3GPP TSG CN Meeting #27 **NP-050068**
9th - 11th March 2005. Tokyo, Japan.

Source: **TSG CN WG1**

Title: **CR to Rel-5 WI "SCUDIF" for TS 24.007**

Agenda item: **8.7**

Document for: **APPROVAL**

This document contains 2 **CRs on Rel-5 Work Item "SCUDIF"**, that have been agreed by TSG CN WG1 CN#37 meeting and forwarded to TSG CN Plenary meeting #27 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	WI	Rel
N1-050044	Addition of maximum data rate to RR_SYNC_IND and MMCC_SYNC_IND	24.007	071		F	5.3.0	SCUDIF	Rel-5
N1-050045	Addition of maximum data rate to RR_SYNC_IND and MMCC_SYNC_IND	24.007	072		A	6.3.0	SCUDIF	Rel-6

3GPP TSG-CN1 Meeting #37
Sydney, Australia, 14-18 February 2004

Tdoc N1-050044

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.007** **CR** **071** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of maximum data rate to RR_SYNC_IND and MMCC_SYNC_IND
Source:	⌘	Siemens AG
Work item code:	⌘	SCUDIF
Date:	⌘	26.01.2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
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.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	At CN1#34 the description of the network-initiated in-call modification was corrected. Further analysis of the service change from speech to multimedia showed that in UMTS the call control layer in the mobile station needs to be informed by its lower layers when a suitable channel for the multimedia call is available (see CR 24.008-899). This CR adds the parameter necessary for such an indication to the primitives exchanged between the CC, MM, and RR layer. Besides the description of the NAS synchronization indicator should have been added to MMCC_SYNC_REQ (10.2.2.10) instead of MMCC_SYNC_CNF (10.2.2.11), in alignment with table 10.2.
Summary of change:	⌘	The maximum data rate at RLC layer is added to the primitives RR_SYNC_IND and MMCC_SYNC_IND. The description of the NAS synchronization indicator is shifted from MMCC_SYNC_CNF (10.2.2.11) to MMCC_SYNC_REQ (10.2.2.10).
Consequences if not approved:	⌘	Incomplete standard. Without this CR, it is not clear how the CC entity in the mobile station should determine when a suitable channel for the multimedia call is available. Without a clear criterion, the mobile station may start the H.324 client too early or too late. This may result either in a failure of 'synchronization' between the two H.324 clients (i.e. the multimedia call fails, but dependent on the implementation it may still be possible to switch back to speech) or in unnecessary long setup

	times for the multimedia call. Both effects may seriously affect the service quality perceived by the subscriber and may thereby impede the acceptance of SCUDIF.

Clauses affected:	⌘	9.1.2, 9.1.2.5, 9.2.2, 9.2.2.10, 10.2.2.10, 10.2.2.11			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	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/specs/CR.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.

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.

9.1.2 Service primitives

Table 9.1: Primitives and parameters at the RR-SAP - MS side

PRIMITIVES	PARAMETERS	REFERENCE
RR_EST_REQ	Layer 3 message transferred in the SABM frame, CN domain identity	9.1.2.1
RR_EST_IND	-	9.1.2.2
RR_EST_CNF	-	9.1.2.3
RR_REL_IND	cause	9.1.2.4
RR_SYNC_IND	cause (ciphering, res. ass., channel mode modify), list of (RAB ID, NAS Synchronization Indicator, maximum data rate)	9.1.2.5
RR_DATA_REQ	Layer 3 message, local flow identifier CN domain identity	9.1.2.6
RR_DATA_IND	Layer 3 message, CN domain identity	9.1.2.7
RR_UNIT DATA_IND	Layer 3 message	9.1.2.8
RR_ABORT_REQ	cause	9.1.2.9
RR_ABORT_IND	cause	9.1.2.10
RR_ACT_REQ	reselection mode	9.1.2.11

9.1.2.1 RR_EST_REQ

In A/Gb mode it is used by the Mobility Management entity to request establishment of a Mobile originated RR connection.

The request shall be given only in the IDLE state when the MS listens to the CCCH and the previously selected BCCH.

In Iu mode it is used by the Mobility Management entity to request the establishment of a signalling connection to the CN domain type given in the parameter CN domain identity. The request shall be given only if no signalling connection to the specific CN domain type is established.

9.1.2.2 RR_EST_IND

Indicates to the Mobility Management entity the establishment of a Mobile terminated RR connection. By this indication MM is informed that a transparent connection exists and RR is in the dedicated mode.

