IEEE P802.11  
Wireless LANs

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| 802.11  IEEE P802.11REVme/D3.0 Mandatory Draft Review (MDR) Report | | | | |
| Date: 2023-04-27 | | | | |
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|  |  |  |  |  |

**Abstract**

This document contains the report of the REVme Mandatory Draft Review.

r0: section headings.

R1: volunteer names added

R2: ANA check

R3: Unicast/multicast (Roy Want). First batch of Edward’s findings

R4: Added Carol’s findings.

# Introduction

## Purpose of this document

This document is the report from the group of volunteers that participated in the P802.11REVme/D3.0 mandatory draft review.

This document contains recommendations for changes to the P802.11REVme draft to bring it into improved compliance to IEEE-SA and WG11 style.

The recommended changes need to be reviewed by TGme and approved, or ownership of the issues taken by TGme.

## Process / references

The MDR process is described in:

* [11-11/615r6](https://mentor.ieee.org/802.11/dcn/11/11-11-0615-06-0000-wg802-11-mec-process.doc) – WG802.11 MEC Process

And references:

* [11-09/1034r20](https://mentor.ieee.org/802.11/dcn/09/11-09-1034-20-0000-802-11-editorial-style-guide.docx) – 802.11 Editorial Style Guide

A setup meeting will be held with and review topics assigned to volunteers. The review comments from the volunteers will be compiled into this document.

## Acknowledgements

The 802.11 technical editor (Robert Stacey) gratefully acknowledges the work and contribution of:

* Claudio de Silva
* Carol Ansley
* Emily Qi
* Edward Au
* Joseph Levy
* Roy Want
* Brian Hart
* Yongho Seok

# Findings

## Style

### Style Gude 2.1 – Frames

Claudio

### Style Guide 2.1.1 – Frame Format Figures

Claudio

### Style Guide 2.1.2 – Naming Frames

Claudio

### Style Guide 2.2 – true/false

Carol

P506, L31, should be “true, false”

P509, L6, should be “true, false”

### Style Guide 2.3 – “is set to”

Joseph

Update list he has already generated.

Bring to TGme as soon as possible to see if they are willing to accept changes.

### Style Guide 2.4 – Information Elements/Subelements

Emily (Edward’s suggestion)

#### Style Guide 2.4.1 – Information Elements/subelements – Naming

#### Style Guide 2.4.2 – Definition Conventions

#### Style Guide 2.4.3 – Element Inclusion Conventions

### Style Guide 2.5 – Removal of functions and features

Edward

As per Section 2.5 of the IEEE 802.11 editorial guideline, “Functions and features described in the published 802.11 standard shall not be removed unless they have been marked “obsolete and subject to removal in a subsequent revision of this standard.” in a previous revision.”.

[01] The use of the dual beacon mechanism was marked “obsolete” in IEEE 802.11-2020. Please remove all the materials related to the dual beacon mechanism from REVme.

[02] The use of the dual CTS protection mechanism was marked “obsolete” in IEEE 802.11-2020. Please remove all the materials related to the dual CTS protection mechanism from REVme.

[03] The use of RIFS for a non-DMG STA was marked “obsolete” in IEEE 802.11-2020. Please remove all the materials related to the use of RIFS for a non-DMG STA from REVme.

[04] The DMG low-power SC mode was marked “obsolete” in IEEE 802.11-2020. Please remove all the materials related to the DM low-power SC mode from REVme.

[05] The CDMG low-power SC mode was marked “obsolete” in IEEE 802.11-2020. Please remove all the materials related to the CDM low-power SC mode from REVme.

### Style Guide 2.6 – Capitalization

Edward

[01] Figure 10-140: Replace “DTIM Beacon frame” with “DTIM beacon”.

[02] 3037.1: Replace “peering Management frame body” with “peering management frame body”.

[03] 3037.10: Replace “peering Management frame body” with “peering management frame body”.

[04] 4787.6: Replace “Protected mesh peering Management frame processing” with “Protected mesh peering Management frame processing”.

[05] 5492.43: Replace “QoS Management Frame functionality” with “QoS management frame functionality”

[06] 910.54: Replace “The Subelement IDs for subelements in the Fine Timing Measurement Range request” with “The subelement IDs for subelements in the Fine Timing Measurement Range Request element”

[07] 947.46: Replace “The Subelement ID is equal” with “The Subelement ID field is equal”.

[08] 1127.25: Replace “The U-APSD coexistence element provides” with “The U-APSD Coexistence element provides”.

[09] Figure 9-1174: Replace “Transmit Power Envelope element (optional)” with “Transmit Power Envelope Element (optional)”.

[10] 2371.13: Replace “NDP Feedback Report Parameter set element” with “NDP Feedback Report Parameter Set element”.

[11] 2504.59: Replace “Measurement request element” with “Measurement Request element”.

[12] 869.49: Replace “The Requested Element IDs are” with “The Requested Element IDs field are”.

[13] 869.50: Replace “The Requested Element IDs are” with “The Requested Element IDs field are”.

[14] 869.51: Replace “The Requested Element IDs are” with “The Requested Element IDs field are”.

[15] 869.54: Replace “A given element ID is included at most once among the Requested Element IDs” with “A given element ID is included at most once among the Requested Element IDs field”.

[16] 870.21: Replace “The Requested Element ID field contains one of the Element IDs used to indicate an extended element” with “The Requested Element ID field contains one of the element IDs used to indicate an extended element”.

[17] 955.8: Replace “The Subelement ID is equal to” with “The Subelement ID field is equal to”.

[18] 1356.16: Replace “Element ID values are in increasing order” with “Element ID subfield values are in increasing order”.

[19] 1356.32: Replace “Element ID Extension values are in increasing order” with “Element ID Extension subfield values are in increasing order”.

[20] 1356.34: Replace “have an Element ID value of 255” with “have an element ID value of 255”.

