

Prüfbericht-Nr.: Test report no.:	CN2249LD 001	Auftrags-Nr.: Order no.:	168378839	Seite 1 von 20 Page 1 of 20
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2022-06-23	
Auftraggeber: Client:	Shenzhen Reflying Electronic Co., Ltd 6 Bldg, GaoXinJian Industrial zone, HePing village, Fuyong Town, Bao'an district, Shenzhen, Guangdong, China			
Prüfgegenstand: Test item:	Magnetic Wireless Car Charger			
Bezeichnung / Typ-Nr.: Identification / Type no.:	BE-MVQ3AC1B23, BE-MVQ3ACxxxxxxxx, NS- MVQ3ACxxxxxxxx, ("x"=0-9, A-Z, a-z, - or blank, for market purpose only)			
Auftrags-Inhalt: Order content:	Type test			
Prüfgrundlage: Test specification:	CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart C Section 15.215			
Wareneingangsdatum: Date of sample receipt:	2022-06-29	Refer to photos document		
Prüfmuster-Nr.: Test sample no.:	A003288382-008			
Prüfzeitraum: Testing period:	2022-07-12			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:			genehmigt von: authorized by:	
Datum: Date: 2022-07-18	Signed by: Alex Lan		Ausstellungsdatum: Issue date: 2022-07-21	Signed by: Lin Lin
Stellung / Position	Assistant Project Manager		Stellung / Position	Reviewer
Sonstiges / Other:	FCC ID: A7M-MVQ3AC1B23			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged:			
* 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. 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.				

V05

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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

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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 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	2022-09-28
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2022-09-28
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2022-09-28
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
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

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

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 **Magnetic Wireless Car Charger** 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	Magnetic Wireless Car Charger
Type Designation	BE-MVQ3AC1B23, BE-MVQ3ACxxxxxxx, NS- MVQ3ACxxxxxxx, ("x"=0-9, A-Z, a-z, - or blank, for market purpose only)
FCC ID	A7M-MVQ3AC1B23
Operating Voltage	For car charger: Input: DC 12-24V Cable Output: DC 9V, 2A USB-A Output: DC 5V, 1A For Wireless charger: Input: DC 9V, A via car charger Output: 10W maximum
Technical Specification of WPT	
Operating Frequency	111-205KHz
Modulation	FSK
Antenna Type	Induction Coil Antenna
Antenna Gain	0 dBi
Antenna number	1
Wireless Charger output power	10W Maximum

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wireless charging
- 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-MVQ3AC1B23**.

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
DC power Supply	Topward	3303D	809332	0-30 Volts, 0-3 Amps

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)

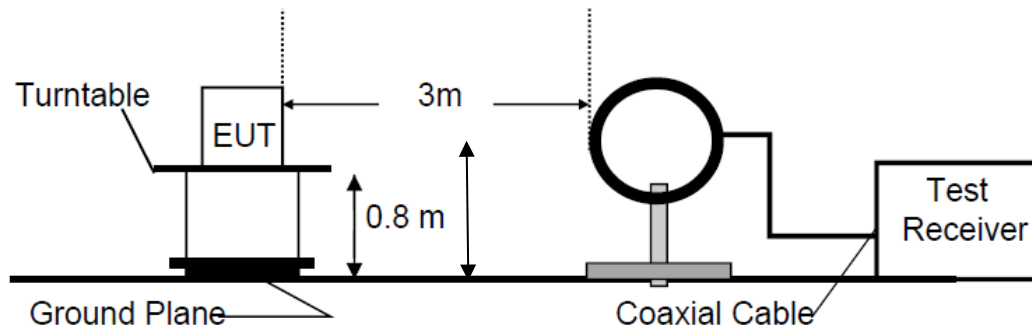
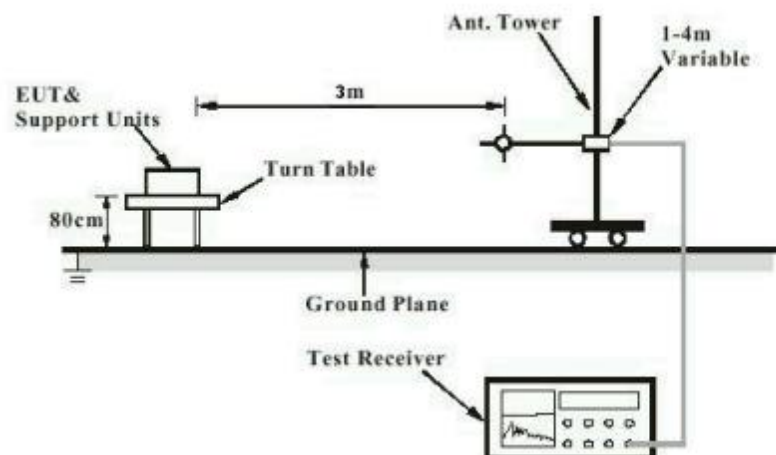


