Project	**IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>**
Title	Comment on Relay Frame Structure
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Re:	IEEE 802.16m-08/052: Call for Comments on Project 802.16m System Description Document (SDD)
Abstract	Proposed Text of Relay Station Frame Structure for the IEEE 802.16m SDD
Purpose	We propose relay station frame structure
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Comment on Relay Frame Structure

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Introduction

The 16m basic frame structure is described in the "subframe" format whereas the relay frame structures are depicted in the "zone" format. Even though the "zone" has been defined as "integer number of the subframes", there is still not enough detailed subframe descriptions in those "zone" definitions and frame structure figures to facilitate the discussion of Option 1 and Option 2.

After working on detailed subframe definitions for the access zone and the relay zone, we discovered that, unlike the 16j frame structure, those zone definitions are not required for defining 16m relay frame structure. This contribution proposes an alternative subframe-based relay frame structure that dramatically simplifies current relay frame structure definitions and accommodates both Option 1 and Option 2; such that there is one unified relay frame structure defined in the SDD regardless "the decision on Option 1 & 2". Additionally, examples of detailed subframe descriptions for the relay operating on single carrier and dual carriers are included to facilitate the on-going discussion on the bi-directional relay. A dual-carrier bidirectional Tx/Rx relay, which utilizes the 16m basic frame structure, is depicted in Figure xxx(d) as an alternative to the single-carrier bidirectional Tx/Rx relay (Figure xxx(b)).

Proposed Changes

3.1 Definitions

[Insert the following text in line 6 of page 9:]

xx. downlink (DL): The direction from the base station (BS) or the relay station (RS) to the subscriber station (SS)

xx. uplink (UL): The direction from the subscriber station (SS) to the base station (BS) or the relay station (RS).

xx. downlink-transmitting (DL-Tx): A relay mechanism where the access station transmits to the subordinate relay station (RS) or the subordinate subscriber station (SS) as the DL transmission.

xx. downlink-receiving (DL-Rx): A relay mechanism where the relay station (RS) receives from the superordinate access station as the DL transmission.

xx. uplink-receiving (UL-Rx): A relay mechanism where the access station receives from the subordinate relay station (RS) or the subordinate subscriber station (SS) as the UL transmission.

xx. uplink-transmitting (DL-Tx): A relay mechanism where the relay station (RS) transmits to the superordinate access station as the UL transmission.

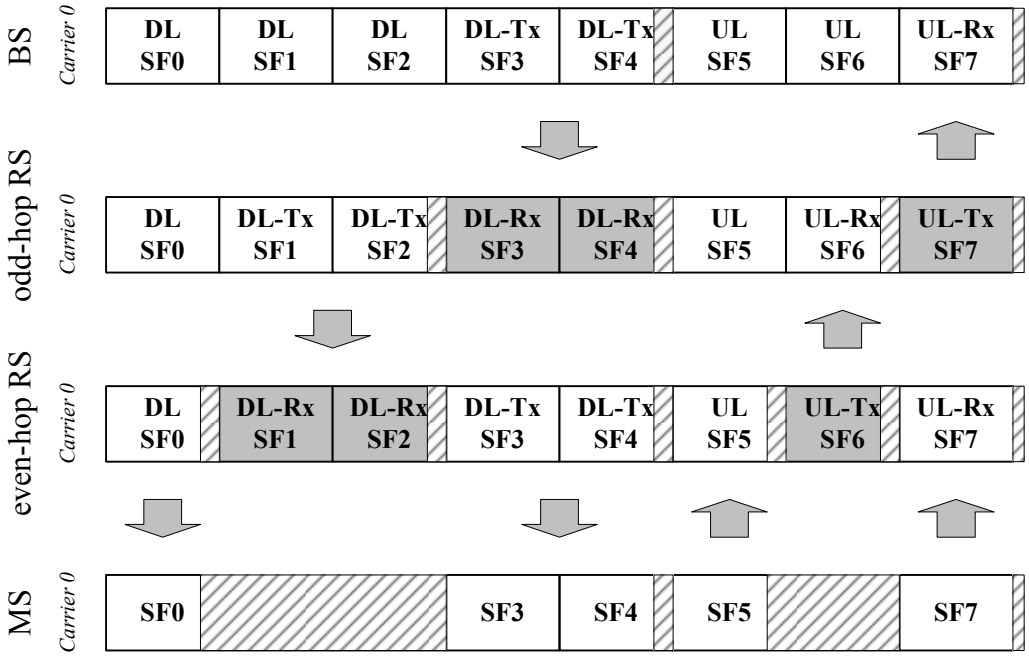
xx. bi-direction-transmitting (Bi-Tx): A relay mechanism where the relay station (RS) transmits to subordinate relay station (RS) and superordinate access station simultaneously.

