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

Section 2 comments from Ballot on Draft Standard D2 (Vic Hayes, Chair, AT&T WCND)

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	1.X, 2.X, 3.X 4.X, 5.X, 6.X 7.X 8.X	BD	E	N	My editorial comments are contained in the files D2lb_edx.doc (where x is the relevant major section number) which were submitted along with this ballot response. All comments in these files are purely 100% editorial in nature (incorrect fonts, extra blank lines, misformatting etc). Any change for which there was any question in my mind that anyone might think it other than editorial, I have included as separate comment in this table.	Doc D2 is of Insufficient quality. 1) There are numerous editorial errors in the D2 draft which need to be corrected before the draft can be forwarded for sponsor ballot. The editorial errors range from incorrect fonts in the middle of sentences & page formatting to a dire need to have a spelling check run on the document. 2) While no single item is enough to prevent forwarding of the draft, in aggregate they impact the draft quality to such an extent that it would be embarrassing to forward it in this state. I have forwarded to the editors a marked up copy of the draft showing the editorial errors I noticed during review (this was at the editors request, for various obscure reasons a hard copy was requested over an electronic copy as being easier to deal with in this instance). 3) Additionally all the section X.X, Y.Y etc place holder in the text need to be found and changed to correct section references.	
	2	ZV			Clause 2 should be labeled "References." References are not numbered, but should be listed in alphanumeric order. When calling them out in text, use the standards designation and year, e.g., see IEEE Std 802-1990. References are "those standards that must be on hand and available to the user of the standard for its		

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					implementation." You have referred to other documents in the body of this standard (such as IEC 825-1 and ANSI Z136.1 on page 278). These documents must either be added to the References clause, or into a Bibliography (add this as the last informative annex). Ensure that ALL standards referenced in this guide appear in one of those two listings. The reference to ISO 7498: 1994 should appear as follows: ISO/IEC 7498-1:1994 Information technology -- Open Systems Interconnection -- Basic Reference Model: The Basic Model. Do not put ISO-7498 **OR** CCITT Recommendation X.200. Decide if you want both or only one of these listed. If you choose ISO-7498, do you want all of the parts listed (see below)? If not, indicate which parts are pertinent. ISO/IEC 7498-1:1994 Information technology -- Open Systems Interconnection -- Basic Reference Model: The Basic Model ISO 7498-2:1989 Information processing systems -- Open Systems Interconnection -- Basic Reference Model -- Part 2: Security Architecture ISO 7498-3:1989 Information processing systems -- Open Systems Interconnection -- Basic Reference Model -- Part 3: Naming and addressing ISO/IEC 7498-4:1989 Information processing systems -- Open Systems Interconnection --Basic Reference Model -- Part 4: Management framework		
2		ZV	e		Do you want the most current version of the references to be referenced? If so, use the following introductory sentences in clause 2: This standard shall be used in conjunction with the following standards. When the following standards are superseded by an approved revision, the revision shall apply.		

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2	ZV	e		If this standard is intended for the international arena, clause 2 should be labeled "Normative references" and the following statement should be added before the list of references: The following standards contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of ISO and IEC maintain registers of currently valid International Standards.		
	2.1	TM	e		This section presents the concepts and	wording semantics	
	2.1.1	DM	e		Change numbering to remove single subsections. There should always be more than 1 subsection.	If there is only one subsection then the subsection should become a section of the next higher level. The purpose of a subsection is to break a section down into more parts. If there is only one part then it doesn't warrant a subsection.	
	2.1.1	TM	e			add a short paragraph explaining the differences among the three PHYs used in this wireless standard	
	2.1.1.2	BTh	E		changes in a)... Use~~s~~ ~~obsrevable~~observable in b), c), and d) remove period at end of line rewrite e)... e) lack full connectivity and therefore the assumption normally made that every STA can hear every other STA is invalid	For plural noun PHYs correct verb is use typo improper to put period at end of line in lists e) was not consistent with grammar of other lines in list	
	2.1.1.2	EG	e		"observable"	misspelled in a)	
	2.1.1.2	EG	e		"assumption"	misspelled in e)	
	2.1.1.2	RJa	e		... observable~~obsrevable~~ ...	Spelling Error	
	2.1.1.2	TM	e		a) ... observable (spelling) Because of limitations on wireless PHY ranges ...	remove extra space between on and wireless	
	2.1.1.2	ws	e		under a) - missing period		

