Technical Specification Group Radio Access Network
Marco Island, USA 4 - 7 June 2002

RP#16(02) 0400

TSG_Doc_Num	Specification	CR_Num	Revision_Num	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	New_Ver_Num	Tdoc_Num	WorkItem
RP-020400	25.402	035		R99	Reference corrections	F	3.9.0	3.10.0	R3-021363	TEI
RP-020400	25.402	036		Rel-4	Reference corrections	A	4.4.0	4.5.0	R3-021364	TEI
RP-020400	25.402	037		Rel-5	Reference corrections	A	5.0.0	5.1.0	R3-021365	TEI

3GPP TSG-RAN WG3 Meeting #29
Gyeongju, Korea, 13th – 17th May 2002

Tdoc R3-021363

CR-Form-v5.1

CHANGE REQUEST

⌘ **25.402** **CR** **035** ⌘ **rev** **-** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network ☐

Title:	⌘	Reference corrections
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	May 2002
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)*

Reason for change:	⌘	The current version of the TS 25.402 are containing some references where the numbering of some references are different between Release 99 and REL-4/5. Furthermore some references in section 4.2 “Network Synchronisation” are incorrect.
Summary of change:	⌘	Section 2: References are updated and the numbering of the references are aligned with the REL-4 and REL-5 versions of the specification. Section 4.2: Some References are corrected. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because if affects the Network Synchronisation only. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely the Network Synchronisation.
Consequences if not approved:	⌘	If this CR is not approved, some references are remaining incorrect.

Clauses affected:	⌘	2, 4.2		
Other specs affected:	⌘	**X** Other core specifications	⌘	25.402 CR036 REL-4 25.402 CR037 REL-5
		☐ Test specifications		
		☐ 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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 25.401: "UTRAN Overall Description".

[2] 3GPP TS 25.423: "UTRAN I_{ur} Interface RNSAP Signalling".

[3] 3GPP TS 25.433: "UTRAN I_{ub} Interface NBAP Signalling".

[4] 3GPP TS 25.435: "UTRAN I_{ub} Interface User Plane Protocols for COMMON TRANSPORT CHANNEL Data Streams".

[5] 3GPP TS 25.427: "I_{ub}/I_{ur} Interface User Plane Protocol for DCH Data Streams".

[6] TIA/EIA 422 B: "Electrical characteristics of balanced voltage digital interface circuits".

[7] 3GPP TS 25.411: "UTRAN Iu Interface Layer 1".

[8] 3GPP TS 25.421: "UTRAN Iur Interface Layer 1".

[9] 3GPP TS 25.431: "UTRAN Iub Interface Layer 1".

[10] 3GPP TS 25.104: "UTRA (BS) FDD; Radio transmission and Reception".

[11] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".

[12] 3GPP TS 25.223: "Spreading and modulation (TDD)".

[13] 3GPP TS 25.215: "Physical layer - Measurements (FDD)".

[14] 3GPP TS 25.225: "Physical layer - Measurements (TDD)".

[15] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".

[16] void

[17] 3GPP TS 25.105: "UTRA (BS) TDD; Radio transmission and Reception".

[1~~6~~8] ITU-T Recommendation G.811 (0~~2~~9/1997): "Timing Characteristics of Primary Reference Clocks".

[1~~7~~9] ITU-T Recommendation G.812 (0~~9~~6/199~~7~~8): "Timing Requirements of Slave Clocks suitable for use as Node Clocks in Synchronization Network".

[~~18~~20] ITU-T Recommendation G.813 (08/1996): "Timing Characteristics of SDH equipment slave clocks (SEC)".

[~~19~~21] ETSI EN 300 462-4-1(03/1998): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 4-1: Timing characteristics of slave clocks suitable for synchronization supply to Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) equipment".

[202] ETSI EN 300 462-5-1 (09/1996): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 5-1: Timing characteristics of slave clocks suitable for operation in Synchronous Digital Hierarchy (SDH) equipment".

[213] ETSI EN 300 462-7-1 (04/2001): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 7-1: Timing characteristics of slave clocks suitable for synchronisation supply to equipment in local node applications".

~~[22] 3GPP TS 25.105: "UTRA (BS) TDD; Radio transmission and Reception".~~

/* partly omitted */

4.2 Network Synchronisation

Network Synchronisation relates to the distribution of synchronisation references to the UTRAN Nodes and the stability of the clocks in the UTRAN (and performance requirements on UTRAN internal interfaces).

The distribution of an accurate frequency reference to the network elements in the UTRAN is related to several aspects. One main issue is the possibility to provide a synchronisation reference with a frequency accuracy better than 0.05 ppm at the Node B in order to properly generate signals on the radio interface (see references [10] and [2417]).

A general recommendation is to supply a traceable synchronisation reference according to reference [18].

The clock to be implemented in UTRAN Nodes shall be chosen with characteristics that depends on the L1 adopted (see reference [8] and [9]) and on the Network Synchronisation strategy adopted. Already standardized clocks may be used (see references [19], [20], [21], [22] and [23]).

