3GPP TSG CN Plenary **Tdoc NP-010271**
Meeting #12, Stockholm, Sweden
13th - 15th June 2001

Source: **TSG CN WG 1**

Title: **CRs to Rel-4 on Work Item TEI4 towards 44.064 and 24.008**

Agenda item: **8.12**

Document for: **APPROVAL**

Introduction:

This document contains **2** CRs on **Rel-4 to** Work Item **"TEI4"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Version-Current	Workitem
44.064	001		N1-010759	Rel-4	Addition of UI Dummy command for use in RLC/MAC delayed TBF release procedure	B	4.0.0	TEI4
24.008	419	1	N1-010853	Rel-4	Clean up related to V.23, X.75, X.25 and X.32	D	4.2.0	TEI4

3GPP TSG CN WG1 Meeting #17 ***Tdoc N1-010853***
Puerto Rico, 14 – 18 May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **24.008** **CR** **419** ⌘ **rev** **1** ⌘ **Current vers** **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Clean up related to V.23, X.75, X.25 and X.32
Source:	⌘	L M Ericsson
Work item code:	⌘	TEI4
Date:	⌘	
Category:	⌘	**F**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	Clean up due to deletion of services in earlier releases.
Summary of change:	⌘	Deleted all references to V.23, X.75, X.25 and X.32.
Consequences if not approved:	⌘	Indication of not supported services.

Clauses affected:	⌘	2, Tables 10.5.105, 10.5.115, 10.5.119 and 10.5.131.
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

First modified section

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] 3GPP TS 01.02: "Digital cellular telecommunications system (Phase 2+); General description of a GSM Public Land Mobile Network (PLMN)".

[2] 3GPP TS 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[2a] 3GPP TS 21.905 "3G Vocabulary for 3GPP Specifications"

[3] 3GPP TS 22.002: "Digital cellular telecommunications system (Phase 2+); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[4] 3GPP TS 22.003: "Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[5] 3GPP TS 02.09: "Digital cellular telecommunications system (Phase 2+); Security aspects".

[6] 3GPP TS 22.011: "Digital cellular telecommunications system (Phase 2+); Service accessibility".

[7] 3GPP TS 02.17: "Digital cellular telecommunications system (Phase 2+); Subscriber identity modules Functional characteristics".

[8] 3GPP TS 02.40: "Digital cellular telecommunications system (Phase 2+); Procedures for call progress indications".

[9] 3GPP TS 03.01: "Digital cellular telecommunications system (Phase 2+); Network functions".

[10] 3GPP TS 23.003: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification".

[11] 3GPP TS 03.13: "Digital cellular telecommunications system (Phase 2+); Discontinuous Reception (DRX) in the GSM system".

[12] 3GPP TS 23.014: "Digital cellular telecommunications system (Phase 2+); Support of Dual Tone Multi-Frequency signalling (DTMF) via the GSM system".

[12a] 3GPP TS 23.071: "Digital cellular telecommunications system (Phase 2+); Location Services; Functional description – Stage 2".

[13] GSM 03.20: "Digital cellular telecommunications system (Phase 2+); Security related network functions".

[14] 3GPP TS 23.122: "NAS Functions related to Mobile Station (MS) in idle mode".

[15] 3GPP TS 24.002: "GSM-UMTS Public Land Mobile Network (PLMN) access reference configuration".

[16] 3GPP TS 04.03: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Channel structures and access capabilities".

[17] 3GPP TS 04.04: "Digital cellular telecommunications system (Phase 2+); layer 1 General requirements".

[18] 3GPP TS 04.05: "Digital cellular telecommunications system (Phase 2+); Data Link (DL) layer General aspects".

[19] 3GPP TS 04.06: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Data Link (DL) layer specification".

[20] 3GPP TS 24.007: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface signalling layer 3 General aspects".

[21] 3GPP TS 24.010: "Digital cellular telecommunications system ; Mobile radio interface layer 3 Supplementary services specification General aspects".

[22] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[23] 3GPP TS 24.012: "Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface".

[23a] 3GPP TS 24.071: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 location services specification.

[23b] 3GPP TS 04.31 "Digital cellular telecommunication system (Phse 2+);Location Services;Mobile Station (MS) – Serving Mobile Location Centre (SMLC); Radio Resource LCS Protocol (RRLP)".

[24] 3GPP TS 24.080: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 supplementary services specification Formats and coding".

