

Prüfbericht-Nr.: <i>Test report no.:</i>	CN22WIAQ 001	Auftrags-Nr.: <i>Order no.:</i>	168378467	Seite 1 von 24 Page 1 of 24
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2022-06-21	
Auftraggeber: <i>Client:</i>	Gopod Group Limited. 6/F., 235 Wing Lok Trade Centre, Sheung Wan, Hong Kong, China			
Prüfgegenstand: <i>Test item:</i>	2-in-1 Magnetic Wireless Charger Stand			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	BE-MQ221W23, BE-MQ221xxxxxxx, NS-MQ221xxxxxxx. ("x"=0-9, A-Z, a-z, - or blank, for market purpose only)			
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			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2022-06-20	Refer to photos document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003282756-001 A003283661-001~002			
Prüfzeitraum: <i>Testing period:</i>	2022-06-23 – 2022-07-05			
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> 2022-07-26	Ausstellungsdatum: <i>Issue date:</i> 2022-08-05			
Stellung / Position	Assistant Project Manager	Stellung / Position	Department Manager	
Sonstiges / Other:	FCC ID: 2AQZH-MQ221W23			
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: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Prüfbericht - Nr.: CN22WIAQ 001
Test Report No.:

Seite 2 von 24
Page 2 of 24

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 99% BANDWIDTH

RESULT: Pass

5.1.3 20dB BANDWIDTH

RESULT: Pass

5.1.4 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.5 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

Contents

1	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS.....	4
2	TEST SITES.....	5
2.1	TEST FACILITIES	5
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
2.3	TRACEABILITY	6
2.4	CALIBRATION.....	6
2.5	MEASUREMENT UNCERTAINTY	6
2.6	LOCATION OF ORIGINAL DATA	6
2.7	STATUS OF FACILITY USED FOR TESTING	6
3	GENERAL PRODUCT INFORMATION	7
3.1	PRODUCT FUNCTION AND INTENDED USE	7
3.2	RATINGS AND SYSTEM DETAILS.....	7
3.3	INDEPENDENT OPERATION MODES.....	7
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	8
3.5	SUBMITTED DOCUMENTS.....	8
4	TEST SET-UP AND OPERATION MODES.....	9
4.1	PRINCIPLE OF CONFIGURATION SELECTION	9
4.2	TEST OPERATION AND TEST SOFTWARE	9
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	9
4.5	TEST SETUP DIAGRAM	10
5	TEST RESULTS	11
5.1	TRANSMITTER REQUIREMENT & TEST SUITES.....	11
5.1.1	<i>Antenna Requirement.....</i>	<i>11</i>
5.1.2	<i>99% Bandwidth.....</i>	<i>12</i>
5.1.3	<i>20dB Bandwidth</i>	<i>14</i>
5.1.4	<i>Radiated Spurious Emission</i>	<i>15</i>
5.1.5	<i>Conducted Emission on AC Mains.....</i>	<i>21</i>
6	PHOTOGRAPHS OF THE TEST SET-UP	24
7	LIST OF TABLES.....	24

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 Huangguan Road Middle, Longhua District, Shenzhen 518110, China

FCC Registration No.: CN1260

IC Registration No.: 25069 and the CAB identifier is CN0078.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing				
Description	Manufacturer	Model	Serial No.	Cal. Until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	28.09.2022
Power Control Unit	Tonscend	JS0806-4ADC	N/A	28.09.2022
Automation Control Unit	Tonscend	JS0806-2	21C8060396	28.09.2022
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A
Unwanted Emission Testing				
Description	Manufacturer	Model	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR 7	102021	2022-08-10
Signal Analyzer	R&S	FSV 40	101439	2022-08-09
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2022-08-09
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2022-08-09
Amplifier	R&S	SCU-18F	180070	2022-08-09
Amplifier	R&S	SCU40A	100475	2022-08-09
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-08
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-08
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-08
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-09-13
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A

Prüfbericht - Nr.: CN22WIAQ 001

Test Report No.:

Seite 6 von 24

Page 6 of 24

Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

Conducted Emission

Description	Manufacturer	Model	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102680	2023-02-27
Artificial Mains Network	R&S	ENV216	101445	2023-02-27
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

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

Parameter	Uncertainty
Radiated Emission, valid up to 26.5 GHz	±6 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	±3.70 dB / ±3.30 dB

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 Huangguan Road Middle, Longhua District, Shenzhen 518110, China 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 EUTs are a **2-in-1 Magnetic Wireless Charger Stand** which supports wireless charging function.