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)



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 one 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.

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5.1.2 99% Bandwidth

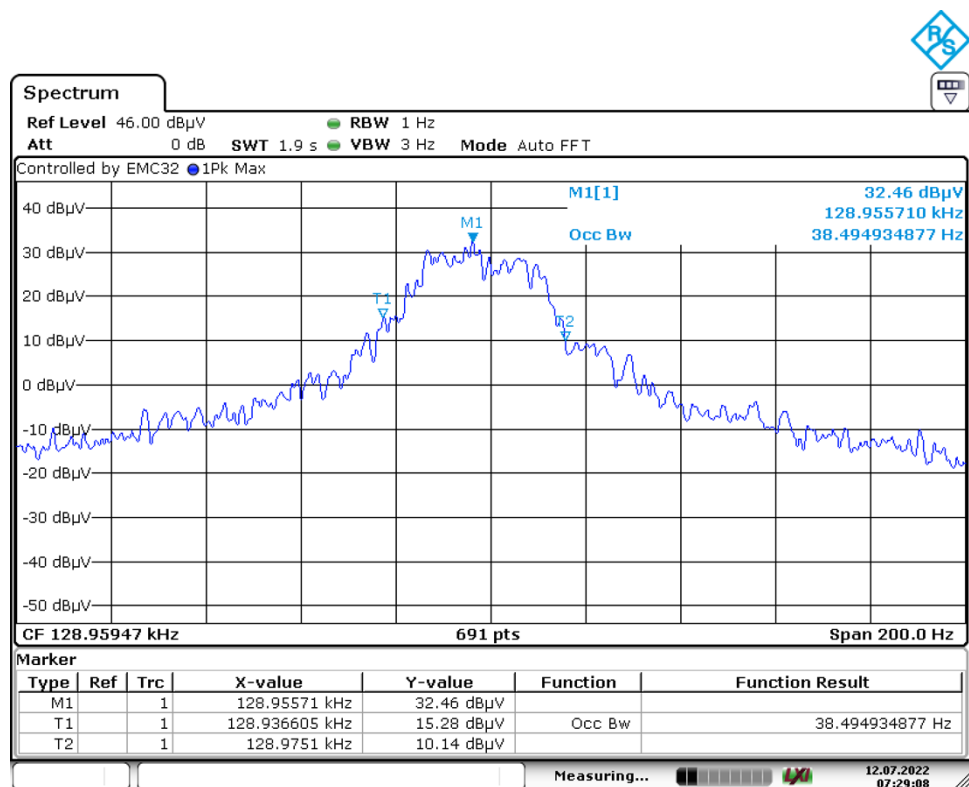
RESULT:
Pass
Test Specification

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

Test Setup

Date of testing : 2022-07-12
Input voltage : DC 12V by DC source
Operation mode : A
Ambient temperature : 22 °C
Relative humidity : 52 %
Atmospheric pressure : 101 kPa

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



Date: 12.JUL.2022 07:29:08

5.1.3 20dB Bandwidth

RESULT:

