RP-030217

TSG RAN Meeting #20 Hämeenlinna, Finland, 3 - 6 June, 2003

Title

Source

Agenda Item

CRs (Rel-5 and Rel-6 Category A) to TS 25.101 under WI "High Speed Downlink Packet Access" (FDD) TSG RAN WG4 8.5.1

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-020375	25.101	231		F	Rel-5	5.6.0	Maximum input power for the UE	HSDPA-RF
R4-020376	25.101	232		Α	Rel-6	6.0.0	Maximum input power for the UE	HSDPA-RF
R4-020465	25.101	248		F	Rel-5	5.6.0	Removal of some of the FRC test cases with PA3 channel	HSDPA-RF
R4-020564	25.101	252		Α	Rel-6	6.0.0	Removal of some of the FRC test cases with PA3 channel	HSDPA-RF
R4-020575	25.101	249	1	F	Rel-5	5.6.0	Specification of HSDPA CQI test	HSDPA-RF
R4-020576	25.101	253		Α	Rel-6	6.0.0	Specification of HSDPA CQI test	HSDPA-RF
R4-020607	25.101	255		F	Rel-5	5.6.0	Specification of HSDPA FRC Performance with Closed Loop Transmit Diversity	HSDPA-RF
R4-020608	25.101	256		A	Rel-6	6.0.0	Specification of HSDPA FRC Performance with Closed Loop Transmit Diversity	HSDPA-RF
R4-020609	25.101	257		F	Rel-5	5.6.0	Specification of HS-SCCH Performance	HSDPA-RF
R4-020610	25.101	258		Α	Rel-6	6.0.0	Specification of HS-SCCH Performance	HSDPA-RF
R4-020611	25.101	259		F	Rel-5	5.6.0	Specification of HSDPA CQI test in fading	HSDPA-RF
R4-020612	25.101	260		Α	Rel-6	6.0.0	Specification of HSDPA CQI test in fading	HSDPA-RF

R4-030375

Paris, France 19 - 23 May, 2003

	CHAN	GE REQUES	CR-Form-v7
ж	<mark>25.101</mark> CR <mark>231</mark>	жrev ^ж	Current version: 5.6.0 #
For <u>HELP</u> on u	ing this form, see bottom o	of this page or look at t	the pop-up text over the % symbols.
Proposed change a	ffects: UICC apps #	ME 🗶 Radio	Access Network Core Network
Title: Ж	Maximum received po	ower at UE	
Source: ೫	RAN WG4		
Work item code: ೫	HSDPA-RF		Date: # 27/05/2003
Category: %	F Jse <u>one</u> of the following cate F (correction) A (corresponds to a cor B (addition of feature), C (functional modification D (editorial modification, Detailed explanations of the a be found in 3GPP <u>TR 21.900</u> ,	rection in an earlier relea on of feature)) above categories can	Release: %Rel-5Use one of the following releases: 2(GSM Phase 2)ase)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 linearity in the rec nen QPSK is received.	ceiver when 16-QAM is received is
Summary of chang	Added a new require fading or noise but a		A fixed reference channel without any
Consequences if not approved:	% There are no require are relevant for 16-C		of the receiver at high input levels that
Clauses affected:	% 7.4		
Other specs affected:	Y N % N Other core specificat N Test specificat N O&M Specificat	ions	
Other comments:	# Equivalent CRs in ot	her Releases: CR232	cat. A to 25.101 v6.0.0

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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. 3

7.4 Maximum input level

This is defined as the maximum mean power received at the UE antenna port, which does not degrade the specified BER performance.

7.4.1 Minimum requirement for DPCH reception

The BER shall not exceed 0.001 for the parameters specified in Table 7.3.

Table 7.3: Maximum input level

Parameter	Unit	Level
$\frac{DPCH_Ec}{I_{or}}$	dB	-19
Î _{or}	dBm/3.84 MHz	-25
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)

NOTE: Since the spreading factor is large (10log(SF)=21dB), the majority of the total input signal consists of the OCNS interference. The structure of OCNS signal is defined in Annex C.3.2.

7.4.2 Minimum requirement for HS-PDSCH reception

7.4.2.2 Minimum requirement for 16QAM

For the parameters specified in Table 7.X, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 7.Y 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.X and downlink physical channel setup according to Annex C.5.

Table 7.X

Parameter	Unit	Test			
Phase reference		P-CPICH			
<u>Î_{or}</u>	<u>dBm/3.84 MHz</u>	<u>-25 *</u>			
UE transmitted mean power	<u>dBm</u>	<u>20 (for Power class 3)</u> 18 (for Power class 4)			
DPCH	DPCH_Ec/lor	<u>-13</u>			
HS-SCCH_1	HS-SCCH_Ec/lor	<u>-13</u>			
Redundancy and constellation version		<u>6</u>			
Maximum number of HARQ transmissions					
	Il be transmitted conti ird TTI shall be sent t	nuously with constant power but only every o the UE under test.			

Table 7.Y

$\frac{\text{HS-PDSCH}}{E_c / I_{or} \text{ (dB)}}$	<u>T-put_R_(kbps) *</u>
-3	<u>700</u>

R4-030376

Paris, France 19 - 23 May, 2003

		СНА	NGE REG	QUES	Т		CR-Form-v7
ж	25.10	1 CR 232	жrev	, a	Current versi	ion: 6.0.0	ж
For <u>HELP</u> on u	-	form, see botto UICC apps #			the pop-up text		
Title: ೫	Maxim	um received	power at UE				
Source: ೫	RAN W	G4					
Work item code: ೫	HSDPA	-RF			Date: ೫	27/05/2003	
Category: %	<i>F</i> (c <i>A</i> (c <i>B</i> (a <i>C</i> (f <i>D</i> (e Detailed	addition of feature unctional modific aditorial modificat	correction in an e e), ation of feature) ion) ne above categori		2 ease) R96 R97 R98 R99 Rel-4 Rel-5	Rel-6 the following relea (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)	ases:
Reason for change			on the linearity when QPSK is		eceiver when 16- I.	QAM is receive	ed is
Summary of chang			uirement similar It at a high sign		PA fixed reference	ce channel with	out any
Consequences if not approved:		ere are no requered are no requered are no requered are no required are no required are no required are no requ The relevant for 10 required are no required are		linearity	of the receiver a	t high input leve	els that
Clauses affected: Other specs affected:	ж	N		¥			
Other comments:	ж Ес	uivalent CRs ir	other Release	s: CR23	1 cat. F to 25.10 ²	1 v5.6.0	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

7.4 Maximum input level

This is defined as the maximum mean power received at the UE antenna port, which does not degrade the specified BER performance.

7.4.1 Minimum requirement for DPCH reception

The BER shall not exceed 0.001 for the parameters specified in Table 7.3.

Table 7.3: Maximum input level

Parameter	Unit	Level		
$\frac{DPCH_Ec}{I_{or}}$	dB	-19		
Î _{or}	dBm/3.84 MHz	-25		
UE transmitted mean power	dBm	20 (for Power class 3) 18 (for Power class 4)		

NOTE: Since the spreading factor is large (10log(SF)=21dB), the majority of the total input signal consists of the OCNS interference. The structure of OCNS signal is defined in Annex C.3.2.

7.4.2 Minimum requirement for HS-PDSCH reception

7.4.2.2 Minimum requirement for 16QAM

For the parameters specified in Table 7.X, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 7.Y 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.X and downlink physical channel setup according to Annex C.5.

Table 7.X

Parameter	<u>Unit</u>	<u>Test</u>				
Phase reference		P-CPICH				
<u>Î_{or}</u>	<u>dBm/3.84 MHz</u>	<u>-25 *</u>				
UE transmitted mean power	<u>dBm</u>	<u>20 (for Power class 3)</u> <u>18 (for Power class 4)</u>				
DPCH	DPCH Ec/lor	<u>-13</u>				
HS-SCCH 1	HS-SCCH Ec/lor	<u>-13</u>				
Redundancy and constellation version		<u>6</u>				
Maximum number of HARQ transmissions 1						
	II be transmitted conti ird TTI shall be sent t	inuously with constant power but only every other under test.				

