



Pre-Project 1  
Week 2

Once again, there is no formal class Wednesday, 13 February. There is, however, a short assignment for each group, as part of the first project. Please send Prof. Connor the following information sometime on Wednesday. Only one response for each group is necessary. For all analysis asked for below, you can assume lossless transmission lines.

1. Identify the two cable channels whose signal will be blocked.
2. Look up the frequency of the two channels and then determine the necessary length of the open circuit stub required to block each channel. Justify your choice of stub length from first principles, not from doing a PSpice simulation (that comes next).
3. Do a PSpice simulation (AC frequency sweep) for each of the two configurations you have identified. From the PSpice output, identify all campus cable channels that are likely to be affected by your choice of stub. Remember that the blocker is likely to affect 2 or 3 channels whose frequencies are next to one another and that the cable channel numbers do not occur in sequence in frequency. Also, there are some ranges of frequency for which there are no channels (e.g. the FM band) so, while some additional blocking is theoretically possible, there may be no signal to be blocked.

That is it for Wednesday. Basically you are being asked to pick two channels, find the open stub lengths necessary to block those channels and then identify any other channels whose signal is likely to be affected. In the next week, you will be asked to expand on your analysis to include loss and to address a few other practical issues. Next Wednesday, you will build your two designs and test them.