Cl **00** *SC* *P* *L* # 61

PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**

Now, and prior to the introduction of TGw

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 107

CHAPLIN, CLINT F Individual

Comment Type **G** *Comment Status* **X**

No line numbers

SuggestedRemedy

Put in line numbers, please

Proposed Response *Response Status* **O**

Cl **00** *SC* *P* *L* # 110

CHAPLIN, CLINT F Individual

Comment Type **TR** *Comment Status* **D** *11e*

IEEE 802.11e should be included in this roll-up. (I realize that it probably would have been anyway, but I wanted to make sure).

SuggestedRemedy

Include IEEE 802.11e

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 20

COORDINATION, SCC14

Comment Type **GR** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT IN PRINCIPLE. All uses of "byte" the the text are synonymous with "octet". Replace all occurrences of "byte" with "octet", except in the C code in Annex H.

In H.5.1:
1. replace "preferable" with "preferably",
2. replace "lowest byte of time" with "least significant octet of the timestamp" in three locations,
3. replace "packet is seen" with "packet is received",
4. replace "concatenate the seen time" with "concatenate this octet",
5. replace "take the lowest byte of RSSI" with "take the least significant octet of RSSI",
6. replace "concatenate the sent time, received time, RSSI, and Snonce" with concatenate the sent time, received time, RSSI, and SNonce octets"

Cl **00** *SC* *P* *L* # 111

CHAPLIN, CLINT F Individual

Comment Type **TR** *Comment Status* **D**

The term "AAA Key" is being deprecated within the IETF. As a consequence, the use of that term in this standard needs to be changed to a replacement term. The term suggested by the IETF is "MSK"

SuggestedRemedy

Replace all instances of "AAA Key" to "MSK. Change the definition of "AAA Key" to define "MSK". Add an entry for "MSK" to the acronym section.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Replace all "AAA Key" occurrences with "MSK". Add the acronym "MSK" to clause 3.

Add the definition of MSK as follows to clause 3.

Master Session Key (MSK): The Master Session Key is keying material that is derived between the EAP peer and exported by the EAP method to the NAS. The MSK is at least 64 octets in length.

Cl **00** *SC* *P* *L* # 304

AMANN, KEITH Individual

Comment Type **TR** *Comment Status* **D** *11e*

802.11e recently completed sponsor ballot and was approved. My understanding is that if this standard revision does not incorporate 802.11e then the 802.11e standard can be lost. I believe this would be a significant error on the part of the IEEE, and that it would seriously set the standard back.

SuggestedRemedy

Update the draft to incorporate the 802.11e standard as recently approved by the IEEE sponsor ballot process.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 3

COORDINATION, EDITORIAL

Comment Type **ER** *Comment Status* **D**

Good to go, Section 1 comments have been addressed.
-Mike Fisher, IEEE Staff Editor

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 83

KLEINDL, GUNTER Individual

Comment Type **TR** *Comment Status* **D** *amendments*

With this revision the definition of 11a, 11b and 11g get lost.

SuggestedRemedy

Indicate in the PICS (Annex A) which items are mandatory for 11a, 11b and 11g.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The designations of each amendment are ephemeral and cease to exist when the revision is approved. IEEE-SA procedure does not allow for these designations to continue to be used in the standard.

Cl **00** *SC* *P* *L* # 62

PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**

all Action frames, whether sent in State

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 19
WORSTELL, HARRY R Individual

Comment Type **TR** *Comment Status* **D** *11e*
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* **W**
PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 60
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**
applications which use this capability.

SuggestedRemedy
vi) Spectrum Management Action

Proposed Response *Response Status* **W**
PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 59
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**
more reason to keep it, as there may be

SuggestedRemedy
To

Proposed Response *Response Status* **W**
PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 58
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**
Yes, this is a unique capability, all the

SuggestedRemedy
Within an IBSS, action frames are class 1.

Proposed Response *Response Status* **W**
PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 57
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**
TGh, and should remain in the standard.

SuggestedRemedy

Proposed Response *Response Status* **W**
PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 56
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**
State 1. This capability was added by

SuggestedRemedy
vi) Action

Proposed Response *Response Status* **W**
PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 55
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**

802.11 to support Action frames in

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* *L* # 63
PONNUSWAMY, SUBBURAJAN Individual

Comment Type **G** *Comment Status* **D**

1 or State 3 are unprotected

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT. Entry error on web form.

Cl **00** *SC* *P* **565** *L* # 80
MORETON, MIKE Individual

Comment Type **TR** *Comment Status* **D** *amendments*

It's no longer possible to identify which PICS items were introduced in which ammendment. As users of this standard tend to identify functionality by the name of the ammendment that introduced it, this is a bit of a problem.

SuggestedRemedy

Add definitions of "802.11a", "802.11b" etc.

Proposed Response *Response Status* **W**

PROPOSED REJECT. See the resolution to comment ID 83.

Cl **00** *SC* **Annex C** *P* **619** *L* # 233
FISCHER, MICHAEL A Individual

Comment Type **G** *Comment Status* **X**

Annex C is badly in need of a major update that incorporates the additions and changes to the MAC since 1999, as well as corrections to the errors and omissions that have been found in the 1999 version. Furthermore, the description in Annex C uses SDL-92, whereas the current version of ITU-T Recommendation Z.100 is SDL-2004. In between SDL-92 and SDL-2004 there has been one major revision and two maintenance revisions, so the descriptive notation is also in need of significant updating. (In particular, the description of the handling of management frames is accomplished using SDL-92 "Services" which have were eliminated from the language starting with SDL-2000.)

SuggestedRemedy

Update Annex C to describe the current MAC using SDL-2004 notation. This commenter, who was the author of the existing Annex C, is willing to participate in this update, but cannot volunteer to do the entire task by himself.

Proposed Response *Response Status* **O**

Cl **00** *SC* **Annex D** *P* **868** *L* # 96
ECCLESINE, PETER Individual

Comment Type **T** *Comment Status* **D** *mib*

dot11FrequencyBandsSupported should have an entry for US 15.247 channels

SuggestedRemedy

Change SYNTAX INTEGER (1,127) to (1,255) and change the integer, adding: bit 7 .. Capable of operating in the 5.725-5.850 GHz band

Proposed Response *Response Status* **W**

PROPOSED REJECT. The proposed change would create potential interoperability problems between a management entity compliant to the original definition and a STA compliant to this new definition.

Cl **00** *SC* **Annex D** *P* **868** *L* # 93
ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **D** *mib*

dot11TIThreshold object is not used in clause 17 CCA

SuggestedRemedy

deprecate dot11TIThreshold

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **Annex D** *P* **868** *L* # 94

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **D** *mib*

dot11FrequencyBandsSupported does not scale across 4.9-6 GHz uses of the OFDM PHY. It combines both frequency information and regulatory information.

SuggestedRemedy

Resolve or deprecate dot11FrequencyBandsSupported

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. See the resolution to comment # 95.

Cl **00** *SC* **Annex D** *P* **868** *L* # 95

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **D** *mib*

dot11FrequencyBandsSupported should remove unnecessary Country information and just specify frequency bands. It is redundant to have CEPT mid-band and US mid-band bits.

SuggestedRemedy

Change description to ""The capability of the OFDM PHY implementation to operate in the 4.9 GHz and 5 GHz
bands. Coded as an integer value with bit 0 LSB as follows:
bit 0 .. capable of operating in the 5.15-5.25 GHz band
bit 1 .. capable of operating in the 5.25-5.35 GHz band
bit 2 .. capable of operating in the 5.725-5.825 GHz band
bit 3 .. capable of operating in the 5.47-5.725 GHz band
bit 4 .. capable of operating in the lower Japanese (5.15-5.25 GHz) band
bit 5 .. capable of operating in the 5.0 GHz band
bit 6 .. capable of operating in the 4.9 GHz band
For example, for an implementation capable of operating in the 5.15-5.35 GHz bands this attribute would take the value 3."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change description to ""The capability of the OFDM PHY implementation to operate in the 4.9 GHz and 5 GHz
bands. Coded as an integer value with bit 0 LSB as follows:
bit 0 .. capable of operating in the 5.15-5.25 GHz band
bit 1 .. capable of operating in the 5.25-5.35 GHz band
bit 2 .. capable of operating in the 5.725-5.825 GHz band
bit 3 .. capable of operating in the 5.47-5.725 GHz band
bit 4 .. capable of operating in the lower Japanese (5.15-5.25 GHz) band
bit 5 .. capable of operating in the 5.03-5.091 GHz band
bit 6 .. capable of operating in the 4.94-4.99 GHz band
For example, for an implementation capable of operating in the 5.15-5.35 GHz bands this attribute would take the value 3."

Cl **00** *SC* **Annex I** *P* **960** *L* # 297
INOUE, YASUHIKO Individual

Comment Type **G** *Comment Status* **X**

5.25-5.35 GHz frequency band is now available in Japan.

SuggestedRemedy

Please update the table.

Proposed Response *Response Status* **O**

Cl **00** *SC* **Annex J** *P* **965** *L* # 104
BUTTAR, ALISTAIR G Individual

Comment Type **TR** *Comment Status* **D** *4.9*

*** Comment submitted with the file 676700024-11-05-1121-01-000m-modifications-to-802.11ma-regarding-4.9ghz-band.doc attached ***
Normative text for Public Safety US band

SuggestedRemedy

Per attached document 05/1121r1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. See the resolution to comment #103.

Cl **00** *SC* **Annex J** *P* **965** *L* # 103
BUTTAR, ALISTAIR G Individual

Comment Type **TR** *Comment Status* **D** *4.9*

Modification required for the 4.9GHz public safety band in the USA and the use of 5MHz channels (1/4 clock) in this band both in the US and Japan

SuggestedRemedy

All the necessary changes are provided in the following document: IEEE 802.11-05/1121r1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **Annex J** *P* **966** *L* # 298
INOUE, YASUHIKO Individual

Comment Type **G** *Comment Status* **X**

I hope the Table J.3 to be modified based on current regulation.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **00** *SC* **D** *P* **874** *L* **1** # 102
O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D** *mib*

In the dot11Compliance section of the MIB, on page 873/top 874, it makes reference to dot11SMTbase4 (which is marked deprecated).

SuggestedRemedy

It should probably be dot11SMTbase5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **Figure 51** *P* **86** *L* # 87
ECCLESINE, PETER Individual

Comment Type **E** *Comment Status* **X**

Figure 51 does not show all cases correctly, e.g. where dot11RegulatoryClassesRequired is false

SuggestedRemedy

Change Figure 51 as shown in attachment, so that all cases are shown

Proposed Response *Response Status* **O**

Cl **00** *SC* **Generally** *P* *L* # 9
STEPHENS, ADRIAN P Individual

Comment Type **E** *Comment Status* **D**

There are no line numbers

SuggestedRemedy

Add them

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **M** *P* *L* # 71
MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

This annex allegedly provides an AP functional description
However, in reality it has very limited value given that it is mostly content free and almost totally disconnected from implementation reality. The use of a large number of new terms and the semi-formal specification language only increases its obscurity.

SuggestedRemedy

Remove entire annex

Proposed Response *Response Status* **W**

PROPOSED REJECT. The material in the annex does provide useful information to readers new to the standard, to understand the function and description of an AP, without providing normative requirements.

Cl **00** *SC* **N** *P* *L* # 72
MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

There is little obvious value in this annex

SuggestedRemedy

Remove entire annex

Proposed Response *Response Status* **W**

PROPOSED REJECT. The material in the annex does provide useful information to readers new to the standard, to understand the function and description of an AP, without providing normative requirements.

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* **W**

Darwin to provide draft response.

Cl **01** *SC* **1.1** *P* **1** *L* **1** # 112
FISCHER, MICHAEL A Individual

Comment Type **G** *Comment Status* **X**

This scope statement was appropriate for the scope of the standards development project that produced the original 802.11 standard, but not for a roll-up of approved amendments to an approved standard.

SuggestedRemedy

Replace the existing sentence with "The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations within a local area.

Proposed Response *Response Status* **O**

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

Comment Type **T** *Comment Status* **D**

RFC 4086 obsoleted RFC 1750 (it still has the same title).

SuggestedRemedy

Change RFC 1750 to RFC 4086.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. Include correct date in citation.

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

Comment Type **G** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

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

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

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

Comment Type **G** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **02** *SC* **2** *P* **3** *L* # 39
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

IEEE Std 802-1990 should be -2001.

SuggestedRemedy

Change to IEEE Std 802-2001.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **02** *SC* **2** *P* **4** *L* # 136
FISCHER, MICHAEL A Individual

Comment Type **G** *Comment Status* **X**

Message Sequence Charts (MSCs) have become quite common in many subclauses of this standard, especially those that define enhanced security. A reference to the MSC definition should be included in clause 2.

SuggestedRemedy

Add a reference to the current version of ITU-T Recommendation Z.120

Proposed Response *Response Status* **O**

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

Comment Type **E** *Comment Status* **D**

Incorrect citation of IEEE 802.1X.

SuggestedRemedy

Replace with "IEEE 802.1X-2004."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.104** *P* **11** *L* **1** # 121
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"extended service set (ESS) basic rate set" is undefined

SuggestedRemedy

Add a definition of ESS basic rate set

Proposed Response *Response Status* **O**

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

Comment Type **E** *Comment Status* **D**

Incorrect citation of IEEE 802.1X.

SuggestedRemedy

Replace with "See IEEE 802.1X-2004."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.107** *P* **11** *L* # 43
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.11** *P* **5** *L* # 44
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

Awkward sentence structure.

SuggestedRemedy

Would be clearer as: "The medium access control (MAC) address of the IEEE 802.1X Authenticator."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.116** *P* **12** *L* # 45
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.
Change 3.30 and 3.116 to "directed frame"

In 9.8, change "either directed or group-addressed" to "either individual or group-addressed".

Cl **03** *SC* **3.116** *P* **12** *L* **1** # 123
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The definition of "unicast frame" is unnecessarily asymmetric with the definition of "multicast" in 3.69.

SuggestedRemedy

Change term being defined to "unicast" -- which is a suitable match to the stated synonym "directed address" whereas including "frame" is not. Also, reword description to be symmetric with the definition of multicast in 3.69.

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.117** *P* **12** *L* **1** # 122
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"provides uniform loading across a minimum set of channels" emphasizes the wrong concept. "Uniform loading" implies comparable traffic levels on the various channels, which is dynamic and undeterminable in advance. The correct concept is uniformity of channel occupancy or channel usage.

SuggestedRemedy

Change "loading across" to "occupancy of" or "usage across"

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.19** *P* **6** *L* # 46
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

The name of the defined term is not in boldface.

