

# **GSM General Packet Radio Services**

## **Test Specification GACI - WAP over GPRS**

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## 0.2 References

- [1] GSM 05.02 version 8.0.0 Release 1999  
Digital cellular telecommunications system (Phase 2+);  
Multiplexing and multiple access on the radio path
- [2] GSM 04.60 version 6.3.0 Release 1997  
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
- [3] GSM 04.08 version 6.3.0 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
Mobile radio interface layer 3 specification
- [4] GSM 03.64 version 6.1.0 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
General Packet Radio Service (GPRS);  
Overall description of the GPRS radio interface; Stage 2
- [5] GSM 03.60 version 6.3.1 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
General Packet Radio Service (GPRS);  
Service description; Stage 2
- [6] GSM 04.07 version 6.3.0 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
Mobile radio interface signalling layer 3; General aspects
- [7] GSM 04.64 version 6.3.0 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
General Packet Radio Service (GPRS);  
Mobile Station - Serving GPRS Support Node (MS-SGSN)  
Logical Link Control (LLC) layer specification
- [8] GSM 05.08 version 6.4.0 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
Radio subsystem link control
- [9] GSM 05.10 version 6.3.0 Release 1997  
Digital cellular telecommunications system (Phase 2+);  
Radio subsystem synchronization
- [10] GSM 03.20 TS 100 929: July 1998 (GSM 03.20 version 6.0.1)  
Security related network functions, ETSI
- [11] Draft GSM 03.22: August 1998 (GSM 03.22 version 6.1.0)  
Functions related to Mobile Station (MS) in idle mode and group receive mode, ETSI
- [12] GSM 04.65 V6.3.0: Subnetwork Dependant Convergence Protocol  
ETSI, March 1999
- [13] ITU-T V42bis ITU-T, Recommendation V.42 bis 1990
- [14] GSM 09.60 GPRS Tunneling Protocol (GTP) across the Gn and Gp Interface

- [15] RFC 1661 IETF STD 51 July 1994  
The Point-to-Point Protocol (PPP)
- [16] RFC 1662 IETF STD 51 July 1994  
PPP in HDLC-like Framing
- [17] RFC 1570 January 1994  
PPP LCP Extensions
- [18] RFC 1989 August 1996  
PPP Link Quality Monitoring
- [19] RFC 1332 May 1992  
The PPP Internet Protocol Control Protocol (IPCP)
- [20] RFC 1877 December 1995  
PPP IPCP Extensions for Name Server Addresses
- [21] RFC 2153 May 1997  
PPP Vendor Extensions
- [22] RFC 1334 October 1992  
PPP Authentication Protocols (for Password Authentication Protocol only)
- [23] RFC 1994 August 1996  
PPP Challenge Handshake Authentication Protocol (CHAP)
- [24] TIA/EIA-136-370  
Packet-Data Services – Enhanced General Packet Radio for TIA/EIA-136 (EGPRS-136) - Overview, Telecommunications Industry Association
- [25] TIA/EIA-136-376  
Packet-Data Services – EGPRS-136 Mobility Management, Telecommunications Industry Association
- [26] TIA/EIA-136-972  
Packet-Data Services – Stage 2 Description, Telecommunications Industry Association

### 0.3 Abbreviations

ACI	Application Control Interface
AGCH	Access Grant Channel
AT	Attention sequence "AT" to indicate valid commands of the ACI
BCCH	Broadcast Control Channel
BS	Base Station
BSIC	Base Station Identification Code
C/R	Command/Response
C1	Path Loss Criterion
C2	Reselection Criterion
CBCH	Cell Broadcast Channel
CBQ	Cell Bar Qualify
CC	Call Control
CCCH	Common Control Channel
CCD	Condat Coder Decoder
CCI	Compression and Ciphering Interface
CHAP	Challenge Handshake Authentication Protocol
CKSN	Ciphering Key Sequence Number
CRC	Cyclic Redundancy Check
DCCH	Dedicated Control Channel
DCOMP	Identifier of the user data compression algorithm used for the N-DPU
DISC	Disconnect Frame
DL	Data Link Layer
DM	Disconnected Mode Frame
DTX	Discontinuous Transmission
E	Extension bit
EA	Extension Bit Address Field
EL	Extension Bit Length Field
EMMI	Electrical Man Machine Interface
F	Final Bit
FACCH	Fast Associated Control Channel
FHO	Forced Handover
GACI	GPRS Application Control Interface
GMM	GPRS Mobility Management
GP	Guard Period
GRR	GPRS RR
GSM	Global System for Mobile Communication
HDLC	High-level Data Link Control
HISR	High level Interrupt Service Routine
HPLMN	Home Public Land Mobile Network
I	Information Frame
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IPCP	Internet Protocol Control Protocol
ITU	International Telecommunication Union
IWF	Interworking Function
Kc	Ciphering Key
L	Length Indicator
LAI	Location Area Information
LCP	Link Control Protocol

LISR	Low level Interrupt Service Routine
LLC	Logical Link Control
LPD	Link Protocol Discriminator
LQM	Link Quality Monitoring
M	More bit used to indicate the last segment of N-DPU
MAC	Medium Access Control
MCC	Mobile Country Code
MM	Mobility Management
MMI	Man Machine Interface
MNC	Mobile Network Code
MS	Mobile Station
MT	Mobile Termination
N(R)	Receive Number
N(S)	Send Number
NC	Network Control
NCC	National Colour Code
NCP	Network Control Protocol
NECI	New Establishment Causes included
N-PDU	Network Protocol Data Unit
NSAPI	Network Layer Service Access Point Identifier
OTD	Observed Time Difference
P	Poll Bit
P/F	Poll/Final Bit
PACCH	Packet Associated Control Channel
PAP	Password Authentication Protocol
PBCCH	Packet BCCH
PCCCH	Packet CCCH
PCOMP	Identifier of the protocol control information compression algorithm used for the N-DPU
PDCH	Packet Data Channel
PDP	Packet Data Protocol e.g. IP or X.25
PDTCH	Packet Data Traffic Channel
PRACH	Packet RACH
PSI	Packet System Information
PCH	Paging Channel
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PL	Physical Layer
PLMN	Public Land Mobile Network
PPC	Packet Physical Convergence
PPP	Point-to-Point Protocol
PTP	Point to Point
QoS	Quality of Service
RACH	Random Access Channel
REJ	Reject Frame
RLC	Radio Link Control
RNR	Receive Not Ready Frame
RR	Radio Resource Management
RR	Receive Ready Frame
RTD	Real Time Difference
RTOS	Real Time Operating System
SABM	Set Asynchronous Balanced Mode
SACCH	Slow Associated Control Channel
SAP	Service Access Point
SAPI	Service Access Point Identifier

SDCCH	Stand alone Dedicated Control Channel
SDU	Service Data Unit
SGSN	Serving GPRS Support Node
SIM	Subscriber Identity Module
SM	Session Management
SMS	Short Message Service
SMSCB	Short Message Service Cell Broadcast
SNDCP	Subnetwork Dependant Convergence Protocol
SNSM	SNDCP-SM
SS	Supplementary Services
TAP	Test Application Program
TBF	Temporary Block Flow
TCH	Traffic Channel
TCH/F	Traffic Channel Full Rate
TCH/H	Traffic Channel Half Rate
TCP	Transmission Control Protocol
TDMA	Time Division Multiple Access
TE	Terminal Equipment - e. g. a PC
TFI	Temporary Flow Identifier
TLLI	Temporary Logical Link Identifier
TMSI	Temporary Mobile Subscriber Identity
TOM	Tunnelling of Messages
TQI	Temporary Queuing Identifier
UA	Unnumbered Acknowledgement Frame
UART	Universal Asynchronous Receiver Transmitter
UI	Unnumbered Information Frame
USF	Uplink State Flag
V(A)	Acknowledgement State Variable
V(R)	Receive State Variable
V(S)	Send State Variable
VPLMN	Visited Public Land Mobile Network



## 0.4 Terms

Entity:	Program which executes the functions of a layer
Message:	A message is a data unit which is transferred between the entities of the same layer (peer-to-peer) of the mobile and infrastructure side. Message is used as a synonym to protocol data unit (PDU). A message may contain several information elements.
Primitive:	A primitive is a data unit which is transferred between layers on one component (mobile station or infrastructure). The primitive has an operation code which identifies the primitive and its parameters.
Service Access Point	A Service Access Point is a data interface between two layers on one component (mobile station or infrastructure).

# 1 Overview

The Protocol Stacks are used to define the functionality of the GSM protocols for interfaces. The GSM specifications are normative when used to describe the functionality of interfaces, but the stacks and the subdivision of protocol layers does not imply or restrict any implementation.

The protocol stack for GPRS consists of several entities. Each entity has one or more service access points, over which the entity provides a service for the upper entity.

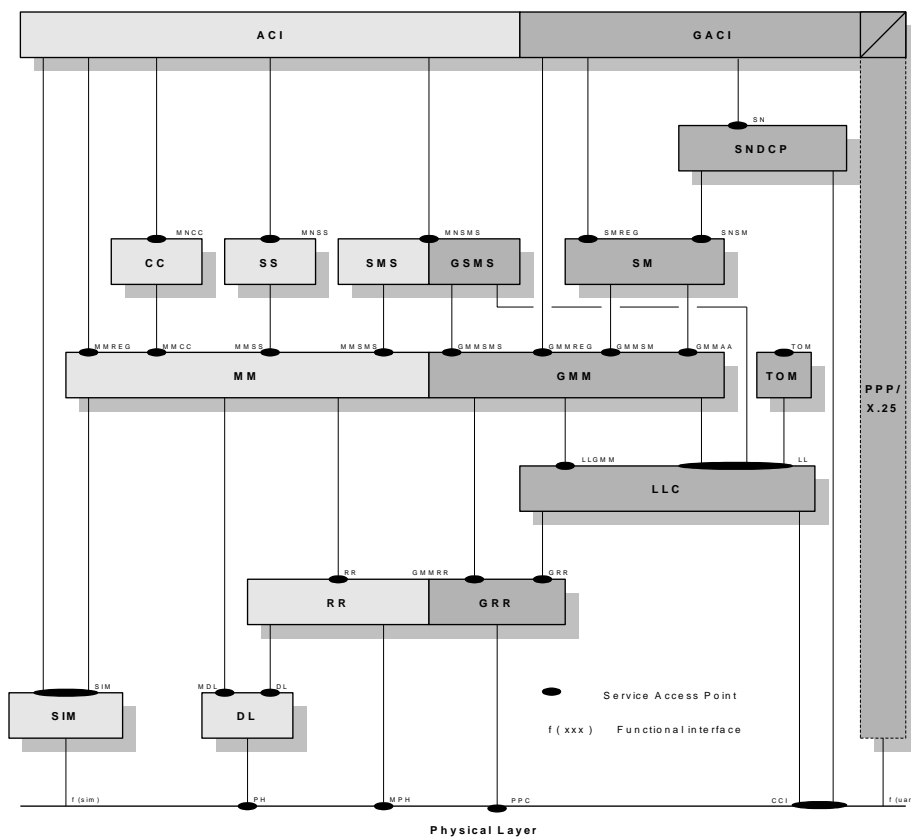


Figure 1-1: Architecture of the GSM/GPRS protocol stack

The information units passed via the SAPs are called primitives and consists of an operation code and several parameters. See the Users Guide for details.

