RF Exposure Evaluation Declaration

Product Name	:	WIRELESS CHARGER
Model No.	:	RB01
FCC ID	:	GKR-RB01

Applicant	:	Compal Electronics, Inc
Address	:	No.581 & 581-1, Ruiguang Rd., Neihu District,Taipei city,Taiwan

Date of Receipt	:	Sep. 17, 2018
Test Date		Sep. 18, 2018~ Oct. 15, 2018
Issued Date	:	Dec. 05, 2018
Report No.	:	1892106R-RF-US-P20V01
Report Version	:	V1.1

Test Report Certification

Issued Date : Dec. 05, 2018
Report No. : 1892106R-RF-US-P20V01

Product Name	:	WIRELESS CHARGER
Applicant	:	Compal Electronics, Inc
Address	:	No.581 & 581-1, Ruiguang Rd., Neihu District,Taipei city,Taiwan
Manufacturer	:	Suzhou Linepriting Wireless Communication Co.,Ltd
Address	:	8F,Building 39,No.18,Dongchang Road,SIP,Suzhou,China
Model No.	:	RB01
FCC ID	:	GKR-RB01
Brand Name	:	LINE PRINTING
EUT Voltage	:	DC 12V
Applicable Standard	:	KDB 680106 D01 RF Exposure Wireless Charging Apps v03
Test Result	:	Complied
Performed Location	:	DEKRA Testing and Certification (Suzhou) Co., Ltd. No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Delegation Number: CN1199

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Reviewed By : Frank he

(Senior Project Manager: Frank He)

Approved By : Jack zhang

(Engineering Supervisor: Jack Zhang)

1. General Information

1.1. EUT Description

Product Name	WIRELESS CHARGER
Model No.	RB01
Working Voltage	DC 12V
Frequency Range	110kHz~145KHz
Type of Modulation	ASK

1.2. Antenna information

Model No.	N/A					
Antenna manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Sectorized		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
			☐	Sectorized		
	☒	Internal	☐	PIFA		
			☐	PCB		
			☐	Ceramic Chip Antenna		
			☒	Loop antenna		
			☐	Type F antenna		

1.3. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit

Note:

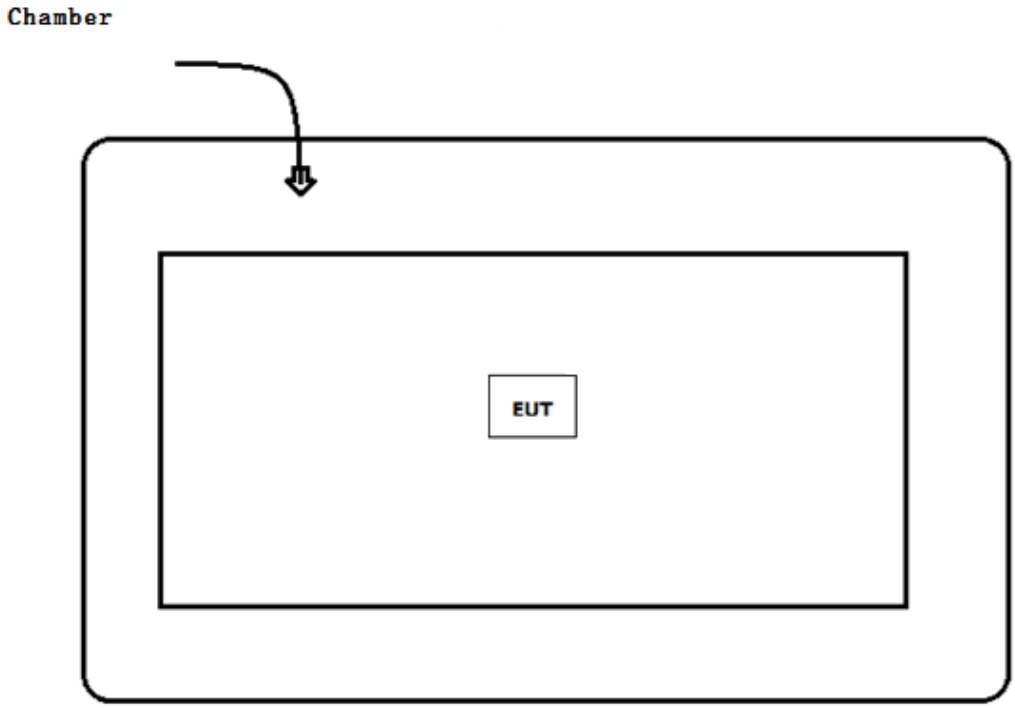
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.

