RF Noise in SG1G2 HBT Models

Technology: SG13G2
DUT: npn13g2, npn13g2l, npn13g2v

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innovations
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microelectronics

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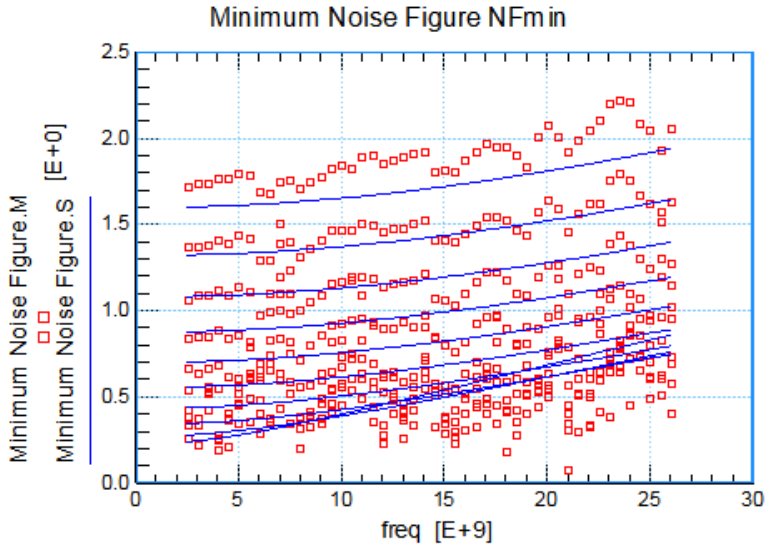
Overview

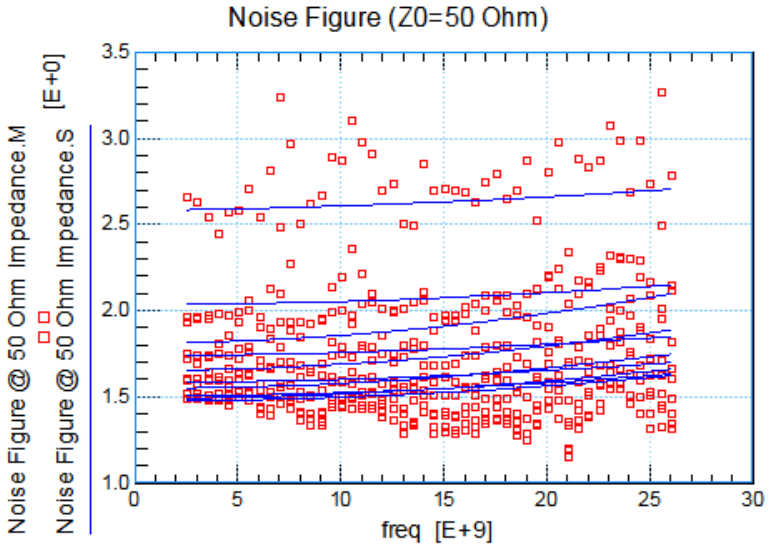
- RF noise measurements have been performed on all HBT types and compared to simulations with VBIC and HICUM

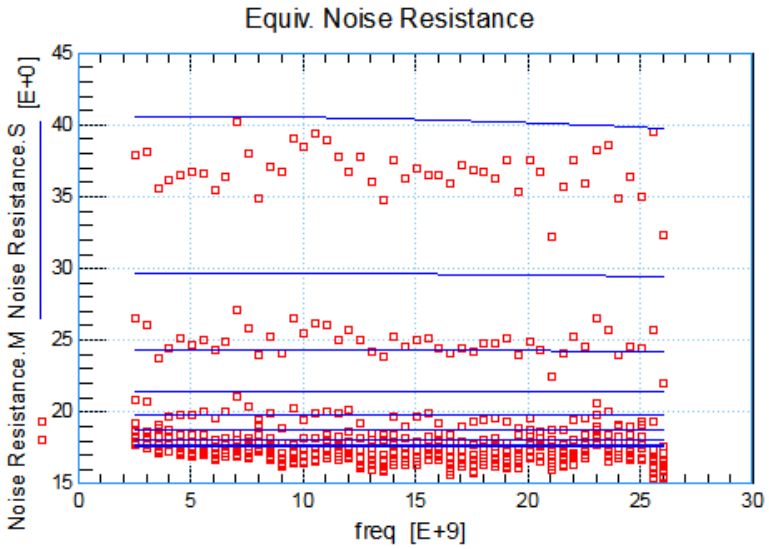
Summary:

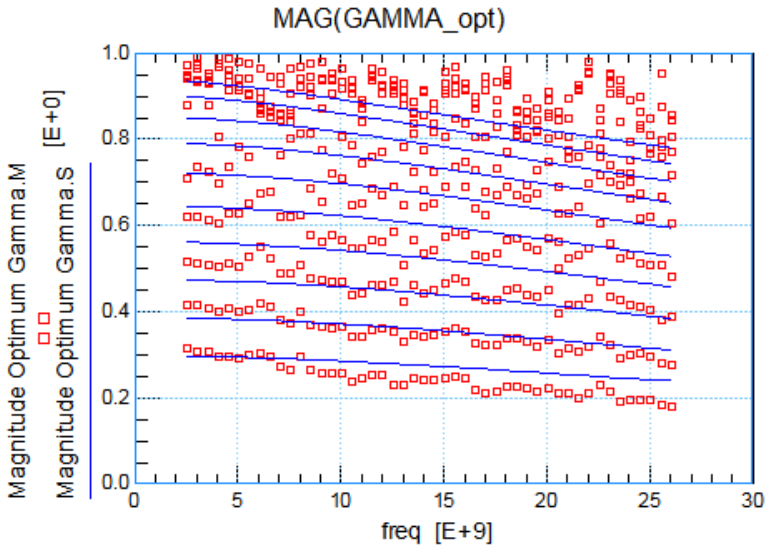
- Noise measurements performed on current qualification wafer
  - Operating points: V_{BE}=0.78…0.96V (g2, g2l), V_{CB}=0.25V, f=2.5GHz…26GHz
  - Operating points: V_{BE}=0.75…0.84V (g2v), V_{CB}=1.0V, f=2.5GHz…26GHz