[25] 3GPP TS 24.081: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 3".

[26] 3GPP TS 24.082: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 3".

[27] 3GPP TS 24.083: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 3".

[28] 3GPP TS 24.084: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services - Stage 3".

[29] 3GPP TS 24.085: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 3".

[30] 3GPP TS 24.086: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services - Stage 3".

[31] 3GPP TS 24.088: "Call Barring (CB) supplementary services - Stage 3".

[32] 3GPP TS 05.02: "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path".

[33] 3GPP TS 05.05: "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception".

[34] 3GPP TS 05.08: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".

[35] 3GPP TS 05.10: "Digital cellular telecommunications system (Phase 2+); Radio subsystem synchronization".

[36] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[37] 3GPP TS 29.002: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[38] 3GPP TS 29.007: "Digital cellular telecommunications system (Phase 2+); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[39] 3GPP TS 11.10: "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformity specification".

[40] 3GPP TS 11.21: "Digital cellular telecommunications system (Phase 2); The GSM Base Station System (BSS) equipment specification".

[41] ISO/IEC 646 (1991): "Information technology - ISO 7-bit coded character set for information interchange".

[42] ISO/IEC 6429: "Information technology - Control functions for coded character sets".

[43] ISO 8348 (1987): "Information processing systems - Data communications - Network service definition".

[44] ITU-T Recommendation E.163: "Numbering plan for the international telephone service".

[45] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".

[46] ITU-T Recommendation E.212: "Identification plan for land mobile stations".

[47] ITU-T Recommendation F.69 (1993): "Plan for telex destination codes".

[48] ITU-T Recommendation I.330: "ISDN numbering and addressing principles".

[49] ITU-T Recommendation I.440 (1989): "ISDN user-network interface data link layer - General aspects".

[50] ITU-T Recommendation I.450 (1989): "ISDN user-network interface layer 3 General aspects".

[51] ITU-T Recommendation I.500 (1993): "General structure of the ISDN interworking recommendations".

[52] ITU-T Recommendation T.50: "International Alphabet No. 5".

[53] ITU Recommendation Q.931: ISDN user-network interface layer 3 specification for basic control".

[54] ITU-T Recommendation V.21: "300 bits per second duplex modem standardized for use in the general switched telephone network".

[55] ITU-T Recommendation V.22: "1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[56] ITU-T Recommendation V.22bis: "2400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[57] ~~ITU-T Recommendation V.23: "600/1200-baud modem standardized for use in the general switched telephone network".~~Void.

[58] ITU-T Recommendation V.26ter: "2400 bits per second duplex modem using the echo cancellation technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[59] ITU-T Recommendation V.32: "A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits".

[60] ITU-T Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".

[61] ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[62] ITU-T Recommendation X.21: "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks".

[63] ~~ITU-T Recommendation X.25: "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".~~ Void.

[64] ~~ITU-T Recommendation X.28: "DTE/DCE interface for a start-stop mode data terminal equipment accessing the packet assembly/disassembly facility (PAD) in a public data network situated in the same country".~~ Void.

[65] ITU-T Recommendation X.30: "Support of X.21, X.21 bis and X.20 bis based data terminal equipments (DTEs) by an integrated services digital network (ISDN)".

[66] ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[67] ~~ITU-T Recommendation X.32: "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and accessing a packet switched public data network through a public switched telephone network or an integrated services digital network or a circuit switched public data network".~~ Void.

[68] ~~ITU-T Recommendation X.75 (1988): "Packet-switched signalling system between public networks providing data transmission services".~~ Void.

[69] ITU-T Recommendation X.121: "International numbering plan for public data networks".

[70] ETSI ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control".

[71] ETSI ETS 300 102-2: "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control".

[72] ISO/IEC10646: "Universal Multiple-Octet Coded Character Set (UCS)"; UCS2, 16 bit coding.

[73] 3GPP TS 22.060: "General Packet Radio Service (GPRS); Service Description; Stage 1".

[74] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service Description; Stage 2".

[75] 3GPP TS 03.64: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2".

[76] 3GPP TS 04.60: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station - Base Station System (MS-BSS) interface; Radio Link Control and Medium Access Control (RLC/MAC) layer specification".

[77] IETF RFC 1034: "Domain names - Concepts and Facilities " (STD 7).

