TSG-RAN Meeting #23 **RP-040085**
Phoenix, Arizona, USA, 10 - 13 March 2004

Title: **Independent Release 5 CRs to TS 25.212 and the shadow CRs to Release 6**

Source: **TSG-RAN WG1**

Agenda item: **7.2.5**

1. Independent Release 5 CRs to **TS 25.212** and the shadow CRs to Release 6 **(RP-040085)**

RP tdoc#	WG tdoc#	Spec	CR	R	Subject	Ph	C	Curr	New	WI	Remarks
RP-040085	R1-040327	25.212	181	3	CCTrCH definition extension to HS-DSCH	Rel-5	F	5.7.0	5.8.0	TEI5	
RP-040085	R1-040327	25.212	187	1	CCTrCH definition extension to HS-DSCH	Rel-6	A	6.0.0	6.1.0	TEI5	

3GPP TSG-RAN WG1 Meeting #36
Malaga, Spain, 16-20 February, 2004

Tdoc R1-040327

CR-Form-v7

CHANGE REQUEST

⌘ **TS25.212** **CR** **181** ⌘ **rev** **3** ⌘ Current version: **5.7.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	CCTrCH definition extension to HS-DSCH
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI-5
Date:	⌘	17/02/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one 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 one 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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	CCTrCH of common type for HS-DSCH is referred to in BTFD section of TS25.211, but there is no mention of it in the general description on restrictions on CCTrCHs.
Summary of change:	⌘	CCTrCH of common type for HS-DSCH is added to section 4.2.13 on restrictions on different types of CCTrCH.
Consequences if not approved:	⌘	Isolated impact analysis: Correction to a function where the specification was o Not sufficiently explicit This change states restrictions on CCTrCH of common type for HS-DSCH in a section relevant to it. The restriction was already readily apparent in the previous versions of the specification so no impact is seen.

Clauses affected:	⌘	4.2.13, 4.2.14

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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].

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.

4.2.13.1 Uplink Dedicated channel (DCH)

The maximum value of the number of TrCHs I in a CCTrCH, the maximum value of the number of transport blocks M_i on each transport channel, and the maximum value of the number of DPDCHs P are given from the UE capability class.

4.2.13.2 Random Access Channel (RACH)

- There can only be one TrCH in each RACH CCTrCH, i.e. I=1, $s_k = f_{1k}$ and $S = V_1$.
- The maximum value of the number of transport blocks M_1 on the transport channel is given from the UE capability class.
- The transmission time interval is either 10 ms or 20 ms.
- Only one PRACH is used, i.e. P=1, $u_{1k} = s_k$, and $U = S$.
- The Static rate matching parameter RM_1 is not provided by higher layer signalling on the System information as the other transport channel parameters. Any value may be used as there is one transport channel in the CCTrCH, hence one transport channel per Transport Format Combination and no need to do any balancing between multiple transport channels.

4.2.13.3 Common Packet Channel (CPCH)

- There can only be one TrCH in each CPCH CCTrCH, i.e. I=1, $s_k = f_{1k}$ and $S = V_1$.
- The maximum value of the number of transport blocks M_1 on the transport channel is given from the UE capability class.
- Only one PCPCH is used, i.e. P=1, $u_{1k} = s_k$, and $U = S$.

4.2.13.4 Downlink Dedicated Channel (DCH)

The maximum value of the number of TrCHs I in a CCTrCH, the maximum value of the number of transport blocks M_i on each transport channel, and the maximum value of the number of DPDCHs P are given from the UE capability class.

4.2.13.5 Downlink Shared Channel (DSCH) associated with a DCH

- The spreading factor is indicated with the TFCI of the associated DPCH.
- The maximum value of the number of TrCHs I in a CCTrCH, the maximum value of the number of transport blocks M_I on the transport channel and the maximum value of the number of PDSCHs P are given from the UE capability class.

4.2.13.6 Broadcast channel (BCH)

- There can only be one TrCH in the BCH CCTrCH, i.e. I=1, $s_k = f_{1k}$, and $S = V_1$.
- There can only be one transport block in each transmission time interval, i.e. $M_1 = 1$.
- All transport format attributes have predefined values which are provided in [11] apart from the rate matching RM_1.
- The Static rate matching parameter RM_1 is not provided by higher layer signalling neither fixed. Any value may be used as there is one transport channel in the CCTrCH, hence one transport channel per Transport Format Combination and no need to do any balancing between multiple transport channels.
- Only one primary CCPCH is used, i.e. P=1.

4.2.13.7 Forward access and paging channels (FACH and PCH)

- The maximum value of the number of TrCHs I in a CCTrCH and the maximum value of the number of transport blocks M_i on each transport channel are given from the UE capability class.
- The transmission time interval for TrCHs of PCH type is always 10 ms.
- Only one secondary CCPCH is used per CCTrCH, i.e. P=1.

4.2.13.8 High Speed Downlink Shared Channel (HS-DSCH) associated with a DCH

- There can be only one TrCH in the HS-DSCH CCTrCH, i.e. I = 1,
- There can only be one transport block in each transmission time interval, i.e. M_1 = 1.
- The transmission time interval for TrCHs of HS-DSCH type is always 2 ms.
- The maximum value of the number of HS-PDSCHs P are given from the UE capability class.

