TSG-RAN Meeting #23 **RP-040086**
Phoenix, Arizona, USA, 10 - 13 March 2004

Title: **Independent Release 5 CRs to TS 25.214 and the shadow CRs to Release 6**

Source: **TSG-RAN WG1**

Agenda item: **7.2.5**

1. Independent Release 5 CRs to **TS 25.214** and the shadow CRs to Release 6 **(RP-040086)**

RP tdoc#	WG tdoc#	Spec	CR	R	Subject	Ph	C	Curr	New	WI	Remarks
RP-040086	R1-040180	25.214	340	-	Beta values for HS-DPCCH in compressed mode	Rel-5	F	5.7.0	5.8.0	HSDPA-Phys	
RP-040086	R1-040180	25.214	341	-	Beta values for HS-DPCCH in compressed mode	Rel-6	A	6.0.0	6.1.0	HSDPA-Phys	
RP-040086	R1-040374	25.214	345	1	ACK/NACK repetition factor	Rel-5	F	5.7.0	5.8.0	HSDPA-Phys	
RP-040086	R1-040374	25.214	346	1	ACK/NACK repetition factor	Rel-6	A	6.0.0	6.1.0	HSDPA-Phys	

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

Tdoc ⌘R1-040180

CR-Form-v7

CHANGE REQUEST

⌘ **25.214** **CR** **340** ⌘ **rev** **-** ⌘ 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:	⌘	Beta values for HS-DPCCH in compressed mode
Source:	⌘	TSG RAN WG1
Work item code:	⌘	HSDPA-Phys
Date:	⌘	2004-02-05
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:	⌘	The current specification text is ambigous whether the DPCCH gain factor used in the calculation of the HS-DPCCH gain factor in compressed mode, refers to the DPCCH gain factor in normal or in compressed mode.
Summary of change:	⌘	It is clarified that the gain factor for DPCCH in compressed mode is used in the calculation of the gain factor for HS-DPCCH in compressed mode.
Consequences if not approved:	⌘	The specification is ambigous with respect to the correct power level to be used on HS-DPCCH in compressed mode.

Clauses affected:	⌘	5.1.2.5A

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

⌘

Other comments: ⌘ **Isolated Impact Analysis**
The CR only affects UE or UTRAN implementations supporting HSDPA, and is not affecting other functionality and earlier releases than Rel5. A UE or UTRAN not implementing the CR may use incorrect power levels for HS-DPCCH during compressed mode.

5.1.2.5A Setting of the uplink DPCCH/HS-DPCCH power difference

When an HS-DPCCH is active, the power offset $\Delta_{\text{HS-DPCCH}}$ for each HS-DPCCH slot shall be set as follows.

For HS-DPCCH slots carrying HARQ Acknowledgement :

$\Delta_{\text{HS-DPCCH}} = \Delta_{\text{ACK}}$ if the corresponding HARQ Acknowledgement is equal to 1

$\Delta_{\text{HS-DPCCH}} = \Delta_{\text{NACK}}$ if the corresponding HARQ Acknowledgement is equal to 0

For HS-DPCCH slots carrying CQI :

$\Delta_{\text{HS-DPCCH}} = \Delta_{\text{CQI}}$

The values for Δ_{ACK}, Δ_{NACK} and Δ_{CQI} are set by higher layers.

Then, in non-compressed frames $\beta_{\text{~~HS~~}\underline{hs}}$, which is the gain factor defined in [3] subclause 4.2.1, is calculated according to

$$\beta_{HS} = \beta_c \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)} \quad \beta_{hs} = \beta_c \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)},$$

where β_c value is signalled by higher-layer or calculated as described in subclause 5.1.2.5.2~~3~~ or 5.1.2.5.3~~4~~.

With the exception of the start and end of compressed frames, any DPCCH power change shall not modify the power ratio between the DPCCH and the HS-DPCCH. The power ratio between the DPCCH and the HS-DPCCH during compressed DPCCH frames is described below.

During the period between the start and end of a compressed DPCCH frame, when HS-DPCCH is transmitted, $\beta_{\text{~~HS~~}\underline{hs}}$ is calculated according to

$$\beta_{HS} = \beta_c \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)} \cdot \sqrt{\frac{N_{pilot,C}}{N_{pilot,N}}} \quad \beta_{hs} = \beta_{c,C,j} \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)} \cdot \sqrt{\frac{N_{pilot,C}}{N_{pilot,N}}},$$

where $\beta_{c,C,j}$ is calculated as described in subclause 5.1.2.5.4, $N_{pilot,C}$ is the number of pilot bits per slot on the DPCCH in compressed frames, and $N_{pilot,N}$ is the number of pilot bits per slot in non-compressed frames.

