HTC Engineering Mobility

宏達國際電子股份有限公司
High Tech Computer, Corp.

attn: Reviewing Engineer
Federal Communications Commission
7435 Oakland Mills Road
Columbia, MD 21046

May 19, 2003

RE: RF exposure information

FCC ID Number Product   Title/Model
NM8HB20   Pocket PC/PE2060

TO WHOM IT MAY CONCERN

The product stated above, comply with the FCC limits for Human exposure to RF emissions.

This device is categorically excluded from routine environmental because it operate at very low power level. The equipment is deemed to comply with the SAR or MPE limits without testing due to this very low power level (EIRP < 2.5 mW)

Sincerely,

P.A.

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Federal Communication Commission
Authorization and Evaluation Division
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Attention: Reviewing Engineer

RE: RF exposure information for the equipment PE2060 (FCC ID: NM8HB20)

RF exposure information

The PE2060 (FCC ID: NM8HB20) is a portable device with a built-in Bluetooth radio module using spread spectrum technique.

Due to the construction of the PE2050A and the position of the internal antenna a distance under normal operating conditions of more than 1 cm can be expected. Due to the low power of the device (less than 2.5 mW) the MPE limits can be guaranteed as the calculation below shows:

EIRPmax = 4 dBm = 2.5 mW

The worst case transmit duty cycle for only data Bluetooth device would be the transmission of DH5 packets in a piconet with just one additional user. This is shown as the bottom row in figure below.
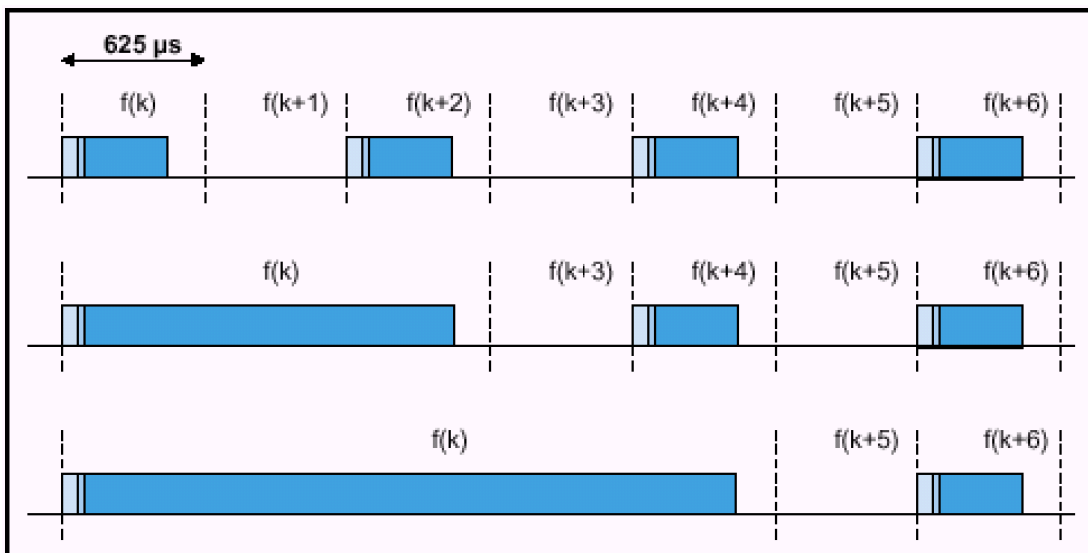
For DH5 packets the transmitter transmits across five 625 microsecond slots minus a guard band of 259 microseconds. The transmission is followed by a 625 microsecond receive slot. The transmission duty cycle (Tdc) for this case can be calculated as:

$$Tdc = \frac{(625 * 5) - 259}{625 * 6}$$

Tdc = 76%

The average power for DH5 packets would be:

EIRPmax X 0.76 = 1.9 mW = +2.79 dBm

Using the equation from OET Bulletin 65 to estimate the distance from the antenna:

$$R = (EIRP/4\pi S)^{1/2}$$

Where,

R = distance to the centre of radiation of the antenna in cm
S = power density in mW/cm2 (1 mW/cm2 used for PE2060)
EIRP = effective isotropically radiated power in mW (2.5 for PE2060)

R = 0.39 cm

Therefore the 1 mW/cm2 requirement is not exceeded unless the body is less than 0.39 cm from the PE2060 antenna.

In normal operation of PE2060, and due the construction characteristics of the equipment (antenna is placed on top of the device and a minimum distance of 1 cm can be expected), the body will be more than 1 cm from the antenna. So that, the PE2060 meets the MPE limits.