Linearized 5-GHz Power Amplifier for 11ac 160-MHz Non-Continuous Channel

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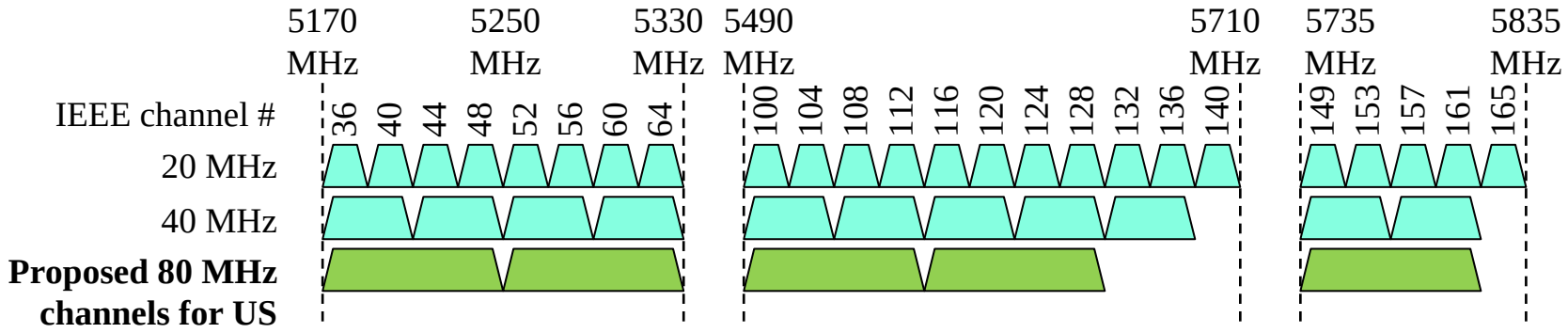
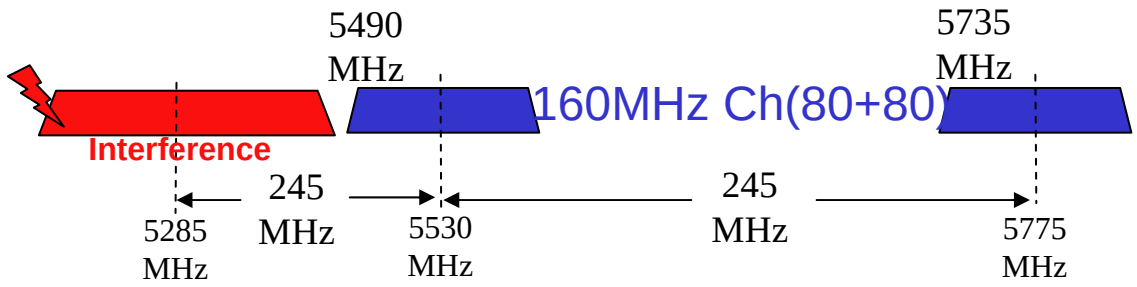
160 MHz Non-Adjacent Channel Possible Interference