The entities of the GPRS protocol stack are:

## 1.1 GRR (RLC/MAC) – Radio Link Control/Medium Access Control

This layer contains two functions: The Radio Link Control function provides a radio-solution-dependent reliable link. The Medium Access Control function controls the access signalling (request and grant) procedures for the radio channel, and the mapping of LLC frames onto the GSM physical channel.

## 1.2 LLC – Logical Link Control

The LLC entity provides multiple highly reliable logical links for asynchronous data transfer between the MS and the network. It supports variable-length information frames, acknowledged and unacknowledged data transfer, flow and sequence control, error detection and recovery, notification of unrecoverable errors, user identity confidentiality, and ciphering of user and signaling data.

### 1.3 GMM – GPRS Mobility Management

The GMM entity provides procedures for the mobility of the MS, such as informing the network of its present location, and user identity confidentiality. It manages the GMM context (attach, detach, routing area updating), supports security functions such as authentication of user and MS, controls ciphering of data, and initiates the response to paging messages.

### 1.4 SM – Session Management

The main function of the session management (SM) is to support PDP context handling of the user terminal. Session Management activates, modifies and deletes the contexts for packet data protocols (PDP). Session Management services are provided at the SMREG-SAP and the SNSM-SAP for anonymous and non-anonymous access. The non-anonymous and anonymous access procedures for PDP context activation and PDP context deactivation are available at the SMREG-SAP. In addition there exists a PDP context modification for non-anonymous PDP contexts.

### 1.5 SNDCP - Subnetwork Dependant Convergence Protocol

SNDCP carries out all functions related to transfer of Network layer Protocol Data Units (N-PDUs) over GPRS in a transparent way. SNDCP helps to improve channel efficiency by means of compression techniques. The set of protocol entities above SNDCP consists of commonly used network protocols. They all use the same SNDCP entity, which then performs multiplexing of data coming from different sources to be sent using the service provided by the LLC layer.

### 1.6 GACI – GPRS Application Control Interface

The GACI is the GPRS extension of the ACI. It is specified in GSM 07.07 and 07.60. It is responsible for processing of the GPRS related AT Commands to setup, activate and deactivate the PDP context parameter. It also provides functionality for the interworking between GMM/SM/SNDCP and a packet oriented protocol like PPP.

### 1.7 USART - Universal Synchronous Asynchronous Receiver Transmitter Driver

The USART is a hardware component that facilitates a connection between the mobile station and terminal equipment (e.g. a PC). This interface uses some of the circuits described in V.24.

The data exchange provided by this unit is serial and asynchronous (synchronous communication is not in the scope of this document). A driver that uses interrupts to manage a circular buffer for the sending and receiving direction is necessary in order to use this component in the GPRS. The driver has to be able to perform flow control.

### 1.8 TOM – Tunnelling of Messages

The TOM entity is present if and only if HS136 is supported (the feature flag FF\_HS136 is enabled).

The main function of TOM is to tunnel non-GSM signalling messages between the MS and the SGSN. The only non-GSM signalling which is currently supported by TOM is for the EGPRS-136 system (according to TIA/EIA-136-376). Data transfer in both uplink and downlink direction is possible. Two different priorities (high, low) of signalling data transfer are supported. TOM uses the unacknowledged mode of LLC and the acknowledged mode of GRR (RLC/MAC).

## 2 Parameters

/\*

### 2.1 Declarations

#### 2.1.1 Message Struct Declarations

\*/

```
DECLARATION(A_ECC_FIELD )
DECLARATION(A_AD_FIELD_CI_DISABLED )
DECLARATION(NO_EC_CODES)
DECLARATION(NO_PREF_LANG)
DECLARATION(IMSI)
DECLARATION(IMSI_ARRAY)
DECLARATION(SIM_TOOLKIT_PROFILE)
DECLARATION(PLMN_1)
DECLARATION(PLMN_262_02)
DECLARATION(MCC_1)
DECLARATION(MCC_262)
DECLARATION(MNC_1)
DECLARATION(MNC_02)
DECLARATION(APN_BUF_1)
DECLARATION(SMREG_APN_0_S)
DECLARATION(SMREG_APN_1)
DECLARATION(PDP_ADD_BUF_1)
DECLARATION(PDP_ADD_BUF_2)
DECLARATION(PDP_ADD_BUF_3)
DECLARATION(PDP_ADDRESS_0_S)
DECLARATION(PDP_ADDRESS_1)
DECLARATION(PDP_ADDRESS_2)
DECLARATION(PDP_ADDRESS_3)
DECLARATION(SMREG_QOS_0)
DECLARATION(SMREG_QOS_1)
DECLARATION(SMREG_QOS_2)
DECLARATION(SMREG_QOS_3)
DECLARATION(SMREG_QOS_4)
DECLARATION(SNDCP_NAME_BUF)
DECLARATION(UART_NAME_BUF)
DECLARATION(SNDCP_CHANNEL)
DECLARATION(UART_CHANNEL)
DECLARATION(SDU_ARRAY)
DECLARATION(SDU_SHOW)
DECLARATION(SDU)
DECLARATION(SDU_2)
DECLARATION(SDU_3)
DECLARATION(SDU_CTX_REQ_DEF)
DECLARATION(PREF_PLMN)
DECLARATION(PREF_PLMN_ARRAY)
DECLARATION(UNUSED_PDP_ADDRESS)
DECLARATION(UNUSED_QOS)
DECLARATION(UNUSED_APN)

DECLARATION(PLMN_LST)
DECLARATION(PLMN_LST_1)
```

```
DECLARATION(PLMN_LST_2)
DECLARATION(PLMN_LST_3)
DECLARATION(PLMN_LST_4)
DECLARATION(PLMN_LST_5)
DECLARATION(EMPTY_PLMN_LST)
DECLARATION(MCC_PLMN_LST_1)
DECLARATION(MCC_PLMN_LST_2)
DECLARATION(MCC_PLMN_LST_3)
DECLARATION(MCC_PLMN_LST_4)
DECLARATION(MCC_PLMN_LST_5)
DECLARATION(MNC_PLMN_LST_1)
DECLARATION(MNC_PLMN_LST_2)
DECLARATION(MNC_PLMN_LST_3)
DECLARATION(MNC_PLMN_LST_4)
DECLARATION(MNC_PLMN_LST_5)
DECLARATION(FRB_PLMN_LST)
DECLARATION(RXL_PLMN_LST)
DECLARATION(GPRS_STATUS_LST)
DECLARATION (S_IP_NAME)
DECLARATION (S_UDP_NAME)
DECLARATION (S_WAP_NAME)
DECLARATION (S_SNDTCP_NAME)
```

```
/*
```

## 2.2 COMMAND SECTION

### 2.2.1 GSM commands

```
*/
/* command: CFUN */
STRING(C_CFUN_0, "AT+CFUN=0\r")
STRING(C_CFUN_1, "AT+CFUN=1\r")
/*STRING(C_CFUN_1, "AT+CFUN=1\r")*/
BYTE LC_CFUN 10

/* command: CPIN*/
STRING(C_CPIN_WRONG, "AT+CPIN=\"1234\"\r")
STRING(C_CPIN_IO, "AT+CPIN=\"4321\"\r")
BYTE LC_CPIN 15

/* command: COPS*/
STRING(C_COPS_0, "AT+COPS=0\r")
STRING(C_COPS_1, "AT+COPS=1\r")
STRING(C_PLUS_COPS_MAN_NUM, "AT+COPS=1,2,\"26202\"")
STRING(C_COPS_Q, "AT+COPS=?\r")
BYTE LC_COPS 10
BYTE LC_PLUS_COPS_MAN_NUM 19

/* command: CMEE*/
STRING(C_CMEE_1, "AT+CMEE=1\r")
BYTE LC_CMEE_1 10

/*
```

## 2.2.2 GPRS commands

\*/

/\* command: CGATT\*/

```
STRING(C.CGATT_0, "AT+CGATT=0\r")
STRING(C.CGATT_1, "AT+CGATT=1\r")
STRING(C.CGATT_R, "AT+CGATT?\r")
STRING(C.CGATT_T, "AT+CGATT=?\r")
BYTE LC.CGATT 11
BYTE LC.CGATT_R 10
BYTE LC.CGATT_T 11
```

/\* command: CGDCONT\*/

```
/*STRING(C.CGDCONT_1, "AT+CGDCONT=1,\"IP\", \"255.255.255.255\",0,0\r")*/
STRING(C.CGDCONT_1, "AT+CGDCONT=1,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_1_oIAP, "AT+CGDCONT=1,,,,0,0\r")
STRING(C.CGDCONT_2, "AT+CGDCONT=2,\"IP\", \"APN\", \"255.255.255.255\",1,1\r")
STRING(C.CGDCONT_3, "AT+CGDCONT=3,\"IP\", \"APN\", \"255.255.255.255\",1,1\r")
STRING(C.CGDCONT_4, "AT+CGDCONT=4,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_5, "AT+CGDCONT=5,\"IP\", \"APN\", \"255.255.255.255\",1,1\r")
STRING(C.CGDCONT_6, "AT+CGDCONT=6,\"IP\", \"APN\", \"255.255.255.255\",1,1\r")
STRING(C.CGDCONT_7, "AT+CGDCONT=7,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_8, "AT+CGDCONT=8,\"IP\", \"APN\", \"255.255.255.255\",1,1\r")
STRING(C.CGDCONT_9, "AT+CGDCONT=9,\"IP\", \"APN\", \"255.255.255.255\",1,1\r")
STRING(C.CGDCONT_10, "AT+CGDCONT=10,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_11, "AT+CGDCONT=11,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_12, "AT+CGDCONT=12,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_13, "AT+CGDCONT=13,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_14, "AT+CGDCONT=14,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_15, "AT+CGDCONT=15,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_16, "AT+CGDCONT=16,\"IP\", \"APN\", \"255.255.255.255\",0,0\r")
STRING(C.CGDCONT_1_CLEAR, "AT+CGDCONT=1\r")
STRING(C.CGDCONT_CLEAR, "AT+CGDCONT=\r")
STRING(C.CGDCONT_R, "AT+CGDCONT?\r")
STRING(C.CGDCONT_T, "AT+CGDCONT=?\r")
/*BYTE LC.CGDCONT_X 37*/
BYTE LC.CGDCONT_X 46
BYTE LC.CGDCONT_X_oIAP 20
BYTE LC.CGDCONT_XX 47
BYTE LC.CGDCONT_CLEAR 13
BYTE LC.CGDCONT_R 12
BYTE LC.CGDCONT_T 13
BYTE LC.CGDCONT_CLEAR 12

/* special command sequence */
STRING(C.CGDCONT_SPECIAL, "AT+CGDCONT=,\"IP\", \"APN\", \"18.52.86.120\",0,0;+CGQREQ=,1,1,3,1,1;+CGQMIN=,2,2,4,1,1\r")
BYTE LC.CGDCONT_SPECIAL 80
```

