TSG-RAN Meeting #27 **RP-050113**
Tokyo, Japan, 09-11 March 2005 **Agenda item 9.8**

Source: TSG-RAN WG2

Title: CRs to 25.322 Rel-6

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.322	260	1	Rel-6	Correction of MRW termination on reception of ACK SUFI	F	6.2.0	6.3.0	R2-050011	TEI6
25.322	265	-	Rel-6	Correction to RLC Re-establishment	F	6.2.0	6.3.0	R2-050302	TEI6
25.322	267	-	Rel-6	CRCLC-Config-Req in LOCAL_SUSPEND State	F	6.2.0	6.3.0	R2-050290	TEI6
25.322	268	-	Rel-6	Protocol error detection and recovery	F	6.2.0	6.3.0	R2-050291	TEI6

3GPP TSG-RAN2 Meeting #45bis **Tdoc ⌘R2-050011**
Sophia-Antipolis, France, 10-14 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.322** **CR** **260** ⌘ **rev** **1** ⌘ Current version: **6.2.0** ⌘

*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 [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Correction of MRW termination on reception of ACK SUFI
Source:	⌘	RAN WG2
Work item code:	⌘	TEI6
Date:	⌘	07/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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: ⌘ The termination criteria for the MRW procedure is not correct in the case where the ACK SUFI, which acknowledges PDUs up to and including $SN\_MRW_{LENGTH} - 1$, is received. In this case if MRW_ACK is lost, and the ACK SUFI cannot terminate the procedure. There is potential for the MRW procedure to then initiate the reset procedure unnecessarily.

Summary of change: ⌘ The MRW procedure is terminated by reception of the ACK SUFI which acknowledges PDUs up to and including $SN\_MRW_{LENGTH} - 1$. This allows the MRW procedure to terminate one PDU earlier than currently specified.

Isolated Impact Analysis
Functionality corrected: Termination of the MRW procedure due to reception of ACK

Isolated impact statement: Correction to a function where specification was not allowing an optimised implementation. There are no Rel-5 34.123 tests which test termination of the MRW procedure due to ACK reception. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Implementation of this CR by a Release 99/4/5 UE will not cause compatibility issues.
If UTRAN implements the change while UE does not: UE will not terminate the MRW procedure when receiving ACK SUFI, which acknowledges PDUs up to and including $SN\_MRW_{LENGTH} - 1$. UTRAN will work normally.
IF UE implements the change while UTRAN does not: UTRAN will not terminate

		the MRW procedure when receiving ACK SUFI, which acknowledges PDUs up to and including $SN\_MRW_{LENGTH} - 1$. UE will work normally.
Consequences if not approved:	⌘	Although the UE has received ACK SUFI, which acknowledges PDUs up to and including $SN\_MRW_{LENGTH} - 1$, the UE still needs retransmit the MRW SUFI, or in the worst case initiates the reset procedure if the MRW_ACK SUFI is lost due to poor radio conditions.

Clauses affected:	⌘	11.6.4			
Other specs affected:	⌘	**Y** / **N**		⌘	
			N Other core specifications		
			N Test specifications		
			N 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.

11.6.4 Termination

The Sender shall terminate the SDU discard with explicit signalling procedure if one of the following criteria is fulfilled:

- a STATUS PDU/piggybacked STATUS PDU containing an MRW_ACK SUFI is received, and the SN_ACK field in the received MRW_ACK SUFI > the SN_MRW_{LENGTH} field in the transmitted MRW_SUFI, and the N field in the received MRW_ACK SUFI is set equal to "0000";

- a STATUS PDU/piggybacked STATUS PDU containing an MRW_ACK SUFI is received, and the SN_ACK field in the received MRW_ACK SUFI = the SN_MRW_{LENGTH} field in the transmitted MRW_SUFI, and the N field in the received MRW_ACK SUFI is set equal to the N_{LENGTH} field in the transmitted MRW SUFI;

- a STATUS PDU/piggybacked STATUS PDU containing an ACK SUFI is received, and this STATUS PDU/piggybacked STATUS PDU indicates that all AMD PDUs up to and including the AMD PDU with "Sequence Number" equal to ~~the~~ (SN_MRW_{LENGTH} field in the transmitted MRW SUFI) – 1 has been received or discarded by the peer entity.

