

EUT Specification

FCC ID: 2BBM4-JV2000

Characteristics	Description
Product Name	Portable Outdoor Power Supply
Model number	JV2000
Power Supply	AC110V/60Hz
Operating Frequency Range	110-205KHz
Modulation Technique	FSK
Antenna Type	Induction coil
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others ____
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Applicable Standard:

FCC Part 1(1.1310) ,Part 2(2.1091) and KDB 680106 D01 RF Exposure
Wireless Charging Apps v03

Applicable Requirement:

Three different categories of transmitters are defined by the FCC in OET Bulletin 65.

These categories are fixed installation, mobile, and portable and are

defined as follows:

Fixed Installations: fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 meters.

Mobile Devices: a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR §2.1091.

Portable Devices: a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR§2.1093).

The FCC also categorizes the use of the device as based upon the user's awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/ Controlled Exposure and General Population/Uncontrolled Exposure.

These two categories are defined as follows:

Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure. The phrase fully aware in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of transient persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. Such training is not required for transient persons, but they must receive written and/or verbal information and notification (for example, using signs) concerning their exposure potential and appropriate means available to mitigate their exposure. The phrase exercise control means that an exposed person is allowed to and knows how to reduce or avoid exposure by administrative or engineering controls and work practices, such as use of personal protective equipment or time averaging of exposure.

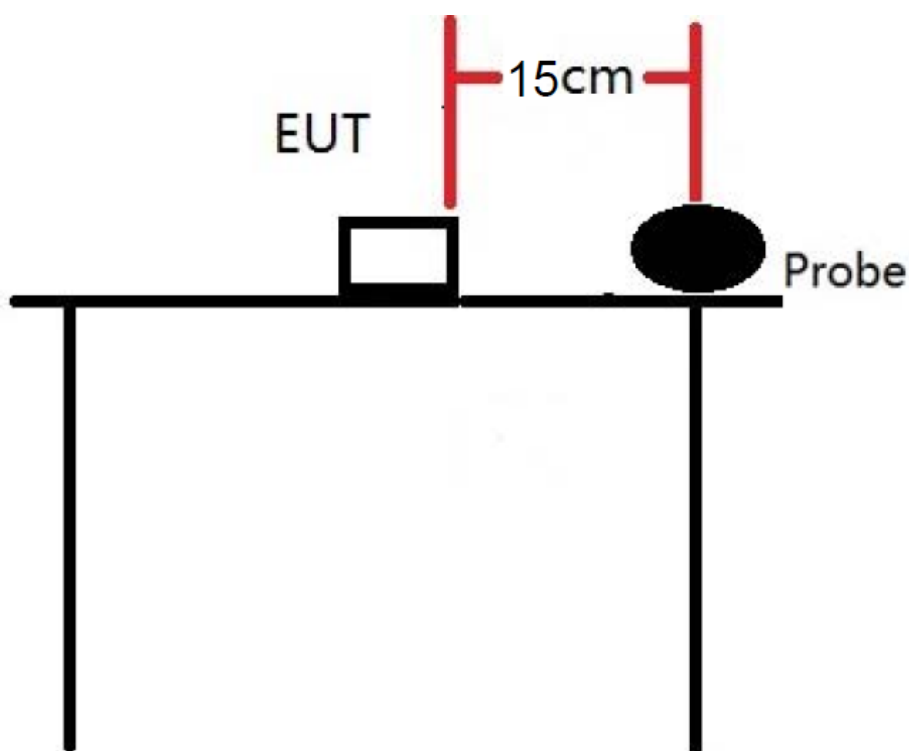
General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are