[21] 2351.1 to 2351.13: Replace “Element ID (Extension)” with “element ID (extension)”.

[22] 3103.54: Replace “A mesh STA may set the Status Code” with “A mesh STA may set the Status Code field”.

[23] 4904.22: Replace “This attribute holds the most recently transmitted Status Code” with “This attribute holds the most recently transmitted Status Code field”.

[23] 4910.34: Replace “This attribute holds the most recently transmitted Status Code” with “This attribute holds the most recently transmitted Status Code field”.

[24] 4911.24: Replace “This attribute holds the most recently transmitted Status Code” with “This attribute holds the most recently transmitted Status Code field”.

[25] 1570.40: Replace “the Status Code is REQUEST\_DECLINED” with “the Status Code field is REQUEST\_DECLINED”.

[26] 938.17: Replace “STA Floor Number values” with “STA Floor Number field values”.

[27] 2084.51: Replace “is Poll transmission” with “is poll transmission”.

[28] 1164.34: Replace “The EDCA Access Factor is expressed as” with “The EDCA Access Factor field is expressed as”.

[29] 1164.34: Replace “When the EDCA Access Factor is greater than” with “When the EDCA Access Factor field value is greater than”.

[30] 4581.47: Replace “The WUR PN Update procedure” with “The WUR PN update procedure”.

[31] 1135.14: Replace “The Alert Identifier Hash (AIH) contains” with “The Alert Identifier Hash field contains”. Note that I delete “(AIH)” because abbreviation is not allowed for a field’s name.

[32] 2649.59: Replace “The Emergency Alert Identifier element provides an Alert Identifier Hash value,” with “The Emergency Alert Identifier element provides an Alert Identifier Hash field value,”.

[33] 2649.60: Replace “The Alert Identifier Hash value allows” with “The Alert Identifier Hash field value allows”.

[34] 2650.10: Replace “The Alert Identifier Hash in the Emergency Alert Identifier element” with “The Alert Identifier Hash field in the Emergency Alert Identifier element”.

[35] 2650.14: Replace “After receiving an Alert Identifier Hash value” with “After receiving an Alert Identifier Hash field value”.

[36] 2650.17: Replace “transmit the Alert Identifier Hash of the desired message” with “transmit the Alert Identifier Hash field of the desired message”.

[37] 2650.26: Replace “the hexadecimal numerals of the Alert Identifier Hash” with “the hexadecimal numerals of the Alert Identifier Hash field”.

### Style Guide 2.7 – Terminology: frame vs packet vs PPDU vs MPDU

Edward

No issues identified.

### Style Guide 2.8 – Use of verbs & problematic words

[Volunteer name]

#### normative, non-normative, ensure

#### Carol

(Mark Rison has done a substantial amount of review on this topic)

**May**

P190, L56, “In an implementation, a single logical portal function ~~may~~ can be provided”

P203, L63, “A power management mode of an associated station (STA) in which an access point (AP) ~~may~~ can transmit physical layer (PHY) protocol data units (PPDUs) to an associated STA at any time.

P204, L1, “it is a mesh power management mode in which a neighbor peer mesh STA ~~may~~ can transmit PPDUs to the mesh STA at any time.”

P345, L9, “NOTE—In implementations, the (#1429)DA address filtering function ~~may~~ can be done “lower in the stack.””

P2379, L11, “NOTE 3—A STA ~~may~~ can use both WNM sleep mode and PS mode simultaneously.”

P2417, L33, “NOTE 1—A DMG STA in doze state ~~may need to~~ can perform beamforming to restore its links with other DMG STAs as needed.”

P2421, L18, “NOTE 2—A DMG STA in doze state ~~may need to~~ can perform beamforming to restore its links with other DMG STAs as needed.”

P2421, L56, “NOTE 2—The PCP ~~may need to~~ can behave as if it is in active mode or in an A-BI to some associated STAs for a number of planned successive PCP D-BIs if it has not been able to confirm the reception of its WS by each associated STA, and it has not transmitted its WS through DMG Beacon or Announce frames over dot11MaxLostBeacons successive beacon intervals.”

P2427, L50, **“**However, GLK STAs that find PS mode useful ~~may~~ can utilize PS mode while performing behaviors in this subclause.”

\*check P2738, L6, seems to be an incorrect link “(see (NOTE-For operating mode…))”

P3874, L48, “NOTE 6—The frame type of MPDUs ~~may~~ can be different across A-MPDUs within the same HE TB PPDU subject to A-MPDU context.”

**"Will” should not be used**

P173, L6, “that ~~will~~ can statically support”

P521, L24, “a non-AP STA ~~will have~~ complete~~d~~s the network selection process”

P597, L2, “In group addressed mesh Data frames, the Mesh Power Save Level subfield is set to 0 to indicate that none of the peer-specific mesh power management modes of the mesh STA ~~will be~~ are deep sleep mode.”

P609, L56,

“)The CMMG NDP Announcement subfield of the CMMG variant HT Control field indicates a CMMG NDP ~~will~~ may be transmitted (according to the rules described in 10.32 (CMMG beamforming)). It is set to 1 to indicate that an NDP follows; otherwise, it is set to 0.”

P869, L52, “The Requested Element IDs within a Request element transmitted in an Information Request frame do not include an element ID that corresponds to an element ~~that will be~~ to be included in the Information Response frame even in the absence of the Request element”

P869, L58, “Some implementations might unnecessarily include in a Probe Request frame a Request element that contains the element ID of an element ~~that will be~~ to be included in the Probe Response frame”

P870, L28, “The requested elements within an Extended Request element transmitted in a Probe Request frame do not identify ~~an~~ elements ~~that will be~~ included in the Probe Response frame even in the absence of the Request element, or ~~will be~~ excluded from the Probe Response frame even in the presence of the Extended Request element as described by the notes in Table 9-67 (Probe Response frame body). The requested elements within an Extended Request element transmitted in an Information Request frame do not identify ~~an~~ elements ~~that will be~~ included in the Information Response frame even in the absence of the Extended Request element,"

P980, L27,

“NOTE—A STA need not insert a PMKID in the PMKID List field if the STA ~~will not be~~ is not using that PMKSA.”

