## TSG-RAN Meeting #23 Phoenix, USA, 10-12 March 2004

Title: CRs on 25.331 R'99 (1) (and linked CRs from later releases)

Source: TSG-RAN WG2

Agenda item: 7.3.3

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.331	2165	2	R99	Response on SRNS Relocation with Cell Update	F	3.17.0	3.18.0	R2-040606	TEI
25.331	2166	2	Rel-4	Response on SRNS Relocation with Cell Update	Α	4.12.0	4.13.0	R2-040607	TEI
25.331	2167	2	Rel-5	Response on SRNS Relocation with Cell Update	Α	5.7.1	5.8.0	R2-040608	TEI
25.331	2168	2	Rel-6	Response on SRNS Relocation with Cell Update	Α	6.0.1	6.1.0	R2-040609	TEI
25.331	2169	-	R99	TPC Combination Index in SRNC relocation	F	3.17.0	3.18.0	R2-040200	TEI
25.331	2170	-	Rel-4	TPC Combination Index in SRNC relocation	Α	4.12.0	4.13.0	R2-040201	TEI
25.331	2171	-	Rel-5	TPC Combination Index in SRNC relocation	Α	5.7.1	5.8.0	R2-040202	TEI
25.331	2172	-	Rel-6	TPC Combination Index in SRNC relocation	Α	6.0.1	6.1.0	R2-040203	TEI
25.331	2177	1	R99	Invalidation of START value in USIM/UE.	F	3.17.0	3.18.0	R2-040311	TEI
25.331	2178	1	Rel-4	Invalidation of START value in USIM/UE.	Α	4.12.0	4.13.0	R2-040312	TEI
25.331	2179	1	Rel-5	Invalidation of START value in USIM/UE.	Α	5.7.1	5.8.0	R2-040313	TEI
25.331	2180	1	Rel-6	Invalidation of START value in USIM/UE.	Α	6.0.1	6.1.0	R2-040314	TEI
25.331	2181	1	R99	Uplink Integrity protection handling in case of N302 increment	F	3.17.0	3.18.0	R2-040337	TEI
25.331	2182	1	Rel-4	Uplink Integrity protection handling in case of N302 increment	Α	4.12.0	4.13.0	R2-040338	TEI
25.331	2183	1	Rel-5	Uplink Integrity protection handling in case of N302 increment	Α	5.7.1	5.8.0	R2-040339	TEI
25.331	2184	1	Rel-6	Uplink Integrity protection handling in case of N302 increment	Α	6.0.1	6.1.0	R2-040340	TEI
25.331	2185	1	R99	Amount of reporting for UE-based and UE assisted A-GPS	F	3.17.0	3.18.0	R2-040476	TEI
25.331	2186	1	Rel-4	Amount of reporting for UE-based and UE assisted A-GPS	Α	4.12.0	4.13.0	R2-040477	TEI
25.331	2187	1	Rel-5	Amount of reporting for UE-based and UE assisted A-GPS	Α	5.7.1	5.8.0	R2-040478	TEI
25.331	2188	1	Rel-6	Amount of reporting for UE-based and UE assisted A-GPS	Α	6.0.1	6.1.0	R2-040479	TEI

ME X Radio Access Network X Core Network

## 3GPP TSG-RAN2 Meeting #41 Malaga, Spain, 16<sup>th</sup> -20<sup>th</sup> February 2004

Proposed change affects: UICC apps#

		CHANG	E REQ	UE	ST	-		CR-Form-v7
¥	25.331	CR <mark>2165</mark>	<b>≋rev</b>	2	Ж	Current version:	3.17.0	X

For HELP on using this form, see bottom of this page or look at the pop-up text over the \mathbb{H} symbols.

-	•		• • • •				
Title:	ж	Response	on SRNS Re	elocation v	vith Cell Update		
Source:	¥	RAN WG2					
Work item cod	le:ૠ	TEI				Date: ₩	05/01/2004
Category:	¥	-			ı	Release: ⊯	
		Use <u>one</u> of th <b>F</b> (corre	•	itegories:			the following releases (GSM Phase 2)
		•	sponds to a clion of feature.		an earlier release)		(Release 1996) (Release 1997)
		<b>C</b> (funct	ional modifica	ition of feat	ure)	R98	(Release 1998)
		•	rial modification	,		R99	(Release 1999)
		Detailed explain 30 be found in 30			egories can		(Release 4) (Release 5)
				<del></del> -		Rel-6	(Release 6)

Reason for change: # It is not clear whether the UE shall interpret the IE "Downlink Counter Synchronisation Info" as being part of the "RB information elements" or not.

In the case of a SRNS relocation from CELL\_FACH to CELL\_FACH which is not triggered by the transition from CELL\_DCH to CELL\_FACH it is common understanding that the UE should answer with a UTRAN mobility information complete message if only the "new U-RNTI" and the "Downlink Counter Synchronisation Info" IEs are included. However if the IE "Downlink Counter Synchronisation Info" is considered to be part of the "RB information elements" the UE would need to send the Radio bearer Reconfiguration Complete message to the RNC.

#### Summary of change: # Section 8.3.1.7

In the case the UE receives the IE "Downlink counter synchronisation info" in a Cell / Ura Update Confirm message it shall respond with a Utran Mobilty Information message

Revision 2: Only if the IE "Downlink Counter Synchronisation" and the IE "New U-RNTI" are both included the UE shall send the UTRAN Mobility Information Confirm message. Changes to 8.3.1.9 are in a separate CR.

## Consequences if not approved:

The UE would need to answer a SRNS Relocation from CELL\_FACH to CELL\_FACH initiated by a Cell Update Confirm message with a Radio Bearer Reconfiguration Complete message. This is contrary to the current RAN2 understanding.

## Isolated Impact Change Analysis.

This change impacts the SRNS Relocation triggered by a Cell Update Confirm message.

If this cahange is not agreed the UTRAN needs to be prepared to receive a Radio Bearer Reconfiguration Complete message as response message to a Cell Update Confirm message instead of the UTRAN Mobility Information Confirm message which is the current understanding.

#### Impact on the test specifications

There is no test defined in 34.123 which is impacted by the changes.

Clauses affected:	第 8.3.1.7
Other specs affected:	Y N  X Other core specifications
Other comments:	lpha

#### **How to create CRs using this form:**

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

## 8.3.1.7 Transmission of a response message to UTRAN

#### If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

#### the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

#### the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" "RB information elements"; and
- includes "Transport channel information elements":

#### the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" RB information elements; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

#### the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI"

#### the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

#### the UE shall:

1> transmit no response message.

#### If the URA UPDATE CONFIRM message:

- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes any one or both of the IEs "New C-RNTI" and "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI"

## the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI":

#### the UE shall:

1> transmit no response message.

If the new state is CELL\_DCH or CELL\_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

- 1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> if the variable PDCP\_SN\_INFO is empty:

- 4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".
- 3> else:
  - 4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";
  - 4> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "continue".
- 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 1> if the variable PDCP\_SN\_INFO is empty:
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
    - 3> when RLC has confirmed the successful transmission of the response message:
      - 4> continue with the remainder of the procedure.
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":
    - 3> when RLC has been requested to transmit the response message,
      - 4> continue with the remainder of the procedure.
- 1> if the variable PDCP SN INFO non-empty:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> for each radio bearer in the variable PDCP\_SN\_INFO:
      - 4> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
        - 5> configure the RLC entity for that radio bearer to "continue".
    - 3> continue with the remainder of the procedure.

If the new state is CELL\_PCH or URA\_PCH, the response message shall be transmitted in CELL\_FACH state, and the UE shall:

- 1> when RLC has confirmed the successful transmission of the response message:
  - 2> for each radio bearer in the variable PDCP SN INFO:
    - 3> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
      - 4> configure the RLC entity for that radio bearer to "continue".
  - 2> enter the new state (CELL\_PCH or URA\_PCH, respectively).
- 1> continue with the remainder of the procedure.

# 3GPP TSG-RAN2 Meeting #41 Malaga, Spain, 16<sup>th</sup> -20<sup>th</sup> February 2004

第 RAN WG2

CHANGE REQUEST

# 25.331 CR 2166 # rev 2 # Current version: 4.12.0 #

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ℜ symbols.

Proposed change affec	s: UICC apps#	ME X Radio Access Network X Core Network
Tiu. 90 D.	one on CDNC Delegation	n with Call the data
Title:	sponse on SRNS Relocation	on with Cell Update

Work item code: 

\*\*TEI\*\*

Date: 

\*\*3 05/01/2004\*\*

Category: Release: # Rel-4 Use one of the following releases: Use one of the following categories: F (correction) (GSM Phase 2) 2 **A** (corresponds to a correction in an earlier release) R96 (Release 1996) **B** (addition of feature). (Release 1997) R97 **C** (functional modification of feature) R98 (Release 1998) (Release 1999) **D** (editorial modification) R99

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Rel-5 (Release 4)

Rel-6 (Release 6)

Reason for change: # It is not clear whether the UE shall interpret the IE "Downlink Counter Synchronisation Info" as being part of the "RB information elements" or not.

In the case of a SRNS relocation from CELL\_FACH to CELL\_FACH which is not triggered by the transition from CELL\_DCH to CELL\_FACH it is common understanding that the UE should answer with a UTRAN mobility information complete message if only the "new U-RNTI" and the "Downlink Counter Synchronisation Info" IEs are included. However if the IE "Downlink Counter Synchronisation Info" is considered to be part of the "RB information elements" the UE would need to send the Radio bearer Reconfiguration Complete message to the RNC.

Summary of change: # Section 8.3.1.7

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Revision 2: Only if the IE "Downlink Counter Synchronisation" and the IE "New U-RNTI" are both included the UE shall send the UTRAN Mobility Information Confirm message. Changes to 8.3.1.9 are in a separate CR.

Consequences if not approved:

Source:

The UE would need to answer a SRNS Relocation from CELL\_FACH to CELL\_FACH initiated by a Cell Update Confirm message with a Radio Bearer Reconfiguration Complete message. This is contrary to the current RAN2 understanding.

**Isolated Impact Change Analysis.** 

This change impacts the SRNS Relocation triggered by a Cell Update Confirm message.

If this cahange is not agreed the UTRAN needs to be prepared to receive a Radio Bearer Reconfiguration Complete message as response message to a Cell Update Confirm message instead of the UTRAN Mobility Information Confirm message which is the current understanding.

#### Impact on the test specifications

There is no test defined in 34.123 which is impacted by the changes.

Clauses affected:	<b>第 8.3.1.7</b>
Other specs affected:	Y N  X Other core specifications
Other comments:	lpha

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## 8.3.1.7 Transmission of a response message to UTRAN

#### If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

#### the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

#### the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" "RB information elements"; and
- includes "Transport channel information elements":

#### the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

#### the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" | "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI"

#### the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

#### the UE shall:

1> transmit no response message.

### If the URA UPDATE CONFIRM message:

- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes any one or both of the IEs "New C-RNTI" and "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

## the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI:

#### the UE shall:

1> transmit no response message.

If the new state is CELL\_DCH or CELL\_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

- 1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> if the variable PDCP\_SN\_INFO is empty:

- 4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".
- 3> else:
  - 4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";
  - 4> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "continue".
- 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 1> if the variable PDCP\_SN\_INFO is empty:
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
    - 3> when RLC has confirmed the successful transmission of the response message:
      - 4> continue with the remainder of the procedure.
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":
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- 1> if the variable PDCP SN INFO non-empty:
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    - 3> for each radio bearer in the variable PDCP\_SN\_INFO:
      - 4> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
        - 5> configure the RLC entity for that radio bearer to "continue".
    - 3> continue with the remainder of the procedure.

If the new state is CELL\_PCH or URA\_PCH, the response message shall be transmitted in CELL\_FACH state, and the UE shall:

- 1> when RLC has confirmed the successful transmission of the response message:
  - 2> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
    - 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
    - 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;

- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 2> for each radio bearer in the variable PDCP\_SN\_INFO:
  - 3> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
    - 4> configure the RLC entity for that radio bearer to "continue".
- 2> enter the new state (CELL\_PCH or URA\_PCH, respectively).
- 1> continue with the remainder of the procedure.

ME X Radio Access Network X Core Network

# TSG-RAN2 Meeting #41 Malaga, Spain, 16<sup>th</sup> -20<sup>th</sup> February 2004

Proposed change affects: UICC apps#

		CHANG	SE REQ	UE	ST	-	CR-Form-v7
器	25.331	CR 2167	⊭rev	2	X	Current version: <b>5.7.1</b>	*

For HELP on using this form, see bottom of this page or look at the pop-up text over the \mathbb{H} symbols.

Title:	ж	Response on SRNS Relocation with Cell Update		
Source:	$\mathfrak{H}$	RAN WG2		
Work item code	<i>:</i>	TEI	<i>Date:</i> ೫	05/01/2004
Category:	Ж		Release: %	
		Use <u>one</u> of the following categories: <b>F</b> (correction)	Use <u>one</u> of 2	the following releases: (GSM Phase 2)
		A (corresponds to a correction in an earlier release	•	(Release 1996)
		B (addition of feature),	R97	(Release 1997)
		C (functional modification of feature)	R98	(Release 1998)
		<ul> <li>D (editorial modification)</li> <li>Detailed explanations of the above categories can</li> </ul>	R99 Rel-4	(Release 1999) (Release 4)
		be found in 3GPP TR 21.900.	Rel-5	(Release 5)
		<u></u>	Rel-6	(Release 6)

Reason for change: 

It is not clear whether the UE shall interpret the IE "Downlink Counter Synchronisation Info" as being part of the "RB information elements" or not.

In the case of a SRNS relocation from CELL\_FACH to CELL\_FACH which is not triggered by the transition from CELL\_DCH to CELL\_FACH it is common understanding that the UE should answer with a UTRAN mobility information complete message if only the "new U-RNTI" and the "Downlink Counter Synchronisation Info" IEs are included. However if the IE "Downlink Counter Synchronisation Info" is considered to be part of the "RB information elements" the UE would need to send the Radio bearer Reconfiguration Complete message to the RNC.

#### Summary of change: Section

#### Section 8.3.1.7

In the case the UE receives the IE "Downlink counter synchronisation info" in a Cell / Ura Update Confirm message it shall respond with a Utran Mobilty Information message

Revision 2: Only if the IE "Downlink Counter Synchronisation" and the IE "New U-RNTI" are both included the UE shall send the UTRAN Mobility Information Confirm message. Changes to 8.3.1.9 are in a separate CR.

## Consequences if not approved:

The UE would need to answer a SRNS Relocation from CELL\_FACH to CELL\_FACH initiated by a Cell Update Confirm message with a Radio Bearer Reconfiguration Complete message. This is contrary to the current RAN2 understanding.

## Isolated Impact Change Analysis.

This change impacts the SRNS Relocation triggered by a Cell Update Confirm message.

If this cahange is not agreed the UTRAN needs to be prepared to receive a Radio Bearer Reconfiguration Complete message as response message to a Cell Update Confirm message instead of the UTRAN Mobility Information Confirm message which is the current understanding.

#### Impact on the test specifications

There is no test defined in 34.123 which is impacted by the changes.

Clauses affected:	<b>第 8.3.1.7</b>
Other specs affected:	Y N  X Other core specifications
Other comments:	lpha

#### **How to create CRs using this form:**

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

## 8.3.1.7 Transmission of a response message to UTRAN

#### If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

#### the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

#### the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" information elements; and
- includes "Transport channel information elements":

#### the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

#### the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

#### the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

#### the UE shall:

1> transmit no response message.

### If the URA UPDATE CONFIRM message:

- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes any one or both of the IEs "New C-RNTI" and "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI"::

## the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI":

#### the UE shall:

1> transmit no response message.

If the new state is CELL\_DCH or CELL\_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

- 1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> if the variable PDCP\_SN\_INFO is empty:

- 4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".
- 3> else:
  - 4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";
  - 4> configure the RLC entity for UM and AM radio bearers for which the IE " PDCP SN Info" is not included to "continue".
- 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> if the IE "PDCP context relocation info" is not present:
  - > re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 3> if the IE "PDCP context relocation info" is present:
  - 4> perform the actions as specified in subclause 8.6.4.13.
- 1> if the variable PDCP\_SN\_INFO is empty:
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
    - 3> when RLC has confirmed the successful transmission of the response message:
      - 4> continue with the remainder of the procedure.
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":
    - 3> when RLC has been requested to transmit the response message,
      - 4> continue with the remainder of the procedure.
- 1> if the variable PDCP\_SN\_INFO is non-empty:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> for each radio bearer in the variable PDCP\_SN\_INFO:
      - 4> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
        - 5> configure the RLC entity for that radio bearer to "continue".
    - 3> continue with the remainder of the procedure.

If the new state is CELL\_PCH or URA\_PCH, the response message shall be transmitted in CELL\_FACH state, and the UE shall:

- 1> when RLC has confirmed the successful transmission of the response message:
  - 2> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

- 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 2> for each radio bearer in the variable PDCP\_SN\_INFO:
  - 3> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
    - 4> configure the RLC entity for that radio bearer to "continue".
- 2> enter the new state (CELL\_PCH or URA\_PCH, respectively).
- 1> continue with the remainder of the procedure.

# 3GPP TSG-RAN2 Meeting #41 Malaga, Spain, 16<sup>th</sup> -20<sup>th</sup> February 2004

		CHANG	E REQ	UE	ST	-	CR-Form-v7
*	25.331 C	CR <mark>2168</mark>	⊭rev	2	ж	Current version: <b>6.0.1</b>	H

For HELP on using this form, see bottom of this page or look at the pop-up text over the \mathbb{H} symbols.

Proposed chan	ge affects:	UICC apps第	ME X Radi	io Access Networ	k X Core Network
Title:	器 Respor	nse on SRNS Reloca	tion with Cell Upd	late	
Source:	₩ RAN W	/G2			
Work item code	e: Ж <mark>TEI</mark>			Date: ₩	05/01/2004
Category:	F (c) A (c) B (a) C (f) D (e) Detailed (	of the following categor correction) corresponds to a corrected addition of feature), functional modification of editorial modification) explanations of the about 13GPP TR 21.900.	tion in an earlier rel f feature)	2 lease) R96 R97 R98 R99 Rel-4	Rel-6 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)

Reason for change: # It is not clear whether the UE shall interpret the IE "Downlink Counter Synchronisation Info" as being part of the "RB information elements" or not.

In the case of a SRNS relocation from CELL\_FACH to CELL\_FACH which is not triggered by the transition from CELL\_DCH to CELL\_FACH it is common understanding that the UE should answer with a UTRAN mobility information complete message if only the "new U-RNTI" and the "Downlink Counter Synchronisation Info" IEs are included. However if the IE "Downlink Counter Synchronisation Info" is considered to be part of the "RB information elements" the UE would need to send the Radio bearer Reconfiguration Complete message to the RNC.

## Summary of change: Section 8.3.1.7

In the case the UE receives the IE "Downlink counter synchronisation info" in a Cell / Ura Update Confirm message it shall respond with a Utran Mobilty Information message

Revision 2: Only if the IE "Downlink Counter Synchronisation" and the IE "New U-RNTI" are both included the UE shall send the UTRAN Mobility Information Confirm message. Changes to 8.3.1.9 are in a separate CR.

## Consequences if not approved:

The UE would need to answer a SRNS Relocation from CELL\_FACH to CELL\_FACH initiated by a Cell Update Confirm message with a Radio Bearer Reconfiguration Complete message. This is contrary to the current RAN2 understanding.

## Isolated Impact Change Analysis.

This change impacts the SRNS Relocation triggered by a Cell Update Confirm message.

If this cahange is not agreed the UTRAN needs to be prepared to receive a Radio Bearer Reconfiguration Complete message as response message to a Cell Update Confirm message instead of the UTRAN Mobility Information Confirm message which is the current understanding.

#### Impact on the test specifications

There is no test defined in 34.123 which is impacted by the changes.

Clauses affected:	第 8.3.1.7
Other specs affected:	Y N  X Other core specifications
Other comments:	lpha

#### **How to create CRs using this form:**

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## 8.3.1.7 Transmission of a response message to UTRAN

#### If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

#### the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

#### the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; and
- includes "Transport channel information elements":

#### the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" RB information elements; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

#### the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

## If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list" RB information elements; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

#### the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

#### the UE shall:

1> transmit no response message.

### If the URA UPDATE CONFIRM message:

- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes any one or both of the IEs "New C-RNTI" and "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI"::

## the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

#### If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI":

#### the UE shall:

1> transmit no response message.

If the new state is CELL\_DCH or CELL\_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

- 1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> if the variable PDCP\_SN\_INFO is empty:

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- 3> else:
  - 4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";
  - 4> configure the RLC entity for UM and AM radio bearers for which the IE " PDCP SN Info" is not included to "continue".
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- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> if the IE "PDCP context relocation info" is not present:
  - > re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 3> if the IE "PDCP context relocation info" is present:
  - 4> perform the actions as specified in subclause 8.6.4.13.
- 1> if the variable PDCP\_SN\_INFO is empty:
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":
    - 3> when RLC has confirmed the successful transmission of the response message:
      - 4> continue with the remainder of the procedure.
  - 2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":
    - 3> when RLC has been requested to transmit the response message,
      - 4> continue with the remainder of the procedure.
- 1> if the variable PDCP\_SN\_INFO is non-empty:
  - 2> when RLC has confirmed the successful transmission of the response message:
    - 3> for each radio bearer in the variable PDCP\_SN\_INFO:
      - 4> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
        - 5> configure the RLC entity for that radio bearer to "continue".
    - 3> continue with the remainder of the procedure.

If the new state is CELL\_PCH or URA\_PCH, the response message shall be transmitted in CELL\_FACH state, and the UE shall:

- 1> when RLC has confirmed the successful transmission of the response message:
  - 2> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

- 3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;
- 3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST\_CONFIGURED\_CN\_DOMAIN;
- 3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;
- 3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED\_RABS as specified in [36].
- 2> for each radio bearer in the variable PDCP\_SN\_INFO:
  - 3> if the IE "RB started" in the variable ESTABLISHED\_RABS is set to "started":
    - 4> configure the RLC entity for that radio bearer to "continue".
- 2> enter the new state (CELL\_PCH or URA\_PCH, respectively).
- 1> continue with the remainder of the procedure.

## 3GPP TSG-RAN 2 Meeting #40 Sophia Antipolis, France, 12<sup>th</sup>-16<sup>th</sup> January 2004

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Summary of change: %

values causing SHO failure, and drop call.

The TPC Combination Info list including Primary CPICH info and associated TPC Combination index values of the active set cells are included in the SRNS RELOCATION container.

Consequences if not approved:

## After SRNS relocation SHO may fail, as TPC Combination index values are different in UE and in UTRAN, which is likely to causea a SHO failure and dropped call. As both the SRNS relocation and especially SHO are frequent actions in the network the problem will occur frequently especially in RNS border areas.

## Isolated impact analysis

• UE

No effect

UTRAN

If UTRAN has not implemented this CR SHOs after SRNS relocation will fail

Clauses affected:	第 11.5, 14.12.4.2
	YN

Other specs affected:	<b>&gt;</b>	Other core specifications Test specifications O&M Specifications	¥	
Other comments:	×			

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## 14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved".
>State of RRC	MP		RRC state indicator, 10.3.3.35a	
>State of RRC procedure	MP		Enumerated (await no RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfigurat ion Complete, await Transport CH Reconfigurat ion Complete, await Physical CH Reconfigurat ion Complete, await Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, send URA Update Confirm, others)	
Cinharing related information			, ourers)	
Ciphering related information  >Ciphering status for each CN domain	MP	<1 to maxCNDo mains>		
>>CN domain identity	MP		CN domain identity 10.3.1.1	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>Ciphering status	MP		Enumerated( Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV- Ciphering			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>>SFN	MP		Integer(040 95)	
>COUNT-C list	OP	1 to <maxcndo mains&gt;</maxcndo 	,	COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxrb></maxrb>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-SRB1		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated( Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-IP	4 to <maxsrbs etup&gt;</maxsrbs 		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
				source.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. In particular, for SRB2,
				this IE should not take into account the RRC message
>>Uplink RRC Message sequence number	MP		Integer (0 15)	that will trigger the relocation.  For each SRB, this IE corresponds to the last value received or in the case activation time was not reached for a configuration the value equals (activation time - 1).
>>Downlink RRC Message sequence number	MP		Integer (0 15)	For each SRB, this IE corresponds to the last value used or in the case activation time was not reached for a configuration the value equals (activation time -1). In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific	OP		Bit string	mgg- me recemen
parameters			(1512)	
RRC IEs				
UE Information elements	145		II DAITI	
>U-RNTI	MP		U-RNTI 10.3.3.47	
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position >>SFN	MP		Integer	Time when position was
			(04095)	estimated
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE Position estimate	MP			
>>>Ellipsoid Point  >>>Ellipsoid point with			Ellipsoid Point; 10.3.8.4a Ellipsoid	
uncertainty circle			point with uncertainty circle 10.3.8.4d	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>Ellipsoid point with		1	Ellipsoid	
uncertainty ellipse			point with	
arroomanny ompoo			uncertainty	
			ellipse	
			10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid	
>>>Empsola point with attitude			point with	
			altitude	
			10.3.8.4b	
Ellippoid point with oltitude			Ellipsoid	
>>>Ellipsoid point with altitude				
and uncertainty ellipsoid			point with	
			altitude and	
			uncertainty	
			ellipsoid	
			10.3.8.4c	
>UE Specific Behaviour	OP		UE Specific	This IE should be included if
Information 1 idle			Behaviour	received via the "INTER RAT
			Information	HANDOVER INFO", the "RRC
			idle 1	CONNECTION REQUEST",
			10.3.3.51	the IE "SRNS RELOCATION
				INFO" or the "Inter RAT
				Handover Info with Inter RAT
				Capabilities"
>UE Specific Behaviour	OP		UE Specific	This IE should be included if
Information 1 interRAT	]		Behaviour	received via the "INTER RAT
miorination i interrorti			Information 1	HANDOVER INFO", the "RRC
			interRAT	CONNECTION REQUEST",
			10.3.3.52	the IE "SRNS RELOCATION
			10.3.3.32	INFO" or the "Inter RAT
				Handover Info with Inter RAT
Other Information elements				Capabilities"
>UE system specific capability	OP	1 to		
SUE System specific capability	OF	<maxsyste< td=""><td></td><td></td></maxsyste<>		
		mCapabilit		
>>Inter-RAT UE radio access	MP	y>	Inter-RAT	
	IVIE		UE radio	
capability				
			access	
			capability	
LITE AND BALL THE LACE OF THE STATE OF THE S			10.3.8.7	
UTRAN Mobility Information				
elements	0.0		LIDA: L	
>URA Identifier	OP		URA identity	
CN Information Flaments			10.3.2.6	
CN Information Elements	MD		NAC :	
>CN common GSM-MAP NAS	MP		NAS system	
system information			information	
			(GSM-MAP)	
		1	10.3.1.9	
>CN domain related information	OP	1 to		CN related information to be
		<maxcndo< td=""><td></td><td>provided for each CN domain</td></maxcndo<>		provided for each CN domain
		mains>		
>>CN domain identity	MP			
>>CN domain specific GSM-	MP		NAS system	
MAP NAS system info			information	
<u> </u>			(GSM-MAP)	
			10.3.1.9	
>>CN domain specific DRX	MP		CN domain	
cycle length coefficient			specific DRX	
5,5.5 15.1g.11 00011101011t			cycle length	
			coefficient,	
			10.3.3.6	
Measurement Related		1	10.3.3.0	
Information elements				
	OP	1 to		
>For each ongoing				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
measurement reporting		<maxnoof Meas&gt;</maxnoof 		
>>Measurement Identity	MP		Measuremen t identity 10.3.7.48	
>>Measurement Command	MP		Measuremen t command 10.3.7.46	
>>Measurement Type	CV-Setup		Measuremen t type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measuremen t reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measuremen ts list 10.3.7.1	
>>CHOICE Measurement	OP			
>>>Intra-frequency				
>>>Intra-frequency cell info	OP		Intra- frequency cell info list 10.3.7.33	
>>>Intra-frequency measurement quantity	OP		Intra- frequency measuremen t quantity 10.3.7.38	
>>>Intra-frequency reporting quantity	OP		Intra- frequency reporting quantity 10.3.7.41	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Intra-frequency measurement reporting criteria			Intra- frequency measuremen t reporting criteria 10.3.7.39	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting			NULL	
>>>Inter-frequency >>>>Inter-frequency cell info	OP		Inter- frequency cell info list 10.3.7.13	
>>>Inter-frequency measurement quantity	OP		Inter- frequency measuremen t quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter- frequency	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			reporting quantity	
>>>Reporting cell status	OP		10.3.7.21 Reporting cell status	
>>>Measurement validity	OP		10.3.7.61  Measuremen t validity	
>>>>CHOICE report criteria	OP		10.3.7.51	
>>>>Inter-frequency measurement reporting criteria			Inter- frequency measuremen t reporting criteria 10.3.7.19	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting >>>Inter-RAT			NULL	
>>>Inter-RAT cell info	OP		Inter-RAT cell info list 10.3.7.23	
>>>Inter-RAT measurement quantity	OP		Inter-RAT measuremen t quantity 10.3.7.29	
>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Inter-RAT measurement reporting criteria			Inter-RAT measuremen t reporting criteria 10.3.7.30	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting >>>Traffic Volume			NULL	
>>>Traffic volume >>>>Traffic volume measurement Object	OP		Traffic volume measuremen t object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measuremen t quantity 10.3.7.71	
>>>>Traffic volume reporting quantity	OP		Traffic volume reporting quantity	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			10.3.7.74	
>>>>CHOICE report criteria	OP			
>>>>Traffic volume			Traffic	
measurement			volume	
reporting criteria			measuremen	
			t reporting	
			criteria	
			10.3.7.72	
>>>>Periodical reporting			Periodical	
			reporting	
			criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>Quality				
>>>Quality measurement	OP		Quality	
Object			measuremen	
<b>,</b>			t object	
>>>CHOICE report criteria	OP			
>>>>Quality measurement			Quality	
reporting criteria			measuremen	
roporting circona			t reporting	
			criteria	
			10.3.7.58	
>>>>Periodical reporting			Periodical	
>>>> Fellouical reporting			reporting	
			criteria	
NI- n-n-ntin-n			10.3.7.53	
>>>>No reporting			NULL	
>>>UE internal	0.0			
>>>>UE internal measurement	OP		UE internal	
quantity			measuremen	
			t quantity	
			10.3.7.79	
>>>UE internal reporting	OP		UE internal	
quantity			reporting	
			quantity	
			10.3.7.82	
>>>>CHOICE report criteria	OP			
>>>>UE internal measurement			UE internal	
reporting criteria			measuremen	
			t reporting	
			criteria	
			10.3.7.80	
>>>>Periodical reporting			Periodical	
			reporting	
			criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>UE positioning				
>>>LCS reporting quantity	OP		LCS	
			reporting	
			quantity	
			10.3.7.111	
>>>CHOICE report criteria	OP			
>>>>LCS reporting criteria			LCS	
			reporting	
			criteria	
			10.3.7.110	
>>>>Periodical reporting		+	Periodical	
>>>>renoulcal reporting				
			reporting	
			criteria	
N	-		10.3.7.53	
>>>>No reporting				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Radio Bearer Information			reference	
<ul><li>Elements</li><li>&gt;Predefined configuration status information</li></ul>	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxsrbs etup&gt;</maxsrbs 		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	ОР	1 to <maxrabs etup&gt;</maxrabs 		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <maxtrch &gt;</maxtrch 		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE mode	OP			
>>FDD >>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <maxtrch &gt;</maxtrch 		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)
Downlink transport channels	OB		DI Transmer	
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <maxtrch &gt;</maxtrch 		
>>DL transport channel information	MP		Added or reconfigured DL TrCH	

Information Element/Group	Need	Multi	Type and	Semantics description
Name			reference	
			information	
			10.3.5.1	
>Measurement report	OP		MEASUREM	
			ENT	
			REPORT	
			10.2.17	
PhyCH information elements				
>TPC Combination Info list	<u>OP</u>	<u>1 to</u>		
		<maxrl></maxrl>		
>> Primary CPICH info	<u>MP</u>		10.3.6.60	
>>TPC combination index	<u>MP</u>		<u>TPC</u>	
			combination	
			index	
			<u>10.3.6.85</u>	
Other Information elements				
Failure cause	OP		Failure	Diagnostics information related
			cause	to an earlier SRNC Relocation
			10.3.3.13	request (see NOTE 2 in
				14.12.0a)
Protocol error information	CV-ProtErr		Protocol	
			error	
			information	
			10.3.8.12	

Multi Bound	Explanation
MaxNoOfMeas	Maximum number of active measurements, upper
	limit 16

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE".  Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.

