

TSG-RAN Meeting #15
Jeju-do, Korea, 5 - 8 March 2002

RP-020062

Title: Agreed CRs (Release '99 and Rel-4 category A) to TS 25.303

Source: TSG-RAN WG2

Agenda item: 7.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-020433	agreed	25.303	063	1	R99	Correction on RRC connection establishment procedure	F	3.10.0	3.11.0
R2-020434	agreed	25.303	064		Rel-4	Correction on RRC connection establishment procedure	A	4.3.0	4.4.0
R2-020289	agreed	25.303	066		R99	Alignment of SRNS relocation in CELL_DCH	F	3.10.0	3.11.0
R2-020539	agreed	25.303	067		Rel-4	Alignment of SRNS relocation in CELL_DCH	A	4.3.0	4.4.0
R2-020417	agreed	25.303	068		R99	Corrections on combined Cell/URA update and SRNS relocation	F	3.10.0	3.11.0
R2-020435	agreed	25.303	069		Rel-4	Corrections on combined Cell/URA update and SRNS relocation	A	4.3.0	4.4.0

CR-Form-v4

CHANGE REQUEST

⌘ **25.303 CR 063** ⌘ ev **r1** ⌘ Current version: **3.10.0** ⌘

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

Title:	⌘ Correction on RRC connection establishment procedure		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘ TEI	Date:	⌘ Feb, 2002
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97	(Release 1996)
	B (addition of feature),	R98	(Release 1997)
	C (functional modification of feature)	R99	(Release 1998)
	D (editorial modification)	REL-4	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	REL-5	(Release 4)
			(Release 5)

Reason for change:	⌘ The RRC connection establishment procedure is not aligned with the functions of the listed primitives between RRC and MAC in TS25.321, thus may arouse confusion.
Summary of change:	⌘ Rev1: In Figure1, "RL-DATA-REQ/IND" primitives are corrected to "RL-TR-DATA-REQ/IND" and "RL-UM-DATA-REQ/IND" respectively. Rev0: It is corrected that, in the initiation, the RRC sends the "RRC connection setup request" message to the RLC, which forwards the message to MAC by using MAC-DATA-REQ. <u>Isolated Impact Analysis:</u> The CR is a correction to resolve inconsistency between 25.303 and 25.321, which does not affect implementations.
Consequences if not approved:	⌘ Incoherence between specifications

Clauses affected:	⌘ 6.1.1		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.303 v4.3.0, CR 064	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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

6.1.1 RRC connection establishment

RRC connection establishment (see /5/) is shown in figure 1 (protocol termination for common channels is shown according to former case A, case C can be found for comparison in annex A). The RRC layer in the UE leaves the idle mode and initiates an RRC connection establishment by sending an RRC Connection Request message using transparent mode on CCCH logical channel, and it is transmitted by MAC ~~using the MAC-SAP for the CCCH logical channel. MAC transmits the L3 message~~ on the RACH transport channel.

On the network side, upon the reception of RRC Connection Request, the RRC layer performs admission control, assigns an s-RNTI for the RRC connection and selects radio resource parameters (such as transport channel type, transport format sets etc). If a DCH is to be established, CPHY-RL-Setup and CPHY-TrCH-Config request primitives (transmitted as one RADIO LINK SETUP PDU) are sent to all Node Bs that would be involved in the channel establishment. The physical layer operation is started and confirmation primitives are returned from each Node B. RRC configures parameters on layer 2 to establish the DCCH logical channel locally. The selected parameters including the RNTI, are transmitted to the UE in an RRC Connection Setup message using unacknowledged mode on ~~the MAC-SAP for~~ the CCCH logical channel.

Upon reception of the RRC Connection Setup message, the RRC layer in the UE configures the L1 and L2 using these parameters to locally establish the DCCH logical channel. In case of DCH, layer 1 indicates to RRC when it has reached synchronisation.

The RLC signalling link is locally established on both sides. The establishment can be mapped on either RACH / FACH or DCH by MAC. When the UE has established the RLC signalling link, it transmits an RRC Connection Setup Complete message to the network using acknowledged mode on the DCCH.

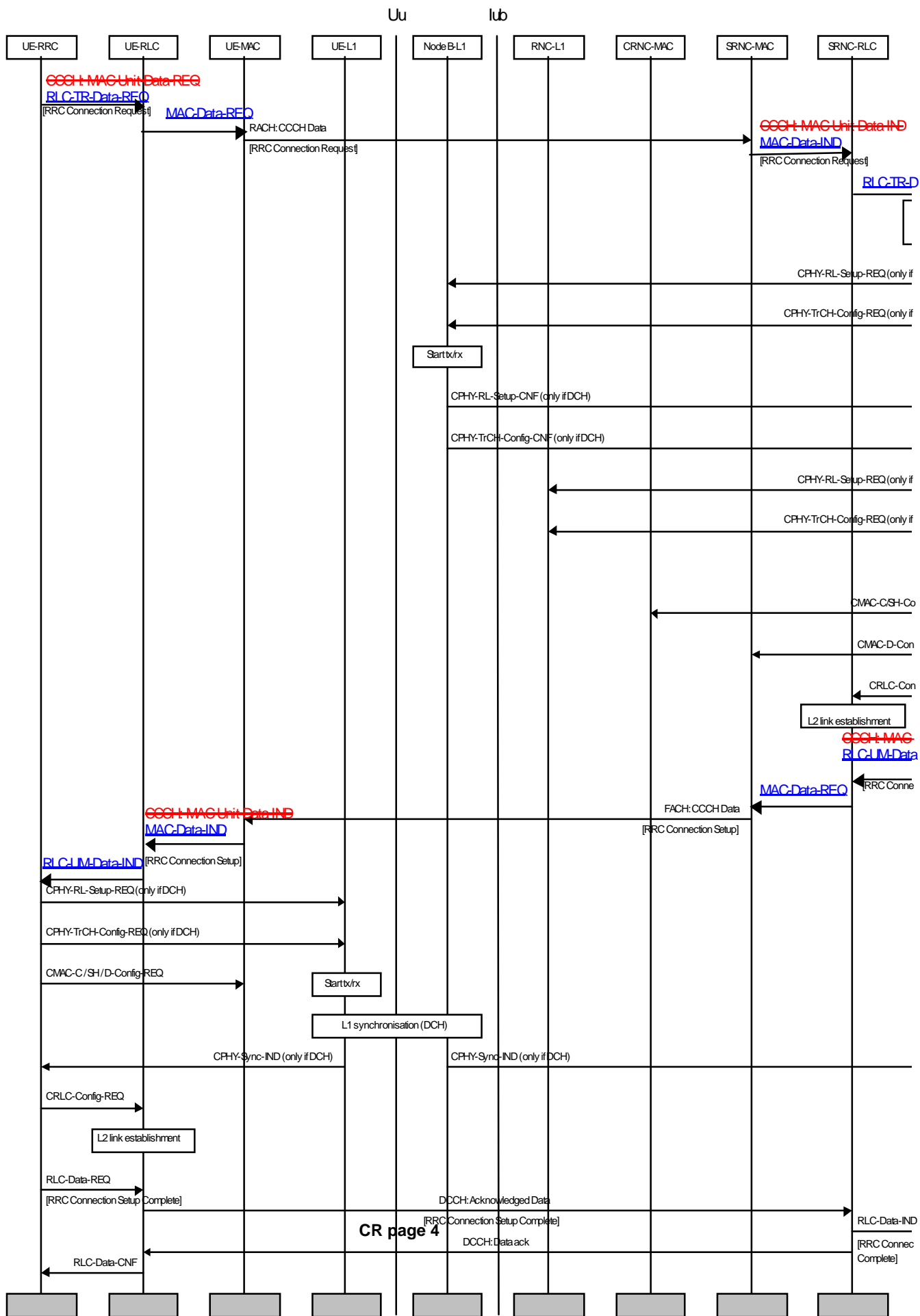


Figure 1: RRC connection establishment (with common channel termination case A)