P1130, L59,

“If the Query Response Length Limit field is larger than the maximum MMPDU size, the Query Response ~~will~~ spans multiple MMPDUs”

P1131, L13,

: “When this field contains a vendor-specific advertisement protocol ID, then this field ~~will be~~ is structured per the Vendor Specific element defined in 9.4.2.24 (Vendor Specific element)”

P1145, L33,

“The mesh STA transmitting the MCCA Setup Request element is the MCCAOP owner of the MCCAOPs ~~that will be~~ scheduled with this reservation setup request.”

P1226, L51,

“NOTE 8—A receiving STA in which dot11VHTExtendedNSSBWCapable is false ~~will~~ ignores the Extended NSS BW Support subfield and effectively evaluates this table only at the entries where Extended NSS BW Support is 0.”

P1272, L10,

“ If it is equal to 1, the AP ~~will~~ transmits a Resource Allocation frame”

P1279, L23,

“The (group) listen interval ~~will~~ starts from the first TBTT or TSBTT that follows the expiration of the AID switch counter obtained from the AID Switch Count field of this element”

P1280, L37,

“It is expected that during the association, STAs receive a nonzero group ID, which ~~will~~ restricts their activity to a particular sector interval or during omnidirectional time interval.”

P1286, L34,

“then the TWT requesting STA or TWT scheduled STA ~~will~~ rejects the TWT setup.”

P1292, L11,

“the TWT SP(s) corresponding to the TWT flow identifier(s) of the TWT element ~~will be~~ are protected by”

\*Side note: line 44 has wrong sized text on this page

P1293. L2,

“The Min Sleep Duration field in the NDP Paging Request indicates in units of SIFS the minimum duration ~~that STA will be in the~~ of the STA’s doze state after receiving an NDP Paging frame with a matching P-ID.”

P1301, L57,

“The Extended Supported S1G-MCS and NSS Set field not being present ~~will~~ convey that neither S1G-MCS 11 nor S1G-MCS 12 are supported.”

P1321, L51,

“The Header Compression element is used by a STA to inform its intended receiver ~~regarding~~ the frame header fields ~~that will~~ to be compressed and that it needs to store.”

P1391, L5,

“and the new BSS color ~~that will~~ to take effect after the BSS color change”

P1488, L60,

“a query for that element ~~will~~ returns that element with all optional fields not present.”

P1564, L62,

“The value 0 ~~will be~~ is returned by the STA when a Query Response is provided in this frame.”

P2008, L40,

“MFB = 127, MFSI in the range 0 to 6: the responder is not ~~now~~ providing~~, and will never provide,~~ feedback for the request ~~that had the~~ with the MSI value that matches the MFSI value.”

P2011, L3,

“: the responder is not ~~now~~ providing~~, and will never provide,~~ feedback for the request ~~that had~~ with the MSI value that matches the MFSI value.”

P2013, L46,

“the responder is not ~~now~~ providing~~, and will never provide,~~ feedback for the request ~~that had~~ with the MSI value that matches the MFSI value.”

P2019, L12,

“In general, bidirectional implicit beamforming ~~will~~ does not function as described here when the steering matrices have nonorthonormal columns.”

P2265, L32.

““Demand TWT” indicates that the requesting STA ~~will~~ currently accepts only the indicated TWT parameters for a TWT agreement.”

P2266, L20,

“The TWT response sent by the TWT responding STA containing the TWT Setup Command field of Accept TWT ~~will~~ indicates whether”

P2266, L32,

““Demand TWT” indicates that the requesting STA ~~will~~ currently accepts only the indicated TWT parameters for a TWT agreement.”

P2271, L25,

“Examples of frames ~~that will~~ to solicit a Next TWT Info/Suspend Duration field include”

P2284, L1,

“At the end, STA B sends a PPDU with the Response Indication 2 (Normal Response) and STA A ~~will~~ terminates the BDT exchange by sending a PPDU with the Response Indication equal to 0 (No response)”

P2294, L9,

“STAs receive a nonzero group ID, which ~~will~~ restricts their activity to a particular sector interval and omnidirectional time interval”

P2350, L64,

“Similar considerations ~~will~~ apply for the Nontransmitted BSSID Profile subelement for BSSID M (not shown”

P2352, L9,

“This countdown value ~~will~~ allows a STA associated with an AP in the set to receive the announcement during the DTIM beacon”

P2352, L36,

“which ~~will~~ results in a different BSSID in the set taking over the role of the transmitted BSSID.”

P2353, L25,

“Indication of buffered group addressed frames for each BSSID belonging to the multiple BSSID set (as described in 9.4.2.5 (TIM element)) ~~will~~ follows the newly assigned multiple BSSID index values updated according to this subclause”

P2353, L29,

“then an iaf of 6 ~~will~~ converts the BSSID 8c-fd-0f-7f-1e”

P2365, L10,

“IBSS: At least one STA ~~will be~~ is awake to respond to (#3751)Probe Request frames”

P2381, L61,

“AID 0 (zero) is reserved to indicate the presence of buffered non-GCR-SP group addressed BUs ~~that will~~ to be delivered using MPDUs with an RA other than a SYNRA but that are not delivered using group AID.”

P2382, L13,

“After a DTIM, the AP shall transmit buffered nonGCR-SP group addressed BUs ~~that will~~ to be delivered using MPDUs with an RA other than a SYNRA, before transmitting any individually addressed frames.”

