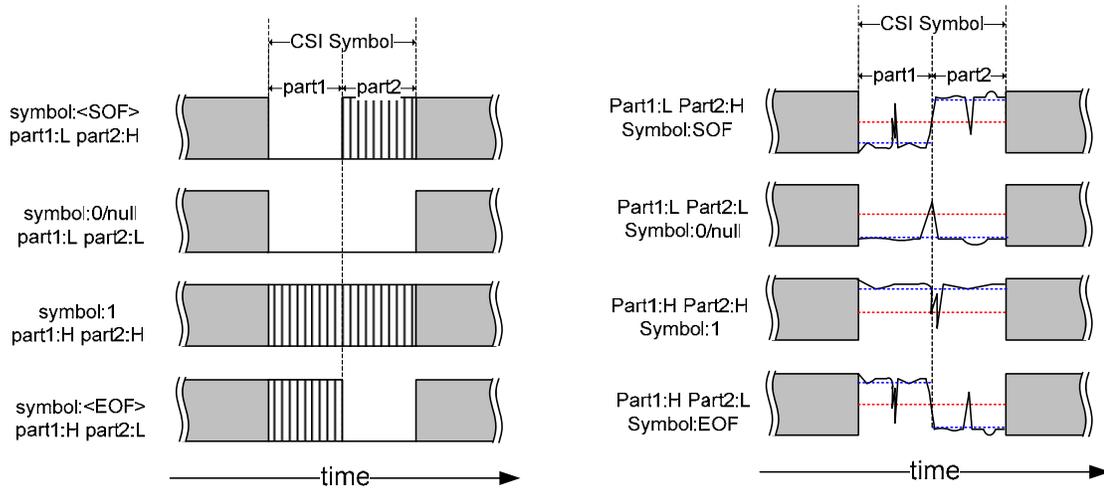


|                              |   |  |
|------------------------------|---|--|
| Project                      | <b>IEEE 802.16 Broadband Wireless Access Working Group</b><br>< <a href="http://ieee802.org/16">http://ieee802.org/16</a> >   |  |
| Title                        | Consolidation on the description of the CSI symbol and frame  |  |
| Date Submitted               | <del>2006-04-30</del>   |  |
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| Re:                          | 80216h-06_011: Working Group Review: P802.16h Working Document (2006-04-07)   |  |
| Abstract                     | Text modification on the ICSI frame description   |  |
| Purpose                      | Consolidation text on the CSI working mechanism   |  |
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1 **Proposed text changes:**

2 [Insert the figure at the end of section 15.2.1.1.3 as indicate:]



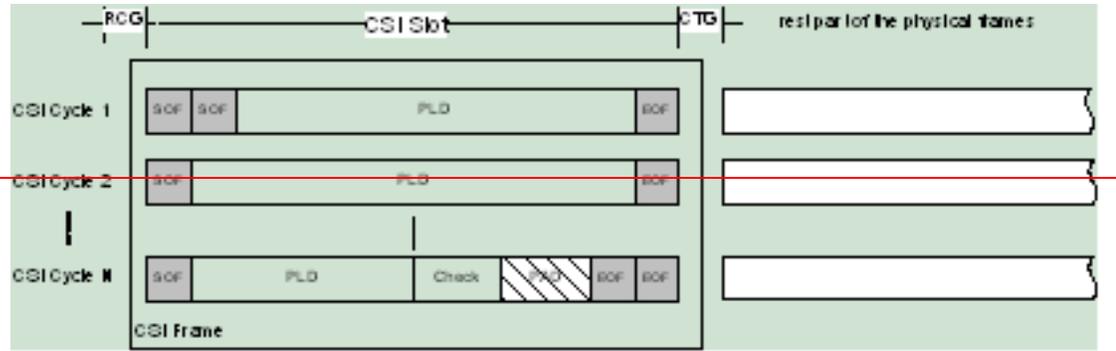
3  
4 **Figure hxx: CSI symbol transmission and receiving**

