RF Exposure Calculations

SAF Tehnika	Model: 58F2DMXMR, Sprint MXM Repeater		Test Number: 170615A (For Point to Point operation only)			
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)	41.2
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	5785	Maximum Peak (Watts)	1.000000		Antenna Gain (dBd)	39.03
Cable Loss (dB)	0.0	(dBm)	30.0		Antenna minus cable (dBi)	41.20
	Calculated ERP (mw)	7998342.550		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	13182567.386			Radiated (EIRP) dBm	71.200
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	69.030

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		
5	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
50	W/m^2	300-1,500	f/300	f/1500
	General Public Limit	1,500-10,000	5	1
1	mW/cm^2			
10	W/m^2			

	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)	Public Limit (W/m^2)
49.09621	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
9.75649	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
13182567.386	0.26226	2.62259	2000.00	20.00	787.40	65.62
13182567.386	0.46624	4.66238	1500.00	15.00	590.55	49.21
13182567.386	0.53522	5.35222	1400.00	14.00	551.18	45.93
13182567.386	0.62073	6.20731	1300.00	13.00	511.81	42.65
13182567.386	0.72850	7.28497	1200.00	12.00	472.44	39.37
13182567.386	0.86697	8.66971	1100.00	11.00	433.07	36.09
13182567.386	0.95151	9.51506	1050.00	10.50	413.39	34.45
13182567.386	1.04904	10.49035	1000.00	10.00	393.70	32.81
13182567.386	1.29511	12.95105	900.00	9.00	354.33	29.53
13182567.386	1.63912	16.39118	800.00	8.00	314.96	26.25
13182567.386	2.14089	21.40889	700.00	7.000	275.59	22.97
13182567.386	2.91399	29.13987	600.00	6.000	236.22	19.69
13182567.386	4.19614	41.96142	500.00	5.000	196.85	16.40
13182567.386	4.85159	48.51592	465.00	4.650	183.07	15.26
13182567.386	4.95763	49.57634	460.00	4.600	181.10	15.09
13182567.386	5.18042	51.80422	450.00	4.500	177.17	14.76
13182567.386	6.55647	65.56471	400.00	4.000	157.48	13.12

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	4.65	10.50
RSS-102	4.65	10.50