

Agenda Item: 10
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Title: MAC Primitives addition and modification
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Introduction

This contribution proposes to add a MAC primitive CMAC-CONFIG Confirm and the CMAC-CDATA Request/Indication primitives as defined in Procedures in Connected Mode [2] to the MAC Specification [1]. It also defines an Initial Access Number (IAN) parameter for the C-MAC CONFIG request. The IAN is further defined as TMSI+LAI for FDD and TDD.

Description

The CMAC-CONFIG Confirm primitive is used to inform RRC about the result of the CMAC-CONFIG Request operation, such as the process-id or the SAP identification for various communication channels, etc. Typically, at RNC a MAC-D entity has to be instantiated or a new logical channel/transport channel to be configured to work, the process-id or SAP-id has to be returned to RRC to further the operation.

The CMAC-CDATA Request/Indication stands for control data/signaling request or indication. These 2 primitives are used in Procedures in Connected Mode [2] to carry the RRC URA Update and Confirm and RRC Cell Update and Confirm. They should be added to the MAC primitives list in [1].

The MAC-CONFIG primitive is needed to identify the Initial Access Number (IAN) from RRC to MAC. The IAN is defined as TMSI+LAI for FDD and TDD since WG1 has confirmed TDD RACH payload capacity in [3]. This allows alignment of FDD and TDD initial access procedures. Accordingly text in 25.303 on UE identities is updated to reflect this.

Change Request to TS 25.321

8.3 Primitives between MAC and RRC

8.3.1 Primitives

The primitives between MAC and RRC are shown in Table 8.3.1

Generic Name	Type				Parameters
	Request	Indication	Response	Confirm	
CMAC-CONFIG	X				CHI, IAN
CMAC-CONNECT	X			X	CHI Ffs
CMAC-MEASUREMENT	X	X			TRIG. TH, RESULT, PER
CMAC-STATUS		X			Status info.
CMAC-ERROR		X			Reason for error
CMAC-CDATA	X	X			Ffs

Table 8.3.1 Primitives between MAC sub-layer and RRC

CMAC-CDATA Request

- CMAC-CDATA Request is used by RRC to request sending the RRC control signals, i.e. the RRC URA Update or the RRC Cell Update messages.

CMAC-CDATA Indication

- CMAC-CDATA Indication is used to indicate to the RRC the arrival of the control signals, i.e. the RRC URA Update or the RRC Cell Update messages.

8.3.2 Primitives

h) Initial Access Number (IAN)

Initial access number is used as UE-Id in the initial access message for RRC connect request over CCCH:RACH. TMSI+LAI are used in both FDD and TDD mode.

Change Request to TS 25.301

6.1 UE identification within UTRAN

A Radio Network Temporary Identity (RNTI) is used as an UE identifier on RACH/FACH or RACH+CPCH/FACH by the MAC protocol, or on PCH by the RRC, when a RRC connection exists.

Usage of UE identifiers

s-RNTI together with the S-RNC identifier is used as a UE identifier in cell update, URA update, RRC connection reestablishment and (UTRAN originated) paging messages and associated responses on the air interface. S-RNC identifier is used by Controlling RNC to route the received uplink messages towards the Serving RNC. For the initial access two different methods of identification, a random number and a unique core network identifier are under consideration.

c-RNTI is used as a UE identifier in all other DCCH/DTCH common channel messages on the air interface.

TMSI+LAI are used as the UE identifier in the initial access CCCH message on the air interface.

[Note: Initial access, when no RRC connection exists, needs further study. The following two methods could be applied: (i) The initial access message carried on RACH/FACH transport channels and CCCH logical channel includes a unique UE identity (e.g. TMSI + LAI). (ii) The initial access message includes a random number as temporary identity. The unique UE identity is then exchanged in a second phase after establishment of DCH transport channels on DCCH. ~~In TDD mode, the first approach may imply initial access message length too large to be carried on RACH. Therefore the above second approach is preferred for TDD. In FDD mode, the first approach would be preferable. It is thus currently not decided whether the same or different initial access methods will need to be applied in FDD and TDD modes. Further contributions on this issue are invited. Also, it is ffs. whether messages with s-RNTI and RNC-ID will use the CCCH or the DCCH logical channel and whether the protocol layer providing the address field (and C-RNC routing) is MAC or RRC.]~~

References

- [1] TS 25.321 (1999-06) V3.0.0, 3GPP, MAC protocol specification
- [2] TS 25.303 (1999-) V2.0.1, 3GPP, UE Functions and Interlayer Procedures in Connected Mode
- [3] TSGR1#6 (99)A14, Reply to TSGR2#5(99)693 on RACH Payload Requirements