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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

- Define AMC tile structure in ZoneSwitch IE
- For AAS zone AMC tile will be 2x3 for UL and DL (symmetric).
- SS will indicate support of each AMC tile in SBC-RSP
- In order not to increase number of bits in DL-MAP_IE to support extra AMC subchannels (up to 192), we propose that for AMC subchannelization, 8 bits will be allocated to subchannel index on expense of removing 1 bit from symbol number and number of OFDMA symbols.
- Give a specific definition for the subchannels in AMC.

4. Specific text changes

4.1. Definitions of AMC subchannels for normal maps

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~~ one, two, threee or six OFDMA symbols as indicated by the AMC type.

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 from H-ARQ and normal map. 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 of type NxM (where N·M=6) is defined as N contiguous bins (a slot consists of N bins by M symbols). The subchannels are numbered from the lowest (0) to the highest frequency, such that subchannel k (k=0-192/N) consists of bins N·k to N·k+N-1.

11.3 UCD management message encodings

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

UL AMC Allocated subchannels range.	TBD	2	This parameter specifies the range of sub-channels allocated to the segment in the UL, when using the the AMC permutation with regular MAPs (see 8.4.6.3). The first byte N0 shall correspond to the first subchannel and last byte N1 corresponds to the index of the last subchannel plus 1. Only subchannels in the range N0 ≤ s < N1 shall not be used by the SS on that segment.

8.4.5.3 DL-MAP IE format

[Modify table 273, line 41-50, starting from "OFDMA symbol offset", as follows]

If (Permutation = 0b11)		For adjacent subcarrier permutation
{		
OFDMA Symbol offset	7 bits	
Subchannel offset	8 bits	
Boosting	3 bits	As defined below.
No. OFDMA Symbols	6 bits	
}		
else		
{		
OFDMA Symbol offset	8 bits	
Subchannel offset	6 bits	

Boosting	3 bits	000: normal (not boosted); 001: +6dB; 010: -6dB; 011: +9dB; 100: +3dB; 101: -3dB; 110: -9dB; 111: -12dB;.
No. OFDMA Symbols	7 bits	
}		

4.2. Addition of AMC type to ZoneSwitch and AAS_IE in DL and UL

8.4.5.3.4 Transmit diversity (TD)/Zone switch IE format

[Replace the reserved bits with the following text]

~~*Reserved*~~	~~2 bits~~	~~Shall be set to zero~~
AMC type	2 bits	Indicates the AMC type in case permutation type = 0b11, otherwise shall be set to 0. AMC type (NxM = N bins by M symbols): 0b00 – 1x6 0b01 – 2x3 0b10 – 3x2 0b11 – 6x1

8.4.5.3.3 AAS IE format

[Add the following text after the table]

Following AAS_IE indicating AMC permutation the AMC type shall be 2x3 (2 bins by 3 symbols).

8.4.5.4.6 AAS IE format

[Erase the lines "first bin index" and "last bin index" from table 291]

[Add the following text after table 291]

Following AAS_IE indicating AMC permutation the AMC type shall be 2x3 (2 bins by 3 symbols).

8.4.5.4.7 UL Zone switch IE format

[Add the following lines at the end of table 291]

AMC type	2 bits	Indicates the AMC type in case permutation type = 0b11, otherwise shall be set to 0. AMC type (NxM = N bins by M symbols): 0b00 – 1x6 0b01 – 2x3 0b10 – 3x2 0b11 – 6x1
Reserved	6 bits	Shall be set to 0

[increment the length field of UL Zone switch IE by 1]

4.3. Capability bits

11.8.3.7.5 OFDMA SS Permutation support

[Change the text as follows]

Type	Length	Value	Scope
154	1	Bit# 0: Optional PUSC support Bit# 1: Optional FUSC support Bit# 2: AMC 1x6 support Bit# 3: AMC 2x3 support Bit# 4: AMC 3x2 support Bit# 5: AMC 6x1 support Bits# ~~3~~6–7: Reserved, shall be set to zero	SBC-REQ (see 6.3.2.3.23) SBC-RSP (see 6.3.2.3.24)