

Prüfbericht-Nr.: <i>Test report no.:</i>	CN23O3L1 001	Auftrags-Nr.: <i>Order no.:</i>	168420670	Seite 1 von 32 Page 1 of 32
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023-03-10	
Auftraggeber: <i>Client:</i>	SRP Companies 85 Rio Grande Drive, Second Floor, Castle Rock, CO 80104, USA			
Prüfgegenstand: <i>Test item:</i>	15W Magnetic Wireless Charger			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	HKWP11071-15EL    (Trademark: by T-ELEVEN, CELLTRONIX, TEK)			
Auftrags-Inhalt: <i>Order content:</i>	Type Test			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart C Section 15.215 CFR47 FCC Part 2: Subpart J Section 1.1310			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-04-28	Refer to photos document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003466025-011 to 013			
Prüfzeitraum: <i>Testing period:</i>	2023-05-05 – 2023-06-03			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>		genehmigt von: <i>authorized by:</i>		
Datum: <i>Date:</i>	2023-06-19	Ausstellungsdatum: <i>Issue date:</i>	2023-06-20	
Stellung / Position	Project Manager	Stellung / Position	Reviewer	
Sonstiges / Other:	FCC ID: 2ATF5-67590 Factory: HANK ELECTRONICS VIETNAM LTD Address: No. 7,11 Street VSIP Tu Son . 16353 Bac Ninh Province . Vietnam			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 20dB BANDWIDTH

RESULT: Pass

5.1.3 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.4 CONDUCTED EMISSIONS

RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China/518110

FCC Registration No.: CN1260

IC Registration No.: 25069, CAN identifier: CN0078

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Spurious Emissions Testing				
Description	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2024-08-02
Signal Analyzer	R&S	FSV 40	101439	2024-08-01
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2024-08-01
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2024-08-02
Amplifier	R&S	SCU-18F	180070	2024-08-02
Amplifier	R&S	SCU40A	100475	2024-08-02
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2024-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22
Conducted Emissions				
Description	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR3	102428	2023-07-31
Artificial Mains Network	R&S	ENV216	102333	2023-08-01
EMC32 test software	R&S	EMC32(Ver.10.50.0 0)	N/A	N/A
RF Exposure				
Description	Manufacturer	Model	Serial No.	Cal. until
Electric and Magnetic Field Analyzer	Narda	EHP200A	180ZX20517	2023-09-28

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cisp})
Conducted Emission	Level accuracy (9kHz to 150kHz)	± 3.70 dB	± 3.8 dB
	(150kHz to 30MHz)	± 3.30 dB	± 3.4 dB
Radiated Emission (3m SAC)	Level accuracy (30MHz to 1000MHz)	± 4.52 dB	± 6.3 dB
	Level accuracy (above 1000MHz)	± 4.37 dB	N/A

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China/518110 is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The device is a 15W Magnetic Wireless Charger, this product has two different color of enclosure: black and white.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	15W Magnetic Wireless Charger
Type Designation	HKWP11071-15EL
Trademark	   by 7-ELEVEN™, CELLTRONIX™, TEK™
FCC ID	2ATF5-67590
Operating Voltage	Input: DC 5V, 2A and Output 5W Input: DC 9V, 2A and Output 7.5W/10W Input: DC 12V, 1.67A and Output 15W
Test voltage	AC 120V, 60Hz
Technical Specification of WPT	
Operating Frequency	111-205KHz
Modulation	FSK
Antenna Type	Coil Antenna
Antenna number	1
Antenna Gain	0 dBi (Provided by the Client)
Wireless Charger output power	Max. 15W

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wireless charging (WPT)
 - 1. 15W
 - 2. 10W
 - 3. 5W
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- ID Label and Location Info

4 Test Set-up and Operation Modes

4.1 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 instructions for use.

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5&6. All testing were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all test were applied on model HKWP11071-15EL with black enclosure.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	Apple	A2244	F16211504Y4PMG9BH	Output: 5Vdc, 3A or 9Vdc, 2.22A
Adapter	Xiaomi	AD652G	30770/00294855	Output: 5Vdc, 3A or 9Vdc, 3A or 11Vdc, 5A or 12Vdc, 3A or 15Vdc, 3A or 20Vdc, 3.25A
Electronic Load	YBZ	N/A	N/A	5W/7.5W/10W/15W
IPhone 13 Pro Max	Apple	A2644	F19FYR3712	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 30MHz)

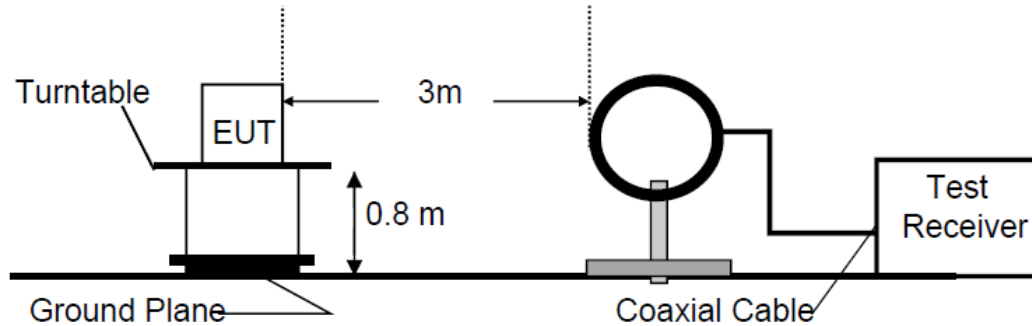


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

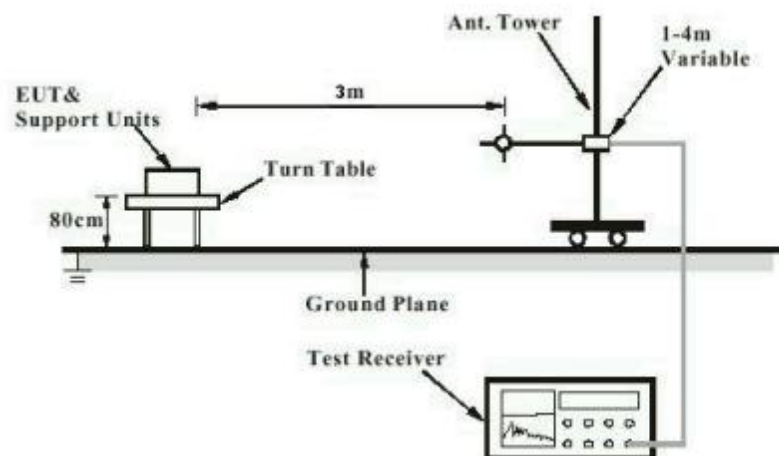
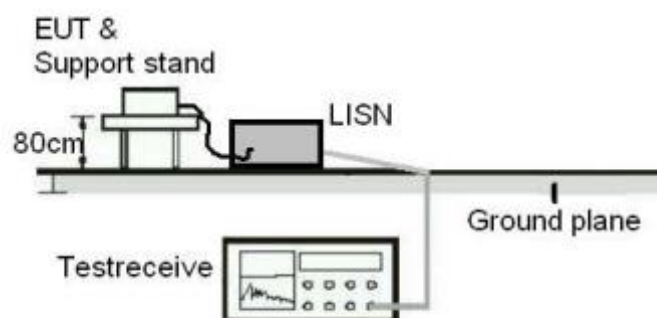