Table 7.Y

$\frac{\text{HS-PDSCH}}{E_c/I_{or}}$	<u>T-put_R_(kbps) *</u>
<u>-3</u>	<u>700</u>

4

R4-030465

Paris, France 19 - 23 May, 2003

		CH	IANG	E REQ	UE	ST				CR-Form-v7
ж <mark>2</mark>	5.101	CR	248	жrev		ж	Current vers	sion:	5.6.0	ж
For <u>HELP</u> on usin Proposed change aff	-	m, see bo			_		e pop-up text		the ¥ syr	
]					
Title: ೫ F	Removal	of some c	of the FRC	test cases	s with	PA3	channel			
Source: ೫ F	RAN WG	4								
Work item code: 🕱 🕂	ISDPA-F	RF					Date: ೫	27/	05/2003	
De	se <u>one</u> of <i>F</i> (con <i>A</i> (cor <i>B</i> (add <i>C</i> (fun <i>D</i> (edi etailed exp a found in	rection) responds to lition of fea ctional modif torial modif olanations of 3GPP <u>TR 2</u>	nture), dification of ication) of the abov 2 <u>1.900</u> .	ion in an ear feature) e categories	s can		Release: % Use <u>one</u> of 2 (*) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	the fo (GSM (Rele (Rele (Rele (Rele (Rele (Rele	llowing rele 1 Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4) ase 5) ase 6)	
Summary of change:	3dB chan these	may not m nels and l two test test case	nake avail hence are cases are	able enoug difficult to removed.	gh pov config The c	ver fo gure other	or the HS-SC in the test cc PA3 test cas dB and HS-D	CCH a onfigu ses al	and DPCH ration. He re retaine	l nce, d.
Consequences if not approved:				practice to d Ec/lor =			the FRC test	case	es with PA	3
Clauses affected:	೫ <mark>9.2.1</mark>	.3								
Other specs affected:	¥ N # X X X	Test spe	re specific cifications ecificatior	6	ж					

How to create CRs using this form:

ж

Other comments:

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

Equivalent CRs in other Releases: CR252 cat. A to 25.101 v6.0.0

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

1

9.2.1.1 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.2, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.3 for the DL reference channels specified in Annex A.7.1

Table 9.2

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference			P-CPICH		
I _{oc}	dBm/3.84 MHz	-60			
Redundancy and constellation version coding sequence			{0,2	,5,6}	
Maximum number of HARQ transmission		4			

Table 9.3

Test	Propagation	Reference value					
Number	Conditions	HS-PDSCH	T-put R (kbps) *	T-put R (kbps) *			
		E_c/I_{or} (dB)	\hat{I}_{or} / I_{oc} = 0 dB	\hat{I}_{or} / I_{oc} = 10 dB			
1	PA3	-6	65	309			
I	FAS	-3	147<u>N/A</u>	423			
2	PB3 -6		23	181			
2	F D3	-3	138	287			
3 VA30	-6	22	190				
5	VA30	-3	142	295			
4	VA120	-6	13	181			
4	VAIZU	-3	140	275			
	2) For Fixed Refe (multiplied by 1.5)	rence Channel (FRC) H-Se	erence Channel (FRC) H-Set at 2 the reference values for R at 3 the reference values for R	should be scaled			

9.2.1.3 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4/5

For the parameters specified in Table 9.6, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.7 and 9.8 for the DL reference channels specified in Annex A.7.1.4 and A.7.1.5.

Table 9.6 Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 3	Test 4				
Phase reference		P-CPICH						
I _{oc}	dBm/3.84 MHz	-60						
Redundancy and constellation version coding sequence			{0,2	,5,6}				
Maximum number of HARQ transmission		4						

Test	Propagation		Reference value						
Number	Conditions	HS-PDSCH	T-put R (kbps) *	T-put R (kbps) *					
		E_c / I_{or} (dB)	\hat{I}_{or} / I_{oc} = 0 dB	\hat{I}_{or} / I_{oc} = 10 dB					
1	PA3	-6	72	340					
1	FAS	-3	<u>170 N/A</u>	439					
2	PB3	-6	24	186					
2 FB3		-3	142	299					
3	VA30	-6	19	183					
5	VASU	-3	148	306					
4	VA120	-6	11	170					
4	VAIZU	-3	144	284					
* Notes:	1) The reference v	alue R is for the Fixed Ref	erence Channel (FRC) H-Set	: 4					

R4-030575

Paris, France 19 - 23 May, 2003

CHANGE REQUEST								
ж	25.101 CR 249 #rev	1 * Current version: 5.6.0 *						
For <u>HELP</u> on	sing this form, see bottom of this page or lo	ok at the pop-up text over the $#$ symbols.						
Proposed change	h ffects: UICC apps ೫ ME <mark>Ⅹ</mark> F	Radio Access Network Core Network						
Title: 3	Specification of HSDPA CQI test							
Source: 3	RAN WG4							
Work item code: #	HSDPA-RF	Date: ₩ 27/05/2003						
Category: 3	 F Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlied B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories of be found in 3GPP <u>TR 21.900</u>. 	R97 (Release 1997) R98 (Release 1998) R99 (Release 1999)						
Reason for chang		tests for UE capability category 1-6 and 11- ssetial to ensure consitent operation of CQI						
Summary of chan		N channel is specified. CQI reporting ariance and measurement bias is tested						
Consequences if not approved:		ts for UE capability category 1-6 and 11-12 promance specification to be incomplete.						
Clauses affected:	C.5, New section 9.4							
Other specs affected:	Y N % X Other core specifications S X Test specifications S X O&M Specifications	ж						
Other comments:	# Equivalent CRs in other Releases: C	R253r1 cat. A to 25.101 v6.0.0						

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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 Reporting of Channel Quality Indicator

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.

<u>9.4.1 Minimum Requirement – UE capability categories 1-6</u>

For the parameters specified in Table 9.x, 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 packet error rate (PER) using transport format indicated by median CQI is less than 0.1, PER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH packet error rate (PER) using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by (median CQI -1) shall be less than 0.1.

Parameter	<u>Unit</u>	<u>Test 1</u>	Test 2	Test 3				
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u> <u>5</u>		<u>10</u>				
I _{oc}	dBm/3.84 MHz	<u>-60</u>						
Phase reference	-		P-CPICH					
$\underline{\text{HS-PDSCH}} E_c / I_{or} (*)$	<u>dB</u>		<u>-3</u>					
$\underline{HS-SCCH} E_c / I_{or}$	<u>dB</u>		<u>-10</u>					
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>		<u>-10</u>					
Maximum number of H-ARQ transmission	1	1						
Number of HS-SCCH set to be monitored	Ξ	1						
CQI feedback cycle	<u>ms</u>		<u>2</u>					
CQI repetition factor	=		<u>1</u>					
HS-DSCH transmission pattern	-	"XOOXOOX" to incorporate inter-TTI=3 UEs, where "X" indicates TTI in which HS- PDSCH is allocated to the UE, and "O" indicates DTX						
Note1: Measurement power offset "I" is configured by RRC accordingly 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 maping table described in TS25.214								

Table 9.x: Test Parameter for CQI: categories 1-6

9.4.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.y, 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 packet error rate (PER) using transport format indicated by median CQI is less than 0.1, PER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH packet error rate (PER) using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by (median CQI -1) shall be less than 0.1.

Parameter	<u>Unit</u>	Test 1	Test 2				
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u>	<u>5</u>				
I _{oc}	<u>dBm/3.84 MHz</u>	:	<u>-60</u>				
Phase reference	=	P-CPICH					
$\underline{HS-PDSCH} E_c / I_{or} (^*)$	<u>dB</u>		<u>-3</u>				
HS-SCCH E _c / I _{or}	<u>dB</u>	:	- <u>10</u>				
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>		- <u>10</u>				
Maximum number of H-ARQ transmission	Ξ	1					
Number of HS-SCCH set to be monitored	1	1					
CQI feedback cycle	<u>ms</u>		2				
CQI repetition factor	Ξ		1				
HS-DSCH transmission pattern	=	which HS-PDSC	re "X" indicates TTI in H is allocated to the indicates DTX				
Note1: Measurement pow Note2: TF for HS-PDSCH based on median CQI, me parameters are configured	is configured accord edian CQI -1, median	ured by RRC according to the reported C CQI+2 are used. Ot	ingly QI statistics. TF ther physical channel				

Table 9.y: Test Parameter for CQI: categories 11,12

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 9.2.1- and 9.4. Table C.9 is applicable for the measurements for tests in subclause 9.2.2.

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

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-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/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/lor	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/lor	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/lor	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

Void

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

R4-030564

Paris, France 19 - 23 May, 2003

CHANGE REQUEST										
¥	<mark>25.101</mark>	CR	252	жrev		ж (Current vers	ion:	6.0.0	ж
For <u>HELP</u> on usi	ng this for	rm, see bo	ottom of th	is page or	look a	t the	pop-up text	over	the ¥ syr	nbols.
Proposed change af	fects:	UICC app	s #	ME X	Radi	o Aco	cess Networ	'k 📃	Core Ne	etwork
Title: ೫	Removal	of some c	of the FRC	test cases	<mark>s with l</mark>	PA3	channel			
Source: ೫	RAN WG	4								
Work item code: #	HSDPA-F	RF					Date: ೫	27/	05/2003	
C	Jse <u>one</u> of <i>F</i> (cor <i>B</i> (add <i>C</i> (fun <i>D</i> (edi Detailed exist the found in <i>The</i> 3dB char these : # FRC	rection) responds to dition of fea octional modif planations 3GPP <u>TR</u> FRC test may not n mels and l e two test	nture), dification of iication) of the abov 21.900. cases with hake avail hence are cases are	on in an ear feature) e categories the PA3 c able enoug difficult to removed.	s can channe gh pow config The o	ease) el, lor ver fo jure in ther l	R96 R97 R98 R99	the fo (GSN (Rele (Rele (Rele (Rele (Rele (Rele CH a onfigu	llowing rele 1 Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4) ase 5) ase 5) ase 6) S-DSCH and DPCH ration. He re retaine	Ec/Ior = - I Ince, d.
Consequences if not approved:				oractice to d Ec/lor =			he FRC test	case	es with PA	3
Clauses affected: Other specs affected:	第 9.2.1 ¥ N 第 X X X X X	Other co Test spe	pre specific cifications ecification	;	ж					

How to create CRs using this form:

ж

Other comments:

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

Equivalent CRs in other Releases: CR248 cat. F to 25.101 v5.6.0

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

1

9.2.1.1 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.2, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.3 for the DL reference channels specified in Annex A.7.1

Table 9.2

Parameter	Unit	Test 1	Test 3	Test 4				
Phase reference		P-CPICH						
I _{oc}	dBm/3.84 MHz	-60						
Redundancy and constellation version coding sequence			{0,2	,5,6}				
Maximum number of HARQ transmission		4						

Table 9.3

Test	Propagation	Reference value						
Number	Conditions	HS-PDSCH	T-put R (kbps) *	T-put R (kbps) *				
		E_c/I_{or} (dB)	\hat{I}_{or} / I_{oc} = 0 dB	\hat{I}_{or} / I_{oc} = 10 dB				
1	PA3	-6	65	309				
I	FAS	-3	<u>147 N/A</u>	423				
2	PB3	-6	23	181				
2	FDS	-3	138	287				
3	VA30	-6	22	190				
5		-3	142	295				
4	VA120	-6	13	181				
4		-3	140	275				
	 Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1 2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R should be scaled (multiplied by 1.5) 3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled (multiplied by 3) 							

9.2.1.3 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4/5

For the parameters specified in Table 9.6, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.7 and 9.8 for the DL reference channels specified in Annex A.7.1.4 and A.7.1.5.

