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Re:	IEEE 802.16e
Abstract	Reply comment on Comment #3366
Purpose	Reply comment on Comment #3366
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Reply Comment on Comment #3366

Kwangjae Lim and Chulsik Yoon, ETRI

This document is provided as a reply comment of comment #3366 for providing clear text for the proposed resolutions:

[Modify sub-clause 8.4.5.4.10.9]

8.4.5.4.10.9 ~~Optional fast DL measurement feedback~~ UEP fast-feedback

When the UEP fast-feedback is employed and the Fast-feedback allocation subheader Feedback type field is '00' or the BS requests the feedback through CQICH_Alloc_IE() or CQICH_Control IE(), the MS may report the feedback payload on the assigned CQICH by using the following UEP fast-feedback method. The UEP ~~optional fast DL measurement~~ feedback provides the payload bits carried by the Fast-feedback channel with the unequal error protection (UEP) capability. The UEP fast-feedback ~~optional fast DL measurement feedback~~ repeats each payload bit according to a predefined repetition ratio, as illustrated in Figure 229d. The repeated bit sequence is interleaved and used for binary DPSK modulation on the sub-carriers for the Fast-feedback channel.

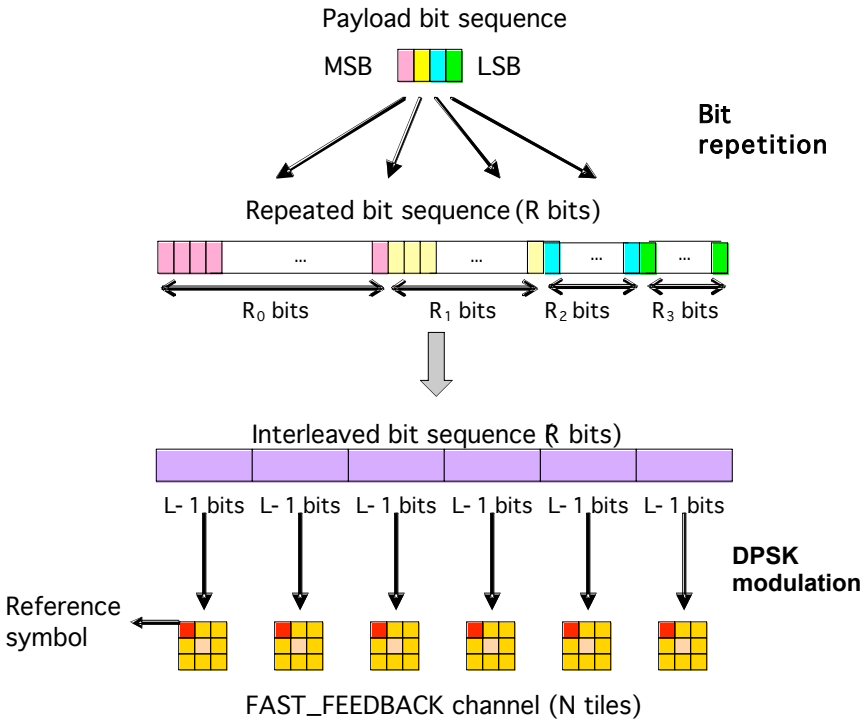

Figure 229d–Mapping of the payload bit sequence to a Fast-feedback channel

When the 4 by 3 uplink tile structure is used (see section 8.4.6.2.1), the number of tiles in a channel, *N*, is 6 and the number of subcarriers in a tile, *L*, is 12. When the 3 by 3 uplink tile structure is used (see section 8.4.6.5.1), $N = 6$ and $L = 9$.

When the MS reports the measured S/N, ~~Each~~ each payload bit is repeated according to the predefined UEP ratio $R_0:R_1:R_2:R_3$, where R_0, R_1, R_2, and R_3 represent the repetition number for the 1st payload bit b_0 (MSB), the 2nd payload bit b_1, the 3rd payload bit b_2, and the 4th payload bit b_3 (LSB), respectively. In case of the 4-bit CQI payload, a ratio of $R_0:R_1:R_2:R_3$ = 26:19:14:7 is used for the 4 by 3 uplink tile structure, and $R_0:R_1:R_2:R_3$ = 19:14:10:5 is used for the 3 by 3 uplink tile structure. ~~In case of the 5-bit CQI payload, $R_0:R_1:R_2:R_3:R_4$ = 24:18:12:6:6 and $R_0:R_1:R_2:R_3:R_4$ = 17:13:8:5:5 are used for the 4 by 3 uplink tile structure and the 3 by 3 uplink tile structure, respectively.~~

The repeated bit sequence is interleaved according to Equation (107d) before binary DPSK modulation.

$$y = (xR/N) \bmod R + \lfloor x/N \rfloor, \qquad (107d)$$

where y denotes the bit index in the interleaved bit sequence (y=0, 1, 2, …, R-1), and x denotes bit index in the repeated bit sequence (x=0, 1, 2, …, R-1). The length of the repeated bit sequence is $R = R_0+R_1+R_2+R_3 = N(L-1)$ for the 4-bit CQI ~~or $R = R_0+R_1+R_2+R_3+R_4 = N(L-1)$ for the 5-bit CQI~~.

The interleaved bit sequence is divided into N groups and each group has L-1 bits. The n-th group (n=0, 1, …N-1) is used for binary DPSK modulation on the subcarriers in the n-th uplink tile, as shown in Figure xxx. The first subcarrier in each tile is used as a phase reference. The L-1 bits in the n-th group are mapped to L DPSK symbols for the n-th tile as follows.

$$C_{n,k}^{\mathrm{CQI}} = \begin{cases} 1 & \text{if } k = 0 \\ C_{n,k-1}^{\mathrm{CQI}} & \text{if } k > 0 \text{ and } B_{n,k-1}^{\mathrm{CQI}} = 0 \\ -C_{n,k-1}^{\mathrm{CQI}} & \text{if } k > 0 \text{ and } B_{n,k-1}^{\mathrm{CQI}} = 1 \end{cases}, \qquad (107e)$$

where

$C_{n,k}^{\mathrm{CQI}}$ mapping symbol of the k-th subcarrier in n-th tile (k=0, 1, …, L-1),

$B_{n,k}^{\mathrm{CQI}}$ k-th bit of n-th group in the interleaved bit sequence (k=0, 1, …, L-2).

[Modify sub-clause 11.8.3.7.9]

11.8.3.7.9 Uplink control channel support

Type	Length	Value	Scope
159	1	… bit #4: ~~Optional FAST_FEEDBACK for the 4-bit payload~~UEP fast-feedback bit #5: ~~Optional FAST_FEEDBACK for the 5-bit payload~~ A measurement report shall be performed on the last DL burst, as described in 8.4.5.4.10.1 ~~bit #6: A measurement report shall be performed on the last DL burst, as described in 8.4.5.4.10.1~~ bit #6-7: *Reserved*; shall be set to zero	SBC-REQ (see 6.3.2.3.23) SBC-RSP (see 6.3.2.3.24)