3GPP TSG RAN Meeting #28 **RP-050213**
Quebec, Canada, 1 - 3 June 2005

Title **CRs (Rel-5 & Rel-6) to 25.101 & 25.133 for the removal of Dedicated pilot as sole phase reference**
Source **3GPP TSG RAN WG4 (Radio)**
Agenda Item **7.7.4**

WG Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-050399	25.101	410		C	Rel-5	5.14.0	Feature Clean Up: Removal of dedicated pilot as sole phase reference	TEI5
R4-050400	25.101	411		C	Rel-6	6.7.0	Feature Clean Up: Removal of dedicated pilot as sole phase reference	TEI6
R4-050415	25.133	754		C	Rel-5	5.14.0	Feature Clean Up: Removal of dedicated pilot as sole phase reference	TEI5
R4-050416	25.133	755		C	Rel-6	6.9.0	Feature Clean Up: Removal of dedicated pilot as sole phase reference	TEI6

3GPP TSG RAN WG4 (Radio) Meeting #35 **R4-050399**

Athens, Greece 9 - 13 May 2005

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **410** ⌘ **rev** ⌘ Current version: **5.14.0** ⌘

*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 ☐

Title:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI5
Date:	⌘	16/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	RAN#27 decision on Feature Clean-up
Summary of change:	⌘	From Section 8.3.1 the requirements and parameters for cases with DPCCH as a sole phase reference are removed; Tables 8.14C, 8.14D, 8.14E and 8.14F, together with references to them. Definition of measurement reference channel for cases with DPCCH as a sole phase reference in Annex A4.A has been removed. Definition of propagation condition Case7 has been removed from Annex B.2. Definition of downlink physical channels for cases with DPCCH as a sole phase reference are removed from Annex C.3.5 **Isolated Impact Analysis** Functionality removed: Dedicated pilot as sole phase reference Isolated impact statement: Since functionality is removed, UE implementations are not affected. Would affect UTRAN implementations supporting the removed functionality.
Consequences if not approved:	⌘	Introduction of new features and evolution of the existing feature remain slow also in the future.

Clauses affected:	⌘	8.3.1, A.4A, B.2.2, C.3.5

Other specs affected:	⌘	Y	N		⌘	
		Y		Other core specifications		25.211, 25.214, 25.331, 25.306, 25.133
		Y		Test specifications		34.121
			N	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.

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.

8.3 Demodulation of DCH in multi-path fading propagation conditions

8.3.1 Single Link Performance

The receive characteristics of the Dedicated Channel (DCH) in different multi-path fading environments are determined by the Block Error Ratio (BLER) values. BLER is measured for the each of the individual data rate specified for the DPCH. DCH is mapped into in Dedicated Physical Channel (DPCH).

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.7, 8.9 , 8.11, 8.13 and 8.14A the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio shall be below the specified value for the BLER shown in Table 8.8, 8.10, 8.12, 8.14 and 8.14B. ~~For the parameters specified in Table 8.14C and 8.14 E the downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio measured values, which are averaged over one slot, shall be below the specified value in Table 8.14D and 8.14F more than 90% of the time.~~ These requirements are applicable for TFCS size 16.

Table 8.7: Test Parameters for DCH in multi-path fading propagation conditions (Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.8: Test requirements for DCH in multi-path fading propagation conditions (Case 1)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-15.0 dB	10^{-2}
2	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
3	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
4	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.9: DCH parameters in multi-path fading propagation conditions (Case 2)

Parameter	Unit	Test 5	Test 6	Test 7	Test 8
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.10: DCH requirements in multi-path fading propagation (Case 2)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
5	-7.7 dB	10^{-2}
6	-6.4 dB	10^{-1}
	-2.7 dB	10^{-2}
7	-8.1 dB	10^{-1}
	-5.1 dB	10^{-2}
8	-5.5 dB	10^{-1}
	-3.2 dB	10^{-2}

Table 8.11: DCH parameters in multi-path fading propagation conditions (Case 3)

Parameter	Unit	Test 9	Test 10	Test 11	Test 12
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.12: DCH requirements in multi-path fading propagation conditions (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
9	-11.8 dB	10^{-2}
10	-8.1 dB	10^{-1}
	-7.4 dB	10^{-2}
	-6.8 dB	10^{-3}
11	-9.0 dB	10^{-1}
	-8.5 dB	10^{-2}
	-8.0 dB	10^{-3}
12	-5.9 dB	10^{-1}
	-5.1 dB	10^{-2}
	-4.4 dB	10^{-3}

Table 8.13: DCH parameters in multi-path fading propagation conditions (Case 1) with S-CPICH

Parameter	Unit	Test 13	Test 14	Test 15	Test 16
Phase reference		S-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14: DCH requirements in multi-path fading propagation conditions (Case 1) with S-CPICH

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
13	-15.0 dB	10^{-2}
14	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
15	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
16	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.14A: DCH parameters in multi-path fading propagation conditions (Case 6)

Parameter	Unit	Test 17	Test 18	Test 19	Test 20
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14B: DCH requirements in multi-path fading propagation conditions (Case 6)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
17	-8.8 dB	10^{-2}
18	-5.1 dB	10^{-1}
	-4.4 dB	10^{-2}
	-3.8 dB	10^{-3}
19	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}
20	-2.9 dB	10^{-1}
	-2.1 dB	10^{-2}
	-1.4 dB	10^{-3}

Table 8.14C: (Void)~~DCH parameters in multi-path fading propagation conditions (Case 7)~~

~~Parameter~~	~~Unit~~	~~Test 21~~	~~Test 22~~	~~Test 23~~	~~Test 24~~
~~Phase reference~~		~~DPCCH~~			
~~$\hat{I}_{or}/I_{oc}$~~	~~dB~~	~~0~~	~~0~~	~~6~~	~~12~~
~~I_{oc}~~	~~dBm/3.84 MHz~~	~~-60~~			
~~Information Data Rate~~	~~kbps~~	~~12.2~~	~~64~~	~~144~~	~~384~~
~~Target quality value on DTCH~~	~~BLER~~	~~0.01~~	~~0.01~~	~~0.01~~	~~0.1~~
~~Maximum_DL_Power~~	~~dB~~	~~3 (Note)~~			
~~Minimum_DL_Power~~	~~dB~~	~~-18~~			
~~DL Power Control step size, Δ_{TPC}~~	~~dB~~	~~1~~			
~~Limited Power Increase~~	~~-~~	~~"Not used"~~			
~~NOTE: The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5~~					