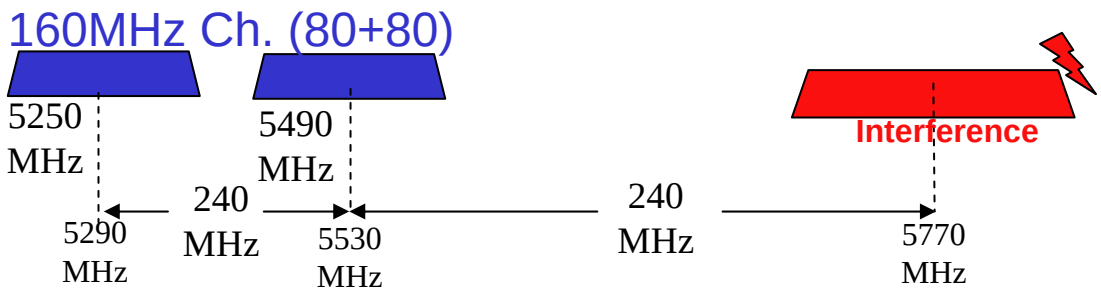
doc.: IEEE 802.11-11/0325r0



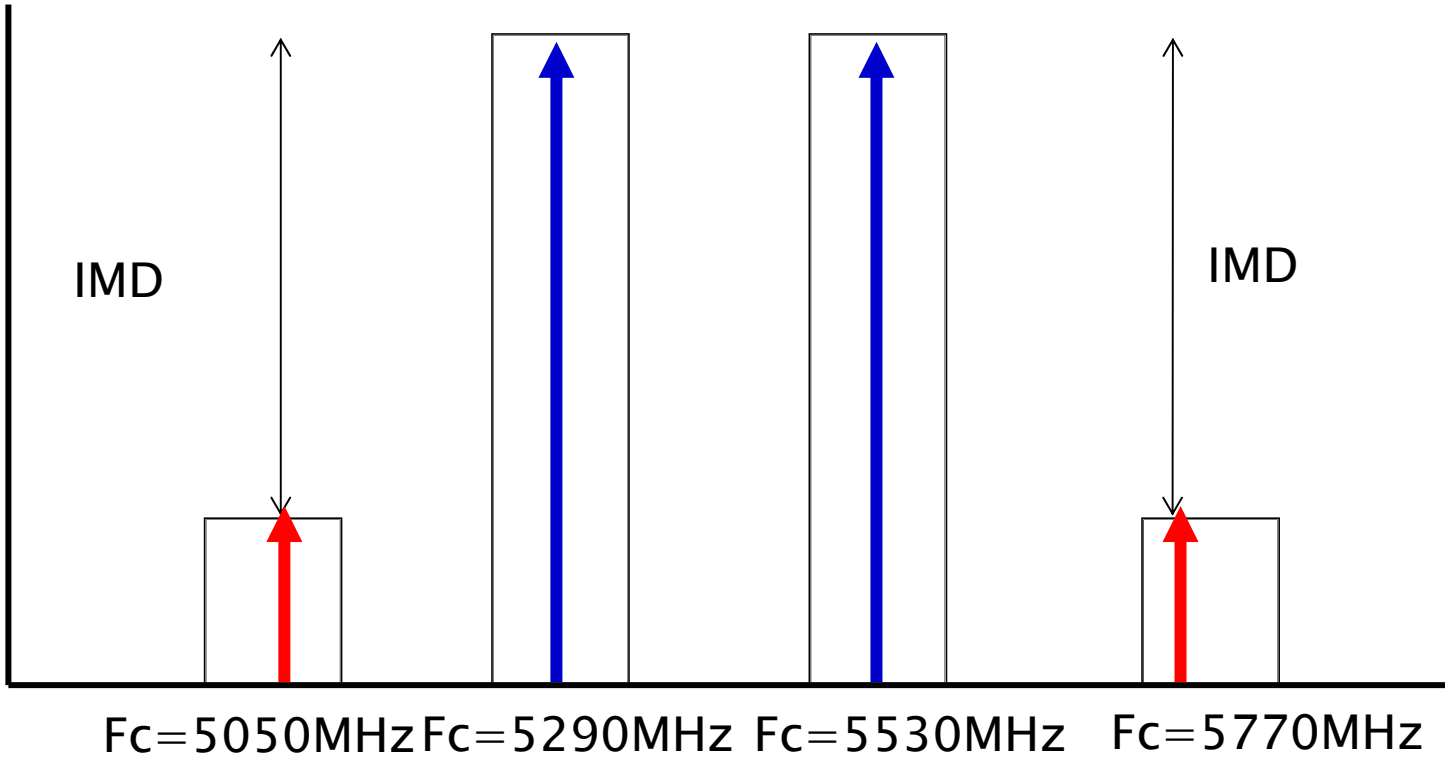
Example 1:



Example 2:



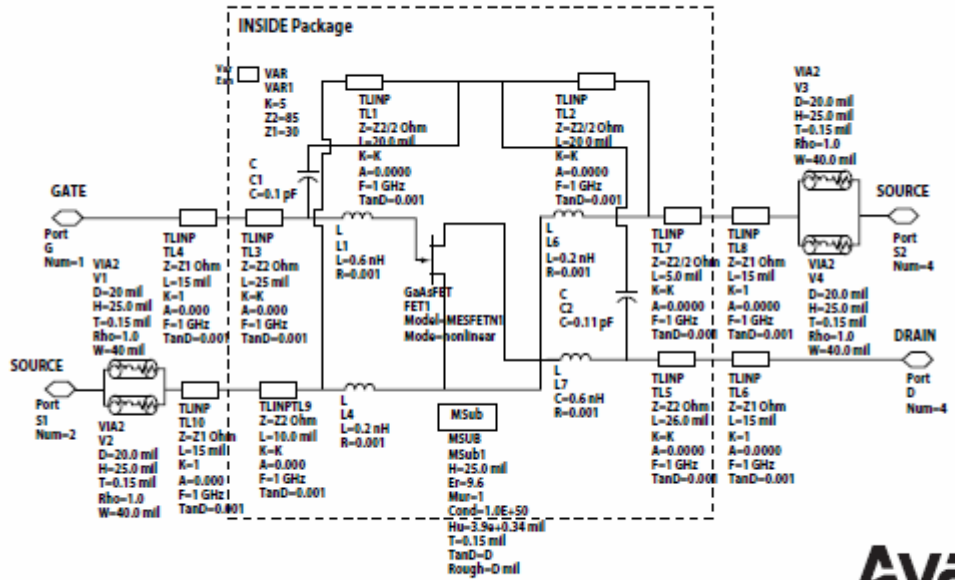
Example 2



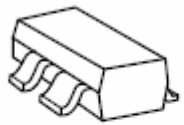
Transistors Characteristics

ATF-33143
Low Noise Pseudomorphic HEMT
in a Surface Mount Plastic Package

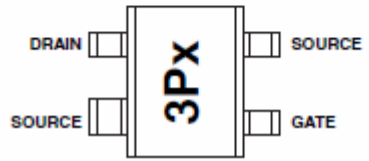
ATF-33143 Model



Surface Mount Package SOT-343



Pin Connections and Package Marking



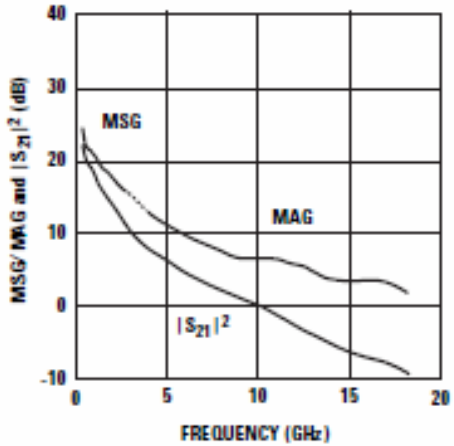


Figure 26. MSG/MAG and $|S_{21}|^2$ vs. Frequency at 4V, 80 mA.

