

EEEC133 Lab 1 Report

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Part 1

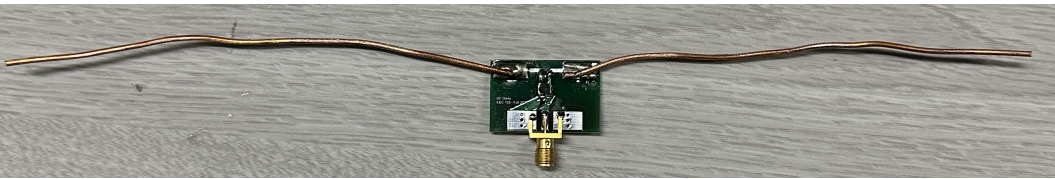


Figure 1: Dipole Antenna

Part 2

Step 1

Step 2

Cable Length: 25 inches long

Short Circuit S-Parameter

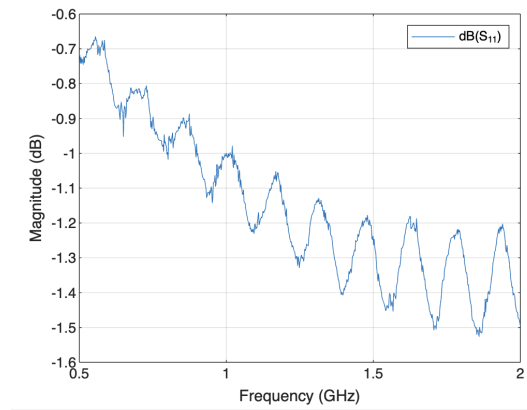


Figure 2: S_{11} in a Short Circuit Transmission Line

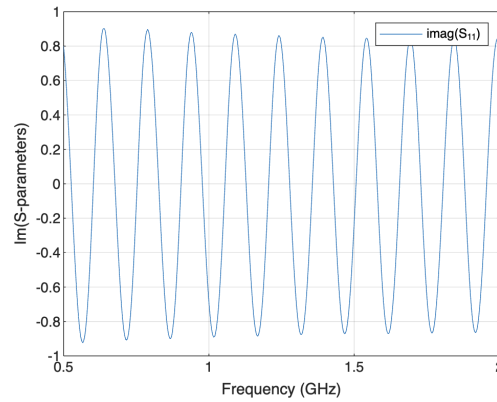


Figure 3: Reactance of S_{11} in a Short Circuit Transmission Line

Open Circuit S-Parameter

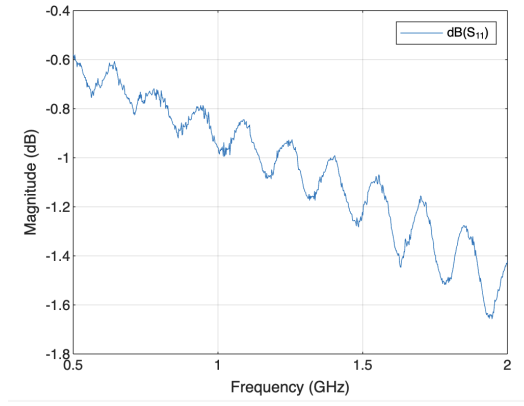


Figure 4: S_{11} in a Open Circuit Transmission Line

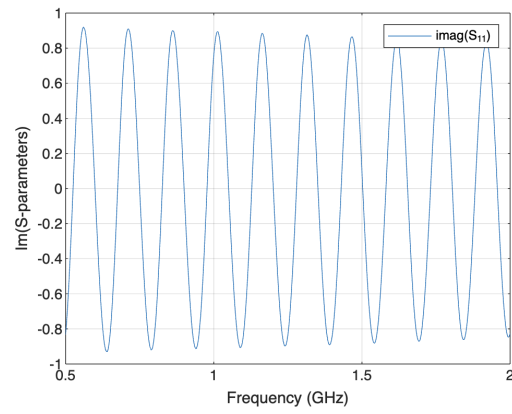


Figure 5: Reactance of S_{11} in a Open Circuit Transmission Line

50 Ω Load Transmission Line S-Parameter

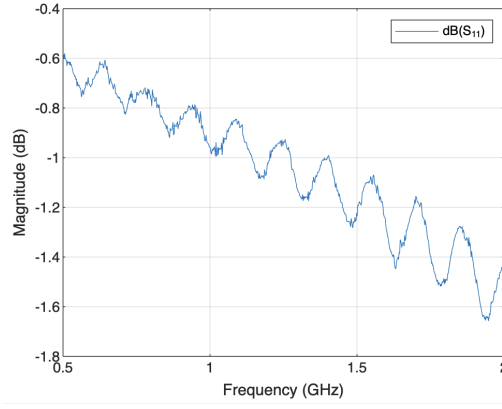


Figure 6: S_{11} in a 50 Ω Load Transmission Line

