

**TSG RAN Meeting #25**  
**Palm Springs, US, 7 - 9 September 2004**

**RP-040284**

**Title** CRs (Rel-5 and Rel-6 Category A) to TS25.101 for HSDPA-RF  
**Source** TSG RAN WG4  
**Agenda Item** 7.5.5

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-040526	25.101	360		F	Rel-5	5.11.0	Clarification of HS-DSCH level	HSDPA-RF
R4-040527	25.101	361		A	Rel-6	6.4.0	Clarification of HS-DSCH level	HSDPA-RF
R4-040569	25.101	362	1	F	Rel-5	5.11.0	Correction to OCNS code allocation for HSDPA testing	HSDPA-RF
R4-040570	25.101	363	1	A	Rel-6	6.4.0	Correction to OCNS code allocation for HSDPA testing	HSDPA-RF

## CHANGE REQUEST

⌘ **25.101 CR 360** ⌘ rev  ⌘ Current version: **5.11.0** ⌘

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  Radio Access Network  Core Network

<b>Title:</b>	⌘ Clarification of HS-DSCH level		
<b>Source:</b>	⌘ RAN WG4		
<b>Work item code:</b>	⌘ HSDPA-RF	<b>Date:</b>	⌘ 30/08/2004
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>R96</b> (Release 1996)	<b>Ph2</b> (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R97</b> (Release 1997)	
	<b>B</b> (addition of feature),	<b>R98</b> (Release 1998)	
	<b>C</b> (functional modification of feature)	<b>R99</b> (Release 1999)	
	<b>D</b> (editorial modification)	<b>Rel-4</b> (Release 4)	
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Rel-5</b> (Release 5)	
		<b>Rel-6</b> (Release 6)	
		<b>Rel-7</b> (Release 7)	

<b>Reason for change:</b>	⌘ Contradiction on HS-PDSCH level: <ul style="list-style-type: none"> <li>In some places in 25.101 HS-PDSCH shall be transmitted continuously</li> <li>In some places in 25.101 HS-PDSCH shall be part time DTXed</li> <li>In some places in 25.101 nothing is mentioned even if the tests are of the same nature</li> </ul>
<b>Summary of change:</b>	⌘ It is clarified that HS-PDSCH level is transmitted with constant power continuously, and test-specifically allocated or not allocated to the UE
<b>Consequences if not approved:</b>	⌘ Confusion, where nothing is mentioned. Unnecessary functionality in the tester, as DTX is not relevant for the test.

<b>Clauses affected:</b>	⌘ 9.3.1.1, 9.3.1.2, 9.3.2.1, 9.3.2.2, A.7.1.,1 A.7.1.2, A.7.1.4, A.7.1.5, C.5.1										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘ <input type="checkbox"/>
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input checked="" type="checkbox"/>	<input type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		Test specifications	⌘ <input type="checkbox"/>								
		O&M Specifications	⌘ <input type="checkbox"/>								
<b>Other comments:</b>	⌘ Isolated impact analysis: Does not impact UE implementation. Avoids unnecessary functionality in the tester										

Equivalent CRs in other Releases: CR361 cat. A to 25.101 v6.4.0

## 9.3 Reporting of Channel Quality Indicator

### 9.3.1 AWGN propagation conditions

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

#### 9.3.1.1 Minimum Requirement – UE capability categories 1-6

For the parameters specified in Table 9.23, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH BLER using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH BLER using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.23: Test Parameter for CQI: categories 1-6**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or} / I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c / I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c / I_{or}$	dB	-10		
DPCH $E_c / I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-DSCH transmission pattern	-	<p>“XOOXOOX” to incorporate inter-TTI=3 UEs, where “X” indicates TTI in which HS-PDSCH is allocated to the UE, and “O” indicates <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</p>		
Note1:	Measurement power offset “I” is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

#### 9.3.1.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.24, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH BLER using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH BLER using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.24: Test Parameter for CQI: categories 11,12**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-DSCH transmission pattern	-	"XOOXOOX", where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates <del>DTX TTI</del> , in which <u>HS-PDSCH is not allocated to the UE.</u> <u>The HS-DSCH shall be transmitted continuously with constant power.</u>		
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.2 Fading propagation conditions

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

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

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

#### 9.3.2.1 Minimum Requirement – UE capability categories 1-6

For the parameters specified in Table 9.25, 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 9.26. 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.

**Table 9.25: Test Parameters for CQI test in fading: categories 1-6**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> <a href="#">in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</a>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.26: Minimum requirement for CQI test in fading for categories 1-6**

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

### 9.3.2.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.27, 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 9.28. 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.

**Table 9.27: Test Parameters for CQI test in fading: categories 11-12**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-DSCH transmission pattern	-	<p>“...XOOXOOX...” to incorporate inter-TTI=3 UEs, where “X” indicates TTI in which HS-PDSCH is allocated to the UE, and “O” indicates <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</p>	
Propagation Channel		Case 8	
<p>Note1: Measurement power offset “I” is configured by RRC accordingly and as defined in [7]                      Note2: TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214</p>			

**Table 9.28: Minimum requirement for CQI test in fading for categories 11-12**

Reported CQI	Maximum BLER	
	Test 1	Test 2
CQI median	60%	60%
CQI median + 3	15%	15%

## A.7 DL reference channel parameters for HSDPA tests

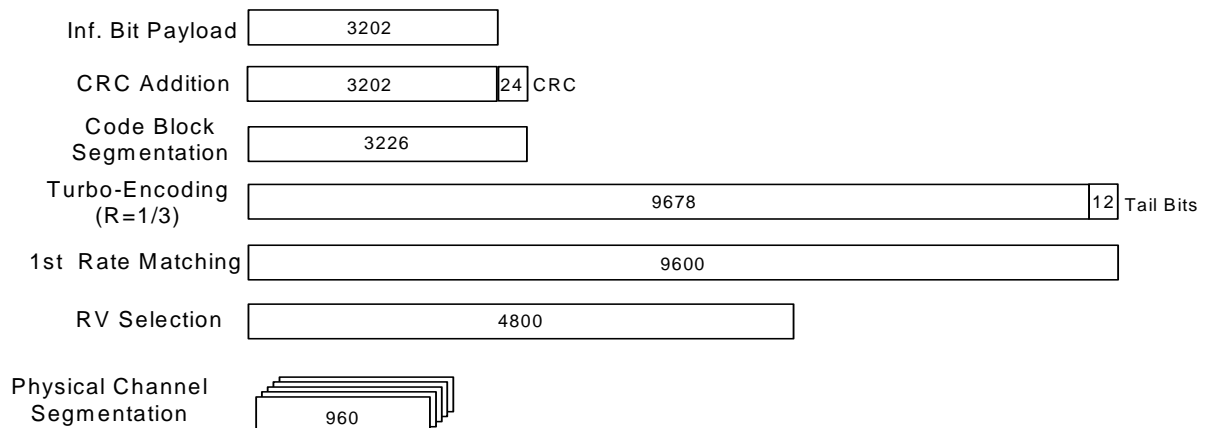
### A.7.1 Fixed Reference Channel (FRC)

#### A.7.1.1 Fixed Reference Channel Definition H-Set 1

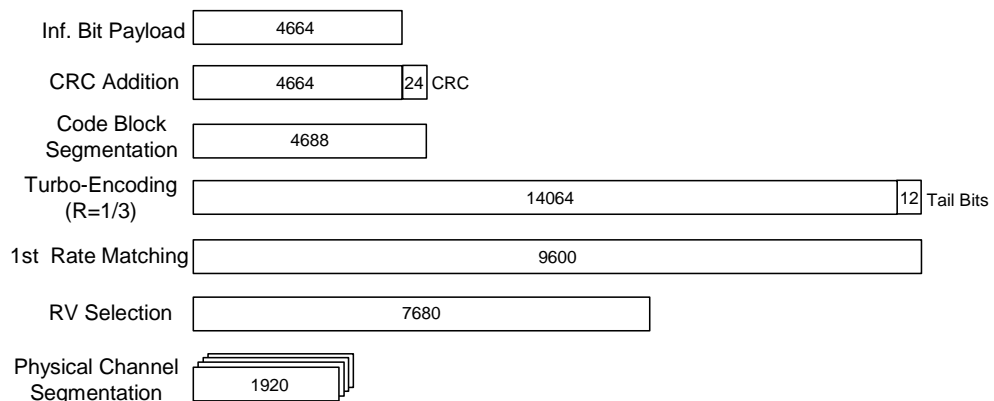
**Table A.25: Fixed Reference Channel H-Set 1**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	534	777
Inter-TTI Distance	TTI's	3	3
Number of HARQ Processes	Processes	2	2
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's in UE	SML's	19200	19200
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM

Note: The HS-DSCH shall be transmitted continuously with constant power but only every third TTI shall be allocated to the UE under test.



