**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | Proposed resolution to MIMO Array training feedback command in the MAC section |
| Date Submitted | 14 April, 2016 |
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| Re: | LB114\_Consolidated\_Comments |
| Abstract | Proposes comment resolution on CID 3 and CID 4. Provides a proposed change in MIMO Array training feedback command in the MAC section, currently after 6.5.9.5. |
| Purpose | To be used by the technical editor to apply the necessary changes to the draft. |
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In this document we propose to insert a subsection to describe the array training feedback command, in the MAC section, after 6.5.9.5 along with the LB114 comments shown in the table below. After the document 15-16-0982r01 is uploaded, sub-clause number and figure number have been changed, hence this document proposes the concrete revisions.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** | **E/T** | **Must Be Satisfied? (enter Yes or No)** | **Resolution Status** |
| 3 | 50 | 6.5. | 15 | Table 6-22a does not contain Array Training Command. | Insert as shown in 15-16-0982r01. | T | Yes | Accepted |
| 4 | 55 | 6.5.9. | 21 | I cannot find description of the array training feedback command that was proposed in 15-16-0982r01. | Insert as shown in 15-16-0982r01. | T | Yes | Accepted |

Array training feedback command should be added in Table 6-22a as shown here. Changes are highlighted.

**Table 6-22a— Command types for HRCP**

|  |  |  |  |
| --- | --- | --- | --- |
| Command typehex valueb15-b0 | Command name | Subclause | Associated |
| 0x0000 | Association request | 6.5.1a.1 |  |
| 0x0001 | Association response | 6.5.1a.2 | X |
| 0x0002 | Disassociation request | 6.5.1a.3 | X |
| 0x0003 | Request key | 6.5.2.1 | X |
| 0x0004 | Request key response | 6.5.2.2 | X |
| 0x0005-0x000D | Reserved | - | - |
| 0x000E | Probe request for HRCP | 6.5.4.5a | X |
| 0x000F | Probe Response for HRCP | 6.5.4.6a | X |
| 0x0010-0x0017 | Reserved | - | - |
| 0x0018 | Transmit power change | 6.5.7.5 | X |
| 0x0019 | Array training | 6.5.9.5 | X |
| 0x001A | Array training feedback | 6.5.9.6 | X |
| 0x001B-0x00FF | Reserved | - | - |
| 0x0100-0xFFFF | Vendor specific | 6.5.9.2 | X |

Modify subclause 6.5.9. as follows.

**6.5.9 Special commands**

***Add the following subclauses after 6.5.9.4 as 6.5.9.5 and 6.5.9.6***

Insert a new sub-clause 6.5.9.6 as follows.

**6.5.9.6 Array training feedback**

Array training feedback command is used to notify the successful reception of Array training commands. This is sent from HRCP PNC to DEV. The Array training feedback command shall be formatted as illustrated in Figure 6-170c.

The list of successfully received training commands field indicates what numbers of Array training commands are successfully received by the HRCP PNC.

The RSSI report field indicates the RSSI value of each received Array training command signal at the HRCP PNC.

If the Resend all Array training commands field is set to 1, the DEV shall resend all Array training commands.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Octets: 2** | **2** | **L1** | **L2** | **1** |
| Command type | Length | List of successfully received training commands | RSSI report | Resend all Array training commands |

**Figure 6-170c—Array training feedback command format**

Here L1 is equal to ceil(*Nar*/8).

The list of successfully received training commands field is shown in Figure 6-170d.

Each reception status for Array training command field is set to 1 if that command is successfully received otherwise 0.

This field length is an integral multiplication of octets, padding the final block with zeros if necessary.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Bits: b0** | **b1** | **…** | **b(*N****ar***)-1** | **0-7** |
| Reception status for Array training command #1 | Reception status for Array training command #2 |  | Reception status for Array training command #*Nar* | 0 padding |

**Figure 6-170d— List of successfully received training commands field**

RSSI report is optional, and is as shown in Figure 6-170e.

|  |  |  |  |
| --- | --- | --- | --- |
| **Octets: 1** | **1** | **…** | **1** |
| RSSI of Array training command #1 | RSSI of Array training command #2 | … | RSSI of Array training command #*Nar* |

**Figure 6-170e — RSSI report field**

Values in the RSSI of Array training command field are shown in Table 6-26a. The resolution of this field is 1 dB and therefore has a range of -71 ~ -10 dBm.

**Table 6-26a— Valid Number of RSSI of Array training command field value**

|  |  |
| --- | --- |
| **Value** | **RSSI of the Array training command [dBm] or reception status** |
| 0x00 | Not received |
| 0x01 | -71 |
| … | … |
| 0x3F | -10 |
| 0x40-0xFF | Reserved |