

Collected comments on Section 1 of draft standard D!

1.1	David Bagby	E	<p>The PAR further defines the purpose as follows:</p> <ul style="list-style-type: none"> To provide wireless connectivity to automatic machinery, equipment or, stations that require rapid deployment, which may be portable, or hand-held or which may be mounted on moving vehicles within a local area. To offer a standard for use by regulatory bodies to standardize access to one or more frequency bands for the purpose of local area communication. The various RF phy groups working within a given band must return to the drawing board and decide what their PHY specification recommendation should be. To accomplish this they must forego the temptation to continue operating in splinter groups which become smaller and smaller as a means of avoiding internal controversy and tough decisions. Note that I make no comment on which of the currently proposed PHYs should be selected. What is important is that the group reach a technical consensus on a recommendation of a single phy for the 2.4 Ghz ISM band. <p>Specifically the 802.11 standard:</p> <ul style="list-style-type: none"> <u>D</u>escribes the functions and services required by an 802.11 compliant device to operate within ad-hoc and infrastructure networks as well as the aspects of station mobility (transition) within those networks. <u>D</u>escribes the medium access control (MAC) procedures to support the asynchronous and time-bounded MAC service data unit (MSDU) delivery services. <u>S</u>upports the operation of an 802.11 compliant device within a wireless LAN which may coexist with multiple overlapping wireless LANs. <u>D</u>escribes the requirement and service to provide security, privacy and authentication of 802.11 compliant devices. 	See imbeded comments and annotations
1.1	N. Silberman	e	Indicate that 2.4 GHz band is the first in a series of radio based standards to be developed later	The original intent was to cover other frequency bands later
1.1	Stuart Kerry	E	"Minor editorial alignment of paragraphs"	General smartning up of the text
1.1	C. Heide	t	remove from the second paragraph in the third group, "and time bounded MAC service"	this specification does not describe the medium access control procedure to support time-bounded MAC service data unit delivery services.

1.1, 2.4.2, 3.2, 5.8	Jim Panian	T	<p>Provide MAC service primitives to facilitate the three distribution system services:</p> <ul style="list-style-type: none"> • Association • Reassociation • Disassociation - including the detection of link outage <p>The above mentioned MAC service primitives will feed into the Association, Reassociation, and Disassociation services in the state machine descriptions as well.</p>	Enough detail must be provided by the 802.11 standard to facilitate hand-off mechanisms on the distribution system.
1.2	A. Bolea	E		Coordination Function is abbreviated as CF. Elsewhere in draft CF is used as an abbreviation for Contention Free. Section 2.5 is first occurrence of CF referring to Contention Free. Distribution System is abbreviated as DS. Elsewhere in draft DS is used as an abbreviation for Direct Sequence.
1.2	A. Bolea	E		In definition of ESS_BASIC_RATE_SET, the units of the rates are missing. I suggest adding "Mhz" to each set.
1.2	Bob O'Hara	E	add closing paren to last sentence of Ad-Hoc network definition	
1.2	Bob O'Hara	E	delete "interface to the wireless medium" from the definition of "Station"	Redundant
1.2	C Heide	E	definition of ad-hoc network: "(i.e. no specialized ... in the (ad-hoc) network)".	missing closing bracket.
1.2	C Heide	E	definition of coordination function: "transmits and receives"	bad grammar
1.2	C Heide	E	definition of Extended Service Area: "An extended service area is larger than or equal to..."	bad grammar
1.2	C. Heide	e	add units to the numbers in ESS_BASIC_RATE_SET definition	clarification
1.2	C. Thomas Baumgartner	e	change example of dynamic changing of station basic rate	Example refers to IR Power Consumption Mode. Nowhere in IR PHY section is Power Consumption Mode discussed.
