Comment on 802.11/D5.0 **Name: _____** **Date: _____**

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal

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	10 6.1.3 7.1.3.1. 9.8	**MT**	**T**		**ref: MT_14** **The strictly order service class does not accomplish the necessary goals. The current definition allows for a STA only to order its transmitted packets. The requirement is that the received packets maintain order. What is needed is a method for a station to identify to all other stations of this requirement.** **See also MT_15**	**During the AUTHENTICATION process (since authentication is common among infrastructure and IBSS networks, and association is not), additional information such as capability and requirements should be exchanged. At this time, a STA requiring that its incoming frames be in order, would identify this requirement. In this way, all frames from each communicating station will be in order.**	
	10.3.2, 11.1.3	SB	t	N	Clause 11.1.3 states that: *A station performs scanning when it has aScanState equal True. aDesiredSSID indicates the SSID which is to be scanned for, together with whether Infrastructure BSSs, Independent BSSs, or both, are to be included in the scan.* Now 10.3.2.1 defines the MLMESCAN.request primitive which initiates a scan (this cannot be done by a MLMESET.request on aScanState since this is GET only). MLMESCAN.request includes several parameters that define the nature of the scan (some of these have corresponding MIB attributes such as aScanMode). So the intended activities on receipt of a MLMESCAN.request would seem to be to set certain MIB attributes and then change scan state. The problem is it doesn't actually say this anywhere. Either 10.3.2.1 should make reference to the scan	Probably the easiest thing to do is to add the text to the 'effect of receipt'. This request shall update aDesiredSSID and aScanMode, and set aScanState true ~~initiate the scan process~~ when the current transmission/reception is completed. Some clarification changes might also be made to 11.1.3 to make the role of MIB attributes and MLME primitives clearer	

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					related MIB attributes, or 11.1.3 should say that scanning is initiated by the receipt of a MLMESCAN.request.		
	10.3.2.2	**TLP**	e, t		A requirement is under-specified — as originally worded, any combination of elements in any order could be returned. The resulting MIB entry would not be suitable for the MLMEJOIN.request primitive.	Change to read "The BSSDescriptionSet is returned ... It is a set containing zero or more instances of aBSSDescription , each of which consists of the following elements:"	

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	10.3.4	**TLP**	E, t	Yes	The conceptualization and wording of the four primitives MLMEAUTHENTICATE and MLMEDEAUTHENTICATE .request and .confirm is unbelievably sloppy. These primitives are across management boundaries within a single STA, not between stations. Were the latter the case, you would need .indication and .response primitives, which are not specified. Therefore, since these are local primitives, the terms Local and Remote are inconsistent, and the effect on receipt is the effect on the local operational entity on receipt of the local management request — there is no "remote" entity at all. This entire portion of the Layer Management clause must be rewritten to conform to accepted OSI practice, and to clearly convey whatever was intended by the authors. I made a number of attempted corrections in this sub-subsection before concluding that the entire process was hopeless; they remain in the submitted revision-marked files but should be taken only as indicative of the enormous confusion engendered by this inadequate explication. For greater clarity on the required primitives and perspectives, see *ISO/TR 8509:1987, Information processing systems — Open systems interconnection — Service conventions* and *ISO/IEC 10731:1992, Information technology — Open systems interconnection — Conventions* for the definition of, and proper form for documenting, OSI services.	This entire portion of the Layer Management clause must be rewritten to conform to accepted OSI practice, and to clearly convey whatever was intended by the authors. The annotations in the submitted revision-marked files are indicative of the extreme confusion in conceptualization found within the documentation of these four primitives.	
	10.3.4.2 **10.3.5.2** **10.3.8.2**	**TLP**	e, t		Is there any constraint on the address(es) returned by .confirm primitives? In particular, must they have some relationship to address(es) on corresponding request primitives?	State any required relationships, using verbs such as "shall".	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	10.3.6.1	**TLP**	E, t		As with the Authenticate primitives, the receiver of a "layer" management request is the local operational entity; there is no "Remote" entity to discuss. Were the operational entity to convey the request to a remote entity, then it would be delivered to that remote entity by a .indicate primitive, as required by the previously-cited OSI standards.	Correct the referents; remove the word "remote" and substitute appropriate descriptive terminology.	
	10.3.7.1	**TLP**	e		All layer management primitives are local. To state so is more than redundant; it implies that a remote primitive is possible, which it is not, given your lack of use of the .indicate and .response primitives. If a primitive causes the local entity to initiate some network activity, then say so. But receipt of a primitive within the STA by the local operational entity does not inevitably result in successful communication, let alone remote action.	Remove the terms "Local" and "Remote".	
	10.3.8.1	**TLP**	t		The function of this primitive is actually the obverse of that described. This primitive acts locally, but is described as if its actions were remote.	Change to read "This primitive requests that the local STA disassociate itself from the specified remote STA. "	
	10.3.8.1	**TLP**	e, t		The effect of receipt of this local primitive is described as being remote from the only physical entity which is cognizant of the primitive. This is ludicrous. However, the primitive may, but is not guaranteed to, have some remotely-visible consequences, and those should be documented as "possible but not guaranteed".	Change the text to read "The effect of the receipt of this primitive is to change the internal state of the local STA or AP to correspond to having no current association, and to generate an MLMEDISASSOCIATE.confirm primitive. It may also cause the internal state of the peer STA or AP with which the association existed to reflect the disassociation."	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	10.3.all	**TLP**	E		Throughout the earlier clauses of this document, names formed by concatenating many words and/or acronyms have the first letter of each constituent word, or all the letters of each constituent acronym, capitalized. This policy assists those readers for whom English is not their first language by assisting the reader's separation of the constructed name into its constituent parts. This policy must be continued throughout this clause.	Change words formed from concatenation, as appropriate. (The submitted revision-marked files contains such corrections.)	
	10.4	**TLP**	e		The word "above" is a gravitational reference which is not correct. It is unlikely to be higher on the same page, unless the entire clause is printed on a scroll.	Replace "above" with "previously".	
	11	**TLP**	E		The author of this section bounces back and forth between singular and plural. The singular should be used when describing the behavior of an entity in isolation; the plural should be used when describing interactions with a set of entities. Constraints should be applied to each entity in the singular, since conformance is to the specification, and is applied to singular instances of equipment.	Edit as appropriate. (The submitted revision-marked files contains such editing.)	
	11.1.1	**TLP**	e		Clean up the descriptions; avoid bias toward specific forms of modulation (e.g., RF over IR)	Change the last part of the second sentence to read "... is transmitted to the PHY plus the transmitting station's delays through its local PHY from the MAC-PHY interface to its interface with the wireless medium (antenna, LED emission surface, etc.)."	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.1.1.1	**TLP**	e		"Ensure"ing anything is beyond the scope of a standard. This text should be written to reflect realistic expectations.	Change the second and third sentences to read "The AP shall initialize its TSF timer independently of any simultaneously-startedAPs in an effort to minimize the synchronization of the TSF timers of multipleAPs.. The AP shall periodically transmit special frames called Beacons that contain a copy of its TSF timer to synchronize the other stations in a BSS. " and the last sentence to read "If a station's TSF timer is different from thetimestamp in the received Beacon, the receiving station shall set its local timer to the received timestamp value."	
	11.1.1.2	**TLP**	e		Clean up the referents.	Change the second sentence to read "Each station in the BSS shall transmit Beacons according to the algorithm described in this clause. Each station in an IBSS shall adopt the timing received from any Beacon or Probe Response which has a TSF value greater than its own TSF timer."	
	11.1.1.2 2nd ¶	**TLP**	T	Yes	The last two sentences of 11.1.1.2 contradict each other. The first states that a STA hearing another IBSS will join that IBSS and adopt its parameters. The second states that a STA joining an IBSS shall set its parameters to prespecified initial values. Both constraints apply to a STA hearing another IBSS, but require inconsistent actions.	Rewrite to specify precisely whatever is the intended behavior.	
	11.1.2	**TLP**	t		What minimum data rate within the PHY is required to meet this 4 µs promise? No PHY is implied by the MAC; a 1 Hz ELF PHY is not precluded.	Specify the minimum PHY data rate for which this promise holds.	
	11.1.2.2	**RM**	**T**	**Y**	From the description of the IBSS beacon generation mechanism, it appears that multiple stations are likely to generate colliding beacons anytime that the medium is busy at TBTT. The algorithm described in this section does not honor the usual	At each TBTT the station shall a) calculate a random delay uniformly distributed in the range between zero and twiceaCWmin, b) wait for the period of the	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
					practice of halting the backoff counter when the medium is sensed busy. In the worst case, the duration of an frame in progress may surpass TBTTC+wmin, causing all stations to send beacons.	random delay. If, if a reception is in progress during the random delay period, begin the delay at ~~at the end of the random delay, extend the delay until~~ the end of that reception. c) if no Beacon has arrived during the delay period, send a Beacon. See Figure 55,.	
	11.1.2.2	**WD**	**e**			**Change BSS into IBSS**	
	11.1.2.3	**KC**	**t**	**Y**	**"... if the value of the adjusted timestamp is greater than the value of the station's TSF timer."** **What kind of "greater than" is to be used here? These are counters that roll over. Is this just unsigned greater than over the number of bits in the field, or is it signed greater than for something that is assumed to never be more than 1/2 way around the clock, or what?**	**Specify exact comparison algorithm.**	
	11.1.2.3	**TLP**	e		It is the values, not the timestamps, that are adjusted.	Relocate the word "adjusted" to qualify "value" at both occurrences.	
	11.1.2.3	**TLP**	T		± 0.0025% is four times the frequency accuracy of most crystals, which are typically ± 0.01% devices. Anything better than ± 0.005% typically requires temperature compensation and consequent power and expense. Is this ± 0.0025% really necessary?	Resolve the question. A note detailing the rationale for the extra expense of temperature-compensated crystals might be in order.	
	11.1.3 10.3.2,	SB	t	N	Clause 11.1.3 states that: *A station performs scanning when it has aScanState equal True. aDesiredSSID indicates the SSID which is to be scanned for, together with whether Infrastructure BSSs, Independent BSSs, or both, are to be included in the scan.* Now 10.3.2.1 defines the MLMESCAN.request primitive which initiates a scan (this cannot be done by a MLMESET.request on aScanState since this is GET only). MLMESCAN.request includes several parameters that define the nature of the scan (some of these have	Probably the easiest thing to do is to add the text to the 'effect of receipt'. This request shall update aDesiredSSID and aScanMode, and set aScanState true ~~initiate the scan process~~ when the current transmission/reception is completed. Some clarification changes might also be made to 11.1.3 to make the role of MIB attributes and MLME primitives clearer	