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.1.1.2	DM	t		The PHY layers used in 802.11 are fundamentally different <u>from those used in</u> ~~from~~ wired media <u>systems</u>. 802.11 PHYs: a) Uses ~~a~~ medium that has neither absolute nor readily obs<u>e</u>revable boundaries outside of which stations with conformant PHY transcievers are known to be unable to receive network frames b) Are unprotected from outside signals. c) <u>Communicate over a</u> ~~Are significantly~~ less reliable <u>media</u> than wired PHYs. d) ~~Have dynamic topologies.~~ e) ~~The assuption normally made that every STA can hear every other STA is invalid as 802.11 PHYs lack full connectivity.~~ Because of limitations on wireless PHY ranges, wireless LANs intended to cover reasonable geographic distances must be built from basic coverage building blocks.	Technical content is incorrect in this section. c) The 802.11 PHYs are NOT less reliable than a wired PHY. The channel characteristics are time variant causing the communications between two PHYs to be less reliable than the equivalent wired system. d) The 802.11 **PHYs** do NOT have dynamic topologies. e) This statement is saying the same thing as 'a)'. Some typos and grammatical errors were also corrected in this section	
	2.1.1.3	BA	e		... receiver~~reciever~~ ...	Spelling Error	
	2.1.1.3	DM	e		Typo in Paragraph 3 : important		
	2.1.1.3- 2.1.1.4	BSi	e		**2.1.1.3 and 2.1.1.4 contain the same text. This would seem to go with 'Impact of handling mobile stations'. Maybe some new text required for 2.1.1.4 - was this lost in an edit along the way ?**	**2.1.1.3 and 2.1.1.4 contain the same text.**	
	2.1.1.4	BA	E		<u>???</u>	I don't know what was agreed to be in this paragraph but what is there is a copy of the previous section.	
	2.1.1.4	BPh	E		**remove section 2.1.1.4**	**Same text as section 2.1.1.3**	
	2.1.1.4	EG	E		**Remove "for technical reasons"**	**what technical reasons? its part of our requirements**	
	2.1.1.4	EG	e		**"receiver"**	**I before E except after C and when sounding like "a" as in neighbor and weigh**	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.1.1.4	KJ	E		delete section. It duplicates 2.1.1.3		
	2.1.1.4	MB	E		**The entire section is a duplication of section 2.1.1.4. The verbiage does not conform to the section title**		
	2.1.1.4	STh	e		For technical reasons, it is not sufficient to handle only portable stations. Propagation effects blur the distinction between portable and mobile stations (stationary stations often appear to be mobile due to propagation effects). Another inportant aspect of mobile stations is that they will often be battery powered and hence power management is an important consideration. For example, it cannot be presumed that a station's reciever will always be powered on. **802.11 has to make up for the fact that other LANs may assume that an address is identical to a location.**	**Deleted repeated text, added explainatory text.**	
	2.1.1.4	STh	e		For technical reasons, it is not sufficient to handle only portable stations. Propagation effects blur the distinction between portable and mobile stations (stationary stations often appear to be mobile due to propagation effects). Another inportant aspect of mobile stations is that they will often be battery powered and hence power management is an important consideration. For example, it cannot be presumed that a station's reciever will always be powered on. **802.11 has to make up for the fact that other LANs may assume that an address is identical to a location.**	**Deleted repeated text, added explainatory text.**	
	2.1.1.4	TM	E		something is missing or wrong with this text as it is identical to the previous section and does not apply here	the correct text is needed	
	2.1.1.4	ws	E		**Duplicates 2.1.1.3**		
	2.1.1.4	DM	t		Delete the entire section	Text currently in this section has nothing to do with the "Interaction with other 802 Layers". Therefore delete the text.	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.1.1.4	RMr	t		Recover the section text from D1.	Currently duplicates the text of 2.1.1.3	
	2.1.1.4	BTh	E	N	Replace text with text from Draft D1 with corrections made during comment resolution process	The current text is the same as the text of the previous section due to editorial error.	
	2.1.1.4	HDa	E	N	One of the requirements of 802.11 is to handle *mobile* as well as *portable* stations. A *portable* station is one that is moved from location to location, but is only used while at a fixed location. *Mobile* stations actually access the LAN while in motion. For technical reasons, it is not sufficient to handle only portable stations. Propagation effects blur the distinction between portable and mobile stations (stationary stations often appear to be mobile due to propagation effects). Another important aspect of mobile stations is that they will often be battery powered and hence power management is an important consideration. For example, it cannot be presumed that a station's reciever will always be powered on. **Put correct text**	Text is identical to 2.1.1.3	
	2.1.1.4	RJa	E	N	???	I don't know what was agreed to be in this paragraph but what is there is wrong.	
	2.1.1.4	BD	T	N	Replace contents of section 2.1.1.4 with: 802.11 is required to appear to higher layers (LLC) as a current style 802 LAN. This requires that the 802.11 network handle station mobility within the MAC layer. To meet reliability assumptions (that LLC makes about lower layers), it is necessary for 802.11 to incorporate functionality which is untraditional for MAC layers.	The text of this section in D2 is identical to sec 2.1.1.3, only the heading is different. Somehow the correct text was clobbered. The correct missing text is provided.	
	2.2	BPh	e		major editing required in description of BSS.	Text is from a Dave B presentation	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.2.1 2.2.1.1				Figure 2-1 is referred to three times with the same description. "The concept of area can lead one astray..." No need for this in a standards document.	and is still in its original informal style. Intent is to clearly define architecture	
	2.2	STh	E		This section seems difficult for an uninformed reader (our audience) to understand: a rewrite would be helpful. I will submit paper with suggested wording in time for resolution of the ballots.		
	2.2	STh	E		This section seems difficult for an uninformed reader (our audience) to understand: a rewrite would be helpful. I will submit paper with suggested wording in time for resolution of the ballots.		
	2.2	TM	e		remove period from title remove apostrophe from it's remove extra space BSS ,		
	2.2	EG	t		Coordination Function (CF) ... transmits via the wireless medium.	The CF has nothing to do with when a station receives.	
	2.2	FMi	t	N	Coordination Function (CF). The That logical function which determines when a station operating within a Basic Service Set is permitted to transmits and may be able to receives PDUs on via the wireless medium. Basic Service Set (BSS). A set of stations controlled by a single Coordination Function. A BSS mayean have one PCF and shall have one DCF.	correctness, consistency with updates to definitions in 1.1	
	2.2.1	BTh	E		in Ad-Hoc network there should be no hyphen or capitalization in ad hoc	According to my dictionary the proper use of word is "ad hoc network"	
	2.2.1	DW	e		Section 2.2.1 is the same as Section 2.2.1.1, delete one of them.		
	2.2.1 - 2.2.1.1	BSi	e		2.2.1 and 2.2.1.1 contain the same text. This would seem to be sensible text for 2.2.1. Not sure what 2.2.1.1 is doing here as this is talking about APs !	2.2.1 and 2.2.1.1 contain the same text.	
	2.2.1.1	BA	E		???	I don't know what was agreed to be in this paragraph but what is there is a copy of the previous section..	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.2.1.1	DM	e		Change numbering to remove single subsections. There should always be more than 1 subsection.	If there is only one subsection then the subsection should become a section of the next higher level. The purpose of a subsection is to break a section down into more parts. If there is only one part then it doesn't warrant a subsection.	
	2.2.1.1	FMi	E		Delete this entire sub–section, both contents and heading.	2.2.1 and 2.2.1.1 are identical except for their headings — either this is an editing artifact, and should be removed, or the original text for 2.2.1.1 has been lost, and should be reviewed for potential relevance.	
	2.2.1.1	MB	E		**The entire section is a duplication of section 2.2.1 The verbiage does not conform to the section title**		
	2.2.1.1	STh	E		Delete	**Misplaced heading; repeated text**	
	2.2.1.1	STh	E		Delete	**Misplaced heading; repeated text**	
	2.2.1.1	TM	E		something is missing or wrong with this text at it is identical to the previous section and does not apply here	the correct text is needed	
	2.2.1.1	WR	e		Retitle this clause	Independent BSSs don not have an AP and there is no association	
	2.2.1.1	ws	E		**Duplicates 2.2.1**		
	2.2.1.1	RMr	t		**Recover the section text from D1.**	**Currently duplicates the text of 2.2.1**	
	2.2.1.1	BTh	E	N	**Replace text with text from Draft D1 with corrections made during comment resolution process**	The current text is the same as the text of the previous section due to editorial error.	
	2.2.1.1	RJa	E	N	???	I don't know what was agreed to be in this paragraph but what is there is wrong.	
	2.2.1.1	SKy	E	N	**Replace with correct text.**	**Text is a repeat of previous paragraph.**	
	2.2.1.1	BD	T	N	**Replace contents of section 2.2.1.1 with:** **The association between a STA and a BSS is dynamic (STAs turn on, turn off, come within range and go out of range). To become a member of an infrastructure BSS a station must become "Associated". These associations are dynamic and involve the use of**	**The text of this section in D2 is identical to sec 2.2.1, only the heading is different. Somehow the correct text was clobbered. The correct missing text is provided**	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					Distribution System Services (which are described later).		
	2.2.11	KJ	E		delete section. It duplicates 2.2.1		
	2.2.2	BPh	e		in description of DSS: "distributions" should be "distribution" below figure 2-2 "sommunication" should be "communication"	spelling...	
	2.2.2	BTh	e		in definition of DSS change...~~instancfe~~instance in last paragraph change...an AP for ~~s~~communication on	typo	
	2.2.2	DM	e		Typo in definition for DSS: instance		
	2.2.2	EG	e		"instance"	misspelled	
	2.2.2	EG	e		"communication"	misspelled as "sommunication"	
	2.2.2	MB	e		8th Paragraph starting with Distribution Systems Services (DSS) ..... with each other over a single ~~instancfe~~ instance of the WM		
	2.2.2	MB	e		Last sentence in the section . The addresses used by the AP for ~~sommunication~~ some communications on the WM and		
	2.2.2	RJa	e		... The addresses used by an AP for communications~~sommunication~~ on the WM and on the DSM are not necesarily the same.	Spelling Error	
	2.2.2	TM	e		remove extra space between ... of an extended form of network		
	2.2.2	TM	e		(DSS). ...over a single instance ... (spelling)		
	2.2.2	TM	e		The addresses used by an AP for communication (spelling)		
	2.2.2	ws	e		under DSS - misspell instance - "instancfe"		
	2.2.2	HDa	e	N	The addresses used by an AP for ~~c~~communication on the WM and on the DSM are not necessarily the same.	Typos	
	2.2.2	FMi	t	N	Distribution System Services (DSS). The set of services provided by the distributions system which enable the MAC to transport MSDUs between stations that are not in	completeness, consistency with updated definitions in 1.1	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					direct communication with each other over a single instancfe of the WM. These servicesThis includes transport of MSDUs between the APs of BSSs within an ESS, transport of MSDUs between portals and BSSs within an ESS, and the transport of MSDUs between stations in the same BSS in cases where the MSDU has a multicast or broadcast destination address or where the destination is an individual address, but the station sending the MSDU chooses to involve DSS.		
	2.2.2	FMi	t	N	**Distribution System Medium (DSM).** The medium or set of media used by a Distribution System (for communication between Access Points and Portals of an ESS. interconnections).	correctness, consistency with updates to definitions in 1.1	
	2.2.2.1	BTh	e		**in definition of ESS** **change...**any station associated with one of those BSSs.	typo	
	2.2.2.1	BTh	E		**for Ad-Hoc network there should be no hyphen or capitalization in ad hoc**	According to my dictionary the proper use of word is "ad hoc network"	
	2.2.2.1	DM	e		Change numbering to remove single subsections. There should always be more than 1 subsection.	If there is only one subsection then the subsection should become a section of the next higher level. The purpose of a subsection is to break a section down into more parts. If there is only one part then it doesn't warrant a subsection.	
	2.2.2.1	TM	e		Extended Service Set (ESS). ... one of the BSSs	remove space for proper alignment and change 'on' to one	
	2.2.2.1	TM	e		d) ... when ...	correct the font	
	2.2.2.1	**ws**	**e**		**under ESS - misspell one - "on"**		
	2.2.2.1	**BPh**	**t**		**scenario d) "adjacent" should be "overlapping"**	**if they are "in the same space" they are overlapping**	
	2.2.2.1	FMi	T	N	The DS and BSSs allow 802.11 to create a wireless network of arbitrary size and complexity. 802.11 refers to this type of network as an extendedthe ESS network. An extended network consists Extended Service Set (ESS). A set of one or more interconnected Basic Service Sets and integrated LANs which appear as a single Basic Service Set to the logical link control layer at any station	See document 95–188, Clause 1.	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					associated with one of those BSSs. The principal form of extended network is called an **Extended Service Set (ESS)**, which is a set of one or more Basic Service Sets and zero or more integrated LANs, connected to a common Distribution System, allowing them to appear as a single Basic Service Set to the logical link control entity at any station associated with one of those BSSs and at any station attached to one of those integrated LANs. The DSM of an ESS shall be comprised solely of 802 LAN segments (including wireless LAN segments), and any physical layer repeaters and/or 802.1d MAC Bridges necessary to interconnect those LAN segments. It is also possible to construct extended network that utilize DSM alternatives outside of those allowed for an ESS. The result is called a **More Extended Service Set (MESS)**, which is an Extended Service Set in which the Distribution System operates above the data link layer and/or in which the DSM includes one or more routers, gateways, or non–LAN segments. Some distribution system services may be unavailable between arbitrary pairs of stations in a MESS, and some mobility transitions may be impossible between arbitrary BSSes in a MESS. { figure 2–3 unchanged } The key concept is that the extendedESS network appears the same to an LLC layer as an independent BSS network. Stations within an extended networkESS can communicate and mobile stations may move from one BSS to another (within the same ESS) transparently to LLC. Nothing is assumed by 802.11 about the relative physical locations of the BSSs in figure 2-3.		

