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**IEEE P802.11**  
**Wireless Access Method and Physical Layer Specifications**

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**Title:** IR PHY Response to Technical Comments on Section 12

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**Abstract:** **What's Wrong:**  
Some people inexplicably voted against the IR PHY Section with comments.

**How To Fix It:**  
Accept the reasonable comments and reject the bogus ones.

**Motions:**  
As shown below, and in the minutes 802.11-95/34 and 802.11-95/42.

Resolved that 802.11-95/45 is a correct and true record if the Infrared PHY response to ballot comments on draft D1 section 12, and should be presented to the commentators.

**IR PHY VOTE 3-0-0**

## IR PHY RESPONSES TO COMENTS ON SECTION 12

SECTION	AUTHOR	TYPE	PROPOSED CHANGE	RATIONALE	ED	RESPONSE
12.2.5.1	C. Thomas Baumgartner	T	Change Start_of_Data to Start_of_Activity	Paragraph 8. defines Start_of_Activity, not Start_of_Data	Y	ACCEPTED  This still does not match section 8.1.1, which is internally inconsistent.  IR PHY VOTE 4-0-0
12.2.5.1	C. Thomas Baumgartner	T	confirm with authors of Section 8. that there is an End_of_Data class.	Section 8. has contradictions about this	Y	ACCEPTED WITH CHANGE  Pending the disobfuscation of the confusatron in section 8; Change 12.2.5.1 to "End_of_Data_and_Activity"  IR PHY VOTE 4-0-0
12.2.5.1	C. Thomas Baumgartner	T	describe the procedure in more realistic terms	Even though the introduction says that the procedure description is theoretical and based on actions taking place with no delay time the real PHY has to work with a real MAC. With an exposed interface the PHY developer will not have control of the MAC. It is not possible to send the headers, then send a confirm to the MAC, and wait for data from the MAC.	N	WITHDRAWN BY COMMENTATOR
12.3.3.3	C. Thomas Baumgartner	T	Change to "The mask represents the irradiance normalized to the total emitted power..."	Isn't it more accurate than average emitted power?	Y	ACCEPTED WITH CHANGE  change "average emitted" to "total peak emitted"  IR PHY VOTE 4-0-0

12.3.3.3	C. Thomas Baumgartner	T	Must add at least one other emitter radiation pattern now for portable handheld device. Should not cover entire azimuth in recognition that the handheld is likely to be positioned in certain way relative to ceiling.	The pattern in the spec is for a ceiling mounted device in the middle of a room. Must have at least one other pattern for a handheld or mobile device where the perfectly circular pattern is not nearly so useful. This pattern is probably not so wide, therefore the total power might reasonably be reduced in paragraph 12.3.3.1.	N	ACCEPTED PROVISIONALLY  When another pattern is presented, this subcommittee will gladly consider it for inclusion.  IR PHY VOTE 4-0-0
12.3.4.2	C. Thomas Baumgartner	T	Change 3rd sentence to "Conforming PHY are required to assert this condition within the first 12 microseconds of signal reception, when the received signal level is between the receiver sensitivity defined in 12.3.3.7 "Receiver Sensitivity" and the maximum set by the dynamic range defined in 12.3.3.8 "Receiver Dynamic Range", and the background IR signal is at the level defined in 12.3.3.7 "Receiver Sensitivity."	more accurate to define this parameter over the range of received level	Y	ACCEPTED WITH CHANGES  replace "at a signal level" with "at the minimum signal level"  IR PHY VOTE 4-0-0
12.4	C. Thomas Baumgartner	T	in table Channel_Transit_Delay should be larger than 25 nsec for 10 meter range. Whatever change is made the same change required for Channel_Transit_Variance.	I think that IR propagation speed is about 1.7 nsec per foot	Y	ACCEPTED  Change delay and variance to 100 ns, to allow for future more sensitive receivers with greater range.  IR PHY VOTE 4-0-0

