3GPP TSG RAN Meeting #26   **RP-040409**
Vouliagmeni Athens, Greece, 8 - 10 December, 2004

Title   **CR (Rel-6) to TS25.101 for the introduction of requirements for FRC for PA3 cases**
Source   **3GPP TSG RAN WG4 (Radio)**
Agenda Item   **8.1.1.1**

WG Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-040787	25.101	386		B	Rel-6	5.12.0	Enhanced performance requirement on FRC throughput for PA3 cases	RInImp-HSPerf-RxDiv

CR-Form-v7

CHANGE REQUEST

⌘	**25.101** CR **386**	⌘ **rev**		⌘ Current version:	**5.12.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Enhanced performance requirements on FRC throughput for PA3 cases	
Source: ⌘	3GPP TSG RAN WG4 (Radio)	
Work item code:⌘	RInImp-HSPerf-RxDiv	***Date:*** ⌘ 01/12/2004

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

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

Reason for change: ⌘	Include enhanced FRC performance requirements for HSDPA capable UE based on receiver diversity for the missing cases of Pedestrian-A propagation conditions
Summary of change:⌘	Adds requirements on minimum throughput limits for FRC for HSDPA capable UE based on receiver diversity that were still TBD. The TBD values for the FRC throughput limits in case of Pedestrian-A propagation conditions in Tables 9.3A, 9.5A, 9.10A, 9.12A, 9.17A, 9.19A are replaced by the agreed throughput limits derived from simulation results including implementation margin.
Consequences if not approved: ⌘	No enchanced FRC performance requirements for HSDPA capable UEs based on receiver diversity do exist for Pedestrian-A propagation conditions.

Clauses affected: ⌘	9.2.1.1, 9.2.1.2, 9.2.2.1, 9.2.2.2, 9.2.3.1, 9.2.3.2

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

Other comments: ⌘	

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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.

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9.2 Demodulation of HS-DSCH (Fixed Reference Channel)

The performance requirement for a particular UE belonging to certain HS-DSCH category are determined according to Table 9.1.

Table 9.1: Mapping between HS-DSCH category and FRC

HS-DSCH category	Corresponding requirement
Category 1	H-Set 1
Category 2	H-Set 1
Category 3	H-Set 2
Category 4	H-Set 2
Category 5	H-Set 3
Category 6	H-Set 3
Category 7	H-Set 6
Category 8	H-Set 6
Category 11	H-Set 4
Category 12	H-Set 5

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

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

Test Number	Propagation Conditions	Reference value		
		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	65	309
		-3	N/A	423
2	PB3	-6	23	181
		-3	138	287
3	VA30	-6	22	190
		-3	142	295
4	VA120	-6	13	181
		-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 QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		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	-12	N/A	~~TBD~~740
		-9	N/A	~~TBD~~1137
		-6	~~TBD~~585	N/A
		-3	~~TBD~~986	N/A
2	PB3	-9	N/A	195
		-6	156	316
		-3	263	N/A
3	VA30	-9	N/A	212
		-6	171	329
		-3	273	N/A
4	VA120	-9	N/A	191
		-6	168	293
		-3	263	N/A
* 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)			

9.2.1.2   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 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-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 9.5: Minimum requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} **(dB)**	**T-put** R **(kbps) *** $\hat{I}_{or}/I_{oc}$ **= 10 dB**
1	PA3	-6	198
		-3	368
2	PB3	-6	34
		-3	219
3	VA30	-6	47
		-3	214
4	VA120	-6	28
		-3	167
* 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 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} **(dB)**	**T-put** R **(kbps) *** $\hat{I}_{or}/I_{oc}$ **= 10 dB**
1	PA3	-9	~~TBD~~935
		-6	~~TBD~~1462
2	PB3	-6	275
		-3	408
3	VA30	-6	296
		-3	430
4	VA120	-6	271
		-3	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)		

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

Test Number	Propagation Conditions	Reference value		
		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
		-3	N/A	439
2	PB3	-6	24	186
		-3	142	299
3	VA30	-6	19	183
		-3	148	306
4	VA120	-6	11	170
		-3	144	284
* Note: The reference value R is for the Fixed Reference Channel (FRC) H-Set 4				

