

**Source: SA1**

**Title: Various CRs to 22.078 Rel-5 (CAMEL Phase 4)**

**Document for: Approval**

**Agenda Item: 7.1.3**

---

Spec	CR	Rev	Phase	Cat	Subject	Version-Current	Version-New	Doc-2nd-Level
22.078	102		Rel-5	B	Enhance ATI operation (CAMEL4) - GPRS Location	5.2.0	5.3.0	S1-010466
22.078	107		Rel-5	B	Location information during an ongoing call (CAMEL4)	5.2.0	5.3.0	S1-010464
22.078	108		Rel-5	F	Clarification of CPH requirements (CAMEL4)	5.2.0	5.3.0	S1-010463
22.078	109		Rel-5	B	Inclusion of ODB data in ATM	5.2.0	5.3.0	S1-010341
22.078	110		Rel-5	F	CR 22.078-xxx on "Clarification on creating a new call" CAMEL4, REL-5, Category F, version 5.2.0)	5.2.0	5.3.0	S1-010306
22.078	111		Rel-5	C	Introduction of the new CSI for the mobility management for the GPRS subscriber	5.2.0	5.3.0	S1-010342

## CHANGE REQUEST

⌘ **22.078 CR 102** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

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

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Enhance ATI operation to support location information		
<b>Source:</b>	⌘ SA1		
<b>Work item code:</b>	⌘ CAMEL 4 (ATI)	<b>Date:</b>	⌘ 11 <sup>th</sup> May, 2001
<b>Category:</b>	⌘ <b>B</b>	<b>Release:</b>	⌘ REL-5
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use <u>one</u> of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ The Current ATI mechanism can not support GPRS location and state query, so ATI enhancements are necessary for such query function.
<b>Summary of change:</b>	⌘ This CR introduces the new enhanced ATI operation , which allows the CSE to interrogate the HLR to obtain the location (routing area identity) of a GPRS only terminal.
<b>Consequences if not approved:</b>	⌘

<b>Clauses affected:</b>	⌘		
<b>Other specs affected:</b>	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	23.078,29.078,29.002
<b>Other comments:</b>	⌘		

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**\*\*\* First Modified Section \*\*\***

## **22 Location Information**

The purpose of this procedure is to obtain the location of a particular subscriber. The resolution of the location information may be based on the Cell Identity or Service Area Identity of the subscriber's location, or may be based on more accurate positioning information.

The CSE may interrogate the HLR in order to obtain a particular subscriber's location based on the cell identity, ~~or~~ service area identity or the routing area identity.

The HLR may return location information as defined in TS 23.018 [9]

The HLR may return information based on the current service area identity, ~~or~~ cell identity or the routing area identity as a result of paging the subscriber.

The CSE may interrogate the GMLC in order to obtain a particular subscriber's current location based on accurate geographical information as defined by LCS in TS 22.071 [8]. The GMLC has the possibility to reject any interrogation from any CSE.

**\*\*\* End of document \*\*\***

## CHANGE REQUEST

⌘ **22.078 CR 107** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

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

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Location information during an ongoing call		
<b>Source:</b>	⌘ SA1		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 11 <sup>th</sup> May 2001
<b>Category:</b>	⌘ B	<b>Release:</b>	⌘ Rel-5
	<i>Use one of the following categories:</i> <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

**Reason for change:** ⌘ The position of a subscriber is the key to a lot of location based applications. The position is available when a subscriber is know at the network and her status is idle or when she starts a call. While the CS call is ongoing no further location information is reported actively towards the network.

This is felt as being inconvenient and forms limitations to certain application.

To improve the current situation, it is proposed to invent a new function. This functionality shall report the location in case the subscriber change her location during ongoing CS call.

Another reason to do so, just observed recently from the service continuity discussion within 3GPP, is the provision of services when a subscriber changes from a 2G network to a 3G network and back. To try the best approach offering the same set of services, the fact of "changing location" should be brought to the CAMEL Service Environments attention.

Keeping the above in mind, we propose an additional service procedure to cope with "change of location" situations for CS calls.

For PS calls CAMEL 3 were already enhanced to deliver similar procedures.

