

Tentative Minutes of the PHY Subgroup Meeting Held January 10 - 13, 1993 San Jose, CA

**PHY Subgroup, Monday, 10 January 1994,
Bob Buaas Presiding**

Bob: Chairman Larry Van Der Jagt will be out all week with the flu. John McKown will act as secretary (again). All vote in the subgroup. We have been charged to produce a plan to meet Vic's deadline (see minutes of today's 802.11 session).

Peter Chadwick: Perhaps we should resolve and report back that we are not preparing an international standard, merely an ANSI, i.e., a US one.

Paul Strusaker: We are already bound to defer to international regulatory bodies (implying we need not waste time trying to pre-guess their deliberations).

ter: Still, let's report back explicitly that we're aiming at an ANSI standard.

Bob: the chair will report to the full working group that the PHY group is aiming at a US standard only?

----- uncaptured discussion on same topic -----

Tim Blaney: we'll need guidance from the governing bodies when we get to test suites.

MOTION 1 The PHY subcommittee of IEEE P802.11 will continue to work on the international standardization process. The first objective will be the release of a first-draft US standard by November 1994.

Moved: K. Feher, Seconded D. Kawaguchi.

Peter: If it is to have a chance at IEC it will need certain RF parameter values. We should say the MAC is aimed at IEC and the PHY is aimed at the US.

Dean: It's silly to remove the international detail already in our templates.

---- Peter, Dean and Kamilo debate the motion 1 related topics -----

Wayne Moyers: Our P.A.R. forces an international viewpoint.

Vic Hayes: The P.A.R. calls for submission to IEC/ISO. We must do this.

Ed Geiger calls the question, seconded by Jim Renfro. Chair rules the ayes have it.

VOTE ON MOTION 1 Yes=29, No=4, Abstain=5. Motion 1 passes.

Bob: charges subchairs to implement the spirit of this motion and the deadline motion of this morning's full working group session.

Dean: The accelerated schedule may conflict with our previous ruling that issues must remain open for at least one meeting interval.

John McKown (smiling): What about the DFW MAC?

Dean (smiling even broader): That was a revision.

Paul: We must grind out the template of parameter values and the draft text for the standard in parallel.

Peter: There is a lot of work left in the template which must be done by the full PHY.

Various: agree.

Wayne: Conflicts between the two techniques (DS & FH) need to be resolved with the (fairly complete) draft already in hand.

Ed: Do we have any joint issues on the agenda for this session?

Bob: No.

Ed: How about Clear Channel Assessment (CCA) techniques and whether or not to provide hooks for gear shifting?

Bob: OK. Which issue in the issues document is gear shifting?

Peter: it has been treated as an internal PHY issue and was never entered in that document.

Nathan Silberman: thinks DS subgroup decided there is no good method for CCA (which provides efficient coexistence between DS and FH).

Ed: If the existence of separate PHY's implies a need for an etiquette then we should work on it. If we decide not to support gear shifting then the high-speed FH group is out of business.

MOTION 2 The DS, FH and HSFH subgroups shall prepare draft standards and template documents and their chairs shall present them to the full PHY at the July 1994 meeting.

Moved: K. Feher. Seconded: Michael Soderstrand.

Wayne: how about dropping the reference to July 94? (Feher & Soderstrand accept the friendly amendment).

AMMENDED MOTION 2 The DS, FH and HSFH subgroups shall prepare draft standards and template documents and their chairs shall present them to the full PHY.

VOTE ON MOTION 2 AS AMMENDED: Yes=23, No=2, Abstain=10. Motion two passes as amended.

----- lengthy discussion on CCA -----

Ed: There are two sets of issues. (1) the contender uses your protocol. (2) he doesn't. The second one requires the full PHY group.

Paul: Yes. We need to consider non-802.11-complaint emitters.

Nathan: Robustness is better than politeness.

Peter: thinks it hard to proceed without knowledge of the MAC/PHY interface.

John: Assume as necessary. Reconcile later.

----- more discussion on MAC/PHY interfaces, groups and devices -----

Tim: wants HSFH to brief FH on their intentions.

Wayne. I agree. We will.

Ed: Wants gear shifting resolved.

----- more on same -----

Someone: 25.8 is the CCA issue.

Ed vs. Nathan re holding up the FH group. Wayne is disappointed that a gear shifting mechanism has not been handed to him by Jim McDonald. Says Jim promised.

----- break -----

Reconvene at 15:31. Michael A. Soderstrand presents 94/06. UC Davis did a chip for FQPSK-KF. It does stuff similar to Kato's papers 93/137 & 93/189. 32K gates, 150 mW at 100 MHz clock rate. Mosis .8 micron 2 metal CMOS (process routinely used by UCD student projects). Two versions, long and short FIRs.

The DS and FH chairs sketch the week ahead. CCA, capture effect, ovens, RF template parameters, EMC, preambles, speed changing, diversity management, etc.

adjourn full PHY at 16:02.

PHY subgroup, 16:00 Tuesday, 11 January 1994. Bob Buaas presiding.

Paul Strusaker reports on the DS work (see DS minutes). Peter Chadwick reports for the FH group (see FH minutes). Wayne Moyers reports for the HSFH group (see HSFH minutes).

Bob: what about CCA? What is your methodology for meeting your deadline?

