



CTS

CTS (GUANGZHOU) TESTING SERVICE TECHNOLOGY
OPERATE ACCORDING TO ISO/IEC 17025

EC DECLARATION OF CONFORMITY

EU - ELECTROMAGNETIC COMPATIBILITY DIRECTIVE -

This declares that the following designated product

Lithium Battery

Model No.: 40series, 30series, 50series, 60series, 70series, 80series

(Product identification)

Complies with the essential protection requirements of the European Parliament and of the Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This declaration applies to all specimens manufactured in accordance with the attached manufacturing drawings which form part of this declaration.

Assessment of compliance of the product with the requirements relating to electromagnetic compatibility was based on the following standards:

EN 61000-6-3: 2007

EN 61000-6-1: 2007

(Identification of regulations / standards)

This declaration is the responsibility of the Applicant / importer

FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town,
Nanhai District, Foshan City, Guangdong, China

(Name / Address)



THIS DOC IS ONLY VALID IN CONNECTION WITH TEST REPORT NUMBER: CGZ110928-00803-E
MANUFACTURER / IMPORTER

TEST LABORATORY

This is the result of test, that was carried out from the submitted type-samples of a product in conformity with the specification of the respective standards.
The declaration holder has the right to fix the CE-mark for EMC on the product complying with the inspection sample

(Date)

(Surname, forename)

(Company stamp)



08 October 2011

(Date)

(Company stamp)

CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building F, Dachuang industrial park, No.379, Zhongshan Dadao,
Guangzhou, China

DECLARATION OF CONFORMITY

No.202, Building A, Yushu Industrial Park, GuangZhou
Guangdong China

Telephone: +86 (0) 20 82019555
Fax: +86 (0) 20 82019556
Email: Marketing@stu-lab.com
Website: www.stu-lab.com



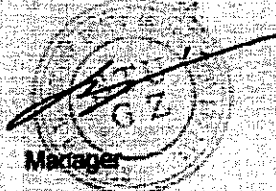
VERIFICATION OF EMC COMPLIANCE

Verification No.: STUGZEMO100611757LMV
Applicant: FOSHAN BAIZHAO ELECTRON CO.,LTD.
Address of Applicant: Bitang West 2 Street No.8, Jiangwan No.1 Road, Chancheng District, Foshan City, 528000 Guangdong, China.
Manufacturer: FOSHAN BAIZHAO ELECTRON CO.,LTD.
Address of Manufacturer: Bitang West 2 Street No.8, Jiangwan No.1 Road, Chancheng District, Foshan City, 528000 Guangdong, China.
Product Description: LED Plastic Lamp
Model No.: BZ-CH, BZ-WB, BZ-FL, BZ-BE, BZ-BA, BZ-SF
Sufficient samples of the product have been tested and found to be in conformity with
Test Standard: EN 55015:2000+A1:2007+A2:2009
EN 61547:2009
EN 61000-3-2:2006
EN 61000-3-3:2008

As shown in the

Test Report Number(s): STUGZEMO100611757LM

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of STU Standard Technology Union Co., Ltd. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards and Directive 2004/108/EC as last amended by Directive 93/88/EEC. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The affixing of the CE marking presumes in addition that the conditions in annexes III and V of the Directive are fulfilled.

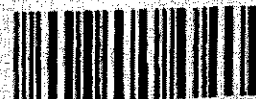


Date: July 02, 2010

Copyright of this verification is owned by STU Standard Technology Union Co., Ltd and may not be reproduced other than in full and with the prior approval of the General Manager. This verification is subjected to the governance of the General Conditions of Services, printed overleaf.

STU PAPER

081017901



This document is issued on the Client's behalf, by the Company under its General Conditions of Service printed overleaf. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not constitute parties to a transaction from advertising all their rights and obligations under the transaction documents.



湖南石油化學株式會社 (Honam Petrochemical Corp.)

Head Office : Lotte Gwanak Tower B/D, 395-67, Shindaebang-dong,

Dongjak-gu, Seoul, Korea

Tel : (02) 829 - 4114

Fax : (02) 843 - 1010

Plant Site : 634, Dokgot-Ri, Daesan-Eup, Seosan-City,

Chungchongnam-Do, Korea

Tel : (041) 689 - 5830-2

Certificate of Heavy Metals

To:

Date Issued: 2009/02/20

Product Name	SEETEC-LLD	Lot No	
Grade	UR644	Date Inspected	

Test Item	Test Method	Unit	Results
Cd	BS EN 1122:2001	ppm	NONE
Pb	US EPA 3050B:1996	ppm	NONE
	US EPA 6010B:1996		
Hg	US EPA 7473:1998	ppm	None
Cr 6+	US EPA 3060A:1996	ppm	None
	US EPA 7196A:1992		

I Certify the Statement of Quality to be True and Correct.

M. G. CHOI

LEADER OF LABORATORY

HONAM PETROCHEMICAL CO.,LTD

If you have any Questions, Contact us, Quality Control Laboratory.

TEL : 82-41-689-5830, FAX: 82-41-689-5993, <http://www.hpc.co.kr>



STU Standard Technology Union Co., Ltd.

No.202, Building A, Yushu Industrial Park, Science City, GuangZhou, Guangdong, China

Telephone : +86 (0) 20 82019555
Fax : +86 (0) 20 82019556
Email : marketing@stu-lab.com
Website : www.stu-lab.com

Report No.: STUGZCHEMO100611756LM
Page : 1 of 9

TEST REPORT

Company's Name: FOSHAN BAIZHAO ELECTRON CO., LTD.
 Company's Address: BITANG WEST 2 STREET NO.8, JIANGWAN NO.1 ROAD, CHANCHENG DISTRICT, FOSHAN CITY, GUANGDONG CHINA
 Applicant's Name: FOSHAN BAIZHAO ELECTRON CO., LTD.
 Applicant's Address: BITANG WEST 2 STREET NO.8, JIANGWAN NO.1 ROAD, CHANCHENG DISTRICT, FOSHAN CITY, GUANGDONG CHINA
 Sample Description: LED Plastic lamp
 Item No.: BZ-CH. BZ-WB, BZ-FL. BZ-BE. BZ-BA. BZ-SF
 Sample Receipt Date: Jul 12, 2010
 Test Period: Jul 12, 2010 to Jul 16, 2010
 Test Standard: Screening by XRF spectroscopy test for RoHS directive 2002/95/EC.
 Test Method: 1. Tests was performed for the samples indicated by the photos in the report with test methods reference to IEC 62321:2008, Procedures for the determination of Levels of Six Regulated substances in Electrotechnical Products and conducted by XRF Spectroscopy.
 2. The tested parts are preferentially chosen according to the definition of homogenous materials by European Union Technical Adaptation Committee (TAC).
 3. According to the request of client, industrial high risk points are preferentially chosen as the scanned position.
 Test Result: Please refer to next page(s).
 Test Conclusion: 1) These scanned results on these positions are BELOW LIMIT
 Position: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32
 2) The scanned results on these positions are OVER LIMIT
 Position: NO

Signed for and on behalf of STU Ltd.

Jacky Yao

Jacky Yao
Section Manager



This report refers to the General Conditions for Inspection and Testing Services, printed overleaf.
 This report details the results of the testing carried out on the sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the STU PRODUCT CERTIFICATION MARK. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
 This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of STU International Electrical Approvals or testing done by STU International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by STU International Electrical Approvals in writing.
 All test results in this report can be traceable to National or International Standards.



Test Results:

Part No.	Restricted Substances	Results of EDXRF	Conclusion on RoHS	Sample Submitted Date
1	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
2	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
3	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
4	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
5	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
6	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	



	BROMINE(Br)	BL	Comply	
7	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
8	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
9	CADMIUM(Cd)	BL	Comply	Jul 13, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
10	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
11	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
12	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
13	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	



	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
14	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
15	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
16	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
17	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
18	CADMIUM(Cd)	BL	Comply	Jul 14, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
19	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
20	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	



	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
21	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
22	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
23	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
24	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
25	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
26	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
	CADMIUM(Cd)	BL	Comply	



27	LEAD(Pb)	BL	Comply	Jul 15, 2010
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
28	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
29	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
30	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	
31	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	...	\	
32	CADMIUM(Cd)	BL	Comply	Jul 15, 2010
	LEAD(Pb)	BL	Comply	
	MERCURY(Hg)	BL	Comply	
	CHROMIUM(Cr)	BL	Comply	
	BROMINE(Br)	BL	Comply	

See Figure 1 to 4



Table 1. Screening limits in mg/kg for regulated elements in various matrices.

Element	Polymer Materials	Metallic Materials	Composite Materials
Cd	BLs (70-3σ) <X<(130+3σ) ≤OL	BLs (70-3σ) <X<(130+3σ) ≤OL	LOD<X<(150+3σ) ≤OL
Pb	BLs (700-3σ) <X<(1300+3σ) ≤OL	BLs (700-3σ) <X<(1300+3σ) ≤OL	BLs (500-3σ) <X<(1500+3σ) ≤OL
Hg	BLs (700-3σ) <X<(1300+3σ) ≤OL	BLs (700-3σ) <X<(1300+3σ) ≤OL	BLs (500-3σ) <X<(1500+3σ) ≤OL
Br	BLs (300-3σ) <X	Not Applicable	BLs (250-3σ) <X
Cr	BLs (700-3σ) <X	BLs (700-3σ) <X	BLs (500-3σ) <X

Remark:

- (1) "BELOW LIMIT"-If the result of the quantitative analysis, for all elements, is lower than the lower limits listed in Table 1.
- (2) "OVER LIMIT"- If the result of the quantitative analysis, for any of the elements Hg, Pb or Cd, is higher than the higher limits listed in Table 1.
- (3) "INCONCLUSIVE"- If the result of the quantitative analysis, (i) for any of the elements Hg, Pb or Cd, is in the region defined as intermediate, or (ii) if the result of the elements Br and Cr is higher than the higher limits listed in Table 1.



APPENDIX
Photo Index For The Tested Positions
General view

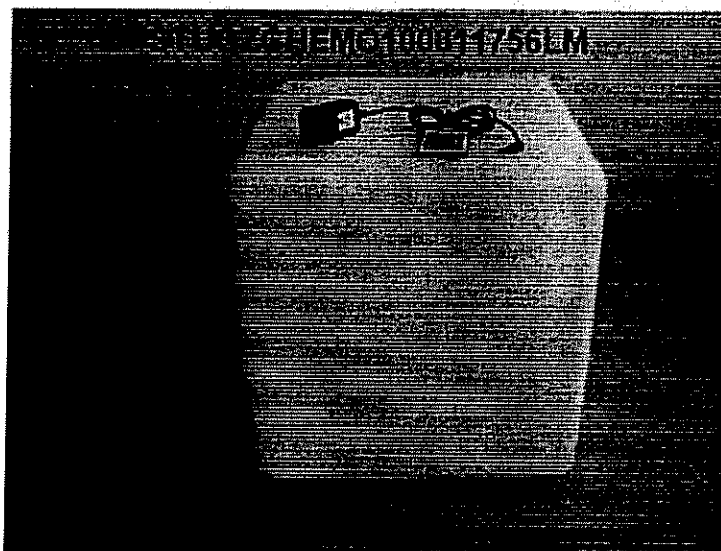


Figure 1 (BZ-CH)

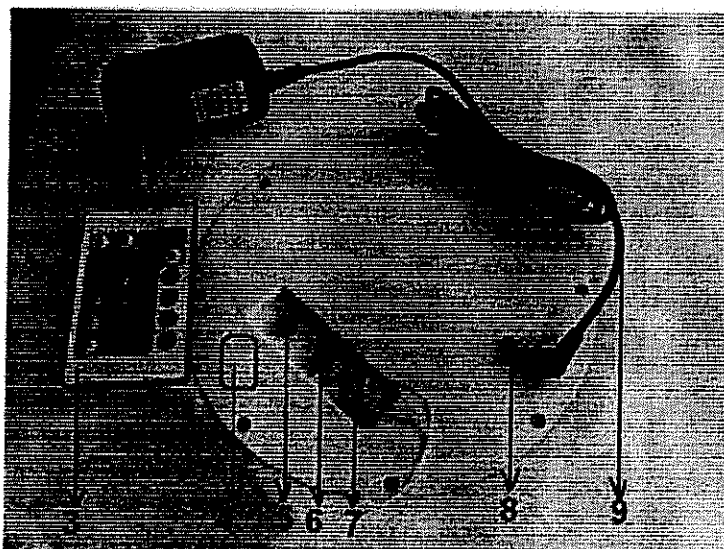


Figure 2

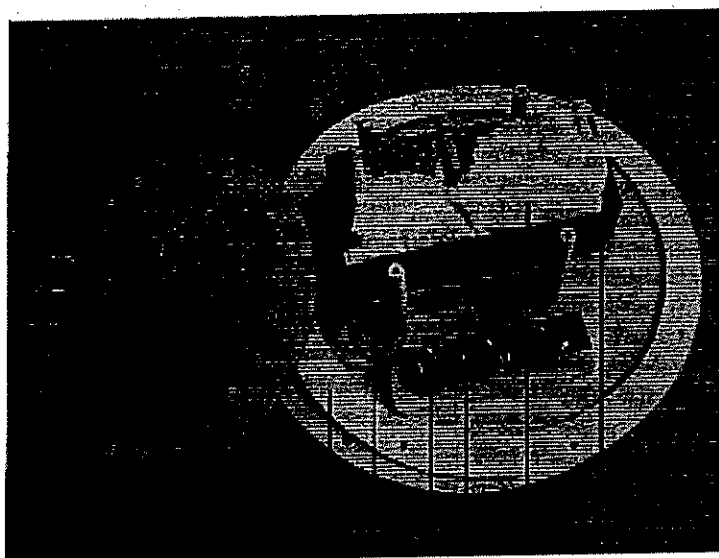


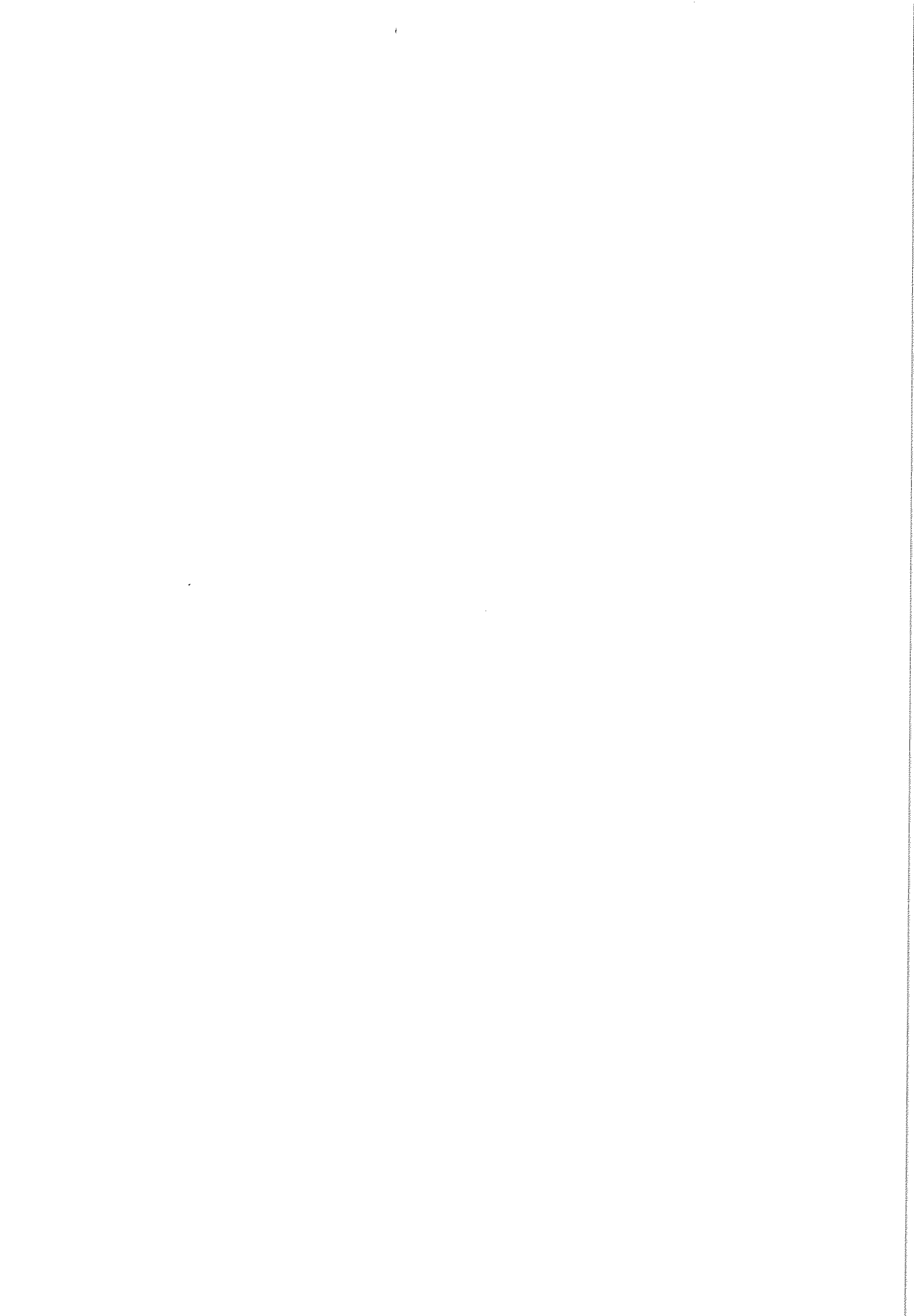
Figure 3



Figure 4

STU authenticate the photo on original report only

***** End of Report *****





TEST REPORT

REPORT No. : CGZ3110928-03141-C
DATE : Oct. 8, 2011
PAGE : 1 of 9

Table of contents

1	General Information	2
1.1	Application Details	2
1.2	Manufacturer & Buyer	2
1.3	Description of the Test Item	2
1.4	Directive	3
2	Test results	3
2.1	Sample Receiving Date	3
2.2	Testing Period	3
2.3	Test Requested	3
2.4	Test Method	4
2.5	Chemical Test Method Flow Chart	5
2.6	Conclusion	7
2.7	Test results of all parts by EDXRF and chemical confirmation	7
3	Sample Reference Photo	9

The measurement results only apply to the submitted samples.
Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

**TEST REPORT**

REPORT No. : CGZ3110928-03141-C
DATE : Oct. 8, 2011
PAGE : 2 of 9

1 General Information**1.1 Application Details**

Name : FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Address : No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town,
Nanhai District, Foshan City, Guangdong, China.
Contact : /
Telephone : +86-757-81289786
Fax : +86-757-81289787
Mobile telephone : 13630014299
Email : info@zhaoneng-battery.com

1.2 Manufacturer & Buyer

Manufacturer name : FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Address : No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town,
Nanhai District, Foshan City, Guangdong, China.
Contact : /
Telephone : +86-757-81289786
Fax : +86-757-81289787
Mobile telephone : 13630014299
Email : info@zhaoneng-battery.com
Buyer name : /

1.3 Description of the Test Item

Sample name : Lithium battery
Model No. : 30series, 40series, 50series, 60series, 70series, 80series
Brand name : /
Condition of sample(s) : EFFECTIVE

The measurement results only apply to the submitted samples.
Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.



