

## Relay Zone Indicator, Frame signaling

### IEEE 802.16 Presentation Submission Template (Rev. 8.3)

Document Number:

IEEE S802.16j-07/235

Date Submitted:

2007-03-05

Source:

Changyoon Oh, Youngbin Chang, Hyunjeong Kang, Sungjin Lee, Mihyun Lee, Hyoung Kyu Lim, Jaeweon Cho, Panyuh Joo

Voice: +82-31-279-7529

**Samsung Electronics Co., Ltd.**

Fax: +82-31-279-5130

416 Maetan-3, Suwon, 442-600, Korea

E-mail: changyoon.oh@samsung.com

Rakesh Taori

**Samsung Advanced Institute of Technology**

C.P.O. Box 1142, Seoul, 100-611, Korea

Venue:

IEEE 802.16 Session #48, Orlando, U.S.A

Base Document:

C80216j-07/235, C80216j-07/236

Purpose:

The purpose of this slide is to support proposed relay zone indicator, frame signaling, and amble location for the relay link.

Notice:

This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

Release:

The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.

IEEE 802.16 Patent Policy:

The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures <<http://iee802.org/16/ipr/patents/policy.html>>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <<mailto:chair@wirelessman.org>> as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.16 Working Group. The Chair will disclose this notification via the IEEE 802.16 web site <<http://iee802.org/16/ipr/patents/notices>>.

# **Relay zone indicator and Frame signaling :** **#07/235, #07/236**

*Changyoon Oh, Youngbin Chang, Hyunjeong Kang, Sungjin Lee, Mihyun Lee, Hyoung Kyu Lim, Jaeweon Cho,  
Panyuh Joo*

Samsung Electronics Co., Ltd.

*Rakesh Taori*

Samsung Advanced Institute of Technology

March, 2007

# Outline

- Introduction
- Relay zone indicator
- Frame signaling
- Summary

# Introduction

## ● Relay Zone Indicator

- STC\_DL\_ZONE\_IE (one reserved bit for relay zone indicator)
  - RS is informed of OFDMA Symbol offset of the relay zone
  - MS recognizes the existence of another zone for other MSs

## ● Frame Configuration Signaling

- Propose MAC message

**Relay Zone  
Indicator  
#07/235**

# Relay Zone Indicator [1/2]

## ◆ Problem Statement:

After completing its initial network entry in the access zone,  
RS needs to be informed of the location of the relay zone

## ◆ Suggested Remedy

- MR-BS or RS transmits STC\_DL\_ZONE\_IE
  - **One reserved bit is being used for relay zone indicator**
  - RS recognizes the relay zone by relay zone indicator
  - MS recognizes another zone for other MSs

## ◆ Propose

- Change STC\_DL\_ZONE\_IE
  - One reserved bit into relay zone indicator

# Relay Zone Indicator [2/2]

RS perspective: relay zone

MR-BS or RS → STC\_DL\_ZONE\_IE (with relay zone indicator)

MS perspective:  
another zone for other MSs

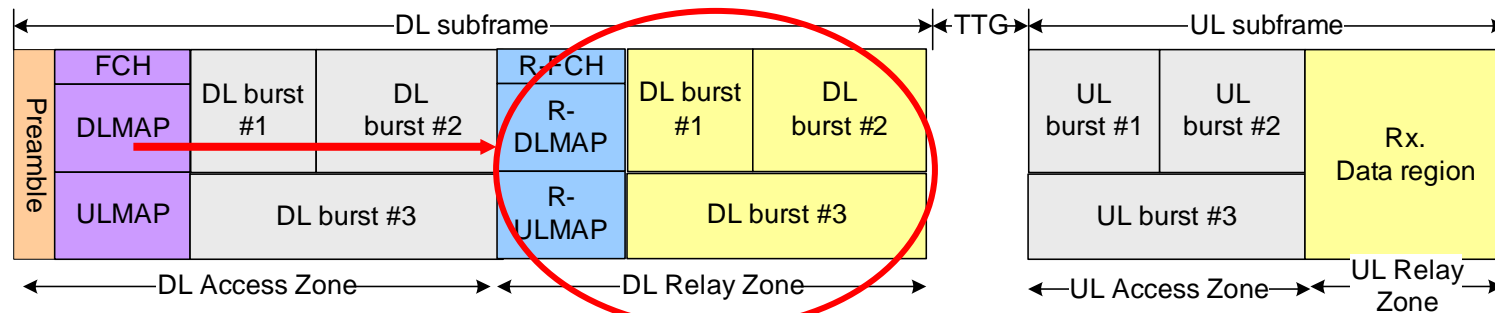


Figure 1: STC\_DL\_ZONE\_IE (with relay zone indicator) indicates DL relay zone

- ◆ After RS moves to the relay zone, RS receives frame configuration message [802.16j-07/265] at relay zone