**Figure A.12: Coding rate for Fixed reference Channel H-Set 1 (QPSK)**



**Figure A.13: Coding rate for Fixed reference Channel H-Set 1 (16 QAM)**

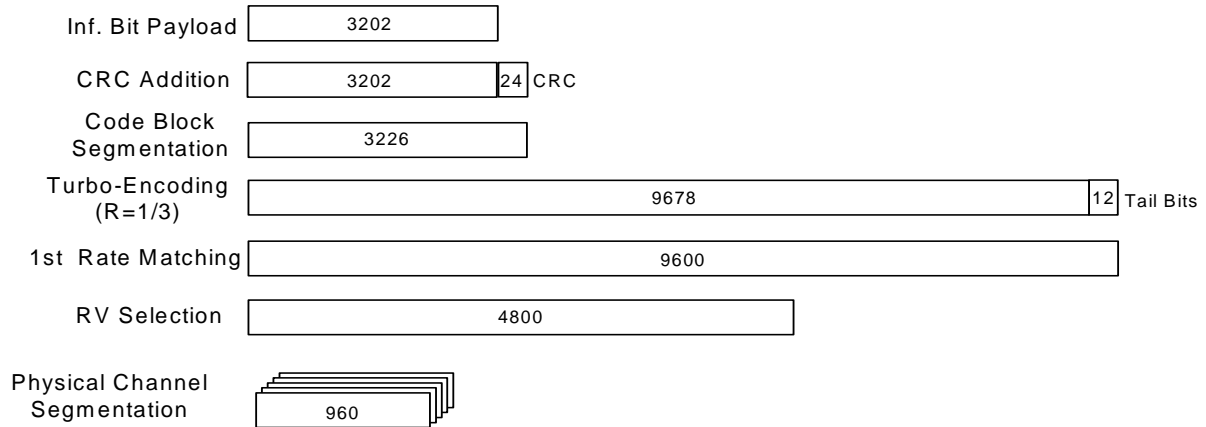


## A.7.1.2 Fixed Reference Channel Definition H-Set 2

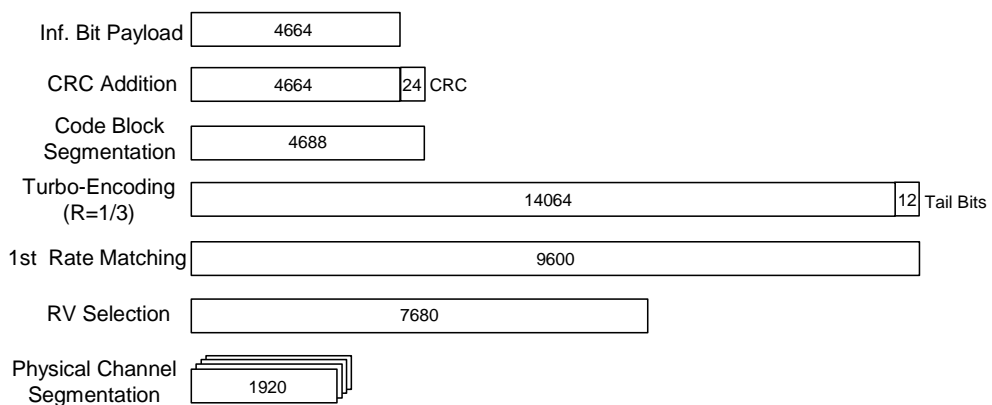
**Table A.26: Fixed Reference Channel H-Set 2**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	801	1166
Inter-TTI Distance	TTI's	2	2
Number of HARQ Processes	Processes	3	3
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's in UE	SML's	28800	28800
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM

Note: The HS-DSCH shall be transmitted continuously with constant power but only every second TTI shall be allocated to the UE under test.



**Figure A.14: Coding rate for Fixed Reference Channel H-Set 2 (QPSK)**

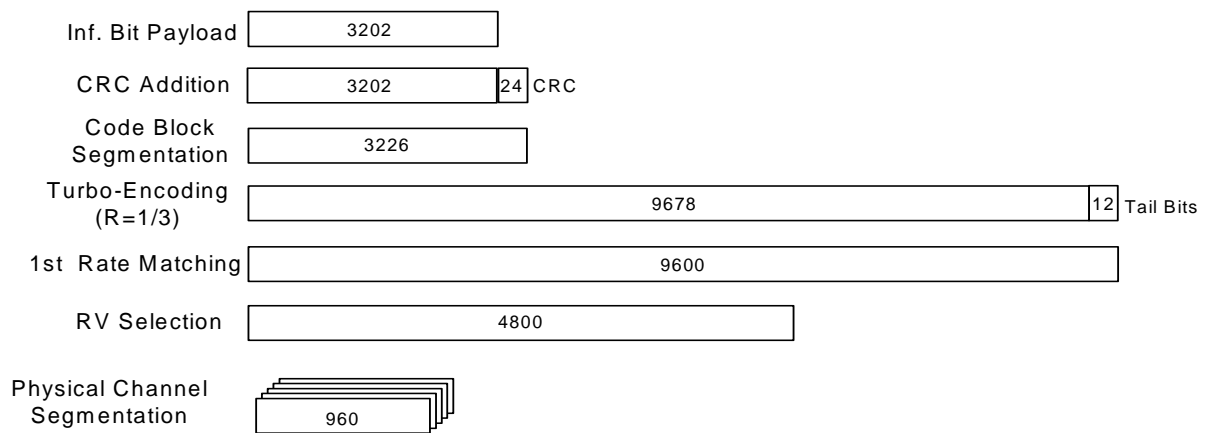


**Figure A.15: Coding rate for Fixed Reference Channel H-Set 2 (16QAM)**

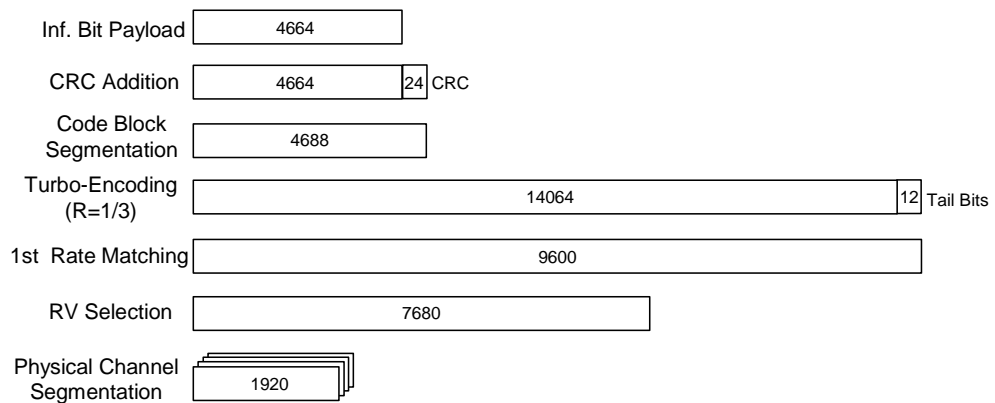
### A.7.1.3 Fixed Reference Channel Definition H-Set 3