Figure 1: RRC connection establishment (with common channel termination case A)

CHANGE REQUEST

⌘ **25.303** **CR 069** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

Title:	⌘ Corrections on Combined Cell/URA update and SRNS relocation procedure		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘ TEI	Date:	⌘ February 2002
Category:	⌘ A	Release:	⌘ REL-4
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ During combined Cell/URA update and SRNS relocation procedure, the UE can't receive the DL RRC messages (UTRAN MOBILITY INFORMATION (Case I) or CELL/URA UPDATE CONFIRM (Case II)) due to the out-of-sync. in RLC. Moreover, the target RNC can't receive UL RRC message (UTRAN MOBILITY INFORMATION CONFIRM (Case I and II)) due to the same reason above.
Summary of change:	⌘ <ol style="list-style-type: none"> 1. In case of SRNS relocation, only SRB#1 (UM/DCCH) is used both for UTRAN MOBILITY INFORMATION and CELL/URA UPDATE CONFIRM. 2. To establish the UM RLC entity for SRB#1 in the target RNC, the source RNC transfers to the target RNC the VT(US) in addition to the DL HFN used in the source RNC. 3. Before sending or receiving UTRAN MOBILITY INFORMATION CONFIRM message on SRB#2, both UE and UTRAN (re-)establish the AM RLC entity for SRB#2 with the HFN value set to the MAX(UL HFN of SRB2 DL HFN of SRB2) + 1. 4. After the successful transmission of UTRAN MOBILITY INFORMATION CONFIRM message, both UE and UTRAN (re-)establish the RLC entities for the affected radio bearers (other than SRB#2) with the HFN values set to the START value in the UTRAN MOBILITY INFORMATION CONFIRM. <p>Isolated impact analysis:</p> <ul style="list-style-type: none"> · Correction to a function where the specification was : ambiguous or not sufficiently explicit. · Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘ Failure of combined Cell/URA update and SRNS relocation procedure.

Clauses affected:	⌘ 6.4.8.1, 6.4.8.3		
Other specs	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.303 v3.10.0, CR 068	

affected:

Test specifications
 O&M Specifications

Other comments:

⌘

How to create CRs using this form:

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http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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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.

6.4.8.1 Combined Cell/URA Update and SRNS relocation (lossless radio bearers)

The procedure is initiated by the source RNC deciding to perform a SRNS relocation. Case I represents the situation when the UE is not involved and this is shown in Figure 34. Case II represents the situation when the UE is involved and a Combined Cell/URA update and SRNS relocation is performed, also shown in Figure 34.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released and the RABs that are subject to data forwarding. Lossless SRNS relocation is always, and only, configured for RABs that are subject to data forwarding. The PDCP layer shall support PDCP sequence numbering when lossless SRNS relocation is supported [7].

For the affected radio bearers, the RLC entity is stopped and the PDCP sequence numbers are retrieved by RRC. The PDCP send and receive sequence numbers are then transferred in the RNSAP Relocation Commit message from source to target RNC for RABs that support lossless SRNS relocation. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

The target RNC then sends [on SRB#1 \(UM/DCCH\)](#) a UTRAN MOBILITY INFORMATION (Case I) or a CELL/URA UPDATE CONFIRM (Case II); which configures the UE with the new U-RNTI and indicates the uplink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation.

[The target RNC establishes a UM RLC entity for SRB#1, and the DL HFN and the VT\(US\) are set to the values in the RRC information container, respectively. In the UM RLC entity, the “Special LI” is used to indicate that an RLC SDU begins in the beginning of an RLC PDU.](#)

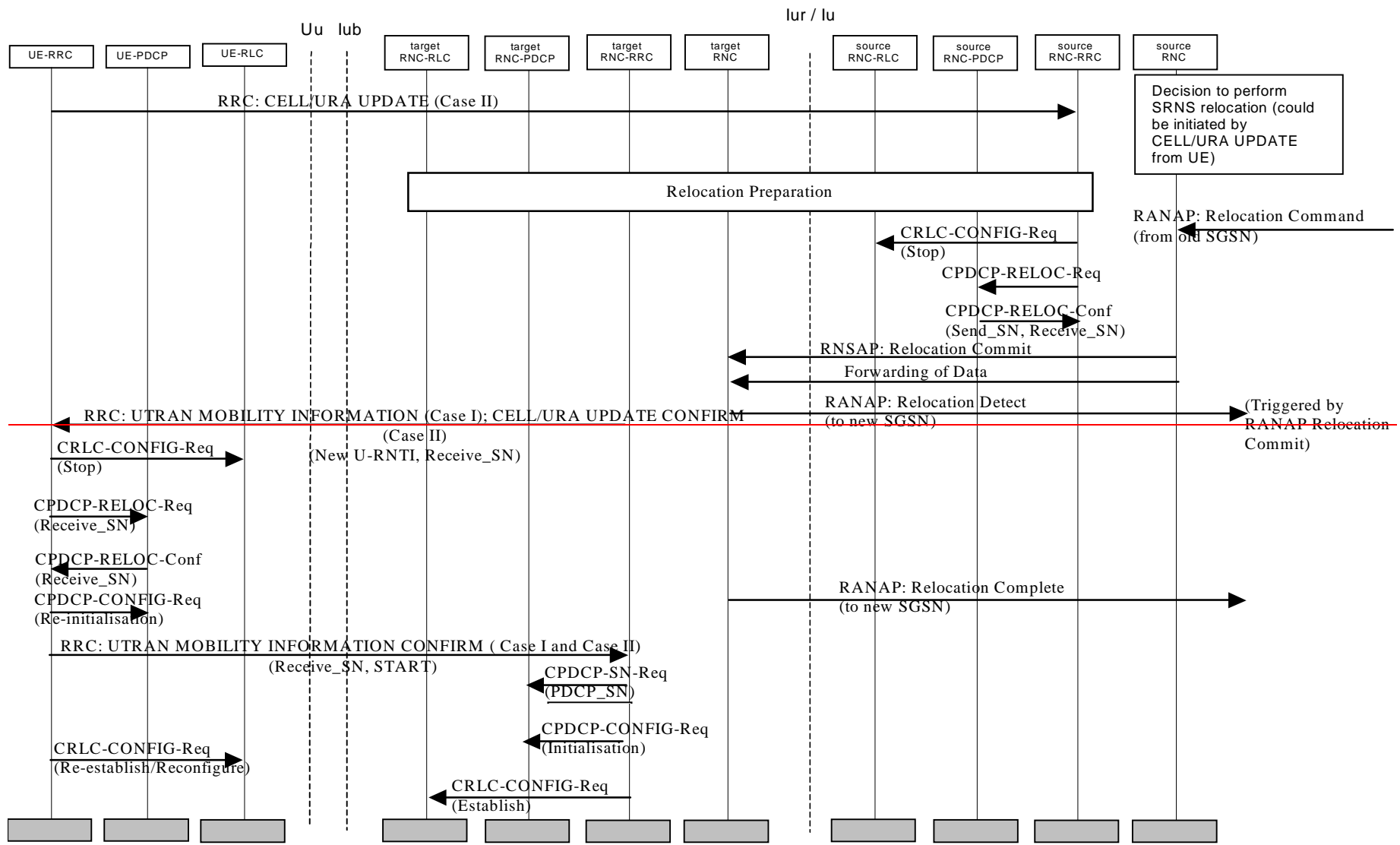
[Upon reception by the UE of the message,](#) the UE compares the uplink receive PDCP sequence number with the UE uplink send PDCP sequence number. If this confirms PDCP SDUs successfully transferred before the start of relocation i.e. already received by the source RNC then these are discarded by the UE. The UE re-initialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7]. [The AM RLC entity for SRB#2 is \(re-\)established both on the UTRAN and UE sides, and their HFN values are set to the MAX\(UL HFN of SRB2 | DL HFN of SRB2\) incremented by one.](#)

If the UE has successfully configured itself, it shall send a UTRAN MOBILITY INFORMATION CONFIRM (Case I and Case II). These messages contain the START values and the downlink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation.