12.4	C. Thomas Baumgartner	T	delete MPDU_Current_Maximum attribute	Unnecessary complication in an already too complex protocol. The only use I know would be for PHY to know that its error rate is high so a smaller packet could get through better. But the MAC has responsibility for making this decision and MAC doesn't have to tell PHY it just sends smaller MPDU. In Section 5.1.4 the attribute is called Fragmentation_Threshold.	Y	ACCEPTED WITH CHANGES  Change to "... aMPDU_Maximum, STATIC, identical for all conformant phy."  IR PHY VOTE 2-0-2
12	Wim Diepstraten	T	There is no means specified with which a MAC can evaluate the quality of an IR link, so that it is not possible to determine which AP is the best candidate for reassociation. An RSSI and / or SQ type of indication could provide with the relative information that can be used by the MAC Management entity to determine the best candidate.		N	REJECTED  RSSI and/or SQ are not produced as a easy or uncomplicated side effect of the operation of the IR-PHY, unlike Radio PHY's. We believe that mandating the added complexity of RSSI or SQ is not justified for the single use in selecting an AP.  IR PHY VOTE 4-0-0
12.	bdobyns	T	Add thermal operating range.		Y	DEFERRED  Commentator defers to R.Valadas comment 12.3.2 which proposes text for thermal operating range.
12.1, 5th paragraph	Fischer, Mike.	T	... may suffer add statement of what the symptoms of this suffering may be	clarity	Y	ACCEPTED  reword to "... performance of a Baseband Infrared PHY system may suffer reduced range."  IR PHY VOTE 4-0-0

<p>12.2, also 10.1, 10.5, 11.1, 11.4, and 2.9</p>	<p>Fischer, Mike.</p>	<p>T</p>	<p>The reference model in figure 2D11 should be replaced with one that matches the remainder of the standard. A recommended replacement drawing appears in document 95/16. To the extent that it makes editorial sense to include reference model drawings in subsequent (e.g. PHY) chapters, those drawings should be copies of, or subsets of, the drawing in section 2.9.</p>	<p>There should be a consistent reference model for all sections of the specification, and for all PHYs; otherwise the concept of a reference model is of dubious value. The existing drawings in 4 chapters are all different, and none fully match the description of the MAC and PHY elsewhere in this document.</p>	<p>Y</p>	<p>ACCEPTED</p> <p>Delete figure 12-2, and refer instead to figure 2-11 in section 2.9 "reference model"</p> <p>IR PHY VOTE 4-0-0</p>
<p>12.2.3</p>	<p>Fischer, Mike.</p>	<p>T</p>	<p>The behavior of the IR PHY which does not implement the 2Mbps transmission option when requested to transmit at 2Mbps needs to be specified. (I don't particularly care about what is specified as long as the result is <u>not</u> the transmission of the MPDU at 1Mbps, which would foul up the MAC's sense of time by remaining on the medium twice as long as the duration field indicates.)</p>	<p>completeness</p>	<p>Y</p>	<p>ACCEPTED</p> <p>Two possible interpretations of comment:</p> <p>(1) Two stations A, B. Station A requests Station B to transmit at 2mbps but Station B cannot. This is an error in the rate negotiation protocol at the MAC level, and not an error, per se, in the PHY. If the MAC in station B requests 2mbps from the PHY in station B, then it will be handled as in case 2.</p> <p>(2) MAC request of the PHY in it's own station to transmit at 2mbps, but PHY cannot. This is an error in the MAC, since the PHY MIB in that station should indicate that only 1mbps is possible. Nevertheless, the PHY will fail to transmit and will give an error indication to the MAC.</p> <p>IR VOTE 4-0-0</p>