**Frame Configuration  
Signaling  
#07/236**



# Frame Configuration Signaling [1/2]

- ◆ The agreed Multi-hop relay Frame Structure supports
  - Single frame and multi frame
  - Number of relay zone in a single frame is configurable
  - Number of frame in a multi frame is configurable

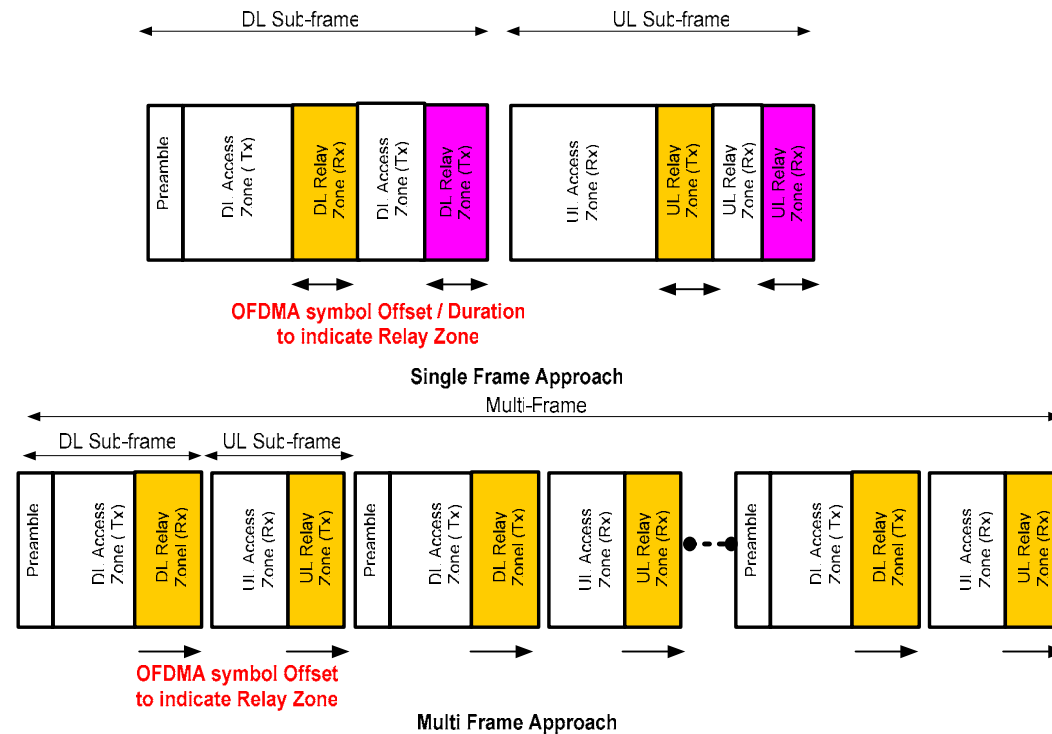


Figure 2: An examples of Single frame / Multi frame

# Frame Configuration Signaling [2/2]

- ◆ For RS to configure Multi-hop relay Frame structure,
  
- ◆ Propose
  - ◆ **Relay Configuration MAC message**
    - Frame type : Single frame / Multi frame
    - Frame Number (to take effect)
    - Single Frame
      - Number of relay zone, offset, and duration
      - Transceiver mode (Tx,Rx, idle) for each relay zone
    - Multi Frame
      - Number of frame
      - Transceiver mode for each relay zone
  - ◆ Text proposal
    - R-FCH and R-DL-MAP shall be transmitted in the first DL relay zone that is in Tx mode

# Summary

- Relay zone indicator
  - STC\_DL\_Zone\_IE (one reserved bit for relay zone indicator)
  
- Frame Configuration Signaling
  - Propose MAC message
  - Single frame/ multi frame
  - Frame number (to take effect)
  - Number of relay zone in single frame, offset, duration
  - Number of frame in multi frame