

Improve your IN/CAMEL test strategy!



CAMEL is the keyword for intelligent service roaming within GSM, GPRS and UMTS networks.

For the differentiation of mobile market competitors, the IN services play a major role. Above all, the customers demand roaming as they want to use the subscribed services across international borders. Especially the prepaid service, which drives the expansion of the market. Therefore, network operators are required to quickly introduce international roaming for prepaid customers.

SIGOS offers you a fully automated IN/CAMEL test system for

- ▶ preparing your own network for Camel roaming requirements
- ▶ End2End testing with real roaming partners
- ▶ preparing your IN platform (SSP, SCP)

Features

- ▶ Automatic test execution of CAMEL (CAP) conformance and service tests
- ▶ Support of CAMEL Phase 1, 2 and 3
- ▶ Fully automated IR.32 test suite (Phase 1 and 2)
- ▶ Complete simulation of visited PLMN for outbound roaming tests
- ▶ Central SIM Multiplexer: infinite number of SIM cards can be managed
- ▶ Support of INAP CS1 and CS2
- ▶ Complete simulation of home PLMN for inbound roaming tests
- ▶ Distributed test architecture for End2End testing for outbound and inbound roaming
- ▶ Parallel simulation of all essential protocols: CAP, INAP, MAP, ISUP, U_m
- ▶ Complete protocol library for decoding SCCP/TCAP/CAP/INAP/MAP/ISUP messages

Testing of IN/CAMEL in the GSM-GPRS-ISDN network environment

The introduction of IN or CAMEL based services affects various interfaces of the network. In order to reduce the implementation risks of services, all involved components have to be tested on the related internal interfaces of the network. For this kind of core network protocol tests, the simulation of several components is necessary.

Figure 1 points out which interfaces and network components shall be tested for introducing the IN or CAMEL services.

According to the network architecture drawn in figure 1 SIGOS has developed test scenarios for tests on all relevant interfaces adjacent to the GSM/GPRS/ISDN core networks. This kind of tests allow the vendor or network provider to test either single network components or their own network without any real connection to other networks.

The SITE Test Platform offers simulation and tests of IN/CAMEL on the interfaces GSM/GPRS-Um, ISDN-So, ISDN-ISUP, GSM-MAP (3), GSM-A, GPRS-Gb, CAP and INAP.

The same test system can be used for End2End service testing in GSM/GPRS/ISDN networks; then the services are triggered on different locations in the network. This kind of service test is used for monitoring the quality of service in the networks (see figure 2 ref the next page).