/\* command: CGACT\*/

```
STRING(C.CGACT_10, "AT+CGACT=0,1\r")
STRING(C.CGACT_11, "AT+CGACT=1,1\r")
STRING(C.CGACT_20, "AT+CGACT=0,2\r")
STRING(C.CGACT_21, "AT+CGACT=1,2\r")
STRING(C.CGACT_121, "AT+CGACT=1,1,2\r")
STRING(C.CGACT_R, "AT+CGACT?\r")
STRING(C.CGACT_T, "AT+CGACT=?\r")
BYTE LC.CGACT_X 13
```

```
BYTE LC_CGACT_X2 15
BYTE LC_CGACT_R 10
BYTE LC_CGACT_T 11
STRING(C_CGACT_0, "AT+CGACT=0\r")
STRING(C_CGACT_1, "AT+CGACT=1\r")
BYTE LC_CGACT_0 11
```

```
/* command: CGANS */
STRING(C_CGANS_0, "AT+CGANS=0\r")
STRING(C_CGANS_1, "AT+CGANS=1\r")
STRING(C_CGANS_1X, "AT+CGANS=1,\"PPPI\",1\r")
STRING(C_CGANS_T, "AT+CGANS=?\r")
BYTE LC_CGANS_X 11
BYTE LC_CGANS_X1 19
BYTE LC_CGANS_T 11
```

```
/* command: CGREG */
STRING(C_CGREG_0, "AT+CGREG=0\r")
STRING(C_CGREG_1, "AT+CGREG=1\r")
STRING(C_CGREG_2, "AT+CGREG=2\r")
STRING(C_CGREG_R, "AT+CGREG?\r")
STRING(C_CGREG_T, "AT+CGREG=?\r")
BYTE LC_CGREG_X 11
BYTE LC_CGREG_R 10
BYTE LC_CGREG_T 11
```

```
/*
```

### 2.2.3 Persent GPRS commands

```
command: CGAATT */
STRING(C_CGAATT_00, "AT%CGAATT=0,0\r")
STRING(C_CGAATT_01, "AT%CGAATT=0,1\r")
STRING(C_CGAATT_10, "AT%CGAATT=1,0\r")
STRING(C_CGAATT_11, "AT%CGAATT=1,1\r")
STRING(C_CGAATT_R, "AT%CGAATT?\r")
STRING(C_CGAATT_T, "AT%CGAATT=?\r")
BYTE LC_CGAATT_X 14
BYTE LC_CGAATT_R 11
BYTE LC_CGAATT_T 12
```

```
/*
```

### 2.2.4 Modem compatibility mode commands

```
command: D*/
STRING(C_GD_0, "ATD*98#\r")
STRING(C_GD_1, "ATDT*98#\r")
STRING(C_GD_2, "ATDP*98*1#\r")
STRING(C_GD_3, "ATD*98*1#\r")
BYTE LC_GD_0 8
BYTE LC_GD_1 8
BYTE LC_GD_2 11
BYTE LC_GD_3 11
```

```
/* command: A */
```

```
STRING(C_A, "ATA\r")
BYTE LC_A 4
```

```
/* command: H
STRING(C_H, "ATH\r")
BYTE LC_H 4*/
```

```
/* Command:      H: Hang up call */
STRING(C_H, "ATH0" )
BYTE LC_H 4
```

```
/* Command:      +CHUP: Hang up call */
STRING(C_PLUS_CHUP, "AT+CHUP" )
BYTE LC_PLUS_CHUP 7
```

```
/* command: S0 */
STRING(C_S0_0, "ATS0=0\r")
STRING(C_S0_1, "ATS0=1\r")
BYTE LC_S0_0 4
BYTE LC_S0_1 4
```

```
BYTE MSID_NO 100
```

```
/*
```

## 2.3 MESSAGE SECTION

### 2.3.1 General messages

```
*/
STRING(M_OK, "OK")
BYTE LM_OK 2

STRING(M_CONNECT, "CONNECT")
BYTE LM_CONNECT 7

STRING(M_RING, "RING")
BYTE LM_RING 4

STRING(M_NO_CARRIER, "NO CARRIER")
BYTE LM_NO_CARRIER 10

STRING(M_ERROR, "ERROR")
BYTE LM_ERROR 5
```

```
/*
```

### 2.3.2 AT command answer messages

```
*/
/* message: CGATT */
STRING(M	CGATT_R0, "+CGATT: 0")
STRING(M	CGATT_R1, "+CGATT: 1")
STRING(M	CGATT_T, "+CGATT: (0,1)")
BYTE LM	CGATT_R 9
BYTE LM	CGATT_T 13

/* command: CGDCONT*/
```



```

STRING(M_CGDCONT_R0, "+CGDCONT: ")
STRING(M_CGDCONT_R1, "+CGDCONT: 1,\"IP\",\"APN\", \"255.255.255.255\",0,0")
STRING(M_CGDCONT_R2, "+CGDCONT: 2,\"IP\",\"APN\", \"255.255.255.255\",1,1")
STRING(M_CGDCONT_T, "+CGDCONT: (1-2),\"IP\",,,(0,1),(0,1)")
BYTE LM_CGDCONT_R0 10
BYTE LM_CGDCONT_R1 44
BYTE LM_CGDCONT_R 44
BYTE LM_CGDCONT_T 34

```

```

/* special command sequence */

```

```

STRING(M_CGDCONT_SP1, "+CGDCONT: 1,\"IP\",\"APN\", \"18.52.86.120\",0,0")
STRING(M_CGDCONT_SP2, "+CGDCONT: 2,\"IP\",\"APN\", \"18.52.86.120\",0,0")
BYTE LM_CGDCONT_SP1 41
BYTE LM_CGDCONT_SP 41

```

```

/* command: CGACT*/

```

```

STRING(M_CGACT_R00, "+CGACT: ")
STRING(M_CGACT_R10, "+CGACT: 1,0")
STRING(M_CGACT_R11, "+CGACT: 1,1")
STRING(M_CGACT_R20, "+CGACT: 1,0\r\n+CGACT: 2,0")
STRING(M_CGACT_R21, "+CGACT: 1,1\r\n+CGACT: 2,0")
STRING(M_CGACT_T, "+CGACT: (0,1)")
BYTE LM_CGACT_R0 8
BYTE LM_CGACT_R1 11
BYTE LM_CGACT_R2 24
BYTE LM_CGACT_T 13

```

```

/* command: CGANS*/

```

```

STRING(M_CGANS_T, "+CGANS: (0,1),(\"PPP\")")
BYTE LM_CGANS_T 21

```

```

/* command: CGREG */

```

```

STRING(M_CGREG_00, "+CGREG: 0,0")
STRING(M_CGREG_01, "+CGREG: 0,1")
STRING(M_CGREG_02, "+CGREG: 0,2")
BYTE LM_CGREG_R 11
STRING(M_CGREG_0, "+CGREG: 0")
STRING(M_CGREG_1, "+CGREG: 1")
STRING(M_CGREG_2, "+CGREG: 2")
STRING(M_CGREG_3, "+CGREG: 3")
STRING(M_CGREG_4, "+CGREG: 4")
STRING(M_CGREG_5, "+CGREG: 5")
BYTE LM_CGREG 9

```

```

/* command: CGAATT*/

```

```

STRING(M_CGAATT_R00, "%CGAATT: 0,0")
STRING(M_CGAATT_R01, "%CGAATT: 0,1")
STRING(M_CGAATT_R10, "%CGAATT: 1,0")
STRING(M_CGAATT_R11, "%CGAATT: 1,1")
STRING(M_CGAATT_T, "%CGAATT: (0,1),(0,1)")
BYTE LM_CGAATT_R 12
BYTE LM_CGAATT_T 20

```

```

/* command: COPS*/

```

```

STRING(M_PLUS_COPS_LST, "+COPS: (1,\"D1-TELEKOM\", \"D1\", \"26201\"), (1,\"D-ZWEI PRIVAT\", \"D-ZWEI\", \"26202\"), (1,\"E-Plus\", \"E-Plus\", \"26203\"))")
BYTE LM_PLUS_COPS_LST 103

```

```
/*----- ALL OTHER STUFF -----*/
```

```
/*
```

### 2.3.3 Values

```
*/
```

BYTE PIN_3_ATTEMPTS	3
BYTE PIN_2_ATTEMPTS	2
BYTE PUK_10_ATTEMPTS	10
BYTE PIN_1 1	
BYTE PIN_2 2	

```
/* all profiles supported 0xE0 */
```

BYTE MMI_AND_FDN_BDN	0xE0
----------------------	------

BYTE GACI_TUI	1
BYTE UART_TUI	2
BYTE PPP_TUI	3

BYTE OP_UNACK	0x00
BYTE OP_ACK	0x01
BYTE DTI_PID_UTCP	0x2F

```
/* digits 0 to 10 */
```

BYTE NUM_0	0
BYTE NUM_1	1
BYTE NUM_2	2
BYTE NUM_3	3
BYTE NUM_4	4
BYTE NUM_5	5
BYTE NUM_6	6
BYTE NUM_7	7
BYTE NUM_8	8
BYTE NUM_9	9
BYTE NUM_10	10
BYTE NUM_12	12
BYTE NUM_21	21
BYTE NUM_22	22
BYTE NUM_23	23
BYTE NUM_FF	255
BYTE NUM_1000	1000
BYTE NUM_1500	1500

```
ULONG NUM_FFFFFFFF = 0xFFFFFFFF;
```

```
/* Unit definitions */
```

BYTE UNIT_SNDP	0
BYTE UNIT_ACI	1
BYTE UNIT_UART	2
BYTE UNIT_PPPS	3
BYTE UNIT_PPPC	4
BYTE UNIT_L2R	5
BYTE UNIT_T30	6
BYTE UNIT_IP	7
BYTE UNIT_TRA	8
BYTE UNIT_UDP	9

```

BYTE UNIT_WAP 10
BYTE UNIT_BLUETOOTH 11

LONG VAL_T3314 44000
LONG VAL_T3312 3240000

USHORT NSAPI_SET_NSAPI_5 = 0x0020;
USHORT NSAPI_SET_NSAPI_6 = 0x0040;
USHORT NSAPI_SET_NSAPI_5_6 = 0x0060;

ULONG STRING_POINTER = 0xfe1234ef;
ULONG STRING_NULL_POINTER = 0;

#define DEVICE_1 NUM_0
#define DEVICE_2 NUM_3

#define MTU NUM_1500

#define STANDARD_DLCI NUM_FF

/* values for the elimination of warnings */
#define UNUSED_IN_TESTCASE 0

/* DTI definitions */
ULONG SNDTCP_NULL_DTI_ID1 = 0x00000100;
ULONG WAP_DTI_ID1 = 0x00000100;
ULONG UDP_DTI_ID1 = 0x00000101;
ULONG SNDTCP_DTI_ID1 = 0x00000102;
ULONG WAP_DTI_ID2 = 0x00000200;
ULONG UDP_DTI_ID2 = 0x00000201;
ULONG SNDTCP_DTI_ID2 = 0x00000202;

/*

2.3.4 Fields
*/
/* SIM Service Table with Nr. 4 */
FIELD (F_SIM_SRV_4) 0xC0, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00
ENDFIELD (F_SIM_SRV_4, 10)

FIELD (PIN_1_VALUE) 0x34, 0x33, 0x32, 0x31, 0xFF, 0xFF, 0xFF, 0xFF
ENDFIELD (PIN_1_VALUE, 8)

FIELD (PIN_1_WRONG) 0x31, 0x32, 0x33, 0x34, 0xFF, 0xFF, 0xFF, 0xFF
ENDFIELD (PIN_1_WRONG, 8)

FIELD (AIR_ADD_INFO_1)
    32, 0,
    0, 0,
    0x1, 0x2, 0x3, 0x4, 0x0, 0x0
ENDFIELD (AIR_ADD_INFO_1, 10)

/* Protocol */
FIELD (S_PROTOCO) 0x09, 0x00, 0x11, 0x00, 0x55, 0x44, 0x50, 0x00, 0x00, 0x00
ENDFIELD (S_PROTOCO, 10)