1.2	David Bagby	E	<p>Ad-hoc network. An ad-hoc network is a network created for a specific purpose, typically in a spontaneous manner. The principal characteristic of an ad-hoc network is that the act of creating and dissolving the network is sufficiently straightforward and convenient so as to be achievable by non-technical users of the network facilities (i.e. no specialized 'technical skills' are required with little and/or no investment of time or additional resources required beyond the stations which are to participate in the (ad-hoc) network. <u>The term "Ad-Hoc" is often used as slang to refer to an Independent BSS (IBSS).</u></p>	See imbeded comments and annotations

1.2	David Bagby	E	<p>Coordination Function (CF). That logical function which determines when a station operating within a <u>B</u>asic <u>S</u>ervice <u>S</u>et transmits and receives via the wireless medium.</p> <p>Disassociation. The service which removes an existing <u>A</u>ssociation.</p> <p>Distributed Coordination Function (DCF). A class of possible coordination functions where the same coordination function logic is active in every station at any given time.</p> <p>Distribution: The service which (by using Association information) delivers MSDUs within the DS.</p> <p>Distribution System (DS). A system used to interconnect a set of <u>B</u>asic <u>S</u>ervice <u>S</u>ets to create an <u>E</u>xtended <u>S</u>ervice <u>S</u>et.</p>	See imbeded comments and annotations
1.2	David Bagby	E	<p>Distribution System Services (DSS). The set of services provided by the <u>D</u>istribution <u>S</u>ystem which enable the MAC to transport MAC service data units between <u>B</u>asic <u>S</u>ervice <u>S</u>ets within an <u>E</u>xtended <u>S</u>ervice <u>S</u>et.</p> <p>[DB4]</p>	See imbeded comments and annotations
1.2	David Bagby	E	<p>Extended Service Area (ESA). The <u>conceptual</u> area within which members of an <u>E</u>xtended <u>S</u>ervice <u>S</u>et can communicate. An <u>E</u>xtended <u>S</u>ervice <u>A</u>rea is larger or equal to a <u>B</u>asic <u>S</u>ervice <u>A</u>rea.</p> <p>Extended Service Set (ESS). A set of interconnected <u>B</u>asic <u>S</u>ervice <u>S</u>ets which appear as a single <u>B</u>asic <u>S</u>ervice <u>S</u>et to the logical link control <u>layer</u>.</p> <p>Gaussian Frequency Shift Keying (GFSK). A modulation scheme where the data is first filtered by a Gaussian filter in the base band and then modulated with a simple frequency modulation.</p> <p>Independent Basic Service Set (IBSS). A BSS which forms a self contained network independent of any other BSSs. An IBSS is often the form an Ad-Hoc network takes.</p> <p>Infrastructure. The infrastructure includes the <u>logical D</u>istribution <u>S</u>ystem, <u>A</u>ccess <u>P</u>oints and <u>P</u>ortals functions. An infrastructure contains one or more <u>A</u>ccess <u>P</u>oints and zero or more <u>P</u>ortals in addition to the <u>D</u>istribution <u>S</u>ystem.</p>	See imbeded comments and annotations

1.2	David Bagby	E	Integration. The service which enables delivery of MAC service data units between the <u>D</u> istribution <u>S</u> ystem and an existing network (via a <u>P</u> ortal).	See imbeded comments and annotations
1.2	David Bagby	E	Portal: The <u>l</u> ogical point at which data from a non-802.11 LAN <u>c</u> onnects with an 802.11 LAN via enters the <u>D</u> istribution <u>S</u> ystem. Privacy. The functionality used to prevent the contents of messages from being read by other than the intended recipient. Re-association. The service which enables an established association (<u>b</u> etween <u>A</u> P and of a station) to be transferred from <u>o</u> nean access point to another access point.	See imbeded comments and annotations
1.2	Dellacorte	E	ESS_BASIC_RATE_SET for FH {1,2}	Currently two data rates for FH PHY
1.2	Fischerma:Definitions	E	Any entity that has station functionality and usually provides access to the distribution system.	What about an environment where the AP is not connected to a distribution system, because the application is completely wireless and contains no other AP?
1.2	Greg Smith	E	ESS_BASIC_RATE_SET for FH:{1,2}	There are two rates in the FH phy
1.2	Greg Smith	E	Channel definition DSS should be DSSS	Distribution System Services does not make sense
1.2	Joe Kubler	E	last line of Coordination Function "received" ->"receives"	
1.2	Joe Kubler	E	define WDS as Wireless DS	not defined in text
1.2	Joek Kubler	E	add otter definitions as needed	
1.2	John Hayes	E	Wireless Distribution System (WDS): A DS consisting solely of wireless APs.	WDS is referenced in section 4.1.2.1.4
1.2	Lewis	E	add defintionas as needed i.e. Dwell time,Beacon, all acronyms	
1.2	Mahany	E	Add Definitions: Beacon, Dwell Time	These terms are used prior to full definition.
1.2	Mark Demange	e	ESS_BASIC_RATE_SET: Should read "For 2.4 GHz DS:", "For 2.4 GHz FH:", For XXX nm baseband IR"	Without the change the implication is that all DS or FH Phys in the future the ESS_BASIC_RATE_SET is as defined in this definition. This implies that all future PHYs would have this rate set based on the current rate set.