SuggestedRemedy

Change formatting of "channel spacing" to boldface.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.19** *P* **6** *L* # 86
ECCLESINE, PETER Individual

Comment Type **E** *Comment Status* **X**

Channel spacing' is not bolded

SuggestedRemedy

Bold 'Channel Spacing'

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.19** *P* **43** *L* # 283
LEVY, JOSEPH S Individual

Comment Type **E** *Comment Status* **X**

Item being defined not in bold.

SuggestedRemedy

Bold "channel spacing"

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.24** *P* **6** *L* # 47
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT. Make the deletion in the following clauses:
3.24 in two places
3.79
3.95
4
5.2.3.2
A.4.4.1 PC34.1.2.1

Cl **03** *SC* **3.26** *P* **6** *L* # 40
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

Missing punctuation.

SuggestedRemedy

Add a space after "disclosure" and add a period at end of sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.26** *P* **6** *L* **1** # 117
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

missing space in "disclosureto"

SuggestedRemedy

change to "disclosure to"

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.36** *P* **7** *L* **8** # 115
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"the station sending the MSDU chooses to involve DSS" seems to be in conflict with the description of DSS in 5.4.1.1

SuggestedRemedy

Replace from text starting "but the station sending..." through the end of this sentence with "and the station is associated with an AP."

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.42** *P* **7** *L* **1** # 116
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Only encapsulate is defined, and encapsulation is not defined; whereas in 3.28 and 3.29 both decapsulate and decapsulation are defined.

SuggestedRemedy

Add a definition of encapsulation with wording parallel to 3.29.

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.43** *P* **7** *L* **2** # 114
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **D**

"extended service set (ESS) basic rate set" is undefined. BSS basic rate set is defined in 3.15, but there is no definition of ESS basic rate set, but "ESS basic rate set" is used in places that include 3.104.

SuggestedRemedy

Either add a definition of ESS basic rate set or change this reference to BSS basic rate set.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change all occurrences of "extended service set (ESS) basic rate set" to "BSS basic rate set"
in at least 3.43., 3.104.

Cl **03** *SC* **3.45** *P* **7** *L* # 100
MORETON, MIKE Individual

Comment Type **TR** *Comment Status* **D**

The 1999 version of the standard included integrated LANs in the definition of ESS, which made it and the DS a really neat, generic concept that was architecturally clean.

Removing the integrated LANs raises a whole set of questions about how to communicate with integrated LANS that didn't exist when the architecture was clean.

SuggestedRemedy

Re-include the integrated LANs in the definition of ESS.

Save the DS!

Proposed Response *Response Status* **W**

PROPOSED REJECT. The integrated LAN is not part of the ESS. It must be reached by a portal and invocation of the integration function.

Cl **03** *SC* **3.46** *P* **7** *L* **1** # 113
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The referent of "It" at the beginning of the second sentence is ambiguous.

SuggestedRemedy

Replace "It" with "A 4-Way Handshake"

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.63** *P* **8** *L* **2** # 118
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Should include "using services of the physical layer" so as to match what is said for MPDU in 3.64.

SuggestedRemedy

Add ", using services of the physical layer (PHY)," between "MAC entities" and "to implement"

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.69** *P* **9** *L* # 48
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.
replace:

3.69 multicast: A medium access control (MAC) address that has the group bit set. A multicast MAC service data unit (MSDU) is one with a multicast destination address. A multicast MAC protocol data unit (MPDU) or control frame is one with a multicast receiver address.

by:

3.69 multicast: When applied to a MAC service data unit (MSDU), it is an MSDU with a multicast address as the destination address (DA). When applied to a MAC protocol data unit (MPDU) or control frame it is an MPDU or control frame with a multicast address as the receiver address (RA).

3.69a multicast address: A medium access control (MAC) address that has the group bit set.

3.69b multicast-group address: A medium access control (MAC) address associated by higher level convention with a group of logically related stations.

(the latter is consistent with an existing definition in the standard)

In reviewing the usage of "multcast address" I find it is used inaccurately in the following places so I suggest also:

In 9.7, replace all instances
Add "¹group" after "multicast" to become:
4¨¶Data(bc/mc)÷ represents any frame of type Data with a broadcast or multicast-group address in the Address1 field.

In the description of MIB, "dot11GroupAddressesTable"
replace ¶multicast Address÷ by ¶multicast-group address÷

In the description of MIB component, "dot11GroupAddressesEntry" -> "dot11Address"
replace ¶multicast Addresses÷ by ¶multicast-group addresses÷

Cl **03** *SC* **3.72** *P* **9** *L* # 49
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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 poitn (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* **W**

PROPOSED ACCEPT.

Cl **03** *SC* **3.8** *P* **5** *L* # 50
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

Circular definition.

SuggestedRemedy

Remove the word "suite" from the definition, or define it.

Proposed Response *Response Status* **O**

Mike Moreton to propose resolution.

Cl **03** *SC* **3.87** *P* **10** *L* **2** # 119
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"may or may not be understood by receivers" is poor wording. "Understanding" is not an attribute that other clauses consider a station to posess.

SuggestedRemedy

Replace with "may or may not be detected as valid network activity by the PHY entities at those receiving stations."

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.89** *P* **10** *L* **2** # 120
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"a nonce should be one of th inputs" makes the use of the nonce seem to be optional, which is not the case in clause 8.

SuggestedRemedy

Replace with "a nonce is used as one of the inputs"

Proposed Response *Response Status* **O**

Cl **03** *SC* **3.9** *P* **5** *L* # 51
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

Incorrect citation of IEEE 802.1X.

SuggestedRemedy

Replace with "IEEE 802.1X-2004."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **05** *SC* **5.1.1** *P* **56** *L* **2** # 284
LEVY, JOSEPH S Individual

Comment Type **G** *Comment Status* **X**

The second sentance seems to be out of place. Why is this statement located here. "Some countries impose specific requirements for radio equipment in addition to those specified
in this standard." While this is true I fail to see how it relates to why wireless LAN systems are different.

SuggestedRemedy

Move or remove the statement or clarify why this makes wireless LAN systems different.

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.1.1.4** *P* **20** *L* **1** # 124
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"a current style" was appropriate in early drafts of this standard, but with 802.11 having been an approved standard since 1997, wireless LANs are now part of the "currrent style."

SuggestedRemedy

Change to "conventional" or "wired"

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.2** *P* **20** *L* **8** # 125
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"members of the BSA" is poor wording, as membership is not an attribute of an area

SuggestedRemedy

Change to "stations present in the BSA"

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.2.3** *P* **21** *L* **13** # 126
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

missing space in "isany"

SuggestedRemedy

change to "is any"

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.2.3** *P* **58** *L* **5** # 285
LEVY, JOSEPH S Individual

Comment Type **E** *Comment Status* **X**

This is the first intance of WM in the text so it should be defined as DSM is in the latter part of the sentance.

SuggestedRemedy

Replace WM with: wireless medium (WM)

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.2.3** *P* **58** *L* **13** # 286
LEVY, JOSEPH S Individual

Comment Type **E** *Comment Status* **X**

There is a space missing text currenlty reads "isany".

SuggestedRemedy

Replace "isany" with "is any"

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.2.5** *P* **61** *L* **10** # 287
LEVY, JOSEPH S Individual

Comment Type **G** *Comment Status* **X**

While Figure4 is is an interesting Figure, it is completely meaningless since there is no scale provided or any indication as to what the nessisary field strength for the WM to function is.

SuggestedRemedy

Provide a scale or a reference as to where this information can be obtained.

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.4.2.2** *P* **30** *L* **9** # 127
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

In "this is different" the referent of "this" is ambiguous.

SuggestedRemedy

Change to "association is handled differently"

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.4.2.4** *P* **31** *L* **10** # 128
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"MAC management is designed to accommodate loss of an associated STA" implies that stations physically disappear.

SuggestedRemedy

Change to "MAC management is designed to accommodate loss of communication with an associated STA."

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.4.3.3** *P* **33** *L* **2** # 129
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The referent of "With a wireless shared medium, this is not the case" is ambiguous.

SuggestedRemedy

Change to "With a wireless, shared medium, there is no physical connection, and all stations and certain other RF devices in or near the LAN may be able to send, receive, and/or interfere with the LAN traffic."

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.4.3.3** *P* **33** *L* **19** # 130
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Clarify the last sentence of the subclause.

SuggestedRemedy

Add "of frames that are being discarded" to the end of the last sentence of the last paragraph.

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.6** *P* **37** *L* # 132
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **D**

[3rd paragraph above 5.7] -- Clarify the non-use of the Class 3 frame received by STA A from STA B.

SuggestedRemedy

Between "shall" and "send a disassociation frame" insert the text "ignore the received Class 3 frame and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Between "shall" and "send a disassociation frame" insert the text "disallow the received Class 3 frame and"

Cl **05** *SC* **5.6** *P* **37** *L* # 133
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **D**

[2nd paragraph above 5.7] -- Clarify the non-use of the Class 3 frame received by STA A from STA B.

SuggestedRemedy

Between "shall" and "send a deauthentication frame" insert the text "ignore the received Class 3 frame and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Between "shall" and "send a deauthentication frame" insert the text "disallow the received Class 3 frame and"

Cl **05** *SC* **5.6** *P* **37** *L* # 131

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **D**

[line just above "c)"] -- Clarify the non-use of the Class 2 frame received by STA A from STA B.

SuggestedRemedy

Between "shall" and "send a deauthentication frame" insert the text "ignore the received Class 2 frame and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Between "shall" and "send a deauthentication frame" insert the text "disallow the received Class 2 frame and"

Cl **05** *SC* **5.6, a), 2), vi)** *P* **36** *L* # 64

PONNUSWAMY, SUBBURAJAN Individual

Comment Type **TR** *Comment Status* **D** *action frame*

TGm has removed the capability of 802.11 to support Action frames in State 1. This capability was added by TGh, and should remain in the standard. Yes, this is a unique capability, all the more reason to keep it, as there may be applications which use this capability. Now, and prior to the introduction of TGw all Action frames, whether sent in State 1 or State 3 are unprotected.

SuggestedRemedy

Change from vi) Action within an IBSS, action frames are Class 1. To vi) Spectrum Management Action

Proposed Response *Response Status* **W**

PROPOSED REJECT. The reason for restricting the use of Action frames to class 3 in an infrastructure BSS is to limit the times when a STA must interpret and respond to an Action frame. When associated to an AP, a STA only needs to be responding to action frames from its AP. Requiring that Action frames be Class 1 in all cases leads to a new denial of service attack against a STA.

Cl **05** *SC* **5.6, a), 2), vi)** *P* **36** *L* # 54

PONNUSWAMY, SUBBURAJAN Individual

Comment Type **TR** *Comment Status* **D**

TGm has removed the capability of

SuggestedRemedy

Change from

Proposed Response *Response Status* **W**

PROPOSED REJECT. Entry error on web form.

Cl **05** *SC* **5.7** *P* **38** *L* # 53

O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

It seems that the section heading for "Reference Model" was deleted between D3.0 and D4.0 -- it used to be at 5.9, but now the text and diagram are concatenated with section 5.7 entitled "Differences between ESS and IBSS LANs". I think the section heading should be restored (now it would be 5.8).

SuggestedRemedy

Insert the correct heading and section number, renumber subsequent sections.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. In addition to the suggested remedy, ensure that any references to the new 5.8 are correctly linked and that current references to 5.8 are changed to 5.9.

Cl **05** *SC* **5.7** *P* **39** *L* # 135

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[last paragraph above 5.8] -- This paragraph states that Figure 11 shows an interface between the 802.1X Supplicant/Authenticator and the SME; however, no such interface appears in Figure 11.

SuggestedRemedy

Either change "shown in Figure 11" to "not shown in Figure 11" or add a symbol and label in Figure 11 to represent this interface.

Proposed Response *Response Status* **O**

Cl **05** *SC* **5.7** *P* **39** *L* # 134

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 11] -- The "802.1X" box is narrower than the Data Link Layer boxes immediately below.

SuggestedRemedy

Widen the "802.1X" box to the same width as the Data Link Layer MAC Sublayer and MAC Sublayer Management Entity boxes immediately below.

Proposed Response *Response Status* **O**

Cl **06** *SC* **6.2.1** *P* **48** *L* **5** # 137

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

incorrect word

SuggestedRemedy

change "specify" to "specific"

Proposed Response *Response Status* **O**

Cl **06** *SC* **6.2.1.1.1** *P* **49** *L* **1** # 2

JAMES, DAVID V Individual

Comment Type **TR** *Comment Status* **D**

(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* **W**

PROPOSED ACCEPT. The Working Group editor is working with the IEEE-assigned project editor to ensure conformance with the IEEE Style Manual.

Change abbreviation for "megabits per second" to the correct spelling throughout (either Mbit/s or Mb/s).

There is no requirement for state machine format consistency between 802 documents.

Cl **06** *SC* **6.2.1.2.2** *P* **51** *L* **2** # 138

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The last sentence of the first paragraph on the page is misleading, in that one could interpret this sentence to mean that there are cases where the 802.11 MAC does not report "success" as reception status on MA-UNITDATA.indication.

SuggestedRemedy

In the 2nd line of the paragraph, change "only reports" to "always reports" and change "when" to "because"

Proposed Response *Response Status* **O**

Cl **06** *SC* **6.2.1.2.3** *P* **51** *L* **3** # 139

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The reference to "WEP encryption" appears to be an editing artifact that predates 802.11i. This should be corrected because the current statement raises the question of whether MA-UNITDATA.indication is generated when encryption other than WEP is used.

SuggestedRemedy

Replace "WEP encryption" with "security and integrity information"

Proposed Response *Response Status* **O**

Cl **06** *SC* **6.2.1.2.4** *P* **51** *L* **1** # 140

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"validity and content of the frame" is not correct, because by the time MA-UNITDATA.indication is generated a received frame has already been validated, and the item being indicated by MA-UNITDATA.indication is an MSDU, not a frame.

SuggestedRemedy

Replace "validity and content of the frame" with "content of the MSDU"

Proposed Response *Response Status* **O**

Cl **06** *SC* **6.2.1.3.2** *P* **51** *L* # 141

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[also page 52] -- Items "b)" and "i)" remain listed due to their inclusion in previous versions of the standard, but are not, in fact, reasonable to generate in conformant implementations because to do so would necessitate delaying generation of any MA-UNITDATA-STATUS.indication that might otherwise be "successful" until after it is known that the retry limits and transmit lifetimes are NOT exceeded. Because there is no means by which an MA-UNITDATA-STATUS.indication can be matched to an arbitrary, previous MA-UNITDATA.request, this delayed generation of MA-UNITDATA-STATUS.indication would, necessarily, prevent acceptance of additional MA-UNITDATA.request primitives until successful transfer of the previous outgoing MSDU or expiration of the appropriate retry counter or timeout.

