

RF Exposure Calculations

		Model: G06S2118		Test Number: 200910			
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 maximum Output power operating at 100% (Watts)		1.0000			
		Percent Duty Cycle operation (%)		100.0		Antenna Gain (dBi) 41.2	
		Output Power for 100% duty Cycle operation (Watts)		1.0000		Antenna Gain (Numeric) 13182.57	
Tx Frequency (MHz)		5740	Calculation power (Watts)	1.0000	dBd + 2.17 = dBi	dBi to dBd	2.2
						Antenna Gain (dBd)	39.03
Cable Loss (dB)		0.0	Adjusted Power (dBm)	30.00	Antenna minus cable (dBi)		41.20
		Calculated ERP (mw)	7,998,342.55	7,998.34	EIRP = Po(dBm) + Gain (dB)		
		Calculated EIRP (mw)	13,182,567.39	13,182.57	Radiated (EIRP) dBm		71.200
		<div>Power density (S) mW/cm² = $\frac{\text{EIRP}}{4 \pi r^2}$</div> <div>r (cm) EIRP (mW)</div>				ERP = EIRP - 2.17 dB	
				Radiated (ERP) dBm		69.030	
		Occupational Limit		FCC radio frequency radiation exposure limits per 1.1310			
5	mW/cm²	Frequency (MHz)		Occupational Limit (mW/cm²)	Public Limit (mW/cm²)		
50	W/m²	30-300		1	0.2		
		General Public Limit		f/300	f/1500		
1	mW/cm²	1,500-10,000		5	1		
10	W/m²						
		Occupational Limit		IC radio frequency radiation exposure limits per RSS-102			
$0.6455f^{0.3}$	W/m²	Frequency (MHz)		Occupational Limit (W/m²)	Public Limit (W/m²)		
60.9	W/m²	100-6,000		$0.6455f^{0.5}$			
		General Public Limit		6,000-15,000	50		
$0.02619f^{0.6834}$	W/m²	48-300			1.291		
30.75	W/m²	300-6,000			$0.02619f^{0.6834}$		
		6,000-15,000		50	10		
				Canada			
f = Transmit Frequecny (MHz)				f (MHz) =		5,740.0	f (MHz) = 5,740.0
P _T = Power Input to Antenna (mW)				P _T (mW) =		1,000.0000	P _T (mW) = 1,000.0000
Duty cycle (percentage of operation)				% =		100.0	% = 100.0
P _A = Adjusted Power due to Duty cycle or Cable Loss (mW)				P _A (mW) =		1,000.00	P _A (mW) = 1,000.00
G _N = Numeric Gain of the Antenna				G _N (numeric) =		13182.57	G _N (numeric) = 13182.57
S ₂₀ = Power Density of device at 20cm (W/m²)		S ₂₀ =(P _A G _N)/(4πR ₂₀)²		S ₂₀ (W/m²) =		26225.88	S ₂₀ (W/m²) = 26225.88
S _L = Power Density Limit (W/m²)				S _L (W/m²)=		30.746	S _L (W/m²)= 10.000
R _C = Minimum distance to the Radiating Element for Compliance (cm)		R _C =√(P _A G _N /4πS _L)		R _C (cm) =		584.1	R _C (cm) = 1,024.2
S _C = Power Density of the device at the Compliance Distance R _C (W/m²)		S _C =(P _A G _N)/(4πR _C)²		S _C (W/m²) =		30.75	S _C (W/m²) = 10.00
R ₂₀ = 20cm				R ₂₀ =		20	R ₂₀ = 20
		For Compliance with Canada General Population Limits, User Manual must indicate a minimum seperation distance of				584.1	cm
		Or in Meters for Compliance with Canada General Population Limits, a minimum seperation distance of				5.8	Meters
		For Compliance with FCC General Population Limits, User Manual must indicate a minimum seperation distance of				1024.2	cm
		Or in Meters for Compliance with FCC General Population Limits, a minimum seperation distance of				10.2	Meters
Occupational Distances							
		For Compliance with Canada Occupational Limits, User Manual must indicate a minimum seperation distance of				415.1	cm
		Or in Meters for Compliance with Canada Occupational Limits, a minimum seperation distance of				4.2	Meters
		For Compliance with FCC Occupational Limits, User Manual must indicate a minimum seperation distance of				458.0	cm
		Or in Meters for Compliance with FCC Occupational Limits, a minimum seperation distance of				4.6	Meters

Rogers Labs, Inc.
4405 W. 259th Terr
Louisburg, KS 66053
Phone/Fax: (913) 837-
Revision 1

SAF Tehnika AS S/N's: 331
Model: CFL Sprint MXM MkX Repeater
Test: 200910
Test to: 47CFR, 15.407, RSS-247
File: 58F2DMXMRX RFExp

S/N's: 331690100444/331700100445
 kX Repeater FCC ID: W9Z-58F2DMXMRX
 IC: 8855A-58F2DMXMRX
 07, RSS-247 Date: November 9, 2020
 RFEExp Page 1 of 1