



中国认可
国际互认
检测
TESTING
CNAS L3110



TEST REPORT

Reference No...... : WTD21D03015790E
Applicant..... : DICOTA SCHWEIZ AG
Address..... : Churerstrasse 20, CH-8808 Pfäffikon SZ
Manufacturer..... : DICOTA SCHWEIZ AG
Address..... : Churerstrasse 20, CH-8808 Pfäffikon SZ
Product..... : USB C Car Charger
Model(s)..... : PX2000E-1CHG
Brand Name..... : dynabook
Standards..... : EN 55032:2015
EN 55035:2017
Date of Receipt sample..... : 2021-03-04
Date of Test..... : 2021-03-05 to 2021-04-09
Date of Issue..... : 2021-04-22
Test Result..... : **Pass**
Remark..... : The report updated applicant, manufacturer information, product model and Brand Name based on WTD21D03015787E. This update will not affect EMC testing, so EUT testing will no longer be performed. The original report WTD21D03015787E is still valid.

The results shown in this test report refer only to the sample(s) tested; this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group Co., Ltd.

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China

Tel: +86-769-2267 6998

Fax: +86-769-2267 6828

Compiled by:

Approved by:

Billy Li

Billy Li / Project Engineer

Ford Wang

Ford Wang / Designated Reviewer



1 Contents

	Page
COVER PAGE	1
1 CONTENTS	2
2 REVISION HISTORY	3
3 GENERAL INFORMATION	4
3.1 GENERAL DESCRIPTION OF E.U.T.....	4
3.2 DETAILS OF E.U.T.....	4
3.3 SUBCONTRACTED.....	4
3.4 ABNORMALITIES FROM STANDARD CONDITIONS.....	4
4 TEST SUMMARY	5
5 EQUIPMENT USED DURING TEST	6
5.1 EQUIPMENT LIST.....	6
5.2 DESCRIPTION OF SUPPORT UNITS.....	6
5.3 MEASUREMENT UNCERTAINTY.....	6
5.4 TEST EQUIPMENT CALIBRATION.....	7
5.5 TEST MODE.....	7
6 EMISSION TEST RESULTS	8
6.1 RADIATED EMISSIONS, 30-1000MHZ.....	8
7 IMMUNITY TEST RESULTS	12
7.1 PERFORMANCE CRITERIA.....	12
7.2 ELECTROSTATIC DISCHARGE (ESD).....	13
7.3 RADIO-FREQUENCY ELECTROMAGNETIC FIELDS.....	15
8 PHOTOGRAPHS-TEST SETUP	17
8.1 PHOTOGRAPH-RADIATIONEMISSION TEST SETUP 30MHZ-1000MHZ.....	17
8.2 PHOTOGRAPH – ESD IMMUNITY TEST SETUP.....	17
8.3 PHOTOGRAPH –RADIO-FREQUENCY ELECTROMAGNETIC FIELDS TEST SETUP.....	18
9 PHOTOGRAPHS-CONSTRUCTIONAL DETAILS	19



2 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD21D03015790E	2021-03-04	2021-03-05 to 2021-04-09	2021-04-22	Supplement (1)	-	Valid

WALTEK



3 General Information

3.1 General Description of E.U.T.

Product..... : USB C Car Charger
Model(s)..... : PX2000E-1CHG
Remark..... : In this report, only the test data in the worst mode is listed as a representative of the report.

3.2 Details of E.U.T.

Ratings..... : Input: DC 12-24V, 4.5A
Output 1: USB-C port DC 5-20V, 3A (Max)
Output 2: USB-A port DC 3.6-6.5V, 2.4A; DC 9V, 2A; DC 12V, 1.5A (Max)
Power output: 45W (Max)

3.3 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab:N/A

Lab address:N/A

Test items: N/A

3.4 Abnormalities from Standard Conditions

None.



4 Test Summary

EMISSION(EN 55032)		
Test Item	Test Standard	Result
Conducted Emissions from the AC mains power ports 150KHz to 30MHz	EN 55032	N/A
Asymmetric Mode Conducted Emissions 150KHz to 30MHz	EN 55032	N/A
Conducted Differential Voltage Emissions 30MHz to 2150MHz	EN 55032	N/A
Radiated Emissions, 30MHz to 1000MHz	EN 55032	Pass
Radiated Emissions, Above 1GHz	EN 55032	N/A
Harmonic Current	EN IEC 61000-3-2	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3	N/A
IMMUNITY(EN 55035)		
Test Item	Test Method	Result
Electrostatic Discharge(ESD)	IEC 61000-4-2	Pass
Radiation Immunity	IEC 61000-4-3	Pass
Electrical Fast Transients (EFT)	IEC 61000-4-4	N/A
Surges	IEC 61000-4-5	N/A
Injected Currents	IEC 61000-4-6	N/A
Power-frequency magnetic fields	IEC 61000-4-8	N/A*
Voltage Dips and Voltage interruptions	IEC 61000-4-11	N/A

Remark:

Pass

Fail

N/A

*

Test item meets the requirement

Test item does not meet the requirement

Test case does not apply to the test object

Applicable only to equipment containing devices intrinsically susceptible to magnetic fields, such as CRT monitors, Hall effect elements, electrodynamic microphones, magnetic field sensors or audio frequency transformers.



