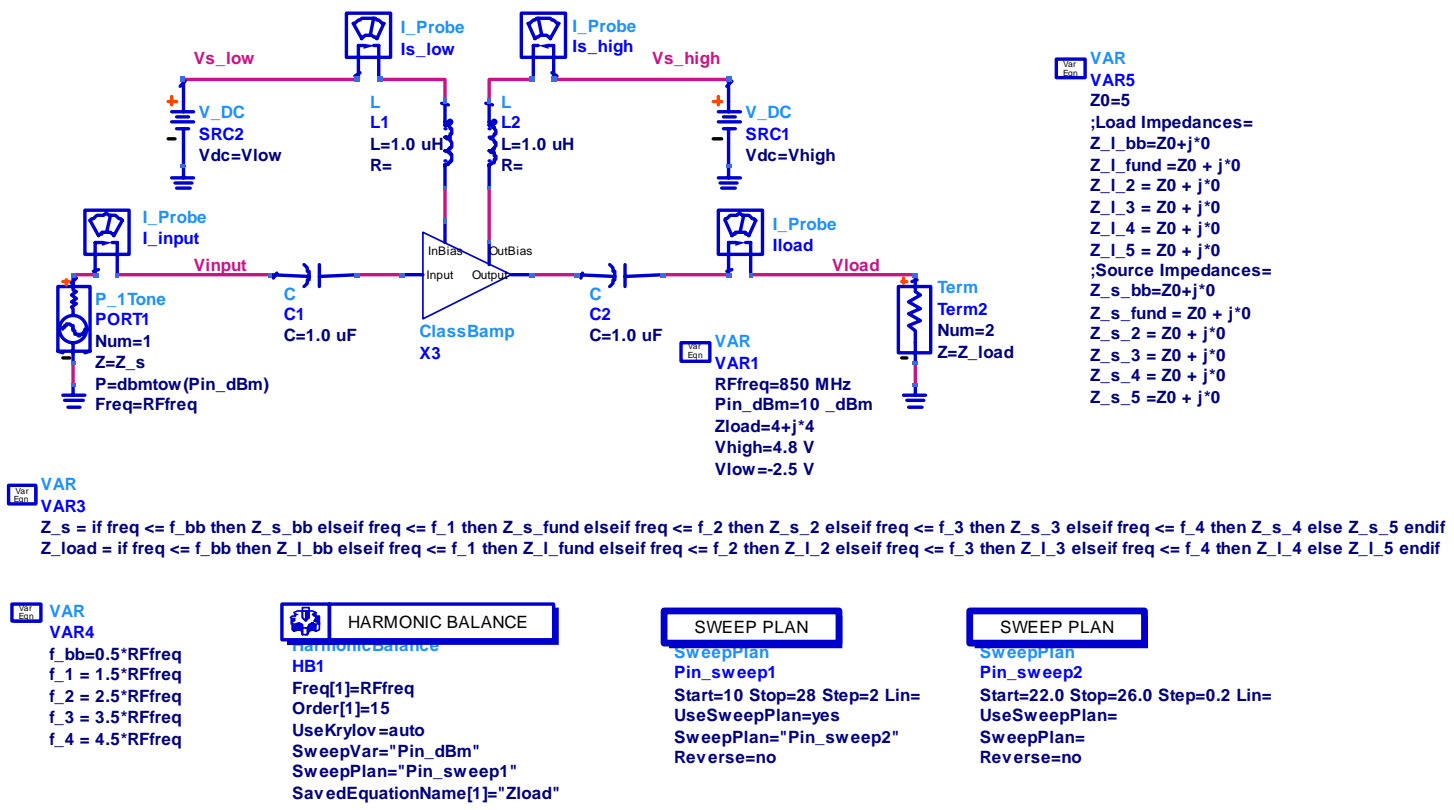


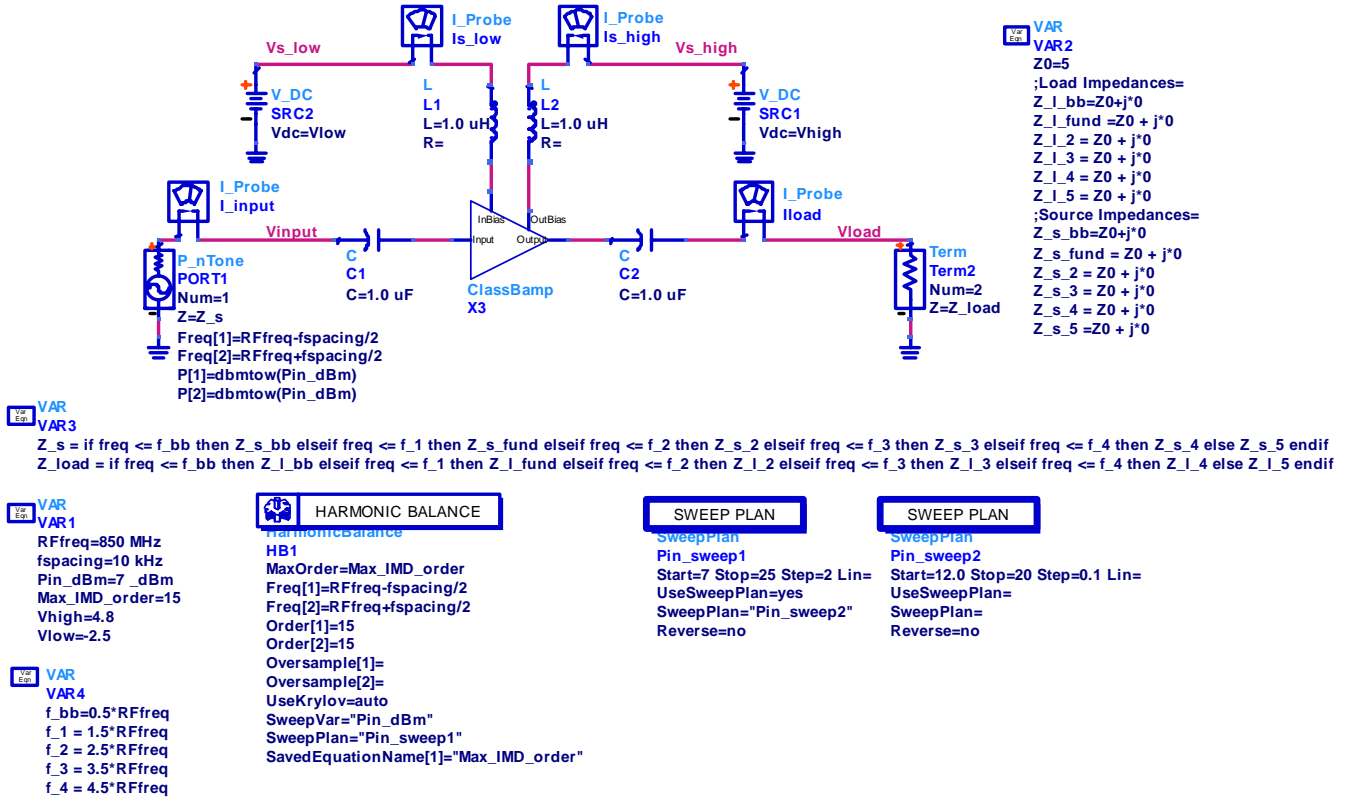