P2386, L9,

“The non-AP STA may transmit multiple ADDTS Request frames to the AP where the last received ADDTS Request frame ~~will~~ overrides any previously received ADDTS Request frame.”

P2388, L9,

“ the presence of further buffered non-GCR-SP group addressed BUs ~~that will~~ to be delivered using MPDUs with an RA other than a SYNRA”

P2388, L11,

“to transmit all of the buffered non-GCR-SP group addressed BUs ~~that will~~ to be delivered using MPDUs with an RA other than a SYNRA”

P2388, L18,

“, until all buffered non-GCR-SP group addressed BUs ~~that will~~ to be delivered using MPDUs with an RA other than a SYNRA have been transmitted”

P2388, L21,

“the AP shall retransmit all nonGCR-SP group addressed BUs ~~that will~~ to be delivered using MPDUs with an RA other than a SYNRA”

P2395, L54,

“(this transmission ~~will be~~ is preceded by the transmission of a Peer Traffic Indication frame and the subsequent receipt of a trigger frame that starts a service period)”

P2397, L23,

“More than one FMSID may have the same delivery interval and therefore ~~will~~ share the same FMS counter.”

P2400, L5,

” The AP ~~will~~ terminates the use of FMS transmission rules for any FMS stream identified by FMSID.”

P2427, 56, “NOTE 2—The net effect of the above is that any GLK non-AP STA in PS mode will, for all traffic for which the PS STA is a recipient, result in MPDUs that are buffered and, if there are multiple receivers, potentially duplicated.”

\*\*The ‘will’ should be removed, but the sentence doesn’t make sense even with ‘will’ in it, so I’m not sure how to fix it.

P2458, L36,

“The delay bound ~~that will be~~ provided by the HC in the TSPEC response is”

P2501, L26,

“The duration over which the measurement was made ~~will be~~ is included in the measurement duration field of the measurement report.”

P2543, L3,

“The New Channel Number field of the Extended Channel Switch Announcement element represents the new channel (when the BSS after relocation/width change ~~will be~~ is a 20 MHz BSS) or the primary channel of the new pair of channels (when the BSS after relocation/width change ~~will be~~ is a 20/40 MHz BSS).”

P2596, L45,

“The AP selects TXVECTOR parameters ~~that will be~~ used for transmission to the currently associated STAs”

P2645, L1,

“Authentication ~~will~~ then occurs between the non-AP STA and the SSP through a protected tunnel. ”

P2650, L1,

“The same value of hash ~~will be~~ is computed by each AP in an ESS and by each AP in different ESSs”

P2651, L23,

“The AP’s SME causes the QoS mapping to be available to higher layer protocols or applications so they ~~will be able to~~ may set the correct priority in an MA-UNITDATA.request primitive.”

P2651, L38,

“Upon receiving the QoS Map element, the non-AP STA’s SME causes the QoS mapping to be available to higher layer protocols or applications so they ~~will be able to~~ may set the correct priority in an MA-UNITDATA.request primitive.”

P2652, L49,

“Then determine the bit positions in the Bloom Filter Array field ~~that will~~ to be set to 1 for each service in the list.”

P2658, L60,

“that the requesting QMF STA ~~will~~ uses for transmitting Management frames to the peer QMF STA”

P2790, L59,

“A PMKSA created as part of an RSNA ~~will~~ contains the MAC address used to create the PMKSA.”

P2814, L57,

“at least one of which ~~will~~ represents an abscissa of a point on the curve.”

P2818, L17,

“This ~~will~~ ensures PT is a generator of order either 1”

P2821, L46,

“Use of other AKMs with the hash-to-element method(#344) ~~will~~ requires definition of the length of the PMK.”

P2821, L51,

“(if only one sent a Rejected Groups element then the salt ~~will~~ shall consist of that list)”

P2869, L61,

“In the initial 4-way handshake this third message (and the fourth message sent in response) ~~will be~~ is unprotected and in a rekeying 4-way handshake the third (and the fourth) message ~~will be~~ is (are) protected with the old key.”

P2878, L26,

“NOTE 3—~~The~~ A STA ~~will not be~~ is not sent any protected individually addressed robust Management frames. ~~The~~ A STA might be sent a protected group addressed robust Management frame by a peer STA that has negotiated management frame protection for links with other STA”

P2878, L49,

“NOTE 6— ~~The~~ A STA ~~will not be~~ is not sent any protected individually addressed robust Management frames before ~~the~~ a PTKSA has been established.”

P2948, L24,

“After exchanging Authentication frames, the STA and AP derive a shared and secret key ~~that will be~~ used to derive a set of secret keys”

P3084, L44,

“~~there will not be~~ a loop is not formed”

P3097, L60,

“the mesh STA shall adjust its TSF timer so that the next TBTT ~~will be~~ is delayed for the duration of the”

P3097, L61,

“Otherwise, it shall adjust its TSF timer so that the next TBTT ~~will be~~ is delayed for the duration of”

P3217, L1,

“—A Class 2 ERP STA ~~will not be~~ is not able to operate in a BSS”

P3231, L29,

“—A Class 2 HT STA ~~will not be~~ is not able to operate in a BSS whose AP includes in the basic rate/HT-MCS set”

P3449, L7,

“The number of pad bits added ~~will always be~~ is 0 to 7 per user”

P3451, L50,

“In the case that rate 5/6 coding is selected, the puncturing scheme ~~will be~~ is the same as described in”

P3463, L12,

“~~will be~~ are transmitted on two data tones that are separated by”

P3500, L57, “the maximum A-MPDU length will be limited by the Maximum A-MPDU Length Exponent”

Should be “the maximum A-MPDU length ~~will be~~ is limited by the Maximum A-MPDU Length Exponent”

P3633, L63,

“the bits ~~will be~~ are input serially”

P3654, L44,

“which ~~will~~ corresponds to a single column V matrix having elements with equal magnitude”

P3682, L17,

” CCA levels ~~will~~ impact system behavior and performance increasingly with loading,”

P3832, L18,

“the STA ~~will~~ does not respond”

P3908, L53

“The responding STA ~~will~~ does not create any new individual TWT agreement with the requester at this time.”