DUT: npn13g2 Nx=8 VBIC - RF noise as function of frequency

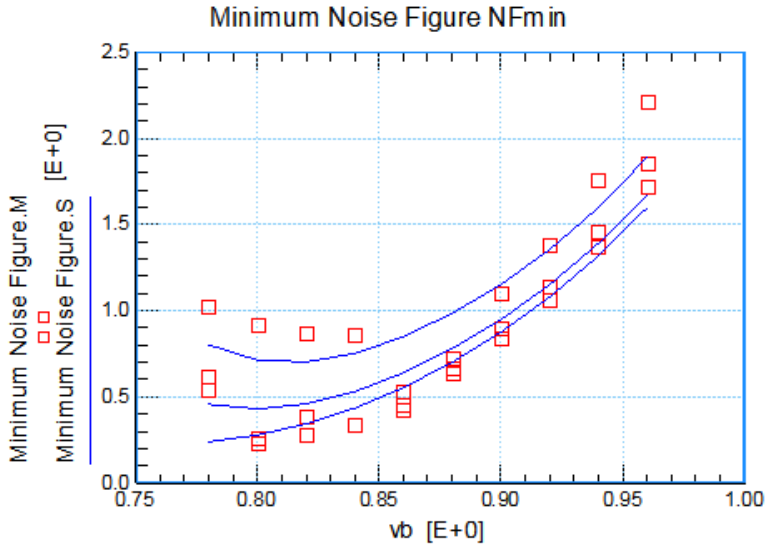


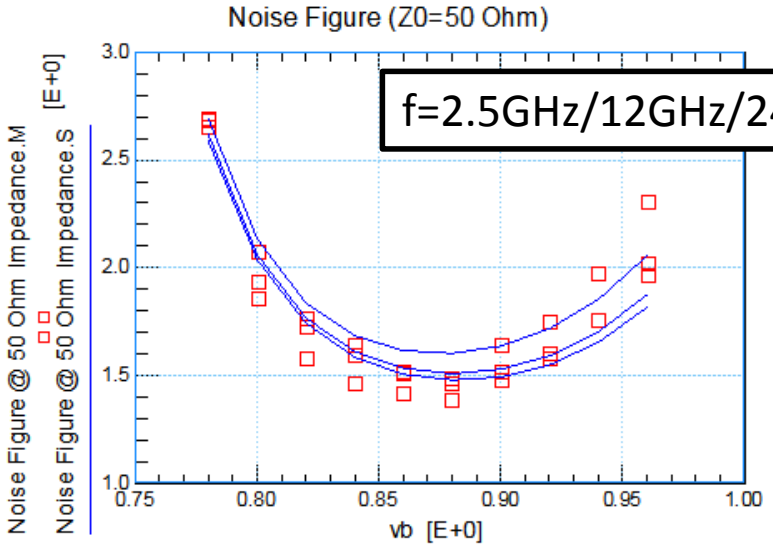




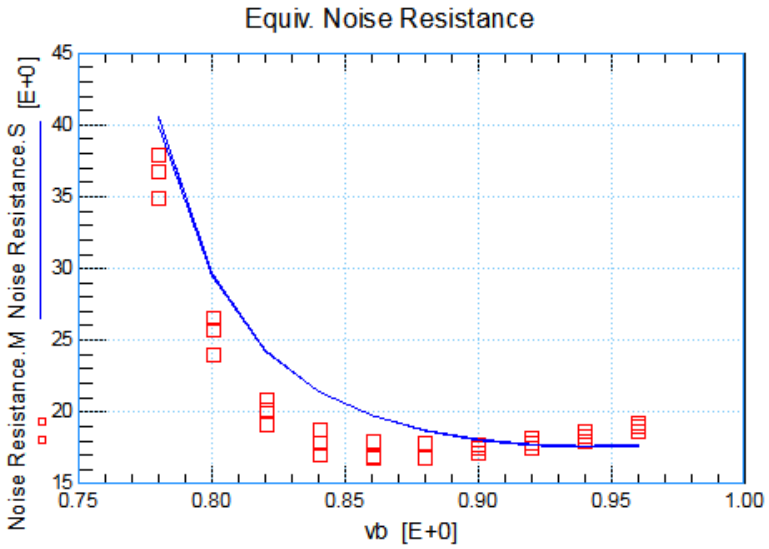


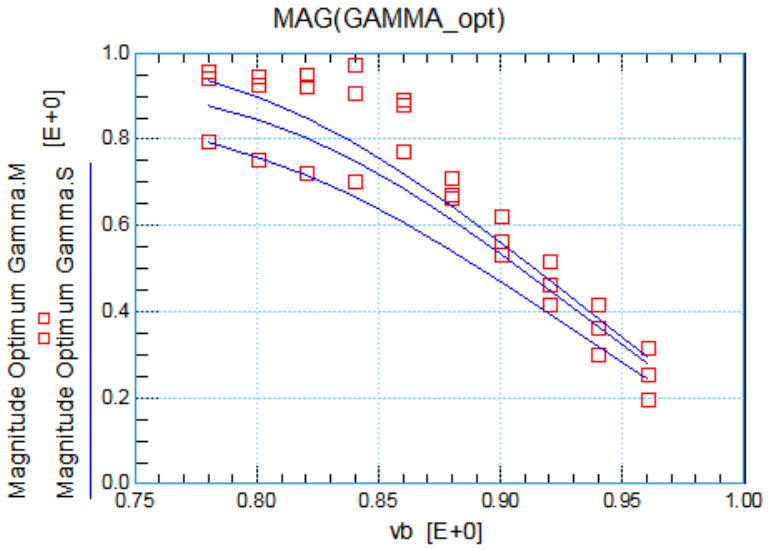
DUT: npn13g2 Nx=8 VBIC - RF noise as function of V_{BE}



