IEEE P802.11
Wireless LANs

802.11REV-ma ballot report for conditional approval

Date: 2005-09-20

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Abstract

This is the report to be submitted to the 802 Executive Committee, documenting that the recirculation ballot on 802.11REV-ma draft 4.0 meets all the requirements of conditional approval to forward to sponsor ballot.

This report to the 802 Executive Committee documents the conditions in Clause 21, as they apply to the final working group recirculation ballot on draft 4.0 of 802.11REV-ma.

The ballot closed at 11:59 pm EDT, on 20 September 2005. The final vote tally is:

411	Approve
14	Disapprove
19	Abstain
444	Total

The approval rate is 96%.
The return rate is 82% of 542 voting members.
The abstention rate is 4%.

There are no new disapproving voters or new technical comments. The two technical comments received from a negative voter are resubmittals of comments resolved in prior recirculation ballots. No additional voters have supported these comments in any of the three recirculation ballots. No changes to the draft were made as a result of processing the comments received.

The balloting history of 802.11REV-ma is show in the following table.

	LB 74	**LB 75**	**LB 76**	**LB 77**
Approve	348	387	397	411
Disapprove	36	26	20	14
Abstain	23	19	21	19
Approval ratio	91%	94%	95%	96%
Abstain ratio	7%	5%	5%	4%
Return rate	75%	80%	81%	82%

No votes have been ruled invalid. The 14 remaining disapprove voters have 109 unsatisfied comments between them. The distribution of unsatisfied comments among the disapprove balloters is shown in the following table.

Name	LB 74	LB 75	LB 76	LB 77	Total
Bernard Aboba	2	--	--	--	2
Merwyn Andrade	--	13	--	--	13
David Bagby	1	--	--	--	1
Don Berry	--	1	--	--	1
Wotaru Gohda	9	--	--	--	9
Thomas Kuehnel	8	--	--	--	8
Uriel Lemberger	1	1	--	--	2
Mike Moreton	19	8	3	--	30
Andrew Myles	3	--	--	--	3
Partha Narasimhan	--	13	--	--	13
Stephen Palm	2	2	2	2	8
Henry Ptasinski	--	--	1	--	1
Anil Sanwalka	3	--	4	--	7
Adrian Stephens	6	5	--	--	11
Total					109

Of the 109 unsatisfied comments, 36 are on a single topic, the addition of a standard format and identifier for a vendor-specific information element. These 36 comments are from 6 voters. The remaining comments are on various topics with little correlation. The working group responses to all of these unsatisfied comments are on the following pages

Commenter: Aboba, Bernard

ID	Clause	Subclause	Type	Status	ResponseStatus
16	07	7.2.3.10, pp.	TR	D	U

Comment

IEEE 802.11i already added authentication extensibility; therefore vendor-specific authentication mechanisms are not needed.

SuggestedRemedy

Delete Vendor-specific IE type 5 within Table 13.

Response

PROPOSED REJECT. 802.11i added extensibility in a specific direction. This did not limit the use of the Authentication frame.

Commenter: Aboba, Bernard

ID	Clause	Subclause	Type	Status	ResponseStatus
20	O	O.	TR	D	U

Comment

Add Appendix O on "EAP Method Requirements for WLAN".

SuggestedRemedy

Add Appendix O containing material from RFC 4017.

Response

PROPOSED REJECT. We have accepted your proposal on RFC 4017 in comment #6. See comment #6 for editorial resolution.

Commenter: Bagby, David

ID	Clause	Subclause	Type	Status	ResponseStatus
109	07	7.2.3.* & 7.3	TR	D	U

Comment

I oppose the introduction of vender specific elements. If a specific function is sufficiently useful to the industry as to be needed, it should be standardized and included. This is an attempt to have a standard encourage non-standard operation û a very bad idea in the opinion of this reviewer. This reviewer will not vote to approve the draft until all the added vendor specific related changes are removed.

SuggestedRemedy

Remove all vendor specific element additions

Response

PROPOSED REJECT. The definition of a standard vendor-specific information element is preferable to vendors independently choosing random values to carry their proprietary information. This, at least, allows standard implementations to operate correctly along side of implementations with vendor-specific extensions.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
21	09	9.2.5.4	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from the paragraph

Response

PROPOSED REJECT. The equation is correct. The actual values for this parameter in some of the PHYs are not be correct. This parameter accounts for the length of the preamble and PLCP header.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
22	09	9.2.5.7	TR	D	U

Comment

The paragraph starting with "After transmitting an RTS frame," is very problematic.

For example, in case of successful sequence of 11b, PHY-RXSTART.indication will occur after 202us (=10us:aSIFSTime + 144us:preamble + 48us:PLCPHeader) after PHY-TXEND.confirm while CTSTimeout = 30us. This means that CTSTimeout will be expired even for successful case and it makes no sense.

For OFDM PHYs, I don't understand where 24us comes from for aPHY-RX-START-Delay. It looks like CTSTimeout is too long (almost CTS frame length) and there could be the case that another STA rather than sending/receiving STA might interrupt this sequence.

After careful consideration based on above observation, the point of my suggestions are follows.
- CTSTimeout will be expired if a PHY-CCA.indication(busy) does not occuer.
- No reason to keep aPHY-RX-START-Delay.
- aRXTXTurnaroundTime/aMACProccessingDelay should be taken into account for precise calculation.

SuggestedRemedy

Replace "a value of aSIFSTime + aSlotTime + aPHY-RX-START-Delay" with "a value of aSIFSTime + aSlotTime - aRXTXTurnaroundTime - aMACProccessingDelay"

Replace "If a PHY-RXSTART.indication does not occur" with "If a PHY-CCA.indication(busy) does not occur".

Replace "If a PHY-RXSTART.indication does occur" with "If a PHY-CCA.indication(busy) does occur"

Replace "the STA shall wait for the corresponding PHY-RXEND.indication to determine whether the RTS transmission was successful." with "the STA shall wait for the corresponding PHY-RXSTART.indication and PHY-RXEND.indication to determine whether the RTS transmission was successful."

Response

PROPOSED REJECT. The value for the PHY-RXSTART-Delay is not correct for the 11b PHY. It will be corrected.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
23	09	9.2.8	TR	D	U

Comment

The paragraph starting with "After transmitting an MPDU that requires an ACK frame as a response" is very problematic.

For example, in case of successful sequence of 11b, PHY-RXSTART.indication will occur after 202us (=10us:aSIFSTime + 144us:preamble + 48us:PLCPHeader) after PHY-TXEND.confirm while ACKTimeout = 30us. This means that ACKTimeout will be expired even for successful case and it makes no sense.

For OFDM PHYs, I don't understand where 24us comes from for aPHY-RX-START-Delay. It looks like ACKTimeout is too long (almost ACK frame length) and there could be the case that another STA rather than sending/receiving STA might interrupt this sequence.

