**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title |  | |
| Date Submitted | [17 Mar 2014] | |
| Source | [] [] [Lake Zurich, IL] | Voice: [+1.847.960.3715] Fax: [] E-mail: [pat.kinney@kinneyconsultingllc.com] |
| Re: | [802.15 Maintenance and WNG Meeting in Berlin, Germany, March 2015] | |
| Abstract | [IEEE 802.15 Maintenance and WNG Standing Committee Minutes] | |
| Purpose | [Official minutes of the Standing Committee Session] | |
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**IEEE 802.15 Wireless Interim Meeting – Session #95**

**Berlin, Germany**

**March 9-12, 2015**

**SC Maintenance**

**Monday 9 March 2015**

**13:30** SC Maintenance called to order by Chair, Pat Kinney, Kinney Consulting

* Presents 15-14-0481-00 SC Opening Report.
  + Chair asked if there any one has knowledge of essential patents and provides an opportunity for response: **None heard**.

**Agenda**

* Monday 9 March, PM1
  + Review DF4 - Security section
* Tuesday, 10 March, PM1
  + Review DF4 - IE section
* Wednesday 11 March, AM1
  + Review DF4 - CSMA figures and text
* Wednesday 11 March, PM1
  + Review DF4 - TSCH
* Thursday 12 March, AM1
  + Discussion on LLDN and indirect transmission for broadcast frame
* Thursday 12 March, AM2
  + Review DF4
* Thursday 12 March, PM1
  + Review DF4
* Thursday 12 March, PM2
  + BRC formation, approval of draft, conf call scheduling

Focus for this meeting slot is to review the security section of DF4

Clause 9

9.2.1:

* Define KeyIndex, etc for when a frame is sent automatically take the PIB entries and are set to those values
* Correct spelling of “addressing”
* Add text to explicitly state that the steps are followed in orderChange phrase “failed status” to “status set to failed”DONE: In 9.2.1, fix spelling of Addrressing
* DONE: Auxilliar, Auxiiliary, check elided
* DONE: set to thecorresponding

9.2.3:

* Change phrase “not set to zero” to “set to one”
* Change phrase “frame to be secured” to “frame to be validated” and “unsecured frame” to “validated frame”DONE: 9.2.3, change "not set to zero" to be "set to one" here and in 9.2.4.
* DONE: 9.2.3 Head field -> Header field
* 9.2.3 Check to see what the correct way to do Source PAN ID with PAN ID compression.
* DONE: 9.2.3 h 1) secKeyFrameCounter element of the KeyDescriptor. -> secDeviceFrameCounter element of the DeviceDescriptor.
* DONE: 9.2.3 h) then secKeyFrameCounter shall be incremented -> then secDeviceFrameCounter element of the DeviceDescriptor shall be set to the Frame Counter plus one. and change shall be incremented -> shall be set to the Frame Counter plus one.
* DONE: 9.2.3 m) Need to pass "IEs from frame"
* DONE: Delete "for each IE in the frame to be unsecured"
* DONE: In 9.2.3, 9.2.7b -> correct cross reference.

9.2.4:

* DONE: In 9.2.4, change "frame to be unsecured" to be "frame to be validated" and "unsecured frame" to be "validated frame" globally in 9.2.4.
* In 9.2.4, check the Device PAN ID setting for the source, same as before.
* In 9.2.4, Jeritt will provide the appropriate cross reference for the security policy tables for IEs.
* DONE: In 9.2.4, j)Need to pass "IEs from frame", delete second period. Delete "which contains the status for each IE in the frame to be unsecured"

9.2.5

* DONE: 9.2.5 failed Status -> Status set to FAILED
* DONE: 9.2.5 IeSatusList -> IeStatusList

9.2.10

* DONE: 9.2.10 secComandIdentifier -> secCommandIdentifier.
* DONE: IeSatusList -> IeStatusList

9.3.2.1

* DONE: For 9.3.2.1, Security Level field is an unsigned integer that shall be set to the value of the Security Level field of the Security Control field.