12.2.3	Fischer, Mike.	T	What modulation is used for the DCLA field? Should be stated, as this falls after the data rate field and the length field is at the higher rate if so indicated.	completeness	Y	ACCEPTED  This field is not symbol data in any modulation format. Clarifying text "The Sync SFD, DR and DCLA are not symbols which are modulated in L-PPM" will be added to 12.2.3, 12.2.4.1, 12.2.4.2, 12.2.4.3 and 12.2.4.4  IR VOTE 4-0-0
12.2.4.1	Fischer, Mike.	T	How is the absence of a pulse distinguished from the empty slot that ends the SYNC field? Either specify the distinction or use consistent terminology for what is really the same thing.	clarity	Y	ACCEPTED  Second sentence will be changed to read "... shall terminate with the absence of a pulse in the last slot."  IR VOTE 4-0-0
12.2.4.2	Fischer, Mike.	T MAJ OR ISSU E	How does this SFD meet the 802 Hamming distance requirement? The SYNC field appears to be of the form 10101010. . . , so the hamming distance to this sequence is only 2. Recommend use of a 16-bit unique word, as is done by the other PHYs.	Reliable start-of-frame delimitation is one of the most important functions of any PHY. With the current type of PLCPs, the importance is even greater because there is no end-of-frame delimiter, just a length in the PLCP header, so the importance of reliable SFD detection is even more important.	N	REJECTED.  The choice of 4bits SFD is an optimum choice for IR PHY, as it is the minimum of the probability of false detection of the SFD and the probability of correct detection.  In the case of false SFD detection, the PLCP CRC will fail with hamming distance much greater than required.  IR PHY VOTE 4-0-0

<p>12.2.4.3 12.2.4.5 12.3.4.1</p>	<p>Wim Diepstraten</p>	<p>T</p>	<p>The rate field is not specified such that the CCA based on the Length field can support coexistence with a possible future extended rate. in addition, the Length field is specified to be transmitted at the target datarate, so that it can not be interpreted by all receivers that do only support the basic rate.</p>	<p>This may not be an issue when no in band extended rate extension of this standard can be expected.</p>	<p>N</p> <p>REJECTED.</p> <p>Length (timed) CCA is protection for fading, which is not a problem for the IR PHY. The IR PHY CCA only considers energy-detect and modulation-detect.</p> <p>As a consequence of our design, future higher data rates must be modulated in such a way that current CCA mechanism asserts a 'detection.'</p> <p>IR PHY VOTE 4-0-0</p> <p>*****</p> <p>In conversation with commentator, Wim is concerned with EFD</p> <p>REJECTED AGAIN AFTER RECONSIDERATION</p> <p>Reliable EFD is necessary for proper location of the frame CRC, which is not readable anyway at new unknown modulations techniques. Therefore this is still unimportant.</p> <p>IR PHY VOTE 3-0-0</p>
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12.2.4.4	Fischer, Mike.	T	Does the encoding in the DCLA field allow for future introduction of 6 more data rates? If so, this should be stated. If not, the last sentence of 12.2.4.3 should be replaced with a statement that other data rate codes are possible, but may not be usable because of limitations imposed by the (length?, format?) of the DCLA field.	consistency	Y	<p>REJECTED</p> <p>For the data rates that we can conceive of attempting to add to this PHY, the DCLA field is adequate.</p> <p>IR PHY VOTE 4-0-0</p> <p>delete the 8 rate sentence in 12.2.4.3 for clarity</p>
12.2.4.6, also 11.2.3.6, and 10.3.2.2.3	Fischer, Mike.	T	The CRC polynomial does not match its name. The listed polynomial is $\text{CRC}\text{CCITT}$ . There is a polynomial named $\text{CRC}\text{16}$ but its polynomial is $(X^{16})+(X^{15})+(X^2)+1$ . Either of these polynomials is acceptable for PLCP header checking, but the name and the polynomial should be consistent (and uniform across all of these PHYs). Please choose 1. The description of the algorithm in 10.3.2.2.3 is the clearest, and should be replicated for all of the other HEC sections (or adapted for all if the $\text{CRC}\text{16}$ polynomial is desired and the error was in the polynomial rather than the name of the polynomial).	consistency, technical correctness	Y	<p>ACCEPTED</p> <p>Change name of the polynomial to <math>\text{CRC}\text{CCITT}</math>.</p> <p>IR PHY VOTE 4-0-0</p>



