TSG RAN Meeting #23   **RP-040037**
Phoenix, US, 10 - 12 March 2004

Title   CRs (Rel-5 and Rel-6 Category A) to TS25.133 on "Test case for multipath
                                         fading intra-frequency cell identification"
Source   TSG RAN WG4
Agenda Item   7.5.5

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-040131	25.133	648	1	F	Rel-5	5.9.0	Test case for multipath fading intra-frequency cell identification	TEI5
R4-040132	25.133	649	1	A	Rel-6	6.4.0	Test case for multipath fading intra-frequency cell identification	TEI5

CR-Form-v7

CHANGE REQUEST

⌘   **25.133** CR **648**   ⌘**rev** **1** ⌘ Current version: **5.9.0** ⌘

*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 **X** Radio Access Network ☐   Core Network ☐

Title: ⌘	Test cases for multi-path fading intra-frequency cell identification
Source: ⌘	RAN WG4
Work item code:⌘ TEI5	***Date:*** ⌘ 23/02/2004

Category: ⌘ **F**		***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: ⌘	Currently there is no intra frequency test case defined for event triggered reporting in normal deployment scenarios (multi-cell, multi-path environments)
Summary of change:⌘	New test cases included in sub clauses A 8.1.5 and A.8.1.6
Consequences if not approved: ⌘	The requirement for event triggered reporting would not be tested in nontrivial environment. **Isolated impact analysis:** The CR has no impact on correct UE implementation as it corrects test cases only.

Clauses affected: ⌘	A.8.1.5 (new), A.8.1.6 (new)

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

Other comments: ⌘	Equivalent CRs in other Releases: CR649r1 cat. A to 25.133 v6.4.0

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

A.8.1.5   Event triggered reporting of multiple neighbour cells in Case 1 fading condition

A.8.1.5.1   Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event in Case1 fading propagation condition. This test will partly verify the requirements in section 8.1.2.

The test parameters are given in Table A.8.8A and A.8.8B below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A shall be used and "CFN-SFN-Observed Time Difference" shall be reported. The test consists of two successive time periods, with time duration of T1 and T2, respectively. During time duration T1, the UE shall not have any timing information of invisible cells.

Table A.8.8A: General test parameters for event triggered reporting in multi-cell pedestrian environment

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Active cells		Cell2, Cell3, Cell4	
Hysteresis	dB	0	Applicable for event 1A
Time to Trigger	ms	0	Applicable for event 1A
Filter coefficient		0	Applicable for event 1A
Reporting range R_{1a}	dB	9	Applicable for event 1A
W		0	Applicable for event 1A
TriggeringCondition		activeSetAndMonitoredSetCells	Applicable for event 1A
Monitored cell list size		32	
T1	s	5	
T2	s	5	

Table 8.8B: Cell specific test parameters for event triggered reporting in multi-cell pedestrian environment

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	-0.941		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.3	4.3	1.3	4.3	1.3	1.3	4.3
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 1 (3km/h)							
CPICH_Ec/Io	dB	-∞	-17.6	-14.6	-17.6	-14.6	-17.6	-17.6	-14.6
$\dfrac{SCH\_\hat{E}_{c,\text{maxpath}}}{I_o}$	dB	-∞	-20.0	-17.0	-20.0	-17.0	-20.0	-20.0	-17.0
NOTE 1:The DPCH level is controlled by the power control loop. NOTE 2: The power of the OCNS channel that is added shall make the total power equal to I_{or}. NOTE 3: CPICH_Ec/Io and SCH_Ec_maxpath/Io levels have been calculated from other parameters for information purposes. They are not settable themselves.									

A.8.1.5.2 Test Requirements

The UE shall send one Event 1A triggered measurement report for Cell 1 with a measurement reporting delay less than 800 ms from the beginning of time period T2.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2 x $TTI_{UL\ DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in the UL DCCH.

A.8.1.6   Event triggered reporting of multiple neighbour cells in Case 3 fading condition

A.8.1.6.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event in Case3 fading propagation condition. This test will partly verify the requirements in section 8.1.2.

The test parameters are given in Table A.8.8C and A.8.8D below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1F shall be used and "CFN-SFN-Observed Time Difference" shall be reported. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of invisible cells.

