

# Electrical Specification

Item	Battery Charger (Switching Mode)
Model	4C24050A
Charging Current(DC)	5A±5%
Charging Voltage(DC)	28.8V
Floating Voltage(DC)	27.6V
Input Current(AC)	2.5A max
Input Voltage(AC)	100-240 50/60Hz
Efficiency	AC-DC 85%
Operating Temperature	0°C~40°C
Performance	Switching Mode
Charging Method	Constant Current , Two Stage Constant Voltage
Battery Application	24V Lead Acid Rechargeable Batteries or Gel Cell(16Ahr ~ 60Ahr)
Output Detection	1.Short Circuit Protection 2.Reverse Power Protection 3.Overheat protection 4.Charging plug protection 5.Automatic cut off when reaches 24hr constantly charging
Operating Humidity	20% ~ 85 %
Measurement	L 190mm×W 100mm×H 55mm
Weight	965 g
Color	Black
品 名	電子交換式充電器
型 號	4C24050A
輸出電流(DC)	5A±5%
充電電壓(DC)	28.8V
浮充電壓(DC)	27.6V
輸入電流(AC)	2.5A max
輸入電壓(AC)	100-240 50/60Hz
效 率	AC-DC 85%
操作溫度	0°C ~ 40°C
轉換方式	電子交換式
充電方式	定電流，二段式定電壓
使用電池	24V 可充電鉛酸電池或膠狀電池（16Ahr~60Ahr）
輸出保護	1. 短路保護 2.逆接保護 3. 過熱保護 4. 充電接頭保護 5. 連續充電 24 小時後會自動停止充電
操作環境濕度	20% ~ 85 %
外觀尺寸	長 190mm×寬 100mm×高 55mm
重 量	965 g
顏 色	黑色

# Engineering drawing

工程圖面

適用範圍：A0, A1, A2, A3, A4 及其縮小版

176  
57  
150  
5.1mm

Positive Output  
Negative Output  
Output Plug

**LED INDICATOR**  
Green Flash: Wait for Current to Battery  
Orange Flash: Two Charge  
Orange Constant: Charge Complete  
Green/Orange Flash: Charged 80%  
Green: Full Charged  
Red Flash: Defect

**POWER INDICATOR**  
RED: POWER ON

**NOTE**

1. 本型號式：4C24650A
2. 充電器型式：4C24650A
3. 電池規格：鉛酸電池 12V, 42
4. 電池型號：DIN 54455
5. 輸出電流：1.5A@MAX
6. 輸入電壓：150V@AC
7. 輸入電流：1.5A@MAX
8. 輸入電壓：AC100-240V 50/60HZ
9. 輸出電壓：12V@DC
10. 輸出電流：1.5A@MAX
11. 輸出電壓：12V@DC
12. 輸出電流：1.5A@MAX
13. 輸出電壓：12V@DC
14. 輸出電流：1.5A@MAX
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95. 輸出電壓：12V@DC
96. 輸出電流：1.5A@MAX
97. 輸出電壓：12V@DC
98. 輸出電流：1.5A@MAX
99. 輸出電壓：12V@DC
100. 輸出電流：1.5A@MAX

**REVISION RECORD**

NO.	DATE	DESCRIPTION
1	2014/10/22	NEW DESIGN
2	2013.11.27	REVISION RECORD

**DESIGNED BY** WIN  
**CHECKED BY** WIN  
**DATE** 2014/10/22

**DESIGNED BY** JAY  
**CHECKED BY** JAY  
**DATE** 2013.11.27

**SCALE** 1:1

**UNIT** mm

**THIRD ANGLE**

**WEIGHT** MODEL NO. 4C24650A

**FINISH** NAME SA CHARGER

**APPROVED BY** DWG. NO.

**CHECKED BY** PART NO.

中國電子電業股份有限公司

表號：SF41N-008/A2款式/版本：2

# Certificate

## FCC

**SPORTON INTERNATIONAL INC.**



FCC TEST REPORT

Report No. : F480603

### FCC TEST REPORT

for

**47 CFR, Part 2, Part 15 and CISPR PUB. 22 Class A**

Equipment : Charger

Model No. : 4C24050A

FCC ID : N/A

Filing Type : Verification

Applicant : **CTE CORPORATION**  
No. 3, Kung-Chien N. Rd., Liu Tu Industrial Park,  
Keelung, Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**

***SPORTON International Inc.***

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

***SPORTON International Inc.***

TEL : 886-2-2696-2468

FAX : 886-2-2696-2255

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C. TEL:886-2-26962468 FAX:886-2-26962255

Scope of NVLAP Accreditation: FCC/CISPR 22 FCC Memo. 47 CFR Part 15, Digital Devices, AS-3548



# CERTIFICATE

Issued Date: Dec. 19, 2012  
Report No.: 128265R-ITCEP02V02-B

This is to certify that the following designated product

**Product** : Charger  
**Model Number** : 4C24050A  
**Trade name** : CTE  
**Company Name** : CTE TECH Corporation

This product, which has been issued the test report listed as above in QuietTek Laboratory, is based on a single evaluation of one sample and confirmed to comply with the requirements of the following EMC standard.