SuggestedRemedy

Either remove items "b)" and "i)" and renumber the list elements, or add a NOTE, applicable to items "b)" and "i)" that states something like: "Implementations are never required to generate Undeliverable transmission status due to unacknowledged directed MSDUs nor due to expiration of an MSDU transmit lifetime timer." More detail about why these are not required may be included in this NOTE if desired.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The integration of 802.11e into the draft makes numerous changes to the SAP and associated primitives. The commenter is encouraged to examine this clause in light of those changes, during the recirculation ballot. This topic will be revisited after the recirculation ballot.

Cl **07** *SC* **7** *P* **53** *L* **1** # 142

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

split infinitive

SuggestedRemedy

Change "shall be able to properly construct" to "shall be able properly to construct"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.1.1** *P* **53** *L* **4** # 143

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

At the end of the first sentence of the second paragraph of this subclause, the mention of bits should be plural.

SuggestedRemedy

Change "bit" to "bits"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.1.3.1.1** *P* **54** *L* **4** # 144

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Clarify where the Protocol Version field is checked.

SuggestedRemedy

Change "device that receives" to "MAC entity that receives"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.1.3.1.4** *P* **56** *L* # 300

ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

Re Table 2: for the bit field combination of ToDS=1 and FromDS=1, the description references the WDS, which doesn't really exist (yet).

SuggestedRemedy

Change
"Data frame using the four-address wireless distribution system (WDS) format."
to
"Data frame using the four-address format."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **07** *SC* **7.1.3.1.9** *P* *L* # 17

STEPHENS, ADRIAN P Individual

Comment Type **E** *Comment Status* **D**

"Only WEP is allowed as the cryptographic encapsulation algorithm for management frames of subtype Authentication." This statement doesn't relate to the interpretationof the Protected Frame Field.

SuggestedRemedy

Move to an appropriate section under the format of the authentication frame.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the last sentence of the clause. Change "When the Protected Frame field is set to 1 in a data frame" to "When the Protected Frame field is set to 1".

Cl **07** *SC* **7.1.3.3.2** *P* **58** *L* **2** # 145

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Describing a MAC address as being "associated with" a station is unclear in this context, because "associated with" is also used to describe the relationship between a STA and a BSS.

SuggestedRemedy

Change "associated with" to "assigned to" in line "a)" and to "that may be in use by" in line "b)"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.1.3.3.2** *P* **58** *L* **11** # 146

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

The last sentence of the paragraph designated "2)" states that it is not necessary that a station be capable of generating the broadcast address, however, there are other normative requirements in clauses 9, 10, and 11, that require a STA to send MMPDUs with a broadcast address. Examples are Beacon frames in an IBSS and Probe Request frames for active scanning. There is nothing in later clauses, nor in the PICS, that suggests that some stations are incapable of participating in an IBSS, nor are incapable of active scanning, therefore generation of the broadcast address is mandatory, at least for MMPDUs.

SuggestedRemedy

Preferred change: Replace the last 2 sentences of this paragraph with "All stations shall be able to generate and recognize the broadcast address." Acceptable, but non-preferred change: Limit the requirement for all stations to be able to generate the broadcast address to MMPDUs, while stating that it is not required to be able to generate the broadcast address for MSDUs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete "All stations are able to recognize the broadcast address. It is not necessary that a station be capable of generating the broadcast address."

Cl **07** *SC* **7.1.3.3.3** *P* **58** *L* # 301

ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

The term "broadcast BSSID" belies the real use of a value of all 1's in the BSSID field of a probe request. It is not a "broadcast" BSSID, it is a "wildcard" BSSID intended to match all BSSIDs.

SuggestedRemedy

Change "broadcast BSSID" to "wildcard BSSID".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **07** *SC* **7.1.3.4.1** *P* **59** *L* **4** # 147

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Clarify what sequence number each fragment contains.

SuggestedRemedy

Change "Each fragment of an MSDU or MMPDU contains the assigned sequence number." To "Each fragment of an MSDU or MMPDU contains a copy of the sequence number assigned to that MSDU or MMPDU."

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.1** *P* **60** *L* **2** # 148

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Clarify which SIFS interval is referred to.

SuggestedRemedy

Change "whose reception concluded within the prior short interframe space (SIFS) interval" to "whose reception concluded within the short interframe space (SIFS) interval preceding the start of the current frame."

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.1.2** *P* **61** *L* # 149

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[5th line from end] -- Clarify the duration value in the CTS frame for a data or management frame that requires acknowledgement.

SuggestedRemedy

Change "plus one SIFS interval, one ACK frame, and an additional SIFS interval" to "plus two SIFS intervals plus one ACK frame."

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.1.3** *P* **61** *L* **4** # 150
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The name of the bit is "More Fragments" (plural)

SuggestedRemedy

Correct two instances of "More Fragment" in the first two lines of the last paragraph on the page.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.1.4** *P* **62** *L* # 152
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[Last paragraph] -- The stated rules for updating the NAV upon receipt of PS-Poll frames are incomplete.

SuggestedRemedy

Replace the last sentence of the last paragraph of the subclause with "All STAs, upon receipt of a PS-Poll frame, update their NAV settings as appropriate under the coordination function and data rate selection rules using a duration value equal to the time, in microseconds, required to transmit one ACK frame plus one SIFS interval. If the calculated duration includes a fractional microsecond, that value is rounded up the next higher integer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete the last sentence of 7.2.1.4.

In the first sentence of 9.2.5.4, change "Duration/ID" to "Duration".

Add after the first sentence of 9.2.5.4:
"Upon receipt of a PS-Poll frame, a STA shall update its NAV settings as appropriate under the data rate selection rules using a duration value equal to the time, in microseconds, required to transmit one ACK frame plus one SIFS interval, but only when the new NAV value is greater than the current NAV value. If the calculated duration includes a fractional microsecond, that value is rounded up the next higher integer."

Cl **07** *SC* **7.2.1.4** *P* **62** *L* # 151
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 26] -- There should not be a space between "BSS" and "ID"

SuggestedRemedy

Correct the field label to "BSSID"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.1.4** *P* **62** *L* # 292
ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

comment: RA is not shown in Figure 26

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
change the third box annotation in Figure 26 from "BSS ID" to "RA = BSSID".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

change the third box annotation in Figure 26 from "BSS ID" to "BSSID (RA)", where "(RA)" appears on the line under "BSSID".

Cl **07** *SC* **7.2.1.5** *P* **62** *L* # 296
ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

TA is not shown in Figure 27.

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
change the fourth box annotation in Figure 27 from "BSSID" to "TA = BSSID".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

change the fourth box annotation in Figure 27 from "BSS ID" to "BSSID (TA)", where "(TA)" appears on the line under "BSSID".

Cl **07** *SC* **7.2.1.5** *P* **62** *L* # 294

ENGWER, DARWIN A Individual

Comment Type **GR** *Comment Status* **X**

TA is not shown in Figure 27.

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
change the fourth box annotation in Figure 27 from "BSSID" to "TA = BSSID".

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.1.6** *P* **63** *L* # 295

ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

TA is not shown in Figure 28.

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
change the fourth box annotation in Figure 28 from "BSSID" to "TA = BSSID".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

change the fourth box annotation in Figure 28 from "BSS ID" to "BSSID (TA)", where "(TA)" appears on the line under "BSSID".

Cl **07** *SC* **7.2.2** *P* **63** *L* # 153

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **D**

[Paragraph just below Table 4] -- This paragraph requires validation of the BSSID in cases where the Address 1 field contains a group address. However, for WDS format (To DS=1, From DS=1), there is no BSSID among the address values. Nothing is said about how such a frame is validated.

SuggestedRemedy

Add text to cover the missing case, either by prohibiting a group RA in WDS format data frames, or by stating what other address information is to be validated in WDS format data frames with a group RA.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Table 2 following clause 7.1.3.1.5 states that this standard does not describe operations when both ToDS and FromDS are 1. Adding such description here contradicts that statement.

Cl **07** *SC* **7.2.2** *P* **64** *L* # 155

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Last paragraph] -- There has been considerable confusion among readers of previous versions of the 802.11 standard regarding which frames are considered for NAV update. The last sentence of this paragraph is one place where clarification can, and should, be provided.

SuggestedRemedy

After "less than or equal to 32,767 from valid data frames" insert the text "(without regard for the RA, DA, and/or BSSID address values that may be present in these frames)"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.2** *P* **64** *L* # 154

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[4th paragraph on page] -- The statement regarding the frame body being "null (0 octets in length) in frames fo Subtype Null &" is incomplete.

SuggestedRemedy

To the sentence beginning "The frame body is null (0 octets in length) &" insert immediately after the closing parenthesis the text "and the Protected Frame subfield in the Frame Control field is set to 0"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.3** *P* **64** *L* # 299

ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

The second paragraph in this section makes references to Address 1, yet Address 1 is not shown in Figure 30, and therefore there is no way to coorelate the text with the actual management frame format.

SuggestedRemedy

Correct the Figure and the text to correspond to each other.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Add "Address 1" to the third box in Figure 30 of 7.2.3. Place "DA" in parentheses below it in the same box.

Cl **07** *SC* **7.2.3** *P* **64** *L* # 156

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[2nd paragraph] -- The stated rules for receipt of management frames with a group address in the Address 1 field have a listed exception for frames of type Beacon, but also need an exception for frames of type Probe Request, otherwise most Probe Request frames will be discarded due to failure to contain the BSSID of the current BSS.

SuggestedRemedy

Add the following sentence to the end of the second paragraph in this subclause: "Frames of type Probe Request with a group address in the Address 1 field are accepted if the BSSID field contains either the BSSID of the current BSS, or the broadcast BSSID."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following sentence to the end of the second paragraph in 7.2.3: "Frames of type Probe Request with a group address in the Address 1 field are processed as described in 11.1.3.2.1."

Replace the first sentence of 11.1.3.2.1 with:
"STAs, subject to criteria below, receiving Probe Request frames shall respond with a probe response only if
a) the SSID in the probe request is the wildcard SSID or the specific SSID of the STA , and
b) the BSSID field in the probe request is the wildcard BSSID , or the BSSID of the STA."

Add at the beginning of the second paragraph of 11.1.3.2.1: "Only APs and STAs in an IBSS respond to probe requests."

Cl **07** *SC* **7.2.3** *P* **65** *L* # 157

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **D**

[Next-to-last paragraph] -- Frame body processing should be clarified in the case that an information element is encountered with an unrecognized element type.

SuggestedRemedy

Extend the sentence which currently reads "Stations encountering an element type they do not understand ignore that element" by adding the text "but continue to attempt to process any remaining information elements in the frame body."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Extend the sentence which currently reads "Stations encountering an element type they do not understand ignore that element" by adding the text "but continue to process any remaining information elements in the frame body."

Cl **07** *SC* **7.2.3** *P* **65** *L* # 302

ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **D**

The term "broadcast BSSID" belies the real use of a value of all 1's in the BSSID field of a probe request. It is not a "broadcast" BSSID, it is a "wildcard" BSSID intended to match all BSSIDs.

SuggestedRemedy

Change "broadcast BSSID" to "wildcard BSSID".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Make the change in item c).

Cl **07** *SC* **7.2.3.1** *P* **65** *L* # 158

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[first paragraph] -- There are a considerable number of elements with sizes constrained only by the maximum element size. Even without the complicating issue of the possible inclusion of one or more Vendor Specific elements, it appears possible for the combined size of the information elements listed in Table 5 to exceed the maximum length of a management frame body. This situation should be addressed in the text describing the Beacon frame format.

SuggestedRemedy

Either add a rule for determining which element(s) are to be omitted if the frame body length would otherwise exceed 2304 octets, or add an informative NOTE that explains why the Beacon frame body will always fit within 2304 octets, despite the presence of numerous, variable-size information elements.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

There is already sufficient space in the Beacon for the information content required by the standard. There is also already a limitation on the maximum frame size. There is no need to add any rules for which information is more, or less, important than other information and should then be included in the Beacon when space is running short. It is up to the user to configure the WLAN in such a way that the required information is carried in the Beacon.

Add in the Notes column of Table 5 for the Vendor Specific IE: "This information element follows all other information elements." In the Order column, change "22" to "Last". Make these changes in all tables providing the order of items in a frame, except in Table 12 (Probe Response).

In Table 12, add in the Notes column for the Vendor Specific IE: "This information element follows all other information elements, except the Requested Information elements."

Cl **07** *SC* **7.2.3.1** *P* **66** *L* # 160

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Table 5, order 21] -- The conditions under which the RSN information element is present are unclear.

SuggestedRemedy

Change "is only present" to either "shall be present" or "may be present" for clarity and to match the description of other selectively-present elements.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.3.1** *P* **66** *L* # 159

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Table 5, order 19] -- "extended rate PHYs" is not defined in the definitions clause

SuggestedRemedy

Either add a definition of "extended rate PHY" and its acronym to clause 3, or include a reference to clause 19 in the Notes column of order 19 of Table 5.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.2.3.9** *P* **69** *L* # 161

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[first paragraph] -- There are a considerable number of elements with sizes constrained only by the maximum element size. Even without the complicating issues of the possible inclusion of one or more Vendor Specific elements, or an unconstrained number of information requests, it appears possible for the combined size of the information elements listed in Table 12 to exceed the maximum length of a management frame body. This situation should be addressed in the text describing the Probe Response frame format. With the inclusion of requested information elements, the size of the set of response elements is effectively unconstrained.

SuggestedRemedy

Either add a rule for determining which element(s) are to be omitted if the frame body length would otherwise exceed 2304 octets, or add a mechanism by which the responder can indicate that only the first portion of the response information is present in the frame body (along with a mechanism for transfering the subsequent portion or portions).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See resolution to comment #158.

Cl **07** *SC* **7.2.3.9** *P* **70** *L* # 101

SIMPSON, FLOYD D Individual

Comment Type **GR** *Comment Status* **X**

The draft is silent on what the Order column of Tables describing management response frames, such as Table 12, for probe response means. With the case of probe request/response as an example, if a STA receives a probe request must the order of the IEs from table 12 that could be in the probe response have to follow the numerical order listed in table 12? This has come up as an issue in 11k where some people say 'yes' and others say the answer is 'no' to this question. Either way, the draft should provide normative text where necessary to make it clear whether the IEs can occur in any order or must follow the order of the table. Note: The procedures for handling the Request element in a probe request says the probe response must contain the request elements in the same order as was listed in the Request element, so it seems that interpretation of Order columns in the table 12 (an others) should be that the element in the probe response occur in the order listed in the respective table.

