IEEE P802.15

Wireless Personal Area Networks

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | **SB comment resolutions from BRC minutes** |
| Date Submitted | 8 July 2015 |
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| Re: | [] |
| Abstract | [Comment resolutions extracted from BRC call minutes after Vancouver and before Waikoloa] |
| Purpose | [For reference and possible insertion into comment resolution database] |
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Comment resolutions from BRC minutes

* i2: accept, really editorial, figure 21 as referred doesn’t exist
* i3: accept, figure 21 is different
* i5: accept
* i7: accept
* i8: revise as per document 15-15-450-01 but refer to CSMA in figures 19, 20, 21and PCA allocation in Table 1
* i-9: accept
* i-15: discussion on the proposed resolution resulting in the following -  6.3.6, line 30; Change text to read "Depending upon the routing protocol used by the higher layer, the join metric denotes the proximity of the beaconing device to a network designated device in the TSCH network such as the PAN coordinator.  A lower value of the join metric indicates that the beaconing device is a shorter route distance to the designated device.

8.4.2.3, pg. 298, Table 135, line 18, change:

* 1. Attribute:  macJoinMetric
	2. Type:  Integer
	3. Range:  0x00-0xff
	4. Description:  The sum of one added to the Join metric value from the TSCH Synchronization IE (7.4.4.2) received from the Enhanced Beacon frame used by the device joining the network.  If the device is the network designated device such as the PAN coordinator, the value shall be set to zero.
	5. Default: 1
* i-17: Continued from discussion in Vancouver, there is no consensus. Action item: Kinney to review proposed resolution in document 0388-02 with TSCH interests and report acceptability and if not acceptable provide an alternate resolution that satisfies the needs of the TSCH users.
* i-17 resolution needs to include encoding rules that are consistent with shipping units, P Kinney to investigate
* i-20:  Following discussion in Vancouver, it was raised that the removal of "level 4" creates a problem with TSCH implementations.  This affects the need for the example.  The proposed resolution also suggests inclusion of 2 additional examples which have not yet been contributed
* i-20: Reject, "example of security processing a data frame uses level 4, encryption only, which is not supported by the standard” was rejected as Security Level 4 is being added back into the draft.
* i-28: Revise as per (15-15-0507-01).  Note that since the IEs are to be contained within Beacons, there will be no delay due to CSMA backoffs
* i-44: Reject, the reason for reject is given in Doc 0388 but change the first sentence to "The current text is correct."
* i-45: Action: Pat Kinney to review Tero's proposed resolution WRT TSCH and confirm or propose alternative text.
* i-57: proposed change of "Add the AckTx parameter to the MCPS-DATA.indication primitive and add the description in Table 129” did not seem to be justified, agreement was to send request to Verotiana Rabarijaona requiring more substantial justification
* i-181: revise, as per document 15-15-450-01, check PICS to make sure they are in agreement
* i-263: revise, as per document 15-15-450-01, (fix spelling errors) and add case where it is set to zero
* i-284: revise as per document 15-15-450-01, change DSSS and FSK IE’s names to include LECIM since these IEs are only used for LECIM
* i-319, i-320: ChannelOffset issues: It was agreed that ChannelOffset is ill defined.  ChannelOffset is the channel number difference (i.e. offset) from than the channel specified by the hopping sequence, it is contained within the link information field on the slot frame descriptor.  Change figure 22 to illustrate the concept of the channel offset along with ASNs such as below.



* i-333: revise, value of zero indicates the TID field is a reserved field
* i-335: reject, commenter’s optimization is not necessary
* i-361: revise, reinsert spreading factor as in 15.4k, exponent of max spreading factor
* i-362: revise as per document 15-15-450-01, spreading factor exponent’s range expressed as 4 - 15
* i-336: accept
* i-338: accept
* i-339: accept
* i-340: revise as per 450-01 but replace “can" with “may” and delete the bit nomenclatures
* i-346: revise, as per 450-01 but replace “can" with “may” and delete the bit nomenclatures
* i-360: revise, rather than changing text to make it consistent, text was changed to reference text defining the behavior
* i-371: revise, “The KeySource is also invalid if macAutoRequestKeyIdMode is 0x01.”  discussion included comments on the changes are to be done to Table 153, and to delete the use of “explicitly” as it is not needed.
* i-376: discussion on the proposed resolution resulting in the following: "TSCH devices shall not send a coordinator realignment, and receiving devices shall ignore the coordinator realignment command upon reception”
* i-322: discussion on the proposed resolution resulting in the following - change to: "Enhanced Beacon frames for the TSCH mode shall not be encrypted.  Enhanced Beacon frames for the TSCH mode may be authenticated (security level 1, 2, or 3). NOTE: If Enhanced Beacon frames were encrypted the TSCH Synchronization IE used to transmit ASN to joining devices will be encrypted. The joining (or devices who has lost synchronization with network) need to know the ASN before they can decrypt the beacon frame, thus they cannot decrypt the beacons and cannot join the network using encrypted beacons..”
* i-360: Revise, use Tero's suggested fix to 7.3.3 text to make it consistent  with 6.7.2.  Ben observes that the same normative requirement is stated in both places; Action Item: James Gilb to review and suggest how to resolve the repetition of the normative text (i.e. where does it belong).
* i-351: Action item: James Gilb to review and approve Tero's suggested resolution or propose alternate text. That concludes discussion on document 0388-02.
* i-411: Revise, join priority and note are wrong
* Resolution - "related to i-15. It is understood that the use of priority is confusing given the other use of priority in this standard.  It is also understood that it should not be a note.
* Revise:
	1. Change the name from "join priority" to "join metric"
	2. Change text as per resolution of  i-15, i.e.  to read: "Depending upon the routing protocol the join metric denotes the proximity of the beaconing device to either the PAN coordinator or to the DODAG root (i.e. DAGRank).  A lower value of join metric indicates that the beaconing device is a shorter route distance to either the PAN coordinator or the DODAG root."
	3. 8.4.2.3, pg. 298, Table 135, line 18, change:
	4. Attribute:  macJoinMetric
	5. Type:  Integer
	6. Range:  0x00-0xff
	7. Description:  The sum of one added to the Join metric value from the TSCH Synchronization IE (7.4.4.2) received from the Enhanced Beacon frame used by the device joining the network.  If the device is either the PAN coordinator or the DODAG root, the value shall be set to zero.
	8. Default: 1
* i-418: accept
* i-419: channel hopping is not well defined.  It was agreed that although 6.2.10 states “... Devices may hop in a slotted mode (e.g., TSCH or DSME) or in an unslotted mode.” The slotted mode via TSCH is much better defined that unslotted.  It was further agreed to break 6.2.10 into two subclauses 6.2.10.1 and 6.2.10.2 describing mechanisms for slotted and unslotted.  The slotted uses a single sequence per slotframe with “global” synchronization. The unslotted requires neighbor devices to use the same sequence and synchronization to communicate to each other but networks may have many sequences without any global clock.
* i-419:  discussion on the proposed resolution resulting in the following "The slotted mode uses network coordination within a superframe or slotframe (i.e. DSME or TSCH, respectively) via a shared hop sequence during with synchronization among all devices participating in the network. Since the hop dwell time is usually one slot time, the network synchronization covers the needs of hopping and time slots.  This mechanism allows a node to communicate with one or many other nodes.

