

Test Report

Applicant:	Ningbo Goldmore Industrial Co.,Ltd.
Product Name:	LED CAMPING LANTERN with FAN
Brand Name:	N/A
Model No.:	XJH-8098
Date of Receipt :	Sep. 23, 2014
Date of Test:	Sep. 25, 2014
Date of Report:	Jan. 22, 2015
Prepared by:	Most Technology Service Co., Limited
-	has been performed on the submitted samples and found in nce with the council EMC directive 2014/30/EU.
No.5, 2n	Most Technology Service Co., Limited d Langshan Road, North District, Hi-tech Industry Park, Nanshan, Shenzhen, Guangdong, China Phone: 86-755-86026850 Fax: 86-755-26013350 http:// www.szmost.com



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APPENDIX I	(2 pages)
APPENDIX II	(1 pages)
APPENDIX III (Photos of the EUT)	(5 pages)



TEST REPORT DECLARATION

Report Number	MTE/DYY/A15010110						
A 1' /	Ningbo Goldmore Industrial Co.,Ltd.						
Applicant	Rm.703-705, N	Rm.703-705, NO.70 Laoshi Lane, Jiwei Bulding, Haishu District, Ningbo					
	Ningbo Goldm	ore Industrial Co.,Ltd.					
Manufacturer	Rm.703-705, N	NO.70 Laoshi Lane, Jiwei Bulding, Haishu District, Ningbo					
	Product Name	LED CAMPING LANTERN with FAN					
Product	Model No.	XJH-8098					
	Power Supply	DC 3 V by Batteries					
Test Result	The EUT was	found compliant with the requirement(s) of the standards.					
Standard		3, EN 61547:2009 (IEC 61000-4-2:2008, 3:2006+A1:2007+A2:2010, IEC 61000-4-8:2009)					
maximum emiss and its performs configurations t Limited Is assur	The above device has been tested by Most Technology Service Co., Limited To determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test record, data evaluation & Equipment Under Test (EUT) configurations represented are contained in this test report and Most Technology Service Co., Limited Is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the requirement of the above standards.						
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Prepared by	Daisy						
	Daisy Yu						
Reviewed by	Henry APPROVED						
	Henry Chen						
Approved by		<u>→</u> ↓					
	Mark Wen(Chief Executives)						



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	LED CAMPING LANTERN with FAN
Model Number	:	XJH-8098
Remark	:	N/A

1.2. Operational Mode(s) of EUT

Order Number	:	Test Mode(s)
1		Lighting

1.3. Test Voltage(s) of EUT

Order Number	:	Test Voltage(s)
1		DC 3V by batteries



2. DESCRIPTION OF TEST STANDARD

The intention of this publication is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

The following referenced standard are indispensable for the application of this report.

Referenced Description below:

EN 55015:2013 Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.

EN 61547:2009 Equipment for general lighting purposes - EMC immunity requirements.



3. LABORATORY INFORMATION

3.1. Laboratory Name

Most Technology Service Co., Limited

3.2. Location

No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

3.3. Test facility

3m Anechoic Chamber	:	Nov. 28, 2012 File on Federal Communication Commission Registration Number:490827
Shielding Room	:	Nov. 28, 2012 File on Federal Communication Commission Registration Number:490827
EMC Lab.	:	Accredited by TUV Rheinland Shenzhen Audit Report: UA 50149851 Mar. 12, 2009
		Accredited by Industry Canada Registration Number: 7103A-1 Oct. 22, 2012
		Accredited by TIMCO Registration Number: Q1460 March 28, 2010

3.4. Measurement Uncertainty

No.	Item	Uncertainty
1.	Uncertainty for Conducted Disturbance Test	1.25dB
2.	Uncertainty for Radiated Disturbance Test	3.15dB



