Appendix: Smart Dust Laptop Display – Illumination Level
(This display may not be available in your lab session – if it is you can see the structure of the packets sent by the motes)

Set-up: Smart Dust mote A sends wireless radio-frequency signal packet to mote B plugged in to “base station” that is connected to the serial port of the computer.

Radio packet: Packet uses hexadecimal format; the packet contains a header that identifies the sending mote (Mote A), data from the light sensor, some unused time slots, and a cyclical redundancy check at the end:

```
7E 00 04 54 03 XX 01 00 00 … 00 01 00
[                   ]                     [ ]
TinyOS header       Unused               CRC
Data from illumination sensor (TSL2550)
```

Hexadecimal number system:
The base is 16, just as decimal numbers have a base 10. The hexadecimal numbers represent the decimal numbers from 0 to 15, as follows:

- Decimal number: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
- Hexadecimal equivalent: 0 1 2 3 4 5 6 7 8 9 A B C D E F

A hexadecimal number such as 7E means $7 \times 16^1 + 14 \times 16^0 = 7 \times 16 + 14 \times 1 = 126$