

WP802b Antenna Description

The Enfora Wireless LAN Portfolio is an 802.11b device that incorporates an internal antenna for wireless communication to external access points. The antenna is a variation of a simple monopole, made of copper etched on PCB, and is connected to the 802.11 module by a 2 inch coaxial cable. To achieve the proper radiation pattern the field around the antenna must be free of any reference ground plane; therefore the antenna is placed in a region of the PCB void of any ground plane (a 1-inch wide area between the ground plane and edge of the PCB.)

Normal operation of the antenna is achieved only when the portfolio is completely assembled. The dielectrics of the PCB (FR4 material, 62mil thick, 6-layer stack-up) and the plastic housing that fits over the PCB affect the tuning of the antenna's center frequency. The combined dielectric of the PCB and the housing tunes the antenna to its nominal center frequency of 2.439GHz, with a bandwidth of 83MHz.

Power Management

The device uses a single cell 640mA-hr internal non-removable battery with a built-in protection circuit. The charger is a linear charger with internal MOSFET control and external filtering. It is powered by a regulated external 5V wall mount supply. Filtering and circuit protection are accomplished with the use of many shunt capacitors, series coils, and a transorb device on the input power supply rail.

The digital circuitry is powered from a 3.3V linear regulator, also with extensive filtering at the regulator as well as the individual IC's. Battery voltage is monitored with an external ADC.

The USB interface is powered by a separate 3.3V linear regulator.

Host processor

A 32 bit ARM7 core processor controls all interfaces and peripherals. The interface to the 802.11 module is via an external USB host IC, and the interface to the PDA is via a standard 9 wire serial RS232 interface. The processor uses an external 7.3728Mhz clock. The USB interface IC uses an external 6Mhz crystal.

Memory

The host processor firmware is located in an external flash memory IC, and also has external SRAM. There is a NVRAM for static data such as serial numbers and configuration settings.

User Interface

Two LEDs are controlled by the host processor to indicate to the user the battery status and network connection status. In addition, the user powers on the device by pressing a momentary switch.