**IEEE P802.15**

**Wireless Personal Area Networks**

|  |  |
| --- | --- |
| Project | IEEE P802.15 Wireless Specialty Networks (WSNs) |
| Title | **D6 PICS Correction** |
| Date Submitted | 16 May 2022 |
| Source | Bober, Kai LennertFraunhofer HHI | Voice: -Fax: -E-mail: bober@ieee.org |
| Re: |  |
| Abstract | This document contains an updated PICS for D7 |
| Purpose | Aid comment resolution |
| Notice | This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. |
| Release | The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15. |

**Legend:**

* Arial size 13 indicates subsections for individual comments
* Red underlined text needs to be adapted during the comment implementation (e.g., because it is a reference).
* Bold italic text is an instruction to the editor to implement the text

R2-59 R2-60 R2-61 R2-62 R2-63 R2-64 R2-65 R2-66

Replace term “device” with “member” in the whole document when considering a device that is a member of an OWPAN.

Replace Tables in Annex D, D3 with the following tables:

|  |
| --- |
| **Table D.1—Optional item groups** |
| **Item** | **Item description** |
| O.PHY | At least one PHY must be supported |
| O.TYPE | At least one device type must be supported. |

|  |
| --- |
| **Table D.1—Device types** |
| **Item** | **Item description** | **Reference** | **Status** | **Support** |
| DT-COO | Coordinator of an OWPAN. | 6 | O.TYPE |  |
| DT-MEM | Member device in an OWPAN. | 6 | O.TYPE |  |

|  |
| --- |
| **Table D.1—General device functions** |
| **Item** | **Item description** | **Reference** | **Status** | **Support** |
| GDF1 | Transmit an MPDU. | 6.2.3 | M |  |
| GDF1.1 | Assign sequence numbers to outgoing MPDUs. |  | M |  |
| GDF2 | Receive an MPDU. | 6.2.4 | M |  |
| GDF2.1 | Parse sequence numbers of incoming MPDUs | 6.2.4 | M |  |
| GDF2.2 | Filter duplicate MPDUs | 6.2.4 |  |  |
| GDF2.3 | Check MPDU FCS |  |  |  |
| GDF3 | Supports MD-SAP.request | 8.2.2 | M |  |
| GDF4 | Supports MD-SAP.indication | 8.2.3 | M |  |
| GDF5 | Supports coordinator core MLME interface | 8.3 | DT-COO:M |  |
| GDF6 | Supports member core MLME interface | 8.3 | DT-MEM:M |  |
| GDF7 | Set MAC and PHY PIB attributes | 8.3.6 | M |  |
| GDF8 | Get MAC and PHY PIB attributes. | 8.3.5 | M |  |

|  |
| --- |
| **Table D.3—MAC routines** |
| **Item number** | **Item description** | **Reference** | **Status** | **Support** |
| **OWPAN management** |
| MR-OM1 | Start and maintain an OWPAN as coordinator |  |  |  |
| MR-OM1.1 | Associate a new device as member |  |  |  |
| MR-OM1.2 | Disassociate a member |  |  |  |
| MR-OM1.3 | Change an attribute in a member device |  |  |  |
| MR-OM2 | Member of an OWPAN |  |  |  |
| MR-OM2.1 | Scan for active OWPANs | 6.4.2 | DT-MEM:M |  |
| MR-OM2.2 | Request association from a coordinator | 6.4.6 | DT-MEM:M |  |
| MR-OM2.3 | Disassociate from an OWPAN | 6.4.7 | DT-MEM:M |  |
| MR-OM2.4 | Change attribute according to coordinator | 7.6.9 | DT2:O |  |
| MR-OM |  |  |  |  |
| **Data transmission** |
| MR-DA1 | Transmit a single MSDU in a data frame |  |  |  |
| MR-DA2 | Transmit multiple MSDUs in a data frame |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Beacon-enabled channel access** |
| MR-BECA1 | Respect MIFS when operating in half duplex mode |  | M |  |
| MR-BECA2 | Support beacon-enabled channel access as coordinator |  | DT-COO:M |  |
| MR-BECA2.1 | Synchronize members |  |  |  |
| MR-BECA2.2 | Allocate time slices (GTS and RTS) |  |  |  |
| MR-BECA2.3 | Assign time slices to members |  |  |  |
| MR-BECA2.4 | Respect guard time when allocating TS |  |  |  |
| MR-BECA3 | Support beacon-enabled channel access as member |  | DT-MEM:M |  |
| MR-BECA3.1 | Synchronize to a coordinator |  | DT-MEM:M |  |
| MR-BECA3.2 | Perform random channel access |  | DT-MEM:M |  |
| MR-BECA3.3 | Transmit in assigned GTS |  |  |  |
| MR-BECA3.4 | Report Queue state |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Distributed MIMO transmission** |
| MR-MIMO1 | Transmit a single PPDU concurrently via multiple OFEs. | 6.9.2 | DT2:O |  |
| MR-MIMO2 | Feedback explicit MIMO CSI measured at the PHY | 6.9 | O |  |
|  |  | 7.6.9 | O |  |
|  |  |  |  |  |
| **Adaptive transmission** |
| MR-AT1 | Transmit essential elements with the PHYs base MCS |  |  |  |
| MR-AT2 | Request MCS from a device |  |  |  |
| MR-AT3 | Request use of a BAT from a device |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Interference detection** |
| MR-ID1 | Detect interfering, non-decodable signals | 6.4.8 | O |  |
| MR-ID2 | Detect interfering transmissions by parsing MPDUs in case a supported PHY and MPDU version is used. | 6.4.8 | O |  |
| MR-ID3 | Notify the coordinator about observed interference based on an implementation specific trigger. | 6.4.8 | O |  |
|  |  |  |  |  |
| **Fragmentation** |
| MR-FRAG1 | Fragment outgoing MPDUs | 6.5 | O |  |
| MR-FRAG2 | Reassemble fragmented MPDUs | 6.5 | O |  |
|  |  |  |  |  |
| **Retransmission** |
| MR-RT1 | Retransmit an MPDU on timeout | 6.7.4 | M |  |
| MR-RT2 | Send and receive single ACK |  |  |  |
| MR-RT3 | Send and receive block ACK |  |  |  |
|  |  |  |  |  |
| **Relaying** |
| MR-RELAY2 | Relayed device | 6.10 | O |  |
| MR-RELAY3 | Relay device | 6.10 | O |  |
| MR-RELAY4 | Coordinator supporting relaying | 6.10 | O |  |
|  |  |  |  |  |

