

Compliance with 47 CFR 15.247(i)

“Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.”

The Wifi 802.11(g) radio will only be used with a separation distance of 20 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091 (b). The 2.4GHz 802.11(g) radio module will be installed in the Constellation Vision System along with four other RFID radio modules. The RFID radio modules operate at 13.56MHz and fall under FCC 47 CFR Part 15.225. These low power radios are exempt from routine environmental testing or evaluation. The 2.4GHz radio must meet the requirements for general/uncontrolled population. Maximum cable loss is 0.093 dB. MPE Estimates are calculated assuming 0 dB cable loss as a worst case scenario.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population. The exposure level at a 20 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$$S = (PG)/4\pi R^2$$

Where: S = power density (mW/cm²)

P = power input to the antenna (mW)

G = numeric power gain relative to an isotropic radiator

R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)

PG = EIRP

Solving for S, the maximum power densities 20 cm from the transmitting antennas are summarized in the following table:

FCC ID: VMC212WIFI

2.4GHz 802.11(g) radio

Antenna Type	Antenna Part No.	Transmit Frequency (MHz)	Max Peak Conducted Output Power (mW)	Antenna Gain (dBi)	Minimum Antenna Cable Loss (dB)	Power Density @ 20 cm (mW/cm ²)	General Population Exposure Limit from 1.1310 (mW/cm ²)	Ratio of Power Density to the Exposure Limit
Dipole	805-606-204	2400	64	5	0	0.040	1	0.040

Worst Case Ratio of Power Density to the Exposure Limit = 0.032

The power density at 20 centimeters does not exceed 1.0; therefore, FCC ID: VMC212WIFI is compliant with FCC 15.247.