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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | **Proposed Modifications to DC Link Creation for BS-Controlled DC in IEEE 802.16.1a** |
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| Re: | In response to Sponsor Ballot sb010a on P802.16.1a/D5 |
| Abstract | This contribution proposes modification to link creation in IEEE 802.16.1a. |
| Purpose | To discuss and adopt the proposed texts in the IEEE 802.16.1a Draft Standard. |
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Proposed Modifications to DC Link Creation for BS-Controlled DC in IEEE 802.16.1a

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# Introduction

In the current draft standard [1], when DC link is created, an HR-BS sends AAI-DC-LC-REQ messages to both source and destination HR-MSs, which include two TWDC addresses for transmitting and receiving as identification of DC link. When an HR-BS needs to request creation of multiple DC links with different HR-MSs to an HR-MS, there is no way how to distinguish each link. Therefore, we suggest how to distinguish each DC link when its creation is requested. Also, an HR-BS needs to send multiple AAI-DC-LC-REQ messages even though it wants to create multiple DC links for an HR-MS with different HR-MSs. Support of multiple DC link creations is suggested for better efficiency. Similarly, in case of messaging AAI-DC-LC-RSP, it needs to support sending multiple responses on each DC link creation request in an AAI-DC-LC-RSP message.

# References

[1] IEEE P802.16.1a/D5, WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems - Draft Amendment: Higher Reliability Networks, Aug. 2012.

# Proposed Texts on the IEEE 802.16.1a Amendment Draft Standard

The proposed texts are written in three different types of fonts according to each change purpose as follows.

The same texts in the current draft: black

The texts to be deleted by this contribution: ~~red strikeout~~

The texts to be added by this contribution: blue underline

[-----------------------------------------------------Start of Text Proposal------------------------------------------------------]

*[Remedy #1: Modify the current texts in Section 6.2.3.65.14 on Page 73 in the IEEE P802.16.1a/D5 Draft Standard as follows.]*

**6.2.3.65.14 AAI-DC-LC-REQ**

When HR-BS creates direct communication link between two HR-MSs. It shall send link creation message to both source and destination HR-MSs. Direct communication link creation can only be initiated by the HR-BS.

**Table 106o – AAI-DC-LC-REQ message field description**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Size****(bits)** | **Value/Description** | **Condition** |
| For (*i*=0; *i*<N-DC-Link; *i*++) { |  | N-DC-Link is the number of DC links [1..4] |  |
| FID | 4 | Indicates which DC link needs to be created, which is corresponding to the flow of this FID | mandatory |
| Uplink/Downlink Indicator | 1 | Indicates which DC link needs to be created, which is corresponding to the flow of this link direction | mandatory |
| TWDC address for transmitting | 12 | Address assigned to DC link | mandatory |
| TWDC address for receiving | 12 | Address assigned for DC link | mandatory |
| } |  |  |  |

**FID and Uplink/Downlink Indicator**

* A pair of FID and Uplink/Downlink Indicator is used to indicate which DC link creation is requested, which is corresponding to the flow of the FID and Uplink/Downlink Indicator.

**TWDC address for transmitting**

* The TWDC address is used by the HR-MS for transmitting. The peer HR-MS of the DC-link shall receive on the resource scheduled with this TWDC address.

**TWDC address for receiving**

* The HR-MS shall receive on the resource assigned to this TWDC address since it is assigned to the peer HR-MS on the DC-Link for transmission.

*[Remedy #2: Modify the current texts in Section 6.2.3.65.15 on Page 73 in the IEEE P802.16.1a/D5 Draft Standard as follows.]*

**6.2.3.65.15 AAI-DC-LC-RSP**

The HR-MSs shall send back a response once they receive the direct communication link creation request.

**Table 106p – AAI-DC-LC-RSP message field description**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Size****(bits)** | **Value/Description** | **Condition** |
| For (*i*=0; *i* <N-DC-Link; *i*++) { |  | N-DC-Link is the number of DC links [1..4] |  |
| TWDC address for transmitting | 12 |  | mandatory |
| Confirmation Code | 1 | 0b0: accept0b1: reject | mandatory |
| } |  |  |  |

Once the HR-BS receives responses from both HR-MSs, it can continue on other steps of direct communication setup.

[------------------------------------------------------End of Text Proposal------------------------------------------------------]