[78] 3GPP TS 04.65: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Subnetwork Dependent Convergence Protocol (SNDCP)".

[79] ITU Recommendation I.460: "Multiplexing, rate adaption and support of existing services".

[80] 3GPP TS 26.111: "Codec for Circuit Switched Multimedia Telephony Service; Modifications to H.324"

[81] 3GPP TS 23.107: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; QoS Concept and Architecture"

[82] 3GPP TS 03.22: " Digital cellular telecommunications system (Phase 2+); Functions related to Mobile Station (MS) in idle mode and group receive mode".

[83] 3GPP TS 26.103: "3rd Generation Partnership Project; TSG-SA Codec Working Group; Speech Codec List for GSM and UMTS"

End of modified section

Start of next modified section

Table 10.5.105/TS 24.008: Bearer capability information element

Access identity (octet 5)
Bits
7 6
0 0 octet identifier

All other values are reserved

Rate adaption (octet 5)
Bits
5 4
0 0 no rate adaption
0 1 V.110, I.460/X.30 rate adaptation
1 0 ITU-T X.31 flag stuffing
1 1 Other rate adaption (see octet 5a)

Signalling access protocol (octet 5)

Bits
3 2 1
0 0 1 I.440/450
0 1 0 reserved: was allocated in earlier phases of the protocol
0 1 1 reserved: was allocated in earlier phases of the protocol
1 0 0 reserved: was allocated in earlier phases of the protocol.
1 0 1 reserved: was allocated in earlier phases of the protocol
1 1 0 ~~X.32~~reserved: was allocated in earlier phases of the protocol

All other values are reserved.

End of modified section

Start of next modified section

Table 10.5.115/TS 24.008: Bearer capability information element

Layer 2 identity (octet 7)
Bits
7 6
1 0 octet identifier

All other values are reserved

User information layer 2 protocol (octet 7)

Bits
5 4 3 2 1
0 0 1 1 0 ~~recommendation X.25, link level~~ reserved: was allocated in earlier phases of the protocol
0 1 0 0 0 ISO 6429, codeset 0 (DC1/DC3)
0 1 0 0 1 reserved: was allocated but never used in earlier phases of the protocol
0 1 0 1 0 videotex profile 1
0 1 1 0 0 COPnoFlCt (Character oriented Protocol with no Flow Control mechanism)
0 1 1 0 1 ~~X.75 layer 2 modified (CAPI)~~ reserved: was allocated in earlier phases of the protocol

All other values are reserved.

End of modified section

Start of next modified section

Table 10.5.119/TS 24.008: Called party subaddress

Type of subaddress (octet 3)

Bits

7	**6**	**5**	
0	0	0	NSAP (X.213/ISO 8348 AD2)
0	1	0	User specified

All other values are reserved

Odd/even indicator (octet 3)

Bit

4	
0	even number of address signals
1	odd number of address signals

NOTE: The odd/even indicator is used when the type of subaddress is "user specified" and the coding is BCD.

Subaddress information (octet 4, etc...)

The NSAP X.213/ISO8348AD2 address shall be formatted as specified by octet 4 which contains the Authority and Format Identifier (AFI). The encoding is made according to the "preferred binary encoding" as defined in X.213/ISO8348AD2. For the definition of this type of subaddress, see Rec. ITU-T I.334.

A coding example is given in ANNEX A.

For User-specific subaddress, this field is encoded according to the user specification, subject to a maximum length of 20 octets. ~~When interworking with X.25 networks BCD coding should be applied.~~

NOTE: It is recommended that users apply NSAP subaddress type since this subaddress type allows the use of decimal, binary and IA5 characters in a standardised manner.

End of modified section

Start of next modified section

Table 10.5.121/TS 24.008: Calling party subaddress

Type of subaddress (octet 3)

Bits

7	**6**	**5**	
0	0	0	NSAP (X.213/ISO 8348 AD2)
0	1	0	User specified

All other values are reserved

Odd/even indicator (octet 3)

Bit

4	
0	even number of address signals
1	odd number of address signals

The odd/even indicator is used when the type of subaddress is "user specified" and the coding is BCD

Subaddress information (octet 4, etc...)

The NSAP X.213/ISO8348AD2 address shall be formatted as specified by octet 4 which contains the Authority and Format Identifier (AFI). The encoding is made according to the "preferred binary encoding" as defined in X.213/ISO8348AD2. For the definition of this type of this type of subaddress, see Rec. ITU-T I.332.

