MPE Calculation page TY 96

Trig Avionics	Model: TY96		Test Number:	160412		
MPE Calculator	MPE 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 maximum Output power operating at 100% (Watts)		10.0693		Antenna Gain (dBi)	1
	Output Power for 50% duty Cycle operation (Watts)		5.0347	dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	127.5	Calcualtion power (Watts)	5.0347		Antenna Gain (dBd)	-1.17
Cable Loss (dB)	0.0	(dBm)	37.02		Antenna minus cable (dBi)	1.00
	Calculated ERP (mw)	3845.652			EIRP = Po(dBM) + Gain (dB)	
	Calculated EIRP (mw)	6338.259			Radiated (EIRP) dBm	38.020
					ERP = EIRP - 2.17 dB	
					Radiated (ERP) dBm	35.850

Power density (S)

EIRP
------- = mW/cm^2
4 p r^2

		FCC radio frequency radiation exposure limits per 1.1310		
	Occupational Limit			
1	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
10	W/m^2	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
0.2	mW/cm^2	1,500-10,000	5	1
2	W/m^2			

		IC radio frequency radiation exposure limits per RSS-102		
	Occupational Limit			
$0.6455f^{0.5}$	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
9.07200	W/m^2	100-6,000	$0.6455f^{0.5}$	
	General Public Limit	6,000-15,000	50	
1.291	W/m^2	48-300		1.291
1.29100	W/m^2	300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

EIRP	S	S	Distance	Distance	Distance	Distance
milliwatts	mW/cm^2	W/m^2	cm	meter	inches	Feet
6338.259	0.01261	0.12610	200.00	2.00	78.74	0.17
6338.259	0.01397	0.13972	190.00	1.90	74.80	0.16
6338.259	0.01557	0.15567	180.00	1.80	70.87	0.15
6338.259	0.01745	0.17453	170.00	1.70	66.93	0.14
6338.259	0.01970	0.19702	160.00	1.60	62.99	0.13
6338.259	0.02242	0.22417	150.00	1.50	59.06	0.13
6338.259	0.02573	0.25734	140.00	1.40	55.12	0.12
6338.259	0.03228	0.32280	125.00	1.25	49.21	0.10
6338.259	0.12314	1.23140	64.00	0.64	25.20	0.05
6338.259	0.19935	1.99354	50.30	0.50	19.80	0.04
6338.259	0.26053	2.60528	44.00	0.44	17.32	0.04
6338.259	0.31524	3.15239	40.00	0.40	15.75	0.03
6338.259	0.56043	5.60425	30.00	0.30	11.81	0.03
6338.259	0.90560	9.05599	23.60	0.24	9.29	0.02
6338.259	0.99631	9.96311	22.50	0.23	8.86	0.02
6338.259	4.94444	49.44443	10.10	0.10	3.98	0.01
6338.259	20.17531	201.75306	5.00	0.05	1.97	0.00

Frequency (MHz)	FCC Occupational Limit minimum Distance (meters)	Canada Occupational Limit minimum Distance (meters)	FCC Public Limit minimum distance (meters)	Canada Public Limit minimum distance (meters)
30-300	0.23	0.24	0.50	0.64
300-1,500	N/A	N/A	N/A	N/A
1,500-10,000	N/A	N/A	N/A	N/A

TY 97

Trig Avionics	Model: TY97		Test Number:	160412		
MPE Calculator	MPE 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 maximum Output power operating at 100% (Watts)		15.9956		Antenna Gain (dBi)	1
	Output Power for 50% duty Cycle operation (Watts)		7.9978	dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	127.5	Calcualtion power (Watts)	7.9978		Antenna Gain (dBd)	-1.17
Cable Loss (dB)	0.0	(dBm)	39.03		Antenna minus cable (dBi)	1.00
	Calculated ERP (mw)	6,108.998		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	10,068.621			Radiated (EIRP) dBm	40.030
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	37.860

Power density (S)

EIRP
------- = mW/cm^2
4 p r^2

EIRP (mW), r (cm)

	Occupational Limit	FCC radio frequency radiation exposure limits per 1.1310		
1	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
10	W/m^2	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
0.2	mW/cm^2	1,500-10,000	5	1
2	W/m^2			

	Occupational Limit	IC radio frequency radiation exposure limits per RSS-102		
$0.6455f^{0.5}$	W/m^2			
9.07200	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
	General Public Limit	100-6,000	$0.6455f^{0.5}$	
1.291	W/m^2	6,000-15,000	50	
1.29100	W/m^2	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

EIRP	S					
milliwatts	mW/cm^2	S	Distance	Distance	Distance	Distance
10068.621	0.02003	W/m^2	cm	meter	inches	Feet
10068.621	2.21949	0.20031	200.00	2.00	78.74	6.56
10068.621	0.02473	22.19489	19.00	0.19	7.48	0.62
10068.621	0.02772	0.24729	180.00	1.80	70.87	5.91
10068.621	0.03130	0.27724	170.00	1.70	66.93	5.58
10068.621	0.03561	0.31298	160.00	1.60	62.99	5.25
10068.621	0.04088	0.35610	150.00	1.50	59.06	4.92
10068.621	0.05128	0.40879	140.00	1.40	55.12	4.59
10068.621	0.12838	0.51279	125.00	1.25	49.21	4.10
10068.621	0.20187	1.28383	79.00	0.79	31.10	2.59
10068.621	0.32049	2.01873	63.00	0.63	24.80	2.07
10068.621	0.50077	3.20494	50.00	0.500	19.69	1.64
10068.621	0.89026	5.00772	40.00	0.400	15.75	1.31
10068.621	0.90225	8.90262	30.00	0.300	11.81	0.98
10068.621	1.00043	9.02251	29.80	0.298	11.73	0.98
10068.621	1.28198	10.00431	28.30	0.283	11.14	0.93
10068.621	2.00309	12.81977	25.00	0.250	9.84	0.82
		20.03089	20.00	0.200	7.87	0.66

Frequency (MHz)	FCC Occupational Limit minimum Distance (meters)	Canada Occupational Limit minimum Distance (meters)	FCC Public Limit minimum distance (meters)	Canada Public Limit minimum distance (meters)
30-300	0.28	0.29	0.63	0.79
300-1,500	N/A	N/A	N/A	N/A
1,500-10,000	N/A	N/A	N/A	N/A