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Title	In-band Semi-transparent Relay Frame Structure	
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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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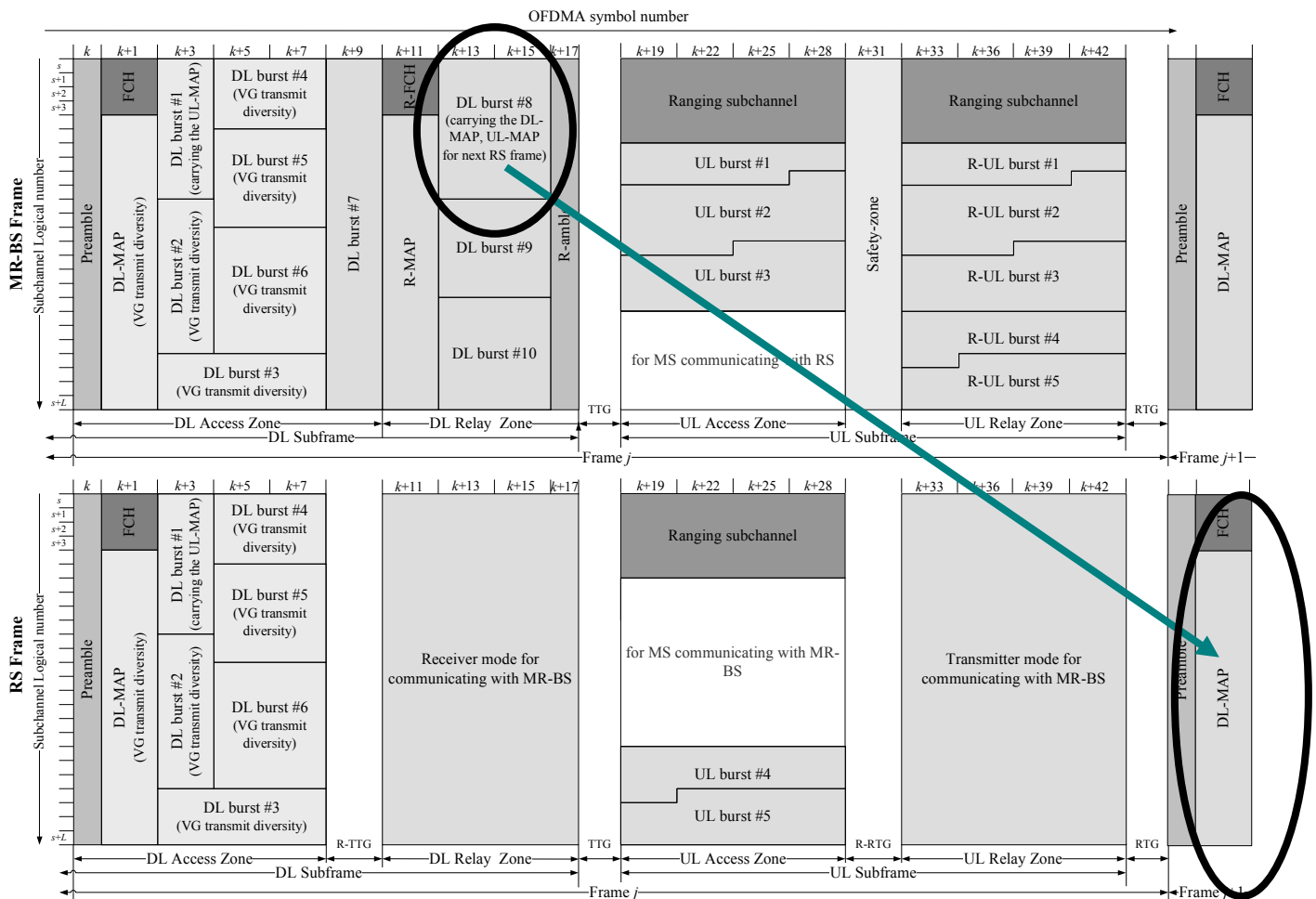
# In-band Semi-transparent Relay Frame Structure

## 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).”

Even though each RS transmitting same preamble in a virtual RS group utilizes non-transparent frame structure and follow the procedures of non-transparent RS to obtain FCH, DL-MAP, UL-MAP DCD and UCD (for transmit in the next frame) from BS. But, for other operations such as MS network entry and MS CDMA ranging, the RS transmitting same preamble must follow the same procedures of transparent RS. Therefore, this contribution defines a new category of RS called “Semi-transparent RS” for RS transmitting same preamble in a virtual RS group. The name “semi-transparent” reflects the fact that a RS transmitting same preamble in a virtual RS group shares the same segment/channel with other RS/BS within the same group as the transparent RS does, but utilizes non-transparent RS frame structure.

Figure 1 Example of configuration for an in-band semi-transparent relay frame structure



This contribution proposes an in-band semi-transparent RS to amend the section 8.4.4.7 in IEEE 80216j-06/026r3.

## Proposed text changes

*[Change the text in section 3 “Definitions” in page 2 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.*

*3.102 Non-transparent RS: A non-transparent RS transmits different DL frame-start preamble, FCH, DL-MAP/ULMAP and DCD/UCD from its neighbor access stations.*

*[Insert the text in section 3 “Definitions” as indicated:]*

*3.103 Semi-transparent RS: A semi-transparent RS transmits corresponding DL frame-start preamble, FCH, DL-MAP/UL-MAP, and DCD/UCD of the assigned virtual group.*

### 6.3.1.3 Addressing and connections for relay support

*[Change the following text in the second paragraph in 6.3.1.3 in page 4 as indicated:]*

RSs that broadcast a different preamble, FCH, and DL Map from neighbor access station shall be assigned a unique Base Station ID.

### 8.4.4.7 Frame structure of MR-BS and RS

*[Insert the following new subclause 8.4.4.7.5 in page 102 as indicated:]*

#### 8.4.4.7.5 Frame structure for semi-transparent mode

A semi-transparent RS shall utilize non-transparent frame structure. The semi-transparent RS shall transmit corresponding DL frame-start preamble, FCH, DL-MAP/UL-MAP, and DCD/UCD of the assigned virtual group at the beginning of the frame.