

```
.define S11_nport 2*V(in3)-1
.define S21_nport 2*V(out3)
.define S12_nport 2*V(in4)
.define S22_nport 2*V(out4)-1
```

Imported S-parameter data from NanoVna
Zero bias voltage

```
.define Gamma(In,Src) Mag(2*V(In)-V(Src))
.define VSWR(In,Src) (1+Gamma(In,Src))/(1-Gamma(In,Src))
.define RetLoss(In,Src) - 20*Log(Gamma(In,Src))
.define MismatchLoss(In,Src) - 10*Log(1 - Gamma(In,Src)**2)
```

```
Gamma(in1,V1)=981.254m
VSWR(in1,V1)=105.692
RetLoss(in1,V1)=164.368m
MismatchLoss(in1,V1)=14.302
```

```
Gamma(in3,V3)=615.603m
VSWR(in3,V3)=4.203
RetLoss(in3,V3)=4.214
MismatchLoss(in3,V3)=2.069
```

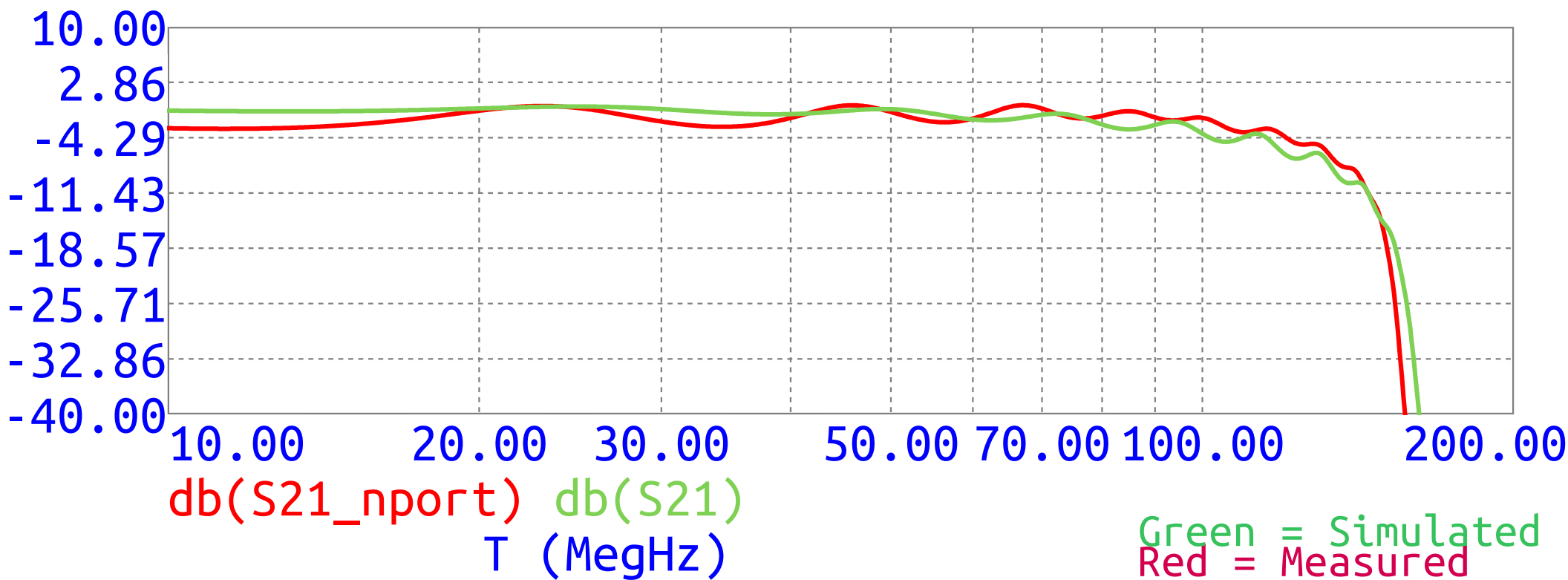
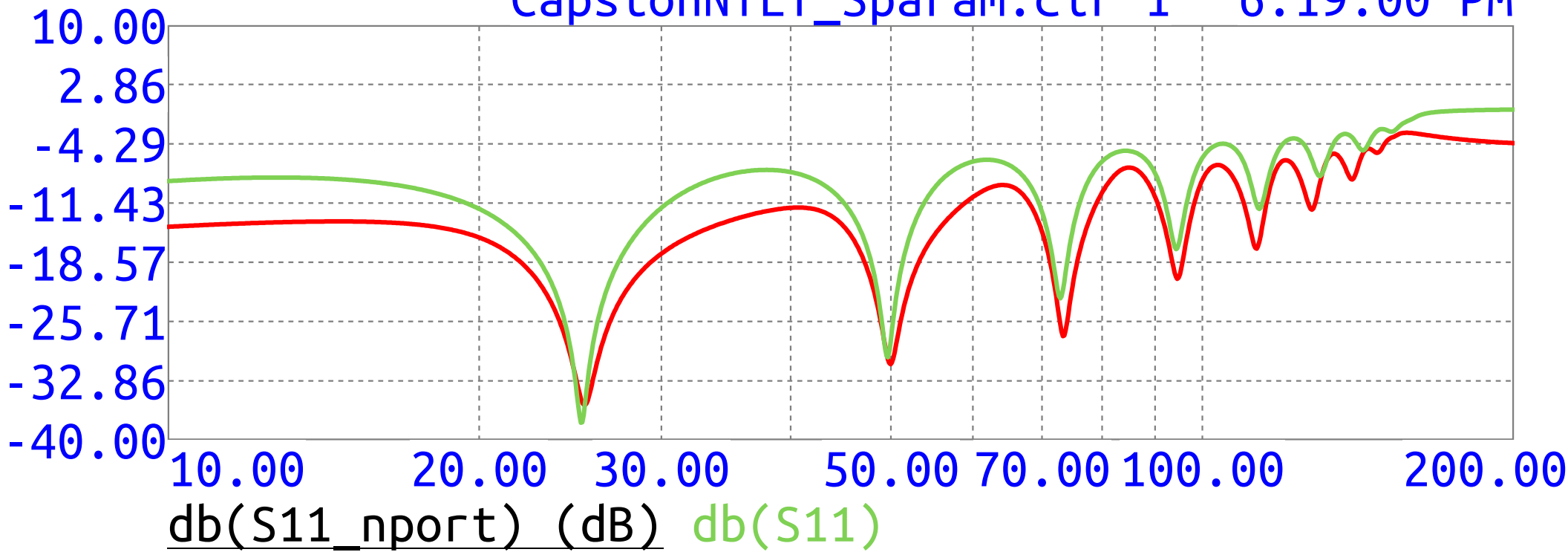
```
.define S11 2*V(in1)-1
.define S21 2*V(out1)
.define S12 2*V(in2)
.define S22 2*V(out2)-1
```

