

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.”

Compliance with 47 CFR 15.407(f)

“U-NII devices are subject to the radio frequency radiation exposure requirements specified in § 1.1307(b), § 2.1091 and § 2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a “general population/uncontrolled” environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.”

The applicant’s radio operates in the 2.4 and 5.8 GHz bands as a DTS device and in the 5.2 GHz band as a UNII device. The 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 radio module uses two identical internal antennas, each having a maximum gain of +3 dBi in the 2.4 GHz band and +4 dBi in the 5 GHz bands., with only one operational at any given time. The maximum peak conducted output power is 28.88 mW.

The maximum peak power is 57.6 mW (EIRP) for FCC ID: VKF-RAD87A. The EUT is not subject to routine environmental evaluation per 47 CFR 2.1091(c). Per 47 CFR 1.1310, the EUT must meet the General Population / Uncontrolled exposure limits listed in Table 1.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as 1 mW/cm². 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 density 20 cm from the transmitting antenna is summarized in the following table:

FCC ID: VKF-RAD87A

Antenna Type	Antenna Part No.	Transmit Frequency (GHz)	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)
Chip	Centurion WIC2450 A	2.44	28.88	3	0	0.011	1
Chip	Centurion WIC2450 A	5.2	19.23	4	0	0.010	1
Chip	Centurion WIC2450 A	5.8	19.38	4	0	0.010	1

The power density does not exceed 0.011 mW/cm² at 20 cm; therefore, the exposure condition is compliant with FCC rules. The applicant’s radio, FCC ID: V3CAVMD7500A, is compliant with the requirements of 15.247(i) and 15.407(f) for both the fundamental and unwanted emissions.