3GPP TSG RAN Meeting #26   **RP-040414**
Vouliagmeni Athens, Greece, 8 - 10 December, 2004

Title   CRs (Rel-6) to TS25.101 under HSDPA
Source   3GPP TSG RAN WG4 (Radio)
Agenda Item   8.10

WG Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-040771	25.101	373	2	F	Rel-6	6.5.0	Corrections to 7.4.2 maximum input level for HS-PDSCH reception	HSDPA-RF
R4-040752	25.101	377	1	F	Rel-6	6.5.0	Corrections to 9.3 reporting of CQI	HSDPA-RF
R4-040772	25.101	379	2	F	Rel-6	6.5.0	Corrections to 9.4 detection of HS-SCCH	HSDPA-RF
R4-040769	25.101	383	3	F	Rel-6	6.5.0	H Set-4/5 pattern length	HSDPA-RF

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CHANGE REQUEST

⌘   **25.101** CR **373**   ⌘**rev** **2** ⌘ Current version: **6.5.0** ⌘

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Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network ☐   Core Network ☐

Title: ⌘	Corrections to 7.4.2 maximum input level for HS-PDSCH reception	
Source: ⌘	3GPP TSG RAN WG4 (Radio)	
Work item code:⌘	HSDPA-RF	**Date:** ⌘ 01/12/2004

Category: ⌘ **F**	**Release:** ⌘ Rel-6

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 <u>TR 21.900</u>.

Use <u>one</u> of the following releases:
Ph2   *(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)*
Rel-7   *(Release 7)*

Reason for change: ⌘	There are a number of gaps in the requirements and a need to clarify the text
Summary of change: ⌘	1. Clarified the minimum requirements and made explicit reference to the 16QAM version of H-Set 1 and table C.8 rather than Annex C.5 2. Corrected heading in table 7.3A 3. Corrected parameter and units for DPCH_Ec/Ior and HS-SCCH_1_Ec/Ior 4. Modified Note that the HS-SCCH and HS-PDSCH (not HS-DSCH) are transmitted continuously with contant power. 5. Clarified the meaning of "sent to the UE" as being that the HS-SCCH shall use the identity of the UE under test only every third TTI.
Consequences if not approved: ⌘	The testing of the maximum input level for HS-PDSCH will not be well defined and may result in failing a good UE.

Clauses affected: ⌘	7.4.2

	Y	**N**	
Other specs affected: ⌘		**X**	Other core specifications ⌘
	Y		Test specifications 34.121
		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.

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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.

7.4.2   Minimum requirement for HS-PDSCH reception

7.4.2.1   Minimum requirement for 16QAM

For the parameters specified in Table 7.3A, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 7.3B for the DL reference channel H-Set 1 specified in Annex A.7.1.1. with the addition of the parameters added in the end of Table 7.3A and downlink physical channel setup according to Annex C.5. The requirements are specified in terms of a minimum information bit throughput R for the DL reference channel H-Set 1 (16QAM version) specified in Annex A.7.1.1. with the addition of the parameters in Table 7.3A and the downlink physical channel setup according to table C.8.

Using this configuration the throughput shall meet or exceed the minimum requirements specified in table 7.3B.

Table 7.3A

Parameter	Unit	~~Test~~ Value
Phase reference		P-CPICH
$\hat{I}_{or}$	dBm/3.84 MHz	-25
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)
DPCH_Ec/Ior	~~DPCH_Ec/Ior~~dB	-13
HS-SCCH_1_Ec/Ior	~~HS-SCCH_Ec/Ior~~dB	-13
Redundancy and constellation version		6
Maximum number of HARQ transmissions		1
Note: The HS-SCCH and corresponding HS-PDSCH shall be transmitted continuously with constant power but the HS-SCCH shall only use the identity of the UE under test ~~only~~ every third TTI ~~shall be sent to the UE under test~~.		

Table 7.3B

HS-PDSCH E_c / I_{or} (dB)	T-put R (kbps)
-3	700

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CHANGE REQUEST

⌘ **25.101** CR **377** ⌘ **rev** **1** ⌘ Current version: **6.5.0** ⌘

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Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network ☐   Core Network ☐

Title: ⌘	Corrections to 9.3 Reporting of CQI	
Source: ⌘	3GPP TSG RAN WG4 (Radio)	
Work item code: ⌘	HSDPA-RF	***Date:*** ⌘ 01/12/2004

Category: ⌘ **F**	***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)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use one of the following releases:* Ph2 *(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)* Rel-7 *(Release 7)*

Reason for change: ⌘	There are a number of gaps in the requirements and a need to clarify the text
Summary of change: ⌘	1. Added reference to propagation conditions in 9.3.2 to table B.1C. 2. Added specific reference to the correct downlink channels (table C.8, C9 and C10) for each section. 3. Fixed gap in AWGN requirement which was missing "less than or equal to" for the BLER requirement 4. Clarified names of tables to make them unique 5. Removed unnecessary asterix on HS-PDSCH_Ec/Ior in each table 6. Clarified the signalling pattern for HS-SCCH-1 which is distinct from the transmission pattern. 7. Clarified that HS-SCCH and HS-PDSCH are transmitted continuously with constant power for any one transport format (The power offset "Γ" may make the HS-PDSCH power used in any one TF different from another TF.)
Consequences if ⌘ ***not approved:***	The testing of CQI reporting will not be well defined and may result in failing a good UE.

