RF Exposure Evaluation

REPORT

For

Guard RFID Solutions Inc.

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Date:	05 January 2022
Project No.:	20665
FCC ID:	VZKAT6
IC ID.:	9937A-AT6
Equipment:	WiFi Asset Tag
Model No.:	AT-6

Labtest Certification

ONE STOP GLOBAL CERTIFICATION SOLUTIONS
ISO 17020 Accredited ISO 17025 accredited ISO 17065 Accredited

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Standard: FCC § 1.1310 - Radiofrequency radiation exposure limits

Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in FCC § 1.1307(b) within the frequency range of 100 kHz to 6 GHz (inclusive). FCC 1.1310 states the criteria listed in table 1 below shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in FCC § 1.1307(b) for uncontrolled Exposure for most devices. Portable devices shall be evaluated according to the provisions of FCC § 2.1093. Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, “Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation”.

FCC § 1.1310 Table 1—Limits for Maximum Permissible Exposure (MPE)

(ii) Limits for General Population/Uncontrolled Exposure

Frequency (MHz)	Electric Field (V/m)	Magnetic Field (A/m)	Power Density (mW/cm^2)	Averaging time (minutes)
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
300-1500	-	-	f/1500	30
1500-100,000	-	-	1	30

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

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Description:
The Friis transmission formula is used to calculate the power density:

$Pd = (Pout*G) / (4*\pi*R^2) = EIRP/(4*\pi*R^2)$

Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
R = distance between observation point and center of the radiator in cm
EIRP = Equivalent isotopically radiated power (mW) = $10^{[(TX\ Power\ (dBm) + Ant\ Gain\ (dBi))/10]}$

For this method of calculation, this device's antenna must be mounted in a location that provides a distance of at least 20 cm to any person that may be in the area of the transmitter.

Calculation:
Information of the EUT is added in the below table.

Frequency (MHz)	Conducted Output Peak Power (dBm)	Max Antenna Gain (dBi)	Max EIRP (mW)	Power Density (mW/cm^2)	Distance (cm)
2412-2462	4.6	2.17	4.75	0.000945	20

Conclusion:
From FCC § 1.1310 Table 1, the Maximum Power Density safe exposure level for General Population Uncontrolled Exposure of 30 minutes for the frequency range of 1500-100,000 MHz is 1 mW/cm^2. Therefore, this EUT passes by (1 - 0.000945) = 0.999055 mW/cm^2.