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					All of the following are possible: a) The BSSs may partially overlap. This is commonly used to arrange contiguous coverage within a physical volume. For some 802.11 PHY layers, communication distances over the WM are sufficiently limited that this type of network extension is necessary in order to achieve "local area" coverage. b) The BSSs could be physically disjoint. Logically there is no limit to the distance between BSSs, although the constraints on the DSM used for an ESS may require far-separated BSSs to be configured in a MESS. c) The BSSs may be physically collocated. This might be done to provide redundancy. d) One (or more) independent BSS, or ESS networks may be physically present in the same space as one (or more) ESS networks. This can arise for a number of reasons. Two of the most common are an Ad-hoc network is operating in a location which also has an ESS network and when physically adjacent 802.11 networks have been set up by different organizations.		
	2.2.3	DM	E		Add scale to figure or delete (see rationale).	Figure serves NO purpose without a scale to distinguish what the different shades represent. If, for example the difference between black and white were 1dB then the picture would tell me that the signal strength of the environment is relatively constant in a given area. This is clearly not the case and we should not allow this much reader interpretation. If no scale is given then we should delete the figure and associated text so	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
						that no misinterpretation is made.	
	2.2.3	MRo	e		**replace "good enough" with "sufficient"** While sets of stations is the correct concept, it is often convenient to talk about areas. For many topics the concept of area is " ~~good enough~~ sufficient".		
	2.2.3	STh	e		Add as third paragraph: In black and white reproductions of this standard, the dark areas correspond to lower received signal strength.		
	2.2.3	STh	e		Add as third paragraph: In black and white reproductions of this standard, the dark areas correspond to lower received signal strength.		
	2.2.3	TM	e		... differences in signal strength present at the receiver.	add the phrase to more accurately complete the sentence	
	2.2.3	TM	e		correct spelling of 'door way' to doorway correct spelling of 'releative' to relative		
	2.2.3	TM	e		add AP label to STA 7 box of figure 2-5		
	2.2.3	TM	e		(ESA). ... and may involve BSAs in overlapping, disjoint, or both configurations.	more accurate wording - add period to end the sentence	
	2.2.4	FMi	e		change "Ap" to "AP" (in last paragraph)	typo	
	2.2.4	TM	e		both the functions of an AP and a Portal;	use AP instead of Ap	
	2.2.4	FMi	t		A portal is the logical point at which MSDUs~~Data~~ from an integrated, non–802.11 (wired) LAN enters the 802.11 distribution system.~~architecture via a Portal into the DS~~. The Portal is shown in figure 2-6 connecting to a wired 802 LAN.	correctness, consistency with definition updates in 1.1	
	2.2.4.1	DM	e		Change numbering to remove single subsections. There should always be more than 1 subsection.	If there is only one subsection then the subsection should become a section of the next higher level. The purpose of a subsection is to break a section down into more parts. If there is only one part then it doesn't warrant a subsection.	
	2.2.4.1	TM	e		correct the font used on 'logical' remove extra space between logical and medium		
	2.3	MB	e		**delete the MSDU delivery as one of the architectural**		

Seq. #	Section number	your initials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					services listed in the third paragraph h) Reassociation i) MSDU delivery		
	2.3	TM	e		remove blank line between h) ... and i)		
	2.3	ZJ	e		Fix formatting so (h) and (i) are together		
	2.3-2.6	DW	e		Update all references by section number.	Currently text says "see 4" rather then "see section 4" or "see X.X".	
	2.3.1	DW	T		I assume that "MSDU delivery" should be listed as part of the Station Services.		
	2.3.1	BTh	T	N	add to SS subset... d) MSDU delivery	The paragraph makes an apparently illogical assertion. The only SS **really required** to support transport of MSDUs between STAs in a BSS is MDSU delivery.	
	2.3.2	TM	e		... show the services in the architecture picture.	more complete	
	2.3.2	TM	e		figure 2-7 ---- lines from the arrows are shown. There should either be descriptions added or the lines removed		
	2.3.3	BTh	e		in penultimate paragraph change... the DS implementation chose to uses network layer	I doubt if the DS implementation makes any choices	
	2.3.3	TM	e		add a comma after Therefore, it is ... change it's to its		
	2.3.3	FMi	T	N	The 802.11 choice of address space and constraints on the DSM of an ESS implies that for all ESSs, many instantiations of the 802.11 architecture, the wired LAN MAC address space, the DSM address space, and the 802.11 MAC address space will be the same. This will also be true in many other instantiations of the 802.11 architecture. In those situations where a DS which uses MAC level 802 addressing is appropriate, all three of the logical address spaces used within a system could be identical. While this is a common case, it is not the only combination allowed by the architecture. The 802.11 architecture allows for all three logical address spaces to be different when the extended network is a MESS. A multiple address space example is a MESSone where the DS implementation chose to uses network layer		