Table 8.14D: (Void)~~DCH requirements in multi-path fading propagation conditions (Case 7)~~

~~Test Number~~	~~$\frac{DPCH\_E_c}{I_{or}}$~~
~~21~~	~~-14.0 dB~~
~~22~~	~~-9.1 dB~~
~~23~~	~~-9.4 dB~~
~~24~~	~~-7.4 dB~~

Table 8.14E: (Void)DCH parameters in multi-path fading propagation conditions (Case 7)

Parameter	Unit	Test 25
Phase reference		DPCCH
$\hat{I}_{or}/I_{oc}$	dB	0
I_{OC}	dBm/3.84 MHz	-60
Information Data Rate	kbps	12.2
Target quality value on DTCH	BLER	0.01
Maximum_DL_Power	dB	3(Note)
Minimum_DL_Power	dB	-18
DL Power Control step size, Δ_{TPC}	dB	1
Limited Power Increase	-	"Not used"
NOTE: The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5		

Table 8.14F: (Void)DCH requirements in multi-path fading propagation conditions (Case 7)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$
25	-12.5 dB

NOTE: The reference channel used for Test Number 25 is described in section A.4A

----- Change of Section ----

A.4A (Void)DL reference measurement channel for requirements using DPCCH with 4 pilot bits as phase reference

A.4A.1 (Void)DL reference measurement channel (12.2 kbps)

The parameters for the 12.2 Kbps DL reference measurement channel are specified in Table A.20A and Table A.20B. The channel coding is shown for information in figure A.11A.

Table A.20A: (Void)DL reference measurement channel physical parameters for DPCCH used as phase reference

Parameter	Unit	Level
Information bit rate	kbps	12.2
DPCH	ksps	30
Slot Format #I	-	9
TFCI	-	On
Power offsets PO1, PO2 and PO3	dB	0
Puncturing	%	2.5

Table A.20B: (Void)~~DL reference measurement channel, transport channel parameters for DPCCH used as phase reference~~

~~Parameter~~	~~DTCH~~	~~DCCH~~
~~Transport Channel Number~~	~~1~~	~~2~~
~~Transport Block Size~~	~~244~~	~~100~~
~~Transport Block Set Size~~	~~244~~	~~100~~
~~Transmission Time Interval~~	~~20 ms~~	~~40 ms~~
~~Type of Error Protection~~	~~Convolution Coding~~	~~Convolution Coding~~
~~Coding Rate~~	~~1/3~~	~~1/3~~
~~Rate Matching attribute~~	~~256~~	~~256~~
~~Size of CR C~~	~~16~~	~~12~~
~~Position of TrCH in radio frame~~	~~Fixed~~	~~fixed~~

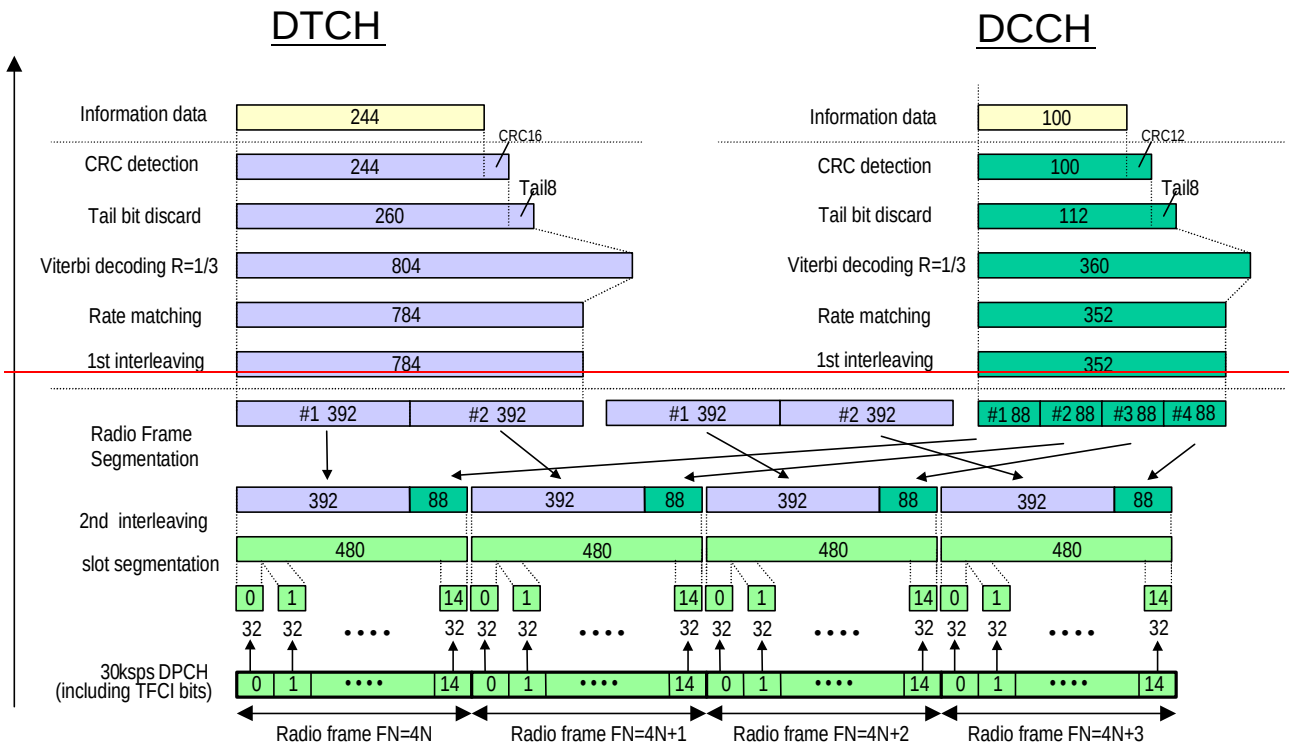

Figure A.11A (Informative): (Void)~~Channel coding of DL reference measurement channel for requirements using DPCCH with 4 channel bits (12.2 kbps)~~

---- Change of Section ----

B.2 Propagation Conditions

B.2.1 Static propagation condition

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

B.2.2 Multi-path fading propagation conditions

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

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

Case 1, speed 3km/h		Case 2, speed 3 km/h		Case 3, speed 120 km/h		Case 4, speed 3 km/h		* Case 5, speed 50 km/h		Case 6, speed 250 km/h	
Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]
0	0	0	0	0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	976	0	976	-10	260	-3
		20000	0	521	-6					521	-6
				781	-9					781	-9

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

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

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

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

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

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

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

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

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

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

B.2.3 Moving propagation conditions

The dynamic propagation conditions for the test of the baseband performance are non fading channel models with two taps. The moving propagation condition has two tap, one static, Path0, and one moving, Path1. The time difference between the two paths is according Equation (B.1). The taps have equal strengths and equal phases.

