

## 15 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 15.1 Standard Applicable

According to §1.1307(b)(1), 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.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (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

Note: Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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## 15.2 Maximum Permissible Exposure (MPE) Evaluation (Worst Case)

### 802.11a\_2TX

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
36	5180	6	8.93	8.39	<b>11.98</b>	15.776	23.98	PASS
44	5220	6	8.91	8.36	11.96	15.693	23.98	PASS
48	5240	6	8.87	8.32	<b>11.92</b>	15.549	23.98	PASS
52	5260	6	8.86	8.29	11.90	15.480	23.98 or $11+10\log(B) = 24.19$	PASS
60	5300	6	8.89	8.35	11.94	15.638	23.98 or $11+10\log(B) = 24.24$	PASS
64	5320	6	8.85	8.28	11.89	15.445	23.98 or $11+10\log(B) = 24.21$	PASS
100	5500	6	8.92	8.33	<b>11.95</b>	15.662	23.98 or $11+10\log(B) = 24.24$	PASS
116	5580	6	8.91	8.35	11.95	15.668	23.98 or $11+10\log(B) = 24.26$	PASS
140	5700	6	8.92	8.35	<b>11.96</b>	15.696	23.98 or $11+10\log(B) = 24.19$	PASS
149	5745	6	8.91	8.36	<b>11.96</b>	15.693	30	PASS
157	5785	6	8.87	8.31	11.91	15.524	30	PASS
165	5825	6	8.91	8.34	11.95	15.668	30	PASS

### MPE Prediction

Max. output power including tune-up tolerancel:	<b>11.98</b>	(dBm)
Max. output power including tune-up tolerancel:	15.776113	(mW)
Duty cycle:	<b>93.26</b>	(%)
Maximum Pav :	14.712803	(mW)
Peak Antenna gain (Maximum):	<b>4.98</b>	(dBi)
Peak Antenna gain (linear):	3.1477483	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	<b>5180</b>	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm <sup>2</sup> )
Power density at predication frequency at 20 (cm) distance	0.009	(mW/cm <sup>2</sup> )

### Measurement Result

The predicted power density level at 20 cm is 0.009 mW/cm<sup>2</sup>.

This is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 5180MHz.

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