

**Technical Specification Group Services and System Aspects TSGS#18(02)0817  
Meeting #18, New Orleans, USA, 9-12 December 2002**

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**Source:** Samsung Electronics, SK Telecom  
**Title:** CR to 22.078 for support of enhanced CSE capability for Dialed Services in release 6  
**Document for:** Approval  
**Agenda Item:** ~~7.1.39~~[7.1.39](#)

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Following discussion in the current SA Plenary meeting, the requirement for Enhanced CSE capability for Dialed Services has been agreed for release 6 of CAMEL4. The enclosed CR to TS 22.078 as presented at SA WG1#18 (document S1-022246), included changes proposed by CN WG2, and was agreed pending email discussion and SA approval of the overall requirement. There has been extensive email discussion about the CR since SA WG1#18, but no changes have been proposed or made to the CR. The CR is therefore, presented to SA plenary for approval, in order to avoid further delay to the work, and its re-presentation at SA WG1 #19.

CR-Form-v7

## CHANGE REQUEST

⌘ **22.078 CR 151** ⌘ rev      ⌘ Current version: **5.8.0** ⌘

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

<b>Title:</b>	⌘ Enhanced CSE capability for Dialed Services		
<b>Source:</b>	⌘ Samsung Electronics Co. and SK Telecom		
<b>Work item code:</b>	⌘ CAMEL 4	<b>Date:</b>	⌘ 11/11/2002
<b>Category:</b>	⌘ <b>C</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>2</b>	(GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R96</b>	(Release 1996)
	<b>B</b> (addition of feature),	<b>R97</b>	(Release 1997)
	<b>C</b> (functional modification of feature)	<b>R98</b>	(Release 1998)
	<b>D</b> (editorial modification)	<b>R99</b>	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Rel-4</b>	(Release 4)
		<b>Rel-5</b>	(Release 5)
		<b>Rel-6</b>	(Release 6)

<b>Reason for change:</b>	⌘ Enhance CSE capability for Dialed Service is removed by requesting CN2. CN2 did not have a time for stage 3 specification work. But this capability is needed for control of charging in case of multiple services per one subscriber. SK Telecom and Samsung have a solution for this feature and would like to continue the related SA1 and CN2 works.
<b>Summary of change:</b>	⌘ Modifying 1., 5.3.2.2., 7, B.2.2.2
<b>Consequences if not approved:</b>	⌘ It will not be possible to charge for multiple services per one subscriber.

<b>Clauses affected:</b>	⌘										
<b>Other specs affected:</b>	<table border="1" style="border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Y	N	X						Other core specifications	⌘ TS 23.078, TS 29.078, TS 29.002, TS 23.008, TS 23.016, TS 23.018
Y	N										
X											
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

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# 1 Scope

This standard specifies the stage 1 description for the CAMEL feature (Customised Applications for Mobile network Enhanced Logic) which provides the mechanisms to support services consistently independently of the serving network. The CAMEL features shall facilitate service control of operator specific services external from the serving PLMN. The CAMEL feature is a network feature and not a supplementary service. It is a tool to help the network operator to provide the subscribers with the operator specific services even when roaming outside the HPLMN.

If an IPLMN or VPLMN supports CAMEL Phase 4, it shall also provide the functionality of all previous CAMEL phases.

Phase 4 network signalling shall support interworking with CAMEL Phases 3 and 2.

The CAMEL feature is applicable

- To mobile originated and mobile terminated call related activities;
- To supplementary service invocations;
- To SMS MO, to GPRS sessions and PDP contexts, to the control of HLR subscriber data, to the control of network signalling load.

The mechanism described addresses especially the need for information exchange among the VPLMN, HPLMN and the CAMEL Service Environment (CSE) for support of such operator specific services. Any user procedures for operator specific services are outside the scope of this standard.

This specification describes the interactions between the functions of the VPLMN, HPLMN, IPLMN and the CSE.

The second phase of CAMEL enhances the capabilities of phase 1 where the following capabilities have been added:

- Additional event detection points;
- Interaction between a user and a service using announcements, voice prompting and information collection via in band interaction or USSD interaction;
- Control of call duration and transfer of Advice of Charge Information to the mobile station;
- The CSE can be informed about the invocation of the supplementary services ECT, CD and MPTY;
- For easier post-processing, charging information from a serving node can be integrated in normal call records.

The third phase of CAMEL enhances the capabilities of phase 2. The following capabilities are added:

- Support of facilities to avoid overload;
- Capabilities to support Dialed Services;
- Capabilities to handle mobility events, such as (Not-)reachability and roaming;
- Control of GPRS sessions and PDP contexts;
- Control of mobile originating SMS through both circuit switched and packet switched serving network entities.
- Interworking with SoLSA. (Support of Localised Service Area). Support for this interworking is optional.
- The CSE can be informed about the invocation of the supplementary services CCBS.

Detailed information is given in the respective sections.

The fourth phase of CAMEL enhances the capabilities of phase 3. The following capabilities are added:

- CAMEL support for Optimal Routing of circuit-switched mobile-to-mobile calls;
- The capability for the CSE to create additional parties in an existing call;
- The capability for the CSE to create a new call unrelated to any other existing call;

- Capabilities for the enhanced handling of call party connections;
- ~~- The capability for the CSE to control sessions in the IP Multimedia Subsystem.~~
- Enhanced CSE capability for Dialed Services.

