TSG RAN Meeting #23 **RP-040044**
Phoenix, US, 10 - 12 March 2004

Title **Technically endorsed CRs (R99 and Rel-4/Rel-5/Rel-6 Category A) to TS25.133 on "Minimum requirements for TPC combining in soft HO"**
Source **TSG RAN WG4**
Agenda Item **7.5.2**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-040162	25.101	335	1	F	R99	3.16.0	Minimum requirements for TPC combining in soft Handover	TEI
R4-040163	25.101	336	1	A	Rel-4	4.10.0	Minimum requirements for TPC combining in soft Handover	TEI
R4-040164	25.101	337	1	A	Rel-5	5.9.0	Minimum requirements for TPC combining in soft Handover	TEI
R4-040165	25.101	338	1	A	Rel-6	6.3.0	Minimum requirements for TPC combining in soft Handover	TEI

3GPP TSG-RAN Working Group 4 Meeting #30 **Tdoc ⌘R4-040162**
Munich, Germany, February 9-13, 2004

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **335** ⌘**rev** **1** ⌘ Current version: **3.16.0** ⌘

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

Title:	⌘	Minimum requirements for TPC combining in soft handover
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	12/02/2004
Category:	⌘	**F**
Release:	⌘	R99

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: ⌘ In TS 25.101 the existing test case (8.7.2) does not consider the combining of 'reliable' TPC commands in soft handover as defined in TS 25.214.

Summary of change: ⌘ Two new test cases are added that address the issue of combining the TPC commands from the reliable radio links in soft handover.

Before the tests start initialisation is done during which only the DPCH from the Cell 1 is transmitted. The UL transmit power control is on and the transmit power of the UE is adjusted to a predefined level of -15 dBm. Furthermore, the DPCH Ec/Ior level from cell 1 is adjusted so that 5% TPC error is maintained from cell 1. Cell 2 and Cell 3 are present as interferers in the initialisation of test 1 but they do not transmit DPCH to the UE. Only Cell 2 is present as interferer in the initialisation of test 2 but it does not transmit DPCH to the UE.

During test 1 there are three cells, Cell 1, Cell 2 and Cell 3 transmitting DPCH for the UE. The DPCH_Ec/Ior level of Cell 1 is kept constant during the test to a level adjusted during the initialisation. The DPCH_Ec/Ior levels of Cell 2 and Cell 3 are kept 10 dB below the DPCH_Ec/Ior levels of Cell 1. This offset level of 10 dB provides TPC command error rate of approximately 30% on Cell 2 and Cell 3, which are considered unreliable. Cell 1 tries to keep the UE transmit power at the target level of -15 dBm as in the initialisation phase. However, Cell 2 and Cell 3 transmit only the sequence of "1" continuously. In the test the UE is required to do some reliability check to reject the unreliable commands thus maintaining the UE output power at -15 dBm due to the commands from Cell 1. But due to occasional combining of the erroneous TPC commands there will be some variations in the UE output power.

		There are only 2 cells in test 2: Cell 1 and Cell 2. Cell 1 tries to keep the UE transmit power at the target level of -15 dBm. Cell 2 transmits sequence of "1". During test 2 the DPCH_Ec/Ior2 level of Cell 2 is set 6 dB higher than the DPCH_Ec/Ior level of Cell 1. This offset figure gives approximately 0% TPC error rate on Cell 2. The higher DPCH Ec/Ior level is used for Cell 2 in order to ensure that the UE does not only follow the TPC commands of the strongest cell. During the test the UE output power variation should remain within the specified range. In case UE follows the commands from the best cell (Cell 2) the UE output power will increase beyond the allowed range, thus failing the test. Isolated Impact Analysis: This CR will add new test cases in TS 25.101. This does not affect the core requirements. The UE implementation already compliant to the new test cases will not be affected.
Consequences if not approved:	⌘	The functionality of using reliability metric in TPC command combining as defined in 25.214 is not tested. This may lead to undesired UE behaviour: i. There will be no assurance that only reliable TPC commands are taken into account when combining commands in soft handover. This may lead to poor uplink quality at the base station resulting in RRM initiated Radio Link Failure. Due to unacceptable low UE transmit power level the base station may also loose the radio link synchronisation. The overall consequence is the loss in uplink coverage and increase in call dropping rate. ii. There will be no assurance that all the reliable TPC commands are combined in soft handover. There is a risk that UE might do selection combining, i.e. consider only the most reliable command when increasing or decreasing its transmit power level. As a consequence, the UE transmit power may be higher than the desired level. The higher power level would lead to high uplink interference at the base stations. The overall affect is loss in system capacity.