**Table A.27: Fixed Reference Channel H-Set 3**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	1601	2332
Inter-TTI Distance	TTI's	1	1
Number of HARQ Processes	Processes	6	6
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's, in UE	SML's	57600	57600
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM



**Figure A.16: Coding rate for Fixed reference Channel H-Set 3 (QPSK)**



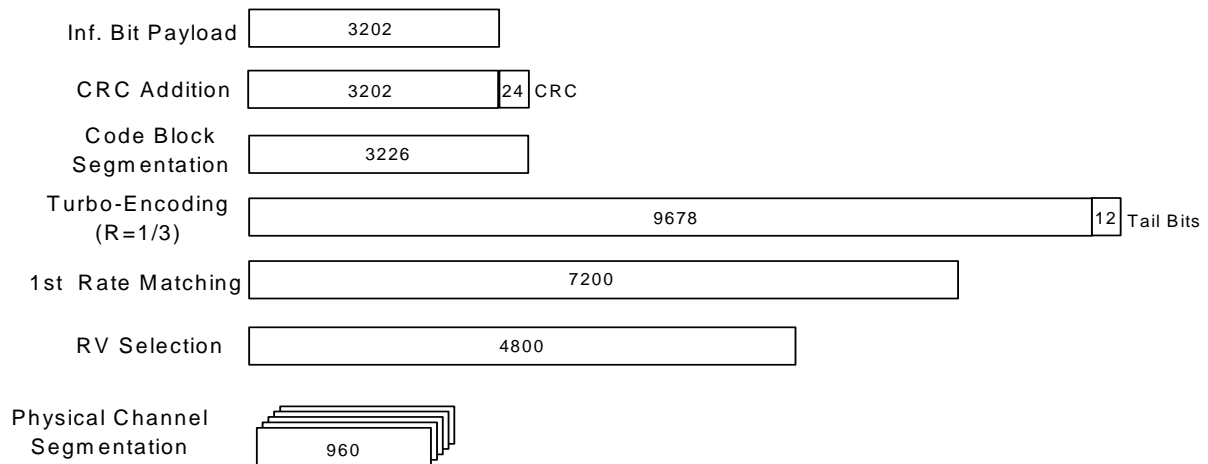
**Figure A.17: Coding rate for Fixed reference Channel H-Set 3 (16QAM)**

### A.7.1.4 Fixed Reference Channel Definition H-Set 4

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	534
Inter-TTI Distance	TTI's	2
Number of HARQ Processes	Processes	2
Information Bit Payload ( $N_{INF}$ )	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	14400
Number of SML's per HARQ Proc.	SML's	7200
Coding Rate		0.67
Number of Physical Channel Codes	Codes	5
Modulation		QPSK

Note: This test case verifies the minimum inter-TTI distance and therefore HS-PDSCH transmission shall be as follows:  
 ...00X0X000X0X...,  
 where 'X' marks TTI in which HS-PDSCH is transmitted allocated to the UE and '0' marks ~~DTX~~ TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.



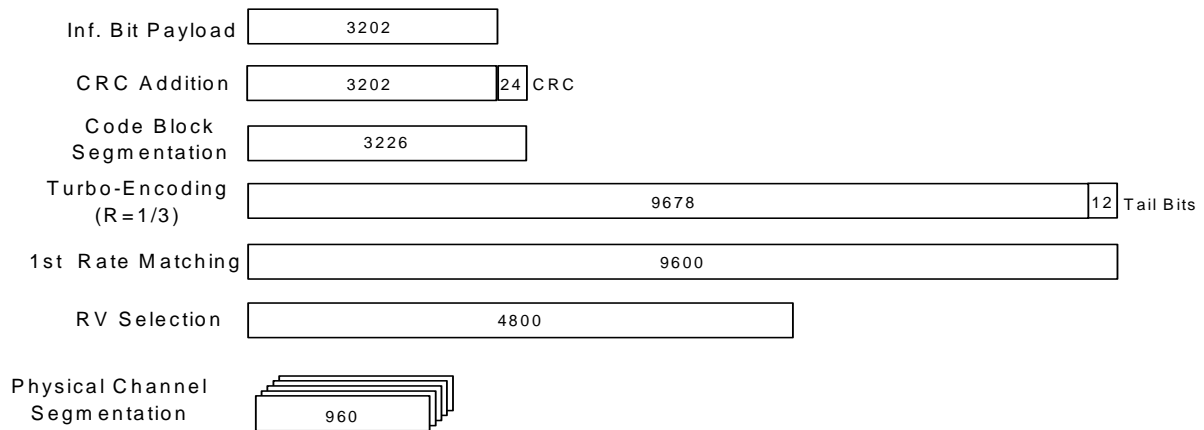
**Figure A.18: Coding rate for Fixed Reference Channel H-Set 4**

### A.7.1.5 Fixed Reference Channel Definition H-Set 5

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	801
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	3
Information Bit Payload ( $N_{INF}$ )	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	28800
Number of SML's per HARQ Proc.	SML's	9600
Coding Rate		0.67
Number of Physical Channel Codes	Codes	5
Modulation		QPSK

Note: This test case verifies the minimum inter-TTI distance and therefore HS-PDSCH transmission shall be as follows:  
 ...00XXX000XXX...,  
 where 'X' marks TTI in which HS-PDSCH is allocated to the UE and '0' marks ~~DTX~~ TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.



**Figure A.19: Coding rate for Fixed Reference Channel 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 and 9.3. Table C.9 is applicable for the measurements for tests in subclause 9.2.2. Table C.10 is applicable for the measurements for tests in subclause 9.2.3. Table C.11 is applicable for the measurements for tests in subclause 9.4.

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

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/Ior	-10dB	
P-CCPCH	P-CCPCH_Ec/Ior	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/Ior	-12dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dl,0 as per TS25.213 S-SCH pattern is scrambling code group 0
PICH	PICH_Ec/Ior	-15dB	
DPCH	DPCH_Ec/Ior	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/Ior	Test-specific	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/Ior	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH_3	HS-SCCH_Ec/Ior	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/Ior	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/Ior	Test-specific	.
OCNS		Necessary power so that total transmit power spectral density of Node B (Ior) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.12.

**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	1. Total P-CPICH_Ec/lor = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/lor	-15dB	1. STTD applied. 2. Total P-CCPCH Ec/lor is -12dB.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/lor	-15dB	
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STTD applied. 2. Total PICH Ec/lor is -15dB.
PICH (antenna 2)	PICH_Ec2/lor	-18dB	
DPCH	DPCH_Ec/lor	Test-specific	1. STTD applied.
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/lor	DTX'd	1. UE assumes STTD applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH_3	HS-SCCH_Ec/lor	DTX'd	1. As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	1. STTD applied.
OCNS		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. 4. OCNS interference consists of 6 dedicated data channels as specified in table C.12.

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

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	-13dB	1. Total P-CPICH_Ec/lor = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/lor	-15dB	1. STTD applied. 2. Total P-CCPCH Ec/lor is -12dB.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/lor	-15dB	
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STTD applied. 2. Total PICH Ec/lor is -15dB.
PICH (antenna 2)	PICH_Ec2/lor	-18dB	
DPCH	DPCH_Ec/lor	Test-specific	1. CL1 applied.
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/lor	DTX'd	1. UE assumes STTD applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH_3	HS-SCCH_Ec/lor	DTX'd	1. As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	1. CL1 applied.
OCNS		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. 4. OCNS interference consists of 6 dedicated data channels as specified in table C.12.

