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Re:	This contribution is response to call for technical proposal (IEEE 802.16j-06/027).
Abstract	This document proposes how to assign Management CID to RS and relayed MS.
Purpose	Discuss and adapt proposed text and message format.
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Management CID allocation

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1. General

This document presents how to assign Management CID to RS and relayed MS.

2. Background

In analog relay (repeater) case, in order to assign a management CIDs (Basic CID and Primary Management CID), RS needs to transfer RNG-REQ/RSP message between BS and MS, as shown in figure 1. In this case, since the number of these sequences is at least $2\times(n+1)\text{hops}\times\text{number of MS}$, the usage of network resource is wasteful.

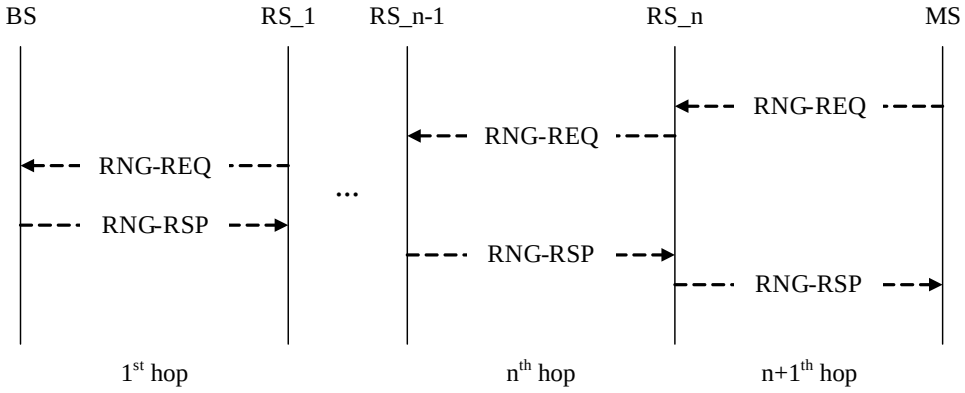

Figure 1

3. Proposed method

We propose the following;

- BS can assign a part of management CID range to its subordinate RS in ranging process.
- The management CID shall be divided into two ranges; one is for MS and another one is for RS.
  - ✓ Management CID range for MS

    The management CID range which is defined in IEEE Std 802.16-2004 (Table 345) except assigned management CID range for RS.
  - ✓ Management CID range for RS

    The management CID range which is defined in IEEE Std 802.16-2004 (Table 345) except assigned management CID range for MS.
- The RS also can assign these CID range to its subordinate node (MS or RS) on behalf of superordinate node (BS or RS) in ranging process. Example of these sequences is shown in figure 2. Since the number of these sequence is $2\times(n\,\text{hops}+\text{number of MS})$, this method contributes to effective use of network resource. In fixed relay case, these management CID range for RS can be

made into a layered structure according to tree network topology.

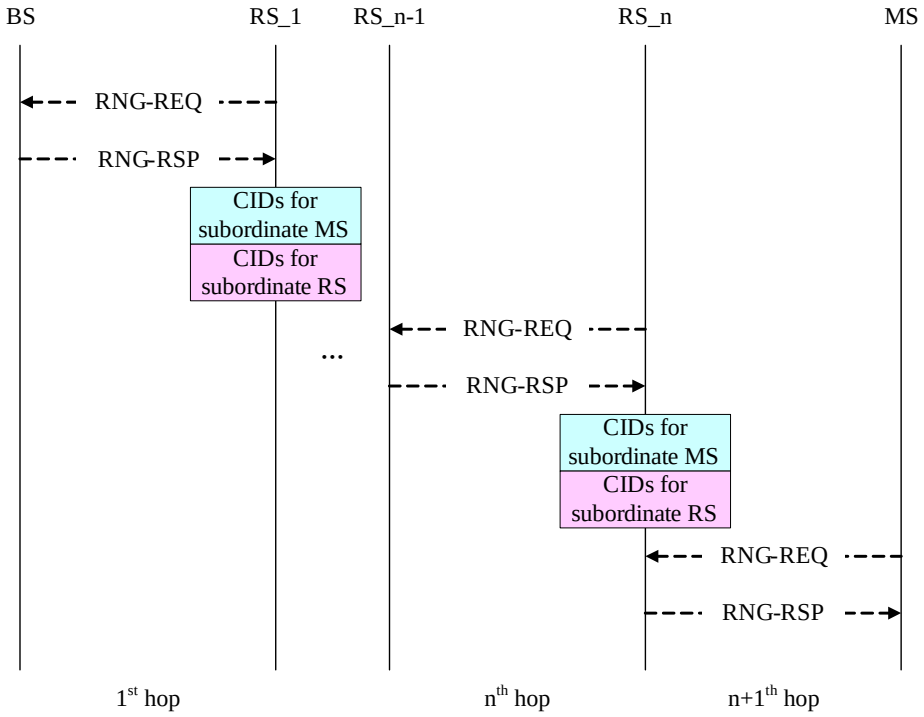

Figure 2

4. Text to be inserted into standard

6.3.2.3.5 Ranging request (RNG-REQ) message

Insert the following text at the end of the 6.3.2.3.5:

The following TLV parameter shall be included in the RNG-REQ message when transmitted during RS initial entry to the network. Conventional MS ignores the parameter.

RS Flag
Requested number of management CID for MS
Requested number of management CID for RS

6.3.2.3.6 Ranging response (RNG-RSP) message

Insert the following text at the end of the 6.3.2.3.6:

The following TLV parameter shall be included in the RNG-RSP message when transmitted during RS initial entry to the network. Conventional MS ignores the parameter.

Start number of management CID for MS
End number of management CID for MS
Management CID range for RS

10.4 Well-known addresses and identifiers

Insert the following text at the end of the 6.3.2.3:

Table 345 - CIDs

CID	Value	Description

Basic CID	0x0001 ~ x	Basic CID range for MS. The same value is assigned to both the DL and UL connection.
	x+1 ~ m	Basic CID range for RS. The same value is assigned to both the DL and UL connection.
Primary management CID	m+1 ~ m+x	Primary management CID range for MS. The same value is assigned to both the DL and UL connection.
	m+(x+1) ~ 2m	Primary management CID range for RS. The same value is assigned to both the DL and UL connection.

11.5 RNG-REQ message encodings

Insert the following entries into Table 364:

Table 364 – RNG-REQ message encodings

Name	Type (1 byte)	Length	Value (variable-length)	PHY Scope
RS Flag	xx	1	Bit #0 =1 : RS transmits RNG-REQ message Bits 2-7 : Reserved	OFDMA
Requested number of management CID for MS	xx	1	The number of management CID for subordinate MS	OFDMA
Requested number of management CID for RS	xx	1	The number of management CID for subordinate RS	OFDMA

11.6 RNG-RSP management message encodings

Insert the following entries into Table 367:

Table 367 – RNG-RSP message encodings

Name	Type (1 byte)	Length	Value (variable-length)	PHY Scope
Start number of management CID for MS	xx	1		OFDMA
End number of management CID for MS	xx	1		OFDMA
Management CID range for RS	xx	1	The management CID range which follows assigned CID to RS	OFDMA