|  |
| --- |
| **Table D.4— MAC frames** |
| **Item** | **Item description** | **Reference** | **TX****Status** | **TX****Support** | **RX****Status** | **RX****Support** |
| MF-MPDU1 | MPDUs with type data | 7.3 | M |  | M |  |
| MF-MPDU2 | MPDUs with type management | 7.4 | M |  | M |  |
| MF-MPDU3 | MPDUs with type control | 7.5 | M |  | M |  |
| MF-MPDU4 | Relay Control field in the MPDU |  | O |  | O |  |
| MF-MPDU5 | Fragmentation Control field in the MPDU |  | O |  | O |  |
| MF-ELX | Association Request element |  |  |  |  |  |
| MF-ELX | Association Response element |  |  |  |  |  |
| MF-ELX | Supported MCS element |  |  |  |  |  |
| MF-ELX | Announcement element |  |  |  |  |  |
| MF-ELX | Disassociation Notification element | 7.6.4 | DTCOO1:MDTMEM1:M |  | DTCOO1:MDTMEM1:M |  |
| MF-ELX | Block ACK Request Element | 7.6.12 |  |  |  |  |
| MF-ELX | Capability List element |  |  |  |  |  |
| MF-ELX | Sync element |  |  |  |  |  |
| MF-ELX | GTS Descriptor List elements |  | M |  |  |  |
| MF-ELX | GTS Descriptor element | 7.6.8 | M |  |  |  |
| MF-ELX | RTS Descriptor |  | M |  |  |  |
| MF-ELX | BAT Request element |  |  |  |  |  |
| MF-ELX | Attribute Change Request element |  |  |  |  |  |
| MF-ELX | Attribute Change Response element |  |  |  |  |  |
| MF-ELX | Alien Signal element |  | MR-ID |  |  |  |
| MF-ELX | MCS Request element |  |  |  |  |  |
| MF-ELX | Explicit MIMO Feedback element | 7.6.9 | MR-MIMO2 |  |  |  |
| MF-ELX | Supported MCS element | 7.6.18 | M |  | M |  |
| MF-ELX | PM-PHY MCS element | 7.6.19 | PL-PMPHY1:M |  | PL-PMPHY1:M |  |
| MF-ELX | HB-PHY MCS element | 7.6.20 | PL-HBPHY1:M |  | PL-HBPHY1:M |  |
| MF-ELX | Relay Device Configuration Request element | 7.6.26 | MR-RELAY1:M |  | MR-RELAY1:M |  |
| MF-ELX | Relay Device Configuration Response element | 7.6.27 | MR-RELAY1:M |  | MR-RELAY1:M |  |
| MF-ELX | Relayed Device Configuration Request element | 7.6.28 | MR-RELAY1:M |  | MR-RELAY1:M |  |
| MF-ELX | Relayed Device Configuration Response element | 7.6.29 | MR-RELAY1:M |  | MR-RELAY1:M |  |
| MF-ELX | Vendor Specific element | 7.6.24 | O |  | O |  |
| MF-ELX | Multiple Element Container element | 7.6.23 | M |  | M |  |

|  |
| --- |
| **Table D.3—Physical layers** |
| **Item** | **Item description** | **Reference** | **Status** | **Support** |
| **PM-PHY** |
| PL-PMPHY1 | PM-PHY is supported | 10 | O.PHY |  |
| PL-PMPHY1.1 | PM-PHY MIMO Pilots | 10.2.6 | O |  |
| PL-PMPHY1.2 | 12.5 MHz rate | 10.2.8 | PL-PMPHY1:M |  |
| PL-PMPHY1.4 | 25 MHz rate | 10.2.8 | O |  |
| PL-PMPHY1.5 | 50 MHz rate | 10.2.8 | O |  |
| PL-PMPHY1.6 | 100 MHz rate | 10.2.8 | O |  |
| PL-PMPHY1.7 | 200 MHz rate | 10.2.8 | O |  |
| **HB-PHY** |
| PL-HBPHY1 | HB-PHY is supported | 11 | O.PHY |  |
| PL-HBPHY1.1 | 50 MHz bandwidth | 11 | PL-HBPHY1:M |  |
| PL-HBPHY1.1 | 100 MHz bandwidth | 11 | O |  |
| PL-HBPHY1.1 | 200 MHz bandwidth | 11 | O |  |