RP-050040

Title CRs (Rel-6) to 25.101 for the WI improved performance requirements for

HSDPA UE with RX diversity

Source 3GPP TSG RAN WG4 (Radio)

Agenda Item 9.1.1.1

WG Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-050015	25.101	392		С	Rel-6	6.6.0	Modification of enhanced performance requirements for HS-SCCH based on receiver diversity	RInImp- HSPerf- RxDiv
R4-050014	25.101	391		В	Rel-6	6.6.0	Specification of enhanced performance requirements for HS-SCCH with open loop diversity based on receiver diversity	RInImp- HSPerf- RxDiv
R4-050229	25.101	400	1	F	Rel-6	6.6.0	Clarification of mapping of HS-DSCH requirements	RInImp- HSPerf- RxDiv
R4-050268	25.101	407	1	В	Rel-6	6.6.0	Enhanced performance requirements for HSDPA cat 7 & 8 capable receivers	RInImp- HSPerf- RxDiv

R4-050014

3GPP TSG RAN WG4 (Radio) Meeting #34 Scottsdale, US 14 - 18 February 2005

			Cł	HANGE	REQ	UE	ST				CR-Form-v7
*	25	.101	CR 3	91	жrev		Ħ	Current vers	ion:	6.6.0	ж
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the \mathbb{K} symbols.											
Proposed change affects: UICC apps# ME X Radio Access Network Core Network											
Title:				hanced per receiver div		requ	ireme	ents for HS-S	CCH	with open	loop
Source:	₩ 30	SPP TS	G RAN V	VG4 (Radio))						
Work item cod	de:郑 <mark>RI</mark>	nlmp-H	SPerf-Rx	Div				<i>Date:</i> ₩	28/0	2/2005	
Category:	Deta	F (corr A (corr B (add C (fundation D (editation	rection) responds a dition of fea ctional mo torial modi	dification of tification) of the above	n in an ear eature)		elease	Use <u>one</u> of 2	the foli (GSM (Relea (Relea (Relea	lowing rele Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4)	eases:
Reason for ch	nange: #	Spec	cify enhar	nced perforr	nance red	quirer	ments	for HS-SCC	H with	n open lo	ор
		diver	sity base	d on receive	er diversit	y					
Summary of c	change: #	loop In se	diversity ection 9.4	based on re	eceiver div	versit o inclu	y.	quirements fo			
Consequence not approved.				performano eiver diversi		ment	for H	IS-SCCH witl	h oper	n loop div	ersity
Clauses affec		9	0111000	21101 GIVOIOI	cy oxioto.						
Other specs	######################################	Y N		ore specifica	ations	¥	TO 0	4.404			
affected:		X X		ecifications pecifications	3		183	4.121			

How to create CRs using this form:

Other comments:

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

- 1) Fill out the above form. The symbols above marked \(\mathcal{H} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.4 HS-SCCH Detection Performance

The detection performance of the HS-SCCH is determined by the probability of event $E_{\rm m}$, 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 $E_{\rm m}$ is denoted $P(E_{\rm m})$.

9.4.1 Single Link Performance

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

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

Parameter	Unit	Test 1	Test 2	Test 3	
I_{oc}	dBm/3.84 MHz		-60		
Phase reference	-		P-CPICH		
P-CPICH E_c/I_{or} (*)	dB		-10		
HS-SCCH UE Identity		HS-SCCH	l-1: 1010101010101	01010	
$(x_{ue,1}, x_{ue,2},, x_{ue,16})$		(every third TTI only	, UE under test a	ddressed solely	
. ue,1 ue,2 ue,10 ·			a HS-SCCH-1)		
		HS-SCCH	l-2: 000100101010	01010	
		HS-SCCH	l-3: 000110101010	01010	
		HS-SCCH	l-4: 000111111010	01010	
HS-DSCH TF of UE1		TF cor	responding to CQ	l1	
HS-SCCH-1 transmission		The HS-SCCH-1 sha	Il be transmitted co	ontinuously with	
pattern		constant power.		·	
HS-PDSCH transmission		The HS-PDSCH shal	l be transmitted co	ontinuously with	
pattern		constant power.			
HS-SCCH-1 TTI Signalling	-	The six sub-frame HS	S-SCCH-1 signallir	ng pattern shall	
Pattern		be "XOOXOO", where "X" indicates TTI in which			
		the HS-SCCH-1 uses the identity of the UE under test,			
		and "O" indicates TTI in which the HS-SCCH-1 uses a			
		different UE identity.			

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

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

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

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

9.4.2 Open Loop Diversity Performance

For the test parameters specified in Table 9.52, for each value of HS-SCCH-1 E_c/I_{or} specified in Table 9.53 and Table 9.53x the measured $P(E_m)$ shall be less than or equal to the corresponding specified value of $P(E_m)$. Enhanced performance requirements type 1 specified in Table 9.53x are based on receiver diversity.