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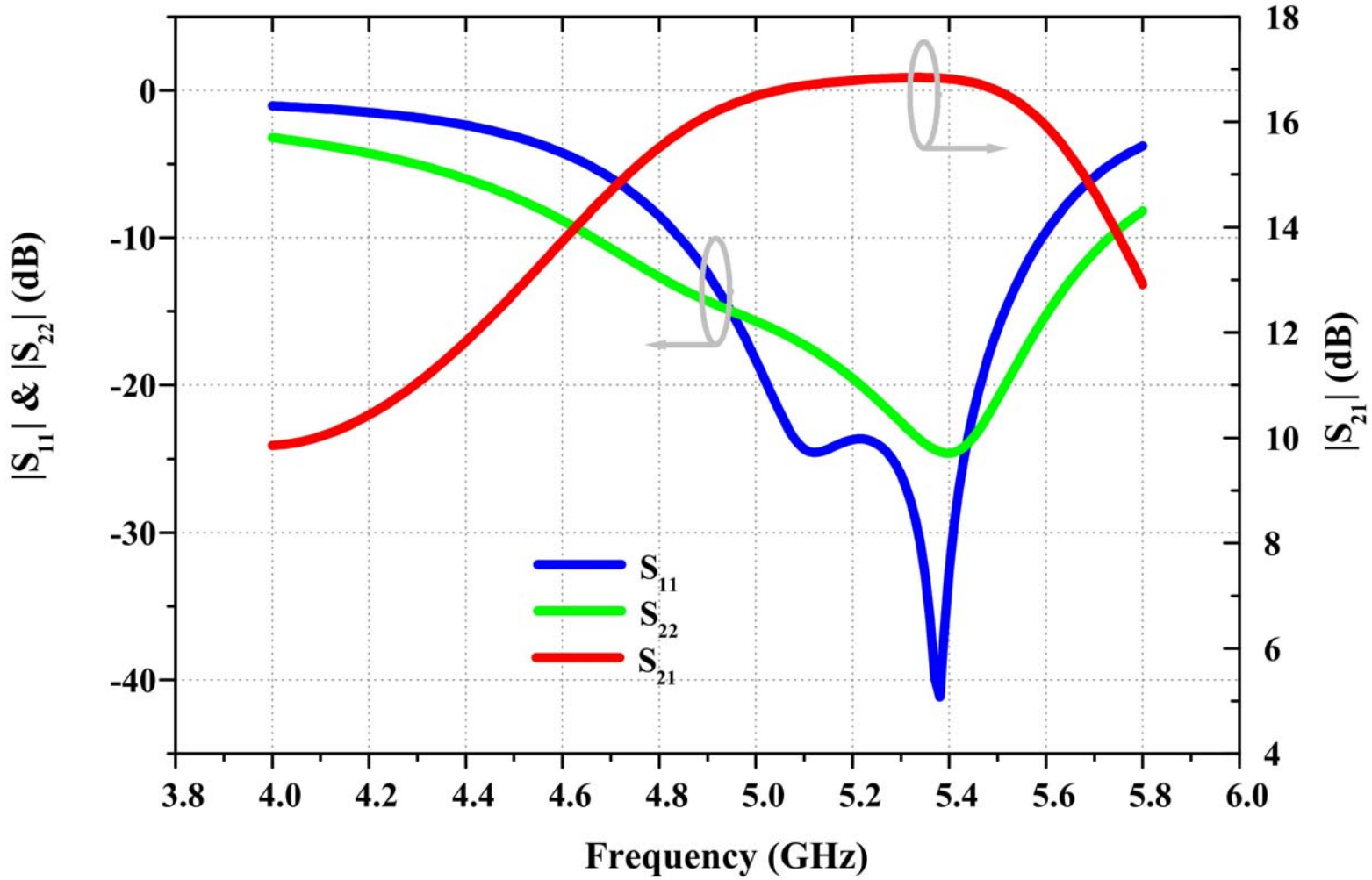