The tests were performed according to following standards:

Emission:

- ISO 7176-21:2009
- IEC 60601-1-2: 2007
- CISPR 11: 2010

- Class A     - Class B
- Group 1     - Group 2

- IEC 61000-3-2: 2005+A1: 2008+A2: 2009

Harmonic current emissions

- IEC 61000-3-3: 2008

Voltage changes, voltage fluctuations and flicker

Immunity:

- ISO 7176-21:2009

The standards above refer to following basic standards:

- IEC 61000-4-2:2008

Electrostatic Discharge immunity test (ESD)

- IEC 61000-4-3:2006+A1:2007+A2:2010

Radiated susceptibility immunity test (RS)

- IEC 61000-4-4:2012

Electrical fast transient/burst immunity test (EFT)

- IEC 61000-4-5:2005

Surge immunity test (Surge)

- IEC 61000-4-6:2008

Conducted susceptibility immunity test (CS)

- IEC 61000-4-8:2009

Power frequency magnetic field immunity test (PM)

- IEC 61000-4-11:2004

Voltage dips and interruption immunity test (DIPS)

TEST LABORATORY

Vincent Lin / Manager



10/22/2004 18:37 FAX

0002



香港賽德力安全測試有限公司台灣分公司  
UL International Services Ltd. Taiwan Branch  
台北市 112 北投區大業路 260 號 1 樓  
tel: 886-2-2896-7790 fax: 886-2-2891-7644  
http://www.ul.com.tw

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

TAIWAN OFFICE - October 22, 2004

CTE Corp.  
3 Kung-Chien North Rd  
Keelung Taiwan

Fax: (02)2451-5195

Reference: File E201162 Project 04CA40029  
Product: FOR UL AND C-UL INVESTIGATION: CHARGER, MODEL 4C24050A

Mr. Peter Chen:

Any information and documentation provided to you involving UL Mark services are provided on behalf of Underwriters Laboratories Inc.

UL's Investigation of your product has been completed under the above project number and the subject product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Listing Mark only at the factory under UL's Follow-Up Services Program to the subject product which is constructed as described below:

Identical to Model 4C24050A which was submitted to UL for this investigation. The UL records covering the product will be in the Follow-Up Services Procedure, File E201162, Volume 1.

To provide the manufacturer with the intended authorization to use the UL Mark, the addressee must send a copy of this Notice and all attached material to each manufacturing location as currently authorized in File E201162, Volume 1.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product is now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Very truly yours,

Reviewed by:

Richard Lee (Ext. 62017)  
UL International Services, Taiwan Branch  
Tel: (02) 2896-7790  
Fax: (02) 2890-7442  
E-mail: Richard.Lee@tw.ul.com

Dyllan Chang (Ext. 62087)  
UL International Services, Taiwan Branch  
Tel: (02) 2896-7790  
Fax: (02) 2890-7442  
E-mail: Dyllan.Chang@tw.ul.com

CC: Sporton International Inc., BTL Group  
Fax: (02)2794-9777  
Attn: Ms. Joan Lei

An independent organization working for a safer world with integrity, precision and knowledge



ULTW-FDND-000/05-12-04

2 of 2

18-23-03 18:24 TO:SPORTON INC. (BTL GROUP)

FROM:

P02



Product Service

## CERTIFICATE

No. Z1A 15 08 47804 021

**Holder of Certificate:** CTE TECH CORP.  
No. 1-7, Gongjian Rd.,  
206 Cidu District, Keelung City,  
TAIWAN

**Factory(ies):** 47804

**Certification Mark:**



**Product:** Battery chargers

**Model(s):** 4C24050A

**Parameters:**

Rated input voltage:	100-240 Vac
Rated frequency:	50 Hz
Rated input current:	2 A
Rated outputs:	24 Vdc, 5 A
Protection class:	II
IP class:	IPX0

**Tested according to:** EN 60335-2-29:2004/A2:2010  
EN 60335-1:2012/A11:2014  
EN 62233:2008  
AfPS GS 2014:01 PAK

The product meets the safety and health requirements of the German Product Safety Act section 20 to 22 ProdSG. The certification marks shown above can be affixed on the product. It is not permitted to alter the certification marks in any way. In addition the certificate holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. See also notes overleaf.

