IEEE P802.11 Wireless LANs

Title: **Minutes to IEEE P802.11 FH-PHY Group**

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DRAFT MINUTES OF THE IEEE802.11 FREQUENCY HOP GROUP MEETING

MAUI, HAWAII, JULY 10/11/12/13,1995

Meeting opened by Jim McDonald. Peter Chadwick agreed to take minutes. After discussion, it was AGREED that submissions should be discussed, rather than comments on the draft, as the 802 LMSC had not formally opened the session.

Discussion of the BER/PER topic led to the suggestion that the topic be raised again in the plenary. Several speakers considered that ballot against was caused by a misunderstanding of the issues. Jerry Loraine proposed that:-

All references to to packet Error Rate are changed to bit Error Rate, and that the measurement technique is defined in the conformance test documentation, and that all further PER/BER discussions are adjourned until that document is written. Seconded Ed Geiger.

Larry Zuckerman felt that a PER, and not a BER test was necessary. Peter Chadwick said that without a special test pin or interface, BER could not be measured. He stated that ISO/IEC terminology used Bit Error Ratio, not Bit Error Rate, and suggested that the 802.11 groups should conform. Nathan Silberman supported the comments on BER measurement, while Jim McDonald said that BER was a static measurement: Jerry Loraine disagreed with this statement.

Jonathan Cheah said that the BER requirement stemmed from the PAR, which envisaged separate MAC and PHY layers, each having exposed interfaces. However, a system would not be implemennted in this way, so a Block Error Ratio requirement was more sensible. Ed Geiger said that the matter should be dealt with in the Conformance Test Document.

Jerry Loraine suggested adjournment of the discussion to a specific time, with a 2 hour limit for presentation and discussion. Jim McDonald supported this, and so PROPOSED. Nathan Silberman seconded, and it was passed by a vote of 6 in favour, 1 against and no abstentions.

Discussion of the 2 Mbps MPDU length followed. Jim McDonald reported that there was concern amongst some members of the MAC group that fragmentation may be difficult to implement if differing octet lengths were used. After some discussion, Wayne Moyers proposed that the motion #2 of the May letter ballot be revoted. Seconded Larry Zuckerman.

Jerry Loraine moved to amend the motion to read "not be revoted", seconded Ed Geiger. Question called by Ed Geiger, passed 8,0,0, so question is called.

Motion to amend passes 5,2,2.

Ed Geiger calls question on amended motion.

Passes 7,0,0, so question is called.

Amended motion is passed 4,3,2.

Jim McDonald presented a paper on 'Refinements to the FH CCA Criteria.'
This led to lively discussion, and it was AGREED to table discussion to later.
It was AGREED to adjourn until after the 802.11 plenary

Meeting resumed at 0830 Tuesday July 11.

Agenda agreed.

Moved by Ed Geiger that all future changes to section 10 of the draft be done by working from docs 124 and 134. This will be moved at the PHY Group.

Working through comments.

MIB Parameters. moved Ed Geiger, sec Dean Kawaguchi that the tx power be defined in mW. Question called by Jerry Loraine. For: 7, Against: 7 Abstentions 0. Motion fails.

Discussion followed. It was stated that a tolerance was needed, and that tolerancing becomes easier if dB are used.

Moved by Jerry Loraine that the RF power level tolerance be +/-3dB at nominal temperature and voltage. Sec Peter Chadwick Question called Dean Kawaguchi, sec Peter Chadwick. 11 for, 1 against, 3 abstentions.

Moved Dean Kawaguchi, sec Larry Zuckerman, that RF power levels be defined in dBm. For:- 13, Against:- 0, Abstain:- 2.

Various comments re Sect.10.9 were dealt with: see the edited document.

During discussion of MPDU lengths, Dean Kawaguchi moved that the parameters "MPDU_MAX_LNGTH_1M" and "MPDU_MAX_LNGTH_2M" from "Static" to "Dynamic" LME.
and from "Identical for all PHYs" to "LME Selectable".
Seconded by Mike Rothenberg.

In the discussion, it was suggested that the max MPDU length could be increased. Jim McDonald referred back to his paper of May 94 which looked at the probability of success when microwave oven interference occurred. Peter Chadwick pointed out that Jim's paper did not look at the case where the microwave oven interference disappeared, and the transmission then started, thus giving a pseudo synchronised system.

On a straw poll, should the max MPDU length be increased from 400 octets?
To increase: For:- 12 Against:- 3 Abstain:- 2

Much discussion followed. Ron Mahany suggested that the 400 octet max MPDU is recommended where fragmentation is required. i.e that the default value for fragmentation is 400 octets, and the maximum value should be 2047 octets.

Jerry Loraine moved that the "MPDU_MAX_LNGTH_1M" and "MODU_MAX_LNGTH_2M" be 2047 octets, as an amendment to Dean's motion, and that informative text be added with regard to the fragmentation length recommended as 400 bytes. Sec. Larry Zuckerman.

Larry Zuckerman called the question, but no second.