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

Parameter	Unit	Test 1 Test 2 Test 3				
I_{oc}	dBm/3.84 MHz		-60			
Phase reference	-		P-CPICH			
P-CPICH E_c/I_{or} (*)	dB		-10			
HS-SCCH UE Identity		HS-SCCH	l-1: 1010101010101	01010		
$(x_{ue,1}, x_{ue,2},, x_{ue,16})$		(every third TTI only,		ressed solely via		
10,10			HS-SCCH-1)			
			l-2: 0001001010101			
			I-3: 0001101010101			
		HS-SCCH	<u> -4: 00011111101(</u>	01010		
HS-DSCH TF of UE1		TF cor	responding to CQ	l1		
HS-SCCH-1 transmission		The HS-SCCH-1 shall	II be transmitted co	ontinuously with		
pattern		constant power.				
HS-PDSCH transmission		The HS-PDSCH shall	I be transmitted co	ontinuously with		
pattern		constant power.				
HS-SCCH-1 TTI Signalling	-	The six sub-frame HS-SCCH-1 signalling pattern shall				
Pattern		be "XOOXOO", where "X" indicates TTI in which				
		the HS-SCCH-1 uses the identity of the UE under test,				
		and "O" indicates TTI in which the HS-SCCH-1 uses a				
		different UE identity.				

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

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

Table 9.53x: Enhanced requirement type 1 for HS-SCCH detection – open loop diversity

Test	Propagation	Reference value						
Number			\hat{I}_{or}/I_{oc} (dB)	$P(E_m)$				
1	PA3	<u>-15.2</u>	<u>0</u>	<u>0.01</u>				
2	VA30	-16.4	0	0.01				

3GPP TSG RAN WG4 (Radio) Meeting #34 Scottsdale, US 14 - 18 February 2005

			(CHAN	IGE	REQ	UE	ST				CR-Form-v7
	25	.101	CR	392	3	⊭rev		¥	Current ver	sion:	6.6.0	¥
For HELP on u	J			e bottom o	_		_		e pop-up tex			
Title:		dificati ersity	on of e	enhanced	l perfoi	rmance	requi	remei	nts for HS-S	ССН	based on	receiver
Source: #	3G	PP TS	G RAN	NWG4 (R	Radio)							
Work item code: ₩	Rlr	lmp-H	SPerf-	RxDiv					Date: #	28/	/02/2005	
Category:	Deta	F (cord A (cord B (add C (fund D (edi iled exp	rection) respond ition of ctional torial m blanatic	owing cate ds to a cor feature), modification odification ons of the a TR 21.900	rrection on of fe	in an ea ature)		elease	2	f the for (GSN) (Relea (Relea (Relea (Relea (Relea	I-6 bllowing rela M Phase 2) ease 1996) ease 1997) ease 1998) ease 1999) ease 4) ease 5)	eases:
Reason for change	e: X			priate tes ersity.	st cond	ltions ar	e def	ined l	pased on the	e gain	obtained	from
Summary of chang	ge: ૠ	1. ⁻ 2. F	Γest nι Ρ (Em)	ımber 2 is	s remo	ved, and	d (Em)) = 0.0	ed to Table s			IS-
Consequences if not approved:	#	Ineff	ecient	test cond	litions a	are left i	n the	speci	ification.			
Clauses affected: Other specs affected:	¥ ¥	9		r core spe specificat		ions	¥	TS 3	4.121			

How to create CRs using this form:

 \mathbb{H}

Other comments:

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

X O&M Specifications

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.4 HS-SCCH Detection Performance

The detection performance of the HS-SCCH is determined by the probability of event $E_{\rm m}$, 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 $E_{\rm m}$ is denoted $P(E_{\rm m})$.

9.4.1 Single Link Performance

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

Parameter Unit Test 3 Test 1 Test 2 -60 dBm/3.84 I_{oc} MHz Phase reference P-CPICH dB -10 P-CPICH E_c/I_{or} (*) HS-SCCH UE Identity HS-SCCH-1: 1010101010101010 (every third TTI only, UE under test addressed solely $(x_{ue,1}, x_{ue,2}, ..., x_{ue,16})$ via HS-SCCH-1) HS-SCCH-2: 0001001010101010 HS-SCCH-3: 0001101010101010 HS-SCCH-4: 0001111110101010 HS-DSCH TF of UE1 TF corresponding to CQI1 HS-SCCH-1 transmission The HS-SCCH-1 shall be transmitted continuously with pattern constant power. HS-PDSCH transmission The HS-PDSCH shall be transmitted continuously with pattern constant power. The six sub-frame HS-SCCH-1 signalling pattern shall HS-SCCH-1 TTI Signalling Pattern be "...XOOXOO...", where "X" indicates TTI in which the HS-SCCH-1 uses the identity of the UE under test, and "O" indicates TTI in which the HS-SCCH-1 uses a

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

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

different UE identity.