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

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



## CHANGE REQUEST

⌘ **25.101** CR **361** ⌘ rev **1** ⌘ Current version: **6.4.0** ⌘

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  Radio Access Network  Core Network

<b>Title:</b>	⌘ Clarification of HS-DSCH level		
<b>Source:</b>	⌘ RAN WG4		
<b>Work item code:</b>	⌘ HSDPA-RF	<b>Date:</b>	⌘ 30/08/2004
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>R96</b>	(GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R97</b>	(Release 1996)
	<b>B</b> (addition of feature),	<b>R98</b>	(Release 1997)
	<b>C</b> (functional modification of feature)	<b>R99</b>	(Release 1998)
	<b>D</b> (editorial modification)	<b>Rel-4</b>	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Rel-5</b>	(Release 4)
		<b>Rel-6</b>	(Release 5)
		<b>Rel-7</b>	(Release 6)
			(Release 7)

<b>Reason for change:</b>	⌘ Contradiction on HS-PDSCH level: <ul style="list-style-type: none"> <li>In some places in 25.101 HS-PDSCH shall be transmitted continuously</li> <li>In some places in 25.101 HS-PDSCH shall be part time DTXXed</li> <li>In some places in 25.101 nothing is mentioned even if the tests are of the same nature</li> </ul>
<b>Summary of change:</b>	⌘ It is clarified that HS-PDSCH level is transmitted with constant power continuously, and test-specifically allocated or not allocated to the UE
<b>Consequences if not approved:</b>	⌘ Confusion, where nothing is mentioned. Unnecessary functionality in the tester, as DTX is not relevant for the test.

<b>Clauses affected:</b>	⌘ 9.3.1.1, 9.3.1.2, 9.3.2.1, 9.3.2.2, 9.3.3.1, 9.3.3.2, A.7.1.,1 A.7.1.2, A.7.1.4, A.7.1.5, A.7.1.6 C.5.1								
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">N</td> </tr> </table>	Y	N	X	N	X	N	Other core specifications	⌘ 34.121
Y	N								
X	N								
X	N								
		Test specifications							
		O&M Specifications							
<b>Other comments:</b>	⌘ Isolated impact analysis: Does not impact UE implementation. Avoids unnecessary functionality in the tester								

## 9.3 Reporting of Channel Quality Indicator

### 9.3.1 Single Link Performance

#### 9.3.1.1 AWGN propagation conditions

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

##### 9.3.1.1.1 Minimum Requirement – UE capability categories 1-6

For the parameters specified in Table 9.23, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH BLER using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH BLER using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.23: Test Parameter for CQI: categories 1-6**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or} / I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c / I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c / I_{or}$	dB	-10		
DPCH $E_c / I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> <u>TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</u>		
Note1:	Measurement power offset "T" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.1.1.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.24, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH BLER using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH BLER using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.24: Test Parameter for CQI: categories 11,12**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or} / I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c / I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c / I_{or}$	dB	-10		
DPCH $E_c / I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-DSCH transmission pattern	-	"XOOXOOX", where "X" indicates TTI in which HS-PDSCH is allocated to the UE, and "O" indicates <del>DTX</del> <u>TTI in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</u>		
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.1.1.3 Minimum Requirement - UE capability categories 7, 8

For the parameters specified in Table 9.25, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.25: Test Parameter for CQI: categories 7,8**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.		
Note1:	Measurement power offset "T" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.1.2 Fading propagation conditions

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

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

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

#### 9.3.1.2.1 Minimum Requirement – UE capability categories 1-6

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

**Table 9.26: Test Parameters for CQI test in fading: categories 1-6**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> <a href="#">in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</a>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.27: Minimum requirement for CQI test in fading for categories 1-6**

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

### 9.3.1.2.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.28, 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 9.29. 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.

**Table 9.28: Test Parameters for CQI test in fading: categories 11-12**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c/I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or}/I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c/I_{or}$	dB	-8.5	
DPCH $E_c/I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.29: Minimum requirement for CQI test in fading for categories 11-12**

Reported CQI	Maximum BLER	
	Test 1	Test 2
CQI median	60%	60%
CQI median + 3	15%	15%

### 9.3.1.2.3 Minimum Requirement - UE capability categories 7,8

For the parameters specified in Table 9.30, 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 9.31. 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.

**Table 9.30: Test Parameters for CQI test in fading: categories 7-8**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH _1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be <u>transmitted continuously with constant power.</u>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.31: Minimum requirement for CQI test in fading for categories 7-8**

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

## 9.3.2 Open Loop Diversity Performance

### 9.3.2.1 AWGN propagation conditions

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

#### 9.3.2.1.1 Minimum Requirement - UE capability categories 1-6

For the parameters specified in Table 9.32, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.32: Test Parameter for CQI: categories 1-6**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH _1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.		
Note1:	Measurement power offset "T" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.2.1.2 Minimum Requirement - UE capability categories 11,12

For the parameters specified in Table 9.33, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.



**Table 9.33: Test Parameter for CQI: categories 11,12**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-DSCH transmission pattern	-	<p>“XOOXOOX” to incorporate inter-TTI=3 UEs, where “X” indicates TTI in which HS-PDSCH is allocated to the UE, and “O” indicates <del>DTX</del> DTX TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</p>		
Note1:	Measurement power offset “T” is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.2.1.3 Minimum Requirement - UE capability categories 7,8

For the parameters specified in Table 9.34, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.34: Test Parameter for CQI: categories 7,8**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.		
Note1:	Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.2.2 Fading propagation conditions

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

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

#### 9.3.2.2.1 Minimum Requirement – UE capability categories 1-6

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

**Table 9.35: Test Parameters for CQI test in fading: categories 1-6**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be <u>transmitted continuously with constant power.</u>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.36: Minimum requirement for CQI test in fading for categories 1-6**

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

### 9.3.2.2.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.37, 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 9.38. 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.

**Table 9.37: Test Parameters for CQI test in fading: categories 11-12**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be <u>transmitted continuously with constant power.</u>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.38: Minimum requirement for CQI test in fading for categories 11-12**

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

### 9.3.2.2.3 Minimum Requirement – UE capability categories 7,8

For the parameters specified in Table 9.39, 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 9.40. 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.

**Table 9.39: Test Parameters for CQI test in fading: categories 7-8**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be <u>transmitted continuously with constant power.</u>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.40: Minimum requirement for CQI test in fading for categories 7-8**

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

### 9.3.3 Closed Loop Diversity Performance

#### 9.3.3.1 AWGN propagation conditions

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

##### 9.3.3.1.1 Minimum Requirement - UE capability categories 1-6

For the parameters specified in Table 9.41, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.41: Test Parameter for CQI: categories 1-6**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH _1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.		
Note1:	Measurement power offset "T" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.3.1.2 Minimum Requirement - UE capability categories 11,12

For the parameters specified in Table 9.42, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.42: Test Parameter for CQI: categories 11,12**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH _1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.		
Note1:	Measurement power offset "T" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.3.1.3 Minimum Requirement - UE capability categories 7,8

For the parameters specified in Table 9.43, the reported CQI value shall be in the range of +/-2 of the reported median more than 90% of the time. If the HS-PDSCH (BLER) using transport format indicated by median CQI is less than 0.1, BLER using transport format indicated by (median CQI +2) shall be larger than 0.1. If the HS-PDSCH (BLER) using transport format indicated by median CQI is larger than 0.1, BLER using transport format indicated by (median CQI -1) shall be less than 0.1.