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					corresponding MIB attributes such as aScanMode). So the intended activities on receipt of a MLMESCAN.request would seem to be to set certain MIB attributes and then change scan state. The problem is it doesn't actually say this anywhere. Either 10.3.2.1 should make reference to the scan related MIB attributes, or 11.1.3 should say that scanning is initiated by the receipt of a MLMESCAN.request.		
	11.1.3 2nd ¶	**TLP**	e		There are too many ambiguous pronoun back-referents in this paragraph.	Rewrite as indicated in the submitted revision-marked files, or equivalent.	
	11.1.3.2 .1,11.3. 1, 11.3.2, 11.3.3, 11.3.4, and also 8.1.1.2, 8.1.2.2, 8.1.2.3, 8.1.2.4	**MAF**	**t**	**(na)**	**There is nothing specified, either procedurally or in the MAC MIB to define an upper bound on the response time for Management frames other than Probes. There is a risk that conformant implementations might not be interoperable in the absence of of such a bound on the time before the responding station attempts to send Association Response frames, Reassociation Response frames, and Authentication frames (for the 2nd through last frames of any defined authentication sequence).** **The problem could occur in a case where an AP (or other responder STA in the case of Authentication sequences) is implemented in such a manner that it will never respond to one or more of these request types within the time that some STA implementation considers a reasonable maximum waiting time for such a response. For power-managed stations, waiting "forever" is a poor alternative. I strongly recommend that we apply the time limits already in the MIB for aMinProbeResponseTime and aMaxProbeResponseTime to the request/response exchanges for Association, Reassociation, and Authentication (for each step in the authentication sequence), as well as for Probe (already specified in**	**Clause 11.3.1:** A station shall associate with an Access Point via the following procedure: a) The station shall transmit an Association Request to an Access Point with which that station is authenticated b) If an Association Response frame is received with status value of "successful", the station is now associated with the Access Point. If the Association Request fails for any reason, the station may scan for a different Access Point with which to attempt association. The station may treat a period of at least aMaxProbeResponseTime duration	

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					11.1.3.2.2). There also needs to be a constraint that the AP (or responder in the case of Probes and Authentication sequences in an IBSS) shall make its first attempt to transmit the response within aMinProbeResponse of receipt of a valid request. The requirement for conformance & interoperability is to have an upper bound on the response time between successful receipt of the request and the first attempt to obtain control of the medium to transmit the response. With this time interval known, there is a basis for interoperability that allows local decisions at the stations as to how much longer (if any) to wait due to medium access delays, and whether to retry, look elsewhere, etc. **A similar comment on D4.0 was declined (with commenter's agreement) at the July, 1996 meeting because the solution proposed therein was found to be incomplete; not because there was a finding that the cited problem did not exist. While the risk of non-interoperability among "sane" STA and AP implementations is small, sooner or later this type of incompatibility will occur if a time bound is not defined in the standard.** **There are two approaches to fixing this problem. One is to add new MIB attributes with minimum response time limits for each various management frame exchanges. The other is to re-use an existing response time MIB attribute, such as aMaxProbeResponseTime. The proposed text changes to the right use the later approach, since to this commenter there does not seem to be any compelling reason to need different response time bounds for different of the exchanges. Note that all of the referenced responses pertain to the establishment of communication (Association,**	following the transmission of an Association Request frame without receipt of any Association Response frames as a failure of the Association Request. **Clause 11.3.2:** An Access Point shall operate as follows in order to support the association of stations. a) Whenever an Association Request frame is received from a station and the station is authenticated, the Access Point shall transmit an Association Response with a status value as defined in clause 7.3.1.9~~7.3.1.8~~. The Access Point shall make its initial attempt to transmit the Association Response frame soon enough after receipt of the Association Request frame that a successful transmission attempt will be complete within aMaxProbeResponeTime of the receipt of the request. If the status value is "successful", the assigned Station ID to	

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					Reassociation, Authentication), so the time bound selected does not impact the performance for MSDU delivery after communication is established.	the station is included in the response. If the station is not authenticated, the Access Point shall transmit a Deauthentication frame to the station. b) When the Association Response with a status value of "successful" frame is acknowledged by the station, the station is considered to be associated with this Access Point. c) The AP shall inform the Distribution System of the association. **Clause 11.3.3:** A station shall reassociate with an Access Point via the following procedure: a) The station shall transmit a Reassociation Request frame to an Access Point. b) If a Reassociation Response frame is received with status value of "successful", the station is now associated with the	