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : Part 15.203

According to the manufacturer declared, the EUT has an internal antenna, and the antenna is permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 20dB Bandwidth

RESULT:
Pass
Test Specification

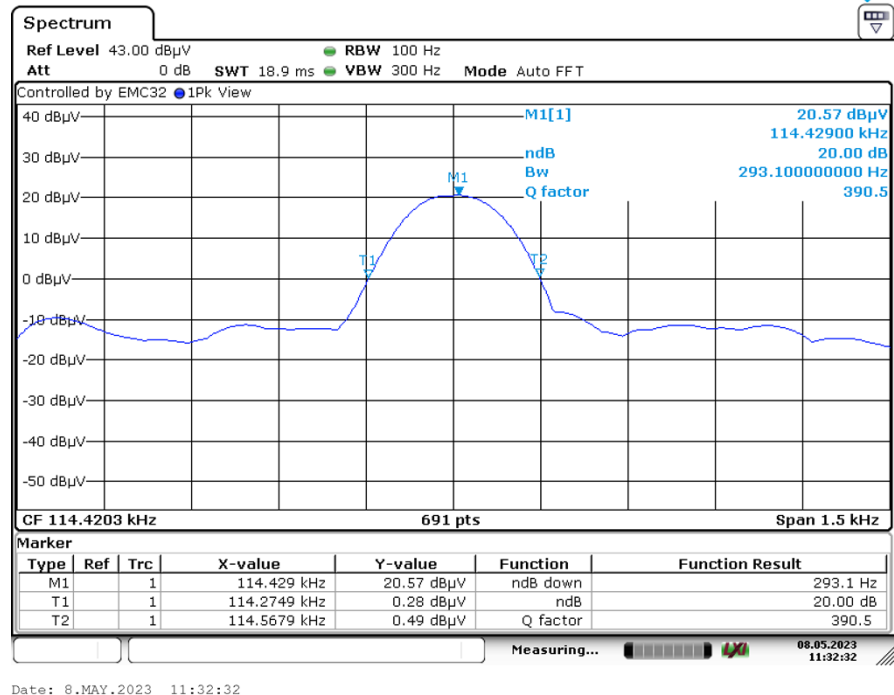
Test standard : FCC Part 15.215(c)
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

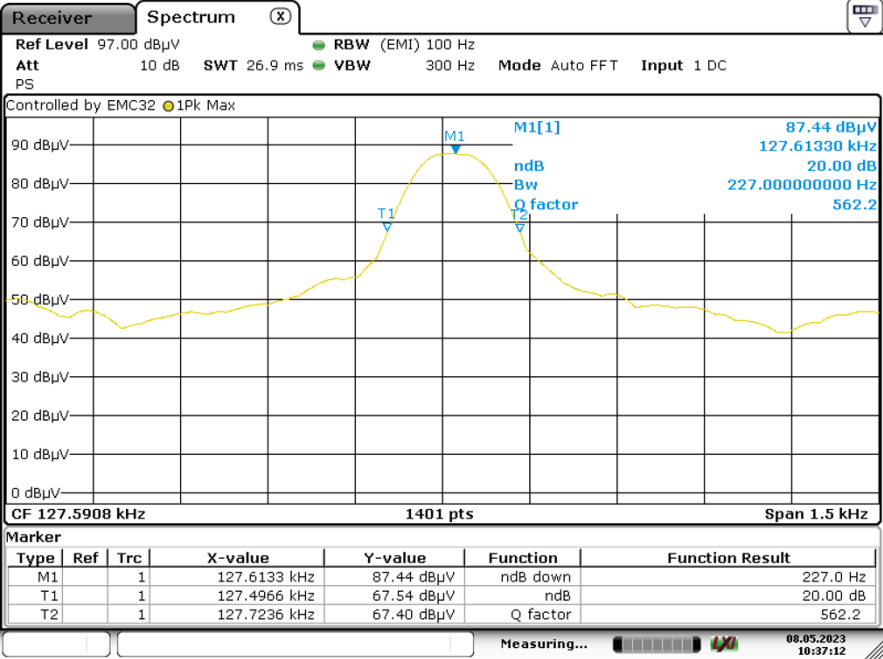
Date of testing : 2023-05-08
 Input voltage : AC 120V, 60Hz
 Operation mode : A
 Ambient temperature : 25 °C
 Relative humidity : 56 %
 Atmospheric pressure : 101 kPa

For details refer to following test result.

This testing was carried out on all operation modes, but only the worst case (A.1 & A.3) was presented in this report.

 For WPT 5W with
 Apple Adapter


For WPT 15W with
Xiaomi Adapter



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5.1.3 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.209 & 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a)
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2023-05-05 – 2023-05-12
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Ambient temperature	: 23 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

This testing was carried out on all operation modes, but only the worst case (A.1 & A.3) was presented in this report.

Measurements are to be taken in dBuV/m, corrected, and the end result shall be mathematically converted to the dBuA/m for RSS and presented against the correct limit.

$E \text{ [dB}\mu\text{A/m]} = AF \text{ [dBS/m]} + V \text{ [dB}\mu\text{V]} + \text{Cable loss [dB]}$

E [dBμA/m] is the magnetic field strength (Final Test results)

AF [dBS/m] is the magnetic antenna factor of the antenna (H-field)

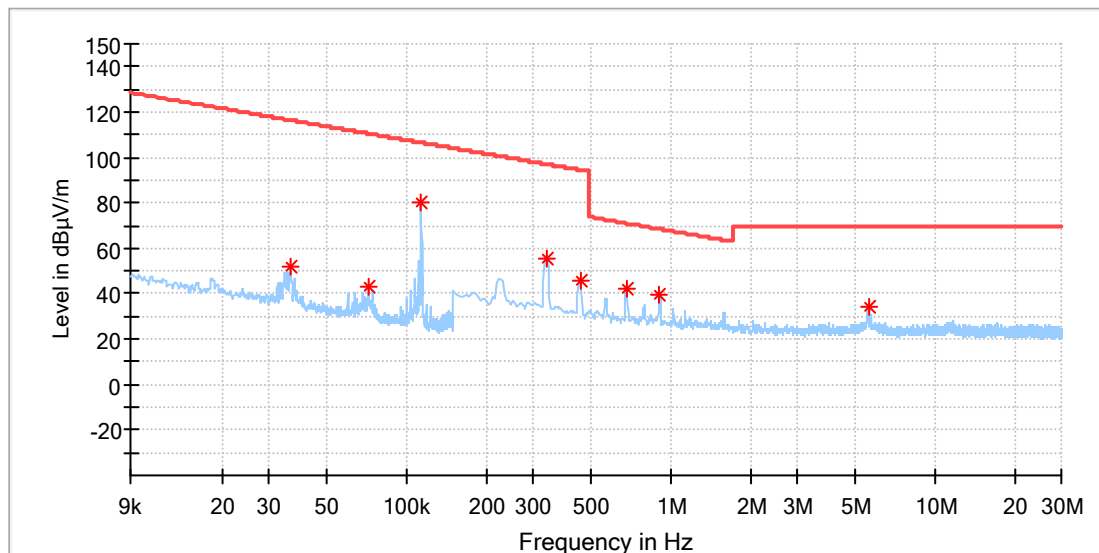
V [dBμV] is the reading level on the spectrum analyzer

Note that when using the AF [dBS/m] the 51.5 dB is already account for into the antenna factor.

