

FREEMILE 60 RF Exposure Exhibit

57-71 GHz WiGig

		Model: Freemile 60		Test Number: 240723																									
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 ²																											
		Transmitter Output power (mW)	50.0																										
		Transmitter Output power (W)	0.05																										
		Output Power for % duty Cycle operation (Watts)	100	0.05	Antenna Gain (dBi) 14.6757																								
					Antenna Gain (Numeric) 29.35																								
		Output Power for 100% duty Cycle operation (Watts)	0.05		dBd + 2.17 = dBi																								
					dBi to dBd 2.17																								
Tx Frequency (MHz)	57627.7	Calculation power (Watts)	0.05		Antenna Gain (dBd) 12.5057																								
Cable Loss (dB)		Adjusted Power (dBm)	16.99		Antenna minus cable (dBi) 14.68																								
					Antenna Gain (Numeric) 29.35																								
		Calculated ERP (mw)	890.129		EIRP = Po(dBm) + Gain (dB)																								
		Calculated EIRP (mw)	1467.078		Radiated (EIRP) dBm 31.665																								
		$\text{Power density (S) mW/cm}^2 = \frac{\text{EIRP}}{4 \pi r^2}$ $r \text{ (cm)} \quad \text{EIRP (mW)}$			ERP = EIRP - 2.17 dB																								
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		Occupational Limit <table border="1"> <thead> <tr> <th colspan="3">FCC radio frequency radiation exposure limits per 1.1310</th> </tr> <tr> <th>Frequency (MHz)</th> <th>Occupational Limit (mW/cm²)</th> <th>Public Limit (mW/cm²)</th> </tr> </thead> <tbody> <tr> <td>30-300</td> <td>1</td> <td>0.2</td> </tr> </tbody> </table>		FCC radio frequency radiation exposure limits per 1.1310			Frequency (MHz)	Occupational Limit (mW/cm ²)	Public Limit (mW/cm ²)	30-300	1	0.2																	
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		$f = \text{Transmit Frequency (MHz)}$ $P_T = \text{Power Input to Antenna (mW)}$ $\text{Duty cycle (percentage of operation)}$ $P_A = \text{Adjusted Power due to Duty cycle or Cable Loss (mW)}$ $G_N = \text{Numeric Gain of the Antennae}$ $S_{20} = \text{Power Density of device at 20cm (mW/m}^2)$ $S_{20} = \text{Power Density of device at 20cm (W/m}^2)$ $S_L = \text{Power Density Limit (W/m}^2) \text{ FCC}$ $S_L = \text{Power Density Limit (W/m}^2) \text{ Canada}$ $R_C = \text{Minimum distance to the Radiating Element for Compliance (cm) FCC}$ $R_C = \text{Minimum distance to the Radiating Element for Compliance (cm) Canada}$ $S_C = \text{Power Density of the device at the Compliance Distance } R_C \text{ (W/m}^2) \text{ FCC}$ $S_C = \text{Power Density of the device at the Compliance Distance } R_C \text{ (W/m}^2) \text{ Canada}$ $R_{20} = 20\text{cm}$		$f(\text{MHz}) = 57627.7$ $P_T(\text{mW}) = 49.9900$ $\% = 100$ $P_A(\text{mW}) = 49.99$ $GN(\text{numeric}) = 29.35$ $S_{20}(\text{mW/m}^2) = 0.29$ $S_{20}(\text{W/m}^2) = 2.92$ $S_L(\text{W/m}^2) = 10.00$ $S_L(\text{W/m}^2) = 10.00$ $R_C(\text{cm}) = 10.8$ $R_C(\text{cm}) = 10.8$ $S_C(\text{W/m}^2) = 10.00$ $S_C(\text{W/m}^2) = 10.00$ $R_{20} = 20$																									
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				For Compliance with Canada General Population Limits, User Manual must indicate a minimum separation distance of Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of																									
				10.8 cm 0.11 Meters																									
Summary: Standalone MPE Calculations and Summary																													
		Tx Duty Cycle (%) FCC 100 Canada 100		Tx Frequency (MHz) 57627.7 57627.7																									
		Power Total (mW) 50 50		Antenna Gain (numeric) 29.35 29.35																									
				Public Limit S _L (W/m ²) S _L (W/m ²)																									
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