All models are identical except the model number or color for different market purpose.

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	2-in-1 Magnetic 7.5W Wireless Charger Stand
Type Designation	BE-MQ221W23, BE-MQ221xxxxxxx, NS-MQ221xxxxxxx. ("x"=0-9, A-Z, a-z, - or blank, for market purpose only)
FCC ID	2AQZH-MQ221W23
Operating Voltage	AC 100-240V, 50/60Hz via AC/DC Adapter
Testing Voltage	AC 120V, 60Hz
AC/DC Adapter	Model: DCT18W120150US-Y0 Input: AC 100-240V, 50/60Hz, 0.7A Output: DC 12V, 1.5A
Technical Specification of WPT	
Operating Frequency	111-205KHz
Modulation	FSK
Antenna Type	Induction Coil Antenna
Antenna Gain	0 dBi
Antenna number	2
Wireless Charger output power	7.5W & 5W

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wireless charging
 - 1. 7.5W
 - 2. 5W
 - 3. 5W+7.5W
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|----------------------------------|-------------------------|
| - FCC/IC Label and Location Info | - Instruction Manual |
| - Application Form | - Operation Description |

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 BE-MQ221W23.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Dummy Load	YBZ	N/A	N/A	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)

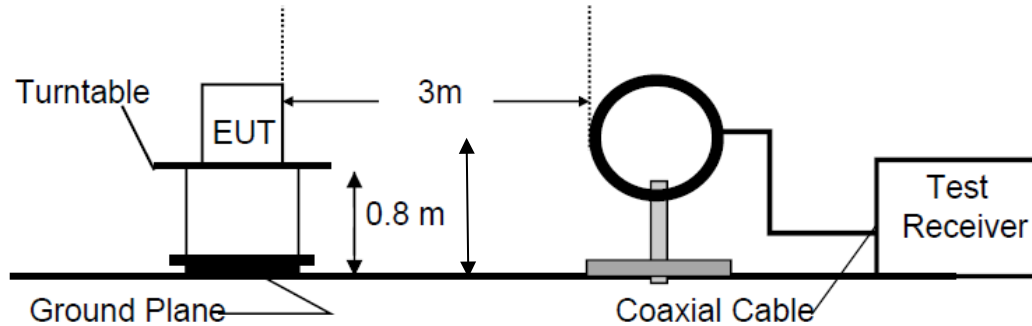


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

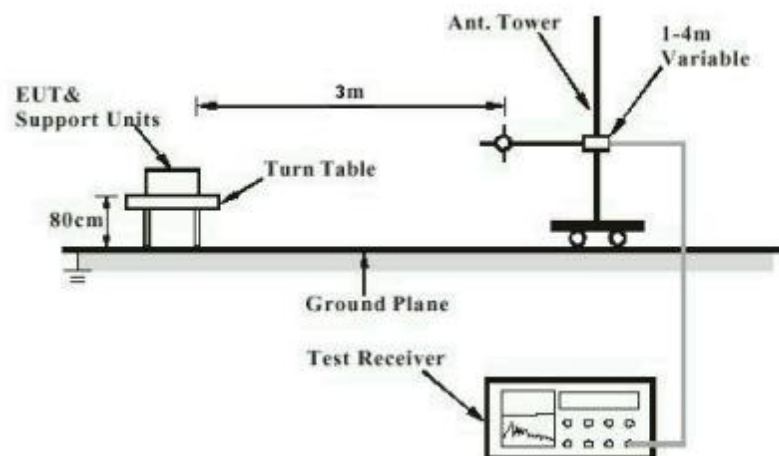
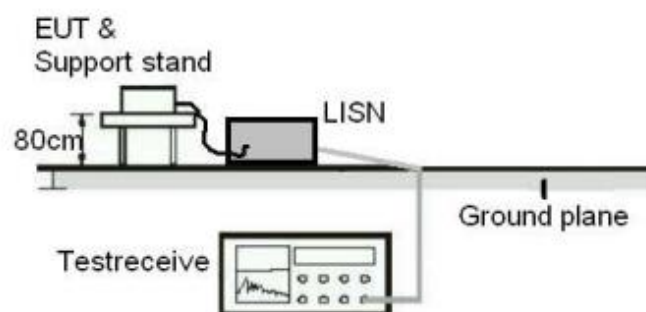


Diagram of Measurement Configuration for Mains Conduction Measurement



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 two 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.