TEST REPORT

REPORT No. : CGZ3110928-03141-C
DATE : Oct. 8, 2011
PAGE : 3 of 9

1.4 Directive

2002/95/EC

Restriction of the use of certain hazardous substances in electrical and electronic equipment
27 January 2003

in connection with:

2002/96/EC

Waste electrical and electronic equipment
27 January 2003

2005/618/EC

Establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment
18 August 2005

2 Test results

2.1 Sample Receiving Date

Sept. 28, 2011

2.2 Testing Period

Sept. 28, 2011 to Oct. 8, 2011

2.3 Test Requested

As specified by applicant, to determine the Lead, Cadmium, Mercury, Hexavalent Chromium and PBBs & PBDEs content in the submitted sample in accordance with Directive 2002/95/EC (RoHS).

The measurement results only apply to the submitted samples.
Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.



**CENTRE OF TESTING SERVICE
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

TEST REPORT

RoHS 2002/95/EC

Test Report Number : CGZ3110928-03141-C



CTS (Guangzhou) Testing Service Technology Co., Ltd.

Building B, Dachuang industrial park, No. 379, Zhongshan Dadao, Guangzhou, China

PHONE +86-20-85543113

FAX +86-20-38780406



TEST REPORT

REPORT No. : CGZ3110928-03141-C
 DATE : Oct. 8, 2011
 PAGE : 4 of 9

2.4 Test Method

1. X-Ray Fluorescence Spectrometry method in reference to IEC 62321: 2008.
2. Chemical test method

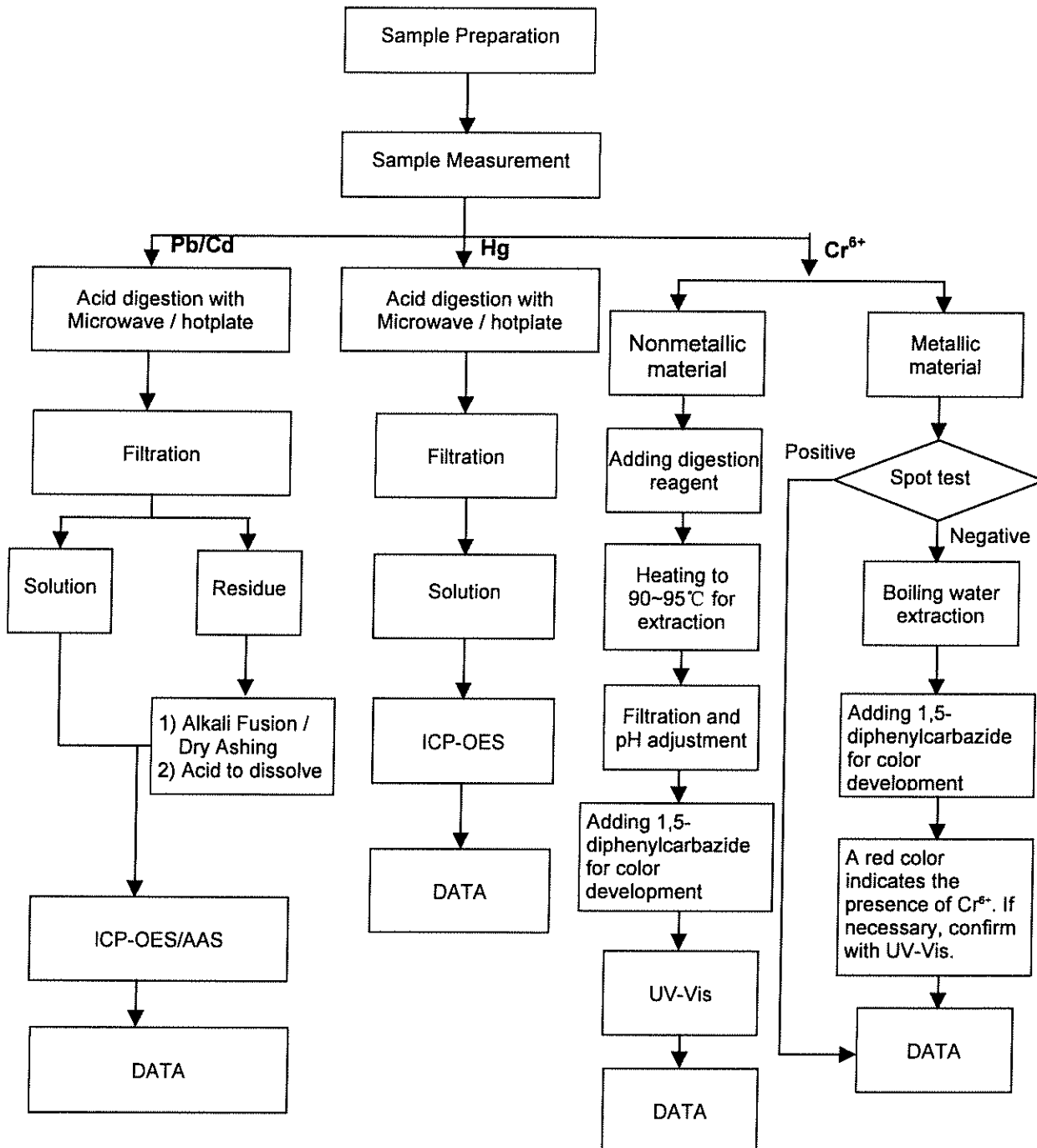
Test Item(s)	Test Method	Test Instrument
Lead (Pb)	With reference to IEC 62321:2008	ICP-AES
Cadmium (Cd)	With reference to IEC 62321:2008	ICP-AES
Mercury (Hg)	With reference to IEC 62321:2008	ICP-AES
Chromium VI (Cr VI)	With reference to IEC 62321:2008	UV-Vis
PBBs	With reference to IEC 62321:2008	GC-MS
PBDEs		

The measurement results only apply to the submitted samples.
 Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

TEST REPORT

REPORT No. : CGZ3110928-03141-C
 DATE : Oct. 8, 2011
 PAGE : 5 of 9

2.5 Chemical Test Method Flow Chart



The measurement results only apply to the submitted samples.

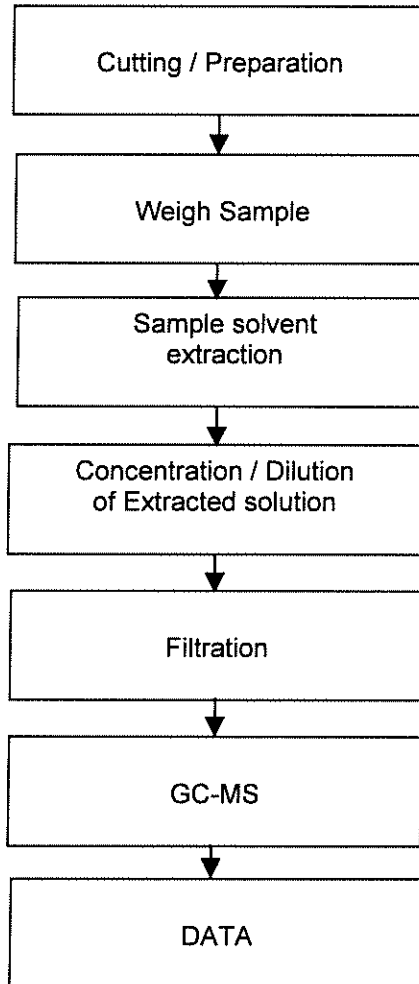
Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the Issuing Company.



TEST REPORT

REPORT No. : CGZ3110928-03141-C
DATE : Oct. 8, 2011
PAGE : 6 of 9

PBBs / PBDEs



The measurement results only apply to the submitted samples.
Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

**TEST REPORT**

REPORT No. : CGZ3110928-03141-C
 DATE : Oct. 8, 2011
 PAGE : 7 of 9

2.6 Conclusion

When tested as specified, the submitted sample complied with the requirement of commission Decision of 18 Aug 2005 amending Directive 2002/95/EC notified under document 2005/618/EC.

2.7 Test results of all parts by EDXRF and chemical confirmation

No.	Sample Description	Results					Chemical Confirmation Result (Unit=mg/kg)
		Pb	Cd	Hg	Cr	Br	
1	Red plastic jacket	P	P	P	P	P	/
2	Black plastic jacket	P	P	P	P	P	/
3	Silvery wire	P	P	P	P	/	/
4	Silvery-white aluminium film	X	P	P	P	/	Pb: N.D.
5	Blue plastic film	P	P	P	P	P	/
6	Yellow transparent film	P	P	P	P	P	/
7	Silvery-white metal sheet	P	P	P	P	/	/
8	Copper foil	P	P	P	P	/	/
9	Black carbon powder	P	P	P	P	P	/
10	White plastic film	P	P	P	P	P	/

Note : P = Below Limit (Pass)
 X = Inconclusive
 N.D. = not detected (less than MDL)
 1mg/kg=1ppm=0.0001%

The measurement results only apply to the submitted samples.
 Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

**TEST REPORT**

REPORT No. : CGZ3110928-03141-C
 DATE : Oct. 8, 2011
 PAGE : 8 of 9

Remarks:

- (1) Results are obtained by EDXRF for primary screening, and further chemical testing is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321: 2008.

Element	Polymer Materials	Metallic Materials	Electronic Materials
Pb	P < 500 < X < 1300 < F	P < 500 < X < 1300 < F	P < 500 < X < 1300 < F
Cd	P < 50 < X < 130 < F	P < 50 < X < 130 < F	X < 130 < F
Hg	P < 500 < X < 1300 < F	P < 500 < X < 1300 < F	P < 500 < X < 1300 < F
Cr	P < 700 < X	P < 700 < X	P < 500 < X
Br	P < 250 < X	/	P < 250 < X

- (2) Chemical Confirmation Result acceptable Limit:

Test items	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium (CrVI)	PBBs	PBDEs
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Acceptable Limit	1000	100	1000	1000	1000	1000

- (3) The test results only apply to the materials requested by applicant.

Written by: *Amanda* Inspected by: *Annie* Approved by: *lyt*

End of Report



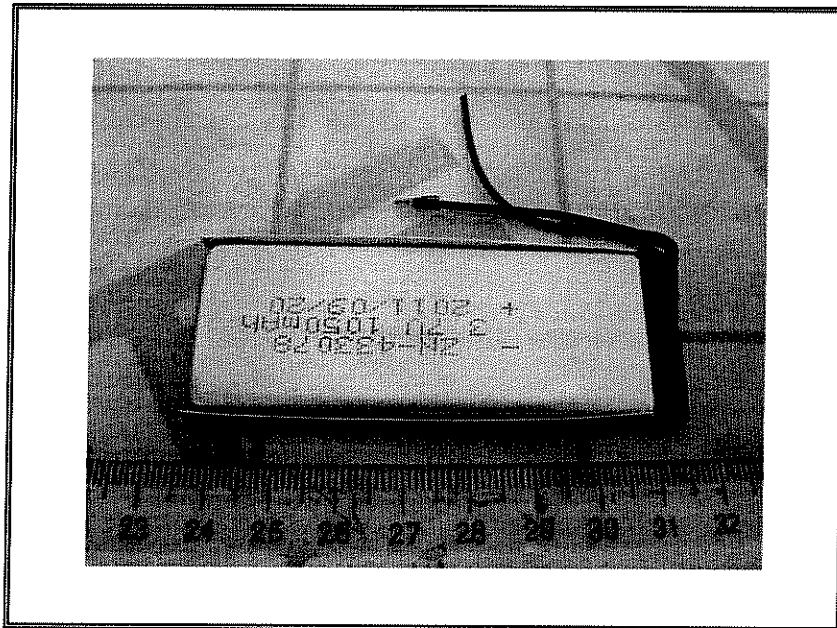
The measurement results only apply to the submitted samples.
 Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.



TEST REPORT

REPORT No. : CGZ3110928-03141-C
DATE : Oct. 8, 2011
PAGE : 9 of 9

3 Sample Reference Photo



The measurement results only apply to the submitted samples.
Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building B, Dachuang industrial park, No. 379, Zhongshan Dadao, Guangzhou, China
Tel: +86-20-85543113 (32 lines) Fax: +86-20-38760406
Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



STU Standard Technology Union Co., Ltd.

No.202, Building A, Yushu Industrial Park, Science City, Guangzhou, Guangdong,

China

Telephone: +86 (0) 20 82019555
Fax: +86 (0) 20 82019556
Email: Marketing@stu-lab.com
Website: www.stu-lab.com

Report No.: STUGZEMO100611757LM
Page: 1 of 35

TEST REPORT

Application No.: STUGZEMO100611757LM
Applicant: FOSHAN BAIZHAO ELECTRON CO.,LTD.
Manufacturer: FOSHAN BAIZHAO ELECTRON CO.,LTD.
Equipment Under Test (EUT):

EUT Name: LED Plastic Lamp
Item No.: BZ-CH, BZ-WB, BZ-FL, BZ-BE, BZ-BA, BZ-SF
Serial No.: Not supplied by client

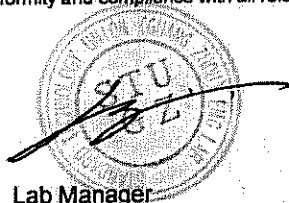
Standards: EN 55015: 2006+A1: 2007+A2: 2009
EN 61547: 2009
EN 61000-3-2: 2006
EN 61000-3-3: 2008

Date of Receipt: 25 June 2010
Date of Test: 28 June 2010 to 30 June 2010
Date of Issue: 02 July 2010

Test Result :

PASS*

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.



This report refers to the General Conditions for Inspection and Testing Services, printed overleaf.
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the STU PRODUCT CERTIFICATION MARK. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of STU International Electrical Approvals or testing done by STU International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by STU International Electrical Approvals in writing.
All test results in this report can be traceable to National or International Standards.



2 Test Summary

The customer requested EMC tests for a LED Plastic Lamp.

Test	Test Requirement	Test Method	Class / Severity	Result
Mains Terminal Disturbance Voltage, 9kHz to 30MHz	EN55015:2006+A1:2007 +A2:2009	EN 55015:2006+A1:2007+A2:2009	Table 2a	PASS
Radiated Disturbance, 9kHz to 30MHz	EN55015:2006+A1:2007 +A2:2009	EN 55015:2006+A1:2007+A2:2009	Table 3a	PASS
Radiated Disturbance, 30MHz to 300MHz	EN55015:2006+A1:2007 +A2:2009	EN 55015:2006+A1:2007+A2:2009	Table 3b	PASS
Harmonic Emission on AC	EN61000-3-2:2006	EN61000-3-2:2006	Class C	PASS
Flicker Emission on AC	EN 61000-3-3: 2008	EN 61000-3-3: 2008	Clause 5 of EN61000-3-3	PASS
Radiated Immunity, Electromagnetic Field, 80MHz to 1 GHz	EN 61547: 2009	EN 61000-4-3:2006	3V/m 80%, 1kHz, AM	PASS
ESD	EN 61547: 2009	EN 61000-4-2:2009	Contact ±4 kV Air ±8 kV	PASS**
Electrical Fast Transients (EFT) on AC	EN 61547: 2009	EN 61000-4-4:2004	AC ± 1.0kV Signal ± 0.5kV	PASS
Injected Currents, 150kHz to 80MHz	EN 61547: 2009	EN 61000-4-6:2007	3Vrms (emf), 80%, 1kHz Amp. Mod. On AC & Signal	PASS
Voltage Dips and Interruptions on AC	EN 61547: 2009	EN 61000-4-11:2004	0 % U_T^* for 0.5per; 70 % U_T^* for 10per	PASS
Surge Immunity on AC	EN 61547: 2009	EN 61000-4-5:2006	±0.5 kV D.M.† ±1.0 kV C.M.‡	PASS

* U_T is the nominal supply voltage

† D.M. – Differential Mode

‡ C.M. – Common Mode

※ Remarks:

Item No.: BZ-CH, BZ-WB, BZ-FL, BZ-BE, BZ-BA, BZ-SF

as declaration from the applicant the electrical design, components used and internal construction were identical with the only difference being their models and their outer.



