

Cl 00 SC P L # 19
 WORSTELL, HARRY R Individual
 Comment Type TR Comment Status X
 This ballot does not contain the 802.11e ammendment and should include it. I vote NO.
 SuggestedRemedy
 Include 802.11e in the rollup
 Proposed Response Response Status O

Cl 00 SC P L # 3
 COORDINATION, EDITORIAL
 Comment Type ER Comment Status X
 Good to go, Section 1 comments have been addressed.
 -Mike Fisher, IEEE Staff Editor
 SuggestedRemedy
 Proposed Response Response Status O

Cl 00 SC P L # 20
 COORDINATION, SCC14
 Comment Type GR Comment Status X
 In the early pages (!) of this document there is a large section devoted to definitions.
 However, it does not include definitions of "byte" and "octet". In some standards the two
 terms are synonymous, but in this standard the terms are used and are not synonyms.
 Please add the two definitions.
 SuggestedRemedy
 Proposed Response Response Status O

Cl 00 SC Generally P L # 9
 STEPHENS, ADRIAN P Individual
 Comment Type E Comment Status X
 There are no line numbers
 SuggestedRemedy
 Add them
 Proposed Response Response Status O

Cl 00 SC N & M P L # 7
 STEPHENS, ADRIAN P Individual
 Comment Type ER Comment Status X
 There is confusion between these two annexes as to exactly what an AP is. Annex N
 provides no means for an AP to discover about mapping changes from the DS. Annex M
 says that this is possible.
 SuggestedRemedy
 There probably needs to be a new DS-STA-NOTIFY.request (from DS to AP) to provide
 this communication. Alternatively the use of terms like AP needs to be clarified (i.e. in M it
 includes the DS, in N they are called out separately).
 Proposed Response Response Status O

Cl 02 SC 2 P 3 L # 39
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 IEEE Std 802-1990 should be -2001.
 SuggestedRemedy
 Change to IEEE Std 802-2001.
 Proposed Response Response Status O

Cl 02 SC 2 P 3 L # 35
 O'HARA, ROBERT Individual

Comment Type **G** Comment Status **X**
 Many of the RFCs cited here are in fact not IETF standards (nor are they even standards-track documents), but are informational documents, yet they are cited here as "normative" references.

SuggestedRemedy
 Use the citation format from the RFC index, which has the standardization status as part of the citation.

Proposed Response Response Status **O**

Cl 02 SC 2 P 3 L # 36
 O'HARA, ROBERT Individual

Comment Type **G** Comment Status **X**
 Old citation for IEEE 802.1X dating from when it was a draft.

SuggestedRemedy
 IEEE P802.1X-2004 citation should remove the "P" and change the name to the official name (no draft!): "IEEE Standard for Local and Metropolitan Area Networks: Port-Based Network Access Control".

Proposed Response Response Status **O**

Cl 02 SC 2 P 3 L # 38
 O'HARA, ROBERT Individual

Comment Type **T** Comment Status **X**
 Citation for RFC 4017 has inaccurate title.

SuggestedRemedy
 Change title of RFC 4017 to "Extensible Authentication Protocol (EAP) Method Requirements for Wireless LANs".

Proposed Response Response Status **O**

Cl 02 SC 2 P 3 L # 37
 O'HARA, ROBERT Individual

Comment Type **T** Comment Status **X**
 RFC 4086 obsoleted RFC 1750 (it still has the same title).

SuggestedRemedy
 Change RFC 1750 to RFC 4086.

Proposed Response Response Status **O**

Cl 03 SC 3.10 P 5 L # 41
 O'HARA, ROBERT Individual

Comment Type **E** Comment Status **X**
 Incorrect citation of IEEE 802.1X.

SuggestedRemedy
 Replace with "IEEE 802.1X-2004."

Proposed Response Response Status **O**

Cl 03 SC 3.106 P 11 L # 42
 O'HARA, ROBERT Individual

Comment Type **E** Comment Status **X**
 Incorrect citation of IEEE 802.1X.

SuggestedRemedy
 Replace with "See IEEE 802.1X-2004."

