

## FCC 47 CFR MPE REPORT

Emerson Radio Corp.

SmartSet Clock Radio 1.2 inch Blue LED Display with Bluetooth, FM, Wireless  
and USB Charging

Model Number: ER100120

Additional Model: ER100121, ER100122

FCC ID: 2ALCVER100120

Prepared for:	Emerson Radio Corp.
	35 Waterview Blvd, Parsippany, NJ 07054, USA
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R1905072
Date of Test:	Apr. 17~May 21, 2019
Date of Report:	May 23, 2019



## Maximum Permissible Exposure

### 1、Applicable Standard

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.

#### (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   2 ,   H   2 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
1500-10000			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   2 ,   H   2 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
1500-10000			1.0	30

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

### 2、MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } P_d \text{ (W/m}^2\text{)} = E^2 / 377$$

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

$$P_d = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

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

### 3、Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
GFSK	2402	0.04	1.009	$0 \pm 1$	0	1
	2441	-0.30	0.933	$-1 \pm 1$	0	1
	2480	-0.63	0.865	$-1 \pm 1$	0	1
8-DPSK	2402	2.70	1.862	$2 \pm 1$	0	1
	2441	2.41	1.742	$2 \pm 1$	0	1
	2480	2.09	1.618	$2 \pm 1$	0	1

### 4、Calculated Result and Limit

Mode	Target power ( dBm )	Antenna gain		Power Density (S) (mW /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
		(dBi)	(Linear)			
2.4G Band						
GFSK	1	0	1	0.00025	1	Compiles
8-DPSK	3	0	1	0.00040	1	Compiles