



FCC RADIO TEST REPORT

Applicant : KAIJET TECHNOLOGY INTERNATIONAL CORPORATION

Address : 8F., No 109, Zhongcheng Rd., Tucheng Dist., New Taipei City 236,
Taiwan R.O.C.

Equipment : mightywave wood 10W Wireless Fast Charger

Model No. : JUPW1101W

Trademark : j5create

FCC ID : 2AD37JUPW1W

I HEREBY CERTIFY THAT :

The sample was received on Oct. 16, 2018 and the test items were conducted during Nov. 15, 2018 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Tested by:

Mark Liao / Assistant Manager

Amos Zhang / Engineer

Laboratory Accreditation:



Cerpass Technology Corporation Test Laboratory

TAF LAB Code:

1439



Contents

1. Report of Measurements and Examinations	4
1.1 List of Measurements and Examinations	4
2. Test Configuration of Equipment under Test	5
2.1 Feature of Equipment under Test	5
2.2 Carrier Frequency of Channels	5
2.3 Description of the test mode	5
2.4 Description of Test System	5
2.5 General Information of Test	6
2.6 Measurement Uncertainty	6
3. Test Equipment and Ancillaries Used for Tests	7
4. Antenna Requirements	8
4.1 Standard Applicable	8
4.2 Antenna Construction	8
4.3 Result	8
5. Test of Conducted Emission	9
5.1 Test Limit	9
5.2 Test Procedures	9
5.3 Typical Test Setup	10
5.4 Test Result and Data	11
6. Test of Radiated Emission	13
6.1 Test Limit	13
6.2 Test Procedures	14
6.3 Typical Test Setup	15
6.4 Test Result and Data	16



History of this test report

■ ORIGINAL

☐ Additional attachment as following record:

Attachment No.	Issue Date	Description



1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

FCC CFR Title 47 Part 15 Subpart C Section 15.209

FCC Rule	. Description of Test	Result
§ 15.203	. Antenna Requirement	Pass
§ 15.207(a)	. Conducted Emission	Pass
§ 15.209(a)	. Radiated Emission	Pass



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Product	mightywave wood 10W Wireless Fast Charger
Test Model	JUPW1101W
Frequency Range	110~205KHz
Work Frequency	127.7KHz
Antenna Type	Coil antenna
Modulation Type	MSK
Power Rating	Input: 5V $\overline{\text{=}}$ 2A 9V $\overline{\text{=}}$ 2A 12V $\overline{\text{=}}$ 1.5A Output: 5V $\overline{\text{=}}$ 1/1.5A 9V $\overline{\text{=}}$ 1.1A
Adapter Spec.	Model: JUP11 Input: 100-240V~50/60Hz 0.5A Output: 5V $\overline{\text{=}}$ 3A/9V $\overline{\text{=}}$ 2A/12 $\overline{\text{=}}$ 1.5A

Note: for more details, please refer to the User's manual of the EUT.

2.2 Carrier Frequency of Channels

Channel	Frequency (KHz)
00	127.7

2.3 Description of the test mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

The following test mode was performed for conduction and radiation test:

Test Mode 1: TX+ Wireless Charging

2.4 Description of Test System

No	Device	Manufacturer	Model No.	Description
1	Adapter	j5 create	JUP11	R33J08
2	Load	N/A	N/A	N/A

Use Cable:

No.	Cable	Quantity	Description
1	USB Cable	1	1.0m Non Shielding



2.5 General Information of Test

☒	Test Site	Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582
	FCC	TW1079, TW1061, TW1439
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4399, R-4218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz
Frequency Range Investigated:		Conducted: from 150kHz to 30 MHz Radiation: from 9KHz to 25000MHz
Test Distance:		The test distance of radiated emission from antenna to EUT is 3 M.