9.1.2.3 RR_EST_CNF

Is used by RR to indicate the successful completion of a Mobile originated RR connection establishment. RR connection exists and RR is in the dedicated mode.

9.1.2.4 RR_REL_IND

Is used by RR to indicate to the Mobility Management entity the release of a RR connection when RR has received a CHANNEL RELEASE from the Network and has triggered a normal release of the data link layer. It is also used to indicate that a requested RR connection cannot be established. In both cases, RR returns to IDLE mode.

9.1.2.5 RR_SYNC_IND

Is used for synchronizing RR and the Mobility Management entity after the establishment of a Mobile originated or Mobile terminated RR connection. This indication is provided to MM in the following cases:

- ciphering has been started (ciphering);
- integrity protection has been started (integrity) (UMTS only);
- a traffic channel has been assigned (res. ass. = "resource assigned");
- the channel mode has been modified (channel mode modify).

In Iu mode, in case of a resource assignment or channel mode modification, RR indicates to the Mobility Management entity the list of RAB IDs and, optionally,

- the NAS Synchronization Indicators associated with the assigned or modified radio bearers; or
- the maximum data rate (at RLC layer) associated with the assigned or modified radio bearers, if no NAS Synchronization Indicator is available.

9.1.2.5a Void

9.1.2.5b Void

9.1.2.6 RR_DATA_REQ

Is used by the Mobility Management entity to send control data to its peer entity on the Network side via an existing RR connection.

9.1.2.7 RR_DATA_IND

Is used by RR to indicate control-data, which has been received from its peer entity on the Network side via an existing RR connection.

For UMTS, RR_DATA_IND is also used to indicate whether control-data has been:

- successfully integrity checked;
- unsuccessfully integrity checked;
- received with no integrity protection.

9.1.2.7a Void

9.1.2.8 RR_UNIT_DATA_IND

Is used by RR to provide MM with system info. The system info is received on the current BCCH if RR is in the IDLE state. If a RR connection has been established, the system info is received on the SACCH.

9.1.2.9 RR_ABORT_REQ

Request to abort an existing RR connection or a RR connection in progress. The data link, if already established, shall be released by a normal release procedure (DISC/UA) initiated by the MS. This is the only way the MS can trigger the release of a RR connection in case of exceptional conditions. The RR returns to the IDLE state.

9.1.2.10 RR_ABORT_IND

Indication that the RR connection has been aborted by a lower layer failure and RR has returned to the IDLE state.

********** NEXT MODIFIED SECTION **********

9.2.2 Service primitives

Table 9.2: Primitives and Parameters at MMCC-SAP, MMSS-SAP (for type A LMU), MMLCS-SAP or MMSMS-SAP - MS side

PRIMITIVES	PARAMETERS	REFERENCE
MMXX_EST_REQ (see note 1)	Parameters for the appropriate CM SERVICE REQUEST (if any)	9.2.2.1
MMXX_EST_IND (see note 1)	First CM message	9.2.2.2
MMXX_EST_CNF (see note 1)	-	9.2.2.3
MMXX_REL_REQ (see note 1)	cause	9.2.2.4
MMXX_REL_IND (see note 1)	cause	9.2.2.5
MMXX_DATA_REQ (see note 1)	Layer 3 message	9.2.2.6
MMXX_DATA_IND (see note 1)	Layer 3 message	9.2.2.7
MMXX_UNIT_DATA_REQ (see note 1)	Layer 3 message	9.2.2.8
MMXX_UNIT_DATA_IND (see note 1)	Layer 3 message	9.2.2.9
MMCC_SYNC_IND (see note 2)	cause: res.ass; list of (RAB ID, NAS Synchronization Indicator, maximum data rate)	9.2.2.10
MMXX_REEST_REQ (see note 1)		9.2.2.11
MMXX_REEST_CNF (see note 1)		9.2.2.12
MMXX_ERR_IND (see note 1)	cause	9.2.2.13
MMXX_PROMPT_IND (see note 1)	-	9.2.2.14
MMXX_PROMPT_REJ (see note 1)	-	9.2.2.15
NOTE 1: MMXX is used as substitution for MMCC, MMSS, MMLCS or MMSMS. NOTE 2: Only at MMCC-SAP.		