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					addressing. In this case the WM address space and the DS address space would be different. The ability of the architecture to handle multiple logical media and address spaces is key to the ability of 802.11 to be independent of the DS implementation and to cleanly interface with network layer mobility approaches (e.g. Layer 3 mobility standards such as IETF mobile IP).		
	2.4	SA	e		**Introduce here are the various services, including a an introduction to how each service is used, and how it relates to the other services and the 802.11 architecture.**	**The sentence didn't sound right**	
	2.4	BTh	E		Change 1st paragraph... There are nine~~seven~~ services specified by 802.11. Six~~Five~~ of the services are used ot support MSDU delivery between Stations. Threee~~Two~~ of the service...	Just counted the list in 2.3.	
	2.4	BTh	e		Change 2nd paragraph... Introduced here are the various services, with~~provide~~ an introduction to how each service is used, and ~~describe~~ how it relates... Change 4th paragraph... The 802.11 MAC layer uses three types of messages<delete comma><insert emdash>Data, Management and Control (see 4 F~~f~~rame and MPDU F~~f~~ormats).	Original sentences were poor grammar. There are numerous ways to correct the problems; this was one of them. If a section is refered to by name the name should be correct.	
	2.4	BTh	E		Change last paragraph... Independent BSS network environments are discusses~~provided~~ separately in 2.6~~at the end~~.	Better grammar and more precise.	
	2.4	MB	e		**Overview of Services** **There are ~~seven~~ eight services specified by 802.11.** **Five of the services are used to support MSDU delivery between Stations. ~~Two~~ Three of the services are used to control 802.11 LAN access and confidentiality**		
	2.4	TM	e		There are ~~seven~~ nine services ...	section 2.3 defines nine services change the following two sentences according to the accurate counts	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.4	ws	e		second paragraph should read "various services, an introduction to how each service is used, and how it relates"		
	2.4	ws	e		4th paragraph - "(4 frame formats)" should capitalize Frame Formats as it is a title		
	2.4	DW	e		The number of services given in the overview do not correspond with section 2.3.	There are a total of 9 services listed in section 2.3, of which 4 of the services are used to support MSDU delivery	
	2.4	RMr	t		There are nineseven services specified by 802.11. sixFive of the services are used to support MSDU delivery between Stations. ThreeTwo of the services are used to control 802.11 LAN access and confidentiality.	Inconsistent with 2.3	
	2.4	BTh	T	N	Need definitions of MAC data service path and MAC Management Service data path	I don't know what the definitions of these new terms should be, but must either: define in previous sections, define here or point to later definition. This document will be difficult enough to read even with complete definitions.	
	2.4.1.	BPa	T		The Inter AP Protocol must be defined on the standard.	This is the only way a user will be able to use different vendors Aps. The MAC State Machines make reference to frames between APs	
	2.4.1.1	EG	E		"This is one of the primary services used by 802.11 stations operating within an ESS."	Other services are also important (in fact I would argue that integration is probably more important), and it doesn't apply to an ad hoc net.	
	2.4.1.1	ws	e		6th paragraph. Delete first sentence	verbose	
	2.4.1.1	EG	t		How the message is distributed within the Distribution System is not currently specified by 802.11.	It's debatable whether this is a job for 802.11 or some other body, but in my opinion it is an important future work item.	
	2.4.1.2	ws	e		2nd paragraph - change "integrated LAN" to "wired LAN"	clarity	
	2.4.1.2	ws	e		3rd paragraph - change "integrated LAN" to "wired LAN"	clarity	
	2.4.1.2	ws	e		4th paragraph - change "integrated LAN" to "wired	clarity	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					LAN"		
	2.4.2.1	TM	e		c) ... , in fact, ...	add comma after , in fact,	
	2.4.2.1	ws	e		under a) delete "that are logically indistinguishable"		
	2.4.2.1	ws	e		under c) change to read "guaranteed by 802.11. In fact, disruption"	runon sentence structure	
	2.4.2.2	SA	e			What section is 7.xx supposed to be?	
	2.4.2.2	BA	E		..87.xx	Use correct section number.	
	2.4.2.2	DM	e		Paragraph 7 "see section 7.XX on" should have the proper cross reference.		
	2.4.2.2	EG	E		"The service which establishes an initial relationship between a station and an access point so as to facilitate future MSDU exchanges".	Current statement is circular.	
	2.4.2.2	MB	e		Next to last sentence For the details of how a station learns about what Apa are present, see 7.xx 7.3 on scanning		
	2.4.2.2	MRo	e		2nd to last sentence, complete section 7.xx		
	2.4.2.2	TM	e		Distribution System font		
	2.4.2.2	TM	e		third paragraph, remove extra space between a and STA add period after X?"		
	2.4.2.2	TM	e		4th para - remove extra space between many and STA		
	2.4.2.2	ZJ	e		Replace "7.xx" with "8.1.3"		
	2.4.2.2	BTh	E	N	Change penultimate paragraph... see 8.1.3 7.xx on scanning.	I don't think that 8.1.3 explains how a STA learns about an AP but this is the closest section that I can find matching the reference.	
	2.4.2.2 4.5 (new) 8.3.2 8.3.4 8.3.5 (new)	FMi	T	N	A basic means by which DS entities at APs (and portals) determine whether a given station is associated anywhere in an ESS, and obtain the address of the AP with which that station is currently associated, need to be defined in the standard. This can be done WITHOUT defining the distribution system implementation strategy, and WITHOUT restricting DSS to be either centralized or distributed. What is necessary is to define a few, simple reporting and query frames which DS entities can exchange over the DSM of an ESS, along with some MIB	To focus strictly on establishing mixed–vendor interoperability between wireless stations (APs and remote stations in the infrastructure case) ignores a major portion of the problem being addressed by 802.11. Because the coverage ranges of most of the 802.11 PHYs are substantially shorter than are needed to provide spatial extent comparable to wired 802	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					attributes to configure use of these frames. The changes to define these frames and MIB attributes alter the sections of the draft listed below. The modified text, and new text to be inserted, appear in document 95–223. ● 2.4.2.2: Adds a statement that basic mechanisms for exchange of association information are defined within the standard, even though the way the information is stored and managed is not specified. ● 4.5 (new): Define the formats of the association information frames. ● 8.3.2: Defines how association information frames are used in the association procedure. ● 8.3.4: Defines how association information frames are used in the reassociation procedure ● 8.3.5 (new): Define the relationship between distribution system services and the association information frames defined in 4.5.	networks, the "normal" configurations of 802.11 LANs are expected to be ESS networks used for physical coverage extension (see document 95–188). Therefore, the 802.11 protocol should provide for standardized, interoperable, exchange of the minimum set of association information over the DSM, symmetric with the 802.11 protocol providing standardized, interoperable transfer of that association information between BSSes of the ESS (reassocation, as a mechanism to implement BSS–transition mobility). There is precedent for defining intra– medium coverage extension mechanisms within 802 MAC/PHY standards — 802.3 defines the repeater used to provide physical range extension for their (coaxial cable) medium; and 802.5 defines an inter– MAU interface, which is different from the station–to–MAU interface. A particular advantage of the mechanism defined in 95–223 is that the implementation of distribution system services is still not specified by 802.11. The benefits of ESSes composed of APs (and portals) from multiple vendors are available by just defining some frames for exchange of association information over the DSM. The location(s) of the entities which send and receive those frames is arbitrary, as are other implementation decisions, such as centralized versus distributed management and storage of	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
						the association information, and inform–on–association_response versus query–on–reassociation_request strategies for supporting mobility transitions within the ESS. NOTE: While not a part of this ballot item, nor a required provision for this item to be beneficial, the limitations on the extent of an ESS discussed in document 95–188, Clause 1, and implemented by other comments in this ballot (updating sections 1.1, 2.2.x, and 2.3.x), are useful to simplify the scope and maximize the usefulness of these mechanisms. The mechanisms proposed in document 95–223 are applicable within an ESS (new definition from 95–188, Clause 1), and will not be usable in many possible configurations of a MESS.	
	2.4.2.2.	TM	e		change it's to its in the second full paragraph		
	2.4.2.3	BPh	e		"...remains associated with the same AP."	Add "with"	
	2.4.2.3	SKy	t		Add that a mobile station shall be able to maintain an existing connection/session while completing a Reassociation process.	Current text does not specifically require this performance. I would presume, though, the group wants this capability in the standard.	
	2.4.2.4	SA	E		Attempts to send messages to a disassociated STA will result in a disassociation response from the receiver.		
	2.4.2.4	RMr	E		However, the MAC protocol does not depend on STAs invoking the Disassociation service (MAC management shoulda̶l̶w̶a̶y̶s̶ protec̶t̶s̶ itself against STAs which simply die or go away).	Since "aging mechanism" for association is not defined within this draft, such protection can not be mandatory.	
	2.4.2.4	ws	e		4th paragraph "can not" should be "cannot"	spelling	
	2.4.3	MB	E		Access and Confidentiality Control Services T̶w̶o̶ Three services are required for 802.11 to provide functionality ...		