After careful consideration based on above observation, the point of my suggestions are follows.
- ACKTimeout will be expired if a PHY-CCA.indication(busy) does not occuer.
- No reason to keep aPHY-RX-START-Delay.
- aRXTXTurnaroundTime/aMACProccessingDelay should be taken into account for precise calculation.

SuggestedRemedy

Replace "a value of aSIFSTime + aSlotTime + aPHY-RX-START-Delay" with "a value of aSIFSTime + aSlotTime - aRXTXTurnaroundTime - aMACProccessingDelay"

Replace "If a PHY-RXSTART.indication does not occur" with "If a PHY-CCA.indication(busy) does not occur".

Replace "If a PHY-RXSTART.indication does occur" with "If a PHY-CCA.indication(busy) does occur"

Replace "the STA shall wait for the corresponding PHY-RXEND.indication to determine whether the MPDU transmission was successful." with "the STA shall wait for the corresponding PHY-RXSTART.indication and PHY-RXEND.indication to determine whether the MPDU transmission was successful."

Response

PROPOSED REJECT. See resolution to comment 22.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
24	14	14.9	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from table 79.

Response

PROPOSED REJECT. Change the "0us" to "128us" for the value of aPHY-RX-START-Delay in Table 79. Also add the description to the same row: "The delay from the start of the preamble to the issuance of the RX-START.indicate by the PHY." This value is required for certain MAC timeouts. Editor included in draft 1.1 in 14.9.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
25	15	15.3.3	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from table 81.

Response

PROPOSED REJECT. Duplicate with #256. See comment #256 for editorial resolution.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
26	16	16.4	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from table 98.

Response

PROPOSED REJECT. Change the "0us" to "57us" for the value of aPHY-RX-START-Delay in Table 98." See #530 for editorial resolution.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
27	17	17.4.4	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from table 113.

Response

PROPOSED REJECT. This value is required for correct operation of certain MAC timeouts.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
28	18	18.3.3	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from table 121.

Response

PROPOSED REJECT. This value is required for correct operation of certain MAC timeouts.

Commenter: Gohda, Wataru

ID	Clause	Subclause	Type	Status	ResponseStatus
29	19	19.8.4	TR	D	U

Comment

No reason to keep aPHY-RX-STARTDelay. See my comments on section 9.2.5.7 and 9.2.8.

SuggestedRemedy

Remove aPHY-RX-START-Delay from table 144.

Response

PROPOSED REJECT. This value is required for correct operation of certain MAC timeouts.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
175	07	7.3.1.9, pp. 8	TR	D	U

Comment

No text specifying when a vendor-specific Status code can be sent, or how it is interpretted.

SuggestedRemedy

Add sentence to 7.3.1.9: "A vendor-specific status code shall only be sent if a corresponding vendor-specific IE was included in the requested operation. A STA receiving a vendor-specfiic IE it does not understand shall interpret it as though it had received a Status Code of 1 (Unspecified failure)."

Response

PROPOSED ACCEPT IN PRINCIPLE. This status code has been deleted as a result of resolving other comments. Duplicate of comment id #19. See #86 for editorial resolution.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
176	07	7.2.3.12, pp.	TR	D	U

Comment

No text specifying the behavior of a STA or AP receiving a vendor-specific IE it does not understand.

SuggestedRemedy

Add sentence to 7.2.3.12: "A STA receiving an Action frame containing a vendor-specific IE it does not understand shall ignore the vendor-specific IE."

Response

PROPOSED ACCEPT IN PRINCIPLE. See the resolution to comment 178. See comment #178 for editorial resolution.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
177	07	7.2.3.11, pp.	TR	D	U

Comment

No text specifying the behavior of a STA or AP receiving a vendor-specific IE it does not understand.

SuggestedRemedy

Add sentence to 7.2.3.11: "A STA receiving a Deauthentication frame containing a vendor-specific IE it does not understand shall ignore the vendor-specific IE."

Response

PROPOSED ACCEPT IN PRINCIPLE. See the resolution to comment 178. See comment #178 for editorial resolution.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
178	07	7.2.3.3, pp. 7	TR	D	U

Comment

No text specifying what a STA should do if it encounters a Dissassociation frame including a vendor-specific IE it does not understand.

SuggestedRemedy

Add sentence to 7.2.3.3: "A STA receiving a vendor-specific IE that it does not support shall ignore the vendor-specific IE."

Response

PROPOSED ACCEPT IN PRINCIPLE. Add the proposed sentence to the penultimate paragraph of 7.2.3. This makes the statement applicable to all management frames, not just the disassociation frame. Editor included in draft 1.1 in 7.2.3.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
179	07	7.2.3.4, pp.7	TR	D	U

Comment

No text specifying how an AP should behave if it encounters an Association-Request frame including a vendor-specific IE it does not understand, or that does not include a vendor specific IE.

SuggestedRemedy

Add sentence to 7.2.3.4: "An AP receiving an Association Request frame including a vendor-specific IE it does not understand shall ignore the vendor-specific IE. An AP shall not fail to process an Association Request frame due to lack of a vendor-specific IE."

Response

PROPOSED ACCEPT IN PRINCIPLE. See the resolution to comment 178. See comment #178 for editorial resolution.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
180	07	7.2.3.5, pp. 7	TR	D	U

Comment

No text specifying when a vendor-specific IE can be sent within an Association Response.

SuggestedRemedy

Add sentence to 7.2.3.5: "A STA receiving an Association Response frame including a vendor-specific IE it does not understand shall ignore the vendor-specific IE. An AP shall not send a vendor-specific IE within an Association Response unless a corresponding vendor-specific IE is included within the Association Request."

Response

PROPOSED ACCEPT IN PRINCIPLE. See the resolution to comment 178. See comment #178 for editorial resolution.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
181	07	7.2.3.9, pp. 7	TR	D	U

Comment

No text specifying when a vendor-specific IE can be sent within a Probe Response or how it is interpretted by the STA.

SuggestedRemedy

Add sentence to 7.2.3.9: "A STA receiving a Probe Response frame including a vendor-specific IE it does not understand shall ignore the vendor-specific IE."

Response

PROPOSED ACCEPT IN PRINCIPLE. See the resolution to comment 178. See comment #178 for editorial resolution.

Commenter: Kuehnel, Thomas

ID	Clause	Subclause	Type	Status	ResponseStatus
182	07	7.2.3.8, pp. 7	TR	D	U

Comment

No text specifying the behavior of an AP receiving a vendor-specific IE it does not understand.

SuggestedRemedy

Add sentence to 7.2.3.8: "An AP receiving a Probe Request frame including a vendor-specific IE it does not understand shall ignore the vendor-specific IE."

Response

PROPOSED ACCEPT IN PRINCIPLE. See the resolution to comment 178. See comment #178 for editorial resolution.

Commenter: LEMBERGER, URIEL

ID	Clause	Subclause	Type	Status	ResponseStatus
398	18	18.4.6.2	TR	D	U

Comment

Table 126 is incorrect.