SuggestedRemedy

Clarify what the intent is with regard to the comment by adding normative text that explains how tables with the Order column describing management frames should be interpreted.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.1.6** *P* **76** *L* **1** # 162

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Clarify the use of the listen interval

SuggestedRemedy

In the first line, add the words "in power save mode" after "STA"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.1.7** *P* **77** *L* # 163

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Reason code 13] -- The meaning of "invalid information element" needs to be clarified, because this is NOT an unrecognized information element type, because those are stated to be ignored in 7.2.3.

SuggestedRemedy

Add to the Meaning column for reason code 13 text which indicates what might constitute an "invalid information element" so as to distinguish this from the case of an unrecognized information element type.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.1.9** *P* **79** *L* # 164

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Status code 40] -- The meaning of "invalid information element" needs to be clarified, because this is NOT an unrecognized information element type, because those are stated to be ignored in 7.2.3.

SuggestedRemedy

Add to the Meaning column for status code 40 text which indicates what might constitute an "invalid information element" so as to distinguish this from the case of an unrecognized information element type.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2** *P* **80** *L* # 28

O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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 capabile of extension to the full length of an IE.

Proposed Response *Response Status* **O**

PROPOSED ACCEPT. Incorporate text from 11/05-xxx from Kapil Sood. Change the format of the

Cl **07** *SC* **7.3.2** *P* **80** *L* # 165

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Table 22] -- This table would be more useful if there were an additional column that indicated the length, or range of possible lengths that are defined for each element ID.

SuggestedRemedy

Add a "Length in Octets" column to Table 22.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.13** *P* **91** *L* # 169

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[5th paragraph on page] -- The statement "if a member of anb IBSS detects one or more &" does not make it clear whether the Barker_Preamble_Mode bit should be set to 1 in ERP information elements only when sent by the detecting station or in such elements in beacons by any stations that either did the detecting or received a beacon with this bit set to 1.

SuggestedRemedy

Clarify the temporal extent and set of stations that are to set the Barker_preamble_mode bit.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change "If a member of an IBSS detects one or more non-short preamble-capable STAs that are members of the same
IBSS, then the Barker_Preamble_Mode bit should be set to 1 in the transmitted ERP Information Element." to "If a member of an IBSS detects one or more non-short preamble-capable STAs that are members of the same
IBSS or receives a Beacon from a member of the same IBSS with the Barker_Mode_Preamble bit set to 1, then the Barker_Preamble_Mode bit should be set to 1 in the transmitted ERP Information Element.

Cl **07** *SC* **7.3.2.15** *P* **93** *L* # 170
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph on page] -- The statement of units of decibels is inconsistent with others in adjacent subclauses.

SuggestedRemedy

At the end of the second sentence of the paragraph, add the text "relative to 1mW"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.23** *P* **103** *L* # 171
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **D**

[6th paragraph] -- It is inadvisable for a quiet interval to prevent transmission of the next beacon, but the constraint on the magnitude of the Quiet Offset does not achieve the necessary restriction.

SuggestedRemedy

Preferred: Change "The value of the Quiet Offset field shall be less than one beacon interval." to "The sum of the values of the Quiet Duration field and the Quiet Offset field shall be less than one beacon interval." The alternative resolution is to add rules (presumably in 11.6) for the handling of the case where the quiet interval extends across a TBTT -- is the beacon delayed, as with busy medium at TBTT or is the beacon never sent. Also the case of the interaction between quiet intervals and the IBSS distributed beacon generation algorithm needs to be covered by such rules.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text of 11.6.2 is clear that the NAV is set during the quiet interval. This clearly makes use of the existing NAV mechanisms, including those used for the transmission of a Beacon.

Cl **07** *SC* **7.3.2.25** *P* **104** *L* # 172
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 77] -- The representation of the lengths of the various fields is inconsistent with said representation in the figures that show the formats of other information elements.

SuggestedRemedy

Change the format of Figure 77 to match the other element format figures.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.26** *P* **109** *L* # 232
FISCHER, MICHAEL A Individual

Comment Type **GR** *Comment Status* **X**

Vendor specific information elements are permitted in the bodies of management frames, but there are no service primitives, either at the MLME SAP or elsewhere, by which the contents of these elements can be transferred into and out of the MAC. Because the generation and interpretation of management frames are fully contained within the MAC, this lack of service primitives renders vendor specific information elements (formally) useless. While it could be argued that vendor specific information elements can be transferred to/from the MAC exclusively by informal means, doing so is inconsistent with the extreme effort to provide adequate primitive functionality at the MLME-SAP to allow generation and reporting of all defined management frame types.

SuggestedRemedy

Add (to clause 10) MLME-VENDOR.request, .confirm, and .indication primitives that each have as parameters, zero or more vendor specific information elements.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.6** *P* **84** *L* # 166
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[next to last paragraph] -- Future tense used in last sentence in paragraph.

SuggestedRemedy

Change "will be" to "is"

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.6** *P* **84** *L* # 167
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[last paragraph] -- Clarify the length of the TIM element in the event that all bits other than bit 0 are 0.

SuggestedRemedy

Add "and the length field is 4." to the end of the sentence.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.9** *P* **85** *L* # 168
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[NOTE at bottom] -- This NOTE appears to be an editing artifact.

SuggestedRemedy

Either removed the NOTE or reword so the reference to what text is or is not unnecessary is clear in the present context.

Proposed Response *Response Status* **O**

Cl **07** *SC* **7.3.2.9** *P* **86** *L* **3** # 289
ECCLESINE, PETER Individual

Comment Type **GR** *Comment Status* **X**

*** Comment submitted with the file 684900024-Figure51.tif attached ***
Figure 51 does not correctly show all cases, whether Regulatory classes are required or not

SuggestedRemedy

Redraw as shown in attached file

Proposed Response *Response Status* **O**

Cl **08** *SC* **8.1.3** *P* **113** *L* **1** # 74
DHARANIPRAGADA, KALYAN R Individual

Comment Type **G** *Comment Status* **D**

Usage of "a RSNA" and "an RSNA" is inconsistent

SuggestedRemedy

Use "a RSNA"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. The text is to made consistent.

Cl **08** *SC* **8.1.3** *P* **113** *L* **6** # 75
DHARANIPRAGADA, KALYAN R Individual

Comment Type **G** *Comment Status* **D**

words "to protect" are redundant

SuggestedRemedy

It programs the agreed-upon temporal keys and cipher suitesinto the MAC and invokes protection.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. Delete "to protect" from the first sentence of 8.1.3 a) 6).

Cl **08** *SC* **8.2.1.2** *P* *L* # 18
STEPHENS, ADRIAN P Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

The footnote is not a necessary statement.

Delete the footnote.

Cl **08** *SC* **8.3.2** *P* **123** *L* # 105

HALASZ, DAVID E Individual

Comment Type **G** *Comment Status* **X**

The QoS user priority is protected by the Michael MIC. However, it isn't included for encryption/decryption. In this case, the packet would decrypt but then have a MIC error. This would cause counter measures to be invoked.

SuggestedRemedy

One way to address this is to create a TKIPv2. I'm not sure that this issue is sufficient to create a TKIPv2. However, if one was desired the QoS user priority could be included in the IV. In this way, if the QoS user priority was modified, the decryption would fail and the packet would be rejected without counter measures being invoked.

One arguement for not addressing this issue is because AES-CCMP does not have this issue. Users concerned about the issue could use AES-CCMP instead.

Also, wireless is inherently open to localized denial of service. This would argue against addressing the issue.

Proposed Response *Response Status* **O**

Cl **08** *SC* **8.3.2.4** *P* **129** *L* **1** # 76

DHARANIPRAGADA, KALYAN R Individual

Comment Type **T** *Comment Status* **D**

The standard requires the rate of MIC failures < 2 per 60 seconds! i.e. STA/Aps detecting 2 MIC failures in 60s must disable all receptions using TKIP for 60s. In addition the PTK and GTK should be changed (renegotiated) using a 4-way handshake. Can we have a MIB variable to configure the rate and set the default to 2/60

SuggestedRemedy

Introduce dot11RSNATKIPCounterMeasureRate = 2 (default) in dot11PrivacyTable

Proposed Response *Response Status* **W**

PROPOSED REJECT. The reason the rate of 2 per 60s is chosen is that to obtain the security objectives of the Michael MIC, i.e., to protect against frame forgeries, an attacker must require a certain, large amount of time to mount a successful attack against the MIC. In order to make the successful attack time large enough, the countermeasures must be carried out at a rate no less than that specified in the standard.

Cl **08** *SC* **8.3.2.4** *P* **129** *L* **1** # 77

DHARANIPRAGADA, KALYAN R Individual

Comment Type **T** *Comment Status* **D**

TKIP countermeasures optional/configurable?

SuggestedRemedy

Introduce dot11RSNATKIPCounterMeasures = TRUE (default) in dot11PrivacyTable

Proposed Response *Response Status* **W**

PROPOSED REJECT. The use of countermeasures in TKIP cannot be made configurable. To protect against frame forgeries, an attacker must require a certain, large amount of time to mount a successful attack against the MIC. In order to make the successful attack time large enough, the countermeasures must be carried out at a rate no less than that specified in the standard.

Cl **08** *SC* **8.3.3.3.3** *P* **140** *L* # 73

SHVODIAN, WILLIAM M Individual

Comment Type **E** *Comment Status* **D**

Some of the figures are very clear visually like Figures 100 and 101. Others are quite blocky and poor quality, like figure 89, 94, 95, 98, 99, 102, 103, and 104. This draft would be easier to read and look more professional if all of the figures had the same level of high quality.

SuggestedRemedy

Imporve the visual quality of the figures.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. The editor is directed to determine a method to maintain a common, high quality for the figures.

Cl **08** *SC* **8.4.1.2.1** *P* **145** *L* # 30

O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **08** *SC* **8.5.1.1** *P* *L* # 84
MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **X** *security*

There is some concern that SHA-1 is not sufficiently strong as part of the PRF for the long term, although it is considered adaquate in the short to medium term.

SuggestedRemedy

Make a modification in 7.3.2.25.2 , 8.5.1.1 and possibly other clauses to allow the use of SHA-256 as part of the PRF instead of SHA-1 in a backward compatible way.

In doing so other changes could also be made to the PRF to make precomputation attacks harder and prefix attacks impossible.

Proposed Response *Response Status* **O**

The commenter is asked to provide the details on how this can be accomplished "in a backward compatible way".

Cl **08** *SC* **8.5.1.2** *P* **156** *L* **2** # 29
O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **08** *SC* **8.5.1.2** *P* **156** *L* **2** # 16
STEPHENS, ADRIAN P Individual

Comment Type **TR** *Comment Status* **D**

(Submitted on behalf of Jesse Walker, TGi edior)
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* **W**

PROPOSED ACCEPT.

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

Comment Type **E** *Comment Status* **D**

EAPOL mispelled in definition of GTimeoutCtr as EAPIOL.

SuggestedRemedy

edit

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **09** *SC* **9.1.4** *P* **198** *L* # 173
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph] -- Typo in attribute name

SuggestedRemedy

Delete the initial "a" in "adot11FragmentationThreshold"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.10** *P* **229** *L* **6** # 228
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

There are no requirements relevant (in any discernable way) to the ERP information element in subclause 9.2.6.

SuggestedRemedy

Substitute the correct subclause number for "9.2.6"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.10** *P* **230** *L* # 229

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[3rd paragraph on page] -- The list of frames which propagate the NAV throughout the BSS is incomplete.

SuggestedRemedy

Replace "nonzero CF time, and CF-End frames" with "nonzero CFDurRemaining, CF-End frames, and CF-End+ACK frames"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2** *P* **199** *L* # 174

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[4th paragraph] -- The relevant field name in the formats of both RTS (7.2.1.1) and CTS (7.2.1.2) is "Duration"

SuggestedRemedy

In the 3rd line of the 4th paragraph of this subclause, change "Duration/ID field" to "Duration field"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2** *P* **199** *L* # 175

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[7th paragraph] -- "cannot" is too absolute

SuggestedRemedy

In the last sentence on the page, change "cannot" to "may not be able to"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2** *P* **200** *L* # 177

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[3rd paragraph on page] -- The statement "shall always respond to an RTS addressed to it with a CTS" is incorrect, because such CTS response does not occur if the NAV indicates medium busy at the station receiving the RTS.

SuggestedRemedy

At the end of the 3rd paragraph on the page, add the text "if permitted by medium access rules."

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2** *P* **200** *L* # 178

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[4th paragraph on page] -- There is no parameter named "aBasicRateSet" in either MLME-JOIN.request or MLME-START.request

SuggestedRemedy

Change "aBasicRateSet" to the correct parameter, and identify the proper source(s) of this parameter. Presumably the reference should be to the BSSBasicRateSet, except this is a parameter of MLME-START.request, but not of MLME-JOIN.request.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2** *P* **200** *L* # 179

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[5th paragraph on page] -- The statement regarding not indicating data type frames to LLC when the frame body is null is either incorrect or in need of clarification. Data type frames of subtype Null Function are NOT indicated to LLC. Both consistency with other 802 MAC standards and with technical decisions made by the WG during development of the 1997 & 1999 standards, suggest that a data type frame of subtype Data SHOULD be indicated to LLC, even if the frame body is null (meaning 0 octets). Indeed, there were several instances during WG meetings when this specific question came up, and was answered that the functional difference between a Null frame and a Data frame with a null payload was that the former was not indicated to LLC, whereas the later was indicated to LLC.

SuggestedRemedy

If the intent is that data type frames of subtype Data should not be indicated to LLC when the frame body contains zero octets, change "shall not indicate a data frame to LLC when the frame body is null." to "shall not indicate a data frame to LLC when either the subtype is Null Function or the subtype is Data and the frame body contains zero octets." If the intent is that (valid, appropriately addressed) data type frames of subtype Data should always be indicated to LLC, change "shall not indicate a data frame to LLC when the frame body is null." to "shall not indicate a data frame to LLC when the subtype is Null Function, but shall indicate a data frame to LLC when the subtype is Data, even if the frame body contains zero octets."

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2** *P* **200** *L* # 176

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph] -- "immediate address" is unclear

SuggestedRemedy

In the first sentence of the first paragraph on the page, change "immediate" to "destination" and change "multiple destinations" to "multiple recipients"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.1** *P* **200** *L* # 180

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph] -- The two subclauses listed as containing mechanisms for setting the NAV are not all of the places where NAV update rules are given. These references appear to give special status to those two subclauses.

