

*3GPP TSG-CN2#15  
Paris, France  
13th – 17th November, 2000*

*Tdoc N2-000640*

**Title: Support of CAMEL phase 1 and/or CAMEL phase 2**  
**Source: TSG-CN2 (Vodafone)**  
**To: TSG-SA1**  
**Cc: TSG-CN**

**Contact Person:**

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**1. Overall Description:**

TSG-CN2 have discussed the following scenario:

An HPLMN offers an OSS using CAMEL phase 1. The HPLMN supports only CAMEL phase 1. When the subscriber roams to a network that does not support CAMEL, the service cannot be offered. When the subscriber roams to a network that does support CAMEL, the expectation is that the service can be offered to that subscriber. If the visited network supports CAMEL phase 2 only, then the CAMEL phase 1 service can not be offered to the subscriber.

It is not clear from the specifications whether this scenario can occur, as there is no explicit statement indicating that support of CAMEL phase 2 does or does not imply support of CAMEL phase 1.

TSG-CN2 have recognised two possible solutions to this:

- 1) Mandate in the specifications that an IPLMN or VPLMN supporting CAMEL phase 2 shall support CAMEL phase 1.
- 2) State clearly in the specifications that support of CAMEL phase 2 does not necessarily imply support of CAMEL phase 1.

The first option may cause more expense to an operator wishing to support CAMEL phase 2, as they would also need to purchase CAMEL phase 1. However the second option would require an operator wishing to offer CAMEL phase 1 services to subscribers when roaming in CAMEL phase 2 only networks to upgrade to CAMEL phase 2.

TSG-CN2 believes that option 1 is the best solution and the appropriate change requests to GSM 02.78 are attached.

TSG-CN2 realises that this problem strays beyond CAMEL phase 2 and we need to consider the solution for CAMEL phase 3 onwards. The same two options apply:

- 1) Mandate in the specifications that an IPLMN or VPLMN supporting CAMEL phase 'n' shall support all CAMEL phases up to and including 'n'.
- 2) State clearly in the specifications that support of CAMEL phase 'n' does not necessarily imply support of any CAMEL phase lower than 'n'.

The first option would mean that networks supporting CAMEL would always need to maintain CAMEL phase 1 functionality. However the second option could mean that a network supporting CAMEL could not offer their

CAMEL services on another network as they have no common CAMEL phase (one network could support phases 1 and 3, the other supporting phases 2 and 4).

**2. Actions:**

TSG-CN2 asks TSG-SA1 to endorse the decision that an IPLMN or VPLMN supporting CAMEL phase 2 shall also support CAMEL phase 1, and agree the attached change requests.

TSG-CN2 also asks TSG-SA1 for advice on the long-term solution to this problem.

**3. Attachments:**

**N2-000637**

**N2-000638**

**N2-000639**

## CHANGE REQUEST

**GSM 02.78 CR ???**

rev **-**

Current version: **6.4.0**

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

<b>Title:</b>	Support of CAMEL Phase 1 and 2		
<b>Source:</b>	Vodafone		
<b>Work item code:</b>	CAMEL2	<b>Date:</b>	13 <sup>th</sup> November 2000
<b>Category:</b>	<b>F</b>	<b>Release:</b>	R97
	<p><i>Use <u>one</u> of the following categories:</i></p> <p><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)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p><i>Use <u>one</u> of the following releases:</i></p> <p><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)</p>	

<b>Reason for change:</b>	It is unclear in the specifications whether a VPLMN or IPLMN can support CAMEL phase 2 without supporting CAMEL phase 1. The specifications do not explain the behaviour of entities if the IPLMN or VPLMN supports CAMEL phase 2 only and the HPLMN supports CAMEL phase 1 only.
<b>Summary of change:</b>	A VPLMN or IPLMN supporting CAMEL phase 2 shall also support CAMEL phase 1.
<b>Consequences if not approved:</b>	A CAMEL phase 1 service (e.g. prepay roaming) cannot be offered to a subscriber roaming in a VPLMN which supports CAMEL phase 2 but not CAMEL phase 1.

<b>Clauses affected:</b>	1	
<b>Other specs affected:</b>	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	GSM 02.78 R98 and 3G TS 22.078 R99
<b>Other comments:</b>		

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

# 1 Scope

The present document specifies the stage 1 description for the first and the second phase of 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.

CAMEL is developed in phases. The following phases exist:

- CAMEL phase 1. This is the default phase in the present document. Sections that are only applicable to phase 1 are characterised with the formal designator - \$(CAMEL1\$);
- CAMEL phase 2. It is characterised where necessary with the formal designation - \$(CAMEL2\$) and sometimes with an indication of CAMEL phase 2. - \$(CAMEL2\$).

