3GPP TSG_CN#7 **NP-000067**

ETSI SMG3 Plenary Meeting #7,
Madrid, Spain
13th – 15th March 2000

Agenda item: **5.2.3**

Source: **TSG_N WG2**

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

Introduction:

This document contains **"8"** CRs on **Work Item GPRS,** that have been agreed by **TSG_N WG2,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

TDoc	SPEC	CR	REV	CAT	Rel	Old vers	New vers	SUBJECT
N2B000381	03.08	A031	1	F	R97	6.3.0		Addition of PDP Context Identifier
N2B000382	03.08	A032	1	A	R98	7.2.0		Addition of PDP Context Identifier
N2B000471	23.008	025		A	R99	3.3.0		Addition of PDP Context Identifier
N2B000041	09.60	A080		D	R97	6.4.0		Clarification of Repeated Information Element Ordering
N2B000042	09.60	A081		D	R98	7.3.0		Clarification of Repeated Information Element Ordering
N2B000113	29.002	090	1	B	R99	3.3.0		Improving GPRS charging efficiency
N2B000043	29.060	051		D	R99	3.3.0		Clarification of Repeated Information Element Ordering
N2B000056	29.060	057		F	R99	3.3.0		Removal of X.25

3GPP TSG CN WG2-B
Milan, Italy, 14-16 Feb 2000

Document N2B000381
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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03.08	CR	A031r1	Current Version:	6.3.0

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

For submission to:	CN #07	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	X	

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: N2 **Date:** 2000-02-08

Subject: Addition of PDP Context Identifier

Work item: GPRS

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

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	X
Release 98	
Release 99	
Release 00	

Reason for change: Category C1

Clauses affected: New subclause 2.13.24; table 2 in clause 4

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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<--------- double-click here for help and instructions on how to create a CR.

2.13 Data related to GPRS NAM

The data listed in this subclause pertain to the Network Access Mode “GPRS” and have no counterpart for non-GPRS.

2.13.1 PDP Type

PDP Type is defined in GSM 03.60. It indicates which type of protocol is used by the MS for a certain service, e.g. IP and X.25.

PDP Type is permanent subscriber data and conditionally stored in HLR, SGSN and GGSN.

2.13.2 PDP Address

PDP Address is defined in GSM 03.60. It holds the address of the MS for a certain service, e.g. an X.121 address. If dynamic addressing is allowed, PDP Address is empty in the HLR, and, before the PDP context is activated, empty in the SGSN.

PDP Address is permanent subscriber data and conditionally stored in HLR, SGSN and GGSN.

2.13.3 NSAPI

NSAPI is defined in GSM 03.60. It holds the index of the PDP Context.

NSAPI is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.4 Packet Data Protocol (PDP) State

PDP State is defined in GSM 03.60. The PDP State is either ACTIVE or INACTIVE.

PDP State is temporary subscriber data and conditionally stored in SGSN.

2.13.5 New SGSN Address

New SGSN Address is defined in GSM 03.60. It is the IP-address of the new SGSN, to which N-PDUs should be forwarded from the old SGSN after an inter-SGSN routing update.

New SGSN Address is temporary subscriber data and conditionally stored in SGSN.

2.13.6 Access Point Name (APN)

Access Point Name (APN) is defined in TS GSM 03.03 and 03.60 The APN field in the HLR contains either only an APN Network Identifier (i.e. an APN without APN Operator Identifier) or the wild card value (defined in GSM 03.03).APN is permanent subscriber data conditionally stored in HLR, in GGSN and SGSN.

2.13.7 GGSN Address in Use

GGSN Address in Use is defined in GSM 03.60. It is the IP address of the GGSN currently used by a certain PDP Address of the MS.

GGSN Address is temporary subscriber data and conditionally stored in SGSN.

2.13.8 VPLMN Address Allowed

VPLMN Address Allowed is defined in GSM 03.60. It specifies whether the MS is allowed to use a dynamic address allocated in any VPLMN.

VPLMN Address Allowed is permanent subscriber data and conditionally stored in HLR and SGSN.

2.13.9 Dynamic Address

Dynamic Address is defined in GSM 03.60. It indicates whether the address of the MS is dynamic.

Dynamic Address is temporary subscriber data conditionally stored in GGSN.

2.13.10 SGSN Address

SGSN Address is defined in GSM 03.03. It is the IP Address of the SGSN currently serving the MS.

SGSN Address is temporary subscriber data stored in HLR and stored conditionally in GGSN. A pendant is the SGSN number, cf subclause 2.4.8.

2.13.11 GGSN-list

GGSN-list is defined in GSM 03.60. It defines the GGSNs to be contacted when activity from the MS is detected and MNRG is set. It contains the GGSN number and optionally the GGSN IP address.

GGSN-list is temporary subscriber data stored in the HLR.

2.13.12 Quality of Service Subscribed

Quality of Service Subscribed is defined in GSM 03.60. It specifies the quality of service subscribed for a certain PDP context.

Quality of Service Subscribed is permanent subscriber data and conditionally stored in HLR and SGSN.

2.13.13 Quality of Service Requested

Quality of Service Requested is defined in GSM 03.60. It specifies the quality of service requested for a certain PDP context.

Quality of Service Requested is temporary subscriber data and conditionally stored in SGSN.

2.13.14 Quality of Service Negotiated

Quality of Service Negotiated is defined in GSM 03.60. It specifies the quality of service for a certain PDP context, negotiated between the MS and the SGSN, and then the GGSN.

Quality of Service Negotiated is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.15 SND

SND is defined in GSM 03.60. It is the GPRS Tunnelling Protocol sequence number of the next downlink N-PDU.

SND is temporary subscriber data conditionally stored in SGSN and GGSN.

2.13.16 SNU

SNU is defined in GSM 03.60. It is the GPRS Tunnelling Protocol sequence number of the next uplink N-PDU.

SNU is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.17 DRX Parameters

DRX Parameters is defined in GSM 03.60.

DRX Parameters is temporary subscriber data stored in SGSN.

2.13.18 Compression

Compression is defined in GSM 03.60. There is one set of negotiated compression parameters per QoS priority level.

Compression is temporary subscriber data conditionally stored in the SGSN.

2.13.19 Non-GPRS Alert Flag (NGAF)

Non-GPRS Alert Flag (NGAF) is defined in GSM 03.60. It indicates whether activity from the MS shall be reported to the MSC/VLR.

NGAF is temporary subscriber data and is conditionally stored in the SGSN if the Gs interface is installed.

2.13.20 Classmark

MS Classmark is defined in GSM 04.08.

Classmark is temporary subscriber data stored in the SGSN.

2.13.21 Tunnel IDentifier (TID)

Tunnel Identifier is defined in GSM 09.60. It is used for Anonymous Access. TID is temporary subscriber data conditionally stored in SGSN and GGSN.

2.13.22 Radio Priority

Radio Priority is defined in GSM 03.60. It indicates the RLC/MAC radio priority level for uplink user data transmission for a certain PDP context.

Radio Priority is temporary subscriber data and conditionally stored in SGSN.

2.13.23 Radio Priority SMS

Radio Priority SMS is defined in GSM 03.60. It indicates the RLC/MAC radio priority level for uplink SMS transmission.

Radio Priority SMS is temporary subscriber data and conditionally stored in SGSN.

2.13.24 PDP Context Identifier

PDP Context Identifier is defined in GSM 03.60. It identifies uniquely each PDP context.

PDP Context Identifier is permanent subscriber data and conditionally stored in HLR and SGSN.

4 Accessing subscriber data

It shall be possible to retrieve or store subscriber data concerning a specific MS from the HLR by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Mobile Station ISDN Number (MSISDN)

It shall be possible to retrieve or store subscriber data concerning a specific MS from the VLR by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Temporary Mobile Subscriber Identity (TMSI).

