3GPP TSG-RAN Meeting #16

RP-020308

Marco Island, FL, U.S.A., 4 – 7, June, 2002

Title: **Agreed CRs (R99 and Rel-4/Rel-5 Category A) to TS 25.212**

Source: **TSG-RAN WG1**

Agenda item: **7.1.3**

No.	Spec	CR	Rev	R1 T-doc	Subject	Phase	Cat	Work Item	V_old	V_new
1	25.212	134	-	R1-02-0597	Downlink bit mapping	R99	F	TEI	3.9.0	3.10.0
2	25.212	135	-	R1-02-0597	Downlink bit mapping	Rel-4	A	TEI	4.4.0	4.5.0
3	25.212	136	-	R1-02-0597	Downlink bit mapping	Rel-5	A	TEI	5.0.0	5.1.0

CR-Form-v5

CHANGE REQUEST

z **25.212** CR **134** z rev **-** z Current version: **3.9.0** z

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the z symbols.*

Proposed change affects: z (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title: z	Downlink bit mapping	
Source: z	TSG RAN WG1	
Work item code: z	TEI	***Date:*** z 2002-04-05
Category: z **F**		***Release:*** z R99

Use <u>one</u> of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change: z	The current description of signal formats for the interfaces between different RAN1 specifications does not consider all types of signals. The signal formats output from 25.211 and 25.212 are formally not compatible with the spreading operation in 25.213. In particular, there is ambiguity about binary, real-valued and DTX signals and their mapping.
Summary of change: z	It is clarified that DTX indicators are not removed by the PhCH mapping, i.e. they are forwarded to the input of the spreading in 25.213.
Consequences if not approved: z	Misleading information regarding signal formats on the interfaces between RAN1 specifications.

Clauses affected: z	4.2.12.2
Other specs affected: z	☐ Other core specifications z ☐ Test specifications ☐ O&M Specifications
Other comments: z	Isolated impact analysis: The implementation of this CR does not impact existing UE implementations.

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 $v_{p1}, v_{p2}, \ldots, v_{pU}$, 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}, $N_{first}+1$, $N_{first}+2$, …, 14.

-    In the second radio frame, no bits are mapped to the slots 0, 1, 2, …, 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~~ Values v_{pk} $\notin \{0, 1\}$ correspond to DTX indicators, which are mapped to the DPCCH/DPDCH fields but are not transmitted over the air.

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}, $N_{first} + 1$, $N_{first} +2,$…, $N_{first}+6$

no bits are mapped to the first $(N_{Data1}+ N_{Data2})/2$ bit positions of slot $N_{first}+7$

else

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

no bits are mapped to slots N_{first} - 1, N_{first} - 2, N_{first} - 3, …, 8

no bits are mapped to the last $(N_{Data1}+ N_{Data2})/2$ bit positions of slot 7

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

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CHANGE REQUEST

| | z | **25.212 CR 135** | z **rev** | **-** | z | Current version: | **4.4.0** | z |

For HELP on using this form, see bottom of this page or look at the pop-up text over the z symbols.

Proposed change affects: z (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title: z	Downlink bit mapping	
Source: z	TSG RAN WG1	
Work item code: z	TEI	**Date:** z 2002-04-05
Category: z	**A**	**Release:** z REL-4

Use one of the following categories:
F (correction)
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Consequences if not approved: z	Misleading information regarding signal formats on the interfaces between RAN1 specifications.

Clauses affected: z	4.2.12.2
Other specs affected: z	☐ Other core specifications z
	☐ Test specifications
	☐ O&M Specifications
Other comments: z	Isolated impact analysis: The implementation of this CR does not impact existing UE implementations.

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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 $N_{first}, N_{first}+1, N_{first}+2, \ldots, 14$.

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

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

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