**Table 9.43: Test Parameter for CQI: categories 7,8**

Parameter	Unit	Test 1	Test 2	Test 3
$\hat{I}_{or}/I_{oc}$	dB	0	5	10
$I_{oc}$	dBm/3.84 MHz	-60		
Phase reference	-	P-CPICH		
HS-PDSCH $E_c/I_{or}$ (*)	dB	-3		
HS-SCCH_1 $E_c/I_{or}$	dB	-10		
DPCH $E_c/I_{or}$	dB	-10		
Maximum number of H-ARQ transmission	-	1		
Number of HS-SCCH set to be monitored	-	1		
CQI feedback cycle	ms	2		
CQI repetition factor	-	1		
HS-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 <del>DTX</del> TTI, in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.		
Note1:	Measurement power offset "Γ" is configured by RRC accordingly and as defined in [7]			
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI, median CQI -1, median CQI+2 are used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214			

### 9.3.3.2 Fading propagation conditions

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

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

#### 9.3.3.2.1 Minimum Requirement – UE capability categories 1-6

For the parameters specified in Table 9.44, the requirements are specified in terms of maximum BLERs at particular reported CQIs when transmitting a fixed transport format given by the CQI median as shown in Table 9.45. The BLER at a particular reported CQI is obtained by associating a particular CQI reference measurement period with HS-PDSCH subframe overlapping with the end of this CQI reference measurement period and calculating the fraction of erroneous HS-PDSCH subframes.



**Table 9.44: Test Parameters for CQI test in fading: categories 1-6**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> <a href="#">in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</a>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.45: Minimum requirement for CQI test in fading for categories 1-6**

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

### 9.3.3.2.2 Minimum Requirement – UE capability categories 11,12

For the parameters specified in Table 9.46, 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 9.47. 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.

**Table 9.46: Test Parameters for CQI test in fading: categories 11-12**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be <u>transmitted continuously with constant power.</u>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.47: Minimum requirement for CQI test in fading for categories 11-12**

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

### 9.3.3.2.3 Minimum Requirement – UE capability categories 7,8

For the parameters specified in Table 9.48, 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 9.49. 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.

**Table 9.48: Test Parameters for CQI test in fading: categories 7-8**

Parameter	Unit	Test 1	Test 2
HS-PDSCH $E_c / I_{or}$ (*)	dB	-8	-4
$\hat{I}_{or} / I_{oc}$	dB	0	5
$I_{oc}$	dBm/3.84 MHz	-60	
Phase reference	-	P-CPICH	
HS-SCCH_1 $E_c / I_{or}$	dB	-8.5	
DPCH $E_c / I_{or}$	dB	-6	
Maximum number of H-ARQ transmission	-	1	
Number of HS-SCCH set to be monitored	-	1	
CQI feedback cycle	ms	2	
CQI repetition factor	-	1	
HS-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 <del>DTX TTI</del> <u>in which HS-PDSCH is not allocated to the UE. The HS-DSCH shall be transmitted continuously with constant power.</u>	
Propagation Channel		Case 8	
Note1:	Measurement power offset "I" is configured by RRC accordingly and as defined in [7]		
Note2:	TF for HS-PDSCH is configured according to the reported CQI statistics. TF based on median CQI is used. Other physical channel parameters are configured according to the CQI mapping table described in TS25.214		

**Table 9.49: Minimum requirement for CQI test in fading for categories 7-8**

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

## A.7 DL reference channel parameters for HSDPA tests

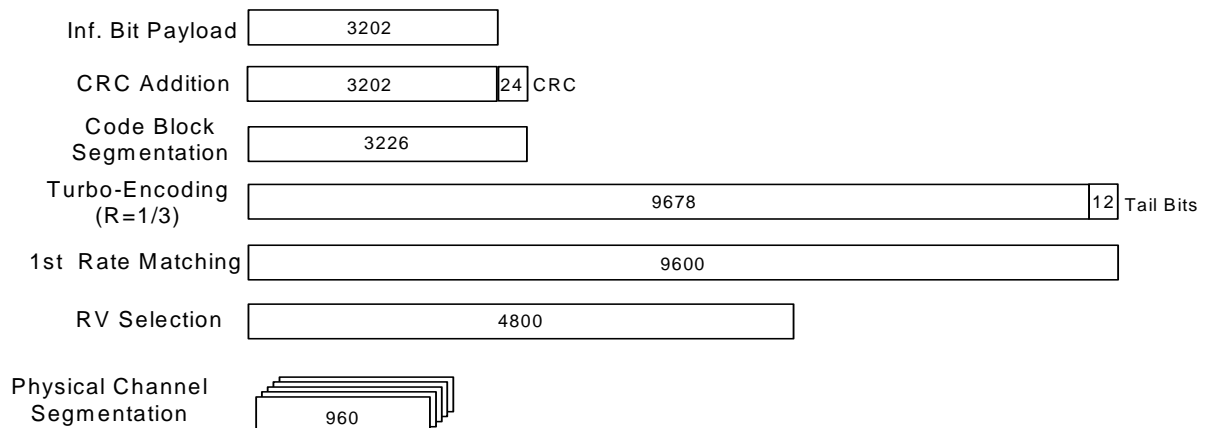
### A.7.1 Fixed Reference Channel (FRC)

#### A.7.1.1 Fixed Reference Channel Definition H-Set 1

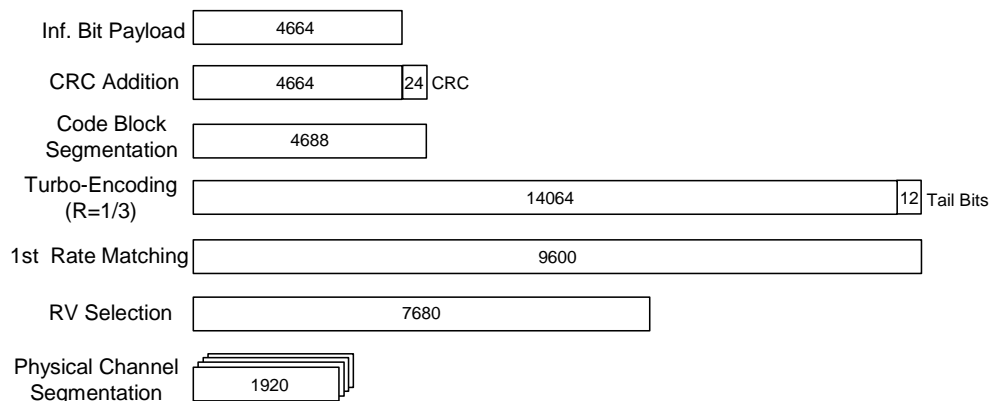
**Table A.25: Fixed Reference Channel H-Set 1**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	534	777
Inter-TTI Distance	TTI's	3	3
Number of HARQ Processes	Processes	2	2
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's in UE	SML's	19200	19200
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM

Note: The HS-DSCH shall be transmitted continuously with constant power but only every third TTI shall be allocated to the UE under test.