SuggestedRemedy

Correct the table content, for example , FCC allows Ch 12,13 with mask restrictions, France is part of ETSI.

Response

PROPOSED REJECT. This table does not show all the possible channels for each domain (as identified by the value at the head of each column), but only those specifically allowed by 802.11. Changing this table would result in making currently compliant implementations noncompliant.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
189	03	3.122	TR	D	U

Comment

"the AP's station (STA) and portal entities." is difficult to parse. Is it the AP's (STA and portal) or the (AP's STA) and portal?

SuggestedRemedy

replace with "portal entities and the AP's station(STA)

Response

PROPOSED REJECT. See comment #191 for alternate resolution.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
198	07	7.3.2.14	TR	D	U

Comment

Placing basic rates in the extended supported rates element is very dangerous because not all recipients will understand it, and may continually try to associate with APs that will continuously reject them. (I made this comment in 11g, but it was ignored *sigh*).

SuggestedRemedy

in this element only, the "basic rate bit" should be changed to be the "mandatory rate bit" and should be used to indicate rates that must be supported by STAs that support the PHY type in question. There is currently no way of signalling what these rates are, and they are required for correct operation of the 11g changes.

Response

PROPOSED REJECT. While it is possible to do what the commenter describes, there are methods fully compliant with the current standard to avoid this problem. It requires only that at least one rate not supported by PHYs requiring support of the Extended Supported Rates element be marked as a Basic Rate in the original Supported Rates element.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
203	09	9.2.4	TR	D	U

Comment

I seem to remember there was an interpretation that described the CW having a double peak with default values - maybe it would be a good idea for the diagram to show this?

SuggestedRemedy

See comment

Response

PROPOSED REJECT. It is not at all clear what the commenter is requesting. If there is an interpretation request or response on this issue, please cite it.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
208	09	9.2.5.7	TR	D	U

Comment

PHY-RX-START-Delay seems to increase the chance of mis-aligned slots for OFDM phys, and hence will increase the number of collisions.

SuggestedRemedy

Require PHY-RX-START-Delay to rounded up to a whole number of slot times. (maybe simplest would be to change the units from time to slots)

Response

PROPOSED REJECT. The values for the PHY-RXSTART-Delay are being corrected. Please renew this comment if you continue to believe this problem persists.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
209	09	9.2.8	TR	D	U

Comment

PHY-RX-START-Delay seems to increase the chance of mis-aligned slots for OFDM phys, and hence will increase the number of collisions.

SuggestedRemedy

Require PHY-RX-START-Delay to rounded up to a whole number of slot times. (maybe simplest would be to change the units from time to slots)

Response

PROPOSED REJECT. This is not likely to cause the problem described by the commenter. If the ACK is lost and there are no other STAs transmitting, synchronizing to slot boundaries is not required. If another STA does transmit while the STA that did not receive the expected ACK is in backoff, that other STA's transmission will provide slot resynchronization. If the problem did exist, rounding to slots would only make the collision probability greater, not lesser, than the specified behavior.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
211	09	9.4	TR	D	U

Comment

The whole MSDU/MPDU/MMPDU is a conceptual mess (a search for MMPDU will show that in a huge number of cases it's preceded by "MPDU or" which alone is evidence that something has gone wrong) - it's not clear whether MMPDU is more like an MSDU or an MPDU which makes the whole thing very confused.

SuggestedRemedy

Given it's unlikely anyone has the time to really sort this out, I actually prefer the original text about fragmentation in this section, so back out the changes.

Response

PROPOSED REJECT. The text is clear and accurate. The commenter is solicited to describe the ways in which the text is not correct.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
215	10	10.3.4.3	TR	D	U

Comment

Note that the changes make this section inconsistent with 11.3.2 (at least). Same problem with 10.3.4.3. While I don't mind either way about this change, I doubt it's worth anyone going to the effort of changing the other sections it impacts.

SuggestedRemedy

Remove changes to 10.3.4.3 and 10.3.4.4

Response

PROPOSED REJECT. The revised service primitives provide the indented and correct mechanism.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
220	10	10.3.6.4.2	TR	D	U

Comment

I don't think "REFUSED_BASIC_RATES_MISMATCH" should be a possible result code - the MAC should do this itself. Also 10.3.7.4.2

SuggestedRemedy

Remove "REFUSED_BASIC_RATES_MISMATCH" from 10.3.7.4.2 and 10.3.6.4.2

Response

PROPOSED REJECT. The SME will generate this result code when the appropriate condition applies. This is not generated in the MAC and no such specification exists in the standard.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
224	11	11.1.3.4	TR	D	U

Comment

The resulting clause is still a mess, and it would probably be better to leave it alone rather than just add to the confusion. For example, the service primitive implies you can use a probe request, but the description says you must wait for a beacon. How does data transfer apply to joined/not joined state? When does the state change to join during this process? Why are you no longer allowed to join based on parameters stored from the scan?

SuggestedRemedy

Either write a more complete, more structured definition, or leave it as it was.

Response

PROPOSED REJECT. The original description is inadequate. The new text provides clarification and is a result of processing interpretation requests.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
226	11	11.2.1.6	TR	D	U

Comment

bullet (a): Saying that something happens after a time corresponding to the end of an interval is different to saying that it happens after the interval - it's the difference between an inclusive and exclusive limit. I doubt this change was deliberate! Overall I think the new text is at best no better than what it's replacing.

SuggestedRemedy

Revert to the old bullet (a).

Response

PROPOSED REJECT. The text reflects the corresponding behavior of the AP discarding of frames due to being older than ListenInterval.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
228	11	11.2.2.1	ER	D	U

Comment

A preposition is a word you shouldn't end a sentence with.

SuggestedRemedy

Change "If a station changes to the PS mode, it shall assume that all other stations are in the PS mode also." to "If a station changes to the PS mode, it shall assume that all other stations are also in the PS mode."

Response

PROPOSED REJECT. Also functions as an adverb in the cited sentence.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
231	L	L.	TR	D	U

Comment

The title and introduction to this annex are incorrect. It does not describe the integration function or portal - it describes the 802.1H selective translation. While a portal may include an 802.1H translation function there is no need for it to do so, and 802.1H selective translations may also take place in STAs.

SuggestedRemedy

Replace all references to integration and portal in this annex with "IEEE Std. 802.1H-1997 (ISO/IECTR11802-5:1997) translation function"

Response

PROPOSED REJECT. The commenter is mistaken. The purpose of the annex is to recommend the behavior of a Portal. A STA need not translate MSDUs at all. It would be advisable to represent their format in the same way as a Portal would, but this is not a requirement. Moreover, this Recommended Practice does not simply recommend 802.1H, as most vendors use an 802.11-specific STT, rather than the one suggested in Annex A of 802.1H.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
232	L	L.2	TR	D	U

Comment

These changes are not specific to 802.11 - they are generally applicable to all 802.1H implementations. If the changes are left in this document readers will not know which document to select for details of 802.1H - 802.1H itself or (bizarrly) 802.11. These changes are an infringement of TGma's PAR.