Upon termination of the SDU discard with explicit signalling procedure, the Sender shall:

- stop the timer Timer_MRW;

- update VT(A) and VT(MS) according to the received STATUS PDU/piggybacked STATUS PDU;

The Sender shall not confirm to upper layers the SDUs that are requested to be discarded.

3GPP TSG-RAN WG2 Meeting #45bis **Tdoc ⌘R2-050302**
Sophia Antipolis, France, 10th-14th January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.322** **CR** **265** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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 [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Correction to RLC Re-establishment
Source:	⌘	RAN WG2
Work item code:	⌘	TEI6
Date:	⌘	03/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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:	⌘	In RAN #24, CR258 in RP-040224, which introduces one-sided RLC AM re-establishment procedure was approved. But one change in CR258 is not applied in the RLC specification.
Summary of change:	⌘	According to the CR258, “discard all AMD PDUs and control PDUs in both the receiving side and the transmitting side of the RLC entity;” is removed from the specification.
Consequences if not approved:	⌘	Though only one side of either transmitting or receiving side of AM entity is re-established, PDU loss occurs in both side.

Clauses affected:	⌘	9.7.7

	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.

9.7.7 RLC re-establishment function for acknowledged and unacknowledged mode

RLC re-establishment is performed upon request by upper layers.

The RLC re-establishment function is applicable for AM or UM RLC. For UM, the whole RLC entity is re-established. For AM, upper layers may request re-establishment of the whole RLC entity or only the transmitting or receiving side of the RLC entity.

When an UM RLC entity is re-established by upper layers, the RLC entity shall:

- reset the state variables to their initial value;
- set the configurable parameters to their configured value;
- set the hyper frame number (HFN) to the value configured by upper layers;
- if it is a receiving UM RLC entity:
  - discard all UMD PDUs.
- if it is a transmitting UM RLC entity:
  - discard the RLC SDUs for which one or more segments have been submitted to a lower layer;
  - if requested:
    - inform the upper layers of the discarded SDUs.
  - not stop Timer_Discard if the RLC SDU is not discarded.

When the transmitting and/or receiving side of an AM RLC entity is re-established by upper layers, the RLC entity shall:

- if the receiving side of the RLC entity is re-established:
  - reset the state variables specified for the receiver in subclause 9.4 to their initial values;
  - set the configurable parameters applicable for the receiving side in subclause 9.6 to their configured values;
  - set the hyper frame number (HFN) in the receiving side (DL in the UE) to the value configured by upper layers;
  - discard the control PDUs in both transmitting and receiving side and the AMD PDUs in the receiving side.
- if the transmitting side of the RLC entity is re-established:
  - reset the state variables specified for the sender in subclause 9.4 to their initial values;
  - set the configurable parameters applicable for the transmitting side in subclause 9.6 to their configured values;
  - set the hyper frame number (HFN) in the transmitting side (UL in the UE) to the value configured by upper layers.
  - if only the transmitter side of the RLC entity is re-established:
    - discard the control PDUs in both the transmitting and receiving side and all SDUs in the transmitting side that have been completely transmitted (the AMD PDUs containing segments of the SDU and the "Length Indicator" indicating the end of the SDU have been transmitted);
    - re-segment the SDUs that were not discarded into AMD PDUs with the configured RLC PDU size (that may be different from the size before the re-establishment).
  - if both the transmitter and receiver side of the RLC entity is re-established:

- discard the control PDUs in both transmitting and receiving side and the AMD PDUs in the transmitting side.

- stop all timers described in subclause 9.5 except Timer_Poll_Periodic and Timer_Status_Periodic;

~~- discard all AMD PDUs and control PDUs in both the receiving side and the transmitting side of the RLC entity;~~

- if requested:

  - inform the upper layers of the discarded SDUs.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the re-establishment function until the end of the next TTI.

3GPP TSG RAN WG2 #45bis
Sophia Antipolis, France
10 - 14 January 2005

Tdoc ⌘R2-050290

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.322** **CR** **267** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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:	⌘	CRCLC-Config-Req in LOCAL_SUSPEND State
Source:	⌘	RAN WG2
Work item code:	⌘	TEI6
Date:	⌘	14/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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:	⌘	In the state model for unacknowledged mode entities defined in section 9.3.2, a transition between LOCAL_SUSPEND state and NULL state upon reception of a CRLC-CONFIG-Req is shown on Figure 9.17 but missing in section 9.3.2.3
Summary of change:	⌘	The transition between LOCAL_SUSPEND state and NULL state upon reception of a CRLC-CONFIG-Req is included in section 9.3.2.3
Consequences if not approved:	⌘	The specification is not correct.

