Project	**IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>**
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Re:	IEEE 802.16-08/007: "IEEE 802.16 Working Group Letter Ballot Recirc #28b: Announcement"
Abstract	This contribution proposes modification on connections for RS
Purpose	Text proposal for 802.16j Draft Document.
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Comments on T48 timer

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Introduction

In current draft standard, the T48 timer has three values in different scenarios. One scenario is that the superordinate access station starts the T48 timer after receiving CDMA ranging code; another scenario is that the superordinate access station starts the T48 timer after receiving MR_ Code-REP message. We propose to modify Table 583 and related text and flow chart such that they are consistent.

The third scenario is that the transparent RS starts the T48 timer to wait for bandwidth allocation for sending MR_Code-REP message to the superordinate access station. The semantic of this timer is different form the T48 timer, therefore, we propose a new T66 timer.

In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the draft standard P802.16j/D3 are listed below.

Spec changes

6.3.10.3.1.1 MR-BS and RS behavior during contention-based initial ranging

When an SS performs initial ranging in systems with transparent RSs directly attached to MR-BSs, then MR-BS and transparent RSs shall perform the following tasks:

— The RS shall monitor the Ranging Channel specified in the UL-MAP broadcasted by the MR-BS for initial ranging codes. When the RS detects one or more codes in a frame received on the access link, it shall send the codes it receives with sufficient strength and their adjustment information (e.g. time, power, frequency corrections) in an MR Code-REP message on the RS basic CID to the serving MR-BS within T66 interval.

— When an MR-BS first receives a CDMA ranging code directly or via an MR Code-REP message, it shall set the T48 timer and wait for other MR Code-REP messages to arrive with the same ranging code attributes from other subordinate RSs. Once the T48 timer expires, the MR-BS shall determine the most appropriate path (direct or via an RS) on which to communicate with the SS that originated the code. Algorithms or policies to select the path are out of scope of this document.

— If adjustments are required, the MR-BS shall transmit the RNG-RSP to the SS and the process shall repeat. When the ranging code requires no further adjustment, the MR-BS shall provide an allocation in the access uplink for the SS to forward a RNG-REQ with its MAC address by inserting a CDMA_Allocation_IE in the UL-MAP. If management messages are relayed on the uplink, the MR-BS shall precede the CDMA_Allocation_IE with an UL_Burst_Receive_IE containing the access RS's basic CID or the multicast management CID. A transparent RS, whose CID matches the RS basic CID or the multicast management CID of the UL_Burst_Receive_IE, shall receive the RNG-REQ on a burst specified by the CDMA_Allocation_IE and relay it to the MR-BS on the RS basic CID.

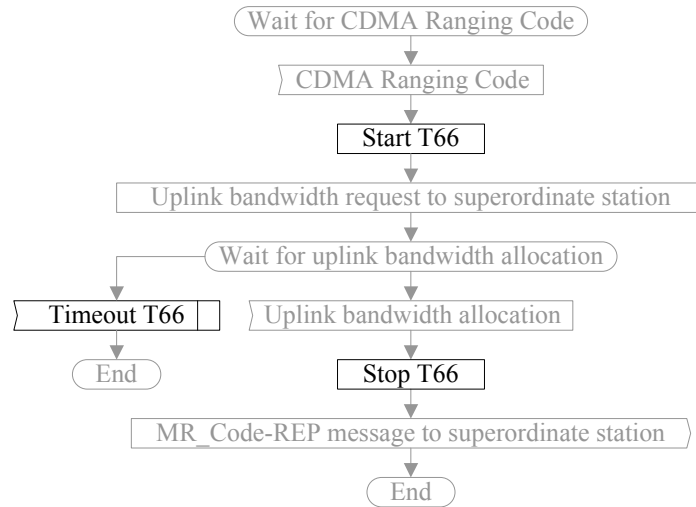*[Modified T48 by T65 in Figure 115a as following indicates:]*

Wait for CDMA Ranging Code

CDMA Ranging Code

Start T66

Uplink bandwidth request to superordinate station

Wait for uplink bandwidth allocation

Timeout T66

Uplink bandwidth allocation

End

Stop T66

MR_Code-REP message to superordinate station

End

Figure 115a—Handling CDMA ranging code at a transparent RS

[Modified Figure 115k as following indicates:]

Wait for CDMA Ranging Code or MR_Code-REP message

CDMA Ranging Code

MR_Code-REP message

Start T48 as triggering by CDMA code

Start T48 as triggering by message

Wait for MR-Code-REP message with matching ranging code attributes

Timeout T48

MR-Code-REP message with matching ranging code attributes

Select the designated access station for the ranging code attributes

Ranging purpose?

