3GPP TSG CN Plenary Meeting #22 **NP-030486**
10th - 12th December 2003. Hawaii, USA.

Source: **TSG CN WG 1**

Title: **CRs to Rel-6 on Work Item TEI6 towards 44.065 and 44.068**

Agenda item: **9.22**

Document for: **APPROVAL**

Introduction:

This document contains **3** CRs, **Rel-6** Work Item **"TEI6"**, that have been agreed by **TSG CN WG1 in CN1#32 meeting**, and are forwarded to TSG CN Plenary meeting #22 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	Rel
N1-031652	Disabling of ROHC segmentation	44.065	012	1	F	6.1.0	Rel-6
N1-031650	XID negotiation for IP compression	44.065	013	1	F	6.1.0	Rel-6
N1-031546	Clarification of the muting and unmuting of the downlink	44.068	004		C	5.0.1	Rel-6

3GPP TSG-CN1 Meeting #32 **Tdoc N1-031546**
Bangkok, Thailand, 27 – 31 October 2003

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CHANGE REQUEST

⌘ **44.068** **CR** **004** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

*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:	⌘	Clarification of the muting and unmuting of the downlink
Source:	⌘	Nortel Networks
Work item code:	⌘	TEI6
Date:	⌘	16/10/2003
Category:	⌘	**C**
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:
2 (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)

Reason for change:	⌘	There is no description of the ability to mute and unmute the downlink of an MS when other people wish to talk on a VGCS call. This CR is to bring the protocol description in line with the service description which mute/unmute was added to at CN1 #31 in 43.068 CR014.
Summary of change:	⌘	Text is added to describe the function of muting and untmuting the downlink to the MS.
Consequences if not approved:	⌘	It will not be clear that the downlink for a subscriber may be nuted when another subscriber wishes to talk.

Clauses affected:	⌘	6.1.2.1.9.5			
		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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Below is a brief summary:

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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.

6.1.2.1.9.5 send and receive mode (U2sr)

The MS has been informed by its peer entity that the uplink is granted. When entering the sub-state, parameters shall be set to the following values, and configuration shall be adapted to the new values of configuration parameters: D-ATT = T, U-ATT = T. The parameter D-ATT may subsequently be set by the network for muting and unmuting purposes.

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Tdoc N1-031652
(rev of Tdoc N1-031526)

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CHANGE REQUEST

⌘ **44.065** **CR** **012** ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

*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 [ ] Core Network [X]

Title:	⌘	Disabling of ROHC segmentation
Source:	⌘	Siemens AG
Work item code:	⌘	TEI6
Date:	⌘	17/10/2003
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:

2	*(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)*

Reason for change:	⌘	ROHC provides a segmentation mechanism, but SNDCP already has its own mechanism to segment the output of the compressor functions to the maximum length of LL-PDUs. Since only one segmentation is needed, it is proposed to always disable the ROHC segmentation.
Summary of change:	⌘	ROHC segmentation is disabled by setting the corresponding parameter MRRU to 0 and removing it from the list of negotiable parameters.
Consequences if not approved:	⌘	- Unnecessary requirement to implement ROHC segmentation, although the ROHC segmentation is always de-activated; or - inefficient operation if both ROHC and SNDCP segmentation are used in concatenation.

Clauses affected:	⌘	6.5.1.4, 6.5.4.1.4

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

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6.5.4 Robust Header Compression (ROHC)

Robust Header Compression (ROHC) is a framework for header compression, on top of which compression schemes can be defined for the compression of various protocol headers. Both the SNDCP ROHC negotiation mechanisms and the SN-PDU ROHC identifiers are generally defined for the ROHC framework, and therefore capable of handling both existing and future ROHC compression protocols (profiles). RFC 3095 [12] defines the ROHC framework, as well as the compression schemes and profiles for RTP/UDP/IP, UDP/IP, ESP/IP and uncompressed.

6.5.4.1 Parameters

Table 10 contains the parameters defined for a compression entity using ROHC. They may be negotiated during SNDCP XID negotiation.