Pass

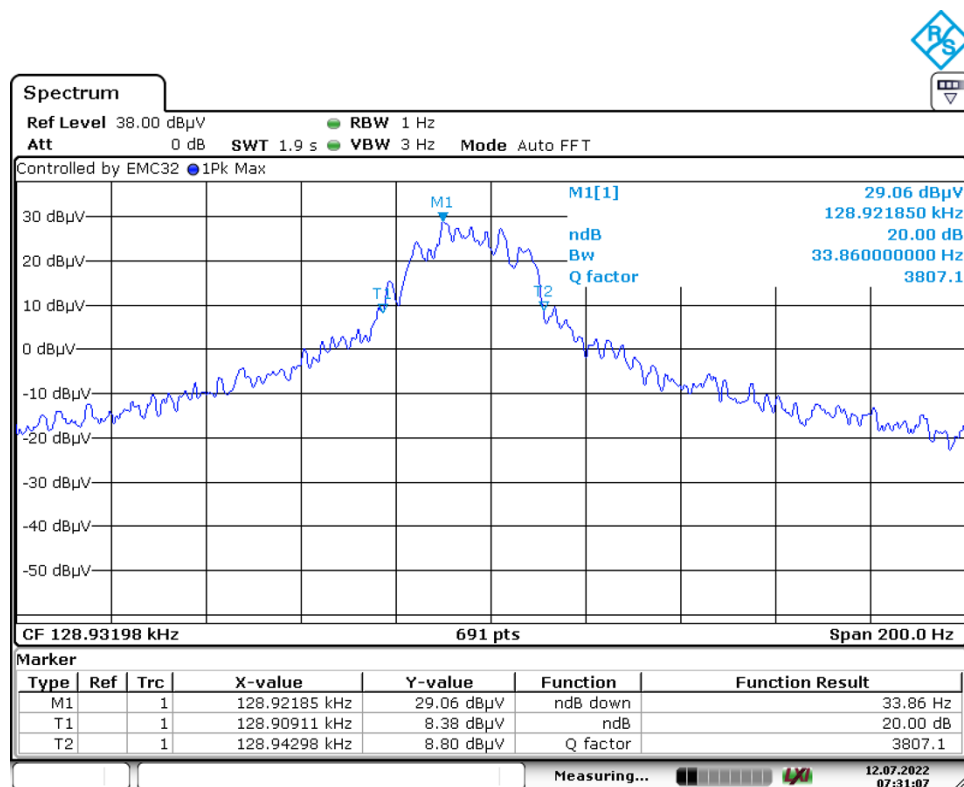
Test Specification

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

Test Setup

Date of testing : 2022-07-12
Input voltage : DC 12V by DC source
Operation mode : A
Ambient temperature : 22 °C
Relative humidity : 52 %
Atmospheric pressure : 101 kPa

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



Date: 12.JUL.2022 07:31:07

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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

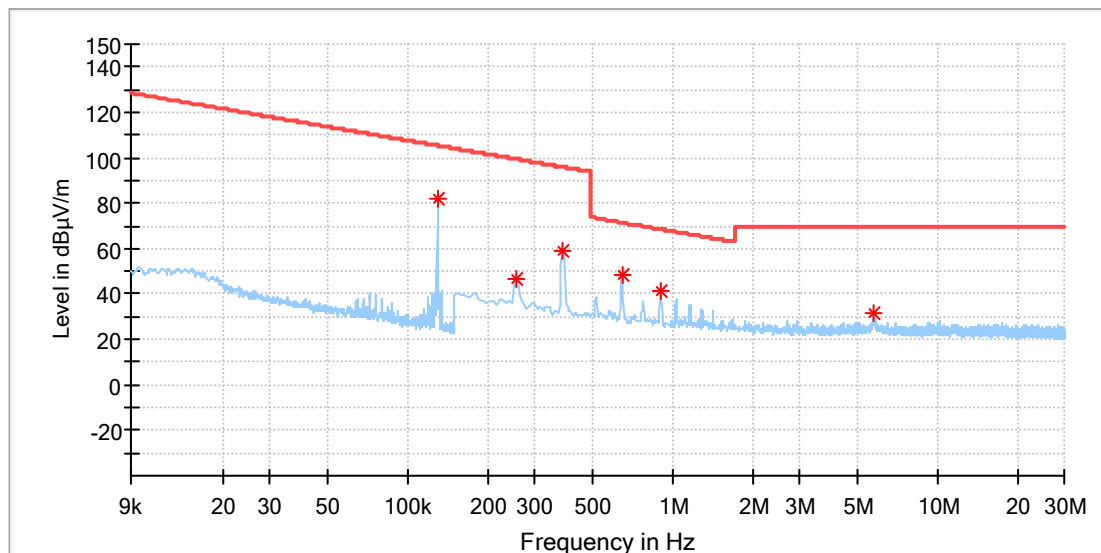
Test Setup

Date of testing : 2022-07-12
Input voltage : DC 12V by DC source
Operation mode : A
Ambient temperature : 22 °C
Relative humidity : 52 %
Atmospheric pressure : 101 kPa

Refer to following test plots for details of test result.

