EXHIBIT B – Description of Modulation Scheme

FCC ID# PEL640-0001

Description of Modulation Scheme

The device supports communications at aggregate bit rate of 1Mbps, 2Mbps, 5.5Mbps, and 11Mbps.

The modulation, spreading (DSSS), and coding types are as follows.

1 Mbps data rate: DBPSK modulation at 1 Mbps with each BPSK symbol spread by an 11 bit Barker Sequence yielding a chip rate of 11 Mcps with 2 phases.

2 Mbps data rate: DQPSK modulation at 2 Mbps (1 Msps) with each QPSK symbol spread by an 11 bit Barker Sequence yielding a chip rate of 11 Mcps with 4 phases.

5.5 Mbps data rate: Complementary Code Keying (CCK) modulation. CCK is a coding scheme that maps short blocks of data into 8-chip symbols that are nearly orthogonal. In the 5.5 Mbps case, 4 bit data blocks are encoded as follows: 2 bits are mapped into one of 4 possible 8-chip QPSK sequences and the other 2 bits DQPSK modulate the sequence relative to the previous symbol. The chip rate is 11 Mcps, the symbol rate is 11 Mcps/8chips/symbol = 1.375 Msps with 4 bits/symbol.

11 Mbps data rate: Complementary Code Keying (CCK) modulation. CCK is a coding scheme that maps short blocks of data into 8-chip symbols that are nearly orthogonal. In the 11 Mbps case, 8 bit data blocks are encoded as follows: 6 bits are mapped into one of 64 possible 8-chip QPSK sequences and the remaining 2 bits DQPSK modulate the sequence relative to the previous symbol. The chip rate is 11 Mcps, the symbol rate is 11 Mcps/8chips/symbol = 1.375 Msps with 8 bits/symbol.

Type of data sent during normal use: data from OSI L3
Type of data sent during testing: PRBS.

Communication protocol: IP

Data throughput: line rate is 11 Mbps. Practical throughput with 1450 bytes of L3 payload is about 6 Mbps.