3 Contents

1	COVER PAGE	1
2	TEST SUMMARY	2
3	CONTENTS	3
4	GENERAL INFORMATION	5
4.1	CLIENT INFORMATION	5
4.2	GENERAL DESCRIPTION OF E.U.T.	5
4.3	DETAILS OF E.U.T.	5
4.4	DESCRIPTION OF SUPPORT UNITS	5
4.5	TEST COMPANY	5
4.6	DEVIATION FROM STANDARDS	5
4.7	ABNORMALITIES FROM STANDARD CONDITIONS	5
4.8	MONITORING OF EUT FOR ALL IMMUNITY TEST	6
5	EQUIPMENTS USED DURING TEST	7
6	EMISSION TEST RESULTS.....	8
6.1	CONDUCTED EMISSIONS ON MAINS TERMINALS, 9KHZ TO 30MHZ.....	8
6.1.1	<i>E.U.T. Operation</i>	8
6.1.2	<i>Plan View of Test Setup</i>	8
6.1.3	<i>Measurement Data</i>	9
6.2	RADIATED DISTURBANCE, 30MHZ TO 300MHZ.....	10
6.2.1	<i>E.U.T. Operation</i>	10
6.2.2	<i>Test Setup</i>	10
6.2.3	<i>Limites</i>	11
6.2.4	<i>Measurement Data</i>	12
6.3	RADIATED DISTURBANCE, 9KHZ TO 30MHZ	14
6.3.1	<i>E.U.T. Operation</i>	14
6.3.2	<i>Test Setup</i>	15
6.3.3	<i>Test Result</i>	15
6.4	HARMONICS TEST RESULTS.....	19
6.4.1	<i>E.U.T. Operation</i>	19
6.4.2	<i>Test Result</i>	19
6.5	FLICKER TEST RESULTS.....	21
6.5.1	<i>E.U.T. Operation</i>	21
6.5.2	<i>Limits</i>	21
6.5.3	<i>Measurement Data</i>	22
7	IMMUNITY TEST RESULTS	23
7.1	PERFORMANCE CRITERIA DESCRIPTION IN CLAUSE 4.2 OF EN 61547	23
7.2	ESD.....	24
7.2.1	<i>E.U.T. Operation</i>	24
7.2.2	<i>Direct discharge Test Results</i>	24
7.2.3	<i>Indirect application test result</i>	24
7.3	RADIATED IMMUNITY 80MHZ TO 1000MHZ.....	25
7.3.1	<i>E.U.T. Operation</i>	25

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



STU Standard Technology Union Co., Ltd.

Report No.: STUGZEMO100611757LM

Page: 4 of 35

7.3.2	Test Results:	25
7.4	ELECTRICAL FAST TRANSIENTS (EFT)	26
7.4.1	E.U.T. Operation	26
7.4.2	Test Results On AC Supply:	26
7.5	SURGE	27
7.5.1	E.U.T. Operation	27
7.5.2	Test Results:	27
7.6	CONDUCTED IMMUNITY 0.15MHZ TO 80MHZ	28
7.6.1	E.U.T. Operation	28
7.6.2	Test Results on AC:	28
7.7	VOLTAGE DIPS AND INTERRUPTIONS	29
7.7.1	E.U.T. Operation	29
7.7.2	Test Results:	29
8	PHOTOGRAPHS	30
8.1	CONDUCTED EMISSION TEST SETUP	30
8.2	RADIATED DISTURBANCE TEST SETUP	30
8.3	RADIATED IMMUNITY TEST SETUP	31
9	PHOTOGRAPHS	31
9.1	EUT CONSTRUCTIONAL DETAILS	31

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202, Building A, Yushu Industrial Park, Science City, Guangzhou, Guangdong, China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



4 General Information

4.1 Client Information

Applicant: FOSHAN BAIZHAO ELECTRON CO.,LTD.
Address of Applicant: Bitang West 2 Street No.8, Jiangwan No.1 Road ,Chancheng District,
Foshan City,528000 Guangdong, China.
Manufacturer: FOSHAN BAIZHAO ELECTRON CO.,LTD.
Address of Applicant: Bitang West 2 Street No.8, Jiangwan No.1 Road ,Chancheng District,
Foshan City,528000 Guangdong, China.

4.2 General Description of E.U.T.

EUT Name: LED Plastic Lamp
Item No.: BZ-CH, BZ-WB, BZ-FL, BZ-BE, BZ-BA, BZ-SF
Serial No.: Not supplied by the client

4.3 Details of E.U.T.

Ratings: Input:AC100~240V,50Hz/60Hz, Output: 0.5A~0.3-0.5A
Adapter(model:GM18-048050-2,input:100-240V~,50/60Hz,0.8A,
output: 4.2V~12.6VDC)
3Vx1 size" CR2025" Lithium Button Cell for remote controller.
Power Cord: 1.5-3m x 2 wires unscreened DC Cable.

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Test Company

All tests were performed by:

The test was performed by STU Standard Technology Union Co., Ltd.,

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel: +86 20 82019555 Fax: +86 20 82019556 Email: marketing@stu-lab.com

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.



4.8 Monitoring of EUT for All Immunity Test

Visual: Monitored the Lighting of the EUT.

Audio: N/A.



5 Equipments Used during Test

Test Equipment	Manufacturer	Description	Cal.Date	Cal.Due date
EMI TEST Receiver	R/S	9KHz-3GHz	2010-6-15	2011-6-14
Power meter	BOOTON	0~18GHz	2010-3-9	2011-3-8
RF Amplifier	PRANA R&D	140W 10KHz-1GHz	2010-6-17	2011-6-16
RF Amplifier	PRANA R&D	50W 0.8-3GHz	2010-6-17	2011-6-16
CND	Liithi	150KHz-230MHz	2009-7-3	2010-7-2
CDN	Liithi	150KHz-230MHz	2009-7-3	2010-7-2
LISN	SCHWARZBECK	9KHz-30MHz	2009-7-3	2010-7-2
LISN	SCHWARZBECK	9KHz-30MHz	2009-7-3	2010-7-2
probe	Radcentre	DC~6GHz	2010-5-26	2011-5-25
filter	Telonic	30MHz~65MHz	2009-7-3	2010-7-2
filter	Telonic	65MHz~125MHz	2009-7-3	2010-7-2
filter	Telonic	125MHz~250MHz	2009-7-3	2010-7-2
filter	Telonic	250MHz~500MHz	2009-7-3	2010-7-2
filter	Telonic	500MHz~1GHz	2009-7-3	2010-7-2
filter	Telonic	1GHz~2.2GHz	2009-7-3	2010-7-2
filter	Telonic	2.2GHz~3.1GHz	2009-7-3	2010-7-2
V-dip Tester	EMC Partner	0%~100%U	2009-7-3	2010-7-2
SURGE Tester	EMC Partner	-4.1V~+4.1V	2009-7-3	2010-7-2
EFT TESTER	EMC Partner	-4.4kV~+4.4kV	2009-7-3	2010-7-2
EFT COUPER	EMC Partner	-4.4kV~+4.4kV	2010-6-14	2011-6-13
ESD Gun	EMC Partner	-30kV~+30kV	2010-6-17	2011-6-16
ESD Discharger module	EMC Partner	-30kV~+30kV	2010-6-17	2011-6-16
Power amplifier	BRYSTON	25Hz~150kHz	2010-6-17	2011-6-16
chamber	ETS	DC~18GHz	2010-4-11	2011-4-10
antenna	SCHWARZBECK	9kHz~30MHz	2010-6-20	2011-6-19
antenna	SCHWARZBECK	450MHz~6GHz	2010-6-4	2011-6-3
antenna	SCHWARZBECK	65MHz~3GHz	2010-6-17	2011-6-16
antenna	SCHWARZBECK	9kHz~30MHz	2009-7-4	2010-7-3
antenna	ETS	1GHz~18GHz	2009-7-4	2010-7-3
antenna	ETS	26MHz~3GHz	2009-7-4	2010-7-3



6 Emission Test Results

6.1 Conducted Emissions on Mains Terminals, 9kHz to 30MHz

Test Requirement:	EN 55015
Test Method:	EN 55015
Test Date:	28 Jun 2010
Frequency Range:	9kHz to 30MHz
Class/Severity:	Table 2a
Detector:	Peak for pre-scan 200Hz resolution bandwidth between 9kHz & 150kHz 9kHz resolution bandwidth between 150kHz & 30MHz Quasi-peak if maximised peak with 6dB of quasi-peak limit (9kHz-150kHz) Quasi-peak & average if maximised peak within 6dB of average limit (150kHz-30MHz)

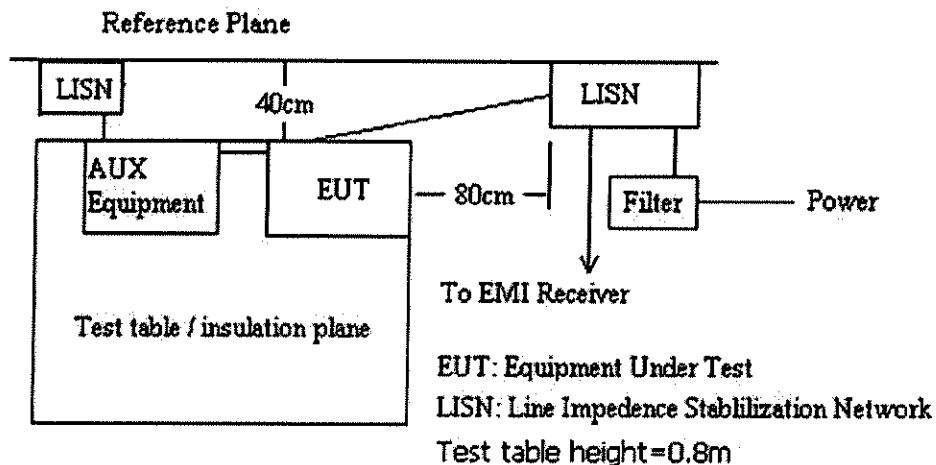
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 51 % RH Atmospheric Pressure: 1011 mbar

EUT Operation: Test EUT in lighting mode , Quasi-peak & average measurements were performed if peak emissions was detected within 6dB of the average limit line.

6.1.2 Plan View of Test Setup





6.1.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines in On Mode at 230V AC.

Quasi-peak & average measurements were performed on the live & neutral lines since peak emissions were detected within 6dB of the average limit line.

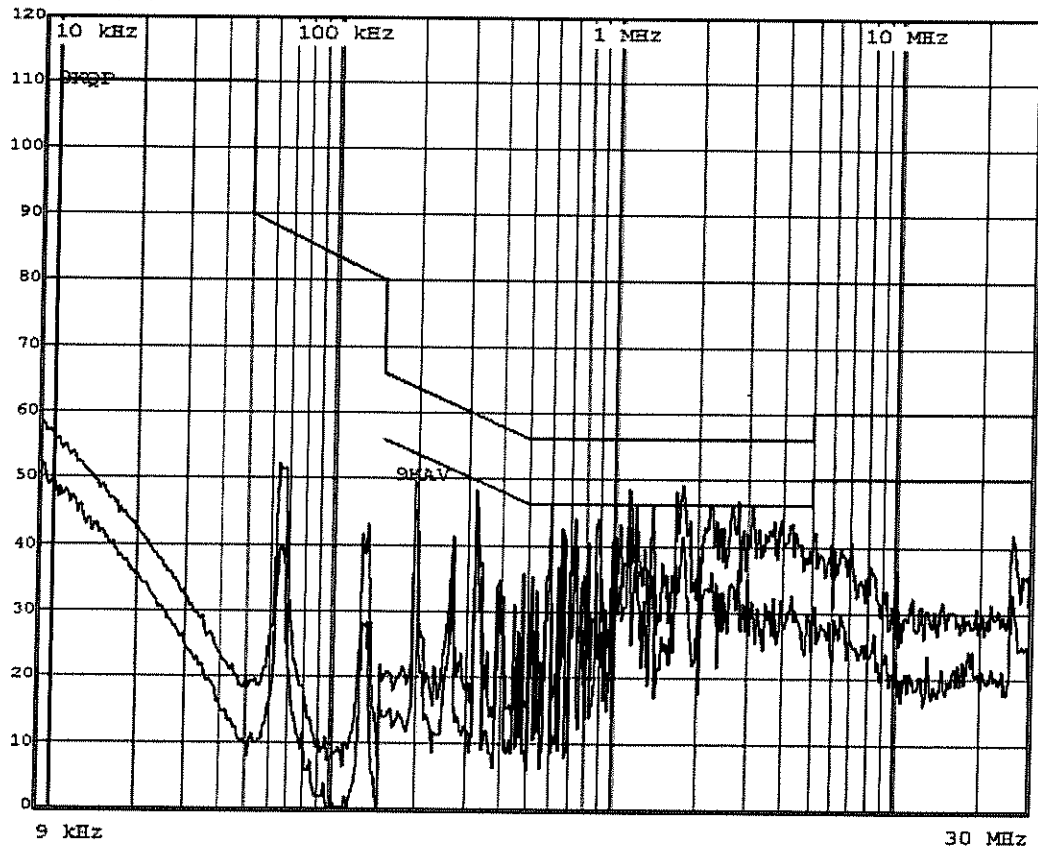
Please see the attached peak measurement data for reference.

The following quasi-peak measurements were performed on the EUT on 28 Jun 2010:

Live & Neutral Line:

Peak Scan:

Level (dB μ V)



Quasi-peak and Average measurement:

Trace1: 9KQP		Trace2: 9KAV	
Trace3: ---		Trace4: ---	
TRACE	FREQUENCY	LEVEL dB μ V	DELTA LIMIT dB
1 Quasi Peak	1.1740 MHz	44.66 N gnd	-11.33
2 Average	658.0000 kHz	29.19 L1 gnd	-16.80
2 Average	718.0000 kHz	26.99 L1 gnd	-19.00



6.2 Radiated Disturbance, 30MHz to 300MHz

Test Requirement: EN 55015
Test Method: EN 55015
Test Date: 28 Jun 2010
Frequency Range: 30MHz to 300MHz
Measurement Distance: 3 m
Class/Severity: Table 3b
Detector: Peak for pre-scan
Quasi-Peak(120 kHz resolution bandwidth) if maximised peak within 6 dB of limit

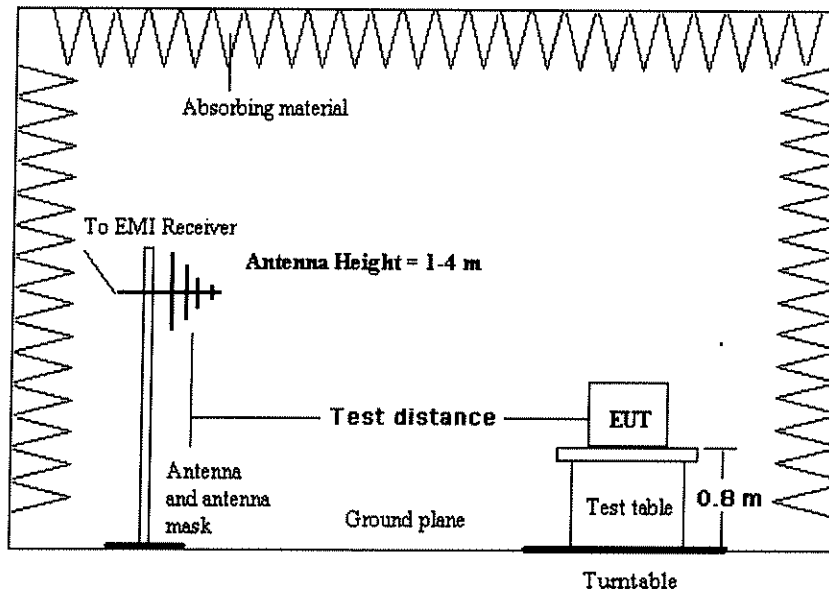
Limit:

Frequency range MHz	Quasi-peak limits dB ($\mu\text{V/m}$)
30 to 230	40
230 to 300	47

6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 23.0 °C Humidity: 50 % RH Atmospheric Pressure: 1009 mbar
EUT Operation: Test the EUT in lighting mode.

