

Operational Description

The Raylink WHISP 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 Sutter's Mill 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 receiver portion of the WHISP card is designed to hop in synchronization with a neighboring transmitter in a pseudorandom pattern defined by the IEEE 802.11 standard for frequency hopping 2 Mbps radios. Peak power output to the unit's antenna port is +20dBm (100 milliwatts). The WHISP unit is designed to be connected through a standard Personal Computer Memory Card Interface Adapter (PCMCIA) slot into a laptop or desktop personal computer. DC power for the unit is drawn through the PCMCIA adapter from the PC, referred to as a host.

The Raylink WHISP device is a modified version of the original Sutter's Mill WLAN adapter (FCC grantee code L39G689372). The Raylink WHISP device does not use the integral antenna featured in the original Sutter's Mill WLAN adapter- rather, the device is fitted with a Radiall MMS miniature coaxial connector for use with an external antenna. By virtue of the fact that the MMS connector is not available in standard product catalogs, the connector meets the part 15.203 description of a "unique" connector as verified by J. Dichoso of the Federal Communications Commission.

Four different configurations are presented for FCC approval. All configurations use the Raylink WHISP 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. Four different antennas, ranging from a 12dBi patch antenna to a 24dBi parabolic antenna, were scanned and found to be compliant with FCC part 15 subpart C requirements for radiated emissions.

In each of the four configurations, the Raylink WHISP product is designed to be plugged into a host (either a laptop PC, desktop PC, or other suitable host with a PCMCIA slot). Verbage in the instruction manual indicates that users with desktop PCs should not install the WHISP 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 Raylink WHISP PC card on their laps- verbage is included in the instruction manual instructing users to keep laptop-based WHISP cards at least 20cm from their bodies as well.

The Raylink WHISP PC card derives all of its frequency and microprocessor clock timing from a 16 MHz TCXO (reference designation U11 on schematic page 4). The system microprocessor is a 80C154U (generic 8051 8-bit microprocessor), reference designation U501 on page 2 of the schematic.