[+++ Next Modified section+++]

## 11.5 RRC information between network nodes

Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

HandoverToUTRANCommand,
MeasurementReport,
PhysicalChannelReconfiguration,
RadioBearerReconfiguration,
RadioBearerRelease,
RadioBearerSetup,
RRC-FailureInfo,

```
TransportChannelReconfiguration
FROM PDU-definitions
-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DRX-CycleLengthCoefficient,
   NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
   URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    DL-PhysChCapabilityFDD-v380ext,
    FailureCauseWithProtErr,
    RRC-MessageSequenceNumber,
    STARTList,
    STARTSingle,
    START-Value,
    U-RNTI,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v3g0ext,
    UESpecificBehaviourInformationlinterRAT,
    UESpecificBehaviourInformationlidle,
-- Radio Bearer IEs :
   PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-AddReconfTransChInfoList,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-AddReconfTransChInfoList,
  Physical Channel IEs:
   PrimaryCPICH-Info,
   TPC-CombinationIndex,
-- Measurement IEs :
   MeasurementIdentity,
    MeasurementReportingMode,
   MeasurementType,
    AdditionalMeasurementID-List,
    PositionEstimate,
-- Other IEs :
   InterRAT-UE-RadioAccessCapabilityList
FROM InformationElements
    maxCNdomains,
   maxNoOfMeas,
   maxRB.
   maxSRBsetup,
   maxRL
FROM Constant-definitions;
-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped
__ ***************
-- RRC information, to target RNC
-- RRC Information to target RNC sent either from source RNC or from another RAT
ToTargetRNC-Container ::= CHOICE {
                                        InterRATHandoverInfoWithInterRATCapabilities,
   interRAThandover
    srncRelocation
                                        SRNC-RelocationInfo,
    extension
                                        NULL
```

```
-- RRC information, target RNC to source RNC
TargetRNC-ToSourceRNC-Container::= CHOICE {
   radioBearerSetup
radioBearerReconfiguration
                                        RadioBearerSetup,
                                        RadioBearerReconfiguration,
    radioBearerRelease
                                        RadioBearerRelease,
   radioBearerRelease RadioBearerRelease, transportChannelReconfiguration physicalChannelReconfiguration PhysicalChannelReconfiguration,
    rrc-FailureInfo
                                        RRC-FailureInfo,
    -- IE dl-DCCHmessage consists of an octet string that includes
    -- the IE DL-DCCH-Message
   dL-DCCHmessage
                                         OCTET STRING,
    extension
                                         NULL
-- Part2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
__ *******************************
-- Handover to UTRAN information
__ ***************************
InterRATHandoverInfoWithInterRATCapabilities ::= CHOICE {
                                     SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        interRAThandoverInfo-r3
                                         InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        v390NonCriticalExtensions
                                             SEQUENCE {
            interRATHandoverInfoWithInterRATCapabilities-v390ext
    InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
           -- Reserved for future non critical extension
                                             SEQUENCE {} OPTIONAL
            nonCriticalExtensions
               OPTIONAL
                                   SEQUENCE {}
    criticalExtensions
}
InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=
        -- The order of the IEs may not reflect the tabular format
        -- but has been chosen to simplify the handling of the information in the BSC
    -- Other IEs
        ue-RATSpecificCapability
                                         InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
        -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
        -- actual information. This makes it possible for BSS to transparently handle information -- received via GSM air interface even when it includes non critical extensions.
        -- The octet string shall include the InterRATHandoverInfo information
        -- The BSS can re-use the 04.18 length field received from the MS
                                        OCTET STRING (SIZE (0..255))
        interRATHandoverInfo
}
InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       failureCauseWithProtErr
                                            FailureCauseWithProtErr
                                                                                     OPTIONAL
}
__ ***************
-- SRNC Relocation information
__ ****************
SRNC-RelocationInfo ::= CHOICE {
        v380NonCriticalExtensions SRNC-RelocationInfo-r3-IEs,
                                     SEQUENCE {
            sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
            -- Reserved for future non critical extension
                ONONCriticalExtensions SEQUENCE {
sRNC-RelocationInfo-v390ext SRNC-RelocationInfo-v390ext-IEs,
v3a0NonCriticalExtensions SEQUENCE {
            v390NonCriticalExtensions
                    sRNC-RelocationInfo-v3a0ext
                                                         SRNC-RelocationInfo-v3a0ext-IEs,
```

```
v3b0NonCriticalExtensions
                                                         SEQUENCE {
                        sRNC-RelocationInfo-v3b0ext
                                                             SRNC-RelocationInfo-v3b0ext-IEs,
                        v3c0NonCriticalExtensions
                                                             SEQUENCE {
                             sRNC-RelocationInfo-v3c0ext
                                                                 SRNC-RelocationInfo-v3c0ext-IEs,
                             laterNonCriticalExtensions
                                                                 SEQUENCE {
                                 sRNC-RelocationInfo-v3d0ext
                                                                     SRNC-RelocationInfo-v3d0ext-IEs,
                                  -- Container for additional R99 extensions
                                 sRNC-RelocationInfo-r3-add-ext
                                                                     BIT STRING
                                 (CONTAINING SRNC-RelocationInfo-v3h0ext-IEs)
                                                                                  OPTIONAL,
                                 v3g0NonCriticalExtensions
                                                                      SEQUENCE
                                     sRNC-RelocationInfo-v3g0ext
                                                                         SRNC-RelocationInfo-v3g0ext-IEs,
                                     -- Reserved for future non critical extension
                                     nonCriticalExtensions
                                                                     SEOUENCE {} OPTIONAL
                                         OPTIONAL
                                     OPTIONAL
                                 OPTIONAL
                            OPTIONAL.
                        OPTIONAL
            }
                    OPTIONAL
                OPTIONAL
    },
    criticalExtensions
                                     SEQUENCE {}
                                             SEQUENCE {
SRNC-RelocationInfo-r3-IEs ::=
    -- Non-RRC IEs
        stateOfRRC
                                         StateOfRRC,
        stateOfRRC-Procedure
                                         StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
        cipheringStatus
                                         CipheringStatus,
                                         CalculationTimeForCiphering
        calculationTimeForCiphering
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in SRB-InformationSetupList in RAB-InformationSetupList.
        -- The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
        cipheringInfoPerRB-List
                                        CipheringInfoPerRB-List
                                                                              OPTIONAL,
                                                                              OPTIONAL,
        count-C-List
                                         COUNT-C-List
        integrityProtectionStatus
                                         IntegrityProtectionStatus,
        -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
        -- signalling radio bearer RBO and after the order of occurrence is the same as the SRBs in
        -- SRB-InformationSetupList
        srb-SpecificIntegrityProtInfo
                                         SRB-SpecificIntegrityProtInfoList,
        \verb|implementationSpecificParams| \\
                                         {\tt ImplementationSpecificParams}
                                                                              OPTIONAL,
    -- User equipment IEs
        u-RNTI
                                         U-RNTI,
        C-RNTT
                                         C-RNTT
                                                                              OPTIONAL.
        ue-RadioAccessCapability
                                         UE-RadioAccessCapability,
        ue-Positioning-LastKnownPos
                                         UE-Positioning-LastKnownPos
                                                                              OPTIONAL,
    -- Other IEs
                                         InterRAT-UE-RadioAccessCapabilityList
       ue-RATSpecificCapability
                                                                                  OPTIONAL,
     - UTRAN mobility IEs
        ura-Identity
                                         URA-Identity
                                                                              OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo
                                         NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList
                                         CN-DomainInformationList
                                                                              OPTIONAL.
    -- Measurement IEs
        ongoingMeasRepList
                                         OngoingMeasRepList
                                                                              OPTIONAL,
    -- Radio bearer IEs
        predefinedConfigStatusList
                                         PredefinedConfigStatusList,
        srb-InformationList
                                         SRB-InformationSetupList,
        rab-InformationList
                                         RAB-InformationSetupList
                                                                              OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo
                                                                              OPTIONAL.
                                         UL-AddReconfTransChInfoList
        ul-TransChInfoList
                                                                              OPTIONAL,
                                         CHOICE {
        modeSpecificInfo
            fdd
                                             SEOUENCE {
                cpch-SetID
                                                 CPCH-SetID
                                                                              OPTIONAL.
                transChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                             NULL
        dl-CommonTransChInfo
                                         DL-CommonTransChInfo
                                                                              OPTIONAL,
        dl-TransChInfoList
                                         DL-AddReconfTransChInfoList
                                                                              OPTIONAL,
    -- Measurement report
        measurementReport
                                         MeasurementReport
                                                                              OPTIONAL
}
```

```
SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
    -- Ciphering related information IEs
       cn-DomainIdentity
                                            CN-DomainIdentity,
       cipheringStatusList
                                            CipheringStatusList
}
SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
                                            CN-DomainInformationList-v390ext
        cn-DomainInformationList-v390ext
                                                                                    OPTIONAL.
        ue-RadioAccessCapability-v370ext
                                            UE-RadioAccessCapability-v370ext
                                                                                     OPTIONAL,
        ue-RadioAccessCapability-v380ext
                                            UE-RadioAccessCapability-v380ext
                                                                                    OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext
                                            DL-PhysChCapabilityFDD-v380ext,
        failureCauseWithProtErr
                                            FailureCauseWithProtErr
                                                                                    OPTIONAL
}
SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
       cipheringInfoForSRB1-v3a0ext CipheringInfoPerRB-List-v3a0ext,
       ue-RadioAccessCapability-v3a0ext
                                            UE-RadioAccessCapability-v3a0ext
                                                                                    OPTIONAL,
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
        startValueForCiphering-v3a0ext
                                            START-Value
}
SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
                                       CN-DomainIdentity,
        cn-DomainIdentity
        -- the IE startValueForCiphering-v3b0ext contains the start values for each CN Domain. The
        -- value of start indicated by the IE startValueForCiphering-v3a0ext should be set to the
        -- same value as the start-Value for the corresponding cn-DomainIdentity in the IE
        -- startValueForCiphering-v3b0ext
       startValueForCiphering-v3b0ext
                                            STARTList2
                                                                                     OPTIONAL.
}
SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
       rb-IdentityForHOMessage
                                            RB-Identity
                                                                OPTIONAL
}
SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       uESpecificBehaviourInformation1idle
                                               UESpecificBehaviourInformation1idle
        uESpecificBehaviourInformationlinterRAT
                                                   UESpecificBehaviourInformationlinterRAT
   OPTIONAL
}
SRNC-RelocationInfo-v3q0ext-IEs ::= SEOUENCE {
       ue-RadioAccessCapability-v3g0ext
                                            UE-RadioAccessCapability-v3g0ext
                                                                                    OPTIONAL
{\tt SRNC-RelocationInfo-v3h0ext-IEs} \; ::= \; {\tt SEQUENCE} \; \left\{ \right. \\
        tpc-CombinationInfoList
                                       TPC-CombinationInfoList
                                                                    OPTIONAL,
        nonCriticalExtension
                                        SEOUENCE {}
                                                                    OPTIONAL
TPC-CombinationInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
       TPC-Combination-Info
STARTList2 ::=
                                    SEQUENCE (SIZE (2..maxCNdomains)) OF
                                        STARTSingle
CipheringInfoPerRB-List-v3a0ext ::= SEQUENCE {
       dl-UM-SN
                                       BIT STRING (SIZE (7))
CipheringStatusList ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                       CipheringStatusCNdomain
CipheringStatusCNdomain ::=
                                    SEQUENCE {
       cn-DomainIdentity
                                       CN-DomainIdentity,
       cipheringStatus
                                        CipheringStatus
}
-- IE definitions
CalculationTimeForCiphering ::=
                                    SEQUENCE {
   cell-Id
                                        CellIdentity,
                                        INTEGER (0..4095)
   sfn
```

```
}
CipheringInfoPerRB ::=
                                     SEOUENCE {
                                          BIT STRING (SIZE (20..25)),
    dl-HFN
    ul-HFN
                                          BIT STRING (SIZE (20..25))
}
-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=
                                     SEQUENCE (SIZE (1..maxRB)) OF
                                         CipheringInfoPerRB
CipheringStatus ::=
                                     ENUMERATED {
                                         started, notStarted }
                                         SEQUENCE {
CN-DomainInformation-v390ext ::=
                                         CN-DRX-CycleLengthCoefficient
    cn-DRX-CycleLengthCoeff
CN-DomainInformationList-v390ext ::=
                                          SEQUENCE (SIZE (1..maxCNdomains)) OF
                                          CN-DomainInformation-v390ext
COUNT-C-List ::=
                                          SEQUENCE (SIZE (1..maxCNdomains)) OF
                                          COUNT-CSingle
COUNT-CSingle ::=
                                          SEQUENCE {
    cn-DomainIdentity
                                          CN-DomainIdentity,
    count-C
                                          BIT STRING (SIZE (32))
}
ImplementationSpecificParams ::=
                                     BIT STRING (SIZE (1..512))
IntegrityProtectionStatus ::=
                                   ENUMERATED {
                                         started, notStarted }
MeasurementCommandWithType ::=
                                     CHOICE {
                                         MeasurementType,
   setup
   modify
                                          NULL,
    release
                                          NULL
}
OngoingMeasRep ::=
                                     SEQUENCE {
                               MeasurementIdentity,
   measurementIdentity
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
   measurementCommandWithType MeasurementCommandWithType, measurementReportingMode MeasurementReportingMode additionalMeasurementID-List AdditionalMeasurementID-List
                                                                              OPTIONAL,
                                                                               OPTIONAL
}
                                     SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList ::=
                                         OngoingMeasRep
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
                                          BIT STRING (SIZE (28)),
    ul-RRC-HFN
    dl-RRC-HFN
                                          BIT STRING (SIZE (28)),
    ul-RRC-SequenceNumber
                                         RRC-MessageSequenceNumber,
   dl-RRC-SequenceNumber
                                         RRC-MessageSequenceNumber
}
SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                          SRB-SpecificIntegrityProtInfo
StateOfRRC ::=
                                     ENUMERATED {
                                          cell-DCH, cell-FACH,
                                          cell-PCH, ura-PCH }
                                     ENUMERATED {
StateOfRRC-Procedure ::=
                                          awaitNoRRC-Message,
                                          awaitRB-ReleaseComplete,
                                          awaitRB-SetupComplete,
                                          awaitRB-ReconfigurationComplete,
                                          await Transport CH-Reconfiguration Complete,\\
                                          awaitPhysicalCH-ReconfigurationComplete,
                                          awaitActiveSetUpdateComplete,
                                          awaitHandoverComplete,
                                          sendCellUpdateConfirm,
```

```
sendUraUpdateConfirm,
-- dummy is not used in this version of specification
-- It should not be sent
                                                     dummy,
                                                     otherStates
}
\underline{\texttt{TPC-Combination-Info}} ::= \underline{\texttt{SEQUENCE}} \ \big\{
          primaryCPICH-Info
                                                           PrimaryCPICH-Info,
           \verb|tpc-CombinationIndex||
                                                           TPC-CombinationIndex
UE-Positioning-LastKnownPos ::=
                                                SEQUENCE {
                                                     INTEGER (0..4095),
          cell-id
                                                     CellIdentity,
          positionEstimate
                                                     PositionEstimate
}
END
```

[+++ End of Modified Sections +++ ]

## 3GPP TSG-RAN 2 Meeting #40 Sophia Antipolis, France, 12<sup>th</sup>-16<sup>th</sup> January 2004

CHANGE REQUEST							
*	25.3	31 CR 2170	жrev	<b>-</b> #	Current vers	sion: 4.12.0 <sup>%</sup>	
For <u>HELP</u> on us	sing this	s form, see bottom o	of this page or	look at tl	he pop-up text	over the ₩ symbols.	
Proposed change a	affects:	UICC appsЖ	ME	] Radio <i>I</i>	Access Networ	rk X Core Network	
Title: ♯	TPC (	Combination Index i	n SRNC reloca	ation			
Source: #	RAN	WG2					
Work item code: ₩	TEI				Date: ∺	13/01/2004	
	F A B C D Detailed be foun	e of the following cate (correction) (corresponds to a cor (addition of feature), (functional modification (editorial modification d explanations of the addin 3GPP TR 21.900	rection in an ear on of feature) ) above categories	s can	2 se) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)	
Reason for change	c t r	arget RNC is adding	ralues of active ledge which inc g new SHO bra SRNC may po	set cells dex value inches (d itentially	s to target RNO es are used in or replacing) fo		
Summary of chang	(	The TPC Combination Combination index v RELOCATION conta	alues of the ac			nfo and associated TPC ded in the SRNS	
Consequences if not approved:	0	After SRNS relocation different in UE and in directions in the network actions in the network areas.	n UTRAN, which the SRNS re	ch is likel location	ly to causea a and especially	SHO failure and	
	ŀ	<ul> <li>Solated impact and</li> <li>UE No effect <ul> <li>UTRAN</li> <li>If UTRAN has fail.</li> </ul> </li> </ul>		ed this C	CR SHOs after	SRNS relocation will	

Clauses affected:

**3 11.5, 14.12.4.2** 

YN

Other specs affected:	<b>&gt;</b>	Other core specifications 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 <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. Below is a brief summary:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

### 14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved".
>State of RRC	MP		RRC state indicator, 10.3.3.35a	
>State of RRC procedure	MP		Enumerated (await no RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfigurat ion Complete, await Transport CH Reconfigurat ion Complete, await Physical CH Reconfigurat ion Complete, await Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, send URA Update Confirm, others)	
Cinharing related information			, ourers)	
Ciphering related information  >Ciphering status for each CN domain	MP	<1 to maxCNDo mains>		
>>CN domain identity	MP		CN domain identity 10.3.1.1	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>Ciphering status	MP		Enumerated( Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV- Ciphering			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>>SFN	MP		Integer(040 95)	
>COUNT-C list	OP	1 to <maxcndo mains&gt;</maxcndo 	,	COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxrb></maxrb>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-SRB1		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated( Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-IP	4 to <maxsrbs etup&gt;</maxsrbs 		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
				source.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. In particular, for SRB2,
				this IE should not take into account the RRC message
>>Uplink RRC Message sequence number	MP		Integer (0 15)	that will trigger the relocation.  For each SRB, this IE corresponds to the last value received or in the case activation time was not reached for a configuration the value equals (activation time - 1).
>>Downlink RRC Message sequence number	MP		Integer (0 15)	For each SRB, this IE corresponds to the last value used or in the case activation time was not reached for a configuration the value equals (activation time -1). In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific	OP		Bit string	mgg- me recemen
parameters			(1512)	
RRC IEs				
UE Information elements	145		II DAITI	
>U-RNTI	MP		U-RNTI 10.3.3.47	
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position >>SFN	MP		Integer	Time when position was
			(04095)	estimated
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE Position estimate	MP			
>>>Ellipsoid Point  >>>Ellipsoid point with			Ellipsoid Point; 10.3.8.4a Ellipsoid	
uncertainty circle			point with uncertainty circle 10.3.8.4d	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>Ellipsoid point with		1	Ellipsoid	
uncertainty ellipse			point with	
arroomanny ompoo			uncertainty	
			ellipse	
			10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid	
>>>Empsola point with attitude			point with	
			altitude	
			10.3.8.4b	
Ellippoid point with oltitude			Ellipsoid	
>>>Ellipsoid point with altitude				
and uncertainty ellipsoid			point with	
			altitude and	
			uncertainty	
			ellipsoid	
			10.3.8.4c	
>UE Specific Behaviour	OP		UE Specific	This IE should be included if
Information 1 idle			Behaviour	received via the "INTER RAT
			Information	HANDOVER INFO", the "RRC
			idle 1	CONNECTION REQUEST",
			10.3.3.51	the IE "SRNS RELOCATION
				INFO" or the "Inter RAT
				Handover Info with Inter RAT
				Capabilities"
>UE Specific Behaviour	OP		UE Specific	This IE should be included if
Information 1 interRAT	]		Behaviour	received via the "INTER RAT
miorination i interrorti			Information 1	HANDOVER INFO", the "RRC
			interRAT	CONNECTION REQUEST",
			10.3.3.52	the IE "SRNS RELOCATION
			10.3.3.32	INFO" or the "Inter RAT
				Handover Info with Inter RAT
Other Information elements				Capabilities"
>UE system specific capability	OP	1 to		
SUE System specific capability	OF	<maxsyste< td=""><td></td><td></td></maxsyste<>		
		mCapabilit		
>>Inter-RAT UE radio access	MP	y>	Inter-RAT	
	IVIE		UE radio	
capability				
			access	
			capability	
LITE AND BALL THE LACE OF THE STATE OF THE S			10.3.8.7	
UTRAN Mobility Information				
elements	0.0		LIDA: L	
>URA Identifier	OP		URA identity	
CN Information Flaments			10.3.2.6	
CN Information Elements	MD		NAC :	
>CN common GSM-MAP NAS	MP		NAS system	
system information			information	
			(GSM-MAP)	
		1	10.3.1.9	
>CN domain related information	OP	1 to		CN related information to be
		<maxcndo< td=""><td></td><td>provided for each CN domain</td></maxcndo<>		provided for each CN domain
		mains>		
>>CN domain identity	MP			
>>CN domain specific GSM-	MP		NAS system	
MAP NAS system info			information	
<u> </u>			(GSM-MAP)	
			10.3.1.9	
>>CN domain specific DRX	MP		CN domain	
cycle length coefficient			specific DRX	
5,5.5 15.1g.11 00011101011t			cycle length	
			coefficient,	
			10.3.3.6	
Measurement Related		1	10.3.3.0	
Information elements				
	OP	1 to		
>For each ongoing				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
measurement reporting		<maxnoof Meas&gt;</maxnoof 		
>>Measurement Identity	MP		Measuremen t identity 10.3.7.48	
>>Measurement Command	MP		Measuremen t command 10.3.7.46	
>>Measurement Type	CV-Setup		Measuremen t type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measuremen t reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measuremen ts list 10.3.7.1	
>>CHOICE Measurement	OP			
>>>Intra-frequency				
>>>Intra-frequency cell info	OP		Intra- frequency cell info list 10.3.7.33	
>>>Intra-frequency measurement quantity	OP		Intra- frequency measuremen t quantity 10.3.7.38	
>>>Intra-frequency reporting quantity	OP		Intra- frequency reporting quantity 10.3.7.41	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Intra-frequency measurement reporting criteria			Intra- frequency measuremen t reporting criteria 10.3.7.39	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting			NULL	
>>>Inter-frequency >>>>Inter-frequency cell info	OP		Inter- frequency cell info list 10.3.7.13	
>>>Inter-frequency measurement quantity	OP		Inter- frequency measuremen t quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter- frequency	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			reporting quantity	
>>>Reporting cell status	OP		10.3.7.21 Reporting cell status	
>>>Measurement validity	OP		10.3.7.61  Measuremen t validity	
>>>>CHOICE report criteria	OP		10.3.7.51	
>>>>Inter-frequency measurement reporting criteria			Inter- frequency measuremen t reporting criteria 10.3.7.19	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting >>>Inter-RAT			NULL	
>>>Inter-RAT cell info	OP		Inter-RAT cell info list 10.3.7.23	
>>>Inter-RAT measurement quantity	OP		Inter-RAT measuremen t quantity 10.3.7.29	
>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Inter-RAT measurement reporting criteria			Inter-RAT measuremen t reporting criteria 10.3.7.30	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting >>>Traffic Volume			NULL	
>>>Traffic volume >>>>Traffic volume measurement Object	OP		Traffic volume measuremen t object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measuremen t quantity 10.3.7.71	
>>>>Traffic volume reporting quantity	OP		Traffic volume reporting quantity	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			10.3.7.74	
>>>>CHOICE report criteria	OP			
>>>>Traffic volume			Traffic	
measurement			volume	
reporting criteria			measuremen	
			t reporting	
			criteria	
			10.3.7.72	
>>>>Periodical reporting			Periodical	
			reporting	
			criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>Quality				
>>>Quality measurement	OP		Quality	
Object			measuremen	
<b>,</b>			t object	
>>>CHOICE report criteria	OP			
>>>>Quality measurement			Quality	
reporting criteria			measuremen	
roporting circona			t reporting	
			criteria	
			10.3.7.58	
>>>>Periodical reporting			Periodical	
>>>> Fellouical reporting			reporting	
			criteria	
NI- n-n-ntin-n			10.3.7.53	
>>>>No reporting			NULL	
>>>UE internal	0.0			
>>>>UE internal measurement	OP		UE internal	
quantity			measuremen	
			t quantity	
			10.3.7.79	
>>>UE internal reporting	OP		UE internal	
quantity			reporting	
			quantity	
			10.3.7.82	
>>>>CHOICE report criteria	OP			
>>>>UE internal measurement			UE internal	
reporting criteria			measuremen	
			t reporting	
			criteria	
			10.3.7.80	
>>>>Periodical reporting			Periodical	
			reporting	
			criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>UE positioning				
>>>LCS reporting quantity	OP		LCS	
			reporting	
			quantity	
			10.3.7.111	
>>>CHOICE report criteria	OP			
>>>>LCS reporting criteria			LCS	
			reporting	
			criteria	
			10.3.7.110	
>>>>Periodical reporting		+	Periodical	
>>>>renoulcal reporting				
			reporting	
			criteria	
N	-		10.3.7.53	
>>>>No reporting				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Radio Bearer Information			reference	
<ul><li>Elements</li><li>&gt;Predefined configuration status information</li></ul>	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxsrbs etup&gt;</maxsrbs 		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	ОР	1 to <maxrabs etup&gt;</maxrabs 		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <maxtrch &gt;</maxtrch 		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE mode	OP			
>>FDD >>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <maxtrch &gt;</maxtrch 		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)
Downlink transport channels	OB		DI Transmer	
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <maxtrch &gt;</maxtrch 		
>>DL transport channel information	MP		Added or reconfigured DL TrCH	

Information Element/Group	Need	Multi	Type and	Semantics description
Name			reference	
			information	
			10.3.5.1	
>Measurement report	OP		MEASUREM	
			ENT	
			REPORT	
			10.2.17	
PhyCH information elements				
>TPC Combination Info list	<u>OP</u>	<u>1 to</u>		
		<maxrl></maxrl>		
>> Primary CPICH info	<u>MP</u>		<u>10.3.6.60</u>	
>>TPC combination index	<u>MP</u>		<u>TPC</u>	
			<u>combination</u>	
			<u>index</u>	
			<u>10.3.6.85</u>	
Other Information elements				
Failure cause	OP		Failure	Diagnostics information related
			cause	to an earlier SRNC Relocation
			10.3.3.13	request (see NOTE 2 in
				14.12.0a)
Protocol error information	CV-ProtErr		Protocol	
			error	
			information	
			10.3.8.12	

Multi Bound	Explanation
MaxNoOfMeas	Maximum number of active measurements, upper
	limit 16

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE".  Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.

[+++ Next Modified section+++]