[Upon reception and acknowledgement by the UTRAN of the message, the UTRAN compares the downlink receive PDCP sequence number with the downlink send PDCP sequence number. The UTRAN initialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol \[7\]. ~~For the affected radio bearers, the RLC entity is re-established \[2\] with the current configuration and in the UE RLC all the data buffers are flushed.~~ The RLC entities for affected radio bearers \(other than SRB#2\) are \(re-\)established both on the UTRAN and UE side. The HFN values for each RB are set to the START value in the message for the corresponding CN domain, and all the RLC data buffers are flushed.](#)

In case of failure, the UE shall send a UTRAN MOBILITY INFORMATION FAILURE (Case I [and Case II](#)) ~~or CELL/URA UPDATE FAILURE (Case II) message.~~

Upon reception of the UTRAN MOBILITY INFORMATION CONFIRM/FAILURE (Case I and Case II) ~~, or CELL/URA UPDATE COMPLETE/FAILURE (Case II) message, UTRAN shall start the PDCP entity and the relocation procedure ends.~~



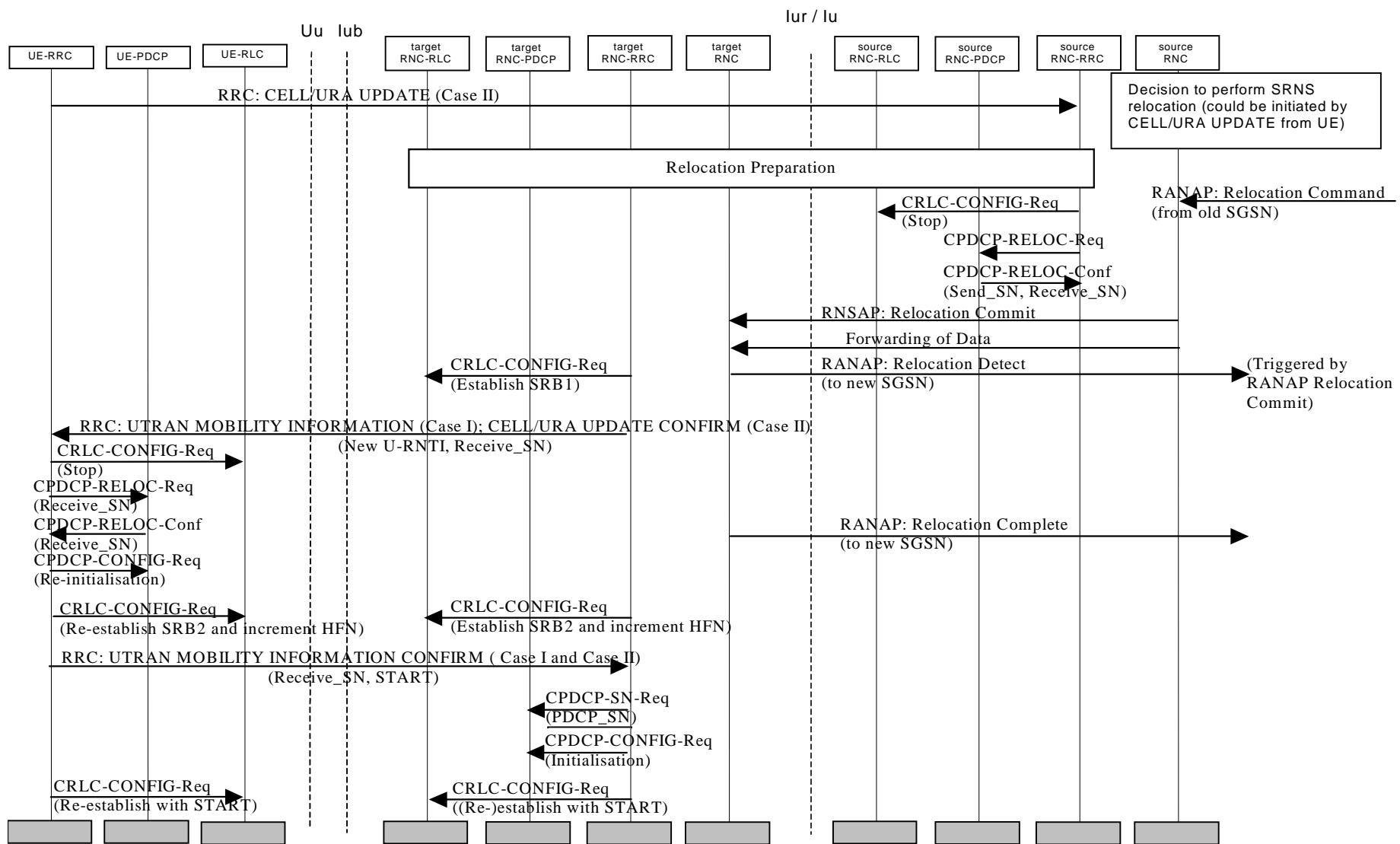


Figure 34: Combined Cell/URA Update and SRNS relocation (lossless radio bearers)

6.4.8.3 Combined Cell/URA Update and SRNS relocation (seamless radio bearers)

The procedure is initiated by the source RNC deciding to perform a SRNS relocation. Case I represents the situation when the UE is not involved and this is shown in Figure 36. Case II represents the situation when the UE is involved and a Combined Cell/URA update and SRNS relocation is performed, also shown in Figure 36.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released. The source RNC continues the downlink data transmission on radio bearers supporting seamless SRNS relocation until the target RNC becomes the serving RNC. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

The target RNC sends [on SRB#1 \(UM/DCCH\)](#) a UTRAN MOBILITY INFORMATION (Case I) or a CELL/URA UPDATE CONFIRM (Case II); which configures the UE with the new U-RNTI.

[The target RNC establishes a UM RLC entity for SRB#1, and the DL HFN and the VT\(US\) are set to the values in the RRC information container, respectively. In the UM RLC entity, the “Special LI” is used to indicate that an RLC SDU begins in the beginning of an RLC PDU.](#)