Clauses affected: ⌘	9.3

	Y	**N**		
Other specs ⌘ ***affected:***		**X**	Other core specifications ⌘	
	Y		Test specifications	34.121
		X	O&M Specifications	

Other comments:	⌘	

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9.3 Reporting of Channel Quality Indicator

The propagation conditions for this subclause are defined in table B.1C.

9.3.1 Single Link Performance

9.3.1.1 AWGN propagation conditions

The reporting accuracy of channel quality indicator (CQI) under AWGN environments is determined by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median.

9.3.1.1.1 Minimum Requirement – UE capability categories 1-8 and 11, 12

For the parameters specified in Table 9.23, and using the downlink physical channels specified in table C.8, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH BLER using the transport format indicated by median CQI is less than or equal to 0.1, the BLER using the transport format indicated by the (median CQI +2) shall be larger greater than 0.1. If the HS-PDSCH BLER using the transport format indicated by the median CQI is larger greater than 0.1, the BLER using transport format indicated by (median CQI -1) shall be less than or equal to 0.1.

Table 9.23: Test Parameters for CQI test in AWGN – single link

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH E_c/I_{or} (*)	dB	-3		
HS-SCCH_1 E_c/I_{or}	dB	-10		
DPCH E_c/I_{or}	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-~~DS~~CCH-~~1 transmission~~ signalling pattern	-	~~"XOOXOOX" to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.~~To incorporate inter-TTI=3 the six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.		

Note1: Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]
Note2: TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214
Note3: HS-PDSCH Ec/Ior is decreased according to reference power adjustment Δ described in TS 25.214
Note 4: For any given transport format the power of the HS-SCCH and HS-PDSCH shall be transmitted continuously with constant power.

9.3.1.2 Fading propagation conditions

The reporting accuracy of the channel quality indicator (CQI) under fading environments is determined by the BLER performance using the transport format indicated by the reported CQI median.

In calculating BLER, for an HARQ process, if an odd number of consecutive DTXs are reported, the corresponding packets and one subsequent packet shall be discarded from BLER calculation. If an even number of consecutive DTXs are reported, the corresponding packets shall be discarded from BLER calculation.

The specified requirements may be subject to further simulations to verify assumptions.

9.3.1.2.1 Minimum Requirement – UE capability categories 1-8 and 11, 12

For the parameters specified in Table 9.26, and using the downlink physical channels specified in table C.8, the requirements are specified in terms of maximum BLERs at particular reported CQIs when transmitting a fixed transport format given by the CQI median as shown in Table 9.27. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with the HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Table 9.26: Test Parameters for CQI test in fading – single link

Parameter	Unit	Test 1	Test 2
HS-PDSCH E_c/I_{or} (*)	dB	-8	-4
$\hat{I}_{or}/I_{oc}$	dB	0	5
I_{oc}	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 E_c/I_{or}	dB	-8.5	
DPCH E_c/I_{or}	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-~~DS~~CCH-1 ~~transmission~~ signalling pattern	-	"….XOOXOOX…." to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power. To incorporate inter-TTI=3 the six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.	
Propagation Channel		Case 8	

Note1: Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]
Note2: TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214
Note3: HS-PDSCH Ec/Ior is decreased according to reference power adjustment Δ described in TS 25.214
Note 4: For any given transport format the power of the HS-SCCH and HS-PDSCH shall be transmitted continuously with constant power.

Table 9.27: Minimum requirement for CQI test in fading – single link

Reported CQI	Maximum BLER	
	Test 1	Test2
CQI median	60%	60%
CQI median + 3	15%	15%

9.3.2   Open Loop Diversity Performance

9.3.2.1   AWGN propagation conditions

The reporting accuracy of channel quality indicator (CQI) under AWGN environments is determined by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median.

9.3.2.1.1   Minimum Requirement - UE capability categories 1-8 and 11, 12

For the parameters specified in Table 9.32, and using the downlink physical channels specified in table C.9, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using the transport format indicated by median CQI is less than or equal to 0.1, the BLER using the transport format

indicated by the (median CQI +2) shall be ~~larger~~ greater than 0.1. If the HS-PDSCH (BLER) using the transport format indicated by the median CQI is ~~larger~~ greater than 0.1, the BLER using transport format indicated by (median CQI -1) shall be less than or equal to 0.1.

