TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3) *TSGR2#6(99)866*
Sophia Antipolis, August 16th to 20th 1999

Agenda Item: 4.3

Source: Nokia

Title: **CR to 25.303 on RRC Connection Establishment Procedure**

Document for: Approval

In section 7.1.1 RRC Connection Establishment (figure 7) some corrections are proposed. In the previous version, when starting the tx/rx in the NW side, there was only the CPHY-RL-Setup-REQ primitive sent as confirmed to Node B-L1 after which the CPHY-TrCH-Config-REQ primitive followed. This was commented as misleading, because RAN WG3 has specified only one procedure to carry the information in both of these primitives. In the update both primitives are sent and confirmed together. In the UE-side CPHY-TrCH-Config-REQ was missing. It has now been added. Text modifications to the section have been done accordingly.

3GPP TSG-RAN meeting #5 *Document* ***RP 99???***

Korea, 6-8 October 1999

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.303 **CR** **00?** Current Version: 3.0.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG RAN#5 *list TSG meeting no. here ↑*

for approval [X]
for information [ ]

(only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [X] UTRAN [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 16/08/99

Subject: RRC Connection Establishment Procedure

3G Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Reason for change: Correction of procedure example to better align with RAN WG3 definitions.

Clauses affected: 7.1.1

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

7.1.1 RRC connection establishment

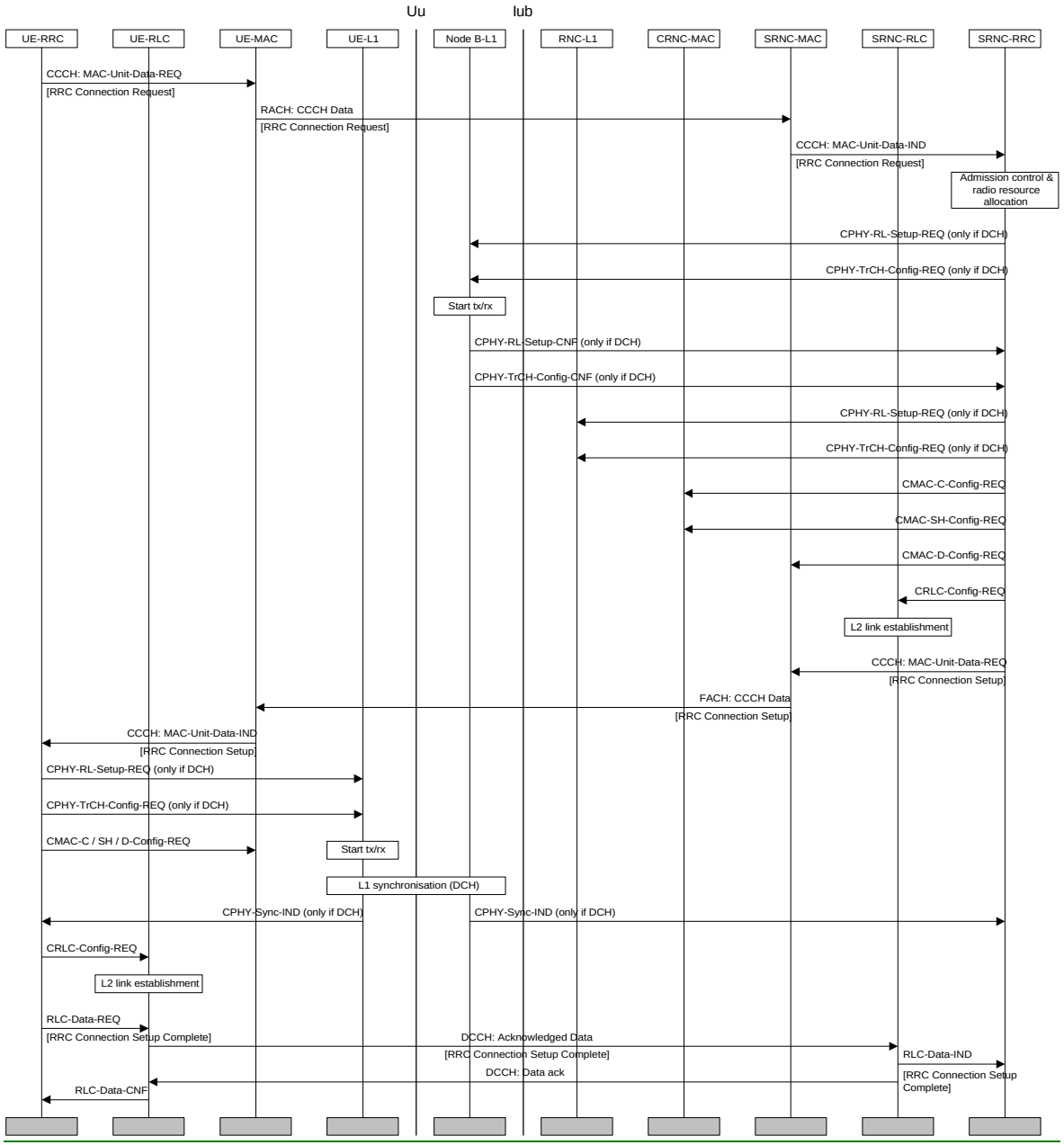
RRC connection establishment (see /5/) is shown in Figure 1 (protocol termination for common channels is shown according to former case A, case C can be found for comparison in Annex A). The RRC layer in the UE leaves the idle mode and initiates an RRC connection establishment by sending an RRC Connection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

