

CE/EMC TEST REPORT

car charger

Model Number: ECC014

Product Name:	car charger
Trademark:	N/A
Model :	ECC014
Prepared For :	
Address :	
Prepared By :	Shenzhen BCTC Technology Co., Ltd.
Address :	A. Floor 3, 44 Building, Tanglang Industrial Park B, Taoyuan Street,Nanshan District, Shenzhen, China
Test Date:	Dec. 23 - Dec. 30, 2014
Date of Report :	Dec. 30, 2014
Report No.:	BCTC-141213345



Shenzhen BCTC Technology Co., Ltd.

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BCTC Testing Technology Co., Ltd.

Applicant: Address:			
Manufacturer: Address:			
E.U.T:	car charger		
Model Number:	ECC014		
Trade Name:	N/A	Serial No.:	
Date of Receipt:	Dec. 23 - Dec. 30, 2014	Date of Test:	Dec. 30, 2014
Test Specification:	EN 50498: 2010		
Test Result:	The equipment under test v requirements of the standa	was found to be c rds applied.	compliance with the
		Issue Da	ite: Dec. 30, 2014
Tested by:	Reviewed by:		Approved by:
Sonay Yang	Sophie w		Casey Wang
Engineer	Supervisor		Manager
Other Aspects: None	2.		
Abbreviations: OK/P=pas	ssed fail/F=failed n.a/N=n	ot applicable E.U	J.T=equipment under test
This test report is based to be duplicated in extrac	on a single evaluation of one sam cts without written approval of BC1	ple of above mention C Testing Technolo	ned products. It is not permitted gy Co., Ltd.



1.GENERAL PRODUCT INFORMATION

1.1 Product Function

Refer to Technical Construction Form and User Manual.

1.2 Description of Device (EUT)

Description	:	car charger
M/N	:	ECC014
Power Input	:	DC12V===
Power	:	N/A
Load	:	Working
Work Freq.	:	DC INPUT

1.3 Independent Operation Modes

The basic operation mode is:

Playing with 1kHz signal

1.4 Test Supporting System

microSD Card Manufacturer: M/N: ECC014



2.TEST SITES

2.1 Test Facilities	
Lab Qualifications :	944 Shielded Room built by ETS-Lindgren, USA Date of completion: March 28, 2011
	966 Chamber built by ETS-Lindgren, USA Date of completion: March 28, 2011
	Certificated by TUV Rheinland, Germany. Registration No.: UA 50207153 Date of registration: July 13, 2011
	Certificated by Intertek Registration No.: 2011-RTL-L1-31 Date of registration: October 11, 2011
	Certificated by Industry Canada Registration No.: 9868A Date of registration: December 8, 2011
	Certificated by CNAS China Registration No.: CNAS L6046 Date of registration: August 8, 2012
Name of Firm :	BCTC Testing Technology Co., Ltd.
Site Location :	A. Floor 3, 44 Building, Tanglang Industrial Park B, Taoyuan Street,Nanshan District, Shenzhen, China



2.2 List of Test and Measurement Instruments

For Broadband radiated disturbances/ Narrowband disturbances test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	May 9,14	May 9,15
Bilog Antenna	ETS-LINDGREN	3142D	00135452	May 20,14	May 20,15
Spectrum Analyzer	Agilent	8593E	3911A04271	May 9,14	May 9,15
3m Semi-anechoic Chamber	ETS-LINDGREN	966	KW01	May 9,14	May 9,15
Signal Amplifier	SONOMA	310	187303	May 9,14	May 9,15
RF Cable	IMRO	IMRO-400	966 Cable 1#	May 9,14	May 9,15
MULTI-DEVICE Controller	ETS-LINDGREN	2090	126913	N/A	N/A
Antenna Holder	ETS-LINDGREN	2070B	00109601	N/A	N/A

For Conducted transient disturbances test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
A.N.	SCHWARZBECK	NNBM8125	81251473	May 15,14	May 15,15
Electric switch	EM Test	BS 200B	V08161036 64	May 15,14	May 15,15
Voltage drop generator	EM Test	VDS 200B2	V08161036 62	May 15,14	May 15,15
Digital phosphor oscilloscope	Tektronix	DPO4054	C012685	May 15,14	May 15,15