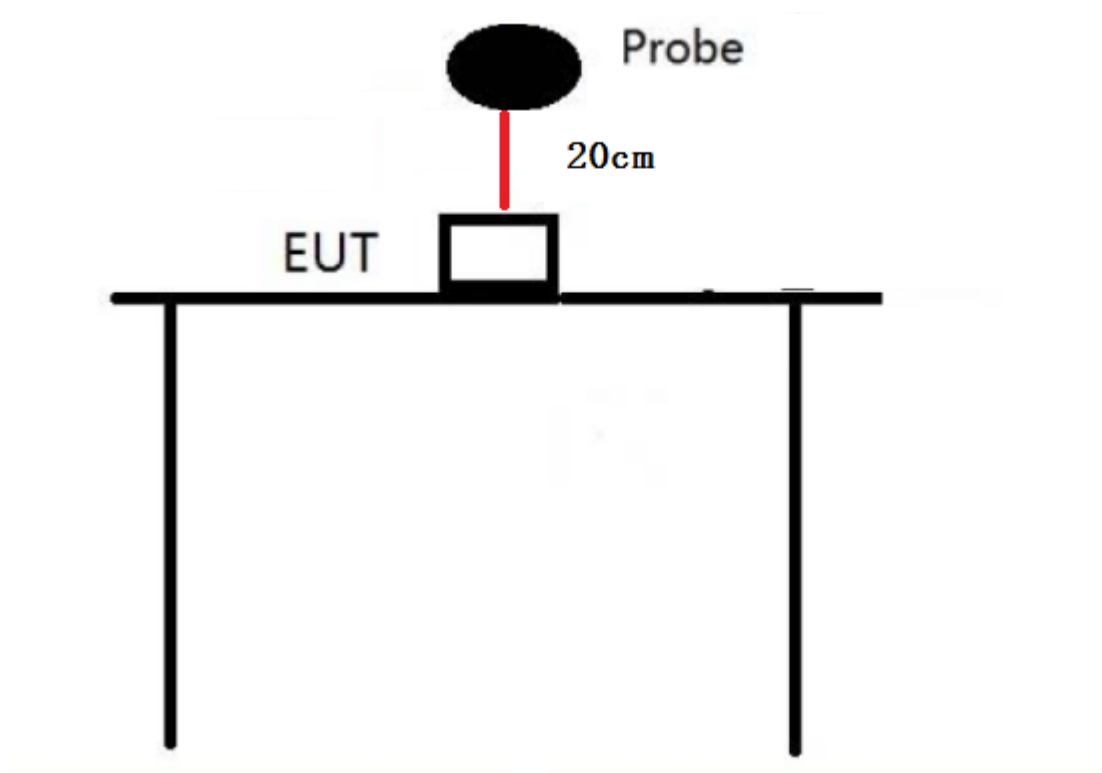
exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Licensees and applicants are responsible for compliance with both the occupational/controlled exposure limits and the general population/uncontrolled exposure limits as they apply to transmitters under their jurisdiction. Licensees and applicants should be aware that the occupational/controlled exposure limits apply especially in situations where workers may have access to areas in very close proximity to antennas and access to the general public may be restricted.

In lieu of evaluation with the general population/uncontrolled exposure limits, amateur licensees authorized under part 97 of this chapter and members of his or her immediate household may be evaluated with respect to the occupational/controlled exposure limits in this section, provided appropriate training and information has been provided to the amateur licensee and members of his/her household. Other nearby persons who are not members of the amateur licensee's household must be evaluated with respect to the general population/uncontrolled exposure limits.

Test Setup Block





Test Procedure

1. Connect the EUT and equipment as above diagram of test configuration.
2. EUT was placed on a table, and the measure probe was placed at a measurement distance of 15cm from the EUT to the center of the probe.
3. Power on the measuring probe, the EUT was set at the maximum field strength emission state.
4. The EUT was put in different directions (Left, Right, Front, Rear, Top and Bottom) toward to the measure probe. The distance from the top of the EUT to the probe is 20CM, and the distance from other directions is 15cm. Measure the value of field strength.
5. Record the worst data of the different directions.

Measuring Device And Test Equipment

Used	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
☒	Electric and magnetic field analyzer	Narda	EHP-200A	180ZX11012	2024-03-03
☒	Test Software	Narda	EHP-200-TS 2.07	N/A	N/A

Description of Support Device

iPhone : Manufacturer: Apple Inc.
M/N: A2404
S/N: N/A

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M/N: A2404
S/N: N/A

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	F/1500	30
1500-100000	--	--	1	30

Note: f denotes for frequency in MHz.

* denotes for plane-wave equivalent power density.

Measurement Result

We pretested four modes (max load, mid load, min load, Standby) for EUT. The worst mode (max load) and worst test frequency(frequency: 134.41KHz)test data see the following.

Magnetic Field (H-Field) strength at 15cm from the boundaries of EUT, and 20cm from the top.