1.2	Mark Demange	e	Add definition for "integrated LAN" reference section 2.4.1.2	
1.2	MLT	E	add definitions of FDM, CDMA, and IFF since they are used in the channel definition	
1.2	N. Silberman	e	Paragraph starting with Gaussian Frequency shift keying :modulated with a simple frequency modulation s REPLACE WITH: modulates a frequency modulator.	The sentence as is doesn't make sense
1.2	Renfro	E	Change 'received' to 'receives' in definition of Coordination Function	
1.2	Renfro	E	CF used for both Coordination Function and Contention Free throughout document	
1.2	Renfro	E	Under ESS_Basic_Rate_Set, DS used for Direct Sequence, later used for Distribution System	
1.2	Renfro	E	Add definition of MAC SAP	
1.2	Rick White	E	Rewrite definition of Integration.	Definition of Integration is unclear
1.2	Bob O'Hara	T	Replace "an existing network" with "other 802 networks" in definition of "Integration"	The scope of this standard is within the 802 hierarchy
1.2	Bob O'Hara	T	Replace "a non 802.11" with "another 802" in the definition of "Portal"	The portal may connect to a different 802.11 LAN as well
1.2	C. Heide	T	definition of an Independent Basic Service Set, second sentence should read " An IBSS is always the form an Ad-Hoc network takes."	what else could an ad-hoc network be but an IBSS?

1.2	C. Thomas Baumgartner	t	Change ESS_BASIC_RATE_SET to BASIC_RATE_SET. Make similar change to definition of STATION_BASIC_RATE	The basic rate set applies to the PHY as a medium type and has no relation to geography. The IR PHY and other sections I have read just refer to the Basic Rate Set.
1.2	C. Thomas Baumgartner	t	delete second sentence in MPDU definition	The term "frame" NEVER applies to MPDU. MPDU could be called the packet.
1.2	David Bagby	T	<p>Access control. The prevention of unauthorized usage of resources, including the prevention of use of resource in an unauthorized manner.</p> <p>Association. The service used to that establishes AP/STA mapping and enables STA invocation of the <u>D</u>istribution <u>S</u>ystem <u>S</u>ervices.</p> <p>Authentication. The service used to positively establish the identity of one station to another stations to each other.</p> <p>Basic Service Area (BSA). The conceptual area within which members of a <u>B</u>asic <u>S</u>ervice <u>S</u>et can communicate.</p> <p>Basic Service Set (BSS). A set of stations controlled by a single <u>C</u>oordination <u>F</u>unction.</p>	See imbeded comments and annotations
1.2	David Bagby	T	Distribution System Medium (DSM). The medium used by a <u>D</u> istribution <u>S</u> ystem (for Access Point(for basic service set interconnections).	See imbeded comments and annotations

<p>1.2</p>	<p>David Bagby</p>	<p>T</p>	<p>ESS_BASIC_RATE_SET: A set of rates that all the stations on the given ESS are required to be capable to receive. According to the PHYs definitions the default ESS_BASIC_RATE_SETs for the different PHYs will be:</p> <p style="padding-left: 40px;">For DS: {1,2} For FH: {1} For IR: {1,2}</p> <div style="border: 1px solid black; padding: 5px;"> <p>Definition as written in D1 no good. implies that there is only one DS phy and one FH for all time. this might not always be true. at a min (assuming no other multi-rate changes are adopted) it needs to be re written to specify the 2.4ghz ism phys only in this table.</p> </div> <p>Note that this value is preset for all stations in the ESS.</p> <p>EXTENDED_RATE_SET: The set of rates beyond the BASIC_RATE_SET that a station supports. This can be a speed that is defined in future PHY standards.</p>	<p>See imbeded comments and annotations</p>
<p>1.2</p>	<p>David Bagby</p>	<p>T</p>	<div style="border: 1px solid black; padding: 5px;"> <p>The following paragraph must be changed because it is factually incorrect. There are no exposed interfaces between STAs and APs (other than antenna which are not exposed interfaces in the 802.11 standard sense), nor are there exposed interfaces between AP and DSS - in fact this was specifically excluded from 802.11 standardization by the group.</p> </div> <p>Within the infrastructure there are two exposed interfaces:</p> <p style="padding-left: 40px;">a) — between stations and access points; and b) — between access points and distribution system.</p> <p>Additionally, DS services are provided between pairs of 802.11 MACs.</p>	<p>See imbeded comments and annotations</p>
<p>1.2</p>	<p>David Bagby</p>	<p>T</p>	<p>MAC Protocol Data Unit (MPDU). The unit of data exchanged between two peer MAC entities using the services of the PHY. The term "frame" is often used as a synonym for MPDU.</p> <p>The preceding sentence while possbly true, is not relevant to the definition.<u>[DB12]</u></p>	<p>See imbeded comments and annotations</p>

1.2	David Bagby	T	STATION_BASIC_RATE: A value belonging to the ESS_BASIC_RATE SET, that is used by the station for specific transmissions (it could change dynamically, for example the Station Basic Rate on the IR depends on the Power Consumption Mode of the Station).	See imbeded comments and annotations
1.2	David Bagby	T	Wired Equivalent Privacy (WEP). The optional cryptographic privacy algorithm specified by 802.11 used to provide data confidentiality which is subjectively equivalent to a wired media confidentiality.	See imbeded comments and annotations