Proposed Response Response Status **O**

CI 03 SC 3.107 P 11 L # 43
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Lack of parallel structure with 3.11.
 SuggestedRemedy
 Should have similar structure, such as: "The medium access control (MAC) address of the IEEE 802.1X Supplicant."
 Proposed Response Response Status O

CI 03 SC 3.11 P 5 L # 44
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Awkward sentence structure.
 SuggestedRemedy
 Would be clearer as: "The medium access control (MAC) address of the IEEE 802.1X Authenticator."
 Proposed Response Response Status O

CI 03 SC 3.116 P 12 L # 45
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Inconsistent definition. The synonym for "unicast frame" should be "directed frame" not "directed address".
 SuggestedRemedy
 Change "directed address" to "directed frame".
 Proposed Response Response Status O

CI 03 SC 3.19 P 6 L # 46
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 The name of the defined term is not in boldface.
 SuggestedRemedy
 Change formatting of "channel spacing" to boldface.
 Proposed Response Response Status O

CI 03 SC 3.24 P 6 L # 47
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Remove the second "with" from the name of the defined term.
 SuggestedRemedy
 Change all instances that spell out the definition of CCMP to remove the second "with".
 Proposed Response Response Status O

CI 03 SC 3.26 P 6 L # 40
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Missing punctuation.
 SuggestedRemedy
 Add a space after "disclosure" and add a period at end of sentence.
 Proposed Response Response Status O

CI 03 SC 3.69 P 9 L # 48
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Too much detail.
 SuggestedRemedy
 No need to mention frame types when defining multicast. Remove all text after the first sentence of the definition.
 Proposed Response Response Status O

CI 03 SC 3.72 P 9 L # 49
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Circular definition.
 SuggestedRemedy
 Don't use "pair" or "pairwise" when defining "pairwise". This definition avoids this issue: "Referring to, or an attribute of, two entities that are associated with each other, e.g., an access point (AP) and an associated station (STA), or two STAs in an independent basic service set (IBSS) network. This term is used to refer to a type of encryption key hierarchy pertaining to keys shared by only two entities."
 Proposed Response Response Status O

CI 03 SC 3.8 P 5 L # 50
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Circular definition.
 SuggestedRemedy
 Remove the word "suite" from the definition, or define it.
 Proposed Response Response Status O

CI 03 SC 3.9 P 5 L # 51
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 Incorrect citation of IEEE 802.1X.
 SuggestedRemedy
 Replace with "IEEE 802.1X-2004."
 Proposed Response Response Status O

CI 06 SC 6.2.1.1.1 P 49 L 1 # 2
 JAMES, DAVID V Individual
 Comment Type TR Comment Status X
 (These apply throughout; the page, sub-clause, and line numbers were put in to bypass the format checker and are only relevant for a small portion of this comment)
 This document does not conform to the IEEE Style Manual.
 A couple of examples:
 1) List of Figures ==> List of figures
 2) Figure 118 in TOF breaks across line
 3) Redundant/confusing names:
 destination address, DA
 4) Mbit/s ==> Mb/s
 5) State machine on #811 not consistent with state machine notation in other 802 specifications
 SuggestedRemedy
 Conform to the IEEE Style Manual.
 If necessary, please request assistance from the IEEE Editors.
 Proposed Response Response Status O

Cl 07 SC 7.1.3.1.9 P L # 17
 STEPHENS, ADRIAN P Individual
 Comment Type E Comment Status X
 "Only WEP is allowed as the cryptographic encapsulation algorithm for management frames of subtype Authentication." This statement doesn't relate to the interpretation of the Protected Frame Field.
 SuggestedRemedy
 Move to an appropriate section under the format of the authentication frame.
 Proposed Response Response Status O

Cl 07 SC 7.3.2 P 80 L # 28
 O'HARA, ROBERT Individual
 Comment Type T Comment Status X
 As all bits in the Capability Information Field are now consumed, a new place to identify the use of new capabilities must be defined. An information element is the perfect place for this.
 SuggestedRemedy
 Add a new "Extended Capability Information Field" IE that is a bit field capable of extension to the full length of an IE.
 Proposed Response Response Status O

Cl 08 SC 8.2.1.2 P L # 18
 STEPHENS, ADRIAN P Individual
 Comment Type E Comment Status X
 Footnote to Figure 86 seems out of place.
 SuggestedRemedy
 If it's necessary to say this, put it in a section on document conventions.
 Proposed Response Response Status O

Cl 08 SC 8.4.1.2.1 P 145 L # 30
 O'HARA, ROBERT Individual
 Comment Type E Comment Status X
 The reference to section 5.5 is incorrect, after 5.5 was changed to 5.6.
 SuggestedRemedy
 change "5.5" to "5.6".
 Proposed Response Response Status O

Cl 08 SC 8.5.1.2 P 156 L 2 # 16
 STEPHENS, ADRIAN P Individual
 Comment Type TR Comment Status X
 (Submitted on behalf of Jesse Walker, TGi editor)
 Line 2 says: "PMK <-- L(PTK, 0, 256)"
 This was an editorial error with normative consequences.
 SuggestedRemedy
 Replace the quoted text with:
 PMK <-- L(AAA Key, 0, 256)
 Proposed Response Response Status O