**Summary of change:** ⌘ Additional procedure "change of position" for CS calls as the subclause 5.X and 6.X. Excerpt as follows;

- VPLMN notifies the event and suspends the call process, or continue;
- Charge result shall be reported if charging supervision is provided;
- Charging activity and other service control could be performed;
- The CSE instructs the VPLMN to continue or disconnect the call.

**Consequences if not approved:** ⌘ No location-dependent (call related) service could not be provided.

<b>Clauses affected:</b>	⌘	5, 6	
<b>Other specs affected:</b>	⌘	<input type="checkbox"/> Other core specifications	⌘
		<input type="checkbox"/> Test specifications	
		<input type="checkbox"/> O&M Specifications	
<b>Other comments:</b>	⌘		

\*\*\* First change \*\*\*

## 5.x Change of position procedure \$(CAMEL4\$)

When the CSE instructs the VPLMN to arm the change of position event, the VPLMN shall report the event when the subscriber's location information changed.

If the CSE has activated this service event for the served subscriber and a change of position event occurs the VPLMN shall:

- Suspend call processing, notify the CSE and await further instructions, or
- Notify the CSE and continue call processing.

The following information shall be provided to the CSE:

- Event met;
- Type of monitoring;
- Event specific data;
  - Location information;
- Charge result if charging supervision is provided;

When the VPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN to act as described below:

- Perform charging activities;
- Activate other control service events for the call. The CSE shall have the possibility to send the following information:
  - The service event which shall be detected and reported:
    - Change of position event.
  - The party in the call for which the event shall be detected and reported;
  - The type of monitoring (control or notification);
  - Order in-band user interaction.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Continue the call processing;
- Release the call.

\*\*\* Next change \*\*\*

## 6.x Change of position procedure \$(CAMEL4\$)

When the CSE instructs the VPLMN to arm the change of position event, the VPLMN shall report the event when the subscriber's location information changed.

If the CSE has activated this service event for the served subscriber and a change of position event occurs the VPLMN shall:

- Suspend call processing, notify the CSE and await further instructions, or
- Notify the CSE and continue call processing.

The following information shall be provided to the CSE:

- Event met;
- Type of monitoring;
- Event specific data;
  - Location information;
- Charge result if charging supervision is provided;

When the VPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN to act as described below:

- Perform charging activities;
- Activate other control service events for the call. The CSE shall have the possibility to send the following information:
  - The service event which shall be detected and reported:
    - Change of position event.
  - The party in the call for which the event shall be detected and reported;
  - The type of monitoring (control or notification);
  - Order in-band user interaction.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Continue the call processing;
- Release the call.

## CHANGE REQUEST

22.078 CR 108 rev 0 Current version: 5.2.0

**Proposed change affects:** (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	Clarification of CPH requirements		
<b>Source:</b>	SA1		
<b>Work item code:</b>	CAMEL4	<b>Date:</b>	11 <sup>th</sup> May 2001
<b>Category:</b>	<b>F</b>	<b>Release:</b>	REL-5
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use <u>one</u> of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	Call Party Handling procedures should only apply to circuit switched voice calls.
<b>Summary of change:</b>	Statement that CPH procedures only apply to CS voice calls
<b>Consequences if not approved:</b>	Assumption that CPH procedures can apply to data, fax etc.

<b>Clauses affected:</b>	8	
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	
<b>Other comments:</b>		



**\*\*\* Modified Section \*\*\***

---

## 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*.

- [1] 3GPP TS 22.093: "Completion of Calls to Busy Subscriber (CCBS); Service description, Stage 1".
- [2] 3GPP TS 22.079: "Support of Optimal Routeing (SOR); Service definition (Stage 1)".
- [3] 3GPP TS 22.030: "Man-machine Interface (MMI) of the Mobile Station (MS) (Stage 1)".
- [4] 3GPP TS 22.090: "Stage 1 Decision of Unstructured Supplementary Service Data (USSD)".
- [5] 3GPP TS 22.097: "Multiple Subscriber Profile (MSP); Service definition (Stage 1)".
- [6] 3GPP TS 22.060: "General Packed Radio Service (GPRS); Service definition (Stage 1)".
- [7] 3GPP TS 22.057: "Mobile Environment (MExE); Service definition (Stage 1)".
- [8] 3GPP TS 22.071: "Location Services; Service Definition (Stage1)".
- [9] 3GPP TS 23.018: "Basic Call Handling; Technical Realization".
- [10] [3GPP TS 22.003: "Circuit teleservices supported by a public land mobile network \(PLMN\)".](#)