5 Equipment Used during Test

5.1 Equipment List

3m Semi-anechoic Chamber for Radiation (TDK)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2020-04-20	2021-04-19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2020-04-25	2021-04-24
3	Amplifier	ANRITSU	MH648A	M43381	2020-04-20	2021-04-19
4	Cable	HUBER+SUHNER	CBL2	525178	2020-04-20	2021-04-19
Electrostatic Discharge						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Electrostatic Discharge Simulator	SCHLODER	SESD 216	606144	2020-04-24	2021-04-23
Radio-frequency electromagnetic fields						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Signal Generater	R&S	SMB100A	105942	2020-07-30	2021-07-29
2	RF Power Amplifier	BONN Elektronik	BLWA0830-160/100/40D	128740	2020-07-30	2021-07-29
3	GestockteBreitband (S tacked) Log.-per.Antenna	SCHWARZBECK	STLP9128D	043	2020-07-30	2021-07-29
4	Power Meter	R&S	NRP2	102031	2020-04-20	2021-04-19
5	Amplifier	NJNT	NTWPAS-2560025	2560025	2020-04-20	2021-04-19

5.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

5.3 Measurement Uncertainty

Parameter	Uncertainty (Note 1)
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Radiated Emission(30MHz-1000MHz)	±5.03dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95%



confidence level using a coverage factor of $k=2$.

5.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

5.5 Test Mode

Test Item	Test Mode	Test Voltage
EN 55032		
Radiated Emissions (30MHz-1GHz)	Full load mode	DC 12V DC 24V*
EN 55035		
Electrostatic Discharge(ESD) Air Discharge: $\pm 8\text{kV}$ Contact Discharge: $\pm 4\text{kV}$ HCP & VCP: $\pm 4\text{kV}$ Performance Criterion B	Full load mode	DC 12V DC 24V*
Radio-frequency electromagnetic fields (RS) 3V/m, 80% AM(1kHz), 80MHz to 1GHz 1.8GHz, 2.6GHz, 3.5GHz, 5GHz Performance Criterion A	Full load mode	DC 12V DC 24V*
** shows the worst case mode which were recorded in this report.		



6 Emission Test Results

6.1 Radiated Emissions, 30-1000MHz

Test Requirement..... : EN 55032

Test Method..... : EN 55032

Frequency Range..... : 30MHz to 1000MHz

Class/Severity..... : Class B/ Table A.4 of EN 55032

Test Result..... : ☒ Pass ☐ Fail ☐ not applicable (Remark)

6.1.1 E.U.T. Operation

Operating Environment:

Temperature..... : 23.1°C

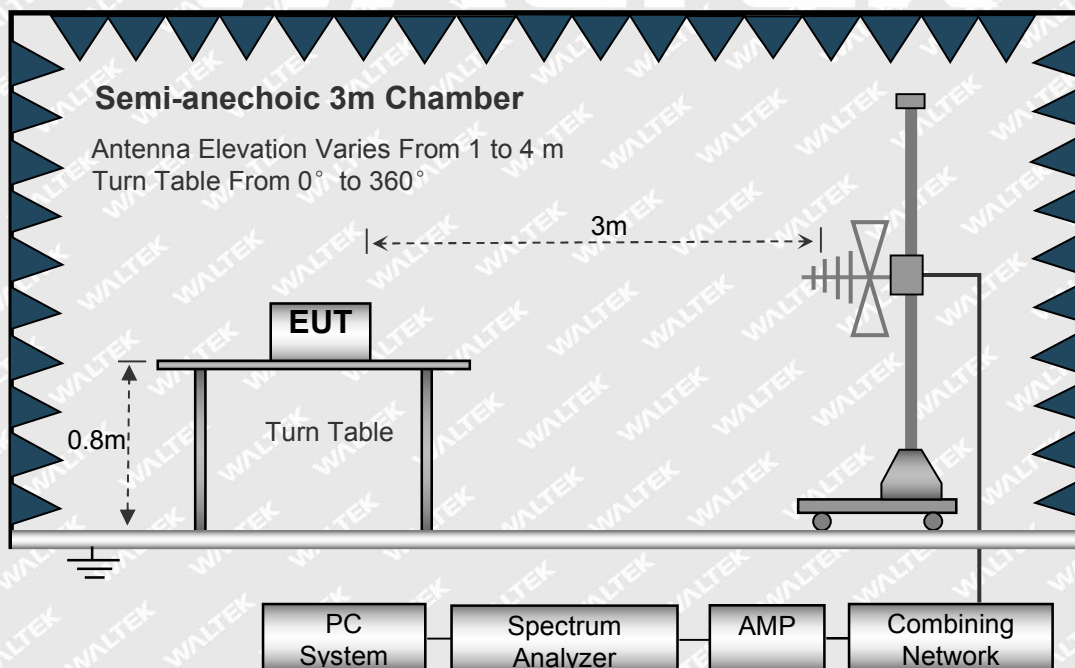
Humidity..... : 54.8%RH

Atmospheric Pressure..... : 101.5kPa

EUT Operation..... : Refer to section 5.5.

6.1.2 Block Diagram of Test Setup

The Radiation Emission test was performed in accordance with EN 55032.





6.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

6.1.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB means the emission is 6dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

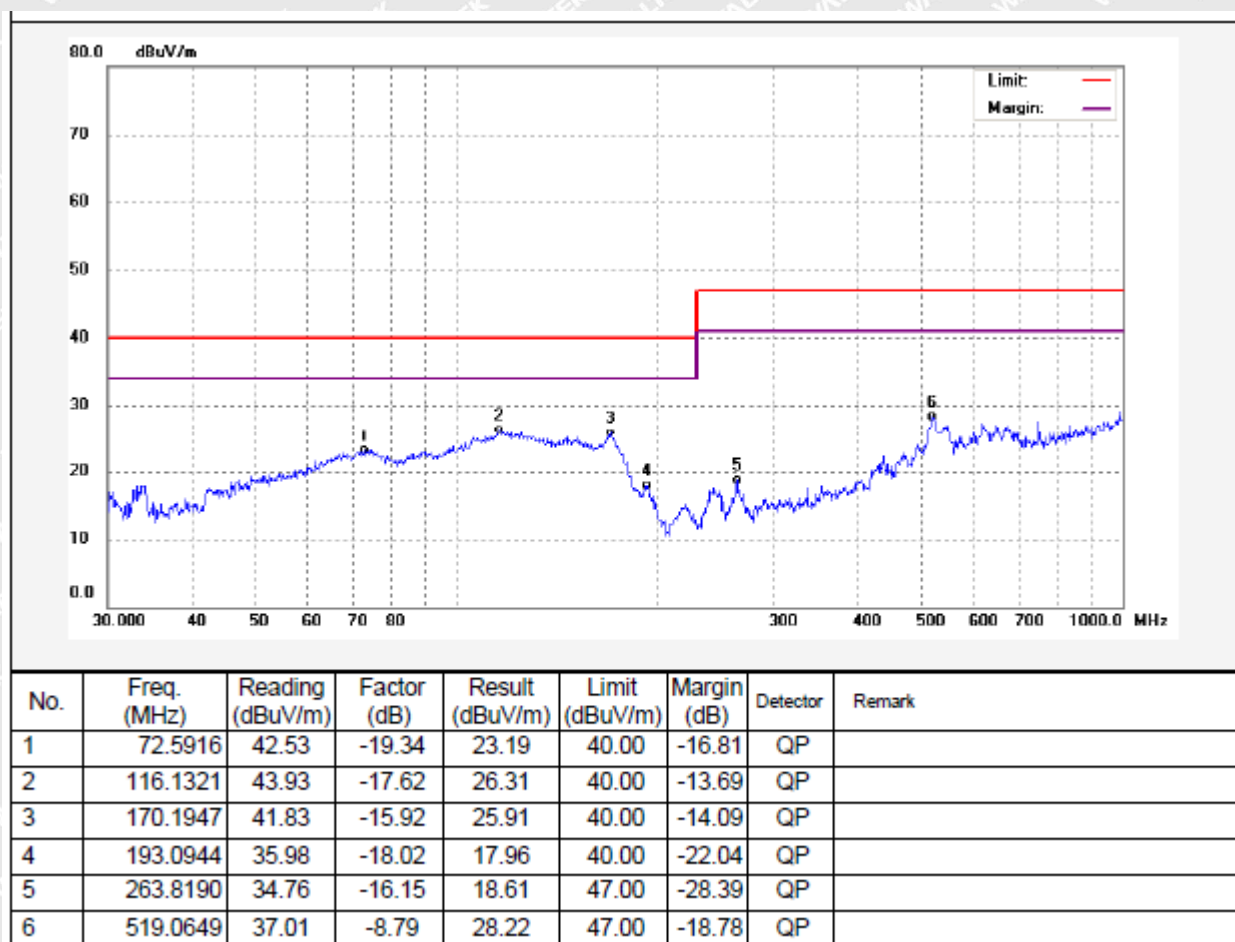
6.1.5 Test Data

Test Mode: Full load (Output USB A 5Vdc, 2.4A)

