

**Agenda Item:** 6.8  
**Source:** Ericsson  
**Title:** **MAC primitives**  
**Document for:** Decision

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## 1 Introduction

This contribution proposes a refinement of the MAC primitives listed in chapter 8 of 25.321 [1].

## 2 Discussion

We propose to remove the CMAC-CONNECT primitive, since MAC does not offer a connection oriented service to higher layers, see 25.321 [1]. Adding and removing of logical channels, and their mapping to transport channels is proposed to be handled by the CMAC-CONFIGURE primitive.

The parameters proposed for CMAC-CONFIG are taken from 25.331 [2]. Only parameters required on MAC are listed.

We further propose the addition of two more parameters:

*Random Access transmission control parameters*, which are needed to configure the transmission control algorithm (backoff) used by MAC during the random access procedure.

*Ciphering mode*, which is needed to configure the ciphering function. RRC needs to indicate whether ciphering on MAC shall be performed or not for a certain logical channel, if the combined RLC+MAC solution for ciphering termination is selected, see "Report from the Ciphering email adhoc report" [3].

Primitive names are changed according to primitive naming convention in 25.301 [4].

## 3 References

[1] 3GPP TS 25.321, V2.0.0, MAC Protocol Specification.

[2] 3GPP TS 25.331, V1.0.0, RRC Protocol Specification.

[3] Ciphering email adhoc rapporteur, "Report from the Ciphering email adhoc report", TSGR2#4(99)xxx

[4] 3GPP TS 25.301, V3.0.0, Radio Interface Protocol Architecture.

## 4 Proposal

The following changes are proposed for 25.321 [1]. Changes are marked with change bars.

## 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				<a href="#">UE information elements</a> <a href="#">RAB information elements</a> <a href="#">TrCH information elements</a> <a href="#">RACH transmission control elements</a> <a href="#">Ciphering mode</a> <a href="#">CHI</a>
<del>CMAC-CONNECT</del>	<del>X</del>			<del>X</del>	<del>ffs</del>
CMAC-MEASUREMENT	X	X			<a href="#">Measurement information elements</a> <a href="#">TRIG. TH. RESULT, PER</a>
CMAC-STATUS		X			Status info.
CMAC-ERROR		X			Reason for error

**Table 8.3.1 Primitives between MAC sub-layer and RRC**

#### CMAC-CONFIG-Request

- CMAC-CONFIG-Request is used to request for [setup, release and configuration of a logical channel, e.g. RNTI allocation](#), the switching the connection between logical channels and transport channels, [TFCS update or scheduling priority of logical channel](#).

#### ~~CMAC-CONNECT Request/Confirm~~

- ~~CMAC-CONNECT Request is used initiate a RRC connection.~~
- ~~CMAC-CONNECT Confirm is used to confirm the establishment of a RRC connection.~~

#### CMAC-MEASUREMENT-Request/Indication

- CMAC-MEASUREMENT-Request is used [by RRC](#) to request [MAC to perform measurements, e.g. traffic volume measurement, to measure something radio quality at both BS and MS sides. \(for example : Transport Block Error\)](#)
- CMAC-MEASUREMENT-Indication is used to notify [RRC of the measurementing](#) result.

#### CMAC-STATUS-Indication

- CMAC-STATUS-Indication primitive notifies [RRCthe management entity](#) of status information.

#### CMAC-ERROR-Indication

- CMAC-ERROR-Indication primitive notifies [RRCthe management entity](#) of an error detected in the operation of the MAC sub layer protocol such as excessive number of transmission attempts ~~for Ack mode~~ and timer time out.

### 8.3.2 Parameters

[See S25.331 for a detailed description of the UE, RAB and TrCH information elements.](#)

a) Channel Information (CHI)

~~Channel information for active transport channel. For example, common channel or dedicated channel notification in user packet transmission.~~

a) UE information elements

C-RNTI

S-RNTI

SRNC identity

Activation time

Control only state timer (ffs)

b) RAB information elements

RAB identity

RAB multiplexing info (Transport channel identity, Logical channel identity, MAC logical channel priority)

c) TrCH information elements

Transport Format Combination Set

d) Measurement information elements

TH

Threshold information for measurement. For example, traffic monitor or transmission quality.

When a specific value is assigned, it means measuring should be reported with law data.

PER

Period information for measurement. When a specific value is assigned, it means measuring should be reported only when measuring result exceed the given threshold.

TRIG

Trigger information which request to start measuring.

RESULT

Measurement result.

e) Status info

It ~~contains~~ ~~is management entity of~~ status information.

f) Reason for error

It contains the ~~management entity of an~~ error detected in the operation of the MAC sub layer protocol ~~(e.g. excessive number of transmission attempts for Ack mode).~~

g) RACH transmission Control elements

Details are ffs.

h) Ciphering mode (ffs)

[Note: The existence and use of this parameter depends on the outcome of the Ciphering email adhoc group]

[Note( from Tdoc WG2 009/99): If used with a threshold information, the MEASURE primitive is same as an alarm indication or request for channel switching. When the condition that channel switching is needed is detected at MS side, appropriate RRC message will be sent to Network side.