A VPLMN or IPLMN supporting CAMEL phase 2 shall also support CAMEL phase 1. -\$(CAMEL2\$).

The CAMEL feature is applicable:

- to mobile originated and mobile terminated call related activities; and
- as a CAMEL phase 2 function, to supplementary service invocations - \$(CAMEL2\$).

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 the present document.

The present document describes the interactions between the functions of the VPLMN, HPLMN, IPLMN and the CSE.

The second phase of CAMEL enhance the capabilities of phase 1 and are included in the present document. Following new topics are added:

- new event detection points were defined;
- it is possible to interact with a user using announcements, voice prompting and information collection via in band interaction or USSD interaction;
- it is possible to control the call duration and to transfer e-values from a serving node to the mobile station;
- the CSE can be informed about the invocation of GSM supplementary services (ECT, CD, MPTY);
- for easy post processing, charging information from a serving node can be integrated in normal call records.

Detailed information can be found in the respective sections.

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

## CHANGE REQUEST

GSM 02.78 CR ??? rev - Current version: 7.0.0

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

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<b>Source:</b>	Vodafone		
<b>Work item code:</b>	CAMEL2		<b>Date:</b> 13 <sup>th</sup> November 2000
<b>Category:</b>	A		<b>Release:</b> R98
	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>	It is unclear in the specifications whether a VPLMN or IPLMN can support CAMEL phase 2 without supporting CAMEL phase 1. The specifications do not explain the behaviour of entities if the IPLMN or VPLMN supports CAMEL phase 2 only and the HPLMN supports CAMEL phase 1 only.
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The CAMEL feature is applicable

- to mobile originated and mobile terminated call related activities;
- and, as a CAMEL phase 2 function, to supplementary service invocations - \$(CAMEL2\$)

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- New event detection points were defined.
- It is possible to interact with a user using announcements, voice prompting and information collection via in band interaction or USSD interaction.
- It is possible to control the call duration and to transfer e-values from a serving node to the mobile station.
- The CSE can be informed about the invocation of GSM supplementary services (ECT, CD, MPTY).
- For easy post processing, charging information from a serving node can be integrated in normal call records.

Detailed information can be found in the respective sections.

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

## CHANGE REQUEST

3G TS 22.078 CR ??? rev - Current version: 3.5.0

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

<b>Title:</b>	Support of CAMEL Phase 1 and 2		
<b>Source:</b>	Vodafone		
<b>Work item code:</b>	CAMEL2	<b>Date:</b>	13 <sup>th</sup> November 2000
<b>Category:</b>	A	<b>Release:</b>	R99
	Use <u>one</u> 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 <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>	It is unclear in the specifications whether a VPLMN or IPLMN can support CAMEL phase 2 without supporting CAMEL phase 1. The specifications do not explain the behaviour of entities if the IPLMN or VPLMN supports CAMEL phase 2 only and the HPLMN supports CAMEL phase 1 only.
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<b>Other comments:</b>		

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# 1 Scope

This standard specifies the stage 1 description for 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.

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- CAMEL phase 3. It is characterised where necessary with the formal designation - \$(CAMEL3\$) and sometimes with an indication of CAMEL phase 2. - \$(CAMEL3\$)

A VPLMN or IPLMN supporting CAMEL phase 2 shall also support CAMEL phase 1. -\$(CAMEL2\$).

The CAMEL feature is applicable

- to mobile originated and mobile terminated call related activities;
- as a CAMEL phase 2 function, to supplementary service invocations - \$(CAMEL2\$);
- as a CAMEL Phase 3 function, to SMS MO, to GPRS sessions and PDP contexts, to the control of HLR subscriber data, to the control of network signalling load - \$(CAMEL3\$).

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 enhance the capabilities of phase 1 and are included in this standard. Following capabilities are added:

- Additional event detection points.
- Interaction between a user and 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 supplementary services (e.g ECT, CD, MPTY).
- For easy postprocessing, charging information from a serving node can be integrated in normal call records.

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

- Support of facilities to avoid overload situations.
- 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 circuit switched mobile originating SMS and packet switched mobile originating SMS.



- Support of SoLSA. Support of Localised Service Area interworking is an optional feature. - \$(CAMEL3\$)
- The CSE can be informed about the invocation of GSM supplementary services (CCBS) - \$(CAMEL3\$)

Detailed information can be found in the respective sections.

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