```

```
/* FIELD (APN_BUF_1) 0x03, 0x41, 0x50, 0x4E
ENDFIELD(APN_BUF_1, 4)
FIELD(PDP_ADD_BUF_1) 0x50, 0x44, 0x50, 0x5F, 0x41, 0x44, 0x44, 0x52, 0x45, 0x53, 0x53
ENDFIELD(PDP_ADD_BUF_1, 11)*/
```

```
/* Entity name strings */
BEGINARRAY(S_IP_NAME, 6) 0x49, 0x50, 0x00, 0x00, 0x00, 0x00 ENDARRAY
BEGINARRAY(S_UDP_NAME, 6) 0x55, 0x44, 0x50, 0x00, 0x00, 0x00 ENDARRAY
BEGINARRAY(S_WAP_NAME, 6) 0x57, 0x41, 0x50, 0x00, 0x00, 0x00 ENDARRAY
BEGINARRAY(S_SNDP_NAME, 6) 0x53, 0x4E, 0x44, 0x00, 0x00, 0x00 ENDARRAY
```

```
/*
```

### 2.3.5 PLMN list (+COPS=?)

```
BEGINARRAY (MCC_PLMN_LST_1, 3) 0x02, 0x06, 0x02 ENDARRAY
BEGINARRAY (MNC_PLMN_LST_1, 2) 0x00, 0x01 ENDARRAY
```

```
BEGIN_PSTRUCT ("plmn", PLMN_LST_1)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_PLMN_LST_1)
    SET_COMP ("mnc", MNC_PLMN_LST_1)
ENDSTRUCT
```

```
BEGINARRAY (MCC_PLMN_LST_2, 3) 0x02, 0x06, 0x02 ENDARRAY
BEGINARRAY (MNC_PLMN_LST_2, 2) 0x00, 0x02 ENDARRAY
```

```
BEGIN_PSTRUCT ("plmn", PLMN_LST_2)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_PLMN_LST_2)
    SET_COMP ("mnc", MNC_PLMN_LST_2)
ENDSTRUCT
```

```
BEGINARRAY (MCC_PLMN_LST_3, 3) 0x02, 0x06, 0x02 ENDARRAY
BEGINARRAY (MNC_PLMN_LST_3, 2) 0x00, 0x03 ENDARRAY
```

```
BEGIN_PSTRUCT ("plmn", PLMN_LST_3)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_PLMN_LST_3)
    SET_COMP ("mnc", MNC_PLMN_LST_3)
ENDSTRUCT
```

```
BEGINARRAY (MCC_PLMN_LST_4, 3) 0x00, 0x00, 0x00 ENDARRAY
BEGINARRAY (MNC_PLMN_LST_4, 2) 0x00, 0x00 ENDARRAY
```

```
BEGIN_PSTRUCT ("plmn", PLMN_LST_4)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_PLMN_LST_4)
    SET_COMP ("mnc", MNC_PLMN_LST_4)
ENDSTRUCT
```

```
BEGINARRAY (MCC_PLMN_LST_5, 3) 0x00, 0x00, 0x00 ENDARRAY
BEGINARRAY (MNC_PLMN_LST_5, 2) 0x00, 0x00 ENDARRAY
```

```

BEGIN_PSTRUCT ("plmn", PLMN_LST_5)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_PLMN_LST_5)
    SET_COMP ("mnc", MNC_PLMN_LST_5)
ENDSTRUCT

BEGIN_PSTRUCT ("plmn", EMPTY_PLMN_LST)
    SET_COMP ("v_plmn", GMMREG_PLMN_NOT_PRES)
    SKIP_COMP ("mcc")
    SKIP_COMP ("mnc")
ENDSTRUCT

BEGINARRAY (FRB_PLMN_LST, 7)
    0x00, 0x00, 0x00, 0x01, 0x00, 0x00, 0x00
ENDARRAY

BEGINARRAY (RXL_PLMN_LST, 7)
    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00
ENDARRAY

BEGINARRAY (GPRS_STATUS_LST, GMMREG_MAX_PLMN_ID)
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
    GMMREG_GPRS_GSM,
ENDARRAY

BEGIN_PSTRUCT_ARRAY (PLMN_LST, GMMREG_MAX_PLMN_ID)
    PLMN_LST_1, PLMN_LST_2, PLMN_LST_3, PLMN_LST_4, PLMN_LST_5,
    EMPTY_PLMN_LST, EMPTY_PLMN_LST, EMPTY_PLMN_LST,
    EMPTY_PLMN_LST, EMPTY_PLMN_LST, EMPTY_PLMN_LST,
    EMPTY_PLMN_LST
ENDARRAY

```

### 2.3.6 Arrays

#### 2.3.6.1 Access point name – APN

```

*/
BEGINARRAY (APN_BUF_1, 4) 0x03, 0x41, 0x50, 0x4E
ENDARRAY

```

/\*

#### 2.3.6.2 Packet Data Protocol address – PDP address

```

*/
BEGINARRAY (PDP_ADD_BUF_1, 4)

```

```

        0xFF, 0xFF, 0xFF, 0xFF
ENDARRAY

```

```

BEGINARRAY (PDP_ADD_BUF_2, 4)
        0xFE, 0xFE, 0xFE, 0xFE
ENDARRAY

```

```

BEGINARRAY (PDP_ADD_BUF_3, 4)
        0x12, 0x34, 0x56, 0x78
ENDARRAY
/*

```

### 2.3.6.3 Mobile Country Code and Mobile Network Code

```

*/

```

```

/* EF ECC field array */

```

```

BEGINARRAY (A_ECC_FIELD,12) 0x11, 0xF2, 0xFF, 0x99, 0xF9, 0xFF, 0x21, 0x43, 0x65, 0xFF, 0xFF, 0xFF
ENDARRAY

```

```

/* EF AD field array , disable CI */

```

```

BEGINARRAY (A_AD_FIELD_CI_DISABLED,4) 0x00, 0x00, 0x00, 0x02 ENDARRAY

```

```

BEGINARRAY (PREF_PLMN_ARRAY,3) 0x00,0x04,0x09
ENDARRAY

```

```

BEGINARRAY (MCC_1,3) 0x00,0x04,0x09
ENDARRAY

```

```

BEGINARRAY (MCC_262,3) 0x02,0x06,0x02
ENDARRAY

```

```

BEGINARRAY (MNC_1,2) 0x00,0x04
ENDARRAY

```

```

BEGINARRAY (MNC_02,2) 0x00,0x02
ENDARRAY

```

```

BEGINARRAY (SIM_TOOLKIT_PROFILE,12) 0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00
ENDARRAY

```

```

BEGINARRAY (NO_EC_CODES, 15)
        0xFF,0xFF,0xFF,0xFF,0xFF,
        0xFF,0xFF,0xFF,0xFF,0xFF,
        0xFF,0xFF,0xFF,0xFF,0xFF
ENDARRAY

```

```

BEGINARRAY (NO_PREF_LANG,5) 0xFF,0xFF,0xFF,0xFF,0xFF
ENDARRAY

```

```

BEGINARRAY (IMSI_ARRAY,9) 0x29, 0x26, 0x10, 0x74, 0x11, 0x94, 0x21, 0xFF, 0xFF
ENDARRAY

```

```

BEGINARRAY (SNDP_NAME_BUF, 6) 0x53, 0x4E, 0x44, 0x00, 0x00, 0x00
ENDARRAY

```

```

BEGINARRAY (UART_NAME_BUF, 6) 0x55, 0x41, 0x52, 0x54, 0x00, 0x00
ENDARRAY

```

```
BEGINARRAY (SDU_ARRAY, 1)
    0x03
```

```
ENDARRAY
/*
```

## 2.4 Primitive Structs

```
*/
```

```
SET_SDU (SDU, 32, 0)
    0x01, 0x02, 0x03, 0x04
ENDSDU
```

```
SET_SDU (SDU_2, 40, 0)
    0x05, 0x06, 0x07, 0x08, 0x09
ENDSDU
```

```
SET_SDU (SDU_3, 48, 0)
    0x04, 0x05, 0x06, 0x07, 0x08, 0x09
ENDSDU
```

```
SET_SDU (SDU_CTX_REQ_DEF, 160, 0)
    0x80, 0x80, 0x21, 0x10, 0x01, 0x01, 0x00, 0x10, 0x81, 0x06,
    0x00, 0x00, 0x00, 0x00, 0x83, 0x06, 0x00, 0x00, 0x00, 0x00
ENDSDU
```

```
/*
```

### 2.4.1.1 PLMN

```
*/
```

```
BEGIN_PSTRUCT("plmn", PLMN_1)
    SET_COMP("v_plmn", V_PLMN_PRE)
    SET_COMP("mcc", MCC_1)
    SET_COMP("mnc", MNC_1)
ENDSTRUCT
```

```
BEGIN_PSTRUCT("plmn", PLMN_262_02)
    SET_COMP("v_plmn", V_PLMN_PRE)
    SET_COMP("mcc", MCC_262)
    SET_COMP("mnc", MNC_02)
ENDSTRUCT
```

```
BEGIN_PSTRUCT("pref_plmn", PREF_PLMN)
    SET_COMP("c_pref", NUM_3)
    SET_COMP("pref", PREF_PLMN_ARRAY)
ENDSTRUCT
```

```
BEGIN_PSTRUCT("smreg_apn", SMREG_APN_0_S)
    SHOW_COMP("buffer") /* this is an empty APN and mean: use the subscribed APN */
ENDSTRUCT
```

```
BEGIN_PSTRUCT("smreg_apn", SMREG_APN_1)
    SET_COMP("buffer", APN_BUF_1) /* this is not a valid APN */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("smreg_apn", UNUSED_APN)
    SET_COMP("buffer", APN_BUF_1) /* this is not a valid APN */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("pdp_address", PDP_ADDRESS_0_S)
    SHOW_COMP("buff") /* this is an empty PDP address and mean: use the subscribed PDP address */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("pdp_address", PDP_ADDRESS_1)
    SET_COMP("buff", PDP_ADD_BUF_1) /* this is not a valid PDP address */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("pdp_address", PDP_ADDRESS_2)
    SET_COMP("buff", PDP_ADD_BUF_2) /* this is not a valid PDP address */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("pdp_address", PDP_ADDRESS_3)
    SET_COMP("buff", PDP_ADD_BUF_3) /* this is not a valid PDP address */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("pdp_address", UNUSED_PDP_ADDRESS)
    SET_COMP("buff", PDP_ADD_BUF_2) /* this is not a valid PDP address */
```

ENDSTRUCT

```
BEGIN_PSTRUCT("smreg_qos", SMREG_QOS_0)
    SET_COMP("delay", NUM_0)
    SET_COMP("relclass", NUM_0)
    SET_COMP("peak", NUM_0)
    SET_COMP("preced", NUM_0)
    SET_COMP("mean", NUM_0)
```

ENDSTRUCT

```
BEGIN_PSTRUCT("smreg_qos", SMREG_QOS_1)
    SET_COMP("delay", NUM_2)
    SET_COMP("relclass", NUM_1)
    SET_COMP("peak", NUM_4)
    SET_COMP("preced", NUM_1)
    SET_COMP("mean", NUM_5)
```

ENDSTRUCT

```
BEGIN_PSTRUCT("smreg_qos", SMREG_QOS_2)
    SET_COMP("delay", NUM_4)
    SET_COMP("relclass", NUM_3)
    SET_COMP("peak", NUM_2)
    SET_COMP("preced", NUM_3)
    SET_COMP("mean", NUM_1)
```

