

RF Exposure Considerations for Raylink WHISP Card FCC ID: PLBWHISP

The device is a spread spectrum transceiver designed to operate in the 2.400 to 2.4835 MHz ISM frequency range. Designed to operate within the constraints of the IEEE 802.11 standard for Wireless Local Area Networks (WLANs), the unit employs a frequency hopping technique, changing frequencies within the 2.4 to 2.48 GHz range many times per second to maximize usage of the available bandwidth. The unit is used in fixed point-to-point outdoor applications. Peak power output to the unit's antenna port is +20dBm (100 milliwatts). Given a max antenna gain of 24dB, the maximum EIRP is 25W.

Four different configurations are presented for FCC approval. All configurations use the WLAN adapter, a short length of coaxial cable acting as a MMS to SMA connector adapter, coupled to a 50-foot length of LMR-400 coaxial cable.

In each of the four configurations, the product is designed to be plugged into a host (either a laptop PC, desktop PC, or other suitable host with a PCMCIA slot). Text in the instruction manual indicates that users with desktop PCs should not install the card in such a way that it will be mounted closer than 20cm from the user's body, excluding hands, wrists, feet, and ankles. Due to the weight and inflexibility of the LMR-400 cable, it is understood that users will not balance a laptop PC equipped with a PC card on their laps- text is included in the instruction manual instructing users to keep laptop-based cards at least 20cm from their bodies as well.

For a maximum permissible exposure of 1mW/cm^2 , the minimum safe distance r from the antenna is given by:

$$r = \text{SQRT}(\text{EIRP}/(4*\text{Pi}))$$

For the antenna with the highest gain attached, the EIRP is 25W, or 25000mW. Using the equation for minimum safe distance of operation, we find $r = 44.6$ cm. This is well within the separation distance of 2 m specified in the user instructions. As the antenna connects to the PC card using 50 feet of cabling to an outdoor fixed-mounted antenna, it is clear that the minimum separation distance of 2 m is easily met by the PC user.