2.6 Measurement Uncertainty

Measurement Item	Measurement Uncertainty
Conducted Emission	±2.71 dB
Radiation test (10m) below 1GHz	Vertical : ±3.89 dB
	Horizontal: ±4.11 dB
Radiation test (3m) below 1GHz	Vertical : ±4.11 dB
	Horizontal: ±4.10 dB



3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100443	2018/03/15	2019/03/14
LISN	Schwarzbeck	NSLK 8127	8127-568	2018/02/26	2019/02/25
Pulse Limiter	R&S	ESH3-Z2	101934	2018/02/22	2019/02/21
Bilog Antenna	Schwarzbeck	VULB9168	275	2018/09/17	2019/09/16
Active Loop Antenna	EMCO	6507	40855	2018/05/22	2019/05/21
Horn Antenna	EMCO	3115	31589	2018/04/02	2019/04/01
Horn Antenna	EMCO	3116	31970	2018/03/23	2019/03/22
Preamplifier	EM	EM330	60658	2018/09/08	2019/09/07
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2018/09/18	2019/09/17
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2017/11/10	2018/11/09
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2018/04/10	2019/04/09
Spectrum Analyzer	R&S	FSP40	100219	2018/07/03	2019/07/02
BLUETOOTH TESTER	R&S	CBT	101133	2018/04/02	2019/04/01
Attenuator	KEYSIGHT	8491B	MY39250705	2018/09/04	2019/09/03
Rotary Attenuator	Agilent	8495B	MY42146680	2018/03/29	2019/03/28
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2018/08/30	2019/08/29
Series Power Meter	Anritsu	ML2495A	1224005	2018/03/23	2019/03/22
Power Sensor	Anritsu	MA2411B	1207295	2018/03/23	2019/03/22
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A
Software	AUDIX	E3	V8.2014-8-6	N/A	N/A
Software	Keysight	N7607B Signal Studio	V3.0.0.0	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A



4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

4.2 Antenna Construction

The antenna is Coil Antenna, and the antenna connector is de-signed with permanent attachment and on consideration of replacement. Please see the EUT photo for details.

4.3 Result

The EUT antenna is a Coil Antenna. It complies with the standard requirement.



5. Test of Conducted Emission

5.1 Test Limit

According to §15.207: For all the consumer devices which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range are listed as follows:

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

Remark: (1)*Decreases with the logarithm of the frequency.

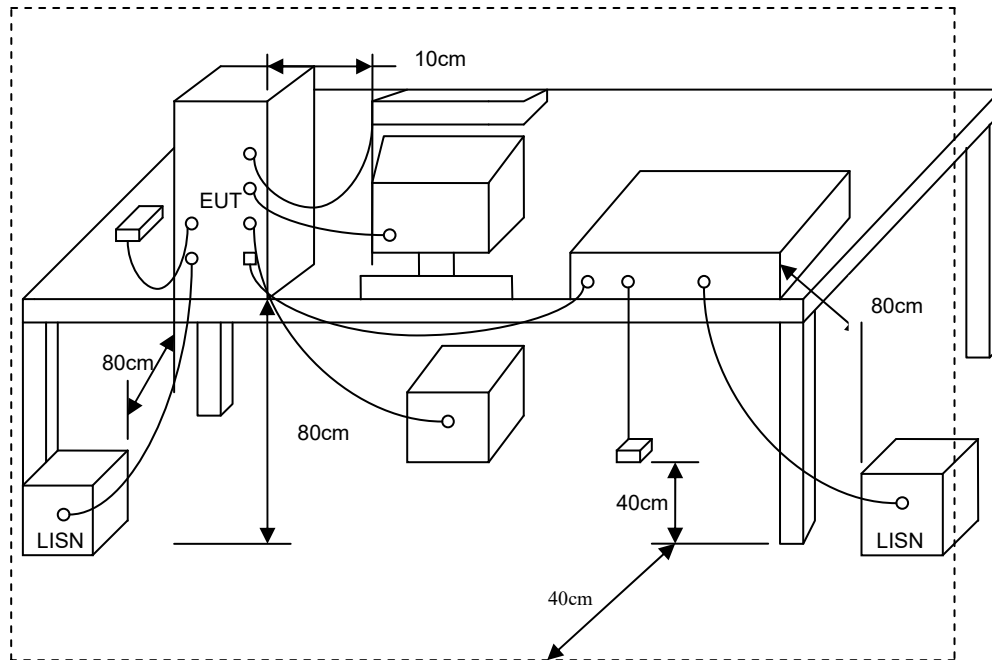
(2)The lower limit shall apply at the transition frequency.