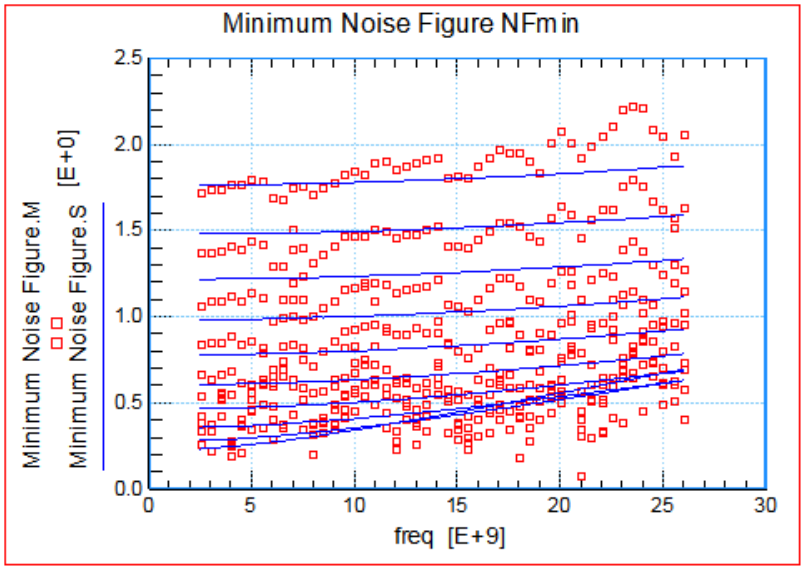


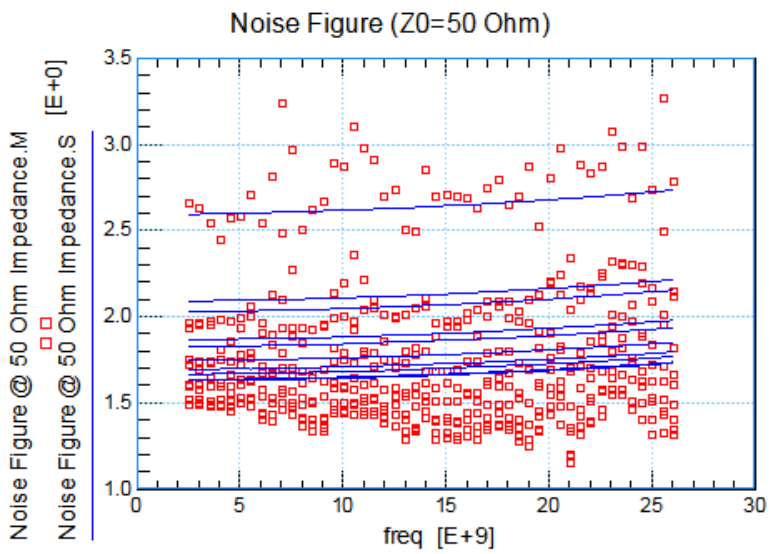
f=2.5GHz/12GHz/24GHz

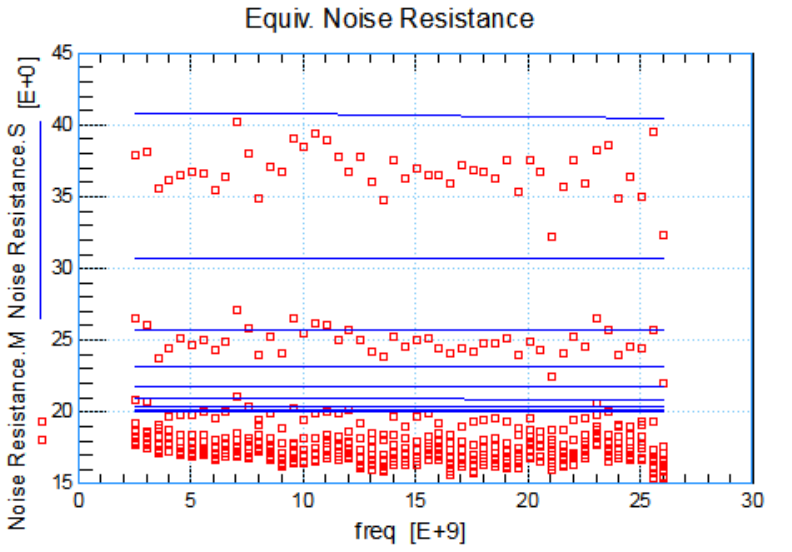


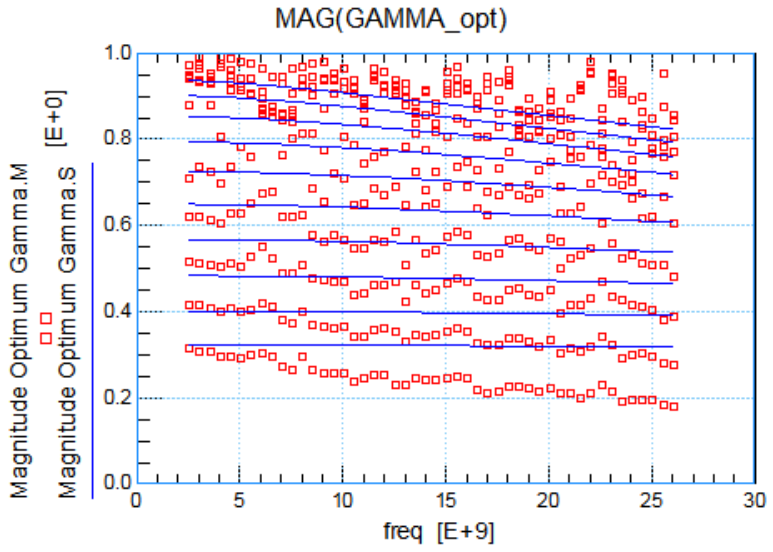


