3G CHANGE REQUEST

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

TS 25.301 **CR** **018 r2**   Current Version: **3.1.0**

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

For submission to TSG **RAN#5**   for approval **X**   *(only one box should*
list TSG meeting no. here ↑   for information **▢**   *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: USIM **▢**   ME **X**   UTRAN **X**   Core Network **▢**
(at least one should be marked with an X)

Source:	TSG RAN WG2	**Date:**	1999-09-24
Subject:	Mapping of BCCH logical channel onto FACH transport channel		
3G Work item:			

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

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

Reason for change: Some RRC System Information messages will be transmitted on FACH. It is assumed that all System Information messages are carried on a BCCH logical channel. This implies that mapping of a BCCH to a FACH transport channel shall be possible.

Clauses affected: 5.3.1, 5.3.3, 5.6.2

Other specs Affected:

Other 3G core specifications	▢	→ List of CRs:	TS 25.321 CR 014
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.

1 Scope

2 References

3 Definitions and Abbreviations

4 Assumed UMTS Architecture

5 Radio interface protocol architecture

5.1 Overall protocol structure

5.2 Layer 1 Services and Functions

5.3 Layer 2 Services and Functions

5.3.1 MAC Services and Functions

5.3.1.1 MAC Services to upper layers

5.3.1.1.1 Logical channels

5.3.1.1.2 Mapping between logical channels and transport channels

The following connections between logical channels and transport channels exist:

- SCCH is connected to SCH

- BCCH is connected to BCH and may also be connected to or FACH

- PCCH is connected to PCH

- CCCH is connected to RACH and FACH

- DTCH can be connected to either RACH and FACH, to RACH and DSCH, to DCH and DSCH, to a DCH, a CPCH (FDD only) or to USCH (TDD only)

- CTCH can be connected to DSCH, FACH or BCH (ffs.)

[Note: Above potential mappings are proposed by the editor. This channel type will be included into the Figures below when the mappings have been agreed.]

- DCCH can be connected to either RACH and FACH, to RACH and DSCH, to DCH and DSCH, to a DCH, to FAUSCH, CPCH (FDD only), or to USCH (TDD only).

