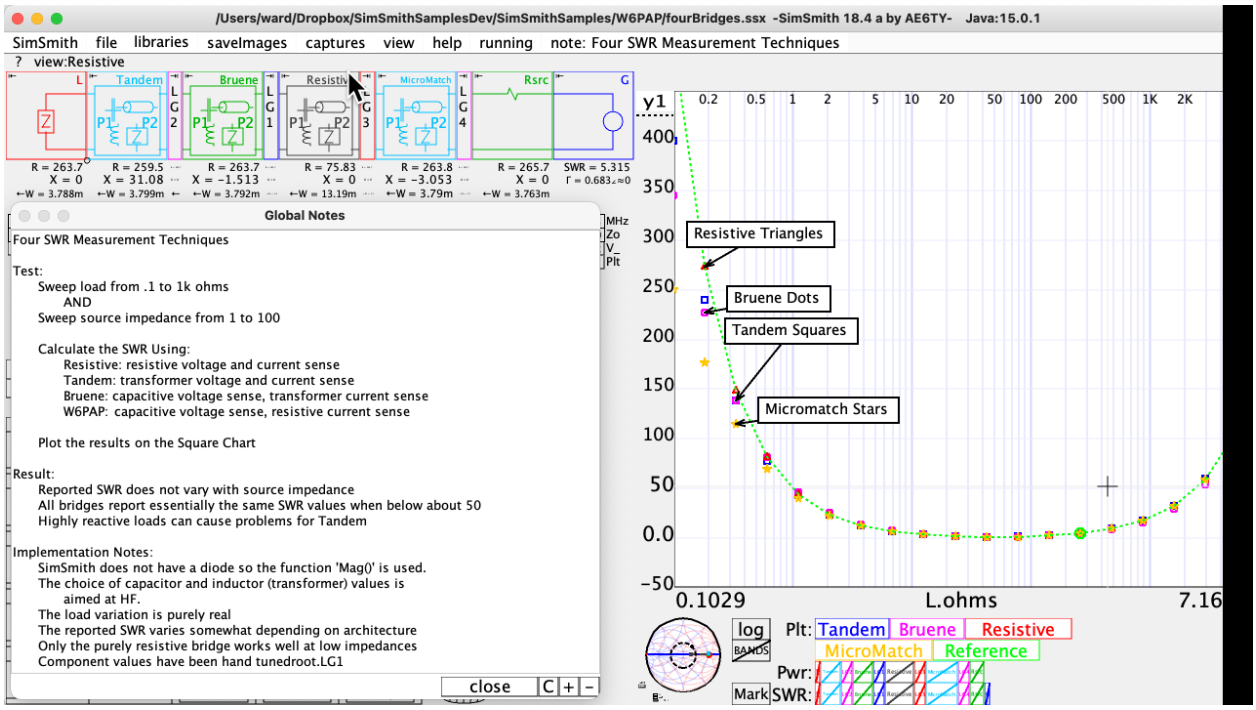
Summation of Bridge Topology Comparison

Ward Harriman
ae6ty

September 15, 2021

Introduction

For different SWR Bridge topologies are compared:



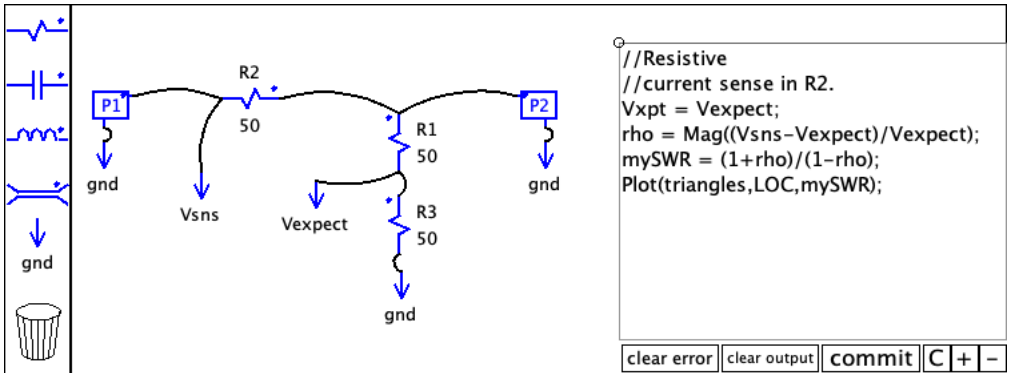
Most circuits have been hand tuned to match the ‘reference’. The ‘reference’ is implemented using algebra and is ‘perfect’.

Conclusion

Low impedances and highly reactive impedances cause the Tandem and Bruene bridges to report lower than real SWR values.

