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Title	**The Efficient Anchor BS Update Starting Mechanism**	
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Re:	IEEE P802.16e/D5-2004	
Abstract	In this contribution, we add a timer mechanism into Anchor BS Update to make clear when to start anchor BS update.	
Purpose	Discuss and adopt the suggestion into P802.16e/D6.	
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The Efficient Anchor BS Update Starting Mechanism

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1. Problem Statement

In IEEE9802.16e/D5, there are two mechanisms for updating Anchor BS, the first one is by using MAC management message and the second by using the fast Anchor BS selection feedback mechanism. In both methods, however, the only criteria to start Anchor BS update is when the MSS detects the signal strength from a BS in the active set is better than that of the current anchor BS. After detecting this situation, the MSS will start one of the Anchor Updating Mechanisms.

Since wireless environment is so unpredictable that the signal strength of BSs is fluctuating, even though the MSS does make little movement, the signal strength of the current anchor BS might be lower than other BSs in the active set. As a result, with the first mechanism, the current anchor BS for the MSS will be switched into the new BS in the active set. With the second, the MSS will issue Anchor BS selection information on the CQICH. This behavior may not make any change of the anchor BS of the MSS, but it is the unnecessary action because it just consumes resource of the CQICH.

Thus, it is necessary to distinguish between the real anchor BS update situation and the false anchor BS update situation.

2. Proposal

To make correct decision of anchor BS update, we propose a timer mechanism with signaling differential threshold. For the real anchor BS update to be guaranteed, the situation where the MSS decides to start one of the Anchor BS Update mechanisms is that the signal strength of one BS in the active set is higher than that of the current anchor BS by a certain threshold (we define as S_AnchUp) for a certain duration (we define as T_AnchUp). In the Fig. 1, the signal strength of the BS in the active set is larger than that of the current anchor BS three times. The first two cases happen just for a short time and their signal differences are lower than S_AnchUP. However, the signal difference of the last case is getting larger than S_AnchUp and is kept for larger duration than T_AnchUp. Finally, T_AnchUp after the signal difference becomes larger than S_AnchUp, the MSS will start Anchor BS Update.

