

TSG-RAN Meeting #19
Birmingham, UK, 11 - 14 March 2003

RP-030114

Title: CRs (Rel-5) on TS 25.308

Source: TSG-RAN WG2

Agenda item: 8.2.5

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.308	005	-	Rel-5	Correction on HS-DSCH MAC architecture	F	5.3.0	5.4.0	R2-030539	HSDPA-L23
25.308	006	-	Rel-5	Correction to HS-SCCH detection description	F	5.3.0	5.4.0	R2-030549	HSDPA-L23

CHANGE REQUEST

⌘ **25.308 CR 005** ⌘ rev **-** ⌘ Current version: **5.3.0** ⌘

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 Radio Access Network Core Network

Title:	⌘ Correction on HS-DSCH MAC architecture		
Source:	⌘ LG Electronics Inc.		
Work item code:	⌘ HSDPA-L23	Date:	⌘ February 2003
Category:	⌘ F	Release:	⌘ Rel-5
	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) Rel-6 (Release 6)

Reason for change:	⌘ Description of mapping between MAC entity and transport channel is wrong.
Summary of change:	⌘ The sentence "HS-DSCH is mapped to the MAC-c/sh" is corrected to "HS-DSCH is mapped to the MAC-hs".
Consequences if not approved:	⌘ If not corrected, the wording of specification leads to wrong implementation of HSDPA. There would remain misalignment between the specifications for HSDPA. If the HS-DSCH is wrongly mapped to the MAC-c/sh in the UE, none of the HSDPA entities (reordering entity, HARQ process) would work, which would lead to the impossibility to process data blocks for the user.

Clauses affected:	⌘ 6.1.1										
Other specs Affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	⌘	X	⌘	X	⌘	X	Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	
Y	N										
⌘	X										
⌘	X										
⌘	X										
Other comments:	⌘										

How to create CRs using this form:

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- 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.

6.1 HS-DSCH MAC architecture – UE side

This subclause describes the architecture of the MAC and functional split required to support HS-DSCH on the UE side.

6.1.1 Overall architecture

Figure 6.1.1-1 shows the overall MAC architecture. The data received on HS-DSCH is mapped to the MAC-~~hs/sh~~. The MAC-hs is configured via the MAC Control SAP by RRC similar to the MAC-c/sh and MAC-d, to set the parameters in the MAC-hs such as allowed transport format combinations for the HS-DSCH.

The associated Downlink Signalling carries information for support of HS-DSCH while the associated Uplink Signalling carries feedback information.

