

FCC ID : 2A83H-ECRF615

1. 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/cm²)	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

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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 20cm.

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the nd total.

power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

2. EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product :	RFID Controller
Model Number :	EC-RF611S, EC-RF611U, EC-RF611E, EC-RF611AS, EC-RF615S, EC-RF615U, EC-RF615, EC-RF615E, EC-615M, EC-RF615AS (Note: All models are only different for software and communication protocols, which not affect the power, the other are the same. The main test model applied for this report is EC-RF611S.)
Modulation:	PR-ASK, DSB-ASK
Operating Frequency :	902.75MHz~927.25MHz
Number of Channels:	50
Transmit Power Max:	17.28 dBm
Antenna Type :	Integrated Antenna
Antenna Gain:	4 dBi
Power supply:	DC 5V by Adapter

3. Measurement Result

Mode	Max Conducted Power (dBm)	Antenna gain (dBi)	Antenna Gain Numeric	R (cm)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
RFID	17.28	4	2.512	20	0.0267	1

Note: All the modes are tested, only the worst data are described in the table.

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