Measured Spectra for OFDM Transmission Based on PA Models of BRAN

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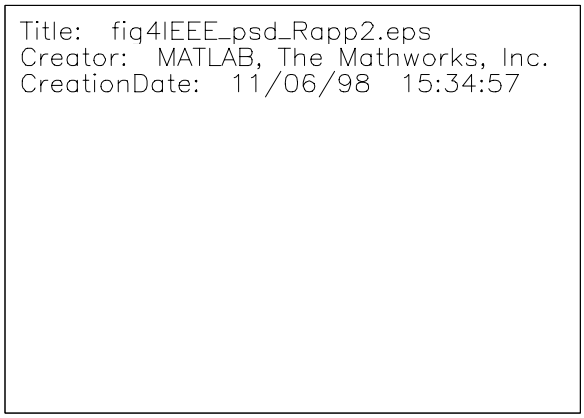
Assumptions

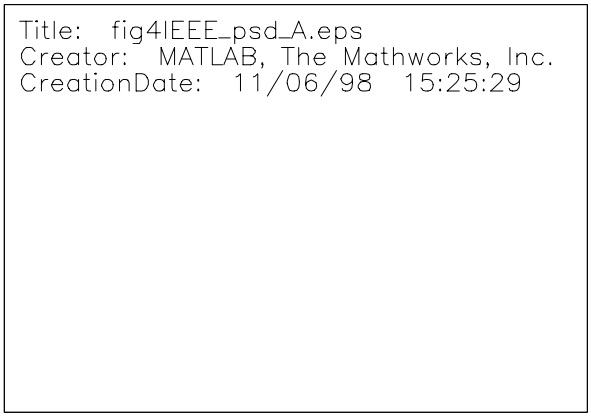
- Baseband parameters as in IEEE 802.11
- 20 MHz sampling rate
- 48 sub-carriers used, no DC
- 64 point FFT

PSD for Rapp's Model (p=2)

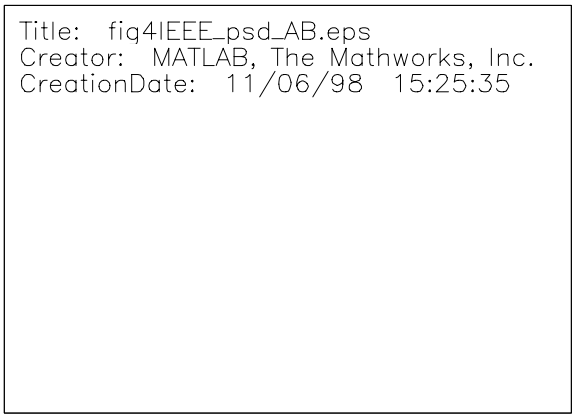
- Basis for decision on channel spacing for IEEE 802.11



PSD for Class A Model



PSD for Class AB Model



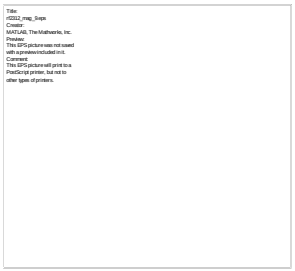
Conclusions

- For Rapp's model with p=2
  - a distance from the UNII band edges in the order of 28 MHz is needed for a PA OBO of 6 dB
- For class AB amplifier
  - more than 30 MHz distance from the UNII band edges needed with a PA OBO of 10.5 dB
  - a distance from the HIPERLAN band edges in the order of 22 MHz is needed to fulfil CEPT regulations with a PA OBO of 5.5 dB
- For class A amplifier
  - more than 30 MHz distance from the UNII band edges needed with a PA OBO of 7.5 dB
  - a distance from the HIPERLAN band edges in the order of 20 MHz is needed to fulfil CEPT regulations with a PA OBO of 5.5 dB. The PA back-off could be relaxed by using 22 MHz distance

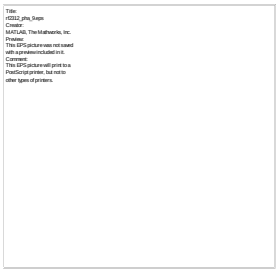
Some Critical Considerations

- Are further results on PA needed before channel spacing is fixed for IEEE 802.11
- Does IEEE 802.11 really gain an additional channel by using 18 MHz instead of 20 MHz?
- Even with an additional channel, what is with the gain in the overall system throughput ?

PA Models - Class A



(a) Magnitude



(b) Phase

PA Models - Class AB

(a) Magnitude

(b) Phase