

FCC 47 CFR MPE REPORT

Arize Corporation

Smart Lock

Model Number: ASL220

FCC ID: 2AWPP-ASL220

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Maximum Permissible Exposure

1. Applicable Standards

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

1.1. Limits for Maximum Permissible Exposure (MPE)

Frequency	Electric Field	Magnetic	Power Density	Averaging Times
Range	Strength (E)	Field Strength	(S) (mW/cm ²)	E ² , H ² or
(MHz)	(V/m)	(H) (A/m)		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
1500-10000			5	6

(a) Limits for Occupational/Controlled Exposure

(b) Limits for General Population / Uncontrolled Exposure

Frequency	Electric Field	Magnetic Power Density		Averaging Times
Range (MHz)	Strength (E)	Field Strength (S) (mW/cm ²)		$ E ^{2}, H ^{2}$ or
	(V/m)	(H) (A/m)		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
1500-10000			1.o	30

Note: f=frequency in MHz; *Plane-wave equivalent power density



 $\frac{E^2}{377}$

1.2. MPE Calculation Method

E (V/m) =
$$\frac{\sqrt{30 \times P \times G}}{d}$$
 Power Density: Pd (W/m²) =

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$\mathsf{Pd} = \frac{30 \times \mathsf{P} \times \mathsf{G}}{377 \times \mathsf{d}^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



2. Conducted Power Result

Mode	Mode Frequency (MHz)		Peak output power (mW)
	2402	5.66	3.681
BLE 1M	2440	5.88	3.873
	2480	5.56	3.597
BLE 2M	2402	5.94	3.926
	2440	5.90	3.890
	2480	5.62	3.648
ZIGB	2405	8.71	7.430
	2440	9.26	8.433
	2480	8.99	7.925

3. Calculated Result and Limit

Peak output	Target	MAX Target	Antenna gain		Power Density	Limited of Power	Test	
Mode	power (dBm)	power (dBm)	power (dBm)	(dBi)	(Linear)	(S) (mW/cm ²)	(S) (mW/cm ²)	Result
	2.4G Band							
BLE 1M	5.88	5±1	6	-3.41	0.456	0.00036	1	Complies
BLE 2M	5.94	5±1	6	-3.41	0.456	0.00036	1	Complies
ZIGB	9.26	9±1	10	3.45	2.213	0.00440	1	Complies

Simultaneous Transmissions

			Simultaneous	Simultaneous	
Mode	Result	Limit	Transmissions	Transmissions	Total Result
			Result	Limit	
BLE	0.00036	1	0.00476	1	Complian
ZIGB	0.00440	1	0.00476	I	Complies

End of Test Report