xx. bi-direction-receiving (Bi-Rx): A relay mechanism where the relay station (RS) receives from the superordinate access station and subordinate relay station (RS) simultaneously.

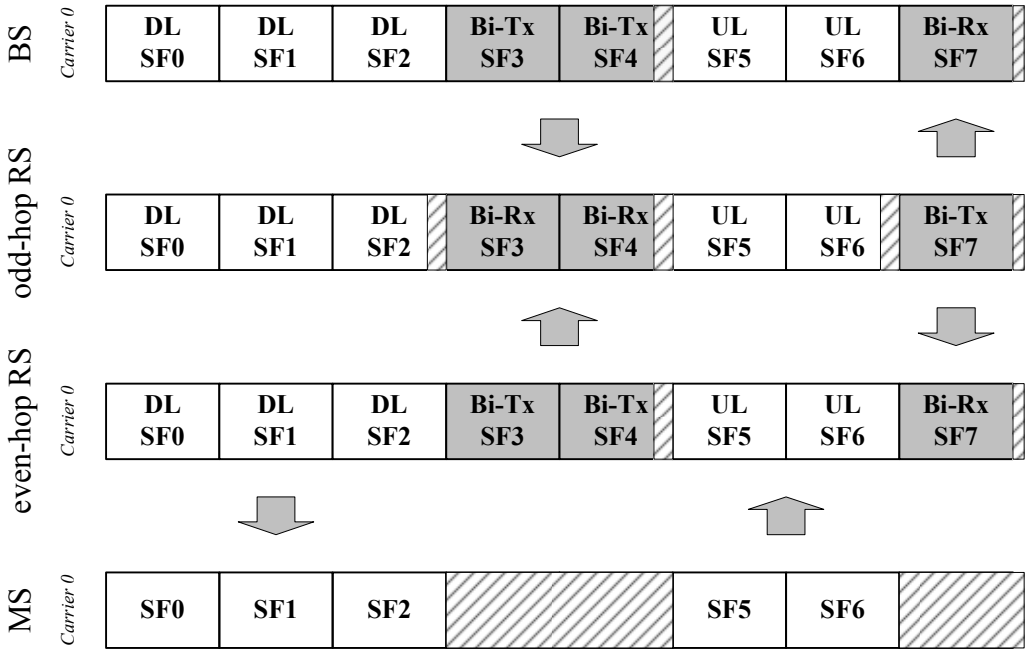
11.4.4 Relay Support in Frame Structure

[Replace the text in line 20 of page 67 to line 3 of page 71 by the following text:]

