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RF EXPOSURE EVALUATION

Applicant	**:** EVERINT Co.,Ltd.
Applicant Address	**:** 129, Chungjusandan1-ro, Chungju-si, Chungcheongbuk-do 27326, Republic of Korea
Kind of Product	**:** UHF RFID Reader Module
Equipment Model Name	**:** RFID-PBA1
FCC ID	**:** 2AKMF-RFID-PBA1

Standard Requirement

The following RF exposure procedures are applicable :

- FCC Rules
  Part 1.1310 Radiofrequency radiation exposure limits

  Table 1 below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

Table 1—Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	≤6
3.0-30	1 842/f	4.89/f	$*900/f^2$	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	<30
1.34-30	824/f	2.19/f	$*180/f^2$	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1 500	<30
1,500-100,000			**1.0**	<30

f = frequency in MHz
** = Plane-wave equivalent power density*

MPE Calculations

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

EIRP = P + G	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

Power density at the specific separation:

$S = PG/(4R^2\pi)$	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

RF Exposure Results

Frequency [MHz]	Measured Max Output Power [dBm]	Peak Gain [dBi]	Power Tolerance [dB]	EIRP [dBm]	EIRP [mW]	Power Density [mW/cm^2]	Limit [mW/cm^2]	R [cm]
902.75	22.26	-8.68	± 0.5	14.08	25.59	0.005	0.602	20
914.75	22.06			13.88	24.43	0.005	0.610	
927.25	22.00			13.82	24.10	0.005	0.618	

*Minimum Safety distance (R) : ≥ 2 cm (0.509 mW/cm^2)

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