Table 9.32: Test Parameters for CQI test in AWGN – open loop diversity

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or} / I_{oc}$	dB	0	5	10
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH E_c / I_{or} (*)	dB	-3		
HS-SCCH _1 E_c / I_{or}	dB	-10		
DPCH E_c / I_{or}	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-~~DS~~CCH-1 ~~transmission~~ signalling pattern	-	~~"XOOXOOX" to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.~~ To incorporate inter-TTI=3 the six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.		
Note1:	Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			
Note3:	HS-PDSCH Ec/Ior is decreased according to reference power adjustment Δ described in TS 25.214			
Note 4:	For any given transport format the power of the HS-SCCH and HS-PDSCH shall be transmitted continuously with constant power.			

9.3.2.2 Fading propagation conditions

The reporting accuracy of the channel quality indicator (CQI) under fading environments is determined by the BLER performance using the transport format indicated by the reported CQI median.

The specified requirements may be subject to further simulations to verify assumptions.

9.3.2.2.1 Minimum Requirement – UE capability categories 1-8 and 11, 12

For the parameters specified in Table 9.35, and using the downlink physical channels specified in table C.9, the requirements are specified in terms of maximum BLERs at particular reported CQIs when transmitting a fixed transport format given by the CQI median as shown in Table 9.36. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with the HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Table 9.35: Test Parameters for CQI test in fading – open loop diversity

Parameter	Unit	Test 1	Test 2
HS-PDSCH E_c/I_{or} ~~(*)~~	dB	-8	-4
$\hat{I}_{or}/I_{oc}$	dB	0	5
I_{oc}	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 E_c/I_{or}	dB	-8.5	
DPCH E_c/I_{or}	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-~~D~~SCCH-1 ~~transmission~~ signalling pattern	-	~~"….XOOXOOX…." to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.~~ To incorporate inter-TTI=3 the six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.	
Propagation Channel		Case 8	

Note1:   Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]
Note2:   TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214
Note3:   HS-PDSCH Ec/Ior is decreased according to reference power adjustment Δ described in TS 25.214
Note 4:   For any given transport format the power of the HS-SCCH and HS-PDSCH shall be transmitted continuously with constant power.

Table 9.36: Minimum requirement for CQI test in fading – open loop diversity

Reported CQI	Maximum BLER	
	Test 1	Test2
CQI median	60%	60%
CQI median + 3	15%	15%

9.3.3   Closed Loop Diversity Performance

9.3.3.1   AWGN propagation conditions

The reporting accuracy of channel quality indicator (CQI) under AWGN environments is determined by the reporting variance and the BLER performance using the transport format indicated by the reported CQI median.

9.3.3.1.1   Minimum Requirement - UE capability categories 1-8 and 11, 12

For the parameters specified in Table 9.41, and using the downlink physical channels specified in table C.10, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using the transport format indicated by median CQI is less or equal to than 0.1, the BLER using the transport

format indicated by the (median CQI +2) shall be ~~larger~~ greater than 0.1. If the HS-PDSCH (BLER) using transport format indicated by the median CQI is ~~larger~~ greater than 0.1, the BLER using the transport format indicated by (median CQI -1) shall be less than or equal to 0.1.

Table 9.41: Test Parameters for CQI in AWGN – closed loop diversity

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH E_c/I_{or} ~~(*)~~	dB	-3		
HS-SCCH _1 E_c/I_{or}	dB	-10		
DPCH E_c/I_{or}	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
Feedback Error Rate	%	0		
Closed loop timing adjustment mode		1		
HS-~~DS~~CCH-1 ~~transmission~~ signalling pattern	-	~~"XOOXOOX" to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.~~ To incorporate inter-TTI=3 the six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.		
Note1:	Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			
Note3:	HS-PDSCH Ec/Ior is decreased according to reference power adjustment Δ described in TS 25.214			
Note 4:	For any given transport format the power of the HS-SCCH and HS-PDSCH shall be transmitted continuously with constant power.			

9.3.3.2   Fading propagation conditions

The reporting accuracy of the channel quality indicator (CQI) under fading environments is determined by the BLER performance using the transport format indicated by the reported CQI median.

The specified requirements may be subject to further simulations to verify assumptions.

