

RF Exposure Report

1 Overview of RF Exposure Compliance Requirements

According to FCC KDB 447498 D01 General RF Exposure Guidance v06, standalone SAR testing for general population/uncontrolled exposure is not required when the device operates under the defined RF exposure limits and meets exemption criteria.

Parameter	Value
EUT Name	RFID Module
Operating Frequency	13.56 MHz
Test Separation Distance	20 cm
Measured Field Strength	45.31 dBμV/m
Calculated EIRP	-49.89 dBm (0.0000102565 mW)

2 EIRP Calculation from Measured Field Strength

EIRP Calculation:

$$\text{EIRP(dBm)} = \text{FS(dB}\mu\text{V/m)} - 95.2$$

$$\text{EIRP(dBm)} = 45.31 - 95.2$$

$$\text{EIRP} = -49.89 \text{ dBm} = 0.0000102565 \text{ mW}$$

(FS- Field Strength in dBμV/m)

Note: The Mentioned Field strength taken from test report: **91800100014001**

3 Power Density Estimation at Specified Distance

Power Density (PD) Calculation at 20 cm separation

Using the far-field formula:

$$\text{PD} = (\text{EIRP}) / (4 \cdot \pi \cdot r^2)$$

Where,

$$\text{EIRP} = 0.0000102565 \text{ mW}$$

$$r = 20 \text{ cm} = 0.2 \text{ m}$$

$$\text{PD} = (0.0000102565) / (4 \cdot \pi \cdot (0.2)^2) = 0.0000000204 \text{ mW/cm}^2$$

4 Applicable FCC MPE Exposure Limit

TABLE 1 TO § 1.1310(E)(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)
(i) LIMITS FOR OCCUPATIONAL/CONTROLLED EXPOSURE				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/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
(ii) 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/1500	<30
1,500-100,000			1.0	<30

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

$$\text{Limit} = 180 / (f)^2$$

Where f = frequency in MHz

$$(f)^2 = (13.56)^2 = 183.873$$

$$\text{Limit} = (180) / (13.56)^2 = 0.9787 \text{ mW/cm}^2$$

5 Summary and Compliance Statement

Power Density at 20 cm: 0.0000000204 mW/cm²

FCC Limit at 13.56 MHz: 0.9787 mW/cm²

EIRP: 0.0000102565 mW

Conclusion:

This evaluation has been performed in accordance with FCC KDB 447498 D01 General RF Exposure Guidance v06 and demonstrates that the device does not require SAR testing under the defined exemption criteria.