With CAMEL Phase 4, it is possible that only a limited subset of the new functionalities is supported, in addition to the complete support of CAMEL Phase 3.

## 5.3.2 Procedure for subscribed dialed services

The purpose of this procedure is to detect a call set-up request at the point where the called party number has been compared with the dialed services information, and allow the CSE to modify the handling of the call set-up request. Triggering of this procedure shall happen immediately after the procedure when dialed digits have been collected.

### 5.3.2.1 Initiation of contact with the CSE

If (according to the CSI):

- The subscriber is provisioned with a CAMEL based originating service; and
- The call set-up request occurs; and
- The criteria are satisfied.

Then the VPLMN/IPLMN shall suspend call processing, make contact with the CSE and await further instructions.

Contact with the CSE shall (if necessary) be made in this manner before network dialed services are invoked.

### 5.3.2.2 Further processing of the call

If a relationship exists with a CSE, then ~~When~~ when the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- Perform charging activities. The CSE is only allowed to ~~send e-values (refer to sect. 15.1, 'CSE controlled e-values')~~ and send e-values (refer to sect. 15.1, 'CSE controlled e-values') and include free format data in Call Data Records (refer to sect. 15.2, 'Inclusion in charging records of information received from the CSE');
- Order in-band user interaction. (Interaction between the service triggered from previous triggering may be needed to avoid duplicated guidance etc.).

Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Release the call;
- Continue the call processing;
- Continue the call processing with modified information~~;~~
- ~~— release the call.~~

If no relationship exists with a CSE for the call, then when the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- Perform charging activities, ~~except send of e-values~~;
- Activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:
  - The subsequent service event which shall be detected and reported:

- Called party alert;
- Called party connection;
- Call disconnection;
- Calling party abandon;
- Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer;
- Mid call event (DTMF or out of band information). The CSE shall specify the digit string(s) or the out of band information for which the instruction is valid. Out-band information may be detected during alerting phase of the call.
- The party in the call for which the event shall be detected and reported (calling or called party);
- 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:

- Allow the call processing to continue unchanged;
- Allow the call processing with modified information;
- Release the call.

Due to interworking problems, the service operator shall ensure that sending of e-values and call period control is not used by the other services in the same call of the served subscriber with *Enhanced CSE capability for Dialed Services*.

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## 7 Procedures for serving network dialled services

The purpose of this procedure is to detect a match between the called party number and a stored network service number at the call set-up request. It is to allow the CSE to modify the handling of the call set-up request. If this procedure is triggered it shall happen after processing of Subscribed Dialed Services triggered via the CSI. If any other CAMEL dialogue has changed the called party number then the modified called party number is used for conditional triggering check.

### 7.1 Initiation of contact with the CSE

If:

- The call set up request occurs, and
- The call set up request procedure is passed, and
- The PLMN is provisioned with network based service information

Then the VPLMN shall suspend call processing, make contact with the CSE and await further instructions.

### 7.2 Further processing of the call

If a relationship exists with a CSE, then when~~When~~ the serving network has made contact with the CSE, the CSE shall be able to instruct the serving network to act as described below:

- Release the call;
- Continue the call processing;

- Continue the call processing with modified information;
- Perform charging activities (the CSE is only allowed to include charging data in the Call Data Record);
- Order in-band user interaction. (Interaction between the service triggered from previous triggering may be needed to avoid duplicated guidance etc.)

If no relationship exists with a CSE for the call, then when the serving network has made contact with the CSE, the CSE shall be able to instruct the serving network to act as described below:

- Perform charging activities, ~~except send of e-values~~:
- Activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:
  - The subsequent service event which shall be detected and reported:
    - Called party alert;
    - Called party connection;
    - Call disconnection;
    - Calling party abandon;
    - Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer;
    - Mid call event (DTMF or out of band information). The CSE shall specify the digit string(s) or the out of band information for which the instruction is valid. Out-band information may be detected during alerting phase of the call.
  - The party in the call for which the event shall be detected and reported (calling or called party);
  - 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:

- Allow the call processing to continue unchanged;
- Allow the call processing with modified information;
- Release the call.

Due to interworking problems, the service operator shall ensure that sending of e-values and call period control is not used by the other services in the same call of the served subscriber with *Enhanced CSE capability for Dialed Services*.

Further processing of the call continues as detailed in Section 5.3, and the CSE contact initiated at this procedure is terminated.

## B.2.2.2 CSI criteria applicable at IPMM session setup after analysis of called identity

A CSI criterion on the contents of the called identity shall be defined for subscribed dialled services. A list of up to 10 called identities may be defined in the criterion. Each entry in the called identity list has associated with it a CSE identity and a service key which defines the service to be triggered if the criterion is satisfied.

If any other CAMEL dialogue has changed the called number, then the modified called identity shall be used for the conditional triggering check.

The called identity criterion is satisfied if the called identity matches a called identity string defined in the criterion.

The Enhanced dialled services is not applicable for the IMS.