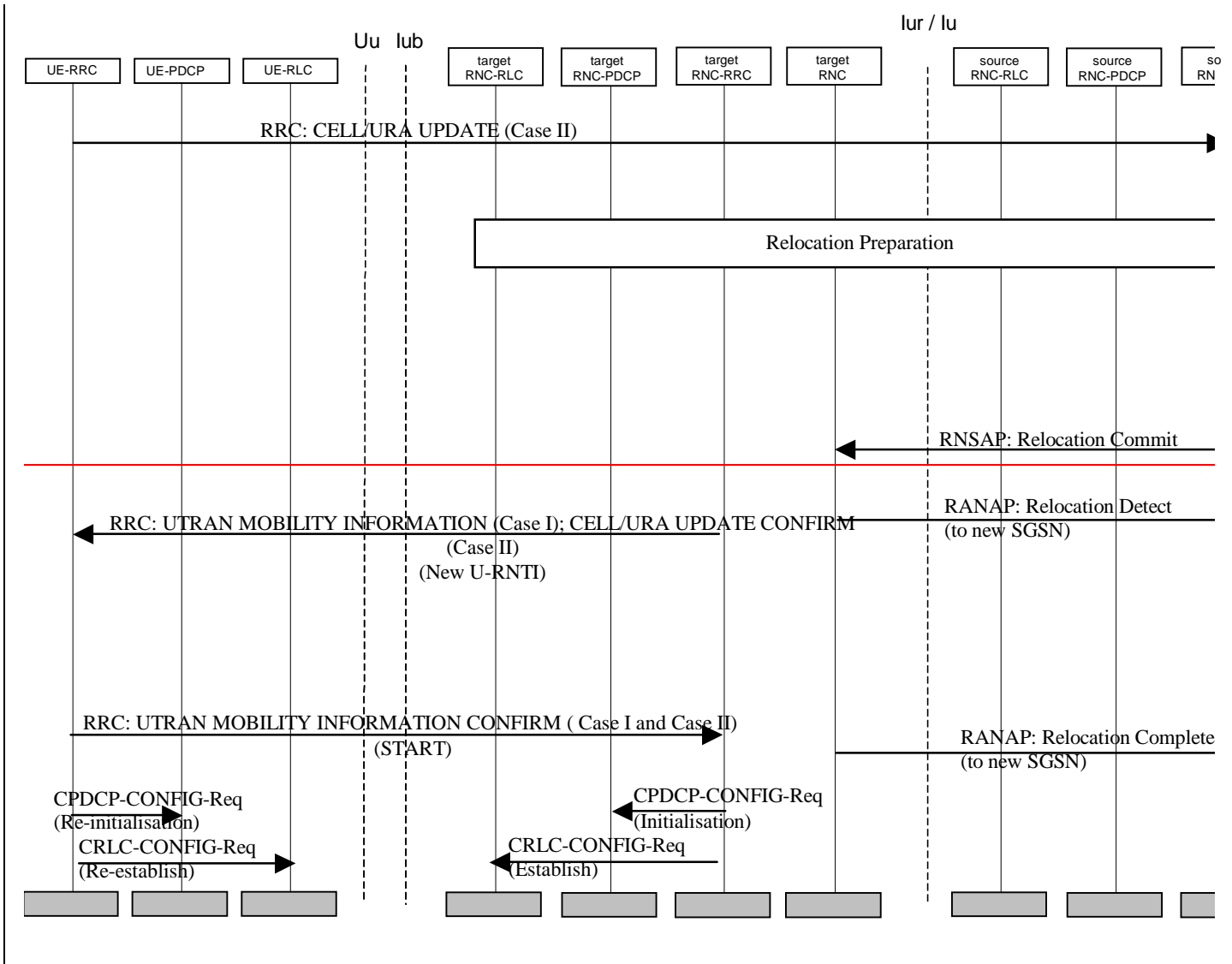
[Upon reception by the UE of the message, the AM RLC entity for SRB#2 is \(re-\)established both on the UTRAN and UE sides, and their HFN values are set to the MAX\(UL HFN of SRB2 | DL HFN of SRB2\) incremented by one.](#)

If the UE has successfully configured itself, it shall send a UTRAN MOBILITY INFORMATION CONFIRM (Case I and Case II). These messages contain the START values (to be used in integrity protection and in ciphering on radio bearers using UM and AM RLC).

[Upon reception and acknowledgement by the UTRAN of the message, the UTRAN initialises and the UE re-initialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol \[7\]. ~~For the affected radio bearers, the RLC entity is re-established \[2\] with the current configuration.~~The RLC entities for affected radio bearers \(other than SRB#2\) are \(re-\)established both on the UTRAN and UE side. The HFN values for each RB are set to the START value in the message for the corresponding CN domain, and all the RLC data buffers are flushed.](#)

[In case of failure, the UE shall send a UTRAN MOBILITY INFORMATION FAILURE \(Case I and Case II\).](#)

Upon reception of the UTRAN MOBILITY INFORMATION CONFIRM/[FAILURE](#) (Case I and Case II), ~~message in the UTRAN~~ the relocation procedure ends.



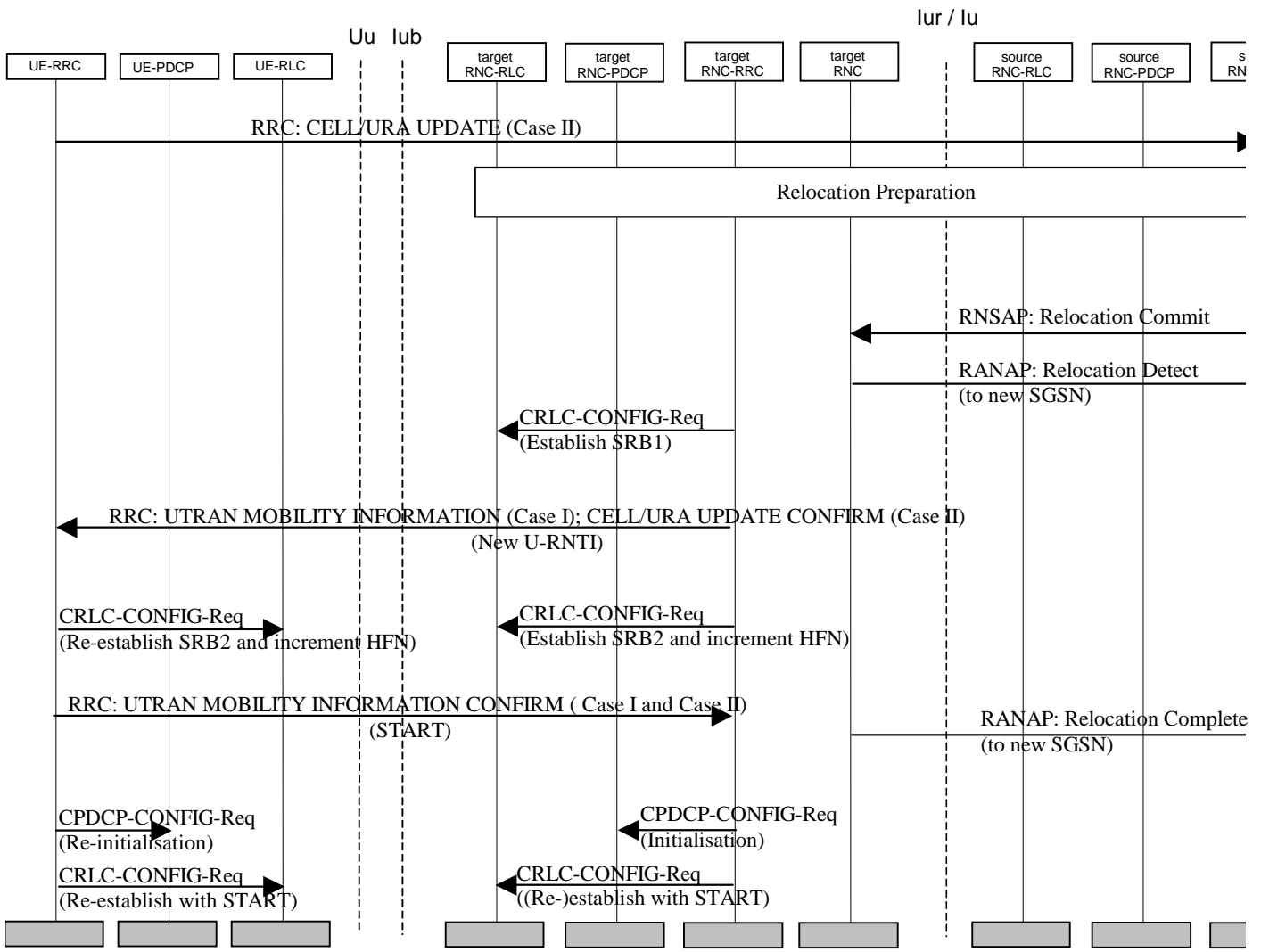


Figure 36: Combined Cell/URA Update and SRNS relocation (seamless radio bearers)

CHANGE REQUEST

⌘ **25.303** **CR 068** ⌘ rev **-** ⌘ Current version: **3.10.0** ⌘

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

Title:	⌘ Corrections on Combined Cell/URA update and SRNS relocation procedure		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘ TEI	Date:	⌘ February 2002
Category:	⌘ F	Release:	⌘ R99
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ During combined Cell/URA update and SRNS relocation procedure, the UE can't receive the DL RRC messages (UTRAN MOBILITY INFORMATION (Case I) or CELL/URA UPDATE CONFIRM (Case II)) due to the out-of-sync. in RLC. Moreover, the target RNC can't receive UL RRC message (UTRAN MOBILITY INFORMATION CONFIRM (Case I and II)) due to the same reason above.
Summary of change:	⌘ <ol style="list-style-type: none"> 1. In case of SRNS relocation, only SRB#1 (UM/DCCH) is used both for UTRAN MOBILITY INFORMATION and CELL/URA UPDATE CONFIRM. 2. To establish the UM RLC entity for SRB#1 in the target RNC, the source RNC transfers to the target RNC the VT(US) in addition to the DL HFN used in the source RNC. 3. Before sending or receiving UTRAN MOBILITY INFORMATION CONFIRM message on SRB#2, both UE and UTRAN (re-)establish the AM RLC entity for SRB#2 with the HFN value set to the MAX(UL HFN of SRB2 DL HFN of SRB2) + 1. 4. After the successful transmission of UTRAN MOBILITY INFORMATION CONFIRM message, both UE and UTRAN (re-)establish the RLC entities for the affected radio bearers (other than SRB#2) with the HFN values set to the START value in the UTRAN MOBILITY INFORMATION CONFIRM. <p>Isolated impact analysis:</p> <ul style="list-style-type: none"> · Correction to a function where the specification was : ambiguous or not sufficiently explicit. · Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘ Failure of combined Cell/URA update and SRNS relocation procedure.