Table 10: Robust Header Compression (ROHC) parameters

Algorithm Name	Algorithm Type	Length	Parameter Name	Format	Range	Sense of Negotiation	Default Value
ROHC	2	0, 2, 4, 6, 8, 8+n*2 if P bit is 0, 1, 3, 5, 7, 9, 9+n*2 if P bit is 1. (where n is the number of profiles, the max. number of profiles is 16)	Applicable NSAPIs	bbbbbbbb bbb00000	0, 32, 64, … , 65504	down (each bit separately)	0
			MAX_CID	00bbbbbb bbbbbbbb	0-16383	down	15
			MAX_HEADER	00000000 bbbbbbbb	60-255	down	168
			MRRU	Bbbbbbbb bbbbbbbb	0-65535	down	0
			PROFILE 1	bbbbbbbb bbbbbbbb	0-65535	(see 6.5.4.1.5)	0
			PROFILE 2	bbbbbbbb bbbbbbbb	0-65535	(see 6.5.4.1.5)	0
			…	…	…	…	…
			PROFILE 16	bbbbbbbb bbbbbbbb	0-65535	(see 6.5.4.1.5)	0

Table 10: Robust Header Compression (ROHC) parameters

			Parameters				
Algorithm Name	Algorithm Type	Length	Parameter Name	Format	Range	Sense of Negotiation	Default Value
ROHC	2	0, 2, 4, 6, 8, 8+n*2 if P bit is 0, 1, 3, 5, 7, 9, 9+n*2 if P bit is 1. (where n is the number of profiles, the max. number of profiles is 16)	Applicable NSAPIs	bbbbbbbb bbb00000	0, 32, 64, … , 65504	down (each bit separately)	0
			MAX_CID	00bbbbbb bbbbbbbb	0-16383	down	15
			MAX_HEADER	00000000 bbbbbbbb	60-255	down	168
			PROFILE 1	bbbbbbbb bbbbbbbb	0-65535	(see 6.5.4.1.5)	0
			PROFILE 2	bbbbbbbb bbbbbbbb	0-65535	(see 6.5.4.1.5)	0
			…	…	…	…	…
			PROFILE 16	bbbbbbbb bbbbbbbb	0-65535	(see 6.5.4.1.5)	0
NOTE: ROHC parameter MRRU is not negotiated and shall be set to 0, i.e. ROHC segmentation shall not be used.							

6.5.4.1.1 Applicable NSAPIs

See subclause 7.1.3.

6.5.4.1.2 MAX_CID

The MAX_CID parameter indicates the maximum context ID number the compressor is allowed to use. A MAX_CID value of N means CID values of 0 through N are valid. Thus, the number of contexts allowed is N+1, e.g. MAX_CID of 15 means 16 contexts are allowed.

6.5.4.1.3 MAX_HEADER

The MAX_HEADER parameter indicates the maximum number of octets of the protocol control information that may be compressed.

6.5.4.1.4 (void)~~MRRU~~

~~If ROHC segmentation is used, the maximum reconstructed reception unit (MRRU) indicates the number of octets that the decompressor is expected to reassemble from the segments. If MRRU is negotiated to 0, ROHC segmentation is disabled.~~

6.5.4.1.5 PROFILE

The PROFILE parameter indicates the profile identifier. A list of up to 16 PROFILEs, indicating which ROHC profiles [14] are supported may be included. The negotiated list which is used for compression consists of the list of profiles supported by both peer entities, reduced to include at most ONE profile identifier with the same 8-bit LSB part. If both peer entities support more than one profile with the same 8-bit LSB part in its profile identifier, the set of these profiles shall be reduced to the profile with the highest MSB-value in its profile identifier.

Note: The reason for this is that the 8-bit MSB part of the profile identifier indicates the "variant" of the profile, and since only the 8-bit LSB part is sent in compressed headers, the set of available profiles must not include two profiles with the same 8-bit LSB part of the profile identifier.

6.5.4.2 Assignment of PCOMP values for ROHC

As opposed to other header compression schemes, the whole ROHC framework has only one packet type that has to be identified by the PDU format, and this packet type can be used by any ROHC compression profile. However, ROHC has two different context identification (CID) sizes. To avoid having to negotiate and potentially re-negotiate CID size, the mechanism from ROHC-over-PPP [13] is adopted in SNDCP, i.e. as shown in table 9, two packet types are defined for ROHC, one for small and one for large CIDs.

This implies that all CIDs within one ROHC packet shall be of the same size as indicated by the PID value, either small or large. In particular, embedded feedback shall have a CID of the same size as indicated by the PID value. For piggybacking feedback, a compressor must be able to control the feedback CID size used by the associated decompressor, ensure that all CIDs are of the same size, and indicate this size with the appropriate PID value. To make CID interpretation unambiguous when ROHC segmentation is used, all packets that contribute to a segment shall be sent with the same PID value, either PCOMP1 or PCOMP2, which then also applies to the CID size in the reconstructed unit. A unit reconstructed out of packets with PID values that differ shall be discarded.