SuggestedRemedy

Delete clause L.2 and forward it as a liaison to 802.1.

Response

PROPOSED REJECT. This recommended practice differs from 802.1H because it uses a different STT. This Annex recommends a widespread practice already implemented by many 802.11 implementations. The use of a different STT, together with the translation rules for using that table defined in 802.1H is completely unambiguous in the format presented here.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
233	L	L.3	TR	D	U

Comment

There is no 802.11 specific information in this clause - it is purely an example of how to implement 802.1H and so should be in that document.

SuggestedRemedy

Delete clause L.3 and forward it as a liaison to 802.1.

Response

PROPOSED REJECT. A Portal is not an 802.1D bridge, because (a) the DS is not itself an 802 LAN, (b) it is permissible for a conformant 802.11 ESS to be transparent to Bridge PDUs, and (c) the portal abstraction deliberately hides the details of reassociation from a bridge. Requiring a Portal to be a bridge would render many systems non-compliant for no readily-evident reason.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
234	M	M.	TR	D	U

Comment

While I appreciate a lot of hard work went into this annex, I don't really understand the point. It seems to be saying "For those of you who didn't understand section 5, how about we invent a whole new set of terminology and explain it again." and all that's likely to do is to increase the confusion.

SuggestedRemedy

If there are valuable new concepts in this annex then incorporate them into clause 5, and delete the rest of this annex.

Response

PROPOSED REJECT.
Annex M is completely informative material.
The APF description is intended (only) as an abstract model to help in "systems" level
work when thinking of or working with 802.11 technology.
The value is helping people to formulate and hold in their mind a clear and consistent model
of the functions of an 802.11 device (in general) and esp. an AP, including the entities usually found in typical device implementations.
Annex M is the primary result of the work of the AP Functionality (APF) chair's ad hoc cmtee.
The APF cmtee was formed as a result of requests from several others groups (both within 802 and outside 802) to clarify the AP functionality. Refer to submissions 11-04-0544-00-0wng-ap-functional-needs-capwap.ppt and 11-04-0481-03-0wng-thoughts-on-ap-functional-descriptions.ppt and 11-04-0540-01-0wng-need-ap-functional-descriptions.ppt and 11-04-0604-00-0wng-ap-functional-descriptions-update.ppt which articulate the need for the APF group and the results it will generate.
Anticipated users of the new descriptive material are: IETF CAPWAP, 802.1X, 802.11 TGs and 802.21.
The purpose of Annex M is to add clarity to the standard in the form of addition informative
descriptions. In reviewing the APF output document (11-05-0120-09) with various parties everyone's understanding of the 802.11 architecture was improved. Annex M thus succeeds in providing a clearer mental mode for people to better understand 802.11. Note that due to an editoral compilation error, Annex M does not reflect the actual and full contents of the approved submission 11-05-0120-09.

All of the terms used in annex M except for ACM_STA, MU, and AU are terms that are defined in the existing standard. The usage of those terms is completely consisten with their definitions and meaning. What Annex M does is to clarify those terms with respect to each other. Even though ACM_STA and MU are new terms they do not define anything new. They just give a name to existing modes of STA operation that then allow those modes to be easily and concisely referenced. The new term AU is cited only in passing as an example product instantiation, only in order to provide a basis for the abstract

descriptions.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
235	N	N.	TR	D	U

Comment

This annex should be part of section 6 (just like the interface to LLC)

SuggestedRemedy

See comment

Response

PROPOSED REJECT. The DS SAP is not like the LLC interface. The commentor is referred to the original submission (doc 5/262r2) and 802.11REV-ma--D1.1 to see where the DS SAP fits into the architecture. The material is here in an annex because 802.11 does not define the DS, and hence this informative information belongs in an informative annex.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
238	N	N.2.1.1	TR	D	U

Comment

As described, a received MSDU can be routed to LLC (via the MA-UNITDATA.indication primitive) or to the DS (via the DS-UNITDATA.request primitive). I think having "request" for one and "indication" for the other is inconsistent.

SuggestedRemedy

Swap the request and indication.

Response

PROPOSED REJECT. DS-UNITDATA.request sends an SDU to the DS. DS-UNITDATA.indication accepts an SDU from the DS. All 802.11 SDUs that come out of the ACM_STA (via the MAC_SAP) use the MA-UNITDATA.indication to get the SDU to the AP. The AP then uses DS-UNITDATA.request to forward the SDU to the DS.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
239	N	N.2.1.1.2	TR	D	U

Comment

Something of type "802.11 MSDU" does not contain (almost by definition) the parameters that accompany an MSDU when passed over another interface.

SuggestedRemedy

List all the parameters.

Response

PROPOSED REJECT. The DS carries 802.11 MSDUs. Rather than respecify that here we point to clause 6.2.1.1.2 for the complete definition there. If that definition changes this descriptions remains intact. Since the DS SAP connects to the MAC SAP through the AP they both have exactly the same parameters available.

Commenter: Mike, Moreton

ID	Clause	Subclause	Type	Status	ResponseStatus
242	N	N.	TR	D	U

Comment

This interface can perfectly well be described in terms of the standard 802.1 M-UNITDATA primitives and the 802.11 MLME primitives. Why pick an incompatible API for no reason?

SuggestedRemedy

Change the text in this annex to re-use the indicated interfaces, or delete it entirely.

Response

PROPOSED REJECT. The DS SAP is unlike 802.1 M-UNITDATA or 802.11 MLME. The commentor is referred to the original submission (doc 5/262r2) and 802.11REV-ma--D1.1 to see where the DS SAP fits into the architecture.

Commenter: Myles, Andrew

ID	Clause	Subclause	Type	Status	ResponseStatus
136	M	M.	TR	D	U

Comment

This annex provides very limited value given the large number of new terms and the semi-formal specification language

SuggestedRemedy

Remove entire annex

Response

PROPOSED REJECT.
Annex M is completely informative material.
The APF description is intended (only) as an abstract model to help in "systems" level
work when thinking of or working with 802.11 technology.
The value is helping people to formulate and hold in their mind a clear and consistent model
of the functions of an 802.11 device (in general) and esp. an AP, including the entities usually found in typical device implementations.
Annex M is the primary result of the work of the AP Functionality (APF) chair's ad hoc cmtee.
The APF cmtee was formed as a result of requests from several others groups (both within 802 and outside 802) to clarify the AP functionality. Refer to submissions
11-04-0544-00-0wng-ap-functional-needs-capwap.ppt and 11-04-0481-03-0wng-thoughts-on-ap-functional-descriptions.ppt and
11-04-0540-01-0wng-need-ap-functional-descriptions.ppt and 11-04-0604-00-0wng-ap-functional-descriptions-update.ppt
which articulate the need for the APF group and the results it will generate.
Anticipated users of the new descriptive material are: IETF CAPWAP, 802.1X, 802.11 TGs and 802.21.
The purpose of Annex M is to add clarity to the standard in the form of additional informative
descriptions. In reviewing the APF output document (11-05-0120-09) with various parties, everyone's understanding of the 802.11 architecture was improved. Annex M thus succeeds in providing a clearer mental model for people to better understand 802.11. Note that due to an editorial compilation error, Annex M does not reflect the actual and full contents of the approved submission 11-05-0120-09. The commenter is solicited to provide more detail as to the changes (other than complete removal) that would be acceptable to the annex.