DC 24V

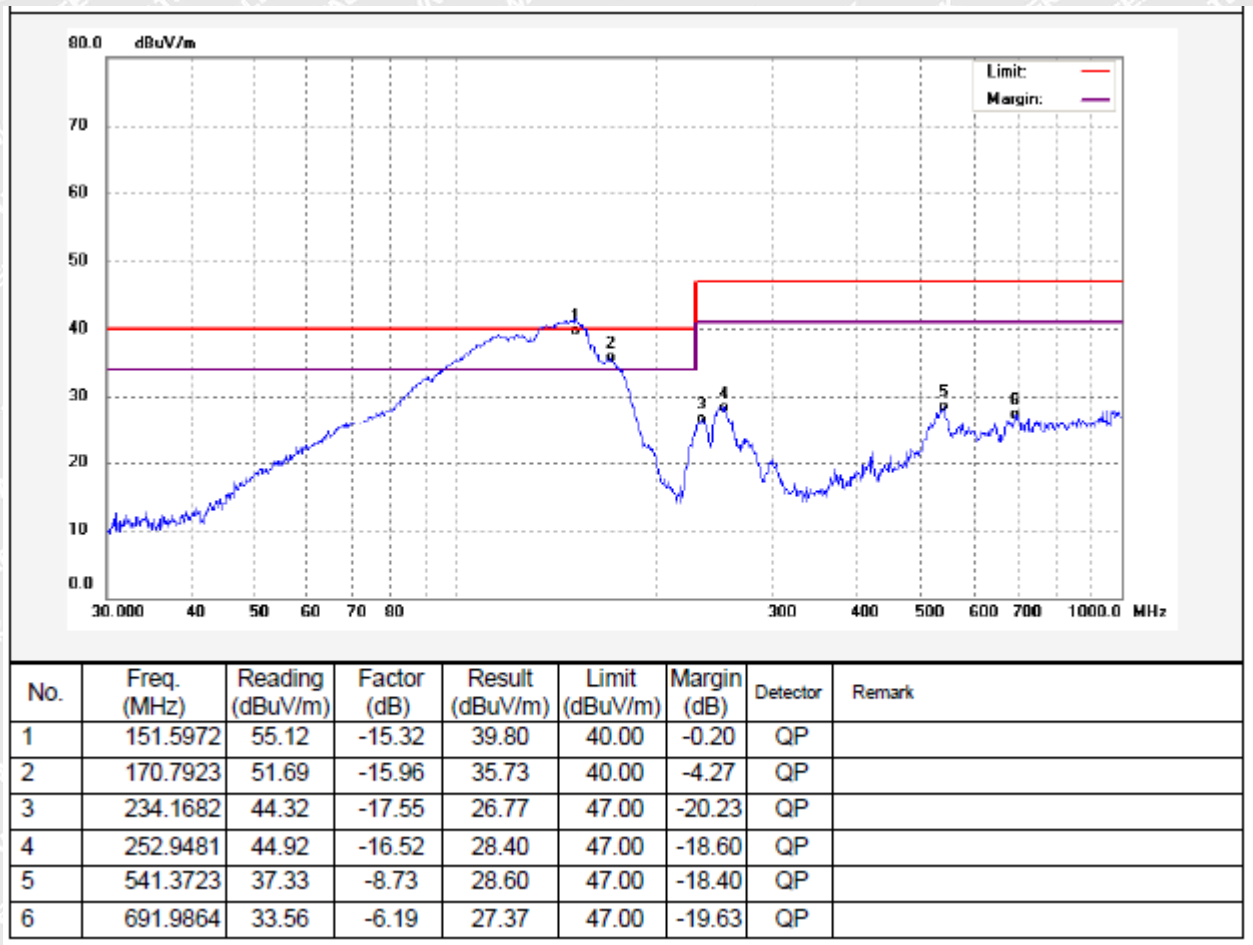
Antenna Polarization: Vertical

WALTEK





Antenna Polarization: Horizontal





7 Immunity Test Results

7.1 Performance Criteria

Performance 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.

Performance 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.

Performance 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 operations specified in the instructions for use. For further details, please refer to EN 55035.