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						Access Point. If the Reassociation Request fails for any reason, the station may scan for a different Access Point with which to attempt reassociation. The station may treat a period of at least aMaxProbeResponseTime duration following the transmission of a Reassociation Request frame without receipt of any ReassociationResponse frames as a failure of the Reassociation Request. **Clause 11.3.4:** An Access Point shall operate as follows in order to support the reassociation of stations. a) Whenever a Reassociation Request frame is received from a station and the station is authenticated, the Access Point shall transmit a Reassociation Response with a status value as defined in clause 7.3.1.97.3.1.8. The Access Point shall make its initial attempt to transmit the Ressociation Response frame soon enough after receipt of the Ressociation Request	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						frame that a successful transmission attempt will be complete within aMaxProbeResponeTime of the receipt of the request. -If the status value is "successful", the assigned Station ID to the station is included in the response. If the station is not authenticated, the Access Point shall transmit a Deauthentication frame to the station. b) When the Reassociation Response with a status value of "successful" frame is acknowledged by the station, the station is considered to be associated with this Access Point. c) The AP shall inform the Distribution System of the reassociation. **Clause 11.1.3.2.1:** Stations, subject to criteria below, receiving ProbeRequest frames shall respond with a Probe Response only if: (1) the SSID is the broadcast SSID or matches the specific SSID of the station, and (2) the Capability	

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						Information field of the Probe indicates a match on the current BSS type. Probe Responses shall be sent as directed frames to the address of the station that generated the Probe. The Probe Response shall be sent using normal frame transmission rules. The responding station shall make its initial attempt to transmit the Probe Response frame within aMinProbeResponeTime of the receipt of the Probe Request frame. An Access Point shall respond to all Probes meeting the criteria above. In an IBSS, the station that generated the last Beacon shall respond to a Probe. In each BSS there shall be at least one node that is awake at any given time to respond to Probes. The station that sent the most recent Beacon shall remain in the Awake state and shall be the only station to respond to Probes until a Beacon frame is received. If the station is an Access Point, it shall always remain in the Awake state and always respond to Probes. **In each of Clauses 8.1.1.2, 8.1.2.2, 8.1.2.3, and 8.1.2.4 add the following two paragraphs after the current text:** The station sending this frameshall make its initial transmission attempt soon enough after receipt of the preceding Authenticationframe of this	

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						authentication sequencethat a successful transmission attempt will be complete within aMaxProbeResponeTimeof the receipt of the preceding frame The station waiting to receive this frame may treat a period of at least aMaxProbeResponseTimeduration followingits transmission of the Authentication frame to which this is a response, without receipt of any Authentication frames as an unsuccessful authentication attempt.	
	11.1.3.2.2	**JMZ**	**e**		Editing	Fill in reference marked "xxx.x.x.x"	
	11.1.3.2.2	**KC**	**e**		**".. as definedxxx.x.x.x (currently 9.2.5.1)."**	**Replace with "as defined in 9.2.5.1."**	
	11.1.3.2.2	**KC**	**t**	**Y**	**Figure 56, Probe Response, is not referenced anywhere in the text. The physical events needed to specify the timings implied by the figure are not defined.**	**Put in reference and define timings.**	
	11.1.3.2.2	**WD**	**T**	**y**	**The intend of the use ofMin_Probe_Response time is to scope out whether there is anything on the channel, after which the scanning can proceed to the next channel, if no activity has been detected on that channel during that time. The idea is that if there is an AP out there then this time should be sufficient for an AP to respond. If however medium activity has been detected during that time, then that could have been caused by the Probe_Response, or whatever other activity on the**	Change item e as follows: e) If no medium busy activity ~~Probe response~~has been detected~~received~~ within~~by the first instance of a free medium at or after the ProbeTimer reaches~~ aMinProbeResponseTimeafter the transmission of theProbe_Request frame, then clear NAV and Scan next	

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					medium. In fact the maximum duration for a pending (non-Probe_response) frame is considerably longer then the specified default Min_Probe_Response time, for which an AP trying to send the Probe_Response is possibly defering. In addition more AP's may be in the process of responding. So the plain intend is: "When there is (whatever) medium activity during the Min_Probe_Response time, then extend the listen time to Max_Probe_Response time.	channel, else when ProbeTimer reaches aMaxProbeResponseTime, process all received Probe Responses	
	11.1.4	**KC**	**t**	**Y**	**"... greater than the station's TSF timer." What kind of "greater than" is to be used here? These are counters that roll over. Is this just unsigned greater than over the number of bits in the field, or is it signed greater than for something that is assumed to never be more than 1/2 way around the clock, or what?**	**Specify exact comparison algorithm.**	
	11.1.5, 7.3.2.3, 13.1.4.44, 13.1.4.45, 14.8.2	SB	t	N	Dwell time related MIB attributes are a complete mess in terms of units. 13.1.4.4 defines aMaxDwellTime and aCurrentDwellTime in nanoseconds (!), the default values in 14.8.2 are in milliseconds and the comparison to a TSF timer value in 11.1.5 is to a time in microseconds. Lastly the value for the dwell time in the FH Parameter set element (7.3.2.3) is in Kmicroseconds.	Please can we have some order here. It would be nice if the aMaxDwellTime and aCurrentDwellTime were in Kus since this is what a number of other MAC attributes such as aBeaconPeriod is in. It also ties up with the FH parameter set. It also makes the TSF time comparison easy (hence the beacon stuff). So: aMAXDwellTime should be in Kus and be a default value of 390 (399.360ms) aCurrentDwellTime should be in Kus an be a default value of 20.	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.2.1	**AS**	**e**	**y**	**In paragraph 4 the acronym PSM is used without any definition.**	**Change to Power Save mode.**	
	11.2.1	**WD**	**E**		**AP can either respond directly after an SIFS, or Ack the PS-Poll, and send the corresponding MSDU later.**	In a BSS operating under the DCF, or during the contention period of a BSS using the PCF, upon determining that a MSDU is currently buffered in the AP, a Station operating in the *Power Save* mode (PS) shall transmit a short PS-Poll frame to the AP, which shall respond with the corresponding buffered MSDU immediately, or Ack the PS-Poll, and respond with the corresponding MSDU later.	
	11.2.1.1 last ¶	**TLP**	e		The acronym CCA has not been defined or used previously within this clause. It should at least be spelled out on this, its first occurrence. Even better would be definition before use.	Define before use or avoid use of the acronym entirely.	
	11.2.1.2	**TLP**	e		This text does not provide constraints on the station ID code; they are provided elsewhere. By the time we get here, you are no longer legislating requirements on how a station ID code is formed or selected, but merely referring to its existence. Hence "is" rather than "shall".	Replace "shall be" with "is" in both the third and fourth sentences.	
	11.2.1.2	**TLP**	e, t		Most references to the *virtual bitmap* should probably be to the *partial virtual bitmap*	If this is the case, replace "virtual" with "partial virtual" twice in this paragraph, and elsewhere as appropriate.	
	11.2.1.3	**KC**	**t**	**Y**	**The physical event that is tied to Target Beacon Time is not specified. Is it the start of the preamble? The point at which the MAC checks for medium availability or what?**	**Specify exact algorithm.**	
	11.2.1.3 11.4.4 11.2.1.6	**RM**	**T**	**Y**	**Clause 11.2.1.3 Figure 57 and Clause 11.2.1.6 Illustrate that power managed stations need to wake up to receive all DTIM's if reception of multicast frames is required. There is no mechanism within the standard to allow configuration of this option. A parameter needs to be added to the MIB to enable.**	**11.4.X.X.X aMulticast_Enable aMulticast_Enable** ATTRIBUTE WITH APPROPRIATE SYNTAX integer; BEHAVIOUR DEFINED AS "This attribute shall indicate the ability of a power managed station to receive multicast broadcast frames. REGISTERED AS {iso(1) member-body(2) us(840) ieee802dot11(10036) MAC(2) attribute(7) **Multicast_Enable(7)** };	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						11.4.3.1.1 agStationConfiggrp StationConfiggrp ATTRIBUTE GROUP GROUP ELEMENTS ..... , **aMulticast_Enable** **11.2.1.3 (third Paragraph)** ..... Figure 57 illustrates the AP and station activity under the assumption that a DTIM is transmitted once every three TIMs. The top line in Figure 57 represents the time axis, with the Beacon Interval shown together with a DTIM Interval of three Beacon Intervals. The second line depicts AP activity. The AP schedules Beacons for transmission every Beacon Interval, but the Beacons may be delayed if there is traffic at the target beacon transmission times. This is indicated as "busy medium" on the second line. For the purposes of this figure, the important fact about Beacons is that they contain TIMs, some of which may be DTIMs. Note that the second station with aMulticastEnable set to False ~~will fail to receive broadcast/multicast frames, since it~~ opts not to power up its receiver for all DTIMs. **11.2.1.6** e) To receive broadcast/multicast MSDUs, the station must be configured with aMulticastEnable =True. The station shall wake up so as to receive every DTIM. A station receiving broadcast/multicast MSDUs shall remain awake until the More Data field of the broadcast/multicast MSDUs indicate there are no further buffered broadcast/multicast MSDUs or a TIM is received indicating there are no more buffered broadcast/multicast MSDUs	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						buffered.	
	11.2.1.3	**TLP**	e		The second figure reference, to Figure 59, is incorrect.	Change reference to Figure 57.	
	11.2.1.4	**KC**	**T**	**Y**	**"a) ... shall be temporarily buffered in the AP"** **How much storage is the AP supposed to have to buffer these? When it runs out, what is it supposed to do? Is it supposed to distribute the storage resource with some idea of fairness to the STAs? Does this mean that dosing units that wander out of range cause the system to choke for those who need storage?**	**Specify storage allocation algorithm.**	
	11.2.1.4	**TLP**	e		In f), failure is only presumed, not known for certain.	Change "or failed" to "or presumed failed"	
	11.2.1.5	**AS**	**e**	**y**	**In sub-clause f) the acronym PSM is used without any definition.**	**Change to Power Save mode.**	
	11.2.1.5	**KC**	**T**	**Y**	**"a) ... shall be temporarily buffered in the AP"** **How much storage is the AP supposed to have to buffer these? When it runs out, what is it supposed to do? Is it supposed to distribute the storage resource with some idea of fairness to the STAs? Does this mean that dosing units that wander out of range cause the system to choke for those who need storage?**	**Specify storage allocation algorithm.**	
	11.2.1.6 **11.4.4** **11.2.1.3**	**RM**	**T**	**Y**	**Clause 11.2.1.3 Figure 57 and Clause 11.2.1.6 Illustrate that power managed stations need to wake up to receive all DTIM's if reception of multicast frames is required. There is no mechanism within the standard to allow configuration of this option. A parameter needs to be added to the MIB to enable.**	**11.4.X.X.X aMulticast_Enable** **aMulticast_Enable** ATTRIBUTE WITH APPROPRIATE SYNTAX integer; BEHAVIOUR DEFINED AS "This attribute shall indicate the ability of a power managed station to receive multicast broadcast frames. REGISTERED AS {iso(1) member-body(2) us(840) ieee802dot11(10036) MAC(2) attribute(7) **Multicast_Enable(7)** }; **11.4.3.1.1 agStationConfiggrp** StationConfiggrp ATTRIBUTE GROUP GROUP ELEMENTS	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						, **aMulticast_Enable** **11.2.1.3 (third Paragraph)** ..... Figure 57 illustrates the AP and station activity under the assumption that a DTIM is transmitted once every three TIMs. The top line in Figure 57 represents the time axis, with the Beacon Interval shown together with a DTIM Interval of three Beacon Intervals. The second line depicts AP activity. The AP schedules Beacons for transmission every Beacon Interval, but the Beacons may be delayed if there is traffic at the target beacon transmission times. This is indicated as "busy medium" on the second line. For the purposes of this figure, the important fact about Beacons is that they contain TIMs, some of which may be DTIMs. Note that the second station with aMulticastEnable set to False ~~will fail to receive broadcast/multicast frames, since it~~ opts not to power up its receiver for all DTIMs. **11.2.1.6** e) To receive broadcast/multicast MSDUs, the station must be configured with aMulticastEnable =True. The station shall wake up so as to receive every DTIM. A station receiving broadcast/multicast MSDUs shall remain awake until the More Data field of the broadcast/multicast MSDUs indicate there are no further buffered broadcast/multicast MSDUs or a TIM is received indicating there are no more buffered broadcast/multicast MSDUs buffered.	
	11.2.1.8	**TLP**	t		Simultaneous under-specification and over-specification, which results in over-constraining implementations while not requiring necessary functionality.	Change "transceivers" to "receivers".	