Test Mode: Wireless Charging 15w+15W for 1% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.175	0.088	1.63	0.815
Measurement Point 2	Back	15	0.164	0.085		
Measurement Point 3	Left	15	0.180	0.092		
Measurement Point 4	Right	15	0.166	0.074		
Measurement Point 5	Bottom	15	0.109	0.054		
Measurement Point 6	Top	20	0.191	0.113		

Test Mode: Wireless Charging 15w+15W for 1% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	117.122	58.562	614	307
Measurement Point 2	Back	15	116.986	58.492		
Measurement Point 3	Left	15	117.027	58.512		
Measurement Point 4	Right	15	114.024	57.013		
Measurement Point 5	Bottom	15	96.0372	43.363		
Measurement Point 6	Top	20	124.267	62.136		

Test Mode: Wireless Charging 15w+15W for 50% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.182	0.091	1.63	0.815
Measurement Point 2	Back	15	0.166	0.084		
Measurement Point 3	Left	15	0.183	0.092		
Measurement Point 4	Right	15	0.168	0.078		
Measurement Point 5	Bottom	15	0.108	0.053		
Measurement Point 6	Top	20	0.193	0.115		

Test Mode: Wireless Charging 15w+15w for 50% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	117.127	58.564	614	307
Measurement Point 2	Back	15	116.986	58.495		
Measurement Point 3	Left	15	117.029	58.514		
Measurement Point 4	Right	15	114.026	57.017		
Measurement Point 5	Bottom	15	96.041	43.362		
Measurement Point 6	Top	20	124.272	62.132		

Test Mode: Wireless Charging 15w+15w for 100% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.184	0.091	1.63	0.815
Measurement Point 2	Back	15	0.168	0.086		
Measurement Point 3	Left	15	0.185	0.095		
Measurement Point 4	Right	15	0.168	0.078		
Measurement Point 5	Bottom	15	0.110	0.056		
Measurement Point 6	Top	20	0.195	0.117		

Test Mode: Wireless Charging 15w+15W for 100% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	117.132	58.567	614	307
Measurement Point 2	Back	15	116.993	58.502		
Measurement Point 3	Left	15	117.034	58.518		
Measurement Point 4	Right	15	114.022	57.021		
Measurement Point 5	Bottom	15	96.041	43.366		
Measurement Point 6	Top	20	124.274	62.137		

Test Mode: Wireless Charging 10w+10w for 1% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.158	0.078	1.63	0.815
Measurement Point 2	Back	15	0.155	0.072		
Measurement Point 3	Left	15	0.172	0.084		
Measurement Point 4	Right	15	0.161	0.072		
Measurement Point 5	Bottom	15	0.104	0.051		
Measurement Point 6	Top	20	0.185	0.105		

Test Mode: Wireless Charging 10w+10w for 1% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	115.112	58.563	614	307
Measurement Point 2	Back	15	115.384	58.293		
Measurement Point 3	Left	15	114.521	57.816		
Measurement Point 4	Right	15	113.024	56.704		
Measurement Point 5	Bottom	15	95.842	43.581		
Measurement Point 6	Top	20	123.719	61.847		

Test Mode: Wireless Charging 10w+10w for 50% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.163	0.074	1.63	0.815
Measurement Point 2	Back	15	0.158	0.073		
Measurement Point 3	Left	15	0.172	0.086		
Measurement Point 4	Right	15	0.169	0.074		
Measurement Point 5	Bottom	15	0.104	0.053		
Measurement Point 6	Top	20	0.183	0.107		

Test Mode: Wireless Charging 10w+10w for 50% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	115.144	58.574	614	307
Measurement Point 2	Back	15	115.392	58.296		
Measurement Point 3	Left	15	114.526	57.818		
Measurement Point 4	Right	15	113.024	56.706		
Measurement Point 5	Bottom	15	95.841	43.583		
Measurement Point 6	Top	20	123.718	61.852		

Test Mode: Wireless Charging 10w+10w for 100% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.165	0.075	1.63	0.815
Measurement Point 2	Back	15	0.162	0.076		
Measurement Point 3	Left	15	0.173	0.088		
Measurement Point 4	Right	15	0.166	0.077		
Measurement Point 5	Bottom	15	0.112	0.056		
Measurement Point 6	Top	20	0.188	0.109		

Test Mode: Wireless Charging 10w+10w for 100% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	115.157	58.581	614	307
Measurement Point 2	Back	15	115.414	58.306		
Measurement Point 3	Left	15	114.563	57.822		
Measurement Point 4	Right	15	113.075	56.714		
Measurement Point 5	Bottom	15	95.862	43.594		
Measurement Point 6	Top	20	123.735	61.874		

Test Mode: Wireless Charging 7.5w+7.5w for 1% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.146	0.073	1.63	0.815
Measurement Point 2	Back	15	0.148	0.071		
Measurement Point 3	Left	15	0.164	0.078		
Measurement Point 4	Right	15	0.157	0.074		
Measurement Point 5	Bottom	15	0.102	0.049		
Measurement Point 6	Top	20	0.175	0.103		

