3GPP TSG_CN#7 **NP-000049**

ETSI SMG3 Plenary Meeting #7,

Madrid, Spain

13th – 15th March 2000

Agenda item: **5.3.3**

Source: **TSG_N WG3**

Title: **CRs to 3G Work Item Streamlining**

Introduction:

This document contains **"2"** CRs on **Work Item Streamlining,** that have been agreed by **TSG_N WG3,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

WG Tdoc	Spec	CR	Rev	Cat	Phase	Current V.	New V.	Subject
N3-000103	29.061	009		F	R99	3.2.0	3.3.0	Specification reference section clean-up
N3-000102	27.060	013		F	R99	3.3.0	3.4.0	Specification reference section clean-up

3GPP TSG-CN WG3/SMG 3 WPD Meeting #8
Sophia-Antipolis, France, 28 Feb-03 Mar 2000

***Document* N3-000102**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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27.060	CR	013	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: TSG_CN WG3 **Date:** 2000-03-01

Subject: Reference section clean-up

Work item: Streamlining

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Reference section clean-up

Clauses affected: 2, 9.1, 10.1, B.2.2

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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2 References

~~[All references need to be checked once release 99 stabilizes.]~~

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.
- 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] GSM 01.04: " Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms"

[2] ~~GSM 02.02~~3G TS 22.002: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects~~Digital cellular telecommunication system (Phase 2+)~~; Circuit Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[3] 3G TS 22.060 "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General Packet Radio Service (GPRS); Service Description Stage 1".

[4] 3G TS 23.002~~GSM 03.02~~: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects~~Digital cellular telecommunication system (Phase 2+)~~; Network architecture".

[5] 3G TS 23.003: "3rd Generation Partnership Project; Technical Specification Group Core Network~~Digital cellular telecommunications system (Phase 2+)~~; Numbering, addressing and identification".

[6] GSM 03.10: "Digital cellular telecommunication system (Phase 2+); GSM Public Land Mobile Network (PLMN) connection types".

[7] 3G TS 23.~~0~~122: "3rd Generation Partnership Project; Technical Specification Group Core Network~~Digital cellular telecommunications system (Phase 2+)~~; NAS Functions related to Mobile Station (MS) in idle mode~~ and group receive mode~~".

[8] 3G TS 23.040: "3rd Generation Partnership Project; Technical Specification Group Terminals~~Digital cellular telecommunications system (Phase 2+)~~; Technical realization of the Short Message Service (SMS)~~ ; Point-to-Point (PP)~~".

[9] 3G TS 23.060: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects~~Digital cellular telecommunication system (Phase 2+)~~; General Packet Radio Service (GPRS) Service Description Stage 2".

[10] GSM 04.02: "Digital cellular telecommunication system (Phase 2+); GSM Public Land Mobile Network (PLMN) access reference configuration".

[11] 3G TS 24.007: "3rd Generation Partnership Project; Technical Specification Group Core Network~~Digital cellular telecommunications system (Phase 2+)~~; Mobile radio interface signalling layer 3; General aspects".

[12] 3G TS 24.008: "3rd Generation Partnership Project; Universal Mobile Telecommunications System;Technical~~Digital cellular telecommunications system (Phase 2+)~~; Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3".

[13] GSM 04.60: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control / Medium Access Control (RLC/MAC) protocol".

[14] GSM 04.64: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Logical Link Control (LLC)".

[15] 3G TS 24.065~~GSM 04.65~~: "3rd Generation Partnership Project; Technical Specification Group Core Network; ~~Digital cellular telecommunications system (Phase 2+);~~ General Packet Radio Service (GPRS); Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

[16] 3G TS 27.007: "3rd Generation Partnership Project; Technical Specification Group Terminals~~Digital cellular telecommunication system (Phase 2+)~~; AT command set for 3GPP User ~~GSM Mobile~~ Equipment (~~M~~UE)".

[17] 3G TS 29.061: "3rd Generation Partnership Project; Technical Specification Group Core Network; Packet Domain; Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based Services and Packet Data Networks (PDN)".

[18] CCITT Recommendation E.164: "Numbering plan for the ISDN era".

[19] CCITT Recommendation V.42 bis: "Data communication over the telephone network – Data compression procedures for data circuit-terminating equipment (DCE) using error correction procedures".