6.2.2 Test Setup





6.2.3 Limites

Radiated disturbance limits in the frequency range 30MHz to 300MHz at a measuring distance of 10m

Frequency MHz	Quasi-peak limits* dB (μ V/m)
30 to 230	30
230 to 300	37

*: At the transition frequency, the lower limit applies.

The radiated disturbance of the EUT was tested at the measuring distance of 3m, so the limits are calculated according to the relation in CISPR 22 clause 10.6 a).

The relation is:

$$L_2=L_1 (d_1/d_2).$$

$$d_1=10m, d_2=3m.$$

So, the limits for distance of $d_2=3m$ in this test, are as the following table:

Frequency MHz	Quasi-peak limits* dB (μ V/m)
30 to 230	40
230 to 300	47

*: At the transition frequency, the lower limit applies.



6.2.4 Measurement Data

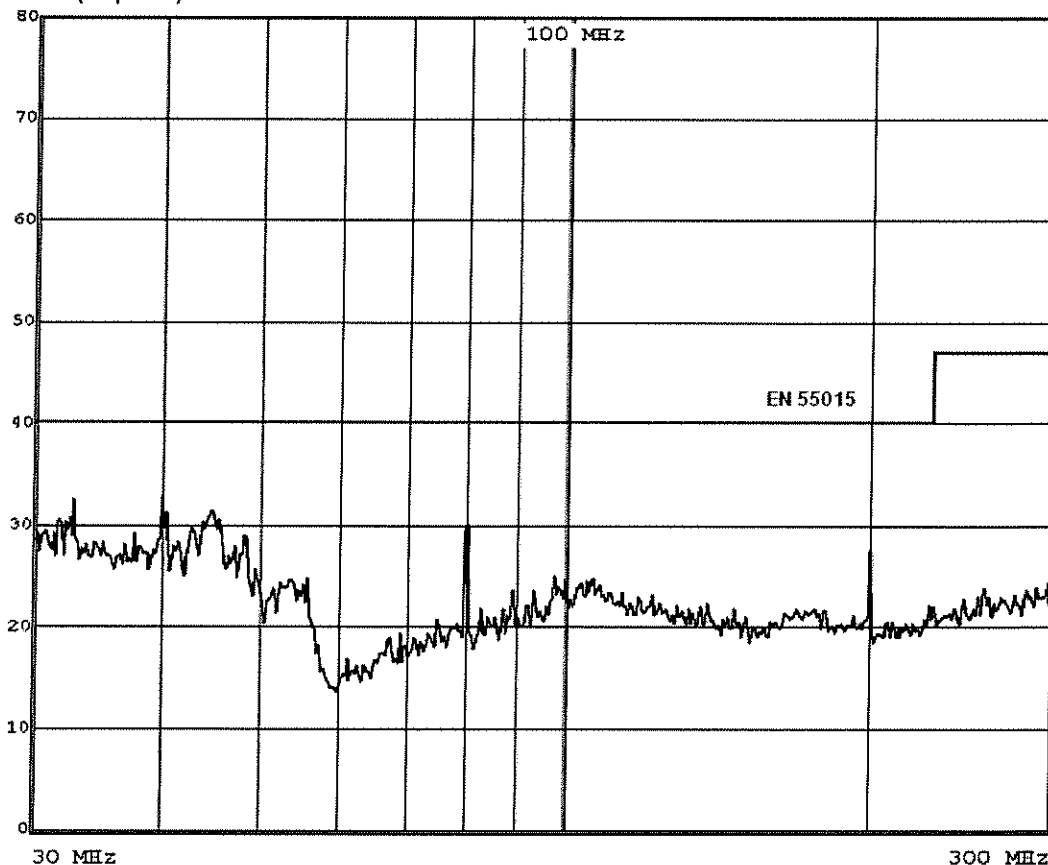
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

The following quasi-peak measurements were performed on the EUT on 28 Jun 2010:

Vertical:

Peak scan

Level (dB μ V/m)



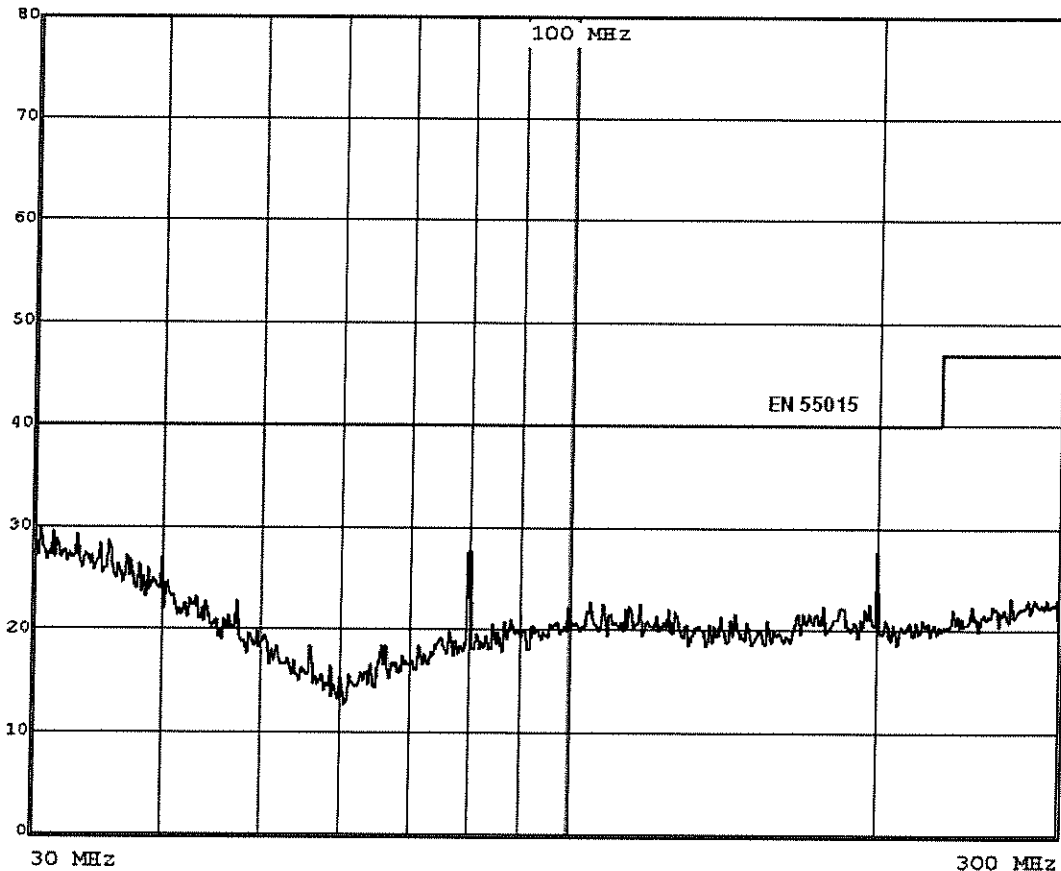


STU Standard Technology Union Co., Ltd.

Report No.: STUGZEMO100611757LM

Page: 13 of 35

Horizontal:
Peak scan
Level (dB μ V/m)



Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



6.3 Radiated Disturbance, 9KHz to 30MHz

Test Requirement: EN 55015
Test Method: EN 55015
Test Date: 28 Jun 2010
Frequency Range: 9KHz to 30MHz
Class/Severity: Table 3a
Detector: Peak for pre-scan
200Hz resolution bandwidth between 9kHz & 150kHz
9kHz resolution bandwidth between 150kHz & 30MHz
Quasi-peak scan if maximised peak with 6dB of quasi-peak limit

Limit:

Frequency MHz	Limits for loop diameter dB(uA) ^a		
	2m	3m	4m
0.009-0.07	88	81	75
0.07-0.15	88-58 ^b	81-51 ^b	75-45 ^b
0.15-3.0	58-52 ^b	51-15 ^b	45-9 ^b
3.0-30	22	15-16 ^c	9-12 ^c

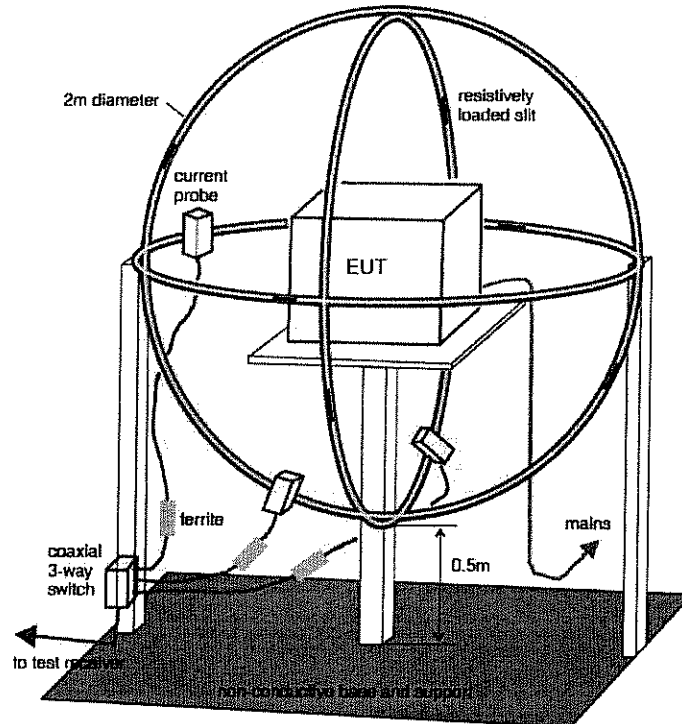
a: At the transition frequency, the lower limit applies.
b: Decreasing linearly with the logarithm of the frequency. For electrodeless lamps and luminaires, the limit in the frequency range of 2.2MHz to 3.0 MHz is 58 dB(uA) for 2m, 51 dB(uA) for 3m and 45 dB(uA) for 4m loop diameter
c: Increasing linearly with the logarithm of the frequency.

6.3.1E.U.T. Operation

Operating Environment:
Temperature: 23.0 °C Humidity: 50 % RH Atmospheric Pressure: 1009 mbar
EUT Operation: Test the EUT in lighting mode.



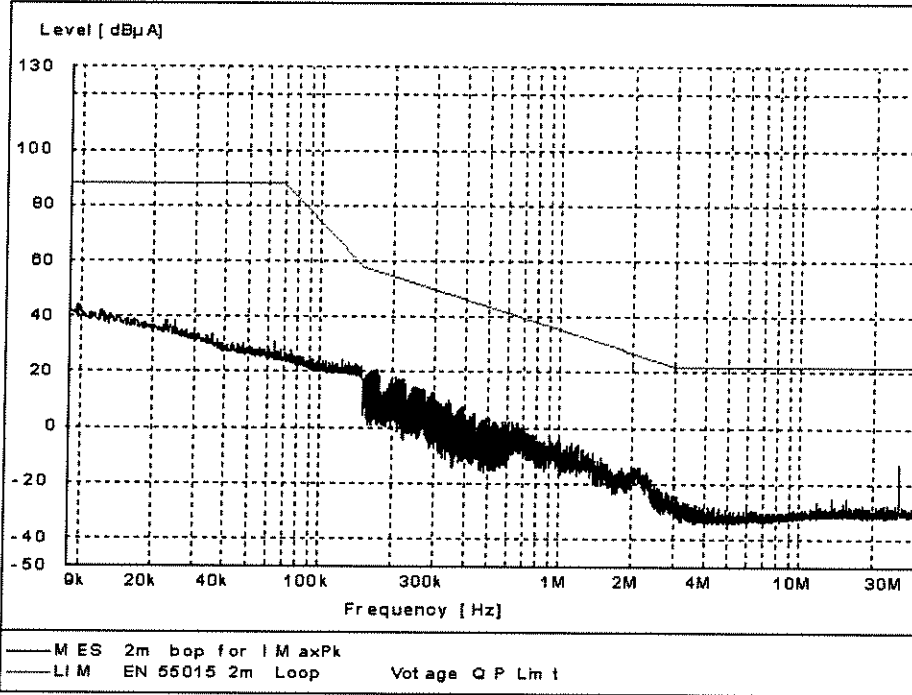
6.3.2 Test Setup



6.3.3 Test Result



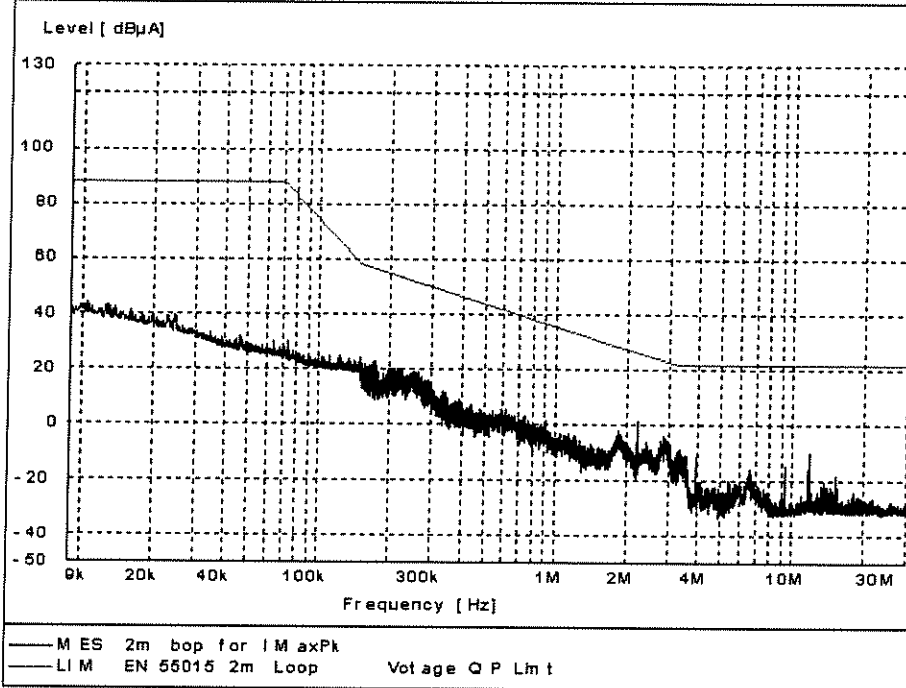
LOOP A:



Frequency (MHz)	Transducer (dB)	QP Level (dBUA)	Limit (dBUA)	Margin (dB)
0.0289	-5.3	34.2	88.0	53.8
0.0678	-12.9	22.6	88.0	65.4
0.3090	-23.1	9.8	49.4	39.6
0.9590	-31.7	3.8	35.9	32.1
6.1530	-27.9	-26.5	22.0	48.5
26.8140	-31.8	-32.4	22.0	54.4



Loop B:



Frequency (MHz)	Transducer (dB)	QP Level (dBuA)	Limit (dBuA)	Margin (dB)
0.0177	34.5	38.5	88.0	49.5
0.1640	23.5	16.8	56.9	40.1
0.2029	10.2	20.1	54.5	34.4
0.2380	-30.8	18.6	52.5	33.9
7.7900	-31.1	-22.3	22.0	44.3
9.3250	-30.2	-32.5	22.0	54.5

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

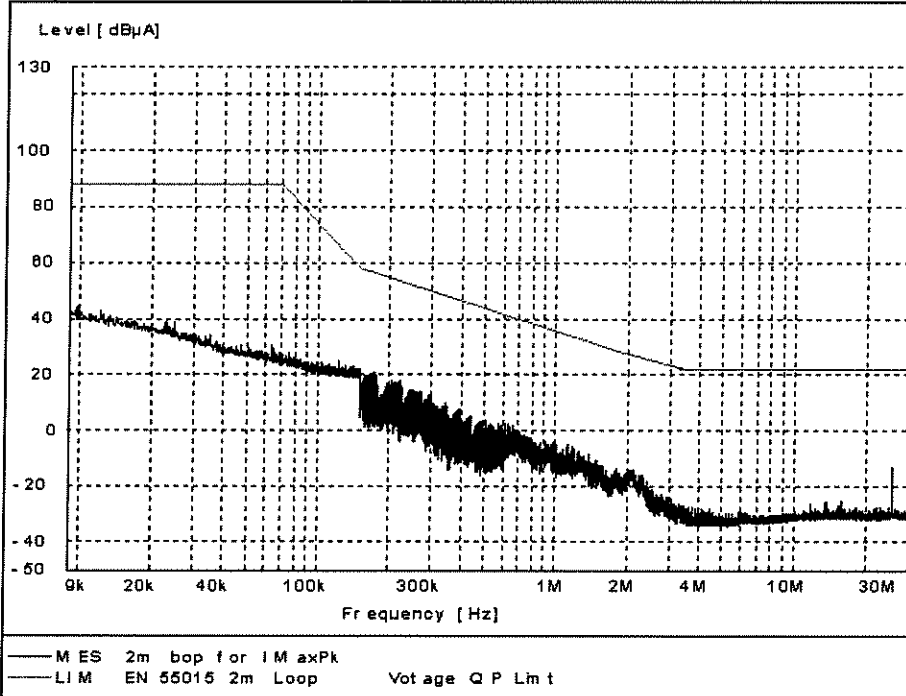
STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



Loop C:



Frequency (MHz)	Transducer (dB)	QP Level (dBUA)	Limit (dBUA)	Margin (dB)
0.0289	-5.3	34.5	88.0	53.5
0.0678	-12.9	21.6	88.0	66.4
0.3090	-23.1	9.8	49.4	39.6
0.9590	-31.7	3.5	35.9	32.4
6.1530	-27.9	-26.5	22.0	48.5
26.8140	-31.8	-33.5	22.0	55.5

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202, Building A, Yushu Industrial Park, Science City, Guangzhou, Guangdong, China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



6.4 Harmonics Test Results

Test Requirement: EN 61000-3-2
Test Method: EN 61000-3-2
Test Date: 29 Jun 2010
Frequency range: 100Hz to 2kHz
Measurement Time: 3 mins
Detector: As per EN61000-3-2

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 56 % RH Atmospheric Pressure: 1007 mbar

EUT Operation: Test the EUT in lighting mode.