It shall be possible to retrieve or store subscriber data concerning a specific MS from the SGSN by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Packet Temporary Mobile Subscriber identity (P-TMSI).

It shall be possible to retrieve or store subscriber data concerning a specific MS from the GGSN by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);

See clause 3 for explanation of M, C, T and P in table 1 and table 2.

Table 1: Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
IMSI	2.1.1.1	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	P	Note
International MS ISDN number	2.1.2	M	M	P	
multinumbering MSISDNs	2.1.3	C	-	P	Note
Basic MSISDN indicator	2.1.3.1	C	-	P	
MSISDN-Alert indicator	2.1.3.2	C	-	P	
TMSI	2.1.4	-	C	T	
LMSI	2.1.8	C	C	T	Note
Mobile Station Category	2.2.1	M	M	P	
RAND, SRES and Kc	2.3.1	M	M	T	
Ciphering Key Sequence Number	2.3.2	-	M	T	
MSRN	2.4.1	-	C	T	Note
Location Area Identity	2.4.2	-	M	T	
VLR number	2.4.5	M	-	T	Note
MSC number	2.4.6	M	C	T	
HLR number	2.4.7	-	C	T	
Subscription restriction	2.4.9	C	-	P	
RSZI lists	2.4.10.1	C	-	P	
Zone Code List	2.4.10.2	-	C	P	
MSC area restricted flag	2.4.11	M	-	T	
LA not allowed flag	2.4.12	-	M	T	
ODB-induced barring data	2.4.15.1	C	-	T	
Roaming restriction due to unsupported feature	2.4.15.2	M	M	T	
Cell ID	2.4.16	-	C	T	
Provision of bearer service	2.5.1	M	M	P	
Provision of teleservice	2.5.2	M	M	P	
BC allocation	2.5.3	C	C	P	
IMSI detached flag	2.7.1	-	C	T	
Confirmed by Radio Contact indicator	2.7.4.1	-	M	T	
Subscriber Data Confirmed by HLR indicator	2.7.4.2	-	M	T	
Location Information Confirmed in HLR indicator	2.7.4.3	-	M	T	
Check SS indicator	2.7.4.4	M	-	T	
MS purged for non-GPRS flag	2.7.5	M	-	T	
MNRR	2.7.7	C	-	T	
Subscriber status	2.8.1	C	C	P	
Barring of outgoing calls	2.8.2.1	C	C	P	
Barring of incoming calls	2.8.2.2	C	-	P	
Barring of roaming	2.8.2.3	C	-	P	
Barring of premium rate calls	2.8.2.4	C	C	P	
Barring of supplementary service management	2.8.2.5	C	C	P	
Barring of registration of call forwarding	2.8.2.6	C	-	P	
Barring of invocation of call transfer	2.8.2.7	C	C	P	
Operator determined barring PLMN-specific data	2.8.3	C	C	P	
Handover Number	2.9.1	-	C	T	
Messages Waiting Data	2.10.1	C	-	T	
Mobile Station Not Reachable Flag	2.10.2	C	M	T	
Memory Capacity Exceeded Flag	2.10.3	C	-	T	
Trace Reference	2.11.1	C	C	P	
Trace Type	2.11.2	C	C	P	
Operations Systems Identity	2.11.3	C	C	P	
HLR Trace Type	2.11.4	C	-	P	
MAP Error On Trace	2.11.5	C	-	T	
Trace Activated in VLR	2.11.6	C	C	T	
Foreign Subscriber Registered in VLR	2.11.7	-	C	P	Note
VGCS Group Membership List	2.12.1	C	C	P	
VBS Group Membership List	2.12.2	C	C	P	
Broadcast Call Initiation Allowed List	2.12.2.1	C	C	P	
Originating CAMEL Subscription Information	2.14.1.1	C	C	P	
Terminating CAMEL Subscription Information	2.14.1.2	C	-	P	
Location Information/Subscriber state Information	2.14.1.3	C	-	P	
USSD CAMEL subscription information(U-CSI)	2.14.1.4	C	-	P	
SS invocation notification (SS-CSI)	2.14.1.5/3.2	C	C	P	
FTN translation information flag(TIF-CSI)	2.14.1.6	C	-	P	
USSD General CAMEL service information (UG-CSI)	2.14.2	C	-	P	
Negotiated CAMEL Capability Handling	2.14.2	C	-	T	

Table 2: Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE	
IMSI	2.1.1.1	M	M	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	C (a)	-	P	Note
International MS ISDN number	2.1.2	M	M	M	-	T	
multinumbering MSISDNs	2.1.3	C	-	-	-	T	Note
Basic MSISDN indicator	2.1.3.1	C	-	-	-	T	.
MSISDN-Alert indicator	2.1.3.2	C	-	-	-	T	
P-TMSI	2.1.5	-	-	C	-	T	Note
TLLI	2.1.6	-	-	C	-	T	
Random TLLI	2.1.7	-	-	C	-	T	Note
IMEI	2.1.9	-	-	C	-	T	
RAND/SRES and Kc	2.3.1	M	-	M	-	T	
Ciphering Key Sequence Number	2.3.2	-	-	M	-	T	
Selected Ciphering Algorithm	2.3.3	-	-	M	-	T	
Current Kc	2.3.4	-	-	M	-	T	
P-TMSI Signature	2.3.5	-	-	C	-	T	
Routing Area Identity	2.4.3	-	-	M	-	T	
Cell Global Identification	2.4.4	-	-	C	-	T	
SGSN Number	2.4.8.1	M	C (Gs)	-	-	T	Note
GGSN Number	2.4.8.2	©	-	-	-	P	Note
VLR Number	2.4.5	M	-	C (Gs)	-	T	
RSZI Lists	2.4.10.1	C	-	-	-	P	
Zone Code List	2.4.10.2	-	-	C	-	P	
LA not allowed flag	2.4.12	-	-	M	-	T	
SGSN area restricted flag	2.4.13	M	-	-	-	T	
Roaming Restriction in the SGSN ..	2.4.15.2	M	-	M	-	T	
Cell ID	2.4.16	-	-	C	-	T	
Provision of teleservice	2.5.2	C	-	C	-	P	
Transfer of SM option	2.5.4	M	-	-	-	P	
Subscriber Status	2.8.1	C	-	C	-	P	
Barring of outgoing calls	2.8.2.1	C	-	C	-	P	
Barring of roaming	2.8.2.3	C	-	C	-	P	
ODB PLMN-specific data	2.8.3	C	-	C	-	P	
MM State	2.7.3	-	-	M	-	T	
Subscriber Data Confirmed by HLR Indicator	2.7.4.2	-	-	M	-	T	
Location Info Confirmed by HLR Indicator	2.7.4.3	-	-	M	-	T	
MS purged for GPRS flag	2.7.6	M	-	-	-	T	
MNRG	2.7.2	M	-	M	M	T	
MNRR	2.7.7	C	-	-	-	T	
Trace Activated in SGSN	2.11.7	C	-	C	-	P	
PDP Type	2.13.1	C	-	C	M	P	
PDP Address	2.13.2	C	-	C	M	P	
NSAPI	2.13.3	-	-	C	C	T	
PDP State	2.13.4	-	-	C	-	T	
New SGSN Address	2.13.5	-	-	C	-	T	
Access Point Name	2.13.6	C	-	C	C	P/T	Note
GGSN Address in Use	2.13.7	-	-	C	-	T	
VPLMN Address Allowed	2.13.8	C	-	C	-	P	
Dynamic Address	2.13.9	-	-	-	C	T	
SGSN Address	2.13.10	-	-	-	M	T	
GGSN-list	2.13.11	M	-	-	-	T	
Quality of Service Subscribed	2.13.12	C	-	C	-	P	
Quality of Service Requested	2.13.13	-	-	C	-	T	
Quality of Service Negotiated	2.13.14	-	-	C	M	T	
SND	2.13.15	-	-	C	C	T	
SNU	2.13.16	-	-	C	C	T	
DRX Parameters	2.13.17	-	-	M	-	T	
Compression	2.13.18	-	-	C	-	T	
NGAF	2.13.19	-	-	C (Gs)	-	T	
Classmark	2.13.20	-	-	M	-	T	
TID	2.13.21	-	-	C	C	T	
Radio Priority	2.13.22	-	-	C	-	T	
Radio Priority SMS	2.13.23	-	-	C	-	T	
PDP Context Identifier	2.13.24	C		C		T	

NOTE: The HLR column indicates only GPRS related use, i.e. if the HLR uses a parameter in non-GPRS Network Access Mode but not in GPRS Network Access Mode, it is not mentioned in this table 2.
(Gs): The VLR column is applicable if Gs interface is installed. It only indicates GPRS related data to be stored and is only relevant to GPRS subscribers registered in VLR.

a): This parameter is relevant in the SGSN only when the Gs interface is installed.

