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 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 calculate the Non-pre-assigned DL or UL radio resources. This contribution resolves these issues.

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 percentage of the available radio resources for DL use. Available DL Radio Resources shall be defined as the set of subchannels and/or symbols within a radio frame, which are not presently assigned. The average shall be taken over a non-overlapping time interval defined by the DL_radio_resources_window_size parameter (Table 342). The reported average will serve as a relative load indicator that can be biased by the operator and reflects a consistent loading condition of BSs across the operator network.	All

			0x00: 0% 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 available radio resources for UL use. Available UL Radio Resources shall be defined as the set of subchannels and/or symbols within a radio frame, which are not presently assigned. The average shall be taken over a non-overlapping time interval defined by the UL_radio_resources_window_size parameter (Table 342). The reported average will serve as a relative load indicator that can be biased by the operator and reflects a consistent 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 Non-pre-assigned DL (or UL) radio resources 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 (see 11.18.2)
Available UL radio resources (see 11.18.3)

Remedy 6:

Change the Non-pre-assigned DL/UL) radio resources 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.