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
* i181: revise as per doc, check PICS to make sure they are in agreement
* i333: revise, value of zero indicates the TID field is a reserved field
* i263: revise as per doc (fix spelling errors) and add case where it is set to zero
* i335: reject, commenter’s optimization is not necessary
* i361: revise, reinsert spreading factor as in 4k, exponent of max spreading factor
* i7: accept
* i362: revise as per 450-01, spreading factor exponent’s range expressed as 4 - 15
* i284: revise as per 450-01, change DSSS and FSK IE’s names to include LECIM since these IEs are only used for LECIM
* i8: revise as per 450-01 but refer to CSMA in figures 19, 20, 21and PCA allocation in Table 1
* i425: revise, JoinPriority name is misleading, due to priority being used in PCA, the PIB entry is already being used in the field, relabel the PIBas JoinMetric
* i336: accept
* i338: accept
* i339: accept
* i340: revise as per 450-01 but replace “can" with “may” and delete the bit nomenclatures
* i346: revise, see i340
* 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 Rolf to check transmission by MACEndFragment
	2. MAC MetricsEndFragment -   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-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-432 MAC not able to further process
* i-421 was discussed but call had to be adjourned due to time
* i-360 was discussed, changed to revise, rather than make text consistent, text was changed to reference
* i-17 resolution needs to include encoding rules that are consistent with shipping units, P Kinney to investigate
* i-371 “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.  Doc ([15-15-0344-0](https://mentor.ieee.org/802.15/dcn/15/15-15-0344-05-0mag-revision-sb-comments.xlsx)7) was updated
* i-20 "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.   Doc ([15-15-0344-0](https://mentor.ieee.org/802.15/dcn/15/15-15-0344-05-0mag-revision-sb-comments.xlsx)7) was updated
* i-419: channel hopping is not well defined.  I 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-9: accept
* 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-418: accept
* i-411: join priority and note are wrong.
* Resolution - "related to i-15
	1. 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.
* Resolved:
	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 metricy 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-319,i-320: ChannelOffset issues: It was agreed that ChannelOffset is ill defined.  ChannelOffset is the difference in channels of the operating channel greater than the lowest valid channel, 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-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-376: discussion on the proposed resolution resulting in the following: "TSCH devices shall not send a coordinator realignment, and receiving devices shall ignore coordinator realignment 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-15: discussion on the proposed resolution resulting in the following -  6.3.6, line 30; Change text to read "Depending upon the routing protocol 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 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:
	+ Attribute:  macJoinMetric
	+ Type:  Integer
	+ Range:  0x00-0xff
	+ 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.
	+ Default: 1
* 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 any combination of the features of IEEE 802.15.5 or TG10 layer 2 routing can’t replace the TRLE functions. By just residing a TRLE PAN relay between the PAN coordinator and devices, transparent link connectivity is supported without additional networking overheads 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-17: Continued from discussion in Vancouver, there is no consensus. Action: 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-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-45 : Action: Pat Kinney to review Tero's proposed resolution WRT TSCH and confirm or propose alternative text.
* i-44 : Reject with the reason for reject  given in Doc 0388 but change the first sentence to "The current text is correct."
* 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: James Gilb to review and suggest how to resolve the repetition of the normative text (i.e. where does it belong).
* i-351 : Action: James Gilb to review and approve Tero's suggested resolution or propose alternate text. That concludes discussion on document 0388-02.

Discussion on "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.
* i-286 No resolution detail. Action: Kunal Shah to review and propose resolution detail.

The following marked resolutions in (15-15-0344-04) are reviewed and found "done" and ready to be implemented:

Resolution 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

Resolution REVISE: Comment # i-259, i-271, i-272, i-276, i-289