DUT: npn13g2 Nx=8 HICUM - RF noise as function of frequency

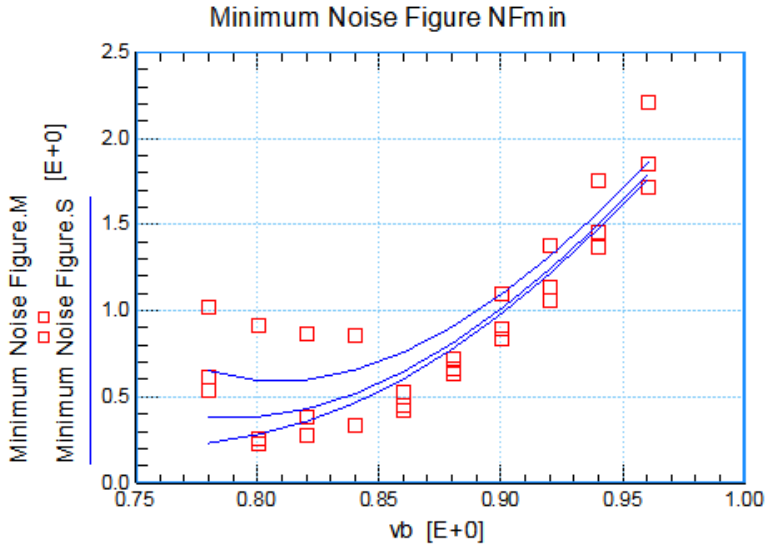


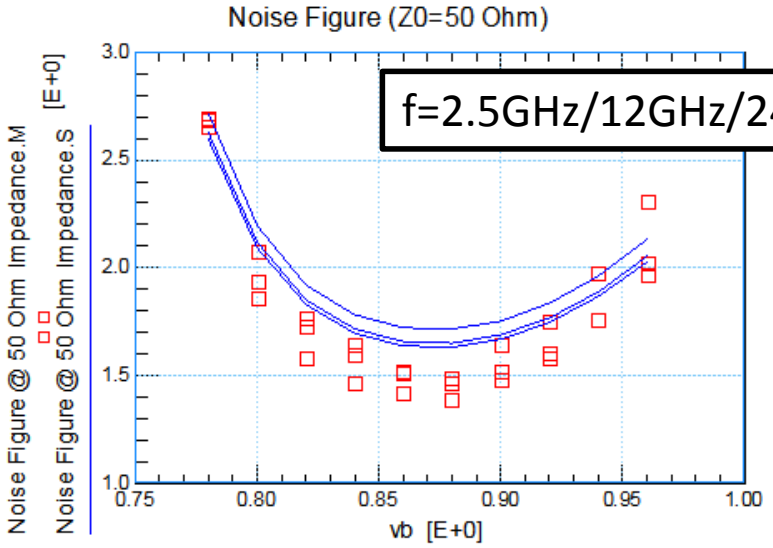






DUT: npn13g2 Nx=8 HICUM - RF noise as function of V_{BE}





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