1.2	Lewis	T	conformance requirements need to be defined	
1.2	Rick White	T	Basic Service Set Definition - A BSS can have both a Point and Distributed Coordination Function.	This definition needs to be refined to indication it is a group of STAs that can communicated with one another in an ad hoc network or a group of STAs associated with an AP in an infrastructure network.
1.2	Rick White	T	Definition of ESS_BASIC_RATE_SET should specify that rates are megabits per second	
1.2	Rick White	T	Rewrite definition of Mobile Station.	Station does not need to be using network communications when in motion. It could be simply moving from one location to another. I guess this is covered by Portable Station.
1.2 / 1.3	Tom T.	E	The Acronyms used for packet types, RTS, CTS, ACK, need to be added to the list of definitions in section 1.2 and abbreviations in section 1.3	Although it becomes obvious what these are once you are familiar with the content of the spec, a new reader will encounter these terms in section 2.5 without a reference to what exactly they are.

<p>1.2.2.3; also 1.2 definition of infrastructure 2.4.1.1, 6th paragraph; 2.4.2.2, 3rd paragraph; 2.4.2.3, 3rd paragraph; 2.7</p>	<p>Fischer, Mike.</p>	<p>T MAJOR ISSUE</p>	<p>The standard needs to specify the message formats used to communicate (intra-ESS) for the provision of (at least) association, reassociation, integration, and distribution. This requires enough words (and pictures), and impacts enough places in the document, that I have not attempted to put specific text in this box of the table. A set of changes adequate to overcome my vote on this subject appear in document 95/17.</p> <p>The bulk of the message format information will end up in section 2.7.</p>	<p>The fundamental purpose of this standard is to provide a basis for mixed-vendor interoperability across each of the exposed interfaces in the subject specification. The WM is one such exposed interface, and is covered in considerable detail in the D1 draft. The DSM is another such exposed interface, but the degree of abstraction of distribution-related definitions makes interoperable distribution (even in simple cases such as multiple vendors' APs attached to the same 802.3 wire) impossible without additional definitions. Even the current draft states that there is an exposed interface between access points and the distribution system (even if not stated very well, see above). The concept that 802.11 should not specify specific DS implementations remains valid. What is needed is the definition of specific frame payloads, that can be delivered over 802-style LANs, which shall be used for inter-DAP communication (called an IAPP in some submissions to this working group) to establish the necessary information about associations/reassociations to support mobility transitions; and for AP-to/from-port communication to support integration of other 802 wired LANs.</p> <p>In 2.4.1.1, 6th paragraph it states that "all 802.11 is required to do is to provide the DS with enough information . . ." This is generally correct, but the support of reassociation for BSS-transition mobility, and the preservation of authentication across such transitions (even when using a wireless distribution system), require the directed exchange of information between the DSS at one AP and the DSS at another AP in the same ESS (among other intra-ESS exchanges between MAC LMEs over the DSM). <u>How</u> the DS gets the messages containing this information between APs may be external to this standard, but the formats of those messages must be defined or users will have to outfit an entire ESS with APs from a single vendor (or de-facto interoperability group of vendors operating outside of the 802 standards process), even if they can procure non-DAP stations from multiple sources.</p> <p>The other alternative is to remove mobility support and the ESS concept from the standard. This not only leaves aspects of the PAR unaddressed, but would yield a standard that fails to meet most users' needs at the ranges discussed for several of the PHYs almost any potential customer for more than about 10 or 15 stations would probably need to deploy a multi-DAP ESS.</p>
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1.2, entry for "Access Point"	Fischer, Mike.	T	Any entity that has station functionality and provides access to distribution services, via the WM, for other (associated) stations.	The "access" provided by an access point is for other stations that lack direct access to the distribution system. A station that is connected to the DSM but does not make distribution services available to other stations via the WM is not useful as an AP. A station that does make distribution services available to other stations via the WM is an AP even if the DSM is null. Even without a multi-BSS network, there is a difference between a BSS without distribution services (an ad-hoc network) and a BSS with distribution services (an infrastructure BSS). In this latter case the DSM is null, but an associated STA may send a frame to the AP with ToDS=1. If the station addressed by the DA of that frame is also associated with the same AP, distribution services at that AP can deliver the frame (sent by the AP to the DA with FromDS=1).