Clauses affected:	⌘	8.7			
Other specs affected:	⌘	**Y** / **N** / **X** **X** / / **X**	Other core specifications Test specifications O&M Specifications	⌘	TS 34.121
Other comments:	⌘				

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8.7.2 Combining of TPC commands from radio links of different radio link sets

8.7.2.1 Minimum requirement

Test parameters are specified in Table 8.27. The delay profiles of the signals received from the different cells are the same but time-shifted by 10 chips.

For Test 1, the sequence of uplink power changes between adjacent slots shall be as shown in Table 8.28 over the 4 consecutive slots more than 99% of the time. Note that this case is without an additional noise source I_{oc}.

For Test 2, the Cell1 and Cell2 TPC patterns are repeated a number of times. If the transmitted power of a given slot is increased compared to the previous slot, then a variable "Transmitted power UP" is increased by one, otherwise a variable "Transmitted power DOWN" is increased by one. The requirements for "Transmitted power UP" and "Transmitted power DOWN" are shown in Table 8.28A.

Table 8.27: Parameters for TPC command combining

Parameter	Unit	Test 1	Test 2
Phase reference	-	P-CPICH	
DPCH_Ec/Ior	dB	-12	
$\hat{I}_{or1}$ and $\hat{I}_{or2}$	dBm/3.84 MHz	-60	
I_{oc}	dBm/3.84 MHz	-	-60
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands over 4 slots	-	{0,0,1,1}	
Cell 2 TPC commands over 4 slots	-	{0,1,0,1}	
Information data Rate	kbps	12.2	
Propagation condition	-	Static without AWGN source I_{oc}	Multi-path fading case 3

Table 8.28: Test requirements for Test 1

Test Number	Required power changes over the 4 consecutive slots
1	Down, Down, Down, Up

Table 8.28A: Requirements for Test 2

Test Number	Ratio (Transmitted power UP) / (Total number of slots)	Ratio (Transmitted power DOWN) / (Total number of slots)
2	≥0.25	≥0.5

8.7.x Combining of reliable TPC commands from radio links of different radio link sets

8.7.x.1 Minimum requirement

Test 1 verifies that the UE follows only the reliable TPC commands in soft handover. Test 2 verifies that the UE follows all the reliable TPC commands in soft handover.

Test parameters are specified in Table 8.2x. Before the start of the tests, the UE transmit power shall be initialised to -15 dBm. An actual UE transmit power may vary from the target level of -15 dBm due to inaccurate UE output power step.

During tests 1 and 2 the UE transmit power samples, which are defined as the mean power over one timeslot, shall stay 90% of the time within the range defined in Table 8.2xy.

Table 8.2x: Parameters for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
Phase reference	-	P-CPICH	
DPCH_Ec/Ior1	dB	Note 1	Note 1 & Note 3
DPCH_Ec/Ior2	dB	DPCH_Ec/Ior1 - 10	DPCH_Ec/Ior1 + 6
DPCH_Ec/Ior3	dB	DPCH_Ec/Ior1 - 10	-
$\hat{I}_{or1}/I_{oc}$	dB	-1	-1
$\hat{I}_{or2}/I_{oc}$	dB	-1	-1
$\hat{I}_{or3}/I_{oc}$	dB	-1	-
I_{oc}	dBm/3.84 MHz	-60	
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands	-	Note 2	Note 2
Cell 2 TPC commands	-	"1"	"1"
Cell 3 TPC commands	-	"1"	-
Information data Rate	kbps	12.2	
Propagation condition	-	Static	
Note 1: The DPCH_Ec/Ior1 is set at the level corresponding to 5% TPC error rate. Note 2: The uplink power control from cell1 shall be such that the UE transmit power would stay at -15 dBm. Note 3: The maximum DPCH_Ec/Ior1 level in cell1 is -9 dB.			

Table 8.2xy: Test requirements for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
UE output power	dBm	-15 ± 5 dB	-15 ± 3 dB

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Tdoc ⌘R4-040163

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CHANGE REQUEST

⌘ **25.101** **CR** **336** ⌘**rev** **1** ⌘ Current version: **4.10.0** ⌘

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

Title:	⌘	Minimum requirements for TPC combining in soft handover
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	12/02/2004
Category:	⌘	**A**
Release:	⌘	Rel-4

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During test 1 there are three cells, Cell 1, Cell 2 and Cell 3 transmitting DPCH for the UE. The DPCH_Ec/Ior level of Cell 1 is kept constant during the test to a level adjusted during the initialisation. The DPCH_Ec/Ior levels of Cell 2 and Cell 3 are kept 10 dB below the DPCH_Ec/Ior levels of Cell 1. This offset level of 10 dB provides TPC command error rate of approximately 30% on Cell 2 and Cell 3, which are considered unreliable. Cell 1 tries to keep the UE transmit power at the target level of -15 dBm as in the initialisation phase. However, Cell 2 and Cell 3 transmit only the sequence of "1" continuously. In the test the UE is required to do some reliability check to reject the unreliable commands thus maintaining the UE output power at -15 dBm due to the commands from Cell 1. But due to occasional combining of the erroneous TPC commands there will be some variations in the UE output power.