The mappings as seen from the UE and UTRAN sides are shown in Figure 4 and Figure 5 respectively. Figure 6 illustrates the mapping from the UE in relay operation. Note that ODMA logical channels and transport channels are employed only in relaylink transmissions (i.e. not used for uplink or downlink transmissions on the UE-UTRAN radio interface).
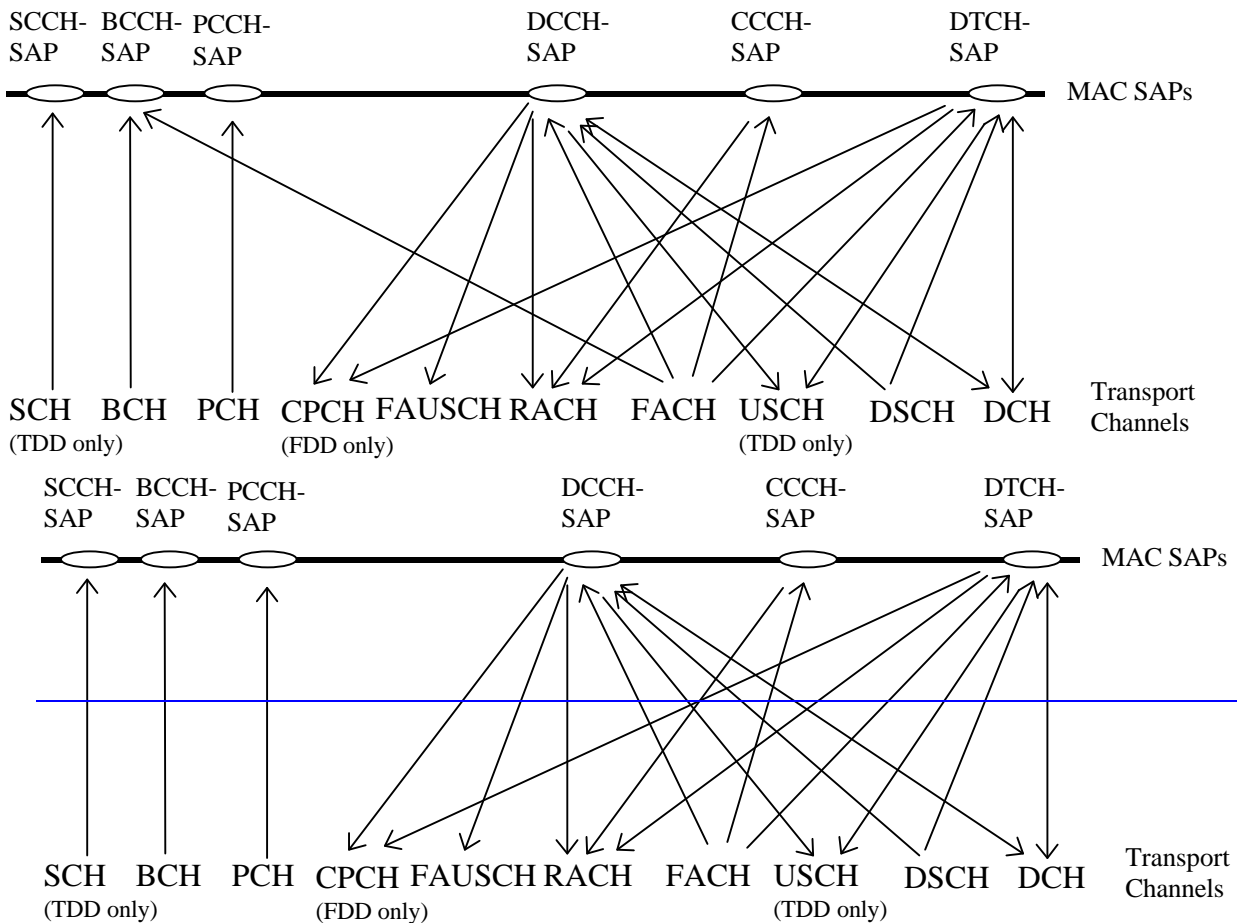
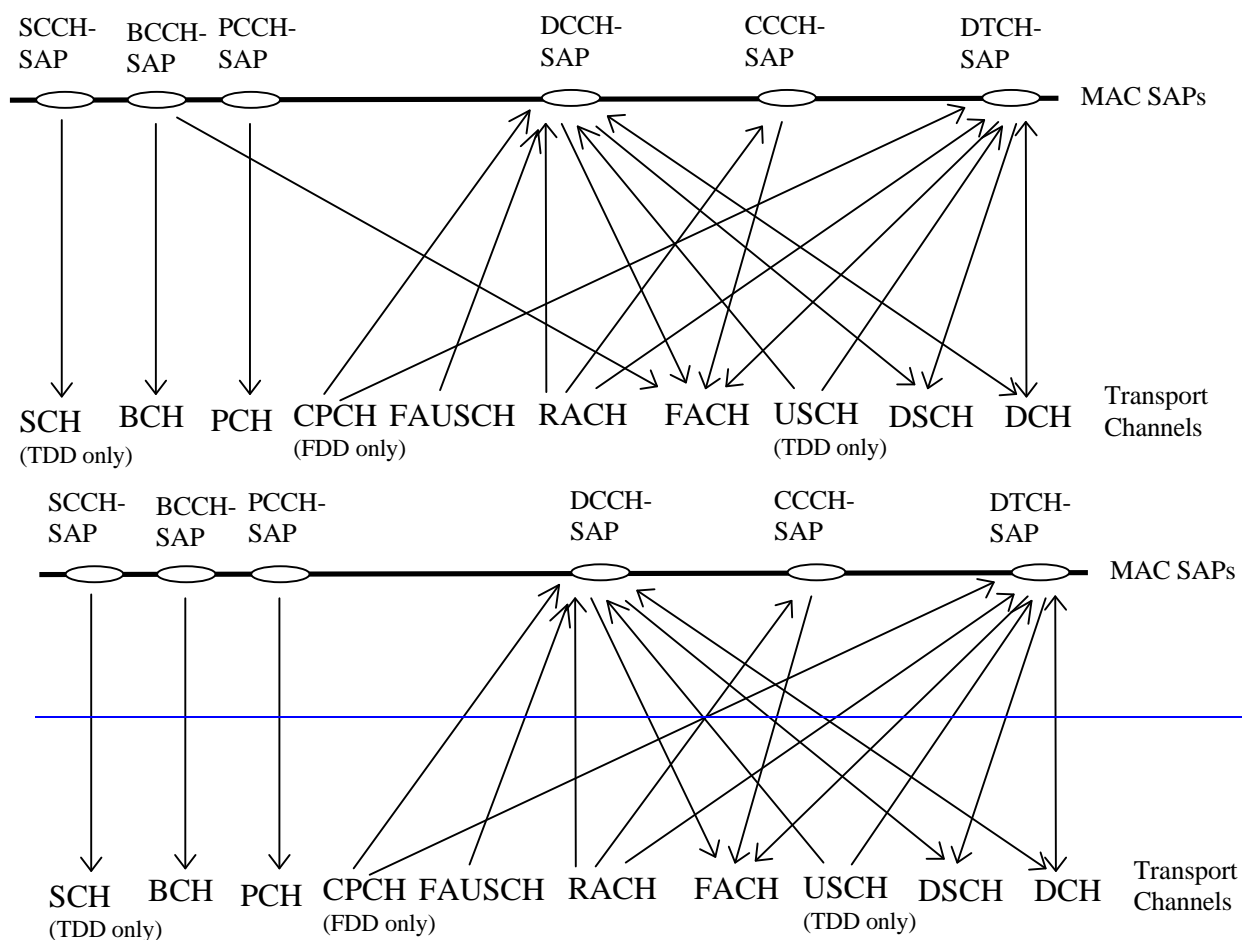**Figure 4: Logical channels mapped onto transport channels, seen from the UE side**