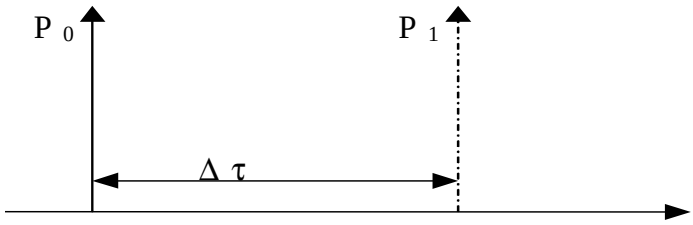

Figure B.1: The moving propagation conditions

$$\Delta\tau = B + \frac{A}{2}\left(1 + \sin(\Delta\omega \cdot t)\right) \quad \text{(B.1)}$$

The parameters in the equation are shown in the following table.

Table B.2

Parameter	Value
A	5 μs
B	1 μs
Δω	$40*10^{-3}$ s^{-1}

B.2.4 Birth-Death propagation conditions

The dynamic propagation conditions for the test of the base band performance is a non fading propagation channel with two taps. The moving propagation condition has two taps, Path1 and Path2 which alternate between 'birth' and 'death'. The positions the paths appear are randomly selected with an equal probability rate and is shown in Figure B.2.

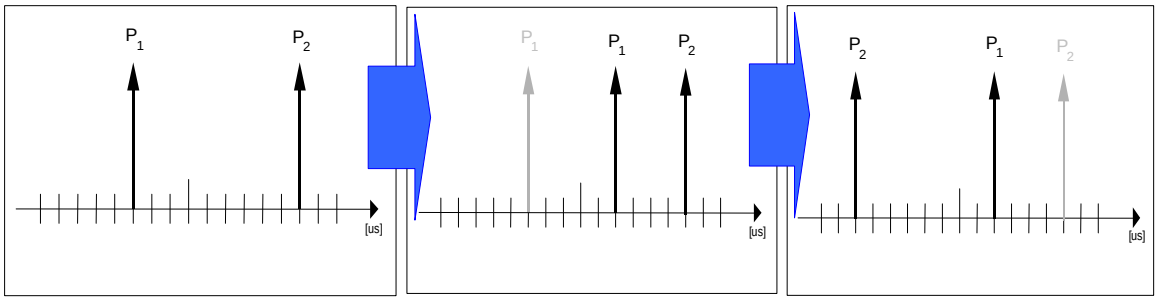

Figure B.2: Birth death propagation sequence

1. Two paths, Path1 and Path2 are randomly selected from the group[-5,-4,-3,-2,-1,0,1,2,3,4,5] μs. The paths have equal magnitudes and equal phases.

2. After 191 ms, Path1 vanishes and reappears immediately at a new location randomly selected from the group [-5,-4,-3,-2,-1,0,1,2,3,4,5] μs but excludes the point Path 2. The magnitudes and the phases of the tap coefficients of Path 1 and Path 2 shall remain unaltered.

3. After an additional 191 ms, Path2 vanishes and reappears immediately at a new location randomly selected from the group [-5,-4,-3,-2,-1,0,1,2,3,4,5] μs but excludes the point Path 1. The magnitudes and the phases of the tap coefficients of Path 1 and Path 2 shall remain unaltered.

The sequence in 2) and 3) is repeated.

Annex C (normative): Downlink Physical Channels

C.1 General

This annex specifies the downlink physical channels that are needed for setting a connection and channels that are needed during a connection.

C.2 Connection Set-up

Table C.1 describes the downlink Physical Channels that are required for connection set up.

Table C.1: Downlink Physical Channels required for connection set-up

Physical Channel
P-CPICH
P-CCPCH
SCH
S-CCPCH
PICH
AICH
DPCH

C.3 During connection

The following clauses, describes the downlink Physical Channels that are transmitted during a connection i.e., when measurements are done. For these measurements the offset between DPCH and SCH shall be zero chips at Node B meaning that SCH is overlapping with the first symbols in DPCH in the beginning of DPCH slot structure.

C.3.1 Measurement of Rx Characteristics

Table C.2 is applicable for measurements on the Receiver Characteristics (clause 7) with the exception of subclause 7.4 (Maximum input level).

Table C.2: Downlink Physical Channels transmitted during a connection

Physical Channel	Power ratio
P-CPICH	P-CPICH_Ec / DPCH_Ec = 7 dB
P-CCPCH	P-CCPCH_Ec / DPCH_Ec = 5 dB
SCH	SCH_Ec / DPCH_Ec = 5 dB
PICH	PICH_Ec / DPCH_Ec = 2 dB
DPCH	Test dependent power

C.3.2 Measurement of Performance requirements

Table C.3 is applicable for measurements on the Performance requirements (clause 8), including subclause 7.4 (Maximum input level) and subclause 6.4.4 (Out-of-synchronization handling of output power).

Table C.3: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH	P-CPICH_Ec/Ior = -10 dB	Use of P-CPICH or S-CPICH as phase reference is specified for each requirement and is also set by higher layer signalling.
S-CPICH	S-CPICH_Ec/Ior = -10 dB	When S-CPICH is the phase reference in a test condition, the phase of S-CPICH shall be 180 degrees offset from the phase of P-CPICH. When S-CPICH is not the phase reference, it is not transmitted.
P-CCPCH	P-CCPCH_Ec/Ior = -12 dB	
SCH	SCH_Ec/Ior = -12 dB	This power shall be divided equally between Primary and Secondary Synchronous channels
PICH	PICH_Ec/Ior = -15 dB	
DPCH	Test dependent power	When S-CPICH is the phase reference in a test condition, the phase of DPCH shall be 180 degrees offset from the phase of P-CPICH.
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	OCNS interference consists of 16 dedicated data channels as specified in table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

C.3.3 Connection with open-loop transmit diversity mode

Table C.4 is applicable for measurements for subclause 8.6.1 (Demodulation of DCH in open loop transmit diversity mode).