Thus the gain factor $\beta_{\text{~~HS~~}\underline{hs}}$ varies depending on the current power offset $\Delta_{\text{HS-DPCCH}}$ and on whether the UL DPCCH is currently in a compressed frame.

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Tdoc ⌘R1-040180

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CHANGE REQUEST

⌘ **25.214** **CR** **341** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

*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:	⌘	Beta values for HS-DPCCH in compressed mode
Source:	⌘	TSG RAN WG1
Work item code:	⌘	HSDPA-Phys
Date:	⌘	2004-02-05
Category:	⌘	**A**
Release:	⌘	Rel-6

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)*
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R99	*(Release 1999)*
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Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The current specification text is ambigous whether the DPCCH gain factor used in the calculation of the HS-DPCCH gain factor in compressed mode, refers to the DPCCH gain factor in normal or in compressed mode.
Summary of change:	⌘	It is clarified that the gain factor for DPCCH in compressed mode is used in the calculation of the gain factor for HS-DPCCH in compressed mode.
Consequences if not approved:	⌘	The specification is ambigous with respect to the correct power level to be used on HS-DPCCH in compressed mode.

Clauses affected:	⌘	5.1.2.5A

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

⌘

Other comments: ⌘

5.1.2.5A Setting of the uplink DPCCH/HS-DPCCH power difference

When an HS-DPCCH is active, the power offset $\Delta_{\text{HS-DPCCH}}$ for each HS-DPCCH slot shall be set as follows.

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The values for Δ_{ACK}, Δ_{NACK} and Δ_{CQI} are set by higher layers.

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$$\beta_{HS} = \beta_c \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)} \quad \beta_{hs} = \beta_c \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)},$$

where β_c value is signalled by higher-layer or calculated as described in subclause 5.1.2.5.2~~3~~ or 5.1.2.5.3~~4~~.

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During the period between the start and end of a compressed DPCCH frame, when HS-DPCCH is transmitted, $\beta_{\text{~~HS~~}\underline{hs}}$ is calculated according to

$$\beta_{HS} = \beta_c \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)} \cdot \sqrt{\frac{N_{pilot,C}}{N_{pilot,N}}} \quad \beta_{hs} = \beta_{c,C,j} \cdot 10^{\left(\frac{\Delta_{HS-DPCCH}}{20}\right)} \cdot \sqrt{\frac{N_{pilot,C}}{N_{pilot,N}}},$$

where $\beta_{c,C,j}$ is calculated as described in subclause 5.1.2.5.4, $N_{pilot,C}$ is the number of pilot bits per slot on the DPCCH in compressed frames, and $N_{pilot,N}$ is the number of pilot bits per slot in non-compressed frames.

Thus the gain factor $\beta_{\text{~~HS~~}\underline{hs}}$ varies depending on the current power offset $\Delta_{\text{HS-DPCCH}}$ and on whether the UL DPCCH is currently in a compressed frame.

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Malaga, Spain, 16-20 February, 2004

Tdoc ⌘ R1-040374

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CHANGE REQUEST

⌘ **25.214** **CR** **345** ⌘ **rev** **1** ⌘ 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:	⌘	ACK/NACK repetition factor
Source:	⌘	TSG RAN WG1
Work item code:	⌘	HSDPA-Phys
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)*
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R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

Current 25.214 specifies that

"When *N_ acknack_transmit* is greater than one, the UE shall not attempt to receive nor decode transport blocks from the HS-PDSCH in HS-DSCH sub-frames *n + 1* to *n + (N_acknack _transmit - 1)* where *n* is the number of the last HS-DSCH sub-frame in which a transport block has been received."

However the term "a transport block has been received" is rather ambiguous, especially when looking at 25.321 where it is said that

"The UE shall:

- if the New Data Indicator has been incremented compared to the value in the previous received transmission in this HARQ process or this is the first received transmission in the HARQ process:
- replace the data currently in the soft buffer for this HARQ process with the received data.
- if the Transport Block Size index value is equal to 111111 (FDD only):
- generate a positive acknowledgement (ACK) of the data in this HARQ process;
- discard the received data;
- assume that the data has been successfully decoded."

In this case UE may even not have to receive any data in order to generate an ACK and this ACK has to be repeated as indicated by 25.214 as well.

Therefore the CR is needed to fill in the gap between 25.214 and 25.321.