---

## 8 Procedures for Call Party Handling - \$(CAMEL4\$)

[CPH procedures only apply to speech telephony \(TS11\) as defined in TS 22.003 \[10\].](#)

CPH procedures apply to MO, MF, MT, VT and CSE initiated calls. If the served subscriber is involved in a CPH configuration controlled by her CSE, then any further MO or MT call setup request involving the served subscriber shall be handled by a separate relationship with the served subscriber's CSE. This new relationship may lead to the creation of a further CPH configuration for the served subscriber. The service logic for one CSE relationship is not necessarily aware of what is happening in another CSE relationship involving the same served subscriber.

It is not required to transfer a leg or a group of legs between separate CPH configurations.

Where service logic involves Call Party Handling procedures, the Service Interaction Indicators Two parameter should be used to manage interactions with GSM Supplementary Services (CF, CD and MPTY for each call leg and ECT and HOLD for the served subscriber).

The CSE shall be able to add parties to, or remove parties from, the group. Each party in this group can communicate with all other parties in the group. The IPLMN/VPLMN shall support at least 6 parties (of which one may be a Specialised Resource Function) in a group.

If a control relationship exists, the CSE may order in-band user interaction with any held call party at any point during the active phase of the call leg.

**\*\*\*\* End of Document \*\*\*\***

## CHANGE REQUEST

⌘ **22.078 CR 109** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

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

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Inclusion of ODB data in ATM		
<b>Source:</b>	⌘ SA1		
<b>Work item code:</b>	⌘ CAMEL4	<b>Date:</b>	⌘ 11 <sup>th</sup> May 2001
<b>Category:</b>	⌘ <b>B</b>	<b>Release:</b>	⌘ Rel-5
	<i>Use one of the following categories:</i> <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ As the operator determined barring, if activated, is one of the means to minimise the consumption of the network resource. This can be done by the fine-tuned subscription control.  Currently, there is no mechanism to control the operator determined barring data by the service platform. A very time critical network operation may require the mechanism that the CSE (gsmSCF) directly instruct the HLR to bar the call or remove the barring online.  Therefore, it is proposed that the Any Time Modification includes the ODB as the one of the data changed.
<b>Summary of change:</b>	⌘ Include ODB for CS and GPRS in ATM
<b>Consequences if not approved:</b>	⌘ ODB change could not be done in conjunction with CAMEL-related services.

<b>Clauses affected:</b>	⌘ 13		
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
<b>Other comments:</b>	⌘		

---

## 13 CSE interrogation and control of subscription data

### 13.1 Any time interrogation

It shall be possible for the CSE (as part of an OSS, including special handling of mobile terminating calls) to interrogate the HLR for information about a particular subscriber, for which it is entitled to do so (e.g. the subscriber belongs to the same HPLMN as the CSE).

This may be information from the list below:

- Subscriber status;
- Location information (see section 22);
- Call Forwarding SS data;
- Call Barring SS data;
- Operator Determined Barring data;
- CAMEL Subscription Information;
- CAMEL phases supported at the VPLMN.

The HPLMN shall have the possibility to reject any interrogation from any CSE.

### 13.2 Any time modification

It shall be possible for the CSE to modify user data for a particular subscriber, for which it is entitled to do so (e.g. the subscriber belongs to the same HPLMN as the CSE).

This shall be data from the list below:

- Call Forwarding SS data;
- Call Barring SS data;
- Operator Determined Barring data;
- Activation/Deactivation of CAMEL Subscription Information.

The HPLMN shall have the possibility to reject any request for modification from any CSE.