## 11.5 RRC information between network nodes

Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

HandoverToUTRANCommand,
MeasurementReport,
PhysicalChannelReconfiguration,
RadioBearerReconfiguration,
RadioBearerRelease,
RadioBearerSetup,
RRC-FailureInfo-r3-IEs,

```
TransportChannelReconfiguration
FROM PDU-definitions
-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DomainInformationListFull,
    {\tt CN-DRX-CycleLengthCoefficient},\\
   NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
   CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
    C-RNTI,
    ChipRateCapability,
    DL-PhysChCapabilityFDD-v380ext,
    DL-PhysChCapabilityTDD,
    DL-PhysChCapabilityTDD-LCR-r4,
    GSM-Measurements,
    FailureCauseWithProtErr,
    MaxHcContextSpace,
    MaxNoPhysChBitsReceived,
    MaxROHC-ContextSessions-r4,
    NetworkAssistedGPS-Supported,
    RadioFrequencyBandTDDList,
    RLC-Capability,
    RRC-MessageSequenceNumber,
    SecurityCapability,
    SimultaneousSCCPCH-DPCH-Reception,
    STARTList,
    STARTSingle,
    START-Value,
    SupportOfDedicatedPilotsForChEstimation,
    TransportChannelCapability,
    TxRxFrequencySeparation,
    U-RNTI,
    UE-MultiModeRAT-Capability,
    UE-PowerClass-v370,
    {\tt UE-RadioAccessCapabBandFDDList}\,,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v3g0ext,
    UE-RadioAccessCapability-v4xyext,
    UL-PhysChCapabilityFDD,
    UL-PhysChCapabilityTDD,
    UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RAB-InformationSetupList-r4,
    RAB-Identity,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo.
    DL-CommonTransChInfo-r4,
    DL-AddReconfTransChInfoList,
    DL-AddReconfTransChInfoList-r4,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4
    UL-AddReconfTransChInfoList,
 - Physical Channel IEs :
   PrimaryCPICH-Info,
    TPC-CombinationIndex,
-- Measurement IEs :
   MeasurementIdentity,
   MeasurementReportingMode,
    MeasurementType,
    MeasurementType-r4,
    AdditionalMeasurementID-List,
    PositionEstimate.
    UE-Positioning-IPDL-Parameters-TDD-r4-ext,
```

```
-- Other IEs :
   InterRAT-UE-RadioAccessCapabilityList,
   UESpecificBehaviourInformationlinterRAT,
   UESpecificBehaviourInformation1idle
FROM InformationElements
   maxCNdomains.
   maxNoOfMeas,
   maxRB
   maxSRBsetup,
   maxRL
FROM Constant-definitions
-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped
__ *********************
-- RRC information, to target RNC
***************
-- RRC Information to target RNC sent either from source RNC or from another RAT
ToTargetRNC-Container ::= CHOICE {
   interRATHandoverInfo
                                      InterRATHandoverInfoWithInterRATCapabilities-r3,
   srncRelocation
                                      SRNC-RelocationInfo-r3,
   extension
}
__ ****************
-- RRC information, target RNC to source RNC
__ ***************
Target-RNC-ToSourceRNC-Container ::= CHOICE {
                                   RadioBearerSetup,
   radioBearerSetup
   radioBearerReconfiguration
                                     RadioBearerReconfiguration,
   radioBearerRelease RadioBearerRelease, transportChannelReconfiguration physicalChannelReconfiguration rrc-FailureInfo RRC-FailureInfo-r3-IEs,
   rrc-FailureInfo
   -- IE dl-DCCHmessage consists of an octet string that includes
   -- the IE DL-DCCH-Message
   dL-DCCHmessage
                                      OCTET STRING,
   extension
                                      NULL
}
-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
__ ****************************
-- Handover to UTRAN information
__ ***************
InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
                                 SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
       -- includes non critical extensions
                                     InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
       interRATHandoverInfo-r3
       v390NonCriticalExtensions
                                         SEQUENCE {
           interRATHandoverInfoWithInterRATCapabilities-v390ext
   InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
           -- Reserved for future non critical extension
                                         SEQUENCE {} OPTIONAL
           nonCriticalExtensions
       }
              OPTIONAL
   },
                                 SEQUENCE {}
   criticalExtensions
InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=
                                                        SEQUENCE {
       -- The order of the IEs may not reflect the tabular format
```

```
-- but has been chosen to simplify the handling of the information in the BSC
       Other IEs
       ue-RATSpecificCapability
                                      InterRAT-UE-RadioAccessCapabilityList
                                                                              OPTIONAL,
        -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
        -- actual information. This makes it possible for BSS to transparently handle information
        -- received via GSM air interface even when it includes non critical extensions.
        -- The octet string shall include the InterRATHandoverInfo information
        -- The BSS can re-use the 04.18 length field received from the MS
       interRATHandoverInfo
                                       OCTET STRING (SIZE (0..255))
InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       failureCauseWithProtErr
                                           FailureCauseWithProtErr
                                                                                  OPTIONAL
}
  **************
-- SRNC Relocation information
__ ***************
SRNC-RelocationInfo-r3 ::= CHOICE {
                                   SEQUENCE {
                                       SRNC-RelocationInfo-r3-IEs
       sRNC-RelocationInfo-r3
           v380NonCriticalExtensions
                                             SEQUENCE {
               sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
               -- Reserved for future non critical extension
               v390NonCriticalExtensions
                                                   SEQUENCE {
                   sRNC-RelocationInfo-v390ext
                                                       SRNC-RelocationInfo-v390ext-IEs,
                   v3a0NonCriticalExtensions
                                                       SEQUENCE {
                                                           SRNC-RelocationInfo-v3a0ext-IEs,
                       {\tt sRNC-RelocationInfo-v3a0ext}
                       v3b0NonCriticalExtensions
                                                           SEQUENCE {
                                                               SRNC-RelocationInfo-v3b0ext-IEs,
                           sRNC-RelocationInfo-v3b0ext
                           v3c0NonCriticalExtensions
                                                               SEQUENCE {
                               sRNC-RelocationInfo-v3c0ext
                                                                  SRNC-RelocationInfo-v3c0ext-IEs,
                               laterNonCriticalExtensions
                                                               SEQUENCE {
                                   sRNC-RelocationInfo-v3d0ext
                                                                  SRNC-RelocationInfo-v3d0ext-IEs,
                                   -- Container for additional R99 extensions
                                   sRNC-RelocationInfo-r3-add-ext
                                                                      BIT STRING
                                   (CONTAINING SRNC-RelocationInfo-v3h0ext-IEs)
                                                                                  OPTIONAL.
                                   v3g0NonCriticalExtensions
                                                                      SEQUENCE {
                                       sRNC-RelocationInfo-v3g0ext
                                                                          SRNC-RelocationInfo-v3g0ext-IEs,
                                       v4xyNonCriticalExtensions
                                                                           SEQUENCE {
                                                                              SRNC-RelocationInfo-v4xyext-IE
                                           sRNC-RelocationInfo-v4xyext
                                           -- Reserved for future non critical extension
                                                                          SEQUENCE {} OPTIONAL
                                           nonCriticalExtensions
                                               OPTIONAL
                                           OPTIONAL
                                       OPTIONAL
                                   OPTIONAL
                               OPTIONAL
                           OPTIONAL
                       OPTIONAL
           }
                   OPTIONAL
   later-than-r3
                                   CHOICE {
                                      SEQUENCE {
       r4
                                           SRNC-RelocationInfo-r4-IEs,
           sRNC-RelocationInfo-r4
                                           SEQUENCE {
           v4c0NonCriticalExtensions-r4
                                              SRNC-RelocationInfo-v4c0ext-IEs,
               sRNC-RelocationInfo-v4c0ext
               nonCriticalExtensions
                                               SEQUENCE { } OPTIONAL
               OPTIONAL
                                           SEQUENCE { }
       criticalExtensions
   }
}
                                   SEQUENCE {
SRNC-RelocationInfo-r3-IEs ::=
    -- Non-RRC IEs
       stateOfRRC
                                       StateOfRRC,
       stateOfRRC-Procedure
                                       StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
       cipheringStatus
                                      CipheringStatus,
       calculationTimeForCiphering
                                      CalculationTimeForCiphering
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in SRB-InformationSetupList in RAB-InformationSetupList.
```

```
-- The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
                                    CipheringInfoPerRB-List
       cipheringInfoPerRB-List
                                                                           OPTIONAL,
                                       COUNT-C-List
       count-C-List
                                                                           OPTIONAL,
       integrityProtectionStatus
                                       IntegrityProtectionStatus,
        -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
        -- signalling radio bearer RBO and after the order of occurrence is the same as the SRBs in
       -- SRB-InformationSetupList
       srb-SpecificIntegrityProtInfo
                                       SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams
                                       ImplementationSpecificParams
                                                                           OPTIONAL,
    -- User equipment IEs
       11-RNTT
                                       II-RNTT.
       C-RNTT
                                       C-RNTT
                                                                           OPTIONAL,
       ue-RadioAccessCapability
                                       UE-RadioAccessCapability,
       ue-Positioning-LastKnownPos
                                       UE-Positioning-LastKnownPos
                                                                           OPTIONAL,
    -- Other IEs
       ue-RATSpecificCapability
                                       InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
    -- UTRAN mobility IEs
       ura-Identity
                                       URA-Identity
                                                                            OPTIONAL.
    -- Core network IEs
       cn-CommonGSM-MAP-NAS-SysInfo
                                       NAS-SystemInformationGSM-MAP,
       cn-DomainInformationList
                                       CN-DomainInformationList
                                                                           OPTIONAL,
    -- Measurement IEs
       ongoingMeasRepList
                                       OngoingMeasRepList
                                                                           OPTIONAL,
    -- Radio bearer IEs
       predefinedConfigStatusList
                                       PredefinedConfigStatusList,
       srb-InformationList
                                       SRB-InformationSetupList,
       rab-InformationList
                                       RAB-InformationSetupList
                                                                           OPTIONAL,
    -- Transport channel IEs
       ul-CommonTransChInfo
                                       UL-CommonTransChInfo
                                                                            OPTIONAL.
       ul-TransChInfoList
                                       UL-AddReconfTransChInfoList
                                                                            OPTIONAL,
       modeSpecificInfo
                                       CHOICE {
           fdd
                                           SEQUENCE {
               cpch-SetID
                                               CPCH-Set.ID
                                                                           OPTIONAL.
               transChDRAC-Info
                                               DRAC-StaticInformationList OPTIONAL
            },
           tdd
                                           NULL
                                       DL-CommonTransChInfo
       dl-CommonTransChInfo
                                                                           OPTIONAL,
       dl-TransChInfoList
                                       DL-AddReconfTransChInfoList
                                                                           OPTIONAL,
    -- Measurement report
       measurementReport
                                       Measurement.Report
                                                                           OPTIONAL
}
SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
    -- Ciphering related information IEs
       cn-DomainIdentity
                                           CN-DomainIdentity.
       cipheringStatusList
                                           CipheringStatusList
SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
                                           CN-DomainInformationList-v390ext
       cn-DomainInformationList-v390ext
                                                                                    OPTIONAL.
       ue-RadioAccessCapability-v370ext
                                           UE-RadioAccessCapability-v370ext
                                                                                    OPTIONAL,
       ue-RadioAccessCapability-v380ext
                                           UE-RadioAccessCapability-v380ext
                                                                                    OPTIONAL,
                                           DL-PhysChCapabilityFDD-v380ext,
       dl-PhysChCapabilityFDD-v380ext
       failureCauseWithProtErr
                                           FailureCauseWithProtErr
                                                                                   OPTIONAL
}
SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
       startValueForCIphering-v3a0ext START-Value,
                                           CipheringInfoForSRB1-v3a0ext,
       cipheringInfoForSRB1-v3a0ext
       ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext
                                                                                   OPTIONAL
}
SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
       cn-DomainIdentity
                                      CN-DomainIdentity,
        -- the remaining start values are contained in IE startValueForCiphering-v3b0ext
       startValueForCiphering-v3b0ext
                                           STARTList2
}
SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
       rb-IdentityForHOMessage
                                           RB-Identity
                                                               OPTIONAL
```

```
SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
         uESpecificBehaviourInformationlidle
                                                    UESpecificBehaviourInformation1idle
                                                                                                 OPTIONAL,
         uESpecificBehaviourInformationlinterRAT
                                                         UESpecificBehaviourInformationlinterRAT
}
SRNC-RelocationInfo-v3g0ext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v3g0ext UE-RadioAccessCapability-v3g0ext
                                                                                             OPTIONAL
}
SRNC-RelocationInfo-v3h0ext-IEs ::= SEQUENCE {
         tpc-CombinationInfoList
                                            TPC-CombinationInfoList
        nonCriticalExtension
                                            SEQUENCE {}
                                                                           OPTIONAL
SRNC-RelocationInfo-v4c0ext-IEs ::= SEQUENCE {
         tpc-CombinationInfoList
                                      TPC-CombinationInfoList
}
\underline{\texttt{TPC-CombinationInfoList}} ::= \underline{\texttt{SEQUENCE}} \ (\underline{\texttt{SIZE}} \ (\underline{\texttt{1..maxRL}})) \ \underline{\texttt{OF}}
         TPC-Combination-Info
STARTList 2 ::=
                                        SEQUENCE (SIZE (2..maxCNdomains)) OF
                                            STARTSingle
{\tt SRNC-RelocationInfo-v4xyext-IEs} \; ::= \; {\tt SEQUENCE} \; \{
         ue-RadioAccessCapability-v4xyext
                                                UE-RadioAccessCapability-v4xyext
}
CipheringInfoForSRB1-v3a0ext ::= SEQUENCE {
         dl-UM-SN
                                                 BIT STRING (SIZE (7))
}
CipheringStatusList ::=
                                   SEQUENCE (SIZE (1..maxCNdomains)) OF
                                            CipheringStatusCNdomain
CipheringStatusCNdomain ::=
                                            SEQUENCE {
        cn-DomainIdentity
                                            CN-DomainIdentity,
                                            CipheringStatus
        cipheringStatus
}
SRNC-RelocationInfo-r4-IEs ::=
                                            SEQUENCE {
    -- Non-RRC IEs
         -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
         -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
         -- Only included if type is "UE involved"
         rb-IdentityForHOMessage
                                         RB-Identity
                                                                                    OPTIONAL,
         stateOfRRC
                                            StateOfRRC,
         stateOfRRC-Procedure
                                            StateOfRRC-Procedure,
    -- Ciphering related information IEs
         cipheringStatusList
                                           CipheringStatusList-r4,
        latestConfiguredCN-Domain
                                           CN-DomainIdentity,
         calculationTimeForCiphering
                                            CalculationTimeForCiphering
                                                                                    OPTIONAL.
         count-C-List
                                           COUNT-C-List
                                                                                    OPTIONAL,
         cipheringInfoPerRB-List
                                           CipheringInfoPerRB-List-r4
                                                                                    OPTIONAL,
    -- Integrity protection related information IEs
         integrityProtectionStatus
                                         IntegrityProtectionStatus,
         srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
                                            ImplementationSpecificParams
         implementationSpecificParams
                                                                                    OPTIONAL,
    -- User equipment IEs
                                            U-RNTI,
        u-RNTI
                                            C-RNTI
         C-RNTI
                                                                                    OPTIONAL.

      ue-RadioAccessCapability-ext
      UE-RadioAccessCapabanan DD--

      ue-RadioAccessCapability-ext
      UE-Positioning-LastKnownPos

      UE-Positioning-LastKnownPos
      UE-Positioning-LastKnownPos

         ue-RadioAccessCapability
                                           UE-RadioAccessCapability-r4,
                                           UE-RadioAccessCapabBandFDDList
                                                                                    OPTIONAL,
                                                                                    OPTIONAL,
         uESpecificBehaviourInformation1idle
                                                    UESpecificBehaviourInformation1idle
                                                                                                  OPTIONAL.
         uESpecificBehaviourInformationlinterRAT
                                                         UESpecificBehaviourInformationlinterRAT
    OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability
                                           InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
    -- UTRAN mobility IEs
                                            URA-Identity
                                                                                    OPTIONAL,
        ura-Identity
    -- Core network IEs
         cn-CommonGSM-MAP-NAS-SysInfo
                                            NAS-SystemInformationGSM-MAP.
         cn-DomainInformationList
                                            CN-DomainInformationListFull
                                                                                    OPTIONAL,
```

```
-- Measurement IEs
       ongoingMeasRepList
                                        OngoingMeasRepList-r4
                                                                            OPTIONAL,
    -- Radio bearer IEs
                                      PredefinedConfigStatusList,
       predefinedConfigStatusList
        srb-InformationList
                                        SRB-InformationSetupList,
                                       RAB-InformationSetupList-r4
       rab-InformationList
                                                                            OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo
                                      UL-CommonTransChInfo-r4
                                                                            OPTIONAL.
        ul-TransChInfoList
                                       UL-AddReconfTransChInfoList
                                                                            OPTIONAL,
        modeSpecificInfo
                                       CHOICE {
           fdd
                                          SEQUENCE {
                cpch-SetID
                                                CPCH-Set ID
                                                                            OPTIONAL.
                                                DRAC-StaticInformationList OPTIONAL
                transChDRAC-Info
            },
            tdd
                                            NULL
                                                                            OPTIONAL,
        dl-CommonTransChInfo
                                       DL-CommonTransChInfo-r4
                                                                            OPTIONAL,
       dl-TransChInfoList
                                       DL-AddReconfTransChInfoList-r4
                                                                            OPTIONAL,
    -- Measurement report
        measurementReport
                                                                            OPTIONAL.
                                       MeasurementReport
        failureCause
                                        FailureCauseWithProtErr
                                                                            OPTIONAL
}
-- IE definitions
CalculationTimeForCiphering ::=
                                    SEQUENCE {
                                        CellIdentity,
    cell-Id
    sfn
                                        INTEGER (0..4095)
}
CipheringInfoPerRB ::=
                                    SEQUENCE {
                                        BIT STRING (SIZE (20..25)),
    dl-HFN
    ul-HFN
                                        BIT STRING (SIZE (20..25))
CipheringInfoPerRB-r4 ::=
                                    SEQUENCE {
    rb-Identity
                                       RB-Identity,
    dl-HFN
                                        BIT STRING (SIZE (20..25)),
    dl-UM-SN
                                                                           OPTIONAL,
                                        BIT STRING (SIZE (7))
   ul-HFN
                                        BIT STRING (SIZE (20..25))
}
-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
 -- has been replaced with maxRB.
                                    SEQUENCE (SIZE (1..maxRB)) OF
CipheringInfoPerRB-List ::=
                                        CipheringInfoPerRB
CipheringInfoPerRB-List-r4 ::=
                                    SEQUENCE (SIZE (1..maxRB)) OF
                                       CipheringInfoPerRB-r4
CipheringStatus ::=
                                    ENUMERATED {
                                        started, notStarted }
CipheringStatusList-r4 ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CipheringStatusCNdomain-r4
CipheringStatusCNdomain-r4 ::=
                                    SEQUENCE {
       cn-DomainIdentity
                                       CN-DomainIdentity,
        cipheringStatus
                                        CipheringStatus,
        start-Value
                                        START-Value
}
CN-DomainInformation-v390ext ::=
                                        SEQUENCE {
    cn-DRX-CycleLengthCoeff
                                        CN-DRX-CycleLengthCoefficient
CN-DomainInformationList-v390ext ::=
                                        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation-v390ext
CompressedModeMeasCapability-r4 ::= SEQUENCE {
                                       BOOLEAN,
    fdd-Measurements
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    \mbox{--} Their absence corresponds to the case where the condition is not true.
    tdd384-Measurements
                                       BOOLEAN
                                                                            OPTIONAL,
                                                                            OPTIONAL,
    tdd128-Measurements
                                       BOOLEAN
    gsm-Measurements
                                        GSM-Measurements
                                                                            OPTIONAL,
    multiCarrierMeasurements
                                        BOOLEAN
                                                                            OPTIONAL
```

```
}
                                        SEQUENCE (SIZE (1..maxCNdomains)) OF
COUNT-C-List ::=
                                        COUNT-CSingle
COUNT-CSingle ::=
                                        SEQUENCE {
                                        CN-DomainIdentity,
    cn-DomainIdentity
    count.-C
                                        BIT STRING (SIZE (32))
}
DL-PhysChCapabilityFDD-r4 ::=
                                   SEQUENCE {
    maxNoDPCH-PDSCH-Codes
                                        INTEGER (1..8),
    maxNoPhysChBitsReceived
                                        MaxNoPhysChBitsReceived,
    supportForSF-512
                                        BOOLEAN,
    supportOfPDSCH
                                        BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation
                                                SupportOfDedicatedPilotsForChEstimation
                                                                                             OPTIONAL
ImplementationSpecificParams ::=
                                    BIT STRING (SIZE (1..512))
IntegrityProtectionStatus ::=
                                    ENUMERATED {
                                        started, notStarted }
MeasurementCapability-r4 ::=
                                    SEQUENCE {
    {\tt downlinkCompressedMode}
                                        CompressedModeMeasCapability-r4,
    uplinkCompressedMode
                                        CompressedModeMeasCapability-r4
}
MeasurementCommandWithType ::=
                                    CHOICE {
                                        MeasurementType,
    setup
                                        NULL,
    modify
    release
                                        NULL
}
MeasurementCommandWithType-r4 ::=
                                    CHOICE {
                                        MeasurementType-r4,
    setup
   modify
                                        NULL,
    release
                                        NULL
}
OngoingMeasRep ::=
                                    SEQUENCE {
   measurementIdentity
                               MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
   measurementCommandWithType
                                        MeasurementCommandWithType,
    measurementReportingMode
                                      MeasurementReportingMode
                                                                             OPTIONAL.
    additionalMeasurementID-List
                                       AdditionalMeasurementID-List
                                                                            OPTIONAL
}
OngoingMeasRep-r4 ::=
                                    SEOUENCE {
   measurementIdentity
                               MeasurementIdentity,
     - TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType
                                       MeasurementCommandWithType-r4,
    measurementReportingMode
                                        MeasurementReportingMode
                                                                             OPTIONAL,
    additionalMeasurementID-List
                                       AdditionalMeasurementID-List
                                                                             OPTIONAL
}
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList ::=
                                        OngoingMeasRep
OngoingMeasRepList-r4 ::=
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep-r4
                                    SEQUENCE {
PDCP-Capability-r4 ::=
    losslessSRNS-RelocationSupport
                                        BOOLEAN,
                                        CHOICE {
    supportForRfc2507
                                            NULL
       notSupported
                                            MaxHcContextSpace
        supported
    supportForRfc3095
                                        CHOICE {
        {\tt notSupported}
                                            NULL.
        supported
                                            SEQUENCE {
                                                MaxROHC-ContextSessions-r4 DEFAULT s16,
            maxROHC-ContextSessions
            reverseCompressionDepth
                                                INTEGER (0..65535)
                                                                            DEFAULT 0
        }
```

```
}
PhysicalChannelCapability-r4 ::=
                                       SEQUENCE {
        fddPhysChCapability
                                           SEQUENCE {
           downlinkPhysChCapability
                                            DL-PhysChCapabilityFDD-r4,
           uplinkPhysChCapability
                                               UL-PhysChCapabilityFDD
                                                   OPTIONAL,
                                           SEQUENCE {
        tdd384-PhysChCapability
           downlinkPhysChCapability
                                           DL-PhysChCapabilityTDD,
                                              UL-PhysChCapabilityTDD
            uplinkPhysChCapability
                                                   OPTIONAL,
        tdd128-PhysChCapability
                                           SEQUENCE {
            downlinkPhysChCapability
                                              DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability
                                               UL-PhysChCapabilityTDD-LCR-r4
                                                   OPTIONAL
}
RF-Capability-r4 ::=
                                    SEQUENCE {
        fddRF-Capability
                                       SEQUENCE {
           ue-PowerClass
                                           UE-PowerClass-v370,
            txRxFrequencySeparation
                                           TxRxFrequencySeparation
                                                                        OPTIONAL,
        tdd384-RF-Capability
                                       SEQUENCE {
                                           UE-PowerClass-v370,
            ue-PowerClass
            radioFrequencyBandTDDList
                                            RadioFrequencyBandTDDList,
            chipRateCapability
                                           ChipRateCapability
                                                                        OPTIONAL,
        tdd128-RF-Capability
                                       SEQUENCE {
            ue-PowerClass
                                           UE-PowerClass-v370,
            radioFrequencyBandTDDList
                                            RadioFrequencyBandTDDList,
            chipRateCapability
                                           ChipRateCapability
        }
                                                                        OPTIONAL
}
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
   ul-RRC-HFN
                                       BIT STRING (SIZE (28)),
    dl-RRC-HFN
                                        BIT STRING (SIZE (28)),
   ul-RRC-SequenceNumber
                                       RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber
                                       RRC-MessageSequenceNumber
}
SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo
StateOfRRC ::=
                                    ENUMERATED {
                                        cell-DCH, cell-FACH,
                                        cell-PCH, ura-PCH }
StateOfRRC-Procedure ::=
                                    ENUMERATED {
                                        awaitNoRRC-Message,
                                        awaitRB-ReleaseComplete,
                                        awaitRB-SetupComplete,
                                        awaitRB-ReconfigurationComplete,
                                        awaitTransportCH-ReconfigurationComplete,
                                        await \verb"PhysicalCH-ReconfigurationComplete",
                                        awaitActiveSetUpdateComplete,
                                        awaitHandoverComplete,
                                        sendCellUpdateConfirm,
                                        sendUraUpdateConfirm,
                                        -- dummy is not used in this version of specification
                                        -- It should not be sent
                                        dummy,
                                        otherStates
}
TPC-Combination-Info ::= SEQUENCE {
       primaryCPICH-Info
                                            PrimaryCPICH-Info,
        tpc-CombinationIndex
                                           TPC-CombinationIndex
UE-Positioning-LastKnownPos ::=
                                    SEQUENCE {
                                       INTEGER (0..4095),
       sfn
        cell-id
                                        CellIdentity,
       positionEstimate
                                        PositionEstimate
UE-Positioning-Capability-r4 ::=
                                    SEQUENCE {
```

```
BOOLEAN,
    standaloneLocMethodsSupported
    ue-BasedOTDOA-Supported
                                                BOOLEAN,
    networkAssistedGPS-Supported
                                               NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames BOOLEAN,
    {\tt supportForIPDL}
                                                BOOLEAN,
    rx-tx-TimeDifferenceType2Capable
    validity-CellPCH-UraPCH
                                                ENUMERATED { true (0 ) } OPTIONAL
UE-RadioAccessCapability-r4 ::=
                                       SEQUENCE {
    {\tt accessStratumReleaseIndicator} \qquad {\tt AccessStratumReleaseIndicator},
    pdcp-Capability
                                           PDCP-Capability-r4,
    rlc-Capability
                                           RLC-Capability,
    transportChannelCapability
                                           TransportChannelCapability,
    rf-Capability
                                           RF-Capability-r4,
                                       PhysicalChannelCapability-r4,
UE-MultiModeRAT-Capability,
    physicalChannelCapability
    ue-MultiModeRAT-Capability
    securityCapability
                                           SecurityCapability,
    securityCapability SecurityCapability,
ue-positioning-Capability UE-Positioning-Capability-r4,
measurementCapability MeasurementCapability-r4
    measurementCapability
                                          MeasurementCapability-r4
                                                                                OPTIONAL
END
```

[+++ End of Modified Sections +++]

# 3GPP TSG-RAN 2 Meeting #40 Sophia Antipolis, France, 12<sup>th</sup>-16<sup>th</sup> January 2004

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Proposed change			UICC ap			ME		dio A	ccess N	etwor	k X	Core	Ne	twork
Title: #	TP	C Con	nbinatior	n Index i	in SRN	NC reloc	ation							
Source: #	RAI	N WG	2											
Work item code: ₩	TEI								Da	te: ૠ	13/	01/200	4	
Category: ₩	Detai	F (cor A (cor B (add C (fur D (edi iled ex	the follow rection) rresponds dition of f actional mo itorial mo planation 3GPP TI	s to a cor feature), nodification dification as of the a	rrection on of fe	in an ea		elease	2 e) R9 R9 R9 R6 R6	one of 96 97 98 99	the fo. (GSN (Rele (Rele (Rele (Rele (Rele	-5 Ilowing 1 Phase ase 199 ase 199 ase 4) ase 5) ase 6)	96) 97) 98)	ases:
Reason for change		Com does targe reloc value	es causi	index vove know is adding e target ing SHO	values ledge g new SRNO failur	of active which in SHO brown page of the brown p	e set ndex v anche otenti Irop c	cells /alue es (or ally u all.	to targe s are us r replaci use inco	t RNC sed in ng) fo rrect	C. Thu UE. I or the TPC (	us targe Due to UE afte Combir	et R this er S natio	RNC s when SRNS on index
Summary of chang	<b>је:</b> Ж	Com	bination OCATIO	n index v	/alues									ited TPC
Consequences if not approved:	*	diffe drop actic area	IS.	JE and ii . As bot e netwo	n UTR h the S rk the	AN, wh SRNS re problem	ich is elocat	likely ion a	to caus	sea a ecially	SHO SHO	failure are fre	and equ	d
		ISOI	ated imp UE No eff UTRA If UTR	ect .N			nted th	nis Cl	R SHOs	after	SRN	S reloc	catio	on will

Clauses affected:	第 11.5, 14.12.4.2
	YN

fail.

Other specs affected:	<b>&gt;</b>	Other core specifications 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 <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. Below is a brief summary:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

### 14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation or a handover from GERAN *Iu mode*.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC/RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved". In handover from GERAN <i>Iu mode</i> this IE is always set to 2.
>State of RRC	MP		RRC state indicator, 10.3.3.35a	
>State of RRC procedure	MP		Enumerated (await no RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfigurat ion Complete, await Transport CH Reconfigurat ion Complete, await Physical CH Reconfigurat ion Complete, send I Reconfigurat ion Complete, await Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, send URA Update Confirm, send URA	
Ciphering related information			,	
>Ciphering status for each CN domain	MP	<1 to maxCNDo mains>		

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>CN domain identity	MP		CN domain identity	
Cimboning a status	MP		10.3.1.1	
>>Ciphering status	IVIP		Enumerated( Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV- Ciphering			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC. In handover from GERAN <i>lu mode</i> this field is not present.
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>>SFN	MP		Integer(040 95)	
>COUNT-C list	OP	1 to <maxcndo mains&gt;</maxcndo 		COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxrb></maxrb>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-SRB1		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated( Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-IP	4 to <maxsrbs etup&gt;</maxsrbs 		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
				initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>>Uplink RRC Message sequence number	MP		Integer (0 15)	For each SRB, this IE corresponds to the last value received or in the case activation time was not reached for a configuration the value equals (activation time - 1).
>>Downlink RRC Message sequence number	MP		Integer (0 15)	For each SRB, this IE corresponds to the last value used or in the case activation time was not reached for a configuration the value equals (activation time -1). In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific parameters	OP		Bit string (1512)	
RRC IES UE Information elements				
>U-RNTI	MP		U-RNTI 10.3.3.47	G-RNTI is placed in this field when performing handover from GERAN <i>Iu mode</i> .
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position	OP		lata	Time and an expedition
>>SFN	MP		Integer (04095)	Time when position was estimated
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE Position estimate	MP		Filippoid	
>>>Ellipsoid Point			Ellipsoid Point;	

Information Element/Group	Need	Multi	Type and	Semantics description
Name			reference 10.3.8.4a	
>>>Ellipsoid point with			Ellipsoid	
uncertainty circle			point with	
			uncertainty	
			circle	
			10.3.8.4d	
>>>Ellipsoid point with			Ellipsoid	
uncertainty ellipse			point with	
			uncertainty	
			ellipse 10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid	
222 Empsora point with attitude			point with	
			altitude	
			10.3.8.4b	
>>>Ellipsoid point with altitude			Ellipsoid	
and uncertainty ellipsoid			point with	
			altitude and	
			uncertainty	
			ellipsoid	
>UE Specific Behaviour	OP		10.3.8.4c UE Specific	This IE should be included if
Information 1 idle	05		Behaviour	received via the "INTER RAT
I III III III III III III III III III			Information	HANDOVER INFO", the "RRC
			idle 1	CONNECTION REQUEST",
			10.3.3.51	the IE "SRNS RELOCATION
				INFO" or the "Inter RAT
				Handover Info with Inter RAT
				Capabilities"
>UE Specific Behaviour	OP		UE Specific	This IE should be included if
Information 1 interRAT			Behaviour	received via the "INTER RAT
			Information 1	HANDOVER INFO", the "RRC
			interRAT 10.3.3.52	CONNECTION REQUEST", the IE "SRNS RELOCATION
			10.3.3.32	INFO" or the "Inter RAT
				Handover Info with Inter RAT
				Capabilities"
Other Information elements				•
>UE system specific capability	OP	1 to		
		<maxsyste< td=""><td></td><td></td></maxsyste<>		
		mCapabilit		
		y>		
>>Inter-RAT UE radio access	MP		Inter-RAT	
capability			UE radio	
			access capability	
			10.3.8.7	
UTRAN Mobility Information			10.0.0.7	
elements				
>URA Identifier	OP		URA identity	
			10.3.2.6	
CN Information Elements	<b> </b>			
>CN common GSM-MAP NAS	MP		NAS system	
system information			information	
			(GSM-MAP)	
>CN domain related information	OP	1 to	10.3.1.9	CN related information to be
2011 domain rolated information		<maxcndo< td=""><td></td><td>provided for each CN domain</td></maxcndo<>		provided for each CN domain
		mains>		F. Strada for daon on domain
>>CN domain identity	MP	-		
>>CN domain specific GSM-	MP		NAS system	
MAP NAS system info			information	
			(GSM-MAP)	
			10.3.1.9	
>>CN domain specific DRX	MP		CN domain	
cycle length coefficient			specific DRX	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			cycle length coefficient, 10.3.3.6	
Measurement Related Information elements			10.0.0.0	
>For each ongoing measurement reporting	OP	1 to <maxnoof Meas&gt;</maxnoof 		
>>Measurement Identity	MP		Measuremen t identity 10.3.7.48	
>>Measurement Command	MP		Measuremen t command 10.3.7.46	
>>Measurement Type	CV-Setup		Measuremen t type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measuremen t reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measuremen ts list 10.3.7.1	
>>CHOICE Measurement	OP			
>>>Intra-frequency				
>>>Intra-frequency cell info	OP		Intra- frequency cell info list 10.3.7.33	
>>>Intra-frequency measurement quantity	OP		Intra- frequency measuremen t quantity 10.3.7.38	
>>>Intra-frequency reporting quantity	OP		Intra- frequency reporting quantity 10.3.7.41	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Intra-frequency measurement reporting criteria			Intra- frequency measuremen t reporting criteria 10.3.7.39	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting			NULL	
>>>Inter-frequency	OB		Intor	
>>>Inter-frequency cell info	OP		Inter- frequency cell info list 10.3.7.13	
>>>Inter-frequency	OP		Inter-	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
measurement quantity			frequency measuremen t quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter- frequency reporting quantity 10.3.7.21	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Inter-frequency measurement reporting criteria			Inter- frequency measuremen t reporting criteria 10.3.7.19	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting			NULL	
>>>Inter-RAT >>>>Inter-RAT cell info	ОР		Inter-RAT cell info list 10.3.7.23	
>>>>Inter-RAT measurement quantity	OP		Inter-RAT measuremen t quantity 10.3.7.29	
>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP		1	
>>>>Inter-RAT measurement reporting criteria			Inter-RAT measuremen t reporting criteria 10.3.7.30	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting	<del> </del>		NULL	
>>>Traffic Volume >>>>Traffic volume	OP		Troffic	
measurement Object	OP		Traffic volume measuremen t object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measuremen	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Name			t quantity	
			10.3.7.71	
>>>>Traffic volume reporting	OP		Traffic	
quantity			volume	
			reporting	
			quantity 10.3.7.74	
>>>>CHOICE report criteria	OP		10.3.7.74	
>>>>Traffic volume	01		Traffic	
measurement			volume	
reporting criteria			measuremen	
			t reporting	
			criteria	
Davia dia al vanantina			10.3.7.72	
>>>>Periodical reporting			Periodical reporting	
			criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>Quality				
>>>>Quality measurement	OP		Quality	
Object	1		measuremen	
CHOICE report evitorie	OP		t object	
>>>>CHOICE report criteria >>>>>Quality measurement	UF		Quality	
reporting criteria			measuremen	
reporting criteria			t reporting	
			criteria	
			10.3.7.58	
>>>>Periodical reporting			Periodical	
			reporting	
			criteria	
>>>>No reporting			10.3.7.53 NULL	
>>>UE internal			NOLL	
>>>UE internal measurement	OP		UE internal	
quantity			measuremen	
			t quantity	
LIE :	0.0		10.3.7.79	
>>>UE internal reporting	OP		UE internal	
quantity			reporting quantity	
			10.3.7.82	
>>>>CHOICE report criteria	OP			
>>>>UE internal measurement			UE internal	
reporting criteria			measuremen	
			t reporting	
			criteria	
>>>>Periodical reporting	1		10.3.7.80 Periodical	
enduital reporting	1		reporting	
	1		criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>UE positioning	0.0		1.00	
>>>LCS reporting quantity	OP		LCS	
	1		reporting quantity	
			10.3.7.111	
>>>CHOICE report criteria	OP			
>>>>LCS reporting criteria			LCS	
	1		reporting	
			criteria	
Dariadical reporting	1		10.3.7.110	
>>>>Periodical reporting	<u> </u>	1	Periodical	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			reporting criteria 10.3.7.53	
>>>>No reporting			10.0.7.00	
Radio Bearer Information Elements				
>Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxsrbs etup&gt;</maxsrbs 		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	OP	1 to <maxrabs etup&gt;</maxrabs 		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements				
Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <maxtrch &gt;</maxtrch 		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE mode	OP			
>>FDD			00011	
>>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <maxtrch &gt;</maxtrch 		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <maxtrch< td=""><td></td><td></td></maxtrch<>		

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
		>		
>>DL transport channel information	MP		Added or reconfigured DL TrCH information 10.3.5.1	
>Measurement report	OP		MEASUREM ENT REPORT 10.2.17	
PhyCH information elements				
>TPC Combination Info list	<u>OP</u>	1 to <maxrl></maxrl>		
>> Primary CPICH info	<u>MP</u>		10.3.6.60	
>>TPC combination index	<u>MP</u>		TPC combination index 10.3.6.85	
Other Information elements				
Failure cause	ОР		Failure cause 10.3.3.13	Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a)
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	

Multi Bound	Explanation				
MaxNoOfMeas	Maximum number of active measurements, upper				
	limit 16				

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE".  Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.

