FCC ID: WA5WL69DS

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b) § 2.1091(b)
KDB447498 D01 General RF Exposure Guidance v06
Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	**--**	**--**	**F/300**	**6**
1500-100000	**--**	**--**	**5**	**6**
(B) Limits for General Population/Uncontrol Exposures				
300-1500	**--**	**--**	**F/1500**	**6**
1500-100000	**--**	**--**	**1**	**30**

11.1 Friis transmission formula: Pd= (Pout*G)\ (4*pi*R^2)

Where
Pd= Power density in mW/cm^2
Pout=output power to antenna in mW
G= Numeric gain of the antenna relative to isotropic antenna
Pi=3.1416
R= distance between observation point and center of the radiator in cm(20cm)
Pd the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.
mW=10^(dBm/10)

11.2 Measurement Result

Operation Frequency: 923MHz
Antenna Type: Spring Antenna
Antenna gain: -2.1dBi,
R=20cm
mW=10^(dBm/10)

Transmit power

Frequency (MHz)	EIRP power (dBuV/m)	EIRP power (dBm)	EIRP power (mW)
923	92.48	-2.78	0.5275

EIRP=E-104.8+20log(D)

Maximum Permissible Exposure:

Channel Freq. (MHz)	modulation	EIRP power (dBm)	EIRP power (mW)	Tune-up power (dBm)	Max tune-up power (dBm)	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
923	lora	-2.78	0.5275	-2±1	-1	0.000158	0.62

Conclusion:
For the max result : 0.000158≤ 0.62 for 1g SAR, No SAR is required.

Signature: **Date:** 2024-11-26

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