[Editor's Note: The L23 EG has adopted a working assumption to use an identity from the Non-Access Stratum (such as TMSI+LAI) included in the RRC Connection Request message. A PRACH physical random access channel capable of transmitting 32 kbps is estimated to be suitable for the message, guidance on the preferability of this data rate is sought from the physical layer EG. Other alternatives exist, such as a random number.]

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, ~~a~~ CPHY--RL-Setup and CPHY-TrCH-Config request primitives (transmitted as one RADIO LINK SETUP PDU) ~~is~~ are sent to all Node B:s which would be involved in the channel establishment. The physical layer operation is started and ~~a~~ confirmation primitives ~~is~~ 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 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 need for the synchronisation indication on the network side is FFS.

The RLC signalling link is locally established on both sides. The establishment can be mapped on either RACH / FACH, RACH+FAUSCH / 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.


Uu
Iub
UE-RRC
UE-RLC
UE-MAC
UE-L1
Node B-L1
RNC-L1
CRNC-MAC
SRNC-MAC
SRNC-RLC
SRNC-RRC
CCCH: MAC-Unit-Data-REQ
[RRC Connection Request]
RACH: CCCH Data
[RRC Connection Request]
CCCH: MAC-Unit-Data-IND
[RRC Connection Request]
Admission control & radio resource allocation
CPHY-RL-Setup-REQ (only if DCH)
CPHY-TrCH-Config-REQ (only if DCH)
Start tx/rx
CPHY-RL-Setup-CNF (only if DCH)
CPHY-TrCH-Config-CNF (only if DCH)
CPHY-RL-Setup-REQ (only if DCH)
CPHY-TrCH-Config-REQ (only if DCH)
CMAC-C-Config-REQ
CMAC-SH-Config-REQ
CMAC-D-Config-REQ
CRLC-Config-REQ
L2 link establishment
CCCH: MAC-Unit-Data-REQ
[RRC Connection Setup]
FACH: CCCH Data
[RRC Connection Setup]
CCCH: MAC-Unit-Data-IND
[RRC Connection Setup]
CPHY-RL-Setup-REQ (only if DCH)
CPHY-TrCH-Config-REQ (only if DCH)
CMAC-C / SH / D-Config-REQ
Start tx/rx
L1 synchronisation (DCH)
CPHY-Sync-IND (only if DCH)
CPHY-Sync-IND (only if DCH)
CRLC-Config-REQ
L2 link establishment
RLC-Data-REQ
[RRC Connection Setup Complete]
DCCH: Acknowledged Data
[RRC Connection Setup Complete]
RLC-Data-IND
[RRC Connection Setup Complete]
DCCH: Data ack
RLC-Data-CNF