Table 9: PCOMP values assigned to Robust Header Compression (ROHC)

PID value	Packet type
PCOMP1	ROHC small-CIDs
PCOMP2	ROHC large-CIDs

6.5.4.3 Error Recovery and other feedback

ROHC has built-in robustness mechanisms to avoid error events, as well as error recovery mechanisms using decompressor to compressor feedback. Such ROHC feedback is carried according to alternative 6) in section 5.2.1 of RFC 3095 [12].

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CHANGE REQUEST

⌘ **44.065** **CR** **013** ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

*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 [ ] Core Network [X]

Title:	⌘	XID negotiation for IP compression
Source:	⌘	Siemens AG
Work item code:	⌘	TEI-6
Date:	⌘	21/10/2003
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),*
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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘

In the current specifications it is not clear whether explicit XID negotiation by peer to peer LLC signaling should be performed in order to deregister a PDP context, which is deactivated locally without peer to peer SM signaling, from the compression entities.
A local PDP context deactivation could occur due to the following reasons:
1) GMM detach;
2) Request to tear down a group of PDP contexts sharing the same PDP address and APN;
3) inter SGSN change R99 -> R97; and
4) SM collision cases (e.g. 24.008 sec. 8.3.2 e) and f)).

In case 1) an explicit XID negotiation, especially if several contexts are active, will lead to a significant delay of the detach. Furthermore it is unclear whether in the network initiate GMM detach case the LLC instances are not already released once the Detach request is received, which would lead to unsuccessful LLC re-attempts by the MS. Anyhow, once the GMM context is deactivated all PDP contexts and their related compression entities will be released.
In case 2) the tear down feature was introduced to reduce the signaling. An explicit XID negotiation for each PDP context will counteract this aim.
In case 3) the SNDCP and LLC entities and their compression entities need to be reset by the target SGSN. An MS initiated XID negotiation is thus not needed, on the contrary, it must be avoided.
In case 4) the peer entity has already released the PDP context and its related compression entities. Also here a MS initiated XID negotiation is thus not needed, in contrary it must be avoided.

Summary of change: ⌘

It is clarified, that in case of a implicit PDP context deactivation without peer to peer signaling the NSAPI shall be removed implicitly from the Applicable NSAPIs

		of the corresponding header and data compression entities without any XID negotiation.
Consequences if not approved:	⌘	Ambiguous definition with the risk of different implementations. If one peer entity assumes that a explicit XID negotiation will be performed whereas the other peer performs a implicit, either the NSAPI is not deregistered from the compression entity or the implicit deregistration clashes with the explicit.

Clauses affected:	⌘	5.1.2, 5.1.2.21, 6.8			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

5.1.2 Service primitives used by SNDCP layer

The SNDCP layer uses the service primitives provided by the SM sublayer and the LLC layer (see table 2). SM is specified in 3GPP TS 24.008 [5a] and LLC in 3GPP TS 44.064 [6].

Table 2: Service primitives used by the SNDCP entity

Generic Name	Type				Parameters
	Request	Indication	Response	Confirm	
SNDCP ↔ LLC					
LL-RESET	-	X	-	-	TLLI
LL-ESTABLISH	X	-	-	-	TLLI, XID Requested
LL-ESTABLISH	-	X	-	-	TLLI, XID Requested, N201-I, N201-U
LL-ESTABLISH	-	-	X	-	TLLI, XID Negotiated
LL-ESTABLISH	-	-	-	X	TLLI, XID Negotiated, N201-I, N201-U
LL-RELEASE	X	-	-	-	TLLI, Local
LL-RELEASE	-	X	-	-	TLLI, Cause
LL-RELEASE			-	X	TLLI
LL-XID	X	-	-	-	TLLI, XID Requested
LL-XID	-	X	-	-	TLLI, XID Requested, N201-I, N201-U
LL-XID	-	-	X	-	TLLI, XID Negotiated
LL-XID	-	-	-	X	TLLI, XID Negotiated, N201-I, N201-U
LL-DATA	X	-	-	-	TLLI, SN-PDU, Reference, QoS Parameters, Radio Priority
LL-DATA	-	X	-	-	TLLI, SN-PDU
LL-DATA	-	-	-	X	TLLI, Reference
LL-UNITDATA	X	-	-	-	TLLI, SN-PDU, QoS Parameters, Radio Priority, Cipher
LL-UNITDATA	-	X	-	-	TLLI, SN-PDU
LL-STATUS	-	X	-	-	TLLI, Cause
SNDCP ↔ SM					
SNSM-ACTIVATE		X	-	-	TLLI, NSAPI, QoS profile, SAPI, Radio Priority
SNSM-ACTIVATE	-	-	X		TLLI, NSAPI
SNSM-DEACTIVATE	-	X	-	-	TLLI, NSAPI(s), LLC Release Indicator, XID Negotiation Indicator
SNSM-DEACTIVATE	-	-	X	-	TLLI, NSAPI
SNSM-MODIFY	-	X	-	-	TLLI, NSAPI, QoS Profile, SAPI, Radio Priority, Send N-PDU Number, Receive N-PDU Number
SNSM-MODIFY	-	-	X	-	TLLI, NSAPI
SNSM-STATUS	X	-	-	-	TLLI, SAPI, Cause
SNSM-SEQUENCE	-	X	X	-	TLLI, NSAPI, Receive N-PDU Number
SNSM-STOP-ASSIGN	-	X	-	-	TLLI, NSAPI

