Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>	
Title	**Scanning criteria for LBS**	
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Re:	802.16 Revision 2	
Abstract	Proposal to provide an indication for scanning criteria for LBS.	
Purpose	There is no indication for the scanning criteria for LBS. MS does not know how many BSs shall be scanned. LBS result can not be calculated without enough BSs being scanned. And the delay is a part of the QoS parameters for LBS. The purpose of this contribution is to provide the LBS purpose scanning indication in the scanning messages, and the number of BSs that shall be scanned.	
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Scanning criteria for LBS

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Explanation

For scanning that is triggered by MOB-SCN-REQ and MOB-SCN-RSP messages, an MS does not know the purpose of the scanning. If the scanning is for an LBS-related operation, for instance, the MS may not report a sufficient number of BSs to allow the network to determine location to an acceptable accuracy. In addition, an LBS-related operation may have delay requirements that may be affected by time for the MS measurements. If the MS scans more BSs than is necessary for the LBS-related operation, the delay is increased.

It is proposed to add a TLV to the MOB_SCN-REQ and MOB_SCN-RSP messages that indicates the required number of BSs for the MS to scan. Once the MS scans this number of BSs with suitable measurement values, it ceases the scan operation and reports the results. Suitable measurement values are based on the existing system trigger values defined in the DCD message. For Relative Delay measurements, a CINR trigger shall be used to ensure that the BS signal strength is sufficient to obtain a reliable Relative Delay measurement.

Proposed Text Changes

Section 6.3.2.3.43, Modify as follows:

The MOB_SCN-REQ message may include the following parameters encoded as TLVs:

Sleep Mode Reactivation Information (see 11.20.2)
Recommended start frame (see 11.20.1)
Required number of BSs (see 11.20.3)

Section 6.3.2.3.44, Modify as follows:

The MOB_SCN-RSP message may include the following parameters encoded as TLVs:

Sleep Mode Reactivation Information (see 11.20.2)
Recommended start frame (see 11.20.1)
Required number of BSs (see 11.20.3)

Create a new Section 11.20.3 as follows:

11.20.3 Required number of BSs

When a BS sends a MOB_SCN-RSP message to an MS, it may include the Required Number of BSs parameter, which specifies the number of BSs that the MS should include in the associated report. Once the MS obtains acceptable measurements from the required number of BSs based on the system trigger values, it shall cease the measurement operation associated with this MOB_SCN-RSP message and send the results to the BS in the MOB_SCN-REP message, even if the MS has not scanned all the BSs in the BS list in the MOB_SCN-RSP message. For Relative Delay measurements, the CINR trigger shall be used.

If the MS does not find the required number of BSs with acceptable measurements from the list of BSs included in the MOB_SCN-RSP message, the MS shall autonomously search for other BSs with acceptable measurements. If the MS is not able to find the required number of BSs after an autonomous search, the MS shall report the results for the BSs with acceptable measurements for which it has obtained data.

An MS may include the Required Number of BSs parameter in a MOB_SCN-REQ message. In the MOB_SCN-RSP message, the BS may send a different value for this parameter than the one received from the MS.

Name	Type(1 byte)	Length	Value(variable length)	Scope
Required number of BSs	3	1	The required number of BSs to be reported	MOB_SCN-REQ MOB_SCN-RSP

Backward compatibility

Legacy mobile station will ignore this Minimal BS Number for LBS Scanning. New mobile stations will perform the scanning based on this TLV. In case of legacy MS, it can still perform the scanning at its own will.