Clauses affected:	⌘	9.3.2.3

		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.

9.3.2.3 LOCAL_SUSPEND State

In the LOCAL_SUSPEND state, the RLC entity is suspended, i.e. it does not send UMD PDUs with "Sequence Number" greater than or equal to a certain specified value (see subclause 9.7.5).

Upon reception of a CRLC-CONFIG-Req from upper layer indicating release, the RLC entity:

- enters the NULL state; and
- is considered as being terminated.

Upon reception of a CRLC-RESUME-Req from upper layers, the RLC entity:

- enters the DATA_TRANSFER_READY state; and
- resumes the data transmission.

Upon reception of a CRLC-CONFIG-Req from upper layer indicating modification, the RLC entity:

- stays in the LOCAL_SUSPEND state;
- modifies only the protocol parameters and timers as indicated by upper layers.

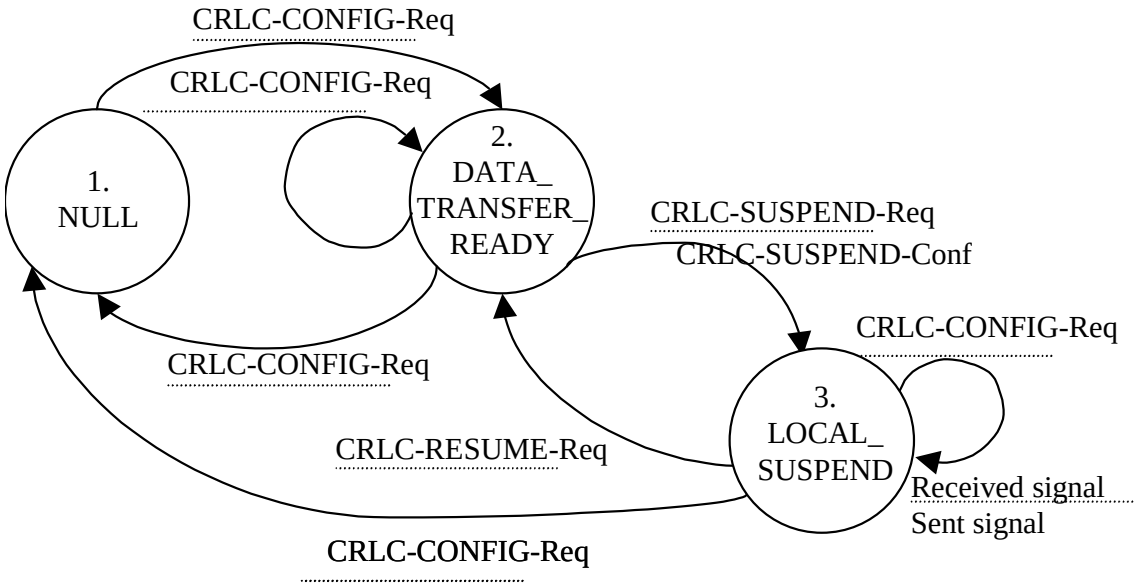

Figure 9.17: The state model for unacknowledged mode entities

3GPP TSG RAN WG2 #45
Sophia Antipolis, France
10 - 14 January 2005

Tdoc ⌘R2-050291

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.322** **CR** **268** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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:	⌘	Protocol error detection and recovery
Source:	⌘	RAN WG2
Work item code:	⌘	TEI6
Date:	⌘	14/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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:	⌘	The tables of section 6.1 list “protocol error correction and recovery” as a function of RLC. However according to section 6 and 3GPP TS 25.301, the correct name for that function is “protocol error detection and recovery.”
Summary of change:	⌘	“Protocol error correction and recovery” is changed to “protocol error detection and recovery” in the tables of section 6.1
Consequences if not approved:	⌘	The specification is not correct.

Clauses affected:	⌘	6.1

	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.

6.1 Mapping of services/functions onto logical channels

The following tables show the applicability of services and functions to the logical channels in UL/DL and UE/UTRAN. A '+' in a column denotes that the service/function is applicable for the logical channel in question whereas a '-' denotes that the service/function is not applicable.

