

EUT Specification

FCC ID: 2A8CV-INV00786

Characteristics	Description
Product Name	Led Lamp with Wireless Charging and Speaker
Model number	INV00786
Power Supply	AC120V/60Hz for adapter
Operating Frequency Range	110-205KHz
Modulation Technique	ASK
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:

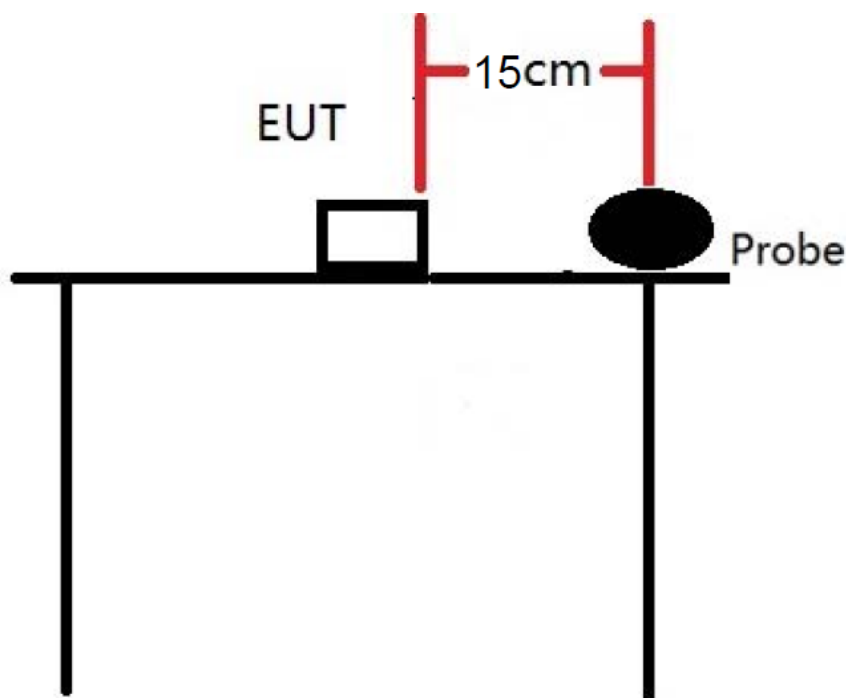
Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations 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.

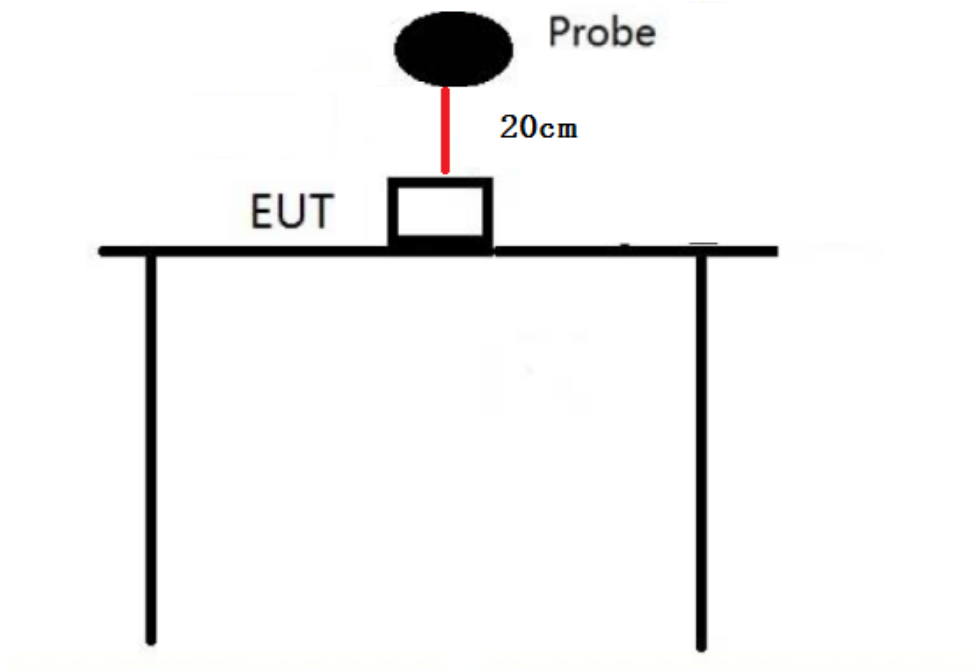
General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