4. SUMMARY OF TEST RESULTS

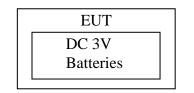
	EMISSION		
Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 55015:2013		N/A
Magnetic test	EN 55015:2013		PASS
Radiated disturbance	EN 55015:2013		PASS
Harmonic current emissions	EN 61000-3-2:2006 +A1:2009+A2:2009		N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013		N/A
IMI	MUNITY (EN 61547:2009)	
Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	IEC 61000-4-2:2008	В	PASS
Radio-frequency, Continuous radiated disturbance	IEC 61000-4-3:2006 +A1:2007+A2:2010	А	PASS
Electrical fast transient (EFT)	IEC 61000-4-4:2012		N/A
Surge (Input a.c. power ports)	IEC 61000-4-5:2014		N/A
Radio-frequency, Continuous conducted disturbance	IEC 61000-4-6:2013		N/A
Power frequency magnetic field	IEC 61000-4-8:2009		PASS
Voltage dips, 100% reduction	IEC 61000 4 11:2004		N/A
	- IEC 61000-4-11:2004		N/A



5. BLOCK DIAGRAM OF TEST SETUP

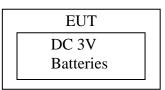
The equipments are installed test to meet EN 55015 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. EUT was tested in normal configuration (Please See following Block diagrams)

5.1. Block Diagram of connection between EUT and simulation-EMI



(EUT: LED CAMPING LANTERN with FAN)

5.2. Block Diagram of connection between EUT and simulation-EMS



(EUT: LED CAMPING LANTERN with FAN)



6. TEST INSTRUMENT USED

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
						Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	100307	Mar. 10, 14	1 Year
2.	Loop Antenna	Laplace	RF300	8006	Mar. 10, 14	1 Year
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100305	Mar. 10, 14	1 Year
4.	Coaxial Switch	Anritsu Corp	MP59B	6200283933	Mar. 07, 14	1 Year

6.1. For Magnetic Test (In Shielding Room)

6.2. For Radiation Test (In Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
						Interval
1.	Test Receiver	Rohde & Schwarz	ESPI	101202	Mar. 10, 14	1 Year
2.	Bilog Antenna	Sunol	JB3	A121206	Mar. 14, 14	1 Year
3.	Cable	Resenberger	N/A	NO.1	Mar. 07, 14	1 Year
4.	Cable	SchwarzBeck	N/A	NO.2	Mar. 07, 14	1 Year
5.	Cable	SchwarzBeck	N/A	NO.3	Mar. 07, 14	1 Year
6.	DC Power Filter	DuoJi	$DL2 \times 30B$	N/A	N/A	N/A
7.	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	N/A	N/A
8.	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	N/A	N/A

6.3. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	Zhongsheng	ESD-203AX	023K14538	Sep. 25, 14	1 Year

6.4. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
						Interval
1.	Signal Generator	IFR	2032	203002/100	Mar. 14, 14	1 Year
1.	Amplifier	A&R	150W1000	301584	NCR	NCR
2.	Dual Directional Coupler	A&R	DC6080	301508	Mar. 14, 14	1 Year
3.	Power Sensor	Anritsu	MA2491A	32263	Mar. 14, 14	1 Year
4.	Power Meter	R&S	NRVS	100444	Mar. 14, 14	1 Year
5.	Field Monitor	A&R	FM5004	300329	Mar. 14, 14	1 Year
6.	Field Probe	A&R	FP5000	300221	Mar. 14, 14	1 Year
7.	Log-periodic Antenna	A&R	AT1080	16512	Mar. 14, 14	1 Year
8.	RF Cable	MIYAZAKI	N/A	No.1/No.2	Mar. 07, 14	1 Year