<p>12.2.5.2, 10.2.3.1, 11.2.7,</p>	<p>Fischer, Mike.</p>	<p>T MAJ OR ISSU E</p>	<p>It is imperative that all PHYs explicitly constrain the length reported in the RXVECTOR of the PHY_DATA.indicate(Start_of_Data) to equal the length sent from MAC to PHY in the TXVECTOR of the PHY_DATA.request(Start_of_Data) at the peer PHY entity that placed the PhPDU onto the WM. This needs to be true even if the unification of TXVECTOR and RXVECTOR formats and encodings recommended in another of my comments is not adopted.</p>	<p>If the receiving MAC cannot rely upon the length indicated in the RXVECTOR to be an accurate copy of the MPDU length from the peer MAC entity, the entire fragmentation/reassembly model needs to be reexamined. The absence of a fragment length field in the MAC header has been discussed extensively, both regarding fragmentation and regarding WEP (especially WEP, which applies to MSDUs, in conjunction with fragmentation, which generates MPDUs after WEP has encrypted the MSDU). In several of these discussions, the ability to omit this fragment length indication was justified on the basis of this property of the length indication from the RXVECTOR <del>DD</del> but the current PHY drafts do not explicitly require that this property is true. Note that if this property can be relied upon (in cases that the HEC is valid on reception), the use of the PLCP length reported in the RXVECTOR is <u>superior</u> to a length field in the MAC header, because a MAC implementation may use the length from the RXVECTOR as a validated (rather than speculative) quantity prior to receipt and validation of the CRC at the end of the MAC frame.</p>	<p>Y</p>	<p>ED. ACCEPTED</p> <p>IR PHY does not modify the length of the MPDU or the contents of the the length field as given to the PHY by the MAC in the PHY_DATA.request(Start_of_data).</p> <p>Does commentator want a specific notation to that effect in the standard, or is it obvious that the PHY must operate this way or nothing will work.</p> <p>*****</p> <p>Specific notation provided by Editor in 12.2.5.2 d).</p>
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12.3.1 figure 12-2	bdobyns	T	PHY LME shown connecting to MAC. figure 12-2 should be deleted and the text should refer instead to figure 2-11.		Y	ACCEPTED  Already handled in a previous comment. by Mike Fischer. Delete figure 12-2 and refer figure 2-11
12.3.1 (Figure 12-2)	Bob O'Hara	T	this figure must match all other architectural figures	inconsistent	Y	ACCEPTED  Already handled in a previous comment by Mike Fischer. Delete figure 12-2 and refer figure 2-11
12.3.2 PMD Operating Specifications General	Rui Valadas	T	There should exist a section specifying the operating environment, with the following text: 12.3.2.3 Operating Environment The IR-PHY will operate only in indoor environments. IR-PHY interfaces can not be exposed to direct sun light. The IR-PHY does not require a line-of-sight between emitter and receiver in order to work properly. The performance of the system will vary with the geometry of the environment and with the natural and artificial illumination conditions.	It is not clear from the current standard, the conditions required for an IR-PHY to work properly.	Y	ACCEPTED WITH CHANGE  Proposed text added to section 12.1, with appropriate editorial changes to fit the tone and style, what little there is.  IR PHY VOTE 4-0-0  ED. ACCEPTED AS PROPOSED.
12.3.2 PMD Operating Specifications General	Rui Valadas	T	There should exist a specification for the "operating temperature range", with the following text: 12.3.2.4 Operating Temperature Range The temperature range for full operation compliance with the IR PHY is specified as 0 to 40 degrees centigrade.	There should exist a specification for the "operating temperature range".	Y	ACCEPTED  Added to standard, with one change "The minimum temperature range ..."  IR PHY VOTE 4-0-0

