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TEST REPORT

Applicant: SHENZHEN FEST TECHNOLOGY CO., LTD

Address of Applicant: Floor 8, Building C, SAR 1980 Cultural Industry Park, Minfu

Road, Minzhi, Longhua New District, Shenzhen, Guangdong,

China

Equipment Under Test (EUT)

Product Name: EFEST SLIM K2 CHARGER

Brand Name: Efest

Model No.: K2

Applicable standards: EN 55014-1:2006+A1:2009+A2:2011

EN 55014-2:2015

Date of sample receipt: July 24, 2017

Date of Test: July 24, 2017 To August 1, 2017

Date of report issued: August 1, 2017

Test Result: PASS *

Authorized Signature:

Kevin Yu Laboratory Manager

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 EBO product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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^{*} In the configuration tested, the EUT complied with the standards specified above.



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2 Version

Version No.	Date	Description
00	August 1, 2017	Original

Prepared By:	Jason	Date:	August 1, 2017
	Project Engineer	_	TEN STEEN
Reviewed By:	Conyv	Date:	August 720 h
	Reviewer	_	



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4 Test Summary

Test Item	Test Requirement	Test Method	Class / Severity	Result
Disturbance Power	EN 55014-1	EN 55014-1	Table 2a	PASS
Electrostatic discharges (ESD)	EN 55014-2	EN 61000-4-2	Contact ± 2 , 4 kV Air ± 2 , 4, 8 kV	PASS
Radio-frequency electromagnetic fields	EN 55014-2	EN 61000-4-3	3V/m 80%, 1kHz, AM	PASS



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5 General Information

5.1 Client Information

Applicant:	SHENZHEN FEST TECHNOLOGY CO., LTD		
Address of Applicants	Floor 8, Building C, SAR 1980 Cultural Industry Park, Minfu Road, Minzhi,		
Address of Applicant:	Longhua New District, Shenzhen, Guangdong, China		
Manufacturer/ Factory:	SHENZHEN FEST TECHNOLOGY CO., LTD		
Address of Manufacturer /	Floor 8, Building C, SAR 1980 Cultural Industry Park, Minfu Road, Minzhi,		
Factory:	Longhua New District, Shenzhen, Guangdong, China		

5.2 General Description of E.U.T

Product Name:	EFEST SLIM K2 CHARGER	
Brand Name:	Efest	
Model No.:	K2	
Power Supply:	Input: 5V=== 2A	
	Output: 4.2V===2*1A	

5.3 Test mode

Test mode:	
On mode	Keep the EUT in the operation status

5.4 Description of Support Units

None.

5.5 Deviation from Standards

None.

5.6 Abnormalities from Standard Conditions

None.

5.7 Monitoring of EUT for All Immunity Test

Visual:	Monitor the operation of EUT	
Audio:	N/A	



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6 Test Instruments List

Distu	Disturbance Power:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	Sep. 08 2016	Sep. 07 2020	
2	EMI Test Receiver	R&S	ESCS30	GTS223	Jul. 06 2017	Jul. 05 2018	
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 06 2017	Jul. 05 2018	
4	Absorbing clamp	Liithi	MDS-21	GTS229	Jul. 06 2017	Jul. 05 2018	
5	Coaxial Cable	GTS	N/A	GTS228	Jul. 06 2017	Jul. 05 2018	
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	
7	Thermo meter	KTJ	TA328	GTS233	Jul. 27 2017	Jul. 26 2018	

ESD:	ESD:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	ESD Simulator	EMPEK	ESD-2030A	GTS242	Jul. 03 2017	Jul. 02 2018	
2	Thermo meter	KTJ	TA328	GTS243	Jul. 03 2017	Jul. 02 2018	

Radiated Immunity:					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (mm-dd-yy)
1	Signal Generator	Rohde & Schwarz	SML03	100059	Jul. 02 2018
2	Power Amplifier	AR	150W1000	300999	Jul. 02 2018
3	Power Amplifier	AR	25S1G4AM1	305993	Jul. 02 2018
4	Power Amplifier	AR	150A220M6	305965	Jul. 02 2018
5	Broadband antenna	CHASE	CBL6111C	2576	Jul. 02 2018
6	Hom Anrenna	AR	AT4002A	N/A	N/A
7	Anechoic Chamber	Albatross Projects	MCDC		Jul. 02 2018



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7 Emission Test Results

7.1 Disturbance Power

Test Requirement:	EN 55014-1				
Test Method:	EN 55014-1				
Test Frequency Range:	30MHz to 300MHz				
Receiver setup:	RBW=120kHz, VBW=300kHz				
Limit:	Frequency range (MHz)		(dBµV)		
	30 to 300	Quasi-peak 45 to 55 ^a	Average 35 to 45 ^a		
	a Increasing linearly with the f		00 10 40		
Test setup:	Cable extented to > 6m Slide Bar	Absorbing Clamp To EMI Receiver	FUT		
Test environment:	Temp.: 25 °C Humid.:	50% Pre	ess.: 1 012mbar		
Measurement Record:	Uncertainty: ± 3.68dB				
Test Instruments:	Refer to section 6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Pass				

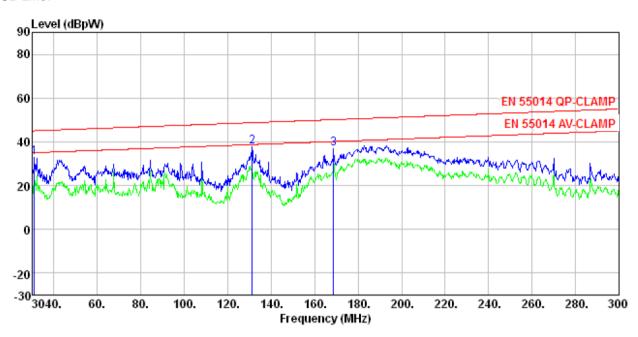


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Measurement Data

USB Line:



	Freq	Read Level	Cable Loss				Remark
	MHz	dBp₩	d₿	dBp₩	dBp₩	dB	
1 2 3	31.080 131.250 168.780	17.68	1.76	37.86	48.76	-10.90	Peak



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8 Immunity Test Results

8.1 Performance Criteria Description in Clause 6 of EN 55014-2

Criterion A:	The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criterion B:	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criterion C:	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls. Or by any operation specified in the instructions for use.

