Maximum Permissible Exposure Assessment For the Compaq PE3012 Multiport Bluetooth™ Module

In accordance with **FCC Report And Order 96-326** Adopted August 1, 1996

SAR Calculations for Compaq PE3012

PE3012 Maximum Transmit Power(Pt) = +10 dBm

PE3012 Max Antenna Gain (Gt) = +4dBi

PE3012 EIRPmax = Pt + Gt = 14 dBm = 25.1 mW

The worst case transmit duty cycle for a data only Bluetooth device would be transmission of DH5 packets in a piconet with one other user. In that case, the transmit duty cycle would be 76.1%. The average power for DH5 packets would be:

EIRPmax X .761 = 19.12 mW = +12.81 dBm

The specification for SAR is 1mW/cm2. If there is 12.81 dB of space loss, the signal from PE3012 would be 0 dBm or 1 mW. The range 12.81 dB of space loss at 2402 MHz (lowest Bluetooth frequency) can be calculated by the equation:

$$Ls = [(4\pi d)/\lambda]^2$$

Where λ = wavelength = c/f and d=range in meters

For Ls = 12.81 and f=2402 MHz, d= 1.71 inches

The incident signal will not be greater than 1 mW unless the body is within 1.71 inches of the PE3012 antenna. When the Compaq notebook is in use, the PE3012 antenna is at the top of the display within the multiport module, and the typical distance to the human body (hands on the keyboard) is 8 inches. It would be unnatural and uncomfortable to hold one's hand within 1.71 inches of the PE3012 antenna continuously. Therefore, it is reasonable that the allowed SAR levels will not be exceeded.

Conclusion:
The MPE distance for the Compaq PE3012 is below the minimum required distance (20 centimeters) for a mobile device. A statement will appear in the user manual that informs the users to maintain a minimum distance of 20 centimeters between the modem antenna and all persons during device operation.