Project	IEEE 802.16 Broadband Wireless Access Working Group **<http://ieee802.org/16>**
Title	In-band Semi-transparent Relay Frame Structure
Date Submitted	2006-04-04
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Re:	IEEE 802.16j-07/013: “Call for Technical Comments Regarding IEEE Project 802.16j”
Abstract	This contribution proposes in-band semi-transparent relay frame structure
Purpose	Text proposal for 802.16j Baseline Document
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In-band Semi-transparent Relay Frame Structure

Introduction

In IEEE 80216j-06/026r3 section 6.3.9.16.1.1 RS grouping, it states that "*when the virtual RS group include an MR-BS, all the RSs in the virtual group shall either* ***transmit the same preamble as the MR-BS****, FCH and MAP or they all do not transmit any preamble. When an MR-BS is not included in the virtual group, one of the RSs in the virtual group is a non-transparent RS and all the others shall either transmit the preamble, FCH and MAP of the said non-transparent RS or they all do not transmit preamble, FCH and MAP. The radio resources may be shared by these RSs for data burst transmission. The existence of the group is totally transparent to its MS(s).*" Neither the transparent frame structure nor non-transparent frame structure covers the case of RSs transmitting same preamble within a virtual group, where the UL transmission is same as transparent RS whereas the DL transmission requires new definition to enable RSs transmitting preamble. This contribution proposes an in-band semi-transparent frame structure to amend the section 8.4.4.7 in IEEE 80216j-06/026r3.

Proposed text changes

[Change the text in section 3 "Definitions" as indicated:]

3.90 DL Access_Zone: A portion of the DL sub-frame in the MR-BS/RS frame used for MR-BS/RS to MS, or transparent RS, or semi-transparent RS transmission.

[Insert the text in section 3 "Definitions" as indicated:]

3.99 Semi-transparent RS: A semi- transparent RS transmits same DL frame-start preamble, FCH, DL-MAP/UL-MAP, and DCD/UCD of a virtual group.