9.3.3.2.1   Minimum Requirement – UE capability categories 1-8 and 11, 12

For the parameters specified in Table 9.44, and using the downlink physical channels specified in table C.10, the requirements are specified in terms of maximum BLERs at particular reported CQIs when transmitting a fixed transport format given by the CQI median as shown in Table 9.45. The BLER at a particular reported CQI is obtained by

associating a particular CQI reference measurement period with the HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Table 9.44: Test Parameters for CQI test in fading – closed loop diversity

Parameter	Unit	Test 1	Test 2
HS-PDSCH E_c/I_{or} (*)	dB	-8	-4
$\hat{I}_{or}/I_{oc}$	dB	0	5
I_{oc}	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 E_c/I_{or}	dB	-8.5	
DPCH E_c/I_{or}	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
Feedback Error Rate	%	0	
Closed loop timing adjustment mode		1	
HS-DSCCH-1 transmission signalling pattern	-	"….XOOXOOX…." to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power. To incorporate inter-TTI=3 the six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.	
Propagation Channel		Case 8	
Note1: Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7] Note2: TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214 Note3: HS-PDSCH Ec/Ior is decreased according to reference power adjustment Δ described in TS 25.214 Note 4: For any given transport format the power of the HS-SCCH and HS-PDSCH shall be transmitted continuously with constant power.			

Table 9.45: Minimum requirement for CQI test in fading – closed loop diversity

Reported CQI	Maximum BLER	
	Test 1	Test2
CQI median	60%	60%
CQI median + 3	15%	15%

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CHANGE REQUEST

⌘   **25.101** CR **379**   ⌘**rev** **2** ⌘   Current version: **6.5.0** ⌘

*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 ☐   Core Network ☐

Title: ⌘	Corrections to 9.4 Detection of HS-SCCH	
Source: ⌘	3GPP TSG RAN WG4 (Radio)	
Work item code:⌘	HSDPA-RF	***Date:*** ⌘ 01/12/2004

Category: ⌘ **F**	***Release:*** ⌘ Rel-6

Use one of the following categories: *Use one of the following releases:*
   F *(correction)*   *Ph2* *(GSM Phase 2)*
   A *(corresponds to a correction in an earlier release)* *R96* *(Release 1996)*
   B *(addition of feature),*   *R97* *(Release 1997)*
   C *(functional modification of feature)*   *R98* *(Release 1998)*
   D *(editorial modification)*   *R99* *(Release 1999)*
Detailed explanations of the above categories can *Rel-4* *(Release 4)*
be found in 3GPP TR 21.900.   *Rel-5* *(Release 5)*
                                           Rel-6 *(Release 6)*
                                           Rel-7 *(Release 7)*

Reason for change: ⌘	There are a number of gaps in the requirements and a need to clarify the text. The transmission pattern for HS-PDSCH could be misinterpreted. By using a pattern of seven sub-frames it is not obvious the pattern is on a six sub-frame repeat cycle. A seven sub-frame repeat cycle would give the wrong throughput figures.
Summary of change:⌘	1. Modified names of tables to make them unique and more meaningful 2. Added note that the UE identity associated HS-SCCH-1 is sent only every third TTI. (There is no specification for what identity is sent on the other TTI, this will be a choice for the test implementation.) 3. Clarified that HS-SCCH-1 and HS-PDSCH are transmitted continuously with constant power 4. Clarified the HS-SCCH-1 signalling pattern as being on a six sub-frame repeat cycle. 5. Corrected name of HS-SCCH-X from HS-SCCH_X in tables C8, C9 and C10 6. Correct usage of HS-DSCH_Ec/Ior to be HS-PDSCH_Ec/Ior in tables C.11 and C.12.
Consequences if not approved: ⌘	The testing of HS-SCCH detection will not be well defined and may result in failing a good UE.

Clauses affected: ⌘	9.4, C.5

	Y	**N**	
Other specs ⌘		**X**	Other core specifications ⌘
affected:	**Y**		Test specifications 34.121

	X	O&M Specifications	
Other comments: ⌘			

How to create CRs using this form:

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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.

9.4 HS-SCCH Detection Performance

The detection performance of the HS-SCCH is determined by the probability of event E_m, which is declared when the UE is signaled on HS-SCCH-1, but DTX is observed in the corresponding HS-DPCCH ACK/NACK field. The probability of event E_m is denoted $P(E_m)$.

9.4.1 Single Link Performance

For the test parameters specified in Table 9.50, for each value of HS-SCCH-1 E_c/I_{or} specified in Table 9.51 and Table 9.51A the measured $P(E_m)$ shall be less than or equal to the corresponding specified value of $P(E_m)$. Enhanced performance requirements specified in Table 9.51A are based on receiver diversity.

Table 9.50: Test parameters for HS-SCCH detection – single link

Parameter	Unit	Test 1	Test 2	Test 3
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
P-CPICH E_c/I_{or} (*)	dB	-10		
HS-SCCH UE Identity ($x_{ue,1}$, $x_{ue,2}$, …, $x_{ue,16}$)		HS-SCCH-1: 1010101010101010 (every third TTI only, UE under test addressed solely via HS-SCCH-1) HS-SCCH-2: 0001001010101010 HS-SCCH-3: 0001101010101010 HS-SCCH-4: 0001111110101010		
HS-DSCH TF of UE1		TF corresponding to CQI1		
HS-SCCH-1 transmission pattern		The HS-SCCH-1 shall be transmitted continuously with constant power.		
HS-PDSCH transmission pattern		The HS-PDSCH shall be transmitted continuously with constant power.		
HS-SCCH-1 TTI ~~Transmission~~ Signalling Pattern	-	~~"…XOOXOOX…", where "X" indicates TTI in which HS-SCCH-1 signals the UE, and "O" indicates no signalling~~ The six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.		