For WPT 5W with Apple Adapter

EUT Information

EUT Name:	15W Magnetic Wireless Charger
Model:	HKWP11071-15EL
Test Mode:	Charging
Order No/Sample No:	168420670/A003466025-013
Test Voltage::	AC 120V/60Hz
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

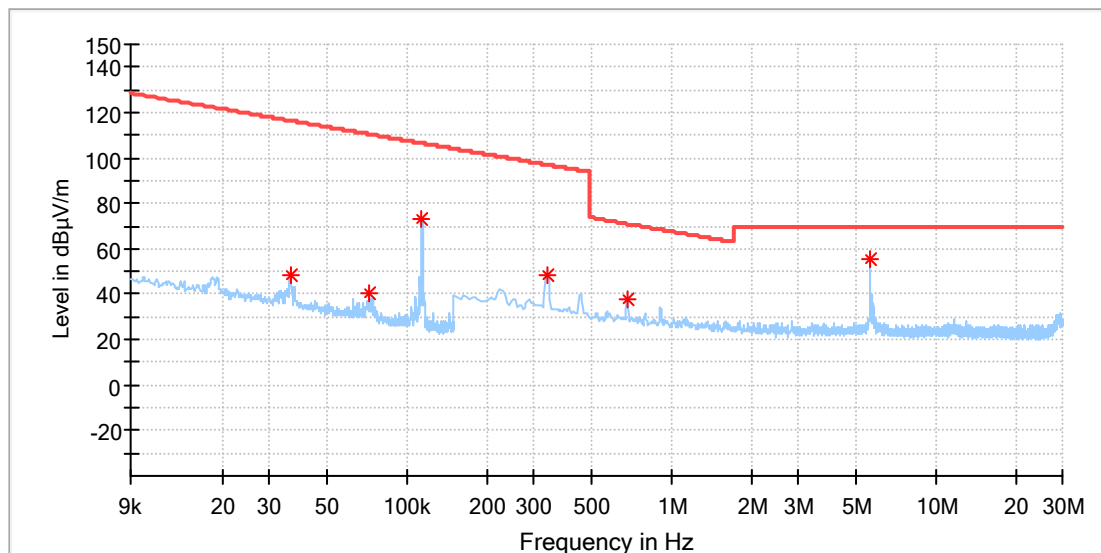
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.036394	51.74	116.37	64.63	100.0	X	85.0	20.1
0.071544	43.41	110.50	67.09	100.0	X	85.0	20.1
0.113340	80.28	106.51	26.23	100.0	X	82.0	20.1
0.338758	55.16	97.00	41.85	100.0	X	85.0	20.1
0.452890	45.62	94.48	48.86	100.0	X	99.0	20.1
0.676765	42.61	71.00	28.39	100.0	X	77.0	20.1
0.905030	39.78	68.49	28.71	100.0	X	51.0	20.1
5.593235	34.18	69.50	35.32	100.0	X	45.0	20.3

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EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical_Freqs

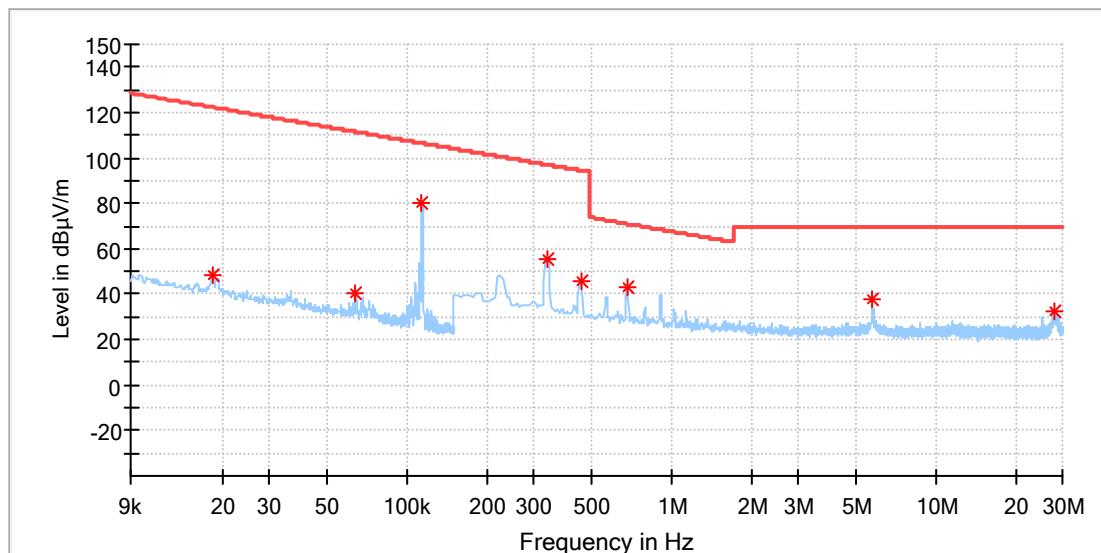
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.036294	48.13	116.40	68.26	100.0	Y	53.0	20.1
0.071241	40.67	110.54	69.87	100.0	Y	53.0	20.1
0.113441	72.96	106.50	33.54	100.0	Y	343.0	20.1
0.338758	47.99	97.00	49.01	100.0	Y	354.0	20.1
0.681155	38.14	70.95	32.80	100.0	Y	161.0	20.1
5.637132	55.59	69.50	13.91	100.0	Y	190.0	20.3

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EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