Table C.4: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied 2. Total P-CCPCH_Ec/Ior = -12 dB
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	
SCH (antenna 1 / 2)	SCH_Ec/Ior = -12 dB	1. TSTD applied. 2. This power shall be divided equally between Primary and Secondary Synchronous channels
PICH (antenna 1)	PICH_Ec1/Ior = -18 dB	1. STTD applied 2. Total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	
DPCH	Test dependent power	1. STTD applied 2. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	1.This power shall be divided equally between antennas 2.OCNS interference consists of 16 dedicated data channels as specified in Table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

C.3.4 Connection with closed loop transmit diversity mode

Table C.5 is applicable for measurements for subclause 8.6.2 (Demodulation of DCH in closed loop transmit diversity mode).

Table C.5: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	1. STTD applied, 2. total P-CCPCH_Ec/Ior = -12 dB
SCH (antenna 1 / 2)	SCH_Ec/Ior = -12 dB	1. TSTD applied
PICH (antenna 1)	PICH_Ec1/Ior = -18 dB	1. STTD applied 2. STTD applied, total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	
DPCH	Test dependent power	1. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	1.This power shall be divided equally between antennas 2. OCNS interference consists of 16 dedicated data channels. as specified in Table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

Table C.6: DPCH Channelization Code and relative level settings for OCNS signal

Channelization Code at SF=128	Relative Level setting (dB) (Note 1)	DPCH Data
2	-1	The DPCH data for each channelization code shall be uncorrelated with each other and with any wanted signal over the period of any measurement.
11	-3	
17	-3	
23	-5	
31	-2	
38	-4	
47	-8	
55	-7	
62	-4	
69	-6	
78	-5	
85	-9	
94	-10	
125	-8	
113	-6	
119	0	

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.

NOTE: The DPCH Channelization Codes and relative level settings are chosen to simulate a signal with realistic Peak to Average Ratio.

C.3.5 (Void)~~Connection with tests having DPCCH as a phase reference~~

~~Table C.6A is applicable for measurements for tests 21, 22, 23, 24 and 25 in subclause 8.3.1.~~

Table C.6A: (Void)~~Downlink Physical Channels transmitted during a connection~~

~~Physical Channel~~	~~Antenna (gain)~~	~~Power~~	~~NOTE~~
~~P-CPICH~~	~~Sector (0 dB)~~	~~P-CPICH_Ec/Ior = -10 dB~~	~~UE is informed by higher layer signalling that P-CPICH shall not be used as a phase reference~~
~~P-CCPCH~~		~~P-CCPCH_Ec/Ior = -12 dB~~	
~~SCH~~		~~SCH_Ec/Ior = -12 dB~~	~~This power shall be divided equally between Primary and Secondary Synchronous channels~~
~~PICH~~		~~PICH_Ec/Ior = -15 dB~~	
~~DPCH~~	~~Beam (6.0dB)~~	~~Test dependent power~~	~~DPCH phase shall be uncorrelated with the phase of P-CPICH (different propagation in sector and beam)~~
~~OCNS~~		~~Necessary power so that Beam total transmit power is 20 % of Node B total transmit power~~	~~1) OCNS interference consists of 16 dedicated data channels as specified in Table C.6.~~ ~~2) 60% of the power from Node B (Ior) is not involved in the tests, but is still counted as a part of the transmitted power.~~

3GPP TSG RAN WG4 (Radio) Meeting #35 **R4-050400**

Athens, Greece 9 - 13 May 2005

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **411** ⌘ **rev** ⌘ Current version: **6.7.0** ⌘

*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 ☐

Title:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI6
Date:	⌘	16/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	RAN#27 decision on Feature Clean-up
Summary of change:	⌘	From Section 8.3.1 the requirements and parameters for cases with DPCCH as a sole phase reference are removed; Tables 8.14C, 8.14D, 8.14E and 8.14F, together with references to them. Definition of measurement reference channel for cases with DPCCH as a sole phase reference in Annex A4.A has been removed. Definition of propagation condition Case7 has been removed from Annex B.2. Definition of downlink physical channels for cases with DPCCH as a sole phase reference are removed from Annex C.3.5 **Isolated Impact Analysis** Functionality removed: Dedicated pilot as sole phase reference Isolated impact statement: Since functionality is removed, UE implementations are not affected. Would affect UTRAN implementations supporting the removed functionality.
Consequences if not approved:	⌘	Introduction of new features and evolution of the existing feature remain slow also in the future.

Clauses affected:	⌘	8.3.1, A.4A, B.2.2, C.3.5			
Other specs affected:	⌘	**Y** ☒	Other core specifications	⌘	25.211, 25.214, 25.331, 25.306, 25.133
		Y ☒	Test specifications		34.121
		N ☐	O&M Specifications		

Other comments: ⌘

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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.

8.3 Demodulation of DCH in multi-path fading propagation conditions

8.3.1 Single Link Performance

The receive characteristics of the Dedicated Channel (DCH) in different multi-path fading environments are determined by the Block Error Ratio (BLER) values. BLER is measured for the each of the individual data rate specified for the DPCH. DCH is mapped into in Dedicated Physical Channel (DPCH).

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.7, 8.9 , 8.11, 8.13 and 8.14A the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio shall be below the specified value for the BLER shown in Table 8.8, 8.10, 8.12, 8.14 and 8.14B. ~~For the parameters specified in Table 8.14C and 8.14 E the downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio measured values, which are averaged over one slot, shall be below the specified value in Table 8.14D and 8.14F more than 90% of the time.~~ These requirements are applicable for TFCS size 16.

