

Model: A03851		Test Number: 210504								
MPE Calculator	RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.									
	dBi = dB gain compared to an isotropic radiator.									
	S = power density in mW/cm <sup>2</sup>									
	Transmitter Output power (dBm)		11.62							
	Transmitter Output power (mW)		14.52							
Duty Cycle	100	Output power (W)		0.0145	Antenna Gain (dBi)		6			
	Output Power corrected for Duty Cycle (Watts)		0.015		Antenna Gain (Numeric)		3.98			
Tx Frequency (MHz)	2437	Calculation power (Watts)		0.015	dBd + 2.17 = dBi		dBi to dBd		2.2	
					Antenna Gain (dBd)		3.83			
Cable Loss (dB)	0.0	Adjusted Power (dBm)		11.62	Antenna minus cable (dBi)		6.00			
	Calculated ERP (mw)		35.075		EIRP = Po(dBm) + Gain (dB)					
	Calculated ERP (W)		0.035		Radiated (EIRP) dBm		17.620			
	Calculated EIRP (mw)		57.810		ERP = EIRP - 2.17 dB					
	Calculated EIRP (W)		0.058		Radiated (ERP) dBm		15.450			
<b>Occupational Limit</b>		FCC radio frequency radiation exposure limits per 1.1310								
5	mW/cm <sup>2</sup>	Frequency (MHz)	Occupational Limit (mW/cm <sup>2</sup> )	Public Limit (mW/cm <sup>2</sup> )						
50	W/m <sup>2</sup>	30-300	1	0.2						
<b>General Public Limit</b>		300-1,500	1/300	1/1500						
1	mW/cm <sup>2</sup>	1,500-10,000	5	1						
10	W/m <sup>2</sup>									
<b>Occupational Limit</b>		IC radio frequency radiation exposure limits per RSS-102								
0.6455f <sup>0.5</sup>	W/m <sup>2</sup>	Frequency (MHz)	Occupational Limit (W/m <sup>2</sup> )	Public Limit (W/m <sup>2</sup> )						
39.7	W/m <sup>2</sup>	100-6,000	0.6455f <sup>0.5</sup>							
<b>General Public Limit</b>		6,000-15,000	50							
0.02619f <sup>0.6834</sup>	W/m <sup>2</sup>	48-300		1.291						
5.4	W/m <sup>2</sup>	300-6,000		0.02619f <sup>0.6834</sup>						
		6,000-15,000	50	10						
f = Transmit Frequency (MHz)		f (MHz) =	2437 MHz							
P <sub>T</sub> = Power Input to Antenna (mW)		P <sub>T</sub> (mW) =	14.5211 mW							
Duty cycle (percentage of operation)		% =	100 %							
P <sub>A</sub> = Adjusted Power due to Duty cycle or Cable Loss (mW)		P <sub>A</sub> (mW) =	14.52 mW							
G <sub>N</sub> = Numeric Gain of the Antenna		GN (numeric) =	3.98 numeric							
S <sub>20</sub> = Power Density of device at 20cm (mW/m <sup>2</sup> )		S <sub>20</sub> (mW/m <sup>2</sup> ) =	0.01 mW/m <sup>2</sup>							
S <sub>20</sub> = Power Density of device at 20cm (W/m <sup>2</sup> )		S <sub>20</sub> (W/m <sup>2</sup> ) =	0.12 W/m <sup>2</sup>							
S <sub>L</sub> = Power Density Limit (W/m <sup>2</sup> )		S <sub>L</sub> (W/m <sup>2</sup> ) =	5.404 W/m <sup>2</sup>							
R <sub>C</sub> = Minimum distance to the Radiating Element for Compliance (cm)		R <sub>C</sub> (cm) =	2.9 cm							
S <sub>C</sub> = Power Density of the device at the Compliance Distance R <sub>C</sub> (W/m <sup>2</sup> )		S <sub>C</sub> (W/m <sup>2</sup> ) =	5.40 W/m <sup>2</sup>							
R <sub>20</sub> = 20cm		R20 =	20 cm		7.9 inches					
<b>Summary: Standalone MPE Calculations and Summary</b>										
Band (MHz)	Tx Duty Cycle (%)	Tx Frequency (MHz)	Power Total (mW)	Antenna Gain (dBi)	S <sub>L</sub> (W/m <sup>2</sup> )	S <sub>20</sub> (W/m <sup>2</sup> )	R <sub>C</sub> (cm)	S <sub>C</sub> (W/m <sup>2</sup> )		
2412-2480	100	2437	15	6	5.404	0.12	2.9	5.40		
For Compliance with Canada General Population Limits, User Manual must indicate a minimum separation distance of					2.9 cm					
Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of					0.03 Meters					

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Revision 1

Garmin International, Inc.  
Model: A03851  
Test: 210504  
Test to: 47CFR 15C, RSS-Gen RSS-247  
File: A03851 RFExp

SN's: 3367328349 / 3367328315  
FCC ID: IPH-03851  
IC: 1792A-03851  
Date: March 13, 2022  
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