1.2, entry for "Ad-hoc network"	Fischer, Mike.	T	Add after 1st or 2nd existing sentence: "The principal distinctions between ad-hoc and infrastructure networks is that stations in ad-hoc networks communicate without using distribution services; and that ad-hoc networks exist for a strictly limited temporal extent, which is never longer than the time until the number of active stations in the ad-hoc network drops below two."	This provides the quantitative criteria appropriate for such a fundamental definition. Reliance strictly upon a distinction in the qualitative convenience of setup and dissolution leaves too much potential for misinterpretation.
1.2, entry for confidentiality	Fischer, Mike.	E	The property of a set of information which indicates that this set should not be made available or disclosed to unauthorized individuals, entities, or processes.	The current sentence has a dangling modifier. "that" could refer to either "property" or "information."
1.2, entry for "Basic Service Set (BSS)"	Fischer, Mike.	E	change "single coordination function" to "single instance of a coordination function"	The definition, as written, leaves the risk of misinterpretation to mean a single type of coordination function.
1.2, entry for "channel"	Fischer, Mike.	T	change "... that can coexist with other instances of medium use." to "... that can be used simultaneously, in the same volume of space, with other instances of medium use on other channels by instances of the same PHY, with an acceptably low frame error rate due to mutual interference. Some PHYs only provide one channel, whereas others provide multiple channels. For example:"	The phrase "that can coexist" is ambiguous. The important characteristic is non-interference, which is clearer with the modified wording.
1.2, entry for "Distributed Coordination Function"	Fischer, Mike.	T	change "... in every station at any given time." to "... in every station in the BSS at any given time that the network is in operation."	The limits of "every" in the existing sentence are unclear. The correct unit is the BSS.
1.2, entry for "Distribution System Services"	Fischer, Mike.	T MAJOR ISSUE	The set of services provided by the distribution system which enable the MAC to transport MAC service data units between stations that are not in direct communication with each other over a single instance of the wireless medium. This includes transport of MSDUs between basic service sets within an extended service set, the transport of MSDUs between portals and basic service sets within an extended service set, and the transport of MSDUs between stations in the same basic service set in cases where the station sending the MSDU chooses to involve distribution system services.	The current definition limits the scope of distribution service much too narrowly to be consistent with the subsequent facilities. In particular, there should be no restriction that distribution must involve two or more BSSes. There can, and will, be instances where distribution is used within a single BSS, especially in cases where the user wishes to remain in communication through BSS-transition mobility events (reassociations) and cases where at least one of the end-stations is operating in a power-save mode for which the AP buffers traffic.
1.2, entry for "Distribution System"	Fischer, Mike.	T	change "basic service sets" to "basic service sets and portals"	Be consistent with section 2. The portal concept was added after this definition was written and the definition was never updated.
1.2, entry for "ESS_BASIC_RATE_SET"	Fischer, Mike.	E	The listings of values for the various PHYs belong in the MIB section(s), not in the definition section.	consistency

1.2, entry for "extended service set"	Fischer, Mike.	T	A set of 1 or more interconnected basic service sets and portals which appear as a single basic service set to the logical link control at any station associated with one of those basic service sets or attached to any of those integrated LANs. (or "..." which appear as a single logical network to the logical link control entities at any station ...)	The current definition does not cover the existence of portals, nor the degenerate case of distribution in a single BSS or single BSS plus portal environment. These should be behaviorally indistinguishable (viewed by LLC) from an ESS, and should therefore be within the definition of ESS.