		There are only 2 cells in test 2: Cell 1 and Cell 2. Cell 1 tries to keep the UE transmit power at the target level of -15 dBm. Cell 2 transmits sequence of “1”. During test 2 the DPCH_Ec/Ior2 level of Cell 2 is set 6 dB higher than the DPCH_Ec/Ior level of Cell 1. This offset figure gives approximately 0% TPC error rate on Cell 2. The higher DPCH Ec/Ior level is used for Cell 2 in order to ensure that the UE does not only follow the TPC commands of the strongest cell. During the test the UE output power variation should remain within the specified range. In case UE follows the commands from the best cell (Cell 2) the UE output power will increase beyond the allowed range, thus failing the test. Isolated Impact Analysis: This CR will add new test cases in TS 25.101. This does not affect the core requirements. The UE implementation already compliant to the new test cases will not be affected.
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Clauses affected:	⌘	8.7				
Other specs affected:	⌘	**Y**	**N**		⌘	
			X	Other core specifications		TS 34.121
		X		Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

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8.7.2 Combining of TPC commands from radio links of different radio link sets

8.7.2.1 Minimum requirement

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For Test 2, the Cell1 and Cell2 TPC patterns are repeated a number of times. If the transmitted power of a given slot is increased compared to the previous slot, then a variable "Transmitted power UP" is increased by one, otherwise a variable "Transmitted power DOWN" is increased by one. The requirements for "Transmitted power UP" and "Transmitted power DOWN" are shown in Table 8.28A.

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I_{oc}	dBm/3.84 MHz	-	-60
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands over 4 slots	-	{0,0,1,1}	
Cell 2 TPC commands over 4 slots	-	{0,1,0,1}	
Information data Rate	kbps	12.2	
Propagation condition	-	Static without AWGN source I_{oc}	Multi-path fading case 3

Table 8.28: Test requirements for Test 1

Test Number	Required power changes over the 4 consecutive slots
1	Down, Down, Down, Up

Table 8.28A: Requirements for Test 2

Test Number	Ratio (Transmitted power UP) / (Total number of slots)	Ratio (Transmitted power DOWN) / (Total number of slots)
2	≥0.25	≥0.5

8.7.x Combining of reliable TPC commands from radio links of different radio link sets

8.7.x.1 Minimum requirement

Test 1 verifies that the UE follows only the reliable TPC commands in soft handover. Test 2 verifies that the UE follows all the reliable TPC commands in soft handover.

Test parameters are specified in Table 8.2x. Before the start of the tests, the UE transmit power shall be initialised to -15 dBm. An actual UE transmit power may vary from the target level of -15 dBm due to inaccurate UE output power step.

During tests 1 and 2 the UE transmit power samples, which are defined as the mean power over one timeslot, shall stay 90% of the time within the range defined in Table 8.2xy.

Table 8.2x: Parameters for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
Phase reference	-	P-CPICH	
DPCH_Ec/Ior1	dB	Note 1	Note 1 & Note 3
DPCH_Ec/Ior2	dB	DPCH_Ec/Ior1 - 10	DPCH_Ec/Ior1 + 6
DPCH_Ec/Ior3	dB	DPCH_Ec/Ior1 - 10	-
$\hat{I}_{or1}/I_{oc}$	dB	-1	-1
$\hat{I}_{or2}/I_{oc}$	dB	-1	-1
$\hat{I}_{or3}/I_{oc}$	dB	-1	-
I_{oc}	dBm/3.84 MHz	-60	
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands	-	Note 2	Note 2
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Cell 3 TPC commands	-	"1"	-
Information data Rate	kbps	12.2	
Propagation condition	-	Static	
Note 1: The DPCH_Ec/Ior1 is set at the level corresponding to 5% TPC error rate. Note 2: The uplink power control from cell1 shall be such that the UE transmit power would stay at -15 dBm. Note 3: The maximum DPCH_Ec/Ior1 level in cell1 is -9 dB.			