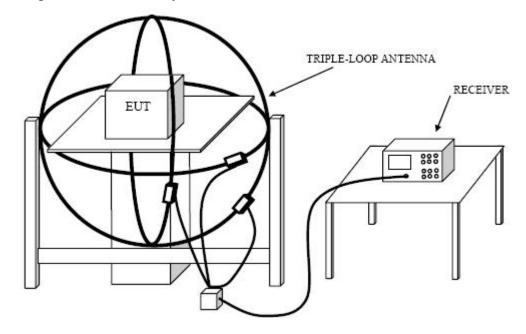
6.5. For Magnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.		Cal. Interval
1.	EMCPRO System	EM Test	UCS-500-M4	V0648102026	Mar. 10, 14	1 Year



7. MAGNETIC TEST

7.1. Configuration of Test System



7.2. Test Standard EN 55015:2013

7.3. Magnetic Field Emission Limit

Frequency	Limits for loop diameter (dBuA)
(MHz)	2m
0.009~0.07	88
0.07~0.15	88~58*
0.15~3.00	58~22*
3.00~30.0	22

Note: 1.At the transition frequency the lower limit applies.

2. *decreasing linearly with logarithm of the frequency.

7.4. Test Procedure

The EUT is placed on a wood table in the center of a loop antenna. The induced current in the loop antenna is measured by means of a current probe and the test receiver. Three field components are checked by means of a coax switch.

The frequency range from 9 KHz to 30MHz is investigated. The receiver is measured with the quasi-peak detector. For frequency band 9 KHz to 150 KHz, the bandwidth of the field strength meter (R&S test receiver ESCI) is set at 200Hz. For frequency band 150 KHz to 30MHz, the bandwidth is set at 9 KHz.

The test result are reported on Section 7.5.



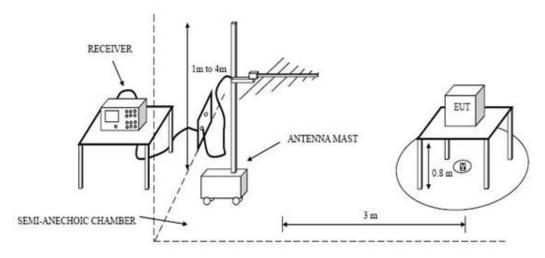
7.5. Radiated Disturbance Test Results

7.5.1.Test Results: PASS



8. RADIATED DISTURBANCE TEST

8.1. Configuration of Test System



8.2. Test Standard

EN 55015:2013

8.3. Radiated Disturbance Limit

All emanations from devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS
(MHz)	(Meters)	(dBµV/m)
30 ~ 230	3	40
230 ~ 300	3	47

Note: 1. The lower limit shall apply at the transition frequencies.

2. Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.

8.4. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to EN 55015 on Radiated Disturbance test.

The bandwidth setting on the test receiver is 120 kHz.

The frequency range from 30MHz to 1000MHz is checked. The test result are reported on Section 8.5.



8.5. Radiated Disturbance Test Results

- 8.5.1.Test Results: PASS
- 8.5.2.Emission Level= Correct Factor + Reading Level.
- 8.5.3.All reading are Quasi-Peak values.
- 8.5.4. The test data and the scanning waveform are attached within Appendix I.



9. IMMUNITY PERFORMANCE CRITERIA

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level: Based on the used product standard Based on the declaration of the manufacturer, requestor or purchaser

Criterion A:

During the test no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

Criterion B:

During the test the luminous intensity may change to any value. After the test the luminous intensity shall be restored to its initial value within 1 min.

Regulating controls need not function during the test, but after the test the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

Criterion C:

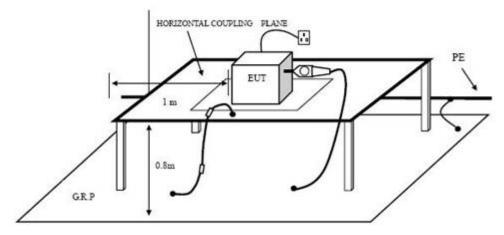
During and after the test any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal if necessary by temporary interruption of the mains supply and/or operating the regulating control.