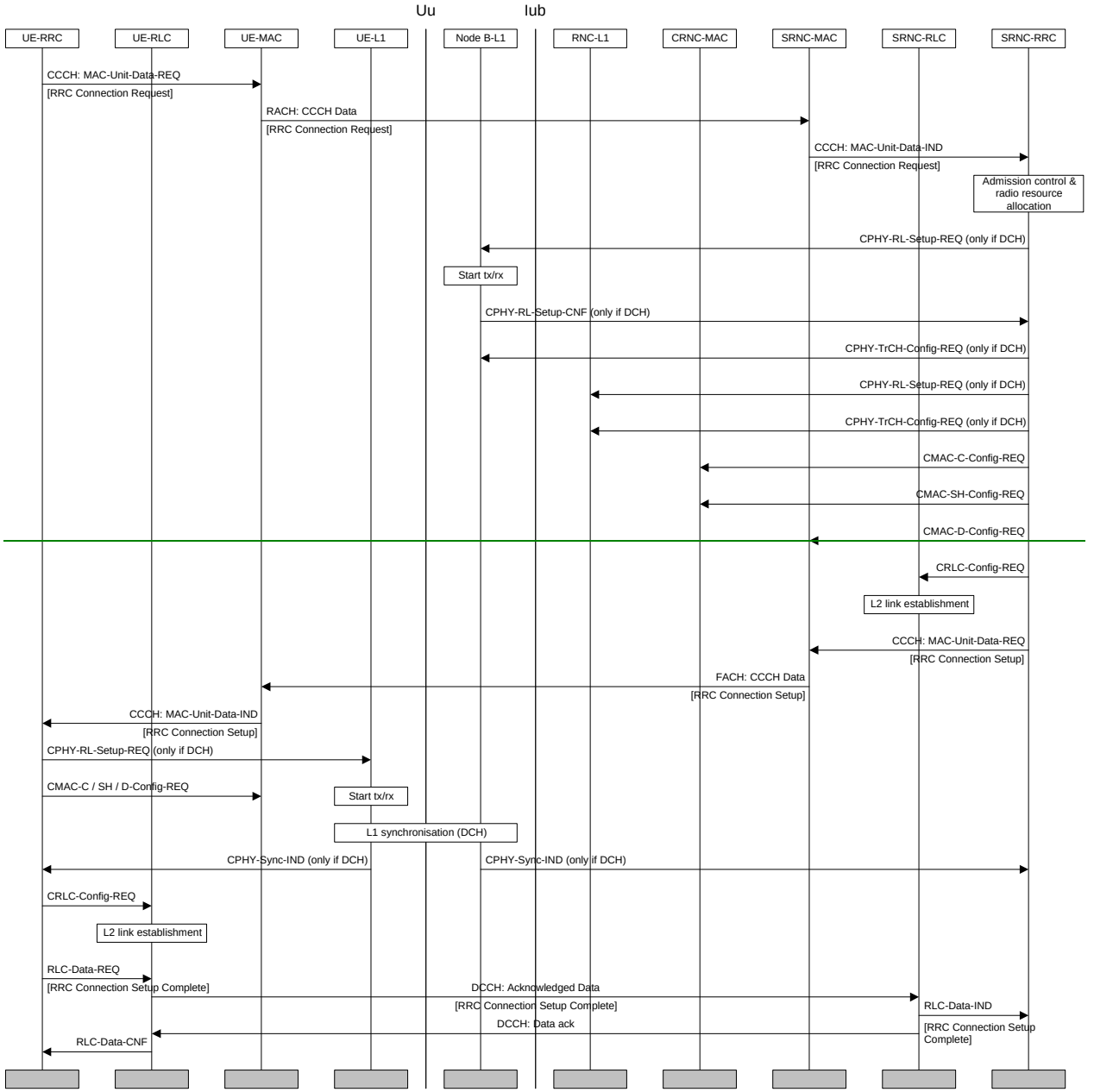

Uu
Iub
UE-RRC
UE-RLC
UE-MAC
UE-L1
Node B-L1
RNC-L1
CRNC-MAC
SRNC-MAC
SRNC-RLC
SRNC-RRC
CCCH: MAC-Unit-Data-REQ
[RRC Connection Request]
RACH: CCCH Data
[RRC Connection Request]
CCCH: MAC-Unit-Data-IND
[RRC Connection Request]
Admission control & radio resource allocation
CPHY-RL-Setup-REQ (only if DCH)
Start tx/rx
CPHY-RL-Setup-CNF (only if DCH)
CPHY-TrCH-Config-REQ (only if DCH)
CPHY-RL-Setup-REQ (only if DCH)
CPHY-TrCH-Config-REQ (only if DCH)
CMAC-C-Config-REQ
CMAC-SH-Config-REQ
CMAC-D-Config-REQ
CRLC-Config-REQ
L2 link establishment
CCCH: MAC-Unit-Data-REQ
[RRC Connection Setup]
FACH: CCCH Data
[RRC Connection Setup]
CCCH: MAC-Unit-Data-IND
[RRC Connection Setup]
CPHY-RL-Setup-REQ (only if DCH)
CMAC-C / SH / D-Config-REQ
Start tx/rx
L1 synchronisation (DCH)
CPHY-Sync-IND (only if DCH)
CPHY-Sync-IND (only if DCH)
CRLC-Config-REQ
L2 link establishment
RLC-Data-REQ
[RRC Connection Setup Complete]
DCCH: Acknowledged Data
[RRC Connection Setup Complete]
RLC-Data-IND
DCCH: Data ack
[RRC Connection Setup Complete]
RLC-Data-CNF

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