Commenter: Myles, Andrew

ID	Clause	Subclause	Type	Status	ResponseStatus
454	M	M.	TR	D	U

Comment

This annex provides very limited value given the large number of new terms and the semi-formal specification language

SuggestedRemedy

Remove entire annex

Response

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Commenter: Myles, Andrew

ID	Clause	Subclause	Type	Status	ResponseStatus
458	N	N.	TR	R	U

Comment

There is little obvious value in this annex

SuggestedRemedy

Remove entire annex

Response

REJECT.

As part of the AP Functional descriptions effort we were asked to add this information to the draft.

Commenter: Palm, Stephen

ID	Clause	Subclause	Type	Status	ResponseStatus
243	19	19.7.2.6	TR	D	U

Comment

The term "802.11g" is used without being defined or referenced.

SuggestedRemedy

Clearly provide references for all of the 802.11a through 802.11j amendments.

Response

PROPOSED ACCEPT IN PRINCIPLE. In the first sentence below Figure 248, change "in the 802.11g header" to "in the header". All of the amendments (and their titles) cease to exist after the approval of the revision to the standard. Editor included in draft 1.1 in 19.7.2.6.

Commenter: Palm, Stephen

ID	Clause	Subclause	Type	Status	ResponseStatus
244	00	General	TR	D	U

Comment

If an implementor wished to implement an 802.11g or 802.11a only product, this document provides no guidance as to which clauses and phrases are relevant.

SuggestedRemedy

Clearly indicate which clauses and phrsases are applicable to the individual amendments of 802.11a through 802.11j

Response

PROPOSED REJECT. Once 802.11REV-2005 is published, IEEE rules require that the individual amendments (802.11a-j) disappear. These distinctions are not indicated in the revision of the standard.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
328	09	9.2.10	TR	D	U

Comment

The new value of EIFS is not the same as the old value for legacy 11 and 11b MACs. Since the use of EIFS is required (shall) the new equation must resolve to the old value for legacy radios.

SuggestedRemedy

Remove the DIFS from the equation.

Response

PROPOSED REJECT. The new equation for EIFS resolves to exactly the same value for the legacy .11 and the .11b PHYS as the original equation.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
330	09	9.4	TR	D	U

Comment

In the second paragraph the change from fragment to MPDU is incorrect and confusing.

SuggestedRemedy

Reject the changes from fragment to MPDU.

Response

PROPOSED REJECT. The text is clear and accurate. The commenter is solicited to describe the ways in which the text is not correct.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
332	09	9.7	TR	D	U

Comment

In Table 38, removing the indicated sequence disallows sending frames to third parties during the CFP. This was previously allowed and could make legacy equipment non-compliant. I don't see the need to do this.

SuggestedRemedy

Reject the change to table 38.

Response

PROPOSED REJECT. This row in the table conflicted with other parts of the standard. The deletion from the table corrects this.

Commenter: Stephens, Adrian

ID	Clause	Subclause	Type	Status	ResponseStatus
42	C	C.	TR	D	U

Comment

The SDL is a maintenance nightmare and is practically useless.
Few task groups have the means to maintain this model. The model itself contains some very questionable use of SDL (such as extensive sharing of variables), structuring of the model does not match the architecture presented in the body text, and it has not been updated to reflect the changes approved in 802.11i.
Those who have seriously tried to use the model (I have) descover that it has a very blinkered view of 802.11 - yet it is somehow "normative".

SuggestedRemedy

Firstly scan Annex C for normative behaviour not defined elsewhere and move to appropriate sections in the body text (there should be none).

Remove Annex C.
Alternatively mark is as "Informative - historic interest only".

Response

PROPOSED REJECT. There is still normative behavior described only in the SDL. Deleting the annex would also delete these normative behaviors. The commenter is solicited to provide the text for the normative behaviors to add to the other clauses of the standard, so that the annex might then be removed.

Commenter: Stephens, Adrian

ID	Clause	Subclause	Type	Status	ResponseStatus
45	05	5.	TR	D	U

Comment

This section, and particularly section 5.2 creates a number of fictions that have created problems in understanding the system for implementers since the first approved version. These fictions will hopefully be addressed by future activities seeking to clarify architecture.

Specifically, an architecture consists of entities for which behaviour is defined connected by interfaces. If the interfaces are exposed to the outside world, they need to be concrete rather than abstract.

But we have a distribution service that provides an abstract description of communication between APs and portals. Unless the only implementations of the entire DS reside within a single physical realization or system from a single manufacturer, the interfaces between the AP and portals are exposed and need to be standardised.

SuggestedRemedy

Recommend that this section (and particularly 5.2) carry a disclaimer such as: "don't believe this, it will confuse the heck out of you", or alternatively: "the architectural description is under review by study group xxx".

Response

PROPOSED REJECT. This standard describes the MAC and PHY and the air interface. It also describes the place of the MAC and PHY in a larger architecture. Describing the entire architecture in a normative fashion is beyond the scope of this standard. Clause 5 has the purpose of describing this architecture in a general fashion and not in a restrictive fashion, to allow future activities to extend this architecture.

Commenter: Stephens, Adrian

ID	Clause	Subclause	Type	Status	ResponseStatus
57	09	9.2	TR	D	U

Comment

"CS shall be performed by both physical and virtual mechanisms".

Sigh, Sigh, Sigh.

Shall is supposed to introduce a normative requirement, and it is as clear a mud what this is introducing. It sounds more like a normative requirement on the writers of the protocol to include destails to support both physical and virtual mechanisms.

SuggestedRemedy

Turn this into an informative note.

This is also a general problem. I just happened to light on this and it exceeded my intertia threshold. I recommend scanning for "shall" and replacing with "is" where it clearly describes normative behaviour introduced elsewhere in the document. Ideally each use of the word shall (and there are 2000+) should relate to an entry in the PICS.

Response

PROPOSED REJECT. This is a normative requirement on the implementation of the MAC. It is requiring that the MAC operate using both the physical carrier sense indication from the PHY and the NAV virtual carrier sense mechanism.

Commenter: Stephens, Adrian

ID	Clause	Subclause	Type	Status	ResponseStatus
59	09	9.2.3.4	TR	D	U

Comment

This single para is symptomatic of "specification by normative verbosity" (that's the PC version of the expression).
The problem is we're trying to say something complex, and we heap normative sentence on normative sentence.
What we actually need is some diagrammatic representation (such as a state machine) that is normative. This makes life a lot easier for the non-native English speakers, and makes interpretation less error-prone.