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	11.2.1.9	**KC**	**T**	**Y**	**"... shall be based on theaListenInterval ..."** **The default value ofaListenInterval is 0 and this section says that the AP can age out messages older than this by some unspecified algorithm. What if an STA does not receive a beacon correctly, and thus does not respond on the first chance? Does that mean a 0 value allows the AP to dump the message?**	**Specify exact algorithm.**	
	11.2.2.1	**KC**	**t**	**Y**	**The physical event that is tied to Target Beacon Time is not specified. Is it the start of the preamble? The point at which the MAC checks for medium availability or what?**	**Specify exact algorithm.**	
	11.2.2.1 1st ¶	**TLP**	e		Last use of "shall" is incorrect, since the verb is being used to describe necessity and intent, not a requirement.	Change "shall remain" to "needs to remain"	
	11.2.2.1 2nd ¶	**TLP**	e		This augmentation seems to be necessary because this standard, for some obscure reason, treats broadcast (multicast to all) frames as if they were notmulticast frames. It is as if one were to say that a rule applied to multi-person groups, and also to the group of all persons, implying that the latter was somehow not an instance of the former. In any event, be consistent. Since the committee seems to feel that broadcast is somehow not multicast, thus requiring explicit inclusion at each reference, please do the same here.	Change "multicast" to "broadcast/multicast"	
	11.2.2.1 3rd ¶	**TLP**	e, t		The existing text states thatMSDUs are randomized, when the randomization actually applies to the instant of transmission of theMSDUs; theMSDUs have prescribed contents which is anything but random. Also, the specified procedure lacks a reference.	Change the last sentence to read "Transmissions ofMSDUs announced by ATIMs are randomized after the ATIM Window, using thebackoff procedure described in clause 9."	
	11.2.2.1	**WD**	**t**		**This section describes that in the ATIM window also Multicast frames shall be transmitted. This is not correct. The ATIM frame can have amulticast address, to announcemulticast frames, but the frame itself should be send outside the ATIM window. This then is also consistent with item d of section 11.2.2.4.**	The ATIM Window is defined as a specific period of time, defined by aATIMWindow, following a TBTT during which only Beacon~~s~~ or ATIM ~~or multicast~~ frames shall be transmitted.	

