

## TEST REPORT

**Report No.: 21111088HKG-001**

IKEA of Sweden AB

Wireless Power Transfer Device - Transmitter  
BETTORP

FCC RF Exposure Test for Wireless Charging Application

**Prepared and Checked by:**

**Approved by:**

Signed On File  
Lee For Yiu, Florey  
Assistant Engineer

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Wong Kwok Yeung, Kenneth  
Assistant Supervisor  
Date: November 30, 2021

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## TEST REPORT

### GENERAL INFORMATION

<b>Grantee:</b>	IKEA of Sweden AB
<b>Grantee Address:</b>	Box 702, SE-343 81 Älmhult, SWEDEN
<b>Manufacturer:</b>	Hestia Electric (Huizhou) Co., Ltd.
<b>Manufacturer Address:</b>	Technology Industrial Zone, Shiwan Town, Boluo County, Huizhou City, Guangdong Province, China
<b>Brand Name:</b>	IKEA
<b>Model:</b>	E2022 BETTORP, E2021 BETTORP
<b>Type of EUT:</b>	Wireless Power Transfer Device - Transmitter
<b>Description of EUT:</b>	Charging Station with Battery Operated Lamp
<b>Date of Sample Submitted:</b>	November 23, 2021
<b>Date of Test:</b>	November 23, 2021 to November 29, 2021
<b>Report No.:</b>	21111088HKG-001
<b>Report Date:</b>	November 30, 2021
<b>Environmental Conditions:</b>	Temperature: +10 to 40°C Humidity: 10 to 90%
<b>Conclusion:</b>	Test was conducted by client submitted sample. The submitted sample as received complied with KDB680106 D01 RF Exposure Wireless Charging Apps v03r1 (January 27, 2021)

## TEST REPORT

### SUMMARY OF TEST RESULT

Test Specification	Reference	Results
KDB680106 D01 RF Exposure Wireless Charging Apps v03r1		Pass

The equipment under test is found to be complying with the following standards:  
KDB680106 D01 RF Exposure Wireless Charging Apps v03r1 (January 27, 2021)

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## TEST REPORT

### 1.0 GENERAL DESCRIPTION

#### 1.1 Product Description

The Equipment Under Test (EUT), is a wireless charger that is designed to work on table. The EUT is powered by 110-240VAC 0.4A Adaptor, which is operated at 142 kHz for Lamp and 5W wireless power transmission.

Antenna Type: Internal, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 1.2 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). All radiated measurements were performed in an 3m Chamber. Preliminary scans were performed in the 3m Chamber only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application.

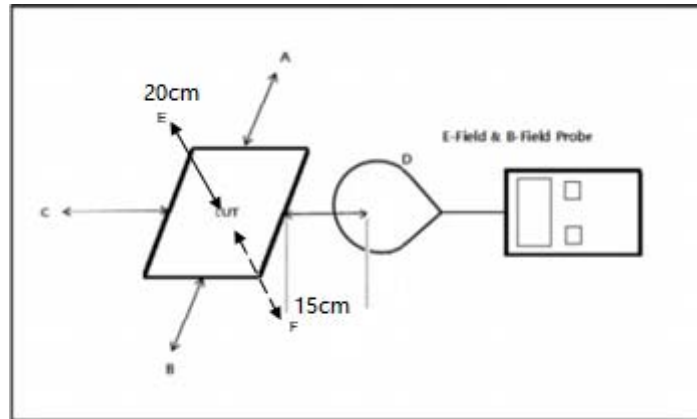
#### 1.3 Test Facility

The 3m Chamber and conducted measurement facility used to collect the radiated data is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China. This test facility and site measurement data have been placed on file with the IC No. 2042H, CABID is “HKAP01”.

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### 2.0 SYSTEM TEST CONFIGURATION

#### 2.1 Test Setup Configuration



For setup photos, please refer to Annex A.

#### Note

- The RF exposure test is performed in the shield room
- The test distance is between the edge of the charger and the geometric centre of probe
- The aggregate at 15 cm surrounding the device and 20 cm above the top surface from transmitting coil is demonstrated.
- Test Position: Rear, Right, Front, Left, Top, Bottom

#### 2.2 Test Procedure

##### Test Procedure

Enabled the EUT to transmit and receive data continue

The field strength of both E-field and H-field was measured at 15 cm surrounding the device and 20 cm above the top surface using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.

Maximum E-field and H-field measurements were made 15cm from each side of the EUT. Along the side of the EUT and still 15cm away from the edge of the EUT, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.

This device uses a wireless charging circuit for power transfer operating at the frequency of 128 kHz. Thus, the 300 kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

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### 2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

### 2.4 Measurement Uncertainty

Decision Rule for compliance: For FCC/IC standard, the measured value must be within the limits of applicable standard without accounting for the measurement uncertainty. For EN/IEC/HKTA/HKTC standard, conformity rules will be used as per standard directly excepted EN/IEC 61000-3-2, EN/IEC 61000-3-3, HKTA1004, HKCA1008, HKTA1019, HKTA1020, HKTA1041 and HKTA1044. For these excepted or not mentioned standards, CI 4.2.2 of ILAC-G8:09/2019 decision rules will be reference and guard band will be equal to our measurement uncertainty with 95% confidence level ( $k=2$ ). In case, the measured value is within guard band region, undetermined decision will be used.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 2.5 Support Equipment List and Description

- 1) 5W Loading x 2 (Provided by Intertek)
- 2) AC/DC Adaptor (Provided by Applicant)  
Model: ICPSW24-19-1  
Input: 100-240VAC 0.4A 50-60Hz  
Output: 24.0VDC 0.8A

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### 3.0 TEST LIMIT

According to KDB680106 D01 RF Exposure Wireless Charging Apps v03r1 (January 27, 2021), the requirement of RF exposure for the Wireless Charging device shall be met.

