Summary Of 1994 Motions of the Frequency Hop Group

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Abstract:

This submission is a summary of the technical motions passed in the Frequency Hop Group during 1994. The listing is taken directly from the published minutes. It is hoped that this listing will be useful to the members of the Frequency Hop Group.

Jan 94

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Jerry Socci: : If your received power is below some threshold, you can go ahead and blast. If your received power is above the threshold, you can also blast but only if you can't detect a clock (no bits are present). That is, you defer iff power is above the threshold AND your clock recovery circuits indicate bit sync.

MOTION :   We accept Jerry's proposal [above] as a baseline and call for submissions on CCA

Moved: T. Blaney, Seconded: E. Geiger

The chair ruled Motion 1 passed unanimously.

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MOTION   The FH PHY group accepts IBM's proposed hopping sequences, in document 93/@ for 802.11-compatible FH WLANs.

Moved: J. McKown, Seconded: W. Moyers

VOTE ON MOTION :   Yes=16, No=0, Abstain=2. Motion 1 passes.

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MOTION   We shall remove from 93/161 all reference to the subject matter of line 16 of 93/83r2 (fall back data rates below 1 Mbps).

Moved: J. McKown, Seconded: J. Renfro

VOTE ON MOTION 1: Yes=12, No=0, Abstain=5

MOTION   We shall remove from 93/161 all reference to the subject matter of lines 17 and 17a of 93/83r2 (baseband bit jitter & clock accuracy).

Moved: J. McKown, Seconded: M. Traynor

VOTE ON MOTION : Yes=4, No=1, Abstain=2. Motion 3 passes.

MOTION   In-band spurious emissions shall be -55 dBc.

Moved: P. Chadwick, seconded R. Jellicoe

VOTE ON MOTION : Yes=9, No=0, Abstain=5. Motion 4 passes.

March 94

MOTION : Editing of the FH draft spec will proceed by simple majority and will be confirmed in the FH ad hoc group by 75% majority of the voting members. Moved: E. Geiger. Seconded: C. Zegelin.

VOTE ON MOTION : Motion passes unanimously by acclaim.

MOTION : The FH group accepts 94/68 as the FH working draft standard. Moved: P. Chadwick. Seconded: D. Kawaguchi.

VOTE ON MOTION : for=12, against=1, abstentions=0. The motion passes.

July 94

Motion:
After discussion, proposed Dean Kawaguchi, seconded Stuart Kerry, that CCA must be evaluated with an antenna that has essentially the same coverage and loss as the transmit antenna.

Question called Jerry Loraine, seconded John McKown

In favour 10   Opposed 2 Abstention 1

Motion:
Dean Kawaguchi proposed to amend to read [90%] probability of detection for preamble, and a [70%] probability for random data. Seconded by Wayne.

Question on acceptance for the amendment called by Jerry Loraine, seconded Jim Renfro. In favour: 14. Against: 2. Abstentions: 2.

Motion:
Ed Geiger moved to amend to remove the section "or any signal greater than [-50dBm]."

Question called Ed Geiger seconded John McKown

In favour: 13   Opposed: 4   Abstentions: 1

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Motion:

Question called by Ed Geiger, seconded by John McKown, on the motion which reads

"In the presence of any 802.11 compliant FH PHY signal above [-80]dBm, the PHY must signal busy within [16]us at [90]% probability of detection for preamble and a [70]% probability detection for random data. Note: [] = TBD"

In favour 13, Against 3, Abstentions 3.

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Motion:

Moved by Dean Kawaguchi that the CCA threshold as defined in the proceeding motions above be -85dBm. Seconded Stuart Kerry.

Question called by Jim Renfro, seconded Jerry Loraine

Question called.

In favour 13   Opposed 0 Abstentions 2

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Motion:

After discussion, proposed by Jerry Loraine, seconded Dean Kawaguchi, that the receiver sensitivity be -84dBm midband, -82dBm band edge. Friendly amendment to -80dBm, by Jim Renfro, seconded Peter Chadwick. Moved to call the motion Dean Kawaguchi, seconded Jerry Loraine,
Unanimous 13,0,0 voting.

MOTION CARRIES

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Motion:
Moved to define that the above figure applies at a 1 in 10*5 BER moved by Dean Kawaguchi, seconded Jim Renfro. Question called by Jerry Loraine, seconded Dean Kawaguchi. Question called, 11 in favour, 2 abstentions.

MOTION CARRIES

Motion:

Proposed Jerry Loraine, seconded Dean Kawaguchi, that the IM performance in 94/78 be accepted, except the level be -30dB. Question called by Wayne Moyers, seconded Dean Kawaguchi. On the calling of the question, voting, 7 in favour, 1 against, 1 abstention. Voting on the motion: 7 in favour, 2 against, 0 abstenti
ons.