Comment on 802.11/D5.0 **Name: _____** **Date: _____**

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.2.2.1	**WD**	**T**	**Y**	**This section specifies that the ATIM transmission times are to be randomized using the backoff procedure, but with the contention window set to aCWmax. This is considered a far to wide range, especially considering that the randomization of the Beacon frame (which is not acknowledged) is specified to be in a range till twice aCWmin as specified in section 11.1.2.2. In an IBSS each station will try to send a Beacon untill another one is recognised. The collision probability between those Beacons is then directly proportional to the number of stations participating in the IBSS.** **The probability that ATIM frames are being transmitted, and so the collision probability of such frames is worst case identical to the collision probability of the Beacons, but is usually much less, because it depends of the traffic load generated simulataneously by all stations.** **Further all directed ATIMs are acknowledged, so a collision would result in a retransmission of the ATIM.** **The randomization range for ATIM transmissions should be specified equal to the normal aCWmin.** **This then is also consistent with item b of section 11.2.2.4.** **This should be sufficient considering that a collision will result in a retransmission of the ATIM.**	ATIM transmission times are randomized, after a Beacon frame is either transmitted or received by the station, using the backoff procedure with the contention window equal to aCWmin~~max~~.	
	11.2.2.1 & 11.4.4.1 .27 & Annex D.	**WD**	**t**		**The specification of the ATIM window is inconsistent between the subject sections.** **Section 11.4.4.1 specifies 4Kusec** **Annex D specifies 1000, while the units are not specified.** **Suggest to specify 4Kusec, which will suit the DS and FH Phy.**	**Update Annex. D accordingly.**	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.2.2.2	**TLP**	e		Use of unique nomenclature, and visual non-separation of equation from text	Put the equation of c) on a separate line and clarify the use of square brackets and the meaning of the equal sign, both of which are not found in other equations.	
	11.2.2.3	**WD**	**e**		**Text assumes that there are multiple Active mode codes defined, whereas we currently have only one. So delete the last sentence of the first paragraph.**	~~A station in active mode may use either of the Active Mode codes defined.~~	
	11.2.2.4	**KC**	**T**	**Y**	**"A station may discard frames ... make it desirable to discard buffered frames, e.g., buffer starvation."** **How much storage is the STA supposed to have to buffer these? When it runs out, what is it supposed to do? Is it supposed to distribute the storage resource with some idea of fairness to the other STAs? Does this mean that dosing units that wander out of range cause the system to choke for those who need storage?**	**Specify exact algorithm.**	
	11.2.2.4	**TLP**	t, e		The last part of k) is inconsistent with the preceding part. If STAs are "known to be in the Awake state", then it cannot be because they were functioning in PowerSave mode and were presumed to have received an ATIM. If they are merely "presumed" to be in the Awake state, based on third-party observation of MPDUs which they might also have received, then make it very clear that presumption, not knowledge, is involved. The difference in anticipated error rates between these two modes of information assessment is substantial.	One solution might be to change k) to read "Following the transmission of all buffered MSDUs, a STA may transmit MSDUs without announcement to STAs that are known to be in the Awake state for the current beacon interval." Alternatively, "known" could be replaced with "presumed", in which case most of the existing text at the end of k) could be retained after rewording into literate English.	
	11.2.2.4	**WD**	**E**		**Item b and d are in conflict with section 11.2.2.1. However the statements are correct, and section 11.2.2.1 needs to be updated.**	Update section 11.2.2.1 according to my comments on that section.	
	11.3	SB	E	t	There is no 'standard' timeout for association request and re-association request. A sensible implementation would have a timer run here - It seems to me that one	Make the following changes and define aAssociationTime or capture the intent (I'm not particularly	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
					implementation may assume that an STA will wait 1 second (say) for a response, but another conformant implementation may only wait 0.5 seconds (say). This would cause a problem. So a time needs defining - I've used aAssociationTime which is a new MIB attribute.	concerned about the exact wording/mechanism to solve this issue) This defines how a station associates and reassociates with an Access Point. **Station Association Procedures** A station shall associate with an Access Point via the following procedure: a) The station shall transmit an Association Request to an Access Point with which that station is authenticated b) If an Association Response frame is received within aAssociationTime with status value of "successful", the station is now associated with the Access Point. If the Association Request fails for any reason, the station may scan for a different Access Point with which to attempt association. **Access Point Association Procedures** An Access Point shall operate as follows in order to support the	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						association of stations. a) Whenever an Association Request frame is received from a station and the station is authenticated, the Access Point shall transmit an Association Response within aAssociationTime with a status value as defined in clause 7.3.1.8. If the status value is "successful", the assigned Station ID to the station is included in the response. If the station is not authenticated, the Access Point shall transmit a Deauthentication frame to the station within aAssociationTime b) When the Association Response with a status value of "successful" frame is acknowledged by the station, the station is considered to be associated with this Access Point. c) The AP shall inform the Distribution System of the association. **Station Reassociation**	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						Procedures A station shall reassociate with an Access Point via the following procedure: a) The station shall transmit a Reassociation Request frame to an Access Point. b) If a Reassociation Response frame is received within aAssociationTime with status value of "successful", the station is now associated with the Access Point. If the Reassociation Request fails for any reason, the station may scan for a different Access Point with which to attempt reassociation. **Access PointReassociation Procedures** An Access Point shall operate as follows in order to support the reassociation of stations. a) Whenever a Reassociation Request frame is received from a station and the station is authenticated, the Access Point shall transmit a Reassociation	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						Response within aAssociationTime with a status value as defined in clause 7.3.1.8. If the status value is "successful", the assigned Station ID to the station is included in the response. If the station is not authenticated, the Access Point shall transmit a Deauthentication frame to the station within aAssociationTime b) When the Reassociation Response with a status value of "successful" frame is acknowledged by the station, the station is considered to be associated with this Access Point. c) The AP shall inform the Distribution System of the reassociation.	
	11.3.1, 11.3.2, 11.3.3, 11.3.4, and 11.1.3.2 .1, **also**	**MAF**	**t**	**(na)**	**There is nothing specified, either procedurally or in the MAC MIB to define an upper bound on the response time for Management frames other than Probes. There is a risk that conformant implementations might not be interoperable in the absence of of such a bound on the time before the responding station attempts to send Association Response frames, Reassociation Response frames, and Authentication frames (for the 2nd through last**	**Clause 11.3.1:** A station shall associate with an Access Point via the following procedure: a) The station shall transmit an Association Request to an Access	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	8.1.1.2, 8.1.2.2, 8.1.2.3, 8.1.2.4				**frames of any defined authentication sequence).** **The problem could occur in a case where an AP (or other responder STA in the case of Authentication sequences) is implemented in such a manner that it will never respond to one or more of these request types within the time that some STA implementation considers a reasonable maximum waiting time for such a response. For power-managed stations, waiting "forever" is a poor alternative. I strongly recommend that we apply the time limits already in the MIB for aMinProbeResponseTime and aMaxProbeResponseTime to the request/response exchanges for Association, Reassociation, and Authentication (for each step in the authentication sequence), as well as for Probe (already specified in 11.1.3.2.2). There also needs to be a constraint that the AP (or responder in the case of Probes and Authentication sequences in an IBSS) shall make its first attempt to transmit the response within aMinProbeResponse of receipt of a valid request. The requirement for conformance & interoperability is to have an upper bound on the response time between successful receipt of the request and the first attempt to obtain control of the medium to transmit the response. With this time interval known, there is a basis for interoperability that allows local decisions at the stations as to how much longer (if any) to wait due to medium access delays, and whether to retry, look elsewhere, etc.** **A similar comment on D4.0 was declined (with commenter's agreement) at the July, 1996 meeting because the solution proposed therein was found to be incomplete; not because there was a finding that the cited problem did not exist. While the risk of non-interoperability among "sane" STA and AP**	Point with which that station is authenticated b) If an Association Response frame is received with status value of "successful", the station is now associated with the Access Point. If the Association Request fails for any reason, the station may scan for a different Access Point with which to attempt association. The station may treat a period of at least aMaxProbeResponseTime duration following the transmission of an Association Request frame without receipt of any Association Response frames as a failure of the Association Request. **Clause 11.3.2:** An Access Point shall operate as follows in order to support the association of stations. a) Whenever an Association Request frame is received from a station and the station is authenticated, the Access Point shall transmit an Association Response with a status value as defined in	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
					implementations is small, sooner or later this type of incompatibility will occur if a time bound is not defined in the standard. **There are two approaches to fixing this problem. One is to add new MIB attributes with minimum response time limits for each various management frame exchanges. The other is to re-use an existing response time MIB attribute, such as aMaxProbeResponseTime. The proposed text changes to the right use the later approach, since to this commenter there does not seem to be any compelling reason to need different response time bounds for different of the exchanges. Note that all of the referenced responses pertain to the establishment of communication (Association, Reassociation, Authentication), so the time bound selected does not impact the performance for MSDU delivery after communication is established.**	clause 7.3.1.9~~7.3.1.8~~. The Access Point shall make its initial attempt to transmit the Association Response frame soon enough after receipt of the Association Request frame that a successful transmission attempt will be complete within aMaxProbeResponeTime of the receipt of the request. If the status value is "successful", the assigned Station ID to the station is included in the response. If the station is not authenticated, the Access Point shall transmit a Deauthentication frame to the station. b) When the Association Response with a status value of "successful" frame is acknowledged by the station, the station is considered to be associated with this Access Point. c) The AP shall inform the Distribution System of the association.	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						Clause 11.3.3: A station shall reassociate with an Access Point via the following procedure: a) The station shall transmit a Reassociation Request frame to an Access Point. b) If a Reassociation Response frame is received with status value of "successful", the station is now associated with the Access Point. If the Reassociation Request fails for any reason, the station may scan for a different Access Point with which to attempt reassociation. The station may treat a period of at least aMaxProbeResponseTime duration following the transmission of a ReassociationRequest frame without receipt of any ReassociationResponse frames as a failure of the Reassociation Request. **Clause 11.3.4:** An Access Point shall operate as follows in order to support the reassociation of stations. a) Whenever a	