**Test report no.:** 611201503501

**Valid until:** 2020-08-16

**Date,** 2015-08-17

*Bill Lin*  
( Bill Lin )

Page 1 of 1



# SAA



## Certificate of Approval

**Certificate No.:** SAA130563EA


**Date of Issue:** 1 May 2013

**Certificate Holder:** CTE Tech Corp.  
No. 1-7, Gongjian Rd.,  
206 Cidu District,  
Keelung City 20647  
Taiwan

**Class Description:** Power Supply or Charger  
**Product Description:** Battery Charger  
**Brand Name:** CTE  
**Model No.:** 4C24050A  
**Markings:** Input: 100-240V~ 50/60Hz 2A Class II IPX0  
Output: 24Vdc 5A  
**Standard:** AS/NZS 60335.2.29:2004 Inc A1-2  
**Conditions:** Nil

**Approval Mark:** SAA130563EA or RCM

**Date First Registered:** 1 May 2013  
**Date of Expiry:** 1 May 2018

  
For and on Behalf of  
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd Electrical Product Safety Certification Scheme as accredited by JAS-ANZ under ISO/IEC Guide 65 certifies that the electrical product described on this certificate complies with the minimum electrical safety requirements for which the application has been made.

JAS-ANZ



For SAA Contact Details and to verify this Certificate go to:  
[www.saaapprovals.com.au](http://www.saaapprovals.com.au)

[www.jas-anz.org/register](http://www.jas-anz.org/register)



130563/1

# IP21



ELECTRONICS TESTING CENTER, TAIWAN  
EMC/Safety/Reliability Testing Laboratory  
ADDRESS: NO.8 LANE 29, WENMING RD., LESHAN TSUEN,  
GUISHAN SHIANG, TAOYUAN COUNTY 33383, TAIWAN  
TEL:03-3280026 FAX:03-3276175  
<http://www.etc.org.tw>



Page: 1 of 8 Pages  
Issue Date : Aug.14,2012

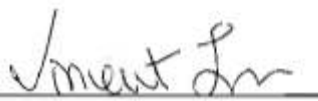
## TEST REPORT

Ind. Ser. No. : 12-08-VAA-001  
Applicant : CTE TECH CORP.  
Address : No. 1-7, Gongjian Rd., Cidu District, Keelung 20647,  
Taiwan, R.O.C.  
Commodity : Battery Charger  
Model : 4C24050A  
Quantity : 1 set  
Date of Receipt : Aug.01,2012  
Date of Testing : Aug.01,2012  
Test specification : IEC60529 Edition 2:1989 + Amendment 1:1999  
Ambient Environment : Temp. 22 °C, R.H. 70 %, A.P. 960 mbar  
Testing Item : IPX21  
Test condition & result : See the following sheets

### General remarks :

The test results presented in this report relate only to the object tested.  
This report shall not be reproduced, except in full, without the written approval of the  
Issuing testing laboratory.

Approved by :

  
Vincent Lin





# IP21



## TEST REPORT

Ind. Ser. No. : 12-08-VAA-001

Page: 2 of 8

.....  
Testing Item : IP21

### Testing Conditions :

#### 2.1 Ambient Condition

- Temperature range:15 °C to 35 °C.
- Relative humidity:25 % to 75 %.
- Air pressure:860 mbar to 1060 mbar.

#### 2.2 IPX1 (In accordance with IEC60529 14.1/14.2.1 test)

- The turntable on which the enclosure is placed has a rotation speed of 1 r/min.
- Water flow rate: 1 mm/min.
- The duration of test is 10 min.


#### 2.3 IP2X (In accordance with IEC60529 13.1/13.2 test)

- (1) The test wire of 12.5 mm shall not penetrate and adequate clearance shall be kept.
- (2) Test force : 30N ± 10%.

### Testing Result :

IP Code	Results	Acceptance Criteria
IPX1	There is no trace of water inside(PCB). There are some trace of water inside (Heat Sink).	IEC60529 14.3
IP2X	Can't be penetrated by the sphere.	IEC60529 13.3

Tested by :

  
Mark Chen



## Test Report

Report No.: CX/2013/70161A

Date: 2013/10/16

CTE TECH CORP.  
NO. 1-7, GONGJIAN RD., CIDU DISTRICT, KEELUNG CITY 20647,  
TAIWAN, R. O. C.

The following sample(s) was/were submitted and identified by/on behalf of the applicant as :

Sample Submitted By : CTE TECH CORP.  
Sample Description : BATTERY CHARGER  
Style/Item No. : 4C24050A  
Sample Receiving Date : 2013/07/03 and 2013/07/18  
Testing Period : 2013/07/03 to 2013/07/12 and 2013/07/18 to 2013/08/09

Test Result(s) : Please refer to next page(s).