SuggestedRemedy

Extend this paragraph to include references to all subclauses of clause 9 where significant rules regarding NAV update are given. This will be quite useful, especially to new readers of the standard.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.10** *P* **212** *L* # 200

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 133] -- "aMACPrcDelay" is inconsistent with 10.4.3.2, where the parameter is named "aMACProcessingDelay"

SuggestedRemedy

Change "aMACPrcDelay" to "aMACProcessingDelay"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.10** *P* **212** *L* # 201

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[2nd paragraph] -- It is unclear whether "first symbol of the next frame on the medium" means the first symbol of the preamble (which, for some PHYs is a different-duration training symbol) or the first symbol of the PHY (PLCP) header.

SuggestedRemedy

Clarify by stating "first symbol of the preamble of the next frame on the medium"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.2** *P* **200** *L* # 181
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph] -- In the 1st sentence of the 2nd paragraph, the use of "source STA" is ambiguous, as it could reasonably refer to either the source of the frame being acknowledged or the source of the acknowledgement.

SuggestedRemedy

Change "source STA" to "STA initiating the frame exchange"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.2** *P* **200** *L* # 182
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph] -- In the 2nd sentence of the 2nd paragraph, the mention of "the error mahy have occurred in the reception of the ACK frame" leaves out the possibility that the error might have occurred due to a collision or attenuation event on the WM.

SuggestedRemedy

Change "reception of the ACK" to "transfer or reception of the ACK"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.3.1** *P* **201** *L* **1** # 183
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The statement "SIFS shall be used for an ACK frame" is unclear -- "used for" is imprecise as to the proper time of usage.

SuggestedRemedy

Change "for an ACK" to "prior to transmission of an ACK"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.3.1** *P* **201** *L* **2** # 184
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The "It" at the beginning of the 2nd sentence of the paragraph is ambiguous.

SuggestedRemedy

Change "It" to "SIFS"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.3.4** *P* **202** *L* # 185
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[last sentence] -- The statement tha the "station reverts to NAV" appears to indicate that CCA is not used at this point.

SuggestedRemedy

Change "reverts to the NAV" to "reverts to the NAV and physical CS"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.3.4** *P* **202** *L* # 81
MORETON, MIKE Individual

Comment Type **TR** *Comment Status* **X** *11e*

There are changes to EIFS behaviour, but these contradict changes made in the 802.11e ammendment.

SuggestedRemedy

Incorporate the 802.11e ammendment into this revision

Proposed Response *Response Status* **O**

double check this section after integration of 11e into the base revision draft.

Cl **09** *SC* **9.2.4** *P* **203** *L* **1** # 186
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

In the sentence beginning "Once it reaches aCWmax" the referent of "it" is ambiguous.

SuggestedRemedy

Change "it" to "CW"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.1** *P* **203** *L* # 187
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[last paragraph on page] -- There are two references to "backoff algorithm" when the activity being described is defined in 9.2.5.2 as the "backoff procedure"

SuggestedRemedy

Change both instances of "algorithm" to "procedure"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.1** *P* **204** *L* # 188
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 126] -- The label "Select Slot and Decrement Backoff&" is confusing, because what is selected under the backoff procedure is the backoff time, which is in units of the slot time.

SuggestedRemedy

Change "Slot" to "Backoff Time"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.2** *P* **204** *L* # 191
FISCHER, MICHAEL A Individual

Comment Type **G** *Comment Status* **X**

[last paragraph on page] -- In this paragraph, and several others scattered throughout clause 9, are repetitive, although not always identical, recitations of the criteria for use of EIFS. This would be much less prone to misinterpretation, as well as being easier to maintain in the future, if there was a SINGLE PLACE where the criteria for use of EIFS versus DIFS were defined, in relation to the appropriate PHY service primitives, and all other places were modified to just refer to "EIFS" or "DIFS or EIFS as appropriate, see X.Y.Z" rather than trying to rehash the EIFS usage rules each time.

SuggestedRemedy

Make 9.2.3.4 the single point of definition of the criteria for use of EIFS, in relation to PHY service primitives and MAC validity checks. Remove the partial restatement of these criteria from all other references to the use of EIFS, with addition of an explicit reference to 9.2.3.4 if necessary.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.2** *P* **205** *L* # 189
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph on page] -- The reference in the middle of this paragraph to "ACK timeout interval" should be to "ACKTimeout interval" and should include the forward reference to where this interval is defined.

SuggestedRemedy

Change "ACK timeout interval" to "ACKTimeout interval" and insert immediately thereafter "(defined in 9.2.8)"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.2** *P* **205** *L* # 190

FISCHER, MICHAEL A Individual

Comment Type **G** *Comment Status* **X**

[3rd paragraph on page] -- In this paragraph, and many other places in clauses 9 and 11, the concept of "successful" transmission or frame transfer is mentioned. This concept does have a specific meaning herein -- and that meaning includes BOTH transmission of a directed frame along with the receipt of the acknowledgement thereto, and transmission of a multicast or broadcast frame (which is deemed to always be "successful" upon completion of the transmission). However, there is not a single place where this definition can be found, nor is it always clear when an instance of "successful" refers to this concept.

SuggestedRemedy

Add a definition of "successful transmission" in one place (either in clause 3 or clause 9), and do a global search to ensure that all references to this concept use the proper terminology (perhaps capitalizing "Successful" to make this usage more obvious).

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.2** *P* **205** *L* # 192

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[4th paragraph on page] -- The statement about which station will win the contention is based on an unstated, and non-obvious, assumption.

SuggestedRemedy

At the end of the paragraph, insert the text "(assuming all of the contending stations detect the same instances of WM activity at their respective receivers)"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.4** *P* **206** *L* # 79

MORETON, MIKE Individual

Comment Type **TR** *Comment Status* **D**

A STA should update its NAV if it receives a broadcast frame with a non-zero duration - otherwise there would be no point in sending one. While it could be argued that this is already the requirement, there seems to be some confusion, so it's best clarified.

SuggestedRemedy

Rephrase the first sentence as: "STAs receiving a valid frame shall update their NAV with the information received in the Duration/ID field,
but only when the new NAV value is greater than the current NAV value and only when the frame is not
addressed to the unicast address of the receiving STA."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace the first sentence in 9.2.5.4 with the following:
STAs receiving a valid frame shall update their NAV with the information received in the Duration/ID field for all frames where the new NAV value is greater than the current NAV value, except those where the RA is equal to the receiving STA's MAC address.

Cl **09** *SC* **9.2.5.5** *P* **208** *L* # 193

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[last line in subclause] -- Unacknowledged fragments are not always retransmitted, so the use of "shall" is not correct.

SuggestedRemedy

Change "shall be retransmitted" to "may be retransmitted"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.6** *P* **209** *L* # 196

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 131] -- The left edge of the rectangle "NAV (Fragment)" in the top section of the diagram is not aligned over the right edge of the rectangle "Fragment" in the lower section of the diagram.

SuggestedRemedy

Extend the left edge of the "NAV (Fragment)" rectangle so that it is visually aligned over the right edge of the "Fragment" rectangle.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.7** *P* **209** *L* # 195

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph] -- The relevant field name in the format of CTS (7.2.1.2) is "Duration"

SuggestedRemedy

In the last sentence of the 1st paragraph, change "Duration/ID field of the CTS frame" to "Duration field of the CTS frame"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.7** *P* **209** *L* # 194

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[1st paragraph] -- The rule for adjusting the duration value from the RTS frame for use in the CTS frame is inconsistent with the rule for the data rate to use for control response frames in 9.6. Here (9.2.5.7) the rate for the CTS is stated to be the same as used for the RTS, whereas in 9.6 the control response (which includes CTS) is stated to be sent at the highest rate in BSSBasicRateSet that is less than or equal to the rate of the immediately previous frame.

SuggestedRemedy

Use a consistent rule for CTS data rate in 9.2.5.7 and 9.6. This commenter believes the rule in 9.6 is correct and that 9.2.5.7 should be updated to match.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.5.7** *P* **209** *L* # 280

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[2nd paragraph] -- There is no parameter defined with the name "aPHY-RX-START-Delay" -- but there needs to be, although implementation-neutral definition of such a parameter is complicated by the fact that, for the OFDM PHYs, this delay varies with data rate as well as with implementation of the Viterbi decoder.

SuggestedRemedy

Change "aPHY-RX-START-Delay" to "aRXSTARTDelay" and create a new parameter in PLME-CHARACTERISTICS.confirm (10.4.3.2) named "aRXSTARTDelay" with a description of "The maximum time (in microseconds) that the PHY requires between the start of the first symbol of an incoming PHY header on the WM and generation of the PHY-RXSTART.indication primitive to the MAC. If this delay varies with data rate or modulation type, the parameter value shall be the longest among those supported by the PHY." Then add appropriate mention of this constraint in the definition of PHY-RXSTART.indication in 12.3.5.11.3, and add a row to the PHY Characteristics tables of each PHY (clauses 14-19) defining the value of this parameter. For the non-OFDM PHYs, the proper value is probably aPreambleLength + aPLCPHeaderLength + aRxRFDelay + aRxPLCPDelay + aSymbolTime. In the case of the OFDM PHYs, the value is likely to be "implementation dependent," in which case the following upper bound needs to be specified: "aRXSTARTDelay shall not exceed aPreambleLength + aPLCPHeaderLength + (N x aSymbolTime) + aRxRFDelay + aRxPLCPDelay - B; where N represents the integer number of symbols required to encode a CTS or ACK control frame and B represents the length of time required for 14 PHY-DATA.indication primitives."

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.6** *P* **210** *L* # 197

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph on page] -- The description of the time when the data frame is to be transmitted is poorly worded.

SuggestedRemedy

Change "after the end of the CTS frame and a SIFS period" to "starting one SIFS period after the end of the CTS frame"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.7** *P* **210** *L* **5** # 198

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The listed rules should include mention of the ACK procedure in addition to the RTS/CTS exchange.

SuggestedRemedy

Insert the text "and the ACK procedure" immediately after the words "RTS/CTS exchange"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.8** *P* **210** *L* # 199

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph] -- The wording of the reference to medium state for the ACK response in the last sentence of the 2nd paragraph should be consistent with the wording regarding the CTS in 9.2.6.

SuggestedRemedy

Change "CS mechanism" to "medium"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.2.8** *P* **210** *L* # 281

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[3rd paragraph] -- There is no parameter defined with the name "aPHY-RX-START-Delay" -- but there needs to be, although implementation-neutral definition of such a parameter is complicated by the fact that, for the OFDM PHYs, this delay varies with data rate as well as with implementation of the Viterbi decoder.

SuggestedRemedy

Change "aPHY-RX-START-Delay" to "aRXSTARTDelay" and create a new parameter in PLME-CHARACTERISTICS.confirm (10.4.3.2) named "aRXSTARTDelay" with a description of "The maximum time (in microseconds) that the PHY requires between the start of the first symbol of an incoming PHY header on the WM and generation of the PHY-RXSTART.indication primitive to the MAC. If this delay varies with data rate or modulation type, the parameter value shall be the longest among those supported by the PHY." Then add appropriate mention of this constraint in the definition of PHY-RXSTART.indication in 12.3.5.11.3, and add a row to the PHY Characteristics tables of each PHY (clauses 14-19) defining the value of this parameter. For the non-OFDM PHYs, the proper value is probably aPreambleLength + aPLCPHeaderLength + aRxRFDelay + aRxPLCPDelay + aSymbolTime. In the case of the OFDM PHYs, the value is likely to be "implementation dependent," in which case the following upper bound needs to be specified: "aRXSTARTDelay shall not exceed aPreambleLength + aPLCPHeaderLength + (N x aSymbolTime) + aRxRFDelay + aRxPLCPDelay - B; where N represents the integer number of symbols required to encode a CTS or ACK control frame and B represents the length of time required for 14 PHY-DATA.indication primitives."

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3** *P* **213** *L* **3** # 202

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The referent of "they" in "they set their NAV" is unclear.

SuggestedRemedy

Replace "they" with "all STAs"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3** *P* **214** *L* # 204

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[last paragraph] -- Clarify which received Data type frames the CF-Pollable STAs should consider for interpreting the subtype bits.

SuggestedRemedy

Change "shall interpret all subtype bits of received Data type frames" to "shall interpret all subtype bits of received Data type frames which contain the BSSID of the current BSS"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3** *P* **214** *L* # 203

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[1st paragraph on page] -- The last sentence of the 1st paragraph contains an apparent editing artifact. If this is not an editing artifact, the statement is unnecessary in that it allows a PC to NOT USE a behavior that is forbidden by 9.3.3.1 -- that of issuing polls to non-CF-Pollable STAs. The intent of including mention of the "delivery only" use of PCF was to explicitly allow operation where the PC sends frames to associated STAs during the CFP, but never polls any STAs.

SuggestedRemedy

Change "non-CF-pollable STAs" to "CF-pollable STAs"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.1** *P* **215** *L* # 205

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph on page] -- There is inconsistent, hence confusing, nomenclature for the rate at which CPFs are generated. The term "CFPRate" is an artifact that is no longer used elsewhere in the document.

SuggestedRemedy

Change "CF repetition rate (CFPRate)" to "CFP repetition rate (CFPPeriod)" and change the two subsequent instances of "CFPRate" in this paragraph to "CFPPeriod"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.1** *P* **215** *L* # 208

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph on page] -- Use proper nomenclature to refer to the nominal start of a beacon interval.

SuggestedRemedy

Change "nominal beacon transmission time" to "TBTT"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.1** *P* **215** *L* # 207

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph on page] -- Use proper nomenclature in the last sentence of the paragraph.

SuggestedRemedy

Change "where the CFP is two DTIM intervals" to "where the CFPPeriod is two DTIM intervals"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.1** *P* **215** *L* # 206

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[2nd paragraph on page] -- The description of the meaning of CFPDurRemaining in this paragraph is both incorrect and inconsistent with the definition of the CFPDurRemaining field of the CF Parameter Set element in 7.3.2.5.

SuggestedRemedy

Change "time from transmission of this beacon to the end of this CFP" to "time from the most recent TBTT to the end of this CFP"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.2** *P* **215** *L* **4** # 209

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

The statement about which STAs set their NAV to CFPMaxDuration is incorrect and inconsistent with the proper definition of this behavior in 9.3.2.2.