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

5.1.2.21 SNSM-DEACTIVATE.indication

Indication used by the SM entity to inform the SNDCP entity that an NSAPI has been deallocated and cannot be used by the SNDCP entity anymore. All buffered N-PDUs corresponding to this NSAPI are deleted.

Upon reception of the SNSM-DEACTIVATE.indication, the SNDCP entity shall, if necessary, release the acknowledged peer-to-peer LLC operation for the associated SAPI. The release criteria and procedure are described in subclause 6.2.2. If the XID Negotiation Indicator is included in the the SNSM-DEACTIVATE.indication and compression entities have been negotiated for the NSAPI, the NSAPI shall be removed from the Applicable NSAPIs of these compression entities by explicit XID negotiation. If no XID Negotiation Indicator is included, the NSAPI shall be removed locally, without XID negotiation (see subclause 6.8).

5.1.2.22 SNSM-DEACTIVATE.response

Response used by the SNDCP layer to inform SM entity that the NSAPI indicated is no longer in use and that the acknowledged peer-to-peer LLC operation for the associated SAPI is released, if necessary.

****** NEXT SECTION PROVIDED FOR INFORMATION **********

6.2.2 Release of acknowledged peer-to-peer LLC operation

6.2.2.1 Release criteria

If acknowledged peer-to-peer LLC operation is established for the SAPI used by a PDP context that is going to be deactivated or mapped to another SAPI, and if there is no other NSAPIs that require acknowledged peer-to-peer LLC operation using the original SAPI, then the SNDCP layer shall initiate the release procedure.

The SNDCP layer shall initiate the release, using the procedure described in subclause 6.2.2.2, upon receipt of the SNSM-DEACTIVATE.indication primitive.

The SNDCP layer at the SGSN shall also initiate the release upon receipt of the SNSM-MODIFY.indication primitive if an existing NSAPI is specified.

6.2.2.2 Release procedure

The SNDCP layer shall initiate the release by sending a LL-RELEASE.request primitive to the relevant LLC SAP. The Local parameter shall be set if the release is the result of receipt of the SNSM-DEACTIVATE.indication primitive, otherwise it shall not be set.

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

6.8 XID parameter negotiation

Negotiation of XID parameters between peer SNDCP entities may be carried out to ensure optimal information transfer. The parameters are called SNDCP exchange identity (XID) parameters.

SNDCP XID parameter negotiation may be initiated by the SNDCP entity at the MS or at the SGSN. If SNDCP XID parameters are to be changed, SNDCP XID negotiation shall be initiated prior to data transfer - the MS shall initiate SNDCP XID negotiation upon receipt of SNSM-ACTIVATE.indication; the SGSN shall initiate SNDCP XID negotiation upon receipt of the SNSM-MODIFY.indication primitive if an NSAPI has been put into use (in the case of an Inter-SGSN Routeing Area Update), or if the change in QoS profile to an existing NSAPI results in a change in compressor(s) used by the NSAPI.