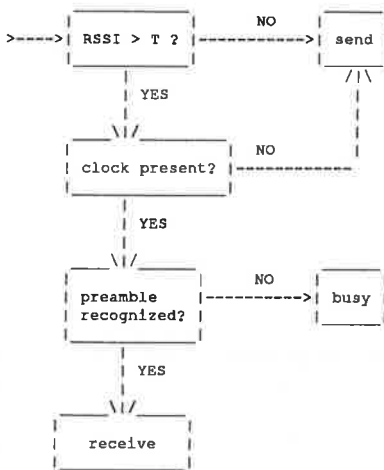
Peter to Wayne: Do you agree hop sync and sequence selection is a MAC layer function?

Wayne: Yes. We also assume the 17 IBM sequences suffice.

Paul: wants to return to CCA. advocates "best effort" coexistence [meaning a lot of simultaneous transmission rather than complicated etiquette?]

Ed: Shows the following chart, intended for presentation to the MAC group, as the output of the CCA working group.

"The PHY layer working group is considering the following approach for Clear Channel Assessment (CCA). CCA will be performed whenever a 'transmit packet ready' is passed from the MAC layer to the PHY layer. At this time, a CCA function will be performed on every antenna using the flow chart below where T represents a deference threshold TBD.



(Thus) the following 3 responses are possible to a 'transmit packet ready' request: transmission started (ACK); channel busy; incoming packet."

John: objects to the requirement for listening on all antennas; feels that is too polite (hurts everyone's throughput), especially if the antennas are directional. prefers requiring listening only on the antenna actually used for transmission.

Larry: and a few others comprehend this, but most agree with

Wayne & Dean: think we must listen on all antennas.

----- attempts to word smith Ed's charts; argument about the utility of network IDs in the headers -----

Paul Strusaker: the DS group will draft its own CCA; likely a variation on Ed's.

MOTION 1 We adopt Ed's chart (above) as our foundation CCA and will so advise the MAC group.

Moved: E. Geiger. Seconded: W. Moyers

VOTE ON MOTION 1: Yes=24, No=0, Abstain=5. Motion 1 passes.

Ed: the PHY layer shouldn't even think about the LAN ID.

Motion 2: The March 802 Plenary session will be the deadline for adoption of data rate (gear)shift and collision avoidance means for data rates other than the baseline 1.0 Mbps. If no viable scheme is adopted, data rates other than 1.0 Mbps will not be supported in the frequency hopping physical layer standard.

Moved: R. Jellicoe, Seconded: T. Blaney

Wayne: protests. claims Jim McDonald promised to do this work for him.

Kamilo: questions jurisdiction. the HSFH group is no longer a subgroup so this motion is improper. this is an attempt to put the HSFH group out of business. He will appeal and appeal.

Peter: when will you give us a CCA?

Wayne: Jim McDonald promised us.

Roger: he tried and failed.

Wayne: you can't say we held you up. We support your baseline. Where is it?

Wayne & Kamilo to Vic Hayes: please declare this motion out of order.

Vic to Wayne and Kamilo: this is a meeting of the full PHY committee. I don't see your point.

Kamilo: gear shifting is a solved problem.

Tim: there's only a field in the header. That's not a complete solution.

MOTION 2: Table motion 1 indefinitely. Moved: W. Moyers.

VOTE ON MOTION 2: yes=19, No=11, abstain=5 Motion 2 passes; motion 1 is tabled.

---adjourn---

PHY Subgroup, Thursday, 13 January, 1994. Bob Buaas presiding.

Ed to Bob: why did you resist my showing the A foils to the MAC group? I thought we voted to do that.

Paul: you voted on the foil as a straw man, not as something to take to the MAC.

Ed: no, it was to go to the MAC too.

Bob: It was my decision as chair. I felt we should only go to the MAC after achieving a higher degree of internal unity. As it turned out, you did show them and a lot of good came of that.

Tim: As chair you can override anything?

Bob: No, but I can contain things within the group.

Tim: that seems a little funny to me.

Bob: calls for completed work to be taken to the MAC.

Various: that's too hard. We need their input while we construct CCA.

Bob: let's move forward to the agenda for March. The MAC group is pushing for closure the MAC/PHY interface. We should provide an interface straw man to compare with theirs.

Bob: creates the following trial agenda (see final full working group minutes for his final version)

PHY Agenda, March '94

1. Resolve CCA, FH rate change mechanism ("gear shifting") and reconcile templates.

2. Prepare MAC/PHY interface straw man.

Peter: Bagby has three volumes of interface presentations for March.

Wayne: our sequence should be first CCA, then the interface.

Nathan: we need a document from the MAC group listing their expectations.

Paul: better if we send them our wants.

----- learned discussion on how detailed proposals should be before starting the reconciliation process -----

Bob: calls for submissions on the interface

Paul: agrees to submit something next time.

Peter: probably by the end of sessions next time.

Wayne: OK, mid meeting, perhaps informal

Nathan: needs a clear definition of the CCA technique.

----- long discussion to the effect we'll proceed without waiting for input from the MAC group but Peter won't promise anything until he's heard from the MAC -----

Ed: goes through Dave Bagby's heads-up list of issues recently closed by the MAC.

John: asks for and receives unanimous agreement that the attendees of this PHY session will take a quiz on the DFW MAC. John will be in touch (so to speak).

Peter: cites the following references as potentially interesting to DS vendors trying to coexist with FH equipment.

From the seventh IEE European Conference on Personal Mobile Communications, Brighton, December 1993, ISBN 0-85296-6075;

L. A. Rusch and H. V. Poor, "Narrow band Interference Suppression in Spread Spectrum Communications via Multiuser Detection Techniques," p85 et seq.

V. Mitra and H. V. Poor, "Analysis of an Adaptive Decorrelating Detector for Synchronous CDMA Channels," p155 et seq.

Bob: works on his schedule for March. Proposed schedule is approved by acclaim.

adjourn