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

Table 9.51A: Enhanced requirement type 1 for HS-SCCH detection – single link

Test	Propagation	Reference value							
Number	Conditions	HS-SCCH-1 E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} (dB)	$P(E_m)$					
1	PA3	- 15.2 -12.0	0	0.05 0.01					
2	PA3	-16.3	5	0.01					
<u>32</u>	VA30	-15.6	0	0.01					

9.4.2 Open Loop Diversity Performance

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

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

Parameter	Unit	Test 1	Test 2	Test 3		
I_{oc}	dBm/3.84 MHz		-60			
Phase reference	-		P-CPICH			
P-CPICH E_c/I_{or} (*)	dB		-10			
HS-SCCH UE Identity		HS-SCCH	-1: 1010101010101	01010		
$(x_{ue,1}, x_{ue,2},, x_{ue,16})$		(every third TTI only,	UE under test add HS-SCCH-1)	ressed solely via		
			-2: 000100101010	01010		
		HS-SCCH	-3: 000110101010	01010		
		HS-SCCH	-4: 000111111010	01010		
HS-DSCH TF of UE1		TF cor	responding to CQ	l1		
HS-SCCH-1 transmission		The HS-SCCH-1 sha	Il be transmitted co	ontinuously with		
pattern		constant power.				
HS-PDSCH transmission		The HS-PDSCH shall	l be transmitted co	ontinuously with		
pattern		constant power.				
HS-SCCH-1 TTI Signalling Pattern	-	The six sub-frame HS-SCCH-1 signalling pattern shall be "XOOXOO", where "X" indicates TTI in which				
		the HS-SCCH-1 uses the identity of the UE under test,				
		and "O" indicates TTI in which the HS-SCCH-1 uses a				
		different UE identity.				

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

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

R4-050229

3GPP TSG RAN WG4 (Radio) Meeting #34 Scottsdale, US 14 - 18 February 2005

		CHAN	GE REQ	UE	ST	•		CR-Form-v7
ж	25.101	CR 400	жrev	1	\mathbb{H}	Current version:	6.6.0	¥

			O 117 (1)				•				
*	25	.101 C	R <mark>400</mark>	ж r	ev	1	\mathfrak{H}	Current v	ersic/	on: 6.6.	0 #
For <u>HELP</u> on t	using	this form,	see bottom	of this pag	ge or lo	ook a	t the	pop-up t	text o	over the % s	symbols.
Proposed change	affec	ts: UIC	C apps#	N	ИЕ <mark>Х</mark>	Radio	o Ac	cess Net	work	Core	Network
Title: #	Co	rrection o	f enhanced	performan	ice req	uirem	nents	s in Pede	striar	n A and cla	rification of
	ma	pping of I	HS-DSCH re	quiremen	ts						
Source:	3G	PP TSG I	RAN WG4 (I	Radio)							
Work item code: ₩	RIr	Imp-HSP	erf-RxDiv					Date	<i>:</i>	28/02/200	5
Category: #	F							Release	· ¥	Rel-6	
Category.		one of the	following cate	egories:						he following i	eleases:
		F (correct		rrootion in	on oorl	ior rok	0000	2) R96		GSM Phase Release 199	
			ponds to a co on of feature),	irrection in a	arı C arıı	er rere	ease,	R90 R97	•	Release 199 Release 199	,
			nal modificati		re)			R98		Release 199	
			al modification nations of the		anories	can		R99 Rel-4		Release 199 Release 4)	9)
			PP <u>TR 21.900</u>		gonos	can		Rel-		Release 5)	
								Rel-6	6 (I	Release 6)	
Reason for change	e: #	Correct	the enhance	ed require	ments	in Pe	edes	trian A pr	ropac	nation cond	iton to
riodoon for onding	0. 00		ond to H-Se								
		categor	ies and H-S	et's used t	to dete	rmine	e the	requiren	nents	S.	
Summary of chang	ae: Ж	Enhanc	ed performa	ance requi	remen	ts in F	Pede	estrian A	propa	agation cor	dition are
	90 , 00	correcte	ed to corresp	•						•	
		9.19A									
			on 9.2 table								
			y modes in o gories 7 and								terminea
		perform	ance requirent and added.								section 9.2
		"Type 1	" has been a	added to the	he nan	ning c	of en	hanced p	perfo	rmance req	uirements
		based o	on receiver c	diversity th	rough	out se	ectio	n 9.2 and	in se	ection 9.4.1	
Consequences if	¥	Erroneo	ous enhance	ed requirer	nents	would	d exi	st for Pec	destri	ian A and th	ne
not approved:			nation of rec								
Clauses affected:	90	0202	11 02 12	0224	1 2 2 2	0.2	2 4	0222	2 / 1		
Ciauses affected:	\mathfrak{H}	9.2, 9.2	.1.1, 9.2.1.2	, 9.2.2.1, \$	5.2.2.2	, y.Z.	J. 1,	y.Z.J.Z, S	9.4.1		
		YN	_								
Other specs	\mathfrak{H}	0	ther core sp	ecification	IS	\mathfrak{H}					

