

FCC ID:2ADAJ-WS4000

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)

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: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1416

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². 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: 915MHz
Antenna Type: Spring Antenna
Antenna gain:2.15dBi,
R=20cm
 $mW=10^{(dBm/10)}$

Transmit power

| Frequency (MHz) | EIRP power (dBuV/m) | EIRP power (dBm) | EIRP power (mW) |
|-----------------|---------------------|------------------|-----------------|
| 915 | 89.55 | -5.7 | 0.2692 |

$$EIRP=E-104.8+20\log(D)$$

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/cm ²) | Power density Limits (mW/cm ²) |
|---------------------|------------|------------------|-----------------|---------------------|-------------------------|---|--|
| 915 | FSK | -5.7 | 0.2692 | -5±1 | -4 | 0.000079 | 0.61 |

Conclusion:

For the max result : $0.000079 \leq 0.61$ for 1g SAR, No SAR is required.



Signature:

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