

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 EUT is a Bluetooth radio used for wireless voice link in automotive applications. The EUT 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 antenna is a RHCP Rectangular Patch antenna attached to the unit with a unique connector. The antenna has a gain of 1 dBi (4 dBic – 3db = 1 dBi). The maximum peak conducted output power is 1.58 mW.

The maximum peak power is 2 mW (EIRP) for FCC ID: NT807NBTHFA. The transmit frequency is 2402 - 2480 MHz. Since the transmit frequency is greater than 1.5 GHz, and the output power is less than 5 W ERP, the EUT is categorically excluded from routine environmental evaluation per 47 CFR 2.1091(c).

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as $(f_{\text{MHz}}/1500) \text{ mW/cm}^2$. 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: NT807NBTHFA

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)
Patch	VP5ASF-19C037-AA	2400	2	1	0	0.001	1.6

The power density does not exceed 1.6mW/cm² at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant’s radio, FCC ID: NT807NBTHFA, is compliant with the requirements of 15.247(i).