Test Mode: Wireless Charging 7.5w+7.5w for 1% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	114.317	57.858	614	307
Measurement Point 2	Back	15	114.890	57.742		
Measurement Point 3	Left	15	114.626	56.941		
Measurement Point 4	Right	15	113.637	55.846		
Measurement Point 5	Bottom	15	94.652	42.795		
Measurement Point 6	Top	20	122.466	60.579		

Test Mode: Wireless Charging 7.5w+7.5w for 50% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.147	0.074	1.63	0.815
Measurement Point 2	Back	15	0.153	0.073		
Measurement Point 3	Left	15	0.165	0.081		
Measurement Point 4	Right	15	0.158	0.076		
Measurement Point 5	Bottom	15	0.104	0.052		
Measurement Point 6	Top	20	0.177	0.105		

Test Mode: Wireless Charging 7.5w+7.5w for 50% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	114.322	57.862	614	307
Measurement Point 2	Back	15	114.905	57.754		
Measurement Point 3	Left	15	114.637	56.967		
Measurement Point 4	Right	15	113.673	55.869		
Measurement Point 5	Bottom	15	94.684	42.806		
Measurement Point 6	Top	20	122.477	60.591		

Test Mode: Wireless Charging 7.5w+7.5w for 100% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.152	0.076	1.63	0.815
Measurement Point 2	Back	15	0.153	0.075		
Measurement Point 3	Left	15	0.164	0.082		
Measurement Point 4	Right	15	0.162	0.079		
Measurement Point 5	Bottom	15	0.105	0.054		
Measurement Point 6	Top	20	0.178	0.106		

Test Mode: Wireless Charging 7.5w+7.5w for 100% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	114.347	57.872	614	307
Measurement Point 2	Back	15	114.926	57.768		
Measurement Point 3	Left	15	114.648	56.959		
Measurement Point 4	Right	15	113.696	55.876		
Measurement Point 5	Bottom	15	94.684	42.812		
Measurement Point 6	Top	20	122.492	60.608		

Test Mode: Wireless Charging 5w+5w for 1% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.143	0.064	1.63	0.815
Measurement Point 2	Back	15	0.141	0.062		
Measurement Point 3	Left	15	0.16	0.074		
Measurement Point 4	Right	15	0.151	0.069		
Measurement Point 5	Bottom	15	0.092	0.042		
Measurement Point 6	Top	20	0.167	0.100		

Test Mode: Wireless Charging 5w+5w for 1% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	113.445	56.741	614	307
Measurement Point 2	Back	15	113.753	56.869		
Measurement Point 3	Left	15	113.823	55.876		
Measurement Point 4	Right	15	112.586	54.764		
Measurement Point 5	Bottom	15	93.723	41.925		
Measurement Point 6	Top	20	121.397	59.414		

Test Mode: Wireless Charging 5w+5w for 50% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.142	0.065	1.63	0.815
Measurement Point 2	Back	15	0.144	0.064		
Measurement Point 3	Left	15	0.157	0.076		
Measurement Point 4	Right	15	0.153	0.071		
Measurement Point 5	Bottom	15	0.095	0.043		
Measurement Point 6	Top	20	0.168	0.101		

Test Mode: Wireless Charging 5w+5w for 50% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	113.558	56.768	614	307
Measurement Point 2	Back	15	113.766	56.882		
Measurement Point 3	Left	15	113.842	55.905		
Measurement Point 4	Right	15	112.606	54.788		
Measurement Point 5	Bottom	15	93.763	41.942		
Measurement Point 6	Top	20	121.415	59.436		

Test Mode: Wireless Charging 5w+5w for 100% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.144	0.066	1.63	0.815
Measurement Point 2	Back	15	0.145	0.065		
Measurement Point 3	Left	15	0.158	0.078		
Measurement Point 4	Right	15	0.154	0.073		
Measurement Point 5	Bottom	15	0.097	0.044		
Measurement Point 6	Top	20	0.170	0.102		

Test Mode: Wireless Charging 5w+5w for 100% battery						
		Measuring Distance(cm)	E-Field(V/m)	50% E-Field(V/m)	Limit(V/m)	50% Limit(V/m)
Measurement Point 1	Front	15	113.573	56.778	614	307
Measurement Point 2	Back	15	113.785	56.896		
Measurement Point 3	Left	15	113.858	55.914		
Measurement Point 4	Right	15	112.614	54.795		
Measurement Point 5	Bottom	15	93.775	41.958		
Measurement Point 6	Top	20	121.424	59.443		

PHOTOGRAPHS OF TEST SETUP



Signature

A handwritten signature in black ink, appearing to read "Tiger Xu".

Tiger Xu
EMC Director
Date: 2023-07-08