**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
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| Re: | TG9 KMP Notes for February 2, 2015 conference call |
| Abstract | TG9 KMP Notes for February 2, 2015 conference call |
| Purpose | Call Notes |
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Don Sturek presented 0098r2 (802.15.9 Fragmentation Replacement Text). This should cover all the changes requested in last week’s last teleconference.

Changes:

1. Retries removed.
2. Specific names given to Initial Fragment, Additional Fragments, and Last Fragment. (Kivinen: do we need RTS/CTS if we have abort? Sturek: we think the negotiation is useful to prevent unneeded transmissions. Kivinen: this doesn’t work well with the enhanced ACKs, because the ack can happen without the upper layer ever agreeing to or seeing anything. Sturek: we don’t see RTS/CTS as the same as the ack. Kivinen: once the upper layer knows how many bytes are to be sent to it, if it can’t handle it, it can send an abort at that point. Sturek: but that doesn’t allow for negotiation down in the size of packets; the abort is all or nothing. And the upper layer could do the fragmentation if the MAC can’t. Kivinen: then why bother with MAC fragmentation if the upper layer is already willing and able to do so. Sturek: this could allow something like sending one certificate at a time rather than an overly long chain. Kivinen: but what happens when one certificate itself won’t fit in a fragment? Sturek: we shouldn’t assume how people are going to use these features. Kivinen: so we should remove it. Sturek: the CTS field would facilitate signaling to the sender that the receiver has a specific limit on how much it can take in at a time. Kivinen: this sort of negotiation seems like something that shouldn’t be done at the MAC/KMP transport level, but rather at the upper layer. Sturek: I’ll discuss this with my group; we think we need the feature, but I’ll see if they have a stronger argument. Kivinen: I could see enhancing the abort response to add a maximum acceptable size field. That way there aren’t two means to handle overly large transfer sizes. Sturek: I don’t see that these are the same issue covered by two mechanisms. Moskowitz: Don, can you write down a defense of your position; if you can, we can put the measure to bed. Sturek: the abort feature doesn’t cover maximum transfer size. Kivinen: I think you should roll the maximum transfer size into the abort rather than having a RTS/CTS mechanism as well. Moskowitz: is there any difference between which entity does the RTS/CTS and the abort. Sturek: the RTS/CTS is done in the MAC. Kivinen: we’re not to modify the MAC, so it should be done in the shim. Sturek: Yes, it should be between the MAC and the entity corresponding to the Protocol ID. Kivinen: this would be the MP Layer. The abort could be done at the lower layer with the enhanced ack. No, that wouldn’t work because of the transaction ID. Sturek: you need the transaction ID. Kivinen: the ack is tied against a particular transaction, so it should be tied to the transmission. Sturek: but there can be multiple transactions at once. Kivinen: but an enhanced ack is tied to the frame that it acks, by the MAC layer itself. Sturek: I disagree with the expectation that the MAC can understand what the abort is supposed to mean. Kivinen: I agree with that point. In 802.15.4-2015, there will be ways to do filtering based on frame type and security processing rules. I expect that this filtering will be implemented in the MAC, even if we describe it as above the MAC. Sturek: I think the presumes how implementations will be done. And I don’t think the MAC will know what to do with the Payload IE. Kivinen: the MAC already processes many Payload IEs. Sturek: If I’m the MP and have protocol and transaction IDs. If I get an abort back, I would not expect the layer below me to know what to do with the abort. Kivinen: we have or will be adding some additional processing in the MAC layer. Sturek: I would be surprised if the transaction ID is unneeded. Moskowitz: you both have your positions. Why don’t Kivinen and Sturek work out how your separate views are supposed to function. We then lay them side-by-side and compare them. We can also get outside review to validate the positions. Otherwise we’ll go in circles. Kivinen and Sturek both agree to this. Sturek says his proposal covers his points and is ready to be compared now. Moskowitz would like pointers to the position in the document. Kivinen: and I can take Sturek’s document and remove the parts I don’t like and add the size to the abort if that’s an important feature. I’ve already sent an email laying out some of my concerns with the 0098r2 proposal’s size. Both parties should be ready for next week’s call. Moskowitz will reach out to Heile and Kinney to see if a resolution can be arrived at before or during next week’s call. Sturek: we think we can make the transaction ID optional and add the maximum size in the abort, if necessary. Kivinen: that would help make the changed document shorter. Kivinen: when you are talking about the fragmentation (end X.x.2), I don’t understand what’s meant by the 3rd to last paragraph in that section. Sturek: this is just like a failed transfer. Kivinen: this mixes things. Shouldn’t that be an MP-DATA.confirm instead of MCPS-DATA.confirm, which mixes layers of the stack? Sturek: I don’t care. But having the MAC process Payload IEs seems like a similar violation of stack layering. Kivinen: it’s not the same.

Brian Weis will have something published before the next call for his action item. And he will have a review of Tero’s new appendix.

Sturek: I can eliminate RTS/CTS if the total MSDU size is added to the abort. Would that minimize the points of disagreement? I can also make the transaction ID optional. Kivinen: do we actually need a 16-bit transaction ID? Sturek: we think there could be 4 different Protocol IDs on the same device. That might increase the chance of overlap. Kivinen: you wouldn’t be able to assume no overlap, even with 16 bits. Sturek: while we initial transfer both Protocol ID and Transaction ID, later frames are down to Transaction ID only. Kivinen: which leads to excess bits being transmitted – it might suffice to use 4 bits in practical situations. Sturek: we were not coordinating transaction IDs. Kivinen: but you have a uniqueness requirement. And sleeping devices may restart their transaction IDs at zero each time they wake up because they don’t store these values long term. Sturek: I’ll write up my proposal and post it.