10.ELECTROSTATIC DISCHARGE IMMUNITY TEST

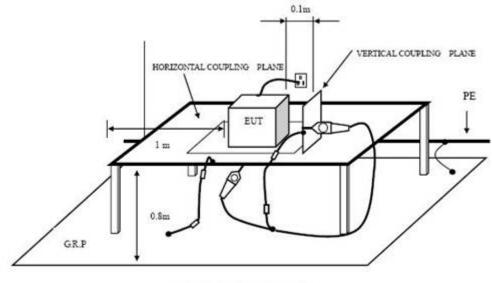
10.1.Configuration of Test System

10.1.1. Configuration of ESD Test System(Direct Discharge)



DIRECT DISCHARGE SETUP

10.1.2.Configuration of ESD Test System(Indirect Discharge)



INDIRECT DISCHARGE SETUP

10.2.Test Standard

EN 61547:2009 (IEC 61000-4-2:2008) (Severity Level 3 for Air Discharge at 8KV, Severity Level 2 for Contact Discharge at 4KV)



10.3. Severity Levels and Performance Criterion

10.3.1.Severity level

Level	Test Voltage	Test Voltage
	Contact Discharge (KV)	Air Discharge (KV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
Х	Special	Special

10.3.2.Performance criterion : **B**

10.4.Test Procedure

10.4.1.Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure was repeated until all the air discharge completed

10.4.2.Contact Discharge:

All the procedure was same as Section 10.4.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch was operated.

10.4.3.Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1mfrom the EUT and with the discharge electrode touching the coupling plane.

10.4.4.Indirect discharge for vertical coupling plane

At least 20 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

10.5.Test Results

10.5.1.Test Results: PASS

10.5.2.Test data on the following pages.



Electrostatic Discharge Test Results

Most Technology Service Co., Limited

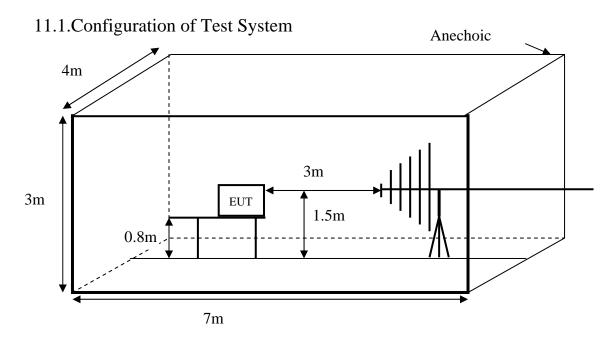
Test Voltage : 1		Test Date:	Sep. 25, 2014
Test Mode : 1		Criterion :	В
Temperature:22 °C	7	Humidity:	54 %
Air Discharge: ±8KV	# For Air Discharge	e each Point Positive	10 times and negative 10
	times discharge.		
Contact Discharge: ±4H	KV # For Contact Disc	charge each point pos	sitive 10 times and
	negative 10 time	es discharge.	
	Test Results L	Description	
	Location	Kind A-Ain Dischar C-Cont Dischar	rge act
Housing		Α	PASS
Gaps		A	PASS
Switch		A	PASS
Screw		C	PASS
НСР		С	PASS
VCP of Front		С	PASS
VCP of Rear		С	PASS
VCP of Left		С	PASS
VCP of Right		С	PASS
Remark :			

Discharge was considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

Reviewer : _____



11.RF FIELD STRENGTH SUSCEPTIBILITY TEST



11.2.Test Standard

EN 61547:2009 (IEC 61000-4-3:2006+A1:2007+A2:2010) (Severity Level: 2 at 3V / m)

11.3. Severity Levels and Performance Criterion

11.3.1.Severity level

Level	Test Field Strength V/m
1.	1
2.	3
3.	10
X	Special

11.3.2.Performance criterion : A



11.4.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor the EUT.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Test Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	80% amplitude modulated with a 1kHz sine wave
3. Scanning Frequency	80 - 1000 MHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1.5 Sec.