Table 8.2xy: Test requirements for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
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Tdoc ⌘R4-040164

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CHANGE REQUEST

⌘ **25.101** **CR** **337** ⌘ **rev** **1** ⌘ Current version: **5.9.0** ⌘

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Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	12/02/2004
Category:	⌘	**A**
Release:	⌘	Rel-5

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Clauses affected:	⌘	8.7				
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Other comments:	⌘					

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8.7.2 Combining of TPC commands from radio links of different radio link sets

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Information data Rate	kbps	12.2	
Propagation condition	-	Static without AWGN source I_{oc}	Multi-path fading case 3

Table 8.28: Test requirements for Test 1

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Test Number	Ratio (Transmitted power UP) / (Total number of slots)	Ratio (Transmitted power DOWN) / (Total number of slots)
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8.7.x Combining of reliable TPC commands from radio links of different radio link sets

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$\hat{I}_{or1}/I_{oc}$	dB	-1	-1
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Cell 2 TPC commands	-	"1"	"1"
Cell 3 TPC commands	-	"1"	-
Information data Rate	kbps	12.2	
Propagation condition	-	Static	
Note 1: The DPCH_Ec/Ior1 is set at the level corresponding to 5% TPC error rate. Note 2: The uplink power control from cell1 shall be such that the UE transmit power would stay at -15 dBm. Note 3: The maximum DPCH_Ec/Ior1 level in cell1 is -9 dB.			

Table 8.2xy: Test requirements for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
UE output power	dBm	-15 ± 5 dB	-15 ± 3 dB

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CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **338** ⌘ **rev** **1** ⌘ Current version: **6.3.0** ⌘

*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:	⌘	Minimum requirements for TPC combining in soft handover
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	12/02/2004
Category:	⌘	**A**
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: ⌘ In TS 25.101 the existing test case (8.7.2) does not consider the combining of 'reliable' TPC commands in soft handover as defined in TS 25.214.

Summary of change: ⌘ Two new test cases are added that address the issue of combining the TPC commands from the reliable radio links in soft handover.

Before the tests start initialisation is done during which only the DPCH from the Cell 1 is transmitted. The UL transmit power control is on and the transmit power of the UE is adjusted to a predefined level of -15 dBm. Furthermore, the DPCH Ec/Ior level from cell 1 is adjusted so that 5% TPC error is maintained from cell 1. Cell 2 and Cell 3 are present as interferers in the initialisation of test 1 but they do not transmit DPCH to the UE. Only Cell 2 is present as interferer in the initialisation of test 2 but it does not transmit DPCH to the UE.

During test 1 there are three cells, Cell 1, Cell 2 and Cell 3 transmitting DPCH for the UE. The DPCH_Ec/Ior level of Cell 1 is kept constant during the test to a level adjusted during the initialisation. The DPCH_Ec/Ior levels of Cell 2 and Cell 3 are kept 10 dB below the DPCH_Ec/Ior levels of Cell 1. This offset level of 10 dB provides TPC command error rate of approximately 30% on Cell 2 and Cell 3, which are considered unreliable. Cell 1 tries to keep the UE transmit power at the target level of -15 dBm as in the initialisation phase. However, Cell 2 and Cell 3 transmit only the sequence of "1" continuously. In the test the UE is required to do some reliability check to reject the unreliable commands thus maintaining the UE output power at -15 dBm due to the commands from Cell 1. But due to occasional combining of the erroneous TPC commands there will be some variations in the UE output power.

		There are only 2 cells in test 2: Cell 1 and Cell 2. Cell 1 tries to keep the UE transmit power at the target level of -15 dBm. Cell 2 transmits sequence of “1”. During test 2 the DPCH_Ec/Ior2 level of Cell 2 is set 6 dB higher than the DPCH_Ec/Ior level of Cell 1. This offset figure gives approximately 0% TPC error rate on Cell 2. The higher DPCH Ec/Ior level is used for Cell 2 in order to ensure that the UE does not only follow the TPC commands of the strongest cell. During the test the UE output power variation should remain within the specified range. In case UE follows the commands from the best cell (Cell 2) the UE output power will increase beyond the allowed range, thus failing the test.
Consequences if not approved:	⌘	The functionality of using reliability metric in TPC command combining as defined in 25.214 is not tested. This may lead to undesired UE behaviour: i. There will be no assurance that only reliable TPC commands are taken into account when combining commands in soft handover. This may lead to poor uplink quality at the base station resulting in RRM initiated Radio Link Failure. Due to unacceptable low UE transmit power level the base station may also loose the radio link synchronisation. The overall consequence is the loss in uplink coverage and increase in call dropping rate. ii. There will be no assurance that all the reliable TPC commands are combined in soft handover. There is a risk that UE might do selection combining, i.e. consider only the most reliable command when increasing or decreasing its transmit power level. As a consequence, the UE transmit power may be higher than the desired level. The higher power level would lead to high uplink interference at the base stations. The overall affect is loss in system capacity.

