

**Tentative Minutes of the Frequency Hop Ad Hoc Group,
November 1994**

**IEEE 802.11 COMMITTEE
November 7 to November 1, 1994**

Monday, November 7

8:00am

- Jim McDonald is Chair
- Charlie Jenkins volunteered to be recorder of the minutes
- Jim reviewed working rules for this session
 - Stated this is an interim meeting prior to the Nov plenary session
 - .reopening closed issues is OK but will require a 75% vote for technical motions

Motion: To require 75% vote in the FHSS Phy working group to bring motions to change the FHSS Phy to the Phy and Plenary after doc94/68 is accepted by the Joint M/P 802.11 committee.

Moved: Nathan **2nd:** Wayne **Vote:** 15/0/1

Chair's Note: In the closing plenary, the 802.11 chair, Vic Hayes, ruled this motion out of order, following challenge and debate. Vic Hayes' ruling is that motions passing with greater than 50% plurality in the Frequency Hop group are to be brought to the Plenary for consideration by the Plenary body.

- Agenda
 - Tutorial
 - High data rate and 1Mb Phy integration
 - Editor tour of the PMD
 - Remainder of 68r5
 - Motion to bring 68/r5 and errata sheet to Phy on Weds 11am and to joint mtg Weds afternoon

Motion: Approve Agenda
Moved: Larry **2nd:** Dean **Vote:** 16/0/0

- Ed/Dean presented Tutorial on 68/r6 amiss discussion of issues
 - Dean to keep open issues log for FH ie Pwrlvls, RSSI, antsel etc.
 - Dean review of PLCP frame format_header, scrambling/whitening, state machines, CCA etc
 - Break
 - Dean continuation of state machines
 - .discussion of RxSM in terms of losing carrier during a reception due to interferer

- .editing the equations & text. Dean to notify Francois Lemaut concerning mods
- 9.6.9 Out of band emissions
 - .editing for European/Japanese regulations & text
- 9.6.10 Modulation
 - .editing text_
- 9.6.11 Channel data rate OK
- 9.6.12 Channel switching OK
- 9.6.13 TxRx switch time
- 9.6.14 RxTx switch time
 - .significant discussion on switching times Ed presented timing diagram
 - Motion:** Move to table 9.6.13 & .14 **Vote:** consensus
- 9.6.15 Operating channel availability OK
- 9.6.16 PMD transmit specs OK
- 9.6.17 Transmit power levels
 - Motion:** Reopen issue
 - Moved:** Peter **2nd:** Stuart **Vote:**
 - consensus
 - Motion:** Add Equivalent Isotropically Radiated Power in text and add * in table to reference regulatory authorities.
 - Moved:** Peter **2nd:** Stuart **Vote:** no vote
 - Motion:** Amend motion to delete section 9.6.17 altogether
 - Moved:** John **2nd:** Peter **Vote:** 10/4/2
 - failed
- Motion:** Add Equivalent Isotropically Radiated Power and reference to regulatory authorities in text and delete table.
 - Moved:** John Sonnenberg **2nd:** Wayne **Vote:** 15/0/1
- 9.6.18 Transmit power level control
 - .paper 94/211 Jim M discussion of RF sensitivity as it pertains to CCA threshold
 - Motion:** Reopen closed issue
 - Moved:** Stuart **2nd:** Peter **Vote:**
 - consensus
 - Motion:** Delete section 9.6.18
 - Moved:** Stuart **2nd:** Peter **Vote:** 12/1/1
- Motion:** discussion will end by 5:30_consensus
- 9.6.19 Transmit power classes
 - Motion:** Remove power classes requirement from 94/068
 - Moved:** Jim M **2nd:** Peter **Vote:**
 - Friendly Amendment: The RF power control will be optional and hooks will be included to permit this option under MAC or management control.
 - Moved:** Mike **2nd:** Wayne **Vote:** 8/4/2
 - Motion:** Table power control until MAC decision
 - Moved:** Nathan **2nd:** Wayne **Vote:** 7/8/0
 - . Discussion flowed to CCA threshold issues_see section 9.6.28

- 9.6.26 Rx center freq acceptance range
 - Motion:** Modify title to above and reflect changes as in 068r6 sect 9.6.21
 - Moved:** Ed **2nd:** Charlie **Vote:** 11/0/0
- 9.6.27 CCA response time
 - Motion:** Ed and Dean to capture spirit of wording from previous meeting
 - Moved:** Peter **2nd:** Dean **Vote:** consensus
- 9.6.29 Rx data jitter tolerance
 - Motion:** Delete section as interface is not exposed
 - Moved:** Ed **2nd:** Jerry **Vote:** 12/0/0
- 9.6.30 Ramp up period
 - Motion:** Move to table pending submission of mods
 - Moved:** Ed **2nd:** John **Vote:** consensus
- 9.6.xx _ Rx data DC offset & Max run length
 - Motion:** Delete these sections
 - Moved:** Ed **2nd:** John **Vote:** consensus
- 9.6.32 Rx sensitivity OK
- 9.6.33 Intermodulation OK with minor edits
- 9.6.34 Desensitization
 - Motion:** Accept editorial changes pending submission of mods
 - Moved:** Ed **2nd:** Dean **Vote:** consensus