9.2.2.1 MMXX_EST_REQ

Request used by CC, SS, LCS (for type A LMU) and SMS respectively, to request establishment of a MM connection. Several MM connections may be provided in parallel to the requesting entities. The primitive may contain parameters which are relevant for the CM SERVICE REQUEST message, e.g. to distinguish a basic call from an emergency call.

9.2.2.2 MMXX_EST_IND

Indication to CC, SS, LCS (for type A LMU) or SMS that a Mobile terminated MM connection has been established and the first message has been received from the respective peer entity. Several MM connections may be provided in parallel. If a MM connection already exists, a new MM connection using the same RR connection is indicated by this primitive if MM detects a message with a new combination of Protocol Discriminator (PD) and Transaction Identifier (TI).

9.2.2.3 MMXX_EST_CNF

Successful confirmation of the MM connection establishment by the MM sublayer to be given to the appropriate entity which has requested the service.

9.2.2.4 MMXX_REL_REQ

Used by CC, SS, LCS (for type A LMU) or SMS respectively, to request release of the MM connection. The corresponding PD/TI will be released and may be used for a new MM connection.

9.2.2.5 MMXX_REL_IND

Indication of the release of an existing MM connection or a MM connection in progress. This primitive is used in exceptional cases to indicate that the MM connection cannot be established or kept any longer and PD/TI have been released.

9.2.2.6 MMXX_DATA_REQ

Request used by the CC, SS or SMS entities for acknowledged control-data transmission.

9.2.2.7 MMXX_DATA_IND

Indication used by MM to transfer the received acknowledged control-data to the CC, SS, LCS (for type A LMU) or SMS entities.

9.2.2.8 MMXX_UNIT_DATA_REQ

Request used by the CC, SS, LCS (for type A LMU) or SMS entities for unacknowledged control-data transmission.

9.2.2.9 MMXX_UNIT_DATA_IND

Indication used by MM to transfer the received unacknowledged control-data to the CC, SS, LCS or SMS entities.

9.2.2.10 MMCC_SYNC_IND

Indication that a dedicated channel assignment has been performed and/or the channel mode has been changed (only towards the CC entity).

In Iu mode, MM indicates the list of the RAB IDs and, optionally,

- the NAS Synchronization Indicators associated with the assigned or modified radio bearers; or
- the maximum data rate (at RLC layer) associated with the assigned or modified radio bearers, if no NAS Synchronization Indicator is available.

During a network-initiated in-call modification the CC entity uses the NAS Synchronization Indicator or the maximum data rate to determine whether a suitable channel for the new call mode is available.

9.2.2.11 MMXX_REEST_REQ

Request to establish a MM connection which has been interrupted by a lower layer failure. The interruption must have been indicated by MMXX_ERR_IND.

9.2.2.12 MMXX_REEST_CNF

Confirmation of the successful re-establishment of the MM connection. The MM connection will continue with PD/TI as it had before.

9.2.2.13 MMXX_ERR_IND

Indication of a lower layer failure interrupting the MM connection. The PD/TI are still kept by MM. In case of parallel transactions this indication is passed to all CM entities for which a MM connection has been established. It is left to the decision of the appropriate CM entity to either request the re-establishment of the MM connection by MMXX_REEST_REQ or to release it by MMXX_REL_REQ.

9.2.2.14 MMXX_PROMPT_IND

Indication given by MM to inform of the completion of the MM connection to the CC, SS, LCS (for type A LMU) or SMS entities for a mobile station which supports "Network Initiated MO CM Connection Request".

9.2.2.15 MMXX_PROMPT_REJ

Response to the MMXX_PROMPT_IND indication to the MM entity in a mobile station which supports "Network Initiated MO CM Connection Request" in case when it is impossible to establish the prompted CM connection e.g. due to lack of free transaction identifiers.

********** NEXT MODIFIED SECTION **********

10.2.2 Service primitives

Table 10.2: Primitives and Parameters at MMCC-SAP, MMSS-SAP, MMLCS-SAP, MMSMS-SAP - Network side