12.3.3.2	Bob O'Hara	T	specify method to determine jitter	is jitter for pulse as a whole or for each edge independently?	Y	<p>REJECTED</p> <p>Method to determine jitter is more properly a subject of a test suite.</p> <p>We believe that the prose and the picture are sufficiently clear. Jitter is for pulse edges independently, but, as prose states, pulse width must be +/- 10ns as well.</p> <p>IR PHY VOTE 4-0-0</p> <p>ED. NOTE: Will change wording in p1, line 4,5 "pulse" to "edge"</p>
12.3.3.7	Samdahl	T	Para 1 line 2: Add "unmodulated" before "background"	This is intended as a measure of immunity to a background 'DC' source of IR in the passband of the receiver. There may also be a need to specify the noise performance, but that was not the original intent of this section.	Y	<p>ACCEPTED</p> <p>Add word to 12.3.3.7 and 12.3.3.8</p> <p>IR PHY VOTE 4-0-0</p>
12.3.3.7	Samdahl	T	Para 2 line 1: Use "background" instead of "noise"	Same as above.	N	<p>REJECTED</p> <p>Can't find word 'noise' anywhere in section 12, except one occurrence in section 12.2.4.1 "signal-to-noise-ratio"</p> <p>IR PHY VOTE 4-0-0</p>
12.3.3.9	Samdahl	T	Para 3 line 1: Add a new paragraph: "The receiver sensitivity will be greater than 10% of its maximum value at +/- 85 degrees from the normal."	<p>Page: 11</p> <p>Specifying 90 degrees will result in very inefficient operation. In a diffuse system, a substantial fraction of the available energy in the vicinity of the receiver will occur at entry angles greater than +/- 45 degrees from the normal vertical. As defined, a conformant receiver's acceptance angle could fall to zero at any point outside the +/- 45</p>	Y	<p>ACCEPTED WITH CHANGE</p> <p>Replace 12.3.3.2 paragraph 2 and 3 with:</p> <p>Define the receiver FOV as more than 65% of the maximum received optical power for angles for angles less than 20', 55% for angles less than 40', 35% for angles less than 60' and 10% for angles less than 90'</p>
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<p>12.3.3.9 Receiver Field-of- View (FOV)</p>	<p>Rui Valadas</p>	<p>T</p>	<p>Define the receiver axis as the direction of incidence of the optical signal at which the received optical power is maximum. Define the receiver FOV as twice the angle measured between the receiver axis and the direction of incidence at which the received optical power is equal to 1% of the maximum received optical power. For incident angles smaller than half the FOV, the received optical power should always be higher than 1% of the maximum received power. The receiver FOV of a conformant receiver shall be greater than or equal to 150° .</p>	<p>The receiver FOV should be as wide as possible to minimise the hidden station problem.</p>	<p>Y</p>	<p>ACCEPTED WITH CHANGES  12.3.3.9 Samdahl</p>
<p>12.3.4.3 Energy Detect</p>	<p>Rui Valadas</p>	<p>T</p>	<p>For further study</p>	<p>The sensitivity of the Energy Detection mechanism is too low. With the indicated threshold there is a high probability that one or more transmissions from a like-PHY will not produce enough energy to assert the Energy Detection Signal.</p>	<p>Y</p>	<p>REJECTED  CS is an indepenent function from ED, and a like phy below the ED threshold may still cause CS to be asserted.  IR PHY VOTE 4-0-0  ED. clarifying text added instead</p>
<p>12.4</p>	<p>Bob O'Hara</p>	<p>T</p>	<p>MIB definition is required in ASN.1 format</p>	<p>definition is incomplete</p>	<p>Y</p>	<p>ACCEPTED  Added text to 12.4 "This section does not provide the definion of the MIB, but only provides the phy-specific values for the ASN.1 in section 9."  IR PHY VOTE 4-0-0</p>