Prüfbericht - Nr.: CN22WIAQ 001
Test Report No.:

Seite 12 von 24
Page 12 of 24

5.1.2 99% Bandwidth

RESULT:

Pass

Test Specification

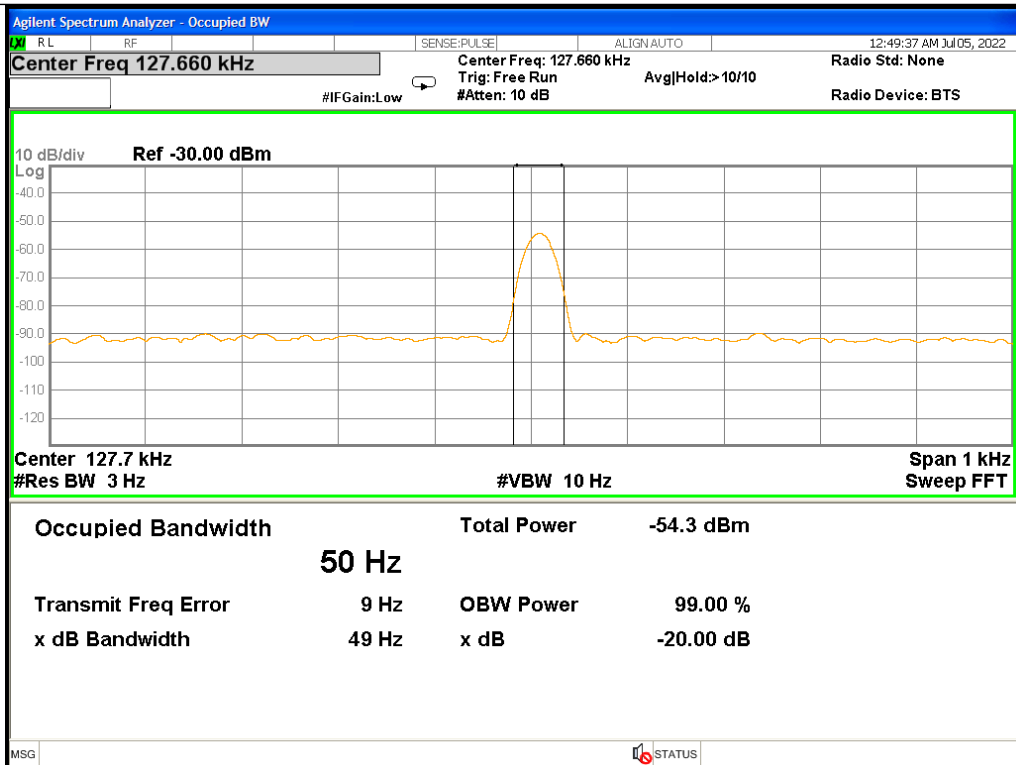
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

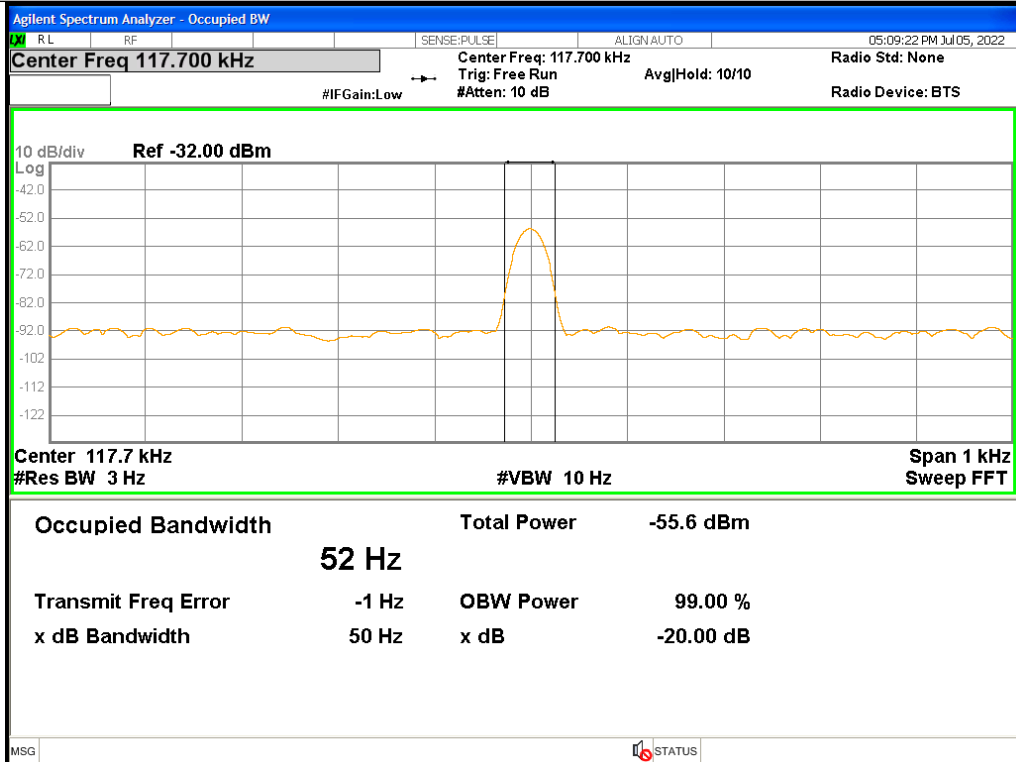
Date of testing : 2022-07-05
Input voltage : AC 120V, 60Hz
Operation mode : A
Ambient temperature : 23 °C
Relative humidity : 45 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the following test plots.

