Tentative Minutes of the IEEE P802.11
PHY High Speed Study Group

Interim Meeting
Waltham, MA
May 6-9, 1996

Tuesday, May 7 1996, 5:20 PM

The PHY High Speed Study Group Committee Chairman Naftali Chayat (Breezecom) brought the meeting to order at 5:20. Art Lashbrook (Xircom) agreed to record the minutes.

Reference Documents:

- IEEE P802.11-96/52 "3 MBPS Signalling Format Description," Presented at the March Meeting
- IEEE P802.11-96/80 "Text replacements in Clause 14 to include 3 Mbit/sec FH PHY"

Issues:

Dean proposed that alternative modulation techniques might be more desirable since 8 FSK has poor range and requires DSP implementation.

Should the group examine alternative propoals for different approaches?

- Naftali expressed the desire to move forward with the proposal at hand.
- Dean expressed the desire to submit a paper for an alternative higher rate technique. He will plan on doing this at the next meeting.

Different implementations could perhaps be indicated as different "rates" in the PLCP Data Rate field.

Presentation:

Naftali explained the text of the proposal. Notes follow:

1. Noted that the FH group had previously agreed to add an additional bit to describing the PDU_RATE for a total of 2 in the PLCP PSF.
2. Error in the title of Table 3 noted. An alternative title was not proposed.
3. Error in 14.2.2 noted in the second paragraph after Table 4. Text should say: "... is nominally 0.225*0.32=0.72, and it will be less than 0.225*0.3=0.0675."
4. Figure 3 showing 4 Level GFSK Transmit Modulation should be sufficient to demonstrate the modulation. Naftali feels that
5. Note that 14.2.2.1 may have to be altered pending the outcome of the proposal on how to encode different data rates into the PLCP header.
6. Note that in 14.2.2.1, text should say: "...2GFSK, 4GFSK, 8GFSK..." "... The polarity control signals used are symbols with the outermost..."
7. Regarding 14.2.3.2. There is a 6 dB theoretical difference in sensitivity between 2 and 3 MBPS. Naftali proposes using 7 dB difference to take implementation issues into account.
8. Note error in Table 5... should say "Dp"

Discussion:

- Rate field coding must be determined.
- Dean expressed concern that we have not investigated alternative methods.
- Better not to combine the 2 and 3 MBPS sections. This will lead to invalid conclusion that both must be implemented simultaneously. Have them as separate PMDs.
- 8 GFSK should have the same spectral shape as 2 GFSK with the selected deviations and random data. Concern expressed over the spectral shape with non-random data.
- 8 GFSK is more sensitive to delay spread, however due to reduced range, the delay spread will be lower than would be the case for 2 GFSK.
- Separate section in the MIB for RX and TX data rates. This permits MU products which can transmit at 3 MBPS, but only receive at 2 MBPS. The associated AP can have a more powerful receiver for operation at 3 MBPS.

PLCP Signalling Field:

Naftali's Proposal:

bit 3	bit 2	Data Rate
0	0	1 MBPS
1	0	2 MBPS
0	1	3 MBPS
1	1	Reserved

Art's Proposal:

bit 3	bit 2	Data Rate
0	0	1 MBPS
1	0	2 MBPS
0	1	Reserved Data Rate #1
1	1	Reserved Data Rate #2

The meanings of the reserved Data Rates #1 and #2 would be specified in the MAC frames and/or MIB variables. This information would be exchanged between the stations at lower data rates prior to operation at the higher data rate. Any given adapter would only be capable of up to 4 data rates at a time with data rate switching on the fly.

Dean expressed concern that the changes proposed would not get through the Plenary:

- This is a very big change.
- Nobody has independently verified Naftali's results.
- Amount of increased throughput for the given range reduction and cost is not worth it.
- Other modulation techniques might work better.

8GFSK is easier to implement for transmit than receive. The additional cost in MUs will be minimal.

Even if there is not support for this proposal, we should put the hooks in for reserving the data rate. This will be addressed in the PHY FH meeting tomorrow.

ATTENDANCE:

Naftali Chayat
Art Lashbrook
David Davies
Stuart Kerry

Dean Kawaguchi
George Fishel
John Fakatselis
Carl Andren
Jan Buer
Albert Claersen
Vic Hayes