NOTE: For special condition of storage see in the clauses 2.x.y referred-to.
See clause 3 for explanation of M,C,T and P in table 2.

3GPP TSG CN WG2-B
Milan, Italy, 14-16 Feb 2000

Document N2B000382
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or for SMG, use the format P-99-xxx

CHANGE REQUEST

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03.08	CR	A032r1	Current Version:	7.2.0

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

For submission to: CN #07	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic	X	

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: N2 **Date:** 2000-02-08

Subject: Addition of PDP Context Identifier

Work item: GPRS

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

F	Correction	
A	Corresponds to a correction in an earlier release	X
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	X
Release 99	
Release 00	

Reason for change: Category C1

Clauses affected: New subclause 2.13.24; table 2 in clause 4

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
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The data listed in this subclause pertain to the Network Access Mode “GPRS” and have no counterpart for non-GPRS.

2.13.1 PDP Type

PDP Type is defined in GSM 03.60. It indicates which type of protocol is used by the MS for a certain service, e.g. IP and X.25.

PDP Type is permanent subscriber data and conditionally stored in HLR, SGSN and GGSN.

2.13.2 PDP Address

PDP Address is defined in GSM 03.60. It holds the address of the MS for a certain service, e.g. an X.121 address. If dynamic addressing is allowed, PDP Address is empty in the HLR, and, before the PDP context is activated, empty in the SGSN.

PDP Address is permanent subscriber data and conditionally stored in HLR, SGSN and GGSN.

2.13.3 NSAPI

NSAPI is defined in GSM 03.60. It holds the index of the PDP Context.

NSAPI is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.4 Packet Data Protocol (PDP) State

PDP State is defined in GSM 03.60. The PDP State is either ACTIVE or INACTIVE.

PDP State is temporary subscriber data and conditionally stored in SGSN.

2.13.5 New SGSN Address

New SGSN Address is defined in GSM 03.60. It is the IP-address of the new SGSN, to which N-PDUs should be forwarded from the old SGSN after an inter-SGSN routing update.

New SGSN Address is temporary subscriber data and conditionally stored in SGSN.

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Access Point Name (APN) is defined in TS GSM 03.03 and 03.60 The APN field in the HLR contains either only an APN Network Identifier (i.e. an APN without APN Operator Identifier) or the wild card value (defined in GSM 03.03).APN is permanent subscriber data conditionally stored in HLR, in GGSN and SGSN.

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GGSN Address in Use is defined in GSM 03.60. It is the IP address of the GGSN currently used by a certain PDP Address of the MS.

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VPLMN Address Allowed is defined in GSM 03.60. It specifies whether the MS is allowed to use a dynamic address allocated in any VPLMN.

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Dynamic Address is defined in GSM 03.60. It indicates whether the address of the MS is dynamic.

Dynamic Address is temporary subscriber data conditionally stored in GGSN.

2.13.10 SGSN Address

SGSN Address is defined in GSM 03.03. It is the IP Address of the SGSN currently serving the MS.

SGSN Address is temporary subscriber data stored in HLR and stored conditionally in GGSN. A pendant is the SGSN number, cf subclause 2.4.8.

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GGSN-list is defined in GSM 03.60. It defines the GGSNs to be contacted when activity from the MS is detected and MNRG is set. It contains the GGSN number and optionally the GGSN IP address.

GGSN-list is temporary subscriber data stored in the HLR.

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Quality of Service Subscribed is defined in GSM 03.60. It specifies the quality of service subscribed for a certain PDP context.

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Compression is defined in GSM 03.60. There is one set of negotiated compression parameters per QoS priority level.

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MS Classmark is defined in GSM 04.08.

Classmark is temporary subscriber data stored in the SGSN.

2.13.21 Tunnel IDentifier (TID)

Tunnel Identifier is defined in GSM 09.60. It is used for Anonymous Access. TID is temporary subscriber data conditionally stored in SGSN and GGSN.

2.13.22 Radio Priority

Radio Priority is defined in GSM 03.60. It indicates the RLC/MAC radio priority level for uplink user data transmission for a certain PDP context.

Radio Priority is temporary subscriber data and conditionally stored in SGSN.

2.13.23 Radio Priority SMS

Radio Priority SMS is defined in GSM 03.60. It indicates the RLC/MAC radio priority level for uplink SMS transmission.

Radio Priority SMS is temporary subscriber data and conditionally stored in SGSN.

2.13.24 PDP Context Identifier

PDP Context Identifier is defined in GSM 03.60. It identifies uniquely each PDP context.

PDP Context Identifier is permanent subscriber data and conditionally stored in HLR and SGSN.

4 Accessing subscriber data

It shall be possible to retrieve or store subscriber data concerning a specific MS from the HLR by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Mobile Station ISDN Number (MSISDN)

It shall be possible to retrieve or store subscriber data concerning a specific MS from the VLR by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Temporary Mobile Subscriber Identity (TMSI).

It shall be possible to retrieve or store subscriber data concerning a specific MS from the SGSN by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);

Table a Packet Temporary Mobile Subscriber identity (P-TMSI).

It shall be possible to retrieve or store subscriber data concerning a specific MS from the GGSN by use of each of the following references:

Table a International Mobile Subscriber Identity (IMSI);

See clause 3 for explanation of M, C, T and P in table 1 and table 2.