Table 8.7: Test Parameters for DCH in multi-path fading propagation conditions (Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.8: Test requirements for DCH in multi-path fading propagation conditions (Case 1)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-15.0 dB	10^{-2}
2	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
3	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
4	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.9: DCH parameters in multi-path fading propagation conditions (Case 2)

Parameter	Unit	Test 5	Test 6	Test 7	Test 8
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.10: DCH requirements in multi-path fading propagation (Case 2)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
5	-7.7 dB	10^{-2}
6	-6.4 dB	10^{-1}
	-2.7 dB	10^{-2}
7	-8.1 dB	10^{-1}
	-5.1 dB	10^{-2}
8	-5.5 dB	10^{-1}
	-3.2 dB	10^{-2}

Table 8.11: DCH parameters in multi-path fading propagation conditions (Case 3)

Parameter	Unit	Test 9	Test 10	Test 11	Test 12
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.12: DCH requirements in multi-path fading propagation conditions (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
9	-11.8 dB	10^{-2}
10	-8.1 dB	10^{-1}
	-7.4 dB	10^{-2}
	-6.8 dB	10^{-3}
11	-9.0 dB	10^{-1}
	-8.5 dB	10^{-2}
	-8.0 dB	10^{-3}
12	-5.9 dB	10^{-1}
	-5.1 dB	10^{-2}
	-4.4 dB	10^{-3}

Table 8.13: DCH parameters in multi-path fading propagation conditions (Case 1) with S-CPICH

Parameter	Unit	Test 13	Test 14	Test 15	Test 16
Phase reference		S-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14: DCH requirements in multi-path fading propagation conditions (Case 1) with S-CPICH

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
13	-15.0 dB	10^{-2}
14	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
15	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
16	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.14A: DCH parameters in multi-path fading propagation conditions (Case 6)

Parameter	Unit	Test 17	Test 18	Test 19	Test 20
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14B: DCH requirements in multi-path fading propagation conditions (Case 6)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
17	-8.8 dB	10^{-2}
18	-5.1 dB	10^{-1}
	-4.4 dB	10^{-2}
	-3.8 dB	10^{-3}
19	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}
20	-2.9 dB	10^{-1}
	-2.1 dB	10^{-2}
	-1.4 dB	10^{-3}

Table 8.14C: (Void)~~DCH parameters in multi-path fading propagation conditions (Case 7)~~

~~Parameter~~	~~Unit~~	~~Test 21~~	~~Test 22~~	~~Test 23~~	~~Test 24~~
~~Phase reference~~		~~DPCCH~~			
~~$\hat{I}_{or}/I_{oc}$~~	~~dB~~	~~0~~	~~0~~	~~6~~	~~12~~
~~I_{oc}~~	~~dBm/3.84 MHz~~	~~-60~~			
~~Information Data Rate~~	~~kbps~~	~~12.2~~	~~64~~	~~144~~	~~384~~
~~Target quality value on DTCH~~	~~BLER~~	~~0.01~~	~~0.01~~	~~0.01~~	~~0.1~~
~~Maximum_DL_Power~~	~~dB~~	~~3 (Note)~~			
~~Minimum_DL_Power~~	~~dB~~	~~-18~~			
~~DL Power Control step size, Δ_{TPC}~~	~~dB~~	~~1~~			
~~Limited Power Increase~~	~~-~~	~~"Not used"~~			
~~NOTE: The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5~~					

Table 8.14D: (Void)~~DCH requirements in multi-path fading propagation conditions (Case 7)~~

~~Test Number~~	~~$\frac{DPCH\_E_c}{I_{or}}$~~
~~21~~	~~-14.0 dB~~
~~22~~	~~-9.1 dB~~
~~23~~	~~-9.4 dB~~
~~24~~	~~-7.4 dB~~

Table 8.14E: (Void)DCH parameters in multi-path fading propagation conditions (Case 7)

Parameter	Unit	Test 25
Phase reference		DPCCH
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-60
Information Data Rate	kbps	12.2
Target quality value on DTCH	BLER	0.01
Maximum_DL_Power	dB	3 (Note)
Minimum_DL_Power	dB	-18
DL Power Control step size, Δ_{TPC}	dB	1
Limited Power Increase	-	"Not used"
NOTE: The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5		

Table 8.14F: (Void)DCH requirements in multi-path fading propagation conditions (Case 7)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$
25	-12.5 dB

NOTE: The reference channel used for Test Number 25 is described in section A.4A

---- Change of Section -----

A.4A (Void)DL reference measurement channel for requirements using DPCCH with 4 pilot bits as phase reference

A.4A.1 (Void)DL reference measurement channel (12.2 kbps)

The parameters for the 12.2 Kbps DL reference measurement channel are specified in Table A.20A and Table A.20B. The channel coding is shown for information in figure A.11A.

Table A.20A: (Void)DL reference measurement channel physical parameters for DPCCH used as phase reference

Parameter	Unit	Level
Information bit rate	kbps	12.2
DPCH	ksps	30
Slot Format #i	-	9
TFCI	-	On
Power offsets PO1, PO2 and PO3	dB	0
Puncturing	%	2.5

Table A.20B: (Void))~~DL reference measurement channel, transport channel parameters for DPCCH used as phase reference~~

~~Parameter~~	~~DTCH~~	~~DCCH~~
~~Transport Channel Number~~	~~1~~	~~2~~
~~Transport Block Size~~	~~244~~	~~100~~
~~Transport Block Set Size~~	~~244~~	~~100~~
~~Transmission Time Interval~~	~~20 ms~~	~~40 ms~~
~~Type of Error Protection~~	~~Convolution Coding~~	~~Convolution Coding~~
~~Coding Rate~~	~~1/3~~	~~1/3~~
~~Rate Matching attribute~~	~~256~~	~~256~~
~~Size of CR C~~	~~16~~	~~12~~
~~Position of TrCH in radio frame~~	~~fixed~~	~~fixed~~

