Maximum Permissible Exposure Evaluation

FCC ID: 2BA5U-RRU31515M

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)

EUT Specification

Applicant:	Shenzhen RoyalRay Science and Technology Co., Ltd.
Address:	West Wing, 4F, A1 Building, Xiufeng Industrial Park, No.2 Xiufeng Road, Longgang District, Shenzhen, China
Product Name:	Ex10 UHF RFID Module(1-Port)
Trade Mark:	/
Model/Type reference:	RRU31515M
Listed Model(s):	RRU71515M, RRU51515M, RRU32828M, RRU52828M, RRU72828M, RRU34030M, RRU54030M, RRU74030M, RRU33119M, RRU53119M, RRU73119M
Model Different:	All these models are identical in the same PCB, layout and electrical circuit and enclosure. The only difference is the model name.
Frequency band (Operating):	902.75MHz ~ 927.25MHz
Device category	☐Portable (<5mm separation) ☐Mobile (>20cm separation) ☒Fixed (>20cm separation) ☐Others ___
Exposure classification	☐Occupational/Controlled exposure (S=5mW/cm2) ☒General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	☒Single antenna ☐Multiple antennas ☐TX diversity ☐RX diversity ☐TX/RX diversity
Antenna gain	4.0dBi
Evaluation applied	☒MPE Evaluation ☐SAR Evaluation

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	30
1500-100000	--	--	1	30

F = frequency in MHz

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= gain of antenna in linear scale
Pi= 3.1416
R= distance between observation point and center of the radiator in cm
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.

Measurement Result

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Verdict
RF ID	902.75	4.0	27.096	±1	28	0.32	0.60	PASS

Note:
1. Calculate by Worst-case mode.
2. Max. Tune up Power by Manufacturer's Declaration, and Max. Tune Up Power is used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

**********THE END**********