Clauses affected:	⌘ 6.4.8.1, 6.4.8.3		
Other specs	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.303 v4.3.0, CR 069	

affected:

- | | |
|--------------------------|---------------------|
| <input type="checkbox"/> | Test specifications |
| <input type="checkbox"/> | O&M Specifications |

Other comments:

⌘

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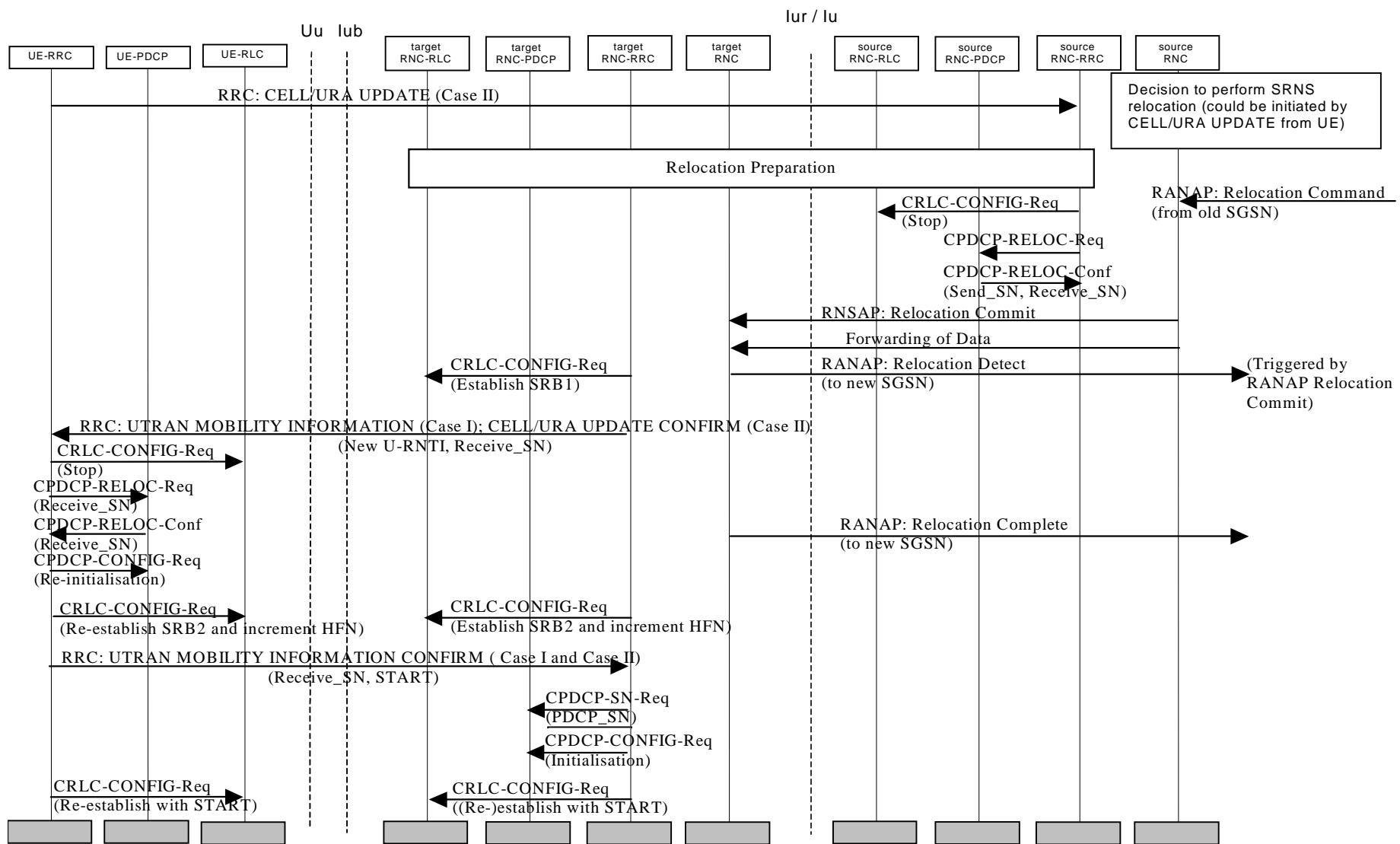


Figure 34: Combined Cell/URA Update and SRNS relocation (lossless radio bearers)

6.4.8.3 Combined Cell/URA Update and SRNS relocation (seamless radio bearers)

The procedure is initiated by the source RNC deciding to perform a SRNS relocation. Case I represents the situation when the UE is not involved and this is shown in Figure 36. Case II represents the situation when the UE is involved and a Combined Cell/URA update and SRNS relocation is performed, also shown in Figure 36.

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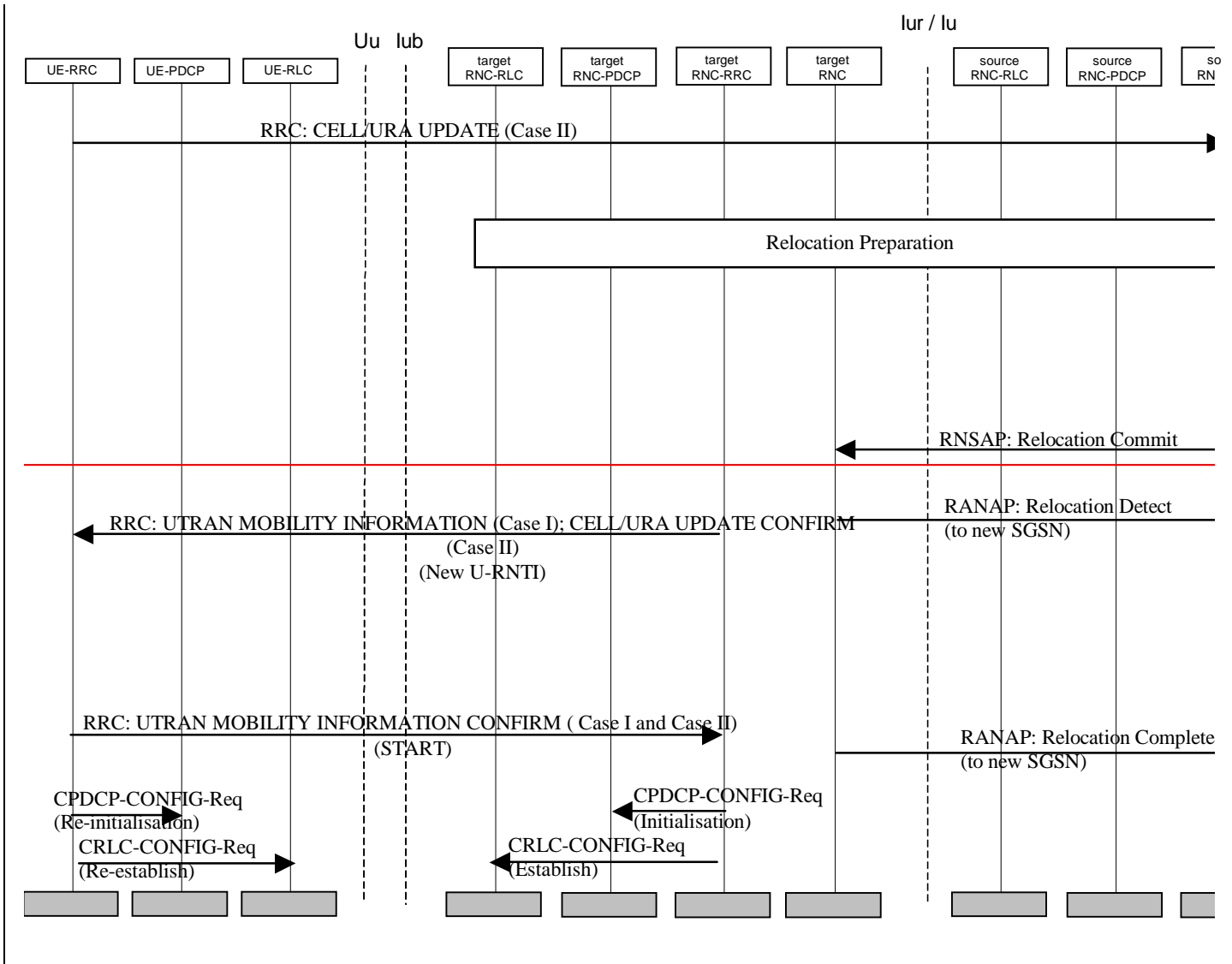
[Upon reception by the UE of the message, the AM RLC entity for SRB#2 is \(re-\)established both on the UTRAN and UE sides, and their HFN values are set to the MAX\(UL HFN of SRB2 | DL HFN of SRB2\) incremented by one.](#)