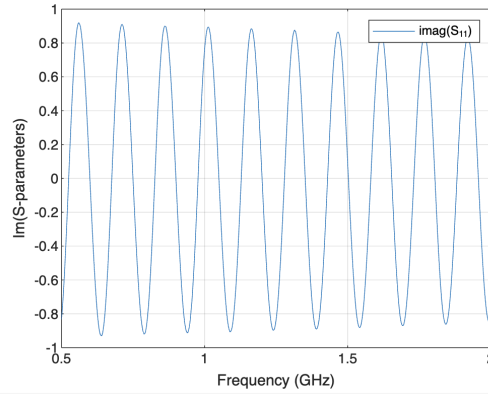


Figure 7: Reactance of S_{11} in a 50 Ω Load Circuit Transmission Line

Part 3

Step 1

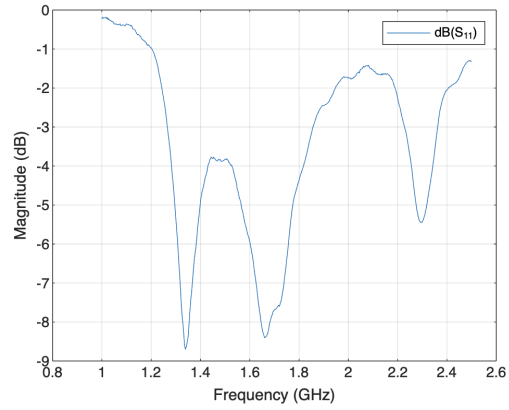


Figure 8: Dipole Antenna's S_{11} Magnitude

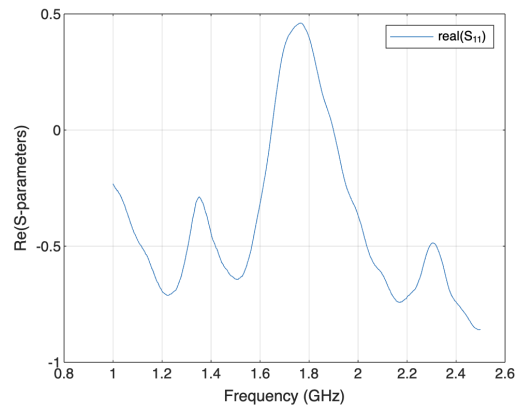


Figure 9: Dipole Antenna's Real Part of S_{11}

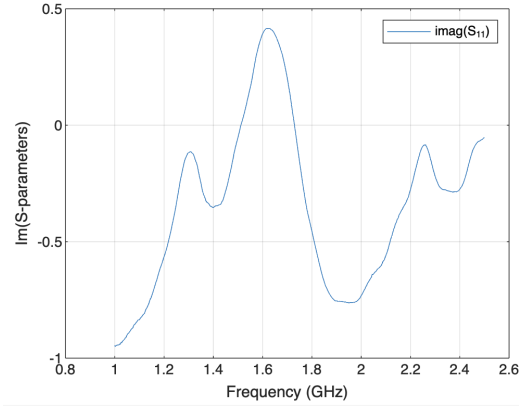


Figure 10: Dipole Antenna's Imaginary Part of S_{11}

Step 2

Distance between the two antennas: 10 feet.

Step 3

Angle (degrees)	S_{21} (dB)
0	-48.0
10	-53.0
20	-50.0
30	-54.8
40	-53.0
50	-45.0
60	-45.04
70	-48.0
80	-54.0
90	-64.0
100	-55.0
110	-47.0
120	-44.0
130	-44.0
140	-44.6
150	-45.6
160	-48.0
170	-50.0
180	-56.0

Table 1: S_{21} values at different angles

Step 4

$$S_{21} = -64dB$$

Part 4

1

2

3

5