6.4.2 Test Result



STU Standard Technology Union Co., Ltd.

Report No.: STUGZEMO100611757LM
Page: 20 of 35

Hn	Harmonic current results			Harmonic voltage results		
	Ieff [%]	Limit [%]	Result	Ieff [%]	Limit [%]	Result
1	100			100.554		
2	0.965		PASS	0.024	0.2	PASS
3	74.184	86	PASS	0.048	0.9	PASS
4	1.069		PASS	0.001	0.2	PASS
5	43.161	61	PASS	0.019	0.4	PASS
6	0.422		PASS	0.001	0.2	PASS
7	22.758		PASS	0.018	0.3	PASS
8	0.673		PASS	0.001	0.2	PASS
9	20.285		PASS	0.027	0.2	PASS
10	0.706		PASS	0.001	0.2	PASS
11	16.659		PASS	0.006	0.1	PASS
12	0.293		PASS	0.002	0.1	PASS
13	11.885		PASS	0.034	0.1	PASS
14	0.425		PASS	0.002	0.1	PASS
15	10.479		PASS	0.034	0.1	PASS
16	0.391		PASS	0.004	0.1	PASS
17	9.497		PASS	0.006	0.1	PASS
18	0.638		PASS	0.002	0.1	PASS
19	7.324		PASS	0.025	0.1	PASS
20	0.503		PASS	0.001	0.1	PASS
21	6.832		PASS	0.025	0.1	PASS
22	0.191		PASS	0.003	0.1	PASS
23	4.76		PASS	0.003	0.1	PASS
24	0.369		PASS	0.003	0.1	PASS
25	4.975		PASS	0.026	0.1	PASS
26	0.668		PASS	0.003	0.1	PASS
27	4.658		PASS	0.027	0.1	PASS
28	0.5		PASS	0.002	0.1	PASS
29	4.125		PASS	0.003	0.1	PASS
30	0.548		PASS	0.002	0.1	PASS
31	3.533		PASS	0.026	0.1	PASS
32	0.391		PASS	0.002	0.1	PASS
33	3.119		PASS	0.021	0.1	PASS
34	0.182		PASS	0.001	0.1	PASS
35	2.977		PASS	0.006	0.1	PASS
36	0.219		PASS	0.002	0.1	PASS
37	2.579		PASS	0.02	0.1	PASS
38	0.315		PASS	0.002	0.1	PASS
39	2.227		PASS	0.013	0.1	PASS
40	0.35		PASS	0.002	0.1	PASS

Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



6.5 Flicker Test Results

Test Requirement:	EN 61000-3-3
Test Method:	EN 61000-3-3
Test Date:	29 Jun 2010
Class/Severity:	Clause 5 of EN 61000-3-3
Measurement Time:	10 min
Detector:	As per EN 61000-3-3

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1015 mbar

EUT Operation: Test the EUT in Lighting mode..

6.5.2 Limits

The following limits apply:

- the value of Pst shall not be greater than 1.0;
- the value of P1t shall not be greater than 0.65;
- the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms;
- the relative steady-state voltage change, dc, shall not exceed 3.3 %;
- the maximum relative voltage change, dmax, shall not exceed;

a) 4 % without additional conditions;

b) 6 % for equipment which is:

- switched manually, or
- switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

Note: The cycling frequency will be further limited by the Pst and P1t limit. For example: a dmax of 6 % producing a rectangular voltage change characteristic twice per hour will give a P1t of about 0.65.

c) 7 % for equipment which is:

- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption. Pst and P1t requirements shall not be applied to voltage changes caused by manual switching.



6.5.3 Measurement Data

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test Result: Pass Status: Test Completed

Results of maximum flicker:

	EUT values	Limit	Result
Pst	0.031	1.00	PASS
Plt	0.031	0.65	PASS
dc [%]	0.005	3.30	PASS
dmax [%]	0.087	4.00	PASS
dt [s]	0.000	0.50	PASS



7 Immunity Test Results

7.1 Performance Criteria Description in Clause 4.2 of EN 61547

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.



7.2 ESD

Test Requirement: EN 61547
Test Method: EN 61000-4-2
Test Date: 29 Jun 2010
Discharge Impedance: 330 Ω / 150 pF
Discharge Voltage: Air Discharge: 2, 4, 8 kV
Contact Discharge: 2, 4 kV
VCP,: 2, 4 kV
Polarity: Positive & Negative
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum

7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 21.0 °C Humidity: 48 % RH Atmospheric Pressure: 1000 mbar
EUT Operation: Test the EUT in lighting mode.

7.2.2 Direct discharge Test Results

Observations: Test Point: 1. All Enclosure & Seams.
2. All exposed metallic part

Direct Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
2, 4, 8	+/-	1	N/A	A
2, 4,	+/-	None	A	N/A

7.2.3 Indirect application test result:

Observations: Test Point: 1. All sides.

Indirect Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling	Vertical Coupling
2, 4.	+/-	1	A	A

Remark:

A : No loss of function.

N/A: Not applicable (not requested by Standard)



7.3 Radiated Immunity 80MHz to 1000MHz

Test Requirement: EN 61547
Test Method: EN 61000-4-3
Criterion Required: A
Test Date: 30 Jun 2010
Frequency Range: 80MHz to 1GHz
Test level: 3V/m on enclosure
Modulation: 80%, 1kHz Amplitude Modulation

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 58 % RH Atmospheric Pressure: 1019 mbar

EUT Operation: Test the EUT in lighting mode.

7.3.2 Test Results:

Frequency	Level	Modulation	EUT Face	Result / Observations
80MHz-1GHz	3V/m	1kHz, 80% Amp. Mod, 1% increment	0°V	A
			0°H	
			90°V	A
			90°H	
			180°V	A
			180°H	
			270°V	A
			270°H	

Remarks:

A: No degradation in the performance of the E.U.T. was observed.



7.4 Electrical Fast Transients (EFT)

Test Requirement: EN 61547
Test Method: EN 61000-4-4
Test Date: 30 Jun 2010
Test Level: 1 kV (Positive & Negative) on AC
Repetition Frequency: 5 kHz
Burst Duration: 300ms
Test Duration: 2 minute per level & polarity

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 57 % RH Atmospheric Pressure: 1005 mbar

EUT Operation: Test the EUT in lighting mode.

7.4.2 Test Results On AC Supply:

Lead under Test	Level (±kV)	Coupling Direct/Clamp	EUT operating mode	Observations (Performance Criterion)
Live	±0.5, 1.0	Direct	lighting mode	No loss of function. (A)
Neutral	±0.5, 1.0	Direct	lighting mode	No loss of function. (A)

A: No loss of function.



7.5 Surge

Test Requirement: EN 61547
Test Method: EN 61000-4-5
Test Date: 30 Jun 2010
Test Level: $\pm 0.5\text{kV}$ Live to Neutral (Positive & Negative)
Interval: 60s between each surge
No. of surges: 5 positive, 5 negative at 0° , 90° , 180° , 270° .

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24.0°C Humidity: 52 % RH Atmospheric Pressure: 1005 mbar

EUT Operation: Test the EUT in lighting mode.

7.5.2 Test Results:

Pulse No	Line-Line	Coupling	Level (kV)	Surge Interval	Phase (deg)	Observation (Performance Criterion)
1-5	L-N	18uF	+0.5	60s	0°	No loss of performance (A)
6-10	L-N	18uF	-0.5	60s	0°	(A)
11-15	L-N	18uF	+0.5	60s	90°	(A)
16-20	L-N	18uF	-0.5	60s	90°	(A)
21-25	L-N	18uF	+0.5	60s	180°	(A)
26-30	L-N	18uF	-0.5	60s	180°	(A)
31-35	L-N	18uF	+0.5	60s	270°	(A)
36-40	L-N	18uF	-0.5	60s	270°	(A)



7.6 Conducted Immunity 0.15MHz to 80MHz

Test Requirement: EN 61547
Test Method: EN 61000-4-6
Test Date: 30 Jun 2010
Frequency Range: 0.15MHz to 80MHz
Test level: 3V rms on AC Ports (unmodulated emf into 150 Ω)
Modulation: 80%, 1kHz Amplitude Modulation

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 57 % RH Atmospheric Pressure: 1009 mbar

EUT Operation: Test the EUT in Lighting mode.

7.6.2 Test Results on AC:

Frequency	Line	Test Level	Modulation	Step Size	Dwell Time	Observation (Performance Criterion)
150kHz to 80MHz	3 Wire AC Supply Cable	3Vrms	80%, 1kHz Amp. Mod.	1%	1s	No Loss of Function (A)



7.7 Voltage Dips and Interruptions

Test Requirement: EN 61547
Test Method: EN 61000-4-11
Criterion Required: 30%VD:C, 100%VD:B
Test Date: 30 Jun 2010
Test Level: 0% of U_T (Supply Voltage) for 0.5 Periods
70 % of U_T (Supply Voltage) for 10 Periods
No. of Dips / Interruptions: 3 per Level

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 53 % RH Atmospheric Pressure: 1013 mbar

EUT Operation: Test the EUT in lighting mode.

7.7.2 Test Results:

EUT operating modes	Test Level % U_T	Phase	Duration of dropout in Periods	No of dropout	Time between dropout	Observations (Performance Criterion)
lighting mode	0	0°	0.5	3	10s	(A)
lighting mode	0	180°	0.5	3	10s	(A)
lighting mode	70	0°	10	3	10s	(A)

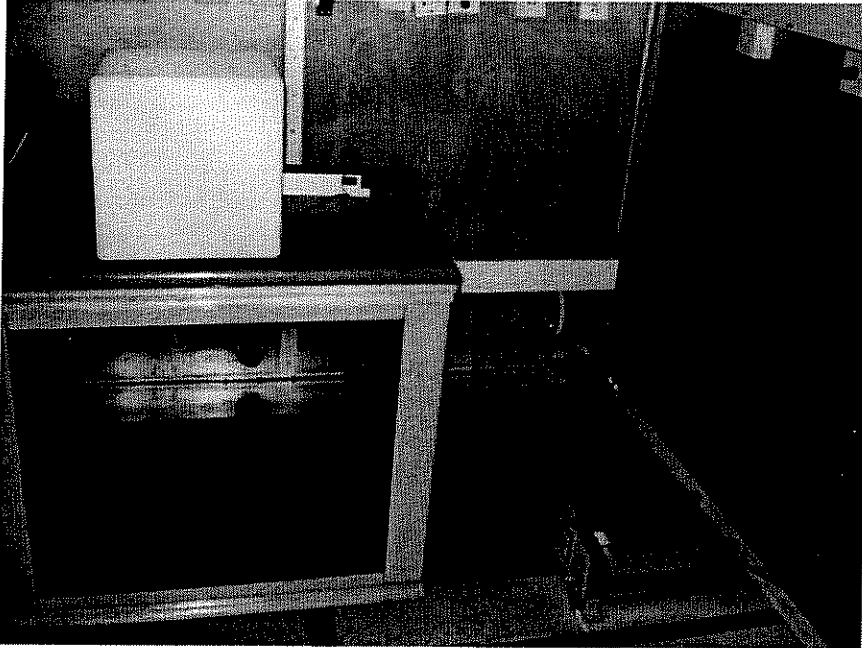
Remark:

A: No degradation in the performance of the EUT was observed.

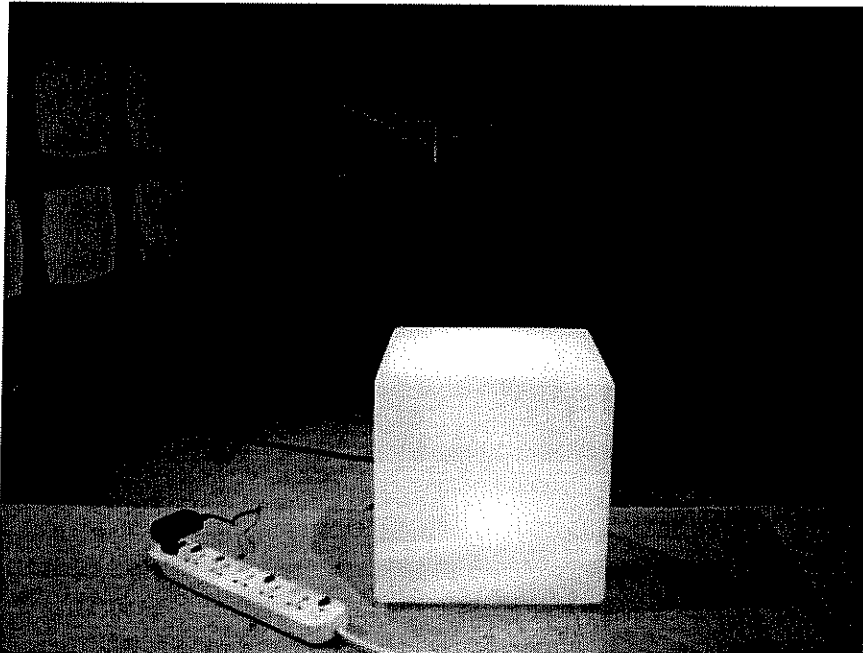


8 Photographs

8.1 Conducted Emission Test Setup



8.2 Radiated Disturbance Test Setup



Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

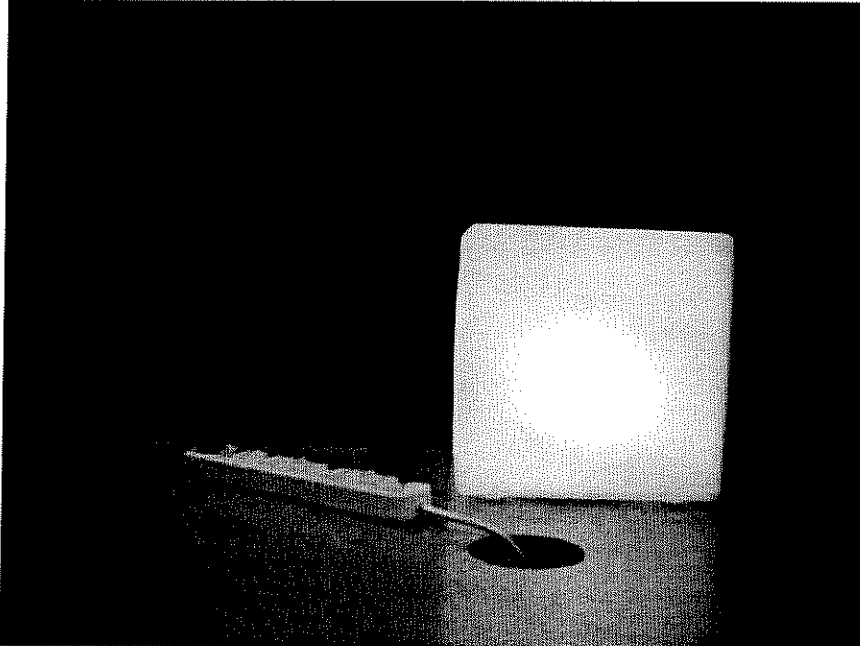
STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com