Clauses affected:	⌘	8.7			
Other specs affected:	⌘	**Y** / **N** **N** / **X**	Other core specifications	⌘	TS 34.121
		Y / **N** **Y** / **X**	Test specifications		
		Y / **N** **N** / **X**	O&M Specifications		
Other comments:	⌘				

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.

8.7.2 Combining of TPC commands from radio links of different radio link sets

8.7.2.1 Minimum requirement

Test parameters are specified in Table 8.27. The delay profiles of the signals received from the different cells are the same but time-shifted by 10 chips.

For Test 1, the sequence of uplink power changes between adjacent slots shall be as shown in Table 8.28 over the 4 consecutive slots more than 99% of the time. Note that this case is without an additional noise source I_{oc}.

For Test 2, the Cell1 and Cell2 TPC patterns are repeated a number of times. If the transmitted power of a given slot is increased compared to the previous slot, then a variable "Transmitted power UP" is increased by one, otherwise a variable "Transmitted power DOWN" is increased by one. The requirements for "Transmitted power UP" and "Transmitted power DOWN" are shown in Table 8.28A.

Table 8.27: Parameters for TPC command combining

Parameter	Unit	Test 1	Test 2
Phase reference	-	P-CPICH	
DPCH_Ec/Ior	dB	-12	
$\hat{I}_{or1}$ and $\hat{I}_{or2}$	dBm/3.84 MHz	-60	
I_{oc}	dBm/3.84 MHz	-	-60
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands over 4 slots	-	{0,0,1,1}	
Cell 2 TPC commands over 4 slots	-	{0,1,0,1}	
Information data Rate	kbps	12.2	
Propagation condition	-	Static without AWGN source I_{oc}	Multi-path fading case 3

Table 8.28: Test requirements for Test 1

Test Number	Required power changes over the 4 consecutive slots
1	Down, Down, Down, Up

Table 8.28A: Requirements for Test 2

Test Number	Ratio (Transmitted power UP) / (Total number of slots)	Ratio (Transmitted power DOWN) / (Total number of slots)
2	≥0.25	≥0.5

8.7.x Combining of reliable TPC commands from radio links of different radio link sets

8.7.x.1 Minimum requirement

Test 1 verifies that the UE follows only the reliable TPC commands in soft handover. Test 2 verifies that the UE follows all the reliable TPC commands in soft handover.

Test parameters are specified in Table 8.2x. Before the start of the tests, the UE transmit power shall be initialised to -15 dBm. An actual UE transmit power may vary from the target level of -15 dBm due to inaccurate UE output power step.

During tests 1 and 2 the UE transmit power samples, which are defined as the mean power over one timeslot, shall stay 90% of the time within the range defined in Table 8.2xy.

Table 8.2x: Parameters for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
Phase reference	-	P-CPICH	
DPCH_Ec/Ior1	dB	Note 1	Note 1 & Note 3
DPCH_Ec/Ior2	dB	DPCH_Ec/Ior1 - 10	DPCH_Ec/Ior1 + 6
DPCH_Ec/Ior3	dB	DPCH_Ec/Ior1 - 10	-
$\hat{I}_{or1}/I_{oc}$	dB	-1	-1
$\hat{I}_{or2}/I_{oc}$	dB	-1	-1
$\hat{I}_{or3}/I_{oc}$	dB	-1	-
I_{oc}	dBm/3.84 MHz	-60	
Power-Control-Algorithm	-	Algorithm 1	
Cell 1 TPC commands	-	Note 2	Note 2
Cell 2 TPC commands	-	"1"	"1"
Cell 3 TPC commands	-	"1"	-
Information data Rate	kbps	12.2	
Propagation condition	-	Static	
Note 1: The DPCH_Ec/Ior1 is set at the level corresponding to 5% TPC error rate. Note 2: The uplink power control from cell1 shall be such that the UE transmit power would stay at -15 dBm. Note 3: The maximum DPCH_Ec/Ior1 level in cell1 is -9 dB.			

Table 8.2xy: Test requirements for reliable TPC command combining

Parameter	Unit	Test 1	Test 2
UE output power	dBm	-15 ± 5 dB	-15 ± 3 dB