For 7.5W



For 5W



Prüfbericht - Nr.: CN22WIAQ 001
Test Report No.:

Seite 14 von 24
Page 14 of 24

5.1.3 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 : 2022-07-05
Input voltage : AC 120V, 60Hz
Operation mode : A
Ambient temperature : 23 °C
Relative humidity : 45 %
Atmospheric pressure : 101 kPa

For details refer to clause 5.1.2.

Prüfbericht - Nr.: CN22WIAQ 001
Test Report No.:

Seite 15 von 24
Page 15 of 24

5.1.4 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

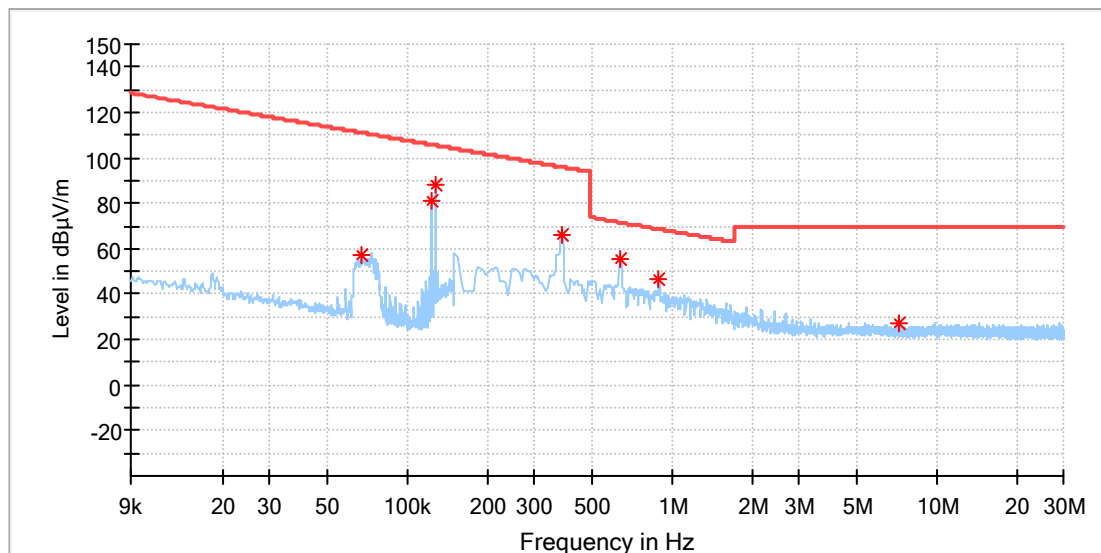
Date of testing	: 2022-06-24
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Ambient temperature	: 22 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

This testing was carried out on all operation modes, but only the worst case was presented in this report.

Refer to following test plots for details of test result.

EUT Information

EUT Name:	2-in-1 Magnetic Wireless Charger Stand
Model:	BE-MQ221W23
Test Mode:	A.3
Order No/Sample No:	168378467/A003282756-001
Test Voltage:	120V/60Hz
Remark:	Temp 22 Humi:55%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