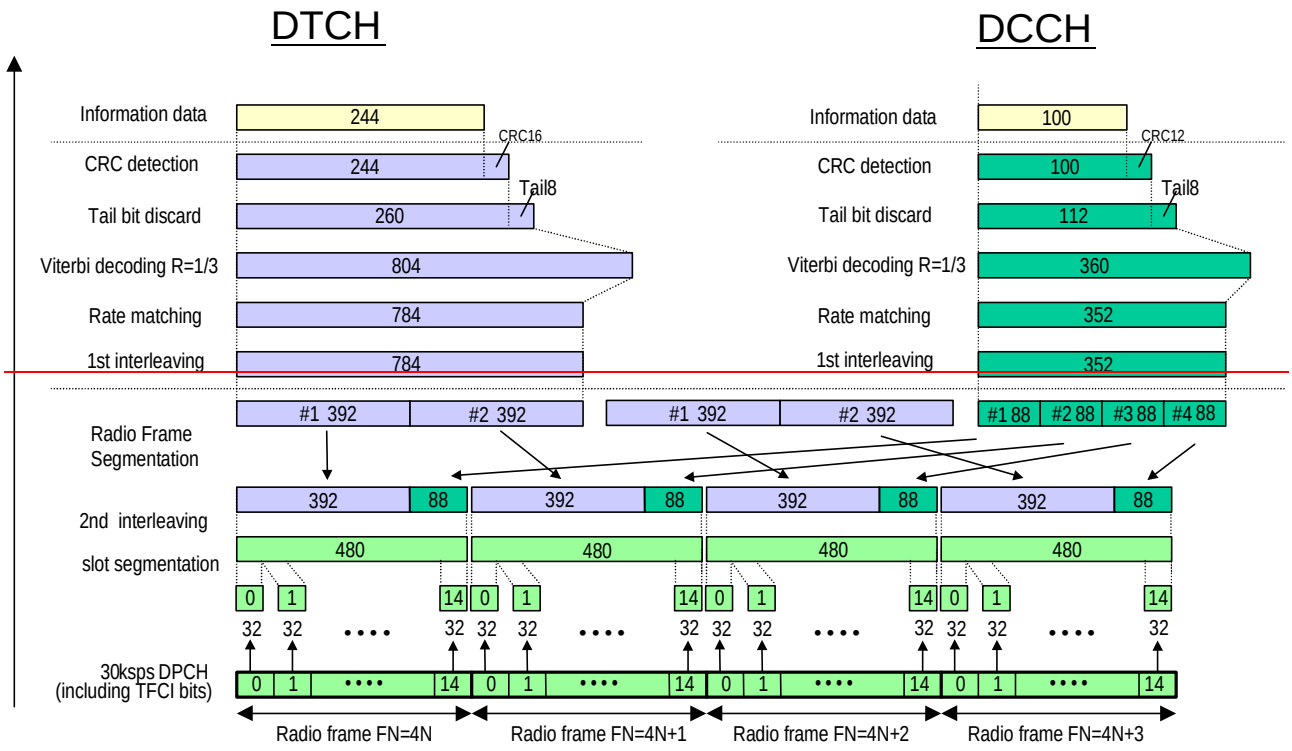

Figure A.11A (Informative): (Void)~~Channel coding of DL reference measurement channel for requirements using DPCCH with 4 channel bits (12.2 kbps)~~

---- Change of Section ----

Annex B (normative): Propagation conditions

B.1 General

Void

B.2 Propagation Conditions

B.2.1 Static propagation condition

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

B.2.2 Multi-path fading propagation conditions

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

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

Case 1		**Case 2**		**Case 3**		**Case 4**		**Case 5 (Note 1)**		**Case 6**	
Speed for Band I, II, III and IV: 3 km/h		Speed for Band I, II, III and IV: 3 km/h		Speed for Band I, II, III and IV: 120 km/h		Speed for Band I, II, III and IV: 3 km/h		Speed for Band I, II, III and IV: 50 km/h		Speed for Band I, II, III and IV: 250 km/h	
Speed for Band V and VI: 7 km/h		Speed for Band V and VI: 7 km/h		Speed for Band V and VI: 282 km/h (Note 2)		Speed for Band V and VI: 7 km/h		Speed for Band V and VI: 118 km/h		Speed for Band V and VI: 583 km/h (Note 2)	
Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]	Relative Delay [ns]	Relative mean Power [dB]
0	0	0	0	0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	976	0	976	-10	260	-3
		20000	0	521	-6					521	-6
				781	-9					781	-9

NOTE 1: Case 5 is only used in TS25.133.

NOTE 2: Speed above 250km/h is applicable to demodulation performance requirements only.

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

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

~~Case 7~~		
~~Speed for Band I, II, III and IV: 50 km/h~~		
~~Speed for Band V, VI: 118 km/h~~		
~~Relative Delay [ns]~~	~~Average Power [dB]~~	
	~~Sector~~	~~Beam~~
~~0~~	~~0.0~~	~~-~~
~~260~~	~~-4.3~~	~~-~~
~~1040~~	~~-6.6~~	~~-~~
~~4690~~	~~-2.0~~	~~0.0~~
~~7290~~	~~-7.0~~	~~-0.3~~
~~14580~~	~~-7.5~~	~~-0.9~~

Table B.1B shows propagation conditions that are used for HSDPA performance measurements in multi-path fading environment. For HSDPA enhanced performance requirements, the fading of the signals and the AWGN signals provided in each receiver antenna port shall be independent.

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

ITU Pedestrian A Speed 3km/h (PA3)		**ITU Pedestrian B Speed 3km/h (PB3)**		**ITU vehicular A Speed 30km/h (VA30)**		**ITU vehicular A Speed 120km/h (VA120)**	
Speed for Band I, II, III and IV 3 km/h		Speed for Band I, II, III and IV 3 km/h		Speed for Band I, II, III and IV 30 km/h		Speed for Band I, II, III and IV 120 km/h	
Speed for Band V, VI 7 km/h		Speed for Band V, VI 7 km/h		Speed for Band V, VI 71 km/h		Speed for Band V, VI 282 km/h (Note 1)	
Relative Delay [ns]	**Relative Mean Power [dB]**	**Relative Delay [ns]**	**Relative Mean Power [dB]**	**Relative Delay [ns]**	**Relative Mean Power [dB]**	**Relative Delay [ns]**	**Relative Mean Power [dB]**
0	0	0	0	0	0	0	0
110	-9.7	200	-0.9	310	-1.0	310	-1.0
190	-19.2	800	-4.9	710	-9.0	710	-9.0
410	-22.8	1200	-8.0	1090	-10.0	1090	-10.0
		2300	-7.8	1730	-15.0	1730	-15.0
		3700	-23.9	2510	-20.0	2510	-20.0

NOTE 1: Speed above 120km/h is applicable to demodulation performance requirements only.

Table B.1C shows propagation conditions that are used for CQI test in multi-path fading. For HSDPA enhanced performance requirements, the fading of the signals and the AWGN signals provided in each receiver antenna port shall be independent.

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

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

B.2.3 Moving propagation conditions

The dynamic propagation conditions for the test of the baseband performance are non fading channel models with two taps. The moving propagation condition has two tap, one static, Path0, and one moving, Path1. The time difference between the two paths is according Equation (B.1). The taps have equal strengths and equal phases.

