

Test report: 4361206.55-EMF

## TEST REPORT

### FCC Exposure Evaluation Declaration

Product Name	WIRELESS CHARGER
Trademark	TISSOT SA
Model and /or type reference	T229
FCC ID IC ID	2AH93T229 25567-T229
Applicant's name / address	TISSOT SA CHEMIN DES TOURELLES 17, LE LOCLE, 2400, SWITZERLAND
Test method requested, standard	KDB 447498D01V06 FCC Part1.1310
Verdict Summary	IN COMPLIANCE
Documented By (name / position & signature)	Kitty Li/Project Assistant 
Tested by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2020-03-20
Report template No	/

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## COMPETENCES AND GUARANTEES

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DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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## GENERAL CONDITIONS

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

## ENVIRONMENTAL CONDITIONS

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The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

## POSSIBLE TEST CASE VERDICTS

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Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

## ABBREVIATIONS

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For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
$U_N$	: Nominal voltage
Tx	: Transmitter
Rx	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

## DOCUMENT HISTORY

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Report nr.	Date	Description
4361206.55	2020-03-20	First release.

## REMARKS AND COMMENTS

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1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with KDB 447498 and FCC Part 1.1310
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements
4. The test results relate only to the samples tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.

## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

##### (a) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm <sup>2</sup> )	Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
00-1500	--	--	F/300	6
1500-100000	--	--	5	6

##### (b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm <sup>2</sup> )	Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	F/1500	30
1500-100000	--	--	1.0	30

Note: f=frequency in MHz; \*Plane-wave equivalent power density

Friis Formula

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

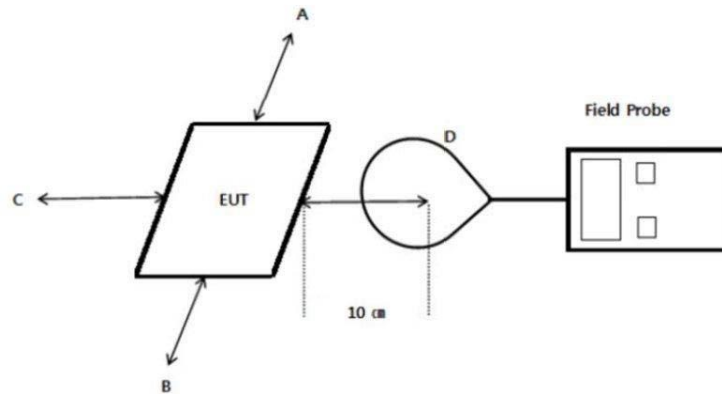
$G$  = gain of antenna in linear scale

$\pi = 3.1416$

$R$  = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance  $r$  where the MPE limit is reached.

## 1.2. Test procedure and setup



1. The test was performed on 360 degree turn table in anechoic chamber.
2. The probe was placed at distance 10 cm which is between the edge of the charger and the geometric centre of the probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each point; A, B, C, D were completed.
4. Test setup photo :





### 1.3. Test Result of RF Exposure Evaluation

Product	:	WIRELESS CHARGER
Test Item	:	RF Exposure Evaluation
Test Site	:	T229
Test mode	:	Transmit

### 1.4. Calculated Result and Limit

E-Field Strength at 10 cm

Test Mode	Frequency Range(KHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Limits (V/m)
Charging mode With full load	110 KHz to 205 KHz	27.5	31.5	27.5	26	614
Charging mode With half load		27.5	34	27	27.5	614
Standby mode (Not charging)		27.5	23.5	28	28	614

H-Field Strength at 10 cm

Test Mode	Frequency Range(KHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Limits (A/m)
Charging mode With full load	110 KHz to 205 KHz	0.55	0.63	0.55	0.52	1.63
Charging mode With half load		0.55	0.68	0.54	0.57	1.63
Standby mode (Not charging)		0.55	0.47	0.56	0.56	1.63

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