



Theory of Operation,  
Intel Wireless UWB Link  
Model 3480MPe-US

FCC ID: V4EUWB3480MPe

The Intel 3480MPe-US is a Half Mini Card (HMC) form factor PCI express to Ultra Wide Band (UWB) wireless adapter designed for use in a laptop host system.

The main component of the 3480MPe module is the Intel Fordville (E36160) integrated circuit which has two separate functions, the Media Access Control (MAC) and the Physical (UWB Radio) interface (PHY). The MAC provides the PCI express bus interface between the module and the host, this function of the MAC provides data buffering between the host and PHY. Data transfer between the module and host is based on the reference clock provided by the host. Internal data transfer between the MAC and PHY is based on the on board oscillator.

The on chip PHY includes the modulator and demodulator circuits, frequency control is provided by an off chip crystal and on chip oscillator and Phase Lock Loop (PLL) circuit, transmitter power is controlled by on chip filters and amplifiers. The PHY has two independent paths for both transmit (TX) and receive (RX), four total, Band Group 1 TX and RX and Band Group 3 TX and RX.

The digital values used to control the RF power are provided in firmware from values stored in nonvolatile memory; these values are not user accessible.

Off chip PHY circuits include four filters and fixed gain amplifiers for TX and RX, an RF switch for selection of transmit/receive, antenna matching components and a u-fl antenna connector. The u-fl connector meets the requirement for a unique antenna connector.

The module and antenna are installed by the host system manufacturer; the 3480MPe is not for end user installation.

3.3 VDC power is supplied by the host; the 3.3 V is used by the module (after start up delay and filtering) for digital Input Output (IO) circuits. On board voltage regulators provide 1.2 VDC power to the MAC's core digital circuits, 1.8 VDC for the PHY synthesizer and 1.4 VDC power to the filters and amplifiers in the PHY.

The module also includes a shield which covers the Fordville IC, crystal, RF filters and amplifiers.