TSGS#28(05)0275

Source: **SA5 (Telecom Management)**

Title: **CR 32250-251-295 CS domain charging / PS domain charging / CDR transfer**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-Level	Spec__#_	CR__#	R	Phase	Subject	Cat	Ver-Cur	Doc-2nd-Level	Workitem
SP-050275	32.250	0002	-	Rel-6	Correction on the use of ‘reference point’ and ‘interface’ – Align with TR 21.905	F	6.1.0	S5-054284	CH
SP-050275	32.250	0003	-	Rel-6	Correction to scope	F	6.1.0	S5-054434	CH
SP-050275	32.250	0004	-	Rel-6	Correction to references	F	6.1.0	S5-054446	CH
SP-050275	32.251	0010	-	Rel-6	Correction to scope	F	6.2.0	S5-054435	CH
SP-050275	32.251	0011	-	Rel-6	Correction to references	F	6.2.0	S5-054447	CH
SP-050275	32.295	0001	-	Rel-6	Correction to scope	F	6.0.0	S5-054440	CH
SP-050275	32.295	0002	-	Rel-6	Correction to references	F	6.0.0	S5-054451	CH
SP-050275	32.295	0003	-	Rel-6	Correction on the use of ‘reference point’ and ‘interface’ – Align with TR 21.905	F	6.0.0	S5-054286	CH

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CHANGE REQUEST

⌘ **32.250** **CR** **0002** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction on the use of 'reference point' and 'interface' – Align with TR 21.905
Source:	⌘	SA5 (zhang.qiang118220@zte.com.cn)
Work item code:	⌘	CH
Date:	⌘	16/03/05
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	As defined in TR 21.905, the concept of "reference point" is quite different from the concept of "interface". Interface is an architectural concept that provides interconnection between physical blocks at reference points. The confused using of the two concepts in Charging specifications will cause misunderstanding.
Summary of change:	⌘	Distinguishing and rightly using "reference point" and "interface"
Consequences if not approved:	⌘	The confused using of the two concepts in Charging specifications will cause misunderstanding.

Clauses affected:	⌘	4.2, 5.1.1, 6.1.3			
		Y	**N**		
Other specs affected:	⌘	**X**		Other core specifications	⌘ 32.240, 32.251, 32.295, 32.297, 32.299, 32.815
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

Change in Clause 4.2

4.2 CS domain offline charging architecture

Figure 4.2 illustrates the 3rd Generation charging logical architecture, which is subdivided by the two transmission planes, the Circuit Switched (CS) domain and the Packet Switched (PS) domain. The entities of the CS domain are encircled by the related box on the left hand side of the figure.