12.3	K.C.Chen	T	open	It is suggested that IR PHY define the PMD_SAP (not a factor to decide my vote)	N	REJECTED  Definition of a PMD_SAP does not improve the clarity, readability or implemetability of the standard.  IR PHY VOTE 4-0-0
12.3.2.1	K.C.Chen	T	Data in table 12-1 and table 12-2 should be gray coded. For example 00 01 11 10 for 4-PPM	This can minimize the distance of neighboring signal constellations under ISI and provide advantages for error detection and correction for future speed expansion.	Y	ACCEPTED  Change Table, and add text in 12.3  "The data in these tables has been arranged (gray coded) so that a single out-of-position-by-one error in the medium, caused, for example, by intersymbol interference, results in only a single bit error in the received data, rather than a multiple bit error. "  IR PHY VOTE 4-0-0
12.3.3.1	K.C.Chen	T	The peak optical power of an emitted pulse shall <u>not be greater</u> than 2W	Emitting power should be defined the upper-limit ONLY for IR PHY	N	REJECTED  This increases the hidden-node problem by permitting very weak conformant devices. This also permits asymmetric communications opportunities, which affects interoperability.  IR PHY VOTE 4-0-0

12.3.3.3	K.C. Chen	T	<delete>	Unless this can be well defined without ambiguity no reason to keep this. We may define a nondirective conformance test in the future. For safety concern the radiation can be defined a minimum value for decline angle 30 degrees.	N	REJECTED  Pattern mask is defined for diffuse interoperability, not for safety.  The current definition is sufficient.  Additional conformant masks may be added before approval.  IR PHY VOTE 4-0-0
12.1	C. Thomas Baumgartner	E	10 paragraph change to (placing it in a different room) delete "is usually sufficient"	placing it in another room from the LAN coverage is always sufficient.	Y	ED. ACCEPTED
12.1.3	C. Thomas Baumgartner	E	Definitions missing	Fill in section or delete if nothing to put here	Y	ED. ACCEPTED  Section deleted. Definitions belong in section 1 not here
12.1.4	C. Thomas Baumgartner	E	Add Acronyms SYNC, SFD, DR, FER	These acronyms are equally in need of explanation	N	ED. REJECTED  Work for Section 1
12.2.2	C. Thomas Baumgartner	E	Change title of Figure 12-1: to PDU Frame Format	The diagram shows the entire PDU Frame	Y	ED. ACCEPTED
12.2.3	C. Thomas Baumgartner	E	missing number 1 as in 1 Mbps bit rate	typo	Y	ED. ACCEPTED
12.2.4.2	C. Thomas Baumgartner	E	Add note that 1=pulse and 0=no pulse in slot	Not clear what binary digits mean regarding energy in slots.	Y	ED. ACCEPTED
12.2.5.1	C. Thomas Baumgartner	E	Add before a) "Following is the transmit procedure:"	List of steps needs an introduction.	Y	ED. ACCEPTED
12.2.5.2	C. Thomas Baumgartner	E	Add before a) "Following is the receive procedure:"	List of steps needs an introduction.	Y	ED. ACCEPTED