9.3.2.2

* DONE: 9.3.2.2 "ASN in which" to be "ASN during which"

**15:30** SC Maintenance meeting recessed

**SC Maintenance**

**Tuesday 10 March 2015**

**13:40** SCm called to order

Focus for this meeting slot is to review the IE section of DF4

Corrections:

* Clause 7
  + Table 19 add use defined in column
  + 7.4.43.0 Vendor specific IE not IEs
  + In 9.2.1, define the KeyIndex, etc for when a frame is sent automatically to be the PIB entries, and are set to those values.
  + DONE: Typo "defind in 9.3.2.1"
  + 7.4.4.30 - Vendor Specific IE not IEs
  + 7.5.4.3 "macSlotframeHandle for this slotframe." -> macSlotframeHandle for this slotframe from macSlotframeTable". Also for the rest of them.
  + 7.5.4.4 change to be 0/2/3 and note that the length determines the fields.
  + 7.5.4.5 add "shall be an unsigned integer"
  + 7.5.4.31 Configurationshall add space
* The Enhance Beacon Request command -> The Enhanced Beacon Request command
* 6.3.6 TSCH Synchronization IE, containing time information so -> TSCH Synchronization IE, containing \_timing\_ information so
* Add 2 or three examples of Channel Page/Channel number.
  + If Channel Number = 0xAB and Channel Page =0x7C, then if 1 0x7CAB is the channel number.
  + Else, if 0, channel number is 0xAB, and channel page is 0x7C
* Add Ack to the Ackronyms.
* Sequence Number Suppression Field -> Sequence Number Suppression field and check throughout for capitalized "Frame"
* Destination Address Mode field shall contain the value of the Source Address Mode field -> Destination Addressing Mode field shall contain the value of the Source Addressing Mode field
* Below, there is a lower case "mode" that needs to be capitalized.
  + Global check "Address Mode field" -> "Addressing Mode field"
* accountability, and many others. -> accountability.
* PAN identifier (ID is missing closing parentheses.
* Clause 4
  + preceeding -> preceding
  + In 5, fix "with data rates rendering practical ranges of over 50 km"
* Clause 6
  + maxMinBe -> macMinBe Globally, inc. Figure.
  + Check TschCCA should it be TschCca?
  + (2BE - 1) shared is not superscripted in Figure 19. Arrow too short under PCA question and retransmit frame on the right.
  + Put () around maxMinBe – 1 in the text that says maxMinBe – 1 or 1
  + In Figure 21 arrow not connected below TB = TB–1, reformat to be one line, use slotted to decide if to delay and return otherwise.
  + Header row missing from "Table 3—Channel access for response to an Enhanced Beacon Request command" and change widow/orphan perhaps.
  + Connect arrow on Enhanced Beacon with IEs in Figure 33—Enhanced Active scan with Enhanced Beacon request
  + TSCH MODE -> MLME-TSCH-MODE (and search for TCSH just in case)
  + Search for MLME\ and add dash if it is an MLME call.
  + MLME-ASSOCIAT.indication -> MLME-ASSOCIATE.indication
  + TrackBEeacon -> TrackBeacon
  + MLME-SYNC.request (TRUE) -> MLME-SYNC.request (TrackBeacon = TRUE) to match usage above.
  + 2 μs. should not have the unit.
  + Add ballot comment to fix "To remain synchronized, the devices should have the same notion of when each timeslot begins and ends, within +/- macTsRxWait/2 μs."
  + Pat: work on "In this example, the PAN coordinator acts as the time source for the entire network, i.e., macLinkTimekeeping is TRUE" also"— If the originator was a time source neighbor, i.e., macLinkTimekeeping is TRUE, the receiver adjusts"
* Table 137 (Clause 8) Change "false" to "FALSE", delete extra macLinkType.
  + Pat: work on Table 137—TSCH-MAC PIB attributes for macLinkTable, should it only be short address or long address and if short address do you keep PAN ID.
* Make into list "one of a Multipurpose frame, a Data frame or a MAC command with the Frame Version field set to 0b10," and that Data frames are for 0b10
* shall be copied into the Sequence Number field of the Imm-Ack frame -> the value of the Sequence Number field included in the received Data frame or MAC command shall be used for value of the Sequence Number field of the Imm-Ack frame
* Unless otherwise stated, the Enh-ACK response to a secured frame may either be secured or non-secured. -> "The Enh-ACK response shall have security enable if the frame was secured and shall be unsecured otherwise" (needs work).
* Data request -> Data Request command in Figure 52—Message sequence chart for requesting data from the coordinator when the coordinator does not have data pending and Ack instead of Acknowledgment.
* GTS Request - GTS Request command in Message sequence chart for GTS allocation initiated by a device, look for Acknowledgment in MSCs.
* DSME GTS Request -> DSME GTS Request command in "Message sequence chart for DSME GTS allocation and management"