1.2, entry for "infrastructure"	Fischer, Mike.	T MAJOR ISSUE	1) The last sentence does not belong with this definition. It may either be deleted or moved to the definition of distribution system services. 2) The listing of the exposed interfaces is WRONG. There are several acceptable ways to fix this. If the intent is to identify exposed interfaces already defined in this standard, the interfaces are "between stations associated with a given access point" or "between stations that are members of the same BSS" (e.g. frames on the WM); and "between access points and/or portals" (e.g. frames on the DSM). This is the simplest change which is consistent with the bulk of the remaining chapters of the D1 draft.	1) apparent editing error 2) Since an AP is a station that also provides DSS access, to have an interface exposed at this point would be an interface within the station that functioned as an AP. Such an interface is only worth exposing if the result is to render an 802.1D MAC bridge capable of being the sole function needed on the other side of this interface to achieve distribution functionality. This is probably infeasible, especially for BSS transition mobility which maintains logical connectivity. There appears to be negligible benefit, and considerable complexity, from exposing an interface between the STA functionality and the AP functionality at a given station. Also, the existing definition does not deal with the fact that portals connect to the same DSM as APs.
1.2, entry for "integration"	Fischer, Mike.	E	change "existing network" to "existing wired network" or to "existing, non-802.11 network"	clarity
1.2, entry for "point coordination function"	Fischer, Mike.	T	change "... in only one station at any given time." to "... in only one station in a BSS at any given time that the network is in operation."	The limits of "one" in the existing sentence are unclear. The correct unit is the BSS.
1.2, entry for "reassociation"	Fischer, Mike.	T	The service which enables an established association (of a station) to be transferred from an access point to another access point, and enables the attributes defined between a station and access point at the establishment of an existing association to be modified while that station remains associated with the same access point.	There are instances, such as for CF awareness and use of WEP, where the settings are established at association time. Subsequent portions of the draft assume that a station can change these settings by reassociating with the same AP, but the existing definition of reassociation requires a change to another AP, which is too restrictive.
1.2, entry for "wired equivalent privacy"	Fischer, Mike.	T	change "... subjectively equivalent to a wired media." to "... subjectively equivalent to the confidentiality of a wired LAN medium that does not employ cryptographic techniques to enhance privacy."	The idea of WEP is to match the typical, non-encrypted, wired LAN. Not to match a wired LAN running with full 802.10 message encryption, or comparable message security facilities.
1.2, new entry needed	Fischer, Mike.	T	Add entry for "Network Allocation Vector (NAV). An indicator, maintained by each station, of time periods when transmissions onto the WM may not be initiated by this station, whether or not the station's clear channel assessment function senses the WM as being non-busy."	NAV is a key concept that is not well defined before it's use in this document, and which people not familiar with the last several years of work within this group will not necessarily understand at first reading.
1.3	C Heide	E	add abbreviation " IR = infrared"	missing abbreviation explanation
1.3	C. Heide	e	missing acronym definitions for: TAM, CAM, TIM, DTIM, ATIM	
1.3	Jeff Rackowitz	E	Is CF Coordination Function or Contention Free? Add the following abbreviations to the list: ACFS , ACK, ATIM, BI, BSSID, C, C/R, CAM, CDMA, CFP, CRC, CS, CSMA/CA, CTS, CW, DTIM, EP, FC, FDM, IBSS, IEEE, IFF, IFS, IR, IV, K, LAN, LME, LSB, MSK, P, PC, PLCP, PRNG, PSNP, PSP, QoS, R/R, RA, RTL, RTS, SF, SFD, STA, TA, TAM, TBTT, TIM, TSF, TTL, WDS	
1.3	John Hayes	E	WDS = Wireless Distribution System	WDS is referenced in section 4.1.2.1.4
1.3	Lewis	E	expand list to include all Acronyms used in document: i.e. ATIM, DTIM, PIFS, etc.	

1.3	Mahany	E	Add Abbreviations: ATIM, CAM, CCA, CF, CW,DA, DTIM, IBSS, LME, NAV, NID, PIFS, PLCP,PMD, PLME, PSM, PSNP, RA,SA, SFD, SIFS, SMIB,TA, TIM, TBTT, TSF,WDS	These abbreviations are used prior to full definition.