SuggestedRemedy

Let's have a nice block diagram or state machine showing how the various counters and timers relate.
(The SDL in the Annexes is not adequate for this purpose, although SDL would be one valid representation of a state machine that could be used at this point (but It wouldn't be my first choice)).

Response

PROPOSED REJECT. The text is clear and concise. The commenter is solicited to provide a diagram or other formal description that improves upon the text.

Commenter: Stephens, Adrian

ID	Clause	Subclause	Type	Status	ResponseStatus
67	11	11.1.3	TR	D	U

Comment

"If a STAÆs scanning does not result in finding a BSS with the desired SSID and of the desired type, or does not result in finding any BSS, the STA may start an IBSS"

This behaviour is not performed in the MLME entity.

SuggestedRemedy

Move to the SME.

Response

PROPOSED REJECT. The statement is correct and relevant in its current location.

Commenter: Stephens, Adrian

ID	Clause	Subclause	Type	Status	ResponseStatus
68	11	11.1.3.4	TR	D	U

Comment

This section highlights that the state machine described in 5.5 is an over simplification. There should be states to reflect that it is not synchronized (i.e. cannot exchange class 1 frames), is synchronized (can exchange class 1 frames), authenticated (can exchange class 2 frames) and associated (can exchange class 3 frames).

SuggestedRemedy

Add a state to the state diagram to show the process of transitioning from idle to synchronized and related to the procedures of this section.

Response

PROPOSED REJECT. The diagram in 5.5 is intended to be a very simple description and not to include all of the protocol complexity.

Commenter: Adrian, Stephens

ID	Clause	Subclause	Type	Status	ResponseStatus
32	00	0	ER	D	U

Comment

Myballot #57. Maintained.

SuggestedRemedy

0

Response

PROPOSED REJECT. While use of physical carrier sense and virtual carrier sense are each described, individually, elsewhere, this statement is a requirement that the MAC use both mechanisms.

Commenter: Adrian, Stephens

ID	Clause	Subclause	Type	Status	ResponseStatus
33	00	0	TR	D	U

Comment

Myballot #59. Our "clear and concise"s inhabit different realities.

SuggestedRemedy

0

Response

PROPOSED REJECT. The comment does not point out a normative problem with the text, only that the commenter is dissatisfied with the language or the manner in which the requirements are described.

Commenter: Adrian, Stephens

ID	Clause	Subclause	Type	Status	ResponseStatus
35	00	0	TR	D	U

Comment

Myballot #67, Maintained.

SuggestedRemedy

0

Response

PROPOSED REJECT. The rest of the sentence, not quoted in the original comment, concludes the sentence with "upon receipt of an MLME-START.request", which indicates that the action is controlled and begun by action outside the MLME, typically, the SME.

Commenter: Adrian, Stephens

ID	Clause	Subclause	Type	Status	ResponseStatus
36	00	0	TR	D	U

Comment

Myvallot #68, Maintained.

SuggestedRemedy

"it's meant to be a simplification" - how does the reader know that this normative section is just a "simplified" view of the normative requirements.

Response

PROPOSED REJECT. This clause does not refer to the state machine in clause 5 in any way. It does not introduce confusion to the reader, because the title of that clause is "General Description". The state machine in 5.5 does not represent all of the requirements of an 802.11 compliant implementation, just as any other single figure or clause does not represent all of the requirements.

Commenter: Adrian, Stephens

ID	Clause	Subclause	Type	Status	ResponseStatus
37	00	0	TR	D	U

Comment

Myballot #42, Maintained. While I sympathise with Tgma and the lack of volunteer effort, I am not in a position to provide the information that would resolve the comment. However that does not invalidate the reasons for my vote.

SuggestedRemedy

0

Response

PROPOSED REJECT. The comment does not point out a normative problem with the Annex C, only that the commenter is dissatisfied with the language or the manner in which the requirements are described.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
95	07	7.2.3	TR	D	U

Comment

Issue with comment on how STA's that receive vendor-sepcific IE should behave. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole.

SuggestedRemedy

Remove the statement and changes in all frame formats where Vendor Specific IEs have been added.

Response

PROPOSED REJECT. To prevent vendors from usruping the limited set of informaiton element IDs, 802.11 has defined a single ID for use by vendors. Vendors will implement proprietary functions using information elements. This is a market reality. Ignoring that fact will lead to greater interoperability problems than providing a specific place for this to take place.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
96	07	7.2.3.1	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
97	07	7.2.3.3	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
98	07	7.2.3.4	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
99	07	7.2.3.5	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
100	07	7.2.3.6	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
101	07	7.2.3.7	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
102	07	7.2.3.8	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
103	07	7.2.3.9	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
104	07	7.2.3.10	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
105	07	7.2.3.11	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
106	07	7.2.3.12	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Andrade, Merwyn

ID	Clause	Subclause	Type	Status	ResponseStatus
107	07	7.3.2	TR	D	U

Comment

Issue with addition of "Vendor Specific" field in IE format. Reason - I do not believe it is appropriate for vendor specific IEs to be added to the 802.11 maintenance document. This will not only cause undefined behavior in STAs but cause multiple classes of de-facto proprietary implementations to claim to now be standards based via this loophole and have non-interoperable behavior between them.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. To prevent vendors from usruping the limited set of informaiton element IDs, 802.11 has defined a single ID for use by vendors. Vendors will implement proprietary functions using information elements. This is a market reality. Ignoring that fact will lead to greater interoperability problems than providing a specific place for this to take place.

Commenter: Berry, Don

ID	Clause	Subclause	Type	Status	ResponseStatus
51	07	7.3.2	TR	D	U

Comment

Vendor specific information elements added. This will fragment the market and cause widspread incompatibility.

SuggestedRemedy

Remove vendor specific information elements.

Response

PROPOSED REJECT. To prevent vendors from usruping the limited set of informaiton element IDs, 802.11 has defined a single ID for use by vendors. Vendors will implement proprietary functions using information elements. This is a market reality. Ignoring that fact will lead to greater interoperability problems than providing a specific place for this to take place.

Commenter: LEMBERGER, URIEL

ID	Clause	Subclause	Type	Status	ResponseStatus
38	18	18.4.6.2	TR	D	U

Comment

Table 126 is incorrect.

SuggestedRemedy

Correct the table content, for example , FCC allows Ch 12,13 with mask restrictions, France is part of ETSI.

Response

PROPOSED REJECT. This table reflects the allowed channels for the specified regulatory domain values as defined by the standard, not as allowed by the regulations.

Editor to change "Ching" to "China" in Table 126.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
62	07	7.3	TR	D	U

Comment

What was wrong with fixed fields??? There's a number of occurences of "fixed field" that need to be changed if you go ahead with this change.

SuggestedRemedy

Back out the change - it's not worth the work to do the job properly.