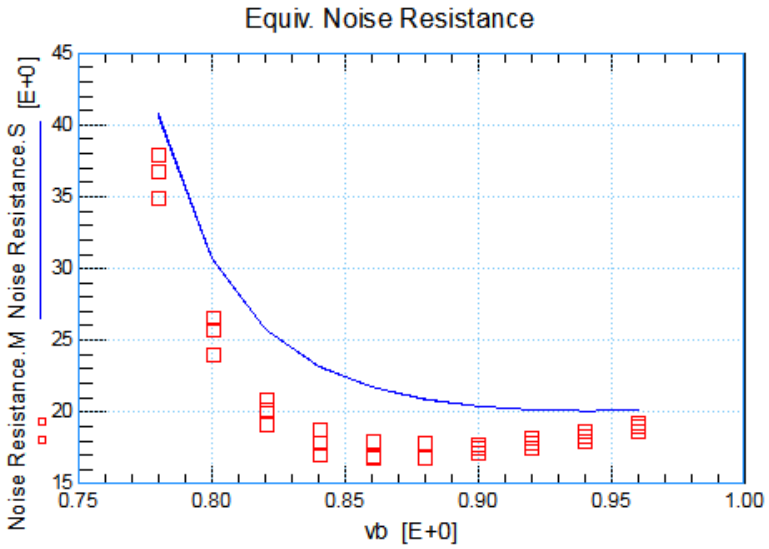
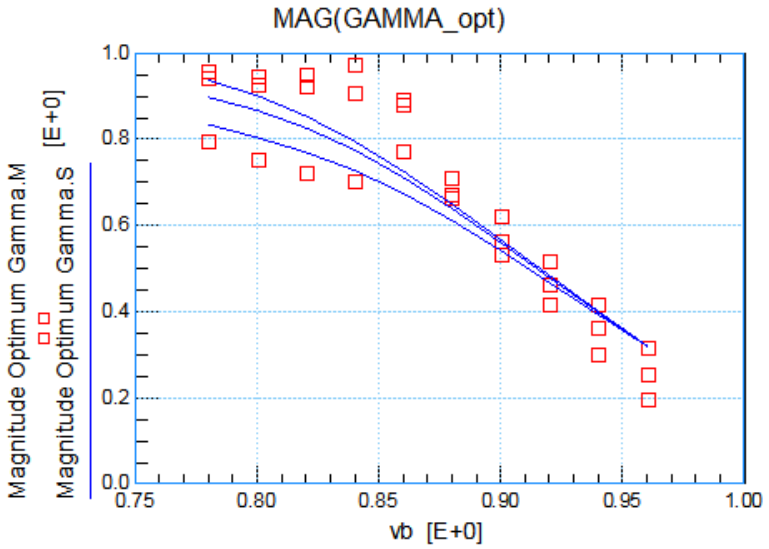
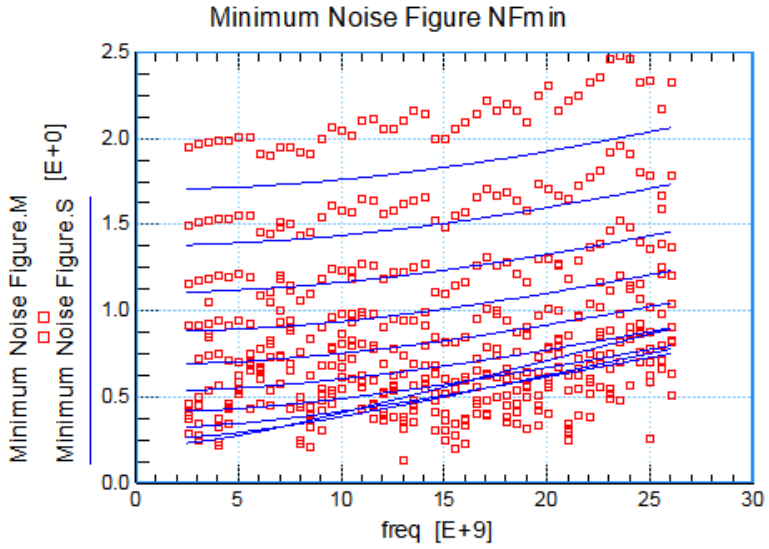
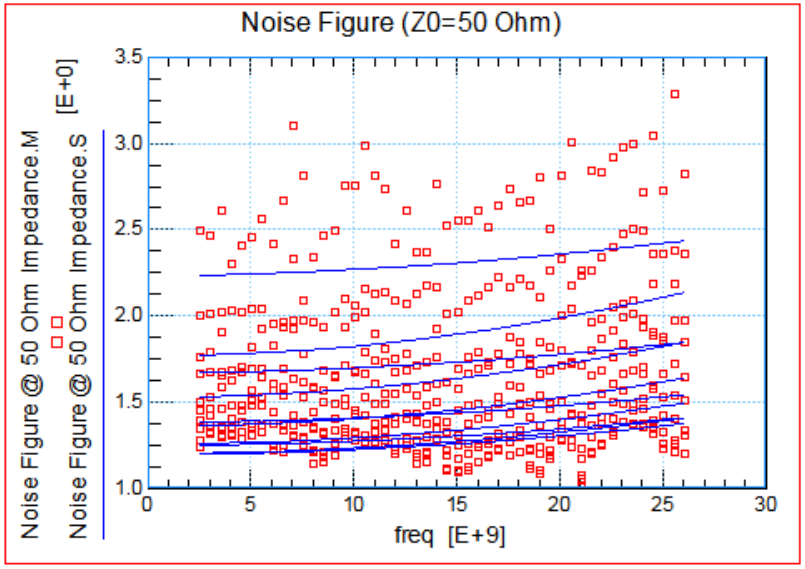
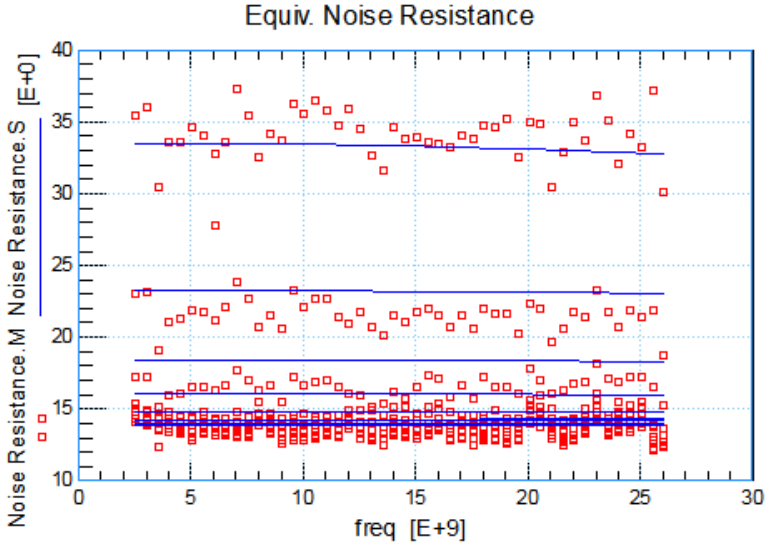