Table A.8.8C: General test parameters for event triggered reporting in multi-cell vehicular environment

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Active cells		Cell2, Cell3, Cell4	
Hysteresis	dB	0	Applicable for event 1A
Time to Trigger	ms	0	Applicable for event 1A
Filter coefficient		0	Applicable for event 1A and event 1F
Reporting range R_{1a}	dB	8	Applicable for event 1A
W		0	Applicable for event 1A
TriggeringCondition		activeSetAndMonitoredSetCells	Applicable for event 1A
Absolute threshold T_{1f}	dB	-20	Applicable for event 1F
Time to Trigger	ms	0	Applicable for event 1F
TriggeringCondition		activeSet	Applicable for event 1F
Monitored cell list size		32	
T1	s	5	
T2	s	5	

Table 8.8D: Cell specific test parameters for event triggered reporting in multi-cell vehicular environment

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12	
SCH_Ec/Ior	dB	-9.3		-9.3		-9.3		-9.3	
PICH_Ec/Ior	dB	-15		-15		-15		-15	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	Note 2		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.1	3.6	4.6	3.6	4.6	6.6	-∞
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 3 (120km/h)							
CPICH_Ec/Io	dB	-∞	-18.0	-16.5	-14.5	-16.5	-14.5	-13.5	-∞
$\dfrac{SCH\_\hat{E}_{c,\text{maxpath}}}{I_o}$	dB	-∞	-20.0	-18.5	-16.5	18.5	-16.5	-15.5	-∞
NOTE 1: The DPCH level is controlled by the power control loop. NOTE 2: The power of the OCNS channel that is added shall make the total power equal to I_or. NOTE 3: CPICH_Ec/Io, SCH_Ec_maxpath/Io, and I_o levels have been calculated from other parameters for information purposes. They are not settable themselves.									

A.8.1.6.2 Test Requirements

The UE shall send an Event 1A triggered measurement report for Cell 1, with a measurement reporting delay less than 800 ms from the beginning of time period T2. The UE shall send an Event 1F triggered measurement report for Cell 4, with a measurement reporting delay less than 200 ms from the beginning of time period T2.

The rate of correct events 1A for Cell1 observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2 x TTI_UL DCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in the UL DCCH.

CR-Form-v7

CHANGE REQUEST

⌘   **25.133** CR **649**   ⌘**rev** **1** ⌘ Current version: **6.4.0** ⌘

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

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

Title: ⌘	Test cases for multi-path fading intra-frequency cell identification
Source: ⌘	RAN WG4

Work item code:⌘	TEI5	*Date:* ⌘	23/02/2004

Category: ⌘ **A**	*Release:* ⌘ Rel-6

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

Reason for change: ⌘	Currently there is no intra frequency test case defined for event triggered reporting in normal deployment scenarios (multi-cell, multi-path environments)
Summary of change:⌘	New test cases included in sub clauses A 8.1.5 and A.8.1.6
Consequences if not approved: ⌘	The requirement for event triggered reporting would not be tested in nontrivial environment. **Isolated impact analysis:** The CR has no impact on correct UE implementation as it corrects test cases only.

Clauses affected: ⌘	A.8.1.5 (new), A.8.1.6 (new)

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

Other comments: ⌘	
	Equivalent CRs in other Releases: CR648r1 cat. F to 25.133 v5.9.0

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A.8.1.5   Event triggered reporting of multiple neighbour cells in Case 1 fading condition

A.8.1.5.1   Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event in Case1 fading propagation condition. This test will partly verify the requirements in section 8.1.2.

The test parameters are given in Table A.8.8A and A.8.8B below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A shall be used and "CFN-SFN-Observed Time Difference" shall be reported. The test consists of two successive time periods, with time duration of T1 and T2, respectively. During time duration T1, the UE shall not have any timing information of invisible cells.

Table A.8.8A: General test parameters for event triggered reporting in multi-cell pedestrian environment

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Active cells		Cell2, Cell3, Cell4	
Hysteresis	dB	0	Applicable for event 1A
Time to Trigger	ms	0	Applicable for event 1A
Filter coefficient		0	Applicable for event 1A
Reporting range R_{1a}	dB	9	Applicable for event 1A
W		0	Applicable for event 1A
TriggeringCondition		activeSetAndMonitoredSetCells	Applicable for event 1A
Monitored cell list size		32	
T1	s	5	
T2	s	5	

Table 8.8B: Cell specific test parameters for event triggered reporting in multi-cell pedestrian environment