Table 9.6 Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference			P-CF	PICH	
I _{oc}	dBm/3.84 MHz	-60			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission		4			

I

4

* Notes:

VA120

170

284

Test	Propagation	Reference value					
Number	Conditions	HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * $\hat{I}_{or} / I_{oc} = 0$ dB	T-put R (kbps) * \hat{I}_{or} / I_{oc} = 10 dB			
1	PA3	-6	72	340			
I FAS	-3	<u>170 N/A</u>	439				
2	PB3	-6	24	186			
2	F D3	-3	142	299			
3	VA30	-6	19	183			
	v A30	-3	148	306			

-6

-3

1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4

11

144

Table 9.7 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

R4-030576

Paris, France 19 - 23 May, 2003

CHANGE REQUEST								
ж	25.10	1 CR 253	жrev	ж	Current versio	^{on:} 6.0.0	ж	
For <u>HELP</u> on	using this	form, see bottom	of this page or	look at th	e pop-up text o	ver the % syn	nbols.	
Proposed change		UICC apps #] Radio A	ccess Network	Core Ne	twork	
Title: 9	8 Specifi	cation of HSDPA	CQI test					
Source:	[®] RAN W	/G4						
Work item code: 3	B HSDPA	\-RF			Date: ೫	27/05/2003		
Category: 3	F (c A (c B (a C (f D (a Detailed be found	of the following cate correction) corresponds to a co addition of feature), functional modification explanations of the in 3GPP <u>TR 21.900</u> the required HSDP care not specified	orrection in an ear ion of feature) n) above categories <u>0</u> . A CQI accurac	s can y tests for	2 (0 e) R96 (F R97 (F R98 (F R99 (F Rel-4 (F Rel-5 (F Rel-6 (F	e following rele GSM Phase 2) Release 1996) Release 1997) Release 1999) Release 4) Release 5) Release 6) Category 1-6 a	and 11-	
Summary of chan Consequences if	re ge: % CC ac wit % HSI	Dorting across all QI reporting beha- curacy in terms o th the introduction DPA CQI perform	UEs. viour under AW f measurement of the test. ance requireme	GN chan variance	nel is specified. and measurem E capability cat	CQI reportin tent bias is te tegory 1-6 and	g ested	
not approved:		not specified, res	-	penormal	ice specification		piete.	
Clauses affected: Other specs affected:	¥ ¥	5, New section 9. N X Other core sp X Test specifica X O&M Specifica	ecifications tions	ж				
Other comments:		uivalent CRs in c	ther Releases:	CR249 c	at. F to 25.101	v5.6.0		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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 Reporting of Channel Quality Indicator

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.

<u>9.4.1 Minimum Requirement – UE capability categories 1-6</u>

For the parameters specified in Table 9.x, 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 packet error rate (PER) using transport format indicated by median CQI is less than 0.1, PER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH packet error rate (PER) using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by (median CQI -1) shall be less than 0.1.

Parameter	<u>Unit</u>	<u>Test 1</u>	Test 2	Test 3		
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u>	<u>5</u>	<u>10</u>		
I _{oc}	dBm/3.84 MHz		<u>-60</u>			
Phase reference	-		P-CPICH			
$\underline{\text{HS-PDSCH}} E_c / I_{or} (*)$	<u>dB</u>		<u>-3</u>			
$\underline{HS-SCCH} E_c / I_{or}$	<u>dB</u>		<u>-10</u>			
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-10</u>				
Maximum number of H-ARQ transmission	1	1				
Number of HS-SCCH set to be monitored	Ξ.	1				
CQI feedback cycle	<u>ms</u>		<u>2</u>			
CQI repetition factor	=		<u>1</u>			
HS-DSCH transmission pattern	-	<u>"XOOXOOX" to incorporate inter-TTI=3</u> UEs, where "X" indicates TTI in which HS- PDSCH is allocated to the UE, and "O" indicates DTX				
Note1: Measurement power offset "I" is configured by RRC accordingly 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 maping table described in TS25.214						

Table 9.x: Test Parameter for CQI: categories 1-6

9.4.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.y, 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 packet error rate (PER) using transport format indicated by median CQI is less than 0.1, PER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH packet error rate (PER) using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by median CQI is larger than 0.1, PER using transport format indicated by (median CQI -1) shall be less than 0.1.

Parameter	<u>Unit</u>	Test 1	Test 2			
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u>	<u>5</u>			
I _{oc}	<u>dBm/3.84 MHz</u>	<u>-60</u>				
Phase reference	=	<u>P-C</u>	<u>CPICH</u>			
$\underline{HS-PDSCH} E_c / I_{or} (^*)$	<u>dB</u>		<u>-3</u>			
HS-SCCH E _c / I _{or}	<u>dB</u>	:	- <u>10</u>			
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>		- <u>10</u>			
Maximum number of H-ARQ transmission	Ξ	1				
Number of HS-SCCH set to be monitored	1		<u>1</u>			
CQI feedback cycle	<u>ms</u>		2			
CQI repetition factor	Ξ		1			
HS-DSCH transmission - "XOOXOOX", where "X" indicates TTI in pattern - which HS-PDSCH is allocated to the UE, and "O" indicates DTX						
Note1: Measurement pow Note2: TF for HS-PDSCH based on median CQI, me parameters are configured	is configured accord edian CQI -1, median	ured by RRC according to the reported C CQI+2 are used. Ot	ingly QI statistics. TF ther physical channel			

Table 9.y: Test Parameter for CQI: categories 11,12

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 9.2.1- and 9.4. Table C.9 is applicable for the measurements for tests in subclause 9.2.2.

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

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-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/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/lor	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/lor	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/lor	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

Void

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

R4-030607

Paris, France 19 - 23 May, 2003

	CHANGE REQUEST								
ж	25.101	CR 255	жrev	₩ Cur	rent version	5.6.0	ж		
For <u>HELP</u> on us	sing this fo	orm, see bottom o	f this page or look	at the pop	o-up text ove	er the % syr	nbols.		
Proposed change a	affects:	UICC apps #	ME 🗴 Ra	dio Acces	s Network	Core Ne	etwork		
Title: ೫	Specifica	ation of HSDPA F	RC Performance	with Close	d Loop Trar	nsmit Divers	ity		
Source: ೫	RAN WO	64							
Work item code: %	HSDPA-	RF			Date: ೫ 2	7/05/2003			
Category: ೫	F (co. A (co B (ac C (fui D (co Detailed ex	ldition of feature), nctional modificatior litorial modification)	ection in an earlier r	Us release)	R96 (Re R97 (Re R98 (Re R99 (Re Rel-4 (Re Rel-5 (Re		eases:		
Reason for change	loop	transmit diversity	·						
Summary of chang			rements for Close PA Fixed Referen				1)		
Consequences if not approved:	close		nce requirements versity case, and lete.						
Clauses affected:	<mark>೫ 9.2.</mark>	3, C.5.1							
Other specs affected:	ж Ж Х Х Х Х	Other core specification	ons						
Other comments:	ж Еqu	ivalent CRs in oth	ner Releases: CR2	256 cat. A	to 25.101 v	6.0.0			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

9.2.3 Closed Loop Diversity Performance

The closed loop transmit diversity (Mode 1) performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in multi-path fading environments are determined by the information bit throughput R.

Note: The results in Section 9.2.3 assume error-free HS-SCCH signalling and are subject to further review upon completion of further assessment of the transmit diversity configuration for the HS-SCCH.

9.2.3.1 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.A, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.B for the DL reference channels specified in Annex A.7.1.