[20] CCITT Recommendation X.3: "Packet assembly disassembly facility (PAD) in a public data network".

[21] CCITT 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".

[22] CCITT 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".

[23] CCITT Recommendation X.29: "Procedures for the exchange of control information and user data between a packet assembly / disassembly (PAD) facility and a packet mode DTE or another PAD".

[24] CCITT Recommendation X.75: "Packet-switched signalling system between public networks providing data transmission services".

[25] CCITT Recommendation X.121: "International Numbering Plan for Public Data Networks".

[26] IETF RFC 768 (1980): "User Datagram Protocol" (STD 6).

[27] IETF RFC 791 (1981): "Internet Protocol" (STD 5).

[28] IETF RFC 792 (1981): "Internet Control Message Protocol" (STD 5).

[29] IETF RFC 793 (1981): "Transmission Control Protocol" (STD 7).

[30] ITU-T Recommendation V.250 (ex V.25ter): "Serial asynchronous automatic dialling and control".

[31] ITU-T Recommendation V.24: "List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)".

[32] ITU-T Recommendation V.28: "Electrical Chracteristics for unbalanced double-current interchange circuits"

[33] ITU-T Recommendation V.80: "In-band DCE control and synchronous data modes for asynchronous DTE"

[34] IETF RFC 1661 (1994): “The Point-to-Point Protocol (PPP)” (STD 51).

[35] IETF RFC 1662 (1994): “PPP in HDLC-like framing” (STD 51).

[36] IETF RFC 1700 (1994): “Assigned Numbers” (STD 2).

[3]7 IETF RFC 1570 (1994):”PPP LCP Extensions“.

[38] IETF RFC 1989 (1996):”PPP Link Quality Monitoring“.

[39] IETF RFC 1332 (1992):”The PPP Internet Protocol Control Protocol (IPCP)“.

[40] IETF RFC 1877 (1995):”PPP IPCP Extensions for Name Server Addresses “.

[41] IETF RFC 2153 (1997):”PPP Vendor Extensions“.

[42] IETF RFC 1334 (1992):”PPP Authentication Protocols“.

[43] IETF RFC 1994 (1996):”PPP Challenge Handshake Authentication Protocol“.

[44] IETF RFC 2686 (1999):”The Multi-Class Extension to Multi-Link PPP”

[45] IETF RFC 1990 (1996):”The PPP Multilink Protocol (MP)“.

9.1 Example mapping of functions between the R reference point and the Packet Domain bearer for IP over PPP

The following example illustrates the case when the IP over PPP functionality is used in the MT. The example does not include all the details of PPP, but only describes the logical operation of PPP connection establishment, host authentication and IP configuration.

Each interface at the R reference point can support only one PPP connection and each PPP connection can support only one IP session. Therefore, in PPP mode only one IP PDP context can be activated per interface at the R reference point. However, it is possible for a PCMCIA card (or other multiplexed interface) to support multiple virtual interfaces (communications ports) at the R reference point. Multiple PPP connections and IP contexts are possible in this case.

