Seq. #	Section number	your initials	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Corrected Text	Disposition/Rebuttal

Resolutions of Ballot on Draft Standard D4.0

Comments WITH RESPONSES on Late arrivals

Tom T and Ron Mahany were not in time for technical reasons (PC problems and bouncing e-mails).

Please accept the following in our process for resolving comments. Both intended to vote NO. Ron recovered and decided to vote yes with comments. Tom still had a No vote, but he e-mailed: "I voted NO because that seemed the only way that some relatively minor but incorrect things in the draft would get fixed. Seeing that my comments this time should be rather benign and not cause so much contention in the group, I would be willing to change my vote given assurance that the changes would be made."

The 802.11 working group did not accept the late ballots as valid votes, since there deadline was well known in advance and there were alternatives available to Email (including FTP, FAX, and diskettes by courier listed in the letter ballot instructions). However, the comments from these late ballots were considered as non-binding comments, along with all of the comments from those who voted Yes with comments. The responses for all comments in these two late ballots appear in this document, independent of the section of the draft to which they apply.

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1	0	RM	t		At least one company has indicated that it holds specific patent claims for which licensing will be necessary to implement the standard. The revised IEEE patent policy detailed in document 96/14 requires that there be *Compelling Technical Justification* to include a patented feature. The required analysis to determine technical justification has not been performed for the patent claims indicated in document 96/5 the patents generally cited in 96/5a.		This is an IPR/Patent issue, not a MAC issue. Referred to Chair for response.
2	7.2.1	tt	t	Y	Figure 15, in this section indicates that Control Frames include the More Data bit in the Frame Control field. This is contradictory to the description of this bit in Section 7.1.3.1.8. which says 'The More Data field shall be valid only in Data Type frames transmitted by an AP to an STA.....'	Change the More Data bit subfield in Figure 15 to contain '0' instead of the words More Data.	Editorial ACCEPTED (refer to 96/106-3, comment #63)
3	7.2.2	tt	t	Y	The last sentence of the second last paragraph of this section is still talking about fragmenting Broadcast	Delete last sentence of second last paragraph; 'If the More Fragments	Editorial ACCEPTED

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					frames. Broadcast frames are no longer fragmented. See section 9.1.4 (2nd para.)	bit is set to 1 in the Frame Control field of the frame, ...'	(refer to 96/106-3, comment #66)
4	7.2.3	tt	t	Y	The last sentence of the third last paragraph of this section is still talking about fragmenting Broadcast frames. Broadcast frames are no longer fragmented. See section 9.1.4 (2nd para.)	Delete last sentence of third last paragraph; 'If the More Fragments bit is set to 1 in the Frame Control filed of the frame, ...'	Editorial ACCEPTED (refer to 96/106-3, comment #67)
5	7.3.2.3	tt	e		correct syntax is with a capital K for 1024.	Change units in Dwell Time subfield to Kµs instead of kµs.	Editorial ACCEPTED
6	7.3.2.4	tt	t	Y	The wording in the last paragraph of this section is too weak, and should clearly indicate that a station shall not associate if it does not support all the rates in the aBSSBasicRateSet.	Replace third paragraph with: STAs shall not associate with a BSS if they do not support all the data rates indicated in the aBSSBasicRateSet information obtained from Beacons and/or Probe Response Management frames received from that BSS.	The text is sufficient for a clause which deals with frame formats. (If a fix were needed, 9.6 would be a much more appropriate place for the text.) There does not appear to be a functional problem in any case because aBSSBasicRateSet is defined as "the list of rates ... that all stations in the BSS shall be capable of receiving ..." DECLINED
7	7.3.1.6	tt	E		Heading 'Reason Code' has been turned into normal text making the Reason Code section part of the Listen Interval section.	Convert text 'Reason Code' back to Heading4.	Editorial See 96/106-3, comment #77 ACCEPTED
8	7.3.1.7	tt	t	Y	Due to size limitaion of the TIM element only 2007 SIDs are possible.	Change the number 16383 to 2007 in the second paragraph.	Editorial / Consistency See 96/106-3, comment #83 ACCEPTED
9	9.1.4	tt	t	Y	Sentence implies frame body is compared to aFragementation Threshold instead of the entire MPDU.	Replace second sentence of third paragraph with: 'Each MPDU is a fragment whose size is not larger than aFragmentation Threshold'.	Editorial However, there is not a functional distinction, since the sixe of MPDU expansion is known, so if the described comparison is a problem, the solution is a smaller value for aFragmentation Threshold DECLINED
10	9.2.4	tt	t	Y	This section is about Random Backoff Time not about	Change first two sentences to read:	May be technical. Needs careful

