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Re:	IEEE 802.16 Session #47 plus over the phone	
Abstract	This contribution proposes the updates of IEEE 802.16g D7 document in order to obtain loading information from the Base Station	
Purpose	Update 802.16g draft to include BS redirection option for a ranging MS	
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Option to Redirect ranging MS to another Carrier or channel

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1. Introduction

In some cases during the initial ranging and network entry the BS may want to handover an MS to another channel or a carrier. If not done initially, the MS needs to enter the network and follow its initial follow a quick BS initiated handover procedure. A more expedited process is a channel redirection when multiple carriers are available in the vicinity of the BS/sector. Since the Offset Frequency Adjustment TLV is a 32 bits value the redirection value in the RNG-RSP message can provide +/- 2GHz adjustment value. When the offset frequency adjustment value is small the BS attempts to better tune the MS to the center frequency of the channel. However when the adjustment value is larger than the channel BW, the BS is attempting to redirect the MS to another carrier or channel.

2. Proposed Text Change

Remedy 1:

Use the Offset Frequency Adjustment to redirect MS

[In 6.3.9.5.1 insert the following text before the third paragraph below Table 115 as indicated:]

A BS may decide to re-direct the ranging SS to another channel by sending the RNG-RSP with an Offset Frequency Adjustment pointing to the other channel. If the Offset Frequency Adjustment value is less than the channel bandwidth, this is fine-frequency adjustment within the ranged channel, otherwise, the value is a reassignment to a different channel.

…

On receiving a RNG-RSP instruction to move to a new downlink frequency, the SS shall consider any previously assigned Basic, Primary Management, and Secondary Management CIDs to be deassigned, and shall obtain new Basic, Primary Management, and Secondary Management CIDs via initial ranging and registration.
the UCD. Then, the SS shall wait for a bandwidth allocation map for the selected channel. It may begin transmitting uplink in accordance with the MAC operation and the bandwidth allocation mechanism.

The SS shall perform initial ranging at least once, per Figure 60 and Figure 61. If initial ranging is not successful, the procedure is restarted from scanning to find another downlink channel.

The SS MAC is considered to have valid uplink parameters as long as it continues to successfully receive the UL-MAP and UCD message is not received within the time intervals specified in Table 342, the SS shall not use the uplink. This is illustrated in Figure 59.

Remdy 2:

Use the Offset Frequency Adjustment in the RNG-RSP to redirect the MS

6.3.10.3.1 Contention based initial ranging and automatic adjustments

— The SS, after acquiring downlink synchronization and uplink transmission parameters, shall choose randomly a Ranging Slot (with the use of a binary truncated exponent algorithm to avoid possible re-collisions) at the time to perform the ranging, then it chooses randomly a Ranging Code (from the Initial Ranging domain) and sends it to the BS (as a CDMA code).

— The BS cannot tell which SS sent the CDMA ranging request; therefore, upon successfully receiving a CDMA Ranging Code, the BS broadcasts a Ranging Response message that advertises the received Ranging Code as well as the ranging slot (OFDMA symbol number, subchannel, etc.) where the CDMA Ranging code has been identified. This information is used by the SS that sent the CDMA ranging code to identify the Ranging Response message that corresponds to its ranging request. The Ranging Response message contains all the needed adjustment (e.g., time, power, and possibly frequency corrections) and a status notification.

— Upon receiving a Ranging Response message with continue status, the SS shall continue the ranging process as done on the first entry with ranging codes randomly chosen from the Initial Ranging domain sent on the Periodic Ranging region.

— When the BS receives an initial-ranging CDMA code that results in sending an RNG-RSP message with success status, the BS shall provide BW allocation for the SS using the CDMA_Allocation_IE to send an RNG-REQ message.

— Initial ranging process is over after receiving RNG-RSP message, which includes a valid basic CID (following a RNG-REQ transmission on a CDMA_Allocation_IE). If this RNG-RSP message includes ‘continue’ indication, the ranging process should be continued using the periodic ranging mechanisms.

— If the RNG-RSP include an Offset Frequency Adjustment pointing to another channel and it is larger than the value required for a channel bandwidth offset the MS SHALL synchronize with the new channel indicated in the RNG-RSP.

— The timeout required for SS to wait for RNG-RSP, following or not following CDMA Allocation IE, is defined by T3.

— Using the OFDMA ranging mechanism, the periodic ranging timer is controlled by the SS, not the BS.

The message sequence chart (Table 121) and flow charts (Figure 85, Figure 86, Figure 86a, and Figure 87) on the following pages define the CDMA initial ranging and adjustment process that shall be followed by compliant SSs and BSs.