12.2.5.2	C. Thomas Baumgartner	E	in a) correct to End_of_Activity, delete 1	typo	Y	ED. ACCEPTED
12.2.5.2	C. Thomas Baumgartner	E	in a) rewrite 2nd and 3rd sentences to "When PHY senses activity on the medium it indicates that the medium is busy with a PHY_DATA. Indicate class=Start_of_Activity. This will normally occur during the SYNC field of the PLCP preamble.	more clear, concise and accurate and same as CCA description in 12.2.5.3	Y	ED. ACCEPTED
12.2.5.2	C. Thomas Baumgartner	E	in d) correct to Start_of_Data	typo	Y	ED. ACCEPTED
12.2.5.3	C. Thomas Baumgartner	E	Add before a) "Following is the CCA procedure:"	List of steps needs an introduction.	Y	ED. ACCEPTED
12.3.1	C. Thomas Baumgartner	E	delete Figure 12-2: PMD Layer Reference Model, add reference to Layer Reference Model in another part of document	This is a general model of the interaction of the layers and should be somewhere in the general specification not in the IR section. There is more detail in Figure 10-1 so this is the one that should survive.	Y	ED. ACCEPTED
12.3.2.2	C. Thomas Baumgartner	E	show LSB on the right, not left	section 1.6 "Conventions" says that is the way to do it in this standard	Y	ED. ACCEPTED
12.3.3.6	C. Thomas Baumgartner	E	change paragraph number to 12.3.4 and ripple changes through rest of section 12 as follows: 12.3.3.7 to 12.3.4.1; 12.3.3.8 to 12.3.4.2; 12.3.3.9 to 12.3.4.3; 12.3.4 to 12.3.5; 12.3.4.1 to 12.3.5.1; 12.3.4.2 to 12.3.5.2; 12.3.4.3 to 12.3.5.3. Don't forget to change the reference in 12.3.4.2.	The PMD Transmit Spec were 12.3.3. The PMD Receiver Spec should be at same level, ie 12.3.4, not a subset of Tx spec.	Y	ED. ACCEPTED

12.3.4.1	C. Thomas Baumgartner	E	Italics not necessary at end of first paragraph	Italics not used other places for primitives	Y	ED. ACCEPTED
12.3.4.1	C. Thomas Baumgartner	E	Change last sentence in 2nd paragraph to "The CCA may remain "BUSY" after the end of data if some form of energy is still being detected. The PHY will signal PHY_DATA. Indicate class=End_of_Activity only when the CCA goes "CLEAR".	more accurately states the case	Y	ED. ACCEPTED
12.4	C. Thomas Baumgartner	E	in table CCA_Watchdog_Timer_Min needs units, I believe microseconds	missing units required	Y	ED. ACCEPTED
8.	C. Thomas Baumgartner	E	Global replace of Ph with PHY	Need to be consistent with rest of document in referring to Physical Layer		
12 (general)	Fischer, Mike.	E	There are far too many paragraphs in this section that read like they are in a marketing document rather than a draft standard. There is no reason to mention IrDA, discuss "true LAN system" in qualitative terms, state "... without the possibility of eavesdropping" (do I hear product liability lawyers lining up outside?), etc.	It would be nice if the result of this work was a standard where the different chapters appeared to have been written on the same planet, maybe even the same continent.	Y	ED. REJECTED  This section was produced at the specific request of the 802.11 Chair.
12, ch 10,11,12	PFS	E	PLCP general descriptions should use similar language and text for all phy's and should speak to the MAC layer primitives in the same way			ED. DEFERRED  Wait until section 8 updated.
12.1	Bob O'Hara	E	replace "insure" with "ensure"		Y	ED. ACCEPTED
12.1.1	Bob O'Hara	E	replace "by" with "to", "for" with "by", "might" with "may"		Y	ED. ACCEPTED
12.1.1	Mahany	E	Replace "Nodes" with "Stations"	Term Node not in earlier definitions.	Y	ED. ACCEPTED



