Project	IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>	
Title	Calculating the Non-pre-assigned DL/UL Radio Resources (harmonized version)	
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Re:	IEEE 802.16 Session #48	
Abstract	This harmonized contribution proposes the updates of IEEE 802.16g D8 document in order to calculate the Non-pre-assigned DL/UL radio resources.	
Purpose	Update 802.16g draft: calculate the Non-pre-assigned DL/UL radio resources.	
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Calculating the Non-pre-assigned DL/UL Radio Resources

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1. Introduction

Currently in 802.16g/D8, it is not clear how to evaluate and report the available radio resources. This contribution provides text that explains it further and includes it in the DCD and UCD messages.

2. Proposed Text Change

Remedy 1:

Add two configurable parameters for the window size over which the Available DL or UL Radio Resources are calculated.

[Add the following entries to Table 342]:

Table 342 Parameters and Constants

Systems	Name	Time references	Minimum Value	Default Value	Maximum Value
BS	DL_radio_resources_window_size	The number of frames over which the Available DL Radio Resources are calculated.		200	
BS	UL_radio_resources_window_size	The number of frames over which the Available UL Radio Resources are calculated.		200	

Remedy 2:

In order to factor the loading information when determining a target BS for initial entry and handover, the radio loading condition is provided in the DCD message.

[Add to table 358 – DCD channel encoding the following entry]:

Name	Type (1 Byte)	Length	Value	PHY Scope
Available DL Radio Resources	23	1	Indicates the average ratio of non-assigned DL radio resources to the total usable DL radio resources. The average ratio shall be calculated over a time interval defined by the DL_radio_resources_window_size parameter (Table 342). The reported average ratio will serve as a relative load indicator. This value can be biased by the operator provided it reflects a consistent representation of the average loading condition of BSs across the operator network. 0x00: 0%	All

			0x01 : 1%, ..., 0x64 : 100% 0x65 - 0xFE : reserved, 0xFF indicates no information available	

Remedy 3:

In order to factor the loading information when determining the target BS for initial entry and handover the uplink radio loading condition is provided in the UCD message.

[Add to table 349 – UCD common channel encoding the following entry]:

Name	Type (1 Byte)	Length	Value
Non-pre-assigned UL radio resources	24	1	Indicates the average radio of non-assigned UL radio resources to the total usable UL radio resources. The average ratio shall be calculated over a time interval defined by the UL_radio_resources_window_size parameter (Table 342). The reported average ratio will serve as a relative load indicator. This value can be biased by the operator provided it reflects a consistent representation of the average loading condition of BSs across the operator network. 0x00: 0% 0x01 : 1%, ..., 0x64 : 100% 0x65 - 0xFE : reserved, 0xFF indicates no information available

Remedy 4:

There is no need to specify the available DL/UL radio conditions in the MOB_NBR-ADV. It is moved into the DCD and UCD sections and will be advertised by the MOB_NBR-ADV message when the DCD/UCD values of the neighboring BS is different than the serving BS.

[Remove sections 11.18.2 and 11.18.3 from 802.16g]:

Remedy 5:

Change the reported Non-pre-assigned DL (or UL) radio resources in 802.16g/D8 to Available DL (or UL) Radio Resources

[Change the last two lines in section 6.3.2.3.47 in 802.16g/D8]:

For each advertised Neighbor BS, the following TLV parameters may be included:

Available DL radio resources
Available UL radio resources

Remedy 6:

Change the reported Non-pre-assigned (DL/UL) radio resources in 802.16g/D8 to Available (DL/UL) Radio Resources

[Change section 6.3.9.5.1 in 802.16g/D8]:

2—For multichannel support, the SS shall attempt initial ranging on every suitable uplink channel before moving to the next available downlink channel. Suitability of a channel is determined by conditions that include RSSI, CINR and the Available DL/UL Radio Resources.