WALTEK



7.2 Electrostatic Discharge (ESD)

Test Requirement.....	: EN 55035
Test Method.....	: IEC 61000-4-2
Test Result.....	: Pass
Discharge Impedance.....	: 330Ω / 150pF
Discharge Voltage.....	Air Discharge: ±8kV Contact Discharge: ±4kV HCP & VCP: ±4kV
Polarity.....	: Positive & Negative
Number of Discharge.....	: Minimum 50 times at each test point(25 of each polarity)
Discharge Mode.....	: Single Discharge
Discharge Period.....	: 1 second minimum

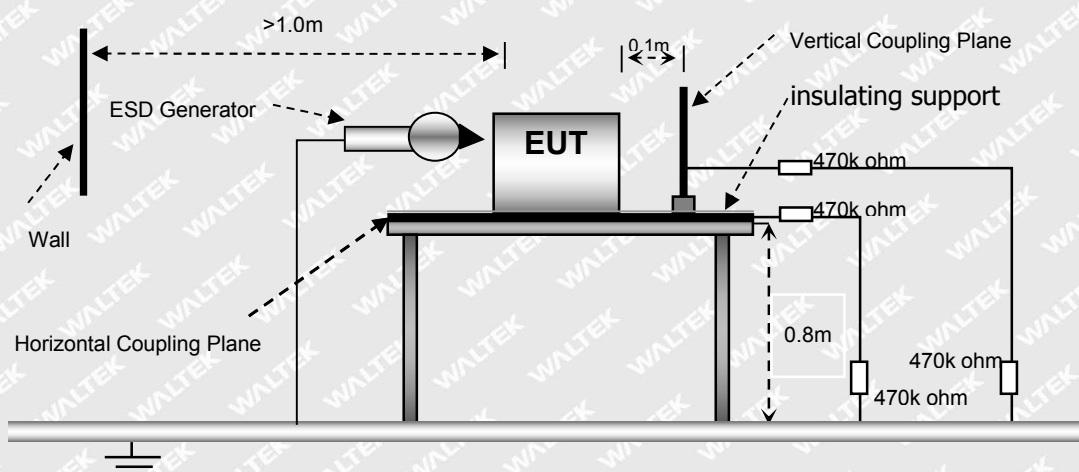
7.2.1 E.U.T. Operation

Operating Environment:

Temperature.....	: 22.8°C
Humidity.....	: 54.7%RH
Barometric Pressure.....	: 100.8kPa
EUT Operation.....	: Refer to section 5.5.

7.2.2 Block Diagram of Setup

The ESD test was performed in accordance with the IEC 61000-4-2.





7.2.3 Direct Discharge Test Results

Observations:

Test points:

1. All Exposed Surface & Seams;
2. All metallic part

Direct Discharge			Test Results	
Applied Voltage (kV)	Performance Criterion	Test Point	Contact Discharge	Air Discharge
±8	B	1	N/A	Pass
±4	B	2	Pass	N/A

7.2.4 Indirect Discharge Test Results

Observations:

Test points: 1. All sides.

Indirect Discharge			Test Results	
Applied Voltage (kV)	Performance Criterion	Test Point	Horizontal Coupling	Vertical Coupling
±4	B	1	Pass	Pass

WALTEK



7.3 Radio-frequency electromagnetic fields

Test Requirement.....	: EN 55035
Test Method.....	: IEC 61000-4-3
Test Result.....	: Pass
FrequencyRange.....	: 80MHz to 1GHz 1.8GHz, 2.6GHz, 3.5GHz, 5GHz
Test level.....	: 3V/m
Modulation.....	: 80%, 1kHz Amplitude Modulation.
Face of EUT.....	: Front, Back, Left, Right
Antenna polarisation.....	: Horizontal&Vertical