Table 9.51: Minimum requirement for HS-SCCH detection – single link

Test Number	Propagation Conditions	Reference value		
		HS-SCCH-1 E_c/I_{or} **(dB)**	$\hat{I}_{or}/I_{oc}$ **(dB)**	$P(E_m)$
1	PA3	-9	0	0.05
2	PA3	-9.9	5	0.01
3	VA30	-10	0	0.01

Table 9.51A: Enhanced requirement for HS-SCCH detection – single link

Test Number	Propagation Conditions	Reference value		
		HS-SCCH-1 E_c/I_{or} **(dB)**	$\hat{I}_{or}/I_{oc}$ **(dB)**	$P(E_m)$
1	PA3	-15.2	0	0.05
2	PA3	-16.3	5	0.01
3	VA30	-15.6	0	0.01

9.4.2   Open Loop Diversity Performance

For the test parameters specified in Table 9.52, for each value of HS-SCCH-1 E_c/I_{or} specified in Table 9.53 the measured $P(E_m)$ shall be less than or equal to the corresponding specified value of $P(E_m)$.

Table 9.52: Test parameters for HS-SCCH detection – open loop diversity

Parameter	Unit	Test 1	Test 2	Test 3
I_{oc}	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
P-CPICH E_c/I_{or} (*)	dB	-10		
HS-SCCH UE Identity ($x_{ue,1}$, $x_{ue,2}$, …, $x_{ue,16}$)		HS-SCCH-1: 1010101010101010 (every third TTI only, UE under test addressed solely via HS-SCCH-1) HS-SCCH-2: 0001001010101010 HS-SCCH-3: 0001101010101010 HS-SCCH-4: 0001111110101010		
HS-DSCH TF of UE1		TF corresponding to CQI1		
HS-SCCH-1 transmission pattern		The HS-SCCH-1 shall be transmitted continuously with constant power.		
HS-PDSCH transmission pattern		The HS-PDSCH shall be transmitted continuously with constant power.		
HS-SCCH-1 TTI Transmission Signalling Pattern	-	"…XOOXOOX…", where "X" indicates TTI in which HS-SCCH-1 signals the UE, and "O" indicates no signalling The six sub-frame HS-SCCH-1 signalling pattern shall be "…XOOXOO…", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a different UE identity.		

Table 9.53: Minimum requirement for HS-SCCH detection – open loop diversity

Test Number	Propagation Conditions	Reference value		
		HS-SCCH-1 E_c/I_{or} (dB)	$\hat{I}_{or}/I_{oc}$ (dB)	$P(E_m)$
1	PA3	-11.6	0	0.05
2	PA3	-13.4	5	0.01
3	VA30	-11.5	0	0.01

C.5   HSDPA DL Physical channels

C.5.1   Downlink Physical Channels connection set-up

Table C.8 is applicable for the measurements for tests in subclause 7.4.2, 9.2.1 and 9.3. Table C.9 is applicable for the measurements for tests in subclause 9.2.2. Table C.10 is applicable for the measurements for tests in subclause 9.2.3. Table C.11 is applicable for the measurements for tests in subclause 9.4.1. Table C.12 is applicable for the measurements in subclause 9.4.2

Table C.8: Downlink physical channels for HSDPA receiver testing for Single Link performance.

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/Ior	-10dB	
P-CCPCH	P-CCPCH_Ec/Ior	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/Ior	-12dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dl,0 as per TS25.213 S-SCH pattern is scrambling code group 0
PICH	PICH_Ec/Ior	-15dB	
DPCH	DPCH_Ec/Ior	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH-1	HS-SCCH_Ec/Ior	Test-specific	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH-2	HS-SCCH_Ec/Ior	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH-3	HS-SCCH_Ec/Ior	DTX'd	As HS-SCCH-2.
HS-SCCH-4	HS-SCCH_Ec/Ior	DTX'd	As HS-SCCH-2.
HS-PDSCH	HS-PDSCH_Ec/Ior	Test-specific	.
OCNS		Necessary power so that total transmit power spectral density of Node B (Ior) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.13.

Table C.9: Downlink physical channels for HSDPA receiver testing for Open Loop Transmit Diversity performance.