Figure 5: Logical channels mapped onto transport channels, seen from the UTRAN side

5.3.1.2 MAC functions

5.3.2 RLC Services and Functions

5.3.3 Data flows through Layer 2

5.3.3.1 Data flow for BCCH mapped to BCH (ffs.)

5.3.3.2 Data flow for BCCH mapped to FACH

No RLC header is needed, i.e. the transparent data transfer mode of RLC is applied. A MAC header is required for identification of the logical channel carried by the FACH. The data flow shown in Figure 8 is applicable.

5.3.3.2 5.3.3.3 Data flow for PCCH mapped to PCH (ffs.)

5.3.3.3 5.3.3.4 Data flow for SCCH mapped to SCH (ffs.)

5.3.3.4 5.3.3.5 Data flow for CCCH mapped to FACH/RACH (ffs)

5.3.3.5 5.3.3.6 Data flow for DCCH mapped to FACH/RACH

5.3.3.6 5.3.3.7 Data flow for DCCH mapped to DSCH

5.3.3.7 5.3.3.8 Data flow for DCCH mapped to CPCH

5.4 Layer 3 - RRC Services and Functions

5.5 Interactions between RRC and lower layers in the C plane

5.6 Protocol termination

5.6.1 Protocol termination for DCH
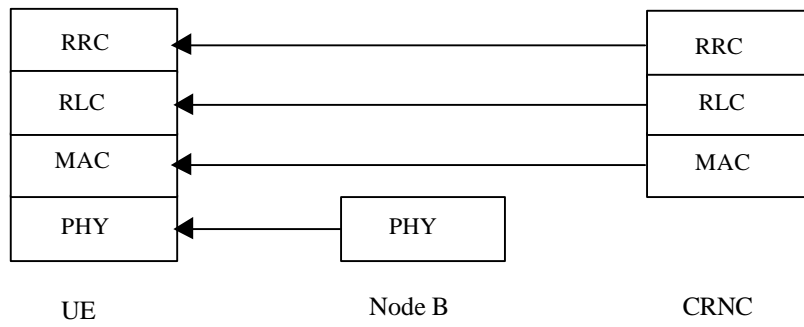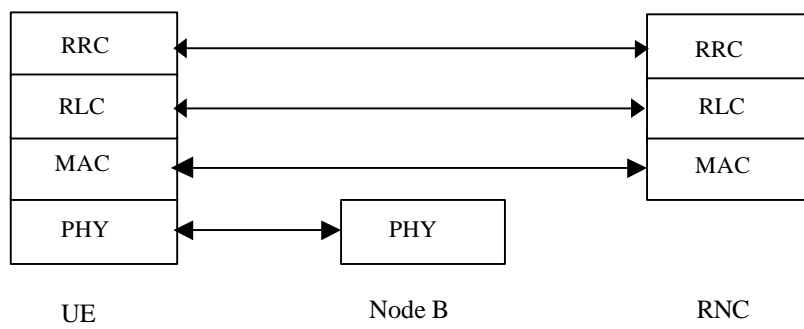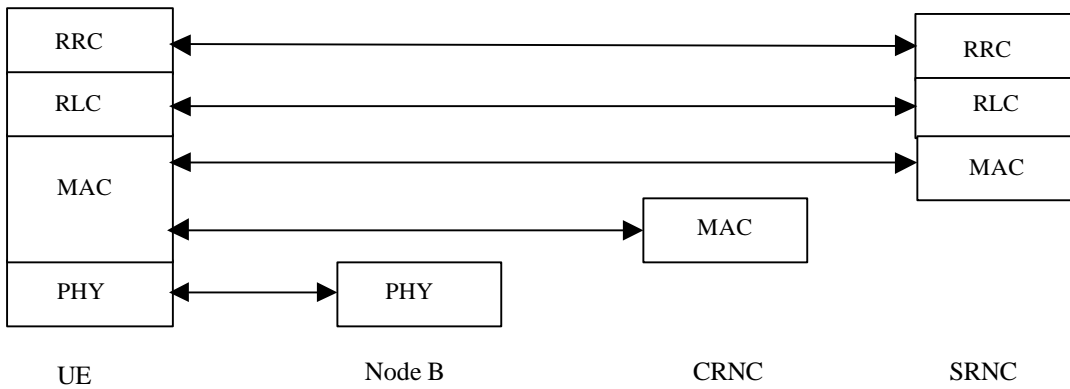
5.6.2 Protocol termination for RACH/FACH

