IEEE P802.11
Wireless LANs

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| Resolution for “Obsolete Annex G?”  |
| Date: 2017-07 |
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Abstract

This submission proposes resolution for CID 72

Green indicates material agreed to in the group,

yellow material to be discussed, red material rejected by the group and

cyan material not to be overlooked.

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| CID | Commenter | Clause  | Page  | Line | Comment | Proposed |
| 72 | Graham Smith | Annex G | 3581 | 1 | I note that Annex G is Normative. Does anyone actually refer to this? Checking it against the main text I would say is impossible. Does it serve any practical purpose? What would be the effect of removing it? All I see in the text are generality statements "see Annex G" never do I see a specific place in Annex G which is 15 pages long! | Consider removing Annex G or form a task group to check all the hieroglyphics contained therein as to their accuracy and compliance with the main text. Then make the references in the main text specific to a place in the 15 pages of Annex G. If no-one volunteers, back to deleting? |

At first look, it seems obvious that we must keep Annex G as it meticulously defines all the packet exchanges and is normative.

HOWEVER….

There are only 24 references to Annex G in total. How many of these have the reader rushing to the Annex for enlightenment? In most, if not all, cases, to me, they are a general add on. Nowhere is the specific reference to a part or even a subclause of the 15 pages used.

One needs to ask the question if Annex G adds anything that is not already described in the text, AND are we convinced that Annex G is accurate and does cover every exchange in the main text?

I will make comments against each reference.

“(see Annex G)”

678.53

The Power Management subfield is 1 bit in length and is used to indicate the power management mode of a STA. The value of this subfield is either reserved (as defined below) or remains constant in each frame from a particular STA within a frame exchange sequence (see Annex G).

Simply delete, adds nothing.

1417.16

The recognition of a valid CTS frame sent by the recipient of the RTS frame, corresponding to this PHY-RXEND.indication primitive, shall be interpreted as successful response, permitting the frame exchange sequence to continue (see Annex G).

Simply delete, adds nothing.

1420.34

After transmitting an MPDU that requires an Ack or BlockAck frame as a response (see Annex G),

Simply delete, adds nothing.

1484.57

If a PHY-RXSTART.indication primitive does occur during the timeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to recognize a valid response MPDU (see Annex G) that either does not have a TA field or is sent by the recipient of the MPDU requiring a response.

This does describe what a valid response is, so Annex G adds nothing.

1491.45

After a valid response (see Annex G) to the initial frame of a TXOP, if the Duration/ID field is set for multiple frame transmission and there is a subsequent transmission failure, the corresponding channel access function may transmit after the CS mechanism (see 10.3.2.1 (CS mechanism)) indicates that the medium is idle at the TxPIFS slot boundary

NOTE: In this “valid response” case, what would happen if we simply deleted the reference? – Does Annex G define this and that a valid response is not understood otherwise?

Is the definitive ‘valid response’ only specified in Annex G? Maybe? Do we really need this Annex for this? So we temporarily mark this one as a “maybe reason to keep Annex G”. Note that “valid response” is not specifically mentioned in Annex G. I have not found an example of a valid response that is not found in the main text.

Look at other uses of “valid response” (only 2 other places)

At 1772.24 and at 1776.31

*…that STA has failed to receive a valid response (i.e., has not received an MLME-SAQUERY.confirm primitive within the dot11AssociationSAQueryMaximumTimeout period),”*

So in this place, the valid response is spelt out AND also note that there is no reference to Annex G – does Annex G cover this? Don’t think so.

We also have “in Annex G”

1420.60

**10.3.2.9 Acknowledgment procedure**

*“The cases when an Ack or BlockAck frame can be generated are shown in the frame exchange sequences listed in Annex G.”*

BUT it then goes on to define when the Ack or BA frame is or is not generated. So for this, Annex G is simply mentioned. It could be deleted.

1427.1

*“A retry is defined as the entire sequence of frames sent, separated by SIFSs, in an attempt to deliver an MPDU, as described in Annex G.”*

No it isn’t there is no mention of “Retry” or “retries” in Annex G. Attempt to deliver an MPDU is I suppose, but does it add anything, I think not.

1431.31

*“Under DCF, error recovery is always the responsibility of the STA that initiates a frame exchange sequence (described in Annex G).”*

This is just a throwaway reference, again Annex G does not add anything.

1494.49

*“Figure 10-28 (Example of TXOP truncation) shows an example of TXOP truncation. In this example, the STA accesses the medium using EDCA channel access and then transmits a nav-set sequence (e.g., RTS/CTS for non-DMG STAs or RTS/DMG CTS for DMG STAs) (using the terminology of Annex G).”*

Really? Is the terminology different in the text? The instruction is clear, we don’t need Annex G.

1527.11

*“The frame exchange sequences are provided in Annex G.”*

This comes at the end of a clause which covers everything. Again this sentence adds noithing and could be deleted.

1690.42

*“For each frame received at the RDS during the SP, the RDS shall follow the same rules for frame exchange sequences as described in Annex G and 10.36 (DMG channel access).”*

This is 10.41.2.4.4. Operation of FD-AF RDS. Previous clause 10.41.2.4 is Relay frame exchange rules. So everything is already described. Again no real need for this throwaway catchall sentence.

11.2.3.2.STA Power management modes

1719.17

*“Power management mode shall not change during any single frame exchange sequence, as described in Annex G.”*

1720.33

*“To change power management modes a STA shall inform the AP by completing a successful frame exchange (as described in Annex G) that is initiated by the STA.”*

Again reference to Annex G simplay because it mentions “frame exchange”

1751.44

*“If the MM-SME Power Mode field within the MMS element sent by an MM-SME coordinated STA is 1, all STAs advertised in the MMS element shall switch to the doze state when the wakeup schedule of any one STA or a successful frame exchange as described in Annex G brings the STA to the doze state.*

*If the MM-SME Power Mode field within the MMS element sent by an MM-SME coordinated STA is 0, all*

*STAs advertised in the MMS element shall switch to the awake state when the wakeup schedule of any one*

*STA or a successful frame exchange as described in Annex G brings the STA to the awake state*.

Do we really need to refer to Annex G to know what a successful frame exchange is?

1752.44

*To change its power state without a wakeup schedule, a non-AP and non-PCP STA shall inform the AP or PCP by completing a successful frame exchange (as described in Annex G) that is initiated by the STA and…*

Do we really need to refer to Annex G to know what a successful frame exchange is?

1755.54

*Alternatively, to change its power state without a wakeup schedule, the PCP shall inform all associated STAs by completing a successful frame exchange (as described in Annex G) that is initiated by the PCP…*

Do we really need to refer to Annex G to know what a successful frame exchange is?

Arguments:

OK it’s nice and safe to be able to refer to Annex G every time we say “frame exchange” BUT there are 240 instances of “frame exchange” and only a handful of cases (less than 10) does it refer to Annex G. One could argue that we should be adding “(see Annex G)” in all these cases (or many of them) if Annex G ws really required as the depository for how frame exchanges are carried out and which are valid.

Annex G The allowable frame exchange sequences are defined using an extension of the EBNF format as defined in

ISO/IEC 14977:1996 [B49]. Hmm…not sure how much scrutiny this Annex has been given.

It may seem a big step, but….

RESOLUTION

It is not much work if Annex G is deleted as there are only 24 references as per above.

However, as this removes normative text, it should be discussed first.

1. Remove Annex G?
2. Keep Annex G as is?
3. Keep Annex G but make references useful?
4. Check Annex G to ensure correct and agreement with text?
5. Make Annex G informative?