MOTION CARRIES

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Motion:
Proposed Jerry Loraine, that the desense test in 94/78 be accepted, except that at 2MHz, the figure be 30dB, and at 3MHz 40dB, with the desired signal at -3 dB relative to sensitivity. Friendly amendment by Peter Chadwick to amend sensitivity to -80dBm. Accepted. Peter Chadwick raised point of clarification regarding the interfere signal - is it amplitude modulated?
AGREED that the signal is NOT amplitude modulated.
Move to call the question: Peter Chadwick, seconded Jerry Loraine, passed.

Voting on the motion: In favour 7, against 1 , abstentions 4.

MOTION CARRIES.

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Motion:
Moved Ed Geiger, seconded Wayne Moyers that the document (94/159) be accepted, with the proviso that some figures are TBD.

Question called by: Peter Chadwick   seconded: Jim Renfro
Question called unanimously

Voting on the motion: for: 11   against: 1   abstentions: 1

MOTION PASSES.

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Motion:

Proposed to enter the contents of 94/156 into 94/68. proposed Dean Kawaguchi, seconded Wayne Moyers. On the motion, accepted 8,0,4.

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Motion:

Naftali Chayat presented 94/206, proposing a better unique word, and moved to adopt 5555 0CBD. Question called Dean Kawaguchi, seconded Wayne Moyers.

Question called. Motion passes 7, 0, 2.

Aug/Sept 94

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Motion to remove min column from 9.5.7.2
        by JimR and second by EdG.
        No discussion
        result: 6,0,0 passed.

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Motion:

From 94/111:
"The occupied channel bandwidth for the PMD is 1.0 MHz wide. This 1.0 MHz must contain 99% of the emitted energy. The FCC may impose a further restriction on transmitted bandwidth requiring the 20 dB bandwidth, as measured with a spectrum analyzer and referenced to the magnitude at the center of the transmitted bandwidth to be less than 1 MHz.
The transmitter center frequency shall be within +-25ppm of one of the specified operating center frequencies listed in section 9.5.7.3. The following diagram (Fig. 9-11 of 94/068r3) illustrates the relationship of the operating transmitter center frequency to the occupied channel bandwidth."

        EdG calls the question John M 2nd.
                result: 6, 0,0 question called.
        vote on motion
                result: 4, 1,1 passed.

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MOTION:
"The absolute mid-symbol peak deviation throughout the packet shall be at least 110 kHz with respect to the center frequency during the last 8 bits before the unique word."
2nd by JimR
Discussions on the definition and the measurement of center frequency.
LarryZ: proposes to define the center frequency to be the average of the difference of the average of maximum and minimum deviations.
JL: call the question, JohnM: 2nd, passes.

Vote on motion: 10,1,1 passes.

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        MOTION:
        Zero Crossing error shall be less than +-1/8 of a symbol, per diagram.
        This motion will include a picture by EdG.
        Moved by CJ. 2nd by EdG.
        Vote on Motion: 9,1,2 passes

Motion:
　　Set Time from MAC command to start a transmission of the first bit of 1,0　　preamble is 20 usec, Maximum.
　　based on the following
　　R/Tt as defined in 94/113 < 10 usec
　　Xmit Delay, TDt < 1 usec
　　Ramp Allocation = 8 usec
　　MAC State Machine delay < 1 usec
　　moved by JimM, 2nd by JL

　　Vote: 9,1,2 passed

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Motion:
　　TBD microsecond in 9.5.7.11 of 94/068r3 is 224 usec. The frequency accuracy　　TBD kHz is changed to 60 kHz.
　　Moved by JimM, 2nd by JohnM

　　Vote on Motion: 6,1,0 the motion passed.

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Motion:
9.5.7.15 VSWR

　　Move to delete this spec.
　　by JL, 2nd by EdG
　　Vote: on Motion: 8,0,0 the motion passes

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Motion:
　　Slot Time is 50 usec.
　　The interval from the MAC command to transmit to the appearance of the first bit　　of the preamble at the RF antenna (also called collision time) is a maximum of 20　　usec. The channel shall be assessed for at least 30 usec. The interval from the　　start of the preamble at the antenna to the time when the ch_busy line goes high is　a maximum of 16 usec.
　　Moved by JimM, 2nd by EdG
　　JohnM calls the question, JL second
　　Vote: 8,0,0 the question is called
　　Vote on motion: 8,0,1 the motion passes.

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　　Motion: Frame Length of 94/69 proposal is 32 bits
　　by EdG, 2nd Stuart
　　Vote on Motion: 5,1,1 motion passes.

Motion: Define CCA Threshold as a function of the intended RF power level.
CCA Threshold = -65 dBm - Transmit Power in dBm.

by LarryZ, 2nd by JimR
JL call the question
the question is called.
Vote on Motion: 4,0,4 the motion passes.

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Motion:

JL: propose a change in the motion text

The 802.11 compliant frequency hopping transmitters shall be labeled in four   classes according to their maximum nominal EIRP

Class 1 up to 10 mW
Class 2 up to 100 mW
Class 3 up to 500 mW
Class 4 up to 1 W.
2nd by Wayne Moyers

Stuart: Call the question, Wayne 2nd

Vote: 9,0,0 the question is called.

Vote on Motion: 7,2,2 the motion passes.