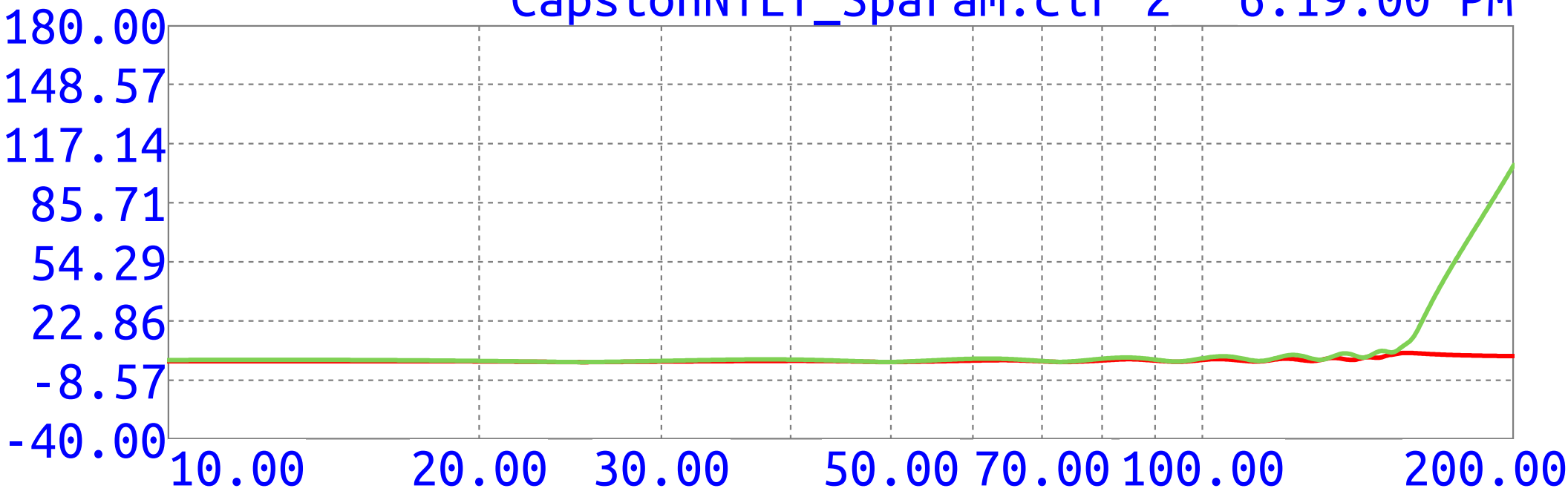
```
.param Rpars 122n
.param L 66n
.param Rload 50
```

```
.define Power_dbm dbm(PG(V1))
Power_dbm=7.759
PST=4.079E-019
PDT=18.363m
```