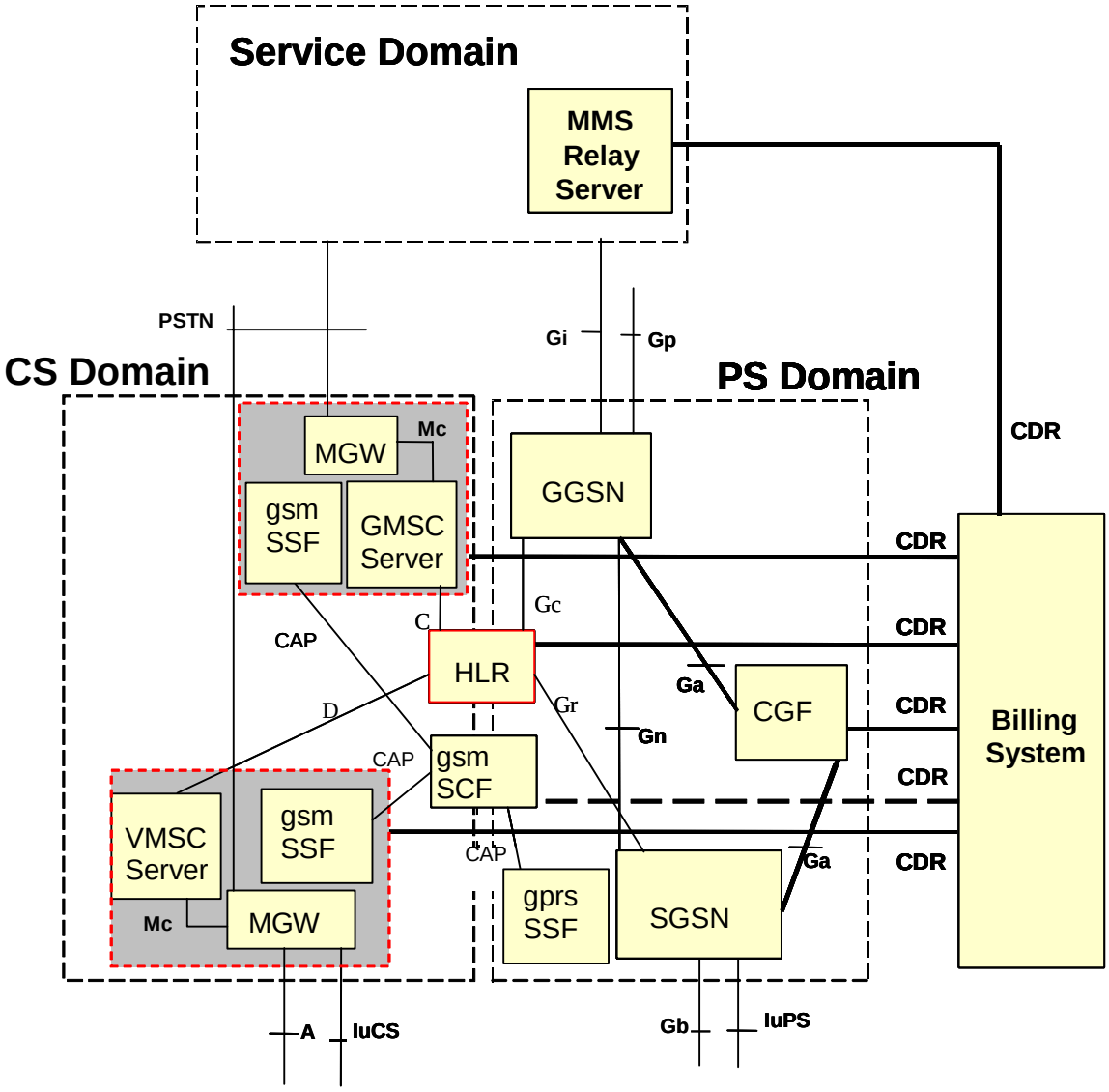

Figure 4.2: 3G charging logical architecture

The components grouped in the grey boxes constitute what was referred to as the "MSC" prior to 3GPP Release 4. The boxes which show red lines are those that are relevant for CS domain charging. While not shown explicitly in figure 4.2, the VLR may also generate CDRs (cf. figure 4.1 for the relationship between VLR and MSC server). In addition, the gsmSCF may also produce CDRs, however, these are not subject to 3GPP standardization.

Figure 4.3 specifies the mapping of the 3GPP common charging architecture, as laid down in 3GPP TS 32.240 [1], onto the CS domain.

As depicted in figure 4.3, all charging functions (CTF, CDF and CGF) reside within the MSC server, the VLR, and the HLR, respectively. I.e. the CS nodes are connected directly to the Billing Domain via the Bc ~~interface~~reference point. This implies that there exists no separate CDF and CGF for the CS domain, and no corresponding open interfaces between any such functions, within the 3GPP standards.

However, vendors may choose to implement separate CDF and CGF for the CS domain. In that case, the interfaces between these functions should comply with the definition of the Rf and Ga ~~interface~~reference points (3GPP TS 32.299 [50] and 3GPP TS 32.295 [54], respectively) as much as possible.

End of Change in Clause 4.2

Change in Clause 5.1.1

5.1.1 General aspects of Charging Data

Charging Data Record (CDR) generation and contents should be flexible and unnecessary redundancy in data should be avoided. Charging data are collected for successful and selected unsuccessful subscriber transactions. The subscriber transaction is seen as being successful in the MSC server (where the CDR is generated) either if a call is answered or if the Short Message Service Centre has confirmed the successful receipt of a mobile originated short message.

Unsuccessful call attempts are recorded in the case of partial record generation due to CAMEL FollowOnCalls. If in such a call constellation the answer state is reached at least once, subsequent unsuccessful set-up of a connection configuration is also recorded in order to provide a complete sequence of FIRST, INTERMEDIATE and LAST records.

At termination of the subscriber transaction these data are formatted into CDRs. These records are forwarded onto MSC server's CGF which constitutes the source for further transportation of that data to the Billing Domain via the Bc ~~interface~~reference point, see 3GPP TS 32.297 [52]. For the purpose of the present document, the CDRs are considered to be collected, in near real-time, by the following network elements: the MSC servers, MGWs, and location registers (VLR/HLR).

The data collected by the network elements are sent to ("pushed"), or collected by ("pulled"), the Billing Domain for storage and further processing. The CDR transfer across the Bc ~~interface~~reference point is specified in detail in 3GPP TS 32.297 [52].

Similarly, the tariff data required by the network elements to provide on-line charging information are distributed by the appropriate management system. This function, however, is outside the scope of 3GPP standardization.

End of Change in Clause 5.1.1

Change in Clause 6.1.3

6.1.3 CDR description on the B_c ~~interface~~reference point

Dedicated types of CDRs can be generated in the CS domain, as specified in subclause 5.2.3. The content of each CDR type is defined in one of the tables that are part of this subclause. For each CDR type the parameter definition includes the parameter name, description and category.

Editor's note: align the following text with 3GPP TS 32.240 [1].

Equipment vendors shall be able to provide all of the parameters listed in the CDR content table in order to claim compliance with the present document. However, since CDR processing and transport consume network resources, operators may opt to eliminate some of the parameters that are not essential for their operation. This operator provisionable reduction is specified by the parameter category.

A parameter category can have one of two primary values:

M This parameter is **M**andatory and shall always be present in the CDR;

C This parameter shall be present in the CDR only when certain Conditions are met. These Conditions are specified as part of the parameter definition.

Some of these parameters are designated as Operator (**O**) provisionable. Using TMN management functions or specific tools provided by an equipment vendor, operators may choose, if they wish, to include or omit the parameter from the CDR. Once omitted, this parameter is not generated in a CDR. To avoid any potential ambiguity, a CDR generating

element MUST be able to provide all these parameters. Only an operator can choose whether or not these parameters should be generated in its system.

Those parameters that the operator may configure to be present or absent are further qualified with the "Operator provisionable" indicator as follows:

O_M This is a parameter that, if provisioned by the operator to be present, shall always be included in the CDRs. In other words, a O_M parameter that is provisioned to be present is a mandatory parameter;

O_C This is a parameter that, if provisioned by the operator to be present, shall be included in the CDRs when the required conditions are met. In other words, a O_C parameter that is configured to be present is a conditional parameter.

The CS nodes shall be able to provide the CDRs at the Billing System interface in the format and content described in the present document. Additional CDR formats and contents, generated by the CS nodes, may be available at the interface to the billing system to meet the requirements of the billing system, these are outside of the scope of 3GPP standardization.

The following tables provide a brief description of each CDR parameter. Full definitions of the parameters, sorted by the parameter name in alphabetical order, are provided in 3GPP TS 32.298 [51]. 3GPP TS 32.298 [51] also specifies the encoding of the CDRs and their parameters on the B_c ~~interface~~reference point, while the CDR files transferred on B_c are specified in 3GPP TS 32.297 [52].