P3909, l60,

“The unsolicited TWT response with TWT Setup Command field of Accept TWT ~~will~~ may indicate new TWT parameters that are different from the previously negotiated TWT parameters for that TWT agreement.”\*\*should this be ‘may’ or ‘does’?

P3948, L38,

“then multiple STAs identified by STA-IDs in the parameter STA\_ID ~~will~~ use the same resource unit”

P3957, L45,

“: the responder ~~will~~ does not provide feedback for the request that had the MSI value”

P3980, L15,

“if it does not expect additional (not yet associated) STAs ~~will~~ need to discover the BSS.”

P4128, L18,

“The number of pre-FEC pad bits added by the MAC ~~will always be~~ is a multiple of 8.”

P4128, L20,

“The number of pre-FEC pad bits added by the PHY ~~will always be~~ is 0 to 7.”

P4129, L28,

“When rate 5/6 coding is selected, the puncturing scheme ~~will be~~ is the same as described”

P4132, L25,

” The number of pre-FEC pad bits added by PHY ~~will always be~~ is 0 to 7.”

P4938, L52,

“When true, this attribute indicates a STA that ~~will~~ does not accept associations from or peer with a non-GLK capable STA. When false, it indicates a STA that ~~will~~ does peer with or accept associations from a non-GLK capable STA.”

P4939, L12, “"When true, this attribute indicates a STA that ~~will~~ only associates, direct links, or peers with a STA supporting EPD. When false, it indicates a STA that ~~will~~ associates, direct links, or peers with a STA that does not support EPD.”

P5000, L52,

“The Burst Interframe(#1460) interval value is set to 0 to indicate that frames ~~will be~~ are transmitted with no target interframe(#1460) delay.”

P5001, L1,

“If the Tracking Duration value is a nonzero value the STA ~~will~~ sends Location Track Notification frames, based on the Normal and In-Motion Report Interval field values, until the duration ends. If the Tracking Duration is 0 the STA ~~will~~ continuously sends Location Track Notification frames”

P5125, L16 missing word “B4 indicates that the STA will be disassociated from the ESS.”

P5185, L26,

“"When SAE authentication is the selected AKM suite, this table is used to locate the binary representation of a shared, secret, and potentially low-entropy word, phrase, code, or key ~~that will~~ to be used as the authentication credential between a TA/RA pair”

P5187, L22,

“More preferred Group Identifiers ~~will~~ have a lower index in the Group Entry.”

P5402, L14,

“A6 was previously used for street names in IETF RFC 5139 [B46], it ~~will not be~~ is no longer used, the RD element ~~will be~~ is used for thoroughfare data. However, without additional information these fields ~~will not be~~ are not interchang~~ed~~able when converting between different civic formats. Where Civic address information is obtained from another format, such as the DHCP form IETF RFC 4776 [B44], the A6 element ~~will be~~ is copied directly from the source format.”

P5692, L60,

“The value used in an HCCA TSPEC might be different~~, as will now be explained~~.”

P5707, L9,

“A NULL virtualBitMap ~~will~~ still adds a single octet of 0”

P5712, L37,

“unless the GLK STA ~~will~~ joins only BSSs limited to EPD STAs.”

P5712, L59,

“there ~~will be~~ are two sequential length fields or,”

P5741, L63,

“The use of DSCP Exception fields ~~will~~ maps a DSCP to a UP.”

P5741, L64,

“Mapping by range ~~will~~ requires the setting of DSCP ranges”

P5746, L60,

“The AP ~~will~~ uses this information for authorization requests from the STA”

P5750, L45,

“Using this type of association means the AP and non-AP STA ~~will~~

exchange unprotected frames”

P5799, L1,

“This ~~will~~ ensures that STAs associated with that profile are able to receive the update.”

**“Must”**

P1260, L16,

“The assignment of the cache identifier is outside the scope of the standard but its value ~~must be~~ is unique per Authenticator”

P1325, L44,

“The requested vendor specific information sequence ~~must~~ starts with an Organization Identifier field”

P1512, L23,

“The Validation subfield indicates the minimum type of credential validation ~~that must occur~~ for the credentials to be deemed valid.”

P1866, L52,

“The MSDU in the MA-UNITDATA.request.primitive ~~must~~ shall start with the octets specified in the LLC Header Copy field.”

P2351, L13,

“including Vendor Specific element carrying “Content (1)” which ~~must~~ shall be replicated in order to still apply to BSSID N”

P2510, L40,

“The STA requesting a Beacon report ~~must~~ supports Reported Frame Body subelement (de)fragmentation”

**Or** this text must be changed from a NOTE to normative text: “The STA requesting a Beacon report ~~must~~ shall support Reported Frame Body subelement (de)fragmentation”

P4980, L6,

” dot11DSEEnablementFailHoldTime indicates the number of seconds that a dependent STA ~~must~~ shall not transmit in a DSE frequency band”

P5293, L1,

“during which the STA ~~must~~ shall transmit at least one DMG STA Directional Transmit Activity Report frame”

**“May not” should not be used.**

P382, L40,

“when the primitives may ~~not~~ be unclear from the descriptions in those clauses.”

P2361, L16,

“STA A may ~~or may not~~ be a member of a PBSS.”

P2625, L17,

” The receiving STA may ~~or may not~~ respond to the GAS Query Request.”

P4570, L57,

“The WUR non-AP STA may ~~or may not~~ wake up to receive Beacon frame if the WUR non-AP STA is in PS mode”

**“Only”** used as a constraint

Misc. NOTE related:

P580, L40 – NOTE has wrong font size.

