

UNIVERSITY OF TEXAS AT DALLAS
Department of Electrical Engineering

EE 6390 - Introduction to Wireless Communications Systems
Problem Set #1: Introduction and Review

Date assigned: 1/10/2008

Date due: 1/17/2008

Late homework will not be accepted. Please check the course web site for updates.

Reading: *Wireless Communications*, ch. 1-2

Please use MATLAB to help you solve these problems, check answers, etc.

Problem 1.1

P1.6 in *Wireless Communications*

Problem 1.2

- (a) A microwave transmitter has an output of 500 mW. What is its output in dBW?
- (b) A combining network has two inputs: +29 dBm and +6 dBm. It has an insertion loss of 3 dB. What is the combined output in dBm?

Problem 1.3

Consider an AMPS cellular phone with a 30 kHz RF equivalent bandwidth. The phone is connected to a mobile antenna as shown below. If the noise figure of the phone is 5.5 dB, the coaxial cable loss 3.5 dB, and the antenna has an effective temperature of 290 K, compute the noise figure of the mobile receiver system as referred to the input of the antenna terminals.

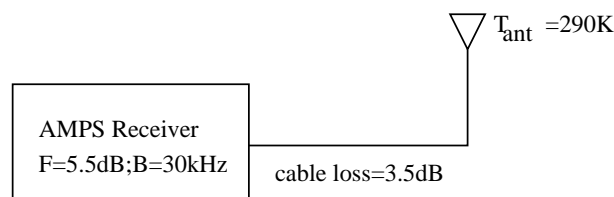


Figure 1: A mobile receiver system