Table 1: Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
IMSI	2.1.1.1	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	P	Note
International MS ISDN number	2.1.2	M	M	P	
multinumbering MSISDNs	2.1.3	C	-	P	Note
Basic MSISDN indicator	2.1.3.1	C	-	P	
MSISDN-Alert indicator	2.1.3.2	C	-	P	
TMSI	2.1.4	-	C	T	
LMSI	2.1.8	C	C	T	Note
Mobile Station Category	2.2.1	M	M	P	
LMU Identifier	2.2.1	C	C	P	
RAND, SRES and Kc	2.3.1	M	M	T	
Ciphering Key Sequence Number	2.3.2	-	M	T	
MSRN	2.4.1	-	C	T	Note
Location Area Identity	2.4.2	-	M	T	
VLR number	2.4.5	M	-	T	Note
MSC number	2.4.6	M	C	T	
HLR number	2.4.7	-	C	T	
Subscription restriction	2.4.9	C	-	P	
RSZI lists	2.4.10.1	C	-	P	
Zone Code List	2.4.10.2	-	C	P	
MSC area restricted flag	2.4.11	M	-	T	
LA not allowed flag	2.4.12	-	M	T	
ODB-induced barring data	2.4.15.1	C	-	T	
Roaming restriction due to unsupported feature	2.4.15.2	M	M	T	
Cell ID	2.4.16	-	C	T	
LSA Identity	2.4.X.1	C	C	P	
LSA Priority	2.4.X.2	C	C	P	
LSA Only Access Indicator	2.4.X.3	C	C	P	
LSA Active Mode Indicator	2.4.X.4	C	C	P	
VPLMN Identifier	2.4.X.5	C	-	P	
Provision of bearer service	2.5.1	M	M	P	
Provision of teleservice	2.5.2	M	M	P	
BC allocation	2.5.3	C	C	P	
IMSI detached flag	2.7.1	-	C	T	
Confirmed by Radio Contact indicator	2.7.4.1	-	M	T	
Subscriber Data Confirmed by HLR indicator	2.7.4.2	-	M	T	
Location Information Confirmed in HLR indicator	2.7.4.3	-	M	T	
Check SS indicator	2.7.4.4	M	-	T	
MS purged for non-GPRS flag	2.7.5	M	-	T	
MNRR	2.7.7	C	-	T	
Subscriber status	2.8.1	C	C	P	
Barring of outgoing calls	2.8.2.1	C	C	P	
Barring of incoming calls	2.8.2.2	C	-	P	
Barring of roaming	2.8.2.3	C	-	P	
Barring of premium rate calls	2.8.2.4	C	C	P	
Barring of supplementary service management	2.8.2.5	C	C	P	
Barring of registration of call forwarding	2.8.2.6	C	-	P	
Barring of invocation of call transfer	2.8.2.7	C	C	P	
Operator determined barring PLMN-specific data	2.8.3	C	C	P	
Handover Number	2.9.1	-	C	T	
Messages Waiting Data	2.10.1	C	-	T	
Mobile Station Not Reachable Flag	2.10.2	C	M	T	
Memory Capacity Exceeded Flag	2.10.3	C	-	T	

(continued)

Table 1 (concluded): Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
Trace Reference	2.11.1	C	C	P	
Trace Type	2.11.2	C	C	P	
Operations Systems Identity	2.11.3	C	C	P	
HLR Trace Type	2.11.4	C	-	P	
MAP Error On Trace	2.11.5	C	-	T	
Trace Activated in VLR	2.11.6	C	C	T	
Foreign Subscriber Registered in VLR	2.11.7	-	C	P	Note
VGCS Group Membership List	2.12.1	C	C	P	
VBS Group Membership List	2.12.2	C	C	P	
Broadcast Call Initiation Allowed List	2.12.2.1	C	C	P	
Originating CAMEL Subscription Information	2.14.1.1	C	C	P	
Terminating CAMEL Subscription Information	2.14.1.2	C	-	P	
Location Information/Subscriber state Information	2.14.1.3	C	-	P	
USSD CAMEL subscription information(U-CSI)	2.14.1.4	C	-	P	
SS invocation notification (SS-CSI)	2.14.1.5/3.2	C	C	P	
FTN translation information flag(TIF-CSI)	2.14.1.6	C	-	P	
USSD General CAMEL service information (UG-CSI)	2.14.2	C	-	P	
Negotiated CAMEL Capability Handling	2.14.2	C	-	T	
Privacy Exception List	2.15.1.1	C	C	P	
GMLC Numbers	2.15.1.2	C	C	P	
MO-LR List	2.15.1.3	C	C	P	

Table 2: Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE	
IMSI	2.1.1.1	M	M	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	C (a)	-	P	Note
International MS ISDN number	2.1.2	M	M	M	-	T	
multinumbering MSISDNs	2.1.3	C	-	-	-	T	Note
Basic MSISDN indicator	2.1.3.1	C	-	-	-	T	.
MSISDN-Alert indicator	2.1.3.2	C	-	-	-	T	
P-TMSI	2.1.5	-	-	C	-	T	Note
TLLI	2.1.6	-	-	C	-	T	
Random TLLI	2.1.7	-	-	C	-	T	Note
IMEI	2.1.9	-	-	C	-	T	
RAND/SRES and Kc	2.3.1	M	-	M	-	T	
Ciphering Key Sequence Number	2.3.2	-	-	M	-	T	
Selected Ciphering Algorithm	2.3.3	-	-	M	-	T	
Current Kc	2.3.4	-	-	M	-	T	
P-TMSI Signature	2.3.5	-	-	C	-	T	
Routing Area Identity	2.4.3	-	-	M	-	T	
Cell Global Identification	2.4.4	-	-	C	-	T	
SGSN Number	2.4.8.1	M	C (Gs)	-	-	T	Note
GGSN Number	2.4.8.2	©	-	-	-	P	Note
VLR Number	2.4.5	M	-	C (Gs)	-	T	
RSZI Lists	2.4.10.1	C	-	-	-	P	
Zone Code List	2.4.10.2	-	-	C	-	P	
LA not allowed flag	2.4.12	-	-	M	-	T	
SGSN area restricted flag	2.4.13	M	-	-	-	T	
Roaming Restriction in the SGSN ..	2.4.15.2	M	-	M	-	T	
Cell ID	2.4.16	-	-	C	-	T	
LSA Identity	2.4.X.1	C	C	C	-	P	
LSA Priority	2.4.X.2	C	C	C	-	P	
LSA Only Access Indicator	2.4.X.3	C	C	C	-	P	
LSA Active Mode Indicator	2.4.X.4	C	C	C	-	P	
VPLMN Identifier	2.4.X.5	C	-	-	-	P	
Provision of teleservice	2.5.2	C	-	C	-	P	
Transfer of SM option	2.5.4	M	-	-	-	P	
Subscriber Status	2.8.1	C	-	C	-	P	
Barring of outgoing calls	2.8.2.1	C	-	C	-	P	
Barring of roaming	2.8.2.3	C	-	C	-	P	
ODB PLMN-specific data	2.8.3	C	-	C	-	P	
MM State	2.7.3	-	-	M	-	T	
Subscriber Data Confirmed by HLR Indicator	2.7.4.2	-	-	M	-	T	
Location Info Confirmed by HLR Indicator	2.7.4.3	-	-	M	-	T	
MS purged for GPRS flag	2.7.6	M	-	-	-	T	
MNRG	2.7.2	M	-	M	M	T	
MNRR	2.7.7	C	-	-	-	T	
Trace Activated in SGSN	2.11.7	C	-	C	-	P	
PDP Type	2.13.1	C	-	C	M	P	
PDP Address	2.13.2	C	-	C	M	P	
NSAPI	2.13.3	-	-	C	C	T	
PDP State	2.13.4	-	-	C	-	T	
New SGSN Address	2.13.5	-	-	C	-	T	
Access Point Name	2.13.6	C	-	C	C	P/T	Note
GGSN Address in Use	2.13.7	-	-	C	-	T	
VPLMN Address Allowed	2.13.8	C	-	C	-	P	
Dynamic Address	2.13.9	-	-	-	C	T	
SGSN Address	2.13.10	-	-	-	M	T	
GGSN-list	2.13.11	M	-	-	-	T	

(continued)

Table 2 (concluded): Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE
Quality of Service Subscribed	2.13.12	C	-	C	-	P
Quality of Service Requested	2.13.13	-	-	C	-	T
Quality of Service Negotiated	2.13.14	-	-	C	M	T
SND	2.13.15	-	-	C	C	T
SNU	2.13.16	-	-	C	C	T
DRX Parameters	2.13.17	-	-	M	-	T
Compression	2.13.18	-	-	C	-	T
NGAF	2.13.19	-	-	C (Gs)	-	T
Classmark	2.13.20	-	-	M	-	T
TID	2.13.21	-	-	C	C	T
Radio Priority	2.13.22	-	-	C	-	T
Radio Priority SMS	2.13.23	-	-	C	-	T
PDP Context Identifier	2.13.24	C		C		T

NOTE 1: The HLR column indicates only GPRS related use, i.e. if the HLR uses a parameter in non-GPRS Network Access Mode but not in GPRS Network Access Mode, it is not mentioned in this table 2.
(Gs): The VLR column is applicable if Gs interface is installed. It only indicates GPRS related data to be stored and is only relevant to GPRS subscribers registered in VLR.

a): This parameter is relevant in the SGSN only when the Gs interface is installed.