ENDSTRUCT

```
BEGIN_PSTRUCT("smreg_qos", SMREG_QOS_3)
    SET_COMP("delay", NUM_1)
    SET_COMP("relclass", NUM_3)
    SET_COMP("peak", NUM_1)
    SET_COMP("preced", NUM_1)
    SET_COMP("mean", NUM_1)
```

ENDSTRUCT



```
BEGIN_PSTRUCT("smreg_qos", SMREG_QOS_4)
    SET_COMP("delay", NUM_2)
    SET_COMP("relclass", NUM_4)
    SET_COMP("peak", NUM_1)
    SET_COMP("preced", NUM_2)
    SET_COMP("mean", NUM_1)
ENDSTRUCT

BEGIN_PSTRUCT("smreg_qos", UNUSED_QOS)
    SET_COMP("delay", NUM_4)
    SET_COMP("relclass", NUM_3)
    SET_COMP("peak", NUM_2)
    SET_COMP("preced", NUM_3)
    SET_COMP("mean", NUM_1)
ENDSTRUCT

BEGIN_PSTRUCT("protocol_channel", SNDTCP_CHANNEL)
    SET_COMP("protocol_entity", SNDTCP_NAME_BUF)
ENDSTRUCT

BEGIN_PSTRUCT("peer_channel", UART_CHANNEL)
    SET_COMP("peer_entity", UART_NAME_BUF)
ENDSTRUCT

BEGIN_PSTRUCT("imsi_field", IMSI)
    SET_COMP("c_field", NUM_9)
    SET_COMP("field", IMSI_ARRAY)
ENDSTRUCT
```

## 3 TEST CASES

### 3.1 Routing (internal)

#### 3.1.1 GACIWAP000: Setup the Routing for the GACI test

Description:

Routings for the GACI tests are set

Preamble:

None

APL	ACI	PS
COMMAND (TAP RESET)		
COMMAND (CC RESET)		
COMMAND (MM RESET)		
COMMAND (SIM RESET)		
COMMAND (SS RESET)		
COMMAND (MMI RESET)		
COMMAND (SMS RESET)		
COMMAND (GMM RESET)		
COMMAND (SM RESET)		
COMMAND (SND RESET)		
COMMAND (PPP RESET)		
COMMAND (UART REDIRECT MMI NULL)		
COMMAND (UART RESET)		
COMMAND (PL RESET)		
COMMAND (WAP RESET)		
COMMAND (TAP REDIRECT CLEAR)		
COMMAND (CC REDIRECT CLEAR)		
COMMAND (MM REDIRECT CLEAR)		
COMMAND (SIM REDIRECT CLEAR)		
COMMAND (SS REDIRECT CLEAR)		
COMMAND (MMI REDIRECT CLEAR)		
COMMAND (SMS REDIRECT CLEAR)		
COMMAND (GMM REDIRECT CLEAR)		
COMMAND (SM REDIRECT CLEAR)		
COMMAND (SND REDIRECT CLEAR)		
COMMAND (PPP REDIRECT CLEAR)		
COMMAND (UART REDIRECT CLEAR)		
COMMAND (PL REDIRECT CLEAR)		
COMMAND (WAP REDIRECT CLEAR)		
COMMAND (MMI REDIRECT CC TAP)		
COMMAND (MMI REDIRECT MM TAP)		
COMMAND (MMI REDIRECT SIM TAP)		
COMMAND (MMI REDIRECT SS TAP)		
COMMAND (MMI REDIRECT MMI TAP)		
COMMAND (MMI REDIRECT SMS TAP)		
COMMAND (MMI REDIRECT PL TAP)		
COMMAND (MMI REDIRECT GMM TAP)		
COMMAND (MMI REDIRECT SM TAP)		
COMMAND (MMI REDIRECT SND TAP)		
COMMAND (MMI REDIRECT IP TAP)		

```

COMMAND (MMI REDIRECT UDP TAP)
COMMAND (MMI REDIRECT PPP TAP)
COMMAND (MMI REDIRECT UART TAP)
COMMAND (MMI REDIRECT WAP TAP)
COMMAND (PL REDIRECT MMI NULL)
|
COMMAND (TAP REDIRECT TAP MMI)
COMMAND (MMI REDIRECT MMI TAP)
|

```

**Parametrization:**

Primitive	Parameter	Value
History:	29-Oct-01	kgt
		Initial

**3.1.2 GACIWAP001: Set ME to full functionality state, no PIN required**

Description:

Preamble:

GACIWAP000		ACI	PS
APL			
(1)	ACI_CMD_REQ (cmd: CFUN=1)		
	* =====> *		
(2)		SIM_ACTIVATE_REQ	
		* =====> *	
(3)		SIM_ACTIVATE_CNF	
		* <===== *	
(4)		SIM_MMI_INSERT_IND	
		* <===== *	
(5)		SIM_READ_REQ	
		* =====> *	
(6)		SIM_READ_CNF	
		* <===== *	
(7)		SIM_READ_REQ	
		* =====> *	
(8)		SIM_READ_CNF	
		* <===== *	
(9)	ACI_CMD_IND (msg: OK)		
	* <===== *		

**Parametrization:**

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src cmd_len cmd_seq	CMD_SRC_EXT LC_CFUN C_CFUN_1
(2) SIM_ACTIVATE_REQ	proc mmi_pro_file stk_pro_file	SIM_INITIALISATION MMI_AND_FDN_BDN NOT_USED

(3) SIM_ACTIVATE_CNF	cause	SIM_NO_ERROR
	pin_cnt	NUM_3
	puk_cnt	NUM_10
	pin2_cnt	NUM_3
	puk2_cnt	NUM_10
	ec_code	NO_EC_CODES
	pref_lang	NO_PREF_LANG
(4) SIM_MMI_INSERT_IND	func	SIM_ADN_ENABLED
	sim_serv	F_SIM_SRV_4
	imsi_field	IMSI
	pref_plmn	PREF_PLMN
	phase	PHASE_2_SIM
	access_acm	ACCESS_ALWAYS
	access_acmmax	ACCESS_ALWAYS
(5) SIM_READ_REQ	access_puct	ACCESS_ALWAYS
	source	SRC_MMI
	offset	NUM_0
	datafield	SIM_ECC
	length	NOT_PRESENT_8BIT
	max_length	NUM_0
(6) SIM_READ_CNF	datafield	SIM_ECC
	cause	SIM_NO_ERROR
	length	NUM_12
	trans_data	A_ECC_FIELD
(7) SIM_READ_REQ	source	SRC_MMI
	offset	NUM_0
	datafield	SIM_AD
	length	NOT_PRESENT_8BIT
	max_length	NUM_0
(8) SIM_READ_CNF	datafield	SIM_AD
	cause	SIM_NO_ERROR
	length	NUM_4
	trans_data	A_AD_FIELD_CI_DISABLED
(9) ACI_CMD_IND	cmd_len	LM_OK
	cmd_seq	M_OK

History:	29-Oct-2001	KGT	Initial
	17.02.2003	TLU	extended to SIM_READ_REQ(SIM_AD)

### 3.1.3 GACIWAP002: Automatic registration (GPRS automatic attach)

Description: ME is in full functionality state.

Preamble: GACIWAP001

	APL	ACI	PS
	COMMAND (MMI CONFIG AUTO_ATTACH)		
	COMMAND (MMI CONFIG MAN_DETACH)		
(1)	ACI_CMD_REQ (cmd: +COPS=0)		
	*=====>*		
(2)		GMMREG_PLMN_MODE_REQ	
		*=====>*	
(3)		GMMREG_ATTACH_REQ	
		*=====>*	
(4)		GMMREG_ATTACH_CNF	
		*<=====*	
(5)		GMMREG_PLMN_MODE_REQ	
		*=====>*	
(6)	ACI_CMD_IND (msg: OK)		
	*<=====*		

### Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src cmd_len cmd_seq	CMD_SRC_EXT LC_COPS C_COPS_0
(2) GMMREG_PLMN_MODE_REQ	net_selection_mode	GMMREG_NET_SEL_MODE_AUTO
(3) GMMREG_ATTACH_REQ	mobile_class attach_type service_mode t3314_ready_val t3312_standby_rau_val	GMMREG_CLASS_BG GMMREG_AT_COMB SERVICE_MODE_FULL VAL_T3314 VAL_T3312
(4) GMMREG_ATTACH_CNF	attach_type plmn lac rac cid gprs_indicator search_running	GMMREG_AT_COMB PLMN_1 NUM_1 NUM_1 NUM_1 GMM_GPRS_SUPP_YES GMMREG_SEARCH_NOT_RUNNING
(5) GMMREG_PLMN_MODE_REQ	net selection mode	GMMREG_NET_SEL_MODE_AUTO

(6) ACI\_CMD\_IND

```
cmd_len
cmd_seq
```

LM\_OK  
M\_OK

History:

29-Oct-2001      kgt      Initial

### 3.2 Root functions

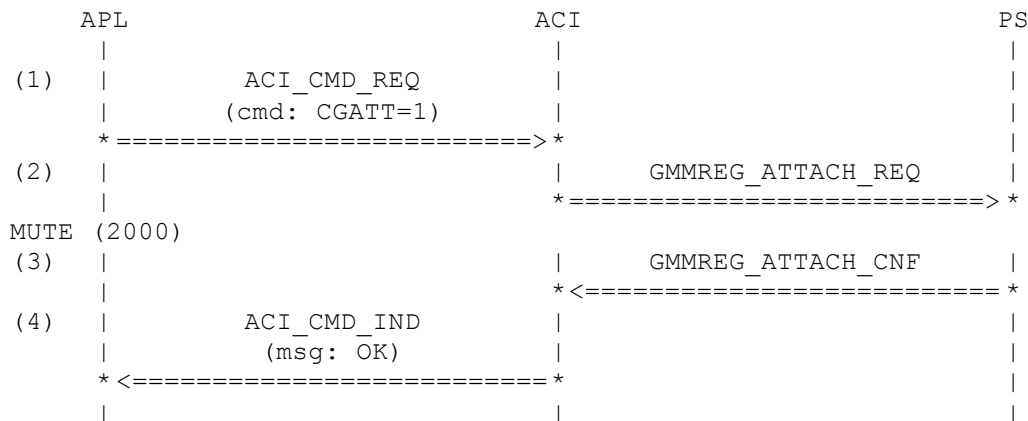
### 3.2.1 GACIWAP020: Attach mobile

Description:

start in the state: combined detached.