8.4.4.7 Frame structure of MR-BS and RS

8.4.4.7.3 Frame structure for semi-transparent mode

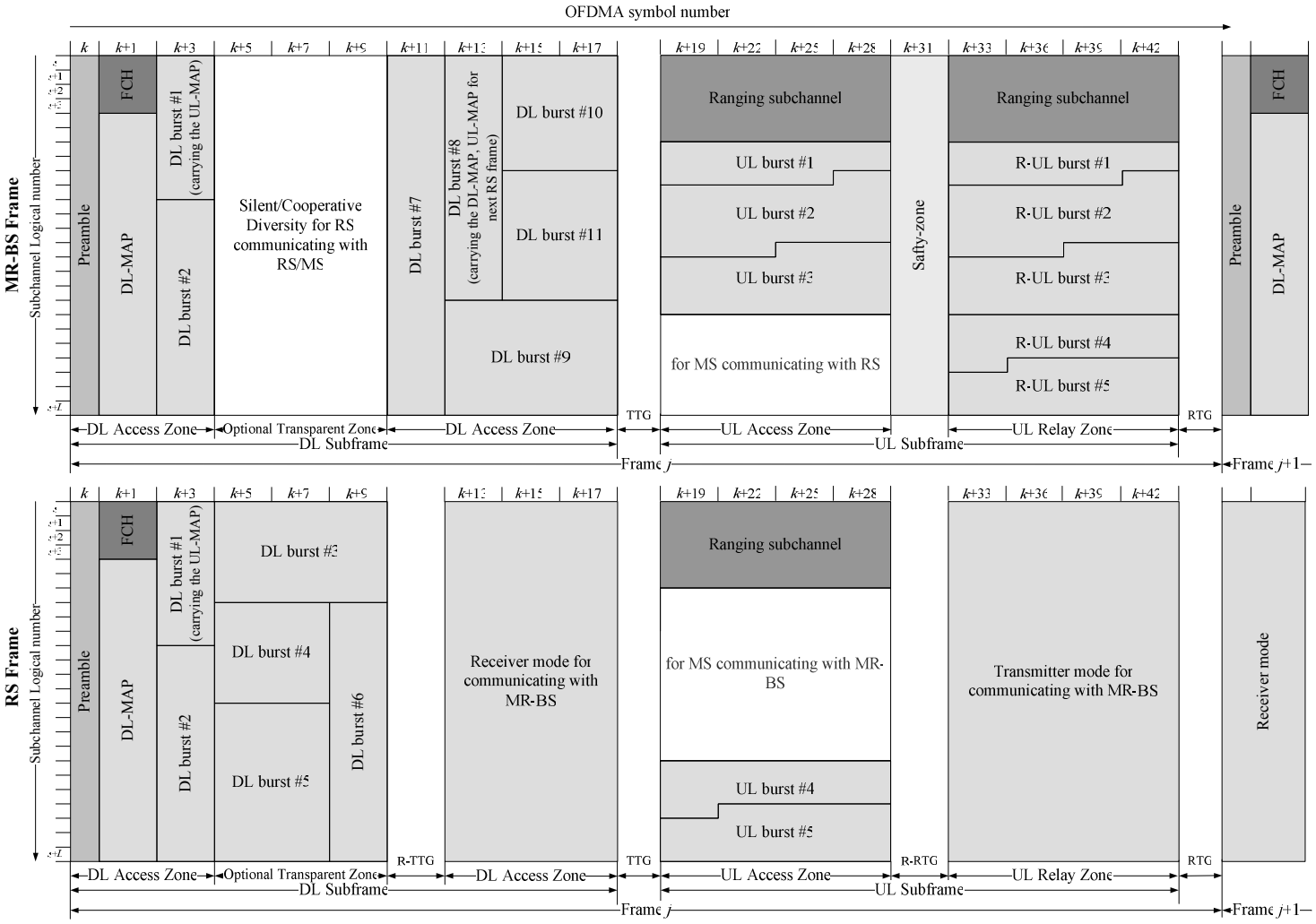
8.4.4.7.3.1 MR-BS frame structure

For the TDD mode, an example of the MR-BS frame structure is shown in Figure xxx.

Each frame in the downlink transmission begins with a preamble followed by an FCH, DL-MAP, and possibly UL-MAP. The frame structure consists of DL sub-frame period and UL sub-frame period. In each frame, the TTG shall be inserted between the DL sub-frame and the UL sub-frame. The RTG shall be inserted at the end of each frame.

The DL sub-frame shall include at least one zone for both MR-BS and RS to its subordinate MS simultaneously, may optionally include a transparent zone for RS to its subordinate stations transmissions and may include an access zone for MR-BS to its subordinate MS/RS transmissions. Optionally the MR-BS may transmit in the transparent zone as well. The transparent zone can be indicated by STC_DL_ZONE_IE() defined in Table 279. The UL sub-frame may include a zone for MS to its access station transmissions and optionally include a zone for RS to its access station transmissions. The bandwidth allocation for transmissions between MR-BS and MS / RS follows IEEE802.16e operation.

Figure xxx Example of configuration for an in-band semi-transparent relay frame structure



8.4.4.7.3.2 Relay frame structure

From RS view, an example of an RS TDD frame structure is shown in Figure xxx.

For a semi-transparent RS, it shall transmit same preamble and MAP of a virtual group at the beginning of the frame. The detailed allocation for RS can be indicated by MAP. The signaling method shall be negotiated in RS network entry procedure. In each frame, the TTG shall be inserted between the DL sub-frame and the UL sub-frame. The RTG shall be inserted at the end of each frame.

The DL sub-frame shall include one zone for MS to receive burst from MR-BS/RS, optionally include a transparent zone for RS to transmit burst to its subordinate stations, and optionally include an access zone for RS/MS to receive burst from MR-BS. The UL sub-frame may include zero or one zone for receiving burst from its subordinate stations and zero or one zone for transmitting burst to MR-BS/RS. The ranging channel is shared by RS and MS, while RS may indicate itself as relay during the initialization. Optionally, an RS amble may be transmitted.

If the RS switches from transmission to reception mode, an R-TTG shall be inserted. If the RS switches from reception to transmission mode, an R-RTG shall be inserted.