Table 9.A Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	<u>Unit</u>	Test 1	Test 2	Test 3	
Phase reference			P-CPICH		
I _{oc}	<u>dBm/3.84 MHz</u>	<u>-60</u>			
Redundancy and constellation version coding sequence			<u>{0,2,5,6}</u>		
Maximum number of HARQ transmission			<u>4</u>		
Feedback Error Rate	<u>%</u>		<u>4</u>		

Table 9.B Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value					
<u>Number</u>	Conditions	HS-PDSCH	<u>T-put_</u> <i>R</i> (kbps) *	<u>T-put R (kbps) *</u>			
		E_c/I_{or} (dB)	$\hat{I}_{or} / \overline{I_{oc}} = 0 \text{ dB}$	$\hat{I}_{or} / \overline{I_{oc}} = 10 \text{ dB}$			
1	PA3	<u>-6</u>	<u>118</u>	<u>399</u>			
<u> </u>	<u>1 A0</u>	-3	<u>225</u>	<u>458</u>			
2	<u>PB3</u>	<u>-6</u>	<u>50</u>	<u>199</u>			
<u> </u>		<u>-3</u>	<u>173</u>	<u>301</u>			
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>47</u>	<u>204</u>			
		<u>-3</u>	<u>172</u>	<u>305</u>			
			erence Channel (FRC) H-Set				
			et 2 the reference values for R				
			<u>st integer t-put in kbps, where \</u>	alues of i+1/2 are			
	rounded up to i+1, i integer)s						
	3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled						
	(multiplied by 3 ar	nd rounding to the nearest i	integer t-put in kbps, where va	lues of i+1/2 are rounded			
	up to i+1, i integer	<u>-)</u>					

9.2.3.2 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.C, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.D for the DL reference channels specified in Annex A.7.1.

Table 9.C Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	<u>Unit</u>	Test 1	Test 2	<u>Test 3</u>
Phase reference			P-CPICH	
I _{oc}	<u>dBm/3.84 MHz</u>		<u>-60</u>	
Redundancy and constellation version coding sequence			<u>{6,2,1,5}</u>	
Maximum number of HARQ transmission			<u>4</u>	
Feedback Error Rate	<u>%</u>		<u>4</u>	

Table 9.D Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation		Reference value				
<u>Number</u>	Conditions	HS-PDSCH	<u>T-put</u> R <u>(kbps) *</u>				
		E_c/I_{or} (dB)	$\hat{I}_{or} / I_{oc} = 10 \text{ dB}$				
1	PA3	<u>-6</u>	<u>361</u>				
<u> </u>	1 45	<u>-3</u>	<u>500</u>				
2	PB3	<u>- </u>	<u>74</u>				
<u> </u>		<u>-3</u>	<u>255</u>				
3	<u>VA30</u>	<u>-6</u>	<u>84</u>				
2		<u>-3</u>	<u>254</u>				
* Notes:	Notes: 1)The reference value R is for the Fixed Reference Channel (FRC) H-Set 1						
			I-Set 2 the reference values for R				
			ounding to the nearest integer t-put in				
	kbps, where values of i+1/2 are rounded up to i+1, i integer)						
	3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R						
	should be scaled (multiplied by 3 and rounding to the nearest integer t-put in						
	<u>kbps, where valu</u>	es of i+1/2 are rounded	up to i+1, i integer)				

9.2.3.3 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4/5

For the parameters specified in Table 9.E, the requirements are specified in terms of a minimum information bit throughput R as shown in Tables 9.F and 9.G for the DL reference channels specified in Annex A.7.1.4 and A.7.1.5 respectively.

Table 9.E Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	<u>Unit</u>	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>		<u>-60</u>	
Redundancy and constellation version coding sequence			<u>{0,2,5,6}</u>	
Maximum number of HARQ transmission			<u>4</u>	
Feedback Error Rate	<u>%</u>		<u>4</u>	

<u>Test</u>	Propagation	Reference value				
<u>Number</u>	<u>Conditions</u>	$\frac{\text{HS-PDSCH}}{E_c/I_{or}}$	$\frac{\text{T-put } R \text{ (kbps)}^*}{\hat{I}_{or} / I_{oc} = 0 \text{ dB}}$	$\frac{\text{T-put } R \text{ (kbps)}^*}{\hat{I}_{or} / I_{oc} = 10 \text{ dB}}$		
1	<u>PA3</u>	<u>-6</u>	<u>114</u>	<u>398</u>		
<u>+</u>		<u>-3</u>	<u>223</u>	<u>457</u>		
<u>2</u>	PB3	<u>-6</u>	<u>43</u>	<u>196</u>		
<u> </u>	<u>1 D5</u>	<u>-3</u>	<u>167</u>	<u>292</u>		
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>40</u>	<u>199</u>		
<u>2</u>		-3	170	305		

Table 9.F Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Table 9.G Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test	Propagation				
<u>Number</u>	Conditions	$\frac{\text{HS-PDSCH}}{E_c/I_{or}}$	$\frac{\text{T-put } R}{\hat{I}_{or} / I_{oc}} = 0 \text{ dB}$	$\frac{\text{T-put } R \text{ (kbps)}^*}{\hat{I}_{or}/I_{oc} = 10 \text{ dB}}$	
		-6	177	599	
<u>1</u>	<u>PA3</u>	-3	338	687	
2	PB3	<u>-6</u>	<u>75</u>	<u>299</u>	
2	<u>1 D5</u>	<u>-3</u>	<u>260</u>	<u>452</u>	
2	<u>VA30</u>	<u>-6</u>	<u>71</u>	<u>306</u>	
<u>3</u>		<u>-3</u>	<u>258</u>	458	
* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 5					

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 9.2.1. 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.8: Downlink physical channels for HSDPA receiver testing for Single Link performance.

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-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/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/lor	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/lor	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/lor	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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/lor	-13dB	
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	<u>-13dB</u>	<u>1. Total P-CPICH_Ec/lor = -10dB</u>
P-CCPCH (antenna 1)	P- CCPCH_Ec1/lor	<u>-15dB</u>	1. STTD applied.
P-CCPCH (antenna 2)	<u>P-</u> <u>CCPCH_Ec2/lor</u>	<u>-15dB</u>	2. Total P-CCPCH Ec/lor is –12dB.
SCH (antenna 1/2)	SCH_Ec/lor	<u>-12dB</u>	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	<u>-18dB</u>	1. STTD applied.
PICH (antenna 2)	PICH_Ec2/lor	<u>-18dB</u>	2. Total PICH Ec/lor is –15dB.
DPCH	DPCH_Ec/lor	Test-specific	<u>1. STTD applied.</u>
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	 <u>1. STTD applied.</u> <u>2. Specifies fraction of Node-B radiated</u> power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/lor	<u>DTX'd</u>	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/lor	DTX'd	1. As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH_2.
HS-PDSCH	<u>HS-</u> PDSCH_Ec/lor	Test-specific	<u>1. STTD applied.</u>
<u>OCNS</u>		Necessary power so that total transmit power spectral density of Node B (lor) 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.

Table C.10: Downlink physical channels for HSDPA receiver testing for Closed Loop

			-
Physical Channel	Parameter	<u>Value</u>	<u>Note</u>
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	<u>-13dB</u>	
P-CPICH (antenna 2)	P-CPICH Ec2/lor	<u>-13dB</u>	<u>1. Total P-CPICH_Ec/lor = -10dB</u>
P-CCPCH (antenna 1)	<u>P-</u> <u>CCPCH_Ec1/lor</u>	<u>-15dB</u>	1. STTD applied.
P-CCPCH (antenna 2)	<u>P-</u> <u>CCPCH_Ec2/lor</u>	<u>-15dB</u>	2. Total P-CCPCH Ec/lor is –12dB.
SCH (antenna 1/2)	SCH_Ec/lor	<u>-12dB</u>	 <u>1. TSTD applied.</u> <u>2. Power divided equally between primary</u> and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	<u>-18dB</u>	1. STTD applied.
PICH (antenna 2)	PICH Ec2/lor	<u>-18dB</u>	2. Total PICH Ec/lor is -15dB.
DPCH	DPCH Ec/lor	Test-specific	1. CL1 applied.
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	1. [TBD] 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/lor	<u>DTX'd</u>	1. UE assumes [TBD] 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/lor	<u>DTX'd</u>	<u>1. As HS-SCCH_2.</u>

Transmit Diversity (Mode-1) performance.

HS-SCCH 4	HS-SCCH Ec/lor	<u>DTX'd</u>	<u>2. As HS-SCCH_2.</u>
HS-PDSCH	<u>HS-</u> PDSCH_Ec/lor	Test-specific	1. CL1 applied.
<u>OCNS</u>		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	1. STTD applied.2. Balance of power I_{or} of the Node-B isassigned to OCNS.3. Power divided equally between antennas.

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

R4-030608

Paris, France 19 - 23 May, 2003

CHANGE REQUEST							
ж	25.101	CR 256	жrev	₩ Curre	nt version:	6.0.0	ж
For <u>HELP</u> 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: ೫	Specifica	tion of HSDPA FF	RC Performance	with Closed	Loop Transr	nit Divers	ity
Source: ೫	RAN WG	4					
Work item code: #	HSDPA-I	٦F		D	ate: ೫ 27/0	05/2003	
	F (con A (con B (ad C (fur D (ed Detailed ex	the following catego rection) rresponds to a corre dition of feature), actional modification itorial modification) planations of the ab 3GPP TR 21.900.	ection in an earlier i of feature)	Use 2 release) F F F F N F	896 (Rele 897 (Rele 898 (Rele 899 (Rele 899 (Rele 8el-4 (Rele		eases:
Rel-6 (Release 6) Reason for change: # The required HSDPA FRC throughput performance for H-Sets 1-5 with closed loop transmit diversity is not specified. Summary of change: # Test cases and requirements for Closed Loop Transmit Diversity (Mode-1)							
Consequences if not approved:							
Clauses affected:	೫ <mark>9.2.3</mark>	3, C.5.1					
Other specs affected:	¥ N 第 X 又 ス ス		ons				
Other comments:	₩ Equi	valent CRs in oth	er Releases: CR	255 cat. F to	25.101 v5.6	5.0	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

9.2.3 Closed Loop Diversity Performance

The closed loop transmit diversity (Mode 1) performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in multi-path fading environments are determined by the information bit throughput R.