Preamble:

GACIWAP001



### Parametrization:

<u>Primitive</u>	<u>Parameter</u>	<u>Value</u>
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT
	cmd_len	LC.CGATT
	cmd_seq	C.CGATT_1
(2) GMMREG_ATTACH_REQ	mobile_class	GMMREG_CLASS_BG
	attach_type	GMMREG_AT_GPRS
	service_mode	SERVICE_MODE_FULL
	t3314_ready_val	VAL_T3314
	t3312_standby_rau_val	VAL_T3312
(7) GMMREG_ATTACH_CNF	attach_type	GMMREG_AT_GPRS
	plmn	PLMN_1
	lac	NUM_1
	rac	NUM_1
	cid	NUM_1
	gprs_indicator	GMM_GPRS_SUPP_YES
	search_running	GMMREG_SEARCH_NOT_RUNNING
(3) ACI_CMD_IND	cmd_len	LM_OK
	cmd_seq	M_OK

History: 29-Oct-01 kgt Initial

### 3.3 PDP context definition

#### 3.3.1 GACIWAP040: One PDP context defined

Description:

- <A> One PDP context will be defined.
- <B> One PDP context will be defined with omitted parameter and not attached.
- <C> One PDP context will be defined with a command list
- <D> One PDP context will be defined with a command list

Variants:

<A>....<D>

Preamble:

- <A>GACIWAP020
- <B>GACIWAP001
- <C>GACIWAP020
- <D>GACIWAP040c

APL	ACI	PS
(1)	ACI_CMD_REQ (cmd: CGDCONT=...)	
	*=====>*	
(2)	ACI_CMD_IND (msg: OK)	
	*<=====*	

Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ		
<A>	cmd_src	CMD_SRC_EXT
<B>	cmd_len	LC_CGDCONT_X
<C>	cmd_len	LC_CGDCONT_X_oIAP
<D>	cmd_len	LC_CGDCONT_SPECIAL
<A>	cmd_seq	C_CGDCONT_1
<B>	cmd_seq	C_CGDCONT_1_oIAP
<C>	cmd_seq	C_CGDCONT_SPECIAL
<D>	cmd_seq	C_CGDCONT_SPECIAL
(2) ACI_CMD_IND		
	cmd_len	LM_OK
	cmd_seq	M_OK

History: 29-Oct-2001 kgt Initial

### 3.4 PDP context activation (CGACT)

#### 3.4.1 GACIWAP100: One PDP context activated

Description:

With CGACT and one PDP context is defined.

Variants:

<A>...<B>

Preamble:

```

<A>GACIWAP040a
<B>GACIWAP040b

      APL                      ACI                      PS
(1)  |                          |                          |
      |      ACI_CMD_REQ      |                          |
      |      (cmd: CGACT=1,1)  |                          |
      | *=====> *          |                          |
(2)  |                          |      SMREG_PDP_ACTIVATE_REQ |
      | *=====> *          |                          |
(3)  |                          |      SMREG_PDP_ACTIVATE_CNF |
      | *<===== *          |                          |
(4)  |      ACI_CMD_IND      |                          |
      |      (msg: OK)        |                          |
      | *<===== *          |                          |
MUTE (2000)
      |                          |                          |

```

Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT
	cmd_len	LC_CGACT_X
	cmd_seq	C_CGACT_11
(2) SMREG_PDP_ACTIVATE_REQ	direc	DIREC_MO
	ppp_hc	PPP_HC_OFF
	msid	NUM_0
	dcomp	SMREG_COMP_NEITHER_DIRECT
	hcomp	SMREG_COMP_NEITHER_DIRECT
	pdp_type	IP_V_4
	smreg_qos	SMREG_QOS_0
	smreg_min_qos	SMREG_QOS_0
	smreg_nsapi	SMREG_NSAPI_5
	smreg_ti	NUM_FF
	pdp_address	PDP_ADDRESS_0_S
	smreg_apn	SMREG_APN_0_S
	dti_linkid	SNDCP_NULL_DTI_ID1
	dti_neighbor	STRING_POINTER
	dti_direction	SMREG_NEIGHBOR
	sdu	SDU_CTX_REQ_DEF



(3) SMREG\_PDP\_ACTIVATE\_CNF

pdp_hc	PPP_HC_OFF
msid	MSID_NO
dcomp	SMREG_COMP_NEITHER_DIRECT
hcomp	SMREG_COMP_NEITHER_DIRECT
pdp_type	IP_V_4
smreg_qos	SMREG_QOS_1
smreg_nsapi	SMREG_NSAPI_5
pdp_address	PDP_ADDRESS_1
sdu	SDU

(4) ACI\_CMD\_IND

```
cmd_len      LM_OK
cmd_seq      M_OK
```

History:	29-Oct-2001	kgt	Initial
----------	-------------	-----	---------

### 3.4.2 GACIWAP101: One PDP context activated, but not attached

Description:

With CGACT, one PDP context is defined and not attached

Variants:

<A>...<B>

Preamble:

<A>GACIWAP040b

<B>GACIWAP040b

	APL	ACI	PS
(1)	ACI_CMD_REQ (cmd: CGACT=1,1)		
	*=====>*		
(2)		SMREG_PDP_ACTIVATE_REQ	
		*=====>*	
(3)		SMREG_PDP_ACTIVATE_CNF	
		*<=====*	
(4)	ACI_CMD_IND (msg: OK)		
	*<=====*		
MUTE (2000)			

### Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ		
	cmd_src	CMD_SRC_EXT
	cmd_len	LC_CGACT_X
	cmd_seq	C_CGACT_11
(2) SMREG_PDP_ACTIVATE_REQ		
	direc	DIREC_MO
	ppp_hc	PPP_HC_OFF
	msid	NUM_0
	dcomp	SMREG_COMP_NEITHER_DIRECT

	hcomp	SMREG_COMP_NEITHER_DIRECT
	pdp_type	IP_V_4
	smreg_qos	SMREG_QOS_0
	smreg_min_qos	SMREG_QOS_0
	smreg_nsapi	SMREG_NSAPI_5
	smreg_ti	NUM_FF
	pdp_address	PDP_ADDRESS_0_S
	smreg_apn	SMREG_APN_0_S
	dti_linkid	SNDCP_NULL_DTI_ID1
	dti_neighbor	STRING_POINTER
	dti_direction	SMREG_NEIGHBOR
	sdu	SDU_CTX_REQ_DEF
(3) SMREG_PDP_ACTIVATE_CNF		
	ppp_hc	PPP_HC_OFF
	msid	MSID_NO
	dcomp	SMREG_COMP_NEITHER_DIRECT
	hcomp	SMREG_COMP_NEITHER_DIRECT
	pdp_type	IP_V_4
	smreg_qos	SMREG_QOS_1
	smreg_nsapi	SMREG_NSAPI_5
	pdp_address	PDP_ADDRESS_1
	sdu	SDU
(4) ACI_CMD_IND		
	cmd_len	LM_OK
	cmd_seq	M_OK
History:	30-Oct-2001	kgt
		Initial

### 3.5 PDP context activation (ATD\*98#)

#### 3.5.1 GACIWAP150: One PDP context activated

##### Description:

- <A> With one PDP context activated by CGACT.
- <B> With one PDP context defined and **not** activated by CGACT.

##### Variants:

<A>...<B>

## Preamble:

&lt;A&gt;GACIWAP100a

&lt;B&gt;GACIWAP040a

APL	ACI	PS
MUTE (2000)		
(1)	ACI_CMD_REQ (cmd: ATD*98#)	
	*=====>*	
(2)	WAP_DTI_REQ	
	*=====>*	
(3)	UDPA_DTI_REQ	
	*=====>*	
(4)	UDPA_DTI_REQ	
	*=====>*	
(5)	IPA_DTI_REQ	
	*=====>*	
(6)	WAP_DTI_CNF	
	*<=====*	
(7)	UDPA_DTI_CNF	
	*<=====*	
(8)	UDPA_DTI_CNF	
	*<=====*	
(9)	IPA_DTI_CNF	
	*<=====*	
(10)	IPA_DTI_REQ	
	*=====>*	
(11)	SMREG_PDP_ACTIVATE_REQ	
	*=====>*	
(12)	IPA_DTI_CNF	
	*<=====*	
(13)	SMREG_PDP_ACTIVATE_CNF	
	*<=====*	
(14)	IPA_CONFIG_REQ	
	*=====>*	
(15)	IPA_CONFIG_CNF	
	*<=====*	
(16)	UDPA_CONFIG_REQ	
	*=====>*	
(17)	UDPA_CONFIG_CNF	
	*<=====*	
(18)	ACI_CMD_IND (msg: CONNECT)	
	*<=====*	
MUTE (2000)		

## Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT
	cmd_len	LC_GD_0
	cmd_seq	C_GD_0
(2) WAP_DTI_REQ	dti_conn	WAP_CONNECT_DTI
	entity_name	S_UDP_NAME
<A>	link_id	WAP_DTI_ID2

<B>	link_id dti_direction	WAP_DTI_ID1 NUM_1
(3) UDPA_DTI_REQ	dti_conn entity_name	UDPA_CONNECT_DTI S_WAP_NAME
<A>	link_id	WAP_DTI_ID2
<B>	link_id dti_direction	WAP_DTI_ID1 UDPA_DTI_TO_HIGHER_LAYER
(4) UDPA_DTI_REQ	dti_conn entity_name	UDPA_CONNECT_DTI S_IP_NAME
<A>	link_id	UDP_DTI_ID2
<B>	link_id dti_direction	UDP_DTI_ID1 UDPA_DTI_TO_LOWER_LAYER
(5) IPA_DTI_REQ	dti_conn entity_name	IPA_CONNECT_DTI S_UDP_NAME
<A>	link_id	UDP_DTI_ID2
<B>	link_id dti_direction	UDP_DTI_ID1 IPA_DTI_TO_HIGHER_LAYER
(6) WAP_DTI_CNF	dti_conn	WAP_CONNECT_DTI
(7) UDPA_DTI_CNF	dti_conn	UDPA_CONNECT_DTI
<A>	link_id	WAP_DTI_ID2
<B>	link_id	WAP_DTI_ID1
(8) UDPA_DTI_CNF	dti_conn	UDPA_CONNECT_DTI
<A>	link_id	UDP_DTI_ID2
<B>	link_id	UDP_DTI_ID1
(9) IPA_DTI_CNF	dti_conn	IPA_CONNECT_DTI
<A>	link_id	UDP_DTI_ID2
<B>	link_id	UDP_DTI_ID1
(10) IPA_DTI_REQ	dti_conn entity_name	IPA_CONNECT_DTI S_SNDP_NAME
<A>	link_id	SNDP_DTI_ID2
<B>	link_id dti_direction	SNDP_DTI_ID1 IPA_DTI_TO_LOWER_LAYER
(11) SMREG_PDP_ACTIVATE_REQ	direc ppp_hc msid dcomp hcomp pdp_type smreg_qos smreg_min_qos smreg_nsapi smreg_ti pdp_address smreg_apn	DIREC_MO PPP_HC_OFF NUM_0 SMREG_COMP_NEITHER_DIRECT SMREG_COMP_NEITHER_DIRECT IP_V_4 SMREG_QOS_0 SMREG_QOS_0 NOT_USED NUM_FF PDP_ADDRESS_0_S SMREG_APN_0_S

<A>	dti_linkid	SNDCP_DTI_ID2
<B>	dti_linkid	SNDCP_DTI_ID1
	dti_neighbor	STRING_POINTER
	dti_direction	SMREG_NEIGHBOR
	sdu	SDU_CTX_REQ_DEF
(12) IPA_DTI_CNF		
	dti_conn	IPA_CONNECT_DTI
<A>	link_id	SNDCP_DTI_ID2
<B>	link_id	SNDCP_DTI_ID1
(13) SMREG_PDP_ACTIVATE_CNF		
	ppp_hc	PPP_HC_OFF
	msid	MSID_NO
	dcomp	SMREG_COMP_NEITHER_DIRECT
	hcomp	SMREG_COMP_NEITHER_DIRECT
	pdp_type	IP_V_4
	smreg_qos	SMREG_QOS_1
	smreg_nsapi	SMREG_NSAPI_5
	pdp_address	NOT_USED
	sdu	SDU
(14) IPA_CONFIG_REQ		
	ip	PPP_IP_DYNAMIC
	peer_ip	NOT_USED
	mtu	PPP_MRU_DEFAULT
	cmd	IPA_CONFIG_UP
(15) IPA_CONFIG_CNF		
	ack_flag	NOT_USED
	all_down	NOT_USED
(16) UDPA_CONFIG_REQ		
	cmd	UDPA_CONFIG_UP
(17) UDPA_CONFIG_CNF		
(18) ACI_CMD_IND		
	cmd_len	LM_CONNECT
	cmd_seq	M_CONNECT

History:      29-Oct-01      kgt      Initial  
                  20.01.03 TLU      adaptation to new IPA and UDPA SAP  
                  21.02.03 TLU      WAP DTI handling added

### 3.5.2 GACIWAP151: One PDP context activated, but not attached

#### Description:

- <A> With one other PDP context activated by CGACT.  
 <B> With one PDP context defined and not activated by CGACT.

