Tentative Minutes of the MAC/PHY Interface Ad-Hoc Group

Interrum meeting
Oshawa, Ontario, Canada
May 9-12, 1994

Monday, May 9, 1994, PM

The meeting was called to order at 8:30 PM by Jim Schuessler. Minutes hand written by Brian Messenger, Proxim. Transcribed by Jim Schuessler.

1. Agenda

Could tackle either the model or the primitives first. Group consensus is that more progress could be made by discussing the MAC/PHY primitive set.

1. MAC/PHY Primitives

Ed Geiger presents doc. 94/122. (Made from edited sections 2 - 2.5 of doc. 94/68 -- JES)
There are two types of primitives: A.) Service primitives for MAC peer-to-peer   B.) Service primitives for sublayer - sublayer interactions
  1. PHY_Data_
  2. PHY_RXBUSY_
  3. PHY_TXBUSY_
  4. PHY_CS_

Primitives Discussions:
Paul Struhsauer: Requested PHY_ED for energy detect
Jim S: Recommended parameter for ED under PHY_CS
Wayne Moyers: Wants two parameters
Greg E.: Does not know what MAC would do with more info
Larry V.: Two parameters: Energy Detect, Modulation Detect -- could this be put into PHY_DATA?
Barry: Wants two distinctions / primitives
Mike R.: System needs to know whether the media is free or not. PHY should be responsible
Bob O.: Thinks we have gone too far.
Jim S.: No one is saying that we do not need this capability
John M.: PHY state machines should be in the PHY...
Ed. G.: RX_BUSY says that the receive state machine is assembling a frame PHY_CS only if you see something.
Larry V.: You will not have a PHY_DATA_IND until the whole packet is ready. RX_BUSY occurrs when you are reading the packet in.
Dean K.: The PHY decodes the CRC for the PHY Header, and then knows how to calculate RX_BUSY.
Larry V.: PHY will decode CRC, and interpret the length.
Jim S.: You issue PHY_DATA_IND when the frame is completed.

Heated discussion on whether the MAC can do anything if a packet messes up in the middle of reception.

Kerry:

Larry V.: You can not send layer management information across with the data.

NOTE: **Barry**: On PHY_DATA_IND, it could be misunderstood that the PHY has to buffer the entire frame. The standard should have text that makes clear this is not the case.

Dean K.: There is a general disclaimer that we do not specify implementation.

Straw Poll: is the set of four primitives on doc. 94/122 necessary and sufficient for the interface between the MAC and the PHY? vote: 19-yes, 2-no

Dean: There are Layer Management inputs also.

Straw Poll: Is the set of four primitives on doc. 94/122 necessary but perhaps not sufficient for the interface between the MAC and the PHY? vote: 23-yes, 2-no

Ed described the transmit state machine timing. (displayed a time line for various primitives) He then described the receive state machine.

Larry V.: If the message dropped out, when does the receiver get notified? It could be 1000 bytes until the MAC gets notified that the link went dead.

Paul: Difference between FH and DS. DS has a capture ratio spec. If someone runs over them and they loose code lock. If you lock onto someone new, you try to interpret his preamble.

Larry: You should not wait until the end of the the packet to report that things dropped out.

Mike R.: If you transmit while a packet is still going even if you can not hear it, you may wipe it out. Mike thinks that the header CRC is not needed.

Paul: CRC is only valid if it is evaluated across the bits that it was intended to cover. (This is the MPDU CRC -- JES)

Ed G.: Feels that CCA needs to be handled in the PHY...

Dean K.: Three topics:

    1.) If you get a valid header, but the signal drops out, it is like NAV in RTS/CTS

    2.) In terms of carrier sense, MAC people want an indication ASAP that something is out there.

    3.) Has a paper on misdetection probability. Shifting in length, or getting a burst error > 32 bits, you get a random probability of error.

Wim: Asked Paul to describe primitives for DS jamming.

Paul: PHY RX_BUSY would drop, the state machine restarts. DS PHY requires capture.

An interrupt was received from Jim McDonald asking about a time limit to our meeting. A straw poll was taken for 10:00, 10:30 and 11:00pm. 10:00 received the most votes by 2X. Since it was just after 10pm already, the meeting was ended.

Wednesday, May 11, 1994, PM

The meeting was conducted from 8pm to 10pm. Chaired by Jim Schuessler. No formal minutes were taken, but the foils used are transcribed here (by Jim Schuessler).

Larry van der Jagt presented suggested revisions to 93/20b0 (Draft Standard) section 7. -- Interface Primitives.

In ..20b0 the CLASS parameter is the instantiation of the interface control information.

Ph_Data.Request(CLASS, DATA)

CLASS	DATA
Start-of-Activity	Not Defined
Data	Data
End-of-Data and Activity	Not Defined

Suggested Revision:

CLASS	DATA
Start-of-Activity	Transmit Parameters (e.g. Antenna, Tx Power, Length)
Data	Data
End-of-Data and Activity	Not Defined

Ph_Data.Confirm(Status)
Status is success or locally inferred reason for failure

Ph_Data.Indicate(CLASS, DATA)

CLASS	DATA	Revision: DATA
Start-of-Activity	Not Defined	Receive Parameters
End-of-Data and Activity	Not Defined	Receive Parameters
Data	Data	Data
End-of-Activity	Not Defined	Receive Parameters
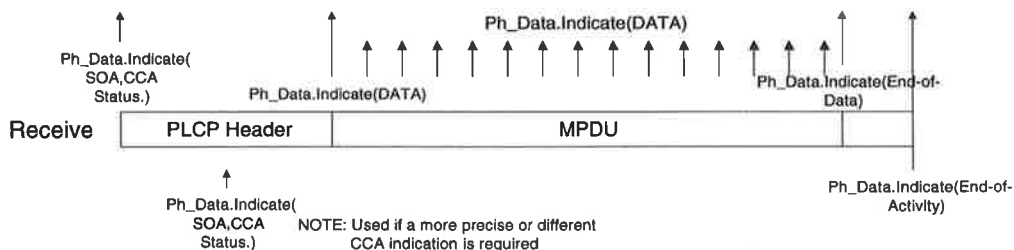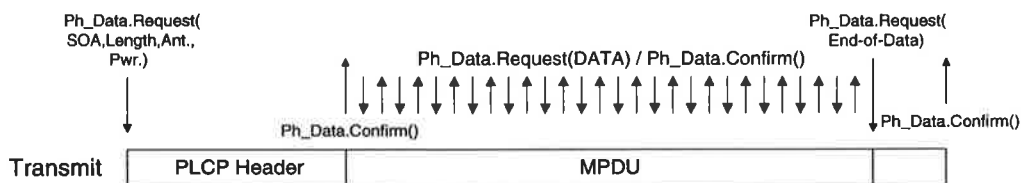
The following motions were passed:

Motion: Barry, John McKown second.
A.) The physical service unit of the PHY primitive set is one octet.
B.) The physical service unit of the PHY primitive set is one MPDU.
Should one of these succeed it is he intent to recommend that this is reflected in the Draft Standard.

vote on A.): yes - 8, no - 10, abs. - 4 (Fails)

vote on B.): yes - 10, no - 6, abs. - 6 (Passes)

Motion: Larry, John McKown second.
That the MAC/PHY Interface Ad-Hoc adopt as their direction to add definition to the data parameters that exist in doc. ...20b0 (the Draft Standard) so that these primitives provide for the functionality requested in 94/68 (FH PHY Template)

vote: yes - 7, no - 4, abs. - 8 (Passes)

Meeting adjourned at 10:03pm