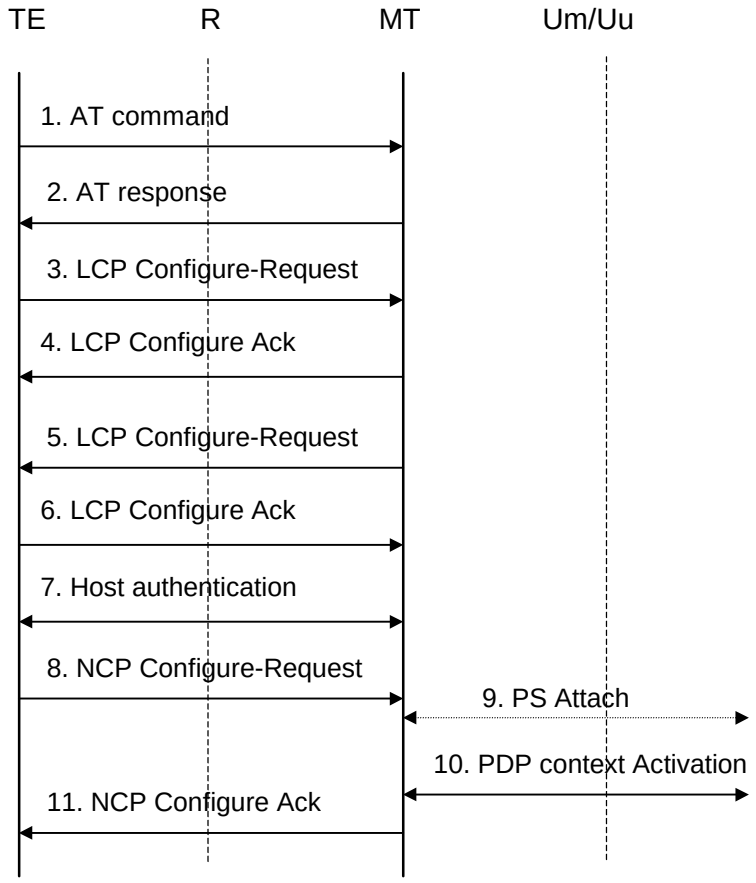

Figure 7: IP Over PPP Based Service

1) The TE issues AT commands to set up parameters and enter PPP mode (refer to subclause on AT commands for further details).

2) The MT sends AT responses to the TE.

3) The PPP protocol in the TE sends a LCP Configure-Request. This command is to establish a PPP link between the TE and the MT.

4) The MT returns LCP Configure-Ack to the TE to confirm that the PPP link has been established. The MT might previously have sent a LCP Configure-Nak in order to reject some options proposed by the TE. This in turn might have triggered a retransmission of the LCP Configure-Request with different options.

5) The PPP protocol in the MT sends a LCP Configure-Request in order to negotiate for the authentication protocol used for authentication of the host TE towards the MT. The MT shall initially negotiate for CHAP, and if this is unsuccessful, for PAP.

6) The TE returns a LCP Configure-Ack to the MT to confirm the use of the specified authentication protocol. The MT might previously have sent a LCP Configure-Nak in order to reject the protocol proposed by the TE. This in turn might have triggered a retransmission of the LCP Configure-Request with different options.

7) If the negotiated authentication protocol is either of CHAP or PAP, the TE authenticates itself towards the MT by means of that protocol. The MT stores the necessary authentication data and sends a locally generated positive acknowledgement of the authentication to the TE. If none of the protocols is supported by the host TE no authentication shall be performed. Refer to 3G TS 29.061 for further details on the authentication.

8) The PPP protocol in the TE sends to the MT a NCP Configure-Request. This command activates the IP protocol.

9) If the MS is not yet PS attached, the MT performs the PS Attach procedure as described in 3G TS 23.060.

10) The MT performs a PDP Context Activation as described in 3G TS 23.060~~GSM 03.60~~. IP configuration parameters may be carried between the MT and the network in the Protocol Configuration Options IE in PDP Context Activation messages. The Protocol Configuration Options IE sent to the network may contain zero or one NCP Configure-Request packet (in addition to any LCP and authentication packets). The Protocol Configuration Options IE received from the network may contain zero or one NCP Configure-Ack, zero or one Configure-Nak and/or zero or one Configure-Reject packets (in addition to any LCP and authentication packets).

11) Based on the information received in the Protocol Configuration Options IE, the MT acknowledges to the PPP protocol in the TE that the IP protocol is now activated by sending a NCP Configure-Ack command. Before sending a NCP Configure-Ack, the MT might previously have sent a NCP Configure-Nak and/or Configure-Reject in order to reject some IP parameters proposed by the TE. This in turn might have triggered a retransmission of the NCP Configure-Request with different parameter values. The decision to reject a specific parameter or parameter value may be based on the information received from the network in the Protocol Configuration Options IE. NCP Configure-Ack may also carry IP protocol related parameters such as dynamic IP address to the TE. The MT shall also pass name server information to the TE if the TE has requested for it and if this information is provided by the GGSN. Other packet types and options may optionally be delivered. The MT may choose to immediately deactivate the PDP context due to the information received from the network in the Protocol Configurations Options IE.

10.1 Example mapping of functions between the R reference point and the GPRS bearer (transparent PPP negotiation)

The following example illustrates the case when the PPP negotiation is carried out transparently between the TE and the GGSN. The example does not include all the details of PPP, but only describes the logical operation of PPP LCP, host authentication and PPP NCP negotiations.