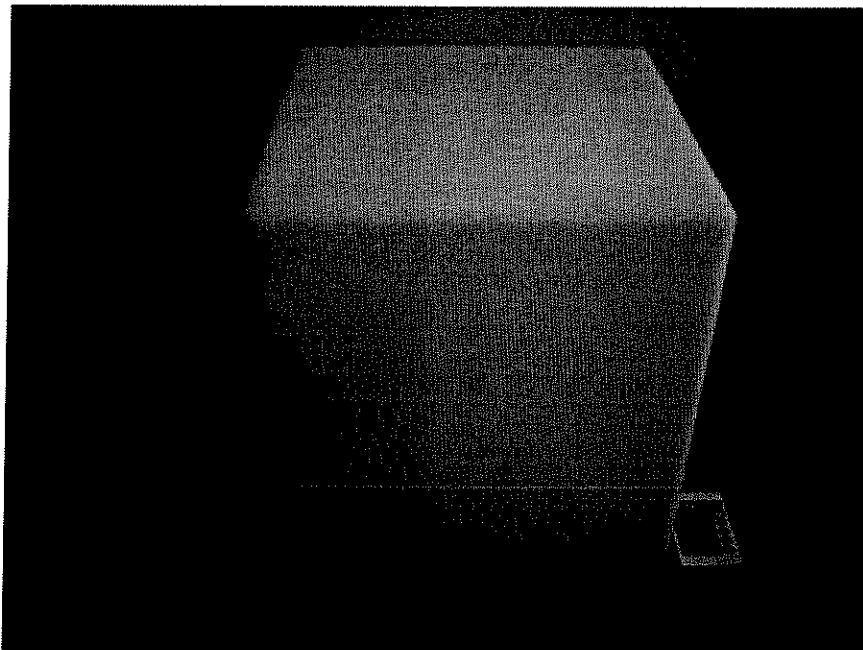


8.3 Radiated Immunity Test Setup



9 Photographs

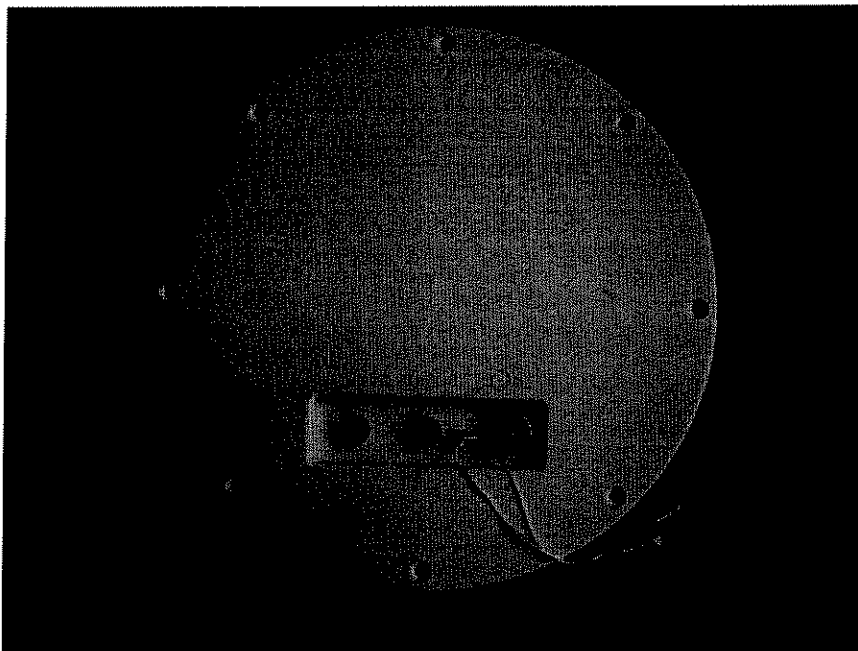
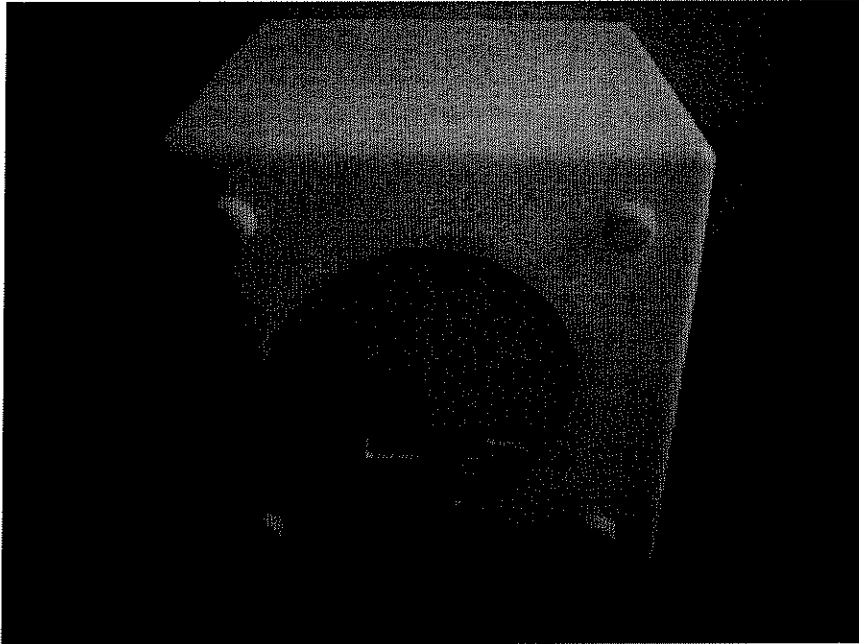
9.1 EUT Constructional Details





STU Standard Technology Union Co., Ltd.

Report No.: STUGZEMO100611757LM
Page: 32 of 35



Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

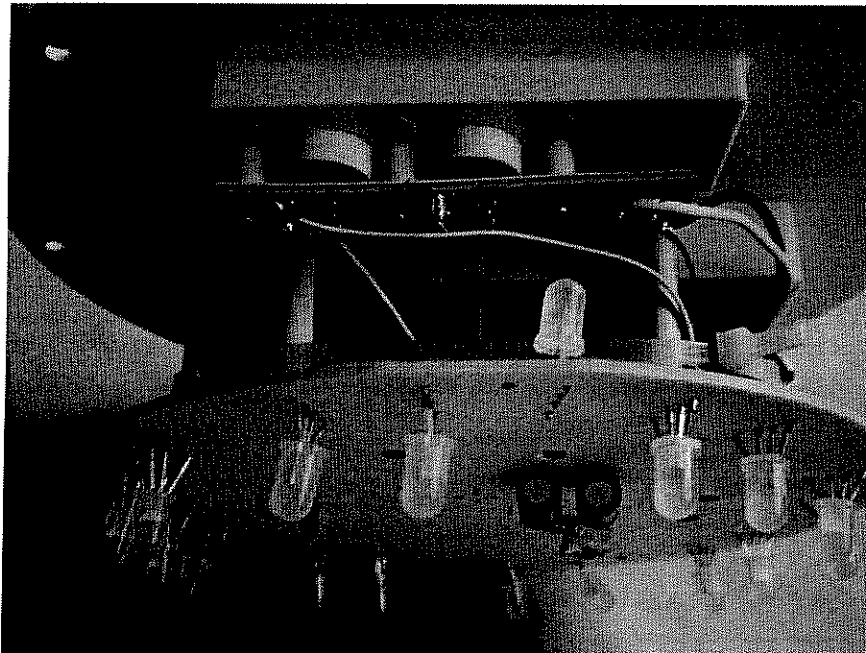
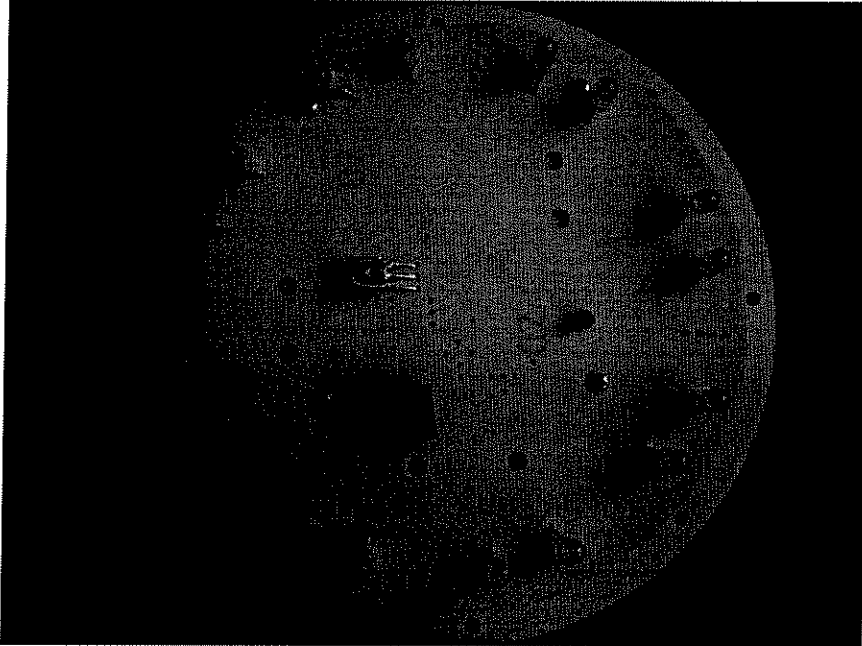
Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



STU Standard Technology Union Co., Ltd.

Report No.: STUGZEMO100611757LM

Page: 33 of 35



Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

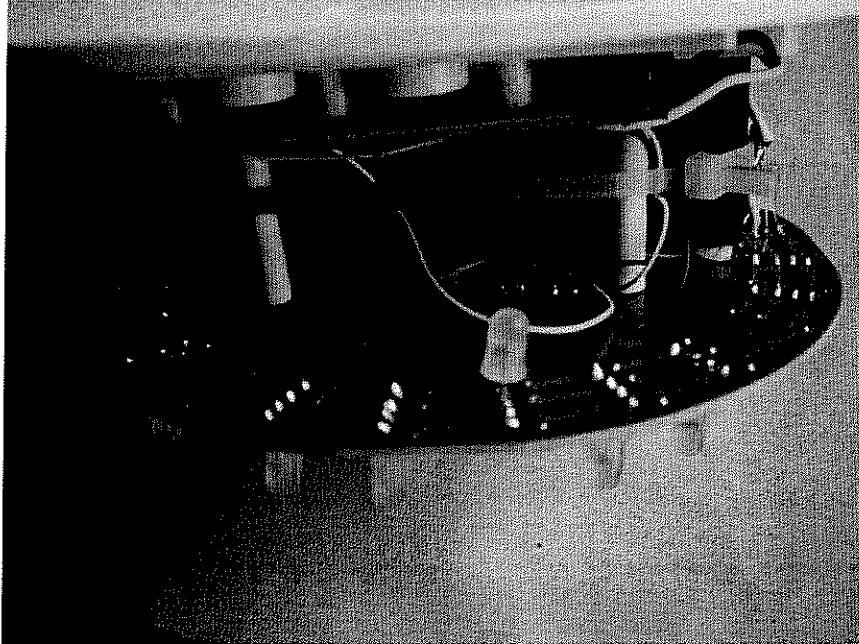
Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



STU Standard Technology Union Co., Ltd.

Report No.: STUGZEMO100611757LM

Page: 34 of 35

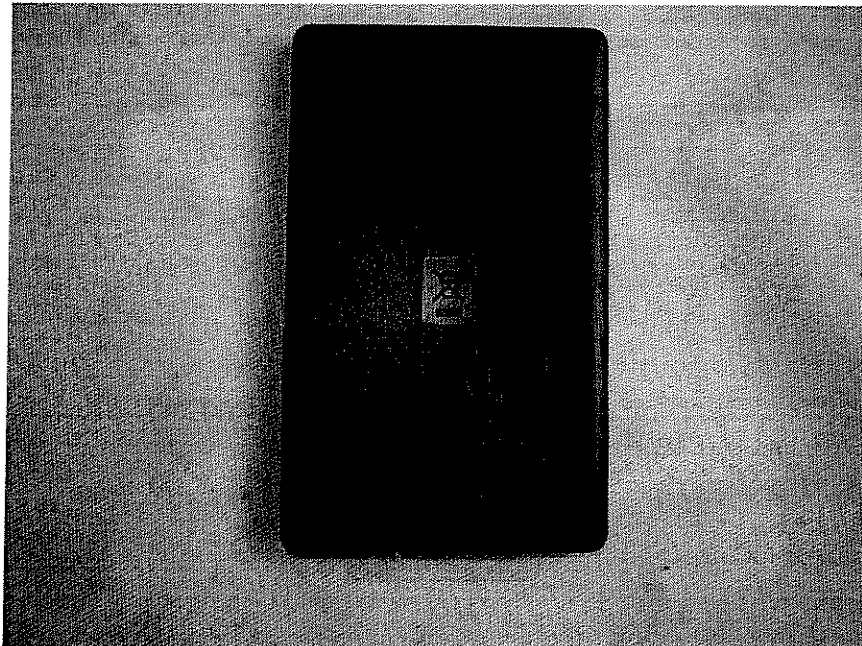
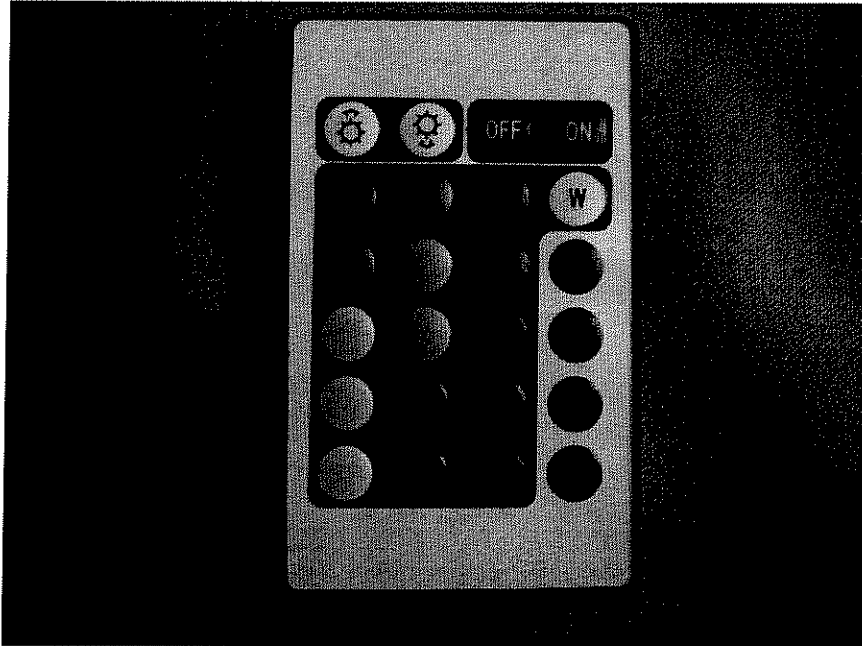


Copyright is owned by Standard Technology Union Co., Ltd and this report shall not be reproduced unless with prior written approval of the issuing company.

STU Standard Technology Union Co., Ltd

No.202,Building A,Yushu Industrial Park,Science City,Guangzhou,Guangdong,China

Tel : +86-20-82019555, Fax : +86-20-82019556, E-mail : marketing@stu-lab.com · website: www.stu-lab.com



***** End of Report *****

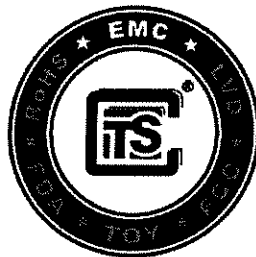


**CTS (GUANGZHOU) TESTING SERVICE TECHNOLOGY
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

EMC TEST REPORT

TEST REPORT NUMBER : CGZ3110928-00803-E



CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building F, Dachuang Industrial Park, No.379, Zhongshan Dadao,
Guangzhou, China



TEST REPORT EN 61000-6-3:2007 Electromagnetic compatibility (EMC) —Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments EN 61000-6-1:2007 Electromagnetic compatibility (EMC) —Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments	
Report Reference No.	CGZ3110928-00803-E
Date of issue	08 October 2011
Testing Laboratory Name	CTS (Guangzhou) Testing Service Technology Co., Ltd.
Address	Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China.
Testing location/ procedure	Full application of Harmonised standards <input checked="" type="checkbox"/> Partial application of Harmonised standards <input type="checkbox"/> Other standard testing method <input type="checkbox"/>
Applicant's name	FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Address	No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town, Nanhai District, Foshan City, Guangdong, China
Test specification:	
Standard	EN 61000-6-3:2007, EN 61000-6-1:2007
Test Report Form No.	CTSEMC-1.0
TRF Originator	CTS (Guangzhou) Testing Service Technology Co., Ltd.
Master TRF	Dated 2009-01
CTS (Guangzhou) Testing Service Technology Co., Ltd. All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the CTS (Guangzhou) Testing Service Technology Co., Ltd. is acknowledged as copyright owner and source of the material. CTS (Guangzhou) Testing Service Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.	
Test item description	Lithium Battery
Trade Mark	/
Manufacturer	FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Model/Type reference	40series
Ratings	Battery 3.7V
Result	Positive

Compiled by:

Violet Lee / File administrators

Supervised by:

Tom Xiao / Technique principal

Approved by:

Vincent Yao / Manager

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service





EMC -- TEST REPORT

Test Report No. : CGZ3110928-00803-E	<u>08 October 2011</u> Date of Issue
---	---

Type / Model.....	40series
EUT.....	Lithium Battery
Applicant	FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Address.....	No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town, Nanhai District, Foshan City, Guangdong, China
Telephone.....	+86-757-81289786
Fax.....	+86-757-81289787
Contact.....	/
Manufacturer	FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Address.....	No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town, Nanhai District, Foshan City, Guangdong, China
Telephone.....	+86-757-81289786
Fax.....	+86-757-81289787
Contact.....	/
Factory	FOSHAN ZHAONENG BATTERY INDUSTRIAL CO., LTD.
Address.....	No.8, Nanda Road, Chengnan Industrial Zone, Danzao Town, Nanhai District, Foshan City, Guangdong, China
Telephone.....	+86-757-81289786
Fax.....	+86-757-81289787
Contact.....	/

Test Result according to the standards on page 3: Positive
--

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

Description	Page
1 TEST STANDARDS	4
2 SUMMARY	4
2.1 GENERAL REMARKS	4
2.2 FINAL ASSESSMENT	4
3 EQUIPMENT UNDER TEST	5
3.1 Power supply system utilised	5
3.2 Short description of the Equipment under Test (EUT).....	5
3.3 EUT operation mode	5
3.4 EUT configuration.....	6
3.5 Performance level.....	6
3.6 Definition related to the performance level.....	6
4 TEST ENVIRONMENT	7
4.1 Address of the test laboratory	7
4.2 Test facility	7
4.3 Environmental conditions.....	7
4.4 Definitions of symbols used in this test report.....	7
4.5 Statement of the measurement uncertainty	7
4.6 Measurement Uncertainty	8
4.7 Test Description	8
5 TEST CONDITIONS AND RESULTS	9
5.1 Radiated disturbance (electric field)	9
5.2 Electrostatic discharge	15
5.3 Radiated, radio-frequency, electromagnetic field	17
5.4 Power frequency magnetic field	19
6 USED TEST EQUIPMENT.....	21
7 TEST PHOTOGRAPHS.....	24
7.1. Photos of radiated emission measurement	24
7.2. Photo of electrostatic discharge Immunity measurement.....	24
7.3. Photo of RF field strength Immunity measurement	24
7.4. Photo of PFM field immunity measurement	25
8 EXTERNAL AND INTERNAL PHOTOS OF THE EUT.....	26
9 Manufacturer/ Approval holder Declaration.....	27

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



1 TEST STANDARDS

The tests were performed according to following standards:

EN 61000-6-3:2007 Electromagnetic compatibility (EMC) —Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments

EN 61000-6-1:2007 Electromagnetic compatibility (EMC) —Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments

2 SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	28 September 2011
Testing commenced on	30 September 2011
Testing concluded on	30 September 2011

2.2 FINAL ASSESSMENT

The EMC requirements pertaining to the technical standards and tested operation modes are

- fulfilled.
- not fulfilled.