NOTE 2: For special condition of storage see in the clauses 2.x.y referred-to.
See clause 3 for explanation of M,C,T and P in table 2.

3GPP TSG-CN WG2
Kyoto, Japan 17-21 January, 2000

Document N2B000041
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

09.60	**CR**	**A080**	Current Version:	6.5.0

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

For submission to: CN#7 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

strategic [ ] non-strategic [X] *(for SMG use only)*

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: N2 **Date:** 11 Jan. 2000

Subject: Clarification of Repeated Information Element Ordering

Work item: GPRS

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

F	Correction	[ ]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[ ]
C	Functional modification of feature	[ ]
D	Editorial modification	[X]

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[X]
Release 98	[ ]
Release 99	[ ]
Release 00	[ ]

Reason for change:

Category C1:

The order of the Signalling Address and the Traffic Address IEs in the Create PDP Context, Update PDP Context and the AA Create PDP Context messages is not unambiguously defined. The literal interpretation of the specification is that the signalling address is sent first. It is essential that this literal interpretation is captured in GSM 09.60 otherwise some implementations may put/expect the traffic address first, which will cause interoperability problems.

Defining the order more clearly in the specification should prevent any such interoperability issues.

Clauses affected: 5

Other specs affected:

Other 3G core specifications	[X]	→ 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: Equivalent R98 and R99 will need to be prepared.

5 Transmission order and bit definitions

The messages in this document shall be transmitted in network octet order starting with octet 1. Where information elements are repeated within a message the order shall be determined by the order of appearance in the table defining the information elements in the message.

The most significant bit of an octet in a GTP message is bit 8. If a value in a GTP message spans several octets and nothing else is stated, the most significant bit is bit 8 of the octet with the lowest number.

3GPP TSG-CN WG2
Kyoto, Japan 17-21 January, 2000

Document N2B000042
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

09.60	**CR**	**A081**	Current Version:	7.3.0

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

For submission to: CN#07 *list expected approval meeting # here ↑*

for approval	X	strategic		*(for SMG use only)*
for information		non-strategic	X	

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: *(at least one should be marked with an X)*

(U)SIM	ME	UTRAN / Radio	Core Network
			X

Source: N2 **Date:** 11 Jan. 2000

Subject: Clarification of Repeated Information Element Ordering

Work item: GPRS

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

			Release:		
F	Correction			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	X
D	Editorial modification	X		Release 99	
				Release 00	

Reason for change:

Category C1:

The order of the Signalling Address and the Traffic Address IEs in the Create PDP Context, Update PDP Context and the AA Create PDP Context messages is not unambiguously defined. The literal interpretation of the specification is that the signalling address is sent first. It is essential that this literal interpretation is captured in GSM 09.60 otherwise some implementations may put/expect the traffic address first, which will cause interoperability problems.

Defining the order more clearly in the specification should prevent any such interoperability issues.

Clauses affected: 5

Other specs affected:

Other 3G core specifications	X	→ 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: Equivalent R97 and R99 will need to be prepared.

5 Transmission order and bit definitions

The messages in this document shall be transmitted in network octet order starting with octet 1. Where information elements are repeated within a message the order shall be determined by the order of appearance in the table defining the information elements in the message.

The most significant bit of an octet in a GTP message is bit 8. If a value in a GTP message spans several octets and nothing else is stated, the most significant bit is bit 8 of the octet with the lowest number.

3GPP TSG CN WG2-B

Document N2B000471

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

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

23.008	CR	025	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 #07	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	X	

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: N2 **Date:** 2000-02-08

Subject: Addition of PDP Context Identifier

Work item: GPRS

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

F	Correction	
A	Corresponds to a correction in an earlier release	X
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: Category C1

Clauses affected: New subclause 2.13.24; table 2 in clause 4

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:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

2.13 Data related to GPRS NAM

The data listed in this subclause pertain to the Network Access Mode “GPRS” and have no counterpart for non-GPRS.

2.13.1 PDP Type

PDP Type is defined in GSM 03.60. It indicates which type of protocol is used by the MS for a certain service, e.g. IP and X.25.

PDP Type is permanent subscriber data and conditionally stored in HLR, SGSN and GGSN.

2.13.2 PDP Address

PDP Address is defined in GSM 03.60. It holds the address of the MS for a certain service, e.g. an X.121 address. If dynamic addressing is allowed, PDP Address is empty in the HLR, and, before the PDP context is activated, empty in the SGSN.

PDP Address is permanent subscriber data and conditionally stored in HLR, SGSN and GGSN.

2.13.3 NSAPI

NSAPI is defined in GSM 03.60. It holds the index of the PDP Context.

NSAPI is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.4 Packet Data Protocol (PDP) State

PDP State is defined in GSM 03.60. The PDP State is either ACTIVE or INACTIVE.

PDP State is temporary subscriber data and conditionally stored in SGSN.

2.13.5 New SGSN Address

New SGSN Address is defined in GSM 03.60. It is the IP-address of the new SGSN, to which N-PDUs should be forwarded from the old SGSN after an inter-SGSN routing update.

New SGSN Address is temporary subscriber data and conditionally stored in SGSN.

2.13.6 Access Point Name (APN)

Access Point Name (APN) is defined in TS GSM 03.03 and 03.60 The APN field in the HLR contains either only an APN Network Identifier (i.e. an APN without APN Operator Identifier) or the wild card value (defined in GSM 03.03).APN is permanent subscriber data conditionally stored in HLR, in GGSN and SGSN.

2.13.7 GGSN Address in Use

GGSN Address in Use is defined in GSM 03.60. It is the IP address of the GGSN currently used by a certain PDP Address of the MS.

GGSN Address is temporary subscriber data and conditionally stored in SGSN.

2.13.8 VPLMN Address Allowed

VPLMN Address Allowed is defined in GSM 03.60. It specifies whether the MS is allowed to use a dynamic address allocated in any VPLMN.

VPLMN Address Allowed is permanent subscriber data and conditionally stored in HLR and SGSN.

2.13.9 Dynamic Address

Dynamic Address is defined in GSM 03.60. It indicates whether the address of the MS is dynamic.

Dynamic Address is temporary subscriber data conditionally stored in GGSN.

2.13.10 SGSN Address

SGSN Address is defined in GSM 03.03. It is the IP Address of the SGSN currently serving the MS.

SGSN Address is temporary subscriber data stored in HLR and stored conditionally in GGSN. A pendant is the SGSN number, cf subclause 2.4.8.

2.13.11 GGSN-list

GGSN-list is defined in GSM 03.60. It defines the GGSNs to be contacted when activity from the MS is detected and MNRG is set. It contains the GGSN number and optionally the GGSN IP address.

GGSN-list is temporary subscriber data stored in the HLR.

2.13.12 Quality of Service Subscribed

Quality of Service Subscribed is defined in GSM 03.60. It specifies the quality of service subscribed for a certain PDP context.

Quality of Service Subscribed is permanent subscriber data and conditionally stored in HLR and SGSN.

2.13.13 Quality of Service Requested

Quality of Service Requested is defined in GSM 03.60. It specifies the quality of service requested for a certain PDP context.

Quality of Service Requested is temporary subscriber data and conditionally stored in SGSN.

2.13.14 Quality of Service Negotiated

Quality of Service Negotiated is defined in GSM 03.60. It specifies the quality of service for a certain PDP context, negotiated between the MS and the SGSN, and then the GGSN.

Quality of Service Negotiated is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.15 SND

SND is defined in GSM 03.60. It is the GPRS Tunnelling Protocol sequence number of the next downlink N-PDU.

