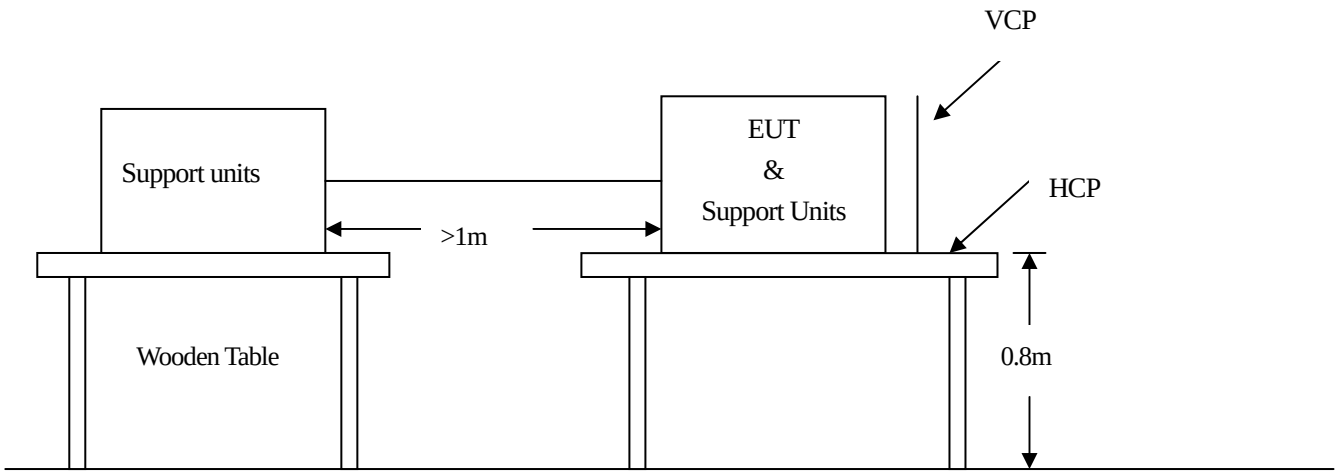
7. 3 ELECTROSTATIC DISCHARGE

7.3.1 ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	**:**	Enclosure
Basic Standard	**:**	EN61000-4-2
Test Level	**:**	± 8 kV (Air Discharge)
		± 4 kV (Contact Discharge)
		± 4 kV (Indirect Discharge)
Performance Criteria	**:**	A (Standard require)
Tester	**:**	Rocky
Temperature	**:**	23°C
Humidity	**:**	50%

7.3.2 Block Diagram of Test Setup

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



Ground Reference Plane

7.3.3 Test Procedure:

1. The EUT was located 0.1 m minimum from all side of the HCP.

2. Set up the EUT with the support equipment.

3. EUT was loaded and executed in windows XP mode..

4. As per the requirement of EN55024; 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.

5. 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.

6. The application of ESD to the contact of open connectors is not required.

7. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per the A2 to EN61000-4-2, 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	Contact Discharge	Pass
Mini 25 /Point	±4kV	Indirect Discharge HCP (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	±8kV	Air Discharge	Pass

7.3.4 Performance & Result:

[V] **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.