Parameter	Unit	Cell 1 T1	Cell 1 T2	Cell 2 T1	Cell 2 T2	Cell 3 T1	Cell 3 T2	Cell 4 T1	Cell 4 T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15		-15	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	-0.941		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.3	4.3	1.3	4.3	1.3	1.3	4.3
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 1 (3km/h)							
CPICH_Ec/Io	dB	-∞	-17.6	-14.6	-17.6	-14.6	-17.6	-17.6	-14.6
$\dfrac{SCH\_\hat{E}_{c,\mathrm{maxpath}}}{I_o}$	dB	-∞	-20.0	-17.0	-20.0	-17.0	-20.0	-20.0	-17.0
NOTE 1:The DPCH level is controlled by the power control loop.									
NOTE 2: The power of the OCNS channel that is added shall make the total power equal to I_{or}.									
NOTE 3: CPICH_Ec/Io and SCH_Ec_maxpath/Io levels have been calculated from other parameters for information purposes. They are not settable themselves.									

A.8.1.5.2   Test Requirements

The UE shall send one Event 1A triggered measurement report for Cell 1 with a measurement reporting delay less than 800 ms from the beginning of time period T2.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2 x $TTI_{UL\ DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in the UL DCCH.

A.8.1.6   Event triggered reporting of multiple neighbour cells in Case 3 fading condition

A.8.1.6.1   Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event in Case3 fading propagation condition. This test will partly verify the requirements in section 8.1.2.

The test parameters are given in Table A.8.8C and A.8.8D below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event 1A and 1F shall be used and "CFN-SFN-Observed Time Difference" shall be reported. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of invisible cells.

Table A.8.8C: General test parameters for event triggered reporting in multi-cell vehicular environment

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Active cells		Cell2, Cell3, Cell4	
Hysteresis	dB	0	Applicable for event 1A
Time to Trigger	ms	0	Applicable for event 1A
Filter coefficient		0	Applicable for event 1A and event 1F
Reporting range R_{1a}	dB	8	Applicable for event 1A
W		0	Applicable for event 1A
TriggeringCondition		activeSetAndMonitoredSetCells	Applicable for event 1A
Absolute threshold T_{1f}	dB	-20	Applicable for event 1F
Time to Trigger	ms	0	Applicable for event 1F
TriggeringCondition		activeSet	Applicable for event 1F
Monitored cell list size		32	
T1	s	5	
T2	s	5	

Table 8.8D: Cell specific test parameters for event triggered reporting in multi-cell vehicular environment

Parameter	Unit	Cell 1		Cell 2		Cell 3		Cell 4	
		T1	T2	T1	T2	T1	T2	T1	T2
UTRA RF Channel Number		Channel 1		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12		-12	
SCH_Ec/Ior	dB	-9.3		-9.3		-9.3		-9.3	
PICH_Ec/Ior	dB	-15		-15		-15		-15	
DPCH_Ec/Ior	dB	n.a.		Note 1		Note 1		Note 1	
OCNS_Ec/Ior	dB	Note 2		Note 2		Note 2		Note 2	
$\hat{I}_{or}/I_{oc}$	dB	-∞	1.1	3.6	4.6	3.6	4.6	6.6	-∞
I_{oc}	dBm/3.84 MHz	-70							
Propagation Condition		Case 3 (120km/h)							
CPICH_Ec/Io	dB	-∞	-18.0	-16.5	-14.5	-16.5	-14.5	-13.5	-∞
$\dfrac{SCH\_\hat{E}_{c,\mathrm{maxpath}}}{I_o}$	dB	-∞	-20.0	-18.5	-16.5	18.5	-16.5	-15.5	-∞

NOTE 1:The DPCH level is controlled by the power control loop.
NOTE 2: The power of the OCNS channel that is added shall make the total power equal to I$_{or}$.
NOTE 3: CPICH_Ec/Io, SCH_Ec_maxpath/Io, and I_o levels have been calculated from other parameters for information purposes. They are not settable themselves.

A.8.1.6.2   Test Requirements

The UE shall send an Event 1A triggered measurement report for Cell 1, with a measurement reporting delay less than 800 ms from the beginning of time period T2. The UE shall send an Event 1F triggered measurement report for Cell 4, with a measurement reporting delay less than 200 ms from the beginning of time period T2.

The rate of correct events 1A for Cell1 observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2 x TTI$_{UL\ DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in the UL DCCH.