

FCC ID: 2AJNF-GW1

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)

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
1500-1000000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-1000000	--	--	1	30

11.1 Friis transmission formula: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

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: OSSH 902~928MHz
Power density limited: $902/1500=0.60\text{mW/cm}^2$
Antenna Type: External Antenna
Antenna gain: 1.0dBi,
R=20cm
 $\text{mW}=10^{(\text{dBm}/10)}$

Channel Freq. (MHz)	modulation	conducted power (mW)	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
903	OSSH	218.27	23.39	22.5±1	23.5	1.26	0.056118	0.60
915	OSSH	189.67	22.78	22.5±1	23.5	1.26	0.056118	0.60
927.5	OSSH	155.24	21.91	22.5±1	23.5	1.26	0.056118	0.60

Conclusion:

According to MU739 Maximum Permissible Exposure (MPE) Estimation report, the max evaluation result is 0.137mW/cm^2 , Power density limited: $824/1500=0.55\text{mW/cm}^2$

Both of OSSH 902-928MHz and 3G module can transmit simultaneously, the formula of calculated the MPE is:

$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} \dots \text{etc.} < 0.55$

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is $0.056118/0.60 + 0.137/0.55 = 0.342621$, which is less than is less than "0.55", So No SAR is required.

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Signature:

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