Project	IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>
Title	OFDMA-based Ranging within Relay Zone
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Re:	IIEEE 802.16j-07/007r2: "Call for Technical Comments and Contributions regarding IEEE Project 802.16j"
Abstract	This document is to define operation of OFDMA-based ranging within relay zone in IEEE 802.16j-06/026r2.
Purpose	Adopt the text proposal in this document
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OFDMA-based Ranging within Relay Zone

Introduction

The purpose of this document is to define the operation of OFDMA-based ranging within relay zone in IEEE 802.16j-06/026r2.

Explanation of Problem

According to IEEE 802.16j-06/026r2, the ranging subchannel within relay zone is described in "Figure <xxx> —Example of minimum configuration for an in-band non-transparent relay frame structure" of the section 8.4.4.7.2, however, it is still lack of the detailed descriptions about ranging subchannel within relay zone. In addition, four RS CDMA codes (see 11.19.1 CDMA Codes TLV) is mentioned in IEEE 802.16j-06/026r2, but the code set of RS CDMA codes is still undefined.

Proposed Remedy

A new section 8.4.4.5.1 "uplink transmission allocations within relay zone" is inserted in the section 8.4.4.5 "uplink transmission allocations" to describe the "ranging subchannel region within relay zone".

A new ranging code sets, "RS CDMA code within relay zone", are proposed for relay station operation. The allocation of the two ranging code sets is determined by MR-BS.
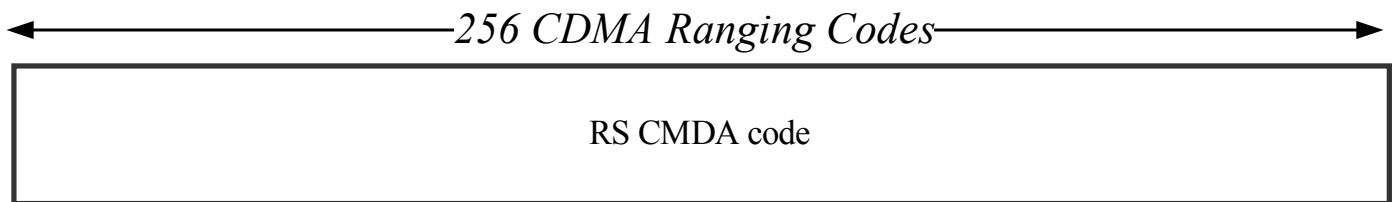
Proposed Ranging Code Sets

Figure 1 Proposed Ranging Code Sets within Relay Zone

Summary

In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the baseline working document IEEE 802.16j-06/026r2 are listed below.

Text Proposal

Remedy 1

8.4.4 Frame structure

8.4.4.5 Uplink transmission allocations

[Change the subclause as indicated:]

The BS shall not allocate more than three ranging allocation IEs (UIUC 12) per UL access zone per frame, one for initial ranging/handover ranging (Dedicated ranging indicator bit in UL-MAP IE is set to 0 and Ranging Method is setto 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).

[Insert the following text at the end of 8.4.4.5]

The BS and RS shall not allocate more than one ranging allocation IEs for bandwidth request/periodic ranging within per UL relay zone per frame.

Remedy 2

8.4.7 OFDMA ranging

8.4.7.3 Ranging codes

[Insert the following text at the end of 8.4.7.3]

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

Reference

[1]   Kanchei (Ken) Loa, Yung-Ting Lee, Yi-Hsueh Tsai, Heng-Iang Hsu and Shiann-Tsong Sheu, IEEE C80216j-06_206, "*Distinct OFDMA-based Ranging Code Sets for Relay Station and Mobile Station*"