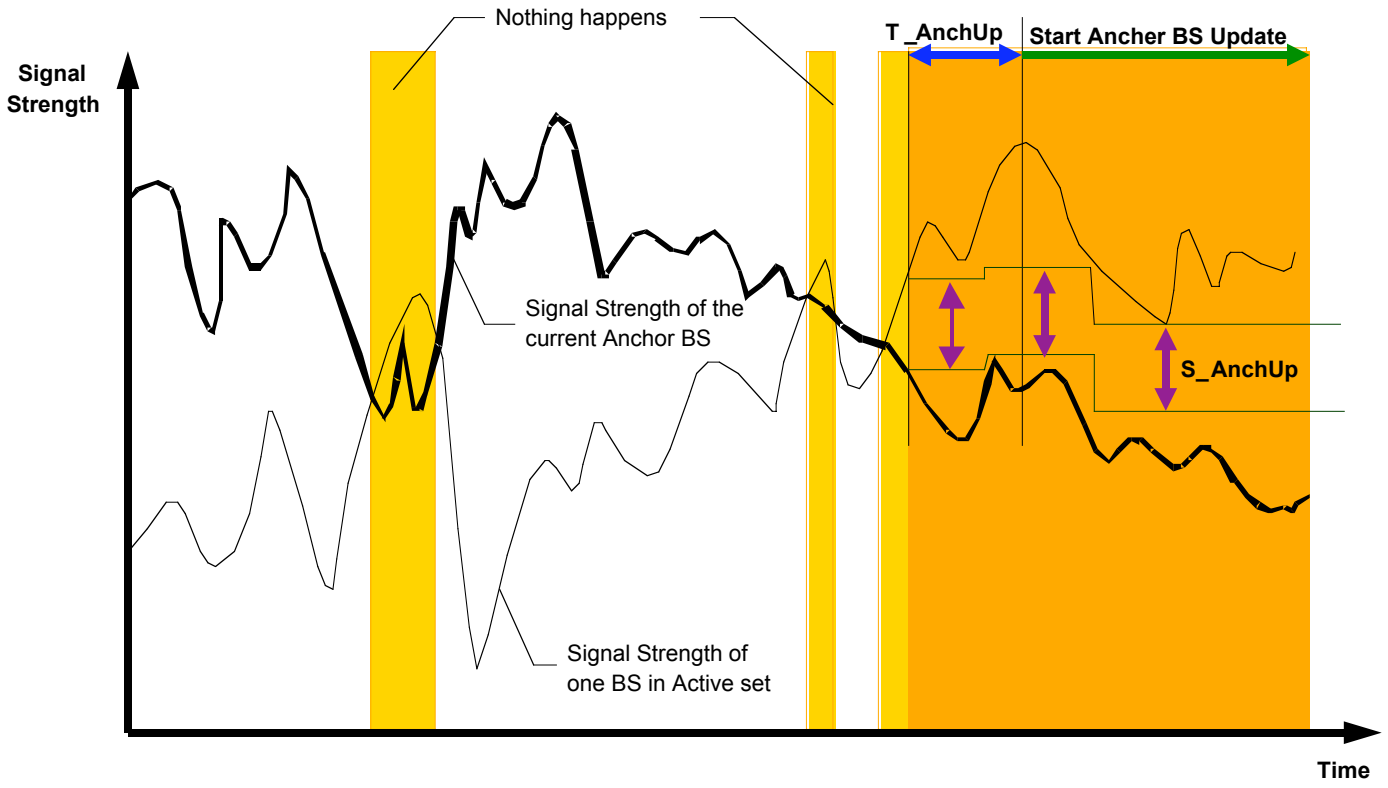

Fig. 1 The situation where the MSS decides to start the Anchor BS Update.

3. Proposed Text Changes

[*In Page 120,line 19, change the context as below*]

The BS supporting SHO or FBSS shall broadcast the DCD message that includes that H_Add threshold, H_Delete Threshold, T_AnchUp Threshold, and S_AnchUp Threshold. These thresholds are used by the FBSS/SHO capable MSS to determine if MOB_MSSHO-REQ should be sent. When long-term CINR of a serving BS is less than H_Delete Threshold, the MSS shall send MOB_MSSHO-REQ to requires dropping this serving BS from the active set; when long-term CINR of a neighbor BS is higher than H_ADD Threshold, the MSS shall send MOB_MSSHO-REQ to require adding this neighbor BS to the active set; when the signal strength of any BS in the active set is higher than that of the current anchor BS, the MSS shall send MOB_MSSHO-REQ or transmit anchor BS switch indicator to switch the current anchor BS into the BS in the active set.

[*In Page 121, line 53, change the context as below*]

When the MSS detects the signal strength from a BS in the active set is larger than that of the current anchor BS by S_AnchUp such that a switch to the new anchor BS is desired. The MSS starts an AnchUp timer with value equal to T_AnchUp. For the method using MAC management message, if that signal strength difference is kept or larger until the expiry of the AcnhUp timer, the MSS reports the preferred Anchor BS by using the MOB-MSSHO-REQ message. The BS informs the MSS of the Anchor BS update through MOB BSHO-REQ or MOB_BS-RSP message with the estimated switching time.

[*In Page 122, line 32, change the context as below*]

The Switching operation for L = 2 is illustrated in figure xxx. In the first ASR slot, the MSS detects the signal strength from a BS in the active set (e.g. BS B) is larger than that of the current anchor BS (e.g. BS A) by S_AnchUp such that a switch to the new anchor BS is desired. The MSS starts an AnchUp timer with value equal to T_AnchUp. If that signal strength difference is kept or larger until the expiry of the AnchUp timer, the MSS transmits the anchor BS switch indicator at the beginning of the next ASR slot.

Reference

[1] IEEE P802.16e/D5, September 2004 "Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems,"