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					~~Two~~ Three services are provided to bring 802.11 functionality in line with wired LAN assumptions; Authentication, Deauthentication and Privacy.		
	2.4.3	BTh	E	N	Change 1st paragraph... to provide functionality subjectively equivalent to...	The word "subjectively" is in the definition of WEP and is important enough that is must be here also.	
	2.4.3.1	SA	e		Management Information Base (MIB) functions are provided to support the standardized authentication schemes.		
	2.4.3.1	BA	E		..5.2~~X.X~~	Use correct section number.	
	2.4.3.1	BTh	e		Change 3rd paragraph... This service is used by all stations to establish their identity wiht stations with which they wish to communicate ~~with~~.	Avoid dangling participles.	
	2.4.3.1	BTh	E		substitute in paragraph 7 for X.X... 5.2	Seems like the best reference to me.	
	2.4.3.1	BTh	e		change 8th paragraph... function-s are	typo	
	2.4.3.1	MB	e		Paragraph 7 ... WEP option (see ~~X.X~~ 5.2)		
	2.4.3.1	MB	e		Paragraph 8 . Management Information Base (MIB) ~~function sare~~ functions are provided....		
	2.4.3.1	TM	e		'function sare' change to functions are		
	2.4.3.1	ws	E		Consistency with abbreviation useage is horrible. As an example, STA is Stations, stations, STA. Sometimes the inconsistency occurs in the same sentence. For all acronyms that are defined, the acronym should be consistently used. There are too many instances to mention specifically	clarity	
	2.4.3.1	ws	e		Paragraph 8, "function sare" should be "functions are"	typo	
	2.4.3.1	ZJ	e		Replace "X.X" with "5.1" in seventh paragraph. Replace "function sare" with "functions are" in eighth.		
	2.4.3.1	DW	E		It should be clarified that also in an IBSS traffic is not possible without prior mutual authentication between each station in an IBSS that require communication.	It should be made more clear that in Ad-Hoc, prior authentication is needed. This is needed when the next item (assume implicit authentication in Ad-Hoc) is not accepted.	

Seq. #	Section number	your initials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.4.3.1	HDa	e	N	802.11 also supports shared key authentication. Use of this authentication mechanism requires implementation of the WEP option (see X.X).	**Identify X.X**	
	2.4.3.1	BTh	T	N	**Change last sentence of 3rd paragraph...** If a mutually acceptable level of authentication has not been established between a STA and an AP~~two stations~~, an Association shall not be established.	An Association is defined as being only between a STA and an AP. The second paragraph implies that the positive result of all Authentication processes is Association, but this can't be if the 2 entities are STAs.	
	2.4.3.1	BTh	T	N	**Change 6th paragraph...** ~~802.11 cautions against t~~This ~~as it~~ may violate implicit assumptions made by higher network layers.	This is an editorial comment and has no place in the standard. The standard should state facts.	
	2.4.3.1	TM	t/e	X	Statements in this section conflict --- 3rd para says 802.11 does not mandate the use of any particular authentication scheme. 5th para says an 802.11 network can be run without authentication. 8th para says 802.11 requires mutually acceptable, successful, authentication.	The 8th paragraph (sentence) should be removed to avoid the conflict	
	2.4.3.1 2.5	DW	T	Y	**Authentication should only be needed to use the DS Services. In Ad-Hoc explicit authentication should not be needed. Instead implicit authentication can be assumed by the fact that stations use the same WEP key. Therefore Data frames with the FC control bits "To DS and From DS" both false should be Class 1 frames (instead of Class 2 as currently specified). Additional text is needed in section 2.4.3.1 to explain the implicit authentication as follows: For direct communication between stations in a BSS without invocation of DS Services, implicit authentication is assumed when the station is using the same key for the WEP.**	**The Authentication requirement implies for an ad-hoc network that it has to maintain a Service State variable for each station it is communicating with. This is an unnecessary extra complexity, sinse authentication is only relevant in combination with privacy. If privacy is used, then the plain fact that the other station has the same key is sufficient to authenticate that station for ad-hoc communication.**	
	2.4.3.1.1	DM	e		Change numbering to remove single subsections. There should always be more than 1 subsection.	If there is only one subsection then the subsection should become a section of the next higher level. The purpose of a subsection is to break a section down into more parts. If there is only one part then it doesn't warrant a subsection.	