4.2.14 Multiplexing of different transport channels into one CCTrCH, and mapping of one CCTrCH onto physical channels

The following rules shall apply to the different transport channels which are part of the same CCTrCH:

1) Transport channels multiplexed into one CCTrCh shall have co-ordinated timings. When the TFCS of a CCTrCH is changed because one or more transport channels are added to the CCTrCH or reconfigured within the CCTrCH, or removed from the CCTrCH, the change may only be made at the start of a radio frame with CFN fulfilling the relation

   CFN mod F_{max} = 0,

   where F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels which are multiplexed into the same CCTrCH, including any transport channels i which are added,

reconfigured or have been removed, and CFN denotes the connection frame number of the first radio frame of the changed CCTrCH.

After addition or reconfiguration of a transport channel *i* within a CCTrCH, the TTI of transport channel *i* may only start in radio frames with CFN fulfilling the relation:

CFN mod $F_i = 0$.

For a CCTrCH of DSCH type, a modification of number of bits $N_{data,*}$ allocated on a radio frame is allowed if the CFN verifies CFN mod $F_{max} = 0$, where F_{max} denotes the maximum number of radio frames within the transmission time intervals of all the transport channels with a non zero transport block transport format multiplexed into the CCTrCH in the previous radio frame.

2) Only transport channels with the same active set can be mapped onto the same CCTrCH.

3) Different CCTrCHs cannot be mapped onto the same PhCH.

4) One CCTrCH shall be mapped onto one or several PhCHs. These physical channels shall all have the same SF.

5) Dedicated Transport channels and common transport channels cannot be multiplexed into the same CCTrCH.

6) For the common transport channels, only the FACH and PCH may belong to the same CCTrCH.

There are hence two types of CCTrCH:

1) CCTrCH of dedicated type, corresponding to the result of coding and multiplexing of one or several DCHs.

2) CCTrCH of common type, corresponding to the result of the coding and multiplexing of a common channel, RACH in the uplink, DSCH, HS-DSCH, BCH, or FACH/PCH for the downlink.

4.2.14.1 Allowed CCTrCH combinations for one UE

4.2.14.1.1 Allowed CCTrCH combinations on the uplink

A maximum of one CCTrCH is allowed for one UE on the uplink. It can be either:

1) one CCTrCH of dedicated type;

2) one CCTrCH of common type.

4.2.14.1.2 Allowed CCTrCH combinations on the downlink

The following CCTrCH combinations for one UE are allowed:

- x CCTrCH of dedicated type + y CCTrCH of common type. The allowed combination of CCTrCHs of dedicated and common type are given from UE radio access capabilities. There can be a maximum of~~n~~ one CCTrCH of common type for DSCH or HS-DSCH and a maximum of one CCTrCH of common type for FACH. With one CCTrCH of common type for DSCH or HS-DSCH, there shall be only one CCTrCH of dedicated type.

NOTE 1: There is only one DPCCH in the uplink, hence one TPC bits flow on the uplink to control possibly the different DPDCHs on the downlink, part of the same or several CCTrCHs.

NOTE 2: There is only one DPCCH in the downlink, even with multiple CCTrCHs. With multiple CCTrCHs, the DPCCH is transmitted on one of the physical channels of that CCTrCH which has the smallest SF among the multiple CCTrCHs. Thus there is only one TPC command flow and only one TFCI word in downlink even with multiple CCTrCHs.

NOTE 3: in the current release, only 1 CCTrCH of dedicated type is supported.

3GPP TSG-RAN WG1 Meeting #36
Malaga, Spain, 16-20 February, 2004

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CHANGE REQUEST

⌘ **TS25.212** **CR** **187** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

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Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	CCTrCH definition extension to HS-DSCH
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI-5
Date:	⌘	17/02/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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		X	O&M Specifications	

Other comments: ⌘

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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

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

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4.2.13.2 Random Access Channel (RACH)

- There can only be one TrCH in each RACH CCTrCH, i.e. I=1, $s_k = f_{1k}$ and $S = V_1$.
- The maximum value of the number of transport blocks M_1 on the transport channel is given from the UE capability class.
- The transmission time interval is either 10 ms or 20 ms.
- Only one PRACH is used, i.e. P=1, $u_{1k} = s_k$, and $U = S$.
- The Static rate matching parameter RM_1 is not provided by higher layer signalling on the System information as the other transport channel parameters. Any value may be used as there is one transport channel in the CCTrCH, hence one transport channel per Transport Format Combination and no need to do any balancing between multiple transport channels.

4.2.13.3 Common Packet Channel (CPCH)

- There can only be one TrCH in each CPCH CCTrCH, i.e. I=1, $s_k = f_{1k}$ and $S = V_1$.
- The maximum value of the number of transport blocks M_1 on the transport channel is given from the UE capability class.
- Only one PCPCH is used, i.e. P=1, $u_{1k} = s_k$, and $U = S$.

