

## Compliance with 47 CFR 15.247(b)(5)

*“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 modular radio that operates from 2412 – 2462 MHz as a 15.247 DTS transmitter. 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 maximum antenna gain is from a 13 dBi Yagi. The maximum peak conducted output power is 11.6 mW.

The maximum peak power is 141.1 mW (ERP) for FCC ID: HN2802MIG2. Since the transmit frequency is greater than 1.5 GHz, and the output power is less than 3 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 1 mW/cm<sup>2</sup>. 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/cm<sup>2</sup>)

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:

### MPE Estimate

### FCC ID: HN2802MIG2

| Manufacturer    | 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 <sup>2</sup> ) | General Population Exposure Limit from 1.1310 (mW/cm <sup>2</sup> ) |
|-----------------|------------------|------------------|--------------------------|--------------------------------------|--------------------|---------------------------------|---|---|
| Cushcraft       | Omni             | 063363           | 2400                     | 11.6                                 | 3                  | 0                               | 0.005                                       | 1   |
| Cushcraft       | Yagi             | 063365           | 2400                     | 11.6                                 | 13                 | 0                               | 0.046                                       | 1   |
| Mobile Mark     | Omni             | 065349           | 2400                     | 11.6                                 | 9                  | 0                               | 0.018                                       | 1   |
| Centurion       | Omni             | 066147           | 2400                     | 11.6                                 | 1                  | 0                               | 0.003                                       | 1   |
| Centurion       | Flat Panel       | 067261           | 2400                     | 11.6                                 | 3                  | 0                               | 0.005                                       | 1   |
| Centurion       | Flat Panel       | 067262           | 2400                     | 11.6                                 | 5                  | 0                               | 0.007                                       | 1   |
| Centurion       | Flat Panel       | 067263           | 2400                     | 11.6                                 | 9                  | 0                               | 0.018                                       | 1   |
| Mobile Mark     | Corner Reflector | 071122           | 2400                     | 11.6                                 | 9                  | 0                               | 0.018                                       | 1   |
| Centurion       | Omni             | 063825           | 2400                     | 11.6                                 | 1.5                | 0                               | 0.003                                       | 1   |
| Radiall         | Omni             | 070143           | 2400                     | 11.6                                 | 1.5                | 0                               | 0.003                                       | 1   |
| Radiall         | Flat Panel       | 590993           | 2400                     | 11.6                                 | 4.5                | 0                               | 0.007                                       | 1   |
| Centurion       | Flat Panel       | 071478           | 2400                     | 11.6                                 | 3                  | 0                               | 0.005                                       | 1   |
| Centurion       | Omni             | 067325           | 2400                     | 11.6                                 | 1.5                | 0                               | 0.003                                       | 1   |
| Radiall         | Omni             | 069903           | 2400                     | 11.6                                 | 1.5                | 0                               | 0.003                                       | 1   |
| European Ant    | Flat Panel       | 071176           | 2400                     | 11.6                                 | 4                  | 0                               | 0.006                                       | 1   |
| ASK Comm.       | Patch            | 805-543          | 2400                     | 11.6                                 | 3                  | 0                               | 0.005                                       | 1   |
| Maxrad          | Omni             | 805-580-101      | 2400                     | 11.6                                 | 5                  | 0                               | 0.007                                       | 1   |
| Maxrad          | Omni             | 805-580-102      | 2400                     | 11.6                                 | 5                  | 0                               | 0.007                                       | 1   |
| Maxrad          | Omni             | 805-580-103      | 2400                     | 11.6                                 | 5                  | 0                               | 0.007                                       | 1   |
| NCC, Inc.       | Omni             | 805-544          | 2400                     | 11.6                                 | 2.1                | 0                               | 0.004                                       | 1   |
| Radiall         | Flat Panel       | 805-545          | 2400                     | 11.6                                 | 4.5                | 0                               | 0.007                                       | 1   |
| Intermec Custom | Flat Panel       | 073360           | 2400                     | 11.6                                 | 3.5                | 0                               | 0.005                                       | 1   |
| Xertex          | Flat Panel       | 805-552          | 2400                     | 11.6                                 | 3                  | 0                               | 0.005                                       | 1   |
| Centurion       | Diversity        | 071121           | 2400                     | 11.6                                 | 2                  | 0                               | 0.004                                       | 1   |

The power density does not exceed  $1 \text{ mW/cm}^2$  at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: HN2802MIG2, is compliant with the requirements of 15.247(b)(5).