PRIMITIVES	PARAMETERS	REFERENCE
MMXX_EST_REQ (see note 1)	Mobile ID	10.2.2.1
MMXX_EST_IND (see note 1)	First CM message	10.2.2.2
MMXX_EST_CNF (see note 1)	-	10.2.2.3
MMXX_REL_REQ (see note 1)	cause	10.2.2.4
MMXX_REL_IND (see note 1)	cause	10.2.2.5
MMXX_DATA_REQ (see note 1)	Layer 3 message	10.2.2.6
MMXX_DATA_IND (see note 1)	Layer 3 message	10.2.2.7
MMXX_UNIT_DATA_REQ (see note 1)	Layer 3 message	10.2.2.8
MMXX_UNIT_DATA_IND (see note 1)	Layer 3 message	10.2.2.9
MMCC_SYNC_REQ (see note 2)	cause (resource assign), list of (RAB ID, NAS Synchronization Indicator)	10.2.2.10
MMCC_SYNC_CNF (see note 2)	cause (resource assign)	10.2.2.11
NOTE 1: MMXX is used as substitution for MMCC, MMSS, MMLCS (for type A LMU) or MMSMS. NOTE 2: Only at MMCC-SAP.		

10.2.2.1 MMXX_EST_REQ

Request by CC, SS, LCS (for type A LMU) and SMS respectively, for the establishment of a MM connection.

10.2.2.2 MMXX_EST_IND

Indication by the MM sublayer that a MM connection is established.

10.2.2.3 MMXX_EST_CNF

Confirmation of the MM connection establishment by the MM sublayer.

10.2.2.4 MMXX_REL_REQ

Request by CC, SS, LCS (for type A LMU) or SMS respectively, for the release of the MM connection.

10.2.2.5 MMXX_REL_IND

Indication by the MM sublayer that a MM connection has been released.

10.2.2.6 MMXX_DATA_REQ

Request by the CC, SS, LCS (for type A LMU) or SMS entities for acknowledged control-data transmission.

10.2.2.7 MMXX_DATA_IND

Indication used by MM to transfer the received acknowledged control-data to the CC, SS, LCS (for type A LMU) or SMS entities.

10.2.2.8 MMXX_UNIT_DATA_REQ

Request used by the CC, SS, LCS (for type A LMU) or SMS entities for unacknowledged control-data transmission.

10.2.2.9 MMXX_UNIT_DATA_IND

Indication used by MM to transfer the received unacknowledged control-data to the CC, SS, LCS (for type A LMU) or SMS entities.

10.2.2.10 MMCC_SYNC_REQ

Request used by the CC entity to synchronize with the MM entity (resource assign).

In Iu mode, the CC entity includes the list of the RAB IDs and, optionally, the NAS Synchronization Indicators associated with the requested radio bearers.

10.2.2.11 MMCC_SYNC_CNF

Confirmation used by the MM to inform the CC entity that synchronization is completed (resource assign).

~~In Iu mode, the CC entity includes the list of the RAB IDs and, optionally, the NAS Synchronization Indicators associated with the requested radio bearers.~~

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Sydney, Australia, 14-18 February 2004

Tdoc N1-050045

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.007** **CR** **072** ⌘ **rev** **-** ⌘ Current version: **6.3.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of maximum data rate to RR_SYNC_IND and MMCC_SYNC_IND
Source:	⌘	Siemens AG
Work item code:	⌘	SCUDIF
Date:	⌘	26.01.2005
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
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Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	At CN1#34 the description of the network-initiated in-call modification was corrected. Further analysis of the service change from speech to multimedia showed that in UMTS the call control layer in the mobile station needs to be informed by its lower layers when a suitable channel for the multimedia call is available (see CR 24.008-899). This CR adds the parameter necessary for such an indication to the primitives exchanged between the CC, MM, and RR layer. Besides the description of the NAS synchronization indicator should have been added to MMCC_SYNC_REQ (10.2.2.10) instead of MMCC_SYNC_CNF (10.2.2.11), in alignment with table 10.2.
Summary of change:	⌘	The maximum data rate at RLC layer is added to the primitives RR_SYNC_IND and MMCC_SYNC_IND. The description of the NAS synchronization indicator is shifted from MMCC_SYNC_CNF (10.2.2.11) to MMCC_SYNC_REQ (10.2.2.10).
Consequences if not approved:	⌘	Incomplete standard. Without this CR, it is not clear how the CC entity in the mobile station should determine when a suitable channel for the multimedia call is available. Without a clear criterion, the mobile station may start the H.324 client too early or too late. This may result either in a failure of 'synchronization' between the two H.324 clients (i.e. the multimedia call fails, but dependent on the implementation it may still be possible to switch back to speech) or in unnecessary long setup

	times for the multimedia call. Both effects may seriously affect the service quality perceived by the subscriber and may thereby impede the acceptance of SCUDIF.

