

# 1 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

## 1.1 Standard Applicable

According to §1.1307(b)(1) and , systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission’s guideline.

According to §1.1310 and §2.1093 RF exposure is calculated.

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

**FCC KDB 680106**

## 1.2 Limits for Maximum Permissive Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength(E) (V/m)	Magnetic Field Strength(H) (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational / Controlled Exposure				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-15000	/	/	5	6
Frequency Range (MHz)	Electric Field Strength(E) (V/m)	Magnetic Field Strength(H) (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-15000	/	/	1.0	30

F = frequency in MHz

\* = Plane-wave equipment power density

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### 1.3 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model /Type No.	Series No.	Data Cable	Power Cord
1.	NA	---	---	---	---	---

### 1.4 The Worst Charging Condition:

Ancillary Equipment	Charging Condition	Verdict
Load	Full Loading	PASS
Load	99% Loading	PASS
Load	50% Loading	PASS
Load	1% Loading	PASS

Note: For Wireless Power Consortium Qi specification, a lower operating frequency or high duty cycle result in the transfer of a higher amount of power and charging current.

### 1.5 Measurement Procedure:

- 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 and 20 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 and 20 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.

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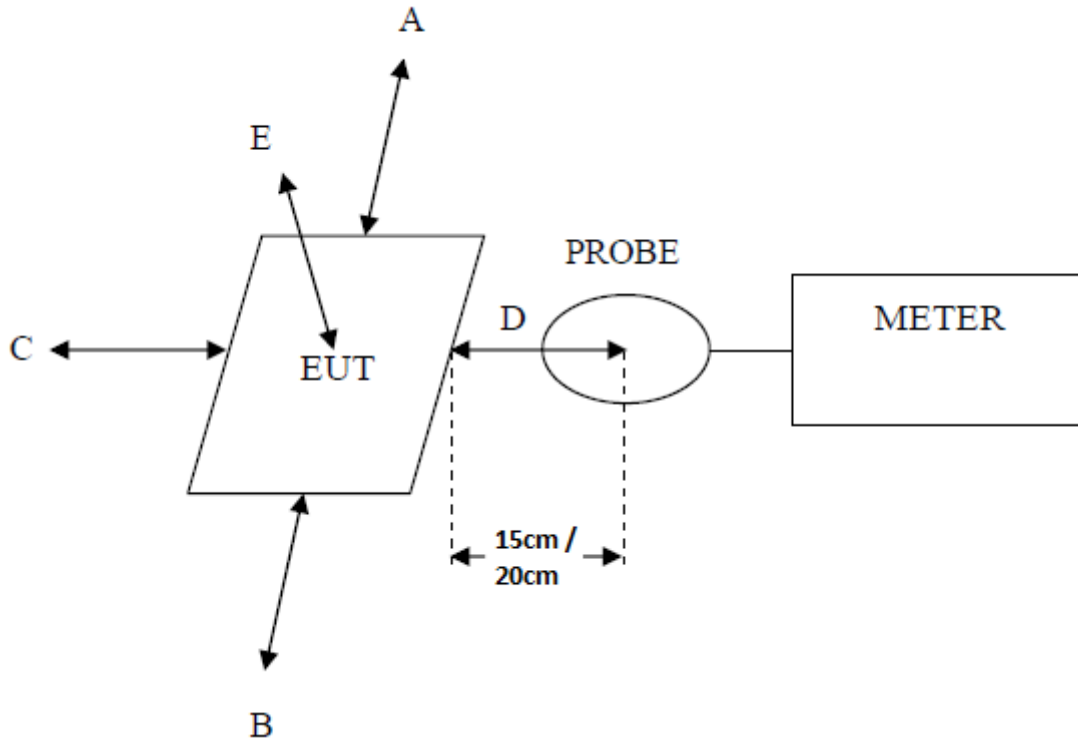
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**1.6 Measurement Equipment Used:**

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EM RADIATION METER	Wandel & Goltermann	EMR-30	M-0006	10/14/2017	10/13/2018

**1.7 Test Set-up:**



**1.8 Maximum Permissible Exposure (MPE) Evaluation:**

Full Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	15 cm	3.37	0.029
Left	15 cm	3.41	0.031
Right	15 cm	3.43	0.035
Top	15 cm	3.46	0.04
Bottom	15 cm	3.45	0.038
Limit		614	1.63

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99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	15 cm	3.51	0.034
Left	15 cm	3.24	0.028
Right	15 cm	3.34	0.037
Top	15 cm	3.29	0.031
Bottom	15 cm	3.28	0.027
Limit		614	1.63

50% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	15 cm	3.46	0.026
Left	15 cm	3.31	0.035
Right	15 cm	3.26	0.028
Top	15 cm	3.35	0.027
Bottom	15 cm	3.26	0.031
Limit		614	1.63

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	15 cm	3.41	0.033
Left	15 cm	3.34	0.03
Right	15 cm	3.3	0.037
Top	15 cm	3.36	0.029
Bottom	15 cm	3.28	0.034
Limit		614	1.63

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## Full Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	20 cm	3.24	0.016
Left	20 cm	3.28	0.019
Right	20 cm	3.33	0.015
Top	20 cm	3.41	0.011
Bottom	20 cm	3.37	0.014
Limit		614	1.63

## 99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	20 cm	3.37	0.013
Left	20 cm	3.41	0.01
Right	20 cm	3.19	0.008
Top	20 cm	3.24	0.011
Bottom	20 cm	3.31	0.016
Limit		614	1.63

## 50% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	20 cm	3.42	0.009
Left	20 cm	3.22	0.012
Right	20 cm	3.29	0.015
Top	20 cm	3.18	0.01
Bottom	20 cm	3.25	0.008
Limit		614	1.63

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1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	E-field	H-field
Front	20 cm	3.34	0.006
Left	20 cm	3.15	0.012
Right	20 cm	3.23	0.015
Top	20 cm	3.29	0.012
Bottom	20 cm	3.34	0.007
Limit		614	1.63

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