Response

PROPOSED REJECT. Editor to replace "fixed field" with "field" wherever used in the draft.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
63	08	8.4.10	TR	D	U

Comment

A non-AP STA should delete an existing SA before executing the association, not after - otherwise you could get some very strange race conditions.

SuggestedRemedy

Move the deletion before making the request, not after getting the confirmation. Similarly in the AP the deletion should occur before invoking the response.

Response

PROPOSED REJECT. The order specified is what is intended. Deletion of the security associations before requesting association prevents a STA from returning to its old AP if the association request is not successful.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
66	03	3.14	TR	D	U

Comment

STAs don't use the JOIN primitives to establish a BSS - that's an internal interface. They establish a BSS by executing the synchronisation procedures, which describe the over the air procedure. The cause is the JOIN primitive, but the method is the synchronisation procedure. Of course in an AP you don't even use JOIN at all.

SuggestedRemedy

Back out this change.

Response

PROPOSED ACCEPT IN PRINCIPLE. There is a problem with the definition. But it is not the one pointed out by the commenter. The use of JOIN is not the problem and is not an internal interface to 802.11. The service primitives are external interfaces.

The commenter does point out that the AP is different, not using the JOIN primitive. To address the problem with this definition:

add ", and one station that has used the START primitive" after "JOIN service primitives".

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
67	03	3.45	TR	D	U

Comment

The removal of "integrated LANs" from the definition of ESS is a really bad idea. It breaks the architectural clarity of the DS, because suddenly you start distinguishing between remote STAs that are connected using 802.11, and remote STAs connected using another technology, a distinction that should be invisible to the STAs connected to the local BSS. If you ever need to make that distinction, you've done something very, very wrong...

SuggestedRemedy

Reinstate integrated LANs to the ESS definition.

Response

PROPOSED REJECT. There is no implication that the integrated LAN or any devices connected to it are not reachable from the ESS. The change to the definition is to remove the integrated LAN and any devices connected to it from being part of the ESS. Only those STAs in the set of BSSs are actually part of the ESS.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
71	05	5.2.3.1	TR	D	U

Comment

As I've said previously, the new change to exclude integrated LANs from the ESS is shooting yourself in the foot architecturally - it's a pointless distinction that just makes life difficult for you - you have to start adding extra text like this for no other reason than because your architectural model is now muddled.

SuggestedRemedy

Remove "An ESS is the union of the BSSs connected by a DS."

Response

PROPOSED REJECT. The added text does not muddle the architecture description. It simply brings the text in line with what the diagrams have described from the first printing of the standard.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
75	05	5.9	TR	D	U

Comment

Don't like the changed diagram at allà First of all, it now looks as if the 802.1X entity is the only thing above the MAC SAP, which is clearly wrong. Secondly, the TGi text was written to assume that the 802.1X PAE was part of the SME - if you move it you need to recheck all the TGi text... And thirdly, the separation from RSNA key management makes no sense.

SuggestedRemedy

While the old diagram wasn't perfect, it was better than the new one - so back out the change.

Response

PROPOSED REJECT. Everything from the MAC SAP goes through 802.1X, either its controlled port or uncontrolled port. There is no other data SAP from the 802.11 MAC. It is believed that the diagram causes no problems with the text integrated with 802.11i. The interface between the PAE and 802.11 is through the SME, as it always was.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
77	05	5.10.2.3	TR	D	U

Comment

It's more consistent with other sections to talk about deleting the PTKSA rather than removing the PTK.

SuggestedRemedy

See comment. Similar for GTK/GTKSA

Response

PROPOSED REJECT. See resolution to comment #78.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
78	05	5.10.2.3	TR	D	U

Comment

How can you block something that no longer exists? Why bother giving rules for how to encrypt MSDUs that you're not allowed to send?

SuggestedRemedy

Replace clause with "Disassociation initiated by either STA in an RSNA causes the deletion of the PTKSA at both ends. The GTKSA will also be deleted in a non-AP STA. The controlled and uncontrolled ports created for this association will be deleted."

Response

PROPOSED ACCEPT IN PRINCIPLE. Replace clause with "Disassociation initiated by either STA in an RSNA causes the deletion of the PTKSA at both ends and the deletion of the GTKSA in a non-AP STA. The controlled and uncontrolled ports created for this association will also be deleted."

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
81	07	7.2.3	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the statement and changes in all frame formats where Vendor Specific IEs have been added.

Response

PROPOSED REJECT. To prevent vendors from usruping the limited set of informaiton element IDs, 802.11 has defined a single ID for use by vendors. Vendors will implement proprietary functions using information elements. This is a market reality. Ignoring that fact will lead to greater interoperability problems than providing a specific place for this to take place.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
82	07	7.2.3.1	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
83	07	7.2.3.3	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
84	07	7.2.3.4	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
85	07	7.2.3.5	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
86	07	7.2.3.6	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
87	07	7.2.3.7	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
88	07	7.2.3.8	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
89	07	7.2.3.9	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
90	07	7.2.3.10	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
91	07	7.2.3.11	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
92	07	7.2.3.12	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. The text did not change in this draft and is not affected by text changed in this draft. The comment will be forwarded for consideration in a future revision of the standard.

Commenter: Narasimhan, Partha

ID	Clause	Subclause	Type	Status	ResponseStatus
93	07	7.3.2	TR	D	U

Comment

Vendor-specific IEs create potential for non-interoperable implementations. They are potential vehicles for creating de-facto implementations that are controlled by individual vendors while claiming to be standards compliant.

SuggestedRemedy

Remove the Vendor Specific IEs change.

Response

PROPOSED REJECT. To prevent vendors from usruping the limited set of informaiton element IDs, 802.11 has defined a single ID for use by vendors. Vendors will implement proprietary functions using information elements. This is a market reality. Ignoring that fact will lead to greater interoperability problems than providing a specific place for this to take place.

Editor to correct values in the row for "Reserved" to be split "51-220, 222-255".

Commenter: Palm, Stephen

ID	Clause	Subclause	Type	Status	ResponseStatus
29	19	19.1.1	TR	D	U

Comment

If an implementor wished to implement an 802.11g or 802.11a only product, this document provides no guidance as to which clauses and phrases are relevant.

SuggestedRemedy

Clearly indicate which clauses and phrases are applicable to the individual amendments of 802.11a through 802.11j

Response

PROPOSED REJECT. 802.11g and 802.11j are designations of particular amendments to the base 802.11 standard. Upon approval of this revision, those designations cease to exist and are replaced by a new base standard.

Commenter: Palm, Stephen

ID	Clause	Subclause	Type	Status	ResponseStatus
30	19	19.7.2.6	TR	D	U

Comment

The term 802.11g was deleted, when it was my hope that the term be defined

SuggestedRemedy

Provide a definition for 802.11g and for all of the other 802.11a through 802.11j amendments.

