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Title	OFDMA-based Ranging within Relay Zone	
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Re:	IEEE 802.16j-07/013: "Call for Technical Comments regarding IEEE Project 802.16j"	
Abstract	This document is to define operation of OFDMA-based ranging within relay zone in IEEE 802.16j-06/026r3.	
Purpose	Adopt the text proposal in this document	
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OFDMA-based Ranging within Relay Zone

Introduction

According to IEEE 802.16j-06/026r3, CDMA-based ranging subchannel within UL relay zone is required by both transparent and non-transparent RSs. However, it needs detailed descriptions about the CDMA-based ranging subchannel within UL relay zone. The purpose of this document is to define the operation of CDMA-based ranging within UL relay zone in IEEE 802.16j-06/026r3.

For an MR system with transparent RSs, since the UL relay zone is described in UL-MAP, which is decoded by transparent RS and MS simultaneously, we propose using a new `Relay_Ranging_Allocation_IE` to describe the CDMA-based ranging region within UL relay zone for RS operation without modifications on MSs.

In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the baseline working document IEEE 802.16j-06/026r3 are listed below.

Text Proposal

8.4.4 Frame structure

[Insert the subclause in 8.4.4 in page 97 as indicated:]

8.4.4.5 Uplink transmission allocations

The BS and RS shall not allocate more than three ranging allocation IEs (UIUC 12) per frame, one for initial ranging/handover ranging (Dedicated ranging indicator bit in UL-MAP IE is set to 0 and Ranging Method is set to 0b00 or 0b01), one for bandwidth request/periodic ranging (Dedicated ranging indicator bit in UL-MAP IE is set to 0 and Ranging Method is set to 0b10 or 0b11), and one for initial ranging for the paged MS and/or coordinated association (Dedicated ranging indicator bit in UL-MAP IE is set to 1).

The BS and RS may allocate one relay ranging allocation IE per frame which is for relay bandwidth request/periodic ranging.

[Insert the subclause in 8.4.5 in page 103:]

8.4.5.4 UL-MAP IE format

8.4.5.4.1 UL-MAP extended IE format

Table 290a—Extended UIUC Code Assignment for UIUC=15

E-UIUC	Usage
00	Power_control_IE
01	Mini-subchannel_allocation_IE
02	AAS_UL_IE
03	CQICH_Alloc_IE
04	UL_Zone_IE
05	PHYMOD_UL_IE
06	MIMO_UL_Basic_IE
07	UL-MAP_Fast_Tracking_IE
08	UL_PUSC_Burst_Allocation_in_Other_Segment_IE

09	Fast_Ranging_IE
0A	UL Allocation Start IE
<u>0B</u>	<u>Relay_Ranging_Allocation_IE</u>
0C0B ... 0F	Reserved

[Insert the following new subclause 8.4.5.4.4.30]

8.4.5.4.4.30 Relay Ranging Allocation IE format

Table xxx —Relay Ranging Allocation IE format

<u>Syntax</u>	<u>Size</u>	<u>Note</u>
<u>RS_CDMA_Ranging_IE () {</u>		
<u>Extended_UIUC</u>	<u>4 bits</u>	<u>Relay_Ranging_Allocation_IE = 0x0B</u>
<u>Length</u>	<u>4 bits</u>	<u>Length = 4</u>
<u>OFDMA_symbol_offset</u>	<u>8 bits</u>	
<u>Subchannel_offset</u>	<u>7 bits</u>	
<u>No. OFDMA symbols</u>	<u>7 bits</u>	
<u>No. subchannels</u>	<u>7 bits</u>	
<u>Ranging_method</u>	<u>2 bits</u>	<u>0b00 – Initial Ranging/Handover Ranging over two symbols</u> <u>0b01 – Initial Ranging/Handover Ranging over four symbols</u> <u>0b10 – BW Request/Periodic Ranging over one symbol</u> <u>0b11– BW Request/Periodic Ranging over three symbols</u>
<u>Reserved</u>	<u>1 bits</u>	<u>shall be set to zero</u>
<u>}</u>		

8.4.7 OFDMA ranging

[Insert the following text in 8.4.7 in page 108]

8.4.7.3 Ranging codes

The ranging codes used in relay zone are the same as already defined for access zone.