End of Change in Clause 6.1.3
End of Document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2003	S_22	SP-030624	--	--	Submitted to TSG SA#22 for Information	1.0.0	
Mar 2004	S_23	SP-040140	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0
Sep 2004	S_25	SP-040549	001	--	Add missing charging principles for CAMEL CPH – Align with CN2's 23.078	6.0.0	6.1.0

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CHANGE REQUEST

⌘ **32.295** **CR** **0003** ⌘**rev** **-** ⌘ Current version: **6.0.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction on the use of 'reference point' and 'interface' – Align with TR 21.905
Source:	⌘	SA5 (zhang.qiang118220@zte.com.cn)
Work item code:	⌘	CH
Date:	⌘	16/03/05
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	As defined in TR 21.905, the concept of "reference point" is quite different from the concept of "interface". Interface is an architectural concept that provides interconnection between physical blocks at reference points. The confused using of the two concepts in Charging specifications will cause misunderstanding.
Summary of change:	⌘	Distinguishing and rightly using "reference point" and "interface"
Consequences if not approved:	⌘	The confused using of the two concepts in Charging specifications will cause misunderstanding.

Clauses affected:	⌘	4.1; 5.1.3

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

Other comments: ⌘

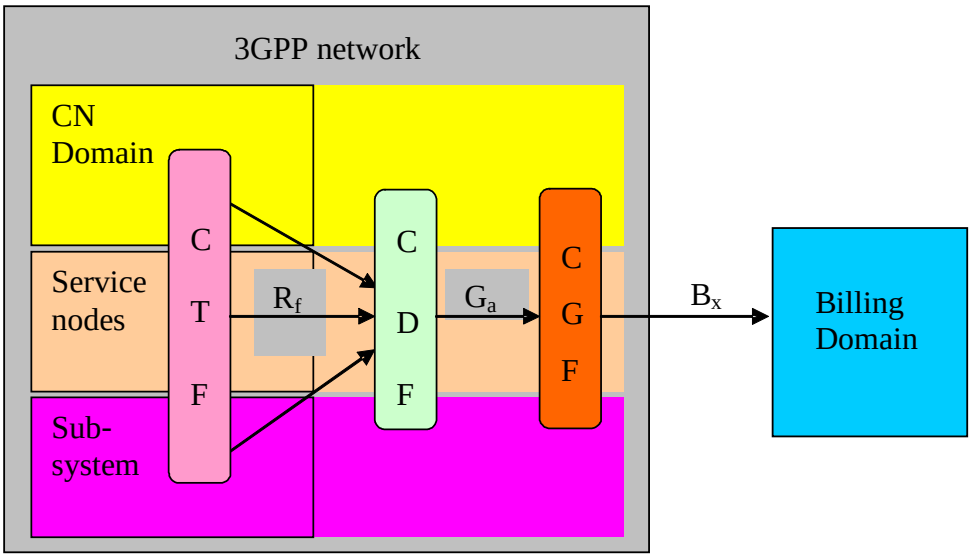
Change in Clause 4.1

4.1 High level architecture

The Ga is the reference point~~interfaces~~ from the Charging Data Function (CDF) to the Charging Gateway Function (CGF),
which is intended for the transport of Charging Data Records (CDRs).

By definition, dealing with CDRs only implies that Ga is solely related to offline charging.

The following figure 4.1 depicts the position of the Ga ~~interface~~reference point within the overall 3GPP offline charging architecture.



CTF: **C**harging **T**rigger **F**unction
CDF: **C**harging **D**ata **F**unction
CGF: **C**harging **G**ateway **F**unction
BD: **B**illing **D**omain. This may also be a billing mediation device / post-processing system.

Figure 4.1: Logical ubiquitous offline charging architecture

As illustrated in the above figure 4.1, the CDF in each network domain, service or subsystem is relevant for the network side of the Ga ~~interface~~reference point. Different mappings of the ubiquitous offline charging functions, CDF and CGF, onto physical implementations are possible. Further details of the configuration refer to 3GPP TS 32.240 [1]. Details of the implementation options per domain / subsystem / service (usually a subset of the overall possible variants described above) are specified in the respective middle tier TS.

The transport protocol associated to the Ga ~~interface~~reference point, providing functions for transfer of CDRs from CDF to CGF,
is **GTP'** (because of its derivation from the GTP protocol).

End of Change in Clause 4.1

Change in Clause 5.1.3

5.1.3 Port usage

Transporting the CDRs from the CDFs to the CGF over the Ga ~~interface~~reference point may facilitate charging.
The Path Protocol may be UDP (compliant with STD 0006[404]) or TCP (compliant with STD 0007[405]) over IP.

- UDP as the Path Protocol

  Ports for signalling the request messages:

  - The UDP Destination Port may be the server port number 3386 which has been reserved for GTP'. Alternatively another port can be used, which has been configured by O&M.
  - The UDP Source Port is a locally allocated port number at the sending network element.

  Ports for signalling the response messages:

  - The UDP Destination Port value shall be the value of the Source Port of the corresponding request message.
  - The UDP Source Port shall be the value from the Destination Port of the corresponding request message.

- TCP as Path Protocol

  The TCP Destination Port may be the server port number 3386, which has been reserved for G-PDUs. Alternatively, another port may be used as configured by O&M. Extra implementation-specific destination ports are possible but all CGFs shall support the server port number.

  The TCP Source Port is a random port, locally assigned at the sending network element.

- Network layer and lower layers

  Beneath the Path Protocol there is the network IP layer, which shall be the Internet Protocol (IP) compliant with STD 0005(see [406] and [407]). Beneath the network IP layer are the L2 and L1 layers, which are not specified, in the present document.

End of Change in Clause 5.1.3
End of Document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2004	S_25	SP-040553	--	--	Submitted to TSG SA#25 for Approval	1.0.0	6.0.0

Tdoc ⌘S5-054434

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.250** **CR** **0003** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction to scope
Source:	⌘	SA5 (benni.alexander@nokia.com)
Work item code:	⌘	CH
Date:	⌘	12/05/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	The last paragraph of text in Scope (clause 1) of TS 32.250 contains incorrect statements about the contents of TR 21.905 and the charging specifications.
Summary of change:	⌘	The paragraph has been modified to correct the above errors. Furthermore, a statement pointing to TS 22.115 for charging requirements has been added.
Consequences if not approved:	⌘	The scope of TS 32.250 remains erroneus, confusing the reader.