12.1.3, 12.1.4, 12.1.5	Fischer, Mike.	E	these should be merged into the relevant portions of section 1	uniformity of notation and nomenclature	Y	ED. ACCEPTED  Deleted here
12.1.4	bdobyns	E	Merge with section 1.3, Abbreviations	don't need a <i>Distributed Abbreviation Function</i> .	Y	ED. ACCEPTED  Deleted here
12.1.4 Acronyms	Rui Valadas	E	None.	The Acronyms list should be only one, common to the MAC and all the PHYs.	Y	ED. ACCEPTED  deleted here
12.2.1	Bob O'Hara	E	replace "appended" with "prepended", "MPDU" with "MPDU (PSDU)"		Y	ED. ACCEPTED
12.2.2	Bob O'Hara	E	replace "MPDU" with "PSDU"		Y	ED. ACCEPTED
12.2.2 (Figure 12-1)	Bob O'Hara	E	replace "MPDU" with "PSDU"		Y	ED. ACCEPTED
12.2.3	Bob O'Hara	E	replace "MPDU" with "PSDU", "rates: Mbps" with "rates: 1 Mbps"		Y	ED. ACCEPTED
12.2.3	Fischer, Mike.	E	Words is not a term used elsewhere in this standard for this purpose Mbps and 2Mbps should be 1 Mbps and 2Mbps The use of LPPM here is valid, but in several later subsections LPPM appears where I believe the correct usage would be either 16PPM or 4PPM. Please clarify	consistency	Y	ED. ACCEPTED
12.2.3	Geiger	E	Mbps s/b/ 1Mbps	Spelling	Y	ED. ACCEPTED
12.2.3	Samdahl	E	Para 2 line 4: Should be "1 Mbps" instead of "Mbps"		Y	ED. ACCEPTED
12.2.4.3	Bob O'Hara	E	replace "which will" with "that shall"		Y	ED. ACCEPTED
12.2.4.3	Bob O'Hara	E	replace "is" with "shall be"		Y	ED. ACCEPTED
12.2.4.4	Bob O'Hara	E	replace "is" with "shall be"		Y	ED. ACCEPTED

12.2.4.4	Bob O'Hara	E	replace "MPDU" with "PSDU"		Y	ED. ACCEPTED
12.2.4.6	Bob O'Hara	E	replace "is" with "shall be"		Y	ED. ACCEPTED
12.2.4.7	Bob O'Hara	E	replace "MPDU" with "PSDU"		Y	ED. ACCEPTED (everywhere in sec 12)
12.2.4.7	Bob O'Hara	E	replace "are" with "shall be"		Y	ED. ACCEPTED
12.2.5.1	Bob O'Hara	E	replace "MPDU" with "PSDU"		Y	ED. ACCEPTED
12.3.1	Bob O'Hara	E	replace "from" with "on"		Y	ED. REJECTED Sorry, that sentence deleted
12.3.1, 2.9, 11.1.2, 10.1.2,	Isabel Lin	E	Make them consistent.	The Reference Models in those sections are not consistent.  What needs to be done: Make them consistent.	Y	ACCEPTED  Already handled in a previous comment by Mike Fischer. Delete figure 12-2 and refer figure 2-11
12.3.3.2 figure 12-3	bdobyns	E	figure 12-3 could be smaller, without loss of information.		Y	ED. ACCEPTED
12.3.3.3 figure 12-4	bdobyns	E	figure 12-4 uses grey shades for lines, should use dotted, dashed or otherwise non-colored lines for clarity.		Y	ED. ACCEPTED
12.3.3.7	Bob O'Hara	E	replace "an MPDU" with "a PSDU"		Y	ED. ACCEPTED
12.3.3.7	Bob O'Hara	E	replace "an MPDU" with "a PSDU"		Y	ED. ACCEPTED
12.3.3.7	Samdahl	E	"FER" (Frame Error Rate) should be defined if it hasn't been done earlier		N	ED. REJECTED work for Section 1
12.3.4.1	Bob O'Hara	E	delete ":", replace "will" with "shall"		Y	ED. ACCEPTED But - Couldn't find colon.
12.3.4.2	Bob O'Hara	E	delete ":"		N	ED. what colon?
12.3.4.3	Bob O'Hara	E	delete ":"		N	ED. can't find colon

12.4	Wim Diepstraten	E E	A clear Slot time specification should be provided.  The meaning of the PHY_SAP_delay is unclear.	It is difficult to assess which parameters do add up to the Slot Time.	N	ED. DEFER Wait and see if Section 9 changes.
12.2.5.2 b	A. Moreira	E		Change name of CRC	Y	ED. ACCEPTED