P629 – NOTEs are not sequentially numbered

P687 – NOTE 2 should be NOTE.

P746 – “NOTE 2—Values for the Address Extension Mode subfield are defined in see Table 9-35”

Should be “NOTE 2—Values for the Address Extension Mode subfield are defined in ~~see~~ Table 9-35”

P1373, L19 – the note says “It is mandatory for …” – does that mean the text should not be a note?

#### Style Guide 2.8.1 – which/that

Joseph

Carol

(decide between yourself who does which section)

#### Style Guide 2.8.2 – articles

Check with Mark Rison

#### Style Guide 2.8.3 – missing nouns

Check with Mark Rison

#### Style Guide 2.8.4 – unnecessary nouns

Check with Mark Rison

#### Style Guide 2.8.5 – unicast and multicast

#### Roy Want

Unicast (11 occurrences: 7 changes proposed, 4 ok)

#1 P208 L15: If the target matches the address of an associated non-AP STAs, the Proxy ARP service can either respond on behalf of the non-AP STA, or preferably send the frames as unicast transmissions to the target STA(s) only. -> If the target matches the address of an associated non-AP STAs, the Proxy ARP service can either respond on behalf of the non-AP STA, or preferably send the frames as unicast individually addressed transmissions to the target STA(s) only.

#2 P2602 L13: If the target address is known, the Proxy ARP service can either respond directly on behalf of a STA or forward the request as a unicast frame to the intended STA. -> If the target address is known, the Proxy ARP service can either respond directly on behalf of a STA or forward the request as a unicast an individually addressed frame to the intended STA.

#3 P2602 L17: Otherwise, forwarding as unicast is recommended, to avoid responding with misleading information. -> Otherwise, forwarding as unicast an individually addressed frame is recommended, to avoid responding with misleading information.

#4 P2602 L20:

(#1208) For IPv4, when the address being resolved in the ARP request (IETF RFC 826) is used by a non-AP STA currently associated to the BSS, the proxy ARP service shall either respond on behalf of the STA to an ARP request or an ARP probe (IETF RFC 5227) or preferably turn the ARP request into a unicast frame sent to that STA. ->

(#1208) For IPv4, when the address being resolved in the ARP request (IETF RFC 826) is used by a non-AP STA currently associated to the BSS, the proxy ARP service shall either respond on behalf of the STA to an ARP request or an ARP probe (IETF RFC 5227) or preferably turn the ARP request into a unicast an individually addressed frame sent to that STA.

#5 P2604 L2:

NS messages are sent as IP layer unicast for neighbor unreachability detection (NUD) (section 7 of IETF RFC 4861). ->

NS messages are sent as IP layer unicast individually addressed frames for neighbor unreachability detection (NUD) (section 7 of IETF RFC 4861).

#6 P2604 L3:

The proxy ARP function shall not operate on IP layer unicast NS messages.->

The proxy ARP function shall not operate on IP layer unicast individually addressed NS messages.

#7 P2604 L20:

Preferably, though, the Proxy ARP service should transmit the IP layer multicast NS message as a unicast frame to the STA and let the STA respond, as recommended in IETF RFC 8929.->

Preferably, though, the Proxy ARP service should transmit the IP layer multicast group addressed NS message as a unicast an individually addressed frame to the STA and let the STA respond, as recommended in IETF RFC 8929.

#8 & #9 P5381 L23: (MIB Detail: OK – but duplicated?)

Dot11InterworkingEntry ::= SEQUENCE { dot11NonAPStationMacAddress MacAddress, dot11NonAPStationUserIdentity DisplayString, dot11NonAPStationInterworkingCapability BITS, dot11NonAPStationAssociatedSSID OCTET STRING, dot11NonAPStationUnicastCipherSuite OCTET STRING, dot11NonAPStationUnicastCipherSuite OCTET STRING,

#10 P5383 L14: (Appendix C: MIB Detail: OK)

dot11NonAPStationUnicastCipherSuite OBJECT-TYPE

#11 P5746 L13: (Appendix R: Interworking with external networks: OK)

The following is used: — dot11NonAPStationUnicastCipherSuite

Multicast (383 occurrences: 3 changes proposed, 380 OK)

#1 P280 L14:

(#1208) The Proxy ARP service enables an AP to avoid forwarding to the BSS broadcast ARP frames for IPv4 (IETF RFC 826) and IP layer multicast packets IPv6 ND messages for IPv6 (IETF RFC 4861 and IETF RFC 4862) which target not match the address of an associated STA. ->

(#1208) The Proxy ARP service enables an AP to avoid forwarding to the BSS broadcast ARP frames for IPv4 (IETF RFC 826) and IP layer multicast group addressed packets IPv6 ND messages for IPv6 (IETF RFC 4861 and IETF RFC 4862) which target not match the address of an associated STA.

#2 P602 L63: (?)

(#1208) IPv6 ND uses IP layer multicast Internet Control Message Protocol version 6 (ICMPv6) Neighbor Solicitation (NS) messages (section 4.3 of IETF RFC 4861) for address resolution (section 7.2 of IETF RFC 4861), which is the equivalent of ARP request, and for duplicate address detection (DAD). ->

(#1208) IPv6 ND uses IP layer multicast group addressed Internet Control Message Protocol version 6 (ICMPv6) Neighbor Solicitation (NS) messages (section 4.3 of IETF RFC 4861) for address resolution (section 7.2 of IETF RFC 4861), which is the equivalent of ARP request, and for duplicate address detection (DAD).

#3 P2604 L17:

(#1208)When the target IPv6 address of a IP layer multicast NS message corresponds to an associated STA, the Proxy ARP service may respond on behalf of an associated low-power STA with a neighbor advertisement (NA) message (section 4.4 of IETF RFC 4861) with the override flag set to zero, to conserve energy. ->

(#1208)When the target IPv6 address of a IP layer multicast group addressed NS message corresponds to an associated STA, the Proxy ARP service may respond on behalf of an associated low-power STA with a neighbor advertisement (NA) message (section 4.4 of IETF RFC 4861) with the override flag set to zero, to conserve energy.