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						Reassociation Request frame is received from a station and the station is authenticated, the Access Point shall transmit a Reassociation Response with a status value as defined in clause 7.3.1.97.3.1.8. The Access Point shall make its initial attempt to transmit the Ressociation Response frame soon enough after receipt of the Ressociation Request frame that a successful transmission attempt will be complete within aMaxProbeResponeTime of the receipt of the request. If the status value is "successful", the assigned Station ID to the station is included in the response. If the station is not authenticated, the Access Point shall transmit a Deauthentication frame to the station. b) When the Reassociation Response with a status value of "successful" frame is acknowledged by the station, the	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						station is considered to be associated with this Access Point. c) The AP shall inform the Distribution System of the reassociation. **Clause 11.1.3.2.1:** Stations, subject to criteria below, receiving ProbeRequest frames shall respond with a Probe Response only if: (1) the SSID is the broadcast SSID or matches the specific SSID of the station, and (2) the Capability Information field of the Probe indicates a match on the current BSS type. Probe Responses shall be sent as directed frames to the address of the station that generated the Probe. The Probe Response shall be sent using normal frame transmission rules.The responding station shall make its initial attempt to transmit the Probe Response frame within aMinProbeResponeTimeof the receipt of the Probe Request frame. An Access Point shall respond to all Probes meeting the criteria above. In an IBSS, the station that generated the last Beacon shall respond to a Probe. In each BSS there shall be at least one node that is awake at any given time to respond to Probes. The station that sent the most recent Beacon shall	

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						remain in the Awake state and shall be the only station to respond to Probes until a Beacon frame is received. If the station is an Access Point, it shall always remain in the Awake state and always respond to Probes. **In each of Clauses 8.1.1.2, 8.1.2.2, 8.1.2.3, and 8.1.2.4 add the following two paragraphs after the current text:** The station sending this frameshall make its initial transmission attempt soon enough after receipt of the preceding Authenticationframe of this authentication sequencethat a successful transmission attempt will be complete within aMaxProbeResponeTimeof the receipt of the preceding frame. The station waiting to receive this frame may treat a period of at least aMaxProbeResponseTimeduration following its transmission of the Authentication frame to which this is a response, without receipt of any Authentication frames as an unsuccessful authentication attempt.	
	11.3.2	**JMZ**	**e**		Reference to 7.3.1.8 is wrong	Should be 7.3.1.9	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.3.2 **11.3.4**	**TLP**	e		"is" was used where "shall be" is needed. Also, parts of speech confusion with the word "assigned"	The second sentence of a) in each sub-sub-clause should read " If the status value is "successful", the Station ID assigned to the station shall be included in the response."	
	11.3.3	**TLP**	T	Yes	Nothing so far described in this standard explains why a STA would need toreassociate with an AP, nor what event would cause a previously-associated STA to no longer be associated but still need to be associated.	Pleas provide some discussion of this issue, either here or in subclause 5.5 near Figure 8.	
	11.4 **A.4.4.1** **PC15.1** **PC15.2** **PC15.3** **Annex D**	**GMG**	**T**	**Y**	**Currently the entire MIB is specified to be mandatory for Standard Compliance.** **Since the MIB is not required for interoperability between stations, this is considered far to restrictive.** **Therefore its support should be optional, which brings this standard more in line with the other 802 standards, none of which define the MIB to be mandatory.** **The intend of standardizing should be that when a MIB is provided it should use the definitions defined in the optional MIB.**	Make the Status of all items in PC15 Optional.	
	11.4 **A.4.4.1** **PC15.1** **PC15.2** **PC15.3** **Annex D**	**WD**	**T**	**Y**	**Currently the whole MIB is specified to be mandatory for Standard Compliance.** **This is considered far to restrictive.** **Sinse the MIB is not required for interoperability between stations, its support should be optional.** **This is also more in line with the other 802 standards, none of which define the MIB to be mandatory.** **By defining the MIB to be optional, the intend of standerdizing its use when implemented is met, because it means; When a MIB is supported then this is to be its definition.**	Make the Status of all items in PC15 Optional.	
	11.4	**WD**	**T**	**y**	**According to the current PICS we should support a**	The MIB and PICS should be	