1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.5. Configuration of Tested System

Test setup Diagram- Radiated Emission


1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Start to continue transmit.

2. Technical Test

2.1. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

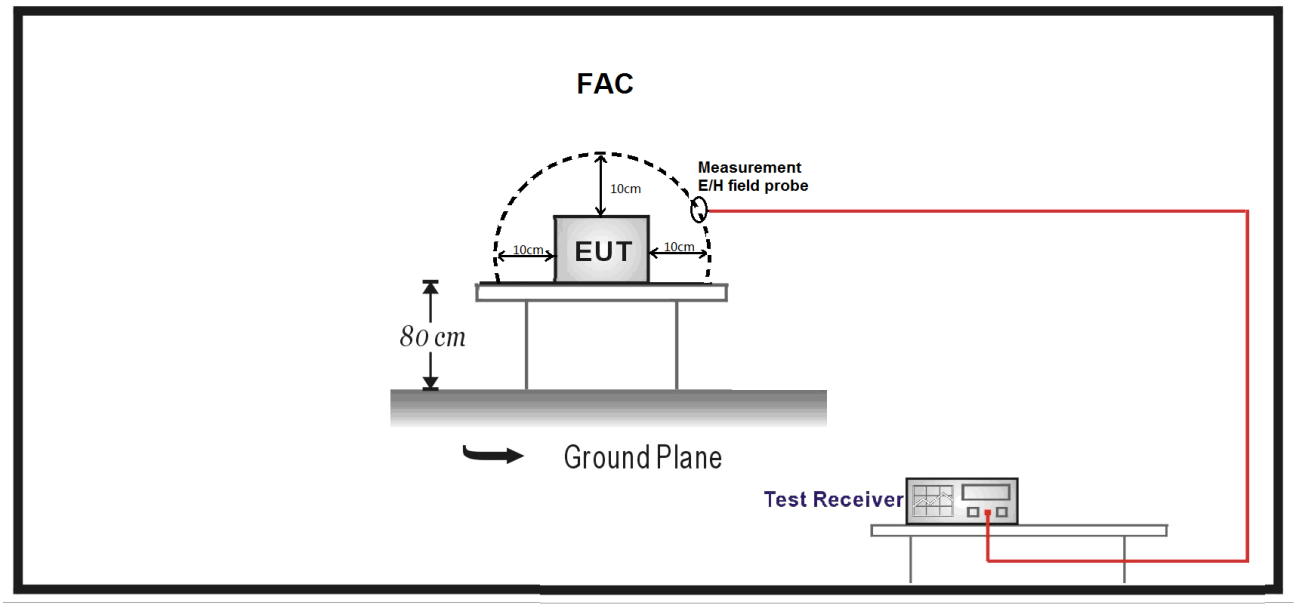
3. Electric Field Strength

3.1. Test Equipment

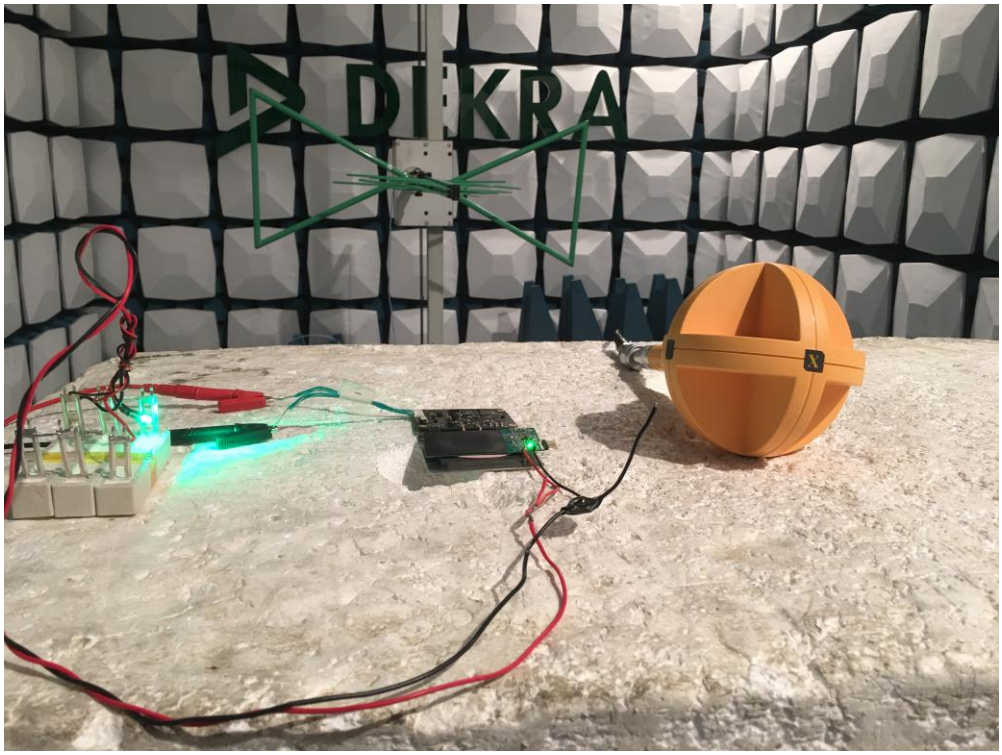
Electric Field Strength / AC-6					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2018.01.07	2019.01.06
Loop Antenna	R&S	HFH2-Z2	833799/003	2018.11.26	2019.11.25
MAGNETIC FIELD HiTESTER	HIOKI	FT3470-51	1009-B1	2018.10.11	2019.10.10