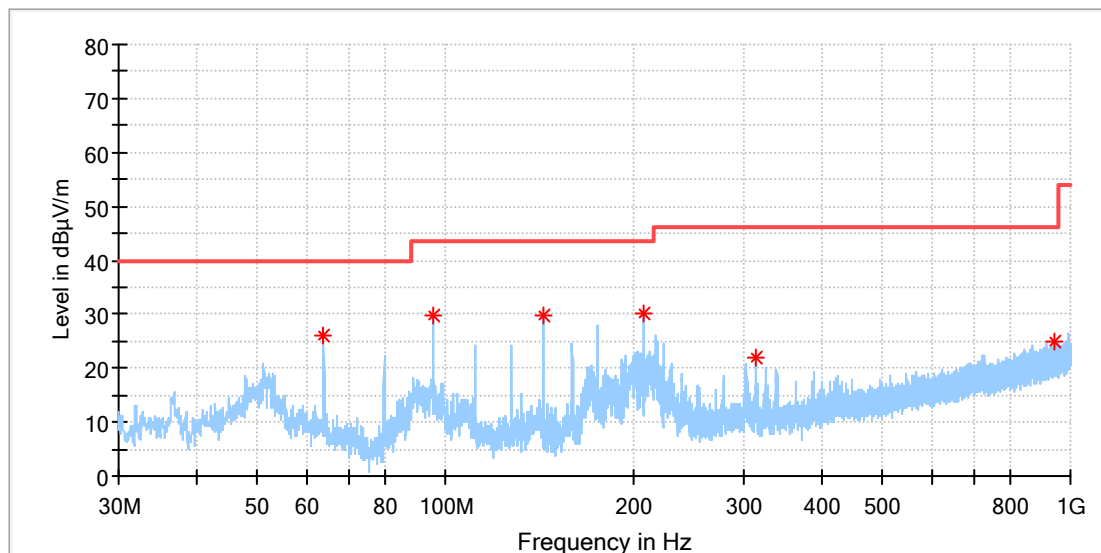


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.018366	48.40	122.31	73.91	100.0	Z	317.0	20.1
0.063587	40.30	111.53	71.23	100.0	Z	7.0	20.1
0.113441	80.52	106.50	25.99	100.0	Z	74.0	20.1
0.338758	55.58	97.00	41.43	100.0	Z	106.0	20.1
0.452890	45.76	94.48	48.72	100.0	Z	57.0	20.1
0.681155	43.34	70.95	27.60	100.0	Z	47.0	20.1
5.751265	38.11	69.50	31.39	100.0	Z	106.0	20.3
27.853434	32.51	69.50	36.99	100.0	Z	295.0	20.7

EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical Freqs

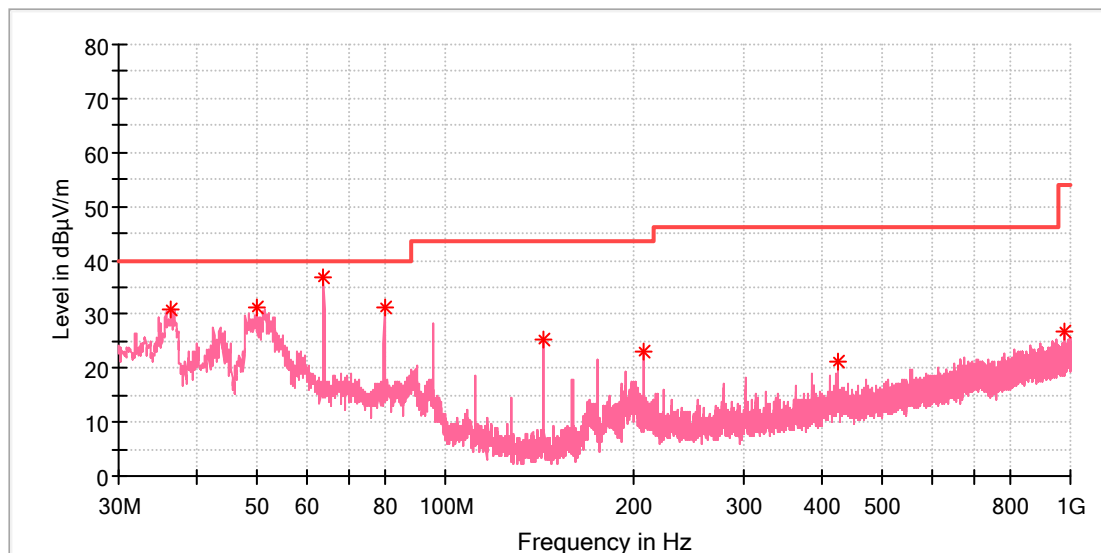
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
63.875385	26.10	40.00	13.90	100.0	H	0.0	-20.2
95.773462	29.78	43.50	13.72	100.0	H	0.0	-19.9
143.713846	29.83	43.50	13.67	100.0	H	292.0	-22.6
207.584615	30.09	43.50	13.41	100.0	H	302.0	-19.2
314.284615	22.13	46.00	23.87	100.0	H	22.0	-16.3
945.232308	25.01	46.00	20.99	100.0	H	6.0	-4.9

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EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



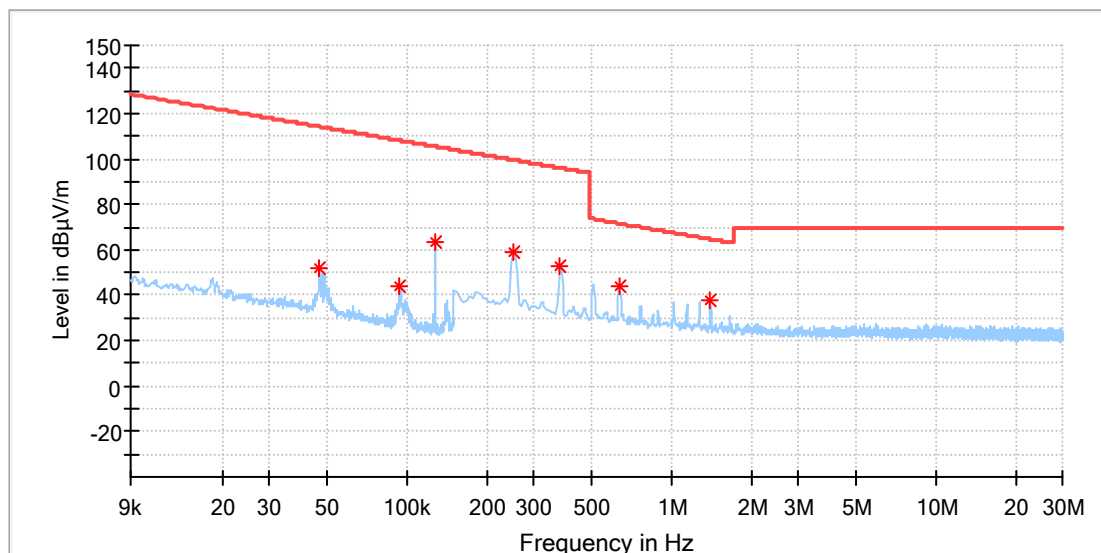
Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.416923	30.85	40.00	9.15	100.0	V	148.0	-21.7
49.996923	31.30	40.00	8.70	100.0	V	50.0	-18.6
63.912692	36.84	40.00	3.16	100.0	V	59.0	-20.2
79.843077	31.21	40.00	8.79	100.0	V	0.0	-23.8
143.713846	25.34	43.50	18.16	100.0	V	131.0	-22.6
207.547308	23.23	43.50	20.27	100.0	V	339.0	-19.2
423.969231	21.28	46.00	24.72	100.0	V	34.0	-13.7
977.354231	26.81	54.00	27.19	100.0	V	180.0	-4.5

