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Agenda Item: Plenary

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Title: Text Proposal for 25.213 for the conclusion of AH10
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This text proposal is according to the conclusion of AH10 meeting of WG1#7 in Hannover.

Text proposal for 25.213

4.3 Code generation and allocation

4.3.1 Channelization codes

The channelization codes of Figure 1 are Orthogonal Variable Spreading Factor (OVSF) codes that preserve the orthogonality between a user's different physical channels. The OVSF codes can be defined using the code tree of Figure 3.
In Figure 3, the OVSF code is described as $C_{SF,code\ number}$, where $SF_{d,n}$ represents the spreading factor of n^{th} DPDCH. Then the DPCCH is spread by code number 1 with a spreading factor of SF_c.
Each level in the code tree defines channelization codes of length SF, corresponding to a spreading factor of SF in Figure 3. All codes within the code tree cannot be used simultaneously by one mobile station. A code can be used by a UE if and only if no other code on the path from the specific code to the root of the tree or in the sub-tree below the specific code is used by the same mobile station. This means that the number of available channelization codes is not fixed but depends on the rate and spreading factor of each physical channel.
The generation method for the channelization code can also be explained in Figure 4.
Binary code words are equivalent to the real valued sequences by the transformation '0' -> '+1', '1' ->

The DPCCH is spread by code number 1 in any code tree as described in Section 4.3.1. The first DPDCH is spread by code number ($SF_{d,1}$ / 4 + 1). Subsequently added DPDCHs for multi-code transmission are spread by codes in ascending order starting from code number 2 excepting the one used for the first DPDCH. However to guarantee the orthogonality between channels, any subtree below the specified node is not used for the channelization code of a DPDCH.
<Editor's Note: The case of OVSF code allocation with multiple DPDCHs with different spreading factors is for further study

The channelization code for uplink is used to realize a multicode transmission and the user identification is done not by channelization code but by scranbling code. So the number of channelization codes for uplink is at most the same nubmer of multi codes for one CCTrCH. So the channelization code assignment is not signalled by higher layers but the predetermined value of layer 1.

5.2.2 Scrambling code

There are a total 512*512 = 262,144 scrambling codes, numbered 0…262,143. The scrambling codes are divided into 512 sets each of a primary scrambling code and 511 secondary scrambling codes. The primary scrambling codes consist of scrambling codes i=0…511. The i:th set of secondary scrambling codes consists of scrambling codes i+k*512, where k=1…511.
There is a one-to-one mapping between each primary scrambling code and 511 secondary scrambling codes in a set such that i:th primary scrambling code corresponds to i:th set of scrambling codes.
The set of primary scrambling codes is further divided into 32 scrambling code groups, each consisting of 16 primary scrambling codes. The j:th scrambling code group consists of scrambling codes j*16, …,

Each cell is allocated one and only one primary scrambling code. The primary CCPCH is always transmitted using the primary scrambling code. The other downlink physical channels can be transmitted with either the primary scrambling code or a secondary scrambling code from the set associated with the primary scrambling code of the cell.

The mixture of primary scrambling code and secondary scrambling code for one CCTrCH is allowable.