[+++ Next Modified section+++]

## 11.5 RRC information between network nodes

Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

HandoverToUTRANCommand,
MeasurementReport,

```
PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo-r3-IEs,
    TransportChannelReconfiguration
FROM PDU-definitions
-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DomainInformationListFull,
    CN-DRX-CycleLengthCoefficient,
   NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
   CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
    C-RNTI,
    ChipRateCapability,
    DL-PhysChCapabilityFDD-v380ext,
    DL-PhysChCapabilityTDD,
    DL-PhysChCapabilityTDD-LCR-r4,
    GSM-Measurements.
    FailureCauseWithProtErr.
    MaxHcContextSpace,
    MaxNoPhysChBitsReceived,
    MaxROHC-ContextSessions-r4,
    {\tt NetworkAssistedGPS-Supported}\,,
    RadioFrequencyBandTDDList,
    RLC-Capability,
    RRC-MessageSequenceNumber,
    SecurityCapability,
    SimultaneousSCCPCH-DPCH-Reception,
    STARTList,
    STARTSingle,
    START-Value,
    SupportOfDedicatedPilotsForChEstimation,
    TransportChannelCapability,
    TxRxFrequencySeparation,
    U-RNTI.
    UE-MultiModeRAT-Capability,
    UE-PowerClass-v370,
    UE-RadioAccessCapabBandFDDList,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v3g0ext,
    UE-RadioAccessCapability-v4xyext,
    UE-RadioAccessCapability-v5xyext,
    UL-PhysChCapabilityFDD,
    UL-PhysChCapabilityTDD,
    UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RAB-InformationSetupList-r4,
    RAB-Identity,
    RB-Identity,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-CommonTransChInfo-r4,
    DL-AddReconfTransChInfoList,
    DL-AddReconfTransChInfoList-r4,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4,
    UL-AddReconfTransChInfoList,
 - Physical Channel IEs :
    PrimaryCPICH-Info,
    TPC-CombinationIndex,
```

-- Measurement IEs :

```
MeasurementIdentity,
   MeasurementReportingMode,
   MeasurementType,
   MeasurementType-r4,
   AdditionalMeasurementID-List,
   PositionEstimate,
-- Other IEs :
   InterRAT-UE-RadioAccessCapabilityList,
   InterRAT-UE-RadioAccessCapabilityList-r5,
   UESpecificBehaviourInformation1idle,
   UESpecificBehaviourInformationlinterRAT
FROM InformationElements
   maxCNdomains,
   maxNoOfMeas,
   maxRB,
   maxRBallRABs,
   maxRFC3095-CID,
   maxSRBsetup_
   maxRL
FROM Constant-definitions
-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped
__ ***************
-- RRC information, to target RNC
-- RRC Information to target RNC sent either from source RNC or from another RAT
ToTargetRNC-Container ::= CHOICE {
   interRATHandoverInfo
                                     InterRATHandoverInfoWithInterRATCapabilities-r3,
                                      SRNC-RelocationInfo-r3,
   srncRelocation
   rfc3095-ContextInfo
                                     RFC3095-ContextInfo-r5,
   extension
                                      NULL
}
__ ****************
-- RRC information, target RNC to source RNC
__ ******************************
Target-RNC-ToSourceRNC-Container ::= CHOICE {
                                    RadioBearerSetup,
   radioBearerSetup
   radioBearerReconfiguration
                                     RadioBearerReconfiguration,
                                    RadioBearerRelease,
   radioBearerRelease
   transportChannelReconfiguration
physicalChannelReconfiguration
PhysicalChannelReconfiguration
PhysicalChannelReconfiguration,
                                      TransportChannelReconfiguration,
   rrc-FailureInfo
                                     RRC-FailureInfo-r3-IEs,
   dL-DCCHmessage
                                      OCTET STRING,
   extension
                                      NULL
}
-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
__ ****************
-- Handover to UTRAN information
__ **************************
InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
                                  SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
       -- includes non critical extensions
                                 InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
       interRATHandoverInfo-r3
       v390NonCriticalExtensions
                                          SEQUENCE {
           interRATHandoverInfoWithInterRATCapabilities-v390ext
   InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
```

```
-- Reserved for future non critical extension
                    \verb"nonCriticalExtensions" SEQUENCE {} \} \texttt{OPTIONAL}
                          OPTIONAL
       criticalExtensions
                                                           SEQUENCE {}
}
                                                                                                   SEOUENCE {
InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=
             \mbox{--} The order of the IEs may not reflect the tabular format
              -- but has been chosen to simplify the handling of the information in the BSC
       -- Other IEs
                                                                   InterRAT-UE-RadioAccessCapabilityList
             ue-RATSpecificCapability
                                                                                                                                     OPTIONAL.
             -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
             -- actual information. This makes it possible for BSS to transparently handle information
              -- received via GSM air interface even when it includes non critical extensions.
             -- The octet string shall include the InterRATHandoverInfo information
              -- The BSS can re-use the 04.18 length field received from the {\mbox{MS}}
             interRATHandoverInfo
                                                                   OCTET STRING (SIZE (0..255))
}
InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
       -- User equipment IEs
             failureCauseWithProtErr
                                                                         FailureCauseWithProtErr
                                                                                                                                              OPTIONAL
}
__ ****************
-- RFC3095 context, source RNC to target RNC
__ ****************
RFC3095-ContextInfo-r5 ::= CHOICE {
                                                             SEQUENCE {
                                                                 RFC3095-ContextInfoList-r5,
             rFC3095-ContextInfoList-r5
              -- Reserved for future non critical extension
             nonCriticalExtensions
                                                                  SEQUENCE {} OPTIONAL
      },
                                                            SEQUENCE {}
      criticalExtensions
}
RFC3095-ContextInfoList-r5 ::=
                                                           SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                                                   RFC3095-ContextInfo
__ *******************************
-- SRNC Relocation information
__ *******************************
SRNC-RelocationInfo-r3 ::= CHOICE {
                                                            SEQUENCE {
     r3
                                                                SRNC-RelocationInfo-r3-IEs,
             sRNC-RelocationInfo-r3
                                                                                SEQUENCE {
                    v380NonCriticalExtensions
                           sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
                           -- Reserved for future non critical extension
                           v390NonCriticalExtensions
                                                                                    SEQUENCE {
                                                                                    SRNC-RelocationInfo-v390ext-IEs,
                                  sRNC-RelocationInfo-v390ext
                                        ### SEQUENCE | SEQUENCE |

### SEQUENCE |

###
                                  v3a0NonCriticalExtensions
                                               SEQUENCE {
SRNC-RelocationInfo-v3b0ext
v3c0NonCriticalExtensions
SEQUENCE {
SRNC-RelocationInfo-v3b0ext-IEs,
SEQUENCE {
                                                      sRNC-RelocationInfo-v3c0ext SRNC-RelocationInfo-v3c0ext-IEs,
                                                      laterNonCriticalExtensions
                                                                                                                   SEQUENCE {
                                                             sRNC-RelocationInfo-v3d0ext
                                                                                                                         SRNC-RelocationInfo-v3d0ext-
IEs,
                                                             -- Container for additional R99 extensions
                                                             sRNC-RelocationInfo-r3-add-ext BIT STRING
                                                                   SRNC-RelocationInfo-v3g0ext SRNC-RelocationInfo-v3g0ext-IEs,
v4xyNonCriticalExtensions SEQUENCE {
                                                             (CONTAINING SRNC-RelocationInfo-v3h0ext-IEs)
                                                                                                                                                    OPTIONAL,
                                                             v3g0NonCriticalExtensions
                                                                           sRNC-RelocationInfo-v4xyext SRNC-RelocationInfo-v4xyext-IF
                                                                                                                                       SEQUENCE {
                                                                           v5xyNonCriticalExtensions
                                                                                 sRNC-RelocationInfo-v5xyext
RelocationInfo-v5xvext-IEs.
                                                                                 -- Reserved for future non critical extension
```

```
nonCriticalExtensions
                                                                                  SEQUENCE {} OPTIONAL
                                                     OPTIONAL
                                                 OPTIONAL
                                             OPTTONAL.
                                         OPTIONAL
                                    OPTIONAL
                                OPTIONAL
                            OPTIONAL
                        OPTIONAL
            }
                    OPTIONAL
    },
    later-than-r3
                                    CHOICE {
                                        SEQUENCE {
        r4
            sRNC-RelocationInfo-r4
                                             SRNC-RelocationInfo-r4-IEs,
            v4c0NonCriticalExtensions-r4
                                             SEQUENCE {
                                                 SRNC-RelocationInfo-v4c0ext-IEs,
                sRNC-RelocationInfo-v4c0ext
                v5xyNonCriticalExtensions
                                                 SEQUENCE {
                sRNC-RelocationInfo-v5xyext
                                                     SRNC-RelocationInfo-v5xyext-IEs,
                                                 SEQUENCE {} OPTIONAL
                nonCriticalExtensions
                } OPTIONAL
                OPTIONAL
        criticalExtensions
                                             SEQUENCE { }
    }
}
SRNC-RelocationInfo-r3-IEs ::=
                                    SEQUENCE {
    -- Non-RRC IEs
        stateOfRRC
                                         StateOfRRC,
        stateOfRRC-Procedure
                                        StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
        cipheringStatus
                                        CipheringStatus,
                                        CalculationTimeForCiphering
        calculationTimeForCiphering
                                                                             OPTIONAL,
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in SRB-InformationSetupList in RAB-InformationSetupList.
        -- The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
        cipheringInfoPerRB-List
                                        CipheringInfoPerRB-List
                                                                              OPTIONAL,
        count-C-List
                                         COUNT-C-List
                                                                              OPTIONAL,
        integrityProtectionStatus
                                         IntegrityProtectionStatus,
         -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
         -- signalling radio bearer RBO and after the order of occurrence is the same as the SRBs in
        -- SRB-InformationSetupList
        srb-SpecificIntegrityProtInfo
                                         SRB-SpecificIntegrityProtInfoList,
                                        ImplementationSpecificParams
                                                                             OPTIONAL,
        implementationSpecificParams
    -- User equipment IEs
        u-RNTI
                                        U-RNTI,
                                                                              OPTIONAL,
        c-RNTI
                                         C-RNTI
        ue-RadioAccessCapability
                                        UE-RadioAccessCapability,
        ue-Positioning-LastKnownPos
                                        UE-Positioning-LastKnownPos
                                                                              OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability
                                         InterRAT-UE-RadioAccessCapabilityList
                                                                                 OPTIONAL,
     - UTRAN mobility IEs
       ura-Identity
                                        URA-Identity
                                                                              OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo
                                        NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList
                                        CN-DomainInformationList
                                                                              OPTIONAL,
    -- Measurement IEs
        ongoingMeasRepList
                                        OngoingMeasRepList
                                                                              OPTIONAL.
    -- Radio bearer IEs
        predefinedConfigStatusList
                                         PredefinedConfigStatusList,
        srb-InformationList
                                         SRB-InformationSetupList,
                                         RAB-InformationSetupList
                                                                              OPTIONAL.
        rab-InformationList
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo
                                                                              OPTIONAL.
        ul-TransChInfoList
                                         UL-AddReconfTransChInfoList
                                                                              OPTIONAL,
        modeSpecificInfo
                                         CHOICE {
                                             SEOUENCE {
            fdd
                cpch-SetID
                                                 CPCH-SetID
                                                                              OPTIONAL,
                transChDRAC-Info
                                                 DRAC-StaticInformationList
            },
            tdd
                                             NULL
        dl-CommonTransChInfo
                                         DL-CommonTransChInfo
                                                                              OPTIONAL,
        dl-TransChInfoList
                                        DL-AddReconfTransChInfoList
                                                                              OPTIONAL,
    -- Measurement report
                                                                              OPTIONAL
        measurementReport
                                        MeasurementReport
```

```
}
SRNC-RelocationInfo-v380ext-IEs ::= SEOUENCE {
    -- Ciphering related information IEs
       cn-DomainIdentity
                                           CN-DomainIdentity,
       cipheringStatusList
                                           CipheringStatusList
}
SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
       cn-DomainInformationList-v390ext
                                           {\tt CN-DomainInformationList-v390ext}
                                                                                   OPTIONAL,
       ue-RadioAccessCapability-v370ext
                                           UE-RadioAccessCapability-v370ext
                                                                                   OPTIONAL,
       ue-RadioAccessCapability-v380ext
                                           UE-RadioAccessCapability-v380ext
                                                                                   OPTIONAL.
                                           DL-PhysChCapabilityFDD-v380ext,
       dl-PhysChCapabilityFDD-v380ext
       failureCauseWithProtErr
                                           FailureCauseWithProtErr
                                                                                   OPTIONAL
}
SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
       startValueForCIphering-v3a0ext
                                           START-Value,
                                           CipheringInfoForSRB1-v3a0ext,
       cipheringInfoForSRB1-v3a0ext
       ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext
                                                                                   OPTIONAL
SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
       cn-DomainIdentity
                                       CN-DomainIdentity,
        -- the IE startValueForCiphering-v3b0ext contains the start values for each CN Domain. The
       -- value of start indicated by the IE startValueForCiphering-v3a0ext should be set to the
        -- same value as the start-Value for the corresponding cn-DomainIdentity in the IE
        -- startValueForCiphering-v3b0ext
                                                                                   OPTIONAL
       startValueForCiphering-v3b0ext
                                           STARTList2
}
SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
       rb-IdentityForHOMessage
                                           RB-Identity
                                                               OPTIONAL
}
SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       uESpecificBehaviourInformationlidle UESpecificBehaviourInformationlidle
                                                                                       OPTIONAL,
       uESpecificBehaviourInformationlinterRAT
                                                  UESpecificBehaviourInformationlinterRAT
}
SRNC-RelocationInfo-v3g0ext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v3g0ext UE-RadioAccessCapability-v3g0ext
                                                                                   OPTIONAL
}
SRNC-RelocationInfo-v3h0ext-IEs ::= SEQUENCE {
        tpc-CombinationInfoList
                                       TPC-CombinationInfoList
       nonCriticalExtension
                                       SEQUENCE {}
                                                                   OPTIONAL
SRNC-RelocationInfo-v4c0ext-IEs ::= SEQUENCE {
       tpc-CombinationInfoList
                                   TPC-CombinationInfoList
TPC-CombinationInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
       TPC-Combination-Info
                                   SEQUENCE (SIZE (2..maxCNdomains)) OF
STARTList2 ::=
                                       STARTSingle
SRNC-RelocationInfo-v4xyext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v4xyext
                                           UE-RadioAccessCapability-v4xyext
}
SRNC-RelocationInfo-v5xyext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v5xyext UE-RadioAccessCapability-v5xyext,
       ue-RATSpecificCapability-r5
                                           InterRAT-UE-RadioAccessCapabilityList-r5 OPTIONAL
}
CipheringInfoForSRB1-v3a0ext ::= SEQUENCE {
                                           BIT STRING (SIZE (7))
       dl-UM-SN
```

```
}
CipheringStatusList ::=
                                SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        {\tt CipheringStatusCNdomain}
CipheringStatusCNdomain ::=
                                        SEQUENCE {
       cn-DomainIdentity
                                        CN-DomainIdentity,
                                        CipheringStatus
        cipheringStatus
}
SRNC-RelocationInfo-r4-IEs ::=
                                        SEQUENCE {
    -- Non-RRC IEs
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
       rb-IdentityForHOMessage
                                      RB-Identity
                                                                             OPTIONAL,
                                        StateOfRRC,
        stateOfRRC
        stateOfRRC-Procedure
                                        StateOfRRC-Procedure,
    -- Ciphering related information IEs
       latestConfiguredCN-Domain
        cipheringStatusList
                                       CipheringStatusList-r4,
                                       CN-DomainIdentity,
        calculationTimeForCiphering CalculationTimeForCiphering
                                                                             OPTIONAL,
        count-C-List
                                        COUNT-C-List
                                                                             OPTIONAL,
       cipheringInfoPerRB-List
                                       CipheringInfoPerRB-List-r4
                                                                             OPTIONAL,
    -- Integrity protection related information IEs
        integrityProtectionStatus
                                       IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo
                                        SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams
                                        ImplementationSpecificParams
                                                                             OPTIONAL,
    -- User equipment IEs
                                        U-RNTI,
       u-RNTI
        c-RNTI
                                        C-RNTI
                                                                             OPTIONAL,
                                       UE-RadioAccessCapability-r4,
        ue-RadioAccessCapability
        ue-RadioAccessCapability-extUE-RadioAccessCapabBandFDDListue-Positioning-LastKnownPosUE-Positioning-LastKnownPos
                                                                             OPTIONAL,
        ue-Positioning-LastKnownPos
                                                                             OPTIONAL.
        uESpecificBehaviourInformation1idle
                                               UESpecificBehaviourInformation1idle
                                                                                         OPTIONAL,
        uESpecificBehaviourInformationlinterRAT
                                                    UESpecificBehaviourInformationlinterRAT
   OPTIONAL,
    -- Other IEs
       ue-RATSpecificCapability
                                       InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
    -- UTRAN mobility IEs
       ura-Identity
                                        URA-Identity
                                                                             OPTIONAL,
    -- Core network IEs
       cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList
                                        CN-DomainInformationListFull
                                                                             OPTIONAL,
    -- Measurement IEs
       ongoingMeasRepList
                                        OngoingMeasRepList-r4
                                                                             OPTIONAL,
    -- Radio bearer IEs
       predefinedConfigStatusList
                                       PredefinedConfigStatusList,
        srb-InformationList
                                        SRB-InformationSetupList,
       rab-InformationList
                                       RAB-InformationSetupList-r4
                                                                            OPTIONAL,
    -- Transport channel IEs
                                       UL-CommonTransChInfo-r4
       ul-CommonTransChInfo
                                                                             OPTIONAL.
        ul-TransChInfoList
                                       UL-AddReconfTransChInfoList
                                                                             OPTIONAL,
                                        CHOICE {
        modeSpecificInfo
            fdd
                                            SEQUENCE {
                cpch-SetID
                                                CPCH-Set.ID
                                                                             OPTIONAL.
                transChDRAC-Info
                                                DRAC-StaticInformationList OPTIONAL
            },
           tdd
                                            NULL
                                                                             OPTIONAL,
        dl-CommonTransChInfo
                                       DL-CommonTransChInfo-r4
                                                                             OPTIONAL,
                                        DL-AddReconfTransChInfoList-r4
       dl-TransChInfoList
                                                                            OPTIONAL,
    -- Measurement report
       measurementReport
                                        MeasurementReport
                                                                             OPTIONAL.
        failureCause
                                        FailureCauseWithProtErr
                                                                             OPTIONAL
-- IE definitions
CalculationTimeForCiphering ::=
                                    SEQUENCE {
   cell-Id
                                        CellIdentity,
                                        INTEGER (0..4095)
   sfn
}
CipheringInfoPerRB ::=
                                    SEQUENCE {
   dl-HFN
                                        BIT STRING (SIZE (20..25)),
   ul-HFN
                                        BIT STRING (SIZE (20..25))
```

```
SEQUENCE {
CipheringInfoPerRB-r4 ::=
   rb-Identity
                                        RB-Identity,
    dl-HFN
                                        BIT STRING (SIZE (20..25)),
    dl-UM-SN
                                        BIT STRING (SIZE (7))
                                                                            OPTIONAL,
    ul-HFN
                                        BIT STRING (SIZE (20..25))
-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=
                                    SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB
CipheringInfoPerRB-List-r4 ::=
                                    SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB-r4
CipheringStatus ::=
                                    ENUMERATED {
                                        started, notStarted }
CipheringStatusList-r4 ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CipheringStatusCNdomain-r4
CipheringStatusCNdomain-r4 ::=
                                    SEQUENCE {
        cn-DomainIdentity
                                        CN-DomainIdentity,
        cipheringStatus
                                        CipheringStatus,
        start-Value
                                        START-Value
}
                                        SEQUENCE {
CN-DomainInformation-v390ext ::=
    cn-DRX-CycleLengthCoeff
                                        CN-DRX-CycleLengthCoefficient
CN-DomainInformationList-v390ext ::=
                                       SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation-v390ext
CompressedModeMeasCapability-r4 ::= SEQUENCE {
    fdd-Measurements
                                       BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
                                       BOOLEAN
                                                                            OPTIONAL,
    tdd384-Measurements
    tdd128-Measurements
                                        BOOLEAN
                                                                            OPTIONAL,
    gsm-Measurements
                                        GSM-Measurements
                                                                            OPTIONAL,
    multiCarrierMeasurements
                                       BOOLEAN
                                                                            OPTIONAL
}
COUNT-C-List ::=
                                        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        COUNT-CSingle
                                        SEQUENCE {
COUNT-CSingle ::=
    cn-DomainIdentity
                                        CN-DomainIdentity,
                                        BIT STRING (SIZE (32))
    count-C
DL-PhysChCapabilityFDD-r4 ::=
                                   SEQUENCE {
   maxNoDPCH-PDSCH-Codes
                                        INTEGER (1..8),
    maxNoPhysChBitsReceived
                                        MaxNoPhysChBitsReceived,
    supportForSF-512
                                        BOOLEAN,
    supportOfPDSCH
                                       BOOLEAN.
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation
                                             SupportOfDedicatedPilotsForChEstimation
                                                                                            OPTIONAL
}
DL-RFC3095-Context ::=
                                    SEQUENCE {
    rfc3095-Context-Identity
                                        INTEGER (0..16383),
                                        ENUMERATED {u, o, r},
    dl-mode
   dl-ref-ir
                                        OCTET STRING ( SIZE (1..3000)),
    dl-ref-time
                                        INTEGER (0..4294967295) OPTIONAL,
    dl-curr-time
                                        INTEGER (0..4294967295)
                                                                   OPTIONAL,
    dl-syn-offset-id
                                        INTEGER (0..65535)
                                                                   OPTIONAL,
    dl-syn-slope-ts
                                        INTEGER (0..4294967295)
                                                                   OPTIONAL,
                                        BOOLEAN
    dl-dyn-changed
}
ImplementationSpecificParams ::= BIT STRING (SIZE (1..512))
```

```
IntegrityProtectionStatus ::=
                                     ENUMERATED {
                                        started, notStarted }
MeasurementCapability-r4 ::=
                                    SEQUENCE {
    {\tt downlinkCompressedMode}
                                         CompressedModeMeasCapability-r4,
    uplinkCompressedMode
                                         CompressedModeMeasCapability-r4
}
MeasurementCommandWithType ::=
                                    CHOICE {
    setup
                                         MeasurementType,
    modify
                                         NULL,
    release
                                         NULL
}
MeasurementCommandWithType-r4 ::=
                                    CHOICE {
                                         MeasurementType-r4,
                                         NULL,
    modify
    release
                                         NULL
}
OngoingMeasRep ::=
                                    SEOUENCE {
    measurementIdentity
                               MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
    measurementCommandWithType
                                        MeasurementCommandWithType,
    measurementReportingMode
                                        MeasurementReportingMode
                                                                             OPTIONAL,
    additionalMeasurementID-List
                                       AdditionalMeasurementID-List
                                                                             OPTIONAL
}
OngoingMeasRep-r4 ::=
                                    SEQUENCE {
    measurementIdentity
                               MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType
                                        MeasurementCommandWithType-r4,
    measurementReportingMode
                                         {\tt MeasurementReportingMode}
                                                                              OPTIONAL.
    additionalMeasurementID-List
                                        AdditionalMeasurementID-List
                                                                              OPTIONAL
OngoingMeasRepList ::=
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                         OngoingMeasRep
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList-r4 ::=
                                         OngoingMeasRep-r4
PDCP-Capability-r4 ::=
                                     SEQUENCE {
    losslessSRNS-RelocationSupport
                                         BOOLEAN,
    supportForRfc2507
                                         CHOICE {
        notSupported
                                             NULL
        supported
                                             MaxHcContextSpace
    },
    supportForRfc3095
                                         CHOICE {
        notSupported
                                            NULL,
        supported
                                             SEQUENCE {
                                                 MaxROHC-ContextSessions-r4 DEFAULT s16,
            maxROHC-ContextSessions
            reverseCompressionDepth
                                                 INTEGER (0..65535)
                                                                             DEFAULT 0
    }
}
                                         SEQUENCE {
PhysicalChannelCapability-r4 ::=
        fddPhysChCapability
                                             SEQUENCE {
            {\tt downlinkPhysChCapability}
                                                 DL-PhysChCapabilityFDD-r4,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityFDD
                                                     OPTIONAL,
        tdd384-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                DL-PhysChCapabilityTDD,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityTDD
                                                    OPTIONAL,
        tdd128-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityTDD-LCR-r4
                                                     OPTIONAL
}
RF-Capability-r4 ::=
                                    SEQUENCE {
        fddRF-Capability
                                        SEQUENCE {
            ue-PowerClass
                                             UE-PowerClass-v370,
                                             TxRxFrequencySeparation
            txRxFrequencySeparation
```

```
OPTIONAL,
        tdd384-RF-Capability
                                        SEQUENCE {
            ue-PowerClass
                                            UE-PowerClass-v370,
            radioFrequencyBandTDDList
                                             RadioFrequencyBandTDDList,
            chipRateCapability
                                             ChipRateCapability
                                                                          OPTIONAL,
        tdd128-RF-Capability
                                        SEQUENCE {
                                            UE-PowerClass-v370,
            ue-PowerClass
            radioFrequencyBandTDDList
                                             RadioFrequencyBandTDDList,
            chipRateCapability
                                             ChipRateCapability
                                                                          OPTIONAL
}
RFC3095-ContextInfo ::=
                                    SEQUENCE {
    rb-Identity
                                         RB-Identity,
    rfc3095-Context-List
                                         RFC3095-Context-List
}
RFC3095-Context-List ::=
                                    SEQUENCE (SIZE (1..maxRFC3095-CID)) OF SEQUENCE {
    dl-RFC3095-Context
                                         DL-RFC3095-Context
                                                                OPTIONAL,
    ul-RFC3095-Context
                                         UL-RFC3095-Context
                                                                 OPTIONAL
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
                                        BIT STRING (SIZE (28)),
    ul-RRC-HFN
                                         BIT STRING (SIZE (28)),
    dl-RRC-HFN
    ul-RRC-SequenceNumber
                                        RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber
                                        RRC-MessageSequenceNumber
}
{\tt SRB-SpecificIntegrityProtInfoList} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 4..maxSRBsetup})) \ {\tt OF}
                                         SRB-SpecificIntegrityProtInfo
StateOfRRC ::=
                                     ENUMERATED {
                                         cell-DCH, cell-FACH,
                                         cell-PCH, ura-PCH }
                                    ENUMERATED {
StateOfRRC-Procedure ::=
                                         awaitNoRRC-Message,
                                         awaitRB-ReleaseComplete,
                                         awaitRB-SetupComplete,
                                         awaitRB-ReconfigurationComplete,
                                         await Transport CH-Reconfiguration Complete,\\
                                         await \verb"PhysicalCH-ReconfigurationComplete",
                                         awaitActiveSetUpdateComplete,
                                         awaitHandoverComplete,
                                         sendCellUpdateConfirm,
                                         sendUraUpdateConfirm,
                                         -- dummy is not used in this version of specification
                                         -- It should not be sent
                                         dummy,
                                         otherStates
}
TPC-Combination-Info ::= SEQUENCE {
       primaryCPICH-Info
                                             PrimaryCPICH-Info,
        \verb|tpc-CombinationIndex||
                                             TPC-CombinationIndex
UE-Positioning-Capability-r4 ::=
                                  SEQUENCE {
    standaloneLocMethodsSupported
                                             BOOLEAN,
    ue-BasedOTDOA-Supported
                                             BOOLEAN,
    networkAssistedGPS-Supported
                                             NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames
                                             BOOLEAN.
    supportForIPDL
                                             BOOLEAN
    {\tt rx-tx-TimeDifferenceType2Capable}
                                             BOOLEAN,
    validity-CellPCH-UraPCH
                                             ENUMERATED { true (0 ) } OPTIONAL
}
UE-Positioning-LastKnownPos ::=
                                    SEQUENCE {
                                         INTEGER (0..4095),
        cell-id
                                         CellIdentity,
        positionEstimate
                                         PositionEstimate
}
UE-RadioAccessCapability-r4 ::=
                                    SEQUENCE {
    accessStratumReleaseIndicator
                                         AccessStratumReleaseIndicator,
    pdcp-Capability
                                         PDCP-Capability-r4,
```

```
RLC-Capability,
     rlc-Capability
                                                    TransportChannelCapability, RF-Capability-r4,
     transportChannelCapability
                                           PhysicalChannelCapability-r4,
UE-MultiModeRAT-Capability,
SecurityCapability,
UE-Position
     rf-Capability
     physicalChannelCapability
     ue-MultiModeRAT-Capability
     securityCapability
     ue-positioning-Capability
                                                      UE-Positioning-Capability-r4,
                                                                                                 OPTIONAL
     measurementCapability
                                                      MeasurementCapability-r4
}
UL-RFC3095-Context ::=
                                               SEQUENCE {
                                                    INTEGER (0..16383),
ENUMERATED {u, o, r},
OCTET STRING ( SIZE (1..3000)),
     rfc3095-Context-Identity
     ul-mode
     ul-ref-ir
                                                     INTEGER (0..4294967295) OPTIONAL,

INTEGER (0..4294967295) OPTIONAL,

INTEGER (0..65535) OPTIONAL,

INTEGER (0..4294967295) OPTIONAL,

INTEGER (0..65535) OPTIONAL
     ul-ref-time
    ul-curr-time
     ul-syn-offset-id
     ul-syn-slope-ts
     ul-ref-sn-1
}
END
```

[+++ End of Modified Sections +++ ]

# 3GPP TSG-RAN 2 Meeting #40 Sophia Antipolis, France, 12<sup>th</sup>-16<sup>th</sup> January 2004

			C	HAN	IGE	RE	QUE	ES1	<b>-</b>				CR-Form-v7
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For <u>HELP</u> on u	sing t	his for	m, see	bottom	of this	: page	or lool	k at th	пе рор-	up tex	t over	the ℋ sy	mbols.
Proposed change a	affec	<i>ts:</i> (	JICC ap	ops#		ME[	Ra	adio <i>A</i>	Access	Netwo	rk X	Core N	etwork
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Category:	Deta	F (cori A (cori B (add C (fund D (edii led exp	rection) respond dition of t ctional n torial mo olanatior	wing cate s to a co feature), nodification is of the R 21.900	rrection on of fe n) above	n in an ( eature)			Use 2 se) F F F F F	ase: #6 e <u>one</u> of 2 R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	the for (GSN) (Relea (Relea (Relea (Relea (Relea	I-6 Illowing re Il	) ) )
Reason for change	: X	Com does targe reloc	bination not ha et RNC ation th	n index v ve know is addin	values rledge g new t SRN	of act which SHO I C may	ve set index oranch poten	t cells value nes (c tially	s to targ es are u or repla	get RNu used in cing) f	C. Th UE. or the	tly used T us target Due to th UE after Combina	RNC is when
Summary of chang	r <b>e:</b> ૠ	Com	bination		values							nd associ	iated TPC IS
Consequences if not approved:	$\mathfrak{X}$	differ drop actio area	rent in Uped cal ns in thes.	JE and i I. As bot	n UTF th the ork the	RAN, w SRNS proble	hich is reloca	s likel ation a	y to car and esp	usea a pecially	SHO SHC	ex values failure a are freq ally in RN	nd
		•	No eff	۸N	s not ir	mpleme	ented	this C	CR SHC	Os afte	r SRN	IS reloca	tion will
Clauses affected:	$\mathfrak{H}$	11.5	, 14.12.	4.2									