SuggestedRemedy

Change "All STAs in the BSS (other than the PC) set their NAVs" to "All STAs that receive beacons containing a CF Parameter Set information element, including STAs not associated with the BSS, set their NAVs"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.2** *P* **216** *L* # 210

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 136] -- Incorrect attribute name at the top of the diagram.

SuggestedRemedy

Change "aCF MaxDuration" to "dot11CFPMaxDuration"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.2.1** *P* **216** *L* # 211

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[2nd paragraph] -- The frame exchange sequences in 9.7 allow a management frrame, which is not listed as permitted in this paragraph.

SuggestedRemedy

After "a Data+CF-Poll frame," insert "a management frame,"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.2.2** *P* **216** *L* # 212

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph] -- The designation of the of the field in the CF Parameter Set element that is the basis for determining when a CFP is to start is incorrect, and inconsistent with 7.3.2.5.

SuggestedRemedy

Change "based on the CFPPeriod field" to "based on the CFPCount field"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.2.2** *P* **216** *L* # 213

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph] -- The concept of "error-free CF Parameter Set element" is meaningless, because there is no error check specifically for this (or any other) information element.

SuggestedRemedy

Replace "in any error-free CF Parameter Set element of the Beacon frame" with "in the CF Parameter Set element of any error-free Beacon frame"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3** *P* **217** *L* # 214

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph] -- It is inappropriate, and likely incorrect, to describe the typical nature of PCF frame transfers.

SuggestedRemedy

Change "typically consist" to "may consist" ; also, delete the "a" between "depicts" and "frame transfer" in line 3 of this paragraph.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3** *P* **217** *L* # 215
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 137] -- Incorrect nomenclature in the label at the lower right of this diagram.

SuggestedRemedy

Change "CF_Max_Duration" to "CFPMaxDuration"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3** *P* **217** *L* # 216
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[last paragraph of subclause] -- The restriction against transmission of CF-Poll frames when insufficient time remains in the CFP is too narrow.

SuggestedRemedy

Change "shall not transmit a CF-Poll" to "shall not transmit a frame with any data subtype that includes CF-Poll"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3.1** *P* **217** *L* # 218
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[last paragraph on page] -- The bulleted item at the bottom of the page does not list all of the cases where Data frames are sent by the PC.

SuggestedRemedy

Insert ", is not CF-Pollable, or the DA is a group address" after "is not being polled"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3.1** *P* **217** *L* **0** # 217
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[heading] -- Incorrect use of "PCF"

SuggestedRemedy

Change "the PCF STA" to "the PC STA"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3.1** *P* **218** *L* # 219
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[last paragraph on page] -- The listed case when a CF-Pollable STA shall always respond is too narrow.

SuggestedRemedy

Change "shall always respond to a CF-Poll" to "shall always respond to a frame with any data subtype that includes CF-Poll"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3.1** *P* **219** *L* # 220
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[last paragraph] -- The statement about which STAs reset their NAVs upon receipt of a CF-End or CF-End+ACK frame is incorrect and inconsistent with the proper definition of this behavior in 9.3.2.2.

SuggestedRemedy

Change "All STAs of the BSS receiving a CF-End or CF-End+ACK shall reset their NAVs" to "All STAs that receive a CF-End or CF-End+ACK frame, with any BSSID, shall reset their NAVs"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3.3** *P* **219** *L* # 222
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[last paragraph] -- There is no apparent reason for the mention of CW or aCWmin in this paragraph, since none of the intervals in the arithmetic expressions include CW in any manner. It is unclear whether this mention of CW and aCWmin is an artifact that should have been removed, or whether a "CW" term was improperly omitted from one of the expressions.

SuggestedRemedy

Either delete the phrase "when operating with a CW of aCWmin" or include an appropriate "CW" term in one of the arithmetic expressions.

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.3.3** *P* **219** *L* # 221
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[last paragraph] -- Obsolete reference to "CFPRate"

SuggestedRemedy

Replace "CFPRate" with "CFPPeriod"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.3.4.2** *P* **221** *L* # 223
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[1st paragraph -- The description of the use of Capability Information bits during association/reassociation is inconsistent with Table 17 in subclause 7.3.1.4.

SuggestedRemedy

Replace the portion of the 1st paragraph beginning "During association&" with text such as "During association, a CF-Pollable STA may request to be placed on the polling list, or to never be polled, by appropriate use of bits in the Capability Information field of the Associate Request or Reassociate Request frame, as shown in Table 17 (see 7.3.1.4)."

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.4** *P* **221** *L* # 225
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[last paragraph on page] -- The statement of when the transmit lifetime timer starts is prone to misinterpretation.

SuggestedRemedy

Insert the word "initial" between "timer starts on the" and "attempt"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.4** *P* **221** *L* # 224
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph] -- Mention of "an MPDU" is ambiguous

SuggestedRemedy

Replace both instances of "an MPDU" in this paragraph with "each fragment"

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.6** *P* **222** *L* # 82
MORETON, MIKE Individual

Comment Type **TR** *Comment Status* **D**

As far as I can see, an Authentication response has to be sent at a basic rate, as the AP will not know the entended rate set of the STA (well unless it's saved a previous Probe request). An AP should be allowed to use the rate at which the STA sent the frame. This is probably more of an issue once 11k starts using class 1 action frames.

SuggestedRemedy

Give explicit rules for the rates at which a management frame can be sent if the supported rate set is not known. That is, either a basic rate, or the rate of the last management frame sent by the recipient. In fact, maybe this should be extended to class 1 data frames where the Extended Rate Set is not known?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

In the case where the supported rate set of the receiving STA is not known, the transmitting STA shall transmit at a rate selected from the basic rate set or a rate at which the transmitting STA has received a frame from the receiving STA.

Cl **09** *SC* **9.6** *P* **223** *L* # 227
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph on page] -- Clarify the relevant reporting of supported rates by a STA.

SuggestedRemedy

Change "any Supported Rates and Extended Supported Rates element in the management frames." to "any Supported Rates or Extended Supported Rates element in the management frames transmitted by that STA."

Proposed Response *Response Status* **O**

Cl **09** *SC* **9.6** *P* **223** *L* # 226
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[2nd paragraph on page] -- Incorrect nomenclature

SuggestedRemedy

Replace "BSS basic rate set" with "BSSBasicRateSet"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.3.1.2.3** *P* **234** *L* **2** # 230
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The "when generated" would be easier to understand with inclusion of a reference to the requirements for completion of a change in power management mode.

SuggestedRemedy

Add to the end of the last sentence the text "as defined in 11.2.1"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.3.12.1.2** *P* **269** *L* # 234
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[table row for "dialog token"] -- The dialog token value in Measurement Request Action frames is constrained to be non-zero.

SuggestedRemedy

Change the valid range of the dialog token to "1-255"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.3.12.3.2** *P* **271** *L* # 235
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[table row for "dialog token"] -- The dialog token value in Measurement Request Action frames is constrained to be non-zero.

SuggestedRemedy

Change the valid range of the dialog token to "1-255"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.3.16.1.2** *P* **281** *L* # 236
FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[table row for "dialog token"] -- The dialog token value in TPC Request Action frames is constrained to be non-zero.

SuggestedRemedy

Change the valid range of the dialog token to "1-255"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.3.2.1.2** *P* **235** *L* # 303

ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **X**

The term "broadcast BSSID" belies the real use of a value of all 1's in the BSSID field of a probe request. It is not a "broadcast" BSSID, it is a "wildcard" BSSID intended to match all BSSIDs.

SuggestedRemedy

Change "broadcast BSSID" to "wildcard BSSID".

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.3.2.2.2** *P* **236** *L* # 237

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[BSSDescription table] -- The BSSDescription does not include information from the Extended Supported Rates element, despite the fact that such information may be an important criterion for selection among BSS candidates detected by the scanning procedure.

SuggestedRemedy

Add a row to the BSSDescription table for Extended Supported Rates, with the provision that this value may be null.

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* **D**

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* **W**

PROPOSED ACCEPT.

Cl **10** *SC* **10.3.9.1.2** *P* **259** *L* # 238

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[table row for "STAAddress"] -- The valid range of STAAddress is stated to be "any valid MAC address" which would permit the specification of a group address as the address to be used by the MAC entity being reset.

SuggestedRemedy

Change "any valid MAC address" to "any valid individual MAC address"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.4.3.2** *P* **298** *L* # 258

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[table row for "aRxPLCPDelay"] -- Some PHYs (e.g. those using OFDM) do not provide uniform delay for delivering all bits of an incoming frame from PMD to MAC. Proper operation of the MAC is dependent on the RxPLCPDelay which occurs when delivering the LAST bit of the incoming frame, as illustrated in Figure 133. It is vital that the specified delay be suitable for calculating the time reference for the end-of-reception that the MAC uses for generating IFS periods and initiating responses within frame exchange sequences.

SuggestedRemedy

Chance "that the PLCP uses to deliver a bit from the PMD" to "that the PLCP uses to deliver the last bit of a received frame from the PMD"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.4.3.2** *P* **299** *L* # 240

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

[new table rows] -- It would be nice, although not mandatory, to add a PHY parameters that informs the MAC of the PHY symbol period.

SuggestedRemedy

Add a parameter to the PLME-CHARACTERISTICS.confirm primitive, and a row to the table describing those parameters, for aSymbolTime. The data type should be integer, and the description should be "The nominal time (in nanoseconds) required by the PHY to transfer one symbol on the WM. If the PHY uses more than one symbol time, this parameter reports the symbol time used for communication at the highest mandatory data rate."

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.4.3.2** *P* **299** *L* # 88

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X**

aAirPropagationTime is defined as "The anticipated time (in microseconds) it takes a transmitted signal to go from the transmitting station to the receiving station.", but it should be the maximum roundtrip time, not the oneway time.

SuggestedRemedy

Change the Description to "The anticipated air roundtrip time (in microseconds) it takes a transmitted signal to reach the most distant station and return"

Proposed Response *Response Status* **O**

Cl **10** *SC* **10.4.3.2** *P* **299** *L* # 239

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[table row for "aMACProcessingDelay"] -- There needs to be a much better description of aMACProcessingDelay, because the purpose of this parameter, as well as its reporting among the PHY characteristics, is poorly explained in the existing standard. Indeed, this parameter was misunderstood by some PHY clause developers, as is evidenced by specified values such as "0 (N/A)" in subsequent clauses (which are the subject of subsequent comments by this commenter). It is necessary for the description of aMACProcessingDelay to identify the role played by the "M1" and "M2" intervals in Figure 133 (9.2.10) -- which is the only diagram and subclause in the entire document that connects PHY timing and PHY service primitives to MAC timing and MAC use of those PHY service primitives.

SuggestedRemedy

Replace the existing description of aMACProcessingDelay with following text: "The maximum time (in microseconds) available for the MAC to issue a PHY-TXSTART.request primitive pursuant to a PHY-RXEND.indication primitive (for response after SIFS) or PHY-CCA.indication(IDLE) primitive (for response at any slot boundary following SIFS). This constraint on MAC performance is defined as PHY-specific parameter because of its use, along with other PHY-specific time delays, in calculating the two PHY characteristics of primary concern to the MAC: aSlotTime and aSIFSTime. The relationship between aMACProcessingTime and the IFS and slot timing is described in 9.2.10 and illustrated in Figure 133. The nominal value of 2 microseconds should be specified for aMACProcessingDelay by any PHY for which there is not a clear, PHY-dictated value."

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.1.1** *P* **305** *L* # 241

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[last paragraph] -- Obsolete attribute name

SuggestedRemedy

Change "aBeaconPeriod" to "dot11BeaconPeriod"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.2** *P* **305** *L* **8** # 231

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

Maintaining synchronization within 4 symbol periods plus the maximum (WM) propagation delay of the PHY is neither sufficient nor necessary. For the OFDM PHYs, 4 symbol periods is 16usec, for possible variance of 17usec, which substantially exceeds aSlotTime, making it inadequately precise (especially when attempting to accommodate the QoS functionality from TGe). Furthermore, the 4usec tolerance which appeared in the 1997 and 1999 standards was not based on 4 of the then-current 1usec symbol periods -- that 4usec tolerance was based on 2 symbol periods (+/-1) resulting from PHY synchronization uncertainty, plus 2usec (+/-1) resulting from clock jitter under the assumption that MAC 1usec timebase is operating asynchronously from the PHY symbol clock. The proper translation of the 4usec tolerance from the original standard into a tolerance that allows for symbol periods longer than 1usec is: 2 symbol periods plus 2usec plus the maximum WM propagation delay of the PHY. For the OFDM PHYs, this means the maximum TSF variance is reduced from (16+1)usec to (10+1)usec, which is only slightly longer than aSlotTime, hence (roughly) acceptable.

SuggestedRemedy

Replace "4 symbols plus the maximum propagation delay of the PHY" with "2 symbol periods of the PHY plus 2 microseconds plus aAirPropagationTime" (Even better would be to add an "aSymbolTime" parameter to PLME-CHARACTERISTICS.confirm and use "2 x aSymbolTime" instead of "2 symbol periods" in the replacement text.)

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.2.2** *P* **306** *L* # 243

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "d)"] -- The temporal sequence for resumption of ATIM backoff decrement is unclear.

SuggestedRemedy

Change "and the ATIM backoff timer" to "at which time the ATIM backoff timer"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.2.2** *P* **306** *L* **4** # 242

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"instantiation" of a IBSS is not a well-defined concept

SuggestedRemedy

Change "that instantiates the IBSS" to "at which the MLME-START.request is performed to create the IBSS."

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.2.3** *P* **306** *L* # 245

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[last paragraph on page] -- The use of non-TSF information in an IBSS beacon should not be conditional upon the value in the Timestamp field being greater than the receiving STA's TSF timer.

SuggestedRemedy

Reword the last paragraph on the page to read as follows: "STAs in an IBSS shall use other information in any received Beacon frame for which the IBSS subfield of the Capability Information field is set to 1 and the content of the SSID element is equal to the SSID of the IBSS. However, the value of the Timestamp field in such Beacon frames shall only be used if this value is later than the receiving STA's TSF timer, as specified in 11.1.4."

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.2.3** *P* **306** *L* **1** # 244

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Clarify which Beacon frames are used as the basis for NAV update.

SuggestedRemedy

Insert ", without regard for the BSSID," after "Beacon frames"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.2.4** *P* **307** *L* **7** # 246
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The specification of the TSF timer accuracy is a constraint, not a requirement.

SuggestedRemedy

Insert "no worse than" after "TSF timer shall be"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.3** *P* **308** *L* # 247
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph on page] -- The alternative of the station starting rather than joining a BSS in this paragraph is limited to the starting of an IBSS.