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	PC15.1 PC15.2 PC15.3 Annex. D		**E**		**full MIB, even when we do not implement the options like WEP and PCF. This is clearly not acceptable. The MIB and PICS proforma should be restructured such that it allows for exclusion of the MIB items that are associated with optional functionality in the standard. The prime purpose of the MIB definitions is to provide a common understanding of objects for Network Management and diagnostic purposes. However the vast majority of the MIB definitions are not relevant for Network Management purposes. Part of the currently defined MIB (especially the PHY MIBs) are primarily there to provide relevant PHY dependent parameters for the MAC. These in particular are not relevant for Network Management purposes. Furthermore the control of most controllable MIB parameters will be very implementation specific, and do fully depend on the actual configuration and configuration mechanism provided by the vendor of the end product. It would be desirable to specify a MIB subset that is relevant for Network Management purposes, especially those that provide statistic information.**	restructured to allow exclusion of items associated with optional functionality that is not implemented. This relates in particular to the WEP and PCF functionality. The MIB and PICS should be restructured to define subsets that are relevant for Network Management and Diagnostic purposes. In particular this relates to the following subset. Section 11.4.3.2.2agCountergrp aMaxRate, aManufacturerID, aProductID, aPrivacyOptionImplemented.	
	11.4	**MAF**	**E**	**{na}**	**Management objects are now defined twice: in clause 11.4 and in Annex D, with the ASN.1 version in Annex D stated as the normative version. There are many inconsistencies between the management information definitions in clause 11.4 and those in Annex D.**	**Delete clause 11.4.2 through clause 11.4.6.1.2 (or update them to remove the inconsistencies, but this is not recommended). Clause 11.4.1 can remain as a MIB summary, or can be deleted.**	
	11.4 and Annex D	**MAF**	**T**		**The object groups in 11.4 (SMT in 11.4.2.1.1, MAC in 11.4.2.2.1) are defined according to ISO/IEC 10165–2, whereas the Annex D uses SNMP v2. These should be consistent (unless 11.4.2.x is removed due to another comment).**	**Use SNMPv2 in 11.4.2.x**	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.4 and Annex D	**MAF**	**t**		**There are a number of management objects which are actually derived values needed by the MAC, but not useful, nor desirable, as managed objects. This commenter believes that most of these objects exist because the procedures to derive the values (mostly from the characteristics of the PHY in use) are difficult to specify using the text approach of clauses 8 through 11. These derived values are defined as functions in the state machines to be submitted as document P802.11/96–132, and should be removed as managed objects whether or not those state machines are incorporated into the standard. These unnecessary/undesriable objects include:** **aMaxMPDUTime** **aCTSSize** **aACKSize** **aACKTimeout**	**Remove these from the MIB. Replace with functional or proecdural definitions in the relevant clauses and/or Annex C.**	
	11.4 and Annex D	**MAF**	**E**	**{na}**	**aCurrenAPMACAddress and aCurrentBSSID are really the same thing, "current AP MAC address" is an artifact from an earlier version of the MAC**	**Remove aCurrentAPMACADDress, replace any references to this with references to aCurrentBSSID**	
	11.4 and Annex D	**MAF**	**t**		**aKnownAPs table and aGroupAddresses table may be worth having as readable objects, but should not have read–write access. These are not things which should be set via an external management entity — the APs are discovered by the station using the specified scanning procedures while the group addresses are determined by higher layer protocols.**	**make both of these tables read–only remove actAddGroupAddress and actDeleteGroupAddress**	
	11.4 and Annex D	**MAF**	**t**		**actInitializeSMT and actInitializeMAC are rather dangerous — normally an external network management entity cannot reinitialize the MAC or SMT during operation of the station. If these are really necessary, their applicability should be restricted to occur when not associated (or to force an end to all active communication and require reassociation before communication can resume).**	**Recommend deleting these actions, otherwise restrict their applicability and effect to times when not associated.**	
	11.4,	SB	t	N	There are some inconsistencies between the MIB	If the ASN.1 is to take precedence over	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	Annex D				definitions in the body of the standard and the ASN.1 definition, particularly in the case of default values. The standard says that the ASN.1 definition takes precedence, but in most cases it seems that this is where the error is. My guess would be that the ASN.1 MIB is lagging the standard by at least one draft. Here are the items that I have spotted - there may be more: aRTSThreshold default value is 3000 in 11.4 and 2304 in the ASN.1 definition. The ASN.1 definition is incorrect since this is the maximum MSDU size and the fragmentation threshold is over the MPDU which has headers and possibly WEP. AATIMWindow has a default value in 11.4 of 4Kus and in the ASN.1 definition of 1000us. Again the ASN.1 definition is incorrect. ACFPRate is defined in 11.4 as a number of DTIM intervals between beacons that start a CF Period. The default is 1 (one). In the ASN.1 definitionaCFPRate is defined as the number of beacon intervals between beacons that start a CF Period. The ASN.1 definition is inconsistent with the body of the standard -both 9.3.1 and the MIB definition - and is incorrect. ACFPMaxDuration has different definitions in 11.4 and in the ASN.1. The definition in 11.4 is correct and needs to be moved to the ASN.1 aMaxRate has different definitions and default values in 11.4 and in the ASN.1. The definition in 11.4 is correct and needs to be moved to the ASN.1 aFragmentationThreshold has a correctdefualt value in	the standard then make it correct. Correct all inconsistencies located and review thoroughly for others.	

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					11.4 of 2346 and an incorrect default value in the ASN.1 of 2304. aShortRetryLimit has a default value of 7 in 11.4 and is related to frames shorter than or equal to aRTSThreshold. In the ASN.1 definition it takes a default value of 5 and applies to frames shorter than or equal to aFragmentationThreshold in length. The 11.4 definition is correct and consistent with clause 9.2.5.3. aLongRetryLimit has a default value of 4 in 11.4 and is related to frames longer than aRTSThreshold. In the ASN.1 definition it takes a default value of 7 and applies to frames longer than aFragmentationThreshold in length. The 11.4 definition is correct and consistent with clause 9.2.5.3. aACKTimeout has different definitions in 11.4 and in the ASN.1 including different reference points - PHYTXEND.confirm in 11.4 and PHYDATA.confirm in the ASN.1. There is not a lot of difference here - but things need straightening out.		
	11.4.1.1.1	**WD**	**e**		Sequence of group different than in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.1.1.2	**WD**	**e**		aCurrentSSID is named aCurrentESSID in Annex D Missing aDesiredSSID. Missing aCurrentAPMACAddress	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.1.2.2	**WD**	**e**		Sequence of group different than in Annex D. aTransmittedMPDUCount is named aTransmittedFrameCount in Annex D. aMulticastReceivedCount is named aMulticastReceivedFrameCount in Annex.D. aBroadcastReceivedCount is named aBroadcastReceivedFrameCount in Annex.D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.4.1.4.1	**WD**	**e**		acInitializeSMT is named actInitializeSMT in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.1.4.2	**WD**	**e**		acMACInit is named actInitializeMAC in Annex D. acAddGroupAddress is named actAddGroupAddress in Annex D. acDeleteGroupAddress is named actDeleteGroupAddress in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.2.1.1	**WD**	**E**		oSMT is defined according to ISO/IEC 10165-2, while Annex D is defined according to SNMPv2. What is the significance of the ISO definitions here? aCurrentSSID is named aCurrentESSID in Annex D. aBSSBasicRateSet is not defined in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.2.2.1	SB	E	N	aCTSTimeout is missing from the MAC Object Class list - but it is used in 9.2.5.7 and defined in 11.4.4.2.29 It is also missing from the ASN.1 MIB definition.	Add to MAC Object Class list and to ASN.1 MIB definition.	
	11.4.2.2.1	**WD**	**E**		oMAC is defined according to ISO/IEC 10165-2, while Annex D is defined according to SNMPv2. What is the significance of the ISO definitions here? aTransmittedMPDUCount is named aTransmittedFrameCount in Annex D. aBroadcastFrameCount is named aBroadcastTransmittedFrameCount in Annex D. aMultipleRetryrCount should be aMultipleRetryCount. aMACEnableStatus is not defined in Annex D. aHandshakeOverhead is not defined in Annex D. aCWmax is not defined in Annex D. aCWmin is not defined in Annex D. agCapabilitiesgrp is not defined in Annex D. agConfiggrp is not defined in Annex D. agAddressgrp is not defined in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
					agFrameErrorConditiongrp is not defined in Annex D. acInitializeMAC is namedactInitializeMAC in Annex D. acAddGroupAddress is named actAddGroupAddress in Annex D. acDeleteGroupAddress is named actDeleteGroupAddress in Annex D. 11.4.3.1.1 Sequence of group different than in Annex D. aBSSBasicRateSet is not defined in Annex D.		
	11.4.3.1.2	**WD**	**E**		aCurrentSSID is namedaCurrentESSID in Annex D. Missing aDesiredSSID. Missing aCurrentAPMACAddress.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.3.1.3	**WD**	**E**		aSelectedPrivacyAlgorithm is not defined in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.3.2.2	**WD**	**e**		Sequence of group different than in Annex D. aTransmittedMPDUCount is named aTransmittedFrameCount in Annex D. aMulticastReceivedCount is named aMulticastReceivedFrameCount in Annex.D. aBroadcastReceivedCount is named aBroadcastReceivedFrameCount in Annex.D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4 11.2.1.3 11.2.1.6	**RM**	**T**	**Y**	**Clause 11.2.1.3 Figure 57 and Clause 11.2.1.6 Illustrate that power managed stations need to wake up to receive all DTIM's if reception of multicast frames is required. There is no mechanism within the standard to allow configuration of this option. A parameter needs to be added to the MIB to enable.**	**11.4.X.X.X aMulticast_Enable** **aMulticast_Enable** ATTRIBUTE WITH APPROPRIATE SYNTAX integer; BEHAVIOUR DEFINED AS "This attribute shall indicate the ability of a power managed station to receive multicast broadcast frames. REGISTERED AS {so(1) member-body(2) us(840) ieee802dot11(10036) MAC(2) attribute(7) **Multicast_Enable(7)** }; **11.4.3.1.1 agStationConfiggrp** StationConfiggrp ATTRIBUTE GROUP GROUP ELEMENTS	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
						, **aMulticast_Enable** **11.2.1.3 (third Paragraph)** ..... Figure 57 illustrates the AP and station activity under the assumption that a DTIM is transmitted once every three TIMs. The top line in Figure 57 represents the time axis, with the Beacon Interval shown together with a DTIM Interval of three Beacon Intervals. The second line depicts AP activity. The AP schedules Beacons for transmission every Beacon Interval, but the Beacons may be delayed if there is traffic at the target beacon transmission times. This is indicated as "busy medium" on the second line. For the purposes of this figure, the important fact about Beacons is that they contain TIMs, some of which may be DTIMs. Note that the second station with aMulticastEnable set to False ~~will fail to receive broadcast/multicast frames, since it~~ opts not to power up its receiver for all DTIMs. **11.2.1.6** e) To receive broadcast/multicast MSDUs, the station must be configured with aMulticastEnable =True. The station shall wake up so as to receive every DTIM. A station receiving broadcast/multicast MSDUs shall remain awake until the More Data field of the broadcast/multicast MSDUs indicate there are no further buffered broadcast/multicast MSDUs or a TIM is received indicating there are no more buffered broadcast/multicast MSDUs buffered.	
	11.4.4	**WD**	**e**		All attribute name definitions miss the leading 'a'.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	