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior	-13dB	1. Total P-CPICH_Ec/Ior = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior	-15dB	1. STTD applied.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior	-15dB	2. Total P-CCPCH Ec/Ior is –12dB.
SCH (antenna 1/2)	SCH_Ec/Ior	-12dB	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/Ior	-18dB	1. STTD applied.
PICH (antenna 2)	PICH_Ec2/Ior	-18dB	2. Total PICH Ec/Ior is –15dB.
DPCH	DPCH_Ec/Ior	Test-specific	1. STTD applied.
HS-SCCH-1	HS-SCCH_Ec/Ior	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH-2	HS-SCCH_Ec/Ior	DTX'd	1. UE assumes STTD applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH-3	HS-SCCH_Ec/Ior	DTX'd	1. As HS-SCCH–2.
HS-SCCH-4	HS-SCCH_Ec/Ior	DTX'd	2. As HS-SCCH-2.
HS-PDSCH	HS-PDSCH_Ec/Ior	Test-specific	1. STTD applied.
OCNS		Necessary power so that total transmit power spectral density of Node B (Ior) adds to one	1. STTD applied. 2. Balance of power I_{or} of the Node-B is assigned to OCNS. 3. Power divided equally between antennas. 4. OCNS interference consists of 6 dedicated data channels as specified in table C.13.

Table C.10: Downlink physical channels for HSDPA receiver testing for Closed Loop. Transmit Diversity (Mode-1) performance.

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior	-13dB	1. Total P-CPICH_Ec/Ior = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior	-15dB	1. STTD applied.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior	-15dB	2. Total P-CCPCH Ec/Ior is –12dB.
SCH (antenna 1/2)	SCH_Ec/Ior	-12dB	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/Ior	-18dB	1. STTD applied.
PICH (antenna 2)	PICH_Ec2/Ior	-18dB	2. Total PICH Ec/Ior is –15dB.
DPCH	DPCH_Ec/Ior	Test-specific	1. CL1 applied.
HS-SCCH-1	HS-SCCH_Ec/Ior	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH-2	HS-SCCH_Ec/Ior	DTX'd	1. UE assumes STDD] applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH-3	HS-SCCH_Ec/Ior	DTX'd	1. As HS-SCCH–2.
HS-SCCH-4	HS-SCCH_Ec/Ior	DTX'd	2. As HS-SCCH-2.
HS-PDSCH	HS-PDSCH_Ec/Ior	Test-specific	1. CL1 applied.
OCNS		Necessary power so that total transmit power spectral density of Node B (Ior) adds to one	1. STTD applied. 2. Balance of power I_{or} of the Node-B is assigned to OCNS. 3. Power divided equally between antennas. 4. OCNS interference consists of 6 dedicated data channels as specified in table C.13.

Table C.11: Downlink physical channels for HSDPA receiver testing for HS-SCCH detection performance

Parameter	Units	Value	Comment
CPICH E_c/I_{or}	dB	-10	
P-CCPCH E_c/I_{or}	dB	-12	Mean power level is shared with SCH.
SCH E_c/I_{or}	dB	-12	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dl,0 as per TS25.213 S-SCH pattern is scrambling code group 0
PICH E_c/I_{or}	dB	-15	
HS-PDSCH-1 E_c/I_{or}	dB	-10	HS-PDSCH associated with HS-SCCH-1. The HS-PDSCH shall be transmitted continuously with constant power.
HS-PDSCH-2 E_c/I_{or}	dB	DTX	HS-PDSCH associated with HS-SCCH-2
HS-PDSCH-3 E_c/I_{or}	dB	DTX	HS-PDSCH associated with HS-SCCH-3
HS-PDSCH-4 E_c/I_{or}	dB	DTX	HS-PDSCH associated with HS-SCCH-4
DPCH E_c/I_{or}	dB	-8	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH-1 E_c/I_{or}	dB	Test Specific	All HS-SCCH's allocated equal E_c/I_{or}. Specifies E_c/I_{or} when TTI is active.
HS-SCCH-2 E_c/I_{or}	dB		
HS-SCCH-3 E_c/I_{or}	dB		
HS-SCCH-4 E_c/I_{or}	dB		
OCNS E_c/I_{or}	dB	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.13.

Table C.12: Downlink physical channels for HSDPA receiver testing for HS-SCCH detection performance in Open Loop Diversity