For example in order to support STM-N interfaces at the RNC, the ITU-T Recommendation G.813 (see reference [1920]) may be sufficient. The implementation in the UTRAN of a better performing clock (in terms of holdover) may be recommended for distribution of a 0.05 ppm during failures in the synchronisation network (EN 300 462-7-1, see reference [23], EN 300 462-4-1, see reference [21], or ITU-T Recommendation G.812 type 1, type 2 or type 3, see reference [19]).

3GPP TSG-RAN WG3 Meeting #29
Gyeongju, Korea, 13th – 17th May 2002

Tdoc R3-021364

CR-Form-v5.1

CHANGE REQUEST

⌘ **25.402** **CR** **036** ⌘ **rev** **-** ⌘ Current version: **4.4.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network ☐

Title: ⌘	Reference corrections	
Source: ⌘	R-WG3	
Work item code: ⌘	TEI	***Date:*** ⌘ May 2002
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)

Reason for change: ⌘	The current version of the TS 25.402 are containing some references where the numbering of some references are different between Release 99 and REL-4/5. Furthermore some references in section 4.2 “Network Synchronisation” are incorrect.
Summary of change: ⌘	Section 2: References are updated, Ref [24] is removed because it is the same as Ref [17]. Section 4.2: Some References are corrected. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because if affects the Network Synchronisation only. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely the Network Synchronisation.
Consequences if not approved: ⌘	If this CR is not approved, some references are remaining incorrect.

Clauses affected: ⌘	2, 4.2			
Other specs affected: ⌘	**X**	Other core specifications	⌘	25.402 CR035 R99 25.402 CR037 REL-5
	☐	Test specifications		
	☐	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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

[1] 3GPP TS 25.401: "UTRAN Overall Description".

[2] 3GPP TS 25.423: "UTRAN Iur Interface RNSAP Signalling".

[3] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling".

[4] 3GPP TS 25.435: "UTRAN Iub Interface User Plane Protocols for COMMON TRANSPORT CHANNEL Data Streams".

[5] 3GPP TS 25.427: "Iub/Iur Interface User Plane Protocol for DCH Data Streams".

[6] TIA/EIA 422 B: "Electrical characteristics of balanced voltage digital interface circuits".

[7] 3GPP TS 25.411: "UTRAN Iu Interface Layer 1".

[8] 3GPP TS 25.421: "UTRAN Iur Interface Layer 1".

[9] 3GPP TS 25.431: "UTRAN Iub Interface Layer 1".

[10] 3GPP TS 25.104: "UTRA (BS) FDD; Radio transmission and Reception".

[11] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".

[12] 3GPP TS 25.223: "Spreading and modulation (TDD)".

[13] 3GPP TS 25.215: "Physical layer - Measurements (FDD)".

[14] 3GPP TS 25.225: "Physical layer - Measurements (TDD)".

[15] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".

[16] 3GPP TS 25.224: "Physical Layer Procedures (TDD)".

[17] 3GPP TS 25.105: "UTRA (BS) TDD, Radio transmission and Reception".

[18] ITU-T Recommendation G.811 (0~~2~~9/1997): "Timing Characteristics of Primary Reference Clocks".

[19] ITU-T Recommendation G.812 (0~~9~~6/1998): "Timing Requirements of Slave Clocks suitable for use as Node Clocks in Synchronization Network".

[20] ITU-T Recommendation G.813 (08/1996): "Timing Characteristics of SDH equipment slave clocks (SEC)".

[21] ETSI EN 300 462-4-1(03/1998): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 4-1: Timing characteristics of slave clocks suitable for synchronization supply to Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) equipment".

[22] ETSI EN 300 462-5-1 (09/1996):"Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 5-1: Timing characteristics of slave clocks suitable for operation in Synchronous Digital Hierarchy (SDH) equipment".

[23] ETSI EN 300 462-7-1 (04/2001): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 7-1: Timing characteristics of slave clocks suitable for synchronisation supply to equipment in local node applications".

~~[24] 3GPP TS 25.105: "UTRA (BS) TDD; Radio transmission and Reception".~~

/* partly omitted */

4.2 Network Synchronisation

Network Synchronisation relates to the distribution of synchronisation references to the UTRAN Nodes and the stability of the clocks in the UTRAN (and performance requirements on UTRAN internal interfaces).

The distribution of an accurate frequency reference to the network elements in the UTRAN is related to several aspects. One main issue is the possibility to provide a synchronisation reference with a frequency accuracy better than 0.05 ppm at the Node B in order to properly generate signals on the radio interface (see references [10] and [~~24~~17]).

A general recommendation is to supply a traceable synchronisation reference according to reference [18].

The clock to be implemented in UTRAN Nodes shall be chosen with characteristics that depends on the L1 adopted (see reference [8] and [9]) and on the Network Synchronisation strategy adopted. Already standardized clocks may be used (see references [19], [20], [21], [22] and [23]).