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2018.03.02	2019.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2018.01.08	2019.01.07
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

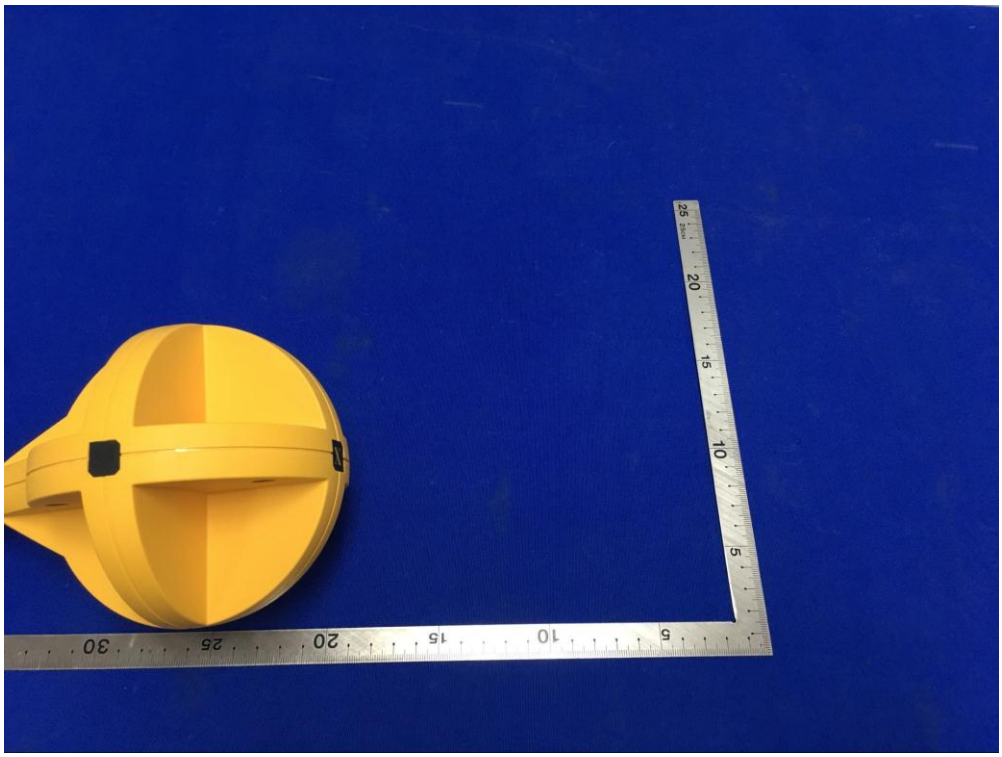
3.2. Test Setup

3kHz~10MHz Test Setup:



3.3. Setup Photo





3.4. Limit

According to KDB 680106 D01v03 Clause 3.c: For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

3.5. Test Procedure

a. Set the measurement frequency of the measurement probe to the fundamental frequency of the device under test.
b. Set the span to encompass the entire emission bandwidth.
c. Set the RBW greater than the 99% OBW of the fundamental emission.