5.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



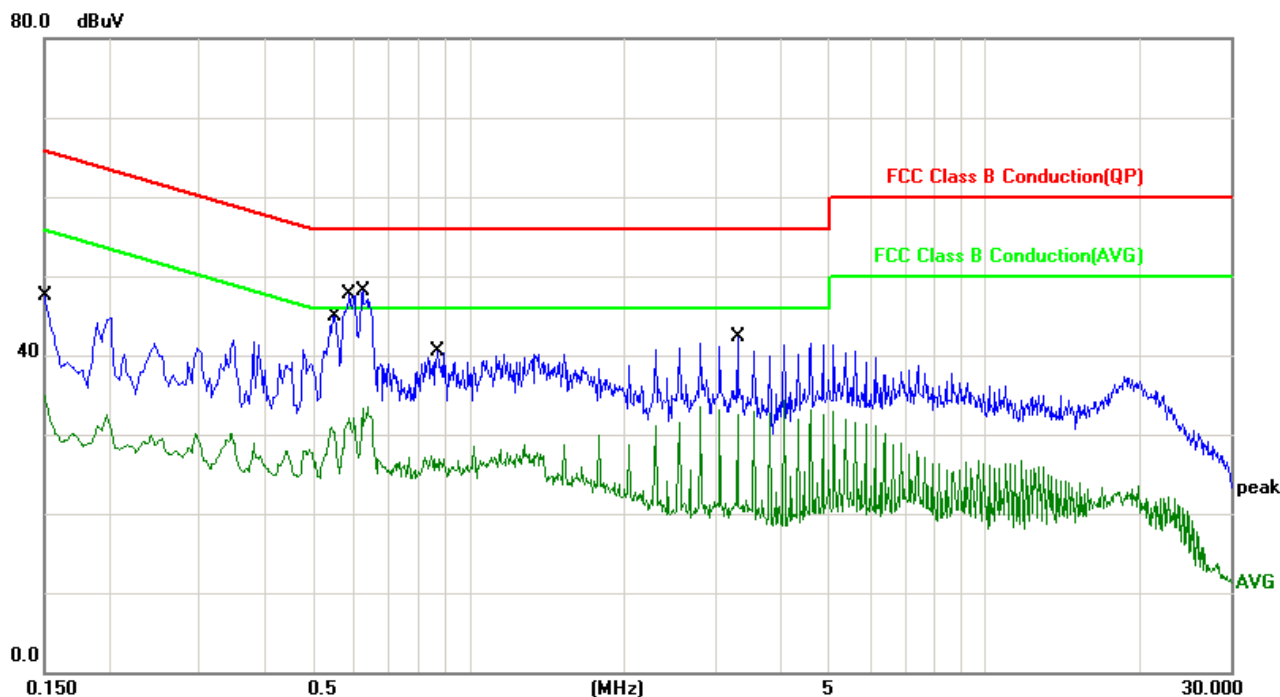
5.3 Typical Test Setup





5.4 Test Result and Data

Test Mode :	TX+ Wireless Charging	Phase :	Line
Temperature :	20 °C	Humidity:	51%
Pressur(mbar) :	1002	Date:	Nov. 07, 2018