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.	Last Cal.	Cal. Interval
☒	E-Field&H-Field Probe(9kHz-30MHz)	Narda	EHP-200A	180ZX11012	2022.03.06	1 Year

Description of Support Device

adapter	Model number: PD23U-1TNA : Input: AC 100-240V, 50/60Hz, 0.8A Max Output: DC 5V/3A, DC 9V/2.5A
iPhone	Manufacturer: Apple Inc. : M/N: A1524 S/N: N/A
Wireless Charger Receiver Module	Manufacturer: Universal : M/N: N/A S/N: N/A
SAMSUNG S9	Manufacturer: SAMSUNG : M/N: Samsung Galaxy S9 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: 127.7KHz)test data see the following.

Calculated Electric Field (E-Field) strength at 15cm from the boundaries of the EUT, and 20cm from the top.

Test Mode: Wireless Charging 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	0.176	0.0887	1.63	0.815
Measurement Point 2	Back	15	0.173	0.0874		
Measurement Point 3	Left	15	0.182	0.0923		
Measurement Point 4	Right	15	0.157	0.0794		
Measurement Point 5	Bottom	15	0.145	0.0733		
Measurement Point 6	Top	20	0.232	0.1174		

Test Mode: Wireless Charging 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	117.138	58.5648	614	307
Measurement Point 2	Back	15	116.998	58.4954		
Measurement Point 3	Left	15	117.036	58.5138		
Measurement Point 4	Right	15	114.038	57.0148		
Measurement Point 5	Bottom	15	111.127	55.5594		
Measurement Point 6	Top	20	124.282	62.1369		

Test Mode: Wireless Charging 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	0.181	0.0856	1.63	0.815
Measurement Point 2	Back	15	0.154	0.0851		
Measurement Point 3	Left	15	0.178	0.0902		
Measurement Point 4	Right	15	0.164	0.0768		
Measurement Point 5	Bottom	15	0.154	0.0712		
Measurement Point 6	Top	20	0.239	0.1151		

Test Mode: Wireless Charging 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	116.867	58.443	614	307
Measurement Point 2	Back	15	115.382	57.6861		
Measurement Point 3	Left	15	116.954	58.4719		
Measurement Point 4	Right	15	113.581	56.807		
Measurement Point 5	Bottom	15	110.699	55.358		
Measurement Point 6	Top	20	124.132	62.0635		

Test Mode: Wireless Charging 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	0.161	0.0792	1.63	0.815
Measurement Point 2	Back	15	0.164	0.0805		
Measurement Point 3	Left	15	0.163	0.0835		
Measurement Point 4	Right	15	0.141	0.0684		
Measurement Point 5	Bottom	15	0.126	0.0611		
Measurement Point 6	Top	20	0.209	0.1031		

Test Mode: Wireless Charging 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	105.333	52.671	614	307
Measurement Point 2	Back	15	107.372	53.6836		
Measurement Point 3	Left	15	108.552	54.2742		
Measurement Point 4	Right	15	109.669	54.8281		
Measurement Point 5	Bottom	15	92.5883	46.2942		
Measurement Point 6	Top	20	110.658	55.3263		

Test Mode: Wireless Charging 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	0.173	0.0865	1.63	0.815
Measurement Point 2	Back	15	0.170	0.0850		
Measurement Point 3	Left	15	0.180	0.0900		
Measurement Point 4	Right	15	0.154	0.0770		
Measurement Point 5	Bottom	15	0.142	0.0710		
Measurement Point 6	Top	20	0.230	0.1150		

