RF Exposure Calculations

SAF Tehnika AS	Model: ARANETTPR		Test Number:	171106C		
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					
					Antenna Gain (dBi)	1
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	915	Maximum (Watts)	0.029		Antenna Gain (dBd)	-1.17
Cable Loss (dB)	0.0	(dBm)	14.6		Antenna minus cable (dBi)	1.00
	Calculated ERP (mw)	22.131		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	36.475			Radiated (EIRP) dBm	15.620
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	13.450

Power density (S)

$$S = \frac{EIRP}{4 \pi r^2} \text{ mW/cm}^2$$

		FCC radio frequency radiation exposure limits per 1.1310		
	Occupational Limit			
3.05	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
30.50	W/m^2	300-1,500	f/300	f/1500
	General Public Limit	1,500-10,000	5	1
0.61	mW/cm^2			
6.10	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)
19.52571	W/m^2	100-6,000	$0.6455f^{0.5}$	
	General Public Limit	6,000-15,000	50	
$0.02619f^{0.6834}$	W/m^2	48-300		1.291
2.76675	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
36.475	0.00020	0.00202	120.00	1.20	47.24	3.94
36.475	0.00036	0.00358	90.00	0.90	35.43	2.95
36.475	0.00045	0.00454	80.00	0.80	31.50	2.62
36.475	0.00059	0.00592	70.00	0.70	27.56	2.30
36.475	0.00081	0.00806	60.00	0.60	23.62	1.97
36.475	0.00116	0.01161	50.00	0.50	19.69	1.64
36.475	0.00181	0.01814	40.00	0.40	15.75	1.31
36.475	0.00323	0.03225	30.00	0.30	11.81	0.98
36.475	0.00726	0.07257	20.00	0.20	7.87	0.66
36.475	0.01290	0.12901	15.00	0.15	5.91	0.49
36.475	0.02903	0.29026	10.00	0.100	3.94	0.33
36.475	0.03583	0.35835	9.00	0.090	3.54	0.30
36.475	0.04535	0.45353	8.00	0.080	3.15	0.26
36.475	0.05924	0.59237	7.00	0.070	2.76	0.23
36.475	0.08063	0.80628	6.00	0.060	2.36	0.20
36.475	0.11610	1.16105	5.00	0.050	1.97	0.16
36.475	0.18141	1.81414	4.00	0.040	1.57	0.13

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	0.04	0.20
RSS-102	0.04	0.20