Seq. #	Section number	your initials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.4.3.2	BTh	T		change in last paragraph... (~~mobile~~ STA or AP)	Any 802.11 STA can perform this function regardless of mobility state.	
	2.4.3.3	**BA**	**E**		..5.2~~X.X~~	Use correct section number.	
	2.4.3.3	BTh	E		**substitute in paragraph 4 and 7 for X.X...** 5.2	Seems like the best reference to me.	
	2.4.3.3	**MB**	**e**		**Paragraph 4. 802.11 uses the WEP mechanism (see ~~X.X~~ 5.2)** **Last Paragraph, last sentence. See ~~X.X~~ 5.2**		
	2.4.3.3	TM	e		add a comma In a wired LAN, ...		
	2.4.3.3	TM	e		add the following to make more correct Any 802.11 compliant adapter can hear all 802.11 traffic that is within range *(assuming common PHYs, channels, hopping sequences, etc.).*		
	2.4.3.3	TM	e		remove extra space between may and only		
	2.4.3.3	ZJ	E		Move fourth paragraph that starts with "802.11 uses" past the next three paragraphs, and replace "X.X" with "5.2"		
	2.4.3.3	DM	t		Second paragraph "... 802.11 compliant adapter can hear all synchronized like PHY 802.11 traffic ..."	Statement is incorrect without correction. This would mean that a DS PHY could hear an FH or IR Phy - clearly not a true statement. Also means that one FH system or a DS system operating on a different frequency would hear other transmissions - clearly not a true statement.	
	2.4.3.3	ZJ	t		Strike "(they won't be acked)" in sixth paragraph	They might be	
	2.4.3.3	**HDa**	**e**	**N**	802.11 uses the WEP mechanism (see X.X) to perform the actual encryption of messages. MIB functions are provided to support WEP.	**Identify X.X**	
	2.4.3.3	**SA**	**t**	**N**	**Remove the "(they won't be acked)" from the end of the 6th paragragh. It would be a waste of bandwidth not to ACK it.**		
	2.4.3.3	FMi	t	N	The default privacy state for all 802.11 Stations is "in the clear". If the Privacy Service is not invoked, all messages will be sent unencrypted. If this default is not acceptable to one party or the other, Data frames will not be successfully communicated between the LLC entities.	Consistency with clause 5, with the recommendations in document 95–198 and with long–standing decisions on how to handle a valid frame (CRC good) with invalid payload (ICV bad).	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					Unencrypted Data frames received at a station configured for mandatory privacy, as well as encrypted Data frames using a key not available at the receiving station, are discarded without an indication to LLC (or without indication to Distribution Services in the case of "To DS" frames received at an AP). These frames are acknowledged on the WM (if received without CRC error) to avoid wasting WM bandwidth on futile retries.(they won't be acked).		
					IEEE 802.11 specifies an optional privacy algorithm (WEP) that is designed to satisfy the goal of wired LAN "equivalent" privacy. The algorithm is not designed for ultimate security but rather to be "at least as secure as a wire". See Clause 5X.X for more details.		
	2.4.3.3	DW	T	Y	**Delete "(they won't be acked)" from the 6th paragraph of this section.**	**All frames with correct CRC are Acked. It should not be necessary to check correct decryption prior to generation of the Ack.**	
	2.4.3?	HDa	e	N	IEEE 802.11 specifies an optional privacy algorithm (WEP) that is designed to satisfy the goal of wired LAN "equivalent" privacy. The algorithm is not designed for ultimate security but rather to be "at least as secure as a wire". See X.X for more details.	**Identify X.X**	
	2.5	BTh	E		**add to first sentence of paragraph introducing frame types (below Figure 2-8)...** frame types which may be sent by a Station (see 4 for definitions of frame types).	There has been no previous definition of frame types in document making a formward reference necessary for readability.	
	2.5	BTh	E		**add under Clase 2 frames, b)...** Request/Response	Readability demands consistency.	
	2.5	DM	e		Class 2 frames subsection b,3 should read "Association Request/Response" to be consistent with the descriptions in the other subsections of 2.5	Lack of consistency causes confusion. In this case it implies that R/R is something different than Request/Response.	
	2.5	EG	E		remove "ATIM"	**frame type ATIM no longer exists**	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
	2.5	MB	E		Class 3 Management Frames b.3) add note Deauthentication changes a Stations state from 3 to 1, automatically deassociates a Station. Thus a Station must reauthenticate.	Adds an explaination as in Disassociation	

	2.5 (Class 3 frames)	RMr	E		b) Management frames:
					  1) Reassociation Request/Response
					  2) Disassociation
					  Disassociation notification changes a Stations state from 3 to 2. Thus a Station must become Associated again if it wishes to utilize the DS.
					  3) Deauthentication
						Deauthentication belongs to Class 2.	

	2.5	TM	e		1st para after figure 2-8. add comma, change caps --- In State 3, all frames		
	2.5	TM	e		under Class 2 frames change R/R to Request/Response for consistency add *Returns station to State 1* on indented line following 3) Deauthentication		
	2.5	TM	e		under Class 3 frames change I.e. to i.e., change Ds to DS properly indent two lines under 2) Disassociation add *Returns station to State 1* on indented line following 3) Deauthentication		
	2.5	WS	e		"Station State" - State should not be in caps		
	2.5	WS	e		under class 3 A - no (2, shouldn't be a (1. The I.e. phrase should be separated by parens.		
	2.5	ZJ	E		"Introduced here are the..." is not a well worded sentence.		
	2.5	ZJ	e		Reference to "5" is third paragraph should be "6"		
	2.5	DM	t		Class 3 frames subsection a,1 should read ""To DS"	Lack of consistency causes confusion. In this case it implies that Ds is something different than DS. There is no 'To Ds' bit defined elsewhare in the document.	
	2.5	BD	T	N	**Figure 2-8: Relationship Between State Variables and Services** These states in figure 2-8 determine the 802.11 frame types which may be sent by a Station. The state of the sending STA given by figure 2-8 is with respect to the	1) Doc 95/203 presents changes to correct a claimed error in the state machine and the table of frames; that reassoc R/R is listed as class 3 when it should be class 2 (so that a STA may reassoc to an AP with which it is	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					intended receiving STA.	authenticated but not yet associated). This is proposed to be fixed by moving reassoc to class 2 and enhancing the labeling of the State 2 to state 3 transition in figure 2-8.	

Class 1 frames (Legal from within States 1, 2 and 3):

a)   Control Frames:
    1)   RTS
    2)   CTS
    3)   ACK

b)   Management Frames:
    1)   Probe Request/Response
    2)   Beacon
    3)   Authentication
        Successful Authentication enables a station to exchange Class 2 frames. Unsuccessful Authentication leaves the Station in State 1.

Class 2 frames (IFF Authenticated; allowed from within States 2 and 3 only):

a)   Data frames:
    1)   Asynchronous data
        Direct data frames only (FC control bits "To DS and From DS" both false).

b)   Management frames:
    1)   ATIM
    2 1)   Association R/R
        Successful Association enables Class 3 frames.
        Unsuccessful Association leaves STA in state 2.
    2)   Reassociation Request/Response
        Successful Reassociation enables Class 3 frames.
        Unsuccessful Reassociation leaves STA in

The changes given in 95/203 are partially motivated by interpretation of unclear text in section 2.5. The core problem is one of assume frame of reference when looking at figure 2-8.

Incorrect interpretation A:

One interprets figure 2-8 to be a state diagram of the state of STA 1, from STA 1's point of view, with respect to ALL other stations that STA 1 may communicate with.
This leads one to desire the changes described in doc 95/203. In this interpretation the reader is assuming that the diagram is being used to determine what frames a STA may send, *independent of who the frames are being sent to*.
This interpretation is not correct - For example: It is not correct for STA 1 to send a class three frame to STA 5 simply because STA 2 is associated with STA 22.

Correct interpretation B:

One interprets figure 2-8 to be a state diagram of the state of STA 1, with respect to STA X, where STA X is

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

					state 2 (with respect to the STA which was sent the reassociation message).
					Reassociation frames shall only be sent if the sending STA is already Associated.
					3~~2~~) Deauthentication
					
					Class 3 frames (IFF Associated; allowed only from within State 3):
					
					a) Data frames:
					    1) Asynchronous Data
					        Indirect Data frames allowed. I.e. the "To Ds" and "From DS" FC control bits may be set to utilize DS Services.
					
					b) Management frames:
					    ~~1) Reassociation Request/Response~~
					    2) Disassociation
					        Disassociation notification changes a Stations state from 3 to 2. Thus a Station must become Associated again if it wishes to utilize the DS.
					    ~~3) Deauthentication~~
					
					c) Control frames:
					    ~~1) CF END~~
					    ~~2) Poll~~
					
					If STA A receives a class 3 frame from STA B which is not associated with the STA A, STA A shall send a Disassociation frame to STA B.
						the intended recipient. Then the D2 diagram is correct as it specifies the types of frames which may be sent by STA 1 to STA X. It also specifies what frame type are allowed at a STA when it is the receiving STA (from the state of the receiving STA with respect to the sending STA).
						
						To eliminate this possible mis-interpretation, the unclear wording of clause 2.5 should be improved. The minor change necessary to do this is shown (the sentence immediately after the figure 2-8 label).
						