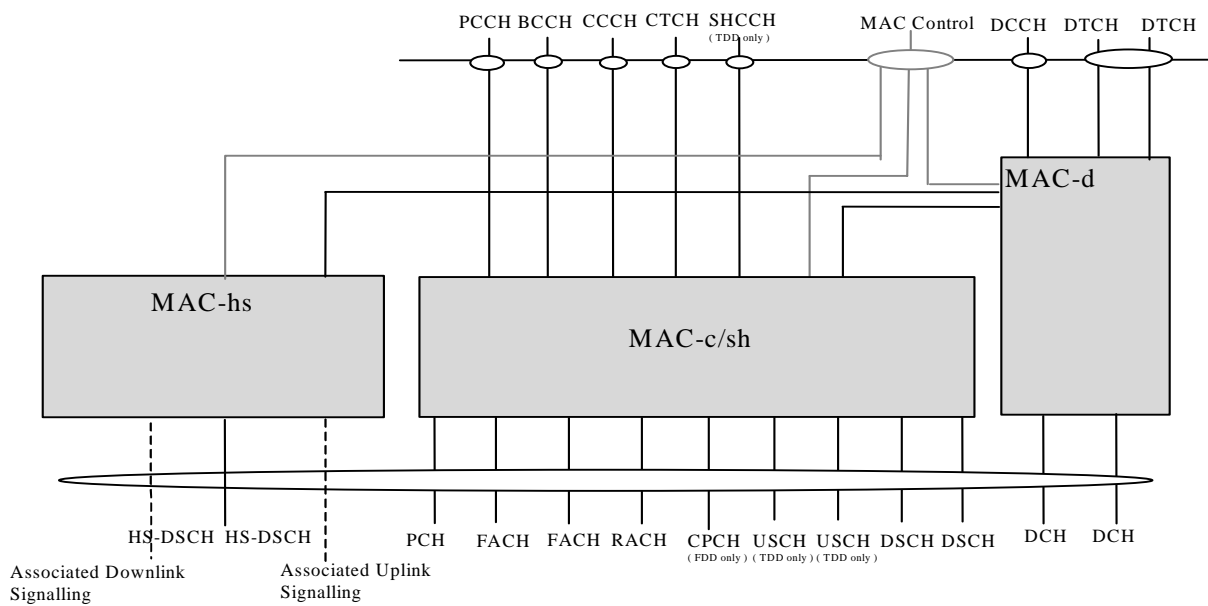


Figure 6.1.1-1: UE side MAC architecture with HS-DSCH

CR-Form-v7

CHANGE REQUEST

25.308 CR 006 # rev - # Current version: 5.3.0

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Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# Correction to HS-SCCH detection description		
Source:	# InterDigital		
Work item code:	# HSDPA-L23	Date:	# 03/02/2003
Category:	# F	Release:	# Rel-5
	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) Rel-6 (Release 6)

Reason for change:	# Current description of UE HS-SCCH detection incorrectly implies both UE specific CRC, and UE specific scrambling alternatives.
Summary of change:	# Text is clarified to indicate HS-SCCH detection is aided by applying a UE specific sequence derived from its UE identity to perform descrambling.
Consequences if not approved:	# HS-SCCH detection description is misleading and may lead to improper implementations.

Clauses affected:	# 5.2.2								
Other specs Affected:	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;">Y</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;">X</td> <td style="border: 1px solid black; padding: 2px; text-align: center;"></td> </tr> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;"></td> <td style="border: 1px solid black; padding: 2px; text-align: center;"></td> </tr> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;"></td> <td style="border: 1px solid black; padding: 2px; text-align: center;"></td> </tr> </table> Other core specifications # 25.302 Test specifications O&M Specifications	Y	N	X					
Y	N								
X									
Other comments:	#								

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5.2.2 DL HS-DSCH Physical layer model