SuggestedRemedy

In the last line, replace "BSS" with "IBSS"

Proposed Response *Response Status* **O**

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

Comment Type **TR** *Comment Status* **D**

"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* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the sentence.

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

Comment Type **TR** *Comment Status* **D**

"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 occurance 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* **W**

PROPOSED ACCEPT. The editor is to identify those uses of "shall" that are not normative and replace with descriptive language.

Cl **11** *SC* **11.1.3.2.1** *P* **308** *L* # 78

MORETON, MIKE Individual

Comment Type **TR** *Comment Status* **D**

It's implicit that the BSSID field is ignored in received Probe request frames, but it would make things clearer if this was explicitly stated.

SuggestedRemedy

Explicitly say that the BSSID field is ignored even when the Receiver Address is a broadcast address.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The requested change directly conflicts with 11.1.3.2.2 c). However, the text does need clarification.

Change the first sentence of 11.1.3.2.1:
STAs, subject to criteria below, receiving Probe Request frames shall respond with a probe response only if

a) the SSID in the probe request is the wildcard SSID or matches the specific SSID of the STA, and
b) the BSSID field of the probe request is the broadcast address or matches the BSSID of the STA, and
c) the DA field is the broadcast address or matches the MAC address of the STA.

Cl **11** *SC* **11.1.3.2.1** *P* **308** *L* # 85

SIMPSON, FLOYD D Individual

Comment Type **TR** *Comment Status* **X**

The two paragraphs of this clause are confusing as written and introduce many technical confusion. For instance, the first sentence of the first paragraph says "STAs, subject to criteria below, receiving Probe Request frames shall respond with a probe response only if the SSID in the probe request is the wildcard SSID or matches the specific SSID of the STA." So is the normative behavior of this sentence considered part of the "criteria below"? and what exactly constitue the "criteria below"? Other technical issues with the paragraphs is that for instance, the first paragraph has statements that conflict with statements in the 2nd. paragraph. For example, the second paragraph says "A STA that sent a beacon shall remain in the Awake state and shall respond to probe requests until a Beacon frame with the current BSSID is received." If that statement is taken for what it says, doesn't it conflict with the first sentence of the first paragraph which put conditions on when a STA should respond to probe requests.
I think the right way to write this section is to make what is the currently the 2nd paragraph the first paragraph and make the current first paragraph the second paragraph with some suitable changes to make it clear what criteria is meant to condition when the STA should respond to a probe request.

SuggestedRemedy

rewrite this section as shown below (Note to Editor: My changes are 1) switch the paragraphs 2) delete the text ", subject to criteria below," from the 2nd paragraph 3) add the text underline below to the 1st paragraph):
In each BSS there shall be at least one STA that is awake at any given time to receive and respond to probe requests. A
STA that sent a beacon shall remain in the Awake state and shall respond to probe requests, subject to criteria in the next paragraph, until a Beacon
frame with the current BSSID is received. If the STA is an AP, it shall always remain in the Awake state and
always respond to probe requests, subject to criteria in the next paragraph. There may be more than one STA in an IBSS that responds to any given
probe request, particularly in cases where more than one STA transmitted a Beacon frame following the
most recent TBTT, either due to not receiving successfully a previous beacon or due to collisions between
beacon transmissions.
STAs receiving Probe Request frames shall respond with a probe response only if
the SSID in the probe request is the wildcard SSID or matches the specific SSID of the STA. Probe
Response frames shall be sent as directed frames to the address of the STA that generated the probe request.
The probe response shall be sent using normal frame transmission rules. An AP shall respond to all probe
requests meeting the above criteria. In an IBSS, the STA that generated the last beacon shall be the STA that

responds to a probe request.

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.1.3.2.1** *P* **308** *L* # 248

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[1st paragraph] -- The existing discussion of when STAs send a Probe Response frame pertains to the receipt of Probe Request frames that have a broadcast DA. The use of Probe Request frames with a unicast DA is also permitted, and the requirement to respond in such cases should be clarified.

SuggestedRemedy

In the first sentence of the paragraph, insert "with a broadcast DA" after "receiving Probe Request frames" In the last sentence of the paragraph, change "a probe request" to "a broadcast probe request" At the end of the paragraph, add the following sentence: "Any STA is expected to generate a Probe Response pursuant to receipt of a Probe Request with a unicast DA directed to that STA."

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1** *P* **311** *L* # 249

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[last paragraph] -- Clarify that changing Power Management mode can only be done by means of an acknowledged frame exchange with the AP.

SuggestedRemedy

At the end of the first sentence, insert "that includes an acknowledgement from the AP" after "successful frame exchange"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.1** *P* *L* # 11

STEPHENS, ADRIAN P Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED REJECT.

ProbeDelay is a parameter passed to the MLME by the SME. The value for this parameter is outside the scope of the standard.

Cl **11** *SC* **11.2.1.3** *P* **312** *L* # 262

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph] -- "some of which may be DTIMs" implies that the sending of DTIMs is optional

SuggestedRemedy

Change "may be DTIMs" to "are DTIMs"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.3** *P* **312** *L* # 261

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[3rd paragraph] -- The stated assumptions for Figure 147 are incomplete.

SuggestedRemedy

Change "assumption that a DTIM" to "assumptions that no PCF is operating, and that a DTIM"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.3** *P* **313** *L* # 263
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Figure 147] -- There are several problems with labeling in this diagram.

SuggestedRemedy

Change each of the two instances of "Poll" to "PS-Poll" Change "TIM intervals" to "Beacon intervals" Add "for other STA" after "Buffered Frame" in the middle of the top section. Add an arrow showing transfer of the Broadcast at the right end of the AP activity line to the awake period of the PS Station on the middle line.

Proposed Response *Response Status* **O**

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

Comment Type **TR** *Comment Status* **D**

"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* **W**

PROPOSED ACCEPT.

"An AP can delete buffered frames for implementation dependent reasons, including the use of an aging function and availability of buffers."

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

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED REJECT.

Commenter to bring this comment again, if incorporation of text from 802.11e does not address this topic.

Cl **11** *SC* **11.2.1.4** *P* **313** *L* # 265
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[paragraph "e)"] -- The instructions for setting the More Data field are incorrect.

SuggestedRemedy

Change "More Data field of each" to "More Data field of all but the final such" and change "further buffered" to "additional buffered"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.4** *P* **313** *L* # 266
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "f)"] -- In the 3rd sentence, the referent of More Data field is unclear.

SuggestedRemedy

Insert the text "of the response Data frame" between "More Data field" and "shall be set"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.4** *P* **313** *L* **4** # 264
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

"frames received for STAs operating in the Active mode" is ambiguous.

SuggestedRemedy

Change "received for" to "addressed directly to"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.5** *P* **314** *L* # 269
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "f)"] -- The description of buffered items indicated in the Frame Control field does not properly allow for fragmentation.

SuggestedRemedy

Change "more buffered MSDUs or management frames" to "more buffered MPDUs or MMPDUs"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.5** *P* **314** *L* # 268
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[paragraph "f)"] -- The statement of what gets transmitted, in order of increasing AID, following transmission of the buffered broadcast and multicast fames, is incomplete.

SuggestedRemedy

Insert the text "as well as CF-Polls to STAs in the PS mode that were indicated in the DTIM in accordance with paragraph c), above" on the 3rd line, between "frames" and "shall begin immediately"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.5** *P* **314** *L* # 270
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "h)"] -- Incorrect acronym

SuggestedRemedy

Change "PCF" to "PC"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.5** *P* **314** *L* # 267
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "e)"] -- In the 2nd sentence, the referent of More Data field is unclear.

SuggestedRemedy

Insert the text "in the headers of all but the final such frame" between "shall be set" and "to indicate"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.6** *P* **314** *L* # 271
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "a)"] -- "the ListenInterval" implies that a single ListenInterval is used for all STA in a BSS.

SuggestedRemedy

Change "the ListenInterval" to "the STA's current ListenInterval"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.6** *P* **315** *L* # 275
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "e)"] -- "every DTIM" requires qualification

SuggestedRemedy

Insert the text "sent by the AP of the BSS" after "every DTIM" Also, in the next sentence, replace "receiving broadcast/multicast" with "that stays awake to receive broadcast/multicast"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.6** *P* **315** *L* # 273
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "c)"] -- Not only data frames can be sent in response to a PS-Poll.

SuggestedRemedy

Change "Data frame" to "Data or Management frame"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.6** *P* **315** *L* # 274
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[paragraph "d)"] -- The intent of the existing statement is unclear.

SuggestedRemedy

Replace this paragraph with: "If the More Data field is set to 1 in the received Data or Management frame to indicate that more traffic for that STA is buffered, the STA, at its convenience, shall issue another PS-Poll until the receipt of a Data or Management frame with the More Data field set to 0, or until the end of the CP."

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.1.8** *P* **315** *L* **1** # 272
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Obsolete terminology

SuggestedRemedy

Replace the text after "continuously;" with "such stations do not need to interpret the TIM information elements in Beacon frames."

Proposed Response *Response Status* **O**

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

Comment Type **TR** *Comment Status* **D**

"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* **W**

PROPOSED ACCEPT.

Delete the first two sentences of 11.2.1.9. Also, replace "The AP aging function" with "Any AP aging function" in the third sentence.

Cl **11** *SC* **11.2.2.2** *P* **317** *L* # 260
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[last line on page] -- "power management is not in use within the IBSS" implies that the ATIM Window can magically change when an STA wants to use power management.

SuggestedRemedy

Change "in use" to "usable"

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.2.2.3** *P* **318** *L* **3** # 259
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

Subclause 7.1.3.1.7 does not specify a procedure.

SuggestedRemedy

Change "according to the procedure in 7.1.3.1.7" to "using the rules in 7.1.3.1.7"

Proposed Response *Response Status* **O**

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

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

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

Comment Type **G** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

The commenter has identified the wrong clause. The correct clause is 11.4.

Append the following subclauses after 11.4.5:

11.4.6 Non-AP STA disassociation receipt 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)The state variable for the AP shall be set to State 2 if and only if it was not State 1.
c)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.
d)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 a period of 2 seconds has elapsed.

The STAâs SME shall delete any PTKSA and temporal keys held for communication with the indicated STA
by using the MLME-DELETEKEYS.request primitive (see 8.4.10) and by invoking MLME-SETPROTECTION.
request(None) before invoking the MLME-DISASSOCIATE.request primitive.

11.4.7 AP disassociation initiation 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 indicate that Reason Code value. The use of the unspecified reason value shall indicate the STA was disassociated for a reason unrelated to all defined Reason Code values.
c)The state variable for the STA shall be set to State 2.
d)The SME will update the DS.

The STAâs SME shall delete any PTKSA and temporal keys held for communication with the indicated STA by using the MLME-DELETEKEYS.request primitive (see 8.4.10) and by invoking MLME-SETPROTECTION.
request(None) upon receiving a MLME-DISASSOCIATE.indication primitive.

Cl **11** *SC* **11.3.1** *P* **319** *L* # 21

O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

The commenter has identified the incorrect clause. The correct clause is 11.4.1.

Append the following text to clause 11.4.1 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 did not indicate as supported in the STA's Supported Rates information element, shall be corrected before the SME issues an MLME-ASSOCIATE.request for the same 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 SME shall not issue an MLME-ASSOCIATE.request for the same AP, until a period of at least 2 seconds has elapsed.

Cl **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 likewith with any other similar statements.

Proposed Response *Response Status* **O**

Need to discuss with Jesse Walker.

Cl **11** *SC* **11.3.2** *P* **319** *L* # 22

O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

The commenter has not identified the correct clause. The correct clause is 11.4.2.

Append the following text after 11.4.2 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 indicate that Status Code value. The use of the unspecified reason value of the Status Code shall indicate the association failed for a reason that is unrelated to every other defined Status Code value.

Renumber subsequent items in the list in 11.4.2.

Cl **11** *SC* **11.3.3** *P* **320** *L* # 23

O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

The commenter has identified the incorrect clause. The correct clause is 11.4.3.

Append the following text to clause 11.4.3 d):

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 did not indicate as supported in the STA's Supported Rates information element, shall be corrected before the SME issues an MLME-REASSOCIATE.request for the same 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 SME shall not issue an MLME-REASSOCIATE.request for the same AP, until a period of at least 2 seconds has elapsed.

Cl **11** *SC* **11.3.4** *P* **320** *L* # 24

O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

The commenter has not identified the correct clause. The correct clause is 11.4.4.

Append the following text after 11.4.4 d):

e) 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 from Table 20 in clause 7.3.1.9 is an appropriate reason for the failure to reassociate, the AP shall indicate that Status Code value. The use of the unspecified reason value of the Status Code shall indicate the reassociation failed for a reason that is unrelated to every other defined Status Code value.

Renumber subsequent items in the list in 11.4.4.

Cl **11** *SC* **11.4** *P* **320** *L* # 32

O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **11** *SC* **11.5** *P* **323** *L* # 92

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X**

End of third sentence 'in Europe" has been superceded by WRC 2003.

SuggestedRemedy

Combine third and forth sentences into "This subclause describes TPC procedures that may also satisfy comparable needs in other regulatory domains and other frequency bands and may be useful for other purposes (e.g., reduction of interference, range control, reduction of power consumption)."

Proposed Response *Response Status* **O**

Cl **11** *SC* **11.5.1** *P* *L* # 67

MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

The text defines association based on transmit power capability
However, no use has ever been demonstrated for this feature and few if any implmenentations provide it for any useful purpose

SuggestedRemedy

Delete all text related to association based on transmit power capability

Proposed Response *Response Status* **W**

PROPOSED REJECT. The commenter does not provide a compelling reason for deprecating this function. It is not proven that no use has ever been demonstrated for this feature. It is to soon to determine that no use will be found for this feature.

Cl **11** *SC* **11.5.3** *P* *L* # 68

MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

The text defines adaption of transmit power
However, no use has ever been demonstrated for this feature in relation to DFS and few, if any, implmenentations provide it for any useful purpose

SuggestedRemedy

Delete all text related to adaption of transmit power, and allow 11k and 11v to define new more appropriate features

Proposed Response *Response Status* **W**

PROPOSED REJECT. The commenter does not provide a compelling reason for deprecating this function. It is not proven that no use has ever been demonstrated for this feature. It is to soon to determine that no use will be found for this feature.

The commenter is urged to work with 802.11 task groups k and v to define new, more appropriate features and to delete this feature at that time.