1.3	Mark Demange	e	All abbreviations should have a corresponding definition in section 1.2	Makes for a more readable and complete document.
1.3	MLT	E	add IFF, LSB, MSB, FDM, and CDMA to abbreviations list since they are used	
1.3	N. Silberman	e	Abbreviations list incomplete: ADD:BSSID,TIM, DTIM, DIFS, PMD,PLCP, tsf and others.	
1.3	Renfro	E	Need to make sure that all abbreviations are included. e.g., CAM, TAM, CRC, HEC, IR, ...	
1.3	Rick White	E	Need to add PMD and PLCP to abbreviations section	
1.3	Fischer, Mike.	T	Add OWDS wireless distribution system	clarity
1.4	John Hayes	E	5. Bruce Schneier, "Applied Cryptography, Protocols, Algorithms and Source Code in C", John Wiley & Sons, Inc. 1994	Referenced in section 5.4.3.
1.4	Bob O'Hara	T	add ISO 10039	required for MAC service interface definition
1.4	Scaldeferri	T	References should include IEEE Std 802.10f-1993, Secure Data Exchange (SDE) Sublayer Management (Subclause 2.8)	This reference includes the SDE MIB, (SMIB), variables and other information need to harmonize 802.11 and 802.10
1.5	C. Thomas Baumgartner	t	fill in section	Can't approve standard until I know what I am approving.
1.5	Fischer, Mike.	T	< The absence of this section's text is understandable at this point, but there is no point referring the draft to sponsor ballot with no text here.>	
1.5	John Hayes	T	TBD	Needs to be specified
1.5	Mark Demange	t	Need to define conformance requirements. Should include lockdown testing.	
1.5	Mark Demange	t	Need to add a convention for True = 1 and False = 0	
1.5	McDonald	t	Provide Golden units that can first be used to verify the functionality of the standard and then used to verify the compliance of units produced by various manufactures Sometimes this is called a lock down test.	A very pragmatic approach is offered to establish the validity of the standard and equipment that is designed to comply with the standard
1.5	MLT	T	appropriate text for this section should be entered before draft approval	
1.5	Rick White	T	Conformance requirements must be defined	Must define in order to provide interoperability.
1.5	Ryan Tze	T		MAC/PHY interface has not been defined. What needs to be done: A MAC/PHY interface has to be defined and include in the draft standard.
1.5	Stuart Kerry	T		Section to be completed
1.6	Fischer, Mike.	E	establishment of conventions for hexadecimal notation, depiction of firstDinDtime transmission order, and graphics which attempt to represent time on one of their axes would improve inter-chapter readability	
1.6	Joe Kubler	E	define multi-octet convention	used in frame format, i.e. sequence control
1.6	Mark Demange	e	Define conventions for octet representations per the comment in the draft.	
1.6	Bob O'Hara	T	add convention "2: This standard represents fields longer than a single octet as strings of octets and fractions thereof. A field longer than a single octet is represented in figures with the most significant bit (MSB) on the left. Each octet to the right of the MSB is of correspondingly lesser significance."	No method to interpret the figures is included.
1.6	David Bagby	T		See imbeded comments and annotations
1.6	Rick White	T	Must Resolve editor's comments	Can not have a draft with questions from the editor's

1.6	Vic Hayes	T	<p>1.6 Frame Format conventions and order of transmission of bits This standard defines frame formats in graphical notation, such that:</p> <ol style="list-style-type: none"> 1. All frames are an integer number of octets 2. the octets are delivered to the MAC/PHY interface octet by octet with the leftmost octet transferred first 3. bits within octets are delivered to the MAC/PHY interface such that the rightmost bit is transmitted before the others 4. bitstrings containing a numeric value are depicted with the lesser significant bit at the right-hand side 5. bitstrings containing other values are placed in the fields as given in the text and tables. The leftmost bit is placed in the field at the leftmost side in the field 6. hexadecimal values are placed in an octet with the first written value at the lefthand side. 6. The CRC is placed in the FCS field with the bits with the higher coefficients in the leftmost octet. In each octet the bits with the higher co-efficients to the right, so that the CRC is transmitted with the higher co-efficient first ($x^{31}, x^{30}, x^{29}, \dots, x^1, x^0$) 	<p>The order of bit transmission needs to be defined unambiguously, so that the product of a designer of a receiver at one part of the globe can be sure that he places the into memory in the same way as the designer the transmitter at a place at another side of the globe took them from memory.</p>
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