5.2.2.1 FDD Downlink Physical layer Model

DCH model with HS-DSCH

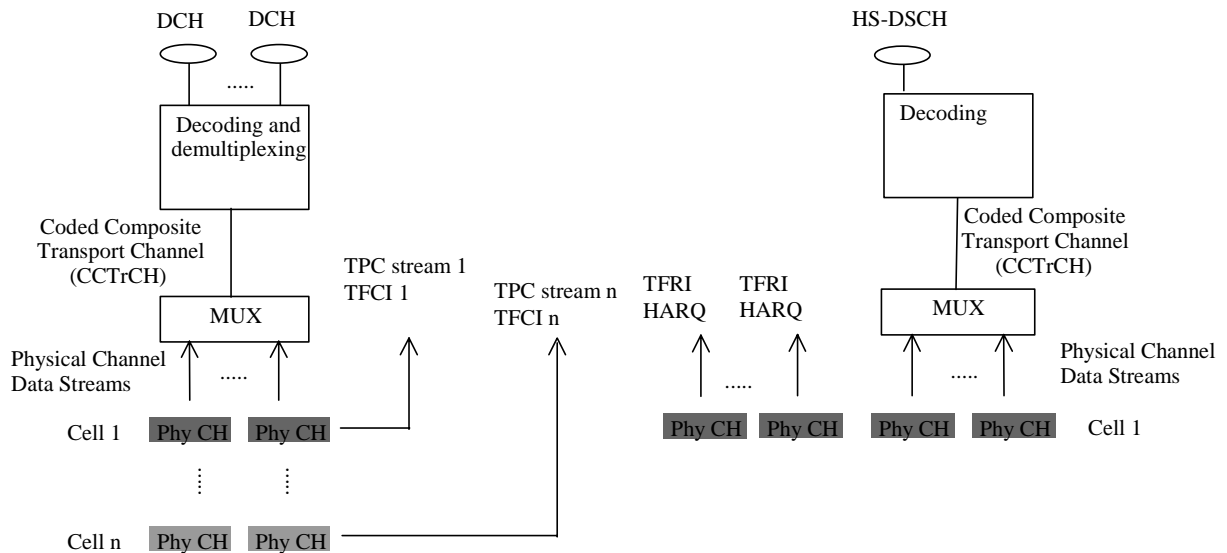


Figure 5.2.2.1-1: Model of the UE's Downlink physical layer - HS-PDSCH with associated DPCH. HS-PDSCH is transmitted from cell 1 in this figure

The basic downlink channel configuration consists of one or several HS-PDSCHs along with an associated DPCH combined with a number of separate shared physical control channels, HS-SCCHs. The set of shared physical control channels allocated to the UE at a given time is called an HS-SCCH set. The UTRAN may use more than one HS-SCCH set in one given cell. There is a fixed time offset between the start of the HS-SCCH information and the start of the corresponding HS-PDSCH subframe.

The UE is provided one HS-SCCH set on HS-PDSCH configuration/re-configuration via RRC signalling.

The number of HS-SCCHs in a HS-SCCH set as seen from the UE's point-of-view can range from a minimum of one HS-SCCH to a maximum of four HS-SCCHs. The UE shall monitor continuously all the HS-SCCHs in the allocated set.

A two-step signalling approach is used for indicating which UE has been scheduled and for signalling the necessary information required for the UE to decode the HS-PDSCHs.

For each HS-DSCH TTI, each Shared Control Channel (HS-SCCH) carries HS-DSCH-related downlink signalling for one UE. The following information is carried on the HS-SCCH:

- Transport Format and Resource Indicator (TFRI):
The TFRI includes information about the dynamic part of the HS-DSCH transport format, including transport block set size and modulation scheme. The TFRI also includes information about the set of physical channels (channelisation codes) onto which HS-DSCH is mapped in the corresponding HS-DSCH TTI.

- Hybrid-ARQ-related Information (HARQ information):
This includes the HARQ protocol related information for the corresponding HS-DSCH TTI (subclause 7.1.2.1) and information about the redundancy version.

The HS-SCCH carries a UE identity (via a UE-specific CRC) that identifies the UE for which it is carrying the information necessary for decoding the HS-PDSCH. Furthermore, the encoded, rate matched bits in each HS-SCCH are masked with a UE specific sequence, derived from its UE identity. The UE may also be aided in identifying the HS-SCCH channel carrying information for it by applying this sequence to perform descrambling the first part of the HS-SCCH by the UE identity.

The HS-PDSCH channelisation codes that are used in a given cell are not sent to the UE using RRC signalling. The HS-SCCH signals the set of HS-PDSCH channelisation codes which are allocated to a UE for a given TTI.

The first part of the HS-SCCH contains the channelisation code set and the modulation scheme for the HS-DSCH allocation with the second part containing the transport block size and H-ARQ related information. One CRC is calculated over both parts and the UE id, and attached to the HS-SCCH information.

In case of HS-DSCH transmission to the same UE in consecutive HS-DSCH TTIs, the same HS-SCCH should be used for the corresponding associated downlink signalling.

The upper layer signalling on the DCCH can be mapped to the DCH mapped to the associated DPCH or the HS-DSCH.

[The HS-DSCH carries a UE identity that identifies the UE so that erroneous delivery of MAC-PDUs to MAC-d is avoided.]