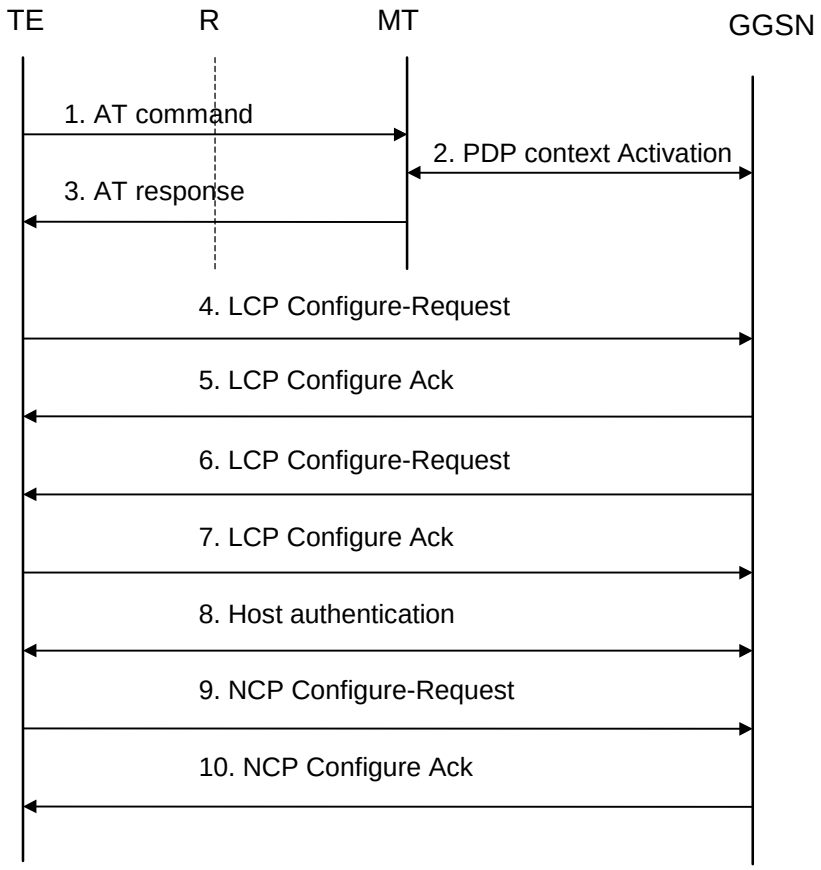

Figure 9a: PPP Based Service (transparent PPP negotiation)

1) The TE issues AT commands to set up parameters and activate a PDP Context (refer to sub-clause on AT commands for further details).

2) The MT performs a PDP Context Activation as described in 3G TS 23.060.

3) The MT sends AT responses to the TE.

4) The PPP protocol in the TE sends an LCP Configure-Request. This command establishes a PPP link between the TE and the GGSN.

5) The GGSN returns an LCP Configure-Ack to the TE to confirm that the PPP link has been established. The GGSN might previously have sent an LCP Configure-Nak in order to reject some options proposed by the TE. This in turn might have triggered a retransmission of the LCP Configure-Request with different options.

6) The PPP protocol in the GGSN sends an LCP Configure-Request in order to negotiate for the authentication protocol used for authentication of the host TE towards the GGSN.

7) The TE returns an LCP Configure-Ack to the GGSN to confirm the use of the specified authentication protocol. The GGSN might previously have sent an LCP Configure-Nak in order to reject the protocol proposed by the TE. This in turn might have triggered a retransmission of the LCP Configure-Request with different options.

8) The TE authenticates itself towards the GGSN by means of the negotiated protocol. If no authentication protocol can be negotiated the GGSN may reject the PPP connection. Refer to 3G TS 29.061~~GSM 09.61~~ for further details on the authentication.

9) The PPP protocol in the TE sends to the GGSN an NCP Configure-Request. This command activates the network layer protocol.

10) The GGSN acknowledges to the PPP protocol in the TE that the network layer protocol is now activated by sending an NCP Configure-Ack command. Before sending an NCP Configure-Ack, the GGSN might previously have sent an NCP Configure-Nak in order to reject some parameters proposed by the TE. This in turn might have triggered a retransmission of the NCP Configure-Request with different parameter values.