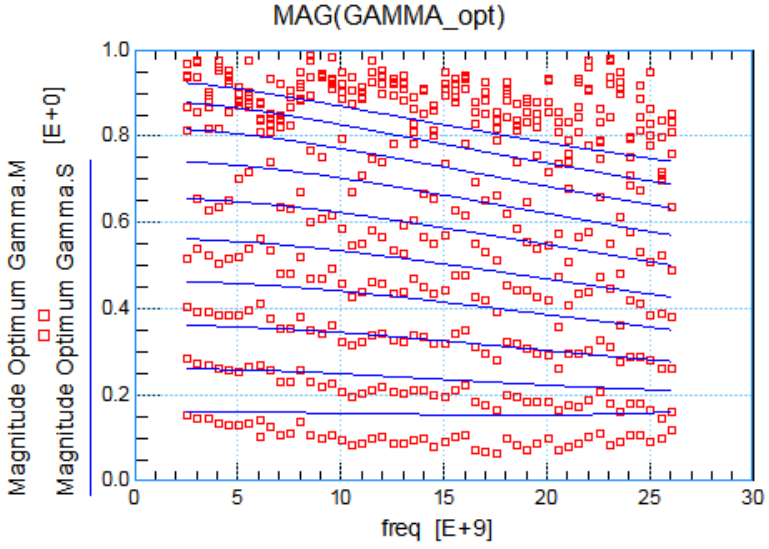


DUT: npn13g2l Nx=4 El=2.5 VBIC - RF noise as function of frequency

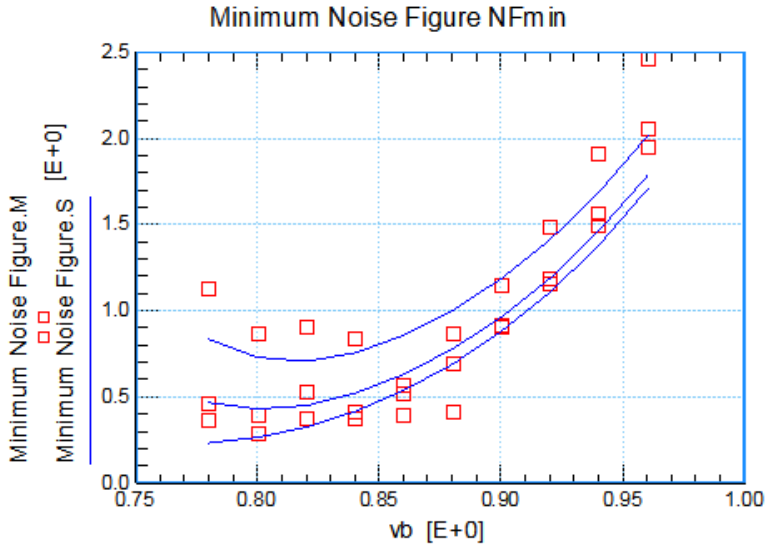


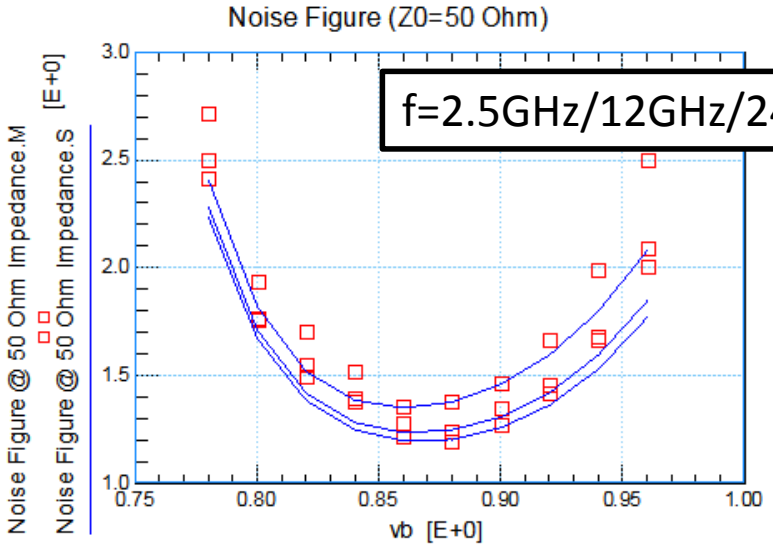






DUT: npn13g2l Nx=4 El=2.5 VBIC - RF noise as function of V_{BE}