### Style Guide 2.9 – Numbers

Brian Hart (will review what he can) – focus on LSB/MSB

Edward will do the rest

### Style Guide 2.10 – Maths operators and relations

Edward

[01] As per Section 2.10 of the IEEE 802.11 editorial guideline, “Any use of “up to and including” should be avoided”. How about “up to and excluding” in 225.11?

[02] 967.34: Please replace “up to and including” with an appropriate phrase.

### Style Guide 2.11 – Hyphenation

Edward

[01] 1910.9: Replace “non-dynamic” with “nondynamic”.

[02] 1910.13: Replace “non-dynamic” with “nondynamic”.

[03] 1910.51: Replace “non-dynamic” with “nondynamic”.

[04] 1996.28: Replace “non-fragmentable” with “nonfragmentable”.

[05] 1997.47: Replace “non-fragmentable” with “nonfragmentable”.

[06] 1997.51: Replace “non-fragmentable” with “nonfragmentable”.

[07] 1997.53: Replace “non-fragmentable” with “nonfragmentable”.

[08] 1997.60: Replace “non-fragmentable” with “nonfragmentable”.

[09] 1997.62: Replace “non-fragmentable” with “nonfragmentable”.

[10] 1997.64: Replace “non-fragmentable” with “nonfragmentable”.

[11] 1998.30: Replace “non-fragmentable” with “nonfragmentable”.

[12] 1998.38: Replace “non-fragmentable” with “nonfragmentable”.

[13] 2241.62: Replace “non-beamforming” with “nonbeamforming”.

[14] 618.22: Replace “pre-correction” with “precorrection”.

[15] 3836.64: Replace “pre-correction” with “precorrection”.

[16] 3848.26: Replace “pre-association” with “preassociation”.

[17] 3849.25: Replace “Pre-association” with “Preassociation”.

[18] 4011.12: Replace “pre-correction” with “precorrection”.

[19] 4011.15: Replace “pre-correction” with “precorrection”.

[20] 4155.60: Replace “pre-correction” with “precorrection”.

[21] 4155.63: Replace “pre-corrections” with “precorrections”.

[22] 4155.64: Replace “pre-correction” with “precorrection”.

[23] 4156.2: Replace “pre-correction” with “precorrection”.

[24] 4156.4: Replace “pre-correction” with “precorrection”.

[25] 4156.7: Replace “pre-correction” with “precorrection”.

[26] 4157.5: Replace “pre-correction” with “precorrection”.

[27] 5554.12: Replace “re-unites” with “reunites”.

[28] 5583.35: Replace “re-unites” with “reunites”.

[29] 5595.18: Replace “re-unites” with “reunites”.

[30] 3929.63: Replace “(Re-)Association Request” with “(Re)Association Request”.

[31] 1487.1: Replace “Access network query protocol (ANQP) elements” with “Access network query protocol (ANQP)-elements”.

[32] 2914.48: Replace “implementation-specific” with “implementation specific”.

[33] 2952.54: Replace “implementation-specific” with “implementation specific”.

[34] 3862.44: Replace “implementation-specific” with “implementation specific”.

[35] 306.47: Replace “implementation-specific” with “implementation specific”.

[36] 998.63: Replace “implementation-specific” with “implementation specific”.

[37] 1230.37: Replace “implementation-specific” with “implementation specific”.

[38] 1396.28: Replace “implementation-specific” with “implementation specific”.

[39] 1991.4: Replace “implementation-specific” with “implementation specific”.

[40] Consider adding “timing-related” to the grandfather list.

[41] 3750.31: Replace “Time-related” with “Timing-related”.

[42] 3750.37: Replace “Time-related” with “Timing-related”.

[43] 360.5: Replace “MIB-related” with “MIB related”.

### Style Guide 2.12 – References to SAP primitives

No volunteer

### Style Guide 2.13 – References to the contents of a field/subfield

Discuss with Emily and see what to do about this.

### Style Guide 2.14 –MIB attributes

Mark Hamilton

### Style Guide 2.15 – Hanging Paragraphs

No volunteer

### Style Guide 2.16 – Abbreviations

Emily (Edward’s suggestion)

### Style Guide 2.17 – Format for code/pseudocode

No volunteer

### Style guide 3 – Style applicable to specific Clauses

#### Definitions (Clause 3)

Carol

P182, L19, beamforming has a defined acronym [BF]

P186, L14, delete (IBSS), not needed immediately before [IBSS]

P188, L50, missing ] after acronym

P189, L25, needs [noninfrastructure BSS] after :

P189, L44, should be “transmit beacons.”

P190, L26, should be “peer-to-peer (PTP) link: [PTP link] …”

P190, L31, should be “peer-to-peer (PTP) traffic specification (TSPEC):”

P192, L5, should be “receive (RX) chain: [RX chain]”

P192, L10, should be receive (RX) power: [RX power]”

P194, L49, should be “transmit (TX) chain: [TX chain]”

P213, L1, should be “group addressed quality-of-service (QOS) management frame: [GQMF}”

P220, L17, should be “nonextended rate physical layer (PHY): [non-ERP]”

P220, L 28, should be “non groupcast with retries service period (SP): [non-GCR-SP]”

P220, L40, should be “non-high-throughput: [non-HT]”

P222, L22, should be “non-spatial reuse group: [non-SRG]”

P226, L15, L18, L22, L27, L32, all need “(QOS)” added to the term being defined

P226, L60, should be “receive (RX) sector sweep: [RXSS]”

P234, L1, L5, L10 should be “transmit (TX)”

P237, L40, should be “uplink: [UL]”

P239, L1, should be “wake-up radio (WUR) duty cycle service period (SP):”