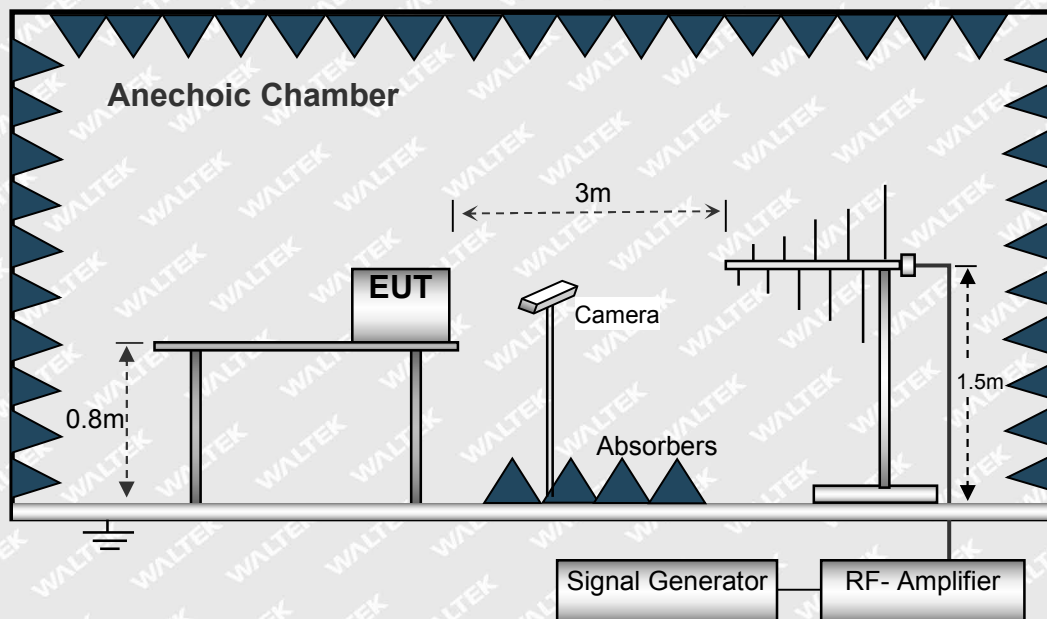
7.3.1 E.U.T. Operation

Operating Environment:

Temperature.....	: 21.7°C
Humidity.....	: 52.4% RH
Barometric Pressure.....	: 102.4kPa
EUT Operation.....	: Refer to section 5.5.

7.3.2 Block Diagram of Setup

The Radio-frequency electromagnetic fields Immunity test was performed in accordance with the IEC 61000-4-3.





7.3.3 Test Results

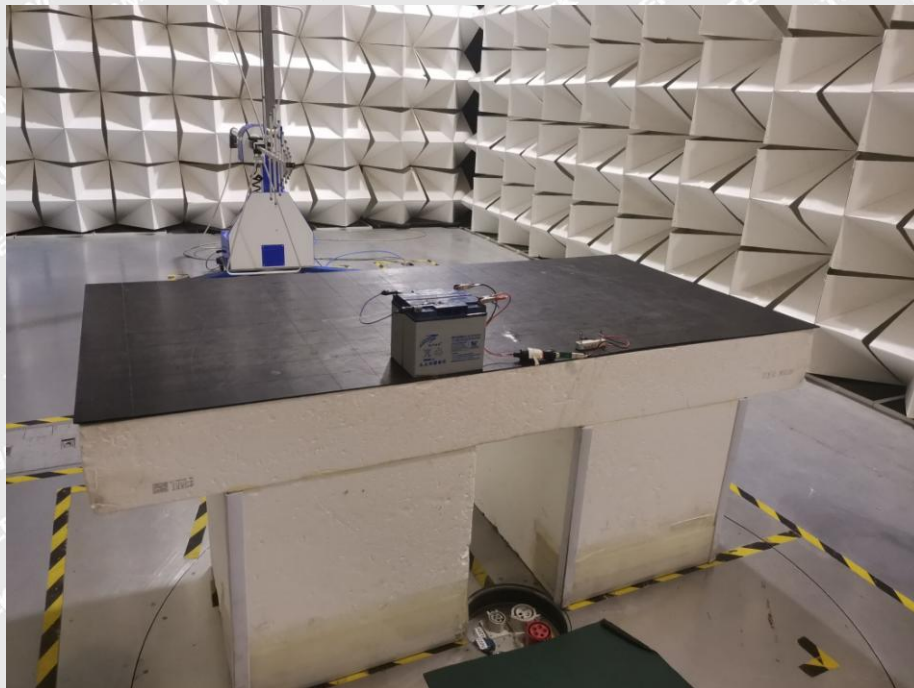
Test Frequency (MHz)	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
80-1000MHz 1800MHz, 2600MHz, 3500MHz, 5000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass
	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass

WALTEK

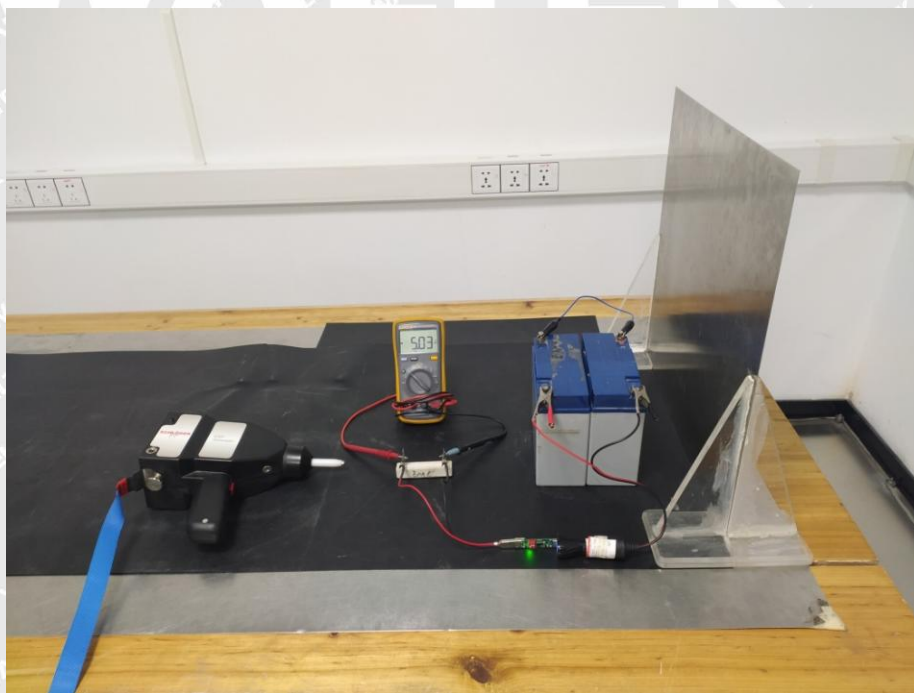


8 Photographs–Test Setup

8.1 Photograph–RadiationEmission Test Setup 30MHz-1000MHz

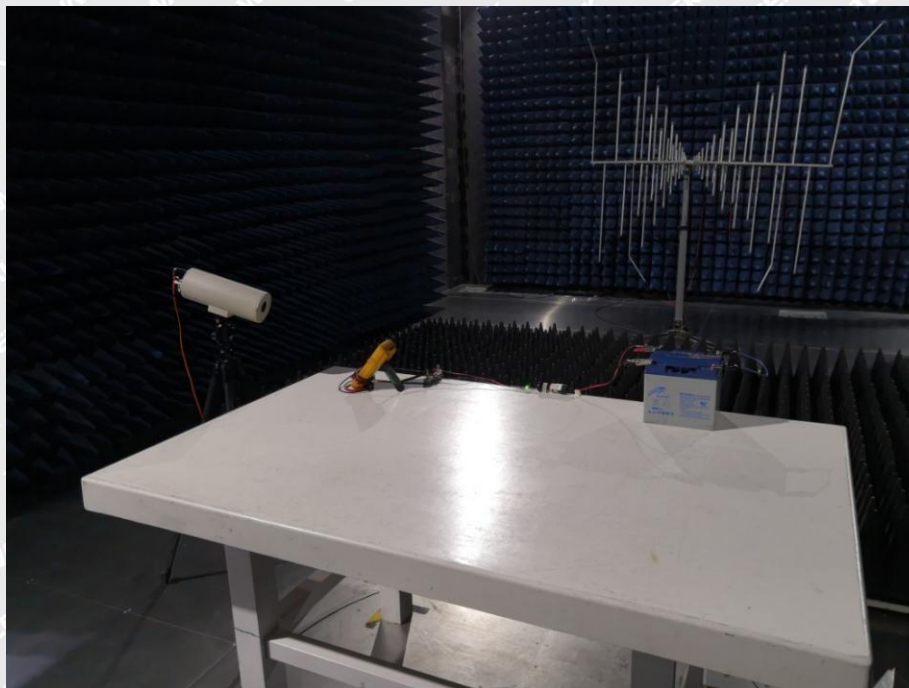


8.2 Photograph – ESD Immunity Test Setup





