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Abstract	Correct definitions of AMC tiles
Purpose	Adopt changes
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Correction for definitions of AMC subchannels

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1. Motivation

The structure of AMC subchannels referenced by the normal DL-MAP and UL-MAP is ambiguous and undefined. Various sections in the standard assume different structures without specifying them. We propose to define a mapping of subchannels to AMC bins for the regular MAPs. This doesn't affect the structure of band-AMC which is supported only by the H-ARQ map.

2. Details

The structure of the basic AMC tile is not defined. Implicitly, there are 4 options to define the AMC tile (1x6, 2x3, 3x2, 6x1 (bins x symbols)), but there are contradicting references:

1. p.498,line 45: "For uplink and downlink using the adjacent subcarrier permutation (defined in 8.4.6.3), one slot is one subchannel by one OFDMA symbol". According to this, the only possible AMC structure is 6x1, but it is not written explicitly (as opposed to other permutations where basic tile/cluster is specified).
2. p.578, line 24: "AMC subchannel consists of 6 contiguous bins in a same band.", according to this, since a band is 4 bins, the number of bins in an AMC slot is nor more than 4, i.e. AMC structure of 6x1 is not possible, therefore contradicts (1).
3. in 8.4.5.3 DL-MAP IE format , p. 523, line 43, 6 bits are allocated for subchannel index. Therefore, only AMC tiles of 3x2 and 6x1 are supported by the DL-MAP (in 1x6 and 2x3 there are 192 and 96 subchannels, respectively).
4. AAS-DLFP, p.507, line 56-57: "For AMC permutation, each subchannel for the AAS diversity MAP consists of 3 bins by 2 symbols". This contradicts (1).
5. AAS-DLFP2 uses 1x6 or 2x3 (see 8.4.4.7.8 AMC Subchannel definition). Both are not supported by regular DL-MAP.
6. H-ARQ MAP defines a different method of AMC bin allocation. The distinction between the allocation method used by regular MAP and H-ARQ MAP is not made anywhere.

3. Suggested change

Since the primary usage of AMC using the regular maps (non H-ARQ) is for AAS, we propose to correct the definitions to match with the AAS-DLFP definitions in the DL (3 bins by 2 symbols), resulting in 64 subchannels (which is the maximum supported by the DL-MAP). In the UL we propose to use a 2x3 AMC tile structure (resulting in 96 subchannels, which are supported by the UCD). This tile structure keeps the 3-symbols unit used by PUSC and optional-PUSC permutation, and enables modulation of the ranging code (144 bits modulate 16 bins = 8 subchannels in 2x3 structure).

4. Specific text changes

8.4.3.1 Slot and Data Region
[Change the text in p.498,line 45 to read]

For ~~uplink and downlink using~~ the adjacent subcarrier permutation (defined in 8.4.6.3), one slot is one subchannel by ~~one~~ two OFDMA symbols in the downlink, and one subchannel by three OFDMA symbols in the uplink.

8.4.6.3 Optional permutations for AAS and AMC subchannels

[Change the last paragraph, in p.578, line 24]

AMC allocations can be made by two mechanisms: by subchannel index reference in UL-MAP and DL-MAP, or by band allocation through H-ARQ map (defined in 6.3.2.3.43). A group of 4 rows of bins is called a band. Each UL or DL zone may include allocations either from H-ARQ map or normal map, but not from both. For band-AMC allocations made by H-ARQ map message, an AMC subchannel consists of 6 contiguous bins in a same band. For regular AMC allocations made by the DL-MAP or UL-MAP, and AMC subchannel is defined as 3 contiguous bins in the DL (a slot consists of 3 bins by 2 symbols), and 2 contiguous bins in the UL (a slot consists of 2 bins by 3 symbols). The subchannels are mapped from the lowest to the highest frequency, such that subchannel k (k=0-63 in the DL and 0-95 in the UL) consists of bins $3 \cdot k$, $3 \cdot k+1$ and $3 \cdot k+2$ in the DL, and bins $2 \cdot k$ and $2 \cdot k+1$ in the UL.

11.3 UCD management message encodings

[make the following change in Table 351, p.659, lines 7-10]

Optional permutation UL and AMC Allocated subchannels bitmap	158	13	This is a bitmap describing the sub-channels allocated to the segment in the UL, when using the uplink optional PUSC permutation (see 8.4.6.2.5), or the AMC permutation with regular MAPs (see 8.4.6.3). The LSB of the first byte shall correspond to subchannel 0. For any bit that is not set, the corresponding subchannel shall not be used by the SS on that segment. For AMC, only 12 bytes are used, and the last byte is 0.