PRELAB 10: AMPLIFIERS

<table>
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<th>Assigned</th>
<th>October 28, 2016</th>
<th>Due</th>
<th>Goal: review of basic amplifier relationships as will be needed in the lab</th>
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PRELAB 10 – ECEN 4634 (UNDERGRADUATE LAB)

1. Problem 1, Chapter 8 in lab notes, page 168. This is a simple derivation for a bilateral two-port network, such as a common-source transistor.

2. Problem 8, Chapter 8 in lab notes, page 168.

3. Problem 9, Chapter 8 in lab notes, page 168.

ADDITIONAL PRELAB 10 – ECEN 4634 (UNDERGRADUATE LAB ONLY) – 5634 STUDENTS SHOULD SKIP THIS ONE

4a. You have already designed a bias-T network in Lab 7. Plot the relevant network S-parameters in a single plot in your design and write down the ideal S-matrix for a bias-T.

ADDITIONAL PRELAB 10 – ECEN 5634 (GRADUATE LAB ONLY)

NOTE: LAB 10 Builds on Lab 8 for ECEN 5634

4b. You have already designed a small-signal amplifier as a part of Lab 8. Assume that your load can vary (e.g. because the antenna position of your transmitter varies). If the impedance changes from the nominal 50Ω to 40+j20Ω and to 75-j30Ω, plot the effect on the S-parameters of the amplifier. Comment on the behavior (since all your amplifiers are different, I expect the conclusions to be different as well). Make sure you include a plot of your amplifier S-parameters from Lab 8.