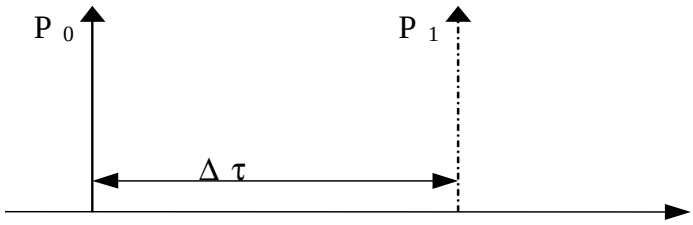

Figure B.1: The moving propagation conditions

$$\Delta\tau = B + \frac{A}{2}\left(1 + \sin(\Delta\omega \cdot t)\right) \quad \text{(B.1)}$$

The parameters in the equation are shown in the following table.

Table B.2

Parameter	Value
A	5 μs
B	1 μs
Δω	$40*10^{-3}$ s^{-1}

B.2.4 Birth-Death propagation conditions

The dynamic propagation conditions for the test of the base band performance is a non fading propagation channel with two taps. The moving propagation condition has two taps, Path1 and Path2 which alternate between 'birth' and 'death'. The positions the paths appear are randomly selected with an equal probability rate and is shown in Figure B.2.

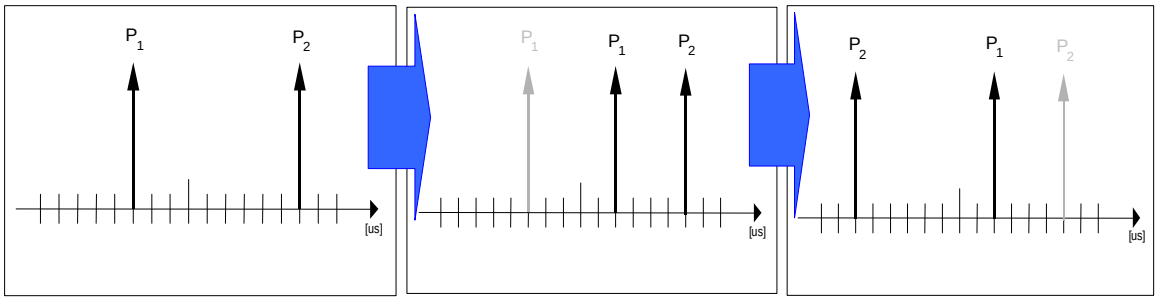

Figure B.2: Birth death propagation sequence

1. Two paths, Path1 and Path2 are randomly selected from the group[-5,-4,-3,-2,-1,0,1,2,3,4,5] μs. The paths have equal magnitudes and equal phases.

2. After 191 ms, Path1 vanishes and reappears immediately at a new location randomly selected from the group [-5,-4,-3,-2,-1,0,1,2,3,4,5] μs but excludes the point Path 2. The magnitudes and the phases of the tap coefficients of Path 1 and Path 2 shall remain unaltered.

3. After an additional 191 ms, Path2 vanishes and reappears immediately at a new location randomly selected from the group [-5,-4,-3,-2,-1,0,1,2,3,4,5] μs but excludes the point Path 1. The magnitudes and the phases of the tap coefficients of Path 1 and Path 2 shall remain unaltered.

The sequence in 2) and 3) is repeated.

Annex C (normative): Downlink Physical Channels

C.1 General

This annex specifies the downlink physical channels that are needed for setting a connection and channels that are needed during a connection.

C.2 Connection Set-up

Table C.1 describes the downlink Physical Channels that are required for connection set up.

Table C.1: Downlink Physical Channels required for connection set-up

Physical Channel
P-CPICH
P-CCPCH
SCH
S-CCPCH
PICH
AICH
DPCH

C.3 During connection

The following clauses, describes the downlink Physical Channels that are transmitted during a connection i.e., when measurements are done. For these measurements the offset between DPCH and SCH shall be zero chips at Node B meaning that SCH is overlapping with the first symbols in DPCH in the beginning of DPCH slot structure.

C.3.1 Measurement of Rx Characteristics

Table C.2 is applicable for measurements on the Receiver Characteristics (clause 7) with the exception of subclause 7.4 (Maximum input level).

Table C.2: Downlink Physical Channels transmitted during a connection

Physical Channel	Power ratio
P-CPICH	P-CPICH_Ec / DPCH_Ec = 7 dB
P-CCPCH	P-CCPCH_Ec / DPCH_Ec = 5 dB
SCH	SCH_Ec / DPCH_Ec = 5 dB
PICH	PICH_Ec / DPCH_Ec = 2 dB
DPCH	Test dependent power

C.3.2 Measurement of Performance requirements

Table C.3 is applicable for measurements on the Performance requirements (clause 8), including subclause 7.4 (Maximum input level) and subclause 6.4.4 (Out-of-synchronization handling of output power).

Table C.3: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH	P-CPICH_Ec/Ior = -10 dB	Use of P-CPICH or S-CPICH as phase reference is specified for each requirement and is also set by higher layer signalling.
S-CPICH	S-CPICH_Ec/Ior = -10 dB	When S-CPICH is the phase reference in a test condition, the phase of S-CPICH shall be 180 degrees offset from the phase of P-CPICH. When S-CPICH is not the phase reference, it is not transmitted.
P-CCPCH	P-CCPCH_Ec/Ior = -12 dB	When BCH performance is tested the P-CCPCH_Ec/Ior is test dependent
SCH	SCH_Ec/Ior = -12 dB	This power shall be divided equally between Primary and Secondary Synchronous channels
PICH	PICH_Ec/Ior = -15 dB	
DPCH	Test dependent power	When S-CPICH is the phase reference in a test condition, the phase of DPCH shall be 180 degrees offset from the phase of P-CPICH. When BCH performance is tested the DPCH is not transmitted.
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	OCNS interference consists of 16 dedicated data channels as specified in table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

C.3.3 Connection with open-loop transmit diversity mode

Table C.4 is applicable for measurements for subclause 8.6.1 (Demodulation of DCH in open loop transmit diversity mode).