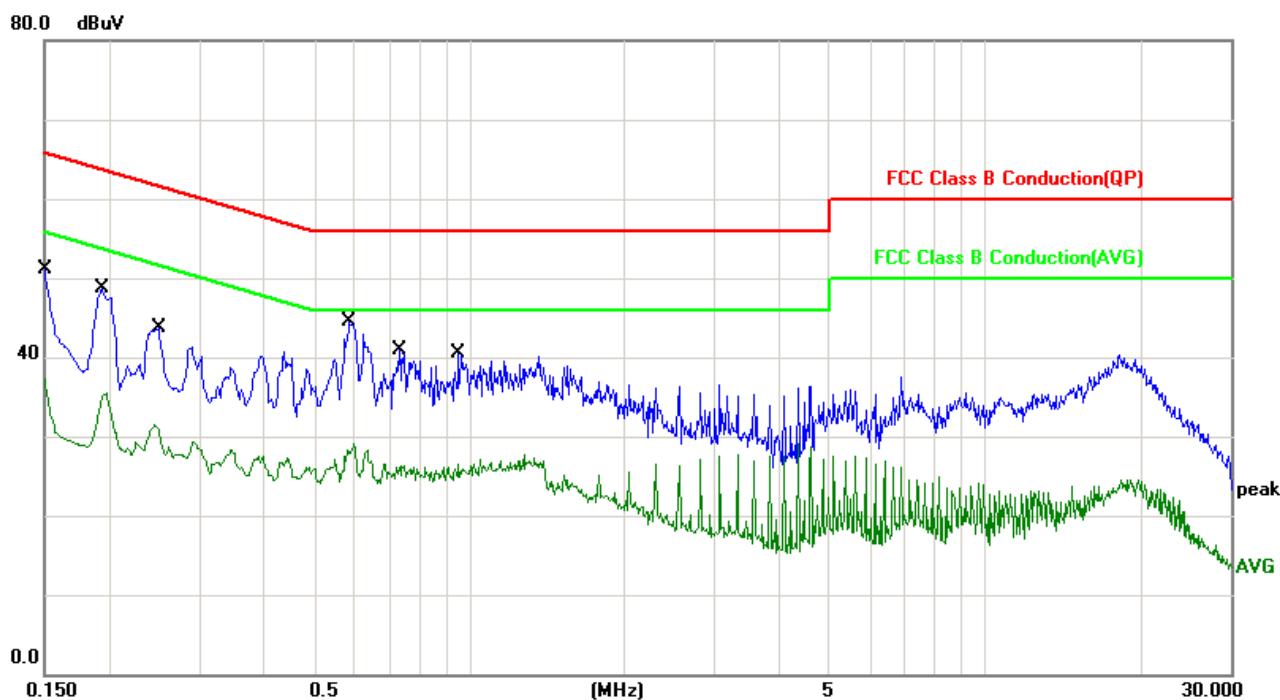


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	10.06	32.38	42.44	65.99	-23.55	QP
2	0.1500	10.06	23.07	33.13	55.99	-22.86	AVG
3	0.5500	9.93	32.64	42.57	56.00	-13.43	QP
4	0.5500	9.93	19.97	29.90	46.00	-16.10	AVG
5	0.5860	9.97	33.72	43.69	56.00	-12.31	QP
6	0.5860	9.97	21.23	31.20	46.00	-14.80	AVG
7	0.6220	10.00	34.28	44.28	56.00	-11.72	QP
8	0.6220	10.00	21.96	31.96	46.00	-14.04	AVG
9	0.8700	10.10	25.34	35.44	56.00	-20.56	QP
10	0.8700	10.10	16.13	26.23	46.00	-19.77	AVG
11	3.3220	10.71	27.77	38.48	56.00	-17.52	QP
12	3.3220	10.71	21.68	32.39	46.00	-13.61	AVG

Note: Measurement Level = Reading Level + Correct Factor+ Attenuator



Test Mode :	TX+ Wireless Charging	Phase :	Neutral
Temperature :	20 °C	Humidity:	51%
Pressur(mbar) :	1002	Date:	Nov. 07, 2018



