**IEEE P802.15**

**Wireless Specialty Networks**

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| Project | IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs) | |
| Title | **Maintenance items for the IEEE Std 802.15.4-2024** | |
| Date Submitted | 17th September 2025 | |
| Source | Tero Kivinen | E-Mail: kivinen@iki.fi |
| Abstract | Maintenance items to be fixed in the next revision. | |
| Purpose | Provide list of technical issues in current standard for future reference. | |
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1. Maintenance items
   1. Size of the matrix

* In section 15.1.2 Preamble field:
* The text here says:  
    
  where ones(0:N) for integer number N is defined as a 1-by-N matrix of ones.
* This should be 1 by N+1 (i.e., ones(0,31) is a 1 by 32 matrix)?
  1. Error in the 4m NPAD calculation
* In Section 27.3.6 Pad bit insertion:
* During the original 4m submission in the balloting processing the line got accidentally change from

NPAD = NDATA - 8 \* LRS + 6

to

NPAD = NDATA - (\* LRS + 6)

The correct formula for this is:

NPAD = NDATA - (8 × LRS + 6)

* 1. Duplicate figure and missing figure
* In Section 10.26.3.4 Multi-PHY IE:
* Figure 10-176 is the same as Figure 10-174 "RS-GFSK Device Capabilities IE Content field format". (This figure was the same as this in 802.15.4-2020.)
* This should have content as in Figure 7-101d in 802.15.4t-2017, but mistake was made during IEEE Std 802.15.4-2020 revision process.
  1. Repeated channels
* Section 11.1.3.3 Channel numbering for 868 MHz, 915 MHz, and 2450 MHz bands
* This section repeat channels 0 to 10 twice.
* In 802.15.4-2020, they were distinguished by "channel page", which does not appear in this revision.
  1. Incorrect text in DSME Association Response command
* Section 10.4.12.2 DSME Association Response command
* Description of this command is not covering the Association Response command, it is describing the command from unassociated device to coordinator, not the coordinators response.
* It was already broken in IEEE Std 802.15.4e-2012.
  1. GTS Device Address List
* Section 10.25.8.1 Simplified GTS Specification IE
* This references GTS Device Address List" in 7.3.1.5, but there no definition for "GTS Device Address List" in 7.3.1.5.
* It most means GTS List described in 7.3.1.5, but as there is no GTS Specification field in the IE, and that contains the GTS Descriptor Count, simply changing to use GTS List does not work.
  1. macMaxFrameRetries range

In the IEEE Std 802.15.4-2024 Table 8-36 lists the range for macMaxFrameRetries with range of 0-7. This has been found to be too small in some environments. Perhaps change the range to 0-31 or so.

* 1. Security processing for legacy frames

In the IEEE Std 802.15.4-2024 section 9.2.4 step a) there is text which refers the version number to reject frames with frame version 0b00. This is valid for Beacon, Data, Acknowledgment or MAC Command frames, but Multipurpose frames has different version numbering and there only defined version is 0b00.

Change the text to say:

1. **Legacy security.** If the Frame Version field of the frame to be unsecured is set to indicate IEEE Std 802.15.4-2003, the procedure shall return with a Status of UNSUPPORTED\_LEGACY.