Parameter	Units	Value	Comment
P-CPICH E_c/I_{or} (antenna 1)	dB	-13	1. Total P-CPICH E_c/I_{or} = -10dB
P-CPICH E_c/I_{or} (antenna 2)	dB	-13	
P-CCPCH E_c/I_{or} (antenna 1)	dB	-15	1. STTD applied
P-CCPCH E_c/I_{or} (antenna 2)	dB	-15	2. Total P-CCPCH E_c/I_{or} = -12dB
SCH E_c/I_{or} (antenna 1/2)	dB	-12	1. TSTD applied 2. Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. 3. P-SCH code is S_dl,0 as per TS25.213 4. S-SCH pattern is scrambling code group 0
PICH E_c/I_{or} (antenna 1)	dB	-15	1. STTD applied
PICH E_c/I_{or} (antenna 2)	dB	-15	2. Total PICH E_c/I_{or} = -12dB
HS-PDSCH-1 E_c/I_{or}	dB	-10	1. STTD applied 2. HS-PDSCH assoc. with HS-SCCH-1
HS-PDSCH-2 E_c/I_{or}	dB	DTX	1. STTD applied 2. HS-PDSCH assoc. with HS-SCCH-2
HS-PDSCH-3 E_c/I_{or}	dB	DTX	1. STTD applied 2. HS-PDSCH assoc. with HS-SCCH-3
HS-PDSCH-4 E_c/I_{or}	dB	DTX	1. STTD applied 2. HS-PDSCH assoc. with HS-SCCH-4
DPCH E_c/I_{or}	dB	-8	1. STTD applied 2. 12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH-1 E_c/I_{or}	dB	Test Specific	1. STTD applied 2. All HS-SCCH's allocated equal E_c/I_{or}. 3. Specifies E_c/I_{or} when TTI is active.
HS-SCCH-2 E_c/I_{or}	dB		
HS-SCCH-3 E_c/I_{or}	dB		
HS-SCCH-4 E_c/I_{or}	dB		
OCNS E_c/I_{or}	dB	Remaining power at Node-B (including HS-SCCH power allocation when HS-SCCH's inactive).	1. STTD applied 2. OCNS interference consists of 6 dedicated data channels as specified in table C.13. 3. Power divided equally between antennas

CR-Form-v7.1

CHANGE REQUEST

⌘　　**25.101** CR **383**　⌘**rev** **3**　⌘　Current version: **6.5.0** ⌘

*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 ☐　Core Network ☐

Title: ⌘	H-Set 4/5 pattern length
Source: ⌘	3GPP TSG RAN WG4 (Radio)

Work item code: ⌘	HSDPA-RF	***Date:*** ⌘	01/12/2004

Category: ⌘ **F**	***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)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2　*(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)*
Rel-7　*(Release 7)*

Reason for change: ⌘	The transmission pattern for H-Set 4 and 5 could be misinterpreted. Both are defined in terms of 11 sub-frames. It would be much clearer to indicate that the pattern is a six sub-frame repeat cycle and not an 11 sub-frame repeat cycle which would give the wrong throughput figures
Summary of change: ⌘	1. An extra 0 is added to the end of the transmission pattern an a note aded to make it clear that the pattern is a repetition of six sub-frames 2. Distincition is made between the transmissionpattern and the signalling pattern
Consequences if not approved: ⌘	Testing using H-Set 4 and H-Set 5 might be implemented incorrectly using a repetition of an 11 sub-frame cycle

Clauses affected: ⌘	A.7.1.4, A.7.1.5

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

34.121

Other comments: ⌘	

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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.

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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.

A.7.1.4 Fixed Reference Channel Definition H-Set 4

Table A.28: Fixed Reference Channel H-Set 4

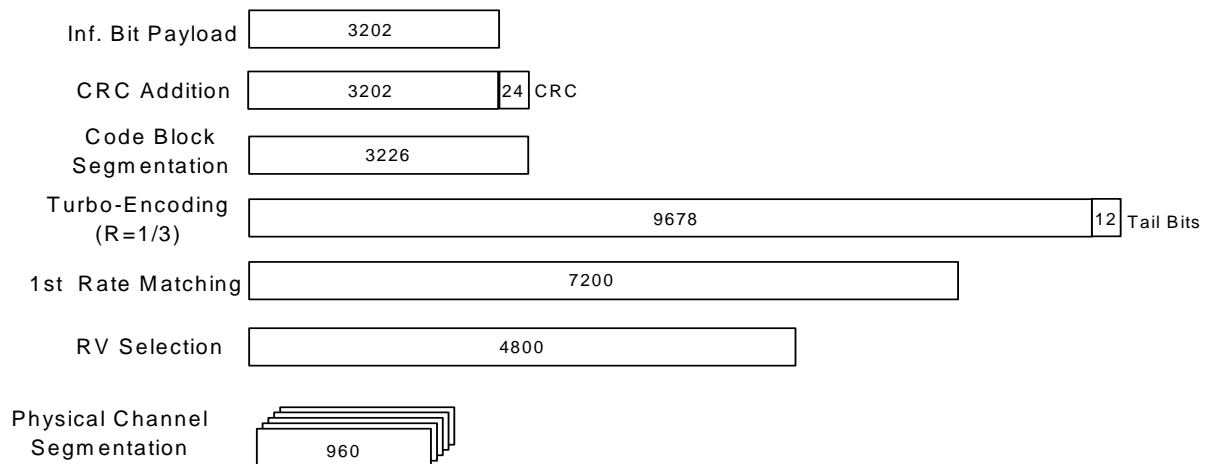| Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	534
Inter-TTI Distance	TTI's	2
Number of HARQ Processes	Processes	2
Information Bit Payload (N_{INF})	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	14400
Number of SML's per HARQ Proc.	SML's	7200
Coding Rate		0.67
Number of Physical Channel Codes	Codes	5
Modulation		QPSK
Note: ~~This test case verifies the minimum inter-TTI distance and therefore HS-PDSCH transmission shall be as follows: ...00X0X000X0X...,~~ ~~where 'X' marks TTI in which HS-PDSCH is allocated to the UE and '0' marks TTI, in which HS-PDSCH is not allocated to the UE..The HS-DSCH shall be transmitted continuously with constant power..~~This FRC is used to verify the minimum inter-TTI distance for UE category 11. The HS-PDSCH shall be transmitted continuously with constant power. The six sub-frame HS-SCCH signalling pattern shall repeat as follows: ...OOXOXOOOXOXO..., where 'X' marks TTI in which HS-SCCH uses the identity of the UE under test and 'O' marks TTI, in which HS-SCCH uses a different identity.		