Motion:

WayneM: the last word in the text of 9.5.8.2 should be 1000mW rather than 100mW.

Motion:
Change last word in 9.5.8.2 to 1000mW.
CJ 2nd.
Vote on Motion: 7,0,3 the motion passes.

Motion:

The transmit spectrum mask shall be measured under dynamic conditions such that the power generated in a 1 MHz Channel, for a given carrier offset, shall be   less than the values in the table below:

Channel Offset (MHz)	Specification Limit (dBc)
+/- 2	-40
>= +/-3	-60

The radio shall be set to alternatively xmit and rcv with nominal duty cycle ratio   of 1 to 1. And the xmit packet length shall be greater than 300 usec and less than   2 msec.
moved by JL, JimR 2nd.

Vote on Motion: 10,0,2 the motion passes.

JohnM:

>Motion: Delete the table and replace the last sentence to
>It shall maintain this stability over the stated operating temperature range.
>2nd by CJ
>Vote on motion: 10,0,0 the motion passes.

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Nov 94

(Paragraph numbers in this section in general refer to 58r5.)

Motion: The FHSS PLCP preamble and header per figure 9-3 shall be at PLCP_ rate. The PLCP_PDU may run at 1,2 Mbps & higher rates.

Moved: Pablo	**2nd**: Wayne	**Vote**: 17/1/2

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Motion: Accept frame coding per 94/287		
Moved: Mike	**2nd**: Wayne	**Vote**: 16/2/2

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Motion: Add the international specs back into 068/r6. The numbers are subject to the regulatory authorities.

Moved: Dean	**2nd**: Kieth	**Vote**: 17/0/1

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Motion: Change +/-25ppm to +/-60khz in 9.6.5			
Moved: Jim	**2nd**: Nathan	**Vote**: consensus	

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Motion: The default dwell time for FH will be 20ms.		
Moved: Ed	**2nd**: John M	**Vote**: 12/0/1

Motion: Approve Changes to 9.6.1 to 9.6.7		
Moved: Ed	**2nd**: Mike	**Vote**: 14/0/0

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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

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- 9.6.18 Transmit power level control

Motion: Delete section 9.6.18		
Moved: Stuart	**2nd**: Peter	**Vote**: 12/1/1

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Motion: Strike section clock recovery time *(9.6.28 in 68r5)*
Moved: Ed   **2nd**:   John M   **Vote**:   12/0/0

- 9.6.21 Transmit center frequency tolerance
    .discussion on temp operating range and tolerance spec in Hz vs ppm.
    Motion: Accept the text as defined in 068r6 sect 9.6.21
    Moved: Ed   **2nd**:   Keith   **Vote**:   11/0/2

- 9.6.22 PMD receiver specs OK

- 9.6.23 Input dynamic range
    .discussion on
    Motion: Modify title to Input dynamic range
    Moved: Peter   **2nd**:   Dean   Vote: 10/0/0
    Motion: Accept the text as defined in 068r6 sect 9.6.23
    Moved: Peter   **2nd**:   Dean   **Vote**:   13/1/1

- 9.6.24 Selectivity
    Motion: Delete section
    Moved: Peter   **2nd**:   Dean   **Vote**:   11/0/2

- 9.6.25 Channel BER
    Motion: Delete section
    Moved: Jerry   **2nd**:   Peter   **Vote**:   11/2/1

- 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

- 9.7.1   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

- 9.7.11 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

-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: 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

- 9.6.28 CCA Threshold

    Motion: Accept edits in 068/r6 (motion of 11/8 by Charlie amended by Dean)

Moved: Jerry	**2nd**:	Charlie	**Vote**: 10/1/2

- 9.6.23 CCA response time
    Motion: Add sentence to 9.3.3.2.1 to cover async case (Deans wording)

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

    Motion: Delete section 9.6.23 (covered in 9.3.3.2.1)

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

- 9.6.30 & 31   Ramp up & Ramp down periods
    Motion: reopen .31

Moved: Peter	**2nd**:	Charlie	**Vote**: consensus

    Motion: Modify text as defined in 068/r6 - remove slope limit, change bit period to uS & power levels relative to full Tx power in 9.6.30 & 31

Moved: Peter	**2nd**:	Charlie	**Vote**: consensus

- 9.2   FHSS service parameter lists
    Motion: Modify text as defined in 068/r6 - put in text for antsel and RSSI

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

- 9.7.10 4 level GFSK Modulation
    Motion: Modify text as defined in 068/r6

Moved: Jerry	**2nd**:	Brian Messenger	**Vote**: consensus

•   **Motion**: Accept text as defined in 068/r6 with understanding that text is being updated to reflect changes approved during FH Phy session to date.

Moved: Dean	**2nd**:	Keith	**Vote**: 16/0/1

•   **Motion**: Present to Phy & Plenary, a motion " Accept the 068/r5 plus the errata 94/242 which summarizes the 94/068r6 document."

Moved: Dean	**2nd**:	Keith	**Vote**: 13/0/0

- 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