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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Foreword

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Introduction

Unlike earlier releases of this document, no markers are used to indicate the changes from the previous CAMEL release, namely, CAMEL Phase 3 Release 99.

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.
- The capability to report basic service changes during ongoing call.
- The CSE capability to select between preferred and less preferred bearer service.
- The capability for the CSE to control trunk originated calls.
- The capability for the CSE to request additional dialed digits.

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.

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) ".
- [11] 3GPP TS 22.228: "Service Requirements for IP multimedia Core Network; (Stage1) ".
- [12] 3GPP TS 23.228: "IP Multimedia (IM) Subsystem - Stage 2".
- [13] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [14] 3GPP TS 23.172: "Technical realization of Circuit Switched (CS); multimedia service; UDI/RDI fallback and service modification; stage 2".