TSGS#28(05)0278

Source: SA5 (Telecom Management)

Title: CR 32271 LCS charging

Document for: Approval

Agenda Item: 7.5.3

Doc-1st-Level	Spec__#_	CR__#	R	Phase	Subject	Cat	Ver-Cur	Doc-2nd-Level	Workitem
SP-050278	32.271	0001	-	Rel-6	Add peer GMLC Identification and network ID to LCS CDRs	C	6.0.0	S5-054280	CH
SP-050278	32.271	0002	-	Rel-6	Correction to scope	F	6.0.0	S5-054438	CH
SP-050278	32.271	0003	-	Rel-6	Correction to references	F	6.0.0	S5-054450	CH

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CHANGE REQUEST

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

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

Title:	⌘	Add peer Gateway Mobile Location Center (GMLC) Identification and network ID to LCS CDRs
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	CH
Date:	⌘	15/03/2005
Category:	⌘	**C**
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:	⌘	In LS (S5-054208/BARG Doc 65_020), the BARG/CPWP requested that the identification and network IDs of peer GMLCs involved in LCS transactions be recorded in the LCS CDRs.
Summary of change:	⌘	The requests of GSMA are implemented to the extent possible as listed below: - The identification of the Home GMLC is added in the LCS CDR for the Requesting GMLC - The identification of the Requesting GMLC and of the Visited GMLC is added in LCS CDR for the Home GMLC - The Network Identity (MCC and MNC) of the serving network is added in the LCS CDR of the Home GMLC - The identification of the Home GMLC is added in LCS CDR for the Visited GMLC
Consequences if not approved:	⌘	Inter-operator accounting for LCS is not possible.

Clauses affected:	⌘	6.1.3.2

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

⌘

Other comments: ⌘

Change in Clause 6.1.3.2

6.1.3.2 LCS Records for mobile terminated location request

6.1.3.2.1 LCS Records for Requesting GMLC (LCS-RGMT-CDR)

If enabled, a LCS Requesting GMLC Mobile terminated Charging Data Record (LCS-RGMT-CDR) shall be produced for each mobile a terminated location request is performed via the R-GMLC. The fields in the record are specified in table 6.2. Table 6.2 provides a brief description of each field.

Table 6.2: LCS Requesting GMLC Mobile Terminated CDR (LCS-RGMT-CDR)

Field	Category	Description
Record Type	M	LCS Requesting GMLC Mobile Terminated Record
Recording Entity	M	The E.164 address of this GMLC
Home GMLC Identity	C	If available, the E.164 address of the HGMLC involved in the location request
LCS Client Type	C	The type of the LCS client that invoked the LR, if available.
LCS Client Identity	C	Further identification of the LCS client, if available.
Target IMSI	M	The IMSI of the targeted LCS subscriber
Target MSISDN	O_m	The primary MSISDN of the targeted subscriber.
Location Type	M	The type of location information being requested.
LCS Priority	C	Priority of the LR, if available
Result Code	O_m	The result code that indicate the result of the request or individual positioning
Record Time Stamp	O_m	Time of generation of the CDR
Local Record Sequence Number	O_m	Consecutive record number created by this node. The number is allocated sequentially including all CDR types.
Record extensions	O_c	A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.

6.1.3.2.2 LCS Records for Home GMLC (LCS-HGMT-CDR)

If enabled, a LCS Home GMLC Mobile terminated Charging Data Record (LCS-HGMT-CDR) shall be produced for each mobile a terminated location request is performed via the H-GMLC. The fields in the record are specified in table 6.3. Table 6.3 provides a brief description of each field.

Table 6.3: LCS ~~Requesting~~ Home GMLC Mobile Terminated CDR (LCS-HGMT-CDR)

Field	Category	Description
Record Type	M	LCS Home GMLC Mobile Terminated Record
Recording Entity	M	The E.164 address of this GMLC
Requesting GMLC Identity	C	If available, the E.164 address of the RGMLC involved in the location request
Visited GMLC Identity	C	If available, the E.164 address of the VGMLC involved in the location request
Serving Network Identity	O_c	MCC and MNC of the serving network used during this record, if available.
LCS Client Type	C	The type of the LCS client that invoked the LR, if available.
LCS Client Identity	C	Further identification of the LCS client, if available.
Target IMSI	M	The IMSI of the targeted LCS subscriber
Target MSISDN	O_m	The primary MSISDN of the targeted subscriber.
Location Type	M	The type of location information being requested.
LCS Priority	C	Priority of the LR, if available
Result Code	O_m	The result code that indicate the result of the request or individual positioning
Record Time Stamp	O_m	Time of generation of the CDR
Local Record Sequence Number	O_m	Consecutive record number created by this node. The number is allocated sequentially including all CDR types.
Record extensions	O_c	A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.