**15:20** meeting recessed until Wednesday, AM1

**SC Maintenance**

**Wednesday 11 March 2015**

**08:01** SC Maintenance called to order by Pat Kinney, chair.

Focus on SCm clause 8 and figures such as CSMA-CA, PCA, etc.

**10:00** SCm recessed until Thursday, AM1

**SC WNG meeting**

**Wednesday 11 March 2014**

**11:30** SC WNG called to order by Chair P Kinney, Kinney Consulting

* + **What is an Ultra Low Power PHY?** by J Gilb (15-14-0572-03)
    - PAR is not sufficiently aggressive
    - C[[1]](#footnote-1): while no disagreement, proper time for discussion was 2-3 years ago, suggest to complete current project with ability to start a new project with tougher goals later. R: too many 15.4 PHYs without having another not sufficiently different. C: believe that current proposal achieves most of the requirements stated in presentation. C: response made to J Gilb’s proposal in previous meeting. C: bad idea to amend a 2-year old PAR C: need to tighten the 4q draft standard.
  + **Next Generation Gbit/s Optical Wireless Communications and Introduction of OPTICWISE Scientific Network** by Murat Uysal, Volker Jungnickel (15-15-0193-01)
  + **Proposal to modify TG4r PAR** by P Kinney

**12:05** SCwng meeting adjourned

**SC Maintenance**

**Wednesday 11 March 2015**

**13:30 called to order**

Changes:

Clause 8

MLME-BEACON-NOTIFY.indication

change Sdu -> BeaconPayload, Set of octets -, The Beacon Payload field, if present.

MLME-IE-NOTIFY

Add CommandType

Add source addressing, replicate MCPS-DATA.indication

Check cross reference for Table

Table 82—MLME-SCAN.request parameters

HeaderIeIdList -> HeaderIeList and same for Payload.

MLME-START.request

Delete: IeId List of IEs Any valid IE, as defined in 7.4. Determines which IEs are sent in the Enhanced Beacon frame

HeaderIeIdList -> HeaderIeList

Table Elements of HoppingDescriptor doesn't have a header row.

6.2.5.2 TschCca was set to TRUE -> TschCca is set to ON

LINKSATUSRPT - LINK-STATUS

7.4.4.1 - Add 0x00-0x0f as reserved for Long format Sub-ID

5 parameters for all IEs, HeaderIeList, PayloadIeList, HeaderIeIdList, NestedIeSubIdList for .request only.

aRCCNBaseSlotDuration -> aRccnBaseSlotDuration

macDSN - Can we delete it? Future comment.

macLIFSPeriod, macSIFSPeriod, macMPMIE, macNBPANEnhanced, macFCSType, macLECIMAlohaUnit, macPCAAllocation, macTSCHcapable, macExtendedDSMEcapable, macLEHSenabled (and the rest of the table) fix capitalization

that the lew energy handshake is not used. lew -> low

macCslChannelMask change range to long dash

Globally change 65535 to 0xffff.

