Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**CQI Channel Allocation during Sleep Mode**	
Date Submitted	**206-09-22**	
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Abstract	Suggestion to change approach for CQI Channel Allocation during Sleep Mode	
Purpose	For the review in 802.16 Maint TG	
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CQI Channel Allocation during Sleep Mode

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Comment:
There is no clear definition in the standard as to what happens to the CQI allocations when an MS enters sleep mode and scanning. It is not clear if the MS continues to transmit on these allocations, or if they are de-allocated.
We propose that the BS can decide if the entering sleep modes de-allocates the CQICH, and the MS shall transmit on the CQICH only when it is active.

When the assigned CQICH is near the start of availability interval, CQI reported in sleep mode could be inaccurate since MS could stop channel measurement in the previous unavailability interval. Thus the accuracy of the CQI value is not guaranteed and BS has to decide whether it can use the CQI value or not.
When an MS wakes up from sleep mode, it transmits CQI as in awake-mode.

Suggested remedy:

Change the first paragraph in 8.4.5.4.12 as follows:
CQICH_Alloc_IE(), is introduced to dynamically allocate or de-allocate a CQICH to an SS. Once allocated, the SS shall transmit channel quality information on the assigned CQICH on subsequent frames, until the SS receives a CQICH_Alloc_IE() to de-allocate the assigned CQICH or until the MS receives a sleep control message (MOB_SLP-RSP, RNG-RSP, or DL sleep control extended subheader) with Stop_CQI_Allocation_Flag = 1. It is up to BS to decide whether CQI reported in sleep mode can be of use. Capability of using Stop_CQI_Allocation_Flag for de-allocating CQI channel is optional for the BS.
An MS in sleep mode (during the unavailability interval) shall not transmit on the assigned CQICH. If while in sleep (with traffic triggered wakening flag = 1), the MS transmits a bandwidth request with respect to a connection belonging to the Power Saving Class, the MS shall continue to transmit on the CQI allocated to it. ~~not transmit on the CQICH until receiving a response to the bandwidth request.~~
An MS in sleep mode during the availability interval shall continue to transmit on the CQICH slots allocated to the MS.
An MS during scanning interval may transmit on the CQICH allocated to it.
An example is given in figure X:

Add the following figure in 8.4.5.4.12 before table 300:

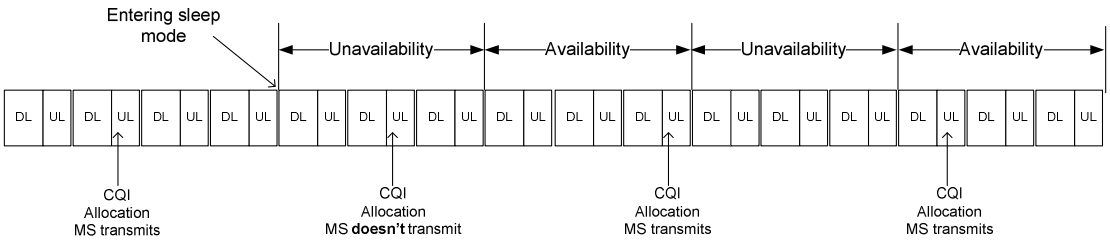

Figure X - CQI transmissions during sleep mode

Change table 109d as follows:

Syntax	Size	Notes
...		
if (Operation = 1) {		
Start_frame_number	6bits	
Stop_CQI_Allocation_Flag	1bit	
Reserved	~~2~~1bit~~s~~	
}		
...		

Add the following below table 109d:

Stop_CQI_Allocation_Flag

1 = Indicates that this MOB_SLP-RSP message de-allocates all CQICH allocated to the MS.
0 = Indicates that this MOB_SLP-RSP message does not de-allocate any CQICH allocated to the MS, and the MS shall continue to transmit channel quality information on the CQICH during its availability intervals.

Change table 364a as follows:

Syntax	Type	Length	Value
Flags	1	1	Bit 0: Definition 1 = Definition of Power Saving Class present Bit 1: Operation (RNG-RSP only) 0 = Deactivation of Power Saving Class (for 1 = Activation of Power Saving Class types 1 and 2 only) Bit 2: TRF-IND_Required For Power Saving Class Type I only. 1 = BS shall transmit at least one TRF-IND message during each listening window of the Power Saving Class. This bit shall be set to 0 for another types Bit 3: Stop_CQI_Allocation_Flag 1 = Any CQICH allocations to this MS are cancelled. 0 = CQICH allocations to this MS are still allocated and the MS shall continue to transmit channel quality information on them during its availability intervals. Bits 4~~3~~–7: *Reserved*
...			

Change table 13e as follows:

Syntax	Size	Notes
...		
Stop_CQI_Allocation_Flag	1bit	1 = Any CQICH allocations to this MS are cancelled. 0 = CQICH allocations to this MS are still allocated and the MS shall continue to transmit channel quality information on them during its availability intervals.
Reserved	4~~3~~bits	