

# 1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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## 1.1 Standard Applicable

According to § 1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

### (a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
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 / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
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 = frequency in MHz: \* = Plane-wave equivalents power density

## 1.2 MPE Calculation Method

$$S = (30 * P * G) / (377 * R^2)$$

S = power density (in appropriate units, e.g., mw/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

### 1.3 MPE Calculation Result

Model No.: AXON AIR

FCC ID: N73-AP60-AIR

Device category: A-AP60-000

#### 1.3.1 Conducted Power Result

**2.4G:**

##### Antenna 0

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	16.56	45.29	16±1	2.0	1.58
	2437	16.97	49.77	16±1	2.0	1.58
	2462	17.00	50.12	17±1	2.0	1.58
IEEE 802.11g	2412	15.91	38.99	15±1	2.0	1.58
	2437	16.09	40.64	16±1	2.0	1.58
	2462	16.47	44.36	16±1	2.0	1.58
IEEE 802.11n HT20	2412	14.73	29.70	14±1	2.0	1.58
	2437	15.21	33.20	15±1	2.0	1.58
	2462	15.39	34.60	15±1	2.0	1.58
IEEE 802.11n HT40	2422	14.29	26.90	14±1	2.0	1.58
	2437	14.26	26.70	14±1	2.0	1.58
	2452	14.66	29.20	14±1	2.0	1.58

##### Antenna 1

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	16.31	42.76	16±1	2.0	1.58
	2437	16.81	47.97	16±1	2.0	1.58
	2462	16.58	45.50	16±1	2.0	1.58
IEEE 802.11g	2412	15.23	33.34	15±1	2.0	1.58
	2437	15.98	39.63	15±1	2.0	1.58
	2462	15.71	37.24	15±1	2.0	1.58
IEEE 802.11n HT20	2412	14.63	29.00	14±1	2.0	1.58
	2437	15.11	32.40	15±1	2.0	1.58
	2462	14.72	29.60	14±1	2.0	1.58
IEEE 802.11n	2422	13.72	23.60	13±1	2.0	1.58
	2437	13.93	24.70	13±1	2.0	1.58

HT40	2452	14.31	27.00	14±1	2.0	1.58
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**5G (5125MHz-5250MHz):**

**Antenna 0**

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11a	5180	12.99	19.90	12±1	2.5	1.78
	5200	13.49	22.30	13±1	2.5	1.78
	5240	13.29	21.30	13±1	2.5	1.78
IEEE 802.11n HT20	5180	12.20	16.60	12±1	2.5	1.78
	5200	12.59	18.20	12±1	2.5	1.78
	5240	12.23	16.70	12±1	2.5	1.78
IEEE 802.11n HT40	5190	12.19	16.60	12±1	2.5	1.78
	5230	12.01	15.90	12±1	2.5	1.78

**Antenna 1**

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11a	5180	13.06	20.20	13±1	2.5	1.78
	5200	13.71	23.50	13±1	2.5	1.78
	5240	13.85	24.30	13±1	2.5	1.78
IEEE 802.11n HT20	5180	12.10	16.20	12±1	2.5	1.78
	5200	12.30	17.00	12±1	2.5	1.78
	5240	12.54	17.90	12±1	2.5	1.78
IEEE 802.11n HT40	5190	12.01	15.90	12±1	2.5	1.78
	5230	12.11	16.30	12±1	2.5	1.78

**5G (5275MHz-5850MHz):**

**Antenna 0**

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11a	5745	12.80	19.10	12±1	2.5	1.78
	5785	13.04	20.10	13±1	2.5	1.78
	5825	13.21	20.90	13±1	2.5	1.78

IEEE 802.11n HT20	5745	12.17	16.50	12±1	2.5	1.78
	5785	12.34	17.10	12±1	2.5	1.78
	5825	12.19	16.60	12±1	2.5	1.78
IEEE 802.11n HT40	5755	11.60	14.50	11±1	2.5	1.78
	5795	11.66	14.70	11±1	2.5	1.78

### Antenna 1

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11a	5745	13.45	22.10	12±1	2.5	1.78
	5785	13.03	20.10	13±1	2.5	1.78
	5825	13.02	20.00	13±1	2.5	1.78
IEEE 802.11n HT20	5745	12.29	16.90	12±1	2.5	1.78
	5785	12.38	17.30	12±1	2.5	1.78
	5825	11.47	14.00	11±1	2.5	1.78
IEEE 802.11n HT40	5755	12.51	17.80	12±1	2.5	1.78
	5795	12.27	16.90	12±1	2.5	1.78

