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**IEEE P802.11**  
**Wireless LANs**

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**Suggested modifications to the PLCP preamble and header**

**Date:** March 8, 1999

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**PLCP Header issues**

SIGNAL field problems:

- 1) it is not scrambled
- 2) it is not CRC protected

Alternative: use 2 OFDM symbols that are 48 bits. These might be allocated as follows:

7 bis for scrambler init  
3 Reserved (system ID)  
4 RATE  
12 LENGTH  
16 CRC  
6 tail

48 total.

An advantage of the new approach is that the SIGNAL field is scrambled and CRC protected.

Disadvantage: Additional OFDM symbol is 4 microseconds overhead. On the other hand, 16 bits are removed from the DATA part, which on the average amounts to 0.67 microseconds @ 24 Mbit/s, which slightly offsets the additional overhead. Is the 3.3 microsecond overhead justified in view of the peace of mind that the CRC brings?

**A PLCP Preamble issue**

The preamble duration is not an integer number of microseconds. This complicates the interface with the MAC and maybe requires changes in it in order to handle submicrosecond quantities. By adding one more repetition of the short training sequence (from 9 to 10 repetitions) the PLCP preamble duration shall become 16 microseconds, which is an integer. In addition, the additional time will ease the processing of the preamble in the receiver.

**Allocating some of the reserved bits in the SERVICE field for system ID.**

There is a request from MMAC to use at least 2 bits for system type identifications. In the current SIGNAL structure there are 9 reserved bits in the SERVICE field and in the proposed SIGNAL structure there are 3 bits as reserved, so it looks as if there is no problem with that allocation.