						--------------------------------------- 	
						
						The list of allowable fame types in sec 2.5 is inconsistent with the D2 frame type table in sec 4.1.2.1.2.
						
						The following changes are required:
						
						2) in class 2 b the ATIM line is removed as the is no ATIM frame type. The rest of the list is renumbered accordingly. This change is show to the left.
						
						3) in class 3 b, the deauthentication frame should not be in the list as it is a class 2 frame (and class 2 can always be sent when class 3 can so the appearance of deauthentication frame in class 3 is incorrect). This change is show to the left.	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
						4) The following frame types are listed in sec 4 but not given in the sec 2 lists: Connection Request Connection Grant PS-Poll CF end + CF-ACK Data + CF-ACK Data + CF-Poll Data + CF-ACK + CF-Poll Null Function CF ACK (no data) CF-Poll (no data) CF-ACK + CF-Poll (no data) They need to be placed in the correct class in sec 2. Since I do not personally understand the CF stuff sufficiently to be confident of doing this correctly, these changes are NOT shown to the left **but need to be done.** 5)Additionally the sec 2 text shows frame types of CF-End and Poll which are not present in D2 sec 4. Therefore I have deleted them from the text at the left (I suspect that poll should be ps-poll, but I don't know this as a fact from the available text). 6) Correct the problem identified in Aug 95 wrt inconsistent assoc state as recommended in doc 95/210. 95/210 changes are included at left - however I have changed the references from STA 1,2 to STA A,B so that the sentence can not be interpreted to literally mean mac	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
						addresses 1 and 2.	
	2.5		T	N	**adopt the text in Bagby's submission 95/203**	**without this change, reassociations would be impossible**	
	2.5	BTh	T	N	**under Class 2 frames, a) Data frames...** 1) ~~Asynchronous d~~Data ~~<return>Direct data~~ frames types 0000 and 0100 only ~~with~~ (FC control bits "To DS" and "From DS" both false~~)~~.	There is no data type Asynchronous Data. There is no definition of Direct data frames.	
	2.5	BTh	T	N	**under Class 3 frames, a) Data frames...** 1) ~~Asynchronous Data<return>Indirect~~All data frames allowed. ~~I.e. t~~The "To DSs" and "From DS" FC control bits may be set to utilize DS Services.	There is no data type Asynchronous Data. There is no definition of Indirect data frames. I presume that all data types are valid.	
	2.5	BTh	T	N	**add under Class 3 frames, b)...** 4) Connection Request, Grant Connection and End Connection	I presume these frame type are valid in this state or they would never be valid.	
	2.5	BTh	T	N	**add under Class 3 frames, c)...** 2) PS-Poll 3) CF-End + CF-ACK	The correct name is PS-Poll according to later sections. I presume this frame types is valid in this state or it would never be valid.	
	2.5	BTh	T	N	**Change Figure 2-8 to show moving from State 2 to State 3 by both Successful Association and Successful Reassociation. Move Reassociation from Class 3 to Class 2 frame list in the text. Add a note...** Reassociation frame is allowed only if previously successfull associated with another AP.	State machine doesn't allow reassociation to occur because reassociation is a Class 3 message and when you move to a new AP you are not associated.	

	2.5	FMi	t	N	As noted previously some services must be completed successfully before others can be invoked. This requires keeping track of two state variables for each station with which direct, wireless communication is needed:
					
					Authentication State:
					    The values are: Unauthenticated and Authenticated.
					Association State:
					    The values are: Unassociated and Associated.
						This fixes the "reassociation problem" discussed at the August, 1995 Interim Meeting in a manner superior to that proposed in document 95–203, and similar to, but with greater clarity than the "station pair" fix proposed by Dave Bagby in email, September 8–12 1995.
						
						In particular, by making the concept of pairwise station state explicit, this explanation is able to discuss the states	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					These two variables create three station states: State 1: Initial start state, Unauthenticated, Unassociated. State 2: Authenticated, not Associated State 3: Authenticated and Associated. The relationships between these station states ~~variables~~ and the Services are given by figure 2-8. **{ figure 2–8 unchanged }** The current~~se~~ states existing between the source and destination station determine~~s~~ the 802.11 frame types which may be exchanged between that pair of~~sent by a s~~Stations via the WM. The allowed frame types are grouped into classes and the classes correspond to the Station State. In State 1 only Class 1 frames are allowed. In State 2 either Class 1 or Class 2 frames are allowed. In State 3 All frames are allowed (Class 1, 2 and 3). The frame classes are defined as follows: Class 1 frames (permitted~~Legal from~~ within States 1, 2 and 3): a) Control Frames: 1) RTS 2) CTS 3) ACK b) Management Frames:	in terms of which classes of frames may be "exchanged." This avoids the conflict between policy (station state defines the frames the station may send) and mechanism (the MAC Control state machine, when deciding whether to process or discard a validly received frame, checks station state of the sender, since to do otherwise would allow the integrity of the authentication mechanism to be trivially violated by a rogue station). This update incorporates the correction for inconsistent assertion of association state, suggested in document 95–210. The form of this correction is improved in nomenclature ("corrective Disassociation" to distinguish the special case from the normal use of the Disassociation frame), and in placement (the corrective Disassociation frame must be Class 1 because at the sending station, the station pair is in state 1 or 2, so the normal (class 3) Disassociation frame could not be sent under those circumstances. This correction also fixes some minor editorial problems.	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					1) Probe Request/Response 2) Beacon 3) Authentication Successful Authentication enables the pair of a stations to exchange Class 2 frames. Unsuccessful Authentication leaves the sStation pair in State 1. 4) {corrective} Disassociation This special case is the only permissable use of the Disassociation frame outside of an established Association. The corrective Disassociation frame is sent when the pair of communicating stations diasagree as to their mutual Association state. In particular, if a Station A receives a directed class 3 frame from Station B at a time that Station B is not Associated with Station A, Station A shall send a Disassociation frame to Station B. Class 2 frames (IFF Authenticated; allowed from within States 2 and 3 only): a) Data frames: 1) Asynchronous Ddata Direct data frames only (FC control bits "To DS" and "From DS" both false). b) Management frames: 1) ATIM 2) Association Request/Response Successful Association enables the station pair to exchange Class 3 frames. Unsuccessful Association leaves the station pairSTA in state 2. 3) Reassociation Request/Response Successful Reassociation enables the station pair to exchange Class 3 frames and		

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					removes the previous Association between the non–AP station and another AP. Unsuccessful Reassociation leaves this station pair in state 2, and leaves the non–AP station in state 3 with another AP. 4) Deauthentication Deauthentication notification when in State 2 changes Station's state from 2 to 1. This Station must become Authenticated again prior to sending Class 2 frames. Class 3 frames (IFF Associated; allowed only from within State 3): a) Data frames: 1) all~~Asynchronous~~ Data subtypes Indirect Data frames allowed. I.~~E~~e. the "To Ds" and "From DS" FC control bits may be non–zero~~set~~ to utilize DS Services. b) Management frames: ~~1) Reassociation Request/Response~~ 1~~2~~) Disassociation Disassociation notification changes a Station's state from 3 to 2. This~~us a~~ Station must become Associated again if it wishes to utilize the DS. 2~~3~~) Deauthentication Deauthentication notification when in State 3 implies disassociation as well, therby changing a Station's state from 3 to 1. This Station must become Authenticated again prior to another attempt to become Associated. c) Control frames:		

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					1) CF–End~~ND~~ or CF–End+ACK 2) PS–Poll		

