

E157 Lecture 10 Day Plan

Any questions before quiz

Quiz + Team Quiz + Talk through solution

S-parameters of filters – insertion loss, return loss, Smith Charts

Passivity and Reciprocity as matrix properties –

- Reciprocal – $S_{ij}=S_{ji}$
- Symmetric – reciprocal and all $S_{ii}=S_{jj}$
- Passive & Lossless – unitary: $S^T S^* = I$,
- If loss: $|S_{11}|^2 + |S_{21}|^2 \leq 1$,

Loaded reflection coefficient -- $\Gamma_{in} = S_{11} + S_{21} S_{12} \Gamma_L / (1 - \Gamma_L S_{22})$

Plot Smith Charts for some common S-parameters – open, short

Calculate Z parameters for quiz problems

Lab 3 time

Check-in, office hours