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	10.06	33.99	44.05	65.99	-21.94	QP
2	0.1500	10.06	23.52	33.58	55.99	-22.41	AVG
3	0.1940	10.06	33.15	43.21	63.86	-20.65	QP
4	0.1940	10.06	22.32	32.38	53.86	-21.48	AVG
5	0.2500	10.03	28.70	38.73	61.75	-23.02	QP
6	0.2500	10.03	19.16	29.19	51.75	-22.56	AVG
7	0.5860	9.97	30.02	39.99	56.00	-16.01	QP
8	0.5860	9.97	18.04	28.01	46.00	-17.99	AVG
9	0.7340	10.08	23.99	34.07	56.00	-21.93	QP
10	0.7340	10.08	15.37	25.45	46.00	-20.55	AVG
11	0.9580	10.12	22.63	32.75	56.00	-23.25	QP
12	0.9580	10.12	15.12	25.24	46.00	-20.76	AVG

Note: Measurement Level = Reading Level + Correct Factor+ Attenuator



6. Test of Radiated Emission

6.1 Test Limit

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205 Section 8.10 table 6 must also comply with the radiated emission limits specified as below.

Radiated Emission Limit (9KHz~1000MHz)

FREQUENCIES(MHz)	FIELD STRENGTH(microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level(uV/m)



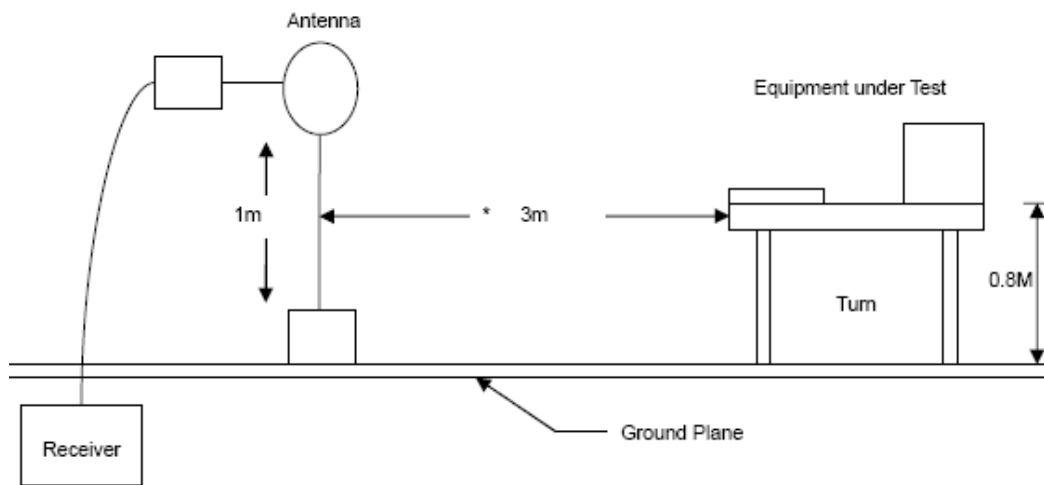
6.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