Cl 08 SC 8.5.1.2 P 156 L 2 # 29
 O'HARA, ROBERT Individual
 Comment Type T Comment Status X
 the formula $PMK=L(PTK,0,256)$ is incorrect. The text is clearly stating that PMK is the first 256 bits of the AAA key.
 SuggestedRemedy
 Replace "PTK" with "AAA key".
 Proposed Response Response Status O

Cl 08 SC 8.5.7.2 P 188 L 37 # 1
KARCZ, KEVIN J Individual

Comment Type E Comment Status X
EAPOL misspelled in definition of GTimeoutCtr as EAPIOL.

SuggestedRemedy
edit

Proposed Response Response Status O

Cl 10 SC 10.3.20.1.3 P 289 L # 52
O'HARA, ROBERT Individual

Comment Type T Comment Status X
This section is about sending EAPOL frames, not Michael MIC failures. This comment was first entered in LB75, but I goofed in the section number (entered it as 10.3.20.1.1 instead of 10.3.20.1.3) but had the line number on the page correct. There were two places on the page that needed correction; only the first was done in D3.0. In LB76 I voted yes, but submitted this comment again with the corrected section number. I don't find it in the resolution spreadsheet, and believe it never was registered as a comment in LB76.

SuggestedRemedy
Change sentence to: This primitive is generated by the SME when the SME has an 802.1X EAPOL-Key frame to send

Proposed Response Response Status O

Cl 11 SC 11.1.3 P 308 L # 8
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status X
"A STA may start its own BSS without first scanning for a BSS to join".
One of the issues I have with the structure of the document is that it claims that the SME is outside the scope of the specification, and therefore doesn't have a section for the SME. However it also makes normative statements that only make sense as specification for an SME.
This statement is an example of that, hopefully I'll notice and report a few more. Because control of sequencing of scanning/joining/starting is under control of the SME, this statement should read: "The SME of a STA may start its own BSS..."

SuggestedRemedy
Add a section containing statements for the SME and move the amended statement there.

Proposed Response Response Status O

Cl 11 SC 11.1.3.2.1 P L # 10
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status X
"In each BSS there shall be at least one STA"
This is an example of another class of generic error that is, unfortunately, far too common in this document - wrong use of "shall".
"Shall" introduces a normative requirement on the implementer. In this example, shall cannot introduce a normative requirement on the implementer because the BSS consists of multiple STA from multiple implementers.
It should be possible to trace most "shall" statements to PICS entries.

SuggestedRemedy
I recommend that the document be scanned and each occurrence of "shall" (there are 2258 of them) be validated.
In this example, what it meant to say: "The procedures defined in this subclause ensure that in each BSS there is at least one STA"

Proposed Response Response Status O

Cl 11 SC 11.2.1.1 P L # 11
STEPHENS, ADRIAN P Individual

Comment Type T Comment Status X

How big is "ProbeDelay"? Answer: it's not specified.
This creates a problem because later amendments (e.g. 802.11n) may result in long sequences of frames that are not PHY compatible. The legacy system waits for a "ProbeDelay" for a valid legacy header. A protection solution for the new system is to ensure the transmission of a valid legacy frame every ProbeDelay - but without knowing what this value is, there is no way this can be achieved.

SuggestedRemedy

Recommend that ProbeDelay is given a value in this document. Recommend suitable value is largest 802.11e TXOP duration.

Proposed Response Response Status

Cl 11 SC 11.2.1.4 P L # 13
STEPHENS, ADRIAN P Individual

Comment Type T Comment Status X

I wonder if it's worth adding a comment here on preserving ordering when moving frames resulting from an indication that a STA has changes power-saving state.

SuggestedRemedy

Add note something like: "An AP that moves frames to and from its buffer as learns that a STA has changed power-saving state should preserve the relative order of those frames."

Proposed Response Response Status

Cl 11 SC 11.2.1.4 P L # 12
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status X

"An AP shall have an aging function to delete pending traffic when it is buffered for an excessive time period."
I'm not sure this normative requirement is necessary. It is certainly not testable without defining what "excessive" means.

SuggestedRemedy

Recommend turning this into an informative note.
Alternatively define the ageing algorithm so that compliance can be tested.

Proposed Response Response Status

Cl 11 SC 11.2.1.9 P L # 14
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status X

"The AP shall have an aging function to delete buffered traffic when it has been buffered for an excessive period of time. That function shall be based on the ListenInterval parameter of the MLMEASSOCIATE request primitive of the STA for which the traffic is buffered."
"... shall have a function..." "... shall be based on ...".
Oh dear, oh dear, oh dear.