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					when to transmit. Also doing the Backoff Procedure does not mean that there is something to transmit (see 9.2.5.2) The STA will defer for a DIFS even if the medium is idle. Again waiting a random backoff period does not mean that we must transmit.	'a STA ~~desiring to initiate transfer of data MPDUs and/or management MMPDUs~~ performing a Backoff Procedure shall utilize both the physical and virtual carrier sense functions to determine the state of the medium. ~~If the medium is busy,~~ tThe STA shall defer until after a DIFS is detected with the medium free,.....' Change the second last sentence of the first paragraph to read: 'After this DIFS or EIFS, the STA shall then generate a random backoff period for an additional deferral time before ~~transmitting~~ the STA can transmit.'	consideration as to impact and necessity. DECLINED due to insufficient time to make this assessment.
11	9.2.4	tt	e		This section has some long descriptions of the short and long retry counters. Since this section talks about the Random Backoff Time and how it is calculated this does not seem the right place for these descriptions. They would seem to belong in section 9.2.5.3.		Editorial Declined due to lack of provided text and lack of time to create adequately-checked text. DECLINED
12	9.2.4	tt	e		Figure 39 indicates initial attempt starts at a CW value of 7. Since none of the defaults use such a low number, perhaps the figure should be changed.		Editorial DECLINED (Numerical values clearly stated as being an example in the figure caption, so values have not been changed) See 96/106-3 comments #107-110
13	9.6	tt	e			Spelling: last line of first paragraph: multi-rate-capable PHY's. Change 'PHY mandatory' to	Editorial ACCEPTED

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						'aBSSBasicRateSet' in second paragraph.	
14	9.6	RM	t		Lack of an algorithm for multirate support does not provide an interoperable standard.		DECLINED with other multirate algorithm comments. The MAC group believes, and has voted numerous times, that adherence to the existing provisions on multirate will permit interoperability, at least at the basic rates for the PHY in use.
15	9.3.2.2	RM	t		Lack of a defined coordination mechanism for PCF does not provide an interoperable standard.		DECLINED Algorithim is described in 9.3.3.
16	9.3.3.1	RM	t		Since PCF frames of variable size are allowed, there is a possibility that PC traffic duration may exceedCFPMaxDuration.	Add text: If the PC has a frame to send with duration exceeding CFDurRemaining, the PC shall send CF-End. If a station has a frame to send with duration exceeding CFDurRemaining, the station shall not respond to the CF Poll.	Editorial / Consistency The objective of this comment is accepted, but the specific resolution is different to be consistent with other PCF frame exchange rules, and consistent with a change to the DCF regarding transmissions near FH dwell boundaries. A CF-pollable station that receives a CF-poll must respond, to permit the empty queue case to be distinguished from the loss of a poll, so the proper response (per frame exchange sequences in Table 20 of 9.7 as well as 9.3.3.1) is a Null(no data). The form in which this was accepted is also consistent with the goal that the station initiating a transmission (hence knows the length of time required) be responsible for deciding whether sufficient time is available (vital for multi-rate

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							stations). Comment #146 of 96/106-3r1 for deals with a related issue. ACCEPTED in principle DUE TO MULTIPLE PEOPLE EDITING THIS PART OF THE DRAFT, THE OUTCOME OF THIS CHANGE SHOULD BE VERIFIED BY THE EDITORS
17	9.2.5.2	tt	t	Y	Besides being kind of rambling due to the 'tacking on of text' to this section, this paragraph should be deleted beacuse it falsely implies that a backoff is done when the medium is detected as busy. This is not true! A backoff is done at the end of every transmission regardless of whether the medium is busy or not. This text is ambiguous and is immediately followed by text that is more exact and better worded. This last change is more of an editorial suggestion.	Delete first paragraph. Delete the first two sentences of the third last paragraph: 'A station that has just....' Move second and third last paragraphs to the beginning of this section.	Editorial Declined due to lack of provided text and lack of time to create adequately-checked text. DECLINED
18	9.2.5.3	tt	e		This section does not say that the Short Retry Count is reset if a CTS is received for an RTS transmission. This is stated in section 9.2.4 but not here.		Editorial Declined due to lack of provided text and lack of time to create adequately-checked text. DECLINED
19	9.2.8	tt	t	Y	Going by the strict definition of the wording of this section presents a serious problem for STAs in an Infrastructure BSS. The scenario is such:		Change text in fourth paragraph to read:

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					- the STA received a frame but the ACK is lost. - before the AP can retry the frame, a DTIM is sent and a long string of broadcast frames. - after the broadcasts the AP retries the directed frame which is received by the STA. Question: How does the STA recognize the directed frame as duplicate? If it only keeps the last sequence number from each source that sent it a frame then this would have been overwritten by the stream of broadcast frames, causing a duplicate to be accepted and passed up the protocol stack. It can keep more history, however the question then becomes how much and is it practical, since the AP can always send more broadcasts than the STA keeps history. A better solution to this problem would be to ignore the sequence number in received broadcast/multicast frames since by defintion they are only sent once, and we don't have to worry about duplicate broadcasts.		'The receivng station shall keep a cache of recently received <source-address,sequence-number,fragment-number> tuples obtained from received directed frames. A receiving STA shall not update its tuple cache when it receives a broadcast/multicast frame.' **ACCEPTED** This is an editorial change as the changed function is internal, and the cache size is not specified, so there is no external behavior which can be used to discern the distinction (besides, BC/MC and ATIM frames are not retried, so there is also no functional change from not caching them because they are never retried) This is the change requested by Anil to reverse his NO vote MAC motion 13 Plenary motion 30
20	9.3.3.4	RM	t		PCF operation must be limited to less than a dwell.	Second Paragraph ..... For operation of the PCF in conjunction with an FH PHY, aMediumOccupancyLimit shall be set to <u>50% of</u> the dwell time.	**DECLINED** There is no reason that CP periods cannot extend across FH dwell boundaries, and certainly no reason to arbitrarily adopt a limit of 50% of the dwell time. Indeed, the aMediumOccupancyLimit was introduced to provide a mechanism by which point coordinators operating with DS

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							or IR PHYs could be forced to periodically relinquish the medium, as is inherently done at dwell boundaries with an FH PHY. Resolution of 96/106-3 comment #137 clarifies some of the provisions which apply at dwell boundaries within the CFP feasible.
21	11.2.1.1	tt	t	Y	There is only on Power Management bit.	Second sentence of second last paragraph, change: 'The Power Mangement bit in the Frame Control field of the frame sent by the station in this exchange indicates the power management.....'	Editorial ACCEPTED
22	14.2.2	RM	t		The extensive menu of possible future data rates has consumed most of the reserved bits in the PLCP header. Given the inherent limitations of FSK modulation, it does not make sense to support the number of possible future data rates detailed here, nor .5MBPS granularity	Table 28 PLCP_Bit Rate 1,2,3,4	COMMENT REJECTED 0.5 Mbps may be useful in the future, and 3 bits provided sufficient room for growth given the modulation type and bandwidth limitations. This was a hard fought compromise reached between the FH and MAC groups for support of multirate CCA. Naftali/Mack 8,0,2
23	14.3.2.2 .2	RM			The extensive menu of possible future data rates has consumed most of the reserved bits in the PLCP header. Given the inherent limitations of FSK modulation, it does not make sense to support the number of possible future data rates detailed here, nor .5MBPS granularity	Table 28 Bits 0,3 Default 0 Reserved Bit 1,2 00 = 1.0MBPS, 10 = 2.0MBPS, 01 = 3.0MBPS, 11 = 4.0MBPS	COMMENT REJECTED for same reason as previous comment.
24	14.7.2.1	RM	t		Inconsistent with 14.3.2.2.2 Ignore this comment if RM changes to14.3.2.2.2 and 14.2.2 are adopted.	The high rate FHSS PHY consists of the PLCP preamble, PLCP header, and PLCP PDU............The rate is indicated in a 32 bit field in the	COMMENT ACCEPTED AS EDITORIAL.

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						PLCP header	
25	14.8.2	RM	t		New Regulatory Domains are missing	Add France and Spain to aRegDomainSupport	COMMENT ACCEPTED AS EDITORIAL. Spain = 50h, France = 60h. PHY group change: Spain=31h, France=32h. Mike/Stuart 10,0,0
26	14.8.2.1 .2	RM	t		New Regulatory Domains are missing	Add France and Spain to aRegDomainSupport	COMMENT ACCEPTED AS EDITORIAL. Spain = 50h, France = 60h.