

Source: SA5 (Telecom Management)
Title: CR 32260-299 IMS charging - Diameter charging applications
Document for: Approval
Agenda Item: 7.5.3

Doc-1st-Level	Spec_#	CR_#	R	Phase	Subject	Cat	Ver-Cur	Doc-2nd-Level	Workitem
SP-050276	32.260	0004	-	Rel-6	Correction to scope	F	6.1.0	S5-054436	CH
SP-050276	32.260	0005	-	Rel-6	Correction to references	F	6.1.0	S5-054448	CH
SP-050276	32.299	0016	-	Rel-6	Correction to scope	F	6.2.0	S5-054443	CH
SP-050276	32.299	0017	-	Rel-6	Correction to references	F	6.2.0	S5-054454	CH

CHANGE REQUEST

№ 32.260 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 ☒

Title:	№ Correction to scope		
Source:	№ SA5 (benni.alexander@nokia.com)		
Work item code:	№ CH	Date:	№ 12/05/2005
Category:	№ F	Release:	№ Rel-6
Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:	
F (correction)		Ph2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (addition of feature),		R97 (Release 1997)	
C (functional modification of feature)		R98 (Release 1998)	
D (editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		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 32.260 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 32.260 remains erroneous, confusing the reader.

Clauses affected:	№ Clause 1									
Other specs affected:	№ <table><tr><td>Y</td><td>N</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> Other core specifications	Y	N	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	№
Y	N									
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
	Test specifications									
	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 document TS 32.240 [1], which provides an umbrella for other charging management documents that specify

- the content of the CDRs per domain and subsystem (offline charging),
- the content of real-time charging events 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 TS 32.240 [1].

The present document specifies the Offline and Online Charging description for the IP Multimedia Subsystem (IMS), based on the functional descriptions of the IMS in 3GPP TS 23.228 [200]. This charging description includes the offline and online charging architecture and scenarios specific to IMS, as well as the mapping of common 3GPP charging architecture specified in TS 32.240 [1] onto IMS. 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 these CDR types 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 IMS offline and online charging is specified in TS 32.299 [50].

All ~~reference 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 B (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Mar 2004	S_23	SP-040144	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Mar 2005	SA_27	SP-050030	002	--	Correction of criteria for the presence of the GPRS charging ID in the IMS CDRs - Align with SA2's TS 23.228	6.0.0	6.1.0
Mar 2005	SA_27	SP-050030	003	--	Correction of table 5.1: "addition of reporting of 2xx/3xx events"	6.0.0	6.1.0

CHANGE REQUEST

⌘ 32.299 CR 0016 ⌘ 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 ☒

Title:	⌘ Correction to scope
Source:	⌘ SA5 (benni.alexander@nokia.com)
Work item code:	⌘ CH
Date:	⌘ 12/05/2005
Category:	⌘ F
Use <u>one</u> 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 .	
Release:	⌘ Rel-6
Use <u>one</u> 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 32.299 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 32.299 remains erroneous, confusing the reader.

Clauses affected:	⌘ Clause 1									
Other specs affected:	<table><tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td>Other core specifications</td></tr><tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td>Test specifications</td></tr><tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td>O&M Specifications</td></tr></table>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Test specifications	<input type="checkbox"/>	<input checked="" type="checkbox"/>	O&M Specifications
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications								
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Test specifications								
<input type="checkbox"/>	<input checked="" type="checkbox"/>	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 documents 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 in detail the Diameter based offline and online charging applications for 3GPP networks. It includes all charging parameters, scenarios and message flows..

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 [50]. 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 A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Mar 2005	SA_27	SP-050030	013	--	Correction to Session Charging with Unit Reservation (SCUR)	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	014	--	Correction to Server-Capabilities AVP	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	015	--	Correction on Tariff Switch handling	6.1.0	6.2.0

CHANGE REQUEST

⌘ 32.260 CR 0005 ⌘ 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 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:

Use one of the following releases:

F (correction)

Ph2 (GSM Phase 2)

A (corresponds to a correction in an earlier release)

R96 (Release 1996)

B (addition of feature),

R97 (Release 1997)

C (functional modification of feature)

R98 (Release 1998)

D (editorial modification)

R99 (Release 1999)

Detailed explanations of the above categories can be found in 3GPP [TR 21.900](#).

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 32.260 remains contradictive to 3GPP specification drafting rules

Clauses affected: ⌘ Clause 2, Annexes

☐ Y ☐ N

Other specs affected: ⌘ ☒ Other core specifications

☒

Test specifications

☒

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] [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) parameter 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"~~[Void](#).

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

[55]-[99] Void.

b) ~~Common 3GPP specifications~~

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

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

[101]-102] ~~3GPP TS 22.115: "Service aspects; Charging and Billing"~~[Void.](#)

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

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

~~[104-105]~~[199\] 3GPP TS 27.001: "General on Terminal Adaptation Functions \(TAF\) for Mobile Stations \(MS\)"\[Void.\]\(#\)](#)

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

[200] 3GPP TS 22.228: "IMS Stage 1".

[201] 3GPP TS 23.228: " Functional stage 2 description of IMS".

[202] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on SIP and SDP, Stage 3"

[203] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2"

[204] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[205]-[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".~~

~~[351-300]~~[\[300\]](#)-[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 2806: "URLs for Telephone Calls".

[404] IETF RFC 3261: "SIP: Session Initiation Protocol ".

[405] IETF RFC 2486: "The Network Access Identifier".