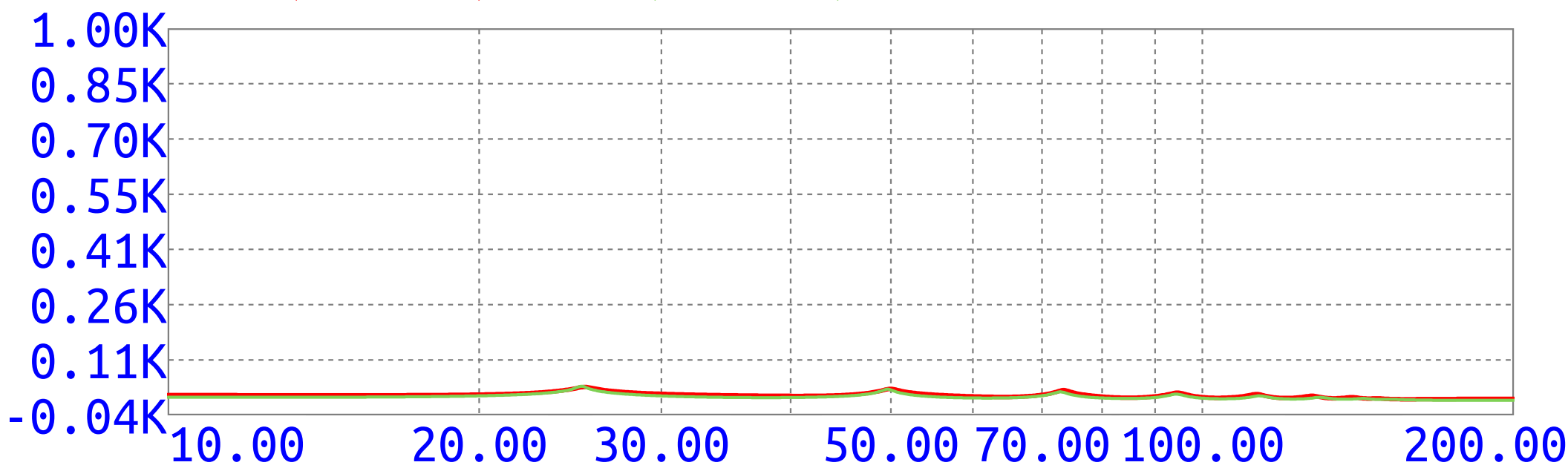
PST is the amount of power stored in the reactive components (in Watts)
PDT is the power dissipated in the circuit (in Watts)

```
.define Power_dbm_nport dbm(PG(V3))
Power_dbm_nport=7.644
```