Note: The results in Section 9.2.3 assume error-free HS-SCCH signalling and are subject to further review upon completion of further assessment of the transmit diversity configuration for the HS-SCCH.

9.2.3.1 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.A, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.B for the DL reference channels specified in Annex A.7.1.

Table 9.A Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	<u>Unit</u>	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I _{oc}	<u>dBm/3.84 MHz</u>		<u>-60</u>	
Redundancy and constellation version coding sequence			<u>{0,2,5,6}</u>	
Maximum number of HARQ transmission			<u>4</u>	
Feedback Error Rate	<u>%</u>		<u>4</u>	

Table 9.B Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value					
<u>Number</u>	Conditions	HS-PDSCH	<u>T-put_</u> <i>R</i> (kbps) *	<u>T-put R (kbps) *</u>			
		E_c/I_{or} (dB)	$\hat{I}_{or} / \overline{I_{oc}} = 0 \text{ dB}$	$\hat{I}_{or} / \overline{I_{oc}} = 10 \text{ dB}$			
1	PA3	<u>-6</u>	<u>118</u>	<u>399</u>			
<u> </u>	<u>1 A0</u>	-3	<u>225</u>	<u>458</u>			
2	PB3	<u>-6</u>	<u>50</u>	<u>199</u>			
<u> </u>	<u>1 00</u>	<u>-3</u>	<u>173</u>	<u>301</u>			
<u>3</u>	VA30	<u>-6</u>	<u>47</u>	<u>204</u>			
		<u>-3</u>	<u>172</u>	<u>305</u>			
* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 1							
			et 2 the reference values for R				
	(multiplied by 1.5 and rounding to the nearest integer t-put in kbps, where values of $i+1/2$ are						
rounded up to i+1, i integer)s							
3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R should be scaled							
	(multiplied by 3 ar	nd rounding to the nearest i	integer t-put in kbps, where va	lues of i+1/2 are rounded			
	up to i+1, i integer	<u>-)</u>					

9.2.3.2 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.C, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.D for the DL reference channels specified in Annex A.7.1.

Table 9.C Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	<u>Unit</u>	Test 1	Test 2	<u>Test 3</u>
Phase reference			P-CPICH	
I _{oc}	<u>dBm/3.84 MHz</u>		<u>-60</u>	
Redundancy and constellation version coding sequence			<u>{6,2,1,5}</u>	
Maximum number of HARQ transmission			<u>4</u>	
Feedback Error Rate	<u>%</u>	4		

Table 9.D Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation		Reference value			
<u>Number</u>	Conditions	HS-PDSCH	<u>T-put</u> R <u>(kbps) *</u>			
		E_c/I_{or} (dB)	$\hat{I}_{or} / I_{oc} = 10 \text{ dB}$			
1	PA3	<u>-6</u>	<u>361</u>			
<u> </u>	1 45	<u>-3</u>	<u>500</u>			
2	PB3	<u>- </u>	<u>74</u>			
<u> </u>	<u>1 D0</u>	<u>-3</u>	<u>255</u>			
3	VA30	<u>-6</u>	<u>84</u>			
2	<u>VA30</u>	<u>-3</u>	<u>254</u>			
* Notes: 1)The reference value R is for the Fixed Reference Channel (FRC) H-Set 1						
	2) For Fixed Reference Channel (FRC) H-Set 2 the reference values for R					
	should be scaled (multiplied by 1.5 and rounding to the nearest integer t-put in					
	kbps, where values of i+1/2 are rounded up to i+1, i integer)					
	3) For Fixed Reference Channel (FRC) H-Set 3 the reference values for R					
	should be scaled (multiplied by 3 and rounding to the nearest integer t-put in					
	<u>kbps, where valu</u>	es of i+1/2 are rounded	up to i+1, i integer)			

9.2.3.3 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4/5

For the parameters specified in Table 9.E, the requirements are specified in terms of a minimum information bit throughput R as shown in Tables 9.F and 9.G for the DL reference channels specified in Annex A.7.1.4 and A.7.1.5 respectively.

Table 9.E Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	<u>Unit</u>	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	<u>dBm/3.84 MHz</u>	<u>-60</u>		
Redundancy and constellation version coding sequence			<u>{0,2,5,6}</u>	
Maximum number of HARQ transmission			<u>4</u>	
Feedback Error Rate	<u>%</u>	<u>4</u>		

<u>Test</u>	Propagation		Reference value			
<u>Number</u>	<u>Conditions</u>	$\frac{\text{HS-PDSCH}}{E_c/I_{or}}$	$\frac{\text{T-put } R \text{ (kbps)}^*}{\hat{I}_{or} / I_{oc} = 0 \text{ dB}}$	$\frac{\text{T-put } R \text{ (kbps) }^*}{\hat{I}_{or} / I_{oc} = 10 \text{ dB}}$		
1	PA3	<u>-6</u>	<u>114</u>	<u>398</u>		
<u> </u>	1710	<u>-3</u>	<u>223</u>	<u>457</u>		
<u>2</u>	PB3	<u>-6</u>	<u>43</u>	<u>196</u>		
<u> </u>	<u>1 D5</u>	<u>-3</u>	<u>167</u>	<u>292</u>		
<u>3</u>	<u>VA30</u>	<u>-6</u>	<u>40</u>	<u>199</u>		
2	<u>v 7.30</u>	-3	170	305		

Table 9.F Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Table 9.G Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test	Propagation		Reference value	
<u>Number</u>	Conditions	ConditionsHS-PDSCHT-put R (kbps) * E_c/I_{or} (dB) $\hat{I}_{or}/I_{oc} = 0$ dB		$\frac{\text{T-put } R \text{ (kbps)}^*}{\hat{I}_{or}/I_{oc} = 10 \text{ dB}}$
		-6	177	599
<u>1</u>	<u>PA3</u>	-3	338	687
2	PB3	<u>-6</u>	<u>75</u>	<u>299</u>
2	<u>1 D5</u>	<u>-3</u>	<u>260</u>	<u>452</u>
2	VA30	<u>-6</u>	<u>71</u>	<u>306</u>
<u>3</u>	<u>v A30</u>	<u>-3</u>	<u>258</u>	458
* Notes:	1) The reference	value R is for the Fixed Ref	erence Channel (FRC) H-Set	5

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 9.2.1. 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.8: Downlink physical channels for HSDPA receiver testing for Single Link performance.

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-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/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/lor	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/lor	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/lor	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

Physical Channel	Parameter	<u>Value</u>	Note
P-CPICH (antenna 1)	P-CPICH Ec1/lor	<u>-13dB</u>	
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	<u>-13dB</u>	<u>1. Total P-CPICH_Ec/lor = -10dB</u>
P-CCPCH (antenna 1)	P- CCPCH_Ec1/lor	<u>-15dB</u>	1. STTD applied.
P-CCPCH (antenna 2)	<u>P-</u> <u>CCPCH_Ec2/lor</u>	<u>-15dB</u>	2. Total P-CCPCH Ec/lor is –12dB.
SCH (antenna 1/2)	SCH_Ec/lor	<u>-12dB</u>	 <u>1. TSTD applied.</u> <u>2. Power divided equally between primary</u> and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	<u>-18dB</u>	1. STTD applied.
PICH (antenna 2)	PICH_Ec2/lor	<u>-18dB</u>	2. Total PICH Ec/lor is –15dB.
DPCH	DPCH_Ec/lor	Test-specific	<u>1. STTD applied.</u>
HS-SCCH_1	HS-SCCH_Ec/lor	<u>Test-specific</u>	 <u>1. STTD applied.</u> <u>2. Specifies fraction of Node-B radiated</u> power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/lor	<u>DTX'd</u>	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/lor	DTX'd	1. As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH_2.
HS-PDSCH	<u>HS-</u> PDSCH_Ec/lor	Test-specific	1. STTD applied.
<u>OCNS</u>		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	1. STTD applied. 2. Balance of power I of the Node-B is assigned to OCNS. 3. Power divided equally between antennas.