Core network protocol tests with SITE

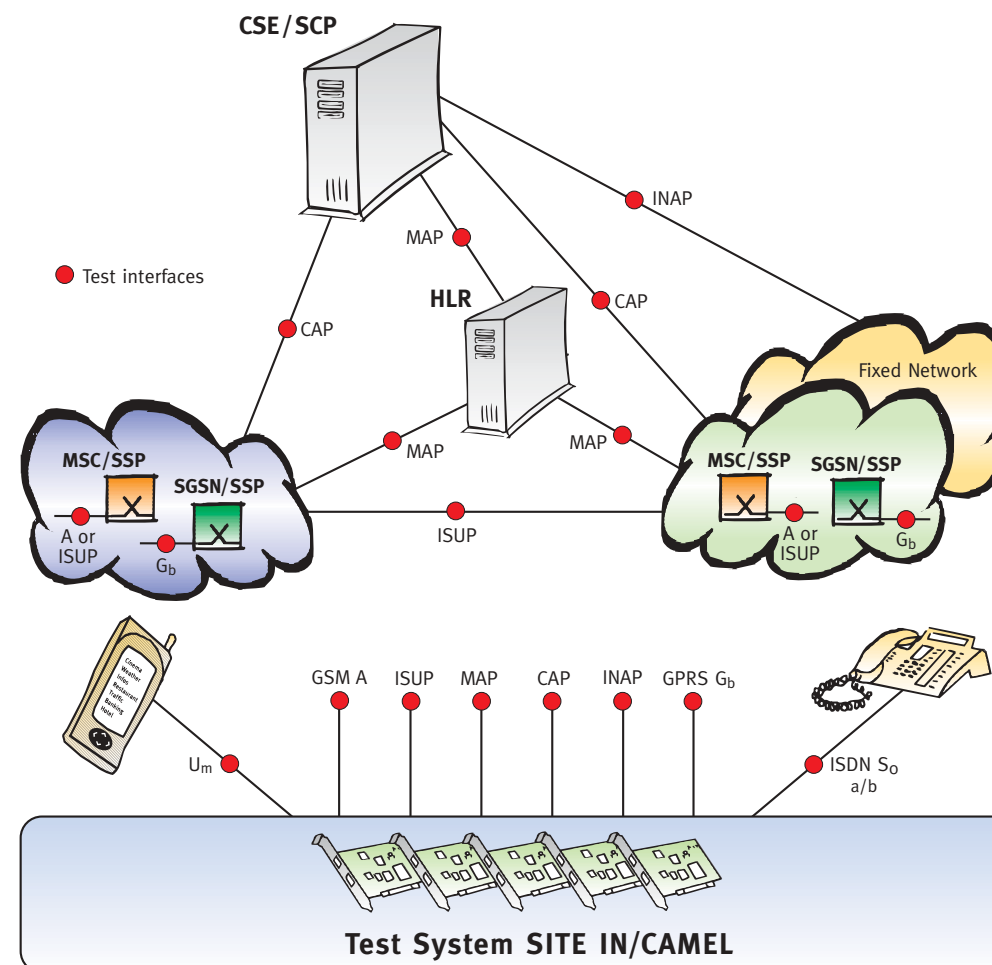


Figure 1

Test Scenarios for IN/CAMEL tests used by SIGOS

CAP Test Cases (TCs) - CAMEL Phase 1

- ▶ 42 TCs based on IR.32 for CAMEL Phase 1
- ▶ 59 TCs for rerouting service CAMEL Phase 1

CAP Test Cases (TCs) - CAMEL Phase 2

- ▶ 90 TCs based on IR.32 for CAMEL Phase 2

Tests on MAP (3)

- ▶ Test cases for MAP supporting IN/CAMEL services

INAP Test Cases (TCs)

- ▶ 98 TCs for SSP Conformance Tests according to ETSI 300 374-4
- ▶ 62 TCs for SCP Conformance Tests based on ETSI 300 374-4

Tests for IN / CAMEL specific services

- ▶ Prepaid, Local Based Services, Number Portability, Carrier Pre Selection, etc.

For further information, please visit: www.sigos.de

Your benefits

- ▶ Reducing of testing effort for IN/CAMEL tests
- ▶ Preparation of the own network components for inbound and outbound roaming (SCP and SSP with high quality)
- ▶ Simulation of the complete foreign PLMN at CAP, INAP, MAP, ISUP for inbound and outbound roaming
- ▶ Full test system control for simulation of end-user behaviour at U_m
- ▶ No real roaming partner's network required
- ▶ Excluding protocol problems before End2End tests
- ▶ Automated re-execution for regression tests
- ▶ Full automated IR.32 tests