Clauses affected:	⌘	Clause 1

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

Other comments:	⌘	Parent CR 32.240 in S5-054466

Change in Clause 1

1 Scope

The present document is part of a series of documents that specify charging functionality and charging management in GSM/UMTS networks. The GSM/UMTS core network charging architecture and principles are specified in 3GPP TS 32.240 [1], which provides an umbrella for other charging management TSs that specify:

- the content of the CDRs per domain and subsystem (offline charging);
- the content of real-time charging messages per domain / subsystem (online charging);
- the functionality of online and offline charging for those domains and subsystems;
- the interfaces that are used in the charging framework to transfer the charging information (i.e. CDRs or charging events).

The complete document structure for these TSs is defined in 3GPP TS 32.240 [1].

The present document specifies the Offline Charging description for the 3GPP Circuit Switched domain, based on the functional descriptions of the 3GPP bearer-, tele- and supplementary services in 3GPP TS 22.002 [200], 3GPP TS 22.003 [201] and 3PP TS 22.004 [202], respectively. This charging description includes the offline charging architecture and scenarios specific to the CS domain, as well as the mapping of the common charging architecture specified in 3GPP TS 32.240 [1] onto the CS domain. It further specifies the structure and content of the CDRs for offline charging. The present document is related to other 3GPP charging TSs as follows:

- The common 3GPP charging architecture is specified in 3GPP TS 32.240 [1];
- The parameters, abstract syntax and encoding rules for these CDR types are specified in 3GPP TS 32.298 [51].
- The file based mechanism used to transfer the CDRs from the network to the operator's billing domain (e.g. the billing system or a mediation device) is specified in 3GPP TS 32.297 [52].

Note that online charging for the CS domain is solely based on CAMEL (3GPP TS 23.078 [207] and 3GPP TS 29.078 [213]) and therefore outside the scope of the 32 series of charging specifications.

All ~~references,~~ terms, definitions and abbreviations~~, definitions, descriptions, principles and requirements,~~ used in the present document, that are common across 3GPP TSs, are defined in 3GPP TR 21.905 [100]. Those that are common across charging management in GSM/UMTS domains,services or subsystems are provided in the umbrella document 3GPP TS 32.240 [1] and are copied into clause 3 of the present document for ease of reading. Finally, those items that are specific to the present document are defined exclusively in the present document.

Furthermore, requirements that govern the charging work are specified in 3GPP TS 22.115 [102].

End of change in Clause 1
End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2004	S_25	SP-040549	001	--	Add missing charging principles for CAMEL CPH – Align with CN2's 23.078	6.0.0	6.1.0

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.251** **CR** **0010** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction to scope
Source:	⌘	SA5 (benni.alexander@nokia.com)
Work item code:	⌘	CH
Date:	⌘	12/05/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	The last paragraph of text in Scope (clause 1) of TS 32.251 contains incorrect statements about the contents of TR 21.905 and the charging specifications.
Summary of change:	⌘	The paragraph has been modified to correct the above errors. Furthermore, a statement pointing to TS 22.115 for charging requirements has been added.
Consequences if not approved:	⌘	The scope of TS 32.251 remains erroneus, confusing the reader.

Clauses affected:	⌘	Clause 1

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

Other comments:	⌘	Parent CR 32.240 in S5-054466

Change in Clause 1

1 Scope

The present document is part of a series of documents specifying charging functionality and charging management in GSM/UMTS networks. The GSM/UMTS core network charging architecture and principles are specified in 3GPP TS 32.240 [1], which provides an umbrella for other charging management documents that specify:

- the content of the CDRs per domain / subsystem / service (offline charging);
- the content of real-time charging messages per domain / subsystem /service (online charging);
- the functionality of online and offline charging for those domains / subsystems / services;
- the interfaces that are used in the charging framework to transfer the charging information (i.e. CDRs or charging events).

The complete document structure for these TSs is defined in 3GPP TS 32.240 [1].

The present document specifies the Offline and Online Charging description for the Packet Switched (PS) domain (i.e. GPRS), based on the functional stage 2 description of GPRS in 3GPP TS 23.060 [201]. This charging description includes the offline and online charging architecture and scenarios specific to the PS domain, as well as the mapping of the common 3GPP charging architecture specified in TS 32.240 [1] onto the PS domain. It further specifies the structure and content of the CDRs for offline charging, and the charging events for online charging. The present document is related to other 3GPP charging TSs as follows:

- The common 3GPP charging architecture is specified in TS 32.240 [1];
- The parameters, abstract syntax and encoding rules for the CDRs are specified in TS 32.298 [51];
- A transaction based mechanism for the transfer of CDRs within the network is specified in TS 32.295 [54];
- The file based mechanism used to transfer the CDRs from the network to the operator's billing domain (e.g. the billing system or a mediation device) is specified in TS 32.297 [52];
- The 3GPP Diameter application that is used for PS domain offline and online charging is specified in TS 32.299 [50].

Note that a CAMEL based prepaid function and protocol is also specified for the PS domain (3GPP TS 23.078 [206] and 3GPP TS 29.078 [202]). CAMEL entities and functions are outside the scope of the present document.

All ~~references~~terms, definitions and abbreviations~~, definitions, descriptions, principles and requirements,~~ used in the present document, that are common across 3GPP TSs, are defined in 3GPP TR 21.905 [100]. Those that are common across charging management in GSM/UMTS domains,services or subsystems are provided in the umbrella document 3GPP TS 32.240 [1] and are copied into clause 3 of the present document for ease of reading. Finally, those items that are specific to the present document are defined exclusively in the present document.

Furthermore, requirements that govern the charging work are specified in 3GPP TS 22.115 [102].