For example in order to support STM-N interfaces at the RNC, the ITU-T Recommendation G.813 (see reference [~~19~~20]) may be sufficient. The implementation in the UTRAN of a better performing clock (in terms of holdover) may be recommended for distribution of a 0.05 ppm during failures in the synchronisation network (EN 300 462-7-1, see reference [23], EN 300 462-4-1, see reference [21], or ITU-T Recommendation G.812 type 1, type 2 or type 3, see reference [19]).

3GPP TSG-RAN WG3 Meeting #29
Gyeongju, Korea, 13th – 17th May 2002

Tdoc R3-021365

CR-Form-v5.1

CHANGE REQUEST

⌘ **25.402** **CR** **037** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network ☐

Title:	⌘	Reference corrections
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	May 2002
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)

Reason for change:	⌘	The current version of the TS 25.402 are containing some references where the numbering of some references are different between Release 99 and REL-4/5. Furthermore some references in section 4.2 “Network Synchronisation” are incorrect.
Summary of change:	⌘	Section 2: References are updated, Ref [24] is removed because it is the same as Ref [17]. Section 4.2: Some References are corrected. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because if affects the Network Synchronisation only. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely the Network Synchronisation.
Consequences if not approved:	⌘	If this CR is not approved, some references are remaining incorrect.

Clauses affected:	⌘	2, 4.2		
Other specs affected:	⌘	**X** Other core specifications	⌘	25.402 CR035 R99 25.402 CR036 REL-4
		☐ Test specifications		
		☐ 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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

[1] 3GPP TS 25.401: "UTRAN Overall Description".

[2] 3GPP TS 25.423: "UTRAN Iur Interface RNSAP Signalling".

[3] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling".

[4] 3GPP TS 25.435: "UTRAN Iub Interface User Plane Protocols for COMMON TRANSPORT CHANNEL Data Streams".

[5] 3GPP TS 25.427: "Iub/Iur Interface User Plane Protocol for DCH Data Streams".

[6] TIA/EIA 422 B: "Electrical characteristics of balanced voltage digital interface circuits".

[7] 3GPP TS 25.411: "UTRAN Iu Interface Layer 1".

[8] 3GPP TS 25.421: "UTRAN Iur Interface Layer 1".

[9] 3GPP TS 25.431: "UTRAN Iub Interface Layer 1".

[10] 3GPP TS 25.104: "UTRA (BS) FDD; Radio transmission and Reception".

[11] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".

[12] 3GPP TS 25.223: "Spreading and modulation (TDD)".

[13] 3GPP TS 25.215: "Physical layer - Measurements (FDD)".

[14] 3GPP TS 25.225: "Physical layer - Measurements (TDD)".

[15] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".

[16] 3GPP TS 25.224: "Physical Layer Procedures (TDD)".

[17] 3GPP TS 25.105: "UTRA (BS) TDD, Radio transmission and Reception".

[18] ITU-T Recommendation G.811 (0~~2~~9/1997): "Timing Characteristics of Primary Reference Clocks".

[19] ITU-T Recommendation G.812 (0~~9~~6/1998): "Timing Requirements of Slave Clocks suitable for use as Node Clocks in Synchronization Network".

[20] ITU-T Recommendation G.813 (08/1996): "Timing Characteristics of SDH equipment slave clocks (SEC)".

[21] ETSI EN 300 462-4-1(03/1998): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 4-1: Timing characteristics of slave clocks suitable for synchronization supply to Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) equipment".

[22] ETSI EN 300 462-5-1 (09/1996):"Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 5-1: Timing characteristics of slave clocks suitable for operation in Synchronous Digital Hierarchy (SDH) equipment".

[23] ETSI EN 300 462-7-1 (04/2001): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 7-1: Timing characteristics of slave clocks suitable for synchronisation supply to equipment in local node applications".

~~[24] 3GPP TS 25.105: "UTRA (BS) TDD; Radio transmission and Reception".~~

/* partly omitted */

4.2 Network Synchronisation

Network Synchronisation relates to the distribution of synchronisation references to the UTRAN Nodes and the stability of the clocks in the UTRAN (and performance requirements on UTRAN internal interfaces).

The distribution of an accurate frequency reference to the network elements in the UTRAN is related to several aspects. One main issue is the possibility to provide a synchronisation reference with a frequency accuracy better than 0.05 ppm at the Node B in order to properly generate signals on the radio interface (see references [10] and [~~24~~17]).

A general recommendation is to supply a traceable synchronisation reference according to reference [18].

The clock to be implemented in UTRAN Nodes shall be chosen with characteristics that depends on the L1 adopted (see reference [8] and [9]) and on the Network Synchronisation strategy adopted. Already standardized clocks may be used (see references [19], [20], [21], [22] and [23]).

For example in order to support STM-N interfaces at the RNC, the ITU-T Recommendation G.813 (see reference [~~19~~20]) may be sufficient. The implementation in the UTRAN of a better performing clock (in terms of holdover) may be recommended for distribution of a 0.05 ppm during failures in the synchronisation network (EN 300 462-7-1, see reference [23], EN 300 462-4-1, see reference [21], or ITU-T Recommendation G.812 type 1, type 2 or type 3, see reference [19]).