HB1TonePAE_Pswp_ClassB.dsn

One Large Tone Harmonic Balance



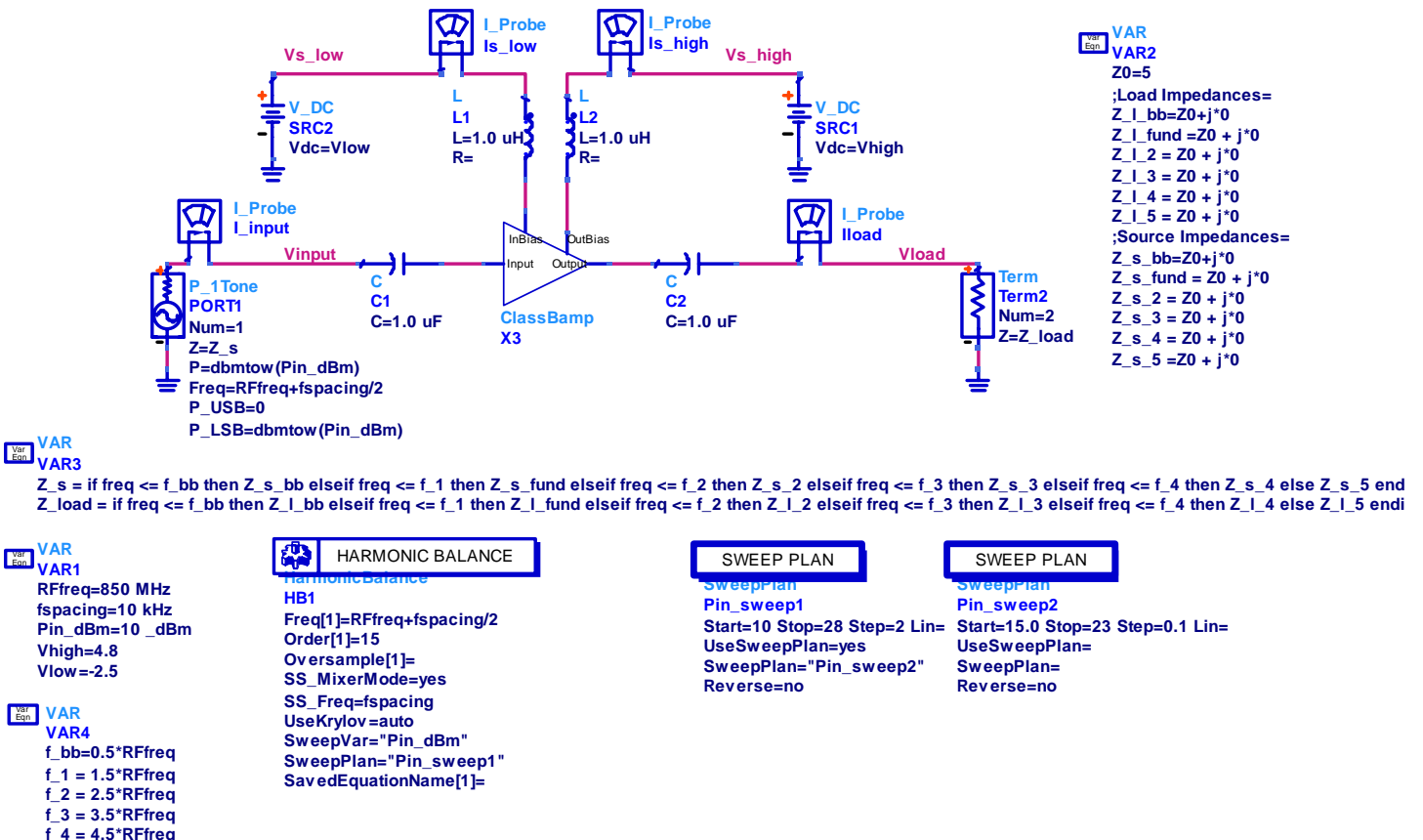
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Two Large Tone Harmonic Balance