Automated End2End Roaming Tests for CAMEL Phase 1, 2 and 3

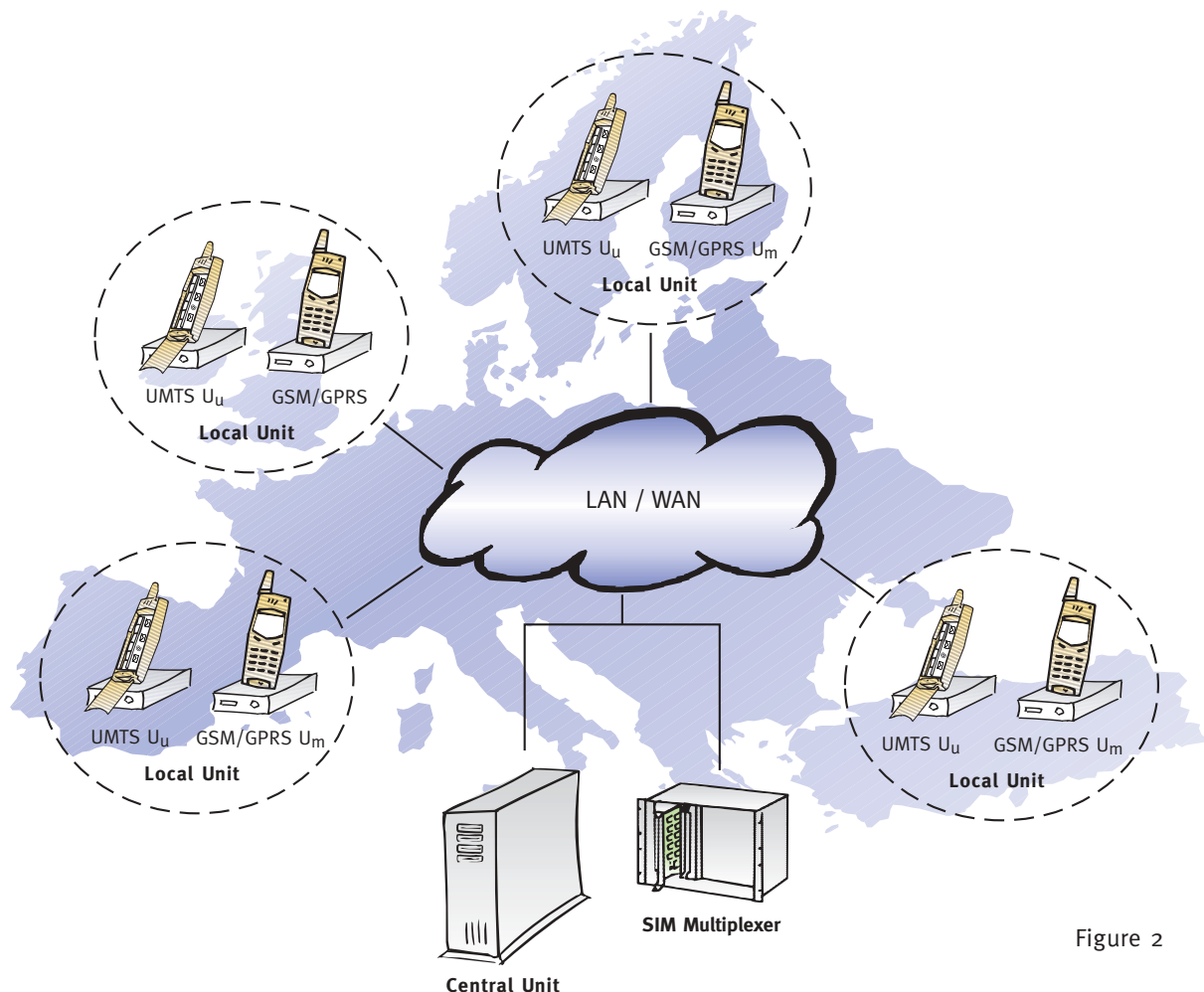


Figure 2

Your benefits

- ▶ Automated testing: avoid time and money consuming manual tests
- ▶ Increase reliability of the GSM and UMTS networks → ARPU
- ▶ Increase customer satisfaction
- ▶ SQM: monitoring and measuring of service availability and quality → Ensuring SLAs with precise KPIs
- ▶ Scalable architecture: from stand alone to widely distributed systems
- ▶ Central SIM Multiplexing → No "SIM card traveling"
- ▶ Quick detection of problems due to parallel testing at any time