Clauses affected:	⌘	9.1.2, 9.1.2.5, 9.2.2, 9.2.2.10, 10.2.2.10, 10.2.2.11			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
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.

9.1.2 Service primitives

Table 9.1: Primitives and parameters at the RR-SAP - MS side

PRIMITIVES	PARAMETERS	REFERENCE
RR_EST_REQ	Layer 3 message transferred in the SABM frame, CN domain identity	9.1.2.1
RR_EST_IND	-	9.1.2.2
RR_EST_CNF	-	9.1.2.3
RR_REL_IND	cause	9.1.2.4
RR_SYNC_IND	cause (ciphering, res. ass., channel mode modify), list of (RAB ID, NAS Synchronization Indicator, maximum data rate)	9.1.2.5
RR_DATA_REQ	Layer 3 message, local flow identifier CN domain identity	9.1.2.6
RR_DATA_IND	Layer 3 message, CN domain identity	9.1.2.7
RR_UNIT DATA_IND	Layer 3 message	9.1.2.8
RR_ABORT_REQ	cause	9.1.2.9
RR_ABORT_IND	cause	9.1.2.10
RR_ACT_REQ	reselection mode	9.1.2.11

9.1.2.1 RR_EST_REQ

In A/Gb mode it is used by the Mobility Management entity to request establishment of a Mobile originated RR connection.

The request shall be given only in the IDLE state when the MS listens to the CCCH and the previously selected BCCH.

In Iu mode it is used by the Mobility Management entity to request the establishment of a signalling connection to the CN domain type given in the parameter CN domain identity. The request shall be given only if no signalling connection to the specific CN domain type is established.

9.1.2.2 RR_EST_IND

Indicates to the Mobility Management entity the establishment of a Mobile terminated RR connection. By this indication MM is informed that a transparent connection exists and RR is in the dedicated mode.

9.1.2.3 RR_EST_CNF

Is used by RR to indicate the successful completion of a Mobile originated RR connection establishment. RR connection exists and RR is in the dedicated mode.

9.1.2.4 RR_REL_IND

Is used by RR to indicate to the Mobility Management entity the release of a RR connection when RR has received a CHANNEL RELEASE from the Network and has triggered a normal release of the data link layer. It is also used to indicate that a requested RR connection cannot be established. In both cases, RR returns to IDLE mode.

9.1.2.5 RR_SYNC_IND

Is used for synchronizing RR and the Mobility Management entity after the establishment of a Mobile originated or Mobile terminated RR connection. This indication is provided to MM in the following cases:

- ciphering has been started (ciphering);
- integrity protection has been started (integrity) (UMTS only);
- a traffic channel has been assigned (res. ass. = "resource assigned");
- the channel mode has been modified (channel mode modify).

In Iu mode, in case of a resource assignment or channel mode modification, RR indicates to the Mobility Management entity the list of RAB IDs and, optionally,

- the NAS Synchronization Indicators associated with the assigned or modified radio bearers; or
- the maximum data rate (at RLC layer) associated with the assigned or modified radio bearers, if no NAS Synchronization Indicator is available.

9.1.2.5a Void

9.1.2.5b Void

9.1.2.6 RR_DATA_REQ

Is used by the Mobility Management entity to send control data to its peer entity on the Network side via an existing RR connection.

9.1.2.7 RR_DATA_IND

Is used by RR to indicate control-data, which has been received from its peer entity on the Network side via an existing RR connection.

For UMTS, RR_DATA_IND is also used to indicate whether control-data has been:

- successfully integrity checked;
- unsuccessfully integrity checked;
- received with no integrity protection.

9.1.2.7a Void

9.1.2.8 RR_UNIT_DATA_IND

Is used by RR to provide MM with system info. The system info is received on the current BCCH if RR is in the IDLE state. If a RR connection has been established, the system info is received on the SACCH.

9.1.2.9 RR_ABORT_REQ

Request to abort an existing RR connection or a RR connection in progress. The data link, if already established, shall be released by a normal release procedure (DISC/UA) initiated by the MS. This is the only way the MS can trigger the release of a RR connection in case of exceptional conditions. The RR returns to the IDLE state.

9.1.2.10 RR_ABORT_IND

Indication that the RR connection has been aborted by a lower layer failure and RR has returned to the IDLE state.