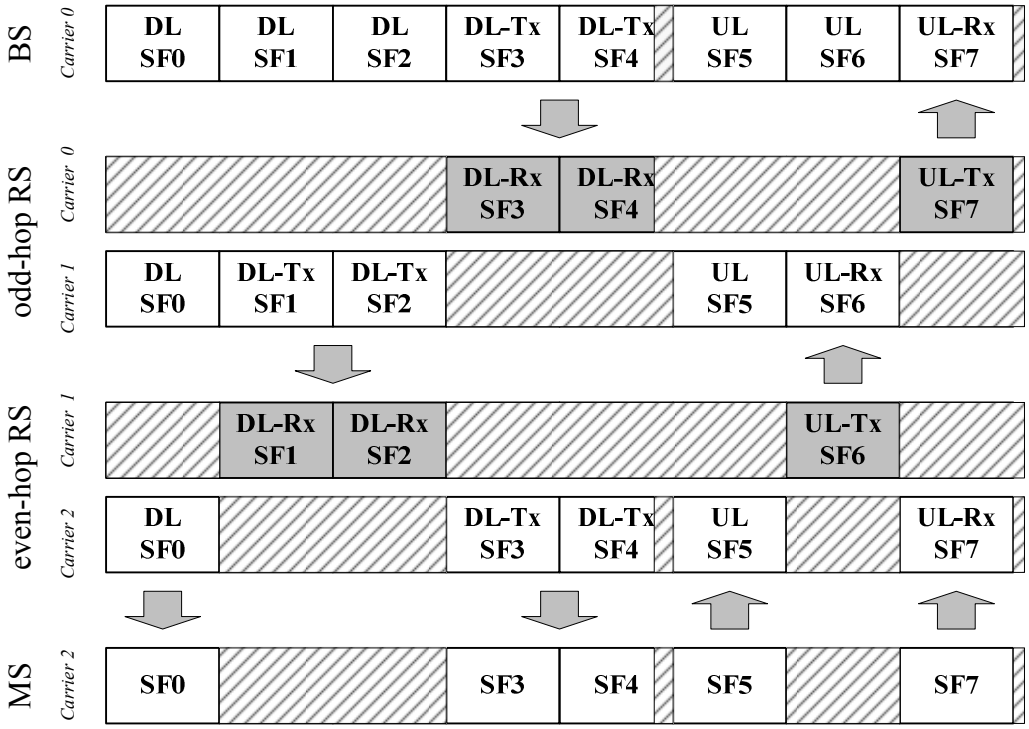
Depending on the capability of the RS (such as number of transceivers), there are five examples of relay frame structures captured in Figure xxx.



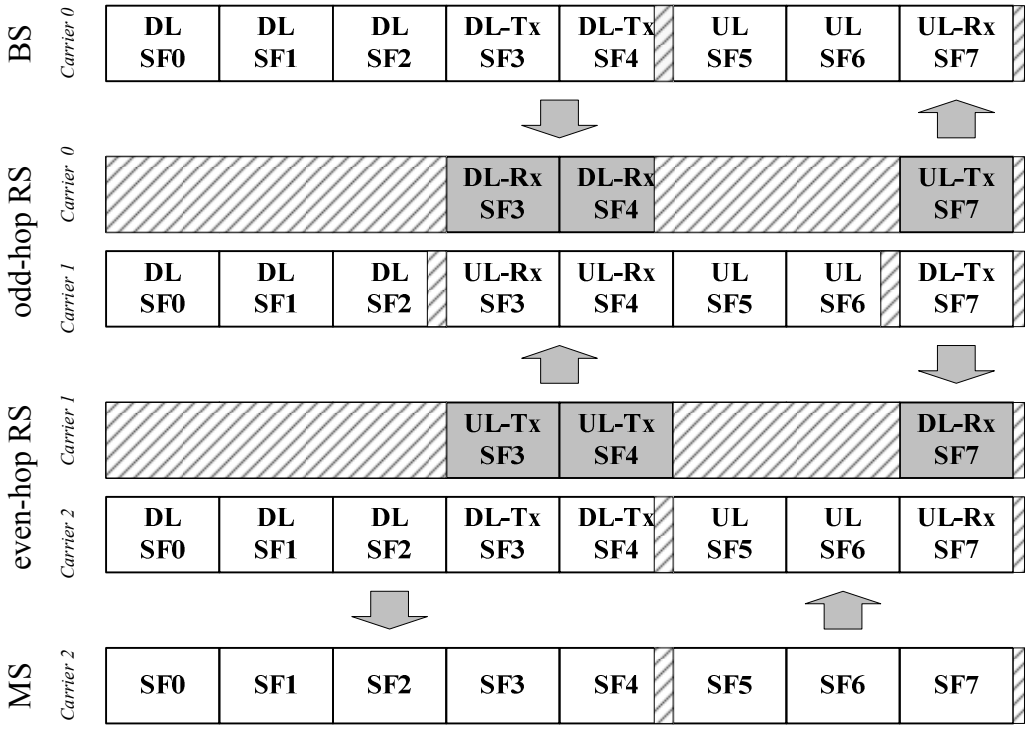
(a) single-carrier unidirectional Tx/Rx at the RS