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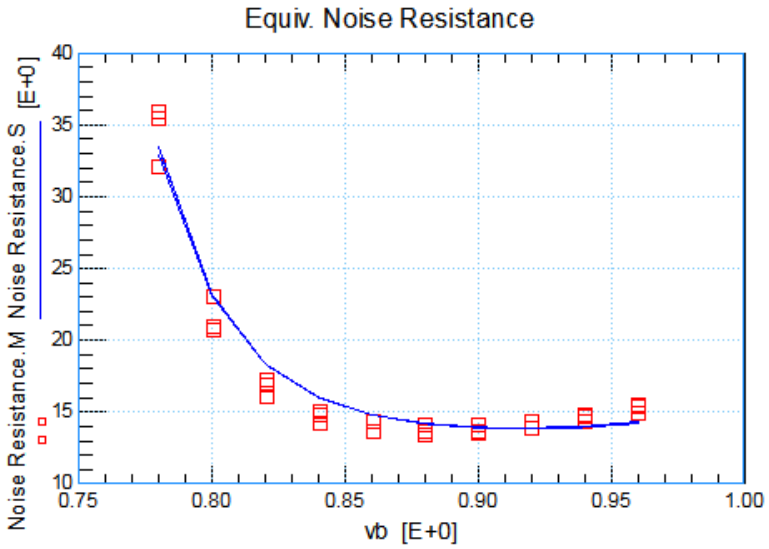
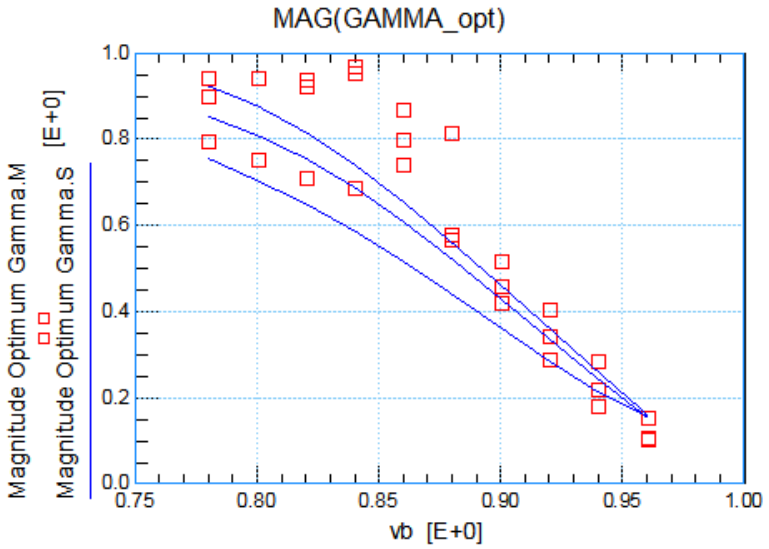
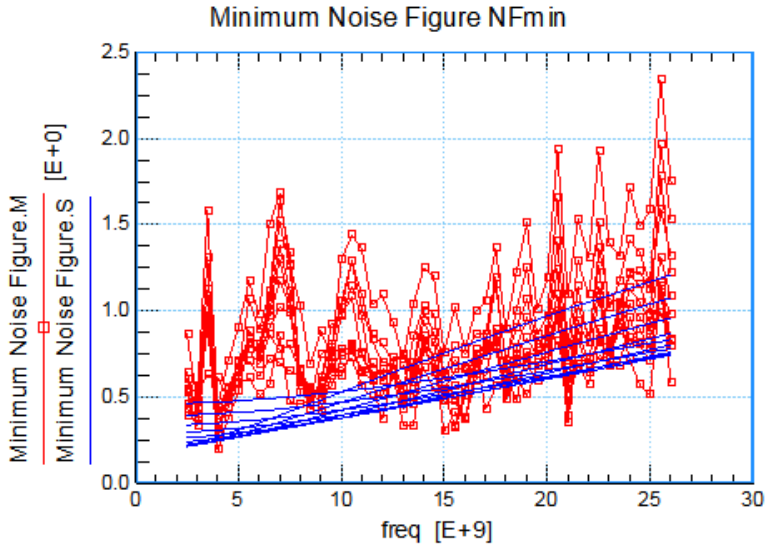
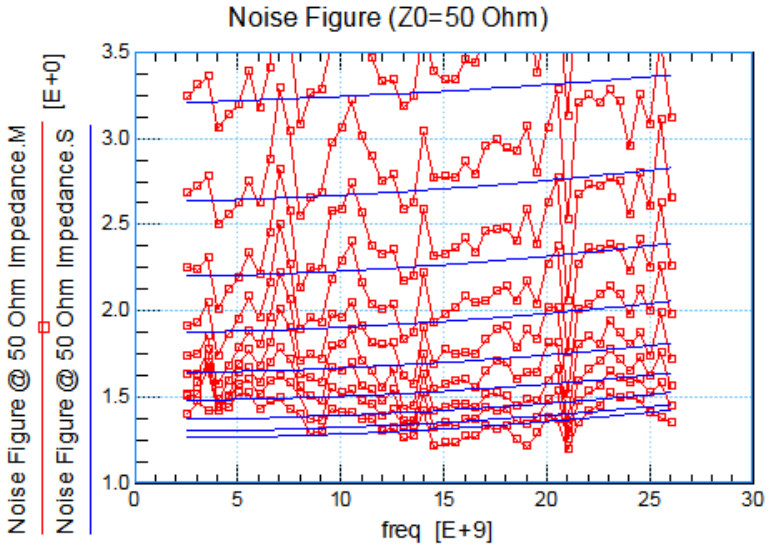
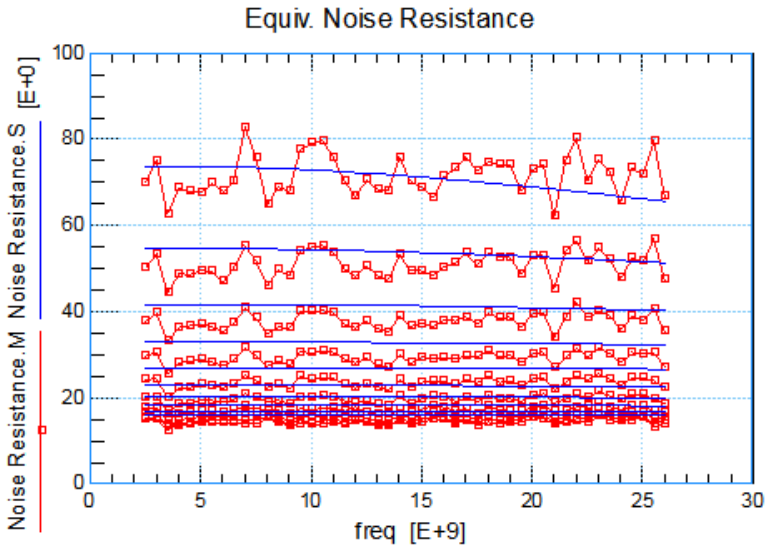