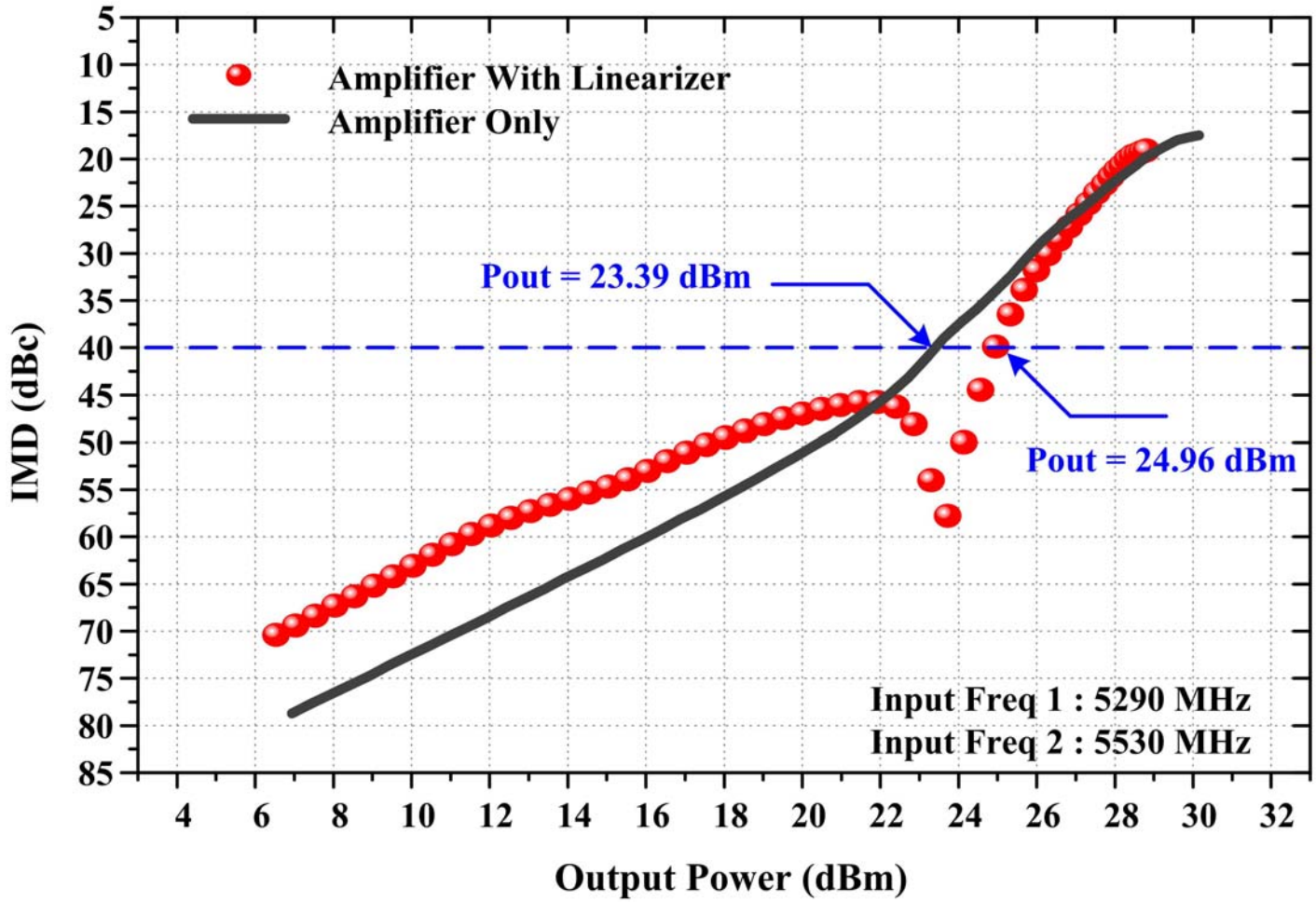
http://www.avagotech.com