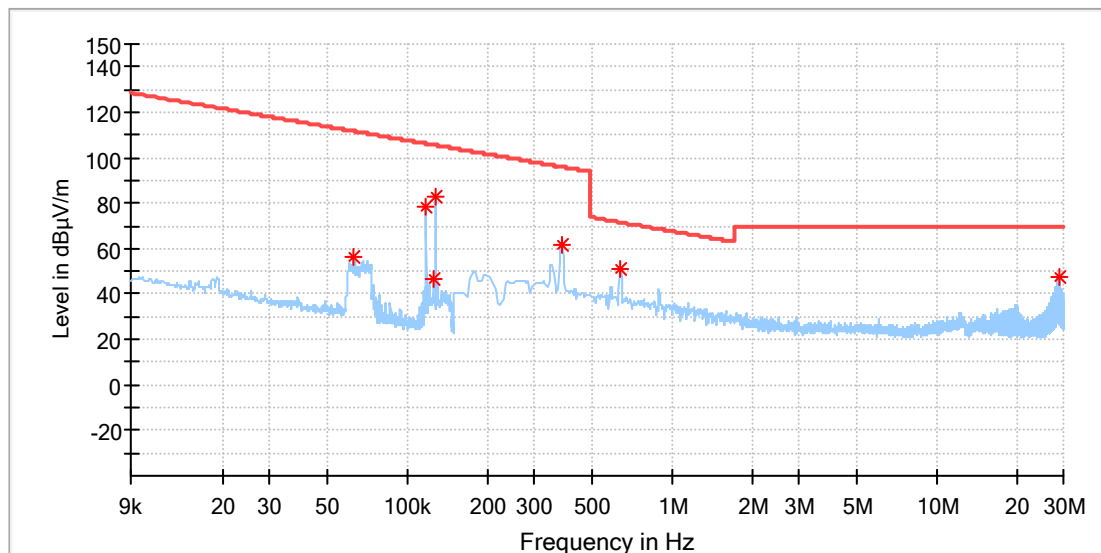


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.067414	57.56	111.02	53.46	100.0	X	339.0	20.1
0.123109	81.09	105.79	24.70	100.0	X	32.0	20.1
0.127742	88.19	105.47	17.28	100.0	X	4.0	20.1
0.382655	66.40	95.95	29.54	100.0	X	12.0	20.1
0.637258	55.63	71.52	15.90	100.0	X	7.0	20.1
0.891860	46.95	68.61	21.66	100.0	X	352.0	20.1
7.155971	27.42	69.50	42.08	100.0	X	23.0	20.3

EUT Information

EUT Name:	2-in-1 Magnetic Wireless Charger Stand
Model:	BE-MQ221W23
Test Mode:	A.3
Order No./Sample No:	168378467/A003282756-001
Test Voltage:	120V/60Hz
Remark:	Temp 22 Humi:55%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

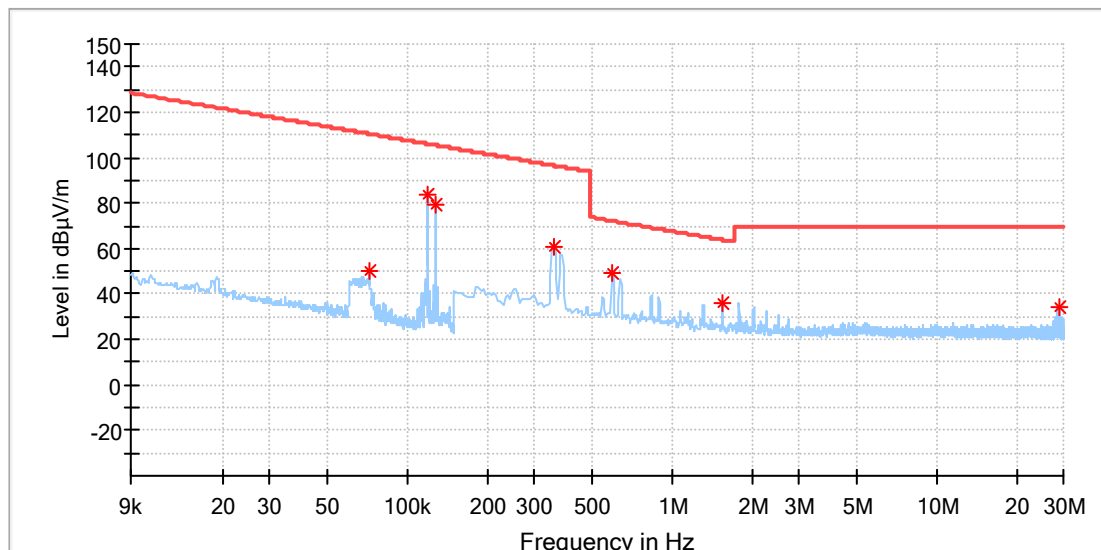


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.062580	56.00	111.67	55.67	100.0	Y	290.0	20.1
0.117671	78.33	106.18	27.85	100.0	Y	61.0	20.1
0.125728	46.37	105.61	59.24	100.0	Y	126.0	20.1
0.127641	83.08	105.48	22.40	100.0	Y	267.0	20.1
0.382655	61.64	95.95	34.30	100.0	Y	265.0	20.1
0.637258	50.76	71.52	20.76	100.0	Y	65.0	20.1
28.854287	47.43	69.50	22.07	100.0	Y	174.0	20.7