Inf. Bit Payload — 3202

CRC Addition — 3202 | 24 CRC

Code Block Segmentation — 3226

Turbo-Encoding (R=1/3) — 9678 | 12 Tail Bits

1st Rate Matching — 7200

RV Selection — 4800

Physical Channel Segmentation — 960

Figure A.18: Coding rate for Fixed Reference Channel H-Set 4

A.7.1.5 Fixed Reference Channel Definition H-Set 5

Table A.29: Fixed Reference Channel H-Set 5

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	801
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	3
Information Bit Payload (N_{INF})	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	28800
Number of SML's per HARQ Proc.	SML's	9600
Coding Rate		0.67
Number of Physical Channel Codes	Codes	5
Modulation		QPSK
Note: ~~This test case verifies the minimum inter-TTI distance and therefore HS-PDSCH transmission shall be as follows:~~ ~~…00XXX000XXX…,~~ ~~where 'X' marks TTI in which HS-PDSCH is allocated to the UE and '0' marks TTI, in which HS-PDSCH is not allocated to the UE.. The HS-DSCH shall be transmitted continuously with constant power..~~ This FRC is used to verify the minimum inter-TTI distance for UE category 12. The HS-PDSCH shall be transmitted continuously with constant power. The six sub-frame HS-SCCH signalling pattern shall repeat as follows: …OOXXXOOOXXXO…, where 'X' marks TTI in which HS-SCCH uses the identity of the UE under test and 'O' marks TTI, in which HS-SCCH uses a different identity.		

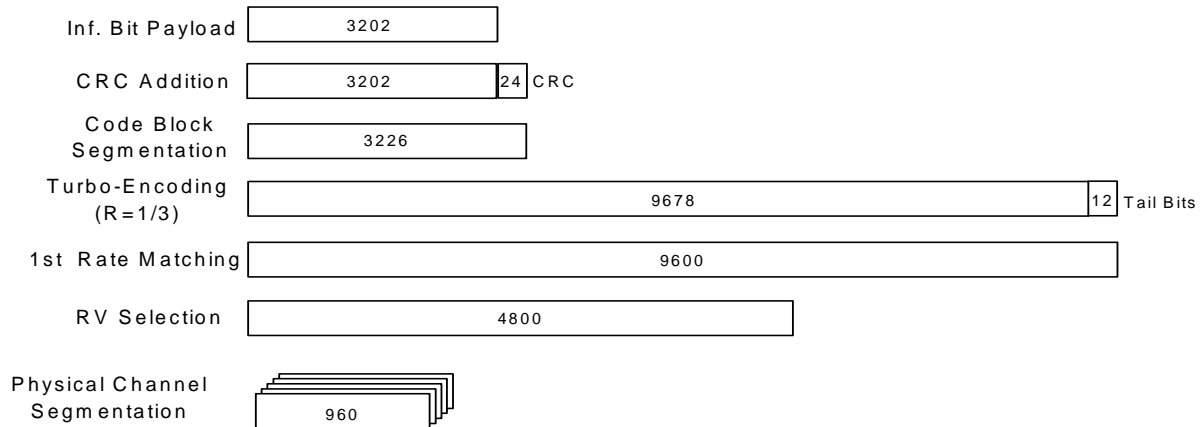|	
Inf. Bit Payload	3202
CRC Addition	3202 / 24 CRC
Code Block Segmentation	3226
Turbo-Encoding (R=1/3)	9678 / 12 Tail Bits
1st Rate Matching	9600
RV Selection	4800
Physical Channel Segmentation	960

Figure A.19: Coding rate for Fixed Reference Channel H-Set 5