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1. Summary

Some features of the common physical channel in 1.28Mcps TDD are different to that in the 3.84Mcps TDD .

2. Introduction and comparison with 3.84Mcps TDD

In 3.84Mcps TDD, the P-CCPCH always uses channelisation code $c_{Q=16}^{(k=1)}$. While in 1.28Mcps TDD, the P-CCPCH is consisted by the P-CCPCH1 and P-CCPCH2 using the channelisation code $c_{Q=16}^{(k=1)}$ and $c_{Q=16}^{(k=2)}$ respectively. This is based on the capacity consideration. So the P-CCPCHs are always used in pairs with SF16 in 1.28Mcps TDD. Due to the same reason, the S-CCPCHs are always used in pairs too in 1.28Mcps TDD . There can be more than one pair of S-CCPCHs in use in one cell. In this way, the capacity of PCH and FACH can be adapted to the different requirements.

In 3.84Mcps TDD, there are two types of bursts for the DPCH. The burst type 1are also used for P-CCPCH. Both types can be used for S-CCPCH. While in 1.28Mcps TDD, only one type of burst is defined for the DPCH. It is also used for the P-CCPCH and S-CCPCH.

Due to the special random access procedure, the P-RACH is uplink-synchronised with other uplink DPCHs. So the burst type for the DPCH can be also used for the P-RACH, while in 3.84Mcps TDD the P-RACH burst type has a longer guard period than burst type 1 or 2.

3. Proposal

We propose to modify following paragraphs in the working CR for the TS25.221 as the description of the common physical channels of 1.28Mcps TDD.

6.3 Common physical channels

6.3.1 Primary common control physical channel (P-CCPCH)

The BCH as described in subclause ‘Common Transport Channels’ is mapped onto the Primary Common Control Physical Channels (P-CCPCH1 and P-CCPCH2). The position (time slot / code) of the P-CCPCHs is fixed in the 1.28Mcps TDD. The P-CCPCHs are mapped onto the first two code channels of timeslot#0 with spreading factor of 16, see subclause ‘Common Transport Channels’.

6.3.1.1 P-CCPCH Spreading

The P-CCPCH uses fixed spreading with a spreading factor SF = 16. The P-CCPCH1 and P-CCPCH2 always use channelisation code $c_{Q=16}^{(k=1)}$ and $c_{Q=16}^{(k=2)}$ respectively.

6.3.1.2 P-CCPCH Training sequences

The training sequences, i.e. midambles, as described in the subclause on midamble generation are used for the P-CCPCH. The basic midamble code m(1) is used for P-CCPCHs as training sequence.

6.3.2 Secondary common control physical channel (S-CCPCH)

PCH and FACH are mapped onto one or more secondary common control physical channels (S-CCPCH). In this way the capacity of PCH and FACH can be adapted to the different requirements. The time slot and codes used for the S-CCPCH are broadcast on the BCH.

6.3.2.1 S-CCPCH Spreading

The S-CCPCH uses fixed spreading with a spreading factor SF = 16. The S-CCPCHs (S-CCPCH 1 and S-CCPCH 2) are always used in pairs, mapped onto two code channels with spreading factor 16. There can be more than one pair of S-CCPCHs in use in one cell.

6.3.2.2 S-CCPCH Training sequences

The training sequences, i.e. midambles, as described in the subclause on midamble generation, are also used for the S-CCPCH.

6.3.3 The physical random access channel (PRACH)

The RACH is mapped onto one or more uplink physical random access channels (PRACH). In such a way the capacity of RACH can be flexibly scaled depending on the operators need.

6.3.3.1 PRACH Spreading

The uplink PRACH uses either spreading factor SF=16 or SF=8 as described in subclause 6.2.1.1. The set of admissible spreading codes for use on the PRACH and the associated spreading factors are broadcast on the BCH (within the RACH configuration parameters on the BCH).

The uplink PRACH uses either spreading factor SF=16 or SF=8 as described in subclause of ‘The Random Access Channel (RACH)’. The PRACH configuration (time slot number and assigned spreading codes) is broadcast through the BCH.

6.3.3.2 PRACH Training sequences

The training sequences, i.e. midambles, of different users active in the same time slot are time shifted versions of a single periodic basic code. The basic midamble codes as described in subclause about midamble generation are used for PRACH.

6.3.3.3 Association between Training Sequences and Channelisation Codes

The association between training sequences and channelisation codes of PRACH in the 1.28McpsTDD is same as that of the DPCH.