EUT Information

EUT Name:	2-in-1 Magnetic Wireless Charger Stand
Model:	BE-MQ221W23
Test Mode:	A.3
Order No./Sample No:	168378467/A003282756-001
Test Voltage:	120V/60Hz
Remark:	Temp 22 Humi:55%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

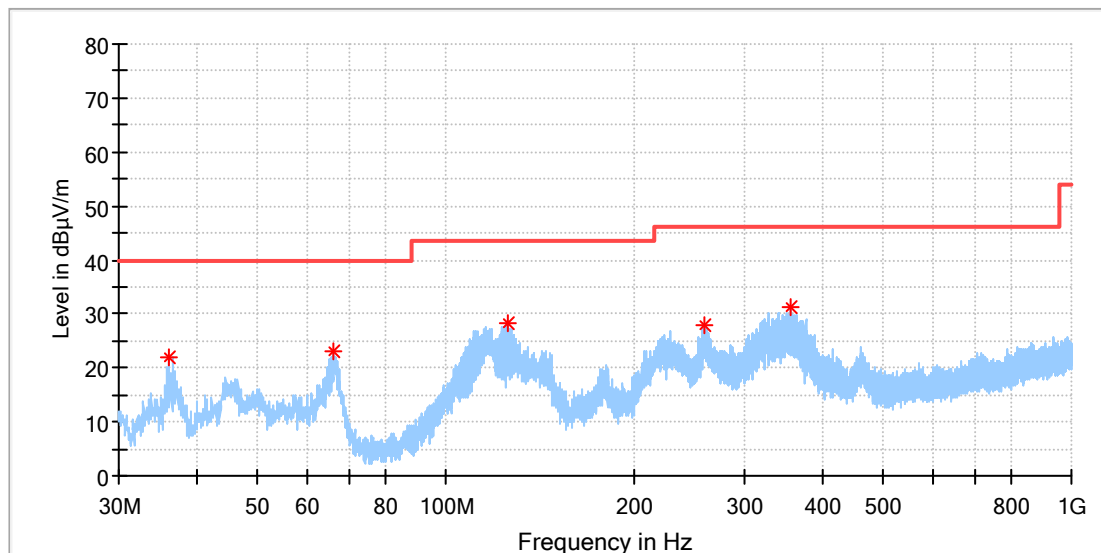


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.071644	49.91	110.49	60.58	100.0	Z	338.0	20.1
0.119484	84.14	106.05	21.92	100.0	Z	0.0	20.1
0.127742	79.43	105.47	26.04	100.0	Z	0.0	20.1
0.356316	60.95	96.57	35.62	100.0	Z	17.0	20.1
0.593360	49.21	72.14	22.93	100.0	Z	56.0	20.1
1.550316	36.25	63.82	27.58	100.0	Z	13.0	20.1
28.854287	34.32	69.50	35.18	100.0	Z	261.0	20.7

EUT Information

EUT Name: 2-in-1 Magnetic Wireless Charger Stand
 Model: BE-MQ221W23
 Test Mode: A.3
 Order No/Sample No: 168378467/A003282756-001
 Test Voltage: 120V/60Hz
 Remark: Temp 22 Humi:55%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical_Freqs