Mike Rothenberg moved to amend the informative text to recommend 600bytes as the maximum fragmentation length. Sec. Wayne Moyers.

Wayne Moyers called the question on the amendment (Mike Rothenberg), sec Larry Zuckerman.
Question called. For:- 4 Against:- 9 Abstentions:- 2
Motion FAILS.

Moved to Table discussion until FH group reconvenes. AGREED

RECONVENE

Moved by Ed Geiger that all length field related MIB variables be replaced with following:-

MPDU_MAX_LENGTH (Static)

Maximum MPDU length that the PHY can accept from the MAC or the media

PREF_MAX_MPDU_FRGMNT_LNGTH (Dynamic LME)

Preferred Maximum MPDU length when using fragmentation in an interference limited environment.

Seconded Dean Kawaguchi

It was suggested that the variables would be network management variables, and that there would be a default value.

Question called Wayne Moyers, sec Mike Rothenberg.

For:- 14 Against:- 0 Abstain:- 0

Moved that the max length MPDU is 2047 octets. prop Jerry Loraine sec Larry Zuckerman.

Question called Ron Mahany sec Dean Kawaguchi

For:- 12 Against:- 4 Abstain:- 0

NB The Chair exercised his right to vote.

Suggested by Dean Kawaguchi that the PREF_MAX_MPDU_FRGMNT_LNGTH be 400 octets and by Wayne Moyers that it be 600 octets. Mike Rothenberg wanted no value.

Peter Chadwick moved that the parameter be 400 octets, sec Dean Kawaguchi.

It was AGREED to extend the discussion period.

Wayne Moyers moves that the term PREF_MAX be substituted by DEFAULT, sec Nathan Silberman. For:- 6 Against:- 7 Abstain:- 2

Suggested that MAX_LNGTH_MPDU_FRGMNT_LNGTH be 2047
MIN_LNGTH_MPDU_FRGMNT_LNGTH be 1
INITIAL_LNGTH_FRGMNT_LNGTH be 400

by Peter Chadwick.

Agreed to extend discussion as required.

Question called by Jerry Loraine, sec Dean Kawaguchi (i.e. the 400 octet length.)

Vote on the call, For 9, Against 3, Abstain 0.

Vote on the question, For 6, Against 2, Abstain 5

Mike Rothenberg moved that text defining "preferred max" be added. Suggested text;-

The preferred fragment length that the MAC will use when fragmenting a packet has a default value of 400 octets. This variable can be modified by the LME.

seconded by Nathan Silberman. Wayne Moyers called the question, seconded Nathan Silberman.

For:- 10 Against:- 0 Abstain:- 5

Comment editing followed. For details, see the edited document.

Some discussion on the number of country variants available; confirmed as 256.

Adjourned at 1720 by acclamation.

Resumed at 0840, Wednesday.

Larry Zuckerman noted that although the principle of FER rather than BER testing had been accepted, there was still a requirement to define the actual
equivalent FER. Ed Geiger suggested that this could be done in the Conformance Testing Document: Dean Kawaguchi felt that the parameter needed defining at this stage. Jim McDonald felt that parameter needed defining: there was general agreement with this sentiment. After discussion, it was thus moved that:-

At an input signal level of -80dBm, the Frame Error Ratio (FER) shall be less than or equal to 3% for MPDUs of 400 octets of pseudo-random data. -80dBm shall be the reference for sensitivity based RF specifications.

Agreed to table the discussion until after the coffee break.

The MIB table was reviewed.

A straw poll of 6,5,4 was in favour of leaving jabber control out.

The review of comments was continued - see the edited document for results. However, NOTED that the comments contained in response 644 were rejected by a vote of 9,0,4.

Revisiting the sensitivity/FER matter.

Moved that:-

the sensitivity is defined as the minimum signal level required for a Frame Error Rate of 3% for MPDUs of 400 octets generated with pseudo random data. the sensitivity shall be less than or equal to -80dBm. The reference sensitivity is defined as -80dBm for the 1Mbps FH PHY specifications.

The editors will also ensure that the following is kept, but not duplicated within the standard:

The FER shall be less than or equal to 3% for MPDUss of 400 octets between the receiver input signal range from -20dBm to the sensitivity, across the frequency band of operation.

proposed Jerry Loraine, sec John Sonnenberg

Question called Dean Kawaguchi, sec Wayne Moyers.

For:- 13 Against:- 0 Abstain:- 2

Proposed by Jerry Loraine that the same text be applied to the 2Mbps with modification from -80dBm to -75dBm, and with 2Mbps substituted for 1 Mbps as applicable.

sec Wayne Moyers

Motion passes 12 in favour, 0 against, 3 abstentions.

Ed Geigers's comment 650 rejected 4,1,10
Comment 652 resolved if the CCA reset is retained.
Comment 24. rejected, 14,0,1

Comment 50. moved to reject by Jim McDonald, sec Dean Kawaguchi. Vote to reject passes 9,0,5.

Adjourned at 1155