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

Test Number	Propagation Conditions	Reference value		
		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	98	464
		-3	N/A	635
2	PB3	-6	35	272
		-3	207	431
3	VA30	-6	33	285
		-3	213	443
4	VA120	-6	20	272
		-3	210	413
* 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 Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} **(dB)**	T-put R **(kbps) *** $\hat{I}_{or}/I_{oc}$ **= 10 dB**
1	PA3	-6	1407
		-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 Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} **(dB)**	T-put R **(kbps) *** $\hat{I}_{or}/I_{oc}$ **= 10 dB**
1	PA3	-6	887
		-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 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 Number	Propagation Conditions	Reference value		
		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	77	375
		-3	180	475
2	PB3	-6	20	183
		-3	154	274
3	VA30	-6	15	187
		-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 QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		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	-12	N/A	~~TBD~~803
		-9	N/A	~~TBD~~1221
		-6	~~TBD~~590	N/A
		-3	~~TBD~~1000	N/A
2	PB3	-9	N/A	183
		-6	152	288
		-3	251	N/A
3	VA30	-9	N/A	197
		-6	164	307
		-3	261	N/A
* 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)				

9.2.2.2　　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 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 Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c / I_{or} **(dB)**	T-put R **(kbps)** * $\hat{I}_{or} / I_{oc}$ **= 10 dB**
1	PA3	-6	295
		-3	463
2	PB3	-6	24
		-3	243
3	VA30	-6	35
		-3	251
* 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 9.12A: Enhanced requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c / I_{or} **(dB)**	T-put R **(kbps)** * $\hat{I}_{or} / I_{oc}$ **= 10 dB**
1	PA3	-9	~~TBD~~1021
		-6	~~TBD~~1540
2	PB3	-6	251
		-3	374
3	VA30	-6	280
		-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 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)		

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

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

Test Number	Propagation Conditions	Reference value		
		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	70	369
		-3	171	471
2	PB3	-6	14	180
		-3	150	276
3	VA30	-6	11	184
		-3	156	285
* Note: The reference value R is for the Fixed Reference Channel (FRC) H-Set 4				

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

Test Number	Propagation Conditions	Reference value		
		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	116	563
		-3	270	713
2	PB3	-6	30	275
		-3	231	411
3	VA30	-6	23	281
		-3	243	426
* Note: The reference value R is for the 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

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 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 ($\tau_{DPCH,n}$)	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		

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

Test Number	Propagation Conditions	Reference value		
		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	118	399
		-3	225	458
2	PB3	-6	50	199
		-3	173	301
3	VA30	-6	47	204
		-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 QPSK, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value		
		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	-12	N/A	~~TBD~~891
		-9	N/A	~~TBD~~1231
		-6	~~TBD~~726	N/A
		-3	~~TBD~~1106	N/A
2	PB3	-9	N/A	194
		-6	170	308
		-3	272	N/A
3	VA30	-9	N/A	204
		-6	172	315
		-3	270	N/A

* 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)

9.2.3.2   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 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 ($\tau_{DPCH,n}$)	Chip		0	
Redundancy and constellation version coding sequence			{6,2,1,5}	
Maximum number of HARQ transmission			4	
Feedback Error Rate	%		4	
Closed loop timing adjustment mode			1	

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

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} **(dB)**	T-put R **(kbps)** * $\hat{I}_{or}/I_{oc}$ **= 10 dB**
1	PA3	-6	361
		-3	500
2	PB3	-6	74
		-3	255
3	VA30	-6	84
		-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) 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 9.19A: Enhanced requirement 16QAM, Fixed Reference Channel (FRC) H-Set 1/2/3

Test Number	Propagation Conditions	Reference value	
		HS-PDSCH E_c/I_{or} **(dB)**	T-put R **(kbps)** * $\hat{I}_{or}/I_{oc}$ **= 10 dB**
1	PA3	-9	~~TBD~~1129
		-6	~~TBD~~1595
2	PB3	-6	267
		-3	393
3	VA30	-6	279
		-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	

Table 9.21: Minimum requirement QPSK, Fixed Reference Channel (FRC) H-Set 4

Test Number	Propagation Conditions	Reference value		
		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	114	398
		-3	223	457
2	PB3	-6	43	196
		-3	167	292
3	VA30	-6	40	199
		-3	170	305
* 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 Number	Propagation Conditions	Reference value		
		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	177	599
		-3	338	687
2	PB3	-6	75	299
		-3	260	452
3	VA30	-6	71	306
		-3	258	458
* Note: The reference value R is for the Fixed Reference Channel (FRC) H-Set 5				