Table C.10: Downlink physical channels for HSDPA receiver testing for Closed Loop

Physical Channel	Parameter	Value Value	<u>Note</u>
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	<u>-13dB</u>	
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	<u>-13dB</u>	<u>1. Total P-CPICH_Ec/lor = -10dB</u>
P-CCPCH (antenna 1)	<u>P-</u> <u>CCPCH_Ec1/lor</u>	<u>-15dB</u>	1. STTD applied.
P-CCPCH (antenna 2)	<u>P-</u> <u>CCPCH_Ec2/lor</u>	<u>-15dB</u>	2. Total P-CCPCH Ec/lor is –12dB.
SCH (antenna 1/2)	SCH_Ec/lor	<u>-12dB</u>	 <u>1. TSTD applied.</u> <u>2. Power divided equally between primary</u> and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	<u>-18dB</u>	1. STTD applied.
PICH (antenna 2)	PICH Ec2/lor	<u>-18dB</u>	2. Total PICH Ec/lor is -15dB.
DPCH	DPCH Ec/lor	Test-specific	1. CL1 applied.
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	1. [TBD] 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/lor	<u>DTX'd</u>	1. UE assumes [TBD] 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/lor	<u>DTX'd</u>	<u>1. As HS-SCCH_2.</u>

Transmit Diversity (Mode-1) performance.

HS-SCCH 4	HS-SCCH Ec/lor	<u>DTX'd</u>	2. As HS-SCCH_2.
HS-PDSCH	<u>HS-</u> PDSCH_Ec/lor	Test-specific	1. CL1 applied.
<u>OCNS</u>		Necessary power so that total transmit power spectral density of Node B (lor) 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.

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

3GPP TSG RAN WG4 (Radio) Meeting #27

R4-030609

Paris, France 19 - 23 May, 2003

		CHANG	BE REQU	JEST			CR-Form-v7
æ	25.101	CR <mark>257</mark>	жrev	ж	Current versio	^{n:} 5.6.0	ж
For <u>HELP</u> on u Proposed change a	-	n, see bottom of			e pop-up text of		
Title: ೫	Specification	on of HS-SCCH	Performance				
Source: ೫	RAN WG4						
Work item code: 光	HSDPA-RE	-			Date: %	27/05/2003	
Category: ₩	F (corre A (corre B (addit C (funct D (edito Detailed expl	te following catego ection) esponds to a corre tion of feature), tional modification rial modification) anations of the ab GPP <u>TR 21.900</u> .	ction in an earli of feature)		Use <u>one</u> of the 2 (C R96 (F R97 (F R98 (F R99 (F R99 (F Rel-4 (F Rel-5 (F	Rel-5 e following rele GSM Phase 2) Release 1996) Release 1997) Release 1998) Release 1999) Release 4) Release 5) Release 6)	ases:
Reason for change Summary of chang Consequences if	ye: % Test c Also, t added	equired HS-SCC ases and require the downlink phy in Annex C. CH detection pe	ements for HS rsical channel	-SCCH c connecti	detection perfor on set-up for H	rmance are ad IS-SCCH test	
not approved:		nance specificati					
Clauses affected: Other specs Affected:	X	Other core speci Test specificatio O&M Specificati	ns	ж			
Other comments:	ж Equiva	alent CRs in othe	er Releases: C	CR258 ca	at. A to 25.101	v6.0.0	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.X 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.X.1 Minimum Requirements

For the test parameters specified in Table 9.a, for each value of HS-SCCH-1 E_c/I_{or} specified in Table 9.b the measured $P(E_m)$ shall be less than or equal to the corresponding specified value of $P(E_m)$.

Table 9.a: Test parameters for HS-SCCH detection

Parameter Parameter	<u>Unit</u>	Test 1	Test 2	Test 3			
I _{oc}	<u>dBm/3.84</u> <u>MHz</u>	<u>-60</u>					
Phase reference	=		P-CPICH				
$\underline{P-CPICH} E_c / I_{or} (\overset{(*)}{}$	<u>dB</u>	<u>-10</u>					
$\frac{\text{HS-SCCH UE Identity}}{(x_{ue,1}, x_{ue,2}, \dots, x_{ue,16})}$		HS-SCCH-1: 10101010101010 (UE under test addressed solely via HS-SCCH-1) HS-SCCH-2: 0001001010101010 HS-SCCH-3: 00011010101010 HS-SCCH-4: 0001111110101010					
HS-DSCH TF of UE1		TF corresponding to CQI1					
HS-SCCH-1 TTI Transmission Pattern	=	<u>"XOOXOOX", w</u> <u>SCCH-1 signals the</u>					

Table 9.b: Minimum requirement for HS-SCCH detection

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

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 9.2.1. Table C.9 is applicable for the measurements for tests in subclause 9.2.2. Table C.a is applicable for the measurements for tests in subclause 9.X.

Parameter	Units	Value	Comment
$\frac{\text{CPICH}}{\text{CPICH}}E_c/I_{or}$	dB	<u>-10</u>	<u>comment</u>
$\underline{CCPCH} E_c / I_{or}$	<u>dB</u>	<u>-12</u>	Mean power level is shared with SCH.
SCH E _c / I _{or}	<u>dB</u>	<u>-12</u>	Mean power level is shared with P- <u>CCPCH – SCH includes P- and S-SCH,</u> with power split between both. <u>P-SCH code is S dl,0 as per TS25.213</u> <u>S-SCH pattern is scrambling code group</u> <u>0</u>
$\underline{PICH} E_c / I_{or}$	<u>dB</u>	<u>-15</u>	
$\frac{\text{HS-DSCH-1}}{E_c} I_{or}$	<u>dB</u>	<u>-10</u>	HS-DSCH associated with HS-SCCH-1
$\frac{\text{HS-DSCH-2}}{E_c} I_{or}$	<u>dB</u>	DTX	HS-DSCH associated with HS-SCCH-2
$\underline{HS}\underline{DSCH}\underline{S}_{c}/I_{or}$	<u>dB</u>	DTX	HS-DSCH associated with HS-SCCH-3
<u>HS-DSCH-4</u> E_c / I_{or}	<u>dB</u>	DTX	HS-DSCH associated with HS-SCCH-4
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-8</u>	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
$\underline{HS}\underline{SCCH}\underline{H}_{c}/I_{or}$	<u>dB</u>		
$\underline{HS-SCCH-2} E_c / I_{or}$	<u>dB</u>	Test Specific	<u>All HS-SCCH's allocated equal</u> E_c / I_{or}
$\frac{\text{HS-SCCH-3}}{E_c} I_{or}$	<u>dB</u>	Test Specific	Specifies E_c / I_{or} when TTI is active.
$\underline{HS-SCCH-4} E_c / I_{or}$	<u>dB</u>		
$\underline{OCNS} E_c / I_{or}$	<u>dB</u>	Remaining power at Node-B (including HS- SCCH power allocation when HS-SCCH's inactive).	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

Table C.10: OCNS definition for HSDPA receiver testing.

3GPP TSG RAN WG4 (Radio) Meeting #27

R4-030610

Paris, France 19 - 23 May, 2003

	CHANGE	CHANGE REQUEST								
æ	25.101 CR 258	# rev # Current version: 6.0.0 #								
For <u>HELP</u> on u	_	his page or look at the pop-up text over the % symbols. ME X Radio Access Network Core Network								
Title: ೫	Specification of HS-SCCH Pe	Performance								
Source: ೫	RAN WG4									
Work item code: ೫	HSDPA-RF	Date: # 27/05/2003								
Category: ೫	 A Use <u>one</u> of the following categories. F (correction) A (corresponds to a correction B (addition of feature), C (functional modification of feature), C (ditorial modification) Detailed explanations of the above be found in 3GPP <u>TR 21.900</u>. 	2 (GSM Phase 2) tion in an earlier release) R96 (Release 1996) R97 (Release 1997) of feature) R98 (Release 1998) R99 (Release 1999)								
Reason for change Summary of chang	e: # Test cases and requirem	detection performance is not specified. ments for HS-SCCH detection performance are added. sical channel connection set-up for HS-SCCH testing is								
Consequences if not approved:	# HS_SCCH detection performance specification	formance is not defined and the HSPDA receiver n is incomplete.								
Clauses affected: Other specs Affected:	% C.5 % X % X X Other core specifications X O&M Specifications	s								
Other comments:	# Equivalent CRs in other F	r Releases: CR257 cat. F to 25.101 v5.6.0								

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.X 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.X.1 Minimum Requirements

For the test parameters specified in Table 9.a, for each value of HS-SCCH-1 E_c/I_{or} specified in Table 9.b the measured $P(E_m)$ shall be less than or equal to the corresponding specified value of $P(E_m)$.

Table 9.a: Test parameters for HS-SCCH detection

Parameter Parameter	<u>Unit</u>	Test 1	Test 2	Test 3			
I _{oc}	<u>dBm/3.84</u> <u>MHz</u>	<u>-60</u>					
Phase reference	=		P-CPICH				
$\underline{P-CPICH} E_c / I_{or} (\overset{(*)}{}$	<u>dB</u>	<u>-10</u>					
$\frac{\text{HS-SCCH UE Identity}}{(x_{ue,1}, x_{ue,2}, \dots, x_{ue,16})}$		HS-SCCH-1: 10101010101010 (UE under test addressed solely via HS-SCCH-1) HS-SCCH-2: 0001001010101010 HS-SCCH-3: 00011010101010 HS-SCCH-4: 0001111110101010					
HS-DSCH TF of UE1		TF corresponding to CQI1					
HS-SCCH-1 TTI Transmission Pattern	=	<u>"XOOXOOX", w</u> <u>SCCH-1 signals the</u>					

Table 9.b: Minimum requirement for HS-SCCH detection

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

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 9.2.1. Table C.9 is applicable for the measurements for tests in subclause 9.2.2. Table C.a is applicable for the measurements for tests in subclause 9.X.