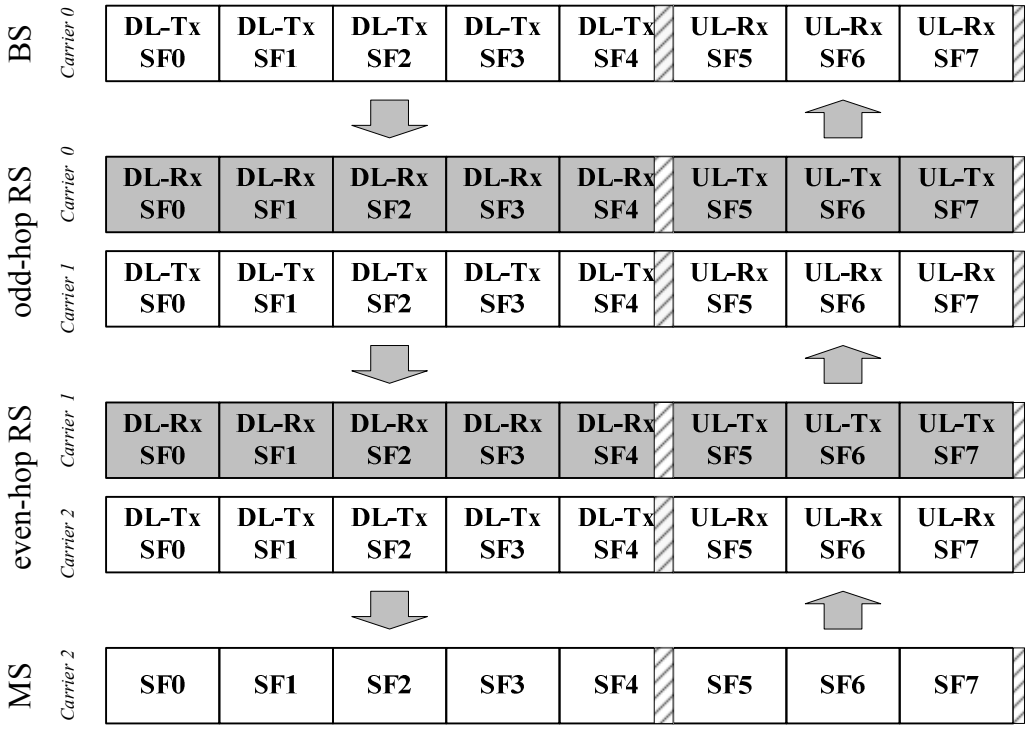
(b) single-carrier bidirectional Tx/Rx at the RS



(c) dual-carrier unidirectional Tx/Rx at the RS (Note: unidirectional Tx/Rx at each carrier)



(d) dual-carrier bidirectional Tx/Rx at the RS (Note: unidirectional Tx/Rx at each carrier)



(e) dual-carrier simultaneous Tx/Rx at the RS (Note: unidirectional Tx/Rx at each carrier)

Figure xxx Relay Frame structure