Main Amplifier S-parameters

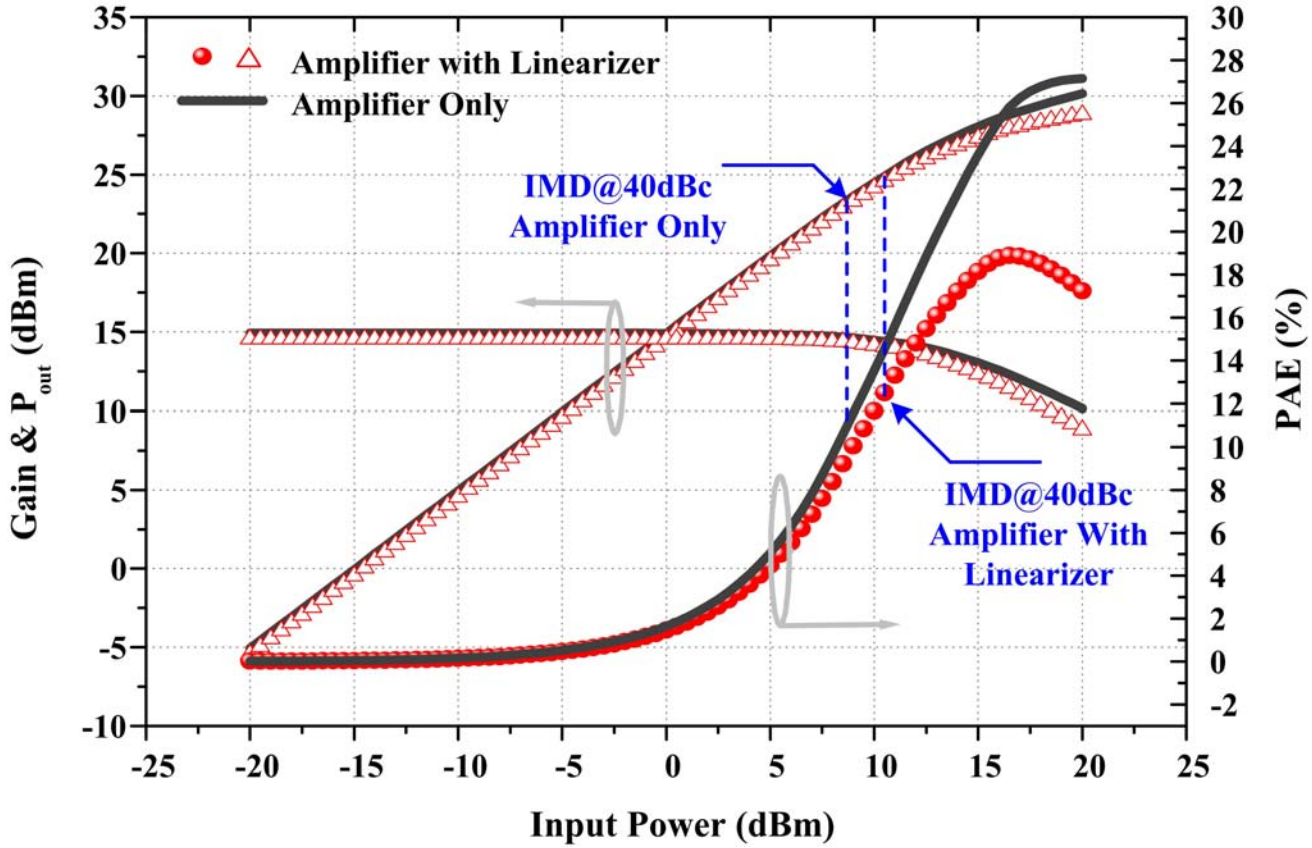


Two-tone Simulation (Example 2)



IMD : Intermodulation Distortion Ratio

Large Signal Simulation



IMD@40 dBc	Pin (dBm)	Pout (dBm)	Gain (dB)	PAE (%)
Amplifier Only	**8.75**	**23.39**	**14.64**	**11.08**
Amplifier With Linearizer	**11**	24.96	**13.96**	13.30

Conclusion

- **For IMD@-40dBc spec.**
  - Pout: OP1dB-4dBm (Amplifier only)
  - Pout: OP1dB-2dBm (Amplifier with Linearizer)

- **5-GHz Linearizer creates ‘Sweet Spot’ to increase linear power more close to saturation with higher efficiency.**