- 9.7.1 Introduction: FHSS Phy Medium Dependent sublayer 2.0M bit
 - Motion:** Accept text as in 068r6
 - Moved:** Ed **2nd:** Dean **Vote:** consensus
- 9.7.2 thr 9.7.9 _ OK
 - Motion:** Accept text as in 068r6 [similar to 1Mbit sections]
 - Moved:** Ed **2nd:** Dean **Vote:** consensus

- 9.7.10 4 level GFSK Modulation
 - Action:** Modify text as submitted by Naftali on Weds

- 9.7.11 Channel Data rate
 - Motion:** Accept text as in 068r6
 - Moved:** Ed **2nd:** Jerry **Vote:** consensus
- 9.7.12 to 9.7.24_OK as 1M Phy except for 9.7.23 below
- 9.7.23_Input dynamic range
 - Motion:** Accept text as in 068r6
 - Moved:** Ed **2nd:** Jerry **Vote:** consensus
- 9.7.25 Channel BER
 - Motion:** Delete text as in 068r6
 - Moved:** Ed **2nd:** Jerry **Vote:** consensus
- 9.7.26 to 9.7.28_OK as 1M Phy
- 9.7.29 Jitter tol
 - Motion:** Delete section

- Moved:** Jerry **2nd:** Peter **Vote:** consensus
 - 9.7.30 to 9.7.31_OK as 1M Phy
 - 9.6.32 Rx sensitivity
Motion: Accept text as in 068r6
Moved: Jerry **2nd:** Peter **Vote:** consensus
 - 9.6.33 Intermodulation
Motion: Accept text as in 068r6
Moved: Ed **2nd:** Jerry **Vote:** consensus
 - 9.6.34 Desense
Motion: Accept text as in 068r6
Moved: Ed **2nd:** Jerry **Vote:** consensus

Wednesday, November 98:30am

- review of minutes
- Jim M to reopen Tx Power @ Phy level
- Agenda
 - Hopping table issues
 - 9.6.20 Tx spectrum mask
 - 9.6.13 RxTx switch time
 - CCA threshold
 - Carrier detect time
- Motion reopen 9.6.20 _ Peter, Kieth, 6/6/1
- Motion accept hopping tables _ Dean, Kieth, consensus
 - 9.6.20 Tx spectrum mask
 - Motion:** Accept inputs as defined by Jerry and edited into 068r6
 - Moved:** Jerry **2nd:** Nathan **Vote:** consensus

Chair's Question: Is the editors' translation of Jerry's input accurate as shown in r6?

- 9.6.13 RxTx switch time
 - Motion:** Add figure
 - Moved:** Jerry **2nd:** Nathan **Vote:** 7/8/1
 - Motion:** Accept inputs as defined by Jerry and edited into 068r6
 - Moved:** Ed **2nd:** Jerry **Vote:** consensus
- 9.6.18 Tx power level control
 - Motion:** Power level adjustment, if performed will be done by a management entity and deletes Twpwrlvl parameter in 9.2.2 of 068r5
 - Moved:** Jerry **2nd:** Ed **Vote:** consensus
- 9.6.17 Tx power levels

•Open Issues

- Scrambling discussion_important to understand the function of the scrambler in this application - to maximize transitions in data which has long strings of "1 or 0"s, not to randomize a data stream - thus a short 7 bit scrambler

- PLCP length word for both 1 & 2Mb and higher rates _ at 1M length is used as both byte count and duration - this is a problem for higher rates

Motion: Table motion

Moved: Ed **2nd:** Dean **Vote:** consensus

- Par req of 99.5% probability of channel availability

Motion: Delete 9.6.14

Moved: John **2nd:** Nathan **Vote:** consensus

Action: Jim M to prepare a motion to present to plenary in Jan.

- 4 level FSK _ Text has been generated jointly by Naftali and Jerry and given to the editors

Motion: Accept the text as defined for 94/068r7 for Jan.

Moved: Jerry **2nd:** Wayne **Vote:** 13/0/1

Chair's Note: After consultation with the secretary for the meeting, it is apparent that this motion requires clarification. The intent is that motions passed during the Thursday, November 10, 1994 meeting and future meeting of the Frequency Hop group need to be submitted to the Plenary for consideration. It is not likely, however, that there will be further revisions of the 94/68 document, now that it has been accepted into the draft standard. The intent of this motion is that future motions approved by the Frequency Hop group will be incorporated into the draft standard if they are approved by the Plenary.

Adjourn