Clauses affected:	Ж	9.2	, 9.2.1.1, 9.2.1.2, 9.2.2.1, 9.2.2.2, 9	0.2.3.1, 9.2.3.2, 9.4.1
		VI	a a	
Other specs	ж	Y N	Other core specifications	
affected:	00	Х	Test specifications	34.121
			O&M Specifications	

Other comments:

How to create CRs using this form:

 \mathfrak{R}

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

- 1) Fill out the above form. The symbols above marked \(\mathcal{x} \) contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9 Performance requirement (HSDPA)

9.1 General

The performance requirements for the UE in this subclause apply for the reference measurement channels specified in Annex A.7, the propagation conditions specified in table B.1B of Annex B and the Down link Physical channels specified in Annex C.5.

9.2 Demodulation of HS-DSCH (Fixed Reference Channel)

The <u>minimum</u> performance requirement for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.1. The performance requirements for a particular UE belonging to certain HS-DSCH category and supporting the optional enhanced performance requirements type 1 are determined according to Table 9.1x.

Table 9.1: MFRC for minimum performance requirements apping between for different HS-DSCH categories y and FRC

HS-DSCH category	Corresponding requirement					
	Single Link	Open Loop Diversity	Closed Loop Diversity			
Category 1	H-Set 1	H-Set 1	H-Set 1			
Category 2	H-Set 1	H-Set 1	H-Set 1			
Category 3	H-Set 2	H-Set 2	H-Set 2			
Category 4	H-Set 2	H-Set 2	H-Set 2			
Category 5	H-Set 3	H-Set 3	H-Set 3			
Category 6	H-Set 3	H-Set 3	H-Set 3			
Category 7 ¹	H-Set 6, H-Set 3	H-Set 3	H-Set 3			
Category 8 ¹	H-Set 6, H-Set 3	H-Set 3	H-Set 3			
Category 11	H-Set 4	<u>H-Set 4</u>	H-Set 4			
Category 12	H-Set 5	<u>H-Set 5</u>	H-Set 5			

Note 1. Single link minimum performance requirements for Categories 7 and 8 in Pedestrian A with \hat{I}_{or}/I_{oc} =10dB are set according to H-Set 6. Requirements in other conditions are according to H-Set 3.

Table 9.1x: FRC for enhanced performance requirements type 1 for different HS-DSCH categories

HS-DSCH category	Corresponding requirement					
	Single Link	Open Loop Diversity	Closed Loop Diversity			
Category 1	H-Set 1	H-Set 1	H-Set 1			
Category 2	<u>H-Set 1</u>	H-Set 1	H-Set 1			
Category 3	H-Set 2	H-Set 2	H-Set 2			
Category 4	H-Set 2	H-Set 2	H-Set 2			
Category 5	H-Set 3	H-Set 3	H-Set 3			
Category 6	H-Set 3	H-Set 3	H-Set 3			
Category 7 ¹	H-Set 6, H-Set 3	H-Set 3	H-Set 3			
Category 8 ¹	H-Set 6, H-Set 3	H-Set 3	H-Set 3			

Note 1. Single link enhanced performance requirements type 1 for Categories 7 and 8 in Pedestrian A with \hat{I}_{or}/I_{oc} =10dB are set according to H-Set 6. Requirements in other conditions are according to H-Set 3.

During the Fixed Reference Channel tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-DPCCH is specified in Table 9.1A:

Table 9.1A: Node-B Emulator Behaviour in response to ACK/NACK/DTX

HS-DPCCH ACK/NACK Field State	Node-B Emulator Behaviour
ACK	ACK: new transmission using 1st
	redundancy and constellation version (RV)
NACK	NACK: retransmission using the next RV (up
	to the maximum permitted number or RV's)
DTX	DTX: retransmission using the RV
	previously transmitted to the same H-ARQ
	process

Performance requirements in this section assume a sufficient power allocation to HS-SCCH_1 so that probability of reporting DTX is very low.

9.2.1 Single Link performance

The receiver single link performance of the High Speed Physical Downlink Shared Channel (HS-DSCH) in different multi-path fading environments are determined by the information bit throughput R

9.2.1.1 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 and Table 9.3A for the DL reference channels specified in Annex A.7.1. Enhanced performance requirements type 1 specified in Table 9.3A are based on receiver diversity.