YN

Other specs affected:	<b>&gt;</b>	Other core specifications 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 <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. Below is a brief summary:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### 14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation or a handover from GERAN *Iu mode*.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC/RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved". In handover from GERAN <i>Iu mode</i> this IE is always set to 2.
>State of RRC	MP		RRC state indicator, 10.3.3.35a	
>State of RRC procedure	MP		Enumerated (await no RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfigurat ion Complete, await Transport CH Reconfigurat ion Complete, await Physical CH Reconfigurat ion Complete, send I Reconfigurat ion Complete, send Update Complete, send Cell Update Confirm, send URA Update Confirm, send URA Update Confirm, others)	
Ciphering related information			,	
>Ciphering status for each CN domain	MP	<1 to maxCNDo mains>		

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>CN domain identity	MP		CN domain identity	
Cimboning a status	MP		10.3.1.1	
>>Ciphering status	IVIP		Enumerated( Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV- Ciphering			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC. In handover from GERAN <i>lu mode</i> this field is not present.
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>>SFN	MP		Integer(040 95)	
>COUNT-C list	OP	1 to <maxcndo mains&gt;</maxcndo 		COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxrb></maxrb>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-SRB1		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(2025	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated( Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-IP	4 to <maxsrbs etup&gt;</maxsrbs 		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
				initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, in the case activation times for the next IP configuration to be applied on this SRB have already been reached this IE corresponds to the last value used. Else this value corresponds to the value the source would have initalized the HFN to at the activation time. Increment of HFN due to RRC SN roll over is taken care of by target based on value sent by the source. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>>Uplink RRC Message sequence number	MP		Integer (0 15)	For each SRB, this IE corresponds to the last value received or in the case activation time was not reached for a configuration the value equals (activation time - 1).
>>Downlink RRC Message sequence number	MP		Integer (0 15)	For each SRB, this IE corresponds to the last value used or in the case activation time was not reached for a configuration the value equals (activation time -1). In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific parameters	OP		Bit string (1512)	
RRC IES UE Information elements				
>U-RNTI	MP		U-RNTI 10.3.3.47	G-RNTI is placed in this field when performing handover from GERAN <i>Iu mode</i> .
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position	OP		lata	Time and an expedition
>>SFN	MP		Integer (04095)	Time when position was estimated
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE Position estimate	MP		Filippoid	
>>>Ellipsoid Point			Ellipsoid Point;	

Information Element/Group	Need	Multi	Type and	Semantics description
Name			reference 10.3.8.4a	
>>>Ellipsoid point with			Ellipsoid	
uncertainty circle			point with	
			uncertainty	
			circle	
			10.3.8.4d	
>>>Ellipsoid point with			Ellipsoid	
uncertainty ellipse			point with	
			uncertainty	
			ellipse 10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid	
222 Empsora point with attitude			point with	
			altitude	
			10.3.8.4b	
>>>Ellipsoid point with altitude			Ellipsoid	
and uncertainty ellipsoid			point with	
			altitude and	
			uncertainty	
			ellipsoid	
>UE Specific Behaviour	OP		10.3.8.4c UE Specific	This IE should be included if
Information 1 idle	05		Behaviour	received via the "INTER RAT
I III III III III III III III III III			Information	HANDOVER INFO", the "RRC
			idle 1	CONNECTION REQUEST",
			10.3.3.51	the IE "SRNS RELOCATION
				INFO" or the "Inter RAT
				Handover Info with Inter RAT
				Capabilities"
>UE Specific Behaviour	OP		UE Specific	This IE should be included if
Information 1 interRAT			Behaviour	received via the "INTER RAT
			Information 1	HANDOVER INFO", the "RRC
			interRAT 10.3.3.52	CONNECTION REQUEST", the IE "SRNS RELOCATION
			10.3.3.32	INFO" or the "Inter RAT
				Handover Info with Inter RAT
				Capabilities"
Other Information elements				•
>UE system specific capability	OP	1 to		
		<maxsyste< td=""><td></td><td></td></maxsyste<>		
		mCapabilit		
		y>		
>>Inter-RAT UE radio access	MP		Inter-RAT	
capability			UE radio	
			access capability	
			10.3.8.7	
UTRAN Mobility Information			10.0.0.7	
elements				
>URA Identifier	OP		URA identity	
			10.3.2.6	
CN Information Elements	<b> </b>			
>CN common GSM-MAP NAS	MP		NAS system	
system information			information	
			(GSM-MAP)	
>CN domain related information	OP	1 to	10.3.1.9	CN related information to be
2011 domain rolated information		<maxcndo< td=""><td></td><td>provided for each CN domain</td></maxcndo<>		provided for each CN domain
		mains>		F. Strada for daon on domain
>>CN domain identity	MP	-		
>>CN domain specific GSM-	MP		NAS system	
MAP NAS system info			information	
			(GSM-MAP)	
			10.3.1.9	
>>CN domain specific DRX	MP		CN domain	
cycle length coefficient			specific DRX	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			cycle length coefficient, 10.3.3.6	
Measurement Related Information elements			10.0.0.0	
>For each ongoing measurement reporting	OP	1 to <maxnoof Meas&gt;</maxnoof 		
>>Measurement Identity	MP		Measuremen t identity 10.3.7.48	
>>Measurement Command	MP		Measuremen t command 10.3.7.46	
>>Measurement Type	CV-Setup		Measuremen t type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measuremen t reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measuremen ts list 10.3.7.1	
>>CHOICE Measurement	OP			
>>>Intra-frequency				
>>>Intra-frequency cell info	OP		Intra- frequency cell info list 10.3.7.33	
>>>Intra-frequency measurement quantity	OP		Intra- frequency measuremen t quantity 10.3.7.38	
>>>Intra-frequency reporting quantity	OP		Intra- frequency reporting quantity 10.3.7.41	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Intra-frequency measurement reporting criteria			Intra- frequency measuremen t reporting criteria 10.3.7.39	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting			NULL	
>>>Inter-frequency	OB		Intor	
>>>Inter-frequency cell info	OP		Inter- frequency cell info list 10.3.7.13	
>>>Inter-frequency	OP		Inter-	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
measurement quantity			frequency measuremen t quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter- frequency reporting quantity 10.3.7.21	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP			
>>>>Inter-frequency measurement reporting criteria			Inter- frequency measuremen t reporting criteria 10.3.7.19	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting			NULL	
>>>Inter-RAT >>>>Inter-RAT cell info	ОР		Inter-RAT cell info list 10.3.7.23	
>>>>Inter-RAT measurement quantity	OP		Inter-RAT measuremen t quantity 10.3.7.29	
>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE report criteria	OP		1	
>>>>Inter-RAT measurement reporting criteria			Inter-RAT measuremen t reporting criteria 10.3.7.30	
>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>No reporting	<del> </del>		NULL	
>>>Traffic Volume >>>>Traffic volume	OB		Troffic	
measurement Object	OP		Traffic volume measuremen t object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measuremen	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Name			t quantity	
			10.3.7.71	
>>>>Traffic volume reporting	OP		Traffic	
quantity			volume	
			reporting	
			quantity 10.3.7.74	
>>>>CHOICE report criteria	OP		10.3.7.74	
>>>>Traffic volume	01		Traffic	
measurement			volume	
reporting criteria			measuremen	
			t reporting	
			criteria	
Davia dia al vanantina			10.3.7.72	
>>>>Periodical reporting			Periodical reporting	
			criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>Quality				
>>>>Quality measurement	OP		Quality	
Object	1		measuremen	
CHOICE report evitorie	OP		t object	
>>>>CHOICE report criteria >>>>>Quality measurement	UF		Quality	
reporting criteria			measuremen	
reporting criteria			t reporting	
			criteria	
			10.3.7.58	
>>>>Periodical reporting			Periodical	
			reporting	
			criteria	
>>>>No reporting			10.3.7.53 NULL	
>>>UE internal			NOLL	
>>>UE internal measurement	OP		UE internal	
quantity			measuremen	
			t quantity	
LIE :	0.0		10.3.7.79	
>>>UE internal reporting	OP		UE internal	
quantity			reporting quantity	
			10.3.7.82	
>>>>CHOICE report criteria	OP			
>>>>UE internal measurement			UE internal	
reporting criteria			measuremen	
			t reporting	
			criteria	
>>>>Periodical reporting	1		10.3.7.80 Periodical	
enduital reporting	1		reporting	
	1		criteria	
			10.3.7.53	
>>>>No reporting			NULL	
>>>UE positioning	0.0		1.00	
>>>LCS reporting quantity	OP		LCS	
	1		reporting quantity	
			10.3.7.111	
>>>CHOICE report criteria	OP			
>>>>LCS reporting criteria			LCS	
	1		reporting	
			criteria	
Dariadical reporting	1		10.3.7.110	
>>>>Periodical reporting	<u> </u>	1	Periodical	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			reporting criteria 10.3.7.53	
>>>>No reporting			10.0.7.00	
Radio Bearer Information Elements				
>Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxsrbs etup&gt;</maxsrbs 		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	OP	1 to <maxrabs etup&gt;</maxrabs 		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements				
Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <maxtrch &gt;</maxtrch 		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE mode	OP			
>>FDD				
>>>CPCH set ID	OP	4.40	CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <maxtrch &gt;</maxtrch 		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <maxtrch< td=""><td></td><td></td></maxtrch<>		

Information Element/Group Name	Need	Multi	Type and reference	Semantics description				
		>						
>>DL transport channel information	MP		Added or reconfigured DL TrCH information 10.3.5.1					
>Measurement report	OP		MEASUREM ENT REPORT 10.2.17					
PhyCH information elements								
>TPC Combination Info list	<u>OP</u>	1 to <maxrl></maxrl>						
>>Primary CPICH info	MP		10.3.6.60					
>>TPC combination index	<u>MP</u>		TPC combination index 10.3.6.85					
Other Information elements								
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a)				
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12					

Multi Bound	Explanation				
MaxNoOfMeas	Maximum number of active measurements, upper				
	limit 16				

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE".  Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.

[+++ Next Modified section+++]

## 11.5 RRC information between network nodes

Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

HandoverToUTRANCommand,
MeasurementReport,

```
PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo-r3-IEs,
    TransportChannelReconfiguration
FROM PDU-definitions
-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DomainInformationListFull,
    CN-DRX-CycleLengthCoefficient,
   NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
   CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
    C-RNTI,
    ChipRateCapability,
    DL-PhysChCapabilityFDD-v380ext,
    DL-PhysChCapabilityTDD,
    DL-PhysChCapabilityTDD-LCR-r4,
    GSM-Measurements.
    FailureCauseWithProtErr.
    MaxHcContextSpace,
    MaxNoPhysChBitsReceived,
    MaxROHC-ContextSessions-r4,
    {\tt NetworkAssistedGPS-Supported}\,,
    RadioFrequencyBandTDDList,
    RLC-Capability,
    RRC-MessageSequenceNumber,
    SecurityCapability,
    SimultaneousSCCPCH-DPCH-Reception,
    STARTList,
    STARTSingle,
    START-Value,
    SupportOfDedicatedPilotsForChEstimation,
    TransportChannelCapability,
    TxRxFrequencySeparation,
    U-RNTI.
    UE-MultiModeRAT-Capability,
    UE-PowerClass-v370,
    UE-RadioAccessCapabBandFDDList,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v3g0ext,
    UE-RadioAccessCapability-v4xyext,
    UE-RadioAccessCapability-v5xyext,
    UL-PhysChCapabilityFDD,
    UL-PhysChCapabilityTDD,
    UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RAB-InformationSetupList-r4,
    RAB-Identity,
    RB-Identity,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-CommonTransChInfo-r4,
    DL-AddReconfTransChInfoList,
    DL-AddReconfTransChInfoList-r4,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4,
    UL-AddReconfTransChInfoList,
  Physical Channel IEs :
    PrimaryCPICH-Info,
    TPC-CombinationIndex,
```

-- Measurement IEs :

```
MeasurementIdentity,
   MeasurementReportingMode,
   MeasurementType,
   MeasurementType-r4,
   AdditionalMeasurementID-List,
   PositionEstimate,
-- Other IEs :
   InterRAT-UE-RadioAccessCapabilityList,
   InterRAT-UE-RadioAccessCapabilityList-r5,
   UESpecificBehaviourInformation1idle,
   UESpecificBehaviourInformationlinterRAT
FROM InformationElements
   maxCNdomains,
   maxNoOfMeas,
   maxRB,
   maxRBallRABs,
   maxRFC3095-CID,
   maxSRBsetup_
   maxRL
FROM Constant-definitions
-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped
__ ***************
-- RRC information, to target RNC
-- RRC Information to target RNC sent either from source RNC or from another RAT
ToTargetRNC-Container ::= CHOICE {
   interRATHandoverInfo
                                     InterRATHandoverInfoWithInterRATCapabilities-r3,
                                      SRNC-RelocationInfo-r3,
   srncRelocation
   rfc3095-ContextInfo
                                     RFC3095-ContextInfo-r5,
   extension
                                      NULL
}
__ ****************
-- RRC information, target RNC to source RNC
__ ******************************
Target-RNC-ToSourceRNC-Container ::= CHOICE {
                                    RadioBearerSetup,
   radioBearerSetup
   radioBearerReconfiguration
                                     RadioBearerReconfiguration,
                                    RadioBearerRelease,
   radioBearerRelease
   transportChannelReconfiguration
physicalChannelReconfiguration
PhysicalChannelReconfiguration
PhysicalChannelReconfiguration,
                                      TransportChannelReconfiguration,
   rrc-FailureInfo
                                     RRC-FailureInfo-r3-IEs,
   dL-DCCHmessage
                                      OCTET STRING,
   extension
                                      NULL
}
-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
__ ****************
-- Handover to UTRAN information
__ **************************
InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
                                  SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
       -- includes non critical extensions
                                 InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
       interRATHandoverInfo-r3
       v390NonCriticalExtensions
                                          SEQUENCE {
           interRATHandoverInfoWithInterRATCapabilities-v390ext
   InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
```

```
-- Reserved for future non critical extension
                    \verb"nonCriticalExtensions" SEQUENCE {} \} \texttt{OPTIONAL}
                          OPTIONAL
       criticalExtensions
                                                           SEQUENCE {}
}
                                                                                                   SEOUENCE {
InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=
             \mbox{--} The order of the IEs may not reflect the tabular format
              -- but has been chosen to simplify the handling of the information in the BSC
       -- Other IEs
                                                                   InterRAT-UE-RadioAccessCapabilityList
             ue-RATSpecificCapability
                                                                                                                                     OPTIONAL.
             -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
             -- actual information. This makes it possible for BSS to transparently handle information
              -- received via GSM air interface even when it includes non critical extensions.
             -- The octet string shall include the InterRATHandoverInfo information
              -- The BSS can re-use the 04.18 length field received from the {\mbox{MS}}
             interRATHandoverInfo
                                                                   OCTET STRING (SIZE (0..255))
}
InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
       -- User equipment IEs
             failureCauseWithProtErr
                                                                         FailureCauseWithProtErr
                                                                                                                                              OPTIONAL
}
__ ****************
-- RFC3095 context, source RNC to target RNC
__ ****************
RFC3095-ContextInfo-r5 ::= CHOICE {
                                                             SEQUENCE {
                                                                 RFC3095-ContextInfoList-r5,
             rFC3095-ContextInfoList-r5
              -- Reserved for future non critical extension
             nonCriticalExtensions
                                                                  SEQUENCE {} OPTIONAL
      },
                                                            SEQUENCE {}
      criticalExtensions
}
RFC3095-ContextInfoList-r5 ::=
                                                           SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                                                   RFC3095-ContextInfo
__ *******************************
-- SRNC Relocation information
__ *******************************
SRNC-RelocationInfo-r3 ::= CHOICE {
                                                            SEQUENCE {
     r3
                                                                SRNC-RelocationInfo-r3-IEs,
             sRNC-RelocationInfo-r3
                                                                                SEQUENCE {
                    v380NonCriticalExtensions
                           sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
                           -- Reserved for future non critical extension
                           v390NonCriticalExtensions
                                                                                    SEQUENCE {
                                                                                    SRNC-RelocationInfo-v390ext-IEs,
                                  sRNC-RelocationInfo-v390ext
                                        ### SEQUENCE | SEQUENCE |

### SEQUENCE |

###
                                  v3a0NonCriticalExtensions
                                               SEQUENCE {
SRNC-RelocationInfo-v3b0ext
v3c0NonCriticalExtensions
SEQUENCE {
SRNC-RelocationInfo-v3b0ext-IEs,
SEQUENCE {
                                                      sRNC-RelocationInfo-v3c0ext SRNC-RelocationInfo-v3c0ext-IEs,
                                                      laterNonCriticalExtensions
                                                                                                                   SEQUENCE {
                                                             sRNC-RelocationInfo-v3d0ext
                                                                                                                         SRNC-RelocationInfo-v3d0ext-
IEs,
                                                             -- Container for additional R99 extensions
                                                             sRNC-RelocationInfo-r3-add-ext BIT STRING
                                                                   SRNC-RelocationInfo-v3g0ext SRNC-RelocationInfo-v3g0ext-IEs,
v4xyNonCriticalExtensions SEQUENCE {
                                                             (CONTAINING SRNC-RelocationInfo-v3h0ext-IEs)
                                                                                                                                                    OPTIONAL,
                                                             v3g0NonCriticalExtensions
                                                                           sRNC-RelocationInfo-v4xyext SRNC-RelocationInfo-v4xyext-IF
                                                                                                                                       SEQUENCE {
                                                                           v5xyNonCriticalExtensions
                                                                                 sRNC-RelocationInfo-v5xyext
RelocationInfo-v5xvext-IEs.
                                                                                 -- Reserved for future non critical extension
```

```
nonCriticalExtensions
                                                                                  SEQUENCE {} OPTIONAL
                                                     OPTIONAL
                                                 OPTIONAL
                                             OPTTONAL.
                                         OPTIONAL
                                    OPTIONAL
                                OPTIONAL
                            OPTIONAL
                        OPTIONAL
            }
                    OPTIONAL
    },
    later-than-r3
                                    CHOICE {
                                        SEQUENCE {
        r4
            sRNC-RelocationInfo-r4
                                             SRNC-RelocationInfo-r4-IEs,
            v4c0NonCriticalExtensions-r4
                                             SEQUENCE {
                                                 SRNC-RelocationInfo-v4c0ext-IEs,
                sRNC-RelocationInfo-v4c0ext
                v5xyNonCriticalExtensions
                                                 SEQUENCE {
                sRNC-RelocationInfo-v5xyext
                                                     SRNC-RelocationInfo-v5xyext-IEs,
                                                 SEQUENCE {} OPTIONAL
                nonCriticalExtensions
                } OPTIONAL
                OPTIONAL
        criticalExtensions
                                             SEQUENCE { }
    }
}
SRNC-RelocationInfo-r3-IEs ::=
                                    SEQUENCE {
    -- Non-RRC IEs
        stateOfRRC
                                         StateOfRRC,
        stateOfRRC-Procedure
                                        StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
        cipheringStatus
                                        CipheringStatus,
                                        CalculationTimeForCiphering
        calculationTimeForCiphering
                                                                             OPTIONAL,
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in SRB-InformationSetupList in RAB-InformationSetupList.
        -- The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
        cipheringInfoPerRB-List
                                        CipheringInfoPerRB-List
                                                                              OPTIONAL,
        count-C-List
                                         COUNT-C-List
                                                                              OPTIONAL,
        integrityProtectionStatus
                                         IntegrityProtectionStatus,
         -- In the IE srb-SpecificIntegrityProtInfo, the first information listed corresponds to
         -- signalling radio bearer RBO and after the order of occurrence is the same as the SRBs in
        -- SRB-InformationSetupList
        srb-SpecificIntegrityProtInfo
                                         SRB-SpecificIntegrityProtInfoList,
                                        ImplementationSpecificParams
                                                                             OPTIONAL,
        implementationSpecificParams
    -- User equipment IEs
        u-RNTI
                                        U-RNTI,
                                                                              OPTIONAL,
        c-RNTI
                                         C-RNTI
        ue-RadioAccessCapability
                                        UE-RadioAccessCapability,
        ue-Positioning-LastKnownPos
                                        UE-Positioning-LastKnownPos
                                                                              OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability
                                         InterRAT-UE-RadioAccessCapabilityList
                                                                                 OPTIONAL,
     - UTRAN mobility IEs
       ura-Identity
                                        URA-Identity
                                                                              OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo
                                        NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList
                                        CN-DomainInformationList
                                                                              OPTIONAL,
    -- Measurement IEs
        ongoingMeasRepList
                                        OngoingMeasRepList
                                                                              OPTIONAL.
    -- Radio bearer IEs
        predefinedConfigStatusList
                                         PredefinedConfigStatusList,
        srb-InformationList
                                         SRB-InformationSetupList,
                                         RAB-InformationSetupList
                                                                              OPTIONAL.
        rab-InformationList
    -- Transport channel IEs
        ul-CommonTransChInfo
                                         UL-CommonTransChInfo
                                                                              OPTIONAL.
        ul-TransChInfoList
                                         UL-AddReconfTransChInfoList
                                                                              OPTIONAL,
        modeSpecificInfo
                                         CHOICE {
                                             SEOUENCE {
            fdd
                cpch-SetID
                                                 CPCH-SetID
                                                                              OPTIONAL,
                transChDRAC-Info
                                                 DRAC-StaticInformationList
            },
            tdd
                                             NULL
        dl-CommonTransChInfo
                                         DL-CommonTransChInfo
                                                                              OPTIONAL,
        dl-TransChInfoList
                                        DL-AddReconfTransChInfoList
                                                                              OPTIONAL,
    -- Measurement report
                                                                              OPTIONAL
        measurementReport
                                        MeasurementReport
```

```
}
SRNC-RelocationInfo-v380ext-IEs ::= SEOUENCE {
    -- Ciphering related information IEs
       cn-DomainIdentity
                                           CN-DomainIdentity,
       cipheringStatusList
                                           CipheringStatusList
}
SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
       cn-DomainInformationList-v390ext
                                           {\tt CN-DomainInformationList-v390ext}
                                                                                   OPTIONAL,
       ue-RadioAccessCapability-v370ext
                                           UE-RadioAccessCapability-v370ext
                                                                                   OPTIONAL,
       ue-RadioAccessCapability-v380ext
                                           UE-RadioAccessCapability-v380ext
                                                                                   OPTIONAL.
                                           DL-PhysChCapabilityFDD-v380ext,
       dl-PhysChCapabilityFDD-v380ext
       failureCauseWithProtErr
                                           FailureCauseWithProtErr
                                                                                   OPTIONAL
}
SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
       startValueForCIphering-v3a0ext
                                           START-Value,
                                           CipheringInfoForSRB1-v3a0ext,
       cipheringInfoForSRB1-v3a0ext
       ue-RadioAccessCapability-v3a0ext UE-RadioAccessCapability-v3a0ext
                                                                                   OPTIONAL
SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
       cn-DomainIdentity
                                       CN-DomainIdentity,
        -- the IE startValueForCiphering-v3b0ext contains the start values for each CN Domain. The
       -- value of start indicated by the IE startValueForCiphering-v3a0ext should be set to the
        -- same value as the start-Value for the corresponding cn-DomainIdentity in the IE
        -- startValueForCiphering-v3b0ext
                                                                                   OPTIONAL
       startValueForCiphering-v3b0ext
                                           STARTList2
}
SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
       rb-IdentityForHOMessage
                                           RB-Identity
                                                               OPTIONAL
}
SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
       uESpecificBehaviourInformationlidle UESpecificBehaviourInformationlidle
                                                                                       OPTIONAL,
       uESpecificBehaviourInformationlinterRAT
                                                  UESpecificBehaviourInformationlinterRAT
}
SRNC-RelocationInfo-v3g0ext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v3g0ext UE-RadioAccessCapability-v3g0ext
                                                                                   OPTIONAL
}
SRNC-RelocationInfo-v3h0ext-IEs ::= SEQUENCE {
        tpc-CombinationInfoList
                                       TPC-CombinationInfoList
       nonCriticalExtension
                                       SEQUENCE {}
                                                                   OPTIONAL
SRNC-RelocationInfo-v4c0ext-IEs ::= SEQUENCE {
       tpc-CombinationInfoList
                                   TPC-CombinationInfoList
TPC-CombinationInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
       TPC-Combination-Info
                                   SEQUENCE (SIZE (2..maxCNdomains)) OF
STARTList2 ::=
                                       STARTSingle
SRNC-RelocationInfo-v4xyext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v4xyext
                                           UE-RadioAccessCapability-v4xyext
}
SRNC-RelocationInfo-v5xyext-IEs ::= SEQUENCE {
       ue-RadioAccessCapability-v5xyext UE-RadioAccessCapability-v5xyext,
       ue-RATSpecificCapability-r5
                                           InterRAT-UE-RadioAccessCapabilityList-r5 OPTIONAL
}
CipheringInfoForSRB1-v3a0ext ::= SEQUENCE {
                                           BIT STRING (SIZE (7))
       dl-UM-SN
```

```
}
CipheringStatusList ::=
                                SEQUENCE (SIZE (1..maxCNdomains)) OF
                                         {\tt CipheringStatusCNdomain}
CipheringStatusCNdomain ::=
                                         SEQUENCE {
        cn-DomainIdentity
                                         CN-DomainIdentity,
                                         CipheringStatus
        cipheringStatus
}
SRNC-RelocationInfo-r4-IEs ::=
                                         SEQUENCE {
    -- Non-RRC IEs
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
        rb-IdentityForHOMessage
                                       RB-Identity
                                                                              OPTIONAL,
                                         StateOfRRC,
        stateOfRRC
        stateOfRRC-Procedure
                                         StateOfRRC-Procedure,
    -- Ciphering related information IEs
        latestConfiguredCN-Domain
        cipheringStatusList
                                        CipheringStatusList-r4,
        latestConfiguredCN-Domain CN-DomainIdentity, calculationTimeForCiphering CalculationTimeForCiphering
                                                                              OPTIONAL,
        count-C-List
                                         COUNT-C-List
                                                                              OPTIONAL,
        cipheringInfoPerRB-List
                                        CipheringInfoPerRB-List-r4
                                                                              OPTIONAL,
    -- Integrity protection related information IEs
        integrityProtectionStatus
                                        IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo
                                         SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams
                                        ImplementationSpecificParams
                                                                              OPTIONAL,
    -- User equipment IEs
                                         U-RNTI,
        u-RNTI
        c-RNTI
                                         C-RNTI
                                                                              OPTIONAL,
                                        UE-RadioAccessCapability-r4,
        ue-RadioAccessCapability
        ue-RadioAccessCapability-extUE-RadioAccessCapabBandFDDListue-Positioning-LastKnownPosUE-Positioning-LastKnownPos
                                                                              OPTIONAL,
        ue-Positioning-LastKnownPos
                                                                              OPTIONAL.
        uESpecificBehaviourInformation1idle
                                                UESpecificBehaviourInformation1idle
                                                                                          OPTIONAL,
        uESpecificBehaviourInformationlinterRAT
                                                     UESpecificBehaviourInformationlinterRAT
    OPTIONAL,
    -- Other IEs
       ue-RATSpecificCapability
                                        InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
    -- UTRAN mobility IEs
       ura-Identity
                                         URA-Identity
                                                                              OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList
                                         CN-DomainInformationListFull
                                                                              OPTIONAL,
    -- Measurement IEs
       ongoingMeasRepList
                                         OngoingMeasRepList-r4
                                                                              OPTIONAL,
    -- Radio bearer IEs
       predefinedConfigStatusList
                                        PredefinedConfigStatusList,
        srb-InformationList
                                         SRB-InformationSetupList,
       rab-InformationList
                                        RAB-InformationSetupList-r4
                                                                              OPTIONAL,
    -- Transport channel IEs
                                        UL-CommonTransChInfo-r4
        ul-CommonTransChInfo
                                                                              OPTIONAL.
        ul-TransChInfoList
                                        UL-AddReconfTransChInfoList
                                                                              OPTIONAL,
                                         CHOICE {
        modeSpecificInfo
            fdd
                                             SEQUENCE {
                cpch-SetID
                                                 CPCH-Set.ID
                                                                              OPTIONAL.
                transChDRAC-Info
                                                 DRAC-StaticInformationList OPTIONAL
            },
            tdd
                                             NULL
                                                                              OPTIONAL,
        dl-CommonTransChInfo
                                        DL-CommonTransChInfo-r4
                                                                              OPTIONAL,
                                        DL-AddReconfTransChInfoList-r4
        dl-TransChInfoList
                                                                              OPTIONAL,
    -- Measurement report
        measurementReport
                                        MeasurementReport
                                                                              OPTIONAL.
        failureCause
                                         FailureCauseWithProtErr
                                                                              OPTIONAL
-- IE definitions
CalculationTimeForCiphering ::=
                                    SEQUENCE {
   cell-Id
                                         CellIdentity,
                                         INTEGER (0..4095)
    sfn
}
CipheringInfoPerRB ::=
                                    SEQUENCE {
    dl-HFN
                                         BIT STRING (SIZE (20..25)),
    ul-HFN
                                         BIT STRING (SIZE (20..25))
```

```
SEQUENCE {
CipheringInfoPerRB-r4 ::=
   rb-Identity
                                        RB-Identity,
    dl-HFN
                                        BIT STRING (SIZE (20..25)),
    dl-UM-SN
                                        BIT STRING (SIZE (7))
                                                                            OPTIONAL,
    ul-HFN
                                        BIT STRING (SIZE (20..25))
-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=
                                    SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB
CipheringInfoPerRB-List-r4 ::=
                                    SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB-r4
CipheringStatus ::=
                                    ENUMERATED {
                                        started, notStarted }
CipheringStatusList-r4 ::=
                                    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CipheringStatusCNdomain-r4
CipheringStatusCNdomain-r4 ::=
                                    SEQUENCE {
        cn-DomainIdentity
                                        CN-DomainIdentity,
        cipheringStatus
                                        CipheringStatus,
        start-Value
                                        START-Value
}
                                        SEQUENCE {
CN-DomainInformation-v390ext ::=
    cn-DRX-CycleLengthCoeff
                                        CN-DRX-CycleLengthCoefficient
CN-DomainInformationList-v390ext ::=
                                       SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation-v390ext
CompressedModeMeasCapability-r4 ::= SEQUENCE {
    fdd-Measurements
                                       BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
                                       BOOLEAN
                                                                            OPTIONAL,
    tdd384-Measurements
    tdd128-Measurements
                                        BOOLEAN
                                                                            OPTIONAL,
    gsm-Measurements
                                        GSM-Measurements
                                                                            OPTIONAL,
    multiCarrierMeasurements
                                       BOOLEAN
                                                                            OPTIONAL
}
COUNT-C-List ::=
                                        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        COUNT-CSingle
                                        SEQUENCE {
COUNT-CSingle ::=
    cn-DomainIdentity
                                        CN-DomainIdentity,
                                        BIT STRING (SIZE (32))
    count-C
DL-PhysChCapabilityFDD-r4 ::=
                                   SEQUENCE {
   maxNoDPCH-PDSCH-Codes
                                        INTEGER (1..8),
    maxNoPhysChBitsReceived
                                        MaxNoPhysChBitsReceived,
    supportForSF-512
                                        BOOLEAN,
    supportOfPDSCH
                                       BOOLEAN.
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation
                                             SupportOfDedicatedPilotsForChEstimation
                                                                                            OPTIONAL
}
DL-RFC3095-Context ::=
                                    SEQUENCE {
    rfc3095-Context-Identity
                                        INTEGER (0..16383),
                                        ENUMERATED {u, o, r},
    dl-mode
   dl-ref-ir
                                        OCTET STRING ( SIZE (1..3000)),
    dl-ref-time
                                        INTEGER (0..4294967295) OPTIONAL,
    dl-curr-time
                                        INTEGER (0..4294967295)
                                                                   OPTIONAL,
    dl-syn-offset-id
                                        INTEGER (0..65535)
                                                                   OPTIONAL,
    dl-syn-slope-ts
                                        INTEGER (0..4294967295)
                                                                   OPTIONAL,
                                        BOOLEAN
    dl-dyn-changed
}
ImplementationSpecificParams ::= BIT STRING (SIZE (1..512))
```

```
IntegrityProtectionStatus ::=
                                     ENUMERATED {
                                        started, notStarted }
MeasurementCapability-r4 ::=
                                    SEQUENCE {
    {\tt downlinkCompressedMode}
                                         CompressedModeMeasCapability-r4,
    uplinkCompressedMode
                                         CompressedModeMeasCapability-r4
}
MeasurementCommandWithType ::=
                                    CHOICE {
    setup
                                         MeasurementType,
    modify
                                         NULL,
    release
                                         NULL
}
MeasurementCommandWithType-r4 ::=
                                    CHOICE {
                                         MeasurementType-r4,
                                         NULL,
    modify
    release
                                         NULL
}
OngoingMeasRep ::=
                                    SEOUENCE {
    measurementIdentity
                               MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
    measurementCommandWithType
                                        MeasurementCommandWithType,
    measurementReportingMode
                                        MeasurementReportingMode
                                                                             OPTIONAL,
    additionalMeasurementID-List
                                       AdditionalMeasurementID-List
                                                                             OPTIONAL
}
OngoingMeasRep-r4 ::=
                                    SEQUENCE {
    measurementIdentity
                               MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType
                                        MeasurementCommandWithType-r4,
    measurementReportingMode
                                         {\tt MeasurementReportingMode}
                                                                              OPTIONAL.
    additionalMeasurementID-List
                                        AdditionalMeasurementID-List
                                                                              OPTIONAL
OngoingMeasRepList ::=
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                         OngoingMeasRep
                                    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
OngoingMeasRepList-r4 ::=
                                         OngoingMeasRep-r4
PDCP-Capability-r4 ::=
                                     SEQUENCE {
    losslessSRNS-RelocationSupport
                                         BOOLEAN,
    supportForRfc2507
                                         CHOICE {
        notSupported
                                             NULL
        supported
                                             MaxHcContextSpace
    },
    supportForRfc3095
                                         CHOICE {
        notSupported
                                            NULL,
        supported
                                             SEQUENCE {
                                                 MaxROHC-ContextSessions-r4 DEFAULT s16,
            maxROHC-ContextSessions
            reverseCompressionDepth
                                                 INTEGER (0..65535)
                                                                             DEFAULT 0
    }
}
                                         SEQUENCE {
PhysicalChannelCapability-r4 ::=
        fddPhysChCapability
                                             SEQUENCE {
            {\tt downlinkPhysChCapability}
                                                 DL-PhysChCapabilityFDD-r4,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityFDD
                                                     OPTIONAL,
        tdd384-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                DL-PhysChCapabilityTDD,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityTDD
                                                    OPTIONAL,
        tdd128-PhysChCapability
                                             SEQUENCE {
            downlinkPhysChCapability
                                                DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability
                                                 UL-PhysChCapabilityTDD-LCR-r4
                                                     OPTIONAL
}
RF-Capability-r4 ::=
                                    SEQUENCE {
        fddRF-Capability
                                        SEQUENCE {
            ue-PowerClass
                                             UE-PowerClass-v370,
                                             TxRxFrequencySeparation
            txRxFrequencySeparation
```

```
OPTIONAL,
        tdd384-RF-Capability
                                        SEQUENCE {
            ue-PowerClass
                                            UE-PowerClass-v370,
            radioFrequencyBandTDDList
                                             RadioFrequencyBandTDDList,
            chipRateCapability
                                             ChipRateCapability
                                                                          OPTIONAL,
        tdd128-RF-Capability
                                        SEQUENCE {
                                            UE-PowerClass-v370,
            ue-PowerClass
            radioFrequencyBandTDDList
                                             RadioFrequencyBandTDDList,
            chipRateCapability
                                             ChipRateCapability
                                                                          OPTIONAL
}
RFC3095-ContextInfo ::=
                                    SEQUENCE {
    rb-Identity
                                         RB-Identity,
    rfc3095-Context-List
                                         RFC3095-Context-List
}
RFC3095-Context-List ::=
                                    SEQUENCE (SIZE (1..maxRFC3095-CID)) OF SEQUENCE {
    dl-RFC3095-Context
                                         DL-RFC3095-Context
                                                                OPTIONAL,
    ul-RFC3095-Context
                                         UL-RFC3095-Context
                                                                 OPTIONAL
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
                                        BIT STRING (SIZE (28)),
    ul-RRC-HFN
                                         BIT STRING (SIZE (28)),
    dl-RRC-HFN
    ul-RRC-SequenceNumber
                                        RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber
                                        RRC-MessageSequenceNumber
}
{\tt SRB-SpecificIntegrityProtInfoList} \ ::= \ {\tt SEQUENCE} \ ({\tt SIZE} \ ({\tt 4..maxSRBsetup})) \ {\tt OF}
                                         SRB-SpecificIntegrityProtInfo
StateOfRRC ::=
                                     ENUMERATED {
                                         cell-DCH, cell-FACH,
                                         cell-PCH, ura-PCH }
                                    ENUMERATED {
StateOfRRC-Procedure ::=
                                         awaitNoRRC-Message,
                                         awaitRB-ReleaseComplete,
                                         awaitRB-SetupComplete,
                                         awaitRB-ReconfigurationComplete,
                                         await Transport CH-Reconfiguration Complete,\\
                                         await \verb"PhysicalCH-ReconfigurationComplete",
                                         awaitActiveSetUpdateComplete,
                                         awaitHandoverComplete,
                                         sendCellUpdateConfirm,
                                         sendUraUpdateConfirm,
                                         -- dummy is not used in this version of specification
                                         -- It should not be sent
                                         dummy,
                                         otherStates
}
TPC-Combination-Info ::= SEQUENCE {
       primaryCPICH-Info
                                             PrimaryCPICH-Info,
        \verb|tpc-CombinationIndex||
                                             TPC-CombinationIndex
UE-Positioning-Capability-r4 ::=
                                  SEQUENCE {
    standaloneLocMethodsSupported
                                             BOOLEAN,
    ue-BasedOTDOA-Supported
                                             BOOLEAN,
    networkAssistedGPS-Supported
                                             NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames
                                             BOOLEAN.
    supportForIPDL
                                             BOOLEAN
    {\tt rx-tx-TimeDifferenceType2Capable}
                                             BOOLEAN,
    validity-CellPCH-UraPCH
                                             ENUMERATED { true (0 ) } OPTIONAL
}
UE-Positioning-LastKnownPos ::=
                                    SEQUENCE {
                                         INTEGER (0..4095),
        cell-id
                                         CellIdentity,
        positionEstimate
                                         PositionEstimate
}
UE-RadioAccessCapability-r4 ::=
                                    SEQUENCE {
    accessStratumReleaseIndicator
                                         AccessStratumReleaseIndicator,
    pdcp-Capability
                                         PDCP-Capability-r4,
```

```
RLC-Capability,
    rlc-Capability
                                              TransportChannelCapability, RF-Capability-r4,
    transportChannelCapability
    rf-Capability
                                       PhysicalChannelCapability-r4,
UE-MultiModeRAT-Capability,
SecurityCapability,
    physicalChannelCapability
    ue-MultiModeRAT-Capability
    securityCapability
    ue-positioning-Capability
                                               UE-Positioning-Capability-r4,
                                               MeasurementCapability-r4
                                                                                      OPTIONAL
    measurementCapability
}
UL-RFC3095-Context ::=
                                          SEQUENCE {
                                               INTEGER (0..16383),
ENUMERATED {u, o, r},
    rfc3095-Context-Identity
    ul-mode
                                              OCTET STRING ( SIZE (1..3000)),
    ul-ref-ir
                                               INTEGER (0..4294967295) OPTIONAL,
INTEGER (0..4294967295) OPTIONAL,
    ul-ref-time
    ul-curr-time
                                               INTEGER (0..65535) OPTIONAL,
INTEGER (0..4294967295) OPTIONAL,
INTEGER (0..65535) OPTIONAL
    ul-syn-offset-id
    ul-syn-slope-ts
    ul-ref-sn-1
}
END
```