### 1.3.2 Calculated Result and Limit

#### 2.4G:

##### Antenna 0

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm <sup>2</sup> )	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
		(dBi)	(Linear)			
WiFi						
IEEE 802.11b	18	2.0	1.58	<b>0.0198</b>	1	Compiles
IEEE 802.11g	17	2.0	1.58	<b>0.0157</b>	1	Compiles
IEEE 802.11n HT20	16	2.0	1.58	<b>0.0125</b>	1	Compiles
IEEE 802.11n HT40	15	2.0	1.58	<b>0.0099</b>	1	Compiles

##### Antenna 1

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm <sup>2</sup> )	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
		(dBi)	(Linear)			
WiFi						
IEEE 802.11b	17	2.0	1.58	<b>0.0157</b>	1	Compiles
IEEE 802.11g	16	2.0	1.58	<b>0.0125</b>	1	Compiles
IEEE 802.11n HT20	16	2.0	1.58	<b>0.0125</b>	1	Compiles
IEEE 802.11n HT40	15	2.0	1.58	<b>0.0099</b>	1	Compiles

##### MIMO : Antenna 0+1

Mode	Power Density (S) (mW/cm <sup>2</sup> ) Antenna 0	Power Density (S) (mW/cm <sup>2</sup> ) Antenna 1	Power Density (S) (mW/cm <sup>2</sup> ) Total	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
WiFi					
IEEE 802.11n HT20	<b>0.0125</b>	<b>0.0125</b>	<b>0.0250</b>	1	Compiles
IEEE 802.11n HT40	<b>0.0099</b>	<b>0.0099</b>	<b>0.0198</b>	1	Compiles

**5G (5125MHz-5250MHz):**

**Antenna 0**

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm <sup>2</sup> )	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
		(dBi)	(Linear)			
WiFi						
IEEE 802.11a	14	2.5	1.78	<b>0.0089</b>	1	Compiles
IEEE 802.11n HT20	13	2.5	1.78	<b>0.0071</b>	1	Compiles
IEEE 802.11n HT40	13	2.5	1.78	<b>0.0071</b>	1	Compiles

**Antenna 1**

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm <sup>2</sup> )	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
		(dBi)	(Linear)			
WiFi						
IEEE 802.11b	14	2.5	1.78	<b>0.0089</b>	1	Compiles
IEEE 802.11n HT20	13	2.5	1.78	<b>0.0071</b>	1	Compiles
IEEE 802.11n HT40	13	2.5	1.78	<b>0.0071</b>	1	Compiles

**MIMO : Antenna 0+1**

Mode	Power Density (S) (mW/cm <sup>2</sup> ) Antenna 0	Power Density (S) (mW/cm <sup>2</sup> ) Antenna 1	Power Density (S) (mW/cm <sup>2</sup> ) Total	Limited of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
WiFi					
IEEE 802.11n HT20	<b>0.0071</b>	<b>0.0071</b>	<b>0.0142</b>	1	Compiles
IEEE 802.11n HT40	<b>0.0071</b>	<b>0.0071</b>	<b>0.0142</b>	1	Compiles

**5G (5275MHz-5850MHz):**

**Antenna 0**

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm2)	Limited of Power Density (S) (mW/cm2)	Test Result
		(dBi)	(Linear)			
WiFi						
IEEE 802.11a	14	2.5	1.78	<b>0.0089</b>	1	Compiles
IEEE 802.11n HT20	13	2.5	1.78	<b>0.0071</b>	1	Compiles
IEEE 802.11n HT40	12	2.5	1.78	<b>0.0056</b>	1	Compiles

**Antenna 1**

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm2)	Limited of Power Density (S) (mW/cm2)	Test Result
		(dBi)	(Linear)			
WiFi						
IEEE 802.11b	14	2.5	1.78	<b>0.0089</b>	1	Compiles
IEEE 802.11n HT20	13	2.5	1.78	<b>0.0071</b>	1	Compiles
IEEE 802.11n HT40	13	2.5	1.78	<b>0.0071</b>	1	Compiles

**MIMO : Antenna 0+1**

Mode	Power Density (S) (mW/cm2) Antenna 0	Power Density (S) (mW/cm2) Antenna 1	Power Density (S) (mW/cm2) Total	Limited of Power Density (S) (mW/cm2)	Test Result
WiFi					
IEEE 802.11n HT20	<b>0.0071</b>	<b>0.0071</b>	<b>0.0142</b>	1	Compiles
IEEE 802.11n HT40	<b>0.0056</b>	<b>0.0071</b>	<b>0.0127</b>	1	Compiles