## CHANGE REQUEST

22.078 CR 110 rev 0 Current version: 5.2.0

**Proposed change affects:** (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	Clarification on creating a new call		
<b>Source:</b>	SA1		
<b>Work item code:</b>	CAMEL4	<b>Date:</b>	11 <sup>th</sup> May 2001
<b>Category:</b>	F	<b>Release:</b>	REL-5
	Use <u>one</u> of the following categories: <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

<b>Reason for change:</b>	There is confusion about when the CSE can suppress CAMEL invocations and incoming call barrings for a CSE initiated call.
<b>Summary of change:</b>	<ul style="list-style-type: none"> <li>• The CSE can instruct the IPLMN or VPLMN to initiate a new call</li> <li>• The CSE can instruct the HPLMN to suppress invocation of incoming call barrings</li> <li>• The CSE can instruct the HPLMN to suppress the triggering of terminating CAMEL-based services in the VPLMN for the served subscriber</li> <li>• The CSE can instruct the IPLMN to suppress the triggering of terminating CAMEL-based services in the IPLMN for the served subscriber</li> </ul>
<b>Consequences if not approved:</b>	Confusion remains.

<b>Clauses affected:</b>	8.2
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
<b>Other comments:</b>	

**\*\*\* Modified Section \*\*\***

## 8.2 Creating a new call

The purpose of this procedure is to allow the CSE to create a new call to a-the served subscriber.

It shall be possible for the CSE to instruct the HIPLMN/VPLMN of the served subscriber to initiate a new call on behalf of the served subscriber. The HIPLMN/VPLMN shall have the possibility to reject this request. The CSE shall be able to instruct the HPLMN to suppress the invocation of Incoming call barrings for a CSE initiated call.

The CSE shall be able to instruct the HPLMN/~~VPLMN~~ to suppress the triggering of terminating CAMEL-based services in the VPLMN for the served subscriber.

The CSE shall be able to instruct the IPLMN to suppress the triggering of terminating CAMEL-based services in the IPLMN for the served subscriber.

The CSE shall have the possibility to send the information listed in table A-2 (CSE initiated call set-up).

If the CSE sends a request to initiate a call the events relating to unsuccessful call establishment and answer should be armed by the CSE to maintain a control relationship.

**\*\*\* End of Document \*\*\***

## CHANGE REQUEST

⌘ **22.078 CR 111** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

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

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

**Title:** ⌘ Introduction of the new CSI for the mobility management for the GPRS subscriber

**Source:** ⌘ SA1

**Work item code:** ⌘ CAMEL4

**Date:** ⌘ 11<sup>th</sup> May 2001

**Category:** ⌘ **C**

**Release:** ⌘ Rel-5

Use one of the following categories:

- F** (essential 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:

- 2** (GSM Phase 2)
- R96** (Release 1996)
- R97** (Release 1997)
- R98** (Release 1998)
- R99** (Release 1999)
- REL-4** (Release 4)
- REL-5** (Release 5)

**Reason for change:** ⌘ In the last CN2 meeting, the technical realisation of the mobility management for the GPRS management was discussed as the new feature in the CAMEL Phase 4 which had been approved at the last TSG-SA meeting.

In the discussion, the CN2 meeting agreed to introduce the new CSI for this feature, rather than to extend the M-CSI.

**Summary of change:** ⌘ The new CSI, namely “Mobility Management for GPRS CAMEL Subscription Information (MG-CSI)”, is proposed.

A few short words are proposed to add to the current M-CSI to depict that the CSI is used for the CS subscriber.

**Consequences if not approved:** ⌘ Technical realisation in the stages 2 and 3 should be reconsidered. Enhancement of the M-CSI would be the only one alternative solution, but this would not be the preferable solution in CN2.

**Clauses affected:** ⌘ 4

**Other specs affected:** ⌘  Other core specifications

Test specifications

O&M Specifications

**Other comments:** ⌘ Siemens does not have a strong opinion against the naming of the new CSI. The better name for the new CSI would be acceptable.

---

## 4 Description

The CAMEL network feature enables the use of Operator Specific Services (OSS) by a subscriber even when roaming outside the HPLMN.

### 4.1 Provision of CAMEL

CAMEL subscribers have one or more CAMEL Subscription Information (CSI) elements. CAMEL Subscription Information is provided by the HPLMN operator by administrative means.