For WPT 15W with Xiaomi Adapter

EUT Information

EUT Name:	15W Magnetic Wireless Charger
Model:	HKWP11071-15EL
Test Mode:	Charging
Order No/Sample No:	168420670/A003466025-013
Test Voltage::	AC 120V/60Hz
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

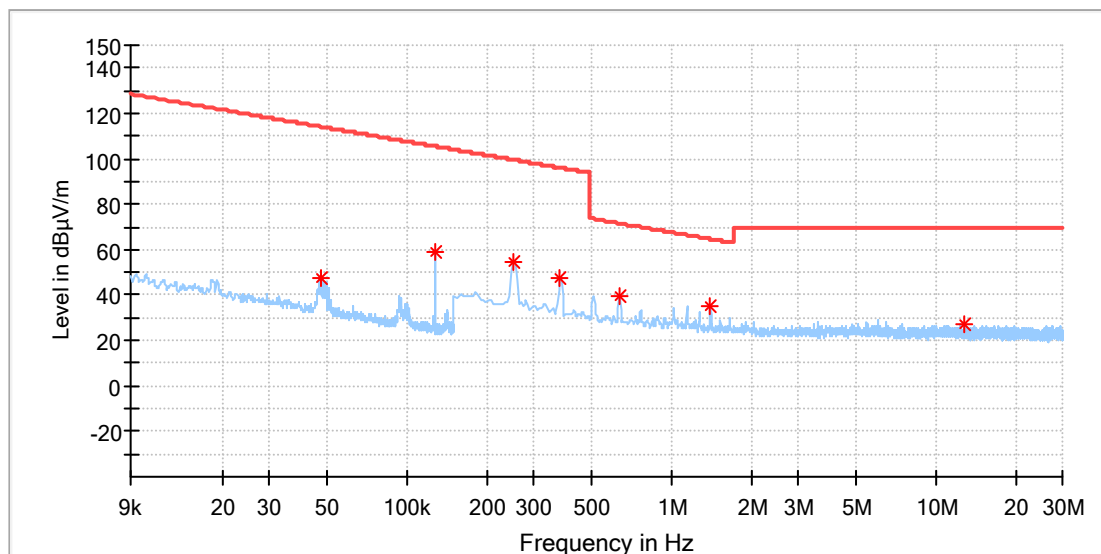
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.046466	51.64	114.25	62.61	100.0	X	87.0	20.1
0.092996	43.87	108.23	64.35	100.0	X	87.0	20.1
0.127339	63.01	105.50	42.48	100.0	X	56.0	20.1
0.250963	58.81	99.61	40.80	100.0	X	269.0	20.1
0.378265	52.36	96.05	43.68	100.0	X	89.0	20.1
0.632868	43.57	71.58	28.02	100.0	X	82.0	20.1
1.401066	38.17	64.70	26.53	100.0	X	276.0	20.1

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EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

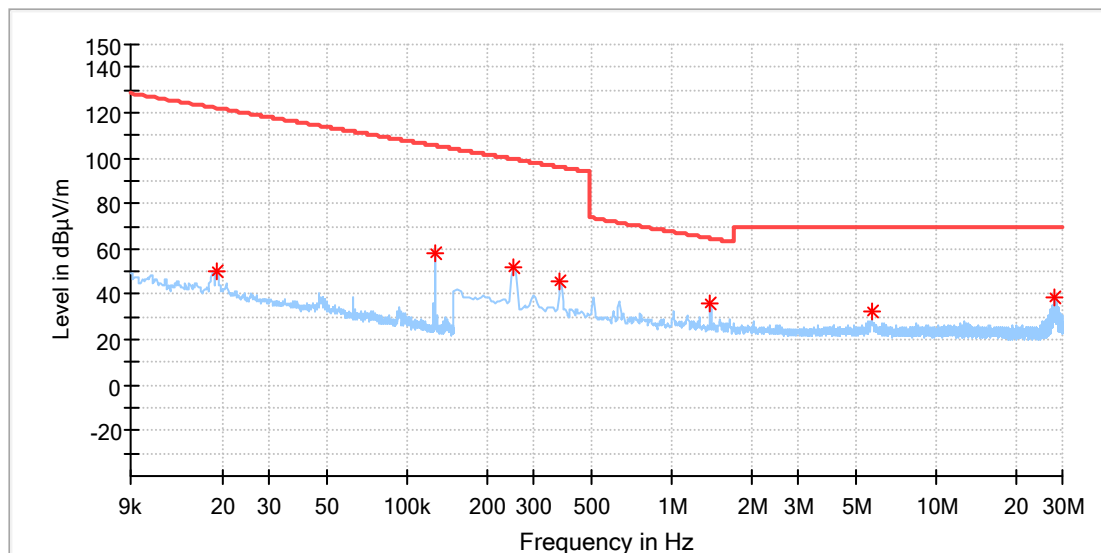


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.046969	47.83	114.16	66.32	100.0	Y	41.0	20.1
0.127440	58.63	105.49	46.86	100.0	Y	329.0	20.1
0.250963	54.93	99.61	44.68	100.0	Y	199.0	20.1
0.378265	47.62	96.05	48.42	100.0	Y	199.0	20.1
0.632868	39.40	71.58	32.18	100.0	Y	327.0	20.1
1.401066	35.48	64.70	29.22	100.0	Y	29.0	20.1
12.739677	27.45	69.50	42.05	100.0	Y	47.0	20.5

EUT Information

EUT Name: 15W Magnetic Wireless Charger
Model: HKWP11071-15EL
Test Mode: Charging
Order No/Sample No: 168420670/A003466025-013
Test Voltage:: AC 120V/60Hz
Remark: Temp 23 Humi:53%
Test Standard: FCC Part 15C
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical Freqs

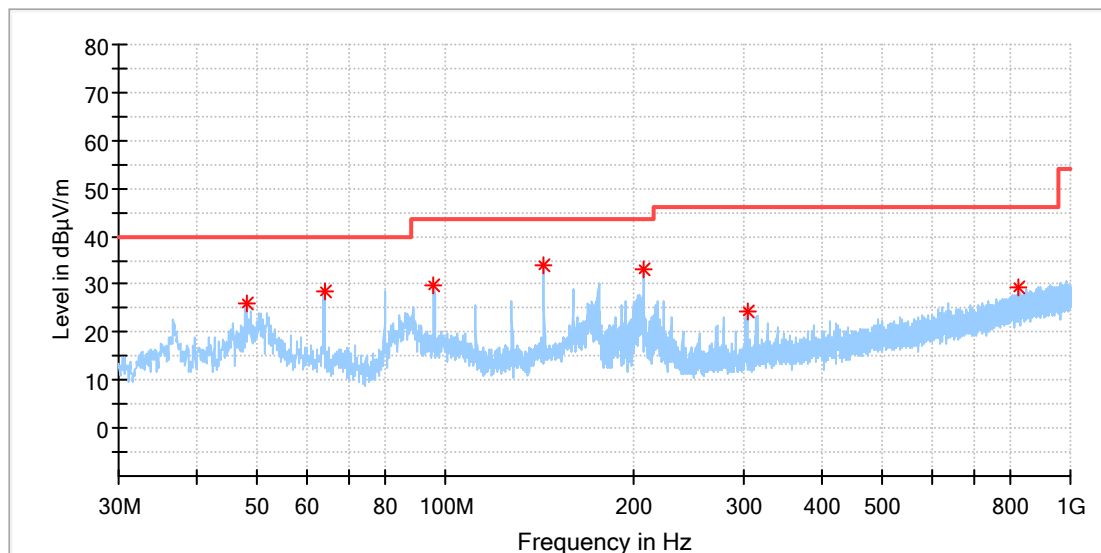
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.019071	50.33	121.98	71.65	100.0	Z	348.0	20.1
0.127339	58.32	105.50	47.18	100.0	Z	55.0	20.1
0.250963	52.20	99.61	47.40	100.0	Z	278.0	20.1
0.378265	45.31	96.05	50.74	100.0	Z	278.0	20.1
1.401066	35.67	64.70	29.04	100.0	Z	105.0	20.1
5.729316	32.54	69.50	36.96	100.0	Z	309.0	20.3
27.901721	38.43	69.50	31.07	100.0	Z	241.0	20.7