Parameter	Units	Value	Comment
$\underline{CPICH} E_c / I_{or}$	dB	<u>-10</u>	
$\underline{\text{CCPCH}} E_c / I_{or}$	<u>dB</u>	<u>-12</u>	Mean power level is shared with SCH.
<u>SCH</u> E _c / I _{or}	<u>dB</u>	<u>-12</u>	Mean power level is shared with P- <u>CCPCH – SCH includes P- and S-SCH,</u> with power split between both. <u>P-SCH code is S dl,0 as per TS25.213</u> <u>S-SCH pattern is scrambling code group</u> <u>0</u>
$\underline{PICH} E_c / I_{or}$	<u>dB</u>	<u>-15</u>	
<u>HS-DSCH-1</u> E_c / I_{or}	<u>dB</u>	<u>-10</u>	HS-DSCH associated with HS-SCCH-1
$\frac{\text{HS-DSCH-2}}{E_c} I_{or}$	<u>dB</u>	DTX	HS-DSCH associated with HS-SCCH-2
<u>HS-DSCH-3</u> E_c / I_{or}	<u>dB</u>	DTX	HS-DSCH associated with HS-SCCH-3
<u>HS-DSCH-4</u> E_c / I_{or}	<u>dB</u>	DTX	HS-DSCH associated with HS-SCCH-4
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-8</u>	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
$\underline{HS}\underline{SCCH}\underline{H}_{c}/I_{or}$	<u>dB</u>		
$\underline{HS-SCCH-2} E_c / I_{or}$	<u>dB</u>	Test Specific	<u>All HS-SCCH's allocated equal</u> E_c / I_{or}
$\frac{\text{HS-SCCH-3}}{E_c} I_{or}$	<u>dB</u>	Test Specific	<u>Specifies</u> E_c / I_{or} when TTI is active.
$\frac{\text{HS-SCCH-4}}{E_c} I_{or}$	<u>dB</u>		
$\underline{OCNS} E_c / I_{or}$	<u>dB</u>	Remaining power at Node-B (including HS- SCCH power allocation when HS-SCCH's inactive).	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

Table C.10: OCNS definition for HSDPA receiver testing.

3GPP TSG RAN WG4 (Radio) Meeting #27

Paris, France 19 - 23 May, 2003

		CHANC	SE REQU	JEST			CR-Form-v7
ж	25.101	CR 259	жrev	ж	Current version:	5.6.0	ж
For <u>HELP</u> on us	sing this fo	rm, see bottom of	this page or lo	ok at the	e pop-up text ove	er the ೫ syn	nbols.
Proposed change a	iffects:	UICC apps #	ME 🗙	Radio A	ccess Network	Core Ne	twork
Title: ೫	Specifica	tion of HSDPA CO	QI test in fading	J			
Source: ೫	RAN WO	64					
Work item code: %	HSDPA-	RF			Date: ೫ 2	7/05/2003	
	F (con A (co B (ao C (fui D (co Detailed ex	the following catego rection) rresponds to a corre dition of feature), nctional modification itorial modification) planations of the ab 3GPP <u>TR 21.900</u> .	ction in an earlie of feature)		e) R96 (Re R97 (Re R98 (Re R99 (Re Rel-4 (Re Rel-5 (Re		ases:
Reason for change Summary of chang	essei e: # Test adde	ntial to ensure con	sistent operation ments for CQI ion channel m	on of CC accurac odel – C	QI reporting acros y test in fading c ase 8 – is define	ss all UEs. conditions ar ed with the s	e
Consequences if not approved:		PA CQI performan DA performance s				ified, and re	sulting
Clauses affected: Other specs affected:	# B.2. # X X X	Other core spec Test specificatio	ns	¥			
Other comments:	ж Еqu	ivalent CRs in oth	er Releases: C	R260 ca	at. A to 25.101 ve	6.0.0	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

CR page 3

9.X Reporting of Channel Quality Indicator in Fading Channel 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.

<u>9.X.1 Minimum Requirement – UE capability categories 1-6</u>

For the parameters specified in Table 9.x, 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.y. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Parameter	Unit	Test 1	Test 2		
$\underline{\text{HS-PDSCH}} E_c / I_{or} (*)$	<u>dB</u>	<u>-8</u>	<u>-4</u>		
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u>	<u>5</u>		
I _{oc}	<u>DBm/3.84 MHz</u>	<u>-6</u>	<u>0</u>		
Phase reference		<u>P-C</u> P	<u>PICH</u>		
<u>HS-SCCH 1</u> E_c / I_{or}	<u>dB</u>	<u>-8</u>	<u>.5</u>		
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-e</u>	<u>5</u>		
Maximum number of H-ARQ transmission	Ξ	<u>1</u>			
Number of HS-SCCH set to be monitored	±	1			
CQI feedback cycle	<u>ms</u>	2	2		
CQI repetition factor	Ξ.	<u>1</u>	-		
HS-DSCH transmission pattern					
Propagation Channel					
Note1: Measurement power offset "T" is configured by RRC accordingly 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 maping table described in TS25.214					

Table 9.x: Test Parameters for CQI test in fading: categories 1-6

Table 9.y: Minimum requirement for CQI test in fading for categories 1-6

Reported CQI	Maximum BLER			
<u>Reported Cur</u>	<u>Test 1</u>	Test2		
CQI median	<u>60%</u>	<u>60%</u>		
CQI median + 3	<u>15%</u>	<u>15%</u>		

9.X.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.a, , the requirements are specified in terms of BLERs at particular reported CQIs when a fixed transport format given by CQI median as shown in Table 9.b. The BLER at a particular reported CQI is

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

Parameter	Unit	Test 1				
$\frac{\text{HS-PDSCH}}{\text{HS-PDSCH}} E_c / I_{or} (\overset{*}{})$	dB	<u>-8</u>				
$\hat{I}_{or} / \overline{I_{oc}}$	<u>dB</u>	<u>0</u>				
I _{oc}	dBm/3.84 MHz	<u>-60</u>				
Phase reference		P-CPICH				
<u>HS-SCCH 1</u> E_c/I_{or}	<u>dB</u>	<u>-8.5</u>				
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-6</u>				
Maximum number of H-ARQ transmission	Ξ	<u>1</u>				
Number of HS-SCCH set to be monitored	=	1				
CQI feedback cycle	<u>ms</u>	<u>2</u>				
CQI repetition factor	=	<u>1</u>				
HS-DSCH transmission pattern	HS-DSCH transmission					
Propagation Channel		<u>Case 8</u>				
Note1: Measurement power offset "T" is configured by RRC accordingly 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 maping table described in TS25.214						

Table 9.a: Test Parameters for CQI test in fading: categories 11-12

Table 9.y: Minimum requirement for CQI test in fading for categories 11-12

Reported CQI	Maximum BLER
<u>Reported Cur</u>	Test 1
CQI median	<u>60%</u>
CQI median + 3	<u>15%</u>

B.2 Propagation Conditions

B.2.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading and multi-paths exist for this propagation model.

B.2.2 Multi-path fading propagation conditions

Table B1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

Cas speed	,		se 2, 3 km/h		se 3, 20 km/h		se 4, 3 km/h		se 5, 50 km/h	Cas Speed 2	e 6, 250 km/h
Relative Delay [ns]	Relative mean Power										
[]	[dB]	[]	[dB]	[0]	[dB]	[]	[dB]	[]	[dB]	[]	[dB]
976	-10	976	0	260	0 -3	976	0	976	0 -10	260	-3
		20000	0	521	-6					521	-6
				781	-9					781	-9

Table B.1: Propagation Conditions for Multi path Fading Environments (Cases 1 to 6)

NOTE: Case 5 is only used in TS25.133.

Table B.1A shows propagation conditions that are used for the performance measurements in multi-path environment when UE is informed by higher layer signalling that only DPCCH exists for channel estimation. All taps have classical Doppler spectrum. Taps are normalized to the strongest tap in the beam/sector. The actual power relation between the sector and the beam is determined by the test case.

Table B.1A: Propagation Conditions for Multi path Fading Environments (Case 7)

Case 7, speed 50 km/h						
Relative Delay [ns]	Average Power [dB]					
	Sector	Beam				
0	0.0	-				
260	-4.3	-				
1040	-6.6	-				
4690	-2.0	0.0				
7290	-7.0	-0.3				
14580	-7.5	-0.9				

Table B.1B shows propagation conditions that are used for HSDPA performance measurements in multi-path fading environment.

Table B.1B: Propagation Conditions for Multi-Path Fading Environments for HSDPA Performance Requirements

Spee	destrian A ed 3km/h PA3)	ITU Pedestrian B Speed 3km/h (PB3)		ITU vehicular A Speed 30km/h (VA30)		Speed	ehicular A d 120km/h /A120)
Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	RelativeRelativeDelayMean Power[ns][dB]		Relative Delay [ns]	Relative Mean Power [dB]
0	0	0	0	0	0	0	0
110	-9.7	200	-0.9	310	-1.0	310	-1.0
190	-19.2	800	-4.9	710	-9.0	710	-9.0
410	-22.8	1200	-8.0	1090	-10.0	1090	-10.0
	•	2300	-7.8	1730	-15.0	1730	-15.0
		3700	-23.9	2510	-20.0	2510	-20.0

Note: The propagation conditions used in simulations were based on the TR 25.890. The effect of re-mapping of channel rays to integer sample locations is FFS.