11.5.Test Results

11.5.1.Test Results: PASS

11.5.2.Test data on the following pages.



RF Field Strength Susceptibility Test Results Most Technology Service Co., Limited

Test Voltage :	1		Test Date:	Sep. 25, 2014		
Test Mode:	1		Frequency Range:	80-1000MHz		
Field Strength :	3 V/m		Criterion :	Α		
Temperature:	26 °C		Humidity:	55 %		
Modulation: \square AM \square Pulse			\Box none 1 k.	Hz 80%		
		Test Resul	lts Description			
Frequency Rang 1: 80MHz - 1000 MHz						
Step	S		1%	1%		
		Horizontal		Vertical		
From	nt 🛛	PASS		PASS		
Righ	nt 🛛	PASS		PASS		
Rea	r	PASS		PASS		
Left	ţ	PA	ISS	PASS		

Note: No function loss

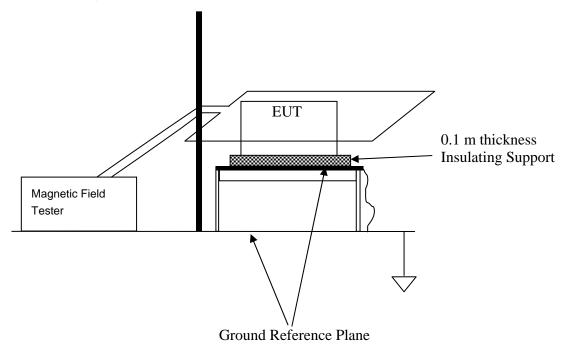
Reviewer :

Henry



12.MAGNETIC FIELD IMMUNITY TEST

12.1.Configuration of Test System



12.2.Test Standard

EN 61547:2009 (IEC 61000-4-8:2009) (Severity Level 2 at 3A/m)

12.3.Severity Levels and Performance Criterion

12.3.1.Severity level

Level	Magnetic Field Strength A/m
1.	1
2.	3
3.	10
4.	30
5.	100
Х.	Special

12.3.2.Performance criterion : A



12.4.Test Procedure

The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 12.1. The induction coil was then rotated by 90° in order to expose the EUT to the test field with different orientations.

12.5.Test Results

- 12.5.1.Test Results: PASS
- 12.5.2.Test data on the following pages.



Magnetic Field Immunity Test Results Most Technology Service Co., Limited

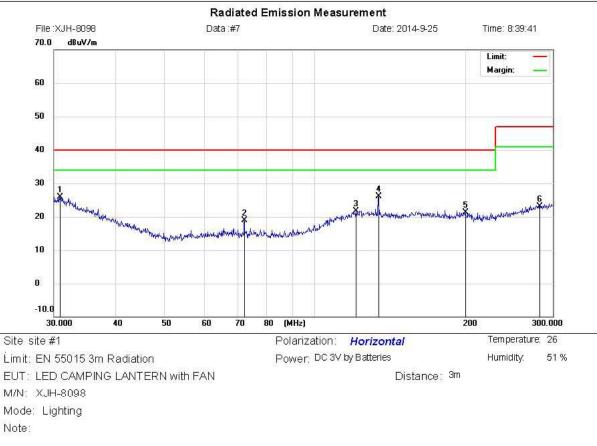
Test Voltage :	1		Test Date:	Sep. 25, 2014
Test Mode :	1		Criterion :	Α
Temperature:	24 °C		Humidity:	55 %
		Test Results Des	cription	
Test Level	Testing Duration	Coil Orientation	Criterio	on Result
3A/m(50Hz/60Hz)	5 mins	X	A	PASS
3A/m(50Hz/60Hz)	5 mins	Y	A	PASS
3A/m(50Hz/60Hz)	5 mins	Z	A	PASS
Remark: No function	n loss			I

Reviewer : _____

APPENDIX I



Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park Guangdong ,China Tel: 0755-86170306 Fax: 0755-86170310