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EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

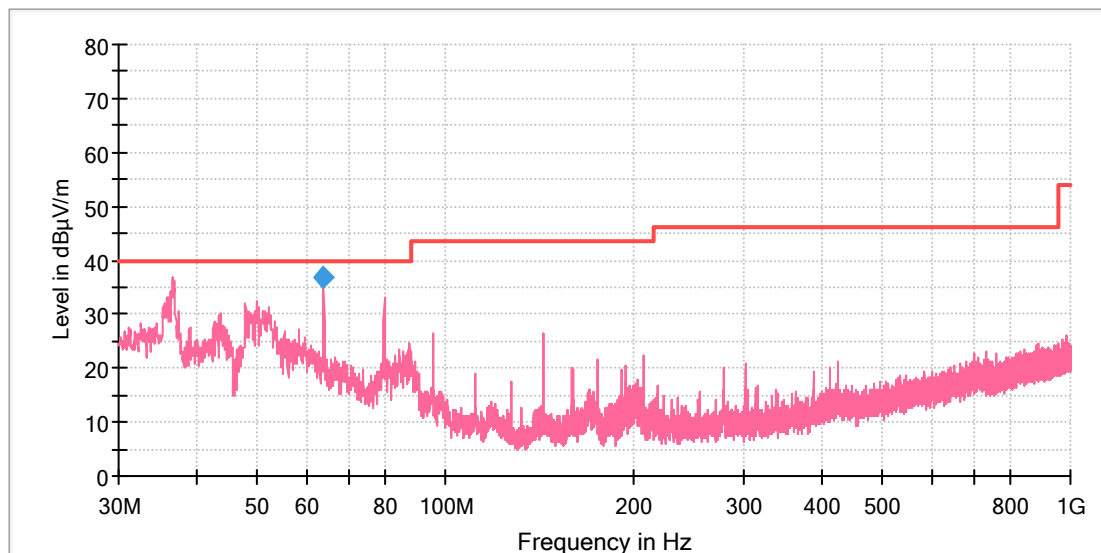


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
47.945000	25.96	40.00	14.04	100.0	H	322.0	-18.4
63.950000	28.61	40.00	11.39	100.0	H	343.0	-19.8
95.911500	29.57	43.50	13.93	100.0	H	358.0	-19.6
143.878000	33.77	43.50	9.73	100.0	H	305.0	-22.2
207.801000	32.96	43.50	10.54	100.0	H	290.0	-18.9
303.637000	24.18	46.00	21.82	100.0	H	290.0	-16.2
825.109000	29.46	46.00	16.54	100.0	H	54.0	-5.9

EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Model: HKWP11071-15EL
 Test Mode: Charging
 Order No/Sample No: 168420670/A003466025-013
 Test Voltage:: AC 120V/60Hz
 Remark: Temp 23 Humi:53%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.603462	36.99	40.00	3.01	100.0	V	51.0	-21.6
79.805769	33.08	40.00	6.92	100.0	V	0.0	-23.8
143.713846	26.59	43.50	16.91	100.0	V	112.0	-22.6
302.681923	20.98	46.00	25.02	100.0	V	41.0	-16.6
423.708077	21.16	46.00	24.84	100.0	V	15.0	-13.7
886.472692	24.41	46.00	21.59	100.0	V	0.0	-5.5

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
63.860693	36.85	40.00	3.15	100.0	V	50.0	-20.1

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5.1.4 Conducted emissions

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.207
Basic standard	: ANSI C63.10: 2013
Frequency range	: 150KHz - 30MHz
Classification	: Class B
Limit	FCC Part 15.207 (a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-05-05 – 2023-05-12
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Ambient temperature	: 23.2 °C
Relative humidity	: 50.6 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

This testing was carried out on all operation modes, but only the worst case (A.1 & A.3) was presented in this report.

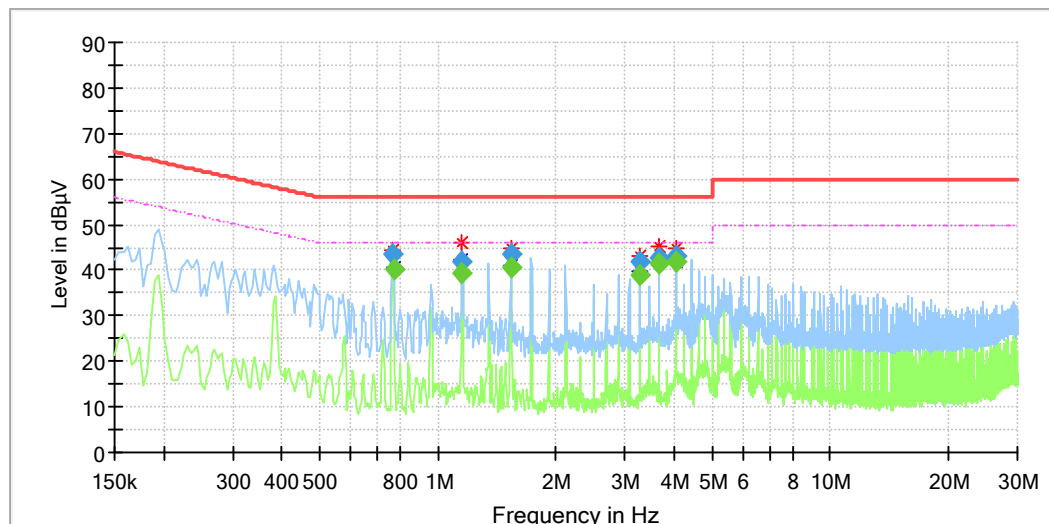
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For WPT 5W with Apple Adapter