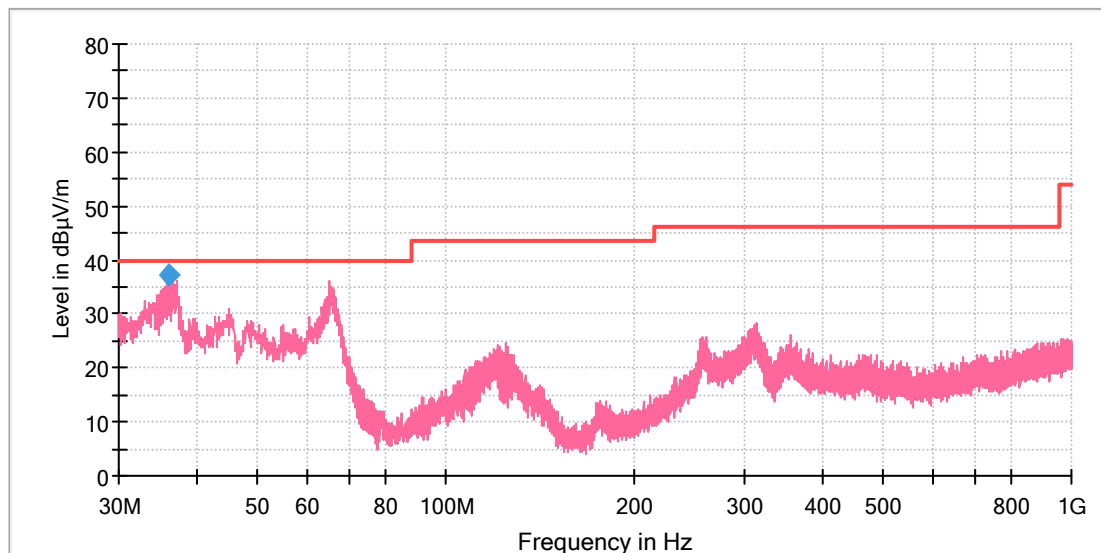
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.118462	21.85	40.00	18.15	100.0	H	8.0	-21.8
66.263077	22.93	40.00	17.07	100.0	H	141.0	-20.8
125.507692	28.41	43.50	15.09	100.0	H	278.0	-21.7
259.554231	28.03	46.00	17.97	100.0	H	110.0	-17.5
356.181154	31.19	46.00	14.81	100.0	H	53.0	-15.0

Prüfbericht - Nr.: CN22WIAQ 001
Test Report No.:

Seite 20 von 24
 Page 20 of 24

EUT Information

EUT Name:	2-in-1 Magnetic Wireless Charger Stand
Model:	BE-MQ221W23
Test Mode:	A.3
Order No/Sample No:	168378467/A003282756-001
Test Voltage:	120V/60Hz
Remark:	Temp 22 Humi:55%
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)
65.255769	36.11	40.00	3.89	100.0	V	0.0	-20.5
124.463077	24.44	43.50	19.06	100.0	V	24.0	-21.6
314.060769	28.11	46.00	17.89	100.0	V	263.0	-16.3
884.122308	24.63	46.00	21.37	100.0	V	0.0	-5.5

Prüfbericht - Nr.: CN22WIAQ 001
Test Report No.:

Seite 21 von 24
Page 21 of 24

5.1.5 Conducted Emission on AC Mains

RESULT:

Pass

Test Specification

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

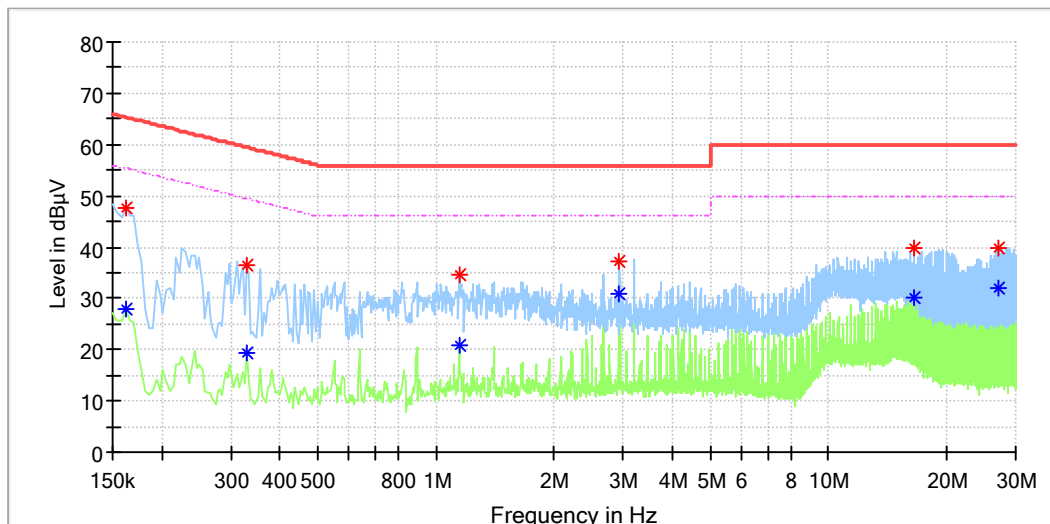
Test Setup

Date of testing	: 2022-06-23
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Earthing	: Not connected
Ambient temperature	: 24.1 °C
Relative humidity	: 52.6 %
Atmospheric pressure	: 101 kPa

This testing was carried out on all operation modes, but only the worst case was presented in this report.