[406] RFC 3455 (January 2003): "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

End of change in Clause 2

Change in Annexes

Annex B (informative): Bibliography

a) The 3GPP charging specifications

- 3GPP TS 32.250: "Telecommunication management; Charging management; Circuit Switched (CS) domain charging".
- 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 32.270: "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; Online Charging System (OCS) applications and interfaces".

b) Common 3GPP specifications

- 3GPP TS 22.101: "Service aspects; Service Principles".
- 3GPP TS 22.115 "Service aspects; Charging and Billing".
- 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

=

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 numbering plan for public data networks".

e) Relevant IETF RFCs

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

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
Mar 2005	SA_27	SP-050030	003	--	Correction of table 5.1: "addition of reporting of 2xx/3xx events"	6.0.0	6.1.0

CHANGE REQUEST

⌘ 32.299 CR 0017 ⌘ 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 ☒

Title:	⌘ Correction to references
Source:	⌘ SA5 (benni.alexander@nokia.com)
Work item code:	⌘ CH
Category:	⌘ F
Use <u>one</u> 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 <u>one</u> 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: <i>"The list shall not include the following:</i> ... - <i>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))."</i> 2. 3GPP TR 21.801 states (subclause 6.4.2) about the Bibliography as follows: <i>"The Bibliography identifies documents which are not explicitly cited in the body of the 3GPP TS or 3GPP TR."</i> 3. 3GPP TR 21.801 states (subclause 5.2.7) as follows: 1. <i>"A bibliography, if present, shall appear after the penultimate annex entitled "Bibliography"."</i>
Consequences if not approved:	⌘ TS 32.299 remains contradictive to 3GPP specification drafting rules.

Clauses affected:	⌘ Clause 2, Annexes								
Other specs affected:	<table><tr><td>Y</td><td>N</td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td><input checked="" type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr></table> Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	Y	N	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N								
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
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]-[49] 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] [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 TR 21.905: "Vocabulary for 3GPP Specifications"

~~[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 Record (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] [199] Void.~~

b) ~~Common 3GPP specifications~~

~~{70} 3GPP TS 33.201: "Access domain security".~~

~~{71} [199] Void.~~

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

[200] 3GPP TS 23.207: "End to end quality of service concept and architecture".

[201] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[202] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3."

[203] 3GPP TS 29.207: "Policy control over Gs interface".

[204] 3GPP TS 29.229: "Cx and Dx Interfaces based on the Diameter protocol; Protocol Details".

[205]-~~[299]~~[400] Void.

~~d) Relevant ITU Recommendations~~

~~{300} [399] Void.~~

~~e) Relevant IETF RFCs~~

~~{400} IETF RFC 959 (1985): "File Transfer Protocol".~~

[401] IETF RFC 3588: "Diameter Base Protocol".

[402] IETF Internet-Draft "Diameter Credit Control Application" v06 <http://www.ietf.org/internet-drafts/draft-ietf-aaa-diameter-cc-05.txt>.

[403] Void.

~~{403} IETF RFC 1350 "TFTP Protocol".~~

[404] IETF RFC 3455, "Private Extensions to the Session Initiation Protocol (SIP) for the 3rd Generation Partnership Projects (3GPP)".

[405] IETF RFC 3261: "SIP: Session Initiation Protocol".

[406] IETF Internet-Draft, "SDP: Session Description Protocol".
<http://www.ietf.org/internet-drafts/draft-ietf-mmusic-sdp-new-1324.txt>

NOTE: The above reference will need to be updated to reference the assigned RFC number, once the draft achieves RFC status within the IETF.

End of Change in Clause 2

Change in Annexes

Annex A (informative): Bibliography

a) The 3GPP charging specifications

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

- 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 32.298: "Telecommunication management; Charging management; Charging Data Record \(CDR\) encoding rules description".](#)
- [3GPP TS 32.297: "Telecommunication management; Charging management; Charging Data Record \(CDR\) file format and transfer".](#)
- [3GPP TS 32.296: "Telecommunication management; Charging management; Online Charging System \(OCS\) applications and interfaces".](#)
- [3GPP TS 32.295: "Telecommunication management; Charging management; Charging Data Record \(CDR\) transfer".](#)
- b) [Common 3GPP specifications](#)**
- [3GPP TS 33.201: "Access domain security".](#)
- c) [other Domain and Service specific 3GPP / ETSI specifications](#)**
- =
- d) [Relevant ITU Recommendations](#)**
- =
- e) [Relevant IETF RFCs](#)**
- [IETF RFC 959 \(1985\): "File Transfer Protocol".](#)
- [IETF RFC 1350 "TFTP Protocol".](#)

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
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
Mar 2005	SA_27	SP-050030	006	--	Correction of missing Service Specific Data AVP (Attribute Value Pair)	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	007	--	Correction of criteria for the presence of the GPRS charging ID in the Diameter Accounting messages - Align with SA2's TS 23.228	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	008	--	Correct the description of Charging Key	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	009	--	Correction of Termination action	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	010	--	Correction of missing Quota-Consumption-Time	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	011	--	Correction of cause code for 2xx events	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	012	--	Correction of missing cause code to distinguishing deregistration charging event	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	013	--	Correction to Session Charging with Unit Reservation (SCUR)	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	014	--	Correction to Server-Capabilities AVP	6.1.0	6.2.0
Mar 2005	SA_27	SP-050030	015	--	Correction on Tariff Switch handling	6.1.0	6.2.0