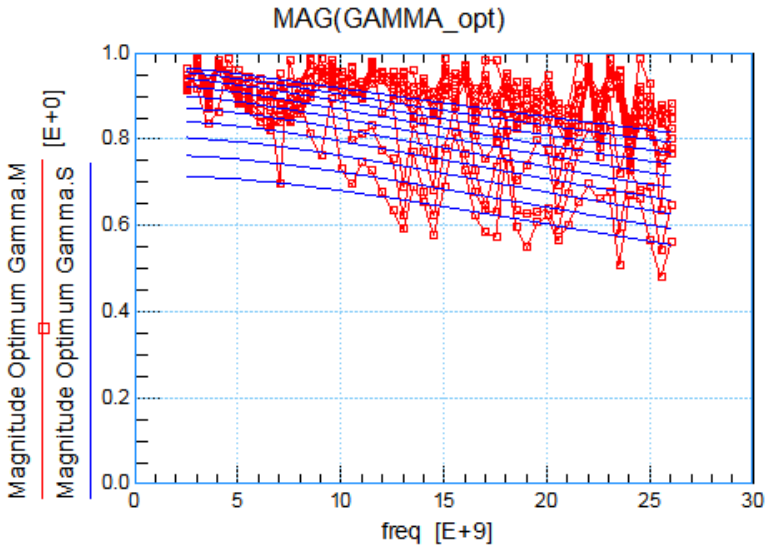


DUT: npn13g2v Nx=4 El=2.5 VBIC - RF noise as function of frequency









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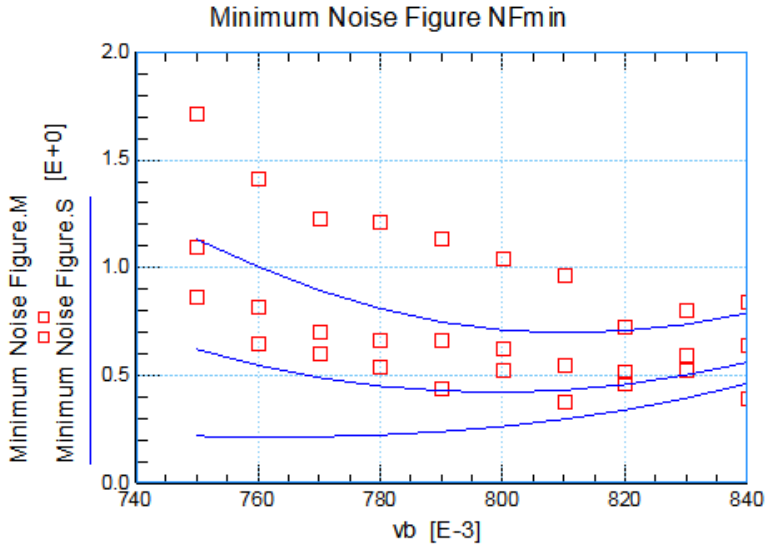

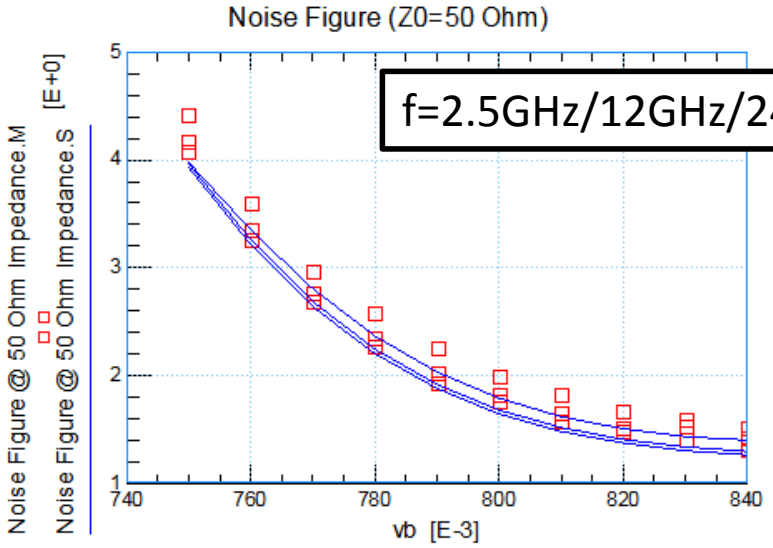

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