EUT Information

EUT Name: Magnetic Wireless Car Charger
 Model: BE-MVQ3AC1B23
 Test Mode: Wireless Charging
 Order No/Sample No: 168378839/A003288382-008
 Test Voltage: DC 12V From DC Source
 Remark: Temp 22 Humi:52%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical Freqs

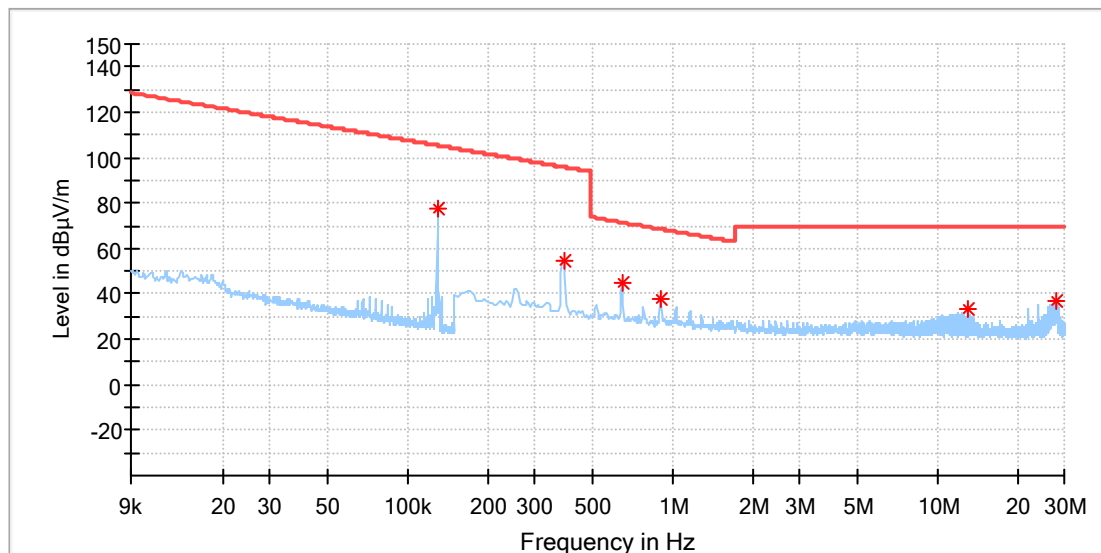
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.128951	81.73	105.39	23.66	100.0	X	41.0	20.1
0.255353	46.51	99.46	52.95	100.0	X	160.0	20.1
0.382655	58.97	95.95	36.98	100.0	X	39.0	20.1
0.641647	48.63	71.47	22.84	100.0	X	26.0	20.1
0.900640	41.55	68.53	26.98	100.0	X	31.0	20.1
5.733706	31.47	69.50	38.03	100.0	X	31.0	20.3

