

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >	
Title	<b>Proposed Change on Ranging Purpose for Multicast Operation over IEEE 802.16.1a</b>	
Date Submitted	<b>2011-11-03</b>	
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Re:	“IEEE 802.16n-11/0020,” in response to Call for Comments on GRIDMAN AWD	
Abstract	Ranging purpose clarification on GRIDMAN Amendment Draft Standard	
Purpose	To discuss and adopt the proposed text in the draft amendment document on GRIDMAN	
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# Proposed Change on Ranging Purpose for Multicast Operation over IEEE 802.16.1a

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## 1. Introduction

In IEEE 802.16.1a AWD[3] (i.e., over WirelessMAN-AAI[5]), Ranging is performed to support multicast operation to update multicast service flow.

In addition, ranging may be performed during receiving multicast service by an MS in the following cases:

- location update due to multicast zone change
- multicast security key update

This document provides the change on the ranging procedure (i.e., ranging purpose indication and its related-to parameter).

## 2. References

- [1] IEEE 802.16n-10/0048r2, 802.16n System Requirement Document including SARM annex, July 2011.
- [2] IEEE 802.16n-11/0024, P802.16n Draft AWD, October 2011.
- [3] IEEE 802.16n-11/0025, P802.16.1a Draft AWD, October 2011.
- [4] IEEE P802.16Rev3/D2, IEEE Draft Standard for Local and metropolitan area networks; Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems,” October 2011.
- [5] IEEE P802.16.1<sup>TM</sup>/D2, [Draft] WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems, October 2011.
- [6] IEEE C802.16n-11/0177r1, Multicast Key Usage and Update, September 2011.

## 3. Proposed Text on the IEEE 802.16.1a Amendment Draft Standard

[-----Start of Text Proposal-----]

**[Remedy1: Change Table 684-AAI-RNG-REO message Field Description in line 1, page 17 (section 6.2.3.1) in the 802.16.1a AWD as follows:]**

Field	Size(bits)	Value/Description	Conditions
Ranging Purpose Indication	4	0b0000 = Initial network entry 0b0001 = HO reentry 0b0010 = Network reentry from idle mode 0b0011 = Idle mode location update 0b0100 = DCR mode extension 0b0101 = Emergency call setup (e.g., E911) 0b0110 = Location update for updating service flow management encodings of E-MBS flows 0b0111 = Location update for transition to DCR mode from idle mode 0b1000 = Reentry from DCR mode, coverage loss or detection of different ABS restart count. 0b1001 = Network reentry from a Legacy BS 0b1010 = Zone switch to MZONE from LZONE 0b1011 = Location update due to power down. 0b1100 = Interference mitigation request to a CSG Femto ABS when experiencing interference from the CSG Femto ABS 0b1101 = NS/EP call setup <del>0b1110-0b1111 = reserved</del> <u>0b1110 = HR multicast service flow update location update</u> <u>0b1111 = reserved</u>	-
.....	...	.....	
}else if (Ranging Purpose Indication == 0b1101) {		//NS/EP call setup	
AMS MAC address	48	AMS's real MAC address	
MAC version	8	see 11.1.3	

Initial Offset for uplink power control (OffsetInitial)	5	The bit size represents power level ranging from -15dB (0x00) to 16dB(0x1F) with 1dB step. The value is determined by AMS after successful initial ranging process.	
<u><a href="#">}else if (Ranging Purpose Indication == 0b1110) {</a></u>		<u><a href="#">// HR multicast location update</a></u>	
<u><a href="#">action code</a></u>	<u><a href="#">3</a></u>	<u><a href="#">bit0: multicast service flow update</a></u> <u><a href="#">bit1: location update due to multicast zone change</a></u> <u><a href="#">bit2: multicast security key update</a></u>	
<u><a href="#">} //end of Ranging Purpose Indication</a></u>			

**[Remedy2: Change Table 685-AAI-RNG-RSP message Field Description at 4th row from the bottom in page 18 (section 6.2.3.1) in the 802.16.1a AWD as follows:]**

<u><a href="#">New Multicast Group Zone ID</a></u>	<u><a href="#">12</a></u>	<u><a href="#">Indicates a Multicast Group Zone ID to update in target HR-BS</a></u>	<u><a href="#">Shall be included in HR-Network in response to the AAI-RNG-REQ message where ranging purpose indication is set to 0b1110 and action code bit0 is set to 1.</a></u>
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**[Remedy3: Change Table 685-AAI-RNG-RSP message Field Description at 4th row in page 20 (section 6.2.3.1) in the 802.16.1a AWD as follows:]**

<u><a href="#">New Multicast Group Zone ID</a></u>	<u><a href="#">12</a></u>	<u><a href="#">Indicates a Multicast Group Zone ID to update in target HR-BS</a></u>	<u><a href="#">Shall be included in HR-Network in response to the AAI-RNG-REQ message where ranging purpose indication is set to 0b1110 and action code bit0 is set to 1.</a></u>
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**[Remedy4: Change the text in line 10-16, page 164 in the 802.16.1a AWD as follows:]**

When the HR-MS transits to a new Multicast Zone while in Active Mode or Sleep Mode, the HR-MS shall send AAI-RNG-REQ message described in 6.2.3.1 with Ranging Purpose Indication = 0b1110 with action code at the target HR-BS. In response to the request for multicast service flow update (Ranging Purpose Indication = 0b1110 and action code bit0 is set to 1), the HR-BS shall transmit AAI-RNG-RSP message described in 6.2.3.2, which may include Multicast Group Zone Identifier, Multicast Group ID, FID Update, and feedback parameters if used, to provide updated service flow management encodings for any affected multicast flow(s) as part of the handover procedure.

**[Remedy5: Change the text in line 2-8, page 165 in the 802.16.1a AWD as follows:]**

In order to perform the multicast location update process, the HR-MS shall transmit AAI-RNG-REQ message with Ranging Purpose Indication = 0b1110 with action code. When the HR-MS detects the current multicast group zone changes and expects to update service flow, the bit0 of action code is set to 1. In addition to changing the multicast group zone, the HR-MS detects current paging zone changes, the bit1 of action code is set to 1. In the case of performing multicast security key update, the bit2 of the action code is set to 1.

In response to the request for multicast location update with action code bit0 set to 1, the HR-BS shall transmit AAI-RNG-RSP message which may include the Multicast Group Zone identifier, Multicast Group ID, and FID and feedback parameters if used to provide update service flow management encodings for any affected multicast flow(s).

If the action code bit1 set to 1, the HR-MS shall perform location update as described in 6.2.18.4. In response to the multicast location update with action code bit1 set to 1, the HR-BS shall transmit AAI-RNG-RSP message to the HR-MS and may notify multicast server and paging controller of the HR-MS' context information, but how to notify is outside of this specification.

In response to the request for multicast security key update with action code bit2 set to 1, multicast security key update procedure is performed as described in 6.2.10.2.

[-----End of Text Proposal-----]