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)	0.036		Antenna Gain (dBd)	-1.17
Cable Loss (dB)	0.0	(dBm)	15.6		Antenna minus cable (dBi)	1.00
	Calculated ERP (mw)	27.416		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	45.186			Radiated (EIRP) dBm	16.550
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	14.380

Power density (S)

EIRP
------- = mW/cm^2
4 p r^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
45.186	0.00025	0.00250	120.00	1.20	47.24	3.94
45.186	0.00044	0.00444	90.00	0.90	35.43	2.95
45.186	0.00056	0.00562	80.00	0.80	31.50	2.62
45.186	0.00073	0.00734	70.00	0.70	27.56	2.30
45.186	0.00100	0.00999	60.00	0.60	23.62	1.97
45.186	0.00144	0.01438	50.00	0.50	19.69	1.64
45.186	0.00225	0.02247	40.00	0.40	15.75	1.31
45.186	0.00400	0.03995	30.00	0.30	11.81	0.98
45.186	0.00899	0.08989	20.00	0.20	7.87	0.66
45.186	0.01598	0.15981	15.00	0.15	5.91	0.49
45.186	0.03596	0.35958	10.00	0.100	3.94	0.33
45.186	0.04439	0.44392	9.00	0.090	3.54	0.30
45.186	0.05618	0.56184	8.00	0.080	3.15	0.26
45.186	0.07338	0.73383	7.00	0.070	2.76	0.23
45.186	0.09988	0.99882	6.00	0.060	2.36	0.20
45.186	0.14383	1.43830	5.00	0.050	1.97	0.16
45.186	0.22473	2.24735	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