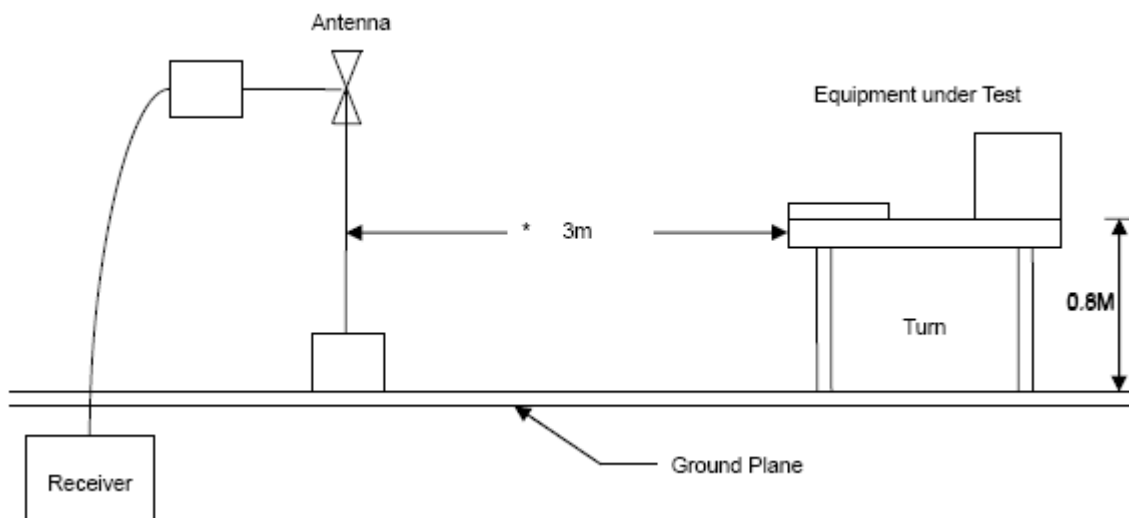


6.3 Typical Test Setup

Below 30MHz Test Setup



30M - 1GHz Test Setup

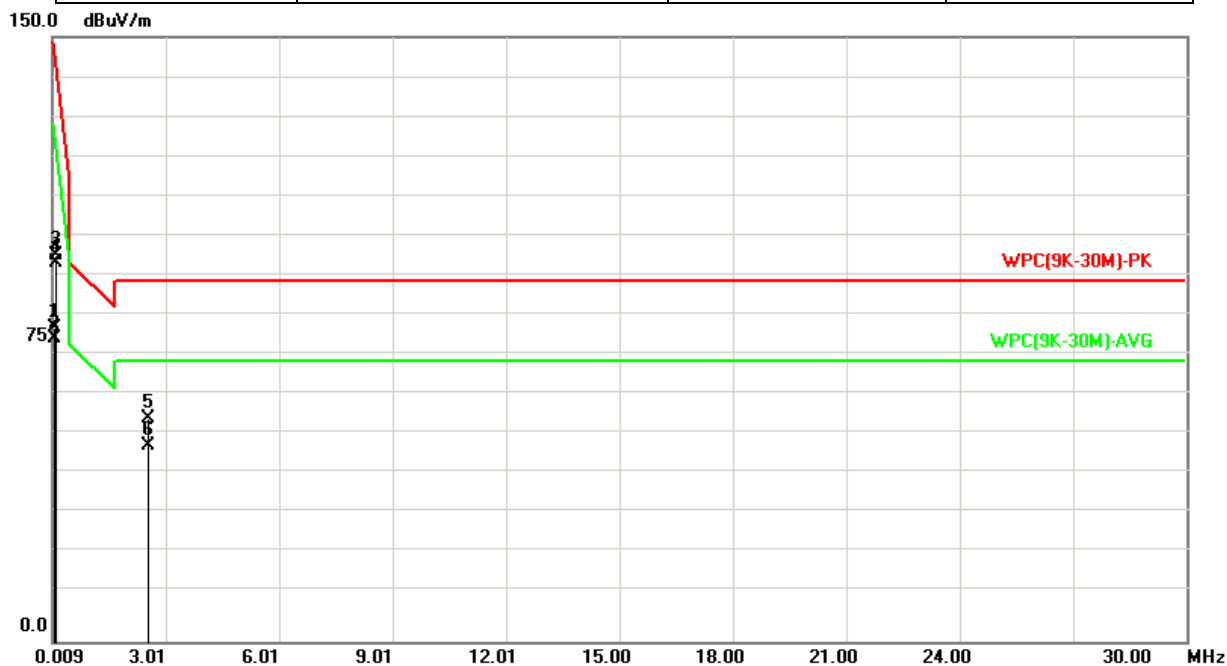




6.4 Test Result and Data

9KHz~30MHz

Power	: AC 110V/60Hz	Temperature	: 23°C
Test Mode	: TX+ Wireless Charging	Humidity	: 64 %
Test Date	: Nov. 07, 2018		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.0639	20.70	57.12	77.82	144.54	-66.72	peak
2	0.0639	20.70	54.67	75.37	124.54	-49.17	AVG
3	0.1276	20.53	75.43	95.96	139.95	-43.99	peak
4	0.1276	20.53	73.24	93.77	119.95	-26.18	AVG
5	2.5544	20.78	34.51	55.29	89.54	-34.25	peak