Test Mode: Wireless Charging 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	117.125	58.5625	614	307
Measurement Point 2	Back	15	116.986	58.4930		
Measurement Point 3	Left	15	117.023	58.5115		
Measurement Point 4	Right	15	114.025	57.0125		
Measurement Point 5	Bottom	15	111.114	55.5570		
Measurement Point 6	Top	20	124.269	62.1345		

Test Mode: Wireless Charging 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	0.169	0.0845	1.63	0.815
Measurement Point 2	Back	15	0.168	0.084		
Measurement Point 3	Left	15	0.178	0.089		
Measurement Point 4	Right	15	0.151	0.0755		
Measurement Point 5	Bottom	15	0.140	0.07		
Measurement Point 6	Top	20	0.228	0.114		

Test Mode: Wireless Charging 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	116.854	58.427	614	307
Measurement Point 2	Back	15	115.369	57.6845		
Measurement Point 3	Left	15	116.941	58.4705		
Measurement Point 4	Right	15	113.568	56.784		
Measurement Point 5	Bottom	15	110.694	55.347		
Measurement Point 6	Top	20	124.125	62.0625		

Test Mode: Wireless Charging 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	0.156	0.078	1.63	0.815
Measurement Point 2	Back	15	0.158	0.079		
Measurement Point 3	Left	15	0.165	0.0825		
Measurement Point 4	Right	15	0.135	0.0675		
Measurement Point 5	Bottom	15	0.120	0.06		
Measurement Point 6	Top	20	0.204	0.102		

Test Mode: Wireless Charging 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	105.324	52.662	614	307
Measurement Point 2	Back	15	107.365	53.6825		
Measurement Point 3	Left	15	108.547	54.2735		
Measurement Point 4	Right	15	109.654	54.827		
Measurement Point 5	Bottom	15	92.587	46.2935		
Measurement Point 6	Top	20	110.650	55.325		

Test Mode: Wireless Charging 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	0.153	0.0765	1.63	0.815
Measurement Point 2	Back	15	0.156	0.078		
Measurement Point 3	Left	15	0.154	0.077		
Measurement Point 4	Right	15	0.148	0.074		
Measurement Point 5	Bottom	15	0.126	0.063		
Measurement Point 6	Top	20	0.201	0.1005		

Test Mode: Wireless Charging 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	104.254	52.127	614	307
Measurement Point 2	Back	15	106.582	53.291		
Measurement Point 3	Left	15	107.140	53.57		
Measurement Point 4	Right	15	108.256	54.128		
Measurement Point 5	Bottom	15	93.741	46.8705		
Measurement Point 6	Top	20	112.364	56.182		

Test Mode: Wireless Charging 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	0.148	0.074	1.63	0.815
Measurement Point 2	Back	15	0.144	0.072		
Measurement Point 3	Left	15	0.146	0.073		
Measurement Point 4	Right	15	0.149	0.0745		
Measurement Point 5	Bottom	15	0.120	0.06		
Measurement Point 6	Top	20	0.191	0.0955		

Test Mode: Wireless Charging 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	103.540	51.77	614	307
Measurement Point 2	Back	15	105.148	52.574		
Measurement Point 3	Left	15	105.690	52.845		
Measurement Point 4	Right	15	106.203	53.1015		
Measurement Point 5	Bottom	15	93.034	46.517		
Measurement Point 6	Top	20	109.634	54.817		

Test Mode: Wireless Charging 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	0.148	0.074	1.63	0.815
Measurement Point 2	Back	15	0.144	0.072		
Measurement Point 3	Left	15	0.142	0.071		
Measurement Point 4	Right	15	0.131	0.0655		
Measurement Point 5	Bottom	15	0.115	0.0575		
Measurement Point 6	Top	20	0.196	0.098		

Test Mode: Wireless Charging 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	103.204	51.602	614	307
Measurement Point 2	Back	15	102.145	51.0725		
Measurement Point 3	Left	15	102.527	51.2635		
Measurement Point 4	Right	15	104.126	52.063		
Measurement Point 5	Bottom	15	91.050	45.525		
Measurement Point 6	Top	20	108.442	54.221		