Table 6.1: RLC modes and functions in UE uplink side

Service	Functions	CCCH	SHCCH	DCCH	DTCH
Transparent Service	Applicability	+	+	+	+
	Segmentation	-	-	+	+
	Transfer of user data	+	+	+	+
	SDU Discard	-	-	+	+
Unacknowledged Service	Applicability	-	-	+	+
	Segmentation	-	-	+	+
	Concatenation	-	-	+	+
	Padding	-	-	+	+
	Transfer of user data	-	-	+	+
	Ciphering	-	-	+	+
	SDU Discard	-	-	+	+
Acknowledged Service	Applicability	-	-	+	+
	Segmentation	-	-	+	+
	Concatenation	-	-	+	+
	Padding	-	-	+	+
	Transfer of user data	-	-	+	+
	Flow Control	-	-	+	+
	Error Correction	-	-	+	+
	Protocol error ~~correction~~ detection & recovery	-	-	+	+
	Ciphering	-	-	+	+
	SDU Discard	-	-	+	+

Table 6.2: RLC modes and functions in UE downlink side

Service	Functions	BCCH	PCCH	SHCCH	CCCH	DCCH	DTCH	CTCH
Transparent Service	Applicability	+	+	-	-	+	+	-
	Reassembly	-	-	-	-	+	+	-
	Transfer of user data	+	+	-	-	+	+	-
Unacknowledged Service	Applicability	-	-	+	+	+	+	+
	Reassembly	-	-	+	+	+	+	+
	Deciphering	-	-	-	-	+	+	-
	Sequence number check	-	-	+	+	+	+	+
	Transfer of user data	-	-	+	+	+	+	+
Acknowledged Service	Applicability	-	-	-	-	+	+	-
	Reassembly	-	-	-	-	+	+	-
	Error correction	-	-	-	-	+	+	-
	Flow Control	-	-	-	-	+	+	-
	In sequence delivery	-	-	-	-	+	+	-
	Duplicate detection	-	-	-	-	+	+	-
	Protocol error detection ~~correction~~ & recovery	-	-	-	-	+	+	-
	Deciphering	-	-	-	-	+	+	-
	Transfer of user data	-	-	-	-	+	+	-
	SDU DIscard	-	-	-	-	+	+	-

Table 6.3: RLC modes and functions in UTRAN downlink side

Service	Functions	BCCH	PCCH	CCCH	SHCCH	DCCH	DTCH	CTCH
Transparent Service	Applicability	+	+	-	-	+	+	-
	Segmentation	-	-	-	-	+	+	-
	Transfer of user data	+	+	-	-	+	+	-
	SDU Discard	-	-	-	-	+	+	-
Unacknowledged Service	Applicability	-	-	+	+	+	+	+
	Segmentation	-	-	+	+	+	+	+
	Concatenation	-	-	+	+	+	+	+
	Padding	-	-	+	+	+	+	+
	Ciphering	-	-	-	-	+	+	-
	Transfer of user data	-	-	+	+	+	+	+
	SDU Discard	-	-	-	-	+	+	-
Acknowledged Service	Applicability	-	-	-	-	+	+	-
	Segmentation	-	-	-	-	+	+	-
	Concatenation	-	-	-	-	+	+	-
	Padding	-	-	-	-	+	+	-
	Transfer of user data	-	-	-	-	+	+	-
	Flow Control	-	-	-	-	+	+	-
	Error Correction	-	-	-	-	+	+	-
	Protocol error detection ~~correction~~ & recovery	-	-	-	-	+	+	-
	Ciphering	-	-	-	-	+	+	-
	SDU Discard	-	-	-	-	+	+	-

Table 6.4: RLC modes and functions in UTRAN uplink side

Service	Functions	CCCH	SHCCH	DCCH	DTCH
Transparent Service	Applicability	+	+	+	+
	Reassembly	-	-	+	+
	Transfer of user data	+	+	+	+
Unacknowledged Service	Applicability	-	-	+	+
	Reassembly	-	-	+	+
	Deciphering	-	-	+	+
	Sequence number check	-	-	+	+
	Transfer of user data	-	-	+	+
Acknowledged Service	Applicability	-	-	+	+
	Reassembly	-	-	+	+
	Error correction	-	-	+	+
	Flow Control	-	-	+	+
	In sequence delivery	-	-	+	+
	Duplicate detection	-	-	+	+
	Protocol error detection ~~correction~~ & recovery	-	-	+	+
	Deciphering	-	-	+	+
	Transfer of user data	-	-	+	+
	SDU Discard	-	-	+	+