Table 9.2: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference			P-CI	PICH	
I_{oc}	dBm/3.84 MHz		-6	00	
Redundancy and constellation version coding sequence			{0,2	,5,6}	
Maximum number of HARQ transmission			4	4	

Table 9.3: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation	Reference value				
	Conditions	$\begin{array}{c} \textbf{HS-PDSCH} \\ E_c/I_{or} \ \ \textbf{(dB)} \end{array}$	T-put R (kbps) * \hat{I}_{or}/I_{oc} = 0 dB	T-put R (kbps) * \hat{I}_{or}/I_{oc} = 10 dB		
4	PA3	-6	65	309		
I	PAS	-3	N/A	423		
2	PB3	-6	23	181		
2	FD3	-3	138	287		
3	VA30	-6	22	190		
S	VA30	-3	142	295		
4	VA120	-6	13	181		
4	VAIZU	-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 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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.3A: Enhanced requirement type 1 QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value				
Number Conditions	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		
		-12	N/A	<u>247</u> 740		
1	PA3	-9	N/A	<u>379</u> 1137		
ı	PA3	-6	<u>195<mark>585</mark></u>	N/A		
		-3	<u>329<mark>986</mark></u>	N/A		
		-9	N/A	195		
2	PB3	-6	156	316		
		-3	263	N/A		
		-9	N/A	212		
3	VA30	-6	171	329		
		-3	273	N/A		
		-9	N/A	191		
4	VA120	-6	168	293		
		-3	263	N/A		

9.2.1.2 Requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.4, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.5 and Table 9.5A for the DL reference channels specified in Annex A.7.1. Enhanced performance requirements type 1 -specified in Table 9.5A are based on receiver diversity.

Table 9.4: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference			P-CI	PICH	
I_{oc}	dBm/3.84 MHz		-6	00	
Redundancy and constellation version coding sequence			{6,2	,1,5}	
Maximum number of HARQ transmission				4	

Table 9.5: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value				
Number	Conditions	$\begin{array}{c} {\sf HS\text{-}PDSCH} \\ E_c/I_{or} \ \ \text{(dB)} \end{array}$	T-put R (kbps) * \hat{I}_{or}/I_{oc} = 10 dB			
1	DAG	-6	198			
·I	PA3	-3	368			
2	PB3	-6	34			
2	PDS	-3	219			
2	VA30	-6	47			
3	VASU	-3	214			
1	VA120	-6	28			
4	VAIZU	-3	167			

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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

* 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
	kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.5A: Enhanced requirement type 1 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation		Reference value		
Number	Conditions	$\begin{array}{c} \textbf{HS-PDSCH} \\ E_c/I_{or} \ \ \textbf{(dB)} \end{array}$	T-put R (kbps) * \hat{I}_{or}/I_{oc} = 10 dB		
1	PA3	-9 -6	312 <mark>935</mark> 487 <mark>1462</mark>		
2	PB3	-6 -3	275 408		
3	VA30	-6 -3	296 430		
4	VA120	-6 -3	271 392		
* 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

kbps, where values of i+1/2 are rounded up to i+1, i integer)

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-CI	PICH	
I_{oc}	dBm/3.84 MHz	-60			
Redundancy and constellation version coding sequence		{0,2,5,6}			
Maximum number of HARQ transmission			4	4	

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

Test	Propagation	gation 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		
	DAG	<u>-6</u>	72	340		
1	PA3	-3	N/A	439		
0	DDO	-6	24	186		
2	PB3	-3	142	299		
3	VA30	-6	19	183		
3	VA30	-3	148	306		
4	VA120	-6	11	170		
4	VA120	-3	144	284		
* Note:	The reference value R is for the Fixed Reference Channel (FRC) H-Set 4					

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

Table 9.8: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

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	98	464		
!	FAS	-3	N/A	635		
2	PB3	-6	35	272		
	FB3	-3	207	431		
3	VA30	-6	33	285		
3	VASU	-3	213	443		
4	VA120	-6	20	272		
4	VA120	-3	210	413		
* Note:	* Note: The reference value R is for the Fixed Reference Channel (FRC) H-Set 5					

9.2.1.4 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 6

For the parameters specified in Table 9.8A, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.8B for the DL reference channels specified in Annex A.7.1.6.

Table 9.8A: Test Parameters for Testing QPSK FRCs H-Set 6

Parameter	Unit	Test 1
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 9.8B: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 6

Test	Propagation		Reference value	
Number	Conditions	HS-PDSCH T-put R (kbps) *		
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB	
1	PA3	-6	1407	
'	F A3	-3	2090	

9.2.1.5 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 6

For the parameters specified in Table 9.8C, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.8D for the DL reference channels specified in Annex A.7.1.6.

Table 9.8C: Test Parameters for Testing 16-QAM FRCs H-Set 6

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

Table 9.8D: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 6

Test	Propagation		Reference value	
Number	Conditions	HS-PDSCH T-put R (kbps) *		
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB	
1	PA3	-6	887	
!	PAS	-3	1664	

9.2.2 Open Loop Diversity performance

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

9.2.2.1 Requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.9, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.10 and Table 9.10A for the DL reference channels specified in Annex A.7.1. Enhanced performance requirements type 1 specified in Table 9.10A are based on receiver diversity.