Table B.1C shows propagation conditions that are used for CQI test in multi-path fading

Table B.1C: Propagation Conditions for CQI test in multi-path fading

<u>Case 8,</u> speed 30km/h				
Relative Delay	Relative mean			
[<u>ns]</u>	Power [dB]			
<u>0</u>	<u>0</u>			
<u>976</u>	<u>-10</u>			

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 9.2.1- and 9.X. Table C.9 is applicable for the measurements for tests in subclause 9.2.2.

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

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-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/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/lor	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/lor	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/lor	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

Void

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Table C.10: OCNS definition for HSDPA receiver testing.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	

3GPP TSG RAN WG4 (Radio) Meeting #27

R4-030612

Paris, France 19 - 23 May, 2003

		CHANG	SE REQI	JEST			CR-Form-v7
ж	25.101	CR 260	жrev	ж	Current version	on: 6.0.0	ж
For <mark>HELP</mark> on u	sing this fo	rm, see bottom of	this page or lo	ook at the	e pop-up text c	over the % syn	nbols.
Proposed change a	affects:	UICC apps #	ME X	Radio A	ccess Network	Core Ne	etwork
Title: ೫	Specifica	tion of HSDPA CO	QI test in fadin	g			
Source: #	RAN WG	64					
Work item code: %	HSDPA-	RF			Date: ೫	27/05/2003	
Category: ೫	F (con A (co B (ad C (fur D (ed Detailed ex	the following catego rection) rresponds to a corred dition of feature), notional modification itorial modification) planations of the ab 3GPP <u>TR 21.900</u> .	ction in an earli of feature)		2 ((e) R96 (/ R97 (/ R98 (/ R99 (/ Rel-4 (/ Rel-5 (/	Rel-6 he following rele GSM Phase 2) Release 1996) Release 1997) Release 1999) Release 4) Release 5) Release 6)	ases:
Reason for change Summary of chang	esser e: # Test adde	ntial to ensure con	sistent operation ments for CQI ion channel m	ion of CC accurac iodel – C	QI reporting ac ty test in fading case 8 – is defi	ross all UEs. conditions ar ined with the s	e
Consequences if not approved:	₩ <mark>HSD</mark> I	PA CQI performan	ce requiremen	nts in fac	ding are not spe		sulting
Clauses affected: Other specs affected:	# B.2. # Y N # X X X	Other core spec Test specificatio	ns	ж			
Other comments:	ж Equ	ivalent CRs in othe	er Releases: (CR259 ca	at. F to 25.101	l v5.6.0	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

CR page 3

9.X Reporting of Channel Quality Indicator in Fading Channel 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.

<u>9.X.1 Minimum Requirement – UE capability categories 1-6</u>

For the parameters specified in Table 9.x, 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.y. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.

Parameter	Unit	Test 1	Test 2		
$\underline{\text{HS-PDSCH}} E_c / I_{or} (^*)$	<u>dB</u>	<u>-8</u>	-4		
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u>	<u>5</u>		
I _{oc}	<u>DBm/3.84 MHz</u>	<u>-60</u>			
Phase reference	-	P-CF	<u>PICH</u>		
$\underline{\text{HS-SCCH 1}} E_c / I_{or}$	<u>dB</u>	<u>-8</u>	. <u>5</u>		
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-(</u>	<u>6</u>		
Maximum number of H-ARQ transmission	Ξ	1			
Number of HS-SCCH set to be monitored	Ξ	1			
CQI feedback cycle	<u>ms</u>	2	2		
CQI repetition factor	-	<u>1</u>	-		
HS-DSCH transmission pattern					
Propagation Channel	Propagation Channel Case 8				
Note1: Measurement power offset "\" is configured by RRC accordingly 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 maping table described in TS25.214					

Table 9.x: Test Parameters for CQI test in fading: categories 1-6

Table 9.y: Minimum requirement for CQI test in fading for categories 1-6

Reported CQI	Maximum BLER		
<u>Reported Cur</u>	<u>Test 1</u>	Test2	
CQI median	<u>60%</u>	<u>60%</u>	
CQI median + 3	<u>15%</u>	<u>15%</u>	

9.X.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.a, , the requirements are specified in terms of BLERs at particular reported CQIs when a fixed transport format given by CQI median as shown in Table 9.b. The BLER at a particular reported CQI is

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

Parameter	Unit	Test 1				
$\underline{HS-PDSCH} E_c / I_{or} (\overset{*}{})$	<u>dB</u>	<u>-8</u>				
\hat{I}_{or} / I_{oc}	<u>dB</u>	<u>0</u>				
I _{oc}	<u>dBm/3.84 MHz</u>	<u>-60</u>				
Phase reference	Ξ.	P-CPICH				
<u>HS-SCCH 1</u> E_c/I_{or}	<u>dB</u>	<u>-8.5</u>				
$\underline{DPCH} E_c / I_{or}$	<u>dB</u>	<u>-6</u>				
Maximum number of H-ARQ transmission	Ξ	<u>1</u>				
Number of HS-SCCH set to be monitored	1	1				
CQI feedback cycle	<u>ms</u>	2				
CQI repetition factor	<u>_</u>	1				
HS-DSCH transmission pattern	-	<u>"XOOXOOX" to</u> incorporate inter-TTI=3 <u>UEs, where "X"</u> indicates TTI in which <u>HS-PDSCH is allocated</u> to the UE, and "O" indicates DTX				
Propagation Channel Case 8						
Note1: Measurement power offset "Γ" is configured by RRC accordingly 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 maping table described in TS25.214						

Table 9.a: Test Parameters for CQI test in fading: categories 11-12

Table 9.y: Minimum requirement for CQI test in fading for categories 11-12

Reported CQI	Maximum BLER
<u>Reported Cur</u>	Test 1
CQI median	<u>60%</u>
CQI median + 3	<u>15%</u>

B.2 Propagation Conditions

B.2.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading and multi-paths exist for this propagation model.

B.2.2 Multi-path fading propagation conditions

Table B1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

Cas speed	,		se 2, 3 km/h	Cas Speed 1	e 3, 20 km/h	Cas speed	se 4, 3 km/h		se 5, 50 km/h	Cas Speed 2	,
Relative Delay [ns]	Relative mean Power										
	[dB]										
0	0	0	0	0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	976	0	976	-10	260	-3
		20000	0	521	-6					521	-6
				781	-9					781	-9

Table B.1: Propagation Conditions for Multi path Fading Environments (Cases 1 to 6)

NOTE: Case 5 is only used in TS25.133.

Table B.1A shows propagation conditions that are used for the performance measurements in multi-path environment when UE is informed by higher layer signalling that only DPCCH exists for channel estimation. All taps have classical Doppler spectrum. Taps are normalized to the strongest tap in the beam/sector. The actual power relation between the sector and the beam is determined by the test case.

Table B.1A: Propagation Conditions for Multi path Fading Environments (Case 7)

Case 7, speed 50 km/h				
Relative Delay [ns]	Average Power [dB]			
	Sector	Beam		
0	0.0	-		
260	-4.3	-		
1040	-6.6	-		
4690	-2.0	0.0		
7290	-7.0	-0.3		
14580	-7.5	-0.9		

Table B.1B shows propagation conditions that are used for HSDPA performance measurements in multi-path fading environment.

Table B.1B: Propagation Conditions for Multi-Path Fading Environments for HSDPA Performance Requirements

Spee	destrian A ed 3km/h PA3)	ITU Pedestrian B Speed 3km/h (PB3)		ITU vehicular A Speed 30km/h (VA30)		ITU vehicular A Speed 120km/h (VA120)	
Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]	Relative Delay [ns]	Relative Mean Power [dB]
0	0	0	0	0	0	0	0
110	-9.7	200	-0.9	310	-1.0	310	-1.0
190	-19.2	800	-4.9	710	-9.0	710	-9.0
410	-22.8	1200	-8.0	1090	-10.0	1090	-10.0
		2300	-7.8	1730	-15.0	1730	-15.0
		3700	-23.9	2510	-20.0	2510	-20.0

Note: The propagation conditions used in simulations were based on the TR 25.890. The effect of re-mapping of channel rays to integer sample locations is FFS.

Table B.1C shows propagation conditions that are used for CQI test in multi-path fading

Table B.1C: Propagation Conditions for CQI test in multi-path fading

<u>Case 8.</u> speed 30km/h				
Relative Delay	Relative mean			
[<u>ns]</u>	Power [dB]			
<u>0</u>	<u>0</u>			
<u>976</u>	<u>-10</u>			

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 9.2.1- and 9.X. Table C.9 is applicable for the measurements for tests in subclause 9.2.2.

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

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-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/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/lor	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/lor	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/lor	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.10.

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

Void

C.5.2 OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission during for HSDPA performance assessment are defined in Table C.10. The selected codes are designed to have a single length-16 parent code.

Table C.10: OCNS definition for HSDPA receiver testing.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-6	The DPCH data for each
3	-8	channelization code shall be
4	-8	uncorrelated with each other and
5	-10	with any wanted signal over the
6	-7	period of any measurement.
7	-9	