End of change in Clause 1
End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2005	S_27	SP-050027	009	--	Correction of the description of Charging Key – Align with SA2's 23.125 (Overall high level functionality and architecture impacts of flow based charging; Stage 2)	6.1.0	6.2.0

Tdoc ⌘S5-054440

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.295** CR **0001** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction to scope
Source:	⌘	SA5 (benni.alexander@nokia.com)
Work item code:	⌘	CH
Date:	⌘	12/05/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	The last paragraph of text in Scope (clause 1) of TS 32.295 contains incorrect statements about the contents of TR 21.905 and the charging specifications.
Summary of change:	⌘	The paragraph has been modified to correct the above errors. Furthermore, a statement pointing to TS 22.115 for charging requirements has been added.
Consequences if not approved:	⌘	The scope of TS 32.295 remains erroneus, confusing the reader.

Clauses affected:	⌘	Clause 1

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

Other comments:	⌘	Parent CR 32.240 in S5-054466.

Change in Clause 1

1 Scope

The present document is part of a series of documents that specify charging functionality and charging management in GSM/UMTS networks. The GSM/UMTS core network charging architecture and principles are specified in 3GPP TS 32.240 [1], which provides an umbrella for other charging management TSs that specify:

- the content of the CDRs per domain / subsystem / service (offline charging),
- the content of real-time charging messages per domain / subsystem / service (online charging);
- the functionality of online and offline charging for those domains / subsystems / services;
- the interfaces that are used in the charging framework to transfer the charging information (i.e. CDRs or charging events)

The complete document structure for these TSs is defined in TS 32.240 [1].

The present document specifies the transaction based mechanism for the near real time transfer of CDRs within the network.

The present document is related to other 3GPP charging TSs as follows:

- The common 3GPP charging architecture is specified in TS 32.240 [1];
- The parameters, abstract syntax and encoding rules for the CDRs are specified in TS 32.298 [51];
- The file based mechanism used to transfer the CDRs from the network to the operator's billing domain (e.g. the post-processing system or a mediation device) is specified in TS 32.297 [52];

The 3GPP Diameter application that is used for offline and online charging is specified in TS 32.299 [50].

All ~~references~~terms, definitions and abbreviations~~, definitions, descriptions, principles and requirements,~~ used in the present document, that are common across 3GPP TSs, are defined in the 3GPP Vocabulary, TR 21.905 [100]. Those that are common across charging management in GSM/UMTS domains services, or subsystems are provided in the umbrella document TS 32.240 [1] and are copied into clause 3 of the present document for ease of reading. Finally, those items that are specific to the present document are defined exclusively in the present document.

Furthermore, requirements that govern the charging work are specified in 3GPP TS 22.115 [102].

End of change in Clause 1
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2004	S_25	SP-040553	--	--	Submitted to TSG SA#25 for Approval	1.0.0	6.0.0

CR-Form-v7.1

CHANGE REQUEST

⌘ 32.250 CR 0004 ⌘rev - ⌘ Current version: 6.1.0 ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network X

Title:	⌘	Correction to references
Source:	⌘	SA5 (benni.alexander@nokia.com)
Work item code:	⌘	CH
Category:	⌘	**F**

Date: ⌘ 12/05/2005
Release: ⌘ Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change: ⌘ Clause 2 (References) is contradicting TR 21.801 (Specification drafting rules).

Summary of change: ⌘ All references in clause 2 that are not explicitly cited in the TS have been removed from the list of references, and collected to a new Annex "Bibliography", which has been inserted to the TS just before the last Annex containing the change history.

The change has been done according to the instructions in 3GPP TR 21.801 listed below.

1. 3GPP TR 21.801 states (subclause 6.2.2) about the list of references as follows:
   "*The list shall not include the following:*
   …
   - documents which are not explicitly cited in the provisions of the deliverable (such documents may be listed in a bibliography (see subclause 6.4.2))."

2. 3GPP TR 21.801 states (subclause 6.4.2) about the Bibliography as follows:
   "*The Bibliography identifies documents which are not explicitly cited in the body of the 3GPP TS or 3GPP TR.*"

3. 3GPP TR 21.801 states (subclause 5.2.7) as follows:

1. "*A bibliography, if present, shall appear after the penultimate annex entitled "Bibliography".*".

Consequences if not approved: ⌘ TS 32.250 remains contradictive to 3GPP specification drafting rules.

Clauses affected: ⌘ Clause 2, Annexes

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

Other comments: ⌘ Parent CR 32.240 in S5-054467

Change in Clause 2

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

~~**a) The 3GPP charging specifications**~~

[1] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".

[2]-[~~10~~22] Void.

~~[11] 3GPP TS 32.251: "Telecommunication management; Charging management; Packet Switched (PS) domain charging".~~

~~[12] 3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging".~~

~~[13]-[19] Void.~~

~~[20] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".~~

~~[21] [22] Void.~~

[23] 3GPP TS 24.086: "Advice of Charge (AoC) Supplementary Service; Stage 3".

[24]-[~~29~~49] Void.

~~[30] 3GPP TS 32.270: "Telecommunication management; Charging management; Multimedia Messaging Service (MMS) charging".~~

~~[31] 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".~~

~~[32]-[49] Void.~~

[50] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".

[51] 3GPP TS 32.298: "Telecommunication management; Charging management; Charging Data Record (CDR) encoding rules description".

[52] 3GPP TS 32.297: "Telecommunication management; Charging management; Charging Data Records (CDR) file format and transfer".

[53] ~~3GPP TS 32.296: "Telecommunication management; Charging management; On-line Charging System (OCS) applications and interfaces".~~Void.

[54] 3GPP TS 32.295: "Telecommunication management; Charging management; Charging Data Record (CDR) transfer".

[55]-[~~69~~99] Void.

~~**b) other charging specifications**~~

~~[70] [99] Void.~~

~~**c) Common 3GPP specifications**~~

[100] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[101] ~~3GPP TS 22.101: "Service aspects; Service principles"~~Void.