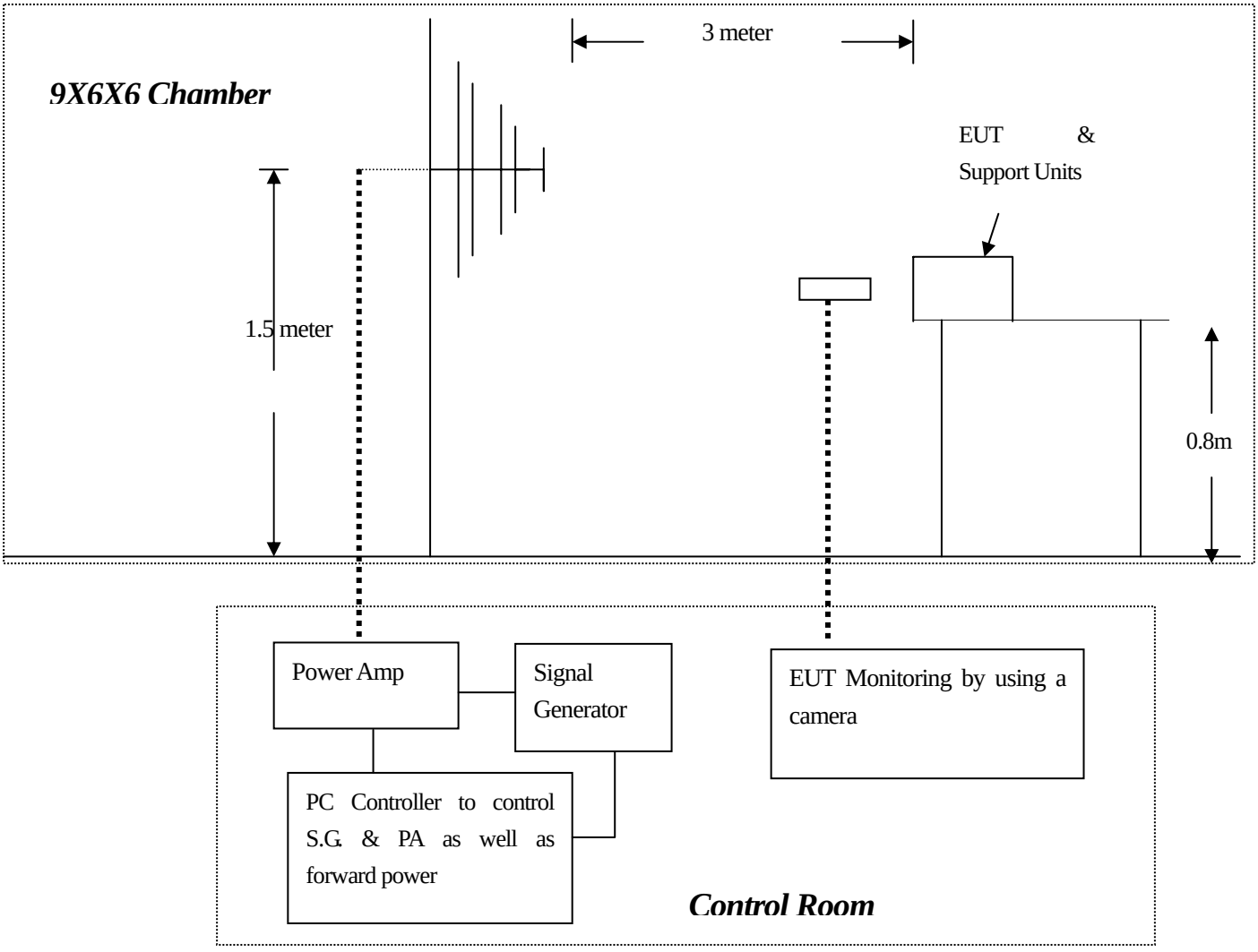
[V] ***PASS*** [ ] ***FAILED***

7. 4 RADIATED ELECTROMAGNETIC FIELD

7.4.1 RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	**:**	Enclosure
Basic Standard	**:**	EN61000-4-3
Requirements	**:**	3 V/m with 80% AM. 1kHz Modulation.
Performance Criteria	**:**	A (Standard require)
Tester	**:**	Rocky
Temperature	**:**	23°C
Humidity	**:**	50%

7.4.2 Block Diagram of Test Setup:



7.4.3 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 EN61000-4-3.
2. EUT was loaded and executed in windows XP mode.
3. Setting the testing parameters of RS test software per EN61000-4-3.
4. Performing the pre-test at each side of with double specified level (6V/m) at 4% steps.
5. From the result of pre-test in step 4, choose the worst side of EUT for final test from 80 MHz to 1000 MHz at 1% steps.
6. Recording the test result in following table.
7. It is not necessary to perform test as per annex A of EN 55024 if the EUT doesn't belong to TTE product.

Preliminary test conditions:

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

Range (MHz)	Field	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

Final test conditions:

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

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

7.4.4 Performance & Result

[V] **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.

[V] ***PASS*** [ ] ***FAILED***

8 PHOTOGRAPHS

8.1 PHOTOGRAPHS OF TEST SETUP

RADIATED EMISSION TEST (EN 55022)

ELECTROSTATIC DISCHARGE TEST (EN 61000-4-2)

RADIATED ELECTROMAGNETIC FIELD (EN 61000-4-3)

8.2 PHOTOGRAPHS OF EUT