EUT Information

EUT Name:	15W Magnetic Wireless Charger
Order Number:	168420670
Model:	HKWP11071-15EL
Test Mode:	On, charging (5W)
Test Voltage:	AC 120V/60Hz
Test Standard:	FCC Part 15C
Test By:/Review By:	Charlie Zha / Gary Chen
Tem./Hum./Pressure:	23.2°C/50.6%/101kPa
Remark:	SR2

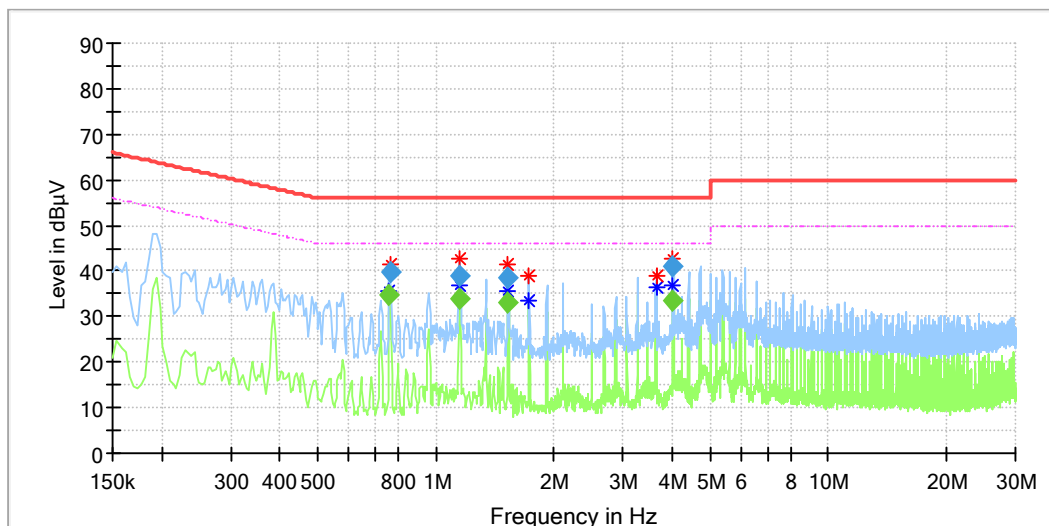


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.769500	43.55	---	56.00	12.45	1000.0	9.000	L1	10.0
0.773500	---	40.25	46.00	5.75	1000.0	9.000	L1	10.0
1.149500	---	39.25	46.00	6.75	1000.0	9.000	L1	10.1
1.153500	41.79	---	56.00	14.21	1000.0	9.000	L1	10.1
1.533500	---	40.50	46.00	5.50	1000.0	9.000	L1	10.1
1.542500	43.71	---	56.00	12.29	1000.0	9.000	L1	10.1
3.265500	---	38.92	46.00	7.08	1000.0	9.000	L1	10.2
3.274500	41.66	---	56.00	14.34	1000.0	9.000	L1	10.2
3.649500	42.68	---	56.00	13.32	1000.0	9.000	L1	10.2
3.653500	---	41.48	46.00	4.52	1000.0	9.000	L1	10.2
4.037500	---	41.67	46.00	4.33	1000.0	9.000	L1	10.2
4.042500	43.19	---	56.00	12.81	1000.0	9.000	L1	10.2

EUT Information

EUT Name: 15W Magnetic Wireless Charger
Order Number: 168420670
Model: HKWP11071-15EL
Test Mode: On, charging (5W)
Test Voltage: AC 120V/60Hz
Test Standard: FCC Part 15C
Test By:/Review By: Charlie Zha / Gary Chen
Tem./Hum./Pressure: 23.2°C/50.6%/101kPa
Remark: SR2



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
1.726000	39.10	---	56.00	16.90	N	9.8
1.726000	---	33.36	46.00	12.64	N	9.8
3.642000	39.03	---	56.00	16.97	N	9.9
3.646000	---	36.50	46.00	9.50	N	9.9

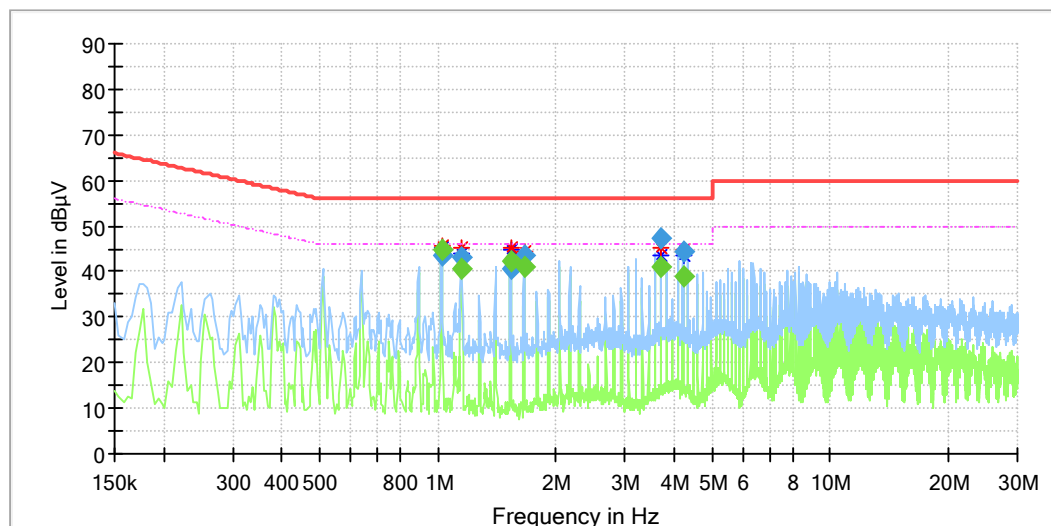
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.761500	---	34.89	46.00	11.11	1000.0	9.000	N	9.8
0.770500	39.95	---	56.00	16.05	1000.0	9.000	N	9.8
1.145500	---	34.01	46.00	11.99	1000.0	9.000	N	9.8
1.145500	39.02	---	56.00	16.98	1000.0	9.000	N	9.8
1.529500	38.52	---	56.00	17.48	1000.0	9.000	N	9.8
1.529500	---	33.17	46.00	12.83	1000.0	9.000	N	9.8
4.025500	---	33.52	46.00	12.48	1000.0	9.000	N	9.9
4.025500	40.85	---	56.00	15.15	1000.0	9.000	N	9.9

For WPT 15W with Xiaomi Adapter

EUT Information

EUT Name: 15W Magnetic Wireless Charger
Order Number: 168420670
Model: HKWP11071-15EL
Test Mode: On, charging (15W)
Test Voltage: AC 120V/60Hz
Test Standard: FCC Part 15C
Test By:/Review By: Charlie Zha / Gary Chen
Tem./Hum./Pressure: 23.2°C/50.6%/101kPa
Remark: SR2