For Conducted transient immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Ultra Compact Simulator	EM Test	UCS 200M	V08161036 61	May 15,14	May 15,15
Voltage drop generator	EM Test	VDS 200B2	V08161036 62	May 15,14	May 15,15
Load dump generator	EM Test	LD 200M	V08161036 63	May 15,14	May 15,15
Digital phosphor oscilloscope	Tektronix	DPO4054	C012685	May 15,14	May 15,15



3.TEST SET-UP AND OPERATION MODES

- 3.1 Principle of Configuration Selection
 - **Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.
 - **Immunity:** The equipment under test (EUT) was configured to the representative operating mode and conditions.
- 3.2 Block Diagram of EMI Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: car charger)

- 3.3 Test Operation Mode and Test Software Refer to Test Setup in clause 4 & 5.
- 3.4 Special Accessories and Auxiliary Equipment None.
- 3.5 Countermeasures to Achieve EMC Compliance None.



4.EMISSION TEST RESULTS

4.1 Broadband radiated disturbances/ Narrowband disturbances Test

Result	:	Pass
Test Procedure	:	EN 50498:2010
Frequency Range	:	25 Hz to 3.5kHz
Test Site	:	966 Chamber
Limits	:	EN 50498:2010

Test Setup

Date of Test	:	Dec. 30, 2014
M/N	:	ECC014
Input Voltage	:	DC12V===
Operation Mode	:	Playing with 1kHz signal

The EUT shall be placed on a non-conductive, low relative permittivity material ($\epsilon r \leq 1,4$), at(50 ± 5) mm above the ground plane.

The case of the EUT shall not be grounded to the ground plane unless it is intended to simulate the actual vehicle configuration.

The side of the EUT, which is nearest to the edge of the ground plane, shall be located at a distance of (200 ± 10) mm from the front edge of the ground plane. The total length of the test harness between the EUT and the load simulator (or the RF boundary) shall not exceed 2 000 mm (or as defined in the test plan). The wiring type is defined by the actual system application and requirement.

The test harness shall be placed on a non-conductive, low relative permittivity material ($\epsilon r \leq 1,4$), at (50 ± 5) mm above the ground plane.

The length of test harness parallel to the front of the ground plane shall be (1 500 \pm 75) mm.

The long segment of test harness shall be located parallel to the edge of the ground plane facing the antenna at a distance of (100 ± 10) mm from the edge. The phase centre of the measuring antenna shall be (100 ± 10) mm above the ground plane for the biconical, log-periodic and horn antenna.

The EUT shall be made to operate under typical loading and other conditions as in the vehicle such that the maximum emission state occurs. These operating conditions must be clearly defined in the test plan to ensure supplier and customer are performing identical tests. The orientation(s) of the EUT for radiated emission measurements shall be defined in the test plan.

The minimum width of the ground plane for radiated emissions shall be 1 000 mm. The minimum length of the ground plane for radiated emissions shall be 2 000 mm, or underneath the entire equipment plus 200 mm, whichever is larger. The height of the ground plane (test bench) shall be (900 \pm 50) mm above the

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floor. The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth setting on the test receiver was 120 kHz.

The test data of the worst case condition(s) was reported on the following pages. All the scanning waveforms were attached within Appendix .

Note: Emission Level = Antenna Factor + Cable Loss + Meter Reading-Preamp Factor.

Measurement Uncertainty: ±3.6 dB at a level of confidence of 95%.



Radiated Emission Test Set-Up Frequency

1+ Eduipment Linder to st-	8-	Log periodic ant: nna-
2c Test hamesso	90	Monitoring devices
Se Load cintulatore	. (h	High quality double shielded coasial capto (50 $\Omega)_{\rm P}$
de list <u>erx</u> e	'le	18. khead dom ed ora
Se - Artific all maint network (Alv)e	· 2-/	Melasuring insorumente
6a - Ground planea	130	RT absorber material-
$c_{\rm F}$. Low relative denin theirly support (a \leq 1.4)e	دے '	Stimulation and monitoring systemal













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4.2 Conducted transient disturbances

Result	:	Pass					
Test Procedure	: ISO 7637-2:2004						
		Test voltage	12 V system V	24 V syste V			
Limit	:	UA	135±0.5	27 ± 1			
		Ug	12 ± 0.2	2410,4			
Test Setup							
Date of Test	:	Dec. 30, 2014					
Test Setup Date of Test	:	Dec. 30, 2014	12 ± 0.2	24.			

