

IEEE 802.11
Wireless Access Method and Physical Layer Specifications

Title: Need for Etiquette for Frequency Hopped and Direct Sequence 802.11 Compliant PHYs

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1.0 Introduction and Summary

A previous paper [1], has investigated the potential problems for collocated Frequency Hopping (FH) and Direct Sequence (DS) PHYs. Using some basic assumptions it was concluded that for reliable operation of a DS PHY in the presence of an FH PHY, the DS RF signal power has to be at least 5 to 10 dB stronger than the FH RF signal power. Similarly, for reliable operation of a FH PHY in the presence of a DS PHY, the FH RF signal power has to be at least 5 to 10 dB stronger than the DS RF signal power. This translates into a finite physical region where mutual interference can occur. An etiquette for these two systems to co-exist needs to be investigated.

The etiquette for spectrum sharing for the DS and FH PHYs needs to investigate the following issues before either PHY specification is finalized:

- o transmit power levels
- o physical location of DS and FH systems
- o ability for FH and DS PHYs to detect the presence of each other

The 802.11 specification should provide information regarding limitations/operational considerations for collated FH and DS PHYs.

References

[1] Walvis, D., "Mutual Interference Between Frequency Hopping PHY and Direct Sequence PHY Revisited", Doc IEEE P802.11-93/74, May 1993.