[102] 3GPP TS 22.115: "Service aspects; Charging and billing".

[103] 3GPP TS 23.002: "Network architecture".

~~[104] 3GPP TS 23.003: "Numbering, addressing and identification".~~

~~[105] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".~~

[~~106~~104]-[199] Void.

~~**d) other Domain and Service specific 3GPP / ETSI specifications**~~

[200] 3GPP TS 22.002: "Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)".

[201] 3GPP TS 22.003: "Circuit Teleservices supported by a Public Land Mobile Network (PLMN)".

[202] 3GPP TS 22.004: "General on supplementary services".

[203] 3GPP TS 22.024: "Description of Charge Advice Information (CAI)".

[204] 3GPP TS 22.086: "Advice of Charge (AoC) supplementary services; Stage 1".

[205-206] ~~3GPP TS 23.009: "Handover procedures"~~Void.

~~[206] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".~~

[207] 3GPP TS 23.078: "Customized Applications for Mobile network Enhanced Logic (CAMEL); Stage 2".

[208] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core Network protocols; Stage 3".

[209-211] ~~3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding"~~Void.

~~[210] 3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".~~

~~[211] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".~~

[212] 3GPP TS 29.078: "Customized Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification".

[213] 3GPP TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[214]-[299] Void.

~~**e) Relevant ITU Recommendations**~~

[300] ITU-T Recommendation D.93: "Charging and accounting in the international land mobile telephone service (provided via cellular radio systems)".

[301]-[~~309~~399] Void.

~~[310] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".~~

~~[311] [329] Void.~~

~~[330] ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT Signalling System No.7 for international ISDN interconnections".~~

~~[331] [349] Void.~~

~~[350] 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".~~

~~[351] ITU-T Recommendation X.121: "International numbering plan for public data networks".~~

~~[352] [399] Void.~~

[400] IETF RFC 0959 (1985): "File Transfer Protocol".

[401] Void.

[402] Void.

[403] IETF RFC 01350: "TFTP Protocol".

[404] ~~GSM 12.00: "Network Management (NM); Part 1: Objectives and structure of network management"~~Void.

[405] GSM 12.01: "Network Management (NM); Part 2: Common aspects of GSM/DCS 1800 network management".

End of change in Clause 2

Change in Annexes

Annex A (informative): CDR File Transfer compliant with earlier 3GPP releases

This group of TMN functions is concerned with the bulk transfer of call and event records from the NEF record filestore to the NEF.

The call and event records shall be transferred from the NEF to the OSF by the use of FTAM protocol on X.25 or TCP/IP, and FTP or TFTP over TCP/IP. For further details of the use of FTAM see GSM 12.01 [405] and of the use of FTP see RFC 959 [400] and TFTP see [403].

In addition to the simple file transfer services provided by FTAM, peer-to-peer application process communication may be also be supported. The use of CMIS services for the uploading of files from the NEF to the OSF is specified in GSM 12.00 [406].

Annex B (informative): Bibliography

a) The 3GPP charging specifications

- 3GPP TS 32.251: "Telecommunication management; Charging management; Packet Switched (PS) domain charging".

- 3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging".

- 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".
- 3GPP TS 32.270: "Telecommunication management; Charging management; Multimedia Messaging Service (MMS) charging".
- 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".
- 3GPP TS 32.296: "Telecommunication management; Charging management; On-line Charging System (OCS) applications and interfaces".

b) other charging specifications

-

c) Common 3GPP specifications

- 3GPP TS 22.101: "Service aspects; Service principles".
- 3GPP TS 23.003: "Numbering, addressing and identification".
- 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

d) other Domain and Service specific 3GPP / ETSI specifications

- 3GPP TS 23.009: "Handover procedures".
- 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".
- 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".
- 3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".
- 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

e) Relevant ITU Recommendations

- ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
- ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT Signalling System No.7 for international ISDN interconnections".
- 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".
- ITU-T Recommendation X.121: "International numbering plan for public data networks".
- GSM 12.00: "Network Management (NM); Part 1: Objectives and structure of network management".

Annex ~~B~~ C (informative): Change history

End of change in Annexes
End of document

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2003	S_22	SP-030624	--	--	Submitted to TSG SA#22 for Information	1.0.0	
Mar 2004	S_23	SP-040140	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0
Sep 2004	S_25	SP-040549	001	--	Add missing charging principles for CAMEL CPH – Align with CN2's 23.078	6.0.0	6.1.0

CR-Form-v7.1

CHANGE REQUEST

⌘ 32.251 CR 0011 ⌘rev - ⌘ Current version: 6.2.0 ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [ ] Radio Access Network [ ] Core Network [X]

Title: ⌘ Correction to references
Source: ⌘ SA5 (benni.alexander@nokia.com)
Work item code: ⌘ CH **Date:** ⌘ 12/05/2005
Category: ⌘ F **Release:** ⌘ Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change: ⌘ Clause 2 (References) is contradicting 3GPP TR 21.801 (Specification drafting rules).

Summary of change: ⌘ All references in clause 2 that are not explicitly cited in the TS have been removed from the list of references, and collected to a new Annex "Bibliography", which has been inserted to the TS just before the last Annex containing the change history.

The change has been done according to the instructions in 3GPP TR 21.801 listed below.

1. 3GPP TR 21.801 states (subclause 6.2.2) about the list of references as follows:
   "*The list shall not include the following:*
   …
   - documents which are not explicitly cited in the provisions of the deliverable (such documents may be listed in a bibliography (see subclause 6.4.2))."

2. 3GPP TR 21.801 states (subclause 6.4.2) about the Bibliography as follows:
   "*The Bibliography identifies documents which are not explicitly cited in the body of the 3GPP TS or 3GPP TR.*"

3. 3GPP TR 21.801 states (subclause 5.2.7) as follows:
   "*A bibliography, if present, shall appear after the penultimate annex entitled "Bibliography".*".