********** NEXT MODIFIED SECTION **********

9.2.2 Service primitives

Table 9.2: Primitives and Parameters at MMCC-SAP, MMSS-SAP (for type A LMU), MMLCS-SAP or MMSMS-SAP - MS side

PRIMITIVES	PARAMETERS	REFERENCE
MMXX_EST_REQ (see note 1)	Parameters for the appropriate CM SERVICE REQUEST (if any)	9.2.2.1
MMXX_EST_IND (see note 1)	First CM message	9.2.2.2
MMXX_EST_CNF (see note 1)	-	9.2.2.3
MMXX_REL_REQ (see note 1)	cause	9.2.2.4
MMXX_REL_IND (see note 1)	cause	9.2.2.5
MMXX_DATA_REQ (see note 1)	Layer 3 message	9.2.2.6
MMXX_DATA_IND (see note 1)	Layer 3 message	9.2.2.7
MMXX_UNIT_DATA_REQ (see note 1)	Layer 3 message	9.2.2.8
MMXX_UNIT_DATA_IND (see note 1)	Layer 3 message	9.2.2.9
MMCC_SYNC_IND (see note 2)	cause: res.ass; list of (RAB ID, NAS Synchronization Indicator, maximum data rate)	9.2.2.10
MMXX_REEST_REQ (see note 1)		9.2.2.11
MMXX_REEST_CNF (see note 1)		9.2.2.12
MMXX_ERR_IND (see note 1)	cause	9.2.2.13
MMXX_PROMPT_IND (see note 1)	-	9.2.2.14
MMXX_PROMPT_REJ (see note 1)	-	9.2.2.15
NOTE 1: MMXX is used as substitution for MMCC, MMSS, MMLCS or MMSMS. NOTE 2: Only at MMCC-SAP.		

9.2.2.1 MMXX_EST_REQ

Request used by CC, SS, LCS (for type A LMU) and SMS respectively, to request establishment of a MM connection. Several MM connections may be provided in parallel to the requesting entities. The primitive may contain parameters which are relevant for the CM SERVICE REQUEST message, e.g. to distinguish a basic call from an emergency call.

9.2.2.2 MMXX_EST_IND

Indication to CC, SS, LCS (for type A LMU) or SMS that a Mobile terminated MM connection has been established and the first message has been received from the respective peer entity. Several MM connections may be provided in parallel. If a MM connection already exists, a new MM connection using the same RR connection is indicated by this primitive if MM detects a message with a new combination of Protocol Discriminator (PD) and Transaction Identifier (TI).

9.2.2.3 MMXX_EST_CNF

Successful confirmation of the MM connection establishment by the MM sublayer to be given to the appropriate entity which has requested the service.

9.2.2.4 MMXX_REL_REQ

Used by CC, SS, LCS (for type A LMU) or SMS respectively, to request release of the MM connection. The corresponding PD/TI will be released and may be used for a new MM connection.

9.2.2.5 MMXX_REL_IND

Indication of the release of an existing MM connection or a MM connection in progress. This primitive is used in exceptional cases to indicate that the MM connection cannot be established or kept any longer and PD/TI have been released.

9.2.2.6 MMXX_DATA_REQ

Request used by the CC, SS or SMS entities for acknowledged control-data transmission.

9.2.2.7 MMXX_DATA_IND

Indication used by MM to transfer the received acknowledged control-data to the CC, SS, LCS (for type A LMU) or SMS entities.

9.2.2.8 MMXX_UNIT_DATA_REQ

Request used by the CC, SS, LCS (for type A LMU) or SMS entities for unacknowledged control-data transmission.

9.2.2.9 MMXX_UNIT_DATA_IND

Indication used by MM to transfer the received unacknowledged control-data to the CC, SS, LCS or SMS entities.

9.2.2.10 MMCC_SYNC_IND

Indication that a dedicated channel assignment has been performed and/or the channel mode has been changed (only towards the CC entity).

In Iu mode, MM indicates the list of the RAB IDs and, optionally,

- the NAS Synchronization Indicators associated with the assigned or modified radio bearers; or
- the maximum data rate (at RLC layer) associated with the assigned or modified radio bearers, if no NAS Synchronization Indicator is available.

During a network-initiated in-call modification the CC entity uses the NAS Synchronization Indicator or the maximum data rate to determine whether a suitable channel for the new call mode is available.

9.2.2.11 MMXX_REEST_REQ

Request to establish a MM connection which has been interrupted by a lower layer failure. The interruption must have been indicated by MMXX_ERR_IND.