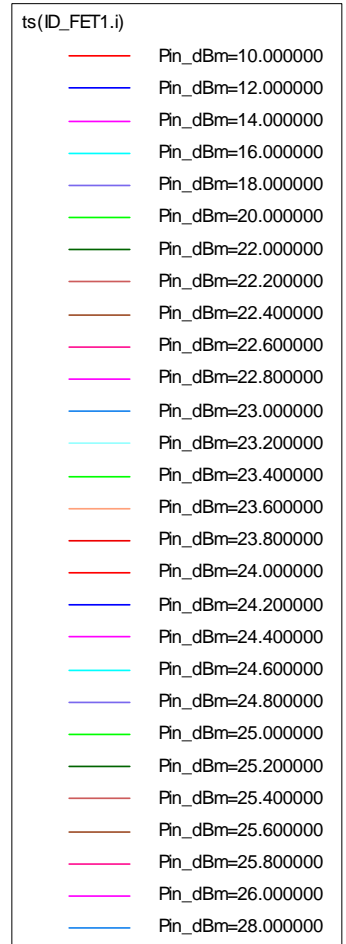
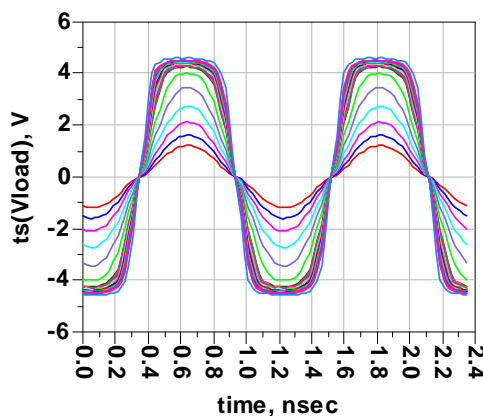
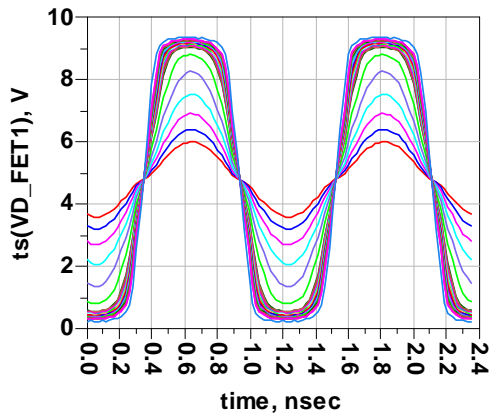
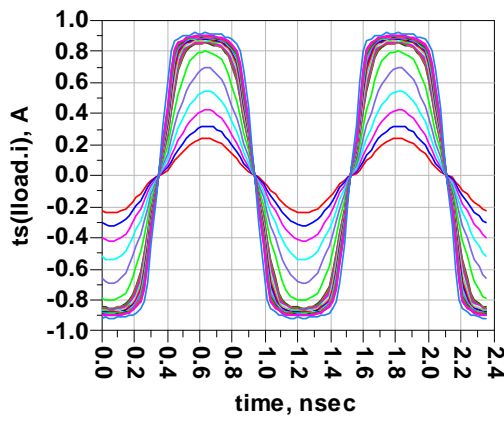
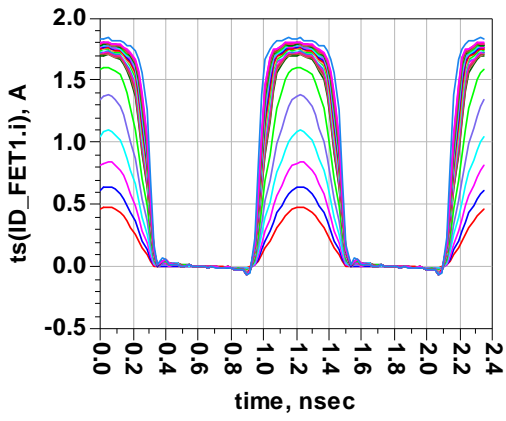


HB1SS1TonePAE_Pswp_ClassB.dsn

One Large Tone + One Small Signal Harmonic Balance



Results for One Large Tone HB Analysis

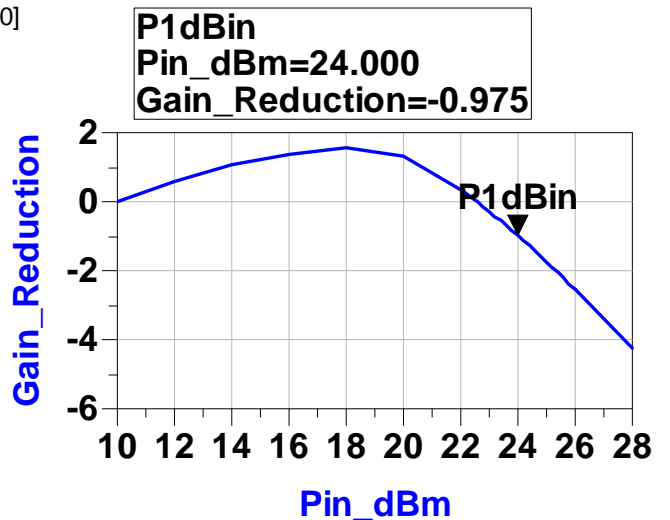
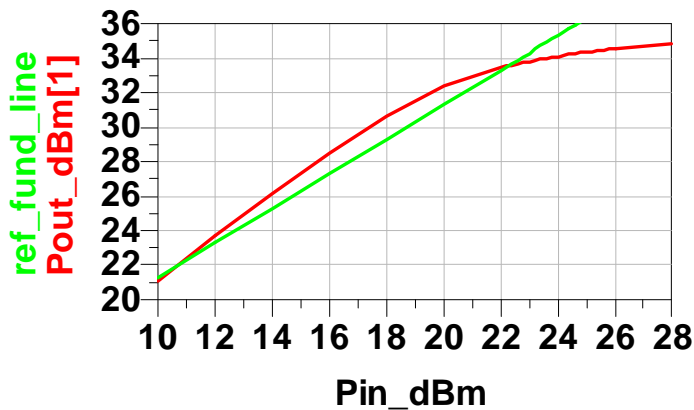