**Figure A.12: Coding rate for Fixed reference Channel H-Set 1 (QPSK)**



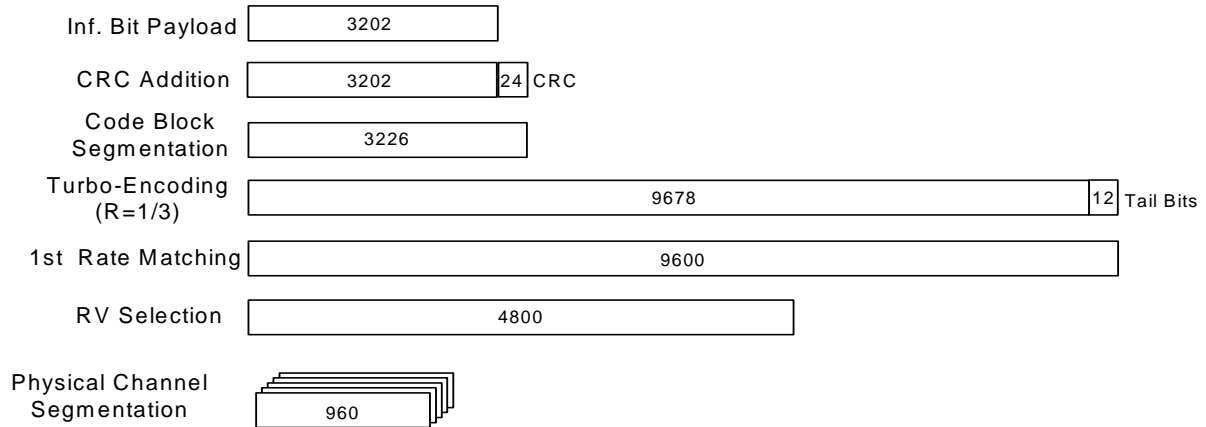
**Figure A.13: Coding rate for Fixed reference Channel H-Set 1 (16 QAM)**

## A.7.1.2 Fixed Reference Channel Definition H-Set 2

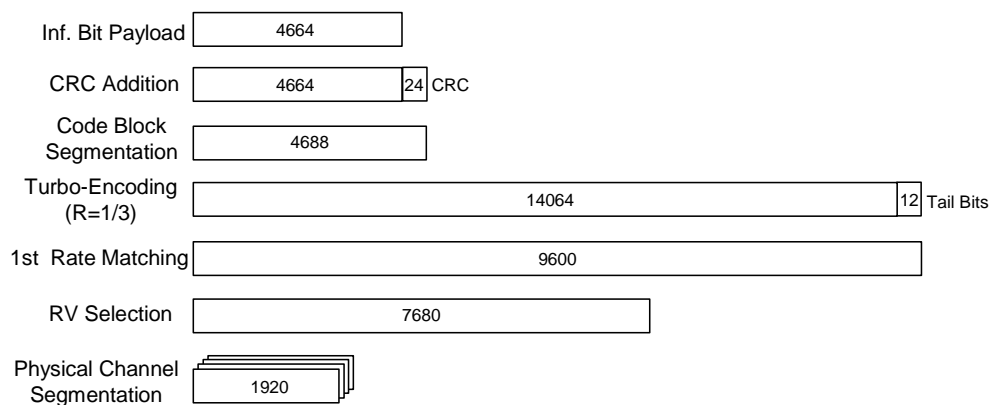
**Table A.26: Fixed Reference Channel H-Set 2**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	801	1166
Inter-TTI Distance	TTI's	2	2
Number of HARQ Processes	Processes	3	3
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's in UE	SML's	28800	28800
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM

Note: The HS-DSCH shall be transmitted continuously with constant power but only every second TTI shall be allocated to the UE under test.



**Figure A.14: Coding rate for Fixed Reference Channel H-Set 2 (QPSK)**

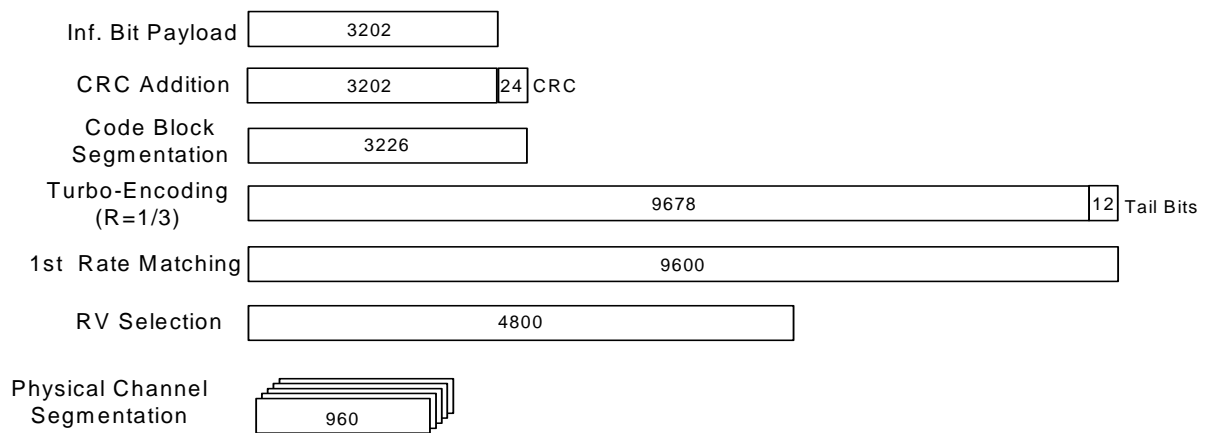


**Figure A.15: Coding rate for Fixed Reference Channel H-Set 2 (16QAM)**

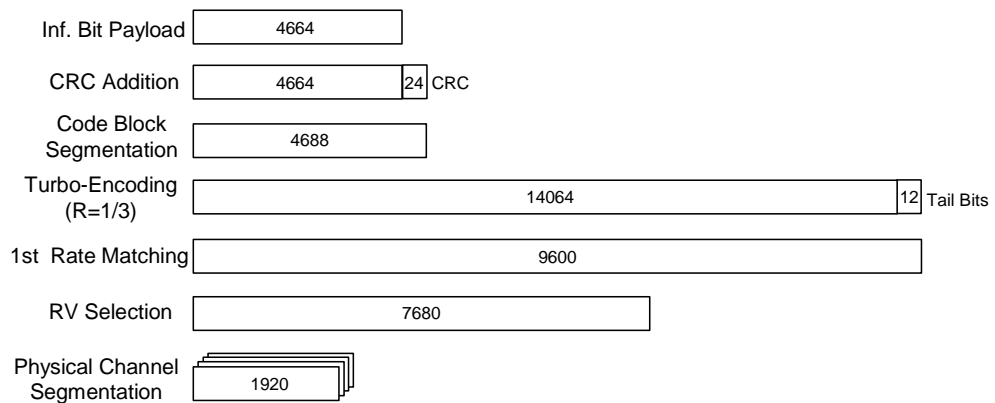
### A.7.1.3 Fixed Reference Channel Definition H-Set 3

**Table A.27: Fixed Reference Channel H-Set 3**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	1601	2332
Inter-TTI Distance	TTI's	1	1
Number of HARQ Processes	Processes	6	6
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's, in UE	SML's	57600	57600
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM



**Figure A.16: Coding rate for Fixed reference Channel H-Set 3 (QPSK)**



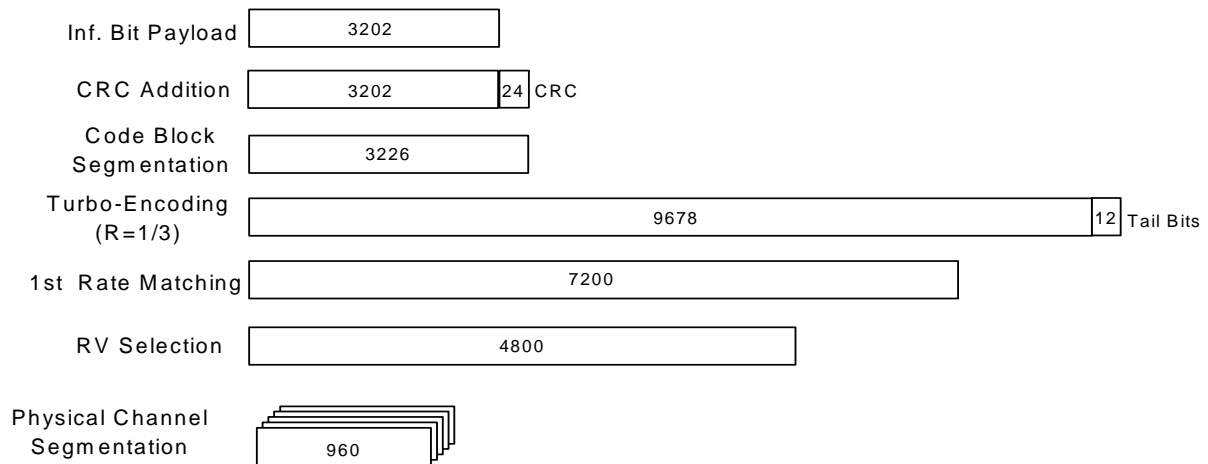
**Figure A.17: Coding rate for Fixed reference Channel H-Set 3 (16QAM)**