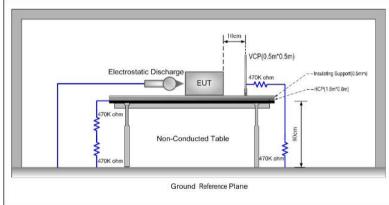


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8.2 Electrostatic Discharge

Test Requirement:	EN 55014-2
Test Method:	EN 61000-4-2
Discharge Voltage:	Contact Discharge:±2kV, ±4kV
	Air Discharge: ±2kV, ±4kV, ±8kV
	HCP/VCP: ±2kV, ±4kV
Polarity:	Positive & Negative
Number of Discharge:	Minimum 10 times at each test point.
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Limit:	Criteria B
Test setup:	



Test Procedure:

Air discharge:

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

Contact Discharge:

The test was applied on conductive surfaces of EUT. the generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated.

Indirect discharge for horizontal coupling plane

At least 10 single discharges shall be applied at the front edge of each HCP opposite the centre point of each unit of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

Consideration should be given to exposing all sides of the EUT.



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	4. Indirect discharge for vertical coupling plane At least 10 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.					
Test environment:	Temp.: 24 °C Humid.: 51% Press.: 1 012mbar					
Test mode:	Refer to section 6 for details					
Test Instruments:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Reco	rd:									
Toot points:	I: Metallic material									
rest points:	II: All plastic seams, Display screen									
Direct discharge										
Discharge			Observations	Result						
Voltage (KV)	Type of discharge	Test points	(Performance Criterion)							
± 4	Contact	I	A	Pass						
± 8	Air	II	Α	Pass						
Indirect discharge	Indirect discharge									
Discharge Voltage (KV)	Type of discharge	Test points	Observation Performance	Result						
± 4	HCP-Bottom/Top/ Front/Back/Left/Right	Edge of the HCP	А	Pass						
± 4	VCP-Front/Back /Left/Right	Center of the VCP	А	Pass						

Remark:

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

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8.3 Radio-frequency electromagnetic fields

Test Requirement:	EN 55014-2						
Test Method:	EN 61000-4-3						
Frequency range:	80MHz to 1GHz						
Test Level:	3V/m						
Modulation:	80%, 1kHz Amplitude Modulation						
Performance Criterion:	Criteria A						
Test setup:	Camera Antenna Tower Ground Reference Plane Generator Monitor Power Amplifier						
Test Procedure:	 For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items. If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length. The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area). 						
	 4. The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Were the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value. 5. The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0,5 s. 6. The test normally was performed with the generating antenna facing 						
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	each si	each side of the EUT.					
	7. The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally.						
	condition	8. The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to monitor the performance of the EUT.					
Test environment:	Temp.: 25°C Humid.: 52% Press.: 1 012mbar						
Test Instruments:	Refer to section 6 for details						
Test mode:	Refer to s	Refer to section 5.3 for details Passed					
Test results:	Passed						

Measurement Record:

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)
	3 V/m	1 kHz, 80 % Amp. Mod, 1% increment, dwell time=3seconds	V	Front	А
			Н		А
			V	Rear	А
			Н		А
			V	Left	А
00 MH = 4 CH =			Н		А
80 MHz-1 GHz			V	Right	А
			Н		А
			V	Тор	А
			Н		А
			V	Bottom	А
			Н		А

Remarks:

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



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9 Photographs of the EUT

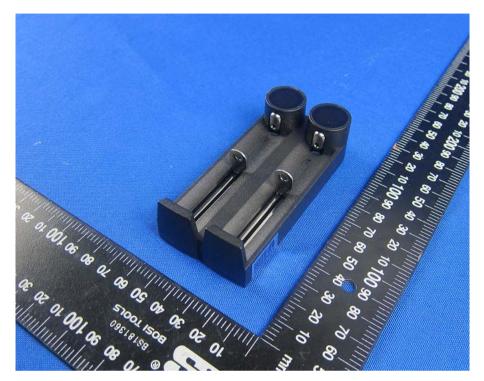






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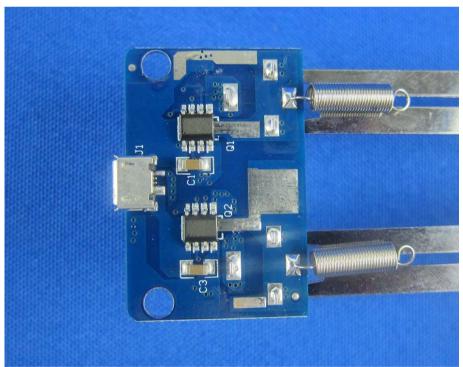




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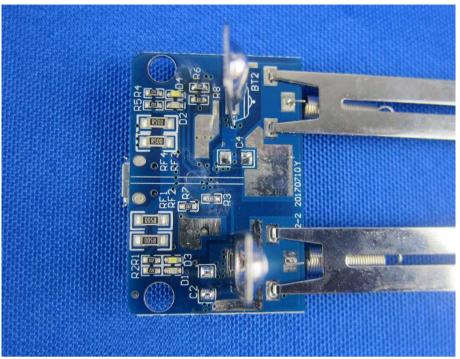






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