**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | Updated HB-PHY header structure | |
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| Re: |  | |
| Abstract | Updated text for the HB-PHY header | |
| Purpose | Contribution | |
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1. **HB-PHY**
   1. 1. 1. **PHY header**

The PHY header is 168 bits long. It is transmitted over *D* consecutive OFDM symbols, where *D* may be either 1 or 2. The content of the core part is protected by the 16-bit header check sequence (HCS). The information bits contained in the HB-PHY header are as specified in Table 1.

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| **Bit** | **Field** | **Number of Bits** | **Description** |
| B0-B3 | Frame Type (FT) | 4 | The FT field indicates the PHY frame type. For compatibility and coexistence with other standards, the field is reserved to have a value of 0bxxxx. |
| B4-B25 | ***t.b.d*** | 22 |  |
| B26 | Extended Header Indication (EHI) | 1 | If EHI=”0”, the PHY header contains PHYH information bits. If EHI=”1”, the PHY header contains 2×PHYH information bits. |
| B27 | Header Segmentation Indication (HSE) | 1 | The HSE indicates whether the header is spread over two symbols. |
| B28-B31 | ***t.b.d*** | 4 |  |
| B32-B47 | Message Duration (MSG\_DUR) | 16 | The MSG\_DUR indicates the transmit duration of the frame. |
| B48-B49 | Block Size (BLKSZ) | 2 | The BLKSZ determines the block size of the FEC codeword applied in the data field of the PPDU. |
| B50-B52 | FEC Rate (FEC\_RATE) | 3 | The FEC\_RATE indicates the FEC coding rate applied in the data field of the PPDU. |
| B53-B55 | Repetition Number (REP) | 3 | REP indicates the number of payload repetitions as detailed in clause [Editor insert clause number]. |
| B56-B58 | FEC concatenation factor (FCF) | 2 | The FCF is detailed in clause [Editor insert clause number]. |
| B59-B62 | Scrambler Initialization (SI) | 4 | The SI field comprises the initialization bits for the Data scrambler as detailed in clause [Editor insert clause number]. |
| B63 | ***t.b.d.*** | 1 |  |
| B64-B68 | Bit allocation table ID (BAT\_ID) | 5 | BAT\_ID indicates the BAT used in the data field of the PPDU. |
| B69-B71 | Bandplan and subcarrier grouping identifier (BNDPLN / GRP\_ID) | 3 | The bandplan and subcarrier grouping ID. |
| B72-B74 | Guard Interval ID (GI\_ID) | 3 | The GI\_ID indicates the CP length used for the Data field of the PPDU. |
| B75-B151 | t.b.d. | 77 |  |
| B152-B167 | Header Checksum (HCS) | 16 | The HCS uses CRC-16 as defined in Annex [Editor insert annex number]. The HCS bits shall be processed in the transmitted order. The registers shall be initialized to all ones. |

1. Structure of the HB-PHY header

Depending on the value of the extended header indication (EHI) field in the core part of the PHY‑frame header, the PHY-frame header may be extended by additional 168 bits that are transmitted over an additional *D* consecutive OFDM symbols. If the EHI bit is set to one, additional PHYH bits representing the extended part of the PHY-frame header are appended to the end of the core part of the PHY-frame header. The extended part of the PHY-frame header shall be encoded and segmented exactly the same way as the core part, as described in Clause [Editor insert clause number]. The content of the extended part is protected by the 16-bit extended header check sequence (E\_HCS).The core part and the extended part of the PHY-frame header shall be transmitted over separate OFDM symbols, as illustrated in Figure 1.



1. Allowed cases of PHY-frame header transmissions