Test Mode: Wireless Charging 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	0.154	0.077	1.63	0.815
Measurement Point 2	Back	15	0.157	0.079		
Measurement Point 3	Left	15	0.155	0.078		
Measurement Point 4	Right	15	0.150	0.075		
Measurement Point 5	Bottom	15	0.127	0.064		
Measurement Point 6	Top	20	0.203	0.102		

Test Mode: Wireless Charging 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	104.252	52.126	614	307
Measurement Point 2	Back	15	106.564	53.282		
Measurement Point 3	Left	15	107.138	53.569		
Measurement Point 4	Right	15	108.252	54.126		
Measurement Point 5	Bottom	15	93.738	46.869		
Measurement Point 6	Top	20	112.357	56.179		

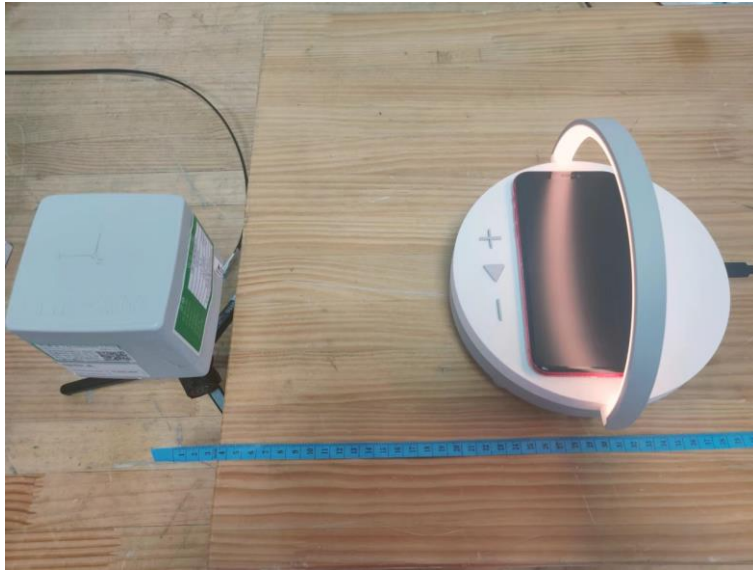
Test Mode: Wireless Charging 5w for 50% battery						
		Measuring Distance(cm)	H-Field(A/m)	50% H-Field(A/m)	Limit(A/m)	50% Limit(A/m)
Measurement Point 1	Front	15	0.146	0.073	1.63	0.815
Measurement Point 2	Back	15	0.142	0.071		
Measurement Point 3	Left	15	0.144	0.072		
Measurement Point 4	Right	15	0.147	0.074		
Measurement Point 5	Bottom	15	0.122	0.061		
Measurement Point 6	Top	20	0.187	0.094		

Test Mode: Wireless Charging 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	103.538	51.769	614	307
Measurement Point 2	Back	15	105.146	52.573		
Measurement Point 3	Left	15	105.677	52.839		
Measurement Point 4	Right	15	106.204	53.102		
Measurement Point 5	Bottom	15	93.031	46.516		
Measurement Point 6	Top	20	109.632	54.816		

Test Mode: Wireless Charging 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	0.146	0.073	1.63	0.815
Measurement Point 2	Back	15	0.143	0.072		
Measurement Point 3	Left	15	0.140	0.070		
Measurement Point 4	Right	15	0.132	0.066		
Measurement Point 5	Bottom	15	0.112	0.056		
Measurement Point 6	Top	20	0.197	0.099		

Test Mode: Wireless Charging 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	103.201	51.601	614	307
Measurement Point 2	Back	15	102.142	51.071		
Measurement Point 3	Left	15	102.525	51.263		
Measurement Point 4	Right	15	104.125	52.063		
Measurement Point 5	Bottom	15	91.048	45.524		
Measurement Point 6	Top	20	108.443	54.222		

PHOTOGRAPHS OF TEST SETUP



Signature

Tiger Xu

Tiger Xu
Manager
Date: 2022-03-30