Summary of change: ⌘ Section 6A.1.1 in 25.214 is modified so that

		1) L1 of UE recives ACK/NACK information from MAC-hs (ACK/NACK is generated by MAC-hs in 25.321) 2) UE shall not attempt to receive nor decode HS-PDSCH in the next (*N_acknack_transmit-1*) HS-DSCH sub-frames corresponding to HS-DPCCH sub-frames in which ACK/NACK information is repeated.
Consequences if not approved:	⌘	Whether ACK, generated as specified in 25.321, should be repeated is unclear. UE may waste the power on monitoring non-intended sub-frames. <Isolated Impact Analysis> There should be no impact if UE is implemented according to the above understanding.

Clauses affected:	⌘	6A.1.1			
		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.

6A .1.1 UE procedure for receiving HS-DSCH

If the UE did not detect consistent control information intended for this UE on any of the HS-SCCHs in the HS-SCCH set in the immediately preceding subframe, the UE shall monitor all HS-SCCHs in the HS-SCCH set. The maximum size of the HS-SCCH set is 4.

If the UE did detect consistent control information intended for this UE in the immediately preceding subframe, it is sufficient to only monitor the same HS-SCCH used in the immediately preceding subframe.

When the UE monitors HS-SCCHs, the UE shall only consider the control information to be consistent

if decoded 'channelization-code-set information' is lower than or equal to 'maximum number of HS-DSCH codes received' in its UE capability and

if the decoded modulation scheme is valid in terms of its UE capability.

If a UE detects that one of the monitored HS-SCCHs carries consistent control information intended for this UE, the UE shall start receiving the HS-PDSCHs indicated by this control information.

The transport block size information shall be derived from the signaled TFRI value as defined in [9]. If the 'Hybrid-ARQ process information' is not included in the set configured by upper layers, the UE shall discard the information received on this HS-SCCH and on the HS-PDSCHs.

~~After decoding the HS-PDSCH data, the UE shall transmit an hybrid ARQ ACK or NACK as determined by the MAC-hs based on the CRC check.~~ The UE shall ~~repeat the transmission of~~transmit the ACK/NACK information received from MAC-hs~~over *N_acknack_transmit* consecutive HS-DPCCH sub-frames,~~ in the slot~~s~~ allocated to the HARQ-ACK in the corresponding HS-DPCCH sub-frame as defined in [1]. When *N_ acknack_transmit* is greater than one, the UE shall:

- repeat the transmission of the ACK/NACK information over the next (*N_ acknack_transmit-1*) consecutive HS-DPCCH sub-frames, in the slots allocated to the HARQ-ACK as defined in [1] and
- not attempt to receive nor decode transport blocks from the HS-PDSCH in HS-DSCH sub-frames ~~*n + 1* to *n + (N_acknack _transmit – 1)* where *n* is the number of the last HS-DSCH sub-frame in which a transport block has been received.~~corresponding to HS-DPCCH sub-frames in which the ACK/NACK information transmission is repeated.

If consistent control information is not detected on any of the HS-SCCHs in the HS-SCCH set, neither ACK, nor NACK, shall be transmitted in the corresponding HS-DPCCH subframe.

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

Tdoc ⌘ R1-040374

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CHANGE REQUEST

⌘ **25.214** **CR** **346** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

*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:	⌘	ACK/NACK repetition factor
Source:	⌘	TSG RAN WG1
Work item code:	⌘	HSDPA-Phys
Date:	⌘	17/02/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one of the following categories:
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Reason for change: ⌘ Current 25.214 specifies that

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Summary of change: ⌘ Section 6A.1.1 in 25.214 is modified so that

		1) L1 of UE recives ACK/NACK information from MAC-hs (ACK/NACK is generated by MAC-hs in 25.321) 2) UE shall not attempt to receive nor decode HS-PDSCH in the next (*N_acknack_transmit-1*) HS-DSCH sub-frames corresponding to HS-DPCCH sub-frames in which ACK/NACK information is repeated.
Consequences if not approved:	⌘	Whether ACK, generated as specified in 25.321, should be repeated is unclear. UE may waste the power on monitoring non-intended sub-frames. <Isolated Impact Analysis> There should be no impact if UE is implemented according to the above understanding.

Clauses affected:	⌘	6A.1.1			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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if decoded 'channelization-code-set information' is lower than or equal to 'maximum number of HS-DSCH codes received' in its UE capability and

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If a UE detects that one of the monitored HS-SCCHs carries consistent control information intended for this UE, the UE shall start receiving the HS-PDSCHs indicated by this control information.

The transport block size information shall be derived from the signaled TFRI value as defined in [9]. If the 'Hybrid-ARQ process information' is not included in the set configured by upper layers, the UE shall discard the information received on this HS-SCCH and on the HS-PDSCHs.

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