[+++ End of Modified Sections +++ ]

### 3GPP TSG-RAN2 Meeting #40 Nice, France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

CHANGE REQUEST									CR-Form-v7						
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Title:	$\mathbb{H}$	Invalid	ation of	START	value ir	n USIN	M/UE								
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Reason for change: # 1)

 In case of a handover from GSM, currently the UE only invalidates the START value stored on the USIM/stored in the UE in case the handover succeeds and ciphered TM radio bearers have been established in UTRAN.

As a result, e.g. the following cases are not covered:

- handover without immediate start of ciphering;
- handover of signalling connection only;

In these identified cases, the START value will never be invalidated during the lifetime of the RRC connection. Thus if e.g. the battery is removed from the phone, a subsequent connection will re-use the same START value.

 In principle, there is no reason why START invalidation actions should be different for the RRC connection establishment case, and the Handover to UTRAN case.

If we look at the RRC connection establishment case, the following paragraph is included in section 8.3.1.6:

2> if neither the USIM nor SIM is present:

/.../

3> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the default value [40].

In orde to align the handover case to the RRC connection establishment case, the same sentence should also be included for the handover to UTRAN case. However, the sentence does not seem to have any direct relevance: if there is no SIM or USIM, there is also no keyset to invalidate.

Three possible approaches are identified

- 1) Remove paragraph from RRC connection establishment, and do not add the paragraph to the handover to UTRAN case;
- 2) Keep paragraph in RRC connection establishment, and do not add the paragraph to the handover to UTRAN case;
- 3) Keep paragraph in RRC connection establishment, and add the paragraph to the handover to UTRAN case;

Since keeping the paragraph in the RRC connection establishment section does not seem to do any harm, it is proposed to go for the second option which minimises impact to the specification.

#### Summary of change: ₩

- 1) The missing cases are addressed by mandating the correct invalidation handling.
- 2) No change has been made to the specification in this version of the CR related to the second issue.

#### Isolated impact analysis:

This CR only impacts the UE behaviour preventing re-use of an already used START value. No interoperability problems are related to implementing/not-implementing this CR.

#### Impact on test specifications:

No impact on test specification.

# Consequences if not approved:

This CR impacts the UE behaviour in case the RRC connection is not terminated in a normal fashion (e.g. battery removal).

If this CR is not approved, the UE may at the start of a next RRC connection, use a START value which was already used before. A "bad guy" could use this behaviour to create e.g. ciphered streams which are repetively using the same HFN.

Clauses affected:	$\mathfrak{H}$	8.	3.6	3		
Other specs affected:	¥	Y	N X X	Other core specifications Test specifications O&M Specifications	₩	
Other comments:	$\aleph$					

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \( \mathcal{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

### 8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following. The UE shall:

- 1> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and
- 1> initialise the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;
- 1> initialise the variable UE\_CAPABILITIES\_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;
- 1> initialise the variable TIMERS\_AND\_CONSTANTS to the default values and start to use those timer and constants values;
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Predefined configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the predefined parameters identified by the IE "Predefined configuration identity";
  - 2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;
  - 2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED\_RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";
  - 2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements;
- NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED\_RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration":
  - 2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:
    - 3> 0 dB for the power offset P Pilot-DPDCH bearer in FDD;
    - 3> calculate the Default DPCH Offset Value using the following formula:
    - 3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) \* 512

3> in TDD:

#### Default DPCH Offset Value = (SRNTI 2 mod 7)

- 3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.
- 1> if IE "Specification mode" is set to "Complete specification":
  - 2> initiate the radio bearer, transport channel and physical channel configuration in accordance with the received radio bearer, transport channel and physical channel information elements.
- 1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;
- 1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;
- NOTE: Keys received while in another RAT are not regarded as "new" (i.e. do not trigger the actions in subclause 8.1.12.3.1) in a subsequent security control procedure in UTRAN, irrespective of whether the keys are already being used in the other RAT or not. If the UE has received new keys in the other RAT before handover, then the START values in the USIM (sent in the HANDOVER TO UTRAN COMPLETE message and in the INTER\_RAT\_HANDOVER\_INFO sent to the BSS while in the other RAT) will not reflect the receipt of these new keys. At a subsequent security mode control procedure in UTRA, UE activates ciphering and/or integrity protection using the key set stored in the USIM/SIM.
- 1> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" equal to the 20 MSBs of the value stored in the USIM [50] for the maximum value of START for each CN Domain, or to the default value in [40] if the SIM is present;
- 1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the variable LATEST\_CONFIGURED\_CN\_DOMAIN to the value indicated in the IE "CN domain identity", or to the CS domain when this IE is not present;
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED";
    - 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;
    - 3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;
    - 3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;
    - 3> set the IE "Status" in the variable CIPHERING\_STATUS to "Started";
    - 3> apply the algorithm according to IE "Ciphering Algorithm" with the ciphering key set stored in the USIM/SIM and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.
- NOTE: If ciphering has been activated and ongoing in the radio access technology from which inter RAT handover is performed, UTRAN should not include the IE "Ciphering mode info" in the SECURITY MODE COMMAND message that starts Integrity protection, and should not send a SECURITY MODE COMMAND including IE "Ciphering mode info" and IE "CN domain identity" set to the same value as UE variable LATEST\_CONFIGURED\_CN\_DOMAIN until all pending ciphering activation times have been reached for the radio bearers using RLC-TM.
- 1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:

- 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
  - 3> set the IE "Status" in the variable CIPHERING\_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

- 1> if the USIM or SIM is present:
  - 2> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD;
  - 2> include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now", that is a multiple of 8 frames (CFN mod 8 =0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted;
  - 2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable common for all transparent mode radio bearers of this CN domain to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and
    - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
    - 3> increment the HFN component of the COUNT-C variable by one even if the "COUNT-C activation time" is equal to zero;
    - 3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;
    - 3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Not Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> initialise the 20 MSB of the HFN component of COUNT-C common for all transparent mode radio bearers of this CN domain with the START value as indicated in the IE "START list" of the response message for the relevant CN domain;
  - 2> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 2> do not increment the COUNT-C value common for all transparent mode radio bearers for this CN domain.
- 1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;
- 1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:
  - 2> enter UTRA RRC connected mode in state CELL\_DCH;
  - 2> initialise variables upon entering UTRA RRC connected mode as specified in subclause 13.4;
  - 2> update the variable UE\_CAPABILITY\_TRANSFERRED with the UE capabilities stored in the variable INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED;
  - 2> for all radio bearers using RLC-AM or RLC-UM:

- 3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and
- 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
- 3> increment the HFN component of the COUNT-C variable by one;
- 3> start incrementing the COUNT-C values.
- 1> and the procedure ends.

#### 3GPP TSG-RAN2 Meeting #40 Nice, France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

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Reason for change: # 1)

 In case of a handover from GSM, currently the UE only invalidates the START value stored on the USIM/stored in the UE in case the handover succeeds and ciphered TM radio bearers have been established in UTRAN.

As a result, e.g. the following cases are not covered:

- handover without immediate start of ciphering;
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 In principle, there is no reason why START invalidation actions should be different for the RRC connection establishment case, and the Handover to UTRAN case.

If we look at the RRC connection establishment case, the following paragraph is included in section 8.3.1.6:

2> if neither the USIM nor SIM is present:

/.../

3> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the default value [40].

In orde to align the handover case to the RRC connection establishment case, the same sentence should also be included for the handover to UTRAN case. However, the sentence does not seem to have any direct relevance: if there is no SIM or USIM, there is also no keyset to invalidate.

Three possible approaches are identified

- 1) Remove paragraph from RRC connection establishment, and do not add the paragraph to the handover to UTRAN case;
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- 3) Keep paragraph in RRC connection establishment, and add the paragraph to the handover to UTRAN case;

Since keeping the paragraph in the RRC connection establishment section does not seem to do any harm, it is proposed to go for the second option which minimises impact to the specification.

#### Summary of change: ₩

- 1) The missing cases are addressed by mandating the correct invalidation handling.
- 2) No change has been made to the specification in this version of the CR related to the second issue.

#### Isolated impact analysis:

This CR only impacts the UE behaviour preventing re-use of an already used START value. No interoperability problems are related to implementing/not-implementing this CR.

#### Impact on test specifications:

No impact on test specification.

# Consequences if not approved:

This CR impacts the UE behaviour in case the RRC connection is not terminated in a normal fashion (e.g. battery removal).

If this CR is not approved, the UE may at the start of a next RRC connection, use a START value which was already used before. A "bad guy" could use this behaviour to create e.g. ciphered streams which are repetively using the same HFN.

Clauses affected:	$\mathfrak{H}$	8.3.6.3		
	[	YN		
Other specs Affected:	¥	X Other core specifications X Test specifications O&M Specifications	X	
Other comments:	$\mathbb{H}$			

#### How to create CRs using this form:

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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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.
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#### 8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

#### The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

#### The UE shall:

- 1> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and
- 1> initialise the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;
- 1> initialise the variable UE\_CAPABILITIES\_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;
- 1> initialise the variable TIMERS\_AND\_CONSTANTS to the default values and start to use those timer and constants values;
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Predefined configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the predefined parameters identified by the IE "Predefined configuration identity";
  - 2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;
  - 2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";
  - 2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements:
- NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED\_RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration":
  - 2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:
    - 3> 0 dB for the power offset P Pilot-DPDCH bearer in FDD;
    - 3> calculate the Default DPCH Offset Value using the following formula:

3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) \* 512

3> in TDD:

Default DPCH Offset Value = (SRNTI 2 mod 7)

- 3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.
- 1> if IE "Specification mode" is set to "Complete specification":
  - 2> initiate the radio bearer, transport channel and physical channel configuration in accordance with the received radio bearer, transport channel and physical channel information elements.
- 1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;
- 1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;
- NOTE: Keys received while in another RAT are not regarded as "new" (i.e.do not trigger the actions in subclause 8.1.12.3.1) in a subsequent security control procedure in UTRAN, irrespective of whether the keys are already being used in the other RAT or not. If the UE has received new keys in the other RAT before handover, then the START values in the USIM (sent in the HANDOVER TO UTRAN COMPLETE message and in the INTER\_RAT\_HANDOVER\_INFO sent to the BSS while in the other RAT) will not reflect the receipt of these new keys. At a subsequent security mode control procedure in UTRA, UE activates ciphering and/or integrity protection using the key set stored in the USIM/SIM.
- 1> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the 20 MSBs of the value stored in the USIM [50] for the maximum value of START for each CN Domain, or to the default value in [40] if the SIM is present;
- 1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the variable LATEST\_CONFIGURED\_CN\_DOMAIN to the value indicated in the IE "CN domain identity", or to the CS domain when this IE is not present;
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED";
    - 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;
    - 3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;
    - 3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;
    - 3> set the IE "Status" in the variable CIPHERING STATUS to "Started";
    - 3> apply the algorithm according to IE "Ciphering Algorithm" with the ciphering key set stored in the USIM/SIM and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.

- NOTE: If ciphering has been activated and ongoing in the radio access technology from which inter RAT handover is performed, UTRAN should not include the IE "Ciphering mode info" in the SECURITY MODE COMMAND message that starts Integrity protection, and should not send a SECURITY MODE COMMAND including IE "Ciphering mode info" and IE "CN domain identity" set to the same value as UE variable LATEST\_CONFIGURED\_CN\_DOMAIN until all pending ciphering activation times have been reached for the radio bearers using RLC-TM.
- 1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the IE "Status" in the variable CIPHERING\_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

- 1> if the USIM or SIM is present:
  - 2> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> Set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD;
  - 2> include the IE "COUNT-C activation time" in the response message and specify a CFN value for this IE other than the default, "Now", that is a multiple of 8 frames (CFN mod 8 =0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted;
  - 2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable common for all transparent mode radio bearers of this CN domain to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and
    - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
    - 3> increment the HFN component of the COUNT-C variable by one even if the "COUNT-C activation time" is equal to zero;
    - 3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;
    - 3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Not Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> initialise the 20 MSB of the HFN component of COUNT-C common for all transparent mode radio bearers of this CN domain with the START value as indicated in the IE "START list" of the response message for the relevant CN domain;
  - 2> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 2> do not increment the COUNT-C value common for all transparent mode radio bearers for this CN domain.
- 1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;
- 1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:

- 2> enter UTRA RRC connected mode in state CELL\_DCH;
- 2> initialise variables upon entering UTRA RRC connected mode as specified in subclause 13.4;
- 2> update the variable UE\_CAPABILITY\_TRANSFERRED with the UE capabilities stored in the variable INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED;
- 2> for all radio bearers using RLC-AM or RLC-UM:
  - 3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and
  - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 3> increment the HFN component of the COUNT-C variable by one;
  - 3> start incrementing the COUNT-C values.
- 1> and the procedure ends.

## 3GPP TSG-RAN2 Meeting #40 Nice. France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

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Reason for change: # 1)

 In case of a handover from GSM, currently the UE only invalidates the START value stored on the USIM/stored in the UE in case the handover succeeds and ciphered TM radio bearers have been established in UTRAN.

As a result, e.g. the following cases are not covered:

- handover without immediate start of ciphering;
- handover of signalling connection only;

In these identified cases, the START value will never be invalidated during the lifetime of the RRC connection. Thus if e.g. the battery is removed from the phone, a subsequent connection will re-use the same START value.

 In principle, there is no reason why START invalidation actions should be different for the RRC connection establishment case, and the Handover to UTRAN case.

If we look at the RRC connection establishment case, the following paragraph is included in section 8.3.1.6:

2> if neither the USIM nor SIM is present:

/.../

3> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the default value [40].

In orde to align the handover case to the RRC connection establishment case, the same sentence should also be included for the handover to UTRAN case. However, the sentence does not seem to have any direct relevance: if there is no SIM or USIM, there is also no keyset to invalidate.

Three possible approaches are identified

- 1) Remove paragraph from RRC connection establishment, and do not add the paragraph to the handover to UTRAN case;
- 2) Keep paragraph in RRC connection establishment, and do not add the paragraph to the handover to UTRAN case;
- 3) Keep paragraph in RRC connection establishment, and add the paragraph to the handover to UTRAN case;

Since keeping the paragraph in the RRC connection establishment section does not seem to do any harm, it is proposed to go for the second option which minimises impact to the specification.

#### Summary of change: ₩

- 1) The missing cases are addressed by mandating the correct invalidation handling.
- 2) No change has been made to the specification in this version of the CR related to the second issue.

#### Isolated impact analysis:

This CR only impacts the UE behaviour preventing re-use of an already used START value. No interoperability problems are related to implementing/not-implementing this CR.

#### Impact on test specifications:

No impact on test specification.

# Consequences if not approved:

This CR impacts the UE behaviour in case the RRC connection is not terminated in a normal fashion (e.g. battery removal).

If this CR is not approved, the UE may at the start of a next RRC connection, use a START value which was already used before. A "bad guy" could use this behaviour to create e.g. ciphered streams which are repetively using the same HFN.

Clauses affected:	$\mathfrak{H}$	8.3.6.3		
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Other specs Affected:	¥	X Other core specifications X Test specifications O&M Specifications	X	
Other comments:	$\mathbb{H}$			

#### How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \( \mathcal{H} \) 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

#### 8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

#### The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

#### The UE shall:

- 1> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and
- 1> initialise the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;
- 1> initialise the variable UE\_CAPABILITIES\_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;
- 1> initialise the variable TIMERS\_AND\_CONSTANTS to the default values and start to use those timer and constants values;
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Predefined configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the predefined parameters identified by the IE "Predefined configuration identity";
  - 2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;
  - 2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";
  - 2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements:
- NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED\_RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration":
  - 2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:
    - 3> 0 dB for the power offset P Pilot-DPDCH bearer in FDD;
    - 3> calculate the Default DPCH Offset Value using the following formula:

3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) \* 512

3> in TDD:

Default DPCH Offset Value = (SRNTI 2 mod 7)

- 3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.
- 1> if IE "Specification mode" is set to "Complete specification":
  - 2> initiate the radio bearer, transport channel and physical channel configuration in accordance with the received radio bearer, transport channel and physical channel information elements.
- 1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;
- 1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;
- NOTE: Keys received while in another RAT are not regarded as "new" (i.e.do not trigger the actions in subclause 8.1.12.3.1) in a subsequent security control procedure in UTRAN, irrespective of whether the keys are already being used in the other RAT or not. If the UE has received new keys in the other RAT before handover, then the START values in the USIM (sent in the HANDOVER TO UTRAN COMPLETE message and in the INTER\_RAT\_HANDOVER\_INFO sent to the BSS while in the other RAT) will not reflect the receipt of these new keys. At a subsequent security mode control procedure in UTRA, UE activates ciphering and/or integrity protection using the key set stored in the USIM/SIM.
- 1> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the 20 MSBs of the value stored in the USIM [50] for the maximum value of START for each CN Domain, or to the default value in [40] if the SIM is present;
- 1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the variable LATEST\_CONFIGURED\_CN\_DOMAIN to the value indicated in the IE "CN domain identity", or to the CS domain when this IE is not present;
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED";
    - 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;
    - 3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;
    - 3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;
    - 3> set the IE "Status" in the variable CIPHERING STATUS to "Started";
    - 3> apply the algorithm according to IE "Ciphering Algorithm" with the ciphering key set stored in the USIM/SIM and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.

- NOTE: If ciphering has been activated and ongoing in the radio access technology from which inter RAT handover is performed, UTRAN should not include the IE "Ciphering mode info" in the SECURITY MODE COMMAND message that starts Integrity protection, and should not send a SECURITY MODE COMMAND including IE "Ciphering mode info" and IE "CN domain identity" set to the same value as UE variable LATEST\_CONFIGURED\_CN\_DOMAIN until all pending ciphering activation times have been reached for the radio bearers using RLC-TM.
- 1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the IE "Status" in the variable CIPHERING\_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

#### 1> if the USIM or SIM is present:

- 2> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> Set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD;
  - 2> include the IE "COUNT-C activation time" in the response message and specify a CFN value for this IE other than the default, "Now", that is a multiple of 8 frames (CFN mod 8 =0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted;
  - 2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable common for all transparent mode radio bearers of this CN domain to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and
    - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
    - 3> increment the HFN component of the COUNT-C variable by one even if the "COUNT-C activation time" is equal to zero;
    - 3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;
    - 3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Not Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> initialise the 20 MSB of the HFN component of COUNT-C common for all transparent mode radio bearers of this CN domain with the START value as indicated in the IE "START list" of the response message for the relevant CN domain;
  - 2> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 2> do not increment the COUNT-C value common for all transparent mode radio bearers for this CN domain.
- 1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;
- 1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:

- 2> enter UTRA RRC connected mode in state CELL\_DCH;
- 2> initialise variables upon entering UTRA RRC connected mode as specified in subclause 13.4;
- 2> update the variable UE\_CAPABILITY\_TRANSFERRED with the UE capabilities stored in the variable INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED;
- 2> for all radio bearers using RLC-AM or RLC-UM:
  - 3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and
  - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 3> increment the HFN component of the COUNT-C variable by one;
  - 3> start incrementing the COUNT-C values.
- 1> and the procedure ends.

## 3GPP TSG-RAN2 Meeting #40 Nice. France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

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Reason for change: # 1)

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In these identified cases, the START value will never be invalidated during the lifetime of the RRC connection. Thus if e.g. the battery is removed from the phone, a subsequent connection will re-use the same START value.

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If we look at the RRC connection establishment case, the following paragraph is included in section 8.3.1.6:

2> if neither the USIM nor SIM is present:

/.../

3> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the default value [40].

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- 1) Remove paragraph from RRC connection establishment, and do not add the paragraph to the handover to UTRAN case;
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#### Summary of change: ₩

- 1) The missing cases are addressed by mandating the correct invalidation handling.
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#### Isolated impact analysis:

This CR only impacts the UE behaviour preventing re-use of an already used START value. No interoperability problems are related to implementing/not-implementing this CR.

#### Impact on test specifications:

No impact on test specification.

# Consequences if not approved:

This CR impacts the UE behaviour in case the RRC connection is not terminated in a normal fashion (e.g. battery removal).

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Clauses affected:	$\mathfrak{H}$	8.3.6.3		
	[	YN		
Other specs Affected:	¥	X Other core specifications X Test specifications O&M Specifications	X	
Other comments:	$\mathbb{H}$			

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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.

#### 8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

#### The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

#### The UE shall:

- 1> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and
- 1> initialise the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;
- 1> initialise the variable UE\_CAPABILITIES\_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;
- 1> initialise the variable TIMERS\_AND\_CONSTANTS to the default values and start to use those timer and constants values;
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Predefined configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the predefined parameters identified by the IE "Predefined configuration identity";
  - 2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;
  - 2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":
  - 2> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";
  - 2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements:
- NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.
  - 2> set the IE "RAB Info Post" in the variable ESTABLISHED\_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED\_RABS to "useT314".
- 1> if IE "Specification mode" is set to "Preconfiguration":
  - 2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:
    - 3> 0 dB for the power offset P Pilot-DPDCH bearer in FDD;
    - 3> calculate the Default DPCH Offset Value using the following formula:

3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) \* 512

3> in TDD:

Default DPCH Offset Value = (SRNTI 2 mod 7)

- 3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.
- 1> if IE "Specification mode" is set to "Complete specification":
  - 2> initiate the radio bearer, transport channel and physical channel configuration in accordance with the received radio bearer, transport channel and physical channel information elements.
- 1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;
- 1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;
- NOTE: Keys received while in another RAT are not regarded as "new" (i.e.do not trigger the actions in subclause 8.1.12.3.1) in a subsequent security control procedure in UTRAN, irrespective of whether the keys are already being used in the other RAT or not. If the UE has received new keys in the other RAT before handover, then the START values in the USIM (sent in the HANDOVER TO UTRAN COMPLETE message and in the INTER\_RAT\_HANDOVER\_INFO sent to the BSS while in the other RAT) will not reflect the receipt of these new keys. At a subsequent security mode control procedure in UTRA, UE activates ciphering and/or integrity protection using the key set stored in the USIM/SIM.
- 1> set the value of "THRESHOLD" in the variable "START\_THRESHOLD" to the 20 MSBs of the value stored in the USIM [50] for the maximum value of START for each CN Domain, or to the default value in [40] if the SIM is present;
- 1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the variable LATEST\_CONFIGURED\_CN\_DOMAIN to the value indicated in the IE "CN domain identity", or to the CS domain when this IE is not present;
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED";
    - 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;
    - 3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;
    - 3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;
    - 3> set the IE "Status" in the variable CIPHERING STATUS to "Started";
    - 3> apply the algorithm according to IE "Ciphering Algorithm" with the ciphering key set stored in the USIM/SIM and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.

- NOTE: If ciphering has been activated and ongoing in the radio access technology from which inter RAT handover is performed, UTRAN should not include the IE "Ciphering mode info" in the SECURITY MODE COMMAND message that starts Integrity protection, and should not send a SECURITY MODE COMMAND including IE "Ciphering mode info" and IE "CN domain identity" set to the same value as UE variable LATEST\_CONFIGURED\_CN\_DOMAIN until all pending ciphering activation times have been reached for the radio bearers using RLC-TM.
- 1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:
  - 2> for the CN domain included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:
    - 3> set the IE "Status" in the variable CIPHERING\_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

- 1> if the USIM or SIM is present:
  - 2> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> Set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START\_THRESHOLD;
  - 2> include the IE "COUNT-C activation time" in the response message and specify a CFN value for this IE other than the default, "Now", that is a multiple of 8 frames (CFN mod 8 =0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted;
  - 2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:
    - 3> set the 20 MSB of the HFN component of the COUNT-C variable common for all transparent mode radio bearers of this CN domain to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and
    - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
    - 3> increment the HFN component of the COUNT-C variable by one even if the "COUNT-C activation time" is equal to zero;
    - 3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;
    - 3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.
- 1> if the IE "Status" in the variable CIPHERING\_STATUS of a CN domain is set to "Not Started" and transparent mode radio bearers have been established by this procedure for that CN domain:
  - 2> initialise the 20 MSB of the HFN component of COUNT-C common for all transparent mode radio bearers of this CN domain with the START value as indicated in the IE "START list" of the response message for the relevant CN domain;
  - 2> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 2> do not increment the COUNT-C value common for all transparent mode radio bearers for this CN domain.
- 1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;
- 1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:

- 2> enter UTRA RRC connected mode in state CELL\_DCH;
- 2> initialise variables upon entering UTRA RRC connected mode as specified in subclause 13.4;
- 2> update the variable UE\_CAPABILITY\_TRANSFERRED with the UE capabilities stored in the variable INTER\_RAT\_HANDOVER\_INFO\_TRANSFERRED;
- 2> for all radio bearers using RLC-AM or RLC-UM:
  - 3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and
  - 3> set the remaining LSBs of the HFN component of COUNT-C to zero;
  - 3> increment the HFN component of the COUNT-C variable by one;
  - 3> start incrementing the COUNT-C values.
- 1> and the procedure ends.