The following CSIs may be administered per subscriber:

- D-CSI**      *Dialled Services CAMEL Subscription Information (D-CSI)* is transferred to the VPLMN (at location update) and IPLMN (for an incoming call in GMSC). D-CSI contains trigger information which is required to invoke a CAMEL service logic for subscribers dialled services. See section 5.3.2 for the usage of D-CSI.
- GPRS-CSI**      *GPRS CAMEL Subscription Information (GPRS-CSI)* is transferred to the VPLMN. GPRS-CSI contains trigger information which is required to invoke a CAMEL Service Logic for GPRS Sessions and PDP Contexts.  
See section 10 for the usage of GPRS-CSI.
- M-CSI**      *Mobility Management CAMEL Subscription Information (M-CSI)* is transferred to the VPLMN. M-CSI is used to notify the CSE about Mobility Management events [for the CS subscriber](#).  
See section 12.1 for the usage of M-CSI.
- MG-CSI**      *Mobility Management for GPRS CAMEL Subscription Information (MG-CSI)* is transferred to the VPLMN. MG-CSI is used to notify the CSE about Mobility Management events [for the GPRS subscriber](#).  
[See section 12.1 for the usage of MG-CSI.](#)
- MO-SMS-CSI**      *Originating Short Message Service CAMEL Subscription Information (MO-SMS-CSI)* is transferred to the VPLMN. MO-SMS-CSI contains trigger information that is required to invoke a CAMEL Service Logic for Mobile Originating Short Message submissions.  
See section 9 for the usage of MO-SMS-CSI.
- MT-SMS-CSI**       $\$(\text{CAMEL4})$  *Terminating Short Message Service CAMEL Subscription Information (MT-SMS-CSI)* is transferred to the VPLMN. MT-SMS-CSI contains trigger information that is required to invoke a CAMEL Service Logic for Mobile Terminating Short Message delivery.  
See section 9 for the usage of MT-SMS-CSI.
- O-CSI**      *Originating CAMEL Subscription Information (O-CSI)* is transferred to the VPLMN (at location update) and to the IPLMN (for an incoming call in the GMSC). O-CSI contains trigger information that is required to invoke a CAMEL Service Logic for Mobile Originating calls (in the VMSC) and Mobile Forwarding calls (in the VMSC and the GMSC).  
See section 5 for the usage of O-CSI.
- SS-CSI**      *Supplementary Service Invocation Notification CAMEL Subscription Information (SS-CSI)* is transferred to the VPLMN. SS-CSI is used to notify the CSE about the invocation of certain Supplementary Services.  
See section 12.3 for the usage of SS-CSI.
- T-CSI**      *Terminating CAMEL Subscription Information (T-CSI)* is transferred to the IPLMN for an incoming call in the GMSC. T-CSI contains trigger information which is required to invoke a CAMEL Service Logic for Mobile Terminating calls in the GMSC.  
See section 6 for the usage of T-CSI.
- TIF-CSI**      *Translation information Flag CAMEL Subscription Information (TIF-CSI)* is transferred to the VPLMN. TIF-CSI is used in the HLR for registering short Forwarded-to-Numbers (FTNs). When



TIF-CSI is present, the subscriber is allowed to register short FTNs.

When the subscriber invokes Call Deflection, TIF-CSI in the VPLMN allows the subscriber to deflect to short Deflected-to-Numbers.

See section 18.3 for the usage of TIF-CSI.

**U-CSI**      *USSD CAMEL Subscription Information (U-CSI)* is held in the HLR; it is not sent to any other node. U-CSI contains trigger information which is used to invoke a USSD application in the CSE for the served subscriber.

See section 14.3 for the usage of U-CSI.

**UG-CSI**      *USSD General CAMEL Subscription Information (UG-CSI)* is held in the HLR; it is not sent to any other node. UG-CSI contains trigger information which is used to invoke a USSD application in the CSE for all subscribers.

See section 14.3 for the usage of UG-CSI.

**VT-CSI**      *VMSC Terminating CAMEL Subscription Information (VT-CSI)* is transferred to the VPLMN at location update. VT-CSI contains trigger information which is required to invoke a CAMEL Service Logic for Mobile Terminating calls in the VMSC.

See section 6 for the usage of VT-CSI.

Refer to 3GPP TS 23.078 for detailed descriptions of the various types of CAMEL Subscription Information.

The CSI may include the Default Call Handling, Default GPRS Handling or Default SMS Handling.

The Default Call Handling indicates whether the call shall be released or continued if the contact with the CSE is not confirmed or is interrupted.

Network -based services may be provided by the serving PLMN operator. The provisioning mechanism is out of the scope of this specification.