Table C.4: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied 2. Total P-CCPCH_Ec/Ior = -12 dB
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	
SCH (antenna 1 / 2)	SCH_Ec/Ior = -12 dB	1. TSTD applied. 2. This power shall be divided equally between Primary and Secondary Synchronous channels 3. When BCH performance is tested the P-CCPCH_Ec/Ior is test dependent
PICH (antenna 1)	PICH_Ec1/Ior = -18 dB	1. STTD applied 2. Total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	
DPCH	Test dependent power	1. STTD applied 2. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	1.This power shall be divided equally between antennas 2.OCNS interference consists of 16 dedicated data channels as specified in Table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

C.3.4 Connection with closed loop transmit diversity mode

Table C.5 is applicable for measurements for subclause 8.6.2 (Demodulation of DCH in closed loop transmit diversity mode).

Table C.5: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	1. STTD applied, 2. total P-CCPCH_Ec/Ior = -12 dB
SCH (antenna 1 / 2)	SCH_Ec/Ior = -12 dB	1. TSTD applied
PICH (antenna 1)	PICH_Ec1/Ior = -18 dB	1. STTD applied
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	2. STTD applied, total PICH_Ec/Ior = -15 dB
DPCH	Test dependent power	1. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	1.This power shall be divided equally between antennas 2. OCNS interference consists of 16 dedicated data channels. as specified in Table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

Table C.6: DPCH Channelization Code and relative level settings for OCNS signal

Channelization Code at SF=128	Relative Level setting (dB) (Note 1)	DPCH Data
2	-1	The DPCH data for each channelization code shall be uncorrelated with each other and with any wanted signal over the period of any measurement.
11	-3	
17	-3	
23	-5	
31	-2	
38	-4	
47	-8	
55	-7	
62	-4	
69	-6	
78	-5	
85	-9	
94	-10	
125	-8	
113	-6	
119	0	

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.

NOTE: The DPCH Channelization Codes and relative level settings are chosen to simulate a signal with realistic Peak to Average Ratio.

C.3.5 (Void)~~Connection with tests having DPCCH as a phase reference~~

~~Table C.6A is applicable for measurements for tests 21, 22, 23, 24 and 25 in subclause 8.3.1.~~

Table C.6A: (Void)~~Downlink Physical Channels transmitted during a connection~~

~~Physical Channel~~	~~Antenna (gain)~~	~~Power~~	~~NOTE~~
~~P-CPICH~~	~~Sector (0 dB)~~	~~P-CPICH_Ec/Ior = -10 dB~~	~~UE is informed by higher layer signalling that P-CPICH shall not be used as a phase reference~~
~~P-CCPCH~~		~~P-CCPCH_Ec/Ior = -12 dB~~	
~~SCH~~		~~SCH_Ec/Ior = -12 dB~~	~~This power shall be divided equally between Primary and Secondary Synchronous channels~~
~~PICH~~		~~PICH_Ec/Ior = -15 dB~~	
~~DPCH~~	~~Beam (6.0dB)~~	~~Test dependent power~~	~~DPCH phase shall be uncorrelated with the phase of P-CPICH (different propagation in sector and beam)~~
~~OCNS~~		~~Necessary power so that Beam total transmit power is 20 % of Node B total transmit power~~	~~1) OCNS interference consists of 16 dedicated data channels as specified in Table C.6.~~ ~~2) 60% of the power from Node B (Ior) is not involved in the tests, but is still counted as a part of the transmitted power.~~

3GPP TSG RAN WG4 (Radio) Meeting #35 **R4-050415**

Athens, Greece 9 - 13 May 2005

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **754** ⌘ **rev** ⌘ Current version: **5.14.0** ⌘

*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 ☐

Title:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI5
Date:	⌘	16/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	RAN#27 decision on Feature Clean-up
Summary of change:	⌘	In Section 5.1.2.1 the text, that determines the active set dimensioning in case neither P-CPICH nor S-CPICH is available as phase reference, is removed. **Isolated Impact Analysis** Functionality removed: Dedicated pilot as sole phase reference Isolated impact statement: Since functionality is removed, UE implementations are not affected. Would affect UTRAN implementations supporting the removed functionality.
Consequences if not approved:	⌘	Introduction of new features and evolution of the existing feature remain slow also in the future.

Clauses affected:	⌘	5.1.2.1			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	25.211, 25.214, 25.331, 25.306, 25.101
		N	Test specifications		
		N	O&M Specifications		
Other comments:	⌘				

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.1 FDD/FDD Soft Handover

5.1.1 Introduction

Soft handover is a function in which the UE is connected to several UTRAN access points at the same time. Addition and/or release of radio links are controlled by the ACTIVE SET UPDATE procedure.

The soft handover function includes a measurement phase, a decision algorithm in UTRAN and the ACTIVE SET UPDATE procedure.

5.1.2 Requirements

5.1.2.1 Active set dimension

The UE shall be capable of supporting at least 6 radio links in the active set.

~~As described in TS 25.211, the UE may be informed by UTRAN that for one or more links in the active set neither S-CPICH or P-CPICH is available as phase reference and the UE shall thus use the Dedicated Pilot as phase reference. The UE shall then support at least 6 radio links in the active set, out of which up to 4 radio links are such that the Dedicated Pilot shall be used as a phase reference~~

5.1.2.2 Active set update delay

The active set update delay is defined as the time from when the UE has received the ACTIVE SET UPDATE message from UTRAN, or at the time stated through the activation time when to perform the active set update, to the time when the UE successfully uses the set of radio links stated in that message for power control.

The active set update delay is depending on the number of known cells referred to in the ACTIVE SET UPDATE message. A cell is known if it has been measured by the UE during the last 5 seconds and the SFN of the cell has been decoded by the UE.

And the phase reference is the primary CPICH.

The active set update delay shall be less than 50+10*KC+100*OC ms, where

KC is the number of known cells in the active set update message.

OC is the number of cells that are not known in the active set update message.

If the UE have radio links in the active set that it can not use for data detection (due to low signal level), the UE shall at least every 150 ms search for the radio link

3GPP TSG RAN WG4 (Radio) Meeting #35 **R4-050416**

Athens, Greece 9 - 13 May 2005

CR-Form-v7

CHANGE REQUEST

⌘ **25.133** **CR** **755** ⌘ **rev** ⌘ Current version: **6.9.0** ⌘

*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 ☐

Title:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI6
Date:	⌘	16/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-6

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Clauses affected:	⌘	5.1.2.1			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	25.211, 25.214, 25.331, 25.306, 25.101
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		N	O&M Specifications		
Other comments:	⌘				

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