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 $PL(1 \text{ km})$?

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?