### A.7.1.4 Fixed Reference Channel Definition H-Set 4

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	534
Inter-TTI Distance	TTI's	2
Number of HARQ Processes	Processes	2
Information Bit Payload ( $N_{INF}$ )	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	14400
Number of SML's per HARQ Proc.	SML's	7200
Coding Rate		0.67
Number of Physical Channel Codes	Codes	5
Modulation		QPSK

Note: This test case verifies the minimum inter-TTI distance and therefore HS-PDSCH transmission shall be as follows:  
 ...00X0X000X0X...,  
 where 'X' marks TTI in which HS-PDSCH is allocated ~~transmitted~~ to the UE and '0' marks TTI, in which HS-PDSCH is not allocated to the UE.. The HS-DSCH shall be transmitted continuously with constant power. ~~DTX~~.



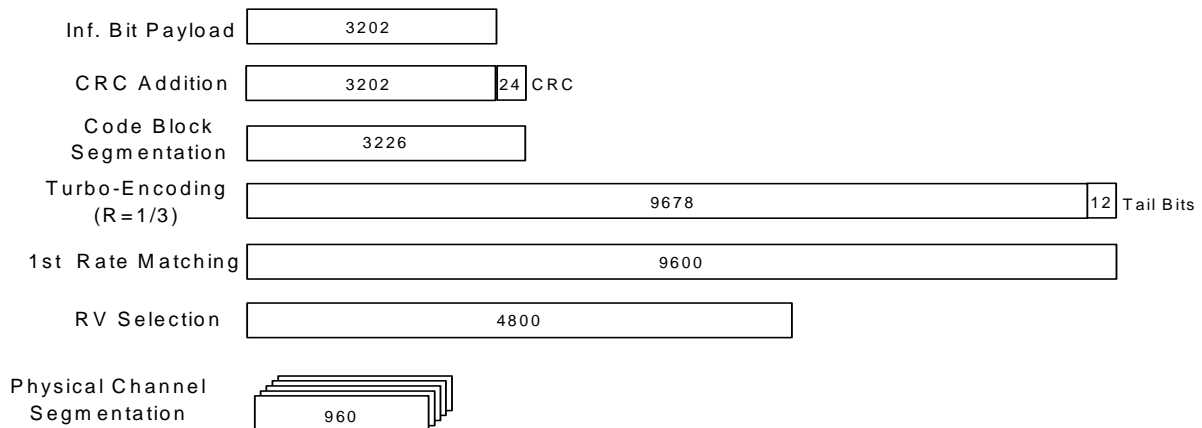
**Figure A.18: Coding rate for Fixed Reference Channel H-Set 4**

### A.7.1.5 Fixed Reference Channel Definition H-Set 5

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	801
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	3
Information Bit Payload ( $N_{INF}$ )	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	28800
Number of SML's per HARQ Proc.	SML's	9600
Coding Rate		0.67
Number of Physical Channel Codes	Codes	5
Modulation		QPSK

Note: This test case verifies the minimum inter-TTI distance and therefore HS-PDSCH transmission shall be as follows:  
 ...00XXX000XXX...,  
 where 'X' marks TTI in which HS-PDSCH is allocated to the UE and '0' marks [TTI, in which HS-PDSCH is not allocated to the UE..The HS-DSCH shall be transmitted continuously with constant power.DTX.](#)



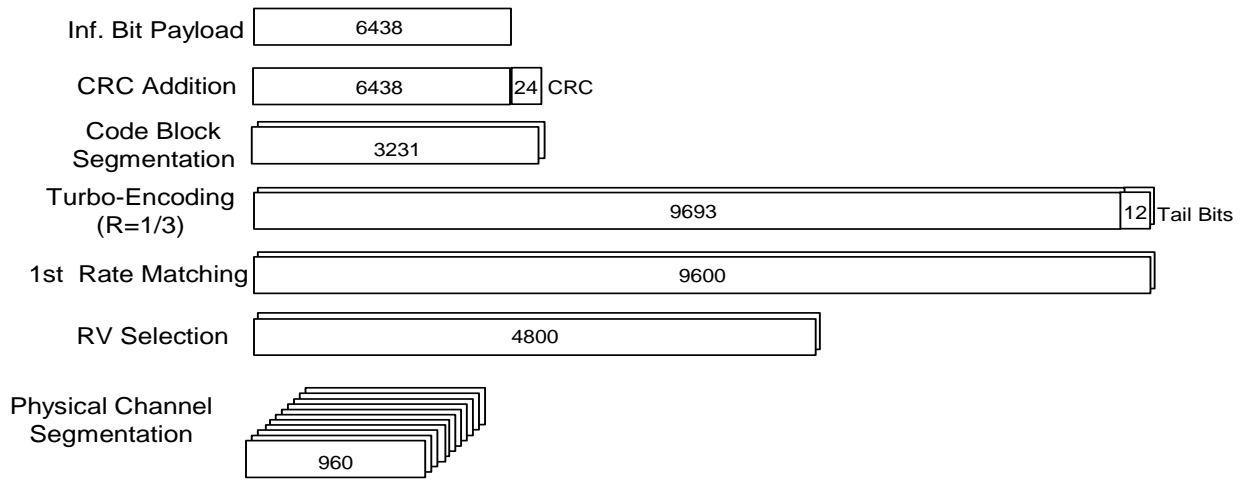
**Figure A.19: Coding rate for Fixed Reference Channel H-Set 5**

### A.7.1.6 Fixed Reference Channel Definition H-Set 6

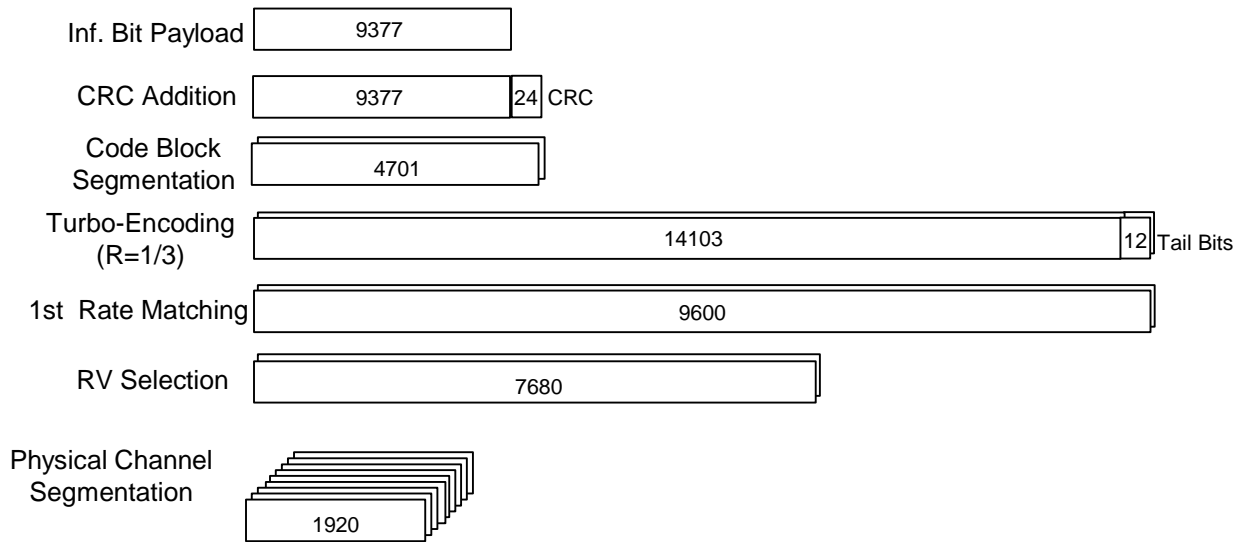
**Table A.30: Fixed Reference Channel H-Set 6**