M/N ECC014 2

Input Voltage DC12V=== 2

Playing with 1kHz signal Operation Mode 2

For conducted emission, all wiring connections between artificial network, switch, and the DUT shall 50mm + 10mm above the metal ground plane. The DUT shall be place on a non-conductive material 50mm + 10mm above the ground plane. The artificial network shall be kept 200mm ± 50mm with the edge of the ground plane and DUT.



Note:

- 1 oscilloscope or equivalent
- 2 voltage probe
- 3 artificial network
- 4 DUT (source of transient)

5 ground plane

6 power supply

7 Ground connection; length < 100 mm

The measurements were made to the requirements of Regulation 10.03 for an ESA, section 6.9, Specifications concerning the emission of conducted disturbances. The test was set-up to the requirements of ISO 7637-2:2004 section 4.3 Electrical transient conduction along supply lines only.



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Test Curve and Data

x 12V System

Slow pulse, Switch on











Negative pulse $U_{s1} = -30.3$ V (Limit: -100V) Positive pulse $U_{s2} = +11.3$ V (Limit: +75V)



5.IMMUNITY TEST RESULTS

5.1 Description of Performance Criteria:

Class A:

all functions of a device or system perform as designed during and after exposure to interference.

Class B:

all functions of a device/system perform as designed during exposure; however, one or more of them may go beyond the specified tolerance. All functions return automatically to within normal limits after exposure is removed. Memory functions shall remain class A.

Class C:

one or more functions of a device or system do not perform as designed during exposure but return automatically to normal operation after exposure is removed.

Class D:

one or more functions of a device or system do not perform as designed during exposure and do not return to normal operation until exposure is removed and the device or system is reset by a simple "operator/use" action.

Class E:

one or more functions of a device or system do not perform as designed during and after exposure and cannot be returned to proper operation without repairing or replacing the device or system.

Test pulse number	Immunity test level	Functional status		
1	Π	D		
2a	Π	D		
2b	Π	D		
3a/3b	Ш	D		
4	Ш	D		
Eunctional status D is where one or more functions of the ESA do not perform				

Functional status D is where one or more functions of the ESA do not perform as designed during and after exposure and do not return to normal operation until exposure is removed and the ESA is reset by simple "operator/use" action.



5.2 Conducted transient immunity Test

Result	:	Pass	
Test Procedure	:	EN 55020:2007+A11:2011	ISO7637-2 :2004
Basic Standard	:	EN 61000-4-2:2009	
Test Setup			
Date of Test	:	Dec. 30, 2014	
M/N	:	ECC014	
Input Voltage	:	DC12V	
Operation Mode	:	Playing with 1kHz signal	
Temperature	:	24.9 ℃	
Humidity	:	55%	
Atmospheric Pressure	:	101.52kPa	

For transient immunity, the supply lines between the terminals of the test pulse generator and the DUT shall be laid out in a straight parallel line at a height of 50mm + 10mm above the ground plane and shall have a length of $0.5\text{m} \pm 0.1\text{m}$.



The measurements were made to the requirements of Regulation 10.03 for an ESA, section 6.8, Specifications concerning the immunity to transient disturbances conducted along supply lines. The test was set-up to the requirements of ISO 7637-2:2004 Electrical transient conduction along supply lines only.

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Test Result

Test Port: Power Port

Test Pulse	× 12V System	Result
1	-75V	Pass
2a	+37 V	Pass
2b	+10 V	Pass
3a	-112 V	Pass
3b	+75 V	Pass
4	-6 V	Pass



6.PHOTOGRAPHS OF THE EUT





***** END OF REPORT *****

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