Honeywell

RF Exposure Report
For
IM11-PRT RFID Module

Version 1.0

Prepared By : Lavanya M

Honeywell

Report Revision History

REVISION HISTORY			
Date	Document Version	Revision Description	Author
06-11-2024	1.0	Initial Issue of Test Report	Lavanya M

RF Exposure Assessment

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310, KDB document - 447498 D04 Interim General RF Exposure Guidance v01, and RSS 102, Issue 6 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and the maximum total power input to the antenna is measured.

Below are the limits of MPE Evaluation for FCC & ISED

Limit for MPE as per FCC

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	1,920 R^2
1.34	–	30	35.6 m	–	1.6 m	3,450 R^2/f^2
30	–	300	1.6 m	–	159 mm	3.83 R^2
300	–	1,500	159 mm	–	31.8 mm	0.0128 $R^2 f$
1,500	–	100,000	31.8 mm	–	0.5 mm	19.2R^2
Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

Reference Limit from KDB 447498 D04 Interim General RF Exposure Guidance v01

Where f = MHz, R = meters (Considered 20cm for Evaluation)

Limit for MPE as per ISED

- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834} W$ (adjusted for tune-up tolerance), where f is in MHz

EUT Operating Condition

EUT was enabled to transmit and receive at lowest, middle and highest channels.

EUT Classification for RF Exposure Evaluation

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as fixed device.

Antenna Details

Sl. No	Coupler Type	Design	Make	Model	Max Gain (dBi)
1	PCB	Loop aperture coupler	Honeywell	LUPUS14V2	-14.0

Assessment / Results

Type of Communication / Protocol : RFID EPC Class 1, ISO 18000-6C
Duty cycle considered for Assessment / Evaluation is 100 %

MPE Evaluation for ISED :

Antenna Gain (dBi)	Channel Frequency (MHz)	Maximum Output Power (dBm)	Tune-up Tolerance (dB)	Max Conducted Power including Tune up Tolerance	E.I.R.P (dBm)	E.I.R.P (Watts)	ISED Limit E.I.R.P (watts)
-14.0	902.750	24.02	± 0.5	24.52	10.52	0.011271	1.37

MPE Evaluation for FCC

Antenna Gain (dBi)	Channel Frequency (MHz)	Maximum Output Power (dBm)	Tune-up Tolerance (dB)	Max Conducted Power including Tune up Tolerance	E.I.R.P (dBm)	ERP (dBm)	ERP (Watts)	FCC Limit ERP (Watts)
-14.0	902.750	24.02	± 0.5	24.52	10.52	8.37	0.00687	0.462