Cl **11** *SC* **11.6.1** *P* *L* # 69

MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

The text defines association based on supported channels
However, no use has ever been demonstrated for this feature in relation to DFS and few if any implmenentations provide it for any useful purpose

SuggestedRemedy

Delete all test related to association based on supported channels

Proposed Response *Response Status* **W**

PROPOSED REJECT. The commenter does not provide a compelling reason for deprecating this function. It is not proven that no use has ever been demonstrated for this feature. It is to soon to determine that no use will be found for this feature.

Cl **11** *SC* **11.6.3** *P* *L* # 66

MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

The text references ETSI EN 301 893.
This reference is European focused and incorrect

SuggestedRemedy

Remove all references to ETSI EN 301 893

Proposed Response *Response Status* **W**

PROPOSED ACCEPT. There is no reference to ETSI EN 301 893 in the cited clause of the balloted draft. The text existed in earlier versions of the draft, but had already been removed.

Cl **11** *SC* **11.6.6** *P* *L* # 70

MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **D**

The text defines a complex measurement request and response mechanism.
The mechanism is not required for DFS or TPC purposes. It is clearly not sufficient for the measurement purposes given that 11k is currently redefining it

SuggestedRemedy

Delete all text related to measurement request and response, and allow 11k to define more appropriate features

Proposed Response *Response Status* **W**

PROPOSED REJECT. The commenter is urged to work with 802.11 task group k to make this change in that amendment.

Cl **11** *SC* **11.6.7.2** *P* *L* # 65

MYLES, ANDREW F Individual

Comment Type **TR** *Comment Status* **X**

The DFS channel changing facilities for IBSS represent a very complex set protocols that have little value in the vast majority of cases and will not work in many circumstances. There is no know implementation of this feature.

SuggestedRemedy

Delete all text related to selecting a new channel in an IBSS

Proposed Response *Response Status* **O**

Andrew Myles, the former editor of 802.11h, will determine the exact scope of this change to the document.

Cl **12** *SC* **12.3.5.10.3** *P* **343** *L* **1** # 255

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

Proper operation of the MAC is dependent on the timing relationship between a change in channel state and the generation of the corresponding PHY-CCA.indication primitive, as illustrated in Figure 133 (9.2.10). The timing constraint depicted there needs to be specified in this subclause.

SuggestedRemedy

Change "is generated every time the status of the channel" to "is generated within aCCATime of the occurrence of a change in the status of the channel"

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.11.3** *P* **344** *L* **2** # 250

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

Proper operation of the MAC is dependent on the PHY maintaining an indication of WM busy state throughout the duration of a detected, incoming frame with a valid PLCP header, based on the length and data rate information in that PLCP header. This is true even in cases where the frame is not completely revceived, and a PHY-RXEND.indication(CarrierLost) occurs prior to receipt of all of the nominal frame contents. This behavior should be defined in clause 12.

SuggestedRemedy

Add a new paragraph at the end of this subclause stating: "After generating a PHY-RXSTART.indication the PHY shall maintain physical medium busy status, and shall not generate a PHY-CCA.indication(IDLE), during the period required by that PHY to transfer a frame of the indicated LENGTH at the indicated DATARATE. This physical medium busy condition shall be maintained, and PHY-CCA.indication(IDLE) shall not be generated, during the required period, even if a PHY-RXEND.indication(CarrierLost) or a PHY-RXEND.indication(FormatViolation) is generated by the PHY prior to the end of this period."

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.12.3** *P* **345** *L* # 251

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[last paragraph] -- An indication with RXERROR of "UnsupportedRate" implies error-free receipt of the PLCP header, because otherwise it would be impossible for the PHY to determine the rate, and an indication with RXERROR of "FormatViolation" would have been generated. Proper operation of the MAC is dependent on the PHY maintaining an indication of WM busy state throughout the duration of the incoming frame for which "UnsupportedRate" was reported.

SuggestedRemedy

Add a new paragraph at the end of this subclause stating: "After generating a PHY-RXEND.indication with RXERROR value "UnsupportedRate," the PHY shall maintain physical medium busy status, and shall not generate a PHY-CCA.indication(IDLE), during the period required by that PHY to transfer a frame of the length and data rate encoded in the PLCP header. If the information in an otherwise-valid PLCP header is inadequate for the local PHY to determine the period required for transfer of the frame, that reception shall be indicated using RXERROR value "FormatViolation."

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.12.3** *P* **345** *L* **1** # 256

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

Proper operation of the MAC is dependent on the timing relationship between the end of reception on the WM and the occurrence of the PHY-RXEND.indication primitive, as illustrated in Figure 133 (9.2.10). The timing constraint depicted there needs to be specified in this subclause.

SuggestedRemedy

At the end of the existing paragraph add a new sentence: "In the case of an RXERROR value of "NoError," this primitive shall be issued within (aRxRFDelay+aRxPLCPDelay), referenced to the end of the last received symbol on the WM. (see Figure 133)"

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.12.4** *P* **345** *L* **1** # 257

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The effect of receipt of this primitive by the MAC is clearly specified in 9.2.10.

SuggestedRemedy

Replace the existing sentence with: "The effect of receipt of this primitive is for the MAC to begin inter-frame space processing, as described in 9.2.10."

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.2.3** *P* **335** *L* **3** # 282

FISCHER, MICHAEL A Individual

Comment Type **T** *Comment Status* **X**

In the case of an OFDM PHY, it is probably impossible to meet this timing constraint for all octets in a short frame being transferred at a low data rate (<12Mb/s).

SuggestedRemedy

Add text that defines a timing constraint that an ODFM PHY might actually be able to achieve.

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.4.4** *P* **337** *L* **1** # 252

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

Proper operation of the MAC is dependent on the timing relationship between issuance of PHY-TXSTART.request and the start of transmission onto the WM, as illustrated in Figure 133 (9.2.10). The timing constraint depicted there needs to be specified in this subclause.

SuggestedRemedy

After the existing sentence, add the following: "The time between issuance of the PHY-TXSTART.request and the start of transmission of the first symbol of the PHY header onto the WM shall not exceed aRxTxTurnaroundTime."

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.5.3** *P* **338** *L* **2** # 253

FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

The statement "& is ready to begin receiving data octets." is confusing, and could easily be misinterpreted to pertain to the transition from transmission to reception.

SuggestedRemedy

Change "receving" to "accepting outgoing" and insert "from the MAC" after "data octets" at the end of the sentence.

Proposed Response *Response Status* **O**

Cl **12** *SC* **12.3.5.7.3** *P* **340** *L* # 254

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[1st paragraph] -- The existing statement is both ungrammatical and ambiguous. The timing of this primitive is important to proper MAC operation and the specification of its generation needs to be clarified.

SuggestedRemedy

Replace the existing paragraph with: "This primitive will be issued by the PHY, pursuant to receipt of a PHY-TXEND.request from the MAC, when transmission of the final symbol of the outgoing PPDU onto the WM has completed. This primitive shall occur not more than one PHY symbol preiod after transmission onto the WM has ended."

Proposed Response *Response Status* **O**

Cl **14** *SC* **14.8.2.2** *P* **387** *L* # 89

ECCLESINE, PETER Individual

Comment Type **E** *Comment Status* **X**

The letters MKK appear for a regulatory agency, but are out of date

SuggestedRemedy

Replace MKK with Japan

Proposed Response *Response Status* **O**

Cl **15** *SC* **15.3.3** *P* **403** *L* # 276

FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[Table 80, row for aMACProcessingDelay] -- The value specified for aMACProcessingDelay is incorrect. The value actually used to generate aSlotTime and aSIFSTime is 2 microseconds.

SuggestedRemedy

Replace the current value with <= 2 microseconds.

Proposed Response *Response Status* **O**

Cl **15** *SC* **15.4.6.2** *P* **414** *L* # 90

ECCLESINE, PETER Individual

Comment Type **E** *Comment Status* **X**

The letters MKK appear for a regulatory agency, but are out of date

SuggestedRemedy

Replace MKK with Japan

Proposed Response *Response Status* **O**

Cl **15** *SC* **15.4.7.1** *P* **417** *L* # 91

ECCLESINE, PETER Individual

Comment Type **E** *Comment Status* **X**

Appropriate is misspelled

SuggestedRemedy

Fix

Proposed Response *Response Status* **O**

Cl **16** *SC* **16** *P* *L* # 109
CHAPLIN, CLINT F Individual

Comment Type **TR** *Comment Status* **X**

This section describes a PHY that, I believe, was never commercially available, and will never be used in the future. It is no longer necessary to have this PHY in the standard. Mantaining this section is a waste of the IEEE's time. Essentially the same arguments that was used to withdraw IEEE 802.11F are to be used here.

SuggestedRemedy

Remove this section, or mark it as obsolete and not to be implemented.

Proposed Response *Response Status* **O**

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

Comment Type **G** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT IN PRINCIPLE. The new correct reference is 5.8. The editor is to correct the page numbering.

Cl **17** *SC* **17.3.8.3.2** *P* **459** *L* # 278
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Last paragraph on page] -- The statement "all channels with 5 MHz spacing" uses spacing in a manner contrary to its definition in 3.19.

SuggestedRemedy

Change this instance of "spacing" to another term, or remove the "nonoverlapping" provision in 3.19 (provided that other uses of "spacing" do not depend on the nonoverlapping property).

Proposed Response *Response Status* **O**

Cl **17** *SC* **17.4.4** *P* **472** *L* # 279
FISCHER, MICHAEL A Individual

Comment Type **E** *Comment Status* **X**

[Table 111] -- The values listed as "implementation dependent" are, in fact, constrained by other, specified values. This fact is much clearer using the wording in Table 139, which has the same set of characterstics as "implementation dependent"

SuggestedRemedy

Replace each instance of "implementation dependent" with a copy of the text for the corresponding value in Table 139.

Proposed Response *Response Status* **O**

Cl **18** *SC* **18.3.3** *P* **497** *L* # 277
FISCHER, MICHAEL A Individual

Comment Type **TR** *Comment Status* **X**

[Table 119, row for aMACProcessingDelay] -- The value specified for aMACProcessingDelay is incorrect. The value actually used to generate aSlotTime and aSIFSTime is 2 microseconds.

SuggestedRemedy

Replace the current value with <= 2 microseconds.

Proposed Response *Response Status* **O**

Cl **A** *SC* **A.4.4.1** *P* **569** *L* # 33
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **A** *SC* **A.4.4.1** *P* **571** *L* # 34
O'HARA, ROBERT Individual

Comment Type **G** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

Cl **H** *SC* **H.6.3** *P* **950** *L* # 27
O'HARA, ROBERT Individual

Comment Type **T** *Comment Status* **D**

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* **W**

PROPOSED ACCEPT.

See comment ID 108 for correct addresses.

Cl **H** *SC* **H.6.3** *P* **950** *L* # 108
CHAPLIN, CLINT F Individual

Comment Type **TR** *Comment Status* **X**

Table H.7: Please 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.

SuggestedRemedy

Add the following entries to the table:
Source MAC Address: 02 03 04 05 06 07
Destination MAC Address: 02 03 04 05 06 08

Proposed Response *Response Status* **O**

Cl **H** *SC* **H.7.1.1** *P* **954** *L* # 106
CHAPLIN, CLINT F Individual

Comment Type **TR** *Comment Status* **X**

Table H.14: Incorrect title

SuggestedRemedy

"Table H.14--Sample derived CCMP temporal key (TK)"

Proposed Response *Response Status* **O**

Cl **H** *SC* **H.7.1.1** *P* **954** *L* # 26
O'HARA, ROBERT Individual

Comment Type **E** *Comment Status* **D**

The caption for Table H.14 is incorrect.

SuggestedRemedy

change the caption to "Sample derived CCMP temporal key (TK)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **I** *SC* **I.1** *P* **955** *L* # 97
ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X**

The first paragraph presently refers to the Clause 17 OFDM PHY, not the other radio PHYs

SuggestedRemedy

Replace the first paragraph with "This annex and Annex J provide information and specifications for operation in many regulatory domains."

Proposed Response *Response Status* **O**

Cl **I** *SC* **I.2.1** *P* **957** *L* # 98

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X**

The NOTE, Tables I.4 and I.5, Figures I.1 and I.2 are informative, and are no longer needed, as the law took effect in May 2005, and the Emissions Limits sets inform about the law

SuggestedRemedy

Remove the Note on p957, and the remaining part of I.2.1

Proposed Response *Response Status* **O**

Cl **I** *SC* **I.2.1** *P* **961** *L* # 99

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X**

Figures I.4 and I.5 are redundant to I.2.3 text, and should be removed. The first sentence in the NOTE should also be removed.

SuggestedRemedy

Remove the first sentence in the NOTE on p961, and Figures I.4 and I.5

Proposed Response *Response Status* **O**

Cl **J** *SC* **J.1** *P* **965** *L* **1** # 290

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X** *4.9*

The US allows 10 MHz channel spacing in the 4.9 GHz band under CFR 47 90.12xx using radios much like the clause 17 PHY, but Annex J does not represent that

SuggestedRemedy

Editor to change draft according to 11-05-1121-00-000m-modifications-to-802-11ma-standard-regarding4-9ghz-band.doc draft text to describe operation in US using 10 MHz channel spacing

Proposed Response *Response Status* **O**

Cl **J** *SC* **J-1** *P* **965** *L* **1** # 291

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X** *4.9*

The US allows 5 MHz channel spacing in the 4.9 GHz band under CFR 47 90.12xx using radios much like the clause 17 PHY, but Annex J does not represent that

SuggestedRemedy

Editor to change draft according to 11-05-1121-00-000m-modifications-to-802-11ma-standard-regarding-4-9ghz-band.doc draft text to describe operation in US using 5 MHz channel spacing

Proposed Response *Response Status* **O**

Cl **J** *SC* **J-1** *P* **966** *L* **1** # 293

ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **X** *4.9*

Japan allows 5 MHz channels in the 5.03 GHz-5.091 GHz band, and Annex J does not represent that

SuggestedRemedy

Editor to change draft according to 11-05-1121-00-000m-modifications-to-802-11ma-standard-regarding-4-9ghz-band.doc draft text to describe operation in Japan 4.9 GHz and 5GHz bands using 5 MHz channel spacing

Proposed Response *Response Status* **O**

Cl **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**

Darwin to prepare a response

Cl **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**

Darwin to prepare a response

Cl **N** *SC* **N.2.1.1.4** *P* **986** *L* # 288

ENGWER, DARWIN A Individual

Comment Type **ER** *Comment Status* **X**

To more properly align with clause 3 definitions:

SuggestedRemedy

Change
"This primitive initiates distribution of the DSSDU through the DS. A directed DSSDU from"
to
"This primitive initiates distribution of the DSSDU through the DS. An individually addressed DSSDU from"

Proposed Response *Response Status* **O**