#### Variants:

<A>...<B>

## Preamble:

&lt;A&gt;GACIWAP101a

&lt;B&gt;GACIWAP040b

APL	ACI	PS
MUTE (2000)		
(1)	ACI_CMD_REQ (cmd: ATD*98#)	
	*=====>*	
(2)	WAP_DTI_REQ	
	*=====>*	
(3)	UDPA_DTI_REQ	
	*=====>*	
(4)	UDPA_DTI_REQ	
	*=====>*	
(5)	IPA_DTI_REQ	
	*=====>*	
(6)	WAP_DTI_CNF	
	*<=====*	
(7)	UDPA_DTI_CNF	
	*<=====*	
(8)	UDPA_DTI_CNF	
	*<=====*	
(9)	IPA_DTI_CNF	
	*<=====*	
(10)	IPA_DTI_REQ	
	*=====>*	
(11)	SMREG_PDP_ACTIVATE_REQ	
	*=====>*	
(12)	IPA_DTI_CNF	
	*<=====*	
(13)	SMREG_PDP_ACTIVATE_CNF	
	*<=====*	
(14)	IPA_CONFIG_REQ	
	*=====>*	
(15)	IPA_CONFIG_CNF	
	*<=====*	
(16)	UDPA_CONFIG_REQ	
	*=====>*	
(17)	UDPA_CONFIG_CNF	
	*<=====*	
(18)	ACI_CMD_IND (msg: CONNECT)	
	*<=====*	
MUTE (2000)		

## Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT
	cmd_len	LC_GD_0
	cmd_seq	C_GD_0
(2) WAP_DTI_REQ	dti_conn	WAP_CONNECT_DTI
	entity_name	S_UDP_NAME
<A>	link_id	WAP_DTI_ID2

<B>	link_id dti_direction	WAP_DTI_ID1 NUM_1
(3) UDPA_DTI_REQ	dti_conn entity_name	UDPA_CONNECT_DTI S_WAP_NAME
<A>	link_id	WAP_DTI_ID2
<B>	link_id dti_direction	WAP_DTI_ID1 UDPA_DTI_TO_HIGHER_LAYER
(4) UDPA_DTI_REQ	dti_conn entity_name	UDPA_CONNECT_DTI S_IP_NAME
<A>	link_id	UDP_DTI_ID2
<B>	link_id dti_direction	UDP_DTI_ID1 UDPA_DTI_TO_LOWER_LAYER
(5) IPA_DTI_REQ	dti_conn entity_name	IPA_CONNECT_DTI S_UDP_NAME
<A>	link_id	UDP_DTI_ID2
<B>	link_id dti_direction	UDP_DTI_ID1 IPA_DTI_TO_HIGHER_LAYER
(6) WAP_DTI_CNF	dti_conn	WAP_CONNECT_DTI
(7) UDPA_DTI_CNF	dti_conn	UDPA_CONNECT_DTI
<A>	link_id	WAP_DTI_ID2
<B>	link_id	WAP_DTI_ID1
(8) UDPA_DTI_CNF	dti_conn	UDPA_CONNECT_DTI
<A>	link_id	UDP_DTI_ID2
<B>	link_id	UDP_DTI_ID1
(9) IPA_DTI_CNF	dti_conn	IPA_CONNECT_DTI
<A>	link_id	UDP_DTI_ID2
<B>	link_id	UDP_DTI_ID1
(10) IPA_DTI_REQ	dti_conn entity_name	IPA_CONNECT_DTI S_SNDCP_NAME
<A>	link_id	SNDCP_DTI_ID2
<B>	link_id dti_direction	SNDCP_DTI_ID1 IPA_DTI_TO_LOWER_LAYER
(11) SMREG_PDP_ACTIVATE_REQ	direc ppp_hc msid dcomp hcomp pdp_type smreg_qos smreg_min_qos	DIREC_MO PPP_HC_OFF NUM_0 SMREG_COMP_NEITHER_DIRECT SMREG_COMP_NEITHER_DIRECT IP_V_4 SMREG_QOS_0 SMREG_QOS_0
<A>	smreg_nsapi	SMREG_NSAPI_6
<B>	smreg_nsapi smreg_ti pdp_address	SMREG_NSAPI_5 NUM_FF PDP_ADDRESS_0_S

<A> <B>	smreg_apn	SMREG_APN_0_S
	dti_linkid	SNDCP_DTI_ID2
(12) IPA_DTI_CNF	dti_linkid	SNDCP_DTI_ID1
	dti_neighbor	STRING_POINTER
	dti_direction	SMREG_NEIGHBOR
	sdu	SDU_CTX_REQ_DEF
<A> <B>	dti_conn	IPA_CONNECT_DTI
	link_id	SNDCP_DTI_ID2
(13) SMREG_PDP_ACTIVATE_CNF	link_id	SNDCP_DTI_ID1
<A> <B>	ppp_hc	PPP_HC_OFF
	msid	MSID_NO
(14) IPA_CONFIG_REQ	dcomp	SMREG_COMP_NEITHER_DIRECT
	hcomp	SMREG_COMP_NEITHER_DIRECT
	pdp_type	IP_V_4
	smreg_qos	SMREG_QOS_1
	smreg_nsapi	SMREG_NSAPI_6
	smreg_nsapi	SMREG_NSAPI_5
	pdp_address	NOT_USED
	sdu	SDU
(15) IPA_CONFIG_CNF	ip	PPP_IP_DYNAMIC
	peer_ip	NOT_USED
	mtu	PPP_MRU_DEFAULT
	cmd	IPA_CONFIG_UP
(16) UDPA_CONFIG_REQ	ack_flag	NOT_USED
	all_down	NOT_USED
(17) UDPA_CONFIG_CNF		
	cmd	UDPA_CONFIG_UP
(18) ACI_CMD_IND		
	cmd_len	LM_CONNECT
	cmd_seq	M_CONNECT

History: 30-Oct-01 kgt Initial  
20.01.03 TLU adaptation to new IPA and UDPA SAP  
21.02.03 TLU WAP DTI handling added

### 3.5.3 GACIWAP152: One PDP context activated

#### Description:

With one PDP context activated by CGACT.

#### Preamble:

GACIWAP100a



APL	ACI	PS
MUTE (2000)		
(1)	ACI_CMD_REQ (cmd: ATD*98#)	
	*=====>*	
(2)	WAP_DTI_REQ	
	*=====>*	
(3)	UDPA_DTI_REQ	
	*=====>*	
(4)	UDPA_DTI_REQ	
	*=====>*	
(5)	IPA_DTI_REQ	
	*=====>*	
(6)	WAP_DTI_CNF	
	*<=====*	
(7)	UDPA_DTI_CNF	
	*<=====*	
(8)	UDPA_DTI_CNF	
	*<=====*	
(9)	IPA_DTI_CNF	
	*<=====*	
(10)	IPA_DTI_REQ	
	*=====>*	
(11)	SN_SWITCH_REQ	
	*=====>*	
(12)	IPA_DTI_CNF	
	*<=====*	
(13)	SN_SWITCH_CNF	
	*<=====*	
(14)	IPA_CONFIG_REQ	
	*=====>*	
(15)	IPA_CONFIG_CNF	
	*<=====*	
(16)	UDPA_CONFIG_REQ	
	*=====>*	
(17)	UDPA_CONFIG_CNF	
	*<=====*	
(18)	ACI_CMD_IND (msg: CONNECT)	
	*<=====*	
MUTE (2000)		

**Parametrization:**

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT
	cmd_len	LC_GD_3
	cmd_seq	C_GD_3
(2) WAP_DTI_REQ	dti_conn	WAP_CONNECT_DTI
	entity_name	S_UDP_NAME
	link_id	WAP_DTI_ID2
	dti_direction	NUM_1

(3) UDPA_DTI_REQ	dti_conn entity_name link_id dti_direction	UDPA_CONNECT_DTI S_WAP_NAME WAP_DTI_ID2 UDPA_DTI_TO_HIGHER_LAYER
(4) UDPA_DTI_REQ	dti_conn entity_name link_id dti_direction	UDPA_CONNECT_DTI S_IP_NAME UDP_DTI_ID2 UDPA_DTI_TO_LOWER_LAYER
(5) IPA_DTI_REQ	dti_conn entity_name link_id dti_direction	IPA_CONNECT_DTI S_UDP_NAME UDP_DTI_ID2 IPA_DTI_TO_HIGHER_LAYER
(6) WAP_DTI_CNF	dti_conn	WAP_CONNECT_DTI
(7) UDPA_DTI_CNF	dti_conn link_id	UDPA_CONNECT_DTI WAP_DTI_ID2
(8) UDPA_DTI_CNF	dti_conn link_id	UDPA_CONNECT_DTI UDP_DTI_ID2
(9) IPA_DTI_CNF	dti_conn link_id	IPA_CONNECT_DTI UDP_DTI_ID2
(10) IPA_DTI_REQ	dti_conn entity_name link_id dti_direction	IPA_CONNECT_DTI S_SNDP_NAME SNDP_DTI_ID2 IPA_DTI_TO_LOWER_LAYER
(11) SN_SWITCH_REQ	nsapi dti_linkid dti_neighbor dti_direction	SMREG_NSAPI_5 SNDP_DTI_ID2 STRING_POINTER SMREG_NEIGHBOR
(12) IPA_DTI_CNF	dti_conn link_id	IPA_CONNECT_DTI SNDP_DTI_ID2
(13) SN_SWITCH_CNF	nsapi	SMREG_NSAPI_5
(14) IPA_CONFIG_REQ	ip peer_ip mtu cmd	NUM_FFFFFFFF NOT_USED PPP_MRU_DEFAULT IPA_CONFIG_UP
(15) IPA_CONFIG_CNF	ack_flag all_down	NOT_USED NOT_USED
(16) UDPA_CONFIG_REQ	cmd	UDPA_CONFIG_UP

(17) UDPA\_CONFIG\_CNF

(18) ACI\_CMD\_IND

cmd\_len  
cmd\_seq

LM\_CONNECT  
M\_CONNECT

History:	31-Oct-01	kgf	Initial
	20.01.03 TLU		adaptation to new IPA and UDPA SAP
	21.02.03 TLU		WAP DTI handling added

### 3.5.4 GACIWAP160: One PDP context activation rejected

Description:

With one PDP context is activated by CGACT.