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	3219	4689
Inter-TTI Distance	TTI's	1	1
Number of HARQ Processes	Processes	6	6
Information Bit Payload ( $N_{INF}$ )	Bits	6438	9377
Number Code Blocks	Blocks	2	2
Binary Channel Bits Per TTI	Bits	9600	15360
Total Available SML's in UE	SML's	115200	115200
Number of SML's per HARQ Proc.	SML's	19200	19200
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	10	8
Modulation		QPSK	16QAM





**Figure A.20: Coding rate for Fixed reference Channel H-Set 6 (QPSK)**



**Figure A.21: Coding rate for Fixed reference Channel H-Set 6 (16 QAM)**

## 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 9.3. Table C.9 is applicable for the measurements for tests in subclause 9.2.2. Table C.10 is applicable for the measurements for tests in subclause 9.2.3. Table C.11 is applicable for the measurements for tests in subclause 9.4.1. Table C.12 is applicable for the measurements in subclause 9.4.2

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

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/Ior	-10dB	
P-CCPCH	P-CCPCH_Ec/Ior	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/Ior	-12dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dl,0 as per TS25.213 S-SCH pattern is scrambling code group 0
PICH	PICH_Ec/Ior	-15dB	
DPCH	DPCH_Ec/Ior	Test-specific	12.2 kbps DL reference measurement channel as defined in Annex A.3.1
HS-SCCH_1	HS-SCCH_Ec/Ior	Test-specific	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/Ior	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH_3	HS-SCCH_Ec/Ior	DTX'd	As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/Ior	DTX'd	As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/Ior	Test-specific	.
OCNS		Necessary power so that total transmit power spectral density of Node B (Ior) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table C.13.

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

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	-13dB	1. Total P-CPICH_Ec/lor = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/lor	-15dB	1. STTD applied. 2. Total P-CCPCH Ec/lor is -12dB.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/lor	-15dB	
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STTD applied. 2. Total PICH Ec/lor is -15dB.
PICH (antenna 2)	PICH_Ec2/lor	-18dB	
DPCH	DPCH_Ec/lor	Test-specific	1. STTD applied.
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/lor	DTX'd	1. UE assumes STTD applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH_3	HS-SCCH_Ec/lor	DTX'd	1. As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	1. STTD applied.
OCNS		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. 4. OCNS interference consists of 6 dedicated data channels as specified in table C.13.

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

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	-13dB	1. Total P-CPICH_Ec/lor = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/lor	-15dB	1. STTD applied. 2. Total P-CCPCH Ec/lor is -12dB.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/lor	-15dB	
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied. 2. Power divided equally between primary and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STTD applied. 2. Total PICH Ec/lor is -15dB.
PICH (antenna 2)	PICH_Ec2/lor	-18dB	
DPCH	DPCH_Ec/lor	Test-specific	1. CL1 applied.
HS-SCCH_1	HS-SCCH_Ec/lor	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH_2	HS-SCCH_Ec/lor	DTX'd	1. UE assumes STDD] applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH_3	HS-SCCH_Ec/lor	DTX'd	1. As HS-SCCH_2.
HS-SCCH_4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH_2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	1. CL1 applied.
OCNS		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. 4. OCNS interference consists of 6 dedicated data channels as specified in table C.13.

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

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

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

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

CR-Form-v7

## CHANGE REQUEST

⌘ **25.101 CR 362** ⌘ rev **1** ⌘ Current version: **5.11.0** ⌘

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  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction to OCNS code allocation for HSDPA testing		
<b>Source:</b>	⌘ RAN WG4		
<b>Work item code:</b>	⌘ HSDPA-RF	<b>Date:</b>	⌘ 30/08/2004
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	2	(GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	R96	(Release 1996)
	<b>B</b> (addition of feature),	R97	(Release 1997)
	<b>C</b> (functional modification of feature)	R98	(Release 1998)
	<b>D</b> (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The OCNS DPCH codes defined section C.5.2 use codes 2-7 (SF128) which collides with HS-SCCH and S-CCPCH codes.
<b>Summary of change:</b>	⌘ In table C.12 the OCNS DPCH codes 2 – 7 (SF128) are moved to 122-127 (SF128) which is the last SF16 code tree. Note: according to TS 25.101 section C.5.2 the main criteria is that the OCNS codes are all in the same SF16 code tree.
<b>Consequences if not approved:</b>	⌘ The test implementation will not meet the requirements because there is a code clash.

<b>Clauses affected:</b>	⌘ C5.2										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </table>	Y	N				X			Other core specifications	⌘ 34.121
	Y	N									
	X										
	Test specifications										
	O&M Specifications										
<b>Other comments:</b>	⌘ Equivalent CRs in other Releases: CR363r1 cat. A to 25.101 v6.4.0										

**How to create CRs using this form:**

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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



## 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.12. The selected codes are designed to have a single length-16 parent code.

**Table C.12: OCNS definition for HSDPA receiver testing.**

Channelization Code at SF=128	Relative Level setting (dB) (Note 1)	DPCH Data
<a href="#">122</a>	0	The DPCH data for each channelization code shall be uncorrelated with each other and with any wanted signal over the period of any measurement.
<a href="#">123</a>	-2	
<a href="#">124</a>	-2	
<a href="#">125</a>	-4	
<a href="#">126</a>	-1	
<a href="#">127</a>	-3	

NOTE 1: The relative level setting specified in dB refers only to the relationship between the OCNS channels. The level of the OCNS channels relative to the Ior of the complete signal is a function of the power of the other channels in the signal with the intention that the power of the group of OCNS channels is used to make the total signal add up to 1.



CR-Form-v7

## CHANGE REQUEST

⌘ **25.101 CR 363** ⌘ rev **1** ⌘ Current version: **6.4.0** ⌘

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  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correction to OCNS code allocation for HSDPA testing		
<b>Source:</b>	⌘ RAN WG4		
<b>Work item code:</b>	⌘ HSDPA-RF	<b>Date:</b>	⌘ 30/08/2004
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	2	(GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	R96	(Release 1996)
	<b>B</b> (addition of feature),	R97	(Release 1997)
	<b>C</b> (functional modification of feature)	R98	(Release 1998)
	<b>D</b> (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The OCNS DPCH codes defined section C.5.2 use codes 2-7 (SF128) which collides with HS-SCCH and S-CCPCH codes.
<b>Summary of change:</b>	⌘ In table C.12 the OCNS DPCH codes 2 – 7 (SF128) are moved to 122-127 (SF128) which is the last SF16 code tree. Note: according to TS 25.101 section C.5.2 the main criteria is that the OCNS codes are all in the same SF16 code tree.
<b>Consequences if not approved:</b>	⌘ The test implementation will not meet the requirements because there is a code clash.

<b>Clauses affected:</b>	⌘ C5.2										
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	Y	N									
	X										
	Test specifications										
	O&M Specifications										
<b>Other comments:</b>	⌘ Equivalent CRs in other Releases: CR362r1 cat. F to 25.101 v5.10.0										

**How to create CRs using this form:**

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NOTE 1: The relative level setting specified in dB refers only to the relationship between the OCNS channels. The level of the OCNS channels relative to the Ior of the complete signal is a function of the power of the other channels in the signal with the intention that the power of the group of OCNS channels is used to make the total signal add up to 1.