Table 9.9: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3
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 9.10: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value			
Number	Conditions	HS-PDSCH	T-put R (kbps) *	T-put <i>R</i> (kbps) *	
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 0 dB	\hat{I}_{or}/I_{oc} = 10 dB	
1	PA3	-6	77	375	
· ·	FAS	-3	180	475	
2	PB3	-6	20	183	
	F D 3	-3	154	274	
3	VA30	-6	15	187	
3	V A30	-3	162	284	

^{*} 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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.10A: Enhanced requirement type 1 QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

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	
		-12	N/A	268 803	
1	PA3	-9	N/A	407 1221	
ı	PAS	-6	<u>197590</u>	N/A	
		-3	333 <mark>1000</mark>	N/A	
		-9	N/A	183	
2	PB3	-6	152	288	
		-3	251	N/A	
		-9	N/A	197	
3	VA30	-6	164	307	
		-3	261	N/A	

* Notes:

9.2.2.2 Requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

For the parameters specified in Table 9.11, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.12 and Table 9.12A for the DL reference channels specified in Annex A.7.1. Enhanced performance requirements type 1 specified in Table 9.12A are based on receiver diversity.

Table 9.11: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

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

Table 9.12: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value		
Number	Conditions	HS-PDSCH	T-put R (kbps) *	
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB	
1	PA3	-6	295	
ı	FAS	-3	463	
2	PB3	-6	24	
	FBS	-3	243	
3	VA30	-6	35	
3	VA30	-3	251	

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

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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.12A: Enhanced requirement type 1 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value			
Number	Conditions	HS-PDSCH	T-put R (kbps) *		
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB		
1	PA3	-9	<u>340</u> 1021		
Į.	FAS	-6	<u>513</u> 1540		
2	PB3	-6	251		
2	FDS	-3	374		
3	VA30	-6	280		
3	VA30	-3	398		
* 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 valu	es 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

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

kbps, where values of i+1/2 are rounded up to i+1, i integer)

For the parameters specified in Table 9.13, the requirements are specified in terms of a minimum information bit throughput R as shown in Tables 9.14 and 9.15 for the DL reference channels specified in Annex A.7.1.4 and A.7.1.5 respectively.

Table 9.13: 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			

Table 9.14: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 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	
4	PA3	-6	70	369	
ı	PAS	-3	171	471	
2	DD2	-6	14	180	
2	2 PB3	-3	150	276	
2	1/420	-6	11	184	
3	VA30	-3	156	285	
* Note:	The reference val	ue R is for the Fixed Refere	ence Channel (FRC) H-Set 4		

* Note:

426

Test **Propagation** Reference value Number Conditions T-put R (kbps) * T-put R (kbps) * **HS-PDSCH** $\hat{I}_{or}/I_{oc} = 0 \text{ dB}$ $\hat{I}_{or}/I_{oc} = 10 \text{ dB}$ E_c/I_{or} (dB) 116 563 -6 PA3 -3 270 713 -6 30 275 2 PB3 -3 231 411 281 -6 23 3 **VA30**

243

Table 9.15: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

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.

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

The reference value R is for the Fixed Reference Channel (FRC) H-Set 5

-3

For the parameters specified in Table 9.16, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.17 and Table 9.17A for the DL reference channels specified in Annex A.7.1. Enhanced performance requirements type 1 specified in Table 9.17A are based on receiver diversity.

Table 9.16: Test Parameters for Testing QPSK FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset	Ob. in		0	
$(au_{DPCH,n})$	Chip	0		
Redundancy and constellation version coding sequence		{0,2,5,6}		
Maximum number of HARQ transmission		4		
Feedback Error Rate	%	4		
Closed loop timing adjustment mode		1		

Table 9.17: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value		
Number	Conditions	HS-PDSCH	HS-PDSCH 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	118	399
ı	FAS	-3	225	458
2	PB3	-6	50	199
	1 03	-3	173	301
3	VA30	-6	47	204
3	VASU	-3	172	305

^{*} 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)s

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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.17A: Enhanced requirement type 1 QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

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	
		-12	N/A	<u>297</u> 891	
1	PA3	-9	N/A	410 <mark>1231</mark>	
'	FAS	-6	<u>242</u> 726	N/A	
		-3	<u>369</u> 1106	N/A	
		-9	N/A	194	
2	PB3	-6	170	308	
		-3	272	N/A	
		-9	N/A	204	
3	VA30	-6	172	315	
		-3	270	N/A	

* Notes:

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

For the parameters specified in Table 9.18, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.19 and Table 9.19A for the DL reference channels specified in Annex A.7.1. Enhanced performance requirements type 1 specified in Table 9.19A are based on receiver diversity.