Consequences if not approved: ⌘ TS 32.251 remains contradictive to 3GPP specification drafting rules..

Clauses affected: ⌘ Clause 2, Annexes

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

Other comments: ⌘ Parent CR 32.240 in S5-054467

Change in Clause 2

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

~~**a) The 3GPP charging specifications**~~

[1] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".

[2]-[9] Void.

[10] 3GPP TS 32.250: "Telecommunication management; Charging management; Circuit Switched (CS) domain charging".

[11-29] Void.

~~[12] 3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging".~~

~~[13] [19] Void.~~

~~[20] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".~~

~~[21] [29] Void.~~

[30] 3GPP TS 32.270: "Telecommunication management; Charging management; Multimedia Messaging Service (MMS) charging".

[31] 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".

[32]-[49] Void.

[50] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".

[51] 3GPP TS 32.298: "Telecommunication management; Charging management; Charging Data Record (CDR) encoding rules description".

[52] 3GPP TS 32.297: "Telecommunication management; Charging management; Charging Data Records (CDR) file format and transfer".

[53] 3GPP TS 32.296: "Telecommunication management; Charging management; Online Charging System (OCS) applications and interfaces".

[54] 3GPP TS 32.295: "Telecommunication management; Charging management; Charging Data Record (CDR) transfer".

[55]-[69] Void.

[70] 3GPP TS 23.125: "Overall High Level Functionality and Architecture Impacts of Flow Based Charging; Stage 2".

[71] 3GPP TS 29.210: "Charging rule provisioning over Gx interface".

[72]-[99] Void.

~~**b) Common 3GPP specifications**~~

[100] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[101] ~~3GPP TS 22.101: "Service aspects; Service principles"~~Void.

[102] 3GPP TS 22.115 "Service aspects; Charging and billing".

~~[103] 3GPP TS 23.002: "Network Architecture".~~

~~[104] 3GPP TS 23.003: "Numbering, addressing and identification".~~

~~[105] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".~~

[~~106~~103]-[199] Void.

c) other Domain and Service specific 3GPP / ETSI specifications

[200] 3GPP TS 22.060: "General Packet Radio Service (GPRS); Service description; Stage 1".

[201] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[202] 3GPP TS 29.078: "Customized Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification".

~~[203] 3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS extension (BSSAP-LE)".~~

[203-204] ~~3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface"~~Void.

[205] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)"

[206] 3GPP TS 23.078: "Customized Applications for Mobile network Enhanced Logic (CAMEL); Stage 2".

~~[207] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".~~

~~[208] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".~~

~~[209] 3GPP TS 32.215: "Telecommunication management; Charging management; Charging data description for the Packet Switched (PS) domain (Release 5)". Not propagated beyond Release 5.~~

[~~210~~207]-[299] Void.

~~**d) Relevant ITU Recommendations**~~

~~[300] ITU-T Recommendation D.93: "Charging and accounting in the international land mobile telephone service (provided via cellular radio systems)".~~

[301]-[~~309~~399] Void.

~~[310] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".~~

~~[311] [329] Void.~~

~~[330] ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT signalling System No.7 for international ISDN interconnections".~~

~~[331] [349] Void.~~

~~[350] 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".~~

~~[351] ITU-T Recommendation X.121: "International numberig plan for public data networks".~~

~~[352] [399] Void.~~

e) Relevant IETF RFCs

[400] ~~IETF RFC 959 (1985): "File Transfer Protocol"~~Void.

[401] IETF RFC 3588 (2003): “Diameter Base Protocol”

[402] IETF Internet-Draft “Diameter Credit Control” Application

[403] ~~IETF RFC 1350: "The TFT Protocol (Revision 2)"~~Void.

End of change in Clause 2

Change in Annexes

Annex B (informative): Bibliography

a) The 3GPP charging specifications

- 3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging".

- 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".

b) Common 3GPP specifications

- 3GPP TS 22.101: "Service aspects; Service principles".

- 3GPP TS 23.002: "Network Architecture".

- 3GPP TS 23.003: "Numbering, addressing and identification".

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

c) other Domain and Service specific 3GPP / ETSI specifications

- 3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS extension (BSSAP-LE)".

- 3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".

- 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".

- 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

- 3GPP TS 32.215: "Telecommunication management; Charging management; Charging data description for the Packet Switched (PS) domain (Release 5)". Not propagated beyond Release 5.

d) Relevant ITU Recommendations

- ITU-T Recommendation D.93: "Charging and accounting in the international land mobile telephone service (provided via cellular radio systems)".

- ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

- ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT signalling System No.7 for international ISDN interconnections".

- 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".

- ITU-T Recommendation X.121: "International numberig plan for public data networks".

e) Relevant IETF RFCs

- IETF RFC 959 (1985): "File Transfer Protocol".

- IETF RFC 1350: "The TFT Protocol (Revision 2)"

Annex ~~B~~ C (informative): Change history

End of change in Annexes
End of document

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2003	S_21	SP-030410	--	--	Submitted to TSG SA#21 for Information	1.0.0	
Sep 2004	S_25	SP-040552	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040775	001	--	Add “Furnish Charging Information” procedure for GPRS	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	002	--	Add data description for PS online charging	6.0.0	6.1.0
Mar 2005	S_27	SP-050027	003	--	Conditional criteria for the presence of the External Charging ID in the G-CDR – Align with SA2’s TS 23.228	6.1.0	6.2.0
Mar 2005	S_27	SP-050027	004	--	Correction of online charging terminology	6.1.0	6.2.0
Mar 2005	S_27	SP-050027	005	--	Correct support of Termination action	6.1.0	6.2.0
Mar 2005	S_27	SP-050027	006	--	Addition of online charging CCR triggers – Align with TS 23.125 (Overall high level functionality and architecture impacts of flow based charging; Stage 2)	6.1.0	6.2.0
Mar 2005	S_27	SP-050027	007	--	Correct FBC Service Data Flow (SDF) determination with charging rules to align with SA2’s TS 23.125 and CN3’s TS 29.210	6.1.0	6.2.0
Mar 2005	S_27	SP-050027	008	--	Correction of Service Data Flow (SDF) specific usage duration in flow based charging	6.1.0	6.2.0
Mar 2005	S_27	SP-050027	009	--	Correction of the description of Charging Key – Align with SA2’s 23.125 (Overall high level functionality and architecture impacts of flow based charging; Stage 2)	6.1.0	6.2.0

