

Agenda item:

Source: Lucent Technologies

Title: CR 25.212-086R1: Clarification on DL slot format for compressed mode by SF/2

Document for: Approval

In down-link compressed mode by SF/2 the data bit mapping into the DPDCH field of a half slot is implicitly defined. For data fields the equations in 4.2.12.2 imply this mapping however for the control fields the mapping is implied in 4.3.5.2.2 (TFCI mapping) and handled in the same manner as other compressed modes.

This CR makes an explicit clarification of the mapping.

Revision 1 of CR 25.212 086 is presented here, incorporating all comments received.

4.2.12 Physical channel mapping

The PhCH for both uplink and downlink is defined in [2]. The bits input to the physical channel mapping are denoted by $v_{p1}, v_{p2}, \dots, v_{pU}$, where p is the PhCH number and U is the number of bits in one radio frame for one PhCH. The bits v_{pk} are mapped to the PhCHs so that the bits for each PhCH are transmitted over the air in ascending order with respect to k .

In compressed mode, no bits are mapped to certain slots of the PhCH(s). If $N_{first} + TGL \leq 15$, no bits are mapped to slots N_{first} to N_{last} . If $N_{first} + TGL > 15$, i.e. the transmission gap spans two consecutive radio frames, the mapping is as follows:

- In the first radio frame, no bits are mapped to slots $N_{first}, N_{first}+1, N_{first}+2, \dots, 14$.
- In the second radio frame, no bits are mapped to the slots $0, 1, 2, \dots, N_{last}$.

TGL , N_{first} , and N_{last} are defined in subclause 4.4.

4.2.12.1 Uplink

In uplink, the PhCHs used during a radio frame are either completely filled with bits that are transmitted over the air or not used at all. The only exception is when the UE is in compressed mode. The transmission can then be turned off during consecutive slots of the radio frame.

4.2.12.2 Downlink

In downlink, the PhCHs do not need to be completely filled with bits that are transmitted over the air. Bits $v_{pk} \notin \{0, 1\}$ are not transmitted.

During compressed mode by reducing the spreading factor by 2, [the data bits are always mapped into 7.5 slots within a compressed frame.](#) ~~No~~ bits are mapped to the DPDCH field as follows:

If $N_{first} + TGL \leq 15$, i.e. the transmission gap spans one radio frame,

if $N_{first} + 7 \leq 14$

no bits are mapped to slots $N_{first}, N_{first} + 1, N_{first} + 2, \dots, \underline{N_{first} + 6}, \underline{N_{last} + (7 - TGL)}$

no bits are mapped to the first $(N_{Data1} + N_{Data2})/2$ bit positions of slot $\underline{N_{first} + 7}, \underline{N_{last} + (8 - TGL)}$

else

no bits are mapped to slots $N_{first}, N_{first} + 1, N_{first} + 2, \dots, 14$

no bits are mapped to slots $N_{first} - 1, N_{first} - 2, N_{first} - 3, \dots, \underline{8}, \underline{N_{first} - (7 - TGL - (14 - N_{last}))}$

no bits are mapped to the last $(N_{Data1} + N_{Data2})/2$ bit positions of slot $\underline{7}, \underline{N_{first} - (8 - TGL - (14 - N_{last}))}$

end if

If $N_{first} + TGL > 15$, i.e. the transmission gap spans two consecutive radio frames,

In the first radio frame, no bits are mapped to last $(N_{Data1} + N_{Data2})/2$ bit positions in slot 7 as well as to slots 8, 9, 10, ..., 14.

In the second radio frame, no bits are mapped to slots 0, 1, 2, ..., 6 as well as to first $(N_{Data1} + N_{Data2})/2$ bit positions in slot 7.

N_{Data1} and N_{Data2} are defined in [2].

4.2.13 Restrictions on different types of CCTrCHs

Restrictions on the different types of CCTrCHs are described in general terms in TS 25.302[11]. In this subclause those restrictions are given with layer 1 notation.