The unslotted mode often does not use network synchronization for hopping, e.g. networks may have many sequences without any global clock.  For neighbor devices to communicate, a node needs to know the other node's hop sequence and timing.   Devices may advertise their hop sequences and timing via Channel Hopping IE and the Hopping Timing IE in Enhanced Beacon frames .”

Note: there is an error in Table 35, the value for row 2 is missing.

* i-420: this comment deals with the construction and use of IEs, to verify the resolution doc 15-15-0090-06 IE Table was reviewed for these attributes, changes were made to the document resulting in version 07 and the following action items:
	1. Simplified GTS Specification - B Rolfe to check transmission by MACEndFragment
	2. MAC Metrics -   P Kinney to check with T Godfrey as to creators and users
	3. SUN IEs - J Gilb to check as to creators and users
* i-421: was discussed but call had to be adjourned due to time
* i-423: missing LinkOption bitmap.  resolution "related to i-16.   The original TSCH standard, 802.15.4e-2012, set up the concept of the linkOptions bitmap with TX, RX, and shared slots.  Changes to the draft have broken this concept and hence backward compatibility.  The LinkOption bitmap and the shared link is to be restored.
* i-425: revise, JoinPriority name is misleading, due to priority being used in PCA, the PIB entry is already being used in the field, relabel the PIB as JoinMetric
* i-430: discussion on SS Joo’s proposed resolution (15-15-419-00)
* "TRLE is not a network protocol operated over the MAC sublayer. TRLE does not use any of service primitives provided by IEEE 802.15.4 MAC sublayer. The purpose of TRLE is not for providing mesh networking, but for extending the range of a link between PAN coordinator and a device which form a star topology. TRLE provides a MAC sublayer filtering to relay a frame from PAN coordinator to a device or vice versa. TRLE operates in MAC sublayer.
* The combination of the features of IEEE 802.15.5 or TG10 layer 2 routing can’t replace the TRLE functions. By just placing a TRLE PAN relay between the PAN coordinator and devices, transparent link connectivity is supported without additional networking overhead to an end device. TRLE has enough features just for extending the range of a link in a star network composed of the IEEE 802.15.4 beacon-enabled devices or the IEEE 802.15.4 DSME-enabled devices."
* i-432: revise, change text to read: received, but MAC discarded the frame

"Integer" category of comments:

* i-258: Marked "revised" but no resolution details. Action: Pat to propose specific resolution details.
* i-269: No resolution details. Action: Ben to review and propose resolution details.
* i-280: No resolution detail. Action: Kunal Shah to review and propose resolution detail.

Accept:   Comment # i-249 i-250 i-251 i-252 i-253 i-254 i-255 i-270 i-247 i-248 i-260 i-261 i-275 i-273 i-278 i-279 i-281 i-282 i-283 i-285 i-288 i-290 i-293 i-291 i-294 i-295 i-297 i-299 i-300 i-302 i-303 i-304 i-305 i-381 i-382

Accept:  i-370, i-372 thru i-375, i-317, i-219, i-220, i-318, i-23 as per document 0388-02

Revise: Comment # i-259, i-271, i-272, i-276, i-289

i-286: Revise (15-15-0507-01), the decision to include a global statement in Clause 4 declaring that unless otherwise stated, number encoding is unsigned integers

i-301: Comment made that starting time needs an epoch, resolution, and formatting.  K Shah to resolve these issues

i-407: Comment requesting vendor specific commands.  Proposed resolution (15-15-0507-01) needed additional effort to complete.  Chair asked K Shah to identify an alliance that wanted a vendor specific command.