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	11.4.4.1 .25	**TLP**	e		Pay some attention to visual formatting and term/factor delimitation here.	Format the equation with indentation to aid readability. (See provided revision-marked files for one such formatting.)	
	11.4.4.1 .1	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .14	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .15	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .24	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .25	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .27 11.2.2.1 & & Annex D.	**WD**	**t**		**The specification of the ATIM window is inconsistent between the subject sections. Section 11.4.4.1 specifies 4Kusec Annex D specifies 1000, while the units are not specified. Suggest to specify 4Kusec, which will suit the DS and FH Phy.**	**Update Annex. D accordingly.**	
	11.4.4.1 .27	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .32	**WD**	**e**		aBSSBasicRateSet is not defined in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1 .4	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	

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	11.4.4.1.5	**TLP**	T	Yes	Since the description in 8.3.2 is deficient and incorrect, it is necessary that the actual array-of-records structure be defined unambiguously. This would be a good place to do it.	Define the actual array-of-records structure unambiguously.	
	11.4.4.1.6	**WD**	**e**		aCurrentSSID is named aCurrentESSID in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.1.7	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2.11 .12	**TLP**	e		change to literate English	Change "received to a RTS" to "received in response to an RTS"	
	11.4.4.2.13	**TLP**	e		change to literate English	Change "received to a" to "received in response to a"	
	11.4.4.2.16	**TLP**	e		The deleted text is unnecessary as it is already excluded by the corrected text ofaGroupAddresses. Its presence implies inconsistent requirements on the set aGroupAddresses.	Delete the clause ", the destination MAC address is not the broadcast address"	
	11.4.4.2.21 .33 many others	**TLP**	E	Yes	Please take pity on non-native English speakers and use names that they have some slight chance of understanding. "suprt" for "supported" is not even close to acceptable. I am NO-voting the PHY clause of this standard for this reason (gross inconsiderateness). Therefore I am also correcting the names of PHY attributes which occur in this clause to a form that is acceptable to me (and I'm sure other intended readers); I will not be annotating the reason for each such correction.	Change "aSuprtDataRates" to "aSupportedDataRates", and "aMPDUMaxLngth" to "aMPDUMaxLength". (See supplied revision-marked files for addition corrected attribute names.)	

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	11.4.4.2 .22	**TLP**	e		The relevant subset of frame types was specified incorrectly or not at all.	Change the third and fourth sentences to read " Setting this attribute to be larger than the maximum MSDU size shall have the effect of turning off the RTS/CTS handshake for all Data frames transmitted by this station. Setting this attribute to zero shall have the effect of turning on the RTS/CTS handshake for all Data frames transmitted by this station."	
	11.4.4.2 .22	**TLP**	t		Unless I misremember, RTS/CTS was used for more than just Data frames. The other uses should not be affected by this attribute. If they are, then be very clear about it, both here and in those places where RTS/CTS is used for non Data-frame purposes.	Consider this issue and clarify the text based on committee intent.	
	11.4.4.2 .23 .24 .25	**TLP**	e		References to "number of slots" and "slots" is meaningless. Is this a casino?	Change all such occurrences to "units ofaSlotTime".	
	11.4.4.2 .25	**TLP**	e		If the default values foraCWmin are defined in the relevant PHY clause, then the CANNOT be defined here, and so any specification here is for information only. You can't have ti BOTH ways.	Change "shall be" to "are".	
	11.4.4.2 .28 .29	**TLP**	e		There is always a potential for an STA to respond to multiple addresses and hence send frames for network-maintenance reasons to which the same STA responds. In such a case the reference toPHYTXEND.confirm is needlessly ambiguous.	Change each sub-sub-sub-sub-section to read "timed from receipt of the first frame's PHYTXEND.confirm"	
	11.4.4.2 .33	**TLP**	e		If the default values foraFragmentationThreshold are defined in the relevant PHY clause, then the CANNOT be defined here, and so any specification here is for information only. You can't haveti BOTH ways.	Change "shall be" to "are".	
	11.4.4.2 .37 .38	**TLP**	e		Incorrect English	In each sub-sub-sub-sub-section, change "that further" to "after which further"	
	11.4.4.2	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in**	

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	.1					**the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .14	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .15	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .18	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2.2	**TLP**	t		Exclude the broadcast address from this set, since its default value is the null set.	Change to read "…multicast addresses, excluding the broadcast address, for which …"	
	11.4.4.2 .21	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .22	**WD**	**e**		Default value differs from the one defined in Annex D (3000 vs 2305).	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .26	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .27	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .28	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .29	**WD**	**e**		aCTSTimeout is not defined in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.4.2 .3	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	

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	11.4.4.2.30	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.4.2.31	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.4.2.33	**WD**	**E**		"Behaviour" not same as "Description" in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.4.2.37	**AS**	**t**	**y**	**This section only describes timing of fragmented MSDUs. I believe the intent of the standard is to allow fragmentation of MMPDUs.**	**Change occurrences "MSDU" to "MSDU or MMPDU".**	
	11.4.4.2.38	**AS**	**t**	**y**	**This section only describes timing of fragmented MSDUs. I believe the intent of the standard is to allow fragmentation of MMPDUs.**	**Change occurrences "MSDU" to "MSDU or MMPDU".**	
	11.4.4.2.5	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body(11.4), and to correct Annex D as applicable.**	
	11.4.4.3.1	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.4.3.2	**WD**	**E**		Missing "behaviour".	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.5.1.1	**WD**	**e**		acInitializeSMT is named actInitializeSMT in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.5.2.1	**WD**	**e**		acInitializeMAC is named actInitializeMAC in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.5.2.2	**WD**	**e**		acAddGroupAddress is named actAddGroupAddress in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.5.2.3	**WD**	**e**		acDeleteGroupAddress is named actDeleteGroupAddress in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	

Seq. #	Section number	your voter's id code	Cmnt type E, e, T, t	Part of NO vote	Comment/Rationale	Recommended change	Disposition/Rebuttal
	11.4.6.1.1	**WD**	**e**		nAssociate is not defined in Annex D.	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.4.6.1.2	**WD**	**e**		nDisassociate is not defined in Annex D	**Suggest to remove the definitions in the std body (11.4), and to correct Annex D as applicable.**	
	11.all all sections	**TLP**	e		MS Word superscript and subscript font attributes produce unacceptable results.	Do not use MS-Word subscripting or superscripting; MS-Word makes the resulting text TOO SMALL. Instead, select the characters to become the subscript or superscript and use Format/Font/Font/Size/8 and Format/Font/Character Spacing/Position/Lowered and Format/Font/Character Spacing/By/2 for a subscript, and Format/Font/Font/Size/8 and Format/Font/Character Spacing/Position/Raised and Format/Font/Character Spacing/By/3 for a superscript. (This is corrected in the submitted revision-marked files.	