The equipment under test

- fulfils the EMC requirements cited on page 3.
- does not fulfil the EMC requirements cited on page 3.



3 EQUIPMENT UNDER TEST

3.1 Power supply system utilised

- Power supply voltage: AC 230V/50 Hz 115V/60Hz
 Battery 3.7V 24 V DC
 Other (Specified blank below)

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: 1
Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

- Standby
- Test programme (H - Pattern)
- Test programme (colour bar)
- Operating mode 2500 U/min. (1 cylinder)
- Operating mode 1500 U/min. (> 1 cylinder)
- Ignition on , Motor off
- Speed 50 km/h
- Test program (customer specific)

Operating Mode: ON

Emissions tests.....: According to EN 61000-6-3, searching for the highest disturbance.

Immunity tests: According to EN 61000-6-1, searching for the highest susceptibility.

3.4 EUT configuration

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurement:

Not Applicable

3.5 Performance level

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 defined by its manufacturer or the requestor of the test, or agreed between the manufacturer and the purchaser of the product.

3.6 Definition related to the performance level

- based on the used product standard
- based on the declaration of the manufacturer, requestor or purchaser

Criterion A:

Definition: normal performance within limits specified by the manufacturer, requestor or purchaser:

Criterion B:

Definition: temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention:

Criterion C:

Definition: temporary loss of function or degradation of performance, the correction of which requires operator intervention:

Criterion D:

Definition: loss of function or degradation of performance, which is not recoverable, owing to damage to hardware or software, or loss of data:



4 TEST ENVIRONMENT

4.1 Address of the test laboratory

Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CTS (Guangzhou) Testing Service Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CTS (Guangzhou) Testing Service Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on June 06, 2011 .

FCC-Registration No.: 971995

CTS (Guangzhou) Testing Service Technology Co., Ltd. EMC Laboratory has been 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 No.971995, July 21, 2009.

4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

4.4 Definitions of symbols used in this test report

- - The black square indicates that the listed condition, standard or equipment is applicable for this report.
- - The empty square indicates that the listed condition, standard or equipment is not applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods - Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

(2) The actual EUT tested items in this test report, only applies to this "measurement uncertainty" in part / all of the corresponding data.

4.7 Test Description

4.7.1 Description of Standards and Results

EMISSION (EN 61000-6-3:2007)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 61000-6-3:2007	Class B	N/A
Conducted disturbance at telecommunication port	EN 61000-6-3:2007	Class B	N/A
Radiated disturbance	EN 61000-6-3:2007	Class B	PASS
Harmonic current emissions	EN 61000-3-2:2006+A1:2008+A2:2009	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3:2008	-----	N/A
IMMUNITY (EN 61000-6-1:2007)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	IEC 61000-4-2:2008	B	PASS
Radio-frequency, Continuous radiated disturbance	IEC 61000-4-3:2010	A	PASS
Electrical fast transient (EFT)	IEC 61000-4-4:2007	B	N/A
Surge (Input a.c. power ports)	IEC 61000-4-5:2009	B	N/A
Radio-frequency, Continuous conducted disturbance	IEC 61000-4-6:2008	A	N/A
Power frequency magnetic field	IEC 61000-4-8:2009	A	PASS
Voltage dips, >95% reduction	IEC 61000-4-11:2010	B	N/A
Voltage dips, 30% reduction		B	N/A
Voltage interruptions		C	N/A
N/A is an abbreviation for Not Applicable.			

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5 TEST CONDITIONS AND RESULTS

5.1 Radiated disturbance (electric field)

For test instruments and accessories used see section 6 part 6.1.

5.1.1 Description of the test location

Test location : Semi-Anechoic chamber

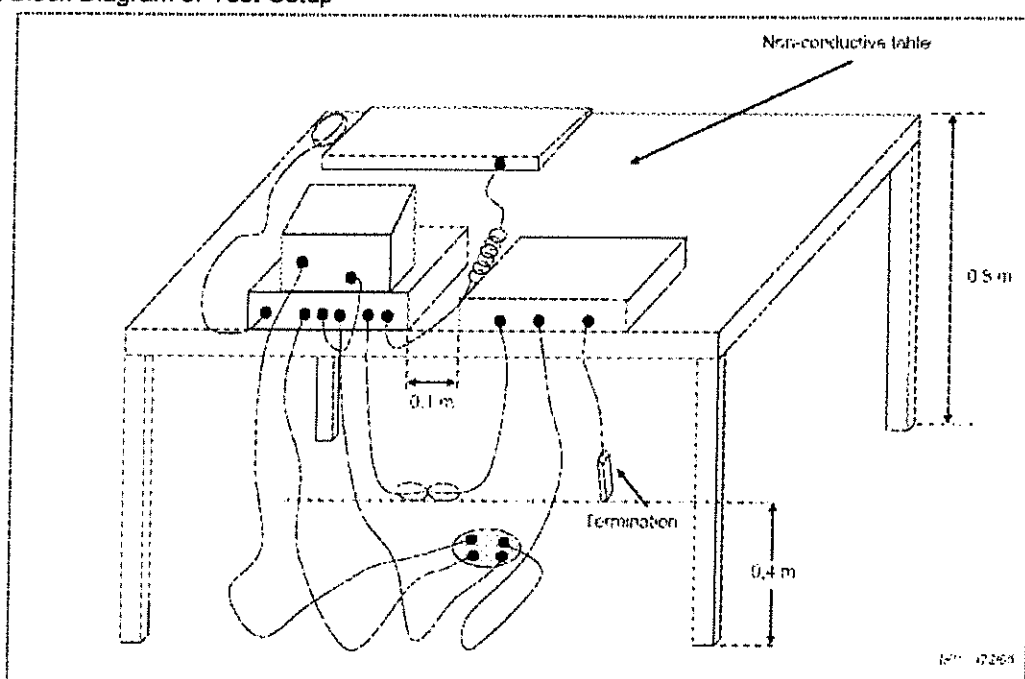
Test disturbance: 3 Meter

5.1.2 Description of the test set-up

5.1.2.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

5.1.2.2 Block Diagram of Test Setup



5.1.3 Limits of disturbance (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

**5.1.4 Test result**

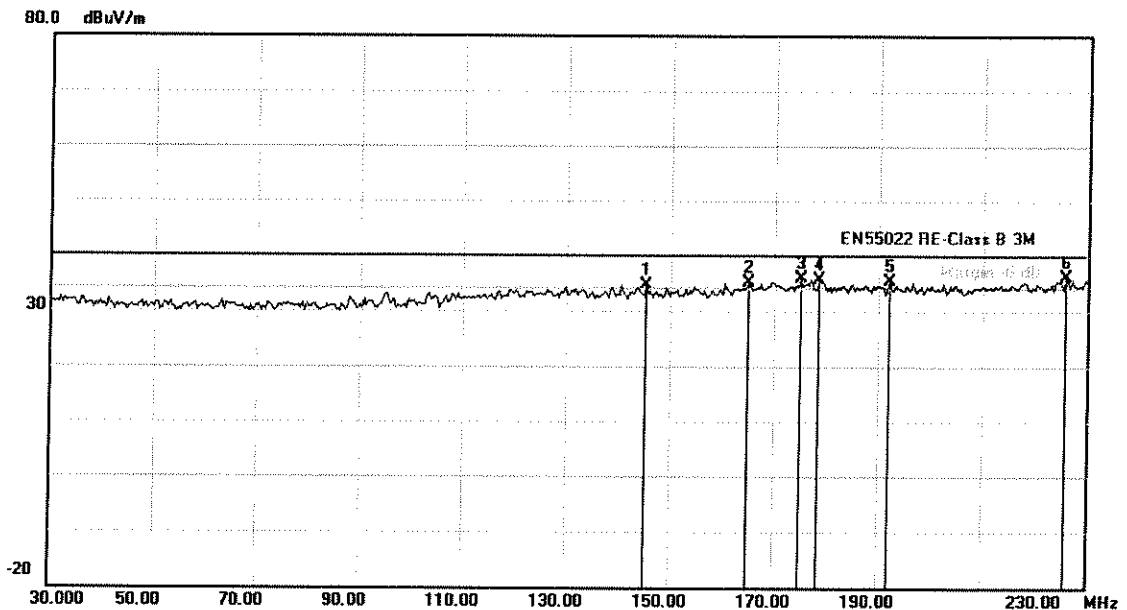
The requirements are	Fulfilled
Band width	120kHz
Frequency range	30 MHz - 1000 MHz
Min. limit margin	>3.98 dB at 30 - 1000 MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).



5.1.5 Test protocol

Test point: Operation mode Remarks:	Horizontal	Result:	<input checked="" type="checkbox"/> - passed <input type="checkbox"/> - not passed
EUT	Lithium Battery		
Operating Condition	Battery 3.7V		
Test Condition	Ambient Temperature: 24°C Humidity: 56%		
Operator	Cherry		
MODEL NO.	40series		

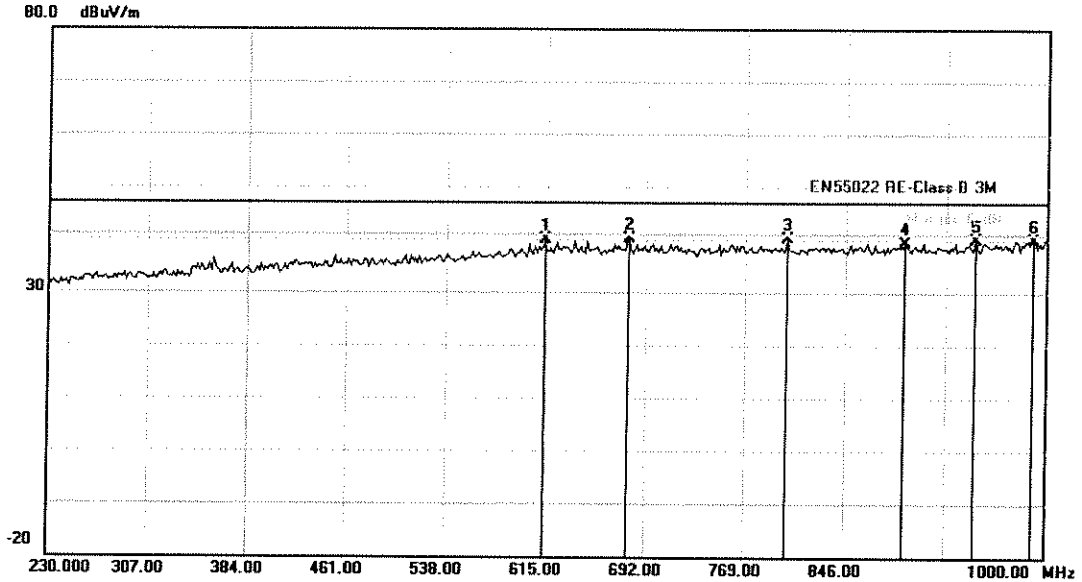


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	145.4309	6.37	28.15	34.52	40.00	-5.48	QP
2	165.0701	7.03	28.00	35.03	40.00	-4.97	QP
3	175.0902	7.43	28.36	35.79	40.00	-4.21	QP
4	178.6974	7.44	28.22	35.66	40.00	-4.34	QP
5	192.3246	7.39	27.89	35.28	40.00	-4.72	QP
6	225.9920	7.98	28.04	36.02	40.00	-3.98	QP

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	614.2285	9.56	30.27	39.83	47.00	-7.17	QP
2	679.0381	10.18	30.07	40.25	47.00	-6.75	QP
3	800.9419	10.01	30.22	40.23	47.00	-6.77	QP
4	891.9840	10.50	28.94	39.44	47.00	-7.56	QP
5	945.9920	10.50	29.39	39.89	47.00	-7.11	QP
6	990.7415	10.50	29.41	39.91	47.00	-7.09	QP

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

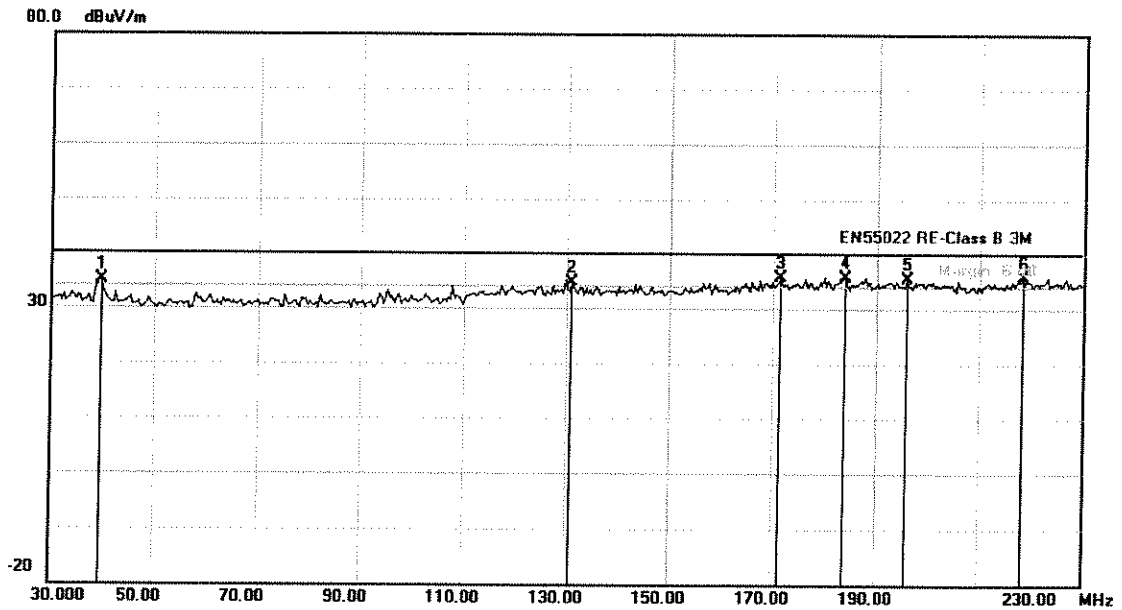
CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang Industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



Test point: Vertical	Result: <input checked="" type="checkbox"/> - passed <input type="checkbox"/> - not passed
Operation mode	
Remarks:	

EUT	Lithium Battery
MODEL NO.	40series
Operating Condition	Battery 3.7V
Test Condition	Ambient Temperature: 24°C Humidity: 56%
Operator	Cherry

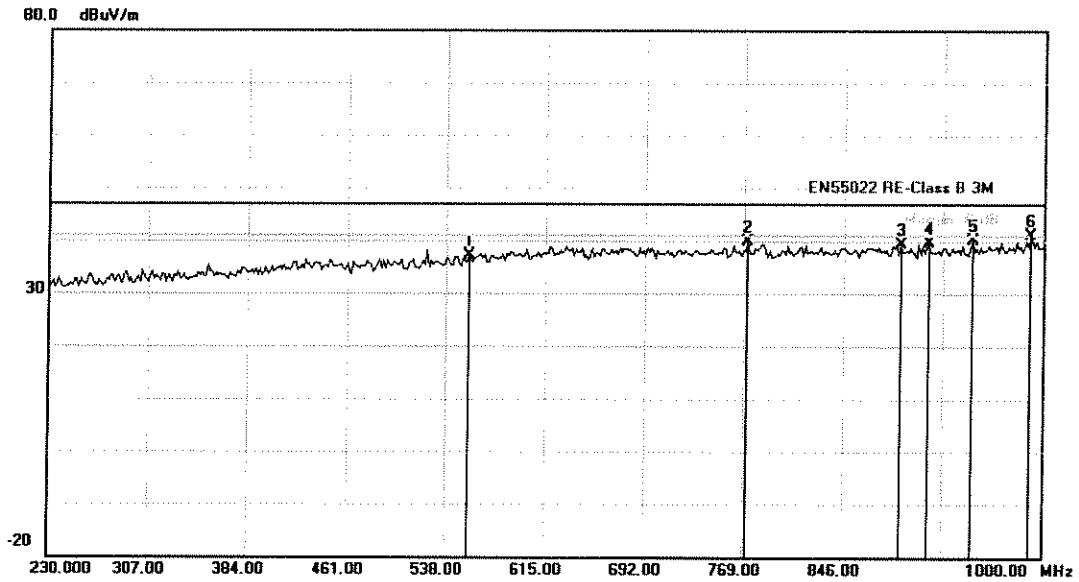


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	39.6192	5.73	29.22	34.95	40.00	-5.05	QP
2	131.0020	6.58	27.93	34.51	40.00	-5.49	QP
3	171.4830	7.41	28.17	35.58	40.00	-4.42	QP
4	183.9078	7.43	28.18	35.61	40.00	-4.39	QP
5	195.9319	7.37	27.91	35.28	40.00	-4.72	QP
6	218.3768	7.84	27.70	35.54	40.00	-4.46	QP

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-36760406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	555.5912	8.96	28.20	37.16	47.00	-9.84	QP
2	771.6232	10.25	29.56	39.81	47.00	-7.19	QP
3	890.4409	10.50	28.79	39.29	47.00	-7.71	QP
4	912.0441	10.50	29.01	39.51	47.00	-7.49	QP
5	945.9920	10.50	29.56	40.06	47.00	-6.94	QP
6	990.7415	10.50	30.52	41.02	47.00	-5.98	QP

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang Industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.2 Electrostatic discharge

For test instruments and accessories used see section 6 part 6.6.

