LAB 2: Antennas

Objective:
To understand and observe the directional selectivity of a dipole antenna and relate that to propagation pattern.

General Safety Guidelines:
Keep your hands and the work area dry to avoid shock.

Lab Equipment:
Antenna setup will be done beforehand. This equipment is very expensive and easily damaged, DO NOT TOUCH ANYTHING THAT YOU ARE NOT INSTRUCTED TO TOUCH!

Procedure:
1. The setup consists of a dipole transmitter and a dipole receiver. Place the dipoles at a constant distance from each other. This is ensured by the use of a string connecting the two antennas.

2. Place the antennas so that the tips of the dipoles are pointed towards each other. This corresponds to a minimum signal and an angle of 0°.

3. Then move the receiver antenna through a 90° arc keeping the transmitter at a fixed position. Note the dipoles should stay parallel to each other throughout your measurements. Take measurements at increments of at least 30° but smaller increments may be used. Record the signal strength at each increment.

Data and Analysis:
Your readings should take the form of the following table:

Angle	Signal Strength (dB)
0	
30	
60	
90	

You need to plot Power vs. Angle (Note: you must convert dB to watts, use 1 watt as the reference power) it should mimic $\sin^4\theta$