When an NSAPI no longer uses a compression entity due to a PDP context deactivation or a PDP context modification, an SNDCP XID negotiation shall be performed to remove the NSAPI from the Applicable NSAPIs of the compression entity. The negotiation shall be initiated by the MS upon receipt of the SNSM-DEACTIVATE.indication with XID Negotiation Indicator in the case of explicit PDP context deactivation by peer-to-peer signalling between the SM entities. ~~, or~~ The negotiation shall be initiated by the SGSN upon receipt of the SNSM-MODIFY.indication in the case of PDP context modification. If a PDP context is deactivated locally, without peer-to-peer signalling between the SM entities, the SM entity at the MS and the SM entity at the SGSN each shall send an SNSM-DEACTIVATE.indication without XID Negotiation Indicator to its respective SNDCP entity. Upon receipt of this primitive without XID Negotiation Indicator the SNDCP entity shall remove the NSAPI from the Applicable NSAPIs of the compression entity without any XID negotiation.

The XID negotiation is a one-step procedure; i.e. the initiating end proposes parameter values, and the responding end either accepts these or offers different values in their place according to the XID negotiation rules described in the present document; the rules limit the range of parameter values as well as the sense of negotiation. The initiating end accepts (or rejects) the values in the response; this concludes the negotiation.

The block format for the SNDCP XID parameter negotiation is shown in figure 10. Not all parameters have to be included in the XID block, only parameters that are negotiated. Parameters may be included in any order. Also it shall be possible to negotiate parameters for more than one NSAPI in one XID block since more than one NSAPI can use the same SAPI.

Bit	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Octet 1	Parameter type=0							
Octet 2	Length=1							
Octet 3	Version number							
Octet 4	Parameter type=1							
Octet 5	Length=n-5							
Octet 6	P	X	X	Entity number				
Octet 7 (optional)								
Octet 8	Length=k-8							
Octet 9 … (optional)								
Octet j	High-order octet							
…	…							
Octet k	Low-order octet							
Octet k+1	P	X	X	Entity number				
Octet k+2 (optional)								
Octet k+3	Length=m-(k+3)							
Octet k+4… (optional)								
Octet k+y	High-order octet							
…	…							
Octet m	Low-order octet							
…	…							
Octet n	Low-order octet							
Octet n+1	Parameter type=2							
Octet n+2	Length=r-(n+2)							
Octet n+3	P	X	X	Entity number				
Octet n+4 (optional)								
Octet n+5	Length=p-(n+5)							
Octet n+6… (optional)								
Octet n+w	High-order octet							
…	…							
Octet p	Low-order octet							
Octet p+1	P	X	X	Entity number				
Octet p+2 (optional)								
Octet p+3	Length=q-(p+3)							
Octet p+4… (optional)								
Octet p+v	High-order octet							
…	…							
Octet q	Low-order octet							
…	…							
Octet r	Low-order octet							

Figure 10: Example of SNDCP XID block format

The SNDCP user uses SN-XID.request to initiate the negotiation of the XID parameters. The SNDCP entity sends the proposed SNDCP XID parameters to the LLC SAP with the LL-XID.request or LL-ESTABLISH.request. The LLC SAP shall issue an XID command containing the SNDCP XID parameters (see 3GPP TS 44.064 [6]). The peer LLC SAP shall, upon receipt of the XID command, indicate the SNDCP XID parameters to SNDCP entity using LL-XID.indication or LL-ESTABLISH.indication. The peer SNDCP entity shall select appropriate values for the proposed parameters or negotiate the appropriate values with the SNDCP user entity with the SN-XID.indication and SN-XID.response primitives. When the appropriate parameter values are known by the peer SNDCP entity, it shall use the LL-XID.response or LL-ESTABLISH.response primitive to continue negotiation. Upon reception of the response, the LLC SAP shall send the received parameters to the SNDCP entity using the LL-XID.confirm or LL-ESTABLISH.confirm primitive. The SNDCP entity delivers the negotiated parameters to the SNDCP user. This is illustrated in figure 11. The originator of the negotiation shall apply the new parameter values after it has received the 'confirm' primitive. The responding end of the negotiation shall apply the new parameter values after it has sent the replying 'response' primitive.

Following the sending of the LL-XID.request primitive, the SNDCP layer shall suspend the transfer of SN-DATA and SN-UNITDATA primitives to the LLC SAP to which the LL-XID.request is sent. Transfer of SN-DATA and SN-UNITDATA primitives shall resume when the SNDCP XID negotiation ends through one of the following means:

- successful (receiving LL-XID.confirm);
- failure (receiving LL-RELEASE.indication, or LL-STATUS.indication); or
- successful following collision resolution (receiving LL-ESTABLISH.indication and sending LL-ESTABLISH.response, or receiving LL-XID.indication and sending LL-XID.response, see subclause 6.2.1.4).