Eqn $P_{out_dBm} = 10 \cdot \log_{10}(0.5 \cdot \text{real}(V_{load} \cdot \text{conj}(I_{load.i})) + 1e-20) + 30$

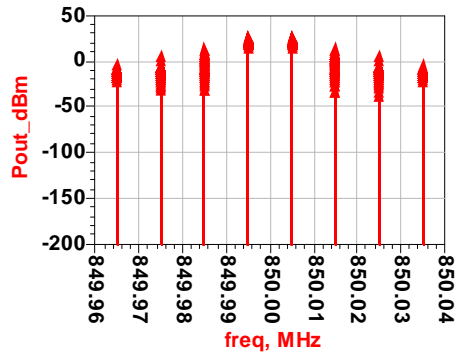
Eqn $P_gain_transducer = P_{out_dBm}[1] - Pin_dBm$

Eqn $Gain_Reduction = P_gain_transducer - P_gain_transducer[0]$

Eqn $ref_fund_line = 1 \cdot Pin_dBm + 11.3$

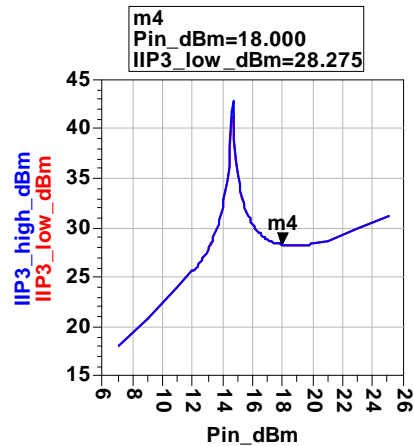
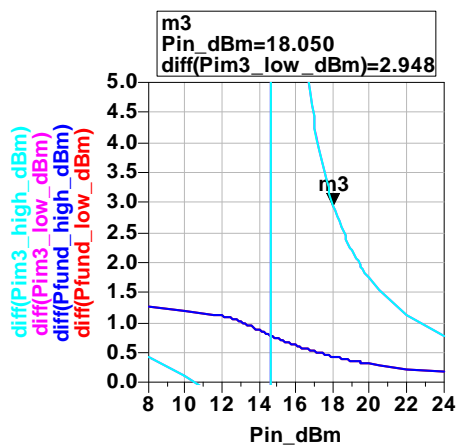
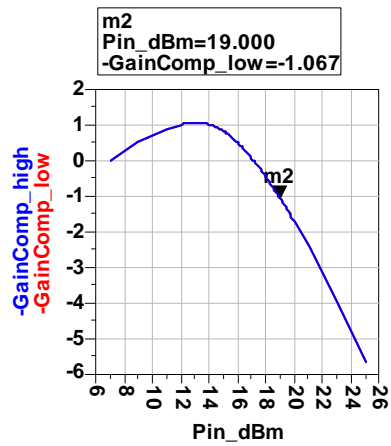
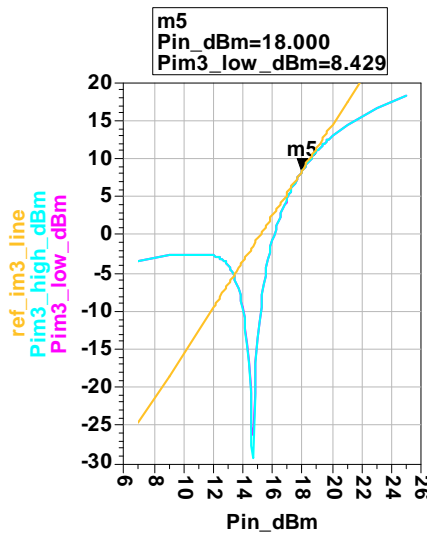
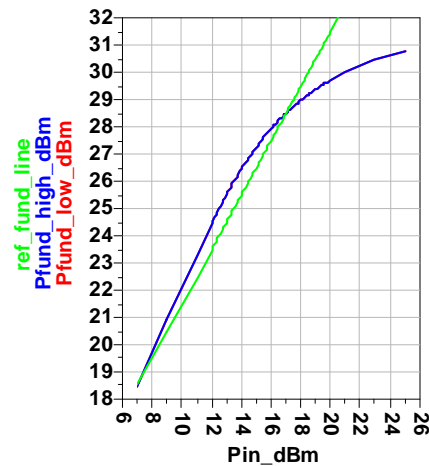
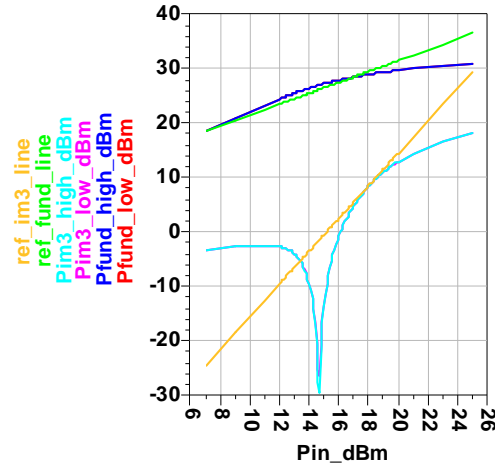