9.2.2.12 MMXX_REEST_CNF

Confirmation of the successful re-establishment of the MM connection. The MM connection will continue with PD/TI as it had before.

9.2.2.13 MMXX_ERR_IND

Indication of a lower layer failure interrupting the MM connection. The PD/TI are still kept by MM. In case of parallel transactions this indication is passed to all CM entities for which a MM connection has been established. It is left to the decision of the appropriate CM entity to either request the re-establishment of the MM connection by MMXX_REEST_REQ or to release it by MMXX_REL_REQ.

9.2.2.14 MMXX_PROMPT_IND

Indication given by MM to inform of the completion of the MM connection to the CC, SS, LCS (for type A LMU) or SMS entities for a mobile station which supports "Network Initiated MO CM Connection Request".

9.2.2.15 MMXX_PROMPT_REJ

Response to the MMXX_PROMPT_IND indication to the MM entity in a mobile station which supports "Network Initiated MO CM Connection Request" in case when it is impossible to establish the prompted CM connection e.g. due to lack of free transaction identifiers.

********** NEXT MODIFIED SECTION **********

10.2.2 Service primitives

Table 10.2: Primitives and Parameters at MMCC-SAP, MMSS-SAP, MMLCS-SAP, MMSMS-SAP - Network side

PRIMITIVES	PARAMETERS	REFERENCE
MMXX_EST_REQ (see note 1)	Mobile ID	10.2.2.1
MMXX_EST_IND (see note 1)	First CM message	10.2.2.2
MMXX_EST_CNF (see note 1)	-	10.2.2.3
MMXX_REL_REQ (see note 1)	cause	10.2.2.4
MMXX_REL_IND (see note 1)	cause	10.2.2.5
MMXX_DATA_REQ (see note 1)	Layer 3 message	10.2.2.6
MMXX_DATA_IND (see note 1)	Layer 3 message	10.2.2.7
MMXX_UNIT_DATA_REQ (see note 1)	Layer 3 message	10.2.2.8
MMXX_UNIT_DATA_IND (see note 1)	Layer 3 message	10.2.2.9
MMCC_SYNC_REQ (see note 2)	cause (resource assign), list of (RAB ID, NAS Synchronization Indicator)	10.2.2.10
MMCC_SYNC_CNF (see note 2)	cause (resource assign)	10.2.2.11
NOTE 1: MMXX is used as substitution for MMCC, MMSS, MMLCS (for type A LMU) or MMSMS. NOTE 2: Only at MMCC-SAP.		

10.2.2.1 MMXX_EST_REQ

Request by CC, SS, LCS (for type A LMU) and SMS respectively, for the establishment of a MM connection.

10.2.2.2 MMXX_EST_IND

Indication by the MM sublayer that a MM connection is established.

10.2.2.3 MMXX_EST_CNF

Confirmation of the MM connection establishment by the MM sublayer.

10.2.2.4 MMXX_REL_REQ

Request by CC, SS, LCS (for type A LMU) or SMS respectively, for the release of the MM connection.

10.2.2.5 MMXX_REL_IND

Indication by the MM sublayer that a MM connection has been released.

10.2.2.6 MMXX_DATA_REQ

Request by the CC, SS, LCS (for type A LMU) or SMS entities for acknowledged control-data transmission.

10.2.2.7 MMXX_DATA_IND

Indication used by MM to transfer the received acknowledged control-data to the CC, SS, LCS (for type A LMU) or SMS entities.

10.2.2.8 MMXX_UNIT_DATA_REQ

Request used by the CC, SS, LCS (for type A LMU) or SMS entities for unacknowledged control-data transmission.

10.2.2.9 MMXX_UNIT_DATA_IND

Indication used by MM to transfer the received unacknowledged control-data to the CC, SS, LCS (for type A LMU) or SMS entities.

10.2.2.10 MMCC_SYNC_REQ

Request used by the CC entity to synchronize with the MM entity (resource assign).

In Iu mode, the CC entity includes the list of the RAB IDs and, optionally, the NAS Synchronization Indicators associated with the requested radio bearers.

10.2.2.11 MMCC_SYNC_CNF

Confirmation used by the MM to inform the CC entity that synchronization is completed (resource assign).

~~In Iu mode, the CC entity includes the list of the RAB IDs and, optionally, the NAS Synchronization Indicators associated with the requested radio bearers.~~