4.2.13.4 Downlink Dedicated Channel (DCH)

The maximum value of the number of TrCHs I in a CCTrCH, the maximum value of the number of transport blocks M_i on each transport channel, and the maximum value of the number of DPDCHs P are given from the UE capability class.

4.2.13.5 Downlink Shared Channel (DSCH) associated with a DCH

- The spreading factor is indicated with the TFCI of the associated DPCH.
- The maximum value of the number of TrCHs I in a CCTrCH, the maximum value of the number of transport blocks M_I on the transport channel and the maximum value of the number of PDSCHs P are given from the UE capability class.

4.2.13.6 Broadcast channel (BCH)

- There can only be one TrCH in the BCH CCTrCH, i.e. I=1, $s_k = f_{1k}$, and $S = V_1$.
- There can only be one transport block in each transmission time interval, i.e. $M_1 = 1$.
- All transport format attributes have predefined values which are provided in [11] apart from the rate matching RM_1.
- The Static rate matching parameter RM_1 is not provided by higher layer signalling neither fixed. Any value may be used as there is one transport channel in the CCTrCH, hence one transport channel per Transport Format Combination and no need to do any balancing between multiple transport channels.
- Only one primary CCPCH is used, i.e. P=1.

4.2.13.7 Forward access and paging channels (FACH and PCH)

- The maximum value of the number of TrCHs I in a CCTrCH and the maximum value of the number of transport blocks M_i on each transport channel are given from the UE capability class.
- The transmission time interval for TrCHs of PCH type is always 10 ms.
- Only one secondary CCPCH is used per CCTrCH, i.e. P=1.

4.2.13.8 High Speed Downlink Shared Channel (HS-DSCH) associated with a DCH

- There can be only one TrCH in the HS-DSCH CCTrCH, i.e. I = 1,
- There can only be one transport block in each transmission time interval, i.e. M_1 = 1.
- The transmission time interval for TrCHs of HS-DSCH type is always 2 ms.
- The maximum value of the number of HS-PDSCHs P are given from the UE capability class.

4.2.14 Multiplexing of different transport channels into one CCTrCH, and mapping of one CCTrCH onto physical channels

The following rules shall apply to the different transport channels which are part of the same CCTrCH:

1) Transport channels multiplexed into one CCTrCh shall have co-ordinated timings. When the TFCS of a CCTrCH is changed because one or more transport channels are added to the CCTrCH or reconfigured within the CCTrCH, or removed from the CCTrCH, the change may only be made at the start of a radio frame with CFN fulfilling the relation

   CFN mod F_{max} = 0,

   where F_{max} denotes the maximum number of radio frames within the transmission time intervals of all transport channels which are multiplexed into the same CCTrCH, including any transport channels i which are added,

reconfigured or have been removed, and CFN denotes the connection frame number of the first radio frame of the changed CCTrCH.

After addition or reconfiguration of a transport channel *i* within a CCTrCH, the TTI of transport channel *i* may only start in radio frames with CFN fulfilling the relation:

CFN mod $F_i = 0$.

For a CCTrCH of DSCH type, a modification of number of bits $N_{data,*}$ allocated on a radio frame is allowed if the CFN verifies CFN mod $F_{max} = 0$, where F_{max} denotes the maximum number of radio frames within the transmission time intervals of all the transport channels with a non zero transport block transport format multiplexed into the CCTrCH in the previous radio frame.

2) Only transport channels with the same active set can be mapped onto the same CCTrCH.

3) Different CCTrCHs cannot be mapped onto the same PhCH.

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There are hence two types of CCTrCH:

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2) CCTrCH of common type, corresponding to the result of the coding and multiplexing of a common channel, RACH in the uplink, DSCH, HS-DSCH, BCH, or FACH/PCH for the downlink.

4.2.14.1 Allowed CCTrCH combinations for one UE

4.2.14.1.1 Allowed CCTrCH combinations on the uplink

A maximum of one CCTrCH is allowed for one UE on the uplink. It can be either:

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2) one CCTrCH of common type.

4.2.14.1.2 Allowed CCTrCH combinations on the downlink

The following CCTrCH combinations for one UE are allowed:

- x CCTrCH of dedicated type + y CCTrCH of common type. The allowed combination of CCTrCHs of dedicated and common type are given from UE radio access capabilities. There can be a maximum of~~n~~ one CCTrCH of common type for DSCH or HS-DSCH and a maximum of one CCTrCH of common type for FACH. With one CCTrCH of common type for DSCHor HS-DSCH, there shall be only one CCTrCH of dedicated type.

NOTE 1: There is only one DPCCH in the uplink, hence one TPC bits flow on the uplink to control possibly the different DPDCHs on the downlink, part of the same or several CCTrCHs.

NOTE 2: There is only one DPCCH in the downlink, even with multiple CCTrCHs. With multiple CCTrCHs, the DPCCH is transmitted on one of the physical channels of that CCTrCH which has the smallest SF among the multiple CCTrCHs. Thus there is only one TPC command flow and only one TFCI word in downlink even with multiple CCTrCHs.

NOTE 3: in the current release, only 1 CCTrCH of dedicated type is supported.