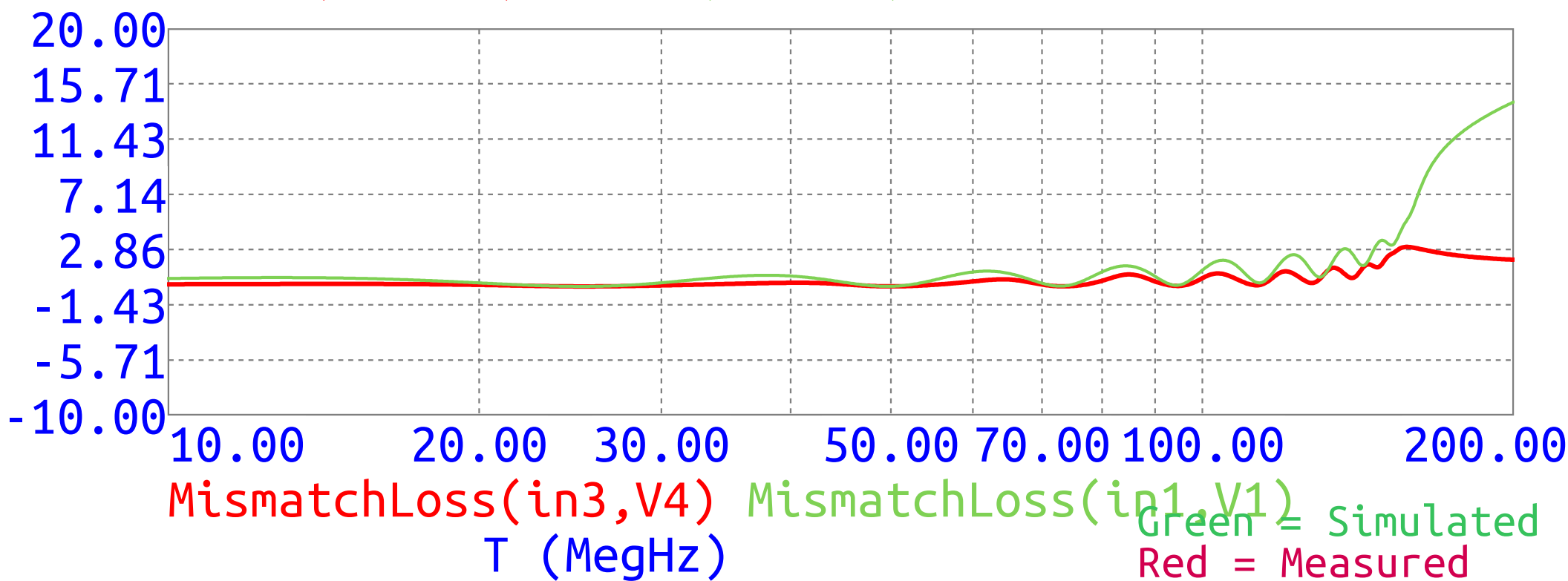
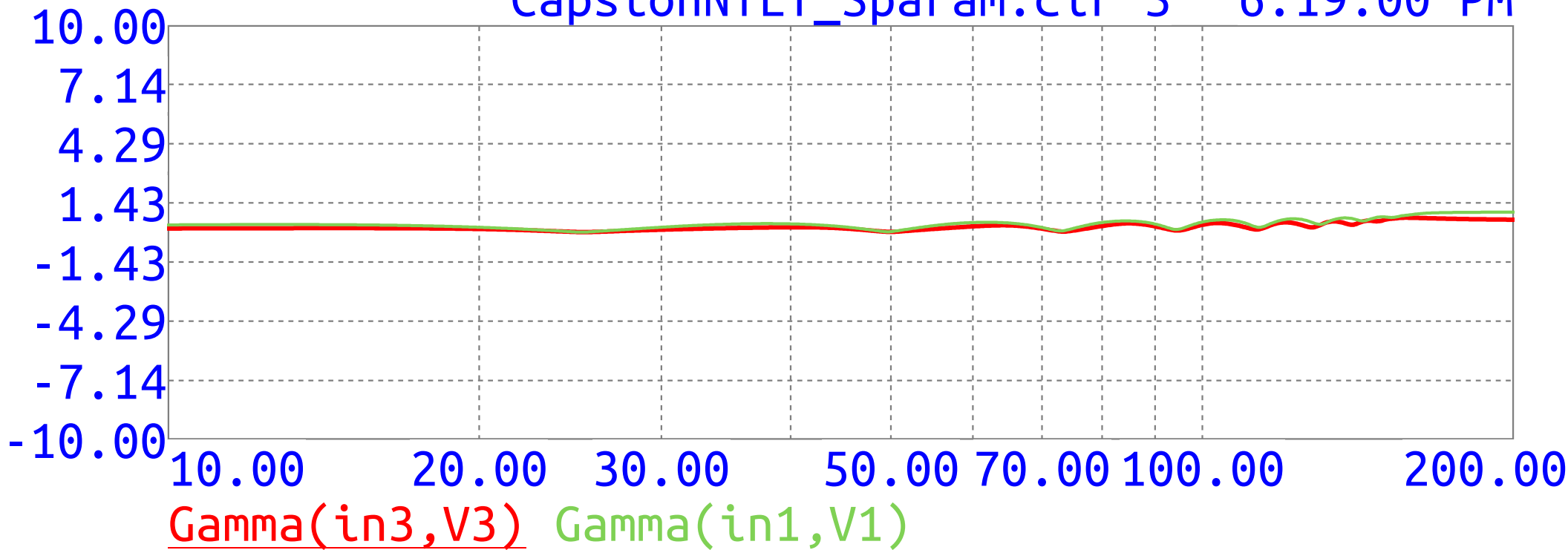
VSWR(in3,V3) VSWR(in1,V1)



RetLoss(in3,V3) RetLoss(in1,V1)

T (MegHz)

Green = Simulated
Red = Measured



Green = Simulated
Red = Measured