A coding example is given in ANNEX A.

For User-specific subaddress, this field is encoded according to the user specification, subject to a maximum length of 20 octets. ~~When interworking with X.25 networks BCD coding should be applied.~~

NOTE: It is recommended that users apply NSAP subad dress type since this subaddress type allows the use of decimal, binary and IA5 characters in a standardised manner.

End of modified section

Start of last modified section

Table 10.5.131/TS 24.008: User-user information element

User-user protocol discriminator (octet 3)

Bits 8	7	6	5	4	3	2	1	
0	0	0	0	0	0	0	0	User specific protocol (Note 1)
0	0	0	0	0	0	0	1	OSI high layer protocols
0	0	0	0	0	0	1	0	X.244 (Note 2)
0	0	0	0	0	0	1	1	Reserved for system management convergence function
0	0	0	0	0	1	0	0	IA5 characters (Note 3)
0	0	0	0	0	1	1	1	Rec.V.120 rate adaption
0	0	0	0	1	0	0	0	Q.931 (I.451) user-network call control messages
0	0	0	1	0	0	0	0	Reserved for other network layer or layer 3 protocols ~~including Rec.X.25 (Note 4)~~
through								
0	0	1	1	1	1	1	1	
0	1	0	0	0	0	0	0	National use
through								
1	1	0	0	1	1	1	1	
0	1	0	1	0	0	0	0	Reserved for other network layer or layer 3 protocols ~~including Rec.X.25 (Note 4)~~
through								
1	1	1	1	1	1	1	0	

All other values are reserved.

Note 1: The user information is structured according to user needs.
Note 2: The user information is structured according to Rec.X.244 which specifies the structure of X.25 call user data.
Note 3: The user information consists of IA5 characters.
~~Note 4: These values are reserved to discriminate these protocol discriminators from the first octet of a X.25 packet including general format identifier.~~

End of last modified section

3GPP TSG CN WG1 Meeting #17 ***Tdoc NP-010759***
Rio Grande, Puerto Rico, 14-18 May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **44.064** **CR** **001** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Addition of UI Dummy command for use in RLC/MAC delayed TBF release procedure
Source:	⌘	Motorola
Work item code:	⌘	TEI4
Date:	⌘	2001-05-05
Category:	⌘	**B**
Release:	⌘	Rel-4

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	An overall performance, significantly lower than expected, has been experienced in the interaction between many TCP/IP based applications and GPRS/EGPRS. Continuous operation of a downlink TBF (RLC/MAC layer) is proposed as a means to improve the performance in these situations. For that purpose, suitable fill information need to be defined, which can be used by the RLC layer for padding of RLC PDUs during periods of idle downlink data flow, between the actual LLC PDUs received from the upper layer.
Summary of change:	⌘	It is proposed that a new UI Dummy command be defined. It is of variable length, with a minimum of 6 octets (header and FCS octets) and a maximum of 79 octets. The content of the UI Dummy command is a fixed pattern such that the UI Dummy command has an invalid FCS. Thereby, it will be discarded by the receiving LLC entity in the mobile station.
Consequences if not approved:	⌘	Networks may be developed using hidden features in the standard, which may cause problem for future extensions of the standard.

Clauses affected:	⌘	2, 6.4.2.2 (new)
Other specs affected:	⌘	☐ Other core specifications ⌘ 3GPP TS 44.060 ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	This CR is based on the CR "Addition of dummy LLC PDU for use in RLC/MAC delayed TBF release procedure," which has been agreed by GERAN2 Ad Hoc on Enhanced TBF Procedures and has been sent to CN1 (Tdoc N1-010405) for approval. CN1 have revised the GERAN2 CR but in their last meeting #16 in Sophia Antipolis didn't have enough time to discuss it and agree on it.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1999 document, references to GSM documents are for Release 1999 versions (version 8.x.y).

[1] 3GPP TS 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[2] 3GPP TS 01.61: "Digital cellular telecommunications system (Phase 2+); GPRS ciphering algorithm requirements".

[3] 3GPP TS 02.60: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Service description; Stage 1".

[4] 3GPP TS 03.40: "Digital cellular telecommunications system (Phase 2+); Technical realization of the Short Message Service (SMS); Point-to-Point (PP)".

