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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | **Clarification of MS redirection during network entry** |
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| Re: | Call for Contributions: Multi-tier Networks (16-13-0191-02-000q) |
| Abstract | This contribution clarifies MS redirection requested by a BS during initial network entry. |
| Purpose | To discuss and adopt the proposed texts in IEEE P802.16q AWD |
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# Clarification of MS Redirection during Network Entry

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# Introduction

During network entry, a BS may redirect an MS to one of nearby BSs by including “Redirection Info” in RNG-RSP message. The Redirection Info is a logical name of a set of parameters included in the RNG-RSP message, but it’s not clearly defined in the current AWD. For example, the current AWD says that the Redirection Info consists of BSID, preamble index and center frequency. But, some of those parameters are defined as a different name in the base standard. Moreover, the BSID is not defined in the base standard.

This contribution proposes to change some texts regarding MS redirection in order to correct the aforementioned problems and to keep consistency with the base standard.

# Proposed Texts

----------------- Start of the text proposal --------------------------------------------------------------------------------------

[*Remedy: Change the texts in subclause 17.1.6.2 as follows:*]

**17.1.6.2 Small BS reselection by the MS**

When the MS performs initial network entry or network reentry with a small BS, it first performs initial ranging by sending the RNG-REQ message. The MS may include one or more CSGID(s) as part of the RNG-REQ message to the small BS, if one or more CSGID(s) is(are) provisioned in the MS. If the small BS is a CSG small BS, it may have one or more CSGID(s) provisioned in it as well. If it is an OSG small BS, then there shall be no CSGID provisioned for it.

If the small BS is an OSG small BS, then the small BS ignores the CSGID(s) (if sent by the MS) in the RNG-REQ message and goes ahead with the next steps. If the small BS is a CSG small BS, the small BS receives the RNG-REQ message and, if needed, it looks at the received CSGID(s) and checks if it matches with at least one of its CSGID(s). If there is match of the CSGID, then the small BS knows that the MS is a member of the small BS and goes ahead with the next steps.

If the received CSGID(s) from the MS does not match any of the CSGID(s) of the small BS itself and the small BS is a CSG-Closed small BS, the small BS shall reject the access of the MS and abort the current ranging by sending a RNG-RSP message with Ranging status TLV set to 2(abort). During initial network entry, the small BS may decide to redirect the MS to another BS by sending a RNG-RSP message that includes the TLV pairing of Offset frequency Adjust TLV and Preamble index override TLV, or the TLV pairing of Downlink frequency override TLV and Preamble index override TLV pointing to the other BSs. Since the small BS cannot be sure that the MS is not its member as the MS may not have included all the CSGIDs in its white list in the RNG-REQ message, the small BS may also include its CSGID(s) in the RNG-RSP message so that the MS can perform the accessibility check for the small BS.

~~If the received CSGID(s) from the MS does not match any of the CSGID(s) of the small BS itself, and the small BS is a CSG-Closed small BS, the small BS shall send a RNG-RSP and in the RNG-RSP it indicates the rejection of access for this MS. In order to help the MS to attach to nearby small BSs, the small BS may provide “Redirection Info” to the MS in the RNG-RSP message. The “Redirection Info” consists of the BS ID, preamble index, and center frequency of other nearby cells. Since the small BS can not be sure that the MS is not its member as the MS may not have included all the CSGIDs in its white list in RNG-REQ, the small BS provides its CSGID(s) and sets the Ranging Abort bit=1 with the Ranging Abort Timer = 65535 in the RNG-RSP in this case so that the MS can perform the accessibility check for the small BS.~~

If there are no CSGIDs included in the RNG-REQ message, then the normal network entry procedure as in 6.3.9 applies.

If the small BS has CSGID information of nearby small BSs, then it may filter the information included in the RNG-RSP message for MS redirection~~“Redirection Info”~~ based on the CSGID(s) provided by the MS in the RNG-REQ message and only provide the OSG small BSs as well as CSG small BSs with matching CSGID(s) to the MS in the RNG-RSP message~~“Redirection Info”~~. After receiving the RNG-RSP message with the instruction to move to new BSs~~“Redirection Info”~~, the MS may attach to the other candidate BSs.

~~In case the MS does not support CSG white-list capability or does not have any CSGID(s) provisioned in its CSG white list, the “Redirection Info” may be provided in the REG-RSP message.~~

----------------- End of the text proposal --------------------------------------------------------------------------------------