5.2.1 Description of the test location

Test location :	Test location no. 2
Power supply:	Battery 3.7V
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test :	30 September 2011
Operator :	Cherry

5.2.2 Severity of levels electrostatic discharge

5.2.2.1 Severity level: Contact discharge at $\pm 4KV$ air discharge at $\pm 8KV$

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1	2	2
2	4	4
3	6	8
4	8	15
X	Special	Special

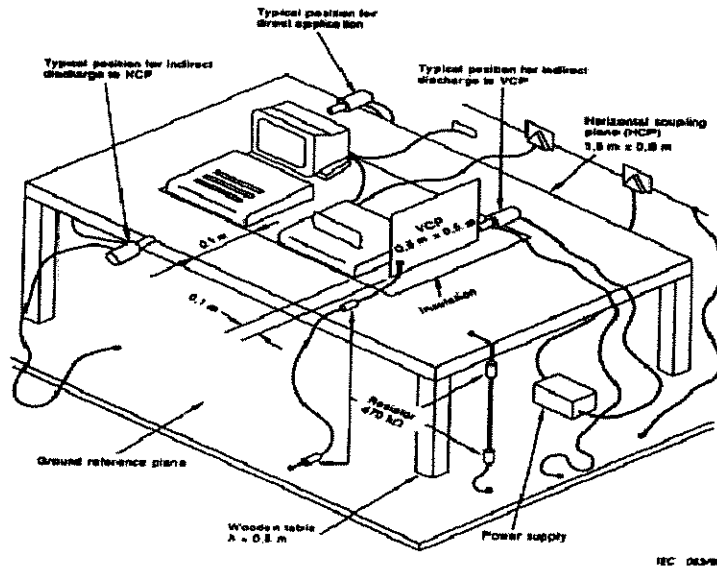
5.2.2.2 Performance criterion: B

5.2.3 Description of the test set-up

5.2.3.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

5.2.3.2 Block Diagram of Test Setup



Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.2.4 Test specification:

Contact discharge voltage:	<input checked="" type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 4 kV	
Air discharge voltage:	<input checked="" type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 4 kV	<input checked="" type="checkbox"/> 8 kV
Discharge impedance:	<input checked="" type="checkbox"/> 330 Ω / 150 pF		
Discharge factor:	<input checked="" type="checkbox"/> ≥ 1 sec.		
Number of discharges:	<input checked="" type="checkbox"/> ≥ 10		
Type of discharge:	Direct discharge	<input checked="" type="checkbox"/> Air discharge	
		<input checked="" type="checkbox"/> Contact discharge	
	Indirect discharge	<input checked="" type="checkbox"/> Contact discharge	
Polarity:	<input checked="" type="checkbox"/> Positive	<input checked="" type="checkbox"/> Negative	
Discharge location:	<input checked="" type="checkbox"/> see photo documentation of the test set-up		
	<input checked="" type="checkbox"/> all external locations accessible by hand		
	<input checked="" type="checkbox"/> horizontal plate (HCP)		
	<input checked="" type="checkbox"/> vertical coupling plate (VCP)		

5.2.5 Test result

The requirements are **Fulfilled**Performance Criterion: **B**

Remarks: During the test no deviation was detected to the selected operation mode(s).

5.3 Radiated, radio-frequency, electromagnetic field

For test instruments and accessories used see section 6 part 6.7.

5.3.1 Description of the test location

Test location :	Test location no. 2
Power supply:	Battery 3.7V
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test :	30 September 2011
Operator :	Cherry

5.3.2 Severity levels of radiated, Radio-frequency, electromagnetic field

5.3.2.1 Severity level: 3V/m

Level	Field strenght(V/m)
1	1
2	3
3	10
X	Special

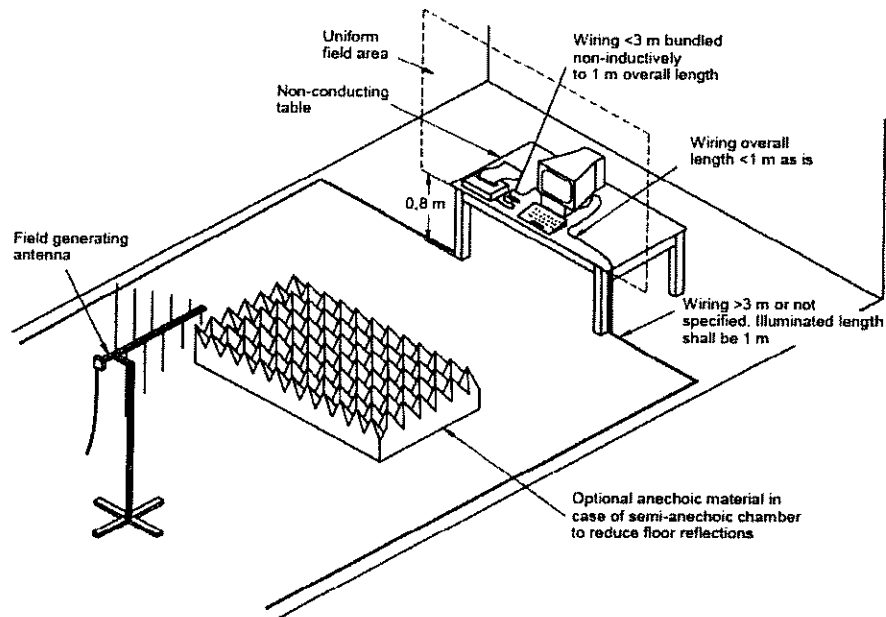
5.3.2.2 Performance criterion: A

5.3.3 Description of the test set-up

5.3.3.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

5.3.3.2 Block Diagram of Test Setup



IEC 03405

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.3.4 Test specification:

Frequency range:	■ 80 MHz to 1000 MHz
Field strength:	■ 3 V/m
EUT - antenna separation:	■ 3 m
Modulation:	■ AM: 80 % ■ sinusoidal 1000Hz
Frequency step:	■ 1 % with 3 s dwell time
Antenna polarisation:	■ horizontal ■ vertical

5.3.5 Test resultThe requirements are **Fulfilled**Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).

5.4 Power frequency magnetic field

For test instruments and accessories used see section 6 part 6.11.

5.4.1 Description of the test location

Test location :	Test location no. 2
Power supply:	Battery 3.7V
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test :	30 September 2011
Operator :	Cherry

5.4.2 Severity levels of magnetic field immunity

5.4.2.1 Severity Level: 3A/m

Level	Magnetic Field Strength (A/m)
1	1
2	3
3	10
4	30
5	100
X	Special

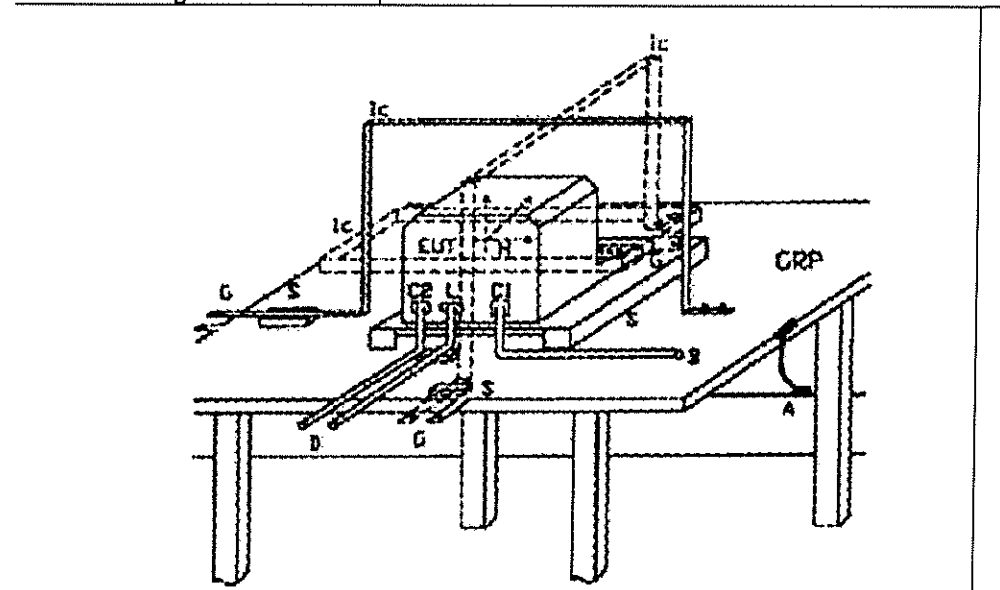
5.4.2.2 Performance Criterion: A

5.4.3 Description of the test set-up

5.4.3.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

5.4.3.2 Block Diagram of Test Setup



Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-39780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.4.4 Test specification:

Test frequency:	■ 50 Hz		
Continuous field:	■ 3 A/m		
Duration (Continuous field):	■ 60 s each Axis		
Short duration (1-3s):	■ 300 A/m		
Axis:	■ x-axis	■ y-axis	■ z-axis

5.4.5 Test result

The requirements are **Fulfilled**

Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).

6 USED TEST EQUIPMENT

6.1

Radiated Emission(Electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2010/12
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2010/12
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2010/12
5	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/12

6.2

Power Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESVS10	842885/001	2010/12
2	Absorbing clamp	ROHDE & SCHWARZ	MDS 21	03466	2010/12
3	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/12

6.1

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2010/12
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2010/12
3	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2010/12
4	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/12

6.4

Harmonic Current					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Harmonic And Flicker Analyzer	EMC Partner	HAR1H01B	HAR1000-48	2010/12

6.5

Voltage fluctuation and Flicker					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Harmonic And Flicker Analyzer	EMC Partner	HAR1H01B	HAR1000-48	2010/12

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang Industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

6.6

Electrostatic Discharge					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	Schlöder	SESD 200	302016	2010/12

6.7

RF Field Strength Susceptibility					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	SIGNAL GENERATOR	ROHDE & SCHWARZ	SMY 01	843215/014	2010/12
2	AMPLIFIER	KALMUS	713FC	Jan-85	2010/12
3	EMS Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/12

6.8

Electrical Fast Transient/Burst					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMC test system Transient-1000	EMC Partner	TRA1H01B	HAR1000-78	2010/12
2	Coupling Clamp	EMC Partner	SFT 410	302015	2010/12

6.9

Surge					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMC test system Transient-1000	EMC Partner	TRA1H01B	HAR1000-78	2010/12

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
 Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
 Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
 Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

6.10

Conducted Susceptibility					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	RF generator / amplifier	Schlöder	CDG 6000	HU906007	2010/12
2	CDN	Schlöder	CDN M3	A3003008	2010/12
3	CDN	Schlöde	CDN T2	A3010005	2010/12
4	EM injection clamp	Liithi	EM101	35670	2010/12
5	EMS Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/12

6.11

Power Frequency Magnetic Field Susceptibility					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power frequency mag-field generator System	EM TEST	EMS61000-8K	409001	2010/12

6.12

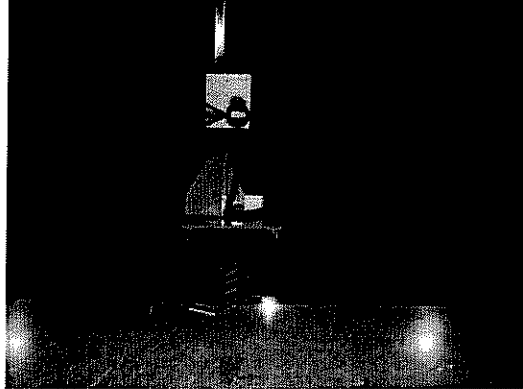
Voltage Dips					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMC test system Transient-1000	EMC Partner	TRA1H01B	HAR1000-78	2010/12

6.13

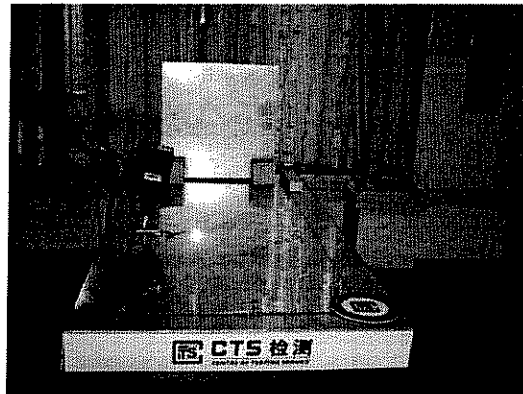
Voltage Short Interruptions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMC test system Transient-1000	EMC Partner	TRA1H01B	HAR1000-78	2010/12

7 TEST PHOTOGRAPHS

7.1. Photos of radiated emission measurement



7.2. Photo of electrostatic discharge Immunity measurement



7.3. Photo of RF field strength Immunity measurement

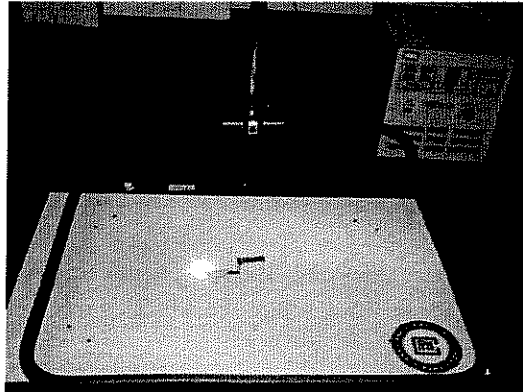


Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the Issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building F, Dachuang Industrial park, No.379, Zhongshan Dadao, Guangzhou, China
Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780408
Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

7.4. Photo of PFM field immunity measurement

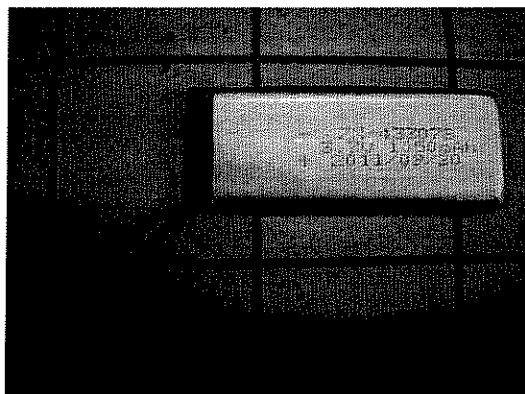


Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

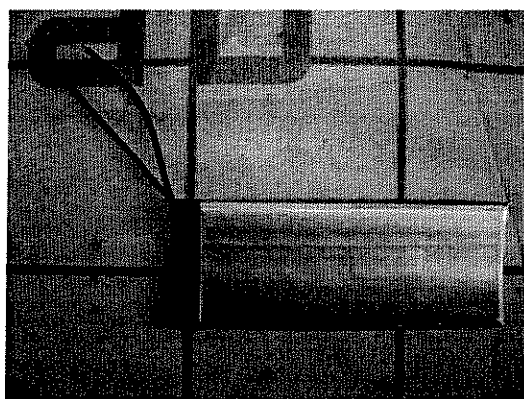
CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building F, Dachuang Industrial park, No.379, Zhongshan Dadao, Guangzhou, China
Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

8 EXTERNAL AND INTERNAL PHOTOS OF THE EUT



External view front



External view base

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building F, Dachuang Industrial park, No.379, Zhongshan Dadao, Guangzhou, China
Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



9 Manufacturer/ Approval holder Declaration

The following identical model(s):

30series,50series,60series,70series,80series

Belong to the tested device:

Product description: **Lithium Battery**
Model name: **40series**

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Guangzhou) Testing Service Technology Co., Ltd.
Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China
Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406
Complaint line: +86-20-85533471 E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service