Bandwidth request   Initial/Handover

Need adjustment?   Periodic

No   Yes

End

Good Enough? (Note)

Yes   No   No   Good Enough? (Note)   Yes

continue or abort?

continue   abort

RNG-RSP with status = 3 (success) to SS

RNG-RSP with status = 1 (continue) to SS

RNG-RSP with status = 2 (abort) to SS

(optional) RNG-RSP with status = 3 (success) to SS

End

End

CDMA_allocation_IE to SS
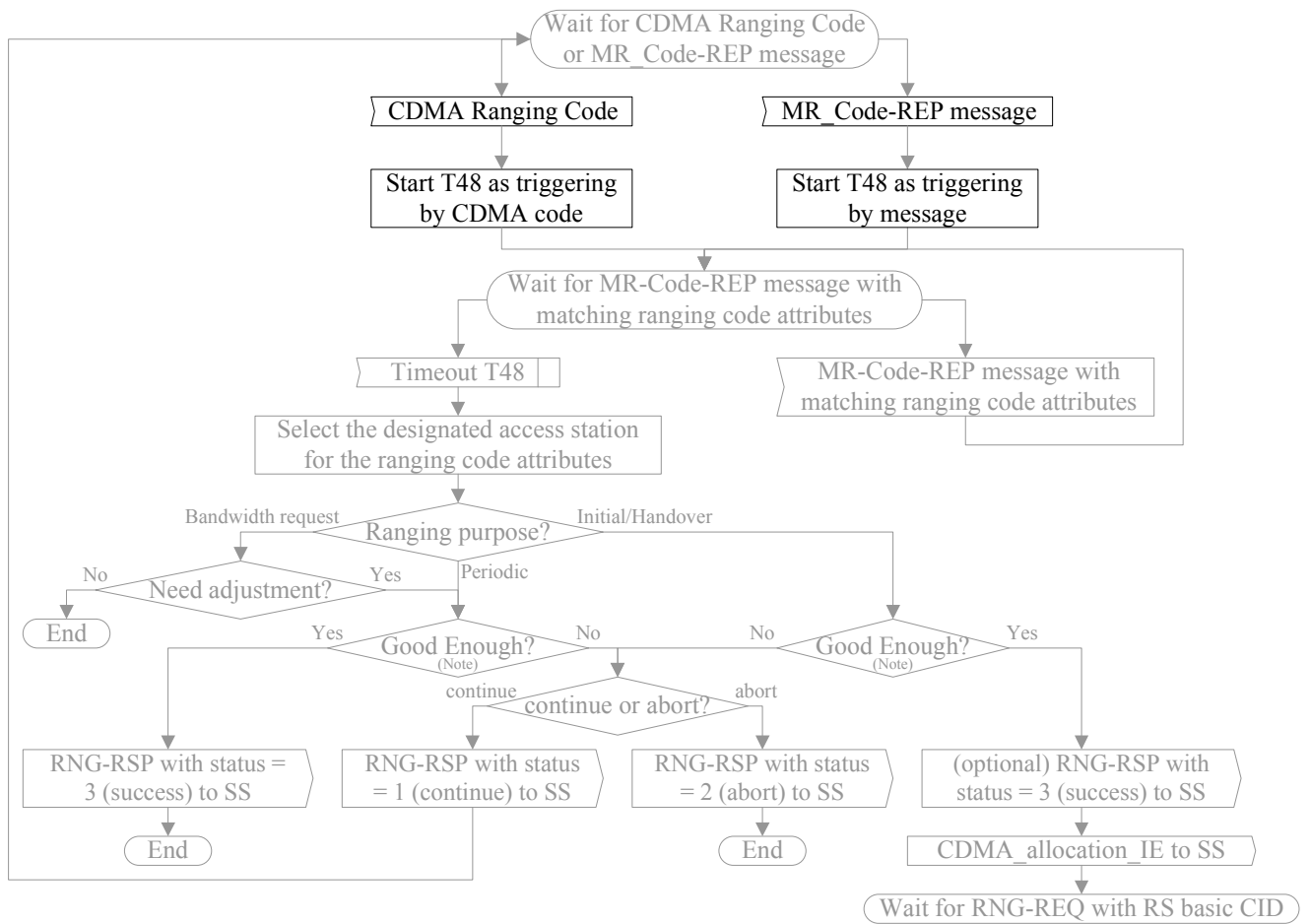
Wait for RNG-REQ with RS basic CID

Figure 115k—Handling CDMA ranging code or MR Code-REP message at an MR-BS

10.1 Global values

[Modified Table 583 as following indicated:]

Table 583—Parameters and constants

System	Name	Time reference	Minimum value	Default value	Maximum value
MR-BS, RS	T48 as triggering by CDMA code	Wait for MR_Code-REP message from the subordinate RS triggering by receiving CDMA ranging code	-	6 frames	T3
MR-BS, RS	T48 as triggering by message	Wait for MR_Code-REP message from the subordinate RS triggering by receiving MR_Code-REP message	~~tbd~~	~~T48~~$_{CDMA}$ ~~=~~ ~~6 frames for superordinate access station w/unique BSID;~~ ~~5 frames for RS w/same BSID as superordinate access station.~~ ~~T48~~$_{Message}$ ~~=~~ T48$_{CDMA}$ as triggering by CDMA code $- T_{FD} \times ((FN_{Rx} - FN_{Msg})$ mod 256), where T_{FD}: the frame duration, FN_{Rx}: the relevant frame number when receiving message, FN_{Msg}: the frame number in the received message	T3
RS	T66	Wait for bandwidth allocation for sending MR_Code-REP message to superordinate access station	-	5 frames	T48 as triggering by CDMA code