## 3GPP TSG-RAN2 Meeting #40 Nice, France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

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			(	CHANG	E REQ	UE	ST	•		CR-F0IIII-V7
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Title:	$\mathbb{H}$	Uplir	nk Integrity p	rotection ha	ndling in ca	se of	N30	2 increment		
Source:	¥	RA	N WG2							
Work item co	ode: ૠ	TEI						Date: ჵ	€ Jan	uary 2004
Category:	¥	F						Release: 3	€ R99	)
			<u>one</u> of the follo <b>F</b> (correction)		ries:					llowing releases:
			<b>A</b> (correction)		ction in an ea	rlier re	eleas	2 e) R96		1 Phase 2) ase 1996)
			<b>B</b> (addition of	feature),				R97		ase 1997)
			<b>C</b> (functional <b>D</b> (editorial m		of feature)			R98 R99		ase 1998) ase 1999)
			iled explanation		ove categorie	s can		Rel-4	•	ase 4)
			und in 3GPP					Rel-5	•	ase 5)
								Rel-6	(Rele	ase 6)
Reason for o	hange	e: #	The UE act	ions are no	t clear if an	MSN	incre	ement by N3	02+1 c	on SRB0, triggers
	3							•		ent from zero. The
										e incremented,
			which is no	t in line with	the corresp	oondi	ng pi	rocedure tex	t just a	bove.
Summary of	chang	ıe: ૠ	The note is	reworded s	so that it is o	lear t	hat c	only in the ca	se of a	an activation time
	Ū		equal to SN	N=0, the HF						new security
			configuration	on.						
Consequenc	es if	¥	The UE ma	v use a diff	erent HFN f	rom t	he ne	etwork upon	reachi	na the IP
not approved								ent IP check		
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			Impact An		IITRAN ha	ve im	nlem	nented the be	havio	ır in the
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			behaviour a	as suggeste	d in the not	e nov	v pro	posed to be	remove	ed, and does not
			implement	this CR, an	HFN desyn	chror	isati	on on SRB0	might	be the result.
Clauses affe	cted:	¥	10.3.1.9							
3.23000 4170		50								
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Other specs		$\aleph$		core speci		H				
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How to create CRs using this form:

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#### 8.5.10.2 Integrity protection in uplink

Prior to sending an RRC message using the signalling radio bearer with radio bearer identity n, and the "Status" in the variable INTEGRITY\_PROTECTION\_INFO has the value "Started" the UE shall:

- 1> increment "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO with 1, even if the message is a retransmission of a previously transmitted message.
- 1> if the "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO equals zero:
  - 2> increment "Uplink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO by one.
- NOTE 1: The actions above imply that also for the case the "Uplink RRC HFN" is re-initialised by a security mode control procedure, this "Uplink RRC HFN" is incremented before it is applied in the integrity protection of any transmitted message if the conditions above are fulfilled.
- NOTE 2: For SRB0, this is also valid in case the Message Sequence Number has been increased by N302 +1 resulting in an MSN which equals 0 (i.e.: SRB0 UL activation time equals 0) wrap around. Then the uplink RRC HFN is incremented by 1 after it is re-initialized and before it is applied in the integrity protection of any transmitted message.
- 1> calculate the message authentication code in accordance with subclause 8.5.10.3;
- 1> replace the "Message authentication code" in the IE "Integrity check info" in the message with the calculated message authentication code;
- 1> replace the "RRC Message sequence number" in the IE "Integrity check info" in the message with contents set to the new value of the "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO.

In the response message for the procedure ordering the security reconfiguration, the UE indicates the activation time, for each signalling radio bearer. When the new integrity configuration is to be applied in uplink, UTRAN should start to apply the new integrity protection configuration according to the activation time for each signalling radio bearer (except for the signalling radio bearer which is used to send the message that is reconfiguring the security configuration where the new configuration is to be applied starting from and including reception of the response message).

## 3GPP TSG-RAN2 Meeting #40 Nice, France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

CHANGE REQUEST											
<sup>¥</sup> 25.3	31 CR 2182 # rev 1 # Current version: 4.12.0 #										
For <u>HELP</u> on usi	ng this form, see bottom of this page or look at the pop-up text over the 策 symbols.										
Proposed change af	fects: UICC apps業 ME X Radio Access Network X Core Network ☐										
Title: 第 L	Jplink Integrity protection handling in case of N302 increment										
Source: #	RAN WG2										
Work item code: 第	TEI Date:   ## January 2004										
D	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)  P (editorial modification)  D (editorial modification)  Petailed explanations of the above categories can e found in 3GPP TR 21.900.  Rel-4  Rel-4  Rel-4  Rel-4  Rel-8  Rel-4  Release 1999)  Rel-6  Rel-6  Rel-6  Release 6)										
Reason for change:	# The UE actions are not clear if an MSN increment by N302+1 on SRB0, triggers an MSN rollover and coincides with an IP activation time different from zero. The current note indicates that also in these cases the HFN would be incremented, which is not in line with the corresponding procedure text just above.										
Summary of change	The note is reworded so that it is clear that only in the case of an activation time equal to SN=0, the HFN of the COUNT-I is incremented in the new security configuration.										
Consequences if not approved:	The UE may use a different HFN from the network upon reaching the IP activation time. This would result in subsequent IP check failures on SRB0.  Impact Analysis: As long as the UE and UTRAN have implemented the behaviour in the procedure text, no impacts are foreseen. If UE or UTRAN has implemented the behaviour as suggested in the note now proposed to be removed, and does not implement this CR, an HFN desynchronisation on SRB0 might be the result.										
Clauses affected:	第 10.3.1.9										
Other specs Affected:	Y N    X Other core specifications    X Test specifications    X O&M Specifications										
Other comments:	X										

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- 1> if the "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO equals zero:
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- NOTE 1: The actions above imply that also for the case the "Uplink RRC HFN" is re-initialised by a security mode control procedure, this "Uplink RRC HFN" is incremented before it is applied in the integrity protection of any transmitted message if the conditions above are fulfilled.
- NOTE 2: For SRB0, this is also valid in case the Message Sequence Number has been increased by N302 +1 resulting in an MSN which equals 0 (i.e.: SRB0 UL activation time equals 0) wrap around. Then the uplink RRC HFN is incremented by 1 after it is re-initialized and before it is applied in the integrity protection of any transmitted message.
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In the response message for the procedure ordering the security reconfiguration, the UE indicates the activation time, for each signalling radio bearer. When the new integrity configuration is to be applied in uplink, UTRAN should start to apply the new integrity protection configuration according to the activation time for each signalling radio bearer (except for the signalling radio bearer which is used to send the message that is reconfiguring the security configuration where the new configuration is to be applied starting from and including reception of the response message).

## 3GPP TSG-RAN2 Meeting #40 Nice, France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

CHANGE REQUEST												
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Source:	ж	RAN	NWG2									
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Clauses affe	cted:	ж	10.3.1.9									
Other specs Affected: Other comm		*	X Test	r core spec specification Specificat	ons	; <b>3</b>						

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## 3GPP TSG-RAN2 Meeting #40 Nice, France, 12<sup>th</sup> – 16<sup>th</sup> January 2004

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Proposed of	change a	affec	ts: UICC a	npps#	ME X	Rad	dio A	ccess Netwo	ork X	Core Ne	etwork
Title:	ж	Uplir	nk Integrity p	rotection ha	ndling in cas	se of	N30	2 increment			
Course	مه	DΛ	N WG2								
Source:	Ж	KA	N WG2								
Work item	code: ∺	TEI						Date: 3	g Jar	nuary 200	4
Cotogory	40	Α						Release: #	₿ Re	1.6	
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			<b>C</b> (functional		of feature)			R98		ease 1997) ease 1998)	
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not approv	red:		activation t	ime. This wo	ould result ir	sub:	sequ	ent IP check	failur	es on SRI	B0.
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					UTRAN hav	ve im	plem	nented the be	havio	ur in the	
								JE or UTRAN			ted the
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			implement	this CR, an	HFN desynd	chron	isati	on on SRB0	might	be the re	sult.
Clauses af	fected:	¥	10.3.1.9								
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#### 8.5.10.2 Integrity protection in uplink

Prior to sending an RRC message using the signalling radio bearer with radio bearer identity n, and the "Status" in the variable INTEGRITY\_PROTECTION\_INFO has the value "Started" the UE shall:

- 1> increment "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO with 1, even if the message is a retransmission of a previously transmitted message.
- 1> if the "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO equals zero:
  - 2> increment "Uplink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO by one.
- NOTE 1: The actions above imply that also for the case the "Uplink RRC HFN" is re-initialised by a security mode control procedure, this "Uplink RRC HFN" is incremented before it is applied in the integrity protection of any transmitted message if the conditions above are fulfilled.
- NOTE 2: For SRB0, this is also valid in case the Message Sequence Number has been increased by N302 +1 resulting in an MSN which equals 0 (i.e.: SRB0 UL activation time equals 0) wrap around. Then the uplink RRC HFN is incremented by 1 after it is re-initialized and before it is applied in the integrity protection of any transmitted message.
- 1> calculate the message authentication code in accordance with subclause 8.5.10.3;
- 1> replace the "Message authentication code" in the IE "Integrity check info" in the message with the calculated message authentication code;
- 1> replace the "RRC Message sequence number" in the IE "Integrity check info" in the message with contents set to the new value of the "Uplink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY\_PROTECTION\_INFO.

In the response message for the procedure ordering the security reconfiguration, the UE indicates the activation time, for each signalling radio bearer. When the new integrity configuration is to be applied in uplink, UTRAN should start to apply the new integrity protection configuration according to the activation time for each signalling radio bearer (except for the signalling radio bearer which is used to send the message that is reconfiguring the security configuration where the new configuration is to be applied starting from and including reception of the response message).

ME X Radio Access Network X Core Network

# 3GPP TSG-RAN WG2 Meeting #41 Malaga, Spain, 16th -20th February 2004

CHANGE REQUEST										
×	25.331	CR	2185	<b>≋rev</b>	1	Ж	Current version: 3.17.0	<b>)</b> #		
For <u>H</u>	<b>ELP</b> on using this forr	n, see	bottom of the	his page or i	look	at th	e pop-up text over the % sy	mbols.		

Title:	$\mathfrak{R}$	Amount of reporting for UE-based and UE assist	ed A-GPS	
		·		
Source:	$\mathfrak{R}$	RAN WG2		
Work item code.	:₩	TEI	Date: ♯	18/12/2003
Category:	$\mathfrak{R}$	F	Release: ₩	R99
		Use <u>one</u> of the following categories:	Use <u>one</u> of	the following releases:
		<b>F</b> (correction)	2	(GSM Phase 2)
		A (corresponds to a correction in an earlier releas	e) R96	(Release 1996)
		<b>B</b> (addition of feature),	R97	(Release 1997)
		C (functional modification of feature)	R98	(Release 1998)
		<b>D</b> (editorial modification)	R99	(Release 1999)
		Detailed explanations of the above categories can	Rel-4	(Release 4)
		be found in 3GPP <u>TR 21.900</u> .	Rel-5	(Release 5)
			Rel-6	(Release 6)

Proposed change affects:

1 - If a UE positioning measurement is configured for UE based A-GPS, the UE is permitted according to 8.6.7.19.1b to send a Measurement Report requesting assistance data at any time.

According to section 8.6.7.8 when the UE has the number of Measurement Reports equal to the 'Amount of reporting' then it stops the measurement and deletes the stored measurement control information. For a UE positioning measurement where the UE can send an 'extra' Measurement Report requesting assistance data at any time, it is not clear whether the 'extra' report should be considered in the count of measurement reports.

Consider an example where the UTRAN configures a UE Positioning measurement with periodic reporting and 'Amount of reporting' set to 1. On receiving the Measurement Control message the UE will initiate the A-GPS positioning measurement and, in accordance to 8.6.7.19.1b, will also send a Measurement Report requesting appropriate assistance data. When the assistance data is received it will allow the UE to speed up the positioning measurement. In accordance to section 8.6.7.8, the UE will send the first periodic Measurement Report as soon as a position fix is obtained (if no position fix is obtained at the end of one period then the UE will send the first periodic Measurement Report without containing any measurement).

Now, in the example above, if the UE were to count the 'extra' Measurement Report requesting the assistance data against the 'Amount of reporting' then the UE would immediately stop the measurement and delete all the stored measurement control information. Consequently, the position measurement will not be sent. Therefore, it is proposed that the 'extra' Measurement Reports requesting assistance data that are sent in accordance with 8.6.7.19.1b do not

count against the 'Amount of reporting'.

2 - UE assisted GPS is not aligned to UE based GPS with respect to the behaviour described above.

#### Changes in CR revision 1:

3 - In section 8.6.7.19.1b it specifies that when a UE may at anytime send a measurement report requesting assistance data from the network. This imposes no restriction on the UE and could allow a poor UE implementation to send many such measurement reports to the network thereby cause excessive signalling load

#### Summary of change: ₩

- 1 Text is added in section 8.6.7.8 to state that the Measurement Reports that are sent when the UE is unable to calculate the requested measurement results due to missing assistance data according to 8.6.7.19.1a or 8.6.7.19.1b are not considered in the count of measurement reports.
- 2 Section 8.6.7.19.1a is aligned with 8.6.7.19.1b with regard to triggering a MEASUREMENT REPORT at any time if the UE needs to request assistance data from the network.

#### **Changes in CR revision 1:**

3 - Text is added to 8.6.7.19.1b to states that after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20 seconds. This requirement does not apply after release of the current RRC connection.

20s is selected as a reasonable compromise between allowing the UE to rerequest it again if the network does not provide the requested data and avoiding excessive signalling load. It should be noted that if the UE is provided with the appropriate assistance data, or eventually receives the data direct from the satellites, then such measurement reports requesting assistance data will be very infrequent.

The new text is also added to section 8.6.7.19.1a regarding UE assisted A-GPS is also aligned to this.

#### **Isolated Impact Analysis**

Functionality corrected: UP measurements - periodic UE based A-GPS

Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

If UE is not implemented according to this CR and UTRAN is implemented according to the CR, then the UE might count the extra Measurement Reports against the 'Amount of Reporting' and could delete the measurement when the UTRAN is not expecting it. The measurement could be deleted before a successful fix has been obtained. Additionally a UE may could send a very large number of measurement reports requesting assistance data to the network and cause excessive signalling load.

If the UE is implemented according to the CR and the UTRAN is not implemented according to the CR, the UTRAN may assume that the measurement is deleted when it has not actually been deleted in the UE. The UTRAN may then receive a Measurement Report for a measurement that it assumed to be deleted.

# Consequences if not approved:

If the CR is not approved then the UE and UTRAN may not be aligned with regard to the deletion of periodic UE positioning measurement. This could lead to the UE deleting the measurement before it has had a chance to obtain a position

fix. This could have severe implications in the case of UE positioning during an emergency call.

Clauses affected:	第 8.6.7.8, 8.6.7.19.1a, 8.6.7.19.1b				
		YN			
Other specs	*	X	Other core specifications	$\mathbb{H}$	
affected:		X	Test specifications		
		X	O&M Specifications		
Other comments:	$\mathfrak{H}$				

#### How to create CRs using this form:

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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.

#### 8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall:

1> store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT\_IDENTITY.

For the first MEASUREMENT REPORT message, the UE shall:

- 1> send the MEASUREMENT REPORT as soon as all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY, but never later than one reporting interval after measurement initiation; or
- 1> send the MEASUREMENT REPORT at the end of the first reporting interval in which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY.

Following the first MEASUREMENT REPORT message, the UE shall:

1> send a MEASUREMENT REPORT message one reporting interval after the previous MEASUREMENT REPORT message;

The first and subsequent periodic MEASUREMENT REPORT messages shall only include measured results for reporting quantities that are available according to the requirements and the measurement capabilities set in [19] and [20] i.e. if no measured results are available and the measurement type is not UE positioning, the IE "Measured Results" shall not be included in the MEASUREMENT REPORT message. If no measured results are available and the measurement type is UE positioning, the UE shall include the IE "Measured Results" in the MEASUREMENT REPORT message in order to include the IE "UE positioning error" as specified in subclauses 8.6.7.19a and 8.6.7.19b.

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall:

- 1> terminate measurement reporting; and
- 1> delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT\_IDENTITY.

If according to subclause 8.6.7.19.1a or 8.6.7.19.1b, a UE configured with a UE positioning measurement is unable to report the requested measurement results due to missing GPS assistance data and sends a MEASUREMENT REPORT containing the IE "UE positioning error" and the IE "Error reason" is set to "Assistance Data Missing", then this is not counted in the total number of MEASUREMENT REPORT messages sent.

### 8.6.7.19.1a UE positioning reporting for UE assisted methods

- 1> when a measurement report is triggered:
  - 2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED in case of OTDOA or one satellite included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:
    - 3> if the IE "Vertical Accuracy" is included:
      - 4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.
    - 3> if the IE "Positioning Methods" is set to "GPS":
      - 4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:
        - 5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:
          - 6> if the IE "GPS timing of Cell wanted" is set to TRUE:
            - 7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
            - 7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and
            - 7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".
          - 6> if the IE "GPS timing of Cell wanted" is set to FALSE:
            - 7> include the IE "GPS TOW msec".
        - 5> if the UE does not support the capability to provide the GPS timing of the cell:
          - 6> include the IE "GPS TOW msec".
    - 3> if the IE "Positioning Methods" is set to "OTDOA":
      - 4> include the IE "UE positioning OTDOA measured results" in the measurement report and set the contents of the IE as follows:
        - 5> set IE "SFN" to the SFN when the last measurement was performed;
        - 5> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement:
          - 6> if the UE is in CELL\_DCH state:
            - 7> if the measured value is equal to "1279.9375":
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to "1279.8750".
            - 7> otherwise:
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to the measured value.
            - 7> include the IE group "Rx-Tx time difference type 2 info" for the reference cell and for each neighbour cell listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED that belongs to the active set.
        - 5> if the UE does not support the capability to perform the Rx-Tx time difference type 2 measurement:

- 6> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to value "1279.9375" to indicate that the measurement is not supported.
- 4> include IE group "Neighbour" for all neighbour cells listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED on which the SFN-SFN observed time difference type 2 measurement could be performed.
- 3> if IE "Positioning Methods" in the MEASUREMENT CONTROL message has been assigned to value "OTDOA or GPS":
  - 4> the UE may choose to either act as if IE "Positioning Methods" is set to "GPS" or "OTDOA" depending on the method chosen by the UE.
- 3> if the IE "Positioning Methods" is set to "CELL ID":
  - 4> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement; and
  - 4> if the UE is in CELL\_DCH state:
    - 5> perform the Rx-Tx time difference type 2 measurement on the cells in the active set; and
    - 5> report the measurement results back to the network in the MEASUREMENT REPORT by using IE "UE positioning OTDOA measured results" including measurements on the cells in the active set; and
    - 5> report Rx-Tx time difference type 2 measurement of the reference cell (as designated by the UE); and
    - 5> for all reported neighbour cells:
      - 6> report Rx-Tx time difference type 2 measurement; and
      - 6> set the IE "SFN-SFN observed time difference type 2" and all IEs within the corresponding IE "UE positioning OTDOA quality" in IE "UE positioning OTDOA measured results" to value "0"
- 21> if the UE is not able to report the requested measurement results:
  - 23> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to report the requested measurement results due to missing GPS assistance data:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

## 8.6.7.19.1b UE positioning reporting for UE based methods

- 1> when a measurement report is triggered:
  - 2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_BASED in case of OTDOA or on the list of satellites included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning:
    - 3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:
      - 4> if the UE supports the capability to perform the UE GPS timing of cell frames measurement:
        - 5> if the IE "GPS timing of Cell wanted" is set to TRUE:
- 6> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
  - 6> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD;
  - 6> include the SFN when the position was determined;
  - 6> include the IE "UE GPS timing of cell frames".
  - 5> if the IE "GPS timing of Cell wanted" is set to FALSE:
    - 6> include the IE "GPS TOW msec".
  - 4> if the UE does not support the capability to provide the GPS timing of the cell:
    - 5> include the IE "GPS TOW msec".
  - 4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":
    - 5> if the IE "Vertical Accuracy" has been assigned to value "0":
      - 6> if the IE "Horizontal Accuracy" has been assigned a value "0":
        - 7> may include IE "Ellipsoid point with altitude".
      - 6> if the IE "Horizontal Accuracy" has been assigned a value unequal to "0"; and
      - 6> if the UE has been able to calculate a 3-dimensional position
        - 7> include IE "Ellipsoid point with altitude" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> may act as if IE "Vertical Accuracy" was not included in IE "UE positioning reporting quantity".
    - 5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":
      - 6> if the UE has been able to calculate a 3-dimensional position:
        - 7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".
  - 4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":
  - 6> may include IE "Ellipsoid point".
- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:
  - 6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
- 2> if the UE was not able to calculate a position:
  - 3> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to calculate a position due to missing GPS assistance data, the UE may at any time:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

# 14.7 UE positioning measurements

# 14.7.1 UE positioning measurement quantities

The quantity to measure for UE positioning is dependent on the positioning method and the method type requested in the IE "UE positioning reporting quantity".

- 1 SFN-SFN observed time difference type 2, mandatory.
- 2 Rx-Tx time difference type 2, optional.
- 3 GPS timing of cell fames, optional.

The definition of other GPS measurements is not within the scope of this specification.

### 14.7.2 Void

# 14.7.3 UE positioning reporting events

In the IE "UE positioning reporting criteria" in the Measurement Control messages, the UTRAN notifies the UE of which events should trigger a measurement report. UE positioning reporting events that can trigger a report are given below. The content of the measurement report is dependant on the positioning method and method type requested in the IE "UE positioning reporting quantity" of the Measurement Control message and is described in detail in [18].

When one measurement identity corresponds to multiple positioning events with identical event identities, the UE behaviour is not defined.

# 14.7.3.1 Reporting Event 7a: The UE position changes more than an absolute threshold

This event is used for UE-based methods only.

When this event is ordered by UTRAN in a measurement control message, the UE shall:

- 1> if the UE changes its position compared to the last reported position by more than the threshold defined by the IE "Threshold position change"; or
- 1> if no position has been reported since the event was configured and the UE changes its position compared to the first position estimate obtained after the event was configured by more than the threshold defined by the IE "Threshold position change":
  - 2> send a measurement report as specified in subclause 8.6.7.19.1b;
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
    - 3> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
    - 3> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.
- 1> if the UE is unable to evaluate the event because a position measurement is not available:
  - 2> not send a report.

# 14.7.3.2 Reporting Event 7b: SFN-SFN measurement changes more than an absolute threshold

- 1> send a measurement report when the SFN-SFN time difference measurement type 2 of any measured cell changes more than the threshold defined by the IE "Threshold SFN-SFN change"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted preferred but UE-based allowed" or "UE-based preferred but UE-assisted allowed":
  - 2> the UE may choose to act according to either subclause 8.6.7.19.1a or 8.6.7.19.1b.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT IDENTITY.

# 14.7.3.3 Reporting Event 7c: GPS time and SFN time have drifted apart more than an absolute threshold

- 1> send a measurement report when the GPS Time Of Week and the SFN timer have drifted apart more than the threshold defined by the IE "Threshold SFN-GPS TOW"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted preferred but UE based allowed" or "UE based preferred but UE assisted allowed":
  - 2> act as specified in subclause 8.6.7.19.1a or in subclause 8.6.7.19.1b depending on the method type chosen by the UE.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.

# 3GPP TSG-RAN WG2 Meeting #41 Malaga, Spain, 16th -20th February 2004

										CR-Form-v7		
CHANGE REQUEST												
$\mathfrak{H}$		25.331	CR	2186	жrev	1	$\mathfrak{H}$	Current version:	4.12.0	¥		
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the <b>%</b> symbols.												
						_			<u></u>			
Proposed change affects: UICC apps# ME X Radio Access Network X Core Network												
Fitle:   # Amount of reporting for UE-based and UE assisted A-GPS												

Source: 第 RAN WG2 Date: # 18/12/2003 Release: # Rel-4 Category: ₩ A Use one of the following categories: Use one of the following releases: (GSM Phase 2) **F** (correction) 2 **A** (corresponds to a correction in an earlier release) R96 (Release 1996) **B** (addition of feature), (Release 1997) R97 **C** (functional modification of feature) (Release 1998) R98 **D** (editorial modification) R99 (Release 1999) Rel-4 Detailed explanations of the above categories can (Release 4) be found in 3GPP TR 21.900. Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change: ₩

1 - If a UE positioning measurement is configured for UE based A-GPS, the UE is permitted according to 8.6.7.19.1b to send a Measurement Report requesting assistance data at any time.

According to section 8.6.7.8 when the UE has the number of Measurement Reports equal to the 'Amount of reporting' then it stops the measurement and deletes the stored measurement control information. For a UE positioning measurement where the UE can send an 'extra' Measurement Report requesting assistance data at any time, it is not clear whether the 'extra' report should be considered in the count of measurement reports.

Consider an example where the UTRAN configures a UE Positioning measurement with periodic reporting and 'Amount of reporting' set to 1. On receiving the Measurement Control message the UE will initiate the A-GPS positioning measurement and, in accordance to 8.6.7.19.1b, will also send a Measurement Report requesting appropriate assistance data. When the assistance data is received it will allow the UE to speed up the positioning measurement. In accordance to section 8.6.7.8, the UE will send the first periodic Measurement Report as soon as a position fix is obtained (if no position fix is obtained at the end of one period then the UE will send the first periodic Measurement Report without containing any measurement).

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2 - UE assisted GPS is not aligned to UE based GPS with respect to the behaviour described above.

#### Changes in CR revision 1:

3 - In section 8.6.7.19.1b it specifies that when a UE may at anytime send a measurement report requesting assistance data from the network. This imposes no restriction on the UE and could allow a poor UE implementation to send many such measurement reports to the network thereby cause excessive signalling load

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- 1 Text is added in section 8.6.7.8 to state that the Measurement Reports that are sent when the UE is unable to calculate the requested measurement results due to missing assistance data according to 8.6.7.19.1a or 8.6.7.19.1b are not considered in the count of measurement reports.
- 2 Section 8.6.7.19.1a is aligned with 8.6.7.19.1b with regard to triggering a MEASUREMENT REPORT at any time if the UE needs to request assistance data from the network.

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20s is selected as a reasonable compromise between allowing the UE to rerequest it again if the network does not provide the requested data and avoiding excessive signalling load. It should be noted that if the UE is provided with the appropriate assistance data, or eventually receives the data direct from the satellites, then such measurement reports requesting assistance data will be very infrequent.

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Functionality corrected: UP measurements - periodic UE based A-GPS

Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

If UE is not implemented according to this CR and UTRAN is implemented according to the CR, then the UE might count the extra Measurement Reports against the 'Amount of Reporting' and could delete the measurement when the UTRAN is not expecting it. The measurement could be deleted before a successful fix has been obtained. Additionally a UE may could send a very large number of measurement reports requesting assistance data to the network and cause excessive signalling load.

If the UE is implemented according to the CR and the UTRAN is not implemented according to the CR, the UTRAN may assume that the measurement is deleted when it has not actually been deleted in the UE. The UTRAN may then receive a Measurement Report for a measurement that it assumed to be deleted.

# Consequences if not approved:

If the CR is not approved then the UE and UTRAN may not be aligned with regard to the deletion of periodic UE positioning measurement. This could lead to the UE deleting the measurement before it has had a chance to obtain a position

fix. This could have severe implications in the case of UE positioning during an emergency call.

Clauses affected:	第 8.6.7.8, 8.6.7.19.1a, 8.6.7.19.1b						
		YN					
Other specs	*	X	Other core specifications	$\mathfrak{H}$			
affected:		X	Test specifications				
		X	O&M Specifications				
Other comments:	$\mathfrak{H}$						

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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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

# 8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall:

1> store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT\_IDENTITY.

For the first MEASUREMENT REPORT message, the UE shall:

- 1> send the MEASUREMENT REPORT as soon as all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY, but never later than one reporting interval after measurement initiation; or
- 1> send the MEASUREMENT REPORT at the end of the first reporting interval in which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY.

Following the first MEASUREMENT REPORT message, the UE shall:

1> send a MEASUREMENT REPORT message one reporting interval after the previous MEASUREMENT REPORT message;

The first and subsequent periodic MEASUREMENT REPORT messages shall only include measured results for reporting quantities that are available according to the requirements and the measurement capabilities set in [19] and [20] i.e. if no measured results are available and the measurement type is not UE positioning, the IE "Measured Results" shall not be included in the MEASUREMENT REPORT message. If no measured results are available and the measurement type is UE positioning, the UE shall include the IE "Measured Results" in the MEASUREMENT REPORT message in order to include the IE "UE positioning error" as specified in subclauses 8.6.7.19a and 8.6.7.19b.

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall:

- 1> terminate measurement reporting; and
- 1> delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT\_IDENTITY.

If according to subclause 8.6.7.19.1a or 8.6.7.19.1b, a UE configured with a UE positioning measurement is unable to report the requested measurement results due to missing GPS assistance data and sends a MEASUREMENT REPORT containing the IE "UE positioning error" and the IE "Error reason" is set to "Assistance Data Missing", then this is not counted in the total number of MEASUREMENT REPORT messages sent.

### 8.6.7.19.1a UE positioning reporting for UE assisted methods

- 1> when a measurement report is triggered:
  - 2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED in case of OTDOA or one satellite included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:
    - 3> if the IE "Vertical Accuracy" is included:
      - 4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.
    - 3> if the IE "Positioning Methods" is set to "GPS":
      - 4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:
        - 5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:
          - 6> if the IE "GPS timing of Cell wanted" is set to TRUE:
            - 7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
            - 7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and
            - 7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".
          - 6> if the IE "GPS timing of Cell wanted" is set to FALSE:
            - 7> include the IE "GPS TOW msec".
        - 5> if the UE does not support the capability to provide the GPS timing of the cell:
          - 6> include the IE "GPS TOW msec".
    - 3> if the IE "Positioning Methods" is set to "OTDOA":
      - 4> include the IE "UE positioning OTDOA measured results" in the measurement report and set the contents of the IE as follows:
        - 5> set IE "SFN" to the SFN when the last measurement was performed;
        - 5> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement:
          - 6> if the UE is in CELL\_DCH state:
            - 7> if the measured value is equal to "1279.9375":
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to "1279.8750".
            - 7> otherwise:
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to the measured value.
            - 7> include the IE group "Rx-Tx time difference type 2 info" for the reference cell and for each neighbour cell listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED that belongs to the active set.
        - 5> if the UE does not support the capability to perform the Rx-Tx time difference type 2 measurement:

- 6> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to value "1279.9375" to indicate that the measurement is not supported.
- 4> include IE group "Neighbour" for all neighbour cells listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED on which the SFN-SFN observed time difference type 2 measurement could be performed.
- 3> if IE "Positioning Methods" in the MEASUREMENT CONTROL message has been assigned to value "OTDOA or GPS":
  - 4> the UE may choose to either act as if IE "Positioning Methods" is set to "GPS" or "OTDOA" depending on the method chosen by the UE.
- 3> if the IE "Positioning Methods" is set to "CELL ID":
  - 4> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement; and
  - 4> if the UE is in CELL\_DCH state:
    - 5> perform the Rx-Tx time difference type 2 measurement on the cells in the active set; and
    - 5> report the measurement results back to the network in the MEASUREMENT REPORT by using IE "UE positioning OTDOA measured results" including measurements on the cells in the active set; and
    - 5> report Rx-Tx time difference type 2 measurement of the reference cell (as designated by the UE); and
    - 5> for all reported neighbour cells:
      - 6> report Rx-Tx time difference type 2 measurement; and
      - 6> set the IE "SFN-SFN observed time difference type 2" and all IEs within the corresponding IE "UE positioning OTDOA quality" in IE "UE positioning OTDOA measured results" to value "0"
- 21> if the UE is not able to report the requested measurement results:
  - 23> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to report the requested measurement results due to missing GPS assistance data:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

## 8.6.7.19.1b UE positioning reporting for UE based methods

- 1> when a measurement report is triggered:
  - 2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_BASED in case of OTDOA or on the list of satellites included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning:
    - 3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:
      - 4> if the UE supports the capability to perform the UE GPS timing of cell frames measurement:
        - 5> if the IE "GPS timing of Cell wanted" is set to TRUE:
- 6> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
  - 6> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD;
  - 6> include the SFN when the position was determined;
  - 6> include the IE "UE GPS timing of cell frames".
  - 5> if the IE "GPS timing of Cell wanted" is set to FALSE:
    - 6> include the IE "GPS TOW msec".
  - 4> if the UE does not support the capability to provide the GPS timing of the cell:
    - 5> include the IE "GPS TOW msec".
  - 4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":
    - 5> if the IE "Vertical Accuracy" has been assigned to value "0":
      - 6> if the IE "Horizontal Accuracy" has been assigned a value "0":
        - 7> may include IE "Ellipsoid point with altitude".
      - 6> if the IE "Horizontal Accuracy" has been assigned a value unequal to "0"; and
      - 6> if the UE has been able to calculate a 3-dimensional position
        - 7> include IE "Ellipsoid point with altitude" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> may act as if IE "Vertical Accuracy" was not included in IE "UE positioning reporting quantity".
    - 5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":
      - 6> if the UE has been able to calculate a 3-dimensional position:
        - 7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".
  - 4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":
  - 6> may include IE "Ellipsoid point".
- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:
  - 6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
- 2> if the UE was not able to calculate a position:
  - 3> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to calculate a position due to missing GPS assistance data, the UE may at any time:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

# 14.7 UE positioning measurements

# 14.7.1 UE positioning measurement quantities

The quantity to measure for UE positioning is dependent on the positioning method and the method type requested in the IE "UE positioning reporting quantity".