	2.5	KJ	t	N	b) Management frames:
					 1) ~~ATIM~~
					 1~~2~~) Association R/R
					        Successful Association enables Class 3 frames.
					        Unsuccessful Association leaves STA in state 2.
					 2~~3~~) Deauthentication
						ATIM frames are no longer in the draft	

	2.5	KJ	t	N	see document 95-203		
	2.5	KJ	t	N	see document 95-210		
	2.5	SKy	t	N	**ATIM mentioned under Class 2 management frames is not defined in the spec.**	**Status of ATIM not known from current text.**	
	2.5	vj	t	N	**refer to doc 95/203**	**need correction**	
	2.5	WR	t	N	Correct Figure 2-8 as described in Doc 95/203	Need reassociation message from state 2	
	2.5	ZJ	T	N	The state-machine notation should be abandoned, and replaced with a list of what frames may be sent to what other stations under what particular constraints of authentication and associatedness. For example "A STA that is associated with an AP may send a Reassociate Request to any AP with which it is authenticated. An AP shall only send a Reassociate Response to a STA from which it has received a Reassociate Request to which it has not already responded."	The state machine does more harm than good. It is confusing, since a STA is in a particular state *only with respect to one particular other station*. The fact that there are multiple state machines grinding away, one per each other station you might like to transmit to is confusing.	
	2.5	ZJ	t	N	Add Bagby's text to explain that you need to be in state 3 with some AP to send Reassociate Request to some other AP with respect to which you are in state 2. Also, I think it should say somewhere that APs are always associated and authenticated, even in no STA are associated.	Text is unclear	
	2.5	DW	T	Y	**Reassociation Request/Response frames should be listed as Class 2 frames rather then Class 3.**	**Currently Stations can not invoke the BSS transition mobility, so roaming**	

Seq. #	Section number	your ini- tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					It should further be clarified that the state relation as in figure 2-8 needs to be maintained for each TA/RA pair (A2/A1). Text in document 203 plus that TA/RA clarification will be sufficient to describe the change.	is not possible.	
	2.5	DW	T	Y	Implement the changes as documented in doc 95/210	Stations that do not have the correct Service State for transmission of data should be notified, such that they can recover from this situation. Currently such a station does not get any feedback whether the frame is accepted for transport to LLC or DS.	
	2.6	BTh	e		change 1st paragraph... often used to support an "A~~a~~d~~<hypen>~~<space>H~~h~~oc" network	According to my dictionary the proper use of word is "ad hoc network"	
	2.6	MRo	e		2nd to last sentence, replace "IBSS" with "independent BSS" Only the minimum two stations are shown in figure 2-10. An ~~IBSS~~ Independent BSS can have an arbitrary number of members. In an ~~IBSS~~ Independent BSS, only class 1 and class 2 frames are allowed since there is no DS in an IBSS.		
	2.7	TM	e		to 2nd sentence add 'section' -- This *section* describes...		
	2.7.1	WR	e		Change message sub-type from "Asynchronous Data" to "Data"	This is how the subtype is defined in 4.1.2.1.2	
	2.7.1	WR	t		List all the the possible data sub-types	4.1.2.1.2 defines 8 different data sub-type frames	
	2.7.1	DW	t		The shown text is correct for MSDU delivery service as listed in section 2.3, but not for the Data Distribution Service. Only when the FC bit To-DS=true, then the message will be handled by the Distribution service. Similarly section 2.7 does not address the Integration service, which also requires the To-DS bit to be set.	Perhaps this section should change into "MSDU Delivery", and add a separate section on Data Distribution, which only explains the To-DS bit as a requirement to invoke these services.	
	2.7.1	BTh	T	N	under Data Messages, Message sub-type change...	There is no data type Asynchronous	

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					~~Asynchronous~~ Data sub-types 0000, 0001, 0010, 0011	Data. The listed sub-types carry data.	
	2.7.1.	OMi	e		Message sub-type: **Asynchronous Data**	Message sub-type: **Data**	
	2.7.2	BTh	E		**in first line change...** following message_s to occur **correct sub-type names 4 places to...** Association~~<hyphen>~~~~<space>~~R~~r~~equest Association~~<hyphen>~~~~<space>~~R~~r~~esponse **add...** If the association is successful, the response shall include the Station ID (SID)	Plural messages follow Later sections show the sub-type names without hyphens and both words capitalized SID has not been previously defined.	
	2.7.2	TM	e		properly indent to align with other text Association-request Message type: Management		
	2.7.2	ws	e		**under Information items - should ESSID be ESS ID**		
	2.7.3	BTh	E		**in first line change...** following message_s to occur **correct sub-type names 4 places to...** Reassociation~~<hyphen>~~~~<space>~~R~~r~~equest Reassociation~~<hyphen>~~~~<space>~~R~~r~~esponse	Plural messages follow Later sections show the sub-type names without hyphens and both words capitalized	
	2.7.4	BTh	E		**remove third line...** ~~Disassociation~~ **change sentence...** IEEE address of the AP with which the Station is currently associated ~~with~~ **change sentence...** From STA ~~to STA (e.g. STA~~ to AP or AP to STA)	Heading not necessary as there is only one message type in this paragraph. Dangling participles make bad grammar for. The change is more specific.	
	2.7.4	BA	T		Information Items: IEEE address of the station which is being disassociated. (May be broadcast address in the case of an AP disassociating with all STAs.)	An AP should be able to disassociate with all associated STAs with a single message.	
	2.7.4	RJa	T	N	Information Items: IEEE address of the station which is being disassociated. (May be broadcast address in the case of an AP disassociating with all STAs.)	An AP should be able to disassociate with all associated STAs with a single message.	
	2.7.5	ws	e		**The format of this item is inconsistent with those**		

Seq. #	Section number	your ini-tials	Cmnt type E, e, T, t	Part of NO vote	Corrected Text/Comment	Rationale	Disposition/Rebuttal
					around it		
	2.7.5	SA	t		MSDU should be replaced by MPDU		
	2.7.6	BA	E		sequence..sequwnce	Spelling error.	
	2.7.6	BTh	e		correct... infrormation	typo	
	2.7.6	MB	e		2nd sentence. The exact ~~sequwnce~~ sequence		
	2.7.6	TM	e		correct the following mispellings --- sequwnce to sequence infromation to information tranacition to transaction algortithm to algorithm infromation to information		
	2.7.6	ws	e		The format of this item is inconsistent with those around it.		
	2.7.6	ws	e		Under Direction of Message - transaction misspelled "tranacition"		
	2.7.7	BTh	E		remove third line... ~~Deauthentication~~ change sentence... IEEE address of the AP with which the Station is currently authenticated ~~with~~ change sentence... From STA ~~to STA (e.g. STA~~ to AP or AP to STA~~)~~	Heading not necessary as there is only one message type in this paragraph. Dangling participles make bad grammar for. The change is more specific.	
	2.8	FMi	E		Figure 2–11 should be extended upward to show the MAC_SAP at top of the MAC.	The portion of the reference model covered by this standard includes the service specifications for the MA_UNITDATA services available to LLC, so this SAP should be shown.	
	2.8	DW	e		Add the LLC interface to the reference model .	The interfaces with higher layers are not identified.	
	2.8 7.1	BD	T	N	The reference model shown needs to have the service points for the MAC added to the picture, correct the MAC layer box label.	The reference model is incomplete. 1) The MAC layer is not open at the top but has SAPs that are used by LLC. These should be shown in the model in order to make it complete. 2) The title "MAC or MAC sublayer" should simply read "MAC	

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						layer". I don't see how a partial MAC layer could be present as implied by the current label.	
	2.8	BTh	T	N	Change one of the PLME_SAP interface names	Can't have two interfaces with the same name; will cause confusion.	

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