EUT Information

EUT Name: 2-in-1 Magnetic Wireless Charger Stand
Order No: 168378467_P00731114
Model: BE-MQ221W23
Test mode: A.3
Test Voltage: AC 120V/60Hz
Test By:/Review By: Shower Dai/Gary Chen
Test Standard: FCC part 15
Tem./Hum./Pressure: 24.1°C/52.6%//101kPa
Remark: SR2

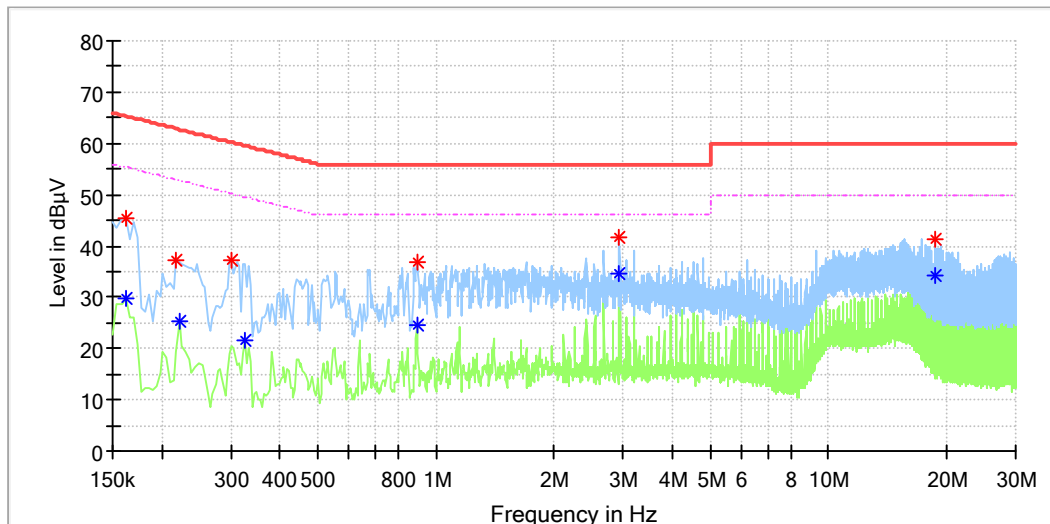


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.162000	---	27.89	55.36	27.47	L1	9.9
0.162000	47.71	---	65.36	17.65	L1	9.9
0.330000	---	19.20	49.45	30.25	L1	9.9
0.330000	36.62	---	59.45	22.83	L1	9.9
1.146000	34.58	---	56.00	21.42	L1	10.1
1.150000	---	20.77	46.00	25.23	L1	10.1
2.934000	37.24	---	56.00	18.76	L1	10.2
2.938000	---	30.97	46.00	15.03	L1	10.2
16.598000	---	30.29	50.00	19.71	L1	10.4
16.598000	39.87	---	60.00	20.13	L1	10.4
27.066000	---	31.91	50.00	18.09	L1	10.4
27.066000	39.81	---	60.00	20.19	L1	10.4

EUT Information

EUT Name: 2-in-1 Magnetic Wireless Charger Stand
Order No: 168378467_P00731114
Model: BE-MQ221W23
Test mode: A.3
Test Voltage: AC 120V/60Hz
Test By:/Review By: Shower Dai/Gary Chen
Test Standard: FCC part 15
Tem./Hum./Pressure: 24.1°C/52.6%//101kPa
Remark: SR2



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.162000	---	29.93	55.36	25.44	N	9.8
0.162000	45.50	---	65.36	19.86	N	9.8
0.218000	37.13	---	62.90	25.76	N	9.8
0.222000	---	25.21	52.74	27.53	N	9.8
0.302000	37.11	---	60.19	23.08	N	9.8
0.326000	---	21.45	49.55	28.11	N	9.8
0.894000	---	24.72	46.00	21.28	N	9.8
0.894000	36.85	---	56.00	19.15	N	9.8
2.938000	---	34.68	46.00	11.32	N	9.9
2.938000	41.76	---	56.00	14.24	N	9.9
18.638000	---	34.29	50.00	15.71	N	10.2
18.638000	41.28	---	60.00	18.72	N	10.2

6 Photographs of the Test Set-Up

Refer to test photo document.

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Technical Specification of EUT.....	7
Table 3: List of Accessories and Auxiliary Equipment.....	9