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2.5 Maximum Permissible Exposure (MPE)

2.5.1 Test Limits

The EUT shows compliance to the requirements of this section, which states the MPE limits for general population / uncontrolled exposure are as shown below:

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (min)
0.3 - 1.34	614	1.63	100 Note 2	30
1.34 - 30	824 / f	2.19 / f	$180 / f^2$ Note 2	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	-	-	f / 1500	30
1500 - 100000	-	-	1.0	30
Notes				
1. f = frequency in MHz				
2. Plane wave equivalent power density				

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2.5.2 Test Setup

2.5.2.1 The EUT and supporting equipment were set up as shown on the setup photo.

2.5.2.2 The relevant field probe was positioned at least 20cm away from the EUT and supporting equipment boundary.

2.5.3 Test Method

2.5.3.1 . The EUT was switched on and allowed to warm up to its normal operating condition.

2.5.3.2 The test was first carried out at one of the positions / sides of the EUT.

2.5.3.3 Power density measurement (mW/cm^2) was made using the field meter set to the required averaging time.

2.5.3.4 Measurements were repeated for the next position and its associate EUT operating mode, until all possible positions and modes were measured.

Sample Calculation Example

At 2400 MHz, limit = 1.0 mW/cm^2
Power density reading obtained directly from field meter = 0.3 mW/cm^2 averaged over the required 30 minutes.
Therefore, margin = 0.3 – 1.0 = -0.7 mW/cm^2 i.e. 0.7 mW/cm^2 below limit

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2.5.4 Test Results

Test Input Power	120V 60Hz	Temperature	24°C
Test Distance	20cm	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Anthony Toh
		Test Date	18 Sep 2019

UNII-1

Channel	Channel Frequency (GHz)	Power Density Value (mW/cm^2)	Margin (mW/cm^2)	Averaging Time (min)	Limit (mW/cm^2)
Lower	5.180	0.36	0.66	30	1.0
Middle	5.210	0.35	0.65	30	1.0
Upper	5.240	0.36	0.64	30	1.0

UNII-2A

Channel	Channel Frequency (GHz)	Power Density Value (mW/cm^2)	Margin (mW/cm^2)	Averaging Time (min)	Limit (mW/cm^2)
Lower	5.260	0.38	0.62	30	1.0
Middle	5.300	0.37	0.63	30	1.0
Upper	5.320	0.36	0.64	30	1.0

UNII-2C

Channel	Channel Frequency (GHz)	Power Density Value (mW/cm^2)	Margin (mW/cm^2)	Averaging Time (min)	Limit (mW/cm^2)
Lower	5.500	0.40	0.60	30	1.0
Middle	5.600	0.41	0.59	30	1.0
Upper	5.720	0.40	0.60	30	1.0

UNII-3

Channel	Channel Frequency (GHz)	Power Density Value (mW/cm^2)	Margin (mW/cm^2)	Averaging Time (min)	Limit (mW/cm^2)
Lower	5.745	0.44	0.56	30	1.0
Middle	5.785	0.43	0.57	30	1.0
Upper	5.825	0.42	0.58	30	1.0

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Notes

1.	All possible modes of operation were investigated. Only the worst case highest radiation levels were measured. Measurements were taken at the required averaging time. All other radiation levels were relatively insignificant.
2.	A "positive margin" indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative margin" indicates a FAIL.