Final Result

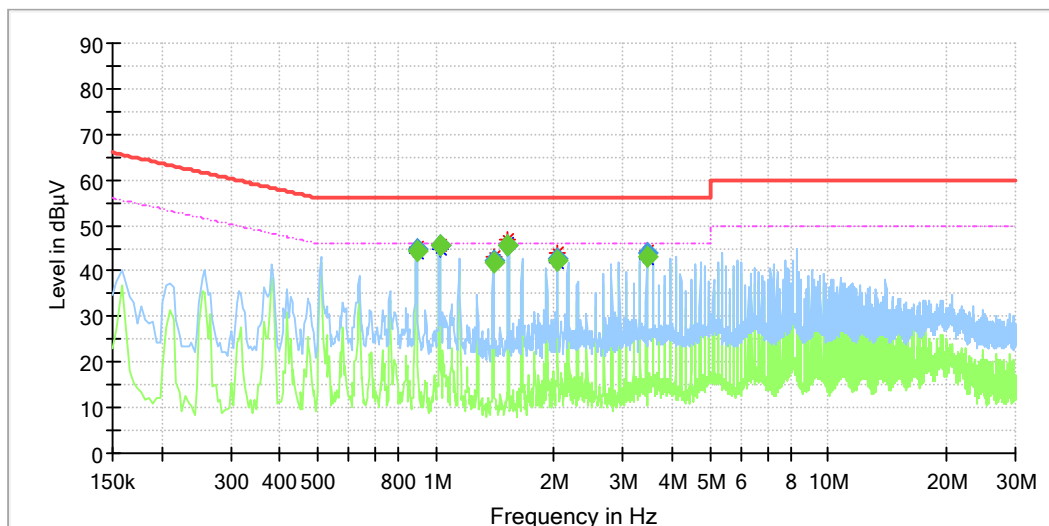
Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
1.021500	---	44.94	46.00	1.06	1000.0	9.000	L1	10.0
1.021500	43.48	---	56.00	12.52	1000.0	9.000	L1	10.0
1.149500	---	40.75	46.00	5.25	1000.0	9.000	L1	10.1
1.149500	43.25	---	56.00	12.75	1000.0	9.000	L1	10.1
1.533500	---	42.38	46.00	3.62	1000.0	9.000	L1	10.1
1.533500	40.53	---	56.00	15.47	1000.0	9.000	L1	10.1
1.661500	43.52	---	56.00	12.48	1000.0	9.000	L1	10.1
1.661500	---	41.21	46.00	4.79	1000.0	9.000	L1	10.1
3.701500	47.35	---	56.00	8.65	1000.0	9.000	L1	10.2
3.701500	---	41.15	46.00	4.86	1000.0	9.000	L1	10.2
4.213500	---	39.04	46.00	6.96	1000.0	9.000	L1	10.2
4.213500	44.37	---	56.00	11.63	1000.0	9.000	L1	10.2

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EUT Information

EUT Name: 15W Magnetic Wireless Charger
 Order Number: 168420670
 Model: HKWP11071-15EL
 Test Mode: On, charging (15W)
 Test Voltage: AC 120V/60Hz
 Test Standard: FCC Part 15C
 Test By:/Review By: Charlie Zha / Gary Chen
 Tem./Hum./Pressure: 23.2°C/50.6%/101kPa
 Remark: SR2



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.893500	---	44.26	46.00	1.74	1000.0	9.000	N	9.8
0.893500	44.61	---	56.00	11.39	1000.0	9.000	N	9.8
1.021500	---	45.46	46.00	0.54	1000.0	9.000	N	9.8
1.021500	45.62	---	56.00	10.38	1000.0	9.000	N	9.8
1.401500	---	42.01	46.00	3.99	1000.0	9.000	N	9.8
1.405500	42.39	---	56.00	13.61	1000.0	9.000	N	9.8
1.529500	45.59	---	56.00	10.41	1000.0	9.000	N	9.8
1.529500	---	45.84	46.00	0.16	1000.0	9.000	N	9.8
2.041500	42.50	---	56.00	13.50	1000.0	9.000	N	9.9
2.041500	---	42.14	46.00	3.86	1000.0	9.000	N	9.9
3.445500	---	43.29	46.00	2.71	1000.0	9.000	N	9.9
3.445500	43.88	---	56.00	12.13	1000.0	9.000	N	9.9

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

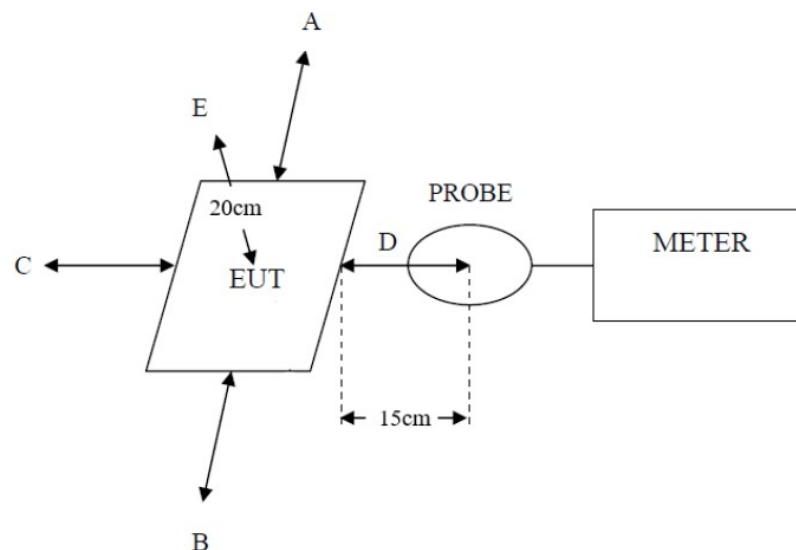
Test standard : CFR47 FCC Part 2: Subpart J Section 1.1310
FCC CFR 47 Part 1(1.1310) KDB 680106 D01 v03

According to the table 1 of FCC Part 2.1310, the reference limit as below:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Test Setup:



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Test Result:

Table: H-Field Strength at 15 cm from the edges surrounding the EUT and 20cm from the top surface of the EUT

For WPT 5W:

EUT Test Mode	Measured H-Field Strength Values (A/m)					50% Limit (A/m)	Limit (A/m)	Result
	Test Position Top	Test Position front	Test Position rear	Test Position left	Test Position right			
1% Battery Level	0.32	0.34	0.31	0.36	0.33	0.815	1.63	Pass
50% Battery Level	0.31	0.34	0.30	0.35	0.32	0.815	1.63	Pass
99% Battery Level	0.30	0.33	0.29	0.35	0.30	0.815	1.63	Pass

For WPT 15W:

EUT Test Mode	Measured H-Field Strength Values (A/m)					50% Limit (A/m)	Limit (A/m)	Result
	Test Position Top	Test Position front	Test Position rear	Test Position left	Test Position right			
1% Battery Level	0.43	0.41	0.38	0.35	0.36	0.815	1.63	Pass
50% Battery Level	0.42	0.41	0.37	0.35	0.35	0.815	1.63	Pass
99% Battery Level	0.41	0.40	0.36	0.34	0.35	0.815	1.63	Pass

7 Photographs of the Test Set-Up

Refer to test photo document.

8 List of Tables

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