Statistical Models of Average Path Loss

Exercise 1: What is the free-space path loss, in dB, at 10 m for f = 1500 MHz? What is the value of PL(1 km)?

Exercise 2: If the path loss is 90 dB at 100 m and 120 dB at d = 1 km, what are *n* and $PL(d_0 = 1 \text{ m})$?

Exercise 3: What path would you have to travel if you wanted to measure the average path loss at a given distance from a particular transmitter?

Exercise 4: Compute the median path loss predicted by the Okumura-Hata model at f = 900 MHz, base station and mobile antenna heights of 30m and 1m respectively, and a distance of 2km. **Exercise 5**: A cellular system is designed so that users on the cell edge have an average SNR of 16 dB. The system requires that users have a minimum SNR of 8dB to place a call. The standard deviation of the log-normal fading is 8dB. What fraction of users at the cell edge will be able to place calls?