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

#### 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
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

#### 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 <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

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



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### 4.0 TEST RESULTS

#### Charging with specific receiver loading (Lamp only) – Coil 1

##### E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Lamp Charging	0.6628	0.7018	0.7422	0.7613	1.5990	0.4958	614/2 = 307

##### H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Lamp Charging	0.1742	0.2055	0.2219	0.2352	0.5157	0.0845	1.63

#### Charging with specific receiver loading (Lamp only) – Coil 2

##### E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Lamp Charging	0.6605	0.7010	0.7408	0.7605	1.5975	0.4902	614/2 = 307

##### H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Lamp Charging	0.1720	0.2023	0.2201	0.2333	0.5140	0.0831	1.63

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**Charging with specific receiver loading (Only one loading) – Coil 1**

E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Loading	0.3960	0.4846	0.5314	0.5040	0.6918	0.7916	614/2 = 307

H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Loading	0.1109	0.1324	0.1557	0.1507	0.2281	0.1806	1.63

**Charging with specific receiver loading (Only one loading) – Coil 2**

E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Loading	0.3940	0.4821	0.5302	0.5017	0.6903	0.7901	614/2 = 307

H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Loading	0.1088	0.1311	0.1540	0.1497	0.2275	0.1788	1.63

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**Charging with specific receiver loading (Two loadings) – Coil 1**

E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Loading	1.2973	1.3386	1.4762	2.0192	2.4956	0.9821	614/2 = 307

H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Loading	0.3516	0.4058	0.4480	0.7018	0.7590	0.2283	614/2 = 307

**Charging with specific receiver loading (Two Loadings) – Coil 2**

E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Loading	1.2860	1.3310	1.4728	2.0130	2.4908	0.9806	614/2 = 307

H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Loading	0.3498	0.4004	0.4426	0.6952	0.7513	0.2231	1.63

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### Charging with specific receiver loading (Standby) – Coil 1

#### E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Standby	0.3362	0.3501	0.3576	0.5031	0.5424	0.3560	614/2 = 307

#### H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Standby	0.0720	0.0796	0.0815	0.0949	0.1012	0.0718	1.63

### Charging with specific receiver loading (Standby) – Coil 2

#### E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Standby	0.3320	0.3515	0.3585	0.5020	0.5431	0.3577	614/2 = 307

#### H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Standby	0.0702	0.0811	0.0830	0.0918	0.1018	0.0745	1.63

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### Charging with specific receiver loading (Lamp and Loading) – Coil 1 (Lamp)

#### E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Lamp Charging	0.6520	0.7817	0.8041	0.9820	1.1253	0.7562	614/2 = 307

#### H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Lamp Charging	0.1840	0.2019	0.2510	0.3127	0.1886	0.1765	1.63

### Charging with specific receiver loading (Lamp and Loading) – Coil 2 (Loading)

#### E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Loading	0.3810	0.4733	0.5206	0.4978	0.6855	0.7813	614/2 = 307

#### H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Loading	0.0976	0.1231	0.1450	0.1298	0.2117	0.1695	1.63

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**Charging with specific receiver loading (Lamp and Loading) – Coil 1 (Loading)**

E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Loading	0.6322	0.7659	0.7945	0.9655	1.1100	0.7304	614/2 = 307

H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Loading	0.1768	0.1958	0.2430	0.3025	0.1794	0.1650	1.63

**Charging with specific receiver loading (Lamp and Loading) – Coil 2 (Lamp)**

E-Field Strength

Test Mode	Probe Position (V/m) C-Rear	Probe Position (V/m) B-Right	Probe Position (V/m) D-Front	Probe Position (V/m) A-Left	Probe Position (V/m) E-Top	Probe Position (V/m) F-Bottom	Limits (V/m)
Lamp Charging	0.3785	0.4612	0.5134	0.4909	0.6780	0.7734	614/2 = 307

H-Field Strength

Test Mode	Probe Position (A/m) C-Rear	Probe Position (A/m) B-Right	Probe Position (A/m) D-Front	Probe Position (A/m) A-Left	Probe Position (A/m) E-Top	Probe Position (A/m) F-Bottom	Limits (A/m)
Lamp Charging	0.0908	0.1197	0.1380	0.1204	0.2088	0.1657	1.63

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### 5.0 TEST EQUIPMENT

Equipment	Electric and Magnetic Field Probe - Analyzer	Electric and Magnetic Field Probe -Analyzer (1Hz to 400kHz)
Registration No.	EW-3412	EW-3413
Manufacturer	NARDASAFETY	NARDASAFETY
Model No.	EHP-200A	EHP-50F
Calibration Date	January 23, 2021	January 23, 2021
Calibration Due Date	January 23, 2022	January 23, 2022

-End of Report-