B.2.2 Service Primitives Used by the OSP Layer

The OSP layer uses the service primitives provided by the SNDCP layer (see Table B.2) and the GTP layer (see table B.3). SNDCP is specified in 3G TS 24.065~~GSM 04.65~~ and GTP in 3G TS 29.060.

Table B.2: SNDCP service primitives used by the OSP entity

Generic Name	**Type**				**Parameters**
	Request	Indication	Response	Confirm	
OSP <---> SNDCP					
SN-DATA	X	X	-	-	N-PDU, NSAPI
SN-UNITDATA	X	X	-	-	N-PDU, NSAPI, protection mode

3GPP TSG-N3/SMG3 WPD Meeting #8
Sophia Antipolis, France, 28 Feb - 03 Mar 2000

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or for SMG, use the format P-99-xxx

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29.061	CR	009	Current Version:	3.2.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG_N#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: TSG_CN WG3 **Date:** 01 March 2000

Subject: Specification reference section clean-up

Work item: Streamlining

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Specification reference section clean-up

Clauses affected: 2

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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2 References

~~(References to be cleaned up when release 99 is stable).~~

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[1] GSM 01.04: "Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms".

[2] 3G TS 22.060: "3rd Generation Partnership Project: Technical Specification Group Services and System Aspects~~Digital cellular telecommunication system (Phase 2+)~~; General Packet Radio Service (GPRS): Stage 1 Service Description".

[3] 3G TS 23.060: "3rd Generation Partnership Project: Technical Specification Services and System Aspects~~Digital cellular telecommunication system (Phase 2+)~~; General Packet Radio Service (GPRS); ~~Stage 2~~ Service Description Stage 2 ".

[4] GSM 03.61: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Point to Multipoint Multicast Service Description; Stage 2".

[5] GSM 03.62: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Point to Multipoint Group Call Service Description; Stage 2".

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

[7] GSM 04.60: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control / Medium Access Control (RLC/MAC) protocol".

[8] GSM 04.64: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Logical Link Control (LLC)".

[9] ~~GSM 04.65~~3G TS 24.065: "3rd Generation Partnership Project: Technical Specification Group Core Network~~Digital cellular telecommunications system (Phase 2+)~~; General Packet Radio Service (GPRS); Mobile Station (MS) - Serving GPRS Support Node(SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".

[10] 3G TS 27.060: "3rd Generation Partnership Project: Technical Specification Group Core Network; Packet Domain~~Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS)~~; Mobile Station (MS) supporting ~~GPRS~~Packet Switched Services".

[11] CCITT Recommendation E.164: "Numbering plan for the ISDN era".

[12] CCITT 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".

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[16] IETF RFC 791 (1981): "Internet Protocol" (STD 5).

[17] IETF RFC 792 (1981): "Internet Control Message Protocol" (STD 5).

[18] IETF RFC 793 (1981): "Transmission Control Protocol" (STD 7).

[19] IETF RFC 1034 (1987): "Domain Names – Concepts and Facilities" (STD 7).

[20] Bellcore GR-000301 Issue 2 December 1997; “Public Packet Switched Network Generic Requirements (PPSNGR)”.

[21] IETF RFC 1661 and 1662 (1994): “The Point-to-Point Protocol (PPP)” (STD 51).

[22] IETF RFC 1700 (1994): “Assigned Numbers” (STD 2).3

[23] UMTS 24.008: "Mobile radio interface layer 3 specification; Core Network Protocols – Stage 3".

[24] UMTS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface".

[25] Pat R. Calhoun and Charles E. Perkins, “Mobile IP Network Address Identifier Extension”, October 1999. Work in progress (http://www.ietf.org/internet-drafts/draft-ietf-mobileip-mn-nai-05.txt).

[26] IETF RFC 2131 (1997): “Dynamic Host Configuration Protocol”.

[27] IETF RFC 1542 (1993): “Clarification and Extensions for the Bootstrap Protocol”.

[RFC2002] IETF RFC 2002 (1996), C. Perkins: “IP Mobility Support”

[RFC2486] IETF RFC 2486 (1999), B. Aboba and M. Beadles: “The Network Access Identifier January 1999