LLC may also initiate LLC XID negotiation, in which case LLC may send an LL-XID.indication to inform SNDCP the values of N201-I and N201-U. This is illustrated in figure 12. If the SNDCP entity receives an LL-XID.indication without an SNDCP XID block, it shall not respond with the LL-XID.response primitive.

Negotiation of SNDCP version number is always between the peer SNDCP entities. The version number is not known by the SNDCP user. However, negotiation of the parameters for compression algorithms may be carried out between the SNDCP user entities.

Negotiation of SNDCP XID parameters for an NSAPI shall be carried out in the SAPI to which the NSAPI is mapped.

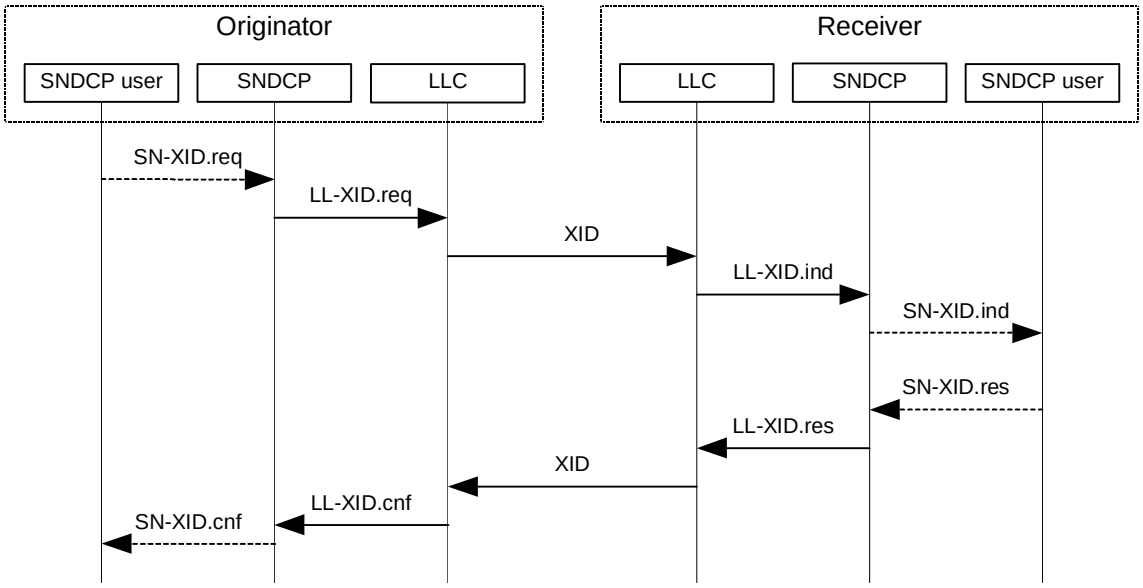

Figure 11: SNDCP XID negotiation procedure

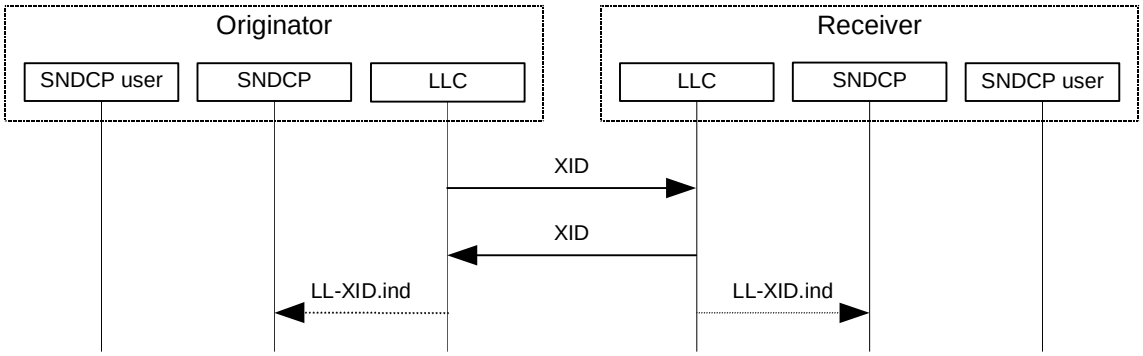

Figure 12: LLC XID negotiation procedure