

RF Exposure

FCC ID: M9MRNA0200

1.0 INTRODUCTION

These calculations are based on the highest EIRP possible from the EUT, measured in the radiated mode for the RFID portion.

EIRP was calculated using the following.

$$\text{EIRP} = (E \times d)^2 / 30$$

where:

- **E** = electric field strength in V/m,
- **d** = measurement distance in meters (m).

It was measured to be 81.5 dBuV/m at 125 kHz at 3 meters or -13.7 dBm (0.043 mW) EIRP.
It was measured to be 68.0 dBuV/m at 13.56 MHz at 3 meters or -27.2 dBm (0.0019 mW) EIRP.

See page 20 of RP-9687 test report for the field strength test data. The field strength is calculated without distance correction factors.

2.0 FCC RF EXPOSURE COMPLIANCE RESULT:

In accordance with FCC KDB Publication 447498 D01 V06 Clause 4.3.1 c) for transmit frequencies below 100 MHz:

- 1) For *test separation distances* >50 mm and <200 mm, the power threshold at the corresponding test separation distance at 100 MHz in section 4.3.1 step b) is multiplied by $[1 + \log(100/f_{\text{MHz}})]$
- 2) For *test separation distances* ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$

This table is for devices with a separation of less than 50 mm

EUT EIRP << SAR exclusion threshold per 4.3.1 c) 2)

2.1 Calculations for Simultaneous Transmission.

In accordance with FCC KDB Publication 447498 D01 V06 Clause 7.2 (a)

From Clause 4.3.2 (b) 2) For distances > 50mm, 0.4 W/kg limit is used for 1-g SAR limit

	Freq. (MHz)	Max Power (dBm)	Duty Cycle %	Average Power per channel (mW)	Min Sep (mm)	SAR Calculation as per 4.3.2 b)1 W/kg	SAR Exc Threshold per 7.2 & 4.3.2 b) 1 g limit (W/kg)	Result
RFID	13.56	-27.2	100.0	0.0019	5	5.92E-06	0.4	
RFID	0.125	-13.7	100.0	0.043	5	1.27E-05	0.4	
					Total	1.86E-05	0.4	Exempt