



## **Certification Exhibit**

**FCC ID: 2AVE9-M138**

**FCC Rule Part: 47 CFR Part 2.1091**

**Project Number: 72174891**

Manufacturer: Space Exploration Technologies Corp. (Swarm  
Technologies)  
Model: MODEM-M138

## **RF Exposure**

**General Information:**

Applicant: Space Exploration Technologies Corp. (Swarm Technologies)  
 Device Category: Mobile  
 Environment: General Population/Uncontrolled Exposure

**Technical Information:**

Antenna Type: ¼ Wave Whip (Smiley Antenna, P/N: 15036A)  
 Antenna Gain: 2 dBi (PulseLarsen, P/N: 15036A)  
 Maximum Transmitter Conducted Power: 31.02 dBm, 1264.74mW  
 Maximum System EIRP: 33.02dBm, 2004.47 mW  
 Exposure Conditions: Greater than 29 centimeters

**MPE Calculation**

The Power Density (mW/cm<sup>2</sup>) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

- S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)
- P = power input to the antenna (in appropriate units, e.g., mW)
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator
- R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

**Table 1: MPE Calculation**

Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/cm <sup>2</sup> )	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )
150.0396	31.02	0.20	1264.74	2	1.585	29	0.190