5 [Change the section 15.2.1.1.5 as indicate:]

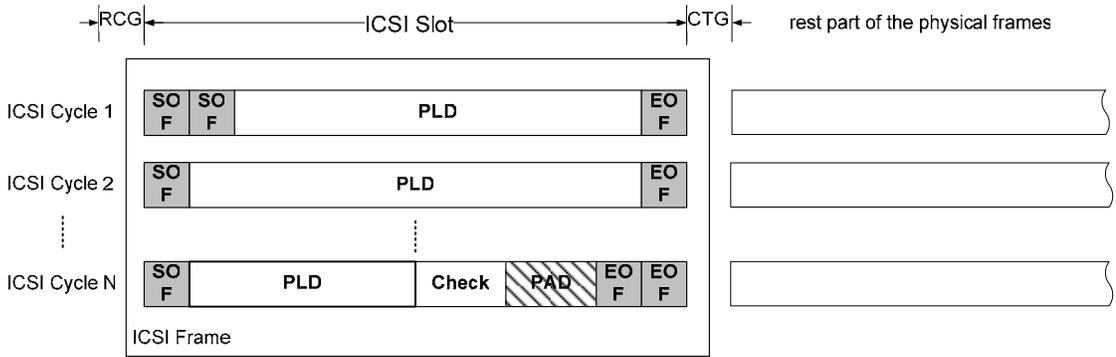
6 **15.2.1.1.5 CSI Frame Structure**

7 ~~The CSI frame is broadcasted from the base station to the coexistence neighbor's subscriber station. within They are~~  
 8 ~~loaded into~~ serialized CSI slots ~~fragmentally~~. ~~It~~The CSI frame consists of power keying energy symbols as the basic  
 9 element and carry the information from BS to the coexistence neighbor's SS. The CSI frame has the <SOF> symbols  
 10 and <EOF> symbols as the boundary of slots ~~when there is more than 4 symbols in each CSI slot,~~ and ~~two~~  
 11 consecutive <SOF> and <EOF> indicate the ~~message signaling frame~~ boundary. ~~Each CSI frame shall have 8 bits~~  
 12 ~~cyclic redundancy check(CRC) (Polynomial "X<sup>8</sup>+X<sup>2</sup>+X+1") appendant to check the validity of the information~~  
 13 ~~carried in the CSI frame. In case when the last slot of the signaling frame have not been used up with the CRC and~~  
 14 ~~<EOF>, Pad- which is filled with symbol one before the check between the CRC and double <EOF>, shall be only~~  
 15 ~~necessary to extend the slot to equivalent length it shall be filled with symbol one in the rest part of last slots which have~~  
 16 ~~not enough payload and checking appendant.~~ CSI frame should be continuously carried in the serialized CSI slots  
 17 during the whole CSI frame structure. ~~Each CSI frame shall have 8 bits cyclic redundancy check (Polynomial~~  
 18 ~~"X<sup>8</sup>+X<sup>2</sup>+X+1") appendant to check the validity of the information carried in the CSI frame.~~The basic structure is  
 19 shown below:

1



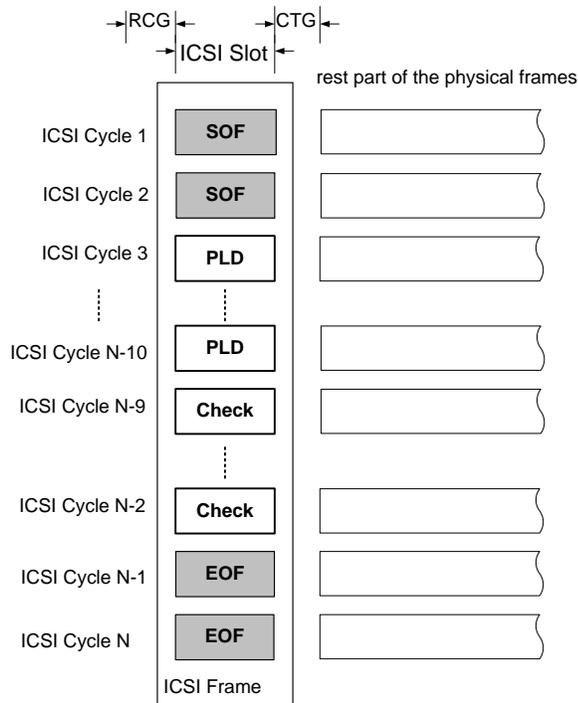
2



3

**Figure h15—CSI frame construction with no less than 4 symbols in one slot**

4



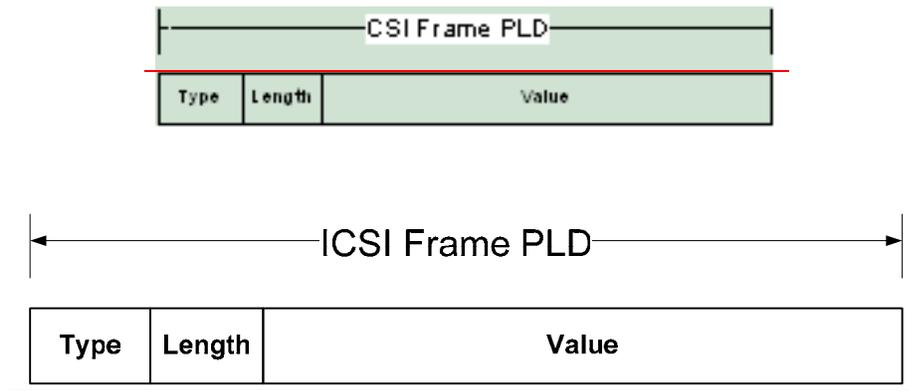
5

**Figure h15—CSI frame construction with 1 symbol in 1 slot**

6

1 The subscriber station of coexistence neighbor cannot get correct timing offset because of no ranging process between  
 2 the SS and IBS, so RCG(Receive-CSI gap) and CTG(CSI-Transmission gap) should be engaged in the CSI slot for  
 3 reliable sampling in SS.

4 The PLD (payload) part of the CSI frame should be divided into TLV aspect. TYPE indicate the type of the payload,  
 5 LENGTH correspond to the number of symbols/bits contained in the VALUE portion. (TYPE and LENGTH is 1 octet  
 6 each.)



7  
8  
9 **Figure h16—CSI frame PLD**

10 The subscriber stationSS of coexistence neighbor should keep monitoring the RSSI to detect <SOF> in every-ICSI  
 11 interval. <SOF> flag can be detected according to the energy power value against the timing, threshold in sliding  
 12 window against a predefined threshold. When power of symbol in first half part of window is significantly lower than  
 13 the threshold and the power of left second part is larger than the threshold, -one <SOF> is expected to have been  
 14 received, and the SS will pick a value in the middle of the two value as a threshold for the following symbols. The  
 15 following symbols in this frame should using this threshold as criterion. If a following symbol shows lower in the first  
 16 part and higher in the second than the threshold, it will consider as succeeded in detecting another <SOF>. A CSI frame  
 17 considered to start here. When all the symbols in the frame are received and verdict correctly, and received consecutive  
 18 two <EOF> at the end using the similar method as the <SOF>, the whole signaling frame is received correctly and the  
 19 information inside will be extracted and reported. and following data till <EOF> should all be received to be stored in  
 20 the SS.

21 Symbols between the two consecutive <SOF> and the two consecutive <EOF> are reassembled into CSI frame while  
 22 the pad is dropped after while the check is passed. If the check is failed, the signaling frame will be reported with error  
 23 indication and no value part of the payload will be reported. The whole CSI symbol sequence will be ignored if no  
 24 consecutive two <SOF> was detected.

25 When there is more than 4 symbols in each CSI slots, there will be a <SOF> and an <EOF> at the beginning and the  
 26 end of the slots respectively. All the <SOF> and <EOF> will be dropped when reassembling the payload of the CSI  
 27 frame.

28