Note: Level = Reading + Factor

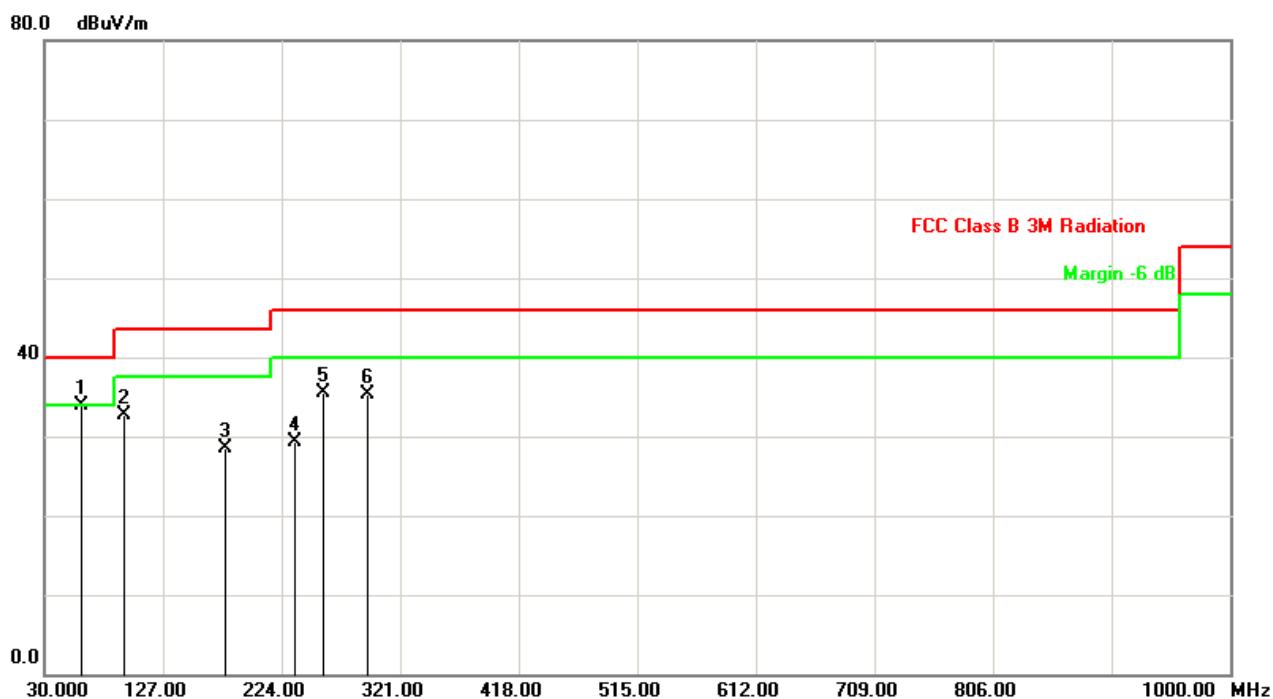
Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



30MHz~1GHz

Power	: AC 120V/60Hz	Pol/Phase	: VERTICAL
Test Mode	: TX+ Wireless Charging	Temperature	: 18 °C
Test Date	: Nov. 07, 2018	Humidity	: 49 %
Memo	: CH 00	Atmospheric Pressure	: 1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	60.0700	-17.92	51.74	33.82	40.00	-6.18	peak	100	314
2	94.9899	-12.59	45.36	32.77	43.50	-10.73	peak	100	206
3	178.4099	-13.93	42.42	28.49	43.50	-15.01	peak	100	155
4	234.6699	-11.34	40.73	29.39	46.00	-16.61	peak	100	173
5	257.9499	-9.97	45.43	35.46	46.00	-10.54	peak	100	229
6	294.8100	-10.01	45.35	35.34	46.00	-10.66	peak	100	16