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.295** **CR** **0002** ⌘**rev** **-** ⌘ Current version: **6.0.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title: ⌘ Correction to references

Source: ⌘ SA5 (benni.alexander@nokia.com)

Work item code: ⌘ CH ***Date:*** ⌘ 13/05/2005

Category: ⌘ **F** ***Release:*** ⌘ Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change: ⌘ Clause 2 (References) is contradicting 3GPP TR 21.801 (Specification drafting rules)..

Summary of change: ⌘ All references in clause 2 that are not explicitly cited in the TS have been removed from the list of references, and collected to a new Annex "Bibliography", which has been inserted to the TS just before the last Annex containing the change history.

The change has been done according to the instructions in 3GPP TR 21.801 listed below.

1. 3GPP TR 21.801 states (subclause 6.2.2) about the list of references as follows:
   "*The list shall not include the following:*
   …
   - documents which are not explicitly cited in the provisions of the deliverable (such documents may be listed in a bibliography (see subclause 6.4.2))."

2. 3GPP TR 21.801 states (subclause 6.4.2) about the Bibliography as follows:
   "*The Bibliography identifies documents which are not explicitly cited in the body of the 3GPP TS or 3GPP TR.*"

3. 3GPP TR 21.801 states (subclause 5.2.7) as follows:
   "*A bibliography, if present, shall appear after the penultimate annex entitled "Bibliography".*"..

Consequences if not approved: ⌘ TS 32.295 remains contradictive to 3GPP specification drafting rules.

Clauses affected: ⌘ Clause 2, Annexes

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

Other comments: ⌘ Parent CR 32.240 in S5-054467

Change in Clause 2

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

~~**a) The 3GPP charging specifications**~~

[1] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging Architecture and Principles".

[2]-[9] Void.

[10] 3GPP TS 32.250: "Telecommunication management; Charging management; Circuit Switched (CS) domain charging".

~~[11] 3GPP TS 32.251: "Telecommunication management; Charging management; Packet Switched (PS) domain charging".~~

~~[12] 3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging".~~

~~[13] [19] Void.~~

~~[20] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".~~

[~~21~~11]-[29] Void.

[30] 3GPP TS 32.270: "Telecommunication management; Charging management; Multimedia Messaging Service (MMS) charging".

~~[31] 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".~~

[~~32~~31]-[49] Void.

[50] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".

[51] 3GPP TS 32.298: "Telecommunication management; Charging management; Charging Data Record (CDR) parameter description".

[52] 3GPP TS 32.297: "Telecommunication management; Charging management; Charging Data Record (CDR) file format and transfer".

~~[53] 3GPP TS 32.296: "Telecommunication management; Charging management; Online Charging System (OCS) applications and interfaces".~~

[~~54~~53]-[~~69~~99] Void.

~~**other charging specifications**~~

~~[70] [99] Void.~~

~~**b) Common 3GPP specifications**~~

[100] TR 21.905: "Vocabulary for 3GPP Specifications".

~~[101] TS 22.101: "Service aspects; Service Principles".~~

~~[102] TS 22.115: "Service aspects; Charging and billing".~~

~~[103] TS 23.002: "Network Architecture".~~

~~[104] TS 23.003: "Numbering, addressing and identification".~~

~~[105] TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".~~

[~~106~~101]-[199] Void.

~~**c) other Domain and Service specific 3GPP / ETSI specifications**~~

[200] 3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".

[201]-[299] Void.

~~**d) Relevant ITU Recommendations**~~

~~[300] ITU-T Recommendation D.93: "Charging and accounting in the international land mobile telephone service (provided via cellular radio systems)".~~

~~[301] [309] Void.~~

~~[310] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".~~

~~[311] [329] Void.~~

~~[330] ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT signalling System No.7 for international ISDN interconnections".~~

~~[331] [349] Void.~~

~~[350] 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".~~

~~[351] ITU-T Recommendation X.121: "International numbering plan for public data networks".~~

[~~352~~300]-[399] Void.

~~**e) Relevant IETF RFCs**~~

~~[400] IETF RFC 959 (1985): "File Transfer Protocol".~~

~~[401] IETF RFC 3588 (2003): "Diameter base protocol"~~

~~[402] IETF Internet-Draft "Diameter Credit-Control Application"~~

[400-403] ~~IETF RFC 1350: "The TFT Protocol (Revision 2)"~~Void.

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

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

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

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

End of change in Clause 2

Change in Annexes

Annex A (informative): Bibliography

a) The 3GPP charging specifications

- 3GPP TS 32.251: "Telecommunication management; Charging management; Packet Switched (PS) domain charging".
- 3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging".
- 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".
- 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".
- 3GPP TS 32.296: "Telecommunication management; Charging management; Online Charging System (OCS) applications and interfaces".

b) Common 3GPP specifications

- TS 22.101: "Service aspects; Service Principles".
- TS 22.115: "Service aspects; Charging and billing".
- TS 23.002: "Network Architecture".
- TS 23.003: "Numbering, addressing and identification".
- TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

c) other Domain and Service specific 3GPP / ETSI specifications

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d) Relevant ITU Recommendations

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- IETF Internet-Draft "Diameter Credit Control Application"
- IETF RFC 1350: "The TFT Protocol (Revision 2)"

Annex ~~A~~ B (informative): Change history

End of change in Annexes
End of document

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2004	S_25	SP-040553	--	--	Submitted to TSG SA#25 for Approval	1.0.0	6.0.0