3GPP TSG RAN Meeting #27 **RP-050037**
Tokyo, Japan, 9 - 11 March 2005

Title **CRs (R99 & Rel-4/Rel-5/Rel-6 CatA) to 25.133 for the Correction of DPCH_Ec/Ior level in Annex 7**
Source **3GPP TSG RAN WG4 (Radio)**
Agenda Item **8.5.3**

WG Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-050256	25.133	724	2	F	R99	3.19.0	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing	TEI
R4-050257	25.133	725	2	A	Rel-4	4.13.0	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing	TEI
R4-050258	25.133	726	2	A	Rel-5	5.13.0	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing	TEI
R4-050259	25.133	727	2	A	Rel-6	6.8.0	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing	TEI

3GPP TSG RAN WG4 (Radio) Meeting #34 **R4-050256**

Scottsdale, US 14 - 18 February 2005

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CHANGE REQUEST

⌘ **25.133** **CR** 724 ⌘**rev** **2** ⌘ Current version: **3.19.0** ⌘

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

Title:	⌘	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI
Date:	⌘	28/02/2005
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 A.7.1.2 step l, UE is connected with Cell 2, and Cell 1 is introduced. In this situation, the power of Cell 2(-99 dBm) is lower than the power of Cell1(-96 dBm), and the UE perceives DPCH_Ec/Io = -23 dB on cell 2. The UE may not understand the SS on Cell 2 and may drop the link. A link to Cell 2, however, is necessary for the test purpose.
Summary of change:	⌘	In table A.7.1 DPCH_Ec/Ior increased 0.5 dB above demodulation requirement in AWGN. OCNS_Ec/Ior adjusted.
Consequences if not approved:	⌘	The purpose of the test may not be completed, and good UEs may fail the test

Clauses affected:	⌘	A.7.1.1

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

Other comments:	⌘	Isolated impact analysis: Will not change UE implementation. Equivalent CRs in other Releases: CR725r2 cat. A to 25.133 Rel-4, CR726r2 cat. A to 25.133 Rel-5, CR727r2 cat. A to 25.133 Rel-6

A.7 Timing and Signalling Characteristics

A.7.1 UE Transmit Timing

A.7.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the specified limits. This test will verify the requirements in section 7.1.2.

For this test two cells on the same frequency are used. Table A.7.1 defines the transmitted signal strengths, the relative timing and the propagation condition used for the two cells.

Table A.7.1: Test parameters for UE Transmit Timing requirement

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-13.5~~7~~
CPICH_Ec/ Ior, Cell 1 and Cell 2	dB	-10
PCCPH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
SCH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
PICH_Ec/ Ior, Cell 1 and Cell 2	dB	-15
OCNS_Ec/ Ior, Cell 1 and Cell 2	dB	-1.2~~05~~
$\hat{I}_{or,}$ Cell 1	dBm/3.84 MHz	-96
$\hat{I}_{or,}$ Cell 2	dBm/3.84 MHz	-99
Information data rate	kbps	12.2
Relative delay of path received from cell 2 with respect to cell 1	µs	+/-2
Propagation condition	AWGN	

A.7.1.2 Test Requirements

For parameters specified in Table A.7.1, the UE initial transmit timing accuracy, the maximum amount of timing change in one adjustment, the minimum and the maximum adjustment rate shall be within the limits defined in section 7.1.2.

The relevant soft handover parameters shall be set such that the UE enters soft handover with cell 1 and cell 2 when both cells are sending a signal. The following sequence of events shall be used to verify that the requirements are met.

a) After a connection is set up with cell 1, the test system shall verify that the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1. T_0 is defined in TS 25.211[2].

b) Test system introduces cell 2 into the test system at delay +2 µs from cell 1.

c) Test system verifies that cell 2 is added to the active set.

d) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

e) Test system switches Tx timing of cell 2 to a delay of -2 µs with respect to cell 1.

f) Test system verifies cell 2 remains in the active set.

g) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

h) Test system stops sending cell 1 signals.

j) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size

and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

k) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

l) Test system starts sending cell 1 signal again with its original timing.

m) Test system verifies that cell 1 is added to the active set.

n) Test system verifies that the UE transmit timing is still within T_0 +/- 1.5chips with respect to the first detected path of (in time) the downlink DPCCH/DPDCH of cell 2.

o) Test system stops sending cell 2 signals.

q) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

r) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

3GPP TSG RAN WG4 (Radio) Meeting #34 **R4-050257**

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CHANGE REQUEST

⌘ **25.133** **CR** 725 ⌘**rev** **2** ⌘ Current version: **4.13.0** ⌘

*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:	⌘	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI
Date:	⌘	28/02/2005
Category:	⌘	**A**
Release:	⌘	Rel-4

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 A.7.1.2 step k, UE is connected with Cell 2, and Cell 1 is introduced. In this situation, the power of Cell 2(-99 dBm) is lower than the power of Cell1(-96 dBm), and the UE perceives DPCH_Ec/Io = -23 dB on cell 2. The UE may not understand the SS on Cell 2 and may drop the link. A link to Cell 2, however, is necessary for the test purpose.
Summary of change:	⌘	In table A.7.1 DPCH_Ec/Ior increased 0.5 dB above demodulation requirement in AWGN. OCNS_Ec/ Ior is adjusted
Consequences if not approved:	⌘	The purpose of the test may not be completed, and good UEs may fail the test

Clauses affected:	⌘	A.7.1.1

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

Other comments:	⌘	Isolated impact analysis: Will not change UE implementation. Equivalent CRs in other Releases: CR724r2 cat. F to 25.133 R99, CR726r2 cat. A to 25.133 Rel-5, CR727r2 cat. A to 25.133 Rel-6

A.7 Timing and Signalling Characteristics

A.7.1 UE Transmit Timing

A.7.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the specified limits. This test will verify the requirements in section 7.1.2.

For this test two cells on the same frequency are used. Table A.7.1 defines the transmitted signal strengths, the relative timing and the propagation condition used for the two cells.

Table A.7.1: Test parameters for UE Transmit Timing requirement

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-13.5~~7~~
CPICH_Ec/ Ior, Cell 1 and Cell 2	dB	-10
PCCPH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
SCH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
PICH_Ec/ Ior, Cell 1 and Cell 2	dB	-15
OCNS_Ec/ Ior, Cell 1 and Cell 2	dB	-1.2~~05~~
$\hat{I}_{or,}$ Cell 1	dBm/3.84 MHz	-96
$\hat{I}_{or,}$ Cell 2	dBm/3.84 MHz	-99
Information data rate	kbps	12.2
Relative delay of path received from cell 2 with respect to cell 1	µs	+/-2
Propagation condition	AWGN	

A.7.1.2 Test Requirements

For parameters specified in Table A.7.1, the UE initial transmit timing accuracy, the maximum amount of timing change in one adjustment, the minimum and the maximum adjustment rate shall be within the limits defined in section 7.1.2.

The relevant soft handover parameters shall be set such that the UE enters soft handover with cell 1 and cell 2 when both cells are sending a signal. The following sequence of events shall be used to verify that the requirements are met.

a) After a connection is set up with cell 1, the test system shall verify that the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected received path (in time) of the downlink DPCCH/DPDCH of cell 1. T_0 is defined in TS 25.211[2].

b) Test system introduces cell 2 into the test system at delay +2 µs from cell 1.

c) Test system verifies that cell 2 is added to the active set.

d) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

e) Test system switches Tx timing of cell 2 to a delay of -2 µs with respect to cell 1.

f) Test system verifies cell 2 remains in the active set.

g) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

h) Test system stops sending cell 1 signals.

i) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size

and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

j) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

k) Test system starts sending cell 1 signal again with its original timing.

l) Test system verifies that cell 1 is added to the active set.

m) Test system verifies that the UE transmit timing is still within T_0 +/- 1.5chips with respect to the first significant path of the downlink DPCCH/DPDCH of cell 2.

n) Test system stops sending cell 2 signals.

o) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

p) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

3GPP TSG RAN WG4 (Radio) Meeting #34 **R4-050258**

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CHANGE REQUEST

⌘ **25.133** **CR** 726 ⌘**rev** **2** ⌘ Current version: **5.13.0** ⌘

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

Title:	⌘	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI
Date:	⌘	28/02/2005
Category:	⌘	**A**
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:	⌘	In A.7.1.2 step k, UE is connected with Cell 2, and Cell 1 is introduced. In this situation, the power of Cell 2(-99 dBm) is lower than the power of Cell1(-96 dBm), and the UE perceives DPCH_Ec/Io = -23 dB on cell 2. The UE may not understand the SS on Cell 2 and may drop the link. A link to Cell 2, however, is necessary for the test purpose.
Summary of change:	⌘	In table A.7.1 DPCH_Ec/Ior increased 0.5 dB above demodulation requirement in AWGN. OCNS_Ec/ Ior is adjusted.
Consequences if not approved:	⌘	The purpose of the test may not be completed, and good UEs may fail the test

Clauses affected:	⌘	A.7.1.1

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

Other comments:	⌘	Isolated impact analysis: Will not change UE implementation. Equivalent CRs in other Releases: CR724r2 cat. F to 25.133 R99, CR725r2 cat. A to 25.133 Rel-4, CR727r2 cat. A to 25.133 Rel-6

A.7 Timing and Signalling Characteristics

A.7.1 UE Transmit Timing

A.7.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the specified limits. This test will verify the requirements in section 7.1.2.

For this test two cells on the same frequency are used. Table A.7.1 defines the transmitted signal strengths, the relative timing and the propagation condition used for the two cells.

Table A.7.1: Test parameters for UE Transmit Timing requirement

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-13.5~~7~~
CPICH_Ec/ Ior, Cell 1 and Cell 2	dB	-10
PCCPH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
SCH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
PICH_Ec/ Ior, Cell 1 and Cell 2	dB	-15
OCNS_Ec/ Ior, Cell 1 and Cell 2	dB	-1.2~~05~~
$\hat{I}_{or,}$ Cell 1	dBm/3.84 MHz	-96
$\hat{I}_{or,}$ Cell 2	dBm/3.84 MHz	-99
Information data rate	kbps	12.2
Relative delay of path received from cell 2 with respect to cell 1	µs	+/-2
Propagation condition	AWGN	

A.7.1.2 Test Requirements

For parameters specified in Table A.7.1, the UE initial transmit timing accuracy, the maximum amount of timing change in one adjustment, the minimum and the maximum adjustment rate shall be within the limits defined in section 7.1.2.

The relevant soft handover parameters shall be set such that the UE enters soft handover with cell 1 and cell 2 when both cells are sending a signal. The following sequence of events shall be used to verify that the requirements are met.

a) After a connection is set up with cell 1, the test system shall verify that the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected received path (in time) of the downlink DPCCH/DPDCH of cell 1. T_0 is defined in TS 25.211[2].

b) Test system introduces cell 2 into the test system at delay +2 µs from cell 1.

c) Test system verifies that cell 2 is added to the active set.

d) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

e) Test system switches Tx timing of cell 2 to a delay of -2 µs with respect to cell 1.

f) Test system verifies cell 2 remains in the active set.

g) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

h) Test system stops sending cell 1 signals.

i) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size

and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

j) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

k) Test system starts sending cell 1 signal again with its original timing.

l) Test system verifies that cell 1 is added to the active set.

m) Test system verifies that the UE transmit timing is still within T_0 +/- 1.5chips with respect to the first significant path of the downlink DPCCH/DPDCH of cell 2.

n) Test system stops sending cell 2 signals.

o) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

p) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

3GPP TSG RAN WG4 (Radio) Meeting #34 **R4-050259**

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CHANGE REQUEST

⌘ **25.133** **CR** 727 ⌘**rev** **2** ⌘ Current version: **6.8.0** ⌘

*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:	⌘	Correction to DPCH_Ec/Ior level in A.7.1 UE Transmit Timing
Source:	⌘	3GPP TSG RAN WG4 (Radio)
Work item code:	⌘	TEI
Date:	⌘	28/02/2005
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 A.7.1.2 step k, UE is connected with Cell 2, and Cell 1 is introduced. In this situation, the power of Cell 2(-99 dBm) is lower than the power of Cell1(-96 dBm), and the UE perceives DPCH_Ec/Io = -23 dB on cell 2. The UE may not understand the SS on Cell 2 and may drop the link. A link to Cell 2, however, is necessary for the test purpose.
Summary of change:	⌘	In table A.7.1 DPCH_Ec/Ior increased 0.5 dB above demodulation requirement in AWGN. OCNS_Ec/ Ior is adjusted.
Consequences if not approved:	⌘	The purpose of the test may not be completed, and good UEs may fail the test

Clauses affected:	⌘	A.7.1.1

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

Other comments:	⌘	Isolated impact analysis: Will not change UE implementation. Equivalent CRs in other Releases: CR724r2 cat. F to 25.133 R99, CR725r2 cat. A to 25.133 Rel-4, CR726r2 cat. A to 25.133 Rel-5

A.7 Timing and Signalling Characteristics

A.7.1 UE Transmit Timing

A.7.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the specified limits. This test will verify the requirements in section 7.1.2.

For this test two cells on the same frequency are used. Table A.7.1 defines the transmitted signal strengths, the relative timing and the propagation condition used for the two cells.

Table A.7.1: Test parameters for UE Transmit Timing requirement

Parameter	Unit	Level
DPCH_Ec/ Ior, Cell 1 and Cell 2	dB	-13.5~~7~~
CPICH_Ec/ Ior, Cell 1 and Cell 2	dB	-10
PCCPH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
SCH_Ec/ Ior, Cell 1 and Cell 2	dB	-12
PICH_Ec/ Ior, Cell 1 and Cell 2	dB	-15
OCNS_Ec/ Ior, Cell 1 and Cell 2	dB	-1.2~~05~~
$\hat{I}_{or,}$ Cell 1	dBm/3.84 MHz	-96
$\hat{I}_{or,}$ Cell 2	dBm/3.84 MHz	-99
Information data rate	kbps	12.2
Relative delay of path received from cell 2 with respect to cell 1	µs	+/-2
Propagation condition	AWGN	

A.7.1.2 Test Requirements

For parameters specified in Table A.7.1, the UE initial transmit timing accuracy, the maximum amount of timing change in one adjustment, the minimum and the maximum adjustment rate shall be within the limits defined in section 7.1.2.

The relevant soft handover parameters shall be set such that the UE enters soft handover with cell 1 and cell 2 when both cells are sending a signal. The following sequence of events shall be used to verify that the requirements are met.

a) After a connection is set up with cell 1, the test system shall verify that the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected received path (in time) of the downlink DPCCH/DPDCH of cell 1. T_0 is defined in TS 25.211[2].

b) Test system introduces cell 2 into the test system at delay +2 µs from cell 1.

c) Test system verifies that cell 2 is added to the active set.

d) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

e) Test system switches Tx timing of cell 2 to a delay of -2 µs with respect to cell 1.

f) Test system verifies cell 2 remains in the active set.

g) Test system shall verify that the UE transmit timing offset is still within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

h) Test system stops sending cell 1 signals.

i) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size

and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

j) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 2.

k) Test system starts sending cell 1 signal again with its original timing.

l) Test system verifies that cell 1 is added to the active set.

m) Test system verifies that the UE transmit timing is still within T_0 +/- 1.5chips with respect to the first significant path of the downlink DPCCH/DPDCH of cell 2.

n) Test system stops sending cell 2 signals.

o) Test system verifies that UE transmit timing adjustment starts no later than the time when the whole active set update message is available at the UE taking the RRC procedure delay into account. The adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.

p) Test system shall verify that the UE transmit timing offset stays within T_0 +/- 1.5 chips with respect to the first detected path (in time) of the downlink DPCCH/DPDCH of cell 1.