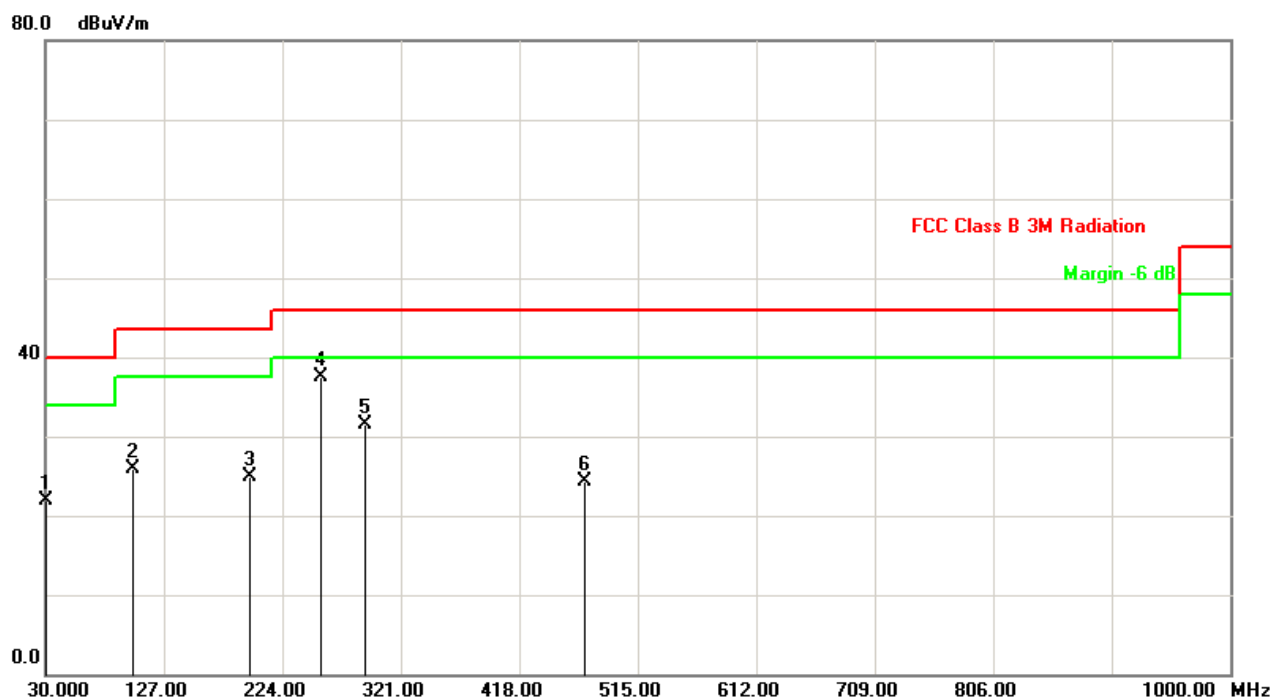
Note: Level = Reading + Factor

Margin = Level - Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: TX+ Wireless Charging	Temperature	: 18 °C
Test Date	: Nov. 07, 2018	Humidity	: 49 %
Memo	: CH 00	Atmospheric Pressure	: 1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	30.0000	-5.62	27.49	21.87	40.00	-18.13	peak	100	316
2	101.7800	-11.66	37.58	25.92	43.50	-17.58	peak	200	203
3	197.8100	-11.92	36.77	24.85	43.50	-18.65	peak	300	12
4	256.0100	-10.03	47.49	37.46	46.00	-8.54	peak	200	118
5	291.9000	-9.79	41.24	31.45	46.00	-14.55	peak	100	79
6	471.3500	-2.36	26.71	24.35	46.00	-21.65	peak	200	211

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor

----- End of the report -----