Table 9.18: Test Parameters for Testing 16-QAM FRCs H-Set 1/H-Set 2/H-Set 3

Parameter	Unit	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset	Ob.:-		0	
$(au_{DPCH,n})$	Chip	0		
Redundancy and				
constellation version			{6,2,1,5}	
coding sequence				
Maximum number of			4	
HARQ transmission		4		
Feedback Error Rate	%	4		
Closed loop timing			1	
adjustment mode			Į.	

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 kbps, where values of i+1/2 are rounded up to I+1, i integer)

Table 9.19: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation	Reference value		
Number	Conditions	HS-PDSCH T-put R (kbps) *		
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB	
1	PA3	-6	361	
	FAS	-3	500	
2	PB3	-6	74	
	F D3	-3	255	
3	VA30	-6	84	
3	VASU	-3	254	

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)

Table 9.19A: Enhanced requirement type 1 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test	Propagation		Reference value
Number	Conditions	HS-PDSCH	T-put R (kbps) *
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB
1	PA3	-9	<u>376</u> 1129
!	FAS	-6	<u>532</u> 1595
2	PB3	-6	267
	F 153	-3	393
3	VA30	-6	279
3	VASU	-3	404

* 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 kbps, where values 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 9.20, the requirements are specified in terms of a minimum information bit throughput R as shown in Tables 9.21 and 9.22 for the DL reference channels specified in Annex A.7.1.4 and A.7.1.5 respectively.

Table 9.20: Test Parameters for Testing QPSK FRCs H-Set 4/H-Set 5

Parameter	Unit	Test 1	Test 2	Test 3
Phase reference			P-CPICH	
I_{oc}	dBm/3.84 MHz		-60	
DPCH frame offset $(\tau_{DPCH,n})$	Chip	0		
Redundancy and constellation version coding sequence		{0,2,5,6}		
Maximum number of HARQ transmission		4		
Feedback Error Rate	%	4		
Closed loop timing adjustment mode		1		

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 kbps, where values of i+1/2 are rounded up to i+1, i integer)

Table 9.21: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 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	114	398		
· ·	FAS	-3	223	457		
2	PB3	-6	43	196		
	FB3	-3	167	292		
3	VA30	-6	40	199		
3	VA30	-3	170	305		
* Notes:	* Notes: 1) The reference value R is for the Fixed Reference Channel (FRC) H-Set 4					

Table 9.22: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 5

Test	Propagation					
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	177	599		
'	FAS	-3	338	687		
2	PB3	-6	75	299		
2	FDS	-3	260	452		
3	VA30	-6	71	306		
3	VA30	-3	258	458		
* Note:	ote: The reference value R is for the Fixed Reference Channel (FRC) H-Set 5					

---Change of section----

9.4 HS-SCCH Detection Performance

The detection performance of the HS-SCCH is determined by the probability of event $E_{\rm m}$, 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 $E_{\rm m}$ is denoted $P(E_{\rm m})$.

9.4.1 Single Link Performance

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

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

Parameter	Unit	Test 1	Test 2	Test 3	
I_{oc}	dBm/3.84 MHz		-60		
Phase reference	-		P-CPICH		
P-CPICH E_c/I_{or} (*)	dB		-10		
HS-SCCH UE Identity		HS-SCCH	I-1: 101010101010	01010	
$(x_{ue,1}, x_{ue,2},, x_{ue,16})$		(every third TTI only	, UE under test a	ddressed solely	
			ia HS-SCCH-1)		
			I-2: 000100101010		
			l-3: 000110101010		
		HS-SCCH	I-4: 000111111010	01010	
HS-DSCH TF of UE1		TF cor	responding to CQ	l1	
HS-SCCH-1 transmission		The HS-SCCH-1 sha	II be transmitted co	ontinuously with	
pattern		constant power.			
HS-PDSCH transmission		The HS-PDSCH shal	l be transmitted co	ntinuously with	
pattern		constant power.			
HS-SCCH-1 TTI Signalling	-	The six sub-frame HS-SCCH-1 signalling pattern shall			
Pattern		be "XOOXOO", where "X" indicates TTI in which			
		the HS-SCCH-1 uses the identity of the UE under test,			
		and "O" indicates TTI	in which the HS-S	SCCH-1 uses a	
		different UE identity.			