- 1 SFN-SFN observed time difference type 2, mandatory.
- 2 Rx-Tx time difference type 2, optional.
- 3 GPS timing of cell fames, optional.

The definition of other GPS measurements is not within the scope of this specification.

### 14.7.2 Void

# 14.7.3 UE positioning reporting events

In the IE "UE positioning reporting criteria" in the Measurement Control messages, the UTRAN notifies the UE of which events should trigger a measurement report. UE positioning reporting events that can trigger a report are given below. The content of the measurement report is dependant on the positioning method and method type requested in the IE "UE positioning reporting quantity" of the Measurement Control message and is described in detail in [18].

When one measurement identity corresponds to multiple positioning events with identical event identities, the UE behaviour is not defined.

# 14.7.3.1 Reporting Event 7a: The UE position changes more than an absolute threshold

This event is used for UE-based methods only.

When this event is ordered by UTRAN in a measurement control message, the UE shall:

- 1> if the UE changes its position compared to the last reported position by more than the threshold defined by the IE "Threshold position change"; or
- 1> if no position has been reported since the event was configured and the UE changes its position compared to the first position estimate obtained after the event was configured by more than the threshold defined by the IE "Threshold position change":
  - 2> send a measurement report as specified in subclause 8.6.7.19.1b;
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
    - 3> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
    - 3> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.
- 1> if the UE is unable to evaluate the event because a position measurement is not available:
  - 2> not send a report.

# 14.7.3.2 Reporting Event 7b: SFN-SFN measurement changes more than an absolute threshold

- 1> send a measurement report when the SFN-SFN time difference measurement type 2 of any measured cell changes more than the threshold defined by the IE "Threshold SFN-SFN change"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted preferred but UE-based allowed" or "UE-based preferred but UE-assisted allowed":
  - 2> the UE may choose to act according to either subclause 8.6.7.19.1a or 8.6.7.19.1b.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT IDENTITY.

# 14.7.3.3 Reporting Event 7c: GPS time and SFN time have drifted apart more than an absolute threshold

- 1> send a measurement report when the GPS Time Of Week and the SFN timer have drifted apart more than the threshold defined by the IE "Threshold SFN-GPS TOW"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted preferred but UE based allowed" or "UE based preferred but UE assisted allowed":
  - 2> act as specified in subclause 8.6.7.19.1a or in subclause 8.6.7.19.1b depending on the method type chosen by the UE.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.

ME X Radio Access Network X Core Network

# 3GPP TSG-RAN WG2 Meeting #41 Malaga, Spain, 16th -20th February 2004

CHANGE REQUEST								
*	25.331 CR	2187	жrev	1	¥	Current version:	5.7.1	¥
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.								

Title:	$\mathfrak{H}$	Amount of reporting for UE-based and UE assis	ted A-GP	S	
Source:	$\mathfrak{H}$	RAN WG2			
Work item code.	:₩	TEI	Dat	<i>e:</i> ₩	18/12/2003
Category:	$\mathbb{H}$	A	Releas	<i>e:</i> ૠ	Rel-5
		Use <u>one</u> of the following categories:	Use <u>o</u>	<u>ne</u> of t	he following releases:
		<b>F</b> (correction)	2		(GSM Phase 2)
		A (corresponds to a correction in an earlier relea	,		(Release 1996)
		<b>B</b> (addition of feature),	R9	7	(Release 1997)
		<b>C</b> (functional modification of feature)	R9	8	(Release 1998)
		<b>D</b> (editorial modification)	R9	-	(Release 1999)
		Detailed explanations of the above categories can	Re		(Release 4)
		be found in 3GPP <u>TR 21.900</u> .	Re	l-5	(Release 5)
			Re	1-6	(Release 6)

Reason for change: ₩

Proposed change affects:

1 - If a UE positioning measurement is configured for UE based A-GPS, the UE is permitted according to 8.6.7.19.1b to send a Measurement Report requesting assistance data at any time.

According to section 8.6.7.8 when the UE has the number of Measurement Reports equal to the 'Amount of reporting' then it stops the measurement and deletes the stored measurement control information. For a UE positioning measurement where the UE can send an 'extra' Measurement Report requesting assistance data at any time, it is not clear whether the 'extra' report should be considered in the count of measurement reports.

Consider an example where the UTRAN configures a UE Positioning measurement with periodic reporting and 'Amount of reporting' set to 1. On receiving the Measurement Control message the UE will initiate the A-GPS positioning measurement and, in accordance to 8.6.7.19.1b, will also send a Measurement Report requesting appropriate assistance data. When the assistance data is received it will allow the UE to speed up the positioning measurement. In accordance to section 8.6.7.8, the UE will send the first periodic Measurement Report as soon as a position fix is obtained (if no position fix is obtained at the end of one period then the UE will send the first periodic Measurement Report without containing any measurement).

Now, in the example above, if the UE were to count the 'extra' Measurement Report requesting the assistance data against the 'Amount of reporting' then the UE would immediately stop the measurement and delete all the stored measurement control information. Consequently, the position measurement will not be sent. Therefore, it is proposed that the 'extra' Measurement Reports requesting assistance data that are sent in accordance with 8.6.7.19.1b do not

count against the 'Amount of reporting'.

2 - UE assisted GPS is not aligned to UE based GPS with respect to the behaviour described above.

#### Changes in CR revision 1:

3 - In section 8.6.7.19.1b it specifies that when a UE may at anytime send a measurement report requesting assistance data from the network. This imposes no restriction on the UE and could allow a poor UE implementation to send many such measurement reports to the network thereby cause excessive signalling load

#### Summary of change: ₩

- 1 Text is added in section 8.6.7.8 to state that the Measurement Reports that are sent when the UE is unable to calculate the requested measurement results due to missing assistance data according to 8.6.7.19.1a or 8.6.7.19.1b are not considered in the count of measurement reports.
- 2 Section 8.6.7.19.1a is aligned with 8.6.7.19.1b with regard to triggering a MEASUREMENT REPORT at any time if the UE needs to request assistance data from the network.

### **Changes in CR revision 1:**

3 - Text is added to 8.6.7.19.1b to states that after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20 seconds. This requirement does not apply after release of the current RRC connection.

20s is selected as a reasonable compromise between allowing the UE to rerequest it again if the network does not provide the requested data and avoiding excessive signalling load. It should be noted that if the UE is provided with the appropriate assistance data, or eventually receives the data direct from the satellites, then such measurement reports requesting assistance data will be very infrequent.

The new text is also added to section 8.6.7.19.1a regarding UE assisted A-GPS is also aligned to this.

### **Isolated Impact Analysis**

Functionality corrected: UP measurements - periodic UE based A-GPS

Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

If UE is not implemented according to this CR and UTRAN is implemented according to the CR, then the UE might count the extra Measurement Reports against the 'Amount of Reporting' and could delete the measurement when the UTRAN is not expecting it. The measurement could be deleted before a successful fix has been obtained. Additionally a UE may could send a very large number of measurement reports requesting assistance data to the network and cause excessive signalling load.

If the UE is implemented according to the CR and the UTRAN is not implemented according to the CR, the UTRAN may assume that the measurement is deleted when it has not actually been deleted in the UE. The UTRAN may then receive a Measurement Report for a measurement that it assumed to be deleted.

# Consequences if not approved:

If the CR is not approved then the UE and UTRAN may not be aligned with regard to the deletion of periodic UE positioning measurement. This could lead to the UE deleting the measurement before it has had a chance to obtain a position

fix. This could have severe implications in the case of UE positioning during an emergency call.

Clauses affected:	第 8.6.7.8, 8.6.7.19.1a, 8.6.7.19.1b						
		YN					
Other specs	*	X	Other core specifications	$\mathfrak{H}$			
affected:		X	Test specifications				
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Other comments:	$\mathfrak{H}$						

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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.

# 8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall:

1> store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT\_IDENTITY.

For the first MEASUREMENT REPORT message, the UE shall:

- 1> send the MEASUREMENT REPORT as soon as all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY, but never later than one reporting interval after measurement initiation; or
- 1> send the MEASUREMENT REPORT at the end of the first reporting interval in which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY.

Following the first MEASUREMENT REPORT message, the UE shall:

1> send a MEASUREMENT REPORT message one reporting interval after the previous MEASUREMENT REPORT message;

The first and subsequent periodic MEASUREMENT REPORT messages shall only include measured results for reporting quantities that are available according to the requirements and the measurement capabilities set in [19] and [20] i.e. if no measured results are available and the measurement type is not UE positioning, the IE "Measured Results" shall not be included in the MEASUREMENT REPORT message. If no measured results are available and the measurement type is UE positioning, the UE shall include the IE "Measured Results" in the MEASUREMENT REPORT message in order to include the IE "UE positioning error" as specified in subclauses 8.6.7.19a and 8.6.7.19b.

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall:

- 1> terminate measurement reporting; and
- 1> delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT\_IDENTITY.

If according to subclause 8.6.7.19.1a or 8.6.7.19.1b, a UE configured with a UE positioning measurement is unable to report the requested measurement results due to missing GPS assistance data and sends a MEASUREMENT REPORT containing the IE "UE positioning error" and the IE "Error reason" is set to "Assistance Data Missing", then this is not counted in the total number of MEASUREMENT REPORT messages sent.

### 8.6.7.19.1a UE positioning reporting for UE assisted methods

- 1> when a measurement report is triggered:
  - 2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED in case of OTDOA or one satellite included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:
    - 3> if the IE "Vertical Accuracy" is included:
      - 4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.
    - 3> if the IE "Positioning Methods" is set to "GPS":
      - 4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:
        - 5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:
          - 6> if the IE "GPS timing of Cell wanted" is set to TRUE:
            - 7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
            - 7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and
            - 7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".
          - 6> if the IE "GPS timing of Cell wanted" is set to FALSE:
            - 7> include the IE "GPS TOW msec".
        - 5> if the UE does not support the capability to provide the GPS timing of the cell:
          - 6> include the IE "GPS TOW msec".
    - 3> if the IE "Positioning Methods" is set to "OTDOA":
      - 4> include the IE "UE positioning OTDOA measured results" in the measurement report and set the contents of the IE as follows:
        - 5> set IE "SFN" to the SFN when the last measurement was performed;
        - 5> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement:
          - 6> if the UE is in CELL\_DCH state:
            - 7> if the measured value is equal to "1279.9375":
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to "1279.8750".
            - 7> otherwise:
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to the measured value.
            - 7> include the IE group "Rx-Tx time difference type 2 info" for the reference cell and for each neighbour cell listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED that belongs to the active set.
        - 5> if the UE does not support the capability to perform the Rx-Tx time difference type 2 measurement:

- 6> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to value "1279.9375" to indicate that the measurement is not supported.
- 4> include IE group "Neighbour" for all neighbour cells listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED on which the SFN-SFN observed time difference type 2 measurement could be performed.
- 3> if IE "Positioning Methods" in the MEASUREMENT CONTROL message has been assigned to value "OTDOA or GPS":
  - 4> the UE may choose to either act as if IE "Positioning Methods" is set to "GPS" or "OTDOA" depending on the method chosen by the UE.
- 3> if the IE "Positioning Methods" is set to "CELL ID":
  - 4> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement; and
  - 4> if the UE is in CELL\_DCH state:
    - 5> perform the Rx-Tx time difference type 2 measurement on the cells in the active set; and
    - 5> report the measurement results back to the network in the MEASUREMENT REPORT by using IE "UE positioning OTDOA measured results" including measurements on the cells in the active set; and
    - 5> report Rx-Tx time difference type 2 measurement of the reference cell (as designated by the UE); and
    - 5> for all reported neighbour cells:
      - 6> report Rx-Tx time difference type 2 measurement; and
      - 6> set the IE "SFN-SFN observed time difference type 2" and all IEs within the corresponding IE "UE positioning OTDOA quality" in IE "UE positioning OTDOA measured results" to value "0"
- 21> if the UE is not able to report the requested measurement results:
  - 23> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to report the requested measurement results due to missing GPS assistance data:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

## 8.6.7.19.1b UE positioning reporting for UE based methods

- 1> when a measurement report is triggered:
  - 2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_BASED in case of OTDOA or on the list of satellites included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning:
    - 3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:
      - 4> if the UE supports the capability to perform the UE GPS timing of cell frames measurement:
        - 5> if the IE "GPS timing of Cell wanted" is set to TRUE:
- 6> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
  - 6> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD;
  - 6> include the SFN when the position was determined;
  - 6> include the IE "UE GPS timing of cell frames".
  - 5> if the IE "GPS timing of Cell wanted" is set to FALSE:
    - 6> include the IE "GPS TOW msec".
  - 4> if the UE does not support the capability to provide the GPS timing of the cell:
    - 5> include the IE "GPS TOW msec".
  - 4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":
    - 5> if the IE "Vertical Accuracy" has been assigned to value "0":
      - 6> if the IE "Horizontal Accuracy" has been assigned a value "0":
        - 7> may include IE "Ellipsoid point with altitude".
      - 6> if the IE "Horizontal Accuracy" has been assigned a value unequal to "0"; and
      - 6> if the UE has been able to calculate a 3-dimensional position
        - 7> include IE "Ellipsoid point with altitude" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> may act as if IE "Vertical Accuracy" was not included in IE "UE positioning reporting quantity".
    - 5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":
      - 6> if the UE has been able to calculate a 3-dimensional position:
        - 7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".
  - 4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":
  - 6> may include IE "Ellipsoid point".
- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:
  - 6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
- 2> if the UE was not able to calculate a position:
  - 3> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to calculate a position due to missing GPS assistance data, the UE may at any time:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

# 14.7 UE positioning measurements

# 14.7.1 UE positioning measurement quantities

The quantity to measure for UE positioning is dependent on the positioning method and the method type requested in the IE "UE positioning reporting quantity".

- 1 SFN-SFN observed time difference type 2, mandatory.
- 2 Rx-Tx time difference type 2, optional.
- 3 GPS timing of cell fames, optional.

The definition of other GPS measurements is not within the scope of this specification.

### 14.7.2 Void

# 14.7.3 UE positioning reporting events

In the IE "UE positioning reporting criteria" in the Measurement Control messages, the UTRAN notifies the UE of which events should trigger a measurement report. UE positioning reporting events that can trigger a report are given below. The content of the measurement report is dependant on the positioning method and method type requested in the IE "UE positioning reporting quantity" of the Measurement Control message and is described in detail in [18].

When one measurement identity corresponds to multiple positioning events with identical event identities, the UE behaviour is not defined.

# 14.7.3.1 Reporting Event 7a: The UE position changes more than an absolute threshold

This event is used for UE-based methods only.

When this event is ordered by UTRAN in a measurement control message, the UE shall:

- 1> if the UE changes its position compared to the last reported position by more than the threshold defined by the IE "Threshold position change"; or
- 1> if no position has been reported since the event was configured and the UE changes its position compared to the first position estimate obtained after the event was configured by more than the threshold defined by the IE "Threshold position change":
  - 2> send a measurement report as specified in subclause 8.6.7.19.1b;
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
    - 3> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
    - 3> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.
- 1> if the UE is unable to evaluate the event because a position measurement is not available:
  - 2> not send a report.

# 14.7.3.2 Reporting Event 7b: SFN-SFN measurement changes more than an absolute threshold

- 1> send a measurement report when the SFN-SFN time difference measurement type 2 of any measured cell changes more than the threshold defined by the IE "Threshold SFN-SFN change"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted preferred but UE-based allowed" or "UE-based preferred but UE-assisted allowed":
  - 2> the UE may choose to act according to either subclause 8.6.7.19.1a or 8.6.7.19.1b.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT IDENTITY.

# 14.7.3.3 Reporting Event 7c: GPS time and SFN time have drifted apart more than an absolute threshold

- 1> send a measurement report when the GPS Time Of Week and the SFN timer have drifted apart more than the threshold defined by the IE "Threshold SFN-GPS TOW"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted preferred but UE based allowed" or "UE based preferred but UE assisted allowed":
  - 2> act as specified in subclause 8.6.7.19.1a or in subclause 8.6.7.19.1b depending on the method type chosen by the UE.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.

ME X Radio Access Network X Core Network

Rel-6

(Release 6)

# 3GPP TSG-RAN WG2 Meeting #41 Malaga, Spain, 16th -20th February 2004

CHANGE REQUEST									
æ	25	<mark>.331</mark> CR	2188	<b>≋rev</b>	1	$\mathfrak{H}$	Current version:	6.0.1	¥
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the % symbols.									

Title: Amount of reporting for UE-based and UE assisted A-GPS Source: RAN WG2 Date: # 18/12/2003 ₩ A Release: # Rel-6 Category: Use one of the following releases: Use one of the following categories: **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) Rel-5 be found in 3GPP TR 21.900. (Release 5)

Proposed change affects:

1 - If a UE positioning measurement is configured for UE based A-GPS, the UE is permitted according to 8.6.7.19.1b to send a Measurement Report requesting assistance data at any time.

According to section 8.6.7.8 when the UE has the number of Measurement Reports equal to the 'Amount of reporting' then it stops the measurement and deletes the stored measurement control information. For a UE positioning measurement where the UE can send an 'extra' Measurement Report requesting assistance data at any time, it is not clear whether the 'extra' report should be considered in the count of measurement reports.

Consider an example where the UTRAN configures a UE Positioning measurement with periodic reporting and 'Amount of reporting' set to 1. On receiving the Measurement Control message the UE will initiate the A-GPS positioning measurement and, in accordance to 8.6.7.19.1b, will also send a Measurement Report requesting appropriate assistance data. When the assistance data is received it will allow the UE to speed up the positioning measurement. In accordance to section 8.6.7.8, the UE will send the first periodic Measurement Report as soon as a position fix is obtained (if no position fix is obtained at the end of one period then the UE will send the first periodic Measurement Report without containing any measurement).

Now, in the example above, if the UE were to count the 'extra' Measurement Report requesting the assistance data against the 'Amount of reporting' then the UE would immediately stop the measurement and delete all the stored measurement control information. Consequently, the position measurement will not be sent. Therefore, it is proposed that the 'extra' Measurement Reports requesting assistance data that are sent in accordance with 8.6.7.19.1b do not

count against the 'Amount of reporting'.

2 - UE assisted GPS is not aligned to UE based GPS with respect to the behaviour described above.

#### Changes in CR revision 1:

3 - In section 8.6.7.19.1b it specifies that when a UE may at anytime send a measurement report requesting assistance data from the network. This imposes no restriction on the UE and could allow a poor UE implementation to send many such measurement reports to the network thereby cause excessive signalling load

#### Summary of change: ₩

- 1 Text is added in section 8.6.7.8 to state that the Measurement Reports that are sent when the UE is unable to calculate the requested measurement results due to missing assistance data according to 8.6.7.19.1a or 8.6.7.19.1b are not considered in the count of measurement reports.
- 2 Section 8.6.7.19.1a is aligned with 8.6.7.19.1b with regard to triggering a MEASUREMENT REPORT at any time if the UE needs to request assistance data from the network.

### **Changes in CR revision 1:**

3 - Text is added to 8.6.7.19.1b to states that after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20 seconds. This requirement does not apply after release of the current RRC connection.

20s is selected as a reasonable compromise between allowing the UE to rerequest it again if the network does not provide the requested data and avoiding excessive signalling load. It should be noted that if the UE is provided with the appropriate assistance data, or eventually receives the data direct from the satellites, then such measurement reports requesting assistance data will be very infrequent.

The new text is also added to section 8.6.7.19.1a regarding UE assisted A-GPS is also aligned to this.

### **Isolated Impact Analysis**

Functionality corrected: UP measurements - periodic UE based A-GPS

Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

If UE is not implemented according to this CR and UTRAN is implemented according to the CR, then the UE might count the extra Measurement Reports against the 'Amount of Reporting' and could delete the measurement when the UTRAN is not expecting it. The measurement could be deleted before a successful fix has been obtained. Additionally a UE may could send a very large number of measurement reports requesting assistance data to the network and cause excessive signalling load.

If the UE is implemented according to the CR and the UTRAN is not implemented according to the CR, the UTRAN may assume that the measurement is deleted when it has not actually been deleted in the UE. The UTRAN may then receive a Measurement Report for a measurement that it assumed to be deleted.

# Consequences if not approved:

If the CR is not approved then the UE and UTRAN may not be aligned with regard to the deletion of periodic UE positioning measurement. This could lead to the UE deleting the measurement before it has had a chance to obtain a position

fix. This could have severe implications in the case of UE positioning during an emergency call.

Clauses affected:	第 8.6.7.8, 8.6.7.19.1a, 8.6.7.19.1b						
		YN					
Other specs	*	X	Other core specifications	$\mathfrak{H}$			
affected:		X	Test specifications				
		X	O&M Specifications				
Other comments:	$\mathfrak{H}$						

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <a href="http://www.3gpp.org/specs/CR.htm">http://www.3gpp.org/specs/CR.htm</a>. Below is a brief summary:

- 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> 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.

# 8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall:

1> store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT\_IDENTITY.

For the first MEASUREMENT REPORT message, the UE shall:

- 1> send the MEASUREMENT REPORT as soon as all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY, but never later than one reporting interval after measurement initiation; or
- 1> send the MEASUREMENT REPORT at the end of the first reporting interval in which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY.

Following the first MEASUREMENT REPORT message, the UE shall:

1> send a MEASUREMENT REPORT message one reporting interval after the previous MEASUREMENT REPORT message;

The first and subsequent periodic MEASUREMENT REPORT messages shall only include measured results for reporting quantities that are available according to the requirements and the measurement capabilities set in [19] and [20] i.e. if no measured results are available and the measurement type is not UE positioning, the IE "Measured Results" shall not be included in the MEASUREMENT REPORT message. If no measured results are available and the measurement type is UE positioning, the UE shall include the IE "Measured Results" in the MEASUREMENT REPORT message in order to include the IE "UE positioning error" as specified in subclauses 8.6.7.19a and 8.6.7.19b.

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall:

- 1> terminate measurement reporting; and
- 1> delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT\_IDENTITY.

If according to subclause 8.6.7.19.1a or 8.6.7.19.1b, a UE configured with a UE positioning measurement is unable to report the requested measurement results due to missing GPS assistance data and sends a MEASUREMENT REPORT containing the IE "UE positioning error" and the IE "Error reason" is set to "Assistance Data Missing", then this is not counted in the total number of MEASUREMENT REPORT messages sent.

### 8.6.7.19.1a UE positioning reporting for UE assisted methods

- 1> when a measurement report is triggered:
  - 2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED in case of OTDOA or one satellite included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:
    - 3> if the IE "Vertical Accuracy" is included:
      - 4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.
    - 3> if the IE "Positioning Methods" is set to "GPS":
      - 4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:
        - 5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:
          - 6> if the IE "GPS timing of Cell wanted" is set to TRUE:
            - 7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
            - 7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and
            - 7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".
          - 6> if the IE "GPS timing of Cell wanted" is set to FALSE:
            - 7> include the IE "GPS TOW msec".
        - 5> if the UE does not support the capability to provide the GPS timing of the cell:
          - 6> include the IE "GPS TOW msec".
    - 3> if the IE "Positioning Methods" is set to "OTDOA":
      - 4> include the IE "UE positioning OTDOA measured results" in the measurement report and set the contents of the IE as follows:
        - 5> set IE "SFN" to the SFN when the last measurement was performed;
        - 5> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement:
          - 6> if the UE is in CELL\_DCH state:
            - 7> if the measured value is equal to "1279.9375":
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to "1279.8750".
            - 7> otherwise:
              - 8> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to the measured value.
            - 7> include the IE group "Rx-Tx time difference type 2 info" for the reference cell and for each neighbour cell listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED that belongs to the active set.
        - 5> if the UE does not support the capability to perform the Rx-Tx time difference type 2 measurement:

- 6> set the IE "Rx-Tx time difference type 2" in IE "UE positioning OTDOA measured results" for the reference cell to value "1279.9375" to indicate that the measurement is not supported.
- 4> include IE group "Neighbour" for all neighbour cells listed in variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_ASSISTED on which the SFN-SFN observed time difference type 2 measurement could be performed.
- 3> if IE "Positioning Methods" in the MEASUREMENT CONTROL message has been assigned to value "OTDOA or GPS":
  - 4> the UE may choose to either act as if IE "Positioning Methods" is set to "GPS" or "OTDOA" depending on the method chosen by the UE.
- 3> if the IE "Positioning Methods" is set to "CELL ID":
  - 4> if the UE supports the capability to perform the Rx-Tx time difference type 2 measurement; and
  - 4> if the UE is in CELL\_DCH state:
    - 5> perform the Rx-Tx time difference type 2 measurement on the cells in the active set; and
    - 5> report the measurement results back to the network in the MEASUREMENT REPORT by using IE "UE positioning OTDOA measured results" including measurements on the cells in the active set; and
    - 5> report Rx-Tx time difference type 2 measurement of the reference cell (as designated by the UE); and
    - 5> for all reported neighbour cells:
      - 6> report Rx-Tx time difference type 2 measurement; and
      - 6> set the IE "SFN-SFN observed time difference type 2" and all IEs within the corresponding IE "UE positioning OTDOA quality" in IE "UE positioning OTDOA measured results" to value "0"
- 21> if the UE is not able to report the requested measurement results:
  - 23> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to report the requested measurement results due to missing GPS assistance data:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

## 8.6.7.19.1b UE positioning reporting for UE based methods

- 1> when a measurement report is triggered:
  - 2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE\_POSITIONING\_OTDOA\_DATA\_UE\_BASED in case of OTDOA or on the list of satellites included in the variable UE\_POSITIONING\_GPS\_DATA in case of GPS positioning:
    - 3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:
      - 4> if the UE supports the capability to perform the UE GPS timing of cell frames measurement:
        - 5> if the IE "GPS timing of Cell wanted" is set to TRUE:
- 6> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.
  - 6> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD;
  - 6> include the SFN when the position was determined;
  - 6> include the IE "UE GPS timing of cell frames".
  - 5> if the IE "GPS timing of Cell wanted" is set to FALSE:
    - 6> include the IE "GPS TOW msec".
  - 4> if the UE does not support the capability to provide the GPS timing of the cell:
    - 5> include the IE "GPS TOW msec".
  - 4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":
    - 5> if the IE "Vertical Accuracy" has been assigned to value "0":
      - 6> if the IE "Horizontal Accuracy" has been assigned a value "0":
        - 7> may include IE "Ellipsoid point with altitude".
      - 6> if the IE "Horizontal Accuracy" has been assigned a value unequal to "0"; and
      - 6> if the UE has been able to calculate a 3-dimensional position
        - 7> include IE "Ellipsoid point with altitude" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> may act as if IE "Vertical Accuracy" was not included in IE "UE positioning reporting quantity".
    - 5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":
      - 6> if the UE has been able to calculate a 3-dimensional position:
        - 7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
      - 6> if the UE has not been able to calculate a 3-dimensional position:
        - 7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".
  - 4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":
  - 6> may include IE "Ellipsoid point".
- 5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:
  - 6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.
- 2> if the UE was not able to calculate a position:
  - 3> include IE "UE positioning error" in the MEASUREMENT REPORT and set the contents of this IE as specified in subclause 8.6.7.19.5.
- 1> if the UE is unable to calculate a position due to missing GPS assistance data, the UE may at any time:
  - 2> the UE may at anytime send a measurement report containing the IE "UE positioning error" and set the contents of this IE as specified in subclause 8.6.7.19.5.
  - 2> after sending the measurement report, the UE shall not send another measurement report to request the same GPS assistance data for at least 20s. This requirement does not apply after release of the current RRC connection.

# 14.7 UE positioning measurements

# 14.7.1 UE positioning measurement quantities

The quantity to measure for UE positioning is dependent on the positioning method and the method type requested in the IE "UE positioning reporting quantity".

- 1 SFN-SFN observed time difference type 2, mandatory.
- 2 Rx-Tx time difference type 2, optional.
- 3 GPS timing of cell fames, optional.

The definition of other GPS measurements is not within the scope of this specification.

### 14.7.2 Void

# 14.7.3 UE positioning reporting events

In the IE "UE positioning reporting criteria" in the Measurement Control messages, the UTRAN notifies the UE of which events should trigger a measurement report. UE positioning reporting events that can trigger a report are given below. The content of the measurement report is dependant on the positioning method and method type requested in the IE "UE positioning reporting quantity" of the Measurement Control message and is described in detail in [18].

When one measurement identity corresponds to multiple positioning events with identical event identities, the UE behaviour is not defined.

# 14.7.3.1 Reporting Event 7a: The UE position changes more than an absolute threshold

This event is used for UE-based methods only.

When this event is ordered by UTRAN in a measurement control message, the UE shall:

- 1> if the UE changes its position compared to the last reported position by more than the threshold defined by the IE "Threshold position change"; or
- 1> if no position has been reported since the event was configured and the UE changes its position compared to the first position estimate obtained after the event was configured by more than the threshold defined by the IE "Threshold position change":
  - 2> send a measurement report as specified in subclause 8.6.7.19.1b;
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
    - 3> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
  - 2> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
    - 3> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.
- 1> if the UE is unable to evaluate the event because a position measurement is not available:
  - 2> not send a report.

# 14.7.3.2 Reporting Event 7b: SFN-SFN measurement changes more than an absolute threshold

- 1> send a measurement report when the SFN-SFN time difference measurement type 2 of any measured cell changes more than the threshold defined by the IE "Threshold SFN-SFN change"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE-assisted preferred but UE-based allowed" or "UE-based preferred but UE-assisted allowed":
  - 2> the UE may choose to act according to either subclause 8.6.7.19.1a or 8.6.7.19.1b.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT IDENTITY.

# 14.7.3.3 Reporting Event 7c: GPS time and SFN time have drifted apart more than an absolute threshold

- 1> send a measurement report when the GPS Time Of Week and the SFN timer have drifted apart more than the threshold defined by the IE "Threshold SFN-GPS TOW"; and
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE based":
  - 2> act as specified in subclause 8.6.7.19.1b.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted":
  - 2> act as specified in subclause 8.6.7.19.1a.
- 1> if UTRAN set IE "Method Type" in "UE positioning reporting quantity" in the MEASUREMENT CONTROL message to "UE assisted preferred but UE based allowed" or "UE based preferred but UE assisted allowed":
  - 2> act as specified in subclause 8.6.7.19.1a or in subclause 8.6.7.19.1b depending on the method type chosen by the UE.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is greater than one:
  - 2> decrease IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event by one.
- 1> if the value of IE "Amount of Reporting" in variable MEASUREMENT\_IDENTITY for this event is equal to one:
  - 2> delete this event from the list of events in variable MEASUREMENT\_IDENTITY.