Response

PROPOSED REJECT. 802.11g is the name of an amendment to the 802.11 standard. Upon acceptance of this revision, the term will cease to exist.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
3	07	7.2.3	TR	D	U

Comment

"Gaps may exist in the ordering of fields [à] within frames. The order that remains shall be ascending." This appears to be saying that a transmitter may actually omit fixed fields (adding the "fixed" makes it clear that I'm not talking about IEs. Good idea, huh?) as long as the remaining ones are in order, which is clearly wrong. The alternative interpretation is that the "shall" is a requriement on future ammendments to the specification, and so shouldn't be a "shall".

SuggestedRemedy

Change "shall" to "will"

Response

PROPOSED REJECT. This comment does not address material that is the subject of this recirculation ballot. It will be forwarded to the working group for consideration in a future revision of the standard.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
4	10	10.3.20.1.1	TR	D	U

Comment

The use of the MLME interface to send a Michael MIC Failure Report is a horrible hack (to be honest I only suggested in the hope that it would cause everyone else to accept that the MIC Failure architecture was brokenà) and I'm strongly against it being extended to all EAPOL frames, which should continue to use the MA-Unitdata primitives.

SuggestedRemedy

Back out the change.

Response

PROPOSED REJECT. Accepting the suggested remedy and the change implied in the comment (sending all EAPOL frames, including non-MIC-failure EAPOL key frames through the MA-Unitdata primitives) would lead to potential ambiguity about which primitive to use. The current text does not have this potential. The current text also corresponds to the text in the MLME-EAPOL.confirm primitive.

Commenter: Moreton, Mike

ID	Clause	Subclause	Type	Status	ResponseStatus
5	00	0	TR	D	U

Comment

I'm maintaining my no vote mainly on the basis of previous comments - (a) the removal of integrated LANs from the definition of ESS, (b) the presence of annex L which should be in 802.1H not 802.11, and (c) the presence of Annex M which uses different terminology to the rest of the standard.

SuggestedRemedy

See previous comments

Response

PROPOSED REJECT. These comments were dealt with in previous ballots, where individual reponses were provided.

Commenter: Palm, Stephen

ID	Clause	Subclause	Type	Status	ResponseStatus
1	19	19.7.2.6	TR	D	U

Comment

The term 802.11g was deleted, when it was my hope that the term be defined

SuggestedRemedy

Provide a definition for 802.11g and for all of the other 802.11a through 802.11j amendments.

Response

PROPOSED REJECT. This comment was dealt with in a previous ballot, where the reponse was provided. A definition of the 802.11a through 802.11j amendments would require nearly all the text of each of the separate amendments.

Commenter: Palm, Stephen

ID	Clause	Subclause	Type	Status	ResponseStatus
2	19	19.1.1	TR	D	U

Comment

If an implementor wished to implement an 802.11g or 802.11a only product, this document provides no guidance as to which clauses and phrases are relevant. The PROPOSED RESOLUTION indicated "Upon approval of this revision, those designations cease to exist and are replaced by a new base standard." While that may be a nictey for IEEE procedures, it does a disservice to the industry (manufacturers, consumers, press) who actively use the designations.

SuggestedRemedy

Clearly indicate which clauses and phrases are applicable to the individual amendments of 802.11a through 802.11j. At the very least, there should be an informative section to explain 802.11a through 802.11jà

Response

PROPOSED REJECT. This comment was dealt with in a previous ballot, where the reponse was provided. Even the informative section suggested "at the very least" would require nearly all the text of each of the separate amendments.

Commenter: Ptasinski, Henry

ID	Clause	Subclause	Type	Status	ResponseStatus
11	08	8.4.10	TR	D	U

Comment

The frame discard behavior specified in 8.4.10 interacting with the last sentence of clause 5.6 creates a condition where a STA and AP that are out of synch cannot resynch. If a STA that has keys and thinks it's in State 3 sends frames to an AP that believes the STA is in State 1 (or has no info about the STA, e.g. if the AP restarted), the AP will silently discard the frames and the link will never recover. In the case where security is not used, the STA will get a deauth and the STA will return to State 1, so that the AP and STA will be back in agreement. The PROPOSED RESPONSE from LB 75 claims that the SME could use MLME-PROTECTEDFRAMEDROPPED.indication to send a deauthentication and resynchronize, but clause 10.3.23.1.4 (and every other mention of this indication in the spec) only discusses the behavior in IBSS.

SuggestedRemedy

Make the behavior consistent when security is enabled and disabled by e.g removing the last sentence of clause 5.6, or clarify the SME behavior on receipt of MLME-PROTECTEDFRAMEDROPPED.indication in a BSS.

Response

PROPOSED REJECT. This comment does not address material that is the subject of this recirculation ballot. It will be forwarded to the working group for consideration in a future revision of the standard.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
7	09	9.2.5.7	TR	D	U

Comment

Comment rejected from ballot 74: Specifying a required (shall) value for CTSTimeout is problematic now. There are a number of implementation in existence that probably wait a shorter period than aPHY-RX-START-Delay (no medium busy in 2 slots or no SFD in 150us) before declaring a timeout. This would make them non-compliant. The reason for rejecting this comment is not valid since the text requires the MAC to start the backoff procedure (shall) when the ctsTimeout expires.

SuggestedRemedy

0

Response

PROPOSED REJECT. This comment was dealt with in a previous ballot, where the reponse was provided.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
8	09	9.2.8	TR	D	U

Comment

Comment rejected from ballot 74: Specifying a required (shall) value for ACKTimeout is problematic now. There are a number of implementation in existence that probably wait a shorter period than aPHY-RX-START-Delay (no medium busy in 2 slots or no SFD in 150us) before declaring a timeout. This would make them non-compliant. The reason for rejecting this comment is not valid since the text requires the MAC to start the backoff procedure (shall) when the ctsTimeout expires.

SuggestedRemedy

0

Response

PROPOSED REJECT. This comment was dealt with in a previous ballot, where the reponse was provided.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
9	09	9.3.2.1	TR	D	U

Comment

Comment rejected from ballot 74: This change again potentially make legacy compliant radios non-compliant. In this case I don't know that there are implementations that do not do this. Either the change is being made to force the PC to transmit after SIFS or it is not necessary (used to say "at least one SIFS period"). You can't have it both ways.

SuggestedRemedy

Change the shall to a should or revert back to the original text.

Response

PROPOSED REJECT. This comment was dealt with in a previous ballot, where the reponse was provided.

Commenter: Sanwalka, Anil

ID	Clause	Subclause	Type	Status	ResponseStatus
10	09	9.4	TR	D	U

Comment

Comment rejected from ballot 74: In the second paragraph the change from fragment to MPDU is incorrect and confusing. Fragments are pieces of MSDUs or MMPDUs while MPDUs are any MAC protocol data unit, including control frames, see 7.1.1. The sentences just don't make sense.

SuggestedRemedy

Reject the changes from fragment to MPDU.

Response

PROPOSED REJECT. This comment was dealt with in a previous ballot, where the reponse was provided.