If the UE has successfully configured itself, it shall send a UTRAN MOBILITY INFORMATION CONFIRM (Case I and Case II). These messages contain the START values (to be used in integrity protection and in ciphering on radio bearers using UM and AM RLC).

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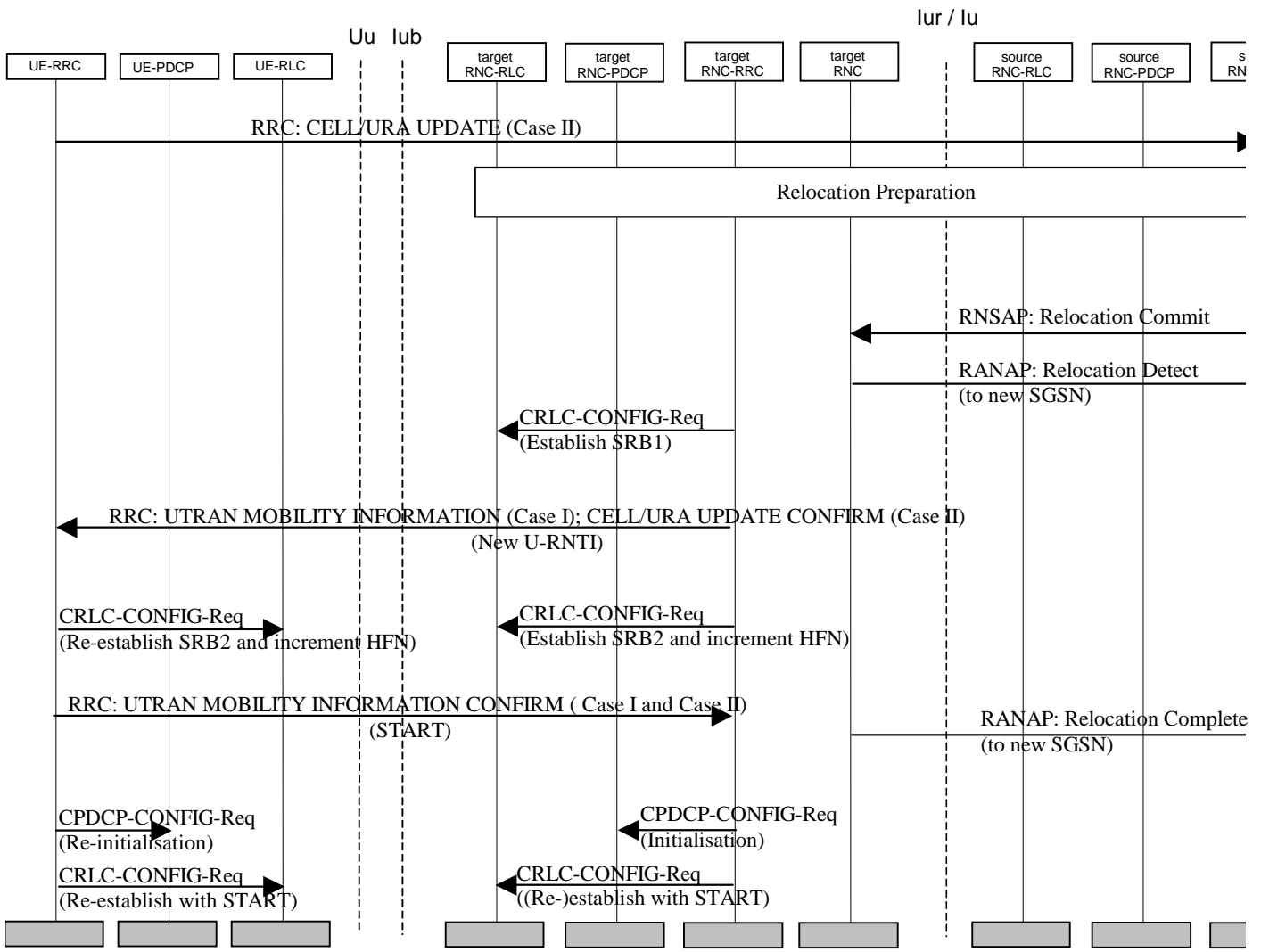


Figure 36: Combined Cell/URA Update and SRNS relocation (seamless radio bearers)

CHANGE REQUEST

⌘ **25.303** CR **067** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘ Alignment of SRNS relocation in CELL_DCH		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘ TEI	Date:	⌘ 22/02/02
Category:	⌘ A	Release:	⌘ REL-4
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	

Reason for change:	⌘ The description on the re-initialisation of SRB#2 of the SRNS relocation in the 25.303 is not consistent with the description in 25.331
Summary of change:	⌘ It is clarified that the RLC entity of SRB#2 is re-established with MAX(uplink HFN of RB2 downlink HFN of RB2) + 1 <u>Isolated impact analysis:</u> <ul style="list-style-type: none"> • Correction to a function where the specification was : <ul style="list-style-type: none"> ○ ambiguous or not sufficiently explicit. • Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘ The spec will have contradictions

Clauses affected:	⌘ 6.4.8.2, 6.4.8.4		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ 25.303 v3.11.0, CR 066	
Other comments:	⌘		

How to create CRs using this form:

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

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.4.8.2 Combined Hard Handover and SRNS relocation (lossless radio bearers)

Based on measurement results and knowledge of the UTRAN topology, the source SRNC decides to initiate a combined hard handover and SRNS relocation. The UE is still under control of the SRNC but is moving to a location controlled by the target RNC.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released, the Target RNC to Source RNC Transparent Container and the RABs that are subject to data forwarding. Lossless SRNS relocation is always, and only, configured for RABs that are subject to data forwarding. The PDCP layer shall support PDCP sequence numbering when lossless SRNS relocation is supported [7]. The Target RNC to Source RNC Transparent Container includes the RRC message (e.g. PHYSICAL CHANNEL RECONFIGURATION) for hard handover.

Upon reception of the RANAP Relocation Command, the RRC entity in the source RNC stops the RLC entities for the affected radio bearers and retrieves the PDCP sequence numbers. It then triggers the execution of the relocation of SRNS by sending the RRC message to the UE using the acknowledged mode dedicated signalling radio bearer (SRB #2). This message includes the new U-RNTI (from the target RNC) and the uplink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation (from the source RNC). The UE reinitialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7].