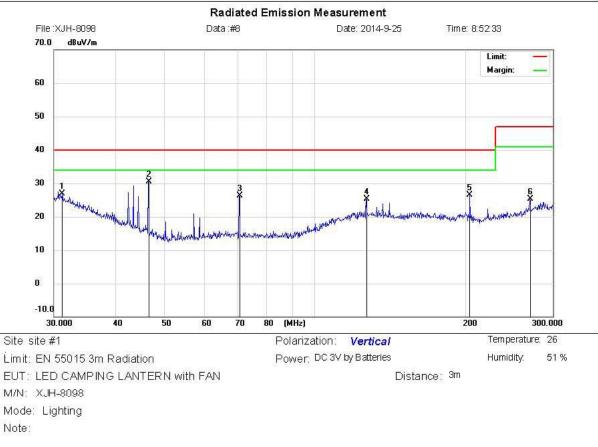
No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.7696	4.40	21.57	25.97	40.00	-14.03	QP			
2		72.1309	7.30	11.64	18.94	40.00	-21.06	QP			
3		121.0936	4.14	17.52	21.66	40.00	-18.34	QP			
4	*	134.0050	8.66	17.50	26.16	40.00	-13.84	QP			
5		200.0420	4.01	17.39	21.40	40.00	-18.60	QP			
6		282.5668	3.71	19.40	23.11	47.00	-23.89	QP			

*:Maximum data x:Over limit I:over margin

Engineer Signature: Robert



Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park Guangdong ,China Tel: 0755-86170306 Fax: 0755-86170310



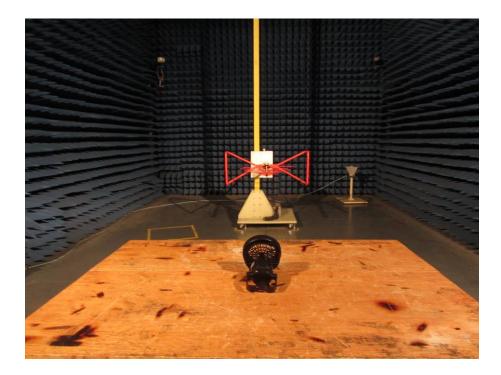
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		31.1976	4.58	22.34	26.92	40.00	-13.08	QP			
2	*	46.4645	18.22	12.32	30.54	40.00	-9.46	QP			
3		70.4890	14.53	11.69	26.22	40.00	-13.78	QP			
4	3	126.8006	7.67	17.64	25.31	40.00	-14.69	QP			
5	2	204.2308	9.74	16.76	26.50	40.00	-13.50	QP			
6		269.8493	6.36	18.88	25.24	47.00	-21.76	QP			

*:Maximum data x:Over limit I:over margin

Engineer Signature: Robert

APPENDIX II (Test Photos)

Radiated Test Setup Photograph



ESD Test Setup Photograph



APPENDIX III (Photos of the EUT)

Figure 1 General Appearance of the EUT



Figure 2 General Appearance of the EUT



Figure 3 General Appearance of the EUT



Figure 4 General Appearance of the EUT





Figure 6 Part of the EUT



Figure 7 Components Side of the PCB



Figure 8 Components Side of the PCB



Figure 9 Components Side of the PCB

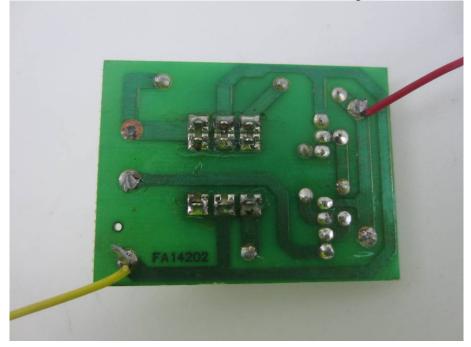


Figure 10 Components Side of the PCB