SND is temporary subscriber data conditionally stored in SGSN and GGSN.

2.13.16 SNU

SNU is defined in GSM 03.60. It is the GPRS Tunnelling Protocol sequence number of the next uplink N-PDU.

SNU is temporary subscriber data and conditionally stored in SGSN and GGSN.

2.13.17 DRX Parameters

DRX Parameters is defined in GSM 03.60.

DRX Parameters is temporary subscriber data stored in SGSN.

2.13.18 Compression

Compression is defined in GSM 03.60. There is one set of negotiated compression parameters per QoS priority level.

Compression is temporary subscriber data conditionally stored in the SGSN.

2.13.19 Non-GPRS Alert Flag (NGAF)

Non-GPRS Alert Flag (NGAF) is defined in GSM 03.60. It indicates whether activity from the MS shall be reported to the MSC/VLR.

NGAF is temporary subscriber data and is conditionally stored in the SGSN if the Gs interface is installed.

2.13.20 Classmark

MS Classmark is defined in GSM 04.08.

Classmark is temporary subscriber data stored in the SGSN.

2.13.21 Tunnel IDentifier (TID)

Tunnel Identifier is defined in GSM 09.60. It is used for Anonymous Access. TID is temporary subscriber data conditionally stored in SGSN and GGSN.

2.13.22 Radio Priority

Radio Priority is defined in GSM 03.60. It indicates the RLC/MAC radio priority level for uplink user data transmission for a certain PDP context.

Radio Priority is temporary subscriber data and conditionally stored in SGSN.

2.13.23 Radio Priority SMS

Radio Priority SMS is defined in GSM 03.60. It indicates the RLC/MAC radio priority level for uplink SMS transmission.

Radio Priority SMS is temporary subscriber data and conditionally stored in SGSN.

2.13.24 PDP Context Identifier

PDP Context Identifier is defined in GSM 03.60. It identifies uniquely each PDP context.

PDP Context Identifier is permanent subscriber data and conditionally stored in HLR and SGSN.

4 Accessing subscriber data

It shall be possible to retrieve or store subscriber data concerning a specific MS from the HLR by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Mobile Station ISDN Number (MSISDN)

It shall be possible to retrieve or store subscriber data concerning a specific MS from the VLR by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);
- Temporary Mobile Subscriber Identity (TMSI).

It shall be possible to retrieve or store subscriber data concerning a specific MS from the SGSN by use of each of the following references:

- International Mobile Subscriber Identity (IMSI);

Table a Packet Temporary Mobile Subscriber identity (P-TMSI).

It shall be possible to retrieve or store subscriber data concerning a specific MS from the GGSN by use of each of the following references:

Table a International Mobile Subscriber Identity (IMSI);

See clause 3 for explanation of M, C, T and P in table 1 and table 2.

Table 1: Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
IMSI	2.1.1.1	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	P	Note
International MS ISDN number	2.1.2	M	M	P	
multinumbering MSISDNs	2.1.3	C	-	P	Note
Basic MSISDN indicator	2.1.3.1	C	-	P	
MSISDN-Alert indicator	2.1.3.2	C	-	P	
TMSI	2.1.4	-	C	T	
LMSI	2.1.8	C	C	T	Note
Mobile Station Category	2.2.1	M	M	P	
LMU Identifier	2.2.1	C	C	P	
RAND, SRES and Kc	2.3.1	M	M	T	
Ciphering Key Sequence Number	2.3.2	-	M	T	
MSRN	2.4.1	-	C	T	Note
Location Area Identity	2.4.2	-	M	T	
VLR number	2.4.5	M	-	T	Note
MSC number	2.4.6	M	C	T	
HLR number	2.4.7	-	C	T	
Subscription restriction	2.4.9	C	-	P	
RSZI lists	2.4.10.1	C	-	P	
Zone Code List	2.4.10.2	-	C	P	
MSC area restricted flag	2.4.11	M	-	T	
LA not allowed flag	2.4.12	-	M	T	
ODB-induced barring data	2.4.15.1	C	-	T	
Roaming restriction due to unsupported feature	2.4.15.2	M	M	T	
Cell ID	2.4.16	-	C	T	
LSA Identity	2.4.X.1	C	C	P	
LSA Priority	2.4.X.2	C	C	P	
LSA Only Access Indicator	2.4.X.3	C	C	P	
LSA Active Mode Indicator	2.4.X.4	C	C	P	
VPLMN Identifier	2.4.X.5	C	-	P	
Provision of bearer service	2.5.1	M	M	P	
Provision of teleservice	2.5.2	M	M	P	
BC allocation	2.5.3	C	C	P	
IMSI detached flag	2.7.1	-	C	T	
Confirmed by Radio Contact indicator	2.7.4.1	-	M	T	
Subscriber Data Confirmed by HLR indicator	2.7.4.2	-	M	T	
Location Information Confirmed in HLR indicator	2.7.4.3	-	M	T	
Check SS indicator	2.7.4.4	M	-	T	
MS purged for non-GPRS flag	2.7.5	M	-	T	
MNRR	2.7.7	C	-	T	
Subscriber status	2.8.1	C	C	P	
Barring of outgoing calls	2.8.2.1	C	C	P	
Barring of incoming calls	2.8.2.2	C	-	P	
Barring of roaming	2.8.2.3	C	-	P	
Barring of premium rate calls	2.8.2.4	C	C	P	
Barring of supplementary service management	2.8.2.5	C	C	P	
Barring of registration of call forwarding	2.8.2.6	C	-	P	
Barring of invocation of call transfer	2.8.2.7	C	C	P	
Operator determined barring PLMN-specific data	2.8.3	C	C	P	
Handover Number	2.9.1	-	C	T	
Messages Waiting Data	2.10.1	C	-	T	
Mobile Station Not Reachable Flag	2.10.2	C	M	T	
Memory Capacity Exceeded Flag	2.10.3	C	-	T	

(continued)

Table 1 (concluded): Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
Trace Reference	2.11.1	C	C	P	
Trace Type	2.11.2	C	C	P	
Operations Systems Identity	2.11.3	C	C	P	
HLR Trace Type	2.11.4	C	-	P	
MAP Error On Trace	2.11.5	C	-	T	
Trace Activated in VLR	2.11.6	C	C	T	
Foreign Subscriber Registered in VLR	2.11.7	-	C	P	Note
VGCS Group Membership List	2.12.1	C	C	P	
VBS Group Membership List	2.12.2	C	C	P	
Broadcast Call Initiation Allowed List	2.12.2.1	C	C	P	
Originating CAMEL Subscription Information	2.14.1.1	C	C	P	
Terminating CAMEL Subscription Information	2.14.1.2	C	-	P	
Location Information/Subscriber state Information	2.14.1.3	C	-	P	
USSD CAMEL subscription information(U-CSI)	2.14.1.4	C	-	P	
SS invocation notification (SS-CSI)	2.14.1.5/3.2	C	C	P	
FTN translation information flag(TIF-CSI)	2.14.1.6	C	-	P	
USSD General CAMEL service information (UG-CSI)	2.14.2	C	-	P	
Negotiated CAMEL Capability Handling	2.14.2	C	-	T	
Privacy Exception List	2.15.1.1	C	C	P	
GMLC Numbers	2.15.1.2	C	C	P	
MO-LR List	2.15.1.3	C	C	P	