The PDCP send and receive sequence numbers are then transferred via the CN during the forwarding of SRNS contexts from source to target RNC. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

Upon reception and acknowledgment by the UE of the message, the RLC entity for the acknowledged mode dedicated signalling radio bearer (SRB #2) is re-established, both on the UTRAN and UE sides and their HFN values are set to the $\text{MAX}(\text{uplink HFN of RB2} \mid \text{downlink HFN of RB2}) + 1$ ~~current downlink and uplink HFN values incremented by one~~. Care should be taken by UTRAN in timing the SRNS relocation so that there is no risk of a SN rollover on SRB #2 during this procedure.

The UE compares the uplink receive PDCP sequence number with the uplink send PDCP sequence number. If this confirms PDCP SDUs successfully transferred before the start of relocation i.e. already received by the source RNC then these are discarded by the UE.

If the UE has successfully configured itself, it sends a response message, in this case a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the target RNC using the acknowledged mode dedicated signalling radio bearer (SRB #2). This message contains the START values and the downlink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation.

Upon acknowledgement of the message, the RLC entities for affected radio bearers are re-established both on the UTRAN and UE side. The HFN values for each RB are set to the START value in the message for the corresponding CN domain.

UTRAN compares the downlink receive PDCP sequence number with the downlink send PDCP sequence number. The UTRAN initialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7].

The UTRAN and the UE continue the RLC and PDCP entities of the affected RBs and the relocation procedure ends.

6.4.8.4 Combined Hard Handover and SRNS relocation (seamless radio bearers)

Based on measurement results and knowledge of the UTRAN topology, the source SRNC decides to initiate a combined hard handover and SRNS relocation. The UE is still under control of the SRNC but is moving to a location controlled by the target RNC.

The source RNC continues the downlink data transmission on radio bearers supporting seamless SRNS relocation until the target RNC becomes the serving RNC. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released. The Target RNC to Source RNC Transparent Container includes the RRC message (e.g. PHYSICAL CHANNEL RECONFIGURATION) for hard handover. This message includes the new U-RNTI.

Upon reception of the RANAP Relocation Command, the source RNC triggers the execution of the relocation of SRNS by sending the RRC message to the UE using the acknowledged mode dedicated signalling radio bearer.

Upon reception and acknowledgment by the UE of the PHYSICAL CHANNEL RECONFIGURATION message, the RLC entity for the acknowledged mode dedicated signalling radio bearer (SRB #2) is re-established, both on the UTRAN (target SRNC) and UE sides, and their HFN values are set to $\text{MAX}(\text{uplink HFN of RB2} \mid \text{downlink HFN of RB2}) + 1$ ~~the current downlink and uplink HFN values incremented by one~~. Care should be taken by UTRAN in timing the SRNS relocation so that there is no risk of a SN rollover on SRB #2 during this procedure.

If the UE has successfully configured itself, it sends a response message, in this case PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the target RNC using the acknowledged mode dedicated signalling radio bearer (SRB #2). This message is transmitted based on the new RLC context and contains the START values (to be used in integrity protection and in ciphering on radio bearers using UM and AM RLC). The UTRAN initialises and the UE reinitialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7].

Upon acknowledgement of the message, the RLC entities for the rest of the affected radio bearers are re-established both on the UTRAN and UE side. The HFN values for each RB are set to the START value in the message for the corresponding CN domain. The HFN values for each remaining signalling radio bearer (other than SRB #2) are set to the START value in the message for the last configured CN domain.

The relocation procedure ends.

CHANGE REQUEST

⌘ **25.303** CR **066** ⌘ rev - ⌘ Current version: **3.11.0** ⌘

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

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

Title:	⌘ Alignment of SRNS relocation in CELL_DCH		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘ TEI	Date:	⌘ 12/02/02
Category:	⌘ F	Release:	⌘ R99
	<i>Use <u>one</u> of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		<i>Use <u>one</u> of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ The description on the re-initialisation of SRB#2 of the SRNS relocation in the 25.303 is not consistent with the description in 25.331
Summary of change:	⌘ It is clarified that the RLC entity of SRB#2 is re-established with MAX(uplink HFN of RB2 downlink HFN of RB2) + 1 <u>Isolated impact analysis:</u> <ul style="list-style-type: none"> • Correction to a function where the specification was : <ul style="list-style-type: none"> ○ ambiguous or not sufficiently explicit. • Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘ The spec will have contradictions

Clauses affected:	⌘ 6.4.8.2, 6.4.8.4	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ 25.303 v4.3.0, CR 067
Other comments:	⌘	

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.

6.4.8.2 Combined Hard Handover and SRNS relocation (lossless radio bearers)

Based on measurement results and knowledge of the UTRAN topology, the source SRNC decides to initiate a combined hard handover and SRNS relocation. The UE is still under control of the SRNC but is moving to a location controlled by the target RNC.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released, the Target RNC to Source RNC Transparent Container and the RABs that are subject to data forwarding. Lossless SRNS relocation is always, and only, configured for RABs that are subject to data forwarding. The PDCP layer shall support PDCP sequence numbering when lossless SRNS relocation is supported [7]. The Target RNC to Source RNC Transparent Container includes the RRC message (e.g. PHYSICAL CHANNEL RECONFIGURATION) for hard handover.

Upon reception of the RANAP Relocation Command, the RRC entity in the source RNC stops the RLC entities for the affected radio bearers and retrieves the PDCP sequence numbers. It then triggers the execution of the relocation of SRNS by sending the RRC message to the UE using the acknowledged mode dedicated signalling radio bearer (SRB #2). This message includes the new U-RNTI (from the target RNC) and the uplink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation (from the source RNC). The UE reinitialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7].

The PDCP send and receive sequence numbers are then transferred via the CN during the forwarding of SRNS contexts from source to target RNC. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

Upon reception and acknowledgment by the UE of the message, the RLC entity for the acknowledged mode dedicated signalling radio bearer (SRB #2) is re-established, both on the UTRAN and UE sides and their HFN values are set to the $\text{MAX}(\text{uplink HFN of RB2} \mid \text{downlink HFN of RB2}) + 1$ ~~current downlink and uplink HFN values incremented by one~~. Care should be taken by UTRAN in timing the SRNS relocation so that there is no risk of a SN rollover on SRB #2 during this procedure.

The UE compares the uplink receive PDCP sequence number with the uplink send PDCP sequence number. If this confirms PDCP SDUs successfully transferred before the start of relocation i.e. already received by the source RNC then these are discarded by the UE.

If the UE has successfully configured itself, it sends a response message, in this case a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the target RNC using the acknowledged mode dedicated signalling radio bearer (SRB #2). This message contains the START values and the downlink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation.

Upon acknowledgement of the message, the RLC entities for affected radio bearers are re-established both on the UTRAN and UE side. The HFN values for each RB are set to the START value in the message for the corresponding CN domain.

UTRAN compares the downlink receive PDCP sequence number with the downlink send PDCP sequence number. The UTRAN initialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7].

The UTRAN and the UE continue the RLC and PDCP entities of the affected RBs and the relocation procedure ends.

6.4.8.4 Combined Hard Handover and SRNS relocation (seamless radio bearers)

Based on measurement results and knowledge of the UTRAN topology, the source SRNC decides to initiate a combined hard handover and SRNS relocation. The UE is still under control of the SRNC but is moving to a location controlled by the target RNC.

The source RNC continues the downlink data transmission on radio bearers supporting seamless SRNS relocation until the target RNC becomes the serving RNC. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released. The Target RNC to Source RNC Transparent Container includes the RRC message (e.g. PHYSICAL CHANNEL RECONFIGURATION) for hard handover. This message includes the new U-RNTI.

Upon reception of the RANAP Relocation Command, the source RNC triggers the execution of the relocation of SRNS by sending the RRC message to the UE using the acknowledged mode dedicated signalling radio bearer.