Preamble:

GACIWAP100a

APL	ACI	PS
(1)	ACI_CMD_REQ (cmd: ATD*98#)	
	*=====>*	
(2)	WAP_DTI_REQ	
	*=====>*	
(3)	UDPA_DTI_REQ	
	*=====>*	
(4)	UDPA_DTI_REQ	
	*=====>*	
(5)	IPA_DTI_REQ	
	*=====>*	
(6)	WAP_DTI_CNF	
	*<=====*	
(7)	UDPA_DTI_CNF	
	*<=====*	
(8)	UDPA_DTI_CNF	
	*<=====*	
(9)	IPA_DTI_CNF	
	*<=====*	
(10)	IPA_DTI_REQ	
	*=====>*	
(11)	SMREG_PDP_ACTIVATE_REQ	
	*=====>*	
(12)	SMREG_PDP_ACTIVATE_REJ	
	*<=====*	
(13)	WAP_DTI_REQ	
	*=====>*	
(14)	IPA_DTI_REQ	
	*=====>*	
(15)	WAP_DTI_CNF	
	*<=====*	
(16)	IPA_DTI_CNF	
	*<=====*	
(17)	UDPA_DTI_IND	
	*<=====*	
(18)	UDPA_DTI_IND	
	*<=====*	
(19)	ACI_CMD_IND (msg: NO CARRIER)	
	*<=====*	
MUTE (2000)		

### Parametrization:

<u>Primitive</u>	<u>Parameter</u>	<u>Value</u>
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT

	cmd_len	LC_GD_0
	cmd_seq	C_GD_0
(2) WAP_DTI_REQ	dti_conn	WAP_CONNECT_DTI
	entity_name	S_UDP_NAME
	link_id	WAP_DTI_ID2
	dti_direction	NUM_1
(3) UDPA_DTI_REQ	dti_conn	UDPA_CONNECT_DTI
	entity_name	S_WAP_NAME
	link_id	WAP_DTI_ID2
	dti_direction	UDPA_DTI_TO_HIGHER_LAYER
(4) UDPA_DTI_REQ	dti_conn	UDPA_CONNECT_DTI
	entity_name	S_IP_NAME
	link_id	UDP_DTI_ID2
	dti_direction	UDPA_DTI_TO_LOWER_LAYER
(5) IPA_DTI_REQ	dti_conn	IPA_CONNECT_DTI
	entity_name	S_UDP_NAME
	link_id	UDP_DTI_ID2
	dti_direction	IPA_DTI_TO_HIGHER_LAYER
(6) WAP_DTI_CNF	dti_conn	WAP_CONNECT_DTI
(7) UDPA_DTI_CNF	dti_conn	UDPA_CONNECT_DTI
	link_id	WAP_DTI_ID2
(8) UDPA_DTI_CNF	dti_conn	UDPA_CONNECT_DTI
	link_id	UDP_DTI_ID2
(9) IPA_DTI_CNF	dti_conn	IPA_CONNECT_DTI
	link_id	UDP_DTI_ID2
(10) IPA_DTI_REQ	dti_conn	IPA_CONNECT_DTI
	entity_name	S_SNDTCP_NAME
	link_id	SNDTCP_DTI_ID2
	dti_direction	IPA_DTI_TO_LOWER_LAYER
(11) SMREG_PDP_ACTIVATE_REQ	direc	DIREC_MO
	ppp_hc	PPP_HC_OFF
	msid	NUM_0
	dcomp	SMREG_COMP_NEITHER_DIRECT
	hcomp	SMREG_COMP_NEITHER_DIRECT
	pdp_type	IP_V_4
	smreg_qos	SMREG_QOS_0
	smreg_min_qos	SMREG_QOS_0
	smreg_nsapi	SMREG_NSAPI_6
	smreg_ti	NUM_FF
	pdp_address	PDP_ADDRESS_0_S
	smreg_apn	SMREG_APN_0_S
	dti_linkid	SNDTCP_DTI_ID2
	dti_neighbor	STRING_POINTER

	dti_direction	SMREG_NEIGHBOR
	sdu	SDU_CTX_REQ_DEF
(12) SMREG_PDP_ACTIVATE_REJ	smreg_cause	SMREG_RC_NETWORK_FAILURE
	smreg_nsapi	SMREG_NSAPI_6
(13) WAP_DTI_REQ	dti_conn	WAP_DISCONNECT_DTI
	entity_name	NOT_USED
	link_id	WAP_DTI_ID2
	dti_direction	NUM_1
(14) IPA_DTI_REQ	dti_conn	IPA_DISCONNECT_DTI
	entity_name	NOT_USED
	link_id	UDP_DTI_ID2
	dti_direction	NOT_USED
(15) WAP_DTI_CNF	dti_conn	WAP_DISCONNECT_DTI
(16) IPA_DTI_CNF	dti_conn	IPA_DISCONNECT_DTI
	link_id	UDP_DTI_ID2
(17) UDPA_DTI_IND	link_id	WAP_DTI_ID2
(18) UDPA_DTI_IND	link_id	UDP_DTI_ID2
(19) ACI_CMD_IND	cmd_len	LM_NO_CARRIER
	cmd_seq	M_NO_CARRIER
History:	30-Oct-01 kgt Initial	
	20.01.03 TLU adaptation to new IPA and UDPA SAP	
	21.02.03 TLU WAP DTI handling added	

### 3.6 PDP context Deactivation

#### 3.6.1 GACIWAP200: One PDP context deactivated, with ATH

##### Description:

With one PDP context activated by atd\*98#.

This test case failes because there is an error in GACIWAP stack (state machine?).

##### Preamble:

GACIWAP150a		
APL	ACI	PS
(1)	ACI_CMD_REQ (cmd: ATH)	
	*=====>*	
(2)	SMREG_PDP_DEACTIVATE_REQ	
	*=====>*	
MUTE (2000)		
(3)	SMREG_PDP_DEACTIVATE_IND	
	*<=====*	
(4)	IPA_DTI_IND	
	*<=====*	
(5)	IPA_CONFIG_REQ	
	*=====>*	
(6)	IPA_CONFIG_CNF	
	*<=====*	
(7)	UDPA_CONFIG_REQ	
	*=====>*	
(8)	UDPA_CONFIG_CNF	
	*<=====*	
(9)	WAP_DTI_REQ	
	*=====>*	
(10)	IPA_DTI_REQ	
	*=====>*	
(11)	WAP_DTI_CNF	
	*<=====*	
(12)	IPA_DTI_CNF	
	*<=====*	
(13)	UDPA_DTI_IND	
	*<=====*	
(14)	UDPA_DTI_IND	
	*<=====*	
(15)	ACI_CMD_IND (msg: NO CARRIER)	
	*<=====*	

##### Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src	CMD_SRC_EXT
	cmd_len	LC_H
	cmd_seq	C_H
(2) SMREG_PDP_DEACTIVATE_REQ	nsapi_set	NSAPI_SET_NSAPI_5_6
	smreg_local	SMREG_NONLOCAL

(3)	SMREG_PDP_DEACTIVATE_IND	nsapi_set	NSAPI_SET_NSAPI_5_6
(4)	IPA_DTI_IND	link_id	SNDCP_DTI_ID2
(5)	IPA_CONFIG_REQ	ip	NUM_0
		peer_ip	NUM_0
		mtu	NUM_0
		cmd	IPA_CONFIG_DOWN
(6)	IPA_CONFIG_CNF	ack_flag	NOT_USED
		all_down	IPA_ALLDOWN_TRUE
(7)	UDPA_CONFIG_REQ	cmd	UDPA_CONFIG_DOWN
(8)	UDPA_CONFIG_CNF		
(9)	WAP_DTI_REQ	dti_conn	WAP_DISCONNECT_DTI
		entity_name	NOT_USED
		link_id	WAP_DTI_ID2
		dti_direction	NUM_1
(10)	IPA_DTI_REQ	dti_conn	IPA_DISCONNECT_DTI
		entity_name	NOT_USED
		link_id	UDP_DTI_ID2
		dti_direction	NOT_USED
(11)	WAP_DTI_CNF	dti_conn	WAP_DISCONNECT_DTI
(12)	IPA_DTI_CNF	dti_conn	IPA_DISCONNECT_DTI
		link_id	UDP_DTI_ID2
(13)	UDPA_DTI_IND	link_id	WAP_DTI_ID2
(14)	UDPA_DTI_IND	link_id	UDP_DTI_ID2
(15)	ACI_CMD_IND	cmd_len	LM_NO_CARRIER
		cmd_seq	M_NO_CARRIER

History:           29-Oct-01           kgt    Initial  
                   22.01.03 TLU       adaptation to new IPA and UDPA SAP  
                   21.02.03 TLU       WAP DTI handling added

### 3.6.2 GACIWAP220: One PDP context deactivated, with CGACT=0

#### Description:

With one PDP context activated by atd\*98#.



Preamble:

GACIWAP150a

	APL	ACI	PS
(1)	ACI_CMD_REQ (cmd: CGACT=0)		
	*=====>*		
(2)		SMREG_PDP_DEACTIVATE_REQ	
		*=====>*	
MUTE (2000)			
(3)		SMREG_PDP_DEACTIVATE_IND	
		*<=====*	
(4)		IPA_DTI_IND	
		*<=====*	
(5)		IPA_CONFIG_REQ	
		*=====>*	
(6)		IPA_CONFIG_CNF	
		*<=====*	
(7)		UDPA_CONFIG_REQ	
		*=====>*	
(8)		UDPA_CONFIG_CNF	
		*<=====*	
(9)		WAP_DTI_REQ	
		*=====>*	
(10)		IPA_DTI_REQ	
		*=====>*	
(11)		WAP_DTI_CNF	
		*<=====*	
(12)		IPA_DTI_CNF	
		*<=====*	
(13)		UDPA_DTI_IND	
		*<=====*	
(14)		UDPA_DTI_IND	
		*<=====*	
(15)	ACI_CMD_IND (msg: NO CARRIER)		
	*<=====*		

### Parametrization:

Primitive	Parameter	Value
(1) ACI_CMD_REQ	cmd_src cmd_len cmd_seq	CMD_SRC_EXT LC_CGACT_X C_CGACT_20
(2) SMREG_PDP_DEACTIVATE_REQ	nsapi_set smreg_local	NSAPI_SET_NSAPI_6 SMREG_NONLOCAL
(3) SMREG_PDP_DEACTIVATE_IND	nsapi_set	NSAPI_SET_NSAPI_6
(4) IPA_DTI_IND	link_id	SNDTCP_DTI_ID2
(5) IPA_CONFIG_REQ	ip peer_ip mtu cmd	NUM_0 NUM_0 NUM_0 IPA_CONFIG_DOWN

(6) IPA_CONFIG_CNF	ack_flag	NOT_USED
	all_down	IPA_ALLDOWN_TRUE
(7) UDPA_CONFIG_REQ		
	cmd	UDPA_CONFIG_DOWN
(8) UDPA_CONFIG_CNF		
(9) WAP_DTI_REQ	dti_conn	WAP_DISCONNECT_DTI
	entity_name	NOT_USED
	link_id	WAP_DTI_ID2
	dti_direction	NUM_1
(10) IPA_DTI_REQ	dti_conn	IPA_DISCONNECT_DTI
	entity_name	NOT_USED
	link_id	UDP_DTI_ID2
	dti_direction	NOT_USED
(11) WAP_DTI_CNF		
	dti_conn	WAP_DISCONNECT_DTI
(12) IPA_DTI_CNF		
	dti_conn	IPA_DISCONNECT_DTI
	link_id	UDP_DTI_ID2
(13) UDPA_DTI_IND		
	link_id	WAP_DTI_ID2
(14) UDPA_DTI_IND		
	link_id	UDP_DTI_ID2
(15) ACI_CMD_IND		
	cmd_len	LM_NO_CARRIER
	cmd_seq	M_NO_CARRIER

History:      31-Oct-01      kgt      Initial  
                  20.01.03 TLU      adaptation to new IPA and UDPA SAP  
                  21.02.03 TLU      WAP DTI handling added