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EUT Information

EUT Name: Magnetic Wireless Car Charger
 Model: BE-MVQ3AC1B23
 Test Mode: Wireless Charging
 Order No/Sample No: 168378839/A003288382-008
 Test Voltage: DC 12V From DC Source
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 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
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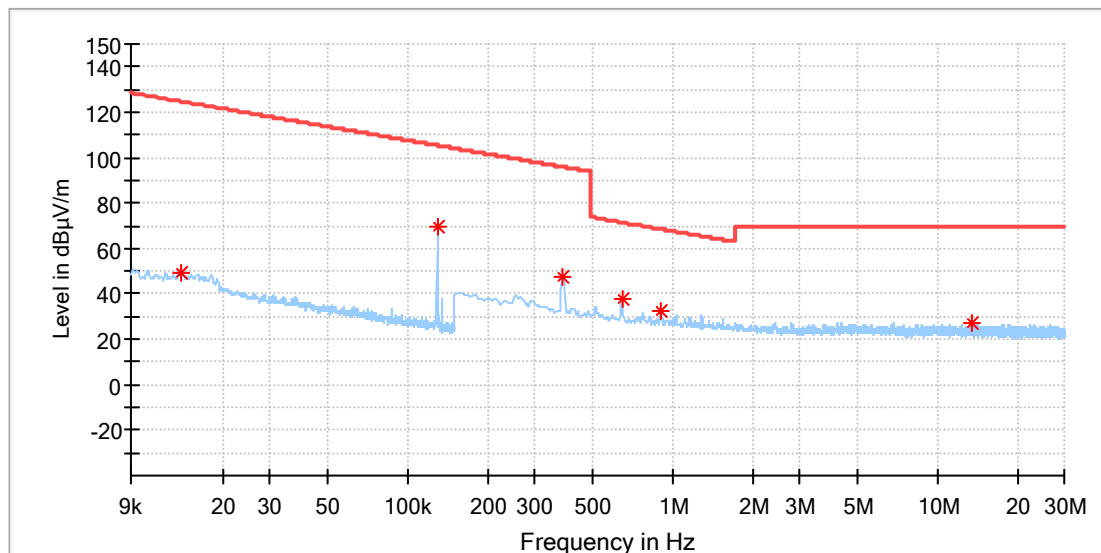


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.128951	77.45	105.39	27.94	100.0	Y	124.0	20.1
0.387044	54.51	95.85	41.33	100.0	Y	308.0	20.1
0.641647	44.63	71.47	26.83	100.0	Y	127.0	20.1
0.900640	38.18	68.53	30.35	100.0	Y	113.0	20.1
12.888927	33.15	69.50	36.35	100.0	Y	266.0	20.5
27.967566	37.23	69.50	32.27	100.0	Y	286.0	20.7

EUT Information

EUT Name: Magnetic Wireless Car Charger
 Model: BE-MVQ3AC1B23
 Test Mode: Wireless Charging
 Order No/Sample No: 168378839/A003288382-008
 Test Voltage: DC 12V From DC Source
 Remark: Temp 22 Humi:52%
 Test Standard: FCC Part 15C
 Tested By: Kei Zhang
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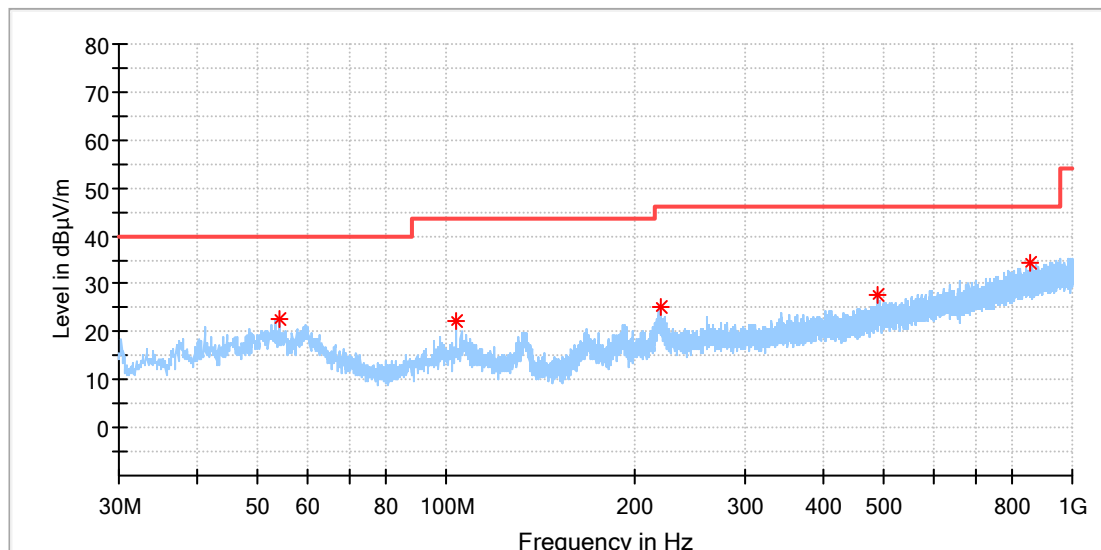