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

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

Table 9.51A: Enhanced requirement type 1 for HS-SCCH detection – single link

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

9.4.2 Open Loop Diversity Performance

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

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

Parameter	Unit	Test 1	Test 2	Test 3	
I_{oc}	dBm/3.84 MHz		-60		
Phase reference	-		P-CPICH		
P-CPICH E_c/I_{or} (*)	dB		-10		
HS-SCCH UE Identity		HS-SCCH	-1: 101010101010	01010	
$(x_{ue,1}, x_{ue,2},, x_{ue,16})$		(every third TTI only,		ressed solely via	
10,10			HS-SCCH-1)		
			-2: 000100101010		
			-3: 000110101010		
		HS-SCCH	<u>-4: 000111111010</u>	01010	
HS-DSCH TF of UE1		TF cor	responding to CQ	l1	
HS-SCCH-1 transmission		The HS-SCCH-1 sha	II be transmitted co	ontinuously with	
pattern		constant power.			
HS-PDSCH transmission		The HS-PDSCH shall	be transmitted co	ntinuously with	
pattern		constant power.		·	
HS-SCCH-1 TTI Signalling	-	The six sub-frame HS-SCCH-1 signalling pattern shall			
Pattern		be "XOOXOO", where "X" indicates TTI in which			
		the HS-SCCH-1 uses the identity of the UE under test,			
		and "O" indicates TTI	in which the HS-S	SCCH-1 uses a	
		different UE identity.			

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

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

R4-050268

3GPP TSG RAN WG4 (Radio) Meeting #34 Scottsdale, US 14 - 18 February 2005

			(CHAN	IGE	REC	QUE	ST	•				CR-F	orm-v7.1
ж	25.	.101	CR	407		жrev	1	¥	Currer	nt vers	sion:	6.6.0	 #	
For <u>HELP</u> on u				pps第	of this	_			e pop-u ccess N	-				
Title: 第	Enh	nance	d perfo	rmance i	require	ements	for HS	DPA	Cat 7 8	& 8 ca	pable	receive	rs.	
Source: ೫	3GI	PP TS	G RAN	I WG4 (F	Radio)									
Work item code: ₩	RIn	ılmp-H	ISPerf-	RxDiv					Da	nte: ૠ	28/	02/2005		
Category: # B Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) P(editorial modification) D (editorial modification) R99 (Release 1999) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Rel-5 (Release 5) Rel-6 (Release 6) Rel-7 (Release 7)						₹\$:								
Reason for change	»: X			ce require						DPA d	capab	le termi	nals (using
Summary of chang	уе: Ж			performa sing rece			ents f	or ca	tegory 7	7 and	8 HSI	DPA cap	oable	<u>,</u>
Consequences if not approved:	Ж			ance rec ve divers				ory 7	and 8	HSDF	PA cap	pable te	rmina	als
Clauses affected:	¥													
Other specs affected:	¥	YN	Other Test	core specifica	tions		∺	34.1	121					

How to create CRs using this form:

 \mathfrak{H}

Other comments:

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

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under $\underline{\text{ftp://ftp.3gpp.org/specs/}}$ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.2.1.4 Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 6

For the parameters specified in Table 9.8A, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.8B for the DL reference channels specified in Annex A.7.1.6. Enhanced performance requirements type 1 as specified in Table 9.8B1 are based on receiver diversity.

Table 9.8A: Test Parameters for Testing QPSK FRCs H-Set 6

Parameter	Unit	Test 1
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 9.8B: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 6

Test	Propagation	Reference value				
Number	Conditions	HS-PDSCH	T-put R (kbps) *			
		E_c/I_{or} (dB)	\hat{I}_{or}/I_{oc} = 10 dB			
1	PA3	-6	1407			
ļ	PAS	-3	2090			

Table 9.8B1: Enhanced requirements type 1 QPSK, Fixed Reference Channel (FRC) H-Set 6

<u>Test</u>	Propagation	Reference value			
<u>Number</u>	Conditions	HS-PDSCH	<u>T-put_R_(kbps) *</u>		
		E_c/I_{or} (dB)	$\hat{I}_{or}/I_{oc} = 10 \text{ dB}$		
4	PA3	<u>-12</u>	<u>672</u>		
	<u>1 A3</u>	<u>-9</u>	<u>1305</u>		

9.2.1.5 Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 6

For the parameters specified in Table 9.8C, the requirements are specified in terms of a minimum information bit throughput R as shown in Table 9.8D for the DL reference channels specified in Annex A.7.1.6. <u>Enhanced performance requirements type 1 as specified in Table 9.8D1 are based on receiver diversity.</u>

Table 9.8C: Test Parameters for Testing 16-QAM FRCs H-Set 6

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

Table 9.8D: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 6

Test	Propagation	Reference value	
Number	Conditions	HS-PDSCH E_c/I_{or} (dB)	T-put R (kbps) * \hat{I}_{ar}/I_{ac} = 10 dB
1	PA3	-6	$I_{or}/I_{oc} = 10 \text{ GB}$ 887
		-3	1664

Table 9.8D1: Enhanced requirements type 1 16QAM, Fixed Reference Channel (FRC) H-Set 6

Test	Propagation Conditions	Reference value	
Number		$\frac{ extsf{HS-PDSCH}}{E_c/I_{or}}$	$\frac{\text{T-put } R}{\hat{I}_{or}/I_{oc}} = \frac{\text{10 dB}}{\text{10 dB}}$
1	PA3	<u>-9</u>	<u>912</u>
	<u>1 A0</u>	-6	1730