SuggestedRemedy

Either turn this into a recommendation, or provide enough specification that a compliant implementation can be constructed.

Proposed Response Response Status

Cl 11 SC 11.3 P 319 L # 31
O'HARA, ROBERT Individual

Comment Type E Comment Status X

The reference to section 5.5 is incorrect, after 5.5 was changed to 5.6.

SuggestedRemedy

change "5.5" to "5.6".

Proposed Response Response Status

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl 11
SC 11.3

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CI 11 SC 11.3 P 320 L # 25
O'HARA, ROBERT Individual

Comment Type G Comment Status X

The current standard defines a number of values for result codes. Very few of these values have definitions for their use. Define how a STA is to respond upon receipt of particular values of the result code in a disassociation frame and when an AP is to use them.

SuggestedRemedy

Append the following subclauses after 11.3.4:

11.3.5 STA disassociation procedure

Upon receipt of a Disassociation frame, a STA shall operate as follows:

- a) The MLME shall issue an MLME-DISASSOCIATE.indication with the ReasonCode parameter set to the value of the Reason Code received in the Disassociation frame.
- b) If the Reason Code indicates a configuration or parameter mismatch as the cause of the disassociation, the STA shall not attempt to associate or reassociate with the AP sending the Disassociation frame, until the configuration or parameter mismatch has been corrected.
- c) If the Reason Code indicates the STA was disassociated for a reason other than configuration or parameter mismatch, the STA shall not attempt to associate or reassociate with the AP sending the Disassociation frame until it has attempted to association or reassociate with at least one other AP or a period of 2 seconds has elapsed.

11.3.6 AP disassociation procedure

Upon receipt of an MLME-DISASSOCIATE.request, an AP shall use the following procedure when disassociating an STA:

- a) The AP shall send a Disassociation frame to STA being disassociated.
- b) The AP shall indicate a specific reason for the disassociation in the Reason Code field of the Disassociation frame. If any Reason Code value other than the unspecified reason Reason Code from Table 19 of clause 7.4.1.7 is appropriate for indicating the reason for the disassociation, the AP shall use that Reason Code value. The use of the unspecified reason value shall be used to indicate the STA was disassociated for a reason unrelated to all defined Reason Code values.

Proposed Response Response Status O

CI 11 SC 11.3.1 P 319 L # 21
O'HARA, ROBERT Individual

Comment Type T Comment Status X

The current standard defines a number of values for status codes. Very few of these values have definitions for their use. Define how a STA is to respond upon receipt of particular values of status codes

SuggestedRemedy

Append the following text to clause 11.3.1 c):

The Status Code returned in the Association Response frame indicates the cause of the failed association attempt. Any misconfiguration or parameter mismatch, e.g., data rates required as Basic Rates that the STA does indicate as supported in the Supported Rates information element, shall be corrected before the STA attempts a subsequent association with the AP. If the Status Code indicates the association failed because of a reason that is not related to configuration, e.g., the AP is unable to support additional associations, the STA shall not attempt to associate with the same AP if other APs are available, until the STA has attempted to associate with at least one other AP or a period of 2 seconds has elapsed.

Proposed Response Response Status O

CI 11 SC 11.3.2 P L # 15
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status X

"The STA's SME shall delete any PTKSA&"
See also my earlier comment. We need to put this in a section containing normative requirements on the SME.

SuggestedRemedy

Add a section containing statements for the SME and move the statement there.
Recommend scanning for SME and doing likewise with any other similar statements.

Proposed Response Response Status O

CI 11 SC 11.3.2 P 319 L # 22
O'HARA, ROBERT Individual

Comment Type T Comment Status X

The current standard defines a number of values for status codes . Very few of these values have definitions for their use. Define how a STA is to respond upon receipt of particular values of status codes.

SuggestedRemedy

Append the following text after 11.3.2 c):

d) When the status value of the association is not successful, the AP shall indicate a specific reason for the failure to associate in the Status Code of the Association Response frame. If any Status Code value from Table 20 in clause 7.3.1.9 is an appropriate reason for the failure to associate, the AP shall use that Status Code value. The use of the unspecified reason value of the Status Code shall be used to indicate the association failed for a reason that is unrelated to every other defined Status Code value.

Proposed Response Response Status O

CI 11 SC 11.3.3 P 320 L # 23
O'HARA, ROBERT Individual

Comment Type T Comment Status X

The current standard defines a number of values for status codes. Very few of these values have definitions for their use. Define how a STA is to respond upon receipt of particular values of the status code.