Results for Two Large Tone HB Analysis

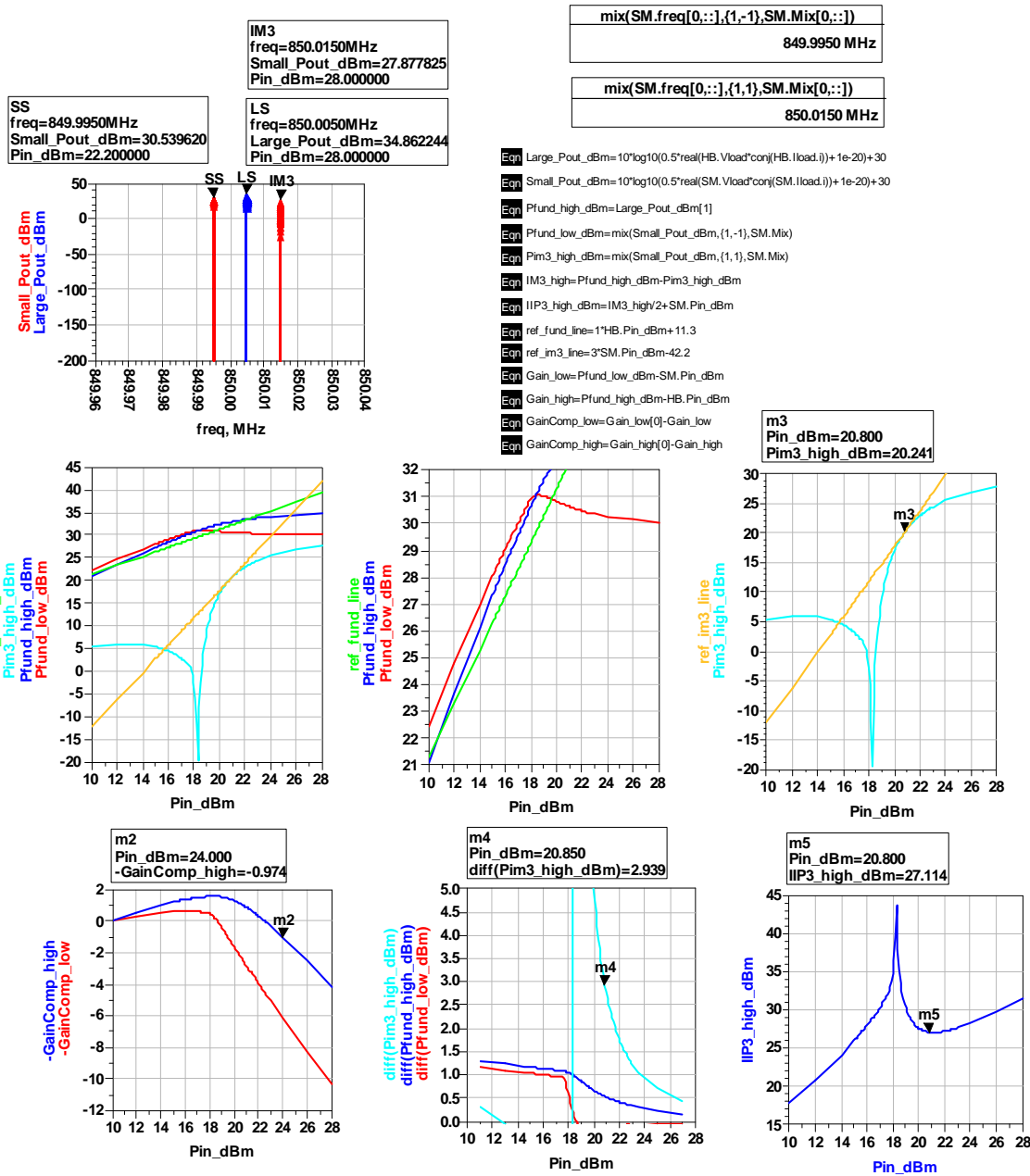


```

Eqn Pout_dBm=10*log10(0.5*real(Vload*conj(Iload.i))+1e-20)+30
Eqn Pfund_low_dBm=mix(Pout_dBm,(1,0),Mix)
Eqn Pfund_high_dBm=mix(Pout_dBm,(0,1),Mix)
Eqn Pim3_low_dBm=mix(Pout_dBm,(2,-1),Mix)
Eqn Pim3_high_dBm=mix(Pout_dBm,(-1,2),Mix)
Eqn IM3_low=Pfund_low_dBm-Pim3_low_dBm
Eqn IM3_high=Pfund_high_dBm-Pim3_high_dBm
Eqn IIP3_low_dBm=IM3_low/2+Pin_dBm
Eqn IIP3_high_dBm=IM3_high/2+Pin_dBm
Eqn ref_fund_line=1*Pin_dBm+11.5
Eqn ref_im3_line=3*Pin_dBm-45.5
Eqn Gain_low=Pfund_low_dBm-Pin_dBm
Eqn Gain_high=Pfund_high_dBm-Pin_dBm
Eqn GainComp_low=Gain_low[0]-Gain_low
Eqn GainComp_high=Gain_high[0]-Gain_high
    
```



Results for One Large Tone + One Small Signal HB Analysis



Comparison between HB2 and HB1SS

Eqn Large_Pout_dBm=10*log10(0.5*real(\$HB1SS.HB.Vload*conj(\$HB1SS..HB.Iload.i))+1e-20)+30

Eqn Small_Pout_dBm=10*log10(0.5*real(\$HB1SS.SM.Vload*conj(\$HB1SS..SM.Iload.i))+1e-20)+30

Eqn HB1SS_Pfund_high_dBm=Large_Pout_dBm[1]

Eqn HB1SS_Pfund_low_dBm=mix(Small_Pout_dBm,{1,-1},\$HB1SS..SM.Mix)

Eqn HB1SS_Pim3_high_dBm=mix(Small_Pout_dBm,{1,1},\$HB1SS..SM.Mix)

Eqn HB1SS_IM3_high=HB1SS_Pfund_high_dBm-HB1SS_Pim3_high_dBm

Eqn HB1SS_IIP3_high_dBm=HB1SS_IM3_high/2+\$HB1SS..SM.Pin_dBm