Upon reception and acknowledgment by the UE of the PHYSICAL CHANNEL RECONFIGURATION message, the RLC entity for the acknowledged mode dedicated signalling radio bearer (SRB #2) is re-established, both on the UTRAN (target SRNC) and UE sides, and their HFN values are set to $\text{MAX}(\text{uplink HFN of RB2} \mid \text{downlink HFN of RB2}) + 1$ ~~the current downlink and uplink HFN values incremented by one~~. Care should be taken by UTRAN in timing the SRNS relocation so that there is no risk of a SN rollover on SRB #2 during this procedure.

If the UE has successfully configured itself, it sends a response message, in this case PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the target RNC using the acknowledged mode dedicated signalling radio bearer (SRB #2). This message is transmitted based on the new RLC context and contains the START values (to be used in integrity protection and in ciphering on radio bearers using UM and AM RLC). The UTRAN initialises and the UE reinitialises the PDCP header compression entities of the radio bearers configured to use a header compression protocol [7].

Upon acknowledgement of the message, the RLC entities for the rest of the affected radio bearers are re-established both on the UTRAN and UE side. The HFN values for each RB are set to the START value in the message for the corresponding CN domain. The HFN values for each remaining signalling radio bearer (other than SRB #2) are set to the START value in the message for the last configured CN domain.

The relocation procedure ends.

CR-Form-v4

CHANGE REQUEST

⌘ **25.303 CR 064** ⌘ ev **-** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘ Correction on RRC connection establishment procedure		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘ TEI	Date:	⌘ Feb, 2002
Category:	⌘ A	Release:	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ The RRC connection establishment procedure is not aligned with the functions of the listed primitives between RRC and MAC in TS25.321, thus may arouse confusion.
Summary of change:	⌘ Rev1: In Figure1, "RL-DATA-REQ/IND" primitives are corrected to "RL-TR-DATA-REQ/IND" and "RL-UM-DATA-REQ/IND" respectively. Rev0: It is corrected that, in the initiation, the RRC sends the "RRC connection setup request" message to the RLC, which forwards the message to MAC by using MAC-DATA-REQ. <u>Isolated Impact Analysis:</u> The CR is a correction to resolve inconsistency between 25.303 and 25.321, which does not affect implementations.
Consequences if not approved:	⌘ Incoherence between specifications

Clauses affected:	⌘ 6.1.1		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.303 v3.10.0, CR 063r1	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

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6.1.1 RRC connection establishment

RRC connection establishment (see /5/) is shown in figure 1 (protocol termination for common channels is shown according to former case A, case C can be found for comparison in annex A). The RRC layer in the UE leaves the idle mode and initiates an RRC connection establishment by sending an RRC Connection Request message [using transparent mode on CCCH logical channel, and it is transmitted by MAC](#)~~using the MAC-SAP for the CCCH logical channel. MAC transmits the L3 message~~ on the RACH transport channel.

On the network side, upon the reception of RRC Connection Request, the RRC layer performs admission control, assigns an s-RNTI for the RRC connection and selects radio resource parameters (such as transport channel type, transport format sets etc). If a DCH is to be established, CPHY-RL-Setup and CPHY-TrCH-Config request primitives (transmitted as one RADIO LINK SETUP PDU) are sent to all Node Bs that would be involved in the channel establishment. The physical layer operation is started and confirmation primitives are returned from each Node B. RRC configures parameters on layer 2 to establish the DCCH logical channel locally. The selected parameters including the RNTI, are transmitted to the UE in an RRC Connection Setup message using [unacknowledged mode on](#) ~~the MAC-SAP for~~ the CCCH logical channel.

Upon reception of the RRC Connection Setup message, the RRC layer in the UE configures the L1 and L2 using these parameters to locally establish the DCCH logical channel. In case of DCH, layer 1 indicates to RRC when it has reached synchronisation.

The RLC signalling link is locally established on both sides. The establishment can be mapped on either RACH / FACH or DCH by MAC. When the UE has established the RLC signalling link, it transmits an RRC Connection Setup Complete message to the network using acknowledged mode on the DCCH.

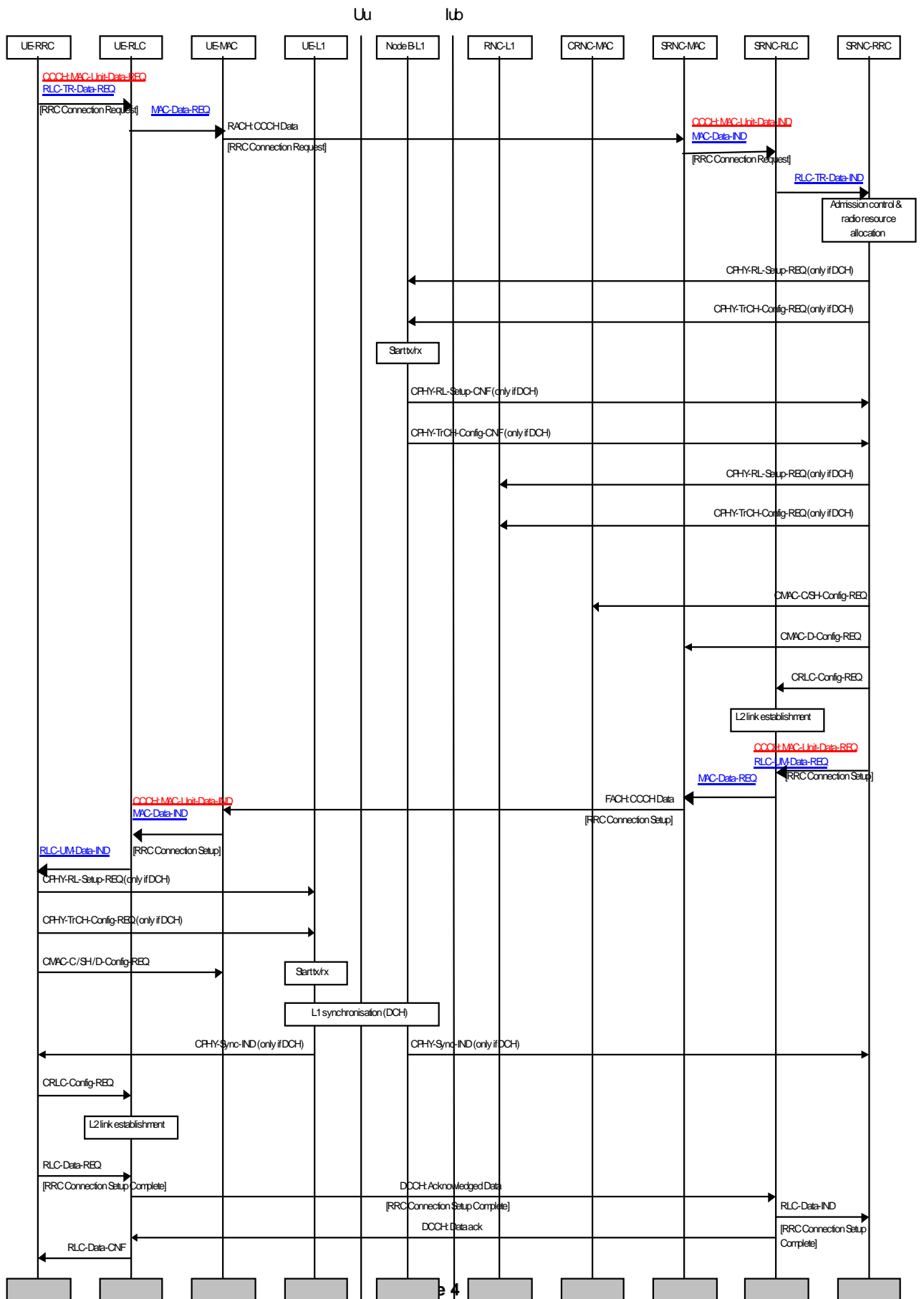


Figure 1: RRC connection establishment (with common channel termination case A)