5.2.2.2 TDD Downlink Physical layer model

DCH model with HS-DSCH(s)

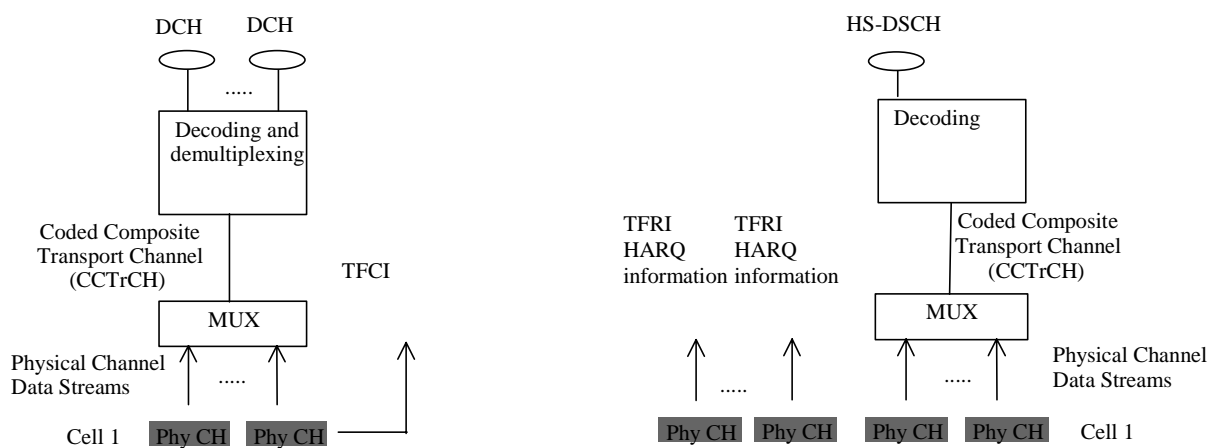


Figure 5.2.2.2-1: Model of the UE's physical layer (3.84 Mcps TDD)

DCH model with HS-DSCH(s)

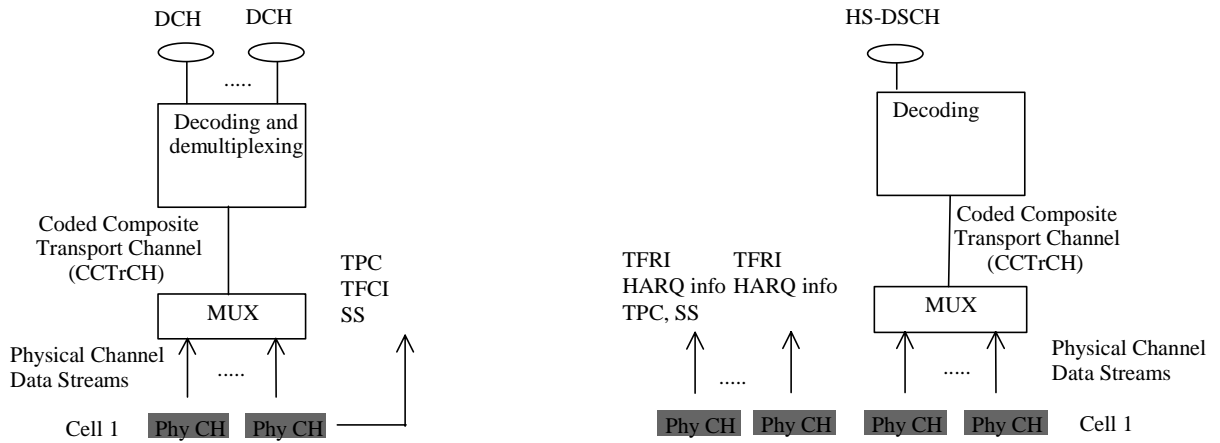


Figure 5.2.2.2-2: Model of the UE's physical layer (1.28 Mcps TDD)

The TDD overall downlink signalling structure is based on associated dedicated physical channels and shared physical control channels. The downlink signalling information for support of HS-DSCH is carried by the HS-SCCH.

As in Release '99, the associated dedicated physical channel can also be a fractionated channel for efficient resource usage with a corresponding repetition period in terms of TTIs. The UE is informed of an HS-DSCH allocation by means of a signalling message on an HS-SCCH. The UE shall be allocated a set of up to four HS-SCCHs, and shall monitor all of these HS-SCCHs continuously. In any given TTI, a maximum of one of these HS-SCCHs may be addressed to the UE. In the case that a UE detects a message for it on a specific HS-SCCH, then it may restrict its monitoring of HS-SCCHs to only that HS-SCCH in the next TTI.