Conclusion : Based upon the performed tests by submitted samples, the test results comply with the limits of RoHS Directive 2011/65/EU with the exempted materials below according to the declaration from applicant (Directive 2002/95/EC being recast by Directive 2011/65/EU):  
1. ELECTRONIC COMPONENT (No.1.7) in Table 1: Lead (Pb)

("7(a), Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)"  
in D rective 2011/65/EU)

\* This report is combined with reports of CX/2013/50355, CX/2013/70160 and CX/2013/70161 \*

  
Ellis Wei, Ph.D., Supervisor  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei

1/10

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TWB 0424349

SGS Taiwan Ltd. 33, Wu Chuan Rd., New Taipei Industrial Park, New Taipei City, Taiwan / 新北市新莊區五權路33號  
Tel: (886-2) 2299-3339 Fax: (886-2) 2299-3237 www.sgs.tw



Member of SGS Group

# ROHS

# REACH



Produkte  
Products

<b>Prüfbericht - Nr.: 10044080 001</b> <i>Test Report No.:</i>		<b>Seite 1 von 13</b> <i>Page 1 of 13</i>	
<b>Auftraggeber:</b> <i>Client:</i>		CTE TECH CORP. No. 1-7, Gongjian Rd., Cidu District, Keelung City 20647, Taiwan, R.O.C.	
<b>Gegenstand der Prüfung:</b> <i>Test Item:</i>		Battery Charger	
<b>Bezeichnung:</b> <i>Identification:</i>		4C24040, 4C24030A, 4C24040A, 4C24080, 4F24040, 4F24050, 4F24060, 4C24050A, 4C24080A, BAT-GC08X2, 4C24020A, 4C12030, 4C12020, 4C24020	
<b>Anlieferungszustand:</b> <i>Delivery condition:</i>		<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	2013-10-04
<b>Prüfart:</b> <i>Testing location:</i>		TÜV Rheinland Hong Kong Ltd.	
<b>Prüfgrundlage:</b> <i>Test specification:</i>		With reference to Corrigendum to Regulation (EC) no.1907/2006, concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Screening of 144 Substances of Very High Concern (SVHC) based on the Candidate List published on 28.10.2008, 13.01.2010, 30.03.2010, 18.06.2010, 15.12.2010, 20.06.2011, 19.12.2011, 18.06.2012, 19.12.2012 and 20.06.2013 by European Chemicals Agency (ECHA)	
<b>Prüfergebnis:</b> <i>Test result:</i>		The test results are the measurements, stated in the test report.	
<b>geprüft: tested by:</b>		<b>kontrolliert: checked by:</b>	
			
2013-11-11	Anne Chen /Coordinator	2013-11-11	Carl Chang /Department Manager
<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>	<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>
	<b>Unterschrift</b> <i>Signature</i>		<b>Unterschrift</b> <i>Signature</i>
<b>Sonstiges/ Other Aspects:</b> Test period: 2013-10-04 – 2013-11-04			
<b>Abkürzungen:</b> ok / P = entspricht Prüfgrundlage fail / F = entspricht nicht Prüfgrundlage n.a. / N = nicht anwendbar		<b>Abbreviations:</b> ok / P = passed fail / F = failed n.a. / N = not applicable	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

TÜV Rheinland Taiwan Ltd. Softlines  
4F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei 105, Taiwan, R.O.C.  
Tel.: +886 2 2172-7000 Fax: +886 2 2528-0018  
Mail: service-gc@tuv.com · Web: www.twn.tuv.com



# REACH



Produkte  
Products

Test Report No. : 10044080 001  
Customer : CTE TECH CORP.

2013-11-11

## Abstract

Product Classification:

With reference to Corrigendum to Regulation (EC) no. 1907/2006 and ECHA, this product is classified as:

<input checked="" type="checkbox"/>	Article
<input type="checkbox"/>	Article with an integral substance/ mixture
<input type="checkbox"/>	Combinations of an article (functioning as a container or a carrier material) and a substance/ mixture
<input type="checkbox"/>	Substance/ mixture

Conclusion:

Product Location	Conclusion	Detected Substance (if any)
Main Unit / Accessories / Packaging materials	Acc. to authorisation list (EU) no. 143/2011, (EU) no. 125/2012 and (EU) no. 348/2013 (Annex XIV of EC no. 1907/2006), candidate list by ECHA, the detected SVHC concentration is: <input checked="" type="checkbox"/> < 0.1% <input type="checkbox"/> > 0.1%  <b>Obligation of Importer:</b> <input type="checkbox"/> Necessary <input checked="" type="checkbox"/> Not necessary (For article) To communicate information down the supply chain according to article 33 of REACH. <b>OR</b> 1. Notification to ECHA, if the quantities of SVHC in the produced/imported articles are above 1 ton in total per year per company. 2. Provide sufficient information to ensure safe use of the article and, as a minimum, include the name of the substance, to their customers and on request to consumers within 45 days of the receipt of this request.	DBP, DEHP, SCCP & Fatty acids, C16-18, lead salts (by calculation)



# Charging Curve