Table 2: Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE	
IMSI	2.1.1.1	M	M	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	C (a)	-	P	Note
International MS ISDN number	2.1.2	M	M	M	-	T	
multinumbering MSISDNs	2.1.3	C	-	-	-	T	Note
Basic MSISDN indicator	2.1.3.1	C	-	-	-	T	.
MSISDN-Alert indicator	2.1.3.2	C	-	-	-	T	
P-TMSI	2.1.5	-	-	C	-	T	Note
TLLI	2.1.6	-	-	C	-	T	
Random TLLI	2.1.7	-	-	C	-	T	Note
IMEI	2.1.9	-	-	C	-	T	
RAND/SRES and Kc	2.3.1	M	-	M	-	T	
Ciphering Key Sequence Number	2.3.2	-	-	M	-	T	
Selected Ciphering Algorithm	2.3.3	-	-	M	-	T	
Current Kc	2.3.4	-	-	M	-	T	
P-TMSI Signature	2.3.5	-	-	C	-	T	
Routing Area Identity	2.4.3	-	-	M	-	T	
Cell Global Identification	2.4.4	-	-	C	-	T	
SGSN Number	2.4.8.1	M	C (Gs)	-	-	T	Note
GGSN Number	2.4.8.2	©	-	-	-	P	Note
VLR Number	2.4.5	M	-	C (Gs)	-	T	
RSZI Lists	2.4.10.1	C	-	-	-	P	
Zone Code List	2.4.10.2	-	-	C	-	P	
LA not allowed flag	2.4.12	-	-	M	-	T	
SGSN area restricted flag	2.4.13	M	-	-	-	T	
Roaming Restriction in the SGSN ..	2.4.15.2	M	-	M	-	T	
Cell ID	2.4.16	-	-	C	-	T	
LSA Identity	2.4.X.1	C	C	C	-	P	
LSA Priority	2.4.X.2	C	C	C	-	P	
LSA Only Access Indicator	2.4.X.3	C	C	C	-	P	
LSA Active Mode Indicator	2.4.X.4	C	C	C	-	P	
VPLMN Identifier	2.4.X.5	C	-	-	-	P	
Provision of teleservice	2.5.2	C	-	C	-	P	
Transfer of SM option	2.5.4	M	-	-	-	P	
Subscriber Status	2.8.1	C	-	C	-	P	
Barring of outgoing calls	2.8.2.1	C	-	C	-	P	
Barring of roaming	2.8.2.3	C	-	C	-	P	
ODB PLMN-specific data	2.8.3	C	-	C	-	P	
MM State	2.7.3	-	-	M	-	T	
Subscriber Data Confirmed by HLR Indicator	2.7.4.2	-	-	M	-	T	
Location Info Confirmed by HLR Indicator	2.7.4.3	-	-	M	-	T	
MS purged for GPRS flag	2.7.6	M	-	-	-	T	
MNRG	2.7.2	M	-	M	M	T	
MNRR	2.7.7	C	-	-	-	T	
Trace Activated in SGSN	2.11.7	C	-	C	-	P	
PDP Type	2.13.1	C	-	C	M	P	
PDP Address	2.13.2	C	-	C	M	P	
NSAPI	2.13.3	-	-	C	C	T	
PDP State	2.13.4	-	-	C	-	T	
New SGSN Address	2.13.5	-	-	C	-	T	
Access Point Name	2.13.6	C	-	C	C	P/T	Note
GGSN Address in Use	2.13.7	-	-	C	-	T	
VPLMN Address Allowed	2.13.8	C	-	C	-	P	
Dynamic Address	2.13.9	-	-	-	C	T	
SGSN Address	2.13.10	-	-	-	M	T	
GGSN-list	2.13.11	M	-	-	-	T	

(continued)

Table 2 (concluded): Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE
Quality of Service Subscribed	2.13.12	C	-	C	-	P
Quality of Service Requested	2.13.13	-	-	C	-	T
Quality of Service Negotiated	2.13.14	-	-	C	M	T
SND	2.13.15	-	-	C	C	T
SNU	2.13.16	-	-	C	C	T
DRX Parameters	2.13.17	-	-	M	-	T
Compression	2.13.18	-	-	C	-	T
NGAF	2.13.19	-	-	C (Gs)	-	T
Classmark	2.13.20	-	-	M	-	T
TID	2.13.21	-	-	C	C	T
Radio Priority	2.13.22	-	-	C	-	T
Radio Priority SMS	2.13.23	-	-	C	-	T
PDP Context Identifier	2.13.24	C		C		T

NOTE 1: The HLR column indicates only GPRS related use, i.e. if the HLR uses a parameter in non-GPRS Network Access Mode but not in GPRS Network Access Mode, it is not mentioned in this table 2.
(Gs): The VLR column is applicable if Gs interface is installed. It only indicates GPRS related data to be stored and is only relevant to GPRS subscribers registered in VLR.

a): This parameter is relevant in the SGSN only when the Gs interface is installed.

NOTE 2: For special condition of storage see in the clauses 2.x.y referred-to.
See clause 3 for explanation of M,C,T and P in table 2.

3GPP TSG CN WG2 #13
Kyoto, Japan, 17-21 January 2000

Document N2B000113
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.002	CR	090r1	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#07	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	X	

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: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio		Core Network	X

Source: N2 **Date:** 3.12.1999

Subject: Improving GPRS charging efficiency

Work item: GPRS

Category: *(only one category shall be marked with an X)*				**Release:**	
F	Correction			Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

Normally, the SGSN and the GGSN collect charging information on MSs which they are serving. The SGSN collects charging information for each attached MS and for each active PDP context. The GGSN collects charging information for each active PDP context.

Alternative charging mechanisms, such as prepaid or flat rate billing, do not require generating charging information (CDRs) in the SGSN and in the GGSN. Sending CDRs for such MSs and/or PDP contexts to Charging Gateway Functionality increases load in the communication channel.

This CR introduces a method of decreasing the load in the communication channel. CDRs may not be sent for MSs and/or PDP contexts which are not liable for charging. If the feature is not supported in the SGSN and in the GGSN, the SGSN and the GGSN will send CDRs normally. It is operator-specific whether charging information is collected for those MSs and/or PDP contexts which are not liable for charging. For roaming subscribers, CDRs should be generated.

At attach or at inter-SGSN routing area update, the packet domain subscription data is transferred to the SGSN. The packet domain subscription data includes the subscribed charging characteristics. When creating a PDP context or when updating the PDP context, the SGSN copies the charging characteristics of the PDP context from the subscribed charging characteristics. At inter-SGSN routing area update, the subscribed charging characteristics are transferred from the old SGSN to the new SGSN in the MM context.

Clauses affected: 17.7

Other specs affected:				
Other 3G core specifications	X	→ List of CRs:	23.060, 29.060
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:

<--------- double-click here for help and instructions on how to create a CR.