Note: This step is not required for a broadband measurement probe that integrates the entire frequency range.

d. Set the detector to Peak and trace display to Max-Hold.
e. Allow the spectrum to fill; for pulsing devices this may require an increased monitoring period.
f. Using a marker, set it to the maximum level of the spectral envelope.
g. Repeat steps (b) to (f) while scanning a parallel plane at the measurement distance of 10cm on each side of the device to find the peak level.
h. Repeat steps (b) to (g) for any frequencies where the field value is greater than -20 dBc below the maximum level identified.
i. If there are multiple frequencies transmitted by the device under test, use equations (2) and (3) to determine compliance.

Note: When scanning around the entire device, the location found to be the maximum for the E- or H-field may not be the same location as the opposite field.

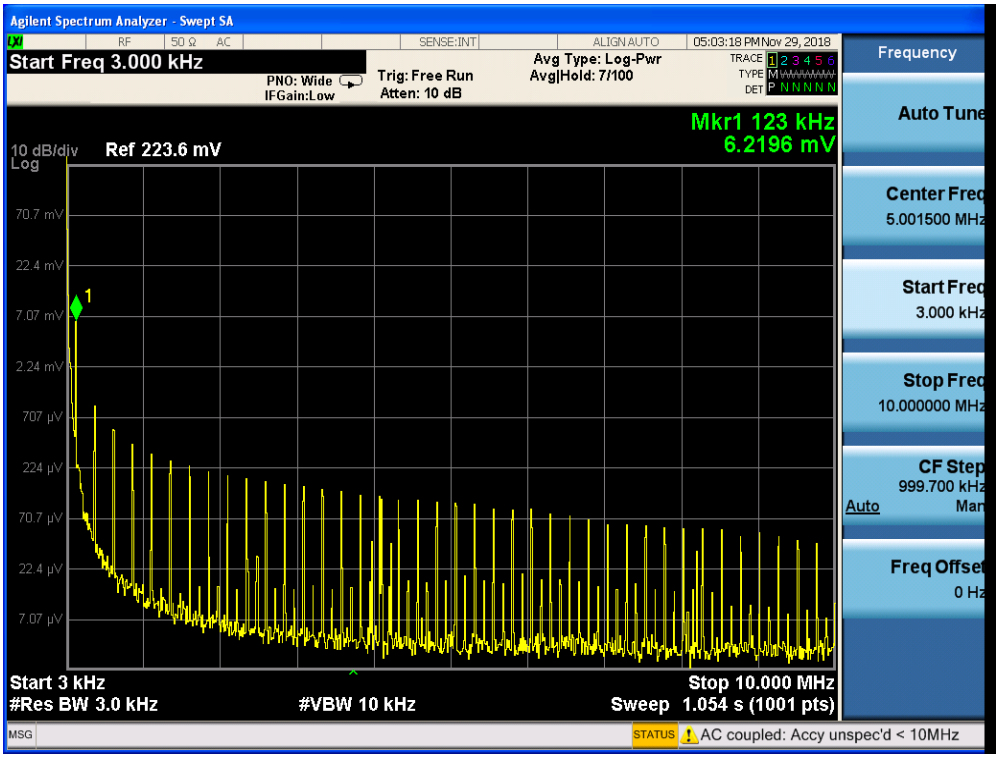
3.6. Uncertainty

The measurement uncertainty is defined as ± 3.80 dB

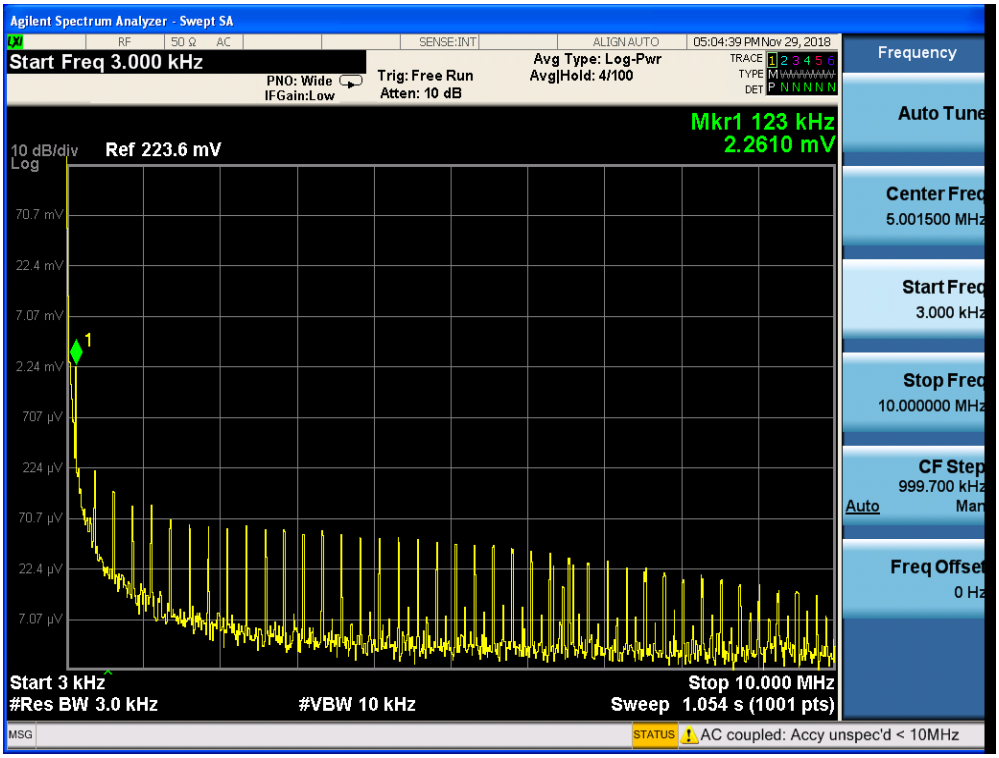
3.7. Test Result

Axial	Maximum Freq. (kHz)	Maximum Level (mV/m)	Limit (V/m)	Result
X	110~145	6.2196	307	Pass
Y	110~145	2.2610	307	Pass
Z	110~145	4.3410	307	Pass
Axial	Maximum Freq. (kHz)	Maximum Level (μ A/m)	Limit (A/m)	Result
X	110~145	133.58	0.815	Pass
Y	110~145	85.113	0.815	Pass
Z	110~145	101.32	0.815	Pass

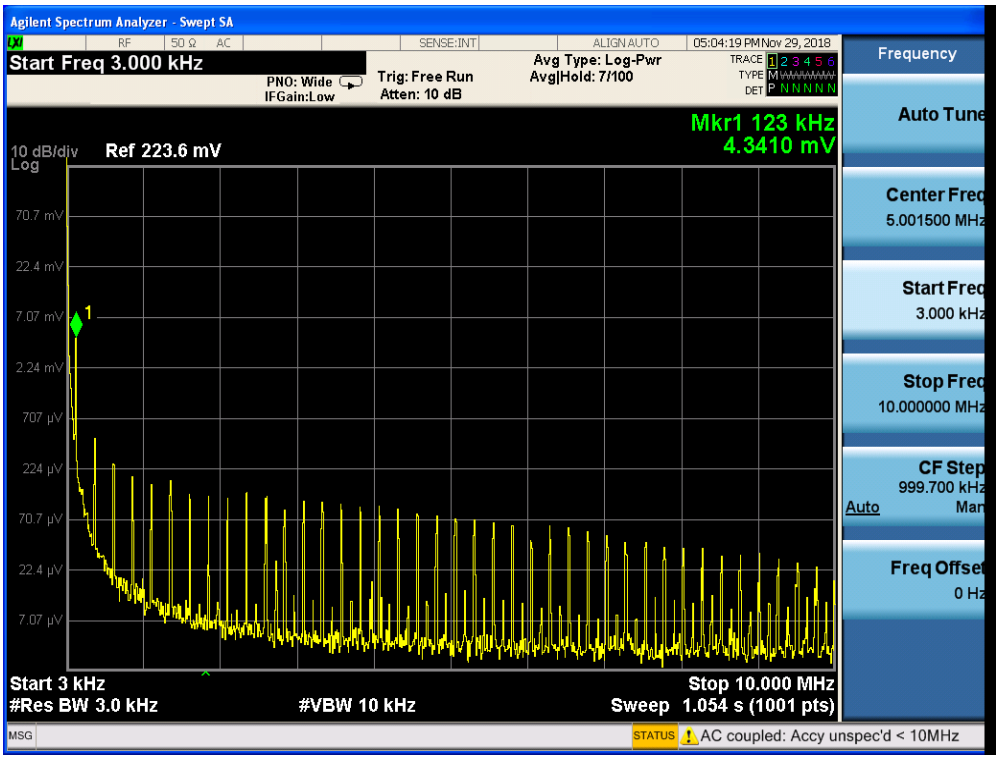
X Axial-E Field:



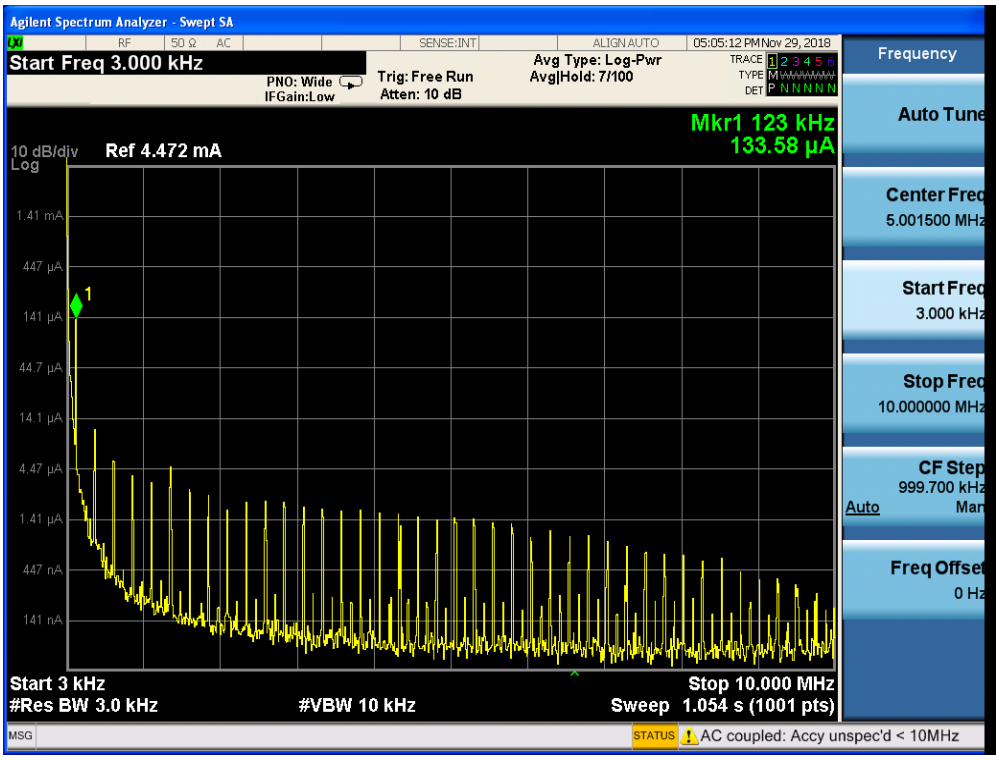
Y Axial-E Field:



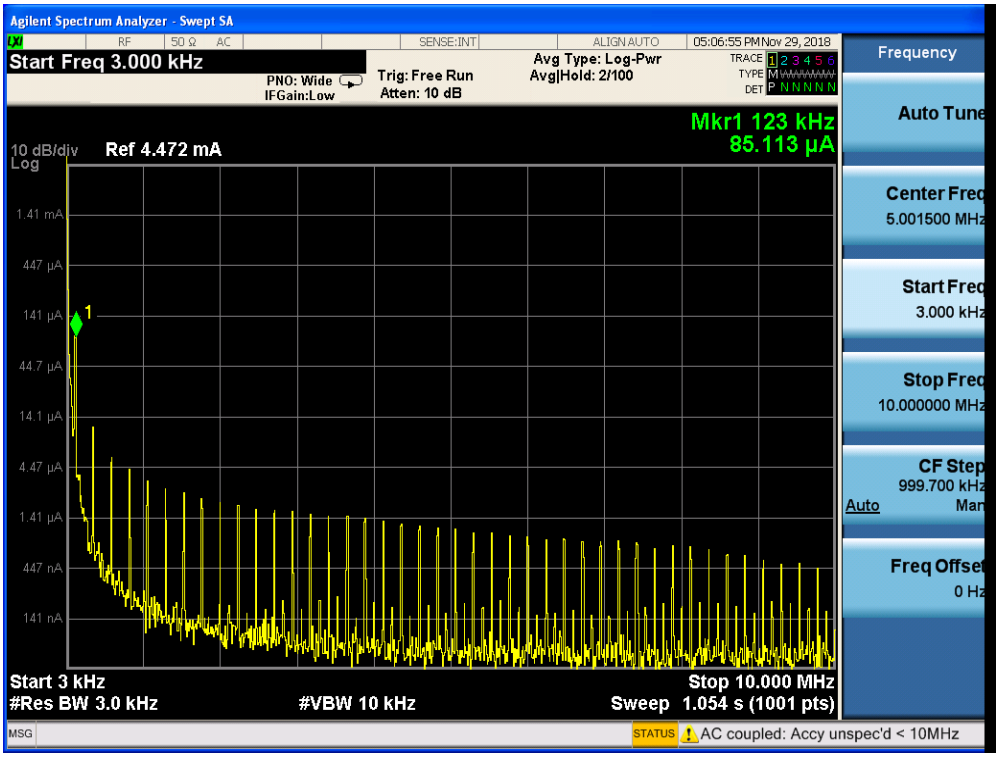
Z Axial-E Field:



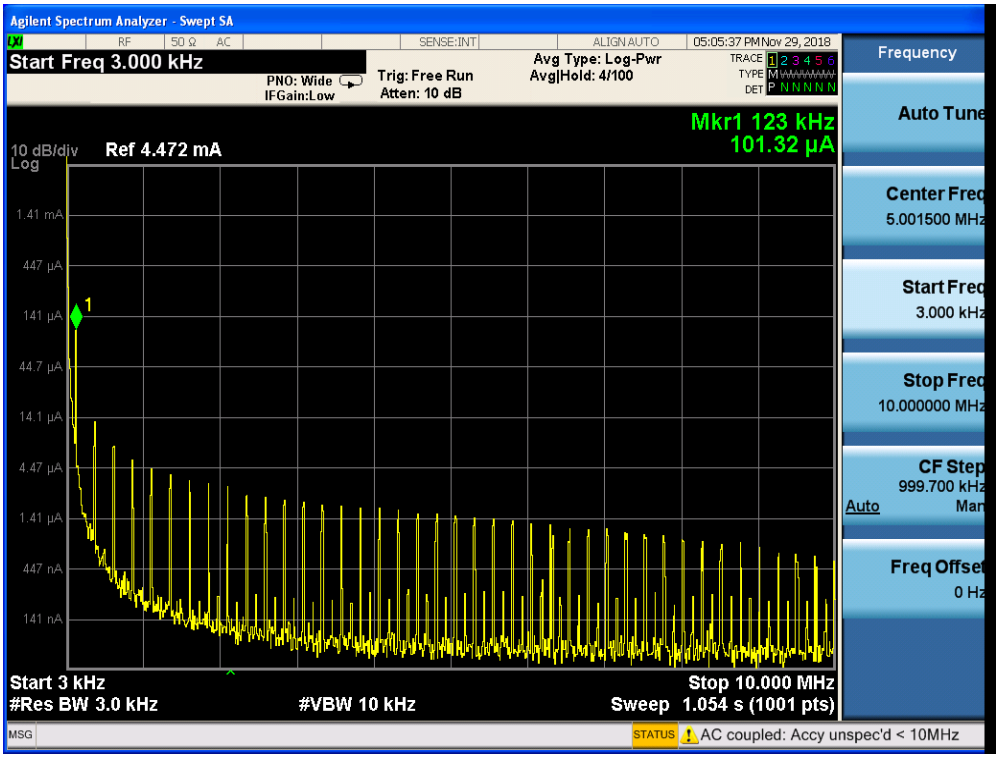
X Axial-H Field:



Axial-H Field:



Y Axial-H Field:



4. RF Exposure Evaluation

WPT Device requirement	
☒	Wireless power transfer frequency is below 1 MHz;
☒	Output power from each primary coil is less than or equal to 15 watts;
☒	The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
☒	Client device is placed directly in contact with the transmitter;
☒	Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
☒	The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

Note: The WPT device can maintain all the six conditions above, so the RF exposure can be exempted.

The End