[5] 3GPP TS 03.60: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Service description; Stage 2".

[6] 3GPP TS 03.64: "Digital cellular telecommunications system (Phase 2+); Overall description of the General Packet Radio Service (GPRS) Radio interface; Stage 2".

[7] 3GPP TS 04.01: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface; General aspects and principles".

[8] 3GPP TS 04.08: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification".

[9] 3GPP TS 04.11: "Digital cellular telecommunication system (Phase 2+); Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[10] 3GPP TS 04.22: "Digital cellular telecommunications system (Phase 2+); Radio Link Protocol (RLP) for data and telematic services on the Mobile Station - Base Station System (MS - BSS) interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[11] 3GPP TS 04.65: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) – Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

[12] 3GPP TS 08.18: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS Protocol (BSSGP)".

[13] ITU-T Q.920 (1988): "ISDN user-network interface data link layer – general aspects".

[14] ITU-T Q.921 (1988): "ISDN user-network interface – data link layer specification".

[15] ITU-T Z.100 (1988): "CCITT specification and description language (SDL)".

[16] ISO 3309 (1984): "Information processing systems – Data communications – High-level logical link control procedures – Frame structure".

[17] ISO 4335 (1987): "Information processing systems – Data communication – High-level logical link control procedures – Consolidation of elements of procedures".

[18] ISO 7809 (1984): "Information processing systems – Data communication – High-level logical link control procedures – Consolidation of classes of procedures".

[19] ISO 7809 (1984): "Information processing systems – Data communication Add. 1: 1987 – High-level logical link control procedures – Consolidation of classes of procedures – Addendum 1".

[20] ISO 7809 (1984): "Information processing systems – Data communication Add. 2: 1987 – High-level logical link control procedures – Consolidation of classes of procedures – Addendum 2: Description of optional functions".

[21] TIA IS-130 (1995): "800 MHz Cellular System – TDMA Radio Interface – Radio Link Protocol 1" Arlington: Telecommunications Industry Association.

[22] TIA/EIA-136 (1999): "TDMA Cellular / PCS"; Arlington: Telecommunications Industry Association.

[23] 3GPP TS 44.060: “General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol”.

NEXT MODIFICATION

6.4.2 Unconfirmed Information (UI) frame

6.4.2.1 Unconfirmed Information (UI) command

When a layer-3 entity requests unacknowledged information transfer, the UI command shall be used to send information to its peer. No verification of sequence numbers is performed for UI frames. Therefore, the UI frame may be lost without notification to the layer-3 entity if a logical link exception occurs during transmission of the command.

6.4.2.2 Unconfirmed Information (UI) Dummy command

The UI Dummy command is a special UI command that shall never be transmitted by an LLC entity, but it can be received by the LLC entity at the MS~~mobile~~.

If the LLC entity at the MS~~mobile~~ receives a UI Dummy command, it shall discard it without any further actions. ~~recognises it as an invalid UI command and, therefore, discards it with no further actions.~~

NOTE: The UI Dummy command may be used by the network for the purpose~~s~~ to delay~~ed~~ the ~~R~~release of a ~~D~~downlink TBF, as specified in 3GPP TS 44.060 [23].

The format of the UI Dummy command is illustrated in Figure 11a. The length of the UI Dummy command is variable, with a minimum value of 6 octets and a maximum value of 79 octets. All octets from octet 4 to the last octet N shall be encoded with ~~have the~~a hexadecimal value of 2B.

NOTE: The ~~specified~~ format specified for~~of~~ the UI Dummy command ~~makes~~ ensures that a receiving LLC entity will always discard~~s~~ it, since the FCS check always fails (no matter what the length of the UI Dummy command is).

Bit 8	7	6	5	4	3	2	1	
PD=0	C/R=1	0	0	SAPI=3				Octet 1
1	1	D=0	0	0	N(U) =0			Octet 2
N(U) =0						E=0	PM=1	Octet 3
0	0	1	0	1	0	1	1	Octet 4
0	0	1	0	1	0	1	1	Octet 5
0	0	1	0	1	0	1	1	Octet 6
				: : :				
0	0	1	0	1	0	1	1	Octet N-2 (LLC FCS)
0	0	1	0	1	0	1	1	Octet N-1 (LLC FCS)
0	0	1	0	1	0	1	1	Octet N (LLC FCS)

Figure 11a: Format of the UI Dummy command