17.7 MAP constants and data types

17.7.1 Mobile Service data types

(…)

```
InsertSubscriberDataArg ::= SEQUENCE {
    imsi                                [0] IMSI                            OPTIONAL,
    COMPONENTS OF                       SubscriberData,
    extensionContainer                  [14] ExtensionContainer             OPTIONAL,
    ... ,
    naea-PreferredCI                    [15] NAEA-PreferredCI               OPTIONAL,
    -- naea-PreferredCI is included at the discretion of the HLR operator.
    gprsSubscriptionData                [16] GPRSSubscriptionData           OPTIONAL,
    roamingRestrictedInSgsnDueToUnsupportedFeature [23]                     NULL
                                                                            OPTIONAL,
    networkAccessMode                   [24] NetworkAccessMode              OPTIONAL,
    lsaInformation                      [25] LSAInformation                 OPTIONAL,
    lmu-Indicator                       [21] NULL                           OPTIONAL,
    lcsInformation                      [22] LCSInformation                 OPTIONAL,
    istAlertTimer                       [26] IST-AlertTimerValue            OPTIONAL
     }
    -- If the Network Access Mode parameter is sent, it shall be present only in
    -- the first sequence if the seqmentation is used
```

```
IST-AlertTimerValue ::= INTEGER (15..255)
```

```
LCSInformation ::= SEQUENCE {
    hplmn-GMLC-List                     [0]  HPLMN-GMLC-List                OPTIONAL,
    lcs-PrivacyExceptionList            [1]  LCS-PrivacyExceptionList       OPTIONAL,
...}
```

```
HPLMN-GMLC-List ::= SEQUENCE SIZE (1..maxNumOfGMLC) OF
                                        ISDN-AddressString
```

```
maxNumOfGMLC  INTEGER ::= 5
```

```
NetworkAccessMode ::= ENUMERATED {
    bothMSCAndSGSN                      (0),
    onlyMSC                             (1),
    onlySGSN                            (2),
    ...}
    -- if unknown values are received in NetworkAccessMode
    -- they shall be discarded.
```

```
GPRSDataList ::= SEQUENCE SIZE (1..maxNumOfPDP-Contexts) OF
                                        PDP-Context
```

```
maxNumOfPDP-Contexts  INTEGER ::= 50
```

```
PDP-Context ::= SEQUENCE {
    pdp-ContextId                       ContextId,
    pdp-Type                            [16] PDP-Type,
    pdp-Address                         [17] PDP-Address                    OPTIONAL,
    qos-Subscribed                      [18] QoS-Subscribed,
    vplmnAddressAllowed                 [19] NULL OPTIONAL,
    apn                                 [20] APN  ,
    extensionContainer                  [21] ExtensionContainer             OPTIONAL,
    ...}
```

```
ContextId ::= INTEGER (1..maxNumOfPDP-Contexts)
```

```
GPRSSubscriptionData ::= SEQUENCE {
    completeDataListIncluded            NULL                                OPTIONAL,

        -- If segmentation is used, completeDataListIncluded may only be present in the
        -- first segment.
    gprsDataList                        [1]  GPRSDataList,
    extensionContainer                  [2] ExtensionContainer              OPTIONAL,
    ...,
    chargingCharacteristics             [3]  ChargingCharacteristics        OPTIONAL }
```

```
APN ::=  OCTET STRING (SIZE (2..63))
         -- Octets are coded according to TS GSM 03.03
```

```
PDP-Type ::= OCTET STRING (SIZE (2))
-- Octets are coded according to TS GSM 09.60
```

```
PDP-Address ::= OCTET STRING (SIZE (1..16))
-- Octets are coded according to TS GSM 09.60

-- The possible size values are:
-- 1-7 octets  X.25 address type
--  4  octets  IPv4 address type
-- 16  octets  Ipv6 address type
```

```
QoS-Subscribed ::= OCTET STRING (SIZE (3))
    -- Octets are coded according to TS GSM 04.08.
```

```
ChargingCharacteristics ::= OCTET STRING (SIZE (1))
    -- Octets are coded according to TS 3GPP 29.060.
```

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Kyoto, Japan 17-21 January, 2000

Document N2B000043
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.060	CR	051	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 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic	X	

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: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio		Core Network	X

Source: N2 **Date:** 11 Jan. 2000

Subject: Clarification of Repeated Information Element Ordering

Work item: GPRS

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

F	Correction		**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	X		Release 99	X
				Release 00	

Reason for change:

Category C1:

The order of the Signalling Address and the Traffic Address IEs in the Create PDP Context, Update PDP Context and the AA Create PDP Context messages is not unambiguously defined. The literal interpretation of the specification is that the signalling address is sent first. It is essential that this literal interpretation is captured in TS 29.060 otherwise some implementations may put/expect the traffic address first, which will cause interoperability problems.

Defining the order more clearly in the specification should prevent any such interoperability issues.

Clauses affected: 5

Other specs affected:

Other 3G core specifications	X	→ 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: Equivalent R97 and R98 will need to be prepared.

5 Transmission order and bit definitions

The messages in this document shall be transmitted in network octet order starting with octet 1. Where information elements are repeated within a message the order shall be determined by the order of appearance in the table defining the information elements in the message.

The most significant bit of an octet in a GTP message is bit 8. If a value in a GTP message spans several octets and nothing else is stated, the most significant bit is bit 8 of the octet with the lowest number.

3GPP TSG CN2 Meeting #13
Kyoto, Japan, 17-21 Jan 2000

Document N2B000056
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.060	**CR**	**057**	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#07	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: *(at least one should be marked with an X)* (U)SIM | ME | UTRAN / Radio | Core Network X

Source: Ericsson **Date:** 11 Jan 2000

Subject: Removal of X.25

Work item: GPRS

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: It was decided by CN plenary in December 99 to remove the support of X.25.

Clauses affected:

Other specs affected:

Other 3G core specifications		→ List of CRs:	23.060
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:

<--------- double-click here for help and instructions on how to create a CR.

2 Normative references

~~[16] 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".~~

~~[17] ITU-T Recommendation X.121: "International Numbering Plan for Public Data Networks".~~

[16~~8~~] UMTS TS 33.102: "3G Security; Security Architecture".

3 Definitions and abbreviations

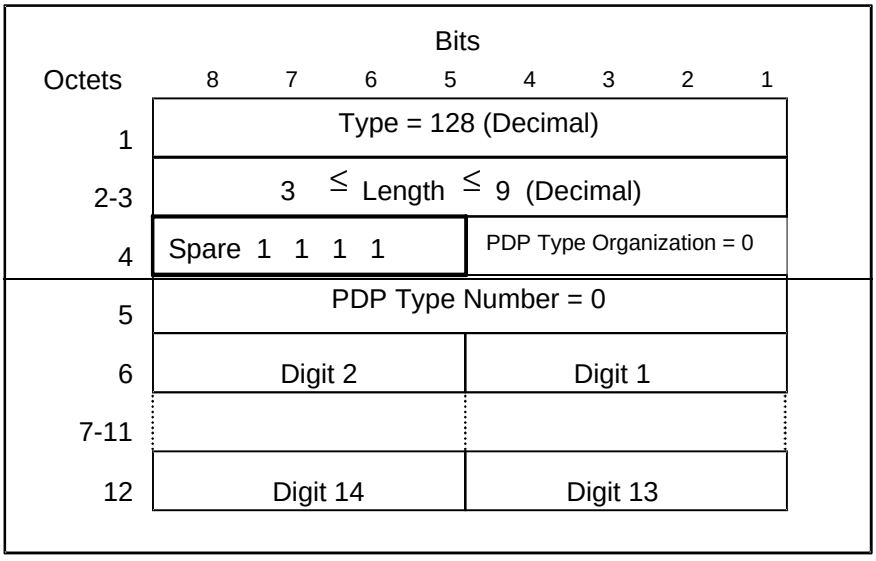
TCP/IP path: A TCP/IP path is a reliable connection-oriented path defined by two end-points and an end-point is defined by an IP address and a TCP port number. TCP/IP paths should be used when the T-PDUs are based on connection-oriented protocols~~, such as the X.25 packet layer protocol.~~

7.7.17 End User Address

~~For X.25 the PDP Type Organization is ETSI and the PDP Type Number is 0 . The PDP Address shall be in the X.121 format for X.25.~~ For PPP the PDP Type Organization is ETSI and the PDP Type Number is 1 and there shall be no address in the End User Address IE. In this case the address is negotiated later as part of the PPP protocol. For OSP:IHOSS the PDP Type Organisation is ETSI and the PDP Type Number is 2 and there shall be no address in the End User Address IE.

Table 43: ETSI defined PDP Type values

PDP Type Number	Value (Decimal)
~~X.25~~	~~0~~
PPP	1
OSP:IHOSS	2
All other values are reserved	



~~NOTE: Digit 1 contains the first BCD coded digit of the X.121 address. If the X.121 address has an odd number of digits, the last BCD digit shall be padded with HEX(F).~~

~~Figure 28: End User Address information element for X.25~~

7.7.19 PDP Context

The PDP Address is an octet array with a format dependent on the PDP Type. The PDP Address is encoded as in the End User Address information element if the PDP Type is IPv4, IPv6 ~~or X.25.~~