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.013935	49.57	124.71	75.13	100.0	Z	299.0	20.1
0.128951	69.67	105.39	35.72	100.0	Z	35.0	20.1
0.382655	47.27	95.95	48.68	100.0	Z	39.0	20.1
0.641647	38.03	71.47	33.44	100.0	Z	18.0	20.1
0.900640	32.90	68.53	35.63	100.0	Z	14.0	20.1
13.525434	27.12	69.50	42.38	100.0	Z	359.0	20.5

EUT Information

EUT Name: Magnetic Wireless Car Charger
Model: BE-MVQ3AC1B23
Test Mode: Wireless Charging
Order No/Sample No: 168378839/A003288382-008
Test Voltage: DC 12V From DC Source
Remark: Temp 22 Humi:52%
Test Standard: FCC Part 15C
Tested By: Kei Zhang
Reviewed By: Terry Yin

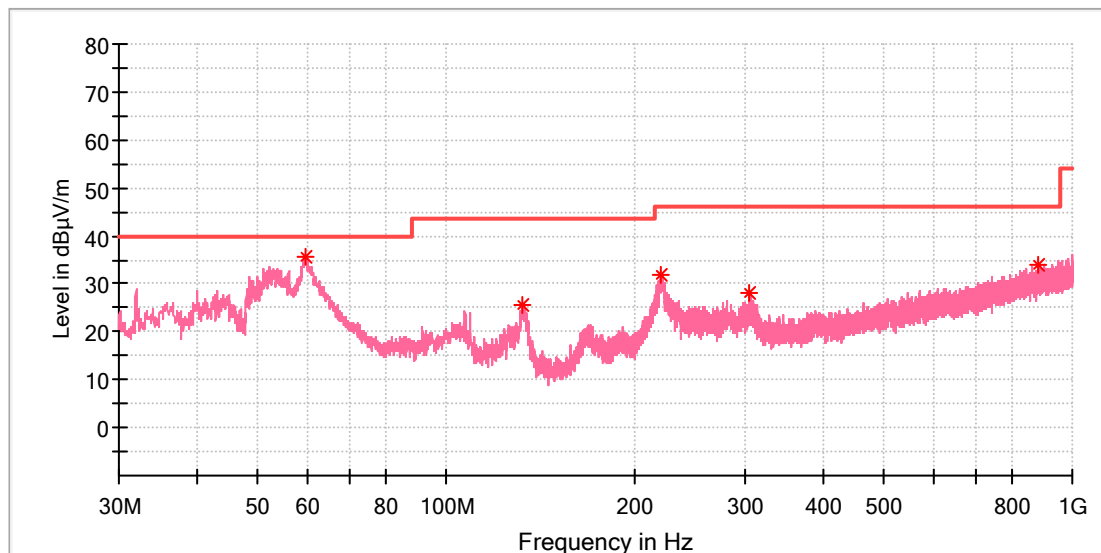


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
54.153000	22.71	40.00	17.29	100.0	H	209.0	-18.4
103.768500	22.07	43.50	21.43	100.0	H	305.0	-18.8
219.586500	25.15	46.00	20.85	100.0	H	202.0	-18.6
489.392000	27.49	46.00	18.51	100.0	H	202.0	-12.0
856.488500	34.29	46.00	11.71	100.0	H	96.0	-5.4

EUT Information

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Order No/Sample No: 168378839/A003288382-008
Test Voltage: DC 12V From DC Source
Remark: Temp 22 Humi:52%
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)
59.439500	35.66	40.00	4.34	100.0	V	192.0	-18.9
132.771500	25.74	43.50	17.76	100.0	V	61.0	-22.0
220.314000	31.99	46.00	14.01	100.0	V	87.0	-18.5
305.771000	27.98	46.00	18.02	100.0	V	141.0	-16.1
879.380500	33.92	46.00	12.08	100.0	V	105.0	-5.1

6 Photographs of the Test Set-Up

Refer to test photo document.

7 List of Tables

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