EBRPermitJoining should be macEBRPermitJoining, macEBR -> macEbr

macEBRattributeList -> macEbrAattributeList

macEBRFilters should be deleted.

Clause 8: MLME-BEACON 8.2.19.1 8.2.19.2 two copies.

Alphabetize list in Table 57.

Delete macEAckIElist

DONE: Figure 18, Change first Channel Idle to be "Shared slot?"

DONE: Figure 19, NB=1, extra Y next to right hand sized NB>macMaxFrameRetries.

Dedicated link? should be Shared slot and flip Y-N, Y is missing.

**Done: Pat: Look at putting in TschCca into Figure 19**.

Delete CCA subclauses from all PHYs, except HRP UWB and note that CCA modes 5 and 6 are only valid for the HRP UWB PHY.

Fix MIE1 with cross references.

**SC Maintenance**

**Thursday 15 May 2014**

**08:10** called to order by chair

# Low Latency Deterministic Network

# M Bahr presented 15-15-0249-00, and 15-15-0174-00 supporting the addition of LLDNs to 802.15.4

# Indirect broadcast frames

# N Sato lead the group in discussion of indirect transmissions of broadcasts for non beacon-enabled PANs

**09:33** SC Recessed until AM2.

**10:40** called to order by chair

Done: Pat: work on "In this example, the PAN coordinator acts as the time source for the entire network, i.e., macLinkTimekeeping is TRUE" also"— If the originator was a time source neighbor, i.e., macLinkTimekeeping is TRUE, the receiver adjusts"

Table 137 (Clause 8) Change "false" to "FALSE", delete extra macLinkType.

Done: Pat: work on Table 137—TSCH-MAC PIB attributes for macLinkTable, should it only be short address or long address and if short address do you keep PAN ID.

**12:05** recessed until PM1

**13:40** called to order by chair, Pat Kinney

Draft editing continued with changes placed in DF5.

**15:00** meeting recessed until PM2

**16:05** Called to order by chair Pat Kinney.

* Chair reviewed the closing report, conference call times and dates were agreed upon, and motions made:

**Motion:**

*SCm requests that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the 802.15.4 Revision draft standard with the following membership:* Pat Kinney, James Gilb, Jeritt Kent, Benjamin Rolfe, Clint Powell, Billy Verso, Kunal Shah, Dalton Victor, Phil Beecher, Fumihide Kojima, Tero Kivinen, and Tim Harrington. *The 802.15.4 Revision BRC is authorized to approve comment resolutions and to approve the start of balloting the 802.15.4 Revision draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector at least 30 days in advance.*

Ed Callaway moved, Ben Rolfe seconded. Upon no opposition the motion carries with unanimous consent.

**Standing Weekly Conference Call:**

* Mondays and Wednesdays at 15:00 PDT, 17:00 CDT, 01:00 EEST, Tuesday and Thursday at 07:00 JST
* Next 3 calls: 30 March, 1 April, 6 April, 2015

**Recirculation Motion:**

* *Move that SC maintenance request that 802.15 WG approve start of a recirculation of WG Letter Ballot* P802.15.4-REVc-DF5 *to Sponsor Ballot.*

Jussi Haapola moved, Tero Kivinen seconded. Upon no opposition the motion carries with unanimous consent.

# Sponsor Ballot:

# Motion: *802.15 SC maintenance requests the 802.15 WG request conditional approval from the EC to submit P802.15.4-REVc-D00 revision draft to Sponsor Ballot pending recirculation.*

# Moved by Tero Kivinen, Seconded by Jeritt Kent

# Upon neither discussion nor objection the motion carries.

**17:00**: Motion to adjourn, upon no opposition meeting was adjourned.

1. C – comment, Q- question, R - response [↑](#footnote-ref-1)