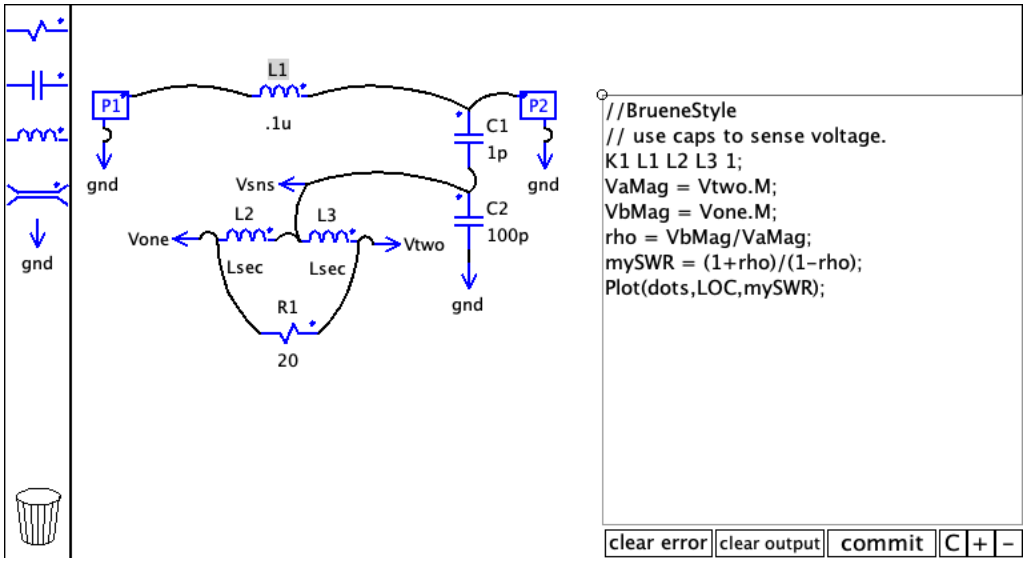
The SWR reported by several ‘common’ SWR topologies are consistent and NOT affected by transmitter impedance.

The Resistive Bridge

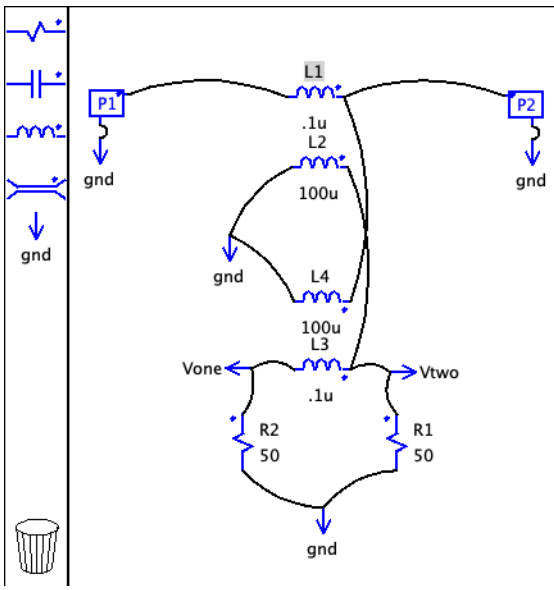


Bruene Bridge

This circuit was modelled after one developed by W0QE.



Tandem Bridge

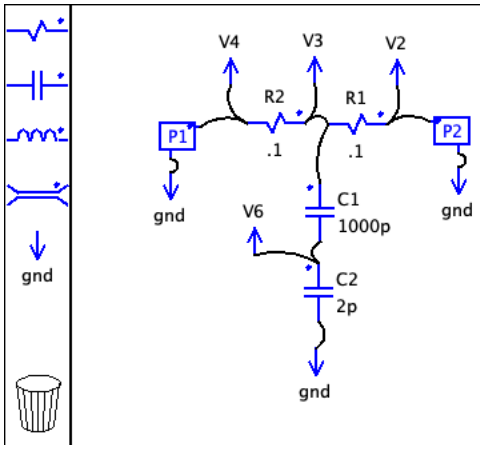



```
//TandemStyle
// use transformer to sense voltage.
K1 L1 L2 1;
K2 L3 L4 1;
VaMag = Vone.M;
VbMag = Vtwo.M;
rho = VaMag/VbMag;
mySWR = (1+rho)/(1-rho);
Plot(squares,LOC,mySWR);
```

clear error | clear output | commit | C | + | -

MicroMatch

Modified from W6PAP.




```
//MicroMatch
Vfwd = Mag(V6-V4);
Vref = Mag(V6-V2);
mySWR = (Vref+Vfwd)/(Vref-Vfwd);
Plot(stars,LOC,mySWR);
```

clear error | clear output | commit | C | + | -