Figure 14 and Figure 15 show the protocol termination for RACH/FACH for the control and user planes, respectively. Control plane termination refers to the case where RACH/FACH carry dedicated or common control information (i.e. CCCH or DCCH, and in the downlink possibly also BCCH). User plane termination refers to the case where RACH/FACH carry user data (DTCH) (two alternatives cases, referred to as case B and C, are described in the Annex).
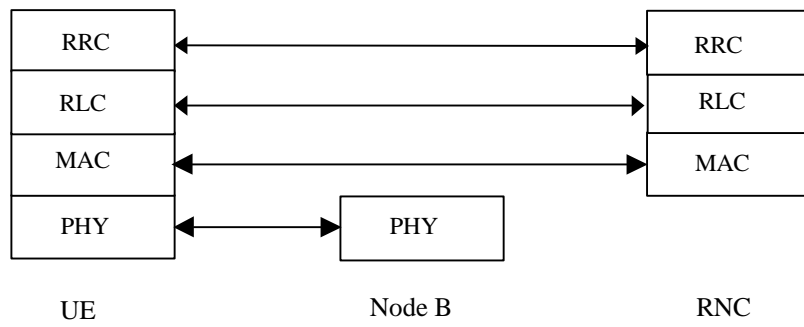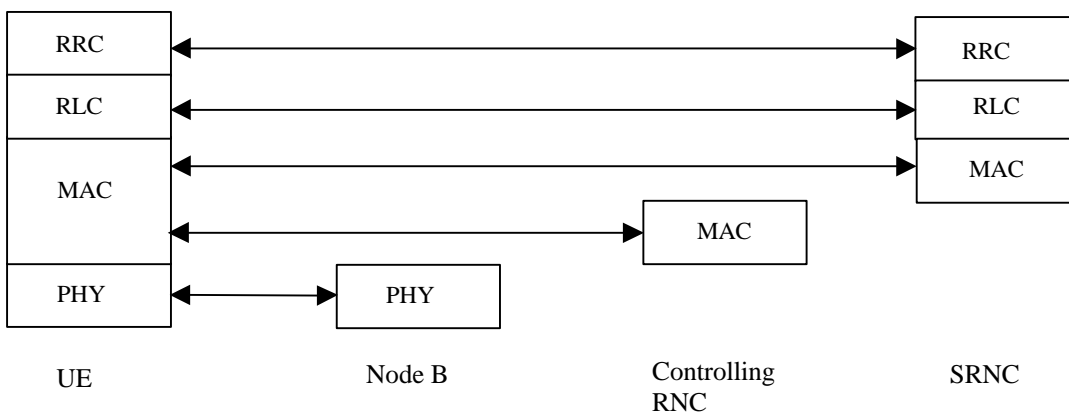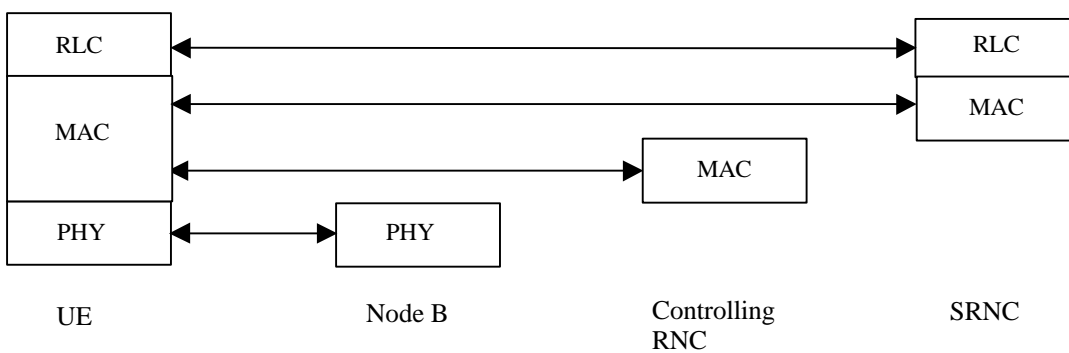
It is assumed that macrodiversity/soft handover is not applied for RACH/FACH. Therefore, the physical layer terminates in Node B. For RACH/FACH carrying DCCH, MAC is split between Controlling and Serving RNC. RLC, and in the C plane also RRC terminate in the Serving RNC. Since Iur can support common channel data streams, the users of that common channel can depend on different SRNCs. However, they depend on the same Controlling RNC. Therefore, for a given user, the Controlling RNC and the Serving RNC can be separate RNCs.

For FACH carrying BCCH, MAC, RLC and RRC are terminated in the CRNC.

For RACH/FACH carrying CCCH, MAC, RLC and RRC are terminated in the RNC.

[Note: It is currently an open issue whether or not there are CCCH messages that need to be routed between Controlling and Serving RNC over Iur. If it is only the initial access message that is defined for CCCH, C-RNC and S-RNC are always identical and no routing would be needed. If messages such as "URA update", "Cell update" and "RRC connection re-establishment" would be signalled on CCCH, routing of these messages on RRC level would need to be performed]

BCCH :

RRC	
RLC	
MAC	
PHY	

PHY

RRC	
RLC	
MAC	

UE   Node B   CRNC

CCCH :

RRC	
RLC	
MAC	
PHY	

PHY

RRC	
RLC	
MAC	

UE   Node B   RNC

DCCH:

RRC	
RLC	
MAC	
PHY	

PHY

MAC

RRC	
RLC	
MAC	

UE   Node B   CRNC   SRNC

CCCH:

UE		Node B	RNC
RRC			RRC
RLC			RLC
MAC			MAC
PHY		PHY	

DCCH:

UE		Node B	Controlling RNC	SRNC
RRC				RRC
RLC				RLC
MAC				MAC
			MAC	
PHY		PHY		

Figure 14: Protocol Termination for RACH/FACH, control plane

UE		Node B	Controlling RNC	SRNC
RLC				RLC
MAC				MAC
			MAC	
PHY		PHY		

Figure 15: Protocol Termination for RACH/FACH, user plane

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