SuggestedRemedy

Append the following text to 11.3.3 c):

The Status Code returned in the Reassociation Response frame indicates the cause of the failed reassociation attempt. Any misconfiguration or parameter mismatch, e.g., data rates required as Basic Rates that the STA does indicate as supported in the Supported Rates information element, shall be corrected before the STA attempts a subsequent reassociation with the AP. If the Status Code indicates the reassociation failed because of a reason that is not related to configuration, e.g., the AP is unable to support additional associations, the STA shall not attempt to reassociate with the same AP if other APs are available, until the STA has attempted to reassociate with at least one other AP or a period of 2 seconds has elapsed.

Proposed Response Response Status O

CI 11 SC 11.3.4 P 320 L # 24
O'HARA, ROBERT Individual

Comment Type T Comment Status X

The current standard defines a number of values for status codes. Very few of these values have definitions for their use. Define how a STA is to respond upon receipt of particular values of the status code.

SuggestedRemedy

Append the following text after 11.3.4 c):

d) When the status value of the reassociation is not successful, the AP shall indicate a specific reason for the failure to reassociate in the Status Code of the Reassociation Response frame. If any Status Code value other than the unspecified reason Status Code value from Table 20 in clause 7.3.1.9 is an appropriate reason for the failure to associate, the AP shall use that Status Code value. The use of the unspecified reason value of the Status Code shall be used to indicate the reassociation failed for a reason that is unrelated to every other defined Status Code value.

Proposed Response Response Status O

CI 11 SC 11.4 P 320 L # 32
O'HARA, ROBERT Individual

Comment Type E Comment Status X

The reference to section 5.5 is incorrect, after 5.5 was changed to 5.6.

SuggestedRemedy

change "5.5" to "5.6".

Proposed Response Response Status O

CI 17 SC 17.1.2 P 437 L 1 # 4
LANDT, JEREMY A Individual

Comment Type G Comment Status X

There is no section 5.9 as referenced.

There are two page 437s.

SuggestedRemedy

Replace '5.9' with '5.7' or remove the reference, correct page numbering

Proposed Response Response Status O

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

CI 17
SC 17.1.2

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CI **A** SC **A.4.4.1** P **569** L # **33**
 O'HARA, ROBERT Individual
 Comment Type **E** Comment Status **X**
 In item PC1.1 The reference to section 5.5 is incorrect, after 5.5 was changed to 5.6.
 SuggestedRemedy
 change "5.5" to "5.6".
 Proposed Response Response Status **O**

CI **A** SC **A.4.4.1** P **571** L # **34**
 O'HARA, ROBERT Individual
 Comment Type **G** Comment Status **X**
 In item PC14.1, The reference to section 5.5 is incorrect, after 5.5 was changed to 5.6.
 SuggestedRemedy
 change "5.5" to "5.6".
 Proposed Response Response Status **O**

CI **H** SC **H.6.3** P **950** L # **27**
 O'HARA, ROBERT Individual
 Comment Type **T** Comment Status **X**
 Table H.7 lists some vectors for testing TKIP encryption. It would be nice to also list the source and destination MAC addresses, so that an implementor could walk through the derivation of the the Phase 1 and Phase 2 outputs.
 The MAC addresses are recoverable from the plaintext message, if we want to add them to the table.
 SuggestedRemedy
 Add the MAC addresses to the table.
 Proposed Response Response Status **O**

CI **H** SC **H.7.1.1** P **954** L # **26**
 O'HARA, ROBERT Individual
 Comment Type **E** Comment Status **X**
 The caption for Table H.14 is incorrect.
 SuggestedRemedy
 change the caption to "Sample derived CCMP temporal key (TK)"
 Proposed Response Response Status **O**

CI **N** SC **N.1** P L # **5**
 STEPHENS, ADRIAN P Individual
 Comment Type **E** Comment Status **X**
 The architecture picture is confusing because it has the same SAP at multiple layers. Also the multiplicities of the entities are not clear.
 SuggestedRemedy
 Recommend drawing with a wide portal layer at the top below which are multiple portals and multiple AP stacks. This emphasises the role of the DS in distribution and positions the DS-SAPs at the same level.
 Proposed Response Response Status **O**

CI **N** SC **N.1** P L # **6**
 STEPHENS, ADRIAN P Individual
 Comment Type **E** Comment Status **X**
 The DS-STA-NOTIFY primitive is probably best viewed as travelling "up the stack" from the AP to the DS.
 SuggestedRemedy
 Change it from a "request" to an "indication"
 Proposed Response Response Status **O**