8.3 Photograph –Radio-frequency electromagnetic fields Test Setup



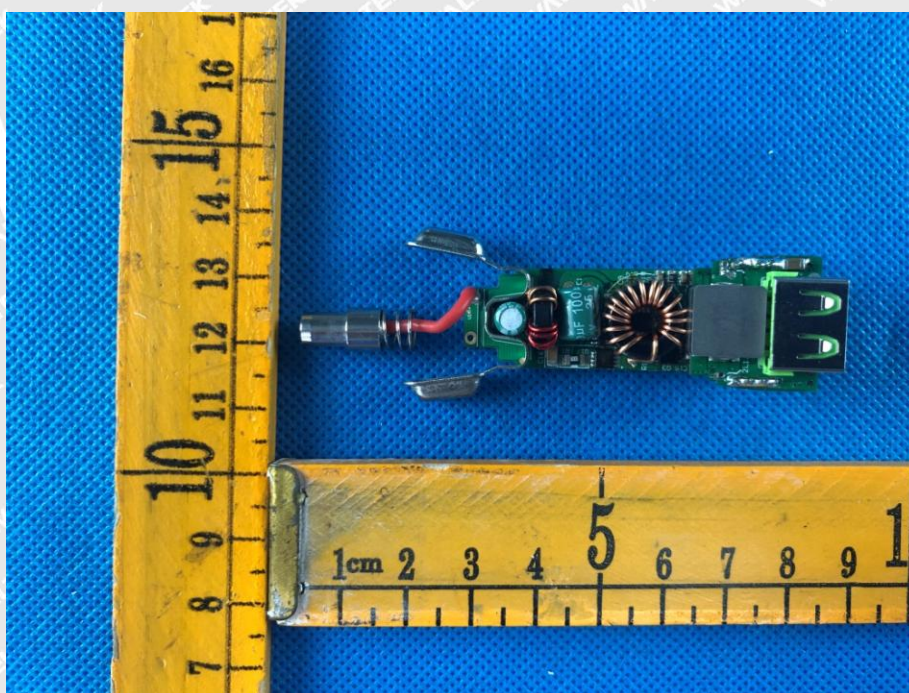
WALTEK

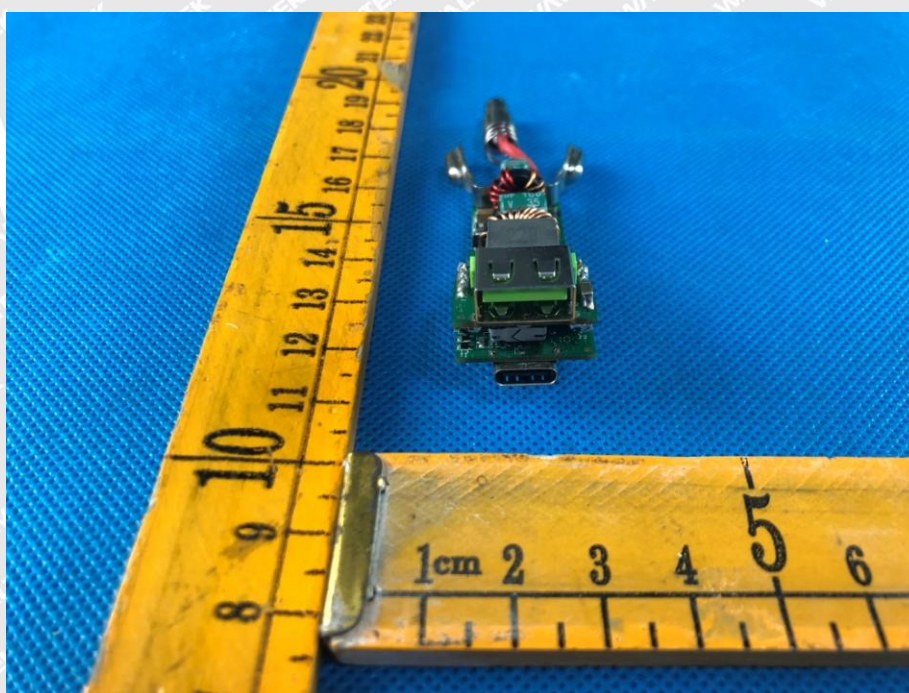
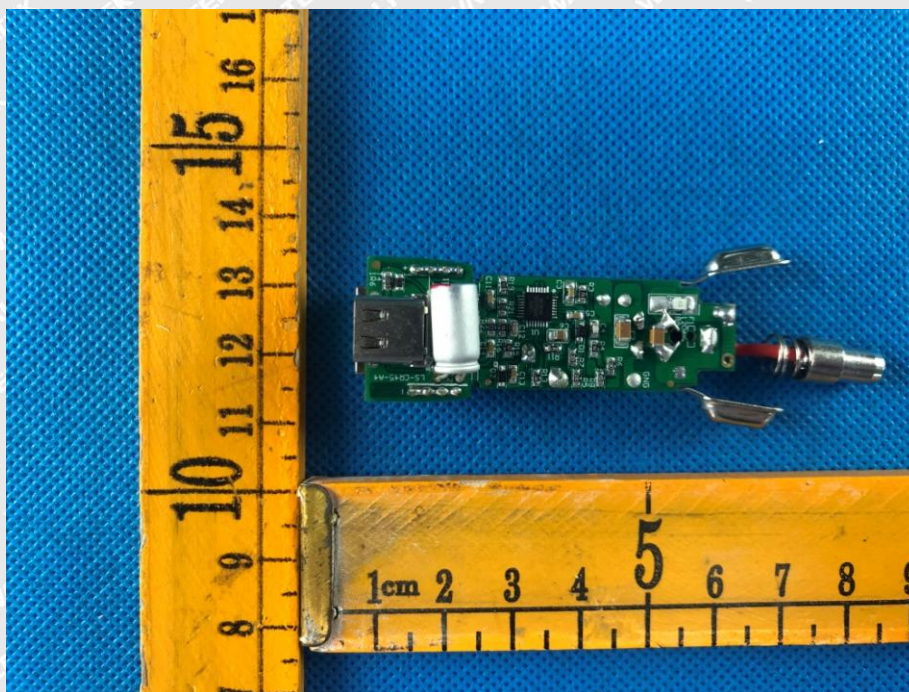


9 Photographs—Constructional Details









=====End of Report=====