6.1.3.2.3 LCS Records for Visited GMLC (LCS-VGMT-CDR)

If enabled, a LCS Visited GMLC Mobile terminated Charging Data Record (LCS-VGMT-CDR) shall be produced for each mobile a terminated location request is performed via the V-GMLC. The fields in the record are specified in table 6.4. Table 6.4 provides a brief description of each field.

Table 6.4: LCS Visited GMLC Mobile Terminated ~~LCS~~ CDR (LCS-VGMT-CDR)

Field	Category	Description
Record Type	M	LCS Visited GMLC Mobile Terminated Record
Recording Entity	M	The E.164 address of this GMLC
Home GMLC Identity	C	If available, the E.164 address of the HGMLC involved in the location request
LCS Client Type	C	The type of the LCS client that invoked the LR, if available.
LCS Client Identity	C	Further identification of the LCS client, if available.
Target IMSI	M	The IMSI of the targeted LCS subscriber
Target MSISDN	O_m	The primary MSISDN of the targeted subscriber.
Location Type	M	The type of location information being requested.
LCS Priority	C	Priority of the LR, if available
Result Code	O_m	The result code that indicate the result of the request or individual positioning
Record Time Stamp	O_m	Time of generation of the CDR
Local Record Sequence Number	O_m	Consecutive record number created by this node. The number is allocated sequentially including all CDR types.
Record extensions	O_c	A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.

End of Change in Clause 6.1.3.2
End of Document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2003	S_21	SP-030411	--	--	Submitted to TSG SA#21 for Information	1.0.0	1.1.0
Dec 2004	S_26	SP-040781	--	--	Submitted to TSG SA#26 for Approval	2.0.0	6.0.0

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CHANGE REQUEST

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

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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 32.271 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 32.271 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 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 3GPP TS 32.240 [1].

The present document specifies the LCS Offline and Online Charging description for the LCS domain, based on the functional stage 2 description of the LCS in 3GPP TS 23.071 [201]. This charging description includes the offline and online charging architecture and scenarios specific to the LCS, as well as the mapping of the common 3GPP architecture specified in TS 32.240 [1] onto the LCS 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 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 LCS domain 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 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 A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2004	S_26	SP-040781	--	--	Submitted to TSG SA#26 for Approval	2.0.0	6.0.0

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CHANGE REQUEST

⌘ 32.271 CR 0003 ⌘rev - ⌘ Current version: 6.0.0 ⌘

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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 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 32.271 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~~11]-[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]-[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 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] [69] Void.~~

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

[~~71~~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".~~

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

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

[200] ~~3GPP TS 22.071: "Location Services (LCS); Service description; Stage 1"~~Void.

[201] 3GPP TS 23.271: "Location Services (LCS); Functional description; Stage 2".

[202] ~~3GPP TS 29.002: "Mobile Application Part (MAP) specification"~~Void.

[203] 3GPP TS 25.305: "User Equipment (UE) positioning in Universal Terrestrial Radio Access Network (UTRAN); Stage 2".

[204] 3GPP TS 43.059: "Functional stage 2 description of Location Services (LCS) in GERAN".

~~[205] GSM 04.02: "GSM Public Land Mobile Network (PLMN) access reference configuration".~~

[206]-[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~~301]-[399] Void.

~~e) Relevant IETF RFCs~~

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

[401] RFC 3588: “Diameter Base Protocol”

[402] IETF Internet-Draft “Diameter Credit Control Application” V06

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

~~[404] [499] Void.~~

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 23.125: "Overall High Level Functionality and Architecture Impacts of Flow Based Charging; Stage 2”

b) Common 3GPP specifications

- 3GPP TS 22.101: "Service aspects; Service Principles".
- 3GPP TS 22.115: "Service aspects; Charging and billing".
- 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 29.002: "Mobile Application Part (MAP) specification".
- GSM 04.02: "GSM Public Land Mobile Network (PLMN) access reference configuration".

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".

- 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 2003	S_21	SP-030411	--	--	Submitted to TSG SA#21 for Information	1.0.0	1.1.0
Dec 2004	S_26	SP-040781	--	--	Submitted to TSG SA#26 for Approval	2.0.0	6.0.0