

MPE Calculation page

Model: TT32		Test Number: 210712	
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 (dBm)	54.60	
	Transmitter Output power (mW)	288,403.15	
Output Power for % duty Cycle operation (Watts)	1	288.4032	Antenna Gain (dBi) 2.2
Output Power for 1% duty Cycle operation (Watts)	2.88		Antenna Gain (Numeric) 1.66
Tx Frequency (MHz)	1090	Calculation power (Watts) 2.88	dBd + 2.17 = dBi dBi to dBd 2.2
			Antenna Gain (dBd) 0.03
Cable Loss (dB)	0.0	Adjusted Power (dBm) 34.60	Antenna minus cable (dBi) 2.20
	Calculated ERP (mw) 2904.023		EIRP = Po(dBm) + Gain (dB)
	Calculated EIRP (mw) 4786.301		Radiated (EIRP) dBm 36.800
			ERP = EIRP - 2.17 dB
			Radiated (ERP) dBm 34.630
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> $\text{Power density (S) mW/cm}^2 = \frac{\text{EIRP}}{4\pi r^2}$ <p>r (cm) EIRP (mW)</p> </div>			
Occupational Limit		FCC radio frequency radiation exposure limits per 1.1310	
3.633333333	mW/cm ²	Frequency (MHz)	Occupational Limit (mW/cm ²)
36	W/m ²	30-300	1
		300-1,500	£300
0.726666667	mW/cm ²	1,500-10,000	5
7	W/m ²		1
Occupational Limit		IC radio frequency radiation exposure limits per RSS-102	
0.6455f ^{0.5}	W/m ²	Frequency (MHz)	Occupational Limit (W/m ²)
26.5	W/m ²	100-6,000	0.6455f ^{0.5}
		6,000-15,000	50
0.02619f ^{0.6834}	W/m ²	48-300	
3.1	W/m ²	300-6,000	1.291
		6,000-15,000	0.02619f ^{0.6834}
			10
f = Transmit Frequency (MHz)		f (MHz) =	1090 MHz
P _T = Power Input to Antenna (mW)		P _T (mW) =	288,403.1503 mW
Duty cycle (percentage of operation)		% =	1 %
P _A = Adjusted Power due to Duty cycle or Cable Loss (mW)		P _A (mW) =	2,884.03 mW
G _N = Numeric Gain of the Antenna		G _N (numeric) =	2.17 numeric
S ₂₀ = Power Density of device at 20cm (mW/m ²)		S ₂₀ (mW/m ²) =	1.25 mW/m ²
S ₂₀ = Power Density of device at 20cm (W/m ²)		S ₂₀ (W/m ²) =	12.45 W/m ²
S _L = Power Density Limit (W/m ²)		S _L (W/m ²) =	7.267 W/m ²
R _C = Minimum distance to the Radiating Element for Compliance (cm)		R _C (cm) =	26.2 cm
S _C = Power Density of the device at the Compliance Distance R _C (W/m ²)		S _C (W/m ²) =	7.27 W/m ²
R ₂₀ = 20cm		R ₂₀ =	20 cm
		For Compliance with General Population Limit	26.2 cm
		Or in Meters for Compliance with General Population Limits	0.26 Meters

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 Revision 1

Trig Avionics Limited
 Models: TT32, TT32G, KT86, KT86G
 Test: 210712
 Test to: 47CFR Parts 2 and 87
 File VZI01905 RFExp

SN: 4
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