P192, L40, reassembly is out of order

P201, L52, L58, P202, 10, L15, the 2.16 entries are out of order, they belong after the 2MHz entries

P202, L26, L31, 42, L48, the 4.32 entries are out of order, they belong after the 4-way handshake entry

P202, L60, P203, L1, the 6.48 entries are out of order, they belong after the 6 GHz band entry

P203, L13, L17, the 8.64 entries are out of order, they belong after the 8 MHz entries

P207, L51, delivery-enabled access category is out of order, should be before delivery traffic indication map entries

P208, L1, direct sequence spread spectrum (DSSS) physical layer (PHY) protocol data unit is out of order should be after direct sequence spread spectrum (DSSS) complementary code keying entries

P224, L54, peer trigger frame is out of order, should be after peer-specific mesh power management mode

P226, L1, physical layer (PHY) protocol data unit (PPDU)[+SigExt] is out of order

P228, L10, sub 1 GHz (S1G) band is out of order

P228, L17, L22, secondary1 channel and secondary2 channel are out of order

P234, L37, trigger-enabled access category (AC) is out of order

P238, L31, very high throughput (VHT) single-user (SU) physical layer (PHY) protocol data unit (PPDU) should come after very high throughput (VHT) single-user-only entries

3.4

P240, L 32, A-PPDU is out of order

P241, L39, BIP is out of order

#### General Description (Clause 4)

No volunteer

#### Frame formats (Clause 9) – shall or may?

Emily

#### SAP interfaces (Clause 6)

No volunteer

#### New top level clauses

No volunteer

#### Annex A – Bibliography

No volunteer

#### Annex B – PICS

Edward

#### Annex G – Frame exchange sequences

No volunteer – Robert to fix style guide

## ANA

Check for correct use of numbers against database.

Check names against database (update database if names have changed).

Robert Stacey

|  |  |  |
| --- | --- | --- |
| **Resource** | **Reference** | **Notes** |
| AKM suite selectors | 9.4.2.23.3 | OK |
| Authentication algorithm numbers | 9.4.1.1 | Value 1 should be released. Draft is OK. |
| Behavior limits | E.1 | No longer applicable. |
| Capabilities | 9.4.1.4 | Values 2, 3, 4, 6, 14, 15 should be released. Draft is OK. |
| Categories | 9.4.1.11 | Value 33 allocated but not used in draft. Was a TGay allocation. |
| Cypher suites | 9.4.2.23.2 | OK |
| Protocol Version | 9.2.4.1.2 | OK |
| Frame types | 9.2.4.1.3 | OK |
| Control subtypes | 9.2.4.1.3 | Value 15 should be released. Draft is OK. |
| Data subtypes | 9.2.4.1.3 | Values 14 and 15 should be released. Draft is OK. |
| Management subtypes | 9.2.4.1.3 | OK |
| Extended subtypes | 9.2.4.1.3 | OK |
| Extended Control values | 9.2.4.1.3 | Rename value 7 to “Grant Ack”. Rename value 0 to “Sector Ack”. Rename value 1 to “Block Ack Schdule”. Allocate value 11 as “TDD Beamforming”. |
| Element IDs | 9.4.2.1 | Values 17-31 should be released. Value 77 should be released. Draft OK. |
| Element ID Extension 1 | 9.4.2.1 | Value 0 should be released. Draft OK. |
| RSNXE | 9.4.2.240 | OK |
| RSNE | 9.4.2.23.4 | OK |
| Extended Capabilities | 9.4.2.25 | Value 76 is reserved in draft but allocated (TGaq) in database. Otherwise OK. |
| FT sublement IDs | Table 9-219 | Rename value 1 to “PMK-R1”. Remame value 3 to “PMK-R0”. Allocate: 5 = OCI, 6 = BIGTK, 7 = WIGTK. |
| FILS Discovery Frame Control subfield | Figure 9-1127 | OK |
| ANQP Info ID | Table 9-412 | 280 was released but shown in draft as Network Authentication Type with Timestamp. 283, 284, 285 conflict with TGbc. 286 without allocation. |
| Public Action frames | 9.6.7.1 | Values 35-38 rename: DCT -> DCS. Otherwise OK. |
| Reason codes | 9.4.1.7 | Value 69 is TIME\_SYNC\_LOST in draft, but reserved in database (previous TGak allocation). Value 70 in database is TIME\_SYNC\_LOST. Otherwise OK. |
| Status codes | 9.4.1.9 | Value 48 should be released. Some names missing in database. Otherwise OK. |
| PV1 frame types | 9.8.3.1 | OK |
| PV1 Control frame subtypes | 9.8.4.1 | OK |
| PV1 Management frame subtypes | 9.8.5.1 | OK |
| Subelement neighbor report | 9.4.2.35 | OK |
| Spectrum management action frames | 9.6.2.1 | OK. Should be released from ANA control. |
| TLV encodings |  | Release 4, 5, and 6. (no reference in draft) |
| WNM notification type | 9.6.13.29 | OK |
| USA operating classes | Table E-1 | OK |
| Europe operating classes | Table E-2 | OK |
| Japan operating classes | Table E-3 | Release 2-7, 9-10, 12-16, 18-19, 21-24, 27-28, 35, 38, 40, 43, 45, 47-50, 52-55. Draft OK. |
| Global operating classes | Table E-4 | Release 61-63. Allocate 77. Release 112-114. |
| Dot11smt | C | OK |
| Dot11phy | C | OK |
| Dot11StationConfig | C | 189 dot11UnsolicitedBAActivated used without allocation. |
|  |  |  |

Additional Actions:

## MIB

Yongho Soek

The compiled MIB is embedded as the following.

[Embed MIB after compilation]

### Detailed proposed changes

* MIB Detail

# Collateral findings

# IEEE-SA MEC

|  |
| --- |
|  |